

UNIVERSITETET I BERGEN
JORDSKJELVSTASJONEN
(SEISMIC OBSERVATORY)

SEISMIC BULLETIN
1945 - 1947

BY
ANDERS KVALE

Bergen, Norway, 1954.

S E I S M I C B U L L E T I N

Bergen 1945-47

By

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Bergen, Norway

December 1954

SEISMIC BULLETIN 1945

Registrations at the Seismic Observatory of Bergens Museum, Norway.
(From August 30, 1948: The University in Bergen).

The registrations of the Seismic Observatory (Jordskjelvstasjonen) at Bergen were included in the publication "Jordskjelv i Norge" (Earthquakes in Norway) from 1905, when the station was founded, till 1914. The bulletins for the years 1915 - 1937 were published separately. For the years 1938 - 1944 the bulletin was again included in "Jordskjelv i Norge".

Beginning with the year 1945 the two publications will again be issued separately. "Jordskjelv i Norge 1945-1947 (English Summary)" may be obtained on request by those who receive the Seismic Bulletin.

M. SELLEVOLL has assisted in the study of the seismograms.

Date	Time (Year)	h.	m.	s.	Remarks
Bergen,	January 13,	22	56	00	
		02	29	20	
			40		
		18	50	21	
				27	
		19	00	19	
			09	00	
			14	30	
			26	00	
		20	20		
		14	21	00	
			30		
		21	52	20	
		22	20		

Anders Kvale,
Director.

35°N 139°E (URSS)
Δ = 8800 km

Microseismic
agitation

SEISMIC BULLETIN 1945
Registrations at the Seismic Observatory of Bergens Museum, Norway.
 (From August 30, 1948: The University in Bergen).

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

Instrument	Weight	V	T_0	$\epsilon : 1$	r/T_0^2
Wiechert Z January-December	1300kg	352	4	2.58	0.0937
" N-S January-December	1000kg	170	9.1	1.825	0.0350
" E-W January-December	1000kg	80.5	10.8	3.08	0.0137

No.	Date	Phase	Time (GMT)	Period	Amplitude μ			Remarks
					A_N	A_E	A_Z	
1	Jan. 8	e	h. m. s. 22 56 00	18	10	25	16	
		F	23 00 00					
2	11	e	02 29 20	17	11	8	16	
		F	07 40					
3	12	P	18 50 21	14	9	17	15	35°N 139°E (URSS) $\Delta = 8800$ km
		i _Z	19 00 27					
		S	19 00 19					
		e	19 09 00					
		eL	14 30					
		M	26 00					
4	16	F	20 20	14	9	17	15	Microseismic agitation
		e	14 21 00					
5	29	e	21 52 20	14	9	17	15	
		F	22 20					

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No.	Date	Phase	Time (GMT)	Period	Amplitude μ			Remarks
					A _N	A _E	A _Z	
			h. m. s.					
6	Febr. 1	e	11 45 00					
		F	12 00 00	20		26		
7	1	e	12 35 00	16	20			
		e _Z	50 00	17	10			
		e _L	13 23 00	17		29	25	
		F	14 00 00					
8	10	i _P	05 09 22				41°N 142°E (URSS)	
		i _Z	36 36				Microseismic agitation $\Delta = 8050$ km	
		PP	12 21	(22)				
		PPP	23 13 48					
		S	24 18 46					
		SS	23 24					
	March	L	10 30 10				Microseismic agitation	
		M _{1N}	36 30	30	69			
		M _{2N}	41 30	12	4			
		M _E	11 43 00	18		25		
		M _{3N}	21 47 00	14	10			
		M _{EZ}	48 40	12		8	16	
		M _{4N}	59 30	17	11		37°N 142°E (URSS) $\Delta = 8350$ km	
		F	07 00 14					
9	11	e	21 47 00					
		F	22 00 30	18	18	19	39	
		e _Z	28 30	15		8	18	
10	13	e _Z	11 37 00					
		e _N	43 20					
	18	F	00 50 14				5°N 80°E (URSS) $\Delta = 9700$ km	
		e _S	20 26					
		e _L	37 20					
		F	01 00					

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
11	Febr 18	e _N	10	28	55					
		e _L	23	43	10					
		M _E		50	00	20		26		
		M _{1N}		51	00	16	20			
		M _{2N}		55	30	17	10			
		M _{EZ}		56	00	17		29	25	37°N 36°E (URSS)
		F	11	40						Microseismic agitation
12	26	iP	22	27	13					24°N 142°5 E (URSS)
		e		38	08					Microseismic agitation
		eL _E		57	00					
		M _E	23	05	00	(22)				
		F	24	00						
13	March 2	eL _N	10	51	45					Microseismic agitation
		eL _E		54	00					
		M _N		56	30					
		F	11	20						
14	11	P _Z	21	49	40					37°N 142°5 E (URSS)
		eS _N		59	19					$\Delta = 8350$ km
		eS _E			27					
		eSS _N	22	04	14					
		eL		14	(10)					
		M		26	30	18	18	19	39	40°5N 145°E (URSS)
15	18	M _{EZ}		28	30	15		8	18	$\Delta = 7600$ km
		F	23	10						Microseismic agitation
		eP _Z	00	10	14					5°N 80°E (URSS)
		eS		20	26				$\Delta = 9700$ km	
		eL _E		37	20					
		F	01	00						

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
March			h.	m.	s.					
16	18	e _E	23	26	15				55°N 160°E (URSS)	
		e _N		27	00				$\Delta = 6800$ km	
		F		40	00				Microseismic agitation	
17	20	i _Z	08	05	27				37°N 36°E (URSS)	
		e _{S_N}		10	14				Microseismic agitation	
		e _N		11	45					
		e _E		09	51	25	29	32	40	
		e _L		14	35	18	22	26		
		M _{1N}		17	00	21	19	9	10	
		M _{2N}		18	30	16	15		25	
		M _{EZ}		20	00	16	9	16	21	
				28		10			7	
18	23	e _Z	23	45	59	15	18			
		e _{1E}		59	24	10	3			
	24	e _{2E}	00	00	45	13	10			
		e _N		05	57	15	9			
		L		28	30	11	2			
		M _N		05	53	18	6			
		M _{1E}			54	22		16		
		M _{2E}		20	58	19		26		
		F		01	30				Microseismic agitation	
April										
19	10	e _{P_Z}	01	33	30				40°5N 145°E (URSS)	
		S _N		42	30				agitation $\Delta = 7600$ km	
		L _N	02	02	20				Microseismic agitation	
		F		14	20				agitation. Weak.	
				15						
20	10	e	16	57	35				Microseismic agitation	
		F		17	20					
					30					
		e _{L_{NE}}		23	44					
		F		24					$\Delta = 7600$ km	

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
	April		h.	m.	s.					
21	15	P _{ZN}	02	45	41				55°N 160°E (URSS) $\Delta = 6800$ km	
		S _N		53	58				Microseismic agitation	
		S _E		54	(00)					
		e _N		55	46					
		e _{SS}		57	59					
		e _E	03	00	50					
		L _N		03	05					
		M ₁		09		25	29	32		40
		M _{NE}		17		18	22	26		
		M ₂		19		11	2.5	9		10
		M _{1Z}		20	30	14				25
		M ₃		22	30	13	9	16		23
		M _{2Z}		28		10				7
		M _{1N}		30	00	15	18			
		M _{2N}		32	30	10	3			
		M _{3N}		33	30	13	10			
		M _{4N}		37	00	15	9			
		M _{5N}		43	30	11	2			
	June 3	F	05	18	08					
22	15	e	20	33					Microseismic agitation	
		F	21							
23	18	e _{NE}	14	09					Microseismic agitation	
		F		40						
24	19	e _N	14	27					Microseismic agitation. Weak.	
		F	15							
25	19	e _{NE}	18	10	16				Microseismic agitation	
		e _Z		14						
		F		30						
26	May 1	e _{LNE}	23	44						
		F	24							

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
27	May 9	eP _Z	03	40	29				8°5S 121°5 E (URSS) h = 540 km Δ = 11 750 km	
		e ₁ E		42	(00)					
		eS _E	02	52	16					
		e ₂ E	58	07						
		e _{NE}	04	02						
		L _E	09	17	(00)					
		F		40						
28	11	e _{NE}	22	31					45°N 154°E (URSS) Δ = 7750 km	
		F	17	50	20					
29	19	P _Z	15	18	34				38°5N 128°5W (URSS) Δ = 7600 km	
		eS _{NE}	18	27	39					
		SS _N	19	32	37				Microseismic agitation	
		L _{NE}		36						
		M _{NE}	09	49	51	22	12	-		44°N 149°E (URSS)
		M _N		55	00	14	2			Δ = 7750 km
		F	16	30						
30	June 3	e ₁ Z	13	18	08				30°N 72°5E (URSS) Δ = 5900 km	
		e ₂ Z		28	20					
		F	14	30	33					
31	4	P _Z	12	18	35				31°N 29°8 E (URSS) Δ = 6200 km	
		PP		20	55					
		eS _N		26	25					
		L		36		15	23			
		M _{1N}		40	30	9	4			
		M _{2N}		41	30	9	4			
		F	13	10	30	9	3	21	28	
32	6	e _{NE}	07	07	22					
		eL _{NE}		08	30					
		F		40						

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
	June		h.	m.	s.					
33	20	eP _N	01	35	04				44°5N 155°E (URSS)	
		eS _N		44	02				$\Delta = 7600$ km	
		eL _E	02	01	20	17	18	-		
		F		30		13	3	5		
				59		19	10	3		
34	20	e _E	09	28	(00)					
		eL		56						
	30	F	11	44	17				17°5N 117°5W (URSS)	
				50	36				$\Delta = 10000$ km	
35	20	P _Z	17	46	20				45°N 154°E (URSS)	
		i _Z	06	01	22				$\Delta = 7750$ km	
		S _E		55	28					
		eL	18	07		10		7		
		F	19	30		12	1			
				07						
36	20	iP _Z	09	29	51				44°N 149°E (URSS)	
	11	eS _Z	00	39	00				$\Delta = 7750$ km	
		F	10	30	50					
				01	10					
37	22	P _Z	18	10	(00)				30°N 72°5E (URSS)	
	15	i _Z		05	48				$\Delta = 5900$ km	
		S _N		17	33				$\Delta = 10400$ km	
		S _E		19	37					
		e _{NE}		19	58					
		SS _{NE}		21	30					
		L _{NE}		25	50					
		M _{1N}		30		15	23			
		M _{2N}		31		9	9			
		M _{3N}		32	30	9	5			
		M		33	30	9	3	21	28	
		M _{4N}		34	30	9	2.5			
		F	19	30						
				51		19		17		
				05	40					

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks	
							A _N	A _E	A _Z		
			h.	m.	s.						
38	June 27	e _{NE}	13	30	24					25°N 124°E (URSS) Δ = 9000 km	
		L	22	43	32						
		M _{NZ}	55	53		17	18	-			
		M ₁	58	37		13	3	5	-		
		M ₂	59			19	10	3	-		
39	June 30	F	15	08	30	18	9				
		P _Z	05	44	17	14		11		17°5N 117°5W (URSS) Δ ~ 10 000 km	
		e _{1NE}	50	36		11					
		S _{NE}	01	55	(00)						
		e _{2NE}	06	01	(00)						
		L	18	08	39						
		M _E	28	50		10		7			
M _N	30	30		12	1						
40	July 11	F	19	30							
		e _Z	00	40	56						
		e _E	21	48	50						
41	July 15	F	01	10	08						
		P _{NZ}	05	48	28					4°5N 95°E (URSS) Δ = 10 400 km	
		e _N	22	52	(00)						
		S	59	27							
		SS _N	06	06	02						
		e _E	55	30							
		L	17	03							
F	07	15	30								
42	July 23	F	15	01	(00)						
		e _E	04	12	07						
		e _{2E}	18	04							
		e _{3E}	19	48							
		L _E	22	28	47						
		M _E	23	51	0	19		17			
F	05	40									

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
43	Aug. 1	eP _Z	22	35	32				25°N 124°E (URSS) Δ = 9000 km	
		ePP _E		38	53					
		eS		45	37					
		L _N	23	02	15					
		M _{1N}		08	30	18	9			
		M _{2N}		14		14	3			
		M _E	22	15		14		11		
		M _{3N}	23	16		11	1			
	2	F	01							
	11		00	55	56				Weak	
44	2	P _{EZ}	18	04	39				21°5'N 123°E (URSS) Δ = 10 100 km	
		i _Z		30	50					
		S _{NE}		15	30					
		L _{NE}	12	33	25					
		F	19	30	27					
45	2	e _Z	21	07	58	20	10	7	16°58'N 167°5'E (URSS) Δ ~ 14 500 km	
		e _{1E}		12	08	14	14			
		e _{2E}		14	34	12		15		
		e _{3E}		16	54	12	3			
		F	22							
			21		20	25	30			
46	4	e _{1N}	14	54	35				23°N 144°E (URSS) Δ ~ 9500 km	
		e _{1E}		55	30					
		e _{2N}	21	58	03					
		e _{2E}			30					
		e _{3E}	15	01	(00)					
		e _{3N}		02	50					
		F		30	23					
47	4	e _E	22	53						
		F	23	20						

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11.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
54	Aug. 28	e _{NE}	19	43	00	15	7.5	8.5	5°48' 154°5E (URSS) 3-4 ~ 12 500 km = 13 400 km	
		L _{NE}	20	01						
		M _{NE}	09							
		F	30							
55	29	e _{PZ}	10	37	02	25	16	30	10°S 165°E (URSS) △ = 13 400 km	
		PP _Z	41	52						
		e _Z	43	58						
		PPP _{NZ}	44	32						
		PPP _E		37						
		e	45	15						
		SS _N	58	(00)						
		e _N	11	06	34					
		M _N	56							
		F	13	30						
56	Sept. 1	e _Z	23	04	(00)	20	7.5	13	41°5S 170°E (URSS) △ ~ 16 700 km	
		PKP _E	04	59						
		PKP _Z	05	02						
		ePP _{NZ}	08	43						
		e _{1E}	11	30						
		e _{1N}	19	13						
		e _{2E}		20						
		e _{3E}	22	20						
		e _{4E}	26	19						
		e _{2N}	29	04						
		e _{5E}		18						
		e _{6E}	34	25						
		eL _{NE}	57							
F	02									
57	2	P _{NE}	12	00	06	19	5.5	13	34°N 28°5E (URSS) Very △ ~ 3150 km	
		S _{NE}	05	04	58					
		F	40							

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13.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks	
							A _N	A _E	A _Z		
			h.	m.	s.						
64	Sept. 9	ePP _Z	04	24	57					16°5S 169°E (URSS) 4 ~ 14 500 km	
		PKS _{NE}	05	25	50						
		PKS _Z		43	53						
		PS _E		34	40						
		eSS _N		41	30	15		7			
		L _{NE}	05	07							
		F	06	30							
65	13	e _N	11	56						Weak	
		e _E	12	22	05					Microseismic agitation	
		F	13	46	00						
66	14	L _{NE}	02	27						Weak	
		F	03							Microseismic agitation	
67	19	P _Z	12	39	23					41°5N 143°E (URSS) $\Delta = 7800$ km	
		S _E		48	40						
		eL _{NE}	13	05							
		F		40							
68	22	eL _{NE}	10	02							
		F		40							
69	23	e _{NE}	16	09	55					Strong micro-seismic agitation	
		F		30	35						
70	28	e _{NE}	22	44	45						
		e _N		52	32						
		L _N	23	00	45						
		L _{EZ}		02							
		F		40		20		6			

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14.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
71	Oct. 1	e _Z	05	31	48	15		7	23°5N 121°E (URSS) $\Delta = 8850$ km	
		e _{L_N}		43	30					
		e _{L_E}		46	40					
		M _E		51	30					
		F	06	15						
72	2	e _{NE}	01	09		20		7	Microseismic agitation	
		F		30						
73	7	e _E	13	45	05				Microseismic agitation	
		e _N		46	(00)					
		L _E	14	04						
		F		40						
74	9	i _P	14	48	00				42°N 147°E (URSS) $\Delta = 7900$ km	
		S _{NE}		57	(04)					
75	15	S _N	15	02	10				Microseismic agitation	
		e _N		05	45					
		F	16	00						
76	16	e _{NE}	18	33	37				Microseismic agitation	
		e _Z		34						
		F	19	20						
		e _N	16	26	55					
		e _{1NE}	07	27	35					
77	27	e _{1E}	29	43		20	6		37°5N 45°E (URSS) $\Delta = 3700$ km	
		e _{2NE}	22	30	49					
		e _{2E}		31	35					
		e _{3E}		40	42					
		L _{NE}		54	39					
		M _N		07	16					
		F		30	03					
		S _N		15	45					
78	27	L		19	55				25°N 65°E (URSS) $\Delta \sim 5200$ km	

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15.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
77	Oct. 21	eP	03	33	10				23°5N 121°E (URSS) $\Delta = 8850$ km	
		i _Z			40	22	1670	119		
		e _{NE}		43	10	17	550	294		
		e _E		53	40	26	3250	2250		3360
		L _{NE}	04	02		17	750	490		850
		M _{1N}		06	30	16	4.5			
		M _E		12	13	20		7		
		M _{2N}		13	14	15	5			
		F		50				Microseismic agitation		
78	Dec. 27	e _N	11	42	(00)				6°8 152°E (URSS) Microseismic agitation	
		F	12	10						
79	29	e	11	20						
		F	12							
80	Nov. 3	e _Z	22	19	10				Microseismic agitation	
		e _N		28	50					
		F	23	08		30	25	23		
81	8	e _N	09	13	37				Microseismic agitation	
		F		30		20	26.5			
						20	15	7		
82	20	eP _N	06	34	16				37°5N 45°E (URSS) 47°N $\Delta = 3700$ km $\Delta \sim 1900$ km	
		eS _N	06	39	43					
		F	07	15						
83	27	P _Z	22	06	11				25°N 65°E (URSS) $\Delta \sim 5200$ km	
		i _{1Z}			13					
		i _{2Z}	04	23	32				Microseismic agitation	
		e _Z		07	39					
		ePPP _Z		08	16					
		S _N	05	13	03					
		SS _N		15	45					
L	08	19	55				Microseismic agitation			

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16.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
83	Nov. 27 cont.	M ₁ NZ	22	30	30	22	1670		119	6°S 151°E (URSS) Δ ~ 13 000 km
		M ₂ NZ		33		17	550		294	
		M ₁		34	30	26	3250	2250	3360	
		M ₂		37	20	17	750	490	850	
		F	28	02	30					
84	30	e _Z	12	58					Microseismic agitation	
		F	13	20						
85	Dec. 8	PKP _Z	01	24	16	21	2.5			6°S 152°E (URSS) Δ = 13 000 km
		e _E		29	45	21		13		
		PS _{NE}		33	42	20	11.5	14	28	
		e _Z		35	48					
		SS		41	05					
		e _{NE}		45	28					
		LQ _E		51	08					
		LR _E		57	49					
		M ₁ NZ	02	08	54	30	25		23	
		M		11	39	24	32	19.5	50	
M _E		15	45	20		26.5				
M ₂ NZ		17	12	20	15		7			
86	9	F	03	25	54					
		P _{EZ}	06	12	25				47°N 25°2E (URSS) Δ ~ 1900 km	
		e _{SZ}		15	36					
		e _N		19	18					
F _{6N}		30								
87	20	e _{1N}	04	23	45	29			Microseismic agitation	
		e _{2N}		49		23		27		
		e _{EZ}		52	30	28	85			
		F	05	20	30	23	65	67		9
88	23	L _Z	08	42		22		40	Microseismic agitation	
		F	09	04		21	55	13		

1945

17.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
89	Dec.28 (cont.)	PP _N	05	01	17					6°S 151°5E (URSS) Δ ~ 13 000 km
		SKS _{NE}	19	07	(00)	18		15	33	
		PS _N		10	51	18			44	
		PS _E		38	55	18		17	44	
		e _E	21	14	20					
		SS _N		17	04					
		e _N	19	21	05					
		e _{NE}		22	30					
		L _{NE}		34						
		M _N	02	49		21	12.5			
		M _E		50		21		13		
		M		54		20	11.5	14	28	
		F		07						
90	28	PP _{EZ}	18	09	(00)					12°5S 147°5E (URSS) Δ = 13 300 km Microseismic agitation
		e _{1N}		10	03					
		e _{2N}		12	05					
		SKS _E		14	49					
		SKKS _N		15	54					
		PS _E		18	39					
		e _Z		20	45					
		e _{3N}		21	12					
		e _{1E}		25	54					
		e _{4N}		26	45					
		e _{2E}		30	00					
		e _{5N}		31	22					
		e _{6N}		35						
		L _{NE}		41	15	45				
		M _{1Z}		52	30	29			114	
		M _{1E}		53		23		27		
		M _{1N}		53	30	28	85			
		M		57	30	23	65	67	91	
		M _{2E}	19	01		22		40		
M _{NZ}		02		21	55		138			
M _{2N}		04		20	36					

1945

18.

No.	Date	Phase	Time (GMT)	Period	Amplitude μ			Remarks
					A_N	A_E	A_Z	
			h. m. s.					
90 cont.)	Dec.28	M_{1EZ}	19 09 30	18		15	33	
		M_{2Z}	18	18			44	
		M_{2EZ}	38	18		17	44	
		F	21 30					
91	30	e_{1N}	19 30	300kg	352	4.0	2.53	0.0937
		e_{2N}	28		325	4.0	2.05	0.1000
		L_E	36					
		F	02 30	1000kg	170	9.1	1.85	0.0350
E-W January-November				1000kg	80.5	10.8	3.08	0.0137
November-December					94	10.2	2.7	0.024

No.	Date	Phase	Time (GMT)	Period	Amplitude μ			Remarks
					A_N	A_E	A_Z	
			h. m. s.					
1	Jan. 5	L_{NE}	21 04					Microseismic agitation
		M_N	22	20	14.5			
		F	50					
2	6	e_N	10 48				Microseismic agitation	
		e_E	53					
		F	11 10					
3	11	e_N	01 47				Strong microseismic agitation	
		F	02 10					
4	12	$1P_Z$	20 35 38				60°N 147°W (BCIS) $\Delta = 6500$ km $h = 50$ km	
		P^2_Z	50					
		PP_Z	38 25					
		PPP_{NZ}	39 31					
		S_N	43 42					
		S_Z	50					

SEISMIC BULLETIN 1946

Registrations at the Seismic Observatory of Bergens Museum, Norway.
 (From August 30, 1948: The University in Bergen).

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

Constants:

Instrument	Weight	V	T_0	$\epsilon:1$	r/T_0^2
Wiechert Z January-November	1300kg	352	4.0	2.58	0.0937
" November-December		325	4.0	2.05	0.1000
" N-S January-November	1000kg	170	9.1	1.825	0.0350
" November-December		143	9.5	2.0	0.033
" E-W January-November	1000kg	80.5	10.8	3.08	0.0137
" November-December		94	10.2	2.7	0.024

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A_N	A_E	A_Z	
1	Jan. 5	L _{NE} M _N F	h.	m.	s.	20	14.5		Microseismic agitation	
			21	04						
				22						
				50						
2	6	e _N e _E F	10	48					Microseismic agitation	
				53						
			11	10						
3	11	e _N F	01	47					Strong microseismic agitation = 2800 km	
			02	10						
4	12	iP _Z pP _Z PP _Z PPP _{NZ} S _N S _Z	20	35	38				60°N 147°W (BCIS) $\Delta = 6500$ km h = 50 km Microseismic agitation	
					50					
				38	25					
				39	31					
				43	42					
					50					

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2.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
	Jan.		h.	m.	s.					
4	12	SS _E eL F	20	47	55					Microseismic agitation
				52	30	16	11	10.5		
			21	30						
5	17	e _E F	10	36						38°N 33°E (BCIS) $\Delta = 3300$ km
			11							
6	20	e _N F	11	40	30					
				50						
7	25	eP _Z P _N S _{NZ} S _E	17	35	18					Weak 46°22'N 7°31'E (Zürich) $\Delta = 1380$ km
					21					
				38	16					
					22					
	15 March	M _{NZ} M _N M _{NE} F		42		11	8.5		34	Weak
				43		8	4			
				44	30	7	1.5		3	Weak
			18							
8	26	e _{NE} F	07	15						31°N 53°E (BCIS) $\Delta = 4750$ km
				30						
9	Febr. 9	e _E F	14	21						
				40						
10	12	P _Z eS _Z M _N F	02	48	40					35°8'N 5°E (BCIS) $\Delta = 2800$ km Microseismic agitation
				53	08					
				02	30	13	2.5			
				30						
11	19	e _N L _N F	19	24						
				28						
				50						
			14	03						F in next shock. Microseismic agitation.

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
12	Febr. 20	e _Z M	04	31	20	16	11	10.5	Microseismic agitation	
13	21	e _{P_N} e _{S_N} e _{S_E} L _{NE} F	15	48	28	15	1.5	3	38°N 33°E (BCIS) Δ = 3300 km	
14	28	e _{NE} L _{NE} F	02	46	50				Weak	
15	March 5	e _{NE} F	05	04					Weak	
16	9	e _{NE} F	16	52	38				Weak Microseismic agitation	
17	12	P _{EZ} PP _Z e _{1Z} e _{2Z} S _E L F	02	29	59				31°N 53°E (BCIS) Δ = 4750 km	
18	15	e _E e _Z e _{NE} e _N F	08	06	56				Microseismic agitation	
19	15	e _N	14	03					F in next shock. Microseismic agitation.	

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4.

No.	Date	Phase	Time (GMT)			Period	Apmlitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
20	March 15	e _N	14	09	20					
		L _N		24	46					
		M _N		32	40	20	3			
		M _{NE}		34	36	15	1.5	3		
		F	15		39					
21	16	iP _Z	10	30	28					
		e _{1Z}		53	48					
		e _{2Z}		31	02					
		F		40	20					
22	16	e _{NE}	12	15		22		30		
		e _E		23	30	18	25			
		F		50		18		43		
					30		19	40		
23	26	P _Z	17	22	42	15	15			2°N 110°E (BCIS)
		PP		25	38	17	15			$\Delta = 10\ 300\ km$
		SKKS		33	16	15	12			Microseismic agitation
		PS _N	16	34	20					
		SS _{NE}		40	35					
26	1	LQ _E	17	48	06					53°1N 163°5W (BCIS)
		L _N		53	27					$\Delta \sim 6800\ km$
		M _{1N}	18	03		21	8.5			
		M _{1E}		06		35		5.5		
		M _{2N}	19	07	30	20	6			Microseismic agitation.
		M _{2E}		09	30	20		14.5		Compression.
		M _{3E}		13	44	22		16.5		
		M _{NZ}		14	30	23	19		36	
		M _{4E}		20	27	21		12		
		F	19	22	13					
24	28	e _{NE}	00	03	20					Microseismic agitation
		M _{EZ}	20	07		14		4.5	9	
		F	00	40						

1946

5.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks	
							A _N	A _E	A _Z		
			h.	m.	s.						
25	April 1	eP _N	12	39	32					54°N 164°W (USCGS) $\Delta = 6800$ km Microseismic agitation	
		e _{1N}			46						
		PPP _N		42	40						
		S _E		48	36						
		S _N				39					
		PS _N		49	17						
		e _{2N}		51	23						
		e _{3N}		53	(00)						
		LQ _N		55	30						
		L _N		59	20						
		M _{1N}		13	04		28	119			
		M _{1E}			11		22		30		
		M _{2N}			13	30	18	25			
		M _{2E}			16		18		43		
		M _{3N}				30	19	40			
M _{4N}			23	30	15	15					
M _{5N}			32		17	15					
M _{6N}			40		15	12					
F			16						0°S 15°W (JSA) $\Delta = 7250$ km		
		PPP _Z		07	24						
26	1	P _Z	17	10	06					53°1N 163°5W (BCIS) $\Delta \sim 6800$ km	
		S _E		18	27						
		F		50							
27	1	P _{EZ}	19	08	28	24	81	48		Microseismic agitation. Compression.	
		e _{1N}		11	00	23	76		92		
		e _{2N}		14	44	24	81	48			
		e _{3N}		17	27	14	9		31		
		e _{1E}		18	27						
		e _{4N}		22	13						
		e _{2E}		23	32						
		L _E		28	20						
		F		20	40						

1946

6.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
28	April 2	eL F	04	56	36					
29	2	e _N F	06	25					Very weak. Microseismic agitation.	
30	5	e _{NE} F	21	06					Weak Microseismic agitation	
31	6	e _E F	05	39					Microseismic agitation	
32	9	eL _N eL _E F	20	45	47				Microseismic agitation	
33	11	P _Z e _Z ePPP _Z e _N S _N e _N L M _{1NE} M _{1NZ} M _{2NE} M _{2NZ} F	02	03	02					0°S 15°W (JSA) $\Delta = 7250$ km
						20	29			
						20		29		
						20	36			
						22		26		
						24	81	48		
						23	76		92	
						24	81	48	1°S 99°E (USCGS) $\Delta = 10400$ km	
						14	9		31	
			04						Microseismic agitation	
34	16	e _{1Z} e _{2Z} eL F	11	48	38				Microseismic agitation	
				52	20					
				56						
			12	20						

1946

8.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A_N	A_E	A_Z	
39	May 8		h.	m.	s.					
(cont.)		e_N	05	54	26					
		L_N		57						
		M_{1N}		58		47	1			
		M_{2N}	06	08	51	28	24		70°N 0°E (BCIS)	
		M_{3N}		13	30	22	48		$\Delta \sim 700$ km.	
		M_{4N}		15	55	21	38		Dilatation	
		M_Z		16	30	20		71	It may be P of a	
		M_E		19	06	20		77	second shock.	
		M_{NE}		21	30	17	17	19		
		M_{EZ}		24	30	20		44		
		M	19	32		17	17	24		
		F	08					25		
		P_{EZ}	13	26	26				30°N 22°W (BCIS)	
40	8	e_{1E}	10	00	49				$\Delta = 3400$ km	
		e_{2E}		04	56					
		e_{3E}		12	45					
		e_{4E}		14	29					
		e_N	22	21	(57)				16°N 97°W (USCGS)	
		M_{NE}		55	30	18	7.5	21	$\Delta = 8800$ km	
		F	12	33	22				F disturbed by the	
41	9	e_N	23	12					Very weak.	
		F		45						
		e_E	00	15					16°N 97°W (USCGS)	
42	10	e_N		16					$\Delta = 8800$ km	
		F	01						Weak.	
		e_E	13	33						
43	10	F	14						Weak.	
		P_Z	16	26	(57)				70°N 0°E (BCIS)	
		S_Z		28	39				$\Delta \sim 950$ km	
		S_E			40					

1946

10.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
50	May 21	P _Z	09	27	24	26	20		15°3N 60°5W (JSA) △ = 7000 km Microseismic agitation	
		PS _{NE}	18	36	08					
		S _{NE}			23					
		SeS	04	37	15					
		SS _N		40	09					
		L _{NE}		46	40					
		M _E		48	30					
		F	10	30						
51	29	eP _E	19	36	54				△ = 8480 km Z out of work	
		S _E	10	46	38					
		PS _E		47	04					
		PPS _E			21					
52	30	F	20	20				46°19N 7°30E (Zürich)		
		P _N	03	44					35	
61	20	e _N		46	52	13	6		39°1N 41°1E (JSA) △ = 3350 km. Dilatation	
		S _N	20	47	41					
		eL _N		48	27					
		M _N	01	51	30					
53	31	F	04	20						
		P _E	03	18					57	
		S _E		24					(02)	
		L _E		26					30	
		M _{NE}		30					20	
		M _E		33					34	
54	June 1	F	04	36	44	15	19	28	Microseismic agitation. Weak.	
		e _{NE}	16	58	50					
55	2	F	02	20				Microseismic agitation. Weak.		
		L _N	01	53						

1946

11.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
56	June 3	e _{NE} F	17	46					Microseismic agitation. Weak.	
57	7	P _Z S eSS _E PKP _{NE} eL F	04	25	24 35 41 (01) 45 46 40				50°1N 125°0 W (JSA) $\Delta = 7050$ km Dilatation 20°S 169°E $\Delta = 11$ h = 160	
58	9	e _N F	10	15	45 37					
59	12	L _E F	17	04	30					
60	15	e _{1E} e _{2E} F	18	54	40 29 56				17°N 98°W $\Delta = 8600$	
61	20	e _N F	01		36 08					
62	23	iP iZ eZ S _E S _N SS LQ _N LR _N M _{NE} F	17	23	48 24 (03) 32 32 34 36 44 50 50 52 19	50 12 15	1. 1. 19	2 2 28	50°1N 125°0 W (JSA) $\Delta = 7050$ km Dilatation $\Delta = 32$ 38°6N 31°6E $\Delta = 2600$ km	
	-	P _Z S _Z F	19	52	39 48 20					

1946

12.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
			h.	m.	s.		A _N	A _E	A _Z	
63	July 2	e _N F	00	33	45				Microseismic agitation	
				50	38					
64	9	e _N F	01	38						
	18		03	30						
65	9	PKP _Z pPKP _Z PP _Z PKS _N SS _N	13	32	54				20°S 169°E (USCGS) Δ = 15 400 km. h = 160 km.	
	19		21	33	37					
				35	37					
			22	36	31					
				53	45					
	26	e _E L F	07	58	37					
			14	23						
			15							
66	11	P _{EZ} e _E	04	58	40				17°N 98°W (USCGS) Δ = 8600 km	
			05	01	29					
	Aug. 2	e _N S _E S _N SS _E L _{NE} F	19	05	56				27°S 70°W (USCGS) Δ = 11 400 km	
				08	29					
				52	36					
				14	(08)					
				19	(00)					
			06							
67	16	P _Z S _E SS _E L _E M M _N F	05	32	35				32°N 25°E (BCIS) Δ = 32 000 km Microseismic agitation	
	3			37	29					
				39	29					
				40						
	14		18	46	50	12	1.5	2		12
				48	30	12	1.5			
			06	20						
68	16	P _Z S _Z F	19	52	39				38°6N 31°6E (BCIS) Δ = 2600 km	
				56	48					
			20	20						

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13.

no.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
69	July 18	e _N	06	36	45				Microseismic agitation	
		e _{NE}		33	38	25		580		
		F	07	25		24	290	370		
70	18	e _E	07	38	30	20		212		
		F	08	20		18	62	250		
71	19	e _N	21	33	00					
		e _{L_N}		58	23					
		F	22	30						
72	26	e _N	07	08	43					
		F	08	20						
73	27	e _{L_N}	16	43					Very strong microseismic agitation	
		F	17	10						
74	Aug. 2	S _N	19	44	58				27°S 70°W (USCGS) Δ = 11 400 km	
		e _E		47	08					
		SS _N		52	19				Microseismic agitation	
		e _{1_N}	19	56	(00)					
		e _{2_N}	20	03	(00)					
		L _N		09		32	75			
		F	21							
75	3	e _{L_N}	13	54					Microseismic agitation	
		F	14	10						
76	4	e _{P_{EZ}}	18	01	44				19°2N 68°9W (JSA) Δ = 7300 km	
		i _Z		02	11					
		PP _{EZ}		04	30					
		e		05	19					
		S _N		10	42					
		SS _N		15	03					

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14.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
			h.	m.	s.		A _N	A _E	A _Z	
76 (cont.)	Aug. 4	L _N	18	19	10				35° 8N 45° 7E (BCIS) $\Delta = 4000$ km	
		LR _N		21	10					
		M _{1Z}		24	12	25		580		
		M _{NE}		25	21	24	290	370		
		M _{2Z}		30	30	20		212		
		M _{3Z}		39	30	18		250		
		M _N		41		15	62			
		F	22							
77	8	e _Z	13	39	23				41° 7N 19° 5E (BCIS) $\Delta \sim 2600$ km	
		F	15	50						
78	11	e _{1N}	02	25	56				25° S 177° 5W (BCIS) $\Delta = 15700$ km $h = 100$ km	
		e _{2N}		31	44					
		F	04	10	45					
79	15	e _{1Z}	15	45	42				F in next shock.	
		e _{2Z}		48	39					
		e _N		47	15					
		F	16							
80	15	e _N	19	48	24				19° 3N 69° W (USCGS) $\Delta = 3300$ km	
		e _E		57	01					
		F		30						
81	17	e _{1N}	10	02	39				Microseismic agitation	
		e _{2N}			42					
86	28	e _{3N}	22	05	29					
		L _N		07	30					
		F		20						
			23	20						
87	Sept. 9	e _{1N}	10	52	17					
		e _{2N}		58	(50)					
		e _L	11	16	42					
		F		50						

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15.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
82	Aug. 17	eP _Z	23	44	31				35°8N 45°7E (BCIS) Δ = 4000 km	
		ePPP _E		46	01					
		eS _N		50	12					
		S _E	15	28	21					23°5N 96°E (BCIS) Δ = 7800 km
		SS _E		52	30					
		L _N		54	30					
18		F	00	30				Microseismic agitation		
83	20	P _{NE}	17	32	07				41°7N 19°5E (BCIS) Δ ~ 2600 km	
		eS _E		36	20					
		F		50	20	20	535			
84	21	PKP _Z	18	19	41	18		235	25°S 177°5W (BCIS) Δ = 15 700 km h = 100 km	
		PP _Z		22	52	19	200			
		SKKS _{NE}		29	45	20	160			
		PS _N		33	06					
90	22	eSS _N	00	41					Strong micro-seismic agitation. F in next shock.	
		eL	19	08						
85	21	P _{ZE}	19	28	28				19°3N 69°W (USCGS) Δ = 7300 km	
		S _N		37	17					
		ScS _E		38	25					
		SS _E	10	41	37					Microseismic agitation. Very weak.
LQ _{NE}	11	45	30							
93	29	F	20	20					5°S 153°E (BCIS) Δ ~ 13 000 km	
		eP _Z	03	17	09					
		PKP _Z	20	55						
		e _{1E}	22	49	(52)					
		e _{2E}		50	(52)					
86	28	e _{3E}		55					F in next shock.	
		F	23	20						
		L _N		28	04					
		e _{1N}	10	52	17					
87	Sept. 9	e _{2N}		58	(50)				F in next shock.	
		eL _N	11	16	42					
		F		50	32					

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16.

no.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
88	Sept. 12	e _E F	15	08	12	85				
				15	21					
89	12	P _Z PP _Z PPP _Z e _Z S _{NE} e _E SS _N M _{1N} M _{EZ} M _{2N} M _{3N} F	15	28	29					23°5'N 96°E (BCIS) $\Delta = 7800$ km Microseismic agitation
				31	11	30	100	192		
				32	46	20	30			
				35	12	23	75			
				37	40	21	50		155	
				40	(48)	20		103		
				42	08	20	30	79	178	
				57	20	20	535			
			16	01	30	18		235	390	
				08		19	200			
				09	30	20	160			
			20	04						Very weak
90	22	e _E F	00	00						Strong micro-seismic agitation. Weak.
			02	56	(56)					$\Delta = 7200$ km
91	23	e _{L_N} F	00	21	33					Strong microseismic agitation.
			01	10						
92	25	e _{L_N} F	10	40	01					Microseismic agitation. Very weak.
			11	02	45					$\Delta = 200$ km
93	29	e _{P_Z} PKP _Z PP _Z e _Z SKS i _N SKKKS e _{NE} e _N PPS _E	03	17	09					5°S 153°E (BCIS) $\Delta \sim 13\ 000$ km Weak
				20	55					
				21	(57)					
				23	28					
				27	47					
				28	04					
				29	23					
				31	(57)					
				33	17					
					32					F in next shock.

1946

17.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks	
			h.	m.	s.		A _N	A _E	A _Z		
94	Sept.										
	Oct. 29	e _Z	03	44	12	85				19°7'N 69°2'W (JSA) $\Delta = 7100$ km Compression	
		LQ _E		52	21						
		LR _N	15	55	08						
		LR _E		14	30						
		M _{NE}	04	00		30	100	192			
		M _{1N}	16	04		20	30				
		M _{2N}		08	20	23	75				
	100	22	M _{NZ}	10	17	27	21	50	155	Strong microseismic agitation	
			M _E		18	40	20		103		
			M	11	21	30	20	30	79		178
			M _{3N}		25		20	29			
101	25	W	22	54	40				57°N 161°E (BCIS) $\Delta = 6900$ km Microseismic		
		F	06	30	04						
95	30	e _{NE}	12	04					Very weak		
92	30	F	07	50	18						
96	Oct. 2	eP _Z	04	56	(56)					52°5'N 158°E (BCIS) $\Delta = 7200$ km Compression	
		eS _{NE}	05	05	34						
		L _E	09	18	16						
		F	16	10							
97	2	P _Z	06	54	01					52°N 158°E (BCIS) $\Delta = 7200$ km Compression	
		S _{NE}	07	02	45						
		SS _{NE}		07	15						
		F	08	35	10						
98	3	e _{1N}	15	51	00					Weak	
		e _{2N}		55	33						
		F	16	46							
			12	01		18	12				
			12	02		18	11				
			14	20							

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18

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
99	Oct. 4	P _Z	14	56	21				19°7'N 69°2'W (JSA) $\Delta = 7100$ km Compression	
		PP _Z		58	(55)					
		S _E	15	04	(55)					
		L _N		14	20					
		L _E	19	16	00					
		F	16	45	16					
100	22	e _N	10	22	27				Strong microseismic agitation	
		e _E		51	40					
		F	11	30	41					
101	25	P _Z	22	00	40				57°N 161°E (BCIS) $\Delta = 6900$ km Microseismic agitation	
		S _E	21	09	04					
		F		30						
102	30	e _{1N}	07	58	18				$\Delta = 3700$ km Compression. Microseismic agitation	
		e _{2N}		07	04					
		e _{3N}		11	48					
		L	22	19	23					
		F	09	30	28					
103	Nov. 1	P _Z	11	25	26				51°8'N 174°5'W (BCIS) $\Delta = 7200$ km Compression	
		PP _Z		27	(52)					
		S _N		34	06					
		PPS _E		13	32					
		ScS _N		35	10					
		SS _{NE}		38	(52)					
		SSS _N		42	37					
		L _E		44	38					
		L _N		46						
		M _N	12	01		18	12			
M _E		02		18		11				
F	14	20								

1946

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
			h.	m.	s.		A _N	A _E	A _Z	
104	Nov. 3	P _{EZ}	18	51	15				Microseismic agitation	
		S _N		54	(52)					
		e _N		55	(52)				F in next shock	
105	3	iP	19	43	00	12	10		0°9S 16°5W (BCIS)	
		PP _{NZ}		45	16				$\Delta = 6950$ km	
		PPP _N		46	(52)					
		e _N		47	16				8°5S 77°2W (BCIS)	
		S _N		51	28				$\Delta \sim 11$ 000 km	
		PS _N			41				Microseismic agitation	
		SS _N		55	(52)					
		L	20	03	30					
		F	21							
106	4	P _{EZ}	21	54	(52)				40°N 54°E (BCIS)	
		i _E		55	10				$\Delta = 3700$ km	
		PP _{NE}		56	07				Compression.	
		PPP _{NE}			26				Microseismic agitation	
		S	22	00	23	22	15			
		SS _N		02	28	20		30		
		e _N		03	15					
		L		04						
		M _{1N}		08		9	236		Microseismic agitation.	
		M _{1E}		09		9		250	Very weak.	
		M _{2N}		13	30	9	90			
		M _{2E}		19		9		152	20°4S 173°W (BCIS)	
		F	01						$\Delta \sim 15$ 000 km	
107	6	iP _Z	20	05	40				36°N 81°E (JSA)	
		S _E		12	39				$\Delta = 6100$ km	
		SS _N		17	39				Dilatation	
		L _{NE}	20	22						
		M _N		25		20	93			
		F	21							

1946

20.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
108	Nov. 7	e _N F	16	16	(49)				Microseismic agitation	
109	10	e _E M _N F	01	05	38	12	10		Microseismic agitation	
110	10	e _{PZ} e _Z PP _Z SKS _{1E} SKS _{2E} PPS _N e _N SS _N e _N LQ LR M _N M _E F	17	56	11	18	105	20	8°5S 77°2W (BCIS) Δ ~ 11 000 km	Microseismic agitation
			18	00	02	14	50	14		
			00	06	40	12				
				07	(54)					
			12	09	28				Microseismic agitation	
			13	11	41					
				14	11					
			19	18	11				33°5N 136°E (BCIS) Δ ~ 8700 km	
				23						
				26	30				Compression	
				31	20	22	15			
				36	20			30		
			20	30	35					
111	12	e _E F	06	05	40	22	210	600	725	Microseismic agitation.
			07	20		18	000	080		Very weak.
112	12	PKS _N eSKKKS _N PS _N e _{1N} e _{2N} L _N F	17	51	(54)	14	000	060	1600	20°4S 173°W (BCIS) Δ ~ 15 300 km
				58	16	14	000	060	600	
			18	01	18	15	080	295	810	Microseismic agitation
				03	33					
				09	(54)					
				34						
			20							
113	17	e _E F	22	35						
			23	30						

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21

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
114	Nov. 20	e _{1N}	01	52	(49)				44° 08' N 148° E (BCIS) $\Delta \sim 8000$ km Very strong microseismic agitation	
		e _{2N}		57	37					
		F	02	20						
115	Dec. 4	e _{1E}	23	09	27				Microseismic agitation	
		e _{2E}		14	07					
		L _E		29						
		M _{1N}		32	30	18	105	20		
		M _{2N}		34		14	50			
		M _E		38		12		14		
		F	5	00	30					
116	9	e _N	12	49	32				Microseismic agitation	
		F	13							
117	20	iP _Z	19	31	07				33° 5' N 136° E (BCIS) $\Delta \sim 8700$ km Compression Very strong microseismic agitation	
		PP _E		33	34					
		S _E		41	00					
		i _E			20					
		e _E		42	35					
		L		53	30					
		M ₁	20	02	30	22	1210	1600		2725
		M _{NE}		04	30	18	1000	2080		
		M ₂		07		20	2205	2060		2690
		M ₃		10		14	1000	1060		1600
122	28	M ₄		14		14	1100	1060	600	
		M ₅		16		15	680	1295	810	
		F	24							

1946

22.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A_N	A_E	A_Z	
			h.	m.	s.					
118	Dec. 21	P _Z	10	30	08				44°08N 148°E (BCIS) $\Delta \sim 8000$ km Very strong microseismic agitation	
		S _N		39	26					
		eS _E			36					
		SS _{NE}		44	28					
		eL _N		51	30					
		M _{NE}	11	00	21	77	97			
		M _{1N}		06	30	17	100			
M _{2N}		17	17	50						
		W _E	13	25						
		F	14							
119	21	e _E	20	29	48				Very strong microseismic agitation	
		F	22							
120	24	e _E	05	02					Very strong microseismic agitation	
		F	20							
121	24	e _N	17	18					Very strong microseismic agitation	
		F	16							
122	28	e _N	10	49					Very strong microseismic agitation.	
		F	11	20						
1	Jan.	eL _N	02	52					Microseismic agitation	
		eL _E		55						
		M _N	03	05	16					
		F	04							
2	1	eL _N	13	02	40				Microseismic agitation	
		F		20						
3	2	eL _{NE}	04	29					Microseismic agitation	
		F	05							

No.	Date	Phase	Time (GMT)	Period	Amplitude μ			Remarks
					A_N	A_E	A_Z	
4	Jan. 25	1P _{BZ}	10 18 12	19 25				13°7'N 86°1'W (1948) J = 3500 m

SEISMIC BULLETIN 1947

Registrations at the Seismic Observatory of Bergens Museum, Norway.

(From August 30, 1948: The University in Bergen.)

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

Constants:

Instrument	Weight	V	T_0	$\epsilon : 1$	r/T_0^2
Wiechert Z January-September	1300kg	325	4.0	2.05	0.100
" September-December		307	4.0	2.11	0.0656
" N-S January-September	1000kg	143	9.5	2.0	0.033
" September-December		177	9.5	2.49	0.0166
" E-W January-September	1000kg	94	10.2	2.7	0.024
" September-December		129	9.2	2.74	0.0151

No.	Date	Phase	Time (GMT)	Period	Amplitude μ			Remarks.
					A_N	A_E	A_Z	
			h. m. s.					
1	Jan. 03	eL _N	02 52				Microseismic agitation	
		eL _E	55 30	21	03			
		M _N	03 05	16	28			
		F	04 30					
2	19	eL _N	13 02 40				Microseismic agitation	
		F	24 20					
3	25	eL _{NE}	04 29					
		F	05					

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2.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
4	Jan. 25	iP _{EZ}	10	18	42				13°7N 86°1W (BCIS) Δ = 8500 km Compression	
		e _{EZ}	17	19	25					
		e _Z	20	50						
		PP	21	54						
		iS _{NE}	18	28	34					
		PS _E	29	22						
		SS _{NE}	34	02						
		eL _E	19	39						
		F	11	30						
5	March 29	e _E	08	40	35				N,E out of work	
		F	09	08						
		F	21							
6	30	e _N	12	57	30				Weak	
		F	13	20						
7	Febr. 7	eL _N	09	41					Microseismic agitation	
		eL _E	10	43	20					
		F	10	30						
8	9	eL _E	19	42	06				Microseismic agitation Very weak.	
		F	20	38	40					
		F			45					
9	NE F9 10	e _N	04	24					Microseismic agitation	
		M _{1N}		32	30	21	103			
		M _{2N}		37	(00)	14	30			
		F	05	30						
10	21	e _{NE}	22	42	30	13	270		Weak	
		F	24	58	30	12	92	54		
		F	10	40						
16	21	e _N	23	16					Microseismic agitation. Very weak.	
		F		30						

1947

3.

no.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
			h.	m.	s.		A _N	A _E	A _Z	
11.	Feb. 24	eP _Z	17	45	00				12°S 69°W (BCIS) Δ ~ 10 200 km	
		ePP _Z	21	48	30					
		S _E		56	24					
		e _E	18	03	56					
		L _E		17						
		F	19	35						
			22	11		24	39			
12	March 2	e _Z	19	29	35				N,E out of work	
18	April 2	L _Z	20	08	32				2°S 137°5E (BCIS) Δ ~ 12 500 km Microseismic agitation.	
		F	21	07	(55)					
				08	(55)					
13	10	eL _N	02	20					Weak N,E out of work.	
		F	03	46		20		154		
14	16	e _N	10	15	20				Microseismic agitation	
		F	21	30						
			22							
15	17	P _Z	08	30	06				29°N 100°E (USCGS) Microseismic agitation Δ = 7150 km Microseismic agitation work.	
		eS _N		38	40					
		eS _E			45					
		PP _N		39	10	5				
		ScS			53	5				
		SS _{NE}		43	(00)					
		e _N		44						
21	10	e _L	16	45	20					
		M _N		55	30	13	270			
		M _{NE}		58	30	12	92	54		
		F	10	40						
				14	17	51				
16	21	e _N	23	16					Microseismic agitation. Very weak.	
		F		30						

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4.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks	
			h.	m.	s.		A _N	A _E	A _Z		
17	March 25	e _E	20	57	36					39°S 178°E (USCGS) 4 ~ 17 000 km	
		PP _E	08	58	52	23	85	58	150		
		e _{1N}	21	04	28	19	79				
		e _{2N}	10	06	24						
		SKKS _N		10	17						
		SS _N	13	17	39						Vary weak.
		e _{3N}		23	12						
24	16	L		35							
		M _N	22	11		24	39			Weak	
		F	23							N, E out of work	
18	April 2	PP _Z	05	58	32					2°S 137°5E (BCIS) 4 ~ 12 500 km Microseismic agitation. N, E out of work.	
		PS _Z	06	07	(55)						
		PPS _Z		08	(55)						
		L _Z	02	28							
		M _Z		46	32	20			154		
		F	09	53							
19	2	L _Z	21	35						N, E out of work.	
		F	22	36						Vary weak.	
20	3	e _{1Z}	19	41	27					Microseismic agitation N, E out of work.	
		e _{2Z}	20	50	42						
		e _{3Z}		42	09	5			66		
		e _{4Z}		55	27	5			35		
		F		45							
21	10	e _E	16	18	34						
		eL _E		32	53						
		F	17	30							
22	12	eL _E	14	17	51	24	91				
		F		30		24	91				
		M		40		22	76	21	109		
		F	23	20							

1947

5.

no.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A_N	A_E	A_Z	
			h.	m.	s.					
23	April 14	M _{PZ}	08	03	27	23	185	58	150	Weak.
		M _N	19	10	32	19	79			
		F	10	30						
24	16	eL _N	13	36	21					Very weak. (BCIS) $\Delta = 2400$ km
		F		50	24					
25	10	eL _Z	20	46	14					Weak N, E out of work
		F	21	10						
26	May 1	e _E	11	06						Very weak.
		F	20	20						
27	2	eP _Z	02	29	44					54 $\frac{3}{4}$ ^o N 163 $\frac{1}{2}$ ^o W (BCIS) $\Delta = 7150$ km
		eS _N		38	32					
		eL _N		53	16					
		F	03	20	59					
28	3	eL _N	10	36	37					Very weak.
		F		50	43					
29	6	PP _{NZ}	20	50	54	21	20			6 ^o 5S 148 ^o 5E (BCIS) $\Delta \sim 13$ 500 km
		ePPP _N		53	35	20		17		
		e _{1N}		55	32	20	18			
		SKS _N	09	57	44					
		e _{2N}		59	42					
		PS _N	21	00	11					
		SKKS _N	00	06	13					
		SS _N		07	27					
		e _{3N}		10	51					
		LQ		15	30	24	91			
34	25	M _{1N}		37	0	24	91			
		M		40		22	76	21	109	
		F	23	20						

1947

6.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
30	May 8	eP _Z	18	56	27				Weak.	
		eN	19	02	32					
		F		30						
31	11	eP _Z	06	37	21				39°1'N 16°9'E (BCIS)	
		eS _N		41	24				$\Delta = 2400$ km	
		SS _N		42	30					
		eL _N		43	14					
		F	07	10		17	100	70		
32	June 11	eN	19	08	18				36°3'N 21°7'E (BCIS)	
		F	20	20	(06)				$\Delta = 2300$ km	
		eL		29	25					
33	17	eZ	07	26	49	15	5		37° $\frac{3}{4}$ 'S 177°E (BCIS)	
		PKPP _N		26	(59)				$\Delta = 17$ 200 km	
		e ₁ N		28	16					
		SKKKS _N	06	37	(59)				39°N 90°E (URSS)	
		e ₂ N		40	28				$\Delta \sim 4400$ km	
		SS _N		49	37				N, E out of work.	
		e ₃ N		51	43					
		eL _N	08	12	20					
		M ₁ N		48	15	21	20			
		M _E		51	30	20		17		
		M ₂ N		56		20	18			
		F	09	40		16		58		
34	25	eL _N	23	42						
	26	F	00	35	(02)				39° $\frac{1}{4}$ 'N 24° $\frac{1}{4}$ 'E (BCIS)	
		S _N		39	20				$\Delta = 2700$ km	
		L _{NE}		41	00					
		M _N		46		10	10			
		F	01	20						

1947

7.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
35	May 27	PP _Z	06	18	(04)				1 $\frac{3}{4}$ ^o S 135 $\frac{1}{2}$ ^o E (BCIS) $\Delta \sim 12\ 200$ km Microseismic agitation	
		PPP _Z		20	25					
		PS _N		27	23					
		PKKS _{NE}		32	(04)	20	46	14		
		SS _N		33	36	18		19		44
		PKPSKS	20	43	48					
		LQ		45	20					
		M _{NE}	11	57		17	100	70		
F	09	00		21	5					
36	June 1	eP _Z	11	23	18				36 ^o 3N 21 ^o 7E (BCIS) $\Delta = 2300$ km	
		S _N	09	27	(06)					
		eL		29	25					
		M _N		34	15	15	5			
		F		55	07					
37	2	P _Z	06	48	44				39 ^o N 90 ^o E (URSS) $\Delta \sim 4400$ km N,E out of work.	
		PP _Z		50	30					
		e _{1Z}		51	30					
		e _{2Z}		58	28					
		e _{3Z}	07	00	20					
		L		01	15					
		M _{1Z}		04	32	4		6		
		M _{2Z}		05		5	100	10		
		M _{3Z}		12	30	16	100	58		
		F	10	40		25	65	28		
38	4	iP _{NZ}	00	35	(02)	20			39 $\frac{1}{2}$ ^o N 24 $\frac{1}{4}$ ^o E (BCIS) $\Delta = 2700$ km	
		S _N	11	39	20					
		L _{NE}		41	00					
		M _N		46		10	10			
		F	01	20						

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8.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks			
			h.	m.	s.		A _N	A _E	A _Z				
39	June 7	S _{NE}	19	11	34	20	46	14	44	11°N 125°E (BCIS) Δ ~ 10 000 km Microseismic agitation			
		PS _E		12	30								
		L _{NE}		25	25								
		M _{NE}		40									
		M _{EZ}		47									
		F	20	30									
40	10	eL _N	11	54	21	5			N, E out of work.				
		M _N	12	00									
		F		30									
41	12	eP _Z	09	16	29	12				0 $\frac{3}{4}$ °N 126 $\frac{1}{4}$ °E (BCIS) Δ = 11 000 km Weak. Very weak. Very weak, Weak. N, E out of work.			
		PP _Z		20	19								
		e _Z		23	15								
		SKS _{NE}		27	07								
		eSKKS _{NE}			47								
		eS _N		28	14								
		PPS _Z		29	53								
		e _{EZ}		30	01								
		e _{1N}		33	34								
		e _E			42								
		e _{2N}		39	(04)								
		L _N		44	32								
		M _{1N}		50							60	100	
		M _{2N}		55	30						38	100	
		M _{NE}	10	00							25	65	28
		M _{3N}		03	30						28	67	
M _{EZ}		06		20		20	54						
F	11	20											

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
42	June 13	P _Z	20	38	(04)				21 $\frac{3}{4}$ ^o N 146 $\frac{1}{4}$ ^o E (BCIS) Δ = 10 200 km N,E out of work.	
		PP _Z		41	36					
		S _Z		49	19					
		PS _Z		50	19					
		SS _Z		55	34					
		L	21	08						
		F	23							
43	14	eL _Z	00	43				28 ^o 8N 93 ^o 5E (BCIS) Δ = 2800 km N,E out of work.		
		F	01	20						
44	19	e _Z	08	09	20			N,E out of work.		
		F	09							
45	July 9	e _E	18	39	12			Weak.		
		F	19							
46	10	e _{1N}	10	36	36			10 138 12 207 12 307 15 352 12 280 12 170		
		e _{2N}		38	35					
		M _N		49		12	3			
		F	11	20						
47	12	e _N	02	20				20 Very weak.		
		F	03							
48	16	eL _E	20	04				27 ^o N 65 ^o E (BCIS) Very weak, 6200 km E out of work.		
		F		30						
49	23	eL _Z	18	16				Weak. N,E out of work.		
		F	19							

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No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
50	July 24	e _{1Z}	12	36	19	25				N,E out of work
		e _{2Z}		38	31	15	71			
		e _{3Z}		40	02	16	69	118		
		L _Z		48	09	15	53			
		F	14				15	47		
51	29	iP _Z	13	54	01					28°8N 93°5E (BCIS) Weak. $\Delta = 7800$ km Compression
		e ₁		55	35					
		e _Z		56	12					
		PP _Z			32					
		PPP _Z		58	12					
		iS _N	14	02	42					
		ScS _N		04	01					
		e _N		05	26					
		e ₂		06	41					
		eSS _N			54					
		L		10	17					
		M _{1N}		19	30	10	138			
		M _{2N}		21	30	12	307			
		M _{NZ}		24	30	15	352	280		
		M _{3N}		26	30	12	172			
M _Z		35		15		200				
F	17	00								
52	Aug. 5	P _Z	14	33	26				27°N 65°E (BCIS) $\Delta = 6200$ km E out of work.	
		e _Z			43					
		ePPP _Z		35	22					
		S _N		40	(58)					
		eScS _N		43	11					
		SS _N		44	50					
		L _N		47	06					

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11.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
52	Aug. 5	M _Z	15	00		25				
(cont.)		M _{1N}	15	00		15	71			
		M _{NZ}		01	30	16	69	11 8		
		M _{2N}		06		15	53			
		M _{3N}	22	09	26	15	47			
		F	16							
				33	28					
53	6	e _N	09	56	38				N,E out of work.	
		e _{L_N}	10	00	30				Weak.	
		F	23	20						
54	9	e _N	03	16	18				48°N 153°E (BCIS)	
		F		50					N,E out of work.	
55	14	e _Z	04	22	50				Microseismic agitation	
		L _Z		29						
		F		50		13	11			
				58		13	11			
56	14	e _{1Z}	05	14	32					
		e _{2Z}	16	18	00					
		F		40						
				13						
57	24	e _{F_Z}	11	45	49				43°N 86°E (BCIS)	
		e _{S_Z}		52	40				$\Delta = 5150$ km.	
		e _Z		59	49				N,E out of work.	
				01						
		M _{1Z}	12	02	40	4		5	24°5N 122°E (BCIS)	
		M _{2Z}		06	20	8		10	$\Delta = 8000$ km	
		F		30					Microseismic agitation	
				16						
58	28	e _{1Z}	07	01	17				N,E out of work	
		e _{2Z}			44					
		e _{L_Z}		08	30					
		F	08	20		15	13			

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12.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
55	Sept. 26	iP _Z	h.	m.	s.				24°5N	
59	Aug. 28	eL _Z	15	05	14				N,E out of work.	
		F		10	07					
60	30	iP _Z	22	27	26				35°8N 23°7E (BCIS)	
		eS _Z		32					$\Delta = 2900$ km	
		SS _Z		33	28	60			N,E out of work.	
		L _Z		34	12	30				
		M _Z		40	30	8	14			
		F	23	10	35	9	13			
				51		15	25			
61	Sept. 3	iP _Z	15	37	55				48°N 153°E (BCIS)	
		F		50					N,E out of work.	
62	3	e _N	12	43	50				28°N 63°E	
		eL _N		46	37				Microseismic agitation	
		M _{1N}		56	(52)	13	11		agitation	
		M _{2N}		58	29	13	11			
		M _{3N}	15	03	30	15	12			
		F	16	30	25					
				07	30					
63	26	eL _N	00	13					19°N 102°E	
	3	M _N	23	30	30	30	32		$\Delta = 4000$ km	
		F	01	30	28					
				00	30					
64	26	eP _Z	03	14	05				24°5N 122°E (BCIS)	
	5	e _{1N}		22	25				$\Delta = 8000$ km	
		eS _N		23	16				Microseismic agitation	
		e _{2N}		25	06					
		SS _N		28	20	24	19			
		L		30		18	10			
		M _N		32		15	13			
		F	04							

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13.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
65	Sept. 26	iP _Z	16	14	07				24°5N 122°3E (BCIS) Δ = 8700 km	
		ePP _Z		17	14					
		iS _N		24	07					
		SKS _N			17					
		PPS _N		24	(57)	18	8	4		
		SS _N		29		16	7			
		LQ		35	27	60				
		LR		43	05	30				
		SKKS?		44	08	8	14			
		PKPKPK?		46	35	9	13			
		M		51	15	25				
		F	18	00						
66	Oct. 3	P _Z	06	22	36				28°N 63°E (BCIS) Δ = 5600 km Microseismic agitation	
		e _Z		23	10					
		PP _Z		24	37					
		S _N		29	(52)	21	63	49		
		ScS _N		32	29	17	33	10		
		e _N		33	41	17	42	12		
		L _N		36	25					
		F	07	30						
67	3	eP _Z	23	44	30				19°N 102°W (USCGS) Δ = 8800 km	
		eS _N		54	28					
		F	00	30						
68	Nov. 5	e _{1N}	19	12	16				Microseismic agitation	
		e _{2N}		19	12					
		eL _N		27	30					
		M _{1N}		40		24	19			
		M _{2N}		51		18	10			
		F	21	20						

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14.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
69	Oct. 10	e ₁ N	07	49	(04)				11°S 74°5W (BCIS) Δ = 10 km Dilatation Microseismic agitation	
		e ₂ N		56	25					
		e ₃ N		57	24					
		e _L N	08	08	25					
		M _{NE}		14	30	18	8	4		
		M _N		17	30	16	7			
		F	10	10	30	60				
70	10	e _L N	14	56		20	35		Microseismic agitation	
		F	16	20		21	77			
71	16	P	02	19	20	17	25	29	64°5N 147°5W (BCIS) Δ = 5900 km Microseismic agitation	
		S _N		26	48	17		13		
		PS _N	18	27	08					
		SS _N		30	23					
		L	00	33	30					
		M ₁ NE		37	39	21	63	49		
		M ₂ NE		45	30	17	33	10		
M ₃ NE		52	24	17	42	12				
72	20	F	04	49		18		61	64°5N 147°5W (BCIS) N,E out of work. WORK- WORK-	
		e ₁ NZ	01	52	45	14		46		
		e ₁ FZ		54	45	12	17	11		
		L _Z	02	08	40	11	7			
73	Nov. 1	F	03	20					Microseismic agitation	
		e _Z	06	17	(07)					
		e ₁ N		24	35					
		e ₂ N		27	36					
		L		45	17					
74	12	F	07	30					Very weak	
		e ₁ N		17	05					
		F		18						

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15.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
			h.	m.	s.		A _N	A _E	A _Z	
74	Nov. 1	iP	15	12	20					11°S 74°5W (BCIS) $\Delta = 10\ 400\ km$ Dilatation Microseismic agitation
		PP _Z		15	48					
		SKS _{NE}		22	44					
		iS _{NE}		23	25					
		PPS _{NE}		25	04					
		eSS _{NE}		29	35					
		LQ _N		11	38	30	60			
		LR _N			42	55	25			
		M _N			50		20	35		
		M _{1E}			51		21		77	
		M _{2E}			58	30	20		59	
		M _{NE}		16	09		17	25	29	
		M _{3E}			32		17		13	
F		18	20					Weak. Microseismic agitation		
75	4 Dec. 9	PP _Z	00	23	24					44°8N 139°6E (BCIS) $\Delta = 7000\ km$ Microseismic agitation
		S _N	23	29	39					
		SS _N	02	34	06					
		e _{NE}		37	24					
		L _N		19	40	46				
		M _E			49	17	18		61	
		M _Z			54	30	14		46	
		M _{NE}			57	30	12	17	11	
		M _N		02	08		11	7		
F		03	20							
76	9	e _{1N}	05	20	56					Microseismic agitation
		e _{2N}	03	22	(04)					
		e _{3N}		25	(04)					
		e _{4N}		41	17					
		L _N		05	51					
F		07								
77	12	e _N	17	05						Very weak
		F	18							

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16.

No.	Date	Phase	Time (GMT)			Period	Amplitude μ			Remarks
							A _N	A _E	A _Z	
			h.	m.	s.					
78	Nov. 13	eP _Z	03	35	02				$\Delta = 5000$ km	
		ePP _{NE}		36	38					
		eS _N		41	46					
		eL _N		50						
		F	04	10						
79	14	P _Z	11	01	20				46°N 143°E (USCGS)	
		eS _N		10	02				$\Delta = 7300$ km	
		F		40						
80	15	e _N	23	52						
		F	24							
81	28	eL _Z	04	41					Weak. Microseismic agitation. N,E out of work.	
		F	05							
82	Dec. 9	e _N	23	52	18				Microseismic agitation	
	10	F	00	15						
83	15	PP _Z	19	45	46				59°S 161°W (USCGS)	
		e _Z		47	17				$\Delta \sim 19\ 700$ km	
		PPP _{EZ}		49	56				Microseismic agitation	
		SKKS _Z		52	42					
		cSKSP _N		56	45					
		SS _N	20	07	(02)					
		F	21	20						
84	19	e _N	03	13	(04)				Microseismic agitation	
		F		25						
85	19	e _N	05	00	24					
		M _N		04		6	1.5			
		M _E		07		12		10		
		F		20						
86	19	eL	17	22						
		F	18	20						