



DEPARTMENT OF MINES AND TECHNICAL SURVEYS

DOMINION OBSERVATORIES BRANCH

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

SEISMOLOGICAL BULLETIN

January - June

1954

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DOMINION ASTROPHYSICAL OBSERVATORY

VICTORIA - CANADA

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SEISMOLOGICAL SERVICE OF CANADA
 WESTERN DIVISION
 DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

C. S. Beals, Dominion Astronomer

John H. Hodgson, Chief, Seismological Division

S T A T I O N S

VICTORIA

$\phi = 48^{\circ}31'10''$ N. $\lambda = 123^{\circ}24'55''$ W. $h = 197$ m.

Time correction from recorded radio time signals

Foundation: rocks

Instruments: Milne-Shaw NS and EW components, each with magnetic damping, paper speed of 8 mm. per min., mass 1 lb.

Benioff vertical, NS and EW, short period components with paper speed of 60 mm. per min., mass 235 lbs.

SASKATOON

University of Saskatchewan

$\phi = 52^{\circ}08'$ N. $\lambda = 106^{\circ}38'$ W $h = 515$ m.

Time correction from observed radio time signals

Foundation: Clay and sand

Instruments: Milne-Shaw NE and NW components, each with magnetic damping, paper speed of 8 mm. per min., mass 1 lb.

CONSTANTS

INSTRUMENT	Ts	Tg	V	ϵ	DISPLACEMENT FOR 1" ARC TILT
Victoria Benioffs	1.0	0.2			
Victoria EW-MS	12.0		300	20:1	50 mm.
Victoria NS-MS	12.0		300	20:1	50 mm.
Saskatoon NW	10.0		150	20:1	18 mm.
Saskatoon NE	10.0		150	20:1	18 mm.

Effective Dec. 4, 1953.

S T A T I O N S (Cont'd)ALBERNI (Vancouver Island)

$\phi = 49^{\circ}16'14''$ N. $\lambda = 124^{\circ}49'18''$ W.

Time correction from recorded radio time signals

Foundation: volcanic rock

Instruments: Willmore-Sharpe NS, EW and vertical short period with paper speed of 60 mm. per min. Ts approximately 0.3 sec. and Tg approximately 0.03 sec.

HORSESHOE BAY (Vancouver)

$\phi = 49^{\circ}22'39''$ N. $\lambda = 123^{\circ}16'33''$ W.

Time correction from recorded radio time signals

Foundation: Granitic rock

Instruments: Willmore-Sharpe NS, EW, and vertical short period with paper speed of 60 mm. per min. Ts approximately 0.3 sec. and Tg approximately 0.03 sec.

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni
 S - Saskatoon HB - Horseshoe Bay

January, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
10	V	P	09	04	18	U.S.C.G.S. 65 1/2°N, 136 1/2°W Yukon, Canada
12	S	P	23	38	17	U.S.C.G.S. 35.0°N, 119.1°W California
		S	23	41	51	
		L	23	44	00	
	V	P	23	37	20	
14	HB	P	05	43	50.2	local
		S	05	43	53.3	
15	A	iP	06	33	48.2	local
		S	06	34	04.5	
	HB	P	06	33	39.5	
15	A	P	23	39	44.5	local
		S	23	40	02.3	
	HB	P	23	39	27.0	
16	HB	P	22	43	00.1	local
		S	22	43	21.2	
16	A	P	22	46	18.4	U.S.C.G.S. 49°N, 129 1/2°W Off coast of Vancouver Island
		S	22	49	08	
		e	22	53	24	
20	S	L	04	37	U.S.C.G.S. 8 1/2°N, 103 1/2°W Mexico	
20	A	P	08	28	33.1	local
		S	08	28	40.0	
	HB	P	08	28	44.9	
20	A	P	11	57	38.9	local
		S	11	57	51.7	
	HB	P	11	57	29.0	
22	V	P	21	36	02	20°S, 169°E Loyalty Islands h = 100 km.
24	A	P	17	49	43.5	local
		S	17	49	59.9	
	HB	P	17	49	35.4	
		S	17	49	46.1	
26	A	P	23	11	05.0	local
		S	23	11	12.3	
	HB	P	23	11	05	
		S	23	11	11.0	
	V	P	23	11	11	
		S	23	11	31	

January, 1954

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DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
28	V	P	22 22 06	Near Coast of Guerrero, Mexico
29	V	P S	23 48 43.5 23 48 46.3	local

W. G. Milne,
Seismologist.

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni
 S - Saskatoon HB - Horseshoe Bay

February, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS	
			h	m	s		
1	S	P	01	19	19	U.S.C.G.S. 24 1/2°N, 142 1/2°E Volcano Islands	
		iS	01	34	37		
		S	01	34	40		
	V	L	01	47			
		P	01	18	38		
		S	01	28	15		
		PS	01	28	57		
L	01	40					
1	V	L _T	04	41.6	U.S.C.G.S. 24°N, 142 1/2°E Volcano Islands		
3	A	P	16	17	33.0	local	
5	S	e	09	44	06	U.S.C.G.S. 4 1/2°S, 153°E New Britain	
		L	10	02			
	V	P	09	32	45		
		S	09	43	11		
		L	09	57			
5	S	e	15	30	48	U.S.C.G.S. 17 1/2°N, 92 1/2°W Mexico	
		L	15	43			
	V	P	15	25	29.1		
		e	15	25	44		
		e	15	25	59		
L	15	40.4					
7	V	eP	06	28	07	U.S.C.G.S. 15°S, 167 1/2°E New Hebrides	
7	A	P	10	40	57.8	local	
		S	10	41	11.3		
	HB	P	10	40	51.5		
		V	iP	10	40		43.5
			S	10	40		49.6
8	V	P	00	41	27		
8	V	P	14	31	38	U.S.C.G.S. 22 1/2°S, 68°W Northern Chile	
8	V	P	18	54	34		
9	V	P	17	45	23	U.S.C.G.S. 53°N, 166 1/2°W Aleutians	

February, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
11	S	P	00	42	58	U.S.C.G.S. 39 1/2°N, 101°E China
		S	00	53	23	
		L	01	18.7		
	V	P	00	42	48	
		S	00	53	15	
		SS	00	58.5		
	L	01	10.6			
11	V	P	21	17	08	U.S.C.G.S. 14 1/2°N, 144°E Marianas Islands
19	S	e	00	48.6	U.S.C.G.S. 11 1/2°N, 87 1/2°W Nicaragua	
		e	00	58.5		
19	S	i	21	42	46	U.S.C.G.S. 12 1/2°N, 87 1/2°W, Nicaragua
		L	21	59.1		
20	V	P	02	09	28	
20	V	P	18	52	38	U.S.C.G.S. 7°S, 124 1/2°E Flores Sea
20	V	P	20	03	19	U.S.C.G.S. Windward Islands
20	A	P	23	43	38.0	local
		S	23	43	53.9	
	HB	P	23	43	33.1	
		S	23	43	44.5	
	V	P	23	43	22.5	
		S	23	43	25.2	
21	V	e	01	37	47	Coast of Nicaragua
		e	01	39	16	
21	A	P	23	03	18.9	local
22	V	e	06	22	30	U.S.C.G.S. 34 1/2°N, 141°E Japan
22	V	e	10	37	47	U.S.C.G.S. 34°N, 141°E Japan
22	V	iP	12	22	37	U.S.C.G.S. 66.5°S, 26.5°W Sandwich Islands
		e	12	25	47	
22	A	P	18	23	05	local
	V	P	18	23	05.6	
23	A	P	22	36	51.1	local
24	A	P	19	13	49.5	local
24	V	P	19	48	39	U.S.C.G.S. 13°N, 144°E Marianas Islands

February, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
24	V	P e	20	56	10	U.S.C.G.S. 27 1/2°N, 140°E
			20	58	00	
24	A	P	21	30	06.2	local
24	V	P S	23	16	18	local
			23	17	41	
25	A	P	01	09	35.3	local
28	V	P	01	07	32	U.S.C.G.S. 27°N, 131°E Ryukyu Islands
28	V	P	18	56	05	

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STATIONS: V - Victoria A - Alberni
 S - Saskatoon HB - Horseshoe Bay

March, 1954

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DATE	STN	PHASE	TIME(G.C.T.)			REMARKS
			h	m	s	
2	A		19	15	02.2	local
3	S	PPP	06	21	46	U.S.C.G.S. 5 1/2°S, 142 1/2°E New Guinea
		eS	06	27	00	
		L	06	30	56	
		SSS	06	37.2		
	V	Lr	06	47.4		
		P	06	16	34	
		PP	06	20	26	
		S	06	27	14	
		PS	06	29	21	
		SS	06	34.9		
	L	06	47			
3	A		17	14	22.7	local
3	S	e	20	55	24	U.S.C.G.S. 61 1/2°N, 146 1/2°W Alaska
		L	20	58.5		
	V	P	20	48	11	
4	A	P	18	34	54.6	local
6	V	P	00	41	26	U.S.C.G.S. 24°S, 180° Fiji Islands
7	A	P	23	28	47.1	local
		S	23	28	57.1	
	HB	P	23	28	44.9	
8	A	P	13	09	41.5	local
		S	13	09	50.4	
9	V	P	05	48	14	U.S.C.G.S. 50°N, 157°E Kamchatka
9	V	P	10	51	57	U.S.C.G.S. 19 1/2°S, 178°W Fiji Islands
10	HB	P	00	35	21	local
	V	P	00	35	07	
	S		00	35	19	
11	V	P	10	38	10	U.S.C.G.S. 14 1/2°N, 90 1/2°W Guatemala
11	A	P	19	42	56.6	local
		S	19	43	17.3	
12	HB	S	04	15	48.1	local

March, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
12	V	P	04	17	19.4	local
		S	04	17	28.1	
12	V	P	11	31	26	Sandwich Islands
12	V	P	11	34	36	U.S.C.G.S. 17°S, 174°W Tonga Islands
		pP	11	35	54	
12	V	P	14	35	48.4	local
		S	14	36	51.3	
12	HB V	P	20	38	43.7	local
		T	20	38	45.8	
		S	20	38	59.4	
13	A HB	P	00	04	57.3	local
		P	00	05	01	
		S	00	05	27	
16	A V	P	15	57	04	local U.S.C.G.S. Northwest Washington, Seattle, Tacoma
		S	15	57	33.6	
		P	15	56	44	
17	V	P	00	24	43.4	local blast?
18	V	P	21	36	04.7	local
		S	21	36	06.3	
19	S	i	10	02	49	U.S.C.G.S. 33.3°N, 116.1°W California
		L	10	05	3	
	V	P	09	58	21	
		e	10	03	31	
19	V	P	10	25	09	Same as above - aftershock
20	V	P	14	13	14	U.S.C.G.S. 47°N, 154°E Kuriles
20	V	P	23	31	46	local?
21	V	P	06	17	58	U.S.C.G.S. 52°N, 158 1/2°E Kamchatka
21	V	P	20	51	25	U.S.C.G.S. Off coast of Guatemala
21	S V	P	23	55	40	U.S.C.G.S. 24 1/2°N, 95°E Burma
		PP	23	59	49	
		SKS	00	06	05	
		S	00	07	18	
		PPS	00	09	41	
		P	23	55	40	
		PP	23	59	46	
		SKS	00	05	50	
		PKKP	00	11	57	
		SSS	00	14	1	
22	V	P	19	06	15	U.S.C.G.S. 55 1/2°N, 157°E Kamchatka

March, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
22	V	P	22	46	06	local
22	V	P	22	47	13	local
23	V	P	04	18	41	U.S.C.G.S. 33 1/2°N, 116°W California
23	V	P	05	37	21.4	
24	V	P	01	43	51	U.S.C.G.S. Marianas Islands
25	HB V	P	17	40	07.5	local
		P	17	40	04.0	
		S	17	40	19.8	
25	HB V	P	21	16	56.4	local
		P	21	16	40.9	
25	A	P	21	31	13.2	local
		S	21	31	21.7	
	HB	P	21	31	06.8	
	V	P	21	31	15.1	
	S	21	31	26.1		
26	HB	P	04	14	18.5	local
26	V	P	04	45	47	U.S.C.G.S. H= 04:35:25 Japan
		PT	04	46	05	
26	V	P	18	41	05	
27	V	P	00	51	28	
27	V	P	07	03	50	
28	S V	L	20	57	.8	U.S.C.G.S. 52°N, 176°E Aleutians
		P	20	43	39	
		S	20	49	41	
		L	20	52	.4	
29	V	F	04	14	18	U.S.C.G.S. 19.5°N, 121.5°E Philippine Islands
29	S	P	06	27	09	U.S.C.G.S. 37°N, 3 1/2°W Spain h = 650 km.
		PP	06	29	1.7	
		S	06	35	24	
		ScS	06	35	49	
	V	P	06	28	10	
		PP	06	30	23	
		S	06	37	26	
		sS	06	41	17	
29	V	F	15	08	57	U.S.C.G.S. 2 1/2°S, 78 1/2°W Ecuador
30	A	P	05	29	37.5	local
	HB	P	05	29	27.1	
	V	P	05	29	25.3	

March, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
30	V	P	10	56	20	U.S.C.G.S. 46 1/2°N, 153 1/2°E Kuriles
30	V	P	16	47	29	U.S.C.G.S. 52°N, 175 1/2°E Aleutians
30	S	i	18	58	00	U.S.C.G.S. 20°N, 155°W Hawaii
		L	19	06	0	
	V	P	18	49	30	
		S	18	55	13	
31	S	PP	18	45	16	U.S.C.G.S. 13 1/2°N, 58°E Arabian Sea
		e	18	55	01	
		PPS	18	56	08	
		e	00	19	01.2	
	V	PP	18	44	40	
		S	18	53	05	
		PPPS	18	55	53	
		PSFS	19	02	3	
		LG	19	15	3	

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WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni
 S - Saskatoon HB - Horseshoe Bay

April, 1954.

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
2	V	P	15	11	26	U.S.C.G.S. 28 1/2°S, 177°W Kermadec Islands
		PP	15	11	43	
3	HB	P	15	54	47	local
4	A	P	12	42	43.6	local
		S	12	42	55.0	
	HB	P	12	42	51.0	
		S	12	43	07.9	
	V	P	12	42	42.8	
		S	12	42	53.4	
4	V	P	13	31	54	U.S.C.G.S. 16 1/2°S, 175°W Tonga Islands
4	V	P	15	55	21	
		e	15	58	46	
4	V	P	23	24	21	U.S.C.G.S. 42°N, 142 1/2°E Japan
5	V	L	17	26.9		
5	V	P	19	26	55	U.S.C.G.S. 48°N, 129°W off Vancouver Islands
		S	19	27	41	
5	A	P	19	35	45.3	U.S.C.G.S. 48°N, 128°W off Vancouver Island
	V	P	19	35	53	
		S	19	36	28	
5	A	P	19	48	29	48°N, 129°W off Vancouver Island) ?
	V	P	19	48	37	
		S	19	49	23	
6	V	P	20	24	49	New Hebrides Island
9	V	P	00	58	03	local
10	V	P	10	25	11	U.S.C.G.S. 10 1/2°N, 78°W Panama
10	V	P	15	05	59	
11	V	P	02	27	08	
11	V	P	05	52	47	U.S.C.G.S. Northern Chile - Argentina border.

April, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
11	V	P	11	06	33	U.S.C.G.S. 37°N, 70 1/2°E Hindu Kush
12	HB V	P	23	32	05.2	local
		P	23	32	10.6	
		S	23	32	26.0	
13	V	P	07	49	11	U.S.C.G.S. 27 1/2°S, 66°W Argentina
13	V	P	23	31	21	
15	A	P	19	20	24.4	local
		S	19	21	00	
	HB	P	19	20	09.1	
		S	19	20	31	
	V	Pn	19	20	10.2	
		P2 Sn	19	20	12.4 34.4	
15	A	P	23	30	36.3	local
16	V	P	08	27	08	
16	V	P	10	40	39	U.S.C.G.S. 43°N, 142 1/2°E Japan
17	V	P	12	20	22	U.S.C.G.S. 43°N, 141°E Japan
17	HB V	P	20	17	41.7	U.S.C.G.S. 51 1/2°N, 179°W Aleutians
		P	20	17	36.3	
	PcF	P	20	20	06	
		S	20	23	24	
		L	20	26	0	
	S	P	20	18	45	
		S	20	25	50	
		L	20	32	0	
17	V	P	20	53	05	
17	V	P	21	05	41	
17	V	P	23	01	59	U.S.C.G.S. 51 1/2°N, 180°
21	V	P	20	34	34	U.S.C.G.S. 13°S, 77°W Peru
21	V	P	23	27	55.1	local
		S	23	28	03.8	
22	V		15	05	13	U.S.C.G.S. 22°N, 142 1/2°E Marianas Islands

April, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
22	A	P	19	29	06.4	local
		S	19	29	24.4	
	HB V	P	19	29	04.9	
		P	19	28	49.6	
		S	19	28	53	
23	V	P	19	20	29	
24	V	P	00	14	07.3	local
24	V	P	08	37	32	Alaska
24	V	P	18	43	15	U.S.C.G.S. 43°N, 141 1/2°E Japan
25	S	e	20	37	44	U.S.C.G.S. 36.8°N, 121.8°W California
		L	20	43	4	
	V	P	20	36	19	
26	V	P	09	26	59	U.S.C.G.S. 1/2°S, 91 1/2°W Galapagos Islands
26	V	P	20	33	22	U.S.C.G.S. 51°N, 158 1/2°E Kamchatka
		i	20	40	16	
		e	20	43	48	
		L	20	48	1	
27	S	P	10	15	19	U.S.C.G.S. 6°N, 82 1/2°W Panama
		S	10	22	36	
		e	10	26	7	
	V	P	10	15	57	
		L	10	23	49	
10	34	6				
29	S	P	10	54	37	U.S.C.G.S. 29 1/2°N, 112 1/2°W Gulf of California
		S	10	59	17	
		L	11	02	6	
	V	P	10	54	15	
		L	10	57	37	
11	01	3				
29	S	P	11	39	52	U.S.C.G.S. 29 1/2°N, 112 1/2°W Gulf of California
		S	11	44	04	
		L	11	46	0	
	V	P	11	39	22	
		L	11	43	23	
11	45	1				
30	V	P	00	11	32	U.S.C.G.S. 53°N, 162°E Kamchatka
30	V	P	05	21	45	
30	V	P	09	19	25	

April, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
30	S	P	13	14	40	U.S.C.G.S. 39 1/2°N, 22°E Central Greece
		S	13	24	38	
		SS	13	33.8		
		L	13	37.0		
	V	P	13	15	25	
		S	13	25	54	
		L	13	40.6		

W. G. Milne,
Seismologist.

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WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni
 S - Saskatoon HB - Horseshoe Bay

May, 1954

14

DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
3	S	P	15	39	09	U.S.C.G.S. 51 1/2°N, 159 1/2°E Kamchatka
		S	15	46	36	
		L	15	55.3		
	V	P	15	38	15	
		S	15	45	07	
		e	15	48	49	
		L _q	15	55.5		
3	V	P	17	22	01	U.S.C.G.S. 12°N, 86°W Nicaragua
4	V	e	18	21	07	U.S.C.G.S. 74°N, 81°W Canadian Arctic
5	V	P	01	42	53.7	local
		S	01	43	11.0	
5	V	L	11	14.7		
5	S	P	13	15	11	U.S.C.G.S. 27 1/2°N, 112 1/2°W Gulf of California
		S	13	19	46	
		L	13	22.5		
	V	P	13	14	51	
		S	13	19	02	
		L	13	21.0		
5	V	P	17	22	07	U.S.C.G.S. 50°N, 156 1/2°E Kamchatka
6	V	P	09	11	05	U.S.C.G.S. 50°N, 155 1/2°E Kamchatka
6	A	P	15	15	23.5	local
		S			27.4	
7	V	P	00	34	00	U.S.C.G.S. Central Peru - Brazil Border.
10	A	P	05	11	15.0	local
		S	05	11	29.6	
	HB	P	05	11	19.7	
13	S	P	14	53	36	U.S.C.G.S. 17°N, 95 1/2°W Mexico
		S	14	59	14	
		L	15	02.2		
	V	P	14	53	57	
14	V	P	01	01	32	

May, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS		
			h	m	s			
14	A	P	19	06	38.3	local		
		S	19	06	52.4			
	HB	P	19	06	36.3			
		S	19	06	52.7			
	V	P	19	06	19.1			
		S	19	06	21.8			
14	V	P	22	50	08.9	U.S.C.G.S. 36°N, 137°E Japan		
		S	23	00	10			
	S	PP	23	01	18			
		e	23	01	51			
15	A	P	13	02	52.1	local felt Seattle		
			13	03	05.3			
			13	03	21.7			
	HB	P	13	02	45.2			
			V	P	13		02	33
				S	13		02	43
15	V	P	17	39	29	local		
17	V	P	16	58	44	local		
18	V	P	05	22	37	U.S.C.G.S. 10 1/2°S, 75 1/2°W Peru		
18	V	P	10	26	31	U.S.C.G.S. 25°N, 125°E Ryukyu Islands		
19	A	P	18	39	47.8	local		
		S	18	39	55.4			
	HB	P	18	39	55.2			
19	A	P	23	02	39	local		
		S	23	02	49			
	HB	P	23	02	46.0			
19	V	P	23	20	21	U.S.C.G.S. 5°S, 151°E New Britain		
20	V	P	22	56	21.7	local		
21	A	P	14	00	17.9	local		
		S	14	00	21.9			
21	V	P	17	04	31.5	local		
		S	17	04	46.2			
21	HB	P	17	36	20	local		
21	V	P	17	37	00	local		
		S	17	37	07			
22	A	P	12	47	33.8	local		
		S	12	47	48.4			
	HB	P	12	47	40.2			

May, 1954

16

DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
23	V	P	23	56	04.0	U.S.C.G.S. 35°N, 118 3/4°W California
26	V	P	19	06	34	local
26	V	P	22	34	22.6	local
		S	22	34	24.3	
28	V	P	13	35	09.5	local
29	V	P	05	48	50	U.S.C.G.S. 18°S, 178°W Fiji Islands
		e	05	50	54	

W. G. Milne,
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SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni
 S - Saskatoon HB - Horseshoe Bay

June, 1954

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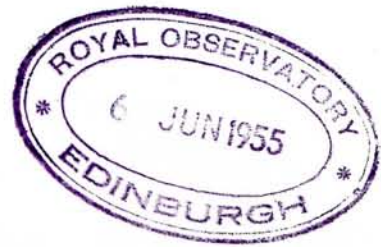
DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
1	V	P	20	44	18.0	Central Peru
3	V	iP	07	58	48.4	local
		iS	07	58	56.8	
	A	P	07	59	03.8	
		S	07	59	23.9	
	HB	P	07	59	01.0	
		S	07	59	18.3	
4	V	P	07	00	23.4	Galagagos Islands $\phi = 1/2^{\circ}\text{S}$, $\lambda = 91 1/2^{\circ}\text{W}$ $\Delta = 57.5^{\circ}$
		S	07	08	17	
		SS	07	12.0		
		L	07	17.9		
	S	P	07	00	10	
		S	07	07.8		
		L	07	18.5		
4	V	e	11	11	21	Java Sea
		L	11	14.3		
4	V	e	16	07	02.0	Central Gulf of California
		e	16	11	56	
		L	16	15.8		
4	V	e	20	52.3	Gulf of California	
		L	20	55		
5	V	P	00	23	52.5	
6	V	e	18	31.3		
		L	18	36		
6	V	P	22	09	56.0	
7	V	P	10	27	45	New Britain region $\phi = 3 1/2^{\circ}\text{S}$, $\lambda = 152 1/2^{\circ}\text{E}$
		e	10	37	30	
		e	10	37	52	
8	V	P	00	17	26.6	Northern Idaho
		S	00	18	36.5	
9	V	P	23	32	47.2	
10	V	F	18	48	11	Fiji Islands
		e	18	51	02	
10	A	P	21	19	34.0	local
		S	21	19	41.1	
10	V	P	22	48	48	Japan

June, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
11	V	P	17	03	20	Aleutians
12	V	P	05	46	42	Comp. Peru
12	V	P	23	01	35	
15	V	P	13	40	46	Peru
17	V	P	01	47	01	Kodiak Island
		S	01	50	58	
		L	01	52.5		
		e	01	48 15		
		e	01	53 00		
	S	L	01	57.5		
18	V	P	15	10	01.7	local
	HB	P	15	10	13.7	
		S	15	10	35.2	
20	V	P	19	20	49.0	local
		S	19	21	06.3	
	A	P	19	21	07.2	
		S	19	21	39	
	HB	P	19	20	59.1	
			19	21	25.5	
22	A	P	01	43	25.5	local
			01	43	48.9	
22	V	P	06	26	41.6	
22	HB	P	20	09	00.2	local
23	A	P	23	17	25.6	local
		S	23	17	33.2	
24	V	P	08	09	49	Marianas Islands
25	V	P	00	07	34.4	
30	V	P	00	12	40	
30	V	L	16	32.7		

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DEPARTMENT OF MINES AND TECHNICAL SURVEYS

DOMINION OBSERVATORIES BRANCH

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

SEISMOLOGICAL BULLETIN

July - December

1954

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DOMINION ASTROPHYSICAL OBSERVATORY

VICTORIA - CANADA

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SEISMOLOGICAL SERVICE OF CANADA
 WESTERN DIVISION
 DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

C. S. Beals, Dominion Astronomer

John H. Hodgson, Chief, Seismological Division

S T A T I O N S

VICTORIA

$\phi = 48^{\circ}31'10''$ N. $\lambda = 123^{\circ}24'55''$ W. $h = 197$ m.

Time correction from recorded radio time signals

Foundation: rocks

Instruments: Milne-Shaw NS and EW components, each with magnetic damping, paper speed of 8 mm. per min., mass 1 lb.

Benioff vertical, NS and EW, short period components with paper speed of 60 mm. per min., mass 235 lbs.

SASKATOON

University of Saskatchewan

$\phi = 52^{\circ}08'$ N. $\lambda = 106^{\circ}38'$ W $h = 515$ m.

Time correction from observed radio time signals

Foundation: Clay and sand

Instruments: Milne-Shaw NE and NW components, each with magnetic damping, paper speed of 8 mm. per min., mass 1 lb.

CONSTANTS

INSTRUMENT	T_s	T_g	V	ϵ	DISPLACEMENT FOR 1" ARC TILT
Victoria Benioffs	1.0	0.2			
Victoria EW-MS	12.0		300	20:1	50 mm.
Victoria NS-MS	12.0		300	20:1	50 mm.
Saskatoon NW	10.0		150	20:1	18 mm.
Saskatoon NE	10.0		150	20:1	18 mm.

Effective Dec. 4, 1953.

S T A T I O N S (Cont'd)ALBERNI (Vancouver Island)

$\phi = 49^{\circ}16'14''$ N. $\lambda = 124^{\circ}49'18''$ W.

Time correction from recorded radio time signals

Foundation: volcanic rock

Instruments: Willmore-Sharpe NS, EW and vertical
short period with paper speed of
60 mm. per min. Ts approximately
0.3 sec. and Tg approximately 0.03 sec.

HORSESHOE BAY (Vancouver)

$\phi = 49^{\circ}22'39''$ N. $\lambda = 123^{\circ}16'33''$ W.

Time correction from recorded radio time signals

Foundation: Granitic rock

Instruments: Willmore-Sharpe NS, EW, and vertical
short period with paper speed of
60 mm. per min. Ts approximately
0.3 sec. and Tg approximately 0.03 sec.

SEISMOLOGICAL SERVICE OF CANADA

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DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni
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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
2	V	e	3	09	19	Luzon $\phi = 13 \frac{1}{2}^{\circ}N$ $\lambda = 123 \frac{1}{2}^{\circ}E$
	S	L	3	30.3		
3	V	e	3	10	50	Java $\phi = 6 \frac{1}{2}^{\circ}S$ $\lambda = 106^{\circ}E$
		i	22	50	16	
		i	22	57	30	
	e	23	11.4			
	L	23	28.7			
S	i	22	52	29		
	e	23	02.5			
4	V	eP	16	36	54	Yellowstone Park
		e	16	37	38	
	S	eP	16	35	09	
		eS	16	36	56	
5	V	P	01	12	57.5	local
		S	01	13	33.7	
	A	P	01	13	00.7	
		S	01	13	38.3	
5	V	e	04	24	02	
5	V	P	14	01	07	Kamchatka $\phi = 50 \frac{1}{2}^{\circ}N$ $\lambda = 156 \frac{1}{2}^{\circ}E$
		pP	14	01	21	
6	V	P	08	14	07	Kurile Islands
		S	08	21	30	
		L	08	28.4		
	S	e	08	23	00	
		L	08	38.0		
6	V	iP	11	15	43	d Fallon, Nevada $\phi = 39 \frac{1}{2}^{\circ}N$ $\lambda = 118 \frac{1}{2}^{\circ}W$
		S	11	17	54	
		e	11	18	43	
	HB	e	11	15	57	
	A	e	11	16	02	
	S	P	11	16	55	
		S	11	19	59	
		L	11	21.4		
6	V	e	22	10	08	Fallon, Nevada
		e	22	13	03	
	S	P	22	11	31	
		S	22	14	19	
		L	22	15.8		
7	V	P	19	13	19	
8	V	L _r	02	19.2		

July, 1954.

20

DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
8	V	P	19	34	24	
		L _r	19	37.2		
9	V	iP	18	39	09	d Japan
9	V	P	21	08	32	
11	V	P	04	56	36.1	
		e	04	58	40	
		e	04	59	27	
	HB	P	04	56	39	
	A	P	04	56	19.2	
12	A	P	16	38	43.9	
		S	16	38	57	
13	V	P	00	12	55.8	
13	V	e	08	28.3	New Britain region	
		L	08	45.7		
13	A	P	06	01	49.1	
		S	06	02	09.5	
15	V	P	06	15	46	Wallis Island
15	V	P	13	26	32	Queen Charlotte Islands
		e	13	28	56	
15	V	P	21	43	14.1	local
		S	21	43	27.6	
	HB	P	21	43	12.3	
	A	P	21	43	27.9	
	S	21	43	52.1		
16	V	P	19	40	51.4	local
		S	19	41	03.6	
	HB	P	19	40	46.6	
	A	P	19	40	47.6	
18	V	P	06	42	51	Kamchatka
18	V	P	09	18	38	Japan φ = 35 1/2°N λ = 140 1/2°E
		e	09	27	31	
		L	09	39.9		
20	V	P	22	30	59.2	
21	V	P	02	18	03.9	
		S	02	18	26.0	
	HB	P	02	17	49.7	
	S	02	18	00.7		
	A	P	02	17	55.7	
		S	02	18	11.4	
23	V	P	00	23	46	
23	V	P	03	08	42.4	local
		S	03	09	06.4	

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DATE	STN	PHASE	TIME (G.T.C.)			REMARKS
			h	m	s	
23	V	P	09	54	16.0	
23	V	P	21	05	25	New Hebrides
24	V	P	22	39	18	
24	V	P	23	37	37.4	
25	V	P	00	08	30	
27	V	P	22	32	27	local
28	V	P	17	36	45.8	local
28	A	P	19	59	27.4	local
		S	19	59	37.0	
29	V	P	03	35	46.0	Kamchatka $\phi = 49 \frac{1}{2}^{\circ}N$ $\lambda = 158^{\circ}E$
		e	03	43	11	
29	A	P	21	05	34.4	local
		S	21	05	41	
29	A	P	22	09	14.4	local
		S	22	09	26.3	
30	V	e	09	09	33	Easter Island $\phi = 36 \frac{1}{2}^{\circ}S$ $\lambda = 97^{\circ}W$
		L	09	26.0		
		S	09	09	47	
		L	09	27.6		
30	A	P	13	28	45.5	local
		S	13	28	48.7	
31	V	e	01	12	25.3	
		e	01	12	59	
		e	01	22	46	
		e	01	28.5		
		L	01	36.0		
		S	01	23	00	
		L	01	39.6		

W. G. Milne,
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SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni
 S - Saskatoon HB - Horseshoe Bay

August, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS	
			h	m	s		
1	V	P	17	22	02.8	local	
		S	17	22	11.7		
	HB	P	17	22	11.8		
		S	17	22	25.8		
	A	P	17	22	20.6		
		S	17	22	43		
1	V	P	21	45	21	Loyalty Islands	
2	V	P	07	23	58.2	local	
		S	07	24	01.3		
	HB	P	07	24	11.7		
		S	07	24	23.1		
	A	P	07	24	12.3		
		S	07	24	26.1		
2	V	e	10	23	32	Fallon, Nevada	
2	A	P	16	03	40.1	local	
3	V	P	03	25	32.7	local?	
3	V	P	05	13	13	local	
		A	P	05	12		54.3
		S	05	13	12.0		
5	V	P	01	53	33.9		
5	V	e	08	57	04	Aleutians	
		e	09	03	04		
5	V	P	10	27	05.5		
		S	10	27	14.5		
	HB	P	10	27	06.0		
		A	P	10	27		19.6
	S	10	27	39.9			
5	V	P	00	03	50.5	local blast?	
7	V	P	00	07	06.9	local blast?	
7	V	P	09	49	42	Bolivia - Chile - Peru border	
7	V	P	20	44	31.3		
9	V	P	19	25	11	Kamchatka φ = 53°N λ = 161°E	
		e	19	25	46		
		e	19	35	06		
		L	19	39.4			
		S	e	19	25		58
			e	19	23.3		
			L	19	41		
10	V	P	00	19	22		

August, 1954

DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
10	V	P	23	22	56.5	local blast?
11	V	P	11	21	40	Dominican Republic $\varphi = 19 \frac{1}{2}^{\circ}\text{N}$ $\lambda = 69 \frac{1}{2}^{\circ}\text{W}$
		e	11	22	05	
		e	11	22	19	
11	A	P	18	35	52.4	local
		S	18	36	02.0	
11	V	P	23	08	37.7	local blast?
12	V	eP	23	26	50	c
14	V	P	01	16	18	c Kamchatka
18	V	iP	04	54	38.4	c Tonga Islands 21 1/2°S, 176°W
			04	54	54	
			04	55	18	
			04	56	16	
	S	e	05	04	46	
			04	55	31	
			05	05	50	
05	06	28				
18	V	P	18	06	41.8	Kamchatka
18	V	P	23	01	15.2	
18	V	P	23	45	22.3	
19	V	P	01	35	53.5	
19	HB	P	05	04	33.2	local
		S	05	04	37.4	
20	V	P	12	16	14.4	local
		S	12	16	20.5	
	HB	P	12	16	20.7	
		S	12	16	30.8	
21	V	P	02	54	06	
23	V	P	15	01	56	Alaska
24	V	P	05	53	55.2	Fallon, Nevada $\varphi = 39.5^{\circ}\text{N}$ $\lambda = 118.5^{\circ}\text{W}$
		i	05	55	44	
	S	iP	05	55	03	
		i	05	57	54	
		L	05	59	5	
25	V	eP	02	19	34	
25	V	P	14	17	30	
25	V	P	14	25	33.7	local
		S	14	25	35.7	
	A	P	14	25	51.0	
		S	14	26	06.4	
26	V	P	13	51	36	

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24

DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
26	V	P	18	53	22	New Britain
26	V	P	19	30	23	
27	V	P	04	56	11	local
	A	P	04	55	50.8	
		S	04	56	01.6	
27	V	P	11	06	33.7	Volcano Islands
		e	11	16	12	
		L	11	30		
28	V	P	10	12	14	c Japan
29	V	P	03	43	29	Fallon, Nevada
		e	03	46.2		
29	V	P	04	00	30	Fallon, Nevada
30	V	P	(08	08	35)	No time control
31	V	iP	05	58	18.6	local
		iS	05	58	26.6	
31	V	eP	22	22	54	Fallon, Nevada
		e	22	24	51	
		L	22	25.4		
	S	eP	22	24	05	
		S	22	28	28	
		L	22	29.5		

 W. G. Milne,
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WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni
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September, 1954

25

DATE	STN	PHASE	TIME (G.C.T.)			REMARKS	
			h	m	s		
1	V	P	00	19	35		
1	V	P	05	21	10	Fallon, Nevada	
		e	05	23.2			
		L	05	23.9			
	S	e	05	26	49		
L		05	28.4				
1	V	P	12	34	50	Kurile Islands	
1	V	iP	12	42	24.1	d local	
		iS	12	42	31		
	HB	P	12	42	38.7		
		A	P	12	42		45.7
		S	12	43	01.8		
1	V	iP	22	28	25.0	d local	
		S	22	28	33.2		
2	V	iP	13	50	18.5	d local	
		S	13	50	26.8		
2	V	iP	19	04	00	c Santa Cruz Islands	
3	V	iP	17	58	22.9	d local	
		S	17	58	24.6		
3	V	P	20	39	41.7	local	
		S	20	39	51.1		
3	V	P	20	40	52.5	local	
		S	20	41	01.7		
3	V	P	23	00	50.5	local	
		S	23	00	58.6		
4	V	P	01	16	24.4	local	
		S	01	16	27.7		
		e	01	16	34.7		
4	V	P	07	13	34.0	local	
		S	07	13	42.0		
4	V	P	07	15	36.4	local	
		S	07	15	44.7		
4	V	P	20	15	42.0	local	
		S	20	15	45.5		
4	V	P	21	16	50		
4	V	P	21	49	23.3	local	
		S	21	49	42.9		
	A	P	21	49	11.1		

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26

DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
5	V	P	07	58	18	Fiji Islands
		e	08	08	52	
		L	08	21.0		
5	V	P	16	17	08.2	local
		e	16	17	12.0	
		S	16	17	26.6	
6	V	P	16	59	59.7	Luzon
6	V	P	18	39	28	Kamchatka
		e	18	46	30	
		L	18	54.1		
	S	e	18	47	55	
		L	18	55.5		
7	V	P	00	21	23	Formosa?
7	V	P	00	24	47	Luzon?
7	V	P	00	48	14	Luzon
7	V	P	08	52	28.4	local
		S	08	52	36.5	
9	V	P	01	14	28	Northern Algeria $\phi = 36^{\circ}\text{N}$ $\lambda = 1\ 1/2^{\circ}\text{E}$
		e	01	27	30	
		L	01	44.2		
	S	e	01	16	05	
		e	01	20	35	
		e	01	25	27	
		L	01	30.1		
9	V	P	03	04	48	
9	V	P	09	41	08	
10	V	P	05	55	29	
11	V	P	05	41	55.2	local
		S	05	42	04.7	
11	A	P	08	27	50.2	local
		S	08	27	56.8	
12	V	P	07	54	16.9	Japan
		e	08	03.3		
		L	08	12		
13	V	e	02	22	55	Tonga Islands
		e	02	32	18	
		L	02	34.9		
	S	02	33	58		
13	V	e	02	52	10	Tonga Islands
13	V	P	20	53	50.7	local
		S	20	53	58.6	

September, 1954

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS	
			h	m	s		
14	V	P	01	01	21	Luzon	
15	V	P	03	37	34.0	local	
		S	03	37	51.5		
15	V	P	18	07	35	c Fiji Islands	
		e	18	17	06		
16	V	P	06	53	26.8	local	
		S	06	53	35.0		
17	V	e	01	36	25	New Ireland region	
		L	01	13	.7		
17	V	P	07	46	10	Formosa	
17	V	P	11	15	26	Fiji Islands	
		e	11	25	34		
		e	11	27	25		
		L	11	37	.4		
		S	11	16	19		
		e	11	27	16		
		e	11	28	22		
		L	11	33	.6		
17	A	P	20	38	14.7	local	
		S	20	38	18.5		
17	A	P	21	43	29.6	local	
		S	21	43	36.6		
18	V	P	15	43	26	Palau Island	
20	A	P	03	23	32.2	local	
		S	03	23	42.1		
20	A	P	07	07	06.9	local	
		S	07	07	13.2		
20	V	P	08	17	38	Fiji Islands	
21	V	P	03	58	46	Sumbawa Island	
21	V	P	09	54	03	Marianas Islands	
21	V	P	14	44	04		
21	V	P	22	17	27.2	All local but there may be 2 or more earthquakes.	
		P?	22	17	31.6		
		iS	22	17	33.8		
		S?	22	17	37.8		
		iP	22	18	11.8		
		P?	22	18	15.8		
		iS	22	18	18.2		
		S?	22	18	21.4		
		A	P	22	32		43.6
		e	e	22	32		59.7
e	e	22	33	26.9			

September, 1954.

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
23	S	e	22	01	22	Kuriles
		L	22	16		
24	A	P	17	28	45.4	local
24	A	P	20	50	06.9	local
		S	20	50	17.8	
	HB	P	20	50	13.3	
		S	20	50	28.8	
25	V	P	08	18	16.2	local
		S	08	18	27.4	
	A	P	08	17	59.5	
25	V	P	19	31	25	
25	A	P ₁	22	02	10.5	local - felt in Albern
28	V	P	13	05	05	
29	V	P	08	36	24	
29	V	P	21	54	05	
30	V	P	18	05	26.0	
		S	18	05	36.6	

 W. G. Milne,
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DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATION: V - Victoria A - Alberni
 S - Saskatoon HB - Horseshoe Bay

October, 1954.

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS	
			h	m	s		
1	V	P	03	09	12.4	Santa Cruz Islands 9,500 km.	
	S	e	03	19	57		
		i	03	22	01		
		L	03	40.6			
1	V	e	04	09	16.3		
		e	04	19	46.3		
		L	04	35.7			
2	A	P	20	30	28.4		
3	V S	P	03	00	02.7	Santa Cruz Islands 9,500 km.	
		e	03	13	36		
		e	03	19	06		
		e	03	22.6			
3	V	e	04	00	08.7		
		e	04	10	37.7		
		e	04	16.6			
		L	04	27.0			
3	V S	P	08	58	32.4		
		P	11	23	12.3		Kenai Peninsula, Alaska 2,200 km.
		iP	11	24	31		
		iS	11	28	39		
L	11	31.4					
3	V	i	12	23	13.2		
		i	12	26	45.3		
		L	12	29.4			
4	A	P	20	30	28.4		
5	V	P	04	29	23	Off South Coast of Honshu, Japan.	
5	V	P	13	01	07.1	local	
		S	13	01	21.3		
5	A	P	14	05	51.7	local	
		S	12	06	14.3		
6	A	P	12	37	45.0		
7	A	P	15	14	22.3	local	
		S	15	14	41.5		
11	A	P	03.52	52.2	local		
		S	03	52		59.2	
13	HB	P	19	32	43.6	local	
		S	19	32	59.0		

'quake cont'd.

October, 1954.

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
13	V	iP	19	33	23.8	
		e	19	33	27.5	
		i	19	33	28.1	
	A	P	19	33	44.3	
		S	19	34	01.5	
	13	HB	P	21	48	
S			21	48	44.3	
V		P	21	49	09.7	
		S	21	49	13.7	
A		P	21	49	30.2	
		S	21	49	48.1	
15	A	P	19	15	07.9	
16	V	P	02	26	03.3	local
		S	02	26	42.1	
	A	P	02	25	46.7	
		S	02	26	04.3	
17	V S	P	23	01	30.5	Lower California 2,000 km.
		e	23	02	48	
		e	23	06	20	
		i	23	09	00	
		L	23	10	5	
19	A	P	22	03	54.7	local
		S	22	04	04.7	
21	V	P	20	14	20.9	
24	A	P	07	51	32.5	local
		S	07	51	40.5	
24	V S	P	09	48	20.8	Lower California 1,950 km.
		e	09	53	15	
		L	09	56	5	
24	V	e	10	52	0	
27	V	P	03	29	39.3	
27	V	P	19	55	30.3	local
		S	19	55	45.2	
28	A	P	23	14	52.3	
31	V	e	23	36	21.2	

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STATION: V - Victoria A - Alberni
S - Saskatoon HB - Horseshoe Bay

November, 1954

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DATE	STN	PHASE	TIME (G.C.T.).			REMARKS	
			h	m	s		
1	HB	P	06	34	08.4	local	
		S	06	34	16.8		
	V	P	06	34	02.0		d
		S	06	34	08.5		
	A	P	06	35	07.2		
		S	06	35	16.2		
1	V	P	21	04	22.1	Off Coast of Guatemala	
2	V	P	01	52	00.9		
		S	01	52	13.5		
2	HB	P	07	43	57.9	local	
		S	07	44	23.2		
	V	P	07	44	05.5		
		S	07	44	30.8		
	A	P	07	44	41.0		
		S	07	44	58.3		
2	V	e	08	43.9			
		e	08	53.5			
		e	08	59.9			
2	A	P	23	54	30.5		
		S	23	54	40.5		
3	V	eP	03	20	52.8	Andreanof Islands Aleutian Islands	
3	V	eP	05	35	27.0	local	
		i	05	35	29.7		
		iS	05	35	36.1		
	HB	P	05	35	38.1		
		S	05	35	53.1		
	A	P	05	36	46.9		
S		05	36	09.5			
4	V	iP	10	54	40.0	d local	
		iS	10	54	48.7		
	HB	P	10	54	57.5		
		S	10	55	16.2		
6	V	iP	01	29	17.3	local	
		iS	01	29	19.0		
6	V	eP	10	09	20.1		
6	V	eP	13	20	01.0	Southern Ryukyu Islands	
6	HB	P	16	39	43.9		
		S	16	39	51.2		

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DATE	STN	PHASE	TIME (G.C.T.)	REMARKS	
7	V	P	05 31 36.7 c	Tonga Islands Region	
8	V	P	02 51 31.7	local	
	HB	P	02 52 44.1		
		S	02 52 54.1		
	A	P	02 52 51.1		
		S	02 53 08.4		
9	V	iP	00 20 52.4 d	local	
		eS	00 21 04.1		
	A	P	00 21 14.2		
	HB	P	00 22 09.8		
9	V	iP	23 56 35.3	local	
		iS	23 56 37.0		
11	V	eP	22 15 31.2	local	
		eS	22 15 50.8		
		A	22 15 44.0		
		S	22 16 13.0		
12	V	eP	12 31 01.1 d	Lower California	
		e	12 31 00.8		
		e	12 34 31.8		
		L	12 36.3		
	S	P	12 31 42		
		S	12 35 51		
		L	12 38.9		
12	HB	P	21 59 46.4		
	V	eP	21 59 54.6		
		eS	22 00 07.9		
12	V	A	22 00 01.1 d	local	
		eP	23 31 17.4		
		eS	23 31 21.4		
		A	23 31 36.1		
		HB	P		23 31 36.2
13	V	eP	08 25 42.9	local	
		eS	08 25 50.9		
		HB	P		08 26 14.1
15	V	iP	15 38 16.0	Marianas Islands	
18	V	eP	20 55 36.1	Honshu, Japan	
19	V	eP	06 06 16.5	Sea of Japan	
20	V	eP	10 13 08.5	local	
		eS	10 13 14.9		
		HB	P		10 13 10.9
		A	P		10 13 21.4
			S		10 13 38.5
23	V	eP	21 21 26.7	Off Southeast Coast of Kamchatka	
24	V	eP	00 46 41.3	Loyalty Islands	

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
25	V	iP	11	18	34.9	Cape Mendocino California
		S	11	21	50.4	
	S	iP	11	20	45	
		eS	11	24	15	
		L	11	25	7	
25	V	P	21	11	44.5	
25	V	eP	12	15	11.6	Off Coast of Hokkaido, Japan
25	V	iP	21	45	25.8	Fiji Islands
26	V	eP	20	30	49.1	local
		eS	20	30	53.5	
27	V	eP	21	16	52.3	
29	V	iP	01	47	31.6	Near East Coast of Kamchatka
29	HB	P	14	48	22.2	local
		S	14	48	30.7	
	V	iP	14	48	24.6	
		iS	14	48	36.4	
30	V	iP	02	23	17.7	local
		iS	02	23	31.1	
30	V	iP	03	38	22.3	local
		iS	03	38	27.5	

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S - Saskatoon HB - Horseshoe Bay

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
1	V	eP	22	54	47.2	local
		S	22	55	02.1	
	HB	P	22	54	51.9	
2	V	eP	08	24	03.8	
		eS	08	24	13.9	
2	V	eP	08	25	08.8	
2	V	eP	09	06	12.1	local
		eS	09	07	15.6	
	HB	P	09	06	24.2	
		S	09	07	35.7	
2	V	P	22	50	54.1	local
		S	22	51	09.2	
	HB	P	22	50	56.4	
		S	22	51	13.5	
3	V	P	02	18	16.5	local
		S	02	19	22.2	
	HB	P	02	18	26.5	
		S	02	19	38.1	
3	V	P	08	47	26.0	local
		S	08	48	31.0	
		L	08	49	45.0	
	A	P	08	47	32.7	
		S	08	48	37.4	
		HB	P	08	47	
	S	08	48	47.3		
4	V	P	07	13	29.6	New Britain Region
		e	07	23	30.6	
		S	07	24	02	
		PS	07	25	28	
		SS	07	31	06	
4	S	E	18	40	42	Near Trinidad
		i	18	43	37	
		i	18	48	11	
		L	18	58.5		
		V	eP	18	41	
5	A	P	00	01	24.8	local
		S	00	01	31.0	
5	A	P	01	49	31.8	local
		S	01	49	35.7	
	V	eS	01	50	02.2	
7	A	P	22	08	09.6	local
		S	22	08	20.3	

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
8	V	P	18	39	58.4	local
	A	P	18	40	16.8	
		S	18	40	33.6	
10	S	i	13	14	06	West of Jamaica
		i	13	17	00	
		L	13	22	3	
	V	S	13	15	36.3	
		SS	13	19	25.3	
		L	13	28	13.3	
11	V	eP	10	37	52.7	local
	HB	P	10	38	00.8	
11	V	P	10	58	47.7	local
11	V	P	11	00	53.2	local
	HB	P	11	01	02.2	
11	V	P	11	11	04.5	local
11	V	P	11	42	01.7	local
	HB	P	11	42	09.8	
11	V	P	12	15	02.7	local
	HB	P	12	15	10.9	
11	V	P	12	27	43.5	
	HB	P	12	27	51.0	
11	V	P	12	01	21.3	local
	HB	P	12	02	28.4	
11	V	P	13	06	36.4	local
	HB	P	13	06	30.6	
11	V	P	13	08	10.9	local
	HB	P	13	08	17.1	
11	S	i	13	07	09	North Atlantic Ocean
		i	13	11	48	
		L	13	14	8	
	V	S	13	14	13.2	
		i	13	18	37.2	
		L	13	19	05.2	
11	V	P	16	05	13.8	local
	HB	P	16	06	21.0	
13	V	P	00	31	08.0	local
		S	00	31	12.9	
	HB	P	00	31	18.5	
16	V	P	11	09	38.7	Near Fallon Nevada
		S	11	11	31.5	
		L	11	11	55.3	
	S	P	11	09	39	
		S	11	12	44	
		L	11	14	32	
	HB	eP	11	09	49.8	
		iS	11	12	47.8	
	A		11	09	54.0	

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DATE	STN	PHASE	TIME (G.C.T.)			REMARKS
			h	m	s	
16	V	eP	14	19	18.3	Fallon Aftershock
17	A	P	12	03	01.3	local
			12	03	22.9	
	V	P	12	03	46.7	
	HB	P	12	04	02.9	
		S	12	04	23.5	
19	V	eP	10	36	04.7	Jujuy Province Argentina
		e	10	46	10.3	
	HB	eP	10	36	05.0	
	S	i	10	45	38	
20	V	P	12	36	52.8	local
		S	12	37	11.3	
	HB	P	12	37	06.5	
			12	37	27.7	
20	HB	P	23	00	02.8	(Blast)
21	HB	P	18	00	52.5	local
		S	18	00	59.7	
	A	P	18	01	09.5	
		S	18	01	28.8	
21	V	P	19	58	19.6	Humboldt County California
		S	19	58	50	
		L	20	00	27	
	HB	P	19	58	33.0	
		eS	20	00	52.3	
	A	P	19	58	33.5	
	S	iP	20	00	16	
		S	20	03	35	
	L	20	04.5			
25	V	eP	01	32	30.1	local
		S	01	33	08.9	
	A	P	01	32	17.0	
		S	01	32	49.6	
	HB				S-P = 43.6s	
28	V	eP	01	13	49.5	New Britain Region
		S	01	24	05	
		L	01	41.0		
28	S	P	01	46		
30	V	P	09	18	02.0	local
		S	09	18	21.5	
		e	09	20	06.3	
30	V	eP	11	38	21.3	Fox Islands, Aleutian Islands
		S	11	43	22.3	
		e	11	43	44.3	
	S	e	11	45	15	
		L	11	49.6		

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