

Geodætisk Institut

Proviantsgården, Copenhagen, Denmark

Bulletin

of the seismological station



KØBENHAVN

$\varphi = 55^{\circ}41' N.$ $\lambda = 12^{\circ}26' E.$ $h = 13 m.$

Lithologic foundation: chalk

No. 55. Jan.—Dec. 1945.

Instruments:

Galitzin-Wilip seismographs.

Constants:

Component	l	A_1	T_1		μ^2	T	k
	cm	cm	sec			sec	
N	12.5	100	12.64		0	$12\frac{1}{2}$	103
E	12.5	100	12.69		0	$12\frac{1}{2}$	102
Z	14.5	100	11.56	$\frac{1}{1}-\frac{2}{8}$	0.3	7	85
				$\frac{2}{8}-\frac{31}{12}$	0.1	9	89

Wiechert 1000 kg. horizontal seismograph.

Wiechert 1300 kg. vertical seismograph.

Constants:

Component		T	ν	ρ	V
		sec		mm	
N		9.1	5	1.0	190
E		9.0	5	0.8	190
Z	$\frac{1}{1}-\frac{25}{9}$	6.4	7	0.4	150
	$\frac{25}{9}-\frac{31}{12}$	5.5	5	0.8	170

Milne-Shaw seismograph, E component, with the approximate constants $T = 12^s$, $\nu = 20$, $V = 300$.

Benioff vertical seismograph, $T_1 = \frac{1}{4}^s$, $T = 1^s$. $V_{\max} = \text{ca. } 30\,000$.

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
	1945		<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>h m</i>	°	
1	Jan.	1	<i>i</i> 27 44	<i>i</i> 33 23	34 08		36	37	Baffin Bay. Masked by microseisms.
2		5 20			56.4		59		
3		8 22		<i>e</i> 52 20	<i>e</i> 49.6		54		Albania.
4		9 17					09		
5		9 22					26		
6		11 2	<i>i i</i> 11 01	<i>i</i> 17 20			24	42	Iran.
7		12 18	<i>e e</i> 50 28	<i>i</i> 60 27	<i>i</i> 50 32	61 13		78	Honshu, Japan.
8		13 12					48		
9		15 17	<i>i</i> 29 20				43		
10		16 13	<i>e</i> 48 43				78		Honshu, Japan.
11		17 20	<i>e</i> 41 41						Seismic?
12		18 3					25		Faces masked by strong microseisms.
13		18 3					57		» » » » »
14		22 8					16		
15		25 0		<i>e</i> 50 00	51.5	53.8	58		
16		25 2					50		
17		25 6	<i>e</i> 12 50	<i>e</i> 22 42	18.3	28.6			Faces not clearly marked.
18		25 22					48		
19		26 21			<i>i</i> 06 25				The station out of action 27/1-31/1.
20	Febr.	1 10	<i>e</i> 55 20						Loyalty Islands region.
21		1 12	<i>e</i> 33 13						» » »
22		1 20					16		
23		2 16			44.4				
24		10 5	<i>i i</i> 09 30	<i>i</i> 18 55	<i>i i</i> 09 45	12 18		75	L? 12 ^m 31 ^s . SS 23 ^m 41 ^s . Off northeast coast [of Honshu, Japan.
25		11 1	<i>i</i> 15 39						
26		11 21					47		
27		12 6					29		
28		13 11	<i>e</i> 35 00	<i>i</i> 41 14	44			42	Atlantic Ocean, southwest of Azores.
29		17 23					12		
30		18 10	<i>e i</i> 19 47	<i>i</i> 29 20	22 33	34.2	44	76	Off southeast coast of Hokkaido, Japan.
31		26 20	<i>i</i> 15 52						
32		26 22	<i>i i</i> 27 17		32 25		53		Masked by strong microseisms. Bonin [Islands region.
33		28 18			3.5			47	
34		28 23							
35	March	2 10	<i>e</i> 44 19		48 01				Strong microseisms. P uncertain. Prob- [ably Turkey. Japan.
36		4 14					30		Galitzin records interrupted.
37		4 17	<i>e</i> 34 45					34	Moluccas.
38		8 10	<i>e</i> 11 46						Weak. Depth 100 km. Southeast of Mindanao.
39		10 1			<i>e</i> 59 01				
40		11 17	<i>e</i> 58 36						
41		11 21	<i>i e</i> 49 48-	<i>i</i> 59 35	64 36	68 17			Off east coast of Honshu, Japan.
42		12 1	<i>i</i> 45 31				55		Iran.
43		12 11					04		

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
	1945		<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>h m</i>	°	
44	March	12 20	<i>i</i> 54 53		59.2				
45		18 0	<i>i i</i> 10 34-	21 18	13 40	<i>i</i> 21 06		87	22 ^m 06 ^s . 22 ^m 36 ^s . SS 26 ^m .6. Off Colum- bia. Kermadec Islands.
46		18 0	<i>e</i> 41 08					23	
47		18 8							
48		18 19	<i>e e</i> 05 51		<i>e</i> 15 03				
49		18 23						21.5	
50		18 23	<i>e e</i> 23 37	<i>i</i> 28 13	29.2	30.6		27	Atlantic Ocean.
51		20 8	<i>e</i> 04 06	<i>i</i> 08 26	<i>i</i> 04 15			25	Turkey.
52		23 6					12		
53		23 23	<i>e e</i> 34 24		38 34	45 15		08	<i>eP</i> ₂ 35 ^m 11 ^s . 52 ^m .0. SS 58 ^m .8. 60 ^m .1. [SSS 64 ^m .4. Southern Ocean.
54		24 15					01		
55		28 14					.5		
56		31 7					.6		
57		31 22			23.0				
58	April	3 15					.0		
59		3 21	<i>i</i> 19 15				.2		Depth about 500 km. Tonga Islands [region.
60		4 1							
61		5 4					41		
62		9 22					.1		
63		10 1	<i>i</i> 33 42	<i>i</i> 43 (08)	44 (09)	49 (24)			No time-marks on Gal. from 0 ^h 18 ^m . Japan. Large swings.
64		10 16					.9		
65		11 16					45		
66		13 7					51		
67		14 5					10		
68		14 19					04.5		
69		14 20					07		
70		15 2	<i>e i</i> 46 03	<i>i</i> 54 48	<i>i</i> 46 14	48 30		67	50 ^m 40 ^s . SS 59 ^m .2. Depth about 130 km. Off coast of Kamchatka.
71		15 3	<i>i</i> 07 51						
72		15 3	<i>i</i> 52 08						Aftershock of Kamchatka quake.
73		15 4	<i>i</i> 07 12						
74		15 20		<i>e</i> 14 13	19.9		26		Off west coast of Mexico.
75		18 13			<i>e</i> 39.5		58		
76		19 0			40.0				L?
77		19 13			<i>e</i> 24 21	<i>e</i> 27.3			F 15 ^h .5.
78		19 13	<i>i</i> 52 18						Seismic?
79		19 17	<i>i</i> 54 47	61 09	64 20			43	<i>i</i> _N 69 ^m .6. Turkestan.
80		20 22	<i>i</i> 54 15		<i>e</i> 67.1		1.7		Southwest of Tonga Islands.
81		21 14	<i>e</i> 15 08		<i>e</i> 16 42	22.4			Faces not clearly marked.
82		21 17		<i>i</i> 37 28	37 58		.9		Depth about 130 km. Mexico.
83		21 23	<i>i</i> 24 25				.7		<i>eP</i> possibly 10 ^s earlier.
84		22 4			16.2	19.0			20 ^m .0. Probably New Guinea region.
85		22 10			16.8	18.4			

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
86	1945 April 22	19	m s	m s	m s	m s	h m	°	48 ^m 57 ^s , 50 ^m 19 ^s , <i>i</i> 53 ^m .3, 59 ^m .6. Deep. Solomon Islands region. Depth about 450 km. Tonga Islands.
87	23	6			42 30	43 24	21		
88	26	13	<i>i</i> 59 43		<i>i</i> 62 18		55		
89	27	14							
90	29	2	<i>i</i> 38 01						
91	30	11	<i>i</i> 25 26						
92	30	17	<i>i</i> 45 56						
93	May 1	6			25.4		42		
94	1	8			14.2		30		
95	1	23					40		
96	3	16	<i>i</i> 05 53						
97	4	13	<i>i</i> 16 17		25 42		.7		
98	9	3		<i>i</i> 56 00	49 23	51 16	.6		
99	10	0					42		
100	10	18		<i>i</i> 18 52	17.9	20.5			
101	11	16			<i>i</i> 21 20				
102	11	20			29.8		30		
103	11	22			13.9				
104	12	5			09.7				
105	13	21					10		
106	July 7	0			39 21				
107	9	16	<i>i i</i> 54 48	<i>i</i> 65 21	<i>i</i> 54 50	65 06	88		
108	11	0	<i>e e</i> 41 19	<i>i</i> 49 56	<i>i i</i> 41 32	51.0	66		
109	11	15	<i>i</i> 16 16	<i>i</i> 20 13			21.8		
110	11	17	<i>i</i> 56 57				22		
111	11	19	<i>e</i> 16 16						
112	15	5	<i>i</i> 48 29		52 16	52.5			
113	16	6	13 05	20 53	25.4		.6		
114	17	8			10 35		56		
115	21	1	<i>e</i> 39 20	<i>e</i> 43 57			27		
116	22	10	<i>e</i> 52 22	<i>e</i> 62 27	55 10	63 22	80		
117	23	4	<i>e</i> 7 22	<i>e</i> 17 26	17 34	9 32	79		
118	27	18					39.4		
119	Aug. 1	22	<i>i</i> 35 30	45 49	<i>i</i> 35 37	38 31	64	83	
120	2	18	<i>e</i> 04 35	14 57				83	

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
	1945 Aug.		m s	m s	m s	m s	h m	°	Off British Colombia. South of Panama. Aftershock. Near Sicily. Peru. Bonin Islands. 15 ^m .7, Indian Ocean. 19 ^m .3. The phases hardly marked. Guatemala. <i>i_H</i> 57 ^m 24 ^s . South of Panama.
121	2	21		<i>i</i> 04 43	<i>e</i> 9.0	12.5	14		
122	3	4		34 56	40.9				
123	3	7		07 35					
124	4	14	<i>e</i> 52 42	<i>e</i> 56 16	52 59	57.6	45	20	
125	6	23			26 14				
126	7	22	<i>i</i> 20 11		<i>i</i> 30 35	36.1			
127	8	10	<i>e e</i> 05 24	<i>i</i> 14 59	<i>i</i> 05 33	08 23		74	
128	9	22			12.6	15.7	31		
129	10	11	<i>i</i> 32 46		<i>i</i> 35 58	<i>e</i> 43 16			
130	11	0	<i>e</i> 46.8		<i>e</i> 50 44	<i>e</i> 57 06			
131	11	15			58 28	66.8			
132	12	3					44		
133	12	8			56 10				
134	14	12	<i>i</i> 23 09	<i>i</i> 33 29	32 42	34 35	48	82	
135	14	23					51		
136	15	14	<i>e</i> 28 30		<i>i</i> 38 52		60		
137	16	0			46.0	50.3			
138	16	1			53.6	59 22			
139	16	3			28.0				
140	16	6			05.0				
141	16	8					.5		
142	17	1			<i>i</i> 09 16	<i>i</i> 09 26			
143	19	4					46.8		
144	21	16	<i>e</i> 42 59	<i>i</i> 54 13	<i>e i</i> 43 30	47 34		93	
145	21	20	<i>i</i> 22 06		25.0	<i>i</i> 25 46			
146	22	5	<i>i</i> 33 39		37 11	46 17			
147	22	16			38				
148	24	9	<i>i</i> 37 44						
149	27	7		<i>e</i> 58 23	<i>e</i> 51 22	58 04	75		
150	27	16	<i>i</i> 31 35	<i>e</i> 36 02			38.4	26	
151	28	19	<i>e</i> 32 33						
152	28	19	<i>e</i> 33 20		<i>i</i> 33 23	48 35	.9		
153	29	10	<i>e i</i> 41 56		<i>i i</i> 42 15	<i>e</i> 44 41			
154	29	15			28.7		.9		
155	30	23	<i>i</i> 49 42		53 24	57 51			
156	Sept. 1	23	<i>i</i> 04 06		<i>i</i> 04 53	08 29			
157	2	11	<i>i i</i> 59 11+	<i>i</i> 63 22	59 40	63 29		24	
158	3	13	(<i>e</i> 08 50)	<i>i</i> 18 16	23 15	25			
159	4	18					04		

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
			m s	m s	m s	m s	h m	°	
160	1945 Sept. 5	1					52		
161	5	22			i 09 00	15 19			PS 19 ^m 05 ^s , 20 ^m 14 ^s , SS 25 ^m .5, 26 ^m .2, SSS 30 ^m .5, New Britain.
162	6	1			i 46 45	54 16			PS 56 ^m 33 ^s , 58 ^m .0, SS 63 ^m .2, SSS 68 ^m .2, Aftershock, New Britain.
163	6	15	e 08 20		09 37	15 43			SKKS 17 ^m 05 ^s , 22 ^m 30 ^s , 23 ^m 36 ^s , SS 27 ^m .3, Aftershock, New Britain.
164	7	15	i i 51 28—	e 53 58	52 03	54 14	54.5	13	Depth about 100 km, Roumania.
165	8	3			e 55 17	59 53	1.7		83 ^m .2.
166	9	4	i 22 25		23 26	25 10	61		i PKS 25 ^m 55 ^s , i 35 ^m 24 ^s , 38 ^m .5, New [Hebrides Islands.
167	10	14					14		
168	11	12					.7		
169	12	1	i 00 41+	i 08 15	08 33	10 39	22	54	Equatorial Africa.
170	12	16			e 36 35		37.5		Yugoslavia.
171	13	11			e 36 53	42 17			43 ^m 25 ^s , 44 ^m 12 ^s , iPS 46 ^m 00 ^s , SS 51 ^m 45 ^s , sSS 52 ^m .2, SSS 58 ^m .2, Depth about 100 km, Chile.
172	14	2	e 12 54	i 21 15	15 20	16 08	.5	62	22 ^m 50 ^s , 26 ^m .8, Mid Atlantic Ocean.
173	18	3					06		
174	19	11							
175	19	12	i i 39 32+	i 49 02	42 31	44 15			pS 49 ^m 31 ^s , 55 ^m .2, 57 ^m .5, Depth about 100 km, Japan.
176	22	9			e 29 44				Off northeast coast of New Guinea.
177	23	15	e 45 11	e 54 06			66.5	67	M 72 ^m .3, very large, Yellow Sea.
178	24	1	e 28 44		34.4	35.4			
179	24	13			06 34	12 19	31		26 ^m .5, Phases not clearly marked.
180	25	15					06		[Solomon Islands region.
181	26	4					17		
182	26	13	e 45 35	i 48 34			50.2	16	Yugoslavia.
183	26	14		e 47 05			60		Puerto Rico.
184	28	0					.1		
185	28	22	i 36 03	i 45 45	46 40	51.1		75	Off California.
186	Oct. 1	5	i i 25 10	e 31 54	i 27 00	i 32 06		46	i 34 ^m 45 ^s , 35 ^m 30 ^s , Afghanistan, Yellow Sea.
187	2	0	i 48 21				70		
188	2	16	i 29 06				06		
189	4	2					52		
190	5	3							
191	7	13	i 36 10	46.6	36 24	39 33		83	48 ^m 10 ^s , 52 ^m .6, Off coast of El Salvador.
192	7	20	i 07 41						
193	9	3		i 27 00	29 47				Phases not clearly marked, Interpretation uncertain.
194	9	14	i i 48 00	i 57 21	52 50	53 42		74	58 ^m 00 ^s , 63 ^m 00 ^s , 66 ^m 09 ^s , Depth about [100 km, Japan.
195	10	19			e 05 53	i 16 05	.1		e _N 16 ^m 36 ^s , Depth about 100 km, Mexico.
196	11	17	e e 05 33						Jan Mayen region.
197	15	18	i i 28 46+	e 32 05			33.9	16	

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			P or P'	S					
			m s	m s	m s	m s	h m	°	
198	1945 Oct. 16	16	i e 16 52		17 23	i 21 06			iSKS 27 ^m 26 ^s , 28 ^m 04 ^s , 31 ^m .0, 36 ^m 04 ^s , 40 ^m .4, Depth about 100 km, Molucca Passage.
199	17	3			13.8				L?
200	20	1					02		
201	21	3	i i 33 20	i 43 23			55	79	Formosa.
202	24	2			e 05.3		20		
203	25	15	i 09 25	i 18 18				67	Kamchatka. Strong microseisms.
204	26	14	e 01 10		i 01 19	04 28			i 05 ^m 04 ^s , Turkey.
205	27	11	i i 36 54		i 40 13	i 47 08			iPS 48 ^m 26 ^s , SS 52 ^m 46 ^s , 57 ^m , Depth about 100 km, Guatemala.
206	28	0		i 33 23	i 35 34	i 37 04			Northeast-Africa.
207	28	5	e e 56 41		59 52	e 60 04			iPP 60 ^m 16 ^s , PS 69 ^m 29 ^s , Depth about [200 km, Santa Cruz Islands.
208	28	8	i 05 19				18		
209	28	20	i 34 47						
210	29	5	e i 18 35		18 53				Fiji Islands region.
211	29	11	i 05 25	i 14 40	19.1	23.5			British Columbia.
212	Nov. 2	19					.7		
213	3	2					.2		
214	3	22	i e 19 41	i 28 19	i 19 53	28 35	39.5	65	29 ^m 25 ^s , SS 32 ^m .6, Off southern coast [of Alaska.
215	7	8					32		
216	8	1					34		
217	8	9	11 12	15 47	17 30		20	27	P uncertain, strong microseisms, especially on Benioff, No Gal. Z record. North east Greenland.
218	8	10	08 22	13 02	15 14		18.5	27	As by preceding quake.
219	11	10					.2		
220	11	15					.7		
221	15	13					06		
222	16	18	e 09 40						
223	16	18	e e 12 47	21 29	24 04	25.5	34	65	Phases not clearly marked, Alaska, Sea of Japan.
224	17	16	i 19 11						
225	17	22					.7		
226	18	5	i e 31 29				37		
227	20	6	e i 33 38	38 16	38 33		41.6	27	Eastern Turkey.
228	22	21			15 40	16 24	44		18 ^m 46 ^s , 25 ^m 24 ^s , No Gal. N record. Flores Sea.
229	23	1			00 39	02 11			No Gal. N record.
230	23	13					31		
231	24	17					35		
232	24	18					23		
233	26	5	i i 31 43—						Depth about 600 km, Tonga Islands region.
234	27	22	i i 05 34	i 12 35	07 40	11 35		48	Destructive in Baluchistan, Gal. Z, WZ and WE not in function, Arabian Sea.

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No.	Date	Hour	Forerunners				L	Δ	Remarks
			P or P'	S					
235	1945 Nov. 29	12	m s	m s	m s	m s	h m	°	Black Sea.
236	30	12		12.0			54		
237	Dec. 1	19					21		
238	3	23			02 36		11		
239	6	16					44		
240	8	1			i 24 23	26 38	61		
241	9	6	i i 11 49+	e 14 27			15.3	15	Depth about 100 km. Phases masked by strong microseisms. Roumania.
242	11	10					50		Strong microseisms.
243	14	17		i 50 41	i 50 14				Depth about 100 km. Equador.
244	16	12					23.5		
245	20	4	e 12 44		i 23 18	26.5			37 ^m .2. Off coast of Mindanao.
246	21	18	e 41 10	e 49 10				58	
247	22	21'					53		
248	23	8	e 17 28						
249	23	8	i 21 39	30 51			45.5		Depth about 100 km. Venezuela.
250	27	5			i 01 20	03 56			07 ^m 08 ^s . 10 ^m 58 ^s . 12 ^m 42 ^s . 18 ^m 06 ^s . 22 ^m .8. 31 ^m .7. New Britain.
251	28	15					04		
252	28	18			i 09 05	11 37			SKS 14 ^m 51 ^s . PS 18 ^m .7. SS 26 ^m .3. No [Z records. New Britain.
253	29	10					42		
254	29	13					22		
255	30	1			i 09 03	14 26			SKKS 16 ^m 02 ^s . PS 18 ^m .8. 20 ^m 09 ^s . SS 25 ^m .8. SSS 29 ^m .9. No Z records. New [Britain.
256	31	18					21		

November 1953

HENRY JENSEN