

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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**The International
Seismological Summary.
1952 October, November, December.**

INTERNATIONAL GEODETIC AND GEOPHYSICAL UNION.
ASSOCIATION OF SEISMOLOGY.
FORMERLY THE BULLETIN OF
THE BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

The Director of the I.S.S. wishes to express his thanks to U.N.E.S.C.O. and H.M. Treasury for financial support, which has covered the cost and preparation of this volume.

The last quarter for 1952 contains 434 epicentres, 341 of which are repetitions from previous epicentres. 141 have been attributed to abnormal focal depth.

Thanks are also due to the Director of the Meteorological Office and the Superintendent of Kew Observatory for hospitality extended to the staff and assistance with the administration.

October, 1960.

KEW OBSERVATORY,
Richmond,
SURREY.

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1952

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1952 OCTOBER, NOVEMBER, DECEMBER.

Oct. 1d. 1h. 47m. 5s. (I)
1h. 53m. 34s. (II)

Epicentre 49°·0N. 129°·0W.
(as on 1951, September 27d.).

A = -·4145, B = -·5118, C = +·7525; $\delta = +1$; $h = -5$;
D = -·777, E = +·629; G = -·474, H = -·585, K = -·659.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
				m.	s.	s.	m.	s.	m.	s.	m.	
I Albarni		2·8	84	0	45	- 2	—	—	—	—	—	—
II		2·8	84	0	46	- 1	—	—	—	—	—	—
I Victoria		3·7	97	0	56	- 4	—	—	—	—	—	—
II		3·7	97	0	57	- 3	—	—	—	—	—	—
II Horseshoe Bay		3·8	82	1	0	- 1	—	—	—	—	—	—
I Corvallis	Z.	5·9	136	i 1	30	- 1	—	—	—	—	—	—
II	Z.	5·9	136	i 0	30	-61	—	—	—	—	—	—
I Shasta		9·5	148	e 2	21	+ 1	—	—	—	—	—	—
II		9·5	148	e 2	21	+ 1	e 4	20	+10	—	—	—
I Hungry Horse		9·9	88	e 2	25	0	—	—	—	e 2	29	P
II		9·9	88	e 2	25	0	—	—	—	—	—	e 5·2
II Butte		11·5	99	e 2	47	- 1	—	—	—	—	—	—
I Reno	Z.	11·6	142	e 2	49	- 1	—	—	—	—	—	—
II	Z.	11·6	142	e 3	0	+10	—	—	—	—	—	—
I Berkeley	N.	12·1	154	e 4	34	?	—	—	—	—	—	—
II	Z.	12·1	154	e 2	55 _a	- 2	—	—	—	—	—	—
I Lick	Z.	12·8	153	e 3	3	- 3	—	—	—	—	—	—
II	Z.	12·8	153	e 3	5 _a	- 1	—	—	—	—	—	—
I Fresno	Z.	14·0	148	e 3	21	- 1	—	—	—	—	—	—
II	Z.	14·0	148	e 3	21 _a	- 1	—	—	—	—	—	—
I Tinemaha	Z.	14·2	143	e 3	25	+ 1	—	—	—	e 3	33	?
II	Z.	14·2	143	e 3	26	+ 2	e 3	56	?	e 3	37	?
I China Lake	Z.	15·6	143	e 3	42	- 1	—	—	—	—	—	—
II	Z.	15·6	143	e 3	43	0	—	—	—	e 3	48	?
I Boulder City		16·7	136	e 3	57	0	—	—	—	—	—	—
II		16·7	136	e 3	58	+ 1	—	—	—	—	—	—
I Nelson		16·9	137	e 4	1	+ 2	—	—	—	—	—	—
II		16·9	137	e 4	56	+57	—	—	—	—	—	—
I Pasadena		16·9	148	e 4	3	+ 4	—	—	—	—	—	—
II		16·9	148	i 4	0	+ 1	14	6	?	14	22	?
I Riverside	Z.	17·3	146	e 4	6	+ 2	—	—	—	e 4	9	?
II	Z.	17·3	146	e 4	5	+ 1	—	—	—	e 4	13	?
I College		18·8	336	e 4	19	- 4	—	—	—	—	—	—
II		18·8	336	i 4	20	- 3	—	—	—	—	—	—
I Tucson		21·6	134	e 4	57	+ 3	—	—	—	—	—	—
II		21·6	134	e 4	52	- 2	—	—	—	—	—	—
I Fayetteville	Z.	28·5	103	e 5	56	- 3	—	—	—	—	—	—
II	Z.	28·5	103	i 5	56	- 3	—	—	—	—	—	—

Oct. 1d. 7h. 49m. 5s. Epicentre 3°·0N. 65°·7E.

A = +·4110, B = +·9102, C = +·0520; $\delta = +9$; $h = +7$;
D = +·911, E = -·412; G = +·021, H = +·047, K = -·999.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
				m.	s.	s.	m.	s.	m.	s.	m.	
Kodaikanal	E.	13·7	58	i 3	24	+ 6	i 6	46	SSS	—	—	—
Colombo	E.	14·6	74	3	30	0	7	0	SSS	—	—	e 8·6
Bombay		17·3	23	i 4	2	- 2	e 8	30	SSS	—	—	i 14·8
Poona	Z.	17·3	27	e 4	2	- 2	8	2	SSS	4	22	PP
Madras	E.	17·4	54	i 4	0	- 6	i 7	50	SS	15	8	ScS
Hyderabad	E.	19·0	39	i 4	16	-10	i 8	16	SS	—	—	10·0
Quetta		27·1	3	i 5	49	+ 3	e 10	29	+ 5	—	—	13·9
New Delhi	N.	27·7	21	e 5	51	- 1	—	—	—	e 6	14	PP
Chatra		31·4	37	—	—	—	i 11	24	- 8	—	—	e 15·7
Shillong	E.	33·7	43	e 6	44	- 1	e 13	10	SS	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Bairam-Ali	34.6	356	i 6 54	+ 1	—	—	—	—
Khorog	34.7	8	6 56	+ 2	i 12 30	+ 6	—	—
Kulyab	34.9	5	6 58	+ 3	12 33	+ 6	—	—
Ashkabad	35.4	350	i 7 3	+ 3	—	—	—	—
Stalinabad	35.5	4	e 7 1	+ 1	e 12 41	+ 5	—	—
Obi-garm	35.7	5	i 7 4	+ 2	e 12 48	+ 9	—	—
Dzhergetal	36.4	7	—	—	e 12 44	- 6	—	—
Samarkand	36.5	1	7 20	+11	—	—	—	—
Andijan	38.1	8	i 7 22	0	i 13 22	+ 6	—	—
Namangan	38.2	7	i 7 24	+ 1	i 13 19	+ 2	—	—
Tchimkent	39.3	4	i 7 33	+ 1	i 13 39	+ 5	—	—
Naryn	39.4	12	e 7 32	- 1	—	—	—	—
Baku	39.9	340	e 7 41	+ 4	e 13 55	+12	—	—
Goris	40.4	337	e 7 44	+ 3	e 14 0	+10	—	—
Rybach'e	40.4	11	i 7 41	0	e 13 57	+ 7	—	—
Frunse	40.5	9	i 7 43	+ 1	i 13 59	+ 7	—	—
Shemakla	40.5	339	i 7 46	+ 4	—	—	—	—
Przhevsk	40.9	13	e 7 47	+ 1	—	—	—	—
Almata	41.3	12	i 7 49	0	i 14 8	+ 4	—	—
Almata II	41.4	12	e 7 51	+ 1	—	—	—	—
Kirovobad	41.4	337	i 7 52	+ 2	—	—	—	—
Ksara	41.4	320	i 7 53	+ 3	14 31	PPS	9 29	PP
Erevan	41.7	335	i 7 53	+ 1	14 20	PPS	—	—
Djakarta	42.1	103	e 7 55 _a	0	e 11 14	?	i 10 26	PPP
Helwan	z. 42.1	312	i 7 58	+ 3	e 8 55	?	i 9 37	PP
Leninakan	42.5	335	e 8 3	+ 4	—	—	—	—
Tifis	42.9	336	i 8 3	+ 1	i 14 35	+ 8	—	—
Bandong	43.0	103	i 8 10	+ 7	e 14 30	+ 1	19 47	PP
Makhach-Kala	43.0	340	i 8 5	+ 2	—	—	—	—
Gori	43.4	335	e 8 5	- 1	—	—	—	—
Borzhomi	43.5	335	i 8 9	+ 2	14 45	PPS	—	—
Grozny	43.9	339	i 8 13	+ 3	—	—	—	—
Zugdidi	44.7	334	8 20	+ 4	—	—	—	—
Piatigorsk	45.5	337	8 24	+ 1	i 15 12	+ 7	—	—
Semipalatinsk	48.8	13	e 8 47	- 2	—	—	—	—
Theodosia	49.6	332	e 8 55?	0	e 16 12?	+ 9	—	—
Yalta	49.8	330	i 8 57	+ 1	e 16 9	+ 3	—	—
Simferopol	50.2	330	i 8 59	- 1	—	—	—	—
Hong Kong	50.8	63	e 14 25	PcS	—	—	14 57	?
Sverdlovsk	53.8	356	i 9 26	0	e 17 1	0	—	—
Kishinev	54.2	329	i 9 28	- 1	—	—	—	—
Manila	55.7	73	i 9 40	0	i 14 3	PcS	—	—
Moscow	57.2	342	9 50	- 1	—	—	—	—
Nanking	57.5	53	e 9 50 _k	- 3	e 14 32	PcS	—	—
Kyakhta	58.4	28	e 9 57	- 3	—	—	—	—
Lwow	58.5	330	e 10 0	0	—	—	—	—
Irkutsk	58.6	26	e 10 1	0	—	—	—	—
Uzhgorod	58.7	328	e 10 2	0	—	—	—	—
Zò-Sè	z. 59.2	54	10 5	0	e 15 0	PcS	—	—
Tamanrasset	z. 61.4	294	e 10 18	- 2	e 19 12	+32	e 10 52	PcP
Triest	62.0	321	e 10 20	- 4	e 18 0	-48	e 11 1	PcP
Pulkovo	62.8	340	e 10 29	- 1	—	—	—	—
Collmberg	z. 65.1	326	e 10 44	- 1	—	—	—	—
Algiers Univ.	z. 66.5	308	i 10 56 _k	+ 2	—	—	e 11 40	PcP
Upsala	z. 67.6	335	e 10 55?	- 6	—	—	i 11 5	PcP
Vladivostok	70.7	45	e 11 14	- 6	—	—	—	—
Kiruna	71.7	343	i 11 24	- 2	e 20 45	0	e 14 21	PP
Yuzno-Sakhlinsk	79.0	42	e 12 4	- 3	—	—	—	e 34.9
Victoria	128.1	7	21 34	PP	—	—	—	—
Tinemaha	z. 139.9	4	e 19 33	[+ 3]	—	—	—	—
China Lake	z. 141.3	3	e 19 31	[- 2]	—	—	—	—
Pasadena	z. 142.9	4	e 19 33	[- 3]	—	—	e 22 45	PP
Riverside	z. 143.1	4	e 19 35	[- 1]	—	—	e 19 53	?

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1952

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Oct. 1d. 8h. 53m. 48s. Epicentre 48°·0S. 100°·0E. (as on 1942, August 1d.).

A = -·1166, B = +·6614, C = -·7409; δ = -2; h = -5;
D = +·985, E = +·174; G = +·129, H = -·730, K = -·672.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Perth	20·0	43	—	—	i 8 12	- 5	—	i 9·5
Melbourne	34·0	88	—	—	i 12 14	+ 1	—	e 16·2
Riverview	40·4	88	i 7 41k	0	i 13 53	+ 3	16 53	SS e 19·3
Bandong	41·5	11	e 7 56	+ 6	—	—	—	e 19·2
Djakarta	42·1	9	e 7 56 _a	+ 1	e 14 12	- 4	i 9 45	PP e 20·5
Brisbane	45·7	83	e 8 22	- 2	i 14 57	-11	e 18 18	SS —
Christchurch	49·1	113	—	—	e 21 16	SSS	—	e 24·3
Tananarive	51·2	285	—	—	e 16 25	0	e 20 26	SS —
Wellington	51·7	111	—	—	e 22 12	SSS	—	e 26·3
Auckland	N. 54·3	107	—	—	e 23 30	?	i 24 41	?
Colombo	57·5	335	17 47	S	(17 47)	- 3	—	—
Pretoria	Z. 59·4	264	i 10 8	+ 2	—	—	—	—
Kimberley	Z. 59·7	260	i 10 9	0	—	—	—	—
Kodaikanal	E. 61·3	334	e 15 29	?	—	—	—	—
Poona	70·2	333	e 11 11	- 6	e 23 42	?	—	e 28·7
Hong Kong	71·1	13	—	—	e 20 34	- 4	—	—
Quetta	Z. 83·3	331	i 12 28	- 2	—	—	—	—
La Plata	95·1	199	—	—	e 31 18	SS	40 54	Q 45·5
Helwan	Z. 98·9	304	e 21 14	?	e 32 34	SS	—	—
Ksara	99·6	309	e 18 18	PP	e 27 28	PPS	—	—
Tamanrasset	Z. 109·5	283	e 19 8	PP	e 32 13	?	e 37 45	SSS e 47·2
Messina	E. 113·9	302	—	—	e 32 1	?	—	e 62·0
La Paz	114·9	193	e 7 22	?	e 13 24	?	i 20 5	PP 58·9
Kiruna	129·7	331	i 19 9	[- 2]	e 32 19	PPS	e 39 1	SSP e 60·2
Berkeley	147·8	92	e 19 47	[+ 3]	—	—	e 60 12	Q e 70·2
Lick	Z. 147·9	92	e 19 47	[+ 3]	e 19 53	PKP ₂	e 21 4	?
Pasadena	148·4	101	e 19 48	[+ 3]	i 19 54	PKP ₂	e 20 38	?
Mount Wilson	Z. 148·5	101	—	—	e 41 41	SS	—	e 69·2
Riverside	Z. 148·8	101	e 19 50	[+ 5]	e 41 44	SS	i 19 58	?
Fresno	Z. 148·9	96	e 19 50	[+ 4]	—	—	—	—
Shasta	149·1	87	e 19 50	[+ 4]	—	—	e 19 54	?
China Lake	Z. 149·8	99	e 19 53	[+ 6]	—	—	e 41 43	SS —
Tinemaha	Z. 150·1	97	e 19 53	[+ 5]	e 41 47	SS	e 20 2	?
Reno	150·3	91	e 19 54	[+ 6]	—	—	e 20 22	?
Victoria	151·4	72	19 51	[+ 1]	—	—	—	—

Oct. 1d. 13h. 21m. 10s. Epicentre 36°·2N. 92°·0E.

A = -·0282, B = +·8084, C = +·5880; δ = +5; h = 0;
D = +·999, E = +·035; G = -·021, H = +·588, K = -·809.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Chatra	10·2	205	i 2 30	- 1	—	—	e 2 44	PPP e 5·8
Shillong	E. 10·6	181	e 2 44	+ 8	e 4 59	+22	—	e 5·8
Calcutta	E. 14·0	194	e 6 12	S	(e 6 12)	+13	e 7 11	? 7·8
New Delhi	14·6	243	e 3 28	- 2	e 6 16	+ 3	i 6 34	SS —
Quetta	21·7	261	i 4 55	0	e 9 1	+10	—	— 10·8
Hyderabad	N. 22·2	216	e 4 57	- 3	e 9 6	+ 6	—	—
Nanking	22·5	93	i 4 59k	- 3	i 9 12	+ 7	—	—
Hong Kong	23·7	119	e 5 20	+ 6	e 9 28	+ 1	—	e 12·0
Poona	23·8	227	i 5 15	0	e 9 39	+11	5 33	PP —
Bombay	24·1	230	i 5 20	+ 2	i 9 47	+13	6 1	PP 11·8
Zô-Sè	Z. 24·8	92	i 5 25k	0	9 56	+10	—	—
Madras	E. 25·4	209	i 5 33	+ 2	e 10 11	+15	6 23	PP 12·8
Ksara	45·5	284	e 8 26	+ 3	—	—	e 8 54	?
Istanbul	Z. 48·5	296	e 8 48	+ 2	—	—	—	—
Kiruna	50·1	332	i 8 59	0	e 16 15	+ 5	i 10 55	PP e 23·8
Upsala	51·9	322	i 9 12	0	—	—	i 11 10	PP e 25·8
Athens	53·4	293	e 9 24 _a	0	—	—	—	—
Jena	57·3	312	e 9 53	+ 1	—	—	e 10 18	?
Stuttgart	59·5	311	e 10 7	0	—	—	—	e 32·8
Tamanrasset	Z. 74·2	287	e 11 40	0	e 14 31	PP	e 11 56	PcP —
Victoria	90·0	23	13 0	- 3	—	—	—	—

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1952

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Oct. 2d. 3h. 10m. 17s. Epicentre 42°·1N. 143°·5E. Depth of focus 0·005.
(as on 1952, June 3d.).

Intensity VI at Meguro and Ogihusi; V at Urakawa, Obihiro, Misono, Kamibisei, and Akan; IV at Kusiro, Hatinohe, and Biratori. Epicentre 42°·2N. 143°·2E. Depth 40-50km. Macro seismic radius >300km.

Seismo. Bull. of Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 381, with macro seismic chart.

$$A = -.5982, B = +.4427, C = +.6679; \quad \delta = -8; \quad h = -2;$$

$$D = +.595, E = +.804; \quad G = -.537, H = +.397, K = -.744.$$

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.	
				m.	s.		m.	s.		m.	s.
Urakawa		0·5	276	i 0	11 _a	- 2	0 17	- 6	—	—	—
Obihiro		0·8	345	e 0	16	- 1	0 26	- 3	—	—	—
Kusiro		1·1	37	i 0	21	+ 1	0 36	0	—	—	—
Asahigawa		1·9	334	e 0	27	- 4	0 48	- 6	—	—	—
Sapporo		1·9	301	i 0	26 _k	- 5	0 45	- 9	—	—	—
Nemuro		2·0	51	e 0	35	+ 3	0 58	+ 1	—	—	—
Abashiri		2·0	16	0	32	0	0 54	- 3	—	—	—
Hakodate		2·1	261	0	30	- 4	0 50	- 9	—	—	—
Hatinohe		2·2	223	0	35	0	1 0	- 2	—	—	—
Mori		2·2	270	0	32	- 3	0 56	- 6	—	—	—
Aomori	z.	2·4	238	i 0	37 _a	- 1	1 5	- 2	—	—	—
Miyako		2·7	205	e 0	42	0	1 13	- 1	—	—	—
Morioka		3·0	217	i 0	45 _a	- 2	1 18	- 4	—	—	—
Akita		3·5	229	e 0	54	0	1 33	- 1	—	—	—
Mizusawa		3·5	213	0	54	0	1 36	+ 2	—	—	—
Isinomaki		4·0	205	e 1	0	- 1	1 37	-10	—	—	—
Sakata		4·3	222	e 0	46	-19	—	—	—	—	—
Sendai		4·3	209	e 1	5	0	1 57	+ 3	—	—	—
Yamagata		4·5	213	e 1	7	0	1 59	0	—	—	—
Hokusima		4·9	210	e 1	14	+ 1	2 10	+ 1	—	—	—
Niigata		5·4	221	e 1	35	+15	—	—	—	—	—
Onabama		5·5	201	e 1	25	+ 4	2 21	- 3	—	—	—
Shirakawa		5·6	208	e 1	23	0	2 24	- 3	—	—	—
Aikawa		5·7	227	1	22	- 2	2 24	- 5	—	—	—
Utunomiya		6·2	208	e 1	31	0	2 38	- 3	—	—	—
Maebasi		6·6	213	e 1	38	+ 1	2 51	0	—	—	—
Kumagaya		6·7	210	e 1	42	+ 4	2 52	- 2	—	—	—
Matusiro		6·9	218	—	—	—	e 2 34	-25	—	—	—
Oiwake		6·9	215	e 1	35	- 6	—	—	—	—	—
Tokyo	N.	7·0	206	e 1	47	+ 5	2 57	- 4	—	—	—
Toyama	z.	7·3	224	1	46	0	—	—	—	—	—
Misima		7·8	209	e 1	56	+ 3	3 19	- 2	—	—	—
Osima		8·0	205	e 1	52	- 4	3 16	-10	—	—	—
Nagoya		8·6	219	e 2	4	0	3 57	+16	—	—	—
Kameyama	N.	9·1	220	e 2	14	+ 3	3 53	0	—	—	—
Kyoto		9·3	223	e 2	7	- 7	—	—	—	—	—
College		44·0	35	i 8	1	- 2	—	—	—	—	—
Chatra	z.	48·0	271	i 8	34	0	—	—	—	—	—
Resolute Bay	z.	57·3	16	i 9	42 _k	- 2	—	—	—	—	—
Kiruna	z.	62·4	339	i 10	13 _a	- 5	—	—	—	—	—
Shasta	z.	66·8	55	e 10	47	0	—	—	—	—	—
Hungry Horse		67·0	44	i 10	48	0	—	—	—	—	—
Mineral	z.	67·5	55	i 10	52	+ 1	—	—	—	—	—
Reno	z.	69·1	55	e 11	6	+ 5	—	—	—	—	—
Tinemaha	z.	71·6	57	e 11	17	+ 1	—	—	—	—	—
China Lake	z.	72·8	56	e 11	24	+ 1	—	—	e 11 38	pP	—
Pasadena	z.	73·5	59	e 11	28	0	—	—	e 11 45	pP	—
Riverside	z.	74·1	59	e 11	31	0	—	—	—	—	—
Boulder City		74·4	56	i 11	34	+ 1	—	—	—	—	—
Nelson		74·6	56	i 11	34	0	—	—	—	—	—
Collmberg	z.	77·5	331	e 11	47	- 3	—	—	e 12 10	pP	—
Jena	z.	78·3	331	e 11	51	- 4	—	—	e 12 10	pP	—
Tucson		79·4	56	e 12	2	+ 1	—	—	—	—	—
Stuttgart		81·0	331	e 12	6	- 3	—	—	—	—	—
Fayetteville	z.	86·0	43	i 12	35	0	—	—	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.
	°	°	m. s.	s.	m. s.	s.	m. s.
Morgantown	89.6	32	i 12 52	0	—	—	—
Harvard	90.0	28	i 12 53k	-1	—	—	—
Weston	90.2	28	i 11 55k	-60	—	—	—
Tamanrasset	z. 104.7	319	17 6	?	—	—	—
Pretoria	z. 125.1	266	i 18 55	[+ 2]	—	—	—

Oct. 2d. 13h. 3m. 52s. Epicentre 18°4S. 177°7W. (as on 1952, April 15d.).

A = -0.9487, B = -0.0381, C = -0.3137; δ = -11; h = +5;
D = -0.040, E = +0.999; G = +0.313, H = +0.013, K = -0.950.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Auckland	N. 19.6	198	i 4 33	+ 1	(e 8 8)	0	—	e 8.1
Karapiro	N. 20.3	196	—	—	e 9 8	SSS	—	—
Wellington	23.7	195	—	—	e 8 13	?	—	e 10.8
Riverview	N. 31.8	234	—	—	e 11 37	- 1	—	e 14.1
Berkeley	76.4	43	e 11 52	- 1	e 21 47	+ 9	e 32 38	Q e 33.1
Lick	z. 76.5	43	e 11 54k	0	—	—	—	—
Pasadena	z. 77.1	47	e 11 54	- 3	—	—	—	—
Fresno	z. 77.4	44	e 11 57k	- 1	—	—	—	—
Riverside	z. 77.5	47	e 11 58	- 1	—	—	—	—
Shasta	z. 78.0	40	e 12 4a	+ 2	—	—	—	—
Mineral	z. 78.3	41	e 12 8k	+ 5	—	—	—	—
China Lake	z. 78.4	46	e 12 2	- 2	—	—	—	—
Tinemaha	z. 78.6	45	e 12 6	+ 1	—	—	—	—
Reno	z. 79.0	42	e 12 8a	+ 1	—	—	—	—
Copenhagen	142.0	352	e 19 38	[+ 4]	(46 8)	SSS	—	46.1
Witteveen	z. 145.5	357	e 19 46	[+ 6]	—	—	—	—
Collmberg	z. 146.1	349	e 19 48	[+ 7]	—	—	e 19 52	PKP ₂
Ksara	146.3	303	i 19 52k	PKP ₂	—	—	e 23 28	PP
Jena	146.7	350	e 19 47?	[+ 5]	e 19 51	PKP ₂	e 20 40	?
Prague	146.9	347	e 19 50	[+ 8]	e 20 1	PKP ₂	e 20 38	?
Istanbul	z. 147.8	322	e 19 54	PKP ₂	—	—	—	—
Stuttgart	149.2	352	e 19 49	[+ 3]	—	—	e 19 56	PKP ₂
Helwan	z. 151.2	298	i 20 17	PKP ₂	e 20 55	?	e 23 56	PP
Triest	z. 151.2	344	e 19 52	[+ 3]	—	—	e 20 37	?
Granada	160.6	15	20 26a	PKP ₂	—	—	—	—
Malaga	160.8	16	i 20 1	[- 1]	i 26 55	[-10]	i 25 33	?
Tamanrasset	z. 174.7	—	e 20 7	[- 4]	i 22 4	PKP ₂	i 25 57	PP

Oct. 3d. 2h. 53m. 40s. Epicentre 39°5N. 71°1E. (as on 1952, September 11d.).

A = +0.2506, B = +0.7320, C = +0.6335; δ = -5; h = +1;
D = +0.946, E = -0.324; G = +0.205, H = +0.599, K = -0.774.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.
	°	°	m. s.	s.	m. s.	s.	m. s.
Dzhergetal	0.3	162	e 0 6	0 _g	—	—	—
Garm	0.8	231	i 0 14	- 2 _g	e 0 23	- 3 _g	—
Fergana	1.0	31	i 0 23	+ 2	e 0 40	+ 4	—
Obi-garm	1.4	234	i 0 23	- 4*	e 0 39	- 7	—
Andijan	1.6	38	i 0 35	+ 3 _g	i 0 58	+ 5 _g	—
Namangan	1.6	16	e 0 35	+ 3 _g	i 1 1	+ 8 _g	—
Stalinabad	2.0	243	e 0 38	+ 1*	i 1 3	0*	—
Khorog	2.1	169	e 0 38	+ 1	1 1	- 3	—
Tashkent	2.3	323	e 0 46	0 _g	e 1 18?	+ 2 _g	—
Murgab	2.5	117	e 0 48?	- 2 _g	2 16?	+ 62	—
Tchimkent	3.0	335	e 0 58	- 2 _g	1 31	- 2*	i 1 43
Samarkand	3.2	273	0 57	- 1*	1 40	+ 1*	—
Naryn	4.2	62	e 1 21	- 3 _g	e 2 3	+ 6	i 1 29
Frunse	4.3	37	e 1 16	0*	i 2 24	+ 2 _g	—
Almata II	6.0	49	e 1 38	+ 6	e 3 16	- 2 _g	—
Przhevalsk	6.3	59	e 2 0	- 6 _g	—	—	—

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1952

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Oct. 3d. 7h. 30m. 33s. Epicentre 6°·7N. 82°·5W. (as on 1952, August 23d.).

A = +·1296, B = -·9848, C = +·1159; δ = +6; h = +7;
D = -·991, E = -·131; G = +·015, H = -·115, K = -·993.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Balboa Heights	3·7	52	i 1 3	- 3*	i 1 46	+ 1	—	—
Chinchina	7·1	104	i 1 42	- 6	i 3 19	+ 9	—	—
Galerazamba	8·2	60	e 2 8	+ 5	e 4 14	+ 7*	—	—
Bogota	8·6	104	e 2 6	- 3	e 3 45	- 3	—	—
Oaxaca	17·3	308	3 57	- 7	—	—	e 5 54	?
Huancayo	20·0	159	e 4 29	- 8	—	—	—	—
Tacubaya	20·6	310	e 4 36	- 7	—	—	e 5 12	PPP
Fort de France	22·4	68	e 4 51	-11	—	—	—	—
La Paz	27·1	147	5 46	0	—	—	—	—
Bermuda	30·5	30	i 6 10	- 7	—	—	i 7 40	PPP
Fayetteville	z. 31·2	343	e 5 28	-55	—	—	—	—
Morgantown	32·9	4	i 6 47	+ 9	—	—	—	—
Tucson	36·6	318	7 10	0	—	—	—	—
Harvard	37·0	15	e 6 40	-33	—	—	e 10 1	?
Nelson	41·4	320	i 7 50	0	—	—	—	—
Riverside	z. 42·1	315	e 8 1	+ 6	—	—	—	—
Pasadena	z. 42·8	315	e 8 2	+ 1	—	—	—	—
China Lake	z. 43·3	317	e 8 5	0	—	—	e 8 24	?
Tinemaha	z. 44·4	319	e 8 16	+ 2	—	—	—	—
Fresno	z. 45·3	318	e 11 48 _a	?	—	—	—	—
Lick	z. 46·8	317	e 11 44 _a	?	—	—	—	—
Reno	z. 46·8	321	e 11 59	?	—	—	—	—
Mineral	z. 48·4	320	e 11 51 _a	?	—	—	—	—
Hungry Horse	49·4	333	e 8 54	+ 1	—	—	e 10 15	PcP
College	73·6	337	e 11 37	0	—	—	—	—
Malaga	76·5	54	e 11 53	- 1	e 21 43	+ 4	—	—
Granada	77·2	53	i 12 6 _k	+ 9	—	—	—	—
Tamanrasset	z. 85·6	68	e 12 40	- 1	e 12 48	PcP	e 16 6	PP
Stuttgart	86·1	42	e 12 41	- 3	—	—	—	—

Oct. 3d. 7h. 36m. 49s. Epicentre 6°·7N. 82°·5W. (as at 7h. 30m.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	3·7	52	i 1 2	+ 2	i 1 46	+ 1	—	—
Chinchina	7·1	104	i 0 41	-67	i 3 8	- 2	—	—
Galerazamba	8·2	60	i 2 6	+ 3	i 4 15	+ 8*	—	—
Bogota	8·6	104	i 2 8	- 1	i 3 45	- 3	i 4 6	S*
Kingston	12·5	26	e 3 16	PP	—	—	—	—
Oaxaca	17·3	308	e 4 17	PP	e 7 39	SS	—	—
Vera Cruz	18·2	316	e 4 20	+ 4	—	—	e 4 23	P
San Juan	19·8	51	i 4 32	- 3	i 8 25	+12	—	e 9·5
Huancayo	20·0	159	i 4 28	- 9	e 8 5	-12	—	e 9·3
Tacubaya	20·6	310	e 4 47	+ 4	—	—	—	e 11·5
Fort de France	22·4	68	i 5 5	+ 3	i 9 9	+ 5	—	e 11·2
Mobile	24·4	348	5 28	+ 7	9 47	+ 8	—	—
La Paz	27·1	147	i 5 43 _k	- 3	i 10 19	- 5	i 6 33	PP
Columbia	27·2	3	i 5 49	+ 2	i 10 29	+ 4	—	—
Bermuda	30·5	30	i 6 18	+ 1	—	—	—	e 14·7
Fayetteville	z. 31·2	343	i 6 22	- 1	—	—	i 7 35	PP
Lubbock	32·2	329	e 6 32	0	12 13	+28	—	—
Cincinnati	32·3	358	i 6 33	0	—	—	i 6 40	P
Washington	32·4	9	i 6 36	+ 2	—	—	—	—
Morgantown	32·9	4	i 6 39	+ 1	i 11 36	-20	—	—
Pittsburgh	33·7	4	i 6 51	+ 6	i 12 13	+ 5	—	—
Philadelphia	33·8	12	e 6 46	0	e 12 12	+ 2	—	—
Pennsylvania	34·2	7	i 6 52	+ 3	e 12 33	+17	e 8 14	PP
Cleveland	34·7	2	i 6 53	- 1	i 12 22	- 2	i 8 20	PP
City College, N.Y.	34·8	13	e 6 57	+ 3	e 12 27	+ 2	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	^c	^c	m. s.	s.	m. s.	s.	m. s.	m.
Fordham	34.9	13	i 6 58	+ 3	—	—	e 6 33	—
Buffalo (Larkin)	36.2	5	i 7 7	+ 1	—	—	—	—
Tucson	36.6	318	i 7 11	+ 1	e 12 28	-25	i 8 44	PP e 18.4
Harvard	37.0	15	e 7 15	+ 2	e 12 51	- 8	i 8 42	PP e 18.2
Ottawa	39.0	8	e 7 29 _k	- 1	13 29	0	9 41	PcP e 19.2
Shawinigan Falls	40.6	11	c 7 44	+ 1	13 41	-13	9 19	PP 20.9
Nelson	41.4	320	i 7 50	0	—	—	—	—
Kirkland Lake	41.4	3	c 7 49	- 1	e 9 35	PP	i 7 57	P —
Boulder City	41.5	320	e 7 53	+ 3	—	—	—	—
Riverside	42.1	315	c 7 58	+ 3	—	—	e 9 43	PP —
Pasadena	42.8	315	i 8 3 _a	+ 2	e 14 34	+ 8	e 9 52	PP e 21.7
China Lake	43.3	317	e 8 5	0	c 10 0	PP	c 8 14	P —
Tinemaha	44.4	319	e 8 16	+ 2	e 15 2	+13	e 9 54	PP e 22.6
Fresno	45.3	318	e 8 21 _a	0	e 10 53	PPP	e 8 28	P —
Reno	46.8	321	c 8 35	+ 2	e 15 33	+ 9	—	—
Lick	46.8	317	e 8 35 _a	+ 2	—	—	e 9 29	? —
Santa Clara	47.1	317	c 8 35 _a	0	e 15 41	+13	—	— e 24.5
La Plata	47.4	151	8 23	-15	16 23	+51	18 53	SS 24.6
Berkeley	47.5	317	e 8 40 _a	+ 2	c 15 37	+ 3	e 10 7	PcP e 24.2
Mineral	48.4	320	e 8 45	- 1	e 10 10	PcP	e 10 16	? —
Hungry Horse	49.4	333	i 8 54	+ 1	—	—	—	—
Victoria	54.2	328	9 28	- 1	—	—	—	—
Resolute Bay	68.3	357	i 11 8 _k	+ 3	e 19 58	- 8	i 15 20	PPP —
College	73.6	337	e 11 35	- 2	c 21 15	+ 8	—	— e 32.5
Scoresby Sund	74.1	18	e 11 37	- 3	—	—	—	— 36.2
Malaga	76.5	54	i 11 53	- 1	i 21 45	+ 6	i 14 53	PP 39.4
Toledo	76.9	50	c 11 54	- 2	e 21 48	+ 5	i 12 0	PcP —
Granada	77.2	53	i 12 1 _k	+ 4	21 49	+ 2	15 4	PP —
Almeria	78.1	54	i 12 0	- 2	21 49	- 7	15 2	PP 44.0
Aberdeen	79.2	33	i 12 12	+ 4	i 22 14	+ 6	c 30 24	SSS —
Alicante	79.6	52	e 12 10	0	e 22 23	+11	15 16	PP 39.4
Kew	79.9	39	e 12 11	- 1	e 22 27	+11	e 12 16	PcP e 38.2
Tortosa	80.4	50	e 12 36	+21	—	—	—	—
Paris	81.7	42	i 12 14	- 8	e 24 8	SP	i 15 38	PP e 38.2
Clermont-Ferrand	82.2	45	e 12 23	- 1	—	—	i 12 30	PcP 42.2
Algiers Univ.	82.5	54	e 12 25	- 1	e 12 31	PcP	e 15 11 _?	PP —
De Bilt	83.3	38	—	—	e 23 11	+21	e 32 11	SSS e 39.2
Besançon	84.1	43	i 12 28	- 6	i 12 38	PcP	e 13 35	? —
Basle	85.2	43	e 12 36	- 3	—	—	—	—
Strasbourg	85.2	42	e 12 38	- 1	e 23 12	+ 3	e 15 53	PP e 40.2
Karlsruhe	85.6	41	e 12 41	0	c 12 47	PcP	e 16 15	PP —
Oropa	85.6	44	i 12 51	+10	—	—	e 13 25	? —
Tamanrasset	85.6	68	i 12 40 _a	- 1	e 16 6	PP	e 17 51	PPP —
Zürich	85.9	43	e 12 39	- 4	—	—	—	—
Stuttgart	86.1	42	e 12 41	- 3	e 23 30	+12	c 16 11	PP —
Chur	86.6	44	e 12 38	- 8	—	—	—	—
Jena	87.4	39	c 12 47	- 3	i 12 55	PcP	i 12 50	P —
Florence	88.1	46	e 12 56	+ 2	c 23 52	+15	c 13 7	? —
Potsdam	88.1	37	i 12 52 _a	- 2	e 23 40	+ 3	i 12 59	PcP e 43.2
Collnberg	88.3	39	e 12 58	+ 3	—	—	e 16 27	PP —
Kiruna	88.7	23	i 12 55 _a	- 2	i 23 43	0	e 23 23	SKS e 42.2
Upsala	89.3	30	i 13 3	+ 4	—	—	—	—
Rome	89.3	48	i 12 59	0	—	—	e 13 12	? —
Triest	89.6	44	e 12 53	- 8	c 23 52	+ 1	c 23 33	SKS —
Messina	92.2	51	e 17 19	PP	—	—	—	—
Belgrade	94.4	44	e 13 23 _a	0	—	—	e 17 20	PP —
Uzhgorod	94.7	40	c 17 16	PP	e 26 2	PS	—	—
Kishinev	99.4	40	c 17 51	PP	—	—	—	—
Theodosia	104.4	40	e 18 26	PP	—	—	—	—
Ksara	109.2	52	c 19 5	PP	e 28 50	PPS	—	—

Continued on next page.

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1952

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	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.	O-C. s.	Supp. m. s.		L. m.
Zugdidi	109.7	40	e	18 55?	PP	—	—	—	—	—
Sverdlovsk	109.9	20	e	19 13	PP	c 28 27	PS	—	—	—
Borzhomi	111.0	41	e	19 14	PP	—	—	—	—	—
Gori	111.4	40	e	18 43	[+ 7]	—	—	—	—	—
Grozny	111.7	38	i	19 19	PP	—	—	—	—	—
Leninakan	111.8	41	e	19 36	PP	—	—	—	—	—
Makhach-Kala	113.0	37	i	19 33	PP	—	—	—	—	—
Kirovobad	113.5	40	e	19 31	PP	—	—	—	—	—
Goris	114.1	41	e	19 36	PP	—	—	—	—	—
Baku	115.9	39	e	19 56	PP	—	—	—	—	—
Irkutsk	121.0	355	e	20 20	PP	—	—	—	—	—
Bairam-Ali	125.0	35	e	19 0	[- 2]	—	—	e 20 40	PP	—
Tashkent	125.7	26	e	19 1	[- 3]	30 34?	SKSP	e 20 59?	PP	—
Frunse	126.4	21	i	19 15	[+10]	—	—	—	—	—
Namangan	127.0	25	i	19 6	[0]	e 30 56	SKSP	i 21 2	PP	—
Almata	127.2	18	i	19 6	[- 1]	—	—	—	—	—
Rybach'e	127.3	20	e	19 7	[0]	e 22 41	PKS	e 21 7	PP	—
Andijan	127.4	25	i	19 6	[- 1]	—	—	i 21 6	PP	—
Fergana	127.5	25	e	19 5	[- 2]	—	—	e 21 7	PP	—
Stalinabad	127.7	28	i	19 8	[0]	—	—	—	—	—
Przhevalsk	128.0	17	e	19 7	[- 1]	—	—	—	—	—
Naryn	128.2	20	e	19 13	[+ 4]	—	—	e 21 13	PP	—
Dzhergetal	128.2	26	e	19 7	[- 2]	—	—	e 21 10	PP	—
Khorog	129.9	27	e	19 12	[0]	i 22 36	PKS	e 21 24	PP	—
Chatra	145.2	16	i	19 37	[- 3]	—	—	e 23 3	PP	—
Poona	z. 145.8	42	i	19 38	[- 3]	—	—	—	—	—
Manila	148.5	313	i	19 48	[+ 3]	—	—	i 19 56	PKP ₁	—

Oct. 3d. 11h. 21m. 30s. (I) } Epicentre 41°·3N, 43°·6E.
 11h. 30m. 18s. (II) } (as suggested by U.S.S.R.).

A = +·5456, B = +·5196, C = +·6575; $\delta = -3$; $h = -3$;
 D = +·690, E = -·724; G = +·476, H = +·454, K = -·753.

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
I Tsikhliis-Dzhvari	0.4	343	i	0 9	+ 1 _g	—	—	—	—
II	0.4	343	i	0 10	0*	i 0 16	0*	—	—
I Leninakan	0.6	159	—	—	—	0 20	0 _g	—	—
II	0.6	159	0	12	0 _g	0 21	0*	—	—
I Borzhomi	0.6	342	0	12	0 _g	i 0 20	0 _g	—	—
II	0.6	342	0	11	- 1 _g	i 0 19	- 1 _g	—	—
I Gori	0.8	30	i	0 15	- 1 _g	i 0 26	0 _g	—	—
II	0.8	30	i	0 15	- 1 _g	i 0 26	0 _g	—	—
I Tiflis	1.0	65	e	0 20	0 _g	i 0 34	0*	—	—
II	1.0	65	i	0 22	+ 1	i 0 36	0	—	—
I Erevan	1.3	149	e	0 26	0 _g	0 43	0 _g	—	—
II	1.3	149	e	0 26	0 _g	0 44	0	—	—
I Zugdidi	1.8	313	0	33	+ 1	0 57	0*	—	—
II	1.8	313	i	0 33	+ 1	0 57	0*	—	—
I Kirovobad	2.2	105	0	37	- 1	1 6	0	—	—
II	2.2	105	0	38	0	1 7	+ 1	—	—
I Grozny	2.6	39	—	—	—	e 1 20	- 1*	—	—
II	2.6	39	e	0 46	- 1*	e 1 21	0*	—	—
I Goris	2.7	131	e	0 51	+ 2*	1 30	+ 1 _g	—	—
II	2.7	131	e	0 51	+ 2*	e 1 33	+ 4 _g	e 1 47	?

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1952

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Oct. 4d. 4h. 4m. 7s. Epicentre 11°·2S. 14°·5W.

A = +·9499, B = -·2457, C = -·1930; δ = -7; h = +6;
D = -·250, E = -·968; G = -·187, H = +·048, K = -·981.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	I.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
M'Bour		25·5	356	—	—	9 53?	- 4	—	—
Tamanrasset	z.	39·1	30	e 7 26	- 5	13 35	+ 4	e 9 6	PP
Kimberley	z.	40·6	121	e 7 33	-10	—	—	—	—
La Plata		45·9	232	8 11	-15	14 59	-12	18 23	SS
Malaga		48·6	11	i 9 1	+14	i 15 27	-22	10 43	PP
Almeria		49·1	13	8 59	+ 8	19 27	SS	21 5	SSS
Granada		49·2	11	i 8 56 _a	+ 4	15 58	0	10 11	PcP
Algiers Univ.	z.	50·5	18	e 9 5	+ 3	15 35	-41	e 11 1	PP
Alicante		51·0	14	e 9 14	+ 8	e 15 22	-60	—	—
Toledo		51·7	10	e 9 15	+ 4	e 20 0	SS	—	c 25·7
La Paz		52·2	258	9 13	- 2	i 16 31	- 8	i 20 10	SS
Fort de France		52·9	298	e 9 23	+ 3	e 16 51	+ 3	—	—
Messina	N.	56·6	28	e 9 40	- 7	e 17 36	- 2	—	c 25·6
Rome		58·4	23	e 9 54 _a	- 6	e 17 55	- 7	e 12 51	?
Clermont-Ferrand		58·9	14	—	—	e 19 54	ScS	e 24 22	SSS
Florence		59·5	21	e 10 14	+ 7	e 18 45	PPS	e 12 25	PP
Huancayo		59·5	263	e 10 1	- 6	e 18 12	- 4	(e 24 23)	SSS
Helwan	z.	60·1	46	e 10 25	+14	e 19 11	+47	e 10 41	PcP
Besançon		61·0	16	e 10 33	+15	—	—	—	—
Bogota		61·3	282	e 10 24	+ 4	e 18 39	0	e 15 10	?
Paris		61·6	13	—	—	e 19 4	PS	e 20 32	ScS
Triest		62·0	22	e 10 26	+ 2	e 18 47	- 1	e 10 34	?
Strasbourg		62·7	16	—	—	e 18 54	- 3	e 20 16	ScS
Chinchina		62·9	282	e 10 24	- 6	e 18 57	- 3	—	—
Stuttgart		63·3	17	e 10 23?	-10	e 18 53?	-11	e 22 53	SS
Kew		63·6	10	—	—	e 20 42	ScS	e 23 14	SS
Belgrade		64·1	27	e 10 37 _a	- 1	e 17 51	?	e 10 51	?
Galerazamba		64·2	288	e 10 45	+ 6	e 19 14	- 2	—	—
Bermuda		64·6	314	—	—	e 19 27	+ 6	—	e 27·0
Rathfarnham Castle		64·6	6	e 15 41	?	—	—	—	e 27·9
De Bilt		65·3	13	—	—	e 19 23	- 6	—	e 27·9
Ksara		65·6	45	e 11 1	+13	e 20 7	PPS	—	—
Jena	z.	65·9	18	e 10 49?	- 1	e 11 20	PcP	e 11 48	?
Prague		66·1	20	e 10 49	- 2	e 13 31	PP	e 12 47	?
Uzbgorod		67·9	25	e 11 9	+ 7	e 19 45	-16	—	—
Lwow		69·5	25	e 11 6	- 6	—	—	—	—
Kishinev		69·7	30	e 11 17	+ 3	—	—	—	—
Copenhagen		70·4	16	—	—	20 29	- 1	24 53	SS
Kiruna		82·7	13	i 12 29	+ 2	e 22 40	- 4	e 23 33	PS
Fayetteville	z.	88·3	307	i 12 47	- 8	—	—	—	—

Oct. 4d. 16h. 36m. 53s. Epicentre 25°·5S. 178°·5E. Depth of focus 0·090.
(as on 1950, May 16d.).

A = -·9034, B = +·0237, C = -·4281; δ = -4; h = +3;
D = +·026, E = +1·000; G = +·428, H = -·011, K = -·904.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		°	°	m. s.	s.	m. s.	s.	m. s.
Karapiro	N.	12·6	191	2 43	- 1	5 5	+ 8	—
Tuai	N.	13·3	185	—	—	e 5 8	- 1	—
Wellington		16·1	190	3 15	- 3	e 5 58	0	e 5 54
Cobb River	E.	16·3	196	e 3 19	- 1	e 6 2	0	—
Kaimata	N.E.	18·0	199	e 3 35	- 1	e 6 30	0	—
Brisbane	z.	22·9	260	i 4 28 _k	+ 7	—	—	—
Berkeley	z.	84·0	43	e 11 28	- 1	—	—	—
Mount Wilson	z.	84·5	48	e 11 31	0	—	—	—
Riverside	z.	84·9	49	e 11 33	0	—	—	—
Fresno	z.	84·9	46	e 11 33	0	—	—	—
China Lake	z.	85·8	47	e 11 37	- 1	—	—	—
Mineral	z.	86·0	42	e 11 38	- 1	—	—	—
Tinemaha	z.	86·1	46	e 11 38	- 1	—	—	—
Reno	z.	86·6	43	e 11 42	+ 1	—	—	—
Upsala	z.	143·2	344	i 18 28	[+ 1]	—	—	—

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1952

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Oct. 4d. 17h. 34m. 20s. Epicentre 36°·9N. 70°·8E. Depth of focus 0·030.
(as on 1952, September 4d.).

A = +·2636, B = +·7570, C = +·5978; $\delta = -10$; $h = -1$;
D = +·944, E = -·329; G = +·197, H = +·565, K = -·802.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Khorog	0·9	48	i 0 29	- 3	i 0 52	- 4
Kulyab	1·3	321	i 0 33	- 2	i 0 59	- 2
Garm	2·1	350	e 0 42	0	1 14	0
Obi-garm.	2·2	335	i 0 41	- 2	i 1 13	- 3
Dzhergetal	2·3	8	i 0 45	+ 1	i 1 19	+ 2
Murgab	2·9	59	e 0 50	0	1 27	- 2
Fergana	3·6	12	i 1 0	+ 2	i 1 46	+ 2
Andijan	4·0	17	e 1 5	+ 2	i 1 56	+ 4
Samarkand	4·1	314	1 4	0	e 1 52	- 2
Namangan	4·1	9	1 7	+ 3	i 1 58	+ 4
Tchimkent	5·5	351	i 1 23	+ 1	i 2 27	+ 1

Oct. 5d. 10h. 21m. 19s. Epicentre 37°·5N. 20°·8E.

Felt in the islands of Cephalonia. Intensity IV at Argostolion and Leucade; III at Leukas and Lechaena. Epicentre determined by Strasbourg.

A. Galanopoulos.

Seismo. Institute Bull., 1952, Athens, 1953, p. 38.

A = +·7435, B = +·2824, C = +·6062; $\delta = +2$; $h = -1$;
D = +·355, E = -·935; G = +·567, H = +·215, K = -·795.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Athens	2·4	79	i 0 47	+ 6	i 1 32	+13 _g	i 0 52	P _g
Messina	4·2	281	e 0 58	- 9	i 1 53	- 4	i 1 11	P _g
Sofia	5·5	20	e 1 24	- 1	e 2 29	- 1	3 1	S _g
Belgrade	7·3	358	e 2 4 _k	- 4*	e 3 42	+ 1*	i 4 3	S _g
Rome	7·8	307	e 2 41	+ 5 _g	e 3 25	- 3	i 3 37	? i 4·2
Bucharest	8·0	29	e 1 59	- 1	e 3 46	+13	—	— 4·8
Timisoara	8·3	2	e 2 41	P _g	e 4 35	+ 1 _g	—	— e 5·8
Szeged	8·8	357	e 2 22	+11	e 4 49	- 2 _g	e 3 21	? —
Kalossa	9·1	352	e 3 7	P _g	e 4 59	- 2 _g	—	—
Kecskemet	9·5	355	e 3 29	P _g	e 4 40	- 6*	e 5 25	S _g —
Florence	9·6	314	e 3 16	+55	e 6 1	?	—	— e 8·2
Prato	9·7	314	e 3 41	?	i 4 49	- 3*	—	—
Triest	9·7	329	e 2 24	+ 2	i 4 22	+ 7	e 3 17	P _g P _g —
Bologna	10·0	317	e 3 15	?	e 4 12	-10	e 4 39	? —
Budapest	10·1	353	—	—	e 4 44	+19	—	— e 5·8
Ogyalla	10·5	350	—	—	e 5 18	S*	e 5 56	S _g e 6·9
Kishinev	11·2	30	e 2 39	- 5	—	—	—	—
Uzhgorod	11·2	5	e 2 42	- 2	—	—	—	—
Chur	12·5	322	e 3 7	+ 5	e 5 5	-18	—	—
Lwow	12·6	10	e 3 1	- 2	—	—	—	—
Raciborzu	12·7	352	e 3 6	+ 1	e 5 49	+21	e 3 27	PP —
Ksara	12·8	102	e 2 57?	- 9	e 7 24	L	—	— (e 7·4)
Prague	13·4	342	e 3 14	0	e 5 41	- 4	e 3 39	PP e 6·5
Zürich	13·4	321	e 3 20	+ 6	e 5 35	-10	—	—
Basle	14·0	320	e 3 20	- 2	—	—	—	— e 8·2
Cheb	14·0	337	—	—	e 6 5	+ 6	e 6 11	S e 6·8
Stuttgart	14·1	327	e 3 22?	- 1	e 6 11	+ 9	e 3 36	PP e 7·3
Algiers Univ.	14·2	272	e 3 16	- 8	e 5 40	-24	e 3 24	P —
Karlsruhe	14·6	326	e 3 34	+ 4	e 6 28	+15	e 3 48	PP —
Strasbourg	14·6	323	e 3 34	+ 4	e 6 28	+15	—	— e 8·0
Besançon	14·7	316	e 3 48	+17	—	—	e 4 18	? —
Collmberg	14·9	341	e 3 39	+ 5	e 6 28	+ 8	e 8 54	PcP —
Jena	14·9	337	e 3 29?	- 5	e 3 44	PP	e 5 44	? e 7·5
Clermont-Ferrand	15·6	307	—	—	e 6 32	- 5	—	—
Potsdam	15·8	342	e 3 56?	+11	i 6 53	+11	e 6 59	? e 8·7

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Alicante	16.8	279	e 3 57	- 1	—	—	—	e 11.1
Paris	17.5	316	e 4 8	+ 1	—	—	c 4 22	e 10.7
Borzhom	17.9	69	e 4 7	- 5	—	—	—	—
Piatigorsk	18.1	61	e 4 12	- 2	e 7 43	+ 8	—	—
Leninakan	18.2	72	e 4 25?	+ 9	—	—	—	—
De Bilt	18.3	329	—	—	e 7 41	+ 2	—	e 9.2
Tiflis	19.0	69	e 4 24	- 2	e 8 0	+ 5	—	—
Copenhagen	19.1	345	—	—	7 57	0	—	10.7
Granada	19.4	277	e 4 28 ^a	- 2	—	—	—	11.9
Tamanrasset	z. 19.7	226	e 4 27	- 7	e 8 14	+ 4	i 6 37	? 9.9
Grozny	19.9	64	—	—	8 23	+ 8	—	—
Goris	20.1	75	e 4 36	- 2	e 8 21	+ 2	—	—
Kirovobad	20.1	72	e 4 34	- 4	e 8 20	+ 1	—	—
Malaga	20.1	276	i 4 29	- 9	—	—	11 43	? 17.4
Kew	20.4	320	—	—	e 8 41?	+16	—	—
Moscow	21.5	26	4 49	- 3	e 8 48	+ 1	—	—
Upsala	22.5	356	i 4 57	- 5	e 9 0	- 5	i 5 19	PP i 13.6
Pulkovo	23.1	12	e 5 5	- 3	e 9 13	- 3	—	—
Kiruna	30.4	0	e 6 12	- 4	e 11 10	- 6	e 12 25	SS e 15.7
Sverdlovsk	32.6	41	6 30	- 5	11 47	- 4	—	—

Oct. 5d. 10h. 32m. 37s. Epicentre 37°·5N. 20°·8E. (as at 10h.21m.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Athens	2.4	79	e 0 48	+ 0 _x	e 1 21	+ 2 _g	i 1 29	? —
Messina	z. 4.2	281	e 1 6	- 1	i 1 50	- 7	c 1 17	P* —
Belgrade	7.3	358	e 2 45 ^k	+19 _g	—	—	—	e 4.0
Triest	9.7	329	e 2 31	+ 9	e 4 18	+ 3	e 3 17	S* —
Stuttgart	14.1	327	e 3 53?	+30	—	—	—	—
Algiers Univ.	z. 14.2	272	e 3 18	- 6	e 3 27	PP	e 3 38	PPP —
Tamanrasset	z. 19.7	226	e 4 33	- 1	—	—	—	—
Upsala	22.5	356	i 5 3	+ 1	—	—	i 5 16	PP e 15.2
Kiruna	30.4	0	e 6 17	+ 1	—	—	—	e 16.4

Oct. 5d. 10h. 54m. 56s. Epicentre 37°·5N. 20°·8E. (as at 21m. and 32m.).

Felt throughout the islands of Zante. Intensity V at Zante, Chavdata, Argostolion, Katakolon, and Lechaena; IV at Mouzakion, Lixurion, Vartholomis, Kyllini, Gastouni, Pyrgos, and Asatakos; III at Leucade and Preveza; II at Ithaca. Epicentre as adopted.

A. Galanopoulos.

Seismo. Institute Bull., 1952, Athens, 1953, pp. 38, 39.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Athens	2.4	79	i 0 42 ^a	+ 1	i 1 21	+ 2 _g	i 0 53	P _g —
Messina	4.2	281	e 1 1 ^k	- 6	i 1 45	-12	i 2 5	S* —
Sofia	5.5	20	1 25	0	2 31	+ 1	3 5	S _g —
Belgrade	7.3	358	e 1 56	+ 6	i 3 32	+17	e 1 26 ^k	? —
Istanbul	7.3	59	e 1 47	- 3	e 3 21	+ 6	2 33	P _g 4.1
Rome	7.8	307	e 2 17	+ 1*	i 3 26	- 2	12 42	P _g 14.0
Bucharest	8.0	29	e 1 55	- 5	i 3 43	+10	14 0	S* 4.3
Timisoara	8.3	2	e 2 5	+ 1	e 4 7	- 3*	e 2 27	P _g e 4.7
Szeged	8.8	357	e 2 47	P*	e 5 3	+12 _g	e 4 8	S —
Kalossa	9.1	352	e 2 44	P*	e 5 0	- 1 _g	e 3 2	P _g —
Kecskemet	9.5	355	e 2 51	P*	e 5 13	- 1 _g	e 3 23	P _g —
Florence	9.6	314	e 2 53	P*	—	—	—	e 5.8
Padova	9.7	319	e 2 39	+17	—	—	—	e 6.6
Prato	9.7	314	e 2 54	P*	i 4 8	- 7	—	—
Triest	9.7	329	e 2 28	+ 6	e 4 17	+ 2	i 3 17	P _g P _g —
Bologna	10.0	317	e 2 45	+18	e 4 26	+ 4	e 3 19	? e 5.3
Budapest	10.1	353	e 2 44	+15	e 4 44	+19	e 3 51	? 5.7
Ogyalla	10.5	350	e 2 51	?	e 4 18	-17	e 5 40	S _g —
Kishinev	11.2	30	2 44	0	—	—	—	—
Salo	n. 11.2	320	e 2 50	+ 6	e 4 41	-11	e 3 7	P* e 6.2

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Uzhgorod	11.2	5	e 2 41	- 3	—	—	—	—
Cernauti	11.4	18	e 2 49	+ 2	—	—	—	—
Helwan	11.6	128	e 3 13	+23	i 4 48	-13	—	—
Pavia	11.6	315	e 3 40	?	e 4 45	-16	5 27	e 6.2
Skalnate Pleso	11.7	358	e 2 50	- 1	5 4?	0	e 4 22	e 6.6
Yalta	12.3	51	e 2 57	- 2	—	—	—	—
Chur	12.5	322	e 3 1	- 1	e 5 1	-22	—	—
Simferopol	12.5	49	—	—	e 5 47	+24	—	—
Lwow	12.6	10	e 3 1	- 2	i 5 21	- 5	—	—
Oropa	12.6	314	e 3 4?	+ 1	—	—	—	—
Raciborzu	12.7	352	e 3 11	+ 6	e 5 35	+ 7	e 3 19	PP
Ksara	12.8	102	i 3 21k	+15	i 6 12	+42	—	—
Theodosia	13.3	51	i 3 14	+ 1	—	—	—	—
Prague	13.4	342	e 3 7	- 7	e 5 51	+ 6	i 3 21	PP
Zürich	13.4	321	e 3 12	- 2	e 5 46	+ 1	e 3 24	?
Neuchatel	13.9	317	e 3 30	+ 9	—	—	—	e 7.7
Basle	14.0	320	e 3 17	- 5	—	—	—	e 7.5
Cheb	14.0	337	e 3 36	+14	e 5 43	-16	e 6 13	S
Stuttgart	14.1	327	e 3 24	+ 1	e 6 2	0	e 6 20	?
Algiers Univ.	14.2	272	e 3 15	- 9	e 5 41	-23	e 3 32	PP
Karlsruhe	14.6	326	e 3 37	+ 7	i 6 27	+14	e 3 43	PP
Strasbourg	14.6	323	e 3 28	- 2	i 6 28	+15	i 3 43	PP
Besançon	14.7	316	e 3 33	+ 2	e 6 31	+15	e 3 48	PP
Jena	14.9	337	e 3 31	- 3	e 6 14	- 6	e 3 42	PP
Clermont-Ferrand	15.6	307	e 3 41	- 2	—	—	—	e 8.1
Sotchi	15.6	61	e 3 57	+14	e 7 0	+23	—	7.6
Potsdam	15.8	342	e 3 49	+ 4	e 6 47	+ 5	e 3 58	PP
Tortosa	16.1	288	i 3 46	- 3	6 41	- 8	—	e 8.1
Alicante	16.8	279	i 3 50	- 8	i 7 5	0	4 10	PP
Paris	17.5	316	i 4 8	+ 1	i 7 23	+ 2	i 4 23	PP
Borzhomi	17.9	69	i 4 14	+ 2	i 7 42	+12	—	e 9.3
Tsikhlis-Dzhvari	17.9	69	e 4 23	+11	—	—	—	e 10.1
Piatigorsk	18.1	61	4 14	0	7 45	+10	—	—
Leninakan	18.2	72	e 4 15	- 1	—	—	—	—
De Bilt	18.3	329	i 4 18	+ 1	i 7 43	+ 4	i 4 27	PP
Almeria	18.5	275	i 4 8	-11	i 7 44	0	4 32	PP
Gori	18.5	69	e 4 21	+ 2	e 7 56	+12	—	12.1
Erevan	18.6	74	e 4 20	- 1	—	—	—	—
Tiflis	19.0	69	e 4 24	- 2	e 8 1	+ 6	—	—
Copenhagen	19.1	345	i 4 23a	- 4	i 7 56	- 1	8 6	S
Granada	19.4	277	i 4 26a	- 4	i 8 11	+ 7	4 46	PP
Toledo	19.5	284	i 4 26a	- 5	i 8 4	- 2	—	i 10.7
Tamanrasset	19.7	226	i 4 30a	- 4	e 8 16	+ 6	—	12.8
Grozny	19.9	64	i 4 33	- 3	i 8 21	+ 6	—	—
Goris	20.1	75	e 4 36	- 2	i 8 24	+ 5	—	—
Kirovobad	20.1	72	i 4 35	- 3	i 8 20	+ 1	—	—
Malaga	20.1	276	i 4 31	- 7	i 8 0	-19	8 48	PcP
Kew	20.4	320	i 4 55	+14	e 8 26	+ 1	e 8 41	PS
Makhach-Kala	21.1	66	e 4 47	- 1	i 8 44	+ 5	—	e 12.1
Moscow	21.5	26	4 52	0	8 47	0	—	—
Shemakla	21.8	72	i 4 57	+ 1	i 8 56	+ 4	—	—
Upsala	22.5	356	i 5 0	- 2	i 8 59	- 6	i 5 22	PP
Baku	22.8	73	e 5 15	+10	—	—	—	i 13.8
Pulkovo	23.1	12	i 5 6	- 2	i 9 12	- 4	—	—
Lisbon	23.6	283	6 2	PP	e 9 17	- 8	—	10.6
Rathfarnham Castle	24.5	320	i 5 27a	+ 5	e 9 42	+ 2	i 5 58	PP
Aberdeen	24.9	330	i 9 59	PS	i 9 35	-12	i 10 36	SS
Bergen	24.9	342	e 9 7	?	e 10 35	+48	—	i 12.2
Ashkabad	29.6	77	6 10	+ 1	—	—	—	e 13.1
Kiruna	30.4	0	i 6 13	- 3	i 11 8	- 8	e 12 49	SS
Bairam-Ali	32.6	78	6 27?	- 8	—	—	—	e 16.1
Sverdlovsk	32.6	41	6 34	- 1	11 47	- 4	—	—
Samarkand	35.9	72	7 4	0	—	—	—	—
Tashkent	37.3	68	e 7 16	0	e 13 3	- 1	—	—
Tchinkent	37.3	67	i 7 12	- 4	—	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Stalinabad		37.5	72	e 7 16	- 1	i 13 4	- 3	—	—
Kulyab		38.4	73	—	—	13 5	-15	—	—
Garm		38.5	71	e 7 24	- 2	—	—	—	—
Quetta	z.	38.8	86	e 7 26	- 2	—	—	—	—
Namangan		39.1	69	e 7 28	- 3	i 13 32	+ 1	—	—
Dzhergetal		39.2	71	i 7 35	+ 4	—	—	—	—
Andijan		39.7	69	7 33	- 3	i 13 39	- 1	—	—
Khorog		39.9	74	e 7 37	0	—	—	—	—
M'Bour		40.6	245	i 9 21	PP	—	—	—	21.1
Frunse		40.9	65	i 7 46	0	i 13 59	+ 1	—	—
Naryn		42.0	67	e 7 55	+ 1	i 14 13	- 1	—	—
Rybach'e		42.0	65	e 7 58	+ 4	e 14 16	+ 2	—	—
Almata		42.5	63	e 8 0	+ 1	e 14 23	+ 1	—	—
Semipalatinsk		43.6	52	e 7 58	-10	—	—	—	—
New Delhi		47.5	83	e 8 36	- 2	i 15 27	- 7	18 26	SS
Bombay	E.	48.8	98	e 12 14	PPP	i 15 54	+ 2	1 18 46	SS
Poona	z.	49.8	97	i 8 57	+ 1	—	—	1 9 19	?
Resolute Bay		60.5	345	i 10 13 _a	- 1	i 18 26	- 3	—	—
Pretoria	z.	63.3	172	i 10 32 _?	- 1	—	—	—	—
Kimberley	z.	66.0	176	i 10 48	- 2	—	—	—	—
Weston		67.3	307	i 10 57 _k	- 2	—	—	—	—
Harvard		67.4	307	e 10 57	- 2	—	—	—	—
Ottawa		68.5	312	i 11 8 _a	+ 2	20 8	0	—	—
Kirkland Lake	z.	69.5	316	e 11 16	+ 4	—	—	—	—
Grahamstown	z.	70.7	174	i 11 20	0	—	—	—	—
Morgantown		74.3	308	i 11 41	0	—	—	—	—
San Juan		76.7	283	e 11 58	+ 3	—	—	—	—
Nanking		76.9	60	e 11 55	- 1	21 40	- 3	—	—
College		77.6	356	e 11 57	- 3	—	—	—	—
Vladivostok		78.3	45	e 11 54	- 9	—	—	—	—
Zò-Sè	z.	79.1	59	e 12 8 _k	0	—	—	—	—
Hungry Horse		85.6	332	e 12 40	- 1	—	—	—	—
Butte		86.9	330	e 12 47	- 1	—	—	—	—
Victoria		88.6	337	12 56	0	—	—	—	—
Djakarta	N.	90.6	67	—	—	e 24 1	+ 1	e 24 29	S
Mineral	z.	95.2	332	e 13 26 _k	- 1	—	—	—	—
Reno	z.	95.2	330	e 13 28 _a	+ 1	—	—	—	—
Boulder City		96.1	325	e 13 30	- 1	—	—	—	—
Nelson		96.3	325	e 13 32	0	—	—	—	—
La Paz		99.0	256	—	—	e 26 4	+52	—	—

Oct. 5d. 22h. 4m. 23s. Epicentre 36°·4N. 93°·3E.

A = -0.464, B = +0.8055, C = +0.5908; $\delta = +3$; $h = 0$;
D = +0.998, E = +0.058; G = -0.034, H = +0.590, K = -0.807.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Chatra		10.9	211	e 2 51	+11	—	—	—	e 7.6
Shillong	E.	10.9	187	e 3 4	+24	e 5 26	+42	3 20	PPP
Przhevalsk		13.0	302	e 3 7	- 2	—	—	—	—
Almata II		14.0	304	e 3 19	- 3	i 5 52	- 7	—	—
Almata		14.3	304	i 3 23	- 3	i 5 56	-10	—	—
Naryn		14.4	296	i 3 25	- 2	—	—	—	—
Calcutta	E.	14.5	199	e 3 40	+12	i 6 38	+27	3 53	PP
Rybach'e		14.6	300	i 3 26	- 4	—	—	—	—
New Delhi		15.6	345	e 3 48	+ 5	i 6 51	+14	4 3	PP
Frunse		15.8	300	i 3 42	- 3	—	—	—	—
Andijan		16.9	291	i 4 0	+ 1	—	—	—	—
Kyakhta		16.9	30	3 57	- 2	7 2	- 5	—	—
Semipalatinsk		16.9	330	e 3 53 _?	- 6	—	—	—	—
Fergana		17.3	290	i 4 3	- 1	—	—	—	—
Khorog		17.4	281	4 7	+ 1	—	—	—	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Namangan	17.5	291	14	7	0	—	—	—	—	—	—	
Dzhergetal	17.7	287	14	16?	+ 6	i 7	30?	+ 4	—	—	—	
Irkutsk	17.7	21	4	7	- 3	7	21	- 5	—	—	—	
Kabansk	18.3	24	4	16	- 1	7	37	- 2	—	—	—	
Kulyab	18.8	282	4	24	+ 1	—	—	—	—	—	—	
Obi-garm	18.9	285	14	24	0	—	—	—	—	—	—	
Tchimkent	19.2	296	14	28	0	i 8	6	+ 7	—	—	—	
Tashkent	19.3	293	14	29	0	—	—	—	—	—	—	
Stalinabad	19.6	285	14	29	- 3	i 8	12	+ 4	—	—	—	
Samarkand	21.0	287	14	47	0	—	—	—	—	—	—	
Nanking	21.5	93	4	58	+ 6	i 8	54	+ 7	—	—	—	
Quetta	22.8	263	15	9	+ 4	i 9	24	+13	—	—	—	
Hong Kong	22.9	121	5	13	+ 7	9	29	+16	—	—	—	
Hyderabad	23.0	219	5	17	+10	i 9	25	+11	—	—	12.6	
Zô-Sê	z.	23.7	5	22 _a	+ 8	9	36	+ 9	—	—	—	
Poona	24.7	230	15	31	+ 7	i 9	56	+12	6	10	PP	12.1
Bairam-Ali	24.9	283	15	28	+ 2	—	—	—	—	—	—	
Bombay	E.	25.1	15	35	+ 7	i 10	1	+10	6	12	PP	12.4
Ashkabad	27.8	284	15	58	+ 5	—	—	—	—	—	—	
Kodaikanal	E.	29.7	—	—	—	e 10	22	?	—	—	—	
Sverdlovsk	29.9	324	16	12	0	11	4	- 5	—	—	—	
Vladivostok	30.2	65	6	15	+ 1	11	13	0	—	—	—	
Manila	32.9	123	16	33	- 5	9	37?	?	—	—	—	
Baku	34.0	291	16	50	+ 2	—	—	—	—	—	—	
Shemakla	34.9	292	16	54	- 1	—	—	—	—	—	—	
Makhach-Kala	35.5	296	17	3	+ 3	—	—	—	—	—	—	
Kirovobad	36.6	293	17	11	+ 1	i 13	1	+ 8	—	—	—	
Goris	36.8	290	17	14	+ 3	—	—	—	—	—	—	
Grozny	36.8	296	17	13	+ 2	—	—	—	—	—	—	
Uglegorsk	37.4	54	7	17?	+ 1	e 13	8?	+ 3	—	—	—	
Tiflis	37.6	293	7	20	+ 2	—	—	—	—	—	—	
Yuzno-Sakhlinsk	37.8	58	7	21	+ 1	13	13	+ 2	—	—	—	
Erevan	38.1	291	17	26	+ 4	—	—	—	—	—	—	
Gori	38.1	294	7	22	0	—	—	—	—	—	—	
Leninakan	38.5	293	7	34?	+ 8	—	—	—	—	—	—	
Piatigorsk	38.6	298	7	27	+ 1	—	—	—	—	—	—	
Borzhome	38.7	295	17	29	+ 2	—	—	—	—	—	—	
Moscow	41.9	316	17	54	0	e 13	45	-28	—	—	—	
Magadan	43.2	39	8	4	0	14	27	- 5	—	—	—	
Theodosia	43.9	300	18	12	+ 2	e 14	43	+ 1	—	—	—	
Djakarta	44.2	160	8	23	+11	e 15	3	+17	e 10	2	PcP	e 21.6
Simferopol	44.8	300	18	19	+ 2	e 14	55	0	—	—	—	
Yalta	44.9	299	8	17	- 1	e 14	53	- 3	—	—	—	
Pulkovo	46.0	322	18	26	- 1	e 15	8	- 4	—	—	—	
Ksara	46.4	285	18	35 _a	+ 5	16	55	?	—	—	—	
Petropavlovsk	47.6	48	8	39	0	15	33	- 2	—	—	—	
Kishinev	47.8	304	18	42	+ 1	—	—	—	—	—	—	
Klyuchi	48.5	43	8	46?	0	15	51?	+ 3	—	—	—	
Istanbul	z.	49.3	8	53	0	e 10	7	PcP	e 11	48	PP	—
Cernauti	49.7	306	8	58	+ 2	—	—	—	—	—	—	
Kiruna	50.4	332	19	0 _a	- 1	i 16	12	- 2	i 9	7	pP	e 27.1
Bucharest	50.5	302	9	5	+ 3	e 16	30	+14	—	—	—	
Lwow	50.6	309	19	3	+ 1	—	—	—	—	—	—	
Helwan	E.	51.5	9	13	+ 4	i 16	46	+17	e 11	16	PP	—
Uzhgorod	52.0	307	19	13	0	—	—	—	—	—	—	
Upsala	52.4	322	19	15 _a	- 1	e 16	33	- 9	i 9	22	pP	e 27.2
Skalnate Pleso	53.1	309	9	19	- 2	e 16	59	+ 8	e 11	17	PP	—
Timisoara	53.4	304	9	28?	+ 4	—	—	—	e 9	31	pP	—
Athens	54.2	294	19	30	+ 1	—	—	—	i 9	36	pP	—
Belgrade	54.2	303	9	31 _a	+ 2	e 17	39	+33	e 10	42	PcP	e 28.9
Raciborzu	54.2	311	9	30	+ 1	e 19	12	S _c S	e 10	22	PcP	33.6
Budapest	54.4	307	9	27	- 4	e 16	37	-32	11	27	PP	e 28.6
Kalassa	E.	54.7	9	35	+ 2	e 17	4	- 9	—	—	—	e 30.6
Ogyalla	54.8	307	9	49	+15	e 18	1	+47	e 11	4	PcP	—
Vienna	55.9	308	9	38	- 4	e 18	51	S _c S	e 10	47	PcP	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Copenhagen	56.0	318	i 9 43 _a	0	17 44	+14	—	26.6
Prague	56.5	311	e 9 47	+ 1	e 17 47	+10	e 10 52	e 32.7
Potsdam	56.6	314	i 9 48	+ 1	e 17 51	PS	i 10 45	e 26.6
Collmborg	57.0	312	e 9 49	- 1	e 19 4	?	e 10 46	e 30.1
Cheb	57.7	312	i 9 55	0	e 18 2	+ 9	e 12 27	—
Jena	57.9	312	e 9 56	0	e 18 30?	PPS	e 11 53	—
Bergen	N. 58.2	325	—	—	e 22 15	SS	—	e 25.6
Triest	58.4	306	i 9 58 _a	- 2	e 18 8	+ 6	e 12 6	—
Messina	60.1	298	i 10 12 _k	+ 1	e 18 35	+11	e 13 36	i 38.6
Stuttgart	60.1	311	i 10 11 _a	0	e 18 38	+14	e 11 6	e 32.6
Witteveen	z. 60.1	317	i 10 11	0	—	—	—	—
Karlsruhe	60.5	312	e 10 15	+ 1	—	—	i 10 21	e 30.6
Rome	60.7	303	i 10 15 _a	0	i 18 45	+13	e 22 55	—
Florence	60.8	305	i 10 15 _a	- 1	i 18 47	+14	e 12 44	—
Strasbourg	61.1	311	i 10 19	+ 1	e 18 48	+11	e 12 39	e 30.6
Zürich	61.1	310	e 10 20 _a	+ 2	—	—	—	—
De Bilt	61.2	316	i 10 18	- 1	e 18 53	+15	—	e 31.6
Basle	61.6	310	e 10 21	- 1	e 11 18	?	e 10 56	—
Besançon	62.7	310	e 10 28	- 1	e 14 11	PPP	e 11 10	—
Paris	64.2	313	i 10 38	- 1	e 19 22	+ 6	i 10 45	e 32.6
Kew	64.6	317	i 10 42	+ 1	e 20 25	+64	e 25 23	e 33.6
Clermont-Ferrand	65.2	309	i 10 47	+ 2	e 19 40	+12	e 13 9	—
Rathfarnham Castle	66.9	320	e 11 31	PcP	e 21 7	PPS	e 15 6	e 39.1
College	68.4	24	i 11 6	0	e 20 9	+ 2	e 24 56	e 28.4
Resolute Bay	69.1	3	i 11 27 _a	+17	e 20 22	+ 7	—	—
Tortosa	69.2	306	10 58	-12	—	—	—	e 39.6
Algiers Univ.	z. 69.6	301	e 11 12	- 1	e 13 43	PP	e 15 6	—
Alicante	71.1	305	e 11 3	-19	20 13	-25	13 47	33.8
Toledo	72.7	307	i 11 34 _a	+ 2	e 20 46	-11	i 11 41	40.4
Almeria	73.3	304	i 11 41	+ 6	21 8	+ 4	14 20	41.0
Granada	73.8	305	i 11 31 _k	- 7	i 21 19	+10	12 13	i 41.1
Malaga	74.6	305	i 11 42	- 1	e 21 18	0	14 32	42.2
Tamanrasset	z. 75.1	287	i 11 51 _k	+ 5	e 21 41	+17	e 14 42	e 36.6
Brisbane	z. 84.8	129	i 12 49 _k	+12	—	—	i 13 3	—
Pretoria	z. 87.1	235	e 12 53?	+ 4	—	—	—	—
Victoria	89.4	24	13 2	+ 2	—	—	—	—
Hungry Horse	92.2	18	i 13 12	- 1	e 14 49	?	i 13 20	—
Corvallis	z. 92.8	26	e 13 19	+ 3	—	—	—	—
Mineral	z. 97.2	27	e 13 38 _k	+ 2	e 17 30	PP	i 13 43	—
Ottawa	98.0	353	e 13 46	+ 7	—	—	—	—
Reno	z. 98.5	25	e 13 43	+ 1	—	—	—	—
Fresno	z. 101.0	27	e 14 2 _a	+ 9	—	—	—	—
Tinemaha	z. 101.2	26	e 13 57	+ 3	—	—	e 18 5	—
Apia	102.0	98	—	—	i 27 37	PS	—	—
China Lake	z. 102.6	25	e 14 3	+ 3	—	—	e 18 14	—
Boulder City	103.4	23	e 14 2	- 2	—	—	e 17 51	—
Nelson	103.6	23	e 13 7	-57	—	—	—	—
Pasadena	z. 103.9	27	e 18 46	PP	—	—	—	—
Bogota	137.5	341	e 19 42	[+16]	e 23 7	PKS	e 22 23	—
Huancayo	153.7	334	e 20 0	[+ 7]	—	—	—	—
La Paz	154.2	316	20 7	[+14]	i 23 55	PP	i 20 29	PKP ₂

Oct. 6d. 2h. 8m. 57s. Epicentre 36°-9N, 70°-8E. Depth of focus 0.025 (as on 4d.).

	Δ	Az.	P.	O-C.	S.	O-C.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.
Khorog	0.9	48	e 0 30	+ 2	0 55	+ 4
Kulyab	1.3	321	i 0 33	+ 2	1 1	+ 5
Garm	2.1	350	i 0 41	+ 2	—	—
Dzhergetal	2.3	8	i 0 43	+ 1	i 1 17	+ 3
Stalinabad	2.3	316	i 0 43	+ 1	i 1 19	+ 5
Murgab	2.9	59	0 47	- 2	1 25	- 1
Fergana	3.6	12	i 0 56	- 1	i 1 41	0
Andijan	4.0	17	i 1 1	- 1	i 1 51	+ 1
Namangan	4.1	9	i 1 3	0	1 53	0
Tchimkent	5.5	351	—	—	i 2 23	- 2
Frunse	6.6	25	—	—	3 51	+61
Quetta	7.4	206	i 1 45	- 1	e 3 2	- 7
Almata II	8.1	36	e 1 52	- 3	—	—

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1952

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Oct. 6d. 11h. 55m. 51s. Epicentre 36°·8N. 71°·4E. Depth of focus 0·025.
(as on 1952, September 19d.).

A = +·2560, B = +·7607, C = +·5964; $\delta = -11$; $h = 0$;
D = +·948, E = -·319; G = +·190, H = +·565, K = -·803.

	Δ	Az.	P.	O-C.	S.	O-C.
	^c	^o	m. s.	s.	m. s.	s.
Khorog	0·7	13	i 0 27	0	i 0 47	- 2
Kulyab	1·7	311	e 0 35	0	e 0 59	- 4
Obi-garm	2·3	325	i 0 45	+ 3	e 1 17	+ 3
Dzhergetal	2·4	357	i 0 44	+ 1	i 1 17	+ 1
Garm	2·4	338	i 0 43	0	i 1 14	- 2
Murgab	2·5	52	0 46	+ 2	1 20	+ 2
Stalinabad	2·7	310	i 0 48	+ 2	i 1 22	0
Fergana	3·6	5	i 0 57	0	i 1 41	0
Andijan	4·0	11	1 3	+ 1	i 1 51?	+ 1
Namangan	4·2	3	i 1 6	+ 1	—	—
Samarkand	4·5	312	1 9	0	e 1 51	-11
Tashkent	4·8	341	e 1 14	+ 2	e 2 9	0
Tchlmkent	5·7	347	i 1 24	0	i 2 28	- 1
Naryn	5·8	36	1 25	0	e 1 35	PP
Frunse	6·5	21	e 1 37	+ 2	i 2 49	+ 1
Rybach'e	6·7	31	—	—	2 54	+ 1
Bairam-Ali	7·4	279	1 43	- 3	—	—
Quetta	7·5	210	i 1 45	- 3	i 3 5	- 7
Almata	7·8	32	1 53	+ 2	3 20	+ 1
Przhevalsk	7·8	41	1 53	+ 2	—	—
Almata II	7·9	33	i 1 55	+ 2	—	—
Kurmenty	8·2	38	e 1 55	- 2	—	—
Ili	8·4	29	i 1 57	- 2	—	—
New Delhi	9·5	147	e 2 10	- 4	i 3 52	- 6
Ashkabad	10·4	280	2 24	- 1	—	—

Oct. 6d. 14h. 7m. 12s. Epicentre 10°·3S. 75°·4W. Focus at Base of Superficial Layers.
(as on 1950, April 30d.).

Intensity IV at Satipo; I-II at Chorillos. Epicentre 11°S. 75°W. (Strasbourg).
Depth 100km.ca.

E. Silgado.

Datos Sismológicos del Perú, 1952-1955. Boletín de la Sociedad Geológica del Perú
Tome 29, Lima, 1957, p. 15.

A = +·2481, B = -·9523, C = -·1776; $\delta = -3$; $h = +6$;
D = -·968, E = -·252; G = -·045, H = +·172, K = -·984.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	^o	^o	m. s.	s.	m. s.	s.	m. s.	m.
Huancayo	1·8	178	i 0 18	-11	—	—	—	—
La Paz	9·4	132	2 18	+ 2	i 4 23	+21	—	5·1
Bogota	14·9	5	i 3 35	+ 5	i 6 25	+10	i 3 47	PP
Chinchina	15·2	359	i 3 40	+ 6	i 6 47	SS	—	i 7·9
Galerazamba	21·0	1	i 4 47	+ 4	i 8 49	+19	i 4 59	pP
La Plata	29·2	148	5 24	-37	11 54	+64	13 12	?
San Juan	29·9	17	i 6 4	- 3	—	—	i 9 9	PcP
Fayetteville	z. 49·4	340	i 8 50	+ 2	—	—	i 10 7	pP
Morgantown	49·9	356	i 8 57	+ 5	—	—	—	—
Weston	52·6	5	i 9 12 _a	- 1	—	—	—	—
Harvard	52·7	5	i 9 13 _k	0	—	—	—	—
Buffalo (Larkin)	53·0	358	e 9 17	+ 1	—	—	—	—
Tucson	54·2	323	i 9 27	+ 3	—	—	i 10 33	PcP
Ottawa	55·4	0	e 9 33 _a	0	—	—	—	—
Halifax	55·7	11	e 9 37	+ 2	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Shawinigan Falls N.	56.6	3	e 9 41	- 1	—	—	—	—
Kirkland Lake z.	58.3	357	e 9 53	- 1	—	—	e 10 5	pP
Nelson	59.0	324	i 10 0	+ 1	—	—	—	—
Riverside z.	59.4	320	i 10 3	+ 1	i 10 7	?	i 10 52	PcP
Pasadena	60.0	320	i 10 8	+ 2	i 10 12	?	e 10 52	pP
China Lake z.	60.8	323	e 10 12	+ 1	i 10 58	PcP	e 10 54	pP
Tinemaha z.	62.0	322	i 10 21	+ 2	i 10 24	P	i 10 27	?
Fresno z.	62.7	321	e 10 25 _a	+ 1	—	—	—	—
Lick z.	64.2	321	e 10 35 _k	+ 1	—	—	—	—
Reno z.	64.5	324	e 10 38 _k	+ 2	—	—	—	—
Berkeley z.	64.9	321	e 10 40 _a	+ 2	—	—	—	—
Mineral z.	66.0	324	e 10 46 _k	+ 1	—	—	—	—
Shasta	66.7	324	e 10 50	0	e 18 18	?	—	—
Victoria	72.1	329	11 28	+ 5	—	—	—	—
Malaga	81.3	50	i 12 13	- 1	e 22 15	- 6	—	—
Granada	82.0	50	i 12 21 _k	+ 3	22 34	+ 5	—	—
Toledo	82.6	47	i 12 20 _a	- 1	e 21 45	-50	e 24 6	PPS
Almeria	82.8	51	i 12 18	- 4	22 30	- 7	—	—
Resolute Bay z.	85.7	355	i 12 54 _k	pP	—	—	—	—
Tamanrasset z.	85.7	66	i 12 34 _a	- 3	i 12 38	PcP	e 12 55	pP
Algiers Univ. z.	87.0	53	e 12 39	- 4	—	—	e 13 47	?
Clermont-Ferrand	89.4	44	i 12 54	- 1	—	—	—	—
College	91.9	336	i 13 6	0	—	—	i 13 9	P
Karlsruhe z.	93.7	42	e 13 13	- 1	—	—	e 13 39	?
Kimberley z.	93.9	120	i 13 9	- 6	—	—	—	—
Stuttgart	94.1	41	e 13 13	- 3	e 13 17	PcP	e 13 44	pP
Jena z.	96.0	40	e 13 22	- 3	—	—	e 13 40	pP
Collmberg z.	96.9	40	e 13 27	- 2	—	—	—	—
Messina z.	97.0	53	e 13 34	+ 4	—	—	i 13 46	pP
Pretoria z.	97.6	118	e 13 26	- 6	—	—	—	—
Upsala z.	100.3	31	i 14 46	+62	—	—	i 15 14	sP
Kiruna z.	101.7	24	i 13 52	+ 1	—	—	—	—
Athens	103.4	55	i 10 28 _a	?	—	—	i 10 40	?
Ksara	113.3	58	e 21 50?	PPP	—	—	e 22 34	?

Oct. 6d. 19h. 46m. 17s. Epicentre 56°·0N. 35°·0W.

A = +.4602, B = -.3222, C = +.8273; $\delta = +2$; $h = -8$;
D = -.574, E = -.819; G = +.678, H = -.474, K = -.562.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Reykjavik	10.5	33	i 2 34 _a	- 1	e 4 1	?	—	e 5.1
Kew	20.9	87	—	—	e 8 43?	+ 8	—	—
Paris	23.7	92	e 5 11	- 3	i 5 16	P	e 5 52	PPP
Clermont-Ferrand	25.8	97	e 5 36	+ 2	—	—	—	—
Besançon	25.6	92	e 5 41	- 1	—	—	—	13.7
Strasbourg	26.8	88	e 5 49	+ 5	—	—	—	—
Harvard	27.0	256	i 5 50 _k	+ 5	—	—	—	e 16.3
Stuttgart	27.5	87	e 5 51?	+ 1	—	—	—	—
Jena z.	27.8	80	e 5 47	- 6	—	—	e 5 52	P
Collmberg z.	28.4	79	e 5 51	- 7	—	—	—	—
Florence	31.6	93	e 4 3	?	—	—	e 8 54	?
Algiers Univ. z.	32.0	111	e 6 32	+ 2	—	—	—	—
Messina E.	37.8	96	e 7 29	+ 9	e 12 59	-12	—	—
Fayetteville z.	44.1	269	i 8 15	+ 3	—	—	i 10 5	PP
Tamanrasset z.	44.5	121	i 8 16 _k	+ 1	—	—	e 8 21	?
Tinemaha z.	56.7	289	e 9 47	- 1	—	—	e 10 53	PcP
Riverside z.	58.5	287	e 10 0	0	—	—	—	—

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Oct. 6d. 22h. 27m. 40s. Epicentre 48°·9N. 8°·0E. (as on 1952, September 29d.).

Felt strongly at Soultz-sous-Forêts, Hatten, Hoffen, at which places about 10 shocks were recorded during the night of the 6th-7th October; felt equally strongly at Hohwiller, Surbourg, Schwarzlach, Leiterwiller, Oberroedern, Niederbetschdorf, Oberbetschdorf, Munchhausen, Schaffhouse, and Wissembourg. Epicentre 48°·9N. 7°·9E.

Annales de l'Institut de Physique du Globe, de Strasbourg, 2e Partie, Séismologie, 1952, Nouvelle série, Tome XVII, Strasbourg, 1957, p. 75.

$$A = +\cdot6535, B = +\cdot0918, C = +\cdot7513; \quad \delta = -6; \quad h = -5;$$

$$D = +\cdot139, E = -\cdot990; \quad G = +\cdot744, H = +\cdot105, K = -\cdot660.$$

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.
Karlsruhe	0·3	67	i 0	6 _a	0 _g	i 0	10	0 _g	—	—
Strasbourg	0·4	206	i 0	8	0 _g	i 0	14	+ 1 _g	i 0	12
Stuttgart	0·8	100	i 0	19	+ 1	i 0	27	+ 1 _g	i 0	15 _a
Basle	1·4	191	e 0	27	0	e 0	46	0	—	—
Ravensburg	1·5	136	e 0	32?	+ 2 _g	i 0	51	+ 1 _g	i 0	53
Zürich	1·6	166	e 0	30	0	e 0	51	0	—	—
Neuchatel	2·0	200	i 0	39	- 1 _g	i 1	6	0 _g	—	—
Besançon	2·1	220	e 0	41	- 1 _g	e 1	9	0 _g	e 1	3
Chur	2·3	157	e 0	42	0*	e 1	14	+ 2*	0	46
Jena	3·1	47	e 1	1	- 1 _g	i 1	35	- 1*	e 0	58
Paris	3·6	271	e 1	4	0*	i 1	41	- 1	e 1	0
Collmberg	4·0	51	e 1	21	+ 1 _g	e 2	4	+ 1*	e 1	13
Prague	4·4	71	e 1	49	?	2	0	- 2	2	13
Clermont-Ferrand	4·6	228	i 1	26	+ 4*	i 2	26	+ 6*	—	—
Triest	5·1	128	e 1	52	?	e 2	32	- 3*	—	—

Oct. 6d. 22h. 29m. 34s. Epicentre 53°·5N. 160°·5E. (as on 1948, December 10d.).

$$A = -\cdot5631, B = +\cdot1994, C = +\cdot8019; \quad \delta = -11; \quad h = -7;$$

$$D = +\cdot334, E = +\cdot943; \quad G = -\cdot756, H = +\cdot268, K = -\cdot597.$$

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Klyuchi	2·9	3	0	55	- 3 _g	1	38	+ 2 _g	—	—	—
Magadan	8·1	323	2	8	+ 6	—	—	—	—	—	—
Kurilsk	11·7	230	e 3	1	+ 10	—	—	—	—	—	—
Ulegorsk	12·4	256	e 3	5	+ 4	5	27	+ 6	—	—	—
Yuzno-Sakhlinsk	13·1	247	e 3	13	+ 3	—	—	—	—	—	—
Vladivostok	21·5	253	e 4	59	+ 7	—	—	—	—	—	—
College	28·0	45	i 5	52	- 3	e 10	33	- 5	—	—	e 11·7
Nanking	36·7	253	e 7	16	+ 6	—	—	—	—	—	—
Resolute Bay	42·9	23	i 8	2 _k	0	—	—	—	—	—	—
Victoria	46·0	64	8	25	- 2	—	—	—	—	—	—
Manila	49·7	235	i 8	44	- 12	—	—	—	—	—	—
Hungry Horse	51·0	59	e 9	4	- 2	—	—	—	—	—	—
Shasta	51·5	72	e 9	7 _a	- 2	—	—	—	—	—	—
Sverdlovsk	52·1	317	e 9	17	+ 3	e 16	39	+ 1	—	—	—
Mineral	52·2	72	e 9	12 _k	- 3	—	—	—	—	—	—
Almata II	53·1	296	e 9	22	+ 1	—	—	—	—	—	—
Almata	53·4	296	e 9	21	- 3	—	—	—	—	—	—
Berkeley	53·5	74	i 9	20 _a	- 4	—	—	—	—	—	—
Reno	53·8	70	e 9	24 _k	- 2	—	—	—	—	—	—
Lick	54·2	74	e 9	26 _a	- 3	—	—	—	—	—	—
Rybach'e	54·4	296	e 9	30	- 1	—	—	—	—	—	—
Frunse	54·9	297	i 9	34	- 1	e 17	16	0	—	—	—
Naryn	55·1	295	e 9	36	0	i 17	18	0	—	—	—
Kiruna	55·4	343	i 9	37 _a	- 1	e 17	31	+ 9	e 20	34	?
Fresno	55·7	73	e 9	38 _a	- 2	—	—	—	—	—	e 26·0
Scoresby Sund	56·3	2	e 10	2	+ 17	—	—	—	—	—	29·4
Tinemaha	56·3	72	i 9	43	- 2	—	—	—	i 9	51	?
Andijan	57·6	296	i 9	53	- 1	17	50	- 1	—	—	—
China Lake	57·6	72	i 9	51	- 3	—	—	—	—	—	—
Namangan	57·8	297	e 10	2	+ 7	—	—	—	—	—	—

Continued on next page.

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	Δ	Az.	P		O-C.	S.		O-C.	Supp.		L.
	^o	^e	m.	s.	s.	m.	s.	s.	m.	s.	m.
Fergana	58.1	296	e 10	0	+ 2	—	—	—	—	—	—
Tchimkent	58.1	300	i 9	55	- 3	—	—	—	—	—	—
Pasadena	58.5	74	i 9	57	- 3	i 10	4	P	i 10	23	?
Tashkent	58.8	299	e 10	2	0	—	—	—	—	—	—
Boulder City	59.1	70	i 10	2	- 2	—	—	—	—	—	—
Riverside	59.1	74	e 10	0	- 4	—	—	—	e 10	13	?
Nelson	59.3	70	i 10	0	- 6	—	—	—	—	—	—
Dzhergetal	59.3	296	e 10	6	0	—	—	—	—	—	—
Pulkovo	60.2	335	—	—	—	e 18	26	+ 1	—	—	—
Khorog	60.3	294	e 10	14	+ 1	—	—	—	—	—	—
Obi-garm	60.5	297	e 10	15	+ 1	e 18	31	+ 2	—	—	—
Kulyab	61.0	296	—	—	—	e 18	36	+ 1	—	—	—
Samarkand	61.2	299	e 10	16	- 3	—	—	—	—	—	—
Moscow	61.4	328	e 10	20	0	—	—	—	—	—	—
Upsala	63.1	341	i 10	32	0	e 19	1	- 1	e 12	51	PP
											e 33.4
Tucson	64.0	70	e 10	36	- 2	—	—	—	—	—	—
Bairam-Ali	65.3	301	e 10	44	- 2	—	—	—	—	—	—
Kirkland Lake	66.5	40	e 10	52	- 2	—	—	—	—	—	—
Ashkabad	66.9	303	i 10	56	0	—	—	—	—	—	—
Copenhagen	68.0	342	—	—	—	20	8	+ 6	—	—	—
Grozny	68.6	315	i 11	7	0	—	—	—	—	—	—
Piatigorsk	69.1	318	i 11	10	0	20	17	+ 2	—	—	—
Fayetteville	70.0	57	i 11	10	- 5	—	—	—	—	—	—
Gori	70.3	316	e 11	20	+ 3	e 20	34	+ 5	—	—	—
Tiflis	70.3	315	e 11	17	0	e 20	29	0	—	—	—
Kirovobad	70.4	313	e 11	17	- 1	e 20	30	0	—	—	—
Ottawa	70.4	39	e 11	16	- 2	—	—	—	—	—	—
Shawinigan Falls N.	70.5	35	e 11	16	- 2	—	—	—	—	—	—
Lwow	70.7	332	e 11	19	- 1	—	—	—	—	—	—
Borzhomi	70.8	316	i 11	20	0	20	36	+ 1	—	—	—
Tsikhli-Dzhvari	70.8	316	e 11	24	+ 4	—	—	—	—	—	—
Zugdidi	70.8	317	e 11	22	+ 2	—	—	—	—	—	—
Potsdam	71.0	341	e 11	27	+ 5	i 20	43	+ 6	i 20	58	PS
Theodosia	71.2	323	e 11	20?	- 3	e 20	40?	0	—	—	e 40.4
Goris	71.4	312	e 11	25	+ 1	e 20	45	+ 3	—	—	—
Cernauti	71.5	331	e 11	25	+ 1	20	44	+ 1	—	—	—
Erevan	71.7	314	e 11	25	- 1	—	—	—	—	—	—
Kishinev	71.8	328	i 11	26	0	20	47	+ 1	—	—	—
Collmberg	72.1	340	e 11	28	0	—	—	—	e 11	41	PcP
Yalta	72.2	323	e 11	23?	- 6	e 20	48?	- 3	—	—	—
Uzhgorod	72.3	333	e 11	31	+ 2	e 20	54	+ 2	—	—	—
Jena	72.7	340	e 11	30	- 2	e 11	46	PcP	e 12	13	?
Prague	72.9	338	e 11	37	+ 4	e 21	6	+ 7	e 11	55	PcP
Poona	73.4	279	i 10	48	- 48	—	—	—	—	—	—
Morgantown	73.6	46	i 11	35	- 2	—	—	—	—	—	—
Harvard	74.4	37	i 11	40k	- 2	—	—	—	—	—	e 44.6
Weston	74.6	37	e 11	41k	- 2	—	—	—	—	—	—
Halifax	75.2	31	i 11	46k	0	21	16	- 9	—	—	—
Karlsruhe	75.2	342	e 12	1	PcP	—	—	—	—	—	—
Stuttgart	75.2	342	e 11	47	+ 1	21	26	+ 1	e 11	59	PcP
											e 42.4
Strasbourg	75.7	343	e 11	53	+ 4	e 20	56	- 34	e 16	16	PPP
Paris	76.4	346	e 11	53	0	i 12	42	?	i 12	6	PcP
Triest	77.2	337	e 11	57	0	e 21	47	0	e 12	3	PcP
Besançon	77.3	343	e 12	2	+ 4	e 12	34	?	e 12	12	PcP
Salo	78.0	339	—	—	—	e 21	56	+ 1	e 23	4	?
Clermont-Ferrand	79.3	345	e 12	11	+ 2	—	—	—	—	—	—
Florence	79.6	338	i 12	15k	+ 5	i 22	16	+ 4	i 22	32	ScS
Ksara	80.7	316	e 12	32	+ 16	e 23	35	PPS	—	—	—
Rome	81.1	337	e 23	33	PPS	e 22	33	+ 5	e 31	23	SSS
Messina	83.8	334	e 12	40	+ 8	e 22	53	- 2	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tortosa	84.5	345	12 52	+16	—	—	—	—
Alicante	87.0	346	12 55	PcP	i 23 31	ScS	—	43.8
Granada	88.6	348	—	—	23 50	+ 8	—	48.1
Almeria	88.8	347	13 0	PcP	23 52	+ 8	16 32	PP
Tamanrasset	z. 101.0	337	e 13 53	0	—	—	16 22	?
Pretoria	z. 135.2	290	e 19 20	[- 2]	—	—	i 23 8	PKS
Kimberley	z. 139.4	290	e 19 23	[- 6]	—	—	—	—

Oct. 7d. 4h. 28m. 11s. Epicentre 20°·8S. 69°·0W. (as on 1949, July 1d.).

$A = +.3353$, $B = -.8735$, $C = -.3531$; $\delta = +11$; $h = +4$;
 $D = -.934$, $E = -.358$; $G = -.127$, $H = +.330$, $K = -.936$.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Antofagasta	E. 3.1	204	e 1 29	S	(e 1 29)	0	i 2 8	?
La Paz	4.4	11	i 1 17 _a	- 1*	i 2 4	+ 2	i 1 52	?
Huancayo	10.6	325	e 2 50	PP	—	—	—	—
San Juan	39.0	5	i 7 26	- 4	—	—	—	—
Fayetteville	z. 61.4	337	i 10 17	- 3	—	—	i 10 52	PcP
Harvard	63.0	358	e 10 28	- 3	—	—	—	—
Tucson	66.2	322	e 10 51	- 1	—	—	—	—
Boulder City	71.2	322	i 11 22	- 1	—	—	—	—
Riverside	z. 71.3	319	i 11 23	0	—	—	—	—
Pasadena	71.9	319	i 11 26	- 1	—	—	—	—
China Lake	z. 72.7	320	e 11 30	- 2	—	—	—	—
Tinemaha	z. 74.0	321	e 11 39	0	—	—	—	—
Lick	z. 76.2	319	e 12 10	PcP	—	—	—	—
Reno	z. 76.5	322	e 11 41	-13	—	—	—	—
Mineral	z. 78.1	321	e 12 16	PcP	e 22 31	PS	—	—
Shasta	z. 78.8	321	e 12 3	- 3	e 22 22	ScS	—	—
Hungry Horse	z. 79.7	331	i 12 11	0	—	—	—	—
Tamanrasset	z. 84.6	63	e 12 41	+ 5	—	—	c 13 6	?

Oct. 7d. 5h. 29m. 49s. Epicentre 38°·8N. 70°·4E.

$A = +.2621$, $B = +.7361$, $C = +.6240$; $\delta = -8$; $h = -1$;
 $D = +.942$, $E = -.335$; $G = +.209$, $H = +.588$, $K = -.781$.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Garm	0.2	339	i 0 1	- 3 _g	i 0 4	- 3 _g	—	—
Obi-garm	0.6	260	i 0 14	+ 1*	e 0 23	+ 2*	—	—
Dzhergetal	0.8	57	i 0 13	- 3 _g	c 0 23	- 3 _g	—	—
Kulyab	1.0	208	i 0 19	- 1 _g	—	—	—	—
Stalinabad	1.3	259	e 0 23	- 2*	e 0 41	- 1*	—	—
Khorog	1.6	145	e 0 29	- 1	0 53	0 _g	—	—
Fergana	1.9	34	e 0 32	- 2	c 1 0	0*	—	—
Namangan	2.4	24	c 0 43	- 1*	c 1 14	- 1*	—	—
Andijan	2.5	37	c 0 42	- 1	i 1 20	+ 2*	—	—
Tashkent	2.7	342	c 0 49	0*	i 1 22	- 2*	—	—
Murgab	2.8	99	e 0 52	+ 1*	e 1 34	+ 2 _g	—	—
Samarkand	2.8	288	0 49	- 2*	1 27	0*	—	—
Tchimkent	3.5	350	—	—	c 1 40	0	c 1 48	S*
Naryn	5.0	57	—	—	i 2 48	+ 3 _g	—	—
Frunse	5.2	36	1 21	0	i 2 49	- 3 _g	e 1 35	P*
Almata II	6.9	47	c 1 45	0	—	—	—	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

849

Oct. 7d. 16h. 8m. 27s. Epicentre 37°·5N. 20°·8E. (as on 5d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Athens		2·4	79	e 0	46	+ 2*	e 1	21	+ 2 _g	i 1	32	?	—
Messina	z.	4·2	281	e 1	8	+ 1	e 1	58	+ 1	e 1	44	?	—
Sofia		5·5	20	e 1	30	+ 5	e 3	2	0 _g	e 3	18	?	—
Belgrade		7·3	358	e 2	22 _k	- 4 _g	e 3	37	- 4*	e 4	15	?	—
Istanbul		7·3	59	e 2	12	+ 4*	e 3	21	+ 6	—	—	—	4·3
Rome		7·8	307	e 3	18	?	e 3	30	+ 2	—	—	—	i 4·5
Bucharest		8·0	29	e 2	9	+ 9	e 3	57	- 5*	e 3	51	?	—
Timisoara		8·3	2	e 2	45	- 1 _g	e 3	48	+ 8	e 4	47	S _g	—
Florence		9·6	314	—	—	—	e 5	9	- 8 _g	e 6	17	?	—
Padova		9·7	319	—	—	—	e 6	3	?	—	—	—	—
Triest		9·7	329	e 2	21	- 1	e 4	14	- 1	i 5	18	S _g	5·5
Bologna		10·0	317	—	—	—	e 5	4	+ 3*	e 6	21	?	—
Budapest		10·1	353	—	—	—	e 5	53	S _g	e 6	13	?	—
Helwan	z.	11·6	128	5	2	S	(5 2)	+ 1	+	e 12	6	PcS	e 5·7
Pavia		11·6	315	—	—	—	e 5	27	SS	—	—	—	e 5·7
Ksara		12·8	102	e 3	59	+53	e 6	19	+49	—	—	—	—
Prague		13·4	342	e 3	28	PP	e 5	42	- 3	e 6	5	SS	e 7·8
Stuttgart		14·1	327	e 3	34	PP	e 7	23	?	—	—	—	e 8·4
Algiers Univ.	z.	14·2	272	e 3	21	- 3	e 4	14	?	e 3	13	?	—
Karlsruhe		14·6	326	e 3	33	+ 3	—	—	—	—	—	—	e 8·6
Collmberg	z.	14·9	341	e 3	42	+ 8	—	—	—	—	—	—	—
Jena		14·9	337	e 3	44	PP	e 3	52	PPP	e 8	42	PcP	e 8·4
Potsdam		15·8	342	—	—	—	e 6	59	SS	—	—	—	e 9·6
Tamanrasset	z.	19·7	226	i 4	32 _k	- 2	—	—	—	—	—	—	e 8·6
Kew		20·4	320	e 4	34	- 7	—	—	—	e 7	5	?	e 11·6
Upsala		22·5	356	e 5	11	+ 9	e 16	11	ScS	e 5	47	PPP	—
Kiruna		30·4	0	i 6	16	0	e 13	54	?	—	—	—	e 16·6
Fayetteville	z.	85·2	313	e 12	40	+ 1	—	—	—	—	—	—	—

Oct. 7d. 16h. 51m. 4s. Epicentre 43°·8N. 141°·0E. Depth of focus 0·030.
(as on 1952, September 14d.).

Intensity IV at Urakawa and Yatiyo. Epicentre 44°N. 141°·5E. Depth 150km. ca.
Macroseismic radius 200-300km.
Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 382, with
macroseismic chart.

$$A = -\cdot5627, B = +\cdot4557, C = +\cdot6897; \quad \delta = -2; \quad h = -3; \\ D = +\cdot629, E = +\cdot777; \quad G = -\cdot536, H = +\cdot434, K = -\cdot724.$$

		Δ	Az.	P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	s.
Sapporo		0·8	161	e 0	31 _k	0	0	51	- 5
Mori	E.	1·7	190	e 0	38	0	—	—	—
Obihiro		1·8	119	e 0	43	+ 4	1	7	- 2
Hakodate		2·0	186	e 0	35	- 6	1	13	+ 1
Urakawa		2·1	142	e 0	37	- 5	1	7	- 7
Abashiri		2·4	85	0	46	+ 1	1	18	- 1
Aomori		3·0	183	i 0	50	- 1	1	28	- 3
Hatinohe		3·3	173	0	51	- 4	—	—	—
Nemuro		3·4	96	e 0	56	0	1	35	- 4
Akita	z.	4·1	189	e 1	4	0	1	52	- 2
Morioka		4·1	179	e 1	3	- 1	1	48	- 6
Miyako		4·2	170	1	2	- 4	1	47	-10
Mizusawa		4·7	179	1	8	- 4	1	58	-10
Sendai		5·5	181	e 1	20	- 2	2	19	- 7
Hokusima		6·0	184	e 1	26	- 2	2	32	- 5
Onahama		6·8	181	e 1	56	+18	3	49	+53
Mito		7·4	183	e 1	44	- 2	3	1	- 8
Oiwake		7·7	195	e 2	1	+11	—	—	—
Kiruna	z.	60·1	338	i 9	47	+ 1	—	—	—

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1952

850

Oct. 7d. 18h. 2m. 14s. Epicentre 31°·5N. 87°·5E.

A = +·0373, B = +·8534, C = +·5199; $\delta = -2$; $h = +1$;
D = +·999, E = -·044; G = +·023, H = +·519, K = -·854.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
Chatra		4·7	186	i 1	15	+ 1	i 2	11	+ 1	2	23	S _g	2·2
Shillong	E.	7·1	146	e 1	44	- 4	e 3	5	- 5	3	27	S*	—
Calcutta	N.	9·0	175	e 2	15	+ 2	i 4	1	+ 3	—	—	—	—
New Delhi		9·4	255	e 2	19	+ 1	i 4	7	0	4	45	S*	—
Hyderabad	N.	16·2	212	—	—	—	e 7	27	SSS	—	—	—	8·6
Quetta		17·6	271	e 4	7	- 1	i 7	20	- 3	—	—	—	—
Poona		17·8	227	i 4	11	0	7	28	0	7	53	SS	9·7
Bombay		18·3	230	i 4	14	- 3	i 7	33	- 6	e 7	56	SS	8·4
Madras	E.	19·6	202	e 4	35	+ 3	i 8	17	+ 9	4	57	PP	9·2
Hong Kong		25·4	104	e 5	33	+ 2	e 10	4	+ 8	—	—	—	—
Zô-Sè	Z.	29·0	81	6	4 _a	0	11	4	+10	—	—	—	—
Ksara		43·1	287	e 8	14	+10	16	4	?	—	—	—	—
Kishinev		46·9	307	e 8	38	+ 4	—	—	—	—	—	—	—
Istanbul		47·3	299	—	—	—	e 15	31	0	e 19	7	SS	23·3
Helwan	Z.	47·9	283	—	—	—	e 15	43	+ 4	e 19	22	SS	—
Lwow		50·0	311	e 8	58	0	—	—	—	—	—	—	—
Uzhgorod		51·2	309	e 9	8	+ 1	e 16	30	+ 5	—	—	—	—
Kiruna		52·6	333	i 9	16	- 2	e 16	46	+ 2	e 20	43	SS	e 23·7
Upsala		53·3	324	i 9	23	0	e 19	15	ScS	e 14	9	PcS	e 24·8
Prague		56·1	312	e 9	47	+ 4	e 17	46	PS	e 12	15	PP	—
Collnberg	Z.	56·8	313	e 9	48	0	—	—	—	—	—	—	—
Jena		57·7	313	e 9	54	- 1	e 10	22	?	e 10	27	?	—
Messina	E.	58·1	298	—	—	—	e 17	58	0	e 22	58	?	—
Rome		59·3	303	—	—	—	e 18	15	+ 1	e 22	43	?	e 31·6
Florence		59·6	305	e 13	8	?	e 36	10	?	e 40	4	P'P'	—
Stuttgart		59·7	311	e 10	8	- 1	e 18	23	+ 4	e 10	17	?	e 32·8
Kew		64·8	316	e 10	46	+ 3	—	—	—	—	—	—	e 33·8
Tamanrasset	Z.	71·9	286	e 11	27	0	—	—	—	e 11	31	P	—
Resolute Bay	Z.	74·1	1	e 11	38 _a	- 2	—	—	—	—	—	—	—
College		74·8	21	i 11	39	- 5	—	—	—	—	—	—	—

Oct. 8d. 4h. 29m. 22s. Epicentre 36°·7N. 70°·5E. Depth of focus 0·030.
(as on 1952, September 20d.).

A = +·2683, B = +·7576, C = +·5951; $\delta = +9$; $h = 0$;
D = +·943, E = -·334; G = +·199, H = +·561, K = -·804.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		
				m.	s.		m.	s.		m.	s.	
Khorog		1·2	48	i 0	34	0	i 1	0	0	—	—	
Obi-garm		2·1	342	i 0	44	+ 2	i 1	15	+ 1	—	—	
Stalinabad		2·3	323	i 0	43	- 1	i 1	15	- 2	—	—	
Dzhergetal		2·6	12	i 0	47	0	i 1	23	0	—	—	
Fergana		3·8	15	i 1	3	+ 2	i 1	50	+ 2	—	—	
Samarkand		4·1	319	1	3	- 1	1	50	- 4	—	—	
Andijan		4·3	20	i 1	8	+ 1	i 2	0	+ 1	—	—	
Namangan		4·4	12	i 1	10	+ 2	e 2	1	0	—	—	
Tashkent		4·7	349	1	13	+ 1	—	—	—	—	—	
Tchimkent		5·6	354	i 1	22	- 1	2	28	0	—	—	
Naryn		6·4	41	e 1	33	0	2	47	+ 1	—	—	
Frunse		6·9	26	i 1	42	+ 2	i 3	2	+ 4	—	—	
Quetta		7·1	205	i 1	38	- 4	i 2	55	- 7	—	—	
Rybach'e		7·2	35	i 1	45	+ 1	—	—	—	—	—	
Almata		8·2	35	i 1	58	+ 1	—	—	—	—	—	
Almata II		8·4	37	i 2	1	+ 2	—	—	—	—	—	
Przhevalsk		8·4	44	2	0	+ 1	—	—	—	—	—	
Ili		8·8	33	i 2	4	0	—	—	—	—	—	
New Delhi		9·8	143	i 2	15	- 2	i 4	3	- 2	2	32	?
Poona	Z.	18·3	170	i 3	56	- 4	e 7	46	SS	—	—	—
Kiruna	Z.	41·7	334	i 7	30 _a	+ 2	—	—	—	—	—	—

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1952

851

Oct. 8d. 5h. 17m. 14s. Epicentre 48°·9N. 8°·0E. (as on 6d.).

Intensity VII-VIII in the epicentral region ; felt throughout the Department of Bas-Rhin (intensity IV at Strasbourg) and in the Departments of Haut-Rhin, Moselle, and Vosges. Felt also in Germany (intensity IV-V at Baden and Württemberg) and in Switzerland (intensity III at Basle, Zürich, and Stäfa). Epicentre 48°·9N. 7°·9E. (Strasbourg). Annales de l'Institut de Physique du Globe de Strasbourg, 2e partie, Séismologie, 1952, Nouvelle série, Tome XVII, Strasbourg, 1957, p. 76.

Dr. E. Wanner.

Jahresbericht des Erdbebendienstes der Schweiz im Jahre 1952, Zürich, 1953, p. 2, with macroseismic chart, Figure 4 outside the text.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Karlsruhe	0·3	67	i 0	6 _a	0 _g	i 0	11	+ 1 _g	i 0	17	S	—
Strasbourg	0·4	206	i 0	8	0 _g	i 0	14	+ 1 _g	—	—	—	—
Stuttgart	0·8	100	i 0	16 _a	0 _g	e 0	26	0 _g	i 0	28	S*	—
Basle	1·4	191	i 0	28	0 _g	i 0	47	+ 1 _g	—	—	—	—
Ravensburg	1·5	136	e 0	31	+ 1 _g	e 0	50	0 _g	c 0	36	?	i 1·0
Zürich	1·6	166	i 0	30 _a	0	i 0	51	0	—	—	—	—
Neuchatel	2·0	200	e 0	39	- 1 _g	e 1	6	0 _g	—	—	—	—
Besançon	2·1	220	e 0	41	- 1 _g	i 1	9	0 _g	e 0	52	?	—
Chur	2·3	157	e 0	39 _k	- 1	e 1	18	+ 2 _g	e 0	45	P _g	—
Cheb	N. 3·1	67	e 0	52	+ 1	e 1	29	0	e 0	57	P*	—
Jena	3·1	47	e 0	56?	0*	i 1	34	- 2*	i 0	59	P _g	i 2·2
Paris	3·6	271	e 0	56	- 2	i 1	40	- 2	e 1	4	P*	—
Collmberg	z. 4·0	51	e 1	7	+ 3	e 1	56	+ 4	e 1	19	P _g	—
Prague	4·4	71	i 1	25	- 3 _g	i 2	13	- 2*	i 2	20	S _g	—
Clermont-Ferrand	4·6	228	i 1	27	- 5 _g	i 2	27	- 5 _g	—	—	—	—
Potsdam	4·8	41	—	—	—	e 2	36	- 3 _g	i 2	33	S*	—
Triest	5·1	128	e 1	59	?	e 2	38	+ 3*	i 2	43	S _g	e 2·9
Raciborzu	6·7	76	e 2	49	?	e 3	42	+ 1 _g	—	—	—	e 3·9
Bogota	81·3	267	e 11	16	-64	—	—	—	—	—	—	—

Oct. 8d. 8h. 39m. 57s. Epicentre 48°·9N. 8°·0E. (as at 5h.).

Felt widely in the epicentral region of the main shock in the Wissembourg-Surbourg-Seltz Triangle. Epicentre 48°·9N. 7°·9E. Annales de l'Institut de Physique du Globe de Strasbourg, 2e partie, Séismologie, 1952, Nouvelle série, Tome XVII, Strasbourg, 1957, p. 76.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Karlsruhe	0·3	67	i 0	7 _a	+ 1 _g	i 0	11	+ 1 _g	i 0	9	?	—
Strasbourg	0·4	206	i 0	9	+ 1 _g	i 0	14	+ 1 _g	i 0	17	S*	—
Stuttgart	0·8	100	i 0	16 _a	0*	i 0	27	+ 1 _g	i 0	17	P _g	—
Basle	1·4	191	e 0	28	0 _g	e 0	47	+ 1	—	—	—	—
Ravensburg	1·5	136	e 0	32	+ 2 _g	i 0	51	+ 1 _g	e 0	34	?	i 0·9
Zürich	1·6	166	e 0	31	+ 1	e 0	53	0 _g	—	—	—	—
Neuchatel	2·0	200	e 0	40	0 _g	e 1	15	+ 9 _g	—	—	—	—
Besançon	2·1	220	e 0	41	- 1 _g	e 1	10	+ 1 _g	—	—	—	e 1·3
Chur	2·3	157	e 0	42	0*	e 1	15	- 1 _g	e 0	45	P _g	—
Jena	3·1	47	e 0	59	- 3 _g	i 1	37	+ 1*	i 1	42	S _g	—
Paris	3·6	271	e 1	1	- 3*	i 1	40	- 2	1	11	P _g	—
Collmberg	z. 4·0	51	e 1	15	+ 4*	e 2	5	+ 2*	e 1	26	P _g	e 2·7
Prague	4·4	71	—	—	—	e 2	16	+ 1*	i 2	20	S _g	e 2·7

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1952

852

Oct. 8d. 8h. 42m. 12s. Epicentre 36°·5N. 71°·0E. Depth of focus 0·015.
(as on 1952, September 14d.).

A = +·2623, B = +·7619, C = +·5922; $\delta = -1$; $h = 0$;
D = +·946, E = -·326; G = +·193, H = +·560, K = -·806.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.
Khorog		1·1	26	i 0	24	0	i 0	40	- 3	—	—
Obi-garm		2·4	335	i 0	45	+ 5	i 1	15	+ 5	—	—
Stalinabad		2·7	319	i 0	45	+ 1	i 1	17	0	—	—
Dzhergetal		2·7	4	i 0	47	+ 3	i 1	19	+ 2	—	—
Murgab		3·0	51	i 0	47	- 1	1	21	- 3	—	—
Fergana		3·9	9	i 1	0	+ 1	e 1	45	0	—	—
Andijan		4·4	15	i 1	6	0	i 1	57	0	—	—
Namangan		4·5	7	i 1	8	0	i 1	59	0	—	—
Samarkand		4·5	317	1	9	+ 1	2	2	+ 3	—	—
Tashkent		5·0	347	e 1	15	+ 1	e 2	7	- 5	—	—
Tchimkent		5·9	349	i 1	27	+ 1	2	34	+ 1	i 2	30
Naryn		6·3	37	e 1	32	0	i 2	45	+ 2	i 2	40
Frunse		7·0	23	i 1	40	- 1	i 2	58	- 2	—	—
Quetta		7·1	209	i 1	42	- 1	i 2	58	- 4	—	—
Rybach'e		7·1	32	i 1	42	- 1	i 3	7	+ 5	—	—
Bairam-Ali		7·2	282	1	43	- 1	3	3	- 2	—	—
Almata		8·2	33	i 1	56	- 1	i 3	27	- 2	—	—
Almata II		8·3	34	e 1	59	0	—	—	—	—	—
Przhevalsk		8·3	42	1	58	- 1	—	—	—	—	—
Ili		8·8	30	i 2	2	- 3	—	—	—	—	—
New Delhi	N.	9·4	145	e 2	5	- 8	3	58	0	4	8
Ashkabad		10·2	282	e 2	24	0	4	16	- 1	—	SS
Semipalatinsk		15·4	23	e 3	34	+ 3	—	—	—	—	—
Chatra		16·8	120	e 3	43	- 6	—	—	—	—	—
Poona	z.	18·1	171	e 3	56	- 8	17	28	+ 9	i 4	22
Kirovobad		19·7	290	e 4	21	0	—	—	—	—	PP
Kiruna	z.	42·1	334	i 7	43	+ 2	—	—	—	i 8	29

Oct. 8d. 14h. 24m. 1s. Epicentre 39°·0N. 112°·7E.

A = -·3007, B = +·7188, C = +·6268; $\delta = -3$; $h = -2$;
D = +·923, E = +·386; G = -·242, H = +·578, K = -·779.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Nanking		8·5	142	e 2	5	- 2	—	—	—	—	—	—
Zô-Sè	z.	10·5	136	e 2	36 ^a	+ 1	—	—	—	—	—	—
Hukuoka		15·3	105	e 3	38	- 1	e 8	6	L	—	—	(e 8·1)
Kagosima		16·3	111	e 3	47	- 5	—	—	—	—	—	e 8·8
Hong Kong		16·7	174	7	12	S	(7 12)	+ 9	—	—	—	8·6
Matuyama		16·9	100	e 4	15	PP	e 7	17	+10	—	—	e 8·6
Takamatu		17·7	97	4	12	+ 2	9	23	L	—	—	(9·4)
Nagano	N.	20·3	88	e 4	44	+ 4	—	—	—	—	—	—
Matusiro		20·3	88	e 4	45	+ 5	e 8	26	+ 3	e 8	48	SS
Inawasiro		21·6	83	e 5	6	+12	—	—	—	—	—	—
Shillong	E.	22·1	240	e 4	56	- 3	e 8	55	- 3	5	26	PP
Chatra		24·6	248	i 5	23	0	—	—	—	—	—	—
Manila		25·4	160	i 5	16	-15	i 9	35	-21	—	—	—
Calcutta	E.	26·5	239	e 8	46	PcP	i 12	26	PcS	—	—	i 15·0
Quetta	z.	38·3	272	i 7	25	+ 1	—	—	—	—	—	—
Poona		39·3	250	—	—	—	e 13	32	- 2	—	—	e 20·5
Bombay		39·8	252	e 7	41	+ 5	e 13	55	+13	—	—	17·4
Kiruna		55·4	333	i 9	38	0	e 17	30	+ 8	e 19	31	ScS
College		59·2	29	i 10	5	0	—	—	—	—	—	e 29·4
Upsala		59·6	324	—	—	—	e 24	28	SSS	—	—	e 31·0
Ksara		60·3	291	e 10	14	+ 1	21	18	?	—	—	—
Istanbul		61·6	302	e 10	21	- 1	e 18	45?	+ 2	e 12	44	PP
Resolute Bay		65·1	6	e 10	45 ^k	0	e 19	32	+ 5	—	—	—
Collnberg	z.	66·1	317	e 10	50	- 1	—	—	—	—	—	—
Cheb		67·0	317	—	—	—	e 26	36	SSS	e 30	21	Q

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m. s.	s.	m. s.		m.
Jena	z.	67.0	318	e 10	57	0	—	—	e 11 15	PcP	—
Stuttgart		69.5	317	e 11	12	0	—	—	e 11 42	PcP	e 34.0
Messina	N.	72.0	305	e 15	43	PPP	e 21 20	PS	e 25 35	SS	e 41.6
Besançon		72.2	317	e 11	29	0	—	—	—	—	—
Alicante		81.6	313	12	13	- 8	—	—	—	—	—
Hungry Horse		83.6	29	e 12	32	+ 1	—	—	—	—	—
Granada		84.2	314	—	—	—	32 58	SSS	—	—	45.7
Shasta		86.1	39	e 12	44	0	—	—	—	—	—
Mineral	z.	86.8	39	e 12	47	0	—	—	—	—	—
Reno	z.	88.2	38	e 12	55	+ 1	—	—	—	—	—
Tamanrasset	z.	88.3	298	e 13	56	+61	e 14 42	?	e 16 25	PP	—
Berkeley	z.	88.3	41	e 12	56	+ 1	—	—	—	—	—
Lick	z.	89.0	41	e 12	58	0	—	—	—	—	—
Fresno	z.	90.4	40	e 13	11	+ 7	—	—	—	—	—
Tinemaha	z.	91.0	39	e 13	9	+ 2	—	—	—	—	—
China Lake	z.	92.3	39	e 13	14	+ 1	—	—	e 13 18	PcP	—
Boulder City		93.5	37	e 12	49	-30	—	—	—	—	—
Nelson		93.7	37	i 13	20	0	—	—	—	—	—
La Paz		157.6	2	e 20	4	[+ 6]	—	—	—	—	—

Oct. 8d. 14h. 25m. 10s. Epicentre 48°·9N. 8°·0E. (as at 8h.).

Felt fairly widely in the epicentral region of the main shock, and particularly in Hatten, Kesseldrof, Niederroedern, Wissembourg, Oberseebach, etc. Epicentre 48°·9N. 7°·9E. Annales de l'Institut de Physique du Globe de Strasbourg, 2e partie, Séismologie, 1952, Nouvelle série, Tome XVII, Strasbourg, 1957, p. 76.

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m. s.	s.	m. s.		m.
Karlsruhe		0.3	67	i 0	5 _a	- 1 _g	i 0 10	0 _g	i 0 7	?	—
Strasbourg		0.4	206	i 0	10	+ 2 _g	i 0 13	0 _g	i 0 11	P*	—
Stuttgart		0.8	100	e 0	15	- 1 _g	i 0 26	0 _g	e 0 18	P	—
Basle		1.4	191	e 0	25	- 2	e 0 46	0	—	—	—
Zürich		1.6	166	e 0	30	0	i 0 50	- 1	—	—	—
Neuchatel		2.0	200	—	—	—	e 1 5	- 1 _g	—	—	—
Besançon		2.1	220	—	—	—	e 1 15	+ 6 _g	—	—	e 1.5
Jena		3.1	47	e 0	55	- 1*	e 1 33	- 3*	i 1 41	S _g	—
Collmburg	z.	4.0	51	e 1	14	+ 3*	e 2 5	+ 2*	e 2 18	S _g	—
Prague		4.4	71	—	—	—	e 2 8	+ 6	e 2 26	S _g	e 2.5

Oct. 8d. 20h. 30m. 31s. Epicentre 60°·9N. 156°·3W.

A = -·4476, B = -·1965, C = +·8724; $\delta = +4$; $h = -10$;
D = -·402, E = +·916; G = -·799, H = -·351, K = -·489.

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m. s.	s.	m. s.		m.
College		5.5	41	i 1	25	0	—	—	—	—	—
Resolute Bay		25.4	32	e 5	24 _a	- 7	e 9 44	-12	—	—	—
Hungry Horse		27.0	98	i 5	45	0	—	—	e 5 29	?	—
Shasta		28.9	118	e 6	3 _a	0	—	—	—	—	—
Mineral	z.	29.6	118	e 6	9 _a	0	—	—	—	—	—
Reno	z.	31.0	116	e 6	22 _a	+ 1	—	—	—	—	—
Lick	z.	32.1	121	e 6	31 _a	0	—	—	—	—	—
Fresno	z.	33.4	119	e 6	47 _a	+ 5	—	—	—	—	—
Tinemaha	z.	33.8	117	e 6	46	0	—	—	—	—	—
China Lake	z.	35.1	117	e 6	58	+ 1	—	—	—	—	—
Boulder City		36.2	114	e 6	45	-21	—	—	—	—	—
Pasadena	z.	36.3	119	e 7	7	0	—	—	—	—	—
Nelson		36.4	114	e 6	44	-24	—	—	i 6 47	?	—
Riverside	z.	36.7	119	e 7	12	+ 2	—	—	—	—	—
Palomar	z.	37.5	119	i 7	24	+ 7	—	—	—	—	—
Fayetteville	z.	45.8	93	e 8	8	-17	—	—	—	—	—
Harvard		51.7	70	i 11	4	PP	—	—	—	—	e 25.9
Pretoria	z.	144.7	353	e 19	30	[- 9]	—	—	—	—	—
Kimberley	z.	147.8	358	i 19	38	[- 6]	—	—	—	—	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

854

Oct. 8d. 21h. 20m. 30s. Epicentre 48°·9N. 8°·0E. (as at 14h.).

Felt fairly widely in the epicentral region of the main shock, and particularly at Lauterbourg, Baerenthal, Wissembourg, Seltz, Soultz, Surbourg, etc. Epicentre 48°·9N. 7°·9E. Annales de l'Institut de Physique du Globe de Strasbourg, 2e partie, Séismologie, 1952, Nouvelle série, Tome XVII, Strasbourg, 1957, p. 76.

	Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.		L.	
			m.	s.	s.	m.	s.	m.	s.	m.	m.	
Karlsruhe	0·3	67	i 0	5 _a	- 1 _g	i 0	10	- 0 _g	i 0	7	?	—
Strasbourg	0·4	206	i 0	8	- 0 _g	i 0	15	- 1*	i 0	18	S _g	—
Stuttgart	0·8	100	e 0	15	- 1*	e 0	26	- 0 _g	i 0	16	P _g	—
Basle	1·4	191	e 0	28	0 _g	e 0	47	- 1 _g	—	—	—	—
Ravensburg	1·5	136	e 0	30?	0 _g	e 0	51	+ 1 _g	—	—	—	—
Zürich	1·6	166	e 0	30 _k	0	e 0	51	0	—	—	—	—
Neuchatel	2·0	200	i 0	39	- 1 _g	i 1	6	0 _g	—	—	—	—
Besançon	2·1	220	e 0	43	+ 1 _g	e 1	11	+ 2 _g	—	—	—	e 1·3
Jena	3·1	47	e 0	57	+ 1*	e 1	35	- 1*	i 1	39	S _g	—
Paris	3·6	271	e 1	11	- 1 _g	e 1	57	- 2 _g	—	—	—	i 2·1
Collmberg	z. 4·0	51	e 1	12	+ 1*	e 2	8	+ 5*	e 2	17	S _g	e 2·4
Prague	4·4	71	—	—	—	e 2	4	+ 2	e 2	22	S _g	e 2·7
Clermont-Ferrand	4·6	228	i 2	33	S _g	(i 2	33)	+ 1 _g	—	—	—	—

Oct. 8d. 21h. 34m. 0s. Epicentre 26°·5N. 112°·0W. (as on 1947, August 1d.).

A = -·3357, B = -·8308, C = +·4438; δ = -12; h = +3;
D = -·927, E = +·375; G = -·166; H = -·411, K = -·896.

	Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.		L.	
			m.	s.	s.	m.	s.	m.	s.	m.	m.	
Tucson	5·8	10	e 1	33	+ 4	e 2	43	+ 5	i 1	47	P*	i 2·9
Palomar	z. 8·0	329	e 2	9	+ 9	e 3	34	+ 1	—	—	—	—
Riverside	8·8	330	e 2	28	P*	e 3	48	- 5	—	—	—	—
Mount Wilson	z. 9·3	327	e 2	21	+ 4	e 4	7	+ 2	—	—	—	—
Nelson	9·5	346	i 2	15	- 5	i 3	1	P _g	i 2	19	P	—
Boulder City	9·7	346	e 3	16	+54	—	—	—	—	—	—	—
China Lake	z. 10·5	334	e 2	31	- 4	e 4	48	+13	—	—	—	—
Lubbock	11·3	49	—	—	—	e 5	9	+15	—	—	—	e 6·4
Fresno	z. 12·2	329	e 3	25	PPP	—	—	—	—	—	—	—
Lick	z. 13·6	325	e 3	13 _a	- 4	—	—	—	—	—	—	—
Reno	z. 14·5	335	e 3	31 _a	+ 3	—	—	—	—	—	—	—
Shasta	z. 16·6	331	e 3	57	+ 1	—	—	—	—	—	—	—
Fayetteville	z. 18·0	53	i 5	37	?	—	—	—	—	—	—	e 9·8
Hungry Horse	21·9	356	e 4	59	+ 2	—	—	—	—	—	—	—
Fordham	34·5	54	e 7	24	+32	—	—	—	—	—	—	—

Oct. 9d. 7h. 37m. 6s. Epicentre 39°·2N. 70°·7E. (as on 1952, September 17d.).

A = +·2568, B = +·7334, C = +·6295; δ = +9; h = -1;
D = +·944, E = -·331; G = +·208, H = +·594, K = -·777.

	Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.		L.
			m.	s.	s.	m.	s.	m.	s.		
Dzhergetal	0·4	88	0	6	- 2 _g	—	—	—	—	—	—
Garm	0·4	237	i 0	3	- 5 _g	—	—	—	—	—	—
Obi-garm	0·9	237	0	13	- 5 _g	—	—	—	—	—	—
Fergana	1·4	31	i 0	28	+ 1	e 0	50	+ 4 _g	—	—	—
Kulyab	1·5	209	0	23	- 5	—	—	—	—	—	—
Stalinabad	1·6	247	i 0	26	- 4	i 0	48	- 3	—	—	—
Khorog	1·9	158	e 0	28	- 6	e 0	57	- 2	—	—	—
Namangan	1·9	22	i 0	38	0 _g	i 1	8	+ 5 _g	—	—	—
Andijan	2·0	39	i 0	38	+ 3	i 1	10	+ 4 _g	—	—	—
Tashkent	2·4	334	i 0	43	+ 2	e 1	23	+ 4 _g	—	—	—
Samarkand	2·9	279	i 0	48	0	—	—	—	—	—	—
Tchimkent	3·1	345	i 0	54	+ 3	1	40	- 2 _g	—	—	—
Naryn	4·6	60	e 1	13	+ 1	2	40	+ 8 _g	—	—	—
Frunse	4·7	38	i 1	16	+ 2	i 2	18	+ 8	i 2	4	?
Rybach'e	5·2	50	i 1	25	+ 4	—	—	—	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	s.
Almata	6.2	47	i 1 37	+ 2	3 36	+11 _g	—	—
Almata II	6.4	49	1 40	+ 2	e 3 7	- 7*	i 3 28	S _g
Ili	6.7	43	e 1 42	0	—	—	—	—
Przhevalsk	6.7	58	1 43	+ 1	—	—	—	—
Quetta	z. 9.5	200	i 2 14	- 6	i 3 14	?	—	—
Ashkabad	9.8	267	—	—	4 5	-12	—	—
Semipalatinsk	13.1	28	e 3 8	- 2	e 5 37	- 1	—	—
Kirovobad	18.7	283	4 17	- 5	—	—	—	—
Goris	18.8	280	4 22	- 1	—	—	—	—
Sverdlovsk	18.9	342	4 23	- 1	e 8 0	+ 7	—	—
Grozny	19.2	290	e 4 28	0	—	—	—	—
Tiflis	19.8	285	e 4 35	0	e 8 17	+ 4	—	—
Tsikhlis-Dzhvari	20.9	285	4 45	- 1	—	—	—	—

Oct. 9d. 19h. 12m. 20s. Epicentre 36°·7N. 54°·5E. (as on 1944, April 5d.).

A = +·4667, B = +·6543, C = +·5951; δ = +6; h = 0;
D = +·814, E = -·581; G = +·345, H = +·484, K = -·804.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	s.
Ashkabad	3.3	68	0 56	+ 3	1 36	+ 1	1 3	P*
Lenkoran	5.0	297	e 1 17	- 1	i 2 12	- 6	—	—
Shemakla	6.0	313	e 1 30	- 2	i 2 42	- 1	—	—
Bairam-Ali	6.1	79	1 34	0	2 34	-11	3 29	S _g
Goris	7.1	296	e 1 43	- 5	3 2	- 8	—	—
Kirovobad	7.5	305	1 49	- 4	i 3 12	- 8	—	—
Erevan	8.6	297	e 2 15	+ 6	—	—	—	—
Grozny	9.4	318	e 2 18	0	e 4 0	- 7	—	—
Gori	9.6	307	2 18	- 3	4 4	- 8	—	—
Tsikhlis-Dzhvari	9.9	304	e 2 24	- 1	—	—	—	—
Samarkand	10.3	69	2 30	- 2	4 25	- 5	—	—
Piatigorsk	11.4	314	—	—	i 5 5	+ 9	—	—
Stalinabad	11.5	76	e 2 58	+10	—	—	—	—
Quetta	z. 12.3	118	e 2 58	- 1	—	—	—	—
Tchimkent	12.9	60	e 3 7	0	—	—	—	—
Khorog	13.7	82	e 3 16	- 2	—	—	—	—
Fergana	14.0	69	3 23	+ 1	—	—	—	—
Namangan	14.0	67	e 3 20	- 2	—	—	—	—
Andijan	14.5	68	e 3 28	0	6 9	- 2	e 6 34	SS
Ksara	15.5	264	e 3 41	- 1	e 7 28	SSS	—	—
Naryn	17.3	66	e 4 9	+ 5	—	—	—	—
Rybach'e	17.6	63	i 4 12	+ 4	—	—	—	—
Almata	18.4	62	e 4 22	+ 4	—	—	—	—
Almata II	18.7	62	4 24	+ 2	—	—	—	—
Przhevalsk	19.3	63	4 33	+ 4	—	—	—	—
Uzhgorod	26.3	307	i 5 39	0	—	—	—	—
Tamanrasset	z. 44.3	266	e 8 8	- 5	—	—	—	—

Oct. 10d. 9h. 19m. 20s. Epicentre 48°·9N. 8°·0E. (as on 8d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	s.
Karlsruhe	0.3	67	i 0 10 _a	- 1	i 0 15	- 3	i 0 21	?
Strasbourg	0.4	206	e 0 13	0	i 0 19	- 2	i 0 23	?
Stuttgart	0.8	100	e 0 19	+ 1	e 0 30	- 1	i 0 20	P _g
Basle	1.4	191	e 0 31	+ 3 _g	e 0 55	+ 9 _g	—	—
Zürich	1.6	166	e 0 34	+ 2 _g	e 0 55	+ 2 _g	—	—
Neuchatel	2.0	200	—	—	e 1 9	+ 3 _g	—	—
Besançon	2.1	220	—	—	e 1 15	+ 6 _g	—	—
Jena	3.1	47	e 1 0	- 2 _g	e 1 39	- 3 _g	—	—
Collmberg	z. 4.0	51	—	—	e 2 11	- 1 _g	—	—

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1952

856

Oct. 10d. 11h. 51m. 56s. Epicentre 37°·5N. 20°·8E. (as on 7d.).

Felt at Lechaena.

A. Galanopoulos.
Seismo. Institute Bull., 1952, Athens, 1953, p. 41.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
	Athens	2·4	79	e 0	42	+ 1	i 1	34	+15 _g	i 0	50	P _g	—
	Messina	4·2	281	e 1	0	- 7	1	45	-12	e 1	12	P _g *	—
	Sofia	5·5	20	e 1	27	+ 2	2	35	+ 5	1	54	P _g	—
	Belgrade	7·3	358	e 2	12 _k	+ 4*	e 3	37	- 4*	e 2	34	P _g	—
	Istanbul	7·3	59	e 1	51	+ 1	e 3	17	+ 2	e 2	9	P*	4·4
	Rocca di Papa	7·5	307	e 1	56?	+ 3	—	—	—	—	—	—	e 4·6
	Rome	7·8	307	e 2	20	+ 4*	e 3	21	- 7	e 3	57	S*	e 4·4
	Bucharest	8·0	29	e 2	34	P _g	e 3	29	- 4	i 4	8	S*	—
	Timisoara	8·3	2	e 2	44	P _g	4	8	- 2*	e 4	31?	S _g	e 4·8
	Szeged	8·8	357	e 2	33	P*	e 4	13	-12*	e 2	50	P _g	—
	Kalossa	9·1	352	e 3	7	P _g	e 3	40	-20	e 3	14	?	e 5·8
	Florence	9·6	314	e 2	41	P*	—	—	—	—	—	—	e 5·6
	Prato	9·7	314	e 2	41	P*	i 4	4?	-11	—	—	—	—
	Triest	9·7	329	e 2	43	P*	e 3	56	-19	e 3	11	P _g	e 4·6
	Bologna	10·0	317	e 2	56	P*	e 5	4	+ 3 _g	—	—	—	e 5·9
	Budapest	10·1	353	—	—	—	e 4	10	-15	—	—	—	e 5·2
	Ogyalla	10·5	350	—	—	—	e 5	17	S*	—	—	—	e 5·9
	Salo	11·2	320	e 2	49	+ 5	4	36	-16	e 3	5	?	—
	Helwan	11·6	128	e 2	58	+ 8	e 4	49	-12	e 4	19	?	e 5·8
	Pavia	11·6	315	—	—	—	e 3	56	?	e 5	21	S*	e 5·9
	Chur	12·5	322	e 3	1	- 1	e 5	11	-12	—	—	—	—
	Raciborzu	12·7	352	e 3	5	0	e 5	15	-13	e 3	23	PP	—
	Ksara	12·8	102	e 3	25	+19	—	—	—	—	—	—	e 6·6
	Prague	13·4	342	e 3	12	- 2	e 5	41	- 4	e 3	26	PP	e 7·6
	Zürich	13·4	321	e 3	21	+ 7	e 5	25	-20	—	—	—	—
	Basle	14·0	320	e 3	22	0	—	—	—	—	—	—	e 7·6
	Cheb	14·0	337	e 3	19	- 3	e 5	59	0	e 3	28	PP	e 6·9
	Stuttgart	14·1	327	e 3	22	- 1	e 6	6	+ 4	e 3	34	PP	e 6·4
	Algiers Univ.	14·2	272	e 3	18	- 6	e 6	3	- 1	e 3	32	PP	e 11·8
	Karlsruhe	14·6	326	e 3	36	+ 6	e 6	31	+18	e 3	45	PP	—
	Strasbourg	14·6	323	e 3	34	+ 4	e 6	17	+ 4	i 3	45	PP	8·1
	Besançon	14·7	316	e 3	40	+ 9	e 3	47	?	e 3	53	PP	—
	Collmberg	14·9	341	e 3	38	+ 4	e 6	30	+10	e 5	24	?	—
	Jena	14·9	337	e 3	38	+ 4	e 6	40	+20	e 3	50	PP	—
	Clermont-Ferrand	15·6	307	e 3	40	- 3	—	—	—	—	—	—	8·2
	Potsdam	15·8	342	e 3	58	+13	i 6	56	+14	e 7	2	SS	e 9·1
	Tortosa	16·1	288	3	51	+ 2	6	49	0	—	—	—	—
	Alicante	16·8	279	e 3	46	-12	i 7	7	+ 2	7	31	SS	9·6
	Paris	17·5	316	e 4	9	+ 2	e 7	17	- 4	i 4	24	PP	—
	De Bilt	18·3	329	e 4	16	- 1	i 7	49	+10	e 8	2	?	e 9·6
	Almeria	18·5	275	i 4	27	+ 8	i 8	15	+31	4	51	PP	12·5
	Copenhagen	19·1	345	e 4	27	0	7	55	- 2	—	—	—	10·1
	Granada	19·4	277	i 4	26 _k	- 4	8	11	+ 7	5	5	PP	12·3
	Toledo	19·5	284	e 4	28	- 3	e 8	12	+ 6	i 4	44	PP	—
	Tamanrasset	19·7	226	i 4	29 _a	- 5	i 8	4	- 6	e 4	46	PP	9·8
	Malaga	20·1	276	i 4	35	- 3	e 8	13	- 6	8	49	PcP	13·7
	Kew	20·4	320	e 4	46	+ 5	e 8	23	- 2	—	—	—	e 12·1
	Upsala	22·5	356	i 4	59	- 3	e 9	14	+ 9	i 5	28	PP	e 12·1
	Lisbon	23·6	283	—	—	—	e 8	28	-57	—	—	—	—
	Rathfarnham Castle	24·5	320	e 5	24	+ 2	10	8	+28	e 5	49	PP	e 13·3
	Aberdeen	24·9	330	—	—	—	e 10	4?	+17	—	—	—	—
	Kiruna	30·4	0	i 6	13	- 3	e 10	54	-22	e 12	25	SS	e 16·1
	Quetta	38·8	86	e 7	28	0	—	—	—	—	—	—	—
	College	77·6	356	e 11	58	- 2	—	—	—	—	—	—	—
	Hungry Horse	85·6	332	e 12	40	- 1	—	—	—	—	—	—	—
	Nelson	96·3	325	e 13	42	+10	—	—	—	—	—	—	—

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Oct. 10d. 15h. 55m. 31s. Epicentre 15°·0S. 176°·0W. (as on 1941, April 15d.).

A = -·9640, B = -·0674, C = -·2572; $\delta = -1$; $h = +6$;
D = -·068, E = +·998; G = +·257, H = +·018, K = -·966.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Apia	4·3	74	(i 0 57)	-11	i 0 57	P	i 1 39	1·9
Auckland	23·3	199	e 5 47	PP	e 9 25	+ 5	—	—
Karapiro	24·0	198	e 5 15	- 2	—	—	—	—
Tuai	24·5	193	—	—	e 7 35	?	—	—
Wellington	27·4	196	e 3 19	?	—	—	e 6 55	PP e 11·6
Christchurch	30·1	197	e 7 3	PP	e 12 43	SS	i 13 28	Q i 14·5
Brisbane	31·3	241	i 6 27 _k	+ 3	i 11 37	+ 6	e 7 35	PP
Riverview	35·1	232	e 6 48	- 9	i 12 8	-22	e 7 58	PP e 16·5
Perth	63·8	242	—	—	—	—	e 27 4	? e 32·0
Manila	68·9	293	i 11 22	+13	i 20 54	+41	—	— 35·5
Yuzno-Sakhlinsk	71·9	332	11 26	- 1	11 43	PcP	16 4	PPP
Santa Clara	72·7	43	e 11 36 _a	+ 4	e 21 13	+16	—	—
Berkeley	72·8	43	e 11 27	- 5	i 20 6	-52	—	—
Pasadena	73·6	48	e 11 38	+ 1	e 21 16	+ 9	e 30 41	Q e 32·6
Klyuchi	73·7	348	e 11 37	- 1	—	—	e 11 53	PcP
Fresno	z. 73·8	46	e 11 37 _k	- 1	—	—	—	—
Riverside	z. 74·1	48	e 11 40	0	—	—	—	—
Shasta	74·4	40	e 11 41 _k	- 1	e 19 13	?	e 11 55	PcP
Mineral	z. 74·7	40	e 11 43 _a	0	—	—	i 11 50	PcP
China Lake	z. 74·8	46	e 11 44	0	—	—	—	—
Tinemaha	z. 75·0	45	e 11 47	+ 2	—	—	—	—
Vladivostok	75·0	323	e 11 45	0	21 49	ScS	11 51	PcP
Bandong	75·1	268	e 11 29?	-17	e 18 59	?	—	—
Reno	75·4	43	e 11 49 _a	+ 2	e 21 39	+12	—	—
Djakarta	76·1	268	e 12 19	+28	e 21 39	+ 4	i 23 3	? —
Nelson	76·7	48	i 11 54	- 1	—	—	i 14 46	PP
Boulder City	76·8	48	e 11 55	0	—	—	—	—
Hong Kong	77·8	298	e 12 16	+15	e 22 1	+ 8	—	—
Tucson	78·0	53	i 12 1	- 1	e 21 59	+ 4	—	—
Seattle	78·6	35	—	—	22 14	+12	—	e 39·5
Magadan	79·0	344	12 10	+ 3	22 14	+ 8	—	—
College	82·5	12	i 12 23	- 3	—	—	—	—
Fayetteville	z. 92·3	54	e 13 13	0	—	—	—	—
Irkutsk	95·5	323	13 43	+15	—	—	—	—
Mobile	95·7	60	—	—	e 24 17	{- 6}	—	—
Huancayo	97·0	105	—	—	e 25 18	+23	e 38 52	? —
Chinchina	101·3	88	—	—	e 24 39	[+ 6]	e 32 31	SS
Resolute Bay	102·0	15	e 25 33	S	(e 25 33)	- 4	e 32 39	SS e 45·2
La Paz	102·2	111	e 13 11	-47	i 25 49	+10	i 27 29	PS 45·0
Bogota	102·7	89	e 18 27	PP	e 25 1	{-13}	e 26 26	S 48·5
La Plata	103·1	132	—	—	27 17	PS	32 23	SS 47·5
Ottawa	107·7	46	28 13	PS	e 25 15	[+13]	25 53	SKKS 46·8
Philadelphia	107·7	53	—	—	e 25 42	{- 7}	—	—
City College, N.Y.	108·7	51	—	—	e 34 23	SS	—	—
Palisades	108·7	51	e 19 13	PP	e 28 12	PS	—	e 50·6
Fordham	108·8	51	—	—	e 34 31	SS	e 39 14	SSS
Frunse	114·2	311	e 20 3	PP	i 26 47	{+13}	i 29 35	PS
Bombay	E. 114·4	284	e 18 53	[+11]	e 27 59	S	e 29 59	PS
Bermuda	115·7	61	—	—	e 26 50	{+ 5}	e 29 57	PS e 53·6
Andijan	116·0	308	e 19 52?	PP	—	—	—	—
Namangan	116·5	308	e 20 2	PP	30 43	PPS	—	—
Lunacharskoe	118·2	308	e 20 14	PP	—	—	—	—
Tashkent	118·2	308	e 20 15	PP	e 25 35	{- 9}	e 27 13	SKKS
Bairam-Ali	124·2	305	e 20 56	PP	—	—	—	—
Kiruna	126·1	352	e 24 29	?	e 26 9	[0]	e 38 7	SS e 58·5
Ashkabad	127·1	54	e 21 6	PP	—	—	—	—
Baku	132·8	311	—	—	e 22 51	PKS	—	—
Makhach-Kala	133·6	316	e 19 34	[+15]	—	—	—	—
Upsala	134·1	351	—	—	e 22 47	PKS	e 24 29?	? e 62·5
Kirovobad	135·2	313	e 19 35	[+13]	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Goris	135.7	312	e 19 29	[+ 6]	—	—	—	—
Piatigorsk	136.0	319	e 19 22	[- 1]	—	—	—	—
Erevan	136.7	313	e 19 15	[- 9]	—	—	—	—
Aberdeen	E. 137.7	5	—	—	e 39 55	SS	—	e 68.8
Sotchi	138.3	320	e 19 30	[+ 3]	—	—	—	—
Theodosia	140.0	325	e 19 43	[+ 12]	—	—	—	—
Rathfarnham Castle	140.9	10	e 19 39?	[+ 7]	e 27 48	[+ 67]	—	—
Yalta	141.1	325	e 19 19	[- 13]	—	—	—	—
Potsdam	142.0	351	e 19 46	[+ 12]	—	—	—	e 67.5
De Bilt	143.0	359	e 19 41	[+ 5]	i 23 20	PKS	e 22 56	PP e 72.5
Uzhgorod	143.2	340	e 19 34	[- 2]	—	—	—	—
Kew	143.5	4	e 19 38	[+ 1]	e 30 34	{+ 52}	e 22 21	? e 69.5
Jena	Z. 143.7	351	e 19 48	[+ 11]	e 20 15	?	e 23 18	PP
Prague	144.0	349	e 20 52	?	e 21 32	?	e 21 54	?
Ksara	145.7	301	e 19 43	[+ 3]	—	—	22 51	PP
Karlsruhe	145.9	355	e 19 48	[+ 7]	—	—	e 19 59	PKP ₂
Istanbul	Z. 146.1	325	e 19 57	[+ 16]	e 26 14	PPP	e 21 30	? 65.9
Stuttgart	146.1	354	e 19 41	[0]	e 36 59	PPS	e 19 58	PKP ₂ 70.5
Kalossa	146.2	342	e 19 38	[- 3]	e 35 34	PPS	e 19 48	PKP ₂
Paris	146.3	2	e 19 46	[+ 5]	e 42 46	SSP	i 19 58	PKP ₂
Strasbourg	146.4	355	e 19 44	[+ 2]	e 35 46	PPS	i 19 49	PKP ₂
Belgrade	147.2	338	e 19 52 ^k	[+ 9]	e 32 18	PS	e 39 54	P'P'
Basle	147.4	355	e 19 41	[- 2]	e 27 51	[+ 61]	—	—
Zürich	147.5	354	e 19 51	[+ 8]	—	—	—	—
Besançon	147.8	358	e 19 54	[+ 10]	e 20 17	?	e 20 27	?
Triest	148.4	347	e 19 48	[+ 3]	i 29 19	{- 50}	i 20 4	PKP ₂ 78.1
Clermont-Ferrand	149.3	2	e 19 58	PKP ₂	—	—	—	— 62.5
Oropa	149.3	356	e 20 10	PKP ₂	—	—	—	—
Pavia	149.6	353	e 19 58	[+ 11]	e 37 3	PPS	e 24 7	PP e 72.5
Bologna	149.9	350	e 24 58	?	e 26 12	[- 42]	—	—
Florence	150.7	350	e 19 59	[+ 11]	e 35 12	PSKS	e 20 16	PKP ₂
Helwan	E. 150.8	304	e 20 20	PKP ₂	—	—	e 23 50	PP
Rome	152.2	347	e 19 52 ^a	[+ 1]	e 23 34	PKS	e 20 5	PKP ₂ e 80.9
Toledo	154.2	14	e 20 7	[+ 14]	e 27 7	[+ 8]	24 32	PP 79.2
Messina	154.7	339	e 19 57	[+ 3]	e 44 11	SSP	e 20 39	PKP ₂ e 78.7
Alicante	156.4	9	e 20 6	[+ 10]	27 9	[+ 8]	23 37	PKS 81.0
Granada	156.9	16	20 34 ^a	PKP ₂	31 6	{+ 10}	i 24 30	PP i 78.0
Malaga	157.1	17	i 20 11	[+ 14]	27 27	[+ 25]	i 20 49	PKP ₂ 79.5
Almeria	157.5	14	20 28	[+ 30]	27 34	[+ 32]	21 0	PKP ₂ 82.6
Algiers Univ.	Z. 158.3	2	e 20 13	[+ 14]	e 27 10	[+ 7]	e 20 52	PKP ₂
Tamanrasset	Z. 172.1	—	e 20 16	[+ 6]	e 25 27	PP	e 22 0	PKP ₂

Oct. 10d. 18h. 47m. 32s. Epicentre 30°·2N. 70°·0E. (as on 1951, May 14d.).

A = +·2961, B = +·8135, C = +·5005; δ = -4; h = +2;
D = +·940, E = -·342; G = +·171, H = +·470, K = -·866.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Quetta	2.6	270	i 0 41	- 3	—	—	—	—
New Delhi	N. 6.5	102	e 1 47	+ 8	i 3 4	+ 9	2 18	P ₂
Dehra Dun	N. 7.0	87	e 2 4	+ 2*	i 2 58	- 10	—	—
Khorog	7.4	10	e 1 55	+ 3	—	—	—	—
Kulyab	7.7	359	i 2 0	+ 4	—	—	—	—
Stalinabad	8.4	353	i 2 5	- 1	3 40	- 3	—	—
Samarkand	9.8	346	i 2 23	- 1	4 13	- 4	—	—
Bairam-Ali	9.9	321	i 2 22	- 3	4 15	- 5	—	—
Fergana	10.3	8	2 32	0	e 4 25	- 5	—	—
Andijan	10.7	10	i 2 39?	+ 1	4 45?	+ 6	—	—
Lunacharskoe	11.1	357	i 2 44	+ 1	—	—	—	—
Tashkent	11.1	357	e 2 43	0	e 4 48	- 1	—	—
Bombay	11.6	167	e 2 54	+ 4	i 5 15	+ 14	3 3	PP
Poona	12.1	162	i 3 1	+ 4	i 5 11	- 3	3 9	PP
Tchimkent	12.1	359	i 2 54	- 3	i 5 9	- 5	—	— 5.7

Continued on next page.

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		Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.		L.	
				m.	s.	s.	m.	s.	m.	s.	m.		
Naryn		12.2	22	c 3	1	+ 3	—	—	—	—	—	—	
Ashkabad		12.3	311	2	57	- 2	5	10	- 8	—	—	—	
Frunse		13.2	15	i 3	12	+ 1	i 5	35	- 5	—	—	—	
Rybach'e		13.2	20	i 3	13	+ 2	i 5	44	+ 4	—	—	—	
Przhevalsk		14.0	26	3	25	+ 3	—	—	—	—	—	—	
Almata		14.2	21	i 3	27	+ 3	i 6	8	+ 4	—	—	—	
Almata II		14.3	22	3	27	+ 1	—	—	—	—	—	—	
Ili		14.8	20	i 3	32	0	—	—	—	—	—	—	
Hyderabad	E.	14.9	147	e 3	42	+ 8	i 6	27	+ 7	—	—	e 7.0	
Chatra		15.5	98	i 3	47	+ 5	6	38	+ 3	4	1	PP	7.4
Calcutta	E.	18.1	110	i 4	30	+16	i 8	4	+29	4	47	PP	9.1
Baku		19.3	307	i 4	28	- 1	i 8	3	+ 1	—	—	—	—
Lenkoran		19.4	303	5	16?	+46	8	52?	PcP	—	—	—	—
Madras	E.	19.5	149	4	40	+ 9	8	29	PcP	5	12	PPP	—
Shillong	E.	19.9	97	4	42	+ 6	e 8	28	+13	4	56	PP	9.6
Shemakla		20.2	306	i 4	37	- 2	—	—	—	—	—	—	—
Kodaikanal	E.	21.2	159	e 5	16	+27	e 9	7	+26	—	—	—	10.3
Goris		21.5	303	i 4	50	- 2	i 8	44	- 3	—	—	—	—
Semipalatinsk		21.6	18	i 4	55	+ 1	—	—	—	—	—	—	—
Kirovobad		21.9	305	—	—	—	i 8	56	+ 2	—	—	—	—
Makhach-Kala		22.0	311	e 4	55	- 3	e 8	51	- 5	—	—	—	—
Erevan		23.0	302	i 5	7	0	9	8	- 6	—	—	—	—
Grozny		23.3	311	i 5	10	0	i 9	20	0	—	—	—	—
Tiflis		23.3	306	e 5	10	0	—	—	—	—	—	—	—
Gori		23.9	307	i 5	17	+ 1	e 9	31	+ 1	—	—	—	—
Tsikhlis-Dzhvari		24.3	306	i 5	20	0	—	—	—	—	—	—	—
Borzhom		24.4	306	5	35?	+14	—	—	—	—	—	—	—
Colombo	E.	25.0	157	5	35	+ 8	10	15	+26	—	—	—	13.3
Piatigorsk		25.4	311	5	28	- 3	9	51	- 5	—	—	—	—
Sverdlovsk		27.4	349	i 5	49	0	e 10	27	- 1	—	—	—	—
Sotchi		27.5	308	e 5	50	0	e 10	28	- 2	—	—	—	—
Ksara		29.1	286	i 6	4	0	i 11	36	+40	—	—	—	—
Theodosia		30.9	309	e 6	11?	- 9	—	—	—	—	—	—	—
Simferopol		31.7	308	i 6	23	- 4	i 11	34	- 3	—	—	—	—
Helwan	E.	33.4	279	e 6	40	- 2	e 13	13	?	e 7	40	PP	—
Irkutsk		33.5	38	6	48	+ 5	—	—	—	—	—	—	—
Kyakhta		33.9	42	6	50	+ 3	—	—	—	—	—	—	—
Moscow		34.3	327	e 6	47	- 3	e 12	12	- 5	—	—	—	—
Istanbul		34.7	300	e 6	51	- 3	e 12	23	- 1	i 8	15	PP	18.3
Kabansk		34.7	40	6	58?	+ 4	—	—	—	—	—	—	—
Kishinev		35.8	310	i 7	0	- 3	—	—	—	—	—	—	—
Bucharest		37.2	305	e 8	44	PP	—	—	—	—	—	—	22.5
Athens		38.8	294	i 7	25 _a	- 3	i 13	25	- 1	e 16	27	SS	—
Sofia		39.1	302	e 7	33	+ 2	e 13	32	+ 1	—	—	—	—
Lwow		39.6	313	i 7	22	-13	—	—	—	—	—	—	—
Pulkovo		39.8	330	i 7	41	+ 5	—	—	—	—	—	—	—
Hong Kong		40.2	90	e 7	50	+10	e 13	56	+ 8	—	—	—	e 17.0
Uzhgorod		40.4	311	i 7	40	- 1	13	49	- 1	—	—	—	—
Timisoara		40.8	307	7	48?	+ 3	—	—	—	e 7	53	?	24.5
Belgrade		41.3	305	e 7	48 _a	- 1	e 14	3	- 1	e 9	59	PPP	e 24.5
Skalnate Pleso		41.9	311	e 7	47 _a	- 7	e 14	2	-11	e 9	37	PP	e 23.0
Kalossa		42.4	308	e 7	49	- 9	e 14	17	- 3	9	46	PcP	e 23.0
Budapest		42.5	309	e 7	59	0	e 13	51	-31	9	48	PP	22.6
Ogyalla		43.1	310	e 8	6	+ 2	e 14	34	+ 4	e 9	54	PP	e 21.0
Raciborz		43.3	313	e 8	4	- 1	i 14	34	+ 1	9	57	PP	—
Zd-Sé	z.	43.7	75	8	20	+12	15	4	+25	—	—	—	—
Vienna		44.3	310	e 8	12	- 1	14	44?	- 4	e 9	53	PcP	—
Messina		45.2	296	e 8	18	- 2	e 15	0	- 1	e 10	8	PP	22.7
Prague		45.7	313	e 8	23 _k	- 1	i 15	6	- 2	i 9	57	PcP	e 25.9
Upsala		45.7	326	i 8	22	- 2	i 15	6	- 2	i 10	7	PP	e 21.0
Triest		46.0	306	e 8	24	- 3	i 15	15	+ 3	e 10	10	PcP	29.8
Collnberg		46.7	314	e 8	31	- 1	e 15	23	+ 1	e 10	29	PP	e 25.0
Potsdam		46.8	316	i 8	31 _k	- 2	i 15	24	0	i 10	30	PP	e 23.5
Cheb		47.0	312	e 8	35	0	i 15	19	- 7	e 10	13	PP	e 27.0
Rocca di Papa	E.	47.0	301	e 8	34	- 1	—	—	—	e 10	30	PP	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		c	o	m. s.	s.	m. s.	s.	m. s.	m.	
Rome		47.1	301	i 8 32	- 3	e 15 47	+19	i 10 29	PP	e 24.7
Copenhagen		47.5	320	i 8 37 ^a	- 1	15 38	+ 4	10 34	PP	—
Kiruna		47.5	337	i 8 37	- 1	i 15 37	+ 3	e 10 33	PP	e 22.2
Jena		47.6	313	e 8 37	- 2	e 15 32	- 3	e 10 32	PP	—
Bologna		47.8	305	e 8 45	+ 4	e 15 47	+ 9	e 11 3	PPP	—
Florence		47.9	303	e 8 39	- 3	i 15 55	+16	i 20 5	SSS	—
Prato		48.0	303	e 8 41	- 2	i 15 33	- 8	—	—	—
Salo		48.3	306	e 8 36	- 9	e 11 16	PPP	e 10 29	PP	—
Chur		48.9	308	e 8 48	- 2	e 17 18	?	—	—	e 31.1
Stuttgart		49.1	310	e 8 48	- 3	e 15 54	- 2	e 19 1	SS	e 26.5
Manila		49.2	97	i 8 51 ^a	- 1	i 15 56	- 2	—	—	—
Pavia		49.3	306	e 8 53 ^k	0	e 16 4	+ 5	e 16 53	PS	e 23.2
Karlsruhe		49.6	311	e 8 52	- 3	e 16 9	+ 6	e 9 16	?	e 27.5
Zürich		49.6	309	e 8 50 ^a	- 5	e 15 44	-19	e 11 44	PPP	—
Oropa		50.1	307	e 8 31	-28	e 14 53	?	—	—	—
Strasbourg		50.1	311	e 8 56	- 3	e 16 8	- 2	i 10 10	PcP	23.5
Basle		50.2	309	e 8 57	- 3	—	—	e 10 22	PcP	—
Vladivostok		50.2	57	e 9 5	+ 5	e 16 15	+ 4	—	—	—
Djakarta		50.6	129	e 9 22	+20	e 16 46	+29	e 11 14	PP	e 26.2
Neuchatel		50.7	309	e 9 1	- 2	—	—	—	—	—
Witteveen	z.	50.7	317	e 9 4	+ 1	—	—	—	—	—
Besançon		51.3	309	e 9 5	- 3	i 10 25	PcP	e 11 9	PP	—
De Bilt		51.6	315	e 9 9	- 1	e 16 31	0	—	—	e 24.5
Tananarive		53.4	207	9 28	+ 4	e 16 24	-31	17 10	PS	27.8
Clermont-Ferrand		53.5	306	e 9 21	- 3	e 16 58	+ 1	i 9 29	P	28.5
Paris		53.5	311	e 9 21	- 3	e 16 57	0	i 9 41	pP	e 25.5
Kew		55.0	314	i 9 28	- 7	e 17 19	+ 2	e 17 56	PS	e 22.5
Algiers Univ.	z.	55.2	296	e 9 34	- 3	e 16 48	-32	e 10 40	PcP	—
Durham	E.	55.5	318	i 9 37	- 2	i 17 7	-17	i 17 27	PS	—
Aberdeen	E.	55.6	322	—	—	17 26	+ 1	e 18 4	PS	32.3
Tortosa		56.2	301	9 44	0	17 32	- 1	—	—	—
Yuzno-Sakhlinsk		57.3	51	9 54	+ 2	18 0	+13	—	—	—
Alicante		57.5	299	e 9 50	- 3	17 48	- 2	10 45	PcP	27.5
Tamanrasset	z.	57.5	280	i 9 50 ^k	- 3	e 17 35	-15	e 12 4	PP	34.5
Rathfarnham Castle		58.4	317	i 9 57	- 3	e 18 11	+ 9	e 22 7	SS	e 31.0
Almeria		59.5	298	i 10 5	- 2	i 18 21	+ 5	10 57	PcP	34.6
Toledo		59.8	301	e 10 8	- 1	e 18 16	- 4	i 12 19	PP	—
Magadan		59.9	36	10 12	+ 2	—	—	—	—	—
Granada		60.2	299	i 10 11 ^a	- 1	i 18 28	+ 3	11 5	PcP	i 27.3
Malaga		61.0	299	i 10 14	- 4	i 18 24	-11	10 50	PcP	27.6
Scoresby Sund		62.5	338	e 10 29	+ 1	e 19 4	+10	23 16	SS	31.5
Klyuchi		65.8	38	i 10 53	+ 4	—	—	—	—	—
Pretoria	z.	68.6	220	e 11 8	+ 1	—	—	i 11 13	?	—
Pietermaritzburg	z.	70.4	216	i 11 20	+ 2	—	—	i 11 25	?	—
Resolute Bay		74.9	356	i 11 45 ^k	+ 1	i 21 32	+10	e 26 23	SS	e 30.2
Grahamstown	z.	75.4	217	e 11 48	+ 1	—	—	i 11 54	?	—
M'Bour		80.3	281	e 12 14	0	i 12 50	PcP	i 13 36	?	42.5
College		80.8	15	i 12 18	+ 1	—	—	—	—	—
Halifax		94.3	328	e 13 23	0	24 8	{- 5}	25 43	PS	41.0
Kirkland Lake	z.	97.5	340	e 13 43	+ 6	—	—	—	—	—
Harvard		99.5	332	e 13 52	+ 6	e 27 36	PPS	e 32 42	SSP	e 47.4
Riverview		99.6	123	—	—	e 32 3	SS	e 39 48	Q	e 48.5
Palisades		101.7	333	—	—	e 27 7	PS	e 33 23	SSP	e 48.0
Hungry Horse		101.7	2	e 14 4	+ 8	—	—	e 16 43	?	—
Bermuda		104.4	321	e 24 56	SKS	e 25 40	-17	—	—	e 48.8
Mineral		109.0	9	e 19 0	PP	—	—	e 19 50	?	—
Fayetteville	z.	112.4	345	e 29 36	PKKP	—	—	—	—	—
Tinemaha	z.	112.7	7	e 19 26	PP	—	—	e 19 43	PP	—
Fresno	z.	112.8	8	e 19 29	PP	—	—	—	—	—
China Lake	z.	113.9	6	e 18 51	[+10]	e 19 41	PP	e 29 31	PKKP	—
Nelson		114.3	4	e 14 34	P	—	—	i 17 50	?	—
Pasadena		115.5	7	e 19 52	PP	—	—	e 20 14	?	e 53.6
Tucson		117.9	1	e 18 52	[+ 3]	—	—	e 20 0	PP	—
Bogota		131.2	309	e 20 56	?	—	—	—	—	54.5
Chinchina		132.0	311	e 19 22	[+ 6]	e 22 51	PKS	—	—	e 76.2
La Paz		139.4	280	i 19 39	[+10]	23 10	PKS	—	—	68.0
Huancayo		143.2	292	e 19 43	[+ 7]	—	—	—	—	e 57.0

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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Oct. 10d. 21h. 9m. 42s. Epicentre 3°·8S. 102°·2E. (as on 1951, September 17d.).

A = -·2109, B = +·9753, C = -·0658 ; $\delta = +2$; $h = +7$;
D = +·977, E = +·211 ; G = +·014, H = -·064, K = -·998.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Djakarta	5·2	117	i 1 15	- 6	i 2 9	-13	i 8 13	PcP
Manila	26·1	43	i 5 45	+ 8	—	—	—	—
Kodaikanal	E. 28·3	300	e 6 33	+36	—	—	—	—
Shillong	E. 30·9	342	e 6 22	+ 2	e 11 18	- 6	—	—
Chatra	Z. 33·8	335	i 7 48	PP	i 10 26	?	—	—
Poona	Z. 35·7	310	i 7 5	+ 3	—	—	i 7 17	?
Bombay	36·7	309	e 8 45	PP	e 12 57	+ 3	e 15 40	SS
Quetta	E. 47·7	318	e 8 43	+ 3	—	—	—	—
Khorog	49·9	328	8 59	+ 2	i 16 8	+ 1	—	—
Przhevalsk	50·9	338	9 7	+ 2	16 23	+ 2	—	—
Naryn	51·0	335	i 9 7	+ 1	i 16 22	0	—	—
Kulyab	51·2	328	9 8	+ 1	16 22	- 3	—	—
Rybach'e	51·8	336	i 9 11	- 1	e 16 34	+ 1	—	—
Almata II	51·9	337	i 9 14	+ 2	—	—	—	—
Almata	52·1	337	i 9 14	0	i 16 37	- 1	—	—
Andijan	52·1	331	i 9 14	0	e 16 36	- 2	—	—
Fergana	52·1	331	i 9 14	0	—	—	—	—
Stalinabad	52·3	327	i 9 14	- 1	e 16 34	- 6	—	—
Frunse	52·8	334	i 9 20	+ 1	i 16 47	0	—	—
Brisbane	Z. 53·8	122	i 9 18 _a	- 8	i 9 49	?	i 9 24	P
Lunacharskoe	54·0	330	i 9 27	- 1	17 1	- 2	—	—
Samarkand	54·0	326	9 27	- 1	16 58	- 5	—	—
Tashkent	54·0	330	i 9 28	0	e 17 0	- 3	—	—
Kyakhta	54·1	3	9 28	- 1	17 4	- 1	—	—
Tchimkent	54·6	331	i 9 31	- 1	i 17 7	- 4	—	—
Bairam-Ali	55·5	321	i 9 39	0	—	—	—	—
Kabansk	55·8	3	9 41?	0	e 17 29?	+ 1	—	—
Irkutsk	55·9	1	9 41	- 1	e 17 26	- 3	—	—
Semipalatinsk	57·1	344	i 9 49	- 1	—	—	—	—
Ashkabad	58·1	320	i 9 59	+ 1	—	—	—	—
Yuzno-Sakhlinsk	61·9	30	10 19	- 5	—	—	—	—
Goris	66·9	315	e 10 56	0	e 19 47	- 2	—	—
Kirovobad	67·5	317	i 11 0?	0	e 19 48?	- 8	—	—
Makhach-Kala	67·8	320	i 11 1	- 1	i 19 55	- 5	—	—
Erevan	68·5	316	e 11 7	+ 1	—	—	—	—
Tiflis	69·0	317	e 11 10	+ 1	i 20 13	- 1	—	—
Grozny	69·1	319	i 11 10	0	20 12	- 3	—	—
Leninakan	69·2	316	e 11 12	+ 2	—	—	—	—
Sverdlovsk	69·2	337	i 11 11	+ 1	20 12	- 4	—	—
Gori	69·5	317	e 11 13	+ 1	e 20 21	+ 1	—	—
Tskhlis-Dzhvari	69·9	317	e 11 18	+ 3	—	—	—	—
Borzhomi	70·0	317	i 11 16	+ 1	i 20 25	- 1	—	—
Piatigorsk	71·1	319	11 21	- 1	20 36	- 2	—	—
Zugdidi	71·3	317	e 11 24	+ 1	20 40	- 1	—	—
Ksara	72·7	306	i 11 34	+ 2	e 23 59	?	—	—
Sotchi	73·2	318	i 11 37	+ 2	—	—	—	—
Pretoria	Z. 74·0	244	e 11 37	- 2	—	—	—	—
Grahamstown	Z. 75·9	237	e 11 53	+ 3	—	—	—	—
Theodosia	76·7	318	i 11 53	- 2	—	—	—	—
Yalta	77·2	317	i 11 58	+ 1	—	—	—	—
Moscow	79·2	328	i 12 7	- 1	22 3	- 5	—	—
Istanbul	Z. 79·9	313	i 12 7	- 5	—	—	—	—
Cernauti	83·7	319	12 33	+ 1	—	—	—	—
Lwow	85·3	321	e 12 39	- 1	—	—	—	—
Uzhgorod	86·2	319	i 12 44	0	—	—	—	—
Raciborzu	Z. 89·0	321	12 59	+ 1	—	—	—	—
Messina	89·7	308	e 13 6	+ 5	e 23 51	- 1	—	—
Kiruna	Z. 90·4	337	i 13 3	- 1	—	—	i 13 11	P
Upsala	Z. 90·5	329	i 13 3 _a	- 2	—	—	i 13 13	P
Prague	91·4	320	e 13 9	0	—	—	e 16 49	PP

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Triest	z.	91.6	315	e 13 7	- 3	e 16 52	PP	e 13 28	—
Collmberg	z.	92.4	320	e 13 12	- 2	e 16 41	PP	e 13 33	—
Jena	z.	93.4	320	e 13 16	- 2	e 16 39?	PP	e 13 36	—
Stuttgart		94.8	318	e 13 20	- 5	e 16 38?	PP	e 13 42	—
Tamanrasset	z.	97.6	293	e 13 37	- 1	e 17 39	PP	e 13 55	—
College		101.8	25	e 17 59	PP	—	—	—	—
Granada		104.9	307	14 6 _a	- 4	—	—	—	53.4
Victoria		120.9	33	18 52	[- 2]	—	—	—	—
Shasta		125.7	41	e 19 0	[- 4]	—	—	—	—
Hungry Horse		125.9	28	i 19 1	[- 3]	—	—	—	—
Mineral	z.	126.4	41	e 19 2 _k	[- 3]	—	—	—	—
Lick	z.	127.8	44	e 19 6 _k	[- 2]	—	—	—	—
Reno	z.	128.0	41	e 19 6 _a	[- 2]	—	—	—	—
Fresno		129.4	44	e 19 8 _k	[- 3]	—	—	—	—
Tinemaha	z.	130.3	43	e 19 11	[- 2]	—	—	e 22 27	PKS
China Lake	z.	131.4	43	e 19 12	[- 3]	—	—	e 22 30	PKS
Pasadena		131.9	45	i 19 13	[- 3]	—	—	i 22 33	PKS
Riverside	z.	132.5	45	e 19 14	[- 3]	—	—	i 22 37	PKS
Boulder City		133.2	42	e 19 13	[- 5]	—	—	i 22 38	PKS
Nelson		133.4	42	i 22 39	PKS	—	—	i 24 4	?
Halifax		137.5	345	e 19 18 _a	[- 8]	22 12	PP	23 2	PKS
Tucson		138.1	43	i 22 53	PKS	—	—	—	—
Harvard		141.1	352	e 19 33	[+ 1]	—	—	i 23 5	PKS
Morgantown		144.3	2	i 19 34	[- 4]	—	—	e 22 10	PP
Fayetteville	z.	144.5	22	i 19 34	[- 4]	—	—	e 22 51	PP
Bermuda		149.0	338	i 19 48	[+ 2]	—	—	—	—

Oct. 10d. 22h. 46m. 56s. Epicentre 17°·6N. 101°·3W. (as on 1952, January 29d.).

A = -·1869, B = -·9353, C = +·3005; $\delta = +2$; $h = +5$;
D = -·981, E = +·196; G = -·059, H = -·295, K = -·954.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Tacubaya		2.7	48	0 58	+ 4 _g	—	—	—	1.7
Manzanillo		3.2	297	1 8	+ 4 _g	—	—	—	2.0
Puebla		3.3	64	1 6	0 _g	—	—	—	1.9
Guadalajara		3.6	328	1 12	0 _g	2 3	+ 4 _g	e 1 24	2.1
Oaxaca		4.4	97	1 15	+ 5	—	—	—	2.2
Vera Cruz		5.2	71	1 29	- 3*	—	—	—	2.7
Lubbock		15.9	358	3 49	+ 2	8 29	L	—	(8.5)
Tucson		16.9	331	e 3 59	0	e 8 18	L	—	(e 8.3)
Mobile		17.7	39	i 4 14	+ 4	—	—	—	—
Nelson		21.7	332	e 4 54	- 1	—	—	—	—
Riverside	z.	21.8	322	i 4 55	- 1	e 5 7	?	e 5 54	?
Boulder City		21.9	332	i 4 57	0	—	—	—	—
Pasadena	z.	22.4	322	e 5 2	0	i 5 12	?	i 5 43	PP
China Lake	z.	23.2	326	e 5 10	+ 1	i 5 19	?	e 5 30	PP
Tinemaha	z.	24.5	326	e 5 23	+ 1	—	—	i 5 32	PP
Fresno	z.	25.1	325	e 5 47	PP	—	—	—	—
Lick	z.	26.6	323	e 5 42	0	—	—	—	—
Reno	z.	27.1	328	e 5 48	+ 2	—	—	—	—
Morgantown		28.7	34	e 6 22	+21	—	—	—	—
Butte		29.8	346	e 6 11	0	—	—	—	—
Hungry Horse		32.4	346	i 6 33	- 1	—	—	—	—
San Juan		33.4	82	i 7 8	+26	—	—	—	—
Victoria		35.7	335	7 1	- 1	—	—	—	—
La Paz		47.1	134	e 8 44	+ 9	—	—	—	—
College		56.5	338	i 9 45	- 1	—	—	—	—
Kiruna	z.	85.0	20	i 12 42	+ 4	—	—	—	—
Malaga		85.0	53	e 12 44	+ 6	e 22 30	-37	—	—
Granada		85.5	53	i 13 5 _k	+24	e 23 26	+14	—	45.6
Paris		85.7	41	i 12 47	+ 5	i 12 56	?	i 13 1	e 47.1
Clermont-Ferrand		87.2	43	e 12 53	+ 4	e 28 4	?	—	42.1

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Oct. 11d. 0h. 13m. 57s. Epicentre 5°·6S. 148°·6E.

A = -·8495, B = +·5186, C = -·0969 ; $\delta = -1$; $h = +7$;
D = +·521, E = +·854 ; G = +·083, H = -·050, K = -·995.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Guam		19·3	347	4 35	+ 6	8 4	+ 2	—	—
Brisbane		22·2	169	i 4 57	- 3	i 9 3	+ 3	i 5 18	PP e 10·4
Riverview		28·2	175	i 5 51 _a	- 5	e 10 33	- 8	i 6 43	PP e 12·8
Manila		33·9	306	i 6 53 _k	+ 6	i 12 36	+25	—	— 17·0
Auckland	N.	39·3	145	e 10 25	?	e 16 43	SSS	—	— i 16·9
Perth		40·3	225	7 45	+ 5	13 43	- 6	17 5	SSS i 18·7
Karapiro	N.	40·4	147	e 7 44	+ 3	—	—	—	—
Djakarta		41·5	267	i 8 3 _a	+13	i 9 57	PcP	i 8 52	? —
Misima		41·5	348	e 7 55	+ 5	e 14 9	+ 2	e 7 38	? —
Kaimata	N.E.	42·0	154	e 8 3	+ 9	—	—	—	—
Tuai	N.	42·0	146	e 8 0	+ 6	—	—	—	—
Iida		42·1	347	—	—	e 14 9	- 7	—	—
Kohu		42·1	348	e 7 57	+ 2	—	—	—	—
Kumagaya		42·4	349	e 8 4	+ 6	e 14 18	- 2	—	—
Wellington		42·5	150	8 1 _k	+ 2	14 18	- 4	e 11 3	? e 18·6
Maebasi		42·7	349	e 8 3	+ 3	—	—	e 9 45	PP —
Utunomiya		42·7	350	e 8 3	+ 3	e 14 32	+ 8	—	—
Matumoto		42·8	347	e 8 1	0	e 14 26	0	—	—
Oiwake		42·8	348	e 7 34	-27	—	—	—	—
Matusiro		43·0	348	e 7 55	- 8	14 26	- 3	17 41	SS 20·0
Nagano	N.	43·2	348	e 7 57	- 7	e 14 35	+ 3	—	—
Shirakawa		43·2	351	—	—	e 14 22	-10	—	—
Christchurch		43·3	154	—	—	e 14 49	+16	e 19 3	Q e 22·8
Toyama		43·4	347	e 8 11	+ 5	e 14 36	+ 1	—	—
Hong Kong		43·6	311	—	—	e 14 41	+ 3	—	—
Inawasiro		43·7	351	e 8 7	- 1	—	—	—	—
Mizusawa	N.	45·0	352	8 25	+ 6	15 9	+11	—	—
Akita		45·8	351	e 7 46	-39	e 15 10	+ 1	e 8 47	? —
Aomori		46·7	352	e 8 28	- 4	i 15 34	+12	e 10 27	PP —
Nanking		47·0	324	i 8 33 _k	- 2	i 15 23	- 3	—	—
Sapporo		48·9	353	e 8 50	0	e 15 52	- 1	(e 20 24)	SSS e 20·4
Shillong	E.	63·2	302	e 10 32	0	e 18 40	-23	—	—
Kodaikanal	E.	72·6	283	e 11 54	PcP	e 21 33	ScS	31 42	Q 35·3
Bombay		78·4	290	e 12 4	0	e 21 56	- 4	22 44	PS —
College		84·2	23	e 12 34	0	e 23 59	+60	—	e 33·0
Quetta		85·5	300	i 18 52	?	—	—	—	—
Berkeley	E.	92·7	53	—	—	e 24 35	+17	—	—
Shasta	Z.	92·9	49	e 13 25	+ 9	—	—	—	—
Lick	Z.	93·2	53	e 13 41	+24	—	—	—	—
Mineral	Z.	93·4	50	e 13 37	+19	—	—	—	—
Fresno	Z.	94·6	53	e 14 23	+59	—	—	—	—
Reno	Z.	94·8	51	e 13 41	+16	—	—	—	—
Mount Wilson	Z.	95·9	56	e 13 42	+12	—	—	—	—
Tinemaha	Z.	95·9	54	e 13 48	+18	—	—	—	—
China Lake	Z.	96·2	54	e 13 40	+ 9	—	—	—	—
Riverside	Z.	96·4	56	e 13 41	+ 9	—	—	—	—
Boulder City		98·6	54	e 13 43	+ 1	—	—	—	—
Nelson		98·6	54	e 13 53	+11	—	—	—	—
Hungry Horse		99·1	42	e 14 4	+20	—	—	—	—
Resolute Bay		102·2	13	—	—	i 33 4	SSP	—	e 46·8
Kiruna		108·9	341	i 19 10	PP	e 26 3	{+ 6}	e 28 25	PS e 45·0
Ksara		111·9	304	i 19 23	PP	e 30 43	PS	—	—
Pretoria	Z.	114·4	239	e 18 43	[+ 1]	—	—	—	—
Upsala	N.	114·4	335	e 29 41	PS	—	—	e 50 3?	Q e 54·0
Scoresby Sund		114·9	356	—	—	e 37 15	?	39 19	? 58·0
Istanbul	N.	115·7	313	—	—	e 30 33	PPS	—	—
Helwan	Z.	116·4	300	e 20 13	PP	—	—	e 6 15	? —
Copenhagen		119·1	334	—	—	e 36 45	SS	—	52·0
Potsdam		120·8	331	e 20 27	PP	—	—	—	e 55·0
Triest	Z.	124·2	324	e 19 31	[+30]	e 20 32	?	e 21 30	PP —

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
De Bilt	124.7	334	—	—	e 31 3?	PS	—	e 57.0
Stuttgart	124.9	329	e 19 11	[+ 9]	—	—	—	e 58.0
Strasbourg	125.8	329	—	—	e 38 43	SSP	e 42 43	SSS e 55.0
Messina	126.5	315	e 20 51	PP	e 31 19	PS	e 37 58	SS
Florence	126.7	323	e 29 23	PKKP	e 39 33	?	e 40 46	? e 57.8
Rome	126.9	320	—	—	e 29 52	?	e 39 32	?
Pavia	127.1	325	—	—	e 34 52	?	e 58 8	Q e 63.1
Palisades	128.2	40	e 23 9	?	e 38 50	SSP	—	— e 59.0
Paris	128.2	333	e 21 23	PP	e 42 58	SSS	e 54 57	Q e 66.0
La Plata	132.6	150	—	—	45 9	SSS	52 9	Q 59.8
Huancayo	132.9	112	—	—	e 40 11	SSP	—	—
Algiers Univ.	z. 135.8	319	e 22 6	PP	e 23 24	PKS	—	—
Chinchina	136.0	88	e 19 25	[+ 2]	e 23 5	PKS	—	—
Alicante	137.0	325	19 29	[+ 4]	26 42	[+ 8]	22 22	PP 64.6
Bogota	137.5	89	e 22 36	PP	—	—	—	70.0
La Paz	137.5	122	e 19 30	[+ 4]	—	—	—	65.2
Bermuda	139.1	45	—	—	e 40 44	SS	—	e 58.7
Almeria	139.2	324	18 40	[- 49]	25 48	[- 50]	22 10	PP 69.4
Granada	139.6	326	e 19 31 _a	[+ 1]	25 33	[- 65]	22 30	PP 65.6
Malaga	140.4	326	e 22 5	PP	28 57	[- 26]	e 24 47	? 69.8
Tamanrasset	z. 140.5	300	e 19 35	[+ 4]	e 22 44	PP	e 20 22	? —
San Juan	143.8	66	e 19 40	[+ 3]	—	—	e 20 8	? —

Oct. 11d. 1h. 24m. 1s. Epicentre 19°·3S. 23°·4E. (as on 1952, September 11d.).

A = +·8668, B = +·3751, C = -·3285; δ = -5; h = +5;
D = +·397, E = -·918; G = -·301, H = -·130, K = -·944.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Pretoria	z. 7.8	146	i 1 56	- 2	—	—	—	—
Johannesburg	8.1	149	i 2 0	- 2	i 3 26	- 9	—	—
Kimberley	z. 9.5	173	i 2 17	- 3	e 3 59?	- 11	—	—
Pietermaritzburg	z. 12.1	150	i 2 53	- 4	—	—	—	—
Grahamstown	z. 14.2	169	i 3 22	- 2	i 5 44?	- 20	—	—
Tananarive	22.8	92	5 11	+ 6	9 11	0	—	—
Tamanrasset	z. 45.3	336	i 8 21 _a	0	e 15 9	+ 7	i 10 9	PP 22.0
Helwan	z. 49.5	9	e 15 7	?	e 16 23	+ 21	e 15 20	? e 25.4
M'Bour	52.0	308	i 9 15	+ 2	—	—	—	26.0
Ksara	54.1	13	i 9 31	+ 2	e 16 27	- 38	e 25 39	Q i 29.6
Algiers Univ.	z. 59.0	341	i 10 3 _k	- 1	e 12 10	PP	e 11 40	? 29.2
Almeria	60.9	337	10 24	+ 7	18 30	- 4	11 12	PcP 32.7
Alicante	61.6	339	e 10 32	+ 10	19 10	PS	11 12	PcP 31.2
Granada	61.7	336	i 10 23 _k	+ 1	e 18 59	+ 15	10 33	? 30.4
Rome	61.7	351	e 10 16	- 6	—	—	—	—
Florence	z. 63.7	351	e 10 34	- 2	—	—	e 10 14	? —
Belgrade	z. 63.9	359	i 10 37 _k	0	e 11 21	PcP	e 10 47	? —
Toledo	64.2	333	e 10 37	- 2	e 19 7	- 9	i 10 50	? e 34.1
Quetta	E. 64.7	40	i 10 46	+ 4	—	—	—	—
Triest	z. 65.2	353	i 10 45 _k	0	e 11 11	PcP	e 10 56	? —
Chur	67.0	350	e 10 55 _a	- 2	—	—	—	—
Clermont-Ferrand	67.3	345	i 10 59	0	—	—	—	35.3
Zürich	67.7	349	e 10 58	- 3	—	—	—	—
Basle	68.0	349	i 11 6	+ 3	—	—	—	—
Besançon	68.1	348	i 11 3	- 1	—	—	e 11 13	? —
Stuttgart	z. 68.9	350	e 11 9	0	—	—	e 11 20	? —
Strasbourg	69.0	349	i 11 8?	- 1	—	—	e 11 19	? —
Prague	69.5	354	e 11 14	+ 2	e 12 3	?	e 12 27	? —
Paris	70.3	346	i 11 17	0	e 13 32	PP	i 11 28	? e 31.0
Jena	z. 70.7	353	e 11 18?	- 2	—	—	e 11 28	? —

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Collmberg	z.	70.9	353	e 11	19	- 2	—	—	—	e 11	33	?
Potsdam	z.	71.9	354	e 11	27	0	—	—	—	—	—	e 41.0
Witteveen	z.	73.3	350	i 11	36	+ 1	—	—	—	—	—	—
Upsala	z.	79.0	357	i 12	8	+ 1	—	—	—	i 12	17	PcP
Kiruna	z.	86.9	359	i 12	49	+ 1	—	—	—	—	—	e 49.0
Hungry Horse		135.1	321	i 19	24	[+ 2]	e 22	52	PKS	—	—	—
Tucson		137.1	297	e 19	13	[- 12]	—	—	—	—	—	—
Victoria		140.4	325	19	27	[- 4]	—	—	—	—	—	—
China Lake	z.	142.0	305	e 19	31	[- 3]	—	—	—	e 19	42	?
Tinemaha	z.	142.1	306	e 19	32	[- 2]	—	—	—	—	—	—
Riverside	z.	142.2	302	e 19	32	[- 2]	—	—	—	—	—	—
Reno	z.	142.5	311	e 19	31	[- 4]	—	—	—	—	—	—
Pasadena	z.	142.9	302	e 19	34	[- 2]	—	—	—	e 19	45	?
Fresno	z.	143.4	307	e 19	35	[- 1]	—	—	—	—	—	—
Mineral	z.	143.4	313	e 19	34	[- 2]	—	—	—	—	—	—
Shasta	z.	143.8	314	e 19	35	[- 2]	—	—	—	—	—	—
Lick	z.	144.6	309	e 19	39	[+ 1]	—	—	—	—	—	—
Berkeley	z.	144.9	309	e 19	41	[+ 2]	—	—	—	—	—	—

Oct. 12d. 4h. 28m. 32s. Epicentre 17°·4S. 71°·0W. (as on 1950, October 30d.).

A = +·3109, B = -·9028, C = -·2972; δ = +3; h = +5;
D = -·946, E = -·326; G = -·097, H = +·281, K = -·955.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.
La Paz	N.	2.9	72	i 0	58	0 _g	i 1	43	+ 7 _g	—	—
Antofagasta	E.	6.2	175	i 1	31	- 4	—	—	—	e 0	54
Huancayo		6.8	321	e 2	45	S	(e 2	45)	- 18	—	—
Riverside	z.	67.5	319	e 11	2	+ 2	—	—	—	—	—
Pasadena	z.	68.1	319	i 11	6	+ 2	—	—	—	—	—
China Lake	z.	68.9	321	e 11	11	+ 2	—	—	—	—	—
Reno	z.	72.7	322	e 11	30	- 2	—	—	—	—	—
Mineral	z.	74.2	322	e 11	40	0	—	—	—	—	—
Shasta	z.	74.9	322	e 11	43	- 1	—	—	—	—	—
Tamanrasset	z.	84.8	64	e 12	35	- 2	—	—	—	12	43

Oct. 12d. 6h. 31m. 44s. Epicentre 15°·4S. 66°·4W. Depth of focus 0.040.

A = +·3862, B = -·8839, C = -·2639; δ = +7; h = +5;
D = -·916, E = -·400; G = -·106, H = +·242, K = -·965.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.
La Paz		2.0	237	0	38	- 8	i 1	19	- 3	i 1	32
Antofagasta	E.	9.0	204	2	10	+ 3	—	—	—	—	—
Huancayo		9.3	290	e 2	12	+ 2	—	—	—	—	—
Harvard		57.8	356	i 9	31 _a	+ 7	—	—	—	—	—
Riverside	z.	69.0	316	i 10	36 _a	0	—	—	—	—	—
Pasadena	z.	69.7	316	i 10	40 _a	0	—	—	—	—	—
China Lake	z.	70.3	319	e 10	43	- 1	—	—	—	—	—
Tinemaha	z.	71.4	319	e 10	51	0	—	—	—	—	—
Reno	z.	73.9	320	e 11	6 _a	+ 1	—	—	—	—	—
Mineral	z.	75.5	320	e 11	15 _a	+ 1	—	—	—	—	—
Shasta	z.	76.2	320	e 11	15 _k	- 3	—	—	—	—	—
Tamanrasset	z.	79.9	63	e 11	32	- 6	—	—	—	12	37

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Oct. 12d. 10h. 34m. 59s. (I) } Epicentre 37°·5N, 20°·8E.
16h. 49m. 5s. (II) } (as on 10d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
I Athens		2·4	79	i 0 48	0 _g	i 1 18	- 1 _g	i 0 52	?	i 1·4
II		2·4	79	i 0 57	+ 9 _g	i 1 23	+ 4 _g	i 1 0	?	i 1·4
I Messina	z.	4·2	281	e 1 5	- 2	i 1 48	- 9	i 2 8	S _g *	—
II	z.	4·2	281	e 1 6	- 1	i 1 47	- 10	i 2 1	S _g *	—
I Sofia		5·5	20	e 1 41	+ 4*	e 3 21	+ 19 _g	—	—	—
II		5·5	20	e 1 35	- 2*	—	—	—	—	e 3·3
I Istanbul		7·3	59	e 2 4	- 4*	e 3 30	- 11*	e 4 12	S _g *	4·8
II		7·3	59	e 1 57	+ 7	e 2 57	- 18	e 3 58	S _g *	e 4·7
I Belgrade		7·3	358	—	—	e 3 39	- 2*	e 4 6	S _g *	e 4·2
II		7·3	358	2 21k	- 5 _g	e 3 57	- 4 _g	e 2 47	S _g *	e 4·2
I Rome		7·8	307	—	—	e 3 28	0	e 4 2	S _g *	e 4·9
II		7·8	307	—	—	e 4 24	+ 6 _g	e 4 48	?	e 5·1
I Timisoara		8·3	2	—	—	e 4 1?	- 9*	—	—	e 5·0
I Florence		9·6	314	e 2 56	P _g	i 5 36	+ 19 _g	i 9 10	PcP	i 6·2
II	z.	9·6	314	e 9 11	PcP	e 4 41	- 8*	e 5 5	S _g *	e 6·2
II Triest		9·7	329	e 3 4	+ 42	e 4 7	- 8	e 4 49	S _g *	i 5·5
I Ksara		12·8	102	e 3 12	+ 6	—	—	—	—	e 8·2
II Stuttgart		14·1	327	e 3 31	+ 8	—	—	—	—	e 8·4
I Tamanrasset	z.	19·7	226	e 4 31	- 3	—	—	e 9 0	PcP	e 9·8
II	z.	19·7	226	e 4 27	- 7	—	—	—	—	e 9·7
I Upsala	z.	22·5	356	i 5 2	0	—	—	—	—	—
II	z.	22·5	356	i 5 2	0	—	—	i 5 11	?	—

Oct. 13d. 6h. 55m. 25s. Epicentre 33°·3S, 71°·1W. Depth of focus 0·010.

Intensity IV between 32° and 33°S. in Chile. Epicentre near 33°S, 71°W. (Strasbourg).

F. Greve.

Boletín del año 1952, Instituto Sismológico, Universidad de Chile, Santiago, p. 33.

A = +·2713, B = -·7924, C = -·5464; $\delta = +5$; $h = 0$;
D = -·946, E = -·324; G = -·177, H = +·517, K = -·838.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Santa Lucía	N.	0·3	113	i 0 13	- 2	0 27	+ 1	—	—	i 0·4
Concepción	N.	3·9	204	e 1 9	+ 10	i 1 47	+ 3	—	—	—
Antofagasta	E.	9·6	4	e 2 30	+ 13	e 4 8	+ 4	—	—	—
Buenos Aires		10·6	101	e 2 44	+ 14	4 48	+ 20	—	—	—
La Plata		11·0	102	—	—	4 29	- 8	—	—	5·7
La Paz		16·9	10	i 3 47	- 5	i 7 3	+ 8	—	—	—
Palisades		74·0	358	e 11 28	+ 1	—	—	—	—	—
Harvard		75·4	0	e 11 38	+ 3	—	—	—	—	—
Kimberley	z.	79·3	118	i 11 56	0	—	—	—	—	—
Riverside	z.	79·8	322	e 11 59	0	—	—	—	—	—
Pasadena	z.	80·3	322	e 12 3	+ 1	—	—	e 12 24	pP	—
China Lake	z.	81·4	324	e 12 8	0	—	—	e 12 29	pP	—
Kirkland Lake	z.	81·5	354	e 12 6	- 2	—	—	—	—	—
Tinemaha	z.	82·6	324	e 12 16	+ 2	—	—	e 12 36	pP	—
Pretoria	z.	83·4	116	i 12 19	+ 1	—	—	—	—	—
Mineral	z.	86·9	324	e 12 36k	+ 1	—	—	—	—	—
Shasta	z.	87·5	324	e 12 38a	0	—	—	e 12 52	?	—
Tamanrasset	z.	91·8	64	e 13 19	pP	—	—	—	—	—
Poona	z.	145·4	106	i 19 28	[+ 1]	—	—	i 19 51	pPKP	—

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Oct. 13d. 16h. 42m. 27s. Epicentre 38°·8N. 23°·2E. (as on 1947, April 19d.).

Felt in the islands of Euboea (intensity VIII at Vasilika and Tsampournia, VII at Hellenika, VI at Hagia Anna, and Limni, V at Mantoudion, Aedipsos, and Oreoe, IV at Eretria and Kymi Chalkis, III at Avlonarion), Skopelos (intensity V at Skopelos), Skiatos (intensity V at Skiatos), and Skyros (intensity III at Skyros). Felt also in the provinces of Lokris (intensity VI at Livanates, V at Larymna, Atalanti, Malessina, Molos, and Martinon, IV at Dadi), Phiotis (intensity V at Lamia), Parnassis (intensity V at Amphissa), Volos (intensity V at Volos, Milae, Argalasti, Venetoni and Zagora). Epicentre 38°·9N. 23°·5E. Macroseismic area, 60,000 sq. km.

A. Galanopoulos.

Seismological Institute Bulletin, 1952, Athens, 1953, p. 42.

A = +·7182, B = +·3078, C = +·6240; $\delta = -7$; $h = -1$;
D = +·394, E = -·919; G = +·574, H = +·246, K = -·781.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
				m.	s.	s.	m.	s.	m.	s.	m.		
Athens		0·9	154	i 0	23 _a	+ 3	i 0	36	+ 2	—	—	—	
Sofia		3·9	1	0	59	- 3	2	2	+ 2*	i 1	20	P _g	—
Istanbul	z.	5·1	62	i 1	45	+ 3 _g	i 2	24	+ 4	i 2	39	S*	i 3·8
Messina	z.	6·0	266	i 1	34	+ 2	i 2	36	- 7	i 1	44	P*	—
Bucharest		6·0	21	e 1	27	- 5	i 2	41	- 2	i 2	1	P _g	—
Belgrade		6·3	342	e 1	33 _a	- 3	i 2	52	+ 2	i 2	3	P _g	—
Campulung		6·6	12	e 1	36	- 5	e 2	40	-18	—	—	—	—
Timisoara		7·1	348	e 1	51?	+ 3	i 3	54	- 1 _g	i 2	1	P*	e 4·1
Focsani		7·5	22	e 1	45	- 8	e 2	45	-35	—	—	—	—
Bacau		8·2	18	(e 1	58)	- 5	e 1	58	P	—	—	—	—
Kalossa		8·3	340	e 2	8	+ 4	e 4	0	-10*	i 4	27	S _g	6·0
Rocca di Papa	n.	8·5	293	e 2	11	+ 4	e 3	41	- 4	—	—	—	—
Kecskemet		8·5	343	e 2	15	+ 8	e 4	7	- 9*	e 4	50	S _g	—
Rome		8·8	294	i 2	9	- 2	e 4	1	+ 8	e 4	29	S*	—
Kishinev		9·2	25	2	10	- 6	—	—	—	—	—	—	—
Budapest		9·2	342	e 2	23	+ 7	e 4	38	+ 1*	e 2	37	P*	5·2
Ogyalla		9·8	340	—	—	—	e 4	59	+ 4*	e 5	34	S _g	e 6·0
Triest		9·8	317	i 3	3	P _g	i 4	4	-13	i 5	10	S _g	—
Uzhgorod		9·9	356	e 2	23	- 2	—	—	—	—	—	—	—
Padova		10·2	307	e 3	8	P*	5	13	S*	—	—	—	6·0
Florence		10·3	302	e 3	2	P*	e 5	4	S*	—	—	—	e 6·6
Prato		10·4	303	e 3	5	P*	i 5	1	S*	—	—	—	—
Skalnate Pleso		10·6	349	e 2	56	PP	e 4	57	SS	e 5	41	S _g	e 7·2
Bologna		10·6	306	e 3	6	PPP	e 4	45	+ 8	e 5	26	S*	—
Vienna		10·7	334	e 2	34	- 4	e 4	23	-16	e 5	5	S*	—
Lwow		11·1	3	i 2	38	- 5	—	—	—	—	—	—	—
Helwan	z.	11·2	141	2	45	+ 1	e 5	0	+ 8	e 8	9	?	—
Ksara		11·4	112	i 2	52	+ 5	5	58?	+62	—	—	—	—
Salo		11·6	310	e 2	59	+ 9	e 4	44	-17	e 3	41	?	—
Raciborzu		11·8	344	e 2	50	- 3	e 5	7	+ 1	e 8	37	PcP	—
Pavia		12·2	306	—	—	—	e 5	7	- 9	e 5	39	SSS	e 6·6
Chur		12·8	313	e 3	11 _a	+ 5	e 5	16	-14	—	—	—	e 7·3
Prague		12·9	334	e 3	3	- 4	e 5	38	+ 5	e 3	14	PP	e 7·0
Oropa	e.	13·2	306	i 3	2	- 9	i 5	2	-38	i 4	0	?	—
Zürich		13·7	313	e 3	19 _a	+ 1	e 5	52	0	—	—	—	—
Cheb		13·7	329	e 3	9	- 9	e 5	49	- 3	e 3	21	PP	e 7·7
Stuttgart		14·2	319	e 3	23	- 1	(e 6	3)	- 1	—	—	—	e 6·0
Basle		14·3	312	e 3	25	- 1	e 5	55	-11	e 4	18	?	e 6·8
Collmberg		14·4	333	e 3	23	- 4	e 3	41	PP	e 8	55	PcP	e 7·0
Karlsruhe		14·7	319	3	39	+ 8	e 3	50	PP	e 4	13	?	7·2
Jena		14·7	329	e 3	27	- 4	e 6	7	- 9	e 3	45	PP	—
Strasbourg		14·8	316	i 3	39	+ 7	i 6	16	- 2	i 3	46	PP	e 7·3
Besançon		15·2	309	i 3	36	- 2	e 3	53	PP	i 4	8	PPP	i 7·9
Potsdam		15·3	336	e 3	40	+ 1	e 6	48	SS	e 3	44	P	e 8·2
Algiers Univ.	z.	16·1	269	i 3	50 _a	+ 1	e 7	0	SS	e 5	0	?	e 8·6
Clermont-Ferrand		16·4	301	e 4	2	PP	—	—	—	—	—	—	—
Tortosa		17·6	284	i 4	5	- 3	7	27	+ 4	—	—	—	—
Paris		17·9	310	i 4	17	+ 5	i 4	24	PP	i 4	34	PPP	i 8·4
Copenhagen		18·4	341	e 4	11	- 7	7	45	+ 4	e 4	28	PP	9·6
Alicante		18·5	278	e 4	17	- 2	e 6	39	-65	e 9	5	Q	15·1

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Almeria	20.3	274	i 4 50	+10	9 34	+71	5 42	?
Kew	20.8	317	e 2 35	?	e 8 39	+ 6	e 4 7	P
Toledo	21.1	282	e 4 53	+ 5	e 8 51	+12	e 5 26	PPP
Granada	21.2	276	i 4 56k	+ 7	e 9 48	SSS	5 17	PP
Upsala	21.4	353	i 4 47a	- 4	i 8 46	+ 1	i 11 43	Q
Malaga	21.9	275	i 4 38	-19	(9 46)	SSS	5 0	P
Tamanrasset z.	22.0	229	e 5 0	+ 2	e 10 16	Q	i 5 37	PPP
Rathfarnham Castle	24.9	316	e 4 29	-57	—	—	—	—
Kiruna	29.1	358	i 6 1	- 3	e 10 51	- 5	e 7 13	PPP
Scoresby Sund	39.4	338	e 7 28	- 5	—	—	—	—
Poona z.	48.1	100	e 8 47	+ 4	—	—	—	—
Halifax	62.1	306	e 10 25	0	—	—	—	—
Pretoria z.	64.4	175	e 10 40	0	—	—	—	—
Ottawa	69.1	312	e 10 59	-11	—	—	—	—

Oct. 13d. 20h. 52m. 20s. Epicentre 19°·7N. 73°·4W.

A = +·2692, B = -·9029, C = +·3351; δ = -11; h = +4;
D = -·958, E = -·286; G = +·096, H = -·321, K = -·942.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kingston	3.6	243	e 0 58	0	e 1 37	- 5	—	—
San Juan	7.0	100	i 1 46	0	i 3 6	- 2	—	—
Bermuda	14.8	30	i 3 31	- 1	i 6 2	-16	—	—
Weston	22.7	3	i 5 6k	+ 2	—	—	—	—
Harvard	22.8	3	i 5 7a	+ 2	i 9 6	- 5	—	—
Halifax	26.2	16	e 5 40a	+ 2	—	—	—	—
Boulder City	39.7	303	e 7 31	- 5	—	—	—	—
Nelson	39.7	303	i 7 36	0	—	—	—	—
Tinemaha z.	42.6	304	i 8 1	+ 2	—	—	—	—
Hungry Horse	43.4	321	i 8 5	- 1	i 9 52	PP	—	—
Mineral z.	45.9	308	e 9 25	+59	—	—	—	—
Shasta	46.6	308	e 8 22	-10	—	—	—	—
College	65.7	334	i 10 46	- 2	—	—	—	—
Kiruna z.	73.4	24	i 11 34	- 2	—	—	—	—

Oct. 13d. 23h. 24m. 10s. Epicentre 33°·9S. 177°·8W. (as on 1951, June 14d.).

A = -·8312, B = -·0319, C = -·5551; δ = +5; h = +1;
D = -·038, E = +·999; G = +·555, H = +·021, K = -·832.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tuai N.	6.4	218	1 32	- 6	i 2 42	-11	—	—
Karapiro N.	6.7	231	e 1 37	- 5	e 2 49	-11	—	—
New Plymouth E.	8.3	229	e 2 9	+ 5	e 3 30	-10	—	—
Wellington	9.4	216	e 2 17	- 1	i 3 51	-16	i 15 51	ScS
Cobb River E.	10.4	224	e 2 43	+ 9	e 4 10	-22	—	—
Kaimata N.E.	12.1	221	e 2 57	0	e 4 52	-22	—	—
Christchurch	12.2	215	—	—	e 4 58	-18	—	—
Apia	20.7	17	e 4 59	+15	i 8 50	+19	i 6 0	?
Riverview	25.7	291	e 5 29	- 4	i 10 4	+ 3	i 5 46	?
Brisbane	25.8	276	i 5 28a	- 6	—	—	i 6 26	PPP
Pasadena	87.8	46	i 12 56	+ 4	i 13 22	?	i 13 40	?
Berkeley	88.1	41	i 12 50	- 4	e 23 44	+ 7	e 36 32	Q
Riverside z.	88.2	46	e 12 54	0	—	—	e 13 24	?
Fresno z.	88.7	43	e 12 55k	- 2	—	—	—	—
China Lake z.	89.3	45	e 12 59	0	i 13 17	?	e 13 31	?

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Tinemaha	z.	89.8	44	e 13	6	+ 4	—	—	—	e 13	20	?	—
Shasta	z.	90.1	38	e 13	2	- 1	—	—	—	—	—	—	—
Reno	z.	90.6	41	e 13	6 ^k	+ 1	—	—	—	—	—	—	—
Nelson		90.8	46	i 13	9	+ 3	—	—	—	—	—	—	—
Boulder City		91.0	46	e 13	8	+ 1	—	—	—	—	—	—	—
Tucson		91.1	51	e 13	9	+ 1	—	—	—	—	—	—	e 59.9
Huancayo		93.5	107	—	—	—	e 23	56	[+ 3]	e 31	5	SSP	e 44.0
La Paz		96.4	114	—	—	—	i 24	6	[- 3]	i 26	26	PS	48.8
Hungry Horse		99.7	37	e 17	52	PP	—	—	—	—	—	—	—
College		101.2	12	e 13	54	0	—	—	—	—	—	—	e 45.9
Bogota		104.0	93	—	—	—	e 24	41	[- 5]	e 27	39	PS	49.8
Kodaikanal	E.	107.8	271	e 21	53	PPP	—	—	—	—	—	—	—
Resolute Bay		120.5	17	e 18	50	[- 4]	e 25	9	[- 43]	e 36	48	SS	e 65.7
Palisades		120.9	59	e 20	26	PP	e 25	55	[+ 2]	e 30	24	PS	e 58.4
Ottawa		121.1	53	e 18	59	[+ 4]	e 37	4	SS	28	32	?	52.2
Przhevalsk		121.3	303	e 18	52	[- 3]	—	—	—	—	—	—	—
Weston		123.2	57	e 18	53	[- 6]	—	—	—	—	—	—	—
Frunse		124.1	302	i 18	58	[- 3]	i 26	8	[+ 5]	i 23	22	PPP	—
Bermuda		124.9	71	—	—	—	e 38	8	SSP	—	—	—	e 59.3
Dzhergetal		125.5	298	i 19	5	[+ 2]	—	—	—	—	—	—	—
Namangan		125.7	299	i 19	1	[- 3]	e 31	31	SKSP	—	—	—	—
Quetta	z.	125.7	286	e 19	1	[- 3]	—	—	—	—	—	—	—
Obi-garm		126.5	296	e 19	4	[- 1]	—	—	—	—	—	—	—
Stalinabad		127.1	296	19	4	[- 2]	31	4	PS	—	—	—	—
Lunacharskoe		127.5	299	e 19	0	[- 7]	e 26	6	[- 7]	e 21	8	PP	—
Tashkent		127.5	299	e 18	40 [?]	[- 27]	i 22	18 [?]	PKS	e 30	40 [?]	PS	—
Bairam-Ali		131.9	293	e 19	9	[- 7]	e 22	40	PKS	—	—	—	—
Sverdlovsk		134.6	319	e 19	18	[- 3]	i 22	46	PKS	—	—	—	—
Ashkabad		134.9	292	i 19	18	[- 3]	22	47	PKS	—	—	—	—
Kizyl-Arvat		136.7	294	e 19	25	[+ 1]	—	—	—	—	—	—	—
Baku		141.8	295	—	—	—	e 23	10 [?]	PKS	—	—	—	—
Kiruna		144.4	348	i 19	32 ^k	[- 6]	i 20	8	?	e 62	25	Q	e 68.8
Goris		144.4	293	e 19	33	[- 5]	e 23	2	PKS	—	—	—	—
Kirovobad		144.5	295	i 19	32	[- 6]	—	—	—	—	—	—	—
Grozny		145.0	299	i 19	34	[- 5]	—	—	—	—	—	—	—
Tiflis		145.7	296	19	34	[- 6]	—	—	—	—	—	—	—
Erevan		145.9	294	i 19	37	[- 4]	23	10	PKS	—	—	—	—
Gori		146.2	297	19	40	[- 1]	—	—	—	—	—	—	—
Tsikhlis-Dzhvari		146.7	296	e 19	41	[- 1]	—	—	—	—	—	—	—
Borzhom		146.8	296	i 19	38	[- 4]	—	—	—	—	—	—	—
Piatigorsk		146.9	301	i 19	40	[- 2]	e 29	50	{- 11}	—	—	—	—
Moscow		147.2	324	e 19	40	[- 3]	—	—	—	—	—	—	—
Zugdidi		147.9	298	e 19	44	[0]	—	—	—	—	—	—	—
Pulkovo		148.2	334	i 19	44	[- 1]	—	—	—	—	—	—	—
Upsala	z.	152.1	343	i 19	54	[+ 3]	—	—	—	i 19	57	PKP ₂	—
Ksara		152.1	279	i 19	51	[0]	—	—	—	23	55	PP	—
Theodosia		152.2	304	e 19	48	[- 3]	—	—	—	—	—	—	—
Yalta		153.2	303	e 19	46	[- 6]	—	—	—	—	—	—	—
Helwan	z.	155.0	268	e 19	53	[- 1]	—	—	—	e 18	8	?	—
Copenhagen		157.1	346	e 19	56	[- 1]	—	—	—	—	—	—	83.8
Lwow		157.4	322	e 20	9	[+ 11]	—	—	—	—	—	—	—
Potsdam	z.	159.9	342	e 19	56	[- 5]	—	—	—	e 20	34	PKP ₂	e 89.8
Collmberg	z.	160.9	341	e 20	40	PKP ₂	—	—	—	—	—	—	—
Jena		161.6	341	e 20	14 [?]	[+ 12]	e 20	44	PKP ₂	e 20	56	?	—
Stuttgart		164.3	342	e 20	10 [?]	[+ 5]	—	—	—	—	—	—	—
Florence	z.	167.9	327	e 20	4	[- 4]	e 49	10	?	—	—	—	—
Messina		168.3	295	e 20	35	[+ 27]	e 31	42	{- 12}	e 25	2	PP	—
Rome		168.6	317	e 20	6	[- 2]	e 46	32	SS	e 25	0	PP	—
Tamaurasset	z.	168.6	195	e 20	8	[0]	e 32	17	{+ 21}	e 21	18	PKP ₂	—
Malaga		173.9	60	i 20	8	[- 3]	21	46	PKP ₂	i 25	40	PP	102.0
Granada		174.2	54	20	31	[+ 20]	32	31	{+ 8}	21	49	PKP ₂	91.0
Alicante		175.0	25	20	33	[+ 21]	e 27	33	{+ 20}	26	11	PP	98.4
Almeria		175.2	51	20	30	[+ 18]	32	30	{+ 2}	39	56	PPS	91.1
Algiers Univ.	z.	177.0	—	e 20	2	[- 10]	e 32	35	{- 1}	e 28	50	PcPPKP	—

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1952

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Oct. 14d. 22h. 3m. 40s. Epicentre 48°·0N. 69°·8W.

Felt equally strongly on both sides of the St. Lawrence valley. Intensity V at Auburn and Fort Kent (Maine); IV at Blaine, Fort Fairfield, Pattern, etc.
Suggested epicentres: 47°58'N., 69°49'W. (U.S.C.G.S.).
48° 05'·5N., 69° 44'W. (Ottawa).

L. M. Murphy and W. K. Cloud.

United States Earthquakes, 1952, U.S.C.G.S., Serial 773, Washington 1954, p. 5.

A = +·2319, B = -·6303, C = +·7409; $\delta = -1$; $h = -5$;
D = -·938, E = -·345; G = +·256, H = -·695, K = -·672.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Seven Falls	E.	1·1	218	i 0 25	+ 3	—	—	—	—
Shawinigan Falls	N.	2·5	235	i 0 43	0	i 1 14	0	—	—
Ottawa		4·8	240	e 1 15	0	i 2 9	- 3	—	—
Halifax		5·5	126	i 1 24	- 1	i 2 18	-12	—	—
Harvard		5·6	193	i 1 26k	- 1	—	—	—	—
Weston		5·7	191	i 1 27	- 1	i 2 34	- 1	—	—
Kirkland Lake	z.	6·9	275	e 1 43	- 2	i 2 55	-10	—	—
Palisades		7·6	204	e 2 2	+ 7	e 3 29	+ 6	—	i 3·8
Fordham		7·7	204	e 2 23	+ 9*	—	—	i 2 44	P _g
City College, N.Y.		7·8	204	e 1 56	- 2	e 3 14	-14	—	—
Buffalo (Larkin)		8·1	234	e 2 1	- 1	e 3 26	- 9	—	—
Philadelphia		8·9	206	—	—	e 3 47	- 8	—	—
Pennsylvania	z.	9·2	222	—	—	e 3 53	-10	i 5 5	S _g
Pittsburgh		10·5	228	i 2 21	-14	i 4 55	+20	—	—
Washington		10·5	213	e 2 27	- 8	i 4 40	+ 5	—	—
Cleveland		10·6	236	i 2 33 _a	- 3	i 4 36	- 1	i 2 48	PP
Morgantown		11·1	225	i 2 40	- 3	i 4 36	-13	—	—
Cincinnati		13·8	236	—	—	i 5 41	-13	—	i 7·0
Chicago		14·0	250	—	—	e 5 40	-19	—	e 7·1
Bermuda		16·1	164	i 3 48	- 1	e 6 30	-19	(e 7 5)	SS
Columbia		16·3	215	—	—	e 7 36	SSS	—	e 8·4
Fayetteville	z.	21·6	245	i 4 52	- 2	i 8 58	+ 9	—	i 11·1
Lubbock		28·0	252	—	—	e 11 34	SS	—	e 14·5
Resolute Bay		28·9	347	i 6 5k	+ 2	i 11 32	?	—	i 12·6
Butte		29·0	284	—	—	e 12 24	SS	—	—
Hungry Horse		29·2	288	e 6 6	+ 1	e 11 53	?	e 9 4	P _c P
San Juan		29·7	173	e 6 56	PP	—	—	—	—
Boulder City		35·1	268	i 6 57	0	—	—	—	—
Nelson		35·2	268	i 6 58	0	—	—	—	—
Reno	z.	36·5	276	e 7 17 _a	+ 8	—	—	—	—
Tincmaha	z.	36·9	271	e 7 13	+ 1	—	—	—	—
China Lake	z.	37·0	270	e 7 14	+ 1	—	—	—	—
Mineral	z.	37·3	278	e 7 16 _a	0	—	—	i 7 22	?
Shasta		37·7	280	e 7 18 _a	- 1	—	—	e 7 25	?
Riverside	z.	37·9	267	e 7 21	+ 1	—	—	—	—
Pasadena	z.	38·4	267	e 7 26	+ 1	—	—	—	—
Lick	z.	38·9	275	e 7 32 _k	+ 3	—	—	—	—
College		43·2	323	8 5	+ 1	—	—	—	e 23·6
Kiruna	z.	46·8	32	i 8 35 _a	+ 2	—	—	i 8 42	?
Tamanrasset	z.	63·7	85	e 10 37	+ 1	—	—	e 10 43	?

Oct. 14d. 23h. 56m. 5s. Epicentre 8°·4N. 82°·7W. (as on 1949, August 18d.).

A = +·1257, B = -·9814, C = +·1451; $\delta = 0$; $h = +7$;
D = -·992, E = -·127; G = +·018, H = -·144, K = -·989.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights		3·1	79	0 55	- 1*	i 1 45	+ 3 _g	—	—
Galerazamba		7·7	72	i 2 21	+ 7*	i 4 1	+ 8*	i 5 36	?
Chinchina		7·8	115	i 2 2	+ 4	i 3 44	+16	—	—
Bogota		9·4	113	i 2 26	+ 8	i 4 18	+11	i 5 38	?
San Juan		18·9	57	i 4 29	+ 5	c 8 7	+14	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tacubaya	19.4	307	e 4 31	+ 1	e 7 58	- 6	—	—
Huancayo	21.6	161	e 4 52	- 2	e 8 55	+ 6	e 5 26	PPP
Fort de France	22.0	73	e 5 0	+ 2	i 9 14	+18	—	—
Mobile	22.8	348	5 10	+ 5	9 30	+19	—	—
Columbia	25.5	4	i 5 35	+ 3	i 10 9	+12	—	—
La Paz	28.6	150	5 59	- 1	i 11 1	+13	6 55	PP
Bermuda	29.1	33	e 6 10	+ 6	e 11 5	+ 9	—	e 14.0
Fayetteville	z. 29.5	341	i 6 3	- 5	—	—	—	—
Washington	30.8	10	i 6 21	+ 1	e 11 59	+36	—	—
Morgantown	31.2	4	i 6 22	- 1	—	—	—	—
Pennsylvania	z. 32.6	7	e 6 38	+ 3	—	—	—	—
Cleveland	33.0	2	i 6 38k	- 1	e 12 1	+ 4	e 7 44	PP
City College, N.Y.	33.2	13	e 7 57	PP	e 12 7	+ 7	—	—
Fordham	33.3	13	e 6 44	+ 3	e 12 11	+ 9	—	—
Palisades	33.4	13	e 6 47	+ 5	e 12 19	+16	e 16 30	Q
Ottawa	37.4	8	e 7 15	- 1	e 13 13	+ 8	e 8 39	PP
Kirkland Lake	z. 39.7	3	e 7 35	- 1	—	—	—	—
Halifax	39.7	23	e 7 32	- 4	13 55	+15	—	—
Nelson	40.0	318	i 7 36	- 2	—	—	—	—
Riverside	z. 40.8	314	e 7 46	+ 1	—	—	—	—
Pasadena	z. 41.5	314	e 7 52	+ 2	—	—	i 8 0	?
China Lake	z. 41.9	317	e 7 54	0	—	—	—	—
Tinemaha	z. 43.1	317	i 8 6	+ 2	—	—	i 8 19	?
Fresno	z. 43.9	316	e 8 9	- 1	—	—	—	—
Reno	z. 45.4	319	e 8 21k	- 1	—	—	—	—
Lick	z. 45.5	316	e 8 21k	- 2	—	—	—	—
Santa Clara	z. 45.7	316	—	—	e 15 25	+17	—	—
Berkeley	46.2	316	e 8 27	- 1	e 15 25	+10	—	e 24.1
Mineral	z. 47.0	319	e 8 34k	- 1	—	—	—	—
Shasta	47.7	320	e 8 37	- 3	—	—	—	—
Hungry Horse	47.8	333	i 8 37	- 4	—	—	—	—
La Plata	49.0	153	9 19	+29	15 37	-18	13 55	PcS
Victoria	52.6	327	9 16	- 2	—	—	—	—
Resolute Bay	66.6	356	i 10 54k	0	i 19 41	- 4	—	i 38.6
College	72.0	336	11 26	- 2	—	—	—	—
Malaga	75.7	56	i 11 53	+ 4	i 21 33	+ 3	22 9	PS
Granada	76.3	54	e 11 56a	+ 4	—	—	—	37.5
Almeria	77.2	55	11 46	-11	21 34	-13	14 50	PP
Alicante	78.7	53	12 23	+17	22 15	+12	15 25	PP
Strasbourg	84.1	42	—	—	e 23 55	PS	e 28 55	SS
Tamanrasset	z. 85.2	68	e 12 40	+ 1	—	—	e 16 0	PP
Copenhagen	86.0	35	—	—	23 19	+ 2	—	49.9
Kiruna	87.2	22	i 12 49	0	e 23 26	- 2	e 23 16	SKS
Messina	91.3	51	e 21 7	?	e 23 43	[+ 3]	e 30 47	SSP
Ksara	108.3	50	e 14 26	P	26 42	S	—	43.8
Quetta	z. 131.9	36	e 19 17	[+ 1]	—	—	—	—

Oct. 15d. 0h. 10m. 33s. Epicentre 36°-1N. 141°-2E. Depth of focus 0.005.
(as on 1952, February 25d.).

Intensity VI at Tyosi ; V at Tukubasan, Sakura, Fusa, Komikado, and Simodate ; IV at Kashiwa, Mito, Onahama, Shirakawa, and Hokusima. Epicentre 35°-9N. 141°-4E. Depth 40km. ca. Macroseismic radius 200-300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 382, with macroseismic chart.

$$A = -.6312, B = +.5075, C = +.5866; \quad \delta = +7; \quad h = 0; \\ D = +.627, E = +.779; \quad G = -.457, H = +.368, K = -.810.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Tyosi	z. 0.4	216	e 0 6k	- 6	0 10	-12	—
Mito	0.7	296	0 12k	- 3	0 23	- 4	—
Onahama	0.9	344	0 19	+ 1	0 34	+ 3	—
Kashiwa	1.0	256	0 8k	-11	0 20	-13	—
Tokyo	1.2	251	0 19k	- 3	0 34	- 4	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.
Utunomiya		1.2	293	i 0	18k	- 4	0	35	- 3	—
Shirakawa		1.3	322	0	23k	0	0	42	+ 2	—
Yokohama		1.4	242	i 0	21k	- 3	0	40	- 3	—
Kumagaya		1.5	272	i 0	21k	- 5	0	39	- 6	—
Mera	z.	1.6	223	e 0	21	- 6	0	41	- 6	—
Inawasiro		1.7	329	e 0	28	0	0	54	+ 4	—
Titibu		1.7	266	i 0	27k	- 1	0	53	+ 3	—
Hukusima		1.8	340	i 0	32a	+ 2	0	57	+ 5	—
Maebasi		1.8	280	i 0	27k	- 3	0	53	+ 1	—
Hunatu		2.0	253	0	32	0	0	57	0	—
Osima		2.0	228	i 0	26a	- 6	0	47	-10	—
Kohu		2.1	258	0	33	- 1	1	1	+ 2	—
Misima		2.1	242	i 0	29a	- 5	1	13	+14	—
Oiwake		2.1	276	0	32	- 2	1	6	+ 7	—
Sendai	E.	2.2	354	e 0	37	+ 2	1	5	+ 3	—
Isinomaki		2.3	2	e 0	40	+ 3	1	5	+ 1	—
Yamagata		2.3	342	e 0	37	0	1	9	+ 5	—
Matusiro		2.4	281	0	37	- 1	1	16	+ 9	—
Matumoto	E.	2.6	273	i 0	39	- 2	1	18	+ 6	—
Shizuoka		2.6	244	i 0	37a	- 4	1	8	- 4	—
Takada		2.6	293	e 0	41	0	1	18	+ 6	—
Iida		2.8	258	i 0	37a	- 7	1	24	+ 7	—
Mizusawa	E.	3.0	359	0	52	+ 5	1	58	+36	—
	N.	3.0	359	e 0	48	+ 1	e 1	54	+32	—
Aikawa		3.1	309	0	45	- 3	1	28	+ 4	—
Takayama		3.2	272	e 0	49	0	1	34	+ 7	—
Toyama		3.3	280	i 0	51a	0	1	37	+ 8	—
Miyako		3.6	11	e 0	54	- 1	1	37	0	—
Morioka		3.6	0	e 0	56	+ 1	1	39	+ 2	—
Nagoya	E.	3.6	256	0	51	- 4	—	—	—	—
Akita		3.7	347	e 1	2	+ 6	1	57	+18	—
Gihu		3.7	260	0	52	- 4	—	—	—	—
Wazima		3.7	292	0	55	- 1	1	54	+15	—
Ibukisan	N.	4.0	261	e 1	1	0	1	54	+ 7	—
Kameyama		4.1	253	0	58	- 4	—	—	—	—
Hatinohe		4.4	4	e 1	10	+ 4	2	10	+13	—
Kyoto		4.6	258	e 1	3	- 6	2	7	+ 5	—
Aomori		4.7	356	1	13	+ 3	2	19	+15	—
Osaka		4.9	254	e 1	14	+ 1	—	—	—	—
Kobe	N.	5.1	256	e 1	5	-11	—	—	—	—
Siomisaki		5.2	241	e 1	17	0	—	—	—	—
Himeji	N.	5.8	256	e 1	32	+ 7	2	28	- 4	—
Tokusima		5.8	251	e 1	23	- 2	—	—	—	—
Takamatu	z.	6.1	255	e 1	34	+ 4	—	—	—	—
Matsue		6.6	267	e 1	31	- 6	3	58	+67	—
Koti		6.8	250	e 1	35	- 4	3	5	+ 9	—
Obihiro		7.0	12	e 1	51	+ 9	3	19	+18	—
Sapporo		7.0	1	e 1	51	+ 9	3	12	+11	—
Matuyama		7.3	254	e 1	48	+ 2	3	25	+16	—
Hirosima		7.4	259	1	45	- 3	3	16	+ 5	—
Hukuoka		9.2	257	e 2	15	+ 3	—	—	—	—
College		50.0	31	i 8	50	0	e 15	59	+ 5	e 23.2
Quetta	z.	61.0	288	i 10	7	- 2	—	—	—	—
Poona	z.	61.2	272	i 10	9	- 1	—	—	—	—
Resolute Bay	z.	63.5	14	i 10	27k	+ 1	—	—	—	—
Victoria		67.2	46	10	52	+ 3	—	—	—	—
Kiruna	z.	67.3	338	i 10	51a	+ 1	—	—	—	—
Shasta		71.8	53	e 11	20	+ 2	—	—	—	—
Mineral	z.	72.5	53	e 14	2	PP	—	—	—	—
Hungry Horse		72.6	42	e 11	24	+ 2	—	—	—	—
Lick	z.	74.1	56	e 11	33	+ 2	—	—	—	—
Fresno	z.	75.7	54	e 11	52	pP	—	—	—	—
Tinemaha	z.	76.5	54	e 11	41	- 4	—	—	—	—
Pasadena	z.	78.2	56	e 12	7	pP	—	—	—	—
Riverside	z.	78.9	56	e 12	11	pP	—	—	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.
Boulder City		79.4	53	e 12 3	+ 2	—	—	—
Nelson		79.5	53	e 12 3	+ 2	—	—	—
Collmberg	z.	81.8	330	e 12 13	0	e 12 25	pP	—
Stuttgart		85.3	331	e 12 32	+ 1	(e 27 27)	?	e 27.4
Triest	z.	85.8	326	e 12 25	- 9	e 12 38	pP	—
Fayetteville	z.	91.6	42	i 13 3	+ 2	—	—	—
Tamanrasset	z.	108.0	317	e 18 43	PP	—	—	—
La Paz	z.	147.4	61	19 37	[+ 3]	—	—	—

Oct. 15d. 2h. 12m. 39s. Epicentre 22°·4S. 69°·3W. Depth of focus 0·010.

A = +·3271, B = -·8657, C = -·3789; $\delta = 0$; $h = +4$;
D = -·935, E = -·354; G = -·134, H = +·354, K = -·925.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Montezuma		0.5	117	i 0 15	- 1	i 0 28	0	—	—
Antofagasta	E.	1.6	219	e 0 33	+ 5	i 0 55	+ 6	i 0 58	?
Copiapo	N.	5.0	191	e 1 12	- 2	i 2 7	- 4	i 1 24	PP
La Paz		6.0	11	i 1 29	+ 1	i 2 21	-15	i 1 49	?
Santa Lucia	N.	11.1	186	e 3 22	?	e 5 7	SSS	—	i 2.8
Huancayo		11.8	330	e 2 57	PP	e 5 35	SSS	—	—
La Plata		15.9	144	4 45	?	6 57	SS	—	8.2
Bogota		27.3	349	e 6 6	+29	e 10 44	+36	—	—
San Juan		40.7	4	i 7 27	- 5	—	—	i 7 52	pP
Fayetteville	z.	62.8	339	i 10 16	- 2	—	—	i 10 43	pP
Harvard		64.6	359	i 10 28 _a	- 1	—	—	i 10 55	pP
Ottawa		67.7	355	i 10 48 _a	- 1	—	—	—	—
Nelson		72.1	322	i 11 18	+ 2	—	—	i 11 46	pP
Boulder City		72.3	322	i 11 19	+ 2	—	—	e 11 46	pP
Riverside	z.	72.4	319	i 11 19 _k	+ 2	—	—	i 11 46	pP
Mount Wilson	z.	72.9	319	i 11 23 _k	+ 3	—	—	i 11 50	pP
China Lake	z.	73.8	321	e 11 28	+ 2	e 12 27	PcP	e 11 55	pP
Tinemaha	z.	75.0	321	i 11 36	+ 4	—	—	i 12 3	pP
Fresno	z.	75.7	320	e 12 13	pP	—	—	—	—
Lick	z.	77.2	320	e 11 47	+ 2	—	—	e 12 16	pP
Reno	z.	77.6	323	e 11 49	+ 2	—	—	e 12 17	pP
Mineral	z.	79.1	322	e 11 56	+ 1	—	—	—	—
Shasta		79.8	322	i 12 0	+ 1	—	—	e 12 7	PcP
Hungry Horse		81.0	332	i 12 6	0	—	—	i 12 33	pP
Grahamstown	z.	82.7	123	i 12 11	- 3	—	—	—	—
Malaga		84.8	47	i 12 23	- 2	—	—	e 15 25	PP
Tamanrasset	z.	85.5	63	i 12 26 _k	- 2	e 15 28	PP	e 12 56	pP
Victoria		85.5	327	12 30	+ 2	—	—	—	—
Toledo		86.8	45	i 12 34	- 1	e 22 59	- 3	13 0	pP
Algiers Univ.	z.	90.3	50	e 12 47	- 4	—	—	—	—
Quetta	z.	140.3	69	e 19 19	[+ 1]	—	—	e 22 11	PP

Oct. 15d. 4h. 30m. 52s. Epicentre 36°·0N. 140°·1E. Depth of focus 0·005.
(as on 1952, June 12d.).

Intensity V at Tateno and Simodate; IV at Kashiwa, Tukubasan, Ajiro, Oyama, Nikko, Ashio, and Horigome. Epicentre 36°·1N. 140°·2E. Depth 70km. ca. Macro seismic radius 100-200km.

Seismo. Bull. of Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 384, with macro seismic chart.

A = -·6221, B = +·5202, C = +·5852; $\delta = +8$; $h = 0$;
D = +·641, E = +·767; G = -·449, H = +·375, K = -·811.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Tukubasan		0.2	0	0 12	+ 1	0 17	- 2
Tokyo		0.4	222	0 14	+ 2	0 24	+ 2
Mito		0.5	38	0 12 _a	- 1	0 22	- 1
Kumagaya	z.	0.6	233	1 0 13 _k	- 1	0 24	- 1
Utunomiya		0.6	341	1 0 13 _a	- 1	0 22	- 3

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.
Yokohama	E.	0.7	213	0 16	+ 1	0 27	0
Titibu		0.8	269	e 0 18	+ 1	0 30	+ 1
Maebasi		0.9	296	i 0 18	0	0 31	0
Ajiro		1.2	221	0 22	0	0 38	0
Hunatu	N.	1.2	245	0 23	+ 1	0 38	0
Kohu		1.3	254	0 23 ^a	0	0 40	0
Misima		1.3	227	0 23	0	0 41	+ 1
Oiwake		1.3	285	e 0 24	+ 1	0 42	+ 2
Osima		1.4	205	e 0 23	- 1	0 39	- 4
Inawasiro		1.6	0	e 0 26	- 1	0 44	- 3
Matusiro		1.6	290	e 0 28 ^k	+ 1	0 48	+ 1
Shizuoka		1.7	233	0 28	0	0 50	0
Iida		1.9	255	i 0 27	- 4	0 53	- 1
Sendai	N.	2.3	16	e 0 43	+ 6	1 13	+ 9
Toyama		2.4	286	0 40	+ 2	1 12	+ 5
Gihu		2.8	258	e 0 59	PP	1 41	SS
Mizusawa	E.	3.2	15	1 28	S	(1 28)	+ 1
Morioka		3.8	12	e 0 44	-14	1 22	-20

Oct. 15d. 17h. 50m. 44s. Epicentre 34°·7N. 33°·1E.

A = +·6903, B = +·4500, C = +·5666; $\delta = +5$; $h = 0$;
D = +·546, E = -·838; G = +·475, H = +·309, K = -·824.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Ksara		2.5	111	i 0 44	+ 1	i 1 11	- 3	—	—
Helwan	E.	5.0	197	e 1 43	+ 3 _z	e 2 22	+ 4	i 3 22	?
Istanbul		7.1	335	e 1 49	+ 1	e 3 14	+ 4	e 3 53	S _g
Kishinev		12.7	347	i 3 4	- 1	e 5 28	0	—	—
Messina	Z.	14.6	289	i 3 28	- 2	e 5 59	-14	e 4 14	?
Uzhgorod		16.1	333	e 3 53	+ 4	e 7 9	SS	3 59	PP
Lwow		16.5	339	i 3 56	+ 2	e 7 17	SS	i 4 5	PP
Triest	Z.	18.3	312	i 4 23 ^k	+ 6	e 7 49	+10	e 4 31	PP
Prague		20.6	324	e 4 40	- 3	e 8 45	SS	i 4 44	P
Chur		21.5	310	e 4 47	- 5	e 8 45	- 2	—	—
Collmberg	Z.	22.1	323	e 4 56	- 3	e 5 10	PP	e 5 51	?
Zürich		22.3	311	e 5 1	0	—	—	e 14 57	?
Jena		22.5	322	e 5 1	- 1	e 6 3	?	e 5 37	PP
Stuttgart		22.6	316	e 5 1	- 2	—	—	e 5 31	PP
Potsdam		22.7	327	e 5 2?	- 2	e 9 27	+18	e 9 30	S
Strasbourg		23.3	314	i 5 10	0	e 9 16	- 4	i 5 43	PP
Besançon		23.9	309	i 5 15	- 1	e 5 21	?	e 5 33	?
Algiers Univ.	Z.	24.4	283	5 24	+ 3	—	—	—	—
Clermont-Ferrand		25.3	304	e 5 45	+15	—	—	—	—
Paris		26.6	311	i 5 40	- 2	i 5 46	P	e 5 55	?
Tamanrasset	Z.	26.8	251	i 5 46 ^k	+ 2	e 10 25	+ 6	e 11 26	SS
Upsala	Z.	27.1	342	i 5 46	0	—	—	—	—
Quetta	Z.	28.9	89	e 6 5	+ 2	—	—	—	—
Rathfarnham C.	Z.	33.3	316	e 6 54	+13	—	—	e 8 6	PPP
Kiruna		34.0	351	i 6 45 ^a	- 3	e 14 45	SSS	e 13 3	PcS
Pretoria	Z.	60.3	185	e 10 14	+ 1	—	—	—	—
College		80.8	0	12 17	0	—	—	—	—
Hungry Horse		92.3	339	i 13 13	0	—	—	—	—
Fayetteville	Z.	94.1	320	i 13 20	- 2	—	—	—	—
Victoria		94.5	344	13 24	+ 1	—	—	—	—

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Oct. 15d. 19h. 4m. 8s. Epicentre 42°·2N. 145°·2E. Depth of focus 0·010.
(as on 1952, April 16d.).

Intensity V at Kushiro, Nemuro, Akan, Sibetu, Rausu, Noshappu, Mura, and Ochiishi;
IV at Shintoku and Kamibisei. Epicentre 42°·2N. 145°·4E. Depth 60km. ca. Macro-
seismic radius 200-300km.

Seismo. Bull. of Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 384, with
macroseismic chart.

A = -·6101, B = +·4240, C = +·6693; $\delta = -4$; $h = -4$;
D = +·571, E = +·821; G = -·550, H = +·382, K = -·743.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.	
				m.	s.		m.	s.		m.	s.
Kushiro		1·0	323	i 0	13 _a	- 7	0	23	-13	—	—
Nemuro		1·2	4	i 0	8 _k	-15	—	—	—	—	—
Obihiro		1·6	296	e 0	26	- 2	0	46	- 3	—	—
Urakawa		1·8	268	e 0	34	+ 4	1	1	+ 8	—	—
Asahigawa		2·6	308	e 0	39	- 2	1	15	+ 3	—	—
Sapporo		3·0	288	e 0	45	- 2	1	20	- 2	—	—
Hatinohe		3·2	240	0	56	+ 6	1	33	+ 6	—	—
Mori	E.	3·4	270	e 0	56	+ 4	1	37	+ 5	—	—
Miyako		3·5	224	e 1	0	+ 6	1	42	+ 8	—	—
Morioka		4·0	232	e 1	5	+ 5	1	52	+ 6	—	—
Mizusawa		4·4	227	e 1	9	+ 3	2	5	+ 9	1 12	P
Sendai	E.	5·1	221	e 1	24	+ 8	2	22	+ 8	—	—
Hokusima		5·7	221	e 1	30	+ 6	2	39	+11	—	—
Inawasiro		6·1	222	e 1	31	+ 2	2	50	+12	—	—
Shirakawa		6·4	219	e 1	48	+15	2	54	+ 8	—	—
Mito		6·9	214	e 1	49	+ 9	3	7	+ 9	—	—
Utunomiya		7·0	218	e 1	49	+ 7	3	6	+ 6	—	—
Maebasi		7·5	221	e 1	56	+ 8	3	28	+16	—	—
Tokyo		7·8	215	e 1	59	+ 7	3	28	+ 8	—	—
Wazima		8·0	236	e 2	4	+ 9	3	39	+14	—	—
Kohu		8·4	220	e 2	1	+ 1	3	39	+ 5	—	—
Manila		34·6	225	i 6	39	- 3	—	—	—	—	—
College		43·2	34	i 7	49	- 4	—	—	—	—	—
Resolute Bay	z.	56·9	16	i 9	32 _a	- 5	—	—	—	—	—
Quetta	z.	62·2	287	e 10	16	+ 2	—	—	—	—	—
Kiruna	z.	62·7	339	i 10	14	- 3	—	—	—	i 10 19	P
Poona		64·1	272	i 10	28	+ 2	i 10	38	?	i 10 47	pP
Shasta		65·7	56	e 10	35 _a	- 1	—	—	—	e 10 47	pP
Hungry Horse		66·0	45	e 10	36	- 2	—	—	—	—	—
Mineral	z.	66·4	56	i 10	40 _a	- 1	—	—	—	i 10 52	pP
Berkeley	z.	67·5	58	e 10	46	- 2	—	—	—	i 11 2	pP
Reno	z.	68·0	56	e 10	50 _a	- 1	—	—	—	e 11 2	pP
Lick	z.	68·2	58	e 10	52 _a	0	—	—	—	i 11 3	pP
Upsala	z.	69·6	335	i 10	58 _a	- 3	—	—	—	i 11 15	pP
Fresno	z.	69·7	57	e 11	10	+ 9	—	—	—	—	—
Tinemaha	z.	70·5	56	e 11	7	+ 1	—	—	—	i 11 19	pP
China Lake	z.	71·7	58	e 11	12	- 1	—	—	—	i 11 24	pP
Pasadena	z.	72·4	60	i 11	18	+ 1	—	—	—	i 11 28	pP
Riverside	z.	73·0	60	e 11	20	- 1	—	—	—	i 11 31	pP
Boulder City		73·3	56	i 11	23	0	—	—	—	i 11 34	pP
Nelson		73·5	56	i 11	24	0	—	—	—	i 11 36	pP
Copenhagen		74·6	334	i 11	29	- 1	—	—	—	—	—
Collmberg	z.	78·0	332	e 11	37	-12	e 12	12	sP	e 12 4	pP
Tucson		78·3	57	e 11	51	0	—	—	—	12 3	pP
Prague		78·5	330	e 11	52	0	e 12	55	?	e 12 5	pP
Jena		78·8	332	e 11	52	- 2	e 12	38	?	e 12 9	pP
Istanbul	z.	79·0	316	e 11	55	0	—	—	—	e 12 20	sP
Stuttgart		81·5	332	e 12	7	- 1	—	—	—	e 12 24	pP
Paris		83·6	336	i 12	19	0	i 12	36	sP	i 12 31	pP
Fayetteville	z.	85·1	45	i 12	25	- 1	—	—	—	i 12 37	pP
Ottawa		85·5	28	i 12	26 _k	- 2	—	—	—	—	—
Morgantown		88·8	33	i 12	44	0	—	—	—	—	—
Harvard		89·4	26	i 12	47 _a	0	—	—	—	—	—
Weston		89·6	26	i 12	28 _k	-20	—	—	—	—	—
Halifax		89·8	20	i 12	49 _k	0	—	—	—	—	—
Granada		96·0	335	i 12	56 _k	-21	—	—	—	—	—
La Paz	N.	141·7	58	e 19	28	[+ 8]	—	—	—	—	—

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1952

876

Oct. 16d. 9h. 47m. 55s. Epicentre 41°·6N. 142°·0E. Depth of focus 0·005.
(as on 1952, September 6d.).

Intensity V at Hatinohe; IV at Urakawa, Miyako, Morioka, Obihiro, Aomori, Yatiyo, Ikeda, Kakuta, Misono, and Erimo. Epicentre 41°·6N. 142°·4E. Depth 60km. Macroseismic radius >300km. Seismo.Bull. of Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 385, with macroseismic chart.

A = -·5910, B = +·4617, C = +·6614; $\delta = -10$; $h = -2$;
D = +·616, E = +·788; G = -·521, H = +·407, K = -·750.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Urakawa	0·8	47	i 0 17 _a	0	0 28	- 1	—	—
Hakodate	1·0	281	0 21	+ 2	0 38	+ 5	—	—
Hatinohe	1·1	198	0 20	0	0 34	- 2	—	—
Aomori	1·2	229	i 0 25 _k	+ 3	0 42	+ 4	—	—
Mori	N. 1·2	295	i 0 22 _a	0	0 38	0	—	—
Obihiro	1·6	34	e 0 31	+ 4	0 50	+ 3	—	—
Sapporo	E. 1·6	342	e 0 27 _k	0	0 46	- 1	—	—
Miyako	1·8	180	0 31 _k	+ 1	0 52	0	—	—
Morioka	2·0	198	e 0 33	+ 1	0 57	0	—	—
Kusiro	2·3	52	e 0 36	- 1	0 59	- 5	—	—
Mizusawa	2·6	195	0 45	+ 4	1 20	+ 8	—	—
Abashiri	2·9	35	e 0 48	+ 3	1 18	- 1	—	—
Isinomaki	3·2	189	e 0 49	0	1 21	- 6	—	—
Nemuro	3·2	57	e 0 47	- 2	1 20	- 7	—	—
Sendai	E. 3·4	194	e 0 54	+ 2	1 32	0	—	—
Yamagata	3·6	201	e 0 56	+ 1	1 38	+ 1	—	—
Hokusima	4·0	198	e 1 2	+ 1	1 50	+ 3	—	—
Inawasiro	4·3	200	e 1 7	+ 2	2 0	+ 6	—	—
Aikawa	4·6	220	1 10	+ 1	2 0	- 2	—	—
Utunomiya	5·4	200	e 1 18	- 2	2 20	- 2	—	—
Tukubasan	5·6	196	e 1 15	- 8	2 15	-12	—	—
Maebasi	Z. 5·7	205	e 1 29	+ 5	2 33	+ 4	—	—
Kumagaya	5·8	201	e 1 36	+11	2 44	+12	—	—
Oiwake	5·9	208	e 1 33	+ 6	2 40	+ 6	—	—
Matumoto	N. 6·2	212	e 1 36	+ 5	2 50	+ 9	—	—
Hunatu	E. 6·6	203	e 1 42	+ 5	2 55	+ 4	—	—
Kohu	6·6	204	e 1 41	+ 4	3 2	+11	—	—
Misima	E. 6·9	201	e 1 56	+15	3 17	+18	—	—
Kameyama	8·0	215	e 2 6	+10	3 36	+10	—	—
College	45·0	34	1 8 10	- 1	e 14 45	+ 1	—	—
Resolute Bay	Z. 58·1	15	i 9 47 _k	- 2	—	—	—	—
Quetta	Z. 60·0	285	i 10 1	- 1	—	—	—	—
Kiruna	Z. 62·4	338	i 10 17	- 1	e 18 53	+14	e 19 6	PS e 30·1
Shasta	Z. 68·0	55	e 10 55 _a	+ 1	—	—	e 11 11	pP
Hungry Horse	Z. 68·2	44	i 10 55	- 1	—	—	i 11 14	pP
Mineral	Z. 68·7	55	e 10 58 _a	- 1	i 11 14	?	i 11 17	pP
Upsala	Z. 69·1	334	i 11 0	- 1	i 11 38	PcP	i 11 19	pP
Berkeley	Z. 69·8	57	e 11 5	0	e 11 20	?	i 11 24	pP
Reno	Z. 70·3	54	e 11 9 _a	0	—	—	e 11 28	pP
Lick	Z. 70·5	57	e 11 9 _a	- 1	—	—	e 11 28	pP
Tinemaha	Z. 72·8	56	i 11 42	PcP	—	—	e 12 2	pPcP
China Lake	Z. 74·0	56	e 11 30	0	—	—	e 11 49	pP
Pasadena	Z. 74·7	58	e 11 34	0	—	—	i 11 53	pP
Riverside	Z. 75·3	58	e 11 37	- 1	—	—	e 11 56	pP
Boulder City	Z. 75·6	54	i 11 40	0	—	—	i 11 58	pP
Nelson	75·8	54	i 11 40	- 1	—	—	i 12 0	pP
Collmberg	Z. 77·4	330	e 11 49	- 1	—	—	e 12 27	?
Istanbul	Z. 77·8	315	e 11 52	0	—	—	—	—
Jena	Z. 78·2	330	e 11 55	+ 1	—	—	e 12 31	?
Witteveen	Z. 78·4	334	e 11 56	+ 1	—	—	—	—
Tucson	80·6	56	e 12 7	0	—	—	e 12 26	pP
Stuttgart	80·9	330	e 12 8	- 1	—	—	—	—
Fayetteville	Z. 87·1	42	i 12 40	0	—	—	i 13 0	pP
Ottawa	87·1	26	i 12 39 _k	- 1	—	—	—	—
Morgantown	90·6	32	i 12 56	0	—	—	—	—
Harvard	91·0	24	e 12 58	0	—	—	—	—
Weston	91·2	24	i 12 59 _a	0	—	—	—	—
Tamanrasset	Z. 104·3	319	18 2	PP	—	—	—	—

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1952

877

Oct. 16d. 15h. 11m. 50s. Epicentre 38°·5N. 74°·8E. (as on 1952, April 10d.).

A = +·2057, B = +·7572, C = +·6199; $\delta = -6$; $h = -1$;
D = +·965, E = -·262; G = +·163, H = +·598, K = -·785.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Murgab	0·7	259	e 0 19	+ 2	e 0 29	+ 1	—	—
Khorog	2·7	248	e 0 54	0 _g	e 1 31	+ 2 _g	—	—
Andijan	2·9	321	i 0 46	- 2	i 1 19	- 5	—	—
Dzhergetal	2·9	284	i 0 52	0*	i 1 30	0*	—	—
Fergana	3·0	310	e 0 47	- 3	e 1 20	- 7	—	—
Naryn	3·1	17	e 0 51	0	i 1 25	- 4	i 1 32	S*
Namangan	3·5	317	e 0 57	0	1 43	+ 3	—	—
Obi-garm	4·0	275	1 13	+ 2*	i 2 9	- 3 _g	—	—
Rybach'e	4·1	13	—	—	1 56	+ 1	2 21	S _g
Frunse	4·4	358	e 1 14	+ 4	i 2 2	0	—	—
Stalinabad	4·7	273	—	—	e 2 28	+ 4*	—	—
Almata II	5·2	21	e 1 19	- 2	—	—	—	—
Samarkand	6·2	283	(2 38)	S	2 38	-10	—	—

Oct. 17d. 1h. 47m. 33s. Epicentre 43°·2N. 146°·1E. Focus at Base of Superficial Layers.

Intensity IV at Akan and Attoko; II-III at Nemuro, Kusiro, Ikeda, Chanai, and Shibetu.
Epicentre as adopted. Depth 40km. Macroseismic radius 200-300km.
Seismo. Bull. Cent. Met. Obs., Japan, 1952, Tokyo, 1953, p. 386, with macroseismic chart.

A = -·6070, B = +·4079, C = +·6821; $\delta = +9$; $h = -3$;
D = +·558, E = +·830; G = -·566, H = +·380, K = -·731.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	
Nemuro	0·4	290	1 0 9k	0	0 15	- 1	
Kusiro	1·3	260	i 0 19k	- 3	0 33	- 5	
Abashiri	1·6	302	0 25k	- 1	0 42	- 4	
Urakawa	2·7	247	i 0 40	- 2	1 13	- 1	
Sapporo	E. 3·5	271	e 0 52	- 1	1 32	- 2	
Hakodate	4·2	252	e 1 4	+ 1	1 56	+ 4	
Mori	N. 4·2	257	e 1 6	+ 3	1 58	+ 6	
Aomori	4·6	241	1 11	+ 2	1 59	- 3	
Morioka	5·1	228	e 1 13	- 3	2 5	-10	
Mizusawa	5·5	224	1 42	?	2 14	-11	
Sendai	6·3	220	e 1 36	+ 3	2 34	-11	
Hukusima	6·9	220	e 1 49	+ 8	2 49	-11	
Onahama	7·4	214	—	—	i 2 59	-13	
Mito	8·1	214	e 2 21	+23	—	—	
Tukubasan	8·4	215	—	—	e 3 22	-15	
Kumagaya	8·7	219	e 2 18	+12	3 32	-13	
Oiwake	9·0	223	e 2 36	+25	—	—	
Kohu	9·5	220	e 2 43	+25	3 57	- 7	
Hunatu	9·6	219	—	—	e 3 53	-14	
Misima	F. 9·8	217	—	—	e 3 40	-32	
Osima	9·9	214	—	—	e 3 45	-29	
China Lake	Z. 70·6	58	e 11 11	- 3	e 11 25	pP	
Mount Wilson	Z. 71·3	60	e 11 21	+ 3	—	—	
Collmberg	Z. 77·5	331	e 11 49	- 5	—	—	
Stuttgart	80·9	333	e 12 5?	- 7	—	—	
Fayetteville	Z. 83·9	45	i 10 50	?	e 12 19	P	

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1952

878

Oct. 17d. 5h. 0m. 46s. Epicentre 34°·0N. 137°·0E. Focus at Base of Superficial Layers.

Intensity IV at Owase, Toyohasi, Tarao, Ueno, Matsusaka, Hamazima, and Yoshizu; II-III at Tu, Kameyama, and Tsuruga. Epicentre as adopted. Depth of focus 20km. Macroseismic radius 200-300km.

Seismo. Bull. Cent. Met. Obs. Japan, 1952, Tokyo, 1953, p. 387.

$$A = -.6076, B = +.5666, C = +.5566; \quad \delta = +2; \quad h = 0;$$

$$D = +.682, E = +.731; \quad G = -.407, H = +.380, K = -.831.$$

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Owase		0.7	276	i 0 10	- 3	0 20	- 3
Tu		0.8	331	i 0 11k	- 4	0 20	- 6
Hamamatu		0.9	40	i 0 14	- 2	0 25	- 3
Kameyama		1.0	333	0 14k	- 4	0 25	- 6
Nagoya	N.	1.2	359	0 16	- 4	0 30	- 6
Omaesaki		1.2	59	e 0 22	+ 2	0 35	- 1
Siomisaki		1.2	242	e 0 18	- 2	0 34	- 2
Gihu		1.4	352	0 19	- 4	0 37	- 4
Hikone		1.4	334	e 0 21	- 2	0 38	- 3
Osaka		1.4	298	i 0 21	- 2	0 38	- 3
Ibukisan	N.	1.5	340	i 0 24	0	0 40	- 4
Kyoto		1.5	314	e 0 20	- 4	0 37	- 7
Shizuoka		1.5	50	0 26	+ 2	0 46	+ 2
Kobe	E.	1.6	294	i 0 24	- 2	0 48	+ 2
Sumoto		1.8	281	i 0 27 _a	- 2	0 54	+ 3
Tsuruga		1.8	335	0 27 _a	- 2	0 48	- 3
Misima	N.	1.9	55	e 0 31	0	0 59	+ 5
Hukui		2.1	344	e 0 33	0	0 55	- 4
Kohu		2.1	38	e 0 34	+ 1	1 1	+ 2
Osima		2.1	69	e 0 36	+ 3	—	—
Takayama		2.1	5	e 0 30	- 3	0 56	- 3
Himeji	N.	2.2	283	e 0 37	+ 2	1 3	+ 2
Matumoto	N.	2.4	20	e 0 38	0	1 9	+ 3
Muroto		2.5	252	e 0 41	+ 2	1 18	+ 9
Takamatu		2.5	277	e 0 39	0	1 16	+ 7
Titibu		2.6	41	e 0 46	+ 5	—	—
Yokohama		2.6	57	0 54	+13	1 27	+16
Matusiro		2.7	21	e 0 42	0	1 19	+ 5
Oiwake		2.7	29	e 0 44	+ 2	1 20	+ 6
Tottori		2.7	303	e 0 32	-10	1 8	- 6
Toyama		2.7	3	e 0 45	+ 3	1 21	+ 7
Nagano	N.	2.8	20	e 0 45	+ 2	—	—
Koti		2.9	261	e 0 51	+ 6	—	—
Kumagaya		2.9	42	e 0 50	+ 5	1 26	+ 7
Maebasi		2.9	35	i 0 48	+ 3	1 25	+ 6
Takada		3.3	18	e 0 58	+ 7	1 36	+ 7
Wazima		3.4	359	1 0	+ 8	1 40	+ 8
Matuyama		3.5	268	e 1 4	+11	—	—
Simidu	E.	3.6	251	e 1 4	+ 9	1 48	+11
Saigo		3.7	307	e 1 15	+19	1 52	+13
Hirosima		3.8	277	e 0 57	- 1	—	—
Inawasiro		4.4	37	e 1 17	+11	—	—
Kumamoto		5.4	259	e 1 46	+26	2 54	+32
China Lake	z.	81.7	52	e 12 14	- 3	—	—
Grahamstown	z.	123.2	250	e 17 42	[-72]	—	—

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1952

879

Oct. 17d. 15h. 16m. 18s. Epicentre 43°·2N. 145°·2E. Focus at Base of Superficial Layers.

Intensity VI at Musa ; V at Kusiro, Oda, Kawayu, Teshikaga, Akan, Attoko, Ochiisi, Rausu, and Sibetsu. Epicentre as adopted. Depth of focus 30km. Macroseismic radius 200-300km.

Seismo. Bull. Cent. Met. Obs., Japan, 1952, Tokyo, 1953, p. 388, with macroseismic chart.

$$A = -.6005, B = +.4174, C = +.6821; \quad \delta = +8; \quad h = -3;$$

$$D = +.571, E = +.821; \quad G = -.560, H = +.389, K = -.731.$$

		Δ c	Az. o	P.		O-C. s.	S.		O-C. s.	Supp.	
				m.	s.		m.	s.		m.	s.
Nemuro		0·3	64	i 0	9k	+ 1	0 14	- 1	—	—	—
Kusiro		0·6	250	i 0	15	+ 3	0 25	+ 4	—	—	—
Abashiri		1·0	312	e 0	20	+ 2	0 33	+ 2	—	—	—
Obihiro		1·5	259	e 0	27	+ 3	0 47	+ 3	—	—	—
Urakawa		2·1	239	e 0	36	+ 3	1 1	+ 2	—	—	—
Asahigawa		2·1	286	e 0	42	+ 9	1 16	+17	—	—	—
Sapporo		2·8	267	e 0	47	+ 4	1 22	+ 6	—	—	—
Mori	E.	3·6	254	e 0	57	+ 2	1 40	+ 3	—	—	—
Hatinohe		3·8	227	e 0	57	- 1	1 37	- 5	—	—	—
Aomori		4·1	236	i 1	1	- 1	1 48	- 1	—	—	—
Miyako		4·3	214	e 1	0	- 5	—	—	—	—	—
Morioka		4·6	222	e 1	7	- 2	—	—	—	—	—
Mizusawa	E.	5·1	218	1	14	- 2	2 4	-11	—	—	—
Sendai		5·9	215	e 1	26	- 1	2 25	-10	—	—	—
Hukusima		6·5	215	e 1	34	- 2	—	—	—	—	—
Aikawa		7·4	228	e 1	45	- 3	—	—	—	—	—
Mito		7·7	210	e 1	48	- 5	—	—	—	—	—
Utunomiya		7·8	213	e 1	38	-16	3 12	-10	—	—	—
Maebasi		8·3	217	e 2	1	0	—	—	—	—	—
Kumagaya		8·4	214	e 2	7	+ 5	—	—	—	—	—
Matusiro		8·5	221	e 2	12	+ 8	4 5	+25	—	—	—
Nanking		23·6	251	i 5	13k	+ 4	9 33	+16	—	—	—
Kiruna	Z.	61·8	339	i 10	15	- 3	—	—	—	—	—
Quetta	Z.	61·9	286	i 10	15	- 3	—	—	—	—	—
Poona	Z.	64·1	272	i 10	30	- 3	—	—	e 29	15	Q
Shasta		65·2	57	e 10	37a	- 3	—	—	e 10	50	pP
Mineral	Z.	65·9	57	e 10	41	- 3	—	—	i 10	53	pP
Reno	Z.	67·5	56	e 10	53	- 2	—	—	e 11	4	pP
Lick	Z.	67·7	59	e 10	53	- 3	—	—	e 11	6	pP
Upsala	Z.	68·7	335	i 11	0a	- 2	—	—	i 11	11	pP
Tinemaha	Z.	70·0	58	e 11	20	+10	—	—	—	—	—
China Lake	Z.	71·2	58	e 11	15	- 3	—	—	e 11	26	pP
Mount Wilson	Z.	71·9	60	e 11	19	- 3	—	—	e 11	31	pP
Riverside	Z.	72·5	60	e 11	21	- 4	—	—	e 11	34	pP
Copenhagen		73·7	335	i 11	30	- 2	—	—	—	—	—
Collmberg	Z.	77·1	331	e 11	49	- 3	—	—	e 12	5	pP
Prague		77·6	330	e 11	52	- 2	e 13 53	PP	e 12	7	pP
Jena		77·9	332	e 11	54	- 2	—	—	e 12	17	pP
Witteveen	Z.	77·9	336	i 11	56a	0	—	—	—	—	—
Istanbul	Z.	78·3	316	e 11	57	- 1	—	—	—	—	—
Stuttgart		80·6	332	e 12	8	- 3	—	—	—	—	—
Fayetteville	Z.	84·4	45	i 12	28	- 2	—	—	i 12	38	pP
Morgantown		88·0	34	i 12	45	- 3	—	—	—	—	—

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1952

880

Oct. 17d. 15h. 59m. 47s. Epicentre 40°·8N. 72°·5E.

Given by stations of U.S.S.R.

A = +·2283, B = +·7240, C = +·6509; $\delta = -3$; $h = -2$;
D = +·954, E = -·301; G = +·196, H = +·621, K = -·759.

	Δ °	Az. °	P.		O-C. s.	S.		P-C. s.	Supp.	
			m.	s.		m.	s.		m.	s.
Andijan	0·1	—	i 0	3	+ 1 _g	—	—	—	—	—
Fergana	0·7	233	—	—	—	e 0	25	0*	—	—
Dzhergetal	1·9	212	0	36	+ 2	1	3	0 _g	—	—
Luncharskoe	2·5	282	e 0	42	- 1	i 1	23	0 _g	—	—
Tashkent	2·5	282	—	—	—	i 1	24	+ 1 _g	—	—
Frunse	2·6	37	i 0	44	0	i 1	17	0	—	—
Tchimkent	2·6	305	—	—	—	i 1	29	+ 3 _g	—	—
Murgab	2·7	156	0	45	0	1	19	0	—	—
Naryn	2·7	77	e 0	42	- 3	i 1	13	- 6	i 1	20
Obi-garm	3·0	226	e 0	53	+ 3	1	35	+ 2*	—	—
Khorog	3·4	192	i 0	57	+ 2	i 1	44	- 1*	—	—
Stalinabad	3·6	233	e 1	0	+ 2	e 2	3	+ 4 _g	—	—
Almata II	4·4	54	1	8	- 2	—	—	—	—	—
Samarkand	4·4	256	1	8	- 2	—	—	—	—	—
Ili	4·6	46	1	12	0	i 2	19	- 1*	—	—
Przhevalsk	4·7	67	e 1	16	+ 2	—	—	—	—	—
Chilisk	5·2	56	—	—	—	i 2	35	- 3*	—	—

Oct. 18d. 5h. 22m. 35s. Epicentre 15°·8S. 167°·5E.

A = -·9399, B = +·2084, C = -·2706; $\delta = +7$; $h = +5$;
D = +·216, E = +·976; G = +·264, H = -·059, K = -·963.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
Brisbane		17·8	227	i 4	9 _k	- 2	i 7	29	+ 1	i 7	40	SS	i 8·6
Apia		20·1	88	i 4	43	+ 5	i 8	53	SS	—	—	—	e 9·6
Auckland	N.	21·9	165	i 4	59 _a	+ 2	9	2	+ 8	i 5	14	PP	e 9·5
Karapiro	N.	23·1	166	e 5	9	+ 1	e 9	42	SS	e 5	57	PPP	—
Riverview		23·2	216	i 5	11 _a	+ 2	i 9	21	+ 3	i 5	48	PPP	e 11·0
Tuai	N.	24·4	163	5	21	0	e 9	53	+14	—	—	—	e 13·5
Cobb River	E.	25·6	171	e 5	32	0	e 9	59	0	—	—	—	—
Wellington		26·2	168	5	36 _a	- 2	e 10	14	+ 5	e 5	45	?	e 14·9
Kaimata	N.E.	26·8	174	e 5	44	0	e 10	34	+15	e 6	25	PP	—
Christchurch		28·0	172	e 6	15	+20	i 10	37	- 1	9	11	PcP	e 13·4
Melbourne	E.	29·6	218	e 6	22	+13	i 11	10	+ 6	—	—	—	—
Perth		49·4	242	9	10	+17	16	5	+ 5	20	34	SSS	i 23·6
Manila		55·0	302	i 9	45 _k	+10	i 17	37	+20	—	—	—	—
Mizusawa	E	60·0	337	e 10	12	+ 1	—	—	—	e 10	58	PcP	—
Djakarta		60·1	273	i 10	17 _k	+ 6	i 18	20	- 4	i 11	3	PcP	—
Zô-Sè	Z.	64·4	317	i 10	41 _a	+ 1	19	21	+ 3	—	—	—	—
Hong Kong		64·5	305	e 10	42	+ 1	e 19	21	+ 2	—	—	—	—
Yuzno-Sakhlinsk		66·3	342	10	52	0	19	44	+ 2	—	—	—	—
Nanking		66·6	316	i 10	54 _a	0	i 19	47	+ 2	—	—	—	—
Vladivostok		67·1	332	i 10	57	0	19	54	+ 3	—	—	—	—
Ulegorsk		68·4	342	11	6	0	20	8	+ 1	—	—	—	—
Klyuchi		72·1	357	i 11	27	- 1	—	—	—	—	—	—	—
Magadan		76·3	352	11	40	-12	—	—	—	—	—	—	—
Shillong	E.	84·3	299	e 12	35	0	23	6	+ 6	12	45	PcP	—
Santa Clara		84·7	49	e 12	44 _k	PcP	e 23	16	ScS	—	—	—	e 39·5
Berkeley		84·7	49	e 12	37 _a	0	e 23	19	ScS	e 15	54	PP	e 38·6
Kyakhta		84·8	326	i 12	36	- 1	e 22	57	[- 2]	e 15	54	PP	—
Lick	Z.	84·9	49	e 12	37 _a	- 1	i 12	47	PcP	e 15	57	PP	—
Kabansk		85·6	328	12	40	- 1	e 23	14	+ 1	e 24	15	PS	—
Shasta		85·8	46	e 12	42	0	i 12	54	PcP	e 16	14	PP	—

Continued on next page.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Fresno	z.	86.1	50	e 12	43 _a	- 1	e 16	6	PP	e 13	4	pP	—
Mineral	z.	86.2	47	e 12	43 _a	- 1	i 12	54	PcP	e 16	1	PP	—
Pasadena		86.3	54	e 12	43	- 2	e 23	7	[- 2]	i 16	7	PP	e 38.8
Irkutsk		86.9	327	12	48	0	e 23	27	+ 1	e 23	15	SKS	—
Corvallis	z.	86.9	43	e 12	59	+11	—	—	—	—	—	—	—
Riverside	z.	86.9	54	e 12	48	0	i 13	0	?	e 16	12	PP	—
Reno	z.	87.1	48	e 12	48 _a	- 1	e 12	59	?	e 13	9	?	—
College		87.3	17	i 12	47	- 3	e 22	29	-60	e 28	58	SS	e 35.7
Tinemaha	z.	87.3	51	e 12	53	+ 3	i 13	7	?	e 16	17	PP	—
China Lake	z.	87.4	52	e 12	50	0	i 13	10	?	e 16	16	PP	—
Victoria		88.5	39	12	53	- 3	—	—	—	—	—	—	—
Seattle		88.8	40	13	18	+21	23	45	+ 1	24	38	PS	—
Nelson		89.4	53	i 13	0	0	i 16	42	?	i 16	34	PP	—
Boulder City		89.5	53	i 13	2	+ 2	—	—	—	—	—	—	—
Colombo	E.	89.6	278	13	4	+ 3	23	48	- 3	—	—	—	48.3
Madras	E.	90.9	284	i 18	43	PPP	30	22	SS	—	—	—	—
Tucson		91.5	57	e 13	10	0	e 23	47	[+ 5]	e 16	49	PP	e 34.0
Kodaikanal	E.	92.8	280	e 13	11	- 5	—	—	—	—	—	—	—
Hyderabad	E.	93.7	287	e 13	24	+ 4	e 24	8	{- 1}	—	—	—	—
Hungry Horse		94.2	41	e 13	25	+ 3	e 17	11	PP	i 13	41	?	—
Poona	z.	98.3	287	i 13	48	+ 7	24	17	[- 2]	17	43	PP	—
Bombay		99.3	287	e 13	55	+10	24	23	[- 1]	24	43	SKKS	—
Almata		101.0	312	e 13	53	0	e 24	31	[- 1]	i 18	9	PP	—
Naryn		101.4	310	e 13	53	- 2	i 24	31	[- 3]	i 18	11	PP	—
Rybach'e		101.5	311	i 18	13	PP	i 24	34	[0]	e 25	33	S	—
Frunse		102.7	311	e 18	12	PP	i 24	41	[+ 1]	i 33	13	SS	—
Khorog		104.0	305	e 18	32	PP	—	—	—	—	—	—	—
Andijan		104.0	308	i 18	19	PKP	e 24	52	[+ 6]	i 26	3	S	—
Fergana		104.4	308	e 18	24	PP	—	—	—	—	—	—	—
Namangan		104.5	308	i 18	22	PKP	e 24	47	[- 1]	e 26	4	S	—
Dzhergetal		104.6	307	—	—	—	e 24	51	[+ 2]	—	—	—	—
Kulyab		105.5	306	—	—	—	24	52	[- 1]	—	—	—	—
Fayetteville	z.	105.8	57	e 17	34	?	—	—	—	—	—	—	—
Tchimkent		106.2	310	e 18	41	PP	e 26	11	- 1	e 27	57	PS	—
Lunacharskoe		106.3	309	i 18	54	PP	i 26	31	+18	i 21	6	PPP	—
Stalinabad		106.4	307	—	—	—	e 24	56	[- 1]	—	—	—	—
Tashkent		106.4	309	i 18	50	PP	i 24	48	[- 9]	i 28	2	PS	—
Resolute Bay		107.1	15	i 18	56	PP	i 26	12	- 8	i 21	34	PPP	i 49.4
Samarkand		107.9	307	i 19	4	PP	25	1	[- 2]	—	—	—	—
Bairam-Ali		111.5	306	i 19	19	PP	28	55	PS	34	55	SS	—
Tananarive		111.6	242	—	—	—	28	43	PS	35	6	SS	58.8
Huancayo		112.0	110	e 29	38	PKKP	e 29	1	PS	e 35	7	SS	e 52.5
Sverdlovsk		112.3	325	e 18	38	[0]	e 25	11	[- 10]	e 14	44	P	—
Ashkabad		114.5	305	e 18	43	[+ 1]	i 26	34	{- 2}	i 19	53	PP	—
Cleveland	E.	115.9	51	e 19	59	PP	i 25	52	[+17]	e 29	39	PS	—
Kizyl-Arvat		116.2	307	e 20	12	PP	—	—	—	—	—	—	—
La Paz		116.4	118	e 19	55	PP	25	57	[+20]	30	45	PPS	55.2
Chinchina	E.	117.2	92	e 20	17	PP	e 25	59	[+19]	e 40	15	SSS	55.6
Bogota		118.6	93	e 20	19	PP	e 25	59	[+14]	e 22	59	PPP	55.4
Pennsylvania	E.	118.7	52	—	—	—	e 26	25	[+40]	—	—	—	—
Galerazamba		118.9	86	e 22	10	SKP	e 30	17	PS	—	—	—	55.4
Ottawa		119.9	64	e 18	52 _a	[- 1]	26	5	[+15]	20	27	PP	—
Baku		121.0	308	e 20	40	PP	e 30	21	SKSP	—	—	—	—
Palisades		121.7	51	e 20	26	PP	e 30	55	PS	i 37	57	SSP	e 56.9
Lenkoran		122.0	306	e 20	25	PP	—	—	—	—	—	—	—
Pretoria	z.	122.8	225	e 19	1	[+ 3]	—	—	—	—	—	—	—
Kimberley	z.	122.9	219	i 19	2	[+ 4]	—	—	—	—	—	—	—
Harvard		123.2	49	—	—	—	e 30	43	PS	e 38	0	SS	e 58.9
Weston		123.4	49	e 20	37	PP	e 38	18	SS	—	—	—	e 57.4
Kirovobad		123.7	310	e 19	1	[+ 1]	—	—	—	—	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.		
	°	°	m.	s.	s.	m.	s.	m.	s.	m.		
Grozny	123.7	312	e 19	2	[+ 2]	—	—	e 20	44	PP	—	
Kiruna	123.8	345	i 18	59	[- 1]	e 27	36	{- 4}	e 23	21	PPP	e 55.4
Goris	123.8	307	19	1	[+ 1]	26	3	[+ 1]	22	35	PKS	—
Tiflis	124.7	310	i 19	3	[+ 1]	—	—	—	i 20	59	PP	—
Moscow	124.9	328	e 19	2?	[0]	—	—	—	e 20	48	PP	—
Erevan	125.1	309	i 19	3	[0]	—	—	—	21	5	PP	—
Leninakan	125.5	310	e 19	19	[+ 16]	—	—	—	—	—	—	—
Piatigorsk	125.5	314	e 19	3	[0]	i 21	2	PP	i 23	51	PPP	—
Tsikhlis-Dzhvari	125.7	310	e 19	8	[+ 4]	—	—	—	—	—	—	—
Borzhomi	125.7	310	i 19	4	[0]	e 28	4	{+ 12}	i 21	7	PP	—
Pulkovo	126.2	335	i 19	5	[0]	e 26	13	[+ 4]	e 21	1	PP	—
Zugdidi	126.6	313	e 19	8	[+ 2]	—	—	—	e 21	15	PP	—
Sotchi	127.9	314	i 19	9	[+ 1]	e 22	37	PKS	e 31	12	SKSP	—
San Juan	128.8	79	e 19	9	[- 1]	—	—	—	—	—	—	—
Bermuda	130.1	61	e 21	36	PP	e 22	38	PKS	e 33	25	PPS	e 61.9
Theodosia	130.4	317	19	13	[0]	e 22	47	PKS	—	—	—	—
Upsala	130.8	341	i 19	14	[0]	e 26	44	{+ 22}	i 22	40	PKS	e 53.4
Yalta	131.4	316	e 19	14	[- 1]	22	41	PKS	e 31	53	PS	—
Ksara	133.0	302	e 19	20	[+ 2]	34	56	?	21	55	PP	—
Bergen	133.6	348	e 22	0	PP	e 22	44	PKS	—	—	—	—
Kishinev	133.8	322	i 19	19	[0]	—	—	—	—	—	—	—
Copenhagen	135.8	340	e 19	25	[+ 2]	22	58	PKS	22	4	PP	61.4
Istanbul	136.2	314	e 19	21	[- 3]	e 22	54	PKS	e 22	8	PP	—
Uzhgorod	136.6	327	e 19	26	[+ 2]	23	0	PKS	—	—	—	—
Skalnate Pleso	137.4	329	e 19	58	[+ 32]	e 29	49	{+ 44}	e 22	2	PP	—
Helwan	E. 137.5	297	e 19	37	[+ 11]	—	—	—	e 22	25	PP	—
Raciborzu	137.8	331	e 19	29	[+ 2]	e 26	42	{+ 6}	e 23	3	PKS	—
Aberdeen	138.0	352	e 20	55	?	i 40	20	SS	e 22	41	PP	79.3
Potsdam	138.3	337	e 19	30	[+ 3]	i 23	5	PKS	e 22	29	PP	e 63.4
Collnberg	z. 139.1	335	e 19	22?	[- 7]	e 23	30	PKS	22	34	PP	—
Ogyalla	139.2	328	e 19	44	[+ 15]	e 26	37	[- 1]	e 25	35	PPP	—
Prague	139.5	333	e 19	32	[+ 2]	e 23	8	PKS	e 22	41	PP	e 66.4
Jena	140.0	336	e 19	29?	[- 1]	e 29	6	{- 15}	e 22	36?	PP	—
Witteveen	z. 140.1	343	i 19	32	[+ 1]	i 23	33	PKS	—	—	—	—
De Bilt	141.2	343	e 19	25	[- 8]	e 23	25	PKS	e 22	37	PP	e 67.4
Rathfarnham Castle	142.3	354	e 19	29	[- 6]	i 19	46	PKP	i 22	54	PP	e 74.4
Stuttgart	142.6	336	e 19	31	[- 4]	e 29	55	{+ 18}	e 22	45	PP	e 70.4
Karlsruhe	z. 142.7	337	19	31	[- 4]	—	—	—	—	—	—	—
Kew	143.1	347	i 19	30	[- 6]	e 33	13	SKSP	i 22	55	PP	e 72.4
Strasbourg	143.3	337	e 19	33	[- 3]	e 33	21	PS	i 20	0	pPKP	68.4
Chur	144.0	334	e 19	35 _a	[- 2]	—	—	—	—	—	—	—
Zürich	144.0	336	e 19	35 _k	[- 2]	—	—	—	e 20	22	?	—
Basle	144.3	336	e 19	36 _a	[- 2]	e 29	9	{- 37}	—	—	—	—
Salo	144.6	332	e 20	7	[+ 29]	e 21	45	?	e 18	26	?	—
Paris	144.9	343	i 19	37	[- 2]	i 22	53	PKS	i 20	5	pPKP	e 71.4
Besançon	145.0	338	e 19	39	[0]	i 19	49	?	e 22	59	PP	—
Bologna	145.0	330	e 19	44	[+ 5]	e 20	2	?	e 23	48	PKS	—
Pavia	145.5	333	e 19	43	[+ 3]	—	—	—	e 23	12	PP	—
Florence	145.6	329	i 19	37 _a	[- 3]	i 19	50	PKP ₂	i 23	11	PP	e 70.4
Prato	145.6	329	e 19	39	[- 1]	—	—	—	e 20	55	?	—
Oropa	145.7	335	i 19	41	[+ 1]	e 42	1	SS	i 19	53	PKP ₂	—
Rome	146.2	326	i 19	41 _a	[0]	e 42	5	SS	e 23	14	PP	—
Rocca di Papa	146.2	325	e 19	43	[+ 2]	—	—	—	—	—	—	—
Messina	146.7	318	i 19	42 _k	[0]	e 41	48	SS	i 19	53	PKP ₂	79.0
Clermont-Ferrand	147.4	339	e 19	48	[+ 5]	—	—	—	—	—	—	74.4
Tortosa	152.6	338	20	4	PKP ₂	—	—	—	—	—	—	—
Toledo	154.9	345	e 19	55	[+ 1]	i 20	22	PKP ₂	e 23	55	PP	—
Algiers Univ.	z. 155.0	329	e 19	56	[+ 2]	e 26	54	[- 6]	e 23	56	PP	—
Alicante	155.2	338	19	55	[0]	27	0	[0]	24	8	PP	83.1
Almeria	157.2	339	i 20	31	PKP ₂	27	35	[+ 33]	24	3	PP	84.6
Granada	157.3	343	20	30 _k	PKP ₂	27	27	[+ 25]	i 24	12	PP	i 84.5
Malaga	158.0	343	i 20	1	[+ 2]	27	3	[0]	28	1	PPP	88.3
Tamanrasset	z. 161.6	296	i 20	4 _k	[+ 2]	e 27	13	[+ 7]	e 20	59	PKP ₂	—

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Oct. 18d. 11h. 57m. 36s. Epicentre 14°·1N. 45°·6W.

A = +·6789, B = -·6932, C = +·2421; δ = +4; h = +5;
D = -·714, E = -·700; G = +·169, H = -·173, K = -·970.

	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
			m.	s.		m.	s.		m.	s.		
Fort de France	15·1	274	i 3	33	- 3	i 6	25	0	—	—	e 7·7	
San Juan	20·2	286	i 4	35	- 4	i 8	27	+ 6	—	—	—	
Bermuda	25·2	320	i 5	30	+ 1	(e 10	21)	+29	—	—	e 10·4	
M'Bour	27·7	85	i 5	45	- 7	—	—	—	—	—	—	
Galerazamba	29·1	268	i 6	2	- 2	i 10	55	- 1	—	—	—	
Angra do HeroismoE.	29·4	30	—	—	—	i 12	32	SS	—	—	i 14·7	
Bogota	29·6	255	i 6	8	- 1	i 11	3	- 1	i 6	52	PP	—
Kingston	30·2	281	e 6	15	+ 1	—	—	—	—	—	e 15·7	
Chinchina	30·9	256	i 6	20	0	i 11	24	0	i 7	10	PP	—
Halifax	34·1	337	e 6	49k	+ 1	12	19	+ 5	13	59	SS	15·8
Weston	35·9	327	i 7	7k	+ 3	e 12	50	+ 8	e 8	20	PP	e 17·1
Harvard	36·1	327	e 7	5	0	e 12	51	+ 6	e 8	26	PP	e 16·6
City College, N.Y.	36·3	323	e 7	7	0	e 12	52	+ 4	—	—	—	
Palisades	36·4	323	i 7	7	- 1	i 12	56	+ 6	i 8	23	PP	e 16·2
Washington	37·1	318	i 7	13	- 1	e 13	5	+ 4	—	—	—	
Columbia	37·7	309	e 7	20	+ 1	e 13	12	+ 2	—	—	—	
La Paz	37·7	216	i 7	16k	- 3	i 13	4	- 6	i 15	38	SS	18·2
Pennsylvania	38·7	319	i 7	28	+ 1	i 13	35	+10	e 8	58	PP	—
Huancayo	39·3	230	i 7	30	- 2	i 13	30	- 4	e 8	47	PP	e 16·1
Morgantown	39·4	316	i 7	33	0	e 13	31	- 4	—	—	—	
Shawinigan Falls N.	39·6	331	e 7	36	+ 1	—	—	—	—	—	—	
Pittsburgh	39·9	318	i 9	13	PP	i 13	49	+ 6	—	—	—	
Ottawa	40·3	327	i 7	42k	+ 2	13	53	+ 4	9	47	PPP	18·0
Buffalo (Larkin)	40·4	322	e 7	41	0	—	—	—	—	—	—	
Cleveland	41·4	318	i 7	48k	- 2	e 14	12	+ 7	—	—	—	
Mobile	42·4	300	i 8	4	+ 6	e 13	50	-30	—	—	—	
Malaga	43·1	50	i 8	2	- 2	15	40	+70	10	16	PPP	20·1
Granada	43·8	50	i 7	59k	-10	i 14	54	+14	i 10	1	PP	i 21·3
Kirkland Lake z.	44·3	327	i 8	14k	+ 1	—	—	—	—	—	—	
Toledo	44·5	47	i 8	17	+ 2	e 15	1	+10	e 13	49	PcS	—
Almeria	44·6	51	i 8	18	+ 2	14	58	+ 6	10	6	PcP	21·5
Alicante	46·5	50	e 7	39	-52	e 14	31	-48	18	5	SS	22·6
Tortosa	48·1	47	e 8	27	-16	i 15	55	+13	—	—	—	
Fayetteville z.	48·6	306	i 8	45	- 2	—	—	—	e 11	35	PPP	—
Algiers Univ. z.	48·8	54	e 8	48	- 1	e 19	30	SS	e 10	44	PP	—
Tamanrasset z.	49·0	72	i 8	42k	- 8	e 16	5	+10	e 10	50	PP	24·4
Rathfarnham Castle	49·9	30	i 8	58a	+ 1	e 16	13	+ 6	e 21	11	SSS	e 21·9
La Plata	50·1	193	12	6	PPP	16	30	PPS	23	0	Q	25·5
Tacubaya	51·4	284	e 9	9	0	—	—	—	—	—	—	
Clermont-Ferrand	51·6	42	e 9	12	+ 2	i 16	46	PS	—	—	24·4	
Lincoln	51·7	312	e 9	2	- 9	—	—	—	—	—	—	
Kew	52·0	35	e 9	30	+17	e 16	42	+ 6	e 20	25	SS	e 21·4
Paris	52·4	38	i 9	16	0	i 16	54	+12	e 10	20	PcP	e 24·4
Durham	53·0	30	—	—	—	i 16	53	+ 3	—	—	—	
Besançon	54·0	41	e 9	46	+18	e 9	59	?	e 10	32	PcP	—
Aberdeen	54·1	28	i 16	29	?	i 17	18	+13	i 19	4	ScS	—
Lubbock	54·3	302	e 9	31	+ 1	—	—	—	—	—	—	
Oropa	54·8	44	e 9	40	+ 6	e 17	48	PPS	—	—	—	
De Bilt	55·3	35	e 9	57	+19	e 17	29	+ 8	e 23	6	SSS	e 27·4
Pavia	55·5	44	e 14	23	PcS	e 17	35	+11	—	—	e 24·0	
Strasbourg	55·6	40	e 9	40	0	e 17	32	+ 7	e 11	32	PP	26·4
Zürich	55·7	41	e 9	47k	+ 7	—	—	—	—	—	—	
Karlsruhe z.	56·1	39	e 8	43	-60	—	—	—	e 9	14	?	—
Chur	56·2	42	e 9	44k	0	—	—	—	—	—	—	
Witteveen z.	56·4	34	i 9	46	+ 1	i 10	9	?	i 10	17	?	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Prato	56.5	46	e 9	50	+ 4	e 17	34	- 3	—	—	—
Salo	56.5	43	e 9	43	- 3	e 16	41	-56	e 9	0	?
Stuttgart	56.5	40	e 9	46	0	e 17	48	+11	e 10	17	?
Florence	56.6	46	i 9	45k	- 2	i 17	45	+ 7	e 11	56	PP
Rome	57.0	48	i 9	50k	0	i 17	57	PS	e 11	35	PP
Triest	58.7	44	i 10	1k	- 1	i 18	13	+ 7	e 12	7	PP
Jena	58.7	39	e 10	0	- 2	e 17	56	-10	e 12	1	PP
Messina	58.8	53	e 9	57	- 5	e 18	18	+11	e 12	14	PP
Cheb	58.9	40	e 14	36	PcS	e 17	18	?	—	—	—
Bergen	n. 59.1	26	—	—	—	e 21	48	SS	(e 24	9)	SSS
Collmberg	59.6	39	e 10	10	+ 2	e 14	37	PcS	e 11	13	PcP
Potsdam	60.0	37	e 10	12	+ 1	i 18	33	+10	e 18	36	S
Prague	60.2	39	e 10	13	+ 1	e 18	24	- 1	e 11	15	PcP
Copenhagen	60.6	33	e 10	15	0	18	34	+ 4	—	—	—
Tucson	61.8	299	i 10	21	- 2	—	—	—	—	—	e 26.0
Ogyalla	62.1	43	e 10	31	+ 6	e 11	48	?	e 12	43	PP
Raciborzu	62.5	40	e 10	29	+ 1	e 10	50	?	e 13	0	PP
Belgrade	63.2	47	e 10	34k	+ 2	e 19	33	PPS	e 22	36	?
Skalnate Pleso	63.7	41	e 12	24	PP	e 18	38	-32	e 23	18	SS
Timisoara	63.9	45	e 10	51	+14	e 19	42	PS	—	—	—
Upsala	64.6	30	i 10	41	0	e 19	17	- 4	e 19	32	PS
Uzhgorod	65.0	42	e 10	45	+ 1	e 19	31	+ 5	13	13	PP
Boulder City	65.1	303	i 10	44	- 1	—	—	—	—	—	—
Nelson	65.1	303	i 10	43	- 2	—	—	—	—	—	—
Sofia	65.1	49	e 10	46	+ 1	—	—	—	—	—	—
Hungry Horse	65.3	317	i 10	44	- 2	—	—	—	—	—	—
Lwow	66.2	41	i 10	52	0	e 19	50	+10	e 13	18	PP
Resolute Bay	66.3	347	i 10	48	- 4	i 19	32	-10	i 20	12	PPS
Bucharest	67.2	47	e 11	0	+ 2	e 20	0	+ 8	e 19	36	S
Riverside	z. 67.2	301	i 10	57	- 1	—	—	—	e 39	29	P'P'
Cernauti	67.3	43	e 10	50	- 9	—	—	—	—	—	—
China Lake	z. 67.4	304	e 11	8	+ 9	—	—	—	e 39	19	P'P'
Tinemaha	67.9	305	e 11	4	+ 2	—	—	—	—	—	—
Pasadena	67.9	301	i 11	2	0	i 11	13	?	e 39	21	P'P'
Kiruna	68.1	22	e 11	4	0	e 20	7	+ 4	e 20	55	ScS
Reno	z. 69.0	307	e 11	8	- 1	—	—	—	—	—	—
Fresno	z. 69.1	305	e 11	10	0	—	—	—	—	—	—
Kishinev	69.2	44	i 11	9	- 1	e 20	19	+ 3	—	—	—
Istanbul	69.4	50	e 11	10	- 2	e 20	22	+ 4	e 13	52	PP
Mineral	z. 70.4	308	e 11	16	- 2	—	—	—	—	—	—
Lick	z. 70.6	305	e 11	18	- 1	—	—	—	—	—	—
Santa Clara	70.8	305	e 11	24 _a	+ 4	—	—	—	—	—	e 35.7
Seattle	70.8	316	e 11	27	+ 7	—	—	—	e 34	54	Q
Shasta	71.0	309	e 11	19	- 3	—	—	—	i 11	27	?
Berkeley	z. 71.0	305	e 11	20	- 2	—	—	—	e 12	13	?
Victoria	71.5	317	11	23	- 1	—	—	—	—	—	—
Corvallis	z. 71.5	312	e 11	23	- 1	—	—	—	—	—	—
Helwan	z. 71.9	62	11	27	0	i 14	42	?	i 16	12	PPP
Ksara	75.3	58	i 11	48	+ 1	21	32?	+ 6	—	—	—
Kimberley	z. 80.2	123	e 12	12	- 2	—	—	—	—	—	—
Pretoria	z. 82.0	118	i 12	22	- 1	—	—	—	—	—	—
College	82.5	336	i 12	25	- 1	e 22	40	- 2	e 27	39	SS
Grahamstown	z. 83.3	126	e 12	29	- 1	—	—	—	—	—	e 39.2
Bombay	E. 111.0	63	e 18	5	?	e 28	56	PPS	—	—	—

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Oct. 18d. 18h. 5m. 7s. Epicentre 43°·5N. 17°·5E. (as on 1951, October 29d.).

Intensity V at Ljubuski (43°12'N. 17°24'E.); IV at Studenci and Opuzen; III at Metkovic. Epicentre 43°·2N. 17°·7E. (Strasbourg). Macroseismic radius 10km.

M. D. Uzelac.

Annuaire de l'institut séismologique de Beograd, microséismique et macroséismique, année 31, 1952, Nouvelle série No. 11, Belgrade, 1956, p. 62.

A = +·6940, B = +·2188, C = +·6859; $\delta = -3$; $h = -3$;
D = +·301, E = -·954; G = +·654, H = +·206, K = -·728.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Belgrade	2·5	58	e 0 47	+ 2*	e 1 25	+ 2 _g	e 1 19	S*
Triest	3·4	310	e 1 10	+ 2 _g	i 1 45	0*	e 1 13	?
Rocca di Papa	3·9	246	—	—	e 1 52	+ 2	—	e 2·4
Rome	4·0	249	—	—	e 1 38	-14	—	e 2·5
Sofia	4·3	98	—	—	e 2 10	- 2*	—	—
Florence	4·6	276	e 0 33	-39	e 2 35	+ 3 _g	—	—
Prague	6·9	344	—	—	e 3 10	+ 5	e 4 0	S _g
Zürich	7·4	305	e 1 48	- 4	—	—	—	e 4·2
Stuttgart	7·8	315	e 3 2?	?	e 4 7	+11*	e 4 12	S _g
Jena	z. 8·4	334	—	—	e 4 6	- 7*	e 4 43	S _g
Collnberg	z. 8·4	340	—	—	e 4 9	- 4*	e 4 54	S _g

Oct. 18d. 20h. 33m. 14s. Epicentre 15°·8S. 172°·8W. (as on 1949, September 21d.).

A = -·9551, B = -·1207, C = -·2706; $\delta = +1$; $h = +6$;
D = -·125, E = +·992; G = +·268, H = +·034, K = -·963.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Apia	2·2	26	e 0 39	+ 1	i 0 58	- 8	—	—
Auckland	N. 23·7	205	e 5 16	+ 2	e 9 20	- 7	—	e 11·8
Karapiro	N. 24·3	204	e 5 19	- 1	—	—	—	—
Tuai	N. 24·6	199	e 5 46?	PP	—	—	—	—
Wellington	27·6	201	e 5 51	0	e 11 1	+29	e 12 21	Q e 14·6
Kaimata	N.E. 29·9	204	e 6 14	+ 2	—	—	e 5 54	?
Brisbane	33·7	244	i 6 42	- 3	e 12 2	- 6	i 6 51	P
Riverview	37·1	234	e 7 6	- 8	e 13 7	+ 6	e 8 42	PP
Berkeley	71·4	41	e 11 25	+ 1	e 20 40	- 2	e 29 52	Q
Lick	z. 71·5	41	e 11 26 _a	+ 2	—	—	—	—
Pasadena	71·9	46	e 11 27	0	—	—	e 11 34	?
Riverside	z. 72·3	46	e 11 29	0	—	—	e 11 35	?
Fresno	z. 72·3	43	e 11 30 _a	+ 1	—	—	—	—
Shasta	73·1	38	e 11 35 _a	+ 1	—	—	i 11 42	?
China Lake	z. 73·2	44	e 11 35	0	—	—	e 11 42	?
Mineral	z. 73·4	39	e 11 35 _a	- 1	—	—	—	—
Tinemaha	z. 73·5	43	e 11 34	- 2	—	—	i 11 44	?
Reno	z. 73·9	41	e 11 38 _a	- 1	—	—	—	—
Yuzno-Sakhlinsk	74·1	330	i 11 40	0	—	—	—	—
Nelson	75·0	46	i 11 45	0	—	—	—	—
Boulder City	75·2	46	e 11 46	0	—	—	—	—
Uglegorsk	76·0	333	e 11 51	0	—	—	—	—
Tucson	76·1	51	e 11 52	+ 1	—	—	—	e 35·0
Vladivostok	77·5	332	e 11 59	0	—	—	—	—
Victoria	77·6	31	12 0	0	—	—	—	—
Nanking	80·9	307	12 18 _a	+ 1	22 42	+16	—	—
Hungry Horse	82·5	35	e 12 26	0	—	—	—	—
College	82·6	11	i 12 26	0	e 22 31	-12	e 12 36	PcP e 35·7
La Paz	99·1	110	—	—	i 24 26	[+ 3]	—	47·8
Bermuda	113·4	61	—	—	e 30 29	PPS	e 35 26	SS e 56·3
Sverdlovsk	122·8	328	e 18 59	[+ 1]	—	—	e 20 33	PP
Kiruna	E. 127·3	353	—	—	e 38 22	SS	—	e 61·3
Pulkovo	132·9	344	—	—	e 22 46?	PKS	—	—
Moscow	133·8	336	e 21 48	PP	e 22 54	PKS	—	—
Goris	138·5	313	e 19 32	[+ 4]	e 23 8	PKS	—	—

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Tiflis	138.6	317	—	—	e 23 6	PKS	—	—
Borzhomi	139.5	317	e 22 19	PP	—	—	—	—
Zugdidi	140.1	320	—	—	e 23 10	PKS	—	—
Sotchi	140.9	322	e 19 25	[- 7]	—	—	e 22 30	PP
Theodosia	142.4	327	e 19 31	[- 4]	—	—	—	—
Yalta	143.4	326	e 19 34	[- 2]	—	—	e 22 38?	PP
Lwow	143.4	343	e 19 35	[- 1]	—	—	—	—
Kishinev	144.1	336	i 19 40	[+ 2]	—	—	—	—
Cernauti	144.1	339	e 19 44	[+ 6]	—	—	—	—
Collimberg	z. 144.3	352	e 19 37	[- 1]	—	—	e 20 17	?
Raciborzu	z. 144.7	348	e 19 39	[0]	—	—	e 19 46	PKP ₂
Jena	z. 144.8	354	e 19 37	[- 2]	e 20 5	?	e 23 1	PP
Uzhgorod	145.0	343	i 19 41	[+ 2]	—	—	—	—
Prague	145.3	351	e 19 41	[+ 1]	e 19 56	?	e 20 57	?
Paris	146.9	5	i 19 45	[+ 3]	e 38 6	?	e 19 57	PKP ₂ e 77.8
Stuttgart	147.1	357	e 19 43	[0]	—	—	e 19 46	PKP ₂
Strasbourg	147.3	358	e 19 42	[- 1]	i 19 47	PKP ₂	e 21 6	?
Ksara	148.5	309	i 19 49	[+ 4]	—	—	23 22	PP
Besançon	148.6	2	i 19 51	[+ 6]	e 20 1	PKP ₂	e 20 43	?
Clermont-Ferrand	149.9	5	e 19 55	[+ 8]	—	—	28 46?	PKKP
Oropa	150.3	0	e 20 3	PKP ₂	—	—	—	—
Florence	z. 151.9	353	e 19 52	[+ 2]	e 20 12	PKP ₂	e 23 49	PP
Rome	153.6	350	e 20 0	[+ 7]	e 44 2	SS	e 23 52	PP
Helwan	z. 153.8	306	e 19 55	[+ 2]	20 15	PKP ₂	i 23 51	PP
Messina	E. 156.5	345	e 30 10	?	e 45 10	SSP	—	—
Tamanrasset	z. 172.9	12	e 20 12	[+ 1]	e 21 39	PKP ₂	e 25 31	PP

Oct. 18d. 21h. 26m. 19s. Epicentre 36°·7N. 70°·5E. Depth of focus 0·030. (as on 8d.).

Felt at Chitral (according to Quetta).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Khorog	1.2	48	i 0 32	- 2	—	—	—	—
Obi-garm	2.1	342	i 0 43	+ 1	e 1 14	0	—	—
Garm	2.3	356	i 0 43	- 1	1 16	- 1	—	—
Stalinabad	2.3	323	i 0 43	- 1	i 1 15	- 2	—	—
Dzhergetal	2.6	12	i 0 50	+ 3	e 1 26	+ 3	—	—
Murgab	3.2	59	0 51	- 3	—	—	—	—
Fergana	3.8	15	i 1 0	- 1	i 1 44	- 4	—	—
Samarkand	4.1	319	i 1 3	- 1	—	—	—	—
Andijan	4.3	20	e 1 6	- 1	i 1 59	0	—	—
Namangan	4.4	12	i 1 8	0	i 1 58	- 3	—	—
Tashkent	4.7	349	i 1 13	+ 1	i 2 8	0	—	—
Tchimkent	5.6	354	i 1 23	0	2 27	- 1	—	—
Naryn	6.4	41	i 1 30	- 3	—	—	i 2 21	sP
Bairam-Ali	6.7	280	1 36	- 1	2 50	- 3	—	—
Frunse	6.9	26	i 1 39	- 1	i 2 58	0	2 27	sP
Quetta	7.1	205	i 1 37	- 5	i 2 54	- 8	—	—
Rybach'e	7.2	35	i 1 42	- 2	3 4	- 1	2 32	sP
Almata	8.2	35	i 1 56	- 1	i 3 28	0	2 46	sP
Almata II	8.4	37	i 1 58	- 1	—	—	—	—
Przhevalsk	8.4	44	i 1 58	- 1	—	—	—	—
Kurmenty	8.7	41	2 2	- 1	—	—	—	—
Chilisk	9.1	39	i 2 7	- 1	—	—	—	—
New Delhi	9.8	143	i 2 11	- 6	3 50	- 15	i 2 57	sP
Ashkabad	9.8	281	i 2 15	- 2	i 4 5	0	—	—
Kizyl-Arvat	11.5	286	e 2 38	- 1	i 4 37	- 7	—	—
Semipalatinsk	15.4	24	e 3 26	- 1	e 6 2	- 10	—	—
Chatra	17.2	120	i 3 49	+ 1	i 6 42	- 8	—	—
Shemakla	17.5	292	e 3 54	+ 3	e 7 10	+ 13	—	—
Bombay	17.8	172	i 3 57	+ 3	7 5	+ 2	e 7 59	SS
Poona	z. 18.3	170	i 3 56	- 4	6 46	- 26	4 19	PP
Goris	19.2	286	i 4 13	+ 4	i 7 46	+ 16	—	—
Kirovobad	19.2	289	4 12	+ 3	—	—	—	—
Grozny	20.0	297	i 4 21	+ 4	i 8 6	+ 22	—	—
Tiflis	20.5	293	4 21	- 1	8 6	+ 13	—	—
Erevan	20.6	288	e 4 28	+ 5	e 8 14	+ 19	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Sverdlovsk	21.2	345	e 4 31	+ 2	e 8 20	+14	—	—
Shillong	21.3	115	e 4 25	- 5	i 8 12	+ 4	e 8 35	PcP 9.3
Piatigorsk	22.1	299	e 4 35	- 2	—	—	e 8 43	PcP
Irkutsk	28.4	46	e 5 36	0	—	—	—	—
Kyakhta	29.1	49	e 5 40	- 2	—	—	—	—
Moscow	29.2	322	e 5 45	+ 2	e 10 26	+ 8	—	—
Pulkovo	34.5	327	e 6 31	+ 2	—	—	—	—
Lwow	35.7	307	e 6 42	+ 3	—	—	—	—
Upsala	z. 40.7	321	i 7 22	+ 2	i 8 27	sP	i 8 7	pP
Kiruna	z. 41.7	334	i 7 31 _a	+ 3	—	—	i 8 35	sP
Prague	41.9	308	e 8 17	pP	e 9 16	PP	e 11 18	?
Collnberg	z. 42.8	309	e 8 18	pP	e 8 48	sP	e 10 0	PPP
Copenhagen	43.0	316	i 8 27	pP	—	—	—	—
Messina	z. 43.1	290	e 8 21	pP	e 8 53	sP	—	—
Jena	43.7	308	e 8 25?	pP	e 8 57	sP	e 10 24	PPP
Stuttgart	45.5	306	e 8 41	pP	—	—	e 10 52	PPP
Paris	49.8	307	i 9 19	pP	i 9 41	sP	i 9 25	?
Almeria	57.0	295	9 41	+17	17 39	PS	11 51	PP
College	74.4	17	i 11 15	0	—	—	i 12 5	pP
Grahamstown	z. 80.8	217	i 12 41	pP	—	—	—	—
Hungry Horse	95.2	4	e 13 0	+ 1	—	—	—	—
Mineral	z. 102.5	10	e 17 36	PKP	—	—	e 17 53	PP
Fayetteville	z. 106.2	348	e 18 11	PP	—	—	—	—
Nelson	107.8	5	i 18 40	PP	—	—	—	—

Oct. 19d. 3h. 40m. 32s. Epicentre 63°·5N. 19°·0W.

A = +·4242, B = -·1460, C = +·8937; δ = -4; h = -10;
D = -·326, E = -·946; G = +·845, H = -·291, K = -·449.

	Δ	Az.	P.	O-C.	S.	O-C.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m.
Reykjavik	z. 1.4	296	i 0 22	- 5	i 0 42	- 4	e 0.8
Scoresby Sund	7.1	352	i 1 51	+ 3	—	—	3.8
Kew	15.6	132	e 4 28?	+45	—	—	—
Kiruna	z. 16.6	58	i 3 57	+ 1	i 4 12	?	—
Paris	18.8	132	—	—	e 8 2	+12	e 12.5
Strasbourg	20.9	122	—	—	e 8 38	+ 3	—
Stuttgart	21.3	120	e 4 50	0	—	—	—
Harvard	36.6	261	i 7 16 _k	+ 6	—	—	—
College	46.5	333	i 8 29	- 2	—	—	—
Hungry Horse	50.2	300	i 8 59	- 1	—	—	—
Fayetteville	z. 51.9	275	i 9 10	- 2	—	—	—
Mineral	z. 59.9	300	e 10 7	- 3	—	—	—
Shasta	59.9	301	e 10 7	- 3	—	—	—
Nelson	61.2	293	i 10 17	- 2	—	—	—
Lick	z. 62.5	299	e 10 26 _k	- 2	—	—	—

Oct. 19d. 10h. 44m. 28s. Epicentre 27°·8N. 85°·7E.

Epicentre adopted from Seismo. Bull. Indian Meteorological Department.

A = +·0664, B = +·8834, C = +·4639; δ = +1; h = +3;
D = +·997, E = -·075; G = +·035, H = +·463, K = -·886.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Chatra	1.6	127	i 0 36	+ 6	0 52	+ 1	0 57	S _g
Calcutta	N. 5.8	155	—	—	i 2 35	- 3	i 3 15	S _g
Shillong	E. 6.0	111	e 1 34	+ 2	e 2 40	- 3	e 1 54	P _g
New Delhi	7.5	278	e 2 2	+ 9	i 3 21	+ 1	4 2	S _g
Poona	z. 14.3	232	i 3 21	- 5	e 6 1	- 5	3 33	PP
Bombay	E. 14.8	236	—	—	e 6 4	-14	—	—
Quetta	z. 16.5	283	e 3 50	- 4	—	—	i 3 58	P
Kiruna	z. 55.3	335	i 9 35	- 3	—	—	—	—
Upsala	z. 55.4	325	i 9 36	- 2	—	—	—	—
Tamanrasset	z. 71.5	287	11 8	-16	—	—	—	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

888

Oct. 20d. 1h. 4m. 33s. Epicentre 56°·9N. 57°·2W.

A = +·2972, B = -·4612, C = +·8360; $\delta = -7$; $h = -8$;
D = -·841, E = -·542; G = +·453, H = -·703, K = -·549.

	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
			m.	s.		m.	s.		m.	s.		
Halifax	12·9	201	i 3	7k	0	5	23	-10	3	19	PP	7·3
Shawinigan Falls N.	14·1	229	e 3	19	-4	6	5	+3	3	30	PP	—
Ottawa	16·3	233	e 3	48a	-4	6	58	+5	3	57	PP	8·3
Kirkland Lake z.	16·4	247	i 3	48a	-5	e 6	36	-20	—	—	—	8·4
Harvard	17·1	218	e 4	2	0	e 7	34	+22	—	—	—	—
Weston	17·1	218	i 3	59k	-3	e 6	51	-21	—	—	—	—
Palisades	19·2	221	e 4	32	+4	e 8	26	+27	—	—	—	e 10·9
City College, N.Y.	19·4	221	—	—	—	e 8	13	+9	—	—	—	—
Buffalo (Larkin)	19·6	233	e 4	33	+1	—	—	—	—	—	—	—
Scoresby Sund	20·3	32	e 4	42	+2	—	—	—	—	—	—	e 10·3
Pennsylvania	21·0	229	i 4	51	+4	e 8	51	+14	—	—	—	—
Cleveland	22·0	236	i 4	59	+1	i 8	57	+1	—	—	—	—
Pittsburgh z.	22·1	232	—	—	—	e 9	57	+59	—	—	—	i 11·3
Washington	22·3	224	i 5	2	+1	—	—	—	—	—	—	—
Morgantown	22·8	231	i 5	9	+4	—	—	—	—	—	—	e 10·4
Resolute Bay	22·9	336	i 5	4k	-2	e 9	13	0	—	—	—	e 13·4
Fayetteville z.	32·3	245	i 6	33	0	i 13	32	SS	i 9	17	PcP	i 16·7
Hungry Horse	34·6	281	i 6	52	-1	—	—	—	i 9	28	PcP	—
Kiruna	35·1	40	i 6	56a	-1	—	—	—	i 7	6	?	—
Paris	35·9	75	e 7	4	0	i 7	25	?	e 7	12	?	—
Lubbock	38·2	252	e 8	55	PP	19	55	L	—	—	—	(19·9)
Jena	39·4	68	e 7	30?	-3	e 9	7	PP	e 7	43	?	—
Stuttgart	39·4	71	e 7	34	+1	—	—	—	—	—	—	—
Almeria	41·1	94	6	26	?	—	—	—	—	—	—	—
College	41·1	320	i 7	47	0	—	—	—	i 7	56	?	—
Boulder City	43·4	266	i 8	7	+1	—	—	—	—	—	—	—
Nelson	43·5	266	i 8	8	+1	—	—	—	—	—	—	—
Reno z.	43·5	274	e 8	7	0	—	—	—	—	—	—	—
Triest z.	43·8	72	e 8	17	+8	—	—	—	e 8	23	?	—
Mineral z.	43·9	276	i 8	11a	+1	—	—	—	i 8	23	?	—
Tucson	44·0	259	e 8	8	-3	—	—	—	i 8	23	?	—
Shasta	44·1	277	e 7	41a	?	—	—	—	—	—	—	—
Tinemaha z.	44·4	270	i 8	15	+1	—	—	—	—	—	—	—
Fresno z.	45·5	271	e 10	6	PP	—	—	—	—	—	—	—
Berkeley z.	46·0	274	e 8	29	+2	—	—	—	—	—	—	—
Lick z.	46·1	274	e 8	27a	-1	—	—	—	e 8	36	?	—
Riverside z.	46·2	268	i 8	29	+1	—	—	—	—	—	—	—
Mount Wilson z.	46·4	268	i 8	31	+1	—	—	—	—	—	—	—
Tamanrasset z.	56·3	100	i 9	47k	+2	—	—	—	i 10	2	?	—
Ksara	64·0	67	—	—	—	e 15	31	PcS	—	—	—	e 27·2
Quetta z.	81·3	46	—	—	—	e 24	0	PPS	i 25	36	?	—

Oct. 20d. 14h. 28m. 16s. (I) } Epicentre 20°·5N. 143°·6E.
14h. 36m. 1s. (II) }
15h. 5m. 44s. (III) } (as on 1952, April 26d.).

A = -·7545, B = +·5563, C = +·3481; $\delta = -9$; $h = +5$;
D = +·593, E = +·805; G = -·280, H = +·207, K = -·937.

	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
			m.	s.		m.	s.		m.	s.		
I Misima	15·1	345	e 3	28	-8	—	—	—	e 4	18	?	—
III	15·1	345	e 3	31	-5	—	—	—	—	—	—	—
I Tokyo	15·5	348	e 3	34	-8	e 8	6	?	—	—	—	e 7·5
III	15·5	348	e 3	48	+6	e 6	20	-15	—	—	—	e 7·4
I Miyazaki	15·7	319	3	47	+3	e 6	50	+11	—	—	—	—
III	15·7	319	i 3	47	+3	e 6	49	+10	—	—	—	9·3
I Koti	15·8	327	e 3	44	-1	—	—	—	e 7	30	Q	—
I Osaka	15·8	335	e 3	52	+7	e 6	51	+9	e 4	21	PP	—
III	15·8	335	e 4	14	+29	e 8	23	L	e 5	30	PP	(e 8·4)
I Kumagaya	16·0	347	e 3	51	+3	—	—	—	—	—	—	—
III	16·0	347	e 3	48	0	—	—	—	—	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
I Mito		16.1	351	e 3 57	+ 8	—	—	—	—
I Takamatu		16.2	330	3 49	- 1	—	—	—	—
II		16.2	330	e 3 52	+ 2	e 6 39	-12	—	—
I Maebasi		16.3	347	e 3 50	- 2	7 4	+11	—	—
III		16.3	347	e 3 50	- 2	7 0	+ 7	e 4 23	?
I Utunomiya		16.3	349	e 3 44	- 8	e 6 53	0	e 4 9	PP
II		16.3	349	—	—	e 7 0	+ 7	—	—
I Matuyama		16.4	326	e 3 44	- 9	e 7 29	?	e 6 27	?
I Oiwake		16.4	345	e 3 54	+ 1	—	—	—	—
I Matusiro		16.7	345	e 3 35	-22	e 7 30	+27	—	e 8.3
III		16.7	345	e 3 48	- 9	—	—	—	e 8.2
III Nagano	N.	16.8	345	e 4 56	+58	—	—	—	—
I Hiroshima		17.0	327	e 4 4	+ 3	e 7 15	+ 5	—	—
III		17.0	327	e 4 2	+ 1	e 7 7	- 3	—	—
I Toyama		17.1	343	e 4 8	+ 6	—	—	—	—
III		17.1	343	e 4 15	+13	—	—	—	—
I Inawasiro		17.3	353	e 4 1	- 3	—	—	—	—
III		17.3	353	e 4 5	+ 1	—	—	—	—
I Hukushima		17.4	354	e 4 9	+ 3	e 7 26	+ 7	—	—
III		17.4	354	e 4 11	+ 5	e 7 22	+ 3	—	—
I Saga		17.4	319	e 4 13	+ 7	—	—	—	—
III		17.4	319	e 4 12	+ 6	—	—	—	—
I Hukuoka	E.	17.5	320	e 4 6	- 1	—	—	—	—
III		17.5	320	e 4 7	0	e 7 16	- 5	—	—
I Hamada		17.6	327	4 9	+ 1	7 36	+13	e 8 10	SS
III		17.6	327	4 8	0	7 29	+ 6	—	e 9.1
I Mizusawa		18.7	354	e 4 22	0	7 51	+ 3	e 4 25	P
III		18.7	354	e 4 13	- 9	7 49	+ 1	e 4 23	P
III Akita		19.4	352	e 4 27	- 3	e 8 4	0	—	—
I Aomori		20.4	354	e 4 21	-20	e 8 45	+20	i 5 54	?
III		20.4	354	e 3 50	-51	i 8 25	0	e 5 26	?
I Manila		22.3	259	i 5 4 _a	+ 3	i 12 59	L	—	(i 13.0)
III		22.3	259	i 5 3	+ 2	i 13 26	L	—	(i 13.4)
III Obihiro		22.4	359	e 5 4	+ 2	—	—	—	—
I Sapporo		22.6	357	e 5 5	+ 2	e 10 8	+61	—	e 13.0
III		22.6	357	e 5 4	+ 1	e 9 21	+14	—	—
I Nanking		25.0	303	5 21 _a	- 6	i 9 50	+ 1	—	—
III		25.0	303	i 5 24	- 3	9 52	+ 3	—	—
I Shillong	E.	47.6	287	e 8 40	+ 1	—	—	—	—
III	E.	47.6	287	e 8 39	0	—	—	—	—
III Brisbane	Z.	48.6	168	i 8 51 _a	+ 4	—	—	—	—
I Chatra	Z.	51.7	289	i 9 10	- 1	—	—	—	—
III Riverview	Z.	54.5	172	i 9 37 _a	+ 5	e 17 24	+14	i 10 0	?
I New Delhi		60.3	292	—	—	e 22 16	SS	22 38	SS
III Hyderabad	E.	61.3	279	e 10 19	- 1	—	—	—	—
III College		62.6	26	i 10 24	- 4	—	—	—	—
I Bombay		66.2	282	e 10 56	+ 4	—	—	—	—
II		66.2	282	e 11 56	+64	—	—	—	—
III		66.2	282	e 10 49	- 3	e 19 42	+ 2	—	—
I Quetta	Z.	68.7	296	e 11 8	+ 1	—	—	—	—
III	Z.	68.7	296	e 11 5	- 2	—	—	—	—
I Victoria		76.9	43	11 54	- 2	—	—	—	—
III Corvallis	Z.	78.0	47	e 12 1	- 1	—	—	—	—
III Resolute Bay	Z.	78.1	14	e 11 59	- 3	—	—	—	—
I Shasta		79.8	50	e 12 15	+ 3	—	—	—	—
II	E.	79.8	50	e 12 12	0	—	—	—	—
III		79.8	50	e 12 12	0	—	—	—	—
I Mineral	Z.	80.5	50	e 12 14 _a	- 1	—	—	e 12 21	pP
II	Z.	80.5	50	e 12 14 _k	- 1	—	—	—	—
III	Z.	80.5	50	e 12 13	- 2	—	—	e 12 22	pP
I Berkeley	Z.	80.8	53	e 12 17 _a	0	—	—	i 12 24	pP
II	Z.	80.8	53	e 12 18 _k	+ 1	—	—	—	—
III	Z.	80.8	53	e 12 17	0	—	—	i 12 24	pP
I Lick	Z.	81.5	53	e 12 20 _a	- 1	—	—	i 12 26	pP
II	Z.	81.5	53	e 12 21 _k	0	—	—	—	—
III	Z.	81.5	53	e 12 10	-11	—	—	i 12 17	pP

Continued on next page.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L. m.
				m.	s.		m.	s.		m.	s.	
I Reno	z.	82.1	51	e 12	22 _a	- 2	—	—	—	e 12 30	pP	—
II	z.	82.1	51	e 12	23 _k	- 1	—	—	—	—	—	—
III	z.	82.1	51	e 12	23	- 1	—	—	—	—	—	—
I Kiruna	z.	82.7	341	i 12	23 _a	- 4	—	—	—	i 12 30	pP	—
III	z.	82.7	341	i 12	22	- 5	e 16 43	PP	—	i 12 30	pP	—
III Hungry Horse	z.	82.8	41	i 12	26	- 1	—	—	—	—	—	—
I Fresno	z.	83.1	53	e 12	28 _a	- 1	—	—	—	e 12 36	pP	—
II	z.	83.1	53	e 12	29 _k	0	—	—	—	—	—	—
III	z.	83.1	53	e 12	28	- 1	—	—	—	—	—	—
I Tinemaha	z.	84.1	53	e 12	35	+ 1	—	—	—	—	—	—
II	z.	84.1	53	e 12	34	0	—	—	—	e 12 40	pP	—
III	z.	84.1	53	e 12	34	0	—	—	—	—	—	—
III Butte	z.	84.6	42	i 12	36	0	—	—	—	—	—	—
I Mount Wilson	z.	85.3	55	e 12	39	- 1	—	—	—	—	—	—
II	z.	85.3	55	e 12	40	0	—	—	—	e 12 55	pP	—
III	z.	85.3	55	e 12	39	- 1	—	—	—	e 12 47	pP	—
I Riverside	z.	85.9	55	e 12	50	+ 7	—	—	—	—	—	—
III	z.	85.9	55	e 12	42	- 1	—	—	—	e 12 50	pP	—
III Boulder City	z.	87.1	53	i 12	48	- 1	—	—	—	i 12 56	pP	—
III Nelson	z.	87.2	53	e 12	48	- 1	—	—	—	i 12 57	pP	—
I Ksara	z.	92.6	307	e 17	14	PP	e 28 28	?	—	—	—	—
III	z.	92.6	307	e 16	58	PP	e 27 22	?	—	—	—	—
III Potsdam	z.	95.6	332	e 17	16	PP	—	—	—	—	—	e 50.3
III Collmberg	z.	96.4	331	e 17	21	PP	—	—	—	—	—	—
III Stuttgart	z.	100.0	331	e 21	16?	?	—	—	—	—	—	—
III Fayetteville	z.	101.6	45	i 13	58	+ 2	—	—	—	—	—	—
III Tamanrasset	z.	120.6	314	18	7? [-47]	—	—	—	—	e 20 18	PP	—

Oct. 20d. 18h. 19m. 18s. Epicentre 42°·6N. 140°·9E. Depth of focus 0·015.

Intensity IV at Urakawa and Attoko ; II-III at Nemuro, Kusiro, and Nakachambetu. Epicentre as adopted. Depth 120km. Macroseismic radius >300km.
Seismo. Bull. Cent. Met. Obs., Japan, 1952, Tokyo, 1953, p. 388, with macroseismic chart.

A = -·5730, B = +·4657, C = +·6744 ; $\delta = +2$; $h = -3$;
D = +·631, E = +·776 ; G = -·523, H = +·425, K = -·738.

		Δ	Az.	P.		O-C.	S.		O-C.
				m.	s.		m.	s.	
Mori	N.	0.6	206	0	24	+ 4	0	39	+ 4
Sapporo		0.6	35	e 0	22	+ 2	0	38	+ 3
Hakodate		0.8	189	e 0	29	+ 7	0	47	+ 9
Urakawa		1.5	108	e 0	22	- 7	0	45	- 5
Aomori		1.8	183	i 0	35	+ 3	1	0	+ 4
Hatinohe		2.1	167	0	36	0	1	2	- 1
Kusiro		2.6	82	e 0	41	- 1	1	11	- 3
Abashiri		2.8	60	0	45	0	1	19	0
Akita	N.	2.9	192	e 0	55	+ 9	1	26	+ 5
Morioka		2.9	176	i 0	48	+ 2	1	22	+ 1
Miyako		3.1	165	e 0	47	- 2	1	22	- 5
Mizusawa	N.	3.5	177	e 0	53	- 1	1	33	- 3
Nemuro		3.5	76	e 0	53 _k	- 1	1	31	- 5
Sendai		4.3	180	e 1	0	- 5	—	—	—
Hokusima		4.9	184	e 1	24	+11	—	—	—
Inawasio		5.1	187	e 1	18	+ 2	2	17	+ 3
Utunomiya		6.1	188	e 1	31	+ 2	—	—	—
Kiruna	z.	61.2	338	i 10	0	- 3	—	—	—
Tinemaha	z.	73.0	55	e 11	15	- 2	—	—	—
Pasadena	z.	74.9	57	e 11	25	- 3	—	—	—
Riverside	z.	75.5	57	e 11	31	- 1	—	—	—
Fayetteville	z.	87.0	41	i 12	29	- 3	—	—	—

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1952

891

Oct. 21d. 2h. 11m. 26s. Epicentre 9°·2N. 84°·2W. (as on 1952, September 11d.).

A = +·0998, B = -·9822, C = +·1589; δ = -7; h = +7;
D = -·995, E = -·101; G = +·016, H = -·158, K = -·987.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Balboa Heights		4·6	93	i 1	12	0	i 2	15	- 5*	—	—	—
Chinchina		9·5	116	i 2	30	+10	i 4	29	+19	—	—	—
Bogota		11·0	124	i 2	49	+ 7	i 5	6	+19	—	—	—
Tacubaya		17·7	307	e 4	15	+ 5	—	—	—	e 4	35	PPP
San Juan		19·8	60	i 4	34	- 1	e 8	43	SS	—	—	—
Huancayo		22·9	158	i 5	8	+ 2	e 9	27	+14	—	—	e 10·7
Fort de France		23·2	75	—	—	—	e 9	48	SS	—	—	—
Fayetteville	z.	28·3	343	i 5	52	- 5	—	—	—	—	—	—
La Paz		30·1	148	e 6	18	+ 5	12	46	SS	—	—	—
Fordham		32·8	15	—	—	—	e 11	53	- 1	—	—	e 15·5
Ottawa		36·8	9	e 7	10	- 1	—	—	—	—	—	—
Nelson		38·4	319	i 7	24	- 1	—	—	—	i 7	34	?
Boulder City		38·6	319	e 7	25	- 1	—	—	—	—	—	—
Riverside	z.	39·2	315	e 7	31	0	—	—	—	—	—	—
Pasadena	z.	39·8	315	i 7	36	0	—	—	—	—	—	—
Tinemaha	z.	41·5	318	e 7	51	+ 1	—	—	—	e 9	48	PcP
Reno	z.	43·8	320	e 8	10	+ 1	—	—	—	—	—	—
Mineral	z.	45·4	319	e 8	22	0	—	—	—	—	—	—
Shasta	z.	46·1	320	e 10	3	PcP	—	—	—	—	—	—
Hungry Horse		46·4	334	i 8	31	+ 1	—	—	—	i 10	3	PcP
Malaga		76·4	55	e 11	34	-19	—	—	—	—	—	44·6
Stuttgart		85·4	42	e 12	39	- 1	—	—	—	—	—	—
Tamanrasset	z.	86·2	68	e 12	45	+ 1	—	—	—	—	—	—
Kiruna		87·0	22	i 12	47	- 1	—	—	—	—	—	e 49·6

Oct. 21d. 2h. 30m. 47s. Epicentre 9°·2N. 84°·2W. (as at 2h. 11m.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Balboa Heights		4·6	93	i 1	13	+ 1	i 2	16	- 4*	—	—	—
Chinchina		9·5	116	i 2	23	+ 3	i 4	33	+23	i 2	29	PP
Bogota		11·0	124	i 2	45	+ 3	i 4	56	+ 9	—	—	—
Kingston		11·3	39	e 3	14	?	—	—	—	—	—	e 6·9
Merida		12·8	336	e 3	1?	- 5	—	—	—	—	—	—
Puebla		16·7	307	e 4	7?	PP	—	—	—	—	—	—
Tacubaya		17·7	307	e 4	15	+ 5	—	—	—	—	—	—
San Juan		19·8	60	i 4	35	0	e 8	33	+20	—	—	—
Huancayo		22·9	158	i 5	9	+ 3	i 9	28	+15	—	—	e 12·8
Fort de France		23·2	75	e 4	43	-26	—	—	—	—	—	—
Fayetteville	z.	28·3	343	i 5	53	- 4	—	—	—	i 6	39	PP
Lubbock		29·2	330	6	21	+16	—	—	—	—	—	—
La Paz	z.	30·1	148	5	55	-18	—	—	—	6	59	PP
Morgantown		30·5	6	i 6	19	+ 2	—	—	—	—	—	—
Palisades		33·0	15	e 6	35	- 4	—	—	—	e 7	34	PP
Tucson		33·7	318	e 6	43	- 2	—	—	—	—	—	—
Weston		34·9	16	e 7	3	+ 8	—	—	—	—	—	—
Ottawa		36·8	9	e 7	10k	- 1	—	—	—	—	—	—
Nelson		38·4	319	i 7	24	- 1	—	—	—	—	—	—
Boulder City		38·6	319	e 7	26	0	—	—	—	—	—	—
Kirkland Lake	z.	39·0	5	e 7	28	- 2	—	—	—	—	—	—
Riverside	z.	39·2	315	i 7	31	0	—	—	—	i 7	40	?
Pasadena		39·8	315	i 7	37k	+ 1	—	—	—	e 7	49	?
Tinemaha	z.	41·5	318	i 7	50	0	—	—	—	—	—	e 19·2
Fresno	z.	42·3	317	e 7	56	- 1	—	—	—	—	—	—
Reno	z.	43·8	320	e 8	9	0	—	—	—	—	—	—
Berkeley	z.	44·6	317	e 8	15	- 1	—	—	—	—	—	—
Mineral	z.	45·4	319	e 8	21	- 1	—	—	—	—	—	—
Shasta	z.	46·1	320	e 8	23	- 5	—	—	—	—	—	—
Hungry Horse		46·4	334	i 8	25	- 5	—	—	—	i 10	4	?

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Resolute Bay		65.7	357	e 11	14	PcP	e 19	38	+ 4	e 13	38	PP	e 24.2
College		70.7	336		11 17	- 3							
Scoresby Sund		72.3	18	e 11	31	+ 2							39.2
Malaga		76.4	55	i 11	55	+ 2							50.7
Granada		77.0	55	i 12	7k	PcP							
Almeria		78.0	55	12	15	PcP	22	16	ScS	15	16	PP	44.5
Paris		81.0	43	e 12	17	- 1	e 22	13?	-14	i 12	25	PcP	e 39.2
Besançon		83.4	44	e 12	37	PcP							
Stuttgart		85.4	42	e 12	39	- 1	(e 26	13?)	?				e 26.2
Tamanrasset	z.	86.2	68	i 12	45k	+ 1	e 12	54	?	i 13	24	?	
Jena	z.	86.6	40	e 12	46	0	e 12	53	?	e 13	4	?	
Kiruna		87.0	22	i 12	53	+ 5	e 23	27	0	e 26	42	?	e 47.2
Potsdam	z.	87.2	38	e 12	55	+ 6							e 43.2
Collmberg	z.	87.4	40	e 12	49	- 1							
Upsala	z.	88.0	30	i 12	53	0							

Oct. 21d. 6h. 9m. 5s. (I) ; Epicentre 9°·2N. 84°·2W.
6h. 35m. 45s. (II) ; (as at 2h. 30m.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
I Balboa Heights		4.6	93	i 1	14	+ 2	i 2	37	+ 5 _g				
II		4.6	93	i 1	13	+ 1							
II Galerazamba		8.9	79				e 4	29	+ 1*				
I Chinchina		9.5	116	i 2	27	+ 7							
II		9.5	116	i 2	23	+ 3	i 4	31	+21				
I Bogota		11.0	124	i 1	57	-45	i 4	49	+ 2				
II		11.0	124	i 2	45	+ 3	i 4	54	+ 7				
I Tacubaya		17.7	307	e 4	14	+ 4							
II		17.7	307	e 4	15	+ 5							
I San Juan		19.8	60	i 4	35	0							
II		19.8	60	e 4	33	- 2	e 8	41	SS				
I Huancayo		22.9	158	i 5	10	+ 4	e 9	29	+16				
II		22.9	158	i 5	8	+ 2	i 9	27	+14				e 13.2
II Fort de France		23.2	75	e 5	10	+ 1							
I Fayetteville	z.	28.3	343	i 5	55	- 2							
II	z.	28.3	343	i 5	55	- 2							
II Morgantown		30.5	6	i 6	23	+ 6							
II Fordham		32.8	15				e 11	57	+ 3				e 15.5
I Tucson		33.7	318	e 6	44	- 1							
II		33.7	318	e 6	43	- 2							
I Ottawa		36.8	9	i 7	10 _a	- 1							
II		36.8	9	e 7	9	- 2							
I Nelson		38.4	319	i 7	25	0				i 9	38	PcP	
II		38.4	319	i 7	24	- 1							
I Boulder City		38.6	319	i 7	26	0							
II		38.6	319	i 7	26	0							
I Riverside	z.	39.2	315	i 7	32	+ 1							
II	z.	39.2	315	i 7	31	0	e 9	40	PcP	i 7	41	?	
I Pasadena		39.8	315	i 7	37k	+ 1	e 7	47	?	e 7	54	?	
II		39.8	315	e 7	37	+ 1	e 7	45	?	e 8	8	?	
I Tinemaha	z.	41.5	318	e 7	51	+ 1							
II	z.	41.5	318	e 7	51	+ 1				e 8	8	?	
I Fresno	z.	42.3	317	e 7	57 _a	0							
II	z.	42.3	317	e 7	55	- 2							
I Reno	z.	43.8	320	e 8	9k	0							
II	z.	43.8	320	e 8	9	0							
I Berkeley	z.	44.6	317	e 8	17 _a	+ 1							
II	z.	44.6	317	e 8	15	- 1							
I Mineral	z.	45.4	319	e 8	20k	- 2							
II	z.	45.4	319	e 8	20	- 2							

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
I Shasta	z.	46.1	320	e 8 26	- 2	—	—	—	—
I Hungry Horse		46.4	334	e 8 28	- 2	—	—	i 10 5	PcP
II		46.4	334	e 8 28	- 2	—	—	i 10 5?	PcP
I College		70.7	336	11 17	- 3	—	—	—	—
I Malaga		76.4	55	i 11 55	+ 2	—	—	—	54.8
II		76.4	55	i 11 51	- 2	—	—	—	49.2
II Granada		77.0	55	i 12 45k	+49	—	—	—	—
I Stuttgart		85.4	42	e 12 39	- 1	e 15 46	PP	e 16 19	?
II		85.4	42	e 12 39	- 1	—	—	e 12 46	PcP
I Tamanrasset	z.	86.2	68	i 12 46k	+ 2	—	—	e 13 1	?
II	z.	86.2	68	e 12 45	+ 1	e 12 53	?	e 13 3	?
I Jena	E.	86.6	40	e 15 27?	?	e 15 47	?	e 16 17	PP
II	z.	86.6	40	e 12 40	- 6	e 13 7	?	e 12 45	P
II Kiruna	z.	87.0	22	i 12 54	+ 6	—	—	—	—

Oct. 22d. 4h. 14m. 55s. Epicentre 36°·7N. 27°·9E.

Intensity VI in the island of Kos ; V at Symi ; III at Samos and Patmos. Epicentre adopted from Strasbourg.

A. Galanopoulos.

Seismo. Institute Bulletin, 1952, Athens, 1953, p. 46.

A = +·7102, B = +·3761, C = +·5951 ; $\delta = -2$; $h = 0$;
D = +·468, E = -·884 ; G = +·526, H = +·278, K = -·804.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Athens		3.6	292	i 0 53k	- 5	1 48	- 3*	i 1 3	P*
Istanbul		4.5	11	e 1 9	- 2	1 58	- 7	i 1 26	P _g
Sofia		6.9	331	e 1 45	0	e 3 8	+ 3	—	e 4.0
Ksara		7.1	111	e 1 57	+ 9	—	—	—	3.6
Helwan	E.	7.4	156	e 2 3	+11	e 3 11	- 7	i 4 2	S _g
Bucharest		7.8	351	e 2 20	+ 4*	e 3 33	+ 5	e 2 32	P _g
Belgrade		9.9	328	e 2 33 _a	+ 8	e 4 54	- 4*	e 5 29	S _g S _g
Messina		9.9	282	i 2 22	- 3	e 4 11	- 9	i 2 37	?
Kalossa	E.	11.9	329	—	—	e 4 25	?	—	e 6.5
Budapest		12.6	332	e 2 35	-28	—	—	—	e 6.6
Ogyalla		13.3	330	e 3 18	+ 5	e 5 48	+ 6	e 5 19	?
Skalnate Pleso		13.7	338	e 3 24	+ 6	—	—	e 3 27	?
Triest		13.9	314	e 3 26	+ 5	e 6 6	+ 9	e 4 48	P _g P _g
Florence		14.5	304	e 3 21	- 7	e 6 15	+ 4	e 3 35	?
Raciborzu	N.	15.1	335	e 3 36	0	—	—	—	18.8
Pavia		16.5	307	—	—	e 7 20	+22	—	e 9.9
Prague		16.5	329	i 3 55	+ 1	e 7 9	+11	14 8	?
Chur		17.0	312	e 3 51 _a	-10	e 7 19	+ 9	e 4 0	?
Zürich		17.8	313	e 4 8 _a	- 3	e 7 28	0	—	e 12.7
Collmberg		18.0	328	e 4 12	- 1	e 7 41	+ 9	e 8 20	SS
Stuttgart		18.2	319	e 4 13	- 3	e 7 44	+ 7	e 4 19	?
Jena		18.4	326	e 4 16	- 2	e 7 46	+ 5	e 4 29	PP
Basle		18.5	313	e 4 13	- 6	—	—	e 5 27	PPP
Potsdam		18.8	331	i 4 24k	+ 1	i 7 56	+ 6	i 8 30	SSS
Strasbourg		18.9	318	i 4 23	- 1	e 7 55	+ 2	i 4 38	PP
Besançon		19.4	311	e 4 26	- 4	e 8 9	+ 5	14 42	PP
Algiers Univ.	z.	19.9	277	i 4 33k	- 3	e 8 11	- 4	e 4 52	PP
Clermont-Ferrand		20.7	303	i 4 41	- 3	e 8 17	-14	e 8 46	SS
Copenhagen		21.7	336	4 53	- 2	8 51	0	—	—
Witteveen	z.	21.9	325	i 5 29	+32	—	—	—	—
Paris		22.1	312	i 4 56	- 3	e 8 57	- 1	15 29	PP
Tamanrasset	z.	23.8	241	i 5 15 _a	0	e 9 36	+ 8	e 5 43	PP
Upsala		24.1	347	i 5 19	+ 1	e 9 36	+ 2	i 6 16	PPP
Kew		24.9	317	—	—	e 9 58	+11	—	e 13.1
Kiruna		31.5	355	i 6 23	- 3	e 11 43	+ 9	e 13 17	SS

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Pretoria	z.	62.1	179	i 10 28	+ 3	—	—	—	—
Kimberley	z.	65.2	182	i 10 46	+ 1	—	—	—	—
Weston		72.3	310	i 11 28 _a	- 1	—	—	—	—
College		78.7	358	i 12 5	- 1	—	—	—	—
San Juan		82.4	287	i 12 24	- 1	—	—	—	—
Hungry Horse		88.8	336	i 12 55	- 2	—	—	—	—
Fayetteville	z.	89.8	316	i 12 59	- 3	—	—	—	—

Oct. 22d. 13h. 7m. 37s. Epicentre 38°·9N. 72°·8E. (as on 1952, July 21d.).

A = +·2307, B = +·7454, C = +·6254; $\delta = -3$; $h = -1$;
D = +·955, E = -·296; G = +·185, H = +·597, K = -·780.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Dzhergetal		1.3	284	i 0 21	- 4	i 0 37	- 7	—	—
Fergana		1.7	332	e 0 31	0	i 0 51	- 3	e 0 59?	S _g
Khorog		1.7	213	i 0 29	- 2	i 0 49	- 5	—	—
Andijan		1.9	350	e 0 36	+ 2	1 10	+ 7 _g	—	—
Garm		2.0	273	i 0 32	- 3	1 0	- 2	—	—
Namangan		2.3	337	i 0 43	+ 3	—	—	—	—
Kulyab		2.6	247	i 0 45?	+ 1	1 21?	0*	—	—
Stalinabad		3.2	264	i 0 51	- 1	i 1 28	- 4	—	—
Naryn		3.5	43	e 1 3	0*	i 1 58	+ 2 _g	—	—
Tashkent		3.6	314	e 1 3	- 1*	i 1 52	+ 1*	—	—
Frunse		4.2	18	e 1 14	- 1*	2 7	- 2*	—	—
Tchimkent		4.2	326	e 1 8	+ 1	1 59	+ 2	2 11	S*
Rybach'e		4.3	34	—	—	i 2 35	+ 13 _g	—	—
Samarkand		4.6	282	1 12	0	2 3	- 4	—	—
Almata		5.3	34	e 1 30	- 3*	i 2 46	+ 5*	e 1 45	P _g
Almata II		5.6	37	e 1 32	+ 5	i 3 7?	+ 2 _g	—	—
Przhevalsk		5.6	48	e 1 32	+ 5	e 3 5	0 _g	—	—
Ili		6.0	31	e 1 37	+ 5	—	—	i 1 53	P*
Bairam-Ali		8.5	265	—	—	3 31	- 14	—	—
Ashkabad		11.4	270	—	—	4 41	- 15	—	—

Oct. 22d. 17h. 0m. 41s. Epicentre 37°·4N. 35°·8E. (as on 1945, March 20d.).

Intensity VII-IX in the villages of Kürt, Toktamis and Sirkeli; VI at Kuçuk, Burhamiye, Yılanlikale, Büyük, Mangit, Cakaldere, Altikara, and Kizildere, Kürt being totally destroyed. Epicentre 37°·1N. 35°·7E. (Strasbourg).

N. Pinar.

La Géologie du bassin d'Adana, et le Séisme du 22 octobre, 1952. Revue de la Faculté de Sciences de l'Université d'Istanbul, Séries A, Tome XVIII, Fasc. 3, 1953, pp. 231-241, with isoseismal charts.

A = +·6459, B = +·4658, C = +·6048; $\delta = -6$; $h = 0$;
D = +·585, E = -·811; G = +·491, H = +·354, K = -·796.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ksara		3.6	179	i 0 49	- 9	1 49?	+ 7	—	—
Istanbul	z.	6.4	307	e 1 38	0	e 3 33	+ 1 _g	—	3.9
Sotehi		6.8	25	e 1 44	0	—	—	—	—
Zugdidi		6.9	41	e 1 49	+ 4	i 3 16	+ 11	—	—
Leninakan		7.1	59	1 52	+ 4	—	—	—	—
Akhalkalaki		7.2	54	e 1 56	+ 7	—	—	—	—
Yalta		7.2	351	i 1 49	0	—	—	—	—
Erevan		7.3	65	i 1 56	+ 6	3 30	+ 15	—	—
Tsikhlis-Dzhivari		7.3	52	i 1 57	+ 7	—	—	—	—
Theodosia		7.6	358	e 1 57	+ 2	—	—	—	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Simferopol	7.7	351	e 1	56	0	—	—	—	—	—	—
Gori	7.9	52	2	6	+ 7	e 3	43	+13	—	—	—
Tiflis	8.2	56	i 2	7	+ 4	—	—	—	—	—	—
Helwan	8.4	207	i 1	51	-15	e 4	11	+28	2	1	P
Goris	8.5	73	i 2	10	+ 3	4	1	+16	—	—	—
Piatigorsk	8.6	38	2	13	+ 4	4	6	+18	—	—	—
Kirovobad	8.9	65	i 2	13	+ 1	—	—	—	—	—	—
Athens	9.6	277	e 2	32	PP	i 4	35	SS	i 2	42	PPP
Grozny	9.6	49	i 2	25	+ 4	—	—	—	—	—	e 5.0
Bucharest	10.1	317	e 2	34	+ 5	e 4	25	0	e 3	23	PPP
Makhach-Kala	10.5	55	i 2	39	+ 4	—	—	—	—	—	—
Shemakla	10.5	68	i 2	36	+ 1	—	—	—	—	—	—
Kishinev	10.9	334	i 2	40	0	—	—	—	—	—	—
Sofia	10.9	303	e 2	41	+ 1	—	—	—	—	—	e 6.2
Baku	11.4	71	e 2	50	+ 3	—	—	—	—	—	—
Cernauti	13.1	329	e 3	20?	+10	—	—	—	—	—	—
Belgrade	13.7	307	e 3	19	+ 1	e 6	11	SS	e 4	31	PS
Timisoara	13.7	312	e 3	27	+ 9	i 8	20	?	—	—	e 12.3
Szeged	14.6	312	e 3	22	- 8	e 5	52	-21	—	—	e 8.1
Uzhgorod	14.9	323	i 3	33	- 1	—	—	—	—	—	—
Lwow	15.0	329	i 3	37	+ 2	—	—	—	—	—	—
Kecskemet	15.2	314	e 3	38	0	—	—	—	—	—	e 8.8
Kalossa	15.5	311	e 3	49	+ 7	e 5	59	-36	e 4	41	?
Budapest	15.9	314	e 3	52	+ 5	—	—	—	e 8	54	PcP
Messina	16.0	279	e 3	44	- 4	e 6	36	-10	i 3	55	PP
Kizyl-Arvat	16.2	78	e 3	53	+ 3	—	—	—	—	—	—
Skalnate Pleso	16.3	321	e 4	3	+11	e 7	8	+15	e 4	24	PP
Ogyalla	16.6	314	e 4	3	+ 7	e 7	28	+28	e 4	27	PP
Ashkabad	17.9	81	i 4	12	0	7	30	0	—	—	—
Raciborzu	17.9	322	e 4	10	- 2	e 7	37	+ 7	e 4	28	PP
Vienna	17.9	314	e 4	12	0	e 7	37	+ 7	4	28?	PP
Rocca di Papa	18.3	291	e 4	20	+ 3	e 6	50	?	e 5	10	PP
Moscow	18.4	4	e 4	18	0	e 7	47	+ 6	—	—	—
Triest	18.4	304	e 4	16	- 2	i 7	45	+ 4	e 4	45	PP
Rome	18.5	292	e 4	17	- 2	i 7	36	- 8	e 4	31	PP
Padova	19.4	301	e 4	31	+ 1	e 7	48	-16	—	—	—
Florence	19.7	298	e 4	2	-32	e 8	19	+ 9	—	—	—
Bologna	19.8	300	e 4	33	- 2	e 8	35	+22	e 5	5	PP
Prato	19.8	298	e 4	43	+ 8	e 7	51	-22	—	—	—
Prague	19.9	317	e 4	32	- 4	e 8	27	+12	i 4	55	PP
Salo	20.6	303	e 4	33	-10	e 8	59	SS	e 4	51	PP
Bairam-Ali	20.9	81	i 4	45	- 1	—	—	—	—	—	—
Cheb	21.0	315	e 5	6	PP	e 9	3	SS	e 6	30	?
Collnberg	21.3	319	e 4	48	- 2	e 8	58	+15	e 5	12	PP
Pavia	21.4	301	e 5	36	PPP	e 9	19	SS	e 9	55	SSS
Chur	21.6	304	e 4	53	- 1	e 8	59	+10	—	—	—
Jena	21.9	317	e 4	58	+ 1	e 9	0	+ 6	e 5	33	PP
Potsdam	21.9	321	e 5	7	+10	i 9	2	+ 8	i 5	34	PP
Oropa	22.3	300	e 4	21	-40	e 7	34	?	(e 9	19)	SS
Zürich	22.3	306	e 4	58	- 3	e 8	58	- 4	e 5	9	?
Stuttgart	22.4	310	e 4	56	- 6	e 9	1	- 3	e 5	26	PP
Pulkovo	22.7	353	i 5	3	- 1	e 9	13	+ 4	—	—	e 11.8
Basle	23.0	306	e 5	5	- 2	e 7	1	?	e 6	10	PPP
Karlsruhe	23.0	311	e 5	3	- 4	e 9	25	+11	—	—	e 11.3
Strasbourg	23.2	309	e 5	8	- 1	e 9	18	0	i 5	48	PP
Besançon	24.0	304	i 5	14	- 3	15	49	PP	e 6	16	PPP
Copenhagen	24.1	327	e 5	17	- 1	9	40	+ 6	—	—	13.3
Samarkand	24.5	75	i 5	20	- 2	9	44	+ 4	—	—	—
Upsala	25.3	338	i 5	30	0	e 9	56	+ 2	i 6	11	PP
Sverdlovsk	25.5	33	i 5	31	- 1	10	3	+ 6	—	—	e 13.1

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Witteveen	z.	25.5	319	e 6 1	+29	—	—	—	—
Clermont-Ferrand		25.7	299	i 5 44	+11	i 10 18	+17	—	13.5
Stalinabad		26.0	76	i 5 34	-2	—	—	—	—
Algiers Univ.	z.	26.1	279	e 5 23	-14	e 10 6	-1	e 6 6	PP
Lunacharskoe		26.1	71	i 5 36	-1	i 10 13?	+6	—	—
Tashkent		26.1	71	i 5 35	-2	—	—	—	—
Tchimkent		26.3	69	i 5 38	-1	—	—	—	—
Obi-garm		26.7	76	i 5 42	-1	i 10 20	+3	—	—
Paris		26.7	306	e 5 51	+8	i 6 33	PPP	i 6 26	PP
Quetta		26.9	95	i 5 41	-4	e 10 27	+7	e 10 30	S
Namangan		27.9	71	i 5 53	-1	i 10 42	+5	—	—
Fergana		28.0	72	i 5 53	-2	e 10 41	+3	—	—
Khorog		28.3	77	i 5 57	0	—	—	—	—
Andijan		28.4	72	i 5 57	-1	i 10 48	+3	—	—
Alicante		28.5	284	6 4	+5	e 10 52	+6	7 10	PPP
Kew		29.0	312	—	—	e 11 31	+37	—	e 14.3
Tamanrasset	z.	29.8	250	e 6 5	-6	e 12 9	SS	e 6 51	PP
Bergen		30.0	331	—	—	e 10 0	?	—	e 15.5
Frunse		30.0	67	i 6 12	0	i 11 14	+4	—	—
Almeria		30.4	282	6 5	-11	9 49	?	9 13	PcP
Naryn		31.1	69	i 6 22	0	i 11 31	+3	—	—
Rybach'e		31.1	67	i 6 22	0	i 11 34	+6	—	—
Granada		31.2	282	i 6 31 ^a	+8	—	—	—	—
Almata		31.7	65	i 6 27	0	e 11 41	+4	—	—
Kiruna		31.7	349	i 6 25	-2	i 11 36	-1	i 12 52	PcS
Aberdeen		31.8	322	—	—	e 10 19?	?	—	—
Malaga		31.9	282	i 6 25	-4	12 47	PcS	7 25	PP
Almata II		32.0	65	e 6 30	0	—	—	—	—
Przhevalsk		32.8	66	e 6 37	0	—	—	—	—
Rathfarnham Castle		33.0	313	e 5 54?	?	—	—	—	e 20.3
Semipalatinsk		34.1	52	e 6 49	+1	—	—	—	—
New Delhi		35.6	92	e 6 59	-2	e 12 42	+4	e 13 2	PcS
Bombay		37.2	110	e 7 12	-3	i 13 1	-1	8 39	PP
Poona	z.	38.2	108	e 7 20	-3	—	—	—	—
Hyderabad	N.	42.3	106	—	—	e 14 14	-5	—	—
Chatra		44.3	88	i 7 20	-53	e 14 43	-5	—	—
Kodaikanal	K.	46.2	115	—	—	e 15 8	-7	—	—
Irkutsk		49.0	49	e 8 40	-10	—	—	—	—
Kabansk		50.4	49	e 8 57	-4	—	—	—	—
Pretoria	z.	63.2	187	i 10 25	-7	—	—	—	—
Resolute Bay	z.	63.6	347	i 10 32 ^k	-3	—	—	—	—
Kimberley	z.	66.6	191	i 10 47	-7	—	—	—	—
Halifax		70.7	311	e 11 19	-1	—	—	—	—
Grahamstown	z.	70.9	187	e 11 9	-12	—	—	—	—
Weston		76.6	313	i 10 45 ^a	-69	—	—	—	—
College		78.0	2	i 11 59	-3	—	—	—	—
San Juan		88.1	292	e 12 55	+1	—	—	—	—
Hungry Horse		90.5	340	i 13 1	-4	—	—	—	—
Fayetteville	z.	93.4	321	i 13 15	-3	—	—	—	—
Shasta	z.	99.7	343	e 13 45	-2	—	—	—	—
Boulder City		102.1	335	e 14 8	+10	—	—	—	—
Nelson		102.3	335	e 13 56	-3	—	—	—	—

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Oct. 22d. 19h. 46m. 34s. Epicentre 31°·7N. 113°·3W. (as on 1946, February 21d.).

A = -·3372, B = -·7829, C = +·5229; $\delta = +6$; $h = +1$;
D = -·918, E = +·396; G = -·207, H = -·480, K = -·852.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.
Tucson		2·2	75	e 0 41	+ 3	i 0 50	P _g	—
Big Bear	z.	3·9	311	e 1 1	- 1	i 2 18	+ 9 _g	—
Riverside		4·1	305	i 1 3	- 2	i 2 19	+ 3 _g	—
Nelson		4·2	343	i 1 2	- 5	—	—	—
Boulder City		4·5	342	i 1 7	- 4	—	—	—
Pasadena		4·8	302	i 1 12	- 3	i 2 12	0	—
Haiwee		5·9	320	e 1 34	+ 3	e 3 17	+ 2 _g	—
Fresno	z.	7·3	315	e 1 52	+ 2	—	—	—
Santa Clara	E.	9·1	311	e 4 45	S	(e 4 45)	+11*	—
Reno	z.	9·4	328	e 2 17	- 1	—	—	—
Berkeley	z.	9·6	312	—	—	e 5 23	+ 6 _g	—
Lubbock		9·8	76	2 32	+ 8	—	—	—
Mineral	z.	10·9	325	e 2 44	+ 4	—	—	—
Shasta		11·6	323	e 2 46	- 4	—	—	—
Butte		14·3	2	e 3 33	+ 7	—	—	—
Fayetteville	z.	16·5	69	i 3 58	+ 4	—	—	e 9·0
Hungry Horse		16·6	358	e 3 59	+ 3	—	—	e 8·9
Tacubaya		17·6	131	e 4 18	+10	—	—	e 10·1
Victoria		18·5	339	4 16	- 3	—	—	—
Ottawa		32·1	54	e 6 36	+ 5	—	—	17·6
Weston		34·8	60	i 6 59 _a	+ 5	—	—	—
College		39·4	338	e 7 32	- 1	—	—	—
San Juan		44·4	96	i 8 18	+ 4	—	—	—

Oct. 22d. 21h. 8m. 48s. Epicentre 37°·3N. 69°·8E. (as on 1952, August 13d.).

A = +·2754, B = +·7484, C = +·6034; $\delta = +4$; $h = -1$;
D = +·938, E = -·345; G = +·208, H = +·566, K = -·797.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Kulyab		0·6	359	0 8	- 4 _g	—	—
Khorog		1·4	83	i 0 33	+ 6	0 53	+ 7
Obi-garm		1·4	356	i 0 24	- 3	e 0 38	- 8
Stalinabad		1·5	327	i 0 26	- 2	i 0 42	- 7
Garm		1·7	13	0 29	- 2	0 50	- 4
Dzhergetal		2·2	30	0 38	0	1 4	- 2
Samarkand		3·2	317	0 52	0	1 32	0
Fergana		3·4	26	e 0 55	0	i 1 38	+ 1
Andijan		4·0	29	e 1 2	- 2	e 1 59	- 4*
Lunacharskoe		4·0	355	—	—	e 2 3	0*
Namangan		4·0	22	i 1 15	+ 4*	e 1 58	- 5*
Tchimkent		5·0	358	—	—	i 2 34	+ 2*
Naryn		6·3	47	—	—	i 3 7	- 4*

Oct. 24d. 22h. 55m. 8s. Epicentre 36°·9N. 70°·8E. Depth of focus 0·025. (as on 6d.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Khorog		0·9	48	i 0 28	0	i 0 52	+ 1
Kulyab		1·3	321	—	—	i 0 59	+ 3
Obi-garm		2·2	335	i 0 39	- 2	i 1 10	- 2
Dzhergetal		2·3	8	i 0 42	0	i 1 16	+ 2
Stalinabad		2·3	316	0 41	- 1	1 15	+ 1
Fergana		3·6	12	e 0 56	- 1	i 1 41	0
Andijan		4·0	17	e 1 2	0	i 1 51	+ 1
Samarkand		4·1	314	1 4	+ 1	e 1 49	- 4
Tashkent		4·6	346	—	—	e 2 4	0
Tchimkent		5·5	351	e 1 20	- 2	i 2 24	- 1
Naryn		6·1	40	—	—	e 2 40	+ 1
Rybach'e		6·9	35	—	—	e 2 57	0

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Oct. 25d. 3h. 16m. 34s. Epicentre 42°·7N. 145°·5E. Focus at Base of Superficial Layers. (as on 1952, July 24d.).

Intensity V at Attoho and Kawayu; IV at Kusiro and Shibeta; II-III at Urakawa, Nemuro, and Tanai. Epicentre 43°·0N. 145°·4E. Macro seismic radius 200-300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 389, with macro seismic chart.

$$A = -.6075, B = +.4176, C = +.6757; \delta = +2; h = -3;$$

$$D = +.566, E = +.824; G = -.557, H = +.383, K = -.737.$$

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
			m.	s.		m.	s.		m.	s.
Nemuro	0·6	6	i 0	14k	+ 2	0	22	+ 1	—	—
Kusiro	0·9	289	i 0	18k	+ 2	0	28	+ 0	—	—
Abashiri	1·6	327	i 0	28k	+ 2	0	40	- 6	—	—
Obihiro	1·7	285	e 0	34	+ 6	0	58	+ 9	—	—
Urakawa	2·1	255	e 0	37	+ 4	1	5	+ 6	—	—
Sapporo	3·1	278	i 0	51a	+ 3	1	27	+ 3	—	—
Hakodate	3·7	257	e 1	0	+ 4	1	40	+ 1	—	—
Hatinohe	3·7	235	e 0	59	+ 3	1	37	- 2	—	—
Mori	N.	3·7	e 1	0	+ 4	1	42	+ 3	—	—
Aomori	4·0	243	1	5	+ 5	1	48	+ 1	—	—
Miyako	4·1	222	1	2	0	1	47	- 2	—	—
Morioka	4·4	229	e 1	9	+ 3	1	56	- 1	—	—
Mizusawa	E.	4·9	1	15	+ 2	2	7	- 3	—	—
Sendai	5·6	220	e 1	33	+10	2	29	+ 2	—	—
Hukusima	6·3	219	e 1	38	+ 5	2	44	- 1	—	—
Inawasiro	6·6	220	e 1	38	+ 1	—	—	—	—	—
Onahama	6·7	213	e 1	56	+17	2	52	- 3	—	—
Mito	7·4	213	e 2	3	+15	3	10	- 2	—	—
Utunomiya	7·5	217	e 2	6	+16	3	12	- 3	—	—
Kumagaya	8·1	218	e 2	5	+ 7	3	26	- 4	—	—
Nagano	N.	8·2	e 2	7	+ 7	—	—	—	—	—
Matusiro	8·3	225	e 3	44	S	(e 3	44)	+ 9	5	26
Oiwake	8·3	222	e 2	11	+10	—	—	—	—	—
Misima	E.	9·1	e 2	34	+22	3	52	- 2	—	—
College	42·6	35	i 7	54	- 1	—	—	—	—	—
Resolute Bay	Z.	56·3	16	i 9	36k	- 4	—	—	—	—
Kiruna	Z.	62·3	340	i 10	20a	- 1	—	—	i 10	31
Shasta	Z.	65·3	56	e 10	42a	+ 1	—	—	e 10	53
Hungry Horse	Z.	65·6	46	i 10	43	0	—	—	—	—
Mineral	Z.	66·0	56	i 10	47	+ 2	—	—	—	—
Reno	Z.	67·6	56	e 10	57	+ 2	—	—	—	—
Upsala	Z.	69·2	334	i 11	4	- 1	—	—	i 11	15
China Lake	Z.	71·2	57	e 11	20	+ 2	—	—	e 11	30
Mount Wilson	Z.	72·0	59	e 11	24	+ 2	—	—	e 11	34
Riverside	Z.	72·5	59	e 11	26	+ 1	—	—	—	—
Boulder City		72·9	56	e 11	29	+ 1	—	—	—	—
Nelson		73·0	56	i 11	13	-15	—	—	—	—
Collmberg	Z.	77·7	331	e 11	55	0	—	—	e 12	6
Tucson		77·8	57	e 11	58	+ 2	—	—	—	—
Jena	Z.	78·5	331	e 11	59	0	—	—	e 12	9
Stuttgart		81·3	332	e 12	13	- 1	—	—	—	—
Fayetteville	Z.	84·6	44	i 12	32	+ 1	—	—	—	—
Ottawa		84·9	28	e 12	44k	pP	—	—	—	—
Morgantown		88·3	34	e 13	4	pP	—	—	—	—

Oct. 25d. 14h. 31m. 17s. Epicentre 26°·5N. 112°·0W. (as on 8d.).

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
			m.	s.		m.	s.		m.	s.	
Tucson	5·8	10	e 1	28	- 1	i 2	47	+ 9	—	—	i 3·0
Riverside	8·8	330	i 2	8	- 3	—	—	—	—	—	—
Pasadena	9·3	327	i 2	14	- 3	(i 3	59)	- 6	—	—	i 4·0
Nelson	9·5	346	i 2	18	- 2	—	—	—	—	—	—
Boulder City	9·7	346	i 2	22	0	—	—	—	—	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Guadalajara		9.8	124	—	—	e 5 22	- 2 _g	—	e 5.6
China Lake	z.	10.5	334	i 2 31	- 4	—	—	i 2 35	P e 5.2
Tinemaha	z.	11.8	335	i 2 32	- 21	—	—	i 2 36	?
Fresno	z.	12.2	329	e 2 55k	- 3	—	—	—	—
Lick	z.	13.6	325	e 3 13k	- 4	—	—	i 3 18	P
Santa Clara	E.	13.7	324	e 3 20	+ 2	—	—	—	e 6.5
Tacubaya		13.7	118	e 3 29	PP	—	—	e 8 29	PcP e 6.6
Berkeley		14.3	325	i 3 23k	- 3	e 6 13	+ 7	i 3 34	PP e 6.6
Reno	z.	14.5	335	e 3 30a	+ 2	—	—	—	—
Puebla		14.8	117	—	—	e 6 52	SSS	—	e 7.0
Vera Cruz		16.3	113	e 3 53	+ 1	e 6 55	+ 2	—	e 8.4
Shasta		16.6	331	e 3 55a	- 1	—	—	e 4 0	P
Fayetteville	z.	18.0	53	i 4 11	- 2	e 7 40	+ 8	—	e 9.5
Butte		19.5	359	e 4 33	+ 2	e 8 7	+ 1	—	—
Mobile		21.3	71	e 4 52	+ 2	—	—	i 5 13	PP
Hungry Horse		21.9	356	i 4 53	- 4	—	—	i 4 57	P
Seattle		22.6	342	i 5 7k	+ 4	—	—	e 6 0	? e 12.4
Victoria		23.7	340	5 10	- 4	—	—	—	—
Chicago		25.2	44	—	—	e 10 5	+ 13	—	e 12.6
Cleveland		29.2	50	i 6 7a	+ 2	e 12 32	SS	—	—
Morgantown		29.7	55	i 6 13	+ 3	e 15 39	L	—	(e 15.6)
Buffalo (Larkin)		31.7	49	e 6 27	0	e 16 35	L	—	(e 16.6)
Washington		31.7	56	—	—	e 16 50	ScS	—	e 20.2
Kirkland Lake	z.	33.0	40	e 6 37	- 2	e 17 18	ScS	—	e 20.4
City College, N.Y.		34.5	54	—	—	e 12 11	- 9	—	e 17.5
Fordham		34.5	54	—	—	e 14 22	SS	—	e 18.3
Ottawa		34.5	46	e 6 49a	- 3	12 33	+ 13	8 16	PP 16.8
Harvard		36.6	53	i 7 7a	- 3	—	—	—	e 17.6
Bermuda		41.4	69	—	—	e 16 52	SS	—	e 21.2
San Juan		43.0	89	i 7 59	- 4	—	—	i 8 4	P
College		44.6	339	i 8 11	- 5	—	—	—	—
Resolute Bay		49.0	6	i 8 49a	- 1	e 14 16	PcS	e 10 44	PP i 22.8
Kiruna	z.	79.6	16	i 12 12	+ 2	—	—	—	—
Upsala	z.	84.6	23	i 12 38	+ 2	—	—	—	—
Witteveen	z.	84.7	32	i 12 41	+ 4	—	—	—	—
Jena	z.	88.3	31	e 12 56	+ 1	—	—	—	—
Stuttgart		88.5	35	e 12 56	0	—	—	—	—
Tamanrasset	z.	102.2	57	e 17 31	?	—	—	—	—

Oct. 25d. 18h. 8m. 53s. Epicentre 26°·5N. 112°·0W. (as at 14h.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Tucson		5.8	10	i 1 29	0	—	—	—	—
Riverside		8.8	330	i 2 10a	- 1	i 4 24	- 1*	—	—
Pasadena	N.	9.3	327	i 2 16	- 1	i 4 33	- 7*	—	—
Nelson		9.5	346	i 2 22	+ 2	—	—	i 2 55	P*
Boulder City		9.7	346	i 2 26	+ 4	—	—	—	—
China Lake	z.	10.5	334	e 2 34	- 1	—	—	—	—
Lubbock		11.3	49	2 47	+ 1	6 1	L	—	(6.0)
Tinemaha	z.	11.8	335	i 2 54	+ 1	—	—	—	—
Fresno	z.	12.2	329	e 2 57	- 1	—	—	—	—
Lick	z.	13.6	325	e 3 8	- 9	—	—	e 3 12	P
Berkeley	z.	14.3	325	e 3 27	+ 1	—	—	i 3 32	P
Reno	z.	14.5	335	e 3 33	+ 5	—	—	—	—
Mineral	z.	16.0	332	e 3 48	0	—	—	—	—
Shasta	z.	16.6	331	e 3 56	0	—	—	—	—
Fayetteville	z.	18.0	53	i 4 14	+ 1	—	—	—	e 9.8
Hungry Horse		21.9	356	i 4 57	0	—	—	—	—
Ottawa		34.5	46	i 6 52k	0	—	—	—	—
Harvard		36.6	53	i 7 9k	- 1	—	—	—	—

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1952

900

Oct. 26d. 1h. 37m. 22s. Epicentre 38°·4N. 71°·6E.

Suggested by U.S.S.R.

A = +·2480, B = +·7455, C = +·6186; $\delta = -6$; $h = -3$;
D = +·949, E = -·316; G = +·195, H = +·587, K = -·786.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m.	s.
Khorog	0·9	180	i 0 17	- 1 _g	0 30	0 _g	—	—
Garm	1·2	301	i 0 20	- 4	i 0 43	+ 2	—	—
Kulyab	1·5	251	i 0 30	0 _g	—	—	—	—
Obi-garm	1·5	281	i 0 27	- 1	—	—	—	—
Fergana	2·0	4	i 0 33	- 2	e 0 58	- 4	—	—
Stalinabad	2·2	274	i 0 40	0*	i 1 10	+ 1*	—	—
Andijan	2·4	14	i 0 42	+ 1	i 1 16	+ 1*	—	—
Namangan	2·6	1	i 0 47	0*	i 1 20?	- 1*	—	—
Lunacharskoe	3·4	330	e 0 56	+ 1	i 1 46	+ 1*	—	—
Tashkent	3·4	330	e 0 57	+ 2	e 1 45	0*	—	—
Samarkand	3·8	291	i 1 0	- 1	—	—	—	—
Tchimkent	4·2	339	i 1 8	+ 1	2 10	+ 1*	—	—
Naryn	4·5	47	e 1 15	+ 4	i 2 8	+ 3	i 1 28	P _g
Frunse	5·0	26	e 1 20	+ 2	i 2 23	+ 5	e 1 31	P*
Rybach'e	5·3	39	1 38	+ 5*	—	—	—	—
Almata	6·3	38	e 1 40	+ 4	i 3 15	+ 4*	—	—
Almata II	6·5	40	e 1 43	+ 4	—	—	—	—
Przhevsk	6·6	50	1 42	+ 1	—	—	—	—
Ili	6·9	35	e 1 44	- 1	i 3 36	+ 7*	—	—
Bairam-Ali	7·5	267	e 1 49	- 4	i 3 15	- 5	—	—
Kiruna	z. 10·6	333	i 7 39k	- 4	—	—	—	—

Oct. 26d. 5h. 31m. 57s. Epicentre 39°·3N. 143°·7E. (as on 1952, March 22d.).

Intensity IV at Shizukuishi; II-III at Wakayamagi and Kesennuma. Epicentre 39°·5N. 143°·1E. Macro seismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 390, with macro seismic chart.

A = -·6254, B = +·4594, C = +·6308; $\delta = +8$; $h = -1$;
D = +·592, E = +·806; G = -·508, H = +·373, K = -·776.

	Δ	Az.	P.	O-C.	S.	O-C.		
	°	°	m. s.	s.	m. s.	s.		
Miyako	1·4	284	0 24	- 3	0 41	- 5		
Mizusawa	E. 2·0	265	0 34	- 1	1 15	+ 9 _g		
	N. 2·0	265	0 38	+ 1*	1 15	+ 9 _g		
Morioka	2·0	282	i 0 34 _a	- 1	0 57	- 5		
Hatinohe	2·1	307	e 0 39	0*	—	—		
Isinomaki	2·1	246	e 0 41	- 1 _g	—	—		
Sendai	2·4	245	e 0 40	- 1	1 7	- 5		
Aomori	2·7	304	e 0 53	- 1 _g	1 21	+ 2		
Akita	2·8	279	e 0 57	+ 1 _g	1 23	+ 1		
Urakawa	2·9	347	e 1 8	+ 10 _g	—	—		
Hokusima	3·0	239	e 0 50	0	1 20	- 7		
Onahama	3·2	223	e 1 30	S	(e 1 30)	- 2		
Inawasiro	3·3	240	e 0 41	- 12	—	—		
Hakodate	3·4	319	e 1 10	+ 2 _g	—	—		
Shirakawa	3·5	233	e 1 6	+ 3*	1 45	- 3*		
Mori	N. 3·7	321	e 1 6	0*	—	—		
Maebasi	z. 4·7	233	e 1 14	0	2 14	+ 4		
Nagano	N. 5·1	241	e 1 22	+ 2	—	—		
Kohu	5·5	230	e 1 29	+ 4	2 25	- 5		
Misima	E. 5·6	224	e 1 44	+ 5*	—	—		

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Oct. 26d. 6h. 52m. 41s. Epicentre 39°·7N. 143°·9E. Focus at Base of Superficial Layers. (as on 1947, November 30d.).

Intensity IV at Sawauchi; II-III at Kesenuma. Epicentre 39°·8N. 144°·0E. Depth 40km. Macroseismic radius 200-300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 390, with macroseismic chart.

$$A = -0.6234, B = +0.4546, C = +0.6362; \quad \delta = +4; \quad h = 0; \\ D = +0.589, E = +0.808; \quad G = -0.514, H = +0.375, K = -0.772.$$

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Miyako		1.5	267	i 0 24 _a	0	0 41	- 3
Hatinohe		2.0	295	0 33	+ 1	0 57	+ 1
Morioka		2.1	270	e 0 27	- 6	0 59	0
Mizusawa		2.2	251	e 0 32	- 3	0 57	- 4
Isinomaki		2.4	236	e 0 35	- 3	0 56	-10
Aomori		2.6	295	0 41	0	1 21	+10
Urakawa		2.6	341	e 0 49	+ 8	—	—
Sendai		2.8	239	0 41	- 2	1 7	- 9
Akita		2.9	270	e 0 52	+ 7	1 20	+ 1
Yamagata		3.1	243	e 0 44	- 4	1 15	- 9
Hakodate		3.2	310	e 0 59	+10	—	—
Hokusima		3.3	235	e 0 48	- 3	1 28	- 1
Inawasiro		3.6	236	e 0 49	- 6	—	—
Onahama		3.6	222	e 0 56	+ 1	1 34	- 3
Sapporo		3.9	331	e 1 11	+12	1 57	+13
Shirakawa		3.9	230	e 0 52	- 7	1 33	-11
Mito	Z.	4.3	219	e 1 1	- 4	—	—
Utunomiya	E.	4.5	226	e 1 6	- 2	2 9	+ 9
Tukubasan		4.6	223	e 0 54	-15	1 51	-11
Aikawa		4.7	252	e 1 17	+ 7	2 13	+ 8
Maebasi		5.0	231	i 1 13 _k	- 2	2 22	+10
Kumagaya		5.0	227	e 1 15	0	2 18	+ 6
Tokyo		5.2	221	e 1 6	-12	2 8	- 9
Titibu		5.3	227	e 1 18	- 1	2 24	+ 4
Oiwake		5.4	233	e 1 9	-11	—	—
Hunatu	E.	5.8	226	e 1 23	- 3	2 27	- 5
Matumoto	F.	5.8	236	e 1 24	- 2	—	—
Misima	N.	6.0	222	e 1 39	+10	2 46	+ 9
Toyama	Z.	6.1	242	e 1 36	+ 6	2 49	+ 9
Nagoya		7.1	233	e 1 52	+ 8	—	—
Gihu	E.	7.1	235	e 1 49	+ 5	3 9	+ 4

Oct. 26d. 7h. 33m. 57s. Epicentre 39°·7N. 143°·9E. Focus at Base of Superficial Layers. (as at 6h.).

Intensity IV at Matsukura and Shibutami; II-III at Miyako, Morioka, Aomori, and Yabukawa. Epicentre 39°·6N. 144°·2E. Depth 40km. Macroseismic radius greater than 300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 391, with macroseismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Miyako		1.5	267	i 0 23 _a	- 1	0 40	- 4	—	—
Hatinohe		2.0	295	0 31 _a	- 1	0 55	- 1	—	—
Morioka		2.1	270	i 0 32 _a	- 1	0 56	- 3	—	—
Mizusawa	E.	2.2	251	0 33	- 2	0 56	- 5	—	—
Isinomaki		2.4	236	e 0 33	- 5	0 54	-12	—	—
Aomori		2.6	295	0 44	+ 3	1 22	+11	—	—
Urakawa		2.6	341	e 0 51	+10	—	—	—	—
Sendai		2.8	239	i 0 39 _a	- 4	1 6	-10	—	—
Akita	Z.	2.9	270	e 0 47	+ 2	1 18	- 1	—	—
Yamagata		3.1	243	e 0 37	-11	1 5	-19	—	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Sakata		3.3	257	e 0	58	+ 7	—	—	—	—	—	—
Obihiro		3.3	351	e 1	7	+16	1	49	+20	—	—	—
Hukusima		3.3	235	0	47 ^a	- 4	1	26	- 3	—	—	—
Mori	N.	3.5	315	e 1	7	+14	1	45	+11	—	—	—
Inawasiro		3.6	236	e 0	59	+ 4	1	31	- 6	—	—	—
Onahama		3.6	222	e 0	58	+ 3	1	33	- 4	—	—	—
Sapporo		3.9	331	e 1	9	+10	1	57	+13	—	—	—
Shirakawa		3.9	230	e 0	54	- 5	—	—	—	—	—	—
Asahigawa	E.	4.2	345	e 0	38	-25	1	25	-27	—	—	—
Mito	Z.	4.3	219	e 1	2	- 3	—	—	—	—	—	—
Utunomiya		4.5	226	e 1	5	- 3	2	4	+ 4	—	—	—
Tukubasan		4.6	223	e 1	5	- 4	1	48	-14	—	—	—
Maebasi		5.0	231	i 1	13 ^k	- 2	2	4	- 8	—	—	—
Kumagaya		5.0	227	e 1	17	+ 2	2	21	+ 9	—	—	—
Tokyo		5.2	221	e 1	20	+ 2	2	23	+ 6	—	—	—
Titibu		5.3	227	e 1	18	- 2	2	15	- 5	—	—	—
Nagano	N.	5.4	239	e 1	19	- 1	2	31	+ 9	—	—	—
Yokohama		5.4	220	1	23	+ 3	2	27	+ 5	—	—	—
Oiwake		5.4	233	e 1	17	- 3	—	—	—	—	—	—
Matusiro	N.	5.5	237	e 1	18	- 4	2	18	- 7	—	—	—
Hunatu	N.	5.8	226	e 1	25	- 1	2	27	- 5	—	—	—
Mera		5.8	216	e 1	25	- 1	—	—	—	—	—	—
Matumoto	E.	5.8	236	e 1	24	- 2	2	36	+ 4	—	—	—
Kohu		5.9	228	1	26 ^k	- 1	—	—	—	—	—	—
Ajiro		6.0	221	e 1	48	+19	2	58	+21	—	—	—
Osima		6.1	218	e 1	26	- 4	2	28	-12	—	—	—
Toyama	Z.	6.1	242	e 1	27	- 3	2	39	- 1	—	—	—
Takayama		6.3	238	e 1	28	- 5	—	—	—	—	—	—
Nagoya		7.1	233	e 1	55	+11	3	5	0	—	—	—
Gihu	E.	7.1	235	e 1	43	- 1	2	55	-10	—	—	—
Tsuruga		7.4	240	e 1	43	- 5	—	—	—	—	—	—
Ibukisan	N.	7.4	237	e 1	49	+ 1	—	—	—	—	—	—
Hikone		7.5	236	e 1	52	+ 2	3	32	+17	—	—	—
Kameyama		7.6	233	e 2	14	+23	3	44	+27	—	—	—
Tu		7.7	232	e 1	59	+ 6	—	—	—	—	—	—
Kyoto		8.0	237	e 2	5	+ 8	3	36	+ 9	—	—	—
Osaka		8.4	236	e 2	40	+38	4	8	+31	—	—	—
Resolute Bay		59.5	15	e 10	18	pP	—	—	—	—	—	—
Kiruna	Z.	64.7	339	i 10	40	+ 3	—	—	—	—	—	—
Shasta	Z.	68.0	55	e 10	45	-13	—	—	—	—	—	—
Mineral	Z.	68.7	54	e 11	19	pP	—	—	—	—	—	—
Lick	Z.	70.3	57	e 11	19	+ 7	—	—	—	—	—	—
Reno	Z.	70.3	54	e 11	17	+ 5	—	—	—	—	—	—
China Lake	Z.	73.9	56	e 11	31	- 2	—	—	—	—	—	—
Mount Wilson	Z.	74.5	58	e 11	45	+ 8	—	—	—	e 11 59	pP	—
Bergen		74.6	340	—	—	—	e 26 24	SS	(e 29 7)	SSS	e 29.1	—
Jena	Z.	80.6	331	e 12	13	+ 2	—	—	e 12 49	?	—	—
Stuttgart		83.2	332	e 12	28 [?]	+ 4	—	—	—	—	—	—
Fayetteville	Z.	87.6	43	e 12	53	+ 7	—	—	—	—	—	—
Tamanrasset	Z.	106.7	320	e 18	38	PP	—	—	—	—	—	—

Oct. 26d. 8h. 23m. 19s. Epicentre 29°4N. 67°9E.

A = +.3283, B = +.8085, C = +.4884; $\delta = -1$; $h = +2$;
D = +.927, E = -.376; G = +.184, H = +.453, K = -.873.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Quetta	Z.	1.1	317	i 0	25	+ 3	—	—	—	—	—	—
New Delhi		8.2	94	e 2	3	0	i 3	39	+ 1	4	8	S*
Bombay		11.4	156	e 2	47	0	e 5	34	SSS	—	—	e 6.1
Poona		12.1	152	i 2	55	- 2	i 5	15	+ 1	e 3	8	PP
Hyderabad	E.	15.3	139	e 3	40	+ 1	—	—	—	—	—	e 7.5

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Chatra		17.2	92	i 4 3	0	i 7 16	+ 2	4 17	PP	8.1
Calcutta	N.	19.6	104	—	—	e 8 28	SS	i 10 2	Q	i 10.6
Madras	E.	19.9	140	e 4 36	0	i 8 29	+14	4 59	PP	9.9
Kodaikanal	E.	21.1	152	—	—	e 8 47	+ 8	—	—	—
Colombo	E.	25.1	150	5 31	+ 3	—	—	—	—	e 14.0
Ksara		27.6	286	e 6 39	PP	—	—	—	—	—
Raciborzu	Z.	42.5	313	7 59	0	e 9 41	PP	e 10 16	PPP	—
Messina	Z.	43.9	296	e 8 9	- 1	e 8 38	?	e 9 53	PP	—
Triest	Z.	45.0	307	e 8 18	- 1	—	—	e 8 39	?	—
Upsala	Z.	45.3	326	i 8 22 _a	+ 1	i 8 36	?	i 10 7	PP	—
Collmberg		46.0	314	e 8 27	0	—	—	e 8 43	?	—
Potsdam	Z.	46.1	316	e 8 29	+ 1	—	—	—	—	—
Jena		46.8	314	i 8 34	+ 1	—	—	e 8 48	?	—
Copenhagen		46.9	320	e 8 35	+ 1	—	—	—	—	—
Kiruna	Z.	47.5	337	i 8 39 _a	+ 1	—	—	—	—	—
Stuttgart		48.2	311	i 8 45 _a	+ 1	—	—	e 8 49	?	—
Zürich		48.6	309	i 8 46 _a	- 1	—	—	—	—	—
Karlsruhe	Z.	48.8	311	e 8 49	0	e 8 54	?	e 10 12	PcP	—
Strasbourg		49.2	311	i 8 52	0	e 10 17	PcP	e 10 31	PP	—
Basle		49.3	309	e 8 51 _a	- 2	e 19 20	SS	—	—	—
Besançon		50.4	308	i 9 1	0	e 9 6	?	e 9 30	?	—
Clermont-Ferrand		52.5	306	e 9 17	0	—	—	—	—	—
Paris		52.7	310	i 9 19	+ 1	—	—	—	—	—
Tamanrasset	Z.	55.8	279	i 9 41 _k	0	i 9 51	?	e 11 44	PP	—
Malaga		59.8	298	i 10 9	0	e 18 24	+ 4	—	—	—
Pretoria	Z.	66.8	218	i 10 56	0	—	—	—	—	—
Kimberley	Z.	71.0	218	e 11 21	- 1	—	—	i 11 25	P	—
College		82.0	14	12 24	+ 1	—	—	—	—	—
Hungry Horse		102.6	0	e 17 50	PP	—	—	—	—	—
Mineral	Z.	110.0	7	e 18 59	PP	—	—	—	—	—
Reno	Z.	111.0	5	e 19 14	PP	—	—	—	—	—
Fayetteville	Z.	113.3	343	e 18 42	[+ 2]	—	—	—	—	—
China Lake	Z.	114.9	3	e 19 32	PP	—	—	—	—	—
Nelson		115.2	1	e 19 5	[+ 22]	—	—	—	—	—
Mount Wilson	Z.	116.5	4	e 19 46	PP	—	—	—	—	—
Tucson		118.7	357	e 19 56	PP	—	—	—	—	—

Oct. 26d. 8h. 41m. 4s. Epicentre 34°·3N. 137°·5E. Depth of focus 0.040.

Intensity V at Yokohama, Utunomiya, Mito, Tukubasan, Tomioka, Kawamata, Namie, Shimozuma, Kasama, Kannomineyama, Hokota, Tateno, Tuchiura, Takahagi, and Sasakawa. Epicentre 34°·1N. 137°·8E. Depth 280-290km. Macroseismic radius greater than 300km.

Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 392, with macroseismic chart.

$$A = -0.6104, B = +0.5593, C = +0.5609; \quad \delta = +1; \quad h = 0;$$

$$D = +0.676, E = +0.737; \quad G = -0.414, H = +0.379, K = -0.828.$$

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Hamamatu		0.5	23	i 0 41	+ 4	1 11	+ 5	—	—
Omaesaki		0.7	63	i 0 42	+ 4	1 13	+ 5	—	—
Tu		0.9	298	i 0 42 _a	+ 3	1 14	+ 5	—	—
Kameyama		1.0	303	i 0 43 _a	+ 4	1 14	+ 4	—	—
Nagoya		1.0	333	i 0 43	+ 4	1 16	+ 6	—	—
Shizuoka		1.0	48	i 0 44 _k	+ 5	1 17	+ 7	—	—
Owase		1.1	258	i 0 43 _a	+ 3	1 16	+ 5	—	—
Iida		1.2	13	i 0 42	+ 2	1 13	+ 1	—	—
Nagatsuro	Z.	1.2	75	i 0 40	0	1 13	+ 1	—	—
Gihu		1.3	329	i 0 44 _a	+ 3	1 16	+ 3	—	—
Ibukisan	N.	1.4	320	i 0 42	0	1 21	+ 7	—	—
Misima		1.4	56	i 0 44 _k	+ 2	1 17	+ 3	—	—
Hikone		1.4	313	i 0 47 _a	+ 5	1 20	+ 6	—	—
Ajiro		1.5	60	i 0 45 _k	+ 3	1 19	+ 4	—	—
Hunatu		1.6	41	i 0 46	+ 3	1 20	+ 4	—	—

Continued on next page.

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		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.
				m.	s.		m.	s.		m.	s.	
Kohu		1.6	34	i 0	45 _a	+ 2	1	17	+ 1	—	—	—
Kyoto		1.6	296	i 0	48 _a	+ 5	1	21	+ 5	—	—	—
Osima		1.6	73	i 0	46	+ 3	1	18	+ 2	—	—	—
Osaka	z.	1.7	282	i 0	48 _a	+ 4	1	25	+ 7	—	—	—
Siomisaki		1.7	239	0	49 _a	+ 5	1	22	+ 4	—	—	—
Tsuruga		1.8	319	i 0	47 _a	+ 3	1	23	+ 4	—	—	—
Wakayama		1.9	268	e 0	54 _k	+ 9	1	33	+13	—	—	—
Takayama		1.9	354	i 0	48 _a	+ 3	1	22	+ 2	—	—	—
Mera		2.0	72	i 0	47	+ 1	1	22	0	—	—	—
Matumoto	n.	2.0	11	i 0	48 _a	+ 2	1	24	+ 2	—	—	—
Kobe		2.0	281	i 0	50 _k	+ 4	1	28	+ 6	—	—	—
Hukui	n.	2.0	330	i 0	50 _a	+ 4	1	27	+ 5	—	—	—
Titibu		2.1	38	i 0	49	+ 2	1	25	+ 2	—	—	—
Sumoto		2.2	271	i 0	51	+ 3	1	30	+ 5	—	—	—
Oiwake		2.2	23	i 0	50 _a	+ 2	1	27	+ 2	—	—	—
Matusiro		2.3	15	i 0	50 _a	+ 2	—	—	—	—	—	—
Kanazawa		2.3	343	i 0	52 _a	+ 4	—	—	—	—	—	—
Tokyo	z.	2.3	53	i 0	49 _k	+ 1	1	25	- 1	—	—	—
Hatidyozima		2.3	122	0	50 _k	+ 2	1	32	+ 6	—	—	—
Nagano		2.4	14	i 0	51 _a	+ 2	1	29	+ 1	—	—	—
Toyama		2.4	354	i 0	54 _a	+ 5	1	34	+ 6	—	—	—
Tokusima		2.4	264	i 1	0	+11	1	40	+12	—	—	—
Maebasi		2.5	32	i 0	51 _a	+ 1	1	28	- 2	—	—	—
Kumagaya		2.5	40	0	51 _a	+ 1	1	29	- 1	—	—	—
Toyooka		2.5	299	0	56 _a	+ 6	1	35	+ 5	—	—	—
Himeji		2.6	274	e 0	52	+ 1	1	33	+ 2	—	—	—
Muroto		2.9	249	i 0	58 _k	+ 4	1	41	+ 5	—	—	—
Takada		2.9	12	0	54 _a	0	1	39	+ 3	—	—	—
Takamatu	z.	2.9	270	i 0	57 _k	+ 3	1	37	+ 1	—	—	—
Tukubasan		2.9	48	i 0	58 _k	+ 4	1	36	0	—	—	—
Utunomiya		3.0	41	i 0	56 _a	+ 1	1	35	- 3	—	—	—
Tottori		3.0	294	i 0	59 _k	+ 4	1	42	+ 4	—	—	—
Okayama		3.0	277	i 1	0 _k	+ 5	1	44	+ 6	—	—	—
Wazima		3.1	352	i 0	59 _a	+ 3	1	44	+ 4	—	—	—
Mito		3.2	49	i 0	58	+ 1	1	38	- 4	—	—	—
Koti		3.4	258	i 1	4 _k	+ 5	1	47	+ 1	—	—	—
Yonago		3.6	290	i 1	4	+ 2	1	54	+ 4	—	—	—
Shirakawa		3.6	38	i 1	0 _a	- 2	1	46	- 4	—	—	—
Matsue		3.8	289	i 1	6	+ 2	1	56	+ 2	—	—	—
Niigata	z.	3.8	19	i 1	5	+ 1	1	50	- 4	—	—	—
Onahama		3.8	46	i 1	5 _k	+ 1	1	52	- 2	—	—	—
Saigo		3.9	300	i 1	9 _k	+ 4	2	1	+ 5	—	—	—
Matuyama		4.0	264	i 1	9 _k	+ 3	2	0	+ 2	—	—	—
Simidu		4.1	249	i 1	12 _k	+ 5	2	7	+ 7	—	—	—
Hirosima		4.2	272	i 1	12 _k	+ 4	2	8	+ 6	—	—	—
Hokusima		4.2	34	i 1	8 _a	0	1	58	- 4	—	—	—
Uwazima		4.3	256	i 1	13 _k	+ 4	2	9	+ 5	—	—	—
Torisima		4.5	148	i 1	15	+ 3	2	7	- 1	—	—	—
Hamada		4.5	279	i 1	15 _k	+ 3	2	8	0	—	—	—
Yamagata		4.6	30	i 1	12 _a	- 1	2	6	- 4	—	—	—
Sendai		4.8	34	i 1	14 _a	- 1	2	10	- 4	—	—	—
Sakata		4.9	22	1	19	+ 3	2	19	+ 3	—	—	—
Ooita	z.	5.0	259	i 1	21 _k	+ 3	2	26	+ 8	—	—	—
Isinomaki		5.2	36	i 1	19 _a	- 1	2	15	- 7	—	—	—
Asosan		5.5	257	i 1	28	+ 4	2	41	+12	—	—	—
Miyazaki		5.6	246	i 1	32 _k	+ 7	2	44	+13	—	—	—
Mizusawa	e.	5.6	30	1	23	- 2	2	25	- 6	—	—	—
Akita		5.8	21	i 1	26 _a	- 1	2	35	0	—	—	—
Hukuoka		5.9	265	i 1	33 _k	+ 5	2	46	+ 8	—	—	—
Kumamoto	n.	5.9	257	i 1	31 _k	+ 3	2	46	+ 8	—	—	—

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Saga		6.1	262	i 1	32k	+ 1	2	48	+ 6	—	—	—
Morioka		6.1	28	i 1	30a	- 1	2	35	- 7	—	—	—
Unzendake		6.3	257	1	35	+ 2	2	46	0	—	—	—
Kagosima		6.4	247	i 1	41k	+ 7	2	58	+10	—	—	—
Miyako		6.5	33	i 1	32a	- 4	2	40	-11	—	—	—
Nagasaki	N.	6.5	258	i 1	41k	+ 5	3	0	+ 9	—	—	—
Ituhara		6.8	271	i 1	42k	+ 3	3	3	+ 6	—	—	—
Aomori		7.0	21	i 1	38a	- 4	2	54	- 8	—	—	—
Hatinohe		7.0	26	i 1	39a	- 3	2	54	- 8	—	—	—
Yakusima		7.1	239	i 1	46k	+ 3	3	10	+ 6	—	—	—
Tomie		7.5	259	i 1	53	+ 5	3	22	+ 9	—	—	—
Hakodate		7.9	18	1	52	- 1	—	—	—	—	—	—
Mori	N.	8.2	17	1	54	- 3	3	20	- 8	—	—	—
Urakawa		8.9	27	e 2	3	- 2	3	34	-10	—	—	—
Sapporo	K.	9.3	18	i 2	7a	- 3	3	43	-10	—	—	—
Obihiro		9.7	26	e 2	11	- 4	3	56	- 6	—	—	—
Vladivostok		9.8	336	i 2	17	+ 1	4	5	+ 1	—	—	—
Asahigawa		10.2	20	e 2	18	- 4	4	4	- 9	—	—	—
Kusiro		10.2	30	e 2	17	- 5	4	3	-10	—	—	—
Abashiri		11.0	27	2	28	- 3	4	22	- 9	—	—	—
Wakkanai	E.	11.6	15	2	38	- 1	4	35	- 9	—	—	—
Yuzno-Sakhlinsk		13.2	16	i 2	56	- 2	5	16	- 4	—	—	—
Uglegorsk		15.2	12	i 3	17	- 5	5	58	- 5	—	—	—
Nanking		15.8	267	i 3	28	- 1	i 6	15	- 1	i 6	0	?
Hong Kong		23.7	246	4	48	0	8	32	- 7	5	44	pP
Petropavlovsk		24.1	29	i 4	49	- 2	i 8	43	- 3	—	—	—
Manila		24.7	221	i 4	44k	-13	i 8	31	-25	i 15	18	ScS
Magadan		26.7	13	5	12	- 3	9	26	- 2	—	—	—
Klyuchi		27.2	28	e 5	17	- 3	—	—	—	6	14	pP
Kyakhta		27.7	315	i 5	23	- 1	9	44	0	i 6	20	pP
Kabansk		28.4	319	i 5	28	- 2	—	—	—	6	25	pP
Irkutsk		29.7	318	i 5	41	- 1	10	16	0	6	37	pP
Shillong	E.	40.2	272	i 7	9	- 1	e 12	48	- 8	8	8	pP
Chatra		43.6	274	i 7	38	0	e 13	42	- 3	9	30	PP
Semipalatinsk		44.1	310	i 7	40	- 2	—	—	—	—	—	—
Calcutta	N.	44.4	269	i 7	47	+ 3	i 7	51	?	i 9	41	PP
Przhevalsk		46.2	299	i 7	58	0	14	22	0	—	—	—
Almata II		46.9	300	i 8	2	- 2	—	—	—	—	—	—
Almata		47.1	300	i 8	6	+ 1	i 14	36	+ 1	—	—	—
Rybach'e		47.9	299	i 8	9	- 2	i 14	44	- 2	9	14	pP
Naryn		48.2	297	i 8	13	- 1	i 14	48	- 2	i 9	17	pP
Frunse		48.9	300	i 8	18	- 1	15	0	0	—	—	—
Djakarta		49.6	222	8	20	- 4	i 15	7	- 2	i 9	31	pP
Andijan		51.0	298	i 8	34	- 1	15	29	+ 1	e 9	37	pP
New Delhi		51.1	282	i 8	32	- 3	i 15	23	- 7	i 17	19	sS
Namangan		51.5	298	i 8	37	- 1	i 15	32	- 3	i 9	42	pP
Fergana		51.5	297	i 8	38	0	i 15	34	- 1	e 9	42	pP
Khorog		52.5	294	i 8	46	0	e 15	50	+ 1	—	—	—
Tchimkent		52.6	301	i 8	46	0	i 15	49	- 1	—	—	—
Garm		53.0	297	i 8	48	- 1	e 15	52	- 4	—	—	—
Tashkent		53.1	299	e 8	45	- 5	i 15	56	- 1	—	—	—
College		53.1	31	e 8	48	- 2	e 15	17	-40	e 10	11	pP
Obi-garm		53.6	296	i 8	49	- 5	—	—	—	—	—	e 22.4
Kulyab		53.7	295	i 8	44	-10	—	—	—	—	—	—
Hyderabad	E.	55.0	268	i 9	0	- 4	i 16	17	- 5	18	14	sS
Sverdlovsk		55.1	319	e 9	1	- 3	i 16	21	- 2	i 10	7	pP
Samarkand		55.3	293	i 9	2	- 4	i 16	23	- 3	i 18	16	sS
Poona		58.3	272	i 9	27	0	i 17	4	- 1	e 10	10	PcP
Quetta		58.6	288	i 9	28	- 1	e 17	7	- 2	i 10	17	pP
Bombay		59.0	273	i 9	29	- 3	i 17	10	- 4	19	11	sS
Colombo	E.	59.5	257	9	33	- 2	17	18	- 3	—	—	—
Ashkabad		62.2	299	i 9	53	0	i 17	58	+ 3	—	—	—
Brisbane		63.2	164	i 9	59a	- 1	i 18	6	- 1	i 12	28	PP
Resolute Bay		66.0	13	i 10	15a	- 3	i 18	34	- 7	i 11	22	pP
Baku		67.1	305	i 10	25	+ 1	i 18	56	+ 2	11	34	pP

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Moscow	67.5	323	i 10	26	- 1	i 18	54	- 5	i 11	32	pP	—
Makhach-Kala	67.6	308	i 10	26	- 2	i 18	57	- 3	i 11	34	pP	—
Shemakla	67.9	305	i 10	28	- 1	i 19	13	+ 9	—	—	—	—
Kiruna	67.9	338	i 10	27 _k	- 2	i 12	9	sP	i 11	35	pP	—
Lenkoran	68.6	303	e 10	34	0	—	—	—	—	—	—	—
Grozny	68.6	309	i 10	33	- 1	—	—	—	—	—	—	—
Pulkovo	68.9	329	i 10	33	- 3	i 19	11	- 5	i 11	41	pP	—
Riverview	69.0	167	i 10	35 _a	- 1	i 19	17	0	i 21	6	sS	—
Kirovobad	69.4	307	i 10	37	- 2	19	19	- 2	—	—	—	—
Goris	70.0	305	i 10	40	- 2	i 19	26	- 2	—	—	—	—
Piatigorsk	70.0	310	10	40	- 2	i 19	24	- 4	i 11	50	pP	—
Tiflis	70.0	308	i 10	41	- 1	i 19	26	- 2	i 11	50	pP	—
Gori	70.3	308	i 10	48 _?	+ 4	i 19	34 _?	+ 2	—	—	—	—
Victoria	70.6	44	10	44	- 2	—	—	—	—	—	—	—
Borzhom	70.8	308	i 10	46	- 1	i 19	37	- 1	—	—	—	—
Tsikhlis-Dzhvari	70.9	308	10	47	- 1	19	38	- 1	—	—	—	—
Erevan	70.9	306	i 10	47	- 1	19	38	- 1	—	—	—	—
Akhalkalaki	71.0	308	e 10	44	- 4	i 19	35	- 5	—	—	—	—
Leninakan	71.0	307	10	50	+ 2	—	—	—	—	—	—	—
Abastumanj	71.2	308	i 10	50	0	19	42	0	e 11	57	pP	—
Zugdidi	71.5	310	10	50	- 1	i 19	45	- 1	—	—	—	—
Seattle	71.7	44	i 10	52	0	—	—	—	e 12	2	pP	—
Sotchi	72.3	311	i 10	54	- 2	i 19	50	- 5	i 12	3	pP	—
Corvallis	72.7	49	e 10	57	- 1	—	—	—	e 12	5	pP	—
Upsala	74.0	333	i 11	3 _k	- 3	i 20	7	- 6	i 12	11	pP	e 29.9
Theodosia	74.2	314	i 11	5	- 2	e 20	15	- 1	i 12	14	pP	—
Scoresby Sund	74.5	353	i 11	7	- 2	e 20	20	+ 1	i 12	16	pP	—
Simferopol	75.0	315	i 11	10	- 2	i 20	20	- 4	i 12	18	pP	—
Yalta	75.2	314	i 11	11	- 2	—	—	—	i 12	20	pP	—
Shasta	75.3	50	i 11	12	- 1	—	—	—	e 12	22	pP	—
Hungry Horse	75.9	40	i 11	16	- 1	e 20	34	0	i 12	27	pP	—
Mineral	76.0	50	i 11	16 _a	- 1	i 12	40	?	e 12	24	pP	—
Kishinev	76.8	318	i 11	20	- 2	20	40	- 4	—	—	—	—
Berkeley	76.9	53	i 11	21 _a	- 1	e 21	50	+65	i 12	30	pP	e 31.7
Iasi	77.4	320	e 11	24	- 1	e 20	47	- 3	—	—	—	—
Reno	77.6	50	e 11	26 _a	0	e 22	58	sS	e 12	36	pP	—
Lick	77.6	53	i 11	25 _a	- 1	—	—	—	i 12	34	pP	—
Cernauti	77.6	320	i 11	22	- 4	i 20	48	- 4	—	—	—	—
Lwow	77.7	323	i 11	24	- 3	i 20	49	- 4	i 12	34	pP	—
Bergen	77.8	338	i 11	30 _a	+ 3	i 20	52	- 2	e 12	35	pP	e 35.0
Butte	78.1	42	i 11	27	- 2	—	—	—	i 12	38	pP	—
Copenhagen	78.9	332	i 11	31	- 2	i 21	2	- 4	i 12	41	pP	—
Fresno	79.2	52	e 11	33 _a	- 2	—	—	—	e 12	43	pP	—
Uzhgorod	79.3	323	i 11	35	0	—	—	—	—	—	—	—
Skalnate Pleso	79.9	324	e 11	41	+ 3	e 21	15	- 1	e 12	50	pP	—
Bucharest	79.9	317	e 11	38	0	e 21	16	0	—	—	—	—
Tinemaha	80.0	52	i 11	39	0	e 14	36	PP	i 12	50	pP	—
Karapiro	80.1	150	e 11	39	0	—	—	—	—	—	—	—
Ksara	80.1	304	i 11	40 _k	+ 1	21	18	- 1	i 12	52	pP	—
Raciborzu	80.3	325	e 11	34 _?	- 6	e 21	26	+ 5	e 12	55	pP	—
Potsdam	81.0	329	i 11	42 _k	- 2	i 21	25	- 3	i 12	54	pP	—
China Lake	81.2	52	i 11	44	- 1	—	—	—	i 12	54	pP	—
Tuai	81.5	149	e 11	43	- 4	—	—	—	—	—	—	—
Budapest	81.7	323	11	46	- 2	21	34	- 1	e 13	6	pP	43.9
Pasadena	81.7	54	e 11	46	- 2	e 23	30	sS	e 12	56	pP	e 33.9
Cobb River	81.7	153	e 11	46	- 2	—	—	—	—	—	—	—
Timisoara	81.7	323	i 11	49	+ 1	e 22	35	+60	e 22	26 _?	S	—
Collmberg	81.8	328	e 11	46	- 2	e 21	33	- 3	e 12	57	pP	e 33.0
Ogyalla	81.8	324	e 11	51	+ 3	e 21	36	0	e 13	8	pP	—
Prague	82.1	327	i 11	48 _a	- 2	i 21	36	- 3	e 12	58	pP	—
Kalossa	82.4	323	e 11	52	+ 1	e 21	38	- 4	12	44	pP	—
Riverside	82.4	54	i 11	50	- 1	—	—	—	i 13	0	pP	—
Kaimata	82.5	155	e 11	53	+ 1	—	—	—	—	—	—	—
Vienna	82.5	324	i 11	50	- 2	e 13	16	sP	e 12	49	pP	—
Sofia	82.6	317	e 11	55	+ 3	e 21	42	- 2	—	—	—	—

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	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.	
Jena	82.7	328	i 11	51	- 2	e 21	40	- 5	i 13	2	pP	—
Wellington	82.7	152	i 11	51 _a	- 2	21	40	- 5	—	—	—	—
Belgrade	82.8	320	i 11	52 _a	- 1	i 21	42	- 4	e 12	51	pP	e 48.3
Boulder City	82.9	51	i 11	53	- 1	—	—	—	—	—	—	—
Nelson	83.0	51	i 11	53	- 1	i 13	22	sP	i 13	2	pP	—
Cheb	83.0	328	e 11	51	- 3	i 21	44	- 4	e 14	51	PP	—
Witteveen	z. 83.3	333	i 11	55 _k	- 1	i 13	38	sP	i 13	7	pP	—
De Bilt	84.4	333	—	—	—	e 21	56	- 6	e 23	26	sS	e 43.9
Stuttgart	85.3	329	i 12	4 _k	- 2	e 22	8	- 2	i 13	16	pP	—
Athens	85.4	313	i 12	4 _a	- 2	i 22	5	[+ 4]	e 12	22	PcP	—
Karlsruhe	z. 85.5	329	i 12	5	- 2	i 13	49	sP	i 13	15	pP	—
Helwan	85.5	303	12	6	- 1	21	59	[- 2]	13	17	pP	—
Triest	85.6	324	i 12	4 _k	- 3	i 22	8	- 5	i 13	16	pP	—
Strasbourg	86.1	329	i 12	8	- 2	e 22	6	[+ 1]	i 13	19	pP	41.4
Zürich	86.7	328	e 12	10 _k	- 3	e 22	17	- 7	e 13	19	pP	—
Chur	86.7	327	e 12	11 _k	- 2	e 22	20	- 4	—	—	—	—
Kew	86.9	335	i 12	11	- 3	i 13	55	sP	i 13	22	pP	—
Basle	87.0	328	e 12	9	- 5	e 22	24	- 2	e 13	23	pP	—
Rathfarnham C.	z. 87.3	339	e 12	6 _?	-10	—	—	—	—	—	—	—
Tucson	87.8	52	e 12	18	0	—	—	—	13	30	pP	—
Besançon	87.9	329	i 12	16	- 2	i 14	1	sP	i 13	29	pP	—
Paris	88.1	332	i 12	17	- 2	i 22	16	[- 2]	i 13	28	pP	e 42.9
Pavia	88.1	326	—	—	—	e 24	2	SP	e 28	22	SS	—
Prato	88.2	324	e 12	19	- 1	i 22	36	- 1	—	—	—	—
Florence	88.2	324	i 12	16 _k	- 4	i 22	35	- 2	i 13	31	pP	—
Oropa	88.3	327	i 12	14	- 6	i 22	31	- 7	e 15	50	PP	—
Rome	88.9	322	i 12	21 _k	- 2	e 22	45	+ 1	e 13	33	pP	—
Messina	90.0	318	e 12	24	- 4	e 22	51	- 3	e 13	36	pP	—
Clermont-Ferrand	90.3	330	i 12	28	- 2	i 22	58	+ 2	—	—	—	—
Kirkland Lake	z. 91.3	24	e 12	34	0	—	—	—	e 13	46	pP	—
Fayetteville	z. 95.0	39	i 12	50	- 1	i 14	30	sP	i 14	2	pP	—
Ottawa	95.2	23	i 12	50 _k	- 2	25	44	sS	14	2	pP	—
Cleveland	E. 96.5	28	—	—	—	e 25	54	sS	—	—	—	—
Algiers Univ.	z. 97.5	324	12	59	- 3	i 17	3	PP	e 18	8	PPP	—
Alicante	97.9	328	12	53	-11	23	29	[+16]	26	15	PS	46.1
Morgantown	98.7	28	e 14	20	pP	—	—	—	—	—	—	—
Fordham	99.8	23	—	—	—	e 25	30	SP	—	—	—	—
Almeria	100.0	328	13	43	+29	24	19	0	27	27	PPS	55.3
Granada	100.2	330	e 13	47 _a	+32	22	41	[-43]	17	23	PP	48.9
Malaga	100.9	330	i 17	14	PP	25	20	sSKS	31	30	SS	58.5
Tamanrasset	z. 107.2	314	e 13	45	P	e 23	54	[- 2]	e 15	0	pP	—
Bermuda	110.5	20	—	—	—	e 27	58	PS	—	—	—	—
Pretoria	z. 119.3	258	i 18	16	[+ 1]	—	—	—	—	—	—	—
San Juan	123.0	27	e 21	15	pPP	—	—	—	—	—	—	—
Kimberley	z. 123.3	255	i 18	23	[+ 1]	—	—	—	—	—	—	—
Huancayo	142.8	61	i 18	58	[- 2]	i 25	35	[- 3]	—	—	—	—
La Paz	151.0	58	i 19	21 _a	[+ 8]	i 22	44	PP	i 20	38	pPKP	—

Oct. 26d. 9h. 11m. 44s. Epicentre 39°·3N. 143°·7E. (as at 5h.).

Intensity IV at Okunayama; II-III at Morioka. Epicentre 39°·4N. 144°·1E.

Macroseismic radius 200-300km.

Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 395, with macroseismic chart.

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.
Miyako	1.4	284	i 0	26 _a	- 1	0	44	- 2
Mizusawa	N. 2.0	265	0	35	0	1	2	0
Morioka	2.0	282	i 0	36	+ 1	1	1	- 1
Hatinohe	2.1	307	0	34 _a	- 3	1	0	- 4
Isinomaki	2.1	246	e 0	36	- 1	—	—	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	s.
Sendai		2.4	245	0	42	+ 1	1	10	- 2
Aomori		2.7	304	0	47	+ 2	1	28	- 1 _g
Akita	Z.	2.8	279	e 0	51	0*	—	—	—
Hokusima		3.0	239	e 0	52	+ 2	1	29	+ 2
Onahama		3.2	223	e 1	1	- 3 _g	1	43	- 3 _g
Inawasio		3.3	240	e 1	0	+ 1*	—	—	—
Shirakawa		3.5	233	e 1	1	- 2*	1	46	- 2*
Obihiro		3.7	354	e 1	8	+ 2*	1	50	- 4*
Mori	N.	3.7	321	e 1	11	- 3 _g	1	51	- 3*
Mito		3.9	223	e 1	4	+ 2	1	57	- 3*
Tukubasan		4.2	224	e 1	11	- 4*	1	58	+ 1
Sapporo		4.2	336	e 1	24	0 _g	2	16	- 3 _g
Kumagaya		4.6	229	e 1	18	- 4*	2	24	+ 4*
Maebasi		4.7	233	i 1	16	+ 2	2	9	- 1
Tokyo		4.8	222	e 1	15	0	2	11	- 1
Titibu		4.9	230	e 1	20	+ 3	2	31	+ 2*
Nagano	N.	5.1	241	e 1	23	+ 3	—	—	—
Matusiro	N.	5.1	240	e 1	30	0*	2	25	+ 5
Hunatu	N.	5.5	228	e 1	28	+ 3	2	31	+ 1
Matumoto	E.	5.5	238	e 1	27	+ 2	2	41	- 6*
Kohu		5.5	230	e 1	30	+ 5	2	35	+ 5
Misima	E.	5.6	224	e 1	39	0*	2	47	- 3*
Osima		5.7	219	e 1	28	0	2	28	- 7
Toyama	E.	5.8	245	e 1	50	- 6 _g	2	58	+ 2*
Shizuoka		6.1	226	1	45	- 2*	3	1	- 4*
Gihu		6.7	237	e 1	45	+ 3	3	14	- 9*
Nagoya		6.8	235	e 1	52	- 4*	3	19	- 7*
Kameyama		7.3	235	e 2	10	+ 2*	3	45	+ 4*
Kiruna	Z.	65.0	339	i 10	43	- 1	—	—	—

Oct. 26d. 11h. 11m. 24s. Epicentre 39°·7N. 143°·9E. (as at 7h.).

Intensity IV at Okunakayama; II-III at Morioka. Epicentre 39°·6N. 144°·1E.

Macroseismic radius 200-300km.

Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 396, with macroseismic chart.

		Δ	Az.	P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	s.
Miyako		1.5	267	i 0	28 _a	0	0	46	- 2*
Hatinohe		2.0	295	e 0	36	+ 1	1	2	- 0
Morioka		2.1	270	i 0	37	0	1	6	0*
Mizusawa		2.2	251	0	33	- 5	1	2	- 4
Isinomaki		2.4	236	e 0	38	- 3	—	—	—
Aomori		2.6	295	e 0	54	+ 2 _g	1	25	- 1 _g
Urakawa		2.6	341	e 1	11	+ 27	1	41	+ 24
Sendai	N.	2.8	239	e 0	44	- 3	1	10	- 12
Akita	E.	2.9	270	e 0	52	0*	1	24	0
Hakodate		3.2	310	e 1	7	+ 3 _g	1	42	+ 3*
Hokusima		3.3	235	e 1	0	+ 1*	1	40	- 2*
Mori	N.	3.5	315	e 1	13	+ 3 _g	1	52	- 4 _g
Onahama		3.6	222	e 1	19	+ 7 _g	1	50	+ 8
Sapporo		3.9	331	e 1	31	+ 13 _g	2	17	+ 8 _g
Mito		4.3	219	e 1	19	+ 3*	2	9	- 3*
Tukubasan		4.6	223	e 1	25	+ 3*	2	15	- 5*
Aikawa		4.7	252	e 1	21	- 2*	2	20	- 4*
Kumagaya		5.0	227	e 1	17	- 1	2	12	- 6
Tokyo		5.2	221	e 1	18	- 3	—	—	—
Matusiro	N.	5.5	237	e 1	28	+ 3	2	26	- 4
Hunatu	N.	5.8	226	e 1	38	- 4*	2	41	+ 3
Osima		6.1	218	e 1	27	- 7	2	31	- 14
Toyama		6.1	242	e 2	1	- 1 _g	3	8	+ 3*
Gihu		7.1	235	e 1	48	0	3	15	+ 5
Kameyama		7.6	233	e 2	40	+ 8 _g	4	16	+ 5 _g

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Oct. 26d. 13h. 20m. 19s. Epicentre 39°·3N. 143°·7E. Focus at Base of Superficial Layers.
(as at 9h.).

Intensity V at Onoda; IV at Morioka, Odate, Naruko, and Sakari; II-III at Miyako, Hatinohe, Isinomaki, Sendai, and Hukusima. Epicentre 39°·4N. 143°·9E. Depth 40km. Macroseismic radius greater than 300km.

Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 397, with macroseismic chart.

	△	Az.	P.		O - C.	S.		O - C.	Supp.		L.
			m.	s.		m.	s.		m.	s.	
Miyako	1·4	284	i 0	20 _a	- 3	0	37	- 4	—	—	—
Mizusawa	2·0	265	0	31	- 1	0	48	- 8	—	—	—
Morioka	2·0	282	i 0	30 _a	- 2	0	56	0	—	—	—
Hatinohe	2·1	307	0	28 _a	- 5	0	55	- 4	—	—	—
Isinomaki	2·1	246	0	30 _a	- 3	0	54	- 5	—	—	—
Sendai	2·4	245	i 0	35 _a	- 3	1	9	+ 3	—	—	—
Aomori	2·7	304	i 0	40 _a	- 2	1	17	+ 3	—	—	—
Akita	2·8	279	e 0	42	- 1	—	—	—	—	—	—
Yamagata	2·8	248	0	43	0	1	24	+ 8	—	—	—
Urakawa	2·9	347	e 0	43	- 2	1	17	- 2	—	—	—
Hukusima	3·0	239	0	42 _a	- 4	1	26	+ 4	—	—	—
Onahama	3·2	223	e 0	47	- 2	1	24	- 3	—	—	—
Inawasiro	3·3	240	e 0	49	- 2	1	27	- 2	—	—	—
Hakodate	3·4	319	0	48	- 4	1	33	+ 1	—	—	—
Shirakawa	3·5	233	e 0	51	- 2	1	32	- 2	—	—	—
Obihiro	3·7	354	e 0	57	+ 1	1	29	-10	—	—	—
Mori	3·7	321	i 0	53	- 3	—	—	—	—	—	—
Muroran	3·7	327	e 1	0 _k	+ 4	1	44	+ 5	—	—	—
Kusiro	3·7	8	e 0	56	0	1	33	- 6	—	—	—
Mito	3·9	223	e 1	0	+ 1	1	52	+ 8	—	—	—
Niigata	3·9	251	e 1	10	+11	1	55	+11	—	—	—
Tukubasan	4·2	224	e 1	8	+ 5	1	56	+ 4	—	—	—
Sapporo	4·2	336	e 0	58	- 5	1	55	+ 3	—	—	—
Kumagaya	4·6	229	e 1	9	0	2	4	+ 2	—	—	—
Asahigawa	4·6	348	e 1	23	+14	—	—	—	—	—	—
Maebasi	4·7	233	i 1	9 _a	- 1	2	13	+ 8	—	—	—
Abashiri	4·8	5	1	9	- 3	2	0	- 7	—	—	—
Takada	4·8	245	1	19	+ 7	2	25	+18	—	—	—
Titibu	4·9	230	i 1	14	+ 1	2	5	- 5	—	—	—
Oiwake	5·0	236	1	15	0	—	—	—	—	—	—
Yokohama	5·0	221	1	20	+ 5	2	24	+12	—	—	—
Matusiro	5·1	240	i 1	16	0	2	19	+ 4	—	—	—
Nagano	5·1	241	e 1	15	- 1	2	20	+ 5	—	—	—
Hunatu	5·5	228	1	22	0	2	23	- 2	—	—	—
Kohu	5·5	230	e 1	22	0	2	34	+ 9	—	—	—
Matumoto	5·5	238	e 1	22	0	2	34	+ 9	—	—	—
Misima	5·6	224	1	24	+ 1	2	33	+ 6	—	—	—
Osima	5·7	219	e 1	23	- 1	2	25	- 5	—	—	—
Wazima	5·7	253	e 1	25	+ 1	2	36	+ 6	—	—	—
Toyama	5·8	245	e 1	25	- 1	2	40	+ 8	—	—	—
Takayama	6·0	241	e 1	26	- 3	2	40	+ 3	—	—	—
Hukui	6·7	244	e 1	40	+ 1	3	7	+12	—	—	—
Gihu	6·7	237	1	40	+ 1	3	11	+16	—	—	—
Nagoya	6·8	235	e 1	39	- 1	3	8	+11	—	—	—
Ibukisan	7·0	239	e 1	51	+ 8	—	—	—	—	—	—
Tsuruga	7·1	242	1	42	- 2	3	19	+14	—	—	—
Hikone	7·2	238	1	47	+ 1	3	15	+ 8	—	—	—
Tu	7·3	234	1	52	+ 5	3	29	+19	—	—	—
Kameyama	7·3	235	1	47	0	3	15	+ 5	—	—	—
Kyoto	7·7	239	e 2	0	+ 7	3	34	+14	—	—	—
Owase	8·0	232	e 1	53	- 4	—	—	—	—	—	—
Koti	10·0	238	e 2	23	- 1	4	15	- 2	—	—	—
Hamada	10·3	248	2	27	- 1	4	26	+ 2	—	—	—
Matuyama	10·4	242	e 2	25	- 5	4	38	+12	—	—	—
Nanking	21·4	259	4	42	- 5	e 8	38	0	—	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Hong Kong		30.3	245	—	—	e 11 11	+ 4	—	—
Shillong	E.	45.3	269	e 8 14	- 2	e 14 50	- 4	—	—
College		46.2	34	i 8 24	0	e 15 28	sS	e 18 5	ScS e 20.9
Chatra	Z.	48.3	273	i 8 41	+ 1	—	—	—	—
Calcutta	E.	49.6	268	—	—	i 16 8	+13	—	e 28.7
Resolute Bay	Z.	60.0	16	i 10 4k	- 2	—	—	—	—
Quetta		61.9	288	i 10 16	- 2	e 18 45	+ 7	e 18 49	S
Poona	Z.	63.1	273	i 10 28	+ 2	—	—	—	—
Victoria		63.6	48	10 31	+ 1	—	—	—	—
Bombay		63.7	274	e 10 26	- 4	e 19 3	+ 2	12 55	PP
Kiruna		65.0	339	i 10 38k	- 1	—	—	—	e 34.7
Corvallis	Z.	65.7	52	e 10 44	+ 1	—	—	—	—
Shasta	Z.	68.3	55	e 11 3	+ 3	—	—	—	—
Hungry Horse		68.9	45	i 11 5	+ 2	—	—	—	—
Mineral	Z.	69.0	54	e 11 6	+ 2	—	—	—	—
Reno	Z.	70.6	54	e 11 16	+ 2	—	—	—	—
Lick	Z.	70.7	57	e 11 19	+ 5	—	—	—	—
Upsala		71.7	335	i 11 18	- 2	—	—	—	e 33.7
Fresno	Z.	72.2	56	e 11 30	+ 7	—	—	—	—
Tinemaha	Z.	73.0	56	e 11 34	+ 6	—	—	—	—
Riverview	E.	73.1	173	—	—	e 21 1	+ 8	—	—
China Lake	Z.	74.2	56	e 11 38	+ 3	—	—	e 11 42	P
Pasadena	Z.	74.8	58	e 11 41	+ 2	—	—	—	—
Riverside	Z.	75.5	58	e 11 14	-29	—	—	e 12 20	?
Boulder City		75.9	55	e 11 47	+ 2	—	—	—	—
Nelson		76.1	55	e 11 48	+ 2	—	—	—	—
Copenhagen		76.7	335	e 11 48	- 2	—	—	—	40.7
Potsdam		79.1	333	e 12 3	0	—	—	—	e 43.7
Prague		80.5	330	e 12 11	+ 1	e 13 7	?	e 14 15	?
Tucson		80.8	56	e 12 18	PcP	—	—	—	—
Jena		80.8	331	e 12 10	- 2	—	—	e 13 33	?
Ksara		81.3	307	i 12 15	+ 1	22 31	+10	—	—
Belgrade		81.9	323	e 12 18 _a	0	e 22 5	-23	e 15 35	PP
Stuttgart		83.5	332	e 12 24	- 2	e 22 41	- 3	e 12 32	PcP
Kew		84.3	338	—	—	e 22 49	- 3	e 32 12	SSS
Triest		84.3	328	e 12 28	- 2	e 28 30	SS	—	—
Basle		85.1	332	e 12 33 _a	- 1	—	—	—	47.1
Besançon		85.9	332	i 12 38	0	—	—	e 12 46	PcP
Helwan		86.8	306	12 41	- 1	e 23 8	[+ 5]	16 9	PP
Fayetteville	Z.	87.9	44	i 12 48 _a	+ 1	—	—	—	—
Alicante		96.0	333	e 12 46	-39	24 8	[+10]	18 48	PPP
Granada		98.1	335	13 29 _k	- 5	24 22	[+14]	28 5	PPS
Almería		98.1	334	17 24	PP	28 48	?	31 12	SS
Malaga		98.8	335	i 17 43	PP	—	—	—	—
Tamanrasset	Z.	106.9	320	17 54	?	—	—	e 18 35	PP

Oct. 26d. 14h. 29m. 59s. Epicentre 39°·3N. 143°·7E. (as at 13h.).

Intensity V at Shizukuishi; IV at Kisakata, Odate, and Hukuoka; II-III at Miyako, Hatinohe, Kashiwa, Sannohe, and Sambongi. Epicentre 39°·5N. 144°·1E.

Macroseismic radius greater than 300km.

Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 398, with macroseismic chart.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Miyako		1.4	284	i 0 26 _a	- 1	0 41	- 5	—	—
Mizusawa		2.0	265	0 36	+ 1	0 57	- 5	—	—
Morioka		2.0	282	i 0 36 _a	+ 1	1 1	- 1	—	—
Hatinohe		2.1	307	0 34 _a	- 3	1 4	0	—	—
Isinomaki		2.1	246	0 37 _a	0	1 0	- 4	—	—
Sendai		2.4	245	i 0 42	+ 1	1 18	- 1 _g	—	—
Aomori		2.7	304	i 0 47 _a	+ 2	1 23	- 1 _*	—	—
Akita		2.8	279	0 47 _a	0	1 25	- 2 _*	—	—
Yamagata		2.8	248	0 47	0	1 26	- 1 _*	—	—
Urakawa		2.9	347	e 0 44	- 4	1 18	- 6	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Hukusima		3.0	239	0 54 _a	0*	1 38	- 1 _g	—	—
Sakata		3.0	264	e 0 53	- 1*	1 38	- 1 _g	—	—
Onahama		3.2	223	e 0 57	- 1*	—	—	—	—
Inawasiro		3.3	240	e 0 58	- 1*	1 43	+ 1*	—	—
Hakodate		3.4	319	0 56	+ 1	1 39	+ 2	—	—
Shirakawa		3.5	233	e 0 58	+ 1	1 43	+ 3	—	—
Mori	N.	3.7	321	1 5	- 1*	—	—	—	—
Muroran		3.7	327	e 1 4	- 2*	1 51	- 3*	—	—
Kusiro		3.7	8	e 1 0	0	1 39	- 6	—	—
Niigata		3.9	251	e 1 16	- 2 _g	2 6	- 3 _g	—	—
Tukubasan		4.2	224	e 1 14	- 1*	2 2	+ 5	—	—
Sapporo		4.2	336	e 1 10 _a	+ 3	2 3	+ 6	—	—
Kumagaya		4.6	229	1 14	+ 2	2 11	+ 4	—	—
Maebasi	Z.	4.7	233	i 1 16 _a	+ 2	2 18	- 6*	—	—
Abashiri		4.8	5	1 16	+ 1	2 7	- 5	—	—
Tokyo		4.8	222	e 1 18	+ 3	2 19	+ 7	—	—
Titibu		4.9	230	i 1 19	+ 2	2 22	+ 7	—	—
Yokohama		5.0	221	1 29	+ 1*	2 34	+ 2*	—	—
Matusiro	N.	5.1	240	i 1 23	+ 3	—	—	—	—
Matumoto	E.	5.5	238	e 1 27	+ 2	2 43	- 4*	—	—
Kohu		5.5	230	e 1 28	+ 3	2 36	+ 6	—	—
Ajiro		5.6	222	e 1 41	+ 2*	2 54	+ 4*	—	—
Misima	E.	5.6	224	e 1 31	+ 4	2 47	- 3*	—	—
Wazima		5.7	253	e 1 30	+ 2	2 46	- 7*	—	—
Toyama		5.8	245	e 1 31	+ 2	2 47	+ 9	—	—
Takayama		6.0	241	e 1 33	+ 1	2 52	+ 9	—	—
Shizuoka		6.1	226	e 1 33	- 1	2 48	+ 3	—	—
Gihu	E.	6.7	237	1 46	+ 4	3 11	+ 11	—	—
Hukui		6.7	244	e 1 46	+ 4	3 17	- 6*	—	—
Nagoya	E.	6.8	235	e 1 44	0	3 15	- 11*	—	—
Hatidyojima		6.9	208	e 2 0	- 1*	3 7	+ 2	—	—
Ibukisan	N.	7.0	239	e 1 57	- 5*	3 17	+ 9	—	—
Tsuruga		7.1	242	e 1 47	- 1	3 23	+ 13	—	—
Hikone		7.2	238	1 52	+ 3	3 18	+ 5	—	—
Kameyama		7.3	235	1 52	+ 2	3 31	- 10*	—	—
Tu		7.3	234	2 9	+ 1*	3 46	+ 5*	—	—
Kyoto		7.7	239	e 2 5	+ 9	3 36	+ 11	—	—
Osaka		8.0	237	e 2 16	- 4*	3 35	+ 2	—	—
Owase		8.0	232	e 2 13	- 7*	3 43	+ 10	—	—
Siomisaki		8.7	230	e 2 30	P*	4 9	- 13*	—	—
Vladivostok		9.7	297	i 2 21	- 1	e 4 11	- 4	—	—
Koti		10.0	238	e 2 27	0	4 26	+ 4	—	—
Hamada		10.3	248	2 33	+ 1	4 40	+ 10	—	—
Hirosima		10.3	245	2 31	- 1	4 36	+ 6	—	—
Ooita		11.5	242	e 2 59	+ 11	5 9	+ 10	—	—
Petropavlovsk		17.2	29	i 4 9	+ 6	i 7 23	+ 9	—	—
Klyuchi		20.4	27	e 4 54	+ 13	8 39	+ 14	—	—
Magadan		20.7	9	—	—	8 42	+ 11	—	—
Nanking		21.4	259	e 4 56	+ 5	8 51	+ 6	—	—
Kyakhta		28.3	306	i 5 56	- 1	10 47	+ 4	—	—
Kabansk		28.5	310	e 5 59	0	—	—	—	—
Irkutsk		30.0	310	6 10	- 2	—	—	—	—
Hong Kong		30.3	245	—	—	e 11 1	- 14	—	—
Semipalatinsk		45.0	307	e 8 17	- 2	—	—	—	—
Shillong	E.	45.3	269	e 8 20	- 1	e 14 48	- 14	—	—
College		46.2	34	e 8 29	+ 1	—	—	—	—
Kurmenty		48.3	298	e 8 44	- 1	—	—	—	—
Przhevsk		48.4	297	8 45	- 1	—	—	—	—
Almata II		48.8	298	e 8 48	- 1	—	—	—	—
Almata		49.1	298	e 8 51	0	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Calcutta	E.	49.6	268	—	—	e 16 12	+ 9	e 28 57	?	—
Rybach'e		50.0	297	i 8 56	- 2	—	—	—	—	—
Naryn		50.4	296	i 9 0	- 1	—	—	—	—	—
Frunse		50.9	298	i 9 3	- 2	—	—	—	—	—
Andijan		53.2	296	i 9 21	- 1	—	—	—	—	—
Namangan		53.6	296	i 9 25	0	—	—	e 15 42	?	—
Fergana		53.8	296	i 9 25	- 1	—	—	—	—	—
Tchimkent		54.5	299	i 9 31	- 1	—	—	—	—	—
Sverdlovsk		54.7	319	i 9 33	0	—	—	16 9	?	—
Khorog		55.1	293	e 9 37	+ 1	—	—	—	—	—
Obi-garm		55.9	296	i 9 38	- 4	—	—	—	—	—
Stalinabad		56.6	296	i 9 45	- 2	e 17 34	- 4	—	—	—
Samarkand		57.4	297	9 50	- 3	—	—	—	—	—
Resolute Bay	Z.	60.0	16	i 10 9	- 2	—	—	—	—	—
Bairam-Ali		61.7	298	i 10 21	- 1	—	—	—	—	—
Quetta	Z.	61.9	288	i 10 21	- 3	—	—	—	—	—
Victoria		63.6	48	10 35	0	—	—	—	—	—
Ashkabad		64.1	300	i 10 37	- 1	—	—	—	—	—
Kiruna		65.0	339	i 10 43	- 1	e 19 22	- 4	e 23 38	SS	e 35.0
Moscow		66.5	324	10 53	- 1	—	—	—	—	—
Shasta	Z.	68.3	55	e 11 17	+ 12	—	—	—	—	—
Baku		68.4	305	e 11 7	+ 1	e 20 7	0	—	—	—
Hungry Horse		68.9	45	i 11 10	+ 1	—	—	—	—	—
Mineral	Z.	69.0	54	i 11 15 ^a	+ 6	—	—	—	—	—
Piatigorsk		70.5	312	11 19	+ 1	—	—	—	—	—
Reno	Z.	70.6	54	e 11 22	+ 3	—	—	—	—	—
Lick	Z.	70.7	57	e 11 21 ^k	+ 1	—	—	—	—	—
Tiflis		70.8	309	i 11 21 [?]	+ 1	e 20 35 [?]	0	—	—	—
Butte		71.1	45	e 11 23	+ 1	—	—	—	—	—
Gori		71.1	309	e 11 27	+ 5	—	—	—	—	—
Borzhomi		71.6	309	i 11 26	+ 1	—	—	—	—	—
Upsala	Z.	71.7	335	i 11 25 ^a	- 1	—	—	—	—	—
Abastumanj		72.0	309	e 11 28	0	—	—	—	—	—
Leninakan		72.0	309	e 11 37	+ 9	—	—	—	—	—
Zugdidi		72.1	311	e 11 32	+ 4	—	—	—	—	—
Fresno	Z.	72.2	56	e 11 35 ^k	+ 6	—	—	—	—	—
Sotchi		72.7	313	i 11 35	+ 3	—	—	—	—	—
Tinemaha	Z.	73.0	56	e 11 42	+ 9	—	—	—	—	—
China Lake	Z.	74.2	56	e 11 43	+ 3	—	—	e 11 47	?	—
Pasadena	Z.	74.8	58	e 11 49	+ 5	—	—	—	—	—
Simferopol		75.0	317	e 11 42	- 3	e 21 15	- 8	—	—	—
Yalta		75.2	316	e 11 39	- 7	—	—	—	—	—
Riverside	Z.	75.5	58	e 11 50	+ 2	—	—	—	—	—
Boulder City		75.9	55	e 11 48	- 2	—	—	—	—	—
Nelson		76.1	55	e 11 53	+ 2	—	—	—	—	—
Kishinev		76.3	321	i 11 51	- 1	—	—	—	—	—
Prague		80.5	330	e 12 16	+ 1	e 12 53	?	e 13 2	?	—
Jena		80.8	331	e 12 17	0	e 12 24	PcP	e 12 51	?	—
Ksara		81.3	307	i 12 20	0	22 35	+ 5	—	—	—
Belgrade	Z.	81.9	323	e 12 23 ^k	0	—	—	e 12 53	?	—
Stuttgart		83.5	332	e 12 30	- 1	—	—	e 12 38	PcP	e 46.0
Triest		84.3	328	e 12 32	- 3	e 30 34	PKKP	e 12 41	PcP	46.7
Besançon		85.9	332	e 12 43	0	—	—	e 12 50	PcP	—
Helwan		86.8	306	12 47	0	e 23 31	+ 6	16 13	PP	—
Fayetteville	Z.	87.9	44	i 12 56	+ 3	—	—	—	—	—
Pennsylvania	E.	91.7	31	—	—	e 30 11	SS	e 34 2	SSS	—
Tamanrasset	Z.	106.9	320	e 18 5	?	e 18 47	PP	e 19 1	?	—
La Paz	N.	144.1	59	e 20 21	[+43]	—	—	—	—	—

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Oct. 26d. 15h. 46m. 18s. Epicentre 39°·3N. 143°·7E. Focus at Base of Superficial Layers.
(as at 14h.).

Intensity VI at Wakayanagi ; V at Yahagi, Tono, Maturuka, and Tateoka ; IV at Morioka, Kashiwa, Noheji, Yasumiya, and Kakudate. Epicentre 39°·3N. 144°·0E. Depth 40km. Macroseismic radius greater than 300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 399, with macroseismic chart.

		Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Miyako		1·4	284	i 0 19 _a	- 4	0 35	- 6	—	—
Mizusawa	E.	2·0	265	0 28	- 4	1 7	+11	—	—
Morioka		2·0	282	i 0 28 _a	- 4	0 52	- 4	—	—
Hatinohe		2·1	307	0 27	- 6	0 51	- 8	—	—
Isinomaki		2·1	246	0 20 _a	-13	0 44	-15	—	—
Sendai		2·4	245	i 0 36 _a	- 2	1 11	+ 5	—	—
Aomori		2·7	304	i 0 39 _a	- 3	1 11	- 3	—	—
Akita		2·8	279	0 40 _a	- 3	1 16	0	—	—
Yamagata		2·8	248	0 41	- 2	1 25	+ 9	—	—
Urakawa		2·9	347	e 0 43	- 2	1 16	- 3	—	—
Hukusima		3·0	239	0 44 _a	- 2	1 26	+ 4	—	—
Onahama		3·2	223	e 0 50	+ 1	1 33	+ 6	—	—
Inawasio		3·3	240	e 0 53	+ 2	—	—	—	—
Hakodate		3·4	319	0 50	- 2	1 30	- 2	—	—
Shirakawa		3·5	233	c 0 51	- 2	1 42	+ 8	—	—
Kusiro		3·7	8	e 0 54	- 2	1 35	- 4	—	—
Mori	N.	3·7	321	i 0 54	- 2	—	—	—	—
Muroran		3·7	327	e 1 0	+ 4	1 47	+ 8	—	—
Obihiro		3·7	354	e 1 4	+ 8	1 49	+10	—	—
Mito		3·9	223	e 1 2	+ 3	1 56	+12	—	—
Tyosi	N.	4·2	213	e 1 2	- 1	2 14	+22	—	—
Tukubasau		4·2	224	e 1 8	+ 5	1 54	+ 2	—	—
Sapporo		4·2	336	e 1 1	- 2	1 56	+ 4	—	—
Nemuro		4·3	19	e 1 2	- 3	1 46	- 8	—	—
Aikawa	E.	4·5	255	1 3	- 5	1 53	- 7	—	—
Kumagaya	Z.	4·6	229	e 1 8	- 1	2 4	+ 2	—	—
Asahigawa		4·6	348	e 1 8	- 1	—	—	—	—
Maebasi	Z.	4·7	233	1 8	- 2	2 10	+ 5	—	—
Abashiri		4·8	5	e 1 7	- 5	1 58	- 9	—	—
Tokyo		4·8	222	e 1 10	- 2	2 14	+ 7	—	—
Titibu		4·9	230	i 1 13	0	2 18	+ 8	—	—
Oiwake		5·0	236	1 16	+ 1	2 34	+22	—	—
Yokohama		5·0	221	1 20	+ 5	2 25	+13	—	—
Matusiro	N.	5·1	240	i 1 16 _a	0	2 16	+ 1	—	—
Nagano	N.	5·1	241	e 1 15	- 1	2 24	+ 9	—	—
Mera		5·3	217	1 21	+ 2	—	—	—	—
Kohu		5·5	230	e 1 23	+ 1	2 30	+ 5	—	—
Matumoto	E.	5·5	238	e 1 21	- 1	2 30	+ 5	—	—
Misima		5·6	224	1 23	0	2 32	+ 5	—	—
Wazima		5·7	253	e 1 25	+ 1	2 41	+11	—	—
Toyama		5·8	245	e 1 12	-14	2 33	+ 1	—	—
Iida		6·0	233	e 1 28	- 1	2 56	+19	—	—
Takayama		6·0	241	e 1 25	- 4	2 43	+ 6	—	—
Shizuoka		6·1	226	e 1 29	- 1	2 49	+ 9	—	—
Omaesaki		6·4	225	1 45	+11	3 15	+28	—	—
Hukui		6·7	244	e 1 39	0	3 6	+11	—	—
Gihu	E.	6·7	237	1 39	0	3 6	+11	—	—
Nagoya		6·8	235	e 1 41	+ 1	3 15	+18	—	—
Hatidyojima		6·9	208	e 1 46	+ 5	—	—	—	—
Ibukisan	N.	7·0	239	e 1 45	+ 2	3 25	+23	—	—
Tsuruga		7·1	242	1 44	0	3 20	+15	—	—
Hikone		7·2	238	1 48	+ 2	3 17	+10	—	—
Tu		7·3	234	1 47	0	3 34	+24	—	—
Kameyama		7·3	235	1 46	- 1	3 17	+ 7	—	—
Kyoto		7·7	239	e 1 50	- 3	3 24	+ 4	—	—

Continued on next page.

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1952		914										
		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
	Osaka	8.0	237	e 1	58	+ 1	3	36	+ 9	—	—	—
	Owase	8.0	232	e 1	58	+ 1	3	24	- 3	—	—	—
E.	Toyooka	8.0	245	i 1	56	- 1	3	41	+14	—	—	—
	Sumoto	8.6	238	e 2	14	+ 9	4	5	+23	—	—	—
	Siomisaki	8.7	230	e 2	33	+27	—	—	—	—	—	—
N.	Himeji	8.9	240	e 2	10	+ 1	4	3	+14	—	—	—
	Tokusima	9.0	237	e 2	14	+ 3	4	0	+ 8	—	—	—
	Yonago	9.1	248	e 2	14	+ 2	3	56	+ 2	—	—	—
	Matsue	9.3	249	e 2	13	- 2	3	55	- 4	—	—	—
	Muroto	9.8	235	e 2	20	- 2	—	—	—	—	—	—
	Koti	10.0	238	e 2	20	- 4	—	—	—	—	—	—
	Hamada	10.3	248	e 2	22	- 6	4	31	+ 7	—	—	—
	Hirosima	10.3	245	e 2	24	- 4	4	30	+ 6	—	—	—
	Matuyama	10.4	242	e 2	31	+ 1	4	37	+11	—	—	—
E.	Simidu	10.8	237	e 2	40	+ 5	—	—	—	—	—	—
	Ooita	11.5	242	i 2	39	- 6	6	15	L	—	—	(6.2)
	Hukuoka	12.1	246	e 3	3	+10	4	59	- 9	—	—	—
	Kumamoto	12.3	243	e 3	5	+ 9	6	43	L	—	—	(6.7)
	Miyazaki	12.4	237	e 3	6	+ 9	5	53	+38	—	—	—
	Saga	12.4	245	e 3	11	+14	—	—	—	—	—	—
	Tomie	13.8	246	e 3	40	+24	—	—	—	—	—	—
	Nanking	21.4	259	e 4	43	- 4	e 8	40	+ 2	—	—	—
	Hong Kong	30.3	245	—	—	—	e 11	10	+ 3	—	—	17.5
	Manila	31.7	226	i 6	12	-11	—	—	—	—	—	—
E.	Shillong	45.3	269	e 8	11	- 5	e 14	51	- 3	18	7	ScS 21.6
	College	46.2	34	i 8	24	0	—	—	—	—	—	—
Z.	Chatra	48.3	273	i 8	39	- 1	i 15	28	- 9	—	—	—
	New Delhi	55.1	281	e 9	28	- 3	—	—	—	—	—	—
	Djakarta	56.6	225	e 11	4	?	e 17	31	+ 1	—	—	—
	Resolute Bay	60.0	16	i 10	3	- 3	i 18	13	- 1	i 17	50	? —
	Quetta	61.9	288	e 10	15	- 3	e 18	59	sS	—	—	—
Z.	Poona	63.1	273	e 10	24	- 2	—	—	—	—	—	—
	Victoria	63.6	48	e 10	30	0	—	—	—	—	—	—
	Bombay	63.7	274	e 10	26	- 4	—	—	—	e 10	48	sP —
Z.	Seattle	64.6	48	e 10	42	+ 6	—	—	—	—	—	—
	Kiruna	65.0	339	i 10	36 ^a	- 3	i 19	27	+10	i 10	43	pP e 33.7
E.	Kodaikanal	65.2	264	e 10	52	pP	—	—	—	—	—	—
	Colombo	65.5	259	—	—	—	e 18	44	-39	—	—	—
	Corvallis	65.7	52	e 10	45	+ 2	—	—	—	—	—	—
Z.	Brisbane	67.0	170	e 10	57 ^a	+ 5	—	—	—	i 13	48	pPP —
Z.	Shasta	68.3	55	e 11	1 ^a	+ 1	—	—	—	e 13	44	PP —
	Hungry Horse	68.9	45	i 11	5	+ 2	—	—	—	e 13	45	PP —
Z.	Mineral	69.0	54	e 11	6 ^a	+ 2	—	—	—	e 13	47	PP —
	Berkeley	70.0	57	i 11	13 ^a	+ 3	e 20	23	+ 6	i 13	57	PP —
Z.	Reno	70.6	54	e 11	16 ^a	+ 2	—	—	—	e 14	1	PP —
Z.	Lick	70.7	57	e 11	15 ^a	+ 1	—	—	—	e 14	0	PP —
	Butte	71.1	45	e 11	19	+ 2	—	—	—	—	—	—
	Upsala	71.7	335	i 11	18	- 2	i 13	58	PP	i 11	31	pP —
Z.	Fresno	72.2	56	e 11	26 ^k	+ 3	—	—	—	e 14	10	PP —
Z.	Tinemaha	73.0	56	e 11	32	+ 4	—	—	—	e 14	15	PP —
	Riverview	73.1	173	—	—	—	e 21	0	+ 7	e 25	34	SS —
Z.	China Lake	74.2	56	e 11	37	+ 2	—	—	—	e 14	21	PP —
Z.	Pasadena	74.8	58	e 11	40	+ 1	—	—	—	e 14	25	PP e 38.1
	Bergen	75.0	340	e 13	56	?	—	—	—	—	—	—
Z.	Riverside	75.5	58	e 11	44	+ 1	—	—	—	—	—	—
	Boulder City	75.9	55	e 11	45	0	—	—	—	—	—	—
	Nelson	76.1	55	i 11	48	+ 2	—	—	—	i 14	32	PP —
	Copenhagen	76.7	335	i 11	49	- 1	—	—	—	—	—	—
	Raciborzu	78.9	328	e 12	0	- 2	e 21	47	- 9	e 12	11	pP —
Z.	Potsdam	79.1	333	e 12	4	+ 1	—	—	—	—	—	—
	Budapest	80.5	325	e 12	17	+ 7	e 22	27	sS	e 12	32	pP e 43.2
	Prague	80.5	330	e 12	11	+ 1	e 13	16	?	e 12	23	pP e 42.2
	Jena	80.8	331	e 12	10	- 2	e 22	4	-12	e 14	51	PP —
	Tucson	80.8	56	e 12	15	+ 3	—	—	—	—	—	—
Z.	Witteveen	81.0	335	e 12	12	- 1	—	—	—	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ksara		81.3	307	i 12 14	0	22 28	+ 7	—	—
Belgrade	z.	81.9	323	e 12 18 _a	0	—	—	e 13 34	?
Stuttgart	z.	83.5	332	e 12 24	- 2	—	—	e 12 39	pP
Karlsruhe	z.	83.6	332	e 12 28	+ 2	—	—	e 12 36	PcP
Strasbourg		84.2	333	e 12 29	0	e 22 47	- 4	e 15 44	PP 43.7
Triest	z.	84.3	328	e 12 29	- 1	—	—	e 12 41	pP
Kew		84.3	338	e 15 50	PP	e 22 33	-19	—	e 43.7
Zürich		84.9	332	e 12 31 _k	- 2	—	—	—	—
Chur		85.0	330	e 12 32	- 1	—	—	—	—
Wellington		85.1	157	—	—	e 23 0	+ 1	—	—
Basle		85.1	332	e 12 31	- 3	—	—	—	—
Lubbock		85.5	49	e 12 47	pP	—	—	—	—
Paris		85.8	336	i 12 35	- 2	i 23 5	- 1	i 12 49	pP
Besançon		85.9	332	e 12 39	+ 1	e 12 44	PcP	e 12 49	pP
Helwan	z.	86.8	306	12 42	0	16 8	PP	i 12 54	pP
Fayetteville	z.	87.9	44	i 12 48	+ 1	—	—	i 15 34	?
Clermont-Ferrand		88.2	334	12 49	0	—	—	—	—
Ottawa		88.6	27	e 12 51	0	—	—	—	—
Cleveland	E.	89.7	33	—	—	i 23 45	+ 2	—	—
Morgantown		91.9	33	e 13 19	pP	—	—	e 18 50	PPP
Weston		92.7	25	e 13 57 _k	+47	—	—	—	—
Alicante		96.0	333	13 37	pP	e 25 33	SP	32 1	sSS 50.2
Algiers Univ.	z.	96.1	334	e 17 4	PP	e 24 34	- 5	e 25 30	SP
Granada		98.1	335	e 14 24 _k	+50	25 6	+10	19 27	PPP 54.4
Almeria		98.1	334	13 44	pP	25 4	+ 8	17 44	PP
Bermuda		104.0	25	—	—	e 25 29	-16	e 32 45	SS e 56.2
Tamanrasset	z.	106.9	320	e 18 34	PP	e 24 50	[+ 1]	e 20 48	PPP
Pretoria	z.	125.0	264	e 18 58	[+ 1]	—	—	—	—
La Paz		144.1	59	19 38	[+ 6]	—	—	—	—

Oct. 26d. 15h. 53m. 6s. Epicentre 39°·3N. 143°·7E. Focus at Base of Superficial Layers. (as at 15h. 46m.).

Intensity V at Aomori, Ichinoseki, Semmaya, Hanamati, Hizume, and Noheji; IV at Miyako, Hatinohe, Morioka, and Isinomaki. Epicentre 39°·5N. 143°·7E. Depth 50km. Macro seismic radius greater than 300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 401, with macro seismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Miyako		1.4	284	i 0 19	- 4	0 34	- 7	—	—
Mizusawa		2.0	265	0 29	- 3	0 52	- 4	—	—
Morioka		2.0	282	i 0 28 _a	- 4	0 51	- 5	—	—
Hatinohe		2.1	307	0 27 _a	- 6	0 43	-16	—	—
Isinomaki		2.1	246	0 33 _a	0	—	—	—	—
Sendai		2.4	245	i 0 36 _a	- 2	1 3	- 3	—	—
Aomori		2.7	304	i 0 40 _a	- 2	—	—	—	—
Akita	z.	2.8	279	e 0 39	- 4	1 15	- 1	—	—
Yamagata		2.8	248	0 37	- 6	1 20	+ 4	—	—
Urakawa		2.9	347	e 0 48	+ 3	1 19	0	—	—
Hokusima		3.0	239	i 0 47 _a	+ 1	1 30	+ 8	—	—
Inawasiro		3.3	240	e 0 50	- 1	1 23	- 6	—	—
Shirakawa		3.5	233	e 0 56	+ 3	1 47	+13	—	—
Kusiro		3.7	8	i 0 55	- 1	1 35	- 4	—	—
Mori	n.	3.7	321	e 0 37	-19	1 22	-17	—	—
Muroran		3.7	327	e 0 58 _k	+ 2	1 46	+ 7	—	—
Mito		3.9	223	e 1 0	+ 1	1 47	+ 3	—	—
Tukubasan		4.2	224	e 1 12	+ 9	1 53	+ 1	—	—
Tyosi	E.	4.2	213	e 1 3	0	1 59	+ 7	—	—
Sapporo		4.2	336	e 1 12	+ 9	1 54	+ 2	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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		Δ	Az.	P.		O-C.	S		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Nemuro		4.3	19	e 1	4	- 1	1	47	- 7	---	---	---
Aikawa		4.5	255	e 1	5	- 3	1	50	-10	---	---	---
Kumagaya	Z.	4.6	229	e 1	8	- 1	2	5	+ 3	---	---	---
Maebasi		4.7	233	e 1	14	+ 4	2	4	- 1	---	---	---
Abashiri		4.8	5	e 1	8	- 4	1	58	- 9	---	---	---
Tokyo	N.	4.8	222	e 1	24	+12	2	23	+16	---	---	---
Titibu		4.9	230	e 1	12	- 1	2	11	+ 1	---	---	---
Oiwake		5.0	236	e 1	13	- 2	2	26	+14	---	---	---
Yokohama		5.0	221	1	18	+ 3	2	22	+10	---	---	---
Matusiro	N.	5.1	240	e 1	16	0	2	13	- 2	---	---	---
Nagano	E.	5.1	241	e 1	16	0	2	17	+ 2	---	---	---
Mera		5.3	217	e 1	33	+14	2	52	+32	---	---	---
Matumoto	E.	5.5	238	e 1	21	- 1	---	---	---	---	---	---
Kohu		5.5	230	1	21	- 1	2	30	+ 5	---	---	---
Ajiro		5.6	222	1	25	+ 2	2	32	+ 5	---	---	---
Misima		5.6	224	e 1	34	+11	2	47	+20	---	---	---
Osima		5.7	219	e 1	24	0	2	13	-17	---	---	---
Wazima		5.7	253	e 1	26	+ 2	2	32	+ 2	---	---	---
Takayama		6.0	241	e 1	31	+ 2	2	48	+11	---	---	---
Shizuoka		6.1	226	e 1	34	+ 4	2	48	+ 8	---	---	---
Omaesaki		6.4	225	e 1	53	+19	3	16	+29	---	---	---
Gihu	E.	6.7	237	e 1	40	+ 1	3	3	+ 8	---	---	---
Hukui		6.7	244	e 1	42	+ 3	3	8	+13	---	---	---
Hatidyozima		6.9	208	e 1	52	+11	3	0	0	---	---	---
Tsuruga		7.1	242	e 1	45	+ 1	3	15	+10	---	---	---
Hikone		7.2	238	e 1	48	+ 2	3	13	+ 6	---	---	---
Tu		7.3	234	e 2	2	+15	3	40	+30	---	---	---
Owase		8.0	232	e 1	59	+ 2	3	38	+11	---	---	---
Osaka		8.0	237	e 2	23	+26	3	49	+22	---	---	---
Wakayama		8.5	236	e 2	6	+ 2	---	---	---	---	---	---
Saigo	E.	8.8	253	e 2	3	- 5	3	46	- 1	---	---	---
Himeji	N.	8.9	240	e 2	11	+ 2	3	48	- 1	---	---	---
Yonago		9.1	248	e 2	11	- 1	3	46	- 8	---	---	---
Takamatu		9.2	240	e 2	12	- 1	4	16	+19	---	---	---
Matsue		9.3	249	2	10	- 5	3	45	-14	---	---	---
Koti		10.0	238	e 2	36	+12	4	37	+20	---	---	---
Hamada		10.3	248	2	32	+ 4	4	35	+11	---	---	---
Hirosima		10.3	245	2	28	0	4	34	+10	---	---	---
Matnyama		10.4	242	e 2	24	- 6	4	32	+ 6	---	---	---
Simidu		10.8	237	2	37	+ 2	---	---	---	---	---	---
Ooita		11.5	242	e 2	42	- 3	---	---	---	---	---	---
Hukuoka	Z.	12.1	246	e 2	12	-41	---	---	---	---	---	---
Tomie		13.8	246	e 2	15	-61	---	---	---	---	---	---
Manila		31.7	226	i 6	14	- 9	i 11	14	-15	---	---	---
College		46.2	34	i 8	27	+ 3	i 15	4	- 3	e 10	57	PPP e 18.4
Chatra		48.3	273	i 8	40	0	e 15	37	0	---	---	---
Calcutta	E.	49.6	268	e 8	54	+ 4	15	36	-19	---	---	---
New Delhi		55.1	281	e 9	28	- 3	e 17	3	- 7	---	---	---
Djakarta	E.	56.6	225	---	---	---	e 17	27	- 3	---	---	---
Resolute Bay		60.0	16	i 10	6k	0	i 18	3	-11	i 22	6	SS i 24.0
Hyderabad	E.	60.1	269	10	7	+ 1	e 18	16	0	---	---	---
Quetta		61.9	288	e 10	15	- 3	e 18	47	+ 9	---	---	---
Poona	Z.	63.1	273	(e 10	25)	- 1	e 10	25	P	---	---	---
Victoria		63.6	48	10	33	+ 3	---	---	---	---	---	---
Bombay		63.7	274	(e 10	26)	- 4	e 10	26	P	---	---	---
Seattle	Z.	64.6	48	e 10	42	+ 6	---	---	---	---	---	---
Kiruna		65.0	339	i 10	37	- 2	e 19	16	- 1	e 23	30	SS e 29.9
Corvallis	Z.	65.7	52	e 10	46	+ 3	---	---	---	---	---	---
Brisbane	Z.	67.0	170	i 10	54k	+ 2	i 19	52	+11	i 19	59	sS
Shasta	Z.	68.3	55	e 11	13	pP	---	---	---	---	---	---
Helsinki		68.9	333	---	---	---	e 20	3	- 1	---	---	---
Hungry Horse		68.9	45	i 11	6	+ 3	---	---	---	---	---	---
Mineral	Z.	69.0	54	i 11	7a	+ 3	---	---	---	---	---	---
Berkeley	Z.	70.0	57	e 11	14a	+ 4	---	---	---	i 11	22	pP
Scoresby Sund		70.0	356	e 10	54	-16	e 20	23	+ 6	e 13	1	PP 32.9

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		e	e	m. s.	s.	m. s.	s.	m. s.	m.
Reno		70.6	54	e 11 17 _a	+ 3	e 20 33	+ 9	—	—
Lick	z.	70.7	57	e 11 17 _k	+ 3	—	—	—	—
Butte		71.1	45	e 11 18	+ 1	—	—	—	—
Upsala		71.7	335	i 11 20 _k	0	e 20 27	-10	i 11 31	pP e 32.9
Fresno	z.	72.2	56	e 11 26 _a	+ 3	—	—	—	—
Tinemaha	z.	73.0	56	e 11 32	+ 4	—	—	—	—
Riverview	N.	73.1	173	—	—	e 21 7	+14	—	—
China Lake	z.	74.2	56	e 11 38	+ 3	—	—	—	—
Pasadena		74.8	58	e 11 32	- 7	—	—	e 12 9	?
Bergen	N.	75.0	340	e 16 58	?	e 21 52	PS	—	e 37.0
Riverside	z.	75.5	58	e 11 36	- 7	—	—	—	—
Boulder City		75.9	55	e 11 47	+ 2	—	—	—	—
Nelson		76.1	55	i 11 48	+ 2	—	—	—	—
Kishinev		76.3	321	i 11 44	- 3	i 21 23	- 5	i 12 7	PcP
Lwow		76.6	325	i 11 49	0	e 21 30	- 2	e 12 4	PcP
Copenhagen		76.7	335	i 11 50	0	—	—	—	35.9
Iasi		76.8	323	e 11 50	0	e 21 50	PS	—	—
Uzhgorod		78.2	325	e 11 59	+ 1	e 21 52	+ 3	22 14	sS
Skalnate Pleso		78.7	327	e 12 16	pP	—	—	e 15 35	?
Potsdam		79.1	333	i 12 3	0	—	—	e 15 1	PP e 36.9
Bucharest		79.5	320	e 12 42	+37	e 22 30	SP	—	—
Aberdeen		79.7	342	i 19 49	?	i 21 39	-26	—	—
Collenberg		80.0	331	e 12 41	+33	e 21 58	-10	e 16 20	?
Budapest		80.5	325	e 12 14	+ 4	—	—	e 12 22	pP
Prague		80.5	330	e 12 11	+ 1	e 22 18	+ 5	e 13 23	?
Ogyalla		80.6	326	e 13 38	?	e 22 21	+ 7	e 16 28	?
Jena		80.8	331	e 12 13	+ 1	e 22 9?	- 7	e 12 24	pP
Tucson		80.8	56	e 12 15	+ 3	—	—	—	e 34.2
Timisoara		80.9	323	e 13 34?	?	e 22 21	+ 4	—	e 39.9
Witteveen	z.	81.0	335	i 12 14	+ 1	—	—	—	—
Ksara		81.3	307	i 12 14	0	22 35	+14	—	—
Belgrade		81.9	323	e 12 18 _a	0	e 23 9	PS	e 15 28	PP e 41.6
De Bilt		82.1	335	e 12 18	- 1	e 22 29	- 1	e 15 32	PP e 39.9
Stuttgart		83.5	332	i 12 25 _a	- 1	e 22 46	+ 2	i 12 45	sP e 38.9
Karlsruhe		83.6	332	e 12 27	+ 1	—	—	e 12 47	sP e 38.9
Rathfarnham C.	z.	84.2	343	e 12 28 _k	- 1	—	—	e 12 40	pP
Strasbourg		84.2	333	i 12 31	+ 2	e 12 50	sP	e 15 27	PP
Kew		84.3	338	e 12 30	0	e 22 57	+ 5	e 28 31	SS
Triest		84.3	328	e 12 27	- 3	e 22 53	+ 1	e 12 42	pP 39.9
Zürich		84.9	332	e 12 32 _a	- 1	e 22 55	- 3	—	—
Chur		85.0	330	e 12 32	- 1	—	—	e 12 43	pP e 47.6
Wellington		85.1	157	—	—	(e 23 0)	+ 1	—	e 23.0
Lubbock		85.5	49	e 12 37	+ 1	—	—	—	—
Salo		85.6	329	e 12 47	pP	e 22 14	[-42]	e 17 0	?
Paris		85.8	336	e 12 38	+ 1	i 23 1	[+ 4]	e 15 59	PP
Besançon		85.9	332	i 12 39	+ 1	e 13 3	sP	i 12 51	pP
Pavia		86.5	330	—	—	e 23 22	+ 9	—	e 42.1
Oropa		86.6	332	e 12 44	+ 3	e 23 22	+ 8	e 24 44	PPS
Florence		86.8	328	i 12 41	- 1	i 23 21	+ 5	—	e 40.9
Helwan		86.8	306	i 12 39 _a	- 3	23 6	[+ 3]	16 3	PP
Taranto		86.8	322	15 59	PP	e 22 54	[- 9]	25 59	?
Rome		87.8	326	e 12 46	- 1	e 23 11	[+ 2]	e 24 47	PPS
Fayetteville	z.	87.9	44	i 12 50	+ 3	—	—	e 16 0	PP
Clermont-Ferrand		88.2	334	e 12 51	+ 2	e 23 23	- 6	e 23 44	sS
Messina		89.4	322	e 16 30	PP	e 23 18	[- 2]	e 18 12	PPP e 41.4
Cleveland		89.7	33	i 13 6 _k	pP	i 23 46	+ 3	—	—
Harvard		92.5	25	e 13 10	+ 1	—	—	—	—
Weston		92.7	25	e 13 11 _a	+ 1	—	—	—	—
Almeria		98.1	334	17 56	pPP	24 52	- 4	20 30	?
Malaga		98.8	335	i 17 19	PP	e 23 55	[-17]	36 1	SSS 48.9
Tamanrasset	z.	106.9	320	e 14 30	pP	e 18 39	PP	e 30 5	PKKP
Pretoria	z.	125.0	264	e 19 1	[+ 4]	—	—	—	—
Kimberley	z.	129.1	263	e 19 3	[- 2]	—	—	—	—
La Paz		144.1	59	33 14	PS	41 54	SS	—	69.9

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1952

918

Oct. 26d. 16h. 44m. 8s. Epicentre 39°·7N. 143°·9E. (as at 11h.).

Intensity IV at Yonesato, Watari, and Hurukawa; II-III at Uguisuzawa. Epicentre 39°·5N. 143°·9E. Macroseismic radius 200-300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 402, with macroseismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Miyako		1·5	267	0 31	+ 1 _g	0 47	- 1*
Hatinohe		2·0	295	e 0 40	0 _g	1 2	0*
Morioka		2·1	270	i 0 41	- 1 _g	1 6	0*
Mizusawa	E.	2·2	251	0 41	+ 1*	1 11	+ 2*
Isinomaki		2·4	236	e 0 41	0	—	—
Aomori		2·6	295	e 1 5	+21	1 41	+24
Sendai		2·8	239	e 0 56	0 _g	—	—
Akita		2·9	270	e 1 2	+ 4 _g	—	—
Hakodate		3·2	310	e 1 24	S	(e 1 24)	- 8
Hokusima		3·3	235	e 0 55	+ 2	1 37	+ 2
Onahama		3·6	222	e 1 23	+25	2 3	+21
Sapporo		3·9	331	e 1 55	S	(e 1 55)	+ 5
Tukubasan		4·6	223	—	—	e 2 6	- 1
Aikawa		4·7	252	e 2 2	S	(e 2 2)	- 8
Maebasi		5·0	231	e 1 9	- 9	—	—
Tokyo	E.	5·2	221	1 19	- 2	2 7	-15
Nagano	N.	5·4	239	e 1 27	+ 3	—	—
Oiwake		5·4	233	e 1 22	- 2	—	—
Mera		5·8	216	e 2 9	+13 _g	—	—
Kohu		5·9	228	e 1 16	-15	—	—
Misima	E.	6·0	222	e 1 15	-17	—	—

Oct. 26d. 17h. 20m. 35s. Epicentre 39°·3N. 143°·7E. Focus at Base of Superficial Layers. (as at 15h.).

Intensity IV at Sakari. Epicentre 39°·3N. 143°·5E. Depth 40km. Macroseismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 403, with macroseismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Miyako		1·4	284	e 0 19	- 4	0 33	- 8
Mizusawa	E.	2·0	265	0 30	- 2	0 52	- 4
Morioka		2·0	282	e 0 29	- 3	0 53	- 3
Hatinohe		2·1	307	e 0 34	+ 1	0 55	- 4
Isinomaki		2·1	246	e 0 34	+ 1	—	—
Sendai		2·4	245	e 0 38	0	1 2	- 4
Aomori		2·7	304	0 41	- 1	1 11	- 3
Akita	E.	2·8	279	e 0 45	+ 2	1 20	+ 4
Yamagata		2·8	248	—	—	e 1 8	- 8
Hokusima		3·0	239	e 0 46	0	1 27	+ 5
Onahama		3·2	223	e 1 19	S	(e 1 19)	- 8
Inawasiro		3·3	240	e 1 9	+18	—	—
Hakodate		3·4	319	e 0 32	-20	1 18	-14
Mori	E.	3·7	321	e 1 2	+ 6	—	—
Sapporo		4·2	336	e 1 51	+48	2 44	+52
Maebasi	Z.	4·7	233	e 1 10	0	2 6	+ 1
Tokyo		4·8	222	—	—	e 2 0	- 7
Oiwake		5·0	236	e 1 32	+17	—	—
Nagano	N.	5·1	241	e 1 17	+ 1	—	—
Misima	E.	5·6	224	e 2 9	S	(e 2 9)	-18

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1952

919

Oct. 26d. 17h. 48m. 31s. Epicentre 39°·6N. 73°·8E. (as on 1952, June 13d.).

A = +·2156, B = +·7419, C = +·6349; $\delta = 0$; $h = -2$;
D = +·960, E = -·279; G = +·177, H = +·610, K = -·773.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Andijan	1·6	316	i 0 26	- 4	i 0 44?	- 7	—	—
Fergana	1·7	297	e 0 30	- 1	—	—	—	—
Dzhergetal	2·0	259	i 0 34	- 1	i 1 2	0	—	—
Namangan	2·1	310	i 0 37	0	i 1 8?	- 1 _g	—	—
Naryn	2·5	42	i 0 43	0	i 1 17	- 1*	i 1 19	?
Khorog	2·7	219	0 49?	0*	1 25?	+ 1*	—	—
Frunse	3·3	10	i 0 54	+ 1	i 1 38	+ 3	—	—
Rybach'e	3·3	31	i 0 56	+ 3	—	—	—	—
Obi-garm	3·3	254	i 0 54	+ 1	i 1 48	- 1 _g	—	—
Lunacharskoe	3·8	298	e 0 58	- 3	i 1 59	+ 2*	—	—
Tashkent	3·9	298	e 1 1	- 1	e 2 6	- 3 _g	—	—
Stalinabad	4·0	257	i 1 1	- 3	—	—	—	—
Tchimkent	4·2	312	1 8	+ 1	2 1	+ 4	—	—
Almata	4·4	32	i 1 10	0	—	—	—	—
Almata II	4·5	35	e 1 12	+ 1	—	—	—	—
Przhevalsk	4·5	49	1 11	0	—	—	—	—
Kurmenty	4·8	43	e 1 13	- 2	—	—	—	—
Chilisk	5·3	40	e 1 22	0	—	—	—	—

Oct. 26d. 18h. 2m. 4s. Epicentre 39°·3N. 143°·7E. Focus at Base of Superficial Layers. (as at 17h. 20m.).

Intensity V at Odate, Hanadate, and Daimiyoji; IV at Miyako, Morioka, Hatinohe, Aomori, Kashiwa, Ichinoseki, and Yonesato. Epicentre 39°·4N. 144°·0E. Depth 40km. Macro seismic radius greater than 300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 404, with macro seismic chart.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Miyako		1·4	284	i 0 20 _a	- 3	0 40	- 1	—	—
Mizusawa	E.	2·0	265	0 30	- 2	1 2	+ 6	—	—
Morioka		2·0	282	i 0 29 _k	- 3	0 56	0	—	—
Hatinohe		2·1	307	i 0 29 _a	- 4	0 53	- 6	—	—
Isinomaki		2·1	246	0 31	- 2	0 54	- 5	—	—
Sendai		2·4	245	i 0 37 _a	- 1	1 7	+ 1	—	—
Aomori		2·7	304	i 0 36 _a	- 6	1 7	- 7	—	—
Akita	Z.	2·8	279	i 0 43 _a	0	1 23	+ 7	—	—
Yamagata		2·8	248	e 0 43	0	1 21	+ 5	—	—
Urakawa		2·9	347	e 0 44	- 1	1 20	+ 1	—	—
Hokusima		3·0	239	e 0 44 _a	- 2	1 23	+ 1	—	—
Sakata		3·0	264	0 50	+ 4	1 36	+ 14	—	—
Onahama		3·2	223	e 0 48	- 1	1 25	- 2	—	—
Inawasiro		3·3	240	e 0 50	- 1	—	—	—	—
Hakodate		3·4	319	0 56	+ 4	1 37	+ 5	—	—
Shirakawa		3·5	233	e 0 52	- 1	1 40	+ 6	—	—
Obihiro		3·7	354	i 1 6	+ 10	1 50	+ 11	—	—
Mori	E.	3·7	321	i 0 54 _a	- 2	—	—	—	—
Muroran		3·7	327	i 0 58	+ 2	1 40	+ 1	—	—
Mito		3·9	223	e 0 59	0	—	—	—	—
Niigata	Z.	3·9	251	e 1 6	+ 7	1 59	+ 15	—	—
Tyosi	E.	4·2	213	e 1 3	0	—	—	—	—
Tukubasan		4·2	224	e 0 59	- 4	1 57	+ 5	—	—
Sapporo		4·2	336	e 0 59 _a	- 4	1 57	+ 5	—	—
Aikawa	E.	4·5	255	1 5	- 3	1 58	- 2	—	—
Kumagaya	Z.	4·6	229	1 8	- 1	2 4	+ 2	—	—
Asahigawa		4·6	348	e 1 12	+ 3	2 21	+ 19	—	—
Maebasi		4·7	233	i 1 10 _k	0	2 6	+ 1	—	—
Abashiri		4·8	5	1 8	- 4	1 59	- 8	—	—
Tokyo		4·8	222	1 12	0	2 14	+ 7	—	—

Continued on next page.

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		Δ °	Az. °	P.		O - C. s.	S.		O - C. s.	Supp.		L. m.
				m.	s.		m.	s.		m.	s.	
Takada		4.8	245	1	12	0	2	23	+16	—	—	—
Titibu		4.9	230	i	1 13	0	2	8	- 2	—	—	—
Yokohama		5.0	221	1	24	+ 9	2	27	+15	—	—	—
Oiwake		5.0	236	1	16	+ 1	2	31	+19	—	—	—
Nagano	N.	5.1	241	e	1 16	0	2	36	+21	—	—	—
Matusiro	N.	5.1	240	i	1 18 _a	+ 2	2	16	+ 1	—	—	—
Mera		5.3	217	1	22	+ 3	2	33	+13	—	—	—
Hunatu	N.	5.5	228	1	23	+ 1	2	34	+ 9	—	—	—
Kohu		5.5	230	1	24	+ 2	2	28	+ 3	—	—	—
Matumoto	E.	5.5	238	e	1 22	0	2	36	+11	—	—	—
Ajiro		5.6	222	e	1 29	+ 6	2	58	+31	—	—	—
Misima		5.6	224	1	26	+ 3	2	46	+19	—	—	—
Osima		5.7	219	e	1 23	- 1	2	29	- 1	—	—	—
Wazima		5.7	253	e	1 29	+ 5	2	54	+24	—	—	—
Toyama	Z.	5.8	245	i	1 25	- 1	2	52	+20	—	—	—
Iida		6.0	233	e	1 28	- 1	—	—	—	—	—	—
Takayama		6.0	241	e	1 26	- 3	2	50	+13	—	—	—
Shizuoka		6.1	226	e	1 32	+ 2	2	51	+11	—	—	—
Wakkanai	E.	6.3	347	e	1 31	- 2	2	54	+ 9	—	—	—
Omaesaki		6.4	225	e	1 37	+ 3	3	2	+15	—	—	—
Hamamatu		6.6	228	1	47	+10	3	1	+ 9	—	—	—
Gihu	E.	6.7	237	e	1 39	0	3	4	+ 9	—	—	—
Hukui		6.7	244	e	1 41	+ 2	3	11	+16	—	—	—
Nagoya	E.	6.8	235	e	1 53	+13	—	—	—	—	—	—
Hatidyozima		6.9	208	e	1 41	0	3	1	+ 1	—	—	—
Ibukisan	N.	7.0	239	e	1 44	+ 1	3	16	+14	—	—	—
Tsuruga		7.1	242	1	44	0	3	27	+22	—	—	—
Hikone		7.2	238	1	46	0	3	12	+ 5	—	—	—
Kameyama		7.3	235	1	47	0	3	26	+16	—	—	—
Tu		7.3	234	i	1 51	+ 4	3	36	+26	—	—	—
Yuzno-Sakhlinsk		7.7	355	i	1 48	- 5	—	—	—	—	—	—
Kyoto		7.7	239	e	1 53	0	3	27	+ 7	—	—	—
Toyooka		8.0	245	e	1 57	0	3	34	+ 7	—	—	—
Osaka		8.0	237	e	2 3	+ 6	4	1	+34	—	—	—
Owase		8.0	232	e	1 52	- 5	3	37	+10	—	—	—
Wakayama		8.5	236	e	2 6	+ 2	—	—	—	—	—	—
Sumoto		8.6	238	2	11	+ 6	3	48	+ 6	—	—	—
Siomisaki		8.7	230	e	2 11	+ 5	—	—	—	—	—	—
Saigo	E.	8.8	253	e	2 0	- 8	—	—	—	—	—	—
Himeji		8.9	240	e	2 16	+ 7	3	55	+ 6	—	—	—
Okayama		9.1	243	e	2 21	+ 9	—	—	—	—	—	—
Yonago		9.1	248	e	2 12	0	3	55	+ 1	—	—	—
Takamatu		9.2	240	e	2 12	- 1	—	—	—	—	—	—
Matsue		9.3	249	2	12	- 3	3	54	- 5	—	—	—
Vladivostok		9.7	297	i	2 16?	- 4	i	4 16?	+ 7	—	—	—
Uglegorsk		9.8	354	2	20	- 2	—	—	—	—	—	—
Muroto		9.8	235	e	2 29	+ 7	4	36	+24	—	—	—
Koti		10.0	238	e	2 31	+ 7	4	30	+13	—	—	—
Hamada		10.3	248	2	30	+ 2	4	36	+12	—	—	—
Hirosima		10.3	245	2	26	- 2	4	28	+ 4	—	—	—
Matuyama		10.4	242	e	2 28	- 2	4	34	+ 8	—	—	—
Simidu		10.8	237	e	2 39	+ 4	—	—	—	—	—	—
Ooita		11.5	242	e	2 42	- 3	4	51	- 2	—	—	—
Kumamoto		12.3	243	e	2 59	+ 3	—	—	—	—	—	—
Miyazaki		12.4	237	e	3 16	+19	—	—	—	—	—	—
Saga		12.4	245	e	3 11	+14	—	—	—	—	—	—
Tomie		13.8	246	e	3 14	- 2	—	—	—	—	—	—
Magadan		20.7	19	4	37	- 3	8	24	0	—	—	—
Nanking		21.4	259	4	42	- 5	i	8 40	+ 2	—	—	—
Kyakhta		28.3	306	i	5 51	- 2	—	—	—	—	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Kabansk		28.5	310	5 53	- 1	—	—	—	—
Irkutsk		30.0	310	6 5	- 3	e 11 1	-11	—	—
Hong Kong		30.3	245	6 16	+ 6	e 11 9	+ 2	—	—
Manila		31.7	226	i 6 21	- 2	—	—	—	—
Semipalatinsk		45.0	307	e 8 10	- 4	—	—	—	—
Sbillong	E.	45.3	269	e 8 14	- 2	e 14 52	- 2	9 56	PcP 20.6
College		46.2	34	i 8 25	+ 1	—	—	—	—
Chatra		48.3	273	i 8 39	- 1	e 15 40	+ 3	—	—
Przhevalsk		48.4	297	8 46	+ 5	—	—	—	—
Almata II		48.8	298	e 8 43	- 1	—	—	—	—
Almata		49.1	298	i 8 47	+ 1	e 15 57	+ 9	—	—
Calcutta	E.	49.6	268	e 8 54	+ 4	i 15 58	+ 3	18 40	ScS 23.0
Rybach'e		50.0	297	i 8 51	- 2	16 2	+ 2	—	—
Naryn		50.4	296	i 8 55	- 1	i 16 9	+ 3	—	—
Frunse		50.9	298	i 8 58	- 2	i 16 18	+ 5	—	—
Andijan		53.2	296	i 9 16	- 1	16 47	+ 3	—	—
Namangan		53.6	296	i 9 19	- 1	e 16 53	+ 3	—	—
Fergana		53.8	296	i 9 18	- 4	i 16 53	+ 1	—	—
Tchimkent		54.5	299	i 9 26	- 1	i 17 4	+ 2	—	—
Dzhergetal		54.6	295	i 9 26	- 2	—	—	—	—
Sverdlovsk		54.7	319	i 9 27	- 1	i 17 5	+ 1	—	—
Lunacharskoe		55.1	299	i 9 29	- 2	i 17 10	0	—	—
Tashkent		55.1	299	i 9 29	- 2	—	—	—	—
New Delhi		55.1	281	e 9 28	- 3	i 17 7	- 3	11 32	PP
Khorog		55.1	293	i 9 32	+ 1	i 17 14	+ 4	—	—
Obi-garm		55.9	296	i 9 34	- 3	i 17 18	- 3	—	—
Stalinabad		56.6	296	i 9 40	- 2	—	—	—	—
Djakarta		56.6	225	10 26	+44	16 56	-34	e 10 43	PcP
Resolute Bay		60.0	16	i 10 13	+ 7	i 18 17	+ 3	i 22 15	SS
Hyderabad	E.	60.1	269	10 7	+ 1	e 18 7	- 9	12 16	PP
Hyderabad									i 31.5
Madras	E.	61.4	265	e 10 25	pP	—	—	—	—
Bairam-Ali		61.7	298	i 10 16	- 1	—	—	—	—
Quetta		61.9	288	e 10 16	- 2	e 18 43	+ 5	—	—
Poona		63.1	273	i 10 26	0	i 18 56	+ 2	19 12	sS
Victoria		63.6	48	10 33	+ 3	—	—	—	26.3
Bombay		63.7	274	e 10 29	- 1	e 19 3	+ 2	19 23	sS 26.9
Ashkabad		64.1	300	i 10 34	+ 1	—	—	—	—
Seattle	Z.	64.6	48	i 10 43	+ 7	—	—	i 11 59	?
Kiruna		65.0	339	i 10 35	- 4	i 19 19	+ 2	i 10 46	pP e 33.4
Kodaikanal	E.	65.2	264	e 10 34	- 6	—	—	—	—
Colombo	E.	65.5	259	9 46	-56	e 19 28	+ 5	—	38.8
Moscow		66.5	324	10 47	- 1	19 35	0	—	—
Brisbane		67.0	170	i 10 55 _a	+ 3	e 19 50	+ 9	i 11 11	pP
Pulkovo		67.1	330	e 10 53	+ 1	e 19 43	+ 1	—	—
Shasta	Z.	68.3	55	e 11 1	+ 1	e 12 32	?	e 14 37	?
Baku		68.4	305	i 11 1	+ 1	e 20 5	+ 7	—	—
Makhach-Kala		68.5	309	i 10 59	- 2	—	—	—	—
Helsinki		68.9	333	—	—	c 19 55	- 9	—	—
Hungry Horse		68.9	45	i 11 4	+ 1	—	—	i 11 7	P
Mineral	Z.	69.0	54	i 11 3	- 1	—	—	—	—
Shemakla		69.1	306	i 11 2	- 3	20 10	+ 4	—	—
Grozny		69.3	310	i 10 56 _?	-10	—	—	—	—
Berkeley		70.0	57	e 11 12 _a	+ 2	i 20 25	+ 8	—	e 29.3
Scoresby Sund		70.0	356	e 11 8	- 2	i 20 20	+ 3	e 20 58	PPS 29.9
Kirovobad		70.4	307	e 11 12	- 1	—	—	—	—
Santa Clara	E.	70.5	57	—	—	i 20 29	+ 6	—	—
Piatigorsk		70.5	312	11 16 _?	+ 3	i 20 23 _?	0	—	—
Reno		70.6	54	e 11 18	+ 4	e 20 31	+ 7	—	—
Lick	Z.	70.7	57	e 11 15	+ 1	—	—	—	—
Tiflis		70.8	309	i 11 14	- 1	i 20 28	+ 2	—	—
Gori		71.1	309	11 16	- 1	—	—	—	—
Goris		71.2	306	i 11 14	- 4	e 20 34	+ 3	—	—
Borzhomi		71.6	309	i 11 20	0	20 40	+ 4	—	—
Upsala		71.7	335	i 11 19	- 1	e 20 33	- 4	i 11 29	pP e 31.9
Tsikhlis-Dzhvari		71.7	309	11 22 _?	+ 2	—	—	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Akhalkalaki		71.8	309	e 11 22	+ 1	—	—	—	—
Erevan		71.9	307	i 11 22	0	20 44	+ 5	—	—
Abastumanj		72.0	309	e 11 23	+ 1	20 44	+ 4	—	—
Leninakan		72.0	309	e 11 34?	pP	—	—	—	—
Zugdidi		72.1	311	e 11 25	+ 2	e 20 45	+ 4	—	—
Fresno	z.	72.2	56	e 11 26	+ 3	—	—	—	—
Sotchi		72.7	313	e 11 24	- 2	i 20 48	0	—	—
Tinemaha	z.	73.0	56	i 11 33	+ 5	—	—	i 11 46	pP
Riverview		73.1	173	e 11 34	+ 5	e 20 59	+ 6	e 21 17	sS
Theodosia		74.2	316	e 11 33	- 2	e 21 5	0	—	e 31.6
China Lake	z.	74.2	56	e 11 37	+ 2	—	—	e 11 42	P
Pasadena		74.8	58	e 11 43	+ 4	e 21 12	0	—	e 36.4
Simferopol		75.0	317	i 11 38	- 2	i 21 14	0	—	—
Bergen	N.	75.0	340	—	—	e 21 20	+ 6	—	e 39.0
Yalta		75.2	316	i 11 39	- 2	e 21 18	+ 2	—	—
Riverside	z.	75.5	58	e 11 43	0	—	—	e 11 48	P
Boulder City		75.9	55	e 11 46	+ 1	—	—	—	—
Nelson		76.1	55	e 11 47	+ 1	—	—	i 11 53	P
Kishinev		76.3	321	i 11 46	- 1	e 21 28	0	—	—
Lwow		76.6	325	e 11 48	- 1	i 21 31	- 1	—	—
Copenhagen		76.7	335	e 11 48	- 2	21 30	- 3	i 12 5	PcP
Iasi		76.8	323	e 11 49	- 1	21 32	- 2	—	39.9
Cernauti		76.8	323	e 11 49	- 1	—	—	—	—
Uzhgorod		78.2	325	e 11 51	- 7	e 21 48	- 1	—	—
Skalnate Pleso		78.7	327	e 12 18	sP	e 22 15	sS	—	—
Raciborzu		78.9	328	e 12 0	- 2	e 22 5	+ 9	e 12 12	pP
Potsdam		79.1	333	i 12 4	+ 1	i 22 2	+ 4	i 12 19	pP
Bucharest		79.5	320	e 12 8	+ 3	e 22 6	+ 3	—	e 45.9
Aberdeen		79.7	342	—	—	i 22 4	- 1	i 27 11	SS
Collmberg		80.0	331	e 12 28	sP	e 22 24	sS	e 30 15	SSS
Budapest		80.5	325	12 13	+ 3	e 22 16	+ 3	22 21	ScS
Prague		80.5	330	e 12 10	0	e 22 14	+ 1	e 15 12	PP
Ogyalla	N.	80.6	326	e 12 14	+ 3	e 22 21	+ 7	e 22 50	SP
Jena		80.8	331	e 12 11	- 1	e 22 16	0	e 15 19?	PP
Tucson		80.8	56	e 12 17	+ 5	—	—	—	—
Timisoara		80.9	323	13 56	?	—	—	—	43.9
Auckland	N.	81.0	155	—	—	e 22 56?	SP	—	—
Witteveen	z.	81.0	335	e 12 12	- 1	—	—	—	—
Cheb	N.	81.2	331	e 12 16	+ 2	e 22 25	+ 5	—	—
Ksara		81.3	307	i 12 15	+ 1	22 31	+10	23 14	PS
Belgrade		81.9	323	e 12 18k	0	e 22 30	+ 2	e 24 45	?
De Bilt		82.1	335	e 12 17	- 2	e 22 27	- 3	e 15 22	PP
Stuttgart		83.5	332	e 12 24	- 2	e 22 47	+ 3	e 12 40	pP
Karlsruhe		83.6	332	e 12 25	- 1	—	—	—	e 42.9
Rathfarnham Castle		84.2	343	i 12 29	0	e 22 46	- 5	e 15 43	PP
Strasbourg		84.2	333	e 12 27	- 2	e 22 51	0	e 15 42	PP
Kew		84.3	338	i 12 30	0	e 22 49	- 3	e 15 49	PP
Triest		84.3	328	e 12 29	- 1	i 22 49	- 3	e 23 48	PS
Zürich		84.9	332	e 12 31a	- 2	e 22 56	- 2	—	40.7
Chur		85.0	330	e 12 30k	- 3	—	—	—	e 46.2
Wellington		85.1	157	—	—	e 22 56	- 3	—	e 42.9
Lubbock		85.5	49	e 12 35	- 1	—	—	—	—
Salo		85.6	329	e 12 55	sP	e 23 48	SP	e 16 6	PP
Paris		85.8	336	i 12 38	+ 1	i 23 7	+ 1	i 12 53	pP
Besançon		85.9	332	e 12 38	0	e 13 4	sP	e 12 51	pP
Bologna		86.2	328	e 13 50	+71	—	—	—	—
Pavia		86.5	330	—	—	e 23 8	- 5	e 24 19	PS
Oropa		86.6	332	e 12 45	+ 4	e 23 12	- 2	e 16 12	PP
Helwan		86.8	306	12 41	- 1	e 23 9	[+ 6]	16 8	PP
Rome		87.8	326	e 12 47	0	e 23 13	[+ 4]	e 16 15	PP
Fayetteville	z.	87.9	44	i 12 48	+ 1	—	—	—	—
Clermont-Ferrand		88.2	334	i 12 50	+ 1	e 23 39	+10	e 23 21	SKKS
Ottawa		88.6	27	e 12 52	+ 1	23 18	[+ 3]	23 36	SKKS
Messina		89.4	322	e 12 58	+ 3	e 23 24	[+ 4]	e 16 24	PP
Cleveland		89.7	33	i 12 58a	+ 2	i 23 47	+ 4	i 13 37	?

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Pennsylvania	E.	91.7	31	—	—	e 24 7	+ 6	—	—
Harvard		92.5	25	e 13 9	0	—	—	—	e 57.2
Weston		92.7	25	e 13 11 _a	+ 1	—	—	—	—
Palisades		93.0	27	—	—	e 24 14	+ 2	—	e 44.9
Alicante		96.0	333	12 53	-32	e 23 11	[-47]	16 49	PP 43.4
Algiers Univ.	z.	96.1	329	e 17 18	PP	e 26 0	PS	e 19 0	PPP —
Almeria		98.1	334	13 38	+ 4	e 24 18	[+10]	17 42	PP 49.3
Granada		98.1	335	e 13 32 _k	- 2	e 25 8	+12	i 17 39	PP 50.0
Malaga		98.8	335	i 17 41	PP	e 24 1	[-11]	29 9	PKKP 51.1
Bermuda		104.0	25	—	—	e 25 50	+ 5	e 32 20	SS e 43.4
Tamanrasset	z.	106.9	320	14 14	P	e 18 37	PP	e 29 54	PKKP —
Kimberley	z.	129.1	263	e 19 8	[+ 3]	—	—	—	—
Huancayo		136.1	63	e 19 22	[+ 4]	e 40 9	SS	—	e 64.1
La Paz		144.1	59	19 44	pPKP	—	—	22 56	PP 70.7

Oct. 26d. 19h. 19m. 15s. Epicentre 39°·6N. 143°·5E. (as on 1947, June 16d.).

Intensity V at Aomori, Kuji, Sakari, Noheji, and Odate; IV at Miyako, Hatinohe, Morioka, Isinomaki, and Kashiwa. Epicentre 39°·3N. 143°·3E. Depth 20km. Macroseismic radius greater than 300km. Sei. no. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 406, with macroseismic chart.

$$A = -.6211, B = +.4596, C = +.6349; \quad \delta = +10; \quad h = -2; \\ D = +.595, E = +.804; \quad G = -.510, H = +.378, K = -.773.$$

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Miyako		1.2	272	i 0 22 _a	- 1*	0 36	- 5	—	—
Hatinohe		1.8	302	i 0 32 _a	0	0 49	- 7	—	—
Morioka		1.8	274	i 0 33 _a	+ 1	0 55	- 1	—	—
Mizusawa		1.9	256	0 32	- 2	0 49	-10	—	—
Isinomaki		2.1	236	i 0 33 _a	- 4	0 56	- 8	—	—
Aomori		2.4	300	i 0 38 _a	- 3	1 9	- 3	—	—
Sendai		2.4	237	i 0 39 _a	- 2	1 8	- 4	—	—
Akita	E.	2.6	273	i 0 45 _a	+ 1	1 18	+ 1	—	—
Urakawa		2.6	348	e 0 50	- 2 _g	1 25	- 1 _g	—	—
Sakata		2.9	257	0 51	- 1*	1 32	+ 2*	—	—
Hukusima		3.0	232	i 0 47 _a	- 3	1 23	- 4	—	—
Hakodate		3.1	317	0 53	+ 2	1 32	+ 3	—	—
Mori	z.	3.3	320	i 0 57 _a	- 2*	2 10	+21 _g	—	—
Onahama		3.3	217	i 0 53 _a	0	1 37	+ 2	—	—
Inawasiro		3.3	234	e 0 53	0	—	—	—	—
Muroran		3.3	326	i 1 3	- 3 _g	1 43	+ 1*	—	—
Kusiro		3.4	11	e 1 0	- 1*	1 39	+ 2	—	—
Shirakawa		3.6	227	e 0 54	- 4	1 48	- 3*	—	—
Sapporo	E.	3.8	335	e 1 3 _a	+ 2	1 56	- 1*	—	—
Niigata	E.	3.9	246	e 0 56	- 6	1 46	- 4	—	—
Mito	z.	4.0	218	1 1	- 3	1 57	+ 5	—	—
Nemuro		4.1	22	e 1 8	+ 3	1 49	- 6	—	—
Tukubasan		4.3	220	e 1 15	- 1*	—	—	—	—
Asahigawa		4.3	349	e 1 13	- 3*	2 22	0 _g	—	—
Abashiri		4.4	7	e 1 14	+ 4	2 4	+ 2	—	—
Aikawa		4.4	251	1 7	- 3	2 3	+ 1	—	—
Tyosi	E.	4.4	209	e 1 5	- 5	2 16	+ 1*	—	—
Kumagaya	z.	4.7	225	1 12	- 2	2 8	- 2	—	—
Maebasi		4.7	229	i 1 13 _a	- 1	2 20	- 4*	—	—
Takada		4.8	241	1 16	+ 1	—	—	—	—
Tokyo	z.	4.9	219	i 1 14	- 3	2 12	- 3	—	—
Titibu		5.0	226	i 1 17	- 1	2 17	- 1	—	—
Nagano		5.1	237	1 32	+ 2*	2 49	+ 1 _g	—	—
Oiwake		5.1	232	1 18 _a	- 2	2 28	+ 8	—	—
Matusiro	N.	5.2	236	i 1 18	- 3	2 14	- 8	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Yokohama		5.2	218	1 25	+ 4	2 32	- 6*	—	—
Matumoto	E.	5.5	234	e 1 25	0	2 35	+ 5	—	—
Mera		5.5	213	1 27	+ 2	—	—	—	—
Kohu		5.6	226	1 25	- 2	2 30	- 3	—	—
Wazima		5.6	249	i 1 27 _a	0	2 37	+ 4	—	—
Ajiro		5.7	219	e 1 26	- 2	2 32	- 3	—	—
Misima		5.8	221	e 1 26	- 3	2 35	- 3	—	—
Osima		5.8	216	e 1 28	- 1	2 39	+ 1	—	—
Toyama		5.8	242	i 1 29 _a	0	2 52	- 4*	—	—
Takayama		6.0	237	e 1 31	- 1	2 47	+ 4	—	—
Hida		6.1	230	e 1 30	- 4	2 45	0	—	—
Shizuoka		6.2	223	1 32	- 3	2 53	+ 5	—	—
Kanazawa		6.2	243	e 1 36	+ 1	—	—	—	—
Omaesaki		6.5	222	e 1 41	+ 2	2 57	+ 2	—	—
Hukui		6.7	241	e 1 42	0	3 4	+ 4	—	—
Gihu	E.	6.8	234	1 41	- 3	3 5	+ 2	—	—
Nagoya	E.	6.8	232	1 42	- 2	3 11	+ 8	—	—
Ibukisan	N.	7.1	236	e 1 49	+ 1	3 24	- 11*	—	—
Tsuruga		7.1	239	1 45	- 3	3 14	+ 4	—	—
Hikone		7.2	236	1 42	- 7	—	—	—	—
Kameyama		7.4	232	1 49	- 3	3 28	+ 10	—	—
Tu		7.4	231	1 48	- 4	3 36	- 8*	—	—
Yuzno-Sakhlinsk		7.4	356	i 1 53	+ 1	—	—	—	—
Kyoto		7.7	236	e 1 53	- 3	3 23	- 2	—	—
Owase		8.0	229	e 1 57	- 3	3 39	+ 6	—	—
Toyooka		8.0	242	i 1 58	- 2	3 26	- 7	—	—
Osaka		8.1	235	e 2 3	+ 1	3 50	+ 15	—	—
Wakayama		8.5	234	e 2 6	- 1	—	—	—	—
Sumoto		8.7	236	i 2 8	- 2	3 44	- 6	—	—
Saigo		8.7	250	e 2 12	+ 2	—	—	—	—
Siomisaki		8.8	228	e 2 8	- 3	4 1	+ 8	—	—
Himeji	N.	8.9	238	e 2 7	- 5	3 47	- 8	—	—
Tokusima		9.0	235	e 2 22	+ 9	4 10	+ 12	—	—
Okayama		9.1	240	e 2 15	+ 1	—	—	—	—
Yonago		9.1	246	i 2 13	- 1	4 2	+ 2	—	—
Takamatu	N.	9.2	238	e 2 15	- 1	—	—	—	—
Matsue		9.3	247	2 13	- 4	4 1	- 4	—	—
Vladivostok		9.4	296	i 2 19	+ 1	i 4 7	0	—	—
Muroto		9.8	233	e 2 21	- 3	4 17	0	—	—
Koti		10.0	236	e 2 26	- 1	4 26	+ 4	—	—
Hamada		10.2	246	2 29	- 2	4 30	+ 3	—	—
Hirosima		10.3	243	e 2 28	- 4	4 30	0	—	—
Matuyama		10.4	240	e 2 28	- 6	4 36	+ 4	—	—
Simidu	E.	10.9	235	2 38	- 2	—	—	—	—
Ooita		11.5	240	e 2 42	- 6	5 3	+ 4	—	—
Simonoseki		11.5	245	i 2 42	- 6	—	—	—	—
Hukuoka		12.1	244	e 2 53	- 4	—	—	—	—
Miyazaki		12.4	236	e 2 57	- 4	—	—	—	—
Kumamoto		12.4	241	e 2 57	- 4	—	—	—	—
Saga		12.4	243	3 8	+ 7	—	—	—	—
Tomie		13.8	244	e 3 18	- 1	5 2	- 52	—	—
Petropavlovsk		17.0	32	i 4 8	+ 7	i 7 24	+ 14	—	—
Magadan		20.5	10	4 44	+ 2	8 39	+ 12	—	—
Nanking		21.4	257	i 4 45 _a	- 6	i 8 43	- 2	—	—
Kyakhta		28.0	306	i 5 54	- 1	i 10 41	+ 3	—	—
Kabansk		28.2	309	i 5 57	+ 1	—	—	—	—
Irkutsk		29.7	309	i 6 8	- 2	—	—	—	—
Hong Kong		30.3	244	e 5 16	- 59	11 10	- 5	—	17.0
Manila		31.8	224	i 6 18	- 10	—	—	—	—
Semipalatinsk		44.7	306	i 8 14	- 2	—	—	—	—
Shillong	E.	45.1	269	e 8 16	- 4	14 55	- 4	10 2	PcP
College		46.1	34	8 30	+ 2	15 17	+ 3	—	—
Kurventy		48.0	296	i 8 42	- 1	—	—	—	—
Chatra		48.1	272	i 8 44	+ 1	e 15 40	- 2	i 13 3	?
Przhevalsk		48.1	296	i 8 43	0	e 15 42	0	—	—

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Almata II	48.5	298	i 8 47	+ 1	—	—	—	—
Almata	48.8	298	i 8 50	+ 1	—	—	—	—
Calcutta	E. 49.5	267	e 8 53	- 1	i 15 55	- 7	18 47	ScS 22.9
Rybach'e	49.7	297	i 8 54	- 2	—	—	—	—
Naryn	50.1	295	i 8 59	0	—	—	—	—
Frunse	50.6	298	i 9 1	- 1	—	—	—	—
Andijan	52.9	296	i 9 18	- 2	—	—	—	—
Namangan	53.3	296	i 9 22	- 1	—	—	—	—
Fergana	53.5	295	i 9 23	- 1	e 16 56	- 1	—	—
Tchimkent	54.2	299	i 9 29	0	e 17 3	- 3	—	—
Sverdlovsk	54.3	319	i 9 31	+ 1	17 7	0	—	—
Lunacharskoe	54.8	298	i 9 32	- 2	e 17 8	- 6	—	—
Tashkent	54.8	298	i 9 31	- 3	e 17 9	- 5	—	—
New Delhi	54.9	280	e 9 31	- 4	e 17 10	- 4	20 54	SS
Khorog	54.9	292	i 9 35	0	—	—	—	—
Obi-garm	55.7	295	i 9 36	- 4	—	—	—	—
Stalinabad	56.4	295	i 9 44	- 1	e 17 30	- 6	—	—
Djakarta	56.8	225	e 10 2	+14	e 17 35	- 6	23 15	SSS
Samarkand	57.1	296	i 9 49	- 1	—	—	—	—
Resolute Bay	59.7	15	i 10 9k	0	i 18 21	+ 2	—	i 31.4
Hyderabad	E. 60.0	268	10 5	- 6	18 32	+ 9	—	30.1
Quetta	61.7	287	i 10 20	- 2	i 18 46	+ 2	i 10 59	PcP
Poona	62.9	272	i 10 30	0	18 57	- 3	12 53	PP
Bombay	63.5	273	e 10 31	- 3	i 19 4	- 3	19 23	PS
Victoria	63.5	48	10 38	+ 4	—	—	—	—
Ashkabad	63.9	298	e 10 38	+ 1	—	—	—	—
Seattle	Z. 64.6	48	e 10 57	PcP	—	—	—	—
Kiruna	64.7	339	i 10 42a	0	e 19 18	- 4	i 13 1	PP e 32.8
Kodaikanal	E. 65.1	263	e 10 49	+ 4	—	—	—	—
Colombo	E. 65.4	258	10 45	- 2	19 25	- 5	—	36.1
Corvallis	Z. 65.6	53	e 10 50	+ 2	—	—	—	—
Moscow	66.2	323	i 10 52	0	19 37	- 3	—	—
Pulkovo	66.8	330	i 10 56	0	e 19 46	- 2	—	—
Brisbane	67.3	170	e 10 49	-10	e 19 50	- 4	i 11 4	P
Baku	68.1	305	i 11 5	+ 1	—	—	—	—
Makhach-Kala	68.2	308	i 11 3	- 1	20 3	- 1	—	—
Shasta	Z. 68.3	54	e 11 8a	+ 3	—	—	—	—
Helsinki	68.6	333	e 11 7	0	e 20 3	- 6	—	—
Shemakla	68.8	306	i 11 5	- 3	—	—	—	—
Hungry Horse	68.8	44	i 11 11	+ 3	—	—	i 15 26	PPP
Mineral	Z. 69.0	54	e 11 13a	+ 4	—	—	—	—
Grozny	69.0	309	i 11 10	+ 1	—	—	—	—
Scoresby Sund	69.7	356	i 11 15	+ 1	—	—	e 11 45	PcP
Berkeley	69.9	57	e 11 18	+ 3	i 20 31	+ 7	i 11 28	? 35.8
Kirovobad	70.1	307	i 11 15	- 1	—	—	—	—
Piatigorsk	70.2	311	11 17	0	—	—	—	—
Tiflis	70.5	308	i 11 19	+ 1	e 20 33	+ 1	—	—
Reno	Z. 70.6	54	e 11 22a	+ 3	—	—	—	—
Lick	Z. 70.7	57	e 11 23a	+ 3	—	—	—	—
Gori	70.8	308	11 20	0	—	—	—	—
Goris	70.9	306	i 11 19	- 2	e 20 33	- 3	—	—
Borzhomi	71.3	308	i 11 24	+ 1	20 43	+ 2	—	—
Tsikhlis-Dzhvari	71.3	308	11 24	+ 1	—	—	—	—
Upsala	71.4	335	i 11 24a	0	e 20 36	- 6	i 14 2	PP e 33.8
Abastumanj	71.7	308	e 11 26	0	e 20 46	+ 1	—	—
Zugdidi	71.8	311	11 25	- 1	20 45	- 1	—	—
Fresno	Z. 72.2	56	e 11 31a	+ 2	—	—	—	—
Sotchi	72.4	312	i 11 28	- 2	e 20 49	- 4	—	—
Tinemaha	Z. 73.0	56	e 11 38	+ 5	i 11 48	PcP	e 15 53	PPP
Riverview	73.4	172	—	—	e 21 3	- 2	—	e 37.0
Theodosia	73.9	315	i 11 38	- 1	e 21 6	- 4	—	—
China Lake	Z. 74.2	55	e 11 43	+ 3	i 11 52	PcP	e 15 57	PPP
Bergen	N. 74.6	340	—	—	e 21 9	- 9	e 21 27	ScS e 35.4
Simferopol	74.6	316	i 11 43	0	e 21 15	- 3	—	—
Pasadena	74.8	56	i 11 46	+ 2	i 11 56	PcP	e 16 8	PPP e 36.2

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Yalta		74.9	315	i 11 44	0	e 21 16	- 6	—	—
Riverside	z.	75.4	58	e 11 50	+ 3	e 11 59	PcP	e 16 5	PPP
Boulder City		75.8	54	e 11 52	+ 2	—	—	—	—
Nelson		76.0	54	i 11 53	+ 2	—	—	i 12 4	PcP
Kishinev		76.0	320	i 11 50	- 1	21 30	- 4	—	—
Lwow		76.3	324	i 11 52	0	e 21 32	- 5	—	—
Copenhagen		76.3	334	i 11 54 _a	+ 2	21 37	0	22 15	PS
Iasi		76.5	322	e 11 55	+ 1	e 21 38	- 1	—	—
Cernauti		76.5	322	i 11 54	0	—	—	—	—
Uzhgorod		77.9	324	e 12 3	+ 2	e 21 56	+ 2	—	—
Raciborzu		78.6	328	12 5	0	e 21 57	- 5	e 12 15	PcP
Potsdam		78.8	332	i 12 7	+ 1	i 22 4	0	i 22 23	ScS
Bucharest		79.2	319	12 21	+13	22 3	- 5	—	—
Aberdeen		79.3	342	i 39 11	P'P'	e 22 10	+ 1	i 26 26	?
Collmberg		79.7	330	e 12 4	- 7	e 22 11	- 2	e 17 16	PPP
Prague		80.1	330	e 12 14	+ 1	e 22 14	- 4	e 15 38	PP
Budapest		80.2	325	12 12	- 2	e 21 43	-36	15 20	PP
Ogyalla		80.3	326	e 12 18	+ 4	e 22 20	0	e 17 7	PPP
Jena		80.5	331	i 12 16	+ 1	e 22 21?	- 1	e 15 10	PP
Timisoara		80.5	323	e 12 19	+ 4	e 22 23	+ 1	e 12 44	?
Witteveen	z.	80.6	336	i 12 18	+ 2	—	—	—	—
Tucson		80.8	56	e 12 20	+ 3	—	—	e 16 36	?
Cheb		80.9	331	e 17 48	PPP	e 22 29	+ 3	—	—
Ksara		81.0	306	i 12 19	+ 1	22 37	+10	—	—
Belgrade		81.6	322	e 12 23	+ 2	e 22 33	0	e 22 54	ScS
De Bilt		81.7	336	e 15 33	PP	e 22 33	- 1	—	—
Sofia		81.8	319	e 12 24	+ 2	22 40	+ 5	—	—
Stuttgart		83.2	331	i 12 29 _a	0	e 22 53	+ 4	—	—
Karlsruhe		83.3	332	e 12 32	+ 2	e 22 59	+ 9	e 15 43	PP
Strasbourg		83.7	332	i 12 33	+ 1	e 22 59	+ 5	e 28 35	SS
Rathfarnham Castle		83.9	342	i 12 34 _a	+ 1	e 23 5	+ 9	e 15 45	PP
Triest		83.9	327	i 12 33 _a	0	22 49?	- 7	—	—
Kirkland Lake	z.	84.5	27	e 12 48	+12	—	—	—	—
Chur		84.6	331	e 12 37 _a	+ 1	e 22 59	- 4	—	—
Zürich		84.6	331	e 12 36 _a	0	e 22 56	- 7	—	—
Basle		84.8	331	e 12 38 _a	+ 1	e 22 36	-29	—	—
Athens		85.1	316	e 12 37	- 2	—	—	—	—
Paris		85.4	335	i 12 42	+ 2	e 23 6	[+ 3]	i 16 2	PP
Lubbock		85.4	49	e 12 42	+ 2	—	—	e 12 45	PcP
Besançon		85.6	332	i 12 42	+ 1	e 12 49	PcP	e 13 38	?
Bologna		85.9	328	e 12 52	+ 9	e 23 39	+23	—	—
Oropa		86.3	331	e 12 52	+ 7	e 23 14	{ 0 }	—	—
Taranto		86.4	321	—	—	e 22 45	{ -25 }	—	—
Florence		86.5	327	i 12 45? _a	- 1	e 23 9	{ - 2 }	—	—
Helwan		86.5	306	i 12 44 _a	- 2	e 23 21	- 1	16 7	PP
Rome		87.5	326	e 12 50 _a	- 1	e 23 18	[+ 1]	—	—
Fayetteville	z.	87.8	43	i 12 55 _a	+ 3	—	—	—	—
Clermont-Ferrand		87.9	333	i 12 55	+ 2	e 23 27	{+ 1}	e 23 46	S
Ottawa		88.4	27	i 12 56 _k	+ 1	—	—	—	—
Messina		89.0	321	e 12 56	- 2	e 13 29	?	e 16 30	PP
Cleveland		89.5	32	i 13 9 _k	+ 9	e 23 42	{+ 4}	e 16 54	PP
Harvard		92.3	25	i 13 16 _k	+ 3	—	—	—	—
Weston		92.5	25	e 13 16 _a	+ 2	—	—	—	—
Algiers Univ.	z.	95.7	328	e 13 29	0	e 17 21	PP	e 19 37	PPP
Alicante		95.7	332	12 52	-37	24 12	[+ 7]	34 32	SSS
Almeria		97.7	333	13 27	-11	24 27	{-11}	17 27	PP
Granada		97.8	334	i 13 28 _k	-10	24 12	{- 4}	17 36	PP
Malaga		98.5	334	i 17 42	PP	24 12	{- 8}	29 16	?
Tamanrasset	z.	106.6	320	14 18	P	e 18 39	PP	e 30 13	PKKP
Pretoria	z.	124.9	264	i 19 4	[+ 2]	—	—	—	—
Kimberley	z.	129.0	262	e 19 12	[+ 2]	—	—	—	—
Huancayo		136.1	62	e 19 29	[+ 6]	—	—	—	—
La Paz		144.1	59	i 19 45 _a	[+ 7]	41 45	SS	i 46 45	SSS

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Oct. 26d. 20h. 14m. 22s. Epicentre 39°·3N. 143°·7E. (as at 18h.).

Intensity IV at Odate; II-III at Isinomaki, Morioka, and Kesennuma. Epicentre 39°·3N. 143°·6E. Macroseismic radius 200-300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 408, with macroseismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Miyako		1·4	284	i 0 23 ^a	- 4	0 39	- 7
Mizusawa	N.	2·0	265	0 34	- 1	0 53	- 9
Morioka		2·0	282	e 0 34	- 1	1 0	- 2
Hatinohe		2·1	307	0 32	- 5	0 50	-14
Isinomaki		2·1	246	e 0 34	- 3	—	—
Sendai		2·4	245	e 0 42	+ 1	1 14	- 1*
Akita		2·8	279	0 49	+ 2	1 24	+ 2
Urakawa		2·9	347	e 0 47	- 1	1 20	- 4
Hukusima		3·0	239	e 0 49	- 1	1 26	- 1
Onahama		3·2	223	e 1 12	+ 8 _g	—	—
Inawasiro		3·3	240	e 1 5	- 1 _g	—	—
Hakodate		3·4	319	e 1 0	- 1*	1 38	+ 1
Mori	E.	3·7	321	e 1 4	- 2*	1 44	- 1
Kusiro		3·7	8	e 1 2	+ 2	1 34	-11
Mito	Z.	3·9	223	e 1 5	+ 3	3 0	+70
Sapporo		4·2	336	e 1 18	+ 3*	2 10	+ 1*
Nemuro		4·3	19	e 1 7	- 1	1 47	-13
Aikawa		4·5	255	e 1 15	+ 4	2 18	0*
Kumagaya		4·6	229	e 1 17	+ 5	2 14	+ 7
Maebasi		4·7	233	i 1 14 ^k	0	2 19	- 5*
Abashiri		4·8	5	e 1 11	- 4	2 0	-12
Takada		4·8	245	e 1 26	+ 1*	—	—
Tokyo	N.	4·8	222	e 1 7	- 8	2 12	0
Titibu		4·9	230	e 1 17	0	2 15	0
Oiwake		5·0	236	e 1 19	+ 1	—	—
Matusiro	E.	5·1	240	e 1 20	0	2 18	- 2
Nagano	N.	5·1	241	e 1 21	+ 1	—	—
Kohu		5·5	230	1 30	+ 5	2 33	+ 3
Matumoto	E.	5·5	238	e 1 27	+ 2	2 39	- 8*
Osima		5·7	219	e 1 29	+ 1	2 31	- 4
Wazima		5·7	253	e 1 28	0	—	—
Toyama		5·8	245	e 1 32	+ 3	—	—
Shizuoka		6·1	226	e 1 34	0	2 44	- 1
Gihu		6·7	237	1 54	- 3*	3 17	- 6*
Hukui		6·7	244	e 1 48	+ 6	—	—
Nagoya	E.	6·8	235	e 1 50	+ 6	3 26	0*
Ibukisan	N.	7·0	239	e 1 48	+ 2	—	—
Hikone		7·2	238	1 53	+ 4	3 21	+ 8
Kameyama		7·3	235	e 1 50	0	3 22	+ 7
Tu		7·3	234	e 2 12	+ 4*	3 46	+ 5*
Kyoto		7·7	239	e 1 54	- 2	3 41	-12*
Osaka		8·0	237	e 2 43	+ 3 _g	4 46	+22 _g
Takamatu		9·2	240	e 2 30	P*	—	—
College		46·2	34	e 8 26	- 2	i 8 38	?
Bombay		63·7	274	—	—	e 23 49	SS
Kiruna	Z.	65·0	339	i 10 41	- 3	—	—
Hungry Horse		68·9	45	i 11 9	0	—	—
Mineral	Z.	69·0	54	e 11 47	PcP	—	—
Upsala	Z.	71·7	335	i 11 22	- 4	—	—
Fresno	Z.	72·2	56	e 11 32	+ 3	—	—
China Lake	Z.	74·2	56	e 11 50	PcP	—	—
Mount Wilson	Z.	74·9	58	e 11 53	PcP	—	—
Boulder City		75·9	55	e 11 50	0	—	—
Nelson		76·1	55	i 11 51	0	—	—
Fayetteville	Z.	87·9	44	e 12 56	+ 3	—	—
Tamanrasset	Z.	106·9	320	e 18 39	PP	—	—

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1952

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Oct. 26d. 20h. 27m. 29s. Epicentre 39°·6N. 143°·5E. Focus at Base of Superficial Layers (as at 19h.).

Intensity IV at Morioka, Sakai, and Watoni; II-III at Miyako, Hatinohé, Aomori, Isinomaki, Urakawa, Kusiro, and Sannohe. Epicentre 39°·8N. 144°·0E. Depth 40km. Macro seismic radius greater than 300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 409, with macro seismic chart.

	△	Az.	P.		O - C.	S.		O - C.	Supp.		L. m.
			m.	s.		m.	s.		m.	s.	
Miyako	1·2	272	i 0	19 _a	- 1	0	37	+ 1	—	—	—
Hatinohé	1·8	302	i 0	29 _a	0	0	53	+ 2	—	—	—
Morioka	1·8	274	i 0	28 _a	- 1	0	54	+ 3	—	—	—
Mizusawa	1·9	256	0	13	-18	0	37	-17	0	16	P
Isinomaki	2·1	236	0	30	- 3	0	54	- 5	—	—	—
Aomori	2·4	300	i 0	29	- 9	1	0	- 6	—	—	—
Sendai	2·4	237	0	35 _a	- 3	1	6	0	—	—	—
Urakawa	2·6	348	e 0	45	+ 4	1	21	+10	—	—	—
Akita	2·6	273	e 0	40	- 1	1	14	+ 3	—	—	—
Hokusima	3·0	232	e 0	43	- 3	1	14	- 8	—	—	—
Hakodate	3·1	317	0	52	+ 4	1	37	+13	—	—	—
Onahama	3·3	217	e 0	47	- 4	1	37	+ 8	—	—	—
Inawasiro	3·3	234	e 0	55	+ 4	1	47	+18	—	—	—
Mori	3·3	320	e 1	1	+10	1	54	+25	—	—	—
Muroran	3·3	326	i 1	9 _k	+18	2	0	+31	—	—	—
Kusiro	3·4	11	e 0	55	+ 3	1	35	+ 3	—	—	—
Sapporo	3·8	335	e 0	37	-21	1	23	-19	—	—	—
Mito	4·0	218	e 0	56	- 4	1	50	+ 3	—	—	—
Nemuro	4·1	22	e 1	1	- 1	1	47	- 2	—	—	—
Tukubasan	4·3	220	e 1	9	+ 4	—	—	—	—	—	—
Abashiri	4·4	7	e 1	7	+ 1	1	52	- 5	—	—	—
Tyosi	4·4	209	e 1	1	- 5	2	4	+ 7	—	—	—
Kumagaya	4·7	225	e 1	8	- 2	2	7	+ 2	—	—	—
Maebasi	4·7	229	e 1	7	- 3	2	11	+ 6	—	—	—
Tokyo	4·9	219	e 1	13	0	2	9	- 1	—	—	—
Titibu	5·0	226	e 1	13	- 2	2	8	- 4	—	—	—
Nagano	5·1	237	e 1	15	- 1	2	21	+ 6	—	—	—
Oiwake	5·1	232	e 1	21	+ 5	—	—	—	—	—	—
Yokohama	5·2	218	1	29	+11	2	34	+17	—	—	—
Matusiro	5·2	236	e 1	21	+ 3	2	21	+ 4	—	—	—
Mera	5·5	213	e 1	32	+10	—	—	—	—	—	—
Matumoto	5·5	234	e 1	20	- 2	2	38	+13	—	—	—
Wazima	5·6	249	e 1	26	+ 3	2	50	+23	—	—	—
Osima	5·8	216	e 1	14	-12	2	26	- 6	—	—	—
Toyama	5·8	242	e 1	32	+ 6	2	55	+23	—	—	—
Takayama	6·0	237	e 1	26	- 3	2	43	+ 6	—	—	—
Wakkanai	6·0	348	e 2	19	+50	3	48	+71	—	—	—
Shizuoka	6·2	223	e 1	36	+ 4	2	43	+ 1	—	—	—
Gihu	6·8	234	1	39	- 1	—	—	—	—	—	—
Nagoya	6·8	232	e 1	52	+12	3	10	+13	—	—	—
Yuzno-Sakhlinsk	7·4	356	i 1	47	- 1	—	—	—	—	—	—
Kameyama	7·4	232	e 1	44	- 4	3	24	+12	—	—	—
Tu	7·4	231	1	47	- 1	3	32	+20	—	—	—
Kyoto	7·7	236	e 1	46	- 7	3	22	+ 2	—	—	—
Toyooka	8·0	242	e 1	53	- 4	3	29	+ 2	—	—	—
Osaka	8·1	235	e 1	59	+ 1	—	—	—	—	—	—
Sumoto	8·7	236	e 2	14	+ 8	3	53	+ 8	—	—	—
Himeji	8·9	238	e 2	11	+ 2	3	49	0	—	—	—
Tokusima	9·0	235	e 2	19	+ 8	4	6	+14	—	—	—
Yonago	9·1	246	e 2	10	- 2	—	—	—	—	—	—
Takamatu	9·2	238	e 1	58	-15	3	59	+ 2	—	—	—
Vladivostok	9·4	296	i 2	15	- 1	e 4	12	+10	—	—	—
Muroto	9·8	233	e 1	57	-25	4	0	-12	—	—	—
Koti	10·0	236	e 2	22	- 2	4	45	+28	—	—	—
Hamada	10·2	246	e 2	25	- 2	4	31	+ 9	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Hirosima	10.3	243	e 2	26	- 2	4	29	+ 5	—	—	—
Matuyama	10.4	240	e 2	22	- 8	4	42	+16	—	—	—
Hukuoka	12.1	244	e 2	56	+ 3	—	—	—	—	—	—
Kumamoto	12.4	241	e 3	7	+10	—	—	—	—	—	—
Petropavlovsk	17.0	32	i 4	0	+ 3	i 7	19	+16	—	—	—
Magadan	20.5	10	4	37	- 1	8	31	+11	—	—	—
Nanking	21.4	257	e 4	52	+ 5	i 8	52	+14	—	—	—
Kyakhta	28.0	306	e 5	50	0	10	39	+ 9	—	—	—
Kabansk	28.2	309	e 5	52	0	—	—	—	—	—	—
Irkutsk	29.7	309	e 6	4	- 1	—	—	—	—	—	—
Semipalatinsk	44.7	306	e 8	11	- 1	—	—	—	—	—	—
Shillong	E. 45.1	269	e 8	14	- 1	e 14	44	- 7	—	—	—
College	46.1	34	i 8	23	0	—	—	—	—	—	—
Przhevalsk	48.1	296	8	39	+ 1	—	—	—	—	—	—
Almata II	48.5	298	i 8	42	0	—	—	—	—	—	—
Rybach'e	49.7	297	i 8	50	- 1	e 16	5	+ 9	—	—	—
Naryn	50.1	295	8	54	0	—	—	—	—	—	—
Frunse	50.6	298	i 8	57	- 1	—	—	—	—	—	—
Andijan	52.9	296	i 9	14	- 1	—	—	—	—	—	—
Namangan	53.3	296	i 9	18	0	—	—	—	—	—	—
Fergana	53.5	295	i 9	19	0	—	—	—	—	—	—
Sverdlovsk	54.3	319	e 9	33	+ 8	—	—	—	—	—	—
Dzhergetal	54.4	295	i 9	24	- 2	—	—	—	—	—	—
Lunacharskoe	54.8	298	i 9	27	- 2	—	—	—	—	—	—
Tashkent	54.8	298	e 9	27	- 2	e 17	15	+ 9	—	—	—
Khorog	54.9	292	9	30	0	—	—	—	—	—	—
Obi-garm	55.7	295	i 9	31	- 4	—	—	—	—	—	—
Stalinabad	56.4	295	i 9	39	- 1	—	—	—	—	—	—
Resolute Bay	59.7	15	i 10	4k	0	i 18	14	+ 4	i 21	57	SS
Quetta	61.7	287	i 10	17	0	e 18	38	+ 2	—	—	i 23.7
Bombay	63.5	273	e 10	39	pP	e 19	2	+ 3	—	—	—
Kiruna	64.7	339	i 10	36a	- 1	e 23	3	SS	i 10	45	pP
Corvallis	z. 65.6	53	e 10	44	+ 1	—	—	—	—	—	e 35.5
Moscow	66.2	323	e 10	47	+ 1	—	—	—	—	—	—
Pulkovo	66.8	330	e 10	48	- 2	—	—	—	—	—	—
Makhach-Kala	68.2	308	i 10	59	0	—	—	—	—	—	—
Shasta	z. 68.3	54	e 11	0k	0	—	—	—	—	—	—
Hungry Horse	68.8	44	i 11	4	+ 1	—	—	—	i 11	14	pP
Grozny	69.0	309	e 11	2	- 2	—	—	—	—	—	—
Berkeley	z. 69.9	57	i 11	11a	+ 1	—	—	—	—	—	—
Kirovobad	70.1	307	11	11	0	—	—	—	—	—	—
Piatigorsk	70.2	311	11	12	+ 1	—	—	—	—	—	—
Tiflis	70.5	308	i 11	13	0	—	—	—	—	—	—
Reno	z. 70.6	54	e 11	15a	+ 1	—	—	—	—	—	—
Lick	z. 70.7	57	e 11	24a	pP	—	—	—	—	—	—
Gori	70.8	308	e 11	14	- 1	—	—	—	—	—	—
Butte	71.0	45	e 11	17	+ 1	—	—	—	—	—	—
Borzhomi	71.3	308	11	19	+ 1	20	41	+ 9	—	—	—
Tsikhlis-Dzhvari	71.3	308	11	20?	+ 2	—	—	—	—	—	—
Upsala	71.4	335	i 11	19	0	—	—	—	i 11	28	pP
Leninakan	71.7	308	e 11	32	pP	—	—	—	—	—	—
Abastumanj	71.7	308	e 11	20	0	—	—	—	—	—	—
Zugdidi	71.8	311	e 11	23	+ 2	—	—	—	—	—	—
Fresno	z. 72.2	56	e 11	22	- 1	—	—	—	—	—	—
Sotchi	72.4	312	i 11	23	- 2	e 20	47	+ 2	—	—	—
Tinemaha	z. 73.0	56	e 11	30	+ 2	—	—	—	e 11	40	pP
Theodosia	73.9	315	e 11	33	0	—	—	—	—	—	—
China Lake	z. 74.2	55	e 11	35	0	—	—	—	e 11	44	pP
Simferopol	74.6	316	i 11	38	0	e 21	16	+ 6	—	—	—
Pasadena	z. 74.8	58	e 11	39	0	—	—	—	e 11	49	pP
Yalta	74.9	315	e 11	38	- 1	e 21	17	+ 4	—	—	—
Riverside	z. 75.4	58	e 11	42	0	—	—	—	e 11	52	pP
Boulder City	75.8	54	i 11	46	+ 2	—	—	—	—	—	—
Nelson	76.0	54	i 11	46	0	—	—	—	—	—	—
Kishinev	76.0	320	i 11	46	0	—	—	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Copenhagen	76.3	334	i 11 48	+ 1	—	—	i 11 57	41.5
Lwow	76.3	324	e 11 48	+ 1	—	—	—	—
Raciborz	78.6	328	e 11 59	- 1	—	—	—	—
Potsdam	78.8	332	e 12 2?	+ 1	—	—	—	e 43.5
Prague	80.1	330	e 12 10	+ 2	e 22 3	- 6	e 12 21	e 45.5
Jena	80.5	331	e 12 11	+ 1	e 15 11	PP	e 12 26	—
Witteveen	80.6	336	i 12 13k	+ 2	—	—	—	—
Tucson	80.8	56	e 12 13	+ 1	—	—	—	—
Ksara	81.0	306	i 12 15	+ 2	22 38	sS	—	—
Stuttgart	83.2	331	e 12 24	0	—	—	e 12 34	e 45.5
Karlsruhe	83.3	332	e 12 26	+ 1	—	—	e 13 8	?
Strasbourg	83.7	332	e 12 29	+ 2	e 22 58	+12	e 15 41	PP
Rathfarnham Castle	83.9	342	e 12 25	- 3	(e 31 31)	SSS	e 13 9	?
Zürich	84.6	331	e 12 29 _a	- 2	—	—	—	e 31.5
Basle	84.8	331	e 12 41 _a	pP	e 20 52	?	—	—
Paris	85.4	335	e 12 40	+ 5	e 22 58	- 4	i 15 56	PP
Besançon	85.6	332	e 12 37	+ 1	—	—	e 12 46	pP
Helwan	86.5	306	12 42	+ 1	e 23 25	+12	i 12 52	pP
Fayetteville	87.8	43	i 12 48	+ 1	—	—	—	—
Clermont-Ferrand	87.9	333	e 12 48	+ 1	—	—	—	—
Ottawa	88.4	27	e 13 0k	pP	—	—	—	—
Harvard	92.3	25	i 13 19k	pP	—	—	—	—
Tamanrasset	106.6	320	15 51	?	i 18 39	PP	e 20 37	PPP

Oct. 26d. 21h. 52m. 12s. Epicentre 41°·2N. 142°·5E. Focus at Base of Superficial Layers. (as on 1951, November 10d.).

Intensity V at Hatinohe; IV at Sannohe, Noheji, Kawauchi, and Tomari; II-III at Aomori and Sambongi. Epicentre 41°·1N. 142°·6E. Depth 40km. Macroseismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 410, with macroseismic chart.

$$A = -.5987, B = +.4594, C = +.6561; \quad \delta = -4; \quad h = -2; \\ D = +.609, E = +.793; \quad G = -.521, H = +.399, K = -.755.$$

	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	s.	m. s.	s.
Hatinohe	1.0	228	i 0 12	- 6	0 24	- 7
Urakawa	1.0	13	e 0 18	0	0 34	+ 3
Aomori	1.4	254	i 0 1	-22	0 18	-23
Hakodate	1.5	293	0 23	- 1	—	—
Muroran	1.6	315	e 0 27	+ 1	—	—
Miyako	1.6	194	e 0 23	- 3	0 40	- 6
Mori	1.7	302	e 0 28	0	0 50	+ 1
Morioka	1.8	214	e 0 25	- 3	0 46	- 3
Obihiro	1.8	17	e 0 39	+10	—	—
Sapporo	2.1	335	e 0 32	- 1	0 57	- 2
Mizusawa	2.3	207	0 36	0	0 58	- 6
Kusiro	2.3	38	e 0 34	- 2	1 0	- 4
Akita	2.4	231	e 0 41	+ 3	1 5	- 1
Ishinomaki	2.9	198	e 0 57	+12	—	—
Sendai	3.2	203	e 0 53	+ 4	1 28	+ 1
Hokusima	3.8	206	e 1 2	+ 4	1 44	+ 2
Inawasiro	4.1	208	e 1 4	+ 2	—	—
Onahama	4.4	197	e 1 28	+22	—	—
Mito	5.1	199	e 1 39	+22	2 36	+21
Maebasi	5.5	210	e 1 28	+ 6	2 32	+ 7
Nagano	5.6	218	e 2 53	S	(e 2 53)	+26
Kumagaya	5.6	207	e 1 27	+ 4	—	—
Tokyo	5.9	202	—	—	e 2 28	- 7
Yokohama	6.2	202	e 2 44	S	(e 2 44)	+ 2
Misima	6.7	206	e 2 16	+37	—	—
Osima	6.9	202	—	—	e 2 42	-18
Shizuoka	7.0	209	—	—	e 3 12	+10

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1952

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Oct. 26d. 22h. 0m. 34s. Epicentre 39°·3N. 143°·7E. (as at 20h. 24m.).

Intensity IV at Sakari; II-III at Miyako and Morioka. Epicentre 39°·4N. 143°·8E.
 Macroseismic radius 200-300km.
 Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 411, with macroseismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Miyako		1·4	284	i 0 26	- 1	0 44	- 2	—	—
Mizusawa		2·0	265	0 37	0*	1 1	- 1	—	—
Morioka		2·0	282	i 0 37	0*	1 6	0 _g	—	—
Hatinohe		2·1	307	0 34	- 3	1 0	- 4	—	—
Isinomaki		2·1	246	0 35 _a	- 2	0 58	- 6	—	—
Sendai		2·4	245	i 0 42 _a	+ 1	1 10	- 2	—	—
Akita	Z.	2·8	279	e 0 47	0	1 26	- 1*	—	—
Urakawa		2·9	347	e 0 51	- 1*	1 26	+ 2	—	—
Hukusima		3·0	239	0 50 _a	0	1 28	+ 1	—	—
Sakata		3·0	264	0 57	- 3 _g	1 43	+ 4 _g	—	—
Onahama		3·2	223	e 1 0	+ 2*	1 42	+ 3*	—	—
Inawasio		3·3	240	e 0 52	- 1	—	—	—	—
Hakodate		3·4	319	0 54	- 1	—	—	—	—
Shirakawa		3·5	233	e 0 58	+ 1	1 46	- 2*	—	—
Obihiro		3·7	354	e 1 5	- 1*	1 41	- 4	—	—
Kusiro		3·7	8	e 0 58	- 2	1 37	- 8	—	—
Mori	N.	3·7	321	e 0 56	- 4	1 42	- 3	—	—
Muroran		3·7	327	i 1 16 _k	+ 2 _g	2 2	0 _g	—	—
Mito		3·9	223	1 4	+ 2	2 2	+ 2*	—	—
Niigata		3·9	251	e 1 11	+ 1*	2 1	+ 1*	—	—
Utunomiya		4·1	229	e 1 6	+ 1	1 56	+ 1	—	—
Sapporo		4·2	336	e 1 13	- 2*	2 7	- 2*	—	—
Tukubasan		4·2	224	e 1 9	+ 2	1 56	- 7	—	—
Tyosi	E.	4·2	213	e 1 8	+ 1	—	—	—	—
Nemuro		4·3	19	e 1 6	- 2	1 48	- 12	—	—
Aikawa		4·5	255	e 1 10	- 1	2 16	- 2*	—	—
Asahigawa		4·6	348	e 1 28	- 4 _g	—	—	—	—
Kumagaya	Z.	4·6	229	1 15	+ 3 _g	2 12	+ 5	—	—
Maebasi		4·7	233	i 1 15 _a	+ 1	2 7	- 3	—	—
Takada		4·8	245	e 1 28	+ 3*	2 40	+ 1 _g	—	—
Tokyo	N.	4·8	222	e 1 14	- 1	2 16	+ 4	—	—
Abashiri		4·8	5	e 1 12	- 3	2 4	- 8	—	—
Titibu		4·9	230	e 1 18	+ 1	2 15	0	—	—
Oiwake		5·0	236	e 1 17	- 1	2 36	+ 4*	—	—
Yokohama		5·0	221	1 34	- 6 _g	2 34	+ 2*	—	—
Matusiro	N.	5·1	240	e 1 22	+ 2	2 18	- 2	—	—
Nagano	N.	5·1	241	e 1 23	+ 3	2 44	- 4 _g	—	—
Mera		5·3	217	e 1 37	+ 4*	—	—	—	—
Kohu		5·5	230	1 30	+ 5	2 32	+ 2	—	—
Matumoto	N.	5·5	238	e 1 27	+ 2	2 49	+ 2*	—	—
Misima	E.	5·6	224	e 1 31	+ 4	2 35	+ 2	—	—
Osima		5·7	219	e 1 29	+ 1	2 32	- 3	—	—
Wazima		5·7	253	e 1 31	+ 3	2 58	+ 5*	—	—
Toyama		5·8	245	e 1 30	+ 1	2 49	- 7*	—	—
Shizuoka		6·1	226	e 1 35	+ 1	3 0	- 5*	—	—
Kanazawa		6·2	246	e 1 33	- 2	—	—	—	—
Gihu	E.	6·7	237	1 44	+ 2	3 18	- 5*	—	—
Ibukisan	N.	7·0	239	e 1 58	- 4*	—	—	—	—
Tsuruga		7·1	242	e 1 44	- 4	3 13	+ 3	—	—
Hikone		7·2	238	1 53	+ 4	3 22	+ 9	—	—
Kameyama		7·3	235	e 1 57	+ 7	3 35	- 6*	—	—
Kyoto		7·7	239	e 2 8	- 6*	3 43	- 10*	—	—
Osaka		8·0	237	e 2 17	- 3*	3 49	- 13*	—	—
Toyooka		8·0	245	e 2 2	+ 2	3 45	+ 12	—	—
Sumoto		8·6	238	e 2 21	+ 12	3 45	- 3	—	—
Takamatu		9·2	240	e 2 17	+ 1	4 18	+ 15	—	—
Koti		10·0	238	e 2 48	+ 21	4 50	- 11*	—	—
Hamada		10·3	248	e 2 41	+ 9	4 49	+ 19	—	—
Hirosima		10·3	245	e 2 33	+ 1	4 31	+ 1	—	—
Matuyama		10·4	242	e 2 22	- 12	4 45	+ 13	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ooita		11.5	242	e 2 54	+ 6	5 28	+29	—	—
Hukuoka		12.1	246	e 2 59	+ 2	5 49	+35	—	—
Kumamoto		12.3	243	e 2 48	-11	—	—	—	—
Miyazaki		12.4	237	e 3 0	- 1	—	—	—	—
Nanking		21.4	259	e 4 55	+ 2	8 56	+11	—	—
Shillong	E.	45.3	269	e 8 19	- 2	e 14 44	-18	—	—
College		46.2	34	i 8 28	0	—	—	—	—
Resolute Bay		60.0	16	i 10 9k	- 2	i 18 22	- 1	e 22 22	SS
Quetta	Z.	61.9	288	i 10 22	- 2	—	—	—	—
Bombay		63.7	274	e 10 36	0	e 19 18	+ 8	—	—
Kiruna		65.0	339	i 10 42	- 2	—	—	i 10 51	? e 35.4
Corvallis	Z.	65.7	52	e 10 48	0	—	—	—	—
Shasta	Z.	68.3	55	e 11 7	+ 2	—	—	—	—
Hungry Horse		68.9	45	i 11 9	0	—	—	—	—
Berkeley	Z.	70.0	57	e 11 18	+ 3	—	—	—	—
Reno	Z.	70.6	54	e 11 20	+ 1	—	—	—	—
Lick	Z.	70.7	57	e 11 16	- 4	—	—	—	—
Butte		71.1	45	e 11 12	-11	—	—	—	—
Upsala	Z.	71.7	335	i 11 24 _a	- 2	—	—	i 11 35	?
Fresno	Z.	72.2	56	e 11 30	+ 1	—	—	—	—
Tinemaha	Z.	73.0	56	e 11 34	+ 1	—	—	e 11 50	PcP
China Lake	Z.	74.2	56	e 11 41	+ 1	—	—	e 11 57	PcP
Pasadena	Z.	74.8	58	i 11 45	+ 1	—	—	i 12 1	PcP
Riverside	Z.	75.5	58	e 11 48	0	—	—	—	—
Boulder City		75.9	55	e 11 52	+ 2	—	—	—	—
Nelson		76.1	55	i 11 52	+ 1	—	—	—	—
Copenhagen		76.7	335	e 11 54	- 1	—	—	e 12 4	PcP 42.4
Potsdam		79.1	333	e 12 7	- 1	—	—	—	e 44.4
Prague		80.5	330	e 12 15	0	e 12 32	?	e 12 43	?
Jena		80.8	331	e 12 17	0	e 12 27	?	e 16 23?	?
Tucson		80.8	56	e 12 20	+ 3	—	—	—	—
Ksara		81.3	307	e 12 20	0	22 41?	+11	—	—
Stuttgart		83.5	332	e 12 21?	-10	—	—	e 12 41	? e 46.4
Basle	Z.	85.1	332	e 12 38	- 1	—	—	—	—
Besançon		85.9	332	e 12 42	- 1	e 12 53	?	e 13 46	?
Helwan	Z.	86.8	306	i 12 46 _a	- 1	—	—	i 12 59	?
Fayetteville	Z.	87.9	44	i 12 53k	0	—	—	—	—
Tamanrasset	Z.	106.9	320	e 18 25	[- 2]	e 18 43	PP	30 8	PKKP

Oct. 26d. 23h. 49m. 53s. Epicentre 39°·6N. 143°·5E. Focus at Base of Superficial Layers. (as at 20h. 27m.).

Intensity IV at Tono ; II-III at Miyako, Mizume, Kakuda, and Kesennuma. Epicentre 39°·6N. 143°·7E. Depth 40km. Macroseismic radius 200-300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 412, with macroseismic chart.

	Δ	Az.	P.	O-C.	S.	O-C.	
	°	°	m. s.	s.	m. s.	s.	
Miyako	1.2	272	i 0 18 _a	- 2	0 33	- 3	
Morioka	1.8	274	i 0 27	- 2	0 53	+ 2	
Hatinohe	1.8	302	0 26 _a	- 3	0 48	- 3	
Mizusawa	E.	1.9	256	0 29	- 2	0 54	0
	N.	1.9	256	0 29	- 2	0 47	- 7
Isinomaki	2.1	236	e 0 29	- 4	0 54	- 5	
Aomori	2.4	300	0 21	-17	0 59	- 7	
Sendai	2.4	237	e 0 34	- 4	1 7	+ 1	
Akita	2.6	273	e 0 42	+ 1	1 16	+ 5	
Urakawa	2.6	348	e 0 43	- 2	1 15	- 4	
Sakata	2.9	257	0 56	+11	1 35	+16	
Hokusima	3.0	232	e 0 44	- 2	1 23	+ 1	
Hakodate	3.1	317	0 51	+ 3	1 37	+13	
Inawasiro	3.3	234	e 1 2	+11	1 51	+22	
Mori	N.	3.3	320	e 0 59	+ 8	1 42	+13

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		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Onahama		3.3	217	e 1 1	+10	1 38	+ 9
Kusiro		3.4	11	e 0 58	+ 6	1 30	- 2
Shirakawa		3.6	227	e 0 53	- 2	1 31	- 6
Sapporo		3.8	335	e 1 10	+12	1 57	+15
Niigata		3.9	246	e 1 17	+18	—	—
Mito		4.0	218	e 0 56	- 4	—	—
Nemuro		4.1	22	e 1 9	+ 7	1 43	- 6
Tukubasan		4.3	220	e 1 2	- 3	1 48	- 6
Aikawa		4.4	251	e 1 6	0	1 57	0
Maebasi		4.7	229	i 1 8k	- 2	2 6	+ 1
Kumagaya		4.7	225	e 1 10	0	2 11	+ 6
Takada		4.8	241	e 1 20	+ 8	—	—
Tokyo		4.9	219	e 1 11	- 2	2 13	+ 3
Titibu		5.0	226	e 1 12	- 3	2 7	- 5
Oiwake		5.1	232	e 1 18	+ 2	—	—
Nagano	N.	5.1	237	e 1 14	- 2	2 28	+13
Yokohama		5.2	218	e 1 25	+ 7	2 28	+11
Matusiro	N.	5.2	236	e 1 15	- 3	2 17	0
Matumoto	E.	5.5	234	e 1 21	- 1	—	—
Toyama		5.8	242	e 1 33	+ 7	3 2	+30
Osima		5.8	216	e 1 19	- 7	2 25	- 7
Misima	N.	5.8	221	e 1 30	+ 4	2 53	+21
Takayama		6.0	237	e 1 25	- 4	2 57	+20
Omaesaki		6.5	222	e 1 51	+15	3 18	+28
Gihu		6.8	234	1 34	- 6	3 5	+ 8
Nagoya		6.8	232	e 1 53	+13	3 24	+27
Ibukisan	N.	7.1	236	e 1 47	+ 3	—	—
Hikone		7.2	236	e 1 46	0	3 11	+ 4
Tu		7.4	231	e 2 11	+23	3 47	+35
Kyoto		7.7	236	e 2 8	+15	3 43	+23
Osaka		8.1	235	e 2 40	+42	4 19	+49
Takamatu		9.2	238	e 2 15	+ 2	4 15	+18
Koti		10.0	236	e 2 48	+24	4 44	+27
Quetta	Z.	61.7	287	e 8 38	?	—	—
Kiruna	Z.	64.7	339	i 10 35	- 2	—	—
Shasta	Z.	68.3	54	e 11 5	+ 5	—	—
Mineral	Z.	69.0	54	e 11 8	+ 4	—	—
Reno	Z.	70.6	54	e 11 15	+ 1	—	—
Mount Wilson	Z.	74.8	58	i 11 50	pP	—	—
Riverside	Z.	75.4	58	i 11 46	+ 4	—	—
Ksara		81.0	306	e 12 19	+ 6	22 41?	sS

Oct. 27d. 3h. 10m. 30s. Epicentre 39°·3N. 143°·7E. (as on 26d. 22h.).

Intensity IV at Tono and Hirota; II-III at Morioka. Epicentre 39°·2N. 143°·9E.
 Macroseismic radius 200-300km.
 Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 413, with
 macroseismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Miyako		1.4	284	i 0 26	- 1	0 44	- 2
Mizusawa	E.	2.0	265	0 37	0*	1 4	+ 1*
Morioka	N.	2.0	265	e 0 42	+ 2 _g	e 1 7	+ 1 _g
Hatinohe		2.0	282	0 36	+ 1	1 3	+ 1
		2.1	307	0 42	0 _g	1 3	- 1
Isinomaki		2.1	246	e 0 38	+ 1	—	—
Sendai		2.4	245	e 0 44	0*	1 12	0
Aomori		2.7	304	e 0 49	0*	1 21	+ 2
Akita		2.8	279	e 0 59	+ 3 _g	—	—
Yamagata		2.8	248	e 0 49	+ 2	1 26	- 1*
Urakawa		2.9	347	e 1 3	+ 5 _g	—	—
Hokusima		3.0	239	e 0 48	- 2	1 27	0
Onahama		3.2	223	e 1 4	0 _g	2 0	+14 _g
Shirakawa		3.5	233	e 0 52	- 5	1 49	+ 1*
Mori	N.	3.7	321	e 1 9	+ 3*	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Mito		3.9	223	e 1 3	+ 1	1 55	+ 5
Utunomiya		4.1	229	e 1 8	+ 3	2 13	- 3 _g
Tukubasan		4.2	224	e 1 9	+ 2		
Kumagaya		4.6	229	e 1 23	+ 1*	2 14	- 6*
Maebasi		4.7	233	e 1 15	+ 1		
Tokyo	E.	4.8	222	e 1 31	- 5 _g	2 39	0 _g
Oiwake		5.0	236	e 1 26	- 2*		
Matusiro		5.1	240	e 1 22	+ 2	2 20	0
Nagano	N.	5.1	241	e 1 21	+ 1		
Kohu		5.5	230	e 1 31	+ 6	2 35	+ 5
Misima	E.	5.6	224	e 1 54	+ 2 _g	3 7	+ 2 _g
Osima		5.7	219	e 1 39	- 1*	2 46	- 7*
Toyama		5.8	245	e 1 48	+ 6*	3 17	+ 5 _g
Shizuoka		6.1	226	e 1 57	- 5 _g	3 4	- 1*

Oct. 27d. 3h. 17m.17s. Epicentre 39°·6N. 143°·5E. Focus at Base of Superficial Layers. (as on 26d. 23h.).

Intensity V at Okunakayama, Shizukuishi, Odate, and Taishoji ; IV at Morioka, Hatinohe, Aomori, Kashiwa, and Sawauchi. Epicentre 39°·4N. 143°·4E. Depth 50-60km. Macroseismic radius >300km. Seismo. Bull. Met. Obs., Japan, for October, 1952 ; Tokyo, 1953, p. 414, with macroseismic chart.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Miyako		1.2	272	i 0 17 _a	- 3	0 31	- 5		
Hatinohe		1.8	302	i 0 27 _a	- 2	0 50	- 1		
Morioka		1.8	274	i 0 27 _a	- 2	0 50	- 1		
Mizusawa		1.9	256	0 27	- 4	0 49	- 5		
Isinomaki		2.1	236	i 0 29 _a	- 4	0 51	- 8		
Aomori		2.4	300	i 0 39 _a	+ 1	1 13	+ 7		
Sendai		2.4	237	i 0 36 _a	- 2	1 1	- 5	0 58	S
Akita		2.6	273	i 0 39 _a	- 2	1 17	+ 6		
Urakawa		2.6	348	i 0 42 _a	+ 1	1 17	+ 6		
Yamagata		2.8	242	i 0 41 _a	- 2	1 22	+ 6		
Sakata		2.9	257	i 0 45	0	1 32	+ 13		
Hukusima		3.0	232	i 0 42 _a	- 4	1 23	+ 1		
Hakodate		3.1	317	e 0 47	- 1	1 23	- 1		
Inawasiro		3.3	234	e 0 49	- 2	1 38	+ 9		
Mori	N.	3.3	320	0 52 _a	+ 1	1 38	+ 9		
Muroran		3.3	326	i 0 57 _k	+ 6	1 41	+ 12		
Obihiro		3.3	356	e 0 55	+ 4	1 33	+ 4		
Onahama		3.3	217	i 0 48 _a	- 3	1 24	- 5		
Kusiro		3.4	11	0 52	0	1 32	0		
Shirakawa		3.6	227	0 51	- 4	1 38	+ 1		
Sapporo	Z.	3.8	335	e 0 56 _a	- 2	1 54	+ 12		
Niigata		3.9	246	0 57 _a	- 2	1 46	+ 2		
Mito		4.0	218	0 58	- 2	1 55	+ 8		
Nemuro		4.1	22	e 1 1 _k	- 1	1 45	- 4		
Utunomiya		4.2	224	i 0 58 _a	- 5	1 59	+ 7		
Asahigawa		4.3	349	e 1 8	+ 3				
Tukubasan		4.3	220	1 2	- 3	1 54	0		
Aikawa	E.	4.4	251	1 2	- 4	1 45	- 12		
Tyosi	E.	4.4	209	e 1 2	- 4				
Kumagaya		4.7	225	i 1 8 _a	- 2	2 11	+ 6		
Maebasi		4.7	229	e 1 8 _a	- 2	2 8	+ 3		
Takada		4.8	241	1 10	- 2				
Tokyo	Z.	4.9	219	i 1 10 _k	- 3	2 4	- 6		
Titibu		5.0	226	i 1 12	- 3	2 9	- 3		
Nagano		5.1	237	i 1 15 _a	- 1	2 16	+ 1		

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1952		985									
		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.		
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	s.	m.
Oiwake		5.1	232	1 13	- 3	2 33	SS	---	---	---	---
Matusiro		5.2	236	i 1 16 _a	- 2	2 14	- 3	---	---	---	---
Yokohama		5.2	218	1 19 _a	+ 1	2 24	+ 7	---	---	---	---
Matumoto	E.	5.5	234	i 1 19 _a	- 3	2 23	- 2	---	---	---	---
Mera		5.5	213	e 1 20	- 2	---	---	---	---	---	---
Kohu		5.6	226	1 21 _a	- 2	2 31	+ 4	---	---	---	---
Wazima		5.6	249	1 21	- 2	2 35	+ 8	---	---	---	---
Ajio		5.7	219	e 1 28	+ 4	2 24	- 6	---	---	---	---
Misima		5.8	221	1 22	- 4	2 28	- 4	---	---	---	---
Osima		5.8	216	e 1 24	- 2	2 21	-11	---	---	---	---
Toyama		5.8	242	1 21	- 5	3 4	+32	---	---	---	---
Takayama		6.0	237	e 1 26	- 3	2 46	+ 9	---	---	---	---
Wakkanai	E.	6.0	348	e 1 48	+19	3 21	+44	---	---	---	---
Iida		6.1	230	e 1 24	- 6	2 44	+ 4	---	---	---	---
Shizuoka		6.2	223	e 1 27	- 5	2 47	+ 5	---	---	---	---
Hukui		6.7	241	e 1 34	- 5	3 7	+12	---	---	---	---
Gihu	E.	6.8	234	1 37	- 3	2 59	+ 2	---	---	---	---
Nagoya	N.	6.8	232	e 1 38	- 2	3 7	+10	---	---	---	---
Hatidyozima		7.1	206	1 54	+10	2 59	- 6	---	---	---	---
Ibukisan	N.	7.1	236	1 38	- 6	3 6	+ 1	---	---	---	---
Tsuruga		7.1	239	e 1 35	- 9	3 7	+ 2	---	---	---	---
Hikone		7.2	236	1 44	- 2	3 22	+15	---	---	---	---
Kameyama		7.4	232	1 45	- 3	3 24	+12	---	---	---	---
Tu		7.4	231	1 45	- 3	3 32	SS	---	---	---	---
Yuzno-Sakhlinsk		7.4	356	i 1 46	- 2	---	---	---	---	---	---
Kyoto		7.7	236	e 1 37	-16	3 23	+ 3	---	---	---	---
Owase		8.0	229	e 1 41	-16	3 28	+ 1	---	---	---	---
Toyooka		8.0	242	i 1 53	- 4	3 29	+ 2	---	---	---	---
Osaka		8.1	235	e 1 55	- 3	3 23	- 7	---	---	---	---
Kobe	N.	8.2	236	e 1 59	- 1	3 37	+ 5	---	---	---	---
Saigo	E.	8.7	250	e 2 6	0	4 7	+22	---	---	---	---
Sumoto		8.7	236	e 2 0	- 6	3 49	+ 4	---	---	---	---
Siomisaki		8.8	228	e 2 6	- 2	4 1	+14	---	---	---	---
Himeji	N.	8.9	238	e 2 4	- 5	3 48	- 1	---	---	---	---
Tokusima		9.0	235	e 2 11	0	3 50	- 2	---	---	---	---
Yonago		9.1	246	i 2 9	- 3	3 49	- 5	---	---	---	---
Takamatu	E.	9.2	238	e 2 8	- 5	4 17	+20	---	---	---	---
Matsue		9.3	247	2 7	- 8	3 43	-16	---	---	---	---
Vladivostok		9.4	296	i 2 13	- 3	---	---	---	---	---	---
Muroto		9.8	233	e 2 23	+ 1	4 28	+16	---	---	---	---
Koti		10.0	236	e 2 19	- 5	4 21	+ 4	---	---	---	---
Hamada		10.2	246	2 25	- 2	4 27	+ 5	---	---	---	---
Hirosima		10.3	243	e 2 23	- 5	4 21	- 3	---	---	---	---
Matuyama		10.4	240	e 2 26	- 4	4 32	+ 6	---	---	---	---
Simidu	N.	10.9	235	e 2 32	- 5	---	---	---	---	---	---
Uwazima		10.9	238	e 2 32	- 5	5 9	SS	---	---	---	---
Ooita		11.5	240	e 2 43	- 2	5 19	SS	---	---	---	---
Simonoseki		11.5	245	2 47	+ 2	---	---	---	---	---	---
Hukuoka		12.1	244	3 0 _a	+ 7	5 47	+39	---	---	---	---
Miyazaki		12.4	236	e 2 48	- 9	5 18	+ 3	---	---	---	---
Saga		12.4	243	e 3 5	+ 8	---	---	---	---	---	---
Unzendake		12.7	241	e 2 57	- 4	---	---	---	---	---	---
Kagosima		13.2	237	e 3 18	+10	6 14	+40	---	---	---	---
Tomie		13.8	244	e 3 13	- 3	---	---	---	---	---	---
Petropavlovsk		17.0	32	i 4 1	+ 4	i 7 16	+13	---	---	---	---
Klyuchi		20.2	28	i 4 37	+ 2	i 8 30	+16	---	---	---	---
Magadan		20.5	10	4 36	- 2	8 35	+15	---	---	---	---
Nanking		21.4	257	i 4 40 _a	- 7	8 30	- 8	---	---	---	---
Kyakhta		28.0	306	i 5 48	- 2	i 10 37	+ 7	---	---	---	---
Kabansk		28.2	309	i 5 50	- 2	e 10 40	+ 6	---	---	---	---

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Irkutsk		29.7	309	i 6 2	- 3	e 10 56	- 2	—	—
Hong Kong		30.3	244	e 6 8	- 2	11 5	- 2	—	—
Manila		31.8	224	i 6 13	-11	i 11 23	- 7	—	—
Semipalatinsk		44.7	306	e 8 20	+ 8	e 14 51	+ 6	—	—
College		46.1	34	8 24	+ 1	15 9	+ 4	—	—
Chatra		48.1	272	i 8 37	- 1	e 15 33	- 1	—	—
Przhevalsk		48.1	296	8 37	- 1	—	—	—	—
Almata II		48.5	298	i 8 41	- 1	—	—	—	—
Almata		48.8	298	i 8 44	0	e 15 44	0	—	—
Calcutta	E.	49.5	267	e 8 39	-10	i 15 53	0	18 36	ScS 23.0
Rybach'e		49.7	297	i 8 49	- 2	e 16 0	+ 4	—	—
Naryn		50.1	295	i 8 53	- 1	i 16 5	+ 3	—	—
Frunse		50.6	298	i 8 55	- 3	i 16 15	+ 6	—	—
Andijan		52.9	296	i 9 12	- 3	—	—	—	—
Namangan		53.3	296	e 9 17?	- 1	i 16 54?	+ 8	—	—
Fergana		53.5	295	e 9 17	- 2	e 16 51	+ 3	—	—
Tchimkent		54.2	299	i 9 23	- 1	i 17 3	+ 5	—	—
Sverdlovsk		54.3	319	i 9 24	- 1	17 0	+ 1	—	—
Dzhergetal		54.4	295	i 9 24?	- 2	i 16 57?	- 3	—	—
Lunacharskoe		54.8	298	i 9 27?	- 2	e 17 13?	+ 7	—	—
Tashkent		54.8	298	i 9 27	- 2	—	—	—	—
Khorog		54.9	292	i 9 27?	- 3	i 17 13?	+ 6	—	—
New Delhi		54.9	280	i 9 26	- 4	i 17 5	- 2	20 47	SS
Obi-garm		55.7	295	i 9 32	- 3	i 17 16	- 2	—	—
Stalinabad		56.4	295	i 9 37?	- 3	e 17 31?	+ 4	—	—
Djakarta		56.8	225	i 9 45	+ 2	i 17 36	+ 4	—	—
Samarkand		57.1	296	9 42	- 4	—	—	—	—
Resolute Bay		59.7	15	i 10 3 _a	- 1	i 18 14	+ 4	i 22 15	SS i 28.7
Hyderabad	N.	60.0	268	e 10 1	- 5	e 18 18	+ 4	—	—
Madras	E.	61.3	264	i 10 13	- 1	i 18 33	+ 2	18 53	PS 25.9
Bairam-Ali		61.5	296	10 12	- 4	—	—	—	—
Quetta		61.7	287	i 10 15	- 2	i 18 41	+ 5	—	—
Poona		62.9	272	i 10 24	- 1	e 18 51	0	i 12 50	PP 26.3
Bombay		63.5	273	e 10 26	- 3	e 18 59	0	23 6	SS
Ashkabad		63.9	298	i 10 31	- 1	—	—	—	—
Seattle	Z.	64.6	48	i 10 46 _a	pP	—	—	—	—
Kiruna		64.7	339	i 10 35	- 2	i 19 13	0	i 10 44	pP e 29.7
Colombo	E.	65.4	258	10 30	-12	19 23	+ 1	—	35.7
Corvallis	Z.	65.6	53	i 10 49	+ 6	—	—	—	—
Moscow		66.2	323	i 10 45	- 1	i 19 31	- 1	—	—
Pulkovo		66.8	330	i 10 50	0	e 19 41	+ 2	—	—
Brisbane		67.3	170	e 10 54	+ 1	i 19 48	+ 3	i 11 28	PcP
Baku		68.1	305	i 10 59	+ 1	19 55	+ 1	—	—
Makhach-Kala		68.2	308	i 10 58	- 1	—	—	—	—
Shasta	Z.	68.3	54	e 11 2 _k	+ 2	i 11 7	?	i 11 28	PcP
Helsinki		68.6	333	e 10 59	- 3	e 19 56	- 5	—	—
Hungry Horse		68.8	44	i 11 5	+ 2	—	—	—	—
Shemakla		68.8	306	i 10 59	- 4	—	—	—	—
Grozny		69.0	309	i 11 2	- 2	20 4	- 1	—	—
Mineral	Z.	69.0	54	i 11 6 _a	+ 2	—	—	i 11 10	?
Scoresby Sund		69.7	356	i 11 10	+ 2	i 20 18	+ 4	e 20 43	PS 33.7
Berkeley		69.9	57	e 11 12	+ 2	e 20 25	+ 9	e 24 43	SS i 29.8
Kirovobad		70.1	307	i 11 10	- 1	—	—	—	—
Piatigorsk		70.2	311	11 10	- 1	20 20	+ 1	—	—
Santa Clara	E.	70.5	57	—	—	e 20 28	+ 5	—	—
Tiflis		70.5	308	i 11 13	0	e 20 25	+ 2	—	—
Reno		70.6	54	e 11 16	+ 2	e 20 31	+ 7	—	—
Lick	Z.	70.7	57	e 11 14 _k	0	i 11 19	P	i 11 48	PcP
Gori		70.8	308	11 14	- 1	—	—	—	—
Goris		70.9	306	i 11 13	- 3	i 20 30	+ 2	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Borzhomi	71.3	308	i 11 18	0	i 20 37	+ 5	—	—
Tsikhli-Dzhvari	71.3	308	i 11 19	+ 1	—	—	—	—
Upsala	71.4	335	i 11 18	- 1	i 20 32	- 1	i 11 29	pP e 33.7
Erevan	71.6	307	e 11 20	0	—	—	—	—
Abastumanj	71.7	308	i 11 20	0	e 20 42	+ 5	—	—
Leninakan	71.7	308	e 11 21	+ 1	—	—	—	—
Zugdidi	71.8	311	e 11 22	+ 1	—	—	—	—
Fresno	72.2	56	e 11 29 ^k	+ 6	e 20 47	+ 5	—	—
Sotchi	72.4	312	i 11 23	- 2	i 20 46	+ 1	—	—
Tinemaha z.	73.0	56	i 11 35	+ 7	—	—	i 11 48	PcP —
Theodosia	73.9	315	e 11 32	- 1	—	—	—	—
China Lake z.	74.2	55	i 11 41	+ 6	—	—	i 11 46	? —
Bergen N.	74.6	340	—	—	e 20 37	- 33	—	e 37.8
Simferopol	74.6	316	i 11 37	- 1	e 21 12	+ 2	—	—
Pasadena	74.8	58	i 11 45	+ 6	i 21 17	+ 5	e 24 15	? e 34.3
Yalta	74.9	315	e 11 37	- 2	e 21 14	+ 1	—	—
Riverside	75.4	58	i 11 48	+ 6	—	—	—	—
Boulder City	75.8	54	e 11 46	+ 2	—	—	—	—
Kishinev	76.0	320	i 11 45	- 1	21 24	- 1	—	—
Nelson	76.0	54	i 11 48	+ 2	—	—	i 11 52	? —
Copenhagen	76.3	334	e 11 47 ^a	0	21 31	+ 3	i 11 59	pP 38.7
Lwow	76.3	324	i 11 47	0	e 21 28	0	—	—
Cernauti	76.5	322	e 11 35 [?]	- 13	—	—	—	—
Iasi	76.5	322	e 11 46	- 2	—	—	—	—
Uzhgorod	77.9	324	i 11 57	+ 1	e 21 49	+ 3	—	—
Skalnate Pleso	78.4	326	e 12 6	+ 7	e 22 13	ScS	e 12 18	pP —
Raciborz	78.6	328	e 11 58	- 2	e 21 46	- 7	e 12 7	PcP e 48.7
Potsdam	78.8	332	i 12 2	+ 1	i 21 59	+ 4	i 14 56	PP e 40.7
Bucharest	79.2	319	e 12 18	+ 15	e 22 2	+ 3	—	—
Aberdeen	79.3	342	e 22 48	PS	i 22 8	+ 8	i 27 18	SS e 35.0
Collnberg	79.7	330	e 11 59	- 7	e 22 8	+ 3	e 26 59	SS e 33.5
Prague	80.1	330	e 12 8	0	e 22 15	+ 6	e 22 54	PS e 42.2
Budapest	80.2	325	12 13	+ 4	22 8	- 2	23 14	PPS e 41.2
Ogyalla	80.3	326	e 11 13	- 56	e 22 15	+ 4	e 15 13	PP e 44.2
Jena	80.5	331	e 12 10	0	e 22 16	+ 3	e 15 26	PP —
Timisoara	80.5	323	e 12 17	+ 7	e 22 19 [?]	+ 6	—	—
Witteveen z.	80.6	336	i 12 3 ^k	- 8	—	—	—	e 42.7
Tucson	80.8	56	e 12 15	+ 3	e 22 23	+ 7	—	—
Cheb N.	80.9	331	e 12 14	+ 2	e 22 22	+ 5	e 15 26	PP —
Ksara	81.0	306	i 12 13 ^a	0	i 22 33	ScS	15 19	PP —
Auckland N.	81.4	154	—	—	e 22 31	+ 9	—	e 35.6
Belgrade	81.6	322	e 12 17	+ 1	e 22 27	+ 3	e 22 30	ScS e 45.5
De Bilt	81.7	336	e 12 16	- 1	e 22 28	+ 3	e 15 25	PP e 38.7
Sofia	81.8	319	e 12 19	+ 2	e 22 28	+ 2	—	e 45.3
Karapiro N.	82.6	155	e 12 21	0	—	—	—	—
Lincoln	83.0	41	e 12 50	+ 27	—	—	—	—
Stuttgart	83.2	331	i 12 23 ^a	- 1	e 22 43	+ 2	—	e 43.7
Karlsruhe	83.3	332	e 12 26 ^k	+ 1	e 22 49	+ 7	e 12 59	? e 42.7
Strasbourg	83.7	332	i 12 27	0	i 22 50	+ 4	e 15 43	PP 41.7
Rathfarnham Castle	83.9	342	i 12 27	- 1	e 22 55	+ 7	e 15 45	PP e 39.7
Triest	83.9	327	e 12 27	- 1	e 22 45	- 3	e 15 42	PP 42.2
Kew	84.0	338	i 12 27	- 1	e 22 53	+ 4	e 15 45	PP e 38.7
Kirkland Lake z.	84.5	27	e 12 37	+ 6	—	—	—	—
Chur	84.6	331	e 12 32 ^a	+ 1	—	—	—	e 47.7
Zürich	84.6	331	e 12 10 ^a	- 21	e 22 49	- 6	e 12 53	? —
Basle	84.8	331	e 12 33 ^a	+ 1	—	—	—	—
Athens	85.1	316	e 12 32	- 2	e 24 30	PPS	—	—
Salo	85.3	329	12 49	+ 14	e 23 49	SP	e 16 51	? —
Paris	85.4	335	i 12 37	+ 2	i 23 0	- 2	i 15 56	PP e 40.7
Wellington	85.4	157	—	—	e 22 43	[- 11]	e 28 43	SS e 43.1

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		Δ		Az.		P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	s.	m.
Besançon		85.6	332	e 12	37	+ 1	e 13	8	?	e 12	48	pP	—	—
Bologna		85.9	328	e 12	52	pP	e 23	12	+ 5	—	—	—	—	—
Pavia		86.2	330	e 21	11	?	i 23	13	+ 3	—	—	—	—	—
Oropa		86.3	331	e 12	44	+ 4	e 23	3	[+ 3]	e 16	9	PP	—	—
Taranto		86.4	321	14	49	?	22	49	[-12]	28	49	SS	—	—
Florence		86.5	327	i 12	39 _a	- 2	i 23	8	- 5	e 15	52	PP	—	—
Helwan	E.	86.5	306	e 12	43	+ 2	23	16	+ 3	16	3	PP	—	—
Christchurch		86.8	159	—	—	—	e 29	1	SS	—	—	—	e 42.7	—
Rome		87.5	326	i 12	44 _a	- 2	e 23	11	[+ 3]	e 29	6	SS	—	—
Fayetteville	Z.	87.8	43	i 12	49	+ 2	—	—	—	e 16	20	PP	—	—
Clermont-Ferrand		87.9	333	e 12	50	+ 3	e 23	20	[+10]	e 23	38	S	—	47.7
Shawinigan Falls N.		88.3	24	e 13	1	+12	—	—	—	—	—	—	—	—
Ottawa		88.4	27	e 12	51	+ 1	23	34	+ 3	16	24	PP	—	45.2
Messina		89.0	321	e 12	51	- 2	e 23	21	[+ 3]	e 16	24	PP	—	41.2
Cleveland		89.5	32	e 12	56 _k	+ 1	i 23	43	+ 2	e 29	48	SS	—	—
Pennsylvania	E.	91.5	30	—	—	—	e 24	6	+ 7	—	—	—	—	—
Morgantown		91.7	32	i 13	9	+ 4	—	—	—	e 14	28	?	—	—
Harvard		92.3	25	i 13	19 _a	+11	—	—	—	—	—	—	e 56.5	—
Weston		92.5	25	i 13	20 _a	+11	—	—	—	—	—	—	—	—
Palisades		92.8	27	—	—	—	e 24	10	0	e 44	55	Q	—	e 56.8
Algiers Univ.	Z.	95.7	328	e 13	23	- 1	e 23	46	[-10]	e 17	12	PP	—	—
Alicante		95.7	332	12	49	-35	24	9	[+13]	30	57	SS	—	46.2
Almeria		97.7	333	13	34	+ 1	24	6	[0]	24	52	S	—	54.5
Granada		97.8	334	i 17	34 _a	PP	25	8	+15	26	26	PS	—	i 53.2
Malaga		98.5	334	i 17	37	PP	23	55	[-15]	28	49	?	—	51.0
Bermuda		103.8	24	—	—	—	e 25	53	+10	—	—	—	—	e 48.2
Tamanrasset	Z.	106.6	320	e 14	13	P	i 18	41	PP	e 30	6	PKKP	—	—
San Juan		116.0	31	e 20	55	?	—	—	—	—	—	—	—	—
Pretoria	Z.	124.9	264	i 18	58	[- 11]	—	—	—	—	—	—	—	—
Kimberley	Z.	129.0	262	e 19	3	[- 2]	—	—	—	—	—	—	—	—
Huancayo		136.1	62	e 19	29	[+11]	e 40	7	SS	—	—	—	—	e 64.0
La Paz		144.1	59	i 19	38	[+ 6]	i 29	39	SKKS	i 23	11	PP	—	70.4

Oct. 27d. 6h. 33m. 30s. Epicentre 39°·6N. 143°·5E. Focus at Base of Superficial Layers. (as at 3h. 17m.).

Intensity II-III at Miyako. Epicentre 39°·4N. 143°·5E. Depth 40km. Macroseismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 416, with macroseismic chart.

		Δ		Az.		P.		O-C.	S.		O-C.	Supp.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	s.
Miyako		1.2	272	i 0	20 _a	0	0	34	- 2	—	—	—	—
Hatinohe		1.8	302	0	29	0	0	52	+ 1	—	—	—	—
Morioka		1.8	274	i 0	30	+ 1	0	54	+ 3	—	—	—	—
Mizusawa		1.9	256	0	30	- 1	0	54	0	—	—	—	—
Isinomaki		2.1	236	e 0	31	- 2	—	—	—	—	—	—	—
Aomori		2.4	300	i 0	43	+ 5	1	20	+14	—	—	—	—
Sendai		2.4	237	e 0	38	0	1	4	- 2	—	—	—	—
Akita	E.	2.6	273	0	44	+ 3	1	17	+ 6	—	—	—	—
Urakawa		2.6	348	e 0	40	- 1	1	17	+ 6	—	—	—	—
Yamagata		2.8	242	e 0	41	- 2	1	20	+ 4	—	—	—	—
Sakata		2.9	257	e 0	56	+11	1	32	+13	—	—	—	—
Hokusima		3.0	232	e 0	44	- 2	1	16	- 6	—	—	—	—
Hakodate		3.1	317	e 0	53	+ 5	1	34	+10	—	—	—	—
Mori	N.	3.3	320	e 1	0	+ 9	1	41	+12	—	—	—	—
Onahama		3.3	217	e 1	2	+11	—	—	—	—	—	—	—
Shirakawa		3.6	227	e 0	40	-15	1	30	- 7	—	—	—	—
Sapporo	E.	3.8	335	e 1	2	+ 4	1	57	+15	—	—	—	—
Niigata		3.9	246	e 1	13	+14	1	56	+12	—	—	—	—
Mito		4.0	218	e 0	59	- 1	1	53	+ 6	—	—	—	—
Utunomiya		4.2	224	e 1	1	- 2	2	8	+16	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m.	s.
Tukubasan		4.3	220	e 1 3	- 2	1 48	- 6	—	—
Aikawa		4.4	251	e 1 32	+26	—	—	—	—
Maebasi		4.7	229	e 1 13	+ 3	—	—	—	—
Takada		4.8	241	e 2 0	S	(e 2 0)	- 7	—	—
Tokyo	N.	4.9	219	e 1 0	-13	2 0	-10	—	—
Titibu		5.0	226	i 1 12	- 3	2 15	+ 3	—	—
Nagano	N.	5.1	237	e 1 15	- 1	—	—	—	—
Oiwake		5.1	232	e 1 15	- 1	—	—	—	—
Matusiro	N.	5.2	236	e 1 17	- 1	2 13	- 4	—	—
Hunatu	N.	5.5	224	e 1 23	+ 1	2 32	+ 7	—	—
Matumoto	E.	5.5	234	e 1 23	+ 1	—	—	—	—
Kohu		5.6	226	1 24	+ 1	2 29	+ 2	—	—
Misima		5.8	221	e 1 32	+ 6	2 41	+ 9	—	—
Osima		5.8	216	e 1 24	- 2	2 18	-14	—	—
Toyama		5.8	242	e 1 29	+ 3	2 56	+24	—	—
Iida		6.1	230	e 1 30	0	—	—	—	—
Gihu	E.	6.8	234	e 1 38	- 2	3 0	+ 3	—	—
Nagoya		6.8	232	e 1 46	+ 6	3 29	+32	—	—
Hikone		7.2	236	e 1 45	- 1	3 27	+20	—	—
Kameyama		7.4	232	e 2 33	+45	4 12	+60	—	—
Kyoto		7.7	236	e 1 46	- 7	—	—	—	—
Shillong	E.	45.1	269	e 8 41	+26	e 15 20	+29	18 40	SS
China Lake	Z.	74.2	55	e 11 35	0	—	—	—	—
Mount Wilson	Z.	74.8	58	e 11 38	- 1	—	—	—	—
Fayetteville	Z.	87.8	43	e 12 48	+ 1	—	—	—	—

Oct. 27d. 8h. 7m. 58s. Epicentre 39°·6N. 143°·5E. (as at 6h.).

Intensity II-III at Miyako. Epicentre 39°·5N. 143°·5E. Depth 40km. Macro seismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 417, with macro seismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Miyako		1.2	272	0 22	- 1*	0 36	- 4*
Hatinohe		1.8	302	0 32	0	0 54	- 2
Morioka		1.8	274	i 0 32	0	0 54	- 2
Mizusawa	E.	1.9	256	0 34	0	0 57	- 2
Isinomaki		2.1	236	e 0 38	+ 1	—	—
Aomori	Z.	2.4	300	0 44	0*	1 14	- 1*
Sendai		2.4	237	e 0 44	0*	1 12	0
Urakawa		2.6	348	e 1 1	+ 9 _g	—	—
Hukusima		3.0	232	e 0 58	- 2 _g	1 36	- 3 _g
Hakodate		3.1	317	e 0 52	+ 1	—	—
Inawasiro		3.3	234	e 1 3	- 3 _g	—	—
Mori	E.	3.3	320	e 1 0	+ 1*	—	—
Sapporo	E.	3.8	335	e 1 17	+ 1 _g	2 2	- 4 _g
Mito		4.0	218	e 1 23	+ 3 _g	2 30	+18 _g
Utunomiya		4.2	224	e 1 6	- 1	2 10	+ 1*
Kumagaya		4.7	225	e 1 20	- 3*	2 21	- 3*
Maebasi		4.7	229	e 1 13	- 1	2 20	- 4*
Oiwake		5.1	232	e 1 34	+ 4*	—	—
Matusiro		5.2	236	e 1 35	+ 3*	2 31	- 7*
Hunatu	N.	5.5	224	e 1 27	+ 2	2 36	+ 6
Kohu		5.6	226	1 31	+ 4	2 30	- 3
Misima		5.8	221	e 1 59	+ 3 _g	3 4	- 8 _g
Toyama		5.8	242	e 2 35	S	(e 2 35)	- 3

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1952

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Oct. 27d. 20h. 32m. 0s. Epicentre 20°·2S. 178°·2W. Depth of focus 0·090.
(as on 1952, August 21d.).

A = -·9387, B = -·0295, C = -·3433; $\delta = -12$; $h = +5$;
D = -·031, E = +1·000; G = +·343, H = +·011, K = -·939.

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.	
		°	°	m.	s.	s.	m. s.	s.	m.	s.
Apia		8·8	45	—	—	—	i 3 47	- 2	—	—
Brisbane	z.	27·3	250	i 4	58k	- 2	—	—	—	—
Mount Wilson	z.	78·7	48	e 11	2	0	—	—	—	—
Riverside	z.	79·3	48	e 11	5	0	—	—	—	—
Mineral	z.	80·0	40	e 11	8	- 1	—	—	—	—
Tinemaha	z.	80·2	45	e 11	10	0	—	—	e 11 19	?
Nelson		81·8	47	i 11	18	0	—	—	e 13 29	pP
Boulder City		81·9	47	i 11	19	+ 1	—	—	—	—
College		88·0	12	11	45	- 3	—	—	—	—
Hungry Horse		89·0	37	11	51	- 2	—	—	—	—
Quetta	z.	120·8	294	i 17	46	[+ 1]	—	—	—	—
Pretoria	z.	127·6	211	e 17	8	?	—	—	—	—
Upsala	z.	138·8	348	i 18	7	[- 12]	—	—	—	—
Copenhagen		143·7	350	i 18	25	[- 3]	—	—	—	—
Rathfarnham Castle		146·4	8	i 18	32	[0]	e 18 42	?	e 19 14	?
Witteveen	z.	147·2	355	i 18	36k	[+ 3]	—	—	—	—
Collmberg	z.	147·7	347	e 18	37	[+ 3]	e 18 40	?	e 21 19	pPKP
Jena		148·4	347	e 18	34	[- 1]	i 18 39	PKP ₂	e 19 25	?
Prague		148·6	345	e 18	38	[+ 3]	e 19 5	?	e 19 31	?
Stuttgart		150·9	350	e 18	37	[- 2]	i 18 44	?	e 18 53	?
Strasbourg		151·3	352	i 19	45	[+ 66]	e 19 55	PKP ₂	—	—
Besançon		152·8	354	e 19	2	[+ 20]	—	—	—	—
Tamanrasset	z.	175·7	307	i 19	3 _a	[+ 2]	e 20 43	PKP ₂	e 24 36	PP

Oct. 27d. 22h. 53m. 50s. Epicentre 33°·9S. 177°·8W. (as on October 13d.).

		Δ	Az.	P.		O-C.	S.	O-C.	L.
		°	°	m.	s.	s.	m. s.	s.	m.
Tuai	N.	6·4	218	e 1	33	- 5	2 42	- 11	—
Auckland	N.	6·7	242	1	45	+ 3	2 54	- 6	—
Karapiro	N.	6·7	231	e 1	40	- 2	e 2 49	- 11	—
New Plymouth	E.	8·3	229	e 2	0	- 4	e 3 12	- 28	—
Wellington		9·4	216	e 2	2	- 16	3 51	- 16	—
Cobb River	E.	10·4	224	—	—	—	e 4 14	- 18	—
Christchurch		12·2	215	—	—	—	i 5 1	- 15	—
Riverview		25·7	291	i 6	1 _a	PP	i 10 20	+ 19	e 12·7
Brisbane	z.	25·8	276	i 5	29 _a	- 5	—	—	—
Pasadena	z.	87·8	46	e 12	53	+ 1	—	—	—
Berkeley	z.	88·1	41	e 12	54	0	—	—	—
Lick	z.	88·1	41	e 12	53	- 1	—	—	—
Riverside	z.	88·2	46	e 12	55	+ 1	—	—	—
Fresno	z.	88·7	43	e 12	57	0	—	—	—
Tinemaha	z.	89·8	44	e 13	2	0	—	—	—
Shasta	z.	90·1	38	e 13	3	0	—	—	—
Mineral	z.	90·3	39	e 13	5	+ 1	—	—	—
Reno	z.	90·6	41	e 13	5	0	—	—	—
Ksara		152·1	279	i 19	56	[+ 5]	e 23 32	PP	—
Upsala	z.	152·1	343	i 19	55	[+ 4]	i 23 4	PKS	—
Tamanrasset	z.	168·6	195	e 20	9	[+ 1]	e 25 2	PP	—

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Oct. 28d. 3h. 5m. 45s. Epicentre 39°·1N. 143°·4E. (as on 1951, June 9d.).

Intensity IV at Sakari. Epicentre 39°·3N. 143°·3E. Macro seismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 418, with macro seismic chart.

A = -·6247, B = +·4639, C = +·6281; $\delta = -4$; $h = -1$;
D = +·596, E = +·803; G = -·504, H = +·374, K = -·778.

	Δ	Az.	P.	O-C.	S.	O-C.	
	°	°	m. s.	s.	m. s.	s.	
Miyako	1·3	294	i 0 23	- 2	0 37	- 7	
Mizusawa	1·8	271	0 34	+ 2	0 59	+ 3	
Isinomaki	1·9	244	e 0 29	- 5	—	—	
Morioka	1·9	288	i 0 33	- 1	0 57	- 2	
Hatinohe	2·0	316	e 0 33	- 2	1 56	+54	
Sendai	2·1	247	e 0 41	- 1 _g	1 6	+ 2	
Akita	2·6	284	e 0 55	+ 3 _g	—	—	
Yamagata	2·6	253	e 0 50	- 2 _g	1 29	+ 3 _g	
Aomori	2·7	309	e 0 44	- 1	1 20	+ 1	
Hukusima	2·7	240	e 0 48	+ 3	1 25	+ 1*	
Onahama	2·9	222	e 1 11	?	—	—	
Inawasiro	3·0	241	e 0 57	- 3 _g	—	—	
Urakawa	3·0	351	e 1 6	+ 6 _g	—	—	
Hakodate	3·4	324	e 0 59	- 2*	—	—	
Mito	3·6	222	e 1 2	- 2*	2 15	+16 _g	
Mori	N.	3·8	325	e 1 11	+ 3*	1 54	- 3*
Utunomiya		3·8	229	e 1 5	- 3*	1 59	+ 2*
Tukubasan		4·0	224	e 1 6	+ 2	1 50	- 2
Sapporo		4·3	339	e 1 27	+ 1 _g	—	—
Kumagaya		4·4	229	e 1 10	0	2 14	- 1*
Maebasi	Z.	4·4	233	1 13 _k	+ 3	2 14	- 1*
Tokyo	E.	4·5	222	e 1 31	+ 1 _g	2 28	- 1 _g
Matusiro		4·8	240	e 1 26	+ 1*	2 24	- 2*
Nagano	E.	4·8	241	e 1 20	+ 5	—	—
Oiwake		4·8	236	e 1 27	+ 2*	—	—
Kohu		5·2	230	e 1 26	+ 5	2 27	+ 5
Misima		5·3	223	e 1 44	- 2 _g	3 2	+ 7 _g
Toyama		5·5	246	e 1 40	+ 3*	3 13	+11 _g
Gihu	E.	6·4	237	e 1 39	+ 1	3 8	- 6*
Nagoya		6·5	235	e 1 50	- 4*	3 20	+ 3*

Oct. 28d. 4h. 29m. 52s. Epicentre 18°·3N. 73°·3W.

Much damage and many casualties at Anse de Veau. Intensity IX at Anse; VIII in the Nippe valley with rock falls on the Sault du Baril. Epicentre adopted from Strasbourg.

R. P. Bettembourg, R. P. Schumacher, and J. Butterlin.

Le Tremblement de Terre de l'Anse à Veau du 28 Oct., 1952.

Annual Bulletin of the Meteorological Observatory of Petit Séminaire College St. Martial, 1952, Port au Prince, Haiti, pp. 59-77, with macro seismic chart p. 68.

J. Butterlin.

La zone active dans le récents tremblements de terre dans La République d' Haiti, 1952-1953, loc. cit., pp. 78-81, with geological map.

A = +·2730, B = -·9100, C = +·3121; $\delta = +4$; $h = +5$;
D = -·958, E = -·287; G = +·090, H = -·299, K = -·950.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Port au Prince	1·0	75	i 0 24	+ 3	i 0 51	?	—	—
Kingston	3·3	264	i 0 56	+ 3	i 2 1	+12 _g	—	—
San Juan	6·8	88	i 1 46	+ 2	i 3 20	- 6*	—	—
Galerazamba	7·7	194	i 2 3	+ 7	i 3 44	- 9*	—	—
Balboa Heights	11·1	214	i 2 41	- 2	—	—	—	—

Continued on next page.

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	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.
Fort de France	12.2	105	13	0	+2	15	28	+12	—	—	e 6.5
Chinchina	13.4	190	13	15	+1	15	52	+7	i 3 22	PP	—
Bogota	13.6	183	13	23	+6	16	6	+16	i 3 32	PP	—
Bermuda	16.0	27	13	44	-4	e 6	28	-18	—	—	e 7.1
Columbia	17.1	338	14	0	-2	17	0	-12	—	—	—
Mobile	18.3	315	4	16	-1	7	35	-4	—	—	—
Washington	20.8	353	14	43	-2	—	—	—	—	—	—
Vera Cruz	21.6	277	e 5	3	+9	e 8	58	+9	—	—	e 10.9
Morgantown	22.0	346	14	56	-2	—	—	—	—	—	e 12.0
City College, N.Y.	22.4	0	e 5	1	-1	e 9	7	+3	—	—	—
Fordham	22.5	0	15	4	+2	19	10	+5	—	—	—
Palisades	22.6	0	15	1	-2	19	13	+6	i 5 55	PP	e 10.9
Pennsylvania	22.8	351	15	5	0	e 9	8	-3	—	—	—
Pittsburgh	22.8	347	14	50	-15	18	53	-18	i 5 11	?	—
Cincinnati	22.9	338	15	5	-1	—	—	—	i 5 11	?	—
Puebla	23.6	277	e 6	16	+63	e 9	46	+21	—	—	—
Harvard	24.1	4	15	18	0	19	39	+5	—	—	e 11.1
Weston	24.1	4	15	17k	-1	e 9	32	-2	—	—	—
Cleveland	24.2	345	15	21a	+2	e 9	36	+1	—	—	—
Terre Haute	24.4	333	6	18	+57	11	28	L	—	—	(11.5)
Tacubaya	24.5	277	e 5	27	+5	e 10	10?	+30	—	—	—
Buffalo (Larkin)	24.9	351	15	29	+3	—	—	—	—	—	—
Buffalo	25.0	351	15	55?	+28	e 9	45	-4	—	—	—
Fayetteville z.	25.6	318	15	29a	-3	e 10	10	+11	i 5 53	PP	e 11.9
Chicago	26.4	335	e 5	40	0	e 10	9	-3	—	—	—
Ottawa	27.1	356	e 5	47	+1	10	30	+6	6 30	PP	12.5
Halifax	27.5	15	e 5	49k	-1	10	31	+1	6 43	PP	13.2
Shawinigan Falls N.	28.2	1	e 5	59	+3	—	—	—	—	—	—
Lubbock	29.7	307	6	7	-3	12	39	SS	—	—	—
Huancayo	30.2	183	e 6	18	+4	i 11	20	+7	17 7	PP	e 12.4
Kirkland Lake z.	30.3	352	e 6	14	-1	—	—	—	—	—	—
La Paz	35.0	170	17	0k	+4	i 12	28	0	18 28	PP	17.3
Tucson	36.5	300	e 7	6	-3	e 12	49	-2	e 15 38	SSS	—
Nelson	40.5	304	17	40	-2	—	—	—	i 7 49	?	—
Boulder City	40.6	304	e 7	41	-2	—	—	—	—	—	—
Riverside z.	42.2	301	e 7	55	-1	—	—	—	—	—	—
Butte	42.6	320	17	57	-2	—	—	—	—	—	—
Saskatoon	42.7	330	14	14	S	(14 14)	-10	e 17 14	SS	23.1	
Pasadena	42.9	301	e 8	0	-2	—	—	—	e 9 56	PcP	e 23.9
Tinemaha z.	43.5	305	e 8	6	-1	—	—	—	—	—	—
Hungry Horse	44.5	322	18	13	-2	—	—	—	i 10 44	PPP	—
Fresno z.	44.6	305	e 8	12a	-4	—	—	—	—	—	—
Reno z.	45.3	308	e 8	23	+2	—	—	—	—	—	—
Lick z.	46.2	305	e 8	26a	-2	—	—	—	—	—	—
Santa Clara	46.5	305	e 8	38	+7	e 19	10	SSS	—	—	—
Berkeley	46.8	305	e 8	32	-1	e 15	30	+6	e 19 17	SSS	e 25.4
Mineral z.	46.8	309	e 8	30a	-3	—	—	—	i 9 51	?	—
Shasta z.	47.5	309	e 8	34a	-4	—	—	—	e 9 36	?	—
Corvallis	49.1	313	e 8	47	-4	e 11	25	PPP	—	—	—
Seattle z.	49.4	317	e 8	50	-3	—	—	—	—	—	—
Victoria	50.3	318	8	55	-5	—	—	—	—	—	—
Buenos Aires	54.5	164	e 9	18	-14	—	—	—	—	—	35.4
La Plata	54.9	164	9	32	-3	17	20	+4	21 14	SS	27.8
Resolute Bay	57.6	353	19	50k	-4	i 17	48	-3	i 21 54	SS	i 24.1
Lisbon	58.8	54	10	8a	+6	—	—	—	26 7	Q	—
Scoresby Sund	60.4	17	e 10	15	+2	18	34	+6	—	—	28.1
Malaga	62.6	57	i 10	28	0	i 19	0	+4	12 50	PP	29.3
Granada	63.2	57	i 10	34a	+2	i 19	15	+12	10 49	pP	i 30.4
Almeria	64.1	57	i 10	36	-2	i 19	12	-2	11 16	PcP	31.1
Kew	65.3	40	—	—	—	e 25	8	SSP	—	—	—

Continued on next page,

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Alicante		65.6	54	i 10	49	+ 1	e 19	36	+ 3	13	25	PP	31.8
Tortosa		66.1	52	e 10	56	+ 5	—	—	—	—	—	—	—
College		67.0	333	10	53	- 4	e 19	48	- 2	e 24	31	SS	e 28.1
Paris		67.2	43	e 10	45	-13	i 19	55	+ 3	e 20	15	PS	e 30.1
Clermont-Ferrand		67.7	47	e 11	2	+ 1	e 20	4	+ 6	e 24	38	SS	—
Algiers Univ.	z.	68.5	56	e 11	4	- 2	e 20	39	PPS	e 39	25	P'P'	—
Besançon		69.6	45	e 11	12	- 1	e 11	27	PcP	e 12	2	?	—
Witteveen	z.	69.6	38	i 11	12k	- 1	—	—	—	—	—	—	—
Strasbourg		70.7	43	e 11	19	- 1	e 20	31	- 3	e 13	57	PP	32.1
Karlsruhe	z.	71.0	43	i 11	21	- 1	e 14	20	PP	e 11	46	PcP	—
Oropa		71.1	47	e 11	40	PcP	e 21	33	ScS	—	—	—	e 35.1
Stuttgart		71.6	43	e 11	23	- 2	e 20	48	+ 4	e 11	48	PcP	34.1
Copenhagen		72.7	36	i 11	31	- 1	21	2	+ 5	e 11	36	P	—
Jena		72.8	41	e 11	36?	+ 4	20	30?	-28	e 12	20	?	—
Salo		72.9	46	e 11	43	+10	e 13	55	PP	e 16	39	?	—
Tamanrasset	z.	73.1	70	i 11	35k	+ 1	e 21	0	- 1	e 14	22	PP	34.4
Potsdam		73.5	39	i 11	42	+ 6	i 21	11	+ 5	—	—	—	e 34.1
Collmberg	z.	73.7	41	e 11	37	- 1	14	28	PP	e 12	48	?	—
Florence		73.7	48	i 11	34	- 4	e 21	26	PS	i 12	17	?	—
Kiruna		74.6	23	i 11	40	- 3	i 21	20	+ 2	e 14	27	PP	e 29.4
Prague		74.8	41	e 11	42	- 2	e 21	23	+ 3	e 25	33	SS	e 35.8
Rome		74.8	49	e 11	44	0	e 21	9?	-11	15	4	PP	e 35.1
Upsala		74.8	31	i 11	43	- 1	e 21	17	- 3	e 21	49	ScS	e 35.1
Triest		75.1	46	i 11	46	0	i 21	25	+ 1	e 22	1	PS	—
Raciborzu		77.1	41	e 11	56	- 1	e 16	41	PPP	e 12	14	PcP	—
Messina		78.0	53	e 12	7	+ 5	e 21	57	+ 2	e 15	3	PP	37.6
Skalnate Pleso		78.6	41	e 12	30	+25	e 22	27	PS	—	—	—	—
Belgrade		79.9	46	e 12	18k	+ 6	e 22	26	+10	e 22	4	?	—
Uzhgorod		80.1	42	i 12	19	+ 6	e 22	22	+ 4	—	—	—	—
Lwow		80.8	40	e 12	17	0	i 22	28	+ 3	—	—	—	—
Pulkovo		81.0	30	e 12	19	+ 1	e 22	27	0	—	—	—	—
Sofia		82.5	47	e 12	33	+ 7	—	—	—	—	—	—	—
Kishinev		84.8	42	i 12	37	0	23	7	+ 2	—	—	—	—
Moscow		86.3	32	i 12	48	+ 3	e 23	25	+ 5	—	—	—	—
Istanbul		87.1	48	e 12	44	- 5	e 23	12	[- 3]	e 15	57	PP	39.2
Yalta		89.2	43	i 13	6	+ 7	i 23	56	+ 9	—	—	—	—
Theodosia		89.8	42	e 13	3	+ 1	—	—	—	—	—	—	—
Helwan	E.	93.1	57	—	—	—	e 23	56	[+ 5]	e 25	35	PS	—
Sotchi		93.2	42	e 13	22	+ 5	e 23	54	[+ 3]	e 17	2	PP	—
Ksara		95.0	53	e 13	30	+ 4	24	52	+14	17	22	PP	—
Piatigorsk		95.1	41	e 13	29	+ 3	—	—	—	—	—	—	—
Zugdidi		95.1	42	e 13	38	+12	—	—	—	—	—	—	—
Sverdlovsk		95.8	23	13	31	+ 2	24	5	[0]	17	25	PP	—
Abastumanj		96.1	43	e 13	40	+ 9	—	—	—	—	—	—	—
Borzhomi		96.4	42	i 13	36	+ 4	—	—	—	—	—	—	—
Gori		96.8	42	e 13	48?	+14	—	—	—	—	—	—	—
Tiflis		97.4	42	e 13	40	+ 3	i 24	15	[+ 1]	—	—	—	—
Kirovobad		98.9	42	13	46	+ 3	i 24	26	[+ 4]	—	—	—	—
Shemakla		100.4	41	13	57	+ 7	24	39	[+10]	—	—	—	—
Ashkabad		107.9	38	e 18	51	PP	—	—	—	—	—	—	—
Irkutsk		109.7	2	e 19	1	PP	e 28	30	PS	—	—	—	—
Lunacharskoe		111.3	29	e 18	45	[+ 9]	e 25	28	[+10]	—	—	—	—
Tashkent		111.3	29	e 18	47	[+11]	e 25	20?	[+ 2]	i 26	20	SKKS	—
Frunse		112.3	25	e 19	20	PP	i 28	58	PS	—	—	—	—
Namangan		112.7	28	i 19	30	PP	—	—	—	—	—	—	—
Andijan		113.1	28	i 19	32	PP	—	—	—	—	—	—	—
Vladivostok		114.6	334	e 19	34	PP	—	—	—	—	—	—	—
Quetta	z.	118.5	39	e 18	30	[-20]	—	—	—	—	—	—	—
Bombay		130.3	44	e 21	19	PP	e 39	40	SS	e 22	43	PKS	—

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Oct. 28d. 6h. 31m. 0s. Epicentre 39°·6N. 143°·5E. (as on 27d.).

Intensity V at Sibutami; IV at Morioka, Miyako, Kashiwa, Okunakayama, Hizume, Itinozeki, Sakari, Kakuda, and Kesunnuma. Epicentre 39°·5N. 144°·6E. Depth 40km. Macroseismic radius >300km.

Seismo. Bull. of Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 418, with macroseismic chart.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Miyako		1·2	272	i 0 24 _a	0	0 41	0	—	—
Hatinohe		1·8	302	0 32 _a	0	1 0	0 _g	—	—
Morioka		1·8	274	i 0 32 _a	0	0 56	0	—	—
Mizusawa		1·9	256	0 34	0	0 49	-10	—	—
Isinomaki		2·1	236	0 36 _a	-1	1 5	+1	—	—
Aomori		2·4	300	i 0 43 _a	+2	1 21	+2 _g	—	—
Sendai		2·4	237	i 0 39 _a	-2	1 7	-5	—	—
Akita	Z.	2·6	273	i 0 44 _a	0	1 24	-2 _g	—	—
Urakawa		2·6	348	e 0 50	-2 _g	1 25	-1 _g	—	—
Yamagata		2·8	242	0 45	-2	1 17	-5	—	—
Sakata		2·9	257	0 52	0*	1 40	+4 _g	—	—
Hukusima		3·0	232	i 0 47 _a	-3	1 29	+2	—	—
Inawasiro		3·3	234	e 0 54	+1	1 39	+4	—	—
Mori	E.	3·3	320	0 56 _a	+3	1 54	+5 _g	—	—
Onahama		3·3	217	e 0 50 _a	-3	1 26	-9	—	—
Kusiro		3·4	11	e 1 0	-1*	1 39	+2	—	—
Shirakawa		3·6	227	0 56	-2	1 40	-2	—	—
Sapporo		3·8	335	1 3 _a	+2	1 47	0	2 1 S _g	—
Niigata	Z.	3·9	246	e 1 2	0	2 7	-2 _g	—	—
Mito		4·0	218	e 1 1	-3	1 59	-4*	—	—
Utunomiya		4·2	224	e 1 3	-4	2 7	-2*	—	—
Asahigawa		4·3	249	e 1 2	-6	—	—	—	—
Tukubasan		4·3	220	1 4	-4	1 45	-15	—	—
Abashiri		4·4	7	1 11	+1	2 4	+2	—	—
Aikawa	E.	4·4	251	1 7	-3	2 3	+1	—	—
Tyosi	E.	4·4	209	e 1 6	-4	2 13	-2*	—	—
Kumagaya	Z.	4·7	225	i 1 12 _a	-2	2 8	-2	—	—
Maebasi		4·7	229	i 1 12 _a	-2	2 15	+5	—	—
Tokyo	Z.	4·9	219	i 1 13	-4	2 25	-4*	—	—
Titibu		5·0	226	i 1 16	-2	2 18	0	—	—
Nagano		5·1	237	i 1 20 _a	0	2 45	-3 _g	—	—
Oiwake		5·1	232	1 19 _a	-1	—	—	—	—
Matusiro		5·2	236	i 1 18	-3	2 16	-6	—	—
Yokohama		5·2	218	1 25 _a	+4	2 23	+1	—	—
Hunatu	N.	5·5	224	e 1 24	-1	2 29	-1	—	—
Matumoto	N.	5·5	234	e 1 23	-2	2 38	+8	—	—
Mera		5·5	213	e 1 3	-22	—	—	—	—
Wazima	N.	5·6	249	1 26	-1	2 25	-8	—	—
Ajiro		5·7	219	1 26	-2	2 24	-11	—	—
Misima		5·8	221	1 25	-4	2 44	+6	—	—
Osima		5·8	216	e 1 10	-19	2 26	-12	—	—
Toyama		5·8	242	1 28 _a	-1	2 3	-35	—	—
Takayama		6·0	237	i 1 32	0	2 42	-1	—	—
Wakkanai	E.	6·0	348	e 2 6	+6 _g	3 27	+9 _g	—	—
Iida		6·1	230	e 1 32	-2	—	—	—	—
Kanazawa		6·2	243	e 1 13	-22	3 3	-5*	—	—
Omaesaki		6·5	222	e 1 43	+4	3 6	+11	—	—
Gihu	N.	6·8	234	1 40	-4	3 8	+5	—	—
Nagoya	N.	6·8	232	1 48	+4	2 30	-33	—	—
Hatidyozima		7·1	206	e 1 54	+6	2 56	-14	—	—
Ibukisan	N.	7·1	236	e 1 46	-2	3 14	+4	—	—
Tsuruga		7·1	239	1 46	-2	3 17	+7	—	—
Hikone		7·2	236	2 1	-5*	3 30	-8*	—	—
Kameyama		7·4	232	1 50	-2	3 20	+2	—	—
Tu		7·4	231	1 44	-8	3 30	+12	—	—

Continued on next page.

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	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.	
Yuzno-Sakhlinsk	7.4	356	1	51	- 1	3	22	+ 4	—	—	—	
Kyoto	7.7	236	e 1	55	- 1	3	35	+10	—	—	—	
Owase	8.0	229	e 1	44	-16	3	42	+ 9	—	—	—	
Toyooka	8.0	242	i 1	58	- 2	3	31	- 2	—	—	—	
Osaka	8.1	235	e 1	56	- 6	3	44	+ 9	—	—	—	
Kobe	8.2	236	i 2	8	+ 5	—	—	—	—	—	—	
Saigo	8.7	250	e 2	10	0	4	8	+18	—	—	—	
Sumoto	8.7	236	2	6	- 4	3	48	- 2	—	—	—	
Tokusima	9.0	235	e 2	12	- 1	—	—	—	—	—	—	
Yonago	9.1	246	e 2	14	0	3	54	- 6	—	—	—	
Takamatu	9.2	238	e 2	20	+ 4	4	20	+17	—	—	—	
Matsue	9.3	247	e 2	21	+ 4	—	—	—	—	—	—	
Vladivostok	9.4	296	i 2	19	+ 1	i 4	9	+ 2	—	—	—	
Ulegorsk	9.5	354	2	24	+ 4	—	—	—	—	—	—	
Koti	10.0	236	e 2	26	- 1	4	26	+ 4	—	—	—	
Hirosima	10.3	243	e 2	28	- 4	4	31	+ 1	—	—	—	
Simidu	10.9	235	e 2	39	- 1	—	—	—	—	—	—	
Uwazima	10.9	238	e 2	36	- 4	5	13	S*	—	—	—	
Ooita	11.5	240	e 2	49	+ 1	5	43	+44	—	—	—	
Simonoseki	11.5	245	i 2	44	- 4	—	—	—	—	—	—	
Hukuoka	12.1	244	e 2	55	- 2	5	45	+31	—	—	—	
Kumamoto	12.4	241	e 3	0	- 1	6	10	+49	—	—	—	
Miyazaki	12.4	236	e 3	6	+ 5	—	—	—	—	—	—	
Unzendake	12.7	241	e 3	3	- 2	—	—	—	—	—	—	
Kagosima	13.2	237	e 3	25	PP	6	12	SS	—	—	—	
Tomie	13.8	244	e 3	24	+ 5	—	—	—	—	—	—	
Petropavlovsk	17.0	32	i 4	9	+ 8	i 7	22	+12	—	—	—	
Klyuchi	20.2	28	—	—	—	8	8	-13	—	—	—	
Magadan	20.5	10	4	45	+ 3	8	35	+ 8	—	—	—	
Nanking	21.4	257	i 4	45 _a	- 6	i 8	47	+ 2	—	—	—	
Kyakhta	28.0	306	i 5	55	0	i 10	43	+ 5	—	—	—	
Kabansk	28.2	309	5	57	+ 1	10	46	+ 5	—	—	—	
Irkutsk	29.7	309	i 6	9	- 1	e 11	6	0	—	—	—	
Hong Kong	30.3	244	6	18	+ 3	e 11	11	- 4	—	—	—	
Semipalatinsk	44.7	306	e 8	17	+ 1	—	—	—	—	—	—	
College	46.1	34	i 8	41	+13	i 15	16	+ 2	e 18	4	ScS	e 20.8
Kurmenty	48.0	296	e 8	42	- 1	—	—	—	—	—	—	—
Chatra	48.1	272	i 8	42	- 1	e 15	42	0	—	—	—	—
Przhevalsk	48.1	296	8	43	0	—	—	—	e 11	4	PPP	—
Almata	48.8	298	i 8	47	- 2	e 15	53	+ 1	—	—	—	—
Calcutta	49.5	267	e 8	53	- 1	i 15	57	- 5	—	—	—	22.6
Rybach'e	49.7	297	e 8	54	- 2	e 16	11	+ 7	—	—	—	—
Naryn	50.1	295	i 8	59	0	—	—	—	—	—	—	—
Frunse	50.6	298	i 9	1	- 1	i 16	20	+ 3	—	—	—	—
Andijan	52.9	296	i 9	18	- 2	—	—	—	—	—	—	—
Namangan	53.3	296	e 9	22	- 1	e 16	53	- 1	—	—	—	—
Fergana	53.5	295	i 9	24	0	e 16	56	- 1	—	—	—	—
Tchimkent	54.2	299	i 9	27	- 2	i 17	3	- 3	—	—	—	—
Sverdlovsk	54.3	319	i 9	31	+ 1	i 17	9	+ 2	—	—	—	—
Dzhergetal	54.4	295	i 9	30	- 1	i 17	7	- 2	—	—	—	—
Lunacharskoe	54.8	298	i 9	32	- 2	i 17	15	+ 1	—	—	—	—
Tashkent	54.8	298	i 9	31	- 3	e 17	13	- 1	—	—	—	—
Khorog	54.9	292	i 9	34	- 1	e 17	16	0	—	—	—	—
New Delhi	54.9	280	e 9	33	- 2	e 17	11	- 5	—	—	—	—
Obi-garm	55.7	295	i 10	13?	+33	i 17	57?	+31	—	—	—	—
Stalinabad	56.4	295	i 9	44	- 1	i 17	34	- 2	—	—	—	—
Djakarta	56.8	225	i 9	47	- 1	17	39	- 2	—	—	—	—
Samarkand	57.1	296	9	47	- 3	17	40	- 5	—	—	—	—
Resolute Bay	59.7	15	e 10	7	- 2	i 18	19	0	e 22	16	SS	e 32.0
Hyderabad	60.0	268	—	—	—	e 18	20	- 3	—	—	—	—
Madras	61.3	264	i 10	20	0	i 18	40	+ 1	19	53	ScS	29.1
Bairam-Ali	61.5	296	i 10	18	- 3	18	42	0	—	—	—	—
Quetta	61.7	287	e 10	19	- 3	e 18	45	+ 1	—	—	—	—
Poona	62.9	272	i 10	30	0	e 18	56	- 4	23	2	SS	—
Bombay	63.5	273	e 10	31	- 3	19	6	- 1	12	55	PP	30.0

Continued on next page.

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		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m. s.	s.	m.	s.	m.
Victoria		63.5	48	10	34	0	—	—	—	—	—
Ashkabad		63.9	298	i 10	36	- 1	—	—	—	—	—
Seattle	z.	64.6	48	e 10	50	+ 9	—	—	—	—	—
Kiruna		64.7	339	i 10	42 _a	0	i 19 22	0	e 23 34	SS	e 32.0
Kodaikanal	E.	65.1	263	e 14	46	PPP	—	—	—	—	—
Colombo	E.	65.4	258	e 10	24	-23	e 20 29	ScS	—	—	—
Moscow		66.2	323	10	52	0	19 41	+ 1	—	—	—
Pulkovo		66.8	330	e 10	56	0	—	—	—	—	—
Brisbane		67.3	170	e 10	59	0	i 19 52	- 2	i 11 28	PcP	i 28.3
Baku		68.1	305	i 11	7	+ 3	—	—	—	—	—
Shasta	z.	68.3	54	e 11	5 _k	0	e 18 30	?	i 11 9	P	—
Hungry Horse		68.8	44	e 11	8	0	—	—	i 11 12	P	—
Shemakla		68.8	306	i 11	6	- 2	—	—	—	—	—
Grozny		69.0	309	i 11	10	+ 1	e 20 14	0	—	—	—
Mineral	z.	69.0	54	i 11	19	+10	—	—	—	—	—
Scoresby Sund		69.7	356	i 11	15	+ 1	e 20 27	+ 5	—	—	41.0
Berkeley		69.9	57	e 11	18	+ 3	e 20 30	+ 6	i 11 22	P	—
Kirovobad		70.1	307	11	16	0	—	—	—	—	—
Piatigorsk		70.2	311	11	18	+ 1	20 27	- 1	—	—	—
Tiflis		70.5	308	i 11	18	0	—	—	—	—	—
Reno		70.6	54	e 11	21	+ 2	e 20 37	+ 4	—	—	—
Lick	z.	70.7	57	e 11	19	- 1	—	—	—	—	—
Gori		70.8	308	e 11	28 _?	+ 8	—	—	—	—	—
Goris		70.9	306	i 11	19	- 2	—	—	—	—	—
Butte		71.0	45	i 11	24	+ 2	—	—	—	—	—
Borzhomi		71.3	308	i 11	23	0	e 20 39	- 2	—	—	—
Tsikhli-Dzhvari		71.3	308	i 11	26	+ 3	—	—	—	—	—
Upsala		71.4	335	i 11	24 _a	0	e 20 40	- 2	e 25 5	SS	e 34.0
Erevan		71.6	307	i 11	26	+ 1	20 47	+ 3	—	—	—
Leninakan		71.7	308	e 11	30 _?	+ 4	—	—	—	—	—
Zugdidi		71.8	311	e 11	28	+ 2	e 20 49	+ 3	—	—	—
Fresno	z.	72.2	56	e 11	29	0	—	—	—	—	—
Sotchi		72.4	312	i 11	30	0	i 20 52	- 1	—	—	—
Tinemaha	z.	73.0	56	e 11	38	+ 5	—	—	—	—	—
Riverview		73.4	172	i 11	43 _a	+ 7	i 21 3	- 2	i 21 47	PPS	e 32.3
Theodosia		73.9	315	e 11	38	- 1	—	—	—	—	—
Bergen	E.	74.6	340	—	—	—	e 26 45	?	—	—	e 31.8
Simferopol		74.6	316	i 11	42	- 1	e 21 15	- 3	—	—	—
Pasadena	z.	74.8	58	e 11	47	+ 3	—	—	—	—	—
Yalta		74.9	315	i 11	45	+ 1	e 21 22	0	—	—	—
Riverside	z.	75.4	58	e 11	50	+ 3	—	—	—	—	—
Boulder City		75.8	54	e 11	51	+ 1	—	—	—	—	—
Kishinev		76.0	320	i 11	50	- 1	—	—	—	—	—
Nelson		76.0	54	e 11	54	+ 3	—	—	—	—	—
Copenhagen		76.3	334	i 11	54	+ 2	21 40	+ 3	—	—	30.0
Lwow		76.3	324	e 11	52	0	i 21 37	0	—	—	—
Cernauti		76.5	322	e 12	0	+ 6	—	—	—	—	—
Iasi		76.5	322	e 11	54	0	e 21 36	- 3	—	—	—
Uzhgorod		77.9	324	e 12	3	+ 2	—	—	—	—	—
Skalnate Pleso		78.4	326	—	—	—	—	—	e 36 39	Q	e 43.2
Raciborzu	z.	78.6	328	e 12	4	- 1	e 24 3	?	e 15 11	PP	—
Potsdam		78.8	332	e 12	7	+ 1	—	—	—	—	e 42.0
Bucharest		79.2	319	e 12	13	+ 5	e 22 12	+ 4	—	—	—
Istanbul		80.0	315	e 12	16	+ 3	e 22 13	- 4	—	—	e 37.8
Jena		80.5	331	e 12	16	+ 1	e 22 13	- 9	e 13 36	?	—
Witteveen	z.	80.6	336	i 12	18 _k	+ 2	—	—	—	—	—
Tucson		80.8	56	e 12	21	+ 4	—	—	—	—	—
Kalossa	E.	81.0	324	e 18	10	?	e 22 12	-15	e 22 46	ScS	—
Ksara		81.0	306	i 12	20	+ 2	22 44	ScS	15 24	PP	—
Auckland	N.	81.4	155	—	—	—	e 22 40	+ 9	i 39 24	Q	e 41.6
Belgrade		81.6	322	e 12	23 _a	+ 2	e 22 42	+ 9	e 33 30	Q	e 47.0
Sofia		81.8	319	e 12	23	+ 1	e 22 46	ScS	—	—	e 46.2
Stuttgart		83.2	331	e 12	29	0	e 22 54	+ 5	e 29 18	?	e 45.0
Karlsruhe	z.	83.3	332	e 12	31	+ 1	e 12 39	PcP	e 13 39	?	—
Strasbourg		83.7	332	i 12	33	+ 1	e 23 3	+ 9	e 15 56	PP	43.0

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		Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.
Chur		84.6	331	e 12	36	0	—	—	—	—	—	—
Zürich		84.6	331	e 12	35	- 1	—	—	—	—	—	—
Basle		84.8	331	e 12	37	0	—	—	—	—	—	—
Lubbock		85.4	49	e 12	43	+ 3	—	—	—	—	—	—
Paris		85.4	335	i 12	41	+ 1	—	—	—	e 16 13	PP	—
Besançon		85.6	332	i 12	43	+ 2	e 12 49	PcP	—	i 13 17	?	—
Oropa		86.3	331	e 12	52	+ 7	e 23 18	- 2	—	e 32 24	SSS	—
Florence		86.5	327	i 12	42 _a	- 4	e 23 20	- 2	—	e 32 47	SSS	—
Helwan	E.	86.5	306	e 16	10	PP	e 23 12	[+ 1]	—	i 23 30	S	—
Rome		87.5	326	e 12	58	PcP	e 23 18	[+ 1]	—	e 32 40	SSS	—
Fayetteville	Z.	87.8	43	i 12	53	+ 1	—	—	—	—	—	—
Clermont-Ferrand		87.9	333	e 12	55	+ 2	—	—	—	—	—	—
Ottawa		88.4	27	e 12	56	+ 1	23 40	0	—	16 30	PP	—
Messina		89.0	321	e 13	0	+ 2	e 23 25	[- 2]	—	e 16 22	PP	44.5
Cleveland		89.5	32	e 13	6k	+ 6	e 23 49	- 1	—	—	—	—
Pennsylvania	E.	91.5	30	—	—	—	e 24 12	+ 4	—	—	—	—
Morgantown		91.7	32	i 13	14	+ 4	—	—	—	—	—	—
Harvard		92.3	25	i 13	15k	+ 2	—	—	—	—	—	e 54.7
Weston		92.5	25	i 13	26k	+12	—	—	—	—	—	—
Palisades		92.8	27	e 13	37	+21	i 24 19	0	—	—	—	e 44.3
Algiers Univ.	Z.	95.7	328	18	43	?	—	—	—	—	—	48.5
Granada		97.8	334	i 18	6k	PP	32 7	SSP	—	37 0	Q	50.6
Bermuda		103.8	24	—	—	—	e 26 53	+61	—	e 33 3	SS	e 49.0
Tamanrasset	Z.	106.6	320	e 14	25	P	e 18 44	PP	—	e 30 11	PKKP	—
Pretoria	Z.	124.9	264	e 19	3	[+ 1]	—	—	—	—	—	—
Kimberley	Z.	129.0	262	e 19	14	[+ 4]	—	—	—	—	—	—
La Paz		144.1	59	e 19	43	[+ 5]	—	—	—	21 6	?	—

Oct. 28d. 16h. 45m. 20s. Epicentre 39°·6N. 143°·5E. (as at 6h.).

Intensity IV at Miyako, Morioka, Shizukuishi, and Kesennuma; II-III at Hatinohe, Aomori, and Sannohe. Epicentre 39°·3N. 143°·9E. Macroseismic radius >300km. Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 420, with macroseismic chart.

		Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.
Miyako		1.2	272	i 0	22	- 2	0 39	- 2	—	—	—	—
Hatinohe		1.8	302	i 0	33 _a	+ 1	0 56	0	—	—	—	—
Morioka		1.8	274	i 0	33 _a	+ 1	1 1	+ 1 _g	—	—	—	—
Mizusawa		1.9	256	0	33	- 1	0 56	- 3	—	0 53	S	—
Isinomaki		2.1	236	e 0	31	- 6	0 53	-11	—	—	—	—
Aomori		2.4	300	i 0	44 _a	+ 3	1 22	+ 3 _g	—	—	—	—
Sendai		2.4	237	i 0	38 _a	- 3	1 12	0	—	—	—	—
Akita		2.6	273	i 0	45 _a	+ 1	1 24	- 2 _g	—	—	—	—
Yamagata		2.8	242	e 0	44	- 3	1 17	- 5	—	—	—	—
Sakata		2.9	257	0	53	+ 1*	1 32	+ 2*	—	—	—	—
Hokusima		3.0	232	0	47 _a	- 3	1 30	+ 3	—	—	—	—
Hakodate		3.1	317	0	58	+ 2*	1 44	+ 2 _g	—	—	—	—
Inawasiro		3.3	234	e 0	54	+ 1	1 53	+ 4 _g	—	—	—	—
Mori	N.	3.3	320	0	57	+ 4	1 40	+ 5	—	—	—	—
Obihiro		3.3	356	e 1	6	0 _g	1 48	- 1 _g	—	—	—	—
Onahama		3.3	217	e 0	55	+ 2	1 34	- 1	—	—	—	—
Kusiro		3.4	11	e 0	58	+ 3	1 39	+ 2	—	—	—	—
Shirakawa		3.6	227	e 0	54	- 4	1 39	- 3	—	—	—	—
Sapporo	N.	3.8	335	e 1	3	+ 2	1 59	+ 2*	—	—	—	—
Niigata	Z.	3.9	246	e 1	5	+ 3	—	—	—	—	—	—
Mito		4.0	218	e 1	2	- 2	1 59	- 4*	—	—	—	—
Nemuro		4.1	22	e 1	5 _a	0	1 50	- 5	—	—	—	—
Utunomiya		4.2	224	e 1	3	- 4	2 11	+ 2*	—	—	—	—
Asahigawa		4.3	349	e 1	15	- 1*	—	—	—	—	—	—
Tukubasan		4.3	220	1	5	- 3	1 51	- 9	—	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Abashiri	4.4	7	1	9	- 1	1	50	- 12	—	—	—
Aikawa	4.4	251	e 1	7	- 3	2	11	- 4*	—	—	—
Tyosi	4.4	209	e 1	7	- 3	2	17	+ 2*	—	—	—
Kumagaya	4.7	225	1	15	+ 1	2	15	+ 5	—	—	—
Maebasi	4.7	229	i 1	13 _a	- 1	2	16	+ 6	—	—	—
Takada	4.8	241	e 1	12	- 3	2	15	+ 3	—	—	—
Tokyo	4.9	219	e 1	15	- 2	2	6	- 9	—	—	—
Titibu	5.0	226	i 1	17	- 1	—	—	—	—	—	—
Nagano	5.1	237	e 1	17	- 3	2	36	+ 1*	—	—	—
Oiwake	5.1	232	1	14	- 6	2	36	+ 1*	—	—	—
Matusiro	5.2	236	i 1	18	- 3	2	15	- 7	—	—	—
Yokohama	5.2	218	1	29	- 3*	2	36	- 2*	—	—	—
Hunatu	5.5	224	e 1	23	- 2	2	36	+ 6	—	—	—
Matumoto	5.5	234	e 1	23	- 2	2	37	+ 7	—	—	—
Mera	5.5	213	e 1	22	- 3	2	57	- 5 _x	—	—	—
Wazima	5.6	249	e 1	29	+ 2	2	26	- 7	—	—	—
Misima	5.8	221	e 1	30	+ 1	2	46	+ 8	—	—	—
Osima	5.8	216	e 1	27	- 2	2	28	- 10	—	—	—
Toyama	5.8	242	e 1	25	- 4	3	8	- 4 _g	—	—	—
Takayama	6.0	237	e 1	15	- 17	2	35	- 8	—	—	—
Kanazawa	6.2	243	e 1	36	+ 1	—	—	—	—	—	—
Shizuoka	6.2	223	e 1	40	+ 5	3	4	- 4*	—	—	—
Omaesaki	6.5	222	e 2	4	- 6 _g	3	35	0 _g	—	—	—
Gihu	6.8	234	e 1	46	+ 2	3	15	+ 12	—	—	—
Nagoya	6.8	232	e 1	51	+ 7	3	13	+ 10	—	—	—
Hikone	7.2	236	e 1	41	- 8	2	57	- 16	—	—	—
Kameyama	7.4	232	1	50	- 2	3	26	+ 8	—	—	—
Tu	7.4	231	e 2	2	- 7*	3	37	- 7*	—	—	—
Yuzno-Sakhlinsk	7.4	356	1	52	0	3	20	+ 2	—	—	—
Kyoto	7.7	236	e 1	52	- 4	3	32	+ 7	—	—	—
Toyooka	8.0	242	e 2	0	0	3	32	- 1	—	—	—
Osaka	8.1	235	e 2	10	+ 8	4	9	+ 5*	—	—	—
Himeji	8.9	238	e 2	14	+ 2	4	3	+ 8	—	—	—
Yonago	9.1	246	e 2	21	+ 7	—	—	—	—	—	—
Takamatu	9.2	238	e 2	18	+ 2	4	13	+ 10	—	—	—
Vladivostok	9.4	296	e 2	20	+ 2	i 4	21	+ 14	—	—	—
Koti	10.0	236	e 2	43	PP	4	40	SS	—	—	—
Hamada	10.2	246	2	30	- 1	4	38	+ 11	—	—	—
Hirosima	10.3	243	2	32	0	4	34	+ 4	—	—	—
Ooita	11.5	240	e 2	58	PP	5	25	SSS	—	—	—
Hukuoka	12.1	244	e 3	6 _a	PP	5	46	SSS	—	—	—
Kumamoto	12.4	241	e 3	2	+ 1	—	—	—	—	—	—
Saga	12.4	243	e 3	15	PP	—	—	—	—	—	—
Tomie	13.8	244	e 3	23	+ 4	—	—	—	—	—	—
Petropavlovsk	17.0	32	i 4	6	+ 5	i 7	23	+ 13	—	—	—
Klyuchi	20.2	28	e 4	53 _?	+ 14	i 8	40 _?	+ 19	—	—	—
Nanking	21.4	247	4	53 _k	+ 2	8	52	+ 7	i 5	2	?
Kyakhta	28.0	306	5	54	- 1	—	—	—	—	—	—
Kabansk	28.2	309	i 5	56	0	—	—	—	—	—	—
Irkutsk	29.7	309	6	8	- 2	e 11	6	- 1	—	—	—
Hong Kong	30.3	244	—	—	—	e 11	15	0	—	—	—
Semipalatinsk	44.7	306	e 8	16	0	—	—	—	—	—	—
Shillong	45.1	269	e 8	18	- 2	e 14	49	- 10	—	—	—
College	46.1	34	e 8	30	+ 2	—	—	—	—	—	—
Kurmenty	48.0	296	e 8	46	+ 3	—	—	—	—	—	—
Almata II	48.5	298	e 8	46	0	—	—	—	—	—	—
Ili	48.5	299	i 8	49	+ 3	—	—	—	—	—	—
Almata	48.8	298	i 8	49	0	—	—	—	—	—	—
Calcutta	49.5	267	e 9	8	+ 14	e 16	0	- 2	—	—	—
Rybach'e	49.7	297	i 8	54	- 2	e 16	4	0	—	—	—
Naryn	50.1	295	e 8	58	- 1	i 16	12	+ 2	—	—	—
Frunse	50.6	298	i 9	1	- 1	e 16	17	0	—	—	—
Andijan	52.9	296	i 9	19	- 1	—	—	—	—	—	—
Fergana	53.5	295	i 9	23 _?	- 1	e 16	54 _?	- 3	—	—	—
Tchimkent	54.2	299	i 9	28	- 1	e 17	6	0	—	—	—

Continued on next page.

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	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.
Sverdlovsk	54.3	319	i 9	30	0	17	10	+ 3	—	—	—
Lunacharskoe	54.8	298	i 9	32	- 2	—	—	—	—	—	—
Tashkent	54.8	298	i 9	30	- 4	—	—	—	—	—	—
Khorog	54.9	292	e 9	34	- 1	e 17	16	0	—	—	—
Stalinabad	56.4	295	i 9	44	- 1	—	—	—	—	—	—
Resolute Bay	59.7	15	i 10	8k	- 1	e 18	19	0	—	—	e 32.3
Bairam-Ali	61.5	296	10	18	- 3	—	—	—	—	—	—
Quetta	61.7	287	e 10	19	- 3	e 18	48	+ 4	—	—	—
Poona	62.9	272	e 10	29	- 1	e 18	55	- 5	11	5	PcP
Bombay	63.5	273	e 10	33	- 1	e 19	5	- 2	23	5	SS
Victoria	63.5	48	10	37	+ 3	—	—	—	—	—	—
Kiruna	64.7	339	i 10	41	- 1	e 19	21	- 1	e 23	22	SS
Moscow	66.2	323	10	50	- 2	—	—	—	—	—	e 33.7
Pulkovo	66.8	330	e 10	55	- 1	—	—	—	—	—	—
Brisbane	z. 67.3	170	i 11	2a	+ 3	—	—	—	—	—	—
Shasta	z. 68.3	54	e 11	6k	+ 1	—	—	—	—	—	—
Hungry Horse	68.8	44	i 11	9	+ 1	—	—	—	—	—	—
Mineral	z. 69.0	54	e 11	10	+ 1	—	—	—	—	—	—
Berkeley	z. 69.9	57	e 11	26	+11	—	—	—	—	—	—
Kirovobad	70.1	307	11	16	0	—	—	—	—	—	—
Piatigorsk	70.2	311	11	15	- 2	—	—	—	—	—	—
Reno	z. 70.6	54	e 11	33	PcP	—	—	—	—	—	—
Lick	z. 70.7	57	e 11	20	0	—	—	—	—	—	—
Goris	70.9	306	e 11	20	- 1	e 20	38	+ 2	—	—	—
Upsala	71.4	335	i 11	23	- 1	e 23	8	?	e 13	59	PP
Erevan	71.6	307	e 11	23	- 2	—	—	—	—	—	—
Fresno	z. 72.2	56	e 11	42	PcP	—	—	—	—	—	—
Sotchi	72.4	312	e 11	28	- 2	e 20	51	- 2	—	—	—
Tinemaha	z. 73.0	56	e 11	41	+ 8	—	—	—	—	—	—
Riverview	z. 73.4	172	—	—	—	e 21	5	0	—	—	—
Theodosia	73.9	315	e 11	38	- 1	—	—	—	—	—	—
Simferopol	74.6	316	e 11	42	- 1	—	—	—	—	—	—
Mount Wilson	z. 74.8	58	e 11	49	+ 5	—	—	—	—	—	—
Yalta	74.9	315	e 11	44	0	—	—	—	—	—	—
Boulder City	75.8	54	e 11	34	-16	—	—	—	—	—	—
Kishinev	76.0	320	i 11	50	- 1	—	—	—	—	—	—
Nelson	76.0	54	i 11	52	+ 1	—	—	—	—	—	—
Prague	80.1	330	e 12	11	- 2	e 12	26	PcP	e 14	31	?
Jena	80.5	331	e 12	14	- 1	—	—	—	e 12	24	PcP
Ksara	81.0	306	e 12	21	+ 3	—	—	—	—	—	—
Stuttgart	83.2	331	e 12	29	0	—	—	—	—	—	—
Helwan	86.5	306	12	46	0	23	10	[- 1]	23	31	ScS
Fayetteville	z. 87.8	43	i 12	56	+ 4	—	—	—	—	—	—
Messina	89.0	321	—	—	—	e 23	26	[- 1]	e 29	49	SS
Cleveland	z. 89.5	32	—	—	—	e 23	50	0	—	—	50.4
Granada	97.8	334	e 17	39k	PP	e 28	7	?	—	—	53.9
Tamanrasset	z. 106.6	320	e 18	43	PP	—	—	—	—	—	—
Huancayo	136.1	62	e 19	13	[-10]	e 20	13	?	—	—	—

Oct. 28d. 17h. 28m. 7s. Epicentre 36°·6N. 70°·1E. Depth of focus 0·030.

$A = +.2739$, $B = +.7567$, $C = +.5936$; $\delta = -2$; $h = 0$;
 $D = +.940$, $E = -.340$; $G = +.202$, $H = +.558$, $K = -.805$.

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.	
Khorog	1.5	54	i 0	36	0	i 1	3	- 1	—	—
Obi-garm	2.1	351	i 0	43	+ 1	i 1	14	0	—	—
Stalinabad	2.2	332	i 0	42	- 1	i 1	14	- 2	—	—
Dzhergetal	2.7	18	i 0	49	+ 1	i 1	26	+ 1	—	—
Samarkand	3.9	322	1	3	+ 1	—	—	—	—	—
Fergana	4.0	19	i 1	4	+ 1	i 1	52	0	—	—
Andijan	4.5	22	i 1	9	0	i 2	2	- 1	—	—
Namangan	4.5	15	i 1	11	+ 2	i 2	5	+ 2	—	—
Lunacharskoe	4.8	353	i 1	12	- 1	i 2	7	- 4	—	—
Tashkent	4.8	352	e 1	13	0	—	—	—	—	—

Continued on next page.

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1952

950

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Tchimkent	5.7	356	i 1 24	0	—	—	—	—
Bairam-Ali	6.4	281	—	—	i 2 46	0	—	—
Naryn	6.7	42	1 35	- 2	i 2 47	- 6	i 2 43	?
Frunse	7.2	27	i 1 43	- 1	i 3 3	- 2	—	—
Rybach'e	7.4	36	e 1 46	0	—	—	—	—
Almata	8.5	36	i 2 0	0	—	—	—	—
Almata II	8.7	38	i 2 3	0	—	—	—	—
Przhevalsk	8.7	45	2 2	- 1	—	—	—	—
Kurmenty	9.0	42	i 2 3	- 4	—	—	—	—
Ili	9.1	34	i 2 6	- 2	—	—	—	—

Oct. 29d. 3h. 20m. 44s. Epicentre 38°·2N. 69°·4E.

A = +·2772, B = +·7374, C = +·6159; $\delta = -7$; $h = -1$;
D = +·936, E = -·352; G = +·217, H = +·577, K = -·788.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Obi-garm	0.5	25	i 0 10	0 _g	e 0 18	+ 2 _g	—	—
Stalinabad	0.6	305	i 0 11	- 1 _g	i 0 20	0 _g	—	—
Dzhergetal	1.7	54	i 0 30	- 1	i 0 56	0 _g	—	—
Khorog	1.9	113	i 0 32	- 2	i 0 59	- 1*	—	—
Samarkand	2.4	308	—	—	i 1 16	+ 1*	—	—
Fergana	2.9	39	e 0 48	0	i 1 30	0*	—	—
Lunacharskoc	3.1	359	e 0 55	- 1*	i 1 40	- 2 _g	—	—
Namangan	3.3	32	—	—	1 55	+ 6 _g	—	—
Andijan	3.4	41	e 0 56	+ 1	i 1 39	+ 2	i 1 49	S _g
Tchimkent	4.1	2	e 1 15	+ 2*	—	—	—	—
Naryn	6.0	55	e 1 47	+ 2*	e 2 41	- 2	—	—
Frunse	6.1	39	e 1 46	- 1*	e 3 28	+ 6 _g	—	—
Rybach'e	6.6	48	—	—	e 2 55	- 3	3 18	S*

Oct. 29d. 9h. 4m. 20s. Epicentre 52°·0N. 176°·2E. Depth of focus 0·010.
(as on 1951, January 10d.).

A = -·6168, B = +·0410, C = +·7860; $\delta = -8$; $h = -6$;
D = +·066, E = +·998; G = -·784, H = +·052, K = -·618.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
College	22.4	41	4 52	+ 1	—	—	i 5 13	pP
Resolute Bay	z. 40.5	25	i 7 30 _a	- 1	—	—	—	—
Shasta	42.7	80	e 7 51	+ 2	—	—	e 8 15	pP
Hungry Horse	43.3	65	i 7 55	+ 1	—	—	i 9 43	PcP
Mineral	z. 43.4	80	e 7 55	+ 1	—	—	—	—
Reno	z. 44.9	80	e 8 32	pP	—	—	—	—
Lick	z. 45.4	84	e 8 11	+ 1	—	—	—	—
Tinemaha	z. 47.4	82	e 8 44	pP	e 8 59	sP	e 9 58	PcP
Mount Wilson	z. 49.4	84	e 8 45	+ 3	—	—	e 9 8	pP
Boulder City	50.2	80	e 8 49	+ 1	—	—	—	—
Riverside	50.4	84	e 9 10	pP	—	—	—	—
Tucson	55.2	81	e 9 26	+ 1	—	—	—	—
Kiruna	z. 59.1	351	i 9 50 _k	- 2	—	—	i 10 15	pP
Fayetteville	z. 62.3	66	i 10 14	0	i 10 49	sP	—	—
Upsala	z. 67.2	350	i 10 44 _k	- 2	—	—	—	—
Harvard	69.1	47	e 10 56	- 2	—	—	—	—
Rathfarnham C.	z. 75.0	3	e 12 19	?	—	—	e 12 23	?
Jena	z. 76.6	350	e 11 41	- 1	—	—	—	—
Quetta	z. 77.4	303	i 11 38	- 8	—	—	—	—
Stuttgart	79.0	353	e 11 54	- 1	—	—	—	—
Triest	z. 81.4	349	e 12 10	+ 2	e 12 23	PcP	e 12 32	pP
Poona	z. 82.9	291	e 12 8	- 7	—	—	—	—
Pretoria	z. 144.3	305	i 19 27	[+ 2]	—	—	—	—
Kimberley	z. 148.5	306	i 19 38	[+ 6]	—	—	—	—
Grahamstown	z. 151.2	299	i 19 46	[+ 10]	—	—	—	—

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Oct. 29d. 19h. 19m. 44s. Epicentre 16°·9S. 173°·8W. (foreshock of 19h. 34m.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Apia		3·6	33	e 1 4	0*	i 1 41	- 1	—	—
Auckland	N.	22·3	205	i 4 56	- 5	i 8 57	- 5	—	—
Karapiro	N.	22·9	204	e 5 2	- 4	—	—	—	—
Brisbane	Z.	32·4	246	e 6 41	+ 7	—	—	—	—
Lick	Z.	72·9	41	e 11 32k	- 1	—	—	—	—
Pasadena		73·3	46	e 11 39	+ 4	—	—	—	—
Fresno	Z.	73·8	43	e 10 40	- 58	—	—	—	—
Riverside	Z.	73·8	46	e 11 41	+ 3	—	—	—	—
Shasta		74·5	38	e 11 43a	+ 1	—	—	e 11 48	?
Mineral	Z.	74·8	39	e 11 43k	- 1	—	—	—	—
Tinemaha	Z.	74·9	44	e 11 46	+ 2	—	—	—	—
Reno	Z.	75·4	41	e 11 48k	+ 1	—	—	—	—
Nelson		76·5	46	i 11 53	- 1	—	—	—	—
Boulder City		76·6	46	i 11 54	0	—	—	—	—
Tucson		77·6	51	e 11 59	- 1	—	—	—	—
College		83·9	11	i 12 34	+ 1	—	—	—	—
Hungry Horse		83·9	36	i 12 33	0	—	—	—	—
Fayetteville	Z.	91·7	53	i 12 48	- 22	—	—	—	—
Collmberg	Z.	145·3	352	e 19 43	[+ 3]	—	—	e 19 56	?
Raciborzu	Z.	145·5	347	e 19 43	[+ 3]	—	—	e 19 50	PKP ₂
Jena	Z.	145·8	353	e 19 44	[+ 3]	e 20 25	?	e 19 50	PKP ₂
Stuttgart		148·1	357	e 19 48?	[+ 4]	—	—	e 19 59	PKP ₂
Helwan	Z.	153·6	304	e 20 3	[+ 10]	e 23 55	PP	e 20 20	PKP ₂
Malaga		158·1	23	e 20 41	PKP ₂	—	—	—	—
Tamanrasset	Z.	174·1	6	e 20 14	[+ 3]	—	—	—	—

Oct. 29d. 19h. 34m. 21s. Epicentre 16°·9S. 173°·8W. Depth of focus 0·020.
(as at 19h. 19m.).

Intensity IV at Apia. Epicentre 17°S. 174°W. (U.S.C.G.S.). Depth 150km.
Quarterly Seismic Bulletin, Apia, October-December 1952, p. 3.

A = -·9518, B = -·1034, C = -·2889; δ = +8; h = +5;
D = -·108, E = +·994; G = +·287, H = +·031, K = -·957.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Apia		3·6	33	i 0 46a	-10	i 1 22	-17	—	—
Auckland	N.	22·3	205	i 4 44	- 1	8 39	+ 5	e 11 2	?
Karapiro	N.	22·9	204	i 4 52	+ 2	e 8 52	+ 7	e 15 49	ScS
Tuai	N.	23·2	199	e 4 54	+ 1	8 51	+ 1	5 45	pP
Wellington		26·2	201	i 5 19k	- 3	e 9 40	0	i 16 2	ScS
Cobb River	E.	26·8	204	e 5 25	- 2	e 9 51	+ 1	e 16 0	ScS
Christchurch		28·9	201	e 5 54	+ 8	e 10 23	0	e 10 51	pS
Brisbane		32·4	246	i 6 15a	- 2	i 11 15	- 3	i 6 44	pP
Riverview		35·6	236	i 6 42	- 2	i 12 5	- 2	i 9 13	PcP
Melbourne	E.	41·7	232	e 7 32	- 2	i 17 29	SSS	i 9 47	PPP
Perth		64·8	243	e 10 39	+15	18 52	+ 2	13 4	PP
Tokyo		68·3	321	e 11 14	+28	e 19 30	- 2	—	—
Misima	E.	68·5	320	e 10 42	- 5	—	—	—	—
Hunatu		68·8	320	e 10 49	0	e 19 42	+ 4	e 20 45	sS
Kumagaya		68·9	321	e 10 51	+ 2	e 19 32	- 7	—	—
Maebasi		69·2	321	e 10 51	0	e 20 13	SP	—	—
Kameyama		69·8	319	e 10 51	- 4	e 19 56	+ 6	e 18 10	?
Matusiro		69·8	321	i 10 54	- 1	e 19 45	- 5	e 18 49	?
Nagano	N.	69·9	321	e 10 55	0	—	—	—	—
Akita		70·8	325	e 10 39?	-22	e 19 52	- 9	—	—
Koti		71·0	316	e 11 2	0	e 20 8	+ 5	—	—
Aomori		71·2	326	e 10 29	-34	e 20 10	+ 4	e 19 19	?
Kagosima		71·9	313	e 11 7	0	e 20 17	+ 3	—	—
Sapporo		72·5	328	e 11 17	+ 6	e 20 25	+ 5	e 21 17	SPP
Santa Clara		72·7	41	(i 11 13)	+ 1	i 11 13	P	—	—

Continued on next page.

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		Δ c	Az. c	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
Berkeley		72.9	41	e 11	13k	0	e 20	34	+ 9	e 11	46	pP	—
Lick		72.9	41	e 11	12 _a	- 1	i 13	55	PP	i 11	22	?	—
Saga		73.0	315	e 12	15	+61	—	—	—	—	—	—	—
Manila		73.1	293	i 11	15 _a	+ 1	i 20	30	+ 3	—	—	—	—
Pasadena		73.3	46	i 11	15k	- 1	i 20	43	SP	e 11	54	pP	e 33.0
Arcata	z.	73.7	38	e 11	19	+ 1	—	—	—	—	—	—	—
Fresno		73.8	43	i 11	18k	0	e 20	45	SP	e 11	41	pP	—
Riverside	z.	73.8	46	i 11	18k	0	—	—	—	—	—	—	—
Shasta		74.5	38	i 11	23k	+ 1	—	—	—	e 14	12	PP	—
Yuzno-Sakhlinsk		74.6	331	11	21	- 2	—	—	—	12	2	pP	—
Mineral	z.	74.8	39	i 11	23k	- 1	—	—	—	i 14	10	PP	—
Tinemaha		74.9	44	i 11	26k	+ 1	e 14	9	PP	e 11	38	?	—
Reno		75.4	41	i 11	28k	0	e 21	1	+ 8	e 11	51	pP	—
Corvallis		76.5	35	i 11	33	- 1	e 21	13	+ 8	—	—	—	—
Nelson		76.5	46	i 11	32	- 2	—	—	—	—	—	—	—
Boulder City		76.6	46	i 11	35	+ 1	i 21	15	+ 9	i 14	28	PP	—
Tucson		77.6	51	i 11	40	0	i 21	25	+ 8	e 26	58	SS	e 30.9
Vladivostok		77.8	323	i 11	41	0	i 21	23	+ 4	—	—	—	—
Djakarta		78.1	268	i 11	46 _a	+ 3	i 21	29	+ 7	e 12	19	pP	—
Seattle		79.0	34	i 11	49	+ 1	i 21	39	+ 8	i 12	31	pP	—
Victoria		79.0	32	i 11	48k	0	—	—	—	—	—	—	—
Sitka		80.3	20	i 11	55	+ 1	i 21	48	+ 3	—	—	—	—
Nanking		80.8	308	11	58	+ 1	i 21	58	+ 8	—	—	—	—
Tacubaya		81.7	67	e 12	5	+ 3	e 22	14	+15	e 23	12	sS	—
Puebla		82.4	67	i 12	6 _a	+ 1	—	—	—	e 13	44	sP	—
Butte		83.5	38	i 12	11	0	i 22	23	+ 6	—	—	—	—
College		83.9	11	i 12	12	- 1	i 22	22	+ 1	e 23	0	SP	e 29.8
Hungry Horse		83.9	36	i 12	12	- 1	e 22	25	+ 4	i 15	27	PP	—
Vera Cruz		84.3	69	e 12	24	+ 9	e 22	45	+20	e 13	45	sP	—
Lubbock		84.9	53	12	18	0	22	30	- 1	—	—	—	—
Saskatoon		89.9	35	—	—	—	22	57	[+ 2]	—	—	—	—
Merida		90.7	69	e 12	45	- 1	—	—	—	—	—	—	—
Santa Lucia	E.	91.3	126	e 12	51	+ 2	—	—	—	—	—	—	—
Fayetteville	z.	91.7	53	i 12	50k	0	i 14	13	sP	i 16	29	PP	—
Huancayo		94.5	104	i 13	7	+ 4	i 24	39	pS	e 25	26	PS	—
Mobile		94.7	59	13	7	+ 3	—	—	—	e 16	57	PP	—
Kyakhta		96.5	320	13	11	- 1	23	36	[+ 4]	—	—	—	—
Kabansk		96.9	322	e 13	14	0	23	40	[+ 6]	e 17	6	PP	—
Irkutsk		98.3	322	e 13	22	+ 2	23	48	[+ 7]	—	—	—	—
Chinchina		99.2	87	i 13	26	+ 1	e 24	3	[+17]	i 17	30	PP	—
La Paz		99.6	110	13	35	+ 9	i 23	59	[+11]	31	29	SS	51.6
Bogota		100.6	88	i 13	45	+14	i 24	4	[+11]	i 17	59	PP	42.6
Galerazamba		101.2	82	i 18	2	PP	i 24	11	[+15]	i 25	19	sSKS	—
Cleveland	E.	102.7	50	—	—	—	i 24	10	[+ 7]	i 25	12	sSKS	—
Resolute Bay		103.3	15	i 13	42 _a	- 1	i 24	10	[+ 5]	i 25	19	S	i 37.0
Calcutta	E.	103.4	290	i 18	1	PP	i 24	14	[+ 8]	24	57	?	—
Kirkland Lake	z.	104.9	44	e 18	9k	PP	—	—	—	—	—	—	—
Pennsylvania	E.	105.3	51	—	—	—	e 25	22	- 7	—	—	—	—
Ottawa		107.5	47	e 18	28	PP	24	39	[+15]	33	19	SS	—
Colombo	E.	107.6	272	18	23	PP	24	28	[+ 3]	—	—	—	52.0
Palisades		108.3	52	e 18	31	PP	i 24	36	[+ 8]	e 27	56	PS	e 54.2
San Juan		111.5	77	i 18	35	[+20]	—	—	—	i 18	58	PP	—
Przhevalsk		114.3	310	18	24	[+ 3]	25	2	[+10]	26	10	sSKS	—
Almata		115.3	311	e 19	11	PP	—	—	—	—	—	—	—
Poona	E.	115.9	283	i 19	14	PP	i 36	38	?	—	—	—	—
Naryn		116.0	308	e 18	32	[+ 8]	—	—	—	—	—	—	—
Rybach'e		116.0	309	e 18	28	[+ 4]	i 25	7	[+ 9]	i 26	12	sSKS	—
Bombay	E.	116.9	283	e 19	33	PP	i 25	7	[+ 5]	e 29	17	PS	—
Frunse		117.1	310	i 19	31	PP	i 29	20	PS	—	—	—	—
Andijan		118.8	308	18	33	[+ 3]	i 25	17	[+ 9]	—	—	—	—
Fergana		119.3	307	e 18	31	[0]	i 25	19	[+ 9]	i 26	41	sSKS	—
Namangan		119.3	308	e 18	38	[+ 7]	i 25	19	[+ 9]	i 26	42	sSKS	—
Khorog		119.5	304	e 19	53	PP	i 25	22	[+11]	—	—	—	—
Tchimkent		120.8	310	i 18	36	[+ 3]	i 25	25	[+10]	i 26	53	sSKS	—
Obi-garm		120.9	306	e 18	36	[+ 3]	i 25	24	[+ 9]	19	20	pPKP	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Lunacharskoe	121.1	308	e 18 40	[+ 6]	i 25 27	[+11]	e 20 19 PP	—
Tashkent	121.1	308	e 18 38	[+ 4]	i 25 25	[+ 9]	i 26 52 sSKS	—
Stalinabad	121.7	306	e 18 38	[+ 3]	i 25 27	[+ 9]	—	—
Samarkand	123.0	307	e 18 39	[+ 2]	—	—	—	—
Sverdlovsk	123.2	328	18 39	[+ 1]	30 5	SP	i 20 17 PP	—
Quetta	123.3	296	i 18 40	[+ 2]	e 27 11	SKKS	i 22 36 PKS	—
Grahamstown	z. 126.4	202	i 18 48	[+ 4]	—	—	—	—
Bairam-All	127.0	305	e 18 43	[- 2]	i 25 47	[+13]	e 19 31 pPKP	—
Pietermaritzburg	z. 128.2	208	e 18 51	[+ 4]	—	—	—	—
Kiruna	z. 128.3	353	i 18 48 _a	[0]	—	—	—	—
Ashkabad	129.9	306	e 18 54	[+ 3]	i 27 54	SKKS	i 21 3 PP	—
Kimberley	z. 131.2	202	i 18 56	[+ 3]	—	—	—	—
Pretoria	z. 132.5	208	i 18 59	[+ 3]	—	—	—	—
Pulkovo	133.7	343	—	—	i 22 20	SKP	—	—
Moscow	134.4	336	e 19 2	[+ 3]	—	—	e 19 50 pPKP	—
Baku	135.7	312	—	—	i 22 30	PKS	—	—
Upsala	z. 136.3	352	e 19 1	[- 2]	—	—	—	—
Makhach-Kala	136.4	316	—	—	i 22 29	SKP	—	—
Shemakla	136.5	313	e 19 1	[- 2]	22 31	SKP	—	—
Grozny	137.4	317	—	—	i 22 29	SKP	—	—
Kirovobad	138.1	314	e 19 11	[+ 5]	—	—	—	—
Goris	138.5	312	—	—	e 22 37	PKS	—	—
Piatigorsk	138.8	340	e 19 7	[0]	i 28 45	SKKS	i 22 34 PKS	—
Tiflis	138.8	316	e 19 12	[+ 5]	i 28 46	SKKS	—	—
Gori	139.1	316	e 19 16?	[+ 8]	—	—	—	—
Erevan	139.6	315	e 19 8	[- 1]	22 38	PKS	—	—
Abastumanj	140.0	315	—	—	e 28 54	SKKS	—	—
Zugdidi	140.3	319	e 19 27?	[+17]	e 22 41?	PP	e 20 9? pPKP	—
Sotchi	141.1	321	—	—	i 22 43	PKS	—	—
Simferopol	143.5	327	e 19 15	[- 1]	e 29 4	SKKS	e 33 13 PS	—
Yalta	143.8	326	e 19 16	[0]	e 29 14	SKKS	i 22 46 PKS	—
Lwow	144.1	340	i 19 16	[- 1]	i 22 46	PKS	—	—
Potsdam	z. 144.2	353	e 19 15	[- 2]	—	—	—	—
Witteveen	z. 144.2	0	i 19 19 _k	[+ 2]	—	—	—	—
Kishinev	144.6	333	i 19 18	[0]	—	—	i 22 39 PP	—
De Bilt	144.9	1	—	—	e 40 39?	SS	—	—
Kew	145.1	7	—	—	e 40 39?	SS	—	—
Collimberg	z. 145.3	352	e 19 20	[+ 1]	e 22 53	PKS	e 19 58 pPKP	—
Raciborzu	145.5	347	i 19 20	[+ 1]	e 22 39	PP	e 20 0 pPKP	—
Uzhgorod	145.7	342	i 19 22	[+ 3]	—	—	—	—
Jena	145.8	353	i 19 21	[+ 1]	e 21 32	?	i 19 58 pPKP	—
Skalnate Pleso	145.8	344	e 19 20	[0]	e 23 10	PKS	e 20 2 pPKP	—
Prague	146.3	351	i 19 24	[+ 4]	e 22 55	PP	i 19 59 pPKP	—
Ogyalla	147.6	345	e 19 29	[+ 6]	e 22 51	PP	e 20 9 pPKP	—
Budapest	147.7	343	19 29	[+ 6]	—	—	—	—
Karlsruhe	147.8	357	e 19 26	[+ 3]	e 22 53	PP	e 19 59 pPKP	—
Paris	148.0	5	i 19 28	[+ 5]	i 22 34	PKS	i 20 6 pPKP	e 76.6
Stuttgart	148.1	357	i 19 26 _a	[+ 3]	e 20 47	?	e 20 9 pPKP	—
Kalossa	148.4	343	e 19 31	[+ 7]	e 21 5	?	e 20 16 pPKP	—
Strasbourg	148.4	358	e 19 27	[+ 3]	i 20 21	sPKP	24 58 ?	—
Ksara	148.5	308	i 19 30 _k	[+ 6]	33 11	PSKS	22 55 PP	—
Istanbul	148.9	326	e 19 30	[+ 5]	e 29 37	SKKS	e 20 18 pPKP	—
Basle	149.4	358	e 19 27 _a	[+ 2]	—	—	e 19 32 PKP ₂	—
Zürich	149.6	358	e 19 28	[+ 2]	e 19 32	PKP ₂	20 18 pPKP	—
Belgrade	z. 149.7	340	e 19 28	[+ 2]	e 19 33	PKP ₂	e 20 11 pPKP	—
Besançon	149.7	0	e 19 28	[+ 2]	i 23 47	pPP	i 20 1 pPKP	—
Chur	150.0	356	e 19 29	[+ 3]	—	—	—	—
Sofia	150.4	334	e 19 41	PKP ₂	—	—	—	—
Clermont-Ferrand	151.1	5	e 19 32	[+ 4]	—	—	i 19 38 PKP ₂	—
Oropa	151.3	358	e 19 32	[+ 4]	e 32 53	SKSP	—	e 56.6
Florence	152.9	352	i 19 31 _k	[+ 1]	e 29 27	SKKS	e 32 45 SKSP	e 57.6
Helwan	z. 153.6	304	19 34	[+ 3]	i 30 9	SKKS	20 25 pPKP	—
Rome	154.5	350	e 19 35	[+ 2]	e 42 49	SS	e 24 31 ?	e 56.6
Rocca di Papa	n. 154.6	348	e 19 33	[0]	—	—	—	—
Taranto	154.6	341	—	—	e 41 59	?	—	—

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Toledo	155.4	20	i 19 38	[+ 4]	i 20 2	PKP ₂	e 23 35	PP
Tortosa	155.7	10	i 19 47	[+13]	—	—	—	—
Messina	157.2	342	e 19 37	[+ 1]	e 43 13	SS	e 25 19	? e 57.5
M'Bour	157.6	92	i 19 42	[+ 5]	i 20 13	PKP ₂	i 23 54	PP
Alicante	157.8	15	19 27	[-10]	26 6	[-19]	19 57	PKP ₂
Granada	158.0	21	19 41 _k	[+ 4]	31 10	SKKS	20 16	PKP ₂
Malaga	158.1	23	i 19 44	[+ 7]	26 42	[+17]	i 20 14	PKP ₂
Almeria	158.7	20	i 19 51	[+13]	27 1	[+35]	20 33	PKP ₂
Algiers Univ.	z. 160.0	7	e 19 44	[+ 4]	i 24 5	PP	i 20 23	pPKP
Tamanrasset	z. 174.1	6	i 19 53 _a	[+ 3]	e 29 33	PPP	e 20 29	pPKP

Oct. 31d. 16h. 37m. 15s. Epicentre 39°·3N. 143°·7E. (as on 27d.).

Intensity IV at Kashiwa, Yuda, and Shizukuishi; II-III at Isinomaki, Miyako, Morioka, Hatinohe, Hokusima, Akita, and Onahama. Epicentre 39°·2N. 143°·8E. Depth 60km. Macro seismic radius >300km.

Seismo. Bull. Cent. Met. Obs., Japan, for October, 1952, Tokyo, 1953, p. 441, with macro seismic chart.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Miyako	1.4	284	i 0 25 _a	- 2	0 47	+ 1	—	—
Mizusawa	2.0	265	0 34	- 1	0 57	- 5	0 50	S
Morioka	2.0	282	i 0 34 _a	- 1	1 5	+ 3	—	—
Hatinohe	2.1	307	0 34 _a	- 3	1 1	- 3	—	—
Isinomaki	2.1	246	0 32 _a	- 5	0 55	- 9	—	—
Sendai	2.4	245	0 39 _a	- 2	1 7	- 5	—	—
Aomori	2.7	304	i 0 50 _k	+ 5	1 29	+10	—	—
Akita	2.8	279	0 47	0	1 31	+ 9	—	—
Yamagata	2.8	248	0 45	- 2	1 19	- 3	—	—
Urakawa	2.9	347	e 0 52	+ 4	1 29	+ 5	—	—
Hokusima	3.0	239	0 45 _a	- 5	1 23	- 4	—	—
Sakata	3.0	264	0 53	+ 3	1 35	+ 8	—	—
Onahama	3.2	223	0 48 _a	- 4	1 27	- 5	—	—
Inawasiro	3.3	240	e 0 46	- 7	1 27	- 8	—	—
Shirakawa	3.5	233	e 0 54	- 3	1 32	- 8	—	—
Kusiro	3.7	8	e 1 2	+ 2	1 43	- 2	—	—
Mori	3.7	321	e 1 2	+ 2	1 45	0	—	—
Mito	3.9	223	1 1 _a	- 1	—	—	—	—
Niigata	3.9	251	e 1 3	+ 1	2 0 _?	+10	—	—
Utunomiya	4.1	229	e 1 2	- 3	1 45	-10	—	—
Sapporo	4.2	336	e 1 7	0	1 59	+ 2	—	—
Tyosi	4.2	213	e 1 3	- 4	—	—	—	—
Nemuro	4.3	19	e 1 8	0	1 55	- 5	—	—
Aikawa	4.5	255	1 5	- 6	—	—	—	—
Kumagaya	4.6	229	1 10	- 2	2 5	- 2	—	—
Maebasi	4.7	233	i 1 11 _k	- 3	2 3	- 7	—	—
Abashiri	4.8	5	1 21	+ 6	2 13	+ 1	—	—
Tokyo	4.8	222	i 1 11 _k	- 4	2 9	- 3	—	—
Titibu	4.9	230	i 1 15	- 2	2 8	- 7	—	—
Oiwake	5.0	236	1 18	0	2 23	+ 5	—	—
Yokohama	5.0	221	1 23	+ 5	2 24	+ 6	—	—
Matusiro	5.1	240	i 1 17 _a	- 3	2 15	- 5	—	—
Nagano	5.1	241	i 1 18	- 2	2 15	- 5	—	—
Mera	5.3	217	e 1 23	+ 1	2 39	+14	—	—
Hunatu	5.5	228	1 23	- 2	2 40	+10	—	—
Kohu	5.5	230	1 22	- 3	2 35	+ 5	—	—
Matumoto	5.5	238	1 24	- 1	2 37	+ 7	—	—
Misima	5.6	224	e 1 24	- 3	2 42	+ 9	—	—
Osima	5.7	219	e 1 24	- 4	2 25	-10	—	—
Wazima	5.7	253	e 1 27	- 1	2 26	- 9	—	—
Toyama	5.8	245	i 1 29	0	2 53	+15	—	—
Iida	6.0	233	i 1 31	- 1	—	—	—	—
Shizuoka	6.1	226	1 30	- 4	3 3	- 2*	—	—
Kanazawa	6.2	246	i 1 36	+ 1	—	—	—	—
Wakkanai	N. 6.3	347	e 1 45	+ 9	3 23	+33	—	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Gifu	6.7	237	e 1	40	- 2	3	14	+14	—	—	—
Hukui	6.7	244	e 1	41	- 1	3	8	+ 8	—	—	—
Nagoya	6.8	235	e 1	42	- 2	3	20	+17	—	—	—
Hatidyozima	6.9	208	e 1	45	0	3	11	+ 6	—	—	—
Ibukisan	7.0	239	i 1	48	+ 2	3	19	+11	—	—	—
Hikone	7.2	238	e 1	49	0	3	3	-10	—	—	—
Kameyama	7.3	235	i 1	54	+ 4	3	13	- 2	—	—	—
Tu	7.3	234	1	51	+ 1	3	28	+13	—	—	—
Maizuru	7.6	242	i 1	55 ^k	0	3	20	- 3	—	—	—
Kyoto	7.7	239	e 1	54	- 2	3	36	+11	—	—	—
Yuzno-Sakhlinsk	7.7	355	i 1	56	0	3	27	+ 2	—	—	—
Osaka	8.0	237	e 2	0	0	3	47	+14	—	—	—
Owase	8.0	232	e 1	57	- 3	3	36	+ 3	—	—	—
Toyooka	8.0	245	e 2	0	0	3	38	+ 5	—	—	—
Kobe	8.2	239	e 2	2	- 1	3	53	+15	—	—	—
Sumoto	8.6	238	2	5	- 4	3	57	+ 9	—	—	—
Siomisaki	8.7	230	e 2	5	- 5	—	—	—	—	—	—
Takamatu	9.2	240	e 2	13	- 3	4	12	+ 9	—	—	—
Vladivostok	9.7	297	i 2	45	+23	i 4	47	+32	—	—	—
Koti	10.0	238	e 2	24	- 3	4	10	-12	—	—	—
Hamada	10.3	248	2	30	- 2	4	11	-19	—	—	—
Hirosima	10.3	245	2	27	- 5	4	29	- 1	—	—	—
Ooita	11.5	242	e 2	48	0	—	—	—	—	—	—
Hukuoka	12.1	246	2	53	- 4	5	24	+10	—	—	—
Kumamoto	12.3	243	e 2	56	- 3	—	—	—	—	—	—
Miyazaki	12.4	237	e 2	58	- 3	—	—	—	—	—	—
Saga	12.4	245	e 2	50	-11	—	—	—	—	—	—
Kagosima	13.2	238	e 3	13	+ 2	4	54	-46	—	—	—
Tomie	13.8	246	e 3	18	- 1	—	—	—	—	—	—
Petropavlovsk	17.2	29	i 4	11	+ 8	i 7	26	+12	—	—	—
Magadan	20.7	9	4	41	- 3	—	—	—	—	—	—
Nanking	21.4	259	i 4	46 ^a	- 5	8	37	- 8	—	—	—
Kyakhta	28.3	306	i 5	55	- 2	10	47	+ 4	—	—	—
Kabansk	28.5	310	i 5	58	- 1	—	—	—	—	—	—
Irkutsk	30.0	310	6	11	- 1	e 11	9	- 1	—	—	—
Hong Kong	30.3	245	e 6	12	- 3	11	9	- 6	—	—	—
Manila	31.7	226	i 6	17	-10	i 11	17	-20	—	—	—
Semipalatinsk	45.0	307	8	17	- 2	—	—	—	—	—	—
Shillong	E. 45.3	269	e 8	20	- 1	e 14	55	- 7	10	2	PP
College	46.2	34	i 8	30	+ 2	—	—	—	—	—	20.8
Przhevalsk	48.4	297	8	45	- 1	—	—	—	—	—	—
Almata II	48.8	298	e 8	48	- 1	—	—	—	—	—	—
Almata	49.1	298	i 8	50	- 1	—	—	—	—	—	—
Rybach'e	50.0	297	e 8	56	- 2	i 16	11	+ 2	—	—	—
Naryn	50.4	296	i 9	1	0	16	18	+ 4	—	—	—
Frunse	50.9	298	i 9	3	- 2	i 16	24	- 3	—	—	—
Andijan	53.2	296	9	19 [?]	- 3	i 16	55 [?]	+ 3	—	—	—
Namangan	53.6	296	i 9	24	- 1	i 16	58	0	—	—	—
Fergana	53.8	296	e 9	24	- 2	e 16	58	- 3	—	—	—
Tchimkent	54.5	299	i 9	29	- 3	i 17	9	- 1	—	—	—
Sverdlovsk	54.7	319	i 9	32	- 1	17	12	- 1	—	—	—
Lunacharskoe	55.1	299	i 9	33	- 3	i 17	15	- 3	—	—	—
New Delhi	55.1	281	e 9	33	- 3	i 17	14	- 4	10	39	PcP
Obi-garm	55.9	296	i 9	39	- 3	i 17	28	- 1	—	—	—
Djakarta	56.6	225	e 9	45	- 2	i 17	39	+ 1	e 10	47	PcP
Stalinabad	56.6	296	i 9	45	- 2	i 17	35	- 3	—	—	—
Samarkand	57.4	297	9	49	- 4	17	45	- 4	—	—	—
Hyderabad	N. 60.1	269	—	—	—	e 18	22	- 2	—	—	—
Madras	E. 61.4	265	i 10	20	0	19	58	ScS	12	37	PP
Bairam-Ali	61.7	298	i 10	21	- 1	i 18	46	+ 2	—	—	28.3
Quetta	61.9	288	i 10	21	- 3	e 18	48	+ 1	e 20	13	ScS
Poona	63.1	273	i 10	30	- 2	e 18	59	- 3	12	54	PP
Victoria	63.6	48	10	38	+ 3	—	—	—	—	—	29.8
Bombay	63.7	274	e 10	34	- 2	e 19	8	- 2	19	33	PS
Ashkabad	64.1	300	e 10	36	- 2	i 19	16	+ 2	—	—	26.8

Continued on next page.

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1952		956									
		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m. s.	s.	m. s.	s.	m.
		65.0	339	i 10	41	- 3	e 19 25	- 1	e 13 11	PP	e 29.8
	E.	65.2	264	e 10	48	+ 3	—	—	—	—	—
		66.5	324	10	53	- 1	19 44	0	—	—	—
		67.0	170	e 10	56	- 1	e 19 51	+ 1	i 20 50	ScS	—
		67.1	330	i 10	57	0	i 19 52	+ 1	—	—	—
		68.3	55	e 11	6	+ 1	—	—	—	—	—
		68.4	305	e 11	5	- 1	20 9	+ 2	—	—	—
		68.5	309	e 11	7	+ 1	20 8	0	—	—	—
		68.9	333	e 10	34	-35	e 20 14	+ 1	e 13 22	PP	—
		68.9	45	i 11	9	0	—	—	—	—	—
		69.0	54	e 11	11k	+ 2	—	—	—	—	—
	Z.	69.1	306	i 11	9	- 1	—	—	—	—	—
		69.3	310	i 11	10	- 1	20 15	- 2	—	—	—
		70.0	57	e 11	19a	+ 4	—	—	i 11 33	PcP	—
	Z.	70.4	307	i 11	18	0	20 32	+ 2	—	—	—
		70.5	312	11	19	+ 1	20 29	- 3	—	—	—
		70.6	54	e 11	21a	+ 2	—	—	—	—	—
	Z.	70.7	57	e 11	21k	+ 1	—	—	—	—	—
		70.8	309	i 11	20	0	e 20 36	+ 1	—	—	—
		71.1	309	e 11	22	0	—	—	—	—	—
		71.1	45	i 11	25	+ 3	—	—	—	—	—
		71.2	306	11	21	- 2	i 20 41	+ 1	—	—	—
		71.6	309	i 11	23	- 2	i 20 44	0	—	—	—
		71.7	309	11	26	0	—	—	—	—	—
		71.7	335	i 11	24	- 2	e 20 44?	- 1	i 14 5	PP	e 32.8
		71.9	307	i 11	27	0	20 49	+ 1	—	—	—
		72.0	309	e 11	45?	PcP	—	—	—	—	—
		72.1	311	e 11	30	+ 2	e 20 55	+ 5	—	—	—
		72.2	56	e 11	29k	0	—	—	—	—	—
	Z.	72.7	313	i 11	30	- 2	i 20 55	- 2	—	—	—
		73.0	56	i 11	36	+ 3	—	—	—	—	—
		73.1	173	e 11	35	+ 1	i 21 0	- 1	i 21 44	ScS	e 34.8
		74.2	56	e 11	42	+ 2	e 11 58	PcP	e 14 21	PP	—
	Z.	74.2	316	e 11	47	+ 7	—	—	—	—	—
		74.8	58	e 11	46	+ 2	—	—	e 14 43	PP	e 36.2
	Z.	74.8	316	e 11	46	+ 2	—	—	—	—	—
		75.0	317	i 11	44	- 1	e 21 22	- 1	—	—	—
		75.2	316	i 11	46	0	e 21 24	- 1	—	—	—
		75.5	58	e 11	49	+ 1	—	—	—	—	—
	Z.	75.5	58	e 11	49	+ 1	—	—	—	—	—
		75.9	55	e 12	12	PcP	—	—	—	—	—
		76.1	55	e 11	53	+ 2	—	—	—	—	—
		76.2	58	e 11	56	+ 4	—	—	—	—	—
	Z.	76.2	58	e 11	56	+ 4	—	—	—	—	—
		76.3	321	i 11	51	- 1	e 21 39	+ 2	—	—	—
		76.6	325	e 11	53	- 1	e 21 41	+ 1	—	—	—
		76.7	335	i 11	54	- 1	21 45	+ 4	—	—	39.8
		76.8	323	e 11	50	- 5	—	—	—	—	—
		76.8	323	e 11	55	0	—	—	—	—	—
		76.8	178	e 22	45	PPS	—	—	—	—	—
	E.	76.8	178	e 22	45	PPS	—	—	—	—	—
		78.2	325	e 12	13?	PcP	—	—	—	—	—
		78.7	327	e 12	29	+23	e 22 9	+ 6	e 16 51	PPP	e 42.2
		78.9	328	e 12	7	0	e 12 14	PcP	e 15 8	PP	e 47.8
		79.1	333	i 12	9k	+ 1	e 22 6	- 1	i 15 6	PP	e 41.8
		79.5	320	e 12	31	+21	e 21 57	-14	—	—	—
	E.	80.0	331	e 12	12	- 1	e 22 13	- 4	e 15 6	PP	e 42.2
		80.3	316	e 12	13	- 1	i 22 20	0	e 15 11	PP	42.4
		80.5	325	e 12	15	0	22 23	+ 1	22 41	ScS	e 43.2
		80.5	330	i 12	16	+ 1	e 22 20	- 2	e 23 7	PS	e 44.0
		80.6	326	e 12	34	PcP	e 22 28	+ 5	e 16 51	?	—
		80.8	331	e 12	17	0	e 22 22	- 3	e 12 26	PcP	—
		80.8	56	e 12	20	+ 3	—	—	e 13 30	?	e 40.1
		80.9	323	e 12	22	+ 5	e 22 25	- 1	—	—	e 43.8
		81.0	155	—	—	—	e 22 50	ScS	—	—	e 37.8
	N.	81.0	155	—	—	—	e 22 50	ScS	—	—	e 37.8
		81.0	335	e 12	15	- 3	—	—	—	—	—
	Z.	81.0	335	e 12	15	- 3	—	—	—	—	—
		81.2	331	e 14	37	?	e 22 32	+ 3	—	—	e 42.8
		81.3	307	12	19	- 1	22 40	+10	15 25	PP	—
		81.7	340	e 22	7	?	i 22 50	ScS	i 27 42	SS	—

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Belgrade	81.9	323	e 12 29	+ 6	e 22 35	- 1	e 15 35	PP e 45.5
De Bilt	82.1	335	e 12 17	- 7	e 22 38	0	e 15 29	PP e 42.8
Sofia	82.1	320	e 12 49	+25	e 22 44	+ 6	—	—
Stuttgart	83.5	332	e 12 30 _a	- 1	e 22 47	- 5	e 15 48	PP e 42.8
Karlsruhe	83.6	332	e 12 33	+ 2	—	—	—	e 42.8
Rathfarnham Castle	84.2	343	e 12 34	0	e 22 55?	- 4	e 12 45	PcP e 49.8
Strasbourg	84.2	333	e 12 35	+ 1	e 22 59	0	e 15 49	PP e 40.0
Kew	84.3	338	e 12 27	- 8	e 22 56	- 4	e 15 52	PP e 37.8
Triest	84.3	328	e 12 31	- 4	i 23 0	0	e 24 8	PS —
Zürich	84.9	332	e 12 32	- 6	e 23 2	- 4	—	—
Basle	85.1	332	e 12 39	0	—	—	—	—
Paris	85.8	336	i 12 42	0	i 23 6 [0]	—	i 23 13	S e 43.8
Besançon	85.9	332	e 12 43	0	e 12 52	PcP	e 13 11	? —
Christchurch	86.5	159	e 13 7	+21	e 23 23	+ 1	e 28 55	SS e 36.8
Pavia	86.5	330	e 24 13	PS	—	—	—	i 48.7
Florence	86.8	328	e 12 51	+ 4	e 23 13 [0]	—	e 23 29	S e 44.6
Helwan E.	86.8	306	e 12 51	+ 4	i 23 13 [0]	—	e 16 9	PP —
Rome	87.8	326	—	—	e 23 21 [+ 2]	—	e 32 55	SSS —
Clermont-Ferrand	88.2	334	—	—	e 23 49 +11	—	—	—
Messina N.	89.4	322	—	—	e 23 30 [+ 1]	—	e 33 38	SSS e 46.7
Cleveland E.	89.7	33	—	—	e 23 49 - 3	—	—	—
Pennsylvania E.	91.7	31	—	—	e 24 16 + 6	—	—	—
Alicante	96.0	333	12 49	-42	24 5 [- 2]	—	15 46	? 46.9
Algiers Univ. z.	96.1	329	e 16 53	?	—	—	e 21 27	? —
Almeria	98.1	334	e 13 40	0	25 0 - 4	—	17 40	PP 55.9
Granada	98.1	335	e 13 4 _a	-36	24 49 {+ 8}	—	17 46	PP i 55.2
Malaga	98.8	335	e 17 50	PP	—	—	—	i 57.7
Bermuda	104.0	25	e 27 31	PS	e 25 50 - 4	—	e 33 16	SS e 48.9
Tamanrasset z.	106.9	320	17 20	?	e 18 45	PP	e 30 2	PKKP —
Bogota	124.1	48	e 32 36	PKKS	—	—	—	—
Pretoria z.	125.0	264	e 19 1	[- 1]	—	—	—	—
Huancayo	136.1	63	—	—	e 40 9	SS	e 45 8	SSS e 55.1
La Paz	144.1	59	19 49	[+11]	29 55 {+10}	—	23 15	PP 68.8
La Plata N.	162.2	82	20 3	[0]	30 39 {-45}	—	34 51	SKSP 72.2

Oct. 31d. Explosion of American Hydrogen Bomb.

Site 11°40'N. 162°12'E. at Eniwetok Island (N.W. Marshall Islands Group). Estimated time of occurrence 19h. 14m. 58s.

$$A = -.9327, B = +.2995, C = +.2009; \quad \delta = -1; \quad h = +6;$$

$$D = +.306, E = +.952; \quad G = -.191, H = +.061, K = -.980.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.
Brisbane	39.9	193	17 38 _a	+ 1	19 10	PP	i 9 44 PPP
Manila	40.2	279	i 7 38	- 2	17 44	P	—
New Plymouth E.	51.7	168	e 9 21	+10	—	—	—
Cobb River E.	53.4	170	e 9 22	- 2	—	—	—
Wellington z.	53.9	168	i 9 26	- 1	9 49	?	—
Kaimata N.E.	54.6	172	e 9 32	0	—	—	—
Victoria	71.0	43	i 11 20 _a	- 2	—	—	—
King Ranch z.	73.7	56	i 11 37	- 1	—	—	—
Santa Barbara z.	73.7	58	i 11 39	+ 1	—	—	—
China Lake	74.5	56	i 11 47	+ 5	—	—	—
Tinemaha	74.8	55	i 11 45 _a	+ 1	—	—	—
Pasadena	75.0	58	i 11 45 _a	0	—	—	—
Mount Wilson z.	75.1	58	i 11 46 _a	0	—	—	—
Riverside z.	75.7	58	i 11 49 _a	0	—	—	—
Palomar z.	76.2	59	i 11 52	0	—	—	—
Quetta z.	88.6	301	i 12 55	- 1	—	—	—
La Paz N.	131.0	102	19 19	[+ 5]	1 22 46	PKS	—
Pretoria z.	134.5	246	e 19 18	[- 2]	1 19 23	PKP	—
Kimberley z.	137.0	240	i 19 27?	[+ 2]	e 19 12?	?	—
Tamanrasset z.	138.8	327	19 20	[- 8]	e 19 30	PKP	e 22 16 PP

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Oct. 31d. 21h. 32m. 15s. Epicentre 35°·5N. 140°·4E. Focus at Base of Superficial Layers.
(as on 1952, August 12d.).

A = -·6287, B = +·5201, C = +·5781; $\delta = -3$; $h = 0$;
D = +·637, E = +·771; G = -·445, H = +·368, K = -·816.

	Δ °	Az. °	P.		O-C. s.	S.		O-C.	
			m.	s.		m.	s.	s.	s.
Tyosi	0·4	58	e 0	14	+ 5	0	24	+ 8	
Tokyo	0·6	289	0	12	0	0	21	0	
Mera	0·7	219	0	14	+ 1	0	26	+ 3	
Tukubasan	0·8	341	0	15	0	0	24	- 2	
Mito	0·9	3	e 0	17	+ 1	0	32	+ 4	
Kumagaya	1·0	309	e 0	21	+ 3	0	33	+ 2	
Osima	1·1	229	i 0	19	0	0	31	- 2	
Utunomiya	1·1	338	e 0	19	0	0	33	0	
Ajiro	1·2	247	0	21	+ 1	0	32	- 4	
Misima	1·2	252	e 0	22	+ 2	0	35	- 1	
Titibu	1·2	294	e 0	20	0	—	—	—	
Hunatu	1·3	270	i 0	22	0	0	37	- 1	
Maebasi	1·3	213	0	23	+ 1	0	42	+ 4	
Kohu	1·5	275	0	24	0	0	40	- 4	
Shirakawa	1·6	355	e 0	26	0	0	50	+ 4	
Shizuoka	1·7	252	e 0	32	+ 4	0	48	- 1	
Matumoto	2·1	290	e 0	36	+ 3	1	0	+ 1	
Hukusima	2·3	1	e 0	49	PP	1	39	SS	
Nagoya	2·8	263	e 0	58	PP	—	—	—	
Sendai	2·8	8	—	—	—	e 1	6	-10	
Ibukisan	N.	3·3	270	e 1 13	PP	—	—	—	
Kameyama		3·3	261	e 0 57	+ 6	1	39	+10	
Kyoto		3·9	262	e 1 16	PP	—	—	—	

Oct. 31d. 23h. 51m. 38s. Epicentre 32°·7N. 100°·4E.

A = -·1522, B = +·8293, C = +·5377; $\delta = +2$; $h = +1$;
D = +·984, E = +·181; G = -·097, H = +·529, K = -·843.

		Δ °	Az. °	P.		O-C. s.	S.		O-C.		Supp.		L. m.
				m.	s.		m.	s.	s.	s.	m.	s.	
Shillong	E.	10·3	229	e 2	38	+ 6	4	44	SS	2	46	PP	5·3
Calcutta	N.	14·7	230	i 3	41	+10	e 6	39	SS	6	58	SSS	7·3
Nanking		15·6	87	i 3	31k	-12	—	—	—	—	—	—	—
Hong Kong		16·0	127	—	—	—	e 6	31	-15	—	—	—	—
Kyakhta		18·2	10	4	5	-11	7	23	-14	—	—	—	—
Irkutsk		19·8	5	i 4	26	- 9	8	0	-13	—	—	—	—
Kabansk		19·9	8	i 4	25	-11	i 7	59	-16	—	—	—	—
Przhevalsk		19·9	306	4	36	0	—	—	—	—	—	—	—
New Delhi		20·4	264	i 4	41	0	i 8	34	+ 9	5	5	PP	9·7
Almata II		20·9	307	i 4	47	+ 1	—	—	—	—	—	—	—
Almata		21·2	307	i 4	51	+ 2	i 8	50	+ 9	—	—	—	—
Naryn		21·3	300	i 4	51	+ 1	i 8	51	+ 8	—	—	—	—
Rybach'e		21·5	303	i 4	54	+ 2	i 8	54	+ 7	—	—	—	—
Frunse		22·7	303	e 5	4	0	—	—	—	—	—	—	—
Semipalatinsk		23·1	326	i 5	6	- 2	e 9	16	0	—	—	—	—
Andijan		23·8	297	i 5	17	+ 2	—	—	—	—	—	—	—
Khorog		24·0	289	i 5	21	+ 4	i 9	46	+14	—	—	—	—
Fergana		24·2	296	i 5	20	+ 1	e 9	40	+ 5	—	—	—	—
Namangan		24·3	296	e 5	22	+ 2	e 9	46	+ 9	—	—	—	—
Dzhergetal		24·4	294	i 5	23	+ 2	i 9	48	+ 9	—	—	—	—
Kumamoto		25·4	80	5	25	- 6	e 14	4	?	—	—	—	—
Kulyab		25·5	290	i 5	34	+ 2	i 10	6	+ 9	—	—	—	—
Obi-garm		25·6	292	i 5	33	+ 1	i 10	2	+ 3	—	—	—	—
Manila		26·0	128	i 5	27	- 9	i 9	53	-13	—	—	—	—
Ooita		26·1	78	e 5	34	- 3	e 10	34	+27	—	—	—	14·1

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tchimkent	26.1	300	i 5 36	- 1	—	—	—	—
Tashkent	26.2	298	e 5 38	0	e 10 13	+ 4	—	—
Lunacharskoe	26.2	298	i 5 39?	+ 1	10 7?	- 2	—	—
Miyazaki	26.2	82	e 5 35	- 3	e 10 20	+11	—	14.2
Stalinabad	26.3	292	i 5 40	+ 1	—	—	—	—
Vladivostok	26.8	57	e 5 46?	+ 2	e 10 40?	+21	—	—
Madras	E. 27.0	229	i 5 51	+ 6	e 10 37	+15	11 57	SSS 16.3
Simidu	27.3	80	e 5 57	+ 9	—	—	—	14.6
Koti	27.7	78	e 9 4	PcP	e 12 42	ScS	—	14.7
Samarkand	27.7	294	5 52	0	—	—	—	—
Poona	Z. 27.7	245	i 5 56	+ 4	e 10 51	+18	6 54	PPP 14.0
Takamatu	28.0	75	e 5 9	-46	—	—	—	—
Bombay	28.3	248	e 6 3	+ 6	e 10 50	+ 7	12 5	SS 12.5
Quetta	Z. 28.5	274	i 6 1	+ 2	e 10 55	+ 9	—	—
Kameyama	30.0	74	e 8 22?	?	—	—	—	e 14.6
Kodaikanal	E. 30.8	229	e 6 25	+ 5	—	—	—	—
Matusiro	31.2	71	e 5 31	?	e 11 46	+17	—	e 17.4
Omaesaki	31.4	74	—	—	e 11 46	+14	—	—
Bairam-Ali	31.5	290	i 6 31	+ 5	i 11 42	+ 8	—	—
Colombo	32.0	221	e 6 25	- 5	e 11 7	-35	16 40	ScS 13.6
Kumagaya	32.2	73	—	—	e 14 15	SSS	—	—
Tokyo	32.6	73	e 7 30?	+55	e 12 47?	+56	e 14 5	? e 17.4
Mera	32.7	73	e 12 27	?	—	—	—	—
Sapporo	33.6	58	e 9 7	?	e 14 30	SSS	—	18.1
Ashkabad	34.5	290	6 54	+ 2	i 12 28	+ 8	—	—
Sverdlovsk	36.3	323	i 7 4	- 3	i 12 46	- 2	—	—
Djakarta	39.1	169	e 7 36k	+ 5	13 34	+ 3	18 41	pP
Shemakla	41.8	296	—	—	14 20	+ 9	—	—
Kirovobad	43.5	297	8 7	0	14 39	+ 3	—	—
Grozny	43.6	300	e 8 7	- 1	—	—	—	—
Goris	43.7	295	i 8 9	+ 1	e 14 43	+ 4	—	—
Tiflis	44.5	298	e 8 17	+ 2	e 14 57	+ 6	—	—
Gori	45.0	298	e 8 20	+ 1	—	—	—	—
Borzhomi	45.5	298	i 8 25	+ 2	i 15 10	+ 5	—	—
Piatigorsk	45.5	301	8 22	- 1	15 7	+ 2	—	—
Akhalkalaki	45.9	297	e 8 27	+ 1	—	—	—	—
Abastumanj	46.0	298	e 8 27	0	—	—	—	—
Zugdidi	46.8	299	e 8 30	- 3	e 15 20	- 4	—	—
Sotchi	48.0	301	i 8 42	- 1	i 15 42	+ 1	—	—
Moscow	48.6	318	e 8 45	- 2	—	—	—	—
Simferopol	51.7	304	e 9 10	- 1	16 33	+ 1	—	—
Yalta	51.8	303	i 9 12	0	i 16 35	+ 2	—	—
Pulkovo	52.5	323	i 9 13	- 4	i 16 38	- 5	—	—
Ksara	53.1	289	9 23k	+ 2	e 17 33	?	e 21 35	? —
Kishinev	54.9	307	i 9 33	- 2	i 17 14	- 2	—	—
Istanbul	56.2	300	e 9 41	- 3	e 17 34	+ 1	e 21 16	SS 27.7
Kiruna	56.4	332	i 9 41k	- 4	e 17 31	- 5	i 11 44	PP e 26.4
Bucharest	57.4	305	e 9 56	+ 3	e 17 46	- 3	e 17 54	S —
Lwow	57.4	311	i 9 50	- 3	i 17 51	+ 2	—	—
Helwan	E. 58.1	287	—	—	e 18 2	+ 4	—	—
Upsala	58.8	324	i 9 58	- 4	i 18 3	- 4	e 19 42	ScS 1 26.8
Uzhgorod	58.8	310	e 10 0	- 2	e 18 9	+ 2	—	—
Skalnate Pleso	60.0	312	e 10 44	+33	e 18 51	+28	e 14 53	PcS —
Timisoara	60.3	308	e 9 25?	-48	e 20 4	ScS	e 18 51	? e 30.4
Belgrade	N.E. 61.2	306	—	—	e 24 31	SSS	—	e 27.7
Ogyalla	61.7	311	e 10 40	+18	—	—	—	—
Copenhagen	62.6	320	i 10 26	- 2	—	—	—	30.4
Potsdam	63.3	317	e 10 31	- 2	e 19 5	+ 1	e 25 58	SSS e 29.4
Prague	63.3	314	e 10 30	- 3	e 19 4	0	e 11 3	PcP e 33.6
Collmberg	63.7	315	e 10 33	- 3	e 25 49	SSS	e 30 46	Q e 33.1
Cheb	64.5	315	e 16 16	?	e 19 19	0	—	e 33.4
Jena	64.7	316	e 10 39	- 3	e 19 10	-12	e 11 37	PcP —
Triest	65.3	309	e 10 42	- 4	i 19 23	- 6	19 44	PS 32.6
Witteveen	Z. 66.8	320	i 10 52k	- 4	—	—	—	—
Stuttgart	67.0	314	e 10 54	- 3	e 19 50	0	e 27 22	SSS e 33.4

Continued on next page.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Karlsruhe	67.3	315	e 10	58	- 1	—	—	—	—	—	e 33.4
Florence	67.7	308	e 10	49	-12	e 20	10	+12	e 27	33	SSS e 33.9
De Bilt	67.9	318	—	—	—	e 19	52	- 9	e 24	22	SS e 33.4
Strasbourg	67.9	314	e 11	0	- 2	e 24	22	SS	e 10	38	? e 29.4
Zürich	67.9	313	e 11	0	- 2	—	—	—	—	—	—
Basle	68.4	313	e 11	5	- 1	—	—	—	—	—	e 33.4
Aberdeen	69.4	325	—	—	—	e 25	37	?	i 27	37	SSS —
College	69.4	25	11	5	- 7	—	—	—	—	—	—
Besançon	69.5	312	e 11	10	- 2	e 12	21	?	i 11	17	P —
Paris	70.9	316	i 11	18	- 3	e 28	45	SSS	i 11	51	PcP e 32.4
Kew	71.2	320	—	—	—	e 20	34	- 6	e 28	52	SSS e 38.4
Clermont-Ferrand	72.0	312	e 11	22	- 6	—	—	—	—	—	36.4
Resolute Bay	72.4	4	e 11	23	- 7	i 20	50	- 3	—	—	e 30.4
Alicante	78.0	308	11	21	-41	—	—	—	—	—	37.6
Brisbane	78.0	134	i 12	1 _a	- 1	e 21	55	0	i 12	26	PcP —
Toledo	79.5	310	e 12	10	0	e 15	9	PP	e 16	6	PcS 40.0
Granada	80.7	308	e 13	34 _a	?	—	—	—	e 15	21	PP 38.9
Riverview	81.6	139	e 12	22	+ 1	e 22	33	0	i 22	47	ScS e 38.3
Hungry Horse	93.6	22	i 13	16	- 3	—	—	—	—	—	—
Butte	96.2	22	e 13	32	+ 1	—	—	—	—	—	—
Shasta	97.0	31	e 13	31 _a	- 4	—	—	—	e 13	36	P —
Mineral	z. 97.6	31	e 13	36	- 2	—	—	—	—	—	—
Tinemaha	101.8	31	e 17	37	?	—	—	—	e 18	2	PP —
China Lake	z. 103.1	30	e 18	4	?	—	—	—	e 18	14	PP —
Mount Wilson	z. 104.2	33	e 18	21	PP	—	—	—	—	—	—

Nov. 1d. 5h. 29m. 6s. Epicentre 25°·5S. 179°·5W. Depth of focus 0.070.

A = -·9037, B = -·0079, C = -·4281; $\delta = +1$; $h = +3$;
D = -·009, E = +1·000; G = +·428, H = +·004, K = -·904.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	
Karapiro	N.	13.1	198	—	—	e 5	20	+10	—	—	
Tuai	N.	13.6	191	—	—	e 5	22	+ 3	—	—	
Apia		13.7	33	—	—	e 5	10?	-11	—	—	
Wellington		16.4	195	i 3	27	+ 2	6	15	+ 4	—	
Cobb River	E.	16.8	201	i 3	30	+ 1	e 6	19	+ 1	—	
Kaimata	N.E.	18.6	202	e 3	48	+ 1	e 6	51	+ 1	—	
Christchurch		19.1	197	—	—	7	7	+ 8	—	—	
Brisbane	z.	24.6	259	i 4	38 _k	- 4	—	—	i 4	52	PP
Manila		70.3	298	i 10	28	+ 2	—	—	—	—	—
Lick	z.	82.8	42	i 11	36	+ 2	—	—	e 13	24	pP
Pasadena		83.1	47	i 11	36	0	—	—	i 13	25	pP
Riverside		83.5	47	e 11	38	0	—	—	e 13	27	pP
Fresno	z.	83.6	44	e 11	38	0	—	—	e 13	28	pP
China Lake		84.5	45	e 11	42	- 1	—	—	e 13	31	pP
Shasta	z.	84.5	39	e 11	43	0	—	—	e 13	33	pP
Reno	z.	85.3	42	e 11	48	+ 2	—	—	e 13	36	pP
Nelson		86.2	47	i 11	51	0	—	—	i 13	41	pP
Boulder City		86.4	47	i 11	52	0	—	—	i 13	43	pP
Tucson		87.1	52	e 11	57	+ 2	—	—	i 13	47	pP
College		93.4	12	i 12	20	- 4	—	—	—	—	—
Hungry Horse		93.9	37	e 16	17	PP	—	—	—	—	—
Quetta	z.	121.7	291	e 17	58	[0]	—	—	—	—	—
Kiruna	z.	135.9	348	i 21	10	PP	—	—	—	—	—
Upsala	z.	143.7	346	i 18	35 _k	[- 5]	i 18	44	PKP ₁	i 20	44 pPKP
Copenhagen		148.6	348	i 18	51	[+ 3]	—	—	—	—	—
Witteveen	z.	152.3	353	i 19	0	[+ 7]	—	—	i 20	59	pPKP
Collmberg	z.	152.5	344	e 19	0	[+ 7]	e 19	12	PKP ₁	20	59 pPKP
Jena	z.	153.2	345	e 18	52	[- 2]	e 19	2	PKP ₁	e 21	1 pPKP
Stuttgart		155.8	347	e 18	56	[- 2]	e 19	6	PKP ₁	e 19	25 ?

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1952

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Nov. 1d. 13h. 36m. 34s. Epicentre 42°·5N. 78°·9E.

Given by stations of U.S.S.R.

A = +·1424, B = +·7257, C = +·6731; $\delta = -2$; $h = -3$;
D = +·981, E = -·193; G = +·130, H = +·661, K = -·740.

	Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.	
			m.	s.	s.	m.	s.	m.	s.	
Przhevalsk	0·4	268	0	7	- 1 _g	—	—	—	—	—
Kurmenty	0·7	321	i 0	14	0 _g	—	—	—	—	—
Chilisk	1·1	342	i 0	22	0 _g	—	—	—	—	—
Almata II	1·4	304	i 0	26	- 2 _g	—	—	—	—	—
Almata	1·6	298	0	31	+ 1	i 0 55	+ 2 _g	—	—	—
III	2·0	318	i 0	36	+ 1	—	—	—	—	—
Rybach'e	2·1	269	0	35	- 2	e 1 2	- 2	—	—	—
Naryn	2·4	244	e 0	42	+ 1	i 1 14	+ 2	—	—	—
Frunse	3·2	277	e 0	54	+ 2	i 1 39	0*	—	—	—
Andijan	5·2	252	1	24	+ 3	i 3 2	+ 10 _g	i 1 38	P*	—
Namangan	5·6	257	e 1	41	+ 2*	—	—	—	—	—
Dzhergetal	6·7	243	1	43	+ 1	—	—	—	—	—
Tchimkent	6·9	271	i 2	4	+ 3*	—	—	—	—	—
Lunacharskoe	7·3	264	e 2	10	+ 2*	—	—	—	—	—
Tashkent	7·3	264	e 2	12	+ 4*	e 3 37	- 4*	—	—	—
Garm	7·4	245	e 1	52	0	—	—	—	—	—
Strasbourg	48·5	303	—	—	—	e 15 52	+ 4	e 18 44	SS	—
Paris	51·7	305	—	—	—	e 16 7	- 25	—	—	—

Nov. 1d. 23h. 45m. 40s. Epicentre 24°·6S. 176°·7W. Depth of focus 0·020.

A = -·9088, B = -·0524, C = -·4140; $\delta = +6$; $h = +3$;
D = -·058, E = +·998; G = +·413, H = +·024, K = -·910.

		Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.		L. m.
				m.	s.	s.	m.	s.	m.	s.		
Apia		11·7	24	i 2	32	- 11	i 4 26	- 25	—	—	—	
Karapiro	N.	14·8	205	3	26	+ 4	6 11	+ 9	3 57	PP	—	
Tuai	N.	15·1	199	e 3	28	+ 2	6 3	- 6	e 15 18	ScS	—	
New Plymouth	E.	16·4	206	—	—	—	e 6 43	+ 5	—	—	—	
Wellington		18·1	202	e 3	56	- 6	e 7 10	- 6	15 30	ScS	—	
Cobb River	E.	18·7	206	—	—	—	e 7 19	- 9	—	—	—	
Kaimata	N.E.	20·4	206	e 4	27	+ 1	e 7 58	- 2	e 15 30	ScS	—	
Christchurch		20·8	202	e 5	16	PPP	8 3	- 5	15 44	ScS	—	
Brisbane		27·3	257	i 5	28 _a	- 4	i 11 37	SS	i 6 55	PP	—	
Riverview		29·4	244	i 5	49 _a	- 1	i 11 36	sS	i 6 40	PP	—	
Melbourne	E.	35·1	239	i 6	40	0	i 8 55	PcP	i 7 18	pP	—	
Manila		72·2	296	i 11	16	+ 7	i 17 32	?	i 21 43	PPS	—	
Lick	Z.	80·5	41	i 11	56 _a	0	i 14 58	PP	i 12 36	pP	—	
Berkeley	Z.	80·5	41	e 11	56 _a	0	—	—	e 12 34	pP	—	
Pasadena		80·6	46	e 11	56	0	i 21 56	+ 8	i 12 37	pP	—	
Palomar	Z.	81·0	47	i 11	59	+ 1	—	—	i 12 41	pP	—	
Riverside	Z.	81·1	46	i 11	59	0	e 30 37	PKKP	i 12 40	pP	—	
Fresno		81·2	43	e 12	0	+ 1	e 22 1	+ 7	e 12 40	pP	—	
Hong Kong		81·7	299	e 12	2	0	—	—	—	—	—	
China Lake	Z.	82·0	45	i 12	5	+ 2	e 30 32	PKKP	i 12 45	pP	—	
Shasta	Z.	82·2	39	e 12	4	0	—	—	i 12 45	pP	—	
Vladivostok		82·3	325	e 11	55	- 10	i 22 4	- 1	—	—	—	
Tinemaha	Z.	82·4	44	i 12	6	+ 1	—	—	i 12 48	pP	—	
Reno		83·0	41	e 12	9	+ 1	e 23 43	PPS	e 12 51	pP	—	
Nanking		83·4	309	i 12	7 _a	- 3	i 22 14	- 2	i 12 11	P	—	
Nelson		83·8	46	i 12	12	0	i 38 37	P'P'	i 12 54	pP	—	
Boulder City		83·9	46	i 12	13	0	e 22 24	+ 3	i 12 51	pP	—	
Corvallis	Z.	84·4	36	e 12	12	- 3	—	—	—	—	—	
Tucson		84·5	51	i 12	17	+ 1	e 22 17	- 10	i 12 57	pP	—	
Seattle	Z.	86·9	34	12	27	- 1	—	—	e 13 17	pP	—	

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Victoria	87.0	32	12 28	0	—	—	—	—
Tacubaya	87.2	67	e 12 37 ^a	+ 8	—	—	e 13 9	pP
Magadan	88.0	345	12 29	- 4	22 42	[- 2]	—	—
Hungry Horse	91.7	37	i 12 48	- 2	e 23 6	[0]	e 38 16	P'P'
College	91.9	12	i 12 48	- 3	e 23 28	- 8	—	—
Huancayo	95.1	106	e 13 7	+ 1	i 23 36	[+12]	e 13 51	pP
La Paz	99.3	113	e 13 36	+11	i 23 56	[+ 9]	i 17 34	PP
Kyakhta	100.7	321	e 13 28	- 3	—	—	e 17 33	PP
Kabansk	101.3	322	e 13 29	- 5	—	—	e 17 32	PP
Chinchina	102.1	90	e 13 20	-17	e 24 4	[+ 4]	—	—
Irkutsk	102.7	322	e 17 20	PP	e 23 50	[-13]	—	—
Bogota	103.4	91	e 18 5	PP	e 24 11	[+ 5]	—	—
Kodaikanal	E. 108.5	274	e 17 48	PKP	—	—	—	—
Morgantown	110.2	55	e 18 21	[+ 9]	—	—	—	—
Resolute Bay	111.4	16	—	—	i 17 45	?	i 34 27	SS
Ottawa	114.6	50	e 18 20	[- 1]	24 58	[+ 5]	27 2	S
Palisades	115.0	55	—	—	i 25 1	[+ 6]	i 29 4	PS
Bombay	115.8	280	e 18 52	[+29]	e 26 1	?	i 30 7	PPS
Przhevalsk	116.9	307	e 18 25	[- 1]	—	—	—	—
Weston	117.2	53	—	—	i 28 56	PS	—	—
Almata	118.0	308	e 18 27	[- 1]	—	—	e 19 42	pPKP
Grahamstown	z. 118.3	203	i 18 29	[+ 1]	—	—	—	—
Naryn	118.5	305	e 18 29	[0]	i 23 8	?	i 19 14	pPKP
Frunse	119.7	306	i 18 30	[- 1]	i 29 32	PS	i 19 55	PP
Bermuda	120.6	66	e 24 21	?	e 24 58	[-16]	e 29 51	PS
Andijan	121.1	304	i 18 32	[- 2]	i 25 21	[+ 5]	20 1	PP
Khorog	121.2	300	e 18 38	[+ 4]	—	—	—	—
Fergana	121.5	304	i 18 33	[- 1]	e 26 35	SKKS	e 22 45	PPP
Namangan	121.6	305	i 18 34	[- 1]	i 25 20	[+ 2]	19 14?	pPKP
Dzhergetal	121.8	303	18 35	[0]	—	—	—	—
Kulyab	122.7	301	18 37	[0]	—	—	—	—
Obi-garm	122.9	302	i 18 36	[- 1]	—	—	—	—
Kimberley	z. 123.1	203	i 18 38	[0]	—	—	—	—
Tchimkent	123.3	306	i 18 38	[0]	e 25 24	[+ 1]	e 20 17	PP
Lunacharskoe	123.4	305	i 18 38	[0]	—	—	—	—
Tashkent	123.5	305	i 18 36	[- 2]	e 25 24	[0]	i 20 16	PP
Stalinabad	123.6	302	i 18 37	[- 1]	—	—	i 20 20	PP
Quetta	z. 123.8	292	i 18 38	[- 1]	—	—	—	—
Pretoria	z. 124.5	208	i 18 41	[+ 1]	—	—	—	—
Samarkand	125.1	302	18 40	[- 1]	—	—	20 22	PP
Sverdlovsk	128.0	324	i 18 45	[- 2]	e 25 36	[- 1]	e 20 32	PP
Bairam-Ali	128.7	300	i 18 48	[0]	—	—	—	—
Ashkabad	131.7	300	i 18 55	[+ 1]	i 22 22	PKS	—	—
Scoresby Sund	131.8	12	i 18 52	[- 2]	i 22 5	PKS	—	—
Kizyl-Arvat	133.4	302	e 19 1	[+ 4]	i 22 15	PKS	—	—
Kiruna	135.5	351	i 18 53	[- 8]	e 28 13	SKKS	i 19 45	pPKP
Baku	138.2	305	e 19 11	[+ 5]	—	—	—	—
Shemakla	139.1	305	i 19 6	[- 2]	22 40	PKS	i 19 52	pPKP
Makhach-Kala	139.5	308	i 19 11?	[+ 2]	e 22 45?	PKS	—	—
Moscow	140.0	331	e 19 1	[- 9]	i 22 30	PKS	e 19 49	pPKP
Pulkovo	140.1	340	i 19 4	[- 6]	i 22 43	PKS	i 19 50	pPKP
Kirovobad	140.8	305	19 2	[- 9]	—	—	—	—
Tiflis	141.7	307	19 6	[- 7]	e 22 36	PKS	e 22 12	PP
Erevan	142.3	305	e 19 6	[- 8]	—	—	—	—
Tiskhlis-Dzhvari	142.7	307	i 19 10	[- 4]	—	—	—	—
Borzhom	142.7	307	i 19 7	[- 7]	—	—	i 22 23	PP
Abastumanj	143.1	307	e 19 10	[- 5]	e 22 40	PKS	e 20 2	pPKP
Upsala	143.4	349	i 19 9	[- 6]	i 22 49	PKS	i 19 51	pPKP
Zugdidi	143.6	311	e 19 12	[- 4]	—	—	—	—
Sotchi	144.8	313	i 19 13	[- 5]	e 20 47	?	e 19 56	pPKP

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
	°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Simferopol	147.9	318	i 19 27	[+ 4]	e 23 33	PP	i 20 10	pPKP	—
Yalta	148.0	317	e 19 22	[- 1]	e 22 43	PP	i 20 10	pPKP	—
Copenhagen	148.2	352	i 19 25	[+ 1]	—	—	20 7	pPKP	—
Kishinev	149.8	326	e 19 24	[- 2]	—	—	e 20 13	pPKP	—
Lwow	150.1	333	e 19 25	[- 1]	—	—	—	—	—
Ksara	150.2	296	i 19 28	[+ 2]	23 8	PP	20 18	pPKP	—
Cernanti	150.4	329	19 32	[+ 5]	—	—	19 41	PKP ₂	—
Rathfarnham C. z.	150.4	12	i 19 26 _a	[- 1]	i 19 38	PKP ₂	i 20 17	pPKP	—
Potsdam	151.3	349	e 19 31	[+ 3]	i 23 9	PP	e 20 20	pPKP	e 78.3
Witteveen z.	151.7	357	i 19 34	[+ 5]	—	—	—	—	—
Skalnate Pleso	152.1	337	e 19 34	[+ 5]	e 26 23	[+ 4]	e 20 10	pPKP	—
Raciborzu	152.1	341	e 19 24	[- 5]	e 19 36	PKP ₂	i 20 15	pPKP	—
Collmberg	152.3	348	e 19 29	[- 1]	e 42 20	SS	e 24 9	?	—
De Bilt	152.5	358	e 19 32	[+ 2]	e 42 20?	SS	e 20 20	pPKP	—
Jena	152.9	349	e 19 30	[0]	e 23 20	PP	e 19 48	pP	—
Istanbul z.	153.0	315	e 19 28	[- 2]	—	—	e 19 36	PKP ₂	—
Kew	153.0	5	i 19 37	[+ 7]	e 42 41	SS	i 19 50	PKP ₂	e 84.3
Prague E.	153.2	345	e 19 30	[- 1]	e 19 51	PKP ₂	i 20 12	pPKP	—
Budapest	153.9	336	—	—	e 36 20	PPS	(39 45)	?	39.8
Ogyalla	154.0	338	e 19 56	PKP ₂	e 25 24	?	e 21 52	sPKP	—
Timisoara	154.4	331	e 19 39?	[+ 7]	e 19 48	?	e 20 8	pPKP	—
Helwan E.	154.6	289	e 19 38	[+ 5]	—	—	e 19 58	PKP ₂	—
Karlsruhe z.	155.3	353	e 19 32	[- 2]	e 19 36	PKP	e 19 58	PKP ₂	—
Stuttgart	155.4	351	e 19 32	[- 2]	e 33 55	PSKS	e 19 58	PKP ₂	e 64.3
Belgrade z.	155.5	330	i 19 34	[0]	e 23 39	PP	i 20 0	PKP ₂	—
Paris	155.8	2	i 19 34	[0]	e 42 45	SS	i 20 12	pPKP	e 73.3
Strasbourg	155.8	353	e 19 34	[0]	e 36 6	PPS	e 20 16	pPKP	—
Zürich	156.9	353	e 19 34	[- 2]	e 23 22	PP	e 20 4	pPKP	—
Basle	156.9	354	e 19 35	[- 1]	e 28 15	SKKS	—	—	—
Besançon	157.3	356	e 19 36	[0]	e 23 30	PP	e 20 15	pPKP	—
Chur	157.3	351	e 19 34 _k	[- 2]	—	—	e 20 7	pPKP	—
Triest	157.4	342	i 20 6	pPKP	e 27 15	[+ 50]	e 21 0	PKP ₂	—
Clermont-Ferrand	158.9	0	e 19 37	[- 1]	—	—	—	—	—
Prato	159.7	344	e 19 40	[+ 1]	—	—	—	—	—
Florence z.	159.8	344	i 19 39 _k	[0]	i 21 31	?	i 20 16	PKP ₂	—
Messina	162.9	326	i 20 30	pPKP	32 26	SKKS	i 24 34	PP	—
Toledo	163.6	20	i 19 45 _a	[+ 2]	e 24 21	PP	i 20 36	pPKP	60.8
Alicante	165.9	12	19 45	[0]	26 37	[+ 5]	20 53	PKP ₂	79.2
Granada	166.1	24	20 8 _a	PKP ₂	27 39	[+ 67]	20 52	pPKP	—
Malaga	166.2	27	i 19 43	[- 3]	26 45	[+ 13]	i 20 49	PKP ₂	74.6
Almeria	166.8	21	20 1	[+ 15]	27 2	[+ 29]	21 8	PKP ₂	91.2
Algiers Univ. z.	167.9	1	e 19 47	[0]	e 24 45	PP	e 20 54	PKP ₂	—
Tamanrasset z.	177.3	—	i 19 53 _k	[+ 2]	e 32 9	SKKS	e 20 35	pPKP	—

Nov. 2d. 1h. 42m. 3s. Epicentre 36°·4N. 140°·6E. Depth of focus 0·005.
(as on 1952, Aug. 15d.).

Intensity VI at Shimodate, Tateno; V at Tukubasan, Mito, Hukusima, Hitachi, Otu, Yamada, Ryugasaki, and Tuchiura.
Epicentre 36°·2N. 140°·6E. Depth of focus 45-50km. Macroseismic radius >300km.
Seismo. Bull. Cent. Met. Obs., Japan, 1952, Tokyo, 1952, p.443, with macroseismic chart.

$$A = -.6235, B = +.5121, C = +.5908; \quad \delta = +4; \quad h = 0;$$

$$D = +.635, E = +.773; \quad G = -.457, H = +.375, K = -.807.$$

	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	s.	m. s.	s.
Mito	0.1	261	0 9	- 1	0 15	- 3
Tukubasan	0.5	246	0 9	- 4	0 16	- 7
Onahama	0.6	24	1 0 15 _a	+ 1	0 25	0
Utunomiya	0.6	284	1 0 15 _k	+ 1	0 23	- 2
Tyosi	0.7	162	0 12	- 3	0 22	- 5

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	s.	m. s.	s.
Shirakawa	0.8	337	i 0 16 _a	- 1	0 27	- 2
Kumagaya	1.0	256	i 0 18 _k	- 1	0 31	- 2
Tokyo	1.0	224	i 0 16 _a	- 3	0 29	- 4
Inawasiro	1.2	342	e 0 23	+ 1	0 38	0
Maebasi	1.3	270	i 0 20 _k	- 3	0 35	- 5
Titibu	1.3	251	i 0 21 _k	- 2	0 35	- 5
Yokohama	1.3	219	i 0 22 _a	- 1	0 33	- 7
Hokusima	1.4	356	i 0 24 _a	0	0 40	- 3
Mera	1.6	203	i 0 26 _a	- 1	0 43	- 4
Oiwake	1.6	268	0 26	- 1	0 49	+ 2
Ajiro	1.8	222	i 0 28 _a	- 2	0 48	- 4
Hunatu	1.8	239	0 29	- 1	—	—
Kohu	1.8	245	0 29 _k	- 1	—	—
Misima	1.8	226	i 0 28 _a	- 2	0 49	- 3
Matusiro	1.9	274	i 0 31	0	0 53	- 1
Niigata	1.9	321	e 0 40	+ 9	—	—
Osima	1.9	211	i 0 27 _a	- 4	0 49	- 5
Sendai	1.9	7	0 29 _a	- 2	0 55	+ 1
Nagano	2.0	278	i 0 31	- 1	0 54	- 3
Isinomaki	2.1	16	0 33	- 1	—	—
Matumoto	2.1	266	i 0 37 _a	+ 3	—	—
Shizuoka	2.3	231	e 0 36	- 1	1 2	- 2
Aikawa	2.5	311	e 0 37	- 2	1 2	- 7
Mizusawa	2.8	9	0 44	0	1 14	- 3
Toyama	2.8	276	e 0 42 _k	- 2	1 15	- 2
Nagoya	3.2	247	e 0 50	+ 1	1 25	- 2
Gihu	3.3	252	e 0 50	- 1	1 26	- 3
Morioka	3.3	8	i 0 51	0	1 32	+ 3
Akita	3.4	355	i 0 53 _a	+ 1	1 36	+ 4
Miyako	3.4	18	0 51	- 1	1 31	- 1
Kameyama	3.7	247	1 1	+ 5	1 46	+ 7
Hatinohe	4.2	10	1 1	- 2	1 57	+ 5
Aomori	4.4	1	e 1 13	+ 7	2 9	+12
Osaka	4.5	249	e 1 7	0	—	—
Mori	5.7	0	e 1 30	+ 6	2 33	+ 4
Takamatu	5.7	251	e 1 30	+ 6	2 40	+11
Koti	6.4	246	e 1 57	+23	2 54	+ 8
Sapporo	6.7	8	e 1 44	+ 6	3 0	+ 6
Obi-hiro	6.8	16	e 1 45	+ 6	3 13	+17
Matuyama	6.9	251	e 1 46	+ 5	3 2	+ 3
Hirosima	7.0	255	e 1 45	+ 3	3 17	+16
Hamada	7.1	259	1 43	- 1	2 36	-28
Kusiro	7.2	23	e 1 52	+ 7	2 59	- 7
Simidu	7.3	242	e 2 41	+55	—	—
Nemuro	7.9	27	e 1 53	- 2	—	—
Ooita	8.0	250	e 2 9	+13	—	—
Hukuoka	8.8	254	—	—	e 4 27	+41
Kumamoto	8.9	249	e 2 28	+20	—	—
Saga	9.0	253	—	—	e 4 11	+20
College	50.0	32	8 49	- 1	—	—
Quetta	z.	60.4	288 e 10 2	- 3	—	—
Resolute Bay	z.	63.4	14 e 10 22 _k	- 3	—	—
Kiruna	z.	66.9	338 i 10 45	- 2	—	—
Shasta	z.	71.9	53 e 11 19	+ 1	—	—
Hungry Horse	z.	72.7	42 i 11 23	0	—	—
Upsala	z.	73.2	334 i 11 23	- 3	—	—
Reno	z.	74.3	53 e 11 33	+ 1	—	—
Butte	z.	74.9	44 e 11 35	- 1	—	—
China Lake	z.	77.9	55 e 11 53	+ 1	—	—
Boulder City	z.	79.6	53 i 12 2	0	—	—
Nelson	z.	79.7	53 i 12 3	+ 1	—	—
Palomar	z.	79.8	57 e 12 56	+53	—	—
Collmberg	z.	81.3	330 e 12 10	- 1	—	—
Jena	z.	82.2	330 e 12 15	0	e 12 30	pP
Tucson	z.	84.5	54 e 12 28	+ 1	—	—
Stuttgart	z.	84.8	331 e 12 27	- 2	—	—

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Nov. 2d. 13h. 30m. 38s. Epicentre 42°·9S. 171°·1E.

Intensity V in the epicentral region. Epicentre as adopted.

R. C. Hayes.

Earthquake Origins in New Zealand during the Year 1952. Seismo. Obs. Bull., S-98, 1953, p.4.

A = -·7260, B = +·1137, C = -·6782; $\delta = -4$; $h = -3$;
D = +·155, E = +·988; G = +·670, H = -·105, K = -·735.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Kaimata	N.E.	0·4	31	i 0 15	+ 2	0 28	+ 7
Christchurch		1·3	120	0 26	+ 1	0 41	- 3
Cobb River	E.	2·2	34	0 39	+ 1	i 1 12	+ 6
Wellington		3·2	59	e 0 53	+ 1	i 1 33	+ 1
New Plymouth	E.	4·4	32	1 12	+ 2	2 6	+ 4
Karapiro	N.	6·0	36	e 1 32	0	e 2 41	- 2
Tuai	N.	6·2	50	e 1 30	- 5	e 2 28	-20
Kiruna	Z.	150·5	338	e 19 48	[0]	—	—

Nov. 2d. 15h. 29m. 3s. Epicentre 36°·9N. 70°·8E. Depth of focus 0·015.
(as on 1952, Oct. 24d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m.	s.
Khorog		0·9	48	i 0 19	- 3	e 0 31	- 8	—	—
Kulyab		1·3	321	i 0 31	+ 5	i 0 55	+ 9	—	—
Garm		2·1	350	i 0 38	+ 2	i 1 8	+ 5	—	—
Obi-garm		2·2	335	i 0 38	+ 1	e 1 6	+ 1	—	—
Dzhergetal		2·3	8	i 0 39	+ 1	i 1 11	+ 4	—	—
Stalinabad		2·3	316	i 0 41	+ 3	i 1 13	+ 6	—	—
Fergana		3·6	12	i 0 55	- 1	i 1 38	0	—	—
Andijan		4·0	17	i 1 2	+ 1	i 1 50	+ 3	—	—
Namangan		4·1	9	i 1 3	+ 1	1 51	+ 1	—	—
Lunacharskoe		4·6	346	i 1 10	+ 1	i 2 3	+ 1	—	—
Tashkent		4·6	346	e 1 10	+ 1	i 2 3	+ 1	—	—
Tchimkent		5·5	351	i 1 22	+ 1	i 2 24	0	—	—
Naryn		6·1	40	1 26	- 3	2 36	- 2	—	—
Frunse		6·6	25	e 1 34	- 2	i 2 50	0	—	—
Rybach'e		6·9	35	i 1 36	- 4	i 2 52	- 5	—	—
Bairam Ali		7·0	278	i 1 40	- 1	i 3 1	+ 1	—	—
Quetta		7·4	206	e 1 41	- 6	i 2 34	-36	—	—
Przhevalsk		8·1	44	1 51	- 5	3 22	- 5	—	—
Ashkabad		9·9	280	e 2 20	0	4 13	+ 3	—	—
Kizyl-Arvat		11·7	285	2 42	- 2	e 4 44	- 9	—	—
Chatra		17·1	121	e 3 40	-12	i 6 32	-25	—	—
Poona	E.	18·5	171	e 4 2	- 7	6 52	-35	4 22	PP
Kirovobad		19·4	289	e 4 20	+ 2	—	—	—	—
Tsikhlis-Dzhvari		21·8	290	e 4 49	+ 6	—	—	—	—
Upsala	Z.	40·7	322	i 7 32	+ 3	—	—	i 9 9	PP

Nov. 3d. 5h. 17m. 10s. Epicentre 39°·2N. 70°·7E. (as on Oct. 9d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m.	s.
Dzhergetal		0·4	88	0 8	0 _g	—	—	—	—
Garm		0·4	237	i 0 6	- 2 _g	i 0 12	- 1 _g	—	—
Obi-garm		0·9	237	e 0 14	- 4 _g	e 0 27	- 3 _g	—	—
Fergana		1·4	31	e 0 30	+ 3	i 0 54	+ 8	—	—
Kulyab		1·5	209	i 0 26	- 2	i 0 47	- 2	e 0 52	S _g
Stalinabad		1·6	247	i 0 27	- 3	i 0 51	0	—	—
Khorog		1·9	158	i 0 29	- 5	i 0 52	- 7	—	—
Namangan		1·9	22	i 0 39	+ 1 _g	1 8	+ 5 _g	—	—
Andijan		2·0	39	i 0 40	0 _g	i 1 12	+ 6 _g	—	—
Lunacharskoe		2·4	334	e 0 46	- 2 _g	i 1 21	+ 2 _g	—	—

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Tashkent	2.4	334	i 0 47	- 1 _g	e 1 18	- 1 _g	—	—
Samarkand	2.9	279	i 0 51	- 1*	1 33	- 3 _g	—	—
Tchimkent	3.1	345	i 0 56	0*	e 1 32	+ 3	i 1 42	S _g
Naryn	4.6	60	e 1 14	+ 2	2 10	+ 3	—	—
Frunse	4.7	38	i 1 18	+ 4	i 2 20	- 4*	i 2 34	S _g
Rybach'e	5.2	50	e 1 24	+ 3	2 43	+ 5*	—	—
Przhevalsk	6.7	58	1 44	+ 2	3 39	- 2 _g	—	—
Bairam-Ali	6.9	259	—	—	3 30	+ 1*	—	—
Quetta	z. 9.5	200	e 2 16	- 4	—	—	—	—

Nov. 3d. 12h. 35m. 48s. Epicentre 36°·7N. 139°·7E. (as on 1951, Dec. 3d.).

Intensity V at Imaiti; IV at Maebasi, Tokuziro, Kaminokawa, Asio, Higasinasuno, Nikko, Awano, Hitati, and Hokota.

Epicentre 36°·6N. 139°·7E. Depth 10km. Macro seismic radius 100-200km.

Seismo. Bull. Cent. Met. Obs., Japan, for Nov., 1952, Tokyo, 1952, p.445, with macro seismic chart.

$$A = -.6129, B = +.5198, C = +.5951; \quad \delta = -2; \quad h = 0;$$

$$D = +.647, E = +.763; \quad G = -.454, H = +.385, K = -.804.$$

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Utunomiya	0.2	138	i 0 5k	+ 1 _g	0 8	+ 1 _g	—	—
Kumagaya	0.6	205	i 0 12	0 _g	0 20	0 _g	—	—
Maebasi	0.6	239	i 0 11k	- 1 _g	0 19	- 1 _g	—	—
Shirakawa	0.6	45	e 0 15	0	0 22	+ 1*	—	—
Tukubasan	0.6	146	0 10	- 2 _g	0 18	- 2 _g	—	—
Mito	0.7	117	0 16k	- 1	0 26	+ 1*	—	—
Titibu	0.9	215	e 0 17	- 1 _g	0 25	- 5 _g	—	—
Oiwake	1.0	248	0 20	- 1	0 32	- 1 _g	—	—
Onahama	1.0	76	e 0 22	+ 1	0 35	- 1	—	—
Tokyo	1.0	177	e 0 19	- 1 _g	0 32	- 1 _g	—	—
Hokusima	1.2	30	e 0 26	+ 2	0 43	+ 2	—	—
Nagano	1.2	268	e 0 24	0	0 43	+ 2	—	—
Takada	1.2	289	e 0 25	+ 1	0 45	+ 4	—	—
Hunatu	1.4	212	e 0 27	0	0 44	- 2	—	—
Kohu	1.4	221	e 0 27	0	0 42	- 4	—	—
Matumoto	1.5	251	e 0 28	0	0 45	- 4	—	—
Aikawa	1.7	319	e 0 32	0*	0 58	+ 2 _g	—	—
Sendai	1.8	31	0 36	0 _g	1 2	+ 2 _g	—	—
Shizuoka	2.0	211	0 38	+ 1*	1 3	0*	—	—
Mizusawa	E. 2.7	25	0 53	- 1 _g	1 26	+ 2*	—	—
Nagoya	2.7	235	0 50	+ 1*	1 23	- 1*	—	—
Kameyama	z. 3.2	235	1 0	+ 2*	1 41	+ 2*	—	—
Kyoto	3.6	244	e 1 23	+ 11 _g	—	—	—	—

Nov. 3d. 20h. 38m. 1s. Epicentre 39°·2N. 70°·7E. (as at 5h.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Dzhergetal	0.4	88	0 10	0*	0 16	0*	—	—
Garm	0.4	237	i 0 6	- 2 _g	i 0 11	- 2 _g	—	—
Obi-garm	0.9	237	i 0 16	- 2 _g	—	—	—	—
Fergana	1.4	31	0 31	+ 4	e 0 56	+ 10	—	—
Kulyab	1.5	209	i 0 27	- 1	—	—	—	—
Stalinabad	1.6	247	i 0 30	0	i 0 50	- 1	0 54	S _g
Khorog	1.9	158	e 0 31	- 3	0 56	- 3	e 1 1	S _g
Namangan	1.9	22	e 0 42	+ 4 _g	1 11	+ 8 _g	—	—
Andijan	2.0	39	i 0 41	+ 1 _g	1 14	+ 8 _g	—	—
Lunacharskoe	2.4	334	e 0 50	+ 2 _g	i 1 24	+ 5 _g	—	—
Tashkent	2.4	334	—	—	1 27	+ 8 _g	—	—
Samarkand	2.9	279	0 56	- 2 _g	1 22	- 2	—	—
Tchimkent	3.1	345	1 1	- 1 _g	i 1 47	+ 5 _g	—	—
Naryn	4.6	60	i 1 35	+ 3 _g	i 2 39	+ 7 _g	—	—
Frunse	4.7	38	—	—	i 2 45	+ 10 _g	—	—

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Nov. 4d. 10h. 15m. 56s. Epicentre $36^{\circ}7'N$. $141^{\circ}2'E$. Focus at Base of Superficial Layers. (as on 1952, September 22d.).

Intensity IV at Yanagawa, Tuchiyo, and Sioyazaki; II-III at Onahama, Shirakawa, Hukusima, Inawasiro, Hitacho, Hirano, and Koriyama. Epicentre $36^{\circ}8'N$. $141^{\circ}1'E$. Depth 30-40km. Macro seismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, for November, 1952, Tokyo, 1952, p. 446, with macro seismic chart.

$$A = -.6263, B = +.5036, C = +.5951; \quad \delta = +1; \quad h = -1; \\ D = +.627, E = +.779; \quad G = -.464, H = +.373, K = -.804.$$

	Δ	Az.	P.	O-C.	S.	O-C.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.
Onahama	0.3	314	i 0 9	+ 1	0 14	- 1
Mito	0.7	242	e 0 16	+ 3	0 27	+ 4
Shirakawa	0.9	298	e 0 16	0	0 26	- 2
Tukubasan	1.0	241	0 18	0	0 32	+ 1
Utunomiya	1.1	262	e 0 19	0	0 33	0
Hukusima	1.2	331	e 0 20	0	0 32	- 4
Inawasiro	1.2	315	e 0 21	+ 1	0 34	- 2
Sendai	1.6	351	e 0 23	- 3	0 39	- 7
Maebasi	1.8	260	e 0 32	+ 3	0 51	0
Mizusawa	E. 2.4	359	—	—	1 3	- 3
Misima	2.4	225	—	—	e 1 3?	- 3
Morioka	3.0	0	e 1 16	S	(e 1 16)	- 6
Copenhagen	78.1	333	i 12 38	+41	—	—

Nov. 4d. 11h. 53m. 9s. Epicentre $34^{\circ}5'N$. $101^{\circ}0'E$. (as on 1950, June 18d.).

$$A = -.1576, B = +.8107, C = +.5638; \quad \delta = -6; \quad h = 0; \\ D = +.982, E = +.191; \quad G = -.108, H = +.553, K = -.826.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Shillong	11.9	224	e 2 46	- 8	e 5 35	+26	2 57	PP 6.3
Chatra	14.2	241	e 3 21	- 3	e 5 50	-14	—	e 7.6
Hong Kong	16.8	133	e 7 3	S	(e 7 3)	- 2	8 14	Q 8.8
New Delhi	21.1	261	e 4 50	+ 2	e 8 36	- 3	—	—
Hyderabad	E. 26.4	236	—	—	e 10 14	+ 2	—	—
Poona	Z. 28.9	244	e 6 4	+ 1	e 11 3	+10	—	—
Quetta	Z. 28.9	271	e 6 9	+ 6	—	—	—	—
Bombay	29.5	246	—	—	e 11 10	+ 8	e 11 27	? e 15.4
Kiruna	55.0	333	i 9 50	+15	e 23 19	SSS	i 11 38	PP e 29.8
Upsala	Z. 57.7	325	i 10 7	+12	—	—	—	—

Nov. 4d. 16h. 58m. 22s. Epicentre $52^{\circ}6'N$. $160^{\circ}3'E$. (as on 1952, April 8d.).

Magnitude 8.25, followed by tsunami which was felt as far away as Hawaii, New Zealand, and West Coast of North America.

Marcus Bath and H. Benioff.

The after-shock sequence of the Kamchatka earthquake of November 4d, 1952. Bull. Seismo. Soc. America, Vol. 48, 1958, pp. 1-15, with chart of epicentres.

J. F. Evernden.

Tripartite results for the Kamchatka earthquake of November 4d. Bull. Seismo. Soc. America, Vol. 45, No. 3, July, 1955, pp. 167-178, with 4 figs.

M. Ewing and F. Press.

Mantle Rayleigh waves from the Kamchatka earthquake of November 4d. Bull. Seismo. Soc. America, Vol. 44, No. 3, July, 1954, p. 471-479.

R. O. Hutchinson.

The Kamchatka earthquake of November 4d., 1952. Earthquake Notes, Vol. XXV, pp. 37-39. Epicentre near that adopted.

G. A. Macdonald and C. K. Wentworth.

The Tsunami of November 4d., 1952, on the Islands of Hawaii. Bull. Seismo. Soc. America Vol. 44, No. 3, July, 1954, pp. 463-470, with two charts.

$$A = -.5742, B = +.2056, C = +.7924; \quad \delta = -13; \quad h = -6; \\ D = +.337, E = +.941; \quad G = -.746, H = +.267, K = -.610.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Petropavlovsk	1.1	298	i 0 24	+ 2	—	—	—	—
Magadan	8.7	326	i 2 10	0	—	—	—	—
Kurilsk	11.0	233	2 37	- 5	—	—	—	—
Ulegorsk	12.0	260	2 59	+ 4	—	—	—	—
Yuzno-Sakhlinsk	12.7	250	3 3	- 2	—	—	—	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Nemuro	13.5	233	i 3	13	- 2	—	—	—	e 4	53?	? e 6.9
Abashiri	13.7	237	e 3	20 _a	+ 2	e 6	16	+24	e 4	59	? e 7.4
Wakkanai	14.1	247	i 3	26 _a	+ 3	5	12	-50	—	—	—
Mitchell Field	14.2	83	i 3	38	+14	e 6	3	- 1	—	—	—
Kusiro	14.3	234	e 3	25	- 1	i 6	16	+10	—	—	—
Urakawa	15.8	235	e 3	40	- 5	i 6	27	-15	—	—	—
Sapporo	15.9	241	i 3	43 _a	- 4	i 7	15	+31	—	—	e 8.1
Miyako	18.1	232	e 4	10?	- 4	e 7	39?	+ 4	i 4	22	PP 9.0
Morioka	18.4	233	i 4	16	- 2	e 9	0	L	—	—	(e 9.0)
Mizusawa	E. 18.9	233	4	22	- 2	8	7	+14	—	—	—
	N. 18.9	233	4	26	+ 2	8	11	+18	—	—	—
Akita	19.0	234	4	25	- 1	e 8	8	+13	e 5	22	? 9.4
Isinomaki	19.4	232	4	30	0	8	10	+ 6	—	—	—
Sendai	19.7	231	e 4	26 _a	- 8	8	8	- 2	—	—	—
Yamagata	20.0	232	e 4	36	- 1	e 8	51	+34	e 7	42	? —
Hokusima	20.3	232	e 4	39	- 1	e 8	32	+ 9	—	—	—
Aikawa	21.2	235	e 4	47 _a	- 2	8	48	+ 7	—	—	—
Vladivostok	21.2	255	i 4	45	- 4	—	—	—	—	—	—
Mito	21.4	230	e 4	54	+ 3	8	59	+14	e 5	36	PP —
Utunomiya	21.6	232	e 4	50	- 4	e 8	36	-13	—	—	11.1
Tukubasan	21.7	230	e 4	57	+ 2	8	56	+ 5	—	—	—
Takada	21.9	234	i 4	56	- 1	e 9	1	+ 7	—	—	—
Kumagaya	22.1	232	5	0 _a	+ 1	9	4	+ 6	—	—	e 11.5
Maebasi	22.1	231	e 4	59	0	e 9	0	+ 2	e 8	5	? —
Matusiro	22.3	235	5	0	- 1	9	6	+ 4	10	47	Q 12.0
Nagano	22.3	233	i 5	4 _k	+ 3	e 9	6	+ 4	e 5	39	PP e 11.4
Wazima	22.3	237	i 5	1	0	i 9	4	+ 2	e 5	21	PP 10.8
Matumoto	22.7	234	i 5	3 _a	- 1	i 9	18	+ 9	6	34	? 12.2
Kohu	22.9	231	e 5	8	+ 2	9	19	+ 6	i 5	16	pP —
Kanazawa	23.1	237	i 5	9	+ 1	i 9	27	+11	—	—	—
Osima	23.2	229	i 5	10 _a	+ 1	i 9	44	+26	i 5	17	pP i 12.6
Shizuoka	23.5	231	5	16	+ 4	9	42	+19	5	26	pP 12.9
Hamamatu	24.1	231	i 5	22 _a	+ 4	e 9	54	+20	—	—	—
Hatidyozima	24.5	226	5	32	+10	9	51	+11	—	—	—
Kameyama	24.6	233	5	21	- 2	9	32	-10	5	30	pP 12.4
Kyoto	24.8	235	e 5	25	0	e 9	58	+12	—	—	e 11.6
Osaka	25.2	235	i 5	29 _a	0	e 10	2	+10	—	—	e 12.6
Owase	25.3	232	i 5	28	- 2	e 9	58	+ 4	e 5	58	PP 13.7
Muroto	27.0	235	i 5	45 _a	0	i 10	22	0	6	46	PP e 16.5
Matuyama	27.2	237	e 5	48 _a	+ 1	e 10	15	-10	e 6	40	PP e 12.6
Ooita	28.3	239	e 6	2	+ 5	e 10	52	+ 9	—	—	e 13.9
Hukuoka	28.6	241	e 6	0 _a	0	10	50	+ 2	i 7	14	PP 14.2
College	28.7	44	i 6	1	0	i 10	11	-39	i 7	48	? —
Kumamoto	29.1	239	6	8	+ 4	10	46	-10	—	—	14.3
Miyazaki	29.4	237	e 6	10 _a	+ 3	i 11	5	+ 4	i 6	14	? —
Kagosima	30.2	238	6	19 _a	+ 5	10	41	-32	7	18	PP 12.8
Yakusima	31.1	236	6	24	+ 2	11	37	+ 9	e 13	8	? e 18.3
Kabansk	32.2	291	i 6	27	- 5	—	—	—	i 6	35	? —
Kyakhta	33.0	289	e 6	34	- 5	—	—	—	—	—	—
Irkutsk	33.4	293	6	39	- 3	—	—	—	i 6	47	? —
Sitka	36.1	56	i 7	14	+ 9	i 13	6	+21	—	—	—
Nanking	36.3	253	i 7	7 _k	0	i 12	44	- 4	—	—	—
Resolute Bay	z. 43.7	22	i 8	6 _a	- 2	—	—	—	i 8	9	? —
Honolulu	44.7	117	i 8	31	+15	—	—	—	—	—	—
Alberni	45.3	61	8	32	+11	—	—	—	—	—	—
Horseshoe Bay	46.1	60	8	42	+14	—	—	—	—	—	—
Hong Kong	46.3	247	i 8	31	+ 2	—	—	—	—	—	—
Victoria	46.5	63	e 8	33	+ 2	e 15	41	+22	i 9	50	PP i 19.8
Semipalatinsk	47.4	302	e 8	32	- 6	—	—	—	—	—	—
Seattle	z. 47.6	63	8	44 _a	+ 5	—	—	—	i 8	56	? —
Corvallis	48.9	68	e 8	52	+ 2	i 16	13	+20	—	—	e 24.5

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1952		969									
		Δ	Az.	P.		O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m. s.	s.	m. s.	m.	
Manila		49.1	235	i 8	39	-12	i 15 42	-14	i 8 47	pP	—
Arcata	E.	50.8	71	e 9	19	+15	e 16 38	+18	—	—	—
Hungry Horse		51.6	58	e 9	9	-1	—	—	—	—	—
Shasta		51.9	70	e 9	12	0	e 17 40	?	i 9 26	pP	—
Mineral		52.6	70	e 9	23	+5	—	—	—	—	—
Sverdlovsk		52.7	317	i 9	15	-3	—	—	i 9 23	PcP	—
Saskatoon		52.9	51	i 9	42	+22	i 16 53	+5	i 11 28	PP	21.1
Przhevalsk		53.4	294	9	19	-5	16 53	-2	—	—	—
Almata		53.6	296	i 9	21	-4	e 16 57	-1	—	—	—
Berkeley		53.9	73	e 9	28 _a	+1	e 17 19	+17	i 9 40	pP	e 22.8
Reno	Z.	54.2	69	e 9	32	+3	—	—	—	—	—
Santa Clara		54.4	73	i 9	47 _a	+16	e 18 18	+69	—	—	e 22.8
Lick		54.6	73	e 9	30 _a	-2	e 17 20	+9	i 9 40	pP	—
Rybach'e		54.7	296	i 9	27	-6	—	—	i 9 36	?	—
Bozeman		54.9	58	e 9	44	+9	—	—	—	—	—
Frunse		55.2	297	i 9	32	-5	—	—	—	—	—
Naryn		55.4	295	i 9	37	-1	—	—	—	—	—
Fresno	Z.	56.1	72	e 9	45 _a	+2	e 17 32	0	i 9 57	pP	—
Kiruna		56.2	344	i 9	40	-4	—	—	—	—	—
Tinemaha		56.8	71	i 9	48	0	—	—	i 10 3	?	—
Shillong	E.	57.1	271	e 9	50	0	e 17 44	-1	10 23	PcP	—
Scoresby Sund		57.2	2	i 9	55	+4	—	—	—	—	—
Andijan		57.9	296	9	51	-5	—	—	i 10 0	?	—
China Lake	Z.	58.0	71	i 9	55	-2	—	—	i 10 9	?	—
Namangan		58.1	297	e 9	54	-4	—	—	—	—	—
Tchimkent		58.3	300	i 9	56	-3	—	—	—	—	—
Fergana		58.4	296	e 9	55	-5	—	—	i 10 4	?	—
Pasadena		58.8	73	e 10	1	-1	i 18 17	+10	i 18 26	PPS	e 24.8
Chatra		59.1	275	e 10	3	-1	i 18 8	-3	10 48	PcP	27.5
Lunacharskoe		59.1	299	i 9	59	-5	—	—	—	—	—
Tashkent		59.1	299	i 10	1	-3	e 18 5	-6	—	—	—
Riverside		59.4	73	e 10	5	-1	—	—	i 10 19	?	—
Boulder City		59.5	69	e 10	7	0	—	—	i 10 19	?	—
Nelson		59.7	69	i 10	6	-3	—	—	—	—	—
Garm		60.2	297	e 10	8	-4	—	—	—	—	—
Khorog		60.6	294	i 10	11	-4	—	—	—	—	—
Obi-garm		60.8	297	i 10	13	-3	—	—	—	—	—
Pulkovo		61.0	334	i 10	14	-4	i 18 33	-2	—	—	—
Stalinabad		61.4	297	i 10	16	-4	—	—	—	—	—
Calcutta	N.	61.5	271	i 10	25	+4	i 18 33	-9	12 35	PP	—
Samarkand		61.5	299	i 10	18	-3	—	—	i 10 26	?	—
Helsinki		62.0	337	i 10	22	-2	—	—	i 10 30	?	—
Moscow		62.1	328	i 10	22	-3	i 18 48	-1	i 10 31	?	—
Reykjavik		63.6	2	i 10	38	+3	19 15	+7	i 13 5	PP	e 28.8
New Delhi		63.8	284	i 10	35	-1	i 19 9	-2	11 8	PcP	29.6
Upsala		63.9	340	i 10	34 _a	-3	i 19 7	-5	i 11 1	PcP	e 26.6
Tucson		64.5	70	i 10	42	+1	i 19 23	+4	i 24 7	SS	i 27.7
Bairam-Ali		65.6	300	i 10	44	-4	—	—	i 10 53	pP	—
Bergen		65.6	347	i 10	46 _k	-2	i 19 30	-3	i 11 11	PcP	i 30.3
Ashkabad		67.3	303	i 10	54	-5	—	—	i 11 3	?	—
Kirkland Lake	Z.	67.3	39	e 10	57	-2	—	—	—	—	—
Kizyl-Arvat		67.6	305	i 10	58	-3	—	—	i 11 6	?	—
Lubbock		68.5	62	11	6	0	19 54	-14	—	—	—
Quetta		68.5	292	i 11	1 _k	-5	i 19 59	-9	—	—	—
Makhach-Kala		68.6	314	i 11	5	-2	—	—	i 11 13	?	—
Copenhagen		68.9	342	i 11	7 _a	-2	i 20 17	+4	—	—	—
Aberdeen		69.6	350	i 11	16	+3	i 20 23	+2	i 13 58	PP	34.6
Baku		69.6	311	i 11	12	-1	—	—	i 11 18	?	—
Platigorsk		69.7	317	11	10	-4	—	—	i 11 19	?	—
Shemakla		70.0	312	e 11	13	-2	—	—	i 11 22	?	—

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1952

1970

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Apia		70.4	151	e 11 26	+ 8	e 20 26?	- 4	14 26	PP	32.6
Fayetteville	z.	70.6	56	i 11 18	- 1	i 19 53	-40	—	—	—
Tiflis		70.8	315	11 18	- 2	20 31	- 4	—	—	—
Gori		70.9	315	e 11 24	+ 3	—	—	—	—	—
Kirovobad		70.9	313	11 18	- 3	—	—	i 11 27	?	—
Edinburgh		71.0	350	11 31	+ 9	20 45	+ 8	14 9	PP	—
Ottawa		71.2	38	i 11 22k	- 1	20 40	0	14 0	PP	—
Terre Haute		71.2	49	11 38	+15	—	—	—	—	—
Borzhomi		71.3	315	i 11 18	- 5	—	—	—	—	—
Shawinigan Falls	n.	71.3	35	e 11 21	- 2	20 33	- 8	14 5	PP	29.6
Hyderabad		71.4	275	e 11 20	- 4	i 20 37	- 5	25 38	SS	34.2
Sotchi		71.4	319	e 11 23	- 1	—	—	i 11 31	?	—
Seven Falls	E.	71.5	34	e 11 26	+ 2	20 49	+ 6	14 19	PP	—
Abastumanj		71.6	316	e 11 24	- 1	—	—	—	—	—
Akalkalaki		71.6	315	e 11 28	+ 3	e 20 51	+ 7	—	—	—
Potsdam		71.8	340	i 11 30k	+ 4	i 20 50	+ 4	i 11 36	?	e 30.3
Durham		71.9	349	e 11 30	+ 3	i 20 47	- 1	11 54	PcP	—
Goris		71.9	312	i 11 25	- 2	20 42	- 6	—	—	—
Theodosia		71.9	323	11 21	- 6	—	—	i 11 30	?	—
Leninakan		72.0	314	i 11 19	- 9	—	—	—	—	—
Cleveland		72.1	44	i 11 25k	- 3	i 21 4	+14	—	—	—
Buffalo (Larkin)		72.2	41	i 11 27	- 2	e 20 51	0	—	—	—
Cernauti		72.2	330	11 27	- 2	—	—	—	—	—
Erevan		72.2	313	i 11 30	+ 1	—	—	—	—	—
Kishinev		72.4	328	i 11 26	- 4	—	—	—	—	—
Simferopol		72.4	323	i 11 27	- 3	—	—	—	—	—
Iasi		72.7	330	e 11 30	- 2	i 20 56	- 1	—	—	37.6
Witteveen	z.	72.7	344	i 11 33k	+ 1	—	—	—	—	—
Raciborzu		72.8	336	e 11 31	- 1	i 20 42	-16	11 41	PcP	35.6
Yalta		72.8	323	e 11 30	- 2	i 21 5	+ 7	i 11 39	PcP	—
Collmberg		72.9	339	e 11 30	- 3	i 20 56	- 3	i 25 14	SS	i 31.6
Skalnate Pleso		73.1	334	e 11 35	+ 1	e 21 6	+ 5	e 21 46	PS	e 37.6
Poona		73.4	279	i 11 33	- 3	i 21 4	- 1	—	—	—
Bacau		73.5	328	e 11 40	+ 4	i 21 4	- 2	i 14 51	PP	37.6
Jena		73.5	340	i 11 34	- 2	i 21 8	+ 2	i 14 54	PP	e 32.6
De Bilt		73.6	345	i 11 36	- 1	i 21 5	- 2	—	—	e 38.6
Bombay		73.7	280	i 11 32	- 6	i 21 2	- 6	14 23	PP	—
Pittsburgh	z.	73.7	44	i 11 35	- 3	i 21 7	- 1	i 11 48	PcP	—
Prague		73.7	338	e 11 38k	0	i 21 13	+ 5	i 14 46	PP	e 37.1
Madras	E.	73.8	271	i 10 36	- 2	—	—	—	—	—
Rathfarnham Castle		73.9	352	i 11 40a	+ 1	i 21 7	- 3	i 11 48	PcP	e 30.6
Djakarta		74.0	236	11 44a	+ 5	i 21 22	+11	i 11 51	PcP	36.8
Focsani		74.1	329	e 10 58	-42	e 21 36	+24	i 14 46	PP	—
Bandong		74.2	235	e 11 41a	+ 1	i 21 38	+24	i 11 49	PcP	—
Cheb		74.2	340	e 11 44	+ 4	i 21 16	+ 2	e 14 58	PP	e 38.6
Pennsylvania		74.2	42	i 11 41	+ 1	i 21 8	- 6	i 14 35	PP	e 30.5
Ogyalla		74.8	335	e 11 47	+ 3	e 21 20	0	e 22 4	PS	35.6
Budapest		74.9	334	11 38	- 6	21 1	-21	14 12	PP	—
Vienna		74.9	336	e 11 46	+ 2	e 21 33	+11	e 16 22	PPP	e 31.1
Kew		75.0	348	i 11 49a	+ 4	i 21 55	PS	i 11 55	PcP	e 34.6
Compulung		75.2	329	e 11 50	+ 4	i 21 34	+ 9	i 14 58	PP	37.6
Harvard		75.2	37	e 11 45	- 1	i 21 53	PS	—	—	—
Keckskemet		75.3	334	11 46	- 1	21 30	+ 4	11 58	PcP	e 36.6
Weston		75.4	37	i 11 47k	0	i 21 55	PS	i 27 6	SS	—
Bucharest		75.6	328	e 11 49	+ 1	—	—	i 11 56	PcP	—
Palisades		75.6	39	i 11 48	0	e 21 21	- 8	i 11 58	PcP	e 41.7
City College, N.Y.		75.8	39	i 11 49	- 1	i 21 19	-12	—	—	—
Fordham		75.8	39	i 11 50	0	i 21 33	+ 2	—	—	—
Kalossa		75.8	334	11 51	+ 1	21 23	- 8	12 2	PcP	—
Szeged		75.8	332	e 11 42	- 8	21 55	SKS	11 59	PcP	e 40.6

Continued on next page.

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1952		971											
		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Timisoara	N.	75.9	332	e 11	53	+ 3	—	—	—	i 11	58	PcP	—
Karlsruhe		76.0	341	i 11	51	+ 0	21	38	+ 4	i 12	2	PcP	e 32.6
Philadelphia		76.0	40	i 11	48	- 3	—	—	—	—	—	—	—
Halifax		76.1	31	e 11	50	- 1	—	—	—	—	—	—	—
Stuttgart		76.1	341	i 11	50 _a	- 1	i 21	48	+13	i 12	2	PcP	e 32.6
Washington		76.2	42	i 11	50	- 2	—	—	—	—	—	—	—
Strasbourg		76.5	342	i 11	52	- 2	i 21	36	- 3	i 14	51	PP	i 37.6
Belgrade		77.0	332	i 11	57 _a	+ 1	i 21	53	+ 8	i 13	58	?	e 36.4
Paris		77.2	345	i 11	56	- 1	i 22	4	+17	i 14	54	PP	—
Basle		77.5	342	e 11	58	- 1	—	—	—	—	—	—	—
Jersey	E.	77.5	348	e 12	10	+11	i 21	59	+ 9	e 15	8	PP	39.6
Tolmezzo		77.5	338	e 12	10	+11	e 22	8	+18	i 12	18	PcP	—
Zürich		77.5	342	e 11	57 _a	- 2	e 21	48	- 2	i 12	6	PcP	—
Guadalajara		77.6	72	e 12	8	+ 8	e 22	4	+13	e 22	26	PS	e 33.8
Istanbul		77.6	325	e 11	55	- 5	e 21	47?	-4	e 22	26?	PS	—
Kodafkanal	E.	77.6	271	i 12	1	+ 1	i 21	55	+ 4	—	—	—	—
Pieve di Cadore	E.	77.6	338	e 12	9	+ 9	e 22	13	+22	e 15	16	PP	—
Chur		77.8	341	e 12	0	- 1	e 22	12	+19	—	—	—	—
Mobile		77.9	55	12	6	+ 5	22	5	+11	—	—	—	—
Triest		78.0	337	i 12	3	+ 1	i 22	11	+16	i 15	7	PP	41.8
Besançon		78.1	342	i 12	1	- 1	—	—	—	—	—	—	—
Sofia		78.1	329	12	2	0	i 21	58	+ 2	12	21	PcP	—
Manzanillo		78.3	74	e 13	15	?	e 26	52	SS	e 13	50	?	—
Columbia		78.6	48	i 12	8	+ 3	i 22	2	0	—	—	—	—
Colombo	E.	78.7	267	12	8	+ 2	22	28	+25	—	—	—	43.3
Oropa		79.3	341	i 12	15	+ 6	i 21	43	-26	23	41	PS	41.6
Padova		79.5	338	e 12	12	+ 2	i 22	25	+14	e 29	6	SSP	e 35.1
Pavia		79.5	340	e 12	11 _k	+ 1	e 22	14	+ 3	i 15	7	PP	e 35.9
Bologna		79.7	338	e 12	13 _k	+ 2	e 22	18	+ 5	e 22	24	SKS	e 35.8
Brisbane		80.0	187	e 12	14	+ 1	e 22	18	+ 1	i 12	21	PcP	—
Clermont-Ferrand		80.1	344	e 12	12	- 1	i 22	16	- 2	i 12	23	PcP	40.6
Prato		80.3	338	e 12	15	+ 1	i 22	38	+18	—	—	—	—
Florence		80.4	338	e 12	13 _a	- 2	i 22	28	+ 7	i 17	18	PPP	—
Siena		80.8	338	i 12	16	- 1	22	42	+17	29	38?	SSP	40.5
Tacubaya		81.0	70	i 12	28 _k	+10	i 22	36	+ 9	e 22	56	PS	i 37.5
Ksara		81.3	316	i 12	19	- 1	22	43?	+13	—	—	—	—
Puebla		81.8	69	i 12	33 _k	+11	i 22	41	+ 6	e 28	13	SS	e 36.4
Rome		81.8	336	i 12	21 _a	- 1	22	49	+14	23	45	PPS	e 41.6
Rocca di Papa		81.9	336	e 12	27	+ 4	e 22	40	+ 4	i 17	20	PPP	e 41.6
Taranto		81.9	333	12	35	+12	23	32	PS	29	27	SSP	38.4
Athens		82.2	327	e 12	21 _a	- 3	i 22	40	+ 1	i 15	36	PP	—
Vera Cruz		82.9	67	e 12	38	+10	i 23	28	ScS	e 23	48	PS	—
Oaxaca		84.3	68	e 12	38	+ 3	e 23	32	ScS	—	—	—	—
Messina		84.5	333	i 12	33	- 3	23	7	+ 5	24	7	PPS	43.1
Merida		85.1	62	e 12	48 _k	+ 9	e 25	2	?	—	—	—	—
Tortosa		85.3	345	i 12	42	+ 2	i 23	19	+ 9	—	—	—	—
Miami		85.7	52	e 12	52	+10	—	—	—	—	—	—	—
Riverview		86.4	188	i 12	49 _a	+ 4	i 23	16	- 5	i 23	35	sS	e 40.2
Helwan		86.6	318	i 12	43 _a	- 3	—	—	—	i 12	53	PcP	—
Bermuda		86.7	37	i 12	48	+ 1	e 23	33	+ 9	—	—	—	e 35.7
Toledo		86.9	348	e 12	48	0	i 23	33	+ 7	16	19	PP	37.3
Tunis		87.3	336	e 12	56	+ 6	i 23	40	+11	—	—	—	e 38.6
Alicante		87.9	346	i 12	59	+ 6	i 23	39	+ 4	15	29	PP	—
Lisbon		88.6	352	e 12	56 _k	0	23	35	- 7	16	11	PP	40.8
Algiers Univ.	z.	88.8	342	e 12	56	- 1	e 23	32	-12	i 16	9	PP	—
Angra do Heroismo	E.	88.9	7	i 13	9	+11	i 23	50	+ 6	i 17	50	?	i 43.9
Granada		89.5	348	i 13	0 _k	0	i 24	2	+12	16	29	PP	i 44.1
Almeria		89.7	347	i 13	3	+ 2	i 23	47	- 5	i 16	33	PP	41.9
Ponta Delgada	N.	89.9	5	e 13	17	+15	i 24	3	+ 9	—	—	—	—
Auckland	N.	90.0	168	13	13	+10	—	—	—	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Malaga		90.0	348	i 13 4	+ 1	i 24 6	+12	i 16 42	PP	35.7
Melbourne	E.	91.0	192	e 13 27	+20	i 24 10	+ 7	i 18 40	PPP	i 38.5
Karapiro	N.	91.1	168	e 13 10	+ 2	e 23 56	- 8	14 30	pP	43.0
New Plymouth	E.	92.1	169	e 13 34	+22	—	—	—	—	—
Tuai	N.	92.2	167	13 57	pP	24 24	+10	17 28	PP	39.2
Perth		92.7	217	13 23	+ 8	23 38	[-10]	16 41	PP	—
Guantanamo Bay		93.3	51	i 13 31	+13	—	—	—	—	—
Kingston		94.2	54	e 13 39	+17	e 24 7	[+10]	e 32 1	?	—
Wellington		94.3	170	13 30	+ 7	e 24 47	+15	13 48	pP	45.1
Kaimata	N.E.	95.2	172	e 13 42	+15	—	—	—	—	—
Christchurch		96.3	171	13 45	+13	24 18	[+10]	14 5	pP	e 39.6
Ciudad Trujillo		97.0	48	e 13 46	+11	25 16	+21	—	—	—
San Juan		98.7	44	i 13 44	+ 2	i 25 41	+31	—	—	—
Roosevelt Roads		99.0	43	i 13 53	+ 9	—	—	—	—	—
Balboa Heights		100.4	60	e 17 47	PP	—	—	—	—	—
Galerazamba		101.0	56	i 14 14	+21	i 26 43	PS	i 18 45	PP	i 44.0
Tamanrasset	Z.	101.8	336	i 13 55k	- 1	—	—	e 14 0	?	—
Fort de France		104.0	41	i 14 11	+ 5	e 27 13	PS	—	—	—
Chinchina		105.8	59	i 14 19	+ 4	i 28 39	PS	i 18 36	PP	54.3
Macquarie Island		106.7	182	e 19 0	PP	e 25 0	[+ 2]	i 34 20	SS	e 50.4
Bogota		106.9	58	i 14 28	P	e 29 46	PPS	i 19 8	PP	e 45.6
M'Bour		113.3	357	e 14 59	P	i 25 23	[- 2]	e 19 39	PP	53.7
Tananarive		118.6	277	19 1	[+11]	25 53	[+ 8]	20 15	PP	59.6
Huancayo		120.1	69	e 15 32	?	i 20 39	PP	e 18 47	PKP	—
La Paz		127.7	65	i 19 17	[+ 9]	i 22 53	PKS	i 21 24	PP	55.6
Antofagasta	E.	132.1	73	19 38	[+22]	i 26 38	[+13]	e 22 4	PP	61.5
Montezuma		132.2	70	e 20 53	?	e 23 12	PKS	—	—	—
Copiapo	E.	134.9	76	e 20 4	[+43]	e 23 35	PKS	41 38	SS	—
Pretoria	Z.	135.3	289	e 19 16	[- 6]	i 19 31	PKP ₂	e 17 8	?	—
Johannesburg		135.7	288	e 19 32	[+ 9]	—	—	e 23 4	PP	—
Pietermaritzburg	Z.	136.9	283	e 19 23	[- 2]	e 19 38	?	e 19 41	?	—
Santa Lucia	E.	139.1	82	e 19 23	[- 6]	42 5	SSP	23 20	PP	—
Kimberley	Z.	139.6	289	e 19 25	[- 5]	e 17 47	?	e 19 41	?	—
Grahamstown	Z.	141.8	283	e 19 30	[- 4]	—	—	e 19 25	PKP	—
Buenos Aires		147.1	72	19 51	[+ 8]	—	—	22 0	SKP	—
La Plata		147.7	72	19 52	[+ 8]	29 50	[-16]	22 56	PP	72.1
Punta Arenas	N.	149.6	112	e 21 15	?	e 45 13	?	—	—	—

Nov. 4d. 17h. 36m. 17s. Epicentre 50°·0N. 158°·3E. (as on 1941, September 24d.).

Fore-shock of quake at 21h.

A = -·5996, B = +·2386, C = +·7639; $\delta = -1$; $h = -5$;
D = +·370, E = +·929; G = -·710, H = +·282, K = -·645.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		°	°	m. s.	s.	m. s.	s.	m. s.
Manila		46.5	233	i 8 43?	+12	—	—	—
Victoria		48.9	60	8 49	- 1	—	—	—
Seattle	Z.	50.0	60	i 9 32	+34	—	—	—
Corvallis	N.	51.2	65	i 9 4	- 3	—	—	—
Arcata		52.9	68	e 6 43?	?	—	—	—
Shasta	Z.	54.0	67	i 9 31 ^a	+ 3	—	—	—
Mineral	N.	54.7	67	e 9 35	+ 2	—	—	—
Reno	Z.	56.3	66	e 10 24	+39	—	—	—
Lick	Z.	56.6	71	i 9 45	- 2	—	—	—
Chatra		58.0	274	e 9 57	0	e 18 1	+ 4	—
Reykjavik		66.2	0	i 11 6	+14	—	—	—
Apia		68.8	148	e 11 5?	- 3	—	—	—
Copenhagen		70.9	341	e 11 23	+ 2	—	—	—
Djakarta	Z.	71.5	235	i 11 20	- 4	—	—	—
Poona	Z.	72.5	278	i 11 13	-17	—	—	—

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	s.
Collmberg	z.	74.8	338	i 11 46	+ 2	—	—	—	—
Rathfarnham C.	z.	76.3	350	i 11 46	- 6	—	—	—	—
Kew	z.	77.3	346	i 11 58	0	—	—	—	—
Karlsruhe	z.	78.0	340	e 12 8	+ 6	—	—	—	—
Stuttgart		78.1	340	e 12 9	+ 7	—	—	—	—
Weston		78.3	35	i 12 3	0	—	—	—	—
Pallsades		78.5	37	i 12 6	+ 2	—	—	—	—
Chur	z.	79.2	339	e 12 21	+13	—	—	—	—
Zürich	z.	79.5	340	e 11 53	-17	—	—	—	—
Clermont-Ferrand		82.2	343	e 12 15	- 9	—	—	i 12 25	P
Athens		83.7	325	i 12 32 _a	0	—	—	i 12 42	P
Toledo		89.2	346	i 13 0	+ 1	—	—	—	—
Bermuda		89.6	35	i 13 3	+ 2	—	—	—	—
La Paz		130.0	64	19 23	[+11]	—	—	—	—
Pretoria	z.	134.8	284	e 19 7	[-14]	—	—	i 19 18	PKP
Pietermaritzburg	z.	136.1	278	e 19 23	[0]	—	—	e 23 24	PKS
Kimberley	z.	139.1	284	e 19 20	[- 9]	—	—	—	—
Grahamstown	z.	141.0	277	e 19 26	[- 6]	—	—	—	—

Nov. 4d. 18h. 28m. 53s. Epicentre 52°·6N. 160°·3E. (as at 16h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Alberni		45.3	61	8 23	+ 2	—	—	—	—
Victoria		46.5	63	8 32	+ 1	—	—	—	—
Seattle	z.	47.6	63	8 43	+ 4	—	—	—	—
Corvallis	N.	48.9	68	i 8 51	+ 1	—	—	—	—
Manila		49.1	235	i 8 5	-46	i 14 29	?	—	—
Arcata		50.8	71	e 9 7	+ 3	—	—	—	—
Hungry Horse		51.6	58	i 9 8	- 2	—	—	—	—
Shasta		51.9	70	e 9 13	+ 1	—	—	—	—
Mineral		52.6	70	e 9 16	- 2	—	—	—	—
Berkeley	z.	53.9	73	i 9 25 _k	- 2	—	—	—	—
Reno	z.	54.2	69	e 9 29	0	—	—	—	—
Fresno	z.	56.1	72	e 9 41 _a	- 2	—	—	—	—
Tinemaha		56.8	71	i 9 46	- 2	—	—	—	—
Scoresby Sund		57.2	2	i 9 56	+ 5	—	—	—	—
China Lake		58.0	71	e 9 45	-12	—	—	i 9 53	?
Pasadena		58.8	73	e 10 0	- 2	i 10 6	?	i 10 16	?
Chatra		59.1	275	e 9 43	-21	e 17 48	-23	—	—
Riverside		59.4	73	i 10 2	- 4	—	—	i 10 7	?
Boulder City		59.5	69	e 9 55	-12	—	—	i 10 5	?
Calcutta	N.	61.5	271	e 10 0	-21	i 18 19	-23	—	—
Reykjavik		63.6	2	i 10 38	+ 3	i 10 45	?	i 10 54	?
Upsala		63.9	340	i 10 35	- 2	i 19 26	+14	i 13 14	PP
Tucson		64.5	70	i 10 37	- 4	—	—	—	—
Bergen	z.	65.6	347	i 10 46 _a	- 2	—	—	—	—
Copenhagen		68.9	342	i 11 8	- 1	—	—	—	—
Apia		70.4	151	e 10 55	-23	e 20 37 _?	+ 7	—	e 28.1
Ottawa		71.2	38	i 11 11 _a	-12	—	—	i 11 21	?
Shawinigan Falls	N.	71.3	35	e 11 26	+ 3	e 15 49	PPP	14 21	PP
Cleveland	z.	72.1	44	i 11 33 _k	+ 5	—	—	—	—
Buffalo (Larkin)		72.2	41	i 11 27	- 2	—	—	—	—
Raciborzu		72.8	336	i 11 29	- 3	e 21 19	PS	i 11 50	PcP
Collmberg	z.	72.9	339	e 11 31 _a	- 2	e 28 57	SSS	e 17 5	?
Skalnate Pleso		73.1	334	e 11 41	+ 7	e 21 16	+15	e 13 28	PP
Poona		73.4	279	i 11 35	- 1	—	—	—	—
Jena	z.	73.5	340	e 11 35	- 1	—	—	—	—
Prague		73.7	338	i 11 35 _a	- 3	e 21 25	PS	i 11 55	PcP
Pennsylvania	z.	74.2	42	i 11 37	- 3	—	—	—	—
Ogyalla		74.8	335	e 11 52	+ 8	—	—	e 12 48	?
Vienna		74.9	336	e 11 43	- 1	e 21 38	PS	e 22 31	PPS
Kew	z.	75.0	348	i 11 38	- 7	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Harvard		75.2	37	i 11 45k	- 1	—	—	—	—
Kecskemet	E.	75.3	334	e 11 37	-10	21 33	+ 7	11 47	?
	N.	75.3	334	e 11 45	- 2	22 27	PPS	14 47	PP
Weston		75.4	37	i 11 37k	-10	—	—	i 11 47	P
Palisades		75.6	39	i 11 47	- 1	—	—	—	—
Kalossa		75.8	334	11 57	+ 7	21 45	+14	12 8	PcP
Szeged	E.	75.8	332	11 55	+ 5	—	—	—	—
Karlsruhe	Z.	76.0	341	i 11 48	- 3	—	—	—	—
Stuttgart		76.1	341	e 11 48	- 3	—	—	—	—
Washington		76.2	42	i 11 49	- 3	—	—	—	—
Strasbourg		76.5	342	i 11 57	+ 3	—	—	i 12 7	PcP
Belgrade	Z.	77.0	332	e 11 52k	- 4	—	—	i 11 59	P
Paris		77.2	345	i 11 56	- 1	—	—	—	—
Zürich	Z.	77.5	342	e 11 47	-12	—	—	i 12 1	P
Chur	Z.	77.8	341	e 12 0 _a	- 1	—	—	—	—
Mobile		77.9	55	12 1	0	—	—	—	—
Triest		78.0	337	i 11 58	- 4	i 22 6	+11	i 12 17	PcP
Oropa		79.3	341	i 12 14	+ 5	22 29	+20	—	—
Padova		79.5	338	12 6	- 4	22 25	+14	—	—
Pavia		79.5	340	e 12 10	0	e 22 32	+21	—	—
Bologna	Z.	79.7	338	e 12 9	- 2	e 22 34	PS	i 12 17	PcP
Clermont-Ferrand		80.1	344	e 12 11	- 2	—	—	i 12 16	PcP
Florence		80.4	338	e 12 22	+ 7	i 22 37	+16	—	—
Siena		80.8	338	12 7	-10	22 31	+ 6	—	—
Ksara		81.3	316	i 12 7?	-13	—	—	—	—
Rome		81.8	336	i 12 18	- 4	22 47	+12	—	—
Rocca di Papa	N.	81.9	336	e 12 36	+13	e 22 47	+11	—	—
Athens		82.2	327	i 12 18 _a	- 6	—	—	i 12 35	PcP
Messina	Z.	84.5	333	i 12 27	- 9	—	—	i 12 45	PcP
Tortosa		85.3	345	i 12 45	+ 5	i 23 25	+15	—	—
Bermuda		86.7	37	i 12 45	- 2	—	—	e 16 14	PP
Toledo		86.9	348	i 12 45	- 3	—	—	—	—
Granada		89.5	348	i 13 7	+ 7	—	—	—	—
Karapiro	N.	91.1	168	e 12 45	-23	—	—	—	—
Tamanrasset	Z.	101.8	336	e 13 57	+ 1	—	—	e 16 14	?
La Paz		127.7	65	18 49	[-19]	—	—	—	—
Pretoria	Z.	135.3	289	e 19 9	[-13]	—	—	e 21 48	PP
Pietermaritzburg	Z.	136.9	283	e 19 10	[-15]	—	—	e 21 52	PP
Kimberley	Z.	139.6	289	e 19 13	[-17]	—	—	—	—
Grahamstown	Z.	141.8	283	e 19 19	[-15]	—	—	—	—

Nov. 4d. 19h. 40m. 40s. Epicentre 52°·6N. 160°·3E. (as at 18h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Resolute Bay		43.7	22	i 8 12k	+ 4	—	—	—	
Victoria		46.5	63	i 8 34k	+ 3	—	—	—	
Seattle	Z.	47.6	63	8 45	+ 6	—	—	—	
Corvallis	Z.	48.9	68	e 8 45	- 5	—	—	—	
Hungry Horse		51.6	58	i 9 13	+ 3	—	—	—	
Shasta	Z.	51.9	70	i 9 10	- 2	—	—	—	
Berkeley	Z.	53.9	73	i 9 29k	+ 2	—	—	—	
Butte		53.9	59	i 14 31	?	—	—	—	
Reno	Z.	54.2	69	e 9 32k	+ 3	—	—	—	
Kiruna	Z.	56.2	344	i 9 42	- 2	i 10 21	?	i 10 31	PcP
Tinemaha		56.8	71	i 9 50	+ 2	—	—	i 10 6	?
China Lake		58.0	71	e 9 57	0	—	—	—	—
Pasadena		58.8	73	i 10 3	+ 1	—	—	i 10 25	PcP
Riverside		59.4	73	e 10 5	- 1	—	—	i 10 28	PcP
Boulder City		59.5	69	i 10 8	+ 1	—	—	—	—
Nelson		59.7	69	e 10 2	- 7	—	—	—	—
Reykjavik	Z.	63.6	2	i 10 29	- 6	—	—	i 11 35	PcP
Upsala	Z.	63.9	340	i 10 34k	- 3	—	—	i 11 14	PcP
Tucson		64.5	70	e 10 42	+ 1	—	—	—	—
Kirkland Lake	Z.	67.3	39	e 10 59	0	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Copenhagen		68.9	342	i 11 6	- 3	—	—	—	—
Ottawa		71.2	38	i 11 23k	0	—	—	—	—
Shawinigan Falls N.		71.3	35	e 11 25	+ 2	—	—	—	—
Cleveland	z.	72.1	44	i 11 31k	+ 3	—	—	i 11 43	pP
Buffalo (Larkin)		72.2	41	i 11 29	0	—	—	—	—
Witteveen	z.	72.7	344	i 11 31	- 1	—	—	—	—
Raciborzu	z.	72.8	336	i 11 38	+ 6	—	—	e 12 30	?
Colimberg	z.	72.9	339	i 11 30	- 3	e 21 29	PS	e 12 10	?
Poona	z.	73.4	279	e 11 24	-12	—	—	—	—
Jena	z.	73.5	340	e 11 34	- 2	—	—	—	—
Pittsburgh	z.	73.7	44	i 11 39	+ 1	—	—	—	—
Prague		73.7	338	i 11 35	- 3	e 21 4	- 4	i 12 16	PcP
Rathfarnham C.	z.	73.9	352	i 11 37k	- 2	—	—	—	—
Pennsylvania	z.	74.2	42	i 11 44	+ 4	i 12 22	?	e 11 57	PcP
Morgantown		74.4	45	i 11 42	0	—	—	i 12 23	?
Kew	z.	75.0	348	e 11 41	- 4	—	—	—	—
Harvard		75.2	37	i 11 48k	+ 2	—	—	—	—
Weston		75.4	37	i 11 48k	+ 1	—	—	12 1	PcP
Palisades		75.6	39	i 11 49	+ 1	—	—	—	—
Kalossa		75.8	334	e 11 46	- 4	—	—	e 11 49	P
Karlsruhe	z.	76.0	341	e 11 48	- 3	—	—	—	—
Stuttgart		76.1	341	e 11 48	- 3	—	—	—	—
Washington		76.2	42	i 11 53	+ 1	—	—	—	—
Strasbourg		76.5	342	i 11 51	- 3	—	—	—	—
Paris		77.2	345	i 11 57	0	—	—	—	—
Zürich	z.	77.5	342	e 11 56	- 3	—	—	e 12 37	PcP
Chur	z.	77.8	341	e 11 59	- 2	—	—	—	—
Besançon		78.1	342	i 12 0	- 2	e 12 58	?	e 12 18	PcP
Pavia		79.5	340	e 12 16	+ 6	—	—	—	—
Bologna		79.7	338	e 12 10	- 1	—	—	—	—
Clermont-Ferrand		80.1	344	i 12 11	- 2	—	—	—	—
Athens		82.2	327	e 12 18k	- 6	—	—	i 13 12	?
Bermuda		86.7	37	i 12 47	0	—	—	—	—
San Juan		98.7	44	e 14 36	+54	—	—	—	—

Nov. 4d. 20h. 48m. 46s. Epicentre 50°·4N. 157°·8E.

A = -·5925, B = +·2418, C = +·7684; δ = -4; h = -6;
D = +·378, E = +·926; G = -·711, H = +·290, K = -·640.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Abashiri	11.2	240	e 2 47	+ 3	e 4 56	+ 4	e 2 56	?
Kusiro	11.8	236	e 2 57	+ 4	e 5 5	- 1	e 3 13	PPP
Urakawa	13.3	237	e 3 12	- 1	e 5 43	+ 1	e 3 25	PP
Sapporo	13.5	243	e 3 18	+ 3	e 6 20	+33	e 3 40	PPP
Akita	16.4	236	e 3 54	+ 1	e 6 47	- 9	e 7 52	Q
Sendai	17.1	231	e 3 55	- 7	e 7 3	- 9	i 7 39	SS
Hokusima	17.7	231	e 4 12	+ 2	e 7 28	+ 2	—	—
Onahama	18.1	229	e 4 15	+ 1	e 7 34	- 1	—	—
Aikawa	18.6	235	e 4 20	- 1	—	—	—	—
Utunomiya	18.9	231	e 4 24	0	e 7 56	+ 3	—	—
Maebasi	19.4	233	i 4 32k	+ 2	7 58	- 6	—	—
Nagano	19.7	235	e 4 34	0	e 8 40	+30	—	—
Matusiro	19.8	235	4 35	0	8 24	+11	—	—
Hunatu	20.3	232	e 4 41	+ 1	e 8 26	+ 3	—	—
Shizuoka	20.9	230	4 47	+ 1	8 31	- 4	—	—
Nagoya	21.5	233	e 4 52	0	8 50	+ 3	—	—
Kameyama	22.0	233	4 56	- 2	9 1	+ 5	9 31	Q
Osaka	22.6	235	e 5 14	+11	e 9 19	+12	e 6 22	?
Muroto	24.4	235	e 5 21	0	e 9 29	-10	i 6 1	PP
Hirosima	24.5	238	e 5 23	+ 1	9 37	- 3	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ooita		25.8	239	e 5 44	+10	e 10 5	+ 3	—	e 13.2
Hukuoka		26.2	241	5 21k	-17	10 28	+19	13 29	15.3
Miyazaki		26.9	236	e 5 58	+13	e 10 26	+ 6	—	12.4
Sitka		38.7	52	i 7 27	0	—	—	—	—
Resolute Bay	z.	46.4	21	i 8 28k	- 2	—	—	—	—
Manila		46.5	233	i 8 23k	- 8	i 15 0	-19	—	—
Alberni		47.8	58	8 40	- 1	—	—	—	—
Victoria		49.0	59	8 49	- 1	—	—	—	—
Seattle	z.	50.0	59	9 1k	+ 3	—	—	—	—
Corvallis	z.	51.3	64	i 9 8	0	—	—	—	—
Arcata	N.	53.1	68	e 9 17	- 4	—	—	—	—
Hungry Horse		54.1	54	i 9 29	0	—	—	—	—
Shasta		54.2	67	e 9 30k	+ 1	—	—	—	—
Berkeley	z.	56.1	71	i 9 43k	0	—	—	i 9 55	?
Reno	z.	56.5	66	e 9 46k	0	e 17 38	+ 1	—	—
Lick	z.	56.8	71	i 9 48k	0	—	—	i 10 1	?
Chatra		57.7	274	e 9 54	- 1	e 17 58	+ 5	19 42	ScS
Kiruna	z.	57.8	342	i 9 51	- 4	i 9 54	?	i 9 59	?
Fresno		58.3	68	e 9 58	- 1	e 18 3	+ 2	e 10 10	?
Tinemaha		59.0	68	i 10 4k	0	—	—	i 10 17	?
Scoresby Sund		59.4	0	i 10 4	- 2	—	—	—	—
China Lake	z.	60.2	68	i 10 12k	0	—	—	i 10 23	?
Pasadena		61.0	70	i 10 17k	- 1	i 10 27	?	e 39 8	P'P'
Riverside		61.6	70	i 10 20k	- 2	—	—	i 10 32	?
Boulder City		61.8	66	i 10 23	0	—	—	—	—
Nelson		61.9	66	i 10 23	- 1	—	—	—	—
New Delhi		62.8	283	e 10 27	- 3	e 19 7	+ 9	—	—
Upsala		65.5	340	i 10 43	- 4	e 19 20	-12	i 19 40	PS
Reykjavik		65.8	0	i 10 48	- 1	—	—	i 10 51	?
Tucson		66.7	67	i 10 55	0	—	—	—	—
Bergen	N.	67.3	345	—	—	e 19 44	-10	e 20 14?	PS
Quetta		67.8	292	i 10 59a	- 3	e 19 52	- 8	i 24 32	SS
Apia		69.3	147	—	—	e 20 14?	- 3	—	—
Hyderabad	E.	70.0	273	11 18	+ 3	20 35	+ 9	21 4	PS
Kirkland Lake	z.	70.0	37	i 11 13k	- 2	—	—	—	—
Copenhagen		70.4	341	i 11 18	0	—	—	—	—
Lubbock		70.9	59	11 19	- 2	20 37	+ 1	—	—
Djakarta		71.4	234	e 11 26	+ 2	i 20 44	+ 2	i 21 5	PS
Bandong		71.6	233	e 11 21	- 4	e 20 44	0	i 21 4	PS
Poona	z.	72.1	278	i 11 37	+ 9	—	—	—	—
Bombay	E.	72.5	278	e 11 32	+ 2	e 20 44	-10	—	—
Fayetteville	z.	73.1	53	i 11 32	- 2	—	—	—	—
Iasi		73.7	328	e 11 37	- 1	e 21 59	SS	e 23 35	?
Ottawa		73.9	37	i 11 36k	- 3	—	—	14 18	PP
Shawinigan Falls	N.	74.0	33	e 11 38	- 1	—	—	—	—
Raciborzu		74.1	334	e 11 37	- 3	e 21 32	+20	e 11 51	PcP
Collmberg	z.	74.3	338	e 11 38	- 3	e 20 14	-61	i 11 41	P
Skalnate Pleso		74.3	333	e 11 44	+ 3	e 21 11	- 4	e 13 4	?
Witteveen	z.	74.3	343	i 11 39	- 2	—	—	—	—
Buffalo (Larkin)		74.9	39	i 11 42	- 2	—	—	—	—
Jena	z.	75.0	338	i 11 43	- 2	—	—	—	—
Prague		75.1	337	e 11 44	- 2	e 21 25	+ 1	e 12 40	?
Cheb	N.	75.6	338	e 11 50	+ 2	e 21 12	-17	—	—
Rathfarnham Castle		75.8	350	i 11 46a	- 4	—	—	—	—
Ogyalla		76.1	334	e 11 54	+ 3	e 21 31	- 4	e 14 46	PP
Budapest		76.2	333	11 54	+ 2	21 36	0	—	—
Pittsburgh	z.	76.3	41	i 11 53	+ 1	—	—	—	—
Bucharest		76.7	327	e 12 2	+ 7	e 22 6	PS	—	—
Kew		76.8	346	i 11 53	- 2	—	—	—	—
Pennsylvania	z.	76.9	40	i 11 56	0	i 12 40	?	i 13 28	?
Colombo	E.	77.0	265	11 59	+ 3	21 34	-11	—	—
Morgantown		77.0	42	i 11 56	0	e 21 42	- 3	—	—
Szeged		77.0	331	e 12 0	+ 4	e 21 32	-13	—	—
Kalossa		77.1	333	11 57	0	e 21 49	+ 3	14 54	PP
Timisoara		77.1	330	e 12 1	+ 4	e 22 12?	PS	e 23 58	?

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Karlsruhe	z.	77.5	340	e 11 58	- 1	—	—	—	—
Brisbane	E.	77.6	185	—	—	i 21 56	+ 5	i 22 34	PS
Stuttgart		77.6	340	e 11 57	- 3	—	—	—	—
Harvard		77.9	35	e 11 58k	- 3	—	—	—	—
Strasbourg		77.9	340	i 12 1	0	—	—	—	—
Weston		78.1	35	i 12 1k	- 1	—	—	i 12 15	?
Belgrade		78.2	331	e 12 0a	- 3	e 21 54	- 3	—	e 31.1
Palisades		78.3	37	i 12 2	- 1	—	—	—	—
City College, N.Y.		78.5	37	i 12 3	- 1	—	—	—	—
Halifax		78.7	29	i 12 4	- 2	—	—	—	—
Paris		78.9	344	i 12 11	+ 4	—	—	i 12 21	PcP
Washington		78.9	40	i 16 8	PP	—	—	—	—
Basle		79.1	341	e 12 2	- 6	—	—	—	—
Sofia		79.1	328	e 13 11	?	—	—	—	—
Zürich		79.1	340	e 12 6k	- 2	e 21 59	- 8	—	—
Triest		79.4	336	i 12 6a	- 3	i 22 3	- 7	i 22 26	ScS
Besançon		79.7	341	i 12 10	- 1	i 13 23	?	i 12 21	PcP
Chur		79.8	339	e 12 8k	- 4	e 22 8	- 6	—	—
Mobile		80.5	53	12 14	- 1	—	—	—	—
Oropa		80.8	339	e 12 26	+ 9	e 22 55	PS	i 24 14	?
Pavia		81.0	338	e 12 20	+ 2	e 22 26	- 1	—	—
Bologna		81.1	336	e 12 18	0	e 22 29	+ 1	—	—
Clermont-Ferrand		81.7	343	e 12 21	- 1	—	—	i 12 24	PcP
Prato		81.7	336	e 12 24	+ 2	i 22 34	0	—	—
Florence		81.8	336	e 12 22	0	i 23 19	PS	—	—
Siena		82.2	336	12 20	- 4	23 20	PS	—	—
Taranto		83.1	331	e 17 14?	PPP	—	—	—	—
Athens		83.2	325	e 12 26k	- 3	i 22 43	- 6	i 23 49	PPS
Rome		83.2	335	i 12 27	- 2	e 23 15	PS	—	—
Tacubaya		83.2	67	e 12 34	+ 5	—	—	—	—
Rocca di Papa		83.3	335	e 12 32	+ 2	e 22 49	- 1	—	—
Riverview		84.1	185	i 12 35k	+ 1	i 22 56	- 2	i 12 44	PcP
Messina	z.	85.7	331	i 12 40	- 2	—	—	i 13 43	?
Tortosa		87.0	342	12 18?	-30	i 23 42?	ScS	—	—
Helwan		87.1	315	e 12 47	- 2	i 23 23	- 5	e 23 53	ScS
Toledo		88.7	346	i 12 55	- 2	—	—	—	—
Bermuda		89.4	35	i 12 59	- 1	e 23 53	+ 4	—	—
Algiers Univ.	z.	90.4	340	e 13 0	- 4	e 15 1	PP	e 13 6	?
Lisbon		90.5	350	—	—	23 57	- 2	—	—
Granada		91.3	345	i 13 8a	- 1	24 4	- 2	16 53	PP
Almeria		91.4	344	i 13 10	+ 1	i 24 0	- 7	16 47	PP
Wellington		92.5	168	—	—	i 24 16	- 1	e 34 41	SSS
Christchurch		94.4	170	—	—	24 40	+ 7	31 19	SS
San Juan		101.3	43	e 13 59	+ 5	—	—	e 18 2	PP
Galerazamba		103.6	55	e 18 45	PP	i 23 9	?	—	—
Huancayo		122.3	68	e 19 0	[+ 3]	—	—	e 20 37	PP
La Paz		130.1	64	e 19 24	[+12]	—	—	—	—
Pretoria	z.	134.4	284	e 19 18	[- 2]	—	—	e 22 52	PKS
Pietermaritzburg	z.	135.7	278	e 19 19	[- 4]	—	—	—	—
Kimberley	z.	138.7	284	e 19 24	[- 4]	—	—	e 22 16	PP
Grahamstown	z.	140.6	277	e 19 27	[- 5]	—	—	—	—

Nov. 4d. 21h. 0m. 52s. Epicentre 52°·6N. 160°·3E. (as at 19h.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Mizusawa	E.	18.9	233	4 32	+ 8	8 8	+15	—	—
College		28.7	44	6 1	0	—	—	—	—
Resolute Bay	z.	43.7	22	i 8 7a	- 1	—	—	—	—
Victoria		46.5	63	8 34	+ 3	—	—	—	—
Seattle	z.	47.6	63	8 44	+ 5	—	—	—	—
Manila		49.1	235	i 8 45k	- 6	—	—	—	—
Hungry Horse		51.6	58	i 9 12	+ 2	—	—	—	—
Shasta	z.	51.9	70	e 9 16	+ 4	—	—	—	—
Berkeley	z.	53.9	73	e 9 30	+ 3	—	—	i 9 36	?
Reno		54.2	69	e 9 32a	+ 3	e 17 9	+ 3	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Lick	z.	54.6	73	e 9 35 _a	+ 3	—	—	—	—
Fresno	z.	56.1	72	e 9 46 _a	+ 3	—	—	—	—
Kiruna	z.	56.2	344	i 9 40 _a	- 4	i 10 5	?	i 10 40	PcP
Tinemaha		56.8	71	i 9 51	+ 3	—	—	—	—
Scoresby Sund		57.2	2	i 9 49	- 2	—	—	—	—
China Lake		58.0	71	i 10 0	+ 3	—	—	—	—
Pasadena		58.8	73	i 10 6	+ 4	—	—	—	—
Riverside		59.4	73	i 10 9	+ 3	—	—	—	—
Boulder City		59.5	69	i 10 10	+ 3	—	—	—	—
Nelson		59.7	69	i 10 11	+ 2	—	—	—	—
Reykjavik	z.	63.6	2	i 10 34	- 1	—	—	—	—
Upsala		63.9	340	i 10 34 _a	- 3	e 18 59	-13	i 11 12	PcP
Tucson		64.5	70	i 10 44	+ 3	—	—	—	—
Kirkland Lake	z.	67.3	39	i 10 58 _a	- 1	—	—	—	—
Quetta		68.5	292	i 11 4	- 2	e 19 59	- 9	—	—
Copenhagen		68.9	342	i 11 7	- 2	—	—	—	—
Fayetteville	z.	70.6	56	i 11 18	- 1	—	—	—	—
Ottawa		71.2	38	i 11 21 _a	- 2	—	—	13 48	PP
Shawinigan Falls	N.	71.3	35	e 11 23	0	—	—	—	—
Potsdam	z.	71.8	340	i 11 25	- 1	—	—	—	—
Cleveland	z.	72.1	44	i 11 29 _a	+ 1	—	—	i 11 42	PcP
Buffalo (Larkin)		72.2	41	e 11 28	- 1	—	—	—	—
Witteveen	z.	72.7	344	i 11 31 _a	- 1	—	—	—	—
Raciborzu	z.	72.8	336	e 11 31	- 1	e 13 25	?	e 11 58	PcP
Collmberg	z.	72.9	339	i 11 31 _a	- 2	—	—	—	—
Skalnate Pleso		73.1	334	e 11 36	+ 2	e 21 12	+11	—	—
Poona	z.	73.4	279	i 11 35	- 1	—	—	—	—
Jena	z.	73.5	340	i 11 36	0	—	—	—	—
Prague		73.7	338	e 11 36	- 2	e 21 2	- 6	e 11 52	PcP
Rathfarnham C.	z.	73.9	352	i 11 37 _a	- 2	—	—	—	—
Djakarta	z.	74.0	236	i 11 44	+ 5	—	—	—	—
Pennsylvania		74.2	42	i 11 42	+ 2	i 21 14	0	i 11 54	PcP
Morgantown		74.4	45	i 11 42	0	—	—	—	—
Kew	z.	75.0	348	i 11 43	- 2	—	—	—	—
Harvard		75.2	37	i 11 46 _k	0	—	—	—	—
Weston		75.4	37	i 11 47 _a	0	—	—	i 12 1	PcP
Palisades		75.6	39	i 11 48	0	—	—	—	—
City College, N.Y.		75.8	39	i 11 49	- 1	—	—	i 12 3	PcP
Karlsruhe	z.	76.0	341	i 11 50	- 1	—	—	—	—
Halifax		76.1	31	i 11 50 _a	- 1	—	—	—	—
Stuttgart		76.1	341	i 11 50	- 1	—	—	—	—
Strasbourg		76.5	342	i 11 53	- 1	—	—	i 12 5	PcP
Belgrade		77.0	332	i 11 56 _a	0	—	—	—	e 35.1
Paris		77.2	345	i 11 57	0	—	—	i 12 2	PcP
Zürich		77.5	342	e 11 58 _a	- 1	e 21 41	- 9	—	—
Istanbul	z.	77.6	325	e 11 58	- 2	—	—	—	—
Chur		77.8	341	e 12 1 _a	0	—	—	—	—
Triest	z.	78.0	337	i 11 59 _a	- 3	—	—	—	—
Besançon		78.1	342	i 12 2	0	i 12 22	?	i 12 11	PcP
Sofia		78.1	329	e 12 35	+33	—	—	—	—
Bologna	z.	79.7	338	i 12 12	+ 1	—	—	—	—
Clermont-Ferrand		80.1	344	i 12 13	0	—	—	—	—
Tacubaya		81.0	70	e 12 25	+ 7	—	—	—	—
Ksara		81.3	316	i 12 8?	-12	—	—	—	—
Athens		82.2	327	i 12 22 _a	- 2	—	—	—	—
Messina	z.	84.5	333	i 12 34 _a	- 2	—	—	i 12 59	PcP
Bermuda		86.7	37	i 12 47	0	—	—	—	e 35.0
Toledo		86.9	348	i 12 50	+ 2	—	—	—	—
Alicante		87.9	346	12 53	0	e 23 43	+ 8	—	—
Algiers Univ.	z.	88.8	342	e 12 56	- 1	—	—	e 14 53	PP
Granada		89.5	348	12 44 _k	-16	—	—	—	—
Sau Juan		98.7	44	i 13 44	+ 2	—	—	e 17 40	PP
La Paz		127.7	65	e 19 12	[+ 4]	—	—	—	—
Pretoria	z.	135.3	289	i 19 24	[+ 2]	—	—	—	—
Pietermaritzburg	z.	136.9	283	e 19 28	[+ 3]	—	—	—	—
Kimberley	z.	139.6	289	e 19 25	[- 5]	—	—	—	—
Grahamstown	z.	141.8	283	e 19 32	[- 2]	—	—	—	—

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1952

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Nov. 4d. 21h. 52m. 48s. Epicentre 50°·0N. 158°·3E. (as at 17h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m.	s.
Mizusawa	E.	16·3	235	e 4 1	+ 9	5 57	-56	—	—
College		31·4	40	i 6 24	- 1	—	—	—	—
Manila		46·5	233	i 8 20	-11	—	—	—	—
Resolute Bay		46·6	20	i 8 32k	0	—	—	i 10 6	PP
Victoria		48·9	60	i 8 48k	- 2	—	—	—	—
Corvallis	z.	51·2	65	i 9 6	- 1	—	—	—	—
Shasta	z.	54·0	67	i 9 28	0	—	—	i 9 46	?
Hungry Horse		54·1	55	e 9 28	- 1	—	—	—	—
Berkeley	z.	55·9	71	i 9 41k	- 1	—	—	i 9 58	?
Butte		56·3	57	i 9 44	- 1	—	—	—	—
Reno	z.	56·3	66	e 9 44k	- 1	—	—	—	—
Lick	z.	56·6	71	i 9 46	- 1	—	—	—	—
Fresno	z.	58·1	68	e 9 56k	- 2	—	—	—	—
Kiruna	z.	58·3	342	i 9 59k	0	i 11 36	?	i 11 49	?
Tinemaha	z.	58·8	68	i 10 1	- 1	—	—	i 10 18	?
Scoresby Sund		59·8	0	e 10 10	+ 1	—	—	—	—
China Lake	z.	60·1	68	i 10 9	- 2	—	—	i 10 26	?
Pasadena		60·8	70	i 10 15k	- 1	—	—	i 10 33	?
Riverside		61·4	70	i 10 18	- 2	—	—	—	—
Boulder City		61·6	66	i 10 21	- 1	—	—	—	—
Nelson		61·8	66	i 10 22	- 1	—	—	—	—
Upsala		65·9	340	i 10 51k	+ 1	i 19 39	+ 2	i 12 27	?
Reykjavik	z.	66·2	0	e 10 56	+ 4	—	—	—	—
Tucson		66·6	67	i 10 53	- 1	—	—	—	—
Quetta	z.	68·3	292	i 11 5	0	—	—	i 11 10	?
Kirkland Lake	z.	70·1	37	i 11 15k	- 1	—	—	—	—
Copenhagen		70·9	341	i 11 22	+ 1	—	—	—	—
Djakarta	z.	71·5	235	i 11 30	+ 6	—	—	i 13 6	?
Fayetteville	z.	73·1	53	i 11 32	- 2	—	—	—	—
Potsdam	z.	73·8	339	e 11 42?	+ 4	—	—	—	—
Ottawa		74·0	37	i 11 38k	- 1	i 13 13	?	14 20	PP
Iasi		74·2	328	e 11 42	+ 2	e 21 16	+ 2	—	—
Shawinigan Falls N.		74·2	33	e 11 40	0	—	—	—	—
Raciborzu		74·6	334	e 11 42?	- 1	e 14 39	PP	e 11 57	PcP
Collmberg	z.	74·8	338	e 11 44	0	—	—	i 12 0	PcP
Skalnate Pleso		74·8	333	e 11 54	+10	e 21 28	+ 8	e 12 4	PcP
Witteveen	z.	74·8	343	i 11 52k	+ 8	—	—	i 12 1	PcP
Cleveland	z.	74·9	42	i 11 44k	0	—	—	—	—
Buffalo (Larkin)		75·0	39	i 11 43	- 2	—	—	—	—
Jena	z.	75·5	338	i 11 48	0	—	—	—	—
Prague		75·6	337	e 11 49	+ 1	e 21 33	+ 4	i 12 6	PcP
Rathfarnham C.	z.	76·3	350	i 11 51	- 1	—	—	—	—
Pittsburgh	z.	76·4	42	i 11 53	0	—	—	—	—
Ogyalla		76·6	334	e 12 5	PcP	e 21 43	+ 3	e 14 31	PP
Budapest		76·7	333	12 6	PcP	21 42	+ 1	—	—
Pennsylvania	z.	77·0	40	i 11 55	- 1	—	—	e 12 13	PcP
Morgantown		77·1	42	i 11 56	- 1	—	—	—	—
Bucharest		77·2	327	e 12 6	PcP	e 21 46	- 1	e 12 9	PcP
Kew	z.	77·3	346	e 11 53	- 5	—	—	—	—
Kalossa		77·6	333	e 12 19	PcP	—	—	e 14 57	PP
Timisoara	N.	77·6	330	e 12 5	+ 5	—	—	—	—
Karlsruhe	z.	78·6	340	e 12 10	PcP	—	—	—	—
Harvard		78·1	35	i 12 2k	0	—	—	—	—
Stuttgart		78·1	340	e 12 2	0	—	—	—	—
Weston		78·3	35	i 12 3k	0	i 13 33	?	i 13 51	?
Palisades		78·5	37	i 12 2	- 2	—	—	—	—
Strasbourg		78·6	340	i 12 6	+ 1	—	—	i 12 22	PcP
Belgrade		78·7	331	e 12 6	0	e 23 6	+63	—	—
Halifax		78·9	29	i 12 6k	- 1	—	—	—	—
Washington		78·9	40	i 12 6	- 1	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Istanbul	z.	79.0	323	e 12 23	PcP	—	—	—	—
Chur	z.	79.2	339	e 12 13	+ 5	—	—	—	—
Paris		79.4	344	i 12 10	+ 1	—	—	i 12 26	PcP
Zürich	z.	79.5	340	e 12 11	+ 1	—	—	e 12 25	PcP
Basle	z.	79.6	341	e 12 12	+ 2	—	—	—	—
Sofia		79.6	328	e 13 16	?	—	—	—	—
Triest	z.	79.9	336	i 12 26	PcP	—	—	—	—
Besançon		80.2	341	i 12 15	+ 1	e 13 1	?	i 12 31	PcP
Columbia		81.3	46	e 12 19	- 1	—	—	—	—
Oropa		81.3	339	e 12 38	PcP	—	—	—	—
Pavia		81.5	338	e 12 29	+ 8	—	—	—	—
Bologna		81.6	336	e 12 32	PcP	e 32 33	?	—	—
Clermont-Ferrand		82.2	343	e 12 24	0	—	—	i 12 42	PcP
Ksara		82.2	314	i 12 33	PcP	—	—	—	—
Prato		82.2	336	e 12 44	PcP	e 22 42	+ 3	—	—
Florence		82.3	336	e 12 23 _a	- 2	e 22 40	0	—	—
Siena		82.7	336	12 32	+ 5	—	—	—	—
Athens		83.7	325	e 12 30 _k	- 2	i 12 47	?	e 12 35	PcP
Helwan	z.	87.6	315	e 12 53	+ 2	—	—	—	—
Bermuda		89.6	35	i 12 59	- 2	—	—	—	—
Algiers Univ.	z.	90.8	340	e 13 5	- 1	—	—	—	—
Granada		91.7	345	13 27 _k	+17	—	—	16 57	PP
Kimberley	z.	139.1	284	c 19 30	[+ 1]	—	—	—	—

Nov. 4d. 22h. 12m. 58s. Epicentre 52°·8N. 161°·5E.

A = -·5758, B = +·1927, C = +·7945; δ = -9; h = -6;
D = +·317, E = +·948; G = -·753, H = +·252, K = -·607.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Abashiri		14.4	239	e 3 22	- 5	—	—	—	—
Sapporo		16.6	242	e 3 54	- 2	e 7 24	+24	e 4 7	PP
Aomori		18.5	238	e 4 26	+ 7	8 2	+18	5 7	PP
Mizusawa		19.6	233	4 31	- 1	e 10 56	L	—	(e 10.9)
Akita		19.7	234	e 4 32	- 2	e 8 18	+ 8	e 6 6	?
Sendai	N.	20.4	231	e 4 36	- 5	e 8 17	- 8	e 5 13	PP
Hukushima		21.0	231	e 4 48	+ 1	e 8 37	0	—	e 9.5
Onahama		21.4	230	e 4 55	+ 4	e 8 47	+ 2	—	e 13.1
Aikawa		21.9	235	e 4 54	- 3	9 4	+10	—	—
Utunomiya		22.2	232	e 4 58	- 2	e 9 0	0	—	—
Matusiro		23.0	235	e 5 8	+ 1	e 9 18	+ 4	—	—
Nagano		23.0	233	e 5 2	- 5	e 9 17	+ 3	—	—
Yokohama		23.2	231	e 5 10	+ 1	—	—	—	—
Kohu		23.6	231	5 15	+ 2	9 27	+ 2	—	—
Kanazawa		23.8	237	e 5 16	+ 1	e 9 56	+28	—	—
Shizuoka		24.2	231	e 5 22	+ 3	9 48	+13	—	—
Nagoya		24.7	234	e 5 33	+ 9	—	—	—	—
Owase		26.0	232	e 5 36	0	e 10 14	+ 8	—	—
Sumoto		26.4	238	e 5 43	+ 3	10 20	+ 8	—	—
Takamatu	N.	26.9	238	e 5 45	0	e 10 22	+ 2	—	—
Koti		27.8	237	e 5 56	+ 3	—	—	—	—
College		28.0	44	i 5 55	0	—	—	—	—
Hukuoka		29.4	241	6 2	- 5	10 56	- 5	—	e 14.1
Kumamoto		29.8	239	e 6 24	+13	e 11 24	+17	—	—
Sitka		35.4	56	i 7 2	+ 2	—	—	—	—
Resolute Bay		43.3	22	i 8 4 _a	- 1	i 14 34	+ 1	i 9 47	PP
Victoria		45.8	63	i 8 25 _k	0	—	—	—	—
Seattle	z.	46.9	63	8 37	+ 3	—	—	—	—
Corvallis	z.	48.2	68	i 8 45	+ 1	—	—	—	—
Manila		49.0	235	i 8 46 _k	- 4	—	—	—	—

Continued on next page.

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1952

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.	
Hungry Horse		50.9	58	i 9 5	0	—	—	i 10 22	PcP	—
Shaasta	z.	51.2	70	e 9 7	0	—	—	—	—	—
Berkeley	z.	53.1	73	e 9 21k	0	—	—	i 9 32	?	—
Reno	z.	53.4	69	e 9 24	0	—	—	e 9 38	?	—
Lick	z.	53.9	73	e 9 27k	0	—	—	—	—	—
Fresno	z.	55.3	72	e 9 38k	0	—	—	—	—	—
Tinemaha		56.0	71	i 9 43	0	—	—	—	—	—
Kiruna	z.	56.2	344	i 9 41a	- 3	i 16 11	?	e 21 15	SS	e 32.0
Scoresby Sund		57.0	2	e 9 52	+ 2	—	—	—	—	—
China Lake	z.	57.3	71	i 9 51	- 1	i 9 55	?	i 10 1	?	—
Shillong	E.	57.9	271	e 9 53	- 3	—	—	—	—	—
Pasadena		58.1	73	i 9 57k	- 1	e 39 10	P'P'	i 10 1	?	—
Boulder City		58.7	69	e 10 2	0	—	—	—	—	—
Riverside		58.7	73	i 10 0	- 2	—	—	—	—	—
Nelson		58.9	69	i 10 3	0	—	—	—	—	—
Reykjavik	z.	63.4	2	i 10 34	0	—	—	—	—	—
Tucson		63.7	70	i 10 36	0	e 19 9	- 1	—	—	e 26.8
Upsala	z.	64.0	340	i 10 36	- 2	i 19 9	- 4	i 19 23	PS	e 31.0
New Delhi	N.	64.5	284	e 10 40	- 1	e 19 13	- 6	—	—	—
Lincoln		65.0	55	e 10 39	- 5	—	—	—	—	—
Bergen		65.6	347	—	—	19 29	- 4	e 19 54	PS	e 30.7
Kirkland Lake	z.	66.7	39	i 11 53a	+58	—	—	—	—	—
Copenhagen		68.9	342	i 11 8	- 1	—	—	—	—	—
Quetta		69.1	292	i 11 6	- 4	i 20 12	- 3	—	—	—
Fayetteville	z.	69.9	56	i 11 14	- 1	—	—	—	—	—
Ottawa		70.6	38	i 12 16a	+57	—	—	—	—	—
Shawinigan Falls	N.	70.7	35	e 11 20	0	—	—	—	—	—
Buffalo (Larkin)		71.4	41	e 11 23	- 1	—	—	—	—	—
Cleveland	z.	71.5	44	i 11 24a	0	—	—	i 11 36	pP	—
Potsdam	z.	71.9	340	i 11 27	0	—	—	—	—	—
Hyderabad	E.	72.1	275	11 29	+ 1	20 47	- 3	—	—	—
Witteveen	z.	72.7	344	i 11 32	0	—	—	—	—	—
Collmberg		72.9	339	e 11 32	- 1	e 17 55	?	e 16 35	PPP	e 37.0
Iasi		72.9	330	e 11 32	- 1	e 21 32	+33	—	—	—
Raciborzu		72.9	336	e 11 32?	- 1	e 21 0	+ 1	i 11 46	PcP	42.0
Skalnate Pleso		73.2	334	e 11 36	+ 1	e 21 3	+ 1	e 21 52	PS	e 39.5
Jena	z.	73.6	340	i 11 36	- 1	—	—	—	—	—
Pennsylvania	z.	73.6	42	i 11 37	0	e 12 8	?	i 11 48	PcP	—
Morgantown		73.7	45	i 11 38	0	—	—	—	—	—
Prague		73.8	338	e 11 37k	- 1	e 21 10	+ 1	e 11 49	PcP	—
Poona	z.	74.1	279	e 11 7	-33	—	—	—	—	—
Cheb		74.2	340	—	—	e 21 17	+ 3	—	—	e 38.0
Harvard		74.6	37	i 11 42k	- 1	—	—	—	—	—
Djakarta		74.7	236	i 11 43	0	e 21 23	+ 4	—	—	—
Weston		74.8	37	i 11 43k	- 1	e 21 32	+12	e 26 17	SS	—
Bandong		74.9	235	11 50	+ 6	e 22 0	+38	—	—	—
Ogyalla		75.0	335	e 11 48	+ 3	e 21 25	+ 2	e 14 21	PP	—
Palisades		75.0	39	i 11 43	- 2	—	—	—	—	—
Budapest		75.1	334	11 47	+ 1	21 26	+ 2	—	—	—
City College, N.Y.		75.2	39	i 11 46	0	—	—	—	—	—
Kecskemet		75.4	334	e 12 4	+17	—	—	—	—	—
Halifax		75.5	31	i 11 47a	- 1	—	—	—	—	—
Washington		75.5	42	i 11 40	- 8	—	—	—	—	—
Bucharest		75.9	328	e 11 55	+ 5	e 21 30	- 2	e 21 36	S	—
Szeged		75.9	332	e 11 48	- 2	e 21 5	-27	—	—	—
Kalossa		76.0	334	e 11 55	+ 4	e 21 46	+12	e 12 6	PcP	—
Karlsruhe	z.	76.0	341	e 11 54	+ 3	—	—	—	—	—
Stuttgart		76.1	341	e 11 49	- 2	—	—	—	—	—
Timisoara		76.1	332	e 11 57	+ 6	e 21 33	- 2	—	—	e 42.0
Strasbourg		76.6	342	i 11 54	0	—	—	i 12 7	PcP	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Belgrade		77.2	332	e 11 57 _a	0	e 21 51	+ 4	e 18 42	? e 45.2
Basle	z.	77.6	342	e 11 59	- 1	—	—	—	—
Zürich	z.	77.6	342	e 11 58	- 2	—	—	—	—
Chur	z.	77.9	341	e 12 2	+ 1	—	—	—	—
Triest		78.1	337	e 11 59	- 3	i 21 42	-14	26 37	SS 47.8
Besançon		78.2	342	e 12 1	- 2	i 12 57	?	i 12 15	PcP —
Oropa		79.4	341	12 11	+ 2	i 22 56	PS	i 18 54	? —
Colombo	E.	79.5	267	—	—	e 22 12	+ 1	—	— 43.9
Pavia		79.5	340	e 12 17	+ 7	e 22 28	+17	—	—
Bologna		79.8	338	e 12 14	+ 2	e 22 44	+30	—	—
Clermont-Ferrand		80.1	344	e 12 14	+ 1	—	—	i 12 27	PcP —
Tacubaya		80.2	70	e 12 7	- 7	—	—	—	—
Brisbane	E.	80.3	187	—	—	i 22 22	+ 2	—	—
Prato		80.4	338	e 12 13	- 2	e 22 24	+ 3	—	—
Florence	z.	80.5	338	e 12 13	- 2	—	—	—	—
Siena		80.9	338	12 22	+ 5	—	—	—	—
Ksara		81.6	316	i 12 19	- 2	—	—	—	—
Rome		82.0	336	12 19	- 4	e 23 17	PS	—	—
Taranto		82.1	333	e 11 12	?	23 7	PS	—	—
Athens		82.4	327	e 12 25 _k	0	e 22 40	- 1	i 23 14	PS —
Messina	z.	84.7	333	i 12 34 _a	- 3	—	—	i 12 49	PcP —
Tortosa		85.3	345	12 56	+16	—	—	—	—
Bermuda		86.1	38	e 12 46	+ 2	e 23 17	- 1	e 29 56	SS —
Helwan		86.6	318	12 47	+ 1	i 23 25	+ 2	—	—
Toledo		86.8	348	i 12 48	+ 1	—	—	—	—
Alicante		87.9	346	e 12 55	+ 2	i 23 48	+13	16 38	PP —
Algiers Univ.	z.	88.8	342	e 12 48	- 9	—	—	e 15 51	PP —
Granada		89.4	348	13 4 _k	+ 4	23 53	+ 4	i 16 25	PP —
Almeria		89.6	347	i 12 58	- 3	23 39	[+ 9]	16 31	PP —
Wellington		94.4	170	—	—	e 24 36	+ 3	—	— e 47.9 e 50.0
La Paz		127.0	65	e 19 5	[- 1]	—	—	—	—
Pretoria	z.	136.0	289	e 19 23	[- 0]	—	—	—	—
Kimberley	z.	140.2	289	e 19 27	[- 4]	—	—	—	—
Grahamstown	z.	142.5	283	e 19 31	[- 4]	—	—	—	—

Nov. 4d. 22h. 19m. 24s. Epicentre 53°·1N. 160°·9E. (as on 1950, Nov. 11d.).

A = -·5698, B = +·1973, C = +·7977; δ = -8; h = -7;
D = +·327, E = +·945; G = -·754, H = +·261, K = -·603.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Sapporo		16.4	240	e 3 51	- 2	—	—	e 4 9	? —
Morioka		19.0	233	e 4 27	+ 1	—	—	—	—
Akita		19.5	234	e 4 51	+20	e 8 22	+16	—	e 9.3
Sendai		20.3	231	e 4 36	- 4	e 8 26	+ 3	e 8 40	? e 9.7
Hokusima		20.9	232	e 4 43	- 3	e 8 38	+ 3	—	—
Aikawa		21.8	235	e 4 55	- 1	9 0	+ 8	—	— 12.1
Maebasi		22.6	231	e 5 2	- 1	9 9	+ 2	e 5 54	? —
Matusiro		22.9	235	e 5 6	0	e 9 17	+ 4	—	—
Matumoto	N.	23.3	234	5 8	- 2	e 9 25	+ 5	—	—
Hunatu		23.5	232	e 5 19	+ 7	e 9 35	+12	—	—
Shizuoka		24.1	231	e 5 22	+ 4	e 9 55	+21	—	—
Nagoya		24.6	234	e 5 44	+21	—	—	—	—
Sumoto		26.3	238	e 5 46	+ 7	e 9 33	-38	—	— 12.0
Takamatu	N.	26.8	239	e 5 47	+ 3	e 10 7	-12	—	—
Hirosima		27.5	240	e 5 51	+ 1	e 10 17	-13	—	—
Hukuoka		29.2	241	6 9	+ 4	—	—	—	—
Victoria		46.0	63	8 26	- 1	—	—	—	—
Corvallis	z.	48.4	68	i 8 45	- 1	—	—	—	—
Manila		49.7	235	i 8 52	- 4	i 15 49	-15	—	—
Shasta	z.	51.4	71	e 9 8	- 1	—	—	—	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Berkeley	z.	53.4	74	e 9	22 ^a	- 2	—	—	—	—	—	—
Reno	z.	53.7	70	e 9	26	0	—	—	—	—	—	—
Lick	z.	54.1	74	i 9	28 ^k	- 1	—	—	—	—	—	—
Fresno	z.	55.6	73	e 9	38 ^a	- 2	—	—	—	—	—	—
Kiruna	z.	55.8	344	i 9	39	- 2	—	—	—	i 11	59	PP
Tinemaha		56.2	72	i 9	44	0	—	—	—	i 9	54	?
Scoresby Sund		56.7	2	e 9	47	- 1	—	—	—	—	—	—
China Lake	z.	57.5	72	i 9	51	- 2	—	—	—	i 10	0	?
Pasadena		58.4	74	i 9	58	- 2	e 39	10	P'P'	i 10	6	?
Riverside		58.9	74	i 10	1	- 2	—	—	—	i 10	12	?
Chatra		59.4	275	e 10	6	0	e 18	17	+ 2	—	—	—
Reykjavik	z.	63.1	2	i 10	31	- 1	—	—	—	—	—	—
Upsala		63.6	341	i 10	31	- 4	e 19	9	+ 1	i 22	43	SS
Kirkland Lake	z.	66.6	39	e 10	52	- 2	—	—	—	—	—	—
Copenhagen		68.5	342	i 11	6	0	—	—	—	—	—	—
Quetta	z.	68.7	292	i 11	5	- 2	—	—	—	—	—	—
Fayetteville	z.	70.0	56	i 11	10	- 5	—	—	—	—	—	—
Ottawa		70.6	39	i 11	17 ^k	- 2	—	—	—	—	—	—
Shawinigan Falls	N.	70.7	35	e 11	19	- 1	—	—	—	—	—	—
Cleveland	z.	71.5	45	i 11	24 ^k	0	—	—	—	i 11	34	pP
Hyderabad	E.	71.7	275	11	24	- 2	20	43	- 2	—	—	—
Witteveen	z.	72.3	344	i 11	31	+ 2	—	—	—	—	—	—
Skalnate Pleso		72.8	334	e 11	38	+ 6	e 20	59	+ 1	e 19	43	?
Pittsburgh	z.	73.1	44	i 11	35	+ 1	—	—	—	—	—	—
Jena	z.	73.2	340	i 11	33	- 2	—	—	—	—	—	—
Prague		73.4	339	e 11	36 [?]	0	e 21	9	+ 4	e 21	38	PS
Poona	z.	73.7	279	e 11	36	- 2	—	—	—	—	—	—
Djakarta	z.	74.5	236	e 11	47	+ 5	—	—	—	—	—	—
Ogyalla		74.5	335	e 11	50	+ 8	e 21	20	+ 3	e 12	8	PcP
Harvard		74.6	37	i 11	42 ^a	- 1	—	—	—	—	—	—
Palisades		75.0	39	i 11	44	- 1	—	—	—	—	—	—
Halifax		75.4	31	i 11	45 ^a	- 2	—	—	—	—	—	—
Stuttgart		75.7	341	e 11	47	- 2	—	—	—	—	—	—
Strasbourg		76.2	342	i 12	11	PcP	—	—	—	e 14	51	PP
Paris		76.8	346	i 11	54	- 1	—	—	—	i 12	0	PcP
Basle	z.	77.2	342	e 11	56	- 1	—	—	—	—	—	—
Zürich	z.	77.2	342	e 11	55	- 2	—	—	—	—	—	—
Chur	z.	77.5	340	e 11	59 ^a	0	—	—	—	—	—	—
Triest		77.7	337	e 11	58	- 2	i 21	56	+ 4	i 12	13	PcP
Besançon		77.8	343	i 12	0	- 1	—	—	—	i 12	9	PcP
Colombo	E.	79.1	267	—	—	—	e 15	46	PP	—	—	37.4
Pavia		79.1	340	12	12	+ 4	—	—	—	—	—	—
Bologna	z.	79.3	338	e 12	19	PcP	—	—	—	—	—	—
Clermont-Ferrand		79.7	345	i 12	12	+ 1	—	—	—	—	—	—
Tacubaya		80.5	70	e 12	32	PcP	—	—	—	—	—	—
Athens		82.0	327	e 12	20 ^a	- 3	e 12	25	P	i 12	29	PcP
Messina	z.	84.2	333	i 12	34	0	—	—	—	i 12	47	PcP
Bermuda		86.1	38	i 12	44	0	—	—	—	—	—	—
Toledo		86.5	349	i 12	49	+ 3	—	—	—	—	—	—
Alicante		87.5	346	13	3	+12	23	43	+12	18	38	PPP
Algiers Univ.	z.	88.5	342	e 13	5	+ 9	—	—	—	e 15	51	PP
Pretoria	z.	135.5	289	e 19	18	[- 4]	—	—	—	—	—	—
Kimberley	z.	139.8	289	e 19	23	[- 7]	—	—	—	—	—	—
Grahamstown	z.	142.1	283	e 19	32	[- 2]	—	—	—	—	—	—

Nov. 4d. 22h. 37m. 0s. Epicentre 50°·4N. 157°·8E. (as at 20h.).

		Δ	Az.	P.		O-C.	S.		O-C.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.
Resolute Bay	z.	46.4	21	i 8	27 ^k	- 3	—	—	—
Manila		46.5	233	i 8	30	- 1	—	—	—
Shasta	z.	54.2	67	e 9	28	- 1	—	—	—
Berkeley	z.	56.1	71	e 10	0	+17	—	—	—
Reno	z.	56.5	66	e 9	46	0	—	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Lick	z.	56.8	71	e 9 46	- 2	—	—
Kiruna	z.	57.8	342	i 9 55	0	i 10 25	PcP
Fresno	z.	58.3	68	e 10 3	+ 4	—	—
Upsala	z.	65.5	340	i 10 47 _a	0	—	—
Kirkland Lake	z.	70.0	37	e 11 14	- 1	—	—
Copenhagen		70.4	341	e 11 20	+ 2	—	—
Fayetteville	z.	73.1	53	i 11 31	- 3	—	—
Ottawa		73.9	37	i 11 37 _k	- 2	14 21	PP
Collmberg	z.	74.3	338	e 11 42	+ 1	e 16 26	PPP
Witteveen	z.	74.3	343	i 11 33	- 8	—	—
Cleveland	z.	74.8	42	i 11 53 _k	+ 9	—	—
Jena	z.	75.0	338	i 11 46	+ 1	—	—
Prague		75.1	337	e 11 47	+ 1	e 11 58	PcP
Karlsruhe	z.	77.5	340	e 12 6	+ 7	—	—
Stuttgart		77.6	340	e 12 0	0	—	—
Harvard		77.9	35	e 11 59	- 2	—	—
Weston		78.1	35	i 12 2 _k	0	—	—
Basle	z.	79.1	341	e 12 5	- 3	—	—
Triest	z.	79.4	336	e 12 8	- 1	e 12 19	PcP
Besançon		79.7	341	i 12 23	PcP	e 12 52	?
Clermont-Ferrand		81.7	343	e 12 33	+11	—	—
Pretoria	z.	134.4	284	e 19 23?	[+ 3]	—	—
Kimberley	z.	138.7	284	e 19 33	[+ 5]	—	—

Nov. 4d. 23h. 28m. 59s. Epicentre 50°·4N. 157°·8E. (as at 22h.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Abashiri		11.2	240	e 2 42	- 2	—	—	—	—
Urakawa		13.3	237	e 3 15	+ 2	e 6 11	+29	—	—
Sapporo		13.5	243	i 3 22 _k	+ 7	e 6 29	Q	—	e 8.3
Mizusawa	N.	16.3	233	3 56	+ 4	7 4	+11	—	—
Akita		16.4	236	3 59	+ 6	e 7 20	+24	e 4 47	? e 9.8
Sendai		17.1	231	4 2	0	7 19	+ 7	—	—
Hokusima		17.7	231	e 4 13	+ 3	e 7 35	+ 9	—	—
Utunomiya		18.9	231	e 4 22	- 2	e 7 58	+ 5	—	12.8
Matusiro		19.8	235	e 4 35	0	e 8 30	+17	—	e 10.9
Wazima		19.8	238	e 4 36	+ 1	e 8 30	+17	—	—
Kobu		20.3	232	4 42	+ 2	8 31	+ 8	—	—
Shizuoka		20.9	230	e 4 48	+ 2	e 8 55	+20	e 5 49	? —
Tsuruga		21.6	235	e 4 53	- 1	8 56	+ 7	—	—
Kameyama		22.0	233	e 4 54	- 4	e 8 47	- 9	e 9 55	Q e 12.7
Osaka		22.6	235	e 5 7	+ 4	e 9 31	+24	e 6 11	PP —
Owase		22.7	232	e 5 5	+ 1	e 9 19	+10	—	—
Takamatu	N.	23.6	236	e 5 18	+ 5	e 9 34	+ 9	—	—
Koti		24.5	236	i 5 25	+ 3	e 9 48	+ 8	—	—
Matuyama		24.7	237	e 5 27 _k	+ 3	e 9 48	+ 4	—	—
Hukuoka		26.2	241	5 39 _k	+ 1	10 15	+ 6	—	—
College		31.4	40	6 23	- 2	—	—	—	—
Resolute Bay	z.	46.4	21	i 8 28 _k	- 2	—	—	i 10 13	PP —
Manila		46.5	233	i 8 22	- 9	i 15 1	-18	—	—
Victoria		49.0	59	i 8 49 _k	- 1	—	—	—	—
Seattle	z.	50.0	59	9 1	+ 3	—	—	—	—
Corvallis	z.	51.3	64	i 9 6	- 2	—	—	—	—
Hungry Horse		54.1	54	i 9 28	- 1	—	—	—	—
Shasta	z.	54.2	67	i 9 29 _k	0	—	—	e 9 37	? —
Mineral		54.9	67	e 9 33	- 2	—	—	—	—
Shillong	E.	55.6	270	e 9 40	0	—	—	—	—
Berkeley	z.	56.1	71	e 9 41 _k	- 2	—	—	e 9 51	? —
Reno	z.	56.5	66	e 9 45 _k	- 1	—	—	—	—
Lick	z.	56.8	71	i 9 47 _k	- 1	—	—	i 9 56	? —
Chatra	E.	57.7	274	e 9 47	- 8	e 17 51	- 2	—	—
Kiruna	z.	57.8	342	i 9 53	- 2	—	—	i 11 29	PP e 33.0

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Fresno	z.	58.3	68	e 9 57k	- 2	—	—	—	—
Tinemaha		59.0	68	i 10 3	- 1	—	—	—	—
Scoresby Sund		59.4	0	i 10 5	- 1	i 18 14	- 1	—	35.0
China Lake	z.	60.2	68	i 10 10k	- 2	—	—	i 10 20	—
Pasadena		61.0	70	i 10 16k	- 2	e 39 33	P'P'	i 10 26	—
Riverside		61.6	70	i 10 19	- 3	—	—	—	—
Boulder City		61.8	66	i 10 22	- 1	—	—	—	—
Nelson		61.9	66	i 10 23	- 1	—	—	—	—
Upsala		65.5	340	i 10 45k	- 2	e 19 25	- 7	e 20 35	ScS e 28.0
Reykjavik	z.	65.8	0	e 10 40	- 9	—	—	—	—
Tucson		66.7	67	i 10 54	- 1	—	—	—	—
Quetta	z.	67.8	292	i 11 1	- 1	—	—	—	—
Hyderabad	E.	70.0	273	11 15	0	20 37	+11	—	—
Kirkland Lake	z.	70.0	37	i 11 15k	0	—	—	i 11 21	—
Copenhagen		70.4	341	i 11 20	+ 2	—	—	—	37.0
Djakarta		71.4	234	i 11 30	+ 6	e 21 57	PPS	i 22 49	—
Bandong		71.6	233	e 11 12	-13	—	—	—	—
Poona	z.	72.1	278	e 11 28	0	e 21 4	+14	—	—
Fayetteville	z.	73.1	53	i 11 33	- 1	—	—	—	—
Potsdam	z.	73.3	339	e 11 38	+ 3	—	—	—	—
Iasi		73.7	328	e 11 38	0	21 25	+17	—	—
Ottawa		73.9	37	i 11 36k	- 3	—	—	14 21	PP
Shawinigan Falls N.		74.0	33	e 11 38	- 1	—	—	—	—
Raciborzu		74.1	334	e 11 37	- 3	e 12 3	?	e 11 58	PcP
Collmberg		74.3	338	e 11 40	- 1	—	—	—	e 34.0
Skalnate Pleso		74.3	333	e 11 45	+ 4	—	—	e 11 57	PcP
Witteveen	z.	74.3	343	e 11 45	+ 4	—	—	—	—
Cleveland	z.	74.8	42	i 11 43k	- 1	—	—	i 11 52	pP
Buffalo (Larkin)		74.9	39	i 11 51	+ 7	—	—	—	—
Jena	z.	75.0	338	e 11 44	- 1	—	—	—	—
Prague		75.1	337	e 11 46	0	e 12 4	PcP	e 14 19	PP
De Bilt		75.3	342	e 11 15	-32	—	—	—	—
Rathfarnham C.	z.	75.8	350	i 11 47	- 3	—	—	—	—
Ogyalla		76.1	334	e 11 20	-31	e 21 38	+ 3	e 12 17	PcP
Budapest		76.2	333	11 53	+ 1	i 21 35	- 1	—	53.0
Pittsburgh	z.	76.3	41	i 11 51	- 1	—	—	—	—
Bucharest		76.7	327	e 12 5	PcP	e 21 37	- 4	—	—
Kew	z.	76.8	346	i 11 55	0	—	—	—	—
Pennsylvania	z.	76.9	40	i 11 56	0	—	—	i 12 3	PcP
Colombo	E.	77.0	265	—	—	e 21 46	+ 1	—	48.0
Morgantown		77.0	42	i 11 56	0	—	—	—	—
Timisoara		77.1	330	e 12 1	+ 4	e 22 6	+20	—	e 43.5
Karlsruhe	z.	77.5	340	e 11 57	- 2	—	—	—	—
Brisbane		77.6	185	i 12 0k	0	e 21 56	+ 5	i 12 8	PcP
Stuttgart		77.6	340	e 11 58	- 2	—	—	—	—
Harvard		77.9	35	e 12 1	0	—	—	—	—
Strasbourg		77.9	340	i 12 2	+ 1	—	—	i 12 10	PcP
Weston		78.1	35	i 12 1k	- 1	—	—	i 12 10	PcP
Palisades		78.3	37	i 12 2	- 1	—	—	—	—
City College, N.Y.		78.5	37	i 12 4	0	—	—	—	—
Istanbul	z.	78.5	323	e 12 3	- 1	—	—	—	—
Halifax		78.7	29	i 12 4k	- 2	—	—	—	—
Paris		78.9	344	i 12 7	0	—	—	i 12 15	PcP
Basle	z.	79.1	341	e 12 7	- 1	—	—	e 18 24	?
Zürich	z.	79.1	340	e 12 7	- 1	—	—	e 18 24	?
Triest		79.4	336	e 12 7	- 2	i 22 29	+19	e 23 39	PPS
Besançon		79.7	341	i 12 11	0	i 18 28	?	i 12 18	PcP
Chur	z.	79.8	339	e 12 9k	- 3	—	—	e 18 26	?
Mobile		80.5	53	i 12 17	+ 2	—	—	—	—
Oropa		80.8	339	e 12 29	+12	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Pavia		81.0	338	e 12 24	+ 6	—	—	—	e 45.4
Bologna	z.	81.1	336	e 12 13	- 5	—	—	—	—
Clermont-Ferrand		81.7	343	e 12 23	+ 1	—	—	i 12 30	PcP
Florence		81.8	336	e 12 21	- 1	e 22 31	- 4	—	—
Rome		83.2	335	12 30	+ 1	—	—	—	—
Tacubaya		83.2	67	e 12 34	+ 5	—	—	—	—
Riverview		84.1	185	i 12 49	PcP	i 23 0	+ 2	i 23 47	PS
Messina	z.	85.7	331	i 12 40	- 2	—	—	i 12 48	PcP
Tortosa		87.0	342	—	—	i 23 18	[+ 4]	—	—
Helwan		87.1	315	12 47	- 2	e 23 27	- 1	e 23 19	SKS
Toledo		88.7	346	i 12 57	0	—	—	—	—
Bermuda		89.4	35	i 12 59	- 1	—	—	—	—
Alicante		89.6	343	12 53	- 8	i 23 32	[+ 2]	—	44.9
Algiers Univ.	z.	90.4	340	e 13 1	- 3	—	—	—	—
Granada		91.3	345	i 13 19 _a	+10	—	—	—	—
San Juan		101.3	43	e 13 55	+ 1	—	—	e 17 1	?
Tamanrasset	z.	103.1	334	e 14 6	+ 4	e 24 25	[-17]	e 18 13	PP
La Paz		130.1	64	e 19 11	[- 1]	—	—	—	—
Pretoria	z.	134.4	284	e 19 21	[+ 1]	—	—	—	—
Kimberley	z.	138.7	284	e 19 30	[+ 2]	—	—	—	—

Nov. 5d. 2h. 20m. 1s. Epicentre 50°·2N. 157°·3E. Focus at Base of Superficial Layers.
(as on 1952, September 27d.).

A = -·5929, B = +·2480, C = +·7662; δ = +10; h = -5;
D = +·386, E = +·922; G = -·707, H = +·296, K = -·643.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Klyuchi		6.5	17	e 1 45	+ 9	—	—	—	—
Ulegorsk		9.9	269	2 24	+ 1	—	—	—	—
Yuzno-Sakhlinsk		10.2	257	2 27	0	4 25	+ 3	—	—
Abashiri		10.8	240	e 2 21	-14	—	—	—	—
Wakkanai	E.	11.6	251	e 2 47	+ 1	e 4 47	- 9	e 8 23	PcP
Sapporo		13.1	243	e 3 7	+ 1	e 5 43	+11	e 3 14	PP
Morioka		15.5	233	e 3 39	+ 1	—	—	—	e 7.1
Mizusawa		15.9	232	3 43	0	6 20	-18	e 3 49	P
Akita		16.0	236	e 3 39	- 5	e 6 49	+ 9	—	e 8.3
Sendai		16.7	231	e 3 55	+ 2	e 6 53	- 3	17 1	S
Hokusima		17.3	228	e 4 1	+ 1	e 7 18	+ 8	—	—
Vladivostok		18.8	257	e 4 20	+ 1	i 7 35	- 9	—	—
Maebasi		19.1	229	e 4 21	- 2	7 52	+ 1	e 7 26	?
Matusiro		19.4	234	e 4 26	0	8 10	+13	—	e 10.4
Yokohama		19.6	228	e 4 27	- 1	—	—	—	—
Matumoto		19.7	235	e 4 29	0	e 8 14	+10	—	—
Hunatu		19.9	230	e 4 31	0	e 8 10	+ 2	—	—
Misima	N.	20.1	227	e 4 33	- 1	e 8 20	+ 8	—	—
Gihu		21.0	232	e 4 42	- 1	e 8 40	+10	—	—
Kameyama		21.6	233	e 4 50	+ 1	8 48	+ 7	e 9 24	Q
Osaka		22.2	233	e 4 57	+ 2	e 9 2	+10	e 5 39	PP
Owase		22.3	231	e 4 54	- 2	e 9 0	+ 6	—	—
Siomisaki		23.1	233	15 2	- 2	9 12	+ 3	—	—
Takamatu		23.3	236	15 7 _a	+ 1	e 9 17	+ 5	—	—
Hirosima		24.1	237	e 5 13	0	e 9 29	+ 3	—	—
Koti		24.1	235	e 5 14	+ 1	e 9 27	+ 1	—	—
Hukuoka		25.8	239	5 29	- 1	e 10 4	+10	—	e 13.3
Kabansk		31.3	294	6 15	- 4	11 16	- 7	—	—
College		31.7	42	i 6 23	0	i 11 31	+ 2	—	—
Kyakhta		32.0	291	6 22	- 3	11 26	- 8	—	—
Irkutsk		32.6	295	6 28	- 3	e 11 37?	- 6	—	—
Sitka		38.9	53	i 7 29	+ 5	—	—	—	—
Manila		46.1	232	i 8 10	-13	i 14 44	-21	—	—
Resolute Bay		46.7	21	i 8 26 _a	- 1	i 15 13	- 1	i 9 59	PP
Victoria		49.3	60	8 50	+ 2	—	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Seattle	z.	50.4	61	8 58	+ 2	—	—	—	—
Corvallis	z.	51.6	64	i 9 6	+ 1	—	—	—	—
Przhevalsk		52.6	293	9 11	- 2	—	—	—	—
Almata		53.0	295	e 9 14	- 2	e 16 32	-10	—	—
Sverdlovsk		53.2	317	9 13	- 4	i 16 36	- 8	—	—
Rybach'e		54.0	295	i 9 20	- 3	e 16 52	- 3	—	—
Hungry Horse		54.5	55	i 9 29	+ 2	—	—	—	—
Frunse		54.6	296	e 9 24	- 4	—	—	—	—
Shasta	z.	54.6	66	i 9 30	+ 2	—	—	—	—
Naryn		54.7	294	e 9 26	- 2	e 16 58	- 6	—	—
Berkeley	z.	56.4	70	i 9 43 _a	+ 3	—	—	i 10 9	pP
Butte		56.7	56	i 9 45	+ 2	—	—	—	—
Reno		56.8	65	i 9 46 _a	+ 3	e 17 42	+10	e 9 59	pP
Santa Clara	z.	57.0	70	e 9 48 _k	+ 3	—	—	—	—
Andijan		57.2	295	e 9 42	- 4	—	—	—	—
Lick	z.	57.2	70	i 9 49	+ 3	—	—	i 10 9	pP
Chatra		57.4	273	e 9 45	- 3	e 17 50	+10	e 19 24	?
Namangan		57.5	296	i 9 46	- 2	—	—	—	—
Fergana		57.8	295	e 9 47	- 3	—	—	—	—
Tchinkent		57.8	299	i 9 48	- 2	i 17 40	- 6	—	—
Kiruna		57.9	342	i 9 47	- 4	e 17 46	- 1	e 11 45	PP e 27.0
Tashkent		58.6	298	e 9 51	- 5	e 17 43	-13	—	—
Fresno		58.7	68	i 9 58	+ 1	e 18 34	+37	—	—
Tinemaha		59.3	68	i 10 3 _a	+ 2	i 11 22	?	i 10 9	pP
Garm		59.6	297	e 9 59	- 4	e 17 59	-10	—	—
Scoresby Sund		59.6	0	i 10 0	- 3	i 18 9	0	19 47	ScS 29.0
Calcutta	E.	59.7	269	e 10 7	+ 3	i 18 27	+17	—	—
Khorog		59.8	293	10 1	- 3	—	—	—	—
China Lake	z.	60.6	68	i 10 10	0	—	—	i 10 35	?
Kulyab		60.6	294	10 7	- 3	18 21	- 1	—	—
Stalinabad		60.8	296	i 10 7	- 4	—	—	—	—
Samarkand		61.0	298	10 8	- 4	—	—	—	—
Pasadena		61.4	70	i 10 17 _a	+ 2	i 19 10	PS	i 10 36	pP i 28.3
Riverside		62.0	70	i 10 19 _a	0	—	—	i 10 37	pP
Boulder City		62.1	66	i 10 22	+ 2	—	—	—	—
Nelson		62.3	66	i 10 22	+ 1	—	—	—	—
Moscow		63.2	327	e 10 21	- 6	e 18 43	-12	—	—
Reykjavik	z.	64.4	359	i 10 46	+11	—	—	—	—
Bairam Ali		65.2	299	10 37	- 3	—	—	—	—
Upsala		65.5	339	i 10 41	- 1	e 19 13	-10	i 12 29	PP e 29.7
Tucson		67.1	67	i 10 54	+ 2	e 20 19	PPS	e 13 41	PP e 31.3
Bergen	N.	67.5	346	—	—	e 20 24	PS	—	e 37.0
Quetta	z.	67.6	291	i 10 52	- 3	—	—	—	—
Makhach-Kala		68.9	312	e 11 2	- 1	e 19 58	- 6	—	—
Apia		69.3	147	e 11 4?	- 2	i 20 24	+15	—	—
Hyderabad	N.	69.7	273	e 11 6	- 2	i 20 6	- 8	20 44	PS 33.6
Piatigorsk		70.1	316	11 9	- 2	20 10	- 8	—	—
Copenhagen		70.5	340	—	—	20 21	- 2	—	37.0
Kirkland Lake	z.	70.9	37	i 11 12 _a	- 4	—	—	i 11 28	pP
Djakarta		71.1	234	i 11 18	+ 1	i 20 33	+ 3	—	—
Kirovobad		71.1	311	e 11 15	- 2	i 20 25	- 5	—	—
Tiflis		71.1	313	e 11 15	- 2	e 20 25	- 5	—	—
Lubbock		71.3	59	11 19	+ 1	20 39	+ 7	—	—
Aberdeen		71.6	349	—	—	i 20 24	-12	i 21 29	PS e 38.3
Tsikhlis-Dzhvari		71.7	315	11 22	+ 2	—	—	—	—
Poona	z.	71.8	277	i 11 20	- 1	e 20 53	+15	—	—
Sotchi		71.9	318	e 11 19	- 3	e 20 30	- 9	—	—
Chicago		72.1	46	e 11 22	- 1	—	—	—	—
Goris		72.1	310	i 11 21	- 2	i 20 38	- 3	—	—
Bombay		72.2	278	e 11 24	+ 1	e 20 35	- 7	21 25	PS

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Leninakan		72.3	314	e 11 29	+ 5	—	—	—	—
Erevan		72.4	312	i 11 23	- 2	20 39	- 6	—	—
Kishinev		73.4	326	i 11 29	- 1	i 20 51	- 5	—	—
Potsdam		73.4	339	e 11 29	- 1	i 21 33	SKS	i 11 59	? e 36.0
Fayetteville	z.	73.5	53	i 11 31 _a	0	—	—	—	—
Yalta		73.5	321	e 11 27	- 4	e 20 49	- 8	—	—
Iasi		73.7	328	e 11 31	- 1	e 20 55	- 4	—	—
Raciborzu		74.2	334	e 11 29 _?	- 6	e 12 6	?	e 11 48	PcP e 40.1
Ottawa		74.3	36	i 11 35 _a	- 1	e 20 49	-17	14 20	PP
Shawinigan Falls	N.	74.3	33	e 11 37	+ 1	—	—	e 11 53	PcP
Collnberg		74.4	337	e 11 35	- 1	—	—	—	—
Skalnate Pleso		74.4	332	e 11 38	+ 2	e 21 2	- 5	e 14 23	PP e 42.0
Witteveen	z.	74.4	342	e 11 35	- 1	—	—	—	e 39.5
Jena	z.	75.1	338	i 11 39	- 1	—	—	—	—
Buffalo (Larkin)		75.2	39	i 11 13	-28	—	—	—	—
Cleveland	z.	75.2	42	i 11 42 _a	+ 1	—	—	i 11 56	pP
Prague		75.2	336	e 11 41	+ 0	e 21 16	0	e 14 0	PP
De Bilt		75.4	343	e 11 41	- 1	i 21 17	- 1	—	e 30.0
Cheb	N.	75.7	338	e 11 43	- 1	e 21 20	- 2	—	—
Kodaikanal	E.	75.7	269	—	—	e 21 13	- 9	—	—
Rathfarnham Castle		75.9	350	i 11 42 _a	- 3	e 21 25	+ 1	—	—
Budapest		76.2	332	e 11 45	- 2	21 25	- 2	—	e 38.5
Ogyalla		76.2	333	e 11 47	0	e 21 24	- 3	e 22 1	PS
Bucharest		76.6	326	e 11 51	+ 2	e 21 31	- 1	—	—
Colombo	F.	76.7	265	11 29	-21	21 6	-27	—	41.0
Pittsburgh	z.	76.7	42	i 11 51	+ 1	—	—	—	—
Kew		76.9	346	e 11 58	+ 7	e 21 26	- 9	e 22 2	PS e 35.0
Kalossa		77.1	333	e 11 52	0	—	—	—	—
Timisoara		77.1	330	e 11 53 _?	+ 1	e 21 39	+ 2	—	e 45.0
Pennsylvania		77.3	40	i 11 54	+ 1	i 21 40	+ 1	e 14 53	PP
Brisbane		77.4	186	i 11 53 _a	0	e 21 44	+ 4	i 12 10	PcP
Morgantown		77.4	42	i 11 55	+ 2	—	—	—	—
Karlsruhe	z.	77.6	340	e 11 52	- 2	—	—	—	—
Stuttgart		77.7	339	e 11 53	- 2	—	—	—	—
Belgrade		78.2	330	e 11 56 _a	- 2	e 21 43	- 6	e 22 10	PS e 41.6
Strasbourg		78.2	340	i 11 55	- 3	e 21 45	- 4	e 22 1	PS e 40.0
Harvard		78.3	35	e 11 59	+ 1	—	—	—	—
Istanbul	z.	78.4	322	e 11 57	- 2	—	—	—	—
Weston		78.5	35	e 12 0 _a	+ 1	e 21 53	+ 1	e 26 49	SS e 40.1
Palisades		78.7	38	i 12 0	0	e 21 53	- 1	—	—
City College, N.Y.		78.8	38	i 12 2	+ 1	e 21 54	- 1	—	—
Paris		79.0	343	i 12 1	- 1	i 21 51	- 6	e 16 48	PPP e 39.0
Halifax		79.1	28	e 12 3	0	21 58	0	—	—
Philadelphia		79.1	39	—	—	e 21 56	- 2	—	—
Zürich		79.1	339	e 12 1 _a	- 2	e 21 54	- 4	—	—
Basle		79.2	340	e 12 5	+ 2	—	—	—	—
Washington		79.2	39	i 12 4	+ 1	—	—	—	—
Chur		79.4	338	e 12 3 _a	- 1	—	—	—	—
Triest		79.4	335	e 12 1	- 3	e 20 55	?	e 21 11	?
Besançon		79.8	341	i 12 5	- 1	i 12 32	?	i 12 19	PcP
Mobile		80.8	53	e 12 14	+ 2	—	—	—	—
Oropa		80.9	338	e 12 27	+15	e 22 14	- 3	—	—
Pavia		81.0	338	e 12 12	- 1	e 22 15	- 3	e 27 13	SS
Bologna		81.1	336	e 12 14	+ 1	e 22 21	+ 2	—	—
Columbia		81.6	46	e 12 17	+ 1	e 22 21	- 3	—	—
Ksara		81.6	313	i 12 16	0	22 25 _?	+ 1	—	—
Clermont-Ferrand		81.8	342	i 12 17	0	—	—	—	—
Florence		81.8	335	e 12 14 _a	- 3	e 22 20	- 6	—	—
Prato		81.8	336	e 12 25	+ 8	i 22 23	- 3	—	—
Siena		82.2	336	12 15	- 4	—	—	—	—
Athens		83.1	324	e 12 22 _k	- 2	i 22 29	-11	e 12 41	PcP
Taranto		83.1	330	12 49	+25	22 24	-16	—	34.0
Rome		83.2	335	12 24	0	e 22 38	- 3	23 28	PS e 43.0
Tacubaya		83.6	67	e 12 22	- 4	—	—	—	—
Riverview		83.8	185	i 12 29 _a	+ 2	i 22 50	+ 3	i 12 48	pP e 39.3

Continued on next page.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Messina		85.7	330	i 12	50	+13	e 23	48	PS	i 13	6	41.3
Helwan		87.0	315	12	41	-2	e 23	16	-2	16	7	—
Auckland	N.	88.1	166	—	—	—	e 23	35	+7	—	—	e 41.0
Melbourne	E.	88.3	199	—	—	—	e 23	38	+8	—	—	e 36.5
Toledo		88.8	346	i 12	50	-2	—	—	—	—	—	—
Karapiro	N.	89.2	167	e 12	54	0	—	—	—	—	—	—
Bermuda		89.8	35	i 12	58	+2	i 23	47	+3	—	—	e 46.2
Alicante		90.3	343	12	42	-17	i 23	22	[-3]	—	—	45.2
Granada		91.4	345	i 13	5k	+1	23	45	[+13]	—	—	—
Almeria		91.5	343	13	2	-2	23	52	-7	—	—	52.0
Malaga		91.9	345	e 12	55	-11	23	37	[+3]	16	49	PP 37.8
Wellington		92.4	167	—	—	—	24	11	+4	—	—	e 43.4
Christchurch		94.3	169	—	—	—	e 24	29	+6	e 31	5	SS e 43.0
San Juan		101.7	42	e 13	52	+1	—	—	—	e 18	1	PP —
Tamanrasset	z.	103.1	333	e 13	59	+2	e 24	23	[-9]	e 18	15	PP —
Galerazamba		104.0	55	i 18	27	PP	—	—	—	—	—	—
Fort de France		107.1	40	e 18	40	PP	e 27	59	PS	e 34	19	SS —
Bogota		109.8	55	e 19	5	PP	—	—	—	—	—	—
Huancayo		122.7	67	e 18	56	[+3]	—	—	—	—	—	—
La Paz		130.5	63	i 19	11	[+3]	i 22	32	PKS	i 21	29	PP 60.0
Pretoria	z.	134.2	282	e 19	15	[+1]	—	—	—	e 22	41	PKS —
Pietermaritzburg	z.	135.5	278	e 19	17	[0]	—	—	—	—	—	—
Kimberley	z.	138.4	281	e 19	22	[0]	—	—	—	—	—	—
Grahamstown	z.	140.3	276	e 19	27	[+1]	—	—	—	—	—	—
La Plata		150.2	74	19	47	[+5]	23	29	PKS	42	47	SS 70.9

Nov. 5d. 3h. 29m. 43s. Epicentre 51°-0N. 158°-9E.

A = -0.5895, B = +0.2275, C = +0.7751; $\delta = +5$; $h = -6$;
D = +0.360, E = +0.933; G = -0.723, H = +0.279, K = -0.632.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Klyuchi		5.4	11	i 1	30	+6	2	39	+11	—	—	—
Magadan		9.7	335	2	30	+8	—	—	—	—	—	—
Uglegorsk		11.0	266	2	42	0	—	—	—	—	—	—
Yuzno-Sakhlinsk		11.4	255	2	48	+1	4	54	-2	—	—	—
Abashiri		12.1	240	e 3	8	+11	—	—	—	—	—	—
Wakkanai	E.	12.8	251	e 3	6	0	—	—	—	—	—	—
Urakawa		14.1	238	e 3	26	+3	e 5	55	-7	—	—	—
Sapporo		14.3	243	e 3	30k	+4	e 6	30	+24	e 3	40	PP e 8.6
Miyako		16.4	233	e 3	49?	-4	—	—	—	4	3?	PP —
Mizusawa	E.	17.2	233	4	4	+1	e 7	12	-2	—	—	—
	N.	17.2	233	e 4	11	+8	7	19	+5	—	—	—
Akita		17.3	235	e 4	5	+1	e 7	29	+13	e 8	24	SS e 9.8
Sendai		18.0	232	i 4	8	-5	e 6	23	?	i 4	18	? e 8.5
Hokusima		18.6	231	e 4	19	-2	e 7	58	+12	—	—	—
Aikawa		19.5	237	e 4	29	-2	e 7	59	-7	—	—	10.7
Utunomiya		19.9	230	e 4	31	-5	e 8	21	+6	i 4	41	PP —
Vladivostok		19.9	257	e 4	31	-5	—	—	—	—	—	—
Maebasi		20.4	235	e 4	38	-3	8	31	+6	i 4	47	PP —
Nagano		20.6	236	e 4	34	-9	e 8	39	+10	—	—	—
Tokyo		20.6	229	e 4	28	-15	e 8	26	-3	i 4	49	PP e 9.3
Matsuro		20.7	236	4	43	-1	8	40	+9	i 4	51	PP e 10.7
Wazima		20.7	237	e 4	44	0	e 8	39	+8	—	—	—
Hunatu		21.2	230	e 4	50	+1	e 8	46	+5	—	—	—
Misima		21.4	230	e 4	54	+3	e 8	49	+4	—	—	e 9.7
Gihu		22.3	233	e 5	2	+1	e 9	9	+7	—	—	—
Tsuruga		22.5	234	5	0	-2	8	58	-7	—	—	—
Kameyama		22.9	233	e 5	12	+6	e 9	29	+16	e 9	57	Q e 12.0
Osaka		23.5	235	e 5	16	+4	e 9	54	+31	e 6	1	PP e 12.0
Owase		23.6	233	e 5	12	-1	e 9	28	+3	—	—	—
Takamatu		24.6	235	e 5	21	-2	e 9	45	+3	—	—	—
Muroto		25.3	234	i 5	38k	+8	e 10	2	+8	e 6	46	PP —

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Koti	25.4	235	i 5	33	+ 2	e 10	2	+ 6	i 5	39	?
Huknoka	27.1	241	e 5	48 ^k	+ 2	—	—	—	—	—	e 15.4
Kagosima	28.5	239	e 6	7	+ 8	—	—	—	—	—	—
College	30.4	43	6	16	0	i 11	20	+ 4	—	—	e 12.3
Kabansk	32.0	293	6	26	- 4	—	—	—	—	—	—
Kyakhta	32.7	291	6	33	- 3	e 11	44	- 8	—	—	—
Irkutsk	33.2	295	e 6	38	- 2	11	49	-11	—	—	—
Hong Kong	44.9	248	8	24	+ 6	14	49	- 7	18	15	SS
Resolute Bay	45.5	23	e 8	20 ^a	- 3	i 15	6	+ 1	i 10	2	PP
Manila	47.4	234	i 8	26 ^k	-12	i 15	20	-12	—	—	i 26.5
Semipalatinsk	47.5	302	e 8	35	- 3	—	—	—	—	—	—
Victoria	48.0	61	8	41	- 2	—	—	—	—	—	—
Hungry Horse	53.2	57	i 9	20	- 2	—	—	—	—	—	—
Przhevsk	53.2	296	9	21	- 1	—	—	—	—	—	—
Shasta	z. 53.3	68	e 9	21	- 2	—	—	—	—	—	—
Sverdlovsk	53.3	318	i 9	18	- 5	e 16	47	- 7	—	—	—
Almata	53.6	297	i 9	24	- 1	—	—	—	—	—	—
Rybach'e	54.6	297	i 9	28	- 4	—	—	—	—	—	—
Frunse	55.1	298	e 9	34	- 2	i 17	14	- 4	—	—	—
Berkeley	55.2	71	i 9	36	- 1	—	—	—	i 9	51	?
Naryn	55.3	295	i 9	36	- 2	—	—	—	—	—	—
Reno	z. 55.6	68	e 9	41 ^k	+ 1	—	—	—	e 9	57	?
Lick	z. 55.9	71	e 9	39	- 3	—	—	—	e 10	4	?
Fresno	z. 57.4	70	e 9	49 ^k	- 4	—	—	—	e 9	55	?
Kiruna	57.5	343	i 9	52 ^a	- 1	i 17	52	+ 2	e 12	9	PP
Andijan	57.8	297	i 9	54	- 1	—	—	—	—	—	—
Namangan	58.0	298	i 9	56	- 1	—	—	—	—	—	—
Tinemaha	58.1	70	i 9	55	- 3	—	—	—	i 10	0	?
Chatra	58.3	274	e 9	56	- 3	e 17	56	- 5	—	—	—
Tchimkent	58.3	300	i 9	58	- 1	—	—	—	—	—	—
Fergana	58.4	297	e 9	58	- 2	—	—	—	—	—	—
Scoresby Sund	58.8	2	e 10	4	+ 2	i 18	13	+ 6	—	—	28.3
Lunacharskoe	59.1	299	i 10	2	- 2	—	—	—	—	—	—
Tashkent	59.1	299	i 10	3	- 1	—	—	—	—	—	—
China Lake	59.4	70	e 10	3	- 3	—	—	—	i 10	8	?
Pasadena	60.2	72	i 10	7	- 5	e 39	43	P'P'	i 10	13	?
Khorog	60.4	294	e 10	12	- 1	—	—	—	—	—	—
Calcutta	E. 60.7	271	i 10	30	+15	i 18	50	+18	—	—	—
Riverside	z. 60.7	72	e 10	11	- 4	—	—	—	—	—	—
Boulder City	60.9	79	i 10	53	+36	—	—	—	—	—	—
Nelson	61.1	79	i 10	14	- 4	—	—	—	—	—	—
Kulyab	61.2	296	10	19	0	18	33	- 5	—	—	—
Stalinabad	61.3	297	i 10	16	- 4	—	—	—	—	—	—
Samarkand	61.5	299	10	19	- 2	—	—	—	—	—	—
Pulkovo	62.0	334	e 10	24	0	—	—	—	—	—	—
Moscow	63.0	328	i 10	28	- 3	18	53	- 8	—	—	—
New Delhi	63.3	283	e 10	30	- 3	c 18	58	- 6	20	20	ScS
Upsala	65.1	340	i 10	44 ^a	- 1	i 19	23	- 4	e 20	34	ScS
Reykjavik	z. 65.2	2	i 10	48	+ 3	—	—	—	—	—	e 33.3
Bairam-Ali	65.7	300	i 10	47	- 1	—	—	—	—	—	—
Tucson	65.9	69	e 10	45	- 5	—	—	—	i 11	3	?
Bergen	N. 66.9	347	—	—	—	e 19	50	+ 1	—	—	e 41.0
Kizyl-Arvat	67.8	305	11	3	+ 1	—	—	—	—	—	—
Quetta	68.3	292	i 11	2	- 3	—	—	—	—	—	36.3
Kirkland Lake	z. 69.1	38	i 11	10 ^a	0	—	—	—	—	—	—
Copenhagen	70.1	342	i 11	17	+ 1	—	—	—	—	—	36.3
Piatigorsk	70.2	317	11	15	- 2	i 20	17	-11	—	—	—
Hyderabad	N. 70.7	274	e 11	18	- 2	i 20	28	- 6	—	—	—
Chicago	71.0	47	—	—	—	e 20	35	- 2	—	—	—
Aberdeen	71.1	350	i 10	35	+13	i 20	37	- 1	—	—	e 44.5
Kirovobad	71.3	313	e 11	23	0	20	36	- 5	—	—	—
Tiflis	71.3	314	11	23	0	e 20	35	- 6	—	—	—
Sotchi	72.0	318	i 11	26	- 2	e 20	45	- 4	—	—	—
Abastumanj	72.2	315	e 11	25	- 4	—	—	—	—	—	—
Fayetteville	z. 72.2	55	i 11	24	- 5	—	—	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
	°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Djakarta	72.3	236	e 11 30	+ 1	i 20 54	+ 2	i 11 42	PcP	—
Goris	72.3	311	i 11 28	- 1	—	—	—	—	—
Lwow	72.4	332	i 11 29	- 1	—	—	—	—	—
Bandong	E. 72.5	234	e 11 38	+ 8	—	—	—	—	—
Leninakan	72.5	314	e 11 35	+ 5	—	—	—	—	—
Erevan	72.6	313	i 11 31	0	—	—	—	—	—
Poona	Z. 72.7	278	i 11 17	-15	11 22	?	11 41	PcP	—
Ottawa	73.0	38	i 11 28 _a	- 5	e 21 1	+ 1	14 11	PP	—
Potsdam	73.0	340	i 11 33 _a	0	i 21 3	+ 3	i 11 43	PcP	e 38.3
Bombay	73.1	279	e 11 34	0	c 20 57	- 4	14 11	PP	—
Shawinigan Falls	N. 73.1	35	e 11 36	+ 2	—	—	—	—	—
Simferopol	73.2	323	11 33	- 2	—	—	—	—	—
Kishinev	73.3	328	11 34	- 1	—	—	—	—	—
Yalta	73.5	322	i 11 36	0	—	—	—	—	—
Iasi	73.6	328	e 11 37	0	21 47	PS	—	—	—
Cleveland	Z. 73.9	44	i 11 41 _a	+ 2	—	—	i 11 50	pP	—
Raciborzu	73.9	335	i 11 39 _k	0	c 14 20	PP	i 11 52	PcP	—
Witteveen	Z. 73.9	344	i 11 40 _k	+ 1	—	—	—	—	—
Buffalo (Larkin)	74.0	41	e 11 39	0	—	—	—	—	—
Collmberg	74.1	339	e 11 31	- 9	—	—	i 11 41	P	e 39.3
Skalnate Pleso	74.1	334	e 11 40	0	c 21 14	+ 2	e 14 34	PP	—
Jena	Z. 74.7	339	i 11 44	+ 1	—	—	i 11 50	PcP	—
De Bilt	74.9	344	e 11 47	+ 3	c 21 25	+ 3	—	—	e 31.3
Prague	74.9	338	i 11 45	+ 1	c 21 21	- 1	e 14 40	PP	—
Cheb	N. 75.3	339	e 11 49	+ 2	c 21 29	+ 3	—	—	—
Rathfarnham C.	Z. 75.3	352	i 11 51 _a	+ 4	—	—	—	—	—
Ogyalla	75.9	334	i 11 54	+ 4	e 21 35	+ 3	c 14 33	PP	—
Budapest	76.0	333	11 53	+ 2	21 36	+ 2	—	—	43.3
Pennsylvania	76.0	41	i 11 53	+ 2	e 21 36	+ 2	i 12 1	PcP	—
Morgantown	76.1	44	i 11 54	+ 3	—	—	—	—	—
Kew	76.4	347	e 11 52	- 1	e 21 36	- 2	—	—	e 42.3
Bucharest	76.5	328	e 11 57	+ 3	e 21 36	- 3	e 21 41	?	—
Kodaikanal	E. 76.7	271	e 12 7	+12	c 22 1	+20	—	—	—
Kalossa	N. 76.9	333	e 11 58	+ 2	c 12 7	PcP	e 12 22	?	—
Timisoara	76.9	331	i 12 1	+ 5	c 21 48	+ 5	e 22 10	PS	e 42.3
Harvard	77.0	36	i 11 51 _a	- 5	—	—	—	—	—
Karlsruhe	Z. 77.2	341	e 11 58	+ 1	—	—	—	—	—
Weston	77.2	36	i 11 54 _a	- 3	e 21 49	+ 2	i 15 53	PP	—
Stuttgart	77.3	340	e 11 49	- 9	e 21 27	-21	i 11 59	P	e 42.3
Palisades	77.4	38	i 11 53	- 5	i 21 48	- 1	—	—	—
City College, N.Y.	77.6	38	i 12 1	+ 1	e 21 52	+ 1	—	—	—
Colombo	E. 77.8	266	12 6	+ 5	—	—	—	—	45.6
Strasbourg	77.8	341	i 12 1	0	e 21 53	0	i 12 11	PcP	e 38.3
Halifax	77.9	30	i 11 56 _a	- 5	—	—	—	—	—
Washington	77.9	42	i 12 4	+ 3	—	—	—	—	—
Belgrade	78.0	331	e 12 2	0	e 21 58	+ 3	—	—	e 47.9
Brisbane	78.3	186	e 12 7	+ 4	e 22 0	+ 1	—	—	—
Istanbul	Z. 78.4	324	e 12 4	0	—	—	—	—	—
Paris	78.5	345	i 12 7	+ 3	22 3	+ 2	i 12 15	PcP	e 41.3
Zürich	Z. 78.7	341	e 11 57	- 9	—	—	e 12 6	PcP	—
Basle	Z. 78.8	341	e 12 8	+ 2	—	—	—	—	—
Chur	79.0	340	e 11 59 _k	- 8	—	—	e 12 8	PcP	—
Sofia	79.0	329	e 13 7	+60	—	—	—	—	—
Triest	79.1	336	i 12 6 _a	- 2	i 21 7	-60	e 21 34	?	45.0
Besançon	79.4	342	i 12 9	0	i 12 34	?	i 12 19	PcP	—
Mobile	79.5	54	e 12 15	+ 5	—	—	—	—	—
Oropa	80.5	341	i 13 15	+60	22 15	- 7	—	—	—
Pavia	80.7	339	e 12 18	+ 2	c 22 29	+ 5	e 33 6	?	—
Bologna	80.8	338	e 12 20	+ 3	c 22 30	+ 5	e 12 28	PcP	—
Clermont-Ferrand	81.4	343	e 12 22	+ 2	i 22 35	+ 4	i 12 31	PcP	45.3
Prato	81.4	337	i 12 28	+ 8	i 22 35	+ 4	—	—	—
Florence	81.5	337	i 12 21 _a	0	i 22 30	- 2	—	—	—
Ksara	81.8	316	i 12 24	+ 2	22 53	+18	—	—	—
Siena	81.9	337	12 17	- 6	—	—	—	—	—
Taranto	82.9	332	—	—	22 47	+ 1	—	—	30.3

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Rome	83.0	336	i 12 30	+ 2	i 22 50	+ 3	27 58	SS e 43.3
Athens	83.1	326	i 12 28 _a	- 1	i 22 44	- 4	e 12 36	PcP
Riverview	84.7	187	i 12 47 _k	+10	i 23 2	- 2	i 23 8	ScS e 35.0
Messina	85.5	332	i 12 40 _a	- 1	e 23 13	+ 1	e 15 11	? e 44.8
Tortosa	86.6	344	e 13 24	+38	i 23 32	+ 9	—	—
Helwan	87.2	317	i 12 49 _a	0	23 29	+ 1	23 15	SKS
Toledo	88.3	347	i 12 57	+ 2	—	—	—	—
Bermuda	88.5	36	—	—	i 23 46	+ 5	—	e 46.4
Alicante	89.2	345	e 12 53	- 6	i 23 33	[+ 5]	—	44.7
Algiers Univ.	z. 90.0	341	e 13 2	- 1	e 15 2	?	e 13 11	PcP
Granada	90.8	347	i 13 16 _a	+10	i 24 21	+19	—	—
Almeria	91.0	346	13 18	+11	23 20	[-19]	30 14	SS 52.4
Malaga	91.4	347	e 13 7	- 2	23 45	[+ 4]	16 49	PP 41.2
San Juan	100.4	44	i 12 53	-57	—	—	e 17 59	PP
Tamanrasset	z. 102.9	335	i 17 31	?	e 23 47	[-54]	e 18 20	PP
Pretoria	z. 135.0	285	e 19 33	[+12]	—	—	e 21 50	PP
Kimberley	z. 139.2	285	e 19 22	[- 7]	—	—	e 22 15	PP

Nov. 5d. 5h. 57m. 44s. Epicentre 49°·3N. 156°·8E.

A = -·6017, B = +·2579, C = +·7559; $\delta = -6$; $h = -5$;
D = +·394, E = +·919; G = -·695, H = +·298; K = -·655.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kusiro	10.7	238	e 2 33	- 5	—	—	e 3 26	? e 6.1
Wakkanai	E. 11.0	255	e 2 48	+ 6	e 4 58	+11	—	—
Sapporo	12.4	246	e 3 1 _a	0	e 5 37	+16	e 3 10	PP e 7.5
Aomori	14.1	239	3 18	- 5	i 7 3	+61	i 3 59	PP 8.0
Mizusawa	15.1	234	3 33	- 3	6 16	- 9	—	—
Akita	15.3	237	3 34	- 5	e 6 26	- 4	e 5 23	? e 7.9
Sendai	15.9	232	e 3 46	- 1	e 6 38	- 6	i 3 50	P e 8.4
Hokusima	16.5	232	e 3 52	- 2	e 7 12	+14	—	—
Aikawa	17.5	237	e 4 3	- 4	e 7 21	0	—	10.4
Utunomiya	17.7	232	e 4 6	- 4	e 7 30	+ 4	—	8.9
Tokyo	18.5	229	e 4 23	+ 4	e 7 15	?	e 6 49	? e 10.4
Matusiro	18.6	235	e 4 21	0	e 7 56	+10	e 8 3	? e 9.8
Wazima	18.7	238	e 4 20	- 2	e 7 48	0	—	—
Matumoto	N. 19.0	237	e 4 24	- 2	e 8 2	+ 7	—	—
Hunatu	19.2	231	e 4 28	0	e 8 0	+ 1	—	—
Gihu	20.2	233	e 4 40	+ 1	e 8 27	+ 6	—	—
Nagoya	20.3	233	e 4 40	0	e 8 27	+ 4	—	—
Kameyama	20.8	233	4 46	+ 1	8 38	+ 5	e 9 40	Q e 11.7
Osaka	21.4	234	e 4 54	+ 3	e 9 10	+25	e 5 35	PP
Owase	21.5	233	e 4 53	+ 1	e 8 57	+10	—	—
Hirosima	23.4	239	e 5 11	0	e 9 23	+ 2	—	— e 12.3
Koti	23.4	236	e 5 10	- 1	e 9 23	+ 2	—	—
Hukuoka	25.1	241	5 31	+ 3	e 9 47	- 4	—	— e 13.0
Miyazaki	25.8	237	e 5 42	+ 8	e 10 22	+20	—	—
College	32.6	40	i 6 34	- 1	i 11 55	+ 4	e 7 30	PP e 13.3
Sitka	39.8	51	i 7 47	+11	—	—	—	—
Hong Kong	43.0	247	8 3	0	14 31	+ 2	—	— 21.3
Manila	45.3	233	i 8 10 _k	-11	i 14 43	-19	—	—
Resolute Bay	47.6	20	i 8 41 _a	+ 2	i 15 34	- 1	i 18 39	ScS
Victoria	50.1	58	9 3	+ 4	—	—	—	—
Seattle	z. 51.2	58	9 13	+ 6	—	—	—	—
Shillong	E. 54.9	270	i 9 35	0	e 17 6	-10	10 22	PcP
Shasta	55.2	66	e 9 31 _k	- 6	e 19 18	ScS	—	—
Hungry Horse	55.3	54	i 9 37	- 1	—	—	i 9 43	? e 29.3
Berkeley	z. 57.1	68	e 9 54 _k	+ 4	e 19 32	ScS	i 10 5	? e 29.3
Chatra	57.1	273	e 9 46	- 4	e 17 50	+ 5	—	—
Reno	z. 57.5	65	e 9 54	+ 1	i 19 36	ScS	—	—
Lick	z. 57.8	68	e 9 51	- 4	e 19 38	ScS	—	—
Kiruna	z. 58.7	342	19 56	- 6	i 10 9	?	i 11 3	PcP e 29.3
Calcutta	E. 59.3	269	i 10 4	- 2	i 18 9	- 5	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Fresno	z.	59.3	67	e 9 57	- 9	—	—	—	—
Tinemaha		60.0	66	i 10 7	- 4	—	—	i 10 17	?
Scoresby Sund		60.5	359	i 10 14	0	e 18 33	+ 4	—	—
China Lake	z.	61.2	66	e 10 14	- 5	—	—	i 10 24	?
Pasadena		62.0	68	e 10 22	- 2	e 39 31	P'P'	i 10 34	?
New Delhi		62.4	283	e 10 24	- 3	e 18 46	- 7	19 11	PS
Riverside		62.6	68	e 10 30	+ 2	—	—	—	—
Boulder City		62.8	65	e 10 29	- 1	—	—	—	—
Nelson		63.0	65	e 10 26	- 5	10 34	P	i 10 31	P
Upsala		66.3	339	i 10 53 _a	+ 1	e 19 30	-12	e 24 3	SS
Reykjavik	z.	66.9	359	e 10 55	- 1	—	—	—	—
Quetta		67.6	291	e 10 56	- 5	e 19 47	-10	—	—
Tucson		67.8	66	e 11 1	- 1	—	—	i 11 7	pP
Hyderabad		69.4	273	i 11 14	+ 2	i 20 14	- 4	—	—
Lincoln		69.5	50	—	—	c 20 23	+ 3	—	—
Djakarta		70.3	234	11 22	+ 5	i 20 32	+ 3	—	—
Bandong		70.4	232	e 11 21	+ 3	e 20 49	+19	—	—
Copenhagen		71.2	340	i 11 26	+ 3	20 36	- 4	—	—
Kirkland Lake	z.	71.2	36	i 11 25 _a	+ 2	—	—	—	—
Madras	E.	71.5	269	—	—	i 20 42	- 1	—	—
Poona		71.6	277	e 11 21	- 4	e 20 42	- 2	e 14 49	PP
Bombay		72.0	278	e 11 31	+ 3	e 20 51	+ 2	21 8	PS
Aberdeen		72.5	348	—	—	i 20 56	+ 2	e 28 41	SSS
Chicago		73.1	44	e 16 21	PPP	—	—	—	—
Potsdam		74.1	338	e 11 42	+ 2	c 21 16	+ 4	i 11 50	PcP
Fayetteville	z.	74.3	53	i 11 36	- 5	—	—	—	—
Raciborz		74.8	334	e 11 45	+ 1	e 14 44	PP	e 12 0	PcP
Skalnate Pleso		75.0	332	e 11 46	+ 1	—	—	—	—
Collnberg		75.1	337	e 11 42	- 4	e 21 16	- 8	e 25 46	SS
Ottawa		75.2	35	i 11 46 _k	0	21 26	+ 1	30 19	SSS
Witteveen	z.	75.2	342	i 11 46	0	—	—	—	—
Shawinigan Falls	N.	75.3	32	e 11 49	+ 2	—	—	—	—
Kodaikanal	E.	75.4	269	i 11 48	+ 1	i 21 24	- 3	—	—
Jena		75.8	337	e 11 49	- 1	e 21 37	+ 6	e 14 43	PP
Prague		75.9	336	i 11 50	0	e 21 28	- 4	e 14 52	PP
Buffalo (Larkin)		76.0	38	e 11 49	- 2	—	—	—	—
De Bilt		76.1	342	e 11 51	0	e 21 28	- 7	—	—
Cleveland	z.	76.1	41	i 11 54 _k	+ 3	—	—	i 12 6	pP
Colombo	E.	76.3	265	11 55	+ 3	21 33	- 4	—	—
Cheb	N.	76.4	337	e 11 46	- 7	e 21 34	- 4	—	—
Brisbane		76.5	183	e 11 53	- 1	i 21 41	+ 2	i 12 3	PcP
Ogyalla		76.8	333	e 11 59	+ 4	e 21 43	+ 1	e 22 33	PS
Rathfarnham Castle		76.8	350	i 11 54 _a	- 1	e 21 28	-14	—	—
Budapest		76.9	332	11 49	- 7	e 21 30	-13	11 57	PcP
Pittsburgh	z.	77.6	40	i 12 3	+ 3	—	—	—	—
Kew		77.7	345	i 12 1	+ 1	e 21 55	+ 3	e 14 59	PP
Timisoara		77.7	329	e 12 4	+ 4	e 21 45	- 7	—	—
Kalossa		77.8	332	12 4	+ 3	e 22 42	PS	—	—
Pennsylvania		78.2	39	i 12 7	+ 4	i 22 1	+ 4	i 22 46	ScS
Morgantown		78.3	41	i 12 8	+ 5	—	—	—	—
Karlsruhe	z.	78.4	339	e 12 3	- 1	—	—	—	—
Stuttgart		78.4	338	e 12 1	- 3	e 21 54	- 6	i 12 4	P
Belgrade		78.8	329	e 12 6	0	e 22 2	- 2	—	—
Strasbourg		78.9	339	i 12 8	+ 1	e 22 8	+ 3	i 12 18	PcP
Istanbul	z.	79.0	322	e 12 6	- 1	—	—	—	—
Harvard		79.2	34	i 12 10 _a	+ 2	—	—	—	—
Weston		79.4	34	i 12 12 _a	+ 3	e 22 16	+ 6	i 12 25	PcP
Palisades		79.6	36	i 12 13	+ 3	e 22 12	0	—	—
Sofia		79.7	327	e 12 14	+ 3	—	—	—	—
City College, N.Y.		79.8	36	i 12 14	+ 2	e 22 12	- 2	—	—
Paris		79.8	343	i 12 13	+ 1	i 22 5	- 9	i 15 15	PP
Basle	z.	79.9	339	e 12 10	- 2	—	—	—	—
Zürich		79.9	339	e 12 12	0	e 22 18	+ 2	—	—
Halifax		80.0	28	i 12 16 _k	+ 3	—	—	—	—
Chur		80.1	338	e 12 15	+ 2	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Triest		80.1	335	i 12 12 _a	- 1	e 22 18	0	e 15 28	PP	—
Washington		80.1	39	i 12 16	+ 3	—	—	i 12 30	PcP	—
Besançon		80.6	340	i 12 16	0	i 13 12	?	i 12 23	PcP	—
Oropa		81.6	338	i 12 22	+ 1	22 32	- 1	—	—	—
Mobile		81.7	52	i 12 7	-15	—	—	e 12 26	PcP	—
Bologna	z.	81.8	336	e 12 22	0	—	—	—	—	—
Pavia		81.8	337	e 12 24	+ 2	22 37	+ 2	15 41	PP	—
Ksara		82.0	314	i 12 25	+ 2	22 58	+21	—	—	—
Florence		82.5	335	i 12 21 _k	- 5	i 22 37	- 5	i 12 27	PcP	—
Prato		82.5	335	e 12 32	+ 6	i 22 46	+ 4	—	—	—
Clermont-Ferrand		82.6	342	e 12 24	- 2	i 22 44	+ 1	e 22 54	SKS	38.3
Riverview		82.9	185	i 12 32 _k	+ 4	e 22 49	+ 3	i 12 47	pP	e 38.9
Siena		82.9	335	12 27	- 1	—	—	—	—	—
Athens		83.7	324	e 12 28 _a	- 4	—	—	i 12 36	PcP	—
Taranto		83.8	330	12 26	- 6	22 36	-19	—	—	e 42.4
Rome		83.9	334	i 12 37	+ 4	23 3	+ 7	e 28 47	SS	e 32.8
Messina		86.4	330	i 12 44 _a	- 1	e 23 4	[- 6]	i 16 8	PP	43.8
Auckland	N.	87.3	165	—	—	e 23 21	- 8	e 29 30	SS	e 42.3
Helwan		87.4	315	e 12 51	+ 1	23 28	- 2	23 16	SKS	—
Melbourne	E.	87.4	189	—	—	e 23 30	0	—	—	e 36.0
Tortosa		87.9	342	e 12 56	+ 3	e 23 1	[-19]	—	—	—
Toledo		89.6	345	i 13 2	+ 1	—	—	—	—	—
Alicante		90.4	342	e 13 0	- 4	i 23 42	[+ 7]	—	—	45.8
Bermuda		90.7	34	—	—	i 24 16	+15	—	—	e 45.2
Algiers Univ.	z.	91.2	339	e 13 9	+ 1	e 24 12	+ 7	e 16 35	PP	56.3
Wellington		91.6	166	—	—	e 23 41	[- 1]	e 29 34	SS	e 43.3
Granada		92.2	344	e 13 21 _a	+ 8	—	—	—	—	47.7
Malaga		92.7	344	e 13 13	- 2	23 55	[+ 7]	e 17 1	PP	37.9
Christchurch		93.5	168	—	—	e 25 49	PS	e 38 46?	Q	e 45.3
San Juan		102.6	41	e 14 0	0	—	—	e 17 58	PKP	—
Tamanrasset	z.	103.8	332	e 14 7	+ 2	e 24 55	[+10]	e 18 26	PP	—
Galerazamba		104.8	53	(19 16)	PP	—	—	—	—	19.3
Fort de France		108.0	38	e 18 50	PP	e 28 26	PS	e 34 16	SS	—
Bogota		110.6	55	e 19 34	PP	e 30 16	?	—	—	—
Huancayo		123.3	67	i 14 48	P	—	—	—	—	—
La Paz		131.1	63	i 19 22	[+ 8]	i 28 38	{+11}	i 21 34	PP	63.1
Pretoria	z.	134.0	281	i 19 23	[+ 3]	—	—	i 19 34	?	—
Pietermaritzburg	z.	135.2	275	e 19 40	[+18]	—	—	—	—	—
Kimberley	z.	138.3	280	i 19 28	[+ 1]	—	—	i 19 43	?	—
Grahamstown	z.	140.1	274	e 19 29	[- 2]	—	—	e 22 29	PP	—
La Plata		150.8	73	—	—	31 22	{+59}	43 40	SS	75.0

Nov. 5d. 9h. 30m. 8s. Epicentre 52°·6N, 160°·3E. (as on 4d. 21h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Mizusawa	E.	18.9	233	5 1	+37	8 36	+43	—	—	—
Resolute Bay		43.7	22	e 8 6	- 2	e 18 15	SSS	—	—	e 32.2
Victoria		46.5	63	8 29	- 2	—	—	—	—	—
Shasta	z.	51.9	70	e 9 12	0	—	—	i 9 24	pP	—
Berkeley	z.	53.9	73	e 9 26 _a	- 1	—	—	e 9 38	pP	—
Reno	z.	54.2	69	i 10 28 _a	+59	—	—	—	—	—
Lick	z.	54.6	73	i 9 33 _a	+ 1	—	—	—	—	—
Fresno	z.	56.1	72	e 9 42	- 1	—	—	e 9 54	pP	—
Kiruna		56.2	344	i 9 44	0	i 10 18	?	i 10 3	?	e 29.4
Tinemaha		56.8	71	i 9 48	0	—	—	i 9 59	pP	—
China Lake		58.0	71	i 9 55	- 2	—	—	i 10 6	pP	—
Pasadena	z.	58.8	73	i 10 2 _k	0	—	—	i 10 13	pP	—
Riverside	z.	59.4	73	e 10 5	- 1	—	—	e 10 16	pP	—
Upsala		63.9	340	i 10 39	+ 2	e 19 7	- 5	i 10 45	pP	e 31.9
Quetta	z.	68.5	292	i 11 13	+ 7	—	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Fayetteville	z.	70.6	56	i 11 17	- 2	—	—	—	—
Ottawa		71.2	38	e 11 14	- 9	—	—	i 11 20	pP
Potsdam	z.	71.8	340	e 11 29	+ 3	—	—	—	—
Raciborzu		72.8	336	e 11 22	-10	e 12 50	?	e 11 37	?
Collmberg	z.	72.9	339	e 11 35	+ 2	—	—	—	—
Poona	z.	73.4	279	i 11 44	+ 8	—	—	—	—
Jena	z.	73.5	340	i 11 39	+ 3	—	—	—	—
Weston		75.4	37	i 11 46k	- 1	—	—	—	—
Stuttgart		76.1	341	e 11 53	+ 2	—	—	—	—
Strasbourg		76.5	342	e 11 58	+ 4	—	—	e 12 21	PcP
Belgrade		77.0	332	e 11 0	-56	—	—	e 11 14	?
Paris		77.2	345	i 12 0	+ 3	—	—	—	—
Basle		77.5	342	e 12 0	+ 1	—	—	—	—
Kodaikanal	E.	77.6	271	e 19 21	?	—	—	—	—
Chur		77.8	341	e 12 5k	+ 4	—	—	—	—
Besançon		78.1	342	e 12 5	+ 3	—	—	e 12 24	PcP
Florence	z.	80.4	338	e 12 16	+ 1	e 22 22	+ 1	—	—
Ksara		81.3	316	i 12 26	+ 6	—	—	—	—
Rome		81.8	336	e 12 27	+ 5	e 23 21	PS	—	—
Taranto		81.9	333	e 11 44	?	e 23 14	PS	—	—
Messina	E.	84.5	333	e 18 27	?	—	—	—	—
Helwan	z.	86.6	318	12 52	+ 6	—	—	i 13 4	?
Tamanrasset	z.	101.8	336	e 13 53	- 3	e 17 58	PP	e 17 47	?
Kimberley	z.	139.6	289	e 19 35	[+ 5]	—	—	—	—

Nov. 5d. 11h. 34m. 22s. Epicentre 49°·3N. 156°·8E. (as at 5h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	E.	15.1	234	4 38	+62	7 7	+42	—	—
College		32.6	40	i 6 26	- 9	—	—	—	e 11.4
Resolute Bay		47.6	20	i 8 32k	- 7	e 13 38	?	—	—
Victoria		50.1	58	8 54	- 5	—	—	—	—
Seattle	z.	51.2	58	i 9 5	- 2	—	—	—	—
Corvallis	z.	52.3	63	e 9 13	- 2	—	—	—	—
Shasta	z.	55.2	66	i 9 35k	- 2	—	—	—	—
Hungry Horse		55.3	54	i 9 33	- 5	—	—	—	—
Mineral		55.9	66	e 9 40	- 2	—	—	—	—
Berkeley	z.	57.1	68	e 9 48k	- 2	e 10 0	?	i 10 23	?
Butte		57.5	55	i 9 49	- 4	—	—	—	—
Reno	z.	57.5	65	i 9 52k	- 1	—	—	—	—
Lick	z.	57.8	68	i 9 54k	- 1	—	—	e 11 58	PP
Kiruna		58.7	342	i 10 1a	- 1	i 10 11	?	i 10 22	?
Fresno	z.	59.3	67	e 10 4k	- 2	—	—	e 10 16	?
Tinemaha	z.	60.0	66	i 10 10	- 1	—	—	—	—
Scoresby Sund		60.5	359	e 10 11	- 3	—	—	—	—
China Lake	z.	61.2	66	i 10 18k	- 1	—	—	e 10 30	?
Pasadena	z.	62.0	68	i 10 24k	0	—	—	i 10 37	?
Riverside	z.	62.6	68	e 10 26	- 2	—	—	—	—
Boulder City		62.8	65	i 10 29	- 1	—	—	—	—
Nelson		63.0	65	i 10 29	- 2	—	—	—	—
Upsala	z.	66.3	339	i 10 53a	+ 1	i 11 16	?	i 11 33	PcP
Tucson		67.8	66	i 11 2	0	—	—	—	—
Djakarta		70.3	234	e 4 44	?	i 21 12	PS	—	—
Copenhagen		71.2	340	e 11 26	+ 3	—	—	—	—
Kirkland Lake	z.	71.2	36	e 11 18	- 5	—	—	—	—
Fayetteville	z.	74.3	53	i 11 40	- 1	—	—	—	—
Skalnate Pleso		75.0	332	e 11 16	?	—	—	e 10 8	?
Collmberg	z.	75.1	337	e 11 48	+ 2	—	—	—	—
Ottawa		75.2	35	i 11 42a	- 4	—	—	14 24	PP
Witteveen	z.	75.2	342	i 11 49	+ 3	—	—	—	—
Shawinigan Falls	N.	75.3	32	i 11 52	+ 5	—	—	—	—
Jena	z.	75.8	337	e 11 52	+ 2	—	—	—	—
Prague		75.9	336	e 11 52	+ 2	—	—	e 13 14	?

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Cleveland	z.	76.1	41	i 11 49 ^a	- 2	—	—	i 11 57	pP	—
Brisbane	z.	76.5	183	e 12 17	PcP	i 12 20	?	i 12 31	?	—
Pennsylvania	z.	78.2	39	i 12 2	- 1	—	—	i 12 14	PcP	—
Morgantown		78.3	41	i 12 1	- 2	—	—	—	—	—
Stuttgart		78.4	338	e 12 7	+ 3	—	—	—	—	—
Strasbourg		78.9	339	i 12 11	+ 4	—	—	—	—	—
Istanbul	z.	79.0	322	e 12 14	+ 7	—	—	—	—	—
Harvard		79.2	34	i 12 6 ^k	- 2	—	—	—	—	—
Weston		79.4	34	i 12 8 ^a	- 1	—	—	i 12 22	PcP	—
Pallsades		79.6	36	i 12 8	- 2	e 21 59	-13	—	—	—
City College, N.Y.		79.8	36	i 12 11	- 1	—	—	—	—	—
Paris		79.8	343	i 12 14	+ 2	—	—	i 12 20	PcP	—
Basle		79.9	339	e 12 16	+ 4	—	—	—	—	—
Zürich		79.9	339	e 12 16	+ 4	—	—	—	—	—
Halifax		80.0	28	i 12 11	- 2	—	—	—	—	—
Chur		80.1	338	e 12 18 ^k	+ 5	—	—	—	—	—
Washington		80.1	39	i 12 12	- 1	—	—	—	—	—
Besançon		80.6	340	i 12 20	+ 4	e 12 37	?	i 12 45	?	—
Mobile		81.7	52	e 12 22	0	—	—	—	—	—
Ksara		82.0	314	i 12 38	+15	—	—	—	—	—
Clermont-Ferrand		82.6	342	i 12 31	+ 5	—	—	—	—	—
Tacubaya		84.3	67	e 12 44	+ 9	—	—	—	—	—
Helwan	z.	87.4	315	i 13 4	+14	—	—	e 14 42	?	—
Tamanrasset	z.	103.8	332	e 14 12	+ 7	—	—	—	—	—
Pretoria	z.	134.0	281	i 19 37	[+11]	—	—	—	—	—
Kimberley	z.	138.3	280	e 19 32	[+ 5]	—	—	—	—	—

Nov. 5d. 11h. 46m. 28s. Epicentre 49°·3N. 156°·8E. (as at 11h. 34m.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Mizusawa		15.1	234	4 8	+32	6 31	+ 6	6 7	?	—
College		32.6	40	6 34	- 1	—	—	—	—	—
Manila		45.3	233	i 8 16	- 5	i 14 52	-10	—	—	—
Resolute Bay		47.6	20	i 8 39 ^k	0	i 15 30	- 5	e 10 22	PP	e 25.8
Victoria		50.1	58	8 58	- 1	—	—	—	—	—
Corvallis	z.	52.3	63	e 9 16	+ 1	—	—	—	—	—
Shasta	z.	55.2	66	e 10 25 ^k	+48	—	—	—	—	—
Hungry Horse		55.3	54	i 9 37	- 1	—	—	—	—	—
Mineral		55.9	66	c 9 44	+ 2	—	—	—	—	—
Berkeley	z.	57.1	68	e 9 50 ^k	0	—	—	e 10 44	PcP	—
Reno	z.	57.5	65	e 9 54 ^k	+ 1	—	—	—	—	—
Lick	z.	57.8	68	e 9 55 ^k	0	—	—	—	—	—
Kiruna		58.7	342	i 9 59 ^a	- 3	—	—	i 10 16	?	e 29.5
Calcutta	E.	59.3	269	e 10 10	+ 4	e 18 21 [?]	+ 7	—	—	—
Fresno	z.	59.3	67	e 10 6	0	—	—	—	—	—
Tinemaha		60.0	66	i 10 11	0	—	—	—	—	—
Scoresby Sund		60.5	359	i 10 13	- 1	—	—	—	—	31.5
China Lake	z.	61.2	66	i 10 19	0	—	—	—	—	—
Pasadena		62.0	68	i 10 24	0	—	—	—	—	—
Riverside	z.	62.6	68	i 10 28	0	—	—	—	—	—
Boulder City		62.8	65	e 10 29	- 1	—	—	—	—	—
Nelson		63.0	65	i 10 30	- 1	—	—	—	—	—
Upsala		66.3	339	i 10 50	- 2	e 29 6	Q	i 10 58	?	e 36.5
Quetta	z.	67.6	291	i 10 56	- 5	—	—	—	—	—
Tucson		67.8	66	e 11 2	0	—	—	—	—	—
Djakarta		70.3	234	i 11 23	+ 6	e 20 20	- 9	—	—	—
Kirkland Lake	z.	71.2	36	e 11 24	+ 1	—	—	—	—	—
Poona	z.	71.6	277	i 11 27	+ 2	—	—	—	—	—
Bombay		72.0	278	i 11 32	+ 4	—	—	—	—	—
Potsdam	z.	74.1	338	e 11 40	0	—	—	—	—	—

Continued on next page.

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1952		997											
		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Fayetteville	z.	74.3	53	i 11	40k	- 1	—	—	—	i 11	56	PcP	—
Iasi		74.3	328	e 11	40	- 1	—	—	—	—	—	—	—
Raciborzu		74.8	334	e 11	44	0	—	—	—	e 12	6	PcP	—
Collnberg		75.1	337	e 11	45	- 1	—	—	—	—	—	—	—
Ottawa		75.2	35	i 11	44k	- 2	—	—	—	—	—	—	—
Witteveen	z.	75.2	342	i 11	48	+ 2	—	—	—	—	—	—	—
Shawinigan Falls	N.	75.3	32	e 11	46	- 1	—	—	—	—	—	—	—
Kodaikanal	E.	75.4	269	c 7	43	?	—	—	—	—	—	—	—
Jena	z.	75.8	337	i 11	49	- 1	—	—	—	—	—	—	—
Prague		75.9	336	e 11	50	0	e 14	5	PP	e 12	17	PcP	—
Buffalo (Larkin)		76.0	38	i 11	51	0	—	—	—	—	—	—	—
Cleveland	z.	76.1	41	i 11	51a	0	—	—	—	i 12	3	PcP	—
Colombo	E.	76.3	256	—	—	—	e 21	41	+ 4	—	—	—	—
Brisbane		76.5	183	i 11	58	+ 4	i 21	46	+ 7	i 12	10	PcP	—
Rathfarnham C.	z.	76.8	350	i 11	55a	0	—	—	—	—	—	—	—
Budapest		76.9	332	11	56	0	21	44	+ 1	12	9	PcP	35.5
Bucharest		77.2	326	e 12	0	+ 3	c 22	8	+21	—	—	—	—
Kew		77.7	345	i 12	0	0	—	—	—	—	—	—	e 41.5
Pennsylvania	z.	78.2	39	i 12	4	+ 1	—	—	—	—	—	—	—
Morgantown		78.3	41	i 12	4	+ 1	—	—	—	—	—	—	—
Karlsruhe	z.	78.4	339	12	4	0	—	—	—	—	—	—	—
Stuttgart		78.4	338	i 12	4	0	—	—	—	—	—	—	—
Belgrade		78.8	329	e 12	10a	+ 4	e 22	40	PS	—	—	—	e 38.5
Istanbul	z.	79.0	322	e 12	7	0	—	—	—	—	—	—	—
Harvard		79.2	34	i 12	9a	+ 1	—	—	—	—	—	—	—
Weston		79.4	34	i 12	10a	+ 1	—	—	—	i 12	25	PcP	—
Sofia		79.7	327	e 11	49	-22	—	—	—	—	—	—	—
City College, N.Y.		79.8	36	i 12	11	- 1	—	—	—	—	—	—	—
Fordham		79.8	36	12	11	- 1	—	—	—	—	—	—	—
Paris		79.8	343	e 12	10	- 2	—	—	—	i 12	24	PcP	—
Basle		79.9	339	e 12	12	0	—	—	—	—	—	—	—
Zürich		79.9	339	e 12	11	- 1	—	—	—	—	—	—	—
Halifax		80.0	28	i 12	13a	0	—	—	—	—	—	—	—
Chur		80.1	338	e 12	14k	+ 1	—	—	—	—	—	—	—
Washington		80.1	39	i 12	14	+ 1	—	—	—	—	—	—	—
Besançon		80.6	340	i 12	16	0	e 13	5	?	i 12	26	PcP	—
Neuchatel	z.	80.6	339	e 12	16	0	—	—	—	—	—	—	—
Oropa		81.6	338	e 12	18	- 3	e 22	35	+ 2	28	16	SS	—
Mobile		81.7	52	e 12	24	+ 2	—	—	—	—	—	—	—
Bologna		81.8	336	e 12	25	+ 3	—	—	—	—	—	—	—
Pavia		81.8	337	—	—	—	e 23	3	PS	—	—	—	—
Ksara		82.0	314	i 12	26	+ 3	—	—	—	—	—	—	—
Florence		82.5	335	e 12	26	0	e 23	2	+20	—	—	—	—
Prato		82.5	335	e 12	28	+ 2	e 22	32?	-10	—	—	—	—
Clermont-Ferrand		82.6	342	i 12	28	+ 2	—	—	—	—	—	—	—
Riverview		82.9	185	e 12	40	+12	e 22	58	+12	—	—	—	—
Siena		82.9	335	12	28	0	—	—	—	—	—	—	—
Rome		83.9	334	e 12	33	0	e 23	3	+ 7	28	22	SS	—
Messina		86.4	330	i 12	45a	0	e 23	14	[+ 4]	16	5	PP	—
Helwan		87.4	315	i 12	52k	+ 2	e 23	23	- 7	i 13	1	PcP	—
Toledo		89.6	345	i 13	2	+ 1	e 23	28	[- 2]	—	—	—	—
Alicante		90.4	342	13	8	+ 4	e 23	48	{+ 3}	—	—	—	47.9
Algiers Univ.	z.	91.2	339	i 18	16	PKP	—	—	—	—	—	—	—
Granada		92.2	344	e 13	13k	0	—	—	—	—	—	—	54.0
Almeria		92.3	343	13	12	- 1	—	—	—	—	—	—	53.4
San Juan		102.6	41	c 18	4	PP	—	—	—	—	—	—	—
Tamanrasset	z.	103.8	332	e 14	5	0	—	—	—	e 17	22	?	—
La Paz		131.1	63	e 19	18	[+ 4]	c 37	56	SS	i 21	35	PP	51.7
Pretoria	z.	134.0	281	e 19	23	[+ 3]	—	—	—	—	—	—	—
Kimberley	z.	138.3	280	c 19	20	[- 7]	—	—	—	—	—	—	—

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1952

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Nov. 5d. 13h. 6m. 24s. Epicentre 52°·6N. 160°·3E. (as at 9h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Magadan		8·7	326	i 2 16	+ 6	—	—	—	—
Uglegorsk		12·0	260	2 56	+ 1	—	—	—	—
Yuzno-Sakhlinsk		12·7	250	3 1	- 4	—	—	—	—
Abasiri		13·7	237	e 3 19	+ 1	—	—	—	—
Wakkanai	E.	14·1	247	c 3 24	+ 1	—	—	—	6·5
Urakawa		15·8	235	e 3 50	+ 5	e 6 58	+16	—	e 9·1
Sapporo		15·9	241	e 3 42	- 5	e 6 52	+ 8	e 3 50	e 7·4
Miyako		18·1	232	4 10	- 4	7 32	- 3	—	8·6
Mizusawa		18·9	233	4 20	- 4	e 7 53	0	7 58	—
Sendai		19·7	231	c 4 28	- 6	e 8 4	- 6	e 5 34	e 9·2
Hokusima		20·3	232	e 4 35	- 5	e 8 15	- 8	—	e 11·4
Aikawa		21·2	235	4 44	- 5	8 40	- 1	—	11·1
Vladivostok		21·2	255	i 4 42	- 7	—	—	—	—
Utunomiya		21·6	232	c 4 47	- 7	e 8 42	- 7	—	11·3
Nagano	N.	22·3	233	e 4 50	-11	e 9 1	- 1	—	e 13·3
Tokyo		22·3	229	e 4 49	-12	e 8 51?	-11	e 5 49	e 11·1
Wazima		22·3	237	e 4 57	- 4	e 9 0	- 2	—	e 11·8
Matumoto	N.	22·7	234	5 3	- 1	e 9 7	- 2	—	e 12·4
Hunatu		22·9	230	e 5 6	0	e 9 11	- 2	—	—
Osima		23·2	229	e 5 6	- 3	e 9 18	0	e 5 16	e 13·2
Shizuoka		23·5	231	5 12	0	9 23	0	5 21	pP
Gihu		24·0	232	5 12	- 5	e 9 30	- 2	—	—
Nagoya		24·0	233	5 16	- 1	e 9 36	+ 4	—	—
Tsuruga		24·1	234	5 14	- 4	e 9 30	- 4	—	—
Kyoto		24·8	235	e 5 22	- 3	c 9 41	- 5	—	—
Osaka		25·2	235	e 5 31	+ 2	e 10 8	+16	e 6 9	PP
Owase		25·3	232	e 5 26	- 4	e 9 50	- 4	—	—
Takamatu	N.	26·2	236	e 5 34	- 4	e 10 2	- 7	—	—
Hirosima		27·0	238	e 5 42	- 3	e 10 22	0	—	e 12·5
Muroto		27·0	235	e 5 58	+13	e 10 26	+ 4	e 6 46	PP e 14·7
Simonoseki		28·1	240	e 5 50	- 5	e 10 32	- 8	—	—
Hukuoka		28·6	241	e 6 4	+ 4	e 10 43	- 5	—	13·8
College		28·7	44	i 6 2	+ 1	i 11 0	+10	i 7 37	e 11·8
Miyazaki		29·4	237	e 6 14	+ 7	—	—	—	16·0
Kabansk		32·2	291	6 30	- 2	e 11 40	- 5	—	—
Kyakhta		33·0	289	6 36	- 3	—	—	—	—
Irkutsk		33·4	293	6 41	- 1	e 11 56?	- 7	—	—
Sitka		36·1	56	i 7 0	- 5	—	—	—	—
Resolute Bay		43·7	22	i 8 12	+ 4	i 14 44	+ 5	i 9 54	PP e 19·6
Hong Kong		46·3	247	8 27	- 2	15 8	- 8	—	22·0
Semipalatinsk		47·4	302	e 8 26	-12	—	—	—	—
Seattle	Z.	47·6	63	e 8 48	+ 9	—	—	—	—
Corvallis	Z.	48·9	68	e 8 52	+ 2	—	—	—	—
Manila		49·1	235	i 8 36	-15	i 15 33	-23	—	—
Hungry Horse		51·6	58	i 9 13	+ 3	—	—	—	—
Shasta	Z.	51·9	70	e 9 14k	+ 2	e 15 54	-41	i 9 34	?
Sverdlovsk		52·7	317	i 9 18	0	16 42	- 4	—	—
Przhevalsk		53·4	294	9 22	- 2	—	—	—	—
Berkeley	Z.	53·9	73	e 9 28k	+ 1	—	—	i 9 38	?
Reno		54·2	69	e 9 31k	+ 2	e 17 11	+ 5	—	—
Santa Clara	Z.	54·4	73	e 9 34	+ 3	—	—	—	—
Lick	Z.	54·6	73	e 9 35k	+ 3	—	—	i 9 54	?
Rybach'e		54·7	296	i 9 31	- 2	—	—	—	—
Frunse		55·2	297	i 9 35	- 2	—	—	—	—
Naryn		55·4	295	i 9 36	- 2	i 17 15	- 7	—	—
Fresno		56·1	72	e 9 44k	+ 1	e 17 36	+ 4	e 10 4	?
Kiruna		56·2	344	i 9 45a	+ 1	i 17 32	- 1	e 13 10	PPP e 28·6
Tinemaha	Z.	56·8	71	e 9 51	+ 3	—	—	i 10 17	?
Scoresby Sund		57·2	2	i 9 54	+ 3	e 17 45	- 1	19 42	ScS 25·6
Andijan		57·9	296	i 9 54	- 2	—	—	—	—

Continued on next page.

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1952		999										
		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		^o	^o	m.	s.	s.	m.	s.	s.	m.	s.	m.
China Lake	z.	58.0	71	e 9	58	+ 1	—	—	—	i 10	18	?
Namangan		58.1	297	i 9	56	- 2	—	—	—	—	—	—
Tchimkent		58.3	300	i 9	57	- 2	—	—	—	—	—	—
Fergana		58.4	296	i 9	57	- 3	—	—	—	—	—	—
Pasadena		58.8	73	i 10	3k	+ 1	i 18	11	+ 4	i 10	24	? i 27.9
Chatra		59.1	275	e 10	1	- 3	e 18	5	- 6	e 19	36	ScS
Lunacharskoe		59.1	299	i 10	3	- 1	—	—	—	—	—	—
Tashkent		59.1	299	i 10	4	0	—	—	—	—	—	—
Riverside	z.	59.4	73	e 10	7	+ 1	—	—	—	—	—	—
Nelson		59.7	69	i 10	10	+ 1	—	—	—	—	—	—
Garm		60.2	297	e 10	11	- 1	e 18	18	- 7	—	—	—
Khorog		60.6	294	i 10	13	- 2	—	—	—	—	—	—
Obi-garm		60.8	297	i 10	13	- 3	e 18	27	- 6	—	—	—
Pulkovo		61.0	334	e 10	29	+11	i 18	51	+16	—	—	—
Kulyab		61.3	296	10	18	- 2	18	34	- 5	—	—	—
Stalinabad		61.4	297	i 10	18	- 2	e 18	35	- 5	—	—	—
Calcutta	E.	61.5	271	i 10	22	+ 1	i 18	53	+11	25	33	SSS 33.0
Samarkand		61.5	299	i 10	19	- 2	18	57	+15	—	—	—
Helsinki		62.0	337	e 10	24	0	e 18	46	- 2	—	—	—
Moscow		62.1	328	i 10	25	0	i 18	48	- 1	—	—	—
Reykjavik	z.	63.6	2	e 10	55	+20	—	—	—	—	—	—
New Delhi	N.	63.8	284	i 10	33	- 3	19	20	PS	11	8	PcP 29.4
Upsala		63.9	340	i 10	38 _a	+ 1	i 19	13	+ 1	i 19	24	PS c 29.6
Tucson		64.5	70	e 10	43	+ 2	e 19	18	- 1	—	—	c 30.7
Bergen		65.6	347	i 10	50 _k	+ 2	e 19	27	- 6	e 19	51	PS c 33.3
Lincoln		65.7	54	—	—	—	i 19	36	+ 2	—	—	—
Ashkabad		67.3	303	i 10	58	- 1	—	—	—	—	—	—
Kirkland Lake	z.	67.3	39	e 11	1 _k	+ 2	—	—	—	—	—	—
Kizyl-Arvat		67.6	305	11	0	- 1	—	—	—	—	—	—
Quetta		68.5	292	i 11	4 _k	- 2	e 20	6	- 2	—	—	36.4
Makhach-Kala		68.6	314	i 11	6	- 1	—	—	—	—	—	—
Copenhagen		68.9	342	i 11	11 _a	+ 2	i 20	16	+ 3	20	34	PS 35.6
Grozny		69.1	315	i 11	10	0	—	—	—	—	—	—
Chicago		69.2	48	e 11	21	+11	—	—	—	—	—	—
Aberdeen		69.6	350	—	—	—	i 20	21	0	i 25	11	SS 31.4
Baku		69.6	311	e 11	14	+ 1	—	—	—	—	—	—
Piatigorsk		69.7	317	11	14	0	20	22	0	—	—	—
Fayetteville	z.	70.6	56	i 11	18	- 1	—	—	—	—	—	—
Tiflis		70.8	315	11	20	0	—	—	—	—	—	—
Gori		70.9	315	11	23	+ 2	—	—	—	—	—	—
Kirovobad		70.9	313	i 11	21	0	20	36	0	—	—	—
Ottawa		71.2	38	i 11	24 _a	+ 1	20	36	- 4	13	56	PP
Borzhome		71.3	315	i 11	23	0	i 20	43	+ 2	—	—	—
Shawinigan Falls	N.	71.3	35	e 11	25	+ 2	—	—	—	—	—	—
Hyderabad	N.	71.4	275	i 11	19	- 5	i 20	38	- 4	13	56	PP
Lwow		71.4	332	i 11	25	+ 1	i 20	42	0	—	—	—
Sotchi		71.4	319	i 11	23	- 1	e 20	39	- 3	—	—	—
Tsikhlis-Dzhvari		71.4	316	11	26	+ 2	—	—	—	—	—	—
Zugdidi		71.4	317	e 11	26	+ 2	—	—	—	—	—	—
Abastumanj		71.6	316	e 11	26	+ 1	—	—	—	—	—	—
Akhalkalaki		71.6	315	e 11	26	+ 1	—	—	—	—	—	—
Potsdam		71.8	340	i 11	29 _a	+ 3	i 20	51	+ 5	i 14	7	PP e 36.6
Goris		71.9	312	i 11	27	0	i 20	48	0	—	—	—
Theodosia		71.9	323	i 11	26	- 1	e 20	46	- 2	—	—	—
Leninakan		72.0	314	e 11	26	- 2	—	—	—	—	—	—
Cleveland	z.	72.1	44	i 11	32	+ 4	—	—	—	—	—	—
Buffalo (Larkin)		72.2	41	e 11	29	0	e 20	51	0	—	—	—
Cernauti		72.2	330	11	29	0	—	—	—	—	—	—
Erevan		72.2	313	i 11	28	- 1	20	52	+ 1	—	—	—
Kishinev		72.4	328	i 11	29	- 1	i 20	53	0	—	—	—

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Simferopol		72.4	323	i 11 30	0	i 20 55	+ 2	—	—
Iasi		72.7	330	e 11 32	0	—	—	—	—
Witteveen	z.	72.7	344	i 11 35	+ 3	—	—	—	—
Raciborzu		72.8	336	e 11 34	+ 2	e 21 4	+ 6	e 11 53	PcP 35.6
Yalta		72.8	323	i 11 32	0	e 20 57	- 1	—	—
Collmberg		72.9	339	i 11 33	0	e 21 2	+ 3	i 11 47	PcP e 34.6
Skalnate Pleso		73.1	334	e 11 35	+ 1	e 21 3	+ 2	e 21 46	PS e 38.1
Poona	z.	73.4	279	11 33	- 3	21 2	- 3	—	—
Jena		73.5	340	i 11 37	+ 1	e 21 9	+ 3	e 25 49	SS
De Bilt		73.6	345	i 11 38	+ 1	—	—	—	e 33.6
Bombay		73.7	280	e 11 36	- 2	e 21 6	- 2	14 21	PP
Prague		73.7	338	i 11 40	+ 2	e 21 12	+ 4	i 11 52	PcP e 37.6
Pittsburgh		73.7	44	i 11 38	0	i 21 10	+ 2	—	—
Madras	E.	73.8	271	i 11 36	- 2	21 20	PS	11 46	PcP
Rathfarnham C.	z.	73.9	352	i 11 40	+ 1	—	—	—	—
Djakarta		74.0	236	11 42	+ 3	e 21 6	- 5	i 11 53	PcP
Bandong		74.2	235	e 11 42	+ 2	e 21 5	- 9	—	—
Cheb		74.2	340	e 11 44	+ 4	e 21 16	+ 2	e 25 25	SS
Pennsylvania		74.2	42	i 11 44	+ 4	i 21 16	+ 2	i 21 52	PS
Morgantown		74.4	45	i 11 45	+ 3	e 21 18	+ 2	—	—
Ogyalla		74.8	335	e 11 49	+ 5	e 21 28	+ 8	e 12 0	PcP e 41.1
Budapest		74.9	334	11 44	0	21 25	+ 3	21 44	PS e 40.6
Kew		75.0	348	i 11 46	+ 1	(e 19 36)	?	e 11 59	PcP e 19.6
Harvard		75.2	37	i 11 48 ^k	+ 2	—	—	—	—
Weston		75.4	37	i 11 50 ^k	+ 3	i 21 29	+ 2	e 26 13	SS e 37.8
Bucharest		75.6	328	e 11 52	+ 4	e 21 30	+ 1	i 21 34	S
Palisades		75.6	39	i 11 51	+ 3	i 21 30	+ 1	—	—
City College, N.Y.		75.8	39	i 11 53	+ 3	i 21 30	- 1	—	—
Kalossa		75.8	334	11 52	+ 2	e 21 35	+ 4	12 5	PcP
Szeged		75.8	332	e 11 50	0	21 37	+ 6	16 6	PPP
Timisoara		75.9	332	e 11 54 [?]	+ 4	e 21 35	+ 3	—	—
Karlsruhe		76.0	341	i 11 52 ^a	+ 1	21 36	+ 2	—	—
Halifax		76.1	31	i 11 53 ^a	+ 2	—	—	—	—
Stuttgart		76.1	341	i 11 52 ^a	+ 1	i 21 38	+ 3	e 12 4	PcP e 39.6
Washington		76.2	42	i 11 56	+ 4	—	—	—	—
Strasbourg		76.5	342	e 11 55	+ 1	e 21 44	+ 5	i 12 8	PcP e 34.6
Belgrade		77.0	332	i 11 58 ^a	+ 2	e 21 49	+ 4	e 30 42	SSS e 45.5
Paris		77.2	345	i 12 0	+ 3	i 21 51	+ 4	i 14 55	PP e 37.6
Basle	z.	77.5	342	e 12 0 ^a	+ 1	—	—	—	—
Zürich	z.	77.5	342	e 12 1 ^a	+ 2	—	—	—	—
Istanbul	z.	77.6	325	e 12 1	+ 1	—	—	e 12 40 [?]	?
Kodaikanal	E.	77.6	271	11 59	- 1	22 2	+11	—	—
Chur		77.8	341	e 12 2 ^a	+ 1	e 21 57	+ 4	—	—
Mobile		77.9	55	e 12 6	+ 5	—	—	—	—
Triest		78.0	337	i 11 57 ^a	- 5	i 21 55	0	i 22 12	SKS
Besançon		78.1	342	i 12 5	+ 3	e 13 45	?	i 12 17	PcP
Sofia		78.1	329	e 12 5	+ 3	e 21 59	+ 3	—	—
Neuchatel		78.2	342	e 12 6	+ 3	e 22 1	+ 4	—	e 33.8
Colombo	E.	78.7	267	12 5	- 1	22 7	+ 4	—	38.6
Oropa		79.3	341	i 12 11	+ 2	e 22 15	+ 6	—	e 42.6
Pavia		79.5	340	e 12 12	+ 2	e 22 15	+ 4	e 15 28	PP e 32.0
Bologna		79.7	338	e 12 14	+ 3	e 22 21	+ 8	—	—
Brisbane		80.0	187	i 12 11 ^k	- 2	i 22 13	- 4	i 22 59	PS
Clermont-Ferrand		80.1	344	i 12 17	+ 4	i 22 24	+ 6	—	38.6
Prato		80.3	338	e 12 18	+ 4	i 22 24	+ 4	—	—
Florence		80.4	338	e 12 19	+ 4	i 22 23	+ 2	—	—
Siena		80.8	338	11 52	-25	22 36	+11	—	—
Ksara		81.3	316	i 12 22	+ 2	—	—	—	—
Rome		81.8	336	i 12 23 ^a	+ 1	i 22 41	+ 6	23 27	PS e 40.6
Rocca di Papa		81.9	336	e 12 23	0	e 22 38	+ 2	—	e 43.6

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Taranto		81.9	333	—	—	22 29	- 7	—	—
Athens		82.2	327	i 12 25k	+ 1	i 22 38	- 1	i 12 37	PcP
Messina		84.5	333	i 12 36k	0	i 23 11	+ 9	e 22 55	SKS
Tortosa		85.3	345	12 33	- 7	i 23 18	+ 8	—	—
Riverview		86.4	188	i 12 43a	- 2	i 23 8	[- 2]	i 13 1	pP
Helwan		86.6	318	i 12 47a	+ 1	i 23 21	- 2	16 10	PP
Bermuda		86.7	37	—	—	i 23 29	+ 5	—	—
Toledo		86.9	348	i 12 51	+ 3	i 23 30	+ 4	23 17	SKS
Alicante		87.9	346	e 13 0	+ 7	i 23 42	+ 7	16 0	PP
Lisbon		88.6	352	—	—	i 24 4	+ 22	i 23 45	SKS
Algiers Univ.	z.	88.8	342	e 12 51	- 6	—	—	e 16 31	PP
Granada		89.5	348	i 12 41k	- 19	23 47	- 3	16 29	PP
Almeria		89.7	347	i 13 4	+ 3	i 23 56	+ 4	16 40	PP
Auckland	N.	90.0	168	—	—	e 23 33	[0]	e 23 53	S
Malaga		90.0	348	i 13 8	+ 5	i 24 0	+ 6	16 38	PP
Melbourne	E.	91.0	192	—	—	i 24 6	+ 3	(e 33 6)	SS
Wellington		94.3	170	—	—	24 31	- 1	e 25 46	PS
Christchurch		96.3	171	—	—	e 24 48	- 1	e 26 11	PS
San Juan		98.7	44	e 13 46	+ 4	—	—	e 17 55	PP
Galerazamba		101.0	56	—	—	i 24 20	[- 12]	—	—
Tamanrasset	z.	101.8	336	i 13 57a	+ 1	e 25 36	+ 1	i 18 2	PP
Fort de France		104.0	41	e 17 30	?	—	—	—	—
La Paz	z.	127.7	65	e 19 12	[+ 4]	e 22 47	PKS	e 21 34	PP
Pretoria	z.	135.3	289	i 19 24	[+ 2]	—	—	—	—
Kimberley	z.	139.6	289	e 19 27	[- 3]	—	—	—	—
Grahamstown	z.	141.8	283	e 19 41	[+ 7]	—	—	—	—

Nov. 5d. 14h. 10m. 45s. Epicentre 44°·5N. 138°·0E. Depth of focus 0·050.

A = -·5318, B = +·4788, C = +·6985; δ = -4; h = -3;
D = +·669, E = +·743; G = -·519, H = +·467, K = -·716.

		Δ	Az.	P.	O-C.	S.	O-C.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m.
Sapporo		2.8	121	i 0 58a	0	1 45	+ 2	—
Mori		3.0	142	1 1	+ 1	1 48	+ 2	—
Obihiro		4.1	111	—	—	e 1 42	- 24	—
Aomori		4.2	150	e 1 15	+ 3	2 15	+ 7	—
Urakawa		4.2	122	e 1 25	+ 13	2 10	+ 2	—
Abashiri		4.5	94	—	—	e 2 24	+ 11	—
Hatinohe		4.7	145	e 1 17	0	2 14	- 3	—
Kusiro		4.9	106	i 1 21	+ 2	—	—	—
Akita		5.0	161	e 1 21	+ 1	2 23	0	—
Morioka		5.3	153	e 1 26	+ 2	2 28	- 1	—
Miyako		5.7	148	i 1 26	- 2	2 31	- 6	—
Mizusawa	E.	5.8	155	1 34	+ 5	2 39	0	—
Niigata		6.6	173	e 1 43	+ 5	—	—	—
Sendai		6.6	160	1 37	- 1	2 51	- 5	—
Hokusima		7.0	164	e 1 42	- 1	3 3	- 1	—
Shirakawa		7.6	166	e 1 47	- 3	3 16	- 1	—
Maebasi		8.1	174	e 1 54	- 2	—	—	—
Utunomiya		8.1	169	e 1 53	- 3	3 22	- 6	—
Oiwake		8.2	177	e 2 0	+ 3	—	—	—
Mito		8.3	166	e 2 0	+ 2	3 26	- 6	—
Kumagaya		8.4	172	e 2 1	+ 1	3 33	- 1	—
Tokyo		8.9	171	e 2 6	0	3 45	0	—
Hunatu		9.0	176	e 2 5	- 2	3 45	- 2	—
Nagoya		9.3	185	e 2 11	+ 1	3 50	- 3	—
Osima		9.8	173	e 2 1	- 15	4 0	- 4	—
Hamada		10.6	208	—	—	e 5 23	+ 61	—
Takamatu		10.6	198	e 2 24	- 2	4 23	+ 1	—
Matuyama		11.4	213	e 2 31	- 5	—	—	—
Koti		11.5	199	—	—	e 5 36	+ 55	—
Kiruna		58.6	337	i 9 19	- 4	i 10 26	pP	e 36.2
Jena	z.	74.2	328	e 10 59	- 2	—	—	—
Stuttgart		76.9	328	e 11 13	- 3	—	—	—

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Nov. 5d. 14h. 48m. 38s. Epicentre 49°·3N. 156°·8E. (as at 11h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kusiro		10·7	238	e 2 30	- 8	e 4 46	+ 7	—	—
Urakawa		12·1	239	e 2 58	+ 1	e 5 14	0	—	—
Sapporo		12·4	246	e 3 0	- 1	e 5 38	+17	e 3 13	PP
Miyako		14·3	233	e 3 31?	+ 5	e 6 11?	+ 5	—	e 7·6
Mizusawa	E.	15·1	234	3 45	+ 9	5 54	-31	—	—
Akita		15·3	237	e 3 39	0	e 6 51	+21	—	—
Sendai		15·9	232	e 3 50	+ 3	e 6 56	+12	—	—
Yamagata		16·2	233	e 3 55	+ 5	e 6 51	0	—	—
Hokusima		16·5	232	e 4 2	+ 8	e 7 12	+14	—	—
Mito		17·6	230	e 4 14	+ 6	e 7 35	+12	—	—
Utunomiya		17·7	232	e 4 10	0	e 7 29	+ 3	—	—
Kumagaya		18·3	231	4 20	+ 3	e 7 48	+ 9	—	—
Maebasi		18·3	233	e 4 19	+ 2	7 49	+10	—	—
Nagano	N.	18·5	235	e 4 22	+ 3	e 8 25	+41	—	—
Tokyo		18·5	229	e 4 27	+ 8	e 7 29	-15	—	e 8·5
Matusiro		18·6	235	4 23	+ 2	7 57	+11	8 0	Q
Wazima		18·7	238	e 4 26	+ 4	7 48	0	—	11·6
Kohu		19·1	231	4 29	+ 2	8 6	+ 9	—	—
Hunatu		19·2	231	e 4 31	+ 3	e 8 0	+ 1	—	—
Misima		19·3	230	e 4 33	+ 4	—	—	4 52	PP
Gihu		20·2	233	e 4 42	+ 3	—	—	—	—
Kameyama		20·8	233	4 53	+ 8	—	—	e 6 14	?
Osaka		21·4	234	e 4 58	+ 7	e 6 34	?	e 5 48	PP
Owase		21·5	233	e 4 55	+ 3	—	—	—	e 9·4
Takamatu		22·5	238	e 5 5	+ 3	—	—	—	e 10·2
Muroto		23·2	235	e 5 11	+ 2	—	—	—	—
Hirosima		23·4	239	5 14	+ 3	9 27	+ 6	—	—
Koti		23·4	236	i 5 14	+ 3	e 9 31	+10	—	—
Matuyama		23·6	238	e 5 13	0	e 9 42	+17	—	—
Simonoseki		24·5	241	e 5 24	+ 2	e 9 45	+ 5	—	—
Hukuoka		25·1	241	e 5 28	0	e 9 43	- 8	—	e 13·6
Kumamoto		25·5	240	e 5 41	+ 9	—	—	—	—
Kagosima		26·5	238	e 5 45	+ 4	—	—	—	—
College		32·6	40	i 6 33	- 2	—	—	—	e 13·6
Manila		45·3	233	i 8 13k	- 8	i 14 48	-14	—	—
Resolute Bay		47·6	20	e 7 46k	-53	i 15 47	+12	i 8 35	P
Victoria		50·1	58	8 57	- 2	—	—	—	e 20·3
Seattle	z.	51·2	58	i 9 18k	+11	—	—	—	—
Shasta		55·2	66	i 9 37	0	—	—	—	—
Hungry Horse		55·3	54	i 9 36	- 2	—	—	i 9 48	?
Kiruna	z.	58·7	342	i 9 54	- 8	e 19 16	ScS	i 10 48	PcP
Tinemaha		60·0	66	e 10 11	0	—	—	i 10 23	pP
Scoresby Sund		60·5	359	i 10 10	- 4	—	—	—	32·4
China Lake	z.	61·2	66	i 10 19	0	—	—	i 10 30	pP
Pasadena		62·0	68	i 10 24k	0	e 39 27	P'P'	i 10 35	pP
Riverside	z.	62·6	68	i 10 27	- 1	—	—	i 10 39	pP
Boulder City		62·8	65	e 10 29	- 1	—	—	i 10 42	pP
Nelson		63·0	65	i 10 30	- 1	—	—	—	—
Upsala	z.	66·3	339	i 10 47	- 5	—	—	10 51	P
Reykjavik	z.	66·9	359	i 10 54	- 2	—	—	—	—
Quetta		67·6	291	e 10 59	- 2	—	—	—	—
Tucson		67·8	66	i 11 2	0	—	—	i 11 14	?
Hyderabad	E.	69·4	273	i 11 9	- 3	e 20 57	PS	—	—
Djakarta		70·3	234	i 11 21	+ 4	e 20 42	+13	—	—
Kirkland Lake	z.	71·2	36	e 11 20	- 3	—	—	—	—
Poona		71·6	277	i 11 18	- 7	e 20 47	+ 3	i 12 15	PcP
Bombay		72·0	278	e 15 42	PPP	—	—	e 15 57	?
Lwow		73·3	330	e 11 30	- 5	—	—	—	—
Kishinev		74·0	327	e 11 34	- 5	—	—	—	—
Potsdam	z.	74·1	338	e 11 38	- 2	—	—	—	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	m.	s.	m.
Fayetteville	z.	74.3	53	i 11	38	- 3	—	—	—	—	—
Raciborzu		74.8	334	11	42	- 2	e 12 21	?	e 12 6	PcP	—
Uzhgorod		74.9	331	e 11	42	- 2	—	—	—	—	—
Collmborg		75.1	337	e 11	42	- 4	—	—	—	—	—
Ottawa		75.2	35	i 11	43 _k	- 3	14 32	PP	15 29	?	—
Witteveen		75.2	342	i 11	44	- 2	—	—	—	—	—
Shawinigan Falls	N.	75.3	32	e 11	43	- 4	—	—	—	—	—
Jena	z.	75.8	337	i 11	46	- 4	—	—	—	—	—
Prague		75.9	336	e 11	48	- 2	e 14 33	PP	e 12 27	PcP	—
Buffalo (Larkin)		76.0	38	i 11	49	- 2	—	—	—	—	—
Cleveland	z.	76.1	41	i 11	50 _a	- 1	—	—	i 12 2	PcP	—
Brisbane	z.	76.5	183	i 11	57 _k	+ 3	—	—	i 13 45	?	—
Rathfarnham C.	z.	76.8	350	i 11	51 _a	- 4	—	—	—	—	—
Pittsburgh	z.	77.6	40	i 11	56	- 4	—	—	—	—	—
Kew		77.7	345	i 11	56	- 4	—	—	—	—	—
Pennsylvania	z.	78.2	39	i 12	3	0	—	—	—	—	—
Morgantown		78.3	41	i 12	3	0	—	—	—	—	—
Karlsruhe	z.	78.4	339	i 12	0	- 4	—	—	—	—	—
Stuttgart		78.4	338	i 12	0	- 4	—	—	—	—	—
Belgrade		78.8	329	e 12	2	- 4	e 22 27	+23	e 12 27	PcP	e 52.2
Strasbourg		78.9	339	i 12	4	- 3	—	—	e 12 12	PcP	—
Istanbul	z.	79.0	322	e 12	3	- 4	—	—	—	—	—
Harvard		79.2	34	i 12	7 _k	- 1	e 22 5	- 3	—	—	e 44.6
Weston		79.4	34	i 12	8 _k	- 1	—	—	i 12 20	PcP	—
Palisades		79.6	36	i 12	8	- 2	—	—	—	—	—
City College, N.Y.		79.8	36	i 12	10	- 2	—	—	i 12 20	PcP	—
Fordham		79.8	36	i 12	11	- 1	—	—	—	—	—
Paris		79.8	343	i 12	9	- 3	—	—	—	—	e 42.4
Basle	z.	79.9	339	e 12	10	- 2	—	—	—	—	—
Zürich		79.9	339	e 11	37	-35	—	—	—	—	—
Halifax		80.0	28	i 12	10	- 3	—	—	—	—	—
Chur		80.1	338	e 11	41 _k	-32	—	—	e 12 10	P	—
Washington		80.1	39	i 12	13	0	—	—	i 12 23	PcP	—
Besançon		80.6	340	i 12	13	- 3	e 12 57	?	i 12 22	PcP	—
Neuchatel	z.	80.6	339	e 12	13	- 3	—	—	—	—	—
Oropa		81.6	338	e 11	36	?	—	—	e 18 27	?	—
Mobile		81.7	52	i 12	24	+ 2	—	—	—	—	—
Ksara		82.0	314	i 12	22	- 1	—	—	—	—	—
Clermont-Ferrand		82.6	342	i 12	24	- 2	—	—	—	—	—
Riverview		82.9	185	i 12	30 _k	+ 2	i 22 53	+ 7	—	—	—
Tacubaya		84.3	67	e 12	37	+ 2	—	—	—	—	—
Messina	z.	86.4	330	i 12	41 _a	- 4	—	—	e 13 49	?	—
Helwan	z.	87.4	315	i 12	49 _k	- 1	i 23 32	+ 2	e 24 36	PS	—
Toledo		89.6	345	i 12	59	- 2	—	—	—	—	—
Alicante		90.4	342	13	2	- 2	23 42	[+ 7]	16 49	PP	42.9
Algiers Univ.	z.	91.2	339	e 13	4	- 4	—	—	—	—	—
Granada		92.2	344	13	34 _a	+21	—	—	—	—	50.3
Almeria		92.3	343	13	11	- 2	23 54	{- 4}	—	—	53.0
Malaga		92.7	344	e 13	9	- 6	e 24 5	{+ 3}	16 43	PP	37.3
San Juan		102.6	41	e 18	20	PP	—	—	—	—	—
Tamanrasset	z.	103.8	332	e 14	2	- 3	e 16 19	?	e 17 28	?	—
Huancayo		123.3	67	e 19	3	[+ 4]	—	—	—	—	—
La Paz		131.1	63	i 19	18	[+ 4]	e 22 45	PKS	e 21 50	PP	56.4
Pretoria	z.	134.0	281	e 19	21	[+ 1]	—	—	e 19 33	?	—
Pietermaritzburg	z.	135.2	275	e 19	25	[+ 3]	—	—	—	—	—
Kimberley	z.	138.3	280	i 19	27	[0]	—	—	—	—	—
Grahamstown	z.	140.1	274	e 19	34	[+ 3]	—	—	—	—	—

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1952

1004

Nov. 5d. 19h. 8m. 24s. Epicentre 53°·8N. 161°·7E.

A = -·5632, B = +·1863, C = +·8051; $\delta = +9$; $h = -7$;
D = +·314, E = +·949; G = -·764, H = +·253, K = -·593.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Magadan		8·3	318	i 2 6	+ 2	—	—	—	—
Ulegorsk		13·1	257	i 3 14	+ 4	—	—	—	—
Yuzno-Sakhlinsk		13·9	248	3 21	0	—	—	—	—
Sapporo		17·2	240	e 3 58	- 5	e 7 37	+23	—	—
Aomori		19·1	238	e 4 29	+ 2	8 16	+19	e 5 11	PP 9·2
Akita		20·3	234	e 4 56	+16	e 8 32	+ 9	—	—
Mizusawa	E.	20·3	234	4 38	- 2	e 8 23	0	—	—
	N.	20·3	234	e 4 44	+ 4	e 8 36	+13	—	—
Sendai		21·1	231	e 4 43	- 5	e 8 30	- 9	e 4 52	? 9·8
Hukusima		21·7	232	e 4 53	- 2	e 8 44	- 7	—	—
Aikawa		22·5	235	e 5 4	+ 2	e 9 7	+ 2	—	—
Mito		22·8	229	e 5 8	+ 3	e 9 25	+14	—	—
Utunomiya		23·0	231	e 5 8	+ 1	e 9 15	+ 1	—	—
Maebasi		23·5	231	e 5 13	+ 1	9 21	- 2	e 8 46	PcP
Matusiro		23·7	235	5 14	0	i 9 26	- 1	i 11 55	Q i 13·6
Oiwake		23·7	233	e 5 21	+ 7	9 29	+ 2	—	—
Wazima		23·7	237	e 5 19	+ 5	9 25	- 2	—	—
Matumoto	N.	24·1	234	e 5 33	+15	e 10 14	+40	—	—
Toyama		24·1	234	e 5 11	- 7	e 9 17	-17	—	—
Tu		26·0	234	5 42	+ 6	e 9 51	-15	6 44	? —
Osaka		26·5	235	e 5 50	+ 9	e 9 46	-28	e 6 9	PP —
College		27·2	45	i 5 48	+ 1	i 10 28	+ 3	—	e 11·5
Takamatu		27·5	239	e 5 58	+ 8	e 9 28	-62	—	—
Kabansk		32·5	291	e 6 30	- 4	—	—	—	—
Kyakhta		33·4	288	e 6 39	- 3	e 11 57	- 6	—	—
Irkutsk		33·7	292	e 6 43	- 2	—	—	—	—
Resolute Bay		42·3	23	i 7 57 _a	0	i 14 19	0	i 10 5	PPP e 17·6
Victoria		45·2	63	8 22	+ 2	—	—	—	—
Seattle	Z.	46·3	63	i 8 45 _k	+16	—	—	—	—
Hong Kong		47·6	248	e 8 20	-19	e 15 9	-26	—	e 22·8
Corvallis	Z.	47·7	70	e 8 41	+ 1	—	—	—	—
Hungry Horse		50·3	59	i 9 0	0	—	—	—	—
Manila		50·5	235	i 8 50	-12	i 15 55	-21	—	—
Shasta	Z.	50·8	71	i 9 5 _k	+ 1	—	—	i 9 18	? —
Sverdlovsk		52·4	317	i 9 16	0	—	—	—	—
Berkeley	Z.	52·7	74	e 9 18 _k	0	—	—	e 9 30	? —
Reno		53·0	70	e 9 22 _k	+ 1	i 16 52	+ 2	—	—
Przhevalsk		53·6	296	9 25	0	—	—	—	—
Fresno	Z.	54·9	73	e 9 35 _k	0	—	—	e 9 48	? —
Rybach'e		54·9	297	e 9 34	- 1	e 17 14	- 2	—	—
Kiruna		55·0	344	i 9 36	+ 1	e 17 14	- 3	i 10 47	PcP e 27·6
Frunse		55·4	297	i 9 35	- 3	—	—	—	—
Tinemaha		55·6	72	i 9 41	+ 1	—	—	i 10 11	? —
Naryn		55·7	294	e 9 37	- 3	—	—	—	—
Scoresby Sund		56·0	2	e 9 54	+11	e 17 37	+ 7	—	27·6
China Lake	Z.	56·8	72	e 9 54	+ 6	—	—	i 10 1	? —
Pasadena		57·7	74	i 9 55	0	i 17 56	+ 3	e 10 5	? —
Shillong	E.	58·0	271	e 9 51	- 6	—	—	—	—
Andijan		58·1	297	9 56	- 2	—	—	—	—
Namangan		58·3	297	—	—	17 58	- 3	—	—
Boulder City		58·3	71	i 10 0	+ 1	—	—	—	—
Riverside	Z.	58·3	74	e 9 58	- 1	—	—	—	—
Nelson		58·5	71	i 10 1	+ 1	—	—	—	—
Fergana		58·7	297	e 10 2	0	—	—	—	—
Palomar	Z.	59·0	73	i 10 4	0	—	—	i 10 15	? —
Lunacharskoe		59·3	299	e 10 3	- 3	—	—	—	—
Tashkent		59·3	299	e 10 10	+ 4	—	—	—	—
Chatra		59·8	274	e 10 9	0	e 18 13	-7	—	—
Dzhergetal		59·8	297	e 10 10	+ 1	—	—	—	—
Pulkovo		60·3	335	i 10 12	- 1	i 18 30	+ 4	—	—

Continued on next page.

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1952		1005									
		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.
Garm		60.4	297	e 10	12	- 1	e 18 24	- 4	—	—	—
Khorog		60.9	295	e 10	18	+ 1	—	—	—	—	—
Helsinki		61.2	337	e 10	18	- 1	—	—	—	—	—
Kulyab		61.5	296	10	20	- 1	18 41	- 1	—	—	—
Moscow		61.6	328	i 10	20	- 2	18 40	- 3	—	—	—
Stalinabad		61.6	298	i 10	21	- 1	i 18 40	- 3	—	—	—
Samarkand		61.7	300	10	21	- 1	—	—	—	—	—
Calcutta	E.	62.4	271	e 10	26	- 1	e 20 19	ScS	14 13	PPP	29.3
Upsala		63.1	341	i 10	31 _a	- 1	e 18 59	- 3	19 17	PcP	e 30.6
Tucson		63.3	71	e 10	33	0	e 19 10	+ 6	—	—	e 28.9
New Delhi	N.	64.3	284	e 10	34	- 5	e 19 12	- 5	20 23	ScS	—
Bairam Ali		65.7	301	10	46	- 2	—	—	—	—	—
Ashkabad		67.4	304	11	17 _?	+18	—	—	—	—	—
Copenhagen		68.0	342	i 11	3 _a	0	20 5	+ 3	—	—	33.6
Makhach-Kala		68.4	314	i 11	3	- 3	—	—	—	—	—
Quetta		68.8	293	e 11	5	- 3	e 20 6	- 5	—	—	34.4
Fayetteville	Z.	69.2	56	i 11	10	0	—	—	—	—	—
Baku		69.4	311	i 11	14	+ 2	—	—	—	—	—
Piatigorsk		69.4	318	11	11	- 1	20 16	- 2	—	—	—
Ottawa		69.7	39	e 11	18	+ 4	—	—	—	—	—
Shemakla		69.8	312	i 11	11	- 3	—	—	—	—	—
Gori		70.6	316	e 11	19	0	e 20 33	0	—	—	—
Tiflis		70.6	315	e 11	18	- 1	20 31	- 2	—	—	—
Cleveland	Z.	70.7	45	i 11	34 _a	+14	—	—	—	—	—
Kirovobad		70.7	313	i 11	19	- 1	e 20 33	- 1	—	—	—
Lwow		70.8	333	i 11	20	0	i 20 35	0	—	—	—
Potsdam		71.0	341	i 11	22	0	i 20 40	+ 3	i 20 44	S	e 36.6
Sotchi		71.0	320	i 11	20	- 2	e 20 36	- 1	—	—	—
Borzhom		71.1	316	i 11	20	- 2	e 20 34	- 4	—	—	—
Tsikhlis-Dzhvari		71.1	316	e 11	25	+ 3	—	—	—	—	—
Zugdidi		71.1	318	e 11	28	+ 6	—	—	—	—	—
Abastumanj		71.3	316	e 11	26	+ 3	—	—	—	—	—
Akhalkalaki		71.4	316	e 11	25	+ 1	—	—	—	—	—
Theodosia		71.4	323	e 11	22	- 2	i 20 40	- 2	—	—	—
Goris		71.7	312	i 11	26	0	—	—	—	—	—
Leninakan		71.7	315	e 11	30	+ 4	—	—	—	—	—
Witteveen	Z.	71.7	345	e 10	57	-29	—	—	—	—	—
Kishinev		71.9	329	e 11	25	- 2	20 44	- 4	—	—	—
Collnberg		72.0	340	e 11	25	- 3	e 20 42	- 7	e 21 6	PS	e 36.6
Raciborzu		72.0	337	11	28	0	20 50	+ 1	11 50	PcP	e 43.6
Iasi		72.1	330	e 11	29	+ 1	—	—	—	—	—
Hyderabad	E.	72.2	275	e 11	26	- 3	e 20 41	-10	—	—	—
Uzhgorod		72.3	334	e 11	32	+ 3	e 20 53	+ 1	—	—	—
Yalta		72.3	324	i 11	28	- 1	20 50	- 2	—	—	—
Skalnate Pleso		72.4	335	e 11	30 _k	0	e 20 51	- 2	e 11 41	PcP	—
De Bilt		72.7	345	e 11	33	+ 1	e 21 3	+ 6	—	—	e 34.6
Jena		72.7	340	i 11	32	0	e 20 56	- 1	i 11 48	PcP	—
Pennsylvania		72.8	43	i 11	52	PcP	e 21 36	ScS	e 12 42	?	—
Rathfarnham C.	Z.	72.8	353	i 11	30 _a	- 2	—	—	—	—	—
Morgantown		72.9	45	i 11	28	- 5	—	—	e 15 48	PPP	—
Prague		72.9	339	e 11	35	+ 2	e 21 0	+ 1	e 12 20	PcP	—
Cheb		73.3	341	e 11	38 _?	+ 3	e 21 5	+ 1	e 21 23	ScS	—
Harvard		73.8	37	i 15	53 _k	PPP	—	—	—	—	e 42.7
Poona		74.0	279	i 11	36	- 3	i 21 2	- 9	—	—	—
Weston		74.0	37	e 11	39	0	—	—	—	—	—
Ogyalla		74.1	336	e 11	44	+ 4	e 20 42	?	e 14 11	PP	—
Budapest		74.2	335	11	43	+ 3	e 21 10	- 4	11 51	PcP	e 14.6
Palisades		74.2	39	e 11	50	+10	e 29 29	SSS	e 16 1	PPP	e 37.6
Bombay		74.3	281	e 11	41	0	e 21 12	- 3	14 27	PP	30.9
Halifax		74.6	31	e 11	41	- 2	—	—	—	—	—
Madras	E.	74.6	272	i 11	43	0	i 21 13	- 5	11 53	PcP	—
Washington		74.7	42	i 11	55	+12	—	—	i 12 13	PcP	—
Bucharest		75.1	329	e 12	0	+14	21 42	+18	—	—	—
Kalossa		75.1	335	e 11	43	- 3	—	—	e 11 57	PcP	—
Karlsruhe	Z.	75.1	343	e 11	46	0	—	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Stuttgart		75.2	342	e 11 46	0	e 21 36	+11	—	e 41.6
Djakarta		75.3	238	e 11 55	+ 8	e 21 24	- 2	—	—
Timisoara		75.3	333	e 11 52	+ 5	e 22 24	PS	—	e 42.6
Strasbourg		75.6	343	i 11 50	+ 2	e 21 42	+13	e 12 1	PcP e 33.6
Belgrade		76.3	333	e 11 52k	0	—	—	e 12 48	? e 47.9
Paris		76.3	347	i 11 53	+ 1	i 21 54	+17	e 22 15	PS e 36.6
Mobile		76.5	56	e 12 12	PcP	—	—	—	—
Basle		76.7	343	e 11 54	- 1	—	—	—	—
Zürich		76.7	343	e 11 54	- 1	—	—	—	—
Chur		77.0	342	e 11 57a	+ 1	—	—	—	—
Istanbul	z.	77.1	326	e 11 56	- 1	—	—	e 12 18?	PcP
Besançon		77.2	343	e 11 59	+ 2	e 14 48	PP	i 12 9	PcP
Sofia		77.5	330	e 11 16	-43	—	—	—	—
Kodaikanal	E.	78.4	272	—	—	e 21 59	- 1	—	—
Oropa		78.5	342	i 11 50	-14	e 22 17	+16	—	—
Pavia		78.6	340	e 12 6	+ 1	e 21 59	- 3	e 16 16	PPP
Bologna		78.9	339	e 12 35	+28	e 22 10	+ 5	—	e 47.8
Prato		79.5	339	e 12 9	- 1	i 22 14	+ 3	—	—
Colombo	E.	79.6	267	12 20	PcP	22 10	- 2	—	—
Florence		79.6	339	e 12 10a	0	i 22 13	+ 1	—	—
Siena		80.0	339	12 12	- 1	22 36	+19	—	—
Ksara		81.0	317	12 24	+ 6	—	—	—	i 39.4
Rome		81.1	337	i 12 17a	- 1	i 22 36	+ 8	31 37	SSS
Rocca di Papa		81.2	337	i 12 19	0	e 22 29	0	—	e 45.6
Taranto		81.2	333	11 49	-30	22 35	+ 6	—	—
Brisbane	N.	81.3	187	—	—	i 22 27	- 3	—	—
Messina		83.8	334	i 12 34a	+ 2	i 23 6	+11	e 24 2	PPS 42.1
Tortosa		84.4	346	e 12 24	-12	i 23 1	0	—	—
Bermuda		85.2	38	—	—	e 23 12	+ 3	—	—
Toledo		85.9	350	e 12 44	+ 1	i 23 21	+ 5	—	48.3
Helwan		86.3	319	i 12 45a	0	e 23 18	- 2	e 16 6	PP
Alicante		86.9	347	12 50	+ 2	e 23 16	[+ 3]	—	42.8
Riverview		87.7	188	i 12 45k	- 7	i 23 34	+ 1	i 23 14	SKS
Algiers Univ.	z.	87.9	343	e 12 55	+ 2	e 13 14	?	e 16 15	PP
Granada		88.5	349	13 11a	+15	24 47	PS	16 38	PP 42.8
Almeria		88.7	348	i 13 2	+ 5	i 23 48	+ 5	16 34	PP 50.7
Malaga		89.0	349	i 12 59	+ 1	i 23 25	[- 2]	16 31	PP 49.3
Melbourne		92.4	194	—	—	i 24 19	+ 3	—	—
Wellington		95.4	171	—	—	24 35	- 7	e 31 44	SS e 43.6
San Juan		97.2	45	e 13 49	+13	—	—	—	—
Christchurch		97.4	173	—	—	e 26 18	PS	e 31 18	SS e 44.6
Galerazamba		99.7	57	e 28 32	?	—	—	—	49.6
Tamanrasset	z.	101.0	337	e 13 53	0	e 25 35	+ 6	e 17 59	PP
Fort de France		102.6	42	—	—	e 24 38	[- 2]	—	—
La Paz		126.5	65	i 19 7	[+ 2]	i 21 46	PP	e 38 10	SS 55.6
Pretoria	z.	135.7	291	e 19 27	[+ 4]	—	—	—	—
Kimberley	z.	140.0	291	e 19 26	[- 4]	—	—	—	—

Nov. 5d. 20h. 30m. 30s. Epicentre 50°·2N, 157°·3E. Focus at Base of Superficial Layers. (as at 2h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Nemuro		10.6	234	e 2 26	- 7	—	—	—	—
Kusiro		11.4	236	e 2 35	- 9	—	—	—	—
Sapporo		13.1	243	e 3 8	+ 2	e 5 46	+14	—	e 8.0
Aomori		14.9	237	e 3 27	- 3	7 15	+60	e 4 8	PP
Mizusawa	E.	15.9	232	e 3 44	+ 1	5 55	-43	—	—
Akita		16.0	236	e 3 42	- 2	e 6 54	+14	e 4 51	?
Sendai		16.7	231	e 3 48	- 5	6 52	- 4	—	e 7.7
Yamagata		17.0	232	e 3 53	- 4	e 7 8	+ 5	—	—
Hukusima		17.3	228	e 3 58	- 2	e 7 19	+ 9	—	—
Utunomiya		18.6	228	e 4 10	- 7	e 7 36	- 4	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kumagaya		19.1	228	e 4 21	- 2	e 7 56	+ 5	—	—
Maebasi		19.1	229	e 4 17	- 6	7 51	0	—	—
Toyama		19.8	235	e 4 25	- 5	e 8 10	+ 4	—	—
Hunatu		19.9	230	e 4 28	- 3	e 8 26	+18	—	—
Shizuoka		20.5	230	e 4 35	- 3	e 8 42	+22	—	—
Nagoya		21.1	231	e 4 48	+ 4	—	—	—	—
Kyoto		21.8	233	e 4 50	- 1	e 9 8	+23	—	—
Osaka		22.2	233	e 4 54	- 1	—	—	—	—
Owase		22.3	231	e 4 50	- 6	e 9 8	+14	—	—
Takamatu		23.3	236	e 5 2	- 4	e 9 12	0	—	—
Hamada		23.9	240	e 5 7	- 5	e 9 7	-16	—	—
Koti		24.1	235	e 5 11	- 2	e 9 46	+20	—	—
College		31.7	42	i 6 26	+ 3	(e 11 38)	+ 9	e 10 55	? e 11.6
Manila		46.1	232	i 8 11 _a	-12	i 15 1	- 4	—	—
Resolute Bay		46.7	21	i 8 30 _a	+ 3	i 14 56	-18	i 17 16	? e 22.5
Victoria		49.3	60	8 49	+ 1	—	—	—	—
Seattle	z.	50.4	61	9 9	+13	—	—	—	—
Corvallis	z.	51.6	64	i 9 8	+ 3	—	—	—	—
Hungry Horse		54.5	55	i 9 29	+ 2	—	—	—	—
Shasta	z.	54.6	66	i 9 30 _a	+ 2	—	—	—	—
Berkeley	z.	56.4	70	i 9 42 _a	+ 2	—	—	e 10 36	PcP
Butte		56.7	56	i 9 45	+ 2	—	—	—	—
Reno	z.	56.8	65	e 9 46 _a	+ 3	—	—	—	—
Lick	z.	57.2	70	i 9 48 _a	+ 2	—	—	i 10 42	PcP
Kiruna		57.9	342	i 9 50	- 1	—	—	i 10 0	? e 29.5
Fresno	z.	58.7	68	e 9 58 _a	+ 1	—	—	e 12 31	PP
Tinemaha		59.3	68	e 10 3 _a	+ 2	—	—	—	—
Scoresby Sund		59.6	0	e 10 3	0	—	—	—	31.5
Calcutta	E.	59.7	269	e 10 13	+ 9	e 17 51	-19	e 16 41	? —
China Lake		60.6	68	i 10 10	0	—	—	—	—
Pasadena		61.4	70	i 10 16 _a	+ 1	—	—	—	—
Riverside		62.0	70	i 10 20	+ 1	—	—	—	—
Boulder City		62.1	66	i 10 22	+ 2	—	—	—	—
Nelson		62.3	66	i 10 23	+ 2	—	—	—	—
Palomar		62.7	70	i 10 26 _a	+ 2	—	—	—	—
Upsala		65.5	339	i 10 42	0	e 23 59	SS	e 29 53	Q e 35.5
Tucson		67.1	67	i 10 54	+ 2	i 11 15	? —	i 11 4	? —
Quetta	z.	67.6	291	e 10 53	- 2	—	—	—	—
Copenhagen		70.5	340	e 11 25	+12	—	—	—	—
Kirkland Lake	z.	70.9	37	e 11 14	- 2	—	—	—	—
Aberdeen	N.	71.6	349	—	—	e 26 30	? —	e 34 25	? —
Poona	z.	71.8	277	i 12 20	? —	—	—	—	—
Bombay	N.	72.2	278	e 11 33	+10	—	—	—	—
Lwow		72.6	330	11 26	0	—	—	—	—
Kishinev		73.4	326	11 28	- 2	—	—	—	—
Potsdam	z.	73.4	339	e 11 36	+ 6	—	—	—	—
Fayetteville	z.	73.5	53	i 11 32	+ 1	—	—	—	—
Raciborz		74.2	334	e 11 35	0	—	—	e 11 51	PcP
Uzhgorod		74.2	330	11 39	+ 4	—	—	—	—
Ottawa		74.3	36	e 11 27 _a	- 9	—	—	—	—
Shawinigan Falls	N.	74.3	33	e 11 27	- 9	—	—	—	—
Collmberg	z.	74.4	337	e 11 36	0	e 20 5	-62	—	—
Witteveen	z.	74.4	342	e 11 36	0	—	—	—	—
Jena	z.	75.1	338	e 11 41	+ 1	—	—	—	—
Buffalo (Larkin)		75.2	39	i 11 47	+ 6	—	—	—	—
Cleveland	z.	75.2	42	i 11 43 _a	+ 2	—	—	i 11 52	pP
Prague		75.2	336	e 11 43	+ 2	e 14 24	PP	e 11 55	pP
Rathfarnham C.	z.	75.9	350	i 11 48 _a	+ 3	—	—	—	—
Kew		76.9	346	i 11 51	0	—	—	e 30 21	SSS
Pennsylvania	z.	77.3	40	e 11 56	+ 3	—	—	i 12 4	pP
Brisbane		77.4	186	i 11 52 _a	- 1	e 21 41	+ 1	i 12 3	pP
Morgantown		77.4	42	i 11 56	+ 3	—	—	—	—
Karlsruhe	z.	77.6	340	e 12 5	pP	—	—	—	—
Stuttgart		77.7	339	e 11 55	0	—	—	—	—
Belgrade		78.2	330	e 11 14	-44	—	—	e 12 0	? e 31.4

Continued on next page.

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	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.	
Strasbourg	78.2	340	e 12	0	+ 2	e 21	30	-19	e 14	40	PP	e 40.5
Harvard	78.3	35	i 12	0 _a	+ 2	—	—	—	—	—	—	—
Istanbul	78.4	322	e 11	58	- 1	—	—	—	—	—	—	—
Weston	78.5	35	i 12	1 _a	+ 2	—	—	—	i 12	11	pP	—
Palisades	78.7	38	i 12	1	+ 1	e 26	2	SS	—	—	—	—
City College, N.Y.	78.8	38	e 12	3	+ 2	—	—	—	—	—	—	—
Fordham	78.8	38	i 12	3	+ 2	—	—	—	—	—	—	—
Paris	79.0	343	i 12	4	+ 2	—	—	—	i 12	14	pP	e 40.5
Halifax	79.1	28	i 12	34 _a	+31	—	—	—	—	—	—	—
Philadelphia	79.1	39	—	—	—	e 21	3	-55	—	—	—	—
Zürich	79.1	339	e 12	4	+ 1	—	—	—	—	—	—	—
Basle	79.2	340	e 12	5	+ 2	—	—	—	—	—	—	—
Washington	79.2	39	i 12	10	+ 7	—	—	—	—	—	—	—
Chur	79.4	338	e 12	6	+ 2	—	—	—	—	—	—	—
Besançon	79.8	341	e 12	8	+ 2	e 13	12	?	i 12	17	pP	—
Mobile	80.8	53	e 12	16	+ 4	—	—	—	—	—	—	—
Pavia	81.0	338	—	—	—	e 22	24	+ 6	e 30	4	?	—
Bologna	81.1	336	e 12	28	+15	—	—	—	—	—	—	—
Ksara	81.6	313	i 12	24	+ 8	i 21	46	?	—	—	—	—
Florence	81.8	335	e 12	17 _k	0	—	—	—	—	—	—	—
Siena	82.2	336	12	30	+11	—	—	—	—	—	—	—
Rome	83.2	335	i 12	35	+11	—	—	—	—	—	—	—
Messina	85.7	330	e 12	44	+ 7	—	—	—	—	—	—	—
Helwan	87.0	315	12	47	+ 4	e 16	0	PP	i 12	54	pP	—
Granada	91.4	345	e 12	45 _a	-19	—	—	—	—	—	—	52.6
Tamanrasset	z. 103.1	333	e 13	57	0	—	—	—	e 17	16	PP	—
Pretoria	z. 134.2	282	e 19	17	[+ 3]	—	—	—	—	—	—	—
Kimberley	z. 138.4	281	e 19	24	[+ 2]	—	—	—	—	—	—	—

Nov. 5d. 21h. 46m. 3s. Epicentre 50°·2N. 157°·3E. Focus at Base of Superficial Layers. (as at 20h.).

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.	
Abashiri	10.8	240	e 2	33	- 2	—	—	—	—	—	—	
Urakawa	12.9	237	e 2	55	- 9	e 5	2	-25	—	—	—	
Sapporo	13.1	243	e 3	12	+ 6	—	—	—	—	—	—	
Mizusawa	15.9	232	3	44	+ 1	5	55	-43	—	—	—	
Sendai	16.7	231	3	49	- 4	7	17	+21	e 4	9	PP	—
Hokusima	17.3	228	e 3	55	- 5	e 7	11	+ 1	—	—	—	—
Kumagaya	19.1	228	e 4	24	+ 1	e 7	51	0	—	—	—	—
Maebasi	19.1	229	e 4	16	- 7	7	48	- 3	—	—	—	—
Nagano	19.3	235	e 4	23	- 2	e 7	44	-11	—	—	—	—
Matusiro	19.4	234	4	18	- 8	—	—	—	—	—	—	10.3
Kohu	19.9	231	4	27	- 4	8	24	+16	—	—	—	—
Nagoya	21.1	231	e 4	28	-16	—	—	—	—	—	—	—
Tsuruga	21.2	233	e 4	40	- 5	—	—	—	—	—	—	—
Kyoto	21.8	233	e 4	45	- 6	e 8	56	+11	—	—	—	—
Osaka	22.2	233	e 5	0	+ 5	—	—	—	—	—	—	—
Takamatu	23.3	236	e 5	3	- 3	e 9	9	- 3	—	—	—	—
Hamada	23.9	240	e 5	10	- 2	e 9	28	+ 5	—	—	—	—
Koti	24.1	235	e 5	11	- 2	e 9	32	+ 6	—	—	—	—
College	31.7	42	i 6	43	+20	(e 11	46)	+17	—	—	—	e 11.8
Resolute Bay	z. 46.7	21	i 8	34 _a	+ 7	—	—	—	—	—	—	—
Hungry Horse	54.5	55	19	29	+ 2	—	—	—	—	—	—	—
Shasta	z. 54.6	66	e 9	29 _k	+ 1	—	—	—	—	—	—	—
Berkeley	z. 56.4	70	e 9	44	+ 4	—	—	—	—	—	—	—
Reno	z. 56.8	65	9	43	0	—	—	—	—	—	—	—
Lick	z. 57.2	70	e 9	45	- 1	—	—	—	—	—	—	—
Chatra	57.4	273	e 9	47	- 1	—	—	—	—	—	—	—
Kiruna	z. 57.9	342	i 9	57	+ 6	—	—	—	i 10	11	pP	e 37.2
Fresno	z. 58.7	68	e 9	57	0	—	—	—	—	—	—	—
Tinemaha	z. 59.3	68	e 10	3	+ 2	—	—	—	—	—	—	—
Scoresby Sund	59.6	0	e 10	9	+ 6	—	—	—	—	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1009

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Calcutta	E.	59.7	269	e 10	11	+ 7	i 18	26	+16	—	—	—
China Lake	Z.	60.6	68	e 10	10	0	—	—	—	—	—	—
Pasadena		61.4	70	e 10	15	0	—	—	—	—	—	—
Riverside	Z.	62.0	70	e 10	19	0	—	—	—	—	—	—
Boulder City		62.1	66	i 10	21	+ 1	—	—	—	—	—	—
Nelson		62.3	66	i 10	22	+ 1	—	—	—	—	—	—
Palomar	Z.	62.7	70	e 10	24	0	—	—	—	—	—	—
Upsala		65.5	339	i 10	48k	+ 6	e 19	17	- 6	i 11	2	PcP
Tucson		67.1	67	e 10	54	+ 2	—	—	—	—	—	—
Quetta		67.6	291	i 10	59	+ 4	e 19	56	+ 8	—	—	—
Hyderabad	E.	69.7	273	e 11	6	- 2	e 20	22	+ 8	—	—	—
Copenhagen		70.5	340	i 11	20	+ 7	—	—	—	i 11	25	pP
Djakarta		71.1	234	i 11	20	+ 3	e 21	53	?	—	—	—
Aberdeen	N.	71.6	349	e 10	57?	-23	—	—	—	—	—	—
Poona	Z.	71.8	277	i 11	22	+ 1	e 20	48	+10	—	—	—
Bombay		72.2	278	e 11	27	+ 4	e 20	57	+15	—	—	—
Lwow		72.6	330	i 11	32	+ 6	—	—	—	—	—	—
Cernauti		73.3	328	e 11	40	+10	—	—	—	—	—	—
Kishinev		73.4	326	i 11	35	+ 5	e 21	7	+11	i 11	51	PcP
Potsdam		73.4	339	e 11	42	+12	i 21	12	+16	—	—	—
Fayetteville	Z.	73.5	53	i 11	31k	0	—	—	—	—	—	—
Raciborzu		74.2	334	e 11	41	+ 6	e 12	22	?	e 11	56	PcP
Uzhgorod		74.2	330	e 11	46	+11	—	—	—	—	—	—
Ottawa		74.3	36	i 11	38a	+ 2	—	—	—	—	—	—
Shawinigan Falls	N.	74.3	33	e 11	40	+ 4	—	—	—	—	—	—
Collmberg	Z.	74.4	337	e 11	41	+ 5	—	—	—	—	—	—
Jena	Z.	75.1	338	e 11	47	+ 7	—	—	—	—	—	—
Cleveland	Z.	75.2	42	i 11	45a	+ 4	—	—	—	i 11	59	pP
Prague		75.2	336	e 11	48	+ 7	e 13	39	?	e 12	2	pP
Brisbane		77.4	186	i 11	49a	- 4	i 21	37	- 3	—	—	—
Morgantown		77.4	42	i 11	55	+ 2	—	—	—	—	—	—
Karlsruhe	Z.	77.6	340	e 12	16	+22	—	—	—	—	—	—
Stuttgart		77.7	339	e 12	1	+ 6	—	—	—	—	—	—
Belgrade		78.2	330	e 12	8a	+10	e 21	59	+10	e 12	19	pP
Strasbourg		78.2	340	i 12	19	+21	—	—	—	—	—	—
Harvard		78.3	35	i 12	1k	+ 3	—	—	—	—	—	—
Istanbul	Z.	78.4	322	e 12	4	+ 5	—	—	—	e 12	20	pP
Weston		78.5	35	i 12	2k	+ 3	—	—	—	—	—	—
Palisades		78.7	37	i 12	3	+ 3	—	—	—	—	—	—
Paris		79.0	343	i 12	8	+ 6	i 12	24	?	i 12	16	pP
Sofia		79.1	327	e 11	12	-51	—	—	—	—	—	—
Zürich	Z.	79.1	339	e 12	9	+ 6	—	—	—	—	—	—
Basle	Z.	79.2	340	e 12	11	+ 8	—	—	—	—	—	—
Washington		79.2	39	i 12	7	+ 4	—	—	—	—	—	—
Chur	Z.	79.4	338	e 12	41	?	—	—	—	—	—	—
Besançon		79.8	341	e 12	11	+ 5	e 13	29	?	i 12	28	pP
Oropa		80.9	338	i 12	18	+ 6	—	—	—	—	—	—
Bologna		81.1	336	e 12	47	?	—	—	—	—	—	—
Ksara		81.6	313	i 12	24	+ 8	—	—	—	—	—	—
Clermont-Ferrand		81.8	342	e 12	29	+12	—	—	—	—	—	—
Florence	Z.	81.8	335	e 12	36a	+19	e 20	26	?	—	—	—
Prato		81.8	336	e 12	34	+17	e 22	36	+10	—	—	—
Siena		82.2	336	11	57	-22	—	—	—	—	—	—
Rome		83.2	335	e 12	38	+14	e 23	17	PS	—	—	e 54.0
Messina	Z.	85.7	330	e 13	20	?	—	—	—	—	—	—
Helwan	Z.	87.0	315	12	48	+ 5	—	—	—	i 13	4	pP
Granada		91.4	345	e 13	12k	+ 8	—	—	—	—	—	52.2
Tamanrasset	Z.	103.1	333	e 14	2	+ 5	e 18	18	PP	e 17	46	?
Pretoria	Z.	134.2	282	i 19	18	[+ 4]	—	—	—	—	—	—
Pietermaritzburg	Z.	135.5	278	e 19	21	[+ 4]	—	—	—	—	—	—
Kimberley	Z.	138.4	281	e 19	24	[+ 2]	—	—	—	—	—	—
Grahamstown	Z.	140.3	276	e 19	21	[- 5]	—	—	—	—	—	—

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1952

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Nov. 5d. 22h. 46m. 1s. Epicentre 51°·9N. 159°·9E.

A = -·5814, B = +·2128, C = +·7853; $\delta = +1$; $h = -6$;
D = +·344, E = +·939; G = -·737, H = +·270, K = -·619.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
	°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Sapporo	15·3	242	e 3 57	+18	7 22	+52	—	e 8·9	
Hatinohe	17·0	236	e 4 0	-1	—	—	—	e 9·2	
Aomori	17·2	238	e 4 15	+12	7 57	Q	4 58	8·9	
Mizusawa	18·3	233	4 20	+3	7 29	-10	—	e 11·2	
Akita	18·4	234	e 4 22	+4	e 8 3	+22	—	e 9·6	
Sendai	19·1	231	4 25	-2	e 8 2	+5	—	—	
Hokusima	19·7	232	e 4 30	-4	e 8 14	+4	—	e 10·6	
Aikawa	20·6	235	e 4 40	-3	e 8 41	+12	—	10·6	
Utunomiya	20·9	232	e 4 37	-9	e 8 32	-3	—	—	
Maebasi	21·4	231	e 4 52	+1	8 45	0	—	—	
Kumagaya	21·5	232	e 4 59	+7	e 8 54	+7	—	—	
Matusiro	21·7	235	e 4 56	+1	e 9 1	+10	—	e 11·6	
Nagano	N. 21·7	233	e 4 56	+1	e 8 58	+7	—	e 13·3	
Oiwake	21·7	232	e 4 51	-4	—	—	—	—	
Hunatu	22·3	229	e 4 56	-5	e 8 52	-10	—	—	
Shizuoka	22·9	231	e 5 9	+3	e 9 30	+17	—	—	
Nagoya	23·5	233	e 5 11	-1	—	—	—	—	
Kameyama	23·9	233	e 5 16	0	e 9 17	-13	e 10 43	Q	e 14·2
Kyoto	24·2	235	e 4 53	-26	e 9 0	-35	—	—	—
Takamatu	N. 25·6	237	e 5 49	+17	e 10 5	+6	—	—	—
Koti	26·4	236	e 5 40	0	e 10 22	+10	—	—	13·2
Hukuoka	28·1	241	e 6 14	+19	e 10 38	-2	—	—	e 16·1
College	29·3	44	i 6 4	-2	e 11 1	+2	—	—	e 12·4
Resolute Bay	44·5	22	i 8 13	-2	i 14 54	+3	i 18 7	ScS	i 19·0
Hong Kong	45·8	247	e 8 31	+6	e 15 12	+3	—	—	e 21·8
Victoria	47·1	63	8 44	+9	—	—	—	—	—
Manila	48·5	235	i 8 34 _a	-12	i 15 31	-17	—	—	—
Hungry Horse	52·2	58	e 9 19	+4	—	—	—	—	—
Shasta	z. 52·4	70	i 9 13 _k	-3	i 9 24	?	—	—	—
Berkeley	z. 54·3	73	i 9 38 _a	+8	—	—	—	—	—
Reno	z. 54·7	69	e 9 33	0	—	—	—	—	—
Lick	z. 55·0	73	e 9 35	0	—	—	—	—	—
Fresno	z. 56·5	72	e 9 47	+1	—	—	—	—	—
Kiruna	56·8	344	i 9 45	-3	e 17 32	-9	e 13 17	PPP	e 28·0
Tinemaha	57·2	71	e 9 52	+1	—	—	i 10 0	P	—
Scoresby Sund	57·9	2	e 9 53	-3	18 1	+6	—	—	27·0
China Lake	z. 58·5	71	i 9 57	-3	—	—	i 10 8	?	—
Chatra	58·9	275	e 9 57	-6	—	—	—	—	—
Pasadena	z. 59·3	73	e 10 5	-1	—	—	i 10 13	?	—
Riverside	z. 59·9	73	e 10 7	-3	—	—	e 10 16	?	—
Boulder City	60·0	69	e 10 8	-3	—	—	i 10 18	?	—
Nelson	60·1	69	e 10 9	-2	—	—	—	—	—
Palomar	z. 60·6	73	e 10 19	+4	—	—	i 10 27	?	—
Calcutta	E. 61·3	271	e 10 17	-3	e 18 38	-1	—	—	—
New Delhi	N. 63·7	284	e 10 35	-1	e 19 9	-1	i 19 42	PS	26·7
Upsala	64·5	340	i 10 37	-4	i 19 19	0	i 19 36	PS	e 32·0
Tucson	64·9	70	e 10 51	+8	—	—	—	—	—
Bergen	N. 66·2	347	—	—	e 20 7	PS	—	—	e 38·6
Kirkland Lake	z. 67·9	39	e 11 4	+2	—	—	—	—	—
Quetta	68·5	292	i 11 3 _a	-3	e 20 9	+1	—	—	27·5
Copenhagen	69·4	342	i 11 14	+2	20 22	+4	i 11 22	?	—
Aberdeen	70·3	350	—	—	e 24 14	SS	—	—	e 34·0
Fayetteville	z. 71·2	56	i 11 20 _a	-3	—	—	—	—	—
Hyderabad	E. 71·2	275	e 11 22	-1	e 20 34	-6	—	—	—
Lwow	71·9	332	i 11 24	-3	—	—	—	—	—
Ottawa	71·9	38	e 11 27	0	—	—	14 11	PP	—
Potsdam	72·4	340	e 11 28	-2	i 21 6	+13	i 21 13	?	e 38·0
Cernauti	72·7	330	i 11 30	-2	—	—	—	—	—
Cleveland	z. 72·8	44	i 11 41 _k	+9	—	—	—	—	—
Kishinev	72·9	328	i 11 31	-2	e 20 58	-1	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Iasi		73.1	330	e 11 31	- 3	—	—	—	—
Poona		73.2	279	i 11 32	- 3	21 1	- 1	—	—
Witteveen	z.	73.2	344	e 11 29	- 6	—	—	—	—
Raciborzu	z.	73.3	336	e 11 33	- 2	e 14 17	PP	e 11 53	—
Collmberg		73.4	339	e 11 34	- 2	e 21 5	0	—	e 38.0
Djakarta	E.	73.4	236	—	—	21 5	0	—	—
Madras	E.	73.5	271	e 11 35	- 1	—	—	—	—
Uzhgorod		73.5	333	e 11 38	+ 2	e 21 7	+ 1	—	—
Skalnate Pleso		73.6	334	e 11 34	- 3	e 20 46?	-21	e 14 46	PP e 39.5
Jena		74.1	340	i 11 40	0	e 21 12	0	e 21 31	PS
De Bilt		74.2	345	e 11 47	+ 7	e 21 17	+ 3	—	e 33.0
Prague		74.2	338	e 11 44	+ 4	e 21 14	0	e 11 59?	PcP e 43.0
Cheb	N.	74.7	340	—	—	e 21 21	+ 2	e 21 40	ScS
Morgantown		75.0	45	i 11 45	0	—	—	—	—
Ogyalla	N.	75.3	335	e 12 9	PcP	e 21 48	+22	e 14 34	PP
Budapest		75.4	334	e 11 50	+ 3	e 21 25	- 2	—	42.0
Harvard		75.9	37	i 11 51k	+ 1	—	—	—	e 36.7
Bucharest		76.1	328	e 11 53	+ 2	—	—	e 12 6	PcP
Weston		76.1	37	e 11 54	+ 3	—	—	—	e 41.2
Palisades		76.3	39	e 11 53	+ 1	—	—	—	e 39.0
Timisoara		76.4	332	e 11 53	0	—	—	e 11 29	? e 45.0
Fordham		76.5	39	i 12 7	PcP	—	—	—	—
Karlsruhe	z.	76.5	341	e 11 53	- 1	—	—	—	—
Stuttgart		76.6	341	e 11 52	- 2	e 21 41	+ 1	—	e 42.0
Halifax		76.8	31	e 11 55	0	—	—	—	—
Washington		76.8	42	i 12 5	+10	—	—	—	—
Strasbourg		77.1	342	i 11 59	+ 2	e 21 47	+ 1	i 12 8	PcP 35.0
Kodaikanal		77.4	270	—	—	e 21 57	+ 8	—	—
Belgrade		77.5	332	e 11 59	0	e 22 12	ScS	—	e 50.9
Paris		77.8	345	e 12 0	- 1	22 12	ScS	i 22 40	PS e 40.0
Istanbul	z.	78.0	325	e 12 6	+ 4	—	—	—	—
Sofia		78.5	329	e 12 4	0	—	—	—	e 44.9
Besançon		78.7	342	e 12 5	- 1	e 13 27	?	e 12 15	PcP
Pavia		80.0	340	—	—	e 22 37	+20	—	e 33.7
Clermont-Ferrand		80.7	344	e 12 27	PcP	—	—	i 12 42	? 40.5
Prato		80.8	338	e 12 13	- 4	e 22 40	+15	—	—
Florence		80.9	338	e 12 13	- 4	e 22 42	+16	—	—
Ksara		81.6	316	i 12 22	+ 1	—	—	—	—
Messina		85.0	333	e 12 31	- 7	e 22 59	[- 2]	e 12 46	PcP
Tortosa		85.9	345	13 18	?	23 31	ScS	—	—
Helwan		86.9	318	e 12 45	PcP	e 23 27	+ 1	16 14	PP
Bermuda		87.4	36	—	—	e 23 28	- 2	—	e 45.1
Toledo		87.5	348	e 13 7	+16	e 23 59	ScS	—	—
Alicante		88.5	346	13 3	+ 7	23 43	+ 2	—	46.2
Granada		90.1	348	13 34k	+31	24 16	+21	25 34	PS 46.2
Tamanrasset	z.	102.3	336	e 13 58	- 1	e 18 6	PP	e 14 13	PcP
Pretoria	z.	135.3	289	e 19 22	[0]	—	—	—	—
Kimberley	z.	139.5	289	e 19 25	[- 5]	—	—	—	—

Nov. 5d. 23h. 58m. 39s. Epicentre 38°·8N. 69°·7E. (as on 1952, June 22d.).

A = +·2711, B = +·7328, C = +·6240 ; $\delta = -13$; $h = -1$;

	Δ	Az.	P.	O-C.	S.	O-C.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.
Obi-garm	0.1	—	i 0 10	P _g	—	—
Garm	0.5	67	i 0 8	- 2 _g	i 0 12	- 4 _g
Stalinabad	0.8	251	0 21	+ 5 _g	0 36	+10 _g
Kulyab	0.9	176	i 0 21	+ 3 _g	0 36	+ 6 _g
Dzhergetal	1.2	71	0 20	- 4 _g	0 33	- 7 _g
Khorog	2.0	132	e 0 35	0	0 59	- 4 _g
Fergana	2.3	45	0 39	- 3	e 1 7	- 2

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Nov. 6d. 0h. 58m. 37s. Epicentre 53°·1N. 160°·9E. (as on 4d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay	z.	43·1	23	i 8 3	- 1	i 8 46	?	e 5 50	?
Victoria		46·0	63	8 25	- 2	—	—	—	—
Shasta	z.	51·4	71	e 9 9 ^k	0	—	—	—	—
Berkeley	z.	53·4	74	e 9 23	- 1	—	—	—	—
Reno	z.	53·7	70	e 9 25 ^a	- 1	—	—	—	—
Lick	z.	54·1	74	i 9 29	0	—	—	—	—
Fresno	z.	55·6	73	e 9 39	- 1	—	—	—	—
Kiruna		55·8	344	i 9 40	- 1	—	—	i 9 51	?
Tinemaha		56·2	72	i 9 45	+ 1	i 9 55	?	i 10 20	?
Scoresby Sund		56·7	2	9 20	-28	—	—	—	—
China Lake	z.	57·5	72	i 9 53	0	i 10 4	?	i 10 27	?
Pasadena		58·4	74	i 9 59	- 1	i 10 11	?	i 10 33	?
Riverside	z.	58·9	74	e 10 3	0	—	—	e 10 37	?
Palomar	z.	59·7	74	i 10 7	- 2	i 10 19	?	i 10 41	?
Upsala		63·6	341	i 10 34	- 1	i 10 46	?	i 11 1	?
Copenhagen		68·5	342	i 11 19	+13	—	—	—	—
Fayetteville	z.	70·0	56	i 11 13	- 2	—	—	i 11 48	PcP
Ottawa		70·6	39	e 11 16	- 3	—	—	—	—
Lwow		71·2	333	e 11 23	0	—	—	—	—
Cleveland	z.	71·5	45	i 12 2 ^k	+38	—	—	i 12 12	pP
Kishinev		72·2	328	e 11 29	0	—	—	—	—
Witteveen	z.	72·3	344	i 11 57	PcP	—	—	—	—
Collmberg	z.	72·5	340	e 11 31	+ 1	e 11 56	?	e 11 43	PcP
Uzhgorod		72·7	334	e 11 43	+11	—	—	—	—
Jena	z.	73·2	340	e 11 35	0	—	—	—	—
Prague		73·4	339	i 11 50	+14	e 13 27	?	e 43 23	Q
Rathfarnham C.	z.	73·4	352	i 12 4	+28	—	—	—	—
Poona	z.	73·7	279	i 11 38	0	—	—	—	—
Harvard		74·6	37	i 11 42 ^a	- 1	—	—	—	—
Kew		74·6	348	e 12 9	+26	—	—	—	—
Weston		74·8	37	i 11 43	- 1	—	—	—	—
Karlsruhe	z.	75·6	341	e 12 13	+25	—	—	—	—
Stuttgart		75·7	341	e 11 49	0	—	—	—	—
Strasbourg		76·2	342	e 12 17	?	—	—	e 12 29	?
Belgrade		76·7	332	e 12 16 ^a	+21	—	—	e 12 29	?
Paris		76·8	346	i 12 22	?	—	—	i 12 33	?
Basle		77·2	342	e 11 58	+ 1	—	—	—	—
Zürich	z.	77·2	342	e 12 22	?	—	—	—	—
Istanbul	z.	77·4	325	e 11 59	+ 1	—	—	—	—
Chur		77·5	340	e 11 59	0	—	—	—	—
Besançon		77·8	343	e 12 1	0	i 12 27	?	e 12 51	?
Clermont-Ferrand		79·7	345	e 12 37	?	—	—	i 12 49	?
Florence	z.	80·0	338	e 12 28 ^a	+15	—	—	i 12 37	?
Ksara		81·1	317	e 12 36	+18	—	—	—	—
Messina		84·2	333	e 12 55	?	—	—	—	—
Helwan	z.	86·5	318	12 59	+13	—	—	—	—
Tamanrasset	z.	101·5	337	e 13 56	+ 1	e 18 2	PP	e 17 15	?
Pretoria	z.	135·5	289	e 18 53	[-29]	—	—	—	—
Kimberley	z.	139·8	289	e 19 36	[+ 6]	—	—	—	—

Nov. 6d. 2h. 23m. 49s. Epicentre 52°·7N. 159°·4E. (as on 1947, August 28d.).

A = -·5696, B = +·2141, C = +·7935; δ = -7; h = -6;
D = +·352, E = +·936; G = -·743, H = +·279, K = -·609.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	E.	18·5	230	i 4 13	- 6	4 34	?	—	—
Resolute Bay	z.	43·9	22	e 8 12	+ 2	—	—	—	—
Victoria		47·0	63	8 33	- 2	—	—	—	—
Shasta	z.	52·4	70	e 9 15 ^a	- 1	—	—	—	—
Berkeley	z.	54·4	73	e 9 33	+ 2	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Reno	z.	54.7	69	e 9 31	- 2	—	—	—	—
Lick	z.	55.1	73	e 9 31	- 5	—	—	—	—
Kiruna		56.5	344	i 9 44 _a	- 2	i 9 49	?	i 9 59	e 31.2
Fresno	z.	56.6	72	e 9 43	- 4	—	—	—	—
Scoresby Sund		57.1	2	9 59	+ 9	—	—	—	35.2
Upsala	z.	63.7	340	i 10 38 _a	+ 2	i 14 38	PPP	16 21	?
Quetta	z.	68.0	292	i 11 0	- 3	—	—	—	—
Copenhagen		68.6	341	i 11 10	+ 3	—	—	—	—
Fayetteville	z.	71.0	56	e 11 16	- 6	—	—	—	—
Lwow		71.1	333	i 11 23	+ 1	—	—	—	—
Ottawa		71.5	38	e 11 23 _k	- 1	—	—	—	—
Potsdam	z.	71.5	340	e 11 26	+ 2	—	—	—	—
Kishinev		72.1	328	i 11 28	0	—	—	—	—
Witteveen	z.	72.4	344	i 11 32	+ 2	—	—	—	—
Raciborzu	z.	72.5	336	e 11 32	+ 2	—	—	e 12 0	?
Collmberg	z.	72.6	339	e 11 33	+ 2	e 24 35	SS	e 15 25	PPP
Uzhgorod		72.7	334	e 11 33	+ 1	—	—	—	—
Poona	z.	72.8	279	i 11 28	- 4	—	—	—	—
Jena	z.	73.2	339	e 11 36	+ 1	—	—	—	—
Prague		73.4	337	e 11 38	+ 2	—	—	e 11 52	PcP
Harvard		75.5	36	i 11 48 _k	0	—	—	—	—
Karlsruhe	z.	75.7	341	e 11 51	+ 2	—	—	—	—
Weston		75.7	36	i 11 48 _a	- 1	—	—	i 11 59	PcP
Stuttgart		75.8	340	e 11 51	+ 1	—	—	—	—
Palisades		75.9	38	e 11 48	- 2	—	—	—	—
Strasbourg		76.2	341	e 11 54	+ 2	—	—	e 12 2	PcP
Belgrade		76.6	331	e 11 55 _a	+ 1	—	—	—	—
Paris		77.0	345	i 11 58	+ 2	i 12 55	?	i 13 24	?
Istanbul	z.	77.2	324	e 11 58	+ 1	—	—	—	—
Basle		77.3	341	e 12 59	+61	—	—	—	PPP
Besançon		77.9	342	i 12 3	+ 2	e 12 14	?	e 12 30	?
Clermont-Ferrand		79.8	343	i 12 17	+ 5	—	—	—	—
Florence	z.	80.1	337	e 12 13	0	—	—	—	—
Ksara		80.8	315	i 12 20	+ 3	—	—	—	—
Helwan	z.	86.1	317	12 41	- 3	—	—	—	—
Tamanrasset	z.	101.5	336	e 13 57	+ 2	e 17 28	?	e 18 3	PP
Pretoria	z.	134.8	289	e 19 19	[- 2]	—	—	—	—
Kimberley	z.	139.0	289	e 19 37	[+ 8]	—	—	—	—

Nov. 6d. 3h. 54m. 33s. Epicentre 52°·6N. 160°·3E. (as on 5d. 13h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	E.	18.9	233	e 3 45	-39	6 12	?	—	—
College		28.7	44	6 10	+ 9	—	—	—	13.4
Resolute Bay	z.	43.7	22	i 8 18 _a	+10	—	—	—	—
Victoria		46.5	63	8 35	+ 4	—	—	—	—
Hungry Horse		51.6	58	i 9 14	+ 4	—	—	—	—
Shasta	z.	51.9	70	e 9 14 _k	+ 2	—	—	—	—
Berkeley	z.	53.9	73	e 9 27 _k	0	—	—	e 9 49	?
Reno	z.	54.2	69	e 9 31 _k	+ 2	—	—	—	—
Lick	z.	54.6	73	e 9 32	0	—	—	—	—
Fresno	z.	56.1	72	e 9 43 _k	0	—	—	—	—
Kiruna		56.2	344	i 9 45 _k	+ 1	i 10 9	?	i 10 38	PcP
Tinemaha	z.	56.8	71	i 9 47	- 1	—	—	—	—
Scoresby Sund		57.2	2	9 51	0	—	—	—	—
China Lake	z.	58.0	71	e 9 55	- 2	—	—	—	—
Pasadena	z.	58.8	73	i 10 2	0	—	—	i 10 15	?
Riverside	z.	59.4	73	e 10 5	- 1	—	—	—	—
Boulder City		59.5	69	i 10 7	0	—	—	—	—
Nelson		59.7	69	i 10 8	- 1	—	—	—	—
Palomar	z.	60.2	73	i 10 9	- 3	—	—	—	—
Upsala	z.	63.9	340	i 10 37 _k	0	i 10 52	?	i 11 12	PcP

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Tucson		64.5	70	e 10 39	- 2	—	—	—	—
Quetta	z.	68.5	292	i 10 53	-13	—	—	—	—
Copenhagen		68.9	342	e 11 9	0	—	—	—	—
Fayetteville	z.	70.6	56	i 11 18	- 1	—	—	i 11 31	pP
Ottawa		71.2	38	e 11 23k	0	—	—	—	—
Potsdam		71.8	340	e 11 27	+ 1	—	—	—	e 43.4
Cleveland	z.	72.1	44	i 11 30a	+ 2	—	—	i 11 43	pP
Raciborzu	z.	72.8	336	11 31a	- 1	e 11 44	PcP	e 13 22	?
Collnberg	z.	72.9	339	e 11 31	- 2	e 11 44	PcP	e 11 56	?
Skalnate Pleso		73.1	334	e 11 33	- 1	e 22 33	?	e 14 24	PP
Poona	z.	73.4	279	i 11 18	-18	—	—	—	—
Jena	z.	73.5	340	e 11 34	- 2	—	—	—	—
Bombay		73.7	280	e 11 23	-15	e 20 49	-19	21 32	PS
Prague		73.7	338	e 11 36	- 2	e 14 28	PP	e 11 53	PcP
Rathfarnham C.	z.	73.9	352	i 11 43a	+ 4	—	—	—	—
Morgantown		74.4	45	i 11 44	+ 2	—	—	—	—
Budapest		74.9	334	e 11 45	+ 1	e 21 35	+13	16 2	PPP
Harvard		75.2	37	i 11 48	+ 2	—	—	—	—
Weston		75.4	37	i 11 49k	+ 2	—	—	i 12 2	PcP
Kalossa		75.8	334	e 12 7	PcP	—	—	—	—
Karlsruhe	z.	76.0	341	e 11 49	- 2	—	—	—	—
Stuttgart		76.1	341	e 11 49	- 2	—	—	—	—
Strasbourg		76.5	342	i 11 58	+ 4	—	—	i 12 10	PcP
Belgrade	z.	77.0	332	e 11 54k	- 2	—	—	e 12 17	PcP
Paris		77.2	345	i 11 57	0	i 12 3	?	i 12 13	PcP
Basle		77.5	342	e 11 58	- 1	—	—	e 16 7	PPP
Besançon		78.1	342	e 12 1	- 1	i 12 17	PcP	e 12 28	?
Sofia		78.1	329	e 10 33	?	—	—	—	—
Clermont-Ferrand		80.1	344	e 12 13	0	—	—	i 12 31	PcP
Florence	z.	80.4	338	e 12 13k	- 2	—	—	i 12 29	PcP
Ksara		81.3	316	i 12 15	- 5	—	—	—	—
Messina	E.	84.5	333	e 12 30	- 6	e 23 14	+12	—	—
Helwan		86.6	318	i 12 41a	- 5	e 23 19	- 4	16 8	PP
Granada		89.5	348	13 48a	+48	—	—	—	—
Tamanrasset	z.	101.8	336	e 13 48	- 8	e 17 54	PP	e 14 1	P
La Paz		127.7	65	e 18 59	[- 9]	e 22 27	PKS	—	—

Nov. 6d. 5h. 42m. 18s. Epicentre 52°·8N. 161°·5E. (as on 4d.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Resolute Bay	z.	43.3	22	i 8 2k	- 3	—	—	—	—
Victoria		45.8	63	15 19	S	(15 19)	+10	—	—
Shasta	z.	51.2	70	9 6	- 1	—	—	—	—
Berkeley	z.	53.1	73	e 9 22	+ 1	—	—	—	—
Reno	z.	53.4	69	e 9 23a	- 1	—	—	—	—
Lick	z.	53.9	73	e 9 26a	- 1	—	—	—	—
Fresno	z.	55.3	72	e 9 37	- 1	—	—	—	—
Tinemaha		56.0	71	e 9 42	- 1	—	—	i 9 55	?
Kiruna		56.2	344	i 9 42	- 2	i 17 31	- 2	e 21 20	SS
China Lake	z.	57.3	71	e 9 50	- 2	—	—	i 10 2	?
Pasadena	z.	58.1	73	e 9 57	- 1	—	—	i 10 8	?
Riverside	z.	58.7	73	e 10 1	- 1	—	—	—	—
Palomar	z.	59.4	73	e 10 7	+ 1	—	—	—	—
Upsala		64.0	340	i 10 35	- 3	e 19 11	- 2	e 23 42	SS
Copenhagen		68.9	342	—	—	20 22	+ 9	—	—
Quetta		69.1	292	i 11 12	+ 2	e 20 13	- 2	—	—
Fayetteville	z.	69.9	56	i 11 11k	- 4	—	—	i 11 22	pP
Ottawa		70.6	38	e 11 14k	- 5	—	—	—	—
Lwow		71.6	333	e 11 40	PcP	e 20 52	+ 8	—	—
Hyderabad	E.	72.1	275	—	—	e 20 51	+ 1	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Kishinev		72.7	329	e 11 32	0	20 55	- 2	—	—
Collmberg		72.9	339	11 31	- 2	—	—	—	—
Uzhgorod		73.2	334	e 11 46	PcP	—	—	—	—
Jena	z.	73.6	340	e 11 35	- 2	—	—	—	—
Prague		73.8	338	e 11 40	+ 2	e 21 15	+ 6	e 11 50	PcP
Poona	z.	74.1	279	i 11 42	+ 2	—	—	i 11 53	PcP
Bombay		74.4	281	e 11 46	+ 4	e 21 17	+ 1	22 4	PPS
Harvard		74.6	37	i 11 50 _a	+ 7	—	—	—	—
Weston		74.8	37	i 12 41 _a	+ 57	—	—	—	—
Karlsruhe	z.	76.0	341	e 11 50	- 1	—	—	—	—
Stuttgart		76.1	341	e 11 50	- 1	—	—	—	—
Strasbourg		76.6	342	e 11 55	+ 1	e 21 45	+ 5	—	e 35.7
Paris		77.2	347	e 11 57	0	e 12 8	PcP	i 12 18	e 37.7
Chur		77.9	341	e 12 0	- 1	—	—	—	—
Istanbul	z.	77.9	325	e 11 59	- 2	—	—	—	—
Besançon		78.2	342	i 12 3	0	e 12 20	?	e 13 32	?
Kodaikanal	E.	78.3	271	—	—	e 21 55	- 4	—	—
Oropa		79.4	341	e 12 10	+ 1	21 44	- 26	23 44	PPS
Clermont-Ferrand		80.1	344	e 12 43	?	—	—	—	—
Florence		80.5	338	e 12 15	0	e 22 30	+ 8	—	—
Ksara		81.6	316	i 12 25	+ 4	—	—	—	—
Rome		82.0	336	12 23	0	22 41	+ 4	23 47	PPS
Taranto		82.1	333	—	—	22 39	+ 1	—	—
Messina	E.	84.7	333	—	—	e 23 6	+ 2	—	—
Bermuda		86.1	38	—	—	e 35 44	?	—	e 45.0
Helwan		86.6	318	e 12 49	+ 3	e 23 36	+ 13	e 13 51	?
Toledo		86.8	348	e 12 51	+ 4	—	—	—	—
Granada		89.4	348	e 18 54 _k	PPP	—	—	—	52.4
Tamanrasset	z.	101.8	336	e 13 57	+ 1	e 24 44	[+ 8]	e 18 4	PP

Nov. 6d. 10h. 57m. 13s. Epicentre 52°·6N. 160°·3E. (as at 3h.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Mizusawa	E.	18.9	233	e 4 22	- 2	7 5	- 48	—	—
College		28.7	44	i 6 4	+ 3	—	—	—	—
Resolute Bay	z.	43.7	22	i 8 10 _k	+ 2	—	—	i 8 24	?
Victoria		46.5	63	8 34	+ 3	—	—	—	—
Hungry Horse		51.6	58	i 9 12	+ 2	—	—	i 9 24	?
Shasta	z.	51.9	70	e 9 15 _a	+ 3	—	—	—	—
Berkeley	z.	53.9	73	e 9 28 _a	+ 1	—	—	e 9 45	?
Reno	z.	54.2	69	e 9 31 _a	+ 2	—	—	—	—
Lick	z.	54.6	73	e 9 34	+ 2	—	—	—	—
Fresno	z.	56.1	72	e 9 43	0	—	—	e 10 1	?
Kiruna		56.2	344	i 9 43 _a	- 1	e 23 24	SSS	i 10 18	?
Tinemaha		56.8	71	i 9 51	+ 3	—	—	i 10 7	?
China Lake	z.	58.0	71	i 9 58	+ 1	—	—	i 10 14	?
Pasadena	z.	58.8	73	i 10 4 _k	+ 2	—	—	i 10 21	?
Riverside	z.	59.4	73	e 10 8	+ 2	—	—	—	—
Boulder City		59.5	69	i 10 9	+ 2	—	—	i 10 25	?
Nelson		59.7	69	i 10 10	+ 1	—	—	—	—
Palomar	z.	60.2	73	i 10 14	+ 2	—	—	i 10 31	?
Upsala		63.9	340	i 10 37 _a	0	—	—	i 11 7	PcP
Tucson		64.5	70	e 10 42	+ 1	—	—	—	e 36.8
Copenhagen		68.9	342	i 11 9	0	—	—	i 11 23	PcP
Fayetteville	z.	70.6	56	i 11 19	0	—	—	—	—
Ottawa		71.2	38	e 11 22 _a	- 1	—	—	14 2	PP
Lwow		71.4	332	i 11 23	- 1	—	—	—	—
Potsdam	z.	71.8	340	e 11 27	+ 1	—	—	—	—
Cleveland	z.	72.1	44	i 11 29 _k	+ 1	—	—	i 11 44	pP
Kishinev		72.4	328	e 11 28	- 2	—	—	—	—
Raciborzu	z.	72.8	336	e 11 32	0	e 12 42	?	e 11 48	PcP
Collmberg	z.	72.9	339	e 11 32	- 1	—	—	—	—
Uzhgorod		73.0	333	e 11 33	0	—	—	—	—

Continued on next page.

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1952

1016

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Poona	z.	73.4	279	e 11 29	- 7	—	—	—	—
Jena	z.	73.5	340	e 11 36	0	—	—	—	—
Prague		73.7	338	e 11 25	-13	e 14 27	PP	e 13 18	?
Morgantown		74.4	45	i 11 44	+ 2	—	—	—	—
Harvard		75.2	37	i 11 57 _a	PcP	—	—	—	—
Weston		75.4	37	i 11 48 _a	+ 1	—	—	—	—
Karlsruhe	z.	76.0	341	e 11 51	0	—	—	—	—
Stuttgart		76.1	341	e 11 51	0	—	—	—	—
Washington		76.2	42	i 11 52	0	—	—	—	—
Strasbourg		76.5	342	i 11 54	0	—	—	—	—
Paris		77.2	345	i 11 58	+ 1	—	—	i 12 13	PcP
Basle		77.5	342	e 11 59	0	—	—	—	e 34.8
Istanbul	z.	77.6	325	e 11 57	- 3	—	—	—	—
Chur		77.8	341	e 12 1 _a	0	—	—	—	—
Besançon		78.1	342	i 12 3	+ 1	i 12 19	PcP	e 12 44	?
Clermont-Ferrand		80.1	344	i 12 15	+ 2	—	—	—	—
Ksara		81.3	316	i 12 17	- 3	—	—	—	—
Rome		81.8	336	—	—	e 22 56	+21	—	—
Messina		84.5	333	e 12 34	- 2	e 22 58	- 4	—	—
Granada		89.5	348	13 17 _k	+17	—	—	—	—
Tamanrasset	z.	101.8	336	e 13 55	- 1	—	—	e 17 5	?
Pretoria	z.	135.3	289	e 19 20	[- 2]	—	—	—	—
Kimberley	z.	139.6	289	e 19 30	[0]	—	—	—	—

Nov. 6d. 19h. 46m. 0s. Epicentre 51°-9N, 159°-9E. (as on 5d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mitchell Field		14.5	81	—	—	e 7 0	SSS	—	—
Mizusawa		18.3	233	4 18	+ 1	9 31	L	e 4 24	P (9.5)
College		29.3	44	i 6 6	0	i 10 55	- 4	e 6 39	PP e 11.9
Nanking		35.8	253	i 7 1	- 2	e 12 39	- 2	i 9 36	PcP
Resolute Bay		44.5	22	i 8 14 _a	- 1	i 14 50	- 1	i 9 59	PP
Hong Kong		45.8	247	e 8 24	- 1	i 15 17	+ 8	i 10 45	PPP
Victoria		47.1	63	8 33	- 2	—	—	—	—
Corvallis	z.	49.4	68	e 8 54	+ 1	—	—	—	—
Hungry Horse		52.2	58	e 9 13	- 2	—	—	i 9 23	?
Shasta	z.	52.4	70	e 9 15	- 1	—	—	—	—
Berkeley	z.	54.3	73	e 9 16	-14	—	—	—	—
Santa Clara		54.9	73	e 9 40 _a	+ 5	e 17 18	+ 2	—	i 27.6
Lick	z.	55.0	73	e 9 35	0	—	—	—	—
Kiruna		56.8	344	i 9 46 _a	- 2	i 17 38	- 3	e 13 14	PPP e 26.3
Shillong	E.	56.9	271	e 9 47	- 2	e 11 54	PP	e 11 49	PP
Tinemaha	z.	57.2	71	e 9 50	- 1	—	—	i 10 0	P
China Lake	z.	58.5	71	e 10 2	+ 2	—	—	—	—
Chatra		58.9	275	e 10 1	- 2	18 6	- 2	19 54	ScS
Pasadena		59.3	73	i 10 5	- 1	e 18 13	- 1	i 18 32	PPS e 27.7
Riverside	z.	59.9	73	e 10 10	0	—	—	e 10 15	P
Boulder City		60.0	69	i 10 9	- 2	—	—	—	—
Nelson		60.1	69	e 10 10	- 1	—	—	i 10 13	P
Palomar	z.	60.6	73	i 10 14	- 1	—	—	i 10 22	P
Calcutta	E.	61.3	271	i 10 17	- 3	—	—	—	—
New Delhi		63.7	284	10 34	- 2	e 19 19	+ 9	e 22 53	SS 26.4
Reykjavik	z.	64.3	2	e 10 46	+ 7	—	—	—	—
Upsala		64.5	340	i 10 39	- 2	i 19 20	+ 1	i 19 35	PS e 30.0
Tucson		64.9	70	e 10 45	+ 2	e 19 52	PPS	e 23 25	SS
Bergen		66.2	347	i 10 54 _k	+ 2	e 19 40	0	e 24 6	SS 31.2
Kirkland Lake	z.	67.9	39	i 11 10 _a	+ 8	—	—	—	—
Quetta		68.5	292	i 11 4	- 2	i 20 10	+ 2	—	—
Copenhagen		69.4	342	i 11 11 _a	- 1	20 21	+ 3	23 54	?
Chicago		69.9	48	—	—	e 19 20	-64	—	—
Aberdeen		70.3	350	—	—	i 20 25	- 4	i 20 55	PS e 32.9
Fayetteville	z.	71.2	56	i 11 22	- 1	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Hyderabad	71.2	275	i 11 18	- 5	i 20 35	- 5	—	35.8
Lwow	71.9	332	e 11 25	- 2	e 20 47	- 1	e 11 47	—
Ottawa	71.9	38	e 11 27k	0	—	—	—	—
Potsdam	72.4	340	i 11 30k	0	i 20 56	+ 3	i 21 27	e 38.0
Cernauti	72.7	330	i 11 30	- 2	—	—	—	—
Cleveland	72.8	44	i 11 42a	+10	i 20 57	- 1	i 11 54	pP
Buffalo (Larkin)	72.9	41	—	—	e 22 30	?	—	—
Kishinev	72.9	328	i 11 31	- 2	e 20 56	- 3	11 43	PcP
Iasi	73.1	330	e 11 34	0	e 21 4	+ 3	—	—
Poona	73.2	279	i 11 33	- 2	21 3	+ 1	25 58	SS 36.0
Witteveen	z. 73.2	344	e 11 30?	- 5	—	—	—	—
Raciborzu	73.3	336	e 11 36	+ 1	21 5	+ 1	e 11 49	PcP e 41.0
Collnberg	73.4	339	e 11 35	- 1	e 21 18	+13	e 21 24	PS e 37.0
Uzhgorod	73.5	333	e 11 38	+ 2	i 21 7	+ 1	14 20	PP
Skalnate Pleso	73.6	334	e 11 39	+ 2	e 21 8	+ 1	14 26	PP e 39.0
Bombay	73.6	280	i 11 38	+ 1	i 21 8	+ 1	14 32	PP 35.0
Jena	74.1	340	e 11 38	- 2	e 21 14	+ 2	e 21 31	PS
De Bilt	74.2	345	e 11 40a	0	i 21 17	+ 3	—	e 32.0
Prague	74.2	338	e 11 41	+ 1	e 21 14	0	i 14 26	PP e 39.3
Pittsburgh	z. 74.3	43	e 11 47	+ 6	—	—	—	—
Rethfarnham C.	z. 74.5	352	i 11 44	+ 2	—	—	e 11 57	PcP
Cheb	74.7	340	e 11 47	+ 4	e 21 19	0	—	e 38.5
Pennsylvania	74.9	42	i 11 48	+ 4	e 21 22	0	e 12 13	? e 30.9
Morgantown	75.0	45	i 11 57	PcP	—	—	—	—
Ogyalla	75.3	335	e 11 54	+ 7	e 21 46	ScS	e 22 18	PPS e 42.0
Budapest	75.4	334	11 50	+ 3	21 30	+ 3	26 31	SS 42.0
Kew	75.6	348	e 11 50	+ 2	—	—	—	e 34.0
Harvard	75.9	37	e 11 49	- 1	—	—	—	—
Bucharest	76.1	328	e 12 3	PcP	e 21 32	- 3	e 21 12	? 39.0
Weston	76.1	37	i 11 50k	- 1	—	—	—	—
Kalossa	76.3	334	e 12 2	PcP	e 21 38	+ 1	e 12 5	? —
Palisades	76.3	39	i 8 53	?	e 21 19	-18	—	—
Szeged	76.3	333	e 12 0	+ 8	—	—	—	e 43.0
Timisoara	76.4	332	e 12 1	+ 8	e 21 57	ScS	—	e 43.0
Fordham	76.5	39	e 12 2	+ 8	e 21 29	-10	—	—
Karlsruhe	76.5	341	e 11 53	- 1	e 21 32	- 7	—	39.0
Stuttgart	76.6	341	e 11 53a	- 1	e 21 42	+ 2	—	e 39.0
Halifax	76.8	31	e 11 53a	- 2	21 41	- 1	—	—
Strasbourg	77.1	342	i 11 57	0	i 21 48	+ 2	e 14 54	PP e 38.0
Kodaikanal	E. 77.4	270	11 58	0	21 34	-15	—	—
Belgrade	77.5	332	e 11 59k	0	e 21 48	- 2	e 26 36	SS e 44.2
Paris	77.8	345	i 12 0	- 1	i 22 3	+10	i 14 57	PP e 39.0
Istanbul	78.0	325	e 12 1	- 1	e 21 53	- 2	e 26 22?	SS 40.4
Basle	78.1	341	e 12 4	+ 2	—	—	—	—
Zürich	78.1	341	e 12 1	- 1	e 21 54	- 2	—	—
Chur	78.4	340	e 12 3	- 1	—	—	—	—
Mobile	78.5	55	e 12 7	+ 3	—	—	—	—
Sofia	78.5	329	e 12 8	+ 4	e 21 17	-44	—	e 44.0
Besançon	78.7	342	e 12 7	+ 1	e 13 6	?	i 12 15	PcP
Neuchatel	78.7	342	e 12 8	+ 2	e 22 1	- 2	—	—
Salo	79.3	339	12 14	+ 5	22 27	ScS	23 21	PPS
Oropa	79.9	341	e 12 14	+ 2	22 42	ScS	23 20	PPS
Pavia	80.0	340	e 12 14	+ 1	e 22 34	ScS	—	—
Bologna	80.2	338	e 12 19	+ 5	—	—	—	—
Clermont-Ferrand	80.7	344	i 12 20	+ 4	i 22 44	ScS	i 23 0	PS 39.0
Florence	80.9	338	e 12 14a	- 3	e 22 42	ScS	—	—
Siena	81.3	338	12 25	+ 5	22 36	+ 6	—	—
Ksara	81.6	316	i 12 20	- 1	—	—	—	—
Rocca di Papa	N. 82.4	336	e 12 35	+10	e 22 58	+17	—	—
Rome	82.4	336	i 12 24a	- 1	22 53	+12	23 39	PS
Taranto	82.4	333	12 35	+10	21 59	-42	e 31 29	SSS 42.8
Athens	82.6	327	e 12 23	- 3	i 22 41	- 2	i 22 53	ScS
Messina	85.0	333	i 12 38	0	i 23 14	+ 7	e 16 14	PP
Tortosa	85.9	345	—	—	23 22	+ 6	—	e 45.0
Helwan	86.9	318	i 12 47a	- 1	23 27	+ 1	16 8	PP

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Bermuda	87.4	36	i 12 53	+ 3	—	—	—	—
Toledo	87.5	348	e 12 53	+ 2	e 23 36	+ 5	e 35 29	Q 41.3
Alicante	88.5	346	e 12 55	- 1	i 23 35	- 6	24 49	PS 43.4
Algiers Univ.	z. 89.4	342	e 13 4	+ 4	—	—	e 16 33	PP —
Granada	90.1	348	i 13 23 _a	+20	23 41	[+ 8]	25 47	PPS 47.2
Almeria	90.2	347	12 50	-14	23 37	[+ 3]	29 40	SS 49.0
Malaga	90.6	348	i 13 4	- 1	i 23 38	[+ 2]	16 40	PP 39.6
Tamanrasset	z. 102.3	336	e 13 58	- 1	e 18 2	PP	e 17 25	? —
Bogota	107.5	58	e 18 50	PP	—	—	—	—
Pretoria	z. 135.3	289	i 19 22	[0]	—	—	—	—
Kimberley	z. 139.5	287	e 19 26	[- 4]	—	—	—	—
Grahamstown	z. 141.7	283	e 19 11	[-22]	—	—	—	—

Nov. 6d. 19h. 47m. 21s. Epicentre 4°·6S. 144°·9E.

A = -·8155, B = +·5732, C = -·0796; δ = -7; h = +7;
D = +·575, E = +·878; G = +·065, H = -·046, K = -·997.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane	N. 24.0	163	i 5 16	- 1	i 9 30	- 2	i 16 20	ScS i 11.2
Riverview	29.7	170	i 6 9 _k	- 1	i 11 1	- 5	i 7 2	PP e 15.2
Manila	30.3	309	i 6 27 _a	+12	i 11 45	+30	i 7 43	PPP —
Melbourne	33.1	180	e 6 45	+ 5	i 11 57	- 2	i 7 57	PP i 16.6
Bandong	E. 37.1	265	7 15	+ 1	—	—	—	—
Djakarta	37.9	266	i 7 22 _a	+ 2	i 13 0	-13	e 15 28	SS 19.4
Miyazaki	38.5	342	e 7 28	+ 2	e 13 20	- 2	—	—
Perth	38.5	222	7 31	+ 5	13 17	- 5	9 1	PP i 16.9
Simidu	38.9	344	7 34	+ 5	e 13 28	0	—	16.9
Omaesaki	39.5	353	e 7 26	- 8	e 12 53	-44	—	21.7
Osima	39.5	354	e 7 33	- 1	i 13 33	- 4	e 14 0	? e 21.2
Mera	39.6	354	7 36	+ 1	13 38	0	—	—
Ooita	39.7	342	e 7 39	+ 3	e 13 30	-10	—	e 18.0
Tomie	40.1	339	7 39	0	13 44	- 2	(15 54)	? 15.9
Tokyo	N. 40.4	353	e 7 49	+ 8	i 13 51	+ 1	—	—
Hirosima	40.5	344	e 7 42	0	e 13 46	- 6	e 9 15	PP 19.1
Kumagaya	40.9	353	7 45	- 1	13 54	- 4	—	—
Maebasi	41.1	353	e 7 47	0	13 50	-11	—	—
Onahama	41.5	355	e 7 52	+ 2	i 14 2	- 5	—	e 24.9
Auckland	N. 42.2	144	e 8 15	+19	e 13 33	-44	i 17 1	SS e 19.4
New Plymouth	E. 43.3	146	e 8 10	+ 5	—	—	—	—
Karapiro	N. 43.4	145	8 12 _?	+ 6	e 14 46	+11	—	—
Apia	43.7	105	e 8 11	+ 3	e 16 22	?	8 33	pP 22.0
Miyako	44.1	358	e 8 10	- 2	14 43	- 2	—	—
Akita	44.3	356	e 8 17	+ 4	14 48	0	e 18 13	ScS e 24.9
Kaimata	N.E. 44.5	152	e 8 18	+ 3	e 14 51	0	—	—
Tuai	N. 44.9	144	e 8 23	+ 5	—	—	—	—
Wellington	45.3	148	8 19	- 2	14 59	- 3	15 21	PPS e 18.6
Christchurch	45.9	152	i 8 29 _a	+ 3	15 10	- 1	e 18 33	ScS e 21.8
Mori	46.7	356	e 8 37	+ 5	15 12	-10	e 10 39	PP 24.0
Sapporo	47.6	357	e 8 44	+ 5	e 15 31	- 4	—	—
Macquarie Island	51.1	170	i 9 12	+ 6	e 16 45	PPS	e 26 9	Q e 28.2
Calcutta	E. 61.5	299	i 10 20	- 1	i 18 43	+ 1	20 21	ScS 28.9
Mitchell Field	65.1	26	e 10 45	0	e 19 44	PS	—	—
Colombo	E. 65.9	279	10 51	+ 1	19 39	+ 2	—	37.2
New Delhi	N. 72.9	302	11 29	- 4	—	—	—	—
Bombay	74.7	291	i 11 43	0	i 21 19	0	14 33	PP 35.5
Quetta	81.9	302	i 12 22 _k	- 1	i 22 32	- 4	i 15 31	PP 33.6
College	84.7	23	12 34	- 3	—	—	—	—
Victoria	94.1	42	13 21	- 1	—	—	—	—
Corvallis	z. 94.5	46	e 13 22	- 1	e 24 25	- 9	—	—
Berkeley	95.0	52	i 13 25 _k	- 1	i 26 25	PPS	i 13 42	pP e 43.2
Shasta	95.0	49	e 13 25 _k	- 1	e 23 51	[-10]	e 13 38	pP —
Seattle	95.2	42	i 13 28 _k	+ 1	24 9	[+ 7]	25 57	PS —
Tananarive	95.5	251	13 26	- 2	24 41	- 1	17 19	PP 46.6

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Fresno	z.	97.0	53	e 13 33 ^k	- 2	e 17 36	PP	e 13 52	pP	e 44.4
Reno	z.	97.0	50	e 13 27 ^k	- 8	—	—	e 13 48	pP	—
Tinemaha	z.	98.2	53	e 13 38	- 2	—	—	i 13 56	pP	—
Pasadena		98.3	56	i 13 39	- 2	e 23 57	[-22]	i 41 21	Q	e 43.4
China Lake	z.	98.8	54	e 13 41	- 2	—	—	e 13 57	pP	—
Riverside	z.	99.0	56	e 13 42	- 2	—	—	i 13 59	pP	—
Palomar	z.	99.4	57	e 13 44	- 2	—	—	i 14 1	pP	—
Hungry Horse		100.8	42	e 13 51	- 1	—	—	20 32	PPP	—
Boulder City		101.0	54	e 13 51	- 2	e 25 26	- 3	e 21 30	PKS	—
Nelson		101.0	54	e 13 50	- 3	—	—	i 14 8	pP	—
Tucson		104.5	58	e 15 28	?	e 25 14	{-12}	e 18 10	PP	—
Saskatoon		104.9	37	e 15 35	?	(23 39)	?	—	—	23.6
Kiruna		106.7	341	i 14 16	P	—	—	i 14 21	?	e 51.6
Ksara		108.3	303	i 18 57	PP	—	—	—	—	—
Grahamstown	z.	110.6	232	—	—	e 28 41	PS	—	—	e 52.0
Upsala		111.9	334	i 19 22	PP	e 25 4	[-16]	i 19 37	PP	e 51.6
Helwan		112.7	300	i 18 53	[+15]	—	—	i 19 28	PP	—
Lincoln		114.3	47	e 17 15	?	—	—	—	—	—
Skalnate Pleso		115.6	323	e 28 5	?	e 31 9	PPS	e 38 28	P'P'	e 58.2
Tacubaya		115.9	71	i 20 5	PP	—	—	—	—	—
Fayetteville	z.	117.5	52	e 18 59	[+11]	e 19 59	PP	i 15 43	P	—
Prague		118.5	326	e 18 56	[+ 6]	—	—	e 19 26	?	—
Collmberg		118.7	327	e 18 50	[0]	e 27 1	{- 4}	e 20 7	PP	—
Vera Cruz		118.8	70	e 21 3	?	—	—	—	—	e 58.8
Jena		119.6	327	e 18 51	[- 1]	e 20 18	PP	e 19 3	?	—
Cheb		119.7	327	e 19 16	?	—	—	e 20 16	PP	—
Triest		121.1	322	e 15 26	P	e 26 9	[+15]	e 37 0	SS	—
Kirkland Lake	z.	122.1	34	e 19 15	[+18]	—	—	—	—	—
Stuttgart		122.1	327	e 18 55	[- 2]	e 29 3	?	—	—	—
Karlsruhe	z.	122.4	328	e 19 14	?	—	—	—	—	—
Chur		123.0	325	e 18 57	[- 1]	—	—	—	—	—
Strasbourg		123.0	328	e 18 57	[- 1]	e 20 39	PP	e 21 49	?	e 57.2
Bologna		123.2	322	e 19 10	[+11]	e 29 11	?	e 21 4	PP	e 48.3
Messina	z.	123.2	314	e 19 6	[+ 7]	—	—	e 20 41	PP	—
Zürich		123.3	326	e 18 58	[- 1]	—	—	—	—	—
Prato		123.6	321	e 21 5	PP	e 31 23	?	—	—	—
Basle		123.7	326	e 19 1	[+ 1]	—	—	—	—	—
Mobile		123.8	55	i 20 42	PP	—	—	—	—	—
Pavia		124.1	323	e 21 44	?	e 29 3	?	—	—	e 46.2
Besançon		124.8	327	e 19 18	[+16]	e 23 55	PPP	e 21 45	PP	—
Paris		125.6	330	e 19 2	[- 2]	i 19 19	?	i 19 48	?	—
Rathfarnham Castle		126.0	339	e 21 19	PP	e 38 39	SSP	—	—	e 51.6
Ottawa		126.1	34	e 19 6	[+ 2]	27 55	{ 0}	32 29	PPS	—
Morgantown		126.6	43	e 19 21	[+15]	—	—	e 21 4	PP	—
Clermont-Ferrand		127.2	327	e 19 15	[+ 8]	—	—	i 19 23	?	—
Pennsylvania		127.4	40	e 19 16	[+ 9]	i 22 50	PKS	e 38 26	SS	—
Palisades		129.8	38	i 19 29	?	—	—	—	—	—
City College, N.Y.		129.9	38	e 21 26	PP	—	—	—	—	—
Harvard		130.3	35	e 19 20	[+ 7]	e 31 44	PS	i 21 41	PP	—
Weston		130.5	35	i 19 5 ^a	[- 8]	e 31 46	PS	i 21 31	PP	e 67.2
Algiers Univ.	z.	132.6	317	e 19 2	[-15]	e 26 40	[+14]	e 21 56	PP	—
Halifax		132.9	27	e 19 31	[+13]	—	—	—	—	—
Alicante		134.0	322	18 59	[-20]	—	—	—	—	—
Toledo		135.1	325	e 19 19	[- 3]	—	—	—	—	—
La Plata		135.2	153	22 57	PKS	28 45	{- 7}	39 33	SS	69.2
Almeria		136.1	321	19 19	[- 4]	—	—	22 9	PP	76.5
Huancayo		136.7	113	e 19 34	[+10]	e 32 40	SKSP	e 40 34	SS	e 57.9
Tamanrasset	z.	136.8	299	e 19 24	[- 1]	e 22 57	PKS	e 25 32	PPP	—
Lisbon		138.6	328	22 20	PP	41 5	SSP	—	—	—
Chinchina		139.6	86	e 19 36	[+ 6]	e 31 46	SKSP	e 22 40	PP	—
Galerazamba		139.8	78	e 20 49	?	e 23 29	PKS	e 30 54	?	54.6
Bermuda		140.9	41	e 19 33	[+ 1]	e 40 46	SS	i 22 49	PP	e 65.6
Bogota		141.2	87	e 19 39	[+ 6]	e 41 55	SSP	—	—	—
La Paz		141.2	123	i 19 37	[+ 4]	i 26 46	[+ 5]	i 22 47	PP	67.8
San Juan		146.7	62	i 19 42	[+ 0]	—	—	—	—	—
Fort de France		152.5	66	19 58	[+ 7]	i 34 15	SKSP	—	—	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1020

Nov. 7d. 2h. 21m. 54s. Epicentre 50°·4N. 157°·8E. (as on 4d. 23h.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay	46·4	21	i 8 35 _k	+ 5	i 15 30	+12	—	e 24·4
Victoria	49·0	59	8 54	+ 4	—	—	—	—
Kiruna	57·8	342	i 9 53	- 2	—	—	i 9 59	e 30·1
Scoresby Sund	59·4	0	e 10 13	+ 7	—	—	—	33·1
Calcutta	E. 60·0	270	e 10 9	- 2	i 18 33	+10	—	—
Upsala	65·5	340	e 10 41	- 6	—	—	i 10 53	P e 34·1
Copenhagen	70·4	341	—	—	29 12	SSS	—	38·1
Bombay	E. 72·5	278	e 11 28	- 2	e 20 34	-20	—	—
Fayetteville	Z. 73·1	53	i 11 30	- 4	—	—	—	—
Ottawa	73·9	37	e 11 44	+ 5	—	—	—	—
Collmberg	Z. 74·3	338	e 11 55	+14	—	—	—	—
Skalnate Pleso	74·3	333	—	—	e 24 12	?	—	—
Jena	Z. 75·0	338	e 9 47	?	—	—	—	—
Prague	75·1	337	e 11 50	+ 4	—	—	e 11 56	?
Stuttgart	77·6	340	e 12 4	+ 4	—	—	e 10 1	? e 39·1
Strasbourg	77·9	340	i 12 7	+ 6	—	—	—	—
Paris	78·9	344	i 12 6	- 1	—	—	i 12 12	PcP
Basle	Z. 79·1	341	e 12 12	+ 4	—	—	—	—
Zürich	Z. 79·1	340	e 12 10	+ 2	—	—	—	—
Chur	79·3	339	e 12 6	- 3	—	—	—	—
Triest	Z. 79·4	336	e 12 11	+ 2	—	—	—	—
Besançon	79·7	341	i 12 16	+ 5	—	—	e 12 48	?
Clermont-Ferrand	81·7	343	e 12 28	+ 6	—	—	—	47·1
Ksara	81·7	314	i 12 23	+ 1	—	—	—	—
Florence	Z. 81·8	336	e 12 24 _a	+ 2	—	—	—	—
Rome	83·2	335	e 12 33	+ 4	—	—	—	—
Messina	85·7	331	e 12 41	- 1	—	—	—	44·3
Helwan	Z. 87·1	315	12 44	- 5	—	—	—	—
Tamanrasset	Z. 103·1	334	e 13 54	- 8	—	—	e 14 6	P 64·1

Nov. 7d. 2h. 24m. 42s. Epicentre 36°·5N. 71°·0E. (as on October 8d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.
	°	°	m. s.	s.	m. s.	s.	m. s.
Khorog	1·1	26	0 26	+ 4	i 0 41	+ 2	—
Kulyab	1·7	325	i 0 34	0 _g	i 1 2	+ 6 _g	—
Obi-garm	2·4	335	i 0 45	+ 1*	i 1 13	+ 1	—
Garm	2·6	348	e 0 46	- 1*	—	—	—
Dzhergetal	2·7	4	0 48	- 1*	e 1 20	+ 1	1 24 S*
Stalinabad	2·7	319	i 0 51	+ 2*	1 22	- 2*	—
Fergana	3·9	9	i 1 2	0	i 1 47	- 3	e 1 11 P*
Andijan	4·4	15	i 1 8	- 2	i 2 0	- 2	i 2 12 S*
Namangan	4·5	7	i 1 11	0	2 16	- 2*	—
Samarkand	4·5	317	1 14	+ 3	—	—	—
Lunacharskoe	5·0	347	i 1 18	0	—	—	—
Tashkent	5·0	347	e 1 18	0	e 2 50	+ 5 _g	—
Tchimkent	5·9	349	i 1 29	- 2	e 3 16	+ 1 _g	—
Frunse	7·0	23	1 43	- 3	3 3	- 5	—
Rybach'e	7·1	32	i 1 45	- 3	3 58	+ 3 _g	—
Bairam-Ali	7·2	282	—	—	3 9	- 4	—
Przhevalsk	8·3	42	2 0	- 4	—	—	—
Ashkabad	10·2	282	—	—	e 4 23	- 4	—
Kizyl-Arvat	11·9	287	—	—	5 3	- 6	—

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1952

1021

Nov. 7d. 3h. 55m. 19s. Epicentre 50°·4N. 157°·8E. Focus at Base of Superficial Layers.
(as at 2h. 21m.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Resolute Bay	z.	46·4	21	i 8 24k	- 1	—	—	—	—
Victoria		49·0	59	8 45	0	—	—	—	—
Seattle	z.	50·0	59	i 8 56	+ 3	—	—	i 9 8	pP
Shasta	z.	54·2	67	i 9 26k	+ 2	—	—	i 9 36	pP
Berkeley	z.	56·1	71	i 9 39k	+ 1	—	—	i 9 51	pP
Reno	z.	56·5	66	i 9 42k	+ 1	—	—	e 9 52	pP
Lick	z.	56·8	71	i 9 44k	+ 1	—	—	—	—
Chatra		57·7	274	e 9 47	- 3	e 19 26	ScS	—	—
Kiruna	z.	57·8	342	i 9 37	-13	—	—	i 9 59	pP
Fresno	z.	58·3	68	e 9 55k	+ 1	—	—	i 10 7	pP
Tinemaha		59·0	68	i 10 1k	+ 2	—	—	i 10 13	pP
Scoresby Sund		59·4	0	e 10 2	0	—	—	—	—
China Lake	z.	60·2	68	i 10 7k	0	—	—	i 10 20	pP
Pasadena		61·0	70	i 10 13k	+ 1	—	—	i 10 25	pP
Riverside	z.	61·6	70	i 10 16	0	—	—	—	—
Upsala	z.	65·5	340	i 10 39?a	- 3	i 11 10	PcP	i 10 52	pP
Poona	z.	72·1	278	i 11 22	- 1	—	—	—	—
Bombay	E.	72·5	278	e 11 37	pP	e 20 44	- 2	—	—
Fayetteville	z.	73·1	53	i 11 29k	0	—	—	i 11 40	pP
Ottawa		73·9	37	e 11 33	0	—	—	—	—
Collmberg	z.	74·3	338	e 11 35	- 1	—	—	e 15 58	PPP
Jena	z.	75·0	338	e 11 39	- 1	—	—	—	—
Prague		75·1	337	e 11 44	+ 4	e 12 27	?	e 11 57	pP
Morgantown		77·0	42	i 11 52	+ 1	—	—	—	—
Stuttgart		77·6	340	e 11 53	- 1	—	—	—	—
Brisbane	z.	77·6	185	i 11 55a	+ 1	—	—	i 12 8	pP
Harvard		77·9	35	i 11 54a	- 2	—	—	—	—
Weston		78·1	35	i 11 57k	0	—	—	—	—
Palisades		78·3	37	e 12 3	+ 5	—	—	—	—
Chur	z.	79·3	339	e 12 3	- 1	—	—	—	—
Besançon		79·7	341	e 12 1	- 5	—	—	—	—
Clermont-Ferrand		81·7	343	e 12 21	+ 4	—	—	i 12 41	sP
Ksara		81·7	314	e 12 48?	+31	—	—	—	—
Tamanrasset	z.	103·1	334	e 13 59	+ 2	—	—	—	—
Pretoria	z.	134·4	284	e 19 15	[0]	—	—	—	—

Nov. 7d. 4h. 33m. 57s. Epicentre 25°·5N. 94°·0E. (as on 1937, March 21d.).

Intensity V at Imphal. Epicentre 25° N. 94° E. (Shillong).
Seismo. Bull. Government of India, Meteorological Department, November, 1952, pp. 19 and 47.

$$A = -0.0630, B = +0.9015, C = +0.4281; \quad \delta = -6; \quad h = +3;$$

$$D = +0.998, E = +0.070; \quad G = -0.030, H = +0.427, K = -0.904.$$

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Shillong	E.	1·9	272	e 0 37	- 1g	1 12	+ 9g	1 18	?
Calcutta	E.	6·0	241	e 1 48	+ 3g	i 2 28	-15g	—	—
Chatra		6·3	284	i 1 38	+ 2	i 2 49	- 1	3 28	Sg
Poona	z.	19·9	253	4 33	- 3	8 22	+ 7	8 56	PcP
Quetta	z.	24·3	288	i 5 19	- 1	—	—	i 8 29	?
Kiruna	z.	60·5	335	i 10 13	- 1	—	—	—	—
Upsala	z.	61·5	325	i 10 20	- 1	—	—	i 10 36	?
Tamanrasset	z.	79·2	290	e 12 9	+ 1	—	—	—	—
Pretoria	z.	81·4	235	e 12 18	- 2	—	—	—	—
Fayetteville	z.	118·3	7	i 19 2	[+13]	—	—	—	—

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1952

1022

Nov. 7d. 6h. 25m. 45s. Epicentre 50°·0N. 158°·3E. (as on 4d. 21h.).

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.
Hong Kong		44·2	247	e 6	15?	?	—	—	—	—	—
Victoria		48·9	60	8	48	- 2	—	—	—	—	—
Shasta	z.	54·0	67	e 9	27 ^k	- 1	—	—	—	—	—
Berkeley	z.	55·9	71	e 9	41	- 1	—	—	—	—	—
Reno	z.	56·3	66	e 9	43	- 2	—	—	—	—	—
Lick	z.	56·6	71	e 9	46	- 1	—	—	—	—	—
Fresno	z.	58·1	68	e 9	56	- 2	—	—	—	—	—
Kiruna	z.	58·3	342	i 10	0	+ 1	—	—	i 10	13	?
Tinemaha	z.	58·8	68	e 10	3	+ 1	—	—	—	—	—
China Lake	z.	60·1	68	e 10	10	- 1	—	—	—	—	—
Pasadena	z.	60·8	70	i 10	15	- 1	—	—	—	—	—
Riverside	z.	61·4	70	e 10	18	- 2	—	—	—	—	—
Upsala	z.	65·9	340	i 10	52	+ 2	—	—	i 11	5	?
Copenhagen		70·9	341	i 11	26	+ 5	—	—	—	—	44·2
Poona	z.	72·5	278	i 11	36	+ 6	—	—	—	—	—
Fayetteville	z.	73·1	53	i 11	32	- 2	—	—	—	—	—
Raciborzu	z.	74·6	334	e 11	55	PcP	e 12	33	?	e 13	4
Collmberg	z.	74·8	338	e 11	47	+ 3	—	—	e 11	59	PcP
Jena	z.	75·5	338	e 11	49	+ 1	—	—	—	—	—
Prague		75·6	337	e 12	9	+21	e 13	35	?	e 16	44
									PPP		—
Morgantown		77·1	42	i 11	57	0	—	—	—	—	—
Harvard		78·1	35	i 12	1 ^k	- 1	—	—	—	—	—
Stuttgart		78·1	340	e 12	3	+ 1	—	—	—	—	—
Weston		78·3	35	i 12	3 ^k	0	—	—	—	—	—
Istanbul	z.	79·0	323	e 12	26	+19	—	—	—	—	—
Clermont-Ferrand		82·2	343	e 13	6	+42	—	—	—	—	—
Ksara		82·2	314	—	—	—	e 22	26?	-13	—	—
Tamanrasset	z.	103·6	334	17	31	?	—	—	—	e 18	24
									PP		—

Nov. 7d. 6h. 49m. 43s. Epicentre 50°·2N. 157°·3E. Focus at Base of Superficial Layers. (as on 5d. 21h.).

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.
Resolute Bay		46·7	21	i 8	31 ^k	+ 4	i 15	29	+15	e 13	23
Victoria		49·3	60	8	49	+ 1	—	—	—	—	e 26·7
Seattle	z.	50·4	61	e 9	2	+ 6	—	—	—	—	—
Shasta	z.	54·6	66	e 9	28 ^a	0	—	—	—	—	—
Berkeley	z.	56·4	70	e 9	43	+ 3	—	—	—	—	—
Reno	z.	56·8	65	e 9	46	+ 3	—	—	—	—	—
Lick	z.	57·2	70	e 9	47	+ 1	—	—	—	—	—
Kiruna		57·9	342	i 9	49	- 2	e 16	32	?	e 20	35
China Lake	z.	60·6	68	e 10	10	0	—	—	—	—	e 30·3
Pasadena	z.	61·4	70	e 10	15	0	—	—	—	—	—
Upsala		65·5	339	i 10	46	+ 4	—	—	—	—	e 32·3
Djakarta		71·1	234	i 11	13 ^a	- 4	i 12	5	?	i 12	47
Bandong	N.	71·2	233	e 11	16	- 2	—	—	—	—	—
Poona	z.	71·8	277	e 11	16	- 5	—	—	—	—	—
Bombay	E.	72·2	278	e 11	18	- 5	e 21	17	ScS	—	—
Fayetteville	z.	73·5	53	i 11	31	0	—	—	—	—	—
Collmberg		74·4	337	e 11	36	0	—	—	—	—	—
Stuttgart	z.	77·7	339	e 11	52	- 3	—	—	—	—	—
Basle	z.	79·2	340	e 12	2	- 1	—	—	—	—	—
Besançon		79·8	341	e 12	5	- 1	—	—	i 12	13	PcP
Ksara		81·6	313	i 12	16	0	—	—	—	—	—
La Paz		130·5	63	e 19	20	[+12]	—	—	—	—	—

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1952

1023

Nov. 7d. 8h. 55m. 33s. Epicentre 35°·0N. 119°·0W. (as on 1952, August 7d.).

Intensity VI to the west of Wheeler Ridge ; V at Lebec, Wheeler Ridge, and Taft ; IV at Laton, Los Angeles, Ojai, Santa Barbara, and Tehachapi. Epicentre 35°·00'N. 119°05'W.

L. M. Murphy and W. K. Cloud.

United States Earthquakes, 1952, U.S.C.G.S., Serial 773, Washington, 1954, p. 43.

A = -·3980, B = -·7181, C = +·5710 ; δ = +11 ; h = 0 ;
D = -·875, E = +·485 ; G = -·277, H = -·499, K = -·821.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Fresno	z.	1·9	340	i 0 32 _k	- 2	—	—
Lick	z.	3·1	318	e 0 49	- 2	—	—
Santa Clara	F.	3·3	315	e 1 12	+ 6 _g	i 2 6	+17 _g
Berkeley	z.	3·9	318	i 1 0	- 2	—	—
Reno	z.	4·6	352	e 1 11	- 1	—	—
Shasta	z.	6·3	336	e 1 37	+ 1	—	—
Kiruna	z.	73·1	15	i 11 37	+ 3	—	—

Nov 7d. 12h. 9m. 13s. Epicentre 53°·1N. 160°·9E. (as on 6d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Petropavlovsk	1·4	271	i 0 29	+ 1 _g	i 0 50	+ 4	—	—
Klyuchi	3·2	359	i 0 58	0*	e 1 55	+ 9 _g	—	—
Magadan	8·5	323	2 14	+ 7	4 3	-13*	—	—
Ulegorsk	12·5	259	—	—	5 35	+12	—	—
Yuzno-Sakhlinsk	13·2	249	3 9	- 2	e 5 45	+ 5	—	—
Mizusawa	19·5	234	4 30	- 1	7 53	-13	—	—
Vladivostok	21·7	254	—	—	i 8 54	+ 3	—	—
College	28·1	45	5 55	0	i 10 38	- 2	—	—
Kyakhta	33·2	288	6 36	- 4	—	—	—	—
Irkutsk	33·6	292	e 6 41	- 3	—	—	—	—
Nanking	36·8	253	7 8	- 3	12 52	- 4	—	—
Resolute Bay	43·1	23	i 8 4 _k	0	i 14 33	+ 3	—	i 22·7
Victoria	46·0	63	8 26	- 1	—	—	—	—
Hong Kong	46·9	247	—	—	15 23	- 2	—	—
Seattle	z. 47·1	63	i 8 37	+ 2	—	—	—	—
Semipalatinsk	47·5	302	e 8 36	- 2	—	—	—	—
Corvallis	z. 48·4	68	e 8 44	- 2	—	—	—	—
Manila	49·7	235	i 8 45	-11	i 15 46	-18	—	—
Hungry Horse	51·0	58	i 9 5	- 1	—	—	i 10 23	PcP
Shasta	z. 51·4	71	e 9 7 _a	- 2	—	—	—	—
Sverdlovsk	52·6	318	i 9 16	- 2	e 16 44	0	—	—
Berkeley	z. 53·4	74	e 9 23 _k	- 1	—	—	i 9 32	?
Przhevalsk	53·5	294	e 9 24	0	—	—	—	—
Reno	z. 53·7	70	e 9 24 _a	- 2	—	—	—	—
Almata	53·8	296	e 9 24	- 2	—	—	—	—
Lick	z. 54·1	74	i 9 27 _a	- 2	—	—	—	—
Rybach'e	54·8	296	e 9 31	- 3	—	—	—	—
Frunse	55·3	297	i 9 36	- 2	—	—	—	—
Naryn	55·5	295	e 9 39	0	—	—	—	—
Fresno	z. 55·6	73	e 9 38 _a	- 2	—	—	—	—
Kiruna	55·8	344	i 9 41	0	i 17 31	+ 3	i 9 59	?
Tinemaha	z. 56·2	72	e 9 44	0	—	—	i 10 11	?
Scoresby Sund	56·7	2	e 9 48	0	—	—	—	30·8
China Lake	z. 57·5	72	e 9 52	- 1	—	—	—	—
Andijan	58·9	297	9 53	- 4	—	—	—	—
Namangan	58·2	297	e 9 57	- 1	—	—	—	—
Pasadena	58·4	74	i 9 57	- 3	i 10 5	P	i 10 16	?
Tchimkent	58·4	300	i 9 54	- 6	i 17 58	- 4	—	—
Fergana	58·5	296	e 10 0	0	e 18 2	- 1	—	—
Riverside	z. 58·9	74	i 10 3	0	—	—	—	—

Continued on next page.

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1952

1024

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Boulder City	59.0	71	i 10	2	- 2	—	—	—	—	—	—
Nelson	59.2	71	i 10	2	- 3	—	—	—	—	—	—
Tashkent	59.2	300	e 10	4	- 1	e 18	9	- 3	—	—	—
Dzhergetal	59.7	297	e 10	8	- 1	—	—	—	—	—	—
Khorog	60.7	294	10	15	0	—	—	—	—	—	—
Pulkovo	60.7	334	e 10	15	0	e 18	34	+ 2	—	—	—
Obi-garm	60.9	297	i 10	12	- 5	i 18	32	- 2	—	—	—
Kulyab	61.4	296	10	20	0	18	40	0	—	—	—
Stalinabad	61.5	298	i 10	18	- 3	—	—	—	—	—	—
Samarkand	61.6	300	10	18	- 4	—	—	—	—	—	—
Moscow	61.9	328	10	22	- 2	18	46	- 1	—	—	—
Reyjavik	63.1	2	i 10	35	+ 3	—	—	—	i 10	38	—
Upsala	63.6	341	i 10	35 ^a	0	i 19	10	+ 2	i 11	11	PcP e 26.8
Tucson	64.0	71	i 10	36	- 2	—	—	—	—	—	—
Bairam-Ali	65.7	300	i 10	47	- 1	—	—	—	—	—	—
Kirkland Lake	z. 66.6	39	e 10	53	- 1	—	—	—	—	—	—
Ashkabad	67.4	303	i 10	58	- 1	19	58	+ 3	—	—	—
Kizyl-Arvat	67.6	305	e 11	2	+ 1	—	—	—	—	—	—
Lubbock	67.9	62	10	59	- 3	—	—	—	—	—	—
Copenhagen	68.5	342	i 11	7	+ 1	20	16	+ 8	—	—	36.8
Quetta	68.7	292	i 11	6	- 1	e 20	11	+ 1	—	—	37.8
Grozny	69.0	315	i 11	8	- 1	—	—	—	—	—	—
Baku	69.5	311	e 11	15	+ 3	—	—	—	—	—	—
Piatigorsk	69.5	317	11	13	+ 1	—	—	—	—	—	—
Shemakla	69.9	312	i 11	12	- 3	—	—	—	—	—	—
Fayetteville	z. 70.0	56	i 11	14 ^a	- 1	—	—	—	—	—	—
Ottawa	70.6	39	e 11	16	- 3	i 11	52	PcP	13	59	PP
Shawinigan Falls N.	70.7	35	e 11	23	+ 3	—	—	—	—	—	—
Tiflis	70.7	315	11	18	- 2	20	38	+ 4	—	—	—
Gori	70.8	315	e 11	21	+ 1	—	—	—	—	—	—
Kirovobad	70.8	313	i 11	20	0	—	—	—	—	—	—
Borzhomi	71.2	315	e 11	22	- 1	20	43	+ 3	—	—	—
Lwow	71.2	333	i 11	23	0	e 20	43	+ 3	—	—	—
Tsikhlis-Dzhvari	71.3	315	e 11	26	+ 3	—	—	—	—	—	—
Zugdidi	71.3	318	e 11	24	+ 1	—	—	—	—	—	—
Abastumanj	71.5	315	e 11	23	- 1	—	—	—	—	—	—
Akhalkalaki	71.5	315	e 11	26	+ 2	—	—	—	—	—	—
Potsdam	71.5	341	e 11	25	+ 1	i 20	50	+ 7	e 20	57	PS e 38.8
Hyderabad	N. 71.7	275	—	—	—	i 20	46	+ 1	—	—	33.8
Theodosia	71.7	323	i 11	26	0	—	—	—	—	—	—
Goris	71.9	312	i 11	24	- 3	i 20	51	+ 3	—	—	—
Cernauti	72.0	330	11	28	0	—	—	—	—	—	—
Erevan	72.1	314	i 11	28	0	20	55	+ 5	—	—	—
Kishinev	72.2	328	i 11	29	0	20	54	+ 3	—	—	—
Simferopol	72.2	323	11	28	- 1	20	55	+ 4	—	—	—
Collmberg	72.5	340	e 11	31	+ 1	e 21	0	+ 6	e 11	49	PcP e 39.8
Iasi	72.5	330	e 11	31	+ 1	e 20	57	+ 3	—	—	—
Raciborzu	72.5	336	e 11	32	+ 2	e 11	50	PcP	e 17	14?	?
Yalta	72.6	323	i 11	28	- 3	e 20	56	0	—	—	—
Uzhgorod	72.7	334	e 11	34?	+ 2	e 21	0?	+ 3	—	—	—
Jena	z. 73.2	340	i 11	35	0	—	—	—	—	—	—
Prague	73.4	339	e 11	36	0	e 21	11	+ 6	e 21	38	PS e 43.8
Pennsylvania	73.6	42	i 11	39	+ 2	i 21	4	- 3	i 11	47	PcP
Morgantown	73.7	45	i 11	38	0	—	—	—	—	—	—
Poona	73.7	279	i 11	34	- 4	21	6	- 2	i 11	43	P
Bombay	E. 74.0	281	e 11	38	- 1	e 21	5	- 6	21	49	PS
Djakarta	74.5	236	i 11	44 ^k	+ 2	e 21	22	+ 5	e 25	48	SS
Harvard	74.6	37	e 11	42	- 1	—	—	—	—	—	—
Budapest	74.7	334	11	47	+ 4	e 21	16	- 3	14	8	PP
Weston	74.8	37	i 11	43 ^k	- 1	—	—	—	—	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Palisades		75.0	39	i 11 44	- 1	e 30 5	SSS	—	e 37.9
Fordham		75.2	40	e 11 45	- 1	—	—	—	—
Bucharest		75.4	328	11 53	+ 6	—	—	—	—
Karlsruhe	z.	75.6	341	e 12 2	PcP	—	—	—	—
Stuttgart		75.7	341	e 11 49	0	e 21 42	+12	e 12 8	PcP e 41.8
Strasbourg		76.2	342	e 11 52	0	—	—	i 12 11	PcP 38.8
Belgrade		76.7	332	e 11 55 _a	0	e 21 39	- 2	—	e 39.5
Paris		76.8	346	i 11 56	+ 1	i 12 4	PcP	i 12 15	?
Basle		77.2	342	e 11 58	+ 1	—	—	—	—
Zürich		77.2	342	e 11 56	- 1	—	—	—	—
Istanbul		77.4	325	e 11 59	+ 1	e 21 49?	0	—	—
Chur		77.5	340	e 12 0 _a	+ 1	—	—	—	—
Triest		77.7	337	e 12 12	PcP	e 21 52	0	e 15 7	PP 47.1
Besançon		77.8	343	i 12 2	+ 1	i 12 20	PcP	e 12 54	?
Neuchatel		77.8	342	e 12 2	+ 1	—	—	—	—
Kodaikanal	E.	78.0	271	—	—	e 21 45	-10	—	—
Clermont-Ferrand		79.7	345	e 12 12	+ 1	—	—	i 12 32	PcP
Florence	Z.	80.0	338	e 12 15	+ 2	—	—	—	—
Brisbane	Z.	80.5	187	i 12 14 _a	- 1	—	—	—	—
Tacubaya		80.5	70	e 12 17	+ 2	—	—	—	—
Ksara		81.1	317	i 12 19	+ 1	—	—	—	—
Messina		84.2	333	e 12 35	+ 1	e 22 53	- 6	i 12 45	PcP
Toledo		86.5	349	e 12 47	+ 1	—	—	i 13 0	PcP
Riverview		87.0	188	e 12 49	+ 1	e 23 10	[- 4]	—	—
Granada		89.1	348	i 13 18 _k	+20	—	—	—	48.3
Tamanrasset	Z.	101.5	337	e 13 55	0	e 14 5	?	e 17 58	PP
Pretoria	Z.	135.5	289	e 19 22	[0]	—	—	—	—
Kimberley	Z.	139.8	289	e 19 24	[- 6]	—	—	—	—

Nov. 7d. 13h. 41m. 47s. Epicentre 53°·1N. 160°·9E. (as at 12h.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
College		28.1	45	i 5 56	+ 1	e 10 41	+ 1	(e 11 24)	SS e 11.4
Resolute Bay	Z.	43.1	23	i 8 4 _a	0	—	—	—	—
Victoria		46.0	63	8 27	0	—	—	—	—
Hong Kong		46.9	347	—	—	e 15 27	+ 2	—	—
Manila		49.7	235	i 8 46	-10	i 15 47	-17	—	—
Hungry Horse		51.0	58	i 9 5	- 1	—	—	—	—
Shasta	Z.	51.4	71	e 9 8 _a	- 1	—	—	—	—
Butte		53.3	59	i 9 23	0	—	—	—	—
Berkeley	Z.	53.4	74	i 9 23 _a	- 1	—	—	—	—
Reno	Z.	53.7	70	e 9 25 _a	- 1	—	—	—	—
Lick	Z.	54.1	74	i 9 27 _a	- 2	—	—	—	—
Fresno	Z.	55.6	73	e 9 39 _a	- 1	—	—	—	—
Kiruna		55.8	344	i 9 42 _a	+ 1	i 10 42	PcP	i 12 10	PP e 30.7
Tinemaha		56.2	72	i 9 45	+ 1	—	—	—	—
Scoresby Sund		56.7	2	i 9 48	0	—	—	—	30.2
China Lake	Z.	57.5	72	i 9 52	- 1	—	—	i 10 3	?
Pasadena		58.4	74	i 9 58	- 2	—	—	i 10 8	?
Riverside	Z.	58.9	74	e 10 1	- 2	—	—	—	—
Boulder City		59.0	71	i 10 3	- 1	—	—	i 10 15	?
Nelson		59.2	71	i 10 4	- 1	—	—	—	—
Reykjavik	Z.	63.1	2	e 10 36	+ 4	—	—	—	—
Upsala		63.6	341	i 10 35 _a	0	e 19 13?	+ 5	i 12 53	PP e 32.2
Tucson		64.0	71	i 10 37	- 1	—	—	—	—
Kirkland Lake	Z.	66.6	39	e 10 54	0	—	—	—	—
Copenhagen		68.5	342	i 11 7	+ 1	—	—	—	37.2
Quetta		68.7	292	i 11 7	0	e 20 5	- 5	—	—
Fayetteville	Z.	70.0	56	i 10 14 _k	-61	—	—	—	—
Ottawa		70.6	39	e 11 8	-11	—	—	—	—
Shawinigan Falls	N.	70.7	35	e 11 18	- 2	—	—	—	—
Lwow		71.2	333	i 11 23	0	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Potdam		71.5	341	e 11 26	+ 2	—	—	—	—
Kishinev		72.2	328	e 11 29	0	—	—	—	e 39.2
Collmburg		72.5	340	e 11 32	+ 2	—	—	e 11 41	PcP e 40.2
Iasi		72.5	330	e 11 31	+ 1	—	—	—	—
Raciborzu		72.5	336	e 11 30	0	e 11 36	P	e 11 59	PcP
Uzhgorod		72.7	334	e 11 37	+ 5	—	—	—	—
Jena	z.	73.2	340	i 11 36	+ 1	—	—	—	—
Prague		73.4	339	e 11 37	+ 1	e 11 54	PcP	e 13 14	?
Rathfarnham C.	z.	73.4	354	e 10 24?	-72	—	—	—	—
Morgantown		73.7	45	i 11 34	- 4	—	—	e 14 20	PP
Poona	z.	73.7	279	i 11 35	- 3	21 4	- 4	i 11 44	P
Bombay	E.	74.0	281	e 11 39	0	e 21 7	- 4	26 1	SS
Harvard		74.6	37	i 11 42 _a	- 1	—	—	—	—
Weston		74.8	37	i 11 43 _a	- 1	—	—	—	—
Fordham		75.2	40	e 11 47	+ 1	—	—	—	—
Bucharest		75.4	328	11 49	+ 2	—	—	—	—
Karlsruhe	z.	75.6	341	e 11 49	+ 1	—	—	—	—
Stuttgart	z.	75.7	341	e 11 50	+ 1	—	—	—	—
Strasbourg		76.2	342	i 11 54	+ 2	—	—	i 12 3	PcP
Belgrade	z.	76.7	332	e 11 40 _k	-15	e 12 5	PcP	e 15 28	PP e 36.2
Paris		76.8	346	i 11 57	+ 2	—	—	i 12 4	PcP
Basle		77.2	342	e 11 59	+ 2	—	—	—	—
Zürich		77.2	342	e 11 59	+ 2	—	—	—	—
Istanbul		77.4	325	e 11 58	0	e 21 52	+ 3	e 22 35	PS
Chur		77.5	340	e 11 20 _a	-39	—	—	—	—
Besançon		77.8	343	e 12 1	0	e 12 12	PcP	e 12 27	?
Clermont-Ferrand		79.7	345	e 12 13	+ 2	—	—	—	—
Tacubaya		80.5	70	e 12 12	- 3	—	—	—	—
Ksara		81.1	317	i 12 21	+ 3	—	—	—	—
Messina		84.2	333	i 12 34 _k	0	e 22 59	0	—	—
Riverview	N.	87.0	188	—	—	e 23 10	[- 4]	—	—
Alicante		87.5	346	e 12 54	+ 3	—	—	e 15 44	PP
Almeria		89.3	347	22 2	?	—	—	—	—
Tamanrasset	z.	101.5	337	e 13 55	0	e 17 36	?	e 18 11	PP
Pretoria	z.	135.5	289	e 19 23	[+ 1]	—	—	—	—
Kimberley	z.	139.8	289	e 19 23	[- 7]	—	—	—	—

Nov. 7d. 14h. 8m. 33s. Epicentre 50°·6N. 156°·7E. Focus at Base of Superficial Layers.

A = -·5853, B = +·2521, C = +·7706; δ = -5; h = -6;
D = +·396, E = +·918; G = -·708, H = +·305, K = -·637.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Wakkanai	E.	11.3	248	e 2 58	+16	5 11	+23	—	—
Urakawa		12.8	234	e 3 0	- 2	e 5 9	-16	—	—
Sapporo		12.9	240	e 3 3	- 1	e 5 36	+ 9	e 3 12	PP e 6.6
Miyako		15.1	229	e 3 35	+ 3	—	—	—	7.3
Mizusawa		15.9	230	3 44	+ 1	6 59	SS	7 8	SSS
Sendai		16.7	228	3 51	- 2	e 6 50	- 6	e 4 13	PP
Hokusima		17.3	228	e 4 0	0	e 7 11	+ 1	—	—
Onahama		17.7	226	e 4 16	+10	e 7 21	+ 2	—	—
Mito		18.4	226	e 4 9	- 5	e 7 32	- 3	—	—
Maebasi		19.0	229	e 4 19	- 3	7 41	- 7	e 4 50	PPP
Matusiro		19.3	234	e 4 20	- 5	7 55	0	—	—
Tokyo		19.3	227	4 33	+ 8	8 3	+ 8	—	10.1
Kohu		19.9	230	4 30	- 1	8 5	- 3	—	8.9
Shizuoka		20.5	230	e 4 35	- 3	e 8 26	+ 6	—	—
Nagoya		21.0	231	e 4 40	- 3	e 8 31	+ 1	—	—
Kameyama		21.5	233	4 48	0	8 40	+ 1	9 11	SS
Kyoto		21.8	233	e 4 49	- 2	e 8 45	0	—	e 10.1
Osaka		22.2	233	e 4 58	+ 3	e 9 28	SS	e 5 58	?
Owase		22.3	231	e 4 53	- 3	e 8 55	+ 1	—	—
Hirosima		24.0	237	e 5 10	- 2	e 9 25	+ 1	—	—

Continued on next page.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Koti		24.0	235	e 5	11	- 1	e 9	21	- 3	e 5	41	PP	—
Matuyama		24.2	236	e 5	12	- 2	e 9	29	+ 1	—	—	—	—
Hukuoka		25.7	239	e 5	31	+ 2	e 9	56	+ 3	e 11	32	Q	e 12.9
Miyazaki		26.4	234	e 5	37	+ 2	e 10	35	+31	—	—	—	—
College		31.7	42	i 6	24	+ 1	11	30	+ 1	(e 12	59)	PcS	e 13.0
Sitka		38.9	53	i 9	6	PP	i 15	5	?	—	—	—	—
Manila		46.1	232	i 8	11	-12	i 14	46	-19	—	—	—	—
Resolute Bay		46.4	21	i 8	28 _k	+ 3	i 15	13	+ 3	i 15	34	sS	i 19.8
Victoria		49.5	60	8	51	+ 2	—	—	—	—	—	—	—
Seattle		50.6	61	e 9	1	+ 3	e 16	17	+ 8	e 9	13	pP	—
Hungry Horse		54.6	55	i 9	28	0	—	—	—	—	—	—	—
Shasta		54.8	66	e 9	29 _a	0	e 17	10	+ 4	e 9	46	pP	—
Saskatoon		55.9	48	—	—	—	e 17	31	+10	—	—	—	—
Berkeley	z.	56.7	70	e 9	43 _a	0	—	—	—	e 9	59	pP	—
Butte		56.8	56	e 9	45	+ 2	—	—	—	—	—	—	—
Chatra	N.	57.0	273	e 9	42	- 3	17	47	PS	19	29	ScS	—
Reno	z.	57.0	65	e 9	46 _a	+ 1	—	—	—	—	—	—	—
Santa Clara		57.2	70	e 10	7 _k	+21	e 17	47	+ 9	—	—	—	e 26.5
Kiruna		57.4	342	i 9	46	- 2	e 17	13	-27	e 13	22	PPP	e 24.4
Lick	z.	57.4	70	e 9	47 _a	- 1	i 11	9	?	e 10	2	pP	—
Fresno		58.9	68	e 9	58 _a	0	e 18	35	PPS	e 10	13	pP	—
Scoresby Sund		59.2	0	i 10	0	0	e 18	7	+ 3	18	31	PPS	29.4
Tinemaha	z.	59.6	68	i 10	7	+ 4	—	—	—	—	—	—	—
China Lake	z.	60.8	68	e 10	12	+ 1	—	—	—	i 10	28	pP	—
Pasadena		61.6	70	i 10	16	0	e 18	44	+ 9	i 10	30	pP	e 25.8
New Delhi		62.0	282	e 10	18	- 1	e 18	33	- 7	12	38	PP	25.8
Riverside		62.2	70	i 10	21	+ 1	—	—	—	i 10	36	pP	—
Boulder City		62.3	66	i 10	22	+ 1	—	—	—	—	—	—	—
Nelson		62.5	66	i 10	23	+ 1	—	—	—	—	—	—	—
Rapid City		63.0	53	i 10	25	- 1	i 20	49	?	—	—	—	—
Upsala		65.0	339	i 10	37	- 2	e 19	15	- 2	e 23	27?	SS	e 31.2
Reykjavik	z.	65.6	359	i 10	46	+ 3	—	—	—	—	—	—	—
Quetta		67.1	291	e 10	51	- 1	i 19	47	+ 5	—	—	—	—
Tucson		67.3	67	i 10	55	+ 2	e 19	49	+ 4	e 24	51	SS	e 27.4
Hyderabad	N.	69.3	273	e 11	3	- 3	i 20	0	- 9	—	—	—	33.5
Copenhagen		70.0	340	e 11	12	+ 2	—	—	—	—	—	—	35.4
Kirkland Lake	z.	70.2	37	e 11	12	+ 1	—	—	—	—	—	—	—
Djakarta		71.0	234	i 11	17 _a	+ 1	i 21	4	PS	e 11	20	P	—
Aberdeen		71.2	349	—	—	—	i 21	43	PPS	—	—	—	e 31.7
Bandong		71.2	233	e 11	13	- 5	20	57	PS	i 11	22	P	—
Lubbock		71.4	59	11	17	- 2	—	—	—	—	—	—	—
Poona		71.4	277	i 11	17	- 2	20	29	- 4	—	—	—	—
Bombay	E.	71.8	278	e 11	16	- 5	e 20	39	+ 1	e 21	19	PS	—
Lwow		72.1	330	e 11	22	- 1	—	—	—	—	—	—	—
Cernauti		72.8	328	i 11	27	0	—	—	—	—	—	—	—
Kishinev		72.9	326	i 11	28	0	—	—	—	—	—	—	—
Potsdam		72.9	339	i 11	25	- 3	—	—	—	—	—	—	e 35.4
Iasi		73.2	328	e 11	31	+ 2	—	—	—	—	—	—	—
Durham	E.	73.4	347	—	—	—	i 21	25	PS	—	—	—	—
Fayetteville	z.	73.6	53	i 11	32 _a	0	—	—	—	—	—	—	—
Raciborzu		73.6	334	e 11	32	0	e 21	16	SP	e 11	54	PcP	41.4
Uzhgorod		73.7	330	e 11	34	+ 2	e 20	52	- 7	—	—	—	—
Collmberg		73.9	337	e 11	33	0	e 21	9	+ 7	e 21	39	ScS	e 34.4
Ottawa		74.2	36	i 11	34 _a	- 1	—	—	—	—	—	—	—
Shawinigan Falls	N.	74.2	33	e 11	36	+ 1	—	—	—	e 11	45	pP	—
Jena		74.6	338	e 11	38	0	—	—	—	—	—	—	—
Prague		74.7	336	e 11	39	+ 1	e 21	9	- 2	e 15	57	PPP	—
De Bilt		74.9	343	—	—	—	e 20	57	-16	—	—	—	e 31.4
Cleveland	N.	75.1	42	i 11	43	+ 3	—	—	—	—	—	—	—
Buffalo (Larkin)		75.2	39	i 11	42	+ 1	—	—	—	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kodaikanal	E.	75.3	269	e 11 43	+ 1	—	—	—	—
Rathfarnham Castle		75.5	350	i 11 43	0	—	—	—	e 38.4
Ogyalla		75.6	333	e 11 51	pP	e 21 59	PS	e 22 27	PPS
Budapest		75.7	332	11 46	+ 2	21 23	+ 1	e 14 42	PP
Bucharest		76.1	326	11 51	+ 5	—	—	—	—
Kew		76.4	346	e 11 46	- 2	e 20 54	- 35	e 22 28	PPS
Timisoara		76.6	330	e 11 27?	- 22	e 21 39?	+ 7	—	—
Karlsruhe	z.	77.1	340	e 11 52	0	—	—	—	—
Pennsylvania		77.2	40	i 11 56	+ 4	i 21 40	+ 2	i 12 10	pP
Stuttgart		77.2	339	e 11 52	0	—	—	—	e 39.4
Morgantown		77.3	42	i 11 46	- 7	—	—	—	—
Belgrade		77.7	330	e 11 53k	- 2	e 21 40	- 4	e 12 54	?
Strasbourg		77.7	340	i 11 55	0	i 21 45	+ 1	e 12 3	pP
Brisbane		77.8	186	i 11 53k	- 3	i 21 41	- 4	i 22 5	sS
Istanbul		77.9	322	e 11 54	- 2	e 21 41	- 5	e 16 42	PPP
Harvard		78.2	35	i 11 59 _a	+ 1	e 21 52	+ 3	—	—
Weston		78.4	35	i 11 59 _a	0	e 21 53	+ 2	—	—
Paris		78.5	343	i 12 1	+ 2	i 21 55	+ 3	i 12 14	pP
Palisades		78.6	38	i 12 0	0	—	—	—	—
Sofia		78.6	327	e 12 2	+ 2	e 21 49	- 4	—	—
Zürich		78.6	339	e 12 0	0	e 22 8	sS	—	—
Basle		78.7	340	e 12 2	+ 2	—	—	—	—
City College, N.Y.		78.7	38	—	—	e 21 51	- 3	—	—
Fordham		78.7	38	e 12 3	+ 3	—	—	—	—
Chur		78.9	338	e 12 2 _a	0	—	—	—	—
Triest		78.9	335	e 12 1	- 1	i 21 55	- 1	i 22 10	sS
Philadelphia		79.0	39	—	—	i 21 54	- 3	—	—
Washington		79.2	39	i 12 3	0	—	—	—	—
Besançon		79.3	341	i 12 5	+ 1	e 12 57	?	i 12 22	pP
Neuchatel		79.3	340	e 12 4	0	—	—	—	—
Pavia		80.5	338	e 12 14	+ 4	e 22 40	+ 27	—	—
Bologna		80.6	336	e 12 15	+ 4	—	—	—	—
Ksara		81.1	313	i 12 15	+ 2	—	—	—	e 52.1
Clermont-Ferrand		81.3	342	e 12 14	0	—	—	i 12 17	P
Florence	z.	81.3	335	i 12 15 _a	+ 1	—	—	i 13 3	?
Athens		82.6	324	—	—	i 22 34	- 1	e 23 49	PPS
Taranto		82.6	330	12 29	pP	22 19	- 16	—	—
Rome		82.7	335	12 21	- 1	e 23 18	SP	e 19 29	?
Tacubaya		83.8	67	e 12 28	+ 1	—	—	—	—
Riverview		84.2	185	i 12 27 _a	- 2	i 22 46	- 5	e 28 10	SS
Messina		85.2	330	e 12 33	- 1	e 22 49	[- 4]	e 30 3	PKKP
Helwan	E.	86.5	315	—	—	e 23 3	[+ 1]	—	—
Toledo		88.3	346	i 12 52	+ 3	—	—	e 13 16	?
Melbourne		88.7	190	—	—	e 23 38	+ 4	—	—
Alicante		89.2	342	e 12 57	+ 3	e 23 15	[- 4]	—	—
Algiers Univ.	z.	90.0	339	e 12 57	0	—	—	—	—
Granada		90.9	345	13 32k	+ 30	—	—	16 31	PP
Almeria		91.0	343	i 13 4	+ 2	23 48	- 7	16 40	PP
Malaga		91.5	345	i 13 2	- 2	i 23 38	[+ 6]	e 16 42	PP
Wellington		92.9	167	—	—	23 29	[- 11]	e 24 2	S
Christchurch		94.8	169	—	—	e 30 27?	SS	—	—
Tamanrasset	z.	102.6	333	e 13 55	0	e 17 57	PP	e 20 14	PPP
Fort de France		107.0	40	e 18 41	PP	—	—	—	—
Huancayo		122.9	67	e 18 56	[+ 3]	e 27 27	SKKS	e 20 35	PP
La Paz		130.6	63	i 19 7	[- 1]	i 22 32	SKP	i 31 22	SKSP
Pretoria	z.	133.7	282	i 19 15	[+ 2]	—	—	—	—
Kimberley	z.	137.9	281	e 19 10	[- 11]	—	—	—	—
Grahamstown	z.	139.9	276	e 19 18	[- 7]	—	—	—	—

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Nov. 7d. 15h. 40m. 42s. Epicentre 49°·5N. 155°·5E. (as on 1949, October 31d.).

A = -·5933, B = +·2704, C = +·7582; $\delta = -1$; $h = -5$;
D = +·417, E = +·910; G = -·690, H = +·314, K = -·652.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	s.
Resolute Bay	z.	47·7	20	i 8 41k	+ 1	—	—	—	—
Victoria		50·7	58	9 2	- 1	—	—	—	—
Kiruna	z.	58·2	342	i 9 56k	- 2	—	—	i 10 3	?
Tinemaha	z.	60·7	67	e 10 19	+ 4	—	—	e 10 29	?
China Lake	z.	61·9	67	e 10 24	0	—	—	—	—
Pasadena	z.	62·7	69	e 10 28	- 1	—	—	—	—
Riverside	z.	63·3	69	e 10 31	- 2	—	—	—	—
Poona	z.	70·8	277	i 11 18	- 2	—	—	—	—
Fayetteville	z.	74·9	53	i 11 45	+ 1	—	—	—	—
Prague		75·4	336	e 11 50	+ 3	—	—	e 11 35	?
Ottawa		75·5	35	i 11 47k	- 1	—	—	—	—
Shawinigan Falls	N.	75·6	32	e 11 47	- 1	—	—	—	—
Stuttgart		77·9	338	e 12 0	- 1	—	—	—	—
Istanbul	z.	78·3	322	e 12 2	- 1	—	—	—	—
Strasbourg		78·4	339	i 12 4	0	—	—	—	—
Basle		79·4	339	e 12 9	0	—	—	—	—
Zürich		79·4	339	e 12 8	- 1	—	—	—	—
Harvard		79·5	34	e 12 10	0	—	—	—	—
Weston		79·7	34	i 12 11k	0	—	—	—	—
Besançon		80·1	340	e 12 13	0	—	—	—	—
Ksara		81·3	313	e 12 20	0	—	—	—	—
Tamanrasset	z.	103·2	332	e 14 2	- 1	—	—	—	—

Nov. 7d. 16h. 54m. 41s. Epicentre 52°·8N. 161°·5E. (as on 6d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	s.
Resolute Bay	z.	43·3	22	i 8 3k	- 2	—	—	—	—
Victoria		45·8	63	8 26	+ 1	—	—	—	—
Tinemaha	z.	56·0	71	i 9 45	+ 2	—	—	—	—
Kiruna	z.	56·2	344	i 9 40	- 4	i 9 49	P	i 9 57	?
China Lake	z.	57·3	71	e 9 53	+ 1	—	—	—	—
Pasadena	z.	58·1	73	i 9 58	0	—	—	i 10 10	?
Riverside	z.	58·7	73	e 10 1	- 1	—	—	—	—
Upsala	z.	64·0	340	i 10 36	- 2	i 10 43	P	i 10 47	?
Copenhagen		68·9	342	e 11 7	- 2	—	—	i 11 18	?
Ottawa		70·6	38	e 11 16	- 3	—	—	—	—
Collmberg		72·9	339	e 11 30	- 3	—	—	e 11 41	PcP
Jena	z.	73·6	340	e 11 39	+ 2	—	—	—	—
Prague		73·8	338	e 11 31	- 7	e 11 45	PcP	e 12 13	?
Poona	z.	74·1	279	i 11 35	- 5	—	—	—	—
Stuttgart		76·1	341	e 11 52?	+ 1	—	—	e 11 59	PcP
Strasbourg		76·6	342	i 12 3	+ 9	—	—	—	—
Paris		77·2	345	i 11 58	+ 1	i 12 8	PcP	i 12 14	P ₂ P
Zürich		77·6	342	e 11 57	- 3	—	—	e 12 9	PcP
Istanbul	z.	77·9	325	e 11 56	- 5	e 12 10	PcP	e 12 23	PcP
Besançon		78·2	342	e 12 7	+ 4	—	—	i 12 12	PcP
Ksara		81·6	316	i 11 43	-38	—	—	—	—
Tamanrasset	z.	101·8	336	e 14 4	+ 8	e 17 58	PP	e 18 28	?
Kimberley	z.	140·2	289	e 19 39	[+ 8]	—	—	—	—

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Nov. 7d. 20h. 55m. 1s. Epicentre 26°·2N. 111°·0W.

A = -·3220, B = -·8388, C = +·4391; $\delta = +8$; $h = +3$;
D = -·934, E = +·358; G = -·157, H = -·410, K = -·898.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	e	e	m. s.	s.	m. s.	s.	m. s.	m.
Chihuahua	5·0	60	e 1 19	+ 1	(2 27)	- 5*	—	2·4
Tucson	6·1	1	i 1 28	- 6	i 2 27	-18	i 1 59	i 2·9
Guadalajara	8·9	127	—	—	(e 4 20)	- 8*	—	e 4·3
Riverside	9·5	326	e 2 23	+ 3	—	—	—	—
Nelson	10·0	342	i 2 26	- 1	—	—	—	—
Pasadena	10·1	323	i 2 27 _a	- 2	i 4 21	- 4	—	—
Boulder City	10·3	342	i 2 32	0	—	—	i 2 37	—
China Lake	11·1	331	e 2 44	+ 1	i 2 52	PP	i 3 10	PPP
Tinemaha	12·4	332	e 3 3	+ 2	—	—	i 3 9	PP
Tacubaya	12·8	120	i 3 7	+ 1	i 6 8	SSS	—	e 6·8
Fresno	12·9	327	e 3 7 _a	0	—	—	—	—
Puebla	13·8	119	e 3 20	+ 1	—	—	e 6 30	Q
Lick	14·3	323	e 3 21 _a	- 5	—	—	—	—
Santa Clara	14·5	323	i 3 30 _a	+ 2	i 6 28	SS	—	—
Berkeley	15·0	323	e 3 35 _a	0	e 6 35	SS	i 3 49	PP
Reno	15·2	333	e 3 40 _a	+ 2	—	—	e 9 5	PcP
Vera Cruz	15·4	114	e 3 42	+ 2	e 6 47	SS	—	e 7·7
Shasta	17·3	330	e 4 4	0	—	—	—	—
Fayetteville	17·4	53	i 3 59	- 7	i 7 29	+10	—	e 8·6
Lincoln	18·8	34	i 4 22	- 1	e 7 47	- 3	—	—
Bozeman	19·4	0	i 4 33	+ 3	—	—	—	—
Butte	19·8	357	i 4 35	0	—	—	—	—
Mobile	20·6	70	4 39	- 4	8 31	+ 2	—	—
Corvallis	20·8	333	e 4 43	- 2	—	—	—	—
Hungry Horse	22·2	355	4 57	- 3	e 7 28	?	—	—
Seattle	23·2	341	e 5 16	+ 7	e 9 37	+19	11 47	Q
Victoria	24·3	340	5 20	0	9 48	+11	—	i 13·2
Chicago	24·8	43	e 5 31	+ 6	e 9 43	- 3	—	12·4
Saskatoon	26·1	5	10 5	S	(10 5)	- 2	i 10 14	?
Swan Island	26·6	101	i 8 17	?	—	—	—	14·2
Miami	27·5	81	i 6 25	PP	e 10 37	+ 7	—	e 13·0
Morgantown	29·1	54	e 6 3	- 1	—	—	—	—
Pennsylvania	31·0	52	—	—	i 11 25	- 1	—	e 15·4
Washington	31·1	56	e 6 30	+ 8	—	—	—	—
Kirkland Lake	32·6	39	e 6 32	- 3	—	—	—	e 17·2
Guantanamo Bay	33·6	91	e 6 36	- 8	—	—	—	—
City College, N.Y.	33·9	54	—	—	e 12 2	- 9	—	—
Fordham	33·9	54	e 6 45	- 2	e 12 10	- 1	—	—
Palisades	34·0	54	i 6 43	- 5	i 12 11	- 2	—	e 16·1
Ottawa	34·1	46	i 6 47 _k	- 1	12 15	+ 1	9 29	PcP
Harvard	36·0	52	e 7 1	- 4	e 12 36	- 8	—	e 17·7
Weston	36·2	52	i 7 9 _a	+ 3	e 12 45	- 2	—	e 18·2
Galerazamba	37·0	106	—	—	e 12 58	- 1	—	e 18·9
Chinchina	39·9	115	e 7 39	+ 2	i 13 45	+ 2	e 9 10	17·0
Bermuda	40·6	69	i 9 14	PP	e 13 50	- 4	e 17 8	PP
Bogota	41·3	114	i 7 52	+ 3	i 14 8	+ 4	i 9 32	SSS
San Juan	42·1	90	i 7 50	- 5	—	—	—	e 20·1
Roosevelt Roads	42·6	89	e 8 1	+ 2	—	—	—	—
College	45·2	339	i 8 19	- 1	e 15 19	+18	e 18 27	SS
Fort de France	47·8	93	i 8 36	- 5	i 15 40	+ 2	—	e 19·1
Resolute Bay	49·3	6	e 8 50	- 3	i 16 1	+ 2	i 10 18	PcP
Huancayo	51·5	133	e 9 8	- 1	i 16 35	+ 6	i 20 4	SS
La Paz	59·5	130	i 10 5	- 2	e 18 18	+ 2	i 19 56	ScS
Scoresby Sund	65·3	21	e 10 41	- 5	—	—	—	27·5
Kiruna	79·6	17	i 12 9	- 1	i 12 18	PcP	e 38 59	Q
Upsala	84·5	24	i 12 41	+ 5	e 22 59?	- 3	—	e 41·0
Copenhagen	85·3	28	—	—	23 13	+ 3	—	e 40·0
Toledo	85·5	47	e 12 45	+ 4	—	—	—	43·0
Malaga	86·8	50	i 12 21	-26	—	—	—	41·6
Granada	87·2	50	i 12 52 _a	+ 3	23 10 [- 5]	—	23 40	ScS

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Almeria	88.1	49	i 12	21	-33	—	—	—	—	—	42.9
Stuttgart	88.3	35	e 11	21?	?	—	—	—	—	—	e 42.0
Collmberg	88.5	32	e 10	53	-123	—	—	—	—	—	e 46.0
Alicante	88.6	47	13	2	+ 6	e 23	48	+ 6	—	—	—
Tamanrasset	z. 101.6	57	17	7	?	—	—	—	e 18	5	PP
Istanbul	103.5	30	e 18	41	PP	e 24	45	[+ 1]	e 34	19	PcPPKP
Ksara	112.5	30	i 19	34	PP	e 29	1	PS	—	—	—

Nov. 7d. 22h. 5m. 20s. Epicentre 47°·8N. 154°·8E. (as on 1946, September 7d.).

A = -·6101, B = +·2871, C = +·7385; δ = +3; h = -5;
D = +·426, E = +·905; G = -·668, H = +·314, K = -·674.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Petropavlovsk	5.9	23	i 1	32	+ 1	—	—	—	—	—	—
Abashiri	8.2	247	e 2	0	- 3	—	—	—	—	—	—
Yuzno-Sakhlinsk	8.3	269	2	8	+ 4	—	—	—	—	—	—
Uglegorsk	8.6	285	2	15	+ 6	4	3	+15	—	—	—
Klyuchi	9.3	21	e 2	31	P*	e 4	25	-15*	—	—	—
Wakkanai	E. 9.3	260	e 2	25	+ 8	4	38	- 2*	—	—	—
Urakawa	10.2	241	e 2	2	-29	e 4	24	- 3	e 2	47	P _g
Sapporo	10.6	248	e 2	35	- 1	e 4	47	+10	—	—	e 6.2
Mori	11.6	246	e 3	5	+15	5	14	+13	—	—	6.9
Hatinohe	12.0	238	e 3	7	+12	e 6	58	L	—	—	(e 7.0)
Mizusawa	E. 13.2	234	5	33	S	(5	33)	- 7	9	10	?
Hokusima	14.5	232	e 3	30	+ 2	e 6	0	-11	—	—	e 7.4
Kumagaya	16.3	230	e 3	47	- 5	e 7	38	L	—	—	(e 7.6)
Maebasi	16.3	231	e 3	57	+ 5	e 6	59	+ 6	—	—	e 8.4
Tokyo	16.5	228	3	50	- 4	6	53	- 5	(e 7	26?)	SS
Matusiro	16.6	234	3	46	-10	17	8	+ 8	7	34	SSS
Vladivostok	16.7	262	3	50	- 7	—	—	—	—	—	i 8.0
Gihu	18.3	233	e 4	14	- 3	e 7	49	+10	—	—	e 10.0
Nagoya	18.3	233	e 4	6	-11	—	—	—	—	—	e 9.6
Kameyama	18.8	233	e 4	28	+ 5	e 8	3	+13	—	—	10.4
Kyoto	19.1	235	e 4	26	- 1	e 8	1	+ 4	—	—	—
Siomisaki	20.3	233	e 4	45	+ 5	8	38	+15	—	—	—
Takamatu	20.6	237	e 4	43	0	e 8	38	+ 9	—	—	e 10.3
Hamada	21.3	241	4	51	+ 1	8	56	+13	e 9	51	Q
Muroto	21.3	235	e 4	49	- 1	e 8	52	+ 9	—	—	e 11.0
Hirosima	21.5	239	e 4	51	- 1	e 8	54	+ 7	—	—	10.8
Matuyama	21.6	238	e 4	54	0	e 8	59	+10	—	—	e 11.1
Ooita	22.7	239	e 5	4	0	e 9	17	+ 8	—	—	e 13.3
Hukuoka	23.2	241	e 5	11	+ 2	9	22	+ 4	—	—	e 11.7
Miyazaki	23.8	236	e 5	8	- 7	e 9	43	+15	—	—	—
Kabansk	30.8	297	e 6	19	- 1	—	—	—	—	—	—
Kyakhta	31.3	294	6	23	- 1	—	—	—	—	—	—
Nanking	E. 31.4	254	i 6	23	- 2	e 11	30	- 2	—	—	—
Irkutsk	32.2	298	e 6	30	- 2	—	—	—	—	—	—
College	34.6	38	i 6	52	- 1	12	20	- 2	(e 13	8)	PcS
Hong Kong	41.2	247	e 7	48	0	14	3	+ 1	—	—	20.1
Manila	43.4	232	i 7	57	- 9	i 14	19	-16	—	—	—
Semipalatinsk	47.0	303	e 8	30	- 5	—	—	—	—	—	—
Resolute Bay	49.5	19	18	57 _a	+ 3	i 16	7	+ 5	—	—	—
Victoria	52.0	56	9	13	0	—	—	—	—	—	—
Przhevalsk	52.1	295	e 9	12	- 2	—	—	—	—	—	—
Almata	52.6	297	e 9	16	- 2	—	—	—	—	—	—
Rybach'e	53.5	296	e 9	24	0	—	—	—	—	—	—
Shillong	E. 53.6	270	i 9	26	+ 1	—	—	—	—	—	—
Sverdlovsk	53.8	317	i 9	26	0	e 17	6	+ 5	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Frunse		54.2	296	i 9	29	0	—	—	—	—	—	—
Naryn		54.2	294	i 9	31	+ 2	i 17	17	+11	—	—	—
Chatra	E.	55.9	274	e 9	34	- 8	17	34	+ 5	—	—	—
Andijan		56.8	295	i 9	50	+ 2	i 17	50	+ 9	—	—	—
Namangan		57.1	296	i 9	52	+ 2	e 17	47	+ 2	—	—	—
Shasta		57.1	63	e 9	18	-32	—	—	—	—	—	—
Hungry Horse		57.2	52	i 9	52	+ 1	—	—	—	—	—	—
Fergana		57.4	295	i 9	52	- 1	—	—	—	—	—	—
Tchimkent		57.5	299	i 9	54	+ 1	—	—	—	—	—	—
Lunacharskoe		58.5	298	i 10	0	0	—	—	—	—	—	—
Tashkent		58.5	298	i 9	59	- 1	e 18	5	+ 2	—	—	—
Saskatoon		58.7	45	—	—	—	e 17	56	-10	—	—	33.7
Berkeley		58.9	66	e 10	2	- 1	e 18	14	+ 6	—	—	—
Garm		59.1	296	e 10	6	+ 2	—	—	—	—	—	—
Khorog		59.3	293	i 10	8	+ 2	—	—	—	—	—	—
Reno	Z.	59.3	63	e 10	6	0	—	—	—	—	—	—
Butte		59.5	53	e 10	7	0	—	—	—	—	—	—
Lick	Z.	59.6	66	e 10	7	- 1	—	—	—	—	—	—
Dehra Dun	N.	59.7	283	—	—	—	e 18	42	+23	—	—	e 33.4
Kiruna		59.7	341	i 10	6	- 3	i 18	26	+ 7	i 11	1	PcP e 26.7
Obi-garm		59.7	296	i 10	9	0	e 18	23	+ 4	—	—	—
Kulyab		60.1	295	10	9	- 2	18	23	- 1	—	—	—
Stalinabad		60.3	295	i 10	12	- 1	i 18	29	+ 3	—	—	—
Bozeman		60.5	53	—	—	—	e 18	30	+ 1	—	—	—
Samarkand		60.7	297	10	13	- 2	—	—	—	—	—	—
Fresno	Z.	61.1	65	e 10	18	0	—	—	—	—	—	—
New Delhi		61.4	282	e 10	19	- 1	18	43	+ 3	20	11	ScS
Tinemaha	Z.	61.8	65	e 10	22	- 1	—	—	—	—	—	—
Scoresby Sund		62.0	359	e 10	24	0	e 18	56	+ 8	—	—	32.7
China Lake	Z.	63.1	65	e 10	28	- 4	—	—	—	—	—	—
Pulkovo		63.6	332	e 10	36	+ 1	e 19	11	+ 3	—	—	—
Pasadena	Z.	63.8	67	i 10	34	- 2	—	—	—	i 10	46	?
Moscow		64.2	326	e 10	38	- 1	i 19	20	+ 4	—	—	—
Riverside	Z.	64.5	67	e 10	38	- 3	—	—	—	—	—	—
Boulder City		64.6	63	e 10	39	- 2	—	—	—	—	—	—
Nelson		64.8	63	i 10	41	- 2	—	—	—	—	—	—
Bairam-Ali		64.9	299	i 10	44	+ 1	—	—	—	—	—	—
Ashkabad		66.9	301	i 10	59	+ 3	i 19	57	+ 8	—	—	—
Quetta		66.9	291	i 10	54	- 2	i 19	51	+ 2	—	—	36.7
Upsala		67.2	338	i 10	57	- 1	e 19	53	+ 1	e 24	40?	SS e 31.7
Kizyl-Arvat		67.3	304	11	0	+ 1	—	—	—	—	—	—
Hyderabad	N.	68.2	272	e 11	3	- 1	i 20	9	+ 5	24	21	SS 32.5
Djakarta		68.3	233	e 11	11 ^a	+ 6	e 20	13	+ 7	—	—	—
Bandong		68.5	231	11	10	+ 4	e 20	3	- 5	—	—	—
Makhach-Kala		69.2	311	i 11	13	+ 3	e 20	27	+11	—	—	—
Tucson		69.6	64	i 11	13	0	—	—	—	—	—	—
Baku		69.9	308	i 11	19	+ 4	e 20	33	+ 9	—	—	—
Grozny		70.2	312	i 11	15	- 2	—	—	—	—	—	—
Shemakla		70.4	310	i 11	20	+ 2	20	40	+10	—	—	—
Poona		70.5	276	i 11	17	- 1	i 20	33	+ 1	—	—	—
Piatigorsk		70.6	315	11	21	+ 2	20	35	+ 2	—	—	—
Bombay	E.	70.9	277	i 11	24	+ 3	i 20	40	+ 4	14	5	PP 33.6
Kirovobad		71.5	311	11	26	+ 2	—	—	—	—	—	—
Tiflis		71.5	312	11	21 [?]	- 3	20	49?	+ 6	—	—	—
Gori		71.7	313	e 11	27	+ 1	—	—	—	—	—	—
Borzhomi		72.1	313	e 11	27	- 1	e 20	55	+ 5	—	—	—
Copenhagen		72.2	339	i 11	29	0	20	52	+ 1	21	40	PPS 37.7
Tsikhlis-Dahvari		72.2	313	11	27	- 2	—	—	—	—	—	—
Akhalkalaki		72.4	313	e 11	33	+ 3	—	—	—	—	—	—
Goris		72.4	309	i 11	30	0	i 20	59	+ 6	—	—	—

Continued on next page.

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1952		1033									
		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.
Zugdidi		72.4	315	e 11	29	- 1	—	—	—	—	—
Sotchi		72.6	316	i 11	32?	+ 1	e 20	57?	+ 1	—	—
Leninakan		72.7	311	e 11	34	+ 2	—	—	—	—	—
Erevan		72.8	311	i 11	24	- 8	—	—	—	—	—
Theodosia		73.4	320	e 11	37	+ 1	—	—	—	—	—
Aberdeen		73.7	347	—	—	—	i 21	15	+ 7	—	e 44.0
Lwow		73.9	330	e 11	40	+ 1	—	—	—	—	—
Kodaikanal	E.	74.0	268	e 11	38	- 1	—	—	—	—	—
Simferopol		74.0	321	i 11	39	0	21	15	+ 4	—	—
Yalta		74.4	320	e 11	39	- 3	e 21	16	0	—	—
Cernauti		74.5	327	11	41	- 1	—	—	—	—	—
Kishinev		74.5	326	i 11	41	- 1	21	19	+ 2	—	—
Colombo	E.	74.8	293	—	—	—	21	19	- 1	—	42.5
Iasi		74.8	327	e 11	44	0	—	—	—	—	—
Brisbane		74.9	181	e 11	43	- 1	e 21	21	- 1	i 21	48 PS
Potsdam		75.0	337	i 11	47	+ 2	i 21	26	+ 3	e 21	33 S
Chicago		75.1	43	—	—	—	e 21	22	- 2	—	e 39.7
Uzhgorod		75.5	330	e 11	50	+ 2	—	—	—	—	—
Raciborzu		75.6	333	11	49	+ 1	12	1	PcP	e 14	54 PP
Collmberg		76.0	336	e 11	50	- 1	e 21	46	+12	—	e 37.7
Fayetteville	z.	76.3	51	i 11	50	- 2	—	—	—	—	—
Jena		76.7	337	e 11	54	- 1	e 21	46	+ 5	e 12	8 PcP
Prague		76.7	335	e 11	58	+ 3	e 21	46	+ 5	e 14	50 PP
De Bilt		77.1	341	i 11	59	+ 2	i 21	56	+10	—	e 35.7
Ottawa		77.2	34	e 11	51	- 6	21	42	- 5	—	—
Cheb	N.	77.3	337	—	—	—	e 21	48	0	e 21	57 S
Shawinigan Falls	N.	77.3	31	e 12	2	+ 4	—	—	—	—	—
Ogyalla		77.5	331	e 12	14	PcP	e 21	57	+ 7	e 22	8 ScS
Budapest		77.6	330	12	0	0	21	55	+ 4	12	14 PcP
Bucharest		77.7	325	12	16	PcP	—	—	—	—	42.7
Rathfarnham C.	z.	78.0	348	e 12	33	+31	—	—	—	—	—
Kew		78.8	344	e 12	10	+ 4	e 22	10	+ 6	e 12	36 PcP
Istanbul		79.3	321	e 12	9	0	e 22	12	+ 3	e 15	7 PP
Karlsruhe	z.	79.3	338	e 12	12	+ 3	—	—	—	—	41.9
Stuttgart		79.3	337	e 12	7	- 2	e 22	12	+ 3	e 12	22 PcP
Strasbourg		79.8	338	e 12	15	+ 3	e 22	17	+ 3	i 13	0 pP
Morgantown		80.3	40	i 12	15	+ 1	—	—	—	—	—
Basle		80.8	338	e 12	20	+ 3	—	—	—	—	—
Paris		80.8	341	i 12	17	0	e 22	26	+ 1	i 22	40 ScS
Zürich		80.8	338	e 12	18	+ 1	e 22	25	0	—	—
Chur		81.0	337	e 12	20	+ 2	—	—	—	—	—
Triest		81.0	333	e 12	26	PcP	e 22	29	+ 2	—	—
Harvard		81.2	33	e 12	18	- 1	—	—	—	—	—
Riverview		81.3	182	i 12	22 ^a	+ 2	i 22	29	- 1	i 12	31 PcP
Weston		81.4	33	i 12	22	+ 2	—	—	—	—	e 45.4
Besançon		81.5	339	e 12	24	+ 3	—	—	—	i 12	37 ?
Fordham		81.8	35	e 12	23	+ 1	—	—	—	—	—
Ksara		82.3	312	i 12	26	+ 1	—	—	—	—	—
Clermont-Ferrand		83.6	340	e 12	42	+11	i 23	8	+15	—	43.7
Athens		84.1	323	e 22	48	?	i 22	57	- 1	i 23	3 ScS
Melbourne	E.	85.7	187	—	—	—	i 23	11	{+ 1}	—	—
Tacubaya		86.1	65	e 12	48	+ 4	—	—	—	—	—
Messina	E.	87.0	329	—	—	—	e 23	31	+ 4	—	—
Helwan	E.	87.5	313	—	—	—	e 23	21	{- 2}	e 24	30 PS
Wellington		90.5	165	—	—	—	23	30	[- 6]	23	46 SKKS
Alicante		91.4	341	e 13	29	+20	e 24	17	+10	—	43.7
Bermuda		92.7	33	—	—	—	e 24	23	+ 5	—	—
Granada		93.2	343	12	37 ^k	-40	e 24	51	+28	15	31 ?
Almeria		93.3	342	12	49	-29	23	37	[-15]	16	21 ?
Tamanrasset	z.	104.5	331	e 14	10	+ 2	e 17	55	?	e 18	32 PP
Fort de France		110.0	37	e 18	34	[+ 1]	—	—	—	—	—
Huancayo		125.2	67	e 24	47	?	e 31	7	PS	—	—
La Paz		133.0	63	i 19	20	[+ 2]	i 23	3	PKS	i 32	10 PS
Pretoria	z.	133.0	278	e 19	20	[+ 2]	—	—	—	—	68.8
La Plata		152.5	73	—	—	—	45	16	?	61	46 SSS

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Nov. 7d. 23h. 12m. 9s. Epicentre 29°-8S. 177°-6W. (as on 1951, September 29d.).

Intensity V on Raoul Island. Epicentre 31°S. 177°W. (U.S.C.G.S.).
Seismological Report for October, November, December, 1952, Bulletin E130, Wellington, 1955, p. 7.

A = -0.8684, B = -0.0364, C = -0.4945; $\delta = -3$; $h = +2$;
D = -0.042, E = +0.999; G = +0.494, H = +0.021, K = -0.869.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Auckland	N.	9.5	220	12	21	+1	15	5	-9	—	—	—
Karapiro	N.	9.9	213	e 2	31	+6	e 4	4	-16	—	—	—
Tuai	N.	10.0	205	e 2	22	-5	4	0	-22	—	—	—
New Plymouth	E.	11.5	214	e 2	53	+5	e 4	56	-3	15	25	ScS
Wellington		13.0	206	e 3	13	+4	i 5	11	-24	e 2	55	? e 5.5
Cobb River	E.	13.7	212	e 3	23	+5	e 5	29	-23	—	—	—
Kaimata	N.E.	15.5	212	e 3	36	-6	6	8	-27	e 3	6	? e 7.8
Christchurch		15.8	207	e 3	43	-2	e 6	16	-26	e 7	17	SSS e 8.8
Apia		16.8	20	i 4	5	+7	i 6	57	-8	—	—	e 8.8
Brisbane		25.9	268	i 5	34	-1	i 10	3	-1	i 10	58	SS i 12.2
Riverview		26.8	253	i 5	43 _a	-1	i 10	13	-6	i 6	29	PP e 12.4
Melbourne	E.	32.0	246	i 6	28	-2	e 11	32	-10	i 7	28	PP e 38.4
Bandong		73.4	272	e 11	32	-4	e 20	48	-17	14	21	PP e 38.4
Manila		73.8	298	i 11	44	+6	—	—	—	i 14	35	PP e 43.5
Djakarta		74.4	272	i 11	48 _a	+6	e 21	34	+18	i 12	29	? e 43.5
Santa Clara		84.7	46	i 12	40 _k	+3	—	—	—	—	—	—
Pasadena		84.8	46	e 12	38	+1	i 22	54	-11	i 12	48	PcP e 38.6
Berkeley		84.9	42	e 12	35	-3	e 23	15	+9	i 12	40	PcP
Lick	z.	84.9	46	e 12	37	-1	—	—	—	—	—	—
Riverside	z.	85.2	46	e 12	39	0	—	—	—	—	—	—
Fresno	z.	85.6	43	e 12	41	0	—	—	—	—	—	—
China Lake	z.	86.3	45	e 12	45	0	i 12	49	PcP	i 13	2	PcP
Tinemaha	z.	86.7	44	e 12	47	0	—	—	—	—	—	—
Shasta	z.	86.8	39	e 12	47	0	—	—	—	—	—	—
Reno	z.	87.4	41	e 12	47	-3	—	—	—	—	—	—
Klyuchi		87.7	348	e 12	53	+1	—	—	—	—	—	—
Nelson		87.9	47	i 12	52	-1	—	—	—	i 13	10	? e 40.2
Boulder City		88.1	47	i 12	54	0	e 23	25	[+ 4]	i 13	12	? e 40.2
Tucson		88.4	51	e 12	55	0	e 23	52	+12	e 31	8	? e 40.2
Tacubaya		89.9	68	e 12	58	-4	—	—	—	—	—	—
Seattle	z.	91.1	34	e 13	32	+24	—	—	—	—	—	—
Victoria		91.8	33	13	10	-1	—	—	—	—	—	—
Huancayo		94.5	106	e 13	22	-1	i 24	2	[+ 4]	e 17	23	PP e 42.9
Hungry Horse		96.3	37	e 13	41	+9	—	—	—	—	—	—
College		97.1	12	i 13	36	+1	—	—	—	—	—	—
La Paz		98.0	114	i 13	31	-8	i 24	17	[0]	i 17	43	PP 45.8
Fayetteville	z.	102.1	56	i 12	19	? e 18	18	PP	—	e 18	18	PP
Chinchina		102.8	92	e 18	34	PP	e 24	40	[0]	e 27	35	PS
Bogota		104.0	93	e 27	39	PS	e 24	42	[- 4]	e 25	32	SKKS 48.8
Colombo	E.	104.3	270	—	—	—	33	40	SS	—	—	53.8
Grahamstown	z.	113.2	202	e 18	40	[0]	e 26	26	{- 1}	e 19	25	PP
Poona	z.	114.7	278	18	42	[0]	22	2	PPP	i 33	0	PKKS
Bombay	E.	115.8	277	19	40	PP	e 29	26	PS	—	—	—
Resolute Bay		116.6	17	i 18	44 _k	[- 2]	—	—	—	—	—	—
San Juan		117.2	83	e 18	44	[- 3]	—	—	—	—	—	—
Kimberley	z.	118.0	202	e 18	49	[0]	—	—	—	—	—	—
Ottawa		118.5	52	e 18	50 _k	[0]	—	—	—	—	—	—
Przhevalsk		119.2	305	18	49	[- 2]	—	—	—	—	—	—
Pretoria	z.	119.5	207	e 18	52	[0]	—	—	—	—	—	—
Harvard		120.7	56	e 19	0	[+ 6]	—	—	—	—	—	e 67.0
Naryn		120.7	304	i 18	55	[+ 1]	i 20	50	PP	i 23	17	PPP
Rybach'e		120.9	304	e 18	51	[- 3]	—	—	—	—	—	—
Frunse		122.1	305	i 18	56	[- 1]	—	—	—	—	—	—
Dzhergetal		123.7	300	18	59	[- 1]	—	—	—	—	—	—
Namangan		123.8	302	i 19	1	[+ 1]	—	—	—	i 20	41	PP

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1952		1035										
	Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.		
	°	°	m.	s.	s.	m.	s.	m.	s.	m.		
Garm	124.4	300	e 18	59	[- 2]	—	—	—	—	—		
Kulyab	124.5	298	e 19	0	[- 1]	—	—	—	—	—		
Quetta	z. 124.7	288	e 19	0	[- 2]	—	—	i 19	3	PKP		
Obi-garm	124.8	300	e 19	3	[+ 1]	—	—	—	—	—		
Stalinabad	125.4	300	i 19	2	[- 1]	—	—	—	—	—		
Lunacharskoe	125.6	302	i 19	3	[- 1]	—	—	—	—	—		
Tchimkent	125.6	303	i 21	2	PP	—	—	—	—	—		
Samarkand	127.0	300	19	2	[- 4]	—	—	—	—	—		
Bairam-Ali	130.4	295	i 19	11	[- 2]	—	—	—	—	—		
Sverdlovsk	131.7	322	i 19	14	[- 1]	i 22	39	PKS	—	—		
Ashkabad	133.4	296	i 19	21	[+ 3]	i 22	51	PKS	—	—		
Kizyl-Arvat	135.2	298	i 19	24	[+ 2]	—	—	—	—	—		
Scoresby Sund	137.0	12	e 19	28	[+ 3]	—	—	—	—	71.8		
Kiruna	140.5	348	i 19	23	[- 8]	i 19	47	?	i 22	30	PP	e 69.4
Goris	142.9	297	e 19	31	[- 5]	—	—	—	—	—	—	
Grozny	143.1	304	i 19	36	[0]	—	—	—	—	—	—	
Tiflis	143.9	302	19	34	[- 3]	—	—	e 22	46	PP	—	
Moscow	144.0	327	i 19	34	[- 3]	—	—	—	—	—	—	
Gori	144.4	302	19	38	[0]	—	—	—	—	—	—	
Pulkovo	144.6	336	e 19	36	[- 2]	e 26	43	[- 3]	e 26	20	PPP	—
Leninakan	144.7	301	i 19	39	[0]	—	—	—	—	—	—	
Piatigorsk	144.9	307	19	38	[- 1]	—	—	i 22	50	PP	—	
Akhalkalaki	145.0	302	19	40	[+ 1]	—	—	—	—	—	—	
Borzhome	145.0	302	e 19	38	[- 1]	—	—	—	—	—	—	
Tsikhlis-Dahvari	145.0	302	e 19	38	[- 1]	—	—	—	—	—	—	
Abastumanj	145.4	302	e 19	41	[+ 1]	—	—	—	—	—	—	
Zugdidi	146.0	304	e 19	40	[- 1]	—	—	—	—	—	—	
Sotchi	147.4	306	i 19	40	[- 3]	e 19	47	PKP ₂	i 23	24	PP	—
Upsala	148.2	346	i 19	44	[- 1]	i 20	15	?	i 23	23	PP	e 70.8
Theodosia	150.0	310	i 19	47	[0]	—	—	e 20	1	PKP ₂	—	
Simferopol	150.8	312	i 19	55	[+ 6]	e 20	13	PKP ₂	e 23	37	PP	—
Yalta	151.0	310	i 19	48	[- 1]	—	—	i 19	57	PKP ₂	—	
Ksara	151.3	286	i 19	50	[+ 1]	—	—	23	31	PP	—	
Aberdeen	152.5	5	e 20	51	[+60]	—	—	—	—	—	e 84.2	
Copenhagen	153.2	349	i 19	53	[+ 1]	i 19	56	?	i 20	1	?	77.8
Kishinev	153.3	318	i 20	0	[+ 8]	—	—	i 20	24	PKP ₂	—	
Iasi	153.9	323	e 20	2	[+ 9]	—	—	—	—	—	—	
Cernauti	154.2	324	20	2	[+ 9]	—	—	—	—	—	—	
Lwow	154.2	327	i 19	53	[0]	i 20	16	PKP ₂	i 24	5	PP	—
Istanbul	155.6	306	e 19	53	[- 2]	e 39	0	?	e 23	58	PP	—
Uzhgorod	z. 155.8	327	e 19	58	[+ 2]	—	—	—	—	—	—	
Potsdam	156.1	345	i 19	57	[+ 1]	—	—	—	—	—	e 76.8	
Bucharest	156.2	316	20	39	PKP ₂	—	—	—	—	—	—	
Raciborzu	156.5	336	e 19	57	[0]	e 23	41	PKS	e 20	26	PKP ₂	—
Collmberg	157.1	344	e 19	57	[0]	e 23	51	PKS	i 20	30	PKP ₂	—
Prague	157.8	340	e 19	59	[+ 1]	i 20	34	PKP ₂	e 24	32	PP	—
Budapest	158.1	330	e 19	11	[-48]	—	—	e 28	26	PPP	—	
Karlsruhe	z. 160.3	349	i 19	59	[- 2]	—	—	i 20	43	PKP ₂	—	
Stuttgart	160.4	347	i 20	0	[- 1]	e 29	27	?	e 20	43	PKP ₂	—
Strasbourg	160.8	349	i 20	1	[- 1]	i 20	46	PKP ₂	e 24	34	PP	e 74.8
Paris	161.0	0	i 20	2	[0]	i 20	8	?	i 20	19	?	e 76.8
Zürich	161.8	348	e 20	1	[- 2]	—	—	e 24	31	PP	—	
Basle	162.0	348	e 20	1	[- 2]	e 20	49	PKP ₂	e 24	29	PP	—
Chur	162.1	347	e 20	3	[0]	—	—	e 20	52	PKP ₂	—	
Besançon	162.3	353	i 20	2	[- 1]	e 20	16	?	i 20	52	PKP ₂	—
Oropa	163.6	346	e 23	51?	PKS	—	—	—	—	—	—	
Clermont-Ferrand	164.1	358	e 20	6	[+ 1]	—	—	e 21	0	PKP ₂	88.8	
Florence	164.4	336	e 35	51?	PSKS	e 25	51?	[-77]	e 46	51?	SSP	—
Rome	165.4	329	—	—	—	e 46	51	SSP	—	—	—	
Messina	z. 166.3	311	e 24	13	PP	—	—	—	—	—	—	
Toledo	168.6	26	i 20	10	[+ 2]	e 29	36	?	e 24	43	PP	—
Malaga	171.0	38	i 20	5	[- 5]	27	15	[+ 3]	i 21	29	PKP ₂	81.0
Alicante	171.1	15	20	5	[- 5]	32	10	[+ 2]	25	30	PP	91.4
Granada	171.1	33	i 20	25 _a	[+15]	32	14	[+ 6]	29	32	PPP	92.6
Almeria	171.9	29	i 20	9	[- 1]	46	32	SS	21	38	PKP ₂	—
Tamanrasset	z. 172.5	—	e 20	10	[- 1]	i 32	22	[+ 6]	e 21	33	PKP ₂	—
Algiers Univ.	z. 173.0	—	i 20	11k	[0]	—	—	—	i 21	39	PKP ₂	—

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Nov. 8d. 7h. 6m. 0s. Epicentre 28°·5N. 83°·2E.

Epicentre suggested by Strasbourg.

A = +·1042, B = +·8740, C = +·4747; $\delta = +7$; $h = +2$;
D = +·993, E = -·118; G = +·056, H = +·471, K = -·880.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Chatra		3·9	114	i 1 2	0	2 0	0*	i 1 48	S
New Delhi		5·3	272	e 1 23	+ 1	i 2 23	- 2	i 1 32	P*
Calcutta	E.	7·5	141	e 2 22	+11*	e 4 14	+ 6 _z	e 3 58	S*
Hyderabad	E.	11·8	203	—	—	e 6 3	SSS	—	—
Poona		13·1	223	3 4	- 6	5 18	-20	3 21	PP
Bombay		13·5	227	e 3 13	- 2	5 48	+ 1	e 5 35	?
Quetta		14·2	281	i 3 23	- 1	e 5 54	-10	i 3 32	PP
Kodaikanal	E.	18·9	198	—	—	e 7 39	-14	—	—
Upsala	Z.	53·6	325	i 9 26k	+ 1	—	—	i 9 32	?
Kiruna	Z.	53·7	335	i 9 26	0	—	—	i 9 32	?
Collmberg	Z.	56·9	314	e 9 45	- 4	—	—	—	—
Stuttgart		58·9	312	e 10 3	0	—	—	—	—
Tamanrasset	Z.	69·1	285	i 11 11k	+ 1	e 15 0	PPP	e 16 15	?

Nov. 8d. 10h. 41m. 54s. Epicentre 27°·9N. 82°·2E.

A = +·1202, B = +·8771, C = +·4649; $\delta = -12$; $h = +3$;
D = +·991, E = -·136; G = +·063, H = +·461, K = -·885.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Chatra		4·5	102	e 1 8	- 3	2 7	+ 2	e 1 17	P*
New Delhi		4·5	280	e 1 20	0*	i 2 19	+ 1*	1 30	P*
Calcutta	E.	7·7	132	e 2 27	- 7 _z	4 15	+ 1 _z	4 0	S*
Shillong	E.	9·0	103	—	—	i 4 11	SS	—	—
Hyderabad		11·0	199	i 2 45	+ 3	i 6 1	L	—	(i 6·0)
Poona		12·0	221	3 3	PP	5 20	+ 9	3 11	PPP
Bombay		12·4	226	e 2 56	- 5	e 5 31	+10	3 12	PP
Kodaikanal	E.	18·1	195	—	—	—	—	e 9 21	?
Upsala	Z.	53·6	326	i 9 23	- 2	—	—	—	—
Kiruna	Z.	53·9	336	i 9 23 _a	- 4	—	—	i 9 27	P
Tamanrasset	Z.	68·5	285	e 11 8	+ 2	—	—	e 11 18	?

Nov. 8d. 17h. 4m. 30s. (I) } Epicentre 50°·0N. 156°·4E.
17h. 4m. 44s. (II) }

A = -·5913, B = +·2583, C = +·7639; $\delta = -10$; $h = -5$;
D = +·400, E = +·916; G = -·700, H = +·306, K = -·645.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
I Wakkanai	E.	10·9	251	e 2 37	- 3	e 4 43	- 1	—	—
I Urakawa		12·3	235	e 3 4	+ 5	—	—	—	—
II		12·3	235	—	—	e 5 38	SS	—	—
II Sapporo		12·5	242	e 3 7	+ 5	e 5 38	SS	—	e 7·6
I Mori	N.	13·6	240	—	—	5 44	- 6	—	—
II	N.	13·6	240	e 3 20	+ 3	—	—	—	8·5
II Mizusawa		15·4	231	e 3 36	- 4	6 31	- 1	6 42	SS
II Sendai		16·1	229	e 3 59	+10	e 6 57	+ 8	e 5 47	?
II Hokusima		16·8	229	e 3 56	- 2	e 7 17	+12	—	—
II Maebasi		18·5	229	e 4 18	- 1	e 7 40	- 4	—	—
II Matusiro		18·8	234	i 4 22	- 1	7 49	- 1	i 8 51	PcP
II Tokyo	N.	18·8	227	e 4 24	+ 1	e 7 49	- 1	—	—
II Nagoya		20·5	231	e 4 46	+ 4	—	—	—	—
I Kameyama		21·0	233	e 4 48	+ 1	e 8 37	0	(e 9 7)	SS
I Osaka		21·6	233	e 5 21	PP	—	—	—	e 9·1
II Hamada		23·3	239	5 11	+ 1	e 9 24	+ 4	—	—
II Koti		23·6	235	e 5 13	0	e 9 25	0	—	—
II Matuyama		23·8	236	e 5 13	- 2	e 9 33	+ 5	—	—
I Ooita		24·8	238	e 5 29	+ 4	e 10 27	SS	—	—
II Hukuoka		25·2	239	e 5 27	- 2	e 9 53	+ 1	—	e 14·5
II Nanking		33·1	252	e 6 37	- 3	12 1	+ 2	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
I Manila		45.6	232	i 8 25	+ 1	—	—	—	—
I Shasta	Z.	55.2	66	e 9 32	- 5	—	—	i 9 52	pP
II	Z.	55.2	66	(i 9 38)	+ 1	—	—	—	—
II Berkeley	Z.	57.1	70	e 9 50	0	—	—	—	—
I Reno	Z.	57.4	65	e 9 50	- 3	—	—	—	—
II Calcutta	E.	59.1	269	i 10 2	- 2	—	—	—	—
II China Lake	Z.	61.2	67	e 10 18	- 1	—	—	e 10 25	?
II Pasadena	Z.	62.0	69	i 10 24	0	—	—	i 10 30	?
II Riverside	Z.	62.6	69	e 10 28	0	—	—	—	—
II Palomar	Z.	63.3	69	e 10 30	- 3	—	—	—	—
II Upsala		65.5	339	i 10 49	+ 2	—	—	—	e 34.3
II Djakarta		70.5	234	e 11 5	-13	e 20 55	PPS	i 11 29	PcP
I Poona	Z.	71.3	277	e 11 21	- 2	—	—	—	—
II	Z.	71.3	277	i 11 25	+ 2	—	—	—	—
II Bombay		71.7	278	e 11 26	0	—	—	e 19 56	?
I Fayetteville	Z.	74.1	53	i 11 35	- 5	—	—	—	—
II Collmberg		74.4	337	e 11 40	- 2	—	—	—	e 44.3
I Ottawa		74.8	35	e 11 39	- 5	—	—	—	—
I Jena	Z.	75.1	338	e 11 49?	+ 3	—	—	—	—
II		75.1	338	e 11 50	+ 4	—	—	e 12 5	PcP
II Kodaikanal	E.	75.1	269	e 11 52	+ 6	—	—	—	—
II Prague		75.1	336	e 11 55	PcP	—	—	—	e 42.8
II Brisbane	Z.	77.2	183	e 11 55	- 2	—	—	—	—
I Karlsruhe	Z.	77.6	340	e 12 2	+ 2	—	—	—	—
I Stuttgart		77.6	338	e 12 3?	+ 3	—	—	—	—
II		77.6	338	e 12 7	PcP	—	—	—	e 42.3
II Strasbourg		78.2	339	e 12 6	+ 3	—	—	e 31 50	?
II Paris		79.0	343	i 12 9	+ 2	i 12 16	PcP	i 12 20	?
I Halifax		79.5	28	i 11 37k	-33	—	—	—	—
I Besançon		79.8	340	e 12 12	0	—	—	—	—
II		79.8	340	e 12 19	PcP	—	—	—	—
I Helwan	Z.	86.8	315	12 44	- 3	—	—	i 13 49	?
II	Z.	86.8	315	i 12 49	+ 2	—	—	e 16 16	PP
II Tamanrasset	Z.	103.1	332	e 13 56	- 6	—	—	e 14 12	P
II Kimberley	Z.	137.0	281	e 19 29	[+ 4]	—	—	—	—

Nov. 8d. 19h. 33m. 21s. Epicentre 49°·2N. 156°·1E. (as on 1951, December 27d.).

A = -·5997, B = +·2658, C = +·7548; $\delta = +1$; $h = -5$;
D = +·405, E = +·914; G = -·690, H = +·306, K = -·656.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Abashiri		9.6	242	e 2 25	+ 4	—	—	—	5.7
Wakkani	E.	10.5	254	e 2 41	+ 6	e 4 42	+ 7	—	6.0
Sapporo		11.9	245	e 2 57	+ 3	e 5 21	SS	e 5 39	SSS
Mori	N.	13.0	243	e 3 7	- 2	5 34	- 1	i 3 41	?
Aomori		13.7	238	e 3 12	- 6	i 5 49	- 3	i 3 47	?
Morioka		14.2	234	e 3 27	+ 3	—	—	—	e 8.0
Mizusawa		14.7	232	3 41	+10	5 55	?	3 46	P
Akita		14.8	236	e 3 36	+ 4	e 6 48	SS	—	e 8.0
Sendai		15.5	231	3 36	- 6	6 19	-16	e 4 39	PP
Hokusima		16.1	230	e 3 51	+ 2	e 6 40	- 9	e 7 21	SSS
Onahama		16.5	228	e 4 3	+ 9	e 7 4	+ 6	—	—
Mito		17.1	227	e 4 6	+ 4	e 7 39	SS	—	—
Utunomiya		17.3	229	e 4 3	- 1	e 7 19	+ 3	—	—
Matusiro		18.1	233	i 4 13	- 1	i 7 44	+ 9	i 7 11	?
Tokyo	N.	18.1	229	4 13	- 1	7 37	+ 2	e 8 8	?
Mera		18.6	227	e 4 23	+ 2	e 8 6	SS	—	—
Toyama		18.6	236	e 4 16	- 5	e 8 3	SS	e 5 19	pP
Kohu		18.7	230	4 21	- 1	7 37	-11	—	—
Misima		18.9	231	e 4 24	0	e 8 5	+12	—	—
Osima		19.0	230	e 4 26	0	e 7 58	+ 3	—	e 10.0

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Gihu		19.8	231	e 4 32	- 3	8 11	- 2	—	10.4	
Tsuruga		20.0	234	4 34	- 3	8 17	0	—	10.2	
Kameyama		20.4	233	4 50	+ 9	8 13	-12	e 8 46	SS	10.5
Kyoto		20.6	233	e 4 44	+ 1	e 8 38	+ 9	e 5 11	PPP	—
Osaka		21.0	233	e 4 46	- 1	e 8 41	+ 4	e 5 9	PP	e 12.6
Siomisaki		21.8	232	e 4 53	- 3	8 57	+ 5	—	—	10.7
Takamatu		22.1	235	e 4 57	- 2	e 9 2	+ 4	—	—	—
Hamada		22.7	240	5 5	+ 1	9 15	+ 6	—	—	11.0
Muroto		22.8	234	e 5 6	+ 1	e 9 10	- 1	—	—	—
Hirosima		22.9	237	e 5 6	0	e 9 15	+ 2	—	—	11.0
Koti		22.9	235	5 5	- 1	e 9 19	+ 6	—	—	11.5
Ooita		24.2	239	e 5 20	+ 1	e 9 35	0	i 6 52	?	e 12.5
Hukuoka		24.6	239	e 5 23	0	e 9 45	+ 3	—	—	e 11.2
Kumamoto		25.0	239	e 5 30	+ 3	e 10 21	+32	—	—	—
Nanking		32.7	253	i 6 33	- 3	11 49	- 3	—	—	—
College		33.0	40	i 6 38	- 1	i 11 56	- 1	(e 13 34)	SS	e 13.6
Hong Kong		42.5	247	e 7 57	- 2	13 57	PS	18 3	SSS	21.2
Manila		44.9	233	i 8 4k	-14	i 14 35	-21	—	—	—
Resolute Bay		47.9	20	i 8 41a	- 1	i 15 45	+ 6	i 10 40	PP	i 17.4
Shillong	E.	54.4	270	e 9 30	- 1	—	—	—	—	—
Hungry Horse		55.7	54	i 9 40	0	—	—	—	—	—
Shasta	z.	55.7	66	e 9 39a	- 1	—	—	e 9 55	?	—
Chatra		56.7	273	e 9 47	- 1	e 17 55	+15	—	—	—
Saskatoon		57.1	47	21 39	SS	(21 39)	SS	—	—	32.2
Berkeley		57.5	68	e 9 55	+ 2	i 17 58	+ 8	—	—	e 24.2
Butte		58.0	55	e 9 55	- 2	—	—	—	—	—
Reno	z.	58.0	65	e 9 55	- 2	—	—	—	—	—
Santa Clara		58.1	68	e 8 59k	-59	—	—	—	—	e 33.6
Lick	z.	58.2	68	e 9 57	- 1	—	—	—	—	—
Kiruna		58.6	343	e 10 8	+ 7	i 19 55	ScS	e 13 49	PPP	e 29.0
Calcutta		58.9	269	e 10 7	+ 4	i 18 18	+10	10 50	PcP	—
Fresno	z.	59.8	67	e 10 9	0	—	—	—	—	—
Tinemaha	z.	60.5	67	e 10 25	+11	—	—	—	—	—
Scoresby Sund		60.6	0	e 10 15	0	18 47	+17	—	—	30.6
China Lake	z.	61.7	67	e 10 21	- 1	—	—	—	—	—
New Delhi		61.9	282	e 10 21	- 3	i 18 47	0	19 11	PPS	—
Pasadena		62.5	69	e 10 25	- 3	—	—	—	—	e 26.8
Riverside	z.	63.1	69	e 10 29	- 3	—	—	—	—	—
Boulder City		63.3	65	e 10 31	- 2	—	—	—	—	—
Nelson		63.4	65	i 10 31	- 3	—	—	—	—	—
Palomar	z.	63.8	69	e 10 32	- 4	—	—	—	—	—
Upsala		66.2	339	i 10 50	- 2	e 19 45	+ 5	e 26 52	SSS	e 30.6
Quetta		67.2	291	i 10 57	- 1	e 19 58	+ 6	—	—	27.6
Tucson		68.2	66	e 11 7	+ 3	e 25 58	?	—	—	e 32.1
Hyderabad		69.0	273	e 11 8	- 1	e 21 11	ScS	i 20 24	PS	33.5
Djakarta		69.8	234	e 11 17k	+ 3	e 20 27	+ 4	—	—	—
Bandong	N.	70.0	233	e 11 19a	+ 4	e 20 22	- 4	—	—	—
Copenhagen		71.2	340	i 11 23a	0	20 46	+ 6	21 45	PPS	36.6
Poona		71.2	277	i 11 22	- 1	20 42	+ 2	13 59	PP	31.5
Bombay		71.6	278	i 11 25	0	20 49	+ 5	14 1	PP	31.0
Kirkland Lake	z.	71.6	36	e 11 39	PcP	—	—	—	—	—
Aberdeen		72.5	348	—	—	i 21 1	+ 7	i 21 46	PPS	e 39.8
Lwow		73.1	330	e 11 33	- 1	e 21 13	+12	e 15 51	PPP	—
Chicago		73.5	45	—	—	e 21 0	- 6	—	—	—
Cernauti		73.8	328	e 11 38	0	—	—	—	—	—
Kishinev		73.8	326	i 11 37	- 1	e 21 20	+11	e 16 6	PPP	—
Potsdam		74.0	339	i 11 39	0	e 21 19	+ 8	e 22 0	PPS	e 36.6
Iasi		74.1	328	e 11 41	+ 1	—	—	—	—	—
Fayetteville	z.	74.7	53	i 11 41	- 2	—	—	—	—	—
Raciborzu		74.7	334	i 11 43	0	e 12 2	PcP	e 14 36	PP	41.6
Kodaikanal		74.9	269	i 11 46	+ 2	i 21 57	PS	—	—	—
Collmberg		75.0	337	i 11 45a	0	e 21 27	+ 4	e 22 3	ScS	e 35.6
Ottawa		75.5	35	e 11 46a	- 2	21 27	- 1	30 19	SSS	—
Shawinigan Falls N.		75.6	33	e 11 49	+ 1	—	—	—	—	—
Jena		75.7	338	i 11 49	0	e 21 36?	+ 6	e 14 52	PP	—

Continued on next page.

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1952		1039										
		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		^c	^c	m.	s.	s.	m.	s.	s.	m.	s.	m.
Colombo	E.	75.8	265	—	—	—	20	56	-35	—	—	47.0
Prague		75.8	336	e 11	49 _a	- 1	e 21	35	+ 4	e 22	2	e 40.2
De Bilt		76.1	343	i 11	54	+ 3	e 21	39	+ 4	e 26	39	e 31.6
Cheb	N.	76.3	338	e 11	54	+ 2	e 21	45	+ 8	—	—	—
Brisbane		76.4	186	i 11	51 _k	- 2	i 21	35	- 3	i 22	6	—
Buffalo (Larkin)		76.4	39	e 11	52	- 1	—	—	—	—	—	—
Cleveland	Z.	76.4	41	i 11	54 _a	+ 1	—	—	—	—	—	—
Ogyalla		76.7	333	e 11	59	+ 4	e 21	48	+ 7	22	21	—
Budapest		76.8	332	11	56	+ 1	e 21	49	+ 7	26	45	41.6
Rathfarnham Castle		76.8	350	e 11	53	- 2	e 21	54	[- 9]	e 18	46	e 33.6
Bucharest		77.0	326	12	9	PcP	—	—	—	—	—	—
Kalossa		77.6	332	12	10	PcP	e 21	57	+ 6	e 12	15	e 44.6
Timisoara		77.6	330	i 12	2	+ 2	e 22	8	[- 1]	—	—	e 42.6
Kew		77.7	346	i 12	2	+ 2	e 22	1	+ 9	e 23	27	e 38.6
Karlsruhe		78.3	340	e 12	5	+ 2	e 22	13	[- 1]	—	—	41.6
Stuttgart		78.3	339	e 12	3	0	e 21	59	0	—	—	e 40.6
Pennsylvania		78.6	40	e 12	5	0	i 22	4	+ 2	—	—	—
Belgrade		78.7	330	e 12	5 _a	- 1	e 12	20	PcP	e 19	28	e 43.8
Istanbul		78.7	323	e 12	5	- 1	e 22	7	+ 4	e 12	21	44.6
Morgantown		78.7	42	e 12	7	+ 1	—	—	—	—	—	—
Strasbourg		78.8	340	i 12	8	+ 2	i 22	13	+ 9	i 15	15	36.2
Harvard		79.5	34	e 12	7	- 3	e 22	20	+ 9	—	—	e 45.4
Weston		79.7	34	i 12	11 _k	0	e 22	8	- 5	—	—	e 42.4
Paris		79.8	343	i 12	11	- 1	i 22	16	+ 2	i 12	40	e 38.6
Zürich		79.8	339	e 12	11 _a	- 1	e 22	5	- 9	—	—	—
Basle		79.9	340	e 12	13	+ 1	—	—	—	—	—	—
Palisades		80.0	36	—	—	—	e 22	11	- 6	—	—	e 41.2
Triest		80.0	335	e 12	16	+ 3	e 22	15	- 2	e 22	32	—
Fordham		80.1	36	—	—	—	e 22	17	- 1	—	—	—
Halifax		80.3	28	e 12	16	+ 2	—	—	—	—	—	—
Philadelphia		80.4	39	—	—	—	e 22	14	- 7	—	—	—
Besançon		80.5	340	i 12	16	+ 1	i 12	23	PcP	i 13	17	—
Neuchatel		80.5	340	e 12	16	+ 1	—	—	—	—	—	—
Washington		80.5	39	e 12	18	+ 3	—	—	—	—	—	—
Salo		80.9	337	12	14	- 3	22	48	ScS	e 18	28	—
Oropa		81.6	339	e 12	26	+ 5	22	51	ScS	32	32	40.6
Bologna	Z.	81.7	336	e 12	27 _k	+ 5	—	—	—	—	—	—
Pavia		81.7	338	e 12	23	+ 1	e 22	39	+ 5	e 33	32	e 44.0
Ksara		81.8	313	i 12	21	- 1	—	—	—	—	—	—
Florence		82.4	335	e 12	28	+ 3	e 22	58	ScS	—	—	—
Prato		82.4	335	e 12	31	+ 6	e 22	39	- 2	—	—	—
Clermont-Ferrand		82.5	342	e 12	28	+ 2	i 22	57	ScS	i 12	35	42.6
Riverview		82.8	184	i 13	8 _a	?	i 22	44	- 1	i 22	53	e 34.2
Siena		82.8	335	e 12	31	+ 4	23	3	ScS	—	—	—
Taranto		83.6	330	12	37	+ 6	22	47	- 6	—	—	—
Rome		83.8	334	e 12	33	+ 1	i 23	7	ScS	24	1	e 41.4
Messina		86.2	330	e 13	3	?	e 23	16	- 3	e 32	39	42.3
Helwan	Z.	87.2	315	i 12	49 _a	0	e 23	21	- 7	16	15	—
Melbourne	E.	87.2	190	—	—	—	i 23	25	- 3	—	—	e 36.0
Toledo		89.6	346	e 13	1	0	e 23	39	[+ 9]	—	—	48.3
Alicante		90.4	342	e 12	53	- 11	e 23	50	- 8	18	25	43.0
Bermuda		91.0	34	—	—	—	i 24	9	+ 6	e 30	15	e 43.0
Algiers Univ.	Z.	91.1	339	e 17	24	PP	e 24	40	+ 36	26	26	52.6
Wellington		91.6	167	23	23	SKS	24	1	- 8	e 30	4	e 41.6
Granada		92.1	345	13	47 _a	+ 35	24	2	- 11	25	59	46.8
Almeria		92.2	343	13	9	- 4	23	59	[+ 13]	16	46	50.8
Malaga		92.7	345	i 13	16	+ 1	i 23	50	[+ 2]	25	2	45.6
Christchurch		93.5	169	e 25	35	PS	e 24	4	[+ 11]	e 30	41	e 45.2
Tamanrasset	Z.	103.7	332	i 14	7 _a	+ 2	e 25	1	[+ 16]	e 18	11	42.6
Chinchina		109.9	57	e 23	44	?	e 34	36	SS	—	—	44.6
Bogota		111.0	56	e 19	46	PP	e 25	58	[- 14]	e 45	36	56.6
Tananarive		116.1	271	e 19	57	PP	—	—	—	—	—	57.0
La Paz		131.6	63	e 19	24	[+ 9]	i 39	27	SS	e 22	43	68.2
Pretoria	Z.	133.6	280	e 19	20	[+ 1]	—	—	—	e 21	51	—
Kimberley	Z.	137.1	280	e 19	28	[+ 3]	—	—	—	—	—	—
La Plata		151.3	74	39	33	SKSP ₂	34	51	SKKS ₂	44	9	73.8

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Nov. 8d. 20h. 15m. 4s. Epicentre 50°·2N. 157°·3E. Focus at Base of Superficial Layers.
(as on 7d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
				m.	s.		m.	s.		m.	s.
Resolute Bay		46·7	21	i 8	27k	0	—	—	—	—	—
Upsala	z.	65·5	339	i 10	41k	- 1	—	—	—	—	—
Copenhagen		70·5	340	e 11	12	- 1	—	—	—	—	—
Poona	z.	71·8	277	i 11	21	0	—	—	—	—	—
Fayetteville	z.	73·5	53	i 11	27	- 4	—	—	—	—	—
Raciborzu	z.	74·2	334	e 11	35	0	e 11	46	PcP	—	—
Ottawa		74·3	36	e 11	34	- 2	—	—	—	—	—
Collmberg	z.	74·4	337	i 11	36	0	—	—	—	—	—
Prague		75·2	336	e 11	41	0	e 12	6	sP	—	—
Stuttgart		77·7	339	e 11	55a	0	—	—	—	—	—
Strasbourg		78·2	340	i 11	58	0	e 12	28	?	e 12	9
Harvard		78·3	35	e 11	58	0	—	—	—	—	pP
Weston		78·5	35	i 11	59	0	—	—	—	—	—
Paris		79·0	343	i 12	3	+ 1	—	—	—	i 12	14
Zürich		79·1	339	e 12	3a	0	e 21	30	?	—	pP
Basle		79·2	340	e 12	3	0	—	—	—	—	—
Besançon		79·8	341	i 12	6	0	—	—	—	i 12	19
Clermont-Ferrand		81·8	342	e 12	19	+ 2	—	—	—	—	pP
Helwan	z.	87·0	315	i 12	42	- 1	—	—	—	—	—
Tamanrasset	z.	103·1	333	e 13	58	+ 1	e 18	6	PP	e 13	48
Grahamstown	z.	140·3	276	—	—	—	39	47	?	—	—

Nov. 8d. 23h. 30m. 11s. Epicentre 29°·8N. 139°·0E. Depth of focus 0·060.
(as on 1949, Aug. 18d.).

A = -·6560, B = +·5702, C = +·4945; δ = -1; h = +2;
D = +·656, E = +·755; G = -·373, H = +·324, K = -·869.

		Δ	Az.	P.		O-C.	S.		O-C.
				m.	s.		m.	s.	
Hatidyozima		3·4	12	e 0	54	-14	2	0	- 2
Osima		4·9	4	e 1	24	+ 2	2	29	+ 2
Ajiro		5·2	1	e 1	16	- 9	2	32	0
Mera		5·2	7	e 1	25	0	2	33	+ 1
Misima		5·3	359	e 1	28	+ 2	2	33	- 1
Kameyama		5·5	338	1	32	+ 4	2	43	+ 5
Nagoya		5·6	343	1	33	+ 3	2	47	+ 7
Hunatu		5·7	358	1	31	0	2	42	0
Iida		5·8	350	e 1	33	+ 1	—	—	—
Gihu		5·9	342	e 1	34	+ 1	2	50	+ 4
Hikone		5·9	338	1	36	+ 3	2	54	+ 8
Kohu		5·9	333	1	34	+ 1	2	48	+ 2
Kyoto		5·9	356	e 1	35	+ 2	2	51	+ 5
Tokyo		5·9	6	e 1	32	- 1	2	44	- 2
Takamatu		6·2	318	e 1	38	+ 2	2	54	+ 3
Titibu		6·2	1	i 1	36	0	2	51	0
Kumagaya		6·3	3	e 1	38	+ 1	2	52	- 1
Tsuruga		6·3	338	e 1	38	+ 1	2	55	+ 2
Maebasi		6·5	0	e 1	39	0	2	56	- 1
Matumoto		6·5	352	1	41	+ 2	3	1	+ 4
Oiwake		6·5	357	e 1	40	+ 1	3	1	+ 4
Takayama		6·5	348	e 1	43	+ 4	3	5	+ 8
Hukui		6·6	341	e 1	42	+ 2	3	6	+ 7
Matuyama		6·6	308	e 1	43	+ 3	3	7	+ 8
Mito		6·7	10	e 1	42k	+ 1	2	59	- 2
Toyooka		6·7	329	e 1	43	+ 2	—	—	—
Utunomiya		6·7	6	e 1	41	0	3	0	- 1
Matusiro		6·8	355	e 1	42	- 1	3	1	- 3
Miyazaki		6·8	290	—	—	—	e 3	14	+10
Hirosima		7·2	311	e 1	49	+ 2	3	17	+ 5

Continued on next page.

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		Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.
Onahama		7.2	12	i 1	51	+ 4	3 10	- 2	
Shirakawa		7.4	8	e 1	47	- 2	3 12	- 4	
Inawashiro		7.8	354	e 1	51	- 3	3 25	+ 1	
Hukushima		8.0	8	e 1	55	- 1	3 26	- 2	
Saga		8.2	297	e 2	3	+ 5	—	—	
Hukuoka		8.3	299	e 2	2	+ 2	3 39	+ 5	
Sendai		8.6	10	1	58	- 5	3 31	- 9	
Mizusawa	E.	9.5	10	2	13	0	3 59	0	
Akita		9.9	5	e 2	22	+ 4	4 13	+ 6	
Morioka		10.0	10	e 2	16	- 3	4 11	+ 2	
Miyako		10.1	13	e 2	19	- 1	4 11	0	
Hatinohe		10.9	10	2	29	0	4 26	- 2	
Aomori		11.1	7	2	32	0	4 26	- 6	
Mori	N.	12.4	5	e 2	46	0	—	—	
Nenuro		14.5	20	—	—	—	e 5 37	- 3	
Poona	Z.	59.8	275	1 9	23	- 2	—	—	
Victoria		73.0	44	10	46	- 2	—	—	
Corvallis	Z.	74.8	47	e 10	57	- 1	—	—	
Shasta	Z.	77.2	50	i 11	11 _a	0	—	—	
Upsala	Z.	78.6	334	i 11	17 _k	- 1	i 11 44	?	
Lick	Z.	79.3	53	i 11	22 _a	0	i 11 27	?	
Reno	Z.	79.5	51	i 11	24 _a	+ 1	—	—	
Fresno	Z.	80.9	53	e 11	30 _a	- 1	—	—	
Tinemaha	Z.	81.7	53	i 11	36	+ 1	—	—	
China Lake	Z.	82.9	53	e 11	41 _a	0	—	—	
Pasadena		83.3	55	i 11	42 _a	- 1	—	—	
Copenhagen		83.4	333	i 11	43	0	—	—	
Riverside	Z.	84.0	55	i 11	46	0	—	—	
Palomar	Z.	84.7	55	i 11	48 _a	- 2	—	—	
Collmberg	Z.	86.3	329	e 11	57	0	—	—	
Stuttgart		89.8	330	e 12	13	- 1	—	—	
Tananarive		100.4	254	e 13	5	+ 3	—	—	
Tamanrasset	Z.	111.2	314	e 18	22	PP	—	—	

Nov. 8d. 23h. 53m. 0s. Epicentre 50°·4N. 157°·8E. (as on 7d. 3h.).

		Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.	L. m.
Hong Kong		44.0	247	—	—	—	e 17 54	SS	—	—	
Resolute Bay	Z.	46.4	21	i 8	30 _a	0	—	—	—	—	
Kiruna		57.8	342	—	—	—	e 22 0?	SS	—	30.5	
Upsala		65.5	340	i 10	50	+ 3	e 16 35	?	i 11 13	PcP e 34.0	
Poona	Z.	72.1	278	i 11	26	- 2	—	—	—	—	
Bombay	N.	72.5	278	e 10	46	?	—	—	—	—	
Fayetteville	Z.	73.1	53	i 11	32	- 2	—	—	—	—	
Potsdam		73.3	339	e 11	36	+ 1	—	—	—	e 41.0	
Ottawa		73.9	37	i 11	37 _a	- 2	—	—	—	—	
Shawinigan Falls	N.	74.0	33	e 11	38	- 1	—	—	—	—	
Collmberg		74.3	338	e 11	40	- 1	—	—	—	e 42.0	
Cleveland	Z.	74.8	42	i 11	43 _k	- 1	—	—	i 11 55	pP	
Jena	Z.	75.0	338	e 11	44	- 1	—	—	—	—	
Prague		75.1	337	e 11	46	0	—	—	e 12 6	PcP e 43.0	
Suttgart		77.6	340	e 11	59	- 1	—	—	—	—	
Strasbourg		77.9	340	e 12	4	+ 3	—	—	—	e 38.5	
Paris		78.9	344	i 12	8	+ 1	i 12 18	PcP	i 12 26	? e 42.0	
Besançon		79.7	341	e 12	11	0	—	—	e 12 20	PcP	
Bologna		81.1	336	e 8	25	?	—	—	e 8 37	?	
Clermont-Ferrand		81.7	343	c 12	31	PcP	—	—	—	—	
Ksara		81.7	314	i 12	22	0	—	—	—	—	
Florence	Z.	81.8	336	—	—	—	e 22 15	-20	—	—	
Helwan	Z.	87.1	315	12	48	- 1	i 13 2	PcP	e 14 27	?	

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Nov. 9d. 0h. 22m. 19s. Epicentre 49°·5N. 156°·2E. (as on 1951, September 24d.).

A = -·5966, B = +·2631, C = +·7582; $\delta = +2$; $h = -5$;
D = +·404, E = +·915; G = -·694, H = +·306, K = -·652.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Wakkanai	E.	10·6	253	e 2 50	PP	e 5 3	SS	—	6·5
Urakawa		11·9	237	e 1 50	-64	e 3 55	-74	—	e 5·7
Sapporo		12·1	243	e 2 59	+ 2	e 5 23	+ 9	—	e 6·4
Mizusawa		14·9	231	3 28	- 6	6 14	- 6	3 31	—
Akita		15·0	236	e 3 39	+ 4	e 6 34	+11	e 4 49	P ?
Sendai		15·7	230	3 43	- 1	6 27	-12	e 4 1	PP
Hukushima		16·3	230	e 3 47	- 5	e 6 59	+ 6	—	—
Onahama		16·7	227	e 3 59	+ 2	e 7 5	+ 2	—	e 10·2
Aikawa		17·3	237	e 4 3	- 1	e 7 14	- 2	—	10·1
Utunomiya		17·4	232	e 4 2	- 4	e 7 23	+ 4	—	—
Nagano	N.	18·3	233	e 4 15	- 2	e 7 54	+15	—	e 11·4
Tokyo		18·3	228	e 4 17	0	e 7 50	+11	e 7 57	S
Matusiro		18·4	233	e 4 15	- 3	e 7 40	- 1	e 7 58	SS
Wazima		18·5	238	e 4 18	- 1	e 7 28	-16	—	—
Kohu		18·9	231	4 21	- 3	7 47	- 6	—	—
Misima		19·2	230	e 4 24	- 4	e 8 27	SS	—	—
Shizuoka		19·5	230	e 4 31	0	8 29	SS	—	—
Gihu		20·0	232	4 34	- 3	e 8 12	- 5	—	—
Tsuruga		20·2	234	4 35	- 4	8 18	- 3	—	—
Kameyama		20·6	233	4 41	- 2	8 32	+ 3	—	e 8·8
Kyoto		20·9	234	e 4 43	- 3	e 8 38	+ 3	—	—
Osaka		21·2	234	e 4 49	0	e 9 10	SS	e 4 53	P
Siomisaki		22·1	232	e 4 56	- 3	8 57	- 1	—	—
Hamada		22·9	241	5 6	0	9 17	+ 4	—	e 11·4
Muroto		23·0	235	e 5 10	+ 3	e 9 21	+ 7	—	—
Hirosima		23·1	239	e 5 7	- 1	e 9 15	- 1	—	—
Koti		23·1	236	e 5 8	0	e 9 34	+18	e 6 3	PPP
Hukuoka		24·8	240	e 5 25	0	e 9 46	0	—	e 12·0
Miyazaki		25·5	237	e 5 20	-12	e 10 9	+12	—	—
College		32·7	40	i 6 39	+ 3	i 11 56	+ 4	(e 13 40)	SS
Nanking		32·8	253	i 6 34	- 3	11 47	- 7	—	—
Manila		45·1	232	i 8 8	-12	i 14 34	-25	—	—
Resolute Bay		47·6	20	i 8 42 _a	+ 3	i 15 41	+ 6	i 18 39	ScS
Victoria		50·3	58	i 9 1 _a	+ 1	—	—	—	i 28·9
Seattle	Z.	51·4	58	i 9 12 _k	+ 3	—	—	—	—
Corvallis	Z.	52·6	64	i 9 19	+ 1	—	—	—	—
Hungry Horse		55·5	54	i 9 40	+ 1	—	—	—	—
Shasta	Z.	55·5	66	e 9 41 _a	+ 2	—	—	—	—
Mineral		56·2	66	e 9 45	+ 1	—	—	—	—
Berkeley		57·4	68	i 9 53 _k	0	e 17 59	+10	i 10 5	pP
Butte		57·7	56	i 9 56	+ 1	—	—	—	—
Reno	Z.	57·8	65	i 9 57 _k	+ 2	—	—	—	—
Lick	Z.	58·1	68	e 9 57 _k	- 1	—	—	i 10 11	pP
Kiruna	N.	58·4	342	—	—	e 22 34	SS	—	—
Calcutta	E.	58·9	269	i 8 54	-69	—	—	—	i 25·1
Fresno	Z.	59·6	67	e 10 8 _a	0	—	—	—	—
Tinemaha		60·3	68	i 10 14	+ 1	i 10 39	?	i 10 27	pP
China Lake	Z.	61·5	66	i 10 21	0	—	—	i 10 34	pP
Pasadena		62·3	70	i 10 26 _k	0	i 10 53	?	i 10 38	pP
Riverside		62·9	70	i 10 30	0	i 10 36	P	i 10 43	pP
Boulder City		63·1	66	i 10 32	0	—	—	i 10 45	pP
Nelson		63·3	66	i 10 32	- 1	—	—	—	—
Palomar	Z.	63·6	70	i 10 34	- 1	i 10 39	P	i 10 46	pP
Upsala		65·9	339	i 10 50	0	e 24 5	SS	i 11 30	PcP
Quetta	Z.	67·2	291	i 10 57	- 1	—	—	—	e 31·7
Bergen	N.	68·0	346	e 17 1	?	24 13	SS	—	—
Tucson		68·0	67	i 11 4	+ 1	e 20 7	+ 5	i 11 17	pP
Hyderabad	N.	69·0	273	i 11 6	- 3	—	—	—	e 28·1
Djakarta		70·1	234	i 11 17 _a	+ 1	e 20 25	- 2	e 11 25	pP
Copenhagen		70·9	340	i 11 23 _a	+ 2	—	—	—	37·7

Continued on next page.

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1952

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		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		^o	^o	m.	s.	s.	m.	s.	m.	s.	m.
Kirkland Lake	z.	71.3	36	e 11	24	+ 1	—	—	—	—	—
Bombay		71.6	278	i 11	26	+ 1	e 20	48	+ 4	—	—
Aberdeen		72.2	348	i 11	51	PcP	—	—	—	—	—
Lwow		72.9	330	i 11	33	0	—	—	—	—	—
Chicago		73.3	44	—	—	—	e 21	4	0	—	—
Kishinev		73.6	327	i 11	37	0	—	—	—	—	—
Potsdam		73.8	338	i 11	41	+ 3	—	—	i 11	50	? e 39.7
Iasi		73.9	328	e 11	41	+ 2	—	—	—	—	—
Fayetteville	z.	74.5	53	i 11	42	0	—	—	e 14	21	PP
Raciborz		74.5	334	11	44	+ 2	e 12	6?	PcP	13 35	? —
Uzhgorod		74.5	331	i 11	43	+ 1	—	—	—	—	—
Collmburg		74.8	337	i 11	45	+ 1	e 12	16	?	e 11	58 PcP e 38.7
Kodaikanal	E.	75.0	270	e 11	47	+ 2	—	—	—	—	—
Ottawa		75.2	35	i 11	47k	+ 1	14	27	PP	i 12	1 PcP —
Shawinigan Falls	N.	75.3	32	e 11	48	+ 1	—	—	—	—	—
Jena		75.5	338	i 11	49	+ 1	e 12	1	PcP	e 13	24 ? —
Prague		75.5	336	e 11	49a	+ 1	e 22	25	PPS	e 14	45 PP e 42.2
De Bilt		75.8	343	i 11	51	+ 1	—	—	—	e 19	41? ? e 35.7
Cheb	N.	76.1	338	e 11	47	- 4	e 21	26	- 9	e 21	38 S —
Cleveland	z.	76.2	41	i 11	54a	+ 2	—	—	—	i 12	8 pP —
Budapest		76.5	332	11	56	+ 2	e 22	41?	PPS	e 28	41? ? 40.7
Ogyalla		76.5	332	e 12	8	PcP	e 21	57	ScS	e 14	58 PP —
Rathfarnham Castle		76.5	350	i 11	54a	0	e 22	10	ScS	e 25	0 ? e 38.7
Brisbane		76.7	183	i 11	53	- 2	i 21	38	- 3	i 15	6 PP —
Bucharest		76.8	326	e 11	53	- 2	—	—	—	—	—
Kalossa	E.	77.4	332	e 12	13	PcP	—	—	—	—	—
Kew		77.4	345	i 11	59	+ 1	e 21	43	- 6	i 12	11 PcP e 37.7
Timisoara		77.4	330	e 12	3	+ 5	—	—	—	—	e 41.7
Karlsruhe		78.0	340	i 12	4	+ 2	e 15	29	PP	i 12	16 PcP —
Stuttgart		78.1	339	i 12	4a	+ 2	e 22	9	+13	i 12	15 PcP e 41.7
Pennsylvania	z.	78.3	39	i 12	20	+17	—	—	—	i 12	34 ? —
Belgrade		78.4	330	i 12	6a	+ 2	e 24	49	?	e 13	45 ? e 43.6
Morgantown		78.4	41	i 12	9	+ 5	—	—	—	—	—
Istanbul		78.6	322	e 12	5	0	e 20	39	?	e 15	17? PP —
Strasbourg		78.6	340	i 12	7	+ 2	e 14	54	PP	i 12	19 PcP 39.7
Harvard		79.3	34	e 12	10	+ 1	—	—	—	—	—
Paris		79.5	343	i 12	12	+ 2	i 12	23	PcP	i 12	35 ? —
Weston		79.5	34	i 12	11a	+ 1	—	—	—	—	—
Zürich		79.5	339	e 12	12a	+ 2	—	—	—	e 12	20 PcP —
Basle		79.6	340	e 12	12	+ 2	e 12	24	PcP	e 19	5 ? —
Palisades		79.7	36	i 12	12	+ 1	—	—	—	—	—
Triest		79.8	335	e 12	12	0	e 22	17	+ 3	e 12	23 PcP —
Halifax		80.0	28	e 12	15a	+ 2	—	—	—	—	—
Besançon		80.2	340	i 12	16	+ 2	—	—	—	e 12	29 PcP —
Washington		80.2	39	i 12	14	0	—	—	—	e 15	25 PP —
Oropa		81.3	338	e 12	26	+ 6	e 24	1	PPS	—	—
Pavia		81.4	337	e 11	58	?	e 22	53	ScS	—	— e 45.0
Bologna		81.5	336	e 12	23	+ 2	—	—	—	e 12	35 ? —
Ksara		81.6	313	i 12	24	+ 3	—	—	—	—	—
Prato		82.1	335	i 12	27	+ 3	e 22	41	+ 3	—	—
Florence		82.2	335	i 12	25a	+ 1	e 23	0	ScS	—	—
Clermont-Ferrand		82.3	342	e 12	27	+ 2	—	—	—	i 12	39 ? —
Siena		82.6	335	e 12	31	+ 5	e 23	55	PPS	—	—
Riverview		83.1	185	e 12	18	-11	i 22	47	- 1	i 12	46 ? e 36.6
Taranto		83.4	330	e 14	20	?	22	51	0	—	— 42.7
Rome		83.6	334	e 12	27	- 4	e 24	3	PPS	—	—
Tacubaya		84.5	67	e 12	50	+14	—	—	—	—	—
Messina		86.0	331	e 14	42	?	—	—	—	e 19	18 ? 44.3
Helwan	z.	87.0	315	i 12	50a	+ 2	e 24	58	PPS	e 16	16 PP —
Toledo		89.3	345	e 13	1	+ 2	—	—	—	—	48.4
Bermuda		90.7	34	—	—	—	i 24	5	+ 4	—	— e 45.2
Algiers Univ.	z.	90.9	339	e 13	18	+11	—	—	—	—	—
Granada		91.9	344	i 13	31k	+20	23	59	[+15]	25	23 PS i 52.0
Almeria		92.0	343	13	28	+16	24	28	+16	16	50 PP 55.1
Malaga		92.4	344	i 13	25	+11	i 24	15	- 1	17	1 PP 44.6

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Tamanrasset	z.	103.5	332	i 14 4k	0	e 27 7	PS	e 29 55	PKKP	59.7
Bogota		110.8	55	e 19 54	PP	—	—	—	—	—
Tananarive		116.2	272	e 19 47	PP	—	—	—	—	—
Huancayo		123.6	67	e 20 56	PP	—	—	—	—	e 59.0
La Paz		131.4	63	e 19 19	[+ 4]	i 22 45	PKS	i 39 11	SS	64.7
Pretoria	z.	133.6	281	e 19 21	[+ 2]	—	—	e 21 47	PP	—
Kimberley	z.	137.9	280	e 19 29	[+ 2]	—	—	e 22 5	PP	—
Grahamstown	z.	139.7	274	e 19 27	[- 3]	—	—	e 22 27	PP	—

Nov. 9d. 1h. 17m. 39s. Epicentre 52°·6N. 160°·3E. (as on 6d. 3h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Mizusawa		18.9	233	4 22	- 2	e 7 27	-26	7 30	S	—
College		28.7	44	i 6 1	0	e 10 49	- 1	—	—	e 12.9
Resolute Bay		43.7	22	i 8 10k	+ 2	i 14 47	+ 8	i 18 57	SSS	e 22.8
Victoria		46.5	63	8 31	0	—	—	—	—	—
Seattle	z.	47.6	63	e 8 41	+ 2	—	—	—	—	—
Corvallis	z.	48.9	68	e 8 55	+ 5	—	—	—	—	—
Manila		49.1	235	i 8 36a	-15	i 15 34	-22	—	—	—
Hungry Horse		51.6	58	i 9 11	+ 1	—	—	—	—	—
Shasta	z.	51.9	70	e 9 13	+ 1	—	—	—	—	—
Berkeley	z.	53.9	73	e 9 27	0	—	—	—	—	—
Butte		53.9	59	e 9 27	0	—	—	—	—	—
Reno	z.	54.2	69	e 9 31k	+ 2	—	—	—	—	—
Lick	z.	54.6	73	e 9 32	0	—	—	—	—	—
Fresno	z.	56.1	72	e 9 44k	+ 1	—	—	—	—	—
Kiruna	N.	56.2	344	e 9 40	- 4	—	—	e 16 6	?	e 28.0
Tinemaha	z.	56.8	71	e 9 59	+11	—	—	—	—	—
China Lake	z.	58.0	71	e 9 56	- 1	—	—	—	—	—
Pasadena		58.8	73	i 10 2	0	—	—	i 10 11	?	—
Riverside	z.	59.4	73	e 10 6	0	—	—	—	—	—
Boulder City		59.5	69	i 10 7	0	—	—	—	—	—
Nelson		59.7	69	i 10 8	- 1	—	—	—	—	—
Palomar	z.	60.2	73	e 10 10	- 2	—	—	i 10 21	?	—
Calcutta	E.	61.5	271	—	—	i 18 50	+ 8	—	—	—
Upsala		63.9	340	i 10 35a	- 2	i 19 14	+ 2	e 19 32	PS	e 31.4
Tucson		64.5	70	e 10 41	0	—	—	e 10 51	?	—
Kirkland Lake	z.	67.3	39	e 10 58	- 1	—	—	—	—	—
Quetta	z.	68.5	292	i 11 1	- 5	—	—	—	—	—
Copenhagen		68.9	342	i 11 8	- 1	—	—	—	—	37.4
Apia		70.4	151	—	—	e 20 32	+ 2	—	—	—
Djakarta		70.4	236	e 11 50	PcP	i 21 26	ScS	—	—	—
Fayetteville	z.	70.6	56	i 11 16a	- 3	—	—	—	—	—
Ottawa		71.2	38	e 11 21	- 2	—	—	—	—	—
Shawinigan Falls	N.	71.3	35	e 11 22	- 1	—	—	—	—	—
Lwow		71.4	332	e 11 22	- 2	—	—	—	—	—
Potsdam		71.8	340	e 11 26	0	i 20 53	+ 7	i 21 7	PS	e 37.4
Cleveland	z.	72.1	44	i 11 30a	+ 2	—	—	—	—	—
Buffalo (Larkin)		72.2	41	i 11 27	- 2	—	—	—	—	—
Kishinev		72.4	328	e 11 28	- 2	—	—	—	—	—
Iasi		72.7	330	e 11 32	0	—	—	—	—	—
Collmberg		72.9	339	e 11 31	- 2	e 21 2	+ 3	e 11 44	?	e 39.4
Uzhgorod		73.0	333	i 11 31	- 2	—	—	—	—	—
Poona	z.	73.4	279	i 11 30	- 6	—	—	—	—	—
Jena	z.	73.5	340	e 11 35	- 1	—	—	—	—	—
Bombay	E.	73.7	280	—	—	e 21 12	+ 4	—	—	—
Prague		73.7	338	e 11 37k	- 1	e 20 53	-15	e 11 49	PcP	e 40.4
Rathfarnham Castle		73.9	352	i 11 41	+ 2	—	—	e 12 1	?	—
Pennsylvania	z.	74.2	42	i 11 41	+ 1	—	—	—	—	—
Morgantown		74.4	45	i 11 42	0	—	—	—	—	—
Budapest		74.9	334	i 11 45	+ 1	21 39	+17	21 58	PS	e 41.4
Harvard		75.2	37	i 11 46a	0	—	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Weston	75.4	37	i 11 47 _a	0	—	—	—	—
Palisades	75.6	39	i 11 48	0	—	—	—	e 38.4
Fordham	75.8	39	i 11 50	0	—	—	—	—
Timisoara	75.9	332	e 11 55	+ 5	e 21 54	ScS	—	e 42.4
Halifax	76.1	31	e 11 52	+ 1	—	—	—	—
Stuttgart	76.1	341	e 11 49	- 2	—	—	—	—
Washington	76.2	42	i 11 50	- 2	—	—	—	—
Strasbourg	76.5	342	i 11 54	0	e 22 1	ScS	i 12 0	PcP 38.4
Belgrade	77.0	332	e 11 59	+ 3	e 22 0	+15	e 12 22	? e 44.3
Paris	77.2	345	i 11 58	+ 1	i 22 10	ScS	i 12 3	PcP e 43.4
Basle	77.5	342	e 11 59	0	—	—	—	—
Zürich	77.5	342	e 11 58	- 1	—	—	—	—
Istanbul	77.6	325	—	—	e 22 6?	+15	—	— 38.6
Kodaikanal	E. 77.6	271	—	—	e 22 0	+ 9	—	—
Besançon	78.1	342	i 12 2	0	i 12 15	PcP	i 12 8	? —
Brisbane	Z. 80.0	187	e 12 11	- 2	—	—	—	—
Clermont-Ferrand	80.1	344	e 12 14	+ 1	—	—	—	—
Florence	Z. 80.4	338	e 12 16	+ 1	—	—	—	—
Ksara	81.3	316	i 12 19	- 1	—	—	—	—
Riverview	Z. 86.4	188	i 12 46 _a	+ 1	—	—	—	—
Helwan	Z. 86.6	318	i 12 45	- 1	—	—	e 12 56	? —
Granada	89.5	348	13 0 _a	0	—	—	48 39	Q i 15.6
Tamanrasset	Z. 101.8	336	e 13 55	- 1	e 17 11	?	e 18 7	PP —
Huancayo	120.1	69	—	—	e 30 1	PS	e 36 36	SS —
La Paz	127.7	65	e 19 9	[+ 1]	22 45	PKS	31 13	PS 66.2
Pretoria	Z. 135.3	289	e 19 31	[+ 9]	e 23 6	PKS	—	— —
Kimberley	Z. 139.6	289	e 19 25	[- 5]	—	—	—	— —
Grahamstown	Z. 141.8	283	e 19 27	[- 7]	—	—	—	— —

November 9d. 4h. 35m. 6s. Epicentre 49°·3N. 156°·8E. (as on 5d. 14h.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Abashiri	10.1	243	e 2 34	+ 5	—	—	—	—
Wakkanai	E. 11.0	255	e 2 54	+12	e 5 15	+28	—	— 6.1
Urakawa	12.1	239	e 2 57	0	e 5 35	SS	—	e 10.8
Sapporo	12.4	246	e 3 8	+ 7	e 5 38	SS	—	e 7.7
Mizusawa	15.1	234	3 38	+ 2	5 56	-29	6 5	S —
Sendai	15.9	232	e 3 53	+ 6	e 6 44	0	6 54?	S —
Hokusima	16.5	232	e 3 56	+ 2	e 7 11	SS	—	—
Onahama	16.9	229	e 3 58	- 1	e 6 49	-18	—	e 10.4
Aikawa	17.5	237	e 4 4	- 3	e 7 22	+ 1	—	— 10.4
Maebasi	18.3	233	e 4 13	- 4	7 51	+12	—	—
Nagano	N. 18.5	235	e 4 25	+ 6	e 8 30	SSS	—	—
Tokyo	E. 18.5	229	e 4 36	PP	e 8 7	+23	i 5 32	? —
Matusiro	18.6	235	i 4 14	- 7	i 7 48	+ 2	8 10	SS 9.4
Toyama	19.0	237	e 4 31	+ 5	e 8 42	SSS	—	—
Kohu	19.1	231	e 4 28	+ 1	e 8 0	+ 3	—	—
Shizuoka	19.7	230	e 4 44	+10	e 8 38	SS	—	—
Gihu	20.2	233	e 4 40	+ 1	e 8 35	+14	—	—
Kameyama	20.8	233	4 47	+ 2	8 40	+ 7	—	e 9.1
Kyoto	21.1	234	e 4 35	-13	e 8 35	- 4	—	—
Osaka	21.4	234	e 4 50	- 1	e 8 54	+ 9	e 5 28	PPP —
Siomisaki	22.3	231	e 5 3	+ 2	e 9 5	+ 3	—	— 12.1
Hamada	23.2	240	e 5 10	+ 1	e 9 22	+ 4	—	e 11.5
Muroto	23.2	235	e 5 6	- 3	e 9 48	SS	—	e 14.3
Hirosima	23.4	239	e 5 4	- 7	e 9 22	+ 1	—	—
Koti	23.4	236	e 5 13	+ 2	e 9 34	+13	—	— 12.2
Hukuoka	25.1	241	e 5 31	+ 3	e 10 9	+18	—	— e 14.2
Kumamoto	25.5	240	e 5 47	+15	e 10 18	+21	—	—
College	32.6	40	i 6 35	0	e 11 48	- 3	(e 13 2)	PcS e 13.0
Nanking	33.2	253	e 6 39	- 1	e 11 57	- 3	—	—
Hong Kong	43.0	247	—	—	e 14 30	+ 1	e 20 37	Q e 25.6

Continued on next page.

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1952		1046									
		Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.		
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	m.	
Manila		45.3	233	i 8 10	-11	i 14 47	-15				
Resolute Bay		47.6	20	i 8 38 ^a	-1	i 15 47	+12	i 10 45	PP	e 23.3	
Victoria		50.1	58	8 58	-1						
Corvallis	z.	52.3	63	e 9 15	0						
Hungry Horse		55.3	54	i 9 37	-1						
Berkeley	z.	57.1	68	e 9 50	0						
Chatra		57.1	273	e 9 48	-2	e 17 54	+9				
Butte		57.5	55	e 9 52	-1						
Reno	z.	57.5	65	e 9 54	+1						
Lick	z.	57.8	68	e 9 55	0						
Kiruna	N.	58.7	342	—	—	e 22 26	SS			e 28.9	
Calcutta	E.	59.3	269	i 9 43	-23	i 23 18	?				
Fresno	z.	59.3	67	e 10 5 ^k	-1						
China Lake	z.	61.2	66	e 10 19	0						
Pasadena		62.0	68	i 10 24	0						
New Delhi	N.	62.4	283	e 10 34	+7	e 20 24	ScS				
Riverside	z.	62.6	68	e 10 27	-1						
Boulder City		62.8	65	i 10 30	0						
Nelson		63.0	65	i 10 30	-1						
Palomar	z.	63.3	68	e 10 31	-2						
Upsala		66.3	339	—	—	e 20 10	PPS			e 33.9	
Quetta		67.6	291	e 10 57	-4					37.4	
Tucson		67.8	66	e 11 2	0						
Hyderabad	E.	69.4	273	e 11 12	0	e 20 29	+11				
Poona		71.6	277	e 11 24	-1	20 48	+4	i 14 33	PP		
Bombay		72.0	278	e 11 33	+5	e 20 54	+5	14 14	PP	33.7	
Lwow		73.3	330	e 11 40	+5						
Kishinev		74.0	327	e 11 35	-4						
Potsdam		74.1	338	e 11 38	-2					e 39.9	
Fayetteville	z.	74.3	53	i 11 34	-7						
Uzhgorod		74.9	331	e 11 43	-1	e 21 1	PS				
Collmberg		75.1	337	e 11 43	-3					e 42.9	
Ottawa		75.2	35	i 11 44 ^a	-2						
Shawinigan Falls	N.	75.3	32	e 11 44	-3						
Jena	z.	75.8	337	e 11 47	-3						
Prague		75.9	336	e 11 51	+1			e 12 4	PcP	e 41.2	
Buffalo (Larkin)		76.0	38	i 11 51	0						
Cleveland	z.	76.1	41	e 11 49 ^k	-2						
Brisbane	z.	76.5	183	i 11 55 ^a	+1						
Rathfarnham Castle		76.8	350	e 11 50	-5						
Morgantown		78.3	41	i 12 5	+2						
Stuttgart		78.4	338	e 12 1	-3						
Belgrade		78.8	329	e 12 5 ^a	-1					e 47.5	
Strasbourg		78.9	339	e 12 6	-1	e 26 54	SS	e 31 54	Q	e 36.9	
Harvard		79.2	34	e 12 8	0						
Weston		79.4	34	i 10 9 ^a	-120						
Palisades		79.6	36	i 12 10	0						
Paris		79.8	343	i 12 10	-2			e 33 43	Q	e 38.9	
Basle	z.	79.9	339	e 12 10	-2						
Zürich	z.	79.9	339	e 12 10	-2						
Halifax		80.0	28	i 12 10 ^a	-3						
Triest		80.1	335	—	—	23 28	PS	e 30 21	SSS	43.6	
Besançon		80.6	340	e 12 14	-2			e 12 21	PcP		
Ksara		82.0	314	e 12 24	+1						
Florence		82.5	335	e 12 24	-2			e 19 54?	?		
Clermont-Ferrand		82.6	342	e 12 29	+3						
Tacubaya		84.3	67	12 37	+2						
Messina	E.	86.4	330	e 21 55	?			e 33 31	Q	e 46.2	
Helwan	z.	87.4	315	12 50	0	e 14 45	?	e 16 16	PP		
Toledo		89.6	345	i 12 59	-2					48.6	
Bermuda		90.7	34	—	—	e 24 6	+5			e 45.4	
Almeria		92.3	343	13 5	-8	23 51	[+5]	16 45	PP	50.7	
Tamanrasset	z.	103.8	332	e 14 4	-1						
La Paz		131.1	63	e 19 22	[+8]	e 22 50	PKS	e 21 54	PP		
Antofagasta	E.	135.2	73	i 19 58	[+36]						

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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Nov. 9d. 5h. 6m. 26s. Epicentre 53°·6N. 159°·5E. (as on 1948, May 1d.).

A = -·5583, B = +·2087, C = +·8030; $\delta = +6$; $h = -7$;
D = +·350, E = +·937; G = -·752, H = +·281, K = -·596.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Mizusawa		19·1	229	e 4	27	0	e 8	34	+37	e 8	42	SSS	—
College		28·3	46	i 5	58	+ 1	e 9	49	-54	—	—	—	e 11·3
Resolute Bay		43·0	23	i 8	2	- 1	e 13	44	-45	—	—	—	e 19·4
Victoria		46·5	63	8	33	+ 2	—	—	—	—	—	—	—
Seattle	z.	47·7	63	e 8	43	+ 3	—	—	—	—	—	—	—
Corvallis	z.	49·0	68	e 8	51	+ 1	—	—	—	—	—	—	—
Hungry Horse		51·5	58	i 9	11	+ 2	—	—	—	i 10	32	PcP	—
Shasta	z.	52·1	71	e 9	16 _a	+ 2	—	—	—	—	—	—	—
Butte		53·8	59	e 9	27	+ 1	—	—	—	—	—	—	—
Berkeley	z.	54·1	73	e 9	30 _a	+ 1	—	—	—	—	—	—	—
Lick	z.	54·8	73	e 9	36 _a	+ 2	—	—	—	—	—	—	—
Fresno	z.	56·3	72	e 9	46 _a	+ 1	—	—	—	—	—	—	—
Tinemaha	z.	56·9	71	i 9	54	+ 5	—	—	—	i 10	5	pP	—
China Lake	z.	58·2	71	i 9	59	+ 1	—	—	—	i 10	13	pP	—
Pasadena	z.	59·0	73	i 10	6	+ 2	—	—	—	e 39	45	P'P'	—
Boulder City		59·6	70	i 10	10	+ 2	—	—	—	i 10	23	pP	—
Riverside	z.	59·6	73	e 10	11	+ 3	—	—	—	—	—	—	—
Nelson		59·8	70	i 10	10	+ 1	—	—	—	—	—	—	—
Palomar	z.	60·3	73	e 10	13	0	—	—	—	—	—	—	—
Upsala		62·8	340	i 10	28	- 2	i 22	50	SS	i 10	37	pP	e 27·6
Bergen	N.	64·5	340	e 8	46	?	—	—	—	—	—	—	e 31·5
Tucson		64·6	69	e 10	43	+ 2	—	—	—	—	—	—	—
Kirkland Lake	z.	66·8	39	e 10	55	- 1	—	—	—	—	—	—	—
Quetta		67·7	290	i 10	56	- 5	—	—	—	—	—	—	36·1
Copenhagen		67·8	341	i 11	0	- 2	—	—	—	—	—	—	39·6
Aberdeen		68·6	350	e 12	9	+62	—	—	—	i 13	29	PP	—
Ottawa		70·7	38	i 11	19 _k	- 1	—	—	—	13	57	PP	—
Potsdam		70·7	340	e 11	17	- 3	—	—	—	—	—	—	e 37·6
Shawinigan Falls	N.	70·8	35	e 11	19	- 1	—	—	—	—	—	—	—
Buffalo (Larkin)		71·5	41	i 11	27	+ 3	—	—	—	—	—	—	—
Iasi		71·6	328	e 11	23	- 2	—	—	—	—	—	—	—
Cleveland	z.	71·8	44	i 11	27 _a	+ 1	—	—	—	—	—	—	—
Collmberg		71·8	338	e 11	24	- 2	—	—	—	e 11	44	PcP	e 37·6
Jena	z.	72·4	339	e 11	28	- 2	—	—	—	—	—	—	—
Prague		72·6	337	e 11	30 _?	- 1	e 16	1	PPP	e 12	12	?	e 37·6
Poona	z.	72·8	278	—	—	—	e 22	2	?	i 22	11	?	—
Cheb		73·0	339	e 20	52	?	e 21	2	+ 2	e 22	11	?	—
Budapest		73·8	333	e 12	4	PcP	—	—	—	—	—	—	43·6
Pennsylvania		73·8	42	i 11	35	- 3	—	—	—	—	—	—	—
Morgantown		74·0	44	i 11	41	+ 2	—	—	—	—	—	—	—
Harvard		74·7	36	e 11	43	0	—	—	—	—	—	—	—
Karlsruhe		74·9	341	e 11	44	0	—	—	—	—	—	—	e 38·6
Stuttgart		74·9	340	e 11	42	- 2	—	—	—	—	—	—	e 39·6
Weston		74·9	36	i 11	45 _a	+ 1	—	—	—	—	—	—	—
Palisades		75·2	39	i 11	46	0	—	—	—	—	—	—	—
Strasbourg		75·4	341	e 11	47	0	—	—	—	e 12	19	PcP	38·6
Halifax		75·4	30	i 11	47 _k	0	—	—	—	—	—	—	—
Washington		75·8	42	i 11	52	+ 2	—	—	—	—	—	—	—
Belgrade		75·9	331	e 11	48 _a	- 2	—	—	—	—	—	—	e 42·2
Paris		76·1	345	i 11	50	- 1	—	—	—	i 12	1	PcP	—
Basle	z.	76·4	341	e 11	51	- 2	—	—	—	—	—	—	e 38·0
Zürich	z.	76·4	340	e 11	51	- 2	—	—	—	—	—	—	—
Triest		76·9	336	e 12	12	PcP	—	—	—	—	—	—	e 43·5
Besançon		77·0	342	i 11	56	0	—	—	—	e 12	48	?	—
Pavia		78·4	339	e 13	46	?	e 21	36	-24	—	—	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Florence	z.	79.3	337	e 12 5	- 4	—	—	—	—
Ksara		80.2	314	i 12 13	- 1	—	—	—	—
Brisbane	z.	80.9	185	i 12 20 _a	+ 3	—	—	i 12 23	?
Helwan	z.	85.5	317	12 40	- 1	e 19 19	?	e 19 52	?
Toledo		85.8	347	e 12 44	+ 2	—	—	—	—
Alicante		86.8	344	12 51	+ 4	23 29	+ 4	24 23	PS
Almeria		88.6	346	14 8	?	—	—	—	—
Tamanrasset	z.	100.7	336	e 13 48	- 4	e 17 8	?	e 17 59	PP
La Paz		127.7	64	i 19 12	[+ 4]	i 22 54	PKS	i 38 30	SS
Pretoria	z.	134.6	289	e 19 20	[- 1]	—	—	e 22 52	PP
Kimberley	z.	138.8	289	e 19 31	[+ 3]	—	—	—	—
La Plata		147.8	69	—	—	49 52	SSS	60 46	Q

Nov. 9d. 5h. 32m. 13s. Epicentre 49°·5N, 156°·2E. (as at 0h.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
College		32.7	40	i 6 34	- 2	—	—	(e 10 28)	?
Resolute Bay	z.	47.6	20	i 8 36 _k	- 3	—	—	10 7	PcP
Victoria		50.3	58	i 8 59 _a	- 1	—	—	—	—
Seattle	z.	51.4	58	e 9 27	+ 18	—	—	—	—
Corvallis	z.	52.6	64	e 9 18	0	—	—	—	—
Hungry Horse		55.5	54	i 9 38	- 1	—	—	—	—
Shasta	z.	55.5	66	i 9 40	+ 1	—	—	e 9 56	pP
Berkeley	z.	57.4	68	e 9 54	+ 1	e 11 5	PcP	e 10 7	pP
Butte		57.7	56	e 9 54	- 1	—	—	—	—
Reno	z.	57.8	65	e 9 57 _a	+ 2	—	—	e 10 13	pP
Lick	z.	58.1	68	e 9 58 _a	0	—	—	e 10 15	pP
Fresno	z.	59.6	67	e 10 9 _a	+ 1	—	—	e 10 25	pP
China Lake	z.	61.5	66	i 10 21	0	—	—	i 10 38	pP
Pasadena		62.3	70	i 10 26	0	—	—	i 10 42	pP
Riverside	z.	62.9	70	i 10 31	+ 1	—	—	i 10 47	pP
Boulder City		63.1	66	i 10 33	+ 1	—	—	i 10 48	pP
Nelson		63.3	66	i 10 33	0	—	—	e 13 53	?
Palomar	z.	63.6	70	i 10 34	- 1	—	—	i 10 51	pP
Upsala	z.	65.9	339	i 21 0	?	—	—	—	—
Tucson		68.0	67	i 11 4	+ 1	—	—	i 11 20	pP
Kirkland Lake	z.	71.3	36	i 11 21 _a	- 2	—	—	i 11 37	pP
Aberdeen		72.2	348	e 10 23	-66	—	—	—	—
Collmberg	z.	74.8	337	e 11 42	- 2	—	—	—	—
Kodaikanal	E.	75.0	270	e 10 2	?	—	—	—	e 35.2
Ottawa		75.2	35	i 11 44 _a	- 2	—	—	—	—
Shawinigan Falls	N.	75.3	32	e 11 45	- 2	—	—	—	—
Buffalo (Larkin)		76.2	39	i 11 52	0	—	—	—	—
Cleveland	z.	76.2	41	i 11 52 _a	0	—	—	i 12 9	pP
Rathfarnham Castle		76.5	350	i 11 53	- 1	—	—	e 12 22	PcP
Brisbane	z.	76.7	183	i 12 3	+ 8	—	—	—	e 20.8
Suttgart		78.1	339	e 12 0	- 2	—	—	—	—
Pennsylvania	z.	78.3	39	e 12 3	0	—	—	—	—
Morgantown		78.4	41	i 12 6	+ 2	—	—	—	—
Istanbul	N.	78.6	322	e 18 23 _?	?	—	—	—	—
Fordham		78.8	37	i 12 12	+ 6	—	—	i 12 28	pP
Harvard		79.3	34	i 12 8 _a	- 1	—	—	—	—
Weston		79.5	34	i 12 8 _a	- 2	—	—	i 12 26	PcP
Paris		79.5	343	i 12 9	- 1	—	—	—	—
Palisades		79.7	36	i 12 10	- 1	—	—	i 12 27	PcP
Halifax		80.0	28	i 12 12 _a	- 1	—	—	—	—
Besançon		80.2	340	e 12 14	0	—	—	e 12 47	PcP
Washington		80.2	39	i 12 13	- 1	—	—	—	—
Tamanrasset	z.	103.5	332	e 14 4	0	—	—	—	—
Galerazamba		105.0	54	—	—	e 29 40	PKKP	—	—
Huancayo		123.6	67	e 20 15	PP	e 25 56	[- 6]	—	—
La Paz		131.4	63	i 19 16	[+ 1]	—	—	e 21 29	PP
Kimberley	z.	137.9	280	e 19 20	[- 7]	—	—	—	—

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1952

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Nov. 9d. 5h. 56m. 56s. Epicentre 50°·2N. 157°·3E. (as on 8d.).

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.
Abashiri		10·8	240	e 2	37	- 2	—	—	—	—	—
Wakkanai	E.	11·6	251	e 2	48	- 2	e 5	3	+ 2	—	—
Urakawa		12·9	237	e 3	2	- 5	e 5	11	-22	—	—
Sapporo		13·1	243	e 3	9	- 1	e 5	39	+ 1	e 6	0
Miyako		15·1	231	e 3	34	- 2	—	—	—	SS	e 7·3
Mizusawa	E.	15·9	232	3	42	- 5	6	17	-27	—	—
	N.	15·9	232	3	47	0	e 6	22	-22	—	—
Akita		16·0	236	e 3	41	- 7	—	—	—	—	—
Sendai		16·7	231	3	54	- 3	e 6	54	- 9	e 6	40
Hokusima		17·3	228	e 4	1	- 3	e 7	14	- 2	—	—
Onahama		17·7	226	e 4	16	+ 6	e 7	20	- 6	—	—
Utunomiya		18·6	228	e 4	13	- 8	e 7	36	-10	—	—
Tokyo		19·3	228	e 4	21	- 8	e 8	4	+ 2	e 5	47
Matusiro		19·4	234	i 4	23	- 7	7	55	- 9	i 9	0
Kohu		19·9	230	e 4	30	- 6	e 8	7	- 8	—	—
Hukui		20·8	233	e 4	40	- 5	e 8	40	+ 7	—	—
Gihu		21·0	232	4	43	- 4	e 8	34	- 3	—	—
Nagoya		21·1	231	e 4	43	- 5	—	—	—	—	—
Kameyama		21·6	233	4	54	0	7	48	-61	—	—
Kyoto		21·8	233	e 4	38	-18	e 8	42	-10	—	—
Osaka		22·2	233	e 4	57	- 3	e 9	14	+14	e 5	20
Siomisaki		23·1	233	5	2	- 6	9	9	- 7	—	—
Hamada		23·9	240	5	13	- 3	9	25	- 5	—	e 11·7
Hirosima		24·1	237	e 5	13	- 5	e 9	28	- 6	—	—
Koti		24·1	235	e 5	13	- 5	e 9	29	- 5	—	—
Matuyama		24·3	237	e 5	16	- 4	e 9	32	- 5	—	—
Ooita		25·4	238	e 5	36	+ 5	e 9	57	+ 1	—	—
Hukuoka		25·8	239	e 5	29	- 5	9	56	- 6	—	e 13·2
Kumamoto		26·2	240	e 5	42	+ 4	e 10	3	- 6	—	—
College		31·7	42	i 6	31	+ 4	(e 11	25)	-12	e 7	23
Manila		46·1	232	8	11 ^a	-17	i 14	47	-27	—	—
Resolute Bay		46·7	21	i 8	33	+ 1	i 15	9	-13	i 18	59
Victoria		49·3	60	i 8	55 ^k	+ 2	—	—	—	—	—
Seattle	Z.	50·4	61	e 9	4	+ 3	—	—	—	—	—
Corvallis	Z.	51·6	64	i 9	12	+ 2	—	—	—	—	—
Hungry Horse		54·5	55	i 9	34	+ 2	—	—	—	—	—
Shasta	Z.	54·6	66	i 9	35	+ 3	—	—	—	e 9	46
Berkeley	Z.	56·4	70	i 9	47 ^k	+ 2	—	—	—	i 10	2
Butte		56·7	56	e 9	48	0	—	—	—	—	—
Reno	Z.	56·8	65	e 9	51 ^k	+ 3	—	—	—	—	—
Lick	Z.	57·2	70	i 9	52	+ 1	—	—	—	—	—
Kiruna	N.	57·9	342	—	—	—	i 18	17	PPS	e 22	4?
Fresno	Z.	58·7	68	e 10	2 ^k	0	—	—	—	—	—
Tinemaha	Z.	59·3	68	i 10	9	+ 3	—	—	—	i 10	22
Scoresby Sund		59·6	0	e 10	8	0	—	—	—	—	—
China Lake	Z.	60·6	68	i 10	15	0	—	—	—	i 10	28
Pasadena		61·4	70	i 10	21	+ 1	e 39	33	P'P'	i 10	34
Riverside	Z.	62·0	70	i 10	24	0	i 10	30	P	i 10	38
Boulder City		62·1	66	i 10	27	+ 2	—	—	—	i 10	40
Palomar	Z.	62·7	70	i 10	28	- 1	—	—	—	i 10	40
Upsala		65·5	339	i 10	47 ^a	0	e 19	29	- 3	e 29	38
Tucson		67·1	67	i 10	59	+ 2	—	—	—	i 11	12
Quetta		67·6	291	i 10	56	- 5	e 19	49	- 8	—	—
Hyderabad	N.	69·7	273	e 11	10	- 4	i 20	13	- 9	—	—
Copenhagen		70·5	340	e 11	21	+ 3	—	—	—	—	42·1
Kirkland Lake	Z.	70·9	37	e 11	18 ^k	- 3	—	—	—	i 11	30
Aberdeen		71·6	349	—	—	—	e 19	29	-75	e 31	20
Poona	Z.	71·8	277	i 11	23	- 3	—	—	—	—	—
Bombay		72·2	278	e 11	27	- 2	e 20	49	- 2	—	—
Iasi		73·7	328	e 11	34?	- 4	—	—	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Ottawa		74.3	36	i 11	41k	0	—	—	—	—	—	—
Shawinigan Falls	N.	74.3	33	e 11	45	+ 4	—	—	—	—	—	—
Collmberg	Z.	74.4	337	e 11	41	- 1	—	—	—	—	—	—
Jena	Z.	75.1	338	e 11	45	- 1	—	—	—	—	—	—
Buffalo (Larkin)		75.2	39	e 11	47	+ 1	—	—	—	—	—	—
Cleveland	Z.	75.2	42	i 11	48k	+ 2	—	—	—	i 12	1	pP
Prague		75.2	336	e 11	47	+ 1	e 15	55	PPP	e 13	2	pP ?
Rathfarnham C.	Z.	75.9	350	i 11	52a	+ 2	—	—	—	—	—	e 46.1
Pennsylvania	Z.	77.3	40	i 12	0	+ 2	—	—	—	—	—	—
Brisbane	Z.	77.4	186	i 11	56	- 2	i 12	36	?	i 12	7	pP
Morgantown		77.4	42	i 12	2	+ 4	—	—	—	—	—	—
Karlsruhe	Z.	77.6	340	e 11	59	- 1	—	—	—	—	—	—
Stuttgart		77.7	339	e 11	59	- 1	—	—	—	—	—	—
Belgrade		78.2	330	e 12	3a	0	e 21	57	0	e 13	24	?
Strasbourg		78.2	340	i 12	4	+ 1	e 21	56	- 1	e 22	46	PS
Harvard		78.3	35	e 12	3	0	—	—	—	—	—	—
Weston		78.5	35	i 12	5k	+ 1	—	—	—	i 12	19	pP
Palisades		78.7	38	i 12	6	0	—	—	—	—	—	—
Paris		79.0	343	i 12	8	+ 1	—	—	—	i 12	20	pP
Halifax		79.1	28	i 12	9k	+ 1	—	—	—	—	—	—
Zürich	Z.	79.1	339	e 12	8k	0	—	—	—	—	—	—
Basle	Z.	79.2	340	e 12	10	+ 2	—	—	—	—	—	—
Washington		79.2	39	i 12	11	+ 3	—	—	—	—	—	—
Triest		79.4	335	—	—	—	e 22	18	+ 8	—	—	—
Besançon		79.8	341	i 12	12	0	—	—	—	i 12	18	PcP
Oropa		80.9	338	e 12	23	+ 6	—	—	—	—	—	—
Ksara		81.6	313	i 12	22	+ 1	—	—	—	—	—	—
Clermont-Ferrand		81.8	342	e 12	24	+ 2	—	—	—	—	—	—
Florence	Z.	81.8	335	i 12	22a	0	—	—	—	—	—	—
Rome		83.2	335	e 12	38	PcP	—	—	—	—	—	—
Messina		85.7	330	e 12	30	- 12	—	—	—	—	—	42.7
Helwan	Z.	87.0	315	e 12	48	0	e 23	21	- 6	e 23	32	ScS
Toledo		88.8	346	e 12	56	- 1	e 23	24	- 20	—	—	—
Bermuda		89.8	35	e 13	14	+ 12	e 24	1	+ 8	—	—	e 44.2
Granada		91.4	345	12	41k	- 28	—	—	—	17	5	PP
Tamanrasset	Z.	103.1	333	13	4	+ 2	e 18	4	PP	e 17	13	?
La Paz		130.5	63	i 19	12	[- 1]	i 22	48	PKS	21	32	PP
Pretoria	Z.	134.2	282	e 19	33	[+ 13]	e 22	59	PKS	—	—	—
Pietermaritzburg	Z.	135.5	278	e 19	34	[+ 12]	—	—	—	—	—	—

Nov. 9d. 11h. 6m. 43s. Epicentre 41°·4N. 141°·7E. (as on 1945, Feb. 18d.).

Intensity II-III at Hatinohe. Epicentre 41°·4N. 141°·9E. Macro seismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, Nov., 1952, Tokyo, 1953, p.446, with macro seismic chart.

$$A = -0.5904, B = +0.4663, C = +0.6588; \quad \delta = +3; \quad h = -2; \\ D = +0.620, E = +0.785; \quad G = -0.517, H = +0.408, K = -0.752.$$

		Δ	Az.	P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	s.
Aomori		0.9	230	e 0	26	+ 6	0	40	+ 6
Hatinohe		0.9	188	e 0	20	0	0	35	+ 1
Mori	N.	1.1	310	e 0	23	+ 1	0	40	+ 1
Urakawa		1.1	47	e 0	17	- 5	0	29	- 7*
Morioka		1.7	193	e 0	29	- 2	0	51	- 3*
Sapporo		1.7	351	e 0	34?	0*	—	—	—
Obihiro		1.9	36	e 0	33	- 1*	0	52	- 7
Mizusawa	E.	2.3	191	0	52	+ 6*	1	13	+ 1*
	N.	2.3	191	—	—	—	1	18	+ 2*
Sendai		3.2	191	e 1	11?	+ 7*	1	41?	+ 2*
Nemuro		3.5	55	—	—	—	e 1	21	- 19
Utsunomiya		5.1	197	—	—	—	e 2	23	+ 3
Kumagaya		5.5	200	—	—	—	e 2	49	+ 2*

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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Nov. 9d. 15h. 22m. 47s. Epicentre 51°·9N. 159°·9E. (as on 6d.).

		Δ		P.		O-C.	S.		O-C.	Supp.		L.
		Δ	Az.	m.	s.	s.	m.	s.	s.	m.	s.	m.
Wakkani	E.	13·7	248	e 2	47	-31	e 12	45	PcS	—	—	—
Sapporo		15·3	242	e 3	40	+ 1	e 6	50	SS	—	—	—
Mori	N.	16·4	241	3	54	+ 1	—	—	—	—	—	—
Morioka		17·8	334	i 4	9	- 2	—	—	—	—	—	—
Mizusawa	E.	18·3	333	4	15	- 2	e 7	27	-12	—	—	—
	N.	18·3	333	4	12	- 5	7	42	+ 3	—	—	—
Akita	Z.	18·4	234	4	14	- 4	—	—	—	—	—	—
Sendai	E.	19·1	231	e 4	20	- 7	e 7	52	- 5	—	—	—
Hokusima		19·7	232	e 4	30	- 4	e 8	3	- 7	—	—	—
Onahama		20·1	228	e 4	32	- 6	e 8	25	+ 6	—	—	—
Mito		20·8	228	4	43	- 2	e 8	38	+ 5	—	—	—
Kumagaya		21·5	232	e 4	51	- 1	e 9	0	+13	—	—	—
Matusiro		21·7	235	i 4	51	- 4	8	43	- 8	i 9	2	PcP
Tokyo		21·7	229	e 4	55	0	e 8	52	+ 1	e 6	24	? e 11·5
Toyama		22·1	235	e 4	55	- 4	e 9	3	+ 5	e 5	56	?
Kohu		22·3	231	4	58	- 3	e 8	58	- 4	—	—	—
Shizuoka		22·9	231	5	4	- 2	e 9	12	- 1	—	—	—
Kameyama		23·9	233	5	19	+ 3	(e 9	46)	+16	8	54	? e 9·8
Kyoto		24·2	235	e 5	18	- 1	e 9	54	+19	—	—	—
Osaka		24·6	235	e 5	23	0	e 10	0	+18	—	—	—
Takamatu		25·6	237	e 5	31	- 1	e 9	48	-11	—	—	—
Hamada		26·2	240	5	35	- 3	e 9	39	-30	—	—	—
Koti		26·4	236	e 5	39	- 1	e 10	9	- 3	—	—	—
Matuyama		26·7	238	e 5	34	- 9	e 9	55	-22	—	—	—
Hukuoka		28·1	241	e 5	52	- 3	—	—	—	—	—	—
Kagosima		29·6	238	e 6	11	+ 2	—	—	—	—	—	—
Nanking		35·8	253	i 6	59	- 4	12	37	- 4	—	—	—
Resolute Bay		44·5	22	i 8	18	+ 3	i 15	0	+ 9	i 18	26	SSS e 24·6
Hong Kong		45·8	247	e 8	33	+ 8	—	—	—	—	—	22·1
Victoria		47·1	63	8	52	+17	—	—	—	—	—	—
Seattle	Z.	48·2	63	8	53	+ 9	—	—	—	—	—	—
Manila		48·5	235	i 8	31 _a	-15	i 15	43	- 5	—	—	—
Shasta	Z.	52·4	70	e 9	20	+ 4	—	—	—	—	—	—
Berkeley	Z.	54·3	73	e 9	33	+ 3	—	—	—	—	—	—
Reno	Z.	54·7	69	e 9	37	+ 4	—	—	—	—	—	—
Lick	Z.	55·0	73	e 9	39 _k	+ 4	—	—	—	—	—	—
Fresno	Z.	56·5	72	e 9	49	+ 3	—	—	—	—	—	—
Kiruna	Z.	56·8	344	i 9	50 _a	+ 2	i 18	0	+19	e 11	56	PP e 29·4
Tinemaha	Z.	57·2	71	e 9	55	+ 4	—	—	—	—	—	—
China Lake	Z.	58·5	71	e 10	2	+ 2	—	—	—	—	—	—
Pasadena		59·3	73	e 10	8	+ 2	i 10	26	?	i 10	33	?
Riverside	Z.	59·9	73	e 10	12	+ 2	—	—	—	e 10	19	?
Palomar	Z.	60·6	73	e 10	15	0	i 10	33	?	i 10	22	?
Upsala		64·5	340	i 10	42 _a	+ 1	e 19	22	+ 3	e 19	40	PS e 37·2
Bergen	N.	66·2	347	—	—	—	19	51	+11	e 26	1	SSS e 28·3
Kirkland Lake	Z.	67·9	39	e 11	5	+ 3	—	—	—	—	—	—
Quetta	Z.	68·5	292	i 11	5	- 1	—	—	—	—	—	—
Copenhagen		69·4	342	i 11	14 _a	+ 2	20	29	+11	—	—	37·2
Fayetteville	Z.	71·2	56	i 11	23	0	—	—	—	—	—	—
Hyderabad		71·2	275	e 11	22	- 1	20	43	+ 3	—	—	—
Lwow		71·9	332	i 11	28	+ 1	—	—	—	—	—	—
Ottawa		71·9	38	i 11	28 _a	+ 1	—	—	—	—	—	—
Shawinigan Falls		72·0	36	e 11	30	+ 2	—	—	—	—	—	—
Potsdam		72·4	340	i 11	31 _a	+ 1	—	—	—	—	—	e 39·2
Cleveland	Z.	72·8	44	i 11	35 _k	+ 3	—	—	—	i 11	55	PcP
Kishinev		72·9	328	e 11	32	- 1	—	—	—	—	—	—
Iasi		73·1	330	e 11	36	+ 2	e 20	7	-54	—	—	—
Poona		73·2	279	11	32	- 3	—	—	—	i 12	40	?
Collmberg	Z.	73·4	339	i 11	38 _a	+ 2	—	—	—	—	—	—
Djakarta		73·4	236	11	43	+ 7	i 21	8	+ 3	e 11	58	PcP
Uzhgorod		73·5	333	i 11	38	+ 2	—	—	—	—	—	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Bandong	N.	73.6	236	e 11	48	+11	21	1	-6	—	—	—
Bombay	E.	73.6	280	i 10	35	-62	—	—	—	—	—	—
Jena	Z.	74.1	340	e 11	41	+1	—	—	—	e 11	50	PcP
Prague		74.2	338	i 11	42 ^a	+2	e 13	25	?	e 11	53	PcP
Rathfarnham C.	Z.	74.5	352	e 11	48	+6	—	—	—	—	—	e 41.2
Ogyalla		75.3	335	e 11	50	+3	e 21	41	+15	e 14	27	PP
Budapest		75.4	334	11	50	+3	—	—	—	—	—	—
Kew		75.6	348	i 11	51	+3	i 20	35	-54	—	—	e 44.2
Harvard		75.9	37	i 11	53 ^a	+3	—	—	—	—	—	—
Bucharest		76.1	328	e 11	53	+2	—	—	—	—	—	—
Weston		76.1	37	i 11	53 ^a	+2	—	—	—	—	—	—
Timisoara		76.4	332	e 11	57	+4	e 21	41	+3	i 15	4	PP
Karlsruhe		76.5	341	e 11	56	+2	e 21	30	-9	—	—	e 42.2
Stuttgart		76.6	341	e 11	56	+2	e 21	58	+18	—	—	e 42.2
Halifax		76.8	31	e 11	57	+2	—	—	—	—	—	—
Strasbourg		77.1	342	i 12	0	+3	e 15	23	PP	i 12	10	PcP
Paris		77.8	345	i 12	4	+3	—	—	—	—	—	—
Istanbul		78.0	325	e 12	2	0	e 21	57	+2	e 23	3	PPS
Basle		78.1	341	e 12	5	+3	e 22	38	PPS	—	—	—
Zürich		78.1	341	e 12	4	+2	—	—	—	—	—	—
Chur		78.4	340	e 12	6 ^a	+2	—	—	—	—	—	—
Besançon		78.7	342	i 12	8	+2	—	—	—	i 12	17	PcP
Pavia		80.0	340	—	—	—	e 23	35	PPS	e 28	54	?
Clermont-Ferrand		80.7	344	e 12	18	+2	—	—	—	—	—	e 49.1
Florence	Z.	80.9	338	e 12	17 ^a	0	—	—	—	—	—	—
Ksara		81.6	316	i 12	23	+2	—	—	—	—	—	—
Messina	E.	85.0	333	e 13	29	-9	e 23	11	+4	—	—	e 45.8
Helwan	Z.	86.9	318	i 12	49 ^a	+1	e 22	23	-63	e 13	22	?
Toledo		87.5	348	—	—	—	e 23	47	+16	—	—	60.9
Granada		90.1	348	16	44 ^k	PP	—	—	—	—	—	55.4
Malaga		90.6	348	i 16	47 [?]	PP	—	—	—	—	—	51.6
Tamanrasset	Z.	102.3	336	e 13	59	0	e 18	9	PP	e 17	0	?
Bogota		107.5	58	e 25	4	SKS	(e 25	4)	[+3]	e 28	44	PS
La Paz		128.2	65	e 19	15	[+6]	—	—	—	—	—	—
Pretoria	Z.	135.3	289	e 19	23	[+1]	—	—	—	—	—	—

Nov. 9d. 15h. 31m. 11s. Epicentre 45°·0N. 151°·5E. Focus at Base of Superficial Layers.

A = -·6235, B = +·3385, C = +·7047; δ = -6; h = -4;
D = +·477, E = +·879; G = -·619, H = +·336, K = -·710.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Abashiri		5.2	262	1	18	0	2	19	+2	—	—	—
Urakawa		6.9	249	i 1	41	0	i 2	56	-4	i 1	53	?
Sapporo		7.6	258	i 1	53	+2	i 3	16	-1	e 2	15	?
Mori	N.	8.5	255	e 2	3	-1	e 3	36	-4	—	—	—
Hatinohe		8.6	242	e 2	7	+2	3	29	-13	—	—	—
Aomori		8.9	246	2	11	+2	i 3	46	-3	i 2	19	?
Miyako		8.9	236	e 2	5	-4	e 3	33	-16	—	—	—
Morioka		9.3	239	e 2	12	-3	e 3	50	-9	—	—	—
Mizusawa		9.7	236	2	19	-1	3	57	-12	2	28	PP
Akita		10.0	242	2	20	-4	e 4	12	-5	e 3	14	?
Sendai		10.4	233	e 2	29	-1	e 4	14	-12	e 2	45	PP
Hokusima		11.0	233	e 2	35	-3	e 4	30	-11	—	—	—
Onahama		11.4	228	e 2	55	+11	e 4	41	-10	—	—	—
Utunomiya		12.2	230	e 2	53	-1	e 4	59	-11	—	—	—
Maebasi		12.8	232	e 2	59	-3	e 5	15	-10	—	—	—
Kohu		13.6	231	3	17	+4	5	35	-9	e 7	42	?
Toyama		13.6	238	e 3	33	+20	e 5	43	-1	—	—	e 6.7
Misima	E.	13.8	228	e 3	15	-1	e 5	59	+11	—	—	—
Osima		13.8	226	e 3	20	+4	e 5	36	-12	—	—	—
Kyoto		15.7	236	e 3	37	-3	e 6	49	+16	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Osaka		16.0	235	e 3 56	+12	—	—	—	—
Siomisaki		16.8	232	e 4 1	+ 7	i 7 15	+16	—	—
Takamatu		17.1	236	e 3 57	- 1	e 7 18	+12	—	—
Muroto		17.8	234	e 4 14	+ 7	e 7 53	SS	—	—
Hamada		18.0	243	4 8	- 1	7 35	+ 9	8 15	SSS 9.2
Koti		18.0	237	e 4 9	0	e 7 31	+ 5	—	—
Hirosima		18.1	240	e 4 10	0	e 7 36	+ 8	—	—
Matuyama		18.2	239	e 4 10	- 2	e 7 26	- 5	—	—
Ooita		19.3	240	e 4 28	+ 3	e 8 0	+ 5	—	—
Hukuoka		19.9	242	e 4 30	- 1	e 8 17	+ 9	—	e 9.9
Kumamoto		20.2	240	e 4 36	+ 1	e 8 26	+12	—	—
Nanking		28.5	255	i 5 52 _a	- 2	i 10 54	sS	—	—
College		38.2	36	7 18	0	—	—	—	—
Resolute Bay	z.	52.9	18	i 9 11 _a	- 4	—	—	—	—
Seattle	z.	56.6	53	e 9 49	+ 7	—	—	—	—
Corvallis	z.	57.6	58	e 9 48	- 1	—	—	—	—
New Delhi		59.7	281	i 10 1	- 3	i 18 5	- 5	18 16	PS
Shasta	z.	60.4	60	e 10 10 _k	+ 2	—	—	—	—
Hungry Horse		60.8	49	i 10 11	0	—	—	—	—
Kiruna	z.	61.6	341	e 10 13 _?	- 3	—	—	—	—
Berkeley	z.	62.1	63	e 10 21	+ 1	—	—	—	—
Reno	z.	62.7	60	e 10 20	- 4	—	—	—	—
Lick	z.	62.8	63	e 10 26	+ 2	—	—	—	—
Butte		63.0	50	e 10 26	0	—	—	—	—
Fresno	z.	64.4	62	e 10 34	- 1	—	—	—	—
Scoresby Sund		64.7	358	i 10 34	- 3	—	—	—	—
Tinemaha	z.	65.2	61	e 10 48	+ 8	—	—	—	—
Quetta		65.7	289	i 10 41	- 2	e 19 23	- 3	—	—
China Lake	z.	66.3	61	e 10 49	+ 2	—	—	—	—
Pasadena		67.0	64	e 10 51	- 1	—	—	—	—
Riverside	z.	67.6	64	e 10 58	+ 3	—	—	—	—
Boulder City		68.0	60	e 10 59	+ 1	—	—	—	—
Poona		68.5	275	10 59	- 2	—	—	1 11 10	pP
Upsala		68.9	337	i 11 0	- 3	i 20 23	sS	1 13 24	PP
Bombay		69.0	276	e 11 3	- 1	e 20 20	sS	13 44	PP 33.7
Tucson		72.9	61	e 11 29	+ 1	—	—	—	—
Copenhagen		73.9	338	i 11 32 _a	- 1	—	—	—	—
Lwow		75.1	328	i 11 38	- 2	—	—	—	—
Kishinev		75.4	324	e 11 38	- 4	—	—	—	—
Potsdam	z.	76.6	336	i 11 49	0	—	—	—	—
Uzhgorod		76.7	329	i 11 48	- 2	—	—	—	—
Kirkland Lake	z.	76.8	33	e 11 49	- 1	—	—	—	—
Raciborzu		77.0	331	11 52	+ 1	e 12 11	PcP	e 11 59	?
Collmberg		77.6	334	i 11 53	- 1	—	—	e 14 20	PP
Prague		78.2	333	i 11 56 _a	- 2	e 14 57	?	e 12 13	PcP e 31.8
Jena	z.	78.3	335	i 11 56	- 2	—	—	—	—
Riverview		78.5	180	—	—	i 22 6	sS	—	e 36.4
Ogyalla		78.9	330	e 12 2	0	e 21 23	-28	e 12 14	pP
Fayetteville	z.	79.8	48	i 12 5	- 1	—	—	—	—
Rathfarnham Castle		80.2	347	i 12 7 _a	- 2	e 22 19 _?	+ 9	—	e 42.8
Belgrade		80.6	327	i 12 10 _a	- 1	e 22 25	+11	e 12 24	pP e 41.6
Ottawa		80.8	32	i 12 10 _a	- 2	—	—	—	—
Shawinigan Falls	N.	80.8	29	e 12 12	0	—	—	—	—
Karlsruhe	z.	81.0	337	i 12 11 _a	- 2	—	—	—	—
Stuttgart	z.	81.0	336	i 12 11 _a	- 2	—	—	—	—
Strasbourg		81.5	337	i 12 15	- 1	e 15 21	PP	i 12 54	?
Cleveland	z.	81.7	37	i 12 17 _a	0	—	—	i 12 27	pP
Ksara		82.2	311	i 12 19	0	—	—	—	—
Zürich	z.	82.4	336	e 12 19	- 1	—	—	—	—
Basle	z.	82.5	336	e 12 20	- 1	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Chur	z.	82.6	335	e 12 20 _a	- 1	—	—	—	—
Paris		82.7	340	i 12 22	0	e 30 49	SSS	—	—
Besançon		83.3	337	i 12 24	- 1	—	—	e 14 47	?
Morgantown		83.9	38	i 12 30	+ 2	—	—	i 14 17	?
Florence	z.	84.8	332	c 12 29	- 3	—	—	—	—
Harvard		84.8	31	i 12 33 _k	+ 1	—	—	—	—
Weston		85.0	31	i 12 33 _a	0	—	—	—	—
Palisades		85.2	32	i 12 34	0	(e 30 19)	SSP	—	e 30.3
Fordham		85.3	32	i 12 35	0	—	—	—	—
Clermont-Ferrand		85.4	338	c 12 35	0	—	—	e 14 47	?
Halifax		85.5	24	e 12 35 _a	- 1	—	—	—	—
Taranto		85.5	327	—	—	e 25 30	?	—	—
Washington		85.7	36	i 12 38	+ 1	—	—	—	—
Tamanrasset	z.	105.7	327	e 14 4	P	e 20 39	PPP	e 18 24	PP
La Paz		136.3	118	i 19 21	[+ 3]	i 23 10	?	—	—

Nov. 9d. 15h. 47m. 52s. Epicentre 52°·6N. 160°·3E. (as at 1h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay	z.	43.7	22	i 8 12	+ 4	—	—	—	—
Shasta	z.	51.9	70	i 9 13	+ 1	—	—	—	—
Berkeley	z.	53.9	73	i 9 27	0	—	—	i 9 40	pP
Reno	z.	54.2	69	e 9 30	+ 1	—	—	—	—
Lick	z.	54.6	73	e 9 32	0	—	—	i 9 44	pP
Fresno	z.	56.1	72	e 9 43	0	—	—	—	—
Kiruna	z.	56.2	344	i 9 45	+ 1	—	—	i 9 55	pP
Upsala		63.9	340	i 10 37 _a	0	i 19 31	+19	i 10 44	pP
Quetta	z.	68.5	292	i 10 59	- 7	—	—	—	—
Aberdeen		69.6	350	e 10 53	-20	e 18 23	?	—	—
Fayetteville	z.	70.6	56	i 11 18 _a	- 1	—	—	—	—
Potsdam	z.	71.8	340	e 11 27	+ 1	—	—	e 11 38	pP
Iasi		72.7	330	e 11 30	- 2	—	—	—	—
Collmberg	z.	72.9	339	e 11 32	- 1	e 27 49	SSP	e 11 45	pP
Poona	z.	73.4	279	i 11 28	- 8	—	—	—	—
Jena	z.	73.5	340	e 11 36	0	—	—	—	—
Prague		73.7	338	e 11 36	- 2	e 14 32	PP	e 12 15	pP
Harvard		75.2	37	i 12 0	+14	—	—	—	—
Stuttgart		76.1	341	e 11 50	- 1	—	—	—	—
Strasbourg		76.5	342	e 11 53	- 1	—	—	e 12 8	PcP
Paris		77.2	345	e 11 58	+ 1	—	—	—	—
Kodaikanal	E.	77.6	271	e 19 20	?	—	—	—	—
Besançon		78.1	342	i 12 3	+ 1	—	—	e 12 15	PcP
Clermont-Ferrand		80.1	344	e 12 10	- 3	—	—	e 12 42	PcP
Ksara		81.3	316	i 12 18	- 2	—	—	—	—
Taranto		81.9	333	—	—	e 22 49	+13	e 28 19	SS
Helwan	z.	86.6	318	12 43	- 3	e 14 30	?	i 12 56	PcP
Tamanrasset	z.	101.8	336	13 20	-36	—	—	e 18 9	PP

Nov. 9d. 18h. 12m. 19s. Epicentre 52°·6N. 160°·3E. (as at 15h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Nanking		36.3	253	e 7 9 _k	+ 2	—	—	—	—
Resolute Bay		43.7	22	e 8 9	+ 1	i 14 40	+ 1	—	e 24.6
Hong Kong		46.3	247	—	—	e 15 19	+ 3	—	—
Seattle	z.	47.6	63	10 41	PP	—	—	—	—
Kiruna	z.	56.2	344	i 9 42	- 2	—	—	—	e 26.4
Tinemaha	z.	56.8	71	e 9 55	+ 7	—	—	—	—
China Lake	z.	58.0	71	e 9 56	- 1	—	—	—	—
Mount Wilson	z.	58.9	73	e 10 1	- 2	—	—	—	—
Riverside	z.	59.4	73	e 10 4	- 2	—	—	e 10 19	?
Palomar	z.	60.2	73	e 10 13	+ 1	—	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.	O-C. s.	Supp. m. s.		L. m.		
Upsala	63.9	340	i 10	35	- 2	—	—	—	—	e 34.7		
Copenhagen	68.9	342	i 11	8	- 1	—	—	—	—	38.7		
Fayetteville	z. 70.6	56	i 11	14	- 5	—	—	—	—	—		
Collmberg	z. 72.9	339	e 11	32	- 1	—	—	—	—	—		
Poona	z. 73.4	279	i 12	34	+ 58	—	—	—	—	—		
Jena	z. 73.5	340	e 11	35	- 1	—	—	—	—	—		
Prague	73.7	338	e 11	39	+ 1	e 12	5	PcP	e 11	49	pP	—
Stuttgart	76.1	341	e 11	49	- 2	—	—	—	—	—	—	
Strasbourg	76.5	342	e 11	54	0	—	—	e 12	3	PcP	38.7	
Paris	77.2	345	e 11	57	0	—	—	e 12	9	PcP	—	
Basle	z. 77.5	342	e 11	56	- 3	—	—	—	—	—	—	
Besançon	78.1	342	e 12	3	+ 1	—	—	—	—	—	—	
Ksara	81.3	316	i 12	21	+ 1	—	—	—	—	—	—	

Nov. 9d. 20h. 42m. 22s. Epicentre 52°·7N, 159°·4E. (as on 6d.).

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.	O-C. s.	Supp. m. s.		L. m.		
Resolute Bay	43.9	22	e 8	6 _a	- 4	i 14	31	- 11	i 17	37	SS	e 21.0
Victoria	47.9	63	8	36	+ 1	—	—	—	—	—	—	—
Shasta	z. 52.4	70	i 9	19	+ 3	—	—	—	—	—	—	—
Berkeley	z. 54.4	73	e 9	36	+ 5	—	—	—	—	—	—	—
Lick	z. 55.1	73	e 9	40	+ 4	—	—	—	—	—	—	—
Kiruna	z. 56.5	344	i 9	38	- 8	—	—	—	—	—	—	—
Fresno	z. 56.6	72	e 9	48	+ 1	—	—	—	—	—	—	—
Tinemaha	z. 57.2	71	e 9	57	+ 6	—	—	—	—	—	—	—
China Lake	z. 58.5	71	e 10	3	+ 3	—	—	—	—	—	—	—
Mount Wilson	z. 59.4	73	e 10	10	+ 4	—	—	—	—	—	—	—
Riverside	z. 59.9	73	e 10	14	+ 4	—	—	e 10	36	?	—	—
Palomar	z. 60.7	73	e 10	20	+ 5	—	—	—	—	—	—	—
Upsala	N. 63.7	340	i 16	14	?	e 22	2	?	—	—	—	e 29.6
Fayetteville	z. 71.0	56	i 11	20 _k	- 2	—	—	—	—	—	—	—
Ottawa	71.5	38	e 11	22	- 2	—	—	—	—	—	—	—
Shawinigan Falls	N. 71.5	35	e 11	25	+ 1	—	—	—	—	—	—	—
Collmberg	72.6	339	e 11	27	- 4	—	—	—	—	—	—	e 38.6
Jena	z. 73.2	339	e 11	32	- 3	—	—	—	—	—	—	—
Prague	73.4	337	e 11	26	- 10	—	—	e 11	40	PcP	—	—
Harvard	75.5	36	e 11	47	- 1	—	—	—	—	—	—	—
Weston	75.7	36	i 11	48 _a	- 1	—	—	—	—	—	—	—
Stuttgart	75.8	340	e 11	46	- 4	—	—	—	—	—	—	—
Halifax	76.2	31	i 11	51 _a	- 1	—	—	—	—	—	—	—
Strasbourg	76.2	341	e 11	51	- 1	—	—	e 12	3	PcP	e 37.6	—
Besançon	77.9	342	e 12	4	+ 3	—	—	—	—	—	—	—
Ksara	80.8	315	e 12	16	- 1	—	—	—	—	—	—	—
Bermuda	87.0	37	—	—	—	e 23	27	0	—	—	—	e 45.8

Nov. 10d. 0h. 55m. 0s. Epicentre 50°·0N, 158°·3E. (as on 7d.).

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.	O-C. s.	Supp. m. s.		L. m.		
Klyuchi	6.5	12	i 1	38	- 1	—	—	—	—	—		
Ulegorsk	10.6	271	i 2	39	+ 3	—	—	—	—	—		
Yuzno-Sakhlinsk	10.8	259	2	42	+ 3	—	—	—	—	—		
Mizusawa	16.3	235	4	0	+ 8	6	37	- 16	4	3	P	—
Vladivostok	19.4	259	e 4	18	- 12	—	—	—	—	—	—	
College	31.4	40	i 6	23	- 2	11	26	- 6	—	—	—	e 12.6
Kabansk	32.0	294	i 6	30	0	—	—	—	—	—	—	—
Kyakhta	32.7	292	i 6	35	- 1	—	—	—	—	—	—	—
Irkutsk	33.3	296	6	41	0	—	—	—	—	—	—	—
Nanking	34.3	254	i 6	52	+ 2	12	21	+ 4	—	—	—	—
Manila	46.5	233	i 8	31	0	i 15	7	- 12	—	—	—	—
Resolute Bay	46.6	20	i 8	30	- 2	i 15	19	- 2	i 10	21	PP	e 22.0
Semipalatinsk	47.7	302	i 8	51	+ 11	—	—	—	—	—	—	—
Victoria	48.9	60	i 8	47 _k	- 3	—	—	—	—	—	—	—
Seattle	z. 50.0	60	i 8	59	+ 1	—	—	—	—	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Corvallis	z.	51.2	65	i 9 3	- 4	—	—	—	—
Przhevalsk		53.3	295	e 9 28	+ 5	—	—	—	—
Almata		53.7	297	i 9 25	- 1	—	—	—	—
Sverdlovsk		53.8	318	i 9 25	- 1	—	—	—	—
Shasta	z.	54.0	67	i 9 28k	0	—	—	—	—
Hungry Horse		54.1	55	i 9 27	- 2	—	—	—	—
Rybach'e		54.7	296	i 9 32	- 1	e 17 10	- 3	—	—
Frunse		55.3	297	i 9 38	0	e 17 17	- 4	—	—
Naryn		55.3	295	i 9 39	+ 1	—	—	—	—
Berkeley		55.9	71	e 9 40k	- 2	e 17 53	PPS	i 9 57	?
Butte		56.3	57	i 9 42	- 3	—	—	—	—
Reno	z.	56.3	66	i 9 44k	- 1	—	—	—	—
Lick	z.	56.6	71	i 9 46k	- 1	—	—	—	—
Andijan		57.9	297	i 9 56	0	e 17 52	- 3	—	—
Fresno	z.	58.1	68	e 9 56k	- 2	—	—	—	—
Namangan		58.1	297	i 9 58	0	17 56	- 2	—	—
Kiruna		58.3	342	i 9 57	- 2	e 17 54	- 7	e 19 46	ScS e 29.0
Fergana		58.5	296	e 9 59	- 1	—	—	—	—
Tchimkent		58.5	300	i 10 0	0	e 18 3	0	—	—
Tinemaha		58.8	68	i 10 2	0	—	—	—	—
Lunacharskoe		59.2	299	i 10 5	0	i 18 9	- 3	—	—
Tashkent		59.3	299	i 10 5	- 1	—	—	—	—
Dzhergetal		59.6	297	e 10 8	0	—	—	—	—
China Lake	z.	60.1	68	i 10 9	- 2	—	—	—	—
Garm		60.2	297	i 10 12	0	—	—	—	—
Khorog		60.5	294	i 10 14	0	—	—	—	—
Pasadena		60.8	70	i 10 16k	0	—	—	i 10 29	pP e 26.0
Kulyab		61.3	295	10 21	+ 1	—	—	—	—
Riverside		61.4	70	i 10 18k	- 2	—	—	i 10 34	pP
Stalinabad		61.4	297	i 10 20	0	—	—	—	—
Boulder City		61.6	66	i 10 20	- 2	—	—	—	—
Samarkand		61.7	299	i 10 23	+ 1	—	—	—	—
Nelson		61.8	66	i 10 21	- 2	—	—	—	—
Palomar	z.	62.2	70	i 10 25k	- 1	i 10 57	?	i 10 42	pP
Pulkovo		62.7	333	i 10 27	- 2	e 18 52	- 5	—	—
Moscow		63.7	327	i 10 33	- 3	e 19 3	- 7	—	—
Bairam-Ali		65.9	300	i 10 48	- 2	—	—	—	—
Upsala		65.9	340	i 10 49	- 1	e 19 32	- 5	i 11 20	PcP e 30.0
Tucson		66.6	67	i 10 52	- 2	—	—	i 11 11	PcP e 32.5
Ashkabad		67.7	303	i 11 1	0	—	—	—	—
Kizyl-Arvat		68.0	305	i 11 4	+ 1	e 20 4	+ 2	—	—
Quetta		68.3	292	i 11 5	0	e 20 7	+ 1	—	—
Grozny		70.0	314	i 11 15	0	—	—	—	—
Kirkland Lake	z.	70.1	37	e 11 17	+ 1	—	—	—	—
Baku		70.3	310	i 11 19	+ 2	—	—	—	—
Piatigorsk		70.7	316	i 11 19	- 1	20 35	+ 1	—	—
Shemakia		70.7	311	i 11 20	0	20 37	+ 3	—	—
Copenhagen		70.9	341	i 11 21	0	—	—	i 11 33	PcP 53.0
Kirovobad		71.7	312	i 11 26	0	—	—	—	—
Tiflis		71.7	314	11 26	0	20 45	0	—	—
Gori		71.8	314	11 27	+ 1	—	—	—	—
Aberdeen	n.	72.0	349	e 16 0	PPP	—	—	—	—
Borzhom		72.3	314	11 28	- 1	20 50	- 2	—	—
Tsikhlis-Dzhvari		72.3	314	11 31	+ 2	e 20 53	+ 1	—	—
Zugdidi		72.4	316	e 11 32	+ 2	e 20 56	+ 3	—	—
Poona	z.	72.5	278	i 11 32	+ 2	e 20 56	+ 2	—	—
Sotchi		72.5	318	i 11 20?	-10	—	—	—	—
Goris		72.7	311	e 11 32	0	i 20 59	+ 2	—	—
Bombay		72.9	278	e 11 36	+ 3	e 21 0	+ 1	21 32	PS 30.9
Erevan		73.1	313	i 11 34	0	21 2	+ 1	—	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Fayetteville	z.	73.1	53	i 11 30	- 4	—	—	—	—
Lwow		73.1	331	i 11 33	- 1	i 21 0	- 1	—	—
Theodosia		73.2	321	i 11 34	- 1	i 21 0	- 2	—	—
Simferopol		73.7	322	i 11 37	- 1	21 7	- 1	—	—
Potsdam		73.8	339	e 11 39	+ 1	i 21 9	0	i 11 51	PcP e 37.0
Kishinev		74.0	326	i 11 38	- 1	i 21 7	- 4	—	—
Ottawa		74.0	37	e 11 34	- 5	—	—	—	—
Yalta		74.1	322	i 11 39	- 1	e 21 8	- 4	—	—
Iasi		74.2	328	e 11 41	+ 1	e 21 12	- 2	—	—
Shawinigan Falls	n.	74.2	33	e 11 37	- 3	—	—	—	—
Raciborzu		74.6	334	e 11 46	+ 3	e 21 11	- 7	e 14 33	PP
Uzhgorod		74.7	331	i 11 44	+ 1	—	—	—	—
Collnberg		74.8	338	i 11 44	0	e 21 20	0	i 11 56	PcP e 35.0
Cleveland	z.	74.9	42	i 11 44k	0	—	—	—	—
Buffalo (Larkin)		75.0	39	i 11 42	- 3	—	—	—	—
Jena		75.5	338	e 11 48	0	e 21 23	- 5	e 11 59	PcP
Prague		75.6	337	i 11 49a	+ 1	e 21 29	0	e 22 1	ScS
De Bilt		75.7	343	—	—	i 21 31	+ 1	—	e 39.0
Rathfarnham C.	z.	76.3	350	e 12 0?	PcP	—	—	—	—
Budapest		76.7	333	11 55	0	e 21 40	- 1	e 15 0	PP e 43.5
Pennsylvania		77.0	40	i 11 56	0	e 21 40	- 5	e 12 8	PcP
Morgantown		77.1	42	i 11 56	- 1	—	—	e 16 6	PPP
Bucharest		77.2	327	e 12 5	PcP	e 21 45	- 2	—	—
Brisbane	z.	77.3	185	i 12 0a	+ 2	—	—	e 12 13	PcP
Kew		77.3	346	i 11 59	+ 1	—	—	i 12 12	PcP e 45.0
Timisoara		77.6	330	e 12 4	+ 4	e 21 49	- 2	—	—
Karlsruhe		78.0	340	12 0	- 2	—	—	i 12 19	PcP e 37.0
Harvard		78.1	35	e 12 1	- 1	—	—	—	—
Stuttgart		78.1	340	e 12 3	+ 1	e 21 53	- 3	e 12 15	PcP e 42.0
Weston		78.3	35	i 12 2k	- 1	—	—	—	—
Palisades		78.5	37	i 12 2	- 2	e 30 48	SSS	—	e 39.5
City College, N.Y.		78.6	37	i 12 2	- 3	—	—	—	—
Fordham		78.6	38	i 12 4	- 1	—	—	—	—
Strasbourg		78.6	340	i 12 6	+ 1	i 22 3	+ 1	i 12 18	PcP e 35.0
Belgrade		78.7	331	e 12 6a	0	e 22 2	- 1	e 12 18	PcP e 48.6
Halifax		78.9	29	e 12 7a	0	—	—	—	—
Washington		78.9	40	i 12 6	- 1	—	—	—	—
Istanbul		79.0	323	e 12 7	0	e 22 2	- 4	e 16 43	PPP 35.5
Paris		79.4	344	i 12 11	+ 2	i 22 10	0	i 22 28	ScS e 39.0
Zürich	z.	79.5	340	e 12 12	+ 2	—	—	—	—
Basle	z.	79.6	341	e 12 9	- 1	—	—	—	—
Chur		79.8	339	e 12 14k	+ 2	e 22 15	+ 1	—	—
Triest		79.9	336	e 12 14	+ 2	i 22 11	- 5	e 12 25	PcP
Besançon		80.2	341	i 12 15	+ 1	i 13 10	?	i 12 28	PcP
Clermont-Ferrand		82.2	343	e 12 28	+ 4	i 22 42	+ 3	e 12 40	PcP
Ksara		82.2	314	i 12 27	+ 3	—	—	—	—
Prato		82.2	336	e 12 33	PcP	i 22 37	- 2	—	—
Florence		82.3	336	i 12 24a	- 1	i 22 39	- 1	i 12 37	PcP
Siena		82.7	336	e 12 41	+14	22 50	+ 6	—	—
Tacubaya		83.1	68	e 12 30	+ 1	—	—	—	—
Taranto		83.6	331	e 12 53	+22	—	—	—	—
Rome		83.7	335	e 12 34	+ 2	22 54	0	—	—
Messina	E.	86.2	331	e 12 58	+14	e 23 14	- 5	—	—
Helwan	E.	87.6	315	—	—	e 23 27	- 5	—	—
Toledo		89.2	346	i 12 58	- 1	23 30	[+ 2]	i 13 14	PcP
Bermuda		89.6	35	i 13 0	- 1	e 23 51	0	e 29 57	SS e 40.1
Granada		91.7	345	i 12 58	-12	24 5	- 5	15 50	?
Almeria		91.9	344	12 56	-15	22 56	?	17 12	PP 48.8
Tamanrasset	z.	103.6	334	14 5	+ 1	e 17 23	?	i 18 33	PP
La Paz		130.0	64	i 19 12	[0]	i 22 45	PKS	e 39 29	P'P' 60.2
Pretoria	z.	134.8	284	e 19 24	[+ 3]	—	—	—	—

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1952

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Nov. 10d. 5h. 25m. 51s. Epicentre 52°·6N. 160°·3E. (as on 9d. 18h.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Mizusawa	E.	18·9	233	4	26	+ 2	e 8	2	+ 9	—	—	—	
Nanking		36·3	253	e 7	4	- 3	e 13	3	+15	—	—	—	
Resolute Bay		43·7	22	i 8	7 _a	- 1	i 14	40	+ 1	—	—	e 26·2	
Victoria		46·5	63	7	39	-52	—	—	—	—	—	—	
Manila		49·1	235	i 7	53	-58	—	—	—	—	—	—	
Shasta	Z.	51·9	70	e 9	13	+ 1	—	—	—	—	—	—	
Berkeley	Z.	53·9	73	e 9	29	+ 2	—	—	—	—	—	—	
Lick	Z.	54·6	73	e 9	31 _k	- 1	—	—	—	—	—	—	
Fresno	Z.	56·1	72	e 9	43	0	—	—	—	—	—	—	
Kiruna		56·2	344	i 9	44 _a	0	i 10	21	?	i 10	0	?	e 30·2
Tinemaha	Z.	56·8	71	e 9	51	+ 3	—	—	—	—	—	—	
China Lake	Z.	58·0	71	e 9	55	- 2	—	—	—	—	—	—	
Mount Wilson	Z.	58·9	73	e 10	2	- 1	—	—	—	i 10	5	?	
Riverside	Z.	59·4	73	e 10	7	+ 1	—	—	—	—	—	—	
Upsala		63·9	340	i 10	37	0	e 24	9	SS	e 17	47	?	
Fayetteville	Z.	70·6	56	i 11	17	- 2	—	—	—	—	—	—	
Potsdam		71·8	340	e 11	28	+ 2	—	—	—	e 11	38	?	e 40·2
Collmberg	Z.	72·9	339	e 11	31	- 2	—	—	—	e 11	45	P _c P	
Poona	Z.	73·4	279	i 11	10	-26	—	—	—	i 11	17	P	
Jena		73·5	340	e 11	35	- 1	e 11	52	P _c P	e 11	48	P _c P	
Prague		73·7	338	e 11	38	0	e 14	38	PP	e 11	48	P _c P	
Stuttgart	Z.	76·1	341	e 11	49	- 2	—	—	—	e 12	2	P _c P	
Strasbourg		76·5	342	e 12	5	+11	—	—	—	e 12	15	P _c P	e 38·2
Belgrade		77·0	332	e 11	58 _a	+ 2	—	—	—	e 13	8	?	e 50·2
Paris		77·2	345	i 12	0	+ 3	i 12	15	?	i 12	10	P _c P	
Basle	Z.	77·5	342	e 11	39	-20	—	—	—	—	—	—	
Zürich	Z.	77·5	342	e 11	34	-25	—	—	—	—	—	—	
Besançon		78·1	342	e 12	3	+ 1	—	—	—	i 12	16	P _c P	
Clermont-Ferrand		80·1	344	e 12	26	+13	e 24	39	?	—	—	—	
Florence	Z.	80·4	338	e 12	12	- 3	—	—	—	e 12	26	P _c P	
Ksara		81·3	316	i 12	22	+ 2	—	—	—	—	—	—	
Tamanrasset	Z.	101·8	336	e 13	50	- 6	e 18	1	PP	17	22	?	
Pretoria	Z.	135·3	289	e 22	33	PKS	—	—	—	—	—	—	

Nov. 10d. 6h. 5m. 55s. Epicentre 50°·6N. 156°·7E. (as on 7d.).

		Δ	Az.	P.		O-C.	S.		O-C.	L.
		°	°	m.	s.	s.	m.	s.	s.	m.
Nanking		33·5	252	6	42	- 1	—	—	—	—
Manila		46·1	232	i 8	17	-11	—	—	—	—
Resolute Bay		46·4	21	e 8	31	+ 1	i 15	30	PPS	e 21·1
Victoria		49·5	60	8	52	- 2	—	—	—	—
Shasta	Z.	54·8	66	e 9	32 _k	- 2	—	—	—	—
Berkeley	Z.	56·7	70	e 9	45	- 3	—	—	—	—
Reno	Z.	57·0	65	e 9	49	- 1	—	—	—	—
Kiruna		57·4	342	i 9	51	- 2	e 21	26	SS	e 29·1
Lick	Z.	57·4	70	e 9	53	0	—	—	—	—
Fresno	Z.	58·9	68	e 10	1	- 2	—	—	—	—
Tinemaha	Z.	59·6	68	e 10	10	+ 2	—	—	—	—
China Lake	Z.	60·8	68	e 10	14	- 2	—	—	—	—
Mount Wilson	Z.	61·6	70	e 10	19	- 3	—	—	—	—
Riverside	Z.	62·2	70	e 10	25	- 1	—	—	—	—
Upsala		65·0	339	—	—	—	e 25	23	?	e 32·1
Kirkland Lake	Z.	70·2	37	e 11	17	0	—	—	—	—
Poona	Z.	71·4	277	e 11	28	+ 4	i 11	33	P	—
Fayetteville	Z.	73·6	53	i 11	33	- 4	—	—	—	—
Collmberg	Z.	73·9	337	e 11	47 _?	+ 8	—	—	—	—
Shawinigan Falls N.		74·2	33	e 11	39	- 1	—	—	—	—
Stuttgart		77·2	339	e 11	58	+ 1	—	—	—	—
Morgantown		77·3	42	i 12	1	+ 3	—	—	—	—
Besançon		79·3	341	e 12	10	+ 1	e 12	18	P _c P	—
Ksara		81·1	313	e 12	26 _?	P _c P	—	—	—	—
Florence	Z.	81·3	335	e 12	22	+ 2	e 12	31	P _c P	—
Bermuda		89·6	35	—	—	—	e 24	15	+24	e 45·2

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Nov. 10d. 20h. 26m. 38s. Epicentre 53°·1N. 160°·9E. (as on 7d. 13h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Petropavlovsk		1·4	271	i 0 29	+ 2	i 0 50	+ 4	—	—
Klyuchi		3·2	359	i 0 55	+ 3	—	—	—	—
Uglegorsk		12·5	259	i 3 6	+ 4	5 32	+ 9	—	—
Yuzno-Sakhlinsk		13·2	249	i 3 14?	+ 3	—	—	—	—
Wakkanai		14·7	246	e 3 35	+ 4	e 8 45	PcP	—	—
Sapporo		16·4	240	e 3 49	- 4	—	—	—	e 9·7
Mori	N.	17·5	243	e 4 8	+ 1	—	—	—	11·0
Aomori		18·4	238	e 4 26	+ 8	i 7 49	+ 8	e 4 35	PPP
Miyako		18·7	232	4 22	0	7 40?	- 8	—	—
Akita		19·5	234	e 4 33	+ 2	e 8 25	SS	—	—
Mizusawa	E.	19·5	233	4 34	+ 3	8 14	+ 8	—	—
Sendai	E.	20·3	231	4 42	+ 2	8 25	+ 2	—	—
Hokusima		20·9	232	e 4 48	+ 2	e 8 39	+ 4	—	—
Niigata		21·4	236	e 5 5	PP	9 0	+15	i 5 54	? e 14·4
Onahama		21·4	230	e 4 57	+ 6	e 8 42	- 3	—	—
Vladivostok		21·7	254	i 4 47	- 8	8 43	- 8	—	—
Aikawa		21·8	234	e 4 56	0	e 8 58	+ 6	—	13·0
Maebasi		22·6	231	e 5 8	+ 5	9 14	+ 7	—	—
Nagano	N.	22·8	233	e 4 45	-20	e 9 20	+ 9	—	—
Matusiro		22·9	235	i 5 8	+ 2	9 11	- 2	i 11 36	? 12·6
Tokyo	N.	22·9	231	5 14	+ 8	9 17	+ 4	—	—
Wazima		22·9	237	e 5 10	+ 4	e 9 21	+ 8	—	—
Kohu		23·5	231	5 17	+ 5	9 31	+ 8	—	—
Misima		23·8	232	i 5 18	+ 3	—	—	—	—
Nagoya		24·6	234	e 5 26	+ 3	e 10 40	SS	—	—
Kameyama		25·1	233	e 5 29	+ 1	e 9 29	-12	—	—
Osaka		25·7	235	e 5 39	+ 6	i 6 4	PP	e 7 7	? —
Takamatu		26·8	239	e 5 48	+ 4	e 10 20	+ 1	—	—
Hamada		27·3	241	e 5 45	- 3	e 10 5	-22	—	—
Koti		27·6	237	e 5 52	+ 1	e 10 35	+ 3	—	—
College		28·1	45	i 5 54	- 1	(e 10 35)	- 5	e 6 4	? e 10·6
Miyazaki		30·0	237	e 6 10	- 2	e 11 5	- 5	—	—
Kyakhta		33·2	289	i 6 39	- 1	e 12 2	+ 2	—	—
Irkutsk		33·6	292	6 42	- 2	e 12 6	0	—	—
Nanking		36·8	253	7 10	- 1	12 52	- 4	—	—
Resolute Bay		43·1	23	e 8 2	- 2	i 14 32	+ 2	—	—
Victoria		46·0	63	8 27	0	—	—	—	—
Hong Kong		46·9	247	e 8 36	+ 2	—	—	—	—
Semipalatinsk		47·5	302	8 34	- 4	—	—	—	—
Manila		49·7	235	i 8 44	-12	i 15 48	-16	—	—
Hungry Horse		51·0	58	i 9 6	0	—	—	—	—
Shasta	Z.	51·4	71	i 9 9	0	—	—	—	—
Sverdlovsk		52·6	318	9 14	- 4	—	—	—	—
Butte		53·3	60	e 9 23	0	—	—	—	—
Berkeley	Z.	53·4	74	e 9 24	0	—	—	e 9 32	? —
Reno	Z.	53·7	70	e 9 25	- 1	—	—	—	—
Lick	Z.	54·1	74	e 9 28	- 1	—	—	i 9 38	? —
Frunse		55·3	297	e 9 31	- 7	e 17 15	- 6	—	—
Naryn		55·5	295	e 9 39	0	—	—	—	—
Fresno	Z.	55·6	73	e 9 40	0	—	—	i 9 48	? —
Kiruna		55·8	344	i 9 40	- 1	e 17 27	- 1	i 10 39	PcP e 23·8
Tinemaha	Z.	56·2	72	e 9 46	+ 2	—	—	i 9 53	? —
Scoresby Sund		56·7	2	i 9 47	- 1	e 17 50	PS	—	30·4
China Lake	Z.	57·5	72	e 9 54	+ 1	—	—	i 10 3	? —
Andijan		58·0	297	i 9 54	- 3	—	—	—	—
Namangan		58·2	297	i 9 56	- 2	—	—	—	—
Pasadena		58·4	74	e 10 1	+ 1	—	—	i 10 9	? —
Tchimkent		58·4	300	i 9 57	- 3	e 17 58	- 4	—	—
Fergana		58·5	296	i 9 58	- 2	—	—	—	—
Riverside	Z.	58·9	74	e 10 4	+ 1	—	—	i 10 11	? —

Continued on next page.

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	Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
	o	o	m.	s.	s.	m. s.	s.	m. s.	s.	m.
Boulder City	59.0	71	i 10	4	0	—	—	i 10 14	?	—
Lunacharskoe	59.2	300	i 10	2	- 3	—	—	—	—	—
Nelson	59.2	71	i 10	5	0	—	—	—	—	—
Tashkent	59.2	300	i 10	3	- 2	e 18 12	0	—	—	—
Palomar	59.7	73	e 10	9	0	—	—	i 10 18	?	—
Garm	60.3	297	e 10	11	- 2	—	—	—	—	—
Pulkovo	60.7	334	e 10	14	- 1	—	—	—	—	—
Obi-garm	60.9	297	i 10	13	- 4	e 18 29	- 5	—	—	—
Samarkand	61.6	300	10	20	- 2	—	—	—	—	—
Calcutta	61.9	271	i 10	22	- 2	i 18 54	+ 7	—	—	—
Moscow	61.9	328	e 10	21	- 3	—	—	—	—	—
Upsala	63.6	341	i 10	33	- 2	e 19 13	+ 5	i 10 42	?	e 31.4
New Delhi	64.0	284	10	35	- 3	19 8	- 5	—	—	—
Bairam-Ali	65.7	300	i 10	47	- 1	—	—	—	—	—
Kirkland Lake	66.6	39	e 11	2	+ 8	—	—	—	—	—
Ashkabad	67.4	303	i 10	57	- 2	—	—	—	—	—
Copenhagen	68.5	342	i 11	6 _a	0	—	—	—	—	40.4
Quetta	68.7	292	i 11	5	- 2	—	—	i 13 15	PP	34.4
Grozny	69.0	315	i 11	7	- 2	—	—	—	—	—
Aberdeen	69.2	350	—	—	—	e 20 32	+16	—	—	—
Platigorsk	69.5	317	11	10	- 2	i 20 17	- 3	—	—	—
Shemakla	69.9	312	i 11	14	- 1	—	—	—	—	—
Fayetteville	70.0	56	i 11	14 _k	- 1	—	—	—	—	—
Ottawa	70.6	39	e 11	17	- 2	—	—	—	—	—
Shawinigan Falls	70.7	35	11	15	- 5	—	—	—	—	—
Tiflis	70.7	315	11	21	+ 1	20 37	+ 3	—	—	—
Kirovobad	70.8	313	11	20	0	—	—	—	—	—
Borzhomi	71.2	315	i 11	21	- 2	20 37	- 3	—	—	—
Sotchi	71.3	319	e 11	22	- 1	e 20 40	- 1	—	—	—
Tsikhlis-Dzhvari	71.3	315	11	24	+ 1	20 44	+ 3	—	—	—
Zugdidi	71.3	318	11	24	+ 1	—	—	—	—	—
Cleveland	71.5	45	i 12	35 _k	+71	e 20 43	0	—	—	—
Potsdam	71.5	341	i 11	24	0	i 20 47	+ 4	i 11 33	PcP	e 37.4
Buffalo (Larkin)	71.6	42	e 11	29	+ 4	—	—	—	—	—
Hyderabad	71.7	275	e 11	23	- 3	e 20 53	+ 8	—	—	—
Theodosia	71.7	323	e 11	25	- 1	—	—	—	—	—
Goris	71.9	312	i 11	26	- 1	i 20 49	+ 1	—	—	—
Erevan	72.1	314	i 11	27	- 1	—	—	—	—	—
Kishinev	72.2	328	i 11	28	- 1	e 20 49	- 2	—	—	—
Simferopol	72.2	323	i 11	28	- 1	e 20 52	+ 1	—	—	—
Collmberg	72.5	340	i 11	30	0	e 20 55	+ 1	e 11 51	PcP	e 42.4
Iasi	72.5	330	e 11	30	0	—	—	—	—	—
Raciborzu	72.5	336	11	31 _k	+ 1	e 14 7	PP	11 50	PcP	—
Yalta	72.6	323	e 11	29	- 2	e 20 53	- 3	—	—	—
Uzhgorod	72.7	334	i 11	32	0	—	—	—	—	—
Jena	73.2	340	i 11	35	0	e 21 1	- 1	e 11 45	PcP	—
Prague	73.4	339	i 11	36 _a	0	e 22 36	PPS	e 14 6	PP	—
Rathfarnham C.	73.4	352	e 11	43	+ 7	—	—	e 16 57	?	—
Pennsylvania	73.6	42	i 11	37	0	—	—	i 11 45	PcP	—
Morgantown	73.7	45	i 11	38	0	—	—	—	—	—
Poona	73.7	279	i 11	37	- 1	e 21 1	- 7	21 41	PS	—
Cheb	73.8	340	e 11	41	+ 3	e 21 11	+ 2	—	—	—
Bombay	74.0	281	e 11	38	- 1	e 21 8	- 3	26 2	SS	31.7
Ogyalla	74.5	335	e 11	54	PcP	e 21 58	ScS	e 14 44	PP	—
Harvard	74.6	37	e 11	44	+ 1	—	—	—	—	—
Kew	74.6	348	—	—	—	e 21 59	PS	—	—	e 43.4
Budapest	74.7	334	e 11	46	+ 3	—	—	—	—	48.4
Weston	74.8	37	i 11	45 _a	+ 1	—	—	i 11 54	PcP	—
Palisades	75.0	39	i 11	43	- 2	e 21 12	-11	e 16 32	PPP	e 36.9
City College, N.Y.	75.2	39	e 11	46	0	—	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Bucharest	75.4	328	e 11 58	PcP	—	—	—	—
Halifax	75.4	31	e 11 48k	+ 1	—	—	—	—
Karlsruhe	75.6	341	i 11 50	+ 2	—	—	—	e 41.4
Washington	75.6	42	e 11 50	+ 2	—	—	—	—
Stuttgart	75.7	341	i 11 49a	0	e 21 40	+10	—	e 43.4
Timisoara	75.7	332	e 11 52	+ 3	—	—	—	e 42.7
Strasbourg	76.2	342	i 11 52	0	e 21 47	+11	e 14 49	PP e 37.4
Belgrade	76.7	332	e 11 55a	0	e 21 51	+10	e 12 18	? e 46.8
Paris	76.8	346	e 11 57	+ 2	i 22 1	ScS	i 12 8	PcP e 42.4
Basle	77.2	342	e 11 58	+ 1	—	—	e 13 50	? —
Zürich	77.2	342	e 11 56	- 1	e 21 53	+ 6	—	—
Istanbul	77.4	325	e 11 57	- 1	e 21 48	- 1	e 18 4	? 36.4
Chur	77.5	340	e 11 59a	0	e 21 52	+ 2	—	—
Triest	77.7	337	e 12 2	+ 2	i 22 0	+ 8	e 22 33	PS 38.0
Besançon	77.8	343	i 12 1	0	i 12 10	PcP	i 12 26	? —
Neuchatel	77.8	343	e 12 1	0	—	—	—	—
Kodaikanal	E. 78.0	271	—	—	e 21 48	- 7	—	—
Salo	78.5	339	e 12 4	0	e 22 45	PS	—	—
Oropa	79.0	341	i 12 14	PcP	e 21 40	-26	—	—
Pavia	79.1	340	e 12 10	+ 2	e 22 19	+12	e 12 49	? —
Bologna	79.3	338	e 12 22	PcP	e 22 31	ScS	—	—
Clermont-Ferrand	79.7	345	i 12 13	+ 2	—	—	—	—
Florence	80.0	338	i 12 13a	0	i 22 22?	+ 5	e 22 51	PS —
Brisbane	z. 80.5	187	i 12 25	+10	—	—	i 12 31	PcP —
Ksara	81.1	317	i 12 20	+ 2	—	—	—	—
Rome	81.5	337	i 12 22a	+ 1	22 47	ScS	—	—
Taranto	81.6	333	—	—	22 40	+ 7	—	— 53.4
Tortosa	84.9	345	i 12 34	- 4	22 51	[- 9]	—	—
Bermuda	86.1	38	—	—	e 23 16	- 2	—	— e 45.4
Toledo	86.5	349	i 12 48	+ 2	e 23 22	0	—	— 36.0
Riverview	N. 87.0	188	—	—	i 23 28	+ 1	—	— e 42.3
Alicante	87.5	346	13 0	+ 9	e 23 40	+ 9	—	— 41.8
Granada	89.1	348	i 13 12k	+14	i 23 54	+ 8	16 12	PP 51.3
Almeria	89.3	347	13 7	+ 8	23 57	+ 9	16 35	PP 53.5
Tamanrasset	z. 101.5	337	e 13 56	+ 1	24 42	[+ 8]	25 44	S —
La Paz	128.2	65	e 18 58	[-11]	e 37 38	P'P'	—	—
Kimberley	z. 139.8	289	e 19 32	[+ 2]	—	—	—	—

Nov. 10d. 21h. 54m. 6s. Epicentre 51°-0N. 158°-9E. Focus at Base of Superficial Layers. (as on 5d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	E. 17.2	233	4 15	PP	7 4	- 4	—	—
Nanking	34.9	253	i 6 58a	+ 8	—	—	—	—
Resolute Bay	z. 45.5	23	i 8 15a	- 3	—	—	—	—
Shasta	z. 53.3	68	e 9 18	0	—	—	—	—
Berkeley	z. 55.2	71	i 9 38	+ 6	—	—	—	—
Lick	z. 55.9	71	e 9 36	- 1	—	—	—	—
Fresno	z. 57.4	70	e 9 44	- 4	—	—	—	—
Kiruna	z. 57.5	343	i 9 46a	- 2	i 12 18	?	i 10 21	? e 30.9
Tinemaha	z. 58.1	70	e 10 2	+10	—	—	—	—
Scoresby Sund	58.8	2	e 9 54	- 3	—	—	—	— 32.9
China Lake	z. 59.4	70	e 10 1	- 1	—	—	i 10 9	pP —
Pasadena	60.2	72	e 10 6	- 1	—	—	i 10 15	pP —
Palomar	z. 61.5	72	e 10 15	- 1	—	—	e 10 24	pP —
Upsala	65.1	340	i 10 39a	- 1	i 11 14	PcP	i 10 45	pP e 30.9
Kirkland Lake	z. 69.1	38	i 11 1	- 4	—	—	—	—
Copenhagen	70.1	342	e 11 11	0	—	—	—	— 38.9
Fayetteville	z. 72.2	55	i 11 20	- 3	—	—	—	—
Lwow	72.4	332	i 11 24	- 1	—	—	—	—
Poona	z. 72.7	278	i 11 31	+ 5	11 49	PcP	i 11 39	pP —
Potsdam	73.0	340	e 11 30	+ 2	—	—	—	— e 40.9

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Ottawa	73.0	38	e 11 25	- 3	—	—	—	—
Shawinigan Falls N.	73.1	35	e 11 27	- 2	—	—	—	—
Kishinev	73.3	328	i 11 31	+ 1	—	—	—	—
Iasi	73.6	328	e 11 33	+ 1	—	—	—	—
Cleveland z.	73.9	44	i 11 32 _a	- 1	—	—	i 11 43	pP
Raciborzu	73.9	335	e 11 35	+ 2	e 12 2	PcP	e 11 47	pP
Uzhgorod	74.0	333	i 11 35	+ 1	—	—	—	—
Collmburg	74.1	339	e 11 35	0	—	—	—	e 43.9
Jena	74.7	339	e 11 38	0	—	—	e 11 56	PcP
Prague	74.9	338	e 11 39	0	e 13 24	?	i 11 57	PcP
Rathfarnham C. z.	75.3	352	i 11 41 _k	- 1	—	—	e 12 12	?
Harvard	77.0	36	e 11 50	- 1	—	—	—	—
Weston	77.2	36	i 11 52 _a	0	—	—	—	—
Stuttgart	77.3	340	e 11 53 _a	0	—	—	—	e 43.9
Palisades	77.4	38	i 11 51	- 2	—	—	—	—
Strasbourg	77.8	341	e 11 56	0	e 15 3	PP	e 12 8	pP
Halifax	77.9	30	i 11 55 _k	- 1	—	—	—	41.9
Belgrade z.	78.0	331	e 11 52	- 5	—	—	i 10 59	?
Istanbul z.	78.4	324	e 11 59	0	—	—	—	—
Paris	78.5	345	i 12 2	+ 3	—	—	i 12 17	pP
Zürich	78.7	341	e 12 0 _a	0	—	—	—	—
Basle	78.8	341	e 12 0	- 1	—	—	—	—
Chur	79.0	340	e 12 2 _a	0	—	—	—	—
Besançon	79.4	342	i 12 5	+ 1	—	—	i 12 19	pP
Florence z.	81.5	337	e 12 15 _a	- 1	—	—	—	—
Ksara	81.8	316	i 12 20	+ 3	—	—	—	—
Tamanrasset z.	102.9	335	e 13 58	+ 2	—	—	—	—
Pretoria z.	135.0	285	e 19 17	[+ 1]	—	—	—	—
Kimberley z.	139.2	285	e 19 25	[+ 2]	—	—	—	—

Nov. 11d. 0h. 56m. 39s. Epicentre 51°-9N. 159°-9E. (as on 9d.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Mizusawa	18.3	233	4 21	+ 4	e 7 42	+ 3	7 47	S
Nanking	35.8	253	i 7 3 _a	0	—	—	—	—
Resolute Bay	44.5	22	i 8 12 _a	- 3	e 14 49	- 2	—	e 25.2
Shasta z.	52.4	70	e 9 15	- 1	—	—	—	—
Berkeley z.	54.3	73	e 9 35	+ 5	—	—	—	—
Reno z.	54.7	69	e 9 31	- 2	—	—	—	—
Lick z.	55.0	73	e 9 33	- 2	—	—	—	—
Fresno z.	56.5	72	e 9 45	- 1	—	—	—	—
Kiruna	56.8	344	i 9 47 _a	- 1	e 17 43	+ 2	i 10 39	PcP
Tinemaha z.	57.2	71	e 9 50	- 1	—	—	—	e 25.2
China Lake z.	58.5	71	e 9 58	- 2	—	—	e 10 13	?
Pasadena	59.3	73	e 10 6	0	e 10 27	?	e 10 52	PcP
Riverside z.	59.9	73	e 10 9	- 1	—	—	e 10 55	PcP
Palomar z.	60.6	73	e 10 9	- 6	—	—	e 10 29	?
Upsala	64.5	340	i 10 40	- 1	e 19 21 _?	+ 2	e 14 55	PPP
Copenhagen	69.4	342	e 11 25	+ 13	—	—	—	—
Fayetteville z.	71.2	56	i 11 19	- 4	—	—	i 11 36	pP
Potsdam	72.4	340	e 11 31 _?	+ 1	—	—	—	e 39.4
Collmburg z.	73.4	339	e 11 35	- 1	—	—	—	—
Jena	74.1	340	e 11 39	- 1	e 11 53	PcP	e 12 15	?
Prague	74.2	338	e 11 41	+ 1	e 11 54	PcP	e 14 53	PP
Stuttgart z.	76.6	341	e 11 54	0	—	—	—	—
Strasbourg	77.1	342	e 11 57	0	e 12 25	?	e 12 54	?
Paris	77.8	345	e 12 2	+ 1	e 12 16	?	i 12 30	?
Istanbul	78.0	325	—	—	e 22 3	+ 8	—	—
Triest	78.5	337	e 12 31	+ 27	—	—	—	42.6
Besançon	78.7	342	e 12 6	0	e 12 30	?	e 12 49	?
Clermont-Ferrand	80.7	344	e 12 18	+ 2	—	—	—	—
Ksara	81.6	316	i 12 23	+ 2	—	—	—	—
Bermuda	87.4	36	—	—	e 23 33	+ 3	—	e 44.8
Alicante	88.5	346	e 16 48	PP	—	—	—	49.7
Granada	90.1	348	e 16 16 _k	PP	—	—	—	46.4
Tamanrasset z.	102.3	336	e 18 8	PP	—	—	e 18 21	?

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1063

Nov. 11d. 1h. 9m. 55s. Epicentre 49°·2N. 156°·1E. Focus at Base of Superficial Layers.
(as on 8d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Mizusawa	E.	14·7	232	3	19	- 8	—	—	—	3	38	PP	—
Resolute Bay	Z.	47·9	20	i 8	33 _a	- 4	—	—	—	—	—	—	—
Shasta	Z.	55·7	66	e 9	35	0	—	—	—	—	—	—	—
Mineral	Z.	56·4	66	e 9	38	- 2	—	—	—	—	—	—	—
Berkeley	Z.	57·5	68	e 9	48	0	—	—	—	e 10	1	pP	—
Reno	Z.	58·0	65	i 9	51	- 1	—	—	—	—	—	—	—
Lick	Z.	58·2	68	e 9	53	0	—	—	—	e 10	5	pP	—
Kiruna	Z.	58·6	343	i 9	55	- 1	—	—	—	—	—	—	—
Fresno	Z.	59·8	67	e 10	3	- 1	—	—	—	—	—	—	—
Tinemaha	Z.	60·5	67	i 10	11	+ 2	—	—	—	e 10	22	pP	—
China Lake	Z.	61·7	67	i 10	17	0	—	—	—	i 10	29	pP	—
Pasadena		62·5	69	i 10	22	0	—	—	—	i 10	34	pP	—
Riverside	Z.	63·1	69	e 10	25	- 1	—	—	—	e 10	37	pP	—
Palomar	Z.	63·8	69	i 10	33	+ 2	—	—	—	i 10	46	pP	—
Fayetteville	Z.	74·7	53	i 11	37 _k	- 1	—	—	—	i 11	51	pP	—
Kodaikanal	E.	74·9	269	—	—	—	e 26	52	SS	—	—	—	—
Collmberg	Z.	75·0	337	e 11	43	+ 3	—	—	—	—	—	—	—
Ottawa		75·5	35	i 11	41 _a	- 2	—	—	—	—	—	—	—
Prague		75·8	336	e 11	48	+ 4	—	—	—	e 12	17	?	—
Cleveland	Z.	76·4	41	i 11	49 _a	+ 1	—	—	—	i 12	1	pP	—
Stuttgart		78·3	339	e 12	1	+ 3	—	—	—	—	—	—	—
Strasbourg		78·8	340	i 12	5	+ 4	—	—	—	e 12	22	sP	—
Harvard		79·5	34	e 12	16	pP	—	—	—	—	—	—	—
Weston		79·7	34	i 12	6 _a	0	—	—	—	i 12	18	pP	—
Paris		79·8	343	i 12	11	+ 5	—	—	—	—	—	—	e 33·4
Besançon		80·5	340	e 12	13	+ 3	—	—	—	—	—	—	—

Nov. 11d. 2h. 20m. 41s. Epicentre 23°·1S. 178°·6E. Depth of focus 0·080.
(as on 1952, May 20d.).

A = -·9205, B = +·0225, C = -·3901; $\delta=0$; $h=+4$;
D = +·024, E = +1·000; G = +·390, H = -·010, K = -·921.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	
Karapiro	N.	15·0	189	3	6	- 3	—	—	—	—	—	—
Tuai	N.	15·7	184	—	—	—	e 5	42	-12	—	—	—
Wellington		18·4	191	e 3	40	- 2	e 6	37	- 4	—	—	—
Cobb River	E.	18·6	194	e 3	43	- 1	e 6	37	- 8	—	—	—
Kaimata	N.E.	20·3	195	e 3	58	- 2	e 7	2	-11	—	—	—
Brisbane	Z.	23·5	253	i 4	33 _k	+ 4	—	—	—	—	—	—
Mount Wilson	Z.	82·9	48	e 11	29	0	—	—	—	—	—	—
Palomar	Z.	83·2	49	i 11	32	+ 2	—	—	—	—	—	—
Riverside	Z.	83·2	48	e 11	30	0	—	—	—	—	—	—
Shasta	Z.	83·9	41	e 11	34	0	—	—	—	—	—	—
China Lake	Z.	84·1	46	e 11	35	0	—	—	—	—	—	—
Mineral	Z.	84·1	42	e 11	35	0	—	—	—	—	—	—
Tinemaha	Z.	84·3	46	e 11	37	+ 1	—	—	—	—	—	—
Nelson		85·9	48	i 11	43	- 1	—	—	—	—	—	—
Boulder City		86·0	48	i 11	45	+ 1	—	—	—	—	—	—
Tucson		87·0	53	e 11	50	+ 1	—	—	—	—	—	—
College		91·4	13	e 12	9	0	—	—	—	i 14	13	pP
Ottawa		116·9	50	e 17	42 _a	[- 1]	—	—	—	—	—	—
Collmberg	Z.	149·7	342	e 18	51	PKP ₂	—	—	—	—	—	—
Jena	Z.	150·4	343	e 18	44	[0]	—	—	—	e 18	51	PKP ₂
Stuttgart		153·0	345	e 18	49	[+ 1]	—	—	—	—	—	—
Tamanrasset	Z.	173·6	—	e 19	8	[+ 2]	—	—	—	e 20	45	PKP ₂

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1064

Nov. 11d. 5h. 26m. 51s. Epicentre 50°·0N. 158°·3E. (as on 10d.).

		Δ °	Az. °	P.		O-C. s.	Supp.		
				m.	s.		m.	s.	s.
Resolute Bay		46·6	20	e 8	34	+ 2	—	—	—
Shasta	z.	54·0	67	e 9	28	0	—	—	—
Mineral	z.	54·7	67	e 9	32	- 1	—	—	—
Reno	z.	56·3	66	e 9	43	- 2	—	—	—
Fresno	z.	58·1	68	e 9	57	- 1	—	—	—
Kiruna	z.	58·3	342	i 9	59k	0	i 10	24	?
Tinemaha	z.	58·8	68	e 10	3	+ 1	—	—	—
China Lake	z.	60·1	68	e 10	9	- 2	—	—	—
Pasadena		60·8	70	i 10	16 _a	0	i 10	28	?
Riverside	z.	61·4	70	e 10	19	- 1	—	—	—
Palomar		62·2	70	i 10	27	+ 1	—	—	—
Upsala	z.	65·9	340	i 10	50	0	—	—	—
Kirkland Lake	z.	70·1	37	e 11	15	- 1	—	—	—
Ottawa		74·0	37	e 11	38k	- 1	—	—	—
Shawinigan Falls	n.	74·2	33	e 11	40	0	—	—	—
Collmberg	z.	74·8	338	e 11	44	0	—	—	—
Cleveland	z.	74·9	42	i 11	46k	+ 2	—	—	—
Jena	z.	75·5	338	e 11	49	+ 1	e 12	46	?
Prague		75·6	337	e 11	47	- 1	—	—	—
Harvard		78·1	35	i 12	3k	+ 1	—	—	—
Stuttgart		78·1	340	e 12	20?	+18	—	—	—
Halifax		78·9	29	i 12	7 _a	0	—	—	—
Besançon		80·2	341	e 12	33	+19	—	—	—
Ksara		82·2	314	e 12	18	- 6	—	—	—

Nov. 11d. 11h. 52m. 49s. Epicentre 28°·0S. 63°·5W. Depth of focus 0·090.
(as on 1951, Jan. 27d.).

A = +·3946, B = -·7914, C = -·4670; δ = +11; h = +2;
D = -·895, E = -·446; G = -·208, H = +·418, K = -·884.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.			L. m.
				m.	s.		m.	s.		m.	s.	s.	
Antofagasta	E.	7·6	303	e 1	58	+ 2	i 3	31	+ 2	—	—	—	
Buenos Aires		7·8	148	i 1	55	- 3	3	24	- 8	—	—	—	
La Plata		8·4	147	i 1	58	- 6	i 3	36	- 6	—	—	4·0	
La Paz		12·2	338	i 2	39	- 2	i 4	54	+ 4	i 5	3	SS	
Huancayo		19·4	324	i 3	51	+ 2	—	—	—	—	—	—	
Bogota		34·0	342	e 6	1	+ 5	e 10	43	+ 1	—	—	—	
Fayetteville	z.	70·0	334	i 10	13k	- 1	—	—	—	—	—	—	
Weston		70·4	355	i 10	16 _a	0	—	—	—	—	—	—	
Harvard		70·5	355	i 10	17k	+ 1	—	—	—	—	—	—	
Halifax		72·3	1	i 10	28k	+ 1	—	—	—	—	—	—	
Ottawa		73·9	352	e 10	35	- 1	—	—	—	—	—	—	
Shawinigan Falls	n.	74·7	354	e 10	38	- 2	—	—	—	—	—	—	
Kimberley	z.	75·7	115	i 10	44	- 2	—	—	—	—	—	—	
Kirkland Lake	z.	77·2	349	i 10	54 _a	0	—	—	—	—	—	—	
Palomar	z.	79·2	318	i 11	8	+ 3	—	—	—	—	—	—	
Riverside	z.	80·0	317	i 11	10	+ 1	—	—	—	—	—	—	
Pasadena		80·6	317	i 11	14	+ 2	—	—	—	—	—	—	
China Lake	z.	81·4	319	e 11	18	+ 2	—	—	—	—	—	—	
Tinemaha	z.	82·7	319	i 11	24 _*	+ 2	—	—	—	—	—	—	
Tamanrasset	z.	83·5	60	i 11	26 _a	0	e 14	52	PP	i 13	30	pP	
Lick	z.	84·8	317	e 11	35	+ 2	—	—	—	—	—	—	
Reno	z.	85·2	320	e 11	35	0	—	—	—	—	—	—	
Berkeley	z.	85·6	317	e 11	37	0	—	—	—	—	—	—	
Mineral	z.	86·8	320	e 11	43	+ 1	—	—	—	—	—	—	
Shasta	z.	87·5	320	i 11	45	- 1	—	—	—	—	—	—	
Algiers Univ.	z.	89·8	48	i 11	55k	- 1	—	—	—	—	—	—	

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1952

1065

Nov. 11d. 14h. 10m. 37s. Epicentre 52°·0N. 158°·7E. Focus at Base of Superficial Layers .
(as on 1941, Nov. 12d.).

A = -·5760, B = +·2246, C = +·7860 ; $\delta = +2$; $h = -6$;
D = +·363, E = +·932 ; G = -·732, H = +·286, K = -·618.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay	z.	44·7	21	18 12 _a	0	—	—	—	—
Shasta	z.	53·1	68	e 9 17	+ 1	—	—	—	—
Mineral	z.	53·8	68	e 9 21	- 1	—	—	—	—
Berkeley	z.	55·0	71	e 9 30	0	—	—	—	—
Lick	z.	55·7	71	e 9 36	+ 1	—	—	—	—
Kiruna		56·5	342	19 41	0	—	—	—	e 29·4
Fresno	z.	57·2	70	e 9 43	- 3	—	—	—	—
Scoresby Sund		57·8	0	e 9 51	+ 1	—	—	—	33·4
Tinemaha	z.	57·9	69	19 52	+ 1	—	—	—	—
China Lake	z.	59·1	69	e 10 0	0	—	—	e 10 15	pP
Pasadena		60·0	71	110 5	- 1	—	—	110 20	pP
Riverside	z.	60·5	71	e 10 9	0	—	—	e 10 24	pP
Palomar	z.	61·3	72	110 15	+ 1	—	—	110 29	pP
Upsala	z.	64·2	339	110 33	- 1	—	—	111 4	PcP
Kirkland Lake	z.	68·4	37	e 10 59	- 1	—	—	—	—
Copenhagen		69·1	340	e 11 6	+ 1	—	—	—	37·4
Fayetteville	z.	71·7	55	111 20 _a	0	—	—	—	—
Potsdam		72·0	339	e 11 24	+ 2	—	—	—	e 39·4
Ottawa		72·3	36	e 11 23	- 1	—	—	14 4	PP
Shawinigan Falls	n.	72·4	33	e 11 24	- 1	—	—	—	—
Witteveen	z.	72·9	343	111 30 _a	+ 2	—	—	—	—
Collmberg	z.	73·1	338	e 11 30	+ 1	—	—	—	—
Jena		73·7	338	e 11 33	+ 1	—	—	e 11 36	P
Prague		73·9	336	e 11 34	+ 1	e 12 38	?	e 11 50	pP
Karlsruhe	z.	76·2	340	e 11 49	+ 2	—	—	—	—
Harvard		76·3	35	111 47 _a	0	—	—	116 38	PPP
Stuttgart		76·3	340	e 11 48	+ 1	—	—	—	e 44·4
Weston		76·5	35	111 49 _a	+ 1	—	—	—	—
Palisades		76·7	37	111 49	- 1	—	—	—	e 41·7
Halifax		77·1	29	111 52 _a	0	—	—	—	—
Besançon		78·4	341	112 0	+ 1	—	—	e 12 18	sP
Clermont-Ferrand		80·4	343	112 13	+ 3	—	—	—	—
Ksara		81·0	314	112 15	+ 2	—	—	—	—
Kimberley	z.	138·8	284	e 19 7	[-16]	—	—	—	—

Nov. 11d. 15h. 49m. 22s. Epicentre 39°·0N. 71°·8E. (as on 1951, Dec. 12d.).

A = +·2434, B = +·7402, C = +·6268 ; $\delta = +2$; $h = -1$;
D = +·950, E = -·312 ; G = +·196, H = +·595, K = -·779.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		°	°	m. s.	s.	m. s.	s.	m. s.
Garm		1·2	270	e 0 20	- 3*	e 0 34	- 6	—
Fergana		1·4	359	e 0 26	- 1	10 43	- 3	—
Khorog		1·5	186	0 32	+ 2 _g	e 0 55	+ 5 _g	—
Obi-garm		1·7	260	0 31	0	0 55	- 1 _g	—
Andijan		1·8	14	10 36	0 _g	10 59	- 1 _g	11 3 S _g
Kulyab		1·9	235	10 39	+ 1 _g	11 9	+ 6 _g	—
Namangan		2·0	357	e 0 39	- 1 _g	1 5	+ 2*	e 1 10 S _g
Stalinabad		2·4	259	e 0 44	0*	e 1 16	+ 1*	—
Lunacharskoe		3·0	321	e 0 53	- 1*	11 31	- 2*	—
Tchimkent		3·7	333	—	—	e 1 47	+ 2	—
Samarkand		3·8	281	e 1 8	0*	1 56	- 1*	—

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1952

1066

Nov. 11d. 18h. 46m. 32s. Epicentre 27°·0S. 177°·0W. Focus at Base of Superficial Layers.
(as on 1952, June 22d.).

A = -·8910, B = -·0467, C = -·4516; $\delta=0$; $h=+3$;
D = -·052, E = +·999; G = +·451, H = +·024, K = -·892.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Auckland	N.	12·1	213	—	—	e 4 33	-35	e 5 48	SSS
Wellington		15·8	203	e 3 46	+ 4	e 6 21	-15	—	e 7·7
Kaimata	N.E.	18·2	208	—	—	e 7 27	- 4	—	—
Brisbane	Z.	26·6	261	i 5 44 _a	+ 7	—	—	i 6 11	PP
Lick	Z.	82·4	41	e 12 21	+ 1	—	—	—	—
Pasadena	Z.	82·5	46	e 12 20	- 1	—	—	—	—
Palomar	Z.	82·8	47	e 12 23	+ 1	—	—	—	—
Riverside	Z.	82·9	46	e 12 22	- 1	—	—	—	—
Fresno	Z.	83·2	43	e 12 24	0	—	—	—	—
China Lake	Z.	83·9	44	e 12 27	- 1	—	—	—	—
Shasta	Z.	84·3	38	e 12 29	- 1	—	—	—	—
Tinemaha	Z.	84·3	43	e 12 30	0	—	—	—	—
Mineral	Z.	84·5	39	e 12 30	- 1	—	—	—	—
Reno	Z.	85·0	40	e 12 23	-10	—	—	—	—
Nelson		85·6	46	i 12 36	0	—	—	—	—
Boulder City		85·8	45	i 12 37	0	—	—	i 12 49	pP
Tucson		86·2	50	e 12 39	0	—	—	—	—
Hungry Horse		93·8	36	e 13 16	+ 1	—	—	—	—
College		94·3	11	i 13 17	0	—	—	—	—
Upsala	Z.	145·6	347	i 19 36	[+ 1]	—	—	i 19 43	pPKP
Collmberg	Z.	154·6	345	e 19 50?	[+ 1]	—	—	—	—
Tamanrasset	Z.	175·2	209	e 20 9	[+ 2]	e 21 45	PKP ₂	e 25 34	PP

Nov. 11d. 19h. 20m. 44s. Epicentre 51°·9N. 159°·9E. (as at 0h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	E.	18·3	233	4 17	0	—	—	4 52	?
Nanking	Z.	35·8	253	7 7 _a	+ 4	—	—	—	—
Resolute Bay		44·5	22	i 8 13 _a	- 2	i 14 50	- 1	—	e 24·7
Hong Kong		45·8	247	—	—	e 14 1	PcS	—	—
Shasta	Z.	52·4	70	e 9 15	- 1	—	—	—	—
Mineral	Z.	53·1	70	e 9 19	- 2	—	—	—	—
Berkeley	Z.	54·3	73	e 9 35	+ 5	—	—	—	—
Reno	Z.	54·7	69	e 9 32	- 1	—	—	—	—
Lick	Z.	55·0	73	e 9 41	+ 6	—	—	—	—
Kiruna		56·8	344	i 9 47 _a	- 1	—	—	i 9 58	? e 30·3
Tinemaha	Z.	57·2	71	e 9 51	0	e 9 59	?	i 10 9	?
Scoresby Sund		57·9	2	e 9 54	- 2	—	—	—	31·3
China Lake	Z.	58·5	71	e 10 0	0	e 10 6	?	e 10 16	?
Chatra		58·9	275	e 10 5	+ 2	e 18 10	+ 2	—	—
Pasadena	Z.	59·3	73	e 10 5	- 1	—	—	e 10 11	?
Riverside	Z.	59·9	73	e 10 10	0	e 10 17	?	e 10 37	?
Palomar	Z.	60·6	73	e 10 15	0	e 10 23	?	i 10 32	?
Upsala		64·5	340	i 10 40 _a	- 1	i 19 23	+ 4	e 19 35	PS e 32·3
Quetta		68·5	292	i 11 7	+ 1	e 20 13	+ 5	—	40·3
Copenhagen		69·4	342	i 11 12 _a	0	20 34	PS	i 11 22	? 36·3
Fayetteville	Z.	71·2	56	i 11 21	- 2	—	—	i 14 4	PP
Lwow		71·9	332	i 11 26	- 1	e 21 1	PS	e 14 6	PP
Ottawa		71·9	38	i 11 26 _a	- 1	—	—	—	—
Potsdam		72·4	340	e 11 30	0	i 21 9	PS	—	e 39·3
Kishinev		72·9	328	i 11 33	0	—	—	—	—
Iasi		73·1	330	e 11 36	+ 2	—	—	—	—
Poona		73·2	279	i 11 37	+ 2	e 21 2	0	—	—
Witteveen	Z.	73·2	344	i 11 37	+ 2	—	—	—	—
Raciborzu	Z.	73·3	336	e 11 37	+ 2	e 12 3	?	e 13 23	?
Collmberg		73·4	339	e 11 36	0	e 21 5	0	e 11 43	? e 39·3

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1067

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Uzhgorod	73.5	333	e 11	36	0	e 21	18	PS	—	—	—
Bombay	73.6	280	e 11	39	+ 2	e 21	11	+ 4	—	—	—
Jena	74.1	340	i 11	40	0	e 21	12	0	e 11	55	PcP
Prague	74.2	338	e 11	41	+ 1	e 11	57	PcP	(e 14	23)	PP
Rathfarnham C. z.	74.5	352	e 11	42	0	—	—	—	e 12	5	?
Harvard	75.9	37	i 11	50 _k	0	—	—	—	—	—	—
Bucharest	76.1	328	e 11	46	- 5	—	—	—	—	—	—
Weston	76.1	37	i 11	52 _a	+ 1	—	—	—	—	—	—
Palisades	76.3	39	i 11	50	- 2	(e 24	3)	?	—	—	e 24.0
Karlsruhe z.	76.5	341	e 11	54	0	—	—	—	—	—	—
Stuttgart	76.6	341	i 11	54 _a	0	e 21	46	+ 6	—	—	e 41.3
Halifax	76.8	31	e 11	54	- 1	—	—	—	—	—	—
Strasbourg	77.1	342	e 11	59	+ 2	i 12	9	PcP	e 13	44	?
Belgrade	77.5	332	e 12	0 _a	+ 1	e 22	4	+ 14	e 12	11	PcP
Paris	77.8	345	i 12	3	+ 2	i 12	9	PcP	i 12	17	?
Basle	78.1	341	e 12	3	+ 1	e 12	14	PcP	e 18	1	?
Zürich	78.1	341	e 12	2 _a	0	e 21	47	- 9	—	—	—
Besançon	78.7	342	i 12	6	0	e 12	17	PcP	e 12	42	?
Clermont-Ferrand	80.7	344	e 12	18	+ 2	—	—	—	—	—	41.3
Ksara	81.6	316	i 12	24	+ 3	—	—	—	—	—	—
Bermuda	87.4	36	—	—	—	e 23	28	- 2	—	—	e 43.6
Granada	90.1	348	e 13	1	- 2	23	17	[-16]	—	—	47.6
Tamanrasset z.	102.3	336	e 14	54	+ 55	e 17	38	?	e 18	7	PP

Nov. 12d. 0h. 9m. 51s. Epicentre 39°·0N. 71°·8E. (as on 11d.).

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.
Garm	1.2	270	0	20	- 3*	—	—	—	—	—
Fergana	1.4	359	e 0	27	0	i 0	47	+ 2	—	—
Khorog	1.5	186	e 0	32	+ 2 _g	e 0	54	+ 4 _g	—	—
Obi-garm	1.7	260	i 0	31	0	i 0	53	- 1	—	—
Andijan	1.8	14	i 0	35	- 1 _g	i 0	58	+ 1*	—	—
Kulyab	1.9	235	i 0	40	+ 2 _g	i 1	8	+ 5 _g	—	—
Namangan	2.0	357	e 0	38	+ 1*	e 1	3	0*	e 0	42
Stalinabad	2.4	259	e 0	44	0*	e 1	14	- 1*	—	P _g
Lunacharskoe	3.0	321	e 0	52	+ 2	i 1	30	+ 3	—	—
Tashkent	3.0	320	—	—	—	e 1	32	- 1*	—	—
Tchimkent	3.7	333	e 1	4	- 2*	i 1	45	0	—	—
Samarkand	3.8	281	e 1	9	+ 1*	—	—	—	—	—
Naryn	4.0	51	e 1	21	+ 1 _g	2	10	- 2 _g	—	—

Nov. 12d. 0h. 40m. 56s. Epicentre 49°·5N. 156°·2E. Focus at Base of Superficial Layers. (as on 9d. 5h.).

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.
Resolute Bay z.	47.6	20	e 8	34 _k	0	—	—	—	—	—
Shasta z.	55.5	66	e 9	34	0	—	—	—	—	—
Mineral z.	56.2	66	i 9	38	- 1	—	—	—	—	—
Reno z.	57.8	65	e 9	50	0	—	—	—	—	—
Tinemaha z.	60.3	68	e 10	8	0	e 10	16	?	i 10	22
China Lake z.	61.5	66	e 10	16	0	—	—	—	e 10	30
Pasadena z.	62.3	70	i 10	21	0	—	—	—	i 10	34
Riverside z.	62.9	70	e 10	24	- 1	e 10	16	?	e 10	39
Palomar z.	63.6	70	e 9	53	- 37	e 10	11	P	i 10	42
Fayetteville z.	74.5	53	i 11	35	- 2	—	—	—	i 11	54
Collmberg z.	74.8	337	e 11	38	- 1	—	—	—	—	—
Ottawa z.	75.2	35	e 11	46	+ 5	—	—	—	—	—
Stuttgart z.	78.1	339	e 11	56	- 1	—	—	—	—	—
Harvard z.	79.3	34	e 12	3	- 1	—	—	—	—	—
Paris z.	79.5	343	i 12	4	- 1	e 20	23	?	e 12	23
Halifax z.	80.0	28	i 12	9 _k	+ 1	—	—	—	—	—
Pavia z.	81.4	337	e 18	35	?	—	—	—	—	—
Tamanrasset z.	103.5	332	e 10	21	?	—	—	—	—	—

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1952

1068

Nov. 12d. 8h. 4m. 1s. Epicentre 52°·7N. 159°·4E. (as on 9d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	s.
Shasta	z.	52·4	70	e 9 15	- 1	—	—	—	—
Mineral	z.	53·1	70	e 9 21	0	—	—	—	—
Reno	z.	54·7	69	e 9 27	- 6	—	—	—	—
Kiruna	z.	56·5	344	i 9 42	- 4	—	—	—	—
Tinemaha	z.	57·2	71	e 9 53	+ 2	—	—	—	—
China Lake	z.	58·5	71	e 9 59	- 1	—	—	—	—
Pasadena	z.	59·3	73	e 10 5	- 1	—	—	—	—
Riverside	z.	59·9	73	e 10 9	- 1	—	—	—	—
Palomar	z.	60·7	73	e 10 16	+ 1	—	—	—	—
Upsala	z.	63·7	340	i 10 37	+ 1	—	—	—	—
Copenhagen		68·6	341	i 11 1	+ 2	—	—	—	—
Fayetteville	z.	71·0	56	i 11 19 _a	- 3	—	—	—	—
Ottawa		71·5	38	e 11 22 _a	- 2	—	—	—	—
Collmberg	z.	72·6	339	e 11 32	+ 1	—	—	—	—
Jena	z.	73·2	339	e 11 37	+ 2	—	—	e 11 47	PcP
Harvard		75·5	36	e 11 48	0	—	—	—	—
Weston		75·7	36	i 11 48 _a	- 1	—	—	—	—
Stuttgart		75·8	340	e 11 51	+ 1	—	—	—	—
Halifax		76·2	31	i 11 52 _a	0	—	—	—	—
Besançon		77·9	342	e 12 4	+ 3	—	—	—	—

Nov. 12d. 8h. 30m. 30s. Epicentre 24°·6S. 176°·7W. Depth of focus 0·015.
(as on 1d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	s.
Apia		11·7	24	i 2 40	- 4	i 4 42	-11	—	—
Karapiro	N.	14·8	205	e 3 34	+10	—	—	—	—
Tuai	N.	15·1	199	—	—	e 5 45	-27	—	—
New Plymouth	E.	16·4	206	e 3 34	-10	—	—	—	—
Wellington		18·1	202	e 3 59	- 5	6 51	-28	—	—
Cobb River	E.	18·7	206	e 4 32	+21	e 7 6	-25	—	—
Kaimata	N.E.	20·4	206	e 4 31	+ 2	e 7 39	-26	—	—
Christchurch		20·8	202	—	—	e 7 51	-21	—	—
Brisbane	z.	27·3	257	i 5 27 _a	- 8	i 6 0	?	i 5 56	pP
Riverview	N.	29·4	244	—	—	i 11 20	sS	—	—
Lick	z.	80·5	41	i 11 59 _a	0	—	—	—	—
Pasadena		80·6	46	i 12 0	0	—	—	e 12 51	sP
Palomar	z.	81·0	47	i 12 3	+ 1	—	—	—	—
Riverside		81·1	46	i 12 2	0	—	—	—	—
Fresno	z.	81·2	43	e 12 3 _a	0	—	—	—	—
China Lake	z.	82·0	45	i 12 7 _a	0	—	—	—	—
Shasta	z.	82·2	39	i 12 8 _a	0	—	—	—	—
Tinemaha		82·4	44	i 12 10	+ 1	—	—	—	—
Mineral	z.	82·5	39	e 12 8 _a	- 2	—	—	—	—
Nelson		83·8	46	i 12 16	0	—	—	—	—
Boulder City		83·9	46	i 12 17	0	—	—	i 12 27	PcP
Tucson		84·5	51	i 12 20	0	—	—	—	—
Hungry Horse		91·7	37	i 12 53	- 1	—	—	—	—
College		91·9	12	i 12 52	- 3	—	—	—	—
Fayetteville	z.	98·4	55	i 13 24	- 1	—	—	e 17 25	PP
Upsala	z.	143·4	349	i 19 13	[- 6]	—	—	i 19 48	pPKP
Copenhagen		148·2	352	i 19 29	[+ 2]	—	—	e 19 37	PKP ₁
Witteveen	z.	151·7	357	i 19 38	[+ 6]	—	—	—	—
Collmberg	z.	152·3	348	e 19 38	[+ 4]	—	—	—	—
Jena		152·9	349	e 19 33	[- 1]	e 19 47	PKP ₁	e 20 14	pPKP
Stuttgart		155·4	351	e 19 35	[- 3]	—	—	—	—
Tamanrasset	z.	177·3	—	i 19 52 _k	[- 3]	i 21 37	PKP ₁	e 20 31	pPKP

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1952

1069

Nov. 12d. 13h. 38m. 35s. Epicentre 50°·2N. 157°·3E. Focus at Base of Superficial Layers.
(as on 9d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay		46·7	21	i 8 27 _a	0	e 15 19	+ 5	—	—
Shasta	z.	54·6	66	e 9 37	pP	—	—	—	—
Mineral	z.	55·2	66	i 9 33	+ 1	—	—	—	—
Reno	z.	56·8	65	e 9 43	0	—	—	—	—
Kiruna		57·9	342	—	—	e 22 15	SS	—	e 30·4
Tinemaha	z.	59·3	68	e 10 2	+ 1	—	—	—	—
China Lake	z.	60·6	68	e 10 10	0	—	—	—	—
Pasadena		61·4	70	i 10 15	0	—	—	i 10 26	pP
Riverside	z.	62·0	70	e 10 19	0	—	—	—	—
Palomar	z.	62·7	70	i 10 25	+ 1	—	—	i 10 35	pP
Upsala	z.	65·5	339	i 10 40	- 2	—	—	—	—
Poona	z.	71·8	277	i 11 19	- 2	—	—	i 11 40	PcP
Fayetteville	z.	73·5	53	i 11 31	0	i 21 24	PS	i 11 41	pP
Ottawa		74·3	36	e 11 34 _a	- 2	—	—	—	—
Collmberg	z.	74·4	337	e 11 36	0	—	—	—	—
Witteveen	z.	74·4	342	i 11 37	+ 1	—	—	—	—
Jena		75·1	338	e 11 39	- 1	—	—	e 11 55	PcP
Prague		75·2	336	e 11 40	- 1	—	—	e 11 49	pP
Rathfarnham C.	z.	75·9	350	i 11 45 _a	0	—	—	—	—
Karlsruhe	z.	77·6	340	e 11 54	0	—	—	—	—
Stuttgart		77·7	339	e 11 54	- 1	e 15 0	PP	(e 16 25)	PPP
Strasbourg		78·2	340	i 11 58	0	e 13 6	?	e 13 56	?
Paris		79·0	343	i 12 2	0	—	—	—	—
Zürich		79·1	339	e 12 3 _k	0	—	—	—	—
Basle		79·2	340	e 12 3 _k	0	—	—	—	—
Besançon		79·8	341	i 12 6	0	—	—	e 12 17	pP
Pavia		81·0	338	—	—	e 24 26	?	—	—
Clermont-Ferrand		81·8	342	e 12 19	+ 2	—	—	—	—
Tamanrasset	z.	103·1	333	e 13 58	+ 1	—	—	—	34·4

Nov. 12d. 16h. 42m. 6s. Epicentre 52°·6N. 160°·3E. (as on 10d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay		43·7	22	e 8 7	- 1	i 14 39	0	—	e 29·5
Kiruna	E.	56·2	344	—	—	e 19 35	ScS	e 22 21	?
Tinemaha	z.	56·8	71	e 9 54	+ 6	—	—	—	e 27·9
China Lake	z.	58·0	71	e 9 55	- 2	—	—	—	—
Pasadena	z.	58·8	73	e 10 4	+ 2	—	—	e 10 26	?
Chatra	N.	59·1	275	e 10 4	0	e 18 9	- 2	—	—
Riverside	z.	59·4	73	e 10 10	+ 4	—	—	—	—
Palomar	z.	60·2	73	e 10 10	- 2	—	—	—	—
Calcutta	E.	61·5	271	—	—	e 19 4	PPS	—	—
Upsala		63·9	340	i 10 36 _k	- 1	—	—	i 10 47	?
Copenhagen		68·9	342	e 11 9	0	—	—	—	35·9
Fayetteville	z.	70·6	56	i 11 15	- 4	—	—	—	—
Potsdam		71·8	340	e 11 25	- 1	—	—	—	e 38·9
Collmberg	z.	72·9	339	e 11 32	- 1	—	—	—	—
Jena	z.	73·5	340	e 11 34	- 2	—	—	e 11 46	PcP
Bombay		73·7	280	e 11 35	- 3	e 20 56	-12	14 17	PP
Madras	E.	73·8	271	e 15 14	?	—	—	—	—
Kew		75·0	348	—	—	e 20 16	-67	—	e 47·9
Stuttgart		76·1	341	e 11 51	0	e 21 37	+ 2	—	e 40·9
Pavia		79·5	340	—	—	e 26 45	SS	—	e 47·2
Ksara		81·3	316	i 12 26	+ 6	—	—	—	—
Helwan	z.	86·6	318	e 12 46	0	—	—	e 12 59	?
Bermuda		86·7	37	—	—	i 33 23	SSS	—	e 45·0

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1952

1070

Nov. 12d. 17h. 26m. 31s. Epicentre 52°·6N. 160°·3E. (as at 16h.).

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		
				m.	s.		m.	s.		m.	s.	
Resolute Bay	z.	43·7	22	e 8	10	+ 2	—	—	—	—	—	
Tinemaha	z.	56·8	71	e 9	56	+ 8	—	—	—	—	—	
China Lake	z.	58·0	71	e 9	56	- 1	—	—	—	—	—	
Pasadena	z.	58·8	73	e 10	7	+ 5	—	—	e 10	49	PcP	
Riverside	z.	59·4	73	e 10	1	- 5	—	—	e 9	49	?	
Upsala	z.	63·9	340	i 10	36 _a	- 1	i 10	47	?	i 10	54	?
Fayetteville	z.	70·6	56	e 11	16	- 3	—	—	i 11	32	?	
Witteveen	z.	72·7	344	e 11	31	- 1	—	—	—	—	—	
Collmberg	z.	72·9	339	e 11	31	- 2	—	—	—	—	—	
Jena	z.	73·5	340	e 11	34	- 2	—	—	e 11	47	PcP	
Prague		73·7	338	e 11	34	- 4	—	—	e 12	3	PcP	
Stuttgart		76·1	341	e 11	49	- 2	—	—	—	—	—	
Strasbourg		76·5	342	12	8	PcP	—	—	—	—	—	
Paris		77·2	345	e 12	7	PcP	—	—	i 12	15	?	
Besançon		78·1	342	e 12	2	0	—	—	e 12	19	?	
Ksara		81·3	316	i 12	33	+ 13	—	—	—	—	—	
Tamanrasset	z.	101·8	336	e 17	54	PP	—	—	—	—	—	

Nov. 13d. 0h. 55m. 14s. Epicentre 38°·6N. 118°·5W. (as on 1949, Aug. 18d.).

A = -·3739, B = -·6886, C = +·6213; δ = -2; h = -1;
D = -·879, E = +·477; G = -·296, H = -·546, K = -·784.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.
				m.	s.		m.	s.		m.	s.	
Tinemaha		1·5	172	i 0	28	0	i 0	49	0	—	—	—
Haiwee		2·5	170	i 0	46	+ 1*	i 1	22	- 1 _e	—	—	—
China Lake	z.	2·9	165	e 0	45	- 3	i 1	31	+ 1*	i 0	52	P*
Santa Clara		3·0	245	e 1	3	+ 3 _e	e 1	38	- 1 _e	—	—	—
Berkeley		3·0	256	i 0	51 _a	+ 1	e 1	28	+ 1	—	—	—
Shasta		3·7	126	i 0	59	- 1	i 1	58	- 4 _e	—	—	—
Boulder City		3·9	131	i 1	0	- 2	—	—	—	i 1	16	P _e
Nelson		4·1	133	i 1	3	- 2	i 2	7	+ 1*	—	—	—
Santa Barbara	z.	4·2	194	e 1	28	+ 4 _e	i 2	13	+ 4*	—	—	—
Pasadena		4·5	177	e 1	9	- 2	i 2	22	+ 4*	i 1	20	P*
Riverside		4·7	168	e 1	13	- 1	i 2	31	- 4 _e	i 1	26	P*
Butte		8·6	29	e 2	45	P _e	—	—	—	—	—	—
Tucson		8·9	133	e 2	11	- 1	i 4	35	+ 7*	e 2	50	P _e
Hungry Horse		10·3	17	i 2	33	+ 1	—	—	—	—	—	—
Fayetteville	z.	19·5	90	i 4	29	- 2	i 8	2	- 4	—	—	—
College		31·4	336	i 2	47	?	—	—	—	—	—	—

Nov. 13d. 2h. 53m. 21s. Epicentre 25°·0S. 177°·5W. Depth of focus 0·060.
(as on 1952, May 4d.).

A = -·9065, B = -·0396, C = -·4203; δ = -4; h = +3;
D = -·044, E = +·999; G = +·420, H = +·018, K = -·907.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		
				m.	s.		m.	s.		m.	s.	
Apia		12·4	27	—	—	—	i 3	59	- 60	—	—	
Tual	N.	14·5	197	—	—	—	e 5	13	- 27	—	—	
Wellington		17·5	200	e 3	39	0	6	15	- 22	e 7	9	SS
Cobb River	E.	18·0	206	—	—	—	e 6	39 _f	- 7	—	—	
Kaimata	N.E.	19·7	206	e 3	58	- 3	e 7	8	- 8	—	—	
Christchurch		20·2	201	—	—	—	e 7	19	- 5	—	—	
Brisbane	z.	26·5	258	i 5	3 _k	- 1	—	—	—	i 5	19	pP
Lick	z.	81·3	41	i 11	33	0	—	—	—	—	—	
Pasadena		81·4	46	i 11	34	+ 1	—	—	—	i 11	58	pP
Palomar	z.	81·8	48	e 11	35	0	—	—	—	e 12	2	pP

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		°	°	m. s.	s.	m. s.	s.	m. s.
Riverside	z.	81.9	46	e 11 40	+ 4	—	—	e 11 56 pP
Fresno	z.	82.0	43	e 11 29	- 7	—	—	—
China Lake	z.	82.8	45	e 11 40	0	—	—	e 11 52 pP
Shasta	z.	83.0	39	e 11 41	0	—	—	—
Tinemaha	z.	83.2	44	e 11 43	+ 1	—	—	e 11 54 pP
Mineral	z.	83.2	40	e 11 42	0	—	—	—
Nelson		84.6	46	e 11 49	0	—	—	i 12 9 pP
Boulder City		84.7	46	i 11 49	- 1	—	—	—
Tucson		85.3	51	e 11 53	0	—	—	—
Hungry Horse		92.4	38	e 12 28	+ 2	—	—	—
College		92.5	12	i 12 27	+ 1	—	—	—
Fayetteville	z.	99.3	56	e 13 18	pP	—	—	i 14 17 ?
Kimberley	z.	122.4	203	i 18 11	[+ 4]	—	—	—
Upsala	z.	143.6	348	i 18 50 _a	[+ 3]	—	—	—
Copenhagen		148.5	350	i 19 4	[+10]	—	—	—
Kishinev		149.6	325	i 19 9	[+13]	—	—	—
Lwow		150.1	332	e 19 8	[+11]	—	—	—
Uzhgorod		151.7	334	i 19 15	[+16]	—	—	—
Collmberg	z.	152.5	346	e 19 14	[+14]	—	—	—
Jena	z.	153.2	347	e 19 16	[+15]	—	—	e 19 30 PKP _s
Stuttgart		155.7	350	e 19 11	[+ 6]	—	—	e 19 21 ?
Tamanrasset	z.	176.5	—	e 19 28	[+ 7]	e 25 1	PP	e 19 49 pPKP

Nov. 13d. 7h. 58m. 47s. Epicentre 51°·2N. 157°·1E.

A = -·5796, B = +·2448, C = +·7773; δ = +6; h = -6;
D = +·389, E = +·921; G = -·716, H = +·302, K = -·629.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Petropavlovsk		2.1	25	0 48	+ 6 _g	1 17	+ 8 _g	—	—
Klyuchi		5.6	22	i 1 37	- 2 _g	—	—	—	—
Magadan		9.1	339	2 25	P*	—	—	—	—
Uglegorsk		9.9	263	2 27	+ 2	4 27	+ 7	—	—
Yuzno-Sakhlinsk		10.3	252	2 30	- 2	4 31	+ 1	—	—
Wakkanai	E.	11.8	247	e 3 8	+15	5 16	+10	e 10 58	? —
Kusiro		11.9	231	e 2 53	- 1	e 4 53	-16	—	—
Sapporo		13.3	239	e 3 19	+ 6	e 5 45	+ 3	e 3 29	PPP e 7.8
Urakawa		13.3	233	e 3 11	- 2	e 5 28	-14	—	—
Mori	N.	14.5	238	e 3 28	0	e 6 2	- 9	—	6.9
Aomori		15.3	234	e 3 55	PP	6 14	-16	i 4 29	? 7.0
Miyako		15.7	228	e 3 43	- 1	e 6 30	- 9	—	—
Morioka		16.0	230	e 3 47	- 1	(e 6 52)	+ 6	e 6 25	? e 6.9
Akita		16.5	233	e 3 58	+ 4	e 7 3	+ 5	—	—
Mizusawa		16.5	229	3 57	+ 3	6 44	-14	e 6 41	S —
Hokusima		17.9	228	e 4 9	- 3	e 7 26	- 4	—	—
Onahama		18.3	226	e 4 26	PP	e 7 36	- 3	—	—
Aikawa		18.7	232	e 4 19	- 3	e 7 44	- 4	—	10.4
Vladivostok		18.9	254	—	—	7 59	+ 6	—	—
Utunomiya		19.1	226	e 4 23	- 4	e 7 47	-10	—	—
Tukubasan		19.3	225	e 4 23	- 6	e 7 42	-20	—	—
Matusiro		19.9	234	4 31	- 5	8 4	-11	—	11.1
Tokyo		19.9	227	i 4 34	- 2	i 8 14	- 1	—	i 9.1
Toyama	z.	20.3	232	4 38	- 2	8 17	- 6	e 8 5	? —
Misima		20.7	225	4 44	0	i 8 35	+ 4	5 42	? e 9.6
Osima		20.8	225	e 4 42	- 3	e 8 33	0	—	—
Shizuoka		21.1	230	e 4 50	+ 2	8 44	+ 5	—	—
Hukui		21.3	242	e 4 51	+ 1	e 8 48	+ 5	—	—
Kameyama		22.1	233	4 56	- 3	8 27	-31	5 28	PP 11.4
Kyoto		22.3	233	e 4 57	- 4	e 8 55	- 7	—	e 10.4
Osaka		22.7	233	e 5 8	+ 4	e 9 11	+ 2	e 5 13	? e 10.9
Owase		22.9	231	e 5 3	- 3	9 5	- 8	—	—
Hamada		24.3	237	5 21	+ 1	9 36	- 1	—	11.7
Hirosima		24.5	237	5 19	- 3	9 33	- 7	—	12.2
Koti		24.6	235	i 5 24	+ 1	e 9 36	- 6	i 5 39	pP e 11.7

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
	°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Matuyama	24.8	236	e 5 24	- 1	e 9 40	- 6	e 6 2	PP	11.8
Ooita	25.8	236	e 5 42	+ 8	e 10 8	+ 6	—	—	—
Hukuoka	26.2	239	e 5 37	- 1	e 10 4	- 5	—	—	e 12.1
Miyazaki	27.0	234	e 5 43	- 2	e 10 16	- 6	—	—	12.8
Kabansk	30.8	292	i 6 21	+ 1	i 11 26	+ 3	—	—	—
College	31.1	42	i 6 23	+ 1	(e 11 10)	-18	e 10 22	?	e 11.2
Kyakhta	31.5	289	i 6 25	- 1	—	—	—	—	—
Irkutsk	32.1	294	6 30	- 1	—	—	—	—	—
Nanking	33.9	251	i 6 45	- 2	i 12 1	-10	—	—	—
Resolute Bay	45.8	21	i 8 26	+ 1	i 15 13	+ 4	i 10 16	PP	e 20.8
Semipalatinsk	46.5	301	e 8 29	- 2	e 15 17	- 2	—	—	—
Manila	46.6	232	i 8 23	- 9	i 14 56	-25	—	—	—
Victoria	48.9	60	8 50	0	—	—	—	—	—
Seattle	z. 50.0	61	e 9 5	+ 7	—	—	—	—	—
Corvallis	z. 51.3	65	e 9 7	- 1	—	—	—	—	—
Przhevalsk	52.1	294	9 13	- 1	16 37	- 1	—	—	—
Sverdlovsk	52.4	317	i 9 15	- 1	16 39	- 3	—	—	—
Almata	52.5	296	i 9 15	- 2	—	—	—	—	—
Rybach'e	53.5	296	i 9 22	- 2	e 16 58	+ 1	—	—	—
Frunse	54.0	296	i 9 27	- 1	—	—	—	—	—
Hungry Horse	54.0	55	i 9 29	+ 1	—	—	—	—	—
Naryn	54.2	293	e 9 28	- 1	i 17 8	+ 2	—	—	—
Shasta	z. 54.3	66	i 9 30 _a	0	e 10 33	PcP	e 12 37	PPP	—
Mineral	z. 55.0	66	i 9 35 _a	0	—	—	—	—	—
Shillong	E. 55.1	269	e 9 38	+ 2	—	—	—	—	—
Saskatoon	55.3	48	—	—	e 17 25	+ 4	—	—	24.7
Berkeley	56.2	70	e 9 43 _a	- 1	e 17 31	- 2	i 9 57	?	—
Butte	56.3	66	i 9 45	0	—	—	—	—	—
Reno	z. 56.5	65	e 9 47 _a	+ 1	—	—	e 10 2	?	—
Andijan	56.7	295	i 9 46	- 2	i 17 41	+ 1	—	—	—
Kiruna	56.9	342	i 9 48	- 1	e 17 34	- 8	i 10 42	PcP	e 26.9
Lick	z. 56.9	70	e 9 47 _a	- 2	—	—	i 10 5	?	—
Namangan	56.9	296	i 9 48	- 1	i 17 44	+ 2	—	—	—
Chatra	57.2	273	i 9 49	- 2	e 17 38	- 8	12 4	PP	26.2
Tchimkent	57.2	298	i 9 50	- 1	i 17 47	+ 1	—	—	—
Fergana	57.3	295	e 9 50	- 2	e 17 46	- 1	—	—	—
Lunacharskoe	58.0	298	9 57	0	i 17 59	+ 2	—	—	—
Tashkent	58.0	298	e 9 55	- 2	e 17 53	- 4	—	—	—
Dzhergetal	58.4	295	i 10 0	0	—	—	—	—	—
Fresno	z. 58.4	69	e 9 59 _a	- 1	—	—	e 10 14	?	—
Scoresby Sund	58.6	0	i 10 1 _k	0	e 18 13	+ 9	i 10 5	P	28.2
Garm	59.0	295	e 10 3	- 1	e 18 8	- 2	—	—	—
Tinemaha	59.1	68	i 10 6	+ 2	i 10 19	?	e 39 44	P'P'	—
Khorog	59.3	293	10 5	- 1	18 11	- 3	—	—	—
Obi-garm	59.6	295	i 10 5	- 3	i 18 17	0	—	—	—
Kulyab	60.1	294	10 11	0	18 24	0	—	—	—
Stalinabad	60.2	296	i 10 11	- 1	—	—	—	—	—
China Lake	z. 60.3	68	i 10 13	0	i 10 27	?	e 39 29	P'P'	—
Samarkand	60.4	298	i 10 11	- 2	18 25	- 3	—	—	—
Pasadena	61.2	70	i 10 18	- 1	e 18 35	- 3	e 25 49	Q	e 28.4
Pulkovo	61.3	333	—	—	e 18 37	- 2	—	—	—
Riverside	z. 61.7	70	i 10 21	- 1	i 10 36	?	e 39 24	P'P'	—
Boulder City	61.9	66	i 10 22	- 2	—	—	i 10 39	pP	—
Nelson	62.0	66	i 10 24	0	—	—	i 10 36	pP	—
Moscow	62.2	326	10 25	- 1	—	—	—	—	—
New Delhi	z. 62.2	282	i 10 24	- 2	i 18 41	-10	14 12	PPP	29.4
Palomar	62.5	70	i 10 30	+ 2	—	—	i 10 42	?	—
Bairam-Ali	64.6	300	i 10 40	- 1	i 19 21	0	—	—	—
Upsala	64.6	339	i 10 40 _a	- 1	e 19 20	- 1	e 20 30	ScS	e 31.2
Reykjavik	65.0	359	i 10 46	+ 2	—	—	—	—	—
Ashkabad	66.4	302	i 10 52	- 1	—	—	—	—	—
Bergen	N. 66.5	346	e 10 56	+ 2	e 19 43	- 1	24 14?	SS	e 29.2
Kizyl-Arvat	66.7	305	i 10 55	0	—	—	—	—	—
Tucson	66.8	67	i 10 56	0	e 19 51	+ 3	e 13 17	?	e 27.8
Quetta	67.1	291	i 10 57 _k	0	i 19 50	- 1	i 13 43	PP	27.2

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Makhach-Kala		68.1	312	e 11 9	+ 5	—	—	—	—
Grozny		68.6	313	i 11 6	- 1	—	—	—	—
Piatigorsk		69.3	316	11 10	- 1	—	—	—	—
Copenhagen		69.5	340	e 11 16	+ 4	—	—	i 11 58	?
Hyderabad	E.	69.5	273	e 11 10	- 2	i 20 10	-10	21 1	PPS 33.3
Kirkland Lake	Z.	69.6	37	i 11 3 _a	-10	—	—	—	—
Apia		70.2	147	—	—	e 20 57	PS	—	—
Tiflis		70.3	313	i 11 18	+ 1	—	—	—	—
Gori		70.4	314	e 11 27?	+ 9	—	—	—	—
Kirovobad		70.4	311	11 17	- 1	—	—	—	—
Aberdeen		70.6	349	—	—	i 20 33	0	i 25 11	SS e 35.0
Borzhom		70.9	314	e 11 25	+ 4	—	—	—	—
Tsikhlis-Dzhvari		71.0	314	11 23	+ 1	—	—	—	—
Sotchi		71.1	317	e 11 21	- 1	e 20 37	- 1	—	—
Abastumanj		71.2	314	e 11 30?	+ 7	—	—	—	—
Goris		71.3	310	i 11 23	0	i 20 44	+ 3	—	—
Djakarta		71.5	234	e 11 25 _a	+ 1	e 20 46	+ 3	i 11 28	P
Lenakan		71.5	313	e 11 33	+ 9	—	—	—	—
Poona		71.6	277	i 11 24	- 1	e 20 36	- 8	21 22	PPS 33.4
Bandong		71.7	233	i 11 26	0	e 21 2	+17	i 11 35	?
Erevan		71.7	312	i 11 25	- 1	20 43	- 2	—	—
Lwow		71.7	330	i 11 24	- 2	e 20 44	- 1	—	—
Theodosia		71.7	321	e 11 22	- 4	e 20 39?	- 6	—	—
Madras	E.	71.8	269	i 11 23	- 3	i 20 43	- 3	14 10	PP 30.8
Bombay		72.0	278	e 11 25	- 3	e 20 46	- 3	14 16	PP
Potsdam		72.4	339	e 11 30	0	e 20 56	+ 3	e 14 22?	PP e 30.2
Kishinev		72.5	326	11 30	0	e 20 54	0	—	—
Yalta		72.7	321	e 11 31	- 1	e 20 57	0	—	—
Iasi		72.8	328	e 11 32	0	—	—	—	—
Simferopol		72.8	322	e 11 27	- 5	e 20 51	- 7	—	—
Fayetteville	Z.	73.0	53	i 11 33 _a	0	i 11 48	PcP	i 13 56	PP
Uzhgorod		73.3	330	e 11 38	+ 3	21 8	+ 4	—	—
Collnberg		73.4	337	e 11 36	0	e 21 7	+ 2	e 21 43	PPS e 35.2
Skalnate Pleso		73.4	333	e 11 39	+ 3	e 20 44	-21	e 21 31	PS
Witteveen	Z.	73.4	343	e 11 36	0	—	—	—	—
Ottawa		73.5	36	i 11 35 _a	- 1	20 55	-11	14 15	PP
Shawinigan Falls N.		73.6	33	e 11 37	0	—	—	e 11 47	PcP
Jena		74.1	338	e 11 39	- 1	e 21 8	- 4	e 14 33	PP
Prague		74.2	336	e 11 41 _a	+ 1	e 21 12?	- 2	e 14 32	PP e 39.7
De Bilt		74.4	343	i 11 41	- 1	e 21 23	+ 7	e 14 39	PP e 33.2
Buffalo (Larkin)		74.5	39	i 11 42	0	—	—	—	—
Cleveland		74.5	42	i 11 43 _a	+ 1	i 21 22	+ 5	i 22 11	PPS
Cheb		74.7	338	e 11 50	+ 7	e 21 21	+ 2	e 20 54	?
Rathfarnham C.	Z.	74.9	350	i 11 43	- 1	e 21 18?	- 4	e 12 13	?
Cincinnati		75.2	45	i 11 46	0	—	—	i 11 50	P
Ogyalla	N.	75.2	333	e 11 51	+ 5	e 21 25	0	e 22 7	PS
Budapest		75.3	332	11 47	0	e 21 32	+ 6	e 21 55	ScS e 36.2
Vienna		75.4	334	e 11 47	0	—	—	—	—
Kodaikanal	E.	75.6	269	11 50	+ 2	21 26	- 3	—	—
Bucharest		75.7	326	e 11 54	+ 5	—	—	—	—
Kew		75.9	346	i 11 51	+ 1	e 21 33	+ 1	e 22 35	PPS e 36.2
Kalossa		76.2	332	e 11 58	+ 6	e 21 56	ScS	e 23 10	?
Timisoara		76.2	330	e 11 55	+ 3	e 21 37	+ 1	—	e 40.2
Karlsruhe		76.6	340	i 11 54	0	e 12 32	?	e 14 49	PP e 32.2
Pennsylvania		76.6	40	i 11 52	- 2	e 21 36	- 4	i 12 3	PcP
Colombo	E.	76.7	294	12 0	+ 5	21 33	- 8	—	— e 38.8
Morgantown		76.7	42	i 11 55	0	e 21 39	- 2	—	—
Stuttgart		76.7	339	i 11 54 _a	- 1	e 21 38	- 3	e 14 50	PP e 38.2
Strasbourg		77.2	340	e 11 58	+ 1	e 21 43	- 4	e 14 55	PP e 38.7
Belgrade		77.3	330	i 11 58 _a	0	e 21 51	+ 3	e 22 15	PS e 42.4
Harvard		77.5	35	i 11 59 _k	0	e 21 53	+ 3	e 27 1	SS e 37.3
Istanbul		77.6	322	e 11 58	- 2	e 21 45	- 6	e 16 49	PPP e 38.5
Weston		77.7	35	i 12 1 _a	+ 1	e 21 42	-10	e 27 6	SS e 39.2
Palisades		78.0	38	i 12 1 _a	- 1	i 21 51	- 4	i 26 59	SS e 36.2
Paris		78.0	343	e 11 59	- 3	i 21 52	- 3	i 15 4	PP e 36.2

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
City College, N.Y.	78.1	38	i 12	2	0	e 21	54	- 2	—	—	—
Fordham	78.1	38	i 12	12	+10	e 21	59	+ 3	—	—	—
Basle	78.2	340	e 12	3	0	—	—	—	—	—	e 41.2
Halifax	78.2	29	i 12	3 _a	0	—	—	—	—	—	—
Sofia	78.2	327	12	5	+ 2	e 21	31	-26	e 14	20	PP
Zürich	78.2	339	e 12	3 _a	0	e 21	55	- 2	—	—	—
Brisbane	78.4	184	i 12	0 _a	- 4	i 21	51	- 9	i 12	12	PcP
Triest	78.5	335	e 12	2	- 2	i 22	3	+ 2	23	11	PPS
Washington	78.5	39	i 12	5	+ 1	—	—	—	i 12	31	?
Besançon	78.8	341	i 12	6	0	e 12	28	?	i 12	55	?
Neuchatel	78.9	340	e 12	9	+ 2	—	—	—	—	—	—
Pavia	80.1	338	e 12	13	0	e 22	20	+ 2	e 27	34	SS
Bologna	80.2	336	e 12	11	- 3	e 22	27	+ 8	e 13	24	?
Clermont-Ferrand	80.8	342	i 12	18	+ 1	i 22	33	+ 8	i 23	33	PPS
Ksara	80.8	313	i 12	18	+ 1	—	—	—	—	—	—
Prato	80.8	335	e 12	19	+ 2	i 22	29	+ 4	—	—	—
Florence	80.9	335	i 12	17 _a	0	i 22	31	+ 5	i 12	39	?
Athens	82.3	324	i 12	23 _k	- 2	—	—	—	—	—	e 39.7
Rome	82.3	335	12	27	+ 2	—	—	—	e 19	38	?
Messina	84.8	330	i 12	31	- 6	—	—	—	e 19	57	?
Riverview	84.8	185	i 12	33 _a	- 4	i 23	5	0	i 28	40	SS
Helwan	86.2	315	i 12	44 _a	0	23	9	{ 0 }	16	10	PP
Toledo	87.8	346	i 12	52	0	23	29	{ + 3 }	—	—	—
Coimbra	88.1	349	—	—	—	23	17	{ - 4 }	—	—	42.9
Alicante	88.7	342	e 12	58	+ 1	e 23	44	- 1	33	12	SSS
Bermuda	89.0	34	i 12	59	+ 1	i 23	34	{ 0 }	e 23	53	S
Auckland	89.1	166	—	—	—	e 23	31	{ + 4 }	—	—	e 36.3
Melbourne	89.3	190	—	—	—	e 23	43	- 5	—	—	e 41.2
Algiers Univ.	89.5	336	e 12	52	- 8	e 12	59	P	e 15	23	?
Granada	90.4	345	i 13	10 _a	+ 6	24	2	+ 4	i 16	59	PP
Almeria	90.5	343	e 12	57	- 8	23	43	{ - 3 }	16	29	PP
Malaga	90.9	345	i 13	7	0	e 23	49	{ + 1 }	e 18	53	PPP
Wellington	93.4	167	—	—	—	23	34	{ - 18 }	24	13	SKKS
Christchurch	95.3	169	e 25	52	PS	e 23	41	{ - 22 }	e 24	43	S
Tamanrasset	z. 102.2	333	i 13	58	0	i 25	15	{ + 5 }	i 18	5	PP
Fort de France	106.4	40	e 18	47	PP	—	—	—	—	—	—
Chinchina	108.2	57	e 19	3	PP	e 25	1	{ - 4 }	e 34	13	SS
Huancayo	122.4	67	i 18	58	{ + 1 }	e 30	37	PS	e 37	27	SS
La Paz	130.1	63	i 19	13 _a	{ + 1 }	i 22	38	PKS	i 21	31	PP
Pretoria	z. 133.8	282	i 19	19	{ 0 }	—	—	—	—	—	—
Kimberley	z. 138.1	281	e 19	16	{ - 11 }	—	—	—	—	—	—
Grahamstown	z. 140.1	276	e 19	27	{ - 4 }	—	—	—	—	—	66.9
La Plata	150.0	70	19	55	{ + 8 }	42	43	SS	33	31	SKSP

Nov. 13d. 10h. 37m. 45s. Epicentre 50°-0N. 158°-3E. Focus at Base of Superficial Layers. (as on 11d.).

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.
Resolute Bay	z. 46.6	20	e 8	26	- 1	—	—	—	—	—
Shasta	z. 54.0	67	e 9	22	- 1	—	—	—	—	—
Mineral	z. 54.7	67	e 9	26	- 2	—	—	—	—	—
Kiruna	z. 58.3	342	i 9	53	- 1	—	—	—	i 10	6
Tinemaha	z. 58.8	68	e 9	57	0	—	—	—	—	pP
China Lake	z. 60.1	68	e 9	55	-11	—	—	—	—	—
Pasadena	z. 60.8	70	e 10	10	- 1	—	—	—	—	—
Riverside	z. 61.4	70	e 10	13	- 2	—	—	—	—	—
Upsala	z. 65.9	340	i 10	46	+ 2	—	—	—	i 10	57
Fayetteville	z. 73.1	53	i 11	27 _a	- 2	—	—	—	i 11	39
Ottawa	74.0	37	e 11	33	- 1	—	—	—	—	—
Collmberg	74.8	338	e 12	7	+28	—	—	—	—	—
Jena	z. 75.5	338	e 11	45	+ 2	—	—	—	e 12	10
Stuttgart	78.1	340	e 11	59	+ 2	—	—	—	—	?
Besançon	80.2	341	e 12	26	sP	—	—	—	—	—

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1952

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Nov. 13d. 15h. 22m. 41s. Epicentre 52°·8N. 161°·5E. (as on 7d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Petropavlovsk		1·7	281	0	39	+ 5 _g	1	14	+18 _g	—	—	—
Klyuchi		3·5	353	i 0	53	- 4	1	43	+ 3	—	—	—
Magadan		9·0	323	2	15	+ 2	—	—	—	—	—	—
Ulegorsk		12·8	261	e 3	14	+ 8	—	—	—	—	—	—
Yuzno-Sakhlinsk		13·4	252	e 3	22	+ 8	—	—	—	—	—	—
Vladivostok		21·9	255	e 4	46?	-11	e 8	44?	-10	—	—	—
Kabansk		32·8	291	e 6	47	+10	—	—	—	—	—	—
Irkutsk		34·0	293	e 6	45	- 3	—	—	—	—	—	—
Resolute Bay		43·3	22	e 8	2	- 3	i 14	18	-15	—	—	e 24·2
Manila		49·0	235	i 9	5	+15	i 16	0	+ 5	—	—	—
Shasta	z.	51·2	70	e 9	4 _a	- 3	—	—	—	—	—	—
Mineral	z.	51·9	70	e 9	9 _k	- 3	—	—	—	—	—	—
Sverdlovsk		53·1	317	e 9	21	0	e 16	48	- 3	—	—	—
Reno	z.	53·4	69	e 9	21 _a	- 3	—	—	—	—	—	—
Lick	z.	53·9	73	e 9	25 _a	- 2	—	—	—	—	—	—
Rybach'e		55·2	296	e 9	37	0	—	—	—	—	—	—
Fresno	z.	55·3	72	e 9	36 _k	- 2	—	—	—	—	—	—
Frunse		55·8	297	i 9	42	+ 1	—	—	—	—	—	—
Tinemaha	z.	56·0	71	e 9	41	- 2	—	—	—	i 10	14	?
Kiruna		56·2	344	e 17	26	?	e 17	31	- 2	e 21	33	SS e 27·1
China Lake	z.	57·3	71	e 9	50	- 2	—	—	—	—	—	—
Pasadena	z.	58·1	73	e 9	55	- 3	—	—	—	e 10	7	?
Andijan		58·4	296	i 10	0	0	18	3	+ 1	—	—	—
Namangan		58·6	297	i 10	2	+ 1	—	—	—	—	—	—
Riverside	z.	58·7	73	e 9	58	- 4	—	—	—	e 10	10	?
Tchimkent		58·8	300	i 10	2	0	—	—	—	—	—	—
Fergana		59·0	296	e 10	5	+ 1	e 18	11	+ 1	—	—	—
Palomar	z.	59·4	73	e 10	6	0	—	—	—	e 10	23	?
Lunacharskoe		59·6	299	e 10	13	+ 5	—	—	—	—	—	—
Tashkent		59·6	299	e 10	5	- 3	—	—	—	—	—	—
Chatra	N.	59·8	275	e 10	11	+ 2	e 18	19	- 1	—	—	—
Dzhergetal		60·1	297	e 10	17	+ 6	—	—	—	—	—	—
Pulkovo		61·1	334	i 10	18	0	e 18	36	- 1	—	—	—
Khorog		61·2	297	e 10	24	+ 5	—	—	—	—	—	—
Obi-garm		61·3	297	e 10	20	0	—	—	—	—	—	—
Kulyab		61·9	296	10	25	+ 1	e 18	48	+ 1	—	—	—
Stalinabad		61·9	297	e 10	23	- 1	—	—	—	—	—	—
Samarkand		62·1	299	e 10	24	- 1	—	—	—	—	—	—
Calcutta	E.	62·3	271	e 9	39	-47	i 18	49	- 3	—	—	—
Moscow		62·4	328	i 10	25	- 2	e 18	52	- 1	—	—	—
Upsala		64·0	340	i 10	35	- 3	e 19	15	+ 2	i 11	0	?
New Delhi		64·5	284	e 10	42	+ 1	e 19	16	- 3	20	38	ScS e 32·3
Bairam-Ali		66·2	300	e 10	47	- 5	—	—	—	—	—	—
Ashkabad		67·8	303	e 11	3	+ 1	19	59	- 1	—	—	—
Copenhagen		68·9	342	e 11	7	- 2	20	16	+ 3	—	—	37·3
Quetta		69·1	292	e 11	10	0	—	—	—	—	—	37·3
Fayetteville	z.	69·9	56	i 11	9	- 6	—	—	—	—	—	—
Ottawa		70·6	38	e 11	15	- 4	—	—	—	—	—	—
Tiflis		71·2	315	e 11	22	- 1	e 20	38	- 2	—	—	—
Kirovobad		71·3	313	11	23	0	—	—	—	—	—	—
Lwow		71·6	316	e 11	24	- 1	i 20	45	+ 1	—	—	—
Sotchi		71·7	319	e 11	25	- 1	e 20	44	- 1	—	—	—
Durham	E.	71·9	349	e 18	21	?	—	—	—	—	—	—
Potsdam		71·9	340	e 11	24	- 3	e 20	49	+ 1	—	—	e 38·3
Hyderabad	E.	72·1	275	—	—	—	i 20	50	0	—	—	—
Goris		72·3	312	e 11	36	+ 7	—	—	—	—	—	—
Kishinev		72·7	329	11	29	- 3	20	52	- 5	—	—	—
Simferopol		72·7	323	e 11	30	- 2	e 20	55	- 2	—	—	—
Witteveen	z.	72·7	344	e 11	19?	-13	—	—	—	—	—	—
Iasi		72·9	330	e 11	37	+ 4	—	—	—	—	—	—

Continued on next page.

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Yalta		73.1	323	e 11 30	- 4	e 20 56	- 5	—	—
Uzhgorod		73.2	334	—	—	e 21 7	+ 5	—	—
De Bilt		73.6	345	e 11 19?	-18	e 21 19?	+12	—	e 43.3
Jena		73.6	340	e 11 36	- 1	e 12 1	?	e 14 27?	PP
Prague		73.8	338	e 11 37	- 1	e 21 11	+ 2	e 21 35	PS
Poona		74.1	279	i 11 43	+ 3	e 21 14	+ 2	—	—
Cheb	N.	74.2	340	e 14 19	PP	—	—	e 16 29	PPP
Bombay		74.4	281	e 11 44	+ 2	i 21 18	+ 2	—	—
Madras	E.	74.5	271	—	—	e 21 21	+ 4	—	—
Kew		75.0	348	—	—	e 22 41	?	—	e 49.3
Ogyalla		75.0	335	e 16 37	PPP	—	—	—	—
Karlsruhe	Z.	76.0	341	e 11 52?	+ 1	—	—	—	—
Stuttgart		76.1	341	e 11 49	- 2	e 21 42	+ 7	—	e 41.3
Strasbourg		76.6	342	e 11 54	0	e 21 45	+ 5	e 12 2	PcP
Paris		77.2	347	e 11 56	- 1	e 21 56	+ 9	i 22 24	PS
Zürich	Z.	77.6	342	e 11 54	- 6	—	—	—	—
Istanbul		77.9	325	e 12 1	0	e 21 53	- 1	e 17 45	?
Besançon		78.2	342	e 12 3	0	—	—	e 12 32	?
Pavia		79.5	340	—	—	e 22 46	PS	e 23 23	PPS
Clermont-Ferrand		80.1	344	i 12 16	+ 3	—	—	—	43.3
Florence		80.5	338	e 12 31	+16	e 22 42	+20	—	—
Ksara		81.6	316	i 12 23	+ 2	—	—	—	—
Rome		82.0	336	e 12 30	+ 7	22 40	+ 3	23 20	PS
Messina		84.7	333	e 12 56	+19	e 23 5	+ 1	—	47.9
Bermuda		86.1	38	—	—	e 23 14	{+ 1}	—	e 43.5
Helwan	Z.	86.6	318	e 12 50	+ 4	i 13 28	?	e 13 37	?
Granada		89.4	348	i 13 38 _a	+38	24 14	+25	17 14	PP
Malaga		90.0	348	e 13 19	+16	e 23 47	{+ 5}	e 16 55	PP
Tamanrasset	Z.	101.8	336	e 13 56	0	—	—	e 17 59	PP

Nov. 13d. 22h. 25m. 38s. Epicentre 50°·0N. 158°·3E. Focus at Base of Superficial Layers.
(as at 10h.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
College		31.4	40	e 6 57	+37	e 11 19	- 5	—	e 13.0
Manila		46.5	233	i 8 22	- 4	i 14 56	-15	—	—
Resolute Bay		46.6	20	i 8 24	- 3	i 15 19	+ 6	i 10 0	PP
Shasta	Z.	54.0	67	i 9 24 _k	+ 1	—	—	—	e 26.9
Hungry Horse		54.1	55	i 9 24	0	—	—	—	—
Berkeley	Z.	55.9	71	i 9 38 _a	+ 1	—	—	—	—
Reno	Z.	56.3	66	e 9 40 _k	0	—	—	—	—
Lick	Z.	56.6	71	e 9 43 _k	+ 1	—	—	—	—
Chatra	N.	58.0	274	e 9 53	+ 1	e 17 52	+ 4	—	—
Fresno	Z.	58.1	68	e 9 53 _k	+ 1	—	—	—	—
Kiruna		58.3	342	i 9 52	- 2	i 17 52	0	i 10 2	pP
Tinemaha		58.8	68	i 9 59	+ 2	—	—	—	—
Scoresby Sund		59.8	0	i 10 1 _k	- 3	—	—	—	32.4
China Lake	Z.	60.1	68	i 10 6	0	—	—	—	—
Calcutta	E.	60.3	270	e 10 14	+ 6	i 18 28	+10	—	—
Pasadena		60.8	70	i 10 12	+ 1	i 10 33	?	i 10 56	PcP
Riverside	Z.	61.4	70	i 10 17	+ 2	—	—	—	—
Boulder City		61.6	66	i 10 18	+ 2	—	—	—	—
Nelson		61.8	66	i 10 32	pP	—	—	—	—
Palomar	Z.	62.2	70	i 10 23	+ 3	—	—	—	—
New Delhi		63.2	283	e 10 26	- 1	e 18 50	- 5	—	—
Upsala		65.9	340	i 10 43 _k	- 1	e 19 23?	- 5	i 10 53	pP
Tucson		66.6	67	i 10 51	+ 2	—	—	—	—
Quetta		68.3	292	i 11 0	0	—	—	—	36.4
Kirkland Lake	Z.	70.1	37	e 11 9 _k	- 2	—	—	—	—
Hyderabad	E.	70.4	273	e 11 13	0	e 20 21	- 1	—	—
Copenhagen		70.9	341	i 11 15 _k	- 1	20 42	PS	—	34.4
Poona		72.5	278	i 11 27	+ 2	e 20 52	+ 6	—	—
Bombay		72.9	278	e 11 30	+ 2	e 20 53	+ 3	14 14	PP
Fayetteville	Z.	73.1	53	i 11 29 _k	0	—	—	i 12 53	?

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Lwow	73.1	331	i 11	27	- 2	e 20	55	+ 2	i 11	37	pP	—
Cernauti	73.8	328	i 11	32	- 1	—	—	—	—	—	—	—
Potsdam	73.8	339	i 11	33k	0	e 21	1	0	i 11	42	pP	e 35.4
Kishinev	74.0	326	i 11	32	- 2	—	—	—	—	—	—	—
Ottawa	74.0	37	i 11	32k	- 2	—	—	—	14	14	PP	—
Iasi	74.2	328	e 11	35	0	—	—	—	—	—	—	—
Shawinigan Falls N.	74.2	33	e 11	33	- 2	—	—	—	e 11	43	pP	—
Raciborzu	74.6	334	e 11	38k	0	e 12	31	?	e 11	49	pP	44.4
Uzhgorod	74.7	331	i 11	38	0	e 21	14	+ 3	—	—	—	—
Collnberg	74.8	338	i 11	38k	- 1	—	—	—	e 11	44	pP	e 39.4
Skalnate Pleso	74.8	333	e 11	44	+ 5	e 21	15?	+ 3	e 16	47	?	—
Witteveen z.	74.8	343	i 11	39k	0	—	—	—	—	—	—	—
Cleveland	74.9	42	i 11	40k	+ 1	e 22	13	PPS	i 11	50	pP	—
Buffalo (Larkin)	75.0	39	i 11	40	0	—	—	—	—	—	—	—
Jena	75.5	338	i 11	42	- 1	e 21	30?	+10	i 11	52	pP	—
Prague	75.6	337	i 11	43k	0	e 21	28	+ 7	e 14	28	PP	—
De Bilt	75.7	343	i 11	45k	+ 1	e 21	22	0	e 14	22	PP	e 42.4
Cheb N.	76.1	338	e 11	58	pP	e 21	35	+ 9	—	—	—	—
Rathfarnham Castle	76.3	350	i 11	46k	- 1	e 20	22?	-66	e 11	56	pP	e 37.4
Ogyalla	76.6	334	e 12	4	pP	e 12	57	?	e 15	32	?	—
Budapest	76.7	333	11	52	+ 2	e 21	30	- 3	e 21	49	sS	e 44.4
Vienna	76.8	334	i 11	50	0	—	—	—	—	—	—	—
Morgantown	77.1	42	i 11	52	0	—	—	—	—	—	—	—
Bucharest E.	77.2	327	e 11	58	+ 6	—	—	—	—	—	—	—
Brisbane z.	77.3	185	e 11	55	+ 2	—	—	—	i 12	7	pP	—
Kew	77.3	346	i 11	50	- 3	e 14	46	PP	i 12	3	pP	e 44.4
Kalossa E.	77.6	333	e 11	56	+ 2	—	—	—	—	—	—	—
Timisoara	77.6	330	i 11	57a	+ 3	—	—	—	—	—	—	e 42.8
Karlsruhe z.	78.0	340	i 11	57	0	—	—	—	—	—	—	—
Harvard	78.1	35	i 12	7k	pP	—	—	—	—	—	—	—
Stuttgart	78.1	340	i 11	57k	0	e 21	42	- 6	e 12	7	pP	e 42.4
Weston	78.3	35	i 11	59k	+ 1	—	—	—	i 12	11	pP	—
Palisades	78.5	37	i 11	58	- 1	—	—	—	—	—	—	e 39.0
City College, N.Y.	78.6	37	i 11	59	- 1	—	—	—	—	—	—	—
Fordham	78.6	38	e 11	59	- 1	—	—	—	—	—	—	—
Strasbourg	78.6	340	i 12	0	0	e 21	54	+ 1	i 12	11	pP	e 38.4
Belgrade	78.7	331	e 12	4k	+ 4	e 22	10	sS	—	—	—	e 49.9
Halifax	78.9	29	e 12	2k	0	—	—	—	—	—	—	—
Washington	78.9	40	i 12	2	0	—	—	—	—	—	—	—
Istanbul	79.0	323	e 12	0	- 2	e 21	57	0	—	—	—	—
Paris	79.4	344	i 12	5	+ 1	i 22	3	+ 1	i 12	15	pP	e 38.4
Zürich	79.5	340	e 12	5k	0	e 22	4	+ 1	—	—	—	—
Basle	79.6	341	e 12	5	0	—	—	—	—	—	—	—
Sofia	79.6	328	e 11	58	- 7	—	—	—	—	—	—	—
Chur	79.8	339	e 12	7k	+ 1	—	—	—	—	—	—	—
Triest	79.9	336	i 12	7	0	e 22	7	0	e 23	12	PPS	44.0
Besançon	80.2	341	i 12	8	- 1	e 12	51	?	i 12	19	pP	—
Pavia	81.5	338	e 12	19	+ 3	e 22	31	+ 8	e 13	25	?	—
Bologna	81.6	336	e 12	8	- 8	e 22	42	sS	—	—	—	—
Clermont-Ferrand	82.2	343	i 12	21	+ 2	i 22	47	sS	—	—	—	42.4
Ksara	82.2	314	i 12	20	+ 1	—	—	—	—	—	—	—
Florence	82.3	336	i 12	19k	- 1	i 22	52	sS	i 12	29	pP	—
Athens	83.7	325	e 15	25k	?	—	—	—	e 15	35	PP	—
Riverview N.	83.7	185	—	—	—	i 23	0	sS	—	—	—	e 39.1
Rome	83.7	335	i 12	28k	+ 1	e 22	43	- 3	i 23	3	sS	—
Messina	86.2	331	i 12	38a	- 1	e 23	13	+ 3	e 33	15	SSS	43.5
Helwan z.	87.6	315	12	47	+ 1	—	—	—	i 12	58	pP	—
Toledo	89.2	346	i 12	53	- 1	23	31	- 7	—	—	—	53.0
Bermuda	89.6	35	e 13	9	pP	e 23	51	+ 9	e 29	47	SS	e 44.7
Alicante	90.1	343	13	0	+ 2	e 23	59	+12	30	0	SS	42.7
Granada	91.7	345	13	20k	pP	23	49	sSKS	16	57	PP	52.9
Almeria	91.9	344	13	15	pP	23	51	sSKS	14	15	?	54.4
Wellington	92.0	168	—	—	—	e 23	52?	sSKS	—	—	—	e 44.9
Malaga	92.3	346	i 13	3	- 5	e 23	55	sSKS	e 16	45	PP	42.9
Tamanrasset z.	103.6	334	e 13	59	0	e 20	20	PPP	e 29	55	PKKP	46.4
La Paz	130.0	64	i 19	22	pPKP	i 22	32	SKP	e 39	55	SS	61.4

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1952

1078

Nov. 14d. 0h. 9m. 2s. Epicentre 36°·8N. 71°·4E. Depth of focus 0·040.
(as on Oct. 6d.).

U.S.S.R. gives epicentre 36°·8N. 71°·3E. Depth 260km.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Khorog	0·7	13	0 38	0	1 5	- 3
Kulyab	1·7	311	i 0 45	+ 1	i 1 16	- 2
Obi-garm	2·3	325	i 0 48	0	i 1 23	- 3
Dzhergetal	2·4	357	0 50	+ 1	1 26	- 2
Garm	2·4	338	i 0 49	0	i 1 25	- 3
Stalinabad	2·7	310	i 0 52	0	i 1 30	- 3
Fergana	3·6	5	e 1 4	+ 2	i 1 50	0
Andijan	4·0	11	e 1 7	+ 1	i 1 57	- 1
Namangan	4·2	3	—	—	2 0	- 2
Samarkand	4·5	312	e 1 10	- 2	2 3	- 5
Lunacharskoe	4·8	341	e 1 14	- 1	e 2 10	- 4
Tchimkent	5·7	347	—	—	i 2 30	- 3
Naryn	5·8	36	—	—	2 28	- 7

Nov. 14d. 0h. 28m. 45s. Epicentre 36°·6N. 70°·1E. Depth of focus 0·020.
(as on Oct. 28d.).

U.S.S.R. gives epicentre 36°·4N. 70°·3E. Depth 140km.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Kulyab	1·3	349	0 29	0	i 0 53	+ 2	—	—
Khorog	1·5	54	i 0 25	- 6	i 0 48	- 6	—	—
Obi-garm	2·1	351	0 38	+ 1	e 1 9	+ 3	—	—
Stalinabad	2·2	332	i 0 39	+ 1	i 1 11	+ 3	—	—
Garm	2·4	4	i 0 40	- 1	—	—	—	—
Dzhergetal	2·7	18	0 46	+ 1	—	—	—	—
Samarkand	3·9	322	1 1	+ 1	1 40	- 6	—	—
Fergana	4·0	19	e 1 1	0	i 1 50	+ 1	—	—
Andijan	4·5	22	1 6	- 2	i 2 0	0	—	—
Namangan	4·5	15	1 9	+ 1	i 2 3	+ 3	—	—
Lunacharskoe	4·8	353	—	—	e 2 10	+ 3	—	—
Tashkent	4·8	352	—	—	e 2 9	+ 2	—	—
Tchimkent	5·7	356	—	—	i 2 30	+ 2	—	—
Bairam-Ali	6·4	281	e 1 30?	- 3	i 2 47?	+ 2	—	—
Naryn	6·7	42	e 1 35	- 2	2 52	0	—	—
Frunse	7·2	27	e 1 41	- 3	—	—	—	—
Rybach'e	7·4	36	—	—	3 9	0	—	—
Przhevalsk	8·7	45	e 2 1	- 3	—	—	—	—
Ashkabad	9·5	282	e 2 12	- 2	i 3 55	- 4	—	—
Kizyl-Arvat	11·2	287	e 2 36	0	e 4 39	0	—	—
Poona	z. 18·3	170	—	—	i 7 22	+ 2	i 7 55	SS

Nov. 14d. 4h. 38m. 31s. Epicentre 33°·4N. 132°·5E.

Intensity IV at Uwajima, Ikata, Yokobayasi, Iwamatu, and Kuma; II-III at Matuyama, Simidu, Kochi, and Ozu. Epicentre as adopted. Macroseismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, Nov., 1952, Tokyo, 1953, p.447, with macroseismic chart.

$$A = -.5650, B = +.6165, C = +.5483; \quad \delta = -7; \quad h = +1;$$

$$D = +.737, E = +.676; \quad G = -.370, H = +.404, K = -.836.$$

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	
Uwajima	0·2	168	i 0 8	- 2	0 12	+ 2*	—	—
Matuyama	0·5	27	i 0 13 _k	- 1	0 23	0	—	—
Simidu	0·7	149	i 0 14 _a	0 _g	0 23	0 _g	—	—
Hirosima	0·9	357	0 22	+ 2	0 37	+ 3	—	—
Koti	0·9	82	i 0 19 _a	- 1	0 31	0 _g	—	—
Asosan	1·3	236	0 26	0 _g	0 43	0 _g	—	—
Muroto	1·4	97	0 27	0	0 46	0	—	—
Hamada	1·5	346	e 0 31	+ 1 _g	0 53	+ 3 _g	—	—
Kumamoto	1·6	248	e 0 30	0	0 41	- 10	—	—
Takamatu	1·6	55	e 0 32	0 _g	0 53	0 _g	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Okayama	1.7	44	e 0 36	+ 2 _g	0 59	+ 3 _g	—	—
Miyazaki	1.8	211	e 0 35	- 1 _g	—	—	—	—
Tokusima	1.8	70	0 36	+ 4	1 5	+ 5 _g	—	—
Siomisaki	2.7	90	e 0 42	- 3	1 9	-10	—	—
Osaka	2.8	64	e 1 19	S	(1 19)	- 3	1 58	?
Kameyama	3.6	66	e 1 20	+ 8 _g	2 17	+18 _g	—	—

Nov. 14d. 5h. 16m. 0s. Epicentre 20°·0N. 73°·0W. (as on 1945, Jan. 9d.).

A = +·2749, B = -·8993, C = +·3400; δ = -9; h = +4;
D = -·956, E = -·292; G = +·099, H = -·325, K = -·940.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Port au Prince	1.6	157	e 0 37	+ 5 _g	i 1 2	+ 9 _g	—	i 1.2
Kingston	4.1	241	e 1 2	- 3	i 1 36	-19	i 1 24	P _g
San Juan	6.7	103	i 1 46	+ 4	—	—	—	—
Bermuda	14.4	30	i 3 26	- 1	i 5 52	-17	—	e 6.4
Bogota	15.3	184	e 3 46	+ 7	e 6 52	SS	—	—
Washington	19.2	352	e 4 27	- 1	e 8 17	SS	—	—
Morgantown	20.5	345	i 4 43	+ 1	i 8 17	-10	—	—
City College, N.Y.	20.8	0	e 4 46	+ 1	—	—	—	—
Palisades	21.0	0	i 4 48	+ 1	—	—	—	—
Weston	22.4	4	i 5 3 _a	+ 1	e 8 51	PcP	—	—
Harvard	22.5	4	i 5 3 _a	+ 1	i 8 52	PcP	—	—
Cleveland z.	22.6	343	i 5 16 _a	+13	—	—	—	—
Buffalo (Larkin)	23.3	350	e 5 19	+ 9	—	—	—	—
Fayetteville z.	24.6	316	i 5 30?	+ 7	—	—	—	—
Ottawa	25.4	355	e 5 30 _a	- 1	—	—	8 5	?
Huancayo	31.9	185	e 6 42	+13	—	—	—	—
Tucson	35.9	298	e 7 9	+ 5	—	—	—	—
La Paz	36.6	171	e 7 11	+ 1	—	—	—	—
Nelson	39.8	303	e 7 46	+10	—	—	—	—
Boulder City	39.9	303	e 7 10	-27	—	—	—	—
Butte	41.5	318	e 7 50	0	—	—	—	—
Riverside z.	41.6	300	e 7 59	+ 8	—	—	—	—
China Lake z.	42.1	303	e 8 4	+ 9	—	—	—	—
Mount Wilson z.	42.2	300	e 7 46	-10	—	—	—	—
Tinemaha z.	42.8	303	e 8 12	+11	—	—	—	—
Hungry Horse	43.4	321	e 8 4	- 2	—	—	—	—
Almeria	63.0	57	e 10 32	+ 1	—	—	—	34.2
College	65.6	333	e 10 45	- 3	—	—	—	—
Tamanrasset z.	72.3	71	e 11 33	+ 4	—	—	—	—

Nov. 14d. 11h. 40m. 44s. Epicentre 6°·6S. 76°·9W. (as on 1942, Nov. 6d.).

Intensity V at Chachapoyas; IV at Moyobamba. Epicentre 6°·0S. 77°·0W. (U.S.C.G.S.)

E. Silgado.

Datos Sismológicos del Perú, 1952-1955, Boletín de la Sociedad geológica del Perú, Tome 29, Lima, 1957, p.16.

A = +·2252, B = -·9676, C = -·1142; δ = +1; h = +7;
D = -·974, E = -·227; G = -·026, H = +·111, K = -·993.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Huancayo	5.6	165	i 1 30	+ 3	i 2 28	- 5	i 1 50	?
Bogota	11.5	14	i 2 50	+ 2	i 5 1	+ 2	—	16.2
Chinchina	11.6	6	i 2 48	- 2	i 4 57	- 4	—	6.4
La Paz	13.1	140	i 3 12	+ 2	e 5 40	+ 2	—	17.4
San Juan	27.0	23	e 5 42	- 3	—	—	—	—
Weston	49.0	6	i 8 49 _a	- 1	—	—	—	—
Harvard	49.1	6	i 8 50 _a	- 1	—	—	—	—
Tucson	50.4	322	i 9 1	0	—	—	—	—
Ottawa	51.8	2	e 9 9	- 3	—	—	—	—
Palomar z.	54.9	319	e 9 36	+ 1	—	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Nelson		55.1	323	i 9 36	0	—	—	—	—
Boulder City		55.3	323	i 9 38	0	—	—	—	—
Riverside	z.	55.6	319	e 9 39	- 1	—	—	—	—
Pasadena		56.3	319	i 9 44	- 1	—	—	—	—
China Lake	z.	56.9	322	e 9 49	0	—	—	—	—
Tinemaha	z.	58.2	322	i 9 58	0	—	—	—	—
Butte		61.3	333	e 10 19	- 1	—	—	—	—
Shasta		62.9	323	c 10 30	0	—	—	—	—
Hungry Horse		63.7	334	i 10 34	- 2	—	—	—	—
Tamanrasset	z.	85.6	67	e 12 42	+ 1	—	—	e 12 47	PcP
College		88.0	336	i 11 43	?	—	—	—	—

Nov. 14d. 15h. 0m. 1s. Epicentre 35°·3N. 135°·6E. (as on 1951, Nov. 14d.).

Intensity V at Sonobe ; IV at Kyoto, Maizuru, Kobe, Ujodawara, Hieizan, Kameoka, Syuzan, Mizuho, and Ayabe.

Epicentre 35°·2N. 135°·5E. Depth 20km. Macroseismic radius 100-200km.

Seismo. Bull. Cent. Met. Obs., Japan, Nov., 1952, Tokyo, 1953, p.447, with macroseismic chart.

$$A = -.5844, B = +.5723, C = +.5752; \quad \delta = -9; \quad h = 0;$$

$$D = +.700, E = +.714; \quad G = -.411, H = +.403, K = -.818.$$

	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	m.	m. s.	s.
Maizuru	0.2	327	i 0 10	0	0 13	- 3
Kyoto	0.3	159	e 0 7	+ 1 _g	0 11	+ 1 _g
Ibukisan	0.6	83	c 0 20	+ 5	0 30	+ 4
Kobe	0.7	209	c 0 11	- 3 _g	0 18	- 5 _g
Osaka	0.7	185	i 0 14 _a	0 _g	0 21	- 2 _g
Toyooka	0.7	290	i 0 13 _a	- 1 _g	0 22	- 1 _g
Hukui	0.9	36	c 0 23 _a	+ 3	0 36	+ 2
Kameyama	0.9	122	0 19 _a	- 1	0 31	0*
Tu	0.9	127	i 0 23	+ 3	0 39	+ 5
Gihu	1.0	84	0 23	+ 2	0 36	0
Nagoya	1.1	97	0 25	+ 3	0 40	+ 1
Sumoto	1.1	212	i 0 20 _k	- 2	0 33	- 3 _g
Wakayama	1.1	198	i 0 21	- 1	0 34	- 2 _g
Himeji	1.3	231	i 0 14	- 11	0 25	P
Owase	1.3	158	0 25 _a	0	0 44	0
Kanazawa	1.5	35	e 0 34	+ 4	0 55	+ 5 _g
Okayama	1.5	245	i 0 28	0	0 48	0*
Tokusima	1.5	214	0 28	0	0 44	- 4*
Takamatu	1.6	232	i 0 28 _k	- 2	0 48	- 3
Takayama	1.6	58	i 0 33	+ 1 _g	0 56	+ 3 _g
Siomisaki	1.8	176	e 0 33	+ 1	0 57	0*
Yonago	1.8	274	e 0 26	- 6	0 52	- 4
Toyama	1.9	43	0 38	0 _g	1 9	+ 6 _g
Saigo	2.0	296	e 0 42	+ 2 _g	1 9	+ 3 _g
Matsue	2.1	274	0 44	+ 2 _g	1 8	- 1 _g
Matumoto	2.1	64	0 45	+ 3 _g	1 9	0 _g
Shizuoka	2.3	98	0 46	0 _g	1 20	+ 4 _g
Wazima	2.3	27	e 0 49	+ 3 _g	1 21	+ 5 _g
Koti	2.4	224	i 0 44	0*	1 13	+ 1
Matusiro	2.4	59	0 51	+ 3 _g	1 24	+ 5 _g
Hunatu	2.6	86	0 53	+ 1 _g	1 29	+ 3 _g
Hirosima	2.8	250	0 47	0	1 21	- 1
Matuyama	2.8	238	e 0 46	- 1	1 15	- 7
Misima	2.8	94	0 53	+ 2*	1 29	+ 2*
Maebasi	3.0	69	e 0 58	- 2 _g	1 43	- 4 _g
Osima	3.2	100	e 0 57	- 1*	1 40	+ 1*
Simidu	3.3	221	1 3	- 3 _g	1 40	- 2*
Tokyo	3.4	83	i 1 9	+ 1 _g	1 57	+ 5 _g
Ooita	3.9	239	e 1 19	+ 1 _g	2 4	+ 4*
Mito	4.1	74	e 1 20	- 2 _g	2 5	- 1*
Hukuoka	4.6	249	e 1 29	- 3 _g	2 17	- 3*
Sendai	5.2	51	c 1 19	- 2	2 25	+ 3

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1952

1081

Nov. 15d. 1h. 4m. 13s. Epicentre 49°·5N. 156°·2E. (as on 12d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay	z.	47·6	20	i 8 39 _a	0	—	—	—	—
Tinemaha	z.	60·3	68	e 10 14	+ 1	—	—	—	—
China Lake	z.	61·5	66	e 10 21	0	—	—	—	—
Mount Wilson	z.	62·3	70	e 10 26	0	—	—	—	—
Fayetteville	z.	74·5	53	i 11 41	- 1	—	—	—	—
Collmberg	z.	74·8	337	e 11 44	0	—	—	—	—
Witteveen	z.	74·8	342	i 11 45	+ 1	—	—	—	—
Ottawa		75·2	35	e 11 46	0	—	—	—	—
Shawinigan Falls	N.	75·3	32	e 12 5	PcP	e 12 19	?	—	—
Jena	N.	75·5	338	e 11 49	+ 1	—	—	e 12 3	PcP
Prague		75·5	336	e 11 49	+ 1	e 12 38	?	e 12 2	PcP
Rathfarnham C.	z.	76·5	350	i 11 54	0	e 12 8	?	e 12 1	PcP
Stuttgart		78·1	339	e 12 3 _a	+ 1	e 21 47	- 9	—	—
Strasbourg		78·6	340	i 12 6	+ 1	e 12 37	?	e 12 22	PcP
Zürich		79·5	339	e 12 10	0	—	—	—	—
Basle		79·6	340	e 12 7	- 3	e 12 12	P	—	—
Besançon		80·2	340	i 12 14	0	—	—	—	—
Ksara		81·6	313	i 12 23	+ 2	—	—	—	—
Tamanrasset	z.	103·5	332	e 14 4	0	—	—	—	—

Nov. 15d. 1h. 18m. 34s. Epicentre 39°·5N. 73°·0E. (as on 1952, Aug. 30d.).

A = +·2262, B = +·7399, C = +·6335; δ = -6; h = -1;
D = +·956, E = -·292; G = +·185, H = +·606, K = -·774.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Fergana		1·3	313	e 0 25	0	e 0 42	0*	—	—
Andijan		1·4	339	i 0 28	0 _g	i 0 48	+ 2	—	—
Dzhergetal		1·4	258	0 26	- 1	0 44	- 2	—	—
Namangan		1·8	326	i 0 37	+ 1 _g	1 2	+ 2 _g	—	—
Garm		2·1	257	i 0 38	+ 1	i 1 10	+ 1 _g	—	—
Khorog		2·3	209	e 0 40	0	1 14	- 2 _g	—	—
Obi-garm		2·7	253	e 0 46	+ 1	e 1 24	0*	—	—
Kulyab		3·0	238	—	—	i 1 38	- 1 _g	—	—
Naryn		3·0	49	e 0 54	0*	i 1 36	+ 3*	—	—
Stalinabad		3·4	256	i 0 56	+ 1	i 1 42	- 3*	i 1 48	S _g
Tashkent		3·4	304	e 1 4	+ 3*	i 1 50	- 2 _g	—	—
Frunse		3·6	19	i 1 4	0*	i 1 59	0 _g	—	—
Rybach'e		3·8	37	i 1 6	- 2*	2 17	+ 11 _g	—	—
Tchimkent		3·8	318	1 12	- 4 _g	1 58	+ 1*	1 51	S
Samarkand		4·6	274	e 1 16	+ 4	—	—	—	—
Almata		4·8	37	i 1 32	- 4 _g	i 2 38	- 1 _g	—	—
Przhevsk		5·1	52	i 1 24	+ 4	—	—	—	—

Nov. 15d. 5h. 1m. 12s. Epicentre 52°·5N. 171°·3W. (as on 1942, May 31d.).

A = -·6043, B = -·0925, C = +·7914; δ = +5; h = -7;
D = -·151, E = +·988; G = -·782, H = -·120, K = -·611.

		Δ	Az.	P.	O-C.	S.	O-C.	Sjpp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Victoria		30·3	78	6 18	+ 3	—	—	—	—
Resolute Bay		36·8	26	i 7 12 _a	+ 1	—	—	—	i 22·2
Tinemaha		39·7	91	i 7 37	+ 1	i 7 54	?	i 8 15	?
China Lake	z.	41·0	91	e 7 46	0	e 8 10	?	—	—
Pasadena		41·7	94	i 7 53	+ 1	i 8 10	?	—	—
Riverside	z.	42·3	94	e 7 57	0	e 8 23	?	—	—
Palomar	z.	43·1	94	i 8 2	- 2	—	—	—	—
Kirkland Lake	z.	54·6	55	e 9 34	+ 2	—	—	—	—
Fayetteville	z.	54·9	75	i 9 33	- 2	i 10 14	?	—	—
Scoresby Sund		55·3	13	i 9 37	- 1	—	—	—	29·8

Continued on next page.

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1952		1082									
		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.
Ottawa		58.7	55	i 10	1 _a	- 1	—	—	—	—	—
Shawinigan Falls	N.	59.3	52	10	6	0	—	—	—	—	—
Kiruna	Z.	59.7	355	i 10	7 _a	- 2	—	—	—	—	—
Morgantown		60.6	63	i 10	14	- 1	—	—	—	—	—
Pennsylvania	Z.	60.8	60	i 10	21	+ 5	i 10	43	?	i 11	5
										PcP	—
Harvard		62.8	55	i 10	10 _a	-20	—	—	—	—	—
Palisades		62.8	57	i 10	29	- 1	i 18	58	0	—	e 32.6
Weston		63.1	55	i 10	31 _a	- 1	e 18	59	- 3	—	e 33.6
Hong Kong		63.3	273	—	—	—	e 18	58	- 6	—	—
Halifax		65.1	49	e 10	45	0	—	—	—	—	—
Upsala	Z.	67.8	356	i 10	59	- 3	i 11	7	?	—	—
Copenhagen		72.1	358	e 11	29	+ 1	—	—	—	—	39.8
Rathfarnham Castle		73.8	10	i 11	38	0	e 24	58	?	e 29	28
Bermuda		74.1	57	i 11	41	+ 1	i 21	11	- 1	e 26	0
Potsdam		75.4	358	e 11	49	+ 2	—	—	—	—	SSS
											SS
											e 45.8
											e 35.8
											e 38.8
Chatra		75.8	296	i 11	48	- 2	e 21	26	- 5	—	—
Collmberg	Z.	76.5	358	e 11	53	- 1	—	—	—	—	—
Jena	Z.	76.9	358	e 11	54	- 2	e 12	33	?	—	—
Prague		77.7	356	e 12	2	+ 2	e 12	38	?	—	—
Paris		78.9	5	e 12	8	+ 1	—	—	—	—	—
Stuttgart		79.1	0	e 12	7	- 1	e 22	6	- 1	e 12	30
Strasbourg		79.3	1	e 12	6	- 3	e 22	11	+ 2	e 15	8
Basle	Z.	80.3	1	e 12	14	0	—	—	—	—	PcP
Zürich	Z.	80.5	1	e 12	15 _a	0	—	—	—	—	PP
Clermont-Ferrand		82.0	4	e 12	24	+ 1	—	—	—	—	—
Quetta	Z.	83.2	312	i 12	28	- 1	—	—	—	—	—
Florence		84.1	358	—	—	—	e 23	0	+ 2	—	—
Rome		85.9	357	—	—	—	e 23	10	[+ 3]	—	—
Taranto		87.1	354	—	—	—	e 23	48	+20	e 35	18
Toledo		87.3	11	e 12	52	+ 2	e 23	12	[- 4]	e 17	57
										PPP	e 51.8
											43.8
											e 36.0
Alicante		89.2	8	e 13	6	+ 7	—	—	—	—	—
Messina	E.	89.5	355	—	—	—	e 23	41	- 9	—	—
Granada		90.0	10	e 13	3 _k	0	e 23	55	+ 1	—	—
Malaga		90.4	10	i 13	1	- 3	—	—	—	—	—
Almeria		90.5	9	e 13	4	- 1	—	—	—	—	—
											46.2
											51.0
											58.5
											49.2
Bogota		90.8	81	—	—	—	e 24	0	- 2	—	—
Pretoria	Z.	149.5	324	i 19	51	[+ 4]	—	—	—	—	—
Pietermaritzburg	Z.	152.1	317	e 19	57	[+ 6]	e 20	8	PKP ₁	—	—
Kimberley	Z.	153.4	327	i 20	0	[+ 8]	—	—	—	—	—

Nov. 15d. 5h. 23m. 6s. Epicentre 52°·7N. 159°·4E. (as on 12d.).

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.
Mizusawa	N.	18.5	230	e 4	25	+ 6	7	43	- 1	—	—
Resolute Bay	Z.	43.9	22	e 8	11	+ 1	—	—	—	i 8	20
Manila		48.7	235	i 8	38	-10	—	—	—	—	?
Kiruna	Z.	56.5	344	i 9	43	- 3	i 9	51	?	i 10	6
Scoresby Sund		57.1	2	e 9	51	+ 1	—	—	—	—	—
											33.9
Tinemaha	Z.	57.2	71	e 9	44	- 7	—	—	—	—	—
Chatra		58.5	275	i 10	3	+ 3	e 18	13	+10	—	—
China Lake	Z.	58.5	71	e 9	55	- 5	—	—	—	e 10	5
Pasadena	Z.	59.3	73	i 10	0	- 6	—	—	—	—	P
Riverside	Z.	59.9	73	e 10	6	- 4	—	—	—	—	—
Upsala		63.7	340	i 10	36	0	e 19	13	+ 3	e 19	21
Quetta	Z.	68.0	292	i 11	5	+ 2	—	—	—	—	PS
Copenhagen		68.6	341	e 11	9	+ 2	—	—	—	—	e 31.9
Fayetteville	Z.	71.0	56	i 11	12 _?	-10	—	—	—	12	16 _?
Lwow		71.1	333	i 11	23	+ 1	e 20	57	PS	i 11	35
											PcP
Ottawa		71.5	38	e 11	33	+ 9	—	—	—	—	—
Potsdam		71.5	340	i 11	28	+ 4	i 20	52	+ 9	i 11	40
Shawinigan Falls	N.	71.5	35	e 11	38	+14	—	—	—	—	PcP
Cernauti		71.9	330	e 11	31	+ 4	—	—	—	—	e 38.9
Kishinev		72.1	330	i 11	30	+ 2	—	—	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Witteveen	z.	72.4	344	11 33	+ 3	—	—	—	—
Raciborzu		72.5	336	e 11 30?	0	e 11 44	PcP	e 11 54	?
Collmberg		72.6	339	e 11 32	+ 1	e 21 0	+ 4	e 21 12	?
Uzhgorod		72.7	334	11 34	+ 2	e 21 16	PS	11 45	PcP
Poona		72.8	279	i 11 35	+ 3	e 21 11	+13	—	—
Bombay		73.2	279	e 11 37	+ 2	21 6	+ 4	25 45	SS
De Bilt		73.3	344	i 11 36	+ 1	e 20 54?	-10	—	—
Prague		73.4	337	e 11 38	+ 2	e 11 58	PcP	e 15 19	?
Kew		74.8	347	—	—	e 21 54	ScS	—	—
Stuttgart		75.8	340	e 11 50	0	e 21 36	+ 5	e 28 24	?
Strasbourg		76.2	341	i 11 54	+ 2	e 21 34	- 2	i 12 7	PcP
Paris		77.0	345	e 11 59	+ 3	—	—	—	—
Zürich		77.2	340	e 11 59	+ 2	e 12 47	?	—	—
Besançon		77.9	342	e 12 6	+ 5	e 12 33	?	—	—
Pavia		79.2	339	e 13 15	+67	e 22 28	ScS	—	—
Clermont-Ferrand		79.8	343	e 12 15	+ 3	—	—	—	—
Florence		80.1	337	e 12 15 _a	+ 2	e 22 36	ScS	—	—
Rome		81.5	336	12 24	+ 3	22 42	ScS	—	—
Helwan		86.1	317	i 12 45 _a	+ 1	—	—	e 12 58	PcP
Tamanrasset	z.	101.5	336	e 13 56	+ 1	e 18 17	PP	e 28 1	PPS

Nov. 15d. 19h. 0m. 53s. Epicentre 36°·5N. 71°·0E. (as on 7d.).

	Δ	Az.	P.	O-C.	S.	O-C.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.
Khorog	1.1	26	e 0 37	+15	1 1	+22
Kulyab	1.7	325	i 0 41	+10	i 1 9	+13 _g
Obi-garm	2.4	335	i 0 46	- 2 _g	i 1 18	- 1 _g
Garm	2.6	348	i 0 48	+ 1*	i 1 20	- 1*
Dzhergetal	2.7	4	0 52	- 2 _g	1 27	- 2 _g
Stalinabad	2.7	319	i 0 49	0*	i 1 22	- 2*
Fergana	3.9	9	e 1 4	+ 2	e 1 49	- 1
Andijan	4.4	15	i 1 10	0	i 2 0	- 2
Namangan	4.5	7	i 1 12	+ 1	i 2 3	- 2
Samarkand	4.5	317	—	—	2 3	- 2
Lunacharskoe	5.0	347	e 1 15	- 3	e 2 12	- 6

Nov. 16d. 1h. 48m. 0s. Epicentre 50°·6N. 156°·7E. Focus at Base of Superficial Layers. (as on 10d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	E.	15.9	230	6 47	S	(6 47)	+ 9	7 10	SS
College		31.7	42	6 20	- 3	—	—	—	—
Hong Kong		43.5	246	e 8 0	- 2	—	—	—	—
Resolute Bay	z.	46.4	21	i 8 23	- 2	—	—	—	—
Hungry Horse		54.6	55	i 9 26	- 2	—	—	—	—
Shasta	z.	54.8	66	e 9 28	- 1	—	—	i 9 43	pP
Mineral	z.	55.4	66	i 9 33	0	—	—	i 9 48	pP
Butte		56.8	66	i 9 43	0	—	—	i 11 58	PP
Kiruna		57.4	342	i 9 47	- 1	e 21 36	SS	i 10 32	PcP
Scoresby Sund		59.2	0	i 10 0	0	—	—	—	—
Tinemaha	z.	59.6	68	i 10 3	0	i 10 52	PcP	i 10 18	pP
China Lake	z.	60.8	68	e 10 11	0	—	—	i 10 26	pP
Pasadena		61.6	70	i 10 30	pP	—	—	i 10 42	sP
Riverside	z.	62.2	70	e 10 20	0	—	—	i 10 36	pP
Nelson	z.	62.5	66	e 10 21	- 1	—	—	i 10 36	pP
Upsala	z.	65.0	339	i 10 39	0	—	—	—	—
Tucson		67.3	67	i 10 55	+ 2	—	—	i 11 9	pP
Kirkland Lake	z.	70.2	37	e 11 11	0	—	—	—	—
Fayetteville	z.	73.6	53	i 11 30 _a	- 2	i 11 55	sP	i 11 45	pP
Collmberg	z.	73.9	337	e 11 35	+ 2	—	—	—	—
Ottawa		74.2	36	i 11 34 _k	- 1	—	—	14 19	PP
Shawinigan Falls	N.	74.2	33	e 11 35	0	—	—	—	—
Jena	z.	74.6	338	e 11 38	0	—	—	e 12 30	?
Prague		74.7	336	e 11 53	pP	e 12 9	?	e 12 41	?
De Bilt		74.9	343	e 11 40	+ 1	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Cleveland	z.	75.1	42	i 11 41k	+ 1	—	—	—	—
Buffalo (Larkin)		75.2	39	i 11 39	- 2	—	—	—	—
Rathfarnham Castle		75.5	350	i 11 43	0	e 19 50	?	e 11 52	pP
Stuttgart		77.2	339	e 11 52	0	e 21 42	+ 4	—	e 41.0
Morgantown		77.3	42	i 11 53	0	—	—	—	—
Strasbourg		77.7	340	e 13 2	+ 67	—	—	—	e 37.0
Brisbane	z.	77.8	186	i 12 1	+ 5	—	—	—	—
Harvard		78.2	35	i 11 57a	- 1	—	—	—	—
Weston		78.4	35	i 11 57a	- 2	—	—	—	—
Paris		78.5	343	i 12 1	+ 2	i 21 56	+ 4	i 12 16	pP e 38.0
Palisades		78.6	38	i 11 59	- 1	—	—	—	e 36.7
Zürich	z.	78.6	339	e 12 0	0	—	—	—	—
Fordham		78.7	38	i 12 0	0	i 18 22	?	—	—
Halifax		78.9	28	e 12 2	0	—	—	—	—
Ksara		81.1	313	i 12 17	+ 4	—	—	—	—
Florence		81.3	335	e 12 17a	+ 3	e 22 37	+ 16	—	—
Rome	N.	82.7	335	e 12 13	- 9	e 22 34	- 2	—	e 39.0
Helwan	z.	86.5	315	i 12 43a	+ 2	—	—	e 14 0	?
Bermuda		89.6	35	—	—	e 23 48	+ 6	—	—
Granada		90.9	345	i 13 59k	+ 57	24 16	sS	16 48	PP 44.2
Pretoria	z.	133.7	282	e 19 18	[+ 5]	—	—	—	—
Kimberley	z.	137.9	281	e 19 13	[- 8]	—	—	e 19 27	pPKI'
Grahamstown	z.	139.9	276	e 19 23	[- 2]	—	—	—	—

Nov. 16d. 4h. 10m. 31s. Epicentre 51°·0N. 158°·9E. (as on 10d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Hong Kong		44.9	249	e 8 29?	+ 11	—	—	—	—
Resolute Bay	z.	45.5	23	e 8 17	- 6	—	—	—	—
Victoria		48.0	61	8 43	0	—	—	—	—
Kiruna		57.5	343	i 9 49	- 4	i 18 2	+ 12	i 11 51	PP e 30.5
Tinemaha	z.	58.1	70	e 9 56	- 2	—	—	i 10 6	?
Chatra		58.3	274	i 10 0	+ 1	e 18 3	+ 2	—	—
China Lake	z.	59.4	70	e 10 1	- 5	—	—	i 10 13	?
Pasadena	z.	60.2	72	i 10 19	+ 7	—	—	—	—
Riverside	z.	60.7	72	e 10 11	- 4	—	—	—	—
Upsala		65.1	340	i 10 42a	- 3	e 19 29?	+ 2	i 11 8	PcP e 35.5
Quetta	z.	68.3	292	e 11 4	- 1	—	—	—	—
Fayetteville	z.	72.2	55	i 11 25	- 4	i 12 19	?	i 11 41	pP
Poona	E.	72.7	278	e 11 34	+ 2	—	—	e 12 17	?
Ottawa		73.0	38	e 11 34k	+ 1	—	—	14 16	PP
Potsdam		73.0	340	e 11 33	0	e 21 14?	+ 14	—	e 39.5
Bombay	E.	73.1	279	e 11 35	+ 1	—	—	—	—
Shawinigan Falls	N.	73.1	35	e 11 36	+ 2	—	—	—	—
Witteveen	z.	73.9	344	e 11 47	+ 8	—	—	—	—
Collmberg		74.1	339	e 11 37	- 3	—	—	—	e 43.5
Jena	z.	74.7	339	e 11 41	- 2	—	—	e 11 53	PcP
De Bilt		74.9	344	e 11 29?	- 15	e 21 29	+ 7	—	e 38.5
Prague		74.9	338	e 11 43	- 1	e 11 55	PcP	e 12 21	?
Rathfarnham Castle		75.3	352	e 11 48	+ 1	e 23 17	?	—	e 34.5
Morgantown		76.1	44	i 11 54	+ 3	—	—	—	—
Harvard		77.0	36	i 11 51k	- 5	—	—	—	—
Weston		77.2	36	i 12 3a	+ 6	—	—	—	—
Stuttgart		77.3	340	e 11 55	- 3	e 22 2	ScS	e 12 7	PcP e 42.5
Palisades		77.4	38	e 12 2	+ 4	—	—	—	—
Strasbourg		77.8	341	e 11 59	- 2	e 21 53	0	e 12 11	PcP e 39.5
Halifax		77.9	30	e 11 57	- 4	—	—	—	—
Paris		78.5	345	i 12 3	- 1	e 22 11	ScS	i 12 20	PcP
Zürich		78.7	341	e 12 3	- 3	—	—	—	—
Basle		78.8	341	e 12 5	- 1	—	—	—	—
Clermont-Ferrand		81.4	343	e 12 21	+ 1	—	—	—	e 35.5
Florence		81.5	337	e 12 21k	0	e 22 49	+ 17	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ksara	81.8	316	i 12 24	+ 2	—	—	—	—
Taranto	82.9	332	e 13 55	?	e 27 35	SS	—	—
Rome	83.0	336	e 12 34	+ 6	e 22 54	+ 7	—	e 42.0
Messina	E. 85.5	332	e 12 48	+ 7	e 23 12	0	—	e 35.2
Helwan	Z. 87.2	317	e 12 49	0	e 13 2	?	e 17 59	PPP
Bermuda	88.5	36	—	—	e 23 41	0	—	e 45.3
Tamanrasset	Z. 102.9	335	14 23	+22	—	—	17 47	PP

Nov. 16d. 4h. 44m. 34s. Epicentre 36°·2N. 142°·2E. Focus at Base of Superficial Layers.
(as on 1941, May 9d.).

Intensity IV at Tukuluban, Kashiwa, Hitachi, Kannomineyama, and Nikko; II-III at Tyosi, Mito, Utunomiya, and Maebasi.

Epicentre 36°·1N. 141°·9E. Depth 40km. Macroseismic radius 220-300km.

Seismo. Bull. Cent. Met. Obs., Japan, Nov., 1952, Tokyo, 1953, p.448, with macroseismic chart.

A = -·6391, B = +·4958, C = +·5880; $\delta = +1$; $h = 0$;
D = +·613, E = +·790; G = -·465, H = +·360, K = -·809.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tyosi	N. 1.2	247	0 16	- 4	0 29	- 7	—	—
Onahama	1.3	305	e 0 22 _a	0	0 36	- 2	—	—
Mito	1.4	277	0 21 _k	- 2	0 36	- 5	—	—
Tukuluban	1.7	271	0 19	- 9	0 38	-11	—	—
Shirakawa	1.9	298	0 28	- 3	0 53	- 1	—	—
Utunomiya	1.9	281	e 0 28	- 3	0 48	- 6	—	—
Tokyo	Z. 2.0	256	e 0 30	- 2	0 55	- 1	—	—
Hokusima	2.1	318	0 34 _a	+ 1	0 58	- 1	—	—
Inawasiro	2.2	310	e 0 35	0	1 0	- 1	—	—
Yokohama	2.2	250	0 32 _a	- 3	1 2	+ 1	—	—
Isinomaki	2.3	343	e 0 33	- 3	—	—	—	—
Kumagaya	Z. 2.3	269	0 36	0	0 57	- 7	—	—
Sendai	2.3	333	e 0 38	+ 2	1 8	+ 4	—	—
Maebasi	2.5	275	i 0 37 _a	- 2	1 2	- 7	—	—
Titibu	2.5	265	i 0 38	- 1	1 9	0	—	—
Yamagata	2.5	325	e 0 42	+ 3	1 17	+ 8	—	—
Osima	2.7	238	e 0 36	- 6	1 4	-10	—	—
Misima	2.8	248	e 0 40	- 3	1 17	+ 1	—	—
Hunatu	N. 2.9	256	0 42	- 3	—	—	—	—
Oiwake	2.9	273	0 42	- 3	1 24	+ 5	—	—
Kohu	3.0	259	0 45	- 1	1 13	- 9	—	—
Mizusawa	3.0	344	0 54	+ 8	1 54	+32	—	—
Niigata	E. 3.1	306	e 0 55	+ 7	1 33	+ 9	—	—
Matusiro	3.2	277	e 0 46	- 3	1 16 _?	-11	—	—
Nagano	N. 3.3	278	e 0 47	- 4	1 38	+ 9	—	—
Sakata	3.3	325	e 1 9	+18	1 50	+21	—	—
Shizuoka	3.3	248	0 48	- 3	1 33	+ 4	—	—
Takada	3.3	287	0 50	- 1	1 32	+ 3	—	—
Matumoto	E. 3.4	272	e 0 52	0	1 28	- 4	—	—
Miyako	3.4	356	e 0 59	+ 7	1 42	+10	—	—
Aikawa	3.6	301	e 0 54	- 1	1 43	+ 6	—	—
Hatidyozima	3.6	213	1 10	+15	1 50	+13	—	—
Iida	3.6	260	e 0 54	- 1	—	—	—	—
Morioka	3.6	347	e 1 2	+ 7	1 44	+ 7	—	—
Omaesaki	3.6	245	e 1 11	+16	1 53	+16	—	—
Hatinohe	4.3	355	e 1 14	+ 9	2 8	+14	—	—
Kameyama	4.9	255	e 1 12	- 1	2 10	0	—	—
Kyoto	5.4	259	e 1 32	+12	2 33	+11	—	—
Sapporo	6.9	355	e 2 2	+21	3 28	+28	—	—
Muroto	7.2	249	—	—	e 3 28	+21	—	—
Koti	7.6	252	—	—	e 3 40	+23	—	—
Nemuro	7.6	19	—	—	e 3 16	- 1	—	—
Kiruna	Z. 67.5	340	i 10 56	+ 1	i 11 13	sP	i 11 6	pP
Collmberg	Z. 82.1	330	e 12 20	+ 1	—	—	—	—
Stuttgart	85.6	331	e 12 37	+ 1	—	—	—	—
Fayetteville	Z. 91.0	43	i 13 6	+ 4	—	—	i 13 42	?
Tamanrasset	Z. 108.5	318	e 18 47	PP	(e 32 26?)	SKKP	—	—

32.4

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1086

Nov. 16d. 7h. 38m. 31s. Epicentre 6°·2S. 149°·1E. (as on 1951, April 2d.).

A = -·8531, B = +·5106, C = -·1073; $\delta = +1$; $h = +7$;
D = +·514, E = +·858; G = +·092, H = -·055, K = -·994.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane		21·5	170	i 4 49 _k	- 3	i 8 47	0	e 5 12	PP	e 10·5
Riverview		27·6	176	i 5 52 _a	+ 1	i 10 37	+ 5	i 6 38	PP	e 13·7
Melbourne	E.	31·7	186	e 7 46	PPP	i 11 44	+ 7	i 12 46	?	—
Manila		34·7	307	i 7 9	+15	—	—	—	—	—
Auckland	N.	38·5	145	e 8 44	PP	e 13 5	-17	e 13 35	S	e 14·2
Karapiro	N.	39·7	148	e 7 29	- 7	—	—	—	—	—
Perth		40·3	226	e 9 31	PPP	13 54	+ 5	i 16 41	SS	i 22·2
Cobb River	E.	40·6	152	e 7 42	- 1	13 40	-14	—	—	—
Bandong		41·2	267	i 7 52	+ 4	e 14 16	+14	e 9 48	PcP	—
Kaimata	N.E.	41·2	154	e 7 55	+ 7	e 13 52	-10	—	—	—
Wellington		41·8	151	e 7 55	+ 2	i 13 59	-12	e 9 37	PP	e 17·0
Djakarta		42·0	268	e 7 42	-12	e 14 17	+ 3	i 9 53	PcP	—
Hong Kong		44·4	311	8 15	+ 1	15 7	+18	10 43	PPP	—
Mizusawa	E.	45·7	352	8 26	+ 2	—	—	10 52	PPP	—
Nanking		47·8	325	8 35 _k	- 6	15 49	+11	i 15 56	PPS	—
Kodaikanal	E.	73·2	283	e 11 37	+ 2	e 21 4	+ 2	—	—	e 42·9
Poona		78·1	290	e 12 3	+ 1	e 20 54	-62	—	—	—
Bombay		79·1	290	e 12 8	0	e 22 22	+15	e 13 2	?	—
College		84·5	23	12 29	- 7	—	—	—	—	—
Quetta		86·3	302	e 12 44	- 1	e 23 33	+13	—	—	—
Shasta	Z.	92·9	50	e 13 27	+11	—	—	—	—	—
Mineral	Z.	93·4	51	e 13 24	+ 6	—	—	—	—	—
Tinemaha	Z.	95·8	54	e 13 41	+12	—	—	e 13 55	?	—
China Lake	Z.	96·3	55	e 13 19	-13	—	—	e 13 53	?	—
Riverside	Z.	96·4	56	e 13 33	+ 1	—	—	—	—	—
Nelson		98·5	55	e 13 37	- 5	—	—	—	—	—
Hungry Horse		99·2	42	e 13 40	- 5	—	—	—	—	—
Resolute Bay	E.	102·7	15	—	—	i 24 44	[+ 4]	i 27 6	PS	—
Kiruna		109·6	342	e 17 0	?	e 25 21	[+10]	e 26 55	S	e 48·5
Ksara		112·7	303	e 19 30 _?	PP	e 30 31	PPS	—	—	e 56·6
Fayetteville	Z.	115·1	53	e 18 38	[- 5]	e 29 24	PS	—	—	—
Scoresby Sund		115·5	357	—	—	29 35	PS	36 11	SS	59·5
Helwan	Z.	117·1	300	18 58	[+11]	26 56	{+ 1}	16 34	?	—
Copenhagen		119·9	334	20 16	PP	—	—	—	—	57·7
Potsdam		121·6	330	e 20 29	PP	e 30 33	PS	—	—	e 56·5
Collmberg		122·2	329	e 18 56	[- 1]	—	—	—	—	e 61·5
Jena	Z.	123·2	329	e 18 58 _?	[- 1]	—	—	e 19 7	?	—
Witteveen	Z.	124·3	334	e 20 50	PP	—	—	—	—	—
Triest		124·9	323	e 18 59	[- 3]	—	—	e 19 10	?	63·4
Ottawa		125·0	37	i 18 57 _a	[- 5]	—	—	—	—	—
De Bilt		125·5	334	e 20 39	PP	e 37 59	SS	e 23 35	PPP	e 58·5
Stuttgart		125·7	328	e 19 0	[- 4]	e 30 41	PSKS	e 20 46	PP	66·5
Strasbourg		126·6	329	—	—	e 24 50	?	—	—	61·5
Messina	E.	127·3	314	e 20 57	PP	e 31 25	PS	—	—	—
Florence	Z.	127·4	322	e 22 19 _a	?	i 22 38	PKS	—	—	—
Rome	E.	127·7	319	e 22 20	?	e 32 27	PPS	e 39 9	SSP	e 65·0
Kew		128·2	336	e 21 11	PP	e 22 43	PKS	e 31 11	PS	e 64·5
Palisades		128·3	41	e 19 6	[- 3]	e 31 49	PS	e 21 1	PP	e 59·8
Harvard		129·0	38	e 19 8	[- 2]	—	—	—	—	e 60·5
Paris		129·0	332	i 22 41	SKP	i 33 1	PPS	i 34 17	?	e 64·5
Weston		129·3	38	e 19 8	[- 3]	—	—	—	—	e 54·3
Clermont-Ferrand		130·8	329	—	—	e 22 53	SKP	—	—	64·5
La Plata		131·8	151	22 35	PKS	31 41	SKSP	24 29	PPP	63·1
Huancayo		132·2	113	i 19 10	[- 6]	e 39 49	SS	e 21 45	PP	e 63·0
Halifax		132·3	31	e 19 13	[- 3]	22 37	PKS	—	—	—
Chinchina		135·8	88	i 19 20	[- 3]	i 23 9	SKP	i 19 30	PKP	—
Algiers Univ.	Z.	136·6	319	—	—	e 23 7	SKP	e 23 41	?	—
La Paz		136·8	122	i 19 23	[- 2]	40 9	SS	i 22 6	PP	—
Bogota		137·0	90	e 19 27	[+ 2]	e 22 57	SKP	—	—	65·5
Bermuda		139·1	46	e 38 40	?	e 40 44	SS	—	—	e 57·9
Tamanrasset	Z.	141·2	300	e 19 27	[- 6]	e 23 2	PKS	e 22 38	PP	—
San Juan		143·6	66	e 19 31	[- 6]	e 23 23	PKS	—	—	—
Fort de France		149·1	72	i 19 46	[0]	—	—	—	—	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1087

Nov. 16d. 12h. 30m. 4s. Epicentre 51°·2N. 157°·1E. (as on 13d.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Resolute Bay	z.	45·8	21	e 8 20	- 5	—	—	—	—
Kiruna		56·9	342	i 9 46 _a	- 3	—	—	i 10 2	e 31·9
Tinemaha	z.	59·1	68	i 10 18	+14	—	—	—	—
China Lake	z.	60·3	68	e 10 5	- 8	—	—	—	—
Riverside	z.	61·7	70	e 10 19	- 3	—	—	—	—
Upsala	z.	64·6	339	i 10 43	+ 2	—	—	i 10 53	?
Copenhagen		69·5	340	i 11 26	+14	—	—	—	38·9
Kirkland Lake	z.	69·6	37	e 11 20	+ 7	—	—	—	—
Potsdam		72·4	339	e 11 30	0	—	—	—	e 43·9
Fayetteville	z.	73·0	53	i 11 26	- 7	—	—	—	—
Collmberg	z.	73·4	337	e 11 39	+ 3	—	—	—	—
Ottawa		73·5	36	e 11 30	- 6	e 11 40	?	e 14 22	PP
Shawinigan Falls	N.	73·6	33	e 11 51	+14	—	—	—	—
Jena	z.	74·1	338	e 11 42	+ 2	—	—	e 11 54	PcP
Prague		74·2	336	e 12 20	+40	—	—	—	—
Rathfarnham C.	z.	74·9	350	e 17 2	?	—	—	i 17 7	?
Stuttgart		76·7	339	e 11 57	+ 2	—	—	e 12 8	PcP
Strasbourg		77·2	340	e 12 9	PcP	—	—	—	e 47·9
Harvard		77·5	35	e 12 4	+ 5	—	—	—	—
Paris		78·0	343	i 12 4	+ 2	—	—	i 12 15	PcP
Basle	z.	78·2	340	e 12 17	PcP	—	—	—	—
Halifax		78·2	29	e 11 59	- 4	—	—	i 12 10	PcP
Ksara		80·8	313	i 12 24	PcP	—	—	—	—
Tamanrasset	z.	102·2	333	e 18 9	PP	—	—	—	—

Nov. 16d. 15h. 5m. 3s. Epicentre 2°·7N. 29°·2W.

A = +·8720, B = -·4873, C = +·0468; δ = +4; h = +7;
D = -·488, E = -·873; G = +·041, H = -·023, K = -·999.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Fort de France		33·7	292	e 6 29	-16	—	—	—	—
Tamanrasset	z.	39·1	55	i 7 31 _k	0	e 13 40	+ 9	e 9 19	PcP
San Juan		39·4	297	e 7 45	+12	—	—	—	—
Granada		41·6	31	8 20 _a	+29	14 55	+47	—	—
La Paz		42·9	242	i 7 58 _a	- 4	i 14 16	-11	i 9 37	PP
Bermuda		44·5	315	—	—	e 15 9	+18	—	e 19·4
Bogota		44·8	274	e 8 24	+ 7	e 14 58	+ 3	e 18 7	SS
La Plata		46·1	213	13 57	PcS	14 45	-29	18 3	SS
Chinchina		46·4	275	e 8 27	- 3	e 15 36	+18	e 10 15	PP
Huancayo		48·1	251	i 8 36	- 7	e 15 33	- 9	e 10 35	PP
Clermont-Ferrand		51·3	28	—	—	e 16 49	PPS	—	—
Halifax		51·6	329	i 9 16	+ 6	16 43	PPS	10 26	PcP
Messina		54·0	43	e 9 42	+14	e 17 22	PPS	e 12 47	PPP
Rome		54·0	37	e 9 29	+ 1	e 17 15	PS	e 21 2	SS
Florence		54·3	35	e 9 31	+ 1	e 17 22	PS	—	e 28·4
Kew		54·3	21	—	—	e 17 27	PPS	—	—
Harvard		54·7	323	i 9 38 _a	+ 5	—	—	—	e 26·6
Salo		55·1	33	e 9 10	-26	—	—	—	—
Palisades		55·4	320	—	—	e 17 22	0	(e 18 0)	PPS
Taranto		56·3	41	—	—	18 10	PPS	—	e 18·0
Stuttgart		56·4	29	e 9 48	+ 3	—	—	—	—
De Bilt		56·9	24	—	—	e 18 9?	PPS	—	e 25·0
Ottawa		58·8	323	e 10 6 _a	+ 4	18 28	PPS	11 2	PcP
Buffalo (Larkin)		59·4	320	e 10 7	+ 1	—	—	—	—
Collmberg	z.	59·9	29	e 10 9	- 1	—	—	—	—
Pretoria	z.	62·3	120	e 10 25	- 1	—	—	—	—
Ksara		67·9	55	e 11 2	0	—	—	13 38	PP
Fayetteville	z.	70·0	308	i 11 5 _a	-10	—	—	—	—
Kiruna	E.	73·2	18	—	—	e 21 3	+ 1	e 26 1	SS
Resolute Bay	z.	81·1	345	e 12 17	- 1	—	—	—	e 33·0
Butte		83·5	316	e 12 33	+ 2	—	—	—	—
Hungry Horse		84·6	318	i 12 38	+ 2	—	—	—	—
Boulder City		84·9	306	i 12 37	- 1	—	—	—	—

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1952

1088

Nov. 17d. 8h. 57m. 36s. Epicentre 39°·2N. 70°·7E. (as on 3d.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Dzhergetal	0·4	88	i 0 9	+ 1 _g	—	—
Garm	0·4	237	0 9	+ 1 _g	i 0 14	+ 1 _g
Obi-garm	0·9	237	e 0 18	0 _g	e 0 31	0*
Fergana	1·4	31	—	—	e 0 47	+ 1
Stalinabad	1·6	247	i 0 32	0 _g	i 0 55	+ 2 _g
Khorog	1·9	158	e 0 36	+ 1*	e 1 6	+ 3 _g
Namangan	1·9	22	—	—	e 1 5	+ 2 _g
Andijau	2·0	39	e 0 36	+ 1	i 1 7	+ 1 _g
Lunacharskoe	2·4	334	e 0 44	0*	i 1 17	- 2 _g
Samarkand	2·9	279	—	—	1 24	0
Tchimkent	3·1	345	e 0 54	- 2*	1 38	+ 2*

Nov. 17d. 12h. 4m. 4s. Epicentre 52°·7N. 162°·7E.

A = -·5810, B = +·1810, C = +·7935; $\delta = -4$; $h = -7$;
D = +·297, E = +·955; G = -·758, H = +·236, K = -·609.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Nanking	37·7	255	7 19k	0	13 4	- 6	—	—
Resolute Bay	z. 43·1	23	i 7 3k	-61	—	—	—	—
Victoria	45·2	64	8 20	0	—	—	—	—
Mineral	z. 51·2	72	e 9 7	0	—	—	e 9 28	?
Reno	z. 52·8	71	e 9 18	- 1	—	—	e 9 29	?
Kiruna	56·5	344	i 9 44	- 2	—	—	—	e 33·9
Upsala	z. 64·3	341	i 10 39	0	—	—	i 10 46	?
Fayetteville	z. 69·3	57	i 11 10	- 1	—	—	—	—
Ottawa	70·2	40	i 11 15k	- 2	—	—	—	—
Collmberg	z. 73·3	341	e 11 34	- 1	—	—	—	—
Jena	z. 73·9	341	e 11 38	- 1	—	—	—	—
Poona	z. 74·8	281	e 11 44	0	—	—	—	—
Stuttgart	76·4	342	e 11 53	0	—	—	—	—
Strasbourg	76·9	343	e 12 0	+ 4	—	—	e 12 26	?
Ksara	82·2	317	e 12 30	+ 6	—	—	—	43·9
Tamanrasset	z. 102·2	338	e 18 4	PP	—	—	—	—

Nov. 17d. 13h. 20m. 52s. Epicentre 48°·2N. 154°·4E. (as on 1951, July 14d.).

A = -·6034, B = +·2891, C = +·7432; $\delta = +2$; $h = -5$;
D = +·432, E = +·902; G = -·670, H = +·321, K = -·669.

	Δ °	Az. °	P. m. s.	O-C. s.	Supp. m. s.	L. m.
Resolute Bay	z. 49·2	19	i 8 50k	- 2	—	—
Scoresby Sund	61·6	359	i 10 20k	- 2	—	—
China Lake	z. 63·1	65	e 10 33	+ 1	—	—
Pasadena	z. 63·9	67	e 10 38	+ 1	—	—
Riverside	z. 64·5	67	e 10 40	- 1	—	—
Poona	z. 70·2	275	e 11 19	+ 2	—	—
Collmberg	z. 75·5	336	e 11 48	0	—	—
Witteveen	z. 75·7	340	i 11 51	+ 2	—	—
Fayetteville	z. 76·2	51	i 11 49	- 3	—	—
Jena	z. 76·2	336	e 11 53	+ 1	e 12 12	PcP
Stuttgart	78·8	338	e 12 7	+ 1	—	—
Paris	80·4	342	i 12 15	0	—	e 47·1

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1952

1089

Nov. 18d. 7h. 42m. 48s. Epicentre 51°·5N. 162°·0E. Focus as Base of Superficial Layers.

Epicentre as suggested by U.S.S.R.

A = -·5945, B = +·1932, C = +·7806; $\delta = +9$; $h = -7$;
D = +·309, E = +·951; G = -·742, H = +·241, K = -·625.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Nanking	z.	37·0	255	7 8	0	e 12 53	+2	—	—
Resolute Bay	z.	44·4	21	i 8 8k	-1	—	—	—	—
Victoria		46·1	62	8 31	pP	—	—	—	—
Manila		49·3	237	i 8 12a	-36	—	—	—	—
Tinemaha	z.	56·1	71	e 9 47	+9	—	—	e 9 57	pP
China Lake	z.	57·4	71	e 9 55	+7	—	—	—	—
Kiruna	z.	57·6	343	i 9 44a	-5	i 10 26	PcP	i 9 55	pP
Pasadena		58·2	73	e 10 2	+9	—	—	i 10 12	pP
Scoresby Sund		58·3	2	i 9 52k	-2	—	—	—	—
Riverside	z.	58·7	73	e 10 3	+6	—	—	—	—
Chatra		60·2	277	i 10 5	-2	e 18 12	-5	—	—
Upsala	z.	65·3	341	i 10 38a	-3	—	—	i 10 48	pP
Copenhagen		70·2	342	i 11 11	0	—	—	i 11 22	pP
Fayetteville	z.	70·3	56	i 11 16	+4	—	—	—	—
Ottawa		71·4	39	e 11 21	+2	—	—	—	—
Potsdam		73·2	341	e 11 27	-2	—	—	—	—
Witteveen	z.	74·0	345	i 11 34k	0	—	—	—	e 41·2
Collmberg	z.	74·3	340	e 11 33	-3	—	—	—	—
Poona		74·6	280	i 11 36	-2	—	—	i 11 47	pP
Jena		74·9	340	e 11 37	-2	—	—	e 11 48	pP
Stuttgart		77·4	342	e 11 51	-2	—	—	e 12 3	pP
Strasbourg		77·9	343	i 11 55	-1	—	—	e 12 5	pP
Paris		78·5	347	i 11 58	-1	—	—	—	—
Basle		78·9	342	e 12 0	-2	—	—	—	—
Chur		79·2	341	e 12 2a	-1	—	—	—	—
Besançon		79·5	343	e 12 4	-1	—	—	e 12 13	pP
Clermont-Ferrand		81·4	345	e 12 16	+1	—	—	—	—
Ksara		82·8	317	i 12 21	-1	—	—	—	—
Tamanrasset	z.	103·2	337	e 13 57	0	e 17 49	?	e 18 11	PP
Pretoria	z.	136·7	288	e 19 24	[+5]	—	—	—	—
Kimberley	z.	140·9	288	e 19 31	[+4]	—	—	—	—

Nov. 18d. 8h. 13m. 34s. Epicentre 50°·2N. 157°·3E. Focus at Base of Superficial Layers.
(as on 12d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
College		31·7	42	i 6 24	+1	e 11 28	-1	—	e 13·3
Nanking		33·7	252	e 6 37k	-3	11 56	-4	—	—
Manila		46·1	232	i 8 11	-12	i 14 47	-18	i 8 44	pP
Resolute Bay		46·7	21	i 8 28a	+1	i 15 18	+4	i 10 14	PP
Victoria		49·3	60	8 48	0	—	—	—	—
Seattle	z.	50·4	61	i 8 59	+3	—	—	—	—
Hungry Horse		54·5	55	i 9 28	+1	—	—	—	—
Shasta	z.	54·6	66	e 9 28	0	—	—	i 9 40	pP
Mineral	z.	55·2	66	e 9 32	0	—	—	i 9 46	pP
Berkeley	z.	56·4	70	i 9 42k	+2	—	—	e 9 49	pP
Branner	z.	56·8	70	e 9 44	+1	—	—	e 9 57	pP
Reno	z.	56·8	65	e 9 42k	-1	—	—	e 9 54	pP
Chatra		57·4	273	e 9 44	-4	e 17 49	+9	e 19 29	ScS
Kiruna		57·9	342	i 9 49	-2	i 18 7	PS	e 19 44	ScS
Fresno	z.	58·7	68	e 9 58k	+1	—	—	—	e 28·9
Tinemaha		59·3	68	i 10 3	+2	—	—	i 10 15	pP
Scoresby Sund		59·6	0	i 10 3k	0	i 18 14	+5	i 10 51	PcP
China Lake	z.	60·6	68	i 10 10	0	—	—	i 10 25	pP
Pasadena		61·4	70	i 10 16	+1	—	—	i 10 29	pP
Riverside		62·0	70	i 10 18	-1	—	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	m.	s.	m.
Boulder City	62.1	66	i 10	21	+ 1	—	—	—	—	—
Nelson	62.3	66	i 10	22	+ 1	—	—	—	—	—
Palomar	z. 62.7	70	i 10	25	+ 1	—	—	i 10	38	pP
Reykjavik	64.4	359	i 10	47	+12	i 10	58	?	i 10	53
Upsala	65.5	339	i 10	39	- 3	i 11	13	PcP	i 10	51
Tucson	67.1	67	e 10	53	+ 1	—	—	—	—	—
Quetta	67.6	291	i 10	54 _a	- 1	e 19	50	+ 2	i 11	7
Copenhagen	70.5	340	i 11	13	0	—	—	—	—	35.4
Kirkland Lake	z. 70.9	37	i 11	11 _a	- 5	e 13	50	PP	i 11	23
Lubbock	71.3	59	e 11	20	+ 2	—	—	—	—	39.4
Poona	z. 71.8	277	i 11	20	- 1	—	—	i 11	30	pP
Bombay	72.2	278	e 11	22	- 1	—	—	e 11	28	pP
Lwow	72.6	330	i 11	27	+ 1	e 21	27	ScS	e 21	46
Kishinev	73.4	326	i 11	28	- 2	—	—	—	—	PPS
Potsdam	73.4	339	i 11	29 _k	- 1	—	—	e 11	32	P
Fayetteville	z. 73.5	53	i 11	32 _k	+ 1	e 16	57	?	i 11	43
Raciborz	74.2	334	e 11	32	- 3	i 11	35	P	e 14	15
Uzhgorod	74.2	330	i 11	34	- 1	e 21	13	+ 8	—	PP
Ottawa	74.3	36	i 11	36 _a	0	14	6	PP	15	53
Shawinigan Falls	N. 74.3	33	e 11	36	0	—	—	—	e 11	45
Collmberg	74.4	337	e 11	34	- 2	—	—	—	—	PPP
Skalnate Pleso	74.4	332	e 11	37	+ 1	e 21	49	ScS	e 14	38
Witteveen	z. 74.4	342	i 11	36 _k	0	—	—	—	—	PP
Jena	75.1	338	i 11	39	- 1	—	—	e 11	49	pP
Buffalo (Larkin)	75.2	39	i 11	42	+ 1	—	—	—	—	—
Cleveland	z. 75.2	42	i 11	42 _a	+ 1	—	—	i 11	54	pP
Prague	75.2	336	i 11	40 _k	- 1	e 14	26	PP	e 22	8
De Bilt	75.4	343	i 11	42 _k	0	e 21	44	ScS	—	PPS
Kodaikanal	E. 75.7	269	e 11	45	+ 1	—	—	—	—	e 43.4
Rathfarnham Castle	75.9	350	i 11	45 _a	0	e 21	36	+12	i 11	50
Budapest	76.2	332	i 11	44	- 3	e 21	26	- 1	e 12	5
Ogyalla	76.2	333	e 21	14	PS	—	—	—	—	PcP
Kew	76.9	346	i 11	50	- 1	—	—	i 12	1	46.4
Kalossa	77.1	333	e 11	54	+ 2	—	—	e 12	15	PcP
Timisoara	N. 77.1	330	i 11	55 _k	+ 3	e 21	44	+ 7	—	sP
Pennsylvania	z. 77.3	40	i 11	52	- 1	i 13	5	?	i 12	2
Morgantown	77.4	42	i 11	54	+ 1	—	—	—	e 14	58
Karlsruhe	77.6	340	i 11	55 _a	+ 1	—	—	—	—	PP
Stuttgart	77.7	339	i 11	54 _k	- 1	e 22	1	ScS	e 12	5
Belgrade	78.2	330	e 11	58 _k	0	e 22	25	PPS	e 13	20
Strasbourg	78.2	340	i 11	58	0	e 21	46	- 3	e 14	55
Harvard	78.3	35	i 12	0	+ 2	—	—	—	—	PP
Weston	78.5	35	i 12	0 _a	+ 1	—	—	—	i 12	12
Palisades	78.7	38	i 12	1	+ 1	—	—	—	—	pP
City College, N.Y.	78.8	38	e 12	1	0	—	—	—	—	—
Paris	79.0	343	i 12	2	0	—	—	i 12	13	pP
Halifax	79.1	28	i 12	4 _a	+ 1	—	—	—	—	e 38.4
Zürich	79.1	339	e 12	2 _k	- 1	e 21	50	- 8	—	—
Basle	79.2	340	e 12	2	- 1	—	—	—	—	—
Washington	79.2	39	i 12	5	+ 2	—	—	i 12	14	pP
Chur	79.4	338	e 12	4 _k	0	—	—	—	—	—
Triest	79.4	335	i 12	2	- 2	e 21	59	- 3	i 12	17
Besançon	79.8	341	i 12	6	0	—	—	—	i 12	17
Neuchatel	79.9	340	e 12	6	- 1	—	—	—	—	PcP
Salo	80.3	337	i 12	4	- 5	22	4	- 7	—	—
Oropa	80.9	338	i 12	13	+ 1	e 22	10	- 7	12	24
Pavia	81.0	338	e 12	13	0	e 22	43	ScS	e 31	47?
Bologna	81.1	336	e 12	15	+ 2	e 22	39	ScS	e 12	26
Ksara	81.6	313	i 12	16	0	—	—	—	—	pP
Clermont-Ferrand	81.8	342	e 12	19	+ 2	—	—	—	—	—

Continued on next page.

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1952

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	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.
Florence	81.8	335	i 12	17k	0	—	—	—	i 12 30	pP	—
Siena	82.2	336	e 12	25	+ 6	23 1	+30	—	—	—	—
Taranto	83.1	330	—	—	—	22 41	+ 1	—	—	—	56.4
Rome	83.2	335	i 12	24k	0	e 22 42	+ 1	—	i 12 35	pP	—
Rocca di Papa	83.3	335	e 12	24	- 1	—	—	—	—	—	—
Tacubaya	83.6	67	e 12	22	- 4	—	—	—	e 12 44	?	—
Riverview	83.8	185	i 12	33a	+ 6	i 22 48	+ 1	—	—	—	e 39.3
Messina	E. 85.7	330	—	—	—	e 23 27	+22	—	e 24 40	PPS	—
Toledo	88.8	346	i 12	52	0	e 23 42	+ 7	—	e 16 56	?	—
Bermuda	89.8	35	—	—	—	e 23 49	+ 5	—	—	—	e 47.6
Alicante	90.3	343	13	0	+ 1	—	—	—	—	—	44.0
Algiers Univ.	z. 90.5	339	e 12	58	- 2	13 35	?	—	13 12	pP	—
Granada	91.4	345	i 13	17a	sP	23 53	- 5	—	—	—	i 51.1
Almeria	91.5	343	13	7	+ 3	24 5	+ 6	—	16 43	PP	47.7
Malaga	91.9	345	i 12	44	-22	—	—	—	—	—	52.6
San Juan	101.7	42	e 13	52	+ 1	—	—	—	e 18 2	PP	—
Tamanrasset	z. 103.1	333	e 13	56	- 1	e 18 13	PP	—	e 20 25	PPP	—
La Paz	130.5	63	e 19	16	[+ 8]	i 22 34	PKS	—	e 21 46	PP	—
Pretoria	z. 134.2	282	e 19	17	[+ 3]	—	—	—	—	—	—
Kimberley	z. 138.4	281	e 19	24	[+ 2]	—	—	—	—	—	—

Nov. 18d. 8h. 42m. 34s. Epicentre 50°·0N. 156°·4E. Focus at Base of Superficial Layers.
(as on 8d. 17h.).

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.
Mizusawa	15.4	231	6	8	S	(6 8)	-18	—	6 34	S	—
College	32.3	42	i 6	29	+ 1	—	—	—	—	—	—
Manila	45.6	232	i 8	3	-16	i 14 33	-25	—	—	—	—
Resolute Bay	z. 47.0	21	i 8	30	0	—	—	—	i 10 14	PP	—
Victoria	49.9	60	8	53	+ 1	—	—	—	—	—	—
Seattle	z. 51.0	61	i 9	17	pP	—	—	—	—	—	—
Hungry Horse	55.1	55	i 9	32	+ 1	—	—	—	i 9 46	pP	—
Shasta	55.2	66	e 9	32	0	—	—	—	i 9 47	pP	—
Butte	57.3	66	i 9	48	+ 1	—	—	—	i 10 2	pP	—
Kiruna	z. 57.9	342	i 9	49	- 2	i 10 16	sP	—	i 10 46	PcP	—
Tinemaha	60.0	67	i 10	7	+ 1	—	—	—	i 10 21	pP	—
China Lake	z. 61.2	67	i 10	14	0	—	—	—	i 10 28	pP	—
Pasadena	62.0	69	i 10	20	+ 1	—	—	—	i 10 34	pP	—
Riverside	z. 62.6	69	i 10	23	0	i 10 54	PcP	—	i 10 37	pP	—
Boulder City	62.7	66	i 10	25	+ 1	—	—	—	—	—	—
Nelson	62.9	66	i 10	26	+ 1	—	—	—	i 10 40	pP	—
Palomar	z. 63.3	69	i 10	29	+ 1	i 10 56	PcP	—	i 10 43	pP	—
Upsala	z. 65.5	339	i 10	39	- 3	—	—	—	i 11 20	PcP	—
Tucson	67.7	67	i 10	57	+ 1	—	—	—	i 11 12	pP	—
Poona	z. 71.3	277	e 11	16	- 2	—	—	—	—	—	—
Aberdeen	N. 71.7	349	e 11	26?	+ 6	—	—	—	—	—	—
Lubbock	71.9	59	e 10	24	-58	—	—	—	e 10 38	pP	—
Fayetteville	z. 74.1	53	i 11	34	- 1	i 12 1	sP	—	i 11 49	pP	—
Collmberg	z. 74.4	337	e 11	35	- 1	—	—	—	—	—	—
Ottawa	74.8	35	e 11	38k	- 1	—	—	—	14 8	PP	—
Jena	z. 75.1	338	e 11	39	- 1	—	—	—	—	—	—
Buffalo (Larkin)	75.7	39	e 12	0	PcP	—	—	—	—	—	—
Cleveland	z. 75.7	42	i 11	58a	PcP	—	—	—	—	—	—
Stuttgart	77.6	338	e 11	53	- 1	—	—	—	—	—	—
Morgantown	77.9	42	i 11	58	+ 2	—	—	—	i 12 7	PcP	—
Harvard	78.8	35	i 12	2	+ 1	—	—	—	—	—	—
Weston	79.0	35	i 12	2a	0	—	—	—	i 12 16	pP	—
Palisades	79.2	38	e 12	3	0	(e 18 37)	PPP	—	e 12 16	pP	e 18.6
Granada	91.4	345	i 13	26a	+22	—	—	—	—	—	—
Tamanrasset	z. 103.1	332	e 13	56	- 1	e 17 16	?	—	e 21 15	?	—
Pretoria	z. 133.6	282	e 19	13	[0]	e 22 37	SKP	—	—	—	—
Kimberley	z. 137.0	281	e 19	20	[0]	—	—	—	—	—	—

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1952

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Nov. 18d. 22h. 39m. 7s. Epicentre 36°·2N. 139°·9E. Focus at Base of Superficial Layers.
(as on 1952, July 28d.).

Intensity V at Utunomiya, Mizukaido, Simozuma, Ryugasaki, Simodate, Tateno, Kuwa, Asikaga, Nikko, and Fusa. Epicentre as adopted. Depth 40km. Macroseismic radius 100-200km.

Seismo. Bull. Cent. Met. Obs., Japan, for November, 1952, Tokyo, 1953, p. 449, with macroseismic chart.

$$A = -.6187, B = +.5210, C = +.5880; \quad \delta = -3; \quad h = 0;$$

$$D = +.644, E = +.765; \quad G = -.450, H = +.379, K = -.809.$$

	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	s.	m. s.	s.
Tukubasan	0.2	84	0 6	- 1	0 12	- 1
Utunomiya	0.3	356	i 0 9k	+ 1	0 16	+ 1
Kumagaya	0.4	263	0 8	- 1	0 17	+ 1
Mito	0.5	68	0 12a	+ 2	0 19	+ 1
Tokyo	0.5	192	i 0 10	0	0 18	0
Maebasi	0.7	287	i 0 13k	0	0 24	+ 1
Titibu	0.7	252	i 0 8	- 5	0 19	- 4
Yokohama	0.8	195	0 15k	0	0 25	- 1
Shirakawa	0.9	15	0 18	+ 2	0 31	+ 3
Tyosi	0.9	121	0 14	- 2	0 25	- 3
Oiwake	1.1	277	0 19k	0	0 38	+ 5
Onahama	1.1	48	e 0 21	+ 2	—	—
Hunatu	1.2	233	0 20	0	0 33	- 3
Kohu	1.2	242	0 18k	- 2	0 32	- 4
Ahiro	1.3	210	e 0 19	- 3	0 34	- 4
Mera	1.3	182	0 18	- 4	0 34	- 4
Misima	1.3	215	0 24	+ 2	0 35	- 3
Inawasiro	1.4	7	e 0 25	+ 2	0 43	+ 2
Matusiro	1.4	284	i 0 21k	- 2	0 39	- 2
Nagano	1.4	289	e 0 24	+ 1	0 42	+ 1
Osima	1.5	196	e 0 21	- 3	0 38	- 6
Hokusima	1.6	16	e 0 28	+ 2	0 48	+ 2
Matumoto	1.6	271	0 25	- 1	0 45	- 1
Takada	1.6	304	0 23	- 3	0 48	+ 2
Shizuoka	1.7	225	0 31	+ 3	0 51	+ 2
Iida	1.8	248	i 0 29	0	0 51	0
Omaesaki	2.1	221	0 42	+ 9	1 6	+ 7
Takayama	2.1	269	e 0 36	+ 3	1 0	+ 1
Yamagata	2.1	10	e 0 35	+ 2	1 2	+ 3
Aikawa	2.2	324	e 0 34	- 1	1 1	0
Sendai	2.2	21	e 0 36	+ 1	1 2	+ 1
Toyama	2.2	283	e 0 39	+ 4	1 7	+ 6
Nagoya	2.6	247	e 0 43	+ 2	1 14	+ 3
Gihu	2.7	253	e 0 43	+ 1	—	—
Wazima	2.7	296	e 0 44?	+ 2	—	—
Ibukisan	3.0	255	e 0 50	+ 4	1 33	+11
Hatidyzoima	3.1	181	0 44	- 4	1 20	- 4
Kameyama	3.1	244	0 53	+ 5	1 37	+13
Mizusawa	3.1	18	0 52	+ 4	1 26	+ 2
Tsuruga	3.2	261	e 0 46	- 3	—	—
Akita	3.5	3	—	—	i 1 44	+10
Kyoto	3.6	251	e 1 3	+ 8	1 48	+11
Morioka	3.6	16	e 0 56	+ 1	1 39	+ 2
Owase	3.7	237	e 1 5	+ 9	1 50	+11
Sumoto	4.5	247	e 1 12	+ 4	2 14	SS
Hirosima	6.4	255	—	—	e 2 54	+ 7
Matuyama	6.4	249	—	—	e 3 13	+26
Pasadena	z. 79.1	55	e 11 58	- 5	—	—
Riverside	z. 79.7	55	e 12 14	+ 8	12 29	pP

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1952

1093

Nov. 19d. 5h. 55m. 48s. Epicentre 3°·5S. 149°·5E. (as on 1951, June 25d.).

$\Delta = -0.8601$, $B = +0.5066$, $C = -0.0606$; $\delta = +9$; $h = +7$;
 $D = +0.508$, $E = +0.862$; $G = +0.052$, $H = -0.031$, $K = -0.998$.

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		L. m.	
Brisbane	24.1	172	i 5	16 _a	- 2	i 9	40	+ 6	i 5	52	PP	—
Riverview	30.2	176	i 6	36 _k	+ 22	e 11	13	0	—	—	—	e 14.5
Bandong	41.8	265	7	54	+ 1	e 14	45	+ 34	—	—	—	—
Perth	42.4	223	—	—	—	i 17	59	SSS	—	—	—	i 24.2
Djakarta	42.6	265	e 8	59	+ 60	e 15	23	+ 60	e 18	17	SSS	—
College	81.9	23	12	19	- 4	—	—	—	—	—	—	—
Mineral	z. 91.4	50	e 13	9	0	—	—	—	13	19	?	—
Fresno	z. 92.6	53	e 13	16	+ 1	e 13	32	?	e 13	59	?	—
Pasadena	93.9	56	i 13	23	+ 2	—	—	—	e 13	35	?	—
China Lake	z. 94.4	54	e 13	23	0	—	—	—	—	—	—	—
Riverside	z. 94.5	56	e 13	25	+ 2	—	—	—	e 13	35	?	—
Boulder City	96.6	55	e 13	32	- 1	—	—	—	—	—	—	—
Nelson	96.6	55	e 13	33	0	—	—	—	—	—	—	—
Hungry Horse	96.9	42	e 13	34	0	—	—	—	—	—	—	—
Ksara	111.5	304	—	—	—	i 31	52	?	e 42	33	?	—
Stuttgart	123.6	329	e 19	77	[+ 7]	—	—	—	—	—	—	—
Tamanrasset	z. 140.2	302	e 19	36	[+ 5]	e 23	17	PKS	e 21	58	PP	—

Nov. 19d. 7h. 28m. 38s. Epicentre 19°·5S. 177°·2W. Depth of focus 0.050.

$\Delta = -0.9422$, $B = -0.0461$, $C = -0.3318$; $\delta = -4$; $h = +4$;
 $D = -0.049$, $E = +0.999$; $G = +0.331$, $H = +0.016$, $K = -0.943$.

	Δ °	Az. °	P. m. s.		O-C. s.	S. m. s.		O-C. s.	Supp. m. s.		
Apia	7.7	43	i 1	48	- 3	i 3	9	- 10	—	—	
New Plymouth	E. 20.9	198	—	—	—	e 7	34	- 10	—	—	
Wellington	22.8	196	e 4	32	- 3	e 8	13	- 3	—	—	
Cobb River	E. 23.2	200	e 4	39	+ 1	e 8	20	- 2	—	—	
Kaimata	N.E. 24.9	200	e 4	54	0	8	47	- 3	—	—	
Brisbane	28.4	248	i 5	26 _k	+ 1	i 9	46	0	e 6	33	pP
Riverview	31.5	236	—	—	—	i 10	33	- 1	i 15	47	ScS
Branner	z. 76.7	42	e 11	15	0	—	—	—	—	—	—
Berkeley	z. 76.9	42	i 11	16 _a	0	—	—	—	—	—	—
Pasadena	z. 77.4	47	i 11	19 _a	+ 1	—	—	—	e 12	50	pP
Fresno	z. 77.8	43	e 11	21 _a	0	—	—	—	12	46	pP
Riverside	77.9	47	i 11	21 _a	0	—	—	—	e 12	43	pP
China Lake	z. 78.8	45	i 11	26 _a	0	—	—	—	e 12	50	pP
Mineral	z. 78.9	40	e 11	26 _a	0	—	—	—	i 11	32	P
Tinemaha	79.0	44	i 11	28 _a	+ 1	—	—	—	—	—	—
Reno	z. 79.5	41	e 11	30 _a	0	—	—	—	e 12	56	pP
Nelson	80.6	46	i 11	36	+ 1	—	—	—	—	—	—
Boulder City	80.7	46	i 11	37	+ 1	—	—	—	—	—	—
Tucson	81.7	51	i 11	43	+ 2	—	—	—	—	—	—
Victoria	82.9	33	i 10	48 _a	- 59	—	—	—	—	—	—
College	87.1	12	i 12	6	- 2	—	—	—	i 13	32	pP
Butte	87.5	38	i 12	9	- 1	—	—	—	—	—	—
Hungry Horse	87.9	36	i 12	11	- 1	—	—	—	—	—	—
Fayetteville	z. 95.8	54	i 12	43	- 5	—	—	—	i 14	12	pP
Collmberg	z. 147.3	348	e 19	3	[+ 3]	—	—	—	e 20	30	pPKP
Jena	z. 147.9	349	e 19	5	[+ 4]	—	—	—	e 20	35	pPKP
Stuttgart	z. 150.3	352	e 19	4	[0]	e 24	44	[- 52]	e 20	40	pPKP
Tamanrasset	z. 175.9	—	i 19	30 _k	[+ 2]	e 22	35	sPKP	e 21	45	pPKP

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1094

Nov. 19d. 7h. 58m. 3s. Epicentre 39°·3N. 72°·6E. (as on 1952, September 9d.).

A = +·2320, B = +·7405, C = +·6308; $\delta = +7$; $h = -1$;
D = +·954, E = -·299; G = +·189, H = +·602, K = -·776.

	Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.	
			m.	s.	s.	m.	s.	s.	m.	s.
Dzhergetal	1·1	266	0	22	0	0	34	- 2 _g	—	—
Fergana	1·3	330	e 0	23	- 2	i 0	38	- 4 _g *	—	—
Andijan	1·5	353	0	31	+ 1 _g	i 0	50	0 _g	i 0	55 ?
Garm	1·8	260	i 0	33	+ 1	0	56	0	—	—
Namangan	1·8	337	—	—	—	i 0	53	- 3	—	—
Khorog	2·0	203	0	39	- 1 _g	—	—	—	—	—
Obi-garm	2·3	255	e 0	45	- 1 _g	e 1	15	- 1 _g	—	—
Kulyab	2·6	238	—	—	—	1	27	+ 1 _g	—	—
Stalinabad	3·1	256	—	—	—	e 1	35	- 1 _g *	—	—
Lunacharskoe	3·2	309	e 0	58	0*	—	—	—	—	—
Naryn	3·4	50	1	9	+ 1 _g	—	—	—	—	—
Tchimkent	3·8	324	—	—	—	2	5	- 1 _g	—	—

Nov. 19d. 10h. 23m. 28s. Epicentre 29°·8N. 86°·6E.

A = +·0516, B = +·8677, C = +·4945; $\delta = +10$; $h = +1$;
D = +·998, E = -·059; G = +·029, H = +·494, K = -·869.

	Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.		L. m.
			m.	s.	s.	m.	s.	s.	m.	s.	
Chatra	3·0	171	e 0	52	+ 2	i 1	26	- 1	1	0	—
Shillong	E. 6·3	131	i 1	34	- 2	i 2	48	- 2	3	27	—
Calcutta	E. 7·4	163	e 1	56	+ 4	i 3	16	- 2	4	1	—
Dehra Dun	N. 7·4	276	e 2	14	+ 5*	e 3	8	-10	—	—	—
New Delhi	8·3	264	e 2	7	+ 3	i 3	45	+ 5	4	14	—
Przhevalsk	14·3	335	3	27	+ 1	—	—	—	—	—	—
Hyderabad	E. 14·4	213	e 3	27	0	i 5	54	-15	—	—	7·5
Naryn	14·4	326	i 3	29	+ 2	i 6	16	+ 7	—	—	—
Khorog	14·6	305	e 3	30	0	—	—	—	—	—	—
Rybach'e	15·2	329	i 3	40	+ 2	e 6	29	+ 1	—	—	—
Almata	15·5	333	i 3	44	+ 2	—	—	—	—	—	—
Dzhergetal	15·5	310	e 3	46	+ 4	—	—	—	—	—	—
Andijan	15·9	317	i 3	47	0	6	44	0	—	—	—
Fergana	16·0	315	e 3	47	- 1	e 6	42	- 4	—	—	—
Kulyab	16·1	304	3	52?	+ 3	6	44?	- 5	—	—	—
Poona	16·1	229	i 3	47	- 2	6	41	- 8	4	5	PP
Frunse	16·2	317	i 3	54	+ 4	—	—	—	—	—	7·5
Garm	16·3	309	e 3	34?	-18	e 6	33?	-20	—	—	—
Namangan	16·5	317	e 3	52	- 2	—	—	—	—	—	—
Obi-garm	16·5	307	i 3	59?	+ 5	—	—	—	—	—	—
Bombay	16·6	232	e 3	53	- 3	6	58	- 2	4	10	PP
Quetta	16·9	276	e 4	2	+ 3	e 7	11	+ 4	i 8	44	PcP
Stalinabad	17·1	306	i 4	1	- 1	i 7	4	- 8	—	—	—
Madras	E. 17·7	202	i 4	10	0	i 7	13	-13	8	48	PcP
Lunacharskoe	18·1	314	i 4	13	- 1	i 7	37?	+ 2	—	—	—
Tashkent	18·1	314	e 4	13	- 1	e 7	29	- 6	—	—	—
Tchimkent	18·5	317	i 4	20	+ 1	—	—	—	—	—	—
Samarkand	18·8	306	4	22	- 1	7	42	- 8	—	—	—
Semipalatinsk	21·1	349	e 4	49	+ 1	e 8	40	+ 1	—	—	—
Kodaikanal	E. 21·2	207	e 5	15	PP	e 8	45	+ 4	13	3	?
Bairam-Ali	21·7	297	i 4	57	+ 2	8	51	0	—	—	—
Ashkabad	24·7	297	i 5	28?	+ 4	—	—	—	—	—	—
Irkutsk	26·0	24	e 5	36	0	e 10	12	+ 6	—	—	—
Kizyl-Arvat	26·6	301	e 5	47?	+ 5	—	—	—	—	—	—
Kabansk	26·7	26	i 5	44	+ 1	—	—	—	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952		1095										
		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Nanking		27.7	76	5	50 ^a	- 2	10	27	- 6	—	—	—
Sverdlovsk		32.6	334	i 6	36	+ 1	11	52	+ 1	—	—	—
Makhach-Kala		33.8	304	—	—	—	i 12	12	+ 2	—	—	—
Goris		34.3	298	i 6	52 [?]	+ 2	—	—	—	—	—	—
Kirovobad		34.3	300	6	52	+ 2	—	—	—	—	—	—
Grozny		35.1	305	i 6	59	+ 2	—	—	—	—	—	—
Tiflis		35.6	301	e 7	4	+ 3	—	—	—	—	—	—
Erevan		35.7	299	i 7	5	+ 3	—	—	—	—	—	—
Borzhomei		36.7	301	e 7	11	+ 1	—	—	—	—	—	—
Abastumanj		37.1	301	e 7	13	- 1	—	—	—	—	—	—
Piatigorsk		37.2	305	7	16 [?]	+ 1	—	—	—	—	—	—
Sotchi		39.5	304	e 7	36	+ 2	—	—	—	—	—	—
Theodosia		42.7	306	e 7	59	- 1	—	—	—	—	—	—
Ksara		42.9	289	i 8	5	+ 3	—	—	—	9	53	PP
Moscow		43.1	322	i 8	3	- 1	e 14	31 [?]	+ 1	—	—	—
Simferopol		43.6	306	i 8	8	0	—	—	—	—	—	—
Yalta		43.6	305	i 8	7	- 1	—	—	—	—	—	—
Kishinev		47.3	309	i 8	37	0	—	—	—	—	—	—
Istanbul	E.	47.4	301	—	—	—	e 15	34	+ 2	—	—	—
Helwan	Z.	47.5	285	8	39	+ 1	15	40	+ 6	10	40	PP
Pulkovo		47.9	326	i 8	43	+ 1	e 15	38	- 1	—	—	—
Lwow		50.5	312	i 9	2	0	—	—	—	—	—	—
Uzhgorod		51.7	310	i 9	11	0	—	—	—	—	—	—
Belgrade	Z.	53.3	306	e 9	24 ^k	+ 1	e 10	55	?	e 11	32 [?]	PP
Upsala		54.2	324	i 9	30	+ 1	e 17	8	+ 2	e 11	20	PP
												e 24.5
Prague		56.7	313	e 9	47	- 1	e 10	38	PcP	e 11	35	PP
Copenhagen		57.2	320	—	—	—	17	50	+ 4	—	—	e 30.5
Potsdam		57.2	316	e 9	51	0	—	—	—	—	—	e 28.5
Collnberg		57.4	314	e 9	51	- 2	—	—	—	—	—	e 32.5
Triest		57.8	308	e 9	20	-35	e 17	22	-32	e 10	17	?
												26.5
Messina		58.2	299	e 9	56	- 2	e 18	1	+ 2	i 10	2	P
Jena		58.3	314	e 9	59	0	e 10	14	?	e 10	49	PcP
Stuttgart		60.3	312	e 10	11	- 2	e 20	8	ScS	—	—	e 31.5
Karlsruhe		60.7	313	e 10	16	+ 1	—	—	—	—	—	e 32.5
Pavia		61.1	308	—	—	—	e 25	28 [?]	SSS	—	—	e 35.4
Strasbourg		61.2	312	i 10	19	0	e 10	55	PcP	e 12	36	PP
Besançon		62.7	311	e 10	28	- 1	—	—	—	e 11	20	?
Paris		64.5	314	e 10	39	- 2	—	—	—	e 10	44	P
Scoresby Sund		68.1	340	e 11	3	- 1	—	—	—	—	—	e 34.5
Tamanrasset	Z.	71.6	286	i 11	26 ^a	+ 1	i 11	44	PcP	i 14	8	PP
												35.5
Granada		72.8	304	i 11	53 ^a	PcP	—	—	—	—	—	—
Resolute Bay	Z.	75.8	1	i 11	48 ^a	- 2	—	—	—	—	—	—
College		76.6	21	11	52	- 2	—	—	—	—	—	—
Pretoria	Z.	78.6	232	e 12	4	- 1	—	—	—	i 12	9	PcP
Kimberley	Z.	82.9	231	i 12	27	- 1	—	—	—	—	—	—
Brisbane		85.3	125	i 12	39 ^a	- 1	—	—	—	i 15	37	PP
Hungry Horse		100.0	13	e 13	43	- 5	—	—	—	—	—	—
Ottawa		103.5	347	e 15	7	+63	—	—	—	—	—	—
Mineral	Z.	105.5	22	e 18	33	PP	—	—	—	e 18	44	?
Reno	Z.	106.8	20	e 18	28	PP	—	—	—	e 18	44	?
China Lake	Z.	110.9	20	e 18	58	PP	—	—	—	—	—	—
Boulder City		111.5	18	e 19	2	PP	—	—	—	—	—	—
Nelson		111.8	18	e 18	15	[-22]	—	—	—	—	—	—
Pasadena		112.2	21	e 19	20	PP	—	—	—	—	—	—
Fayetteville	Z.	114.5	0	i 18	44	[+ 2]	—	—	—	i 29	30	PKKP
Tucson		116.1	16	e 18	47	[+ 2]	—	—	—	—	—	—

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1952

1096

Nov. 19d. 11h. 10m. 28s. Epicentre 52°·6N. 160°·3E. (as on 12d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kiruna	z.	56·2	344	i 9 42	- 2	—	—	i 9 54	?
China Lake	z.	58·0	71	e 9 57	0	—	—	e 10 15	?
Pasadena	z.	58·8	73	e 10 7	+ 5	—	—	e 10 19	?
Riverside	z.	59·4	73	e 10 7	+ 1	—	—	—	—
Upsala	z.	63·9	340	i 10 36	- 1	i 10 46	?	i 10 52	?
Fayetteville	z.	70·6	56	i 11 16	- 3	—	—	—	—
Collmberg	z.	72·9	339	e 11 31	- 2	—	—	—	—
Poona	z.	73·4	279	i 11 42	+ 6	—	—	—	—
Jena	z.	73·5	340	e 11 36	0	—	—	—	—
Stuttgart		76·1	341	e 11 50	- 1	—	—	—	—
Strasbourg		76·5	342	e 11 52	- 2	e 12 2	PcP	e 14 56	PP
Paris		77·2	345	e 11 56	- 1	—	—	—	e 49·5
Besançon		78·1	342	e 12 2	0	—	—	—	—
Ksara		81·3	316	i 12 20	0	—	—	—	—
Tamanrasset	z.	101·8	336	e 15 56	?	—	—	e 17 43	PP

Nov. 19d. 22h. 11m. 34s. Epicentre 37°·1N. 141°·8E. (as on 1951, June 27d.).

Intensity IV at Hukusima, Ononimachi, and Tsusima. Epicentre 37°·2N. 141°·6E.
Depth 20km. Macro seismic radius 100-200km.
Seismo. Bull. Cent. Met. Obs., Japan, for Nov., 1952, Tokyo, 1953, p. 451, with macro seismic chart.

A = -·6283, B = +·4944, C = +·6006; δ = -9; h = -1;
D = +·618, E = +·786; G = -·471, H = +·371, K = -·800.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Onahama		0·8	257	—	—	i 0 36	+ 5
Hukusima		1·2	302	e 0 23	0*	0 36	- 4*
Mito		1·3	236	e 0 34	+ 9	0 50	+ 6
Sendai		1·3	329	e 0 22	- 3	0 34	-10
Shirakawa		1·3	271	e 0 29	+ 3 _g	0 42	- 1 _g
Inawasiro		1·4	289	e 0 27	0	0 42	- 4
Isinomaki		1·4	344	e 0 22	- 5	—	—
Tukubasan		1·6	237	e 0 34	+ 2 _g	e 0 54	+ 1 _g
Utunomiya		1·7	250	e 0 34	0 _g	0 55	- 1 _g
Kumagaya		2·1	244	—	—	1 9	0 _g
Mizusawa	e.	2·1	346	0 30	- 7	0 48	P _g
Tokyo		2·1	229	—	—	e 1 7	+ 1*
Maebasi		2·3	252	e 0 45	- 1 _g	1 12	0*
Morioka		2·7	349	e 0 41	- 4	—	—

Nov. 20d. 1h. 13m. 9s. Epicentre 36°·6N. 70°·1E. Depth of focus 0·030.
(as on 14d.).

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Kuliyab		1·3	349	i 0 35	0	i 1 1	0
Khorog		1·5	54	e 0 37	+ 1	1 4	0
Obi-garm		2·1	351	i 0 42	0	e 1 13	- 1
Stalinabad		2·2	332	i 0 44	+ 1	i 1 15	- 1
Dzhergetal		2·7	18	0 49	+ 1	e 1 25	0
Samarkand		3·9	322	e 1 0	- 2	e 1 48	- 2
Fergana		4·0	19	e 1 3	0	e 1 52	0
Andijan		4·5	22	—	—	2 4	+ 1
Tchimkent		5·7	356	—	—	e 2 30	0
Naryn		6·7	42	—	—	2 53	0
Przhevalsk		8·7	45	2 3	0	—	—

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1952

1097

Nov. 20d. 5h. 23m. 13s. Epicentre 50°·4N. 157°·8E. (as on 8d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Resolute Bay	Z.	46·4	21	i 8	28 _a	- 2	—	—	—	—	—	—
Mineral	Z.	54·9	67	e 9	33 _k	- 2	—	—	—	—	—	—
Reno	Z.	56·5	66	e 9	45 _k	- 1	—	—	—	—	—	—
Fresno	Z.	58·3	68	e 9	57 _k	- 2	—	—	—	—	—	—
Tinemaha	Z.	59·0	68	i 10	4	0	—	—	—	—	—	—
Scoresby Sund		59·4	0	e 10	6	0	—	—	—	—	—	—
China Lake	Z.	60·2	68	i 10	10 _k	- 2	—	—	—	—	—	—
Pasadena		61·0	70	i 10	17 _a	- 1	—	—	—	—	—	—
Riverside	Z.	61·6	70	e 10	20 _k	- 2	—	—	—	—	—	—
Palomar	Z.	62·3	70	i 10	25 _k	- 1	—	—	—	—	—	—
Upsala	Z.	65·5	340	i 10	42	- 5	—	—	—	—	—	—
Poona	Z.	72·1	278	e 11	31	+ 3	—	—	—	—	—	—
Fayetteville	Z.	73·1	53	i 11	32	- 2	—	—	i 11	43	pP	—
Collmberg	Z.	74·3	338	e 11	42	+ 1	—	—	—	—	—	—
Jena	E.	75·0	338	e 11	48	+ 3	—	—	e 12	4	PcP	—
Bucharest		76·7	327	e 11	41	-14	e 12	6	PcP	e 11	54	P
Stuttgart		77·6	340	e 11	49	-11	—	—	—	e 12	1	P
Harvard		77·9	35	i 12	1 _a	0	—	—	—	—	—	e 43·8
Strasbourg		77·9	340	i 12	4	+ 3	—	—	—	—	—	—
Weston		78·1	35	i 12	3 _k	+ 1	—	—	—	—	—	—
Paris		78·9	344	i 12	9	+ 2	—	—	i 12	20	PcP	e 41·8
Basle		79·1	341	e 12	10	+ 2	—	—	—	—	—	—
Besançon		79·7	341	i 12	13	+ 2	—	—	—	—	—	—
Ksara		81·7	314	e 12	28	PcP	—	—	—	—	—	—
Rome		83·2	335	e 17	17?	PPP	—	—	—	—	—	e 40·3
Messina	E.	85·7	331	e 15	54	PP	—	—	—	—	—	—
Helwan	Z.	87·1	315	28	56	?	29	10	SS	31	59	SSS
Tamanrasset	Z.	103·1	334	e 13	37	-25	—	—	—	14	15	P

Nov. 20d. 11h. 25m. 59s. Epicentre 50°·0N. 156°·4E. Focus at Base of Superficial Layers. (as on 18d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Resolute Bay	Z.	47·0	21	i 8	31 _k	+ 1	—	—	—	—	—	—
Mineral	Z.	55·9	66	i 9	34 _a	- 3	—	—	—	—	—	—
Berkeley	Z.	57·1	70	e 9	27	-19	—	—	—	—	—	—
Kiruna	Z.	57·9	342	i 9	49	- 2	—	—	—	—	—	—
Fresno	Z.	59·3	68	e 9	57	- 4	—	—	—	—	—	—
Scoresby Sund		59·8	0	i 10	4 _k	0	—	—	—	—	—	35·0
Tinemaha	Z.	60·0	67	i 10	5	- 1	—	—	—	—	—	—
China Lake	Z.	61·2	67	e 10	11	- 3	—	—	—	—	—	—
Mount Wilson	Z.	62·0	69	i 10	17	- 2	i 10	39	sP	i 10	31	pP
Pasadena	Z.	62·0	69	i 10	17	- 2	i 10	49	sP	i 10	30	pP
Riverside	Z.	62·6	69	e 10	20	- 3	—	—	—	e 10	34	pP
Palomar	Z.	63·3	69	e 10	26	- 2	i 10	34	P	e 10	38	pP
Upsala		65·5	339	i 10	43 _a	+ 1	—	—	—	i 10	50	pP
Quetta		67·1	291	i 10	52	0	—	—	—	—	—	e 39·0
Poona		71·3	277	i 11	17	- 1	20	38	+ 6	i 11	31	pP
Bombay	E.	71·7	278	e 11	22	+ 2	e 20	44	+ 7	—	—	—
Fayetteville	Z.	74·1	53	i 11	33	- 2	—	—	—	i 11	45	pP
Collmberg	Z.	74·4	337	e 11	37	+ 1	—	—	—	—	—	—
Ottawa		74·8	35	e 11	37	- 2	—	—	—	—	—	—
Shawinigan Falls		74·8	33	e 11	39	0	—	—	—	e 11	48	pP
Jena		75·1	338	e 11	41	+ 1	—	—	—	e 12	33	?
Prague	N.	75·1	336	e 11	40	0	e 14	32	PP	e 16	31	PPP
Stuttgart		77·6	338	e 11	56	+ 2	e 22	31	PS	—	—	e 42·0
Strasbourg		78·2	339	i 11	59	+ 1	e 12	5	P	e 12	14	pP
Paris		79·0	343	i 12	4	+ 2	i 12	31	?	i 12	11	pP

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Palisades	79.2	38	—	—	e 31 43	SSS	—	e 48.6
Triest	z. 79.4	335	e 12 4	0	—	—	e 12 28	—
Besançon	79.8	340	i 12 8	+ 2	e 12 34	?	e 12 24	—
Ksara	81.3	313	i 12 18	+ 4	—	—	—	—
Florence	z. 81.8	335	e 12 16k	- 1	—	—	—	—
Rome	83.2	335	—	—	e 29 1?	?	—	e 43.5
Messina	E. 85.6	330	—	—	e 23 12	+ 8	e 33 44	Q
Helwan	z. 86.8	315	12 43	+ 1	—	—	—	e 46.6
Tamanrasset	z. 103.1	332	e 13 58	+ 1	—	—	—	—

Nov. 20d. 14h. 17m. 49s. Epicentre 16°·0N. 94°·0W. (as on 1950, February 5d.).

$$A = -.0671, B = -.9594, C = +.2739; \quad \delta = -3; \quad h = +6;$$

$$D = -.998, E = +.070; \quad G = -.019, H = -.273, K = -.962.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Vera Cruz	3.8	328	1 26	+10 _g	—	—	—	2.4
Puebla	5.0	308	1 24	- 4*	(2 22)	+ 4	—	2.4
Tacubaya	6.0	305	1 40	- 5*	(2 53)	- 9*	—	2.9
Guadalajara	10.0	299	2 24	- 3	(4 25)	+ 3	—	4.4
Fayetteville	z. 20.1	0	1 4 42	+ 4	i 8 29	+10	i 5 51	?
Palomar	z. 26.9	315	i 5 46	+ 1	i 6 0	?	e 6 9	?
Riverside	z. 27.6	315	e 5 53	+ 2	—	—	e 6 7	?
Mount Wilson	z. 28.2	315	e 5 57	+ 1	—	—	—	—
Pasadena	z. 28.3	315	e 5 58	+ 1	—	—	—	—
China Lake	z. 28.9	319	e 5 58	- 5	—	—	e 6 3	P
Tinemaha	z. 30.0	319	e 6 15	+ 3	—	—	—	—
Tamanrasset	z. 92.4	66	13 10	- 4	—	—	e 13 28	?

Nov. 20d. 15h. 37m. 17s. Epicentre 12°·1N. 87°·9W. Focus at Base of Superficial Layers. (as on 1949, June 11d.).

$$A = +.0358, B = -.9774, C = +.2083; \quad \delta = -2; \quad h = +6;$$

$$D = -.999, E = -.037; \quad G = +.008, H = -.208, K = -.978.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8.8	110	e 2 8	0	—	—	—	—
Merida	8.9	349	i 2 14k?	+ 5	e 3 49	0	e 3 52	S
Vera Cruz	10.6	313	i 2 57?	+24	e 3 23	?	e 3 35	?
Puebla	12.1	306	e 3 4	PP	e 5 36	SS	—	—
Galerazamba	12.5	97	i 2 59	+ 1	i 5 39	SS	i 3 42	?
Tacubaya	13.1	305	e 3 11k	+ 5	i 5 53	SS	i 6 1	SSS
Chinchina	14.1	119	i 3 19	0	e 6 14	SS	—	—
Bogota	15.6	118	i 3 39	0	i 6 49	SS	—	—
Port au Prince	16.3	65	e 3 49	+ 1	e 6 54	+ 7	i 4 9	PP
Guadalajara	17.1	303	e 4 10	+12	—	—	e 8 6	Q
Ciudad Trujillo	18.5	67	4 10	- 5	7 45	+ 8	—	—
Mobile	18.5	358	4 18	+ 3	7 53	+16	—	—
San Juan	21.9	70	i 4 51	- 1	i 8 37	-10	—	—
Columbia	22.7	15	i 4 56	- 4	i 9 9	+ 8	—	—
Fayetteville	z. 24.6	348	i 5 17	- 1	e 9 53	sS	e 16 13	ScS
Fort de France	26.1	81	e 5 28	- 5	e 10 3	+ 4	—	—
St. Louis	26.5	357	i 5 36	0	10 40	+34	—	—
Huancayo	27.1	152	i 5 44	+ 2	i 10 24	+ 8	i 6 37	PP
Morgantown	28.3	13	i 5 52	- 1	—	—	i 6 39	PP
Washington	28.4	18	i 5 52	- 2	e 10 40	+ 3	—	—
Tucson	29.1	318	i 6 1	+ 1	i 12 4	SS	i 7 20	PPP
Bermuda	29.4	42	i 6 1	- 1	(e 12 1)	SS	—	—
Chicago	29.6	0	e 6 1	- 3	—	—	—	—
Cleveland	29.8	9	i 6 5	- 1	i 11 21	sS	i 6 18	pP
Pennsylvania	29.9	15	i 6 7	0	i 10 59	- 2	e 6 19	pP

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
City College, N.Y.	31.1	21	16	16	- 1	e 11	11	- 9	—	—	—
Fordham	31.2	21	e 6	17	- 1	e 11	27	+ 6	—	—	—
Palisades	31.3	21	16	19	0	i 11	24	+ 1	i 7	21	PP e 14.8
Buffalo (Parkin)	31.7	13	16	21	- 2	—	—	—	—	—	—
Weston	33.4	23	16	37 _k	- 1	i 11	59	+ 4	—	—	e 16.2
Harvard	33.5	23	16	37 _a	- 1	e 11	55	- 2	i 6	49	pP —
Nelson	33.8	319	16	43	+ 2	—	—	—	—	—	—
Palomar	z. 33.9	314	16	43	+ 1	i 9	22	PcP	i 6	57	pP —
Boulder City	34.0	319	16	44	+ 1	e 17	8	ScS	i 9	22	PcP —
La Paz	34.5	144	16	47	0	i 12	19	+ 7	i 6	59	pP 13.8
Riverside	34.6	315	e 6	50	+ 2	18	15	PP	i 9	24	PcP —
Ottawa	34.8	15	16	47 _a	- 3	12	7	-10	17	1	ScS —
Pasadena	35.2	315	16	55 _a	+ 2	e 12	31	+ 8	i 9	25	PcP e 18.5
China Lake	z. 35.7	318	e 6	59	+ 2	e 13	15	PcS	i 9	28	PcP —
Kirkland Lake	z. 36.5	8	17	2 _a	- 2	—	—	—	—	—	—
Shawinigan Falls	36.7	18	e 7	3	- 3	12	32	-14	8	44	PPP —
Tinemaha	z. 36.9	318	17	10	+ 3	i 13	22	PcS	i 9	30	PcP —
Fresno	z. 37.7	317	e 7	15 _a	+ 1	—	—	—	—	—	—
Halifax	38.5	28	17	20 _a	- 1	—	—	—	—	—	—
Lick	39.3	317	e 7	29	+ 2	—	—	—	—	—	e 21.9
Reno	39.3	320	e 7	29 _a	+ 2	e 9	33	PcP	e 9	41	? —
Santa Clara	39.5	317	17	32 _k	+ 3	e 13	12	-17	—	—	e 20.3
Butte	39.7	334	17	32	+ 1	—	—	—	—	—	—
Berkeley	40.0	317	e 7	34 _a	+ 1	e 13	33	- 3	e 9	41	PcP e 19.7
Mineral	z. 40.9	320	e 7	41 _a	0	—	—	—	—	—	—
Shasta	z. 41.6	320	e 7	46 _k	0	—	—	—	i 9	44	PcP —
Hungry Horse	42.2	335	17	52	+ 1	i 13	28	ScP	—	—	—
Corvallis	z. 44.3	324	e 8	10	+ 2	—	—	—	—	—	—
Seattle	45.7	328	e 8	22	+ 2	e 18	31	SS	—	—	e 27.3
Victoria	46.8	328	18	29 _k	+ 1	—	—	—	—	—	—
Santa Lucia	N. 48.2	160	e 8	53	pP	e 15	59	sS	—	—	—
La Plata	54.7	149	9	25	- 3	17	7	+ 3	11	37	PP 28.1
Iviglut	56.9	22	—	—	—	17	55	sS	—	—	28.2
Resolute Bay	62.7	358	e 10	19	- 5	i 18	46	- 3	i 11	0	sP i 24.3
College	66.6	336	i 10	47	- 2	e 20	18	PPS	e 23	13	SS e 25.9
Scoresby Sund	70.7	18	e 11	11	- 3	e 20	32	+ 7	e 26	18	? 36.7
Rathfarnham C.	z. 75.4	37	e 11	35	- 7	e 21	36	sS	e 12	50	? —
Aberdeen	N. 77.7	33	—	—	—	123	58	? —	—	—	—
Malaga	77.7	55	i 11	50	- 5	i 21	20	-24	14	40	PP 35.8
Toledo	77.7	51	e 12	12	pP	e 22	4	sS	27	21	SS 32.4
Durham	N. 78.1	36	—	—	—	e 21	15	-33	—	—	—
Granada	78.3	54	i 11	59 _k	+ 1	—	—	—	i 17	42	? —
Almeria	79.2	55	i 12	7	+ 4	22	11	+12	15	9	PP 39.8
Kew	79.2	39	i 11	58	- 5	e 22	27	SP	e 14	57	PP e 34.7
Alicante	80.6	52	12	16	+ 5	22	54	SP	17	28	? 39.3
Paris	81.3	42	i 12	13	- 1	e 22	44	ScS	i 23	15	PS e 37.7
Clermont-Ferrand	82.1	45	e 12	16	- 3	i 22	33	+ 3	i 23	44	PPS 37.7
De Bilt	82.4	38	e 12	19	- 1	e 22	25	- 8	e 15	31	PP e 37.7
Algiers Univ.	z. 83.6	54	e 12	23	- 3	e 22	59	sS	e 17	42	PPP —
Besançon	83.8	43	e 12	45	pP	e 12	51	sP	—	—	—
Strasbourg	84.7	42	e 12	29	- 3	e 22	52	- 4	e 15	45	PP 38.7
Karlsruhe	85.1	40	e 12	31	- 3	—	—	—	—	—	e 41.7
Kiruna	z. 85.6	21	i 12	40	+ 4	—	—	—	—	—	e 35.7
Stuttgart	85.6	41	e 12	33	- 3	e 22	53	[- 3]	e 24	13	PS e 41.7
Copenhagen	85.9	34	e 12	37	- 1	23	11	+ 4	24	25	PPS —
Pavia	86.4	44	e 13	34	+54	e 23	14	+ 2	e 24	34	PPS e 44.1
Jena	86.6	39	e 12	37 _?	- 4	e 22	53	[- 9]	e 16	16 _?	PP —
Potsdam	87.1	37	—	—	—	e 29	43	SS	—	—	e 37.7
Upsala	z. 87.3	29	i 12	28	-17	—	—	—	i 13	13	? —
Collmberg	87.4	38	e 12	47	+ 2	e 23	49	sS	e 16	34	PP e 42.7

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Florence		88.2	45	e 13	12	+23	e 25	2	PPS	e 16	34	PP
Tamanrasset	z.	88.5	67	e 12	49	- 1	i 23	8	[- 6]	e 13	16	pP
Prague		88.6	39	e 12	21	-30	e 23	55	sS	e 15	20	?
Triest		89.4	43	e 12	52	- 3	i 23	33	- 7	e 13	11	sP
Rome		89.6	47	e 12	51	- 5	e 23	24	[+ 3]	i 30	0	SS
Skalnate Pleso		92.4	38	—	—	—	e 24	23	sS	—	—	—
Messina	κ.	92.9	49	e 13	4	- 7	e 23	34	[- 6]	e 25	38	PS
Taranto		93.5	47	—	—	—	23	9	[-34]	—	—	37.7
Istanbul		101.5	43	e 17	58	PP	e 24	20	[- 5]	e 20	14	PPP
Simferopol		102.8	37	e 18	6	PP	—	—	—	—	—	—
Yalta		103.1	37	e 17	57	PP	24	35	[+ 3]	e 27	5	SP
Christchurch		105.1	228	28	51	PPS	e 24	53	[+12]	e 33	35	SS
Sverdlovsk		106.5	16	e 18	33	PP	34	13	SS	i 27	59	PS
Sotchi		106.9	36	e 18	31	PP	e 24	55	[+ 6]	e 27	49	SP
Helwan		108.2	52	18	46	PP	e 25	13	sSKS	e 28	5	PS
Ksara		109.7	47	19	0	PP	28	37	PS	—	—	—
Erevan		111.8	37	e 19	11	PP	28	50	PS	—	—	—
Goris		113.3	35	e 19	21	PP	e 28	53	PS	—	—	—
Kabansk		114.9	350	i 19	36	PP	i 29	26	pPS	—	—	—
Irkutsk		115.0	351	e 19	31	PP	e 25	33	[+10]	e 29	8	PS
Kimberley	z.	115.5	116	e 18	41	[+ 2]	—	—	—	—	—	—
Kyakhta		116.5	349	e 19	45	PP	e 26	49	SKKS	—	—	—
Grahamstown	z.	116.9	120	i 18	44	[+ 3]	—	—	—	—	—	—
Pretoria	z.	118.5	112	e 18	47	[+ 2]	—	—	—	—	—	—
Tchimkent		122.1	18	i 20	23	PP	—	—	—	—	—	—
Riverview	E.	122.3	237	e 30	49	pPS	e 25	59	[+11]	e 27	40	SKKS
Lunacharskoe		122.8	19	e 18	56	[+ 3]	i 26	0	[+10]	e 20	20	PP
Tashkent		122.8	19	e 18	56	[+ 3]	i 25	58	[+ 8]	e 20	26	PP
Frunse		123.0	15	i 20	29	PP	—	—	—	—	—	—
Przhevalsk		124.2	11	e 18	58	[+ 3]	—	—	—	—	—	—
Andijan		124.3	18	e 18	58	[+ 2]	—	—	—	—	—	—
Fergana		124.5	18	e 18	59	[+ 3]	—	—	—	i 20	41	PP
Naryn		124.7	14	i 20	29	PP	—	—	—	—	—	—
Obi-garm		125.3	20	e 19	11	pPKP	—	—	—	—	—	—
Dzhergetal		125.4	19	e 19	3	[+ 5]	—	—	—	—	—	—
Melbourne	E.	126.5	232	—	—	—	e 37	54	SS	—	—	e 59.8
Quetta	z.	131.5	28	e 19	11	[+ 2]	—	—	—	—	—	—
Tananarive		136.6	103	19	56	[+37]	23	4	PKS	—	—	70.6
New Delhi	N.	137.1	18	e 19	21	[+ 1]	26	35	[+10]	22	2	PP
Chatra	z.	141.0	5	19	26	[- 1]	—	—	—	—	—	—
Bombay	N.	143.8	31	e 21	31	?	—	—	—	—	—	—
Poona		144.6	29	i 19	32	[- 1]	26	38	[+ 1]	42	15	SSP
Calcutta	E.	145.4	5	i 19	47	pPKP	e 23	30	PKS	—	—	—
Madras	E.	152.4	24	19	58	pPKP	—	—	—	e 22	44	?
Kodaikanal	E.	153.5	33	e 20	19	PKP ₁	—	—	—	—	—	—
Bandong		163.8	287	e 20	8	[+ 9]	e 30	48	SKKS	e 25	4	pPP
Djakarta		164.3	291	e 19	59 _a	[- 1]	e 32	14	SKKKS	e 20	10	pPKP

Nov. 21d. 2h. 28m. 9s. Epicentre 51°·0N. 158°·9E. Focus at Base of Superficial Layers. (as on 16d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Resolute Bay	z.	45.5	23	8	19 _k	+ 1	—	—	—	—	—	—
Mineral	z.	54.0	68	e 9	24 _k	+ 1	—	—	—	—	—	—
Berkeley	z.	55.2	71	e 9	40	pP	—	—	—	—	—	—
Reno	z.	55.6	68	e 9	45	pP	—	—	—	—	—	—
Fresno	z.	57.4	70	e 9	49 _a	+ 1	—	—	—	—	—	—
Kiruna		57.5	343	i 9	46	- 2	i 10	10	?	—	—	e 35.8
Tinemaha	z.	58.1	70	i 9	54	+ 2	—	—	—	—	—	—
China Lake	z.	59.4	70	e 10	3	+ 1	—	—	—	e 10	14	pP
Pasadena	z.	60.2	72	i 10	7	0	—	—	—	i 10	18	pP
Riverside	z.	60.7	72	e 10	11	+ 1	—	—	—	e 10	22	pP

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Palomar	z.	61.5	72	i 10	17	+ 1	—	—	—	i 10	28	pP	—
Upsala	z.	65.1	340	i 10	38	- 2	—	—	—	i 10	45	pP	—
Kirkland Lake	z.	69.1	38	e 11	5	0	—	—	—	—	—	—	—
Copenhagen		70.1	342	i 11	10	- 1	—	—	—	—	—	—	42.8
Fayetteville	z.	72.2	55	i 11	24k	+ 1	i 11	43	sP	i 11	35	pP	—
Poona	z.	72.7	278	i 11	24	- 1	—	—	—	i 11	35	pP	—
Ottawa		73.0	38	i 11	28k	0	14	7	PP	—	—	—	—
Shawinigan Falls	N.	73.1	35	e 11	30	+ 1	—	—	—	—	—	—	—
Cleveland	z.	73.9	44	i 11	35k	+ 2	—	—	—	i 11	46	pP	—
Witteveen	z.	73.9	344	i 11	35	+ 2	—	—	—	—	—	—	—
Collmberg	z.	74.1	339	e 11	33	- 2	—	—	—	—	—	—	—
Jena		74.7	339	e 11	38	0	—	—	—	e 11	44	pP	—
Prague		74.9	338	e 11	38	- 1	e 12	7	?	e 11	48	pP	—
Harvard		77.0	36	i 11	53k	+ 2	—	—	—	i 12	3	pP	—
Weston		77.2	36	i 11	55k	+ 3	—	—	—	i 12	5	pP	—
Stuttgart		77.3	340	e 11	52	- 1	—	—	—	—	—	—	—
Strasbourg		77.8	341	i 11	56	0	—	—	—	—	—	—	—
Halifax		77.9	30	i 11	57a	+ 1	14	59	PP	i 12	9	pP	—
Istanbul	z.	78.4	324	e 11	55	- 4	—	—	—	—	—	—	—
Paris		78.5	345	i 11	59	0	i 12	11	sP	i 12	7	pP	—
Zürich		78.7	341	e 12	0k	0	—	—	—	—	—	—	—
Basle		78.8	341	e 12	1	0	—	—	—	—	—	—	—
Besançon		79.4	342	i 12	4	0	—	—	—	e 12	15	pP	—
Ksara		81.8	316	i 12	17	0	—	—	—	—	—	—	—
Kimberley	z.	139.2	285	e 19	14	[-10]	—	—	—	—	—	—	—

Nov. 21d. 3h. 19m. 21s. Epicentre 49°·5N. 156°·2E. (as on 15d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Resolute Bay		47.6	20	i 8	39a	0	i 15	35	0	—	—	e 25.4
Shasta		55.5	66	i 9	39	0	—	—	—	e 9	52	?
Mineral	z.	56.2	66	i 9	44a	0	—	—	—	—	—	—
Reno	z.	57.8	65	e 9	55k	0	—	—	—	—	—	—
Kiruna		58.4	342	i 9	57	- 3	—	—	—	i 10	9	?
Fresno	z.	59.6	67	e 10	7	- 1	—	—	—	—	—	—
Tinemaha	z.	60.3	68	e 10	13	0	—	—	—	i 10	18	P
China Lake	z.	61.5	66	e 10	20	- 1	—	—	—	e 10	26	?
Pasadena		62.3	70	i 10	26	0	i 10	38	?	i 10	30	?
Riverside	z.	62.9	70	e 10	29	- 1	—	—	—	—	—	—
Palomar	z.	63.6	70	i 10	35	0	—	—	—	—	—	—
Upsala		65.9	339	i 10	50	0	—	—	—	—	—	e 32.6
Quetta	z.	67.2	291	e 10	56	- 2	—	—	—	—	—	—
Poona	z.	71.2	277	i 11	22	- 1	—	—	—	—	—	—
Bombay		71.6	278	e 11	24	- 1	e 20	44	0	—	—	—
Fayetteville	z.	74.5	53	i 11	41	- 1	—	—	—	—	—	—
Collmberg	z.	74.8	337	e 11	43	- 1	—	—	—	—	—	—
Witteveen	z.	74.8	342	e 11	46	+ 2	—	—	—	—	—	—
Ottawa		75.2	35	e 11	44	- 2	—	—	—	—	—	—
Jena		75.5	338	e 11	47	- 1	—	—	—	e 11	50	P
Prague		75.5	336	e 11	48	0	—	—	—	e 12	4	PcP
Stuttgart		78.1	339	e 12	2	0	e 22	3	+ 7	—	—	e 41.6
Strasbourg		78.6	340	i 12	6	+ 1	—	—	—	e 12	19	PcP
Harvard		79.3	34	i 12	21a	PcP	—	—	—	—	—	e 40.6
Paris		79.5	344	e 11	55	-15	—	—	—	—	—	e 41.6
Zürich		79.5	339	e 12	9a	- 1	—	—	—	—	—	—
Basle		79.6	340	e 12	11	+ 1	—	—	—	—	—	—
Besançon		80.2	340	i 12	14	0	—	—	—	i 12	33	PcP
Salo		80.7	336	e 12	18	+ 2	e 22	13	-11	—	—	—
Ksara		81.6	313	i 12	35	PcP	—	—	—	—	—	—
Florence		82.2	335	i 12	24a	0	e 22	59	ScS	e 13	19	?
Rome		83.6	334	i 12	31a	0	e 22	58	+ 5	e 31	56	SSS
Helwan	z.	87.0	315	i 12	48	0	i 13	0	PcP	i 13	26	?
Tamanrasset	z.	103.5	332	e 14	5	+ 1	—	—	—	—	—	—

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1952

1102

Nov. 21d. 6h. 10m. 42s. Epicentre 19°·5N. 68°·0W. Depth of focus 0·005.
(as on 1946, September 24d.).

A = +·3534, B = -·8746, C = +·3318; δ = -9; h = +5;
D = -·927, E = -·375; G = +·124, H = -·308, K = -·943.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
San Juan	2·1	122	i 0 25	- 9	i 0 48	-11	—	—
Ciudad Trujillo	2·1	240	1 4	+30	1 30	+31	—	—
Port-au-Prince	4·2	258	e 1 29	+26	i 1 53	+ 1	i 2 2	SS
Fort de France	8·1	125	e 1 54	- 3	—	—	—	—
Galerazamba	11·1	220	—	—	e 5 12	SS	—	—
Bermuda	13·2	13	i 3 1	- 5	i 5 16	-16	—	—
Bogota	15·9	203	e 3 38	- 3	—	—	—	e 5·6
Morgantown	22·6	335	i 5 0	+ 4	e 9 8	+14	—	—
Weston	23·0	355	i 5 19 _k	+19	e 9 8	+ 6	—	—
Harvard	23·1	355	i 5 20 _k	+19	e 9 9	+ 6	—	—
Halifax	25·3	8	i 5 26 _a	+ 4	10 10	+29	i 10 16	?
Ottawa	26·6	348	e 5 42	+ 8	10 36	+34	i 10 46	?
Fayetteville	z. 28·3	312	i 5 49	- 1	—	—	i 5 31	?
Kirkland Lake	z. 30·2	344	—	—	e 12 24	SS	—	—
Huancayo	z. 32·2	194	e 6 25	+ 1	—	—	—	—
Tucson	40·3	298	e 7 32	0	—	—	—	—
Nelson	44·1	302	i 8 4	0	—	—	—	—
Boulder City	44·2	302	i 8 4	0	—	—	—	—
Palomar	z. 45·5	299	e 8 15	0	—	—	—	—
Riverside	z. 46·0	300	e 8 19	0	—	—	—	—
China Lake	z. 46·4	302	e 8 22	0	—	—	—	—
Pasadena	46·7	300	e 8 23	- 1	—	—	—	—
Hungry Horse	46·8	319	i 8 25	0	—	—	—	—
Tinemaha	z. 47·0	303	e 8 27	0	—	—	—	—
Fresno	z. 48·2	303	e 8 35 _k	- 1	—	—	—	—
Shasta	z. 50·7	307	e 9 3	+ 8	—	—	—	—
Tamanrasset	z. 68·0	72	i 10 54 _a	0	—	—	i 11 10	pP
College	68·2	333	i 10 55	- 1	—	—	—	—
Apia	107·3	260	i 28 36	PS	—	—	—	—

Nov. 21d. 7h. 6m. 5s. Epicentre 19°·0N. 62°·5W.

A = +·4369, B = -·8393, C = +·3236; δ = +2; h = +5;
D = -·887, E = -·462; G = +·149, H = -·287, K = -·946.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
San Juan	3·5	261	i 0 55	- 2	—	—	—	—
Fort de France	4·4	163	e 1 15	+ 5	e 2 2	0	—	—
Bermuda	13·5	352	i 3 12	- 3	i 5 25	-22	—	e 5·8
Fayetteville	z. 32·7	308	e 6 35	- 1	—	—	—	—
Huancayo	z. 33·3	203	e 6 42	+ 1	—	—	—	—
Tucson	45·2	297	e 8 21	+ 1	—	—	—	—
Nelson	48·8	301	i 8 50	+ 1	—	—	—	—
Hungry Horse	50·7	318	e 9 3	0	—	—	—	—
China Lake	z. 51·1	301	e 8 52	-14	—	—	—	—
Resolute Bay	z. 58·4	350	i 13 29 _a	PPP	—	—	—	—
College	71·0	333	i 11 22	0	—	—	—	—

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1952

1103

Nov. 21d. 7h. 39m. 12s. Epicentre 7°·5S. 125°·0E. Depth of focus 0·100.

Epicentre as given by Wellington.

A = -·5688, B = +·8122, C = -·1297; δ = +2; h = +7;
D = +·819, E = +·574; G = +·074, H = -·106, K = -·992.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Bandong		17·2	273	i 4 28	+61	i 6 18	+ 4	i 6 11	?
Djakarta		18·1	274	e 4 42	+66	i 6 27	- 1	e 4 50	PPP
Manila		22·3	350	i 4 17 _a	+ 3	i 7 52?	+16	—	—
Brisbane		33·2	130	i 5 43	- 4	i 10 15	- 9	i 13 23	SS
Riverview		35·6	141	i 6 6 _a	0	i 11 9	+ 9	i 7 41	pP
Kaimata	N.E.	53·6	138	e 8 23	- 1	—	—	—	—
Cobb River	E.	53·9	135	e 8 25	- 1	—	—	—	—
Karapiro	N.	54·7	131	e 8 31	0	—	—	—	—
Christchurch		54·9	138	8 35	+ 2	—	—	—	—
Wellington	Z.	55·4	135	i 8 33	- 3	—	—	—	—
Kiruna	Z.	102·4	338	i 12 43	- 4	—	—	—	—
Messina	N.	109·9	308	e 34 25	PSS	—	—	—	—
Tinemaha	Z.	115·8	53	e 17 31	[+ 2]	—	—	e 18 34	PP
Pasadena	Z.	116·3	56	i 17 31	[+ 1]	i 20 16	SKP	e 18 41	PP
Riverside	Z.	117·0	56	e 17 33	[+ 2]	e 20 17	SKP	e 18 46	PP
Palomar	Z.	117·5	57	e 17 35	[+ 3]	e 20 17	SKP	e 18 50	PP
Fayetteville	Z.	134·3	46	i 17 52	[-12]	i 20 44	SKP	i 20 31	PP
Kirkland Lake	Z.	134·3	24	—	—	e 20 44	SKP	—	—
Ottawa		138·2	22	e 18 2	[- 9]	i 20 55	SKP	—	—
Shawinigan Falls	N.	138·2	18	e 20 56	SKP	—	—	—	—
Morgantown		141·0	32	i 18 12	[- 5]	i 21 2	SKP	—	—
Harvard		142·2	20	i 18 16 _k	[- 2]	—	—	—	—
Halifax		142·3	10	i 18 15 _a	[- 4]	i 21 5	SKP	21 31	PP
Weston		142·4	20	i 18 16 _a	[- 4]	—	—	—	—

Nov. 21d. 17h. 26m. 48s. Epicentre 66°·0N. 166°·0W.

Epicentre as given by U.S.C.G.S.

A = -·3969, B = -·0989, C = +·9125; δ = -3; h = -11;
D = -·242, E = +·970; G = -·885, H = -·221, K = -·409.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
College		7·4	90	i 1 56	+ 4	(e 2 58)	-20	e 2 30	P _g e 3·0
Resolute Bay		23·8	38	e 5 21	+ 6	i 9 42	+14	—	e 13·1
Hungry Horse		32·0	96	i 6 30	0	—	—	—	—
Butte		34·5	97	e 6 54	+ 2	—	—	—	—
Shasta	Z.	35·1	112	i 8 0 _a	+63	—	—	—	—
Reno	Z.	37·1	110	e 7 16 _a	+ 2	—	—	—	—
Berkeley	Z.	37·7	116	e 7 20 _a	+ 1	—	—	—	—
Fresno	Z.	39·6	112	e 7 36 _a	+ 1	—	—	—	—
China Lake	Z.	41·2	110	e 7 48	0	—	—	i 7 51	P
Scoresby Sund		41·6	17	i 7 55 _k	+ 4	14 18	+10	e 9 43	PP 23·2
Boulder City		42·1	107	i 7 58	+ 3	—	—	—	—
Nelson		42·4	107	e 7 56	- 2	—	—	i 8 0	P
Pasadena		42·5	112	i 8 0	+ 1	—	—	i 8 9	?
Riverside	Z.	42·9	112	i 8 4	+ 2	—	—	—	—
Palomar	Z.	43·7	111	e 8 7	- 1	i 8 10	P	e 8 31	?
Kirkland Lake	Z.	45·8	67	e 8 26	+ 1	—	—	—	—
Kiruna		46·4	356	i 8 27 _a	- 3	e 15 13?	- 5	e 18 36	SS e 23·9
Tucson		47·0	106	e 8 36	+ 1	—	—	—	e 26·8
Ottawa		49·8	66	e 8 55	- 1	—	—	—	25·9
Shawinigan Falls	N.	49·9	62	e 8 56	- 1	—	—	—	—
Fayetteville	Z.	50·3	88	i 8 56	- 4	—	—	—	—
Morgantown		53·0	73	i 9 23	+ 2	—	—	—	—
Weston		54·0	64	e 9 28	0	—	—	—	e 28·2
Palisades		54·2	67	—	—	e 21 29	SS	—	e 29·1
Upsala	Z.	54·4	358	i 9 33	+ 2	—	—	—	—

Continued on next page.

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1952

1104

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Copenhagen		58.6	1	e 10 4	+ 3	—	—	—	30.2
Collmberg	z.	63.0	0	e 10 27	- 4	—	—	—	—
Jena	z.	63.4	1	e 10 31	- 3	—	—	e 10 36	?
Karlsruhe	z.	65.2	4	e 10 42	- 3	—	—	—	—
Stuttgart		65.5	3	e 10 47	0	—	—	—	e 41.2
Rome	N.	72.4	1	—	—	e 21 1	+ 8	e 25 49	SS
Helwan	z.	83.5	344	i 12 34	+ 3	—	—	—	e 34.2
Tamanrasset	z.	91.3	8	e 13 2	- 7	—	—	e 13 35	?

Nov. 22d. 5h. 19m. 22s. Epicentre 52°·6N. 160°·3E. (as on 19d.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Resolute Bay	z.	43.7	22	i 8 11 _a	+ 3	—	—	—	—
Shasta	z.	51.9	70	e 9 14 _a	+ 2	—	—	—	—
Mineral	z.	52.6	70	e 9 43 _a	?	—	—	—	—
Reno	z.	54.2	69	e 9 31 _k	+ 2	—	—	—	—
Lick	z.	54.6	73	e 9 38 _a	+ 6	—	—	—	—
Fresno	z.	56.1	72	e 9 52 _k	+ 9	—	—	—	—
Kiruna		56.2	344	i 9 43 _a	- 1	i 9 50	?	i 9 54	e 35.6
Scoresby Sund		57.2	2	e 9 51	0	—	—	—	32.6
China Lake	z.	58.0	71	e 9 58	+ 1	—	—	e 10 5	?
Pasadena		58.8	73	e 10 2	0	—	—	e 10 10	?
Riverside	z.	59.4	73	e 10 14	+ 8	—	—	—	—
Palomar	z.	60.2	73	e 10 20	+ 8	—	—	e 10 34	?
Upsala	z.	63.9	340	i 10 36	- 1	—	—	i 10 48	?
Copenhagen		68.9	342	i 11 8	- 1	—	—	—	40.6
Fayetteville	z.	70.6	56	i 11 18	- 1	—	—	—	—
Ottawa		71.2	38	e 11 22	- 1	—	—	—	—
Shawinigan Falls	N.	71.3	35	e 11 24	+ 1	—	—	e 11 33	PcP
Potsdam		71.8	340	e 11 24	- 2	—	—	—	e 44.6
Witteveen	z.	72.7	344	i 11 33 _k	+ 1	—	—	—	—
Collmberg	z.	72.9	339	e 11 30	- 3	—	—	—	—
Prague		73.1	338	e 11 37	+ 3	—	—	e 11 50	PcP
Poona	z.	73.4	279	i 11 28	- 8	—	—	—	—
Jena		73.5	340	e 11 36	0	e 11 45	PcP	e 12 20	?
Halifax		76.1	31	e 11 51 _a	0	—	—	—	—
Stuttgart		76.1	341	e 11 50	- 1	—	—	—	—
Strasbourg		76.5	342	e 11 53	- 1	e 12 0	PcP	e 12 15	?
Paris		77.2	345	i 11 57	0	—	—	—	—
Basle	z.	77.5	342	e 11 58	- 1	—	—	—	—
Zürich	z.	77.5	342	e 11 57	- 2	—	—	—	—
Triest	z.	78.0	337	e 12 19	PcP	—	—	e 12 28	?
Besançon		78.1	342	i 12 3	+ 1	e 12 12	PcP	i 12 24	?
Florence	z.	80.4	338	e 12 13	- 2	—	—	—	—
Ksara		81.3	316	i 12 18	- 2	—	—	—	—
Tamanrasset	z.	101.8	336	e 13 57	+ 1	—	—	e 17 42	PP

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1952

1105

Nov. 22d. 7h. 46m. 36s. Epicentre 35°·7N. 121°·2W. (as on 1949, June 27d.).

Intensity VII at Bradley and Bryson; VI at Arroyo-Grande, Atascadero, Cambria, Camp Cooke, Cayucos, Harmony, Lockwood, etc. Felt as far as San Francisco to the north and Los Angeles to the south. Epicentre 35°50'N. 121°10'W. Macroseismic area 20,000 square miles.

L. M. Murphy and W. K. Cloud.
United States Earthquakes, 1952, U.S.C.G.S., Serial 773, Washington, 1954, pp. 44-46, with macroseismic chart.

A = -·4217, B = -·6962, C = +·5810; $\delta = +9$; $h = 0$;
D = -·855, E = +·518; G = -·301, H = -·497, K = -·814.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
King Ranch	z.	1·2	107	i 0 25	+ 1	—	—	—	—
Fresno		1·5	48	i 0 27k	- 1	—	—	—	—
Lick		1·7	348	i 0 29k	- 2	i 0 50	- 4	i 0 38	P _g
Santa Barbara	z.	1·7	136	i 0 32k	+ 1	—	—	—	—
Santa Clara		1·7	340	i 0 31a	0	i 0 49	- 5	—	—
Fort Tejon	z.	2·1	114	i 0 36	- 1	—	—	—	—
Berkeley		2·3	338	i 0 38k	- 2	i 1 11	+ 2	—	—
Haiwee	z.	2·6	81	i 0 45k	+ 1	—	—	—	—
Tinemaha	z.	2·7	61	i 0 46	+ 1	—	—	—	—
Pasadena		2·9	119	i 0 48k	0	i 1 24	0	—	—
China Lake	z.	3·0	87	i 0 48k	- 2	—	—	—	—
Mount Wilson	z.	3·0	119	i 0 50k	0	—	—	—	—
Riverside		3·6	117	i 0 57a	- 1	—	—	—	—
Reno		4·0	16	i 1 2k	- 2	i 1 46	- 6	—	—
Palomar	z.	4·3	122	i 1 6	- 2	—	—	—	—
Mineral		4·7	356	i 1 10k	- 4	i 2 9	- 1	i 1 42	P _g
Shasta		5·1	350	e 1 16a	- 4	e 2 15	- 5	—	—
Nelson		5·2	88	i 1 18	- 3	—	—	—	—
Boulder City		5·2	85	i 1 20	- 1	—	—	—	—
Arcata		5·6	337	e 1 23	- 4	e 2 24	- 9	e 2 43	S*
Corvallis		9·1	350	i 2 15	+ 1	e 4 20	+20	—	—
Tucson		9·3	109	e 2 16	- 1	i 3 37	-28	i 4 33	S*
Seattle		12·0	356	i 2 56	+ 1	e 5 6	- 5	e 5 41	Q
Butte		12·1	30	i 2 57	0	e 5 32	SS	—	e 6·8
Victoria		12·9	353	3 7	0	—	—	—	—
Hungry Horse		13·7	21	i 3 20	+ 2	i 6 3	+11	—	—
Chihuahua		14·6	115	i 3 32k	+ 2	e 6 58	?	i 7 30	Q
Lubbock		16·1	92	3 50	+ 1	—	—	—	—
Saskatoon		19·4	27	i 4 26	- 4	i 8 9	+ 5	—	—
Lincoln		19·9	67	e 4 34	- 2	e 8 17	+ 2	—	—
Fayetteville	z.	21·9	80	i 4 52	- 5	i 8 27	-27	e 9 24	SS
Tacubaya		25·3	123	e 5 33	+ 3	e 10 38	SS	—	—
Puebla		26·2	121	e 5 41	+ 3	e 11 33	SSS	e 10 49	?
Chicago		26·8	65	e 5 58	+14	e 10 17	- 2	—	e 14·4
Vera Cruz		27·5	118	i 5 57k	+ 7	e 10 48	+18	e 10 56	?
Mobile		28·0	89	6 14	+19	i 11 32	+54	—	—
Cleveland	E.	31·3	66	—	—	i 11 24	- 7	e 13 7	SS
Pittsburgh		32·6	68	—	—	i 11 47	- 4	i 13 25	SS
Kirkland Lake	z.	32·7	54	e 6 34a	- 2	—	—	—	e 17·2
Morgantown		32·7	70	i 6 35	- 1	e 11 30	-22	—	—
Columbia		32·9	79	—	—	e 13 3	?	—	—
College		33·3	339	i 6 41	0	e 11 44	-18	—	e 13·8
Buffalo		33·3	63	e 6 43	+ 2	e 12 0	- 2	—	—
Buffalo (Larkin)		33·4	63	i 6 41	- 1	—	—	—	—
Pennsylvania	z.	34·2	67	e 8 8	PP	—	—	—	—
Washington		35·0	70	e 6 52	- 4	—	—	—	—
Ottawa		35·5	59	e 6 57k	- 3	i 12 26	-10	9 33	PcP
Fordham		37·1	66	e 4 34	?	—	—	i 8 51	PP
Palisades		37·1	66	e 8 40	PP	i 13 4	+ 3	—	e 17·4
Shawinigan Falls N.		37·5	57	—	—	e 15 26	SS	—	18·4

Continued on next page.

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1952

1106

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Resolute Bay	41.1	12	i 7	46	- 1	i 14	0	- 1	i 16	53	SS	i 20.4
Halifax	44.1	59	e 8	15	+ 3	—	—	—	—	—	—	—
Bermuda	46.4	76	—	—	—	e 15	18	0	e 18	30	SS	e 21.9
Galerazamba	48.4	108	i 8	57	+11	i 15	57	+11	—	—	—	e 24.4
San Juan	51.3	93	i 9	7	- 1	—	—	—	i 9	26	?	—
Ivigtut	51.4	36	—	—	—	e 16	32	+ 4	—	—	—	25.4
Chinchina	51.9	114	i 9	14	+ 2	i 16	41	+ 6	i 19	54	SS	25.4
Bogota	53.2	113	i 9	24	+ 2	i 17	2	+10	i 11	17	PP	28.4
Klyuchi	54.8	318	e 9	32	- 2	—	—	—	—	—	—	—
Fort de France	57.3	94	e 9	59	+ 7	—	—	—	—	—	—	—
Magadan	59.0	323	10	2	- 2	—	—	—	—	—	—	—
Scoresby Sund	59.8	22	i 10	7 _a	- 2	i 18	22	+ 2	22	20	SS	30.4
Huancayo	64.3	127	i 10	41	+ 2	i 19	27	+10	e 23	34	SS	e 27.0
Uglegorsk	68.0	315	11	2	- 1	20	5	+ 3	—	—	—	—
Yuzno-Sakhlinsk	68.6	313	i 11	6	- 1	20	15	+ 6	—	—	—	—
La Paz	72.2	125	i 11	31	+ 2	i 21	0	+ 9	i 14	29	PP	34.6
Kiruna	72.8	14	i 11	31	- 1	i 21	0	+ 2	e 25	37	SS	e 34.7
Aberdeen	74.2	29	—	—	—	i 21	14	0	e 29	2	SSS	e 37.0
Rathfarnham Castle	75.0	34	e 11	54 _?	+ 9	—	—	—	e 16	54	PPP	—
Vladivostok	77.2	314	11	56	- 1	—	—	—	—	—	—	—
Kew	78.9	33	i 12	12	+ 5	e 22	8	+ 3	e 14	20	?	e 38.4
Upsala	78.9	20	i 12	7	0	i 22	5	0	e 30	33	SSS	e 37.4
Copenhagen	80.8	24	e 12	20 _k	+ 3	22	30	+ 5	—	—	—	38.4
De Bilt	80.8	29	e 12	4	-13	e 22	31	+ 6	e 15	12	PP	e 38.4
Witteveen	80.9	28	e 12	19	+ 2	—	—	—	—	—	—	—
Pulkovo	82.0	14	e 12	31	PcP	i 22	40	+ 3	—	—	—	—
Paris	82.1	34	i 12	24	0	i 23	3	ScS	i 15	29	PP	e 39.4
Kabansk	83.1	333	i 12	32	+ 3	22	57	+ 9	—	—	—	—
Potsdam	83.6	26	i 12	34 _k	+ 3	i 22	57	+ 4	e 23	54	PS	e 41.4
Irkutsk	83.8	334	12	33	+ 1	22	57	+ 2	—	—	—	—
Jena	84.3	27	i 12	35	0	e 23	2 _?	+ 2	e 15	57 _?	PP	—
Collmberg	84.5	27	—	—	—	e 23	6	+ 4	—	—	—	e 44.4
Karlsruhe	84.5	30	e 12	38	+ 2	—	—	—	e 15	50	PP	e 43.4
Kyakhta	84.5	331	—	—	—	22	54	- 8	—	—	—	—
Clermont-Ferrand	84.6	35	e 12	35	- 1	i 23	15	ScS	i 23	58	PS	39.4
Strasbourg	84.6	31	e 12	38	+ 2	e 23	0	- 3	e 15	55	PP	e 39.9
Besançon	84.8	33	i 12	38	+ 1	e 12	59	?	e 14	28	?	—
Stuttgart	85.0	30	e 12	40	+ 2	e 23	7	0	e 15	57	PP	e 42.4
Toledo	85.1	43	e 12	37	- 2	e 23	16	+ 8	—	—	—	40.6
Basle	85.3	32	e 12	45	PcP	e 23	48	PS	—	—	—	—
Zürich	85.9	32	e 12	40	- 3	e 23	16	0	e 13	0	?	—
Prague	86.0	26	e 12	45	+ 2	e 23	14	- 3	e 24	11	PS	e 45.4
Tortosa	86.9	40	—	—	—	i 23	43	ScS	—	—	—	e 45.4
Moscow	87.1	12	i 12	50	+ 1	—	—	—	—	—	—	—
Granada	87.2	45	i 12	22 _k	-27	e 23	34	+ 6	16	11	PP	—
Raciborz	87.4	24	e 12	51	+ 1	e 13	36	?	e 12	55	PcP	—
Pavia	87.8	32	—	—	—	i 23	28	- 6	e 33	34	Q	e 43.2
Sverdlovsk	87.8	359	i 12	52	0	23	22	[+ 3]	e 24	49	PS	—
Almeria	88.1	44	i 12	54	0	23	34	- 3	23	18	SKS	48.8
Alicante	88.2	42	e 13	2	+ 8	i 23	49	+11	16	33	PP	42.0
Skalnate Pleso	88.8	24	e 13	1	+ 4	e 23	46	+ 2	e 29	14	SS	—
Ogyalla	89.2	26	e 17	9	PP	e 23	57	+10	e 24	48	PS	—
Florence	89.9	32	e 13	4	+ 2	e 23	59	+ 5	—	—	—	e 42.4
Uzhgorod	90.0	23	e 13	3	0	23	36	[+ 3]	i 24	47	PS	—
Algiers Univ.	91.2	42	e 13	10	+ 2	e 24	10	+ 5	i 16	50	PP	—
Rome	91.9	33	e 25	21	PS	i 23	50	[+ 6]	i 24	24	S	e 41.4
Nanking	92.2	313	i 13	13	0	24	15	+ 1	23	48	SKS	—
Semipalatinsk	92.2	348	e 13	12	- 1	—	—	—	—	—	—	—
Messina	96.3	33	e 13	30	- 2	e 26	17	PS	e 35	2	SSS	e 44.4
Simferopol	96.7	18	e 13	34	+ 1	e 24	9	[- 1]	e 26	46	PPS	—
Yalta	97.1	18	e 13	37	+ 2	e 24	13	[+ 1]	e 26	19	PS	—
Sotchi	99.2	14	e 13	45	0	e 24	27	[+ 4]	e 26	43	PS	—
Frunse	100.5	349	e 13	52	+ 1	e 26	56	PS	e 18	1	PP	—
Rybach'e	100.6	348	e 18	2	PP	e 24	31	[+ 1]	—	—	—	—
Makhach-Kala	101.0	9	—	—	—	i 24	36	[+ 4]	—	—	—	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Tchimkent		101.7	352	i 18	8	PP	e 24	39	[+ 4]	—	—	—
Lunacharskoe		102.7	352	e 28	33	PPS	i 25	47	+ 4	e 26	13	?
Tashkent		102.7	352	e 18	12	PP	e 25	43	0	i 24	45	SKS
Namangan		102.8	351	e 14	2	+ 1	24	38	[- 2]	e 18	2	PP
Andijan		102.9	350	e 14	7	+ 6	—	—	—	e 18	16	PP
Tamanrasset	z.	103.0	50	e 14	3	+ 1	e 27	15	PS	e 30	29	PKKP
Kirovobad		103.1	10	—	—	—	e 24	48	[+ 6]	e 27	27	PS
Baku		103.8	7	—	—	—	e 24	55?	[+ 10]	—	—	—
Goris		104.3	9	e 18	27	PP	e 24	52	[+ 5]	—	—	—
Samarkand		104.6	354	e 18	24	PP	—	—	—	—	—	—
Kulyab		106.1	352	e 18	39	PP	25	1	[+ 6]	—	—	—
Bairam-Ali		107.0	357	e 18	35	PP	—	—	—	—	—	—
Riverview		107.1	241	e 20	22	?	e 25	7	[+ 7]	e 28	13	PS
Ksara		107.6	20	i 18	44	PP	i 28	16	PS	—	—	e 52.9
Helwan	z.	109.9	26	19	10	PP	29	12	PPS	e 21	15	PPP
Pretoria	z.	152.0	78	e 19	51	[+ 1]	—	—	—	—	—	—
Grahamstown	z.	153.4	84	e 19	49?	[- 3]	—	—	—	—	—	—

Nov. 22d. 15h. 2m. 13s. Epicentre 31°·2N. 138°·0E. Depth of focus 0.050.
(as on 1952, September 25d.).

Intensity II-III at Utunomiya. Epicentre 31°N. 137°E. Depth about 300km. Macro-seismic radius >300km.
Seismo. Bull. Cent. Met. Obs., Japan, for November, 1952, Tokyo, 1953, p. 451, with macroseismic chart.

A = -·6368, B = +·5734, C = +·5155; δ = +4; h = +1;
D = +·669, E = +·743; G = -·383, H = +·345, K = -·857.

		Δ	Az.	P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	s.
Hatidyozima		2.5	39	0	58	+ 3	1	42	+ 3
Osima		3.7	18	e 1	7	+ 1	2	0	+ 2
Tu		3.7	341	1	15	+ 9	2	2	+ 4
Muroto		3.8	303	e 1	11	+ 4	2	7	+ 7
Shizuoka		3.8	5	1	9	+ 2	2	2	+ 2
Kameyama		3.9	341	e 1	13	+ 5	—	—	—
Ajiro		4.0	14	1	8	- 1	2	2	- 2
Mera		4.0	22	1	7	- 2	2	2	- 2
Misima		4.0	11	1	9	0	2	3	- 1
Osaka		4.0	330	—	—	—	e 2	8	+ 4
Kyoto		4.2	334	1	25	+ 13	2	9	+ 1
Hunatu	N.	4.3	8	1	14	+ 1	2	8	- 2
Iida		4.3	358	—	—	—	e 2	13	+ 3
Yokohama		4.4	18	i 1	12	- 2	2	9	- 2
Tokyo	z.	4.7	18	i 1	15	- 2	2	15	- 2
Titibu		4.9	10	e 1	19	0	2	17	- 4
Matumoto	N.	5.0	0	e 1	32	+ 12	2	26	+ 3
Kumagaya		5.1	13	1	20	- 1	2	20	- 5
Oiwake		5.1	5	e 1	21	0	2	25	0
Tyosi		5.1	27	—	—	—	e 2	5	- 20
Matuyama		5.2	302	e 1	24	+ 2	2	23	- 4
Maebasi		5.3	9	e 1	21	- 3	2	21	- 8
Tukubasan		5.3	19	e 1	27	+ 3	2	14	- 15
Nagano	N.	5.4	2	e 1	24	- 1	2	27	- 4
Toyama		5.5	353	—	—	—	e 2	9	- 24
Mito		5.6	21	1	24	- 3	2	27	- 8
Utunomiya		5.6	16	e 1	23	- 4	2	26	- 9
Onahama		6.2	22	—	—	—	i 2	39	- 8
Shirakawa		6.2	17	e 1	29	- 5	2	39	- 8
Inawasiro		6.6	15	e 1	35	- 3	2	48	- 8
Aikawa		6.8	2	—	—	—	e 2	52	- 8
Hukusima		6.8	17	e 1	37	- 4	2	53	- 7
Yamagata		7.3	15	—	—	—	e 3	2	- 8
Sendai		7.4	18	e 1	44	- 4	2	54	- 19
Isinomaki		7.7	20	—	—	—	e 2	59	- 20

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Mizusawa	F.	8.3	18	e 3 24	S	(e 3 24)	- 8
	N.	8.3	18	—	—	e 3 48	+16
Akita		8.7	11	—	—	e 3 33	- 7
Morioka		8.9	16	e 2 4	- 2	3 40	- 5
Obihiro		12.4	18	—	—	e 4 32	-28
China Lake	z.	82.7	52	e 11 38	- 8	—	—
Pasadena		83.2	54	i 11 39	-10	—	—
Riverside	z.	83.9	54	i 11 42	-10	—	—
Palomar	z.	84.6	54	e 11 48	- 8	—	—

Nov. 23d. 14h. 49m. 28s. Epicentre 37°·6N. 141°·7E. Focus at Base of Superficial Layers.
(as on 1952, August 17d.).

Intensity V at Kakuda and Kinkazan; IV at Hokusima, Isinomaki, Tuchiya, Yubara, Onagawa, and Sakari; II-III at Sendai and Inawasiro. Epicentre 37°·7N. 141°·6E. Depth 40-50 km. Macro seismic radius 100-200km. Seismo. Bull. Cent. Met. Obs., Japan, for November, 1952, Tokyo, 1953, p. 452, with macro seismic chart.

A = -·6233, B = +·4923, C = +·6076; $\delta = +4$; $h = -1$;
D = +·620, E = +·785; G = -·477, H = +·377, K = -·794.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Isinomaki		0.9	340	0 18	+ 2	0 29	+ 1
Onahama		0.9	224	e 0 21 _a	+ 5	0 34	+ 6
Sendai		0.9	317	e 0 15	- 1	0 25	- 3
Hokusima		1.0	279	i 0 16 _a	- 2	0 27	- 4
Yamagata		1.2	302	e 0 19	- 1	0 31	- 5
Inawasiro		1.3	268	i 0 21 _a	- 1	0 35	- 3
Shirakawa		1.3	248	e 0 22	0	0 36	- 2
Mito		1.5	219	0 28	+ 4	0 47	+ 3
Mizusawa		1.6	344	0 23	- 3	0 40	- 6
Utunomiya		1.8	234	e 0 29	0	0 50	- 1
Sakata		1.9	311	0 33	+ 2	—	—
Tyosí		2.0	200	e 0 45	+13	1 0	+ 4
Miyako		2.1	6	e 0 32	- 1	0 54	- 5
Morioka		2.1	349	e 0 33	0	0 56	- 3
Niigata		2.1	279	e 0 36	+ 3	—	—
Kumagaya		2.4	232	0 37	- 1	1 0	- 6
Maebasi		2.4	240	e 0 38	0	1 4	- 2
Tokyo		2.5	219	0 38	- 1	1 7	- 2
Hatinohe		3.0	357	0 42	- 4	1 16	- 6
Nagano	N.	3.0	252	e 0 35	-11	—	—
Hunatu	E.	3.1	228	e 0 50	+ 2	1 27	+ 3
Kohu		3.1	232	0 51	+ 3	1 24	0
Aomori		3.3	348	e 0 53	+ 2	1 37	+ 8
Osima		3.4	214	e 9 52	0	1 28	- 4
Iida		3.7	237	e 0 58	+ 2	1 46	+ 7
Toyama		3.7	256	e 0 46	-10	1 20	-19
Nagoya		4.5	239	e 3 23	?	4 14	?
Nemuro		6.4	26	—	—	e 2 38	- 9

Nov. 23d. 23h. 21m. 22s. Epicentre 50°·2N. 157°·3E. Focus at Base of Superficial Layers.
(as on 18d.).

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Resolute Bay	z.	46.7	21	i 8 30 _a	+ 3	—	—
China Lake	z.	60.6	68	e 10 11	+ 1	—	—
Pasadena	z.	61.4	70	e 10 16	+ 1	—	—
Riverside	z.	62.0	70	e 10 17	- 2	—	—
Poona	z.	71.8	277	i 11 24	+ 3	—	—
Fayetteville	z.	73.5	53	i 11 32	+ 1	—	—
Collmberg	z.	74.4	337	e 11 34	- 2	—	—
Jena	z.	75.1	338	e 11 40	0	—	—
Stuttgart		77.7	339	e 11 54	- 1	—	—
Zürich		79.1	339	e 12 2 _k	- 1	—	—
Basle		79.2	340	e 12 2	- 1	—	—
Triest	z.	79.4	335	e 12 2	- 2	e 12 17	pP

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Nov. 24d. 2h. 15m. 39s. Epicentre 28°·0N. 139°·6E. Depth of focus 0·080.
(as on 1950, July 13d.).

Intensity II-III at Utunomiya. Epicentre 28½°N. 139½°E. Depth greater than 500km.
Macroseismic radius greater than 300km.
Seismo. Bull. Cent. Met. Obs., Japan, for November, 1952, Tokyo, 1953, p. 453, with
macroseismic chart.

A = -·6734, B = +·5731, C = +·4670; $\delta = 0$; $h = +2$;
D = +·648, E = +·762; G = -·356, H = +·303, K = -·884.

		Δ °	Az. °	P.		O-C.		S.		O-C.		Supp.	
				m.	s.	s.	s.	m.	s.	m.	s.		
Torisima		2·6	14	1	9	-	3	2	7	-	3	—	—
Hatidyozima		5·1	2	1	33	+	2	2	39	-	4	—	—
Siomisaki		6·3	330	i	1 42 _a		0	3	4	+	2	—	—
Omaesaki	z.	6·7	350	i	1 46 _k		0	3	8	-	1	—	—
Osima		6·7	358	e	1 49	+	3	3	12	+	3	—	—
Owase		6·7	335	1	45 _a	-	1	3	9		0	—	—
Hamamatu		6·9	347	e	1 49	+	2	3	13		0	—	—
Mera		6·9	1	1	46	-	1	3	9	-	4	—	—
Ajiro		7·0	357	e	1 44	-	4	3	14	-	1	—	—
Muroto		7·0	319	i	1 47 _a	-	1	3	16	+	1	—	—
Shizuoka	z.	7·0	352	i	1 49	+	1	3	12	-	3	—	—
Misima		7·1	355	1	48	-	1	3	12	-	4	—	—
Kameyama		7·3	339	i	1 52	+	1	3	25	+	5	—	—
Yokohama		7·4	0	i	1 54	+	2	3	19	-	3	—	—
Hunatu	e.	7·5	355	1	53		0	3	25	+	1	—	—
Nagoya	e.	7·5	343	1	55	+	2	3	24		0	—	—
Osaka		7·5	333	i	1 52 _a	-	1	3	25	+	1	—	—
Simidu		7·5	311	i	1 53 _a		0	3	23	-	1	—	—
Sumoto		7·5	328	i	1 52 _a	-	1	3	24		0	—	—
Iida		7·6	349	i	1 56	+	2	3	25		0	—	—
Kohu		7·6	353	1	46 _k	-	8	3	17	-	8	—	—
Koti		7·6	318	i	1 57 _a	+	3	3	24	-	1	—	—
Tokyo	z.	7·6	1	i	1 53	-	1	3	22	-	3	—	—
Gihu		7·7	342	e	1 57	+	2	3	25	-	2	—	—
Kobe		7·7	331	e	1 57	+	2	—	—	—	—	—	—
Kyoto		7·7	336	e	1 54	-	1	3	27		0	—	—
Hikone		7·8	339	1	55	-	1	3	26	-	3	—	—
Ibukisan	n.	7·8	340	e	2 7	+	11	3	41	+	12	—	—
Tyosi		7·8	8	e	1 58	+	2	3	26	-	3	—	—
Takamatu		7·9	324	1	57 _a		0	3	32	+	1	—	—
Titibu		8·0	357	e	1 58		0	3	31	-	1	—	—
Kumagaya	z.	8·1	359	i	1 58	-	1	3	31	-	3	—	—
Tukubasan		8·2	3	e	1 49	-	11	3	17	-	19	—	—
Matumoto	n.	8·3	351	e	2 2	+	1	3	41	+	3	—	—
Matuyama		8·3	316	i	2 1 _a		0	3	31	-	7	—	—
Oiwake		8·3	354	2	1		0	3	37	-	1	—	—
Maebasi	z.	8·4	357	e	2 1	-	1	3	46	+	6	—	—
Mito		8·4	5	2	3 _k	+	1	3	37	-	3	—	—
Hukui		8·5	341	i	2 3		0	3	43	+	1	—	—
Toyooka		8·5	333	e	2 2	-	1	3	42		0	—	—
Utunomiya		8·5	1	e	2 3		0	3	39	-	3	—	—
Kagosima		8·6	296	2	7	+	3	3	46	+	3	—	—
Matusiro		8·6	352	2	4		0	3	41	-	2	—	—
Nagano	n.	8·7	352	e	2 4	-	1	3	43	-	2	—	—
Hirosima		8·8	318	e	2 6		0	3	48	+	1	—	—
Kanazawa		8·9	344	e	2 8	+	1	—	—	—	—	—	—
Toyama		8·9	347	e	2 7		0	3	52	+	3	—	—
Onahama		9·0	7	i	2 9	+	1	3	48	-	3	—	—
Kumamoto		9·1	304	i	2 10 _k	+	1	3	53	-	0	—	—
Shirakawa		9·1	3	e	2 8	-	1	3	50	-	3	—	—

Continued on next page.

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1952

1110

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.
Unzendake	9.3	302	e 2	12	+ 1	3	56	0	—	—
Hamada	9.4	319	e 2	12	0	3	58	0	—	—
Simonoseki	9.5	310	2	13 _a	- 1	4	0	0	—	—
Inawasiro	9.6	3	i 2	15	0	4	1	- 1	—	—
Saga	9.6	305	i 2	16	+ 1	4	5	+ 3	—	—
Wazima	9.6	347	e 2	14	- 1	—	—	—	—	—
Hukuoka	9.7	307	e 2	15	- 1	4	2	- 2	—	—
Hukusima	9.7	4	2	16	0	4	5	+ 1	—	—
Aikawa	10.1	353	e 2	17	- 3	4	7	- 4	—	—
Yamagata	10.2	3	e 2	21	0	4	13	0	—	—
Sendai	10.3	6	e 2	22	0	4	14	- 1	—	—
Mizusawa	11.2	6	2	31	0	4	33	+ 1	2	35
Akita	11.7	2	e 2	38	+ 2	4	45	+ 4	—	—
Miyako	11.8	9	2	37	0	4	44	+ 1	—	—
Morioka	11.8	6	e 2	36	- 1	4	47	+ 4	—	—
Hatinohe	12.6	7	e 2	35	-10	—	—	—	—	—
Aomori	12.8	4	e 2	47	0	5	8	+ 6	—	—
Mori	N. 14.1	3	e 3	0	0	5	32	+ 7	—	—
Sapporo	15.1	5	e 3	12	+ 2	5	50	+ 6	—	—
Obihiro	15.2	10	e 2	55	-16	—	—	—	—	—
Nanking	18.5	287	i 3	41 _k	- 2	i 6	41	- 2	—	—
Manila	21.9	237	i 3	58 _a	-17	i 7	21 _?	-19	—	—
Djakarta	46.4	227	e 8	36	+57	e 13	45	- 3	e 14	54
Brisbane	N. 56.7	165	—	—	—	i 16	7	+ 2	—	—
Poona	z. 60.5	276	i 9	18	- 1	—	—	—	—	—
Quetta	62.4	292	e 9	31	- 1	e 17	16	- 1	e 9	48
Resolute Bay	z. 71.7	13	i 10	28 _k	- 1	—	—	—	—	—
Victoria	73.9	43	10	42	+ 1	—	—	—	—	—
Kiruna	z. 74.4	340	i 10	43	- 1	—	—	—	—	—
Shasta	z. 77.9	50	e 11	4 _a	+ 1	—	—	—	e 12	23
Mineral	z. 78.6	50	e 11	7 _a	0	—	—	—	e 13	4
Berkeley	z. 79.3	53	i 11	13 _k	+ 3	—	—	—	e 13	9
Lick	z. 79.9	53	i 11	16 _k	+ 2	—	—	—	i 13	12
Reno	z. 80.2	50	e 11	12	- 3	—	—	—	e 13	15
Upsala	z. 80.4	334	i 11	15 _k	- 1	—	—	—	—	—
Scoresby Sund	80.9	354	i 11	20	+ 1	—	—	—	—	—
Fresno	z. 81.5	53	e 11	25 _a	+ 3	—	—	—	e 13	22
Tinemaha	z. 82.5	52	i 11	28	+ 1	—	—	—	—	—
China Lake	z. 83.5	53	e 11	33	+ 1	—	—	—	i 13	33
Pasadena	83.9	54	i 11	37 _a	+ 3	—	—	—	i 13	35
Riverside	z. 84.6	54	e 11	38	+ 1	—	—	—	i 13	37
Copenhagen	85.3	333	i 11	41	0	—	—	—	—	—
Palomar	z. 85.3	54	i 11	43	+ 2	—	—	—	—	—
Collmberg	z. 88.1	329	e 11	53	- 1	—	—	—	—	—
Stuttgart	91.7	329	e 12	9	- 1	—	—	—	—	—
Rome	95.0	323	—	—	—	e 25	13	PS	e 37	43
Fayetteville	z. 98.6	42	i 12	43	+ 1	—	—	—	i 14	39
Tamanrasset	z. 112.8	314	e 17	39	[+ 5]	—	—	—	e 18	45

Nov. 24d. 19h. 56m. 38s. Epicentre 39°·2N. 70°·7E. (as on 17d.).

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.
Dzhergetal	0.4	88	e 0	8	0 _g	0	14	+ 1 _g	—	—
Garm	0.4	237	i 0	8	0 _g	i 0	14	+ 1 _g	—	—
Obi-garm	0.9	237	i 0	18	0 _g	—	—	—	—	—
Kulyab	1.5	209	i 0	32	+ 2 _g	i 0	56	+ 6 _g	—	—
Stalinabad	1.6	247	i 0	31	- 1 _g	i 0	53	0 _g	—	—
Khorog	1.9	158	i 0	39	+ 1 _g	e 1	7	+ 4 _g	—	—
Namangan	1.9	22	e 0	34	0	i 1	1	+ 1*	—	—
Andijan	2.0	39	i 0	36	+ 1	i 1	4	+ 1*	i 0	38
Lunacharskoe	2.4	334	e 0	34 _?	- 7	i 1	7 _?	- 5	—	—
Samarkand	2.9	279	0	51	- 1*	1	31	+ 1*	—	—
Tchimkent	3.1	345	0	56	0*	i 1	39	+ 3*	—	—

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1952

1111

Nov. 24d. 20h. 13m. 27s. Epicentre 39°·5N. 71°·1E. (as on 1952, October 3d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Dzhergetal	0·3	162	0 8	0*	—	—	—	—
Garm	0·8	231	i 0 15	- 1 _g	e 0 25	- 1 _g	—	—
Obi-garm	1·4	234	i 0 26	- 1	—	—	—	—
Andijan	1·6	38	i 0 38	+ 6 _g	i 1 4	+ 11 _g	—	—
Namangan	1·6	16	0 37	+ 5 _g	i 1 1	+ 8 _g	—	—
Kulyab	1·9	213	i 0 38	0 _g	i 1 4	+ 1 _g	—	—
Stalinabad	2·0	243	i 0 40	0 _g	i 1 9	+ 3 _g	—	—
Khorog	2·1	169	e 0 38	+ 1	e 1 6	0*	i 0 42	P _g
Lunacharskoe	2·3	324	e 0 42?	0*	i 1 14?	+ 2*	—	—
Tashkent	2·3	323	e 0 46	0 _g	i 1 29	+ 13 _g	—	—
Tchimkent	3·0	335	e 0 57	+ 3*	e 1 37	- 2 _g	1 5	P _g
Samarkand	3·2	273	0 59	+ 1*	e 1 39	0*	i 1 2	P _g
Naryn	4·2	62	e 1 16	+ 1*	i 2 7	- 2*	i 1 25	P _g
Frunse	4·3	37	e 1 15	- 1*	i 2 11	- 1*	i 2 30	S _g
Rybach'e	4·6	51	—	—	e 2 29	- 3 _g	e 2 59	?
Przhevsk	6·3	59	e 2 0	- 6 _g	—	—	—	—
Bairam-Ali	7·3	258	e 1 48	- 2	i 3 14	- 1	—	—
Ashkabad	10·1	265	2 25	- 4	i 4 20	- 5	—	—
Kizyl-Arvat	11·5	273	—	—	1 4 55	- 4	—	—

Nov. 24d. 20h. 16m. 20s. Epicentre 18°·7S. 168°·4E. Focus at Base of Superficial Layers. (as on 1951, January 1d.).

A = -·9285, B = +·1906, C = -·3187; $\delta = +1$; $h = +5$;
D = +·201, E = +·980; G = +·312, H = -·064, K = -·948.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane	16·6	235	i 3 51	- 1	i 7 3	+ 9	i 4 16	e 7·8
Auckland	N. 18·9	165	e 4 24	+ 4	i 8 10	SS	e 5 0	e 9·7
Apia	19·6	79	e 4 28?	0	—	—	—	—
Riverview	21·5	223	i 4 50 _k	+ 2	i 8 53	+ 14	i 9 6	sS e 10·3
Wellington	23·2	170	5 8	+ 3	e 9 20	+ 10	—	11·7
Christchurch	25·0	173	e 5 21	- 1	e 9 57	sS	—	e 11·6
Melbourne	E. 28·0	223	—	—	e 10 42	+ 12	—	e 14·2
Berkeley	Z. 86·0	49	e 12 38	0	—	—	—	—
Lick	Z. 86·2	49	e 12 39 _a	0	—	—	e 12 57	sP
Fresno	Z. 87·3	51	e 12 43 _a	- 2	—	—	—	—
Pasadena	Z. 87·4	53	e 12 42	- 3	—	—	e 12 20	?
Mineral	Z. 87·6	46	e 12 45 _a	- 1	—	—	—	—
Riverside	Z. 87·9	53	e 12 47	0	—	—	e 12 28	?
Palomar	Z. 88·0	55	e 12 49	+ 1	—	—	e 13 8	sP
China Lake	Z. 88·5	52	e 12 50	0	—	—	—	—
Reno	Z. 88·5	48	i 12 50 _k	0	—	—	—	—
College	89·8	17	i 12 54	- 2	—	—	—	—
Nelson	90·5	52	e 12 59	- 1	—	—	—	—
Boulder City	90·6	52	e 12 59	- 1	—	—	—	—
Tucson	92·3	56	e 13 9	+ 1	—	—	—	—
Kiruna	Z. 126·9	345	e 18 58	[- 3]	—	—	—	—
Jena	Z. 142·9	335	e 19 25	[- 5]	—	—	e 22 14?	?
Stuttgart	Z. 145·6	336	i 19 34 _a	[- 1]	—	—	e 19 46	pPKP
Karlsruhe	Z. 145·7	336	19 34	[- 1]	—	—	e 19 46	pPKP
Triest	Z. 145·9	329	i 19 34	[- 1]	e 20 1	?	e 19 45	pPKP
Strasbourg	146·3	337	i 19 37	[+ 1]	—	—	i 19 51	pPKP
Chur	147·0	335	e 19 40	[+ 3]	—	—	—	—
Zürich	147·0	335	e 19 37	[0]	—	—	e 19 58	sPKP
Basle	147·2	337	e 19 39 _a	[+ 1]	—	—	—	—
Paris	147·9	344	e 19 41	[+ 2]	—	—	e 19 55	pPKP e 78·7
Besançon	148·1	337	e 19 43	[+ 4]	e 20 15	?	e 19 54	pPKP
Florence	Z. 148·5	327	i 19 42	[+ 2]	—	—	e 23 19	PP
Rome	149·1	323	i 19 44	[+ 3]	—	—	e 23 20	PP e 72·7
Clermont-Ferrand	150·4	340	e 19 48	[+ 5]	—	—	—	—
Tamanrasset	Z. 163·5	287	i 20 0 _k	[+ 1]	e 24 31	PP	e 24 45	pPP 74·7

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1952

1112

Nov. 24d. 20h. 31m. 25s. Epicentre 39°·5N. 71°·1E. (as at 20h. 13m.).

	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	s.	m. s.	s.
Dzhergetal	0·3	162	0 6	0 _g	—	—
Garm	0·8	231	i 0 14	- 2 _g	i 0 24	- 2 _g
Obi-garm	1·4	234	i 0 24	- 3	—	—
Andijan	1·6	38	0 35	+ 3 _g	i 1 1	+ 8 _g
Namangan	1·6	16	e 0 36	+ 4 _g	i 0 59	+ 6 _g
Kulyab	1·9	213	i 0 34	0	i 1 2	- 1 _g
Stalinabad	2·0	243	i 0 39	- 1 _g	i 1 5	- 1 _g
Khorog	2·1	169	0 37	0	1 9	0 _g
Tashkent	2·3	323	e 0 48	+ 2 _g	e 1 18	+ 2 _g
Tchimkent	3·0	335	—	—	i 1 41	+ 2 _g
Naryn	4·2	62	—	—	i 2 3	+ 6
Frunse	4·3	37	—	—	e 2 31	+ 9 _g

Nov. 24d. 21h. 35m. 35s. Epicentre 51°·1N. 156°·5E. Focus at Base of Superficial Layers. (as on 1952, April 28d.).

A = -·5782, B = +·2514, C = +·7762; $\delta=0$; $h=-6$;
D = +·399, E = +·917; G = -·712, H = +·310, K = -·631.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.
	°	°	m. s.	s.	m. s.	s.	m. s.
Resolute Bay	z. 46·0	20	e 8 25	+ 3	i 14 42	-22	i 16 31 ?
Victoria	49·3	60	i 8 49k	+ 1	—	—	—
Mineral	z. 55·4	67	e 9 32 _a	- 1	i 9 52	sP	i 9 47 pP
Berkeley	z. 56·6	70	e 9 41 _a	- 1	—	—	—
Kiruna	z. 56·9	342	i 9 42	- 2	—	—	—
Reno	z. 56·9	67	e 9 44k	0	—	—	e 10 5 sP
Lick	z. 57·3	70	i 9 46k	- 1	i 10 24	?	i 10 3 pP
Fresno	z. 58·8	69	e 9 55k	- 2	—	—	—
Tinemaha	59·5	68	i 10 1	- 1	—	—	—
China Lake	z. 60·7	68	i 10 9k	- 1	—	—	i 10 24 pP
Pasadena	61·6	70	i 10 14k	- 2	—	—	i 10 30 pP
Riverside	z. 62·1	70	i 9 58	-22	—	—	e 10 32 pP
Palomar	z. 62·9	70	i 10 24k	- 1	—	—	i 10 41 pP
Collmberg	z. 73·4	337	e 11 31	+ 1	—	—	—
Fayetteville	z. 73·4	53	i 11 29k	- 1	i 12 13	?	i 11 43 pP
Ottawa	73·8	36	i 11 32k	- 1	—	—	—
Shawinigan Falls	N. 73·9	33	e 11 34	+ 1	—	—	—
Harvard	77·8	34	i 11 56k	0	—	—	—
Weston	78·0	34	i 11 57k	0	—	—	—
Brisbane	z. 78·3	182	i 12 0	+ 2	—	—	—

Nov. 24d. 22h. 15m. 24s. Epicentre 51°·1N. 156°·5E. Focus at Base of Superficial Layers. (as at 21h.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.
	°	°	m. s.	s.	m. s.	s.	m. s.
Resolute Bay	z. 46·0	20	i 8 22 _a	0	—	—	—
Victoria	49·3	60	8 45	- 3	—	—	—
Mineral	z. 55·4	67	e 9 32 _a	- 1	—	—	e 9 45 pP
Berkeley	z. 56·6	70	e 9 54	pP	—	—	—
Kiruna	z. 56·9	342	i 9 45	+ 1	—	—	—
Reno	z. 56·9	67	e 9 57k	pP	—	—	e 10 23 PcP
Lick	z. 57·3	70	e 9 54k	+ 7	e 11 2	?	e 10 8 pP
Fresno	z. 58·8	69	e 10 55k	+58	—	—	—
Tinemaha	z. 59·5	68	e 10 0	- 2	—	—	i 10 14 pP
China Lake	z. 60·7	68	e 10 8	- 2	—	—	i 10 22 pP
Pasadena	61·6	70	i 10 13	- 3	i 10 46	?	i 10 27 pP
Riverside	z. 62·1	70	e 10 17	- 3	e 10 48	?	i 10 31 pP
Palomar	z. 62·9	70	e 10 23	- 2	—	—	i 10 38 pP
Upsala	z. 64·5	338	i 10 49	pP	—	—	—
Poona	z. 71·2	276	i 11 22	+ 4	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.
Collmberg	z.	73.4	337	e 11 36	+ 6	—	—	—
Fayetteville	z.	73.4	53	i 11 28 _a	- 2	—	—	i 11 42 pP
Ottawa		73.8	36	i 11 31 _a	- 2	—	—	—
Shawinigan Falls	N.	73.9	33	e 11 33	0	—	—	—
Jena	z.	74.1	338	e 11 37?	+ 2	—	—	e 12 3 pP
Stuttgart		76.6	338	e 11 51	+ 2	—	—	e 12 16 pP
Harvard		77.8	34	i 11 56 _k	0	—	—	—
Paris		78.0	343	i 11 59	+ 2	—	—	i 12 29 pP
Weston		78.0	34	i 11 57 _a	0	—	—	—
Halifax		78.5	28	i 12 1 _a	+ 2	—	—	—
Florence	z.	80.8	335	—	—	e 23 44	PPS	—
Rome	E.	82.2	334	e 11 43	- 36	—	—	—

Nov. 25d. 5h. 23m. 34s. (I) } Epicentre 36°·8S. 178°·6E.
 5h. 40m. 2s. (II) }

A = -·8024, B = +·0196, C = -·5964; δ = -8; h = -1;
 D = +·024, E = +1·000; G = +·596, H = -·015, K = -·803.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.
I Tuai	N.	2.3	209	0 53	+ 7 _g	1 27	+ 11 _g	—
II	N.	2.3	209	0 42	0*	1 16	0 _g	—
I Auckland	N.	3.1	269	e 1 3	+ 1 _g	1 41	- 1 _g	—
II	N.	3.1	269	e 0 51	0	1 29	0	—
II New Plymouth	E.	4.2	237	e 1 9	+ 2	e 2 16	- 3 _g	—
I Wellington		5.4	212	e 1 31	- 4*	i 2 35	+ 7	—
II		5.4	212	e 1 21	- 3	i 2 23	- 5	—
I Cobb River	E.	6.3	225	e 1 41	+ 5	e 2 54?	+ 4	—
II	E.	6.3	225	e 1 34	- 2	e 2 44	- 6	—
I Kaimata	N.E.	7.9	222	e 2 8	+ 9	e 3 35	+ 5	—
II	N.E.	7.9	222	e 2 0	+ 1	e 3 23	- 7	—
I Christchurch		8.1	212	e 2 36	P _e	e 3 39	+ 4	—
II		8.1	212	—	—	e 3 26	- 9	—
I Palomar	z.	92.1	50	i 13 10	- 2	—	—	—
I Lick	z.	92.2	43	e 13 10 _k	- 3	—	—	e 13 32 ?
I Riverside	z.	92.3	48	e 13 10	- 3	—	—	—
I China Lake	z.	93.4	47	e 13 15	- 3	—	—	—
I Mineral	z.	94.4	41	e 13 19 _a	- 4	—	—	—
I Ottawa		125.2	56	e 18 58 _k	[- 5]	—	—	—
I Kiruna	z.	146.6	346	i 19 37	[- 5]	—	—	—
I Upsala	z.	153.9	339	i 20 9	PKP _e	—	—	—

Nov. 26d. 13h. 25m. 20s. Epicentre 52°·6N. 160°·3E. Focus at Base of Superficial Layers.
 (as on 22d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa		18.9	233	(e 4 27)	+ 7	e 4 27	P	—	—
College		28.7	44	i 5 53	- 3	e 10 33	- 9	—	—
Resolute Bay		43.7	22	i 8 1	- 3	i 14 28	- 3	—	e 23.7
Victoria		46.5	63	8 26	0	—	—	—	—
Seattle	z.	47.6	63	i 8 46	pP	—	—	—	—
Hungry Horse		51.6	58	i 9 4	- 1	—	—	i 10 30	pPcP
Shasta		51.9	70	e 9 6	- 1	—	—	i 9 17	pP
Mineral	z.	52.6	70	e 9 8 _a	- 5	i 9 33	?	i 9 22	pP
Berkeley	z.	53.9	73	e 9 23 _a	+ 1	e 10 38	PcP	i 9 32	pP
Butte		53.9	59	e 9 20	- 2	—	—	—	—
Reno	N.	54.2	69	e 8 54 _k	- 30	—	—	—	—
Lick	z.	54.6	73	i 9 19 _k	- 9	e 10 37	PcP	i 9 38	pP
Fresno	z.	56.1	72	e 9 48 _a	pP	—	—	—	—
Kiruna		56.2	344	i 9 36	- 3	i 17 23	- 2	i 9 47	pP
Tinemaha		56.8	71	i 9 45	+ 2	i 11 26	?	i 9 54	pP

Continued on next page.

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1952

1114

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
China Lake	z.	58.0	71	e 9	53	+ 1	—	—	—	i 10	2	pP	—
Pasadena		58.8	73	e 9	58	+ 1	i 10	11	sP	i 10	6	pP	—
Mount Wilson	z.	58.9	73	e 9	58	0	e 39	40	P'P'	i 10	7	pP	—
Chatra		59.1	275	i 10	2	+ 2	e 18	3	0	—	—	—	—
Nelson		59.7	69	i 10	3	- 1	e 39	38	P'P'	i 10	14	pP	—
Palomar	z.	60.2	73	e 10	6	- 1	e 12	14	PP	i 10	17	pP	—
Calcutta	E.	61.5	271	i 10	29	pP	—	—	—	—	—	—	—
Upsala		63.9	340	i 10	31 _a	- 1	i 19	4	0	i 11	13	PcP	e 29.7
Tucson		64.5	70	e 10	36	0	—	—	—	i 10	46	pP	—
Kirkland Lake	z.	67.3	39	e 10	50	- 3	—	—	—	i 11	1	pP	—
Quetta		68.5	292	i 11	1 _k	0	e 20	1	+ 2	—	—	—	—
Copenhagen		68.9	342	i 11	4 _a	+ 1	20	4	0	20	54	ScS	33.7
Fayetteville	z.	70.6	56	i 11	12	- 2	—	—	—	i 11	22	pP	—
Ottawa		71.2	38	i 11	15 _k	- 3	—	—	—	i 11	25	pP	—
Shawinigan Falls	N.	71.3	35	e 11	17	- 1	—	—	—	e 11	21	pP	—
Hyderabad	E.	71.4	275	—	—	—	e 20	39	+ 6	—	—	—	—
Lwow		71.4	332	i 11	18	- 1	e 20	35	+ 2	e 11	42	PcP	—
Potsdam		71.8	340	e 11	21	0	i 20	42	+ 4	—	—	—	e 39.7
Cleveland	z.	72.1	44	e 11	23 _k	0	—	—	—	i 11	32	pP	—
Cernauti		72.2	330	e 11	23	0	—	—	—	—	—	—	—
Kishinev		72.4	328	i 11	24	- 1	e 20	47	+ 2	—	—	—	—
Witteveen	z.	72.7	344	e 11	25 _k	- 1	—	—	—	—	—	—	—
Raciborz		72.8	336	i 11	28	+ 1	e 21	49	PPS	e 11	52	PcP	—
Collmberg		72.9	339	i 11	27	- 1	e 20	51	+ 1	e 21	4	sS	e 42.7
Uzhgorod		73.0	333	e 11	29	+ 1	e 20	54	+ 2	—	—	—	—
Prague		73.1	338	i 11	33	+ 4	e 11	49	PcP	e 14	24	PP	—
Poona		73.4	279	i 11	31	+ 1	i 20	56	0	—	—	—	—
Jena		73.5	340	i 11	30	- 1	—	—	—	e 11	43	pP	—
Bombay		73.7	280	e 11	35	+ 3	e 21	0	+ 1	14	20	PP	—
Pennsylvania	z.	74.2	42	i 11	36	+ 1	i 11	55	PcP	i 11	44	pP	—
Morgantown		74.4	45	i 11	34	- 2	—	—	—	e 14	23	PP	—
Budapest		74.9	334	11	42	+ 3	e 21	12	- 1	e 29	35	SSS	46.2
Harvard		75.2	37	e 11	40	- 1	—	—	—	—	—	—	—
Weston		75.4	37	i 11	41 _a	- 1	—	—	—	—	—	—	—
Palisades		75.6	39	i 11	42	- 1	e 30	14	SSS	i 11	47	pP	e 36.5
City College, N.Y.		75.8	39	i 11	44	0	—	—	—	—	—	—	—
Kalossa		75.8	334	e 11	44	0	e 21	17	- 6	e 11	53	pP	—
Karlsruhe	z.	76.0	341	e 11	46	0	e 12	1	sP	—	—	—	—
Halifax		76.1	31	i 11	47 _a	+ 1	—	—	—	—	—	—	—
Stuttgart		76.1	341	e 11	46	0	e 12	3	sP	e 11	56	pP	e 43.7
Washington		76.2	42	i 11	45	- 2	—	—	—	—	—	—	—
Strasbourg		76.5	342	i 11	49	+ 1	—	—	—	i 12	18	sP	—
Belgrade		77.0	332	e 11	52 _a	+ 1	—	—	—	e 13	45	?	e 49.9
Paris		77.2	345	i 11	54	+ 2	—	—	—	—	—	—	—
Basle		77.5	342	e 11	52 _a	- 2	—	—	—	—	—	—	—
Zürich		77.5	342	e 11	56	+ 2	—	—	—	—	—	—	—
Istanbul	z.	77.6	325	e 11	50	- 4	—	—	—	—	—	—	—
Chur		77.8	341	e 11	56 _a	0	—	—	—	—	—	—	—
Triest	z.	78.0	337	i 10	57	-60	e 10	45	?	e 11	44	?	—
Besançon		78.1	342	i 11	57	0	e 15	10	PP	i 12	7	pP	—
Brisbane	z.	80.0	187	i 12	12 _a	+ 4	i 12	33	sP	i 12	22	pP	—
Clermont-Ferrand		80.1	344	i 12	10	+ 2	—	—	—	—	—	—	—
Florence	z.	80.4	338	i 12	1 _a	- 9	—	—	—	—	—	—	—
Tacubaya		81.0	70	i 12	21 _a	+ 8	e 22	19	+ 1	—	—	—	—
Ksara		81.3	316	i 12	16	+ 2	e 22	46	ScS	—	—	—	—
Rome		81.8	336	e 12	14	- 3	—	—	—	e 26	41	?	—
Messina		84.5	333	i 12	30 _k	- 1	e 22	38	-16	—	—	—	44.5
Helwan		86.6	318	i 12	42	+ 1	23	16	+ 2	24	3	SP	—
Granada		89.5	348	13	4 _a	+ 9	23	49	+ 8	—	—	—	45.3
Tamanrasset	z.	101.8	336	i 13	52 _a	+ 1	i 17	58	PP	e 30	10	PKKP	—
Pretoria	z.	135.3	289	e 19	20	[+ 3]	—	—	—	—	—	—	—
Kimberley	z.	139.6	289	i 19	28	[+ 4]	—	—	—	—	—	—	—
Grahamstown	z.	141.8	283	e 19	28	[0]	—	—	—	—	—	—	—

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Nov. 26d. 16h. 45m. 17s. Epicentre 37°·8N. 141°·4E. Depth of focus 0·005.
(as on 1951, August 24d.).

Intensity IV at Sendai, Kakuda, and Sakari; II-III at Hukusima, Isinomaki, Shirakawa, Miyako, Kinkazan, and Tomioka. Epicentre 37°·8N. 141°·3E. Depth 60km. Macro-seismic radius 200-300km.
Seismo. Bull. Cent. Met. Obs., Japan, for November, 1952, Tokyo, 1953, p. 454, with macroseismic chart.

A = -·6191, B = +·4942, C = +·6103; $\delta = -2$; $h = -1$;
D = +·624, E = +·782; G = -·477, H = +·381, K = -·792.

	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	s.	m. s.	s.
Isinomaki	0·6	354	0 17	+ 3	0 26	+ 1
Sendai	0·6	320	e 0 14	0	0 24	- 1
Hukusima	0·7	266	0 15 ^a	0	0 25	- 2
Onahama	0·9	205	i 0 18	0	0 30	- 1
Yamagata	0·9	299	e 0 18	0	0 30	- 1
Inawasiro	1·1	257	i 0 19	- 1	0 33	- 3
Shirakawa	1·2	234	e 0 22	0	0 35	- 3
Mizusawa	1·4	351	0 25	+ 1	0 39	- 4
Mito	1·6	208	0 28	+ 1	0 46	- 1
Utunomiya	1·8	224	e 0 27	- 3	0 49	- 3
Miyako	1·9	14	e 0 31	0	0 53	- 1
Niigata	E. 1·9	274	e 0 38	+ 7	—	—
Tukubasan	1·9	213	e 0 31	0	0 52	- 2
Kumagaya	2·3	224	e 0 41	+ 4	1 2	- 2
Maebasi	2·3	233	e 0 37	0	1 5	+ 1
Tokyo	2·5	212	0 40	+ 1	1 7	- 2
Nagano	N. 2·8	246	e 0 44	0	—	—
Aomori	3·0	355	e 1 14	+27	1 52	+30
Matumoto	3·2	240	e 1 9	+20	1 38	+11
Nagoya	4·4	235	e 0 59	- 7	—	—
Nemuro	6·4	29	—	—	2 37	- 9

Nov. 27d. 7h. 20m. 31s. Epicentre 36°·6N. 70°·1E. Depth of focus 0·020.
(as on 20d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kulyab	1·3	349	0 31	+ 2	—	—	—	—
Khorog	1·5	54	i 0 33	+ 2	0 57	+ 3	—	—
Obi-garm	2·1	351	i 0 40	+ 3	—	—	—	—
Stalinabad	2·2	332	i 0 40	+ 2	1 1 9	+ 1	—	—
Dzhergetal	2·7	18	i 0 47	+ 2	—	—	—	—
Samarkand	3·9	322	i 1 1	+ 1	—	—	—	—
Fergana	4·0	19	i 1 3	+ 2	—	—	—	—
Andijan	4·5	22	i 1 9	+ 1	—	—	—	—
Namangan	4·5	15	i 1 10	+ 2	—	—	—	—
Lunacharskoe	4·8	353	i 1 12	0	—	—	—	—
Tashkent	4·8	352	e 1 13	+ 1	1 2 6	- 1	—	—
Tchimkent	5·7	356	i 1 25	+ 1	—	—	—	—
Bairam-Ali	6·4	281	i 1 30	- 3	—	—	—	—
Naryn	6·7	42	i 1 35	- 2	1 2 42	-10	—	—
Quetta	6·9	203	i 1 37 ^a	- 3	1 2 53	- 4	—	—
Frunse	7·2	27	i 1 44	0	1 3 3	- 1	—	—
Rybach'e	7·4	36	i 1 48	+ 2	—	—	—	—
Almata	8·5	36	i 2 2	+ 1	1 3 37	+ 2	—	—
Przhevalsk	8·7	45	2 4	0	—	—	—	—
Dehra Dun	N. 9·1	131	e 2 11	+ 2	1 3 41	- 9	—	—
Ashkabad	9·5	282	i 2 12	- 2	3 54	- 5	—	—
New Delhi	10·0	141	i 2 18	- 3	1 4 3	- 8	2 26	PP
Kizyl-Arvat	11·2	287	i 2 32	- 4	—	—	—	—
Semipalatinsk	15·6	25	e 3 28	- 4	e 5 22	-58	—	—
Baku	16·3	290	i 3 42	+ 1	—	—	—	—

Continued on next page.

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	Δ	Az.	P.		O - C.	S.		O - C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Lenkoran	17.0	285	3	48	- 2	6	48	- 4	—	—	—	
Chatra	17.5	117	i 3	53	- 2	i 6	55	- 8	4	6	PP	7.7
Bombay	17.8	172	i 3	58	- 1	i 7	7	- 2	4	12	PP	—
Poona	18.3	170	i 4	3	- 1	7	16	- 4	11	53	ScP	8.1
Makhach-Kala	18.5	298	i 4	5	- 1	i 7	26	+ 2	—	—	—	—
Goris	18.9	286	i 4	11	0	i 7	42	+10	—	—	—	—
Kirovobad	19.0	291	i 4	11	- 1	—	—	—	—	—	—	—
Grozny	19.8	298	i 4	20	0	i 7	59	+10	—	—	—	—
Tiflis	20.2	293	i 4	25	+ 1	i 8	5	+ 9	—	—	—	—
Hyderabad	E. 20.5	157	e 4	31	+ 4	i 7	55	- 7	—	—	—	—
Leninakan	20.9	290	4	32	+ 1	—	—	—	—	—	—	—
Calcutta	N. 21.1	126	i 4	37	+ 4	i 8	19	+ 6	4	59	PP	—
Sverdlovsk	21.2	345	i 4	35	+ 1	i 8	21	+ 6	—	—	—	—
Borzhom	21.3	293	i 4	36	+ 1	i 8	29	+12	—	—	—	—
Shillong	E. 21.6	113	i 4	39	+ 1	8	27	+ 5	9	0	SS	—
Piatigorsk	21.9	299	4	41	0	—	—	—	—	—	—	—
Sotchi	24.2	297	i 5	2	- 1	i 9	22	+15	—	—	—	—
Madras	E. 25.2	155	e 5	11	- 1	9	32	+ 9	5	42	pP	10.2
Kodaikanal	E. 27.1	165	e 6	6	pP	e 9	44	-10	—	—	—	—
Theodosia	27.4	300	5	31	- 1	—	—	—	—	—	—	—
Ksara	28.0	274	i 5	38	0	10	18	+ 9	6	14	pP	—
Simferopol	28.3	300	i 5	40	- 1	—	—	—	—	—	—	—
Yalta	28.3	298	e 5	40	- 1	—	—	—	—	—	—	—
Irkutsk	28.7	45	5	45	+ 1	—	—	—	—	—	—	—
Moscow	29.1	322	5	47	- 1	i 11	17	sS	—	—	—	—
Kyakhta	29.4	49	5	50	0	—	—	—	—	—	—	—
Colombo	E. 30.9	161	i 6	51	SP	e 12	14	?	—	—	—	15.8
Istanbul	32.1	291	e 6	9	- 5	e 11	7	- 6	e 12	9	sS	—
Kishinev	32.1	303	i 6	13	- 1	—	—	—	—	—	—	—
Iasi	33.0	304	e 6	23	+ 1	—	—	—	—	—	—	—
Bucharest	34.0	298	e 6	34	+ 4	e 13	29?	?	—	—	—	—
Pulkovo	34.4	325	i 6	34	0	i 11	49	0	—	—	—	—
Lwow	35.5	307	i 6	43	0	e 12	5	- 1	—	—	—	—
Sofia	36.2	295	e 6	44	- 5	—	—	—	e 8	5	PP	—
Athens	36.6	286	i 6	52 _a	0	17	48	?	i 7	38	pP	—
Uzhgorod	36.6	306	i 6	54	+ 2	e 12	27	+ 5	7	29	pP	—
Belgrade	38.0	298	e 7	5	+ 1	e 12	47	+ 3	e 8	18	PP	—
Budapest	38.8	303	i 7	13	+ 2	e 13	29?	pS	i 9	50	PcP	—
Kalossa	38.9	302	e 7	9	- 3	8	41	PP	i 9	47	PcP	—
Raciborzu	39.3	308	7	14	- 1	e 15	59?	SS	e 7	53	pP	—
Ogyalla	39.4	304	e 7	18	+ 2	e 16	55	ScS	e 7	55	pP	—
Upsala	40.6	322	i 7	24 _a	- 1	i 13	20	- 3	i 8	8	pP	—
Vienna	40.6	304	e 7	26	+ 1	e 8	38	sP	e 8	16	pP	—
Taranto	41.0	292	7	31	+ 2	13	32	+ 4	—	—	—	19.9
Kiruna	41.7	334	i 7	34	0	i 13	38	- 1	i 8	16	pP	—
Prague	41.7	308	i 7	35 _a	+ 1	e 14	39	sS	e 9	25	PcP	20.4
Potsdam	42.5	311	i 7	42 _a	+ 1	i 14	54	sS	9	28	PP	—
Collmborg	Z. 42.6	309	i 7	42 _k	0	e 17	42	SSS	i 8	19	pP	—
Triest	42.6	301	i 7	41 _k	- 1	e 14	1	+ 9	e 13	15	PcS	e 20.5
Copenhagen	42.8	316	i 7	45 _a	+ 2	13	53	- 2	i 8	37	sP	—
Messina	42.8	290	i 7	44 _k	+ 1	i 13	57	+ 2	i 8	21	pP	—
Cheb	N. 43.0	308	e 10	16	PPP	e 15	8	sS	e 17	38	ScS	—
Jena	43.5	309	e 7	50	+ 1	e 18	42	SSS	e 8	30	pP	—
Rocca di Papa	44.1	295	e 7	55	+ 1	e 14	22	+ 8	—	—	—	—
Rome	44.2	296	i 7	52 _a	- 3	e 14	11	- 4	i 8	30	pP	—
Florence	44.7	298	i 7	41	-18	e 14	21	- 1	i 8	30	pP	—
Salo	44.9	301	i 8	1 _k	+ 1	e 14	25	0	e 10	10	PP	—
Stuttgart	45.2	306	i 8	3 _a	0	e 17	59	SS	e 8	40	pP	—
Chur	45.3	303	e 8	2 _a	- 1	—	—	—	—	—	—	—
Karlsruhe	Z. 45.7	307	i 8	7	+ 1	e 8	12	?	e 8	44	pP	—
Zürich	45.9	305	e 8	6 _a	- 2	e 8	32	?	e 9	55	PP	—
Strasbourg	46.2	306	i 8	10	0	e 12	58	ScP	i 8	46	pP	—
Witteveen	Z. 46.4	313	i 8	13 _k	+ 1	—	—	—	i 8	53	pP	—
Basle	46.5	305	e 8	12	- 1	—	—	—	—	—	—	—
Oropa	46.6	302	i 7	59	-15	e 14	18	-31	i 8	46	pP	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Bergen	N.	46.7	323	e 12	52	?	e 15	47	PPS	e 17	52	ScS
De Bilt		47.3	311	—	—	—	e 16	5	?	e 18	35	SS
Besançon		47.6	304	i 8	22	+ 1	e 9	25	sP	i 9	9	pP
Paris		49.6	307	i 8	35	- 1	—	—	—	—	—	—
Clermont-Ferrand		49.9	302	i 8	40	+ 1	—	—	—	—	—	—
Manila		50.2	102	i 8	31 _a	-10	i 15	27?	-13	—	—	—
Aberdeen		50.8	318	—	—	—	i 20	7	sSS	—	—	—
Durham		50.9	315	8	50	+ 3	i 16	53	sS	—	—	—
Algiers Univ.	z.	52.7	292	i 8	59	- 1	e 13	43	ScP	e 9	38	pP
Yuzno-Sakhlinsk		53.3	54	9	3	- 1	—	—	—	—	—	—
Rathfarnham Castle		54.0	315	i 9	5	- 5	e 16	34	+ 3	e 11	15	PP
Alicante		54.8	295	9	26	+11	17	16	PPS	10	33	?
Scoresby Sund		56.7	337	i 9	19	-10	—	—	—	—	—	—
Almeria		56.8	294	i 9	24	- 6	15	16	?	10	24	PcP
Tamanrasset	z.	56.8	275	i 9	29	- 1	i 17	10	+ 2	i 10	8	pP
Toledo		56.8	298	i 9	29	- 1	—	—	—	i 10	7	pP
Granada		57.5	295	i 10	3 _k	+28	18	32	?	23	9	SSS
Resolute Bay		68.6	356	e 10	46	- 2	i 19	37	+ 1	i 11	54	sS
Pretoria	z.	73.5	218	i 11	15	- 2	—	—	—	—	—	e 27.2
College		74.6	16	i 11	20	- 3	—	—	—	—	—	—
Pietermaritzburg	z.	75.7	215	i 11	28	- 1	—	—	—	—	—	—
Kimberley	z.	77.7	219	i 11	38	- 2	—	—	—	—	—	—
Grahamstown	z.	80.6	216	i 11	55	- 1	—	—	—	—	—	—
Halifax		88.9	329	e 13	9	pP	—	—	—	—	—	—
Shawinigan Falls	N.	90.8	335	e 13	29	pP	—	—	—	—	—	—
Kirkland Lake	z.	91.5	340	e 13	32	pP	—	—	—	—	—	—
Ottawa		92.7	337	e 13	39	pP	—	—	—	—	—	—
Victoria		94.4	9	13	48	pP	—	—	—	—	—	—
Hungry Horse		95.3	3	e 13	8	+ 1	—	—	—	i 20	44	?
Palisades		96.0	333	e 37	59	P'P'	—	—	—	—	—	—
Butte		97.7	2	e 13	58	pP	—	—	—	—	—	—
Shasta	z.	102.2	10	e 13	55 _k	+17	—	—	—	—	—	—
Mineral	z.	102.7	9	e 13	42 _k	+ 2	i 19	38	?	e 14	11	pP
Reno	z.	103.7	7	e 17	0	?	—	—	—	—	—	—
Lick	z.	105.6	10	e 18	14 _k	PP	e 18	29	?	i 19	53	?
Tinemaha	z.	106.3	7	e 17	51	?	—	—	—	e 18	59	pPP
Fresno	z.	106.5	8	e 18	18	PP	—	—	—	—	—	—
China Lake	z.	107.6	6	e 16	47	?	—	—	—	e 18	26	PP
Nelson		107.9	4	e 17	5	?	—	—	—	e 17	48	?
Pasadena		109.2	7	e 17	29	?	e 21	29	?	e 19	19	pPP
Palomar	z.	110.1	6	e 17	49	?	e 18	8	PKP	e 19	43	?
Tucson		111.5	1	e 18	33	[+18]	e 29	9	SPP	—	—	—
La Paz		138.0	287	e 18	48	[-18]	—	—	—	—	—	—

Nov. 27d. 15h. 17m. 20s. Epicentre 50°·2N. 157°·3E. Focus at Base of Superficial Layers. (as on 23d.).

		Δ	Az.	P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	s.
Victoria		49.3	60	8	54	+ 6	—	—	—
Shasta	z.	54.6	66	e 9	29 _a	+ 1	e 9	43	pP
Mineral	z.	55.2	66	e 9	33 _a	+ 1	—	—	—
Reno	z.	56.8	65	e 9	45 _a	+ 2	—	—	—
Lick	z.	57.2	70	e 9	43 _a	- 3	e 10	57	?
Fresno	z.	58.7	68	e 9	54	- 3	—	—	—
Tinemaha	z.	59.3	68	i 10	4	+ 3	e 10	17	pP
China Lake	z.	60.6	68	e 10	11	+ 1	e 10	25	pP
Pasadena		61.4	70	i 10	16	+ 1	i 10	30	pP
Poona	z.	71.8	277	i 11	23	+ 2	—	—	—
Ottawa		74.3	36	e 11	34 _k	- 2	—	—	—
Shawinigan Falls	N.	74.3	33	e 11	36	0	—	—	—
Collmberg	z.	74.4	337	e 11	35	- 1	—	—	—
Harvard		78.3	35	i 11	58 _a	0	—	—	—
Weston		78.5	35	i 12	0 _k	+ 1	—	—	—
Halifax		79.1	28	i 12	2 _k	- 1	—	—	—

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1952

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Nov. 28d. 1h. 12m. 55s. Epicentre 6°·7N. 78°·9W. (as on 1952, May 17d.).

Intensity II at Balboa Heights.

$$A = +.1912, B = -.9745, C = +.1176; \quad \delta = +4; \quad h = +7; \\ D = -.981, E = -.193; \quad G = +.023, H = -.115, K = -.993.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	2.2	344	i 0 39	+ 1	i 1 7	+ 1	—	—
Chinchina	3.7	119	i 0 56	- 4	i 1 45	0	—	i 2.4
Bogota	5.3	113	i 1 22	0	i 2 17	- 8	i 2 48	S _g
Galerazamba	5.3	42	e 1 30	- 3*	i 2 28	+ 3	i 2 40	S*
San Juan	17.0	46	e 3 58	- 3	—	—	i 4 3	P
Huancayo	19.0	170	i 4 24	- 2	i 8 5	+10	(e 8 37)	SSS
Fort de France	19.1	65	e 4 20	- 7	—	—	—	—
La Paz	25.5	156	i 5 35	+ 3	e 10 12	+15	i 6 28	PP
Columbia	27.1	356	e 5 29	-17	—	—	—	—
Washington	32.0	3	e 6 31	+ 1	—	—	i 6 36	P
Fayetteville z.	32.3	337	i 6 31	- 2	—	—	—	—
Morgantown	32.7	359	i 6 36	0	—	—	e 8 25	?
Palisades	34.3	8	i 6 51	+ 1	e 12 23	+ 6	—	—
Buffalo (Larkin)	35.9	0	i 7 6	+ 2	—	—	—	e 15.8
Weston	36.1	10	e 7 6 _a	+ 1	—	—	—	—
Harvard	36.2	10	e 7 6	0	—	—	—	—
Ottawa	38.5	4	i 7 27 _k	+ 1	13 31	+ 9	—	—
Tucson	39.0	316	i 7 27	- 3	—	—	i 7 44	?
Shawinigan Falls N.	40.0	7	e 7 39	+ 1	—	—	—	—
Kirkland Lake z.	41.2	359	e 7 53	+ 5	—	—	—	—
Nelson	43.7	317	i 8 7	- 1	e 9 55	PP	i 8 14	pP
Boulder City	43.9	317	e 8 10	0	i 10 5	PP	i 8 24	pP
Pasadena	45.3	313	i 8 22	+ 1	i 8 29	?	e 10 7	PP
China Lake z.	45.7	316	e 8 25	+ 1	i 8 32	?	e 10 8	PP
La Plata E.	46.0	156	13 17	?	18 41	SS	22 23	Q
N.	46.0	156	—	—	18 35	SS	23 11	Q
Tinemaha z.	46.8	316	e 8 34	+ 1	—	—	i 8 41	?
Fresno z.	47.7	315	e 8 41 _a	+ 1	—	—	—	—
Butte	48.7	329	e 8 48	0	—	—	—	—
Lick z.	49.3	315	e 8 53 _a	0	—	—	—	—
Mineral z.	50.7	318	e 9 2 _k	- 1	—	—	—	—
Hungry Horse	51.0	331	i 9 5	- 1	—	—	e 10 53	PP
Victoria	56.0	326	9 48	+ 5	—	—	—	—
Resolute Bay z.	67.9	356	e 11 11	+ 9	—	—	—	—
College	75.0	336	i 11 45	0	—	—	—	—
Tamanrasset z.	82.3	68	i 12 26	+ 1	e 14 13	?	e 15 35	PP
Rome N.	86.5	48	—	—	e 23 25	+ 3	—	—
Kiruna	87.3	23	i 12 54	+ 4	e 23 28	- 1	e 25 15	PPS

Nov. 28d. 4h. 34m. 48s. Epicentre 34°·9N. 133°·6E. (as on 1938, January 2d.).

Intensity V at Neu, Hinogami, Aoya, and Kurosaka; IV at Yonago, Matsue, Tottori, Takamatu, Tsuyama, and Hoshoji. Epicentre 35°·2N. 133°·3E. Depth 30km. Macro seismic radius 100-200km.

Seismo. Bull. Cent. Met. Obs., Japan, for November, 1952, Tokyo, 1953, p. 455, with macro seismic chart.

$$A = -.5668, B = +.5952, C = +.5696; \quad \delta = -3; \quad h = 0; \\ D = +.724, E = +.690; \quad G = -.393, H = +.412, K = -.822.$$

	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	s.	m. s.	s.
Okayama	0.4	130	i 0 20 _a	+ 7	0 31	+10
Yonago	0.6	339	i 0 1	-11 _g	—	—
Matsue	0.7	322	0 4	-10 _g	0 8	-15 _g
Takamatu	0.7	147	i 0 18 _a	+ 1	0 32	+ 4
Himeji	0.8	121	i 0 21	+ 3	0 35	+ 4

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	s.
Tottori		0.8	41	i 0	14	- 2 _g	0	23	- 3 _g
Hirosima		1.1	241	i 0	17 _a	- 5	0	32	- 4 _g
Sumoto		1.2	118	i 0	25 _k	+ 1 _g	0	46	+ 6 _g
Tokusima		1.2	136	i 0	30	+ 6 _g	0	46	+ 6 _g
Toyooka		1.2	57	i 0	21 _k	- 3	0	37	- 3 _g
Hamada		1.3	270	i 0	15 _k	- 10	0	29	- 15
Kobe	E.	1.3	99	e 0	27	+ 1 _g	0	51	+ 8 _g
Koti		1.3	182	i 0	26 _a	0 _g	0	47	+ 4 _g
Matuyama		1.3	214	i 0	23 _a	- 2	0	41	- 1*
Saigo		1.3	351	i 0	16	- 9	0	30	- 14
Wakayama		1.5	117	i 0	31 _k	+ 1 _g	0	53	+ 3 _g
Maizuru		1.6	70	0	29	- 1	0	50	- 1
Osaka		1.6	99	e 0	36	+ 4 _g	0	59	+ 6 _g
Kyoto		1.7	86	e 0	28	- 3	—	—	—
Muroto		1.7	164	e 0	33	- 1 _g	0	59	+ 3 _g
Uwazima		1.9	208	0	46	+ 8 _g	—	—	—
Tsuruga		2.1	69	e 0	39	0*	1	9	0 _g
Hikone		2.2	80	0	38	0	1	10	+ 1*
Simidu		2.2	194	0	40	0*	1	9	0*
Ibukisan	E.	2.3	78	e 0	43	+ 1*	1	16	0 _g
Ooita		2.3	225	e 0	41	- 1*	1	11	- 1*
Owase		2.3	111	e 0	46	0 _g	—	—	—
Siomisaki		2.3	129	e 0	42	0*	1	20	+ 4 _g
Hukui		2.4	62	e 0	47	- 1 _g	1	18	- 1 _g
Kameyama		2.4	91	0	45	+ 1*	1	18	- 1 _g
Simonoseki		2.4	295	11	7	S	(i 1	7)	- 5
Tu		2.4	94	i 0	44	0*	—	—	—
Gihu		2.6	79	0	50	- 2 _g	1	23	+ 2*
Nagoya	N.	2.8	84	0	54	- 2 _g	1	37	+ 5 _g
Asosan		2.9	227	0	56	- 2 _g	—	—	—
Hukuoka		3.0	243	e 0	52	+ 2	1	28	+ 1
Kanazawa		3.0	57	e 1	6	+ 6 _g	—	—	—
Kumamoto		3.2	229	e 1	4	0 _g	—	—	—
Toyama		3.4	57	e 1	7	- 1 _g	1	49	- 3 _g
Iida		3.5	79	e 1	6	+ 3*	—	—	—
Miyazaki		3.5	213	—	—	—	e 1	40	0
Shizuoka		3.9	88	e 1	12	+ 2*	2	9	0 _g
Kohu		4.1	78	e 1	7	+ 2	—	—	—
Misima	E.	4.4	85	e 1	20	+ 2*	2	22	- 3 _g
Maebasi		4.7	70	e 1	31	- 3 _g	2	33	- 2 _g
Kumagaya		4.9	73	e 1	36	- 2 _g	2	37	- 5 _g
Tokyo		5.1	78	e 1	44	+ 2 _g	—	—	—

Nov. 28d. 5h. 34m. 17s. Epicentre 25°·0N. 95°·2E.

A = -·0822, B = +·9037, C = +·4203; δ = +8; h = +3;
D = +·996, E = +·091; G = -·038, H = +·419, K = -·907.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.	L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	m.	
Sbillong	E.	3.1	281	e 0	56	0*	1	26	- 3	1	9	?
Calcutta	N.	6.7	250	1	51	- 6*	i 2	57	- 3	—	—	—
Chatra	Z.	7.5	286	1	57	+ 4	i 3	18	- 2	2	31	P _g
New Delhi		16.4	286	e 3	55	+ 2	7	0	+ 4	(7	21)	SS
Hyderabad	E.	17.3	247	e 4	8	+ 4	e 7	38	SS	—	—	—
Hong Kong		17.6	94	e 4	11	+ 3	e 7	36	SS	—	—	10.8
Poona		20.8	256	i 4	46	+ 1	8	27	- 6	12	15	P _c S
Bombay		21.6	258	e 4	55	+ 1	e 8	47	- 2	5	18	PP
Przhevalsk		22.3	327	e 5	3	+ 2	—	—	—	—	—	—
Naryn		22.9	320	i 5	9	+ 3	1	9	13	0	—	—
Rybach'e		23.5	322	i 5	13	+ 1	1	9	22	- 1	—	—
Almata		23.6	326	i 5	15	+ 2	1	9	26	+ 1	—	—
Khorog		23.6	307	i 5	15	+ 2	9	22	- 3	—	—	—
Frunse		24.6	321	i 5	25	+ 2	—	—	—	—	—	—
Andijan		24.7	314	i 5	25	+ 1	1	9	39	- 5	—	—

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Dzhergetal	24.7	312	e 5 24	0	i 9 40	- 4	—	—
Fergana	24.9	314	e 5 26	0	e 9 40	- 7	—	—
Kulyab	25.1	307	5 31	+ 3	—	—	—	—
Garm	25.2	310	e 5 29	0	e 9 46	- 6	—	—
Namangan	25.2	314	i 5 30	+ 1	e 9 48	- 4	—	—
Quetta	25.5	289	i 5 32	0	i 10 37	SS	i 6 8	PP
Stalinabad	26.1	309	i 5 36	- 1	e 10 1	- 6	—	—
Manila	26.3	108	i 5 30 ^k	- 9	—	—	—	—
Kyakhta	26.8	15	5 42	- 2	—	—	—	—
Lunacharskoe	26.9	314	i 5 47	+ 2	i 10 16	- 4	—	—
Tashkent	26.9	314	e 5 45	0	e 10 18	- 2	—	—
Tchimkent	27.3	317	i 5 49	+ 1	—	—	—	—
Samarkand	27.8	308	5 51	- 2	—	—	—	—
Semipalatinsk	27.9	340	e 5 51	- 3	—	—	—	—
Bairam-Ali	30.8	303	i 6 20	0	11 20	- 3	—	—
Ashkabad	33.8	302	i 6 46	0	12 5	- 5	—	—
Kizyl-Arvat	35.6	304	—	—	12 6	- 32	—	—
Sverdlovsk	40.4	332	i 7 40	- 1	e 13 42	- 8	—	—
Baku	40.6	304	—	—	e 13 47	- 7	—	—
Kirovobad	43.4	305	8 6	0	14 26	- 9	—	—
Tiflis	44.6	305	8 16	0	—	—	—	—
Erevan	44.7	303	i 8 17	+ 1	—	—	—	—
Borzhomi	45.7	305	8 27	+ 3	—	—	—	—
Abastumanj	46.1	305	e 8 29	+ 1	e 15 9	- 5	—	—
Moscow	51.5	323	i 9 8	- 1	e 16 19	- 10	—	—
Ksara	51.8	294	i 9 12	0	—	—	e 13 32	?
Istanbul	z. 56.4	305	e 9 39	- 6	—	—	—	—
Kiruna	61.4	335	i 10 17	- 3	i 10 23	P	i 11 0	PcP
Upsala	z. 62.5	327	i 10 25	- 3	i 10 39	?	i 11 15	PcP
Raciborzu	z. 63.1	316	e 10 31	- 1	e 10 50	?	e 11 30	PcP
Prague	65.5	316	e 10 45	- 2	e 11 13	PcP	e 12 36	?
Copenhagen	65.7	323	i 10 47	- 1	—	—	—	—
Collnberg	z. 66.1	317	e 10 49	- 2	—	—	—	—
Jena	z. 67.1	317	e 10 55	- 2	—	—	—	—
Messina	67.2	303	e 10 55 ^k	- 3	e 18 56	- 56	—	—
Stuttgart	69.1	315	e 11 7	- 3	—	—	e 11 33	PcP
Scoresby Sund	75.1	343	i 11 44 ^k	- 2	—	—	—	—
Brisbane	z. 76.3	129	i 11 52	0	—	—	i 12 20	PcP
Algiers Univ. College	z. 77.1	305	i 11 54	- 3	e 12 54	?	e 12 23	PcP
College	78.2	23	12 0	- 3	—	—	—	—
Resolute Bay	z. 80.3	3	i 12 21 ^k	+ 7	—	—	—	—
Tamanrasset	z. 80.4	291	e 12 13	- 2	—	—	e 15 9	PP
Pretoria	z. 82.1	237	i 12 22	- 2	—	—	—	—
Pietermaritzburg	z. 82.5	233	e 12 25	- 1	—	—	—	—
Kimberley	z. 86.2	236	i 12 42	- 2	—	—	—	—
Mineral	z. 106.5	28	e 18 41 ^k	PP	—	—	—	—
Boulder City	113.1	25	e 18 42	[+ 3]	—	—	—	—
Nelson	113.3	25	e 19 17	PP	—	—	—	—
Fayetteville	z. 118.6	8	e 19 49	PP	—	—	—	—
Bogota	148.8	339	i 19 44	[- 1]	—	—	—	—

Nov. 28d. 7h. 21m. 3s. Epicentre 44°·3N. 10°·8E. (as on 1951, October 29d.).

Intensity IV-V in Modena Province; III at Modena (according to Rome). Epicentre 44°·5N. 11°E.

Monthly Seismo. Bull. Rome, 1952, p. 45.

$$A = +.7053, B = +.1345, C = +.6960; \quad \delta = -5; \quad h = -3;$$

$$D = +.187, E = -.982; \quad G = +.684, H = +.130, K = -.718.$$

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Bologna	0.4	62	i 0 12	- 1	i 0 20	- 1	—	—
Prato	0.5	153	i 0 15	+ 1	i 0 23	0	—	—
Florence	0.6	148	i 0 17	+ 2	i 0 27	+ 1	—	—
Siena	1.1	158	i 0 23 [?]	+ 1	i 0 41 [?]	+ 2	—	—
Padova	1.3	35	0 25	0	0 44	0	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Pavia	1.5	307	e 0 32 _a	+ 2 _g	i 0 53	+ 3 _g	—	—
Oropa	2.4	304	i 0 51	+ 3 _g	i 1 14	+ 2	i 1 20	S _g
Triest	2.5	57	e 0 41	- 2	i 1 9	- 5	e 0 51	P _g
Chur	2.7	341	e 0 45	0	i 1 15	- 4	e 0 49	P _g *
Rome	2.7	153	e 1 8	?	i 1 26	+ 2*	i 1 42	?
Rocca di Papa	2.9	151	e 0 55	- 3 _g	e 1 31	+ 1*	e 1 12	?
Zürich	3.4	334	e 0 55	0	e 1 34	- 3	e 1 49	S _g
Ravensburg	3.6	345	e 1 10	- 2 _g	e 1 37	- 5	e 1 55	S _g
Neuchatel	3.8	316	i 1 2	+ 1	i 1 44	- 3	—	—
Basle	4.0	327	e 1 20	0 _g	—	—	—	—
Ebingen	4.1	342	e 1 38?	+ 16 _g	e 1 47	- 8	e 2 17	S _g
Besançon	4.5	313	e 1 21	+ 1*	i 2 13	- 5*	e 1 32	P _g *
Stuttgart	4.6	347	e 1 12	0	e 2 7	0	i 2 21	S _g *
Strasbourg	4.8	335	i 1 15	0	i 2 7	- 5	i 1 35	P _g
Vienna	5.5	42	—	—	e 2 38	+ 8	e 2 47	S _g *
Clermont-Ferrand	5.6	288	i 1 27	0	—	—	—	—
Kalossa	6.2	66	e 3 21	S _g	(e 3 21)	- 4 _g	—	e 3.8
Prague	6.3	22	e 1 58	- 8 _g	e 2 40	- 10	i 3 23	S _g
Jena	6.7	7	e 1 47?	+ 5	e 2 50	- 10	e 2 11	P _g
Messina	E. 7.1	148	—	—	e 4 2	+ 7 _g	—	—
Collmberg	7.2	11	e 1 44	- 5	e 3 12	- 1	e 2 24	P _g
Paris	7.3	311	i 2 0	+ 10	i 2 5	P*	i 2 15	P _g
Raciborzu	7.8	39	e 2 13	- 3*	e 3 36	+ 8	e 4 24	S _g *
Potsdam	8.2	10	—	—	e 4 31	0 _g	e 4 28	?
Tamanrasset	Z. 21.9	193	e 5 0	+ 3	—	—	—	—

Nov. 28d. 8h. 5m. 30s. Epicentre 51°·9N. 159°·9E. (as on 11d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Petropavlovsk	1.4	329	0 31	+ 4	0 59	+ 13	—	—
Klyuchi	4.4	6	1 20	+ 2*	—	—	—	—
Ulegorsk	11.7	263	i 2 56	+ 5	—	—	—	—
Yuzno-Sakhlinsk	12.2	253	3 1	+ 3	—	—	—	—
Sapporo	15.3	242	e 3 51	PP	e 7 8	SSS	—	—
Mizusawa	18.3	233	4 18	+ 1	e 7 49	+ 10	8 2	SS
Sendai	19.1	231	4 28	+ 1	e 8 18	SS	—	—
Hokusima	19.7	232	e 4 34	0	e 8 15	+ 5	—	—
Vladivostok	20.8	255	i 4 41	- 4	—	—	—	—
Maebasi	21.4	231	e 4 54	+ 3	8 54	+ 9	—	—
Kumagaya	21.5	232	e 4 51	- 1	e 8 54	+ 7	—	—
Matusiro	21.7	235	4 56	+ 1	9 7	+ 16	—	—
College	29.3	44	i 6 6	0	e 10 50	- 9	e 11 33	?
Kyakhta	32.9	289	6 37	- 1	—	—	—	e 11.9
Irkutsk	33.4	293	e 6 42	0	—	—	—	—
Nanking	35.8	253	i 7 0	- 3	e 12 46	+ 5	—	—
Resolute Bay	44.5	22	i 8 14 _a	- 1	i 14 51	0	i 18 12	S _c S
Hong Kong	45.8	247	e 11 17	PPP	—	—	—	e 21.9
Victoria	47.1	63	8 40	+ 5	—	—	—	—
Semipalatinsk	47.6	302	e 8 38	- 1	—	—	—	—
Seattle	Z. 48.2	63	e 8 54	+ 10	—	—	—	—
Manila	48.5	235	i 8 37 _a	- 9	i 15 29	- 19	—	—
Hungry Horse	52.2	58	i 9 14	- 1	—	—	—	—
Shasta	Z. 52.4	70	e 9 17 _k	+ 1	—	—	—	—
Sverdlovsk	53.0	317	i 9 20	- 1	e 16 53	+ 3	—	—
Mineral	Z. 53.1	70	e 9 21 _a	0	—	—	i 9 29	P
Almata	53.7	296	i 9 25	- 1	—	—	—	—
Butte	54.4	59	e 9 38	+ 7	—	—	—	—
Reno	Z. 54.7	69	e 9 34 _k	+ 1	—	—	—	—
Rybach'e	54.7	296	i 9 33	0	—	—	—	—
Lick	Z. 55.0	73	e 9 36 _k	+ 1	—	—	e 10 31	PcP
Frunse	55.3	297	i 9 37	- 1	—	—	—	—
Naryn	55.4	295	e 9 44	+ 6	i 17 30	+ 8	—	—
Fresno	Z. 56.5	72	e 9 47 _a	+ 1	—	—	e 10 41	PcP
Kiruna	56.8	344	i 9 48 _a	0	e 17 42	+ 1	i 17 52	PS

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Tinemaha		57.2	71	e 9 51	0	—	—	i 10 20	?	—
Andijan		57.9	296	i 9 56	0	17 55	0	—	—	—
Scoresby Sund		57.9	2	i 9 55 _a	- 1	e 18 17	PPS	—	—	28.5
Namangan		58.2	297	i 9 58	0	—	—	—	—	—
Tchimkent		58.4	300	i 9 59	- 1	—	—	—	—	—
China Lake	z.	58.5	71	e 10 0	0	—	—	i 10 28	?	—
Fergana		58.5	296	i 9 59	- 1	—	—	—	—	—
Chatra		58.9	275	i 10 4	+ 1	e 17 54	-14	e 20 0	ScS	—
Lunacharskoe		59.2	299	i 10 5	0	—	—	—	—	—
Tashkent		59.2	299	e 10 5	0	e 18 15	+ 3	—	—	—
Pasadena	z.	59.3	73	e 10 5	- 1	i 10 16	?	i 11 6	?	—
Dzhergetal		59.6	297	i 10 9	+ 1	—	—	—	—	—
Boulder City		60.0	69	i 10 11	0	—	—	i 10 18	?	—
Nelson		60.1	69	i 10 12	+ 1	—	—	i 10 39	?	—
Garm		60.3	297	i 10 12	- 1	—	—	—	—	—
Khorog		60.6	294	e 10 15	0	—	—	—	—	—
Obi-garm		60.8	297	i 10 17	+ 1	e 18 35	+ 2	—	—	—
Kulyab		61.4	296	10 20	0	—	—	—	—	—
Pulkovo		61.5	334	i 10 21	0	e 18 43	+ 1	—	—	—
Stalinabad		61.5	297	i 10 19	- 2	—	—	—	—	—
Samarkand		61.6	299	10 17	- 5	—	—	—	—	—
Moscow		62.6	328	i 10 28	0	—	—	—	—	—
Reykjavik	z.	64.3	2	e 10 44	+ 5	—	—	i 11 0	?	—
Upsala		64.5	340	i 10 40 _a	- 1	i 19 18	- 1	e 13 13	PP	e 33.5
Tucson		64.9	70	e 10 44	+ 1	—	—	e 10 51	?	—
Bairam-Ali		65.8	300	i 10 49	0	—	—	—	—	—
Bergen	n.	66.2	347	—	—	e 19 5	-35	—	—	e 35.7
Ashkabad		67.5	303	i 11 0	0	—	—	—	—	—
Kizyl-Arvat		67.7	305	i 11 3	+ 2	—	—	—	—	—
Quetta		68.5	292	i 11 5 _k	- 1	e 20 9	+ 1	—	—	—
Makhach-Kala		68.9	314	—	—	e 20 15	+ 2	—	—	—
Copenhagen		69.4	342	i 11 13 _a	+ 1	—	—	—	—	36.5
Grozny		69.4	315	i 11 11	- 1	—	—	—	—	—
Baku		69.8	311	i 11 16	+ 2	—	—	—	—	—
Piatigorsk		70.0	317	11 24 _?	+ 9	20 34 _?	+ 8	—	—	—
Aberdeen		70.3	350	—	—	i 20 45	+16	e 32 57	Q	e 38.8
Tiflis		71.1	315	i 11 22	0	—	—	—	—	—
Fayetteville	z.	71.2	56	i 11 21	- 2	—	—	e 38 55	P'P'	—
Kirovobad		71.2	313	i 11 24	+ 1	20 44	+ 4	—	—	—
Borzhoml		71.6	315	i 11 26	+ 1	20 50	+ 6	—	—	—
Sotchi		71.7	319	i 11 26	0	e 20 43	- 2	—	—	—
Abastumanj		71.9	316	e 11 29	+ 2	—	—	—	—	—
Lwow		71.9	332	i 11 28	+ 1	e 20 50	+ 2	—	—	—
Ottawa		71.9	38	e 11 26	- 1	20 46	- 2	—	—	36.8
Shawinigan Falls	n.	72.0	36	e 11 27	- 1	—	—	—	—	—
Goris		72.2	312	i 11 29	0	i 20 54	+ 3	—	—	—
Theodosia		72.3	323	i 11 30	+ 1	e 20 52	0	—	—	—
Potsdam		72.4	340	i 11 29 _a	- 1	i 20 57	+ 4	i 11 42	PcP	e 37.5
Erevan		72.5	313	i 11 32	+ 2	21 0	+ 6	—	—	—
Cleveland	z.	72.8	44	i 11 38 _k	+ 6	—	—	—	—	—
Simferopol		72.8	323	i 11 32	0	20 57	- 1	—	—	—
Kishinev		72.9	328	i 11 32	- 1	—	—	—	—	—
Iasi		73.1	330	e 11 30 _?	- 4	—	—	—	—	—
Poona		73.2	279	i 11 37	+ 2	21 3	+ 1	14 28	PP	31.7
Witteveen	z.	73.2	344	i 11 36 _a	+ 1	—	—	i 11 52	PcP	—
Yalta		73.2	323	i 11 35	0	e 21 0	- 2	—	—	—
Raciborzu		73.3	336	11 36	+ 1	e 11 51	PcP	e 16 7	PPP	—
Collmberg		73.4	339	e 11 36	0	e 11 45	?	e 11 50	PcP	e 38.5
Bombay		73.6	280	e 11 37	0	e 21 7	0	25 55	SS	34.6
Jena		74.1	340	e 11 41	+ 1	e 21 16 _?	+ 4	e 21 30	PS	—
De Bilt		74.2	345	i 11 42	+ 2	—	—	—	—	e 34.5
Prague		74.2	338	e 11 42	+ 2	e 21 12	- 2	e 11 54	PcP	e 39.5
Cheb	n.	74.7	340	e 17 42	?	e 21 49	PS	—	—	—
Morgantown		75.0	45	i 11 45	0	—	—	—	—	—
Ogyalla		75.3	335	e 19 41	?	e 20 20	?	e 20 49	?	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Budapest		75.4	334	11 50	+ 3	14 48	PP	18 11	? e 46.5
Kew		75.6	348	e 12 5	PcP	—	—	—	e 42.5
Harvard		75.9	37	i 11 50k	0	—	—	—	—
Bucharest		76.1	328	e 11 53	+ 2	e 21 36	+ 1	—	—
Weston		76.1	37	i 11 51k	0	—	—	—	e 38.5
Kalossa	N.	76.3	334	11 51	- 1	—	—	12 5	PcP
Palisades		76.3	39	i 11 52	0	i 21 31	- 6	i 22 44	PPS e 38.7
Timisoara		76.4	332	e 11 55	+ 2	e 21 56	ScS	—	e 43.5
City College, N.Y.		76.5	39	—	—	e 21 37	- 2	—	—
Fordham		76.5	39	e 11 54	0	—	—	—	—
Karlsruhe	Z.	76.5	341	e 11 56	+ 2	—	—	—	—
Stuttgart		76.6	341	e 11 55a	+ 1	e 21 58	ScS	e 12 6	PcP e 41.5
Halifax		76.8	31	i 11 55a	0	—	—	—	—
Washington		76.8	42	i 12 3	+ 8	—	—	i 12 17	PcP
Strasbourg		77.1	342	i 11 57	0	e 22 4	ScS	i 12 10	PcP 40.5
Belgrade		77.5	332	e 11 59k	0	e 21 57	+ 7	e 12 12	PcP e 50.8
Paris		77.8	345	i 12 2	+ 1	i 12 18	PcP	i 12 26	? —
Istanbul		78.0	325	e 11 57	- 5	e 21 46	- 9	e 14 46	PP —
Basle	Z.	78.1	341	e 12 4	+ 2	—	—	—	—
Zurich		78.1	341	e 12 2a	0	—	—	—	—
Sofia		78.5	329	e 12 6	+ 2	—	—	—	—
Triest		78.5	337	i 12 5a	+ 1	i 22 11	+10	i 22 17	ScS 38.8
Besançon		78.7	342	i 12 7	+ 1	i 12 25	?	e 13 11	? —
Pavia		80.0	340	—	—	e 22 38	ScS	e 33 8	Q —
Clermont-Ferrand		80.7	344	i 12 18	+ 2	—	—	i 12 37	? 41.5
Florence		80.9	338	e 12 19a	+ 2	e 22 36	+10	e 23 7	PS —
Ksara		81.6	316	i 12 23	+ 2	22 51	ScS	15 31	PP —
Rome		82.4	336	e 12 25	0	e 22 43	+ 2	e 22 59	ScS —
Athens		82.6	327	e 22 38	?	i 22 43	0	i 22 57	ScS —
Riverview		85.7	188	—	—	e 23 18	+ 4	e 35 24	Q e 39.0
Helwan	Z.	86.9	318	12 54	+ 6	23 35	+ 9	i 16 12	PP —
Bermuda		87.4	36	—	—	e 23 26	{+ 3}	—	— e 43.5
Toledo		87.5	348	e 12 45	- 6	e 23 38	+ 7	e 19 48	? 53.0
Alicante		88.5	346	e 13 12	+16	—	—	—	— 57.0
Algiers Univ.	Z.	89.4	342	e 13 0	0	e 13 17	?	e 16 41	PP —
Granada		90.1	348	—	—	i 7 43	?	—	— 45.5
Malaga		90.6	348	i 13 2	- 3	e 23 36	[0]	i 14 4	? 50.1
Tamanrasset	Z.	102.3	336	e 13 56	- 3	e 17 46	PP	e 30 7	PKKP —
Kimberley	Z.	139.5	287	e 19 28	[- 2]	—	—	—	— —

Nov. 28d. 21h. 1m. 32s. Epicentre 6°·7S. 156°·0E. Depth of focus 0·010.

A = -·9074, B = +·4040, C = -·1159; δ = +2; h = +6;
D = +·407, E = +·914; G = +·106, H = -·047, K = -·993.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane		20.9	188	i 4 35	- 1	i 8 22	+ 3	i 5 0	pP —
Riverview		27.4	189	5 38	0	i 9 46	-24	i 6 11	pP e 10.4
Apia		32.5	104	i 6 22	- 1	—	—	—	—
Melbourne	E.	32.6	197	e 8 54	?	i 11 28	- 4	i 14 2	SSS —
Auckland	N.	34.6	152	e 6 45	+ 3	e 12 7	+ 4	12 47	sS —
Karapiro	N.	35.8	154	e 6 28?	-24	—	—	—	—
Tuai	N.	37.2	152	7 3	0	12 38	- 5	—	—
Cobb River	E.	37.4	158	e 6 59	- 6	e 13 33	sS	e 6 33	? —
Kaimata	N.E.	38.2	161	7 11	- 1	e 12 54	- 4	—	—
Wellington		38.3	157	7 11	- 1	12 52	- 7	7 38	pP —
Christchurch		39.5	160	7 23	+ 1	e 12 58?	-19	(e 15 58?)	SS e 16.0
Manila		40.7	302	i 7 43a	+11	i 13 55	+20	i 8 8	pP —
Perth		45.1	231	—	—	14 36	- 3	i 17 33	SS —
Koti		45.4	334	e 8 13	+ 3	e 14 46	+ 2	—	—
Matusiro		46.1	341	e 8 16	0	e 14 52	- 2	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Mizusawa	E.	47.6	345	8 59	+31	—	—	9 25	?	—
Bandong		48.0	268	i 8 31	0	i 15 17	- 3	i 8 55	pP	—
Djakarta		48.8	269	i 8 36 ^k	- 1	i 15 28	- 4	i 9 0	pP	—
Hong Kong		50.1	307	e 8 49	+ 2	16 35	sS	e 9 13	pP	—
Sapporo		51.3	347	e 9 11	+15	e 16 56	sS	—	—	—
Nanking		52.4	320	i 9 5 ^a	+ 1	i 16 25	+ 4	i 9 30	pP	—
Vladivostok		54.2	339	i 9 14	- 4	i 16 50	+ 4	i 9 43	pP	—
Yuzno-Sakhlinsk		54.7	349	9 49 [?]	+28	—	—	—	—	—
Klyuchi		62.9	3	e 10 18	0	—	—	—	—	—
Magadan		66.2	357	10 38	- 2	20 7	PPS	11 5	pP	—
Shillong	E.	70.0	302	11 2	- 1	—	—	i 11 28	pP	—
Kyakhta		71.1	330	e 11 9	- 1	20 19	+ 2	e 11 34	pP	—
Kabansk		72.0	331	i 11 18	+ 3	—	—	i 11 42	pP	—
Calcutta	E.	72.3	297	i 11 30	+13	i 21 10	PS	—	—	—
Irkutsk		73.3	330	11 24	+ 1	20 46	+ 4	11 49	pP	—
Chatra		74.4	301	i 11 30	+ 1	e 20 43	-11	—	—	—
College		82.5	21	i 12 12	- 1	e 22 15	- 5	e 12 42	pP	—
New Delhi		83.4	300	e 11 28 [?]	-50	i 22 24	- 5	23 26	PS	—
Poona	Z.	84.7	289	i 12 24	0	22 33	- 9	i 12 51	pP	—
Przhevalsk		85.4	314	12 30	+ 2	—	—	12 59	pP	—
Semipalatinsk		86.1	322	e 12 30	- 1	—	—	e 12 57	pP	—
Almata		86.6	314	i 12 35	+ 1	i 23 1	0	—	—	—
Naryn		86.9	312	e 12 38	+ 3	i 22 52	[+ 2]	i 13 2	pP	—
Rybach'e		87.1	313	i 12 37	+ 1	i 23 8	+ 3	i 13 4	pP	—
Lick	Z.	88.0	52	e 12 41 ^a	+ 1	e 15 58	PP	e 13 11	pP	—
Shasta	Z.	88.0	49	e 12 39 ^k	- 1	—	—	—	—	—
Frunse		88.3	313	i 12 43	+ 1	i 23 0	[0]	i 13 10	pP	—
Mineral	Z.	88.5	50	e 12 43 ^a	0	e 16 9	PP	e 13 13	pP	—
Victoria		88.8	41	12 44	0	—	—	—	—	—
Fresno	Z.	89.3	53	e 12 46 ^a	0	—	—	—	—	—
Seattle	Z.	89.3	42	e 12 46	0	—	—	—	—	—
Andijan		89.5	311	i 12 48	+ 1	i 23 30	+ 2	i 13 16	pP	—
Khorog		89.6	308	e 12 51	+ 3	i 23 33	+ 4	—	—	—
Reno	Z.	89.8	50	e 12 50 ^a	+ 1	—	—	—	—	—
Fergana		89.9	311	i 12 50	+ 1	i 23 32	+ 1	i 13 16	pP	—
Namangan		90.1	311	i 12 52	+ 2	i 23 9	[- 1]	i 13 18	pP	—
Dzhergetal		90.2	310	i 12 52	+ 1	—	—	—	—	—
Pasadena		90.3	56	i 12 52	+ 1	i 24 30	SP	i 13 22	pP	e 35.8
Tinemaha		90.6	53	i 12 54	+ 1	—	—	i 13 24	pP	—
Garm		90.8	310	i 12 54	0	—	—	—	—	—
China Lake	Z.	91.0	54	i 12 55	+ 1	i 13 35	?	i 13 28	pP	—
Kulyab		91.1	308	12 58	+ 3	e 23 16	[0]	—	—	—
Obi-garm		91.3	309	i 12 57	+ 1	i 23 16	[- 1]	—	—	—
Palomar	Z.	91.3	57	i 12 57	+ 1	—	—	i 13 25	pP	—
Tchinkent		91.8	312	i 12 59	+ 1	i 23 47	- 1	—	—	—
Lunacharskoe		91.9	311	i 12 54	- 5	i 23 50	+ 1	e 13 22	pP	—
Tashkent		91.9	311	e 12 58	- 1	i 23 48	- 1	i 23 16	SKS	—
Stalinabad		92.0	309	i 13 1	+ 2	i 23 53	+ 3	—	—	—
Quetta		92.4	300	i 13 2	+ 1	e 23 22	[- 1]	i 13 28	pP	—
Boulder City		93.2	54	i 13 0	- 5	e 16 49	PP	i 13 35	pP	—
Nelson		93.2	54	i 13 5	0	—	—	i 13 36	pP	—
Samarkand		93.5	309	13 0	- 6	—	—	—	—	—
Hungry Horse		94.9	42	i 13 12	0	e 16 13	?	i 13 42	pP	—
Butte		95.8	44	e 13 16	0	—	—	—	—	—
Tucson		96.2	58	e 13 31	+13	—	—	i 17 13	PP	—
Bairam-Ali		97.1	307	e 13 25	+ 3	i 23 42	[- 7]	e 26 3	PS	—
Sverdlovsk		98.5	327	i 13 28	- 1	i 24 43	- 2	i 13 55	pP	—
Ashkabad		100.1	307	14 3	pP	i 24 1	[- 3]	i 19 48	PPP	—
Resolute Bay		101.4	15	i 13 41 ^k	- 1	e 25 6	- 4	i 26 0	sS	—
Kizyl-Arvat		101.7	309	e 17 52	PP	—	—	—	—	—
Baku		106.6	311	e 18 55	pPP	—	—	—	—	—
Kirovobad		109.2	311	18 52	PP	26 12	S	—	—	—
Goris		109.4	310	e 18 55	PP	e 28 8	PS	—	—	—
Fayetteville	Z.	109.9	54	e 14 55	pP	—	—	e 17 58	?	—
Tiflis		110.2	312	18 38	pPKP	—	—	—	—	—

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Erevan	110.7	311	e 18 57	PP	—	—	—	—
Borzhomi	111.3	312	e 19 14 [?]	PP	—	—	—	—
Moscow	111.3	327	e 18 54	PP	—	—	—	—
Kiruna	112.1	343	i 18 23	[- 1]	e 27 7	sS	i 18 53	pPKP e 50.5
Pulkovo	113.1	333	—	—	e 25 2	[+ 1]	—	—
Sotchi	113.5	315	e 19 47	PP	e 29 19	PS	e 34 58	SS
Scoresby Sund	116.3	359	e 18 33	[+ 1]	e 30 16	SPP	e 20 8	pPP 52.5
Simferopol	117.0	318	e 19 46	PP	—	—	—	—
Yalta	117.1	317	e 19 46	PP	—	—	—	—
Grahamstown	z. 117.7	227	i 18 38	[+ 3]	—	—	—	—
Upsala	z. 118.3	338	i 18 35	[- 1]	i 28 55	SP	i 19 4	pPKP
Ksara	118.6	305	e 20 1	PP	36 31	SS	20 25	pPP
Kishinev	119.7	321	e 20 4	PP	—	—	—	—
Ottawa	121.1	39	e 18 40	[- 1]	25 33	[+ 3]	i 19 10	pPKP
Lwow	121.2	326	e 18 42	[0]	—	—	i 19 12	pPKP
Kimberley	z. 121.3	231	i 18 42	[0]	—	—	—	—
Istanbul	z. 121.8	315	e 18 38	[- 5]	—	—	e 19 5	pPKP
Reykjavik	z. 122.6	359	i 19 15	pPKP	—	—	—	—
Washington	122.6	47	i 20 22	PP	—	—	—	—
Copenhagen	123.2	337	i 19 15	pPKP	37 9	SS	20 28	PP
Helwan	z. 123.2	301	e 18 46	[0]	e 20 34	PP	e 19 7	pPKP
City College, N.Y.	124.1	44	e 19 6	[+19]	—	—	—	—
Palisades	124.1	44	e 28 13	?	e 38 13	sSS	—	e 58.3
Harvard	125.0	41	i 18 49 ^k	[0]	—	—	—	—
Weston	125.2	41	e 18 49	[0]	—	—	—	e 58.9
Potsdam	125.3	333	e 18 53	[+ 3]	—	—	e 21 5	pPP e 58.5
Huancayo	125.7	110	i 18 52	[+ 2]	e 30 52	PS	e 20 43	PP
Collmberg	z. 126.0	331	e 18 52	[+ 1]	—	—	e 19 19	pPKP
Prague	126.2	330	e 18 54	[+ 3]	e 19 40	sPKP	e 19 22	pPKP e 61.5
Jena	126.9	332	e 18 54	[+ 1]	e 19 36	sPKP	e 19 22	pPKP
Witteveen	z. 127.6	338	i 18 56 ^k	[+ 2]	—	—	e 19 24	pPKP
Chinchina	128.6	88	e 18 56	[0]	—	—	e 21 27	PP
De Bilt	128.8	338	e 21 6	PP	e 30 58	SP	e 38 28 [?]	SS e 56.5
Halifax	128.9	36	i 18 58 ^a	[+ 1]	28 6	SKKS	21 8	PP
Triest	129.3	327	e 18 57	[0]	e 21 51	SKP	23 38	? 59.7
Stuttgart	129.6	332	i 18 58	[0]	e 38 30	SS	e 19 27	pPKP e 61.5
Karlsruhe	z. 129.7	333	e 19 2	[+ 4]	e 22 14	SKP	e 19 30	pPKP
Bogota	130.1	89	e 19 13	[+14]	e 26 54	[+57]	e 21 19	PP
Strasbourg	130.3	333	i 19 1	[+ 2]	i 22 30	PKS	e 19 27	pPKP
La Paz	130.6	119	i 18 58	[- 2]	i 39 20	PSS	i 21 18	PP 52.0
Chur	130.7	330	e 19 1	[+ 1]	e 22 10	SKP	e 19 30	pPKP
Zürich	130.8	331	e 19 1	[+ 1]	e 22 14	SKP	e 19 30	pPKP
Salo	131.1	328	e 19 33	pPKP	22 20	SKP	e 37 38 [?]	P'P'
Basle	131.2	332	e 19 2	[+ 1]	—	—	—	—
Bologna	z. 131.4	327	e 22 21	SKP	—	—	—	—
Florence	z. 131.9	326	e 19 0 ^k	[- 2]	e 23 7	PKS	i 19 33	sPKP
Prato	131.9	326	e 22 5	SKP	—	—	—	—
Besançon	132.1	332	e 19 2	[- 1]	e 22 32	PKS	e 19 37	sPKP
Pavia	132.1	329	e 22 22	SKP	e 39 3	SS	e 22 30	PKS
Rome	132.3	323	e 19 3	[0]	e 26 23	[+21]	e 19 31	pPKP e 60.5
Messina	132.4	317	e 19 3	[0]	e 22 22	SKP	e 19 36	sPKP
Paris	132.4	336	e 19 4	[+ 1]	i 23 12	sPKS	i 19 34	pPKP e 60.5
Bermuda	134.4	50	e 22 35	PKS	e 32 23	?	—	e 62.6
Clermont-Ferrand	134.6	333	e 19 11	[+ 4]	e 39 34	SS	e 19 42	pPKP 55.5
San Juan	137.4	70	i 19 5	[- 7]	e 22 34	SKP	—	—
Algiers Univ.	z. 141.2	324	e 19 15	[- 4]	e 26 26	[+ 8]	e 19 41	pPKP
Toledo	142.4	334	e 19 20	[- 1]	—	—	i 19 49	pPKP
Fort de France	142.7	75	e 19 16	[- 6]	—	—	—	—
Alicante	142.8	330	e 19 27	[+ 5]	—	—	—	73.7
Almeria	144.1	330	i 19 21	[- 3]	26 31	[+ 9]	22 31	PP 69.6
Granada	144.4	332	i 19 28 ^a	[+ 3]	29 30	SKKS	41 28	SS
Malaga	145.2	332	i 19 26	[0]	36 22	?	19 54	pPKP 61.1
Tamanrasset	z. 147.4	303	e 19 33	[+ 3]	e 23 7	PP	i 20 3	pPKP

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Nov. 29d. 8h. 22m. 42s. Epicentre 52°·6N. 160°·3E. Focus at Base of Superficial Layers.
(as on 26d.).

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Petropavlovsk	1·1	298	0	10	- 9	—	—	—	—	—	—
Klyuchi	3·7	4	10	55	- 1	—	—	—	—	—	—
Magadan	8·7	326	2	1	- 5	—	—	—	—	—	—
Yuzno-Sakhlinsk	12·7	250	2	57	- 4	—	—	—	—	—	—
Abashiri	13·7	237	e 3	13	- 1	—	—	—	—	—	—
Wakkanai	14·1	247	e 3	24	+ 5	6	13	SS	i 8	32	PcP
Urakawa	15·8	235	e 3	38	- 4	e 6	32	- 4	e 7	43	Q
Sapporo	15·9	241	e 3	40	- 3	e 6	32	- 6	e 3	58	PP
Mori	17·0	239	4	0	+ 3	6	51	-12	4	17	PPP
Hatinohe	17·6	234	e 4	3	- 1	7	4	-13	—	—	e 9·4
Aomori	17·8	236	e 4	10	+ 3	i 7	46	SS	i 4	39	PPP
Miyako	18·1	232	e 4	4	- 6	e 7	28?	0	—	—	8·7
Morioka	18·4	233	e 4	9	- 5	e 7	32	- 3	—	—	—
Mizusawa	18·9	233	4	20	0	7	51	+ 5	—	—	—
Akita	19·0	234	4	22	0	8	10	SS	8	34	SSS
Sendai	19·7	231	e 4	24	- 5	8	11	+ 7	i 4	34	P
Hokusima	20·3	232	e 4	30	- 6	8	20	+ 4	—	—	e 10·4
Onahama	20·9	229	i 4	45	+ 3	i 8	26	- 2	—	—	11·4
Aikawa	21·2	235	e 4	39	- 6	8	34	0	—	—	e 10·8
Vladivostok	21·2	255	i 4	39	- 6	i 8	31	- 3	—	—	10·1
Utunomiya	21·6	232	e 4	45	- 4	e 8	43	+ 2	—	—	—
Tukubasan	21·7	230	e 4	43	- 7	e 8	46	+ 3	—	—	11·0
Maebasi	22·1	231	e 4	55	+ 1	e 8	59	+ 9	e 5	40	PPP
Matusiro	22·3	235	4	51	- 5	8	56	+ 2	—	—	—
Tokyo	22·3	230	4	58	+ 2	e 8	55	+ 1	5	50	PPP
Wazima	22·3	237	e 5	1	+ 5	e 9	3	+ 9	e 5	37	PPP
Matumoto	22·7	234	e 5	0	0	9	13	+12	e 5	32	PP
Toyama	22·7	235	e 5	2	+ 2	e 9	20	+19	e 8	2	?
Misima	23·1	230	e 5	1	- 3	9	18	+ 9	6	10	PPP
Osima	23·2	229	5	11	+ 6	e 9	22	+12	i 5	20	pP
Shizuoka	23·5	231	e 5	7	- 1	9	45	SS	5	15	pP
Gihu	24·0	232	e 5	17	+ 5	e 9	29	+ 5	—	—	10·7
Nagoya	24·0	233	e 5	19	+ 7	e 10	37	SSS	—	—	e 11·6
Kameyama	24·6	233	5	21	+ 3	9	42	+ 8	—	—	e 11·5
Kyoto	24·8	235	e 5	17	- 3	e 9	36	- 2	—	—	11·8
Osaka	25·2	235	e 5	22	- 2	e 10	12	+27	—	—	e 11·3
Owase	25·3	232	e 5	25	0	e 9	52	+ 6	e 5	39	sP
Takamatu	26·2	236	e 5	31	- 2	i 10	7	+ 6	—	—	e 12·6
Hirosima	27·0	238	5	42	+ 1	10	14	0	—	—	e 11·7
Koti	27·0	236	e 5	40	- 1	i 10	21	+ 7	e 10	0	S
Matuyama	27·2	237	e 5	44	+ 1	e 10	9	- 8	—	—	e 13·2
Ooita	28·3	239	e 6	3	+10	e 10	39	+ 4	—	—	e 12·2
Hukuoka	28·6	241	6	0	+ 5	e 9	48	-52	e 11	37	SS
College	28·7	44	i 5	53	- 3	i 10	42	0	e 6	49	PP
Miyazaki	29·4	237	6	8	+ 6	e 10	57	+ 4	—	—	12·9
Kagosima	30·2	238	e 6	11	+ 2	e 7	34	PPP	e 8	24	?
Kabansk	32·2	291	i 6	28	+ 1	—	—	—	—	—	e 16·1
Irkutsk	33·4	293	6	38	0	—	—	—	—	—	—
Zô-Sè	35·6	249	i 6	55 _a	- 1	i 12	24	- 6	—	—	—
Sitka	36·1	56	e 7	6	+ 5	i 12	42	+ 5	—	—	—
Nanking	36·3	253	e 6	56	- 6	12	30	-10	—	—	—
Resolute Bay	43·7	22	e 7	59	- 5	i 14	30	- 1	i 9	46	PP
Hong Kong	46·3	247	8	24	0	i 15	8	0	—	—	i 22·2
Victoria	46·5	63	8	27	+ 1	15	15	+ 4	10	32	PP
Sempalatinsk	47·4	302	e 8	28	- 5	—	—	—	—	—	20·6
Seattle	47·6	63	e 8	40	+ 6	i 15	49	PPS	i 8	46	pP
Corvallis	48·9	68	e 8	47	+ 2	e 15	50	+ 5	—	—	e 26·2
Manila	49·1	235	i 8	30 _a	-16	i 15	30	-18	i 8	38	pP
Hungry Horse	51·6	58	i 9	4	- 1	—	—	—	—	—	—
Shasta	51·9	70	e 9	7 _a	0	e 16	32	+ 6	18	58	ScS

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Mineral	z.	52.6	70	e 9 12 _a	- 1	i 11 43	?	i 9 24	pP	—
Sverdlovsk		52.7	317	i 9 14	+ 1	—	—	—	—	—
Saskatoon		52.9	51	9 49	+34	16 40	0	e 18 55	ScS	23.1
Almata		53.6	296	i 9 22	+ 2	i 16 50	0	—	—	—
Berkeley		53.9	73	e 9 22	0	i 17 3	+ 9	i 9 34	pP	—
Butte		53.9	59	e 9 22	0	e 16 47	- 7	—	—	—
Reno	z.	54.2	69	e 9 26	+ 2	—	—	—	—	—
Santa Clara	E.	54.4	73	e 16 21	?	—	—	—	—	—
Lick	z.	54.6	73	e 9 27 _a	- 1	i 11 40	PP	i 9 39	pP	—
Rybach'e		54.7	296	i 9 30	+ 2	—	—	—	—	—
Frunse		55.2	297	e 9 32	0	i 17 12	+ 1	—	—	—
Naryn		55.4	295	i 9 36	+ 3	—	—	—	—	—
Fresno		56.1	72	e 9 39 _a	+ 1	e 17 30	+ 7	i 9 49	pP	—
Kiruna		56.2	344	i 9 34 _a	- 5	e 17 19?	- 6	i 9 49	pP	e 27.3
Tinemaha	z.	56.8	71	e 9 43	0	e 39 51	P'P'	i 9 50	pP	—
Shillong	E.	57.1	271	e 9 46	0	17 32	- 4	e 10 54	PcP	18.1
Scoresby Sund		57.2	2	i 9 44	- 2	i 17 37	- 1	i 9 56	pP	26.3
Andijan		57.9	296	i 9 47	- 4	i 17 43	- 4	—	—	—
China Lake	z.	58.0	71	e 9 50	- 2	e 39 35	P'P'	i 10 3	pP	—
Namangan		58.1	297	e 9 54	+ 2	—	—	—	—	—
Tchimkent		58.3	300	i 9 54	0	e 17 51	- 1	—	—	—
Fergana		58.4	296	e 9 54	- 1	e 17 50	- 4	—	—	—
Pasadena		58.8	73	e 9 55	- 2	i 18 8	+ 9	e 39 31	P'P'	i 24.7
Chatra		59.1	275	e 9 56	- 4	i 17 59	- 4	11 7	pP	27.0
Lunacharskoe		59.1	299	e 9 57	- 3	—	—	—	—	—
Tashkent		59.1	299	e 9 58	- 2	—	—	—	—	—
Boulder City		59.5	69	e 10 0	- 2	—	—	—	—	—
Nelson		59.7	69	e 10 0	- 4	—	—	i 10 13	pP	—
Rapid City		60.0	55	i 10 10	+ 4	e 18 20	+ 6	—	—	—
Garm		60.2	297	e 10 7	0	—	—	—	—	—
Palomar	z.	60.2	73	e 10 7	0	i 10 18	sP	i 10 13	pP	—
Khorog		60.6	294	i 10 9	- 1	18 20	- 2	—	—	—
Obi-garm		60.8	297	e 10 12	+ 1	e 18 26	+ 2	—	—	—
Pulkovo		61.0	334	e 10 11	- 1	e 18 16	-11	—	—	—
Kulyab		61.3	296	10 10	- 4	—	—	—	—	—
Stalinabad		61.4	297	e 10 11	- 4	i 18 22	-10	—	—	—
Samarkand		61.5	299	10 13	- 3	—	—	—	—	—
Moscow		62.1	328	10 19	- 1	18 37	- 4	—	—	—
Reykjavik		63.6	2	e 10 29	- 1	e 19 8	+ 8	i 12 55	PP	e 35.4
New Delhi	N.	63.8	284	e 10 29	- 2	i 20 18	ScS	11 10	PcP	—
Upsala		63.9	340	i 10 26	- 6	i 18 57	- 7	e 11 5	PcP	e 29.3
Ivigutut		64.3	16	—	—	e 19 11	+ 3	i 19 20	SP	31.3
Tucson		64.5	70	e 10 34	- 2	e 19 28	+17	i 10 46	pP	e 27.2
Bergen		65.6	347	i 10 45	+ 2	i 19 28	+ 4	19 13?	S	e 28.4
Bairam-Ali		65.6	300	i 10 43	0	—	—	—	—	—
Ashkabad		67.3	303	10 54	+ 1	—	—	—	—	—
Kirkland Lake	z.	67.3	39	i 10 56 _k	+ 3	e 19 50	+ 5	—	—	—
Kizyl-Arvat		67.6	305	11 1	+ 6	i 19 50	+ 2	—	—	—
Lubbock		68.5	62	e 11 3	+ 2	—	—	e 11 42	PcP	—
Quetta		68.5	292	e 10 58	- 3	i 19 55	- 4	e 39 15	P'P'	—
Makhach-Kala		68.6	314	i 11 6	+ 4	—	—	—	—	—
Copenhagen		68.9	342	i 11 2 _a	- 1	i 20 1	- 3	24 36	SS	30.3
Grozny		69.1	315	i 11 5	0	19 59	- 7	—	—	—
Chicago		69.2	48	e 11 8	+ 3	i 20 6	- 2	—	—	—
Aberdeen	E.	69.6	350	i 12 56	?	i 20 12	0	e 27 45	SSS	—
Baku		69.6	311	e 11 14	+ 6	—	—	—	—	—
Fayetteville	z.	70.6	56	i 11 11 _a	- 3	e 20 22	- 2	i 11 43	PcP	—
Tiflis		70.8	315	e 11 14	- 1	—	—	—	—	—
Kirovobad		70.9	313	e 11 12	- 4	20 20	- 8	—	—	—
Ottawa		71.2	38	e 11 15	- 3	20 24	- 7	13 59	PP	33.3
Borzhomi		71.3	315	11 21	+ 3	20 41	+ 9	—	—	—
Shawinigan Falls N.		71.3	35	e 11 19	+ 1	20 29	- 3	21 24	PPS	—
Hyderabad		71.4	275	i 11 21	+ 2	20 30	- 3	13 54	PP	—
Lwow		71.4	332	e 11 16	- 3	i 20 28	- 5	—	—	—
Sotchi		71.4	319	e 11 15	- 4	e 20 25	- 8	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Potsdam		71.8	340	i 11 23k	+ 2	i 20 38	0	i 21 22	SKS e 32.3
Goris		71.9	312	i 11 24	+ 2	i 20 39	0	—	—
Theodosia		71.9	323	e 11 17	- 5	e 20 29	-10	—	—
Leninakan		72.0	314	11 30?	+ 8	—	—	—	—
Cleveland		72.1	44	i 11 25k	+ 2	i 20 44	+ 3	i 11 32	pP —
Buffalo (Larkin)		72.2	42	e 11 24	+ 1	e 20 49	+ 7	—	—
Erevan		72.2	313	i 11 25	+ 2	20 45	+ 3	—	—
Kishinev		72.4	328	i 11 23	- 2	—	—	—	—
Simferopol		72.4	323	e 11 25	0	e 20 41	- 4	—	—
Iasi		72.7	330	e 11 25	- 1	e 20 50	+ 2	e 11 28	P —
Witteveen	Z.	72.7	344	i 11 22k	- 4	i 12 20	?	i 11 29	pP e 47.3
Raciborzu	E.	72.8	336	11 19	- 8	20 47?	- 2	11 43	PcP 32.3
	Z.	72.8	336	11 31	+ 4	e 21 33	PS	e 14 7	PP —
Yalta		72.8	323	e 11 23	- 4	e 20 41	- 8	—	—
Collmberg		72.9	339	e 11 22	- 6	e 20 49	- 1	e 21 39	PPS e 31.3
Vermont		72.9	37	e 11 57	+29	—	—	—	—
Uzhgorod		73.0	333	e 11 25	- 3	20 47	- 5	—	—
Prague		73.1	338	e 11 31	+ 2	e 20 54	+ 1	e 14 13	PP e 34.0
Skalnate Pleso		73.1	334	e 11 28	- 1	e 20 46	- 7	e 12 2	? e 33.8
Poona		73.4	279	i 11 26	- 4	20 43	-13	21 24	SP 30.5
Jena		73.5	340	e 11 27	- 4	i 21 3	+ 6	e 21 26	SP e 34.3
De Bilt		73.6	345	i 11 31	- 1	i 20 59	+ 1	e 21 42	PS e 37.3
Bombay		73.7	280	i 11 33	+ 1	i 20 56	- 3	21 40	PS 31.0
Djakarta		74.0	236	e 11 32k	- 2	e 21 2	- 1	i 22 2	PPS e 38.8
Bandong		74.2	235	e 11 38	+ 3	e 21 4	- 1	e 11 46	pP 37.3
Cheb		74.2	340	e 11 49	pP	e 21 3	- 2	e 21 11	S e 31.8
Pennsylvania		74.2	42	i 11 40	+ 5	e 21 9	+ 4	e 14 32	PP —
Morgantown		74.4	45	i 11 34	- 2	e 21 9	+ 2	—	—
Ogyalla		74.8	335	e 11 44	+ 5	e 21 14	+ 2	e 21 40	SP e 41.3
Budapest		74.9	334	11 38	- 1	e 21 11	- 2	i 11 52	PcP 35.3
Vienna		74.9	336	e 11 41	+ 2	e 21 9	- 4	e 21 53	ScS —
Kew		75.0	348	i 11 42	+ 2	i 21 40	[- 1]	i 11 56	PcP e 32.3
Harvard		75.2	37	e 11 41	0	e 21 16	0	i 14 32	PP —
Kecskenet		75.3	334	e 11 42	0	21 18	+ 1	14 24	PP e 42.3
Weston		75.4	37	i 11 41a	- 1	e 21 13	- 5	e 25 54	SS e 38.0
Bucharest		75.6	328	e 11 43	0	i 21 24	+ 3	e 21 57	PS 36.3
Palisades		75.6	39	i 11 39	- 4	i 21 16	- 5	i 11 56	pP e 35.1
City College, N.Y.		75.8	39	i 11 45	+ 1	e 21 14	- 9	—	—
Fordham		75.8	39	e 11 47	+ 3	e 21 21	- 2	—	—
Kalossa	N.	75.8	334	e 11 52	+ 8	e 21 14	- 9	12 1	PcP e 39.8
Szeged		75.8	332	11 26	-18	21 43	[- 5]	e 11 38	P e 47.3
Timisoara		75.9	332	e 11 52	+ 7	e 21 25	+ 1	e 21 47?	SKS e 38.3
Karlsruhe		76.0	341	e 11 45	- 1	e 21 25	0	21 53	PS 33.3
Halifax		76.1	31	e 11 43	- 3	21 34	+ 8	14 43	PP —
Stuttgart		76.1	341	e 11 41	- 5	e 21 24	- 2	i 11 54	pP 39.3
Washington		76.2	42	e 11 45	- 2	e 21 21	- 6	—	—
Strasbourg		76.5	342	e 11 45	- 3	i 21 28	- 3	i 11 58	pP 37.3
Belgrade		77.0	332	e 11 49k	- 2	e 21 35	- 1	e 30 27	SSS e 41.3
Paris		77.2	345	i 11 49	- 3	i 21 39	+ 1	i 12 1	pP e 37.3
Basle		77.5	342	e 11 50	- 4	e 21 44	+ 3	e 11 59	pP —
Zürich		77.5	342	e 11 50a	- 4	e 21 38	- 3	e 11 57	pP —
Istanbul		77.6	325	e 11 47	- 7	e 21 32	-10	e 14 50	PP 31.4
Kodaikanal	E.	77.6	271	—	—	e 21 34	- 8	—	—
Chur		77.8	341	e 11 52	- 4	e 21 45	0	—	—
Mobile		77.9	55	e 12 2?	+ 6	—	—	—	—
Triest		78.0	337	e 11 56	- 1	i 21 42	- 5	i 22 14	ScS 37.6
Besançon		78.1	342	e 11 53	- 4	i 12 1	PcP	e 14 51	PP —
Sofia		78.1	329	12 4	+ 7	21 42	- 6	e 22 34	PS 41.4
Neuchatel		78.2	342	e 11 55	- 3	e 21 50	+ 1	—	—
Columbia		78.6	48	e 12 8	+ 8	e 21 53	0	—	—
Salo		78.8	339	e 12 2	+ 1	21 56	+ 1	14 57	PP —
Oropa		79.3	341	i 12 8	+ 4	i 22 8	+ 8	i 12 17	pP 40.3
Padova		79.5	338	12 3	- 2	21 58	- 5	—	—
Pavia		79.5	340	e 12 10k	+ 5	i 22 1	- 2	e 27 27	SS e 40.9
Bologna		79.7	338	e 12 11	+ 5	e 22 7	+ 2	e 27 36	SS e 37.6

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Brisbane	80.0	187	i 12	5	- 3	i 22	16	[- 1]	i 12	15	pP e 37.1
Clermont-Ferrand	80.1	344	i 12	12	+ 4	i 22	9	0	i 22	18	ScS e 35.3
Prato	80.3	338	e 12	14	+ 5	e 22	4	- 7			
Florence	80.4	338	i 12	14	+ 4	e 22	16	+ 4	e 27	40	SS e 37.8
Tacubaya	81.0	70	i 12	21 _a	+ 8	e 22	27	[+ 3]	e 23	38	PPS —
Ksara	81.3	316	i 12	18	+ 4				15	25	PP —
Rome	81.8	336	e 12	18	+ 1	e 22	23	- 3	i 12	28	pP e 38.3
Rocca di Papa	81.9	336	e 12	23	+ 5	e 22	29	+ 1	e 23	20	PS e 39.3
Taranto	81.9	333	12	33	sP	22	23	- 5	15	53	ScP 38.9
Athens	82.2	327	e 12	16 _a	- 3	i 22	34	+ 3	e 12	8	? —
Barcelona	84.5	344	e 12	32	+ 1	e 22	50	- 4			e 40.0
Messina	84.5	333	e 12	26	- 5	i 22	46	- 8	e 17	28	PPP 39.8
Tortosa	85.3	345	i 12	35	0	i 22	55	[+ 1]			
Riverview	86.4	188	e 12	37	- 3	i 23	9	- 3	i 16	3	PP e 36.5
Bermuda	86.7	37	i 12	45	+ 3	i 23	4	[+ 1]	e 16	8	PP e 40.8
Toledo	86.9	348	e 12	45	+ 2	e 23	15	- 2	i 12	56	pP 35.8
Alicante	87.9	346	e 12	48	+ 1	i 23	14	[+ 4]	i 23	36	S 39.5
Lisbon	88.6	352				23	25	- 8	24	58	SPP 37.9
Algiers Univ.	z. 88.8	342	e 12	53	+ 1	23	11	[- 6]	e 16	20	PP —
Granada	89.5	348	i 13	8 _k	sP	i 23	48	+ 7	16	9	PP i 45.9
Almeria	89.7	347	i 13	1	+ 5	i 23	49	+ 6	16	37	PP 47.6
Malaga	90.0	348	i 13	3	+ 6	i 23	25	[+ 1]	16	39	PP 41.1
Melbourne	E. 91.0	192				i 24	3	+ 8	(e 33	36)	SSS e 33.6
Perth	92.7	217	e 18	48	PPP	i 23	43	[+ 4]	24	21	S —
Wellington	94.3	170	25	48	PS	23	48	[0]	30	48	SS e 43.3
Port au Prince	95.8	49	e 25	28	PS	i 24	38	+ 2	e 27	29	? 48.3
Christchurch	96.3	171	e 26	18	PS	e 24	0	[+ 1]	e 31	36	PSS e 40.0
San Juan	98.7	44	i 13	42	+ 5	e 24	14	[+ 3]			
Galerazamba	101.0	56	e 27	29	PS	e 25	28	+ 8	i 24	38	SKS 48.3
Tamanrasset	z. 101.8	336	e 13	52	+ 1	e 24	34	[+ 7]	e 38	9	P'P' —
Fort de France	104.0	41	e 17	45	?	e 27	20	SP	e 33	12	SS —
Chinchina	105.8	59	e 18	45	PP	e 24	46	[+ 1]	e 29	5	PPS 46.3
Bogota	106.9	58	i 18	53	PP	i 24	49	[- 1]	i 34	4	SS —
Tananarive	118.6	277	e 23	20	?	29	50	PS			e 53.6
Huancayo	120.1	69	e 18	58	[+10]	e 30	6	PS	e 36	36	SS e 48.0
La Paz	127.7	65	i 19	13	[+11]	i 28	3	SKKS	i 31	8	PS 56.7
Pretoria	z. 135.3	289	i 19	13	[- 4]	i 22	51	PKS			
Kimberley	z. 139.6	289	i 19	23	[- 1]						
Grahamstown	z. 141.8	283	e 19	25	[- 3]				i 19	31	PKP —
La Plata	E. 147.7	72	19	42	[+ 4]	30	6	SKKS	33	30	SKSP 67.8
	N. 147.7	72	23	18	PP	30	12	SKKS	33	36	SKSP 66.6

Nov. 29d. 13h. 51m. 42s. Epicentre 40°·4N. 144°·4E. Depth of focus 0·010.

Intensity II-III at Hatinohe. Epicentre as adopted. Depth 80km. Macro seismic radius 200-300km. Seismo. Bull. Cent. Met. Obs., Japan, for November, 1952, Tokyo, 1953, p. 456, with macro seismic chart.

A = -·6210, B = +·4445, C = +·6456; δ = +2; h = -2;
D = +·582, E = +·813; G = -·525, H = +·376, K = -·764.

	Δ	Az.	P.		O-C.	S.		O-C.
	°	°	m.	s.	s.	m.	s.	s.
Urakawa	2.1	326	e 0	33	- 1	0	57	- 3
Hatinohe	2.2	274	0	29	- 7	0	59	- 3
Miyako	2.3	246	e 0	32	- 5	0	55	-10
Kusiro	2.6	0	e 0	38	- 3	1	4	- 8
Morioka	2.6	254	e 0	42	+ 1	1	8	- 4
Obihiro	2.7	341	e 1	6	+23	2	2	+48
Aomori	2.8	279	0	52	+ 8	1	29	+12
Mizusawa	2.8	243	0	45	+ 1	1	24	+ 7
Nemuro	3.1	16	e 0	46	- 2	1	14	-10
Akita	3.4	260	e 0	53	+ 1			

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Mori	E.	3.4	302	0 51	- 1	—	—
Sapporo		3.5	320	—	—	e 1 28	- 6
Abashiri		3.6	359	1 10	+15	—	—
Yamagata		3.8	237	e 0 58	0	—	—
Hokusima		4.1	230	e 1 2	0	1 48	- 1
Inawasiro		4.4	231	e 1 7	+ 1	—	—
Onahama		4.4	220	e 1 8	+ 2	1 58	+ 2
Shirakawa		4.6	226	e 1 13	+ 4	2 2	+ 1
Mito		5.1	219	e 1 16	0	2 13	- 1
Tukubasan		5.4	220	e 1 20	0	2 18	- 3
Kumagaya		5.8	225	e 1 29	+ 4	2 34	+ 3
Maebasi		5.8	228	e 1 27	+ 2	—	—
Tokyo		6.0	219	e 1 30	+ 2	2 34	- 2
Matumoto		6.5	233	e 1 40	+ 5	—	—
Nagoya		7.9	231	e 2 6	PP	—	—
Tinemaha	z.	72.0	57	e 11 24	+ 9	—	—
China Lake	z.	73.2	57	i 11 30	+ 8	e 11 45	PcP
Palomar	z.	75.1	59	i 11 42	+ 9	—	—
Fayetteville	z.	86.8	44	i 12 43	+ 8	—	—

Nov. 29d. 21h. 24m. 17s. Epicentre 39°·0N. 71°·8E. (as on 12d.).

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Dzhergetal		0.5	296	i 0 10	0 _g	—	—
Garm		1.2	270	e 0 22	- 1*	e 0 37	- 3 _g
Fergana		1.4	359	i 0 27	0	0 43	- 3 _g
Khorog		1.5	186	i 0 34	+ 4 _g	0 57	+ 7 _g
Obi-garm		1.7	260	i 0 34	0 _g	0 55	- 1 _g
Andijan		1.8	14	i 0 38	+ 2 _g	1 4	+ 4 _g
Kulyab		1.9	235	i 0 34	0	i 1 1	+ 1*
Namangan		2.0	357	e 0 40	0 _g	i 1 7	+ 1 _g
Stalinabad		2.4	259	i 0 45	+ 1*	i 1 17	+ 2*
Lunacharskoe		3.0	321	e 0 52	+ 2	0 58	P _g
Tashkent		3.0	320	e 0 54	0*	i 1 35	+ 2*
Tchimkent		3.7	333	e 1 2	+ 2	1 45	0
Samarkand		3.8	281	1 0	- 1	—	—
Naryn		4.0	51	e 1 11	0*	i 2 24	+12 _g
Frunse		4.4	28	e 1 17	- 1*	i 2 10	- 5*
Bairam-Ali		7.7	263	e 1 55	- 1	—	—
Ashkabad		10.6	269	2 37	+ 1	e 4 32	- 5

Nov. 29d. 23h. 46m. 27s. Epicentre 56°·3N. 153°·8W. (as on 1948, June 27d.).

A = -·5001, B = -·2461, C = +·8302; δ = -10; h = -8;
D = -·442, E = +·897; G = -·745, H = -·367, K = -·557.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
College		9.1	16	2 11	- 3	i 4 23	+23	—	14.8
Sitka		10.2	75	i 2 30	- 1	e 4 21	- 6	—	—
Mitchell Field		14.1	261	i 3 24	+ 1	e 5 53	- 9	—	—
Victoria		20.0	99	4 38	+ 1	8 20	+ 3	—	9.2
Seattle		21.1	100	i 4 52	+ 4	1 8 56	PcP	i 9 10	11.0
Corvallis		22.5	108	e 5 3	+ 1	e 9 18	+13	—	—
Ferndale	E.	24.9	116	5 53	PP	—	—	—	—
Klyuchi		24.9	290	5 24	- 2	—	—	—	—
Hungry Horse		25.3	90	i 5 30	0	i 12 39	PcS	i 9 6	113.6
Shasta	z.	25.7	113	e 5 34k	+ 1	—	—	—	—
Petropavlovsk		27.2	285	5 47	0	—	—	—	—
Butte		27.4	93	e 5 50	+ 1	e 9 4	PcP	—	—
Saskatoon		27.5	78	6 2	+12	10 30	0	—	12.8
Berkeley		27.9	117	e 5 56	+ 2	i 10 42	+ 5	e 12 57	114.5
Reno	z.	27.9	111	e 5 54k	0	—	—	—	—

Continued on next page.

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1952		1131										
		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Bozeman		28.5	93	e 5	54	- 5	e 10	35	-11	—	—	—
Santa Clara	z.	28.5	117	i 5	53 ^a	- 6	—	—	—	—	—	e 13.4
Lick		28.7	117	i 6	4 ^a	+ 3	e 12	36	SSS	i 7	2	PPP
Resolute Bay		28.7	29	i 5	59	- 2	i 12	28	SSS	i 6	57	PP
Magadan		28.9	301	6	0	- 3	—	—	—	—	—	—
Fresno	z.	30.1	115	e 6	15 ^a	+ 2	—	—	—	—	—	—
Tinemaha	z.	30.5	113	i 6	17	0	—	—	—	—	—	—
China Lake	z.	31.9	113	e 6	28	- 1	—	—	—	i 6	31	P
Pasadena		32.9	116	i 6	39	+ 1	i 11	56	0	i 7	57	PP
Boulder City		33.2	111	i 6	41	+ 1	i 12	7	+ 7	e 7	58	PP
Nelson		33.4	111	i 6	42	0	—	—	—	—	—	—
Rapid City		33.9	89	e 6	49	+ 2	i 12	10	- 1	—	—	—
Palomar	z.	34.2	116	i 6	49	0	—	—	—	—	—	—
Ulegorsk		38.2	288	i 7	24	+ 1	—	—	—	—	—	—
Yuzno-Sakhlinsk		39.2	285	7	29	- 2	—	—	—	—	—	—
Lubbock		41.9	99	7	55	+ 1	i 18	0	SSS	—	—	—
Urakawa		42.2	279	e 7	57	+ 1	e 10	19	PPP	—	—	—
Sapporo		42.4	282	e 7	58	0	e 14	18	- 2	e 17	27	SS
Mori		43.5	281	8	12	+ 5	14	37	+ 1	(17	42)	SS
Chicago		43.9	80	e 8	8	- 2	i 14	41	- 1	—	—	—
Kirkland Lake	z.	43.9	68	e 8	10	0	e 14	39	- 3	i 10	11	PP
Fayetteville	z.	44.3	91	i 8	11	- 2	i 14	57	+ 9	i 10	6	PP
Miyako		44.4	277	e 8	9 [?]	- 5	e 14	47 [?]	- 2	—	—	—
Mizusawa		45.2	277	e 8	22	+ 2	e 11	59	?	12	4	?
Akita		45.4	278	e 8	23	+ 1	e 14	58	- 6	—	—	18.5
Sendai		45.9	277	e 8	36	+10	(e 15	5)	- 6	—	—	e 15.1
Hokusima		46.7	276	e 8	31	- 1	15	20	- 2	—	—	—
Onahama		46.9	275	e 8	54	+20	e 13	18	?	—	—	e 21.3
Niigata		47.2	277	e 8	55	+19	(14	55)	-34	e 10	41	PP
Cincinnati		47.5	80	i 8	38	0	i 15	34	0	—	—	14.9
Cleveland		47.5	76	i 8	43 ^a	+ 5	i 15	35	+ 1	—	—	—
Vladivostok		47.5	287	i 8	35	- 3	—	—	—	—	—	—
Aikawa		47.6	278	e 8	39	0	(15	28)	- 7	—	—	15.5
Ottawa		47.9	68	i 8	42 ^a	0	15	39	0	18	33	ScS
Buffalo (Larkin)		48.1	72	e 8	44	+ 1	e 15	33	- 9	—	—	22.3
Kumagaya		48.3	275	e 8	50	+ 5	15	47	+ 2	—	—	—
Maebasi		48.3	276	e 8	43	- 2	16	5	+20	—	—	e 22.7
Tokyo		48.4	275	e 8	43	- 3	e 15	46	0	e 14	29	PcS
Nagano	N.	48.6	277	e 8	37	-10	e 15	51	+ 2	(e 20	25)	SSS
Shawinigan Falls	N.	48.6	65	e 8	46	- 1	15	42	- 7	10	13	PcP
Matsuro		48.7	277	8	33	-15	15	48	- 2	19	42	Q
Yokohama		48.7	275	9	13	+25	—	—	—	—	—	22.5
Scoresby Sund		48.9	20	i 8	51 ^k	+ 1	i 15	55	+ 2	i 19	32	SS
Toyama		49.1	278	e 8	44	- 7	e 15	57	+ 1	—	—	23.2
Ivigtut		49.2	39	e 8	53	+ 1	i 15	59	+ 1	10	50	PP
Misima		49.3	275	e 8	54	+ 1	(e 15	59)	0	e 9	59	?
Osima		49.3	274	e 9	9	+16	e 16	1	+ 2	e 11	4	PP
Morgantown		49.7	77	i 8	54	- 2	e 16	4	0	—	—	e 23.1
Shizuoka		49.7	276	e 8	59	+ 3	—	—	—	e 12	36	?
Vermont		49.9	68	e 9	27	+30	i 16	6	- 1	—	—	—
Pennsylvania		50.0	74	e 8	57	- 1	e 16	0	- 9	i 10	57	PP
Hikone		50.7	277	e 9	0	- 3	—	—	—	—	—	23.2
Kyoto		51.2	277	e 8	42	-25	(e 16	21)	- 4	—	—	e 16.4
Toyooka		51.3	279	e 9	6	- 2	e 16	24	- 2	—	—	e 24.9
Guadalajara		51.4	113	e 16	3	?	e 16	33	+ 5	—	—	—
Osaka		51.5	278	e 9	24	+15	—	—	—	—	—	—
Mobile		51.7	90	e 9	17	+ 6	i 16	33	+ 1	—	—	—
Washington		51.7	75	i 9	11	0	—	—	—	e 19	16	?
Palisades		51.9	71	e 9	12 ^a	0	i 16	34	- 1	e 20	3	SS
City College, N.Y.		52.0	71	e 9	17	+ 4	i 16	36	0	—	—	e 28.2

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
				m.	s.		m.	s.		m.	s.	
Fordham		52.1	71	i 9	13	- 1	e 16	37	- 1	—	—	—
Harvard		52.1	68	e 9	13	- 1	i 16	40	+ 2	e 19	2	ScS
Siomisaki		52.3	276	e 9	22	+ 7	—	—	—	—	—	e 26.7
Weston		52.3	68	e 9	14 _a	- 1	e 16	39	- 1	e 19	1	ScS
Takamatu	E.	52.6	278	e 9	18	0	e 16	45	+ 1	e 12	54	?
Columbia		53.2	82	i 9	26	+ 4	i 16	50	- 2	—	—	—
Kabansk		53.4	312	i 9	23	- 1	i 16	58	+ 3	—	—	—
Hirosima		53.5	279	e 9	27	+ 3	16	51	- 6	—	—	23.6
Koti		53.5	278	e 9	23	- 1	e 16	19	-38	—	—	—
Matuyama		53.7	279	e 9	23	- 3	i 16	59	0	e 19	15	ScS
Irkutsk		54.2	313	9	28	- 1	17	9	+ 3	—	—	—
Reykjavik		54.3	24	e 9	26 _a	- 4	e 17	10	+ 3	i 11	28	PP
Simidu		54.3	277	e 9	37	+ 7	e 17	6	- 1	—	—	e 29.0
Halifax		54.6	61	e 9	32 _a	0	17	10	- 1	19	17	ScS
Tacubaya		54.6	109	i 9	40	+ 8	e 17	16	+ 5	—	—	—
Ooita		54.8	279	e 9	43	+ 9	e 17	17	+ 3	—	—	e 25.6
Hukuoka		55.2	280	e 9	35	- 2	e 17	9	-11	e 15	37	?
Puebla		55.4	108	—	—	—	e 17	45	PPS	—	—	e 29.6
Miyazaki		55.9	277	e 10	25	PcP	e 17	30	+ 1	—	—	24.0
Kiruna		56.1	3	i 9	42 _a	- 1	i 17	31	- 1	i 10	42	PcP
Vera Cruz		56.4	106	e 9	57	+12	e 17	43	+ 7	—	—	e 32.0
Kagosima		56.6	279	e 9	55	+ 8	—	—	—	—	—	—
Oaxaca		57.9	107	e 12	39	PP	—	—	—	—	—	e 27.8
Zô-Sô	E.	62.1	284	10	23	- 2	18	49	0	—	—	—
Bergen		62.5	12	10	28?	0	e 18	53	- 1	e 14	5	PPP
Nanking		62.6	288	i 10	25 _a	- 3	i 18	53	- 3	—	—	—
Bermuda		63.3	71	i 10	36	+ 3	i 19	3	- 1	i 20	25	ScS
Sverdlovsk		63.8	340	i 10	35	- 1	i 19	9?	- 2	—	—	—
Upsala		64.0	5	i 10	36 _a	- 2	i 19	8	- 5	i 39	27	P'P'
Pulkovo		64.2	358	i 10	38	- 1	i 19	16	0	—	—	e 28.6
Aberdeen		64.6	17	i 10	38	- 3	i 19	21	0	i 12	51	PP
Edinburgh		65.6	18	—	—	—	20	36	[- 5]	—	—	34.2
Rathfarnham Castle		67.6	20	e 11	4	+ 3	i 19	56	- 1	e 24	22	SS
Copenhagen		67.8	9	i 11	2 _a	0	i 19	59	- 1	13	37	PP
Moscow		67.9	354	11	2	0	20	0	- 1	—	—	—
Witteveen	Z.	70.1	12	e 11	18	+ 2	—	—	—	i 12	7	?
Kew		70.4	17	i 11	18	0	e 20	33	+ 3	e 13	55	PP
De Bilt		70.6	14	i 11	18	- 1	i 20	37	+ 4	i 13	57	PP
Potsdam		71.1	9	i 11	22 _a	0	i 20	42	+ 4	i 11	46	PcP
Ciudad Trujillo		71.5	85	12	3	+39	e 21	18	PPS	—	—	e 30.6
Almata		72.0	324	i 11	27	- 1	i 20	51	+ 2	—	—	—
Collmberg		72.2	8	e 11	27	- 2	e 20	52	+ 1	e 21	15	PS
Jersey	E.	72.3	19	—	—	—	20	54	+ 2	—	—	e 31.0
Jena		72.5	10	i 11	29	- 1	e 20	55	+ 1	e 25	43	SS
Hong Kong		72.8	285	11	35	+ 3	i 20	59	+ 1	—	—	i 41.1
Rybach'e		73.0	324	e 11	31	- 2	—	—	—	—	—	—
Frunse		73.1	325	i 11	33	- 1	i 21	6	+ 5	—	—	—
Cheb		73.4	10	e 11	48	+12	21	21	+16	e 29	16	SSS
Paris		73.4	17	i 11	34	- 2	i 21	4	- 1	i 14	21	PP
Prague		73.5	8	e 11	35	- 1	e 21	9	+ 3	e 21	47	PS
San Juan		73.6	81	i 11	36	- 1	i 21	24	+17	—	—	—
Raciborzu		73.8	6	e 11	37	- 1	e 21	15	+ 6	21	41	PS
Naryn		73.9	323	i 11	39	0	i 21	15	+ 5	—	—	34.6
Karlsruhe		74.0	13	i 11	41 _a	+ 2	e 21	18	+ 7	—	—	e 34.6
Lwow		74.2	2	i 11	39	- 1	i 21	13	- 1	—	—	—
Stuttgart		74.3	12	i 11	40 _a	- 1	e 21	17	+ 2	e 14	26	PP
Strasbourg		74.4	13	e 11	40	- 2	e 21	11	- 5	e 16	16	PPP
Galerazamba		74.7	93	e 12	16	+33	i 21	24	+ 5	e 30	48	PKKP
Skalnate Pleso		74.8	4	e 11	43	- 1	e 21	26	+ 6	e 21	56	PS
Angra do Heroismo	E.	75.1	41	—	—	—	37	57	SKKS,	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Tchimkent	75.1	329	i 11	44	- 2	i 21	26	+ 2	—	—	—
Basle	75.4	14	e 11	48	+ 1	—	—	—	e 12	0	PcP
Besançon	75.4	15	i 11	49	+ 2	i 12	0	PcP	e 14	37	PP
Manila	75.4	274	i 11	43	- 4	i 21	10	-17	—	—	—
Uzhgorod	75.4	3	e 11	46	- 1	i 21	28	+ 1	—	—	—
Andijan	75.7	326	i 11	48	- 1	i 21	33	+ 3	—	—	—
Namangan	75.7	326	i 11	47	- 2	—	—	—	—	—	—
Zürich	75.7	13	e 11	47 ^a	- 2	e 21	28	- 2	—	—	—
Neuchatel	75.8	14	e 11	49	- 1	e 21	33	+ 2	—	—	—
Ogyalla	76.0	6	e 11	55	+ 4	e 21	41	+ 7	e 14	43	PP
Lunacharskoe	76.1	328	i 11	51	0	—	—	—	—	—	—
Tashkent	76.1	328	e 11	56	+ 5	—	—	—	—	—	—
Fergana	76.2	325	i 11	51	- 1	e 21	37	+ 1	—	—	—
Chur	76.3	12	e 11	53	+ 1	e 21	43	+ 6	—	—	—
Budapest	E. 76.4	6	11	54	+ 1	21	42	+ 4	12	7	PcP
Clermont-Ferrand	76.5	17	e 11	52	- 2	i 21	42	+ 3	26	33	SS
Iasi	76.9	0	e 11	55	- 1	—	—	—	—	—	—
Kishinev	77.0	359	i 11	55	- 1	i 21	45	0	—	—	—
Oropa	77.3	14	e 12	1	+ 3	e 21	54	+ 6	i 22	16	ScS
Kalossa	77.6	5	e 11	59	- 1	e 21	57	+ 6	22	8	SKS
Salo	77.6	11	12	11	PcP	22	19	ScS	15	30	?
Pavia	77.9	13	e 12	3	+ 2	i 22	1	+ 7	e 22	51	PPS
Triest	77.9	9	i 12	0 ^a	- 1	i 21	52	- 2	i 22	20	ScS
Garm	78.0	327	e 12	0	- 2	e 21	56	+ 1	—	—	—
Timisoara	78.2	4	e 12	10	+ 7	e 22	20	ScS	e 12	20	PcP
Samarkand	78.3	330	12	2	- 1	21	58	- 1	—	—	—
Obi-garm	78.4	327	i 12	5	+ 1	e 21	58	- 2	—	—	—
Bologna	78.8	11	e 12	7	+ 1	e 22	4	0	—	—	—
Stalinabad	78.8	327	i 12	5	- 1	22	3	- 1	—	—	—
Theodosia	78.8	354	i 12	4	- 2	e 22	1	- 3	—	—	—
Padova	78.9	10	12	7	0	21	58	- 7	—	—	—
Simferopol	78.9	355	i 12	6	- 1	i 22	5	0	—	—	—
Khorog	79.0	325	i 12	7	0	i 22	7	+ 1	—	—	—
Belgrade	79.1	4	e 12	9 ^a	+ 1	e 22	7	0	e 15	1	PP
Kulyab	79.1	326	12	5	- 3	—	—	—	—	—	—
Chinchina	79.3	97	i 12	9	0	i 22	6	- 3	i 26	58	SS
Fort de France	79.3	80	e 12	9	0	i 22	9	0	—	—	e 37.4
Grozny	79.4	346	i 12	6	- 3	22	5	- 5	—	—	—
Prato	79.4	11	e 12	10	+ 1	i 22	10	0	—	—	—
Yalta	79.4	355	i 12	8	- 1	i 22	9	- 1	—	—	—
Florence	79.5	11	i 12	9 ^a	- 1	i 22	11	0	i 15	18	PP
Makhach-Kala	79.5	345	e 12	9	- 1	e 22	7	- 4	—	—	e 39.6
Bucharest	79.7	0	e 12	16	+ 5	e 22	14	+ 1	e 22	18	S
Sotchi	79.8	351	i 12	10	- 2	e 22	13	- 1	—	—	37.6
Siena	80.0	11	e 12	9	- 4	22	17	0	—	—	50.8
Barcelona	80.5	19	e 12	22	PcP	i 22	21	- 1	—	—	e 41.6
Bogota	80.5	96	i 12	26	PcP	i 22	17	- 5	i 15	15	PP
Lisbon	80.7	28	12	17 ^a	+ 1	22	25	+ 1	27	38	SS
Toledo	80.8	24	i 12	17	0	i 22	30	+ 5	15	25	PP
Tortosa	80.8	20	i 12	26	PcP	22	18	- 7	—	—	43.0
Tiflis	81.1	347	i 12	18	0	22	28	0	—	—	—
Borzhomi	81.2	348	i 12	19	0	22	30	+ 1	—	—	—
Sofia	81.3	3	e 12	21	+ 1	e 22	29	- 1	—	—	e 37.8
Shillong	E. 81.4	304	e 12	16	- 4	—	—	—	—	—	—
Rome	81.5	10	i 12	19 ^a	- 2	i 22	33	+ 1	i 15	27	PP
Bairam-Ali	81.6	332	i 12	21	0	22	36	+ 3	—	—	—
Baku	81.6	342	i 12	25	+ 4	e 22	40	+ 7	—	—	—
Kizyl-Arvat	81.7	338	e 12	22	0	—	—	—	—	—	—
Kirovobad	81.8	345	i 12	22	0	22	38	+ 3	—	—	—
Leninakan	82.1	347	12	26	+ 2	—	—	—	—	—	—
Ashkabad	82.2	335	i 12	24	0	—	—	—	—	—	—
Chatra	82.5	308	i 12	24	- 2	i 22	44	+ 2	15	37	PP
Erevan	82.6	347	i 12	27	+ 1	22	48	+ 5	—	—	39.9
Alicante	83.0	21	i 12	38	+10	i 22	48	+ 1	23	40	PS
Goris	83.0	344	i 12	29	+ 1	i 22	51	+ 4	—	—	39.0

Continued on next page.

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		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
Istanbul		83.0	358	e 12	21	- 7	e 22	44	- 3	e 28	15	SS	32.9
Dehra Dun	N.	83.1	317	e 20	39	?							e 49.6
Taranto		83.3	8	12	27	- 3	22	54	+ 4	28	9	SS	41.2
Granada		83.5	24	i 12	33k	+ 2	22	52	0	i 15	40	PP	i 40.2
Malaga		83.7	25	i 12	34	+ 2	i 22	50	- 4	i 15	52	PP	44.2
Almeria		84.1	23	i 12	34	0	i 22	56	- 2	i 17	48	PPP	42.5
New Delhi		85.0	317	12	38	0	i 22	58	[- 3]	24	2	PS	—
Algiers Univ.	z.	85.2	19	e 12	39a	0	e 23	4	[+ 2]	e 15	58	PP	e 41.6
Messina		85.4	9	e 12	38	- 2	23	13	+ 2	16	1	PP	—
Calcutta	E.	85.7	305	e 12	40	- 2	i 23	6	[+ 1]	37	40	SKKS ₂	—
Athens		86.1	3	e 12	43?	- 1	i 23	12	[+ 4]	e 16	2	PP	—
Quetta		87.1	326	i 12	48k	- 1	i 23	14	[- 1]	i 16	13	PP	31.6
Ksara		90.1	353	i 13	4	+ 1	23	54	- 1	16	31	PP	—
Huancayo		93.6	107	e 13	23	+ 4	e 23	51	[- 2]	e 17	15	PP	e 38.2
Helwan		94.1	356	i 13	21a	- 1	23	51	[- 5]	17	4	PP	—
Hyderabad		94.5	311	i 13	27	+ 4	23	55	[- 3]	17	9	PP	—
Brisbane		94.8	226	i 13	33	+ 8	i 24	2	[+ 2]	i 24	39	S	—
Poona		95.4	315	i 13	27	- 1	24	1	[- 2]	30	11	PKKP	—
Bombay		95.5	316	e 13	27	- 1	24	1	[- 3]	24	21	SKKS	44.6
Tamanrasset	z.	99.3	20	e 13	46	+ 1	e 24	25	[+ 1]	i 17	55	PP	i 38.6
Djakarta		100.3	275	e 13	59	+ 9	e 24	30	[+ 2]	e 26	54	PS	45.6
Bandong		100.5	274	e 14	3	+12	24	27	[- 2]	e 34	0	?	—
Wellington		100.8	205	e 26	57	PS	i 24	22	[- 9]	e 32	15	SS	e 46.6
La Paz		101.2	103	e 13	58	+ 4	i 24	33	[0]	i 32	36	SS	50.0
Riverview		101.2	224	e 14	0	+ 6	i 24	33	[0]	i 27	8	PS	e 46.2
Kodaikanal	E.	101.4	309	—	—	—	e 24	31	[- 3]	—	—	—	—
Christchurch		103.4	206	e 26	0	S	e 24	46	[+ 3]	e 33	0	SS	e 43.0
Melbourne	E.	107.1	227	—	—	—	i 26	24	+ 4	i 34	21	SSP	—
M'Bour		109.2	43	—	—	—	e 33	33?	SS	—	—	—	—
La Plata	N.	121.3	107	20	45	PP	27	33	{+11}	37	21	SS	56.0
Tananarive		139.4	329	e 16	35	?	40	53	SS	e 22	27	PP	69.6
Pretoria	z.	149.5	359	e 19	44	[- 3]	—	—	—	i 19	53	PKP ₂	—
Kimberley	z.	152.4	3	e 19	51	[0]	i 19	59	PKP ₂	i 28	51	PPPP	—
Pietermaritzburg	z.	153.2	352	e 20	0	[+ 8]	—	—	—	—	—	—	—
Grahamstown	z.	157.0	0	e 19	58	[+ 1]	—	—	—	e 20	22	PKP ₂	—

Nov. 30d. 2h. 9m. 12s. Epicentre 33°-6S. 178°-4W.

A = -0.8343, B = -0.0233, C = -0.5508; $\delta = -2$; $h = +1$;
D = -0.028, E = +1.000; G = +0.551, H = +0.015, K = -0.835.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		
				m.	s.		m.	s.		m.	s.	
Tuai	N.	6.3	214	e 1	36	0	2	47	- 3	—	—	—
Auckland	N.	6.4	238	1	38	0	i 2	51	- 2	—	—	—
New Plymouth	E.	8.2	226	e 2	8	+ 5	e 3	52	+14	—	—	—
Wellington		9.4	213	e 2	13	- 5	3	53	-14	—	—	—
Cobb River	E.	10.3	221	e 2	50	+18	e 4	18	-12	—	—	—
Kaimata	N.E.	12.0	219	e 2	56	+ 1	e 4	52	-19	—	—	—
Christchurch		12.1	213	e 3	17	+20	5	0	-14	—	—	—
Brisbane	z.	25.3	291	i 5	30	0	—	—	—	i 5	39	?
Lick	z.	88.2	42	e 12	54k	0	—	—	—	—	—	—
Palomar	z.	88.2	48	e 12	55	+ 1	—	—	—	—	—	—
Fresno	z.	88.8	44	e 13	11k	+14	—	—	—	—	—	—
China Lake	z.	89.4	46	e 13	0	0	—	—	—	e 13	13	?
Tinemaha	z.	89.9	45	e 13	16	+14	—	—	—	—	—	—
Shasta	z.	90.2	39	e 13	3a	- 1	—	—	—	—	—	—
Nelson		91.0	47	e 13	8	+ 1	—	—	—	i 13	22	?
Boulder City		91.2	47	e 13	9	+ 1	—	—	—	—	—	—
Tucson		91.3	52	e 13	30	?	—	—	—	—	—	—
College		101.0	13	e 13	50	- 3	—	—	—	—	—	—
Kiruna	z.	144.0	348	19	36	[- 1]	—	—	—	—	—	—
Upsala	z.	151.7	344	i 19	53	[+ 3]	—	—	—	i 20	6	PKP ₂
Tamanrasset	z.	168.7	199	i 20	10k	[+ 2]	e 21	33	PKP ₂	e 29	21	PPP

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1952

1135

Nov. 30d. 6h. 35m. 13s. Epicentre 56°·3N. 153°·8W. (as on 29d.).

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
College		9·1	16	i 2	13	- 1	e 4	20	+20	—	—	e 4·9	
Hungry Horse		25·3	90	i 5	32	+ 2	—	—	—	—	—	—	
Shasta	z.	25·7	113	e 5	33 _a	0	—	—	—	—	—	—	
Butte		27·4	93	e 5	52	+ 3	—	—	—	—	—	—	
Resolute Bay		28·7	29	i 6	11 _a	+10	e 10	11	-39	—	—	—	
Tinemaha	z.	30·5	113	e 6	20	+ 3	e 6	25	?	e 6	36	?	—
China Lake	z.	31·9	113	e 6	28	- 1	—	—	—	e 6	36	?	—
Boulder City		33·2	111	e 6	39	- 1	—	—	—	i 6	48	?	—
Nelson		33·4	111	i 6	43	+ 1	—	—	—	i 6	50	?	—
Palomar	z.	34·2	116	e 6	48	- 1	i 6	56	?	i 7	2	?	—
Tucson		38·1	110	e 7	24	+ 2	—	—	—	—	—	—	—
Fayetteville	z.	44·3	91	i 8	12	- 1	—	—	—	—	—	—	—
Ottawa		47·9	68	e 8	48 _a	+ 6	—	—	—	—	—	—	—
Scoresby Sund		48·9	20	e 8	49	- 1	—	—	—	—	—	—	27·8
Morgantown		49·7	77	i 8	55	- 1	—	—	—	—	—	—	—
Harvard		52·1	68	e 9	7	- 7	—	—	—	—	—	—	—
Weston		52·3	68	i 9	14 _a	- 1	—	—	—	i 9	22	?	—
Kiruna	z.	56·1	3	i 9	42 _a	- 1	i 9	49	?	i 10	19	?	—
Upsala	z.	64·0	5	i 10	36	- 2	—	—	—	i 10	41	P	—
Collmberg	z.	72·2	8	e 11	27	- 2	—	—	—	—	—	—	—
Jena	z.	72·5	10	e 11	29	- 1	—	—	—	e 11	43	PcP	—
Stuttgart		74·3	12	e 11	39	- 2	—	—	—	—	—	—	—
Pretoria	z.	149·5	357	i 19	51	[+ 4]	—	—	—	—	—	—	—

Nov. 30d. 18h. 32m. 23s. Epicentre 59°·1N. 165°·6E. (as on 1942, March 7d.).

A = -·4999, B = +·1283, C = +·8565; δ = -5; h = -9;
D = +·249, E = +·969; G = -·830, H = +·213, K = -·516.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
Resolute Bay	z.	36·6	27	e 7	20	+10	—	—	—	—	—	—	
Scoresby Sund		50·6	4	e 9	6	+ 4	—	—	—	—	—	26·6	
Kiruna		50·8	345	i 9	3	- 1	e 16	34	+14	i 9	12	?	e 25·6
Tinemaha	z.	52·2	79	i 9	14	- 1	—	—	—	e 12	27	PPP	—
China Lake	z.	53·5	79	i 9	22	- 2	—	—	—	e 12	30	PPP	—
Pasadena		54·5	82	i 9	29	- 3	—	—	—	—	—	—	—
Palomar	z.	55·8	80	i 9	39	- 2	—	—	—	—	—	—	—
Upsala	z.	58·8	343	i 9	59	- 3	i 13	21	PPP	i 10	4	P	—
Kirkland Lake	z.	60·4	45	e 10	16	+ 3	—	—	—	—	—	—	—
Ottawa		64·3	44	e 10	41	+ 2	—	—	—	—	—	—	—
Shawinigan Falls	N.	64·3	41	e 10	43	+ 4	—	—	—	—	—	—	—
Fayetteville	z.	64·6	61	i 10	41	0	—	—	—	i 13	55	?	—
Collmberg	z.	67·7	342	e 10	56	- 5	—	—	—	e 14	6	PP	—
Harvard		68·3	42	e 11	8	+ 3	—	—	—	—	—	—	—
Jena	z.	68·3	343	e 11	2	- 3	—	—	—	e 11	7	P	—
Weston		68·5	42	i 11	8 _k	+ 2	—	—	—	—	—	—	—
Halifax		69·0	37	e 11	10	+ 1	—	—	—	—	—	—	—
Stuttgart		70·8	344	e 11	17 _?	- 1	—	—	—	e 14	25	PP	—
Strasbourg		71·2	346	e 11	24	+ 1	—	—	—	—	—	—	—
Paris		71·6	349	e 11	22	- 3	—	—	—	e 11	26	P	—
Zürich		72·2	345	e 14	34	PP	—	—	—	—	—	—	—
Chur		72·6	344	e 14	35	PP	—	—	—	—	—	—	—
Besançon		72·7	346	e 14	41	PP	—	—	—	—	—	—	—
Ksara		78·5	319	e 10	37	?	20	41	?	—	—	—	—
Algiers Univ.	z.	83·4	346	e 12	27	- 3	—	—	—	—	—	—	—
Tamanrasset	z.	96·8	342	e 13	27	- 7	—	—	—	12	36	?	—

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1952

1136

Nov. 30d. 19h. 28m. 47s. Epicentre 52°·7N. 159°·4E..

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Klyuchi	3·7	12	i 1 0	0	—	—	—	—
Magadan	8·4	329	2 10	+ 4	3 53	+10	—	—
Nemuro	13·2	230	e 3 20	PP	—	—	—	e 9·7
Wakkanai	13·7	345	—	—	e 5 52	0	e 12 10	PcS e 7·9
Obihiro	14·6	234	e 3 39	PP	—	—	—	—
Sapporo	15·4	239	e 3 48	PP	e 7 15	SSS	—	e 8·9
Urakawa	15·4	233	e 3 51	PP	—	—	—	—
Aomori	17·4	233	e 3 51	-15	e 7 7	-12	e 4 33	PPP
Miyako	17·7	232	i 4 13	+ 3	e 7 32	+ 6	—	—
Morioka	18·1	233	i 4 17	+ 3	—	—	—	—
Mizusawa	18·5	230	4 25	+ 6	7 39	- 5	7 47	S
Sendai	19·3	228	e 4 30	+ 1	e 8 11	+ 9	—	—
Hokusima	19·9	232	e 4 38	+ 2	e 8 24	+ 9	—	—
Onahama	20·4	226	e 4 37	- 4	e 8 27	+ 2	—	—
Vladivostok	20·7	253	e 4 39	- 5	—	—	—	—
Mito	21·1	230	4 52	+ 4	—	—	—	—
Utunomiya	21·2	232	e 4 51	+ 2	—	—	e 5 46	PPP
Maebasi	21·7	231	e 4 58	+ 3	8 57	+ 6	—	—
Kumagaya	21·8	232	4 58	+ 2	9 0	+ 8	—	—
Nagano	21·9	233	e 4 59	+ 2	e 9 36	SS	—	—
Matusiro	22·0	235	4 58	0	9 3	+ 7	—	10·8
Tokyo	22·0	227	e 5 4	+ 6	e 9 45	SSS	e 6 55	?
Matumoto	22·3	234	5 4	+ 3	—	—	—	—
Toyama	22·3	233	e 5 4	+ 3	e 9 15	+13	e 6 5	?
Hunatu	22·6	227	e 5 8	+ 5	e 9 21	+14	—	—
Mera	22·6	224	e 5 15	+12	—	—	—	—
Misima	22·8	226	i 5 8	+ 3	(e 9 15)	+ 4	—	e 9·2
Omaesaki	23·6	227	e 5 20	+ 7	e 9 35	+10	—	—
Nagoya	23·7	230	e 5 16	+ 2	—	—	—	—
Hikone	23·9	231	5 17	+ 1	—	—	—	—
Kameyama	24·2	233	e 5 22	+ 3	e 9 37	+ 2	—	—
Toyooka	24·4	235	e 5 24	+ 3	e 9 44	+ 5	—	—
Osaka	24·8	233	e 5 31	+ 6	e 9 52	+ 6	—	i 13·0
Owase	24·9	232	e 5 30	+ 4	—	—	—	—
Sumoto	25·3	235	i 5 34	+ 4	—	—	—	—
Takamatu	25·8	234	e 5 37	+ 3	10 5	+ 3	—	—
Hamada	26·3	238	e 5 41	+ 2	e 10 14	+ 3	—	—
Koti	26·7	234	e 5 45	+ 2	e 10 23	+ 6	—	—
Hukuoka	28·2	238	e 6 1	+ 5	e 10 45	+ 4	—	e 15·3
College	29·3	44	5 55	-11	10 49	-10	—	—
Kabansk	31·6	291	e 6 27	+ 1	11 38	+ 3	—	—
Kyakhta	32·4	289	e 6 33	- 1	—	—	—	—
Irkutsk	32·9	292	e 6 37	- 1	e 11 53	- 3	—	—
Zó-Sè	35·1	248	6 58	+ 1	e 12 33	+ 3	—	—
Nanking	35·8	253	7 2	- 1	e 12 40	- 1	—	—
Resolute Bay	43·9	22	i 8 7	- 3	i 14 36	- 6	i 10 0	PP e 20·2
Seattle	48·1	63	e 8 47	+ 4	—	—	—	—
Manila	48·7	235	i 8 39 _a	- 9	i 15 35	-15	—	—
Hungry Horse	52·0	58	i 9 10	- 3	—	—	i 10 24	PcP
Sverdlovsk	52·3	317	—	—	16 35	- 5	—	—
Shasta	52·4	70	e 9 15 _k	- 1	e 11 42	PP	e 10 31	PcP
Przhevsk	52·8	294	e 9 18	- 1	—	—	—	—
Almata	53·1	295	e 9 20	- 1	—	—	—	—
Mineral	53·1	70	e 9 11 _k	-10	e 11 24	PP	i 9 19	P
Rybach'e	54·1	296	—	—	e 17 3	- 2	—	—
Butte	54·3	59	e 9 28	- 2	—	—	i 9 34	P
Berkeley	54·4	73	i 9 29	- 2	—	—	i 9 35	P
Frunse	54·7	297	i 9 30 _?	- 3	e 17 10 _?	- 3	—	—
Reno	54·7	69	e 9 31 _k	- 2	—	—	e 9 37	P
Naryn	54·9	295	e 9 33	- 2	e 17 12	- 4	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Lick	z.	55.1	73	e 9 34k	- 2	—	—	i 9 41	P	—
Kiruna		56.5	344	i 9 39	- 7	i 17 27	-10	i 10 23	PcP	e 23.5
Fresno	z.	56.6	72	e 9 43	- 4	—	—	—	—	—
Scoresby Sund		57.1	2	e 9 49	- 1	e 17 40	- 5	e 21 5	SS	25.2
Tinemaha	z.	57.2	71	i 9 50	- 1	i 10 39	PcP	i 9 59	P	—
Andijan		57.3	295	i 9 50	- 2	e 17 41	- 6	—	—	—
Namangan		57.5	297	e 9 50	- 3	—	—	—	—	—
Tchimkent		57.8	300	i 9 52	- 3	—	—	—	—	—
Fergana		57.9	296	e 9 55	- 1	—	—	—	—	—
Chatra	z.	58.5	275	e 9 59	- 1	e 18 5	+ 2	e 19 47	ScS	—
China Lake	z.	58.5	71	i 9 58k	- 2	—	—	i 10 6	P	—
Tashkent		58.6	298	e 9 58	- 3	—	—	—	—	—
Dzhergetal		59.0	296	i 10 7	+ 3	—	—	—	—	—
Pasadena		59.3	73	i 10 4	- 2	i 12 35	PP	i 10 9	P	—
Garm		59.7	297	e 10 5	- 4	e 18 10	- 9	—	—	—
Boulder City		60.0	69	i 10 9	- 2	—	—	—	—	—
Nelson		60.2	69	i 10 9	- 3	—	—	i 10 14	P	—
Pulkovo		60.6	334	e 10 16	+ 1	—	—	—	—	—
Palomar	z.	60.7	73	i 10 13k	- 2	—	—	i 10 19	P	—
Kulyab		60.8	294	10 15	- 1	—	—	—	—	—
Stalinabad		60.8	296	e 10 13	- 3	—	—	—	—	—
Calcutta	E.	61.0	271	—	—	e 18 31	- 4	—	—	e 32.3
Samarkand		61.0	299	e 10 13	- 5	—	—	—	—	—
Moscow		61.8	327	e 10 19	- 4	18 40	- 6	—	—	—
Reykjavik	z.	63.5	2	i 10 38	+ 4	—	—	i 11 17	PcP	—
Upsala		63.7	340	i 10 33	- 3	i 19 3	- 7	e 19 59	PPS	e 30.2
Tucson		64.9	69	e 10 42	- 1	—	—	i 10 58	?	—
Bairam-Ali		65.1	300	10 41	- 4	e 19 23	- 4	—	—	—
Kirkland Lake	z.	67.5	39	e 10 56	- 4	—	—	e 11 1	P	—
Quetta	z.	68.0	292	e 11 1	- 2	—	—	—	—	—
Copenhagen		68.6	341	e 11 6a	- 1	20 6	- 3	i 11 10	P	35.2
Lubbock		68.9	62	e 11 8	- 1	—	—	—	—	—
Piatigorsk		69.2	317	e 11 10	0	i 20 15	- 1	—	—	—
Aberdeen		69.4	350	—	—	i 20 17	- 1	—	—	e 39.6
Tiflis		70.3	313	11 16	- 1	—	—	—	—	—
Kirovobad		70.4	313	e 11 15	- 3	—	—	—	—	—
Fayetteville	z.	71.0	56	i 11 18	- 4	—	—	—	—	—
Sotchi		71.0	318	e 11 15	- 7	—	—	—	—	—
Lwow		71.1	333	i 11 20	- 2	e 20 35	- 3	—	—	—
Goris		71.4	312	i 11 13?	-11	—	—	—	—	—
Ottawa		71.5	38	i 11 20a	- 4	20 35	- 8	14 0	PP	36.1
Potsdam		71.5	340	e 11 23	- 1	i 20 41	- 2	—	—	e 30.2
Shawinigan Falls	N.	71.5	35	e 11 22	- 2	—	—	—	—	—
Theodosia		71.5	322	e 11 25?	+ 1	—	—	—	—	—
Durham	N.	71.7	349	i 21 32	PPS	i 20 38	- 7	i 25 34	SS	—
Erevan		71.7	313	i 11 23	- 3	21 32	PPS	—	—	—
Simferopol		72.0	323	e 11 25	- 3	e 20 41	- 8	—	—	—
Kishinev		72.1	328	i 11 26	- 2	e 20 45	- 5	—	—	—
Buffalo		72.3	41	i 11 27	- 2	—	—	—	—	—
Iasi		72.3	330	e 11 29	0	—	—	—	—	—
Cleveland		72.4	44	i 11 29a	- 1	e 20 47	- 6	i 11 34	P	—
Witteveen	z.	72.4	344	i 11 30a	0	—	—	i 11 34	P	—
Yalta		72.4	322	e 11 27	- 3	e 20 46	- 7	—	—	—
Buffalo (Larkin)		72.5	41	i 11 26	- 4	—	—	—	—	—
Raciborz	z.	72.5	336	e 11 29	- 1	e 11 46	PcP	e 11 33	P	—
Collmberg		72.6	339	e 11 28	- 3	—	—	e 11 32	P	37.2
Uzhgorod		72.7	334	e 11 30	- 2	e 20 53	- 4	—	—	—
Jena		73.2	339	e 11 32?	- 3	e 21 33	PS	e 21 54	PPS	—
Prague		73.4	337	e 11 35	- 1	e 21 7	+ 2	e 14 38	PP	e 37.7
Rathfarnham Castle		73.7	352	e 11 28	-10	—	—	—	—	e 44.2
Ogyalla		74.5	335	e 17 37	?	e 22 55	?	—	—	—
Pennsylvania		74.5	42	i 11 43	+ 1	e 21 13	- 4	—	—	—
Kew		74.8	347	e 11 42	- 2	—	—	—	—	e 44.2
Harvard		75.5	36	i 11 45k	- 3	e 21 22	- 6	—	—	e 50.0
Karlsruhe	z.	75.7	341	e 11 49	0	—	—	e 12 1	PcP	—

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Weston	75.7	36	i 11 45 _a	- 4	—	—	—	—
Stuttgart	75.8	340	e 11 47	- 3	e 21 27	- 4	e 12 25	e 40.2
Palisades	75.9	38	i 11 47	- 3	e 21 28	- 4	e 11 53	e 36.3
City College, N.Y.	76.0	38	i 11 48	- 3	e 21 29	- 5	—	—
Halifax	76.2	31	e 11 50 _a	- 2	—	—	—	—
Strasbourg	76.2	341	i 11 52	0	e 21 36	0	e 14 45	PP 38.2
Washington	76.5	42	i 11 51	- 3	—	—	—	—
Belgrade	76.6	331	e 11 54 _k	0	e 21 39	- 1	—	e 45.0
Paris	77.0	345	i 11 53	- 3	i 12 8	PcP	i 11 59	P e 38.2
Istanbul	77.2	324	e 11 55	- 2	e 21 38	- 9	e 16 41	PPP 33.8
Zürich	77.2	340	e 11 56	- 1	—	—	e 12 0	P —
Basle	77.3	341	e 11 55	- 3	—	—	e 13 10	? —
Chur	77.3	339	e 11 58	0	—	—	—	—
Triest	77.7	336	e 11 57	- 3	e 21 51	- 1	e 12 2	P 40.2
Besançon	77.9	342	i 12 1	0	i 12 13	PcP	i 12 6	P —
Salo	78.5	338	12 5 _a	+ 1	22 7	+ 6	e 12 19	? —
Oropa	79.0	341	e 12 10	+ 3	e 22 8	+ 2	—	—
Pavia	79.2	339	—	—	e 22 5	- 3	e 33 21	Q e 42.8
Clermont-Ferrand	79.8	343	i 12 11	- 1	i 22 22	+ 8	—	40.2
Florence	80.1	337	e 12 16	+ 3	e 22 17	- 1	—	e 39.6
Ksara	80.8	315	i 12 13	- 4	—	—	—	—
Rome	81.5	336	e 12 18	- 3	e 22 30	- 2	i 23 16	PS e 37.7
Tacubaya	81.5	70	12 23	+ 2	—	—	—	—
Taranto	81.6	333	—	—	22 23	-10	—	—
Messina	84.2	333	e 12 31	- 3	e 23 4	+ 5	i 12 36	P 40.7
Helwan	86.1	317	i 12 43 _k	- 1	e 23 19	+ 1	i 19 43	? —
Riverview	86.5	187	i 12 55	PcP	e 23 13	[+ 2]	e 23 29	ScS e 41.3
Toledo	86.7	348	e 12 45	- 2	e 21 45	?	e 15 3	? —
Bermuda	87.0	37	—	—	e 23 28	+ 1	—	e 39.7
Alicante	87.6	345	13 5	+14	—	—	—	49.1
Algiers Univ. z.	88.5	342	e 12 58	+ 2	e 23 25	[+ 1]	e 25 17	PPS —
Granada	89.3	347	e 13 14 _k	+15	—	—	—	48.2
Malaga	89.8	347	i 12 59	- 3	—	—	—	57.0
Angra do HeroismoE.	91.2	7	i 17 32	PP	—	—	—	—
Tamanrasset z.	101.5	336	13 55	0	e 18 3	PP	i 13 58	P —
Bogota	107.3	57	e 18 55	PP	e 25 0	[- 2]	—	48.2
Pretoria z.	134.8	289	i 19 23	[+ 2]	i 22 56	PKS	—	—
Kimberley z.	139.0	289	e 19 26	[- 3]	—	—	—	—

Nov. 30d. 23h. 57m. 40s. Epicentre 31°·6S. 179°·3W.

A = -·8532, B = -·0104, C = -·5214; δ = -8; h = +1;
D = -·012, E = +1·000; G = +·521, H = +·006, K = -·853.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Auckland	N. 7.2	222	1 50	+ 1	e 3 10	- 3	—	3.5
Karapiro	N. 7.6	212	e 1 54	- 1	—	—	—	e 4.4
Tuai	N. 7.7	201	1 54	- 2	—	—	—	—
Wellington	10.8	205	e 2 29	-10	e 4 26	-16	—	5.0
Cobb River	E. 11.4	212	e 2 47	0	—	—	—	—
Kaimata	N.E. 13.2	212	e 3 11	0	e 5 36	- 4	—	—
Brisbane	24.4	273	i 5 22 _a	+ 1	i 10 7	?	—	—
Riverview	24.9	257	e 5 25	- 1	i 9 41	- 6	i 10 37	SS e 11.6
Pasadena	z. 87.1	47	i 12 55	+ 6	—	—	—	—
Lick	z. 87.2	42	i 12 49 _k	0	—	—	—	—
Palomar	z. 87.4	48	i 12 50	0	—	—	—	—
China Lake	z. 88.6	45	i 12 55	- 1	—	—	—	—
Tinemaha	z. 89.0	44	e 12 58	0	—	—	—	—
Shasta	z. 89.1	40	e 12 57 _a	- 1	—	—	—	—
Boulder City	90.4	47	i 13 4	0	—	—	—	—
Tucson	90.7	52	e 13 7	+ 1	—	—	—	—
Fayetteville	z. 104.3	56	i 18 8	PP	—	—	—	—
Ksara	150.4	284	e 20 4?	[+16]	—	—	23 41	PP —

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Dec. 1d. 12h. 1m. 50s. Epicentre 15°·3N. 92°·6W. Depth of focus 0·010.

Felt at Acapetagua and Exuintla in the State of Chiapas. Epicentre 15°20'N. 92°36'W.
Depth 100km.

Monthly Seismo. Bulletin Tacubaya, December, 1952, p. 1.

A = -·0438, B = -·9640, C = +·2622; δ -4; h = +5;
D = -·999, E = +·045; G = -·012, H = -·262, K = -·965.

		Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Oaxaca		4·4	294	—	—	e 1 46	-10	2 12	L (2·2)
Vera Cruz		5·2	319	—	—	e 2 10	- 6	e 3 46	?
Merida		6·3	26	e 1 42	+10	3 4	+21	—	—
Puebla		6·5	305	—	—	e 2 50	+ 2	—	—
Tacubaya		7·5	304	1 57	+ 9	3 26	+14	1 3 36	SS
Fayetteville	Z.	20·8	357	i 4 31	- 4	i 8 11	- 6	—	—
Palomar	Z.	28·4	314	e 5 43	- 4	—	—	e 6 6	pP
China Lake	Z.	30·3	318	e 6 0	- 4	—	—	e 6 23	pP
Tinemaha	Z.	31·4	318	e 6 10	- 4	—	—	e 6 34	pP
Ottawa		33·2	22	e 6 46	pP	—	—	—	—

Dec. 1d. 12h. 58m. 5s. (I) } Epicentre 53°·1N. 160°·9E.
13h. 0m. 7s. (II) }
14h. 32m. 35s. (III) } (as on 1952, November 10d.).

		Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
I Resolute Bay	Z.	43·1	23	i 8 5k	+ 1	—	—	—	—
III	Z.	43·1	23	i 8 5k	+ 1	—	—	—	—
I Shasta	Z.	51·4	71	i 9 8a	- 1	—	—	e 9 17	?
II	Z.	51·4	71	i 9 9a	0	—	—	e 9 18	?
III	Z.	51·4	71	e 9 8k	- 1	—	—	—	—
I Mineral	Z.	52·1	71	e 9 13k	- 1	—	—	—	—
II	Z.	52·1	71	e 9 13a	- 1	—	—	—	—
III	Z.	52·1	71	i 9 18k	+ 4	—	—	—	—
I Reno	Z.	53·7	70	e 9 25k	- 1	—	—	e 9 50	?
II	Z.	53·7	70	e 9 26a	0	—	—	—	—
III	Z.	53·7	70	e 9 25a	- 1	—	—	—	—
I Fresno	Z.	55·6	73	e 9 39k	- 1	—	—	—	—
II	Z.	55·6	73	e 9 39a	- 1	—	—	—	—
III	Z.	55·6	73	e 9 38	- 2	—	—	—	—
I Kiruna	Z.	55·8	344	i 9 41	0	—	—	i 9 49	?
II	Z.	55·8	344	i 9 40	- 1	—	—	i 9 50	?
III	Z.	55·8	344	i 9 40	- 1	1 9 57	?	i 9 17	?
I Tinemaha	Z.	56·2	72	i 9 44	0	1 9 52	?	e 10 1	?
II	Z.	56·2	72	i 9 46	+ 2	—	—	i 9 54	?
III	Z.	56·2	72	i 9 45	+ 1	1 9 52	?	i 10 1	?
I Scoresby Sund		56·7	2	e 9 48	0	—	—	—	—
III		56·7	2	e 9 49	+ 1	—	—	—	33·9
									35·4
I China Lake	Z.	57·5	72	i 9 52	- 1	—	—	e 10 1	?
II	Z.	37·5	72	i 9 52	- 1	—	—	e 10 1	?
III	Z.	57·5	72	i 9 52	- 1	—	—	—	—
I Pasadena		58·4	74	i 9 57	- 3	—	—	i 10 6	?
II		58·4	74	i 9 58	- 2	—	—	—	—
III		58·4	74	i 9 57	- 3	1 10 4	?	i 10 14	?
I Palomar	Z.	59·7	73	i 10 7	- 2	—	—	e 10 20	?
II	Z.	59·7	73	i 10 8	- 1	—	—	e 10 24	?
III	Z.	59·7	73	i 10 7	- 2	—	—	i 10 15	?
I Upsala	Z.	63·6	341	i 10 36k	+ 1	—	—	i 10 43	?
II	Z.	63·6	341	i 10 36	+ 1	—	—	i 10 44	?
III	Z.	63·6	341	i 10 35	0	1 10 43	?	i 10 47	?
III Copenhagen		68·5	342	e 11 10	+ 4	—	—	e 11 15	?
II Quetta	Z.	68·7	292	i 10 19	-48	—	—	—	—
III	Z.	68·7	292	i 10 6	-61	—	—	—	—
I Fayetteville	Z.	70·0	56	i 11 13	- 2	—	—	—	—
II	Z.	70·0	56	i 11 15	0	—	—	1 11 37	pP
III	Z.	70·0	56	i 11 13k	- 2	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
I Witteveen	z.	72.3	344	e 11 32	+ 3	—	—	—	—
III	z.	72.3	344	e 11 32	+ 3	—	—	i 11 49	PcP
I Collmberg		72.5	340	e 11 36	+ 6	e 14 4	PP	e 11 46	PcP
II		72.5	340	e 11 31	+ 1	—	—	e 13 27	?
III	E.	72.5	340	e 11 30	0	e 11 48	PcP	e 11 57	?
I Raciborzu	z.	72.5	336	e 11 33	+ 3	—	—	e 11 48	PcP
I Jena		73.2	340	e 11 35	0	—	—	e 11 43	?
III	z.	73.2	340	e 11 33	- 2	—	—	e 11 43	?
III Prague		73.4	339	e 11 41	+ 5	e 11 49	PcP	e 12 38	?
I Poona	z.	73.7	279	i 11 38	0	—	—	i 11 45	?
II	z.	73.7	279	i 11 39	+ 1	—	—	i 11 46	?
III	z.	73.7	279	i 11 37	- 1	—	—	i 11 45	?
I Stuttgart		75.7	341	e 11 49	0	—	—	—	—
II		75.7	341	e 11 50	+ 1	—	—	—	—
III		75.7	341	e 11 48	- 1	e 11 57	PcP	e 12 7	?
III Strasbourg		76.2	342	e 12 0	PcP	—	?	e 12 34	?
III Paris		76.8	346	i 11 56	+ 1	i 12 4	PcP	i 12 13	?
III Chur		77.5	340	—	—	e 27 0	SS	—	—
III Besançon		77.8	343	e 12 0	- 1	i 12 9	PcP	i 12 19	?
III Clermont-Ferrand		79.7	345	e 12 13	+ 2	—	—	e 12 21	?
I Ksara		81.1	317	e 12 22	+ 4	—	—	—	—
III		81.1	317	i 12 28	+10	22 34	+ 6	—	—
I Tamanrasset	z.	101.5	337	e 17 43	?	—	—	i 18 0	PP
II	z.	101.5	337	e 18 2	PP	—	—	—	—
III	z.	101.5	337	e 17 42	?	—	—	e 18 2	PP

Dec. 1d. 15h. 45m. 28s. Epicentre 42°·0N. 142°·8E. Depth of focus 0·005.
(as on 1952, September 19d.).

Intensity IV at Urakawa and Tomakomai; II-III at Hatinohe, Erimo, and Ogihusi.
Epicentre 42°·1N. 142°·5E. Depth 80km. Macro seismic radius 100-200km.
Seismo. Bull. Cent. Met. Obs., Japan, for December, 1952, Tokyo, 1953, p. 500, with macro seismic chart.

A = -·5937, B = +·4507, C = +·6666; δ = -3; h = -2;
D = +·605, E = +·797; G = -·531, H = +·403, K = -·745.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Urakawa	E.	0.2	355	i 0 13	+ 2	0 22	+ 3
Obihiro		1.0	18	e 0 32?	+13	0 43?	+10
Muroran		1.4	284	i 0 19	- 5	0 28	-15
Kusiro		1.5	50	e 0 31	+ 5	0 51	+ 6
Sapporo		1.5	315	i 0 23k	- 3	0 40	- 5
Hatinohe		1.7	213	0 29 _a	+ 1	0 47	- 3
Mori	N.	1.7	273	0 26	- 2	0 43	- 7
Aomori		1.9	232	0 31	0	0 52	- 2
Suttsu		2.1	293	e 0 32	- 2	0 53	- 6
Abashiri		2.3	29	e 1 2	+25	1 25	+21
Miyako		2.4	195	0 40	+ 2	1 3	- 4
Morioka		2.6	208	e 0 42	+ 1	1 12	0
Akita		3.1	221	e 1 0	+12	—	—
Mizusawa	N.	3.1	204	e 1 0	+12	e 1 24	0
Sendai		4.0	201	e 1 29	+28	1 47	0
Hokusima		4.6	204	e 1 30	+21	2 10	+ 8
Maebasi	z.	6.3	208	e 1 42	+10	3 3	+19

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1952

1141

Dec. 1d. 19h. 23m. 16s. Epicentre 36°·8N. 69°·9E. Depth of focus 0·025.
(as on 1952, August 14d.).

A = +·2758, B = +·7538, C = +·5964; $\delta = -3$; $h = 0$;
D = +·939, E = -·344; G = +·205, H = +·560, K = -·803.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Kulyab	1·1	355	i 0 30	0	i 0 52	- 1
Khorog	1·5	64	0 31	- 2	0 55	- 4
Obi-garm	1·9	355	i 0 38	+ 1	i 1 7	+ 1
Stalinabad	2·0	333	i 0 38	0	i 1 7	- 1
Garm	2·2	8	i 0 41	0	—	—
Dzhergetal	2·6	23	0 46	+ 1	1 22	+ 2
Samarkand	3·7	323	i 0 58	0	1 43	- 1
Fergana	3·9	22	i 1 2	+ 1	e 1 48	0
Andijan	4·4	25	i 1 7	0	i 2 0	+ 1
Namangan	4·4	18	i 1 8	+ 1	2 1	+ 2
Lunacharskoe	4·5	354	i 1 11	+ 2	i 2 5	+ 3
Tashkent	4·5	354	e 1 9	0	e 2 3	+ 1
Tchimkent	5·5	358	i 1 23	+ 1	i 2 26	+ 1
Naryn	6·6	44	1 37	+ 1	—	—
Quetta	z. 7·0	201	i 1 35	- 6	i 2 50	-10
Frunse	7·1	29	e 1 43	+ 1	e 3 4	+ 2
Przhevalsk	8·7	46	e 2 3	0	—	—

Dec. 2d. 3h. 19m. 20s. Epicentre 37°·1N. 68°·8E.

(given by stations of U.S.S.R.).

A = +·2891, B = +·7454, C = +·6006; $\delta = -8$; $h = -1$;
D = +·932, E = -·362; G = +·217, H = +·560, K = -·800.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.
Kulyab	1·1	48	i 0 20	- 2	—	—	—
Stalinabad	1·5	359	0 26	- 2	i 0 47	- 2	—
Obi-garm	1·7	24	i 0 31	0	i 0 54	0	—
Garm	2·2	32	i 0 40	+ 2	i 1 6	0	—
Khorog	2·3	81	0 40	0	1 9	0	—
Dzhergetal	2·8	41	i 0 48	+ 1	i 1 27	0*	e 0 53
Samarkand	2·9	331	0 51	+ 3	1 30	0*	—
Fergana	4·0	35	—	—	2 5	+ 2*	—
Lunacharskoe	4·3	6	—	—	i 2 25	+ 3 _g	—
Namangan	4·5	29	i 1 26	- 4 _g	i 2 27	- 2 _g	—
Andijan	4·6	36	1 12	0	i 2 3	- 4	i 2 22
Bairam-Ali	5·3	288	—	—	3 1	+ 6 _g	—

Dec. 2d. 4h. 48m. 26s. Epicentre 38°·8N. 70°·4E. (as on 1952, October 7d.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.
Garm	0·2	339	i 0 6	0*	i 0 11	+ 1*	—
Obi-garm	0·6	260	i 0 13	0*	e 0 23	+ 2*	—
Dzhergetal	0·8	57	0 16	0 _g	0 27	+ 1 _g	—
Kulyab	1·0	208	e 0 20	0 _g	i 0 35	+ 1*	—
Stalinabad	1·3	259	—	—	e 0 48	+ 4	—
Khorog	1·6	145	e 0 30	0	0 52	+ 1	i 0 56
Fergana	1·9	34	e 0 38	0 _g	e 1 6	+ 3 _g	—
Andijan	2·5	37	0 47	+ 2*	i 1 21	- 2 _a	—
Tchimkent	3·5	350	—	—	e 1 42	+ 2	—

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1952

1142

Dec. 2d. 5h. 6m. 43s. Epicentre 6°·5S. 155°·0E. (as on 1952, Sept. 26d.).

A = -·9006, B = +·4200, C = -·1125; $\delta = +14$; $h = +7$;
D = +·423, E = +·906; G = +·102, H = -·048, K = -·994.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane		20·9	187	i 4 50 _a	+ 4	i 8 47	+12	i 5 9	pP
Riverview		27·4	188	i 5 49 _a	0	i 10 34	+ 6	i 6 54	PPP
Apia		33·5	106	—	—	e 4 1	?	—	e 14·1
Karapiro	N.	36·4	153	7 10	+ 2	—	—	—	—
Cobb River	E.	37·9	158	e 7 19	- 1	—	—	—	—
Kaimata	N.E.	38·7	161	e 7 34	+ 7	—	—	—	—
Wellington		38·9	157	7 29	0	—	—	—	—
Manila		39·7	302	i 7 30 _a	- 6	i 13 32	- 8	i 7 52	pP
College		82·6	20	i 12 12	-14	—	—	—	—
Mineral	Z.	89·2	49	e 12 49 _a	-10	—	—	—	—
Tinemaha	Z.	91·2	53	e 13 0	- 8	—	—	—	—
Quetta	Z.	91·5	300	i 13 19	+ 9	—	—	—	—
China Lake	Z.	91·7	53	e 13 3	- 7	—	—	e 13 25	pP
Nelson		93·9	55	e 13 12	- 9	—	—	—	—
Hungry Horse		95·5	42	e 13 20	- 8	—	—	e 16 7	?
Tamanrasset	Z.	146·4	302	e 19 32	[-10]	e 23 15	SKP	e 22 55	PP

Dec. 2d. 6h. 13m. 22s. Epicentre 43°·9N. 12°·0E.

Intensity VI at Sofia; V at Longiano, Cesena, and Bertinoro (Forli). Epicentre 43°56'E. 11°58'E.

Monthly Seismo. Bull., Rome, December, 1952, p. 3.

A = +·7071, B = +·1503, C = +·6909; $\delta = -8$; $h = -3$;
D = +·208, E = -·978; G = +·676, H = +·144, K = -·723.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		°	°	m. s.	s.	m. s.	s.	m. s.
Florence		0·6	258	i 0 9	- 3 _g	i 0 17	- 3 _g	—
Prato		0·6	269	i 0 12	0 _g	i 0 21	+ 1 _g	—
Rome		2·0	170	—	—	e 0 58	- 4	i 1 10
Triest		2·1	35	e 0 36	- 1	i 1 6	+ 2	0 39
Chur		3·4	330	e 0 53	- 2	e 1 36	- 1	—
Basle		4·8	321	e 1 1	-14	e 2 1	-11	—
Stuttgart		5·2	339	e 1 34	+ 2*	e 2 22	0	e 1 57
Besançon		5·3	310	e 1 58	+12 _g	e 2 24	- 1	e 2 40
Strasbourg		5·5	329	—	—	e 2 24	- 6	e 2 59
Prague		6·4	14	e 2 15	+ 7 _g	e 2 42	-11	e 3 36
Jena		7·0	358	e 1 44	- 2	e 3 0	- 8	e 2 25
Collmberg		7·4	5	e 1 57	+ 5	e 3 18	0	e 2 30

Dec. 2d. 7h. 11m. 24s. Epicentre 36°·2N. 69°·7E. Depth of focus 0·020.

(as on 1952, April 17d.).

A = +·2806, B = +·7586, C = +·5880; $\delta = -5$; $h = 0$;
D = +·938, E = -·347; G = +·204, H = +·551, K = -·809.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Kulyab		1·7	2	e 0 33	0	i 0 56	- 2
Khorog		2·0	50	0 36	0	1 1	- 3
Obi-garm		2·5	0	e 0 42	0	i 1 12	- 2
Stalinabad		2·5	343	i 0 42	0	i 1 12	- 2
Dzhergetal		3·2	21	e 0 51	0	1 29	- 1
Fergana		4·5	21	e 1 8	0	i 1 58	- 2
Andijan		5·0	24	e 1 15	+ 1	i 2 12	0
Namangan		5·0	17	e 1 15	+ 1	i 2 11	- 1
Tchimkent		6·1	359	e 1 30	+ 1	—	—
Naryn		7·2	41	—	—	3 2	- 2

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1952

1144

Dec. 2d. 19h. 0m. 5s. Epicentre 51°·0N. 158°·9E. (as on 1952, November 21d.).

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Resolute Bay		45·5	23	e 8 17 ^k	- 6	i 14 51	-14	—	e 34·1
Kiruna		57·5	343	i 9 50	- 3	e 19 25	ScS	e 24 55?	e 29·9
Tinemaha	z.	58·1	70	e 9 55	- 3	—	—	i 10 17	—
Chatra	z.	58·3	274	—	—	e 24 9	SSS	—	—
Scoresby Sund		58·8	2	e 9 59	- 3	—	—	—	31·9
China Lake	z.	59·4	70	e 10 7	+ 1	—	—	—	—
Pasadena	z.	60·2	72	e 10 13	+ 1	e 10 19	?	e 10 30	?
Palomar	z.	61·5	72	e 10 28	+ 7	—	—	—	—
Upsala	z.	65·1	340	i 10 43	- 2	—	—	i 10 52	?
Quetta	z.	68·3	292	10 55?	-10	—	—	—	—
Fayetteville	z.	72·2	55	i 11 28	- 1	—	—	—	—
Potsdam		73·0	340	—	—	i 20 56	- 4	—	e 40·9
Witteveen		73·9	344	e 11 41	+ 2	—	—	—	—
Collmberg		74·1	339	e 11 39	- 1	—	—	e 11 55	?
Jena		74·7	339	e 11 44	+ 1	e 11 47	?	e 11 52	?
Prague		74·9	338	e 11 45	+ 1	e 11 57	?	e 12 23	?
Morgantown		76·1	44	i 11 51	0	—	—	—	—
Stuttgart		77·3	340	e 11 58	0	—	—	e 12 6	?
Strasbourg		77·8	341	e 12 2	+ 1	—	—	—	—
Istanbul	n.	78·4	324	e 12 1	- 3	e 21 55	- 5	—	39·9
Paris		78·5	345	e 12 7	+ 3	—	—	—	—
Triest	z.	79·1	336	e 12 11	+ 3	e 12 24	?	e 13 43	?
Besançon		79·4	342	e 12 13	+ 4	—	—	i 12 20	?
Florence		81·5	337	e 12 24 ^a	+ 3	—	—	e 12 41	?
Ksara		81·8	316	e 12 31	+ 9	e 23 11	PS	—	—
Rome		83·0	336	—	—	e 26 8	?	—	e 40·6
Helwan	z.	87·2	317	e 12 55	+ 6	—	—	e 13 8	?

Dec. 3d. 14h. 8m. 31s. Epicentre 56°·5N. 163°·8E. Focus at Base of Superficial Layers. (as on 1952, August 13d.).

A = -·5325, B = +·1547, C = +·8322; δ = +5; h = -8;
D = +·279, E = +·960; G = -·799, H = +·232, K = -·555.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Resolute Bay	z.	39·3	25	e 7 24	- 3	—	—	i 7 32	pP
Shasta		48·8	76	e 8 43 ^a	- 1	e 10 16	PcP	e 8 51	pP
Reno	z.	51·1	75	e 9 1	0	—	—	e 9 9	pP
Lick	z.	51·7	78	e 9 6 ^a	0	e 10 21	PcP	i 9 14	pP
Kiruna	z.	53·0	343	i 9 19	+ 3	—	—	i 9 34	sP
Fresno	z.	53·1	77	e 9 16 ^k	0	—	—	e 9 23	pP
Scoresby Sund		53·2	3	e 9 23	+ 6	—	—	—	31·5
China Lake	z.	55·0	76	e 9 29	- 1	i 10 10	?	i 9 38	pP
Pasadena		55·9	78	i 9 35	- 2	i 10 9	?	i 9 43	pP
Palomar	z.	57·2	78	e 9 45	- 1	—	—	i 9 54	pP
Kirkland Lake	z.	63·0	43	e 10 28	+ 2	—	—	—	—
Fayetteville	z.	66·8	59	i 10 49	- 1	—	—	—	—
Ottawa		66·9	41	e 10 50	- 1	—	—	—	—
Quetta	z.	68·9	294	i 11 0	- 3	—	—	—	—
Collmberg		69·9	341	e 11 12	+ 2	e 11 35	PcP	e 11 21	pP
Jena	z.	70·5	342	e 11 17	+ 4	—	—	e 11 25	pP
Harvard		70·9	40	i 11 17 ^k	+ 1	—	—	—	—
Stuttgart		73·0	343	e 11 31	+ 3	—	—	e 11 39	pP
Tamanrasset	z.	98·9	340	e 13 41	+ 3	e 17 46	PP	—	—
Pretoria	z.	135·8	293	e 19 14	[- 3]	—	—	—	—
Kimberley	z.	140·0	295	e 19 23	[- 2]	—	—	—	—

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1952

1145

Dec. 3d. 22h. 25m. 59s. Epicentre 55°·0N. 161°·6E. Focus at Base of Superficial Layers.
(as on 1951, August 11d.).

A = -·5468, B = +·1818, C = +·8173; $\delta = +2$; $h = -7$;
D = +·316, E = +·949; G = -·776, H = +·258, K = -·576.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay	z.	41·4	24	7 45	0	—	—	—	—
Shasta	z.	50·4	74	e 8 55 _a	- 1	e 10 8	PcP	e 11 12	PP
Reno	z.	52·7	72	e 9 15 _a	+ 2	—	—	e 9 23	pP
Lick	z.	53·2	77	e 9 17 _a	0	—	—	e 9 41	?
Kiruna		54·1	343	i 9 24	0	—	—	—	e 32·0
Fresno	z.	54·7	75	e 9 37 _a	pP	—	—	—	—
Scoresby Sund		54·8	3	i 9 30	+ 1	e 17 13	+ 7	e 19 20	ScS
Tinemaha	z.	55·3	74	i 9 34	+ 2	i 9 37	?	i 9 48	sP
China Lake	z.	56·6	74	e 9 41	- 1	—	—	i 9 51	pP
Pasadena		57·5	76	i 9 47	- 1	—	—	i 9 57	pP
Palomar	z.	58·8	76	i 9 57	0	i 10 40	PcP	i 10 7	pP
Chatra		59·7	275	e 10 2	- 2	e 18 7	- 3	—	e 34·5
Upsala	z.	61·9	341	i 10 19	+ 1	—	—	—	—
Kirkland Lake	z.	64·9	41	e 11 12	PcP	—	—	—	—
Copenhagen		66·8	343	i 10 51	+ 1	—	—	—	37·0
Fayetteville	z.	68·6	58	i 11 1	- 1	i 11 26	PcP	i 11 11	pP
Ottawa		68·9	40	e 11 1	- 2	—	—	—	—
Lwow		69·7	333	i 11 9	+ 1	—	—	—	—
Potsdam		69·9	341	e 11 10	0	—	—	—	e 39·0
Cernauti		70·5	331	e 11 13	0	—	—	—	—
Kishinev		70·8	330	e 11 16	+ 1	—	—	—	—
Collmberg		70·9	341	e 11 15	- 1	e 11 35	PcP	e 11 23	pP
Raciborzu	z.	70·9	337	i 11 17	+ 1	e 12 12	?	e 10 58	?
Jena		71·5	341	e 11 20	+ 1	e 11 35	sP	e 11 31	pP
Rathfarnham Castle		71·6	353	e 11 29	pP	—	—	e 17 15	?
Prague		71·8	340	i 11 21	0	e 11 36	sP	e 12 52	?
Morgantown		72·1	46	i 11 23	0	—	—	—	—
Kew		72·8	349	e 24 1	?	—	—	—	—
Harvard		72·9	39	i 11 27 _k	- 1	—	—	—	—
Weston		73·1	39	i 11 29 _k	0	—	—	—	—
Halifax		73·6	32	e 11 33	+ 1	—	—	—	—
Stuttgart		74·0	342	e 11 34	0	e 11 56	PcP	—	—
Bombay	E.	74·1	281	—	—	e 21 2	- 2	—	—
Strasbourg		74·5	343	i 11 38	+ 1	e 11 52	PcP	—	—
Paris		75·1	347	i 11 42	+ 2	i 11 53	PcP	—	e 38·0
Belgrade	z.	75·2	333	e 11 40 _a	- 1	—	—	e 12 43	?
Basle		75·5	343	e 11 43	0	—	—	e 19 47	?
Zürich		75·5	343	i 11 43 _a	0	—	—	—	—
Chur		75·8	341	e 11 45	+ 1	—	—	—	—
Besançon		76·1	344	e 11 46	0	—	—	e 12 2	sP
Florence		78·4	339	e 12 7	PcP	—	—	—	e 46·5
Rome		79·9	338	e 12 7	0	e 21 53	-14	e 27 42	SS
Ksara		80·1	317	i 12 9	+ 1	e 23 7	PS	—	—
Taranto		80·1	334	e 12 21	PcP	—	—	—	—
Messina		82·7	334	e 12 20	- 2	e 22 36	0	—	40·5
Bermuda		84·3	39	i 12 31	+ 1	—	—	—	—
Toledo		84·7	350	e 12 31	- 1	e 24 28	PPS	e 27 58	?
Helwan	z.	85·3	319	i 12 35 _a	0	e 13 41	?	i 12 45	pP
Alicante		85·8	347	e 12 21	-16	—	—	—	30·2
Tamanrasset	z.	99·9	338	e 13 42	- 1	—	—	e 17 28	PP
Pretoria	z.	135·3	292	e 19 18	[+ 1]	—	—	—	—
Kimberley	z.	139·5	292	e 19 19	[- 5]	—	—	—	—
Grahamstown	z.	142·0	287	e 19 26	[- 3]	—	—	—	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1146

Dec. 3d. 23h. 18m. 30s. Epicentre 20°·8S. 69°·0W. (as on October 7d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
La Paz		4.4	11	i 1 13	+ 3	i 1 50	-12	—	—
Huancayo		10.6	325	e 2 33	- 3	e 3 43	?	e 3 54	e 4.9
Santa Lucia	N.	12.7	186	e 2 29	-36	—	—	—	e 6.4
Fayetteville	Z.	61.4	337	i 10 16k	- 4	—	—	i 10 42	?
Harvard		63.0	358	i 10 56k	+25	—	—	—	—
Kirkland Lake	Z.	69.3	352	e 11 8	- 3	—	—	—	—
Pasadena	Z.	71.9	319	e 11 27	0	—	—	—	—
China Lake	Z.	72.7	320	e 11 31	- 1	—	—	—	—
Tinemaha	Z.	74.0	321	e 11 39	0	—	—	—	—
Lick	Z.	76.2	319	e 11 52a	0	—	—	e 12 20	?
Reno	Z.	76.5	322	e 12 8	PcP	—	—	—	—
Grahamstown	Z.	83.3	123	e 12 41	+11	—	—	—	—
Kimberley	Z.	83.4	118	i 12 42	+12	—	—	—	—
Tamanrasset	Z.	84.6	63	i 12 41	+ 5	—	—	e 13 12	?

Dec. 4d. 3h. 51m. 40s. Epicentre 52°·0N. 178°·2E. Depth of focus 0.015.
(as on 1951, July 11d.).

A = -0.6179, B = +0.0194, C = +0.7860; $\delta = -3$; $h = -6$;
D = +0.031, E = +1.000; G = -0.786, H = +0.025, K = -0.618.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mitchell Field		3.2	90	i 0 55	+ 5	i 1 33	+ 5	—	—
Klyuchi		11.1	300	e 2 34	- 2	—	—	—	—
Magadan		17.1	307	e 3 53	+ 1	6 54	- 3	—	—
College		21.6	41	i 4 51	+10	e 7 15	?	i 5 9	pP
Ulegorsk		23.0	278	4 55	+ 1	—	—	—	—
Yuzno-Sakhlinsk		23.4	272	5 1	+ 3	—	—	—	—
Nemuro		23.5	263	e 5 1	+ 2	e 9 1	+ 1	e 5 27	pP
Abashiri		23.9	265	e 5 5	+ 2	—	—	e 5 35	pP
Kusiro		24.4	264	e 5 12	+ 4	—	—	—	—
Obihiro		25.1	265	e 5 24	+10	—	—	—	—
Sapporo		26.2	266	e 5 28	+ 4	e 10 4	+19	e 5 56	pP
Mori	N.	27.2	265	e 5 33	- 1	e 6 44	PPP	e 7 4	pPPP
Aomori		27.8	262	e 5 44	+ 5	—	—	e 6 51	PPP
Morioka		28.3	260	e 5 44	0	—	—	—	—
Mizusawa		28.6	258	e 5 49	+ 3	e 11 25	sS	e 6 30	sP
Sendai		29.3	258	e 5 57	+ 5	e 11 5	pS	12 28	SS
Hukushima		29.9	258	e 5 59	+ 1	e 10 45	+ 1	—	—
Inawasiro		30.3	258	e 6 1	0	—	—	—	—
Kumagaya		31.6	256	e 6 17	+ 4	—	—	—	—
Tokyo		31.7	255	e 7 2	PP	e 11 52	sS	e 10 49	?
Nagano	N.	32.0	259	e 6 21	+ 5	—	—	—	—
Vladivostok		32.0	272	e 6 16	0	e 11 18	+ 1	—	—
Matusiro		32.1	259	6 18	+ 1	11 19	0	7 23	PP
Matumoto		32.4	259	6 23	+ 3	—	—	e 7 31	PP
Nagoya		33.7	256	e 6 37	+ 6	—	—	—	—
Kyoto		34.6	258	e 6 40	+ 2	—	—	—	—
Siomisaki		35.6	255	e 6 50	+ 3	—	—	—	—
Takamatu		36.1	258	e 6 55	+ 4	e 12 24	+ 4	e 8 13	PP
Hamada		36.6	261	e 6 58	+ 3	—	—	—	—
Victoria		36.6	72	i 6 57k	+ 2	—	—	—	—
Seattle	Z.	37.7	73	e 8 6	+61	—	—	—	—
Resolute Bay		40.0	25	e 7 23k	- 1	i 13 16	- 3	i 7 35	pP
Arcata	N.	40.3	81	e 7 30	+ 4	—	—	e 9 0	PP
Shasta		41.4	81	i 7 36a	+ 1	e 17 22	SSS	e 9 16	PP
Hungry Horse		42.1	66	i 7 41	0	i 13 8	ScP	—	—
Mineral	Z.	42.1	80	e 7 40a	- 1	e 13 6	ScP	e 9 19	PP
Kabansk		42.4	301	i 7 43	0	—	—	—	—
Berkeley		43.2	85	e 7 50a	0	e 14 12	+ 6	e 17 31	SS
Kyakhta		43.3	298	e 7 48	- 3	—	—	—	—
Irkutsk		43.5	302	7 52	0	—	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Reno	43.7	80	e 7	54 _a	0	e 13	18	ScP	e 17	37	SS	—
Santa Clara	43.8	85	e 7	57 _k	+ 2	i 14	39	pS	—	—	—	—
Lick	44.0	85	e 7	56 _a	0	e 13	16	ScP	i 8	24	pP	—
Butte	44.2	68	i 7	57	- 1	—	—	—	i 9	44	PP	—
Fresno	45.5	84	e 8	7 _a	- 1	e 10	10	PP	e 10	39	PPP	—
Tinemaha	46.2	83	i 8	14	0	i 13	26	ScP	i 8	49	sP	—
Zô-Sè	46.2	266	i 8	15 _k	+ 1	14	52	+ 3	i 8	46	pP	—
Nanking	47.0	270	e 8	20	0	i 14	59	- 2	i 8	51	pP	—
China Lake	47.4	83	i 8	23 _a	0	e 13	31	ScP	i 9	0	sP	—
Pasadena	48.2	85	i 8	29 _a	0	i 15	20	+ 2	i 9	4	sP	—
Boulder City	49.0	81	i 8	35	- 1	i 13	38	ScP	i 10	32	PP	—
Nelson	49.2	81	i 8	36	- 1	i 9	49	PcP	i 9	11	pP	—
Palomar	49.5	85	i 8	40 _a	+ 1	i 13	42	ScP	i 9	2	pP	—
Tucson	54.0	82	i 9	12	- 1	e 16	37	0	e 12	34	PPP	—
Semipalatinsk	56.7	311	e 9	30	- 2	e 17	7	- 6	e 10	2	pP	—
Hong Kong	56.8	264	10	8	pP	17	16	+ 2	—	—	—	—
Scoresby Sund	57.0	8	i 9	33	- 1	i 17	14	- 3	e 10	13	sP	—
Lubbock	58.5	74	9	45	0	—	—	—	—	—	—	—
Manila	58.6	252	i 9	39	- 7	i 17	27	- 11	—	—	—	—
Kiruna	59.3	350	e 10	27	PcP	e 17	46	- 1	i 18	40	sS	e 26.3
Kirkland Lake	60.0	49	e 9	54 _k	- 1	—	—	—	i 10	33	sP	—
Sverdlovsk	60.0	327	i 9	53	- 2	i 17	59	+ 3	i 10	30	pP	—
Fayetteville	61.2	67	i 10	1 _a	- 2	i 14	30	ScP	i 10	31	pP	—
Ivigut	61.2	24	—	—	—	18	8	- 3	18	56	sS	30.3
Almata	62.3	307	e 10	20	+ 9	—	—	—	—	—	—	—
Reykjavik	63.1	10	i 10	14	- 2	e 16	38	?	i 10	56	sP	—
Przhevalsk	63.2	305	10	16	- 1	—	—	—	—	—	—	—
Ottawa	64.1	49	i 10	19 _k	- 4	18	44	- 3	11	0	PcP	—
Cleveland	64.2	55	i 10	23 _a	0	i 18	46	- 3	e 19	43	PPS	—
Cincinnati	64.3	58	i 10	23	- 1	—	—	—	e 10	41	pP	—
Rybach'e	64.4	307	10	27?	+ 2	e 18	50?	- 1	—	—	—	—
Shawinigan Falls N.	64.5	46	e 10	22	- 3	18	48	- 4	12	34	PP	—
Frunse	64.8	308	i 10	29	+ 2	18	58	+ 2	i 11	0	pP	—
Naryn	65.2	306	i 10	31	+ 1	—	—	—	—	—	—	—
Pulkovo	65.6	343	e 10	29	- 3	e 19	3	- 3	—	—	—	—
Morgantown	66.3	56	i 10	36	- 1	—	—	—	—	—	—	—
Pennsylvania	66.5	54	i 10	42	+ 4	e 19	16	- 1	i 11	22	sP	—
Upsala	67.4	351	i 10	41	- 3	e 19	23?	- 4	i 11	22	sP	e 30.3
Andijan	67.5	307	i 10	45	+ 1	i 19	30	+ 1	i 11	17	pP	—
Namangan	67.6	308	e 10	45	0	i 19	32	+ 2	—	—	—	—
Tchimkent	67.6	310	i 10	45	0	i 19	35	+ 5	—	—	—	—
Moscow	67.8	337	e 10	44	- 2	19	29	- 3	—	—	—	—
Fergana	68.0	307	e 10	48	+ 1	e 19	38	+ 3	—	—	—	—
Shillong	68.1	284	e 11	22	pP	e 19	33	- 3	—	—	—	—
Harvard	68.3	48	i 10	46 _a	- 3	—	—	—	—	—	—	e 33.7
Palisades	68.3	51	i 10	47	- 2	i 19	33	- 5	e 11	29	PcP	e 30.1
Washington	68.3	53	i 10	49	0	—	—	—	—	—	—	—
Fordham	68.4	51	i 10	59	+ 9	e 20	29	ScS	—	—	—	—
City College, N.Y.	68.4	51	i 10	49	- 1	e 20	34	ScS	—	—	—	—
Weston	68.4	48	i 10	47 _a	- 3	e 19	34	- 5	i 13	19	PP	e 32.4
Lunacharskoe	68.5	310	i 10	50	0	e 19	42	+ 1	—	—	—	—
Tashkent	68.5	310	e 10	49	- 1	i 19	38	- 3	—	—	—	—
Chatra	69.9	287	i 10	59	0	e 19	58	+ 1	11	36	PcP	31.8
Columbia	70.0	61	e 10	59	- 1	e 19	56	- 2	—	—	—	—
Halifax	70.0	42	i 10	58 _k	- 2	—	—	—	13	37	PP	—
Khorog	70.4	306	e 11	6	+ 4	e 20	5	+ 2	—	—	—	—
Obi-garm	70.4	308	e 11	3	+ 1	e 20	4	+ 1	—	—	—	—
Tacubaya	70.5	83	e 10	52	- 11	—	—	—	—	—	—	—
Samarkand	70.9	311	11	2	- 3	—	—	—	—	—	—	—
Stalinabad	70.9	309	e 11	4	- 1	e 20	9	0	—	—	—	—
Kulyab	71.0	307	—	—	—	20	14	+ 4	—	—	—	—
Aberdeen	71.2	1	i 20	4	?	i 20	12	0	i 25	36	SS	—
Copenhagen	72.0	352	i 11	10	- 2	20	20	- 1	i 11	52	sP	29.3
New Delhi	74.3	296	e 11	26	+ 1	20	42	- 5	25	19	SS	—
Bairam-Ali	74.8	313	i 11	28	0	i 20	52	0	—	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Rathfarnham Castle	75.0	3	i 11 38	+ 9	e 20 51	- 4	i 12 19	e 35.8
Potsdam	75.2	331	e 12 10	sP	e 21 56	PS	—	e 37.3
Witteveen	75.3	355	i 12 13 ^k	sP	—	—	—	—
De Bilt	76.1	356	e 12 20 [?]	sP	e 21 2	- 5	i 22 5	e 33.3
Kizyl-Arvat	76.2	317	11 38	+ 2	—	—	—	—
Lwow	76.2	343	i 11 35	- 1	e 21 3	- 5	—	—
Makhach-Kala	76.2	325	—	—	i 21 8	0	—	—
Collmburg	76.3	351	e 11 33	- 3	e 21 23	+14	e 12 16	e 33.3
Grozny	76.5	326	i 11 23 [?]	-14	i 20 56 [?]	-15	—	—
Jena	76.8	351	e 11 38	- 1	e 21 14	0	i 12 20	sP
Piatigorsk	76.8	329	11 37	- 2	i 21 14	0	—	—
Kew	76.9	359	i 12 20	sP	e 21 14	- 1	e 22 17	PS
Raciborzu	76.9	347	11 40	0	e 21 49 [?]	sS	e 12 1	pP
Prague	77.4	350	e 11 42	0	e 21 26	+ 5	e 12 22	pP
Baku	77.6	322	—	—	e 21 31	+ 8	—	e 36.3
Uzhgorod	77.7	344	e 11 44	0	e 21 21	- 3	—	—
Kishinev	77.9	340	i 11 44	- 1	i 21 23	- 3	i 12 20	pP
Iasi	78.0	340	e 11 46	0	e 21 28	+ 1	—	—
Sotchi	78.1	330	e 11 47	+ 1	—	—	e 12 23	pP
Theodosia	78.2	334	e 11 46	- 1	—	—	e 12 22	pP
Gori	78.3	327	11 49	+ 2	—	—	—	—
Tiflis	78.3	326	11 49	+ 2	21 32	+ 2	12 25	pP
Quetta	78.5	305	i 11 49	+ 1	i 21 37	+ 4	i 12 26	pP
Zugdidi	78.5	328	i 11 50	+ 2	i 21 35	+ 2	12 29	pP
Kirovobad	78.6	325	11 50	+ 1	e 21 34	0	—	—
Borzhomei	78.7	327	i 11 49	- 1	i 21 33	- 2	13 6	?
Tsikhlis-Dzhvari	78.7	327	e 11 51	+ 1	—	—	—	—
Karlsruhe	79.0	353	e 11 51	0	e 14 59	PP	i 12 31	pP
Yalta	79.0	335	e 11 50	- 1	e 21 35	- 3	i 12 27	pP
Stuttgart	79.2	353	e 11 51	- 1	e 21 40	0	e 12 31	pP
Lenkoran	79.4	322	—	—	e 21 35	- 7	—	—
Strasbourg	79.5	353	e 11 52	- 2	e 21 39	- 4	i 12 35	sP
Bermuda	79.6	51	i 11 53 ^a	- 1	e 26 56	SS	e 14 51	PP
Paris	79.6	357	i 11 54	0	i 22 26	SP	i 12 34	pP
Goris	79.7	324	i 11 57	+ 2	i 21 47	+ 2	12 37	pP
Erevan	79.8	326	i 11 54	- 1	21 47	+ 1	12 36	pP
Basle	80.5	354	e 12 0	+ 1	—	—	e 12 40	pP
Timisoara	80.6	344	e 12 8 [?]	+ 8	e 22 26 [?]	+31	—	—
Zürich	80.6	354	e 11 58	- 2	e 21 40	-15	e 12 34	pP
Besançon	80.9	355	e 12 1	0	e 13 13	?	i 12 43	sP
Bucharest	E. 81.0	340	e 12 49	sP	e 23 0	PS	—	—
Chur	81.0	353	e 12 2	0	—	—	e 12 43	sP
Belgrade	81.7	344	i 12 6 ^a	0	e 22 21	+15	e 12 45	pP
Brisbane	82.2	202	i 12 11 ^a	+ 3	i 22 30	ScS	i 12 46	pP
Salo	82.2	351	e 12 47	pP	—	—	e 13 13	pP
Hyderabad	E. 82.3	288	—	—	e 22 9	- 3	—	—
Oropa	82.4	353	i 12 59	+50	—	—	—	—
Clermont-Ferrand	82.5	357	e 12 10	0	i 22 20	+ 6	i 12 52	sP
Istanbul	83.5	337	—	—	e 22 23	- 1	—	38.7
Bandung	83.7	250	e 13 55	?	e 24 3	PPS	i 17 12	PPP
Florence	83.9	350	e 12 15	- 2	e 22 33	+ 5	e 12 57	sP
Poona	z. 84.1	292	i 12 18	0	e 22 24	- 6	i 12 53	pP
Bombay	84.4	293	e 12 21	+ 2	e 22 18	-15	e 13 16	sP
Rome	85.3	350	e 12 22	- 2	i 22 45	+ 3	e 13 4	sP
Taranto	86.4	346	—	—	22 47	- 5	—	—
Ksara	88.4	329	e 12 44	+ 5	24 16	PS	13 42	sP
Auckland	N. 88.5	183	e 24 0	SP	23 0	[+ 6]	e 24 20	PS
Toledo	88.5	2	e 12 40	+ 1	—	—	e 13 20	pP
Riverview	88.7	202	i 24 21	PS	i 22 57	[+ 2]	i 23 22	S
Messina	88.9	346	e 12 35	- 6	i 23 10	- 6	e 13 14	pP
Karapiro	N. 89.6	183	e 12 47	+ 3	e 23 26	+ 4	—	—
Alicante	90.0	359	12 28	-18	e 23 29	+ 3	—	42.8
San Juan	90.4	59	i 12 49	+ 1	—	—	i 13 28	pP
Malaga	91.6	2	i 13 30	pP	—	—	—	58.1
Cobb River	E. 92.7	184	—	—	e 21 26	?	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
	°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Wellington	93.0	183	e 13 52	sP	i 23 17	[- 3]	e 23 45	S	—
Helwan	93.5	331	13 2	0	24 0	+ 4	25 39	PS	—
Melbourne	E. 94.1	205	—	—	i 24 17	+16	—	—	—
Christchurch	95.3	185	—	—	e 24 20	+ 8	e 31 50	sPSS	—
Chinchina	96.0	74	e 13 14	0	e 23 33	[- 4]	e 17 8	PP	41.3
Bogota	97.2	73	i 16 49	PP	i 23 36	[- 7]	e 24 45	S	42.3
Tamanrasset	z. 105.3	353	e 13 55	0	e 21 10	SKP	i 14 35	sP	—
Huancayo	109.5	85	e 18 34	PKP	e 24 39	[- 1]	e 28 10	SKSP	—
La Paz	117.6	81	e 18 42	[+11]	i 25 1	[-10]	36 10	PSS	55.3
Pretoria	z. 145.4	306	i 19 25	[+ 2]	—	—	i 20 2	pPKP	—
Pietermaritzburg	z. 147.3	301	i 19 30	[+ 4]	—	—	—	—	—
Kimberley	z. 149.5	309	i 19 32	[+ 3]	i 20 16	sPKP	i 19 35	PKP ₁	—
Grahamstown	z. 152.3	300	e 19 39	[+ 5]	—	—	i 19 45	PKP ₂	—

Dec. 4d. 4h. 52m. 39s. Epicentre 37°·1N. 71°·2E. (as on 1952, June 20d.).

A = +·2577, B = +·7569, C = +·6006; δ = +3; h = -1;
D = +·947, E = -·322; G = +·194, H = +·569, K = -·800.

	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s.	s.	m. s.	s.
Khorog	0.5	41	i 0 3	- 7 _g	i 0 8	- 8 _g
Kulyab	1.4	305	i 0 28	0 _g	i 0 52	+ 6 _g
Garm	2.0	340	e 0 37	0*	e 1 9	+ 3 _g
Obi-garm	2.0	324	i 0 38	+ 1*	i 1 10	+ 4 _g
Dzhergetal	2.1	0	0 37	0	1 12	+ 3 _g
Stalinabad	2.4	307	e 0 42	+ 1	i 1 17	+ 2*
Fergana	3.3	7	e 0 54	+ 1	1 42	0*
Andijan	3.8	13	e 1 4	+ 3	2 11	+ 5 _g
Namangan	3.9	5	—	—	i 2 12	+ 3 _g
Samarkand	4.2	309	1 11	+ 4	—	—
Lunacharskoe	4.5	341	e 1 22	+ 2*	—	—
Naryn	5.7	39	1 40	0*	—	—
Przhevalsk	7.7	44	e 1 50	- 6	—	—

Dec. 4d. 10h. 49m. 32s. Epicentre 49°·3N. 156°·8E. (as on Nov. 9d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
College	32.6	40	i 6 35	0	—	—	—	e 16.1
Hong Kong	43.0	247	—	—	e 18 28?	SSS	—	—
Resolute Bay	z. 47.6	20	e 9 7	+28	—	—	—	—
Shasta	z. 55.2	66	i 9 39 _a	+ 2	—	—	e 9 46	?
Hungry Horse	55.3	54	e 9 34	- 4	—	—	—	—
Mineral	z. 55.9	66	e 9 42 _k	0	—	—	—	—
Berkeley	z. 57.1	68	e 9 52 _a	+ 2	—	—	e 10 2	?
Butte	57.5	55	e 9 54	+ 1	—	—	—	—
Reno	z. 57.5	65	e 9 55	+ 2	—	—	—	—
Lick	z. 57.8	68	i 9 57 _k	+ 2	—	—	i 10 7	?
Kiruna	z. 58.7	342	i 9 57	- 5	—	—	i 10 1	P
Fresno	z. 59.3	67	e 10 7 _a	+ 1	—	—	—	—
Tinemaha	z. 60.0	66	i 10 12	+ 1	i 10 19	?	i 10 23	?
Scoresby Sund	60.5	359	e 10 15	+ 1	e 18 58	PPS	—	31.5
China Lake	z. 61.2	66	e 10 20	+ 1	—	—	i 10 31	?
Pasadena	62.0	68	i 10 24	0	e 11 11	PcP	i 10 29	?
Boulder City	62.8	65	i 10 30	0	—	—	i 10 41	?
Nelson	63.0	65	i 10 31	0	—	—	i 10 42	?
Palomar	z. 63.3	68	e 10 35	+ 2	—	—	i 10 42	?
Upsala	z. 66.3	339	i 10 51	- 1	—	—	—	—
Quetta	z. 67.6	291	e 11 0	- 1	—	—	—	—
Tucson	67.8	66	e 11 3	+ 1	—	—	—	—
Kirkland Lake	z. 71.2	36	e 11 22	- 1	—	—	—	—
Bombay	E. 72.0	278	e 11 29	+ 1	e 21 3	+14	—	e 40.0
Fayetteville	z. 74.3	53	i 11 37	- 4	—	—	i 11 51	pP

Continued on next page.

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1952

1150

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Ottawa	75.2	35	e 11 44 _a	- 2	—	—	—	—
Jena	z. 75.8	337	e 11 50	0	—	—	—	—
Prague	75.9	336	—	—	e 26 22	SS	e 26 25	SS
Cleveland	z. 76.1	41	i 11 52 _a	+ 1	—	—	—	—
Brisbane	z. 76.5	183	i 11 58	+ 4	—	—	—	—
Stuttgart	78.4	338	e 12 5	+ 1	—	—	—	—
Strasbourg	78.9	339	e 12 9	+ 2	—	—	—	—
Harvard	79.2	34	i 12 8 _a	0	—	—	—	—
Weston	79.4	34	i 12 10 _a	+ 1	—	—	—	—
Paris	79.8	343	i 12 10	- 2	i 12 40	?	i 12 14	P e 40.5
Halifax	80.0	28	i 12 12 _a	- 1	—	—	—	—
Besançon	80.6	340	e 12 18	+ 2	—	—	—	—
Ksara	82.0	314	i 12 31	PcP	—	—	15 32	PP
Tamanrasset	z. 103.8	332	e 14 11	+ 6	—	—	—	—
La Paz	131.1	63	e 19 20	[+ 6]	21 48	PP	39 28	P'P'

Dec. 4d. 15h. 0m. 57s. Epicentre 27°·3N. 53°·2E. (as on 1951, Oct. 28d.).

A = +·5330, B = +·7125, C = +·4562; $\delta = -14$; $h = +3$;
D = +·801, E = -·599; G = +·272, H = +·365, K = -·890.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Quetta	z. 12.5	73	e 2 56	- 6	—	—	—	—
Ksara	16.3	298	i 3 53	+ 1	i 7 19	SSS	—	—
Helwan	z. 19.4	284	i 4 32 _k	+ 2	8 19	SS	—	—
Istanbul	z. 24.2	312	e 5 20	+ 1	—	—	—	—
Collmberg	E. 38.6	320	7 24	- 2	—	—	7 35	?
Jena	z. 39.3	320	e 7 31	- 1	—	—	e 8 7	?
Stuttgart	40.0	315	e 7 36	- 2	—	—	—	—
Zürich	z. 40.1	313	e 7 38 _a	- 1	—	—	—	—
Upsala	z. 40.6	333	i 7 41	- 2	i 9 27	PP	i 8 13	?
Copenhagen	40.7	326	i 7 44	0	—	—	—	—
Basle	z. 40.8	313	e 7 47	+ 2	—	—	—	—
Tamanrasset	z. 43.2	276	i 8 8 _k	+ 4	—	—	e 9 47	PP
Kiruna	z. 45.1	344	i 8 17	- 3	—	—	i 8 27	?
Pretoria	z. 58.0	207	i 9 59	+ 2	—	—	—	—
Kimberley	z. 62.0	208	i 9 32	- 52	—	—	—	—
Grahamstown	z. 65.4	204	i 9 48	- 59	—	—	—	—

Dec. 5d. 0h. 54m. 3s. Epicentre 19°·6N. 69°·4W. (as on 1951, Aug. 20d.).

A = +·3317, B = -·8825, C = +·3334; $\delta = -1$; $h = +5$;
D = -·936, E = -·352; G = +·117, H = -·312, K = -·943.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Port-au-Prince	3.0	249	e 0 45	- 5	i 1 20	- 7	i 0 57	P _g 1.7
San Juan	3.3	111	i 1 4	- 2 _g	i 1 49	0 _g	—	—
Bermuda	13.4	17	i 3 16	+ 2	i 5 33	- 12	—	e 6.0
Bogota	15.6	198	e 3 49	+ 6	e 6 47	+ 10	—	—
Palisades	21.7	351	e 4 54	- 1	e 8 44	- 7	—	—
Morgantown	21.9	338	i 4 57	0	e 9 5	+ 11	—	—
Weston	22.8	357	e 5 17 _k	+ 12	e 9 9	- 2	—	—
Harvard	22.9	357	i 5 16 _k	+ 10	e 9 14	+ 1	—	—
Halifax	25.4	10	i 5 29 _k	- 2	—	—	—	—
Ottawa	26.3	350	e 5 41	+ 2	10 4	- 7	—	—
Fayetteville	z. 27.3	312	i 5 47	- 1	—	—	—	—
Huancayo	32.0	192	e 6 32	+ 2	—	—	—	—
Tucson	39.1	298	e 7 30	- 1	—	—	—	—
Palomar	z. 44.3	299	e 8 14	+ 1	—	—	—	—
Riverside	z. 44.8	300	i 8 16	- 1	—	—	—	—
China Lake	z. 45.2	302	e 8 20	0	—	—	—	—
Pasadena	z. 45.4	300	e 8 21	- 1	—	—	—	—
Tinemaha	z. 45.9	304	i 8 26	0	—	—	—	—
Tamanrasset	z. 69.2	72	e 11 18	+ 8	—	—	—	—

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1952

1151

Dec. 5d. 6h. 59m. 49s. Epicentre 11°·5N. 86°·3W. Focus at Base of Superficial Layers.
(as on 1952, March 3d.).

A = +·0633, B = -·9782, C = +·1981; $\delta = +13$; $h = +6$;
D = -·998, E = -·065; G = +·013, H = -·198, K = -·980.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.
				m.	s.		m.	s.		m.	s.	
Chinchina		12·4	121	e 3	7	+10	e 5	50	SSS	—	—	7·0
Bogota		13·9	119	e 3	51	+34	1 6	27	+36	—	—	7·2
Tacubaya		14·7	304	e 3	36	+ 9	—	—	—	—	—	e 8·0
Fayetteville	z.	25·5	346	i 5	21	- 6	—	—	—	—	—	—
Huancayo		25·8	155	e 5	30	0	e 10	5	+11	—	—	e 11·9
La Paz		33·1	147	e 7	23	PP	12	27	+36	—	—	17·2
Harvard		33·4	20	e 6	40	+ 2	—	—	—	—	—	—
Weston		33·4	20	i 6	41k	+ 3	—	—	—	—	—	—
Ottawa		35·0	13	e 6	52	+ 1	—	—	—	—	—	—
Nelson		35·3	319	e 6	52	- 2	—	—	—	—	—	—
Palomar	z.	35·4	314	e 6	54	- 1	—	—	—	—	—	—
Riverside	z.	36·1	315	e 7	3	+ 2	—	—	—	—	—	—
Pasadena	z.	36·8	315	e 7	5	- 1	—	—	—	e 7	32	?
Shawinigan Falls	N.	36·8	16	e 6	56	-10	—	—	—	—	—	—
Kirkland Lake	z.	36·9	7	e 7	9	+ 2	—	—	—	—	—	—
China Lake	z.	37·2	317	e 7	10	0	—	—	—	e 7	24	pP
Tinemaha	z.	38·4	318	e 7	17	- 3	—	—	—	e 7	31	pP

Dec. 5d. 17h. 48m. 35s. Epicentre 37°·1N. 71°·2E. (as on 4d.).

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.
				m.	s.		m.	s.		m.	s.	
Khorog		0·5	41	i 0	8	- 2 _g	i 0	13	- 3 _g	—	—	—
Kulyab		1·4	305	i 0	31	+ 3 _g	i 0	55	+ 9 _g	—	—	—
Garm		2·0	340	i 0	41	+ 1 _g	i 1	13	+ 7 _g	—	—	—
Obi-garm		2·0	324	i 0	41	+ 1 _g	i 1	11	+ 5 _g	—	—	—
Dzhergetal		2·1	0	e 0	41	- 1 _g	1	16	+ 7 _g	—	—	—
Stalinabad		2·4	307	i 0	47	- 1 _g	i 1	23	+ 4 _g	—	—	—
Fergana		3·3	7	e 0	59	0*	e 1	39	- 3*	—	—	—
Andijan		3·8	13	i 1	2	+ 1	i 1	56	- 1*	i 1	14	P _g
Namangan		3·9	5	i 1	5	+ 3	e 2	14	+ 5 _g	—	—	—
Samarkand		4·2	309	1	10	+ 3	—	—	—	—	—	—
Lunacharskoe		4·5	341	i 1	14	+ 3	2	17	- 1*	1	26	P*
Tchimkent		5·3	347	i 1	28	- 5*	i 2	32	+ 7	2	48	S*
Frunse		6·3	22	i 1	38	+ 2	i 2	54	+ 4	—	—	—
Rybach'e		6·5	34	i 1	41	+ 2	—	—	—	—	—	—
Bairam-Ali		7·3	277	i 1	49	- 1	i 3	13	- 2	—	—	—
Almata		7·5	34	i 1	53	0	—	—	—	—	—	—
Przhevalsk		7·7	44	1	54	- 2	—	—	—	—	—	—
New Delhi		9·9	148	e 2	25	0	4	22	+ 2	5	11	S*
Ashkabad		10·2	279	2	31	0	4	26	- 1	—	—	—
Kizyl-Arvat		11·9	284	e 2	52	- 2	—	—	—	—	—	—
Semipalatinsk		14·8	23	e 3	25	- 7	—	—	—	—	—	—
Chatra		17·0	123	e 3	53	- 8	e 6	50	-20	e 12	50	?
Bombay	E.	18·2	176	—	—	—	e 7	56	SS	—	—	e 9·4
Poona	z.	18·6	172	i 4	20	- 1	i 7	32	-14	i 4	38	PP
Kirovobad		19·6	288	e 4	33	+ 1	—	—	—	—	—	—
Grozny		20·3	296	e 4	42	+ 2	e 8	35	+12	—	—	—
Tiflis		20·9	292	4	50	+ 4	—	—	—	—	—	—
Tsikhlis-Dzhvari		21·9	292	5	3	+ 6	—	—	—	—	—	—
Upsala	z.	40·7	322	i 7	48	+ 4	—	—	—	—	—	—
Tamanrasset	z.	57·6	276	e 9	54	0	—	—	—	—	—	—

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1952

1152

Dec. 6d. 0h. 15m. 12s. Epicentre 40°·0N. 20°·0E. (as on 1951, Aug. 22d.).

A = +·7219, B = +·2627, C = +·6402; $\delta = +1$; $h = -2$;
D = +·342, E = -·940; G = +·602, H = +·219, K = -·768.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Taranto	2·2	283	0 38	0	i 1 2	- 4	e 0 56	?
Messina	4·0	244	i 1 8k	- 3*	i 1 52	0	i 1 22	P _g ?
Rocca di Papa	5·8	289	i 1 39	- 3*	e 1 58	P _g	e 0 58	P _g ?
Rome	6·0	290	e 1 44	- 1*	—	—	i 1 55	P _g ?
Triest	7·3	323	e 2 12	+ 4*	i 3 20	+ 5	e 1 13	P _g ?
Florence	7·5	302	e 1 44	- 9	i 3 4	-16	—	—
Prague	10·8	341	—	—	e 4 16	-26	e 5 34	S*
Stuttgart	11·7	322	e 3 0?	+ 9	—	—	—	—
Collmberg	E. 12·3	339	e 4 27	?	e 4 51	-27	—	—
Tamanrasset	z. 21·1	220	i 4 53k	+ 5	—	—	—	—

Dec. 6d. 3h. 34m. 9s. Epicentre 47°·8N. 154°·8E. (as on Nov. 7d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kurilsk	5·4	245	1 39	+ 4*	2 55	- 3 _g	—	—
Yuzno-Sakhlinsk	8·3	269	2 15	+11	e 4 0	-10*	—	—
Ulegorsk	8·6	285	2 15	+ 6	4 0	+12	—	—
Klyuchi	9·3	21	e 2 18	+ 1	e 4 3	- 2	—	—
Magadan	12·2	350	2 55	- 3	—	—	—	—
Vladivostok	16·7	262	4 3	+ 6	—	—	—	—
Irkutsk	32·2	298	e 6 31	- 1	—	—	—	—
Hong Kong	41·2	247	—	—	e 13 51?	-11	—	—
Resolute Bay	49·5	19	e 8 52	- 2	i 15 55	- 7	i 9 14	?
Frunse	54·2	296	e 9 29	0	—	—	—	—
Andijan	56·8	295	i 9 48	0	—	—	—	—
Namangan	57·1	296	9 51	+ 1	—	—	—	—
Fergana	57·4	295	e 9 53	0	—	—	—	—
Tchimkent	57·5	299	e 9 56	+ 3	—	—	—	—
Kiruna	59·7	341	i 11 48 _a	?	—	—	i 11 55	PP e 31·8
Obi-garm	59·7	296	e 10 10	+ 1	—	—	—	—
Stalinabad	60·3	295	e 10 14	+ 1	—	—	—	—
Tinemaha	z. 61·8	65	i 10 47	+24	—	—	i 11 34	?
Scoresby Sund	62·0	359	i 10 23	- 1	—	—	—	—
China Lake	z. 63·1	65	i 10 31	- 1	e 11 30	?	e 12 9	?
Pasadena	z. 63·8	67	i 10 36	0	—	—	i 12 14	?
Riverside	z. 64·5	67	e 10 40	- 1	—	—	—	—
Upsala	z. 67·2	338	i 12 41	?	—	—	—	—
Grozny	70·2	312	11 15	- 2	—	—	—	—
Poona	70·5	276	i 11 21	+ 3	e 20 37	+ 5	e 13 33	PP
Bombay	E. 70·9	277	e 11 26	+ 6	e 20 40	+ 4	e 11 38	PcP
Kirovobad	71·5	311	e 11 25	+ 1	—	—	—	—
Tiflis	71·5	312	11 26	+ 2	—	—	—	—
Borzhom	72·1	313	11 29	+ 1	—	—	—	—
Copenhagen	72·2	339	e 11 29	0	—	—	—	—
Goris	72·4	309	e 11 31	+ 1	—	—	—	—
Sotchi	72·6	316	e 11 29	- 2	—	—	—	—
Yalta	74·4	320	e 11 35	- 7	—	—	—	—
Kishinev	74·5	326	e 11 41	- 1	—	—	—	—
Brisbane	74·9	181	(e 12 51)	+67	—	—	15 51	PPP e 12·8
Potsdam	75·0	337	e 11 46	+ 1	—	—	—	—
Raciborzu	z. 75·6	333	e 11 45	- 3	e 12 8	?	e 12 35	?
Collmberg	76·0	336	e 11 49	- 2	e 13 29	?	e 19 22	?
Witteveen	z. 76·2	341	i 11 54 _k	+ 2	—	—	—	—
Jena	76·7	337	e 11 54	- 1	e 12 25	?	e 13 15	?
Prague	76·7	335	e 11 56	+ 1	e 12 52	?	e 19 58	?
Ottawa	77·2	34	e 11 56	- 1	—	—	—	—
Stuttgart	79·3	337	e 12 9	0	—	—	e 12 29	PcP e 40·8
Strasbourg	79·8	338	i 12 10	- 2	—	—	—	—
Morgantown	80·3	40	i 12 15	+ 1	—	—	—	—

Continued on next page.

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1952

1153

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Basle	80.8	338	e 12	16 _a	- 1	e 21	30	-55	—	—	—
Paris	80.8	341	i 12	19	+ 2	e 22	18	- 7	e 12	28	e 41.8
Zürich	80.8	338	e 12	16	- 1	—	—	—	—	—	—
Chur	81.0	337	e 12	19 _a	+ 1	—	—	—	—	—	—
Besançon	81.5	339	i 12	21	0	—	—	—	e 12	43	PcP
Halifax	82.0	26	e 12	24	+ 1	—	—	—	—	—	—
Ksara	82.3	312	i 12	25	0	—	—	—	—	—	—
Messina	E. 87.0	329	—	—	—	e 33	19	SSS	—	—	—
Helwan	87.5	313	12	51	0	e 23	36	+ 5	i 13	13	?
Tamanrasset	Z. 104.5	331	e 19	46	?	e 25	35	{+ 9}	e 21	34	?

Dec. 6d. 10h. 41m. 18s. Epicentre 8°·2S. 156°·4E.

A = -·9071, B = +·3963, C = -·1417; δ = -4; h = +6;
D = +·400, E = +·916; G = +·130, H = -·057, K = -·990.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Brisbane	19.4	191	i 4	29 _k	- 1	i 8	1	- 3	i 4	44	PP
Guam	24.5	331	5	25	+ 3	—	—	—	—	—	—
Riverview	26.0	191	i 5	35 _k	- 1	i 10	19	+13	i 6	18	PP
Melbourne	E. 31.3	199	e 6	32	+ 8	i 6	44	?	i 7	5	?
Apia	31.7	103	e 6	30	+ 3	i 11	29	- 8	6	43	pP
Auckland	N. 33.1	152	e 6	42	+ 2	e 12	2	+ 3	17	40	PP
Karapiro	N. 34.3	154	e 6	48	- 2	e 12	19	+ 2	e 8	27	PPP
New Plymouth	E. 34.6	155	e 6	57	+ 4	—	—	—	8	9	PP
Tuai	N. 35.7	153	e 7	7	+ 5	—	—	—	—	—	e 15.6
Cobb River	E. 35.8	159	e 7	1	- 2	e 13	0	+19	—	—	—
Kaimata	N.E. 36.7	162	e 7	8	- 2	e 13	20	+26	—	—	—
Wellington	36.8	157	e 7	8	- 3	e 13	10	+14	e 8	16	PP
Christchurch	37.9	161	7	18	- 2	13	10	- 3	e 9	23	PcP
Torisima	41.5	340	7	52 _k	+ 2	—	—	—	—	—	—
Manila	41.8	303	i 8	2 _k	+ 9	i 14	33	+32	—	—	—
Hatidyosima	44.0	340	e 8	24	+13	—	—	—	—	—	—
Perth	44.4	232	8	36	+22	15	17	+28	i 17	52	SS
Osima	45.7	341	e 8	23	- 1	e 14	8	-60	i 10	50	PPP
Siomisaki	45.8	336	e 8	25	0	15	3	- 6	18	22	SS
Yakusima	45.8	328	8	24	- 1	—	—	—	—	—	—
Omaesaki	45.9	340	e 8	30	+ 4	—	—	—	—	—	19.8
Ajiro	46.0	341	e 8	24	- 3	e 18	25	SS	—	—	i 24.1
Misima	46.1	341	8	26	- 2	15	1	-13	10	6	PcP
Hamamatu	46.2	339	8	38	+10	e 15	15	0	e 12	52	?
Owase	46.2	337	e 8	26	- 2	e 15	6	- 9	e 18	27	SS
Shizuoka	46.2	340	e 8	27	- 1	15	15	+ 1	11	17	PPP
Yokohama	46.2	342	8	26	- 2	—	—	—	—	—	—
Muroto	46.3	334	i 8	28	- 1	e 15	10	- 6	e 14	22	PcS
Tokyo	46.4	342	i 8	27	- 3	15	22	+ 4	i 10	10	PP
Hunatu	46.5	341	e 8	26	- 5	e 15	21	+ 2	e 14	14	PcS
Miyazaki	46.5	330	8	37	+ 6	15	29	+10	(e 18	44)	SS
Simidu	46.5	333	i 8	28	- 3	e 15	15	- 4	—	—	—
Kagosima	46.6	329	8	31 _a	- 1	15	24	+ 3	(39	49)	P'P'
Tu	46.7	338	8	28	- 4	15	5	-17	10	3	PcP
Kameyama	46.8	338	8	35	+ 2	15	8	-16	10	24	PP
Mito	46.8	343	e 8	37	+ 4	e 15	22	- 2	e 18	49	SS
Tukubasan	46.8	342	e 8	35	+ 2	e 15	22	- 2	e 18	52	SS
Koti	46.9	333	e 8	32	- 2	e 15	15	-10	e 18	34	SS
Kumagaya	46.9	341	e 8	35	+ 1	(e 19	0)	SS	e 13	59	PcS
Nagoya	N. 46.9	339	8	32	- 2	e 15	26	+ 1	(e 19	17)	SSS
Titibu	46.9	341	i 8	32	- 2	—	—	—	—	—	—
Osaka	47.0	337	e 8	36	+ 1	e 15	33	+ 7	e 9	56	PcP
Sumoto	47.0	336	8	32	- 3	15	24	- 2	—	—	i 20.4
Uwazima	47.0	333	8	34	- 1	15	20	- 6	—	—	e 22.9
Kobe	47.1	337	e 8	36	+ 1	—	—	—	—	—	e 20.8

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Utunomiya		47.1	342	e 8 36	+ 1	e 15 21	- 7	e 10 37	PP	21.2
Onahama		47.2	344	e 8 28	- 8	e 15 12	-17	(e 18 54)	SS	e 18.9
Maebasi		47.3	341	e 8 37	0	e 15 22	- 9	i 9 11	?	e 21.5
Takamatu		47.3	336	i 8 35 ^k	- 2	e 15 21	-10	(e 18 30)	ScS	e 18.5
Oiwake		47.4	341	e 8 34	- 4	e 15 27	- 5	e 10 3	PcP	22.3
Matumoto	E.	47.5	340	8 40	+ 2	e 15 34	0	i 9 0	?	e 21.0
Matuyama		47.5	333	i 8 35	- 3	e 15 36	+ 2	e 11 35	PPP	20.8
Ooita		47.5	332	e 8 40	+ 2	e 15 16	-18	(e 19 0)	SS	e 19.0
Kumamoto		47.6	331	e 8 35	- 4	e 15 28	- 7	—	—	—
Shirakawa		47.6	342	e 8 41	+ 2	e 15 37	+ 2	e 10 48	PP	—
Maizuru		47.7	337	8 36	- 4	—	—	—	—	e 20.6
Matusiro		47.7	341	i 8 36	- 4	i 15 30	- 6	10 12	PcP	16.9
Unzendake		47.7	330	8 39	- 1	e 15 38	+ 2	—	—	—
Nagano	N.	47.8	341	e 8 38	- 3	e 15 33	- 5	11 36	PPP	e 20.3
Inawasiro		48.0	343	e 8 43	0	—	—	e 9 15	?	—
Toyooka	Z.	48.0	337	i 8 40 ^k	- 3	e 18 25	ScS	e 14 18	PcS	—
Saga		48.1	331	8 45	+ 2	—	—	—	—	—
Toyama		48.1	340	e 8 45	+ 2	e 15 41	- 1	e 10 35	PP	e 21.5
Kanazawa		48.2	339	e 8 54	+10	e 15 30	-13	—	—	—
Bandung		48.3	269	8 48	+ 3	i 15 55	+10	i 19 21	SS	—
Hukuoka		48.3	331	e 8 44	- 1	e 15 43	- 2	e 13 28	?	e 20.2
Sendai		48.4	345	8 47	+ 1	15 44	- 2	e 10 47	PP	19.6
Tomie		48.4	329	8 42	- 4	e 15 44	- 2	e 11 56	?	28.5
Yonago		48.5	335	e 8 47	+ 1	e 15 43	- 5	—	—	—
Hamada		48.7	333	8 43	- 5	15 45	- 5	18 30	ScS	e 20.2
Aikawa		49.0	342	e 8 53	+ 3	(20 46)	SSS	—	—	20.8
Djakarta		49.2	270	i 8 52 ^a	0	i 16 11	+13	i 8 59	pP	e 22.7
Mizusawa		49.2	345	8 51	- 1	15 54	- 4	—	—	21.9
Miyako		49.4	346	e 8 52	- 1	e 15 52	- 8	—	—	23.6
Morioka		49.7	345	e 8 55	- 1	e 16 1	- 3	—	—	—
Akita		50.0	343	e 8 58	0	e 16 10	+ 1	e 19 33	SS	e 21.2
Hatinohe		50.4	347	e 8 59	- 2	16 11	- 3	e 34 37	PKKS	e 22.1
Aomori		50.9	346	e 9 6	+ 1	e 16 21	0	e 19 48	SS	25.2
Hong Kong		51.3	308	9 5	- 3	i 16 52	PPS	—	—	—
Zô-Sé		51.6	322	9 6 ^a	- 4	16 31	0	—	—	—
Kusiro	N.	52.1	349	e 9 30	+16	e 16 39	+ 1	—	—	e 22.3
Mori		52.1	346	e 9 19	+ 5	e 21 0	?	e 13 22	?	—
Nemuro		52.2	351	e 9 21	+ 6	i 16 38	- 1	e 19 7	ScS	e 24.7
Obi-hiro		52.3	349	e 9 0	-15	—	—	e 13 48	?	—
Sapporo		52.8	347	e 9 19	0	e 16 49	+ 2	e 12 43	PPP	e 23.7
Abashiri		53.1	350	e 9 24	+ 3	e 16 57	+ 6	—	—	—
Asahigawa		53.3	349	e 9 26	+ 3	—	—	—	—	e 24.0
Honolulu		53.4	56	i 9 28	+ 4	e 16 51	- 4	—	—	—
Kurlisk		53.7	352	e 9 26	0	e 17 11	PS	—	—	—
Nanking		53.8	320	i 9 22 ^a	- 4	—	—	—	—	—
Wakkanai	E.	55.0	349	e 9 51	+16	e 17 19	+ 2	e 21 7	SS	i 26.4
Vladivostok		55.7	339	9 35 [?]	- 5	17 27 [?]	+ 1	—	—	—
Yuzno-Sakhlinsk		56.2	350	9 41	- 3	—	—	—	—	—
Ulegorsk		58.4	351	9 58	- 2	—	—	—	—	—
Petropavlovsk		61.1	2	10 17	- 1	18 31	- 6	—	—	—
Mitchell Field		64.2	19	e 10 37	- 2	—	—	—	—	—
Klyuchi		64.4	4	e 10 42	+ 2	i 19 38	PS	—	—	—
Magadan		67.7	358	11 9	+ 8	20 5	+ 7	—	—	—
Shillong		71.1	301	e 11 19	- 3	e 20 33	- 5	14 1	PP	33.8
Kyakhta		72.6	329	11 25	- 6	e 20 48	- 8	—	—	—
Calcutta	N.	73.3	297	e 11 42	+ 7	i 21 13	+ 9	—	—	—
Kabansk		73.5	331	i 11 34	- 2	i 21 7	+ 1	—	—	—
Irkutsk		74.8	330	11 40	- 4	i 21 19	- 1	—	—	—
Chatra		75.5	301	i 11 46	- 2	i 21 26	- 2	11 58	PcP	36.1
Colombo	E.	77.8	279	12 1	0	i 21 51	- 2	—	—	35.7
Madras	E.	78.6	287	i 11 6	-59	i 20 59	-63	—	—	—
Kodaikanal	E.	80.7	282	i 12 23	+ 7	i 22 19	- 5	27 23	SS	33.3
Hyderabad	E.	81.1	290	i 12 20	+ 2	i 22 28	0	15 29	PP	37.6
College		83.7	21	i 12 26	- 6	i 22 45	- 9	i 28 14	SS	—
Dehra Dun	N.	84.2	302	—	—	e 23 30	+31	—	—	—

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
New Delhi	84.5	300	e 12	34	- 2	i 22	58	- 4	15	50	PP	39.2
Sitka	85.5	31	i 12	46	+ 5	e 23	13	+ 1	—	—	—	—
Poona	85.6	290	i 12	40	- 1	e 23	10	- 3	17	58	PPP	—
Bombay	86.6	290	i 12	49	+ 3	i 23	27	+ 4	16	24	PP	38.9
Przhevalsk	86.7	314	12	47	0	23	31	ScS	i 12	51	PcP	—
Semipalatinsk	87.6	322	e 12	48	- 3	e 23	30	- 2	—	—	—	—
Almata	88.0	314	i 12	55?	+ 2	i 23	35?	- 1	—	—	—	—
Berkeley	88.2	52	i 12	57 _a	+ 3	i 23	42	+ 4	e 16	33	PP	e 39.2
Naryn	88.2	312	i 12	55	+ 1	i 23	22	[0]	16	19	PP	—
Santa Clara	88.3	52	e 12	59 _k	+ 4	e 24	4	+25	—	—	—	—
Lick	88.6	52	e 12	57 _a	+ 1	e 14	48	?	e 16	38	PP	e 43.3
Shasta	88.7	49	e 12	58 _k	+ 1	e 23	44	+ 1	e 16	4	?	—
Mineral	89.2	49	e 13	0	+ 1	—	—	—	—	—	—	e 44.6
Frunse	89.6	313	i 13	4	+ 3	i 23	32	[+ 2]	—	—	—	—
Fresno	z. 89.9	53	e 13	1 _a	- 1	—	—	—	—	—	—	—
Seattle	E. 90.2	43	—	—	—	e 24	30	+34	—	—	—	—
Reno	90.4	50	e 13	7 _a	+ 3	e 23	59	+ 1	e 16	51	PP	—
Andijan	90.8	311	i 13	4	- 2	i 23	37	[- 1]	i 13	8	PcP	—
Khorog	90.8	308	13	10?	+ 4	—	—	—	—	—	—	—
Pasadena	90.8	56	e 13	5	- 1	i 24	7	+ 5	i 16	43	PP	i 41.0
Fergana	91.2	311	e 13	6	- 2	—	—	—	—	—	—	—
Tinemaha	91.2	53	e 13	7	- 1	—	—	—	i 13	11	P	—
Dzhergetal	91.4	310	13	12	+ 3	—	—	—	—	—	—	—
Namangan	91.4	311	e 13	6	- 3	i 24	6	- 1	i 23	39	SKS	—
Riverside	91.4	56	e 13	8	- 1	i 13	12	P	i 13	23	?	—
China Lake	z. 91.5	54	e 13	7	- 3	—	—	—	i 13	12	P	—
Palomar	z. 91.7	57	e 13	8	- 2	—	—	—	i 13	14	P	—
Garm	92.1	309	e 13	14	+ 2	e 24	16	+ 3	—	—	—	—
Kulyab	92.3	308	13	14	+ 1	23	46	[0]	—	—	—	—
Tchimkent	93.1	312	i 13	17	0	24	23	+ 1	e 23	42	SKS	—
Lunacharskoe	93.2	311	e 13	14	- 3	—	—	—	—	—	—	—
Stalinabad	93.2	308	i 13	20	+ 3	i 24	24	+ 1	—	—	—	—
Tashkent	93.2	311	e 13	13?	- 4	i 23	51	[0]	i 24	21?	S	—
Quetta	93.5	301	e 13	17 _a	- 2	e 23	55	[+ 2]	i 17	12	PP	44.2
Nelson	93.7	54	i 13	19	- 1	e 38	39	P'P'	i 13	42	?	—
Boulder City	93.8	54	i 13	19	- 1	i 14	23	?	i 17	15	PP	—
Samarkand	94.7	309	13	22	- 2	24	32	- 4	—	—	—	—
Hungry Horse	95.8	42	i 13	31	+ 2	e 38	28	P'P'	e 30	24	PKKP	—
Butte	96.6	44	e 13	31	- 2	—	—	—	e 17	22	PP	—
Tucson	96.6	58	e 13	37	+ 4	e 24	26	{- 4}	17	30	PP	e 39.0
Bairam-Ali	98.3	307	i 13	41	0	—	—	—	—	—	—	—
Sverdlovsk	100.0	326	i 13	47	- 1	24	24	[- 3]	i 17	53	PP	—
Saskatoon	100.7	38	i 18	4	PP	e 27	6	PS	e 32	48	SS	42.2
Ashkabad	101.3	307	13	56	+ 2	—	—	—	—	—	—	—
Resolute Bay	102.8	15	e 13	58	- 3	i 25	26	{+11}	i 18	17	PP	—
Lubbock	104.3	57	17	58	PP	—	—	—	—	—	—	—
Tananarive	104.9	249	e 18	48	PP	25	1	{+11}	33	46	SS	49.7
Tacubaya	106.2	72	e 18	47	PP	i 25	53	{+15}	e 28	33	PPS	—
Baku	107.8	310	e 14	28	P	—	—	—	e 17	59	?	—
Oaxaca	108.4	73	—	—	—	e 36	14	?	—	—	—	—
Lenkoran	108.8	308	14	31	P	—	—	—	19	7	PP	—
Shemakla	108.8	311	i 14	33	P	—	—	—	i 19	3	PP	—
Vera Cruz	109.1	72	e 29	10	PPS	e 38	27	SSS	e 40	45	Q	50.8
Makhach-Kala	109.4	314	e 14	30	P	e 24	59	[-11]	e 18	21	PKP	—
Fayetteville	z. 110.5	54	e 18	27	[- 7]	e 29	49	PPS	e 14	48	P	—
Kirovobad	110.5	311	14	35	P	25	8	[- 6]	—	—	—	—
Goris	110.6	310	e 14	37	P	28	43	PS	35	0	SS	—
Grozny	110.6	314	i 14	36	P	—	—	—	i 19	20	PP	—
Tiflis	111.5	312	e 14	40	P	e 25	11	[-7]	19	23	PP	—
Erevan	112.0	310	i 14	42	P	—	—	—	19	33	PP	—
Borzhomi	112.5	312	14	45	P	—	—	—	—	—	—	—
Moscow	112.7	327	i 19	34	PP	i 25	25	[+ 2]	e 35	6	SS	—
Abastumanj	113.0	312	e 18	32	[- 7]	—	—	—	—	—	—	—
Kiruna	113.7	343	i 18	42	[+ 2]	e 25	20	[- 7]	i 29	28	PKKP	e 49.7
Chicago	114.7	47	e 19	45	PP	e 29	22	PS	—	—	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Pulkovo		114.7	333	i 19 48	PP	e 25 29	[- 2]	i 29 15	PS	—
Sotchi		114.9	315	e 14 55	P	e 25 32	[0]	e 26 39	SKKS	—
Concepción	N.	115.6	137	e 19 46	PP	e 29 40	PS	—	—	—
Mobile		116.0	60	19 54	PP	—	—	—	—	—
Grahamstown	Z.	117.0	227	i 18 53	[+ 6]	e 18 59	?	i 20 11	PP	—
Theodosia		117.5	317	e 19 57	PP	—	—	—	—	—
Scoresby Sund		117.8	0	e 18 50	[+ 2]	e 27 4	{+ 5}	e 20 9	PP	—
Kirkland Lake	Z.	118.1	39	e 18 54	[+ 5]	—	—	e 20 27	PP	—
Simferopol		118.4	318	e 19 57	PP	e 29 43	PS	—	—	—
Yalta		118.5	317	e 15 16	P	e 40 36	SSS	i 19 58	PP	—
Santa Lucia	N.	119.0	135	e 18 54	[+ 3]	e 30 9	PS	e 36 51	SSP	57.7
Cleveland		119.2	47	e 20 16	PP	e 28 14	S	e 30 0	PS	—
Pretoria	Z.	119.4	235	i 18 55	[+ 3]	—	—	—	—	—
Ksara		119.8	305	e 18 58	[+ 6]	20 6	PP	e 15 18	P	—
Upsala		119.9	338	i 18 56	[+ 3]	e 25 45?	[- 5]	i 20 17	PP	e 49.7
Kimberley	Z.	120.6	231	e 18 51	[- 3]	—	—	i 18 56	PKP	—
Buffalo (Larkin)		120.9	44	e 20 32	PP	—	—	—	—	—
Morgantown		120.9	49	i 18 56	[+ 1]	—	—	—	—	e 61.4
Kishinev		121.1	321	i 18 58	[+ 3]	e 22 58	PPP	e 15 40	P	—
Columbia		121.4	54	e 20 30	PP	e 30 26	PS	—	—	—
Iasi		121.8	320	e 19 35	[+39]	—	—	—	—	—
Ottawa		121.9	40	e 18 57	[+ 1]	25 42	[-14]	31 52	PPS	—
Pennsylvania		122.1	46	e 19 10	[+13]	e 26 1	[+ 4]	e 30 35	PS	—
Istanbul		123.1	315	e 19 2	[+ 3]	e 30 38	PS	e 20 43	PP	—
Shawinigan Falls	N.	123.3	38	e 19 12	[+13]	—	—	—	—	—
Washington		123.3	48	i 19 5	[+ 6]	—	—	—	—	—
Bergen		123.6	344	e 19 10	[+10]	e 25 59	[- 3]	e 37 38	SS	50.0
Bucharest		123.9	320	e 20 0	PP	e 28 48	?	—	—	—
Ivigut		124.1	14	—	—	30 42	PS	33 18	?	51.7
Reykjavik	Z.	124.1	359	i 19 4	[+ 3]	—	—	i 19 20	?	—
Helwan		124.3	301	i 19 3 _a	[+ 2]	26 7	[+ 3]	e 20 51	PP	—
Uzhgorod		124.3	325	e 19 1	[+ 0]	—	—	e 19 47	?	—
Copenhagen		124.8	337	i 19 5 _a	[+ 3]	27 48	{+ 2}	20 53	PP	53.7
Huancayo		124.8	111	i 19 8	[+ 6]	e 26 6	[+ 1]	i 27 50	SKKS	e 50.4
Palisades		124.8	45	i 19 6	[+ 4]	e 32 21	PPS	e 20 46	PP	e 53.9
Fordham		124.9	45	e 19 7	[+ 5]	—	—	e 21 16	PP	—
Skalnate Pleso		125.1	327	e 18 57	[- 6]	e 26 2	[- 4]	e 20 50	PP	—
Raciborzu		125.7	329	e 19 6	[+ 2]	e 27 49	{- 3}	e 22 33	PKS	46.7
Harvard		125.8	42	e 21 3	PP	e 38 26	SS	e 43 36	SSS	—
Buenos Aires		126.1	144	e 20 33	?	—	—	i 21 19	PP	—
Weston		126.1	42	i 19 9	[+ 5]	e 38 5	SS	i 18 21 _a	?	—
La Plata		126.2	144	19 18	[+13]	26 12	[+ 3]	21 0	PP	62.0
Timisoara		126.4	323	e 19 18 _?	[+13]	e 28 19 _?	{+23}	i 32 41	PPS	e 51.7
Budapest		126.7	326	e 19 12	[+ 6]	26 21	[+10]	31 7	PS	e 52.2
Prague		126.7	331	e 19 12	[+ 6]	e 27 43	{-15}	e 21 12	PP	e 56.7
Potsdam		126.8	334	i 19 10 _k	[+ 4]	i 38 17	SS	i 21 7	PP	e 56.7
Szeged		126.8	324	19 19	[+13]	26 13	[+ 2]	31 8	PS	e 63.7
Ogyalla		127.0	326	e 19 3	[- 3]	e 26 8	[- 4]	e 21 16	PP	e 52.7
Belgrade		127.3	322	e 19 10 _a	[+ 3]	e 26 16	[+ 3]	e 21 21	PP	e 57.3
Kalossa		127.3	325	e 19 14	[+ 7]	e 31 11	PS	e 21 11	PP	e 63.7
Collnberg		127.5	332	e 19 7	[0]	e 31 20	PS	e 21 7	PP	e 61.2
Vienna		127.8	327	e 19 12	[+ 4]	e 21 12	PP	e 21 22	?	—
Athens		128.1	313	i 19 12 _k	[+ 4]	i 25 34	[-41]	i 24 23	PPP	—
Aberdeen		128.4	346	i 20 35	?	i 28 15	{+ 6}	i 38 32	SS	52.6
Jena		128.4	332	e 19 10	[+ 1]	e 26 15	[- 1]	e 22 42	PKS	e 59.7
Cheb		128.6	332	e 21 22	PP	e 28 10	{- 1}	e 31 14	SKSP	—
Witteveen	Z.	129.2	338	i 19 15 _k	[+ 5]	—	—	—	—	—
La Paz		129.6	119	e 19 17	[+ 6]	i 22 42	SKP	i 31 42	SKSP	61.7
Bogota		129.7	91	i 19 20	[+ 9]	i 22 18	?	i 21 2	PP	—
Edinburgh	E.	129.7	345	—	—	26 21	[+ 2]	39 12	SSP	—
Halifax		129.8	37	e 19 14	[+ 2]	—	—	—	—	—
De Bilt		130.3	338	i 19 14	[+ 1]	e 31 42	PS	e 22 42	PKS	e 57.7
Triest		130.8	327	e 19 11	[- 3]	e 26 18	[- 4]	i 22 46	PKS	69.1
Stuttgart		131.1	332	e 19 17	[+ 3]	e 38 54	SS	e 22 42	SKP	e 59.7
Karlsruhe		131.3	333	e 19 16	[+ 2]	e 20 3	?	e 21 46	PP	e 57.7

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Taranto	131.5	319	18	45	[-30]	22	42	PKS	e 35	30	? e 58.2
Strasbourg	131.9	333	i 19	20?	[+ 4]	e 22	45	PKS	i 21	41	PP 57.7
Chur	132.2	330	e 19	14	[- 2]	—	—	—	e 21	38	PP —
Zürich	132.3	332	e 19	18	[+ 2]	e 22	44	PKS	e 21	35	PP —
Padova	132.5	327	e 18	50	[-27]	e 22	34	PKS	e 22	50	PKS —
Salo	132.6	329	e 19	18 _a	[+ 1]	e 22	48	SKP	i 23	11	? e 65.7
Basle	132.7	332	e 19	24	[+ 7]	e 20	28	?	e 21	45	PP —
Bologna	132.8	328	e 19	23	[+ 6]	e 22	55	SKP	e 24	33	PPP e 65.5
Kew	132.8	341	i 19	22 _a	[+ 5]	e 28	36	{- 1}	e 21	54	PP e 56.7
Rathfarnham Castle	132.9	346	i 19	20	[+ 2]	e 22	48	PKS	e 33	46	PPS e 56.7
Florence	133.3	326	i 19	18	[0]	i 22	56	SKP	i 20	5	pPKP —
Prato	133.3	326	i 19	5	[-13]	i 31	48	PS	—	—	—
Neuchatel	133.4	332	e 19	19	[+ 1]	e 22	50	PKS	—	—	—
Pavia	133.5	329	e 19	24	[+ 5]	e 28	42	{ 0}	e 22	54	SKP —
Besançon	133.6	333	e 19	14	[- 5]	i 22	53	PKS	i 21	46	PP —
Siena	133.6	326	e 19	37	[+18]	i 22	55	SKP	i 24	37	PPP —
Rocca di Papa	e. 133.7	322	e 22	55	PKS	—	—	—	—	—	e 65.7
Rome	z. 133.7	323	i 19	22 _a	[+ 3]	i 22	52	SKP	i 21	50	PP —
Messina	133.8	317	i 19	22 _a	[+ 3]	i 33	57	PPS	i 32	2	PSKS —
Ciudad Trujillo	133.9	72	21	56	PP	e 30	26	?	—	—	—
Oropa	133.9	328	i 19	19	[0]	e 31	49	PSKS	i 21	50	PP —
Paris	133.9	337	e 19	11	[- 8]	i 28	48	{+ 4}	i 21	58	PP e 60.7
Bermuda	135.0	52	e 19	22	[+ 1]	e 32	23	PS	e 23	3	PKS —
Clermont-Ferrand	136.1	334	e 19	28	[+ 5]	i 34	8	PPS	i 22	14	PP —
San Juan	137.5	71	i 19	20	[- 6]	—	—	—	e 23	12	PKS —
Tunis	138.2	318	e 25	21	PPP	e 27	1	[+25]	—	—	60.7
Barcelona	139.8	331	e 22	23	PP	i 23	10	PKS	—	—	i 64.0
Tortosa	141.1	331	e 19	48	[+16]	—	—	—	i 22	55	PP —
Algiers Univ.	z. 142.6	324	e 19	38	[+ 3]	e 26	21	PPP	i 22	46	PP —
Fort de France	142.7	77	e 19	35	[0]	—	—	—	e 22	25	PP —
Alicante	143.5	330	e 19	41	[+ 4]	26	33	[-12]	32	59	SKSP 69.1
Toledo	143.9	335	e 19	36	[- 1]	41	11	SS	22	56	PP 68.2
Almeria	145.6	330	i 19	35	[- 5]	26	45	[- 3]	35	29	PPS 65.2
Granada	145.9	332	19	41 _a	[0]	26	2	[-46]	20	11	pPKP i 70.8
Malaga	146.7	332	i 19	41	[- 1]	i 26	23	[-26]	23	53	? 69.4
Lisbon	146.9	340	19	44 _a	[+ 2]	33	35	SP	41	45	SS 62.2
Tamanrasset	z. 148.5	302	e 19	48	[+ 3]	e 30	8	{- 2}	e 23	23	PP —
Angra do Heroísmo	e. 149.5	6	e 22	30	?	—	—	—	—	—	—
M'Bour	171.1	—	e 20	29	[+19]	e 32	11	{+ 3}	e 25	25	PP —

Dec. 6d. 17h. 57m. 38s. Epicentre 40°·0N. 142°·8E. Focus at Base of Superficial Layers. (as on 1948, Nov. 9d.).

Intensity V at Yakubawa and Kuji; IV at Miyako, Hirota, and Okunakayama; II-III at Hatinohe, Morioka, Shizukuishi, and Noheki.

Epicentre 40°·0N. 142°·6E. Depth 40km. Macroseismic radius 100-200km.

Seismo. Bull. Cent. Met. Obs., Japan, Dec., 1952, Tokyo, 1953, p.500, with macroseismic chart.

$$A = -.6119, B = +.4645, C = +.6402; \quad \delta = +4; \quad h = -2;$$

$$D = +.605, E = +.797; \quad G = -.510, H = +.387, K = -.768.$$

	Δ	Az.	P.		O-C.	S.		O-C.
	°	°	m.	s.	s.	m.	s.	s.
Miyako	0.8	249	i 0	11k	- 4	0	19	- 7
Hatinohe	1.1	299	i 0	14k	- 5	0	25	- 8
Morioka	1.3	257	i 0	18k	- 4	0	31	- 7
Mizusawa	N. 1.5	237	0	25	+ 1	0	41	- 3
Aomori	1.7	298	i 0	27k	- 1	0	41	- 8
Isinomaki	1.9	233	e 0	32	+ 1	0	53	- 1
Akita	z. 2.1	263	e 0	30	- 3	0	54	- 5
Urakawa	2.2	0	0	36	+ 1	1	3	+ 2
Sendai	2.3	221	e 0	36	0	1	3	- 1
Yamagata	2.6	228	e 0	38	- 3	1	10	- 1
Mori	z. 2.7	322	e 0	40	- 2	1	1	-13
Hukusima	2.9	220	e 0	22?	-23	0	57?	-22
Obi-hiro	2.9	6	e 1	0	+15	1	31	+12
Kusiro	3.2	21	e 0	49	0	1	22	- 5
Inawasiro	3.3	219	0	52	+ 1	1	41	+12

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Sapporo		3.3	341	e 1 14	+23	1 51	+22
Onahama		3.4	206	—	—	e 1 31	- 1
Shirakawa		3.5	215	e 1 6	+13	1 41	+ 7
Nemuro		3.9	31	—	—	e 1 39	- 5
Mito		4.0	209	e 1 2	+ 2	2 6	+19
Utunomiya		4.1	215	e 1 2	0	2 9	+20
Tukubasan		4.3	210	e 1 7	+ 2	1 55	+ 1
Kumagaya		4.7	216	e 1 14	+ 4	2 18	+13
Maebasi		4.7	220	e 1 16	+ 6	—	—
Nagano	N.	4.9	228	e 1 17	+ 4	—	—
Tokyo		4.9	210	1 13	0	2 12	+ 2
Oiwake		5.0	223	e 1 19	+ 4	—	—
Matumoto	N.	5.3	226	e 1 24	+ 5	2 31	+11
Misima		5.8	213	e 1 14	-12	1 59	-33

Dec. 6d. 20h. 50m. 35s. Epicentre 8°·2S. 156°·4E. (as at 10h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane		19.4	191	i 4 34k	+ 4	i 8 22	+18	i 4 37	?
Riverview		26.0	191	i 5 41k	+ 5	i 10 12	+ 6	i 6 16	PP
Melbourne	E.	31.3	199	—	—	i 11 41	+10	(e 13 31)	SS
Auckland	N.	33.1	152	e 7 42	PP	e 12 15	+16	—	—
Karapiro	N.	34.3	154	e 7 25?	+35	—	—	—	—
Tuai	N.	35.7	153	e 6 55	- 7	—	—	—	—
Cobb River	E.	35.8	159	e 7 8	+ 5	—	—	—	—
Wellington		36.8	157	e 7 12	+ 1	—	—	8 45	PP
Christchurch		37.9	161	7 25	+ 5	e 13 14	+ 1	e 8 51	PP
Manila		41.8	303	i 8 2	+ 9	i 14 29	+18	—	—
Perth		44.4	232	e 10 57	PPP	14 55	+ 6	18 5	SS
Bandung		48.3	269	e 8 57	+12	i 15 58	+13	—	—
Hong Kong		51.3	308	e 9 7	- 1	e 15 25?	-61	—	—
Nanking		53.8	320	i 9 24a	- 2	16 58	- 3	—	—
Vladivostok		55.7	339	9 38	- 2	17 28	+ 2	—	—
Yuzno-Sakhlinsk		56.2	350	9 41	- 3	—	—	—	—
Magadan		67.7	358	10 57?	- 4	—	—	—	—
Shillong	E.	71.1	301	e 11 17	- 5	—	—	e 11 53	?
Calcutta	E.	73.3	297	e 11 34	- 1	i 21 10	+ 6	—	—
Kabansk		73.5	331	i 11 35	- 1	i 21 10	+ 4	—	—
Irkutsk		74.8	330	i 11 42	- 2	21 19	- 1	—	—
Chatra		75.5	301	i 11 47	- 1	e 21 33	+ 5	22 5	ScS
Madras	E.	78.6	286	i 12 5	0	i 21 52	-10	15 9	PP
Kodaikanal	E.	80.7	282	i 12 21	+ 5	i 22 27	+ 3	—	—
Hyderabad	E.	81.1	290	e 12 13	- 5	—	—	—	—
College		83.7	21	12 28	- 4	—	—	—	—
Poona		85.6	290	i 12 41	0	e 23 4	[- 1]	—	—
Bombay		86.6	290	i 12 47	+ 1	i 23 25	+ 2	24 32	PS
Przhevalsk		86.7	314	12 46	- 1	—	—	—	—
Semipalatinsk		87.6	322	e 12 49	- 2	—	—	—	—
Almata		88.0	314	i 12 53	0	—	—	—	—
Naryn		88.2	312	i 12 55	+ 1	—	—	—	—
Rybach'e		88.4	313	i 12 54	- 1	i 23 44	+ 4	—	—
Lick	Z.	88.6	52	e 12 56a	0	—	—	—	—
Shasta	Z.	88.7	49	e 12 56a	- 1	—	—	—	—
Mineral	Z.	89.2	49	e 12 59k	0	—	—	—	—
Frunse		89.6	313	i 13 0	- 1	i 23 53	+ 2	e 13 36	pP
Fresno	Z.	89.9	53	e 13 2a	0	—	—	—	—
Reno	Z.	90.4	50	e 13 5a	+ 1	—	—	—	—
Andijan		90.8	311	e 13 6	0	i 24 6	+ 4	e 13 45	pP
Khorog		90.8	308	e 13 8	+ 2	—	—	—	—
Pasadena		90.8	56	i 13 6a	0	—	—	—	—
Fergana		91.2	311	i 13 7	- 1	—	—	—	—
Tinemaha	Z.	91.2	53	i 13 9	+ 1	—	—	—	—
Dzhergetal		91.4	310	i 13 12	+ 3	—	—	—	—

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		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.
Namangan		91.4	311	i 13	9	0	e 24 12	+ 5	i 13 49	pP	—
Riverside	z.	91.4	56	i 13	9	0	—	—	—	—	—
China Lake	z.	91.5	54	e 13	10	0	—	—	—	—	—
Palomar	z.	91.7	57	i 13	11	0	—	—	—	—	—
Kulyab		92.3	308	13	14	+ 1	24 19	+ 4	—	—	—
Obi-garm		92.5	309	i 13	12	- 2	e 24 12	- 5	—	—	—
Tchimkent		93.1	312	i 13	16	- 1	—	—	—	—	—
Lunacharskoe		93.2	311	i 13	16	- 1	—	—	—	—	—
Stalinabad		93.2	308	i 13	16	- 1	—	—	—	—	—
Tashkent		93.2	311	i 13	15	- 2	e 23 53	[+ 2]	—	—	—
Quetta	z.	93.5	301	i 13	17k	- 2	—	—	—	—	—
Nelson		93.7	54	i 13	20	0	—	—	—	—	—
Boulder City		93.8	54	i 13	21	+ 1	—	—	—	—	—
Samarkand		94.7	309	13	22	- 2	—	—	—	—	—
Hungry Horse		95.8	42	e 13	32	+ 3	—	—	—	—	—
Tucson		96.6	58	e 13	33	0	—	—	—	—	—
Bairam-Ali		98.3	307	i 13	41	0	—	—	—	—	—
Sverdlovsk		100.0	326	i 13	46	- 2	24 6	[-21]	i 17 52	PP	—
Resolute Bay		102.8	15	e 13	57	- 4	e 27 14	PS	i 28 6	PPS	e 51.6
Makhach-Kala		109.4	314	e 19	8	PP	—	—	—	—	—
Kirovobad		110.5	311	e 18	57	PP	—	—	—	—	—
Goris		110.6	310	i 19	3	PP	28 43	PS	21 52	PPP	—
Grozny		110.6	314	i 19	5	PP	—	—	—	—	—
Tiflis		111.5	312	e 19	4	PP	e 28 47	PS	—	—	—
Borzhom		112.5	312	i 19	26	PP	e 28 56	PS	—	—	—
Kiruna		113.7	343	e 29	6	PS	e 30 20	PPS	e 35 25?	SS	e 52.9
Sotchi		114.9	315	e 19	37	PP	e 29 19	PS	—	—	—
Grahamstown	z.	117.0	227	e 18	43	[- 4]	—	—	—	—	—
Scoresby Sund		117.8	0	—	—	—	e 29 49	PS	—	—	59.4
Ksara		119.8	305	18	55	[+ 3]	i 20 17	PP	e 15 23	P	—
Kimberley	z.	120.6	231	e 18	56	[+ 2]	—	—	—	—	—
Kishinev		121.1	321	e 20	18	PP	—	—	—	—	—
Ottawa		121.9	40	e 18	57	[+ 1]	—	—	—	—	—
Helwan		124.3	301	e 19	4	[+ 3]	e 20 40	?	e 20 49	PP	—
Copenhagen		124.8	337	e 19	9a	[+ 7]	—	—	20 50	PP	61.4
Potsdam		126.8	334	i 21	3	PP	i 26 13	[+ 2]	e 21 6	PP	e 64.4
Collnberg	z.	127.5	332	e 19	6	[- 1]	—	—	e 21 4	PP	—
Jena	z.	128.4	332	e 19	9	[0]	e 19 32	?	e 21 9	PP	—
Witteveen	z.	129.2	338	e 19	11	[+ 1]	—	—	—	—	—
La Paz		129.6	119	19	1	[-10]	i 22 39	PKS	—	—	—
Bogota		129.7	91	e 19	18	[+ 7]	e 22 47	SKP	e 32 13	PKKS	—
De Bilt		130.3	338	e 19	13	[0]	—	—	e 21 25?	PP	e 58.4
Triest		130.8	327	e 23	55	PPP	i 22 39	SKP	i 25 48	?	—
Stuttgart		131.1	332	e 19	14	[0]	e 22 39	SKP	e 21 30	PP	e 69.4
Taranto		131.5	319	18	25	[-50]	e 22 27	SKP	—	—	—
Strasbourg		131.9	333	e 19	17	[+ 1]	e 22 38	PKS	e 21 37	PP	—
Chur		132.2	330	e 19	17	[+ 1]	e 22 42	PKS	—	—	—
Zürich		132.3	332	e 19	17	[+ 1]	—	—	e 21 33	PP	—
Basle		132.7	332	e 19	2	[-15]	—	—	e 21 41	PP	—
Kew		132.8	341	e 21	30	PP	—	—	—	—	e 64.4
Florence		133.3	326	i 19	16a	[- 2]	i 22 48	SKP	e 29 18	PKKP	—
Besançon		133.6	333	e 19	20	[+ 1]	e 19 48	?	i 21 47	PP	—
Rome		133.7	323	e 19	18	[- 1]	i 22 49	SKP	e 21 46	PP	—
Messina		133.8	317	e 19	19	[0]	e 22 45	SKP	e 32 4	PS	—
Paris		133.9	337	e 19	19	[0]	—	—	i 21 55	PP	—
Bermuda		135.0	52	—	—	—	e 23 0	PKS	—	—	e 63.2
Clermont-Ferrand		136.1	334	e 19	26	[+ 3]	e 23 3	PKS	e 22 3	PP	74.4
San Juan		137.5	71	i 19	29	[+ 3]	—	—	—	—	—
Algiers Univ.	z.	142.6	324	e 19	30	[- 5]	e 22 43	PP	e 25 20	?	—
Alicante		143.5	330	19	47	[+10]	26 44	[- 1]	e 26 16	PPP	69.0
Toledo		143.9	335	i 19	37	[0]	—	—	e 22 57	PP	—
Almeria		145.6	330	i 19	37	[- 3]	26 31	[-17]	35 15	PPS	75.2
Granada		145.9	332	19	42k	[+ 1]	—	—	i 20 27	?	—
Malaga		146.7	332	i 19	41	[- 1]	—	—	—	—	—
Tamanrasset	z.	148.5	302	i 19	47k	[+ 2]	e 30 49	[+ 39]	i 20 0	PKP,	—

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Dec. 7d. 0h. 50m. 17s. Epicentre 52°·5N. 174°·2E.

A = -·6081, B = +·0618, C = +·7914; $\delta = -8$; $h = -6$;
D = +·101, E = +·995; G = -·787, H = +·080, K = -·611.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mitchell Field		5·7	92	i 1 33	+ 5	e 2 40	+ 5	—	—
Klyuchi		8·7	301	2 9	- 1	3 47	- 3	—	—
Petropavlovsk		9·4	280	2 19	+ 1	—	—	—	—
Magadan		14·8	308	3 33	+ 1	6 29	+11	—	—
Kurilsk		18·7	258	i 4 19	- 3	17 51	+ 3	—	—
Uglegorsk		20·5	273	i 4 41	- 1	18 31	+ 4	—	—
Yuzno-Sakhlinsk		21·0	267	i 4 46	- 1	e 8 40	+ 3	—	—
Nemuro		21·1	257	i 4 47	- 1	18 39	0	e 9 7	SS 12·7
Abashiri		21·5	260	4 52	0	e 8 49	+ 2	—	—
Kusiro		22·0	257	i 4 57	- 1	e 9 0	+ 4	—	—
Wakkanai	E.	22·4	265	e 5 2	0	e 9 10	+ 6	—	—
Asahigawa		22·8	262	e 5 11	+ 6	—	—	—	e 18·7
Obi-hiro		22·8	258	e 5 7	+ 2	—	—	—	—
College		22·9	42	i 5 7	+ 1	i 9 13	0	—	i 10·5
Urakawa	N.	23·5	258	e 4 50	-22	e 9 23	0	—	—
Sapporo		23·9	262	i 5 16	0	i 9 29	- 1	—	e 11·9
Mori	N.	24·9	259	i 5 27	+ 1	e 9 42	- 5	e 7 52	?
Hatinohe		25·2	255	e 5 28	- 1	—	—	—	—
Aomori		25·5	256	5 32	0	e 9 39	-18	i 6 5	PP e 16·4
Miyako		25·6	253	e 5 29	- 3	e 9 55†	-4	—	—
Morioka		26·0	254	e 5 36	0	e 10 19	+13	—	—
Mizusawa	N.	26·4	253	5 40	0	10 14	+ 2	—	—
Akita		26·6	254	e 5 24	-18	e 10 25	+ 9	e 6 58	PPP e 12·1
Sendai	E.	27·1	251	e 5 46	0	e 10 14	-10	e 6 25	PP e 11·9
Yamagata		27·4	252	e 5 46	- 3	—	—	—	—
Hokusima		27·7	251	e 5 51	- 1	e 10 37	+ 4	—	12·6
Onahama		28·0	250	e 5 47	- 8	e 10 5	+17	—	e 12·3
Aikawa		28·8	255	e 5 51	-11	e 10 38	-13	—	—
Utunomiya		28·9	251	e 6 1	- 2	—	—	—	12·7
Kumagaya		29·4	251	e 6 9	+ 2	e 11 29	+28	—	e 15·5
Maebasi		29·4	252	e 6 11	+ 4	e 11 50	+49	—	—
Vladivostok		29·5	269	6 8	0	11 0	- 2	—	—
Tokyo		29·6	249	e 6 15	+ 6	10 57	- 7	12 13	Q e 12·9
Titibu		29·7	251	i 6 11	+ 1	—	—	e 12 23	Q
Matusiro		29·8	253	i 6 9	- 2	11 6	- 1	7 23	PP 12·5
Nagano	N.	29·8	253	e 6 17	+ 6	e 11 57	+50	—	—
Oiwake		29·8	252	e 6 4	- 7	e 11 1	- 6	—	13·3
Matumoto		30·2	253	e 6 15	+ 1	—	—	—	e 13·6
Toyama		30·3	254	e 5 49	-26	e 12 8	+53	e 6 46	PP
Misima	E.	30·4	249	i 6 15	- 1	(e 11 1)	-15	—	e 11·0
Osima		30·4	248	e 6 18	+ 2	e 7 37	PPP	e 6 55	PP e 12·4
Gihu		31·5	251	e 6 23	- 3	—	—	—	—
Hikone		31·9	253	6 29	0	—	—	—	—
Tu		32·1	252	e 6 28	- 3	e 11 39	- 4	e 7 18	PP e 13·5
Kyoto		32·4	253	e 6 33	- 1	—	—	—	e 13·0
Toyooka		32·5	255	e 6 34	0	e 11 46	- 3	—	e 15·3
Osaka		32·7	253	e 6 38	+ 2	e 11 53	+ 1	e 7 28	PP
Owase		32·8	252	e 6 35	- 2	e 11 52	- 2	e 14 6	SS e 15·5
Torisima		33·2	242	—	—	e 11 48	-12	—	—
Sumoto		33·3	254	6 40	- 1	e 11 51	-11	—	14·7
Siomisaki		33·4	251	e 6 43	+ 1	e 11 57	- 6	—	e 14·2
Takamatu		33·8	255	e 6 45	- 1	e 12 9	- 1	—	e 15·7
Muroto		34·5	252	e 6 52	0	e 11 7	?	—	e 15·5
Hamada		34·6	257	e 6 51	- 2	12 21	- 1	e 8 7	PP 16·8
Hirosima		34·7	255	e 6 52	- 2	12 17	- 7	—	e 14·8
Koti		34·7	254	e 6 53	- 1	e 12 47	+23	—	14·6
Hukuoka		36·5	256	e 7 8	- 1	e 12 50	- 1	—	e 14·9
Saga		36·8	254	e 7 13	+ 2	—	—	—	—
Miyazaki		37·1	253	i 7 17	+ 3	13 3	+ 2	—	e 15·7
Kagosima		37·8	254	e 7 23	+ 3	—	—	—	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Victoria	38.8	70	7	27	- 1	—	—	—	—	—	—
Kabansk	40.0	298	i 7	36	- 2	13	37	- 7	—	—	—
Resolute Bay	40.5	25	i 7	43 _a	+ 1	i 13	52	0	i 9	34	PP
Kyakhta	40.9	296	i 7	46	0	e 14	17	+ 3	—	—	—
Irkutsk	41.1	299	7	47	0	14	0	- 1	—	—	—
Shasta	43.8	79	e 8	9 _a	0	—	—	—	e 8	28	?
Zó-Sè	43.8	263	i 8	8 _a	- 1	14	39	- 1	—	—	—
Hungry Horse	44.2	66	i 8	11	- 1	—	—	—	—	—	—
Nanking	44.6	266	8	12 _a	- 4	i 14	47	- 5	—	—	—
Berkeley	45.6	82	e 8	31	+ 7	e 15	7	+ 1	i 8	43	? e 21.3
Reno	46.1	78	e 8	27 _a	- 1	e 15	15	+ 1	e 8	42	?
Saskatoon	46.1	57	i 8	28	0	e 15	13	- 1	—	—	21.7
Santa Clara	z. 46.2	82	e 8	34 _a	+ 6	—	—	—	—	—	e 21.8
Butte	46.4	67	i 8	30	0	—	—	—	—	—	—
Lick	z. 46.4	82	e 8	31 _a	+ 1	i 9	39	?	i 8	46	? —
Fresno	z. 47.9	81	e 8	42 _k	0	—	—	—	e 8	59	? —
Tinemaha	48.6	80	i 8	47	0	i 14	6	ScP	i 9	4	? —
China Lake	z. 49.8	80	e 8	55	- 1	i 14	9	ScP	i 9	6	? —
Pasadena	50.6	82	i 9	2	0	i 16	14	- 3	i 9	13	pP i 22.0
Riverside	z. 51.2	82	e 9	6	- 1	—	—	—	i 9	16	? —
Boulder City	51.4	79	i 9	7	- 2	e 18	57	ScS	i 9	23	? —
Nelson	51.5	79	i 9	8	- 1	i 9	43	?	i 9	25	? —
Palomar	z. 51.9	82	e 9	11	- 1	i 14	19	ScP	i 9	23	pP —
Hong Kong	54.4	261	e 9	31	0	—	—	—	—	—	—
Semipalatinsk	54.5	309	e 9	28	- 4	—	—	—	—	—	—
Tucson	56.3	79	e 9	44	- 1	e 17	35	+ 1	e 19	33	ScS —
Manila	56.5	249	i 9	35 _a	-11	i 17	17	-20	—	—	—
Scoresby Sund	56.8	7	i 9	47	- 1	i 17	38	- 3	e 11	58	PP 27.7
Sverdlovsk	58.2	324	e 9	57	- 1	i 18	3	+ 4	—	—	—
Kiruna	58.4	349	i 9	57 _a	- 3	i 18	0	- 2	i 10	49	PcP e 25.7
Lubbock	60.7	72	10	16	+ 1	—	—	—	—	—	—
Przhevalsk	60.9	303	10	13	- 4	—	—	—	—	—	—
Almata	61.0	305	i 10	15	- 3	—	—	—	—	—	—
Kirkland Lake	z. 61.5	47	e 10	11 _a	-10	—	—	—	—	—	—
Frunse	62.5	306	i 10	25	- 3	i 18	54	0	—	—	—
Chicago	62.6	56	e 10	25	- 3	i 18	54	- 2	—	—	—
Naryn	62.9	303	i 10	31	+ 1	i 18	56	- 4	—	—	—
Reykjavik	z. 63.0	9	i 10	31 _a	0	—	—	—	i 10	41	? —
Fayetteville	z. 63.3	65	i 10	29	- 4	i 12	49	PP	i 11	8	PcP e 34.2
Pulkovo	64.4	341	i 10	40	0	i 19	17	- 1	—	—	—
Andijan	65.2	305	i 10	44	- 1	19	25	- 3	—	—	—
Namangan	65.4	306	e 10	45	- 2	—	—	—	—	—	—
Tchimkent	65.4	308	i 10	45	- 2	i 19	24	- 6	—	—	—
Ottawa	65.6	47	e 10	46	- 2	19	29	- 4	19	59	PS 32.2
Shillong	65.6	281	e 10	44	- 4	e 19	26	- 7	11	7	PcP —
Fergana	65.8	305	i 10	49	0	e 19	30	- 5	—	—	—
Cleveland	65.9	53	i 10	50 _a	0	i 19	35	- 2	—	—	—
Shawinigan Falls n.	65.9	44	e 10	48	- 2	—	—	—	—	—	—
Buffalo	66.0	50	i 10	42	- 8	i 19	34	- 4	—	—	—
Cincinnati	66.1	56	i 10	51	0	i 18	48	?	—	—	—
Buffalo (Larkin)	66.2	50	e 10	51	- 1	—	—	—	—	—	—
Lunacharskoe	66.3	308	e 10	50	- 2	—	—	—	—	—	—
Tashkent	66.3	308	i 10	49	- 3	—	—	—	—	—	—
Moscow	66.3	335	i 10	53	+ 1	i 19	43	+ 1	—	—	—
Upsala	66.4	348	i 10	51	- 2	e 19	39	- 4	e 11	18	PcP e 28.7
Dzhergetal	66.9	306	e 10	53	- 3	—	—	—	—	—	—
Bergen	67.1	355	i 10	58	+ 1	e 19	38	-13	11	22	PcP 27.7
Chatra	67.4	285	i 10	57	- 2	e 20	0	+ 5	11	21	PcP 32.5
Pittsburgh	67.4	53	e 10	56	- 3	i 19	54	- 1	—	—	—
Garm	67.6	306	e 11	0	- 1	e 19	54	- 3	—	—	—

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	o	o	m.	s.	s.	m.	s.	s.	m.	s.	m.
Morgantown	68.0	54	i 11	4	+ 1	e 20	1	- 1	—	—	—
Khorog	68.1	304	11	2	- 2	—	—	—	—	—	—
Obi-garm	68.1	306	i 11	1	- 3	e 19	56	- 7	—	—	—
Pennsylvania	68.2	51	i 11	1	- 3	i 20	2	- 2	—	—	—
Kulyab	68.7	305	11	5	- 2	20	3	- 7	—	—	—
Samarkand	68.7	308	11	3	- 4	—	—	—	—	—	—
Stalinabad	68.7	306	i 11	5	- 2	i 20	6	- 4	—	—	—
Harvard	69.7	46	e 11	11	- 3	—	—	—	—	—	—
Palisades	69.8	48	i 11	11 _a	- 3	i 20	20	- 3	e 25	6	SS
Weston	69.9	46	i 11	12 _k	- 3	e 20	19	- 5	i 11	15	?
Calcutta	70.0	281	e 11	17	+ 2	e 20	37	+ 11	—	—	—
City College, N.Y.	70.0	48	i 11	16	+ 1	—	—	—	—	—	—
Fordham	70.0	48	e 11	13	- 2	—	—	—	i 11	16	P
Washington	70.0	51	i 11	12	- 3	—	—	—	i 12	19	?
Aberdeen	70.6	358	i 11	20	+ 1	i 20	35	+ 2	i 25	32	SS
Mobile	70.6	65	11	20	+ 1	20	32	- 1	—	—	—
Copenhagen	71.1	350	i 11	21	- 1	20	39	+ 1	25	19	SS
Halifax	71.2	40	e 11	21	- 2	—	—	—	—	—	35.7
Columbia	71.9	57	i 11	28	+ 1	i 20	46	- 2	—	—	—
New Delhi	71.9	293	i 11	26	- 1	e 20	44	- 4	14	0	PP
Bairam-Ali	72.6	310	e 11	30	- 1	—	—	—	—	—	—
Tacubaya	72.8	81	i 11	34	+ 2	e 20	56	- 2	e 26	37	SSP
Puebla	73.7	81	—	—	—	e 21	9	+ 1	—	—	—
Ashkabad	74.1	312	i 11	42	+ 2	—	—	—	—	—	—
Kizyl-Arvat	74.1	315	i 11	41	+ 1	—	—	—	—	—	—
Potsdam	74.3	349	i 11	43 _k	+ 2	i 21	16	+ 1	i 11	55	PcP
Makhach-Kala	74.4	323	i 11	43	+ 1	e 21	17	+ 1	—	—	e 36.7
Witteveen	74.5	353	i 11	43 _a	+ 1	—	—	—	—	—	—
Rathfarnham Castle	74.6	0	i 11	43 _a	0	e 21	8	- 10	e 14	37	PP
Grozny	74.7	324	i 11	40	- 3	i 21	17	- 2	—	—	e 33.7
Lwow	74.9	341	i 11	45	+ 1	i 21	21	- 1	—	—	—
Piatigorsk	75.0	326	11	45	0	—	—	—	—	—	—
Collmberg	75.4	348	e 11	46	- 1	e 21	23	- 4	e 16	22	PPP
De Bilt	75.4	353	i 11	49	+ 2	e 21	27	0	e 14	33	PP
Baku	75.7	320	e 11	51	+ 2	—	—	—	—	—	e 34.7
Raciborzu	75.8	344	11	51	+ 1	e 21	36	+ 5	i 12	0	PcP
Jena	75.9	349	e 11	48	- 2	e 21	31	- 1	e 14	53	PP
Shemakla	75.9	322	i 11	52	+ 2	—	—	—	—	—	e 38.7
Quetta	76.1	302	i 11	50 _k	- 1	e 21	33	- 2	i 21	48	PS
Kew	76.3	357	i 11	53 _a	+ 1	e 21	37	0	e 16	29	PPP
Skalnate Pleso	76.3	343	e 11	55	+ 3	e 21	37	0	e 14	53	PP
Prague	76.4	347	i 11	54 _a	+ 1	e 21	34	- 4	i 12	12	PcP
Uzhgorod	76.4	341	i 11	55	+ 2	e 21	39	+ 1	—	—	e 38.7
Gori	76.5	325	e 11	58	+ 4	e 21	45	+ 6	—	—	—
Kishinev	76.5	337	11	52	- 2	i 21	37	- 2	—	—	—
Tiflis	76.5	324	e 11	53 _?	- 1	21	42 _?	+ 3	—	—	—
Cheb	76.6	349	e 12	8 _a	+ 14	e 21	46	+ 6	e 14	39	PP
Sotchi	76.6	328	i 11	55	+ 1	i 21	40	0	—	—	e 38.7
Theodosia	76.6	331	i 11	55	+ 1	i 21	41	+ 1	—	—	—
Iasi	76.7	337	e 11	56	+ 1	e 22	41	PPS	—	—	—
Kirovobad	76.7	323	i 11	56	+ 1	21	45	+ 4	—	—	—
Borzhomei	76.9	325	e 11	54	- 2	i 21	44	+ 1	—	—	—
Tsikhlis-Dzhvari	76.9	325	11	59	+ 3	21	50	+ 7	—	—	—
Simferopol	77.0	333	i 11	58	+ 2	21	48	+ 3	—	—	—
Abastumanj	77.1	325	e 11	57	0	e 21	45	- 1	—	—	—
Yalta	77.4	332	i 11	58	0	i 21	48	- 1	—	—	—
Lenkoran	77.5	319	12	1	+ 2	—	—	—	—	—	—
Goris	77.8	321	e 11	58	- 3	—	—	—	—	—	—
Erevan	77.9	323	i 12	3	+ 2	21	58	+ 4	—	—	—
Ogyalla	77.9	344	e 12	5	+ 4	e 21	58	+ 4	e 15	2	PP

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		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
Karlsruhe		78.1	351	i 12	4 _a	+ 2	e 21	43	-13	e 15	7	PP	e 37.7
Stuttgart		78.3	350	e 12	2	- 1	e 21	53	- 6	e 14	56	PP	e 39.7
Budapest	E.	78.5	343	e 12	2	- 2		21 58	- 3	e 14	56	PP	38.7
Jersey	N.	78.5	343	e 12	5	+ 1	e 21	46	-15		12 21	PcP	e 39.7
	E.	78.6	358	e 12	17	+12	e 22	3	+ 1				
Strasbourg		78.6	351	e 12	4	- 1	e 22	1	- 1	e 15	6	PP	e 36.7
Paris		78.8	355	i 12	5	- 1	i 22	5	+ 1	i 15	15	PP	e 37.7
Kalossa		79.1	343	e 12	10	+ 2	e 22	11	+ 4		12 18	PcP	e 46.7
Szeged		79.1	342	i 12	13	+ 5		22 9	+ 2		15 3	PP	e 44.7
Timisoara		79.4	341	i 12	13	+ 4	i 22	15	+ 5	i 22	33	ScS	e 41.7
Bucharest	N.	79.6	337	i 12	13	+ 3	e 22	11	- 1				
Basle		79.7	351	e 12	10 _a	- 1	e 22	22	+ 9				
Zürich		79.7	351	e 12	10	- 1	e 22	11	- 2	e 23	12	PS	
Hyderabad	E.	79.8	285	i 12	10	- 2	i 22	13	- 1		15 12	PP	
Besançon		80.1	352	e 12	12	- 1				e 14	37	PP	
Chur		80.2	350	e 12	12 _a	- 2	e 22	29	+10	e 12	15	?	
Neuchatel		80.3	351	e 12	16	+ 2	e 22	48	PS				
Belgrade		80.5	341	i 12	17	+ 2	e 22	26	+ 4	e 12	56	PcP	e 44.3
Triest		80.8	347	i 12	17	0	e 22	22	- 3	e 15	24	PP	44.9
Bermuda		81.1	47	i 12	19	+ 1	i 22	25	- 3	e 27	41	SS	e 37.7
Djakarta		81.4	248	i 12	16 _a	- 4	e 22	22	- 9	e 18	18	?	
Bandung		81.5	247	e 12	32	+11	e 22	28	- 4	e 15	38	PP	
Oropa		81.5	351	i 12	22	+ 1	e 22	54	PS	e 16	11	PP	
Poona		81.6	289	i 12	19	- 2	e 22	30	- 3				
Brisbane		81.8	199	e 12	18	- 4	i 22	30	- 5	i 15	17	PP	
Clermont-Ferrand		81.8	354	i 12	24	+ 2	i 22	37	+ 2	e 28	7	SS	38.7
Pavia		81.8	350	e 12	24	+ 2	i 22	58	PS	e 28	13	SS	e 41.1
Bombay		81.9	291	i 12	25	+ 2	i 22	35	- 1		15 32	PP	37.7
Istanbul		82.0	334	e 12	25	+ 2	e 21	54	-43	e 15	32	PP	e 36.8
Madras	E.	82.2	282	i 12	24	0	i 22	40	+ 1		22 27	SKS	
Bologna		82.3	348	i 12	27	+ 2	e 21	59	+19				
Prato		82.9	348	i 12	30	+ 2	i 22	53	+ 7				
Florence		83.0	348	i 12	32 _a	+ 4	i 23	11	+24	i 12	47	pP	
Siena		83.4	348	i 12	33	+ 3		23 1	+10	i 13	35	?	
Rome		84.7	346	i 12	38 _a	+ 1	i 23	16	+12	i 12	57	pP	
Taranto		85.3	343		12 46	+ 6		23 13	+ 3				46.7
Kodaikanal	E.	86.0	282	i 12	46	+ 3	i 23	9	[+ 2]		16 7	PP	39.9
Athens		86.3	337	i 12	45 _k	0	e 23	11	[+ 2]	e 24	33	PS	
Ksara		86.7	327	i 12	47	0		23 33?	+ 9		16 11	PP	
Tortosa		86.9	355	i 12	51	+ 3	e 23	24	- 2				
Messina		87.8	344	i 12	51	- 1	i 23	32	- 2	i 13	3	pP	41.7
Toledo		88.0	359	i 12	54	+ 1	i 23	38	+ 2		29 43	SS	48.7
Riverview		88.3	199	i 12	57 _a	+ 2	i 23	38	- 1	i 16	28	PP	e 41.0
Lisbon		89.1	3		12 58 _k	0		24 4	+18				47.1
Alicante		89.4	356		13 3	+ 3	e 23	56	+ 7		16 37	PP	42.3
Ciudad Trujillo		90.3	59		16 13	PP		26 53	?				
Granada		90.7	359	i 13	5 _a	- 1		22 50	[-47]	i 16	38	PP	53.6
Algiers Univ.	z.	90.8	353	i 13	6 _a	0	e 24	13	+11	e 16	37	PP	
Almeria		91.0	358	i 12	59	- 8	i 23	47	[+ 8]		16 37	PP	50.9
Malaga		91.1	359	i 13	6	- 2							56.7
Helwan		91.8	328	i 13	10 _a	- 1		24 13	+ 2		16 52	PP	
San Juan		92.2	56	i 13	12	- 1	i 24	13	- 1				
Melbourne	E.	93.5	203				i 24	25	0	e 30	44	SS	e 40.0
Christchurch		95.7	182	e 26	1	PS	e 23	51	[-14]		24 46	S	e 35.3
Fort de France		97.8	54				e 24	8	[- 8]				
Bogota		99.3	70	e 14	9	+24	e 24	5	[-19]	e 18	27	PP	46.7
Tamanrasset	z.	104.4	349	e 14	8	0	e 25	52	- 5	i 18	4	PKP	
Huancayo		111.9	82	e 19	13	PP	e 25	16	[- 4]	e 28	55	PS	e 45.3
La Paz		119.7	78	i 18	55	[+ 3]	i 25	47	[- 2]	i 20	21	PP	57.2
Pretoria	z.	143.0	303	i 19	31	[- 5]							
Pietermaritzburg	z.	144.9	297	i 19	37	[- 2]							
Kimberley	z.	147.2	304	i 19	43	[0]							
Grahamstown	z.	149.9	297	i 19	50	[+ 3]							

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Dec. 7d. 15h. 34m. 25s. I } Epicentre 36°·8N. 69°·9E. Depth of focus 0·025 (as on 1d.).
22h. 11m. 7s. II }

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
I Kulyab	1·1	355	i 0 27	- 3	i 0 52	- 1
II	1·1	355	i 0 33	+ 3	i 0 59	+ 6
I Khorog	1·5	64	i 0 29	- 4	0 55	- 4
II	1·5	64	e 0 30	- 3	e 0 54	- 5
I Obi-garm	1·9	355	i 0 36	- 1	i 1 8	+ 2
II	1·9	355	i 0 40	+ 3	i 1 11	+ 5
I Stalinabad	2·0	233	i 0 37	- 1	i 1 9	+ 1
I Garm	2·2	8	i 0 41	0	e 1 14	+ 2
II	2·2	8	i 0 42	+ 1	i 1 14	+ 2
I Dzhergetal	2·6	23	0 47	+ 2	1 25	+ 5
II	2·6	23	0 45	0	1 20	0
I Samarkand	3·7	323	e 0 58	0	e 1 43	- 1
I Fergana	3·9	22	e 1 3	+ 2	e 1 53	+ 5
II	3·9	22	e 1 0	- 1	i 1 46	- 2
I Andijan	4·4	25	1 8	+ 1	—	—
II	4·4	25	1 6	- 1	i 1 56	- 3
I Namangan	4·4	18	e 1 9	+ 2	i 2 5	+ 6
II	4·4	18	—	—	1 59	0
I Lunacharskoe	4·5	354	e 1 11	+ 2	i 2 7	+ 5
II	4·5	354	—	—	i 2 7	+ 5
II Tchimkent	5·5	358	—	—	i 2 26	+ 1
I Bairam-All	6·2	280	—	—	2 54	+13
I Naryn	6·6	44	—	—	i 2 57	+ 7
II Przhevalsk	8·7	46	e 1 56	- 7	—	—

Dec. 7d. 16h. 33m. 7s. Epicentre 51°·0N. 158°·9E. (as on 2d.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
College	30·4	43	i 6 11	- 5	—	—	—	e 23·1
Z0-Sè	34·2	249	e 6 59	+10	e 12 30	+14	—	—
Nanking	34·9	253	e 7 5	+10	e 12 41	+14	—	—
Hong Kong	44·9	248	—	—	e 14 53?	- 3	—	—
Resolute Bay	45·5	23	i 8 20	- 3	i 14 58	- 7	e 18 24	SS e 24·0
Hungry Horse	53·2	57	e 9 19	- 3	—	—	—	—
Shasta	z. 53·3	68	e 9 22	- 1	—	—	—	—
Reno	z. 55·6	68	e 9 39k	- 1	—	—	—	—
Lick	z. 55·9	71	i 9 44k	+ 2	—	—	i 9 54	? —
Kiruna	57·5	343	i 9 53	0	e 17 58	+ 8	i 10 9	? e 26·9
Tinemaha	z. 58·1	70	e 9 57	- 1	—	—	e 10 42	? —
Chatra	58·3	274	e 10 4	+ 5	e 18 10	+ 9	—	—
Scoresby Sund	58·8	2	e 9 59	- 3	e 18 18	+11	—	28·9
China Lake	z. 59·4	70	e 10 6	0	—	—	i 10 19	? —
Pasadena	60·2	72	i 10 10	- 2	—	—	i 10 22	? —
Calcutta	E. 60·7	271	—	—	e 18 45	+13	—	—
Riverside	z. 60·7	72	e 10 14	- 1	—	—	—	—
Boulder City	60·9	79	e 10 15	- 2	—	—	—	—
Nelson	61·1	79	i 10 17	- 1	—	—	—	—
Palomar	z. 61·5	72	e 10 20	- 1	—	—	i 10 32	? —
Upsala	65·1	340	i 10 43	- 2	e 19 26	- 1	i 11 16	PcP e 35·9
Tucson	65·9	69	e 10 49	- 1	—	—	—	—
Quetta	68·3	292	i 11 9k	+ 4	e 20 13	+ 7	—	—
Kirkland Lake	z. 69·1	38	e 11 13	+ 3	—	—	—	—
Copenhagen	70·1	342	e 11 18	+ 2	21 30	+63	—	36·9
Fayetteville	z. 72·2	55	i 11 25	- 4	—	—	—	—
Lwow	72·4	332	i 11 31	+ 1	e 21 5	+12	e 11 44	PcP —
Poona	72·7	278	i 11 38	+ 6	e 21 6	+ 9	—	—
Ottawa	73·0	38	e 11 39	+ 6	—	—	—	—
Potsdam	73·0	340	e 11 35	+ 2	e 21 11	+11	—	e 39·9

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Bombay		73.1	279	e 11 43	+ 9	e 21 23	+22	e 22 23	?
Cernauti		73.2	329	e 11 35	+ 0	—	—	—	—
Kishinev		73.3	328	i 11 37	+ 2	21 17	+13	i 11 47	PcP
Cleveland	z.	73.9	44	e 12 10 _a	PcP	—	—	—	—
Raciborzu	z.	73.9	335	e 11 41	+ 2	e 12 31	?	e 11 53	PcP
Witteveen	z.	73.9	344	i 11 41 _k	+ 2	—	—	—	—
Uzhgorod		74.0	333	e 11 40	+ 1	e 21 17	+ 6	—	—
Collmberg		74.1	339	e 11 37	- 3	e 11 40	P	e 12 28	PcP
Jena	z.	74.7	339	e 11 44	+ 1	e 12 23	?	e 11 52	?
De Bilt		74.9	344	e 11 41	- 3	e 21 23	+ 1	—	e 39.9
Prague		74.9	338	e 11 43	- 1	e 21 24	+ 2	e 12 14	PcP
Morgantown		76.1	44	e 11 55	+ 4	—	—	—	—
Stuttgart		77.3	340	e 11 58	0	e 21 56	+ 8	e 12 17	PcP
Strasbourg		77.8	341	e 12 3	+ 2	e 21 56	+ 3	—	—
Paris		78.5	345	e 12 5	+ 1	e 22 8	+ 7	e 22 45	SP
Zürich	z.	78.7	341	e 12 3	- 3	—	—	—	—
Besançon		79.4	342	e 12 11	+ 2	—	—	e 12 30	PcP
Pavia		80.7	339	—	—	e 22 30	+ 6	e 34 46	Q
Ksara		81.8	316	i 12 26	+ 4	e 22 51	+16	—	e 48.1
Taranto		82.9	332	—	—	e 22 59	+13	e 29 59	SSP
Rome		83.0	336	e 12 53	+25	e 23 46	PS	e 33 49	Q
Messina	N.	85.5	332	—	—	e 23 8	[+ 4]	e 34 58	Q
Helwan	z.	87.2	317	e 12 53	+ 4	—	—	e 13 38	?
Bermuda		88.5	36	—	—	e 23 39	- 2	—	e 45.6
Tamanrasset	z.	102.9	335	e 13 58	- 3	e 25 21	(+ 6)	e 17 58	PP
La Paz		129.2	64	e 19 21	[+11]	—	—	—	—

Dec. 7d. 20h. 20m. 3s. Epicentre 7°·8S. 156°·5E. (as on 1947, Jan. 4d.).

A = -·9087, B = +·3951, C = -·1348; δ = +1; h = +7;
D = +·399, E = +·917; G = +·124, H = -·054, K = -·991.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane		19.9	170	i 4 38 _a	+ 2	i 8 22	+ 7	i 4 45	PP
Riverview		26.4	190	i 5 42 _a	+12	i 10 17	+ 5	i 6 3	pP
Melbourne	E.	31.7	198	—	—	e 14 19	SSS	—	—
Manila		41.7	303	i 7 57 _a	+ 5	i 14 19	+ 9	i 8 6	pP
Hong Kong		51.1	307	e 15 57 _?	PS	—	—	—	—
Chatra		75.4	300	e 11 35	-12	e 21 12	-15	—	—
College		83.3	21	12 25	- 5	—	—	—	—
Poona		85.5	290	i 12 39	- 2	e 22 58	-14	—	—
Pasadena		90.5	56	i 13 4	- 1	—	—	—	—
Tinemaha	z.	90.9	53	i 13 9	+ 2	—	—	—	—
Riverside	z.	91.1	56	e 13 7	- 1	—	—	—	—
China Lake	z.	91.2	54	e 13 8	0	—	—	—	—
Palomar	z.	91.4	56	e 13 10	+ 1	—	—	—	—
Nelson		93.4	55	e 13 17	- 1	—	—	—	—
Ksara		119.7	304	e 20 14	PP	—	—	22 50	PPP
Tamanrasset	z.	148.4	301	e 19 45 _k	[0]	i 19 57	PKP ₁	i 23 19	PP

Dec. 8d. 15h. 9m. 25s. Epicentre 21°·7N. 100°·2E. (as on 1950, Feb. 3d.).

A = -·1647, B = +·9153, C = +·3676; δ = +3; h = +4;
D = +·984, E = +·177; G = -·065, H = +·362, K = -·930.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Shillong		8.6	298	e 1 57	-12	3 51	+ 3	4 0	SS
Calcutta	E.	11.0	276	e 2 56	+14	4 39	- 8	i 5 6	SS
Chatra		13.0	296	e 2 58	-11	5 24	-11	e 5 10	?
Hong Kong		13.0	85	e 3 18 _?	+ 9	—	—	—	e 6.2
Nanking	z.	19.5	54	e 4 42	PP	i 8 13	+ 7	—	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Hyderabad	E.	20.9	262	i 4	51	+ 5	8	25	-10	5	13	PPP	—
Madras	E.	21.0	251	i 4	51	+ 4	i 8	49	+12	5	20	PPP	9.3
Manila		21.0	106	i 4	48 ^k	+ 1	i 8	47	+10	i 4	56	?	—
New Delhi		21.9	293	e 4	52	- 5	i 8	41	-13	9	20	SS	9.9
Colombo	E.	24.5	236	5	25	+ 3	10	3	+23	—	—	—	14.0
Kodaikanal	E.	24.6	247	e 5	35	+12	i 10	2	+20	—	—	—	—
Poona		24.9	267	i 5	28	+ 2	i 9	47	0	11	7	SSS	11.8
Bombay		25.8	269	e 5	34	0	i 10	0	- 2	11	3	SS	—
Djakarta		28.5	166	i 6	14 ^a	+15	e 10	58	+12	—	—	—	14.1
Quetta		30.9	294	i 6	17	- 3	e 11	11	-13	—	—	—	17.7
Ksara		57.4	297	e 9	56	+ 3	e 20	57	?	—	—	—	—
Helwan	z.	61.7	293	10	20	- 2	—	—	—	e 14	4	PPP	—
Tananarive		65.4	236	10	50	+ 3	19	43	+13	e 13	49	PP	—
Kiruna		66.2	336	i 10	47	- 5	e 24	18	SS	i 11	2	?	e 31.9
Upsala		67.8	328	i 10	58	- 4	e 20	12	+12	i 11	29	PcP	e 33.6
Brisbane		70.7	132	i 11	4	-16	—	—	—	—	—	—	e 39.6
Prague	E.	71.0	318	—	—	—	28	41	SSS	—	—	—	—
Copenhagen		71.1	324	—	—	—	28	17	SSS	—	—	—	36.6
Potsdam		71.4	321	—	—	—	e 28	35	SSS	—	—	—	e 35.6
Triest		72.4	313	e 20	13	?	e 24	50	?	—	—	—	—
Jena		72.6	318	e 11	29	- 2	e 14	11	PP	e 15	59	PPP	—
Messina		72.9	305	—	—	—	e 20	49	-10	e 23	50	?	40.6
Riverview		73.5	138	—	—	—	e 21	34	+28	e 29	17	SSS	e 32.4
Rome		74.2	309	e 11	36	- 4	—	—	—	e 29	51	Q	e 39.2
Stuttgart		74.6	317	e 11	40	- 3	e 21	11	- 7	e 29	35	SSS	e 38.6
Karlsruhe		75.1	318	e 11	45 [?]	- 1	—	—	—	e 12	3	PcP	e 40.6
Witteveen	z.	75.1	322	e 11	42	- 4	—	—	—	—	—	—	—
Zürich		75.4	316	e 11	44	- 3	—	—	—	e 12	19	?	—
Pavia		75.6	313	—	—	—	e 21	35	+ 6	e 30	50	PKKP	—
Basle		76.0	316	e 12	33	?	—	—	—	—	—	—	—
De Bilt		76.2	321	e 30	35	?	—	—	—	—	—	—	e 40.6
Besançon		77.1	316	e 11	54	- 3	—	—	—	—	—	—	—
Paris		78.8	318	e 12	4	- 2	e 12	7	P	e 12	54	?	e 41.6
Durham		79.1	325	—	—	—	e 31	0	SSS	i 31	5	SSS	—
Collego		79.4	24	12	8	- 1	—	—	—	—	—	—	—
Clermont-Ferrand		79.5	315	—	—	—	e 27	14	SS	—	—	—	42.6
Scoresby Sund		79.6	343	e 12	12	+ 2	—	—	—	—	—	—	32.6
Resolute Bay		83.4	4	e 12	28 ^a	- 2	e 22	51	0	e 27	57	SS	142.1
Tamanrasset	z.	85.9	293	e 12	43	0	e 22	47	?	i 12	49	PcP	41.6
Hungry Horse		103.8	22	e 14	5	0	—	—	—	e 18	4	PP	—

Dec. 9d. 5h. 47m. 33s. Epicentre 35°·0S. 75°·0W.

Very rough.

A = +.2125, B = -.7930, C = -.5710; δ = +5; h = 0;
D = -.966, E = -.259; G = -.148, H = +.552, K = -.821.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Concepción	N.	3.0	128	e 0	48	- 2	e 1	27	0	1	15	?	—
Santa Lucia	N.	3.9	67	i 0	31	-31	i 0	51	-59	—	—	—	—
Copíapo	E.	8.6	29	e 3	49	S	(e 3	49)	+ 1	e 5	18	?	—
La Plata		14.0	94	2	45	-37	5	33	-26	3	33	?	6.2
La Paz		19.4	20	i 4	15	-15	i 7	42	-22	—	—	—	9.8
Huancayo		22.9	359	i 5	3	- 3	e 9	15	+ 2	—	—	—	—
Fayetteville	z.	73.0	344	i 11	31	- 2	—	—	—	—	—	—	—
Harvard		77.2	3	e 12	0	+ 3	—	—	—	—	—	—	—
Riverside	z.	79.3	326	e 12	25	PcP	—	—	—	—	—	—	—
China Lake	z.	80.9	327	e 12	20	+ 3	—	—	—	—	—	—	—
Tamanrasset	z.	95.5	66	e 13	18	-10	e 17	5	PP	i 13	27	P	35.4
Quetta	z.	146.8	86	i 19	44	[+ 2]	—	—	—	—	—	—	—
Poona	z.	147.9	113	e 19	44	[0]	—	—	—	—	—	—	—

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Dec. 9d. 9h. 15m. 32s. Epicentre 15°·9S. 167°·9E. Depth of focus 0·020.

A = -·9408, B = +·2017, C = -·2722; δ = -12; h = +6;
D = +·210, E = +·978; G = +·266, H = -·057, K = -·962.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane		18·0	228	i 4 2	+ 1	i 7 20	+ 6	i 4 19	pP	—
Apia		19·8	87	i 4 20	0	—	—	—	—	—
Auckland	N.	21·8	166	4 38	- 2	i 8 31	+ 5	e 9 45	sS	—
Karapiro	N.	23·0	168	i 4 52	+ 1	e 8 51	+ 5	e 15 41	ScS	—
Riverview		23·4	217	i 4 57k	+ 2	i 8 57	+ 4	i 5 23	pP	—
Tuai	N.	24·2	163	e 5 4	+ 1	9 6	- 1	15 44	ScS	—
Cobb River	E.	25·5	173	e 5 14	- 1	—	—	—	—	—
Wellington	Z.	26·0	170	i 5 18k	- 2	9 33	- 3	e 5 53	pP	—
Kaimata	N.E.	26·7	175	e 5 27	+ 1	e 9 57	+ 9	e 16 16	ScS	—
Christchurch		27·8	173	—	—	e 10 3	- 3	e 11 40	SS	e 12·4
Melbourne	E.	29·8	219	e 6 53	PP	i 10 41	+ 4	e 12 27	SS	—
Perth		49·7	242	e 8 58	pP	e 16 20	sS	i 22 0	?	—
Manila		55·4	301	i 9 28k	+ 8	i 17 8	+18	—	—	—
Bandung		59·6	273	i 9 48	- 1	i 17 46	+ 1	i 13 25	PPP	—
Djakarta		60·5	273	i 9 54a	- 1	i 17 55	- 1	i 10 35	pP	—
Lick	Z.	84·7	49	e 12 16a	- 1	i 13 25	?	i 13 7	sP	—
Shillong	E.	84·7	299	i 12 16a	- 1	e 22 20	- 9	—	—	—
Shasta	Z.	85·6	46	e 12 22a	+ 1	e 12 28	PcP	e 13 8	pP	—
Fresno	Z.	85·8	50	e 12 23a	+ 1	e 13 43	?	e 13 10	pP	—
Mineral	Z.	86·0	46	e 12 25k	+ 2	i 13 53	?	i 13 10	pP	—
Pasadena		86·1	53	i 12 23	- 1	i 12 32	PcP	i 13 12	pP	—
Riverside	Z.	86·6	53	e 12 27	+ 1	e 15 51	PP	e 13 12	pP	—
Palomar	Z.	86·8	54	e 12 29	+ 2	—	—	i 13 14	pP	—
Reno	Z.	86·9	48	e 12 30k	+ 2	—	—	e 13 16	pP	—
China Lake	Z.	87·1	52	e 12 30	+ 1	—	—	e 13 15	pP	—
Tinemaha	Z.	87·1	51	i 12 29	0	e 16 7	PP	i 12 38	?	—
College		87·2	17	i 12 28	- 1	—	—	—	—	—
Chatra		89·1	298	i 12 39	+ 1	e 22 51	[0]	—	—	—
Nelson		89·2	53	i 12 39	0	i 12 43	PcP	i 13 24	pP	—
Boulder City		89·3	53	i 12 40	+ 1	—	—	i 13 24	pP	—
Tucson		91·2	57	e 12 49	+ 1	—	—	—	—	—
Hungry Horse		94·0	41	e 13 12	+11	—	—	—	—	—
Butte		94·2	43	e 13 49	pP	—	—	—	—	—
Bombay		99·7	287	—	—	i 23 49	[0]	e 23 57	?	—
Fayetteville	Z.	105·5	57	e 16 48	?	—	—	e 18 4	PP	—
La Paz		116·0	118	18 23	[- 1]	—	—	19 34	PP	—
Ottawa		119·6	47	i 18 30	[- 1]	—	—	i 21 48	?	—
Kimberley	Z.	123·1	219	i 18 39	[+ 2]	—	—	—	—	—
Kiruna	Z.	124·0	346	i 18 39	[0]	—	—	—	—	—
Halifax		128·2	46	i 21 50	pPP	—	—	—	—	—
San Juan		128·5	79	i 18 48	[0]	—	—	—	—	—
Upsala	Z.	131·0	341	—	—	i 22 1	SKP	—	—	—
Ksara		133·4	302	i 20 12	?	i 22 12	SKP	—	—	—
Helwan	Z.	137·9	297	19 8	[+ 2]	22 43	PKS	21 58	PP	—
Raciborzu	Z.	138·0	332	e 22 4	PP	e 22 40	PKS	e 23 37	?	—
Prague		139·7	334	e 22 29	SKP	e 22 46	PKS	e 23 51	?	—
Jena	Z.	140·2	336	e 19 11	[+ 1]	e 22 29	SKP	—	—	—
Witteveen	Z.	140·3	344	—	—	i 22 31	SKP	—	—	—
Stuttgart	Z.	142·9	337	e 19 12	[- 3]	e 22 36	SKP	e 23 38	?	—
Strasbourg		143·5	338	e 19 15	[- 1]	e 22 39	PP	e 20 2	pPKP	—
Zürich		144·2	337	e 19 16a	[- 1]	—	—	—	—	—
Basle		144·5	337	e 19 9a	[- 8]	—	—	e 20 10	sPKP	—
Paris		145·1	344	i 19 19	[+ 1]	e 26 24	[+15]	e 20 5	pPKP	—
Besançon		145·3	338	i 19 20	[+ 1]	e 19 1	?	i 20 9	pPKP	—
Alicante		155·4	339	e 19 22	[-12]	26 54	[+32]	29 58	SKKS	73·0
Tamanrasset	Z.	162·0	295	e 19 45	[+ 3]	e 28 11	PPP	i 20 33	PKP,	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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Dec. 10d. 5h. 58m. 5s. Epicentre 71°·2N. 7°·0W.

A = +·3218, B = -·0395, C = +·9460; δ = +3; h = -12;
D = -·122, E = -·993; G = +·939, H = -·115, K = -·324.

	Δ °	Az. °	P.		O-C.	S.		O-C.	Supp.		L.	
			m.	s.	s.	m.	s.	m.	s.	m.		
Scoresby Sund	5·0	269	i 1	17 _a	- 1	—	—	—	—	—	—	
Reykjavik	9·0	226	i 2	18	+ 5	e 4	0	+ 2	i 2	21	PP	e 5·2
Kiruna	10·1	96	i 2	26 _k	- 3	i 4	21	- 4	i 2	34	PP	—
Bergen	11·9	149	2	52	- 2	i 4	55?	-14	i 3	7	PP	e 5·5
Aberdeen	14·2	169	e 3	21	- 3	i 6	15	+11	i 6	53	SSS	i 7·1
Upsala	15·1	126	i 3	33	- 3	i 6	27	+ 2	i 6	43	SS	—
Edinburgh	E. 15·4	172	—	—	—	e 6	54	SSS	—	—	—	e 7·5
Durham	N. 16·7	169	i 3	53	- 4	i 7	8	+5	i 4	17	PP	—
Helsinki	16·9	114	e 3	58	- 1	—	—	—	—	—	—	—
Copenhagen	17·7	142	i 4	6	- 4	7	31	+ 5	e 8	13	SSS	—
Rathfarnham Castle	18·0	178	e 4	2	-11	i 7	42	+10	e 4	19	PP	e 9·1
Pulkovo	18·8	107	e 4	21	- 2	i 7	51	+ 1	—	—	—	—
Ivigut	18·9	259	i 4	24	0	7	58	+ 5	i 8	11	SS	9·4
Witteveen	z. 19·4	153	i 4	30 _a	0	—	—	—	—	—	—	—
De Bilt	19·9	156	i 4	34 _a	- 2	i 8	19	+ 4	—	—	—	e 9·4
Kew	20·0	167	i 4	34	- 3	e 8	17	0	i 4	55	PP	e 9·9
Potsdam	20·9	144	e 4	43	- 3	e 8	38	+ 3	i 5	0	PP	e 9·4
Collmburg	21·9	145	e 4	54	- 3	e 9	37	SS	e 5	10	PP	e 13·7
Jena	22·0	146	i 4	55	- 3	e 9	0	+ 4	e 5	28	PP	e 12·9
Jersey	E. 22·2	170	e 5	4	+ 4	e 9	10	+10	—	—	—	11·4
Paris	22·6	164	i 5	3	0	i 9	2	- 5	i 5	34	PP	e 10·9
Karlsruhe	23·4	153	i 5	11	0	e 9	22	+ 1	i 5	42	PP	e 11·9
Prague	23·4	143	i 5	11	0	e 9	25	+ 4	e 5	43	PP	e 11·2
Strasbourg	23·7	155	i 5	13	- 1	i 9	28	+ 1	i 5	44	PP	e 11·4
Stuttgart	23·7	152	i 5	13 _a	- 1	e 9	32	+ 5	i 5	45	PP	e 11·4
Resolute Bay	23·8	320	i 5	15	0	i 9	40	+12	e 6	1	PPP	e 11·4
Raciborzu	24·2	137	e 5	19	0	9	32	- 3	5	55	PP	—
Moscow	24·4	104	i 5	29	+ 8	9	51	+12	—	—	—	—
Basle	24·7	156	e 5	23	- 1	e 9	40	- 4	—	—	—	—
Besançon	24·8	157	i 5	23	- 2	i 6	1	PP	i 6	14	PPP	—
Zürich	25·0	155	e 5	25 _a	- 2	—	—	—	—	—	—	—
Neuchatel	25·2	156	e 5	27	- 2	e 10	1	+ 9	—	—	—	—
Skalnate Pleso	25·4	135	e 5	33	+ 2	e 9	58	+ 2	e 6	9	PP	e 12·9
Vienna	25·5	141	e 5	31	- 1	e 9	22	-35	e 5	48	?	—
Lwow	25·7	129	i 5	33	0	—	—	—	—	—	—	—
Clermont-Ferrand	26·0	164	e 5	34	- 2	i 10	5	- 1	—	—	—	12·9
Ogyalla	26·2	138	e 5	43	+ 5	e 10	6	- 3	e 6	15	PP	—
Uzhgorod	26·4	132	i 5	40	0	—	—	—	—	—	—	—
Oropa	26·7	156	i 5	47	+ 4	e 10	30	+13	i 6	11	PP	—
Budapest	26·8	137	5	51	+ 7	e 10	12	- 7	6	47	PPP	—
Salo	27·0	151	i 5	52	+ 7	e 10	31	+ 9	i 6	38	PP	—
Pavia	27·2	153	e 6	7	+20	e 10	35	+10	e 9	12	PcP	e 13·8
Triest	27·5	146	e 5	49	- 1	i 10	29	- 1	i 6	31	PP	15·6
Kalossa	27·7	138	e 5	52	0	e 6	28	PP	6	35	PP	e 15·4
Bologna	28·2	150	e 6	1	+ 5	e 10	19	-22	e 11	9	?	—
Padova	28·3	150	e 6	22	+25	—	—	—	—	—	—	—
Florence	28·9	151	e 5	58	- 5	e 11	7	+14	i 6	47	PP	—
Timisoara	28·9	135	e 6	6	+ 3	—	—	—	e 6	11?	P	e 15·9
Iasi	29·1	127	e 6	3	- 1	—	—	—	—	—	—	—
Belgrade	29·6	137	e 6	13	+ 4	e 11	4	0	e 9	4	PcP	e 14·7
Kishinev	29·6	125	—	—	—	e 11	0	- 4	—	—	—	—
Barcelona	30·2	166	—	—	—	e 12	56	SS	—	—	—	e 14·8
Tortosa	30·7	167	e 6	17	- 2	e 11	25	+ 4	—	—	—	—
Sverdlovsk	30·9	81	i 6	21	+ 1	11	26	+ 2	—	—	—	—
Rome	31·0	150	i 6	17 _a	- 4	i 11	26	0	i 7	20	PP	e 15·0
Toledo	31·4	175	e 6	22	- 3	e 11	29	- 3	e 13	18	SS	15·9
Sofia	32·3	135	e 6	31	- 2	—	—	—	—	—	—	e 18·4
Lisbon	32·6	183	6	32	- 3	13	55	SS	—	—	—	15·8
Simferopol	32·9	120	i 6	46	+ 8	—	—	—	—	—	—	—
Alicante	33·1	170	6	41	+ 1	11	58	- 1	17	12	ScS	16·2

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Taranto	33.2	145	6 38	- 2	11 27	-33	(14 17) SSS	14.3
Theodosia	33.2	118	e 6 40	0	e 11 58	- 2	—	—
Yalta	33.3	120	e 6 40	- 1	e 11 59	- 3	—	—
Granada	34.1	175	7 1	+13	i 12 4	-10	—	i 16.5
Angra do Heroismo E.	34.2	208	—	—	e 12 41	+25	i 16 4 ?	i 17.7
Almeria	34.5	173	6 42	-10	12 6	-14	8 15 PP	17.7
Malaga	34.6	175	i 6 28	-25	12 36	+14	i 7 44 PP	16.5
Algiers Univ. z.	34.9	165	e 6 52	- 3	e 12 27	0	e 8 3 PP	—
Messina	35.1	148	i 6 52 ^a	- 5	i 12 24	- 6	e 7 54 PP	16.7
Istanbul z.	35.2	128	e 6 59	+ 1	—	—	—	—
Piatigorsk	36.4	110	6 58	-10	—	—	—	—
Athens	36.9	137	i 7 11 ^k	- 1	—	—	i 7 17 ?	—
Zugdidi	37.4	112	e 7 23	+ 7	e 13 17	+12	—	—
Grozny	37.8	108	i 7 20	0	i 13 13	+ 2	—	—
Halifax	37.8	257	i 7 21 ^k	+ 1	13 22	+11	8 45 PP	—
Gori	38.5	111	7 28	+ 2	—	—	—	—
Tsikhli-Dzhvari	38.6	112	e 7 23	- 3	—	—	—	—
Makhach-Kala	38.7	112	—	—	e 13 24	- 1	—	—
Tiflis	39.0	110	7 31	+ 1	13 31	+ 2	—	—
Shawinigan Falls N.	39.1	268	e 7 30	- 1	—	—	—	—
Kirkland Lake z.	40.0	275	i 7 44 ^k	+ 6	—	—	—	—
Erevan	40.3	111	i 7 32	- 8	—	—	—	—
Kirovobad	40.4	109	7 40	- 1	e 13 52	+ 2	—	—
Ottawa	41.0	270	i 7 48 ^k	+ 2	13 57	- 2	9 50 PcP	18.6
Shemakla	41.2	107	—	—	i 14 3	+ 1	—	—
Goris	41.5	106	e 7 51	+ 1	i 14 11	+ 4	—	—
College	41.6	336	e 7 53	+ 2	i 14 12	+ 4	i 9 38 PcP	e 17.0
Baku	41.8	105	e 7 53	0	—	—	—	—
Harvard	42.3	263	e 7 58	+ 1	e 14 32	+13	(e 17 31) SS	e 17.5
Weston	42.3	263	i 7 59 ^k	+ 2	—	—	—	—
Semipalatinsk	42.5	70	e 8 0	+ 1	—	—	—	—
Ksara	43.8	125	e 8 11	+ 2	15 34	?	—	—
Buffalo (Larkin)	44.3	271	i 8 14	+ 1	—	—	—	—
Palisades	44.4	264	i 8 14 ^k	0	i 14 46	- 3	i 10 7 PP	e 20.9
Fordham	44.5	264	i 8 17	+ 2	e 15 5	+14	—	—
City College, N.Y.	44.6	264	e 8 18	+ 2	e 15 5	+13	—	—
Saskatoon	44.6	300	18 14	SS	—	—	—	21.6
Kizyl-Arvat	45.0	98	e 8 20	+ 1	—	—	—	—
Pennsylvania	45.9	269	i 8 27	+ 1	e 14 57	-14	e 10 12 PP	—
Cleveland	46.4	273	i 8 32 ^k	+ 2	i 15 24	+ 6	e 10 30 PP	—
Helwan	46.4	131	i 8 29 ^a	- 1	15 15	- 3	10 18 PP	—
Tchimkent	46.4	85	i 8 31	+ 1	i 15 21	+ 3	—	—
Ashkabad	46.7	98	i 8 33	+ 1	15 27	+ 5	—	—
Pittsburgh	46.9	270	i 8 30	- 4	i 15 25	0	—	—
Tashkent	47.1	86	e 8 34	- 1	e 15 28	0	—	—
Lunacharskoe	47.2	86	i 8 24 [?]	-12	i 15 20 [?]	- 9	—	—
Washington	47.3	267	i 8 36	- 1	e 15 30	- 1	—	—
Frunse	47.5	80	i 8 40	+ 2	e 15 35	+ 1	—	—
Irkutsk	47.6	51	8 40 [?]	+ 1	—	—	—	—
Morgantown	47.6	270	i 8 41	+ 2	i 15 38	+ 3	—	—
Samarkand	47.9	89	8 42	0	15 39	0	—	—
Chicago	48.1	279	e 8 43	0	e 15 43	+ 1	—	—
Bairam-Ali	48.2	94	i 8 44	0	15 44	+ 1	—	—
Namangan	48.2	84	—	—	i 15 48	+ 5	—	—
Rybach'e	48.3	79	i 8 47	+ 2	—	—	—	—
Kabansk	48.4	48	i 8 47	+ 1	—	—	—	—
Andijan	48.6	83	i 8 48	+ 1	15 55	+ 6	—	—
Fergana	48.8	83	i 8 50	+ 1	15 57	+ 5	—	—
Przhevsk	49.0	77	e 8 51	+ 1	—	—	—	—
Tamanrasset z.	49.0	165	i 8 49 ^k	- 1	e 15 56	+ 1	e 10 42 PP	22.9
Bermuda	49.4	251	i 9 6	+13	i 16 13	+13	e 11 27 PPP	e 23.3
Cincinnati	49.5	273	i 8 55	+ 1	i 16 6	+ 4	—	—
Dzhergetal	49.7	86	i 8 57	+ 1	—	—	—	—
Obi-garm	49.7	87	e 8 55	- 1	e 16 5 [?]	+ 1	—	—
Hungry Horse	50.1	304	i 8 58	- 1	—	—	i 10 25 PcP	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kulyab	50.4	88	9 1	0	16 13	- 1	—	—
Khorog	51.4	85	9 10	+ 1	e 16 31	+ 3	—	—
Butte	51.8	302	i 9 13	+ 1	—	—	—	—
Columbia	53.1	268	i 9 23	+ 2	i 16 55	+ 4	—	—
Fayetteville	z. 55.4	281	i 9 36	- 2	e 17 25	+ 3	i 11 39	PP e 32.4
Quetta	56.6	93	i 9 47 _a	0	e 17 40	+ 2	—	—
M'Bour	57.1	192	—	—	e 21 55?	SS	—	—
Shasta	59.4	307	e 10 6	0	—	—	—	—
Mineral	z. 59.5	307	e 10 7 _k	0	i 10 26	?	e 12 8	PP
Reno	z. 59.8	304	e 10 11 _a	+ 2	—	—	—	—
Lubbock	60.1	286	e 10 11	0	—	—	—	—
New Delhi	61.4	85	e 10 20	0	e 18 41	+ 1	22 44	SS 28.8
Tinemaha	61.7	302	i 10 24	+ 2	i 13 1	PP	i 14 15	PPP
Boulder City	61.8	299	i 10 23	0	—	—	—	—
Berkeley	62.0	306	i 10 26 _k	+ 2	e 18 56	+ 8	(e 25 43)	SSS e 25.7
Nelson	62.0	299	i 10 25	+ 1	—	—	i 10 33	?
Fresno	62.4	304	e 10 28 _a	+ 1	e 14 13	PPP	e 14 19	PPP
Lick	z. 62.4	306	i 10 29 _k	+ 2	i 10 59	PcP	e 12 48	PP
China Lake	z. 62.7	301	i 10 30	+ 1	i 10 38	?	e 14 25	PPP
Tucson	64.1	294	e 10 40	+ 2	e 19 14	0	e 26 36	SSS e 31.1
Pasadena	64.4	301	i 10 41	+ 1	i 10 49	?	i 12 58	PP e 32.0
Riverside	64.4	301	i 10 40	0	i 10 53	?	—	—
Palomar	z. 64.8	299	i 10 45	+ 2	i 10 51	?	i 11 4	PcP
Chatra	66.2	77	i 10 52	0	e 19 40	0	—	—
Bombay	69.0	93	e 11 10	+ 1	e 20 12	- 2	20 48	PPS 25.9
Poona	z. 69.6	92	i 11 15	+ 2	—	—	—	—
Nanking	70.2	47	—	—	e 20 29	+ 1	—	—
Hyderabad	E. 72.2	88	—	—	e 20 45	- 6	—	—
Tacubaya	72.5	279	e 11 33	+ 3	e 20 59	+ 5	—	—
Bogota	78.4	250	e 12 9	+ 5	e 22 6	+ 6	e 15 10	PP 34.9
Hong Kong	78.4	54	—	—	e 21 55?	- 5	—	—
Kodaikanal	E. 78.6	92	—	—	e 21 2	-60	—	—
Huancayo	94.5	246	e 13 31	+ 8	e 24 6	[+ 8]	e 31 7	SS e 39.2
La Paz	96.7	237	i 17 31	PP	i 24 39	-14	i 31 27	SS 44.4

Dec. 10d. 7h. 37m. 46s. Epicentre 36°·1N. 68°·2E. (as on 1947, Nov. 8d.).

A = +·3008, B = +·7520, C = +·5866; $\delta = +8$; $h = 0$;
D = +·928, E = -·371; G = +·218, H = +·545, K = -·810.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kulyab	2.2	35	i 0 40	0*	i 1 16	+ 3 _g	—	—
Obi-garm	2.9	25	i 0 50	+ 2	1 32	+ 2*	—	—
Khorog	3.0	63	i 0 50	0	i 1 32	- 1*	—	—
Garm	3.3	29	i 0 57	- 2*	e 1 43	+ 1*	i 1 58	S _g
Samarkand	3.7	345	1 3	+ 3	—	—	—	—
Dzhergetal	3.9	37	1 4	+ 2	—	—	i 1 16	P _g
Bairam-Ali	5.1	289	1 20	0	i 2 59	+11 _g	—	—
Fergana	5.1	32	e 1 20	0	—	—	—	—
Tashkent	5.3	8	e 1 21	- 1	—	—	e 1 33	P*
Andijan	5.6	34	i 1 28	+ 1	i 3 15	+10 _g	—	—
Namangan	5.6	28	i 1 27	0	—	—	—	—
Quetta	N. 6.0	190	e 1 33	+ 1	—	—	—	—
Tchimkent	6.3	9	i 1 38	+ 2	2 52	+ 2	i 1 49	P*
Ashkabad	8.1	286	e 2 1	- 1	e 3 33	- 2	—	—
Naryn	8.1	46	e 1 58	- 4	e 3 32	- 3	i 2 12	PP
Frunse	8.4	34	i 2 5	- 1	—	—	—	—
Rybach'e	8.8	41	e 2 9	- 2	—	—	—	—
Almata	9.8	40	i 2 22	- 2	—	—	—	—
Kizyl-Arvat	9.9	291	2 28	+ 3	14 17	- 3	—	—
Przhevalsk	10.1	48	i 2 25	- 4	—	—	—	—
New Delhi	10.6	132	e 2 25	-11	14 20	-17	2 39	P 4.6
Kirovobad	17.7	292	e 4 7	- 3	—	—	—	—
Tamanrasset	z. 55.3	274	i 9 35 _a	- 3	—	—	i 11 7	?

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1952

1171

Dec. 10d. 8h. 6m. 1s. Epicentre 15°·0S. 173°·5W.

Intensity IV at Apia. Epicentre 15°·5S. 173°·5W. (U.S.C.G.S.).
Quarterly Seismological Bulletin, Apia, Oct.-Dec., 1952, p.6.

A = -·9602, B = -·1094, C = -·2572; $\delta = +10$; $h = +6$;
D = -·113, E = +·994; G = +·256, H = +·029, K = -·966.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Apia		2·0	55	i 0 35k	0	i 0 55	- 7	—	—
Auckland	N.	24·1	204	5 19	+ 1	e 9 30	- 4	—	e 11·5
Karapiro	N.	24·8	201	e 5 24	- 1	—	—	—	—
Brisbane		33·5	243	i 6 41k	- 2	e 12 24	+19	i 8 3	PP
Riverview		37·0	233	7 11	- 2	e 12 45	-14	i 8 41	PP e 17·0
Melbourne	E.	43·1	230	(e 10 41)	PPP	—	—	—	— e 10·7
Berkeley	z.	71·2	41	i 11 24k	+ 1	—	—	—	—
Lick	z.	71·3	41	e 11 25a	+ 2	e 11 37	PcP	e 14 24	PP
Pasadena		71·8	46	i 11 26	0	—	—	i 12 0	? e 32·7
Fresno	z.	72·2	42	e 11 29k	0	—	—	—	—
Palomar	z.	72·3	47	i 11 30	+ 1	—	—	i 12 5	? —
Riverside	z.	72·3	46	i 11 30	+ 1	—	—	—	—
Shasta		72·9	38	e 11 34k	+ 1	—	—	—	—
China Lake	z.	73·1	44	i 11 35	+ 1	—	—	—	—
Mineral	z.	73·2	39	e 11 34a	- 1	—	—	i 12 0	? —
Tinemaha		73·4	43	i 11 36	0	i 11 45	?	i 11 51	PcP —
Reno	z.	73·8	41	e 11 38a	0	—	—	e 11 53	PcP —
Nelson		75·0	46	i 11 45	0	—	—	i 12 2	PcP —
Boulder City		75·1	46	e 11 45	- 1	—	—	—	—
Tucson		76·1	50	i 11 52	+ 1	e 21 19	PS	—	— e 34·4
Butte		81·8	38	i 12 23	+ 1	—	—	—	—
College		82·0	11	i 12 22	- 1	e 22 29	- 8	—	— e 34·3
Hungry Horse		82·2	35	i 12 23	- 1	—	—	—	—
Lubbock		83·6	53	12 31	0	—	—	—	—
Fayetteville	z.	90·3	53	i 13 4	0	—	—	—	—
Huancayo		94·6	104	e 13 26	+ 2	e 24 44	+ 9	—	—
La Paz		100·0	110	e 13 17	-31	i 25 34	+14	—	— 47·7
Palisades		106·9	51	—	—	i 28 7	PS	—	— e 49·2
Kiruna	z.	126·4	353	i 19 5	[0]	—	—	—	—
Potsdam	z.	142·3	355	e 19 36	[+ 1]	—	—	e 22 59	PP 69·0
Collmberg		143·4	353	e 19 35	[- 1]	—	—	—	—
Raciborzu		143·7	348	e 19 37	[0]	e 23 51	PKS	e 19 48	? —
Jena		143·9	354	e 19 35	[- 2]	e 20 14	?	e 21 32?	? —
Prague		144·4	352	e 19 39	[+ 1]	e 21 7	?	e 23 2	PP —
Karlsruhe	z.	146·1	357	i 19 44k	[+ 3]	—	—	e 21 11	? —
Paris		146·1	5	i 19 44	[+ 3]	i 19 54	PKP ₂	i 20 6	? e 71·0
Stuttgart		146·3	356	e 19 42	[+ 1]	e 19 55	?	e 20 16	? e 74·0
Strasbourg		146·5	358	i 19 44	[+ 2]	i 19 55	PKP ₁	i 20 42	? 69·0
Timisoara	N.	146·9	341	e 19 48	[+ 6]	—	—	—	—
Basle		147·5	359	e 19 45	[+ 2]	—	—	—	—
Ksara		147·5	311	e 19 46	[+ 3]	—	—	23 21	PP —
Besançon		147·8	0	i 19 47	[+ 3]	—	—	i 20 7	? —
Belgrade		148·0	340	i 19 50	PKP ₂	e 20 5	?	—	—
Chur		148·2	356	e 19 46	[+ 1]	e 19 50	PKP ₂	—	—
Triest		148·8	350	e 19 46	[+ 1]	i 19 50	PKP ₂	e 22 35	? —
Clermont-Ferrand		149·2	4	e 19 53	PKP ₂	—	—	—	— 76·0
Pavia		149·8	356	e 19 54	PKP ₂	e 20 37	?	e 22 20	? —
Florence	z.	151·0	352	e 19 49a	[0]	i 19 57	PKP ₂	i 20 42	? —
Rome	z.	152·7	350	e 19 52	[+ 1]	—	—	e 23 49	PP —
Helwan	z.	152·8	307	i 19 53	[+ 1]	e 20 37	?	i 23 55	PP —
Messina	N.	155·6	343	e 20 59	[+64]	e 42 58	SS	—	—
Granada		156·1	20	19 58	[+ 2]	26 15	[-46]	i 24 14	PP —
Algiers Univ.	z.	158·1	7	e 19 58	[- 1]	20 33	PKP ₂	e 24 26	PP —
Tamanrasset	z.	172·2	—	i 20 13k	[+ 2]	e 21 33	PKP ₂	e 25 37	PP —

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1952

1172

Dec. 10d. 12h. 47m. 48s. (I) ; Epicentre 84°·5N. 100°·0E. (as on 1948, May 31d.).
14h. 6m. 44s. (II) ;

Strasbourg gives epicentre as adopted.

A = -·0168, B = +·0950, C = +·9953 ; $\delta = -7$; $h = -14$;
D = +·985, E = +·174 ; G = -·173, H = +·980, K = -·097.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		^c	^c	m. s.	s.	m. s.	s.	m.	s.
I	Resolute Bay	20·8	11	e 4 41	- 4	—	—	—	—
I	Kiruna	z. 22·0	273	i 4 59	+ 1	—	—	—	—
II		z. 22·0	273	i 4 55	- 3	i 4 59	P	i 5 3	?
I	Scoresby Sund	23·0	313	e 5 7	0	—	—	—	—
II		23·0	313	e 5 9	+ 2	e 9 31	+17	—	—
I	College	27·8	58	5 55	+ 2	—	—	—	—
II		27·8	58	5 55	+ 2	—	—	—	—
II	Jena	z. 39·4	276	e 7 34	+ 1	—	—	e 7 49	?
I	Stuttgart	41·8	277	e 7 57?	+ 4	—	—	—	—
II		41·8	277	e 7 53	0	—	—	—	—
I	Hungry Horse	46·5	32	i 8 31	0	—	—	—	—
II		46·5	32	i 8 31	0	—	—	—	—
II	Florence	z. 46·6	275	e 8 19	-13	—	—	i 9 0	?
II	Rome	z. 48·3	273	e 8 19	-26	—	—	—	—
I	Butte	48·9	30	8 50	0	—	—	—	—
II		48·9	30	8 50	0	—	—	—	—
I	Ottawa	50·3	357	e 9 7	+ 7	—	—	—	—
II		50·3	357	e 9 1	+ 1	—	—	—	—
II	Messina	N. 51·7	270	—	—	e 20 51	SS	—	—
I	Shasta	z. 53·7	41	e 9 26	0	—	—	—	—
II		z. 53·7	41	e 9 34	+ 8	—	—	e 10 43	PcP
I	Mineral	z. 54·1	39	e 9 29 _a	0	—	—	i 9 37	PcP
II		z. 54·1	39	i 9 29 _a	0	—	—	9 37	PcP
II	Algiers Univ.	z. 54·3	282	e 9 36	+ 6	—	—	—	—
II	Granada	54·5	288	i 9 31 _k	- 1	—	—	i 8 37	?
I	Reno	z. 55·0	37	9 36 _a	+ 1	—	—	—	—
II		z. 55·0	37	9 43 _a	+ 8	—	—	—	—
I	Lick	z. 57·1	40	e 9 50 _a	0	—	—	e 10 17	?
II		z. 57·1	40	e 9 50 _a	0	—	—	e 9 59	?
I	Tinemaha	z. 57·5	37	i 9 55	+ 2	—	—	—	—
II		z. 57·5	37	i 9 54	+ 1	—	—	i 10 2	?
I	Fresno	z. 57·8	38	e 9 56 _a	+ 1	—	—	—	—
II		z. 57·8	38	e 9 55 _a	0	—	—	—	—
I	China Lake	z. 58·8	36	e 10 2	0	—	—	e 10 10	?
II		z. 58·8	36	e 10 2	0	—	—	e 10 11	?
II	Nelson	59·1	33	i 10 4	0	—	—	i 10 12	?
I	Fayetteville	z. 59·5	13	i 10 4	- 3	—	—	—	—
II		z. 59·5	13	i 10 4	- 3	—	—	—	—
I	Pasadena	60·4	37	i 10 13	0	—	—	i 10 20	?
II		60·4	37	i 10 13	0	i 10 21	?	e 13 13	?
I	Riverside	z. 60·6	37	e 10 15	0	—	—	—	—
II		z. 60·6	37	i 10 15	0	—	—	—	—
I	Palomar	z. 61·3	36	i 10 20	0	—	—	—	—
II		z. 61·3	36	e 10 20	0	—	—	i 10 27	?
I	Tucson	62·7	29	e 10 29	0	—	—	—	—
II		62·7	29	e 10 29	0	—	—	—	—
I	Tamanrasset	z. 67·9	278	e 11 5	+ 3	—	—	—	—
II		z. 67·9	278	e 11 4	+ 2	—	—	—	—

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1952

1173

Dec. 11d. 8h. 58m. 18s. Epicentre 48°·6N. 155°·4E. Depth of focus 0·005.
(as on 1937, Aug. 2d.).

A = -·6035, B = +·2763, C = +·7479; $\delta = -9$; $h = -5$;
D = +·416, E = +·909; G = -·680, H = +·311, K = -·664.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
				m.	s.		m.	s.		m.	s.	
Petropavlovsk		5·0	23	i 1	12	- 2	i 2	5	- 7	—	—	—
Kurilsk		6·2	240	i 1	27	- 4	—	—	—	—	—	—
Klyuchi		8·4	21	i 2	3	+ 1	3	42	+ 6	—	—	—
Nemuro		8·6	236	e 2	1	- 3	e 3	32	- 9	—	—	—
Yuzno-Sakhlinsk		8·7	264	i 2	5	- 1	i 3	49	+ 6	—	—	—
Abashiri		9·0	243	e 2	8	- 2	3	58	+ 7	2	24	?
Kusiro		9·5	238	e 2	13	- 4	i 3	58	- 5	—	—	—
Wakkanai	E.	9·9	256	e 2	24	+ 2	e 5	38	L	e 7	11	?
Asahigawa		10·2	247	e 2	31	+ 5	—	—	—	—	—	—
Obi-hiro		10·2	241	e 2	36	+10	e 4	27	+ 7	e 5	8	?
Urakawa	N.	11·0	239	e 2	35	- 2	i 4	35	- 4	—	—	—
Magadan		11·3	348	2	40	- 1	4	48	+ 2	—	—	—
Sapporo		11·3	246	e 2	45	+ 4	e 5	9	+23	e 3	2	PPP
Mori	N.	12·3	244	e 2	50	- 4	5	10	0	—	—	—
Aomori		13·0	239	e 3	9	+ 5	5	21	- 6	i 3	21	PP
Miyako		13·2	232	e 2	57?	- 9	e 5	27?	- 5	e 5	17?	?
Morioka		13·6	234	e 3	6	- 5	e 5	32	- 9	—	—	—
Mizusawa	E.	14·0	233	3	15	- 2	5	41	-10	—	—	—
	N.	14·0	233	3	10	- 7	5	41	-10	—	—	—
Akita	Z.	14·1	238	e 3	15	- 3	e 5	55	+ 2	—	—	—
Isinomaki		14·4	230	e 3	25	+ 3	—	—	—	—	—	—
Sendai		14·7	231	e 3	26	0	e 5	54	-13	e 4	17	?
Yamagata		15·0	232	e 3	29	- 1	e 6	6	- 8	—	—	—
Hokusima		15·4	231	e 3	32	- 3	e 6	18	- 6	—	—	—
Inawasiro		15·7	231	e 3	38	0	e 6	36	+ 5	e 4	1	PP
Onahama		15·8	228	e 3	52	+12	e 6	28	- 5	—	—	—
Shirakawa		16·0	230	e 3	43	+ 1	e 6	26	-11	—	—	—
Mito		16·4	228	e 3	48	+ 1	e 6	58	+11	—	—	—
Utunomiya		16·6	229	e 3	48	- 2	e 6	46	- 5	e 4	12	PP
Tukubasan		16·7	228	e 3	52	+ 1	e 6	42	-11	—	—	—
Kumagaya		17·1	229	3	55	- 1	7	42	SSS	—	—	—
Maebasi	Z.	17·1	230	i 3	55k	- 1	7	2	- 1	e 4	26	PPP
Nagano	N.	17·3	233	e 4	6	+ 7	e 7	16	+ 9	—	—	e 10·0
Tokyo		17·3	227	e 3	52	- 7	e 7	15	+ 8	e 7	36	SS
Vladivostok		17·3	260	i 3	55	- 4	i 7	8	+ 1	—	—	—
Matusiro		17·4	234	3	56	- 4	7	17	+ 8	i 4	3	P
Oiwake		17·4	232	e 4	0	0	7	18	+ 9	—	—	—
Titibu		17·4	230	i 4	3	+ 3	—	—	—	—	—	—
Wazima		17·5	238	e 4	0	- 1	e 7	23	+11	—	—	e 9·7
Mera		17·9	226	e 4	18	+12	e 8	1	SS	—	—	—
Toyama		17·9	235	e 4	4	- 2	e 7	30	+10	e 8	2	SS
Hunatu		18·0	229	4	6	- 1	e 7	32	+ 9	—	—	—
Kohu		18·0	230	4	4k	- 3	7	12	-11	—	—	i 8·6
Ajiro		18·2	228	e 4	20	+10	—	—	—	—	—	—
Misima		18·2	228	e 4	14	+ 4	i 7	39	+12	e 5	14	?
Mitchell Field		18·2	67	e 4	22	+12	e 7	37	+10	—	—	—
Osima		18·2	228	e 4	11	+ 1	e 7	17	-10	—	—	—
Takayama	E.	18·2	235	e 4	10	0	e 7	32	+ 5	—	—	—
Iida		18·4	233	e 4	13	+ 1	e 7	38	+ 6	—	—	—
Shizuoka	Z.	18·6	229	4	14	0	8	0	+24	—	—	—
Gihu		19·1	232	e 4	21	+ 1	e 7	59	+12	—	—	—
Nagoya		19·1	232	e 4	24	+ 4	e 7	51	+ 4	—	—	—
Tsuruga		19·3	235	4	16	- 6	7	49	- 2	—	—	—
Hikone		19·4	234	e 4	16	- 7	e 7	59	+ 6	—	—	11·0
Kameyama		19·7	232	4	22	- 5	8	13	+13	—	—	e 10·1
Tu		19·7	233	e 4	8	-19	(e 8	2)	+ 2	i 4	44	PP
Kyoto		19·9	234	e 4	23	- 6	e 8	3	- 1	—	—	e 9·5
Toyooka		20·0	236	e 4	19	-11	e 8	9	+ 3	—	—	e 10·6
Osaka		20·3	234	e 4	36	+ 3	e 8	27	+15	e 4	56	pP
Owase		20·4	231	e 4	32	- 2	e 8	26	+12	e 4	52	pP

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Kobe	20.5	234	e 4	40	+ 5	e 8	17	+ 1	e 4	50	pP	—
Yonago	20.9	239	e 4	38	- 1	e 8	32	+ 9	—	—	—	—
Matsue	21.1	239	i 4	45	+ 4	—	—	—	—	—	—	—
Siomisaki	21.1	232	i 4	41	+ 0	8	31	+ 4	e 4	57	pP	e 11.2
Takamatu	21.3	235	e 4	42	- 1	e 8	39	+ 8	—	—	—	e 10.6
Hamada	22.0	239	4	49 _a	- 1	8	42	- 2	5	8	pP	e 10.6
Muroto	22.1	233	e 4	52	+ 1	e 8	52	+ 7	e 5	43	?	e 13.1
Hirosima	22.2	238	4	52	0	8	51	+ 4	—	—	—	e 10.7
Koti	22.2	235	e 4	49	- 3	i 8	53	+ 6	—	—	—	—
Matuyama	22.4	237	e 4	55 _a	+ 1	e 8	57	+ 6	—	—	—	e 11.4
Simonoseki	23.4	239	e 4	58	- 6	e 9	8	- 1	—	—	—	—
Ooita	23.5	238	e 5	8	+ 3	e 9	19	+ 9	—	—	—	—
Hukuoka	23.9	240	5	11 _a	+ 2	9	25	+ 8	—	—	—	e 12.6
Saga	24.2	239	5	28	pP	—	—	—	—	—	—	—
Miyazaki	24.6	234	i 5	18 _a	+ 3	9	37	+ 8	—	—	—	e 12.0
Unzendake	24.6	239	i 5	16	+ 1	—	—	—	—	—	—	—
Kagosima	25.4	237	e 5	27	+ 4	e 9	31	- 11	e 6	25	PPP	—
Zô-Sè	E. 31.2	249	i 6	14	- 1	11	14	- 2	—	—	—	—
Nanking	32.1	253	i 6	22 _a	- 1	i 11	29	- 1	i 6	45	pP	—
Irkutsk	32.2	297	6	22	- 2	—	—	—	—	—	—	—
College	33.7	38	i 6	39	+ 2	11	58	+ 4	i 12	34	sS	e 13.9
Sitka	41.0	50	i 7	44	+ 6	i 13	58	+ 12	—	—	—	—
Hong Kong	41.9	246	7	46	0	e 13	59	0	—	—	—	19.7
Manila	44.2	232	i 7	57 _a	- 7	i 14	17	- 15	—	—	—	—
Sempalatinsk	46.9	302	e 8	25	- 1	—	—	—	—	—	—	—
Resolute Bay	48.6	20	i 8	39 _a	0	i 15	37	+ 2	i 9	13	sP	e 23.7
Victoria	51.2	57	9	0	+ 1	—	—	—	—	—	—	—
Seattle	z. 52.3	57	e 9	18	+ 11	—	—	—	—	—	—	—
Almata	52.6	296	i 9	8	- 1	—	—	—	—	—	—	—
Sverdlovsk	53.5	316	i 9	13	- 3	16	40	- 2	—	—	—	—
Rybach'e	53.6	296	i 9	14	- 3	16	40	- 4	—	—	—	—
Shillong	E. 54.0	270	e 9	16	- 4	e 16	31	- 18	—	—	—	—
Frunse	54.2	296	i 9	20	- 1	—	—	—	—	—	—	—
Naryn	54.2	294	e 9	21	0	—	—	—	—	—	—	—
Chatra	56.2	274	i 9	35	- 1	e 17	16	- 2	11	34	PP	25.7
Shasta	z. 56.3	64	e 9	40 _a	+ 4	—	—	—	—	—	—	—
Hungry Horse	56.4	53	i 9	39	+ 2	—	—	—	—	—	—	—
Andijan	56.8	295	i 9	38	- 2	i 17	28	+ 2	—	—	—	—
Namangan	57.1	296	i 9	41	- 1	e 17	27	- 3	—	—	—	—
Fergana	57.4	296	e 9	42	- 2	e 17	30	- 4	—	—	—	—
Tchimkent	57.5	299	e 9	42	- 3	—	—	—	—	—	—	—
Saskatoon	57.8	46	—	—	—	e 17	44	+ 5	—	—	—	26.2
Berkeley	58.2	67	e 9	52	+ 2	i 17	57	+ 12	e 10	6	pP	e 24.4
Lunacharskoe	58.3	297	i 9	49	- 1	i 17	42	- 4	—	—	—	—
Tashkent	58.3	297	e 9	47	- 3	—	—	—	—	—	—	—
Dzhergetal	58.5	296	e 9	56	+ 4	—	—	—	—	—	—	—
Reno	z. 58.6	63	e 9	56 _a	+ 3	—	—	—	i 11	41	PP	—
Butte	58.7	54	i 9	56	+ 3	—	—	—	—	—	—	—
Santa Clara	58.7	67	e 9	57 _k	+ 4	e 18	4	+ 13	—	—	—	e 24.9
Lick	z. 58.9	67	e 9	58 _a	+ 3	i 10	58	?	e 10	10	pP	—
Garm	59.1	296	e 9	55	- 1	e 17	56	0	—	—	—	—
Kiruna	59.1	341	i 9	53	- 3	e 18	0	+ 4	i 10	5	pP	e 26.7
Obi-garm	59.7	296	i 9	57	- 3	i 18	0	- 4	—	—	—	—
Kulyab	60.2	295	10	2	- 2	18	12	+ 1	—	—	—	—
Stalinabad	60.3	296	i 10	2	- 2	i 18	9	- 3	—	—	—	—
Fresno	z. 60.4	66	e 10	8 _a	+ 3	—	—	—	e 10	23	pP	—
Samarkand	60.7	297	10	6	- 1	—	—	—	—	—	—	—
Tinemaha	z. 61.1	65	i 10	14	+ 4	—	—	—	i 10	35	pP	—
Scoresby Sund	61.2	359	e 10	10	0	e 18	24	+ 1	e 18	43	PS	28.7
New Delhi	N. 61.6	282	e 10	10	- 3	18	22	- 6	19	57	ScS	25.4
China Lake	z. 62.4	65	e 10	20	+ 2	—	—	—	i 10	34	pP	—
Pasadena	63.1	66	i 10	25 _a	+ 2	i 18	56	+ 9	i 10	40	pP	e 29.3
Pulkovo	63.1	332	—	—	—	e 18	45	- 2	—	—	—	—
Riverside	z. 63.7	66	e 10	29	+ 2	—	—	—	i 10	42	pP	—
Moscow	63.8	325	e 10	24	- 4	e 18	55	- 1	—	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Boulder City	63.9	64	i 10	23	- 5	—	—	—	—	—	—
Nelson	64.1	64	i 10	32	+ 2	—	—	i 10	48	pP	—
Palomar	64.5	67	e 10	32	0	—	—	—	—	—	—
Bairam-Ali	64.9	299	i 10	31	- 4	—	—	—	—	—	—
Upsala	66.6	338	i 10	47	+ 1	i 19	29	- 1	i 11	20	PcP e 30.7
Ashkabad	66.8	301	i 10	44	- 3	i 19	31	- 2	—	—	—
Quetta	67.0	291	e 10	45	- 3	e 19	41?	+ 6	—	—	—
Hyderabad	68.5	273	i 10	57	- 1	i 19	51	- 2	20	44	ScS e 32.6
Bergen	68.6	345	e 10	50	- 8	19	42?	- 12	i 11	25	PcP e 28.7
Tucson	68.9	64	i 11	3	+ 3	e 20	9	+ 11	e 13	38	PP e 33.2
Makhach-Kala	69.0	312	i 11	2	+ 1	—	—	—	—	—	—
Djakarta	69.1	233	i 11	1	0	i 20	4	+ 4	e 11	17	pP
Bandung	69.3	231	e 11	12	+ 10	i 20	6	+ 3	—	—	—
Grozny	69.6	313	i 11	4	0	—	—	—	—	—	—
Shemakla	70.2	309	i 11	7	- 1	—	—	—	—	—	—
Piatigorsk	70.4	315	11	8	- 1	20	12	- 3	—	—	—
Madras	70.6	269	i 11	11	+ 1	i 20	16	- 2	13	47	PP
Poona	70.8	276	i 11	12	0	e 20	18	- 2	11	33	pP
Bombay	71.1	277	i 11	12	- 1	e 20	22	- 1	11	29	pP
Tiflis	71.3	312	i 11	14	- 1	20	26	0	—	—	—
Copenhagen	71.6	339	i 11	18	+ 2	20	31	+ 2	21	19	PPS e 33.7
Tsikhlis-Dzhvari	71.9	313	e 11	26?	+ 8	—	—	—	—	—	—
Goris	72.2	310	i 11	20	0	i 20	34	- 2	11	47	pP
Kirkland Lake	72.3	35	i 11	22 _a	+ 2	—	—	—	—	—	—
Sotchi	72.3	316	11	19	- 1	e 20	35	- 2	—	—	—
Erevan	72.6	311	i 11	24	+ 2	20	46	+ 5	—	—	—
Theodosia	73.0	320	e 11	22	- 3	e 20	44	- 1	—	—	—
Lwow	73.4	329	e 11	26	- 1	e 20	46	- 4	—	—	—
Kishinev	74.0	326	i 11	28	- 2	i 20	56	0	—	—	—
Yalta	74.0	320	i 11	29	- 1	e 20	58	+ 2	—	—	—
Chicago	74.3	43	e 11	30	- 2	e 21	1	+ 1	—	—	—
Iasi	74.4	326	e 11	24	- 9	—	—	—	e 11	36	pP
Kodaikanal	74.4	269	e 11	34	+ 1	e 21	1	0	—	—	—
Potsdam	74.4	337	i 11	34 _a	+ 1	e 20	56	- 5	i 11	57	pP e 35.1
Raciborzu	75.0	333	e 11	36	0	e 16	9?	PPP	e 11	50	pP e 44.7
Uzhgorod	75.0	330	e 11	46	+ 10	—	—	—	—	—	—
Skalnate Pleso	75.2	331	e 12	14	sP	e 21	56	PS	e 22	17	PPS
Colombo	75.3	264	11	39	+ 1	21	11?	0	—	—	41.0
Collmberg	75.4	336	e 11	37	- 1	—	—	—	e 12	57	?
Fayetteville	75.5	51	i 11	41	+ 2	i 14	36	PP	i 11	54	pP
Witteveen	75.5	341	e 11	40	+ 1	—	—	—	e 12	8	pP
Brisbane	75.8	182	i 11	44 _a	+ 3	i 21	26	+ 10	i 12	8	pP
Jena	76.1	337	e 11	41	- 1	e 11	54	PcP	e 12	6	pP
Prague	76.1	335	e 11	44 _k	+ 2	e 21	19	- 1	e 12	6	pP e 38.7
Ottawa	76.3	34	i 11	44 _a	0	21	24	+ 2	14	37	PP
Shawinigan Falls N.	76.4	31	e 11	45	+ 1	21	28	+ 5	14	39	PP
De Bilt	76.5	341	i 11	47 _a	+ 2	e 21	26	+ 2	i 12	10	pP e 38.7
Budapest	77.1	331	11	50	+ 2	—	—	—	e 36	42?	Q e 39.7
Cleveland	77.2	40	i 11	53 _k	+ 4	i 21	36	+ 4	i 22	2	sS
Bucharest	77.3	323	e 12	18	sP	—	—	—	—	—	—
Buffalo (Larkin)	77.3	37	i 11	50	+ 1	i 21	35	+ 2	—	—	—
Cincinnati	77.8	43	i 11	54	+ 2	i 22	3	sS	—	—	—
Kalossa	77.9	331	e 11	51	- 1	e 21	42	+ 3	e 12	23	sP
Timisoara	77.9	329	e 12	30?	sP	e 22	8	sS	—	—	—
Kew	78.2	345	i 11	54	0	—	—	—	—	—	e 36.7
Karlsruhe	78.7	338	i 11	57 _a	0	—	—	—	—	—	—
Pittsburgh	78.7	40	i 12	10	+ 13	e 22	2	+ 14	—	—	—
Stuttgart	78.7	338	i 11	57 _a	0	e 21	46	- 2	e 12	16	pP e 42.7
Belgrade	78.9	329	i 11	59 _a	+ 1	e 21	53	+ 3	e 12	29	sP e 44.9
Strasbourg	79.2	338	e 11	58	- 2	—	—	—	e 12	28	sP
Pennsylvania	79.3	38	i 12	3	+ 3	i 21	55	+ 1	i 15	6	PP
Morgantown	79.4	41	i 12	3	+ 2	—	—	—	e 15	12	PP
Sofia	79.8	326	e 12	3	0	—	—	—	—	—	—
Basle	80.2	338	e 12	7 _a	+ 2	—	—	—	e 14	9	?
Paris	80.2	342	i 12	4	- 1	i 22	6	+ 3	i 12	30	pP e 39.7

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Zürich	80.2	338	e 12	4 _a	- 1	e 22	0	- 3	—	—	—
Harvard	80.3	32	i 12	8 _a	+ 3	i 22	9	+ 5	i 15	16	PP
Triest	80.3	334	i 12	5 _a	0	i 22	3	- 1	e 12	24	pP
Chur	80.4	337	e 12	6 _a	0	—	—	—	—	—	—
Weston	80.5	32	i 12	9	+ 2	e 22	11	+ 4	i 12	20	pP
Palisades	80.7	35	i 12	9	+ 1	i 22	13	+ 4	i 15	16	PP
Besançon	80.9	339	i 12	8	- 1	i 12	20	PcP	i 12	33	pP
City College, N.Y.	80.9	35	i 12	12	+ 3	e 22	12	+ 1	—	—	—
Fordham	80.9	35	e 12	12	+ 3	—	—	—	e 15	3	PP
Halifax	81.1	27	i 12	12 _a	+ 2	22	16	+ 3	23	24	PPS
Washington	81.2	38	i 12	12	+ 2	—	—	—	—	—	—
Salo	81.3	336	e 12	15	+ 4	e 22	19	+ 4	e 23	10	PS
Ksara	81.8	312	i 12	16	+ 3	i 22	48	sS	—	—	—
Oropa	81.9	337	i 12	27	pP	i 22	50	sS	—	—	—
Padova	81.9	334	e 12	11	- 3	e 22	19	- 2	—	—	—
Pavia	82.0	336	i 12	18 _k	+ 4	e 22	25	+ 3	31	58	SSS
Riverview	82.1	183	12	23	+ 8	i 22	36	ScS	i 22	52	sS
Bologna	82.5	334	e 12	17	0	e 22	56	sS	e 15	39	PP
Prato	82.7	334	e 12	18	0	e 23	12	SP	—	—	—
Florence	82.8	334	i 12	19 _a	+ 1	e 22	33	+ 3	i 12	40	pP
Clermont-Ferrand	83.0	341	e 12	20	0	e 22	38	+ 6	e 23	42	PPS
Taranto	83.9	329	12	18	- 6	e 22	58	ScS	e 14	8	?
Rome	84.1	333	i 12	25 _a	0	i 22	46	+ 3	i 12	51	pP
Tacubaya	85.4	66	e 12	29	- 3	i 23	5	+ 9	e 12	53	pP
Messina	86.5	329	e 12	36	- 1	e 22	56	[+ 1]	e 15	58	PP
Auckland	N. 86.8	164	—	—	—	e 23	0	[+ 3]	e 29	6	SS
Barcelona	87.3	340	—	—	—	e 23	9	- 5	—	—	e 40.9
Helwan	87.3	314	12	42	+ 1	23	6	[+ 6]	16	3	PP
Toledo	90.0	344	e 12	54	0	e 23	27	SKKS	e 16	27	PP
Alicante	90.8	341	13	13	pP	e 23	33	SKKS	e 16	37	PP
Wellington	91.1	166	25	2	PS	23	22	[- 1]	23	52	S
Bermuda	91.8	33	i 13	6	+ 4	i 24	6	+ 11	i 13	17	pP
Granada	92.6	343	i 12	59	- 7	23	38	[+ 6]	18	8	?
Almeria	92.7	342	e 12	42?	- 24	—	—	—	—	—	—
Christchurch	93.0	167	25	30	PS	e 23	38	[+ 4]	e 24	20	S
Malaga	93.2	343	i 13	10	+ 2	i 15	6	?	17	28	pPP
Tamanrasset	z. 104.0	331	e 13	59	+ 2	e 27	31	PS	e 18	5	PP
Fort de France	109.1	37	e 16	41	P	—	—	—	—	—	—
Bogota	111.7	54	i 19	16	PP	e 29	9	pPS	—	—	56.7
Huancayo	124.5	67	e 18	58	[+ 6]	e 37	48	SS	—	—	e 53.1
La Paz	132.3	62	i 19	13	[+ 6]	i 26	23	[+ 14]	i 21	50	PP
Pretoria	z. 133.3	279	e 19	10	[+ 1]	—	—	—	—	—	—
La Plata	151.9	72	23	12	PKS	43	36	SSP	33	42	?

Dec. 11d. 11h. 51m. 11s. Epicentre 37°·3N. 141°·3E. Focus at Base of Superficial Layers (as on 1952, May 19d.).

Intensity IV at Onahama, Takahagi, Koriyama, Katono, Tomioka, Kinkazan, Watari, Koya, and Shiroyasaki; II-III at Isinomaki.
Epicentre 37°·2N. 141°·5E. Depth 30km. Macro seismic radius 200-300km.
Seismo. Bull. Cent. Met. Obs., Japan, Dec., 1952, Tokyo, 1953, p.501, with macro seismic chart.

$$A = -.6223, B = +.4986, C = +.6034; \quad \delta = -5; \quad h = -1; \\ D = +.625, E = +.780; \quad G = -.471, H = +.377, K = -.797.$$

	Δ	Az.	P.		O-C.	S.		O-C.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.
Onahama	0.5	221	i 0	8	- 2	0	15	- 3
Hokusima	0.8	304	0	15 _k	0	0	28	+ 2
Sendai	1.0	342	0	17	- 1	0	32	+ 1
Inawasiro	1.0	286	e 0	19	+ 1	0	34	+ 3
Isinomaki	1.1	1	e 0	14	- 5	0	30	- 3

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	s.
Mito		1.1	216	0	16k	- 3	0	30	- 3
Yamagata		1.2	322	e 0	22	+ 2	0	37	+ 1
Tukubasan		1.4	222	0	22	- 1	0	39	- 2
Utunomiya		1.4	237	e 0	21	- 2	0	38	- 3
Tyosí		1.6	193	e 0	19	- 7	0	30	-16
Mizusawa	E.	1.8	356	0	30	+ 1	0	51	0
	N.	1.8	356	0	32	+ 3	e 0	55	+ 4
Kumagaya		1.9	233	e 0	31	0	0	52	- 2
Maebasi		2.0	243	e 0	30	- 2	0	59	+ 3
Tokyo	E.	2.0	218	e 0	30	- 2	0	55	- 1
Titibu		2.2	234	e 0	34	- 1	0	58	- 3
Yokohama		2.3	215	e 0	41	+ 5	—	—	—
Miyako		2.4	13	e 0	35	- 3	1	5	- 1
Morioka		2.4	358	0	36	- 2	1	7	+ 1
Oiwake		2.4	246	e 0	42	+ 4	1	11	+ 5
Aikawa		2.5	287	e 0	42	+ 3	1	21	+12
Akita		2.6	339	—	—	—	e 1	4	- 7
Mera		2.6	206	0	46	+ 5	—	—	—
Hunatu	N.	2.7	229	e 0	41	- 1	1	4	-10
Kohu		2.8	233	e 0	45	+ 2	1	26	+10
Ajiro		2.9	232	e 0	44	- 1	1	15	- 4
Matumoto		2.9	248	0	53	+ 8	1	26	+ 7
Misima	E.	2.9	221	e 0	44	- 1	1	22	+ 3
Nagano	N.	3.0	256	e 0	41	- 5	—	—	—
Osima		3.0	211	e 0	42	- 4	1	15	- 7
Hatinohe		3.2	3	0	48	- 1	1	33	+ 6
Iida		3.3	238	0	51	0	1	35	+ 6
Shizuoka		3.3	225	e 0	57	+ 6	1	31	+ 2
Toyama	Z.	3.3	259	e 0	51	0	1	27	- 2
Aomori		3.6	353	e 1	10	+15	1	52	+15
Gihu		4.1	244	e 1	4	+ 2	—	—	—
Nagano		4.1	240	1	5	+ 3	1	51	+ 2
Kyoto		5.0	245	e 1	18	+ 3	—	—	—
Sapporo		5.8	0	—	—	—	e 2	34	+ 2

Dec. 11d. 13h. 11m. 47s. Epicentre 48°·6N. 155°·4E. Depth of focus 0·005 (as at 8h.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.
Resolute Bay	Z.	48.6	20	e 8	36	- 3	—	—	—	—	—
Shasta	Z.	56.3	64	e 9	37	+ 1	—	—	—	—	—
Mineral	Z.	57.0	64	e 9	42	+ 1	—	—	—	—	—
Berkeley	Z.	58.2	67	e 9	49	- 1	—	—	—	i 10	5
Reno	Z.	58.6	63	e 9	53k	0	—	—	—	e 10	9
Lick	Z.	58.9	67	e 9	55k	0	—	—	—	e 10	9
Kiruna	Z.	59.1	341	i 9	58	+ 2	i 20	56	?	i 10	7
Fresno	Z.	60.4	66	e 10	5k	0	—	—	—	e 10	20
Tinemaha	Z.	61.1	65	i 10	11	+ 1	—	—	—	i 10	24
China Lake	Z.	62.4	65	i 10	20	+ 2	—	—	—	i 10	35
Pasadena		63.1	66	i 10	23k	0	—	—	—	i 10	38
Riverside	Z.	63.7	66	i 10	27	0	—	—	—	i 10	40
Palomar	Z.	64.5	67	i 10	33	+ 1	—	—	—	i 10	48
Upsala	Z.	66.6	338	i 11	3	pP	—	—	—	—	—
Poona	Z.	70.8	276	i 11	25	pP	—	—	—	—	—
Fayetteville	Z.	75.5	51	i 11	39k	0	—	—	—	—	—
Ottawa		76.3	34	e 11	36	- 8	—	—	—	—	—
Shawinigan Falls	N.	76.4	31	e 11	43	- 1	—	—	—	—	—
Stuttgart		78.7	338	e 12	0	+ 3	—	—	—	—	—
Harvard		80.3	32	e 12	7	+ 2	—	—	—	—	—
Halifax		81.1	27	e 12	23	pP	—	—	—	—	—

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Dec. 11d. 17h. 48m. 29s. Epicentre 51°·0N. 158°·9E. (as on 7d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
College		30·4	43	i 6 20	+ 4	—	—	—	—
Resolute Bay	z.	45·5	23	i 8 28 _k	+ 5	—	—	—	—
Hungry Horse		53·2	57	i 9 19	- 3	—	—	—	—
Shasta	z.	53·3	68	e 9 23	0	—	—	—	—
Mineral	z.	54·0	68	e 9 27 _k	- 1	i 9 31	P	e 9 41	?
Reno	z.	55·6	68	e 9 39 _k	- 1	—	—	—	—
Lick	z.	55·9	71	i 9 42 _a	0	—	—	—	—
Shillong	E.	56·3	269	e 9 42	- 3	—	—	—	—
Fresno	z.	57·4	70	e 9 52 _a	- 1	—	—	—	—
Kiruna	z.	57·5	343	i 9 56	+ 3	—	—	i 10 11	?
Tinemaha	z.	58·1	70	i 9 57	- 1	—	—	—	—
Scoresby Sund		58·8	2	e 10 55	P _c P	—	—	—	—
China Lake	z.	59·4	70	i 10 5	- 1	—	—	—	—
Pasadena		60·2	72	i 10 10 _a	- 2	—	—	i 10 13	P
Riverside	z.	60·7	72	i 10 14	- 1	—	—	i 10 18	P
Boulder City		60·9	79	i 10 16	- 1	—	—	—	—
Nelson		61·1	79	i 10 18	0	—	—	i 10 38	?
Palomar	z.	61·5	72	i 10 21	0	—	—	—	—
Upsala	z.	65·1	340	i 10 48	+ 3	—	—	i 11 3	?
Tucson		65·9	69	e 10 49	- 1	—	—	—	—
Quetta		68·3	292	e 11 4	- 1	—	—	—	—
Fayetteville	z.	72·2	55	i 11 29	0	—	—	—	—
Poona	z.	72·7	278	i 12 21	+49	—	—	—	—
Ottawa		73·0	38	e 11 34	+ 1	—	—	—	—
Shawinigan Falls	n.	73·1	35	e 11 35	+ 1	—	—	—	—
Collmberg		74·1	339	e 11 41	+ 1	e 11 46	?	e 11 57	P _c P
Jena	z.	74·7	339	e 11 45	+ 2	—	—	e 12 2	P _c P
Stuttgart		77·3	340	e 11 59	+ 1	e 12 6	?	e 12 16	P _c P
Ksara		81·8	316	i 12 32	P _c P	23 36	PPS	—	—
Rome		83·0	336	—	—	e 27 42	SS	e 32 24	SSS e 48·6

Dec. 12d. 0h. 47m. 55s. Epicentre 56°·3N. 153°·8W. (as on Nov. 30d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
College		9·1	16	i 2 12	- 2	3 49	-11	—	e 5·0
Mitchell Field		14·1	261	i 3 40	PPP	e 6 45	SSS	—	—
Victoria		20·0	99	4 36	- 1	—	—	—	—
Seattle		21·1	100	e 5 14	PP	—	—	—	11·3
Corvallis	z.	22·5	108	e 5 3	+ 1	—	—	—	—
Hungry Horse		25·3	90	i 5 31	+ 1	i 9 8	P _c P	—	—
Shasta	z.	25·7	113	e 5 35 _k	+ 2	—	—	—	—
Mineral	z.	26·4	113	e 5 40 _k	0	e 9 3	P _c P	i 6 9	?
Butte		27·4	93	e 5 51	+ 2	—	—	—	—
Saskatoon		27·5	78	—	—	e 10 53	+23	—	15·2
Berkeley		27·9	117	e 5 55	+ 1	—	—	e 11 0	Q e 13·4
Reno	z.	27·9	111	e 5 55 _k	0	—	—	e 6 10	?
Lick	z.	28·7	117	e 6 1 _k	0	e 9 10	P _c P	i 6 28	?
Resolute Bay		28·7	29	e 5 59	- 2	i 10 48	- 2	i 6 5	P e 15·5
Fresno	z.	30·1	115	e 6 14 _a	+ 1	—	—	e 6 27	?
Tinemaha	z.	30·5	113	i 6 19	+ 2	—	—	i 6 48	?
China Lake	z.	31·9	113	i 6 30	+ 1	e 13 0	P _c S	i 9 23	P _c P
Pasadena		32·9	116	i 6 38	0	—	—	i 7 10	?
Boulder City		33·2	111	i 6 39	- 1	—	—	—	e 15·8
Nelson		33·4	111	i 6 42	0	i 13 6	+63	i 7 0	?
Riverside	z.	33·4	116	i 6 41	- 1	—	—	i 6 49	?
Palomar	z.	34·2	116	i 6 50	+ 1	i 13 14	P _c S	i 6 59	?
Tucson		38·1	110	i 7 25	+ 3	—	—	e 8 55	PP e 18·8
Kirkland Lake	z.	43·9	68	e 8 9 _a	- 1	—	—	—	—
Fayetteville	z.	44·3	91	i 8 13	0	—	—	i 9 55	PP
Ottawa		47·9	68	i 8 41 _a	- 1	15 37	- 2	18 35	S _c S 22·7
Buffalo		48·0	73	—	—	i 15 40	- 1	—	—
Shawinigan Falls	n.	48·6	65	e 8 46	- 1	—	—	—	—
Scoresby Sund		48·9	20	e 8 39	-11	—	—	—	28·1
Ivigut		49·2	39	—	—	15 58	0	—	24·1

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Morgantown	49.7	77	i 8 54	- 2	—	—	—	—
Palisades	51.9	71	—	—	e 16 44	+ 9	—	—
Weston	52.3	68	i 9 14 _a	- 1	—	—	i 9 21	P e 28.6
Halifax	54.6	61	e 9 31 _a	- 1	—	—	i 9 36	P
Tacubaya	54.6	109	9 55	+ 23	—	—	—	—
Kiruna	56.1	3	i 9 41	- 2	e 17 27	- 5	i 10 1	? e 25.1
Bermuda	63.3	71	i 10 31	- 2	e 19 1	- 3	e 23 9	SS e 25.5
Upsala	64.0	5	i 10 35	- 3	—	—	—	—
Potsdam	71.1	9	—	—	e 20 41	+ 3	—	— e 41.1
Collnberg	72.2	8	e 11 26	- 3	e 11 53	PcP	e 11 33	P
Jena	72.5	10	e 11 28	- 2	—	—	e 11 35	P
Paris	73.4	17	i 11 41	+ 5	—	—	i 11 51	PcP e 40.1
Prague	73.5	8	e 11 20	- 16	e 12 30	?	e 11 37	P
San Juan	73.6	81	i 11 36	- 1	—	—	—	—
Karlsruhe	74.0	13	e 11 45	+ 6	—	—	—	—
Stuttgart	74.3	12	e 11 39	- 2	e 21 15	0	e 11 46	PcP
Triest	77.9	9	—	—	e 21 37	- 17	—	—
Florence	79.5	11	—	—	e 22 10	- 1	—	—
Rome	81.5	10	—	—	e 22 32	0	—	e 39.8
Chatra	82.5	308	e 12 23	- 3	e 22 37	- 5	—	—
Alicante	83.0	21	12 25	- 3	22 36	- 11	17 27	PPP 40.7
Granada	83.5	24	12 26 _k	- 5	22 30	- 22	—	— 42.0
Malaga	83.7	25	e 12 19	- 13	e 22 29	- 25	—	—
Algiers Univ.	85.2	19	e 12 34	- 5	—	—	—	—
Messina	85.4	9	—	—	e 23 0	[- 3]	e 30 3	PKKP
Quetta	87.1	326	e 12 48	- 1	e 23 12	[- 3]	i 23 24	S
Ksara	90.1	353	e 13 6	+ 3	24 6	+ 11	16 34	PP
Bombay	95.5	316	—	—	e 23 0	?	—	—
La Paz	101.2	103	—	—	i 24 36	[+ 3]	—	—
Pretoria	149.5	357	e 19 48	[+ 2]	—	—	—	—
Kimberley	152.4	3	i 19 57	[+ 6]	—	—	—	—

Dec. 12d. 6h. 59m. 44s. Epicentre 35°·0N. 139°·8E. Depth of focus 0·010.

Intensity IV at Ajiro, Tokyo, Hunatu, and Senzu ; II-III at Osima.
Epicentre as adopted. Depth 90-95km. Macroseismic radius 100-200km.
Seismo. Bull. Cent. Met. Obs., Japan, Dec., 1952, Toyko, 1953, p.502.

A = -·6271, B = +·5299, C = +·5710 ; δ = +9 ; h = 0 ;
D = +·645, E = +·764 ; G = -·436, H = +·369, K = -·821.

	Δ	Az.	P.	O-C.	S.	O-C.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.
Mera	0.1	—	i 0 15 _k	+ 1	0 26	+ 2
Osima	0.4	236	i 0 16	+ 1	0 28	+ 1
Yokohama	0.5	344	0 15	- 1	0 26	- 2
Ajiro	0.6	275	i 0 16	- 1	0 28	- 1
Misima	0.7	280	i 0 17	- 1	0 29	- 2
Tokyo	0.7	357	i 0 18 _k	0	0 31	0
Hunatu	1.0	301	0 19	- 1	0 34	- 2
Shizuoka	1.1	268	i 0 23 _a	+ 1	0 40	+ 2
Kohu	1.2	303	i 0 25	+ 2	0 40	0
Kumagaya	1.2	344	0 24	+ 1	0 39	- 1
Tukubasan	1.2	11	0 20	- 3	0 34	- 6
Maebasi	1.5	337	e 0 29	+ 2	0 44	- 3
Mito	1.5	21	e 0 24	- 3	0 44	- 3
Utunomiya	1.6	2	e 0 25	- 3	0 44	- 5
Iida	1.7	288	e 0 32	+ 3	0 53	+ 2
Oiwake	1.7	323	0 30	+ 1	0 50	- 1
Onahama	2.1	24	—	—	e 1 4	+ 4
Nagoya	2.3	274	0 38	+ 1	1 6	+ 1
Kameyama	2.7	267	0 54	+ 11	1 38	+ 24
Hukusima	2.8	11	e 0 45	+ 1	1 14	- 3
Owase	3.1	253	e 0 51	+ 3	1 24	0
Kyoto	3.3	271	e 0 33	- 18	—	—
Sendai	3.4	15	—	—	e 1 48	+ 17

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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Dec. 12d. 20h. 31m. 52s. Epicentre 50°·2N. 157°·3E. (as on Nov. 27d.).

		△ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
Nemuro		10·6	234	e 3	45	?	—	—	—	—	—	—	
Sapporo		13·1	243	e 3	41	+31	e 6	13	+35	e 6	38	SS	e 7·4
Aomori		14·9	237	e 4	4	+30	—	—	—	—	—	—	e 7·4
Sendai		16·7	231	e 4	2	+ 5	e 5	24	?	e 4	14	PP	—
Hokusima		17·3	228	e 4	8	+ 4	e 7	30	+14	—	—	—	—
Inawasiro		17·6	231	e 4	12	+ 4	—	—	—	—	—	—	—
Shirakawa		18·0	228	e 4	13	0	—	—	—	—	—	—	—
Mito		18·4	227	e 4	29	PP	—	—	—	—	—	—	—
Utunomiya		18·6	228	e 4	22	+ 1	e 7	52	+ 6	—	—	—	—
Kumagaya		19·1	229	e 4	56	PPP	—	—	—	—	—	—	—
Maebasi		19·1	229	e 4	26	- 1	e 8	18	SS	—	—	—	—
Nagano	N.	19·3	235	e 4	33	+ 4	—	—	—	—	—	—	—
Matusiro		19·4	234	e 4	42	PP	8	12	+ 8	e 5	50	?	10·7
Oiwake		19·4	233	e 4	35	+ 5	—	—	—	—	—	—	—
Toyama		19·8	235	e 4	43	+ 8	e 8	23	+10	—	—	—	—
Iida		20·4	231	e 4	51	+10	—	—	—	—	—	—	—
Gihu		21·0	232	e 4	39	- 8	—	—	—	—	—	—	—
Nagoya		21·1	231	e 4	54	+ 6	—	—	—	—	—	—	—
Kameyama		21·6	233	e 4	46	- 8	e 8	9	-40	—	—	—	—
Osaka		22·2	233	e 5	0	0	—	—	—	e 6	10	?	—
Siomisaki		23·1	233	e 5	9	+ 1	9	25	+ 9	—	—	—	—
Takamatu		23·3	236	e 5	8	- 2	e 9	24	+ 4	—	—	—	—
Hamada		23·9	240	e 5	17	+ 1	e 9	36	+ 6	—	—	—	—
Koti		24·1	235	e 5	21	+ 3	e 9	40	+ 6	—	—	—	—
Ooita		25·4	238	e 5	40	+ 9	—	—	—	—	—	—	—
Hong Kong		43·7	247	—	—	—	e 18	8	ScS	—	—	—	—
Resolute Bay		46·7	21	e 8	30 _a	- 2	—	—	—	i 8	41	?	e 28·7
Victoria		49·3	60	8	49	- 4	—	—	—	—	—	—	—
Shasta	z.	54·6	66	e 9	30 _k	- 2	—	—	—	—	—	—	—
Mineral	z.	55·2	66	e 9	33 _k	- 4	—	—	—	e 9	51	?	—
Reno	z.	56·8	65	e 9	46	- 2	—	—	—	e 10	2	?	—
Lick	z.	57·2	70	e 9	49 _a	- 2	—	—	—	e 10	42	PcP	—
Chatra		57·4	273	e 9	53	0	—	—	—	—	—	—	e 31·5
Kiruna		57·9	342	i 9	56	0	—	—	—	i 10	12	?	e 33·1
Fresno	z.	58·7	68	e 9	49	-13	—	—	—	—	—	—	—
Tinemaha	z.	59·3	68	i 10	5	- 1	—	—	—	i 10	20	?	—
Scoresby Sund		59·6	0	e 10	8	0	—	—	—	i 10	18	?	36·1
China Lake	z.	60·6	68	i 10	10	- 5	—	—	—	—	—	—	—
Pasadena		61·4	70	i 10	15	- 5	—	—	—	—	—	—	—
Riverside		62·0	70	e 10	19	- 5	—	—	—	—	—	—	—
Palomar		62·7	70	i 10	25	- 4	—	—	—	—	—	—	—
Upsala		65·5	339	i 10	47	0	i 10	56	?	i 11	2	?	e 39·1
Quetta	z.	67·6	291	i 11	1 _k	0	—	—	—	—	—	—	—
Kirkland Lake	z.	70·9	37	e 11	16	- 5	—	—	—	—	—	—	—
Poona	z.	71·8	277	i 11	27	+ 1	—	—	—	—	—	—	—
Lwow		72·6	330	i 11	30	- 1	e 20	58	+ 2	i 11	40	PcP	—
Cernauti		73·3	327	e 11	36	+ 1	—	—	—	—	—	—	—
Kishinev		73·4	326	i 11	36	0	—	—	—	—	—	—	—
Potsdam		73·4	339	e 11	36	0	—	—	—	i 11	44	?	e 43·1
Fayetteville	z.	73·5	53	i 11	32	- 4	—	—	—	i 11	49	PcP	—
Raciborzu		74·2	334	e 11	41	+ 1	e 12	32	?	e 11	57	PcP	—
Uzhgorod		74·2	330	e 11	41	+ 1	21	15	+ 1	14	31	PP	—
Ottawa		74·3	36	e 11	36	- 5	—	—	—	—	—	—	—
Shawinigan Falls	N.	74·3	33	e 11	40	- 1	—	—	—	—	—	—	—
Collmberg		74·4	337	e 11	41	- 1	e 12	16	?	e 11	56	PcP	—
Witteveen	z.	74·4	342	i 11	44 _k	+ 2	—	—	—	i 11	53	PcP	—
Jena		75·1	338	i 11	44	- 2	e 13	13	?	e 11	53	PcP	—
Prague		75·2	336	i 11	47	+ 1	i 11	57	PcP	e 14	32	PP	—
Kew		76·9	346	i 12	4	+ 8	—	—	—	—	—	—	e 48·1
Morgantown		77·4	42	e 11	55	- 3	—	—	—	—	—	—	—

Continued on next page.

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		Δ		Az.		P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.	s.	m.	
Karlsruhe	z.	77.6	340	i 12	11	PcP	—	—	—	—	—	—	—	—
Stuttgart		77.7	339	e 12	0	0	—	—	e 12	10	PcP	e 44.1	—	
Belgrade		78.2	330	e 12	11k	PcP	e 22	24	ScS	e 23	1	PPS	e 52.4	
Strasbourg		78.2	340	e 12	3	0	—	—	—	i 12	13	PcP	—	
Istanbul	z.	78.4	322	e 12	4	0	—	—	—	—	—	—	—	
Paris		79.0	343	i 12	7	0	—	—	—	i 12	17	PcP	—	
Sofia		79.1	327	e 13	10	?	—	—	—	—	—	—	—	
Zürich		79.1	339	e 12	8a	0	—	—	—	e 12	18	PcP	—	
Basle		79.2	340	e 12	10	+ 2	—	—	—	e 12	20	PcP	—	
Chur		79.4	338	e 12	7	- 2	—	—	—	i 12	21	PcP	—	
Triest	z.	79.4	335	i 12	18a	PcP	—	—	—	e 12	39	?	—	
Besançon		79.8	341	i 12	22	PcP	—	—	—	e 12	40	?	—	
Ksara		81.6	313	i 12	30	PcP	22	37	+ 4	15	37	PP	—	
Florence	z.	81.8	335	e 12	17	- 5	—	—	—	i 12	29	PcP	—	
Rome		83.2	335	e 12	30	+ 1	e 18	34	?	i 12	40	PcP	—	
Messina	z.	85.7	330	e 12	51	PcP	—	—	—	e 33	13	?	—	
Helwan		87.0	315	e 12	50	+ 2	i 12	54	?	i 12	59	?	—	
Tamanrasset	z.	103.1	333	e 14	1	- 1	—	—	—	e 17	20	?	—	

Dec. 14d. 8h. 57m. 27s. Epicentre 37°·1N. 71°·2E. Depth of focus 0·015.
(as on 5d.)

		Δ		Az.		P.		O-C.	S.		O-C.
		°	°	m.	s.	s.	m.	s.	m.	s.	
Khorog		0.5	41	i 0	18	- 1	i 0	30	- 4		
Kulyab		1.4	305	i 0	31	+ 3	i 0	50	+ 2		
Garm		2.0	340	i 0	35	+ 1	i 1	0	0		
Obi-garm		2.0	324	i 0	33	- 1	i 0	58	- 2		
Dzhergetal		2.1	0	0	35	- 1	1	1	- 2		
Stalinabad		2.4	307	i 0	40	0	i 1	9	- 1		
Fergana		3.3	7	i 0	52	0	1	30	- 1		
Andijan		3.8	13	0	57	- 1	i 1	40	- 3		
Namangan		3.9	5	i 0	59	0	e 1	41	- 4		
Samarkand		4.2	309	1	2	- 1	—	—	—		
Lunacharskoe		4.5	341	e 1	8	0	—	—	—		
Tchimkent		5.3	347	e 1	24	+ 6	—	—	—		
Naryn		5.7	39	e 1	23	- 1	i 2	27	- 1		
Frunse		6.3	22	e 1	32	0	—	—	—		
Przhevalsk		7.7	44	e 1	50	- 1	—	—	—		
Quetta	z.	7.7	208	e 1	54	+ 3	—	—	—		

Dec. 14d. 10h. 38m. 42s. Epicentre 19°·3N 69°·3W. (as on 1948 Dec 21d.)

A = +·3339, B = -·8835, C = +·3285; $\delta = -3$; $h = +5$;
D = -·935, E = -·353; G = +·116, H = -·307, K = -·944.

		Δ		Az.		P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	m.	s.	m.	s.	m.	
Ciudad Trujillo		1.0	215	0	49	?	0	57	?	—	—	—	—	
Port-au-Prince		3.0	255	e 0	48	- 2	i 1	23	- 4	i 1	3	P _s	i 1.9	
San Juan		3.1	107	i 0	45	- 6	i 1	15	-14	—	—	—	—	
Kingston		7.2	261	e 2	3	+14	e 3	13	0	—	—	—	e 3.9	
Fort-de-France		9.0	119	e 1	51	-22	i 3	42	-16	—	—	—	—	
Bermuda		13.7	17	i 3	13	- 5	i 5	29	-23	—	—	—	e 5.8	
Bogota		15.3	198	e 3	33	- 6	e 6	17	-13	i 6	35	SS	8.3	
Chinchina		15.5	204	e 3	38	- 4	i 6	28	- 7	—	—	—	—	
Washington		20.7	344	e 4	44	0	—	—	—	—	—	—	—	
City College, N.Y.		21.8	352	i 5	0	+ 4	e 8	50	- 2	—	—	—	—	
Palisades		22.0	352	i 4	57	- 1	e 8	55	- 1	i 5	2	pP	e 10.6	
Morgantown		22.3	338	i 5	2	+ 1	i 9	5	+ 3	—	—	—	—	
Pennsylvania	z.	22.7	343	i 5	17	+13	—	—	—	e 6	13	PP	—	
Weston		23.1	357	i 5	10k	+ 2	e 9	16	0	—	—	—	—	
Harvard		23.2	357	i 5	9k	0	e 9	21	+ 3	—	—	—	—	

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
				m.	s.		m.	s.		m.	s.	
Halifax		25.7	10	i 5	36 _a	+ 3	—	—	—	—	—	
Ottawa		26.6	350	e 5	43	+ 1	6	35	PP	6	46	PPP
Shawinigan Falls	n.	27.3	356	e 5	52	+ 4	—	—	—	—	—	
Tacubaya		28.2	275	e 6	0	+ 4	—	—	—	—	—	
Kirkland Lake	z.	30.1	346	e 6	13	0	—	—	—	—	—	
Huancayo		31.7	191	i 6	24	- 3	—	—	—	—	—	
La Paz		35.6	178	6	58	- 3	12	24	-14	—	—	
Tucson		39.3	299	e 7	33	+ 1	—	—	—	—	—	
Boulder City		43.2	302	i 8	6	+ 2	—	—	—	—	—	
Nelson		43.2	302	i 8	6	+ 2	—	—	—	—	—	
Butte		44.4	318	i 8	14	0	—	—	—	—	—	
Palomar	z.	44.5	299	e 8	16	+ 1	—	—	—	—	—	
Riverside	z.	45.0	300	e 8	20	+ 1	—	—	—	—	—	
China Lake	z.	45.4	303	e 8	23	+ 1	—	—	—	—	—	
Pasadena		45.7	300	e 8	25	+ 1	—	—	—	—	—	
Tinemaha	z.	46.1	304	i 8	31	+ 3	—	—	—	—	—	
Hungry Horse		46.2	320	i 8	29	+ 1	—	—	—	—	—	
Fresno	z.	47.3	303	e 8	38 _k	+ 1	—	—	—	—	—	
Reno	z.	47.7	307	e 8	58 _k	+18	—	—	e 9	18	?	
Lick	z.	48.8	304	e 8	50 _a	+ 1	—	—	e 9	32	?	
Mineral	z.	49.2	307	e 8	51 _a	- 1	e 9	12	?	e 10	13	?
Shasta	z.	49.9	308	e 8	56 _k	- 1	—	—	—	e 9	4	?
Resolute Bay	z.	57.1	352	e 9	48	- 2	—	—	—	—	—	—
Alicante		61.9	56	10	23	- 1	18	43	- 4	11	1	PcP
Paris		63.8	44	e 10	36	0	—	—	—	i 10	42	?
College		67.8	334	i 10	59	- 3	—	—	—	—	—	—
Stuttgart		68.2	45	e 11	3	- 1	—	—	—	—	—	—
Tamanrasset	z.	69.2	72	e 11	7	- 3	e 13	10	?	e 13	50	PP
Jena	z.	69.6	42	e 11	7	- 6	—	—	—	e 11	16	?
Triest	z.	71.7	47	e 10	20	?	e 10	59	?	e 10	32	?
Kiruna	z.	72.2	24	i 11	32	+ 3	—	—	—	i 11	45	?

Dec. 14d. 16h. 54m. 44s. Epicentre 39°·3N 74°·7E. (as on 1952 June 22d.)

A = +·2048, B = +·7484, C = +·6308; $\delta = -5$; $h = -2$;
D = +·965, E = -·264; G = +·166, H = +·608, K = -·776.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
				m.	s.		m.	s.		m.	s.	
Andijan		2.3	307	i 0	44	+ 4	i 1	28	+12 _g	i 0	47	P _g ?
Naryn		2.4	25	e 0	43	+ 2	i 1	21	+ 2 _g	i 2	11	?
Fergana		2.5	296	e 0	45	+ 2	e 1	26	+ 3 _g	i 0	48	P _g
Dzhergetal		2.7	268	i 0	44	- 1	1	29	0 _g	e 0	49	P _g *
Namangan		2.9	306	—	—	—	i 1	25	+ 1	—	—	—
Khorog		3.0	233	i 0	47	- 3	e 1	26	- 1	—	—	—
Rybach'e		3.3	17	e 0	59	0*	i 1	51	+ 2 _g	i 2	0	?
Garm		3.4	267	e 0	55	0	i 1	54	+ 2 _g	—	—	—
Frunse		3.6	359	e 1	3	- 1*	i 1	47	+ 5	—	—	—
Obi-garm		3.9	263	i 1	1	- 1	—	—	—	—	—	—
Kulyab		4.1	252	1	4	- 1	—	—	—	—	—	—
Przhevalsk		4.2	40	1	7	0	2	24	+ 5 _g	—	—	—
Almata		4.3	22	e 1	11	+ 3	e 1	59	- 1 _g	i 1	29	P _g
Almata II		4.4	25	e 1	12	+ 2	e 2	23	- 2 _g	—	—	—
Kurmenty		4.6	34	e 1	12	0	i 2	18	- 2*	i 1	19	P*
Luncharskoe		4.6	298	e 1	13	+ 1	—	—	—	—	—	—
Stalinabad		4.7	262	i 1	11	- 3	i 2	34	- 1 _g	—	—	—
Tchimkent		4.9	310	i 1	18	+ 1	e 2	34	+ 5*	—	—	—
Chilisk		5.1	32	i 1	19	- 1	—	—	—	i 1	34	P*
Samarkand		6.0	276	1	29	- 3	—	—	—	—	—	—
Bairam-All		10.0	269	2	20	- 7	—	—	—	—	—	—
Quetta	z.	11.1	217	i 2	28	-15	—	—	—	—	—	—
Ashkabad		12.8	264	2	58	- 8	15	26	- 4	—	—	—
Kizyl-Arvat		14.3	275	3	19	- 7	—	—	—	—	—	18.0
Tiflis		22.8	286	5	2	- 3	—	—	—	—	—	—
Gori		23.3	287	5	7	- 3	—	—	—	—	—	—
Borzhoml		23.9	286	5	11	- 5	—	—	—	—	—	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1183

Dec. 15d. 5h. 6m. 20s. Epicentre 22°·6S. 68°·8W. Depth of focus 0·020.
(as on 1952, June 21d.)

Intensity III between 20° and 21° south latitudes and at Montezuma.
Epicentre 23°·0S. 69°·0W. (Strasbourg)

F. Greve.

Boletín del año 1952, Instituto Sismológico. Universidad de Chile, Santiago, p. 41.

A = +·3342, B = -·8616, C = -·3821; $\delta = +4$; $h = +4$;
D = -·932, E = -·361; G = -·138, H = +·356, K = -·924.

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m. s.	s.	m.	s.	m.
Montezuma		0·0	—	i 0	11	-10	—	—	—	—	—
Antofagasta		1·8	235	i 0	35	+ 1	—	—	i 0	17	?
La Paz		6·1	5	i 1	32	+ 3	i 2	26	-12	i 2	52
Huancayo		12·2	328	e 2	52	+ 3	—	—	—	—	—
San Juan		40·8	4	i 7	26	- 1	—	—	—	i 7	53
Fayetteville	z.	63·1	337	i 10	12	- 1	i 10	40	PcP	i 10	52
Harvard		64·8	358	i 10	24k	0	—	—	—	e 10	53
Halifax		67·1	4	i 10	39k	+ 1	—	—	—	—	—
Tucson		67·7	322	i 10	42	0	—	—	—	i 11	23
Ottawa		68·0	355	i 10	44k	0	—	—	—	—	—
Shawinigan Falls	N.	68·9	357	e 10	50	+ 1	—	—	—	—	—
Kirkland Lake	z.	71·1	352	i 11	1k	- 2	—	—	—	—	—
Palomar	z.	72·1	319	e 11	9	0	—	—	—	e 11	49
Nelson		72·5	322	i 11	11	0	—	—	—	i 11	52
Riverside	z.	72·8	319	i 11	13k	0	e 11	42	?	i 11	54
Pasadena		73·4	319	i 11	16	0	—	—	—	i 11	57
China Lake	z.	74·2	321	e 11	21	0	—	—	—	e 12	3
Tinemaha	z.	75·5	321	i 11	28	0	i 11	37	PcP	i 12	9
Fresno	z.	76·1	320	e 11	59	?	—	—	—	—	—
Lick	z.	77·6	319	e 11	40k	0	e 12	10	?	i 12	21
Reno	z.	78·0	322	i 11	44a	+ 2	—	—	—	—	—
Butte		79·0	331	i 11	49	+ 1	—	—	—	i 12	30
Mineral	z.	79·6	322	i 11	50a	- 1	i 12	1	PcP	e 12	28
Shasta		80·3	322	i 11	53k	- 1	e 12	4	PcP	e 12	22
Hungry Horse		81·4	332	i 12	0	0	—	—	—	—	—
Kimberley	z.	82·4	118	i 12	0	- 5	—	—	—	—	—
Tamanrasset	z.	85·2	63	e 12	18	- 1	e 13	5	sP	e 12	48
Triest	z.	100·9	45	e 17	15	?	—	—	—	e 17	31
College		105·7	334	e 13	52	P	—	—	—	—	—

Dec. 15d. 9h. 45m. 16s. Epicentre 52°·6N. 160°·3E. (as on Nov. 29d.).

		Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
		°	°	m.	s.	s.	m. s.	s.	m.	s.	m.
College		28·7	44	6	2	+ 1	—	—	—	—	—
Resolute Bay		43·7	22	e 8	12k	+ 4	i 14	48	+ 9	—	e 26·9
Hungry Horse		51·6	58	e 9	12	+ 2	—	—	—	—	—
Shasta	z.	51·9	70	e 9	12a	0	—	—	—	e 9	36
Mineral	z.	52·6	70	e 9	13a	- 5	—	—	—	—	—
Reno	z.	54·2	69	e 9	30	+ 1	—	—	—	—	—
Lick	z.	54·6	73	e 9	31a	- 1	—	—	—	e 10	3
Fresno	z.	56·1	72	e 9	43a	0	—	—	—	e 10	16
Kiruna		56·2	344	e 9	45?	+ 1	e 17	52	+19	i 10	9
Tinemaha	z.	56·8	71	e 9	47	- 1	—	—	—	—	?
China Lake	z.	58·0	71	e 9	56	- 1	—	—	—	—	—
Pasadena		58·8	73	e 10	1	- 1	—	—	—	e 10	14
Chatra		59·1	275	e 10	2	- 2	—	—	—	—	?
Riverside	z.	59·4	73	e 10	5	- 1	—	—	—	—	e 32·7
Boulder City		59·5	69	e 10	6	- 1	—	—	—	—	—
Nelson		59·7	69	e 10	7	- 2	—	—	—	—	—
Palomar	z.	60·2	73	e 10	10	- 2	—	—	—	—	—
Upsala		63·9	340	i 10	38	+ 1	e 19	19	+ 7	e 25	12
Tucson		64·5	70	e 10	40	- 1	—	—	—	—	?
Quetta	z.	68·5	292	i 11	4	- 2	—	—	—	i 11	36

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1184

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Copenhagen		68.9	342	e 11 11	+ 2	20 26	+13	—	37.7
Fayetteville	z.	70.6	56	i 11 18	- 1	—	—	i 11 34	?
Witteveen	z.	72.7	344	e 11 34	+ 2	—	—	—	—
Poona	z.	73.4	279	i 11 33	- 3	—	—	—	—
Jena	z.	73.5	340	e 11 37	+ 1	—	—	e 12 3	?
Morgantown		74.4	45	e 12 6	?	—	—	—	—
Harvard		75.2	37	e 12 8	?	—	—	—	—
Stuttgart		76.1	341	e 11 52	+ 1	e 22 32	PPS	—	e 42.7
Paris		77.2	345	e 11 58	+ 1	—	—	e 12 23	?
Besançon		78.1	342	e 12 23	?	—	—	—	—
Ksara		81.3	316	e 11 44	-36	24 11	PPS	15 33	PP
Bermuda		86.7	37	—	—	e 23 24	0	—	e 41.3
Tamanrasset	z.	101.8	336	e 17 53	?	—	—	e 18 17	PP
La Paz		127.7	65	e 18 50	[-18]	—	—	—	—

Dec. 16d. 6h. 16m. 0s. Epicentre 48°·6N. 155°·4E. Focus at Base of Superficial Layers. (as on 11d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		°	°	m. s.	s.	m. s.	s.	m. s.
Petropavlovsk		5.0	23	1 13	- 2	i 2 5	- 7	—
Kurilsk		6.2	240	1 33	+ 1	i 2 44	+ 2	—
Klyuchi		8.4	21	e 2 3	+ 1	e 3 31	- 6	—
Yuzno-Sakhlinsk		8.7	264	2 9	+ 3	e 3 50	+ 5	—
Uglegorsk		8.8	278	2 10	+ 2	3 51	+ 4	—
Vladivostok		17.3	260	e 3 57	- 3	e 7 15	+ 5	—
Resolute Bay	z.	48.6	20	e 8 39	- 3	—	—	—
Sverdlovsk		53.5	316	—	—	e 17 16?	sS	—
Shasta	z.	56.3	64	e 9 40k	0	—	—	e 9 51
Mineral	z.	57.0	64	e 9 45k	0	—	—	e 10 27
Namangan		57.1	296	e 10 5?	+19	e 17 54?	+18	—
Reno	z.	58.6	63	e 9 57a	+ 1	—	—	e 10 24
Lick	z.	58.9	67	e 9 58k	0	—	—	e 10 55
Fresno	z.	60.4	66	e 10 8k	0	—	—	—
Tinemaha	z.	61.1	65	e 10 14	+ 1	—	—	—
China Lake	z.	62.4	65	e 10 21	- 1	—	—	—
Pasadena	z.	63.1	66	e 10 26	0	—	—	—
Riverside	z.	63.7	66	e 10 30	0	—	—	—
Palomar	z.	64.5	67	e 10 33	- 3	—	—	—
Tiflis		71.3	312	e 11 15	- 3	—	—	—
Fayetteville	z.	75.5	51	i 11 41a	- 2	—	—	—
Ksara		81.8	312	i 12 17	0	e 22 49	sS	—

Dec. 16d. 11h. 58m. 27s. Epicentre 52°·8N. 161°·5E. (as on 1952, Nov. 13d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		°	°	m. s.	s.	m. s.	s.	m. s.
Resolute Bay	z.	43.3	22	e 8 6	+ 1	—	—	—
Shasta	z.	51.2	70	e 9 8a	+ 1	—	—	—
Mineral	z.	51.9	70	e 9 13a	+ 1	—	—	i 9 23
Reno	z.	53.4	69	i 9 26k	+ 2	—	—	e 9 42
Lick	z.	53.9	73	e 9 28a	+ 1	e 9 34	?	e 10 13
Fresno	z.	55.3	72	e 9 39a	+ 1	—	—	—
Tinemaha	z.	56.0	71	i 9 44	+ 1	—	—	—
China Lake	z.	57.3	71	e 9 52	0	—	—	e 9 59
Pasadena		58.1	73	i 9 58k	0	—	—	e 10 4
Riverside	z.	58.7	73	e 10 1	- 1	—	—	—
Palomar	z.	59.4	73	i 10 7	+ 1	—	—	e 10 41
Quetta	z.	69.1	292	i 11 7	- 3	—	—	i 11 48
Fayetteville	z.	69.9	56	i 11 12	- 3	—	—	—
Collmberg		72.9	339	e 11 33	0	—	—	e 11 53
Morgantown		73.7	45	e 11 37	- 1	—	—	—
Stuttgart		76.1	341	e 11 51?	0	—	—	—
Ksara		81.6	316	e 12 1	-20	e 22 24	- 9	—

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1952

1185

Dec. 17d. 5h. 13m. 29s. Epicentre 22°·6S. 68°·8W. Depth of focus 0·015. (as on 15d.).

Felt at Montezuma.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Montezuma		0·0	—	i 0	10	- 7	i 0	26	- 5	—	—	—
Antofagasta	E.	1·8	235	e 0	35	+ 3	i 0	59	+ 3	—	—	—
La Paz		6·1	5	i 1	29	0	i 2	29	- 9	i 3	1	?
Santa Lucia	N.	10·9	188	e 2	31	- 2	4	38	+ 5	—	—	—
Huancayo		12·2	328	e 2	51	0	e 5	8	+ 4	e 3	0	PP
Buenos Aires		15·0	145	e 3	27	+ 1	6	48	SSS	—	—	—
La Plata		15·5	145	3	31	- 2	6	37	SS	4	7	PP
Bogota		27·5	348	i 5	36	0	i 10	9	+ 3	i 6	6	pP
Chinchina		28·2	346	e 5	52	+ 9	e 10	14	- 3	e 6	28	PP
Fort de France		37·8	13	e 7	5	0	e 12	38	- 8	e 15	54	SSS
San Juan		40·8	4	e 7	25	- 5	—	—	—	7	55	pP
Tacubaya		51·2	322	e 8	57?	+ 5	—	—	—	e 9	39	sP
Morgantown		62·8	351	i 10	13	- 1	—	—	—	i 10	44	pP
Fayetteville	Z.	63·1	337	i 10	14	- 2	e 13	53	PPP	i 10	41	pP
Halifax		67·1	4	i 10	42 _a	0	—	—	—	—	—	—
Ottawa		68·0	355	i 10	45 _a	- 2	—	—	—	—	—	—
Kirkland Lake	Z.	71·1	352	e 11	5	- 1	—	—	—	—	—	—
Palomar	Z.	72·1	319	e 11	13	+ 1	e 14	54	sPP	i 11	42	pP
Nelson		72·5	322	e 11	15	+ 1	—	—	—	i 11	45	pP
Riverside	Z.	72·8	319	e 11	17	+ 1	—	—	—	i 11	46	pP
Pasadena		73·4	319	i 11	21	+ 1	i 11	59	sP	i 11	53	pP
China Lake	Z.	74·2	321	e 11	24	0	e 12	7	sP	e 11	56	pP
Tinemaha		75·5	321	e 11	31	- 1	e 15	4	pPP	e 12	3	pP
Fresno	Z.	76·1	320	e 11	36 _a	+ 1	—	—	—	e 11	57	P _c P
Lick	Z.	77·6	319	e 11	45 _k	+ 2	—	—	—	e 12	15	pP
Reno	Z.	78·0	322	e 12	3 _k	P _c P	—	—	—	—	—	—
Mineral	Z.	79·6	322	e 11	55 _a	+ 1	e 12	22	?	e 12	27	pP
Shasta	Z.	80·3	322	e 11	57 _a	- 1	—	—	—	e 12	27	pP
Hungry Horse		81·4	332	i 12	4	0	—	—	—	—	—	—
Corvallis	Z.	83·3	324	e 12	15	+ 1	—	—	—	—	—	—
Tamanrasset	Z.	85·2	63	i 12	24 _k	+ 1	e 22	42	+ 1	i 12	47	pP
Victoria		86·0	327	12	27	0	—	—	—	—	—	—
Quetta	Z.	139·9	69	e 22	16	PP	—	—	—	—	—	—

Dec. 17d. 12h. 8m. 28s. Epicentre 36°·6N. 70°·1E. (as on 1952, Nov. 27d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.
Khorog		1·5	54	i 0	32	+ 2 _g	—	—	—	—	—
Obi-garm		2·1	351	i 0	46	+ 4 _g	i 1	12	+ 3 _g	—	—
Stalinabad		2·2	332	i 0	49	+ 5 _g	i 1	21	+ 8 _g	—	—
Garm		2·4	4	i 0	48	0 _g	e 1	16	+ 1*	i 1	19
Dzhergetal		2·7	18	0	52	- 2 _g	—	—	—	—	—
Samarkand		3·9	322	1	10	0*	—	—	—	—	—
Fergana		4·0	19	i 1	10	- 1*	i 1	58	- 5*	—	—
Andijan		4·5	22	i 1	16	+ 5	i 2	8	+ 3	i 1	31
Namangan		4·5	15	i 1	18	- 2*	i 2	11	+ 6	—	—
Tchimkent		5·7	356	e 1	33	+ 5	i 2	39	+ 4	—	—
Bairam-Ali		6·4	281	—	—	—	3	0	+ 7	—	—
Naryn		6·7	42	e 1	41	- 1	i 2	55	- 5	i 1	50
Quetta	Z.	6·9	203	i 1	40	- 5	—	—	—	—	—
Frunse		7·2	27	i 1	50	+ 1	3	13	0	—	—
Przhevalsk		8·7	45	2	8	- 2	—	—	—	—	—
Ashkabad		9·5	282	—	—	—	e 4	14	+ 4	—	—

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1952

1186

Dcc. 17d. 23h. 3m. 57s. Epicentre 34°4N. 24°5E. (as on 1948, July 24d.).

Probably also a second shock in the Ionian Islands.

Felt throughout Crete : Intensity VI at Spilia and Heraklion ; V at Nerokouros, Perivolia, Rethymnon, Kastellion, Episkopi, Chania, Mournia, and Kampos ; IV at Krouson, Palacochoira.

Felt also in Cephalonia : Intensity V at Sami and Chavdata ; IV at Kouvatata, Valsamata, etc.

In Zante : Intensity III at Zante and Volimes.

In Corfu : Intensity V at Stavros ; IV at Avliotes ; III at Leukimi, Giannides, etc.

Felt also in the Provinces of Messenia : Intensity III at Kalamae, Koroni, and Charokopio. of Elide : Intensity IV at Kyllini and Pelopion ; III at Kalydona, Andritsaena, and Letrinoe ; and, of Achaia : Intensity IV at Psathopyrgos.

A. Galanopoulos.

Seismological Institute Bulletin, 1952, Athens, 1953, p.48-49.

A = +.7524, B = +.3429, C = +.5624 ; $\delta = -2$; $h = 0$;
D = +.415, E = -.910 ; G = +.512, H = +.233, K = -.827.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Athens		3.6	350	e 0 59 _a	+ 1	i 1 38	- 4	e 1 52	S*	—
Helwan		7.4	126	i 1 52 _k	0	3 12	- 6	2 8	P*	—
Istanbul		7.6	27	i 1 54	- 1	i 3 25	+ 2	i 2 13	P*	—
Messina		8.2	300	i 1 58 _a	- 5	i 3 21	-17	—	—	—
Sofia		8.3	354	i 2 4	0	i 4 3	- 7*	i 4 25	S _r	—
Taranto		8.4	319	1 59	- 7	3 21	-22	—	—	—
Ksara		9.5	90	i 2 20	0	4 6?	- 4	—	—	—
Bucharest		10.1	7	i 2 30	+ 1	i 4 15	-10	i 2 47	PPP	—
Belgrade		10.8	345	e 2 39	0	i 4 38	- 4	i 2 50	PP	i 6.2
Campulung		10.9	2	e 2 39	- 1	—	—	e 2 44	P	—
Focsani	N.	11.5	10	e 3 6	PPP	—	—	—	—	—
Timisoara		11.6	349	i 2 48 _k	- 2	i 2 56	PP	e 3 4?	PPP	e 5.9
Rocca di Papa		11.8	312	e 2 51	- 2	e 5 30	SSS	i 5 48	Q	i 7.1
Tunis		11.9	285	e 3 6	PP	e 5 5?	- 4	e 5 21	SS	e 5.7
Rome		12.1	312	i 2 50 _a	- 7	i 5 18	+ 4	i 5 30	SS	—
Bacan		12.3	8	e 2 59	0	—	—	e 3 24	PPP	—
Szeged		12.3	346	3 1	+ 2	5 24	+ 6	5 36	SS	e 7.0
Yalta		12.5	34	i 3 3	+ 1	—	—	—	—	—
Kalossa		12.8	343	e 3 9	+ 3	5 31	+ 1	3 17	PP	6.2
Iasi		13.0	9	e 3 7	- 2	—	—	i 3 11	P	—
Kecskemet		13.0	345	i 3 21	PP	5 41	+ 6	8 47	PcP	—
Kishinev		13.0	13	i 3 8	- 1	i 5 39	+ 4	—	—	—
Theodosia		13.5	35	i 3 16	+ 1	—	—	—	—	—
Siena		13.6	315	i 3 20	+ 3	i 6 5	SS	i 5 9	?	i 8.2
Budapest	E.	13.7	344	3 19	+ 1	5 40	-12	6 5	SS	7.9
	N.	13.7	344	3 12	- 6	5 34	-18	6 13	SS	8.0
Florence		13.9	316	i 3 16 _a	- 5	i 6 9	SS	i 3 9 _a	P	—
Triest		13.9	327	i 3 16 _a	- 5	i 6 1	+ 4	i 3 33?	PP	e 7.4
Padova		14.0	320	3 27	+ 5	6 14	SS	3 35	PP	—
Ogyalla		14.2	343	e 3 29	+ 5	e 6 13	+ 9	e 3 41	PP	e 7.3
Bologna		14.3	319	e 3 21 _a	- 5	e 6 10	+ 4	e 3 45	PP	—
Uzhgorod		14.3	354	i 3 24	- 2	e 6 9	+ 3	—	—	—
Tolmezzo		14.8	327	e 3 31	- 1	e 6 7	-11	i 6 30	SS	—
Sotchi		15.0	48	3 34?	- 1	—	—	—	—	—
Skalnate Pleso		15.1	349	e 3 35	- 1	e 6 28	+ 3	i 4 3	PPP	—
Vienna		15.1	339	e 3 31	- 5	i 6 35	+10	e 7 16	Q	8.4
Lwow		15.4	359	i 3 39	- 1	e 6 31	- 1	—	—	—
Salo	z.	15.5	320	i 3 37 _a	- 5	i 6 42	+ 7	i 3 58	PP	i 8.7
Zugdidi		15.8	54	i 3 48	+ 3	6 47	+ 5	—	—	—
Pavia		15.9	317	e 3 45 _a	- 2	i 6 40	- 4	e 4 56	?	e 9.1
Raciborzu		16.3	345	e 3 51	- 1	i 6 48	- 5	15 59	ScS	—
Borzhomi		16.6	58	i 3 58	+ 2	7 3	+ 3	—	—	—
Leninakan		16.6	62	3 59	+ 3	—	—	—	—	—
Tsikhlis-Dzhvari		16.6	58	i 3 59	+ 3	—	—	—	—	—
Chur		16.8	322	i 3 57 _a	- 1	i 7 12	+ 7	—	—	—
Erevan		16.9	64	i 4 2	+ 3	—	—	—	—	—

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		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
				m.	s.		m.	s.		m.	s.		
Oropa		16.9	316	i 3	52	- 7	i 6	55	-12	i 4	28	PPP	—
Gori		17.2	58	i 4	6	+ 3	e 7	18	+ 4	—	—	—	—
Piatigorsk		17.2	50	4	6	+ 3	—	—	—	—	—	—	—
Prague		17.3	338	e 4	1	- 3	i 7	19	+ 3	i 7	44	SS	e 8.6
Ravensburg		17.4	322	e 4	5	- 1	e 7	18	- 1	i 4	9	P	—
Tiflis		17.5	58	i 4	11	+ 4	7	29	+ 8	—	—	—	—
Algiers Univ.	z.	17.6	283	i 4	5 _a	- 3	i 7	23	0	i 4	21	PP	—
Zürich		17.7	322	i 4	7 _a	- 3	e 7	21	- 5	i 4	20	PP	—
Cheb		18.0	334	i 4	16	+ 3	e 7	29	- 3	e 4	36	PPP	—
Goris		18.2	65	i 4	25	+ 9	i 7	53	+16	—	—	—	—
Basle		18.3	322	i 4	14	- 3	e 7	37	- 2	—	—	—	—
Neuchatel		18.3	321	i 4	13	- 4	e 7	34	- 5	—	—	—	—
Stuttgart		18.3	327	e 4	14 _a	- 3	i 7	36	- 3	i 4	29	PP	e 9.0
Kirovobad		18.4	62	e 4	21	+ 3	—	—	—	—	—	—	—
Grozny		18.7	56	i 4	24	+ 2	—	—	—	—	—	—	—
Collmberg		18.8	336	i 4	21	- 2	e 7	50	0	e 6	22	?	e 9.4
Karlsruhe		18.8	326	i 4	22 _a	- 1	i 7	51	+ 1	i 4	40	PP	e 9.2
Besançon		18.9	318	i 4	22	- 2	—	—	—	—	—	—	—
Strasbourg		18.9	325	i 4	22	- 2	i 7	45	- 8	i 4	40	PP	i 9.2
Barcelona		19.0	299	4	21	- 5	i 7	51	- 4	4	43	PP	9.0
Jena		19.0	336	e 4	22	- 4	i 7	55	0	i 4	46	PP	e 10.0
Clermont-Ferrand		19.8	312	i 4	31	- 4	i 8	8	- 5	—	—	—	10.0
Makhach-Kala		19.8	55	i 4	36	+ 1	i 8	17	+ 4	—	—	—	—
Potsdam		19.8	339	i 4	32 _a	- 3	i 8	13	0	i 5	1	PPP	e 10.0
Lenkoran		20.0	70	4	38	+ 1	—	—	—	—	—	—	—
Tortosa		20.0	295	i 4	35	- 2	i 8	12	- 5	—	—	—	—
Shemakla		20.1	63	i 4	38	0	—	—	—	—	—	—	—
Tamanrasset	z.	20.2	239	i 4	36 _a	- 3	e 8	25	+ 4	—	—	—	—
Alicante		20.5	289	i 4	39	- 3	i 8	19	- 8	12	26	PcS	9.7
Paris		21.8	318	i 4	53	- 3	i 8	54	+ 2	i 5	19	PP	e 12.0
Almeria		22.0	284	i 4	59	+ 1	i 8	57	+ 1	12	33	PcS	16.5
Witteveen	z.	22.4	332	i 5	2 _a	0	—	—	—	—	—	—	—
De Bilt		22.5	329	e 5	3 _a	+ 1	i 9	6	+ 1	—	—	—	e 11.0
Copenhagen		22.9	343	i 5	4	- 2	i 9	9	- 4	10	0	SS	12.0
Granada		22.9	285	i 5	4 _a	- 2	i 9	10	- 3	5	16	pP	11.0
Moscow		23.1	18	i 5	8	0	i 9	18	+ 2	5	22	pP	—
Toledo		23.4	292	i 5	9	- 2	i 9	17	- 4	5	17	pP	11.4
Malaga		23.6	285	i 5	14	+ 1	i 9	26	+ 1	i 8	56	PcP	11.8
Jersey	E.	24.6	316	i 5	20	- 3	i 9	42	0	i 8	27	?	12.6
Kew		24.7	322	i 5	33	+ 9	i 9	46	+ 2	i 6	6	PP	e 12.0
Pulkovo		25.7	6	i 5	32	- 1	i 9	55	- 6	—	—	—	—
Helsinki		25.8	0	i 5	32	- 2	e 10	1	- 1	—	—	—	—
Kizyl-Arvat		25.8	68	i 5	38	+ 4	10	2	0	—	—	—	—
Upsala		25.9	352	i 5	33 _a	- 2	i 10	4	0	i 6	31	PPP	i 12.4
Coimbra		26.7	293	5	39	- 4	e 10	21	+ 4	—	—	—	—
Durham		27.3	326	i 5	52	+ 4	i 10	18	- 9	i 6	48	PPP	16.0
Lisbon		27.3	289	i 5	46 _a	- 2	i 10	19	- 8	—	—	—	—
Ashkabad		27.5	72	i 5	51	+ 1	10	32	+ 2	—	—	—	—
Edinburgh	E.	28.7	327	12	52	PcS	10	39	-11	12	0	SS	—
Rathfarnham Castle		28.8	321	i 6	0	- 2	e 11	2	+11	i 6	49	PP	e 14.0
Bergen		28.9	340	i 6	0 _?	- 3	10	35	-18	i 7	0 _?	PP	e 13.4
Aberdeen	N.	29.0	330	i 6	3	- 1	i 10	52	- 2	i 6	55	PP	15.0
Bairam-Ali		30.5	71	i 6	15	- 2	i 11	16	- 2	—	—	—	—
Sverdlovsk		33.2	36	i 6	39	- 1	i 11	55	- 5	—	—	—	—
Kiruna		33.6	358	i 6	41 _a	- 3	i 11	59	- 7	i 9	23	PcP	—
Samarkand		34.1	68	i 6	48	0	e 12	15	+ 1	—	—	—	—
Stalinabad		35.6	69	i 7	4	+ 3	i 12	39	+ 1	—	—	—	—
Tashkent		35.7	65	e 7	3	+ 1	i 12	35	- 4	—	—	—	—
Tchimkent		35.9	63	i 7	5	+ 1	i 12	42	0	—	—	—	—
Quetta	z.	36.0	83	e 7	6	+ 1	i 12	45	+ 1	—	—	—	—
Obi-garm		36.3	69	i 7	9	+ 2	i 12	49	+ 1	—	—	—	—
Kulyab		36.5	70	7	12	+ 3	12	51	0	—	—	—	—
Garm		36.6	68	e 7	13	+ 3	e 12	56	+ 3	—	—	—	—
Dzhergetal		37.4	68	i 7	20	+ 4	—	—	—	—	—	—	—
Namangan		37.5	66	i 7	20	+ 3	i 13	7	0	i 7	34	pP	—

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Fergana		37.7	66	i 7	21	+ 2	i 13	8	- 2	—	—	—
Khorog		38.0	70	i 7	24	+ 3	—	—	—	—	—	—
Frunse		39.5	62	i 7	36	+ 2	i 13	29	- 8	i 7	53	pP
Naryn		40.7	64	e 7	46	+ 2	i 13	55	0	—	—	—
Rybach'e		40.7	62	e 7	47	+ 3	i 13	59	+ 4	—	—	—
Reykjavik		40.9	331	i 7	46 _a	0	i 13	58	0	i 9	28	PP
Almata		41.2	61	i 7	50	+ 2	i 14	4	+ 2	—	—	—
M'Bour		42.3	253	e 8	1	+ 4	i 14	14	- 5	e 9	45	PP
Przhevalsk		42.4	61	7	59	+ 1	14	19	- 1	—	—	—
Semipalatinsk		43.1	50	e 8	4	0	e 14	24	- 6	—	—	—
Scoresby Sund		43.9	339	i 8	8 _a	- 2	i 14	37	- 5	18	17	ScS
New Delhi		44.9	82	i 8	18 _k	0	i 14	54	- 2	15	9	PPS
Bombay		45.4	97	i 8	26	+ 4	i 15	7	+ 3	10	11	PP
Poona		46.5	97	i 8	34	+ 3	i 15	21	+ 2	18	41	SS
Hyderabad		50.8	95	i 9	4	0	i 16	19	- 1	18	50	ScS
Ivigtut		52.3	324	—	—	—	16	36	- 4	—	—	30.0
Chatra		53.7	80	i 8	26	- 60	e 16	57	- 2	10	28	PcP
Kodaikanal	E.	53.9	102	e 9	29	+ 2	i 17	6	+ 4	—	—	—
Madras	E.	54.5	98	i 9	34	+ 2	i 17	10	0	11	35	PP
Calcutta	E.	56.5	83	i 9	48	+ 2	i 17	37	0	19	34	ScS
Tananarive		57.4	154	e 9	53	0	e 17	49	0	14	41	PcS
Irkutsk		57.8	46	i 9	55	0	e 17	51	- 3	e 10	11	pP
Shillong		58.1	79	i 9	56	- 2	e 17	48	- 10	14	44	ScP
Pretoria	Z.	59.9	176	i 10	9	- 1	—	—	—	—	—	—
Kimberley	Z.	62.8	180	i 10	29	- 1	—	—	—	—	—	—
Pietermaritzburg	Z.	63.9	174	i 10	37 _?	0	—	—	—	—	—	—
Resolute Bay		64.3	346	i 10	37 _a	- 2	i 19	12	- 5	i 20	25	ScS
Halifax		65.6	309	i 10	45 _a	- 3	19	26	- 7	13	25	PP
Grahamstown	Z.	67.4	178	i 10	59	0	—	—	—	—	—	—
Seven Falls	E.	69.0	313	e 11	8	- 1	20	13	- 1	24	30	SS
Shawinigan Falls	N.	70.4	313	e 11	16	- 2	20	26	- 4	13	56	PP
Weston		71.6	309	i 11	23 _a	- 2	e 20	36	- 8	(e 25	48)	SS
Harvard		71.7	309	i 11	23 _a	- 3	i 20	42	- 3	—	—	—
Bermuda		72.0	297	i 11	24 _a	- 4	i 20	45	- 4	—	—	e 30.0
Ottawa		72.8	314	i 11	30 _a	- 2	20	55	- 3	14	11	PP
Kirkland Lake	Z.	73.8	318	e 11	36 _a	- 2	e 21	6	- 3	—	—	—
Fordham		74.0	308	i 11	39	0	e 21	4	- 7	—	—	—
Palisades		74.0	308	i 11	36 _a	- 3	i 21	5	- 6	e 12	5	pP
City College, N.Y.		74.1	308	i 11	40	0	i 21	8	- 4	—	—	—
Buffalo (Larkin)		75.9	313	i 11	50	0	—	—	—	—	—	—
Nanking		75.9	61	i 11	50	0	i 21	29	- 3	i 12	7	pP
Magadan		76.4	25	11	53	0	21	36	- 2	—	—	—
Pennsylvania		76.6	311	i 11	52	- 2	i 21	30	- 10	e 26	21	SS
Washington		77.2	308	i 11	54	- 3	i 21	43	- 4	—	—	—
Hong Kong		77.5	71	e 12	0	+ 1	21	50	0	—	—	—
Pittsburgh	Z.	78.1	311	i 12	4	+ 2	i 21	53	- 3	—	—	—
Zô-Sè		78.1	60	12	3	+ 1	21	53	- 3	—	—	—
Fort de France		78.3	279	i 12	2	- 1	i 21	54	- 5	—	—	—
Vladivostok		78.3	46	i 12	3	0	e 21	55	- 4	12	20	pP
Cleveland		78.5	313	i 12	4 _a	0	i 21	56	- 5	e 22	13	ScS
Morgantown		78.6	310	i 12	4	- 1	i 21	57	- 5	—	—	—
Ulegorsk		80.1	36	i 12	13	0	22	17	- 1	12	39	pP
San Juan		80.3	286	i 12	13	- 1	i 22	15	- 5	—	—	—
College		80.9	357	i 12	16	- 1	22	16	- 10	e 15	15	PP
Cincinnati		81.7	312	i 12	21	- 1	i 22	26	- 8	—	—	—
Yuzno-Sakhlinsk		81.8	38	12	22	0	22	34	- 1	12	39	pP
Chicago		81.9	316	e 12	21	- 2	i 22	29	- 7	—	—	—
Klyuchi		82.3	23	e 12	25	0	e 22	38	- 2	—	—	—
Hukuoka		83.1	54	12	31	+ 2	e 22	49	+ 1	—	—	—
Saga		83.2	54	12	34	+ 5	e 22	49	0	—	—	—
Ciudad Trujillo		83.3	288	12	57	+ 27	23	17	+ 27	—	—	—
Hamada		83.4	52	e 12	30	0	i 12	51	?	e 16	3	PP
Sapporo	N.	83.7	41	e 12	35	+ 3	e 22	51	- 3	—	—	—
Saskatoon		83.8	332	12	32	0	22	45	- 10	—	—	41.6
Hirosima		83.9	53	12	34	+ 1	22	50	- 6	—	—	—

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Mori	E.	84.0	42	e 12	34	+ 1	e 22	53	- 4	—	—	—
Ooita		84.1	54	e 12	29	- 5	—	—	—	—	—	—
Petropavlovsk		84.2	27	i 12	33	- 1	i 22	52	- 7	15	49	PP
Kagosima		84.4	56	e 12	38	+ 2	—	—	—	—	—	—
Matuyama		84.5	53	i 12	37	+ 1	e 22	56	- 6	e 15	55	PP
Abashiri		84.7	38	e 11	41	- 56	e 21	44	- 80	—	—	—
Miyazaki		84.8	55	e 12	39	+ 2	—	—	—	—	—	—
Aomori		84.9	43	i 12	49	+ 11	e 23	2	- 4	e 11	13	?
Takamatu		85.0	52	e 12	41	+ 3	—	—	—	—	—	—
Urakawa	N.	85.1	41	e 12	27	- 12	—	—	—	—	—	—
Koti		85.2	52	e 12	40	+ 1	e 23	5	[+ 3]	e 16	2	PP
Akita		85.3	44	e 12	45	+ 5	e 23	4	[+ 1]	—	—	—
Hukui		85.4	49	e 12	38	- 2	—	—	—	—	—	—
Toyama		85.5	48	i 12	42 ^a	+ 1	—	—	—	e 13	5	?
Kurilsk		85.6	37	i 12	40	- 1	i 23	3	[- 2]	—	—	—
Sumoto		85.6	51	i 12	43	+ 2	—	—	—	e 14	1	?
Kyoto		85.7	50	e 12	44	+ 2	e 22	55	[- 10]	e 16	10	PP
Hikone		85.8	50	12	42	0	e 23	12	- 3	—	—	—
Niigata		85.8	46	e 12	53	+ 11	e 23	23	+ 8	—	—	—
Osaka		85.8	51	e 12	56	+ 14	e 13	5	?	e 14	13	?
Morioka		85.9	44	e 12	43	0	—	—	—	—	—	—
Nagano	N.	86.1	48	e 12	47	+ 3	22	43	[- 25]	—	—	—
Kameyama		86.2	49	12	45	+ 1	23	8	[- 1]	i 13	5	?
Matusiro		86.2	48	12	43	- 1	23	7	[- 2]	e 24	49	PPS
Matumoto	N.	86.3	49	12	47	+ 2	—	—	—	—	—	e 48.0
Mizusawa		86.3	44	e 12	47	+ 2	24	3	PS	e 13	38	?
Miyako	Z.	86.4	43	e 12	45	0	e 23	1	[- 9]	—	—	—
Nagoya	E.	86.4	49	12	47	+ 2	e 23	9	[- 1]	e 13	15	?
Yamagata		86.4	45	e 12	46	+ 1	e 23	32	+ 11	—	—	—
Oiwake		86.6	48	e 12	7	- 39	—	—	—	—	—	—
Iida		86.7	49	e 13	34	+ 47	e 24	2	PS	e 13	47	?
Inawasiro		86.7	45	e 12	50	+ 3	—	—	—	e 13	22	?
Sendai		86.7	45	e 12	48	+ 1	e 23	10	[- 2]	e 24	17	PS
Hukusima		86.8	45	12	51	+ 4	e 23	12	[- 1]	—	—	—
Maebasi		86.9	47	e 12	50	+ 2	e 23	10	[- 3]	e 16	52	PP
Kohu		87.0	48	e 12	30	- 18	e 23	9	[- 5]	e 13	29	?
Manila		87.1	74	i 12	45	- 4	i 23	17	[+ 2]	—	—	—
Shirakawa		87.1	46	e 12	41	- 8	—	—	—	—	—	—
Titibu		87.1	48	i 12	51	+ 2	—	—	—	—	—	—
Djakarta		87.2	99	i 12	52 ^a	+ 3	i 23	26	- 2	i 13	27	?
Kumagaya	Z.	87.2	48	12	52	+ 3	e 23	15	[0]	—	—	—
Utunomiya		87.2	47	e 12	51	+ 2	e 23	27	- 1	—	—	—
Hunatu		87.3	48	e 12	50	0	—	—	—	—	—	—
Shizuoka		87.4	49	e 12	53	+ 3	—	—	—	—	—	—
Misima	E.	87.6	48	e 12	49	- 2	—	—	—	e 13	34	?
Onahama		87.6	45	e 13	4	+ 13	e 23	15	[- 3]	—	—	—
Mito		87.7	47	e 12	5	- 47	—	—	—	—	—	—
Tokyo		87.7	47	e 12	52	0	23	30	- 3	e 24	13	PS
Bandung		88.2	98	e 12	57	+ 3	i 23	35	- 3	i 13	28	?
Mobile		89.3	308	13	0	+ 1	i 23	45	- 3	—	—	—
Fayetteville	Z.	89.5	315	i 12	59	- 1	i 23	23	[- 7]	e 16	30	PP
Hungry Horse		89.7	334	i 13	0	- 1	e 38	37	P'P'	i 29	34	PKKP
Victoria		93.1	339	i 13	13 ^a	- 4	23	45	[- 6]	—	—	e 40.9
Bogota		94.5	279	i 13	33	+ 10	i 23	55	[- 3]	e 24	26	SKKS
Chinchina		95.5	280	i 13	27	- 1	i 23	49	[- 15]	—	—	43.0
Corvallis	Z.	96.1	337	i 13	25	- 6	—	—	—	e 17	22	PP
Shasta		99.3	335	e 13	42	- 3	e 24	18	[- 6]	e 17	40	PP
Reno	Z.	99.4	332	i 13	45 ^a	- 1	e 14	28	?	e 17	29	PP
Boulder City		100.4	328	i 13	50	0	i 26	51	PS	i 17	46	PP
Nelson		100.6	328	i 13	51	0	i 14	13	?	i 17	51	PP
Tinemaha	Z.	100.9	330	e 13	53	+ 1	e 26	58	PS	i 18	1	PP
La Paz		101.3	257	i 14	14	+ 20	i 24	31	[- 2]	i 32	43	SS
Tucson		101.5	323	i 13	55	0	i 24	29	[- 5]	i 18	2	PP
Berkeley		101.7	333	e 13	55	- 1	i 24	36	[+ 1]	i 18	7	PP
China Lake	Z.	101.7	329	e 13	55	- 1	e 18	5	PP	e 30	2	PKKP

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Fresno	z.	101.8	331	e 13 57 _k	+ 1	e 25 7	{ 0	i 18 6	PP	—
Lick	z.	102.0	333	e 13 57 _a	0	e 18 7	PP	e 20 19	PPP	—
Santa Clara		102.1	333	e 18 10 _k	PP	—	—	e 48 32	Q	e 59.8
Riverside	z.	103.1	328	i 14 2	0	i 27 20	PS	i 18 15	PP	—
La Plata		103.4	237	27 21	PS	24 33	[-10]	33 3	SS	45.4
Pasadena		103.4	328	i 14 6	+ 2	i 24 39	[- 4]	i 18 17	PP	e 44.0
Palomar	z.	103.5	327	e 14 3	- 1	i 27 7	PS	i 18 20	PP	—
Tacubaya		104.3	306	e 18 40	PP	e 24 40	[- 7]	e 30 54	?	—
Huancayo		104.8	265	e 14 21	+11	i 24 51	[+ 1]	e 33 17	SS	e 40.6
Santa Lucia	N.	111.8	244	23 3?	?	—	—	—	—	—
Kaimata	N.E.	153.0	117	e 20 5	PKP ₂	—	—	—	—	—
Cobb River	E.	154.1	113	e 20 16	PKP ₂	—	—	—	—	—
Apia		154.7	38	e 20 3?	[+ 9]	—	—	—	—	—
Wellington		155.6	114	e 20 5	[+10]	—	—	—	—	e 78.0
Karapiro	N.	156.4	107	e 20 27	PKP ₂	—	—	—	—	—

Dec. 18d. 5h. 16m. 15s. Epicentre 18°·5S. 178°·0W. Depth of focus 0.090.
(as on 1951, May 8d.).

A = -·9484, B = -·0331, C = -·3154; $\delta = +4$; $h = +5$;
D = -·035, E = +·999; G = +·315, H = +·011, K = -·949.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Apia		7.6	53	i 1 54	- 2	i 3 22	- 7	—	—
Karapiro	N.	20.2	195	e 4 0	+ 3	—	—	—	—
Wellington	z.	23.5	194	e 4 26	0	—	—	—	—
Cobb River	E.	23.9	198	—	—	e 8 7	+ 1	—	—
Kaimata	N.E.	25.6	199	e 4 48	+ 3	—	—	—	—
Brisbane	z.	28.1	246	i 5 8 _a	+ 1	i 5 27	?	—	—
Lick	z.	76.8	42	i 10 51 _a	- 1	—	—	—	—
Pasadena		77.3	47	i 10 53 _a	- 2	—	—	—	—
Fresno	z.	77.7	44	e 10 55 _a	- 2	—	—	—	—
Palomar	z.	77.8	48	i 10 57	0	—	—	i 11 18	PcP
Riverside	z.	77.8	47	i 10 56	- 1	—	—	—	—
Shasta	z.	78.3	40	e 10 58 _k	- 2	—	—	—	—
China Lake		78.6	45	i 11 0	- 2	—	—	—	—
Mineral	z.	78.6	41	e 10 59 _k	- 3	i 11 13	?	e 12 1	?
Tinemaha	z.	78.9	45	i 11 2	- 1	—	—	—	—
Nelson		80.5	47	i 11 10	- 1	—	—	i 13 17	pP
Boulder City		80.6	47	i 11 11	- 1	—	—	—	—
Tucson		81.7	52	i 11 17	0	—	—	—	—
College		86.3	12	i 11 36	- 4	—	—	e 13 46	pP
Butte		87.2	39	e 11 43	- 1	—	—	—	—
Hungry Horse		87.5	37	i 11 44	- 2	—	—	—	—
Fayetteville	z.	95.9	54	e 12 0	-24	—	—	—	—
Raciborzu	z.	145.9	342	18 34	[+ 3]	—	—	—	—
Collmberg		146.1	347	18 33	[+ 1]	—	—	—	—
Jena	z.	146.8	347	e 18 30	[- 3]	e 18 34	PKP ₂	—	—
Stuttgart		149.2	350	e 18 40	[+ 4]	—	—	—	—

Dec. 18d. 8h. 34m. 50s. Epicentre 8°·2S. 156°·4E. (as on 6d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane		19.4	191	i 4 26 _a	- 4	e 9 3	+59	i 9 28	?	e 11.2
Riverville		26.0	191	—	—	i 10 15	+ 9	i 11 9	SS	—
Melbourne	E.	31.3	199	—	—	e 13 44	SSS	—	—	e 15.7
Shillong	E.	71.1	301	e 11 21	- 1	—	—	—	—	—
College		83.7	21	12 31	- 1	—	—	—	—	—
Mineral	z.	89.2	49	e 12 57 _k	- 2	—	—	—	—	—
Fresno	z.	89.9	53	e 13 4 _a	+ 2	—	—	—	—	—
Reno	z.	90.4	50	e 12 36 _k	-28	—	—	—	—	—
Pasadena	z.	90.8	56	i 13 8	+ 2	—	—	—	—	—
Riverside	z.	91.4	56	e 13 10	+ 1	—	—	—	—	—
China Lake	z.	91.5	54	i 13 10	0	—	—	—	—	—
Palomar	z.	91.7	57	e 13 12	+ 2	—	—	—	—	—
Nelson		93.7	54	i 13 21	+ 1	—	—	—	—	—
Fayetteville	z.	110.5	54	e 11 21	?	—	—	—	—	—
Tamanrasset	z.	148.5	302	e 19 47	[+ 2]	i 19 52	PKP ₂	e 21 28	?	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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Dec. 18d. 9h. 20m. 29s. Epicentre 53°·8N. 161°·7E. (as on Nov. 5d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mitchell Field		13·2	89	e 3 6	- 5	e 8 31	PcP	—	—
Wakkanai	E.	15·4	245	e 5 37	?	e 8 15	?	e 10 56	?
Sapporo		17·2	240	e 5 5	+62	e 8 16	+62	—	e 9·9
Miyako		19·5	232	e 4 26?	- 5	e 8 18?	SS	—	—
Mizusawa		20·3	234	4 43	+ 3	e 8 40	SS	—	—
Sendai		21·1	231	e 4 48	0	e 8 51	+12	e 6 4	? e 11·5
Hokusima		21·7	232	e 4 56	+ 1	e 7 6	?	—	—
Shirakawa		22·3	231	e 5 3	+ 2	—	—	—	—
Utunomiya		23·0	231	e 5 7	0	e 8 47	-27	—	—
Kumagaya		23·5	230	e 5 16	+ 4	e 9 35	+12	—	—
Maebasi		23·5	231	i 5 15	+ 3	9 36	+13	—	—
Nagano	N.	23·6	233	e 5 17	+ 4	e 9 43	+18	—	—
Matusiro		23·7	235	i 5 17	+ 3	i 9 37	+10	i 12 1	? 12·2
Oiwake		23·7	233	e 5 11	- 3	—	—	—	—
Tokyo		23·7	228	e 5 18	+ 4	e 9 32	+ 5	i 10 36	SSS e 10·9
Matumoto	N.	24·1	234	5 21	+ 3	—	—	—	—
Toyama	Z.	24·1	234	e 5 21	+ 3	—	—	—	—
Hunatu		24·3	231	e 5 26	+ 6	—	—	—	—
Kohu		24·3	231	5 22	+ 2	—	—	e 6 13	PPP
Misima	E.	24·5	229	e 5 39	+17	—	—	—	—
Shizuoka		24·9	231	e 5 29	+ 3	e 10 1	+14	—	—
Nagoya		25·4	232	e 5 52	+21	—	—	e 6 29	PPP
Kameyama		25·9	233	e 5 41	+ 6	—	—	e 7 7	?
College		27·2	45	5 44	- 3	i 10 23	-2	i 9 41	? e 11·3
Takamatu		27·5	239	e 5 52	+ 2	—	—	e 8 51	PcP e 10·4
Hamada		28·1	240	—	—	e 11 33	SS	—	—
Koti		28·4	236	e 6 0	+ 2	e 10 55	+10	—	e 18·8
Miyazaki		30·8	236	e 12 14	SS	—	—	—	—
Zō-Sō		36·8	248	7 14	+ 3	e 13 7	PcS	—	—
Nanking		37·4	252	7 18	+ 2	13 6	+ 1	—	—
Resolute Bay		42·3	23	i 7 57 _a	0	i 14 19	0	—	e 26·4
Victoria		45·2	63	8 18	- 2	—	—	—	—
Hong Kong		47·6	248	e 8 44	+ 5	e 15 48	+13	—	—
Hungry Horse		50·3	59	i 8 57	- 3	—	—	—	—
Manila		50·5	235	i 8 58	- 4	i 16 2	-14	—	—
Shasta	Z.	50·8	71	e 9 1 _a	- 3	—	—	i 9 13	pP
Mineral	Z.	51·4	71	e 9 5 _k	- 4	e 10 22	PcP	i 9 19	pP
Berkeley		52·7	74	i 9 16 _a	- 2	e 16 43	- 3	e 19 3	ScS e 25·1
Reno	Z.	53·0	70	9 18 _k	- 3	—	—	e 9 30	pP
Lick	Z.	53·5	74	e 9 21 _a	- 3	e 9 49	?	i 9 34	pP
Fresno	Z.	54·9	73	e 9 31	- 4	—	—	—	—
Kiruna		55·3	344	i 9 37	- 1	e 17 23	+ 2	e 17 32?	PS 25·2
Tinemaha	Z.	55·6	72	i 9 37	- 3	i 10 37	PcP	i 9 49	pP
Scoresby Sund		56·0	2	e 9 46	+ 3	—	—	—	—
China Lake	Z.	56·8	72	e 9 45	- 3	—	—	i 9 57	pP
Pasadena		57·7	74	i 9 52	- 3	e 17 50	- 3	i 10 3	pP e 27·0
Boulder City		58·3	71	i 9 56	- 3	i 10 22	?	i 10 9	pP
Riverside	Z.	58·3	74	e 9 56	- 3	e 10 30	?	e 10 8	pP
Nelson		58·5	71	i 9 46	-14	i 10 20	?	i 10 9	pP
Palomar		59·0	73	i 10 2	- 2	i 11 11	?	i 10 15	pP
Chatra		59·8	274	e 10 11	+ 2	e 18 25	+ 5	18 31	PS 27·8
Calcutta	E.	62·4	271	e 14 17?	PPP	—	—	—	—
Upsala		63·1	341	i 10 33	+ 1	e 19 1	- 1	i 11 56	? e 32·5
Tucson		63·3	71	e 10 30	- 3	e 19 9	+ 5	e 12 59	PP e 34·3
New Delhi	N.	64·3	284	e 10 40	+ 1	e 19 19	+ 2	11 12	PcP
Kirkland Lake	Z.	65·8	40	e 10 48 _a	- 1	—	—	—	—
Copenhagen		68·0	342	—	—	20 7	+ 5	—	33·5
Quetta		68·8	293	e 11 10	+ 2	—	—	—	—
Fayetteville	Z.	69·2	56	i 11 6	- 4	—	—	i 11 33	PcP
Ottawa		69·7	39	i 11 11 _a	- 3	—	—	—	—
Shawinigan Falls	N.	69·8	36	e 11 14	0	—	—	—	—
Seven Falls	E.	70·0	35	—	—	e 20 25	- 1	28 25	SSS
Cleveland		70·7	45	i 11 19 _a	- 1	e 20 29	- 5	—	—
Lwow		70·8	333	e 11 21	+ 1	i 20 39	+ 4	e 11 33	PcP
Potsdam		71·0	341	—	—	i 20 49	+12	—	e 39·5

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Witteveen	Z.	71.7	345	e 11 28	+ 2	—	—	—	—
Kishinev		71.9	329	e 11 31	+ 4	e 20 51	+ 3	e 21 21	PS
Collmberg		72.0	340	11 29	+ 1	—	—	e 12 6	?
Raciborzu		72.0	337	e 11 30	+ 2	e 14 8	PP	e 11 48	PcP
Hyderabad		72.2	275	i 11 26	- 3	i 20 52	+ 1	—	—
Uzhgorod		72.3	334	e 11 30	+ 1	e 20 59	+ 7	11 50	PcP
Skalnate Pleso		72.4	335	e 12 0	+30	e 20 59	+ 6	21 34	PPS
Jena		72.7	340	e 11 33	+ 1	—	—	e 11 51	PcP
Pennsylvania		72.8	43	e 11 32	0	—	—	—	—
Morgantown		72.9	45	i 11 31	- 2	—	—	—	—
Prague		72.9	339	e 11 35	+ 2	e 21 0	+ 1	e 11 50	PcP
Cheb	N.	73.3	341	—	—	e 21 20	+16	e 26 25	?
Harvard		73.8	37	i 11 37 _a	- 1	—	—	—	—
Poona		74.0	279	i 11 31	- 8	e 21 14	+ 3	—	—
Weston		74.0	37	i 11 38 _a	- 1	—	—	—	e 42.1
Palisades		74.2	39	i 11 37	- 3	—	—	—	e 37.6
Bombay		74.3	281	e 11 42	+ 1	e 21 19	+ 4	21 54	PS
City College, N.Y.		74.3	39	i 11 39	- 2	—	—	—	—
Halifax		74.6	31	i 11 42 _a	- 1	—	—	—	—
Washington		74.7	42	e 11 47	+ 4	—	—	—	—
Stuttgart		75.2	342	e 11 46 _?	0	e 21 31	+ 6	—	e 41.5
Strasbourg		75.6	343	e 11 52	+ 4	e 21 31	+ 2	e 12 6	PcP
Basle	Z.	76.7	343	e 11 55	0	—	—	—	—
Zürich	Z.	76.7	343	e 11 54	- 1	—	—	—	—
Istanbul		77.1	326	e 11 59	+ 2	e 21 52	+ 6	—	e 45.2
Besançon		77.2	343	e 12 0	+ 3	—	—	e 12 42	?
Triest		77.2	337	e 23 45	?	e 29 53	SSS	e 32 24	Q
Kodaikanal	E.	78.4	272	e 12 3	- 1	e 22 3	+ 3	27 24	SS
Pavia		78.6	340	e 14 14	?	—	—	—	—
Colombo	E.	79.6	267	e 12 21	+11	22 21	+ 9	—	—
Florence		79.6	339	e 23 37	PPS	—	—	—	e 44.5
Tacubaya		79.8	71	e 12 28	PcP	—	—	—	—
Ksara		81.0	317	e 12 22	+ 4	23 28	PPS	—	—
Messina	E.	83.8	334	—	—	e 22 59	+ 4	e 43 0 _?	Q
Bermuda		85.2	38	i 12 38	- 1	e 22 59	[- 3]	23 12	S
Helwan		86.3	319	i 12 46	+ 1	e 23 25	+ 5	e 13 39	?
Riverview	E.	87.7	188	—	—	e 23 31	- 2	—	—
Tamanrasset	Z.	101.0	337	e 13 54	+ 1	e 17 52	?	e 18 0	PP
Fort de France		102.6	42	—	—	e 26 31	+49	—	—
Bogota		105.6	59	e 18 53	PP	e 24 54	[+ 1]	—	—
La Paz		126.5	65	e 19 11	[+ 6]	27 55	{- 2}	26 14	SKS
Pretoria	Z.	135.7	291	e 19 26	[+ 3]	—	—	—	—
Kimberley	Z.	140.0	291	e 19 26	[- 4]	—	—	—	—

Dec. 18d. 10h. 30m. 48s. Epicentre 53°·8N. 161°·7E. (as at 9h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Resolute Bay	Z.	42.3	23	e 7 58	+ 1	—	—	—	—
Victoria		45.2	63	8 37	+17	—	—	—	—
Shasta	Z.	50.8	71	e 9 2 _a	- 2	—	—	—	—
Mineral	Z.	51.4	71	e 9 7 _a	- 2	e 9 28	?	e 10 21	PcP
Reno	Z.	53.0	70	e 9 20 _k	- 1	e 9 39	?	—	—
Lick	Z.	53.5	74	e 9 24 _a	0	e 9 58	?	—	—
Fresno	Z.	54.9	73	e 9 33 _a	- 2	e 9 58	?	—	—
Kiruna		55.3	344	i 9 40	+ 2	e 21 12	SS	i 10 6	?
Tinemaha	Z.	55.6	72	i 9 40	0	—	—	—	e 28.7
China Lake	Z.	56.8	72	e 9 47	- 1	—	—	e 10 2	?
Pasadena		57.7	74	e 9 54	- 1	e 10 23	?	e 16 19	?
Riverside	Z.	58.3	74	e 10 7	+ 8	—	—	e 10 12	?
Palomar	Z.	59.0	73	e 10 4	0	—	—	e 10 16	?
Chatra		59.8	274	e 10 12	+ 3	e 18 32	+12	—	—
Upsala	Z.	63.1	341	i 10 35	+ 3	i 10 53	?	i 11 7	PcP

Continued on next page.

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1952

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		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Quetta		68.8	293	e 11 12?	+ 4	—	—	—	—
Fayetteville	z.	69.2	56	i 11 8	- 2	—	—	—	—
Ottawa		69.7	39	e 11 13	- 1	—	—	—	—
Collmberg		72.0	340	e 11 31	+ 3	e 11 37	? 1	e 12 5	?
Hyderabad		72.2	275	e 11 31	+ 2	i 20 54	+ 3	—	—
Morgantown		72.9	45	i 11 33	0	—	—	—	—
Prague		72.9	339	e 9 49	?	e 10 52	?	—	—
Bombay		74.3	281	e 11 53	PcP	e 21 21	+ 6	22 3	PPS
Besançon		77.2	343	e 12 20	PcP	—	—	—	—
Ksara		81.0	317	i 12 25	PcP	—	—	—	—
Helwan	z.	86.3	319	e 12 49	PcP	e 13 48	?	e 14 27	?
Tamanrasset	z.	101.0	337	e 18 2	PP	—	—	—	—

Dec. 18d. 21h. 4m. 59s. Epicentre 29°·0N. 130°·0E. Depth of focus 0·005.
(as on 1952, Sept. 16d.).

Intensity II-III at Yakusima and Miyazaki.

Epicentre as adopted. Macroseismic radius > 300km.

Seismo. Bull. Cent. Met. Obs., Japan, Dec., 1952, Tokyo, 1953, p.503, with macroseismic chart.

A = -·5631, B = +·6711, C = +·4823; δ = +7; h = +2;
D = +·766, E = +·643; G = -·310, H = +·369, K = -·876.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Yakusima		1.5	17	e 0 20 _a	- 6	0 37	- 8	—	—
Kagosima		2.6	11	e 0 41	0	1 13	+ 1	—	—
Miyazaki		3.2	23	e 0 49	0	1 26	- 1	—	—
Unzendake		3.7	3	e 0 59 _k	+ 3	1 40	+ 1	—	—
Kumamoto		3.9	9	0 57	- 2	1 45	+ 1	—	—
Asosan		4.0	13	0 56	- 5	1 47	0	—	—
Ooita		4.4	17	e 1 6	0	1 58	+ 1	—	—
Hukuoka		4.6	4	e 1 10 _a	+ 1	2 5	+ 3	—	—
Simidu		4.6	33	1 10	+ 1	1 54	- 8	—	—
Matuyama		5.4	25	e 1 26	+ 6	2 31	+ 9	—	—
Muroto		5.5	39	1 24	+ 3	—	—	—	—
Hirosima		5.7	20	1 25	+ 1	—	—	—	—
Hamada		6.1	16	e 1 43	PP	2 45	+ 6	—	—
Takamatu		6.3	32	e 1 32	0	—	—	—	—
Siomisaki		6.6	46	e 1 44	PP	2 47	- 4	—	—
Sumoto		6.7	37	i 1 39	+ 1	3 30	SSS	—	—
Kyoto		7.7	37	e 1 50	- 2	3 16	- 3	—	—
Zô-Sè		7.9	287	1 50	- 5	3 28	+ 5	—	—
Kameyama		8.0	42	1 56	0	2 41	?	—	—
Hikone		8.2	39	e 1 57	- 2	—	—	—	—
Kohu		9.8	45	2 24	+ 3	—	—	—	—
Osima		9.8	52	e 2 22	+ 1	—	—	—	—
Oiwake		10.3	42	e 2 37	PP	—	—	—	—
Maebasi		10.6	44	e 2 33	+ 2	—	—	—	—
Tokyo		10.6	48	e 2 35	+ 4	—	—	—	—
Manila		16.6	212	i 3 42	- 8	—	—	i 3 29	?
College		60.9	28	i 10 8	0	—	—	—	—
Kiruna	z.	70.4	338	i 11 6	- 3	—	—	—	—
Resolute Bay	z.	72.5	12	e 11 20	- 2	—	—	—	—
Upsala	z.	75.6	331	i 11 37	- 3	—	—	—	—
Shasta	z.	83.6	47	e 12 23 _k	0	—	—	e 12 37	pP
Jena		83.7	325	e 12 21	- 2	—	—	e 12 34	pP
Hungry Horse		84.1	37	i 12 26	+ 1	—	—	—	—
Mineral	z.	84.3	47	e 12 30 _a	+ 4	—	—	e 12 40	pP
Lick	z.	85.9	49	e 12 35 _a	+ 1	—	—	—	—
Stuttgart		86.3	325	e 12 33?	- 3	—	—	—	—
China Lake	z.	89.4	48	e 13 7	pP	—	—	—	—
Riverside	z.	90.7	50	i 12 58	+ 1	—	—	—	—
Nelson		91.3	47	i 13 1	+ 1	—	—	—	—

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1194

Dec. 18d. 22h. 17m. 0s. Epicentre 51°·4N. 179°·2W. (as on 1952, Feb. 2d.).

A = -·6264, B = -·0087, C = +·7795; $\delta = +7$; $h = -6$;
D = -·014, E = +1·000; G = -·779, H = -·011, K = -·626.

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.	
				m.	s.		m.	s.		m.	s.
Mitchell Field		1·7	72	i 0	13	-18	i 0	49	- 5	—	—
College		21·1	38	4	49	+ 1	—	—	—	8 56	PcP
Shasta	z.	39·9	82	e 7	38 _a	+ 1	e 10	57	?	—	—
Mineral	z.	40·6	82	i 7	44 _k	+ 1	i 7	48	?	i 8 6	?
Hungry Horse		40·9	68	i 7	46	0	e 13	32	PcS	i 9 49	PPP
Berkeley	z.	41·7	87	e 7	52 _k	0	e 8 6	?	?	—	—
Lick	z.	42·4	87	e 7	58 _a	0	e 8 5	?	?	i 8 27	?
Tinemaha	z.	44·7	85	i 8	17	+ 1	—	—	—	—	—
China Lake	z.	45·9	84	e 8	26	0	—	—	—	—	—
Pasadena	z.	46·6	88	e 8	31	- 1	—	—	—	—	—
Boulder City		47·5	83	i 8	39	+ 1	—	—	—	—	—
Nelson		47·7	83	i 8	40	0	—	—	—	i 10 10	PcP
Palomar	z.	47·9	88	i 8	42	0	i 8	46	?	—	—
Tucson		52·4	84	i 9	17	+ 1	—	—	—	—	—
Fayetteville	z.	59·9	69	i 10	8 _a	- 2	i 10	57	PcP	—	—
Kiruna	z.	60·2	351	i 10	14	+ 2	i 10	59	PcP	—	—
Weston		67·7	50	i 11	0 _a	- 1	—	—	—	—	—
Upsala	z.	68·3	352	i 11	7	+ 2	i 11	31	PcP	—	—
Bermuda		78·7	52	i 12	6	0	—	—	—	—	—
San Juan		89·4	62	i 13	2	+ 2	—	—	—	—	—
La Paz		115·9	83	e 18	46	[+ 1]	—	—	—	—	—
Pretoria	z.	147·0	311	i 19	54	PKP ₂	—	—	—	—	—
Kimberley	z.	151·1	314	i 20	0	PKP ₂	—	—	—	—	—

Dec. 19d. 0h. 50m. 39s. Epicentre 36°·9N. 70°·8E. Depth of focus 0·015.
(as on 1952, Nov. 2d.).

	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.
			m.	s.		m.	s.	
Khorog	0·9	48	i 0	19	- 3	i 0	37	- 2
Kulyab	1·3	321	—	—	—	i 0	50	+ 4
Garm	2·1	350	i 0	37	+ 1	i 1	7	+ 4
Obi-garm	2·2	335	i 0	36	- 1	i 1	5	0
Dzhergetal	2·3	8	0	40	+ 2	1	12	+ 5
Stalinabad	2·3	316	i 0	39	+ 1	i 1	11	+ 4
Fergana	3·6	12	i 0	55	- 1	e 1	40	+ 2
Andijan	4·0	17	1	1	0	i 1	52	+ 5
Namangan	4·1	9	e 1	2?	0	i 1	53	+ 3
Lunacharskoe	4·6	346	e 1	9	0	i 2	4	+ 2
Tchimkent	5·5	351	e 1	22	+ 1	—	—	—

Dec. 19d. 6h. 53m. 28s. Epicentre 53°·6N. 159°·5E. (as on Nov. 9d.).

		Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.	
				m.	s.		m.	s.		m.	s.
Resolute Bay	z.	43·0	23	i 8	16 _a	+13	—	—	—	—	—
Shasta	z.	52·1	71	e 9	14 _k	0	—	—	—	—	—
Mineral	z.	52·7	70	e 9	19 _k	+ 1	e 11	56	PPP	i 10 16	?
Berkeley	z.	54·1	73	e 9	26 _k	- 3	—	—	—	—	—
Reno	z.	54·3	69	e 9	30 _k	0	—	—	—	e 9 49	?
Lick	z.	54·8	73	e 9	33 _a	- 1	—	—	—	e 10 27	?
Kiruna	z.	55·1	342	i 9	39	+ 3	—	—	—	—	—
Fresno	z.	56·3	72	e 9	43 _k	- 2	—	—	—	—	—
Tinemaha		56·9	71	i 9	49	0	—	—	—	—	—
China Lake	z.	58·2	71	i 9	56	- 2	—	—	—	e 10 40	?
Pasadena		59·0	73	i 10	1 _k	- 3	i 10	12	?	e 10 57	?
Riverside	z.	59·6	73	i 10	5	- 3	—	—	—	—	—
Palomar	z.	60·3	73	i 10	10	- 3	—	—	—	e 10 16	?
Kirkland Lake	z.	66·8	39	e 10	58	+ 2	—	—	—	—	—
Quetta	z.	67·7	290	e 10	44	-17	—	—	—	—	—

Continued on next page.

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1952

1195

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.
Fayetteville	z.	70.4	55	i 11 18	0	—	—	—
Ottawa		70.7	38	e 9 44	?	—	—	—
Shawinigan Falls	n.	70.8	35	e 11 25	+ 5	—	—	—
Collmberg		71.8	338	e 11 25	- 1	—	—	—
Jena	z.	72.4	339	e 11 29	- 1	—	—	—
Morgantown		74.0	44	i 11 41	+ 2	—	—	—
Harvard		74.7	36	e 11 42	- 1	—	—	—
Weston		74.9	36	i 11 43 _a	- 1	—	—	—
Stuttgart		74.9	340	e 11 44	0	—	—	—

Dec. 19d. 19h. 6m. 16s. Epicentre $15^{\circ}4S$. $174^{\circ}6W$. Depth of focus 0.025.
(as on 1951, Feb. 13d.).

A = -0.9603, B = -0.0908, C = -0.2639; $\delta = +6$; $h = +6$;
D = -0.094, E = +0.996; G = +0.264, H = +0.025, K = -0.965.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Apia		3.2	60	i 1 1 _k	+ 9	i 1 43	+ 10	—	—
Auckland	N.	23.4	201	e 5 29	+ 36	e 9 9	+ 21	—	—
Karapiro	N.	24.1	200	5 2	+ 3	e 9 28	+ 28	6 17	?
New Plymouth	E.	25.6	200	5 17	+ 4	—	—	—	—
Wellington	z.	27.4	197	i 5 30 _k	0	e 9 56	+ 2	e 6 4	pP e 11.9
Cobb River	E.	27.9	201	e 5 32	- 2	—	—	—	—
Kaimata	N.E.	29.6	201	5 50	+ 1	—	—	—	—
Christchurch		30.1	198	e 5 54	0	—	—	—	—
Brisbane		32.3	243	e 6 12	- 1	e 11 7	- 4	i 7 6	pP
Riverview		35.9	233	i 6 43 _k	0	i 12 6	- 1	i 8 3	sP i 15.5
Lick	z.	72.3	41	e 11 8 _a	+ 2	—	—	e 11 22	?
Pasadena		72.8	46	i 11 9	0	e 13 52	?	e 11 51	pP
Fresno	z.	73.2	43	e 11 12 _a	0	e 12 36	sP	e 12 12	pP
Riverside	z.	73.3	46	i 11 13	+ 1	—	—	i 12 12	pP
Shasta	z.	73.9	39	e 11 16 _k	0	—	—	e 12 12	pP
China Lake	z.	74.1	45	i 11 17	0	e 11 49	?	e 12 17	pP
Mineral	z.	74.1	40	e 11 17 _a	0	e 11 30	?	e 12 12	pP
Tinemaha	z.	74.4	43	i 11 20	+ 1	e 14 8	?	i 12 39	sP
Reno	z.	74.8	41	e 11 22	+ 1	—	—	e 12 26	pP
Nelson		76.0	47	i 11 28	0	e 20 54	+ 1	i 12 31	pP
Boulder City		76.1	47	i 11 29	+ 1	—	—	i 12 24	pP
Tucson		77.2	50	e 11 37	+ 3	—	—	e 12 38	pP
College		82.6	11	i 12 1	- 2	—	—	i 12 39	pP
Hungry Horse		83.1	36	i 12 5	- 1	—	—	—	—
Fayetteville	z.	91.4	53	i 12 46	+ 1	—	—	e 16 24	PP
Huancayo		95.6	104	—	—	i 23 26	[+ 5]	e 24 20	S e 30.9
Bogota		101.4	88	e 25 37	?	e 23 59	[+ 9]	e 26 57	PPS
Bermuda		114.7	61	—	—	e 25 40	SKKS	—	—
Bombay		115.8	284	—	—	e 26 49	S	—	—
Quetta	z.	121.9	297	i 18 32	[+ 1]	—	—	—	—
Tananarive		126.3	232	i 18 43	[+ 3]	—	—	e 20 38	PP
Kiruna	z.	126.7	353	i 18 39	[- 2]	—	—	—	—
Grahamstown	z.	127.5	202	i 18 44	[+ 2]	—	—	—	—
Kimberley	z.	132.3	203	i 18 53	[+ 2]	—	—	—	—
Pretoria	z.	133.5	210	18 44?	[- 10]	—	—	—	—
Upsala	z.	134.7	352	i 18 49	[- 7]	—	—	—	—
Collmberg		143.7	351	e 19 9	[- 3]	e 22 40	PP	e 20 18	sPKP e 70.2
Raciborzu		143.9	347	e 19 9?	[- 4]	e 19 20	PKP ₂	e 20 44	sPKP
Jena	z.	144.2	351	e 19 11	[- 2]	e 23 27?	PP	e 20 13	pPKP
Prague		144.7	350	e 19 13	[- 1]	e 23 4	PP	e 20 18	pPKP
Karlsruhe		146.4	357	i 19 19	[+ 2]	i 20 23	?	e 20 19	pPKP
Paris		146.6	3	i 19 17	[0]	—	—	i 20 20	pPKP
Stuttgart		146.6	355	e 19 16	[- 1]	e 20 47	sPKP	e 20 18	pPKP
Strasbourg		146.8	357	i 19 19	[+ 2]	e 20 48	sPKP	i 20 20	pPKP
Ksara		147.0	308	i 19 21	[+ 3]	22 48	PP	i 20 25	pPKP

Continued on next page.

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1952

1196

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Istanbul	z.	147.2	327	e 19 20	[+ 2]	—	—	e 20 24 pPKP	—
Basle		147.9	357	e 19 23	[+ 4]	—	—	e 20 10 pPKP	—
Belgrade	z.	148.0	339	e 19 23 _k	[+ 4]	—	—	—	e 50.4
Zürich		148.0	356	e 19 19 _k	[0]	—	—	e 20 23 pPKP	—
Besançon		148.2	358	i 19 24	[+ 4]	e 21 0	sPKP	e 20 27 pPKP	—
Triest		149.0	349	e 19 46	[+ 25]	e 33 14	PS	e 20 29 pPKP	—
Clermont-Ferrand		149.7	3	i 19 31	[+ 9]	—	—	i 20 28 pPKP	—
Florence	z.	151.3	351	e 19 8	[- 16]	—	—	i 20 33 pPKP	—
Helwan	z.	152.2	305	19 26	[0]	23 16	PP	20 30 pPKP	—
Algiers Univ.	z.	158.6	5	e 19 40	[+ 6]	e 20 38	PKP ₂	e 20 50 pPKP	—
Tamanrasset	z.	172.6	—	i 19 48	[+ 2]	i 25 4	PP	e 20 52 pPKP	—

Dec. 20d. 4h. 5m. 47s. Epicentre 53°·6N. 159°·5E. (as on 19d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
College		28.3	46	i 5 57	0	—	—	—	—
Resolute Bay		43.0	23	i 8 3 _a	0	e 14 48	PPS	i 9 51 PP	—
Victoria		46.5	63	8 30	- 1	—	—	—	—
Hungry Horse		51.5	58	e 9 8	- 1	i 14 14	PcS	i 10 23 PcS	—
Shasta	z.	52.1	71	e 9 12 _a	- 2	—	—	—	—
Mineral	z.	52.7	70	i 9 17 _a	- 1	—	—	i 9 32 ?	—
Butte		53.8	59	i 9 25	- 1	—	—	—	—
Lick	z.	54.8	73	e 9 32 _a	- 2	e 10 0	?	e 10 33 PcP	—
Kiruna	z.	55.1	342	i 9 36 _a	0	i 9 55	?	i 10 36 PcP	—
Scoresby Sund		56.2	1	i 9 46	+ 2	—	—	—	—
Tinemaha	z.	56.9	71	i 9 49 _k	0	—	—	—	—
China Lake	z.	58.2	71	e 9 56	- 2	—	—	—	—
Pasadena		59.0	73	i 10 2	- 2	i 10 20	?	i 10 55 PcP	—
Riverside	z.	59.6	73	i 10 5	- 3	—	—	e 10 17 ?	—
Boulder City		59.6	70	i 10 7	- 1	—	—	—	—
Nelson		59.8	70	i 10 8	- 1	—	—	—	—
Upsala	z.	62.8	340	i 10 31 _a	+ 1	i 10 56	PcP	i 12 50 PP	—
Tucson		64.6	69	i 10 40	- 1	—	—	—	—
Kirkland Lake	z.	66.8	39	i 10 54 _a	- 2	—	—	—	—
Copenhagen		67.8	341	i 11 4	+ 2	—	—	—	—
Fayetteville	z.	70.4	55	i 11 16	- 2	—	—	e 39 4 P'P'	—
Ottawa		70.7	38	i 11 18 _a	- 2	—	—	—	—
Shawinigan Falls	N.	70.8	35	e 11 19	- 1	—	—	—	—
Witteveen	z.	71.6	343	11 27 _a	+ 2	—	—	—	—
Raciborzu		71.7	335	i 11 29 _k	+ 3	e 11 46	PcP	e 12 26 ?	—
Cleveland	z.	71.8	44	i 11 25 _a	- 1	—	—	i 11 38 pP	—
Collmberg		71.8	338	e 11 26	0	—	—	e 12 2 ?	—
Jena		72.4	339	i 11 32	+ 2	e 11 45	PcP	e 12 37 ?	—
Harvard		74.7	36	i 11 43 _a	0	—	—	—	—
Karlsruhe	z.	74.9	341	e 11 45	+ 1	—	—	—	—
Stuttgart		74.9	340	e 11 46	+ 2	—	—	—	—
Weston		74.9	36	i 11 45 _a	+ 1	—	—	—	—
Palisades		75.2	39	i 11 44 _a	- 2	—	—	—	e 41.8
Halifax		75.4	30	i 11 48 _a	+ 1	—	—	—	—
Strasbourg		75.4	341	i 11 49	+ 2	—	—	e 12 18 ?	—
Belgrade	z.	75.9	331	e 11 53	+ 3	—	—	—	—
Basle		76.4	341	e 11 55 _a	+ 2	—	—	—	—
Zürich		76.4	340	e 11 55 _a	+ 2	e 21 53	ScS	—	—
Istanbul	z.	76.5	323	e 11 57	+ 3	—	—	—	—
Chur		76.7	340	e 11 57 _a	+ 2	—	—	—	—
Triest		76.9	336	e 14 45	PP	e 21 47	+ 4	—	—
Besançon		77.0	342	i 11 59	+ 3	e 12 10	PcP	e 12 31 ?	—
Florence		79.3	337	e 12 9 _a	0	—	—	—	e 45.2
Ksara		80.2	314	e 11 19	- 55	—	—	—	—
Tacubaya		81.1	69	e 12 18	0	—	—	—	—
Helwan	z.	85.5	317	i 12 43	+ 2	—	—	e 18 55 ?	—
Tamanrasset	z.	100.7	336	e 13 51	- 1	e 17 42	?	e 18 0 PP	—
Kimberley	z.	138.8	289	e 19 50	[+ 22]	—	—	—	—
Grahamstown	z.	141.2	282	e 19 23	[- 5]	—	—	—	—

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1952

1197

Dec. 21d. 1h. 11m. 59s. Epicentre 5°·6S. 148°·6E. (as on 1952, Oct. 11d.).

		Δ		Az.		P.		O-C.	S.		O-C.	Supp.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.		
Brisbane		22·2	169	i 5	2	+ 2	i 8	57	- 3	i 5	30	PP	
Riverview		28·2	175	i 6	32	PP	e 9	56	-45	i 7	7	PPP	
Bandung		40·7	267	e 12	28	?	e 14	10	+15				
Djakarta		41·5	267	e 9	51k	PPP	i 14	12	+ 5	i 13	40	PcS	
College		84·2	23	12	30	- 4							
Victoria		92·8	42	13	14	- 2							
Shasta	z.	92·9	49	e 13	15k	- 1	e 13	23	?	e 17	3	PP	
Lick	z.	93·2	53	i 13	18a	+ 1				e 13	42	?	
Mineral	z.	93·4	50	i 13	20k	+ 2	i 13	29	?	e 17	14	PP	
Fresno	z.	94·6	53	e 13	24a	0							
Reno	z.	94·8	51	e 13	25k	0				e 13	50	?	
Pasadena	z.	95·8	56	i 13	29	0							
China Lake	z.	96·2	54	e 13	30	- 1				e 17	22	PP	
Riverside	z.	96·4	56	i 13	32	0							
Palomar	z.	96·8	57	e 17	41	PP							
Nelson		98·6	54	i 13	42	0				e 17	37	PP	
Hungry Horse		99·1	42	i 13	46	+ 2				e 16	19	?	
Butte		100·1	44	e 13	48	- 1							
Kiruna	z.	108·9	341	i 18	24	[- 7]							
Fayetteville	z.	115·2	52	i 18	39	[- 4]				e 19	35	PP	
Collmberg		121·5	329	e 18	48	[- 8]							
Stuttgart		124·9	329	e 18	54	[- 8]							
Harvard		128·9	37	e 19	4	[- 6]							
Weston		129·1	37	e 19	4	[- 6]							
Tamanrasset	z.	140·5	300	e 19	16	[- 15]	e 23	4	PKS	e 22	10	PP	
Fort de France		149·4	70	i 19	51	[+ 5]							

Dec. 21d. 5h. 51m. 7s. Epicentre 7°·0S. 128°·7E.

A = -·6206, B = +·7747, C = -·1211; δ = -3; h = +7;
D = +·780, E = +·625; G = +·076, H = -·095, K = -·993.

		Δ		Az.		P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.		
Bandung		20·9	271	4	47	+ 1	i 8	35	0	e 16	20	ScS		
Djakarta		21·6	272	i 5	1k	+ 7	i 8	50	+ 1	i 5	22	PP		
Manila		22·8	341	i 5	23a	+18	i 9	47	+36					
Perth		27·6	204				i 11	23	SS	i 12	36	PcS	i 15·4	
Brisbane		30·8	134	i 6	20a	0	i 11	39	+16	i 7	27	PP		
Hong Kong		32·4	335	e 7	53?	PPP	11	43	- 5				14·2	
Riverview		33·8	145	i 6	49a	+ 3	i 12	14	+ 4	i 13	42	SS	e 17·8	
Melbourne	E.	34·1	156				e 12	22	+ 8	e 14	11	SS		
Nanking		40·0	347	e 7	38a	0	i 13	40	- 4					
Madras	E.	52·1	293	i 9	16	+ 2	i 16	35	- 3					
Chatra		52·4	312	e 9	15	- 1	e 16	38	- 4					
Kodaikanal	E.	53·8	289				e 17	6	+ 5					
Hyderabad		55·3	297	e 9	38	0	i 17	22	+ 1	21	15	SS		
Apia		58·8	101	i 10	3	+ 1								
Poona		59·7	296	i 10	9	0	i 18	16	- 3	18	35	PS		
Bombay		60·8	296	e 10	16	0	i 18	36	+ 3	12	37	PP	25·9	
New Delhi		60·9	308	e 10	16	- 1	i 18	29	- 5	12	25	PP		
College		93·5	25	13	13	- 6								
Kiruna		103·1	338	i 18	25	PP	e 24	53? [+11]		i 28	30	PPS	e 61·9	
Mineral	z.	109·5	49	e 20	26	?								
Prague		110·8	321	e 19	27	PP				e 20	12	?		
Reno	z.	111·0	50	e 20	32	?								
Hungry Horse		113·2	40	e 18	41	[+ 1]								
China Lake	z.	113·3	53	e 18	46	[+ 6]								
Riverside	z.	113·7	56	e 18	50	[+ 10]								
Nelson		115·5	53	e 18	45	[+ 1]								
Tamanrasset	z.	123·2	293	e 19	3	[+ 4]	e 19	47	?	e 20	53	PP		
Fayetteville	z.	131·3	46	i 19	19	[+ 5]	e 22	47	PKS					
Ottawa		136·3	24	e 19	19	[- 5]								
Harvard		140·4	22	e 19	35	[+ 4]								

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Palisades	140.6	26	e 20 17	[+45]	e 23 15	PKS	—	e 66.6
Weston	140.6	22	e 19 36	[+ 4]	—	—	—	e 72.8
Huancayo	149.5	128	i 19 57	PKP ₂	—	—	—	—
La Paz	151.3	145	i 20 9	PKP ₂	i 45 23	?	i 23 39	PP
Bogota	157.2	94	e 20 14	PKP ₂	e 20 44	?	e 24 36	PP

Dec. 21d. 8h. 10m. 18s. Epicentre 36°·8N. 71°·4E. Depth of focus 0.015.
(as on 1952, Nov. 14d.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Khorog	0.7	13	i 0 21	0	i 0 38	+ 2	—	—
Kulyab	1.7	311	i 0 31	0	i 0 56	+ 2	—	—
Obi-garm	2.3	325	i 0 39	+ 1	i 1 9	+ 2	—	—
Dzhergetal	2.4	357	0 41	+ 1	1 13	+ 3	—	—
Garm	2.4	338	i 0 40	0	i 1 12	+ 2	—	—
Stalinabad	2.7	310	e 0 43	- 1	i 1 16	- 1	—	—
Fergana	3.6	5	i 0 58	+ 2	i 1 42	+ 4	—	—
Andijan	4.0	11	1 3	+ 2	i 1 52	+ 5	i 1 17	?
Namangan	4.2	3	i 1 5	+ 2	—	—	—	—
Samarkand	4.5	312	1 5	- 3	—	—	—	—
Lunacharskoe	4.8	341	i 1 14	+ 2	i 2 5	- 2	—	—
Tashkent	4.8	341	e 1 12	0	e 2 6	- 1	—	—
Tchimbkent	5.7	347	i 1 24	0	2 27	- 1	—	—
Naryn	5.8	36	e 1 26	+ 1	i 2 34	+ 3	—	—
Frunse	6.5	21	i 1 37	+ 2	i 2 52	+ 4	—	—
Rybach'e	6.7	31	e 1 38	+ 1	—	—	—	—
Bairam-Ali	7.4	279	i 1 41	- 6	i 2 57	-13	—	—
Przhevalsk	7.8	41	1 54	+ 2	—	—	—	—
New Delhi	9.5	147	e 2 7	- 8	(3 58)	- 2	2 14	P
Ashkabad	10.4	280	e 2 23	- 4	—	—	—	—
Kizyl-Arvat	12.2	285	e 2 48	- 3	—	—	—	—
Poona	18.3	172	i 4 3	- 3	i 7 27	+ 4	—	—
Kirovobad	19.9	292	4 26	+ 3	—	—	—	—
Grozny	20.6	298	i 4 31	0	—	—	—	—
Tiflis	21.1	294	e 4 39	+ 3	—	—	—	—
Gori	21.7	293	e 4 44	+ 2	—	—	—	—
Tsikhlis-Dzhvari	22.2	293	e 4 45	- 1	—	—	—	—
Piatigorsk	22.7	300	4 56	+ 5	—	—	—	—
Upsala	z. 41.0	322	i 7 33	+ 1	—	—	—	—
Kiruna	z. 42.0	334	i 7 40	0	—	—	—	—
Collmberg	43.3	309	e 7 50	- 1	—	—	—	—
Tamanrasset	z. 57.8	277	e 10 14	pP	—	—	—	—

Dec. 21d. 14h. 2m. 37s. Epicentre 52°·6N. 160°·3E. (as on 15d.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Shasta	z. 51.9	70	e 9 11k	- 1	—	—	e 9 30	?
Mineral	z. 52.6	70	e 9 16a	- 2	—	—	e 9 46	?
Reno	z. 54.2	69	e 9 23a	- 6	—	—	—	—
Lick	z. 54.6	73	e 9 39k	+ 7	—	—	—	—
Kiruna	z. 56.2	344	i 9 43	- 1	i 9 52	?	i 9 29	?
China Lake	z. 58.0	71	e 9 54	- 3	—	—	—	—
Upsala	z. 63.9	340	i 10 36	- 1	i 10 45	?	i 10 52	?
Fayetteville	z. 70.6	56	i 11 15	- 4	—	—	—	—
Collmberg	72.9	339	e 11 27	- 6	e 11 56	PcP	e 12 11	?
Prague	73.1	338	e 11 40	+ 6	—	—	e 12 15	?
Poona	z. 73.4	279	i 11 31	- 5	—	—	—	—
Jena	73.5	340	e 11 35?	- 1	e 11 44	?	e 12 3	?
Harvard	75.2	37	i 11 46k	0	—	—	—	—
Stuttgart	76.1	341	e 11 51?	0	—	—	e 11 59	?
Strasbourg	76.5	342	e 12 2	+ 8	—	—	—	—
Paris	77.2	345	e 12 3	+ 6	—	—	e 12 6	PcP
Besançon	78.1	342	e 12 5	+ 3	—	—	e 12 11	PcP
Ksara	81.3	316	i 8 50	?	—	—	i 10 38	?
Helwan	86.6	318	e 13 10	+24	e 10 59	?	e 11 23	?
Tamanrasset	z. 101.8	336	e 14 12	+16	—	—	e 18 2	PP

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Dec. 22d. 22h. 24m. 41s. Epicentre 53°·8N. 161°·7E. (as on 18d.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Petropavlovsk	1·9	250	i 0 33	- 1	i 0 54	- 5	—	—
Klyuchi	2·6	348	i 0 48	+ 4	1 18	+ 1	—	—
Magadan	8·3	318	2 2	- 2	—	—	—	—
Kurilsk	12·4	232	2 58	- 3	5 18	- 3	—	—
Uglegorsk	13·1	257	i 3 9	- 1	e 5 35	- 3	—	—
Mitchell Field	13·2	89	e 3 20	+ 9	e 5 40	0	—	—
Yuzno-Sakhlinsk	13·9	248	3 18	- 3	e 5 52	- 5	—	—
Nemuro	14·9	232	e 3 27	- 7	—	—	—	e 7·8
Wakkanai	E. 15·4	245	e 3 55	+15	e 6 31	- 1	—	e 9·8
Urakawa	N. 17·1	236	e 3 57	- 5	e 6 53	-19	—	—
Sapporo	17·2	240	e 4 11	+ 8	e 7 29	+15	e 7 52	SS e 9·6
Hatinohe	19·0	234	e 4 44	+18	e 7 38	-17	e 8 4	S
Miyako	19·5	232	e 4 27	- 4	—	—	—	—
Morioka	19·8	233	e 4 29	- 6	—	—	—	—
Mizusawa	E. 20·3	234	4 43	+ 3	e 8 20	- 3	—	—
Sendai	21·1	231	e 4 47	- 1	8 43	+ 4	—	—
Yamagata	21·4	232	e 4 51	0	—	—	—	—
Hokusima	21·7	232	4 53	- 2	e 8 51	0	—	—
Inawasiro	22·0	232	e 4 57	- 1	—	—	—	—
Onahama	22·2	229	e 5 3	+ 3	e 8 21	-39	—	—
Shirakawa	22·3	231	e 4 55	- 6	—	—	—	—
Vladivostok	22·3	254	e 5 24?	+23	9 14?	+12	—	—
Mito	22·8	229	e 5 6	+ 1	—	—	—	—
Utunomiya	23·0	231	e 5 5	- 2	e 9 8	- 6	—	—
Kumagaya	23·5	230	e 5 12	0	e 9 9	-14	—	—
Maebasi	23·5	231	e 5 12	0	e 9 29	+ 6	—	—
Nagano	N. 23·6	233	e 5 15	+ 2	e 9 23	- 2	—	—
Matusiro	23·7	235	e 5 13	- 1	i 9 25	- 2	6 12	PP e 10·2
Oiwake	23·7	233	e 5 15	+ 1	—	—	—	—
Tokyo	23·7	228	e 5 18	+ 4	9 29	+ 2	—	—
Wazima	23·7	237	e 5 29	+15	—	—	—	—
Titibu	23·8	230	e 5 15	0	—	—	—	—
Yokohama	24·0	230	e 5 29	+12	—	—	—	—
Matumoto	24·1	234	5 19	+ 1	9 30	- 4	—	—
Hunatu	24·3	231	5 21	+ 1	e 9 32	- 5	—	—
Kohu	24·3	231	5 21	+ 1	9 33	- 4	—	—
Mera	24·3	228	5 14	- 6	—	—	—	—
Osima	24·7	229	e 5 24	0	—	—	—	—
Shizuoka	24·9	231	e 5 27	+ 1	e 9 49	+ 2	—	—
Omaesaki	25·3	231	e 5 39	+ 9	—	—	—	—
Nagoya	E. 25·4	232	e 5 32	+ 1	—	—	—	—
Kameyama	25·9	233	e 5 35	0	—	—	—	—
Kyoto	26·1	234	e 5 37	0	e 7 3	?	e 7 33	?
College	27·2	45	i 5 50	+ 3	i 10 25	0	e 6 54	PPP e 11·3
Siomisaki	27·4	233	e 5 18	-31	e 10 22	- 6	—	—
Koti	28·4	236	e 5 59	+ 1	e 10 41	- 4	—	—
Ooita	29·6	238	e 6 4	- 5	—	—	—	—
Hukuoka	29·9	240	e 6 11	- 1	e 11 56	+47	e 7 4	PP e 14·8
Kumamoto	30·4	239	e 6 15	- 1	—	—	—	—
Miyazaki	30·8	236	e 6 19	- 1	e 11 21	- 2	—	e 17·2
Kagosima	31·5	237	e 6 36	+10	—	—	—	—
Kabansk	32·5	291	e 6 34	0	—	—	—	—
Kyakhta	33·4	288	e 6 35	- 7	—	—	—	—
Irkutsk	33·7	292	e 6 49	+ 4	—	—	—	—
Zó-Sè	36·8	248	e 7 8k	- 3	e 12 42	-14	—	i 17·4
Nanking	37·4	252	i 7 12k	- 4	12 48	-17	—	—
Resolute Bay	42·3	23	i 7 59a	+ 2	i 14 17	- 2	—	e 17·3
Victoria	45·2	63	i 8 25k	+ 5	—	—	—	—
Semipalatinsk	47·5	301	e 8 32	- 6	—	—	—	—
Hong Kong	47·6	248	—	—	e 15 23	-12	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Corvallis	z.	47.7	70	i 8 45	+ 5	—	—	—	—
Hungry Horse		50.3	59	i 9 4	+ 4	e 39 5	P'P'	i 10 22	PcP
Manila		50.5	235	i 8 48	-14	—	—	—	—
Shasta	z.	50.8	71	i 9 9k	+ 5	i 9 19	?	e 10 23	PcP
Mineral	z.	51.4	71	i 9 13k	+ 4	—	—	i 10 9	PcP
Saskatoon		51.4	52	—	—	e 16 26	- 2	—	—
Sverdlovsk		52.4	317	i 9 21	+ 5	—	—	—	—
Berkeley		52.7	74	i 9 23k	+ 5	i 17 16	+30	i 10 31	PcP
Reno	z.	53.0	70	i 9 26	+ 5	i 9 50	?	e 11 20	PP
Lick	z.	53.5	74	i 9 29k	+ 5	i 9 53	?	e 12 9	PP
Przhevsk		53.6	296	9 21	- 4	—	—	—	—
Almata		53.9	296	e 9 26	- 1	e 16 49	-13	—	—
Fresno	z.	54.9	73	i 9 39k	+ 4	e 9 49	?	e 11 51	PP
Rybach'e		54.9	297	e 9 32	- 3	e 17 5	-11	—	—
Kiruna		55.3	344	i 9 34	- 4	i 17 12	- 9	i 10 40	PcP
Frunse		55.4	297	e 9 32	- 6	e 17 8	-14	—	—
Tinemaha	z.	55.6	72	i 9 44k	+ 4	e 17 26	+ 1	i 10 41	PcP
Scoresby Sund		56.0	2	i 9 43k	0	—	—	—	—
China Lake	z.	56.8	72	i 9 51k	+ 3	e 17 45	+ 4	e 39 46	P'P'
Pasadena		57.7	74	i 9 58k	+ 3	i 18 0	+ 7	e 39 45	P'P'
Andijan		58.1	297	i 9 52	- 6	i 17 48	-10	—	—
Boulder City		58.3	71	i 10 4	+ 5	e 18 10	+ 9	—	—
Namangan		58.3	297	e 9 56	- 3	—	—	—	—
Tchimkent		58.4	300	i 9 54	- 6	—	—	—	—
Nelson		58.5	71	i 10 4	+ 4	—	—	—	—
Fergana		58.6	297	e 10 0	- 1	—	—	—	—
Palomar	z.	59.0	73	i 10 8	+ 4	i 10 23	?	i 10 55	PcP
Lunacharskoe		59.3	299	10 1	- 5	—	—	—	—
Tashkent		59.3	299	e 10 1	- 5	e 17 59	-15	—	—
Chatra		59.8	274	e 10 3	- 6	e 18 7	-13	e 19 48	ScS
Dzhergetal		59.8	297	e 10 5	- 4	—	—	—	—
Pulkovo		60.3	335	e 10 11	- 2	—	—	—	—
Khorog		60.9	295	e 10 12	- 5	—	—	—	—
Obi-garm		61.0	297	e 10 11	- 7	e 18 21	-14	—	—
Kulyab		61.5	296	10 16?	- 5	—	—	—	—
Moscow		61.6	328	e 10 18	- 4	18 35	- 8	—	—
Stalinabad		61.6	298	e 10 17	- 5	—	—	—	—
Samarkand		61.7	300	e 10 14	- 8	—	—	—	—
Calcutta	E.	62.4	271	i 20 7	ScS	e 26 9	?	—	e 33.3
Reykjavik	z.	62.4	2	i 10 27k	0	—	—	i 10 39	?
Upsala		63.1	341	i 10 29	- 3	e 18 52	-10	i 12 46	PP
Tucson		63.3	71	e 10 37	+ 4	e 19 14	+10	e 39 27	P'P'
New Delhi		64.3	284	15 1	PcS	e 18 53	-24	20 11	ScS
Bergen		64.6	347	e 10 39a	- 2	19 15?	- 6	—	—
Bairam-Ali		65.7	301	e 10 48	0	—	—	—	—
Kirkland Lake	z.	65.8	40	i 10 41k	- 8	—	—	i 11 3	?
Lubbock		67.2	63	e 11 2	+ 4	—	—	—	—
Ashkabad		67.4	304	e 10 56	- 3	19 43	-12	—	—
Copenhagen		68.0	342	i 11 2	- 1	19 57	- 5	20 35	PS
Aberdeen		68.6	350	e 17 8	?	i 20 7	- 2	i 23 30	SS
Grozny		68.8	315	e 11 4	- 4	—	—	—	—
Quetta	z.	68.8	293	e 11 3	- 5	—	—	—	—
Fayetteville	z.	69.2	56	i 11 13	+ 3	—	—	i 15 11	PPP
Baku		69.4	311	—	—	e 20 12	- 6	—	—
Piatigorsk		69.4	318	11 8	- 4	20 11	- 7	—	—
Ottawa		69.7	39	i 11 14k	0	20 19	- 3	13 41	PP
Shawinigan Falls n.		69.8	36	e 11 16	+ 2	20 22	- 1	—	—
Shemakla		69.8	312	—	—	20 15	- 8	—	—
Tiflis		70.6	315	11 16	- 3	e 20 24	- 9	—	—
Cleveland		70.7	45	i 11 22k	+ 2	i 20 33	- 1	i 11 35	pP

Continued on next page.

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1952

1201

	Δ	Az.	P.		O - C.	S.		O - C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Kirovobad	70.7	313	11	15	- 5	20	19	-15	—	—	—
Lwow	70.8	333	i 11	18	- 2	i 20	28	- 7	—	—	—
Potsdam	71.0	341	e 11	20	- 2	i 20	33	- 4	i 21	16	PS e 35.3
Sotchi	71.0	320	e 11	17	- 5	e 20	25	-12	—	—	—
Borzhomi	71.1	316	e 11	17	- 5	20	27	-11	—	—	—
Tskhklis-Dzhvari	71.1	316	e 11	19	- 3	—	—	—	—	—	—
Zugdidi	71.1	318	e 11	22	0	20	30	- 8	—	—	—
Abastumanj	71.3	316	e 11	22	- 1	—	—	—	—	—	—
Cincinnati	71.3	48	i 11	55	+32	—	—	—	i 12	7	?
Theodosia	71.4	323	e 11	20	- 4	e 20	31	-11	—	—	—
Goris	71.7	312	i 11	24	- 2	e 20	41	- 4	—	—	—
Witteveen	71.7	345	i 11	25k	- 1	—	—	—	—	—	—
Kishinev	71.9	329	i 11	28?	+ 1	20	38?	-10	—	—	—
Collmberg	72.0	340	e 11	25	- 3	e 20	42	- 7	e 14	58	PP e 28.5
Erevan	72.0	314	i 11	26	- 2	—	—	—	—	—	—
Raciborzu	72.0	337	e 11	27	- 1	e 21	5	PS	e 11	43	PcP 40.3
Hyderabad	72.2	275	e 11	30	+ 1	i 20	35	-16	—	—	—
Pittsburgh	72.2	45	i 11	23	- 6	i 20	56	+ 5	—	—	—
Uzhgorod	72.3	334	e 11	32?	+ 3	e 20	46?	- 6	—	—	—
Yalta	72.3	324	e 11	26	- 3	e 20	42	-10	—	—	—
Skalnate Pleso	72.4	335	e 11	32	+ 2	e 20	53	0	e 21	34	PS e 38.6
De Bilt	72.7	345	e 11	41	+ 9	e 20	48	- 9	—	—	e 35.3
Jena	72.7	340	i 11	29	- 3	e 20	40	-17	e 14	35?	PP
Pennsylvania	72.8	43	i 11	35	+ 3	e 20	57	- 1	e 21	35	PS
Rathfarham Castle	72.8	353	i 11	31	- 1	e 21	6	+ 8	e 14	51	PP e 39.3
Prague	72.9	339	i 11	32	- 1	e 20	53	- 6	i 11	49	pP e 38.3
Cheb	73.3	341	e 11	49	+14	e 20	51	-13	e 21	4	S
Harvard	73.8	37	e 11	39	+ 1	i 21	7	- 2	—	—	—
Kew	74.0	348	i 11	39	0	e 21	36	+25	e 21	47	PS e 40.3
Poona	74.0	279	i 11	36	- 3	e 21	0	-11	11	52	PcP 31.2
Weston	74.0	37	i 11	41k	+ 2	e 21	10	- 1	i 11	53	PcP e 38.0
Ogyalla	74.1	336	e 15	40	?	e 21	33	+21	e 16	36	PPP
Budapest	74.2	335	e 11	41	+ 1	21	10	- 4	13	57	PP e 42.3
Palisades	74.2	39	i 11	41	+ 1	i 21	9	- 5	i 11	52	pP e 34.8
Bombay	74.3	281	e 11	38	- 3	e 21	0	-15	21	41	PS
Fordham	74.3	39	e 11	43	+ 2	—	—	—	—	—	—
Halifax	74.6	31	i 11	44	+ 1	—	—	—	—	—	—
Washington	74.7	42	i 11	46	+ 3	—	—	—	—	—	—
Karlsruhe	75.1	343	i 11	45k	- 1	e 12	35	?	i 11	53	PcP e 38.3
Stuttgart	75.2	342	i 11	45k	- 1	e 21	19	- 6	e 11	50	PcP e 39.3
Djakarta	75.3	238	i 11	41	- 6	21	25	- 1	e 14	37	PP
Bandung	75.5	236	e 11	52	+ 4	e 21	31	+ 3	—	—	—
Strasbourg	75.6	343	i 11	49	+ 1	e 21	26	- 3	e 14	34	PP e 37.3
Belgrade	76.3	333	e 11	51k	- 1	e 21	32	- 5	e 24	40	? e 43.0
Paris	76.3	347	i 11	52	0	i 21	31	- 6	i 21	59	PS e 37.3
Basle	76.7	343	e 11	53a	- 2	e 21	26	-15	—	—	—
Zürich	76.7	343	e 11	59k	+ 4	—	—	—	—	—	—
Chur	77.0	342	e 11	57	+ 1	e 21	39	- 6	—	—	—
Besançon	77.2	343	e 11	58	+ 1	i 12	30	?	e 12	8	PcP
Triest	77.2	337	i 11	56a	- 1	i 21	37	-10	i 21	55	ScS 43.6
Neuchatel	77.3	342	i 11	57	- 1	—	—	—	—	—	—
Oropa	78.5	342	i 12	6	+ 2	—	—	—	—	—	—
Pavia	78.6	340	i 12	6k	+ 1	e 21	58	- 4	—	—	—
Padova	78.7	338	12	4	- 2	21	51	-12	—	—	—
Bologna	78.9	339	e 12	9	+ 2	e 22	18	+13	—	—	—
Clermont-Ferrand	79.2	345	i 12	8	0	e 22	12	+ 4	e 22	57	PS 32.3
Prato	79.5	339	e 12	10	0	e 22	0	-11	—	—	—
Florence	79.6	339	i 12	9k	- 1	i 22	7	- 5	i 22	49	PS e 37.6
Tacubaya	79.8	71	i 12	16	+ 4	e 22	17	+ 3	e 22	21	S
Ksara	81.0	317	12	20	+ 2	—	—	—	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1202

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Rome	81.1	337	12	17	- 1	i 22	23	- 5	—	—	e 41.3
Taranto	81.2	333	e 12	19	0	e 22	24	- 5	e 13	29	46.3
Brisbane	81.3	187	i 12	20	0	e 22	31	+ 1	i 12	51	—
Messina	83.8	334	i 12	31 ^k	- 1	e 22	40	-15	—	—	—
Bermuda	85.2	38	e 12	52	+13	i 23	10	+ 1	—	—	e 48.2
Toledo	85.9	350	i 12	44	+ 1	e 23	16	0	e 23	46	PS 48.8
Helwan	z. 86.3	319	e 12	47	+ 2	e 13	43	?	e 14	51	?
Alicante	86.9	347	12	46	- 2	e 23	24	- 2	24	23	PS 41.6
Riverview	87.7	188	i 12	54 ^k	+ 2	i 23	55	+22	e 29	38	SS e 41.7
Algiers Univ.	z. 87.9	343	e 12	53	0	e 16	21	PP	e 13	43	?
Granada	88.5	349	i 13	10 ^k	+14	23	33	- 8	30	24	SS i 45.9
Almeria	88.7	348	i 12	57	0	i 23	51	+ 8	16	35	PP 50.1
Malaga	89.0	349	i 13	1	+ 3	i 23	51	+ 6	—	—	50.8
San Juan	97.2	45	i 13	38	+ 2	—	—	—	—	—	—
Tamanrasset	z. 101.0	337	e 18	27	PP	e 26	27	+58	e 26	59	PS 50.3
Fort de France	102.6	42	—	—	—	e 24	36	[- 4]	—	—	—
Huancayo	118.9	70	e 30	15	PS	e 36	30	SS	e 40	1	SSS
Tananarive	119.3	279	—	—	—	e 32	13	PPS	—	—	—
La Paz	126.5	65	18	59	[- 6]	25	55	[-15]	21	11	PP 58.3
Pretoria	z. 135.7	291	e 19	23	[- 0]	—	—	—	—	—	—
Kimberley	z. 140.0	291	i 19	25	[- 5]	—	—	—	—	—	—
Grahamstown	z. 142.4	285	e 19	32	[- 2]	—	—	—	—	—	—

Dec. 22d. 23h. 51m. 38s. Epicentre 35°·7N. 25°·3E. (as on 1952, Aug. 21d.).

Isle of Crete: Intensity VI at Heraklion and Phourni; V at Rethymnon; IV at Chersonisos, Anogheia, Neapolis, and in the Isle of Pharos.
Epicentre 35°·6N. 25°·3E. (Strasbourg).

A. Galanopoulos.

Seismo. Institute Bull., Athens, 1953, pp.49-50.

A = +·7359, B = +·3479, C = +·5810; δ = +14; h = 0;
D = +·427, E = -·904; G = +·525, H = +·248, K = -·814.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Athens	2.6	331	i 0	53 ^k	+ 1 _g	i 1	27	+ 1 _g	i 1	38	?
Sofia	7.1	348	e 2	4	0*	e 3	21	+11	—	—	—
Helwan	7.7	137	1	53	- 3	3	10	-15	2	26	P _g ?
Taranto	7.9	309	—	—	—	e 3	7	-23	e 3	18	e 3.4
Messina	z. 8.2	291	i 2	2	- 1	i 3	28	-10	—	—	—
Triest	13.2	322	i 5	32	?	i 5	35	- 5	—	—	—
Prague	16.4	335	e 3	58	+ 5	i 7	5	+ 9	e 4	10	PP
Stuttgart	17.6	323	e 4	11	+ 3	e 7	18	- 5	e 5	28	?
Basle	17.7	317	e 4	12 ^k	+ 2	e 7	55	+29	—	—	—
Neuchatel	17.7	316	i 4	12	+ 2	—	—	—	—	—	—
Collmberg	17.9	333	e 4	15	+ 3	e 7	48	+18	e 5	48	?
Algiers Univ.	z. 18.0	279	i 4	12 ^k	- 1	e 4	30	PP	e 4	37	PPP
Jena	18.2	331	e 4	13 [?]	- 3	e 7	55	+18	e 4	32	PP
Strasbourg	18.2	321	i 4	21	+ 5	e 8	7	+30	e 5	11	?
Besançon	18.4	315	i 4	20	+ 2	e 7	18	-23	e 4	39	PP
Paris	21.3	315	e 4	50	0	i 5	5	PP	i 5	23	PPP
Copenhagen	21.8	340	e 4	56	0	—	—	—	—	—	—
Granada	23.2	282	i 5	58 ^a	+49	—	—	—	—	—	—
Malaga	24.0	282	i 5	18	+ 1	e 9	31	- 1	—	—	—
Upsala	z. 24.7	350	i 5	25	+ 1	—	—	—	i 6	1	PP
Rathfarnham C.	z. 28.3	319	e 7	31	PPP	—	—	—	—	—	—
Kiruna	z. 32.3	357	i 6	31 ^a	- 2	—	—	—	i 6	38	?
Scoresby Sund	42.9	339	e 8	3	+ 1	—	—	—	—	—	—
Pretoria	z. 61.2	177	e 10	12	- 7	—	—	—	—	—	—
Halifax	65.3	308	i 10	44	- 2	—	—	—	—	—	—
Ottawa	72.4	313	i 11	28	- 2	—	—	—	—	—	—
College	79.6	357	12	9	- 1	—	—	—	—	—	—
San Juan	80.6	286	i 12	13	- 3	—	—	—	—	—	—
Hungry Horse	88.8	334	i 12	55	- 2	—	—	—	—	—	—

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1952

1203

Dec. 23d. 3h. 21m. 9s. Epicentre 42°·5N. 46°·4E.

Given by Seismo. Bulletin of Stations of U.S.S.R.

A = +·5100, B = +·5355, C = +·6731; $\delta = -8$; $h = -3$;
D = +·724, E = -·690; G = +·464, H = +·487, K = -·740.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Grozny	0·9	330	e 0 18	0 _g	i 0 32	+ 1*
Makhach-Kala	0·9	60	e 0 15	- 3 _g	i 0 28	- 2 _g
Tiflis	1·4	237	0 28	0 _g	i 0 48	+ 2 _g
Kirovobad	1·8	181	0 33	+ 1	0 58	+ 1*
Borzhomi	2·3	253	e 0 41	- 1*	i 1 13	+ 1*
Tsikhlis-Dzhvari	2·3	251	i 0 42	0*	i 1 15	- 1 _g
Akhalkalaki	2·4	244	e 0 46	- 2 _g	e 1 19	0 _c
Shemakla	2·5	138	e 0 45	0*	1 25	+ 2 _g
Leninakan	2·6	228	—	—	1 23	+ 2*
Erevan	2·7	212	e 0 48	- 1*	—	—
Abastumanj	2·8	254	e 0 50	- 1*	—	—
Piatigorsk	2·9	303	e 0 46	- 2	i 1 20	- 4
Goris	3·0	181	0 53	- 1*	—	—

Dec. 23d. 5h. 22m. 23s. Epicentre 42°·0N. 142°·8E. Depth of focus 0·005. (as on 1d.).

Intensity IV at Urakawa and Kuttari; II-III at Obi-hiro, Yatiyo, and Ikeda.
Epicentre 42°·0N. 142°·7E. Depth 60km. Macro seismic radius 100-200km.
Seismo. Bull. Cent. Met. Obs., Dec., 1952, Tokyo, 1953, p.504, with macro seismic chart.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.
Urakawa	E. 0·2	355	e 0 12	+ 1	0 20	+ 1	—
Obi-hiro	1·0	18	i 0 19	0	0 32	- 1	—
Muroran	1·4	284	e 0 21	- 3	0 36	- 7	—
Kusiro	1·5	50	e 0 21	- 5	0 47	+ 2	—
Sapporo	N. 1·5	315	i 0 22 _a	- 4	0 39	- 6	—
Hatinohe	1·7	213	e 0 29	+ 1	0 51	+ 1	—
Mori	N. 1·7	273	e 0 26	- 2	0 45	- 5	—
Aomori	1·9	232	e 0 35	+ 4	0 57	+ 3	—
Miyako	2·4	195	e 0 42?	+ 4	1 11?	+ 4	—
Morioka	2·6	208	e 0 46	+ 5	1 12	0	—
Mizusawa	E. 3·1	204	1 27	S	(1 27)	+ 3	1 36
Sendai	4·0	201	—	—	e 1 45	- 2	—
Hukusima	4·6	204	e 1 23	+14	—	—	—

Dec. 23d. 12h. 14m. 52s. Epicentre 36°·9N. 70°·8E. Depth of focus 0·030 (as on 19d.).

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Khorog	0·9	48	i 0 30	- 2	i 0 53	- 3
Kulyab	1·3	321	i 0 35	0	i 1 1	0
Garm	2·1	350	i 0 42	0	i 1 14	0
Obi-garm	2·2	335	i 0 42	- 1	i 1 14	- 2
Dzhergetal	2·3	8	0 44	0	1 20	+ 3
Stalinabad	2·3	316	i 0 44	0	i 1 17	0
Fergana	3·6	12	i 0 59	+ 1	i 1 44	0
Andijan	4·0	17	e 1 5	+ 2	i 1 55	+ 3
Namangan	4·1	9	i 1 7	+ 3	1 57	+ 3
Samarkand	4·1	314	1 5	+ 1	—	—
Tchimkent	5·5	351	i 1 24	+ 2	i 2 27	+ 1
Naryn	6·1	40	e 1 27	- 3	i 2 44	+ 5
Frunse	6·6	25	i 1 38	+ 2	2 57	+ 6
Quetta	7·4	206	i 1 40	- 6	i 2 57	-12
Almata	7·9	35	—	—	e 2 45	-36
Przhevalsk	8·1	44	1 55	0	—	—

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1952

1204

Dec. 24d. 8h. 33m. 30s. Epicentre $5^{\circ}18.151^{\circ}3E$. Focus as Base of Superficial Layers.
(as on 1949, March 31d.).

A = -0.8737, B = +0.4784, C = -0.0878; $\delta = -7$; $h = +7$;
D = +0.480, E = +0.877; G = +0.077, H = -0.042, K = -0.996.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane		22.4	175	14 52	- 5	18 54	- 2	15 1	pP	—
Riverview		28.6	180	15 51 _a	- 4	10 39	- 1	6 3	pP	e 14.6
Melbourne	E.	33.1	189	—	—	11 46	- 5	(14 36)	SSS	e 14.6
Manila		35.8	304	17 12 _a	pP	12 55	sS	—	—	—
Apia		37.4	106	17 12	0	—	—	—	—	—
Auckland	N.	38.3	149	7 27	+ 8	13 8	- 3	8 50	PP	e 15.5
Karapiro	N.	39.5	150	e 7 25	- 4	13 20	- 9	e 7 38	pP	—
Cobb River	E.	40.7	154	7 40	+ 1	13 49	+ 2	—	—	—
Tuai	N.	40.9	149	e 7 45	+ 4	13 39	-11	—	—	—
Kaimata	N.E.	41.4	158	e 7 43	- 2	13 50	- 7	—	—	—
Miyazaki		41.4	334	e 7 49	+ 4	13 56	- 1	—	—	—
Kagosima		41.5	333	e 8 30	+44	—	—	—	—	—
Simidu		41.5	336	e 7 46	0	9 36	PP	8 3	pP	—
Wellington		41.7	154	7 36	-11	13 52	- 9	7 55	pP	19.7
Koti		41.9	337	e 7 53	+ 4	14 24	sS	8 10	pP	—
Hunatu		42.0	345	8 6	pP	8 56	?	9 44	PP	—
Tokyo		42.0	346	e 8 2	pP	10 51	?	11 9	?	—
Kameyama		42.1	342	7 57	+ 7	—	—	8 44	?	—
Kohu		42.2	345	8 8	pP	—	—	9 47	PP	—
Nagoya		42.2	343	e 8 8	pP	—	—	—	—	—
Osaka		42.2	340	e 8 25	+34	18 18	SSS	10 34	?	—
Sumoto		42.2	340	17 54	+ 3	—	—	—	—	—
Iida		42.3	344	e 8 6	pP	—	—	—	—	—
Ooita		42.4	335	e 8 5	pP	—	—	—	—	—
Takamatu		42.4	339	e 7 49	- 4	14 14	+ 2	17 28	SS	—
Kumagaya		42.5	346	e 7 57	+ 3	—	—	—	—	—
Kumamoto		42.5	334	e 8 11	pP	—	—	—	—	—
Kyoto		42.5	342	e 8 10	pP	—	—	9 19	?	—
Matuyama		42.5	337	e 7 59	+ 5	14 46	+33	8 12	pP	—
Mito		42.5	346	e 8 13	pP	—	—	—	—	—
Perth		42.6	227	—	—	14 15	0	14 40	sS	—
Christchurch		42.7	157	7 51 _a	- 4	14 5	-11	8 4	pP	e 17.9
Maebasi		42.8	345	e 8 1	+ 5	9 21	?	8 16	pP	—
Oiwake		42.9	345	e 8 2	+ 5	—	—	—	—	—
Matumoto		43.0	344	e 8 1	+ 3	—	—	—	—	—
Hirosima		43.1	337	8 0	+ 1	14 40	sS	—	—	—
Hukuoka		43.2	334	e 8 17	pP	14 58	+34	—	—	—
Matusiro		43.2	345	e 8 0	0	14 23	- 1	9 36	PP	e 20.6
Nagano	N.	43.3	345	e 8 15	pP	—	—	—	—	—
Bandung		43.4	267	17 59	- 2	13 40	-47	—	—	—
Toyama		43.6	344	e 8 7	+ 4	—	—	—	—	—
Hamada		43.7	337	e 8 41	+37	15 11	+40	9 0	?	—
Inawasiro		43.7	347	e 8 2	- 2	—	—	8 47	?	—
Sendai		44.2	348	e 8 16	+ 8	—	—	—	—	—
Djakarta		44.3	267	18 7	- 1	9 50	PP	11 43	?	—
Mizusawa		45.0	349	8 30	pP	—	—	9 12	?	—
Miyako		45.3	349	e 8 30?	pP	—	—	—	—	—
Hong Kong		45.4	308	8 20	+ 3	15 0	+ 4	—	—	—
Akita	Z.	45.7	348	e 8 38	pP	—	—	—	—	—
Zò-Sè		46.0	323	18 24 _a	+ 2	15 12	+ 8	8 38	pP	—
Aomori		46.7	349	e 8 34	+ 7	19 32	?	10 5	PP	—
Urakawa	E.	47.6	352	e 8 51	pP	—	—	—	—	—
Mori	N.	48.0	350	e 8 59	sP	—	—	9 29	?	—
Nanking		48.2	322	18 41 _a	+ 2	15 40	+ 5	8 56	pP	—
Obi-hiro		48.3	352	e 8 54	pP	—	—	—	—	—

Continued on next page.

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1952

1205

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Sapporo	48.8	350	e 9	0	pP	e 16	6	sS	—	—	—
Kurlisk	50.2	356	e 10	10	PcP	—	—	—	—	—	—
Vladivostok	51.1	342	—	—	—	i 16	53?	+37	—	—	—
Yuzno-Sakhlinsk	52.3	352	9	27	pP	—	—	—	e 11	25	pPP
Ulegorsk	54.5	353	9	41	pP	i 17	25	sS	—	—	—
Petropavlovsk	58.3	4	—	—	—	e 18	32	+40	—	—	—
Magadan	64.4	0	10	36	+ 1	—	—	—	—	—	—
Kyakhta	67.4	330	10	53	- 1	—	—	—	—	—	—
Kabansk	68.4	332	i 11	1	+ 1	—	—	—	—	—	—
Chatra	69.6	301	e 11	8	0	e 20	39	sS	—	—	—
Irkutsk	69.6	331	11	9	+ 1	20	17	+ 5	—	—	—
Kodaikanal	E. 75.1	283	e 11	30	-10	e 21	12	- 3	—	—	—
New Delhi	78.6	301	11	59	- 1	e 21	48	- 5	22	43	PS
Poona	Z. 79.8	290	i 12	4	- 2	—	—	—	—	—	—
Bombay	80.8	290	e 12	13	+ 1	e 22	13	- 3	17	15	PPP
Przhevalsk	80.9	315	12	13	+ 1	—	—	—	—	—	—
Semipalatinsk	82.0	322	e 12	17	- 1	—	—	—	—	—	—
Naryn	82.4	312	i 12	22	+ 2	—	—	—	12	37	pP
Rybach'e	82.6	313	i 12	21	0	i 22	37	+ 3	—	—	—
College	82.7	22	i 12	19	- 3	—	—	—	—	—	—
Frunse	83.8	314	i 12	28	+ 1	i 22	46	- 1	—	—	—
Andijan	84.9	312	i 12	34	+ 1	—	—	—	12	49	pP
Khorog	84.9	308	e 12	33	0	—	—	—	—	—	—
Fergana	85.3	311	i 12	35	0	—	—	—	i 12	50	pP
Dzhergetal	85.5	309	i 12	41	+ 5	—	—	—	—	—	—
Namangan	85.5	312	i 12	37	+ 1	—	—	—	i 12	51	pP
Kulyab	86.4	308	12	42	+ 2	23	29	ScS	12	57	pP
Obi-garm	86.6	310	i 12	41	0	—	—	—	12	56	pP
Lunacharskoe	87.3	312	e 12	46	+ 1	—	—	—	—	—	—
Stalinabad	87.3	310	i 12	44	- 1	e 23	17	- 4	—	—	—
Tashkent	87.3	312	e 12	44	- 1	i 23	4	[- 2]	i 12	58	pP
Tchimkent	87.3	313	i 12	45	0	23	6	[0]	17	56	PPP
Quetta	Z. 87.6	300	i 12	46	0	—	—	—	i 13	1	pP
Samarkand	88.8	310	12	50	- 2	—	—	—	e 16	25	PP
Berkeley	Z. 90.3	52	i 13	0k	+ 1	—	—	—	—	—	—
Corvallis	Z. 90.3	46	e 12	58	- 1	—	—	—	—	—	—
Shasta	Z. 90.5	49	e 13	0a	0	e 16	7	PP	e 13	15	pP
Victoria	90.6	42	13	1	+ 1	—	—	—	—	—	—
Lick	Z. 90.7	52	e 13	0k	- 1	i 13	34	?	e 13	8	pP
Mineral	Z. 91.0	49	i 13	3k	+ 1	—	—	—	i 13	40	?
Fresno	Z. 92.1	53	e 13	7a	0	—	—	—	e 13	23	pP
Reno	Z. 92.3	50	e 13	11k	+ 3	e 17	4	PP	e 13	26	pP
Bairam-Ali	92.4	308	e 13	10	+ 1	—	—	—	i 16	54	PP
Pasadena	93.2	56	i 13	13	+ 1	e 31	53	?	i 13	28	pP
Tinemaha	Z. 93.4	53	i 13	13	0	i 13	21	PcP	i 13	28	pP
China Lake	Z. 93.8	55	i 13	16	+ 1	—	—	—	e 16	40	?
Palomar	Z. 94.3	57	i 13	19	+ 2	e 17	44	?	i 13	31	pP
Sverdlovsk	94.6	327	i 17	9	PP	23	45	[- 5]	i 17	25	pPP
Ashkabad	95.4	308	i 17	20	PP	—	—	—	—	—	—
Boulder City	96.1	54	i 13	26	+ 1	e 24	3	[+ 5]	i 13	42	pP
Nelson	96.1	54	i 13	25	0	e 17	0	PP	i 13	39	pP
Hungry Horse	96.9	41	i 13	29	0	e 30	8	?	e 38	11	P'P'
Butte	97.9	43	e 13	36	+ 2	—	—	—	—	—	—
Tucson	99.3	57	e 13	43	+ 3	—	—	—	—	—	—
Resolute Bay	Z. 101.0	15	e 13	47	- 1	—	—	—	—	—	—
Tananarive	101.3	250	e 13	40	- 9	—	—	—	e 14	3	pP
Baku	101.9	311	i 18	10	PP	—	—	—	—	—	—
Shemakla	102.9	311	e 18	14	PP	—	—	—	—	—	—
Kirovobad	104.6	311	e 18	23	PP	25	6	SKKS	20	37	PPP
Goris	104.7	310	18	29	PP	e 24	37	[- 3]	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

1206

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tiflis	105.7	311	e 18 36	PP	e 24 47	[+ 3]	—	—
Gori	106.1	313	e 18 34	PP	—	—	—	—
Borzhoml	106.7	313	18 40	PP	—	—	i 18 56	pPPP
Moscow	107.4	327	e 18 42	PP	e 28 3	PS	—	—
Sotchi	109.1	315	18 58	PP	e 28 14	PS	—	—
Tacubaya	110.1	71	e 19 0	PP	—	—	e 19 9	pPPP
Fayetteville	z. 112.7	53	e 17 57	[-36]	—	—	—	—
Yalta	112.7	316	e 19 23	PP	e 28 57	PS	—	—
Ksara	113.9	304	i 19 34	PP	—	—	i 22 3	PPP
Upsala	z. 115.1	336	i 18 37	[- 1]	i 19 41	PP	i 19 57	pPPP
Lwow	117.2	325	e 18 42	[0]	—	—	e 19 54	PP
Kimberley	z. 118.6	234	i 18 44	[- 1]	—	—	—	—
Uzhgorod	118.8	325	e 18 49	[+ 4]	—	—	e 20 28	pPPP
Cleveland	z. 120.7	43	i 18 50k	[+ 2]	—	—	—	—
Potsdam	121.7	331	e 20 18	PP	—	—	e 20 42	sPP e 65.5
Collmberg	122.4	329	e 18 51	[- 1]	e 30 31	PS	e 19 9	pPKP
Ottawa	122.7	37	i 18 53k	[0]	—	—	—	—
Jena	123.3	330	e 18 55	[+ 1]	e 20 36	PP	e 19 9	pPKP
Witteveen	z. 124.2	336	i 18 56	[+ 1]	—	—	e 20 54	PP
Triest	z. 125.3	324	e 19 12	pPKP	—	—	e 21 14	pPPP
Stuttgart	125.9	329	e 18 59	[0]	—	—	e 19 13	pPKP e 66.5
Karlsruhe	z. 126.1	332	e 19 0	[+ 1]	—	—	e 19 14	pPKP
Palisades	126.1	42	e 18 59	[0]	—	—	i 19 12	pPKP e 58.8
Strasbourg	126.7	330	e 19 2	[+ 2]	e 19 24	sPKP	e 21 17	PPP e 64.5
Weston	127.0	38	i 19 3k	[+ 2]	—	—	i 19 12	pPKP e 64.2
Florence	127.8	323	e 19 2a	[0]	e 34 0	?	i 21 23	PP e 61.5
Messina	z. 128.0	317	e 19 2	[- 1]	—	—	e 20 3	?
Rome	128.2	321	19 4k	[+ 1]	—	—	—	—
Besançon	128.5	331	e 19 4	[0]	e 21 29	PP	e 19 19	pPKP
Oropa	E. 128.5	328	i 19 5	[+ 1]	—	—	—	—
Paris	129.0	333	i 19 6	[+ 1]	—	—	e 21 27	PP e 63.5
Huancayo	130.6	111	i 19 12	[+ 4]	—	—	i 19 25	pPKP
Clermont-Ferrand	130.9	331	e 19 11	[+ 3]	—	—	e 19 25	pPKP
La Plata	131.6	147	37 30	P'P'	22 54	PKS	31 48	PS 62.0
La Paz	135.5	120	i 19 18a	[+ 1]	28 20	SKKS	i 19 33	pPKP
Algiers Univ.	z. 137.1	322	e 19 20	[0]	e 22 45	SKP	e 19 35	pPKP
Alicante	138.1	326	19 28	[+ 6]	29 6	SKKS	22 23	PP 70.8
Almeria	140.3	326	i 19 26	[0]	26 31	[+ 1]	40 46	SS 77.4
Granada	140.6	327	19 28a	[+ 2]	30 37	?	25 53	PPP 75.8
San Juan	141.1	66	i 19 28	[+ 1]	—	—	19 43	pPKP
Malaga	141.4	327	i 19 20	[- 7]	26 26	[- 6]	i 22 30	PP 66.0
Tamanrasset	z. 142.6	302	e 19 26	[- 4]	i 23 29	PKS	e 19 44	pPKP
Fort de France	146.7	71	e 19 38	[+ 1]	i 19 43	PKP ₂	i 19 55	pPKP

Dec. 24d. 12h. 30m. 32s. Epicentre 40°·8N.-77°·7E. (as on 1951, Nov. 5d.).

A = +·1617, B = +·7418, C = +·6509; δ = +8; h = -2;
D = +·977, E = -·213; G = +·139, H = +·636, K = -·759.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.
	°	°	m. s.	s.	m. s.	s.	m. s.
Naryn	1.4	296	e 0 28	0 _g	i 0 50	+ 4	—
Przhevalsk	1.8	17	0 32	0	1 0	0 _g	—
Rybach'e	2.1	323	0 37	0	1 12	+ 3 _g	—
Frunse	3.1	312	i 0 58	+ 2*	i 1 43	+ 1 _g	—
Andijan	4.0	271	e 1 13	+ 2*	i 2 12?	0 _g	i 2 25 ?
Fergana	4.5	267	1 22	+ 2*	—	—	—
Namangan	4.6	274	i 1 27	- 5 _g	i 2 33	+ 1 _g	—
Dzhergetal	5.2	254	e 1 21	0	—	—	—
Khorog	5.8	237	e 1 28	- 1	e 2 34	- 4	—
Garm	6.0	255	e 1 26	- 6	—	—	—
Lunacharskoe	6.4	277	e 1 56	+ 4*	—	—	—
Kulyab	6.8	247	e 1 44	0	—	—	—

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1952

1207

Dec. 24d. 14h. 27m. 25s. Epicentre 29°·0N. 130°·0E. Focus at Base of Superficial Layers.
(as on 18d.).

Intensity V at Nase ; IV at Yakusima ; II-III at Miyazaki.
Epicentre 28°·0N. 130°·0E. Macro seismic Radius >300km.
Seismo. Bull. Cent. Met. Obs., Japan, Dec., 1952, Tokyo, 1953, p.504, with macro seismic chart.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
				m.	s.		m.	s.		m.	s.	
Yakusima		1·5	17	e 0	26 _a	+ 2	0	44	0	—	—	—
Kagosima		2·6	11	e 0	41 _a	0	1	10	- 1	—	—	—
Miyazaki		3·2	23	0	47 _a	- 2	1	20	- 7	—	—	—
Nagasaki		3·7	358	0	43 _k	-13	1	43	+ 4	—	—	—
Unzendake		3·7	3	0	59	+ 3	1	48	+ 9	—	—	—
Kumamoto		3·9	9	1	0	+ 1	1	44	0	—	—	—
Asosan		4·0	13	1	6	+ 6	2	1	+14	—	—	—
Ooita		4·4	17	i 1	9	+ 3	2	15	+18	—	—	—
Hukuoka		4·6	4	1	9 _a	0	1	57	- 5	—	—	—
Simidu		4·6	33	e 1	6	- 3	2	26	+24	—	—	—
Uwazima		4·8	27	e 1	3	- 9	2	15	+ 8	—	—	—
Simonoseki		5·0	9	1	16	+ 1	2	20	+ 8	—	—	—
Matuyama		5·4	25	e 1	20	0	2	39	+17	—	—	—
Koti		5·5	33	e 1	17	- 5	2	41	+16	—	—	—
Muroto		5·5	39	e 1	15	- 7	2	30	+ 5	—	—	—
Hirosima		5·7	20	e 1	22	- 2	2	24	- 6	—	—	—
Hamada		6·1	16	e 1	35	+ 5	2	37	- 3	—	—	—
Takamata	N.	6·3	22	e 1	30	- 3	3	7	+22	—	—	—
Okayama		6·6	30	e 1	37	0	3	13	+21	—	—	—
Siomisaki		6·6	46	e 1	34	- 3	—	—	—	—	—	—
Sumoto		6·7	37	i 1	35	- 4	2	41	-14	—	—	—
Kobe	E.	7·2	36	e 1	46	0	—	—	—	—	—	—
Osaka		7·3	28	e 2	1	+14	3	45	+35	—	—	—
Kyoto		7·7	37	e 1	48	- 5	3	59	+39	—	—	—
Toyooka		7·7	31	e 1	55	+ 2	3	41	+21	—	—	—
Zō-Sē		7·9	287	2	2 _a	+ 7	3	44	+19	—	—	—
Kameyama		8·0	42	2	0	+ 3	4	26	+59	—	—	—
Hikone		8·2	39	1	55	- 5	3	34	+ 2	—	—	—
Nagoya	N.	8·5	42	2	1	- 3	4	38	+58	—	—	—
Gihu		8·6	40	e 1	59	- 6	—	—	—	—	—	—
Shizuoka		9·3	48	e 2	17	+ 2	5	1	+62	—	—	—
Misima	E.	9·7	49	e 2	16	- 4	—	—	—	—	—	—
Hunatu	N.	9·8	47	2	18	- 4	4	35	+23	—	—	—
Kohu		9·8	45	2	18	- 4	5	18	+66	—	—	—
Matumoto	N.	9·8	41	e 2	27	+ 5	5	8	+56	—	—	—
Toyama		9·8	36	e 2	23	+ 1	5	6	+54	—	—	—
Nanking		10·1	290	i 2	31 _a	+ 5	i 4	35	+16	—	—	—
Matusiro		10·2	40	e 2	33	+ 6	5	18	+56	—	—	—
Nagano	N.	10·3	40	e 2	34	+ 6	5	37	L	—	—	(5·6)
Oiwake		10·3	42	e 2	23	- 5	—	—	—	—	—	—
Kumagaya		10·6	44	e 2	42	+ 9	5	54	L	—	—	(5·9)
Maebasi		10·6	44	e 2	33	0	5	37	+66	—	—	—
Tokyo		10·6	48	e 2	45	+12	6	7?	L	—	—	(6·1)
Mito		11·5	47	e 2	54	+ 9	6	17	L	—	—	(6·3)
Sendai		12·9	42	e 3	1	+ 1	—	—	—	—	—	—
Aomori		14·7	34	e 3	31	+ 4	—	—	—	—	—	—
Mori	N.	15·6	30	e 3	51	+12	—	—	—	—	—	—
Hong Kong		15·7	249	e 3	35?	- 5	—	—	—	—	—	e 7·4
Manila		16·6	212	i 3	41 _a	-11	i 6	48	- 6	—	—	—
Chatra		37·8	278	i 7	18	+ 3	—	—	—	—	—	e 24·4
Bandung		41·7	214	e 7	52	+ 5	e 14	12	+11	i 14	52	?
Poona	Z.	52·0	272	i 9	10	+ 2	—	—	—	—	—	—
Kodaikanal	E.	52·4	261	—	—	—	e 16	35	+ 2	—	—	—
Quetta	Z.	54·1	289	i 9	25	+ 1	—	—	—	—	—	—
Brisbane	Z.	60·3	156	i 10	8 _a	0	i 11	18	?	i 10	21	pP

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
College		60.9	28	i 10	9	- 3	—	—	—	i 12	53	pPP	—
Kiruna	z.	70.4	338	i 11	10 _a	- 3	i 13	44	PP	i 11	23	pP	—
Resolute Bay	z.	72.5	12	i 11	24 _a	- 1	—	—	—	i 12	33	?	—
Upsala		75.6	331	i 11	42 _a	- 1	i 11	46	P	i 11	59	pP	e 46.6
Collmberg		82.8	325	c 12	21	- 1	e 31	23	SSS	e 12	38	pP	—
Prague		82.8	324	e 12	23	+ 1	e 13	1	?	e 13	53	?	—
Shasta	z.	83.6	47	e 12	25 _a	- 1	e 13	6	?	e 12	39	pP	—
Jena	E.	83.7	325	i 12	26	- 1	—	—	—	c 13	22	?	—
Hungry Horse		84.1	37	i 12	28	- 1	e 30	44	?	—	—	—	—
Mineral	z.	84.3	47	e 12	28 _a	- 2	i 16	5	pPP	e 12	43	pP	—
Witteveen	z.	84.8	330	i 12	32 _a	0	—	—	—	—	—	—	—
Berkeley	z.	85.2	49	i 12	35 _a	+ 1	—	—	—	—	—	—	—
Lick	z.	85.9	49	e 12	37 _a	- 1	—	—	—	e 13	2	?	—
Reno	z.	85.9	46	e 12	37 _a	- 1	—	—	—	e 13	3	?	—
Butte		86.3	38	i 12	40	0	—	—	—	—	—	—	—
Stuttgart		86.3	325	e 12	40	0	—	—	—	—	—	—	e 47.6
Fresno	z.	87.5	49	e 12	45 _k	- 1	—	—	—	—	—	—	—
Tinemaha	z.	88.3	48	i 12	50	+ 1	—	—	—	i 13	2	pP	—
Florence		88.4	320	e 12	52	+ 2	—	—	—	—	—	—	e 47.6
China Lake	z.	89.4	48	e 12	56	+ 1	—	—	—	e 16	42	pPP	—
Messina	z.	89.4	314	i 12	54 _k	- 1	—	—	—	—	—	—	—
Paris		89.5	328	i 12	54	- 1	—	—	—	—	—	—	—
Boulder City		91.2	47	i 13	3	0	—	—	—	—	—	—	—
Nelson		91.3	47	i 13	3	- 1	—	—	—	i 16	52	PP	—
Palomar	z.	91.4	50	e 12	54	- 10	—	—	—	e 13	12	pP	—
Tananarive		92.7	250	e 13	10	0	e 14	52	?	e 13	24	pP	—
Tucson		96.1	48	e 13	27	+ 2	—	—	—	—	—	—	—
Fayetteville	z.	103.1	35	e 17	17	?	—	—	—	i 18	1	PP	—
Tamanrasset	z.	105.8	308	18	11	?	—	—	—	e 18	32	PP	—
Huancayo		151.0	59	i 19	53	PKP _s	—	—	—	—	—	—	—

Dec. 24d. 15h. 49m. 30s. Epicentre 49°·5N. 155°·5E. Focus at Base of Superficial Layers (as on 1952, Nov. 7d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	
College		33.0	41	i 6	31	- 3	—	—	—	—	—	—
Resolute Bay	z.	47.7	20	i 8	33 _a	- 2	—	—	—	i 10	5	PP
Victoria		50.7	58	8	57	- 1	—	—	—	—	—	—
Hungry Horse		55.9	54	i 9	35	- 2	—	—	—	—	—	—
Shasta	z.	55.9	66	i 9	37 _a	0	—	—	—	e 9	54	pP
Mineral	z.	56.6	66	c 9	42 _a	0	—	—	—	i 9	56	pP
Kiruna	z.	58.2	342	i 9	51	- 2	—	—	—	i 9	54	pP
Lick	z.	58.5	69	e 9	55 _a	0	i 10	48	PcP	i 10	13	pP
Fresno	z.	60.0	68	e 10	5 _a	- 1	—	—	—	e 10	22	pP
Tinemaha	z.	60.7	67	i 10	10	0	—	—	—	i 10	27	pP
China Lake	z.	61.9	67	i 10	18	0	—	—	—	e 10	35	pP
Pasadena	z.	62.7	69	i 10	24	0	—	—	—	i 10	40	pP
Boulder City		63.5	65	i 10	30	+ 1	—	—	—	i 10	45	sP
Nelson		63.7	65	i 10	31	+ 1	—	—	—	i 10	42	pP
Palomar	z.	64.1	69	i 10	33	0	—	—	—	i 10	49	pP
Upsala	z.	65.8	339	i 10	43	- 1	—	—	—	i 10	55	pP
Tucson		68.5	65	i 11	2	+ 1	—	—	—	i 11	18	pP
Poona	z.	70.8	277	i 11	22	+ 7	—	—	—	—	—	—
Kirkland Lake	z.	71.6	36	e 11	19 _a	- 1	—	—	—	—	—	—
Collmberg	z.	74.6	337	e 11	38	0	—	—	—	—	—	—
Fayetteville	z.	74.9	53	i 11	39	0	—	—	—	i 11	56	pP
Jena	z.	75.3	337	e 11	44	+ 2	—	—	—	—	—	—
Ottawa		75.5	35	i 11	41 _a	- 2	—	—	—	—	—	—
Shawinigan Falls	N.	75.6	32	e 11	42	- 1	—	—	—	—	—	—
Cleveland	z.	76.5	41	i 11	49 _a	+ 1	—	—	—	i 12	5	pP

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.
	°	°	m. s.	s.	m. s.	s.	m. s.
Stuttgart	77.9	338	e 11 58	+ 2	—	—	—
Paris	79.4	343	i 12 6	+ 2	—	—	—
Harvard	79.5	34	i 12 6 _a	+ 1	—	—	—
Weston	79.7	34	i 12 6	0	—	—	i 12 20 pP
Palisades	80.0	36	i 12 6 _a	- 2	—	—	i 12 22 pP
Besançon	80.1	340	e 12 12	+ 4	—	—	—
Tamanrasset	z. 103.2	332	i 14 1 _a	+ 4	—	—	—
Kimberley	z. 137.8	280	e 19 17	[- 4]	—	—	—

Dec. 24d. 18h. 0m. 16s. I } Epicentre 5°·8S. 151°·8E. Foreshocks of 18h. 39m.
 18h. 15m. 25s. II }

A = -·8768, B = +·4702, C = -·1004; δ = -5; h = +7;
 D = +·473, E = +·881; G = +·089, H = -·047, K = -·995.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
I Brisbane	21.6	177	e 4 56	+ 2	i 8 59	+10	i 5 19	PP
II	21.6	177	i 4 56 _a	+ 2	i 8 59	+10	i 5 23	PPP
I Riverview	27.9	182	e 6 0	+ 6	i 10 46	+ 9	i 11 6	? e 14.7
I Melbourne	E. 32.5	190	—	—	e 13 47	SS	—	—
I Manila	36.7	304	i 7 20	+10	i 13 26	+32	i 8 51	PPP
II	36.7	304	i 7 21	+11	—	—	—	—
I Karapiro	N. 38.6	150	e 9 8	PP	—	—	—	—
I Tuai	N. 40.1	149	e 8 21	+42	—	—	—	—
I Kaimata	N.E. 40.5	158	e 7 44?	+ 2	—	—	—	—
II Perth	42.5	228	i 9 28	PP	—	—	—	—
I Bandung	43.9	267	e 8 50	+40	—	—	—	—
I Hong Kong	46.2	302	—	—	e 15 33	+18	—	—
I Nanking	z. 49.0	322	8 46 _k	- 4	16 1	+ 6	—	—
I College	83.2	22	i 12 25	- 4	—	—	—	—
II	83.2	22	i 12 26	- 3	—	—	—	—
I Quetta	88.4	301	i 12 54	- 1	e 23 38	- 2	—	—
II	z. 88.4	301	i 12 55	0	—	—	—	—
I Shasta	z. 90.6	49	13 4 _a	- 1	—	—	—	—
II	z. 90.6	49	13 5 _k	0	—	—	—	—
I Lick	z. 90.7	52	e 13 1 _k	- 5	—	—	—	—
I Mineral	z. 91.1	50	e 13 8 _k	0	—	—	—	—
II	z. 91.1	50	e 13 7 _k	- 1	—	—	—	—
I Fresno	z. 92.2	53	e 13 19 _a	+ 6	—	—	—	—
I Reno	z. 92.4	50	e 13 14 _k	0	—	—	—	—
II	z. 92.4	50	e 13 13 _k	- 1	—	—	—	—
I Pasadena	93.2	56	i 13 16	- 1	—	—	i 14 14	?
II	93.2	56	i 13 17	0	—	—	—	—
I Tinemaha	z. 93.4	53	i 13 18	0	—	—	—	—
II	z. 93.4	53	e 13 19	+ 1	—	—	i 13 26	?
I China Lake	z. 93.8	54	e 13 19	- 1	—	—	—	—
II	z. 93.8	54	e 13 19	- 1	—	—	—	—
I Palomar	z. 94.3	57	e 13 22	- 1	—	—	—	—
II	z. 94.3	57	e 13 23	0	—	—	—	—
I Boulder City	96.1	54	i 13 30	- 1	e 17 20	PP	i 13 41	?
II	96.1	54	i 13 31	0	—	—	—	—
I Nelson	96.1	54	i 13 30	- 1	e 28 30	?	e 17 18	PP
II	96.1	54	i 13 31	0	—	—	—	—
I Hungry Horse	97.1	42	i 13 33	- 2	—	—	—	—
II	97.1	42	e 13 33	- 2	—	—	—	—
II Fayetteville	z. 112.8	52	e 14 26	P	—	—	—	—
II Grahamstown	z. 115.2	229	e 21 41?	PPP	—	—	—	—
I Ottawa	123.0	38	i 18 58	[0]	—	—	—	—
II	123.0	38	e 18 58 _k	[0]	—	—	—	—
I Stuttgart	126.7	330	e 19 5	[- 1]	—	—	—	—
I Tamanrasset	z. 143.4	301	i 19 34 _k	[- 2]	e 20 6	?	i 20 49	?
II	z. 143.4	301	e 19 34	[- 2]	—	—	e 20 25	?

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Dec. 24d. 18h. 39m. 36s. Epicentre 5°·8S. 151°·8E. (as at 18h. 15m.).

		Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane		21·6	177	e 4 56	+ 2	i 8 59	+10	i 5 16	PP	—
Riverview		27·9	182	5 57	+ 3	i 10 43	+ 6	i 6 6	pP	e 12·6
Melbourne	E.	32·5	190	—	—	i 11 28	-21	—	—	e 14·1
Apia		36·7	105	i 6 6	-64	—	—	—	—	e 15·4
Manila		36·7	304	i 7 20 _a	+10	i 13 21	+27	—	—	—
Torisima		37·7	345	e 9 10	PPP	—	—	—	—	—
Karapiro	N.	38·6	150	e 7 41	+15	e 13 29	+ 6	—	—	—
Cobb River	E.	39·8	155	e 8 7	+31	e 13 53	+11	—	—	—
Tuai	N.	40·1	149	e 7 48	+ 9	e 13 50	+ 4	—	—	—
Kaimata	N.E.	40·5	158	e 7 49	+ 7	e 14 5	+13	—	—	—
Wellington		40·9	154	e 7 51	+ 5	e 13 58	0	e 9 46	PcP	e 21·8
Christchurch		41·8	157	e 7 56	+ 3	13 52	-19	e 16 54	SS	—
Siomisaki		41·9	340	e 7 47	- 7	14 23	+10	9 39	PP	19·9
Mera		42·0	346	e 7 54	0	e 14 15	+ 1	—	—	—
Miyazaki		42·2	334	e 8 7	+11	e 14 5	-12	—	—	20·0
Omaesaki		42·2	344	e 8 13	+17	—	—	—	—	19·9
Kagosima		42·3	332	e 8 27	+30	(14 32)	+13	e 11 13	?	14·5
Muroto		42·3	338	e 8 8	+11	e 13 18	PcS	e 9 39	PP	e 18·3
Owase		42·3	341	e 9 37	PP	e 14 38	+19	—	—	e 19·9
Simidu	N.	42·3	336	e 7 58	+ 1	e 14 26	+ 7	—	—	—
Ajiro		42·4	345	e 9 14	PP	e 18 20	SSS	—	—	i 21·0
Misima		42·5	345	e 8 4	+ 5	e 14 24?	+ 2	e 9 38	PP	—
Perth		42·5	228	—	—	i 14 44	+22	i 17 42	SS	i 20·8
Shizuoka		42·5	344	e 8 5	+ 6	e 14 37	+15	—	—	e 20·9
Yokohama		42·6	345	9 20	PP	—	—	—	—	—
Koti		42·8	337	e 8 7	+ 6	e 14 20	- 6	e 9 41	PP	19·1
Tokyo		42·8	345	8 8	+ 7	e 14 20	- 6	e 9 59	PcP	e 17·6
Hunatu	N.	42·9	345	e 7 52	-10	—	—	e 9 36	PP	21·1
Kameyama		42·9	341	e 9 29	PP	e 14 44	+17	e 10 48	?	e 17·9
Sumoto		43·0	340	e 8 53	+50	(i 17 28)	SS	—	—	i 17·5
Iida		43·1	344	e 8 10	+ 6	—	—	—	—	—
Kohu		43·1	345	8 10	+ 6	—	—	—	—	20·5
Nagoya	E.	43·1	343	e 8 19	+15	—	—	—	—	21·0
Osaka		43·1	340	e 8 47	+43	e 15 3	+33	—	—	—
Titibu		43·2	345	i 8 11	+ 7	—	—	—	—	—
Kumagaya		43·3	345	e 8 3	- 2	e 17 44	SS	9 51	PP	e 19·1
Kumamoto		43·3	334	e 8 18	+13	—	—	—	—	—
Kyoto		43·3	341	e 8 6	+ 1	e 14 17	-16	(e 18 32)	SSS	e 18·5
Mito		43·3	347	e 9 48	PP	—	—	—	—	—
Ooita		43·3	335	e 8 13	+ 8	(e 17 22)	SS	—	—	e 17·4
Takamatu		43·3	339	e 8 3	- 2	e 14 33	0	e 19 36	Q	e 21·6
Hikone		43·4	343	e 8 2	- 4	—	—	e 9 53	PP	20·8
Matuyama		43·4	338	e 8 3	- 3	e 14 28	- 7	e 9 46	PP	25·2
Unzendake		43·5	334	e 9 36	PP	e 14 47	+11	—	—	e 20·7
Maebasi		43·6	345	e 8 13	+ 5	(e 17 58)	SS	e 9 56	PP	e 18·0
Utunomiya		43·6	346	e 8 10	+ 2	e 14 59	+21	e 18 11	SS	21·5
Oiwake		43·7	344	e 8 9	+ 1	e 17 19	?	—	—	19·3
Onahama		43·7	348	e 8 14	+ 6	e 14 22	-17	e 9 49	PP	e 18·4
Matumoto	N.	43·8	344	e 8 16	+ 7	—	—	—	—	—
Bandung		43·9	267	i 8 16	+ 6	i 14 50	+ 8	—	—	e 19·9
Hirosima		43·9	337	e 8 7	- 3	14 36	- 6	(17 58)	SS	18·0
Matusiro		44·0	345	i 8 12	+ 1	i 14 31	-12	i 10 8	PcP	21·2
Shirakawa		44·0	346	e 8 14	+ 3	—	—	—	—	—
Tomie		44·0	332	—	—	15 9	PPS	—	—	—
Hukuoka		44·1	334	e 8 7	- 5	e 14 30	-15	e 12 32	?	21·2
Nagano		44·1	344	e 8 15	+ 3	e 18 13	ScS	e 18 37	SSS	e 22·2
Toyooka		44·1	340	e 8 9	- 3	—	—	—	—	e 20·2
Toyama		44·4	344	e 8 16	+ 2	e 14 47	- 2	—	—	e 21·2
Inawasiro		44·5	347	e 8 23	+ 8	—	—	—	—	—
Hamada		44·6	337	8 22	+ 6	14 48	- 4	—	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Hukusima		44.6	347	e 8 20	+ 4	(e 15 3)	+11	e 11 1	PPP	e 15.0
Djakarta		44.7	268	e 8 14	- 2	e 14 41	-13	e 9 55	PP	e 21.0
Sendai		45.0	348	e 8 28	+ 9	e 14 24	-34	e 10 12	PP	e 18.3
Yamagata		45.1	347	e 8 25	+ 5	—	—	—	—	e 18.9
Wazima		45.2	344	—	—	e 19 35	SSS	—	—	—
Mizusawa	E.	45.8	349	8 25	0	15 4	- 5	—	—	—
	N.	45.8	349	e 8 30	+ 5	14 48	-21	—	—	—
Miyako		46.1	350	e 8 26?	- 2	15 1	-13	—	—	—
Hong Kong		46.2	308	8 24	- 4	15 10	- 5	e 14 7	PcS	—
Morioka		46.3	349	e 8 30	+ 1	—	—	—	—	—
Akita		46.6	348	e 8 34	+ 2	e 15 13	- 8	e 10 51	PPP	e 18.8
Zô-Sè		46.9	324	8 32	- 2	15 25	0	—	—	—
Aomori		47.5	349	e 8 53	+15	15 34	0	i 11 20	PPP	22.9
Mori	N.	48.8	350	e 8 46	- 3	(15 58)	+ 6	e 11 34	PPP	16.0
Nemuro		49.2	354	—	—	e 15 54	- 4	—	—	—
Sapporo		49.6	351	e 9 19	+24	e 16 14	+11	e 19 37	SS	e 23.8
Kurilsk		50.9	356	e 9 8	+ 3	e 16 22	+ 1	—	—	—
Vladivostok		51.9	342	i 9 10	- 2	—	—	—	—	—
Yuzno-Sakhlinsk		53.1	352	9 19	- 2	16 43	- 8	—	—	—
Ulegorsk		55.3	353	9 38	0	17 15	- 6	—	—	—
Honolulu		56.0	59	e 9 44	+ 1	—	—	—	—	—
Petropavlovsk		59.0	4	i 9 59	- 5	i 18 5	- 5	—	—	—
Klyuchi		62.3	6	e 10 35	+ 9	—	—	—	—	—
Mitchell Field		63.5	22	e 10 34	0	—	—	—	—	—
Magadan		65.1	359	10 53	+ 8	20 9	PPS	—	—	—
Shillong	E.	66.0	301	e 10 48	- 2	e 19 38	0	e 11 48	?	—
Calcutta	E.	68.1	297	i 11 7k	+ 3	i 19 50	-13	21 4	ScS	30.7
Kyakhta		68.2	331	e 10 59	- 5	—	—	—	—	—
Kabansk		69.2	333	i 11 8	- 2	e 20 35	PS	—	—	—
Chatra		70.4	302	i 11 15	- 3	e 20 32	+ 2	11 42	PcP	33.2
Irkutsk		70.5	331	11 18	0	—	—	—	—	—
Kodaikanal	E.	75.7	282	e 11 57	+ 8	e 21 57	ScS	33 46	Q	37.4
New Delhi		79.4	300	e 12 8	- 1	e 22 7	- 3	14 59	PP	36.6
Poona		80.5	290	i 12 13	- 2	22 17	- 5	23 11	PS	—
Bombay		81.5	290	e 12 27	+ 6	e 22 37	+ 5	15 36	PP	34.3
Przhevalsk		81.8	314	12 21	- 1	—	—	—	—	—
Semipalatinsk		82.9	323	e 12 24	- 4	—	—	—	—	—
Almata		83.0	315	i 12 27	- 1	e 22 39	- 8	—	—	—
College		83.2	22	i 12 24	- 5	e 23 14	ScS	e 27 29	SS	e 40.9
Naryn		83.3	313	e 12 28	- 2	i 22 59	ScS	—	—	—
Rybach'e		83.4	314	i 12 29	- 1	—	—	—	—	—
Frunse		84.6	314	i 12 37	+ 1	i 23 8	+ 5	—	—	—
Andijan		85.8	311	i 12 41	- 1	23 10	[+ 4]	—	—	—
Khorog		85.8	308	12 42	0	e 23 3	[- 3]	—	—	—
Fergana		86.2	311	i 12 42	- 2	e 23 10	[+ 1]	e 12 49	PcP	—
Dzhergetal		86.4	310	12 44	- 1	—	—	—	—	—
Namangan		86.4	311	i 12 44	- 1	i 23 15	{ 0}	—	—	—
Kulyab		87.3	308	12 48	- 2	23 16	{ 0}	—	—	—
Obi-garm		87.5	309	e 12 48	- 3	i 23 23	{ 0}	—	—	—
Stalinabad		88.1	309	e 12 53	- 1	—	—	—	—	—
Tchimkent		88.1	312	i 12 53	- 1	i 23 17	[- 4]	—	—	—
Tashkent		88.2	312	e 12 52	- 2	—	—	—	—	—
Quetta		88.4	301	i 12 49k	- 6	i 23 32	{+ 2}	i 23 25	SKS	40.9
Samarkand		89.7	309	e 12 59	- 2	—	—	—	—	—
Berkeley		90.3	52	e 13 4a	0	e 23 38	[+ 3]	e 16 47	PP	e 41.2
Corvallis		90.4	45	e 13 2	- 2	e 23 59	+ 1	—	—	e 41.8
Santa Clara		90.5	52	e 13 12	+ 7	e 25 6	PS	—	—	e 41.7
Shasta		90.6	49	e 13 3a	- 2	e 24 0	0	e 16 38	PP	e 42.4
Lick		90.7	52	e 12 59a	- 7	i 13 9	PcP	e 16 44	PP	e 42.4
Victoria		90.9	42	13 3	- 4	—	—	—	—	41.4
Mineral		91.1	50	e 13 5a	- 3	i 13 17	?	e 16 50	PP	e 42.8
Fresno		92.2	53	e 13 11a	- 2	—	—	i 13 23	pP	—
Reno	z.	92.4	50	i 13 12a	- 2	—	—	i 13 45	?	e 42.9
Bairam-Ali		93.2	307	e 13 21	+ 4	23 56	[+ 5]	i 17 9	PP	—
Pasadena		93.2	56	i 13 16	- 1	e 24 21	- 2	i 13 26	pP	e 37.1

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Tinemaha	z.	93.4	53	i	13 18	0	—	—	—	i 13 27	pP	e 43.5
China Lake	z.	93.8	54	e	13 18	- 2	e 17 13	PP	—	i 13 28	pP	e 44.1
Palomar	z.	94.3	57	i	13 22	- 1	e 17 41	PP	—	i 13 31	pP	43.8
Sverdlovsk		95.5	326	—	13 24	- 4	24 34	- 8	—	—	—	—
Boulder City		96.1	54	i	13 30	- 1	e 38 44	P'P'	—	e 17 21	PP	—
Nelson		96.1	54	i	13 28	- 3	—	—	—	i 17 23	PP	—
Ashkabad		96.2	307	e	13 34	+ 3	24 16	[+ 8]	—	—	—	—
Hungry Horse		97.1	42	i	13 32	- 3	e 24 28	{- 6}	—	e 17 26	PP	—
Butte		98.1	44	e	13 42	+ 2	—	—	—	—	—	—
Tucson		99.3	58	e	13 47	+ 2	e 24 28	[+ 4]	—	e 17 46	PP	e 41.8
Tananarive		101.5	249	e	14 1	+ 6	24 33	[- 1]	—	24 47	SKKS	52.4
Resolute Bay		101.6	14	e	13 54k	- 2	i 25 35	+ 1	—	i 27 2	PS	e 57.8
Saskatoon		101.7	38	—	—	—	e 25 51	+16	—	—	—	41.4
Baku		102.8	310	e	13 52	- 9	—	—	—	—	—	—
Shemakla		103.7	310	—	—	—	i 26 3	+12	—	—	—	—
Makhach-Kala		104.4	313	i	20 9	?	i 24 51	[+ 3]	—	—	—	—
Goris		105.6	309	e	14 17	P	e 24 47	[- 6]	—	e 21 52	?	—
Tiflis		106.5	312	—	18 47	PP	e 25 0	[+ 3]	—	e 33 24	SS	—
Gori		107.0	312	e	18 54	PP	—	—	—	—	—	—
Leninakan		107.3	311	e	18 8	?	—	—	—	—	—	—
Piatigorsk		107.5	315	i	18 26	[- 2]	i 25 6	[+ 4]	—	i 28 15	PS	—
Borzhomi		107.6	312	e	18 56	PP	—	—	—	—	—	—
Moscow		108.2	327	—	18 49	PP	—	—	—	—	—	—
Zugdidi		108.5	313	e	19 3	PP	—	—	—	—	—	—
Tacubaya		109.8	71	e	20 34	?	e 26 50	S	—	e 30 3	PPS	e 53.6
Sotchi		109.9	314	e	19 4	PP	—	—	—	—	—	—
Kiruna		110.0	342	i	18 35	[+ 2]	e 26 24?	{+19}	—	e 14 46	P	—
Pulkovo		110.4	332	e	19 10	PP	—	—	—	—	—	—
Fayetteville	z.	112.8	52	i	18 48	[+ 9]	e 29 36	PKKP	—	i 14 54	P	e 52.9
Yalta		113.6	316	e	19 26	PP	—	—	—	—	—	—
Ksara		114.7	304	i	19 53	PP	36 1	SS	—	—	—	—
Grahamstown	z.	115.2	229	e	18 49?	[+ 6]	e 29 24?	PS	—	—	—	—
Scroesby Sund		115.3	358	—	28 34	?	29 38	PS	—	36 17	SSP	53.4
Upsala		115.9	336	i	18 47	[+ 2]	e 26 48	{+ 2}	—	i 29 28	PKKP	e 50.4
Kishinev		116.3	321	e	18 47	[+ 1]	i 29 35	PS	—	i 19 57	PP	—
Lwow		118.1	325	e	18 52	[+ 3]	—	—	—	—	—	—
Istanbul		118.2	314	e	20 18?	PP	e 29 49	PS	—	e 37 17	SSP	49.9
Kimberley	z.	118.5	232	e	18 52	[+ 2]	i 19 2	?	—	e 29 13?	PKKP	—
Kirkland Lake	z.	119.1	37	e	18 49	[- 2]	—	—	—	—	?	—
Helwan	z.	119.2	301	—	18 54	[+ 3]	e 20 14	PP	—	e 21 54	?	—
Uzhgorod		119.7	324	e	18 56	[+ 4]	27 15	{+ 3}	—	—	—	—
Bergen	n.	119.9	342	e	29 53	SKSP	e 37 4	SSP	—	e 44 53	Q	e 53.3
Copenhagen		120.7	335	—	20 24	PP	30 20	PS	—	37 30	SSP	—
Cleveland		120.8	44	i	19 4a	[+10]	e 30 10	PS	—	i 20 27	PP	—
Reykjavik	z.	121.6	356	e	18 56	[0]	—	—	—	i 18 7	?	—
Budapest		122.1	324	—	20 24?	PP	e 30 24?	PS	—	e 24 24	?	—
Buffalo (Larkin)		122.3	41	e	19 5	[+ 8]	—	—	—	—	—	—
Ogyalla		122.4	325	e	21 43	?	e 26 42	[+44]	—	e 30 42	PS	e 57.9
Potsdam		122.5	331	e	20 37	PP	e 30 30	PS	—	e 42 18	SSS	e 57.4
Kalossa		122.6	324	e	20 24?	PP	e 30 46	PS	—	—	—	—
Ottawa		123.0	38	i	18 57	[- 1]	e 27 46	{+12}	—	20 34	PP	51.5
Collmberg		123.2	330	e	18 57	[- 2]	e 25 41	[-19]	—	e 30 40	PS	e 59.7
Prague		123.3	329	e	18 58	[- 1]	e 30 40	PS	—	e 37 24	SS	e 56.4
Pennsylvania		123.7	43	i	19 5	[+ 5]	e 30 27	PS	—	i 21 44	?	—
Jena		124.2	330	e	19 0	[- 1]	e 32 12	PPS	—	e 20 56	PP	—
Shawinigan Falls	n.	124.2	35	e	19 2	[+ 1]	—	—	—	—	—	—
Cheb	n.	124.3	330	e	22 19	PKS	e 30 54	PS	—	e 32 17	PPS	e 52.4
Aberdeen		124.8	343	e	21 2	PP	i 30 57	PS	—	e 37 52	SS	e 62.7
Witteveen	z.	125.1	336	i	19 3	[0]	—	—	—	e 19 13	?	—
Triest		126.2	325	e	18 57	[- 8]	e 26 42	[+33]	—	e 22 44	SKP	63.4
De Bilt		126.3	335	e	21 2	PP	e 31 0	PS	—	e 38 24?	SSP	e 58.4
Palisades		126.3	41	i	19 4	[- 1]	i 32 30	PPS	—	i 19 13	pPKP	e 57.9
Fordham		126.4	41	e	19 22	?	—	—	—	—	—	—
Stuttgart		126.7	330	e	19 4	[- 2]	e 25 54	[-17]	—	e 23 52	PPP	—
Taranto		126.7	317	—	—	—	22 42	SKP	—	e 31 7	PS	43.1

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Karlsruhe	127.0	331	e 19 4	[- 2]	e 19 18	?	e 21 1	PP e 62.4
Harvard	127.1	39	i 19 5 _a	[- 1]	i 38 11	SS	—	e 52.6
Weston	127.3	39	i 19 7	[0]	e 38 26	SS	e 20 53	PP
Strasbourg	127.6	331	e 19 7	[0]	e 32 49	PPS	e 21 21	PP e 63.2
Salo	128.1	326	e 19 21	[+13]	e 22 9	?	e 23 13	PKS
Bologna	z. 128.3	324	e 19 22	[+13]	—	—	—	—
Florence	128.7	323	e 19 8	[- 2]	i 31 34	PS	i 22 30	SKP
Kew	128.9	338	e 19 17	[+ 7]	e 31 35	PS	e 22 30	PKS e 45.4
Messina	128.9	316	e 19 12	[+ 2]	e 22 33	SKP	i 19 30	?
Pavia	129.1	327	e 20 22	?	e 27 45	{-29}	e 21 39	PP e 61.4
Rome	129.1	321	e 19 16	[+ 6]	e 31 29	PS	i 22 37	SKP
Besançon	129.4	330	i 19 13	[+ 2]	i 19 22	?	e 19 36	?
Oropa	129.4	327	i 19 14	[+ 3]	e 22 38	SKP	—	—
Rathfarnham Castle	129.4	343	e 18 44	[-27]	e 31 32	PS	e 22 38	PKS e 46.2
Huancayo	129.9	111	e 19 17	[+ 5]	e 22 52	PKS	i 19 29	?
Paris	129.9	334	e 19 11	[- 1]	i 33 12	SPP	i 24 16	PPP e 62.4
Halifax	130.5	32	e 19 19	[+ 6]	27 12	[+51]	33 16	PPS
La Plata	130.8	147	22 42	PKS	28 18	{- 7}	39 12	SS 71.1
Clermont-Ferrand	131.8	331	e 19 19	[+ 4]	e 39 39	SS	e 28 54	PKKP 58.4
Galerazamba	133.2	80	i 22 55	SKP	i 39 37	SS	—	— 61.4
Bogota	134.3	89	i 19 38	[+18]	i 41 20	SSP	e 21 55	PP 82.1
La Paz	134.7	120	i 19 28	[+ 7]	i 29 20	{+31}	i 27 39	P _c P,PKP 79.4
Bermuda	136.9	47	e 19 36	[+11]	e 40 11	SS	i 23 8	PKS e 64.9
Ciudad Trujillo	137.4	67	19 39	[+13]	—	—	22 37	PP
Algiers Univ.	z. 138.0	321	e 19 26	[- 1]	e 34 49	PPS	e 22 21	PP
Alicante	139.0	326	19 24	[- 5]	26 30	[- 7]	25 20	PPP 65.7
Toledo	139.7	331	e 19 21	[- 9]	26 22	[-17]	22 18	PP 67.4
San Juan	141.0	67	i 19 32	[0]	—	—	—	—
Almeria	141.2	326	19 34	[+ 1]	26 42	[+ 1]	22 36	PP 69.6
Granada	141.5	328	i 19 39 _a	[+ 6]	26 28	[-14]	i 23 28	PKS 68.7
Malaga	142.3	328	i 19 37	[+ 2]	—	—	22 49	PP 52.9
Lisbon	E. 143.0	335	—	—	41 36	SS	—	—
Tamanrasset	z. 143.4	301	i 19 33 _k	[- 3]	i 23 37	PKS	e 26 6	PPP
Fort de France	146.4	72	i 19 44	[+ 2]	e 32 42	SKSP	e 23 22	PP
M'Bour	166.0	308	—	—	40 24?	?	—	—

Dec. 24d. 21h. 37m. 6s. Epicentre 5°·8S. 151°·8E. (as at 18h.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane	21.6	177	i 4 57 _a	+ 3	i 8 50	+ 1	i 5 2	P
Riverview	27.9	182	i 5 56 _k	+ 2	i 10 46	+ 9	i 11 9	SS e 14.4
Melbourne	E. 32.5	190	—	—	e 12 2	+13	—	e 14.1
Karapiro	N. 38.6	150	e 7 28	+ 2	—	—	—	—
Cobb River	E. 39.8	155	e 7 36	0	—	—	—	—
Kaimata	N.E. 40.5	159	e 7 47	+ 5	—	—	e 7 55	pP
Wellington	40.9	154	i 7 47	+ 1	i 13 54	- 4	9 36	PP 21.9
Christchurch	41.8	157	e 7 54	+ 1	e 14 10	- 1	(e 17 19)	SS e 17.3
Perth	42.5	228	i 8 34	+35	i 17 34	SS	—	i 21.1
Bandung	43.9	267	e 8 13	+ 3	e 13 51	-51	i 18 7	ScS
Djakarta	44.7	268	e 8 17	+ 1	e 16 40	?	e 10 3	PP i 20.4
Nanking	49.0	322	i 8 49 _a	- 1	i 16 5	+10	—	—
Vladivostok	51.9	342	i 9 10	- 2	16 34	- 1	—	—
Yuzno-Sakhlinsk	53.1	352	e 9 19	- 2	—	—	i 12 17	PPP
Uglegorsk	55.3	353	e 9 35	- 3	e 17 22	+ 1	—	—
Petropavlovsk	59.0	4	e 9 59	- 5	i 18 0	-10	—	—
Kyakhta	68.2	331	11 1	- 3	e 20 7	+ 3	—	—
Kabansk	69.2	333	i 11 8	- 2	—	—	—	—
Chatra	70.4	302	e 11 17	- 1	e 20 33	+ 3	25 9	SS
Irkutsk	70.5	331	11 17	- 1	e 20 39	+ 7	—	—
New Delhi	79.4	300	e 12 10	+ 1	e 22 7	- 3	e 29 22	?
Bombay	81.5	290	i 12 22	+ 1	e 22 32	0	15 43	PP
Przhevalsk	81.8	314	12 22	0	—	—	—	—
Semipalatinsk	82.9	323	e 12 25	- 3	—	—	—	—
Almata	83.0	315	i 12 28	0	e 22 48	+ 1	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
College		83.2	22	12 24	- 5	—	—	—	—
Naryn		83.3	313	i 12 31	+ 1	i 23 5	ScS	i 15 51	PP
Rybach'e		83.4	314	i 12 30	0	i 22 46	- 5	i 12 34	PcP
Frunse		84.6	314	i 12 36	0	i 23 12	+ 9	24 4	PS
Andijan		85.8	311	i 12 42	0	—	—	—	—
Khorog		85.8	308	e 12 44	+ 2	—	—	—	—
Fergana		86.2	311	i 12 42	- 2	e 23 20	+ 1	e 23 6	SKS
Dzhergetal		86.4	310	e 12 46	+ 1	—	—	—	—
Namangan		86.4	311	i 12 47	+ 2	—	—	—	—
Kulyab		87.3	308	12 50	0	—	—	—	—
Obi-garm		87.5	309	i 12 50	- 1	e 23 15	[- 2]	—	—
Stalinabad		88.1	309	—	—	i 23 35	- 2	—	—
Tchimkent		88.1	312	i 12 53	- 1	23 11	[- 10]	—	—
Lunacharskoe		88.2	312	i 12 53	- 1	—	—	—	—
Tashkent		88.2	312	e 12 51	- 3	e 23 21	[- 1]	—	—
Quetta		88.4	301	i 12 55	0	i 23 34	{+ 4}	—	—
Samarkand		89.7	309	e 12 59	- 2	i 23 49	- 3	—	—
Berkeley	z.	90.3	52	e 13 4k	0	—	—	13 13	pP
Shasta	z.	90.6	49	e 13 4a	- 1	—	—	e 16 38	PP
Lick	z.	90.7	52	e 13 7	+ 1	e 13 13	?	e 17 32	?
Mineral	z.	91.1	50	e 13 7a	- 1	i 13 18	?	e 16 42	PP
Fresno	z.	92.2	53	e 13 13k	0	—	—	—	—
Reno	z.	92.4	50	e 13 14k	0	—	—	e 14 21	?
Bairam-Ali		93.2	307	13 18	+ 1	23 50	[- 1]	19 45	PPP
Pasadena		93.2	56	i 13 18	+ 1	—	—	i 13 24	?
China Lake	z.	93.8	54	e 13 19	- 1	13 26	?	e 17 3	PP
Sverdlovsk		95.5	326	i 13 24	- 4	23 59	[- 5]	17 18	PP
Boulder City		96.1	54	i 13 31	0	—	—	i 17 21	PP
Nelson		96.1	54	i 13 30	- 1	—	—	i 17 20	PP
Ashkabad		96.2	307	i 17 29	PP	—	—	—	—
Hungry Horse		97.1	42	i 13 33	- 2	e 17 21	PP	e 30 33	PKKP
Kizyl-Arvat		97.9	309	i 17 38	PP	—	—	—	—
Butte		98.1	44	e 13 40	0	—	—	—	—
Tucson		99.3	58	e 17 17	PP	e 36 58	?	—	e 46.2
Tananarive		101.5	349	—	—	i 25 41	+ 8	i 25 46	?
Resolute Bay	z.	101.6	14	i 13 53k	- 3	—	—	—	—
Lenkoran		103.7	308	20 52	PPP	—	—	—	—
Shemakla		103.7	310	e 18 54?	PP	—	—	21 2?	PPP
Erevan		106.9	310	e 18 43	PP	—	—	—	—
Piatigorsk		107.5	315	e 18 46	PP	i 24 38	[- 24]	i 21 3	PPP
Moscow		108.2	327	e 18 55	PP	e 28 24	PPS	—	—
Sotchi		109.9	314	e 19 6	PP	—	—	—	—
Kiruna		110.0	342	i 24 20	?	i 25 15	{+ 3}	i 34 26	SS
Theodosia		112.6	317	e 19 23	PP	—	—	—	e 58.9
Yalta		113.6	316	e 18 40	[0]	—	—	—	—
Ksara		114.7	304	i 20 43	?	—	—	i 22 49	PPP
Grahamstown	z.	115.2	229	—	—	e 25 42	{+ 9}	—	—
Upsala	z.	115.9	336	i 23 42	?	—	—	i 24 25	?
Kishinev		116.3	321	—	—	25 48	{+ 11}	—	—
Lwow		118.1	325	e 22 33	PPP	—	—	—	—
Kimberley	z.	118.5	232	e 18 58	{+ 8}	—	—	—	—
Helwan		119.2	301	20 32	PP	25 44	[- 3]	i 23 40	?
Uzhgorod		119.7	324	—	—	e 22 33	PKS	—	—
Ottawa		123.0	38	e 19 0	{+ 1}	—	—	—	—
Collmberg		123.2	330	e 19 0	{+ 1}	e 26 16	{+ 16}	e 19 3	PKP
Prague	n.	123.3	329	e 19 0	{+ 1}	e 27 26	{- 10}	e 23 8	PPP
Jena	z.	124.2	330	e 19 1	[0]	—	—	—	—
Witteveen	z.	125.1	336	e 19 5	{+ 2}	—	—	—	—
Triest		126.2	325	e 19 19	{+ 14}	e 26 24	{+ 15}	e 22 24	PKS
Palisades		126.3	41	e 19 5	[0]	—	—	e 20 15	?
Stuttgart		126.7	330	e 19 6	[0]	—	—	—	—
Taranto		126.7	317	—	—	e 32 54?	PPS	—	—
Harvard		127.1	39	i 19 9k	{+ 3}	—	—	—	—
Weston		127.3	39	i 19 10k	{+ 3}	—	—	—	—
Florence	z.	128.7	323	e 19 10	[0]	—	—	—	—

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Messina	z. 128.9	316	—	—	e 22 47	PKS	e 25 31	?
Pavia	129.1	327	—	—	e 36 42	?	—	e 66.9
Rome	129.1	321	—	—	(e 33 19)	PPS	—	e 33.3
Besançon	129.4	330	i 19 12	[+ 1]	—	—	—	—
Huancayo	129.9	111	e 19 18	[+ 6]	—	—	—	—
Paris	129.9	334	i 19 15	[+ 3]	—	—	—	e 73.9
Bogota	134.3	89	—	—	e 22 54	PKS	—	—
La Paz	134.7	120	19 19	[- 2]	22 59	PKS	40 14	SSP
Algiers Univ.	z. 138.0	321	e 19 28	[+ 1]	e 22 58	SKP	e 22 44	PP
Granada	141.5	328	22 7 _a	PP	29 24	(- 6)	32 45	SKSP
Malaga	142.3	328	i 19 29	[- 6]	—	—	—	—
Tamanrasset	z. 143.4	301	i 19 35 _k	[- 1]	i 23 35	PKS	e 22 45	PP
Fert de France	146.4	72	i 19 44	[+ 2]	—	—	—	—
M'Bour	166.0	308	—	—	50 54?	?	—	—

Dec. 25d. 1h. 37m. 35s. Epicentre 37°·0N. 70°·5E. (as on 1952, Aug. 5d.).

A = +·2672, B = +·7547, C = +·5992; $\delta = +1$; $h = -1$;
D = +·943, E = -·334; G = +·200, H = +·565, K = -·801.

	Δ	Az.	P.	O-C.	S.	O-C.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m.
Khorog	1.0	62	i 0 19	- 2	i 0 33	- 3	—
Obi-garm	1.8	340	i 0 35	+ 3	e 0 57	+ 1	—
Garm	2.0	356	0 35	0	e 1 2	0	—
Stalinabad	2.1	318	i 0 38	+ 1	i 1 10	+ 1 _g	—
Dzhergetal	2.3	17	0 41	+ 1	1 17	+ 1 _e	—
Fergana	3.5	16	e 0 55	- 2	i 1 53	- 3 _g	—
Samarkand	3.8	315	e 1 1	0	i 2 11	+ 5 _g	—
Andijan	4.0	20	e 1 2	- 2	i 2 9	- 3 _g	—
Lunacharskoe	4.4	351	e 1 8	- 2	1 59	- 3	—
Tashkent	4.4	351	e 1 29	+ 1 _g	e 2 23	- 2 _g	—
Tchimkent	5.3	354	—	—	2 24	- 1	—
Naryn	6.2	42	e 1 37	+ 2	3 33	+ 8 _g	—
Bairam-Ali	6.7	278	—	—	2 53	- 7	—
Frunse	6.7	27	e 1 37	- 5	i 2 57	- 3	e 3.7
Kizyl-Arvat	11.4	284	—	—	4 50	- 6	—

Dec. 25d. 2h. 28m. 45s. Epicentre 5°·6S. 150°·5E. Focus at Base of Superficial Layers. (as on 1952, March 25d.).

A = -·8663, B = +·4901, C = -·0969; $\delta = +6$; $h = +7$;
D = +·492, E = +·870; G = +·084, H = -·048, K = -·995.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane	21.9	174	e 4 51	- 1	i 8 51	+ 4	i 5 11	PP
Riverview	28.1	179	i 5 51 _k	0	i 10 35	+ 3	i 7 15	PPP
Manila	35.5	305	i 7 15 _a	+ 19	i 13 3	+ 35	—	—
Wellington	41.6	152	7 42	- 4	13 51	- 9	e 9 18	PP
Perth	41.7	226	—	—	i 17 26	SS	—	i 20.4
Christchurch	42.5	156	e 7 50	- 4	e 14 3	- 10	e 9 52	PP
Bandung	42.6	266	e 8 3	+ 8	i 13 44	- 31	i 9 59	PP
Djakarta	43.4	267	e 8 11	+ 10	—	—	e 9 47	PP
Hong Kong	45.1	309	e 8 15?	0	—	—	—	—
Zô-Sè	46.0	324	i 8 28 _a	+ 6	15 34	PS	—	—
Nanking	48.1	323	i 8 44 _a	+ 6	i 16 0	PS	—	—
Kurilsk	50.7	356	e 8 59	+ 1	e 16 24	PS	—	—
Vladivostok	51.3	344	i 9 5	+ 2	e 16 40	PS	—	—
Yuzno-Sakhlinsk	52.8	353	9 15	+ 1	16 53	PS	10 24	PcP
Uglegorsk	54.9	354	9 31	+ 1	11 45	PP	10 23	PcP
Petropavlovsk	58.9	4	—	—	i 19 36	ScS	—	—
Magadan	64.9	0	e 10 40	+ 2	—	—	—	—
Calcutta	E. 66.9	297	e 10 56	+ 5	i 20 27	PPS	e 14 24	PPP
Kyakhta	67.4	331	10 57	+ 3	19 55	+ 9	—	—
Kabansk	68.5	333	e 11 4	+ 3	i 20 50	ScS	i 13 25	PP

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
				m.	s.		m.	s.		m.	s.		
Chatra		69.2	301	e 11	12	+ 7	e 20	24	+16	21	0	PPS	—
Irkutsk		69.7	332	11	12	+ 4	e 13	38	PP	e 15	26	PPP	—
Kodaikanal	E.	74.4	282	e 11	40	+ 4	—	—	—	—	—	—	—
Bombay	E.	80.2	290	e 12	15	+ 6	e 22	24	+14	15	30	PP	—
Przhevalsk		80.7	314	12	17	+ 6	—	—	—	—	—	—	—
Naryn		82.2	312	i 12	26	+ 7	—	—	—	i 17	23	PPP	—
Rybach'e		82.4	314	i 12	18	- 2	e 22	48	+15	—	—	—	—
College		83.5	22	i 12	21	- 5	i 23	19	ScS	i 20	52	?	e 39.1
Frunse		83.5	314	i 12	31?	+ 5	e 22	54?	+10	i 23	11?	ScS	—
Khorog		84.6	308	e 12	38	+ 7	—	—	—	—	—	—	—
Andijan		84.7	311	i 12	37	+ 5	e 23	0	+ 4	—	—	—	—
Fergana		85.1	311	i 12	38	+ 4	e 23	0	+ 1	—	—	—	—
Dzhergetal		85.3	310	i 12	39	+ 4	—	—	—	—	—	—	—
Namangan		85.3	311	i 12	40	+ 5	i 22	59	- 2	i 24	19	PPS	—
Kulyab		86.1	308	e 12	44	+ 5	—	—	—	16	43	PP	—
Stalinabad		87.0	309	i 12	48	+ 5	i 23	14	- 4	—	—	—	—
Tchimkent		87.0	313	i 12	48	+ 5	i 23	30	+12	—	—	—	—
Lunacharskoe		87.1	312	e 12	38?	- 6	—	—	—	—	—	—	—
Tashkent		87.1	312	i 12	48	+ 4	e 23	11	- 8	e 23	44	?	—
Quetta		87.2	300	e 12	50	+ 6	i 23	19	- 1	i 24	42	PS	—
Samarkand		88.6	309	e 12	55	+ 4	e 23	31	- 2	—	—	—	—
Berkeley	z.	91.2	52	i 13	1 _a	- 2	—	—	—	—	—	—	—
Shasta	z.	91.4	50	e 12	59 _a	- 5	e 23	57	- 1	e 16	39	PP	—
Lick	z.	91.7	53	i 13	1 _a	- 4	e 24	4	+ 3	e 13	19	?	—
Mineral	z.	92.0	50	e 13	5	- 2	e 23	59 _a	- 4	e 24	5	S	—
Bairam-Ali		92.1	307	e 13	14	+ 7	23	48	SKKS	18	59	PPP	—
Fresno	z.	93.1	53	e 13	10 _a	- 2	—	—	—	—	—	—	—
Reno	z.	93.3	51	e 13	9 _k	- 4	—	—	—	—	—	—	—
Pasadena		94.2	56	i 13	12	- 5	i 24	10	SKKS	i 13	40	?	e 43.6
Tinemaha	z.	94.3	53	e 13	17	0	e 24	12	SKKS	e 15	29	PP	—
Sverdlovsk		94.6	326	i 13	19	0	26	1	PS	e 17	9	PP	—
China Lake	z.	94.8	55	e 13	14	- 6	e 24	12	SKKS	e 17	11	PP	—
Ashkabad		95.1	308	i 13	27	+ 6	i 24	20	-10	i 17	20	PP	—
Boulder City		97.0	54	e 13	26	- 4	—	—	—	—	—	—	—
Nelson		97.0	54	i 13	36	- 4	—	—	—	i 17	20	PP	—
Hungry Horse		97.8	42	i 13	28	- 5	—	—	—	—	—	—	—
Butte		98.8	44	e 13	36	- 2	—	—	—	—	—	—	—
Tucson		100.3	58	e 13	43	- 1	—	—	—	—	—	—	e 45.7
Tananarive		100.4	250	e 13	56	+11	—	—	—	—	—	—	53.6
Resolute Bay		101.7	14	e 13	49	- 2	i 24	24	[- 2]	i 33	44	SS	i 35.8
Goris		104.5	310	e 14	9	+ 6	—	—	—	e 18	24	PP	—
Tiflis		105.4	312	e 18	38	PP	e 28	1	PPS	—	—	—	—
Sotchi		108.9	315	e 19	1	PP	—	—	—	—	—	—	—
Kiruna	E.	109.4	342	—	—	—	e 25	15?	[+15]	e 34	47	SS	e 49.2
Theodosia		111.6	317	e 19	22	PP	—	—	—	—	—	—	—
Yalta		112.6	316	e 19	28	PP	e 28	58	PS	—	—	—	—
Ksara		113.5	304	i 19	38	PP	i 30	46	PPS	—	—	—	—
Fayetteville	z.	113.7	53	e 18	35	[0]	i 29	30	PS	—	—	—	—
Scoresby Sund		115.0	357	—	—	—	e 29	35	PS	—	—	—	59.2
Kimberley	z.	117.6	234	e 18	47	[+ 4]	—	—	—	—	—	—	—
Copenhagen		119.9	335	30	21	PS	31	39	PPS	37	33	SSP	61.2
Cleveland	E.	121.6	44	—	—	—	e 30	9	PS	—	—	—	—
Jena	z.	122.4	330	e 18	56	[+ 4]	—	—	—	e 20	51?	PP	—
Prague		122.4	328	e 18	55	[+ 3]	e 19	11	pPKP	19	52	?	e 67.2
Cheb	N.	123.5	329	—	—	—	e 48	18	?	e 51	39	Q	e 62.8
Ottawa		123.6	37	e 18	53 _k	[- 1]	—	—	—	e 29	51	PS	—
Witteveen	z.	124.4	335	e 18	59	[+ 3]	—	—	—	—	—	—	—
Triest		125.3	324	—	—	—	e 35	38	?	e 35	45	?	70.6
Stuttgart		125.9	329	e 19	0	[+ 1]	e 33	39	?	e 20	56	PP	e 66.2
Strasbourg		126.8	330	—	—	—	31	15?	PS	—	—	—	e 60.2

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Palisades	127.0	41	i	19	0	[- 1]	—	—	—	—	e 57.8	
Harvard	127.7	38	e	19	2	[- 0]	—	—	—	—	—	
Florence	z. 127.8	323	c	19	26	[+ 24]	e 22	34	PKS	e 32	36	PPS
Messina	z. 127.9	316	e	19	7	[+ 4]	—	—	—	—	—	
Weston	127.9	38	e	19	12	[+ 9]	—	—	—	—	e 65.0	
Rome	128.1	320	e	19	4	[+ 1]	e 38	52	SS	e 21	13	PP
Kew	128.2	337	—	—	—	—	e 28	19	S	e 47	4	Q
Besançon	128.5	330	e	19	9	[+ 5]	—	—	—	e 19	22	?
Oropa	128.6	327	i	19	5	[+ 1]	e 36	22	SS	—	—	—
Paris	129.1	333	—	—	—	—	e 33	15?	PPS	—	—	e 63.2
Clermont-Ferrand	131.1	330	—	—	—	—	e 44	32	SSS	—	—	67.2
Huancayo	131.2	111	e	19	13	[+ 4]	e 22	39	PKS	—	—	—
La Plata	131.6	148	—	—	—	—	28	15	SKKS	e 23	51	PPP
Bogota	135.6	89	e	19	35	[+ 18]	e 30	10	SKKS	e 22	51	PKS
La Paz	135.9	120	i	19	15	[- 3]	i 22	51	PKS	39	45	SS
Algiers Univ.	z. 137.0	321	e	19	24	[+ 4]	e 22	48	PKS	—	—	—
Bermuda	137.7	46	—	—	—	—	e 40	13	SS	—	—	e 62.8
Tamanrasset	z. 142.1	301	e	19	29	[- 0]	e 23	34	PKS	e 22	38	PP
Fort de France	147.6	71	i	19	41	[+ 3]	e 33	13	PS	—	—	—

Dec. 25d. 3h. 7m. 33s. Epicentre $35^{\circ}5'N$. $140^{\circ}4'E$. Focus at Base of Superficial Layers.
(as on 1952, Oct. 31d.).

Intensity V at Tokyo ; II-III at Nikko.

Epicentre $35^{\circ}5'N$. $140^{\circ}3'E$. Depth of focus 50km. Macroseismic radius 100-200km.

Seismo. Bull. Cent. Met. Obs., Japan, for December, 1952, Tokyo, 1953, p. 506, with macroseismic chart.

	Δ	Az.	P.		O-C.	S.		O-C.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	
Tyosi	0.4	58	e	0	14	+ 5	0	26	+ 10
Tokyo	z. 0.6	289	i	0	11	- 1	0	20	- 1
Mera	0.7	219	—	—	—	—	0	25	+ 2
Yokohama	0.7	264	i	0	11	- 2	0	21	- 2
Tukubasan	0.8	341	—	—	—	—	0	22	- 4
Mito	0.9	3	e	0	17	+ 1	0	28	0
Kumagaya	1.0	309	e	0	19	+ 1	0	31	0
Osima	1.1	229	—	—	—	—	0	31	- 2
Utunomiya	1.1	338	e	0	15	- 4	0	29	- 4
Ajiro	N. 1.2	247	i	0	17 _a	- 3	0	30	- 6
Misima	1.2	252	—	—	—	—	0	33	- 3
Titibu	1.2	294	i	0	18	- 2	0	32	- 4
Maebasi	1.3	213	i	0	21	- 1	0	37	- 1
Kohu	1.5	275	—	—	—	—	0	39	- 5
Onahama	1.5	16	e	0	29	+ 5	0	41	- 3
Shirakawa	1.6	355	e	0	24	- 2	0	44	- 2
Oiwake	1.7	299	—	—	—	—	0	46	- 3
Shizuoka	1.7	252	i	0	27	- 1	0	46	- 3
Omaesaki	2.0	243	e	0	41	+ 9	—	—	—
Iida	2.1	270	e	0	34	+ 1	0	58	- 1
Inawasiro	2.1	354	e	0	33	0	0	59	0
Matumoto	2.1	290	e	0	34	+ 1	0	55	- 4
Nagano	2.2	203	e	0	32	- 3	0	55	- 6
Hokusima	2.3	1	e	0	40	+ 4	1	12	+ 8
Hatidyozima	2.4	191	—	—	—	—	e 1	5	- 1
Nagoya	E. 2.8	263	e	0	44	+ 1	1	15	- 1
Sendai	2.8	8	e	0	51	+ 8	1	24	+ 8
Hikone	3.4	269	e	0	57	+ 5	—	—	—

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1952

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Dec. 25d. 3h. 19m. 57s. Epicentre 5°·6S. 150°·5E. Focus at Base of Superficial Layer.
(as at 2h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane		21·9	174	i 4 49	- 3	i 8 52	+ 5	i 5 9	PP	—
Riverview		28·1	179	i 6 11	PP	i 10 30	- 2	—	—	e 13·4
Manila		35·5	305	i 7 13 _a	+17	i 13 7	+39	—	—	—
Karapiro	N.	39·4	148	e 7 24	- 4	—	—	—	—	—
Cobb River	E.	40·6	153	e 7 35	- 3	—	—	—	—	—
Tuai	N.	40·9	158	e 9 9	PP	—	—	—	—	—
Kaimata	N.E.	41·2	156	e 7 42	- 1	—	—	—	—	—
Wellington		41·6	152	7 43	- 3	13 49	-11	9 53	PP	17·2
Christchurch		42·5	156	e 8 3	+ 9	16 5	?	17 37	SS	—
Bandung	E.	42·6	266	e 8 10	+15	—	—	—	—	—
Djakarta		43·4	267	e 8 6	+ 5	—	—	—	—	—
Nanking		48·1	323	8 42	+ 4	e 16 0	+26	—	—	—
Quetta		87·2	300	i 12 47	+ 3	e 23 17	- 3	e 24 4	PS	—
Berkeley	Z.	91·2	52	e 12 59 _k	- 4	—	—	—	—	—
Shasta	Z.	91·4	50	e 12 58 _k	- 6	—	—	e 13 47	?	—
Lick	Z.	91·7	53	e 13 2 _a	- 3	—	—	e 13 22	pP	—
Mineral	Z.	92·0	50	e 13 4 _a	- 3	—	—	e 13 34	?	—
Fresno	Z.	93·1	53	e 13 9 _a	- 3	—	—	—	—	—
Reno	Z.	93·3	51	e 13 17 _k	+ 4	—	—	e 13 29	pP	—
Pasadena		94·2	56	i 13 11	- 6	(e 22 45)	?	i 13 25	pP	e 22·8
Tinemaha	Z.	94·3	53	e 13 12	- 5	—	—	i 13 16	P	—
China Lake	Z.	94·8	55	e 13 14	- 6	—	—	e 13 18	P	—
Resolute Bay	Z.	101·7	14	e 28 47	?	—	—	—	—	—
Ksara		113·5	304	i 18 45	[+10]	—	—	—	—	—
Fayetteville	Z.	113·7	53	e 18 23	[-12]	—	—	—	—	—
Kimberley	Z.	117·6	234	e 17 15	?	e 29 2	PS	—	—	—
Collmberg		122·4	330	e 18 51	[- 1]	—	—	—	—	—
Jena	Z.	122·4	330	e 18 54	[+ 2]	—	—	—	—	—
Ottawa		123·6	37	e 18 51 _a	[- 3]	—	—	—	—	—
Aberdeen		124·2	342	e 19 43	?	e 23 53	PPP	—	—	—
Witteveen	Z.	124·4	335	e 18 57	[+ 1]	—	—	—	—	—
Stuttgart		125·9	329	e 18 58	[- 1]	—	—	e 19 3	?	—
Strasbourg		126·8	330	e 19 2	[+ 1]	—	—	—	—	e 65·0
Palisades		127·0	41	i 18 58	[- 3]	—	—	—	—	e 59·0
Harvard		127·7	38	i 19 1 _k	[- 1]	—	—	—	—	—
Pavia		128·2	326	e 13 11	?	—	—	e 14 31	?	—
Paris		129·1	333	e 19 9	[+ 4]	—	—	—	—	e 70·0
Huancayo		131·2	111	e 19 10	[+ 1]	e 29 41	SKKS	e 20 36	?	—
Algiers Univ.	Z.	137·0	321	e 19 20	[0]	e 23 7	PKS	—	—	—
Tamanrasset	Z.	142·1	301	e 19 26	[- 3]	e 20 22	?	i 19 37	pPKP	—
Fort de France		147·6	71	e 19 39	[+ 1]	—	—	—	—	—

Dec. 25d. 3h. 51m. 5s. Epicentre 5°·6S. 150°·5E. Focus at Base of Superficial Layers.
(as at 3h. 19m.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane		21·9	174	i 4 55	+ 3	i 8 52	+ 5	i 5 25	PP	—
Riverview		28·1	179	i 5 54 _k	+ 3	i 10 34	+ 2	i 6 41	PP	e 14·2
Manila		35·5	305	i 7 17 _a	+21	i 13 10	+42	—	—	—
Karapiro	N.	39·4	148	e 7 26	- 2	—	—	—	—	—
Cobb River	E.	40·6	153	e 7 37	- 1	—	—	—	—	—
Tuai	N.	40·9	158	7 45	+ 4	—	—	—	—	—
Kaimata	N.E.	41·2	156	e 7 43	0	—	—	—	—	—
Wellington		41·6	152	7 46	0	e 13 53	- 7	e 8 2	pP	—
Perth		41·7	226	i 8 28	+41	i 17 37	SSS	—	—	i 21·0
Bandung	E.	42·6	266	e 8 9	+14	—	—	—	—	—
Djakarta		43·4	267	e 8 55	+54	—	—	—	—	—
College		83·5	22	i 12 23	- 3	—	—	—	—	—
Quetta		87·2	300	e 12 52 _?	+ 8	e 23 38	+18	—	—	—
Shasta	Z.	91·4	50	e 13 3 _a	- 1	—	—	e 13 13	pP	—
Lick	Z.	91·7	53	e 13 4 _a	- 1	—	—	e 13 14	pP	—

Continued on next page.

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1952

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Mineral	Z.	92.0	50	e 13 6k	- 1	—	—	—	—
Fresno	Z.	93.1	53	e 13 11k	- 1	e 14 29	?	e 16 9	?
Pasadena		94.2	56	i 13 16	- 1	—	—	i 13 25	pP
Tinemaha	Z.	94.3	53	e 13 18	+ 1	—	—	e 13 26	pP
China Lake	Z.	94.8	55	e 13 18	- 2	—	—	e 13 28	pP
Boulder City		97.0	54	i 13 30	0	—	—	—	—
Nelson		97.0	54	i 13 27	- 3	—	—	e 17 32	PP
Hungry Horse		97.8	42	e 13 30	- 3	—	—	—	—
Upsala		115.2	336	e 20 55?	PP	e 26 55?	SKKS	(e 28 55)	PS
Copenhagen		119.9	335	18 1	?	(29 55)	PS	—	e 28.9 29.9
Collmberg		122.4	330	e 18 55	[+ 3]	—	—	—	—
Pittsburgh	Z.	123.4	44	—	—	e 36 53	SS	—	—
Cheb	N.	123.5	329	e 19 19	[+ 25]	—	—	—	—
Ottawa		123.6	37	e 18 54	[0]	—	—	—	—
Aberdeen	E.	124.2	342	—	—	e 38 55	?	—	—
Stuttgart		125.9	329	e 19 3	[+ 4]	e 27 43	SKKS	e 19 13	pPKP
Palisades		127.0	41	—	—	e 38 7	SS	—	e 39.2
Harvard		127.7	38	e 19 5	[+ 3]	—	—	—	—
Florence		127.8	323	e 19 8	[+ 6]	i 22 37	PKS	e 35 55?	?
La Paz		135.9	120	19 15	[- 3]	41 25	SS	i 23 1	PKS
Algiers Univ.	Z.	137.0	321	e 19 24	[+ 4]	—	—	—	—
Tamanrasset	Z.	142.1	301	e 19 32	[+ 3]	23 4	PKS	e 22 43	PP
Fort de France		147.6	71	e 19 43	[+ 5]	—	—	—	—

Dec. 25d. 14h. 56m. 45s. Epicentre 5°-6S, 150°-5E. Focus at Base of Superficial Layers. (as at 3h.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	in.
Brisbane		21.9	174	i 4 53k	+ 1	i 8 59	+12	—	—
Riverview		28.1	179	i 5 52k	+ 1	e 10 34	+ 2	e 11 45	Q
Manila		35.5	305	i 7 16	+20	8 54	PPP	—	e 13.4
Karapiro	N.	39.4	148	e 7 22	- 6	—	—	—	—
Cobb River	E.	40.6	153	e 7 15?	-23	—	—	—	—
Tuai	N.	40.9	158	e 7 35	- 6	—	—	—	—
Kaimata	N.E.	41.2	156	e 7 38	- 5	—	—	—	—
Wellington		41.6	152	i 7 41	- 5	e 14 0	0	—	—
Perth		41.7	226	—	—	i 17 40	SSS	—	—
Christchurch		42.5	156	7 49k	- 5	e 14 9	- 4	—	e 17.4
Bandung	E.	42.6	266	e 8 2	+ 7	—	—	—	—
Djakarta		43.4	267	e 8 11	+10	—	—	—	—
Nanking	Z.	48.1	323	e 8 43	+ 5	e 15 56	+22	—	—
Kabansk		68.5	333	e 11 2	+ 1	—	—	—	—
Irkutsk		69.7	332	e 11 9	+ 1	e 20 17	+ 3	—	—
Bombay		80.2	290	e 12 19	+10	e 22 29	ScS	e 22 45	?
Przhevalsk		80.7	314	12 16	+ 5	22 33	ScS	—	—
Naryn		82.2	312	i 12 23	+ 4	i 22 42	+11	—	—
Rybach'e		82.4	314	e 12 25	+ 5	e 22 42	+ 9	e 23 44	PS
College		83.5	22	i 12 18	- 8	—	—	—	—
Frunse		83.5	314	i 12 31	+ 5	—	—	—	—
Andijan		84.7	311	i 12 36	+ 4	—	—	—	—
Fergana		85.1	311	i 12 38	+ 4	e 22 59	0	e 24 13	PS
Dzhergetal		85.3	310	e 12 39	+ 4	—	—	—	—
Namangan		85.3	311	i 12 39	+ 4	i 23 0	- 1	—	—
Kulyab		86.1	308	12 43	+ 4	23 7	- 2	—	—
Obi-garm		86.3	309	e 12 43	+ 3	—	—	—	—
Stalinabad		87.0	309	e 12 53	+10	—	—	—	—
Tchinkent		87.0	313	i 12 48	+ 5	i 23 27	+ 9	—	—
Lunacharskoe		87.1	312	i 12 47	+ 3	—	—	—	—
Tashkent		87.1	312	e 12 47	+ 3	e 23 12	- 7	e 23 28	ScS
Quetta		87.2	300	i 12 48	+ 4	i 23 18	- 2	—	—
Shasta		91.4	50	e 13 0a	- 4	—	—	e 13 9	PcP
Lick	Z.	91.7	53	e 13 8k	+ 3	—	—	—	—
Mineral	Z.	92.0	50	e 13 7k	0	—	—	—	—

Continued on next page.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Bairam-Ali		92.1	307	e 17	15	PP	e 23	43	[+ 8]	—	—	—
Fresno	z.	93.1	53	e 13	17	+ 5	—	—	—	—	—	—
Reno	z.	93.3	51	e 13	4	- 9	—	—	—	e 13	57	PcP
Pasadena		94.2	56	i 13	10	- 7	i 13	32	?	i 13	20	PcP
Tinemaha	z.	94.3	53	i 13	11	- 6	—	—	—	i 13	25	PcP
Sverdlovsk		94.6	326	e 13	20	+ 1	24	0	[+10]	31	15	SS
China Lake	z.	94.8	55	e 13	12	- 8	—	—	—	e 13	22	PcP
Ashkabad		95.1	308	e 17	22	PP	i 24	1	[+ 9]	e 25	49	PS
Boulder City		97.0	54	i 13	24	- 6	—	—	—	i 13	37	PcP
Nelson		97.0	54	i 13	23	- 7	e 17	26	PP	i 13	33	P
Hungry Horse		97.8	42	i 13	27	- 6	—	—	—	—	—	—
Tiflis		105.4	312	—	—	—	24	50	[+ 7]	—	—	—
Gori		105.9	312	—	—	—	24	52	[+ 7]	—	—	—
Fayetteville	z.	113.7	53	e 18	46	[+11]	e 29	31	PS	—	—	—
Collmberg	z.	122.4	330	e 19	6	[+14]	—	—	—	e 19	22	pPKP
Ottawa		123.6	37	e 18	52 _a	[- 2]	—	—	—	—	—	—
Stuttgart		125.9	329	e 19	0 _?	[+ 1]	—	—	—	e 19	11	pPKP
Palisades		127.0	41	e 18	58	[- 3]	—	—	—	—	—	e 62.8
Florence	z.	127.8	323	e 19	4	[+ 2]	e 22	20	PKS	—	—	—
Messina	E.	127.9	316	—	—	—	e 28	43	SKKS	—	—	—
Rome		128.1	320	e 19	14	[+11]	i 22	21	SKP	—	—	e 64.2
Bogota		135.6	89	—	—	—	e 22	45	PKS	—	—	e 66.3
La Paz		135.9	120	e 19	21	[+ 3]	i 22	55	PKS	—	—	—
San Juan		142.1	67	e 19	29	[0]	—	—	—	—	—	—
Tamanrasset	z.	142.1	301	i 19	29 _k	[0]	e 22	43	PP	i 19	51	pPKP
Fort de France		147.6	71	e 19	54	pPKP	—	—	—	e 18	28?	?

Dec. 25d. 22h. 22m. 43s. Epicentre 29°·4N. 70°·0E.

A = +.2985, B = +.8200, C = +.4884; δ = +4; h = +2;
D = +.940, E = -.342; G = +.167, H = +.459, K = -.873.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Quetta		2.8	287	i 0	44 _a	- 3	i 1	23	+ 1	i 0	53	P*
New Delhi		6.3	96	e 1	39	+ 3	i 2	51	+ 1	2	10	P _r
Dehra Dun	N.	7.1	80	e 1	59	+11	e 2	59	-11	—	—	—
Khorog		8.2	9	e 2	5	+ 2	i 3	43	+ 5	—	—	—
Kulyab		8.5	359	2	9	+ 2	3	48	+ 3	—	—	—
Stalinabad		9.2	354	i 2	18	+ 2	—	—	—	—	—	—
Obi-garm		9.3	358	i 2	17 _?	0	—	—	—	—	—	—
Garm		9.6	1	e 2	23	+ 2	—	—	—	—	—	—
Dzhergetal		9.9	6	2	25	0	—	—	—	—	—	—
Bairam-Ali		10.5	323	i 2	34	- 1	4	35	0	—	—	—
Samarkand		10.5	347	i 2	32	- 3	—	—	—	—	—	—
Bombay		10.8	166	e 2	35	- 4	i 4	56	+14	2	45	PP
Fergana		11.1	7	e 2	51	+ 8	—	—	—	—	—	—
Poona		11.4	161	i 2	43	- 4	5	8	+12	3	3	PP
Andijan		11.5	9	2	48	0	i 4	58	- 1	—	—	e 5.4
Namangan		11.6	6	e 2	50	0	—	—	—	—	—	—
Tashkent		11.9	357	i 2	54	0	—	—	—	—	—	—
Ashkabad		12.9	314	i 3	7	0	i 5	29	- 4	—	—	—
Tchimkent		12.9	359	i 3	6	- 1	—	—	—	—	—	—
Naryn		13.0	20	i 3	7	- 2	—	—	—	—	—	—
Frunse		13.9	14	e 3	21	0	—	—	—	—	—	—
Rybach'e		13.9	19	i 3	22	+ 1	—	—	—	—	—	—
Hyderabad	N.	14.2	145	i 3	20	- 4	i 6	21	+17	—	—	7.1
Przhevalsk		14.7	25	3	32	+ 1	—	—	—	—	—	—
Kizyl-Arvat		14.9	314	e 3	32	- 2	—	—	—	—	—	—
Almata		14.9	20	i 3	34 _?	0	i 6	28 _?	+ 8	—	—	—
Kurmenty		15.1	24	e 3	39	+ 3	—	—	—	—	—	—
Chatra		15.4	95	e 3	36	- 4	i 6	50	+18	4	4	PP
Chilisk		15.7	23	i 3	45	+ 1	—	—	—	—	—	—
Calcutta		17.8	109	e 4	19	+ 8	7	34	+ 6	4	32	PP

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
				m.	s.		m.	s.		m.	s.		
Madras	E.	18.9	149	14	24	0	18	47	+11	4	43	PP	8.3
Baku		19.8	309	14	37	+2	e 8	17	+4				
Lenkoran		19.8	305	14	35?	0							
Shillong		19.8	95	e 4	35	0	8	10	-3	e 8	41	SS	9.0
Kodaikanal	E.	20.3	159	e 4	39	-1	e 8	27	+4				
Shemakla		20.7	309	14	44	0							
Goris		21.9	306	14	57	0							
Kirovobad		22.3	308	5	1	0	8	59	-3				
Semipalatinsk		22.4	18	e 5	1	-1							
Makhach-Kala		22.6	314	15	6	+3	19	12	+5				
Tiflis		23.8	308	5	18	+3							
Leninakan		24.1	306	5	11	-7							
Colombo	E.	24.2	157	5	23	+4	e 9	48	+13				12.3
Gori		24.4	307	5	24	+3							
Borzhomi		24.8	306	e 5	31	+6							
Tsikhli-Dzhvari		24.8	306	5	27	+2							
Abastumanj		25.2	306	e 5	32	+3							
Piatigorsk		25.9	312	5	35	0							
Zugdidi		26.1	308	5	39	+2	10	12	+5				
Sotchi		28.0	309	e 5	55	0	e 10	37	-1				
Sverdlovsk		28.2	349	e 5	57	+1	10	40	-1				
Ksara		29.3	287	6	10	+4	10	59	0				
Theodosia		31.4	310	e 6	27	+2	11	31	-1				
Yalta		32.1	308	e 6	30	-1	e 11	39	-4				
Helwan		33.5	281	6	43	0	13	23	SS	8	26	PP	e 14.4
Irkutsk		34.1	38	e 6	50	+2	e 12	17	+3				
Kyakhta		34.5	42	6	55	+3	e 12	25	+5				
Moscow		35.0	328	e 6	56	0	e 12	27	-1				
Istanbul		35.1	301	e 6	56	-1	e 12	30?	0	8	20?	PP	17.6
Kabansk		35.3	39	17	0	+1	i 12	34	+1				
Kishinev		36.3	312	17	7	0	12	51	+3				
Iasi		37.2	310	e 7	17	+2							
Bucharest		37.7	306	e 8	31	PP				e 8	59	PPP	
Sofia		39.5	303	e 7	38	+4							
Lwow		40.1	314	17	38	-1	e 13	44	-2				
Hong Kong		40.2	90				e 13	17	-31				
Pulkovo		40.4	331	e 7	45	+4	e 13	57	+7				
Uzhgorod		41.0	312	e 7	47	+1	e 14	0	+1				
Timisoara		41.3	308	e 7	58	+9				e 17	56	SSS	
Belgrade		41.8	306	e 7	37k	-16	e 14	21	+10	e 17	51	SSS	e 24.6
Nanking		41.8	74	e 7	58	+5	i 14	12	+1				
Ogyalla		43.6	311	e 10	5	PP	e 13	35	?	e 16	30	?	e 19.5
Raciborzu		43.9	314	e 8	15	+5	e 9	57	PP	e 13	47	PcS	e 20.1
Zô-Sè		43.9	74	8	19	+9	i 14	48	+6				
Taranto		44.0	300	e 7	50	-21	14	55	+12	18	0	SS	
Messina		45.5	297	18	24a	+1	e 15	3	-2	e 10	3	PP	21.8
Prague		46.3	313	e 8	31	+2	e 15	11	-5	e 18	47	SS	e 24.3
Upsala		46.3	327	18	29	0	e 15	25	+9	i 10	26	PP	e 24.3
Triest		46.5	307	e 8	34	+3	i 15	43	+24	e 10	7	PP	26.1
Potsdam		47.3	316	e 8	39	+2	i 15	37	+6	i 10	36	PP	e 24.3
Collmberg		47.5	314	e 8	35	-3	e 15	36	+2	e 11	53	PPP	e 21.4
Cheb	N.	47.6	313	e 11	53	?	e 16	49	?				e 20.9
Rome		47.6	302	e 8	38k	-1	i 15	34	-1	i 10	36	PP	e 23.4
Copenhagen		48.1	321	e 8	45	+2	15	44	+2				25.3
Jena		48.1	314	e 8	42	-1	e 15	42	0	e 10	44	PP	
Kiruna		48.2	338	18	43	-1	i 15	45	+2	i 11	27	PPP	e 25.8
Florence		48.3	305	18	43a	-2	i 15	40	-5	i 10	46	PP	
Salo		48.8	307	e 9	6	+17	e 16	14	+22	e 10	16	PcP	
Manila		49.2	96	18	47	-5	i 15	51	-7				
Stuttgart		49.6	311	e 8	53	-2	e 20	5	SS	e 8	59	P	e 27.3
Pavia		49.8	307				e 16	6	0	e 21	0	SSS	
Djakarta		50.0	129	e 12	11k	PPP	e 17	7	PPS				
Karlsruhe		50.1	312	e 8	59	0							e 30.3
Zürich		50.1	309	e 8	57	-2							
Oropa		50.6	307	e 8	29	-33	e 15	16	-61				

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Strasbourg	50.6	311	e 9	4	+ 2	c 16	24	+ 7	e 20	17	SS	26.3
Basle	50.7	309	e 9	3	0	e 18	31	?	—	—	—	—
Vladivostok	50.7	57	—	—	—	e 16	12	- 6	—	—	—	—
Witteveen	z. 51.3	318	e 9	8	0	—	—	—	—	—	—	—
Besançon	51.8	309	e 9	12	0	e 9	30	?	e 11	29	PP	—
De Bilt	52.2	316	—	—	—	c 16	47	+ 8	—	—	—	e 26.3
Tananarive	52.7	207	e 9	20	+ 2	e 22	47	SSS	10	32	PcP	24.0
Clermont-Ferrand	54.0	308	e 9	27	- 1	e 17	9	+ 6	—	—	—	27.3
Paris	54.0	311	i 9	26	- 2	e 11	10	PP	e 10	57	?	e 26.3
Algiers Univ.	z. 55.6	297	e 9	38	- 2	e 13	25	?	e 11	36	PP	—
Eew	55.6	315	—	—	—	e 17	26	+ 1	e 25	26	Q	e 27.3
Tortosa	56.6	302	c 10	53	+66	—	—	—	—	—	—	—
Tamanrasset	z. 57.7	280	i 9	54 ^a	- 1	i 12	9	PP	e 10	48	PcP	—
Alicante	57.9	300	9	57	+ 1	e 16	57	-58	12	11	PP	29.6
Rathfarnham Castle	59.0	318	e 9	48	-16	e 18	0	-10	e 12	0	PP	e 33.3
Almeria	59.8	298	i 10	7	- 2	18	43	+23	22	53	SS	35.0
Toledo	60.2	302	i 10	12	0	—	—	—	e 11	39	?	—
Granada	60.6	299	i 10	45 ^k	+30	18	44	+14	21	41	SS	27.6
Malaga	61.4	299	i 10	14	- 6	i 18	40	0	—	—	—	35.6
Scoresby Sund	63.3	338	e 10	33	0	e 26	27	SSS	—	—	—	32.3
Pietermaritzburg	z. 69.8	216	e 11	44	+30	—	—	—	—	—	—	—
Kimberley	z. 72.2	220	i 11	27	- 2	—	—	—	—	—	—	—
Resolute Bay	z. 75.7	357	i 11	49 ^k	0	—	—	—	—	—	—	—
College	81.5	16	i 12	19	- 2	—	—	—	—	—	—	—
Hungry Horse	102.5	2	e 17	22	?	—	—	—	e 17	47	PP	—
Bermuda	105.0	321	—	—	—	e 33	47	SS	—	—	—	e 50.4
Fayetteville	z. 113.2	345	i 18	44	[+ 4]	—	—	—	i 19	25	PP	—
Nelson	115.1	4	e 18	29	[-14]	—	—	—	e 20	13	PP	—
La Paz	139.6	279	e 19	32	[+ 2]	—	—	—	—	—	—	68.8

Dec. 25d. 23h. 8m. 39s. Epicentre 53°·6N. 159°·5E. (as on Dec. 20d.).

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
College	28.3	46	i 5	57	0	—	—	—	—	—	—	
Resolute Bay	z. 43.0	23	e 8	5	+ 2	—	—	—	—	—	—	
Hungry Horse	51.5	58	e 9	14	+ 5	—	—	—	—	—	—	
Shasta	z. 52.1	71	e 9	21 ^a	+ 7	—	—	—	—	—	—	
Mineral	z. 52.7	70	e 9	12 ^a	- 6	—	—	—	e 9	32	?	—
Lick	z. 54.8	73	e 9	35 ^a	+ 1	—	—	—	e 9	49	?	—
Kiruna	z. 55.1	342	i 9	36 ^a	0	—	—	—	i 9	46	?	—
Tinemaha	z. 56.9	71	i 9	51	+ 2	—	—	—	i 10	10	?	—
China Lake	z. 58.2	71	e 9	52	- 6	i 9	59	?	e 10	18	?	—
Pasadena	59.0	73	i 10	3	- 1	e 10	13	?	i 10	24	?	e 21.6
Boulder City	59.6	70	i 10	11	+ 3	—	—	—	—	—	—	—
Nelson	59.8	70	i 10	10	+ 1	—	—	—	e 10	22	?	—
Palomar	z. 60.3	73	e 10	13	0	—	—	—	—	—	—	—
Upsala	z. 62.8	340	i 10	29 ^a	- 1	i 10	37	?	i 11	0	PcP	—
Tucson	64.6	69	e 10	43	+ 2	e 21	58	?	—	—	—	—
Copenhagen	67.8	341	i 11	1	- 1	—	—	—	—	—	—	—
Fayetteville	z. 70.4	55	i 11	11	- 7	—	—	—	—	—	—	—
Witteveen	z. 71.6	343	e 11	21 [?]	- 4	—	—	—	—	—	—	—
Collmberg	71.8	338	e 11	23	- 3	—	—	—	e 12	2	?	—
Jena	z. 72.4	339	e 11	28	- 2	—	—	—	—	—	—	—
Prague	72.6	337	e 11	30	- 1	e 11	45	PcP	e 13	13	?	—
Poona	z. 72.8	278	i 11	21	- 11	—	—	—	—	—	—	—
Stuttgart	74.9	340	e 11	42	- 2	—	—	—	—	—	—	—
Paris	76.1	345	i 11	50	- 1	—	—	—	i 12	12	PcP	—
Besançon	77.0	342	e 11	56	0	—	—	—	—	—	—	—
Florence	z. 79.3	337	e 12	7	- 2	—	—	—	—	—	—	—
Rome	z. 80.7	336	e 12	14	- 2	—	—	—	—	—	—	—
Wellington	95.4	168	—	—	—	e 26	21 [?]	PS	—	—	—	—
Huancayo	120.2	68	e 23	16	PPP	e 30	24	PS	e 32	27	?	—

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1952

1223

Dec. 26d. 4h. 3m. 24s. Epicentre 11°·8N. 121°·8E.

Intensity II at Ilo-ilo. Epicentre suggested by Strasbourg.
Manila Monthly Seismo. Bulletin for Dec., 1952, p.4.

A = -·5160, B = +·8321, C = +·2032; $\delta = -6$; $h = +6$;
D = +·850, E = +·527; G = -·107, H = +·173, K = -·979.

		Δ °	Az. °	P.		O-C.		S.		O-C.		Supp.		L. m.	
				m.	s.	s.	m.	s.	m.	s.	m.	s.			
Manila		2·9	344	i 1	21	+23 _g		i 1	27	+3		i 1	49	S _s	—
Hong Kong		12·7	326	e 4	36?	?		—				—		—	—
Zô-Sè		19·2	0	4	30 _a	+2		i 8	14	SS		—		—	—
Nanking		20·3	352	4	42 _a	+2		8	41	SS		—		—	—
Bandung		23·3	218	e 5	19	+9		9	19	-1		—		—	—
Djakarta		23·3	221	e 5	12 _k	+2		e 9	18	-2		e 5	15	P	—
Kodaikanal	E.	43·5	273	10	0	PcP		—				—		—	—
Poona	Z.	46·7	285	i 8	30	-2		—				—		—	—
Bombay		47·6	285	e 8	36?	-3		e 15	30	-5		—		—	—
Brisbane		49·4	143	i 8	51 _k	-2		i 15	56	-4		i 9	27	?	—
Tananarive		79·3	248	e 12	9	0		—				—		—	—
Kiruna		83·4	338	i 12	28	-2		i 12	35	?		i 12	46	PcP	e 42·2
Helwan	Z.	84·6	299	e 12	41	+5		e 12	51	?		—		—	—
Upsala	Z.	86·9	331	i 12	48	0		i 13	1	?		—		—	—
Resolute Bay	Z.	90·7	10	e 13	5	-1		—				—		—	—
Stuttgart		95·5	322	e 13	24	-4		—				—		—	—
Tamanrasset	Z.	108·8	299	18	0	?		—				—		—	—
Fayetteville	Z.	121·5	34	e 18	56	[0]		e 20	31	PP		—		—	—

Dec. 26d. 7h. 28m. 6s. Epicentre 36°·9N. 70°·8E. Depth of focus 0·025. (as on 23d.).

		Δ °	Az. °	P.		O-C.		S.		O-C.	
				m.	s.	s.	m.	s.	s.		
Khorog		0·9	48	i 0	30	+2		i 0	54	+3	
Kulyab		1·3	321	i 0	34	+3		i 1	2	+6	
Garm		2·1	350	i 0	40	+1		i 1	12	+2	
Obi-garm		2·2	335	i 0	40	-1		i 1	12	0	
Dzhergetal		2·3	8	0	44	+2		1	18	+4	
Stalinabad		2·3	316	i 0	42	0		i 1	16	+2	
Fergana		3·6	12	i 0	58	+1		1	43	+2	
Andijan		4·0	17	i 1	3	+1		i 1	53	+3	
Namangan		4·1	9	i 1	6	+3		—		—	
Samarkand		4·1	314	1	2	-1		—		—	
Lunacharskoe		4·6	346	e 1	11	+1		2	4	0	
Tchimkent		5·5	351	e 1	21	-1		i 2	24	-1	
Naryn		6·1	40	e 1	26	-3		i 2	33	-6	
Frunse		6·6	25	i 1	36	0		—		—	
Rybach'e		6·9	35	i 1	39	-1		2	58	+1	
Bairam-Ali		7·0	278	1	37	-4		e 3	0	0	
Quetta		7·4	206	i 1	38	-8		i 2	57	-12	
Almata		7·9	35	i 1	53	0		—		—	
Przhevalsk		8·1	44	1	54	-1		—		—	
Ashkabad		9·9	280	i 2	15	-4		—		—	
Kiruna	Z.	41·7	334	i 7	27	-4		—		—	

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1224

Dec. 26d. 11h. 15m. 11s. Epicentre 22°·3S. 179°·2W. Depth of focus 0·090.
(as on 1952, Sept. 10d.).

A = -·9260, B = -·0129, C = -·3773; $\delta = 0$; $h = +4$;
D = -·014, E = +1·000; G = +·377, H = +·005, K = -·926.

		Δ °	Az. °	P.		O-C.		S.		O-C.		Supp.	
				m.	s.	s.		m.	s.	s.	m.	s.	
Apia		11·0	41	i 2	25	- 4		i 4	20	- 8			
Auckland	N.	15·4	198	i 3	14	+ 2		e 5	49	+ 3		e 6	44
Karapiro	N.	16·2	195	3	20	+ 1		6	9	+ 9		e 13	50
Tuai	N.	16·7	189	3	22	- 2		6	4	- 4		13	50
New Plymouth	E.	17·7	197	3	38	+ 4		6	37	+12			
Wellington		19·6	194	3	49	- 2		i 6	59	+ 2		14	2
Cobb River	E.	19·9	199					e 6	57	- 5			
Kaimata	N.E.	21·6	199	4	8	- 1		e 7	23	- 6		e 14	12
Christchurch		22·2	195	e 4	17	+ 2		e 7	49	+10		e 8	28
Brisbane		25·7	253	i 4	44	- 2		i 8	32	- 2		i 8	23
Riverview		28·5	239	i 5	7 _a	- 3		i 9	17	- 1		i 14	43
Djakarta		72·9	270	e 10	25	+ 5		e 19	4	- 5		e 12	28
Berkeley	Z.	80·3	43	i 11	10 _a	0							
Lick	Z.	80·3	43	e 11	10 _k	0		i 11	15	PcP		i 13	20
Pasadena		80·7	48	i 11	12	0						i 13	18
Fresno	Z.	81·2	45	e 11	14 _k	- 1						e 13	23
Palomar	Z.	81·2	49	i 11	15	0		i 14	37	PP		i 13	24
Shasta	Z.	81·9	40	e 11	18 _k	0						e 13	23
China Lake	Z.	82·1	46	i 11	18	- 1						i 13	27
Mineral	Z.	82·2	41	e 11	19 _k	- 1		e 11	25	PcP		e 13	27
Tinemaha		82·4	45	i 11	20	- 1						e 13	31
Reno	Z.	82·8	43	e 11	23 _k	0						e 12	31
Nelson		83·9	48	i 11	28	0						i 11	34
Boulder City		84·0	48	i 11	29	0							
Tucson		84·9	52	i 11	34	+ 1						e 13	42
Victoria		86·3	34	11	37	- 3							
College		89·8	13	11	55	- 1						i 14	5
Hungry Horse		91·2	37	i 12	2	- 1							
Fayetteville	Z.	99·0	55	i 12	37	- 1							
Ottawa		114·8	48	e 17	31	[- 1]							
Quetta	Z.	120·8	293	i 17	45	[0]							
Kimberley	Z.	124·2	206	i 17	46	[- 5]							
Scoresby Sund		130·0	10	e 18	2	[0]		i 20	31	SKP		e 20	20
Kiruna	Z.	132·9	350	i 18	6	[- 2]		i 20	39	SKP		i 17	56
Upsala	Z.	140·6	347	i 18	13	[- 9]		i 21	2	SKP		i 21	23
Copenhagen		145·5	349	i 18	30	[- 1]							
Ksara		147·1	297	18	36	[+ 3]						20	53
Potsdam	Z.	148·5	346	e 18	37	[+ 2]						e 21	0
Witteveen	Z.	149·2	353	i 18	41	[+ 5]		i 18	48	?		i 21	4
Collmberg		149·5	345	e 18	35	[- 1]		i 18	47	PKP ₂		e 20	59
Jena		150·2	345	e 18	37	[0]		i 18	43	PKP ₂		i 21	6
Prague		150·3	343	i 18	43	[+ 5]		i 19	9	PKP ₂		e 21	1
Helwan	Z.	151·6	292	18	46	[+ 6]		18	57	PKP ₂		21	8
Stuttgart		152·8	348	e 18	40	[- 1]		e 19	1	PKP ₂		e 21	9
Strasbourg		153·2	349	i 18	50	[+ 8]		e 21	33	SKP		i 21	11
Basle	Z.	154·2	349	e 17	8	?		e 19	6	PKP ₂		e 16	42
Zürich	Z.	154·2	348	e 18	42 _a	[- 1]		e 19	7	PKP ₂		e 18	50
Triest	Z.	154·4	339	e 19	8	PKP ₂		e 19	19	?		e 21	12
Besançon		154·8	351	e 18	52	[+ 8]		i 19	9	PKP ₂			
Clermont-Ferrand		156·5	356	i 19	14	PKP ₂							
Florence	Z.	156·9	341	e 19	19	PKP ₂							
Algiers Univ.	Z.	165·4	352	e 19	57	PKP ₂							
Tamanrasset	Z.	175·6		e 19	1	[0]		e 30	35	SKKS		e 21	21

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Dec. 26d. 22h. 11m. 10s. Epicentre 40°·6N. 142°·9E. Focus at Base of Superficial Layers.
(as on 1939, March 7d.).

Intensity IV at Hatinohe and Gonohe ; II-III at Miyako, Morioka, Aomori, Ozawaguchi, Sambongi, and Noheji.

Epicentre 40°·6N. 143°·3E. Depth 60km. Macro seismic radius >300km.

Seismo. Bull. Cent. Met. Obs., Japan, Dec., 1952, Tokyo, 1953, p.506, with macro seismic chart.

A = -·6073, B = +·4593, C = +·6482 ; $\delta = -7$; $h = -2$;
D = +·603, E = +·798 ; G = -·517, H = +·391, K = -·761.

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Hatinohe		1·0	266	0 17	- 1	0 32	+ 1
Miyako		1·2	216	e 0 18 _a	- 2	0 34	- 2
Urakawa	E.	1·5	357	e 0 24	0	0 43	- 1
Aomori		1·6	278	0 28	+ 2	0 49	+ 3
Morioka		1·6	235	e 0 26	0	0 46	0
Mizusawa		2·0	223	0 32	0	0 58	+ 2
Akita	Z.	2·3	248	e 0 37	+ 1	1 7	+ 3
Mori	N.	2·3	311	0 38	+ 2	1 6	+ 2
Isinomaki		2·5	211	e 0 42	+ 3	1 11	+ 2
Sapporo		2·7	335	e 0 40	- 2	1 11	- 3
Sendai		2·8	214	e 0 43	0	1 20	+ 4
Hokusima		3·4	215	e 0 52	0	1 38	+ 6
Inawasiro		3·7	217	e 1 0	+ 4	1 43	+ 4
Onahama		4·0	204	e 1 9	+ 9	1 48	+ 1
Shirakawa		4·1	212	e 1 2	0	1 50	+ 1
Mito		4·6	205	e 1 9	0	2 1	- 1
Utunomiya		4·7	211	e 1 11	+ 1	2 2	- 3
Tukubasan		4·9	208	e 1 3	-10	—	—
Kumagaya		5·2	213	e 1 21	+ 3	2 21	+ 4
Matusiro	N.	5·5	224	e 1 21	- 1	2 27	+ 2
Tokyo		5·5	207	e 1 22	0	2 39	+14
Matumoto		5·8	224	e 1 22	- 4	—	—
Kohu		6·0	216	e 1 30	+ 1	2 44	+ 7
Misima	E.	6·3	211	e 1 33	0	3 6?	+21
Osima		6·5	207	e 1 32	- 4	2 40	-10
Nagoya		7·2	223	e 1 57	+11	3 27	+20
Tu		7·7	223	e 1 50	- 3	3 44	+24

Dec. 26d. 23h. 55m. 57s. Epicentre 39°·9N. 15°·5E. Depth of focus 0·040.

E. Peterschmitt.

Quelques données nouvelles sur les séismes profonds de la mer Tyrrhénienne.
Annali di Geofisica, vol. IX, No.3, July, 1956, Rome, p.315-316.

A = +·7413, B = +·2056, C = +·6389 ; $\delta = -1$; $h = -2$;
D = +·267, E = -·964 ; G = +·616, H = +·171, K = -·769.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Taranto		1·5	67	0 36	- 6	1 13	- 2	e 1 2	?
Messina		1·7	179	i 0 41 _k	- 3	i 1 12	- 6	i 0 49	P
Rocca di Papa		2·8	312	i 0 53 _a	0	e 1 35	0	i 1 0	?
Rome		3·0	312	i 0 54 _a	- 1	i 1 38	0	—	—
Siena		4·6	319	e 1 16	+ 3	i 2 11	+ 1	e 1 30	?
Florence	Z.	5·0	322	i 1 19 _k	+ 1	i 2 18	0	—	—
Prato		5·1	322	i 1 19	0	e 2 8	-12	—	—
Tunis		5·2	235	e 1 23	+ 3	e 2 26	+ 4	e 1 30	?
Padova		5·3	331	i 1 31	+10	2 39	+14	—	—
Bologna		5·5	327	i 1 25 _a	+ 1	e 2 27	- 2	e 2 43	?
Triest		5·9	348	i 1 27 _a	- 1	i 2 35	- 3	e 1 44	?
Belgrade		6·1	35	i 1 31 _k	0	i 2 43	+ 1	e 1 40	?
Sofia		6·5	62	e 1 36	0	2 51	0	—	—
Athens		6·7	104	e 1 36 _k	- 2	i 2 54	- 1	i 1 45	?
Salo		6·8	329	e 1 38	- 1	e 2 55	- 2	e 1 57	?

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Pavia	7.0	321	e 1	41	- 1	e 3	5	+ 3	i 3	9	—
Kalossa	7.1	20	e 1	57	+14	3	4	0	3	37	—
Szeged	7.2	27	2	56	?	3	0	- 6	3	48	—
Timisoara	7.2	34	i 1	44	0	i 3	9	+ 3	e 2	3?	PP
Kecskemet	7.6	22	e 2	52	?	3	33	+18	e 2	55	—
Budapest	8.0	18	e 2	10	+16	e 3	24	0	e 2	15	i 4.1
Oropa	8.0	318	i 1	53	- 1	i 3	21	- 3	—	—	—
Chur	8.2	330	e 1	56	- 1	e 3	25	- 3	—	—	—
Ogyalla	8.2	13	e 2	11	+14	e 3	30	+ 2	e 2	20	4.2
Zürich	9.0	328	i 2	5	- 2	e 3	45	- 1	i 2	19	—
Bucharest	9.1	57	e 2	12	+ 4	e 3	58	+10	e 2	18	e 4.5
Neuchatel	9.4	322	e 2	9	- 3	e 3	54	- 1	—	—	—
Basle	9.6	326	e 2	12	- 2	e 3	57	- 3	—	—	—
Stuttgart	9.9	335	i 2	17	- 1	e 4	7	+ 1	e 2	23	PP
Uzhgorod	10.0	27	e 2	20	+ 1	—	—	—	—	—	—
Besançon	10.1	320	i 2	18	- 2	e 4	24	+13	i 2	24	PP
Prague	10.2	356	e 2	21	- 1	i 4	15	+ 2	i 4	25	SS
Algiers Univ.	z. 10.3	256	e 2	22	- 1	e 4	20	+ 5	i 2	34	PP
Strasbourg	z. 10.3	330	i 2	23	0	e 4	13	- 2	i 2	30	PP
Istanbul	z. 10.4	79	e 2	24	0	—	—	—	—	—	—
Karlsruhe	10.4	333	e 2	28	+ 4	i 4	16	- 2	—	—	—
Raciborzu	10.4	10	i 2	24	0	e 4	10?	- 8	e 4	31	SS
Clermont-Ferrand	10.8	307	i 2	29	0	i 5	25	?	—	—	5.0
Iasi	11.4	46	e 2	38	+ 2	i 4	51	+11	—	—	—
Jena	11.4	347	e 2	36	0	e 4	43	+ 3	i 2	50	PP
Collnberg	11.6	352	e 2	37	- 2	e 4	54	+10	e 2	51	PP
Lwow	11.6	28	e 2	39	0	—	—	—	—	—	—
Kishinev	12.0	49	i 2	44	0	i 5	0	+ 7	—	—	—
Alicante	12.5	268	2	47	- 3	e 5	6	+ 2	3	10	PP
Potsdam	12.6	353	i 2	54 _a	+ 3	i 5	12	+ 5	e 5	17	SS
Paris	12.9	318	i 2	51	- 4	e 5	11	- 2	i 3	3	PP
Witteveen	z. 14.3	338	i 3	12 _a	0	e 4	17	?	—	—	—
Almeria	14.4	264	i 3	32	+19	6	32	SSS	—	—	—
Yalta	14.6	66	e 3	13	- 2	e 5	58	+ 8	—	—	—
Toledo	15.0	276	i 3	19	- 1	e 6	7	+ 8	—	—	—
Granada	15.2	266	i 3	26 _k	+ 4	6	22	SS	—	—	—
Theodosia	15.5	64	e 3	27	+ 1	—	—	—	—	—	—
Jersey	E. 15.6	312	e 3	25	- 2	—	—	—	—	—	—
Copenhagen	15.9	354	i 3	29	- 1	6	23	+ 5	i 3	38	PP
Malaga	16.0	265	i 3	37	+ 6	i 7	3	+42	—	—	—
Helwan	z. 16.4	123	i 3	35 _a	- 1	6	28	0	—	—	—
Ksara	17.4	104	i 3	47	+ 1	i 7	1	SS	i 8	7	?
Sotchi	18.4	70	—	—	—	e 7	18	+11	—	—	—
Tamanrasset	z. 19.0	210	i 4	3 _k	+ 1	e 7	23	+ 5	i 4	19	PP
Rathfarnham C.	z. 20.0	321	i 4	13	+ 1	e 4	48	PP	e 4	59	PPP
Upsala	z. 20.0	4	i 4	11	- 1	i 7	38	+ 2	i 4	58	pP
Zugdidi	20.0	73	e 4	23	+11	—	—	—	—	—	—
Abastumanj	20.7	77	e 4	23	+ 4	—	—	—	—	—	—
Piatigorsk	20.9	69	e 4	21	0	—	—	—	—	—	—
Borzhomi	21.1	76	4	25	+ 2	i 8	6	+11	—	—	—
Tsikhlis-Dzhvari	21.2	76	i 4	27	+ 3	—	—	—	—	—	—
Moscow	21.6	36	e 4	28	0	e 8	8	+ 4	—	—	—
Gori	21.7	76	e 4	32	+ 3	—	—	—	—	—	—
Pulkovo	22.0	21	4	31	- 1	8	18	+ 8	e 5	25	pP
Tiflis	22.2	75	i 4	36	+ 2	i 8	21	+ 7	e 5	27	pP
Kirovobad	23.5	77	4	47	+ 1	8	41	+ 5	5	36	pP
Goris	23.7	79	e 4	50	+ 2	—	—	—	—	—	—
Kiruna	z. 28.1	6	i 5	25 _k	- 3	i 5	33	?	i 6	44	PP
Reykjavik	z. 32.6	332	i 6	8	+ 1	—	—	—	—	—	—
Ashkabad	33.2	79	6	12	0	11	12	+ 2	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Sverdlovsk	33.7	44	e 6 17	+ 1	i 11 18	0	—	—
Scoresby Sund	36.2	340	i 6 36	- 1	—	—	—	—
Stalinabad	40.8	74	e 7 16	+ 1	e 13 5	+ 1	—	—
Obi-garm	41.4	74	i 7 23	+ 3	—	—	—	—
Kulyab	41.7	75	7 25	+ 3	13 21	+ 3	—	—
Namangan	42.1	70	i 7 27	+ 1	—	—	—	—
Dzhergetal	42.4	72	e 7 29	+ 1	—	—	—	—
Fergana	42.4	71	e 7 29	+ 1	—	—	—	—
Andijan	42.7	70	i 7 32	+ 1	—	—	—	—
Quetta	z. 42.8	86	i 7 31	0	—	—	—	—
Khorog	43.3	75	e 7 37	+ 2	—	—	—	—
Halifax	56.5	303	i 9 12k	- 2	—	—	—	—
Resolute Bay	z. 57.0	344	i 9 17a	- 1	—	—	—	—
Weston	62.6	304	i 9 55k	- 1	—	—	—	—
Harvard	62.7	304	i 9 55k	- 1	—	—	—	—
Ottawa	63.8	309	i 10 3k	- 1	—	—	—	—
Palisades	64.9	304	i 10 10	- 1	—	—	—	—
Tananarive	65.7	147	e 10 16	0	—	—	—	—
Pretoria	z. 66.4	168	e 10 20	0	—	—	—	—
Kimberley	z. 68.8	172	i 10 34	- 1	—	—	—	—
Fayetteville	z. 80.5	310	i 11 41	- 1	—	—	—	—
Tinemaha	z. 92.4	325	e 12 42	+ 3	—	—	—	—
China Lake	z. 93.2	324	e 12 43	0	—	—	—	—
Palomar	z. 94.8	322	e 12 52	+ 2	—	—	—	—

Dec. 27d. 1h. 25m. 47s. Epicentre 51°-9N. 159°-9E. (as on Nov. 28d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Nemuro	12.9	234	e 3 22	PP	e 6 24	SS	—	e 8.2
Urakawa	15.2	237	e 3 33	- 5	e 7 4	SS	—	—
Sapporo	15.3	242	e 3 44	+ 5	e 7 20	SSS	e 8 25	Q e 9.4
Mori	E. 16.4	241	e 3 55	+ 2	—	—	—	—
Aomori	17.2	238	e 4 17	PP	e 7 24	+10	e 5 20	? e 9.8
Miyako	17.5	232	e 4 1	- 6	—	—	—	—
Morioka	17.8	334	e 4 7	- 4	—	—	—	—
Mizusawa	E. 18.3	233	4 16	- 1	6 41	-58	—	—
Sendai	19.1	231	e 4 19	- 8	e 8 4	+ 7	e 4 59	PP e 10.2
Yamagata	19.4	232	e 4 23	- 7	—	—	—	—
Hokusima	19.7	232	e 4 29	- 5	e 8 17	+ 7	—	—
Inawasiro	20.0	232	e 4 27	-10	—	—	—	—
Onahama	20.1	228	e 4 31	- 7	8 9	-10	—	—
Shirakawa	20.3	231	e 4 33	- 7	—	—	—	—
Mito	20.8	228	e 4 41	- 4	e 8 29	- 4	—	—
Utunomiya	20.9	232	i 4 41	- 5	e 8 22	-13	i 7 19	? —
Maebasi	21.4	231	i 4 46	- 5	e 8 38	- 7	e 5 3	PP —
Kumagaya	21.5	232	4 48	- 4	e 8 30	-17	—	—
Matusiro	21.7	235	i 4 48	- 7	i 8 44	- 7	5 52	PPP 12.2
Nagano	21.7	233	e 4 43	-12	—	—	e 5 5	P —
Oiwake	21.7	232	e 4 51	- 4	—	—	—	—
Tokyo	21.7	229	e 4 54	- 1	e 8 52	+ 1	9 30	SS —
Yokohama	21.9	229	e 4 59	+ 2	—	—	—	—
Hunatu	22.3	229	e 4 57	- 4	e 8 57	- 5	—	—
Kohu	22.3	231	e 4 55	- 6	e 8 59	- 3	—	—
Mera	22.3	227	4 54	- 7	—	—	—	—
Misima	22.5	228	e 4 58	- 4	e 9 13?	+ 8	—	—
Shizuoka	22.9	231	5 3	- 3	e 8 13	-60	e 6 2	? —
Hukui	23.1	238	e 5 4	- 4	—	—	—	—
Omaesaki	23.3	231	e 5 12	+ 2	—	—	—	—
Nagoya	E. 23.5	233	e 5 18	+ 6	—	—	—	—
Kameyama	23.9	233	5 21	+ 5	e 8 23	?	—	—
Tu	24.0	233	e 5 0	-17	—	—	—	—
Kyoto	24.2	235	e 5 21	+ 2	e 9 42	+ 7	—	—
Osaka	24.6	235	e 5 23	0	e 9 59	+17	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Takamatu	25.6	237	e 5 26	- 6	e 9 53	- 6	—	—
Hamada	26.2	240	5 36	- 2	e 9 55	-14	—	—
Hirosima	26.4	238	e 5 35	- 5	e 10 16	+ 4	—	—
Koti	26.4	236	e 5 37	- 3	e 10 23	+11	—	e 15.0
Muroto	26.4	235	e 5 35	- 5	e 10 18	+ 6	—	e 14.2
Matuyama	26.7	238	e 5 29	-14	e 5 55	PP	e 7 36	?
Saga	27.2	241	e 5 58	+11	—	—	—	—
Simidu	27.4	236	e 5 48	- 1	—	—	—	—
Ooita	27.7	238	e 5 52	0	—	—	—	—
Hukuoka	28.1	241	e 5 52	- 3	e 5 57	P	e 12 39	PcS e 17.4
College	29.3	44	i 6 11	+ 5	—	—	—	—
Zō-Sō	35.1	249	i 6 53 _a	- 4	12 27	- 3	7 4	pP
Nanking	z. 35.8	253	i 6 59 _a	- 4	12 39	- 2	i 7 9	pP
Resolute Bay	44.5	22	i 8 17 _a	+ 2	i 14 59	+ 8	—	— e 25.2
Hong Kong	45.8	247	—	—	e 17 13	?	—	—
Manila	48.5	235	i 8 31	-15	—	—	—	—
Hungry Horse	52.2	58	i 9 18	+ 3	—	—	—	—
Shasta	z. 52.4	70	e 9 50	+34	—	—	—	—
Mineral	z. 53.1	70	e 9 35	+14	—	—	—	—
Reno	z. 54.7	69	9 36 _k	+ 3	—	—	e 10 42	PcP
Lick	z. 55.0	73	e 9 37 _k	+ 2	—	—	e 10 8	?
Fresno	z. 56.5	72	e 9 48 _a	+ 2	—	—	—	—
Kiruna	56.8	344	i 9 49 _a	+ 1	e 17 45	+ 4	i 9 59	pP e 30.2
Shillong	E. 56.9	271	i 9 45	- 4	—	—	—	—
Tinemaha	57.2	71	e 9 54	+ 3	—	—	i 10 11	?
Scoresby Sund	57.9	2	e 9 58	+ 2	e 18 3	+ 8	18 21	PPS 30.2
China Lake	z. 58.5	71	e 10 2	+ 2	—	—	e 10 19	?
Chatra	58.9	275	i 10 1	- 2	e 18 5	- 3	—	— e 34.7
Pasadena	59.3	73	i 10 7	+ 1	i 10 23	?	i 11 6	?
Boulder City	60.0	69	i 10 13	+ 2	e 24 11	SSS	—	—
Nelson	60.1	69	i 10 14	+ 3	i 10 30	?	i 10 43	?
Palomar	z. 60.6	73	e 10 17	+ 2	—	—	i 10 33	?
Calcutta	E. 61.3	271	e 10 15	- 5	i 19 0	PPS	—	—
Reykjavik	z. 64.3	2	e 10 52	+13	—	—	—	—
Upsala	64.5	340	i 10 42 _a	+ 1	i 19 22	+ 3	i 10 53	pP e 30.2
Tucson	64.9	70	e 10 46	+ 3	—	—	—	—
Kirkland Lake	z. 67.9	39	e 11 4 _a	+ 2	—	—	—	—
Quetta	68.5	292	i 11 4 _k	- 2	i 20 7	- 1	i 11 16	?
Copenhagen	69.4	342	i 11 13	+ 1	20 40	PS	i 11 24	?
Fayetteville	z. 71.2	56	i 11 23	0	—	—	i 11 39	PcP 37.2
Ottawa	71.9	38	i 11 27 _a	0	—	—	—	—
Shawinigan Falls	N. 72.0	36	e 11 28	0	—	—	—	—
Potsdam	72.4	340	i 11 31	+ 1	e 21 0	+ 7	i 21 15	PS e 40.2
Cleveland	z. 72.8	44	i 11 36 _a	+ 4	—	—	—	—
Iasi	73.1	330	i 11 36	+ 2	—	—	—	—
Poona	73.2	279	i 11 33	- 2	21 1	- 1	—	—
Witteveen	z. 73.2	344	i 11 37 _a	+ 2	—	—	—	—
Raciborzu	73.3	336	i 11 37	+ 2	11 52	PcP	e 14 19	PP
Collmberg	73.4	339	e 11 36	0	e 21 7	+ 2	e 12 6	?
Bombay	73.6	280	i 11 35	- 2	e 21 2	- 5	21 35	PS e 42.7
Jena	74.1	340	e 11 41	+ 1	e 21 16?	+ 4	e 11 52	PcP
De Bilt	74.2	345	—	—	e 21 13?	- 1	—	— e 40.2
Prague	74.2	338	e 11 41	+ 1	i 12 19	?	e 14 25	PP 40.2
Rathfarnham Castle	74.5	352	i 11 42	0	e 12 55	?	i 11 52	pP e 44.2
Pennsylvania	74.9	42	i 11 47	+ 3	e 21 25	+ 3	i 12 48	?
Ogyalla	75.3	335	e 11 51	+ 4	e 21 43	+17	e 12 2	PcP
Budapest	75.4	334	11 50	+ 3	e 21 46	[- 7]	11 59	PcP e 45.2
Harvard	75.9	37	i 11 52 _a	+ 2	—	—	—	—
Bucharest	N. 76.1	328	e 11 54	+ 3	e 21 38	+ 3	e 21 50	SKS
Weston	76.1	37	i 11 53 _a	+ 2	—	—	—	— e 40.1
Kalossa	76.3	334	e 12 5	PcP	—	—	e 12 13	?
Palisades	76.3	39	i 11 53	+ 1	e 31 44	?	i 12 13	pP e 47.2
Timisoara	76.4	332	e 11 58	+ 5	e 22 25	PS	—	— e 39.6
City College, N.Y.	76.5	39	i 11 55	+ 1	—	—	—	—
Fordham	76.5	39	e 11 54	0	—	—	—	—

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Stuttgart	76.6	341	e 11 55	+ 1	e 21 53	[- 9]	e 12 6	PcP e 43.2
Halifax	76.8	31	i 11 56k	+ 1	—	—	—	—
Washington	76.8	42	e 11 59	+ 4	—	—	—	—
Strasbourg	77.1	342	i 11 59	+ 2	e 22 3	[- 3]	e 15 2	PP e 41.7
Kodaikanal	E. 77.4	270	e 11 53	- 5	e 22 16	[+ 8]	—	—
Belgrade	77.5	332	e 12 3	+ 4	e 22 13	[+ 5]	e 12 13	PcP e 48.7
Paris	77.8	345	i 12 3	+ 2	i 22 1	+ 8	i 22 51	PPS —
Istanbul	z. 78.0	325	e 12 1	- 1	—	—	e 12 12	PcP —
Basle	78.1	341	e 12 4	+ 2	e 13 14	?	e 13 57	? —
Zürich	78.1	341	e 12 3k	+ 1	e 21 59	+ 3	e 15 15	PP —
Chur	78.4	340	e 12 6	+ 2	—	—	—	—
Triest	78.5	337	i 12 5a	+ 1	e 22 15?	[0]	e 12 17	PcP 39.8
Besançon	78.7	342	i 12 8	+ 2	e 13 29	?	i 12 18	PcP —
Clermont-Ferrand	80.7	344	i 12 19	+ 3	e 22 46	[+15]	e 24 1	PPS 44.2
Florence	80.9	338	i 12 18a	+ 1	e 22 29	+ 3	i 22 45	SKS —
Ksara	81.6	316	i 12 25	+ 4	i 23 19	PS	—	—
Rome	82.4	336	i 12 25	0	i 22 45	+ 4	—	—
Messina	85.0	333	i 12 37a	- 1	e 22 57	-10	i 12 49	PcP —
Helwan	z. 86.9	318	12 48	0	e 23 28	+ 2	e 16 33	PP —
Bermuda	87.4	36	—	—	e 23 38	+ 8	—	e 43.9
Alicante	88.5	346	e 12 51	- 5	—	—	—	— 45.4
Algiers Univ.	z. 89.4	342	e 13 0	0	—	—	e 13 35	? —
Tamanrasset	z. 102.3	336	e 13 58	- 1	e 18 11	PP	e 20 17	PPP —
Tananarive	118.4	277	20 16	PP	—	—	—	—
La Paz	128.2	65	—	—	38 45	SSP	—	—
Pretoria	z. 135.3	289	e 19 21	[- 1]	—	—	—	—
Kimberley	z. 139.5	287	e 19 28	[- 2]	—	—	—	—

Dec. 27d. 5h. 59m. 17s. Epicentre 36°·7N. 138°·2E. (as on 1943, Oct. 13d.).

Intensity V at Matusiro, Nagano, Iwamurata, Maruko, Omachi, and Hirotu; IV at Matumoto, Oiwake, Nezu, and Bessyo.

Epicentre 36°·5N. 138°·2E. Macroseismic radius 100-200km.

Seismo. Bull. Cent. Met. Obs., Japan, Dec., 1952, Tokyo, 1953, p.507, with macroseismic chart.

$$A = -.5991, B = +.5357, C = +.5950; \delta = -8; h = 0;$$

$$D = +.667, E = +.745; G = -.444, H = +.397, K = -.804.$$

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.
Nagano	0.0	—	i 0 5k	- 2	0 9	- 2
Matusiro	0.1	175	i 0 4	0*	0 6	- 1*
Takada	0.4	6	0 16	+ 3	0 27	+ 6
Matumoto	N. 0.5	202	i 0 7a	- 3g	0 11	- 5g
Oiwake	0.5	142	0 9	- 1g	0 15	- 1g
Maebasi	0.7	113	i 0 17k	0	0 41	+ 13
Toyama	z. 0.8	269	i 0 16k	0g	0 29	+ 1*
Takayama	N. 0.9	234	i 0 19	- 1	0 28	- 2g
Titibu	1.0	135	i 0 20k	0g	0 32	- 1g
Kohu	1.1	164	e 0 19	- 3	0 31	- 5g
Kumagaya	1.1	110	0 23	+ 1	0 40	+ 1
Iida	1.2	194	e 0 21	- 2*	0 35	- 5g
Aikawa	1.3	2	0 25	0	0 46	+ 2
Hunatu	N. 1.3	159	0 23	- 2	0 39	- 5
Kanazawa	1.3	262	e 0 25	0	0 41	- 3
Wazima	1.3	303	e 0 31	+ 5g	0 49	+ 6g
Niigata	N. 1.4	29	e 0 32	+ 4g	0 55	+ 9
Utunomiya	1.4	96	i 0 29	+ 1g	0 50	+ 4
Tokyo	E. 1.6	128	e 0 32	+ 2	0 57	+ 4g
Gihu	1.7	222	e 0 31	0	0 54	0
Misima	z. 1.7	159	e 0 31	0	0 52	- 2
Shirakawa	1.7	75	e 0 36	+ 2g	1 0	+ 4g
Shizuoka	1.7	175	0 32	0*	0 55	+ 1
Yokohama	1.7	137	0 36	+ 2g	1 1	+ 5g
Ajiro	1.8	156	e 0 31a	- 1	0 52	- 4

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Inawasiro		1.8	60	e 0 37	+ 1 _g	1 4	+ 4 _g
Nagoya	E.	1.8	213	0 31	- 1	0 52	- 4
Mito		1.9	100	e 0 38	0 _g	1 1	+ 1*
Hamamatu		2.0	191	i 0 37	0*	1 2	0
Tsuruga		2.0	239	e 0 34	- 1	1 1	- 1
Omaesaki		2.1	180	0 39	0*	1 5	+ 1
Mera		2.2	143	0 42	- 2 _g	1 9	0*
Kameyama		2.3	217	i 0 41	+ 1	1 7	- 2
Yamagata		2.3	47	e 0 54	+ 8 _g	1 27	+ 11 _g
Tu		2.4	215	i 0 43	- 1*	1 14	- 1*
Maizuru		2.5	241	e 0 44	+ 1	1 15	+ 1
Kyoto		2.6	230	e 0 52	0 _g	1 33	+ 7 _g
Sendai		2.7	54	e 0 54	0 _g	1 29	0 _g
Osaka		3.0	228	e 0 59	- 1 _g	1 43	+ 4 _g
Toyooka		3.0	247	e 0 56	+ 2*	1 31	- 2*
Owase		3.1	212	e 0 51	0	1 34	- 2*
Mizusawa	N.	3.3	43	1 6	0 _g	1 52	+ 3 _g
Sumoto		3.6	230	e 0 55	- 3	1 50	- 1*
Siomisaki		3.8	212	e 1 0	- 1	1 50	+ 3
Takamatu		4.1	235	e 1 15	+ 2*	2 7	+ 1*
Aomori		4.6	26	1 51	+ 39	2 55	+ 48
Muroto		4.7	225	e 1 23	0*	2 30	- 5 _g
Kofu		5.0	232	e 1 31	+ 3*	2 32	0*
Hiroshima		5.2	245	e 1 38	- 6 _g	2 42	+ 4*
Matuyama		5.3	239	e 1 40	- 6 _g	2 44	+ 3*
Simidu		5.8	229	—	—	e 3 3	+ 7*
Ooita		6.4	239	—	—	e 3 13	- 1*
Hukuoka		7.1	246	—	—	e 3 41	+ 6*
Miyazaki		7.3	231	e 2 18	- 8 _g	3 46	+ 5*
Saga		7.3	244	—	—	e 3 58	- 3 _g

Dec. 27d. 16h. 28m. 5s. Epicentre 16°·5S. 173°·0E. Focus at Base of Superficial Layers.
(as on 1950, July 20d.).

A = -·9522, B = +·1169, C = -·2823; $\delta = +4$; $h = +5$;
D = +·122, E = +·993; G = +·280, H = -·034, K = -·959.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Apia		14.9	82	i 3 27	- 3	(e 6 25)	+ 10	—	e 6.4
Auckland	N.	20.3	175	4 36	0	8 27	+ 11	i 4 54	e 9.7
Karapiro	N.	21.4	175	e 4 41	- 6	—	—	—	—
Brisbane		21.5	236	i 4 54 _a	+ 6	i 8 57	PcP	i 5 11	PP
Cobb River	E.	24.5	181	e 5 20	+ 3	—	—	—	—
Wellington		24.7	177	i 5 18	- 1	9 32	- 4	i 5 48	PP
Kaimata	N.E.	26.0	182	e 5 37	+ 5	—	—	—	—
Riverview		26.1	224	i 5 30 _k	- 3	i 10 12	+ 13	i 10 59	SS e 12.8
Lick	Z.	81.5	47	e 12 15 _k	- 1	—	—	e 12 22	PcP
Pasadena	Z.	82.5	51	e 12 20	- 1	—	—	i 12 31	pP
Shasta	Z.	82.6	44	e 12 21 _k	0	—	—	—	—
Palomar	Z.	83.2	53	e 12 24	0	—	—	—	—
China Lake	Z.	83.7	50	e 12 27	0	—	—	—	—
Tinemaha	Z.	83.8	49	e 12 27	0	—	—	—	—
Nelson		85.7	51	i 12 36	- 1	—	—	i 12 44	PcP
Boulder City		85.8	51	i 12 37	0	—	—	—	—
College		86.4	16	i 12 38	- 2	—	—	—	—
Tucson		87.4	55	e 12 46	+ 1	—	—	—	—
Hungry Horse		91.3	40	i 13 3	- 1	—	—	—	—
Ksara		137.9	302	e 19 51	[+ 30]	23 21	PKS	—	—
Stuttgart	Z.	145.2	341	e 19 36	[+ 2]	—	—	—	—
Strasbourg		145.8	343	e 19 38	[+ 3]	—	—	e 20 12	?
Zürich		146.6	342	e 19 40	[+ 3]	—	—	—	—
Basle		146.9	342	e 19 39	[+ 2]	—	—	—	—
Paris		146.9	350	e 19 39	[+ 2]	—	—	i 19 45	PKP ₂
Besançon		147.5	344	e 19 43	[+ 5]	—	—	—	—
Tamanrasset	Z.	166.7	300	e 20 5	[+ 3]	21 0	PKP ₂	e 25 0	PP

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Dec. 27d. 18h. 45m. 37s. Epicentre 31°·2N. 74°·8E.

Felt strongly at Lahore and in N.W. Pakistan.

Strasbourg gives epicentre as adopted. Quetta Monthly Seismo. Bull.

A = +·2247, B = +·8269, C = +·5155; $\delta = -1$; $h = +1$;
D = +·965, E = -·262; G = +·135, H = +·497, K = -·857.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Dehra Dun	N.	2·9	106	i 2 24 _a	?	i 3 0	?	—	—
New Delhi		3·3	141	1 6	0 _k	i 1 40	- 2*	i 1 1k	P*
Quetta		6·8	264	i 1 43 _k	- 1	i 2 54	- 9	—	—
Chatra		11·7	109	i 2 53	+ 2	i 5 2	- 2	3 3	PP
Bombay		12·4	189	e 3 2	+ 1	i 5 15	- 6	3 11	PP
Poona		12·6	184	i 3 2	- 1	5 16	-10	5 35	SS
Hyderabad	N.	14·1	166	e 3 22	- 1	c 5 50	-12	—	—
Calcutta		14·8	122	i 3 36	+ 4	i 6 25	+ 7	6 8	S
Shillong		16·0	106	e 3 46	- 2	e 6 40	- 6	4 6	PP
Madras	E.	18·8	164	e 4 20	- 3	8 3	SS	8 15	SSS
Kodaikanal	E.	21·0	174	—	—	8 26	-11	—	—
Helwan	Z.	37·3	279	i 7 17	+ 1	—	—	e 7 29	?
Upsala	Z.	47·2	325	i 8 36	0	i 8 48	?	i 10 46	PP
Prague		48·1	312	e 8 47	+ 4	e 9 2	?	e 9 33	?
Kiruna	Z.	48·2	336	i 8 43	- 1	—	—	i 8 53	?
Collmberg		49·0	313	e 8 10	-40	c 9 3	?	e 11 10	?
Jena		49·9	312	e 8 58	+ 1	—	—	e 9 11	?
Stuttgart		51·6	310	e 9 10	0	—	—	e 9 23	?
Besançon		54·0	308	e 9 26	- 2	—	—	—	—
Paris		56·0	311	i 9 41	- 2	i 9 53	?	i 10 11	?
Tamanrasset	Z.	61·4	281	i 10 20 _k	0	i 10 33	?	e 12 37	PP
Kimberley	Z.	76·3	224	c 12 6	PcP	—	—	—	—
College		78·6	17	12 6	+ 1	—	—	i 12 19	PcP

Dec. 28d. 4h. 55m. 7s. Epicentre 65°·8N. 167°·8W.

A = -·4029, B = -·0871, C = +·9111; $\delta = +2$; $h = -11$;
D = -·211, E = +·977; G = -·891, H = -·193, K = -·412.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
College		8·4	87	i 2 1	- 5	e 3 41	- 2	e 2 7	P (e 3·7)
Klyuchi		17·7	254	c 4 14	+ 4	—	—	—	—
Petropavlovsk		20·9	252	i 4 54	+ 8	i 8 51	+16	—	—
Resolute Bay		24·4	37	i 5 21 _k	0	i 9 44	+ 5	i 10 47	SSS e 21·4
Uglegorsk		30·7	262	e 6 18	- 1	—	—	—	—
Hungry Horse		32·7	95	i 6 34	- 2	e 17 9	ScS	—	—
Butte		35·2	96	e 6 56	- 2	—	—	—	—
Shasta	Z.	35·7	111	e 7 0	- 2	—	—	e 7 35	?
Mineral	Z.	36·3	111	e 7 4 _a	- 3	e 9 25	PcP	i 7 16	?
Reno	Z.	37·7	109	e 7 25	+ 6	—	—	e 7 58	?
Berkeley	Z.	38·2	114	i 7 25 _a	+ 2	—	—	—	—
Lick	Z.	38·9	114	e 7 29 _a	0	—	—	—	—
Fresno	Z.	40·2	112	e 7 40	0	—	—	—	—
Tinemaha	Z.	40·5	110	i 7 41	- 1	—	—	i 7 59	?
China Lake	Z.	41·8	110	e 7 51	- 2	—	—	i 7 55	P
Scoresby Sund		42·0	17	e 7 59	+ 5	e 14 10	- 4	e 9 49	PcP 20·9
Kabansk		42·6	295	i 8 3	+ 4	e 14 33	+10	—	—
Boulder City		42·8	107	i 7 59	- 2	—	—	—	—
Nelson		43·0	107	i 8 0	- 3	—	—	—	—
Pasadena		43·1	112	i 8 2	- 2	—	—	i 8 5	P e 24·6
Irkutsk		43·3	297	8 7	+ 2	e 14 39	+ 6	—	—
Kyakhta		44·0	294	c 8 12	+ 1	—	—	—	—
Palomar	Z.	44·3	111	e 8 11	- 2	i 8 27	?	i 8 15	P
Kiruna		46·5	356	i 8 31	0	e 15 23	+ 4	e 18 53?	SS
Kirkland Lake	Z.	46·6	67	e 8 30 _k	- 2	—	—	—	—

Continued on next page.

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Tucson		47.6	105	c 8	37	- 2	—	—	—	—	—	e 26.8
Ottawa		50.5	66	e 8	59	- 3	16	15	- 1	i 10	37	PcP 23.2
Shawinigan Falls	N.	50.6	63	e 9	0	- 2	—	—	—	—	—	—
Fayetteville	Z.	51.1	87	i 9	1	- 5	—	—	—	i 9	26	? e 26.9
Cleveland	E.	51.6	73	—	—	—	e 16	29	- 2	e 20	6	SS
Sverdlovsk		52.4	329	i 9	16	0	16	45	+ 3	—	—	—
Semipalatinsk		53.0	312	e 9	19	- 2	—	—	—	—	—	—
Pennsylvania	Z.	53.6	70	i 9	22	- 3	i 20	29	SS	—	—	—
Pulkovo		54.0	349	e 9	29	+ 1	—	—	—	—	—	—
Nanking		54.5	271	e 9	31	- 1	e 17	17	+ 7	—	—	—
Harvard		54.5	64	e 9	31	- 1	—	—	—	—	—	—
Upsala	Z.	54.6	357	i 9	32	0	i 10	29	PcP	i 9	35	P
Weston		54.7	64	i 9	32 _a	- 1	—	—	—	—	—	e 28.7
Palisades		55.0	67	—	—	—	e 21	1	SS	—	—	e 28.3
Moscow		57.3	344	e 9	52	0	e 17	51	+ 4	—	—	—
Mobile		58.2	85	i 9	58	0	—	—	—	—	—	—
Copenhagen		58.8	0	e 10	3	+ 1	—	—	—	—	—	28.9
Almata		60.4	311	e 10	14	+ 1	e 18	32	+ 4	—	—	—
Przhevalsk		60.7	310	i 10	17	+ 2	—	—	—	—	—	—
Rybach'e		61.4	312	i 10	22	+ 2	—	—	—	—	—	—
Frunse		61.5	313	i 10	23	+ 2	e 18	50	+ 8	—	—	—
Witteveen	Z.	61.6	4	e 10	27	+ 5	—	—	—	—	—	—
Potsdam		62.1	0	e 10	29	+ 4	—	—	—	—	—	e 28.9
De Bilt		62.3	5	—	—	—	(e 21	53?)	?	—	—	e 21.9
Naryn		62.4	311	i 10	29	+ 2	—	—	—	—	—	—
Kew		62.7	10	—	—	—	e 19	53	?	—	—	—
Collmberg		63.2	359	c 10	31	- 1	—	—	—	—	—	—
Tchimkent		63.5	316	i 10	34	0	e 19	15?	+ 8	—	—	—
Jena	Z.	63.6	0	e 10	35	0	—	—	—	e 11	8	PcP
Tacubaya		63.7	101	e 10	28	- 8	e 19	1	- 9	e 34	57	Q e 38.8
Andijan		64.1	314	i 10	39	+ 1	—	—	—	—	—	—
Namangan		64.1	314	i 10	40	+ 2	e 19	21	+ 7	—	—	—
Lwow		64.3	352	e 10	39	0	—	—	—	—	—	—
Lunacharskoe		64.5	316	i 10	44	+ 3	—	—	—	—	—	—
Tashkent		64.5	316	e 10	39	- 2	—	—	—	—	—	—
Prague		64.5	358	e 10	39	- 2	e 12	58	PP	e 11	6	PcP
Fergana		64.6	314	i 10	43	+ 2	e 19	29	+ 8	—	—	—
Hong Kong		65.0	270	—	—	—	e 26	53	SSS	—	—	—
Paris		65.5	8	i 10	45	- 2	—	—	—	i 10	50	P e 33.9
Uzhgorod		65.6	353	e 10	47	- 1	—	—	—	—	—	—
Stuttgart		65.7	3	e 10	48	0	e 20	23	PPS	—	—	e 34.9
Strasbourg		65.9	4	i 10	53	+ 3	e 23	53	SS	e 12	0	? 29.9
Bermuda		66.0	64	—	—	—	e 19	35	- 3	e 23	54	SS e 33.2
Kishinev		66.8	349	e 10	54	- 2	—	—	—	—	—	—
Obi-garm		66.8	315	i 10	55	- 1	—	—	—	—	—	—
Besançon		67.2	5	e 10	57	- 1	—	—	—	e 11	1	P
Stalinabad		67.2	315	i 10	58	0	e 19	56	+ 4	—	—	—
Khorog		67.4	312	e 11	1	+ 2	—	—	—	—	—	—
Kulyab		67.5	314	e 11	1	+ 1	—	—	—	—	—	—
Piatigorsk		67.9	337	11	3	+ 1	20	6	+ 5	—	—	—
Theodosia		68.1	343	e 11	3?	- 1	—	—	—	—	—	—
Makhach-Kala		68.2	333	i 11	4	0	—	—	—	—	—	—
Yalta		68.7	344	e 11	6	- 1	e 20	9	- 1	—	—	—
Sotchi		68.9	340	e 11	8	- 1	e 20	13	0	—	—	—
Tiflis		69.9	335	11	15	0	—	—	—	—	—	—
Bairam-Ali		70.0	320	i 11	16	+ 1	i 20	30	+ 4	—	—	—
Borzhom		70.0	337	e 11	15	0	—	—	—	—	—	—
Kizyl-Arvat		70.1	326	e 11	23	+ 7	e 20	36	+ 9	—	—	—
Abastumanj		70.2	336	e 11	18	+ 1	—	—	—	—	—	—
Baku		70.2	331	—	—	—	e 20	34	+ 6	—	—	—
Ashkabad		70.6	323	i 11	21	+ 2	i 20	38	+ 5	—	—	—
Kirovobad		70.6	333	11	19	0	20	35	+ 2	—	—	—
Florence		70.8	1	e 11	23	+ 3	e 21	13	PPS	—	—	—
Chatra		71.7	296	i 11	27	+ 1	—	—	—	—	—	e 38.9
Goris		71.7	332	e 11	26	0	e 20	51	+ 6	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Istanbul	z.	72.7	348	e 11 30	- 2	e 14 10	PP	e 12 53	?
Quetta	z.	75.5	314	i 11 48 _a	0	—	—	—	—
Ciudad Trujillo		76.5	75	12 20	+26	22 20	+41	—	—
Algiers Univ.	z.	77.5	8	e 11 57	- 2	e 20 57	?	—	—
Helwan	z.	83.5	344	i 12 32	+ 1	—	—	i 12 36	P
Poona	z.	84.1	303	i 12 38	+ 4	—	—	—	—
Bombay		84.2	304	—	—	e 23 5	+ 6	e 31 48	SSS
Tamanrasset	z.	91.5	6	e 13 11	+ 1	e 16 53	PP	e 19 40	?
Grahamstown	z.	146.3	338	i 19 44	[+ 3]	—	—	—	—

Dec. 28d. 14h. 49m. 16s. Epicentre 6°·6N. 126°·8E.

Intensity IV at Davao.

Monthly seismic bulletin, Manila, Dec., 1952, pp.4-5.

A = -·5951, B = +·7955, C = +·1142; $\delta = +1$; $h = +7$;
D = +·801, E = +·599; G = -·068, H = +·091, K = -·993.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Manila		9.8	325	i 2 55	P*	i 3 17	?	—	—
Hong Kong		19.8	324	4 34	- 1	8 27	+14	—	10.2
Bandung		23.3	235	e 5 9	- 1	e 9 20	0	i 10 6	SS
Djakarta		23.6	237	i 5 13 _a	0	i 9 23	- 2	e 5 27	pP
Zé-Sè		24.9	350	i 5 26 _a	0	i 9 57	+10	—	—
Kagosima		25.1	8	e 5 44	+16	—	—	—	—
Miyazaki		25.5	10	e 5 44	+12	e 10 0	+ 3	—	—
Nanking		26.4	344	i 5 39 _a	- 1	e 10 18	+ 6	—	—
Koti		27.5	13	e 5 51	+ 1	—	—	—	e 13.7
Siomisaki		28.0	15	5 49	- 6	—	—	—	—
Hirosima		28.1	10	e 6 10	+15	—	—	—	—
Takamatu		28.4	12	e 5 59	+ 1	—	—	e 6 50	PP
Owasc		28.7	13	e 5 59	- 2	—	—	—	—
Kyoto		29.5	15	e 6 11	+ 3	e 12 57	PcS	e 13 7	SSS
Nagoya	E.	29.9	17	e 6 12	0	—	—	—	—
Shizuoka		30.2	19	e 6 13	- 1	—	—	—	—
Iida		30.5	17	e 6 22	+ 5	—	—	—	—
Hunatu		30.8	20	e 6 12	- 8	—	—	—	—
Kohu		30.9	20	6 20	0	—	—	—	—
Titibu		31.3	20	e 6 23	- 1	—	—	—	e 17.6
Tokyo		31.3	21	e 6 39	+15	e 13 19	SS	—	e 16.4
Oiwake		31.5	18	e 6 25	- 1	—	—	—	—
Matusiro		31.6	17	6 23	- 3	13 4	PcS	7 32	PP
Maebasi		31.7	19	e 6 30	+ 3	—	—	e 7 35	PP
Utunomiya		32.1	19	e 6 28	- 3	—	—	e 6 40	?
Shirakawa		32.8	19	e 6 21	-16	—	—	—	—
Inawasiro		33.1	18	e 6 41	+ 1	—	—	—	—
Hokusima		33.4	19	e 6 42	0	—	—	—	—
Yamagata		33.8	18	e 6 44	- 2	—	—	—	—
Sendai		34.0	19	e 6 48	0	—	—	—	—
Mizusawa	E.	34.9	19	e 6 59	+ 4	e 7 24	?	—	—
Aomori		36.3	18	e 7 42	+35	e 13 10	+22	e 9 41	PcP
Vladivostok		36.7	7	i 7 6	- 4	i 12 49	- 5	—	—
Shillong		38.3	303	e 7 23	- 1	e 13 12	- 7	e 8 58	PP
Perth		39.7	194	—	—	i 13 39	- 1	i 16 26	SS
Calcutta	E.	40.3	297	e 7 42	+ 2	16 56	SS	9 32	PcP
Brisbane		42.3	144	i 7 54	- 3	e 14 5	-14	i 9 4	?
Yuzno-Sakhlinsk		42.5	16	i 7 59	0	i 14 19	- 3	—	—
Kurlisk		42.6	22	i 7 59	0	14 19	- 4	—	—
Chatra	z.	42.7	303	i 8 0	0	—	—	—	—
Ulegorsk		44.3	15	i 8 12	- 1	e 14 40	- 8	—	—
Madras	E.	46.3	282	i 8 29	0	e 15 28	+12	10 19	PP
Riverview		46.4	151	i 8 30	0	e 15 9	- 9	i 8 41	pP
Colombo	E.	46.6	273	8 34	+ 2	—	—	—	—
Kyakhta		46.8	342	8 33	0	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kabansk		48.3	344	8 44	- 1	e 15 45	0	—	—
Kodaikanal	E.	48.9	278	8 48	- 2	—	—	—	—
Irkutsk		49.1	342	8 50	- 1	—	—	—	—
New Delhi		51.6	301	9 8	- 2	e 16 34	+ 3	18 52	25.2
Poona		52.8	288	i 9 19	0	e 16 59	+12	—	—
Petropavlovsk		53.2	23	i 9 20	- 2	—	—	—	—
Bombay		53.9	288	e 9 27	0	e 17 11	+ 9	20 55	SS
Przhevalsk		55.6	318	9 40	0	—	—	—	—
Magadan		55.9	14	e 9 40	- 2	—	—	—	—
Klyuchi		56.4	22	i 9 39	- 6	—	—	—	—
Naryn		56.8	316	i 9 48	0	—	—	—	—
Almata		56.9	319	i 9 49	0	—	—	—	—
Rybach'e		57.2	317	i 9 49	- 2	—	—	—	—
Frunse		58.3	317	i 9 57	- 2	—	—	—	—
Semipalatinsk		58.3	327	e 9 56	- 3	—	—	—	—
Khorog		58.6	310	e 10 1	0	—	—	—	—
Andijan		59.1	313	i 10 3	- 1	—	—	—	—
Fergana		59.4	313	i 10 4	- 2	—	—	—	—
Namangan		59.7	313	i 10 7	- 2	—	—	—	—
Kulyab		60.2	310	10 10	- 2	—	—	—	—
Obi-garm		60.4	311	i 10 10	- 3	e 18 26	- 2	—	—
Quetta	Z.	60.6	301	i 10 13k	- 2	—	—	—	—
Stalinabad		61.1	311	i 10 16	- 2	—	—	—	—
Tchimkent		61.6	315	i 10 19	- 3	—	—	—	—
Tashkent		62.0	314	i 10 19	- 5	e 18 44	- 4	—	—
Bairam-Ali		66.0	308	i 10 48	- 2	—	—	—	—
Ashkabad		69.0	308	11 9	0	—	—	—	—
Kizyl-Arvat		70.8	310	11 21	+ 1	—	—	—	—
Sverdlovsk		71.6	328	i 11 23	- 2	—	—	—	—
Baku		75.8	310	i 11 51	+ 1	—	—	—	—
Shemakla		76.8	311	i 11 54	- 1	—	—	—	—
Makhach-Kala		77.7	313	i 12 0	0	21 51	- 1	—	—
Goris		78.5	309	i 11 59	- 5	—	—	—	—
Kirovobad		78.6	310	12 2	- 3	21 58	- 4	—	—
Tiflis		79.7	311	12 10	- 1	—	—	—	—
Erevan		79.9	309	e 12 10	- 2	—	—	—	—
Gori		80.2	311	e 12 20	+ 6	—	—	—	—
Borzhoml		80.7	311	i 12 16	0	—	—	—	—
Piatigorsk		80.9	313	12 16	- 1	22 21	- 5	—	—
Abastumanj		81.1	311	e 12 19	+ 1	—	—	—	—
Zugdidi		81.8	312	e 12 19	- 3	—	—	—	—
Tananarive		82.0	250	e 12 23	0	—	—	—	—
College		82.1	25	i 12 19	- 5	—	—	—	—
Sotchi		83.4	313	e 12 28	- 2	e 22 43	- 8	e 22 55	ScS
Moscow		84.1	325	12 33	- 1	e 22 52	- 6	—	—
Ksara		87.1	303	i 12 52	+ 3	e 23 40	ScS	—	—
Yalta		87.3	314	e 12 48	- 2	e 23 12	[- 4]	e 23 36	S
Kiruna	Z.	90.0	338	i 12 59	- 4	i 13 24	?	i 13 3	P
Kishinev		90.6	318	e 13 14	+ 9	e 23 43	{ - 3}	—	—
Helwan	Z.	91.5	300	i 13 8a	- 2	16 38	PP	e 17 26	?
Istanbul	Z.	91.5	311	e 13 7	- 3	e 25 15	PS	e 16 33?	PP
Bucharest		93.0	315	—	—	e 23 8	?	—	—
Lwow		93.2	320	e 13 24	+ 7	—	—	—	—
Upsala	Z.	93.8	331	i 13 17	- 3	i 16 55	PP	i 13 26	P
Uzhgorod		94.6	320	e 13 23	- 1	—	—	—	—
Resolute Bay	Z.	95.0	10	i 13 23k	- 3	—	—	—	—
Prague		99.0	323	e 14 3	?	e 14 29	?	e 15 0	?
Collmberg		99.4	324	e 13 43	- 3	e 18 10	PP	e 13 49	P
Jena		100.3	324	e 13 49?	- 1	e 14 17	?	e 13 54	P
Scoresby Sund		100.8	350	e 14 13	+21	24 40	[+ 9]	36 21	SSS
Shasta	Z.	101.2	46	e 13 52	- 2	—	—	e 18 0	PP
Stuttgart		102.6	323	e 13 59?	- 1	—	—	—	—
Lick	Z.	102.8	49	e 14 51k	?	—	—	—	—
Rome	Z.	103.3	316	e 18 7	PP	—	—	e 19 12	PKP
Reno	Z.	103.5	47	e 14 4	0	—	—	—	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Strasbourg	103.6	323	—	—	—	e 23	56	?	—	—	—
Hungry Horse	103.8	37	e 14	5	0	—	—	—	—	—	—
Paris	106.5	325	i 22	54	?	—	—	—	e 23	33	?
Rathfarnham C.	z. 108.4	332	—	—	—	e 29	46	PPS	—	—	—
Nelson	108.5	48	e 18	16	[-14]	i 26	35	+ 4	e 14	56	?
Algiers Univ.	z. 112.0	314	e 18	29	[- 8]	e 27	36	?	e 19	37	PP
Tucson	113.0	50	e 19	32	PP	—	—	—	—	—	—
Tamanrasset	z. 115.6	299	e 18	40	[- 4]	e 27	27	S	e 29	24	PKKP
Fayetteville	z. 122.7	38	e 18	53	[- 5]	—	—	—	—	—	—
Washington	129.6	23	e 19	8	[- 3]	—	—	—	—	—	—
La Plata	151.5	173	e 27	56	PPP	—	—	—	—	—	87.9
Bogota	156.4	61	e 20	8	[+12]	e 32	6	?	—	—	e 55.9
Fort de France	157.4	19	e 20	18	[+20]	—	—	—	—	—	—
Huancayo	157.5	106	e 20	2	[+ 4]	—	—	—	—	—	—
La Paz	162.4	125	i 20	6	[+ 3]	31	20	{- 5}	i 45	8	SS

Dec. 28d. 15h. 1m. 20s. Epicentre 6°·6N. 126°·8E. (as at 14h.).

Intensity V at Davao ; IV at Dadiangas.

Monthly seismic bulletin, Manila, Dec., 1952, pp.4-5.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Manila	9.8	325	i 3	1	P _g	i 3	9?	?	—	—	—
Hong Kong	19.8	324	i 4	18	-17	i 8	27	+14	i 7	25	? 110.3
Bandong	23.3	235	i 5	15	+ 5	9	34	+14	—	—	—
Djakarta	23.6	237	e 5	14	+ 1	e 9	21	- 4	i 16	22	ScS
Kagosima	25.1	8	e 5	0	-28	—	—	—	e 7	2	?
Miyazaki	25.5	10	e 4	39	-53	e 10	11	+14	—	—	e 10.9
Simidu	26.7	12	e 5	48	+ 5	e 10	19	+ 2	—	—	13.8
Ooita	26.9	8	e 5	54	+ 9	—	—	—	—	—	—
Hukuoka	27.1	7	e 6	3	+17	e 12	44	PcS	—	—	e 14.0
Muroto	27.4	13	e 5	51	+ 2	e 10	13	-15	—	—	e 14.4
Koti	27.5	13	e 5	51	+ 1	—	—	—	—	—	e 14.0
Matuyama	27.7	11	e 5	55	+ 3	e 10	33	0	e 12	1	SS e 13.4
Siomisaki	28.0	15	i 5	50	- 5	e 16	50	ScS	i 5	53	P e 16.3
Takamatu	28.4	12	e 5	58	0	e 10	36	- 9	(e 11	49)	SS e 11.8
Owase	28.7	13	e 6	5	+ 4	—	—	—	—	—	—
Kameyama	29.5	16	6	21	+13	11	13	+11	—	—	e 15.1
Kyoto	29.5	15	e 6	8	0	—	—	—	—	—	e 13.2
Nagoya	29.9	17	e 6	22	+10	—	—	—	e 7	46	PPP e 14.9
Gihu	30.1	17	e 6	17	+ 4	—	—	—	—	—	—
Shizuoka	30.2	19	e 6	15	+ 1	e 11	16	+ 3	e 7	31	PPP e 14.2
Iida	30.5	17	e 6	25	+ 8	—	—	—	—	—	—
Misima	E. 30.5	20	e 6	20	+ 3	—	—	—	—	—	e 13.1
Hunatu	30.8	20	e 6	9	-11	e 11	10	-13	e 7	31	PPP
Kohu	30.9	20	6	21	+ 1	i 11	20	- 4	e 7	21	PP 16.5
Matumoto	N. 31.2	17	e 6	36	+13	—	—	—	e 7	44	PPP
Tokyo	31.3	21	e 6	31	+ 7	e 11	32	+ 1	(e 12	55)	PcS e 12.9
Oiwake	31.5	18	e 6	31	+ 5	—	—	—	—	—	—
Kumagaya	31.6	19	e 7	40	PPP	—	—	—	—	—	—
Maebasi	31.7	19	e 6	33	+ 6	—	—	—	e 7	38	PP
Utunomiya	32.1	19	e 6	29	- 2	e 11	34	- 9	e 16	53	ScS
Inawasiro	33.1	18	e 6	32	- 8	e 11	53	- 6	—	—	—
Hokusima	33.4	19	e 6	42	0	e 12	7	+ 4	14	26	SSS
Sendai	34.0	19	e 6	48	0	e 12	10	- 3	(e 14	30)	SS e 14.5
Mizusawa	34.9	19	6	57	+ 2	12	1	-16	12	5	S
Akita	35.1	19	e 7	0	+ 3	—	—	—	—	—	17.7
Miyako	35.6	20	e 6	56	- 5	—	—	—	—	—	—
Aomori	36.3	18	e 7	27	+20	e 13	2	+14	e 15	11	SS
Mori	37.4	16	e 7	2	-14	13	21	+16	—	—	18.3
Shillong	38.3	303	e 7	23	- 1	e 13	21	+ 2	e 8	57	PP e 19.7
Perth	39.7	194	i 9	18	PP	i 13	40	0	i 14	15	? i 17.2

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Brisbane		42.3	144	i 7	54	- 3	i 14	7	-12	i 7	59	P	—
Madras	E.	46.3	282	8	27	- 2	—	—	—	—	—	—	—
Riverview		46.4	151	i 8	32k	+ 2	i 15	21	+ 3	i 18	35	SS	—
Colombo	E.	46.6	273	8	32	0	—	—	—	—	—	—	26.0
Poona		52.8	288	i 9	20	+ 1	16	59	+12	—	—	—	—
Bombay	N.	53.9	288	e 10	34	PcP	e 18	2	?	—	—	—	—
Quetta	Z.	60.6	301	i 10	13	- 2	—	—	—	e 39	35	P'P'	—
Auckland	N.	62.3	137	—	—	—	e 18	43	- 9	e 19	16	PPS	—
Christchurch		64.8	144	e 10	48	+ 5	19	0	-23	(e 23	10)	SS	e 23.2
Wellington		64.8	142	e 10	40	- 3	e 19	5	-18	e 23	58	SS	—
Tananarive		82.0	250	12	24	+ 1	22	25	-12	—	—	—	44.0
College		82.1	25	i 12	21	- 3	—	—	—	—	—	—	—
Ksara		87.1	303	e 12	50	+ 1	23	48	ScS	—	—	—	—
Kiruna		90.0	338	i 12	59	- 4	e 23	50	- 4	e 23	16	SKS	e 36.7
Iasi		91.4	318	e 12	56	-13	e 24	6	- 1	e 23	37	SKS	—
Istanbul	Z.	91.5	311	e 13	4	- 6	—	—	—	—	—	—	—
Helwan		91.5	300	13	9	- 1	25	32	PPS	16	42	PP	—
Upsala		93.8	331	i 13	19	- 1	e 23	40?	[-14]	e 26	0	PS	—
Resolute Bay		95.0	10	e 13	24k	- 2	(e 24	10)	[+ 9]	i 17	18	PP	e 24.2
Skalnate Pleso		95.7	321	e 13	51	?	e 26	52	PPS	e 17	40	PP	e 36.1
Timisoara		96.0	317	e 13	40?	+10	—	—	—	—	—	—	—
Belgrade		96.8	316	—	—	—	e 23	59	[-12]	e 26	25	PS	e 53.7
Budapest		97.0	320	—	—	—	e 24	10	[- 2]	e 33	16	?	e 43.2
Kalossa		97.3	319	—	—	—	e 24	18	[+ 5]	e 24	25	SKKS	—
Ogyalla	E.	97.4	320	e 15	20	?	—	—	—	—	—	—	—
Copenhagen		97.9	329	e 13	44	+ 5	24	18	[+ 2]	e 17	44	PP	46.7
Potsdam		98.9	326	e 13	46	+ 3	—	—	—	e 17	49	PP	e 39.7
Prague		99.0	323	e 13	51	+ 7	e 25	16	+ 4	e 32	22	SSP	—
Collimberg		99.4	324	e 13	43	- 3	e 26	45	PS	e 20	11	PPP	e 42.7
Cheb	N.	100.2	323	e 15	4	?	e 25	4	{+ 9}	—	—	—	—
Jena		100.3	324	e 13	54	+ 4	e 24	24	[- 4]	e 25	16?	S	—
Taranto		100.4	313	e 12	56	-54	e 24	46	{-11}	18	6	PP	50.7
Scoresby Sund		100.8	350	e 14	9	+17	24	41	[+10]	18	3	PP	—
Triest		101.0	319	e 12	57	-56	i 25	31	+ 2	e 18	8	PP	52.0
Shasta	Z.	101.2	46	e 13	54a	0	e 18	6	PP	e 16	58	?	—
Mineral	Z.	101.9	46	e 14	10	+13	—	—	—	—	—	—	—
Messina		102.3	311	e 14	42	?	e 26	53	PS	e 18	14	PP	e 39.1
Stuttgart		102.6	323	e 14	5	+ 5	e 24	8	[-32]	e 18	12	PP	e 42.7
Lick	Z.	102.8	49	e 14	3a	+ 2	—	—	—	e 17	19	?	—
Salo		103.2	319	e 13	57	- 6	e 14	40	?	e 19	45	?	—
Chur		103.3	321	—	—	—	e 24	36	[- 7]	—	—	—	e 68.7
Rome		103.3	316	i 14	4	+ 1	e 24	42	[- 1]	i 18	21	PP	e 52.1
De Bilt		103.4	327	e 14	4	0	e 27	40?	PS	e 18	16	PP	e 48.7
Florence		103.4	318	e 14	2	- 2	e 24	44	[+ 1]	i 28	34	PPS	—
Strasbourg		103.6	323	e 14	8	+ 4	e 24	10	[-34]	e 18	18	PP	e 42.7
Aberdeen		104.1	334	e 27	20	PS	e 28	30	PPS	e 46	20	Q	e 47.7
Oropa		104.8	320	—	—	—	i 24	46	[- 4]	i 27	50	PS	—
Tinemaha	Z.	105.5	49	e 17	57	?	—	—	—	e 18	57	PP	—
Butte		105.7	38	e 14	16	P	—	—	—	—	—	—	—
China Lake	Z.	106.4	49	e 14	20	P	—	—	—	e 18	1	?	—
Paris		106.5	325	e 14	22	P	e 33	59	SS	i 18	45	PP	e 42.7
Kew		106.6	328	e 18	40	PP	e 28	18	PS	e 44	36	Q	e 48.7
Clermont-Ferrand		107.7	322	e 16	18	?	e 28	30	PS	e 19	0	PP	40.7
Boulder City		108.4	48	e 14	42	P	—	—	—	—	—	—	—
Rathfarnham C.	Z.	108.4	332	e 18	35	PP	—	—	—	—	—	—	—
Nelson		108.5	48	i 14	31	P	—	—	—	—	—	—	—
Algiers Univ.	Z.	112.0	314	e 18	45	[+ 8]	e 28	56	PS	e 19	13	PP	—
Alicante		113.7	317	—	—	—	e 36	1	SSP	—	—	—	60.8
Tamanrasset	Z.	115.6	299	e 18	41	[- 3]	i 19	49	PP	e 29	27	PKKP	—
Almeria		115.9	316	14	46	P	24	26	[-69]	29	54	PS	70.8
Granada		116.5	317	e 14	43a	P	e 24	1	[-97]	36	1	SS	65.9
Malaga		117.2	317	i 19	46	PP	29	42	PS	i 22	36	PPP	61.0
Fayetteville	Z.	122.7	38	i 18	52	[- 6]	—	—	—	—	—	—	—
Shawinigan Falls	N.	124.3	16	e 19	24	[+23]	—	—	—	—	—	—	—
Ottawa		124.4	19	e 19	11	[+10]	—	—	—	—	—	—	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	^e	^o	m.	s.	s.	m.	s.	s.	m.	s.	m.
Cleveland	125.6	26	e 19	3k	[- 1]	e 25	59	[- 9]	—	—	—
Halifax	128.2	9	e 19	31	[+ 22]	—	—	—	—	—	—
Harvard	128.3	16	e 19	25	[+ 16]	—	—	—	—	—	—
Weston	128.5	16	i 19	26 _a	[+ 17]	—	—	—	—	—	e 60.1
Palisades	129.0	19	i 19	11	[+ 1]	i 31	3	PS	e 43	7	SSS e 62.2
Fordham	129.1	19	e 20	18	?	—	—	—	—	—	—
Philadelphia	129.4	21	e 20	10	?	—	—	—	—	—	—
Washington	129.6	23	e 19	14	[+ 3]	—	—	—	i 19	21	?
Bermuda	139.7	14	—	—	—	e 23	9	PKS	—	—	e 65.3
La Plata	151.5	173	—	—	—	33	28	SKSP	—	—	83.3
San Juan	152.1	26	i 19	57	[+ 6]	—	—	—	—	—	—
Fort de France	157.4	19	e 19	51	[- 7]	—	—	—	—	—	—
Huancayo	157.5	106	i 20	1	[+ 3]	—	—	—	—	—	—
La Paz	162.4	125	i 20	0	[- 3]	i 31	20	{ - 5}	20	46	PKP ₂ 76.9

Dec. 28d. 18h. 40m. 20s. Epicentre 24°·9N. 63°·5E. (as on 1950, Nov. 14d.).

A = +·4052, B = +·8127, C = +·4187; $\delta = -2$; $h = +3$;
D = +·895, E = -·446; G = +·187, H = +·375, K = -·908.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	^o	^o	m.	s.	s.	m.	s.	s.	m.	s.	m.
Quetta	6.1	30	i 1	35k	+ 1	i 2	51	+ 6	i 3	23	SS
Bombay	10.5	123	e 2	36	+ 1	4	37	+ 2	e 4	44	SSS 5.2
Poona	11.5	121	i 2	51	+ 3	5	6	+ 7	5	13	SSS 5.7
Bairam-Ali	12.7	355	i 3	1?	- 4	—	—	—	—	—	—
New Delhi	12.8	70	e 3	4	- 2	i 5	27	- 3	5	41	SS 5.9
Ashkabad	13.7	343	3	17	- 1	—	—	—	—	—	—
Kulyab	14.0	20	3	22	0	—	—	—	—	—	—
Khorog	14.3	27	i 3	29?	+ 3	6	30	+ 24	—	—	—
Stalinabad	14.3	17	e 3	27	+ 1	—	—	—	—	—	—
Obi-garm	14.7	19	e 3	31	0	—	—	—	—	—	—
Garm	15.2	21	e 3	37	- 1	—	—	—	—	—	—
Fergana	16.9	22	e 4	0	+ 1	—	—	—	—	—	—
Lunacharskoc	17.1	15	i 4	5	+ 3	—	—	—	—	—	—
Tashkent	17.1	15	e 3	59	- 3	e 7	20	+ 8	—	—	—
Andijan	17.4	23	i 4	5	- 1	—	—	—	—	—	—
Namangan	17.4	22	i 4	6	0	—	—	—	—	—	—
Tchimkent	18.1	15	i 4	13	- 1	i 7	41?	+ 6	—	—	—
Baku	19.2	327	i 4	29	+ 1	i 8	21	SS	—	—	—
Naryn	19.5	30	i 4	31	0	i 8	13	+ 7	—	—	—
Kodaikanal	E. 19.7	135	i 4	38	+ 4	i 8	24	+ 14	—	—	—
Madras	E. 19.7	123	i 4	36	+ 2	i 8	21	+ 11	—	—	—
Shemakla	20.0	327	i 4	33?	- 4	—	—	—	—	—	—
Frunse	20.1	24	i 4	38	0	—	—	—	—	—	—
Rybach'e	20.4	26	i 4	42	+ 1	—	—	—	—	—	—
Goris	20.5	322	i 4	40	- 2	e 8	39	+ 12	—	—	—
Kirovobad	21.3	322	4	48	- 2	8	48	+ 5	—	—	—
Almata	21.4	27	i 4	52	+ 1	i 8	54	+ 9	—	—	—
Chatra	21.4	78	i 4	55	+ 4	i 8	59	+ 14	5	6	PP 10.8
Przhevalsk	21.4	31	4	54	+ 3	—	—	—	—	—	—
Erevan	22.0	319	i 4	56	- 2	9	0	+ 4	—	—	—
Makhach-Kala	22.3	328	e 5	0	- 1	—	—	—	—	—	—
Leninakan	22.8	319	5	2	- 3	—	—	—	—	—	—
Tifis	22.8	322	5	5	0	e 9	17	+ 6	—	—	—
Calcutta	E. 22.9	90	e 5	17	+ 11	i 9	37	+ 24	—	—	—
Akhalkalaki	23.4	319	e 5	16	+ 5	—	—	—	—	—	—
Gori	23.4	322	5	13	+ 2	—	—	—	—	—	—
Borzhomei	23.7	322	i 5	15	+ 1	—	—	—	—	—	—
Colombo	E. 23.8	137	5	16	+ 1	—	—	—	—	—	—
Zugdidi	25.0	321	i 5	27	0	—	—	—	—	—	—
Piatigorsk	25.3	324	5	29	- 1	9	58	+ 4	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Ksara		25.6	297	i 5 34	+ 2	i 10 14	+15	—	—
Shillong	E.	25.7	82	e 5 36	+ 3	—	—	—	—
Sotchi		26.9	320	e 5 41	- 4	e 10 24	+ 4	—	—
Helwan	Z.	28.9	288	6 1	- 2	e 7 16	PPP	e 8 49	? e 15.7
Theodosia		30.3	319	e 6 12	- 3	e 11 25	+10	—	—
Yalta		30.8	317	e 6 17	- 3	e 11 30	+ 7	—	—
Sverdlovsk		32.0	357	i 6 29	- 1	11 52	+10	—	—
Istanbul	Z.	32.8	308	e 6 34	- 3	—	—	—	e 15.4
Kishinev		35.3	319	i 6 56	- 3	—	—	—	—
Moscow		36.2	336	e 7 5	- 1	—	—	—	—
Lwow		39.4	320	e 7 31	- 2	e 13 43	+ 8	—	—
Irkutsk		41.2	38	7 50	+ 2	—	—	—	—
Taranto		41.4	304	6 26	?	13 46	PcS	—	23.8
Kyakhta		41.6	41	7 55	+ 4	e 14 16	+ 8	—	—
Kabansk		42.4	39	i 8 1	+ 3	e 14 27	+ 7	—	—
Messina		42.5	301	e 8 0	+ 1	e 14 18	- 4	e 17 15	SS e 24.4
Rome		45.2	306	e 7 32	?	i 14 55	- 6	18 23	SS e 24.5
Prague		45.3	318	8 20	- 1	e 10 28	?	e 9 38	?
Tananarive		46.2	202	e 8 29	+ 1	—	—	—	—
Florence		46.3	308	e 8 25	- 4	e 15 43	PPS	—	—
Collmberg		46.5	319	i 8 28	- 3	e 11 21	PPP	e 9 37	?
Potsdam		46.7	320	e 8 31	- 1	—	—	—	e 29.7
Upsala		47.1	330	i 10 23	PP	—	—	i 10 28	PP e 26.7
Jena		47.3	318	e 8 36	- 1	—	—	e 9 6	?
Copenhagen		48.1	324	—	—	15 54	+12	—	31.7
Stuttgart		48.4	315	e 8 42	- 4	—	—	—	—
Zürich		48.6	313	e 8 43 _a	- 4	—	—	—	—
Basle		49.3	313	e 8 48	- 5	—	—	—	—
Besançon		50.3	312	e 8 57	- 3	—	—	e 9 35	?
Kiruna		50.3	341	i 8 58	- 2	e 20 13	SS	i 9 6	? e 24.1
Witteveen	Z.	50.6	320	e 9 10	+ 8	—	—	—	—
Tamanrasset		52.7	282	i 9 17	- 1	e 10 42	PcP	e 11 18	PP
Paris		52.8	314	i 9 17	- 2	i 9 36	?	i 9 25	?
Pretoria	Z.	60.8	217	e 10 14	- 2	—	—	—	—
Resolute Bay	Z.	79.7	355	e 12 10	- 1	—	—	—	—
College Nelson		87.3	13	e 12 50	0	—	—	—	—
		119.7	358	i 20 15	PP	—	—	—	—

Dec. 29d. 2h. 9m. 15s. Epicentre 50°·0N. 158°·3E. (as on Nov. 13d.).

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Petropavlovsk		3.1	4	i 1 0	- 2 _g	1 47	+ 5 _g	—	—
Klyuchi		6.5	12	i 1 50	- 4 _*	3 11	- 6 _*	—	—
Kurilsk		8.5	240	i 1 57	-10	3 26	-19	—	—
Magadan		10.5	339	e 2 43	+ 8	—	—	—	—
Uglegorsk		10.6	271	2 38	+ 2	—	—	—	—
Yuzno-Sakhlinsk		10.8	259	2 38	- 1	—	—	—	—
Sapporo		13.6	246	3 21	+ 4	e 4 5	?	e 7 59	Q e 9.9
Aomori		15.3	240	e 4 19	+40	—	—	e 5 42	? e 8.4
Miyako		15.5	234	e 3 25	-17	e 6 25	-10	—	—
Mizusawa	E.	16.3	235	3 53	+ 1	6 5	-48	—	—
Sendai		17.1	232	e 3 58	- 4	e 7 11	- 1	—	e 11.8
Yamagata		17.4	233	e 3 56	-10	e 7 19	0	—	—
Hokusima		17.7	232	e 4 5	- 5	e 7 27	+ 1	—	—
Inawasiro		18.0	232	e 3 59	-14	—	—	—	—
Shirakawa		18.3	232	e 4 13	- 4	—	—	—	—
Mito		18.7	231	4 19	- 3	e 7 50	+ 2	—	—
Utsunomiya		18.9	232	e 4 17	- 7	e 7 50	- 3	—	—
Vladivostok		19.4	359	i 4 25	- 5	i 7 51	-13	—	—
Kumagaya		19.5	233	e 4 26	- 5	e 8 5	- 1	—	—
Maebasi		19.5	234	e 4 23	- 8	8 2	- 4	—	—

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Nagano		19.7	236	e 4	28	- 6	7	57	-13	—	—	—
Tokyo		19.7	230	i 4	30	- 4	e 8	13	+ 3	5	45	? i 12.1
Matsuro		19.8	236	i 4	29	- 6	i 8	11	-2	5	29	PP e 9.4
Oiwake		19.8	235	e 4	24	-11	—	—	—	—	—	—
Yokohama		19.9	230	e 4	28	- 8	—	—	—	—	—	—
Matumoto	E.	20.2	235	e 4	32	- 7	e 8	17	- 4	—	—	—
Kohu		20.3	232	4	34	- 6	—	—	—	—	—	—
Misima	E.	20.5	229	e 4	38	- 4	—	—	—	e 5	21	PP
Iida		20.8	232	e 4	44	- 1	—	—	—	—	—	—
Shizuoka		20.9	231	e 4	43	- 3	e 8	34	- 1	e 6	36	? —
Hukui		21.2	236	e 4	43	- 6	—	—	—	—	—	—
Kameyama		22.0	234	e 4	54	- 4	—	—	—	e 5	54	? —
Kyoto		22.3	236	e 4	56	- 5	e 9	6	+ 4	—	—	—
Siomisaki		23.5	234	5	7	- 5	—	—	—	—	—	—
Takamatu		23.7	236	e 5	9	- 5	e 9	30	+ 3	—	—	—
Hamada		24.4	241	5	18	- 3	9	39	0	—	—	e 11.9
Koti		24.6	237	e 5	18	- 5	e 9	40	- 2	—	—	—
Hirosima		24.6	239	5	15	- 8	9	26	-16	—	—	—
Ooita		25.8	240	e 5	35	+ 1	e 10	0	- 2	—	—	—
College		31.4	40	i 6	27	+ 2	e 14	45	?	—	—	e 19.2
Kabansk		32.0	294	e 6	30	0	i 11	47	+ 5	—	—	—
Irkutsk		33.3	296	e 6	44	+ 3	—	—	—	—	—	—
Zé-Sá		33.5	250	6	41	- 2	12	3	- 2	—	—	—
Nanking		34.3	254	i 6	47 ^a	- 3	i 12	12	- 5	—	—	—
Hong Kong		44.2	247	—	—	—	e 14	42	- 4	e 18	12	SS —
Resolute Bay		46.6	20	i 8	35 ^k	+ 3	i 15	32	+11	i 10	28	PP e 26.2
Semipalatinsk		47.7	302	e 8	39	- 1	e 15	36	0	—	—	—
Corvallis	z.	51.2	65	i 9	8	+ 1	—	—	—	—	—	—
Przhevalsk		53.3	295	9	23	0	16	56	+ 2	—	—	—
Almata		53.7	297	i 9	25	- 1	e 17	4	+ 5	—	—	—
Sverdlovsk		53.8	318	—	—	—	17	4	+ 3	—	—	—
Shasta		54.0	67	i 9	29 ^k	+ 1	e 9	46	?	e 11	35	PP —
Hungry Horse		54.1	55	i 9	30	+ 1	—	—	—	—	—	—
Mineral	z.	54.7	67	i 9	29 ^k	- 4	i 10	4	?	i 10	58	? —
Rybach'e		54.7	296	i 9	33	0	i 17	19	+ 6	—	—	—
Frunse		55.3	297	i 9	38	0	i 17	29	+ 8	—	—	—
Naryn		55.3	295	e 9	38	0	i 17	28	+ 7	—	—	—
Berkeley	z.	55.9	71	i 9	42 ^k	0	i 10	41	?	e 9	54	pP —
Shillong	E.	55.9	270	e 10	0	pP	—	—	—	—	—	—
Butte		56.3	57	i 9	46	+ 1	—	—	—	i 9	57	pP —
Reno	z.	56.3	66	i 9	46 ^k	+ 1	—	—	—	e 10	5	pP —
Lick	z.	56.6	71	i 9	47 ^k	0	e 10	42	?	i 9	58	pP —
Andijan		57.9	297	—	—	—	i 18	3	+ 8	—	—	—
Chatra	z.	58.0	274	i 9	57	0	e 18	0	+ 3	—	—	—
Fresno	z.	58.1	68	e 9	58 ^k	0	—	—	—	—	—	—
Namangan		58.2	297	i 9	59	+ 1	e 18	0	+ 1	—	—	—
Kiruna		58.3	342	i 10	1 ^k	+ 2	i 18	10	+ 9	i 13	42	PPP e 27.8
Fergana		58.5	296	e 10	1	+ 1	i 18	9	+ 6	—	—	—
Tchimkent		58.5	300	i 10	2	+ 2	i 18	9	+ 6	—	—	—
Tinemaha		58.8	68	i 10	5 ^k	+ 3	—	—	—	i 10	14	pP —
Lunacharskoe		59.3	299	i 10	5	- 1	i 18	13	- 1	—	—	—
Tashkent		59.3	299	e 10	7	+ 1	e 18	16	+ 2	—	—	—
Dzhergetal		59.6	297	10	8	0	—	—	—	—	—	—
Scoresby Sund		59.8	0	e 10	11	+ 2	e 18	37	+17	—	—	29.8
China Lake	z.	60.1	68	i 10	11 ^k	0	—	—	—	i 10	22	pP —
Garm		60.2	297	e 10	13	+ 1	—	—	—	—	—	—
Khorog		60.5	294	10	13	- 1	—	—	—	—	—	—
Obi-garm		60.8	296	10	16	0	e 18	33	0	—	—	—
Pasadena		60.8	70	10	15 ^k	- 1	e 39	36	P'P'	i 10	27	pP —
Kulyab		61.3	295	—	—	—	18	44	+ 5	—	—	—

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Stalinabad		61.4	297	i 10	20	0	i 18	45	+ 5	—	—	—
Boulder City		61.6	66	i 10	22	0	—	—	—	i 10	34	?
Nelson		61.8	66	i 10	23	0	—	—	—	—	—	—
Palomar	z.	62.2	70	i 10	25 ^k	- 1	—	—	—	i 10	42	pP
Pulkovo		62.7	333	e 10	32	+ 3	e 19	5	+ 8	—	—	—
Moscow		63.7	327	e 10	37	+ 1	i 19	16	+ 6	—	—	—
Bairam-Ali		65.9	300	i 10	50	0	19	44	+ 7	—	—	—
Uppsala		65.9	340	i 10	52 ^k	+ 2	e 19	45?	+ 8	i 11	14	PcP
Tucson		66.6	67	i 10	55	+ 1	—	—	—	i 11	6	pP
Ashkabad		67.7	303	11	2	+ 1	20	6	+ 8	—	—	—
Quetta		68.3	292	i 11	5	0	i 20	9	+ 3	e 39	9	P'P'
Makhach-Kala		69.5	312	i 11	16	+ 4	i 20	26	+ 6	—	—	—
Kirkland Lake	z.	70.1	37	i 11	16 ^k	0	—	—	—	—	—	—
Baku		70.3	310	i 11	22	+ 5	i 20	42	+13	—	—	—
Piatigorsk		70.7	316	11	22	+ 2	20	40	+ 6	—	—	—
Shamakla		70.7	311	i 11	22	+ 2	20	43	+ 9	—	—	—
Lubbock		70.8	59	11	21	+ 1	—	—	—	—	—	—
Copenhagen		70.9	341	i 11	24	+ 3	20	44	+ 8	i 11	35	pP
Kirovobad		71.7	312	11	28	+ 2	20	48	+ 3	—	—	—
Tiflis		71.7	314	11	29	+ 3	20	52	+ 7	—	—	—
Gori		71.8	314	e 11	30	+ 4	e 20	54?	+ 8	—	—	—
Borzomi		72.3	314	i 11	33	+ 4	i 21	0	+ 8	—	—	—
Tsikhlis-Dzhvari		72.3	314	11	33	+ 4	21	3	+11	—	—	—
Zugdidi		72.4	316	i 11	34	+ 4	i 21	4	+11	—	—	—
Poona		72.5	278	i 11	30	0	20	57	+ 3	—	—	—
Sotchi		72.5	318	i 11	33	+ 3	i 21	0	+ 6	—	—	—
Goris		72.7	311	i 11	37	+ 5	i 21	4	+ 7	—	—	—
Bombay		72.9	278	i 11	34	+ 1	i 21	2	+ 3	14	17	PP
Leninakan		72.9	313	e 11	41	+ 8	—	—	—	—	—	—
Erevan		73.1	313	—	—	—	21	9	+ 8	—	—	—
Fayetteville	z.	73.1	53	i 11	34 ^k	0	i 14	10	PP	i 11	47	pP
Lwow		73.1	331	i 11	38	+ 4	i 21	8	+ 7	—	—	—
Theodosia		73.2	321	i 11	37	+ 2	e 21	8	+ 6	—	—	—
Potsdam		73.8	339	i 11	42 ^a	+ 4	i 21	21	+12	e 14	31	PP
Kishinev		74.0	326	e 11	40	+ 1	i 21	18	+ 7	—	—	—
Ottawa		74.0	37	i 11	39 ^k	0	—	—	—	14	28	PP
Yalta		74.1	322	e 11	42	+ 2	e 21	17	+ 5	—	—	—
Shawinigan Falls N.		74.2	33	e 11	40	0	—	—	—	—	—	—
Raciborzu		74.6	334	11	46	+ 3	e 21	26	+ 8	e 12	5	PcP
Uzhgorod		74.7	331	i 11	47	+ 4	i 21	28	+ 9	—	—	—
Collmberg		74.8	338	e 11	45	+ 1	e 21	28	+ 8	e 14	10	PP
Skalnate Pleso		74.8	333	e 11	50	+ 6	e 21	35	+15	e 14	41	PP
Witteveen	z.	74.8	343	e 11	48	+ 4	—	—	—	e 12	8	pP
Cleveland	z.	74.9	42	i 11	46 ^a	+ 2	—	—	—	—	—	—
Buffalo (Larkin)		75.0	39	e 11	47	+ 2	—	—	—	—	—	—
Jena		75.5	338	e 11	51	+ 3	e 21	35	+ 7	e 14	50	PP
Prague		75.6	337	e 11	52	+ 4	e 21	38	+ 9	e 14	55	PP
De Bilt		75.7	343	e 11	53	+ 4	e 21	40	+10	e 14	45	PP
Cheb	N.	76.1	338	e 11	53	+ 2	e 21	46	+11	e 15	20	PP
Rathfarnham Castle		76.3	350	i 11	54	+ 2	e 19	2	?	e 12	2	pP
Ogyalla		76.6	334	e 12	18	PcP	e 21	52	+12	e 14	51	PP
Budapest		76.7	333	e 12	1	+ 6	e 21	52	+11	12	16	PcP
Pennsylvania		77.0	40	i 12	0	+ 4	e 21	59	+14	i 12	17	PcP
Brisbane		77.3	185	i 11	50 ^k	- 8	e 21	31	-17	i 14	37	PP
Kew		77.3	346	e 12	1	+ 3	e 22	16	ScS	e 27	0	SS
Kalossa		77.6	333	e 12	28	PcP	—	—	—	—	—	—
Timisoara		77.6	330	e 11	45?	-15	e 22	4	+13	—	—	—
Harvard		78.1	35	i 12	3 ^a	+ 1	—	—	—	—	—	—
Stuttgart		78.1	340	e 12	4	+ 2	e 22	5	+ 9	e 12	14	PcP
Weston		78.3	35	i 12	6 ^k	+ 3	—	—	—	—	—	—

Continued on next page.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	^c	^c	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Palisades	78.5	37	i 12	5 _a	+ 1	—	—	—	i 12	17	PcP	e 45.6
Fordham	78.6	38	i 12	7	+ 2	—	—	—	—	—	—	—
Strasbourg	78.6	340	e 12	9	+ 4	e 22	10	+ 8	e 15	13	PP	e 36.8
Belgrade	78.7	331	e 12	9	+ 3	e 15	5	PP	e 12	26	PcP	e 52.2
Halifax	78.9	29	e 12	9	+ 2	—	—	—	—	—	—	—
Washington	78.9	40	i 12	8	+ 1	—	—	—	—	—	—	—
Istanbul	z. 79.0	323	e 12	10	+ 3	e 22	12	+ 6	e 14	58	PP	—
Paris	79.4	344	i 12	12	+ 3	i 22	23	ScS	i 14	45	PP	37.8
Zürich	79.5	340	e 12	12	+ 2	e 22	11	0	—	—	—	—
Basle	79.6	341	e 12	14	+ 4	e 22	4	- 8	—	—	—	—
Triest	79.9	336	e 12	24	+12	i 22	19	+ 3	i 22	28	ScS	43.6
Besançon	80.2	341	i 12	18	+ 4	e 15	10	PP	e 12	25	PcP	—
Salo	80.8	337	e 12	30	+13	e 12	45	PcP	e 13	43	?	—
Oropa	81.3	339	i 12	29	+ 9	—	—	—	—	—	—	—
Clermont-Ferrand	82.2	343	e 12	29	+ 5	e 22	48	+ 9	e 23	0	SKS	44.8
Ksara	82.2	314	i 12	27	+ 3	22	53	+14	15	41	PP	—
Florence	82.3	336	i 12	27	+ 2	i 22	52	+12	e 15	49	PP	—
Tacubaya	83.1	68	e 12	31	+ 2	e 22	58	+10	—	—	—	—
Taranto	83.6	331	—	—	—	22	52	- 1	—	—	—	48.5
Riverview	83.7	185	i 12	28 _a	- 4	i 23	45	PS	e 28	14	SS	e 39.0
Rome	83.7	335	i 12	33 _k	+ 1	i 23	0	+ 6	e 12	41	pP	e 40.6
Messina	86.2	331	e 12	42	- 2	e 23	24	+ 5	e 24	20	PS	42.2
Helwan	87.6	315	12	53	+ 2	e 23	40	+ 8	16	24	PP	—
Toledo	89.2	346	i 13	1	+ 2	—	—	—	e 17	5	PP	—
Bermuda	89.6	35	—	—	—	e 23	0	?	—	—	—	e 48.6
Alicante	90.1	343	13	4	+ 1	23	46	- 9	16	36	PP	43.2
Algiers Univ.	z. 90.8	340	e 13	7	+ 1	e 16	48	PP	e 19	6	PPP	60.8
Malaga	92.3	345	i 13	17	+ 4	23	53	[+ 7]	13	33	pP	57.2
San Juan	101.4	42	e 13	56	+ 1	—	—	—	—	—	—	—
Tamanrasset	z. 103.6	334	e 14	6	+ 2	i 18	26	PP	e 20	51	PPP	—
La Paz	130.0	64	i 19	13	[+ 1]	i 22	40	PKS	i 21	27	PP	—

Dec. 29d. 9h. 19m. 18s. Epicentre 22°.9N. 121°.5E. (as on 1951, Dec. 5d.).

A = -.4818, B = +.7862, C = +.3869; δ = -7; h = +4;
D = +.853, E = +.522; G = -.202, H = +.330, K = -.922.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	^c	^c	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Hong Kong	6.9	265	i 1	52	+ 7	—	—	—	—	—	—	—
Zô-Sè	8.2	358	e 2	0	- 3	3	22	-16	—	—	—	—
Manila	8.3	183	i 1	54 _k	-10	i 3	14	-26	—	—	—	—
Nanking	9.4	346	e 2	18	0	e 3	53	-14	—	—	—	—
Chatra	31.4	284	i 6	30	+ 5	e 11	35	+ 3	—	—	—	e 20.4
Bandung	32.6	207	i 6	46	+11	—	—	—	—	—	—	—
Kodaikanal	E. 43.9	261	e 8	37	+27	—	—	—	—	—	—	—
Poona	Z. 44.6	273	i 7	56	-20	—	—	—	—	—	—	—
Bombay	N. 45.5	274	e 5	25	?	e 15	11	+ 6	—	—	—	—
Quetta	48.9	291	i 8	52 _k	+ 2	e 15	53	0	i 9	7	pP	—
Brisbane	z. 58.6	147	i 9	57	- 4	—	—	—	—	—	—	—
Kiruna	73.1	337	i 11	33	- 1	i 11	40	?	i 11	55	PcP	e 39.5
Ksara	74.2	300	11	58	+18	24	7	?	—	—	—	—
Upsala	77.2	330	i 11	57	0	—	—	—	i 12	3	PcP	e 41.7
Helwan	z. 79.1	297	12	11	+ 3	—	—	—	i 12	26	PcP	—
Resolute Bay	z. 79.9	9	e 12	11 _k	- 1	—	—	—	—	—	—	—
Copenhagen	81.5	327	i 12	22	+ 1	—	—	—	—	—	—	41.7
Collmberg	83.3	323	e 12	30	0	—	—	—	—	—	—	—
Tananarive	83.3	247	i 12	37	+ 7	—	—	—	—	—	—	—
Witteveen	z. 85.8	327	i 12	47 _k	+ 5	—	—	—	—	—	—	—
Kew	90.1	328	e 11	57	-66	—	—	—	—	—	—	e 45.7
Rathfarnham Castle	91.7	332	e 12	26	-44	—	—	—	—	—	—	e 44.2
Shasta	z. 93.3	43	e 14	20 _k	+62	—	—	—	—	—	—	—
Mineral	z. 94.0	43	e 14	22 _k	+61	e 14	45	?	e 15	24	?	—
Lick	z. 95.6	46	e 14	31 _a	+63	—	—	—	—	—	—	—
China Lake	z. 99.2	45	e 13	46	+ 1	—	—	—	—	—	—	—
Tamanrasset	z. 102.9	303	17	54	PP	—	—	—	e 18	22	—	—
Fayetteville	z. 112.3	31	e 19	22	PP	—	—	—	—	—	—	—

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1952

1242

Dec. 29d. 23h. 21m. 20s. Epicentre 21°·5S. 179°·0W. Depth of focus 0·070.
(as on 1952, July 22d.).

A = -·9311, B = -·0163, C = -·3644; $\delta=0$; $h=+4$;
D = -·017, E = +1·000; G = +·364, H = +·006, K = -·931.

		Δ		Az.		P.		O-C.	S.		O-C.	Supp.	
		°	'	°	'	m.	s.	s.	m.	s.	s.	m.	s.
Apia		10·3	44	i 2	19	- 3		i 4	6	- 9			
Auckland	N.	16·2	198	i 5	20	?		e 6	10	+ 2		e 7	30
Karapiro	N.	17·0	195	e 3	28	- 3		e 6	26	+ 4		e 5	32
New Plymouth	E.	18·5	197	3	48	+ 2		6	50	+ 2			
Wellington		20·4	194	e 3	59	- 5		e 7	20	- 1		e 8	15
Cobb River	E.	20·7	198	e 4	3	- 4		e 7	13	- 13			
Kaimata	N.E.	22·5	199	e 4	21	- 3		e 7	55	- 1			
Christchurch		23·0	195	e 4	28	0		e 8	0	- 4		e 6	39
Brisbane		26·1	252	i 5	0 _a	+ 4		i 8	55	+ 2		i 7	10
Riverview		29·0	238	i 5	21 _k	0		i 9	39	+ 1		i 15	8
Djakarta		73·1	270	i 10	42	0		i 19	30	0			
Zô-Sè		77·6	311	i 11	8 _k	+ 1		i 20	24	+ 5			
Hong Kong		78·4	300					20	33	+ 6			
Berkeley	z.	79·5	42	e 13	4 _k	pP							
Lick	z.	79·6	43	i 11	17 _k	- 1		i 11	44	PcP		e 13	3
Nanking		79·8	310	i 11	21 _k	+ 2		i 20	48	+ 6			
Pasadena		80·0	47	i 11	19 _k	- 1						i 13	7
Fresno	z.	80·5	45	e 11	22 _k	0						e 13	9
Palomar	z.	80·5	48	i 11	23 _k	+ 1						i 13	10
Shasta	z.	81·2	40	i 11	25 _k	- 1		e 15	11	PP		i 13	13
China Lake	z.	81·4	46	i 11	26 _k	- 1						i 13	14
Mineral	z.	81·5	41	i 13	15 _k	pP							
Tinemaha		81·7	45	i 11	28	- 1		i 11	38	PcP		i 13	21
Reno	z.	82·1	42	i 11	30	- 1						e 11	52
Nelson		83·2	47	i 11	35	- 1		i 11	51	PcP		i 13	21
Boulder City		83·3	47	i 11	36	- 1							
Tucson		84·3	52	i 11	42	0						i 13	30
College		89·4	12	i 12	3	- 3							
Butte		90·1	39	i 12	7	- 2						i 13	58
Hungry Horse		90·5	37	i 12	9	- 2						i 14	0
Fayetteville	z.	98·4	54	e 12	45	- 2		i 16	51	PP		i 14	36
Ottawa		114·2	48	e 17	42 _k	[- 2]							
San Juan		117·3	79	e 17	48	[- 2]							
Quetta	z.	120·7	292	i 17	58 _a	[+ 1]							
Kimberley	z.	125·0	206	i 18	4	[- 1]							
Scoresby Sund		129·2	10	e 18	12	[- 1]		e 20	0	pPKP		e 20	49
Kiruna	z.	132·1	350	i 18	16	[- 3]		i 21	2	SKP		i 20	59
Upsala	z.	139·9	347	i 18	25	[- 8]		i 21	24	SKP		i 18	33
Copenhagen		144·8	349	i 18	42	[0]						20	38
Kishinev		146·0	326	i 18	45	[+ 1]							
Lwow		146·4	333	i 18	46	[+ 1]							
Cernauti		146·6	330	e 18	47	[+ 2]							
Ksara		146·9	298	i 18	48	[+ 3]		21	36	sPKP		20	50
Potsdam	z.	147·8	347	e 18	47	[0]		e 21	38	sPKP		i 20	47
Rathfarnham C.	z.	147·8	8	e 18	49	[+ 2]							
Uzhgorod		148·0	333	i 18	51	[+ 4]							
Raciborzu	z.	148·4	339	e 18	47	[- 1]		18	52	PKP ₂		e 20	59
Witteveen	z.	148·4	353	i 18	55 _k	[+ 7]						i 20	52
Istanbul	z.	149·3	317	e 18	54	[+ 5]						e 20	50
Jena		149·5	345	e 18	48	[- 1]		e 22	19	PP		i 20	51
Prague		149·6	343	i 18	55	[+ 6]		e 22	30	PP		e 21	4
Helwan	z.	151·3	293	18	52	[0]		20	15	?		e 20	56
Stuttgart		152·0	348	e 18	51	[- 2]						e 20	58
Strasbourg		152·4	349	i 19	2	[+ 9]		i 19	10	PKP ₂		e 20	58
Paris		152·7	357	i 19	3	[+ 9]		i 19	16	PKP ₂		i 20	57
Basle	z.	153·5	350	e 19	18	[+ 23]						e 20	58
Zürich	z.	153·5	349	e 18	53	[- 2]						e 19	1
Besançon		154·0	352	i 19	21	[+ 25]		e 21	21	SKP			
Algiers Univ.	z.	164·7	354	e 19	7	[- 11]		e 20	7	PKP ₂		e 21	4
Tamanrasset	z.	175·7		i 19	15 _a	[+ 1]		i 22	46	PKS		e 21	14

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1952

1243

Dec. 30d. 12h. 7m. 3s. Epicentre 10°·3N. 83°·5W.

$\Delta = +.1114$, $B = -.9778$, $C = +.1776$; $\delta = +4$; $h = +6$;
 $D = -.994$, $E = -.113$; $G = +.020$, $H = -.176$, $K = -.984$.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L. m.	
			m.	s.		m.	s.		m.	s.		
Balboa Heights	4.1	108	i 1	7	+ 2	e 2	27	+11 _g	—	—	—	
Galerazamba	8.1	86	i 2	14	+12	i 3	44	+ 9	i 4	37	SS _g	
Chinchina	9.4	123	i 2	20	+ 2	i 4	19	+12	i 2	33	PP	
Kingston	10.0	40	e 2	59	P*	e 4	48	+26	e 6	34	?	
Bogota	10.9	120	i 2	44	+ 4	i 4	57	+13	i 2	52	PPP,	
Vera Cruz	15.1	307	e 3	41	+ 5	e 6	21	- 4	e 6	5	?	
Puebla	16.6	303	e 4	0	+ 4	—	—	—	e 4	26	?	
Tacubaya	17.6	303	e 4	8	0	e 7	21	- 2	—	—	—	
Mobile	20.7	348	4	45	+ 1	8	37	+ 6	—	—	—	
Fort de France	22.2	76	i 5	4	+ 4	i 9	17	+17	—	—	—	
Huancayo	23.6	160	i 5	13	0	i 9	33	+ 8	—	—	—	
Fayetteville	z.	27.4	342	i 5	45 _k	- 4	e 10	57	+29	i 6	6	pP
Bermuda	28.0	36	i 5	59	+ 4	e 10	47	+9	—	—	—	
Lubbock	28.6	328	i 6	1	+ 1	—	—	—	—	—	—	
Cincinnati	28.7	359	i 5	59	- 2	i 10	56	+ 6	—	—	—	
Washington	29.1	12	i 6	3	- 1	—	—	—	—	—	—	
La Paz	30.7	149	i 6	18	- 1	11	27	+ 6	i 7	13	PP	
Pennsylvania	30.8	8	i 6	22	+ 2	e 11	29	+ 6	—	—	—	
Cleveland	31.1	3	i 6	23 _a	+ 1	i 11	36	+ 8	e 13	22	SS	
Fordham	31.6	15	e 6	28	+ 2	e 11	48	+13	—	—	—	
Palisades	31.7	15	i 6	27	0	i 11	41	+ 4	e 7	37	PP	
Buffalo (Larkin)	32.7	7	i 6	34	- 2	—	—	—	—	—	—	
Tucson	33.4	315	e 6	40	- 2	e 14	13	SS	e 7	53	PP	
Harvard	33.7	17	e 6	44	- 1	e 12	18	+10	—	—	—	
Weston	33.7	17	i 6	48 _a	+ 3	e 11	56	-12	—	—	—	
Ottawa	35.6	9	e 6	59	- 2	12	37	- 1	8	26	PP	
Shawinigan Falls	z.	37.3	13	e 7	15	- 1	—	—	—	—	—	
Kirkland Lake	z.	37.8	4	e 7	19 _k	- 1	—	—	—	—	—	
Nelson	38.1	318	i 7	21	- 1	—	—	—	—	—	—	
Boulder City	38.2	318	e 7	20	- 3	—	—	—	—	—	—	
Halifax	38.3	24	i 7	27	+ 3	—	—	—	—	—	—	
Palomar	z.	38.3	313	i 7	22	- 2	—	—	—	—	—	
Pasadena	39.6	313	i 7	34	- 1	—	—	—	i 9	24	PP	
China Lake	z.	40.0	316	e 7	36	- 2	—	—	—	—	—	
Tinemaha	z.	41.1	316	i 7	46	- 1	—	—	—	—	—	
Reno	z.	43.4	319	e 8	9	+ 3	—	—	e 8	37	?	
Lick	z.	43.6	315	e 8	11 _a	+ 3	—	—	e 8	56	?	
Mineral	z.	45.1	319	e 8	27 _a	+ 7	e 10	14	PP	e 10	8	PcP
Hungry Horse	45.7	332	i 8	22	- 2	—	—	—	—	—	—	
Resolute Bay	64.7	357	e 10	36	- 6	e 19	27	+ 5	—	—	—	
College	70.0	336	e 11	10	- 5	—	—	—	—	—	—	
Rathfarnham Castle	74.2	37	e 11	47	+ 7	e 21	17	+ 3	e 13	12	?	
Malaga	75.2	55	i 11	43	- 3	—	—	—	—	—	—	
Granada	75.8	55	i 12	1 _k	+11	—	—	—	12	41	PcP	
Almeria	76.8	55	12	7	+12	26	47	SS	—	—	—	
Kew	77.8	40	e 13	17	?	e 22	19	PS	e 16	37	PPP	
Algiers Univ.	z.	81.2	54	—	—	31	57 _?	SSS	—	—	—	
Witteveen	z.	82.0	38	e 12	25	+ 2	—	—	—	—	—	
Stuttgart	84.1	42	e 12	33	- 1	e 22	57	- 1	—	—	—	
Copenhagen	84.9	35	—	—	—	23	4	- 2	—	—	—	
Tamanrasset	z.	85.2	68	e 12	39	0	e 13	14	?	e 16	3	PP
Jena	85.3	39	e 12	39	- 1	e 12	51	PcP	e 13	0	?	
Kiruna	85.7	22	i 12	40	- 2	e 23	15	+ 1	e 22	57 _?	SKS	
Potsdam	85.9	38	—	—	—	i 23	19	+ 3	—	—	—	
Collmberg	86.1	40	e 12	41	- 3	—	—	—	—	—	—	

Continued on next page.

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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1952

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		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Florence	z.	86.4	47	e 15	29	PP	—	—	—	—	—	—
Upsala	z.	86.7	30	i 12	45	- 2	i 13	14	?	i 13	32	?
Prague		87.2	40	e 12	53	+ 4	e 13	9	?	e 15	19	PP
Rome	z.	87.6	48	i 16	3	PP	—	—	—	—	—	—
Triest	z.	87.7	44	e 15	32?	PP	e 23	17	[- 2]	—	—	—
Istanbul	E.	99.8	45	—	—	—	e 24	22?	[- 4]	—	—	—
Zô-Sè		132.5	330	19	19 _k	[+ 2]	e 25	52	[- 34]	—	—	—
Nanking		132.8	334	e 19	34 _a	[+ 17]	i 26	16	[- 11]	—	—	—
Poona	z.	143.7	38	i 19	44	[+ 7]	—	—	—	—	—	—
Bandung		168.5	286	—	—	—	e 50	45	SSS	—	—	—
Djakarta	E.	169.0	291	—	—	—	e 51	5	SSS	e 54	5	?

Dec. 30d. 18h. 28m. 41s. Epicentre 20°·2S. 178°·2W. Depth of focus 0.070.
(as on 1952, Oct. 27d.).

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Apia		8.8	45	i 2	4	- 2	i 3	38	- 8	—	—	—
Auckland		17.7	200	e 3	40	+ 2	e 6	40	+ 6	i 5	49	?
Karapiro	N.	18.5	196	i 3	48	+ 2	e 6	51	+ 3	e 5	56	?
Wellington		21.9	195	e 4	19	+ 1	e 7	44	- 2	—	—	—
Brisbane	z.	27.3	250	i 5	10 _k	+ 3	i 9	16	+ 4	i 6	32	pP
Macquarie Is.		38.4	201	e 9	50	?	—	—	—	—	—	e 11.2
Lick	z.	78.2	43	i 11	10 _a	0	—	—	—	—	—	—
Pasadena		78.6	48	i 11	12	0	—	—	—	—	—	—
Palomar	z.	79.1	49	i 11	15 _a	0	—	—	—	i 11	24	?
Shasta	z.	79.7	40	i 11	18 _a	0	—	—	—	—	—	—
China Lake	z.	79.9	46	e 11	20	+ 1	—	—	—	e 11	35	?
Mineral	z.	80.0	40	e 11	19 _a	- 1	i 11	25	P	e 13	11	pP
Tinemaha	z.	80.2	45	i 11	21	0	—	—	—	i 11	38	?
Reno	z.	80.6	42	e 11	24	+ 1	—	—	—	—	—	—
Nelson		81.8	47	i 11	29	0	e 13	27	?	i 13	19	pP
Boulder City		81.9	47	i 11	30	0	—	—	—	i 13	21	pP
Tucson		82.9	52	i 11	35	0	—	—	—	—	—	—
College		88.0	12	i 11	57	- 2	—	—	—	i 13	49	pP
Hungry Horse		89.0	37	e 12	3	- 1	—	—	—	e 15	36	PP
Fayetteville	z.	97.0	54	i 14	32	pP	i 24	36	pSKS	—	—	—
Quetta	z.	120.8	294	i 17	59	[+ 2]	—	—	—	—	—	—
Kimberley	z.	126.5	206	i 18	9	[+ 1]	—	—	—	—	—	—
Kiruna	z.	130.9	351	i 20	55	SKP	—	—	—	—	—	—
Upsala	z.	138.8	348	i 18	23	[- 8]	—	—	—	—	—	—
Copenhagen		143.7	350	i 18	39	[- 1]	—	—	—	—	—	—
Kishinev		145.4	328	i 18	44	[+ 1]	—	—	—	—	—	—
Lwow		145.5	335	e 18	44	[+ 1]	—	—	—	—	—	—
Cernauti		145.9	331	e 18	46	[+ 2]	—	—	—	—	—	—
Potsdam	z.	146.7	348	e 18	48	[+ 3]	—	—	—	—	—	e 44.3
Ksara		146.9	301	i 18	50	[+ 5]	e 30	38	SP	e 20	50	pPKP
Uzhgorod		147.2	336	i 18	50	[+ 4]	—	—	—	—	—	—
Witteveen	z.	147.2	355	e 18	52	[+ 6]	—	—	—	—	—	—
Raciborzu	z.	147.5	341	e 18	49	[+ 3]	e 18	52	PKP ₂	e 20	53	pPKP
Collmberg	z.	147.7	347	e 18	46	[0]	—	—	—	e 20	49	pPKP
Jena	z.	148.4	347	e 18	49	[+ 1]	e 19	11	?	e 20	51	pPKP
Prague		148.6	345	i 18	54	[+ 6]	e 21	39	sPKP	e 20	54	pPKP
Istanbul	z.	148.9	318	e 18	54	[+ 6]	—	—	—	e 19	0	PKP ₂
Stuttgart		150.9	350	e 18	52	[+ 1]	e 18	58	PKP ₂	e 20	56	pPKP
Helwan	z.	151.6	296	e 18	53	[+ 1]	—	—	—	e 19	1	PKP ₂
Tamanrasset	z.	175.7	307	i 19	16 _a	[+ 2]	e 20	59	PKP ₂	e 21	9	pPKP

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1952

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Dec. 31d. 1h. 38m. 15s. Epicentre 11°·7N. 59°·0W.

Intensity II at La Martinique.

Bulletin Seismique mensuel—Morne des Cadets, December, 1952.

A = +·5045, B = -·8396, C = +·2015; δ = +5; h = +6;
D = -·857, E = -·515; G = +·104, H = -·173, K = -·979.

	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
			m.	s.		m.	s.		m.	s.		
Fort de France	3·6	325	i 1	0	+ 2	i 1	41	- 1	1	9	P _g	—
San Juan	9·6	315	i 2	21	0	i 4	9	- 3	—	—	—	—
Ciudad Trujillo	12·5	304	4	15	?	6	45	L	—	—	—	(6·8)
Bogota	16·5	246	i 3	58	+ 4	i 7	2	+ 4	—	—	—	—
Chinchina	17·7	249	e 4	6	- 4	e 7	19	- 7	—	—	—	—
Bermuda	21·2	346	i 4	53	+ 4	e 8	26	-15	—	—	—	e 9·1
Huancayo	28·6	215	i 5	55	- 5	e 10	35	-13	i 6	13	?	e 11·6
La Paz	29·4	197	e 6	8	+ 1	e 11	5	+ 4	—	—	—	14·4
Palisades	32·0	339	e 6	31	+ 1	—	—	—	—	—	—	e 14·4
Weston	32·4	343	i 6	35k	+ 1	—	—	—	—	—	—	—
Harvard	32·6	343	i 6	36k	+ 1	—	—	—	—	—	—	—
Halifax	33·0	354	i 6	42k	+ 3	—	—	—	—	—	—	—
Buffalo (Larkin)	35·4	335	i 7	2	+ 2	—	—	—	—	—	—	—
Cleveland	z. 35·6	330	i 7	7k	+ 6	—	—	—	i 7	21	pP	—
Ottawa	36·5	340	i 7	11k	+ 2	—	—	—	i 7	25	pP	—
Shawinigan Falls	N. 36·6	345	e 7	12	+ 2	—	—	—	e 7	25	pP	—
Fayetteville	z. 40·0	314	i 7	37k	- 1	—	—	—	i 7	49	pP	—
Kirkland Lake	z. 40·4	338	e 7	33	- 8	—	—	—	—	—	—	—
Tucson	51·7	302	e 9	9	- 2	—	—	—	—	—	—	—
Nelson	55·6	306	i 9	37	- 3	—	—	—	—	—	—	—
Boulder City	55·7	306	i 9	40	0	—	—	—	—	—	—	—
Butte	56·6	318	i 9	48	+ 1	—	—	—	—	—	—	—
Palomar	z. 56·9	302	e 9	48	- 1	—	—	—	—	—	—	—
China Lake	z. 57·8	306	e 9	54	- 1	—	—	—	e 10	11	pP	—
Pasadena	58·1	303	i 9	56	- 2	—	—	—	—	—	—	—
Hungry Horse	58·4	320	i 9	57	- 3	—	—	—	—	—	—	—
Reno	z. 60·2	309	e 10	12 _a	0	—	—	—	e 10	26	pP	—
Lick	z. 61·3	307	e 10	18 _a	- 2	—	—	—	i 10	32	pP	—
Mineral	z. 61·7	310	e 10	21 _a	- 1	i 11	5	?	i 10	26	pP	—
Tamanrasset	z. 62·2	70	e 10	27	+ 1	e 12	46	PP	e 10	43	pP	—
Shasta	z. 62·3	310	e 10	24	- 2	e 11	29	?	e 10	41	pP	—
Paris	62·6	41	e 10	30	+ 2	—	—	—	—	—	—	e 29·8
Scoresby Sund	63·1	12	e 10	32	0	—	—	—	—	—	—	—
Corvallis	z. 63·6	314	e 10	31	- 4	—	—	—	—	—	—	—
Stuttgart	66·9	42	e 10	55	- 1	—	—	—	—	—	—	—
Collmberg	z. 69·7	40	e 11	14	0	—	—	—	—	—	—	—
Prague	70·5	41	e 11	22	+ 4	—	—	—	e 11	47	PcP	—
Kiruna	z. 75·3	23	i 11	47	0	—	—	—	—	—	—	—
College	79·0	334	12	7	0	—	—	—	—	—	—	—

Dec. 31d. 8h. 9m. 58s. Epicentre 36°·7N. 70°·5E. Depth of focus 0·030.

(as on 1952, Oct. 18d.).

	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.	
			m.	s.		m.	s.		m.	s.
Khorog	1·2	48	i 0	32	- 2	i 0	54	- 6	—	—
Kulyab	1·3	335	i 0	36	+ 1	i 1	1	0	—	—
Garm	2·3	356	i 0	44	0	i 1	16	- 1	—	—
Stalinabad	2·3	323	i 0	44	0	i 1	15	- 2	—	—
Dzhergetal	2·6	12	0	46	- 1	1	31	+ 8	—	—
Fergana	3·8	15	i 1	0	- 1	i 1	46	- 3	—	—
Samarkand	4·1	319	1	6	+ 2	—	—	—	—	—
Andijan	4·3	20	1	7	0	i 1	57	- 2	—	—
Namangan	4·4	12	i 1	8	0	i 1	57	- 4	—	—
Lunacharskoe	4·7	349	e 1	13	+ 1	i 2	7	- 1	—	—

Continued on next page.

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1952

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	s.
Tchimkent	5.6	354	1 26	+ 3	2 29	+ 1	—	—
Naryn	6.4	41	1 34	+ 1	i 2 42	- 4	—	—
Frunse	6.9	26	i 1 40	0	i 2 58	0	—	—
Quetta	7.1	205	i 1 41	- 1	i 2 58	- 4	i 2 54	S
Rybach'e	7.2	35	i 1 44	0	—	—	—	—
Przhevalsk	8.4	44	1 57	- 2	—	—	—	—
New Delhi	9.8	143	i 2 11	- 6	i 3 49	- 16	2 28	PPP
Ashkabad	9.8	281	—	—	4 7	+ 2	—	—
Poona	z. 18.3	170	e 7 32	S	(e 7 32)	+ 20	—	—

Dec. 31d. 12h. 16m. 27s. Epicentre 52°·6N. 160°·3E. (as on Dec. 21d.).

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	s.
College	28.7	44	i 5 58	- 3	—	—	—	—
Resolute Bay	z. 43.7	22	e 8 8 _a	0	—	—	—	—
Hungry Horse	51.6	58	e 9 7	- 3	—	—	—	—
Shasta	z. 51.9	70	e 9 29	+ 17	—	—	—	—
Mineral	z. 52.6	70	e 9 20 _k	+ 2	e 9 43	?	i 9 58	PcP
Reno	z. 54.2	69	e 9 41	+ 12	—	—	—	—
Lick	z. 54.6	73	e 9 41 _a	+ 9	—	—	—	—
Scoresby Sund	57.2	2	e 9 52	+ 1	—	—	—	—
China Lake	z. 58.0	71	e 9 56	- 1	—	—	e 10 12	?
Boulder City	59.5	69	i 10 6	- 1	—	—	i 10 23	?
Nelson	59.7	69	i 10 3	- 6	—	—	i 10 14	?
Upsala	z. 63.9	340	i 10 38	+ 1	i 10 49	?	i 11 0	PcP
Quetta	z. 68.5	292	i 11 7	+ 1	—	—	—	—
Fayetteville	z. 70.6	56	i 11 17	- 2	—	—	—	—
Raciborzu	z. 72.8	36	e 11 32	0	—	—	e 11 46	PcP
Collmberg	72.9	339	e 11 33	0	—	—	e 11 45	PcP
Poona	z. 73.4	279	i 11 36	0	—	—	—	—
Jena	z. 73.5	340	e 11 38	+ 2	—	—	e 11 49	PcP
Harvard	75.2	37	e 12 14 _k	+ 28	—	—	—	—
Stuttgart	76.1	341	e 11 52	+ 1	—	—	—	—
Besançon	78.1	342	e 12 4	+ 2	—	—	—	—
Ksara	81.3	316	e 12 23 _?	+ 3	—	—	—	—
Helwan	z. 86.6	318	12 48	+ 2	—	—	i 12 59	PcP
Tamanrasset	z. 101.8	336	e 17 56	PP	—	—	—	—

Dec. 31d. 14h. 48m. 41s. Epicentre 35°·5N. 25°·7E.

Felt in the Isle of Crete : Intensity VI at Heraklion, Neapolis, Avdou ; V at Ampelouzos, Zakros, Roukaka, and Rethymnon. Epicentre adopted from Strasbourg.

A. Galanopoulos.

Seismological Institute Bulletin, 1952, Athens, 1953, p.50.

A = +.7353, B = +.3539, C = +.5781 ; δ = +11 ; h = 0 ;
D = +.434, E = -.901 ; G = +.521, H = +.251, K = -.816.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.	s.	m.
Athens	2.9	327	e 0 49 _k	+ 1	e 1 25	+ 1	i 1 31	S	—
Istanbul	6.1	24	i 1 31	- 3	e 2 49	+ 4	i 1 48	P*	—
Helwan	7.3	138	1 49	- 1	3 4	- 11	2 4	P*	—
Sofia	7.4	346	i 1 54	+ 2	e 3 21	+ 3	i 4 17	?	—
Taranto	8.3	309	2 12	+ 8	i 2 38	?	i 2 42	P _e	—
Ksara	8.5	98	e 1 41	- 26	3 31 _?	- 14	—	—	—
Messina	z. 8.6	291	i 2 12 _a	+ 3	i 3 41	- 7	i 2 37	P*	—
Bucharest	8.9	2	e 2 16	+ 4	i 4 19	+ 24	—	—	—
Belgrade	10.1	338	e 2 33	+ 4	e 4 38	+ 13	e 4 5	?	—
Timisoara	n. 10.8	343	e 2 47 _a	+ 8	e 6 4	?	i 6 18	?	—

Continued on next page.

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1952

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.
Yalta	11.1	33	i 2	41	- 2	e 4	41	- 8	—	—	—
Szeged	11.5	340	2	43	- 5	6	37	L	3	41	(6.6)
Kishinev	11.7	11	i 2	52	+ 1	e 5	5	+ 1	—	—	—
Iasi	11.8	6	e 2	52	- 1	—	—	—	—	—	—
Theodosia	12.0	35	e 2	54	- 1	e 5	6	- 5	—	—	—
Kalossa	12.1	337	2	56	- 1	5	29	SS	e 3	10	PPP
Rome	12.1	306	i 3	26?	?	i 5	50	Q	i 3	46	?
Kecskemet	12.2	340	e 3	5	+ 7	—	—	—	3	11	PP
Budapest	13.0	340	e 3	18	+ 9	e 5	45	+10	—	—	7.3
Uzhgorod	13.4	350	i 3	14	0	—	—	—	—	—	—
Sotchi	13.5	49	e 3	9?	- 6	—	—	—	—	—	—
Ogyalla	13.6	338	e 3	40	?	e 5	52	+ 2	e 3	52	PPP
Triest	13.6	322	e 3	20	+ 3	i 5	38	-12	e 4	21	PP
Florence	13.8	311	e 3	52	+33	—	—	—	—	—	—
Padova	13.9	314	e 4	30	+69	—	—	—	—	—	—
Bologna	14.2	314	e 3	28	+ 4	e 6	23	+19	e 6	2	S
Skalnate Pleso	14.3	345	e 3	27	+ 1	e 5	59?	- 7	e 4	6	?
Lwow	14.4	356	i 3	26	- 1	—	—	—	—	—	—
Zugdidi	14.4	56	e 3	29	+ 2	—	—	—	—	—	—
Abastumanj	14.8	60	e 3	33	+ 1	—	—	—	—	—	—
Borzhomi	15.2	60	i 3	37	- 1	e 6	28	0	—	—	—
Leninakan	15.2	64	3	36	- 2	—	—	—	—	—	—
Tsikhlis-Dzhvari	15.2	61	i 3	38	0	—	—	—	—	—	—
Salo	15.3	316	e 3	44	+ 5	e 6	31	+ 1	e 4	34	?
Erevan	15.6	67	i 3	43	0	—	—	—	—	—	—
Raciborzu	15.6	342	e 3	45	+ 2	e 7	2	SSS	3	58	PP
Gori	15.7	60	e 3	45	+ 1	—	—	—	—	—	e 9.6
Piatigorsk	15.8	52	3	47	+ 2	6	44	+ 2	—	—	—
Pavia	15.9	313	e 4	7	+20	e 6	53	+ 9	e 5	47	?
Tiflis	16.1	62	3	49	0	6	51	+ 2	—	—	—
Prague	16.7	334	e 3	58	+ 1	e 7	7	+ 4	i 4	9	PP
Goris	16.8	70	i 3	58	0	—	—	—	—	—	—
Oropa	16.8	312	e 3	11	-47	(e 6	43)	-22	i 4	3	P
Kirovobad	17.1	66	3	59	- 3	—	—	—	—	—	e 6.7
Zürich	17.4	318	e 4	7	+ 1	e 7	12	- 7	e 4	55	PP
Cheb	17.5	331	e 4	33	+26	—	—	—	—	—	e 9.9
Stuttgart	18.0	323	e 4	12	- 1	e 7	31	- 1	e 4	23	PP
Basle	18.1	318	e 4	15	+ 1	e 7	41	+ 6	—	—	e 10.3
Algiers Univ.	18.3	280	e 4	19	+ 2	e 7	49	+10	e 4	35	PP
Collmberg	18.3	334	e 4	15	- 2	e 7	43	+ 4	e 4	29	PP
Makhach-Kala	18.4	57	i 4	17	- 1	e 7	43	+ 2	—	—	—
Jena	18.5	332	i 4	18	- 1	e 7	46	+ 2	e 4	32	PP
Karlsruhe	18.5	323	e 4	20	+ 1	e 7	48	+ 4	e 4	42	PP
Strasbourg	18.6	321	e 4	21?	0	e 7	48	+ 2	e 4	37	PP
Lenkoran	18.7	73	4	20	- 2	—	—	—	—	—	e 9.6
Shemakla	18.7	66	i 4	19	- 3	7	51	+ 3	—	—	—
Besançon	18.8	315	e 4	24	+ 1	i 4	52	PPP	i 4	43	PP
Potsdam	19.1	336	e 4	23	- 4	e 8	9	SS	e 4	30	PP
Baku	19.7	67	i 4	33	- 1	i 8	16	+ 6	—	—	e 10.3
Clermont-Ferrand	19.9	307	e 4	35	- 1	—	—	—	—	—	—
Alicante	21.1	286	4	59	+11	e 8	49	+10	8	57	PcP
Paris	21.6	315	i 4	53	- 1	i 8	54	+ 5	i 9	22	SS
Tamanrasset	21.6	240	i 4	56?	+ 2	e 5	36?	PPP	e 5	26?	PP
Moscow	21.8	18	4	53	- 3	i 8	49	- 3	—	—	—
Witteveen	21.9	330	e 5	7	+10	—	—	—	—	—	—
Copenhagen	22.1	341	i 4	57	- 2	9	1	+ 3	—	—	11.3
Almeria	22.7	282	5	27	+23	9	27	+18	5	55	PP
Granada	23.6	283	i 5	25k	+12	9	30	+ 5	5	48	PP
Toledo	23.9	289	e 5	18	+ 2	—	—	—	i 5	24	?
Malaga	24.3	283	i 5	22	+ 2	10	58	SS	i 7	48	PcP

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Kew	24.5	319	e 4 18	-64	e 9 48	+ 8	e 10 14	SS e 13.3
Pulkovo	24.5	5	i 5 18	- 4	e 9 41	+ 1	—	—
Upsala	24.9	350	i 5 23	- 3	i 9 48	+ 1	i 5 50	PP e 13.6
Ashkabad	26.2	74	i 5 36	- 2	—	—	—	—
Rathfarnham Castle	28.6	319	e 4 51	-69	e 9 4	?	5 21	PP e 13.3
Sverdlovsk	31.7	36	i 6 23	- 4	—	—	—	—
Kiruna	32.5	357	i 6 30 _a	- 4	i 13 0	PcS	i 13 39	SS e 14.3
Samarkand	32.8	70	—	—	e 11 48	- 6	—	—
Lunacharskoe	34.4	66	i 6 49	- 2	—	—	—	—
Tashkent	34.4	66	e 6 48	- 3	—	—	—	—
Tchimkent	34.5	65	i 6 49	- 3	—	—	—	—
Quetta	E. 34.9	85	e 6 54	- 1	—	—	—	—
Kulyab	35.2	72	7 5?	+ 7	—	—	—	—
Garm	35.4	69	e 6 59	- 1	—	—	—	—
Dzhergetal	36.1	69	7 3	- 2	—	—	—	—
Namangan	36.2	67	i 7 5	- 1	i 12 42	- 5	—	—
Fergana	36.3	67	i 7 5	- 2	—	—	—	—
Andijan	36.7	67	i 7 9	- 1	12 50	- 4	—	—
Frunse	38.2	64	i 7 22	- 1	e 13 15	- 2	—	—
Rybach'e	39.3	64	i 7 32	0	e 13 26	- 8	—	—
Naryn	39.4	66	i 7 32	- 1	—	—	—	—
Almata	39.8	62	i 7 36	0	—	—	—	—
Przhevalsk	41.0	63	7 45	- 1	—	—	—	—
Semipalatinsk	41.7	52	e 7 47	- 5	—	—	—	—
Scoresby Sund	43.2	339	e 8 1	- 3	—	—	—	—
Poona	Z. 45.6	98	i 8 21	- 3	—	—	—	—
Pretoria	Z. 61.0	177	e 10 24	+ 6	—	—	—	—
Resolute Bay	Z. 63.5	345	e 10 30	- 4	—	—	—	—
Kimberley	Z. 63.9	180	e 10 36	- 1	—	—	—	—
Halifax	65.7	308	i 10 47 _k	- 1	—	—	—	—
Shawinigan Falls N.	70.4	314	e 11 17	- 1	—	—	—	—
Weston	71.7	309	i 11 25 _k	- 1	—	—	—	—
Harvard	71.8	309	e 11 27	+ 1	—	—	—	—
Ottawa	72.8	314	i 11 31 _k	- 1	—	—	i 11 37	?
Kirkland Lake	Z. 73.7	318	e 11 37	- 1	—	—	—	—
Palisades	74.1	308	i 11 39	- 1	—	—	—	—
College	79.8	358	i 12 9	- 3	—	—	i 12 31	pP
San Juan	81.0	286	i 12 18	0	—	—	—	—
Hungry Horse	89.1	334	i 12 57	- 1	—	—	—	—
Fayetteville	Z. 89.4	315	i 13 0 _k	0	—	—	—	—
Nelson	100.2	328	e 13 48	- 1	—	—	—	—

Dec. 31d. 17h. 18m. 43s. Epicentre 35°·5N. 25°·7E. (as at 14h.).

Intensity VI at Neapolis, Avdou; V at Myrtos, Vrachasion, Roukaka, Rethymnon, and Phourui

A. Galanopoulos.
Loc. cit., 14h.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Athens	2.9	327	e 0 51	+ 3	i 1 28	+ 4	i 0 56	P _r
Istanbul	6.1	24	i 1 31	- 3	e 2 54	+ 9	i 1 48	P _r *
Helwan	7.3	138	1 49	- 1	3 3	-12	i 2 26	P _r
Sofia	7.4	346	1 53	+ 1	e 3 21	+ 3	4 11	S _r
Taranto	8.3	309	2 10	+ 6	3 37	- 3	e 3 31	?
Ksara	8.5	98	e 2 6	- 1	i 3 38	- 7	—	—
Messina	Z. 8.6	291	i 2 12	+ 3	i 3 41	- 7	i 2 26	P*
Bucharest	8.9	2	e 2 16	+ 4	e 4 13	+18	—	—
Belgrade	10.1	338	e 2 31 _a	+ 2	e 4 27	+ 2	e 4 57	S _r
Timisoara	N. 10.8	343	e 2 49 _a	+10	i 6 5	?	e 6 16	?

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Yalta	11.1	33	i 2 41	- 2	e 4 45	- 4	—	—
Szeged	11.5	340	2 41	- 7	6 6	?	e 6 36	?
Kishinev	11.7	11	i 2 51	0	e 5 5	+ 1	—	—
Iasi	11.8	6	e 2 53	0	—	—	—	—
Theodosia	12.0	35	e 2 54	- 1	e 5 4	- 7	—	—
Kalossa	12.1	337	e 2 54	- 3	e 5 11	- 3	e 3 10	PP
Rome	12.1	306	e 3 27	+30	e 5 46	+32	i 4 21	?
Kecskemet	N. 12.2	340	3 1	+ 3	—	—	—	—
Budapest	13.0	340	3 11	+ 2	e 5 41	+ 6	e 6 0	SS
Uzhgorod	13.4	350	i 3 15	+ 1	—	—	—	—
Sotchi	E. 13.5	49	e 3 10	- 5	e 5 32	-15	—	—
Ogyalla	13.6	338	e 3 49	+32	e 5 55	+ 5	e 6 39	SSS
Triest	13.6	322	e 3 26	+ 9	i 5 42	- 8	i 7 8	SS
Florence	13.8	311	—	—	e 5 23	-31	e 6 33	?
Padova	13.9	314	e 3 40	+19	e 5 35	-22	—	—
Bologna	14.2	314	e 3 29	+ 5	e 6 21	+17	—	—
Skalnate Pleso	14.3	345	e 3 22	- 4	e 5 58	- 8	e 3 38	PP
Lwow	14.4	356	i 3 27	0	—	—	—	—
Zugdidi	14.4	56	e 3 31	+ 4	—	—	—	—
Vienna	14.5	334	e 3 35	+ 7	e 6 33	+22	—	e 8.5
Abastumanj	14.8	60	3 32	0	—	—	—	—
Borzhomi	15.2	60	i 3 36	- 2	6 27	- 1	—	—
Leninakan	15.2	64	3 38	0	—	—	—	—
Tsikhlis-Dzhvari	15.2	61	i 3 38	0	—	—	—	—
Salo	15.3	316	e 3 46	+ 7	i 6 44	+14	e 5 4	?
Erevan	15.6	67	i 3 41	- 2	—	—	—	—
Raciborzu	15.6	342	e 3 45	+ 2	e 6 37	0	3 53	PP
Gori	15.7	60	3 49	+ 5	—	—	—	—
Piatigorsk	15.8	52	3 48	+ 3	6 44	+ 2	—	—
Pavia	15.9	313	e 4 8	+21	e 6 53	+ 9	—	e 7.8
Tiflis	16.1	62	3 48	- 1	6 48	- 1	—	—
Prague	16.7	334	e 3 58	+ 1	e 7 7	+ 4	i 4 10	PP
Goris	16.8	70	i 3 48?	-10	—	—	—	—
Oropa	16.8	312	i 3 24	-34	—	—	i 4 20	PP
Kirovobad	17.1	66	3 59	- 3	—	—	—	—
Zürich	N. 17.4	318	e 4 9	+ 3	e 7 16	- 3	e 4 56	PP
Cheb	17.5	331	e 4 22	+15	e 4 31	?	e 5 59	?
Stuttgart	18.0	323	e 4 12	- 1	e 7 31	- 1	e 4 23	PP
Basle	18.1	318	e 4 17	+ 3	e 7 43	+ 8	—	—
Neuchatel	18.1	315	e 4 15	+ 1	e 7 40	+ 5	—	—
Algiers Univ.	Z. 18.3	280	e 4 18	+ 1	e 7 50	+11	e 4 32	PP
Collenberg	18.3	334	e 4 14	- 3	e 7 44	+ 5	e 4 44	PPP
Makhach-Kala	18.4	57	i 4 17	- 1	i 7 42	+ 1	—	—
Jena	18.5	332	e 4 19	0	e 7 47	+ 3	e 4 41	PP
Karlsruhe	18.5	323	e 4 30	+11	e 7 44	0	e 4 55	PP
Strasbourg	18.6	321	e 4 23?	+ 2	e 7 44	- 2	e 4 39	PP
Lenkoran	18.7	73	4 19	- 3	—	—	—	—
Shemakla	18.7	66	i 4 21	- 1	—	—	—	—
Potsdam	19.1	336	e 4 24	- 3	i 8 1	PS	e 4 39	PP
Baku	19.7	67	i 4 33	- 1	—	—	—	—
Clermont-Ferrand	19.9	307	e 4 38	+ 2	—	—	—	10.8
Alicante	21.1	286	4 57	+ 9	e 8 50	+11	5 33	PPP
Paris	21.6	315	i 4 54	0	i 8 53	+ 4	i 5 22	PP
Tamanrasset	Z. 21.6	240	i 4 57k	+ 3	i 9 3	+14	e 5 28	PP
Moscow	21.8	18	4 53	- 3	i 8 49	- 3	—	—
Copenhagen	22.1	341	e 4 45	-14	9 5	+ 7	—	—
Almeria	22.7	282	5 5	+ 1	9 9	0	5 37	PP
Granada	23.6	283	i 5 26	+13	i 9 36	+11	5 44	PP
Toledo	23.9	289	e 5 21	+ 5	—	—	—	—
Malaga	24.3	283	i 5 22	+ 2	10 36	SS	i 12 24	PoS

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Kew		24.5	319	e 4 19	-63	e 9 48	+ 8	e 5 32	P	e 11.3
Pulkovo		24.5	5	i 5 21	- 1	i 9 44	+ 4	—	—	—
Upsala		24.9	350	i 5 25k	- 1	i 9 47	0	i 5 47	PP	e 13.0
Ashkabad		26.2	74	5 36	- 2	—	—	—	—	—
Bergen	N.	28.2	339	—	—	e 9 8?	?	—	—	e 14.7
Aberdeen		28.6	329	—	—	e 11 17	+29	e 12 17	SS	e 16.2
Rathfarnham Castle		28.6	319	e 4 55	-65	e 5 45	P	e 5 25	?	e 13.3
Sverdlovsk		31.7	36	i 6 25	- 2	e 11 31	- 6	—	—	—
Kiruna		32.5	357	i 6 30	- 4	e 11 49	0	i 8 7	PP	—
Samarkand		32.8	70	6 33	- 4	11 48	- 6	—	—	—
Stalinabad		34.3	70	i 6 48	- 2	—	—	—	—	—
Lunacharskoe		34.4	66	—	—	12 12	- 7	—	—	—
Tashkent		34.4	66	i 6 48	- 3	e 12 10	- 9	—	—	—
Tchimkent		34.5	65	i 6 49	- 3	—	—	—	—	—
Quetta	z.	34.9	85	i 6 53	- 2	—	—	—	—	—
Kulyab		35.2	72	6 58	0	12 27	- 4	—	—	—
Dzhergetal		36.1	69	i 7 4	- 1	—	—	—	—	—
Namangan		36.2	67	i 7 5	- 1	—	—	—	—	—
Fergana		36.3	67	i 7 6	- 1	i 12 45	- 3	—	—	—
Andijan		36.7	67	i 7 9	- 1	12 49	- 5	—	—	—
Frunse		38.2	64	i 7 23	0	e 13 13	- 4	—	—	—
Rybach'e		39.3	64	i 7 32?	0	—	—	—	—	—
Naryn		39.4	66	i 7 32	- 1	i 13 25	-10	—	—	—
Almata		39.8	62	i 7 35	- 1	—	—	—	—	—
Przhevalsk		41.0	63	7 45	- 1	13 55	- 4	—	—	—
Semipalatinsk		41.7	52	e 7 49	- 3	—	—	—	—	—
Scoresby Sund		43.2	339	e 8 2	- 2	—	—	—	—	—
Poona	z.	45.6	98	e 8 22	- 2	—	—	—	—	—
Pretoria	z.	61.0	177	i 10 23	+ 5	—	—	—	—	—
Resolute Bay	z.	63.5	345	e 10 31 _a	- 3	—	—	—	—	—
Kimberley	z.	63.9	180	e 10 37	0	—	—	—	—	—
Halifax		65.7	308	i 10 48 _k	0	—	—	—	—	—
Shawinigan Falls	N.	70.4	314	e 11 18	0	—	—	—	—	—
Weston		71.7	309	i 11 26 _a	0	—	—	—	—	—
Harvard		71.8	309	e 11 27	+ 1	—	—	—	—	—
Ottawa		72.8	314	i 11 32 _a	0	—	—	—	—	—
Kirkland Lake	z.	73.7	318	i 11 37	- 1	—	—	—	—	—
College		79.8	358	i 12 9	- 3	—	—	—	—	—
San Juan		81.0	286	e 12 22	+ 4	—	—	—	—	—
Hungry Horse		89.1	334	i 12 58	0	—	—	—	—	—
Fayetteville	z.	89.4	315	i 12 59	- 1	—	—	—	—	—
Nelson		100.2	328	i 13 50	+ 1	—	—	—	—	—

Dec. 31d. 19h. 58m. 43s. Epicentre 35°·5N. 25°·7E. (as at 17h.).

Intensity V at Neapolis, Phourni, Myrtos, Avdou ; IV at Zakros, Heraklion, and Vrachasion.

A. Galanopoulos.

Loc. cit., 14h. above.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	
Athens		2.9	327	e 0 51 _k	+ 3	e 1 25	+ 1	i 0 56	P _g
Istanbul	z.	6.1	24	e 1 34	0	e 3 20	- 2 _g	e 1 59	P _g
Helwan		7.3	138	1 48	- 2	3 6	- 9	—	—
Taranto		8.3	309	—	—	e 3 30	-10	—	—
Triest		13.6	322	e 3 11	- 6	—	—	e 3 35	?
Prague		16.7	334	e 3 59	+ 2	e 4 32	?	e 5 4	?
Stuttgart		18.0	323	e 4 17	+ 4	—	—	—	—
Collnberg		18.3	334	e 4 14	- 3	—	—	e 4 17	P
Jena	z.	18.5	332	e 4 14	- 5	e 4 23	?	e 4 46	?
Tamanrasset	z.	21.6	240	e 4 58?	+ 4	—	—	i 5 1?	P
Upsala	z.	24.9	350	e 5 29	+ 3	—	—	i 5 40	?
Kiruna	z.	32.5	257	e 6 31	- 3	—	—	—	—

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1952

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Dec. 31d. 21h. 43m. 49s. Epicentre 49°·5N. 156°·2E. (as on Nov. 21d.).

		Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Z0-Sè		32·0	249	i 6 28 _a	- 2	11 40	- 2	—	—
College		32·7	40	i 6 37	+ 1	—	—	—	e 13·3
Nanking		32·8	253	6 38 _a	+ 1	e 11 54	0	—	—
Hong Kong		42·7	246	—	—	e 14 11?	-13	—	—
Manila		45·1	232	i 8 11	- 9	—	—	i 8 57	?
Resolute Bay		47·6	20	i 8 39	0	e 15 29	- 6	—	—
Hungry Horse		55·5	54	i 9 41	+ 2	—	—	—	—
Shasta		55·5	66	e 9 41 _a	+ 2	—	—	e 10 9	?
Mineral	z.	56·2	66	e 9 46 _a	+ 2	—	—	i 10 4	?
Chatra	z.	56·7	274	i 9 49	+ 1	e 20 4?	?	—	—
Butte		57·7	56	e 9 59	+ 4	—	—	—	—
Lick	z.	58·1	68	i 10 51 _a	PcP	—	—	e 10 55	PcP
Kiruna		58·4	342	i 9 57	- 3	e 18 11	+ 9	e 13 39	PPP
Fresno	z.	59·6	67	e 10 25	+17	—	—	—	—
Scoresby Sund		60·2	359	e 10 12	0	—	—	—	—
Tinemaha		60·3	68	e 10 17	+ 4	—	—	—	—
China Lake	z.	61·5	68	e 10 24	+ 3	—	—	—	—
Pasadena		62·3	70	e 10 29	+ 3	—	—	—	—
Boulder City		63·1	66	i 10 34	+ 2	e 15 36	PcS	i 11 2	PcP
Nelson		63·3	66	i 10 34	+ 1	—	—	i 11 3	PcP
Upsala		65·9	339	i 10 48	- 2	e 24 15	SS	i 11 18	PcP
Tucson		68·0	67	e 11 5	+ 2	—	—	—	—
Copenhagen		70·9	340	—	—	21 26	PPS	—	—
Poona	z.	71·2	277	i 11 23	0	—	—	—	—
Kirkland Lake	z.	71·3	36	e 11 23	0	—	—	—	—
Potsdam	z.	73·8	338	e 11 38	0	—	—	—	—
Fayetteville	z.	74·5	53	i 11 43	+ 1	—	—	i 11 52	pP
Raciborzu	z.	74·5	334	e 11 40	- 2	e 13 27?	?	e 12 3	PcP
Collnberg		74·8	337	e 11 42	- 2	e 13 42	PP	e 11 51	PcP
Ottawa		75·2	35	i 11 45 _a	- 1	—	—	—	—
Shawinigan Falls	N.	75·3	32	e 11 47	0	—	—	—	—
Jena	z.	75·5	338	e 11 48	0	e 12 24	?	e 12 9	PcP
Prague		75·5	336	e 11 48	0	e 16 23	PPP	e 12 41	PcP
Cleveland		76·2	41	i 11 56 _k	+ 4	e 21 48	+12	—	—
Stuttgart	z.	78·1	339	e 12 1	- 1	—	—	—	—
Istanbul		78·6	322	e 12 4	- 1	e 18 18	?	—	—
Strasbourg		78·6	340	e 12 1?	- 4	e 12 45	?	e 12 21	PcP
Harvard		79·3	34	e 12 9	0	—	—	—	—
Paris		79·5	343	i 12 11	+ 1	i 13 39	?	i 12 19	PcP
Weston		79·5	34	i 12 11	+ 1	e 22 27	+16	—	—
Zürich		79·5	339	e 12 12	+ 2	—	—	—	—
Basle		79·6	340	e 12 11	+ 1	—	—	—	—
Triest		79·8	335	e 12 43	+31	—	—	—	—
Halifax		80·0	28	i 12 13 _a	0	—	—	—	—
Besançon		80·2	340	e 12 15	+ 1	—	—	e 12 26	PcP
Ksara		81·6	313	i 12 23	+ 2	22 58	+25	15 30	PP
Florence		82·2	335	e 12 27	+ 3	e 23 53	PS	—	—
Riverview		83·1	185	—	—	e 22 53	+ 5	—	—
Rome		83·6	334	12 30	- 1	e 24 1	PPS	—	—
Helwan	z.	87·0	315	e 12 49	+ 1	e 19 53	?	e 13 2	PcP
Bermuda		90·7	34	—	—	e 24 28	+27	—	—
Algiers Univ.	z.	90·9	339	e 13 25	+18	e 17 29	?	e 16 29	PP
Tamanrasset	z.	103·5	332	—	—	e 24 31? [-13]	—	—	—
Pretoria	z.	133·6	281	e 19 21	[+ 2]	—	—	—	—
Kimberley	z.	137·9	280	e 19 18	[- 9]	—	—	—	—

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A digital hypocenter file of the ISS (Villaseñor and Engdahl, 2005) can be obtained from the USGS web site: <http://earthquake.usgs.gov/scitech/iss/>

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