UNIVERSITETET I BERGEN
JORDSKJELVSTASJONEN
(SEISMOLOGICAL OBSERVATORY)

SEISMOLOGICAL BULLETIN

1957 - 1959

BY
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AND
KARSTEN STORETVEDT

Bergen, Norway, 1960

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

Bergen 1957-59

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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.= 22.5m.

Constants:

Instrument	Weight	V	T_o	ε:1	r/T_o^2
Wiechert Z	1300kg	290	3.3	3.2	0.058
" N-S	1000kg	150	9.3	2.35	0.020
" E-W	1000kg	150	9.3	2.00	0.013
Dec.1 -31: Willmore Z					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
1	Jan. 2	$eP_{N(Z)}$	00	50	20					53°N 168½°W (USCGS)
		$eScS_N$	01	00	29					Very weak
		eL_N		12	05					
		F	02	10						
2	2	eP_Z	02	28	36					52½°N 168°W (USCGS)
		eS_N		37	44					
		$eScS_N$		38	37					
		eSS_N		41	39					
		eLQ_N		45	45					
		eL_N		52	05					
		M_N	03	08	30	18	18			
		F								In next shock
3	2	eP_Z	03	59	49					53°N 168°W (USCGS)
		eS_N	04	08	08					
		eL_N		20	00					
		M_{1N}		32		18	18			
		M_{2N}		43	30	14	5			
		F	06	10						
4	3	P_{NE}	12	58	23					44°N 130°E (USCGS)
		iP_Z			25					Δ = 7330 km
		ipP_Z	13	00	18					h ~ 600 km
		iPP_Z			(58)					Dilatation
		S_{NE}		06	25					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(4)	Jan. 3 (cont.)	$iSKS_{NE}$	13	07	22					
		e_N		08	53					
		sS_N		10	00					
		SS_N		11	02					
		$(i)_N$		14	39					
		F	14							
5	Feb. 6	e_{NE}	21	03	00					
		F	21	30						
6	10	e_E	23	10	34					
		eLR_N		18	00					
		F								In next shock
7	10	e_E	23	16	49					
	11	F	00	20						
8	11	eL_N	01	57	45					
		M_{1N}	02	09	30	20	14			
		M_{2N}		16		18	11			
		F	02	50						
9	19	$e(S)_N$	07	54	16					$36\frac{1}{2}^{\circ}N$ $22^{\circ}E$ (USCGS)
		eL_E		58	05					
		M_{NE}	08	01		10	3	3		
		F	08	15						
10	23	P_{EZ}	20	38	30					$24^{\circ}N$ $122^{\circ}E$ (USCGS)
		i_Z			57					Δ = 9070 km
		ePP_E		41	33					Compression
		S_E		48	38					
		$e(PS)_E$		49	12					
		eSS_{NE}		53	58					
		LQ_N		59	16					
		eLR_N	21	03	10					
		M_{NE}		11		20	120	74		
		M_{EZ}		18		14		44	88	
		F	22							

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
11	Mar. 2	eS_N	00	48	09					18½°N 78°W (USCGS)
		$eSKS_N$			55					
		eLQ_N		58	06					
		F	01	25						
12	5	eS_E	12	37	50					33°N 34½°W (USCGS)
		eL_E		43	45					
		F	13	10						
13	8	eP_N	12	19	29					39½°N 23°E (USCGS)
		S_{NE}		23	45					Δ ~ 2700 km
		L_N		26	16					
		F								In next shock
14	8	iP_Z	12	26	26					39½°N 23°E (USCGS)
		i_Z			44					Dilatation
		eL_N		32	37					
		M_N		37	30	12	66			
		M_E		40		10		35		
		F	13	20						
15	8	P_Z	23	40	21					39½°N 23°E (USCGS)
		i_Z			31					Δ ~ 2700 km
		eS_N		44	36					
		L_N		47	20					
		M_E		49		18		29		
		M_N		51	30	12	5			
	9	F	00	10						
16	9	eP_N	14	33	32					51.3°N 175.8°W (USCGS)
		$(PP)_N$		36	28					Δ ~7950 km
		$iPcS_N$		37	55					Microseismic agit.
		S_E		42	47					
		iPS_{NE}		43	15					
		PPS_N			31					
		$iSKS_N$			38					
		iSS_N		47	12					
		iL_N		53	26					
		M_{1N}		58		24	480			
		iL_N	15	01	31					
		M_{NE}		13		17	320	300		

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(16)	Mar. 9 (cont.)	M_{1E}	15	17		17		320		
		M_{2E}		19		17		310		
		M_{2N}		20	30	16	240			
		M_{3E}		23		16		390		
		M_{3N}		27	30	16	250			
		F	19							
17	9	eP_{NZ}	20	50	06					52½°N 169½°W(USCGS
		eS_{NE}		59	06					Microseismic agit.
		e_N	21	04	06					
		LR_N		11	47					
		M_{NE}		18	30	20	26	53		
		M_{1N}		22		18	40			
		M_{2N}		31	30	16	27			
		F	22	20						
18	10	e_N	03	26	24					52°N 176°W (USCGS)
		eLR_N		38	25					Microseismic agit.
		F	04	40						
19	10	e_N	15	47	13					52°N 173°W (USCGS)
		eLR_N		59	05					
		F	17							
20	11	eS_N	03	32	49					51°N 177°W (USCGS)
		eLR_N		45	05					Microseismic agit.
		M_N	04	05	30	16	17			
		F	05							
21	11	eP_N	10	09	43					53°N 164½°W (USCGS)
		ePP_N		12	07					Microseismic agit.
		eS_{NE}		18	35					
		LQ_E		26	20					
		eLR_N		30	45					
		M_{1N}		35		20	34			
		M_E		38		20		40		
		M_{NE}		42		18	27	24		
		M_{2N}		51		16	20			
		F	11	50						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
22	Mar. 11	eP_{NZ}	15	06	25					51½°N 178½°W(USCGS)
		ePP_N		08	54					
		eS_N		15	24					
		$e(PS)_N$		16	11					
		$(SS)_N$		20	07					
		eLQ_{NE}		23	10					
		LR_N		28	30					
		M_N		31		28	56			
		M_{1E}		38		20		47		
		M_{2E}		42	30	20		37		
		F	16	50						
23	12	eS_N	07	49	01					51½°N 173½°W(USCGS)
		e_N		53	46					
		eL_N	08	00	25					
		F	09	10						
24	12	iP_Z	11	56	05					51°N 177°W (USCGS)
		iS_N	12	05	(08)					Δ = 7770 km
		e_N		09	08					Dilatation
		L_E		14	10					
		M_{1NE}		20	30	26	35	48		
		M_{2NE}		35		18	44	38		
		F	14							
25	13	eP_N	15	53	08					51½°N 179°W(USCGS)
		ePP_N		55	48					Weak
		eS_N	16	02	09					
		eSS_N		06	25					
		eL_N		15	15					
		F	17	10						
26	14	eP_N	14	58	52					51½°N 177°W(USCGS)
		$(PP)_N$	15	01	48					Microseismic agit.
		S_N		08	00					
		eSS_E		12	18					
		eLQ_E		16	05					
		eLR_N		19	30					
		M_{1NE}		32		20	53	42		
		M_{1N}		34	30	18	47			

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(26)	Mar. 14 (cont.)	M_{2NE}	15	40	30	16	44	27		
		M_{2N}		42		14	34			
		F	17	30						
27	15	e_N	03	12	24					53°N 167°W (USCGS)
		eL_N		25	10					
		M_N		35	30	16	6			
		F	04	15						
28	16	P_Z	02	45	20					52°N 179°W (USCGS)
		$ePcS_N$		49	54					Δ = 7600 km
		S_E		54	18					Compression
		i_{1N}			28					
		i_{2N}		55	05					
		eSS_N		58	35					
		L_E	03	04	16					
		LR_E		06	47					
		M_{1NE}		10		26	57	35		
		M_{2NE}		21		18	58	44		
		M_E		22		18		53		
		F	04	50						
29	17	eL_N	23	15	30					54°N 166°W (USCGS)
		F	24							
30	18	eL_N	23	29	40					
		F	23	35						
31	19	$e(P)_N$	13	02	11					51½°N 175°W(USCGS)
		e_{1N}		04	53					Microseismic agit.
		eS_N		11	11					
		e_{2N}		12	25					
		$e(SS)_N$		15	16					
		LQ_E		19	44					
		eLR_E		23	15					
		F	14	30						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
32	Mar. 22	P_{NZ}	14	31	56					54°N 166°W (USCGS)
		S_{NE}		40	41					Δ ~ 7350 km
		PS_N		41	02					Microseismic agit.
		$(i)_N$			28					
		ScS_N			49					
		e_{1N}		45	30					
		e_{2N}		48	11					
		iL_E		49	38					
		M_{1E}		51		36		82		
		iL_N		53	35					
		M_{1NE}		58		22	42	30		
		M_{2E}		59		22		48		
		M_N	15	00	30	20	29			
		M_{2NE}		03	30	18	31	29		
		F	16	10						
33	23	eS_{NE}	05	39	08					5½°S 131°E (USCGS)
		ePS_E		41	07					
		eSS_N		47	12					
		eLQ_N		58	30					
		F	06	45						
34	23	e_N	08	55	02					
		F	09	15						
35	29	P_N	05	21	20					53½°N 167°W(USCGS)
		S_N		30	08					Δ = 7400 km
		eL_{1N}		37	28					
		eL_{2N}		42	20					
		M_{NE}		45		28	39	28		
		M_N		54						
		F	07							
36	Apr. 10	P_{EZ}	05	24	37					15½°N 98°W (USCGS)
		$eSKS_E$		34	48					Weak
		eL_E		58	15					
		F	06	20						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
37	Apr. 10	P_{EZ}	11	40	25					56°N 154°W (USCGS)
		S_N		48	52					Δ = 7000 km
		$eScS_E$		50	18					
		SS_E		52	56					
		L_E		57	41					
		L_N	12	02	10					
		M_{1E}			30	20		21		
		M_{2E}		13		18		33		
		M_N		14	30	18	22			
		F	13	30						
38	13	eLR_N	10	57	05					
		F	11	15						
39	14	P_Z	07	21	54					Dilatation
		eS_E		29	53					
		eLQ_N		36	15					
		F	08	30						
40	14	PKP_Z	19	37	23					15½°S 173°W (USCGS)
		PP_Z		40	02					
		PKS_Z			53					
		i_N		41	(05)					
		$ePPS_N$		51	57					
		$ePKPPKS_N$		58	34					
		LR_E	20	20	05					
		M_N		24	30	28	44			
		M_E		28	30	28		39		
		M_{NE}		37		18	22	31		
		F	22							
41	16	$iP_{(E)Z}$	04	16	49					4½°S 107½°E (USCGS)
		epP_Z		18	57					Δ = 11100 km
		i_Z		20	52					h = 585 km
		$iPP_{E(Z)}$		21	(06)					Dilatation
		SKS_E		26	32					
		S_N		27	26					
		i_E		29	(06)					
		PS_E		30	24					
		eLQ_N		45	18					
		F	05	50						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
42	Apr. 19	iP_Z	22	30	30					52°N 166½°W (USCGS)
		$ePcP_{NZ}$		31	00					Δ = 7550 km
		$S_{N(E)}$		39	25					Dilatation
		ScS_E		40	25					
		LQ_E		47	01					
		$eL(R)_N$		51	40					
		F	23	50						
43	20	e_E	13	35	25					
		F	13	50						
44	21	eP_Z	21	24	28					7°N 72°W (USCGS)
		S_E		34	20					Δ ~ 8700 km
		iPS_E			53					
		LQ_N		44	55					
		L_E		47	20					
		M_{1E}		52		26		26		
		M_{2E}		58		18		11		
		F	23	40						
45	24	eP_Z	19	16	02					36°N 28½°E (USCGS)
		$iS_{N(E)}$		20	43					Δ = 3100 km
		e_E		21	22					
		eL_N		22	45					
		iL_E		25	05					
		M_{NE}		28		20	100	110		
		F	20	40						
46	25	P_{NE}	02	31	30					
		iP_Z			32					36½°N 29°E (USCGS)
		iS_{NE}		36	(11)					Δ = 3100 km
		$(i)_E$		37	07					Compression
		iLR_E		38	19					
		iLg_{1E}		40	26					
		M_E		44		20		280		
		M_N		45	30	14	79			
		F	04	20						
47	26	eS_E	06	43	56					36½°N 29°E (USCGS)
		eSS_E		45	32					
		eL_E		47	45					
		F	07	10						

No.	Dato	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
48	Apr. 28	eLR_E	02	09	35					
		F	02	50						
49	May 12	eL_N	12	21	00					
		F	13							
50	21	e_{1N}	01	35	15					$21\frac{1}{2}^{\circ}$N 144°E (USCGS)
		eS_{NE}			45					
		e_{2N}		36	08					
		esS_N			35					
		eL_N		57	15					
		F	02	25						
51	22	$(S)_N$	13	50	16					50°N 177°W (USCGS)
		eL_N	14	03	13					Weak
		F	14	30						
52	26	e_E	09	04	45					$40\frac{1}{2}^{\circ}$N 31°E (USCGS)
		F								Very weak In next shock
53	26	eP_E	09	42	05					41°N 31°E (USCGS)
		iP_Z			08					Dilatation
		$(i)_E$			24					
		eS_{NE}		46	35					
		eL_E		50	40					
		L_E		51	51					
		F	10	30						
54	27	eP_{EZ}	11	06	51					$40\frac{1}{2}^{\circ}$N 31°E (USCGS)
		eS_E		11	26					
		eL_N		14	45					
		F	11	40						
55	June 11	$ePKP_Z$	15	09	27					30°S 178°W (USCGS)
		i_Z			33					
		eL_N		59	15					
		F	16	50						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
56	June 11	iP_Z	19	02	10					18°N 120½°E (USCGS)
		eS_{NE}		12	32					Dilatation
		eSS_E		18	11					
		e_E		22	13					
		M_{1NE}		36		24	31	27		
		M_{2NE}		39	30	18	13	11		
		M_E		43		18		18		
		F	20	10						
57	12	eS_E	08	49	19					41½°N 142½°E(USCGS)
		eL_E	09	08	20					Weak
		F	09	25						
58	13	eP_Z	10	51	47					51½°N 175°W (USCGS)
		S_{NE}	11	00	45					
		eSS_E		05	07					
		eLR_N		13	15					
		M_{NE}		16	30	28	28	22		
		M_E		20		22		15		
		M_N		32	30	18	13			
		F	12	50						
59	18	e$_N$	02	52	30					
		F	03	20						
60	18	eS_E	15	10	13					14°N 96°E (USCGS)
		eL_N		29	30					
		M_N		35		20	13			
		F	16	10						
61	23	ePP_{EZ}	00	09	43					1½°S 137°E (USCGS)
		eSKS_E		15	38					
		ePS_E		18	58					
		eSS_E		25	06					
		e_E		29	58					
		eL_N		40	33					
		M_{1NE}		48		26	96	83		
		M_{2NE}		57		24	96	96		
		F	02	50						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude A_N	A_E	A_Z	Remarks
62	June 27	P_Z	00	18	37					56½°N 116°E (USCGS)
		PP_Z		20	39					Δ ~ 5950 km
		S_N		26	08					
		SS_{NE}		29	48					
		LQ_N		31	17					
		M_E		37	30	10		170		
		M_{1NE}		41	30	12	390	400		
		M_{2NE}		46	30	10	270	160		
		F	03	20						
63	July 2	iP_{NEZ}	00	49	50					36°N 53°E (USCGS)
		iPP_{NEZ}		51	17					Δ = 4300 km
		$iPPP_E$			44					Compression
		$iPcP_{EZ}$		52	(02)					
		iS_{NEZ}		55	47					
		iSS_E		58	23					
		eL_{NE} or ScS		59	55					
		M_{1NE}	01	06		8	22	130		
		M_{2NE}		08		22	140	130		
		M_E		10		22		105		
		F	02	30						
64	10	e_N	09	40						
		M_N		48		20	5			
		M_E		53		19		5		
		F	10	40						
65	14	$iPKP_Z$	06	43	(09)					27½°S 177°W (USCGS)
		i_{1Z}		43	18					Microseismic agit.
		i_{2Z}		44	(09)					
		iPP_Z		46	40					
		e_E		56	40					
		F	08							
66	28	iP_Z	08	52	32					17°N 99°W (USCGS)
		i_Z			34					Δ = 9300 km
		e_Z		53	(12)					
		iPP_Z		55	50					
		PPP_Z		57	40					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(66)	July 28 (cont.)	S or SKS_{NE}	09	03	25					Near South coast of Mindanao, Philippine Islands.
		PS_{NE}		04	08					
		e_E		08	02					
		(SS_{NE})?			52					
		L_{NE}		17	00					
		M		24		27	115	230	80	
		M_N		26		27	160			
		M_{NZ}		27	30	27	205		110	
		M_E		30		20		100		
		F	10	30						
67	Aug. 16	e_{1E}	23	48	22					
		e_{2E}		55	(11)					
		$(PS)_E$		57	31					
	17	eL_E	00	02	20					
		M_{1E}		18		30		4		
		M_{2E}		30		16		4		
		F	01	10						
68	18	e_E	09	02	(11)					
		L_{NE}		19	40					
		M_{1NE}		25		30	30	18		Compression
		M_{2NE}		28		24	41	33		Strong microseismic agit.
		F	10							Fiji Islands
69	18	e_N	22	19						
		M_N		22		26	50			
		F	23							
70	26	eL_E	12	19						
		M_E		20	30	20		9		Compression
		F	12	50						
71	26	eL_E	14	43						
		M_E		52		20		7		Microseismic agit.
		F	15	30						
72	30	e_E	16	27	40					
		L_E		43						
		M_E		46		8		1		
		F	17	10						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
73	Sept.24	iP_Z	08	35	00					Near South coast of
		PP_{NZ}		38	56					Mindanao, Philippine
		SKS_N		45	38					Islands.
		e_{1N}		46	17					
		e_{2N}			38					
		SS_N		54	08					
		LQ	09	00	26					
		M_{1NE}		10		44	310	185		
		M_{2NE}		13	30	30	300	210		
		M_{NZ}		17		24	220		62	
		M		22		23	150	250	165	
		M_N		24		22	100			
		F	10	40						
74	25	e_{NE}	06	07	(10)					
		F	06	30						
75	25	e_E	17	28						
		M_E		41		18		4		
		F	18							
76	28	iP_Z	14	38	21					Compression
		$iSKP_Z$		41	(08)					Strong microseismic
		iPP_Z			28					agit.
		$iPKS_N$		42	06					Fiji Islands
		e_{1N}		45	(08)					
		iSS_{NE}		59	06					
		e_{2N}	15	00	37					
		e_{3N}		04	30					
		F	16							
77	29	$iPKP_Z$	08	31	58					Compression
		i_Z		32	00					
		F	08	40						
78	Oct. 4	e_E	05	46	36					Microseismic agit.
		SS_E		50	56					
		LQ_N		55	00					
		iL_{g1EZ}	06	00	45					
		F	06	30						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
79	Oct. 7	eL_E	14	05						Microseismic agit.
		F	14	25						
80	13	eL_E	04	58						
		F	05	30						
81	19	i_E	18	51	28					
		$iPcP_E$			38					
		eSS_E		56	28					
		eLQ_N	19	01	25					
		LR_N		07	28					
		M_{NE}		14		22	83	97		
		R_{gE}		16	12					
		M_E		20		16		27		
		F	20	45						
82	20	ePS_E	12	22	57					$11\frac{1}{2}^{o}$ N 42^{o}W (USCGS)
		eLQ_E		30	55					
		F	13							
83	25	L_{gl}	10	37						Microseismic agit.
		M_E		46		20		11		
		F	11	10						
84	26	L_N	15	21	40					Microseismic agit.
		F	15	50						Weak
85	30	eL_E	02	01	45					Microseismic agit.
		F	02	10						
86	31	LR_N	10	46	35					Microseismic agit.
		F	11	20						
87	Nov. 2	e_N	18	59	39					Microseismic agit.
		F	19	20						
88	10	L_{NE}	20	01	00					
		M_{NE}		05		16	9	14		
		M_E		07		16		6		
		F	20	40						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
89	Nov. 13	$ePKP_Z$	17	42	39					33°S 179°W (USCGS)
		eLR_N	18	36	30					
		F	19	40						
90	15	e_E	17	11	35					
		F	17	30						
	20									Out of work
91	25	PS_E	23	02	20					
		L_{g2N}		31	20					
		M_E		40		16		4		
		F	24							
92	26	L_N	06	11						Very weak
		F	06	30						
93	29	iP_Z	22	33	10					Δ = 11320 km
		ipP_{NEZ}		34	05					
		i_{NEZ}		37	(50)					
		e_{NEZ}		38	05					
		$iSKS_{NZ}$		43	22					
		$iSKS_E$			25					
		iS_{NE}		44	17					
		i_{1E}			50					
		i_{2E}		45	14					
		i_{3E}			56					
		e_N		46	10					
		iSS_N		51	14					
		iSS_E			17					
		i_{4E}		57	02					
		i_{5E}		58	50					
		iLQ_{NE}	23	00	18					
		M_N		02		22	40			
		LR_E		08	16					
		M_E		15		20		44		
		M_{NE}		20		16	15	30		
		F	23	50						
94	Dec. 2	i	11	23	30					
		F	11	24						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
95	Dec. 4	eP_{EZ}	03	47	11					45½° N 99½° E(USCGS)
		i_Z			14					Δ = 6040 km
		i_{NE}			19					
		ePP_E		49	10					
		i_{1N}			30					
		PPP_N		50	41					
		PcS_E		51	(54)					
		$iS_{(N)EZ}$		54	(54)					
		i_{1Z}		55	14					
		$iSKS_E$		56	(54)					
		i_{2N}		57	06					
		iSS_E		58	10					
		i_{2Z}		59	12					
		M_{1N}	04	07		8	315			
		M_1		08		8	360	290	200	
		M_2		09		8	380	300	260	
		M_{2N}		10		8	380			
		M_{EZ}		12		10		280	300	
		M_Z		13	50				380	
										NE out of work from 04h 13m.
96	8	iPg	08	20	42					
		iSg			53					60½° N 3½°E
		i			55					Δ ~ 100 km
		iSn			57					
		F	08	22						
97	10	e_Z	14	55	08					
		$ePPS_E$	15	06	22					
		e_E		10	24					
		L_E		32	22					
		F	17							
98	13	iP_{NEZ}	01	52	15					34½° N 48°E (USCGS)
		iPP_{NEZ}		53	44					Δ = 4150 km
		$iPcP_{NE}$		54	32					Compression
		iS_{NE}		58	09					
		SS_{NE}	02	00	52					
		LR_N		02	03					
		ScS_E			18					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(98)	Dec. 13 (cont.)	Lg_{2NE}	02	05	39					
		Rg_E		07	25					
		M_{NE}		11	30	11	25	33		
		F	03							
99	17	?	05	47	(00)					Microseismic agit.
		M_{NE}		58		12	7	9		
		F	06	30						
100	17	$iPKP_Z$	14	09	19					12^oS 167^oE (USCGS)
		i_{1Z}			56					Δ = 14500 km
		iPP_{NZ}		11	35					Compression
		i_{2Z}		12	33					
		$iPKS_{NE}$			43					
		$ePPP_N$		14	26					
		$SKKS_N$		18	38					
		e_E		22	17					
		i_{NE}		24	52					
		i_{1N}		30	(00)					
		i_{2N}		35	(00)					
		LR_{NE}		39	(00)					
		M_{1NE}		55	30	30	16	21		
		M_{2NE}		59		26	24	24		
		M_{3NE}	15	02		25	18	22		
		F	16	20						
101	23	e_N	12	49	45					Weak
		F	13	20						Microseismic agit.

SEISMOLOGICAL BULLETIN 1958

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.= 22.5m.

Constants:

Instrument	Weight	V	T_o	ε :1	r/T_o^2
Wiechert Z Jan.1 - Dec.31	1300kg	290	3.3	3.2	0.058
-"- N-S Jan.1 - Sept.1	1000kg	150	9.3	2.35	0.013
Sept.2 - Dec.31		118	8.6	3.0	
-"- E-W Jan.1 - Sept.1	1000kg	150	9.3	2.0	0.020
Sept.2 - Dec.31		108	8.5	0.7	
Willmore Z Jan.1 - May 30					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
1	Jan. 2	iP	21	23	30					45°N 151°E (USCGS)
2	5	SS_N	11	51	43					56½°N 121°E (USCGS)
		i_N		58	45					
		iLg_{1N}		59	31					
		F	12	30						
3	9	iP	17	48	05					44½°N 85°E (USCGS)
		iPP		49	49					
4	15	iP_Z	19	28	01					16½°S 71½°W (USCGS)
		ipP_Z		28	28					h ~ 100 km
		ePP_Z		31	58					
5	19	eP_Z	14	20	12					8½°S 79½°W (USCGS)
		iPP_Z		23	36					Δ ~ 9700 km
		$i:_N$		29	46					Microseismic agit.
		iS_E		30	40					
		e_E		31	17					
		iPS_E			50					
		$(i)LQ_{NE}$		42	(10)					
		$(i)LR_E$		47	24					
		iLg_1		53	04					
		M_{1NE}		55		24	180	290		

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(5)	Jan. 19 (cont.)	M_{2NE}	14	59		20	74	181		
		F	16	30						
6	23	iPn_{NEZ}	13	36	16					65°N 6½°E (USCGS)
		Pb_Z			25					Δ = 460 km
		Pg_Z			36					
		i_Z			50					
		iSn_{EZ}		37	05					
		iSb_{EZ}			19					
		Sg_Z			41					
		F	13	45						
7	Feb. 1	iPS_{NE}	16	33	29					Microseismic agit.
		eLg_{1E}		54	33					
		F	17	30						
8	7	e_N	23	51	38					
		eL		54	53					
		M_{NE}	24	00		20	18	8		
	8	F	00	40						
9	16	e_N	06	31	53					
		eL		43	13					
		F	07	20						
10	19	eL_N	20	10	21					
		F	20	50						
11	22	iP_Z	11	01	32					50½°N 175°W (USCGS)
		i_Z			44					Δ = 7850 km
		ePP_Z		04	04					
		iS_{NE}		10	45					
		$ePPS_E$		11	26					
		$i(ScS)_E$		12	12					
		eSS_N		14	54					
		LR_{NE}		24	02					
		M_N		24	30	32	27			
		M_E		26	30	26		39		
		F	12							

No.	Date	Phase	Time (GMT)	Period	Amplitude μ A_N	A_E	A_Z	Remarks
12	Feb. 24	eLR_N	12 51 45					
		eLg_{2E}	55 50					
		eRg_N	57 45					
		M	13 02	12	7	6	11	
		F	13 30					
13	27	iS_{NE}	23 50 (22)					21°N 120°E (USCGS)
		iPS_E	51 (22)					Microseismic agit.
	28	eLQ_N	00 01 22					
		eL_N	09 47					
		eLg_{1NE}	11 07					
		eLg_{2NE}	12 26					
		M_{1N}	13	20	26			
		M_{NE}	15	16	34	14		
		M_{2N}	20	14	12			
		M_{3N}	23	14	10			
		M_E	25 30	12		6		
		F	00 50					
14	Mar. 11	(i)P_{NZ}	00 38 13					25½°N 171½°W (USCGS)
		ipP_{NEZ}	33					Δ = 9250 km
		i_{EZ}	39 03					h = 50 km
		(i)PP_{ZE}	41 36					
		$iPPP_E$	43 13					
		iS_{NE}	48 29					
		iPS_{NE}	49 24					
		$ePPS_E$	50 07					
		(i)SS_E	53 59					
		$iSSS_{EZ}$	57 23					
		iLQ_E	59 35					
		iLR_E	01 05 07					
		M_{NE}	08 30	10	31	10		
		iLg_{1E}	10 44					
		M_{1E}	15	20		190		
		eRg_E	27					
		M_{2E}	19	12		28		
		F	02 40					
15	15	e_{NE}	01 07 39					
		M_{NE}	11	20	18	15		
		F	01 40					

No.	Date	Phase	Time (GMT)	Period	Amplitude μ A_N	A_E	A_Z	Remarks
16	Mar. 20	(i)P_N	01 49 11					51°N 173°W (USCGS)
		iPcP_Z	46					Δ = 7750 km
		ePP_N	51 47					
		iS_{NE}	58 (19)					
		iPPS_E	59 04					
		eLQ_{NE}	02 06 29					
		iLR_{NE}	11 07					
		F	03					
17	22	e_N	10 31 27					
		eLQ_N	38 55					
		eLR_N	43 (22)					
		F						In next shock
18	22	$e_{(N)E}$	11 26					
		eLg_{1N}	31 48					
		Lg_2	33 27					
		F	12 20					
19	28	iP_Z	12 14 40					37°N 71°E (USCGS)
		$(i)_Z$	16 53					Microseismic agit.
		(eS_N)	21 50					Weak
		iSS_N	24 41					Compression
		eLQ_N	27 40					
		F	12 50					
20	Apr. 3	eS_E	02 32 12					
		e(Lg_{2NE})	35					
		M_N	40 30	12	6			
		F	03					
21	7	iP_{NZ}	15 39 54					66½°N 157°W (USCGS)
		i_Z	40 01					Δ = 5930 km
		ePP_Z	41 53					Dilatation
		e_{1N}	42 55					
		iS_E	47 30					
		iPS_N	39					
		e_{2N}	48 30					
		iScS_{NE}	49 34					
		iSS_E	51 03					
		iLQ_{NE}	53 19					
		eLR_N	55 35					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(21)	Apr. 7 (cont.)	M_{NE}	15	58		24	120	220		
		M_{1N}	16	06		18	91			
		M_{2N}		39		16	39			
		F								In next shock
22	7	iP_{NZ}	18	16	42					$38\frac{1}{2}^{\circ}$N 143°E (USCGS)
		(i)PcP_{NZ}			56					Compression
		e_N		27	25					
		eLQ_N		35	50					
		eLR_N		42	14					
		eLg_{2N}		44	14					
		M_{1N}		48	30	20	52			
		M_{2N}		52		16	39			
		F								In next shock
23	7	iP_Z	19	22	41					45°N 98°E (USCGS)
		i_Z			51					Δ = 5960 km
		$eS_{N(E)}$		30	30					Dilatation
		eLQ_N		36	25					
		eLR_E		38	46					
		eLg_{1NE}		41	16					
		M_{1N}		44		14	165			
		M_{2N}		46	30	12	84			
		M_E		47		10		20		
		M_{3N}		48		10	58			
		F	21							
24	11	eL_N	01	33	20					
		F	02	20						
25	11	iP_{NE}	23	22	25					48°N $152\frac{1}{2}^{\circ}$E (USCGS)
		iP_Z			27					Δ ~ 7650 km
		iS_E		31	20					Compression
		e_N			24					Weak
		eLQ_E		39	42					
		F	24	20						
26	12	eS_N	12	09	10					
		eL_N		21	13					
		M_N		34		16	5			
		F	13	20						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
27	Apr. 12	e_N	14	08	57					
		F	14	30						
28	13	eP_{NZ}	12	39	52					53°N 161°E (USCGS)
		iS_{NE}		48	(39)					Δ = 7330 km
		eLQ_N		56	45					Compression
		eLR_N		59	51					
		M_N	13	10		20	18			
		M		17		16	22	14	43	
		F	14	10						
29	23	e_N	03	39	47					Microseismic agit.
		F	04	20						
30	28	e_N	12	37	01					
		F	13	20						
31	30	eS_N	14	18	42					37,8°N 14.2°W(USCGS)
		e_{NE}		20	17					Microseismic agit.
		M_N		23		18	8			
		M_E		25	30	16		7		
		F	14	40						
32	May 3	e_N	20	25	(44)					
		eLg_N		32	45					
		F	20	50						
33	19	iPn	23	16	15					
		iPg			17					Δ ~ 210 km
		iSn			38					Not felt in Norway
		iSg			42					
		i_Z			45					
34	31	(i)PKP_Z	19	51	55					15°S 169°E (USCGS)
		e_Z		54	30					
		i_{NZ}		55	26					
		i_N		56	(57)					
		eLQ_N		32						
		M_N		49		24	15			
		M_Z	21	00	30	22			29	
		F	21	50						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
35	June 4	e_N	15	09	02					
		F	15	40						
36	6	eP_Z	09	23	50					8°N 85°W (USCGS)
		eS_N		34	07					Weak
		e_N		39	14					
		eLQ_N		45	32					
		M_N	10	00		20	10			
		F	10	40						
37	12	e_{1N}	21	13	29					
		e_{2N}		24	39					
		F	22	30						
38	18	e_N	01	17	47					
		M_N		27		12	3			
		F	01	45						
39	23	e_N	05	32	48					
		F	06	10						
40	24	e_N	05	10	38					
		F	05	30						
41	25	e_N	10	15	03					3°S 144½°E (USCGS)
		eL_N		23	03					
		M_{1N}		37	30	24	33			
		M_{2N}		40		20	18			
		M_{3N}		47		20	22			
		F	12							
42	July 10	P_{NEZ}	06	25	52					58½°N 136°W (USCGS)
		iPP_{NZ}		28	13					Δ = 6525 km
		i_Z			39					
		$iPPP_{NEZ}$		29	26					
		iS_{NE}		33	52					
		iPS_{NE}		34	09					
		iSS_N		37	39					
		$iSSS_N$		40	07					
		LR_{EZ}		43	(55)					
		M_{NE}		49	30	22	480	200		

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(42)	July 10 (cont.)	M_1	06	50	30	20	470	200	160	
		M_2		52		18	240	140	110	
		F	08	30						
43	17	eP_{NZ}	05	42	12					$40\frac{1}{2}^{\circ}$N 23°E (USCGS)
		eS_N		46	13					
		e_N		51	19					
		M_N		52	30	13	3			
		F	06	10						
44	19	e_N	18	48	00					0° $129\frac{1}{2}^{\circ}$E (USCGS)
		eLQ_N	19	(00)						
		eLR_N		05	18					
		M_N		15	30	22	12			
		F	20							
45	23	eS_N	10	49	58					31°N 142°E (USCGS)
		eL_N	11	08	19					
		F	11	50						
46	26	iP_Z	17	49	27					$13\frac{1}{2}^{\circ}$S 69°W (USCGS)
		$i_{(E)Z}$			34					$\Delta \sim 10650$ km
		i_Z		50	01					h = 600 km.
		ipP_Z		51	42					Compression
		e_{1N}			58					
		ePP_Z		53	20					
		$e(pPP)_{NZ}$		55	18					
		$eSKS_{NE}$		59	08					
		eS_{NE}			57					
		ePS_E	18	02	33					
		isS_{NEZ}		04	00					
		iSS_N		06	42					
		i_N		12	13					
		e_{2N}		16	35					
		F	19	20						
47	Aug. 6	iPn_{NEZ}	17	16	27					Felt in greater part of southern Norway. Epicentre probably $59\frac{1}{2}^{\circ}$N $5\frac{1}{2}^{\circ}$E
		iSg_{NEZ}			38					
		i_{EZ}		17	32					Δ ca. 100 km.
		F	17	20						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
48	Aug. 12	e_N	20	13	50					
		M_N		27	30	20	5			
		F	20	50						
49	13	e_N	07	53	10					
		F	08	10						
50	14	e_N	11	42	48					
		F	12	10						
51	14	e_N	15	20	10					
		F	16	10						
52	15	iP_N	20	06	21					53°N 160½°E (USCGS)
		PcP_N			48					Δ = 7325 km
		eS_N		14	54					
		e_N		16	43					
		eL_N		27	36					
		M_N		39		20	7			
		F	21	20						
53	15	P_Z	22	42	56					1½°N 125°E (USCGS)
		e_Z		48	21					Δ ~ 11550 km
		eS_N		54	35					Compression
		i_N		55	50					
		$PKKS_N$	23	03	00					
		e_N		10	59					
		eLQ_N		13	59					
		M_{NE}		23		20	43	31		
		F	24							
54	16	iP_{NEZ}	19	21	04					34½°N 48°E (USCGS)
		eS_{NE}		26	51					Δ = 4200 km
		SS_{NE}		29	29					Dilatation
		eLR_N		31	57					
		iLg_{2NE}		35	12					
		M		37		20	35	19	11	
		F	20	40						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
55	Aug. 29	Pg_{NEZ}	15	14	57					Δ ca. 200 km
		i_{NEZ}		15	09					Not felt in Norway
		Sg_{NEZ}			21					
		F	15	16						
56	Sept. 3	(i)P_Z	03	54	53					0° 18°W (USCGS)
		eS_{NE}	04	03	17					Δ ~ 7050 km
		eSS_N		07	40					Dilatation
		LQ_N		10	03					
		Lg_N		18	37					
		F	05							
57	3	eL_N	08	48	08					40½°N 143°E(USCGS)
		M_N		52	30	20	8			
		F	09	40						
58	4	e_{1N}	22	19	(04)					33½°S 69½°W(USCGS)
		e_{2N}		41	28					
		F	24							
59	14	P_Z	14	30	57					56½°N 120½°E(USCGS)
		eS_E		38	01					Δ ~ 5900 km
		eLg_{1NE}		49	34					
		M_{NE}		51		5	11	10		
		iRg_{NE}		53	46					
		F	15	30						
60	25	LQ_{NE}	07	46	50					
		M_E		50		20		19		
		F	08	10						
61	Oct. 22	eL_N	08	33	45					Nuclear explosion
		F	08	45						
62	28	e_N	11	11	00					
		eL_N		16	15					
		M_N		22	30	18	25			
		F	11	50						
63	29	e_Z	08	34	00					N and E out of work
		F	09							08.00 - 12.30

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
64	Nov. 1	eL_N	04	37						
		F	05	10						
65	6	iP_{NEZ}	23	09	25					44½°N 148½°E(USCGS)
		i_{1Z}			50					Δ = 7880 km
		i_{2Z}		10	06					Compression
		i_{3Z}			16					
		i_{4Z}		11	26					
		$(i)_Z$		13	17					
		$iPPP_N$			50					
		iS_N		18	35					
		$i(PS)_N$		19	28					
		iSS_N		23	07					
		i_N		27	29					
		iLQ_{NE}		28	11					
		M_{1NE}		39	30	21	2250	3930		
		M_{2NE}		40	30	21	3220	3600		
		M		44	30	21	3010	2650	3530	
		F	04	30						
66	12	iP_Z	20	34	52					44½°N 148½°E(USCGS)
		e_Z		35	22					Δ ~ 7900 km
		S_N		44	10					Compression
		e_N		48	50					
		eL_{NE}		51	55					
		M	21	05		24	170	250	88	
		M_{1NE}		06	30	20	78	93		
		M_{2NE}		09	30	20	92	95		
		F	22	20						
67	Dec. 21	$e(SS)_E$	06	05	06					44½°N 81°E (USCGS)
		M_N		11	30	12	49			Strong microseismic
		M_E		14	30	8		45		agit.
		M_Z		15	30	4			12	
		F	06	50						
68	25	eL_N	09	12	45					
		F	09	35						
69	28	e_N	06	02						
		F	06	25						

SEISMOLOGICAL BULLETIN 1959

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.= 20.5m.

Constants:

Instrument		Weight	V	T_o	ξ :1	r/T_o^2
Wiechert Z	Jan.1 - Apr.17	1300kg	290	3.3	3.2	0.058
	Apr.18 - Dec.31		320	3.6	2.2	0.075
-"- N-S	Jan.1 - Apr.17	1000kg	118	8.6	3.0	
	Apr.18 - Dec.31		140	9.8	2.8	0.025
-"- E-W	Jan.1 - Apr.17	1000kg	108	8.5	0.7	
	Apr.17 - Dec.31		200	8.2	2.4	0.038

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
1	Jan. 22	P_{NEZ}	05	22	17					34°N 142°E (USCGS)
		i_Z			30					Δ ~ 8500 km
		S_{NE}		31	59					Compression
		e_{NE}		40	17					
		eL_E		45	09					
		M_{1NE}		53	30	24	176	144		
		M_E		59		16		147		
		M_{2NE}			30	16	148	86		
		F	07	20						
2	24	eS_N	20	06	19					37½°N 24½°W (USCGS)
		eSS_E		07	44					
		eL_E		10	05					
		F	20	50						
3	29	iP_{NZ}	23	27	05					70°54'N 7°50'E
		i_{NZ}		28	50					
4	30	e_N	22	51						
		F	23	30						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
5	Feb. 7	P_{EZ}	09	50	02					4°S 81½°W (USCGS)
		iPP_{EZ}		53	44					Δ = 10250 km
		$eSKS_E$	10	00	30					
		iS_{NE}		01	00					
		ePS_Z		02	03					
		e_E		06	14					
		eL_E		17	57					
		M_E		26	30	24		113		
		F	12	30						
6	Mar. 1	SS_E	17	23	04					½°S 134½°E (USCGS)
		LQ_N		34	04					
		LR_N		38	39					
		M_{1NE}		46		22	55	53		
		M_{2NE}		56	30	20	33	12		
		F	18	30						
7	18	e_E	01	24	40					
		F	01	50						
8	Apr. 1	eL_N	00	51	15					27½°N 21°W (USCGS)
		M_N		53	30	18	6			
		F	01	20						
9	5	e_N	10	55	50					44°N 7°E (USCGS)
		F	11	10						
10	6	e_N	15	14	40					10°S 120½°E (USCGS)
		F	15	30						
11	15	e_{NE}	00	55	30					
		F	01	10						
12	24	$iPKP_Z$	18	17	54					31°S 178°W (USCGS)
		F	20	10						
13	25	$eS_{(N)E}$	00	37	10					37°N 28½°E (USCGS)
		eL_E		40	44					
		F	01	10						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
14	Apr. 26	iP_{NEZ}	20	52	41					25°N 122½°E(USCGS)
		ipP_{NEZ}		53	(16)					Δ ~ 9000 km
		ePP_E		55	53					h = 145 km
		$(i)_{NE}$		59	39					Compression
		e_E	21	02	16					
		S_{NE}			38					
		$i(PS)_{NE}$		03	32					
		e_{1N}		07	38					
		SS_N		08	04					
		$(i)_N$		11	24					
		e_{2N}		14	10					
		iLR_N		18	03					
		M		26		20	207	113	208	
		M_N		30		12	32			
		M_{NE}		32	30	12	25	37		
		F	22	20						
15	28	eP_E	11	21	50					15°N 93°W (USCGS)
		eS_E		31	57					
		$iSKS_E$		32	09					
		eL_E		51	40					
		F	12	30						
16	May 4	P_{NEZ}	07	26	21					51½°N 159½°E(USCGS)
		ipP_{NEZ}			36					Δ ~ 7300 km
		$iPcP_Z$		27	01					h = 60 km
		i_Z		30	46					
		iS_{NE}		34	56					
		iSS_N		39	23					
		iLQ_{NE}		42	28					
		LR_N		45	15					
		M_{1NE}		47	30	50	1929	925		
		L		48	31					
		M_{1N}		49	30	36	643			
		M_{2N}		54		24	261			
		M_E		57		20		210		
		M_{2NE}	08	01	30	14	69	71		
		F	11							
17	5	eL_N	19	37	20					53°N 159°E (USCGS)
		F	20	20						

No.	Date	Phase	Time (GMT) h. m. s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
18	May 12	$e(P)_Z$	05 08 25					54½°N 168°E (USCGS)
		i_Z	34					
		$eS_{N(E)}$	16 51					
		eL_{NE}	28 15					
		F	06 40					
	12							Out of work from 10^h00^m - 11^h41^m
19	14	P_Z	06 42 52					35½°N 24½°E (USCGS)
		eS_N	47 32					Δ = 3100 km
		e_{NE}	45					
		iLg_{NE}	52 (15)					
		M_N	56	10	5			
		F						Out of work
20	20	e_E	20 04 15					41½°N 42°E (USCGS)
		F	20 20					
21	24	iP_{EZ}	19 29 50					17½°N 97°W (USCGS)
		pP_{EZ}	30 (15)					Δ = 9100 km
		e_E	33 15					h ~ 100 km
		iS_E	39 56					Dilatation
		iSS_E	45 (15)					
		eL_E	57 45					
		F	21					
22	June 2	e_E	03 21 15					
		F	03 50					
23	2	eL_{NE}	05 39 20					
		M_{NE}	44	26	31	27		
		F	06 30					
24	14	eP_Z	00 25 40					20½°S 68°W (USCGS)
		iPP_{EZ}	29 44					Δ = 11100 km
		$(i)pPP_{EZ}$	30 12					h ~ 100 km
		$iSKS_E$	36 07					Compression
		iS_{NE}	37 02					
		$(i)_E$	39 18					
		i_E	40 11					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(24)	June 14	eSS_E	00	43	43					
		e_{1N}		44	34					
		e_{NE}		49	17					
		e_{2N}		52	20					
		LQ_N		55	40					
		LR_E		59	20					
		F	01	50						
25	18	eS_N	15	50	39					54°N 160°E (USCGS)
		eL_N	16	04	25					Two earthquakes
		M_N		11		18	39			Microseismic agit.
		M_{NE}		14	30	14	22	28		
		F	17	20						
26	27	eP_{NE}	19	36	22					Near south coast of
		eS_N		38	46					Iceland
		F	19	50						
27	July 3	e_N	19	01	20					16°S 172½°E (USCGS)
		F	19	20						
28	18	P_{EZ}	20	07	37					15½°N 120½°E(USCGS)
		$eSKS_N$		17	52					Δ ~ 9800 km
		iS_N		18	06					
		PS_E			57					
		L_N		32	55					
		eLR_{NE}		35	48					
		F	21	15						
29	19	ePP_Z	15	22	57					15°S 70½°W (USCGS)
		$eSKS_E$		29	34					
		eS_E		30	20					
		eSS_E		37	04					
		eLQ_E		45	31					
		eL_N		48	04					
		F	16	25						
30	23	e_N	01	13						
		F	01	35						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
31	July 24	e_N	01	56	25					
		F	02	20						
32	26	e_N	17	20	12					
		F	17	30						
33	Aug. 12	eL_N	11	02						16½°S 177½°W(USCGS)
		F	11	35						
34	15	$P_{(NE)Z}$	09	09	29					23°N 121°E (USCGS)
		ePP_Z		12	39					Δ ~ 9200 km
		S_{NE}		19	46					
		eSS_{NE}		25	13					
		e_E		28	42					
		$L(R)_N$		34	45					
		M_{NE}		45		19	388	291		
		F	10	40						
35	17	e_E	01	41	03					42½°N 20½°E (USCGS)
		L_E		44	38					
		F	02	05						
36	17	$ePKS_E$	21	32	15					7½°S 156°E (USCGS)
		eSS_E		41	50					
		eL_E		57	46					
		F	23	10						
37	18	eP_E	06	47	44					44½°N 111°W (USCGS)
		i_{1E}		51	43					Δ ~ 7000 km
		$(i)_E$		55	41					
		iS_{NE}		56	25					
		i_{2E}		57	12					
		SS_N	07	00	19					
		eLR_N		06	17					
		M_{1NE}		16		16	286	270		
		M_{2NE}		21		14	127	151		
		F	10							
38	18	eS_{NE}	15	44	56					44½°N 111°W (USCGS)
		L_N		57	18					
		F	16	25						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
39	Aug. 24	ePP_N	21	52	17					$10\frac{1}{2}^{\circ}$S 161°E (USCGS)
		eSS_N	22	09	15					
		eL_{NE}		32	58					
		F	23	20						
40	26	$ePPS_N$	08	47	40					18°N $94\frac{1}{2}^{\circ}$W (USCGS)
		eL_N		58	23					
		F	09	25						
41	26	eS_N	10	46	56					51°N 132°W (USCGS)
		$e(LQ)_N$		54	01					
		eL_N	11	00	00					
		F	11	25						
42	29	eP_Z	17	12	20					52°N $106\frac{1}{2}^{\circ}$E (USCGS)
		eS_E		19	32					
		eSS_{NE}		23	11					
		M_E		39	30	9		10		
		M_N		40	30	8	13			
		F	18	30						
43	Sept. 1	eP_{NZ}	11	42	33					$41\frac{1}{2}^{\circ}$N 20°E (USCGS)
		eS_E		46	30					
		eL_{NE}		48	59					
		M_N		53		12	20			
		F	12	20						
44	12	eL_N	02	42	00					3°S $146\frac{1}{2}^{\circ}$E (USCGS)
		F	03	10						
45	14	PKP_Z	14	29	25					$28\frac{1}{2}^{\circ}$S 177°W (USCGS)
		$ePKS_N$		33	17					
		e_{1N}		43	49					
		e_{2N}		46	20					
		$eSKSSKS_N$		51	59					
		$ePKPSKS_N$		53	49					
		eL_N	15	20	23					
		M_N		38		21	40			
		M_E		43		17		25		
		F	17	10						

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
46	Sept.15	ePKP$_Z$	06	19	32					28½°S 177°W(USCGS)
		ePKS$_N$		22	47					
		e$_N$		23	43					
		eL$_N$	07	07	20					
		F	08	25						
47	25	eP$_Z$	02	49	18					22°N 122°E (USCGS)
		eS or SKS$_E$		59	33					
		e(PS)$_E$	03	00	35					
		eL$_N$		18	30					
		M$_{1NE}$		22		25	59	42		
		M$_{2NE}$		30		16	24	15		
		F	04	10						
48	Oct. 7	eP$_{NZ}$	08	35	30					41°N 20°E (USCGS)
		eS$_N$		39	32					
		eL$_N$		42	43					
		F	09							
49	15	ePP$_E$	06	33	45					½°N 120½°E (USCGS)
		e(SKS)$_E$		39	49					
		e$_E$		49	33					
		eLR$_N$	07	04	22					
		F	08							
50	25	e$_N$	00	00	45					41½°N 70°E (USCGS)
		M$_N$		03	30	7	16			Microseismic agit.
		F	00	25						
51	27	e$_E$	07	12	06					45½°N 151°E (USCGS)
		F	08	15						Microseismic agit.
52	Nov. 8	eLg$_N$	14	31	06					44°N 140½°E (USCGS)
		M$_{NE}$		35		18	21	24		Microseismic agit.
		F	15	05						
53	15	iP$_{NEZ}$	17	14	05					37½°N 20½°E (USCGS)
		i$_Z$			29					Δ = 2780 km
		iPPP$_Z$			52					Compression
		iS$_E$		18	24					Microseismic agit.

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(53)	Nov.15 (cont.)	i_N	17	24	54					
		i_{NE}		25	51					
		i_E		26	51					
		F	18	20						
54	19	eLQ_N	11	57	55					$5\frac{1}{2}^{\circ}$S 146°E (USCGS)
		F	12	30						
55	26	e_N	23	48	55					$5\frac{1}{2}^{\circ}$S 103°E (USCGS)
		eL_N		59	00					
		M_N	24	07		24	32			
		F	24	30						
56	30	eL_N	11	35	20					$44\frac{1}{2}^{\circ}$N $80\frac{1}{2}^{\circ}$E (USCGS)
		F	11	45						Microseismic agit.
57	Dec. 2	eL_N	10	26	28					1°S 123°E (USCGS)
		F	11							
58	8	eL_N	13	49	06					42°N $44\frac{1}{2}^{\circ}$E (USCGS)
		F	14							
59	14	ePS_N	23	52	34					$59\frac{1}{2}^{\circ}$S 31°W (USCGS)
		SS_N		59	09					Microseismic agit.
	15	e_N	00	04	29					
		eLQ_{NE}		13	00					
		M_E		29		19		22		
		M_N		32	30	19	33			
		F	01	15						
60	21	$ePS_{N(E)}$	11	37	11					14°N 52°E (USCGS)
		SS_{NE}		40	56					Microseismic agit.
		eL_E		48	35					
		M_{1N}		57		20	54			
		M_E		58		19		33		
		M_{2N}	12	01	30	12	13			
		F	12	25						
1	27	eS_{NE}	16	11	55					56°N $162\frac{1}{2}^{\circ}$E (USCGS)
		$e(SS)_N$		16	25					Microseismic agit.
		eLQ_E		19	04					
		eLR_N		22	55					

No.	Date	Phase	Time (GMT) h.	m.	s.	Period	Amplitude μ A_N	A_E	A_Z	Remarks
(61)	Dec. 27 (cont.)	M_E	16	33		17		16		
		M_N		37	30	17	16			
		F	17	20						
62	28	eLg_{2N}	07	56	40					$52\frac{1}{2}^{o}$N 160°E (USCGS)
		M_N	08	08		16	14			Microseismic agit.
		F	08	40						