

No. 55

1945

Geodætisk Institut
Proviantgården, Copenhagen, Denmark

Bulletin
of the seismological station

KØBENHAVN

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

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

The following bulletins of the seismological station
København have not yet been prepared for printing:

No. 56 (1946), no. 57 (1947), no. 59 (1949),
no. 60 (1950), no. 61 (1951).

They will be sent as they are available.

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

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
	1945		m s	m s	m s	m s	h m	°	
44	March 12	20	i 54 53		59.2				
45	18	0	i i 10 34—	21 18	13 40	i 21 06		87	22 ^m 06 ^s . 22 ^m 36 ^s . SS 26 ^m .6. Off Colum- bia. Kermadec Islands.
46	18	0	e 41 08						
47	18	8					23		
48	18	19	e e 05 51		e 15 03				
49	18	23					21.5		
50	18	23	e e 23 37	i 28 13	29.2	30.6		27	Atlantic Ocean.
51	20	8	e 04 06	i 08 26	i 04 15			25	Turkey.
52	23	6					12		
53	23	23	e e 34 24		38 34	45 15			eP' 35 ^m 11 ^s . 52 ^m .0. SS 58 ^m .8. 60 ^m .1. [SSS 64 ^m .4. Southern Ocean.
54	24	15					08		
55	28	14					01		
56	31	7					.5		
57	31	22			23.0		.6		
58	April 3	15					.0		
59	3	21	i 19 15						Depth about 500 km. Tonga Islands [region.
60	4	1					.2		
61	5	4					41		
62	9	22					.1		
63	10	1	i 33 42	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	e i 46 03	i 54 48	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 07 51						
72	15	3	i 52 08						Aftershock of Kamchatka quake.
73	15	4	i 07 12						
74	15	20		e 14 13	19.9		26		Off west coast of Mexico.
75	18	13			e 39.5		58		
76	19	0			40.0				L?
77	19	13			e 24 21	e 27.3			F 15 ^h .5.
78	19	13	i 52 18						Seismic?
79	19	17	i 54 47	61 09	64 20			43	i _N 69 ^m .6. Turkestan.
80	20	22	i 54 15		e 67.1		1.7		Southwest of Tonga Islands.
81	21	14	e 15 08		e 16 42	22.4			Faces not clearly marked.
82	21	17		i 37 28	37 58		.9		Depth about 130 km. Mexico.
83	21	23	i 24 25						eP possibly 10 ^s earlier.
84	22	4			16.2	19.0	.7		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					
			m s	m s	m s	m s	h m	°	
86	1945 April 22	19					21		
87	23	6			42 30	43 24			48 ^m 57 ^s . 50 ^m 19 ^s . <i>i</i> 53 ^m .3. 59 ^m .6. Deep. Solomon Islands region.
88	26	13	<i>i</i> 59 43		<i>i</i> 62 18				Depth about 450 km. Tonga Islands.
89	27	14					55		
90	29	2	<i>i</i> 38 01						Followed by weak movement on Galitzin horizontal components.
91	30	11	<i>i</i> 25 26						Deep. Japan.
92	30	17	<i>i</i> 45 56						Depth about 500 km. Tonga Islands.
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			54 ^m .0. 55 ^m 26 ^s . <i>iSP</i> 57 ^m 50 ^s . <i>SS</i> 63 ^m 39 ^s .
99	10	0					.6		[Depth 550 km. Banda Sea.
100	10	18		<i>i</i> 18 52	17.9	20.5	42		21 ^m .3. <i>SS</i> 25 ^m .0. Off coast of Peru.
101	11	16			<i>i</i> 21 20				
102	11	20			29.8				Probably Iran.
103	11	22			13.9		30		Probably Japan.
104	12	5			09.7				
105	13	21					10		
									The station out of action May 18th-July 3rd.
106	July 7	0			39 21				No Galitzin <i>E</i> record.
107	9	16	<i>i i</i> 54 48	<i>i</i> 65 21	<i>i</i> 54 50	65 06		88	<i>PS</i> 66 ^m 21 ^s . Depth about 100 km. Southwest Colombia.
108	11	0	<i>e e</i> 41 19	<i>i</i> 49 56	<i>i i</i> 41 32	51.0		66	Depth about 100 km. Alaska.
109	11	15	<i>i</i> 16 16	<i>i</i> 20 13			21.8	22	Turkey.
110	11	17	<i>i</i> 56 57						
111	11	19	<i>e</i> 16 16						
112	15	5	<i>i</i> 48 29		52 16	52.5			53 ^m 20 ^s . <i>SKS</i> 58 ^m 53 ^s . 59 ^m 36 ^s . 62 ^m .0. 65 ^m .0. 67 ^m .2. No timemarks on <i>BZ</i> . Probably deep. Marianne Islands.
113	16	6	13 05	20 53	25.4		.6	56	No <i>Z</i> records.
114	17	8			10 35				On Galitzin <i>E</i> only.
115	21	1	<i>e</i> 39 20	<i>e</i> 43 57				27	Probably Iran.
116	22	10	<i>e</i> 52 22	<i>e</i> 62 27	55 10	63 22		80	Sumatra.
117	23	4	<i>e</i> 7 22	<i>e</i> 17 26	17 34	9 32		79	Bay of Bengal.
118	27	18					39.4		
	Aug.								
119	1	22	<i>i</i> 35 30	45 49	<i>i</i> 35 37	38 31	64	83	45 ^m 37 ^s . 46 ^m 15 ^s . 47 ^m 23 ^s . 50 ^m 45 ^s . 55 ^m .2. 60 ^m .5. South of Formosa.
120	2	18	<i>e</i> 04 35	14 57				83	Aftershock.

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
	1945		m s	m s	m s	m s	h m	°	
121	Aug. 2	21		i 04 43	e 9.0	12.5	14		Off British Colombia.
122	3	4		34 56	40.9				South of Panama.
123	3	7		07 35					Aftershock.
124	4	14	e 52 42	e 56 16	52 59	57.6		20	Near Sicily.
125	6	23			26 14		45		Peru.
126	7	22	i 20 11		i 30 35	36.1			Bonin Islands.
127	8	10	e e 05 24	i 14 59	i 05 33	08 23		74	15 ^m .7. Indian Ocean.
128	9	22			12.6	15.7	31		19 ^m .3. The phases hardly marked.
129	10	11	i 32 46		i 35 58	e 43 16			Guatemala.
130	11	0	e 46.8		e 50 44	e 57 06			i _H 57 ^m 24 ^s . South of Panama.
131	11	15			58 28	66.8			Disturbed by long periodical micro-
132	12	3					44		[seisms.
133	12	8			56 10				Bonin Islands.
134	14	12	i 23 09	i 33 29	32 42	34 35	48	82	39 ^m 11 ^s . 43 ^m .2. Japan.
135	14	23					51		
136	15	14	e 28 30		i 38 52		60		Bonin Islands.
137	16	0			46.0	50.3			Indian Ocean?
138	16	1			53.6	59 22			60 ^m 41 ^s . i _H 63 ^m 28 ^s .
139	16	3			28.0				
140	16	6			05.0				
141	16	8					.5		
142	17	1			i 09 16	i 09 26			i Benioff without timemarking. Felt in
143	19	4					46.8		[Jutland. Kattegat.
144	21	16	e 42 59	i 54 13	e i 43 30	47 34		93	SKS 53 ^m 28 ^s . 55 ^m .0. 62 ^m .0. Central
									Peru.
145	21	20	i 22 06		25.0	i 25 46			28 ^m 10 ^s . 32 ^m .8. 37 ^m 36 ^s . 43 ^m 52 ^s . New
									Hebrides Islands.
146	22	5	i 33 39		37 11	46 17			48 ^m .4. Aftershock.
147	22	16			38				
148	24	9	i 37 44						
149	27	7		e 58 23	e 51 22	58 04	75		i _{PS} 59 ^m 39 ^s . SS 64 ^m 28 ^s . No Gal. N
									record. Depth about 100 km. Bonin
									Islands.
150	27	16	i 31 35	e 36 02			38.4	26	Asia Minor.
151	28	19	e 32 33						Foreshock to next quake.
152	28	19	e 33 20		i 33 23	48 35	.9		Japan.
153	29	10	e i 41 56		i i 42 15	e 44 41			45 ^m 29 ^s . e _E 45 ^m 47 ^s . 46 ^m 23 ^s . New He-
									brides Islands.
154	29	15			28.7		.9		Indian Ocean.
155	30	23	i 49 42		53 24	57 51			73 ^m 12 ^s . Tonga Islands region.
156	Sept. 1	23	i 04 06		i 04 53	08 29			PPP 12 ^m 11 ^s . 14 ^m 53 ^s . 27 ^m .0. 29 ^m .8.
									36 ^m .2. New Zealand.
157	2	11	i i 59 11+	i 63 22	59 40	63 29		24	i 63 ^m 55 ^s . Depth about 100 km. Eastern
									Mediterranean Sea.
158	3	13	(e 08 50)	i 18 16	23 15	25			P uncertain.
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
167	10	14					14		[Hebrides Islands.
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.
172	14	2	e 12 54	i 21 15	15 20	16 08		62	Depth about 100 km. Chile.
173	18	3					.5		22 ^m 50 ^s . 26 ^m .8. Mid Atlantic Ocean.
174	19	11					06		
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.
	Oct.								
186	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.
187	2	0	i 48 21				70		Yellow Sea.
188	2	16	i 29 06						
189	4	2					06		
190	5	3					52		
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. Inter- pretation 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					.1		
196	11	17	e e 05 33		e 05 53	iE 16 05			eN 16 ^m 36 ^s . Depth about 100 km. Mexico.
197	15	18	i i 28 46+	e 32 05			33.9	16	Jan Mayen region.

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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			isPP 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 Colombia.
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.
224	17	16	i 19 11						Sea of Japan.
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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			P or P'	S					
			m s	m s	m s	m s	h m	°	
235	1945 Nov. 29	12		12.0					Black Sea.
236	30	12					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		SKKS 31 ^m 43 ^s . PS 34 ^m .0. SS 41 ^m .6. SSS 45 ^m .0. New Britain.
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	52.8			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