UNIVERSITETET I BERGEN
JORDSKJELVSTASJONEN
(SEISMOLOGICAL OBSERVATORY)

SEISMOLOGICAL BULLETIN

Bergen 1954 - 1956

BY

MARKVARD A. SELLEVOLL

AND

KARSTEN STORETVEDT

Bergen, Norway,
April 1962

S E I S M O L O G I C A L B U L L E T I N

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Registrations at the Seismological Observatory of the University in Bergen, Norway.

Coordinates: $\varphi = 60^{\circ}23'18"N$, $\lambda = 5^{\circ}18'18"E$, Alt. = 20 m

Constants:

Instrument	Weight	V	T_o	ε:1	r/T_o^2
Wiechert Z	1300kg	304	3.4	2.12	0.2
" N - S	1000kg	153	8.8	1.78	0.024
" E - W	1000kg	173	11.2	2.10	0.015

Epicentre and origin time are given according to U.S.C.G.S.

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
1	Jan.12	i_N	14	50	07					
		F	16	50						
2	13	eL_N	00	14	15					
		F	00	30						
3	13	e_N	00	42	59					49°S, 165°E
		$eSKKS_N$		48	22					0:00 13 06
		eSS_N		58	15					
		LQ_N	01	20	50					
		M_N	02	02		16	7			
		F	02	30						
4	23	e_N	16	31	50					Microseismic agit
		M_N		32	30	13	5			
		F		45						
5	31	e_N	12	24	20					
		F	13							
6	Feb. 1	eP_{NZ}	01	19	51					24½°N, 142½°E
		ePP_N		23	15					0:01 06 51
		S_N		30	30					Δ = 9700 Km
		$ePPS_N$		31	(56)					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
(6)	Feb. 1 (cont.)	eSS_N	01	36	10					
		LQ		43	35					
		M_{1N}		57		16	17			
		M_{2N}	02	09	30	16	10			
		F		50						
7	5	eL_N	10	13	55					
		F	10	50						
8	11	iP_{NEZ}	00	40	19					$39\frac{1}{2}^{o}$N, 101^{o}E
		$ePPP_N$		43	50					0:00 30 16
		eS_{NE}		48	30					Δ = 6550 Km
		eSS_{NE}		52	29					
		L_N		56	20					
		M_{1N}	01	03	30	16	565			
		M_E		07	30	16		325		
		M_Z		08		10			130	
		M_{2N}		08	30	12	121			
		F	02	20						
9	19	e_E	01	05	12					
		L_N		15	40					
		M_N		25	30	20	12			
		M_E		26	30	20		17		
		F		50						
10	19	e_N	13	55	00					
		F	14	10						
11	19	e_N	19	52	15					
		L_N	20	20						
		F	21	40						
12	19	ePS_E	21	57	51					$12\frac{1}{2}^{o}$N, $87\frac{1}{2}^{o}$W
		LQ	22	10						0:21 34 41
		M_E		20		20		14		
		F	[illegible]	35						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
13	Feb.20	$ePPP_N$	18	55	54					7°S, 124½°E
		$e(SKS)_N$		58	35					0:18 35 05
		e_{1N}	19	02	01					
		e_{2N}		03	31					
		L_N		31	15					
		F	20							
14	23	L_N	07	14	15					
		M_N		17	30	16	7			
		F		30						
15	28	eL_N	01	36	55					
		F	02	10						
16	Mar. 3	PP_{NEZ}	06	22	(54)					5½°S, 142½°E
		ePS_{NE}		32	28					0:06 02 55
		$e(SS)_N$		38	29					Δ = 13000 Km
		LQ		50	10					
		LR_E		57	40					
		M_N	07	15		20	13			
		M_E		16		20		16		
		F	08	40						
17	9	eS_N	02	41	08					1½°N, 30½°W
		eSS		45	19					0:02 21 43
		LQ_N		48	35					Microseismic ag
		F	03	15						
18	9	e_N	06	17	36					Microseismic ag
		F	11	10						
19	19	eLQ	10	28	10					
		F	11	10						
20	21	P_{NEZ}	23	53	01					24½°N, 95°E
		ipP_{EZ}			47					0: 23 42 05
		ePP_E		55	26					h = 200
		iS_E	00	01	46					Δ = 7700 km
		i_{1E}		02	42					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
(20)	Mar.21 (cont.)	i_N	00	02	57					
		i_{2E}		07	06					
		iLQ_N		09	43					
		LR_N		12	20					
		M_{1N}		20	30	16	109			
		M_{2N}		24		12	30			
		F	01	30						
21	29	iP_Z	06	21	37					37°N, 3½°W
		iSP_{NE}		24	30					0:06 17 05
		iS_N		25	10					h : 650 Km
		i_E			18					Δ = 2700 Km
		ScS_E		31	22					
		F	08							
22	31	eP_N	18	35	56					13½°N, 58°E
		P_{EZ}		36	(04)					0: 18 25 48
		i_{NEZ}		39	46					Δ = 6600 Km
		iS_E		44	21					
		iS_N			24					
		L_E		53	05					
		M_{1N}	19	07	30	14	26			
		M_{2N}		09	30	13	22			
		F	20	30						
23	Apr. 1	e_N	19	00	10					
		F		30						
24	9	iPg_{NEZ}	02	01	13					Δ = 40 Km
		i_N			15					Felt
		iSg_{EZ}			17					
		F	[illegible]	02						
25	11	eP_{NZ}	10	35	53					12°N, 58°E
		eS_N		43	59					0: 10 25 27
		LQ_N		50	40					Δ = 6600 Km
		eLR		53	45					
		F								in next shock

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
26	Apr.11	e_{EZ}	11	01	46					37°N, 70½°E
		eSS		11	38					0: 10 53 20
		F		40						Microseismic ag
27	17	eP_Z	20	21	43					51½°N, 179°W
		i_Z			48					0: 20 10 37
		eS_N		30	38					Δ = 7500 Km
		L_N		40	00					
		M_N		57	30	20	10			
		F	22	10						
28	25	eS_N	00	46	56					0°, 15½°W
		LQ		55						0: 00 27 54
		M_N	01	08	30	20	5			
		F		40						
29	26	iP_{NEZ}	20	35	31					51°N, 158½°E
		eS		44	(01)					0: 20 24 44
		$eScS_N$		45	(01)					Δ ~ 7100 Km
		L_N		55						
		F	21	50						
30	29	ePS_N	11	11	47					29½°N, 112½°W
		LQ_N		22	05					0: 10 49 27
		M_N		34		16	9			
		F								in next shock
31	29	P_Z	11	46	44					29½°N, 112½°W
		S_N		56	28					0: 11 34 34
		$ePPS_N$		57	09					Δ = 8500 Km
		eSS_N	12	01	24					
		LQ_N		07	00					
		M_E		17	30	18		110		
		M_{1N}		19		12	19			
		M_{2N}		20	30	12	16			
		M_{3N}		24		12	30			
		F	13	50						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
32	Apr.30	P_{NEZ}	13	07	49					39½°N, 22°E;
		S_N		11	45					0: 13 02 46
		$i(SS)_N$		12	28					Δ = 2500 Km
		iL_N		14	12					Dilatation
		M_{EZ}		18	30	14		140	280	
		M_{1N}		19		14	130			
		M_{2N}		20		12	80			
		F	15	30						
33	30	eS_N	23	23	33					½°N, 19°W;
		eSS_N		27	43					0: 23 04 30
		LQ_N		30	30					
		F	00	20						
34	May 3	eS_N	15	49	23					51½°N, 159½°E;
		$ePPS_N$			52					0: 15 29 40
		L_N		58	30					
		M_N	16	30		14	4			
		F	17	10						
35	5	eL_N	16	54	40					
		F	17	20						
36	5	eS_N	13	31	57					27½°N, 112½°W
		L_N		47	25					
		M_N		58	30	16	6			
		F	14	30						
37	9	eL_N	14	20	40					
		M_N		25	30	16	4			
		F		40						
38	13	eP_{EZ}	14	58	51					17°N, 95½°W;
		S_{NE}	15	08	58					0: 14 46 38
		eSS_{NE}		14	03					Δ = 8900 Km
		L_N		21	50					
		F	16	10						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
39	May 14	iP_{NZ}	22	50	48					36°N, 137°E;
		epP_Z		51	52					0: 22 39 25
		S_N	23	00	09					h = 250 Km
		iS_E			13					Δ = 8400 Km
		epS_N		01	21					Dilatation
		esS_{NE}			52					
		eSS_N		05	18					
		L_N		18	20					
		F	24							
40	15	e_N	12	35	40					
		F		50						
41	31	eL_N	16	43						
		F	17	20						
42	June 6	e_N	17	16	51					3½°S, 136½°E
		ePS		19	22					0: 16 50 33
		eSS_N		25	12					
		LQ_N		36	40					
		LR_N		41	20					
		M_{1N}		50		20	20			
		M_{NE}		57		20	13	20		
		M_{2N}	18	01	30	20	13			
		F	19	30						
43	7	ePP_N	10	34	48					3½°S, 152½°E
		$iSKS_N$		39	48					0: 10 15 33
		$eSKKS_N$		41	03					
		L_N	11	08	00					
		F		40						
44	15	e_{NE}	13	53	37					
		F	14	20						
45	17	ePP	01	54	53					56°N, 154½°W
		$eScS_N$		02	36					0: 01 42 22
		F	03	20						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
46	June 30	eS_N	13	44	58					7°N, 37°E
		eSS_N		49	10					0: 13 26 50
		L_N		57	40					
		F	14	40						
47	July 2	e_N	03	04	04					13½°N, 123½°E
		$eSKS_N$		08	44					0: 02 45 09
		eS_N		09	23					
		LR_N		28	15					
		M_{1N}		33		32	62			
		M_{2N}		38		17	13			
		F	04	20						
48	3	eP_Z	22	45	06					6½°S, 106°E
		$e(PP)_Z$		49	(09)					0: 22 31 28
		eS_N		56	46					Δ = 11300 Km
		L_N	23	19	35					
		M_{1N}		34		16	11			
		M_{2N}		38	30	16	11			
		F	01							
49	6	iP_N	08	15	47					46½°N, 153½°E
		i_N		16	02					0: 08 04 42
		eS_N		24	59					Δ = 7900 Km
		L_N		41	50					Compression
		F	09	40						
50	6	P_Z	11	24	41					39½°N, 118½°W
		i_Z			48					0: 11 13 19
		eS_N		33	37					Δ = 7600 Km
		L_N		47	45					
		F	12	50						
51	6	P_Z	22	19	00					39½°N, 118½°W
		i_Z		19	12					0: 22 07 41
		eS_N		28	13					Δ = 7900 Km
		L_N		45	10					
		F	23	20						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
52	July 7	iPg_{NEZ}	00	25	31					West Norway
		iSg_{NEZ}			39					Δ = 70 Km
		F		27						Felt
53	7	iPg_{NEZ}	00	48	13					West Norway
		i_{NE}			15					Δ = 70 Km
		iSg_{NEZ}			21					Felt
		F		51						
54	10	iPg_{NZ}	03	12	36					West Norway
		iSg_{NE}			43					Δ = 60 Km
		F		12	50					Felt
55	13	eL_N	09	01	05					
		F		40						
56	18	eP_Z	09	19	29					35½°N, 140½°E
		eS_N		29	15					0: 09 07 44
		Lg_{1N}		48	30					Δ = 8800 Km
		F	10	30						
57	29	e_N	04	16	15					
		F	05							
58	31	L_N	01	27	10					39°N, 104°E
		M_{1N}		34		16	180			
		M_{2N}		35		16	160			
		F	02	10						
59	Aug. 9	eS_N	19	36	09					53°N, 161°E
		$eScS_N$		37	16					0: 19 16 48
		L_N		55	00					
		F	20	30						
60	18	$ePKP_{NZ}$	05	01	32					21½°S, 176°W
		ePP_N		04	45					0: 04 42 20
		i_N		05	(58)					
		$eSKKS_N$		11	15					
		F	06	40						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
61	Aug.19	e_N	21	18	55					
		F		40						
62	21	e_N	22	53	58					72°N, 13°W.
		L_N		56	55					0: 22 51 00
		M_N		59		16	2			
		F	23	10						
63	24	e_Z	06	02	44					39½°N, 118½°W
		i_Z			49					0: 05 51 31½
		PS_N		12	07					
		LQ_N		20	55					
		F	08							
64	24	eP_{NZ}	06	21	16					Jan Mayen region
		F								in next shock
65	27	e_N	11	16	38					24½°N, 143°E
		S_N		18	16					0: 10 55 02
		PS_N		19	27					
		$(SS)_N$		23	54					
		LQ_N		32	50					
		M_{NE}		44	30	20	7	6		
		F								in next shock
66	27	eP_N	12	24	29					Jan Mayen region
		S_N		26	59					Δ = 1500 Km
		F	12	50						
67	Sept.4	e_N	03	57	45					3°S, 139½°E
		eSS_N	04	03	36					0: 03 28 32
		LQ_N		15	00					
		F		55						
68	6	eL_N	17	31	45					
		F	18	10						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
69	Sept. 6	S_N	18	50	19					51°N, 158°E
		$e_{\sim}$		51	01					0: 18 30 48
		LR_N	19	02	00					
		M_N		17		16	4			
		F	20							
70	7	eL_N	00	48	40					
		M_N		57		16	3			
		F	02							
71	12	e_N	08	05	00					
		L_N		24						
		M_N		32	30	16	5			
		F	09							
72	14	L_N	00	31	55					
		F	02							
73	17	PKP_Z	11	22	22					20½°N, 177½°W
		ePP_N		25	22					0: 11 03 19
		F	13							
74	23	e_{NE}	21	54	40					
										N, E out of work
75	Oct. 3	e_N	03	13	05					10°S, 165½°E
		eSS_E		26	02					0: 02 47 17
		L_N		45	50					
		M_{NE}		51	30	24	13	20		
		M_N	04	02	30	20	7			
		F	05	40						
76	3	iP_{NZ}	11	28	30					60°N, 151°W
		$i_{\sim}$			45					0: 11 18 46
		pP_Z			53					Δ = 6500Km
		i_{NZ}		31	(02)					h = 90 Km
		S_{NE}		36	28					Dilatation
		SS_N		40	21					
		L_N		45	10					
		F	12	30						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
77	Oct. 17	eS_N	23	18	56					31½°N, 116½°W
		$eL\theta_{1N}$		37	56					0: 22 57 18
		F	00	20						
78	Nov. 2	e_N	08	51	58					
		L_N	09	12	00					
		F	10							
79	2	e_N	10	38	20					
		F		50						
80	25	e_{NE}	11	30	40					40½°N, 126°W
		$(S)_N$		37	34					0: 11 16 36
		LR_N		50	12					
		M_{NE}		58		20	13	16		
		F	12	40						
81	Dec. 11	P_{NEZ}	13	02	(00)					52½°N, 32°W
		i_E			26					0: 12 57 07
		S_{NE}		06	(00)					Δ = 2500 Km
		iL_{NE}		07	40					Microseismic agi
		Lg_N		08	50					
		M_N		12	30	14	23			
		M_E		13		12		6		
		F		50						
82	16	P_{NZI}	11	18	29					29½°N, 118°W
		eP_{ZII}		22	45					Two earthquakes
		i_{1N}		25	52					Microseismic agi
		eS_{NI}		27	32					
		i_{2N}		35	51					
		L_E		37	46					
		M_{1N}		49	30	16	35			
		M_{2N}		53	30	16	50			
		M_{NE}		57		12	25	15		
		F	14	50						
	21									N, E out of work

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
83	Dec. 23	e_N	16	41	15					
		F		50						
84	30	e_N	11	21	10					
		F		40						

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Registrations at the Seismological Observatory of the University in Bergen, Norway.

Coordinates: $\varphi = 60^{\circ}23'18"N$, $\lambda = 5^{\circ}18'18"E$, Alt. = 20 m

Constants:

Instrument	Weight	V	T_o	ε:1	r/T_o^2
Wiechert Z Jan.1 - Dec.31	1300kg	215	3.2	3.0	0.15
-"- N-S Jan.1 - Nov.24	1000kg	130	10.3	2.3	0.029
Nov.24 - Dec.31		147	10.8	2.7	0.0128
-"- E-W Jan.1 - Nov.24	1000kg	130	10.8	1.8	0.024
Nov.24 - Dec.31		183	9.3	2.5	0.015

Epicentre and origin time are given according to U.S.C.G.S.

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
1	Jan. 5	$ePKP_Z$	01	10	23					50°S, 162½°E
		$e(PP)_E$		25	29					0: 00 50 12
		e_E		42	32					
		F	03	10						
2	5	$ePKS_{NE}$	18	11	29					16°S, 167½°E
		e_E		33	16					0: 17 48 35
		F	20	20						
3	6	$ePKS_N$	00	05	03					16°S, 167½°E
		e_N		08	03					0: 23 42 03
		$e(PPP)_N$		27	25					
		F	02	10						
4	8	$ePKS_N$	07	56	20					11½°S, 166½°E
		e_N	08	09	01					
		eLR_N		32	55					
		M_E		48		23		12		
		F	10	20						

.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
	13	eS_N	02	23	28					33°N, 82½°E
		eLQ_E		31	20					Strong microseismic
		M_{1N}		39		26	30			agit.
		M_{1E}		41		20		19		
		M_{2E}		45	30	20		19		
		M_{2N}		51		20	16			
		F	03	30						
	28	eLQ_N	17	24	48					33°N, 82½°E
		eLR_N		28	28					
		M_N		34		13	46			
		F	18	20						
	29	eL_N	17	48	50					51½°N, 159½°E,
		F	18	10						
	31	eP_Z	16	13	25					46½°N, 153°E
		ePS_N		22	41					
		eSS_N		26	50					
		eL_N		39	25					
		M_{NEZ}		50	30	17	11	9	32	
		F	17	40						
	Feb. 6	P_{NZ}	02	31	00					71°N, 13½°W
		e_N		32	35					
		eL_{NE}		34	02					
		M_{NEZ}		35	30	20	22	14	45	
		F		50						
14	14	eL_N	17	42						2°N, 126½°E
		F	18	20						
	18	eL_{NE}	23	08	40					30½°N, 67°E
		F		40						
	27	eP_Z	21	03	08					27½°S, 176°W
		i_Z			10					
		i_N		04	23					
		ePP_Z		06	33					
		i_{NE}			53					

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No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
12)	Feb.27 (cont.)	e_{1N}	21	16	42					
		e_{2N}		22	15					
		$e(SS)_N$		25	43					
		e_{3N}		31	22					
		eLQ_N		43	53					
		M_{NEZ}	22	10		21	51	45	202	
		F	23	10						
13	Mar.18	P_{NE}	00	17	17					54½°N, 161°E
		i_Z			23					
		e_N		21	14					
		S_N		25	54					
		ScS_N		26	59					
		e_E		29	40					
		eLQ_E		32	25					
		eL_N		38	00					
		M_E		55		18		21		
		M_N		59		12	9			
		F	03							
14	22	eL_N	14	53	25					Microseismic agit.
		F	15	20						
15	27	e_N	15	12						
		F		20						
16	28	e_N	09	55	35					
		F	10	10						
17	31	e_{1Z}	18	30	53					8°N, 124°E
		e_{2Z}		34	49					
		e_{NE}		40	36					
		eS_E		41	39					
		$ePPS_Z$		43	42					
		e_N		49	14					
		eL_{NE}		59	30					
		M_{NE}	19	13	30	22	162	162		
		M_Z		18	30	17			300	
		F	22							

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
8	Apr. 1	e_E	18	48	50					
		F	19							
9	4	eL_N	11	51	25					
		M_{NE}	12	01		16	9	10		
		F		20						
0	5	eL_N	14	46	50					
		F	15	10						
1	5	e_N	15	41	10					
		M_N		55		16	7			
		F	16	20						
2	14	eP_Z	01	39	56					30°N, 101½°E
		eL_Z		57	55					N and E out of
		L_Z	02	06	55					normal work from
		F	03	10						Apr.13, 19^h51^m
										Microseismic agit.
3	15	eP_Z	03	49	25					40°N, 74½°E
		e_Z		50	36					0:03 40 52
		M_Z	04	09	30	11			206	N and E out of work
										from Apr.14, 20^h31^m
		F								- Apr.15, 9^h04^m
										in next shock
	15	eP_Z	04	21	59					40°N, 75°E
		M_{1Z}		38	30	6			32	
		M_{2Z}		42		8			52	
		F	05	20						
	17	eP_Z	18	46	13					52°N 159½°E
		eS_N		55	02					0: 18 35 27
		eL_{NE}	19	10	12					= 7350 km
		F	20	10						△ ~ 7350
	19	eP_{NE}	16	52	32					39½°N, 23°E
		eS_{NE}		56	46					
		e_{NE}		57	12					0:16 47 17
		eL_E	17	00	20					△ ~ 2600 km
		F		30						

o.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
	Apr.19									Out of work from 20^h46^m - 21^h12^m
7	21	P_{NEZ}	07	23	29					$39\frac{1}{2}^oN$, 23^oE
		eS_N		27	45					
		eL_{NE}		32	00					0: 07 18 17
		F		50						Δ ~ 2600 km
8	24	e_E	13	18	05					
		M_E		24	30	5	18	21		
		F	14							
9	28	eL_E	19	35	30					
		F	20	10						
0	May 1	eP_Z	10	06	55					$39\frac{1}{2}^oN$, $143\frac{1}{2}^oE$
		eS_{NE}		16	31					0: 09 55 16
		eL_E		31	45					Δ = 8300 km
		M_{NE}		38	30	20	9	10		
		F	11	20						
1	1	eL_E	14	36	15					Honshu aftershock
		F	15	10						
2	17	P_Z	15	02	25					7^oN, $94\frac{1}{2}^oE$
		PcP_Z			32					0: 14 49 47
		e_{NE}		06	03					Δ = 9300 km
		eS_{NE}		12	41					
		$iPPS_{NE}$		13	53					
		e_E		16	54					
		$LQ(N)E$		22	45					
		iL_{NE}		32	55					
		M_{1NE}		41	30	24	45	52		
		M_{2NE}		46		22	71	80		
		M_{3NE}		48		16	29	30		
		F	16	50						
3	29	e_E	16	35	10					
		F	17	10						

.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
	May 30	eP_E	12	46	42					24½°N, 142½°E
		e_E		48	06					0: 12 31 41
		S_{NE}		53	11					Δ = 9800 km
		$(i)_{1NE}$			35					
		$(i)_{2NE}$		56	42					
		F	14							
	June 3	iP_{bNEZ}	11	40	06					Δ = 160 Km
		i_{NE}			10					Z is very stiff
		i_{1N}			17					
		iS_b or S_{nNEZ}			25					
		i_{2N}			37					
		F		46						
	7	eL_N	01	19	44					E
		M_N		28		16	6			
		F	02							
	12	e_E	21	09	30					
		F		30						
	14	e_E	06	53	55					
		F	07	20						
	17	eL_N	08	49	55					
		F	09	20						
	18	e_N	16	51	15					
		F	17	20						
	20	eP_N	12	18	33					51½°N, 180°
		e_{NE}		21	00					
		eS_{NE}		27	33					0: 12 07 25
		eSS_{NE}		31	43					Δ = 7360 km
		e_N		36	25					Z is very stiff
		eL_N		40	38					
		M_{1NE}		43	30	24	17	15		
		M_{2NE}		55		16	9	5		

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
41)	June 20 (cont.)	M_{3NE}	12	57		16	10	55		
		F	14	10						
42	27	e_E	10	40	40					
		F	11	20						
43	July 6	eL_N	02	21	50					E
		F	03	10						
44	11	e_N	20	52	20					
		F	21	10						
45	14	e_N	10	40	05					
		F	11	20						
46	16	P_{NE}	07	12	53					$37\frac{1}{2}^{\circ}$N, 27°E
		PP_E		13	35					0. 07 07 06
		e_{NE}		14	07					$\Delta \sim$ 3100 km
		iS_{NE}		17	30					Z is very stiff
		iSS_{NE}		18	54					
		iLR_{NE}		19	43					
		iL_{NE}		21	21					
		M_{NE}		26		12	144	132		
		F	09	10						
47	19	e_{NE}	09	10	10					
		F		30						
48	24	e_N	17	02	00					
		F		20						
49	27	e_N	02	02	30					
		F		30						
50	27	e_N	18	53	00					
		F	19	30						
51	Aug.21	e_E	18	24	10					N is very stiff
		F		50						

o.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
2	Sept.22	e_E	03	55	50					E.
		eL_{NE}	04	06	25					
		F		45						
3	23	eLQ_E	15	37	19					°E.
		M_{NE}		47		16	14	9		
		F		30						
4	24	e_N	11	05	28					
		F		20						
5	26	eP_Z	08	40	21					15½°N, 92½°W.
		epP_Z		41	10					0. 08 28 20
		e_Z			28					Δ = 8900 km
		eS_{NE}		50	07					h = 200 km
		eLQ_E	09	02	00					
		F		30						
	Oct.10	eL_{NE}	09	51	50					5°S, 153°E
		M_{1NE}	10	05	10	20	11	10		0: 08 57 44
		M_{2NE}		15		16	5	3		Δ = 13200 km
		F		50						
	Nov.23	eP_Z	06	40	26					E
		eS_E		49	28					0: 06 29 29
		eL_E		57	27					Δ = 7500 km
		M_{1E}	07	09		22		32		Strong micr. agit.
		M_{2E}		11	30	20		29		N is very stiff
		M_{3E}		15		18		14		
		F	08							
	Dec. 7	$eL_{(N)E}$	15	46	33					
		F	17							Microseismic agit.
	14	e_N	11	15	33					22°N, 92½°E
		eL_N		20	50					
		F	12	10						0: 10 51 44
										= 7750 km
										Strong micr. agit.
	19	e_N	04	09	30					E
		F		25						

SEISMOLOGICAL BULLETIN 1956

Registrations at the Seismological Observatory of the University in Bergen, Norway.

Coordinates: φ = 60°23'18"N, λ = 5°18'18"E, Alt. = 20 m

Constants:

Instrument	Weight	V	T_o	ε:1	r/T_o^2
Wiechert Z Jan.1 - May 8	1300kg	215	3.2	3.0	0.15
May 8 - Dec.31		300	3.5	2.8	0.098
" N-S Jan.1 - Dec.31	1000kg	147	10.8	2.7	0.0128
" E-W Jan.1 - Dec.31	1000kg	183	9.3	2.5	0.015

Epicentre and origin time are given according to U.S.C.G.S.

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
1	Jan. 8	eS_N	21	19	29					19°S, 70°W
		$e(PS)_E$		20	45					
		eLQ_N		36	30					0: 20 54 13 Micr.agit.
		M_E		48	00	20		10		
		F	22	25						
2	10	$ePKP_N$	09	11	58					25°S, 176°W
		e_N		12	53					
		e_{1E}		14	16					0: 08 52 36 Z is very stiff. Micr. agit.
		$e(PP)_N$		15	41					
		e_{NE}		34	39					
		e_{2E}		40	16					
		eLQ_E		52	01					
		LR_N	10	01	12					
		M_{1E}		20		20		20		
		M_N		21		20	23			
		M_{NE}		39	30	18	16	8		
		M_{2E}		44		18		22		
		F	11	50						

o.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
3	Jan.16	eP_E	23	50	32					½°S, 80½°W
		ePP_E		54	03					0: 23 37 37
		$eSKS_E$	24	01	01					△ = 9800 km
		eS_E		01	26					
		LR_E		19	16					Micr. agit.
		M_E		29		20		20		
		F	01	40						
4	Feb. 9	S_{NE}	14	54	18					31½°N, 116°W
		e_N		58	44					0: 14 32 40
		eSS_E		59	19					
		e_E	15	02	47					
		LQ_E		04	09					
		M_{1E}		14		20		82		
		M_N		17		18	54			
		M_{2E}		20		14		22		
		F	16	50						
	Feb.12	eS_E	12	12	25					19°N, 119½°E
		eL_N		31	30					0: 11 49 20
		M_E		44	30	14		14		
		F	13	30						
	13	e_N	15	05	47					
		F		40						
	14	e_N	13	19	16					
		F	14							
	14	eL_N	19	09	21					
		F		50						
	15	e_E	01	57	25					
		F	02	30						

Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
Feb.18	eP_{NZ}	07	45	55					30°N, 137½°E
	epP_{NZ}		47	36					
	ePP_E		48	54					0: 07 34 16
	iS_{NE}		55	(23)					h ~ 450 km
	e_E	08	00	53					N and E out of work
	F	09	20						from 07h52m - 07h54m
19	e_E	02	37	06					
	eL_E		47	35					
	M_{NE}		56	30	17	9	8		
	F	03	50						
20	eP_Z	20	37	12					39½°N, 30½°E
	P_{NE}			14					0: 20 31 35
	$eS_{N(E)}$		41	43					Δ ~ 2900 km
	eL_N		43	44					
	M_{NE}		46		6	14	15		
	M_E		51		8		9		
	F	21	25						
Mar. 5	e_{NE}	07	38	01					
	F	08							
6	eL_E	00	05	00					
	F		50						
13	eS_E	13	35	54					
	eL_E		50	53					
	F	14	20						
21	e_N	05	11	20					
	F		25						
22	eP_{EZ}	06	46	51					3½°S, 79°W
	ipP_Z		47	15					0: 06 33 55
	e_E		56	30					Δ = 10000 km
	eS_E		57	23					h= 80 km
	F	07	20						Micr. agit.

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
18	Apr. 2	e_E	11	45	35					
		F	12	10						
19	6	P_{EZ}	07	19	49					$36\frac{1}{2}^{\circ}$N, 71°E
		e_E		21	41					
		S_{NE}		26	24					O: 07 11 34
		e_N		29	20					Δ = 5300 km.
		i_N		31	(02)					Compression
		M_N		34	30	8	10			
		F	08							
20	Apr.10	SKS_E	13	39	39					
		e_E		40	28					
		F	14	10						
21	23	eS_N	03	52	24					$42\frac{1}{2}^{\circ}$N, $144\frac{1}{2}^{\circ}$E(
		e_N	04	11	41					O: 03 31 40
		F		40						
22	May 19	e_N	20	36	13					
		eL_N	21	04	24					
		eL_N	22	08	25					
		F		40						
23	23	$ePKP_Z$	21	07	03					$15\frac{1}{2}^{\circ}$S, 179°W.
		ePP_Z		09	26					O: 20 48 30
		$iSKP_Z$			53					$\Delta \sim$ 15000 km
		$iPKS_{N(E)}$		10	33					h $\sim$ 400 km
		$pPKS_N$		12	16					
		$sPKS_N$		12	59					
		$eSKS_N$		13	17					
		$eSKSP_N$		19	07					
		L_N		48	05					
		F	23	20						
24	May 26	e_N	20	55	14					
		e_{NE}	21	00	05					
		F		30						

o.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
5	June 4	eL_N	07	42	50					Very weak
		F	08	30						
6	8	eL_N	04	33	38					
		F		40						
7	9	iP_{EZ}	23	22	20					35½°N, 67½°E
		iPP_{NEZ}		24	10					
		iS_E		28	57					O: 23 13 51
		$iPPS_N$		29	21					△ = 5100 km
		SS_{NE}		32	26					Compression
		L_N		34	55					
		i_N		35	51					
		M_{1N}		40		24	1516			
		M_{2N}		42	30	16	682			
		M_E		44		10		109		
		F	03	10						
8	23	P_{NZ}	02	28	29					56½°N, 163½°E
		eS_N		36	56					O: 02 18 02
		eLQ_N		43	20					△ ~6900 km
		M_N	03	02		16	11			
		F	04							
	28	eP_Z	23	09	35					48 3/4°N, 129 1/4°W
		S_{NE}		18	19					O: 22 58 50
		e_N		25	13					△ = 7200 km
		M_N		48		22	11			
		F	00	30						
	29	e_N	03	04	50					
		F		25						
	30	e_{NE}	02	01	20					
		F		15						

o.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
2	July 9	P_{NEZ}	03	17	23					37°N, 26°E,
		i_Z			36					0: 03 11 39
		iS_{NE}		22	08					△ = 2900 km
		L_{NE}		24	23					
		M_E		28	30	16		700		
		M_{NE}		30	30	11	272	286		
		F	07							
	9	i_{EZ}	10	07	03					20°N, 73°W
		e_{1E}		09	53					
		e_{2E}		16	59					0: 09 56 13
		LQ_E		27	21					Dilatation
		F	11							
	10	e_N	03	11	03					
		F		30						
	16	e_{EZ}	15	18	23					22°N, 95½°E,
		e_{1E}		27	40					0: 1507 10
		e_{2E}		29	28					
		eL_E		43	12					
		M_{EZ}		52	30	12		50	80	
		F	17	10						
	17	$eSKS_E$	07	57	45					7°S, 126½°E
		$eSKKS_E$		58	47					0: 07 34 07
		e_E	08	01	17					
		F								
	18	ePP_Z	06	38	20					5°S, 130°E
		$ePKS_Z$		41	29					0: 06 19 15
		e_E		45	19					
		$e(PS)_E$		48	12					
		i_E			39					
		L_N	07	07	53					
		F	08	30						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
38	July 21	S_E	15	50	17					
		eLQ_E		56	44					
		F	16	40						
39	30	e_E	09	27	13					
		eL_E		29	02					
		M_E		33	30	12		7		
		F	09	50						
40	Aug.12	eS_N	17	21	03					34°N, 138°E
		eSS_N		26	42					0:16 59 33
		eL_N		37	55					
		M_N		44	30	20	.1			
		F	18	30						
41	15	e_N	11	32	09					
		F	12	20						
42	15	eP_{NZ}	12	07	11					43½°N, 16½°E
		eS_E		10	49					0: 12 02 54
		M_E		15	30	10		4		Δ = 2050 km
		F		30						
43	15	eS_N	13	32	42					46°N, 151°E
		eL_N		50	10					0: 13 12 10
		F	14	30						
44	23	$eSKS_E$	14	12	17					15°S, 68°W
		eL_E		36	48					0: 13 48 30
		F	15	10						
45	24	$eP_{N(Z)}$	04	38	26					53°N, 172½°E
		ePP_N		40	43					0: 04 27 33
		eS_N		47	20					Δ = 7400 km
		$(ScS)_N$		48	32					
		e_N		52	01					
		L_N	05	01	10					
		F	06	10						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
46	Sept.6	e_N	11	59	20					
		F	12	20						
47	11	e_N	21	42	55					
		F	22	10						
48	16	eP_Z	08	46	13					34°N, 69½°E.
		eS_N		53	13					0 083722
		$eScS_N$		56	00					△ = 5400 km
		M_N	09	05	30	10	32			Micr.agit.
		M_E		08		10		11		
		F	10	10						
49	20	eS_N	22	11	47					51½°N, 159½°E
		eL_N		30	44					0: 21 52 01
		F	23	20						Very weak
50	20	e_N	23	29	45					
		F	00	30						
51	24	e_N	10	45	09					
		F	11	05						
52	Oct.11	P_{NEZ}	02	35	40					46°N, 150½°E
		$i(pP)_Z$		36	02					h = 95 Km
		$ePPP_{NEZ}$		39	57					△ = 7000 km.
		S_{NE}		44	43					Compression
		PS_N		45	27					
		e_E		53	22					
		L_N		56	38					
		iLg_{1N}	03	01	11					
		M_{1NE}		06	30	20	43	49		
		M_{2NE}		09		16	23	24		
		M_{NZ}		12	30	16	24		41	
		F	04	10						
53	11	L_N	17	17	47					
		M_{NE}		30		22	18	12		
		F		55						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
1	Oct. 23	e_N	09	26	38					
		F		55						
3	24	ePS_N	15	05	15					12°N, 87°W,)
		$e(SS)_E$		09	58					
		M_{NE}		26	30	22	36	87		0: 14 42 10 Micr. agit.
		F	16	20						
	26	e_N	23	54	55					
		F	00	25						
	28									Strong microseismic agit.
	31	eP_Z	14	12	14					26½°N, 54½°E
		ePP_E		13	59					0: 14 03 38
		S_{NEZ}		18	56					Δ = 5300 km
		eSS_N		22	37					
		eRg_E		32	35					
		M_N		37		12	9			
		M_{1E}		40	30	10		5		
		M_{2E}		45		8		6		
		F	15	30						
	Nov. 9	SKS_E	13	28	00					17°N, 94°W,
		e_N		38	17					0: 13 06 10
		F	14	10						Microseismic agit.
	14	$e(S)_E$	01	06	32					36½°N, 71°E,
		e_N		10	45					0: 00 51 27
		eLg_N		16	15					
		F		35						
	28	eL_N	20	02	00					
		F		30						
	29	eL_E	09	57	56					
		F	10	35						

o.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
2	Dec. 8	eP_Z	16	21	33					51°N, 179½°W
		e_Z		22	40					0: 16 10 27
		$e(S)_N$		30	50					△ = 7650 km
		$e(SS)_N$		35	03					
		eL_N		43	32					
		F	17	30						
3	18	$e(PS)_E$	02	58	51					25½°S, 68½°W
		e_N	03	15	36					
		eL_E		22	16					0: 02 31 00
		M_E		29		20		23		Strong micr. agit
		F	04							
4	21	$eP_{(E)Z}$	09	09	29					51°N, 131°W
		eS_N		18	07					0: 08 58 53
		PS_E		18	34					△ = 7050 km
		L_E		30	07					
		M_{NE}		37		16	20	7		
		F	10	25						
5	22	e_N	23	52	45					
		F	00	20						
	25	eP_Z	09	38	38					48½°N, 28°W
		i_{NE}			59					0: 09 33 37
		S_N		42	37					△ = 2500 km
		e_N		43	42					
		eL_E		44	46					
		M_{NE}		46		18	7	19		
		F	10	20						
	27	$ePKP_{NZ}$	00	33	19					24°S, 177°W
		e_Z			52					
		e_N		54	45					0: 00 14 15
		F	02	10						Micr. agit.