DEPARTMENT OF MINES AND TECHNICAL SURVEYS

DOMINION OBSERVATORIES BRANCH

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

SEISMOLOGICAL BULLETIN

January - June

1953

000

DOMINION ASTROPHYSICAL OBSERVATORY

VICTORIA / CANADA

00

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

φ = 48°31'14" N. λ = 123°24'56" W. h = 197 m.

Time correction from recorded radio time signals

Foundation: rock

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

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

SASKATOON

University of Saskatchewan

φ = 52°08' N. λ = 106°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 photographic registration, magnetic damping, paper speed of 8 mm. per min., 1 lb mass.

DETERMINED CONSTANTS

INSTRUMENT	Ts	Tg	V	$\mathcal{E}$	DISPLACEMENT FOR 1" ARC TILT
Victoria Benioff	1.0	0.1			
Victoria EW	12.0		300	20:1	50 mm.
Victoria NS	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.

NOTE:- Universal Time used throughout

STATIONS (Cont' d)

ALBERNI (Vancouver Island)

φ = 49°16'14" N. λ = 124°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 1/3 sec., and Tg approximately 1/20 sec.

HORSESHOE BAY (Vancouver)

φ = 49°22'39" N. λ = 123°16'33" W

Time correction from recorded radio time signals

Foundation: granitic rock

Instruments: Willmore-Sharpe EW and vertical short period with Ts approximately 1/3 sec., and Tg approximately 1/20 sec. Sprengnether NS short period with Ts and Tg approximately 1.9 sec. All three components are recorded at 60 mm. paper speed.

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

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

January, 1953

DATE	STN	PHASE	h m s	REMARKS
4	V	P	06 52 20	Kurile Islands
4	V	P	09 29 16	New Guinea
5	V	P	05 00 24	Aleutians
5	V	eP	07 55 59 d	Aleutians
		PP	58 52	4,500 km.
		S	08 02 15	M = 6 3/4 - 7
		SS	05.9	
	S	i	08 03 49	
		L	07.1	
5	V	P	09 31 25	
5	V	iP	10 15 31 c	Kurile Islands
				5,550 km.
5	V		10 25 30	Kurile Islands
	S	i	10 24 16	
		i	37	
		e	25 21	
		e	29.0	
		L	32.1	
6	V	P	11 18 01	
7	V	P	05 57 14	Kamchatka
				5.050 km.
7	V	P	12 09 40	Costa Rica
				5,550 km.
7	A	P	13 07 32.8	local
		S	44.8	
	HB	iP	13 07 19.6	
7	V	P	14 21 32	New Britain
				10,100 km.
8	V	P	05 26 19.9	local
		S	31.6	
	A	P	05 26 29.0	
		S	49.5	
	HB	P	05 26 30.9	
		S	53.0	
11	V	iP	22 57 38 c	Yukon, Canada
		S	23 02 34	1,850 km.
	S	iP	22 56 53	M = 6 1/2 - 6
		iS	23 01 24	
		L	03.7	

January, 1953

DATE	STN	PHASE	h m s	REMARKS
12	V	iP	17 32 34 c	Kurile Islands
	S	P	17 33 22	5,550 km.
		S	41 05	d = 60 km.
		SS	45.1	
		L	50.5	
13	V	P	04 19 52.6	local
		S	21 09	
	A	P	04 19 28.5	
	HB	P	04 22 39.8	
		S	23 13	
13	V	P	15 29 38.1	local
		S	53.1	
	A	P	15 30 15.7	
	HB	P	15 29 49.6	
		S	31 13	
15	V	P	07 00 51.3	local
		S	07 01 01.6	
15	V	P	08 19 43	Kamchatka
15	V	P	12 12 07	Hawaii
				4,350 km.
17	V	P	17 38 49	Kurile Islands
				5,550 km.
19	V	P	05 07 48	Japan
	S	i	05 17 28	6,850 km.
		L	30	
20	V	P	06 54 11.2	local
	A	P	06 54 29.1	
		S	46.4	
	HB	P	06 54 18.5	
		S	27.9	
20	V	P	17 47 04	Molucca passage
				11,400 km.
21	V	P	01 51 50	Kurile Islands
				5,050 km.
25	V	P	19 56 56	Haiti
	S	e	20 02 16	5,500 km.
		e	05 44	
		L	10.5	
26	S	P	03 29 52	
		e	37.6	
26	V	P	05 11 14	Kamchatka
30	V	iP	15 39 19 c	Kamchatka

January, 1953

DATE	STN	PHASE	h	m	s	REMARKS
30	V	P	18	43	52.9	local
		S			54.8	
	A	P	18	44	09.2	
		S			28.1	
	HB	P	18	44	07.7	
		S			19.8	
30	V	P	21	59	29	
30	V	P	22	24	33.4	local
		S			34.7	

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, 1953

DATE	STN	PHASE	h	m	s	REMARKS
2	V	iP	17	41	30.4 d	local
		S			37.0	
	A	P	17	41	47.4	
		S		42	03.6	
	HB	P		41	38.6	
		S			49.7	
3	V	P	11	19	44.7	felt at Ferguson, B. C.
		S		20	41.5	
	A	P		19	54.0	
		S		20	57.7	
	HB	P	11	19	37.3	
		S		20	27.6	
6	V	P	05	42	05	Kamchatka
6	V	P	13	23	20	Japan
		S			31	6,850 km.
	S	P	13	32	56	
		S		44.2		
7	V	P	22	44	17	
9	V	P	14	58	41	Kamchatka
9	V	P	21	23	39	Aleutians
		e			53	
	S	e	21	55.6		
12	V	P	01	31	29	Yukon
		S		36	33	
		L		27.8		
	S	S	01	37.4		
		L		38.7		
12	V	P	04	35	25	Yukon
		S		40	05	1,950 km.
		L		40.3		
	S	P	04	39	03	
		e		41	29	
		L		42.7		
12	V	P	08	29	01	Northern Iran
		e		31	56	10,700 km.
		L	09	05		
	S	[illegible]	09	05		
14	V	P	22	00	02	Marianas Islands
	S	e	22	10	58	8,600 km.
19	V	P	02	53	55	
19	V	P	13	18	51	Kermadec Islands
						10,100 km.

February, 1953

DATE	STN	PHASE	h m s	REMARKS
19	V	P	15 31 30	Mid-Atlantic Ocean
	S	e	15 41.3	11,100 km.
		e	47.3	
		L	59	
20	V	P	00 52 27.0	local
		S	41.6	
	A	iP	00 52 16.4 d	
20	V	P	05 16 38.7	local
		S	46.8	
	A	P	05 16 57.0	
		S	17 19.7	
	HB	P	05 16 46.8	
21	V	P	11 26 39.0	local
		S	44.1	
	A	P	11 26 52.7	
		S	27 09.1	
	HB	P	11 26 50.6	
		S	27 04.1	
24	V	P	19 40 30.7	local
		i	33.9	
		iS	46.3	
		i	51.9	
	A	P	19 40 52.8	
		S	41 22.8	
	HB	P	19 40 42.1	
		S	41 08.2	
25	V	P	01 59 04.8	local ?
		e	07.6	
		e	21.2	
		e	26.0	
	HB	P	01 59 16.9	
		S	42.3	
25	V	i	09 29 23.9	local
		i	25.2	
		S	30.7	
		i	33.0	
	A	P	09 29 42.9	
		S	30 06.3	
	HB	P	09 29 33.3	
		S	49.7	
25	V	P	12 43 10	Kurile Islands
25	V	P	14 51 14	
25	HB	P	19 08 52	local
25	V	P	19 12 42.2	
		e	48.3	
		S	13 48.1	
25	V	iP	21 21 06 d	Alaska
		i	19	2,400 km.
		e	34	
		S	25 07	
		L	26.8	
	S	e	21 22 13	
		e	27 49	
		L	30.8	

February, 1953

DATE	STN	PHASE	h m s	REMARKS
25	V	P	22 13 56	
26	V	P	00 41 01	local
		S	32	
26	V	P	07 46 39	Kamchatka
26	V	i	11 55 15	Santa Cruz Islands
		e	55.7	9,650 km.
		S	12 05 56	
		e	11.5	
		L	17.0	
	S	e	12 06 43	
		e	08 54	
		e	14.7	
		L	23.5	
26	V	P	16 18 23	Haiti
				5,500 km.
27	V	P	20 44 37.7	local
		S	44.6	
	A	P	20 44 53.9	
		S	45 20.4	
	HB	P	20 44 45.8	
		S	59.8	
28	V	P	19 38 16.6	local
		S	18.2	
28	S	L	22 10.2	

W. G. Milne,

Seismologist.

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

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

March, 1953

DATE	STN	PHASE	h m s	REMARKS
3	V	P	11 40 05.7	Loyalty Islands
		S	10.7	10,200 km.
		L	12 14	
	S	L	12 10	
3	V	P	13 54 25	Loyalty Islands
4	A	P	09 34 15.8	local
		S	25.4	
4	V	P	18 32 53.5	local
		S	55.5	
5	V	iP	21 10 05 c	Kamchatka
		e	59	5,400 km.
		e	16 57	
	S	e	21 18.4	
		L	25.3	
6	V	P	07 02 14	local
		S	34	
7	A	P	17 02 31.4	
		S	49.0	
7	V		21 55 58.4	
			56 01.0	
8	V		06 30 41.1	local
			59.6	
8	V		12 35 44	Kamchatka
8	V	P	21 54 25.9	local
		S	42.4	
	A	P	21 54 20.6	
		S	55 08.8	
	HB	P	21 54 38.6	
			55 04.7	
9	V	P	10 16 42	local
		S	17 03	
10	V	P	00 02 04.7	local
		S ?	09.2	
		e ?	12.2	
	A	P	00 02 16.9	
		S	38.5	
	HB	P	00 02 19.9	
12	A	P	00 45 34.4	
		S	44.4	

March, 1953

DATE	STN	PHASE	h	m	s	REMARKS
12	V	P	19	04	24.9	local
		S			32.9	
	A	P	19	04	33.2	
		S			51.2	
	HB	P	19	02	16.8	
		S			21.6	
13	V	P	01	30	36.2	local
		S			38.4	
14	V	P	00	58	40.6	local
		S			53.9	
	A	P	00	58	53.8	
	AB	P	00	58	37.6	
14	V	P	11	18	37	local
		S			50	
17	A	P	07	01	00.1	
17	V	iP	13	13	31 c	Kurile Islands 5,500 km.
18	V	P	19	19	14	West Turkey
		S		30	53	10,400 km.
		L		42		
	S	iP	19	18	27	
		S		28	44	
		e		32.2		
		L		40.5		
19	V	iP	08	37	54	Windward Islands
		i		38	36	6,850 km.
		i		39	00	
		e		39	45	
		iS		46	01	
		e		46.8		
		L		52.6		
	S	P	8	36	52	
		PP		38	17	
		iS		44	07	
		i		46.3		
22	V	P	20	16	19.3	local
		S			37.7	
	A	P	20	16	06.3	
23	V	P	02	17	34	
23	HB	P	06	28	02.9	local
		S			12.9	
23	V	P	07	03	26.8	local
	A	P	07	03	43.4	
		S		04	01.3	
23	V	P	12	42	18	Aleutians
25	V	iP	16	52	04.6	local
		iS			08.8	
	A	P	16	52	22.0	
		S			38.8	

March, 1953

DATE	STN	PHASE	h	m	s	REMARKS
27	A	P	22	37	51.8	local
28	V	P	00	11	42	
28	HB	P	22	13	14.3	local
		S			21.7	

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

April, 1953

DATE	STN	PHASE	h m s	REMARKS
1	V	P	11 00 03	Ecuador foreshock
1	V	P	11 31 45	Ecuador 6,650 km.
1	V	P	18 22 45	Bonin Islands
1	V	P	22 47 34	Panama
2	A	P	00 27 41.1	local
		S	50.4	
2	V	P	04 09 06	New Britain 10,000 km.
2	V	P	07 58 46.2	local
		S	56.5	
	A	P	07 58 47.4	
		S	58.3	
	HB	P	07 58 53.9	
		S	59 10.0	
3	V	P	04 30 14	
4	V	P	10 28 23	
6	V	P	12 23 21	
7	V	iP	17 40 21 c	
8	A	P	04 56 26.9	local
		S	36.3	
8	V	P	21 28 34.8	local
		S	36.3	
8	V	iP	22 44 14.8 c	local
		i	15.6	
		iS	18.8	
	A	P	22 44 33.1	
		S	50.4	
9	V	P	00 27 31.7	local
		S	56.5	
	A	P	00 27 23.6	
		S	33.9	
10	V	iP	11 06 52.7 d	local
		S	07 13.0	
	A	P	11 07 04.1	
		S	31.7	
	HB	P	11 07 05.3	
		S	35.7	

DATE	STN	PHASE	h	m	s	REMARKS
14	V	iP	13	39	55 d	Western Brazil
		i		42	00	7,900 km.
		S		48	31	
	S	P	13	39	20	
		S		47	23	
		L		51.8		
15	V	P	01	13	02	
15	V	P	04	55	33.5	local
		S			46.9	
15	V	P	13	47	44	
15	V	P	14	32	35.4	local
		S			50.7	
15	V	P	18	15	39	Kamchatka
15	V	P	21	35	49	local
		S		36	00	
	A	P	21	35	49.4	
		S		36	02.2	
17	V	iP	00	13	45 c	Peru
						7,500 km.
18	V	P	03	29	35	
18	V	P	23	40	04	Mexico
		S		44.7		
	S	L	23	46		
19	V	P	09	36	01.6	local
		S			19.C	
	A	P	09	36	19.6	
		S			51.8	
19	V	P	22	54	41	Aleutians
						3,850
22	V	P	01	42	28	
22	V	P	04	15	45	
23	V	P	16	37	24	New Britain
		e			56	9,750 km.
		eS		48.0		
		iS		48.6		
		L	17	01.1		
	S	e	16	42	30	
		e		49	03	
		e		50	03	
		L	17	05		
24	V	P	02	18	52	Spitzbergen
						5,650 km.
25	V	P	16	36	14	China

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DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

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

MAY, 1953

DATE	STN	PHASE	h m s	REMARKS
4	V	P	00 44 38.6	local
		S	50.3	
	A	P	00 44 49.4	
		S	45 07.6	
4	V	P	11 37 31	Kamchatka
6	V	P	17 30 09	Central Chile
		S	40 39	10,650 km.
		eL	56.1	
	S	eP	17 30 00	
		i	40 28	
		i	40 59	
		L	18 03.5	
11	V	P	10 29 52	Loyalty Islands
12	V	P	12 45 41	Aleutian Islands
13	V	P	04 23 51	Aleutian Islands 4,300 km.
14	V	e	01 46 47	
		L	48.1	
14	V	iP	07 42 52 d	off west coast of B. C.
		L	43.6	
	A	P	07 42 36.3	
		S	43 29.6	
14	V	P	18 28 52	off west coast of B. C.
		L	29.6	
	A	P	18 28 37.2	
		S	29 15.9	
19	V	P	02 37 12	
19	S	P	03 20 36	Kamchatka
		S	28 10	
20	A	P	23 14 32.4	off coast of B. C.
		S	14 57.5	
	V	P	23 15 33	
	S	L	23 32.1	
21	V	P	12 31 00	off coast of B. C.
	A	P	12 30 47.1	
		S	31 25.7	
	S	L	12 37.6	
23	A	P	10 04 32.8	local
		S	44.2	

May, 1953

DATE	STN	PHASE	h	m	s	REMARKS
24	V	P	01	38	52	Sandwich Islands
24	A	P S	04	38	13.9 22.6	local
25	V	P	12	57	07	Sumatra
25	V	P	17	49	10	Kamchatka
26	V	P	01	53	32	Japan 6,900 km.
26	V	P	03	35	03	
31	V	iP	19	37	35 c	Dominican Republic 5,700 km.
31	V	P	19	57	40	
31	V	P	20	55	21	

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DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

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

June, 1953

DATE	STN	PHASE	h m s	REMARKS
2	A	P	22 07 15.4	local
		S	22 07 28.3	
	V	P	22 07 06.5	
		S	22 07 12.8	
	HB	P	22 07 10.6	
		S	22 07 20.1	
2	V	P	22 24 58	Dominican Republic 5,650 km.
4	V	P	00 11 06.4	local
		S	00 11 08.2	
7	S	P	12 41 44	Dominican Republic
		L	12 45.6	5,650 km.
8	A	P	17 18 50.2	local
		S	17 19 14.5	
9	S	e	01 55 42	Kamchatka
		e	01 58 02	
		L	02 01.9	
9	HB	P	10 41 47.1	local
9	V	P	18 48 25	local
	A	P	18 48 13.0	
9	V	P	23 30 03.5	local
		S	23 30 28.2	
	A	P	23 29 43.5	
		S	23 29 53.0	
11	A	P	23 37 46.8	local
		S	23 37 57.6	
	HB	P	23 37 42.5	
		S	23 37 50.6	
14	V	P	04 21 29	Imperial Valley, Calif.
	S	L	04 28.2	
15	V	iP	17 51 52 d	Kodiak, Aleutians
		S	17 55 44	2,200 km.
	S	P	17 53 05	
		S	17 57 39	
		L	18 02.3	
16	V		10 04 26	Japan
16	V		17 53 27	
16	V	P	19 55 33	south of Alaska Peninsula
	S	P	19 59 46	2,550 km.
		L	20 03	

June, 1953

DATE	STN	PHASE	h m s	REMARKS
16	V	P	22 24 11.8	
		S	22 24 26.2	
17	V	P	19 20 27	
19	V	P	22 52 23.8	local
	A	P	22 52 23.6	
21	V	P	08 08 20	
23	V	P	14 02 17	Kamchatka 5,350 km.
24	V	iP	21 28 13 d	Kurile Islands
25	V	P	03 02 28	
25	S	e	11 05.3	Flores Island
		e	11 15.2	
25	V	P	18 08 44	Chile
26	S	e	06 03 12	Flores Island
		e	06 08.8	
27	A	P	07 09 34.0	local
		S	07 09 46.7	
	A	P	07 09 48.5	

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Seismologist.

DEPARTMENT OF MINES AND TECHNICAL SURVEYS

DOMINION OBSERVATORIES BRANCH

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

SEISMOLOGICAL BULLETIN

July - December

1953

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DOMINION ASTROPHYSICAL OBSERVATORY

VICTORIA - CANADA

00

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

φ = 48°31'14" N. λ = 123°24'56" W. h = 197 m.

Time correction from recorded radio time signals

Foundation: rock

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

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

SASKATOON

University of Saskatchewan

φ = 52°08' N. λ = 106°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 photographic registration, magnetic damping, paper speed of 8 mm. per min., 1 lb mass.

DETERMINED CONSTANTS

INSTRUMENT	Ts	Tg	V	ε	DISPLACEMENT FOR 1" ARC TILT
Victoria Benioff	1.0	0.1			
Victoria EW	12.0		300	20:1	50 mm.
Victoria NS	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.

NOTE:- Universal Time used throughout

S T A T I O N S (Cont' d)

ALBERNI (Vancouver Island)

φ = 49°16'14" N. λ = 124°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 1/3 sec., and Tg approximately 1/20 sec.

HORSESHOE BAY (Vancouver)

φ = 49°22'39" N. λ = 123°16'33" W

Time correction from recorded radio time signals

Foundation: granitic rock

Instruments: Willmore-Sharpe EW and vertical short period with Ts approximately 1/3 sec., and Tg approximately 1/20 sec. Sprengnether NS short period with Ts and Tg approximately 1.9 sec. All three components are recorded at 60 mm. paper speed.

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

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

July, 1953

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
1	S	P	03 09 08	Kamchatka
		S	03 16 53	
		L	03 27	
2	S	P	07 10 21	New Hebrides
		e	07 14 26	
		e	07 20 21	
		e	07 22 24	
4	A	P	10 00 12.9	
		S	10 01 55.7	
5	HB	P	13 55 32.4	
		S	13 55 50	
	A	P	13 55 26.1	
		S	13 55 39.8	
6	HB	P	09 48 58.4	
	A	P	09 48 52.5	
		S	09 49 56.9	
7	V	P	04 26 09	Sumatra
7	V	P	13 53 10	Kurile Islands
9	V	iZ	21 34 11	North Atlantic Ocean
		e	21 42 39	
		L	21 54	
	S	L	21 40.3	
11	V	P	08 13 37	
		S	08 13 43	
	HB	P	08 13 50.7	
	A	P	08 13 58.3	
		S	08 14 23.5	
		P	11 35 19	
12	S	L	07 08.0	New Guinea
13	V	P	13 36 00	
13	V	iP	19 33 17	c
13	V	iP	21 41 30	c New Hebrides
15	V	iP	22 55 02	c Formosa
17	V	iP	08 57 51.6	d
		iS	08 58 00.7	
	HB	P	08 58 00.9	
		S	08 58 17.3	
	A	P	08 58 11.7	
		S	08 58 34	

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
18	V	P	02 35 05.2	
18	V	P	02 38 17.9	
18	V	P	22 29 44.7	
		S	22 29 48.8	
21	V	P	08 54 00.6	
		S	08 54 02.7	
21	V	P	17 34 59	Ryukyu Islands
22	V	iPZ	05 20 00	c Kamchatka
		PP	05 21 59	
		S	05 27 02	
		PS	05 27 23	
		SS	05 30 38	
	S	e	05 21 08	
		e	05 28 26	
		e	05 28 51	
		L	05 36.0	
22	V	iP	10 18 30	d 48 1/2°N, 128°W, off coast of
		L	10 37.2	Vancouver Island.
22	V	P	10 38 06	48 1/2°N, 128°W, off coast of
		S	10 38 49	Vancouver Island.
22	V	iP	11 38 13	d
23	V	P	11 01 31.4	Aleutians
		e	11 01 39.9	
		e	11 01 42.2	
26	V	P	13 17 24	Peru
26	V	iP	17 04 55	c Marianas Islands
		e	17 05 36	
		i	17 14 28	
	A	P	17 04 51.9	
	S	i	17 15 41	
26	V	P	17 47 50	
	A	P	17 47 28.3	
		S	17 47 35.0	
28	V	iP	07 51 22	d Fiji Islands
28	V	P	18 49 08	
	A	P	18 48 50.1	
29	HB	P	06 00 58.4	
		S	06 01 06.1	
	A	P	06 01 15.2	
		S	06 01 36	
29	V	P	18 23 53	Guatemala
		L	18 37	
29	V	P	23 30 02	c Fiji Islands
30	V	P	21 15 23	Chile
30	V	i	23 56 20	Marianas Islands
		e	00 05 56	

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, 1953

DATE	STN	PHASE	TIME (G.C.T.) h m s		REMARKS
1	A	P	05 33 28.7		local
		S	05 33 43.9		
	HB	P	05 33 12.7		
	V	P	05 33 27.7		
2	V	P	17 20 55		U.S.C.G.S. Marianas Islands H = 17:15:51
2	V	P	21 11 01		U.S.C.G.S. Bonin Island H = 20:59:29 h = 200 km
4	A	P	10 27 05.0		local
	HB	P	10 27 20.5		
	V	P	10 27 17.3		
4	A	P	10 54 13.4		
4	A	P	11 08 31.3		
4	A	P	11 36 11.0		
	HB	P	11 36 25.2		
	V	P	11 36 25.3		
6	V	P	06 27 16		U.S.C.G.S. 51 1/2°N, 156 1/2°E Kamchatka H = 06:18:32 h = 60 km
6	V	P	23 29 26.7		local
		S	23 29 41.4		
9	HB	P	05 50 43.9		local
		S	05 50 46.8		
10	A	P	11 22 49.2		
		S	11 23 07.9		
	HB	P	11 22 34.5		
11	S	P	03 44 27		
		S	03 54 29		
		L	04 06.5		
	V	P	03 45 14	c	
		S	03 55 44		
12	S	P	09 36 00		U.S.C.G.S.
		S	09 45 57		38 1/2°N, 21°E
		L	09 56		Greece
	V	P	09 36 45	c	
		S	09 47 08		
		L	10 00.0		

DATE	STN	PHASE	TIME (G.C.T.) h m s		REMARKS
12	V	P	12 18 15	d	
12	V	P	14 21 32		
12	V	P	17 06 15		22°S, 175°W Tonga Islands
13	V	P S	09 36 18 09 46 45		U.S.C.G.S. 21 1/2°S, 170°E Loyalty Islands
16	V	P	03 20 52	d	U.S.C.G.S. 7°S, 74°W Central Peru
16	A V	P P S	06 15 56.9 06 15 45.1 06 16 49.8		local
18	S	e	22 00 28		
20	A V	P P S	18 33 08.9 18 32 52.9 18 33 03.2		local
20	A	P S	20 37 24.5 20 37 37.0		local
21	V	P	13 40 58	d	U.S.C.G.S. 18°N, 67°W Puerto Reco
21	V	P e	16 55 52 16 56 19	c	U.S.C.G.S. 4°N, 76 1/2°W Western Columbia
21	A	P S	23 51 12.0 23 51 21.9		local
22	V	P	00 34 28		U.S.C.G.S. 6°S, 147°E New Guinea
23	V	e L	07 51 28 08 00		U.S.C.G.S. 1°S., 14°W Mid-Atlantic Ocean
24	V	P e L	13 28 55 13 35 23 13 42		U.S.C.G.S. 14 1/2°N, 91°W Guatemala
25	S V	L e L	02 46 02 27.8 02 34.5		U.S.C.G.S. 5°S, 152°E New Britain
26	A	P S	23 23 03.1 23 23 13.0		local
27	V	P	22 26 40		U.S.C.G.S. 44°N, 142 1/2°E Japan

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
28	V	P	10 59 41	U.S.C.G.S. East Central Alaska
28	V	P	20 51 40	U.S.C.G.S. Off west coast of Greece
29	V	P S	04 30 24.7 04 30 35.8	local
29	V	P	13 46 11	
29	V	P	14 21 23	36°W, 5 1/2°E Algeria
31	V	P S	04 46 43.0 04 46 52.3	local
31	V	P	08 01 08	U.S.C.G.S. 53 1/2°N, 160°E Kamchatka
31	V	e i	17 18 35 17 18 43	U.S.C.G.S. 53°N, 160°E Kamchatka

W. G. Milne,

Seismologist.

SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni

S - Saskatoon HB - Horseshoe Bay

September, 1953

DATE	STN	PHASE	TIME (G.C.T.) h m s		REMARKS
2	V	P	03 11 17		
3	V	P	17 51 35		
4	V	P	07 31 53	c	U.S.C.G.S.
		PP	07 33 44		50°N, 156.5E
		iS	07 38 58		Kurile Islands
		e	07 42.1		
		L	07 46.5		
	S	i	07 32 42		
		i	07 40 27		
		i	07 40 49		
		e	07 44 00		
		L	07 50		
4	V	P	14 20 26	c	U.S.C.G.S. 32°S, 71°W Central Chile Coast
4	A	P	18 44 24.2		local
		S	18 44 47.9		
	V	P	18 44 19.5		
		e	18 44 46.7		
		e	18 45 09.9		
5	V	P	04 08 51.1		local?
		S	04 09 20		
5	V	P	14 31 35		U.S.C.G.S. 38°N, 23°E Greece
5	V	P	19 06 59	c	U.S.C.G.S. 51°N, 157°E Kamchatka
6	V	P	08 20 59		U.S.C.G.S. 56°N, 162°W Alaska Pen. h = 200 km
7	S	L	04 49		U.S.C.G.S.
	V	i	04 11 01		41°N, 33°E
		e	04 22.8		Turkey
		L	04 37		
7	V	P	23 29 32.8		local
		S	23 30 37		
8	V	P	00 12 38.6		local
		S	00 13 43		
8	V	P	10 12 19		

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
8	V	P	11 42 45.5	local
		S	11 43 13.9	
8	V	P	11 54 04.9	local
		S	11 54 42.1	
10	S	e	04 29 01	U.S.C.G.S.
		L	04 46	32°E, 35°N
	V	e	04 30 04	Near west coast Cyprus
		L	04 43	
10	A	P	14 36 43.8	local
		S	14 37 08.2	
12	A	P	19 09 25.4	local
		S	19 09 52.8	
13	A	P	00 12 05.3	
13	S	e	17 50 32	
		e	17 51.3	
		L	18 06	
14	V	e	00 49.5	U.S.C.G.S.
		L	01 00.3	18 1/2°S, 178 1/2°E
				FijiIslands
15	A	P	19 10 00.3	
		S	19 10 10.0	
16	V	e	02 10.8	U.S.C.G.S.
		L	02 25	15°S, 174 1/2°W
				Samoa Islands
17	V	e	21 34.4	U.S.C.G.S.
		L	21 53	20 1/2°S, 174°W
	S	e	21 36 03	Tonga Islands
		L	21 56	
19	A	P	23 30 40.1	
		S	23 30 50.0	
23	V	P	02 23 19)	U.S.C.G.S.
		i	02 25 19)	50 1/2°N, 156°E
		i	02 30 26)	Kurile Islands
		i	02 30 57) clock	
		e	02 33.6) correction	
		L	02 38.0) unknown	
	S	e	02 24 11	
		i	32 00	
		i	32 26	
		e	34 17	
		i	36 21	
		L	40	
23	A	P	21 31 09.0	local
		S	21 31 27.0	
23	A	P	21 58 49.3	local
		S	21 59 06.8	

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
25	A	P	21 20 02.9	local
		S	21 20 10.5	
26	V	L	01 18	
27	S	L	06 27	U.S.C.G.S.
	V	L	06 39.8	14°N, 58°W
				Windward Islands
29	V	e	01 54.1	U.S.C.G.S.
		e	02 01.2	36 1/2°S, 177°E
		L	02 03.3	New Zealand
	S	i	01 55 25	
			02 05 01	
29	HB	P	15 59 12.8	local
		S	15 59 28.7	
29	A	P	16 31 15.3	local
		S	16 31 39.8	
	HB	P	16 31 15.2	
		S	16 31 39.5	
30	HB	P	19 36 28.9	local
30	A	P	22 22 54.3	local
		S	22 23 03.1	
30	V	P	23 10 13	U.S.C.G.S.
		S	23 15 14	22°N, 107 1/2°W
		L	23 18.4	Mexico
	S	P	23 10 28	
		e	23 15 17	(Time correction at Victoria
		e	23 18.5	unknown)

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

October, 1953

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
1	A	P	09 00 26.0	local
		S	09 00 32.9	
2	A	P	00 27 17.0	local
		S	00 27 26.9	
2	HB	P	06 11 00.9	local
		S	06 11 10.4	
4	A	P	07 43 30.9	local
		S	07 43 35.6	
4	A	P	19 41 32.3	local
		S	19 41 47.3	
	HB	P	19 41 28.9	
		S	19 41 38.8	
5	A	P?	04 39 55	U.S.C.G.S.
	S	e	04 48 05	53 1/2°N, 160 1/2°E
		L	04 59	Kamchatka
	V	e	04 46 43	
		L	04 54	
6	S	L	00 06	U.S.C.G.S. 9°s, 152 1/2°E New Guinea
6	V	L	01 58.3	
6	S	e	22 02.1	U.S.C.G.S.
		L	22 20	3 1/2°S, 151°E
	V	e	22 02 09	New Britain
		L	22 15	
7	A	P	20 42 24.3	local
		S	20 42 25.6	
8	A	P	19 09 49.9	local
		S	19 09 59.2	
10	A	P	23 59 56.4	local
		S	00 00 03.4	
11	A	P	11 44 41.0	local
		S	11 44 53.1	
11	S	P	13 18 18	U.S.C.G.S.
		S	13 26 07	50°N, 155 1/2°E
		L	13 36.5	Kurile
	V	e	13 24 25	
		e	13 28.4	
		L	13 32	

October, 1953

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
12	A	iP	17 54 17.8	local
		iS	17 54 24.9	
13	A	e	08 38 08.0	local
		i	08 38 09.0	
13	A	e	08 56 30.9	U.S.C.G.S.
		i	08 56 32.0	30°N, 113 1/2°W
	V	e	08 58 21	Northern Gulf of California
		L	09 03.9	
13	A	P	15 26 52.7	local
		e	15 26 58.5	
		e	15 27 42.6	
13	A	P	17 13 28.8	local
		S	17 14 02.4	
16	S	e	10 13 00	U.S.C.G.S.
		L	10 15.5	16°N, 96 1/2°W
				Mexico
17	S	e	21 24 20	U.S.C.G.S.
		L	21 40.2	52°N, 159°E
				Kamchatka
21	A	P	06 57 37.2	local
		S	06 57 54.2	
27	A	P	15 44 50.4	local
		S	15 45 56.9	
29	A	P	04 20 02.8	local
		S	04 20 12.3	
31	A	P	00 11 15.8	local
		S	00 11 21.1	
	HB	P	00 11 11.6	
		S	00 11 20.6	
31	A	P	16 30 02.0	local
		S	16 30 15.2	
	HB	P	16 29 54.8	
		S	16 30 03.5	

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SEISMOLOGICAL SERVICE OF CANADA

WESTERN DIVISION

DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA

STATIONS: V - Victoria A - Alberni

S - Saskatoon HB - Horseshoe Bay

November, 1953

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
2	A	P	01 59 32.3	local
		S	01 59 46.1	
3	A	P	08 13 58.1	local
		S	08 14 06.9	
4	S	e	04 13 21	U.S.C.G.S.
		e	04 15 58	12 1/2°S, 166 1/2°E
		e	04 29.5	New Hebrides
		L	04 35.3	
	V	iP	04 01 00	(See Note at end of Nov.
		?	04 02 23	Bulletin)
		S	04 11 26	
		PS	04 12 52	
		L	04 24.0	
4	V	iP	04 16 30	U.S.C.G.S. (See Note at end of Nov. Bulletin) 12 1/2°S, 166 1/2°E New Hebrides H = 04:04:44
4	A	P	11 26 18.9	local
		S	11 26 32.7	
	HB		11 26 10.8	
5	V	i	08 33 35	U.S.C.G.S. (See Note at end of Nov. Bulletin) 36 1/2°N, 70°E Hindu Kush
7	A	iP	22 53 23.6	local
		S	22 53 30.9	
9	S	P	17 35 08	U.S.C.G.S.
		S	17 42 33	52 1/2°N, 159°E
		L	17 55.3	Kamchatka
9	A	P	22 09 31.9	local
		S	22 09 45.3	
10	S	P	23 49 53	U.S.C.G.S.
		PPP	23 53 39	50 1/2°N, 157°E
		S	23 57 36	Kamchatka
			23 58 00	
	V	P	23 48 04	(See Note at end of Nov. Bulletin)
		PP	23 50 00	
		S	23 55 04	
		SS	23 58.9	
		L_r	24 02.6	
14	V	P	20 11 02	U.S.C.G.S. (See Note at end of Nov. Bulletin) 52°N, 160°E Kamchatka

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
17	S	iP	13 37 31	U.S.C.G.S.
		eS	13 43 23	14°N, 92°W
		iS	13 43 36	Guatemala
		SS	13 46.6	
		L	13 49.5	
	V	iP	13 36 50	(See Note at end of Nov.
		PP	13 38 33	Bulletin)
		eS	13 43 25	
		iS	13 43 32	
		ScS or SS	13 46.6	
		L_r	13 48.6	
		L_q	13 54.3	
18	HB	P	10 25 50.7	local
		S	10 25 55.7	
19	HB	iP	06 31 42.7	local
		S	06 31 45.6	
23	HB	P	10 45 26.9	local
		S	10 45 29.1	
25	S	iP	18 00 36	U.S.C.G.S.
		S	18 10 15	34°N, 141°E
		e	18 10 26	Japan
		SS	18 14 15	
		G	18 21.2	
		L	18 25.0	
	V	P	17 58 23	(See Note at end of Nov.
		S	18 07 08	Bulletin)
		e	18 07 48	
26	V	P	00 13 22	U.S.C.G.S. (See Note at end of
				34°N, 141°E Nov. Bulletin)
				Japan
26	V	P	01 57 22	U.S.C.G.S. (See Note at end of
				34°N, 141°E Nov. Bulletin)
				Japan
26	V	P	08 24 08	U.S.C.G.S. (See Note at end of Nov.
		e	08 24 24	34°N, 141°E Bulletin)
		PPP	08 29 44	Japan
		PPS	08 36 28	
26	V	P	11 00 40	(See Note at
				end of Nov. Bulletin)
26	V	P	12 54 00	
27	V	P	11 39 55	U.S.C.G.S. (See Note at end of
				33 1/2°N, 141 1/2°E Nov. Bulletin)
				Japan
27	A	P	22 54 18.3	local
		S	22 54 50.5	

November, 1953

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
29	V	P	19 49 36.0	local (See Note at end of the
		S	19 49 48	Nov. Bulletin)
29	A	P	23 50 07.8	
		S	23 50 30.8	
	HB	P	23 50 04.6	
			23 50 16.1	

NOTE: During November the Victoria station was operating with a Benioff seismometer (T_s = 1^s) driving a Leeds and Northrup galvanometer (T_g = 1.9^s) and with magnification unknown. Time corrections are uncertain and readings listed should be used only for interval consideration.

W. G. Milne

Seismologist.

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

φ = 48°31'10" N. λ = 123°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

φ = 52°08' N. λ = 106°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)

φ = 49°16'14" N. λ = 124°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)

φ = 49°22'39" N. λ = 123°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

December, 1953

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
1	S	P	05 21 04	U.S.C.G.S.
		e	05 31 06	Ryukyu
	V	P	05 31 18	29°N, 128 1/2°E
		L	06 20	no time correction
1	A	P	20 16 05.6	local
		S	20 16 22.8	
	V	P	20 16	no time correction
2	S	e	04 49 43	U.S.C.G.S.
		L	05 14	3 1/2°S, 141 1/2°E
	V	e	04 39 56)	New Guinea
		i	04 46 37) no time	
		L	04 06) correction	
4	A	P	14 54 34.4	
		S	14 55 12.9	
	HB	P	14 54 30.1	
		S	14 55 51.5	
	S	P	14 58 10	
		S	15 01 14	
		L	15 02.3	
4	V	P	21 59 02	U.S.C.G.S. Fiji Islands
5	V	P	09 52 24	U.S.C.G.S. 34°N, 141 1/2°E Japan
6	HB	P	06 01 55.6	local
		S	06 02 02.9	
7	S	P	02 27 46	U.S.C.G.S.
		S	02 37 46	22°S, 68 1/2°W
		sS	02 38 34	Chile
	V	eP	02 18 05	
		i	02 18 12	
		S	02 28 29	
		i	02 29 10	
12	V		05 42 01	U.S.C.G.S. Marianas Islands
12	A	P	08 05 33.7	local
		S	08 06 11.9	
12	A	P	08 29 28.7	U.S.C.G.S.
		S	08 30 06.6	49°N, 139 1/2°W
	V	iP	08 29 45	local
		i	08 30 21	probably 49°N, 129 1/2°W
		e	08 30 29	

DATE	STN	PHASE	TIME (G.C.T.) h m s	REMARKS
12	A	P	09 47 46.5	local
		S	09 48 01.5	
	HB	P	09 47 36.3	
		S	09 47 43.2	
12	A	P	12 20 37.8	local
		S	12 20 52.5	
	HB		12 20 27.6	
			12 20 34.7	
12	S	P	17 41 42	U.S.C.G.S.
		S	17 49 37	3 1/2°S, 81°W
		SS	17 53 36	Peru
		L	17 56.2	
	V	e	17 42 00	
		i	17 42 05	
12	A	P	23 59 10.7	local
			23 59 20.1	
13	V		07 04 48	U.S.C.G.S. 50°N, 158 1/2°E Kamchatka
16	V	P	04 32 34.8	local
			04 32 40.1	
			04 32 45.2	
			04 32 47.9	
		S	04 33 12.8	
			04 33 20.2	
20	V	iP	00 31 47	U.S.C.G.S. 39 1/2°N, 136 1/2°E Japan
20	A	iP	11 36 01.3	local
		S	11 36 23.7	
	HB	P	11 35 48.8	
	V	P	11 35 45.8	
		S	11 35 52.8	
22	V	eP	18 58 44	U.S.C.G.S. 16°N, 119°E Philippine
		e	18 58 50	
23	V	iP	18 39 32	47 1/2°N, 157 1/2°E Kuriles
23	V	e	23 48 58	
		e	23 53 02	
24	V	eP	23 29 52	U.S.C.G.S. 52°N, 159 1/2°E Kamchatka
25	S	e	02 08 17	U.S.C.G.S. 52°N, 159 1/2°E Kamchatka
		L	02 16.6	
	V	eP	02 00 05	
		S	02 06 47	
		SS	02 09.8	
		L	02 14	
27	V	e	11 29 49	W. G. Milne Seismologist.
27		iPZ	23 38 50	