UNIVERSITY OF WASHINGT

SEATTLE 5, WASHINGTON

U. S. A.

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SEISMOLOGICAL BULLETIN NO. 7

REGISTRATION OF EARTHQUAKES AT

SEATTLE

1953

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UNIVERSITY OF WASHINGTON, GEOLOGY DEPARTMENT

June, 1956

STATION CONSTANTS

Latitude: 47° 39.3' North
Longitude: 122° 18.5' West
Elevation: 30 meters
Foundation: Compact glacial till

INSTRUMENTAL CONSTANTS - 1953

Sprengnether short-period VERTICAL component:

$T_o = T_g = 1.4$ sec.
$h_o = h_g = 1.0$ ca.
$V_s = 3000$ ca.

Sprengnether short-period NORTH-SOUTH component:

$T_o = T_g = 7.9$ sec.
Damping approximately critical, sometimes uncertain.
$V_s = 750$ ca.

Sprengnether short-period EAST-WEST component:

$T_o = T_g = 5.24$ sec.
Damping approximately critical, sometimes uncertain.
$V_s = 450$ ca.

Leads and Northrup galvanometers used on all installations.

Paper speed on all records: 30 mm/min.

Note on seismograph performance: Although this bulletin indicates that the arrival times of many phases were correctly registered, the performance of the horizontal pendulums was generally inadequate, especially for local shocks. The vertical component performed satisfactorily.

Seismologists: Jones, John W., to August 31, 1953
Neumann, Frank, from September 1, 1953.

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	A vertical short-period Sprengnether seismograph was put back in operation on January 17, 1953 but operation was evidently intermittent.
Feb. 24	iPZ eZ	19 39 57 * 40 06	MM-4 in Seattle. Strongest in southern portion. Epicenter very close to Seattle
Feb. 25	iPZ	1 58 30 *	Aftershock
Feb. 25	iPZ	9 29 05 *	Aftershock
Feb. 25	iPZ iZ iZ	21 21 00 * 21 13 * 21 21 51 *	Near Alaska Peninsula 56 N., 156½ W. USCGS 2400 km ca
Feb. 26	iPZ	0 41 10 *	Kamchatka area 51 N., 156½ E. USCGS 5700 km ca
Feb. 26	iPZ	11 55 18 *	Santa Cruz Is. region 11 S., 164½ E. USCGS 9800 km ca
March 1	iPZ	4 37 29 *	Local
March 3	ePZ	11 34 00 *	Regional tremor?
March 5	iPZ	22 04 50 *	Local?
March 8	iPZ	18 34 08 *	Local
March 9	ePZ	7 17 00 *	Regional?
March 19		8 -- --	No time marks on record of Windward Is. shock
Apr. 10		2 -- --	Regional shock registered No time marks
Apr. 13		13 -- --	No time marks on record of deep western Brazil shock.
Apr. 15		7 -- --	Small regional shock registered No time marks

* 60 seconds has been added to the times read from the seismograms to reconcile the readings with reported origin times.

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	
May 4	iPZ	11 37 46	Kamchatka area 53½ N., 161 E. USCGS 5300 km ca
May 4	eLZ?	15 05 --	Northern Gulf of California 30½ N., 114 W. USCGS 2100 km ca
May 4	PZ	15 40 46	Santiago De Estera, Argentina 28 S., 62½ W. h-600 km USCGS. 10200 km ca
May 6	ePZ iPZ eZ	17 30 07 30 09 17 41 35	Central Chile 36½ S., 73 W. h-100 km USCGS. 10700 km ca
May 11	iPZ iZ eZ	10 29 52 29 58 10 33 14	Loyalty Islands 21½ S., 169 E. USCGS 10300 km ca
May 14	iPZ eZ eLZ eZ eZ	7 43 08 44.7 45.5 45.9 46.7	Off Vancouver Is., B. C. 50 N., 130 W. USCGS 500 km ca
May 14	iPZ eZ eZ eLZ?	18 29 08 29 54 30 34 18 30 54	Aftershock
May 20	ePZ? PZ?	23 15 58 23 16 05	Aftershock
May 21	eZ eLZ?	13 34.0 13 35.5	Heavy microseisms
May 24	iPZ	1 38 53	Sandwich Island region 51 S., 28 W. USCGS 14,500 km ca
May 25	ePZ eZ	17 49 28 17 50 31	Kamchatka area 51 N., 159 E. USCGS 5500 km ca
May 29	eLZ?	6 56.5	
May 31	iPZ	19 47 36	Willis Island region near Fiji Islands. h-600 km 8900 km ca USCGS

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	
May 31	ePZ	20 07 33	Off north coast Dominican Republi
	iZ	07 42	20 N., 70½ W. USCGS
	eZ	08 46	5600 km ca
	eZ	20 11.4	
June 13	iPZ	23 01 39	New Hebrides Islands
	iZ	23 02 19	h-150 km. USCGS
			9800 km ca
June 14	ePZ	4 21 16	Near Imperial Valley, Calif.
	eZ	26 13	32°50' N., 115°40' W. (Berkeley)
	eSZ	26 23	1750 km ca
	eLZ	4 27.7	
June 15	iPZ	17 52 06	Near S. coast Kodiak Islands
	iSZ	17 56 29	56½ N., 154 W. USCGS
			2500 km
June 16	ePZ	10 04 38	S. of Honshu Island, Japan
	eZ	10 11 24	31 N., 141 E. USCGS
			8000 km ca
June 16	iPZ	16 14 44	About 250 mi. S. of Tonga Is.
	iZ	16 15 13	h-100 km. USCGS
			9500 km ca
June 16	iPZ	19 53 53	Near S. coast Alaska Peninsula
	eZ	19 58.6	55½ N., 160 E. USCGS
			2700 km ca
June 23	iPZ	14 02 27	Kamchatka area
	iZ	14 02 40	51 N., 157½ E. USCGS
			5600 km ca
June 25	ePZ	11 02 35	Off E. coast Flores Islands
	eZ	04 22	8½ S., 123½ E. USCGS
	eZ	11 06 20	12,600 km ca
June 26	eZ?	6 01 34	Aftershock
	PZ	6 02 12	
June 27	iPZ	7 55 02	S. of Fiji Islands
			24 S. 178½ W. h-550 km
			USCGS. 10,000 km ca
June 30	iPZ	7 46 22	Kamchatka area
	eZ	46 34	54 N., 160 E. USCGS
			5200 km ca

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	Vertical component not operating July 1-14. H components resumed operation July 3.
July 11	iSNE	8 13 37	Sharp local tremor
July 13	iPZ	19 32 15	
July 13	iPZ	21 41 32	New Hebrides Islands 18 S., 169½ E. USCGS 10,100 km ca
July 15	iPZ	22 45 07	Off N. coast of Formosa. USCGS. 9700 km ca
July 20	PZ	8 20 49	Tonga Island region
	eSNE?	8 31 12	21 S., 177 W. h-100 km USCGS 9500 km ca
July 21	ePZ	8 54 00	Off Oregon coast. (Berkeley)
	eSNE	55 00	600 km ca
	iZ	55 18	
	eLNE	8 55.8	
July 22	iPZ	5 20 12	Kamchatka area
	iZ	20 26	51 N., 157 E. USCGS
	iSE	5 27 23	5500 km ca
July 22		10 -- --	Off Vancouver Island No time marks
July 25	ePZ	17 39 33	
July 26	PZ	13 17 02	Regional?
	eZ	13 17 34	
July 26	iPZ	17 05 02	Marianas Islands h-200 km
	eZ	05 45	17½ S., 145 E. USCGS
	eSZ	14 35	8700 km ca
	iSZNE	17 14 44	
July 26	PZ	17 50 08	Regional?
	eZ	17 50 27	
July 28	iPZ	7 51 23	Fiji Island region h-550 km
	SNE	8 01 05	21 S., 178½ W. USCGS
	eZ	8 01 11	9600 km

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	
July 28	eLNE	18 51 13	
	eLZ	51 39	
	eZ	18 53 14	
July 29	ePZ	18 24 00	Off coast of Guatemala
	eSN?	29 47	13 N., 90½ W. USCGS
	eN?	18 31 11	4800 km ca
			P occurred during eclipse of time mark.
July 29	iPZ	23 30 04	Fiji Island region
	iSNE	39 57	16 S., 173 W. USCGS
	eZ	23 40 02	9000 km ca
July 30	iPZ	23 56 27	Marianas Islands
	eZ	57.0	19 N., 145 E. USCGS
	eZ	24 00 12	8700 km ca
	iSNE	24 06 04	
Aug. 4	eSE?	10 28 31	Off coast of Vancouver, B. C.
	eSN?	28 41	USCGS
	LN	29.0	2 not operating
	LE	10 29.7	
Aug. 4	eSN?	10 37 56	Aftershock
	eLN	38.2	Z not operating
	eLN	10 39.3	
Aug. 12	iPZ	9 36 02	Near W. coast of Greece
	eSE	47 35	38½ N., 21 E. USCGS
	iSN	9 47 40	9600 km ca M-7¼ (P)
Aug. 12	iPZ	12 17 31	Aftershock
Aug. 12	iPZ	14 20 47	Aftershock
Aug. 12	ePZ	17 05 29	Tonga Islands
	iSN	17 15 50	22 S., 175 W. USCGS
			9500 km ca
Aug. 12	ePZ	18 21 20	
Aug. 13	iPZ	9 36 23	Loyalty Islands
	eZ	36 49	21½ S., 170 E. h-150 km
	iZ	37 28	USCGS. 10400 km ca
	eSE	46.8	
	eN	9 47.9	

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	
Aug. 17	eLE	22 03.0	Devon Island, Canada
	eLZN	22 03.5	76½ N., 92 W. USCGS
			3500 km ca
Aug. 20	iPZ	18 32 06?	Local Time Control poor
	iSE	18 32 15?	
Aug. 24	iPZ	13 28 48?	Guatemala. h-100 km
			14½ N., 91 W. USCGS
			4700 km ca. Time control poor
Aug. 28	ePZ	10 54 20	East Central Alaska. USCGS
	eZ	59.7	2200 km ca. Time control poor
	eLNE	11 00.5	
Aug. 31	PZ	8 01 00	Kamchatka area
			53½ N., 160 E. USCGS
			5200 km ca. Time control poor
Sept. 3	eLZN	17 53.5	
Sept. 4	iPZ	7 32 03	Kurile Islands
	eSNE	7 48.3	50 N., 156½ E. USCGS
			5700 km ca. Time control poor
Sept. 4	iPZ	14 20 20	Near coast of Central Chile
			32 S., 71 W. USCGS
			10,100 km ca.
			Time control poor
Sept. 5	iPZ	14 31 36	Eastern Greece
			38 N., 23 E. USCGS
			9700 km ca Time control poor.
Sept. 5	iPZ	19 07 01	Kamchatka area
	eZ	19 09 15	51 N., 157 E. USCGS
			5600 km ca
			Time control poor
Sept. 7	ePZ	4 41 57	Marianas Islands. USCGS
			8500 km ca
			Time control poor
Sept 17	iPZ	21 24 10	Tonga Island h-100 km
			20½ S., 174 W. USCGS
			9300 km ca
			Time control poor

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	
Sept. 23	ePZ eZ eSZ	2 23.6 23.9 2 31.2	Northern Kurile Islands 50½ N., 156 E. USCGS 5500 km ca. Time control poor
Sept. 25	ePZ	13 52 48	Bonin Islands 28 N., 140 E. USCGS 8200 km ca Time control poor
Sept. 26	ePZ	1 11 27	Kamchatka area 50 N., 157½ E. USCGS 5500 km ca Time control poor
Sept. 26	ePZ eZE	3 36 35 3 39.0	Time control poor
Sept. 26	ePZ	3 48 33	S.W. Yukon, Canada. USCGS Weak P phase. Time control poor.
Sept. 30	PZ iZ eZ LZ	23 10 30 13 24 14.3 23 20.5	Off coast of Sinaloa, Mexico 22 N., 107½ W. USCGS 3100 km ca Time control poor
Oct. 5	iPZ	4 40 16	Kamchatka area 53½ N., 160½ E. USCGS 5400 km ca Time control poor
Oct. 13		8 53 --	Gulf of Calif. shock. No time control
Oct. 14	iPZ	14 57 34	Near E. coast of Hokkaido, Japa 43 N., 144½ E. h-100 km USCGS. 6800 km ca Time control satisfactory from here on
Oct. 16	iPZ	10 00 35	Oaxaca, Mexico 16 N., 96½ W. USCGS 4300 km ca

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	
Oct. 27	ePZ	18 32 45	Southern Bolivia. h-300 km 19 S., 66 W. USCGS 9500 km ca
Oct. 28	iPZ	8 54 19	Near coast of Oaxaca, Mexico 16½ N., 98 W. USCGS 4300 km ca
Nov. 4	ePZ SNE	4 01 57 4 12.6	New Hebrides Islands 12½ S., 166½ E. USCGS 9700 km ca. Mag. 7.3 (P)
Nov. 4	iPZ eZ	4 17 41 4 21 13	Aftershock
Nov. 9	ePZ eZ	17 34.4 17 36.0	Kamchatka area 52½ N., 159 E. USCGS 5300 km ca
Nov. 9	iPZ eZ iSZ? eZ LZ	22 36 38.7 44.3 54.0 57.5 22 37 14	Olympic Peninsula; probably near Forks--same as January 11, 1955 130 km ca
Nov. 10	iPZ eZ PPZ eSN eSZ LN	23 47 17 R 49.5 51.8 56 28 56 45 24 05	Kamchatka area 50½ N., 157 E. USCGS 5500 km ca
Nov. 17	iPZ ePPZ ePPPZ eSN eSZ ScSZ LE	13 37 17 39.5 40.7 44 25 44.5 47.5 13 51.6	Near coast of Guatemala 14 N., 92 W. USCGS Mag. 7½ - (P). 4600 km ca
Nov. 25	iPZ eN eSE? SN? eLNE	18 00 05 R 00 40 08 55 09 18 18 22	Near S. coast of Honshu, Japan 34 N., 141 E. USCGS 7750 km ca
Nov. 26	iPZ eZ	0 14 43 0 15 19	Aftershock

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	
Nov. 26	iPZ	1 58 42	Aftershock
Nov. 26	iPZ	8 25 27	Aftershock
Nov. 27	iPZ	11 41 16	Aftershock
Nov. 29	iPZ	23 50 48.0	Regional. Possibly central
	eSN?	50 59.5	Olympic Peninsula
	eSN?	23 51 05.8	
Dec. 1	iPZ	5 20 42 C	Ryuku Islands
			29 N., 128½ E. USCGS
			8900 km ca
Dec. 2	iPZ	4 38 32 C	Northern New Guinea
	eZ	42 23	3½ S., 141½ E. USCGS
	eZ	42 41	10700 km ca
	SE	49 07	
	LE	5 24	
Dec. 4	PZ	14 56 06	Off coast of Vancouver Island
	eE	57 23	49½ N., 129 W. USCGS
	SN	57 53	600 km ca
	iLN	14 58 58	
Dec. 7	iPZ	2 18 03 R	Northern Chile
	eE	18 14	22 S., 68½ W. USCGS
	eSE	28 55	Mag. 7¼ (P). 9400 km ca
	eSN	29 17	
	eSZ	2 29.4	
Dec. 12	eZ	8 30 39	Off coast of Vancouver Island
	eZ	31.0	49 N., 129½ W. USCGS
	eE	31 04	500 km ca Heavy
	eZ	31 19	microseisms obscure
	eE	31 41	phases
	iLN	8 33 54	
Dec. 12	iPZ	17 41 54 C	Near coast of Peru
	iZ	41 57	3½ S., 81 W. USCGS
	eZ	42 15	Mag 7 3/4 (P) 6900 km ca
	eSZ?	51 28	
	eZ	53	
	eZ	54 28	
	LZ	18 03.0	
Dec. 13	iPZ	7 04 58 R	Kamchatka area
			50 N., 158½ E. USCGS

Date	Phase	Time (G.C.T.)	Remarks
1953		h. m. s.	
Dec. 16	eZ	2 59 42	
	FZ	3 02	
Dec. 16	iPZ	4 32 26.5	Near Portland, Ore. MM-6
	iZ	29.5	45°41' N., 123°08' W.
	eZ	38	Portland (center), 42 km
	SZ	52	Seattle 320 km
	iZ	33 04	H- 4 31 53
	LZ	4 33 14	
Dec. 20	iPZ	00 31 56	Sea of Japan
			39½ N., 136½ E. h-300 km
			USCGS. 7500 km ca
Dec. 21	iPZ	17 47 08	Near S. coast of Hokkaido, Japa
			42 N., 141½ E. USCGS
			7000 km ca
Dec. 25	ePZ	2 00 18	Kamchatka area
	eZE	00 45	52 N., 159½ E. USCGS
	eSZ	07.3	5400 km ca
	SNE	07 55	
	SSZ	10.4	
	LE	17.1	
	LN	2 22.9	