

No. 4.

1929.

Geodætisk Institut
 Proviantgaarden, Copenhagen, Denmark.

Bulletin
 of the seismological station

SCORESBY-SUND

$\varphi = 70^{\circ}29' N.$ $\lambda = 21^{\circ}57' W.$ $h = 69$ m.

Lithologic foundation: Gneiss.

No. 4. July—Dec. 1929.

Instruments:

Galitzin pendulums with galvanometric registration.

Constants:

Component	l	T_1	A_1		μ^2	T	k
N	cm 12.0	sec 12.4	cm 100	$1/7-12/10$	0.06	sec 12.3	87
E	12.0	11.9	100	$12/10-31/12$ $1/7-26/10$	-0.06	11.7 12.3	77 84
Z	14.1	10.1	100	$26/10-31/12$		11.8	76

The damping of E has been somewhat varying but nearly aperiodic.

Z has not been very stable; the period has been about 5 sec.

Time-corrections have been determined daily by means of Nauen scientific time-signals and time is known with an accuracy of about $1/2$ sec.

Scoresby-Sund.

No.	Date	Hour	Forerunners				L	Un-defined	△	Remarks
			P		S					
	1929 July		<i>m s</i>	<i>m s</i>	<i>h m s</i>	<i>m s</i>	<i>h m</i>	<i>h m</i>	°	
1	2	0			.9	62.3	1.5			
2	2	2					.9			
3	3	1	0 58	7.3	3.1	10.9	.8		43	Alaska.
4	3	2					.8			
5	3	8						.8		
6	3	18			22.8		.8			
7	3	21						.1		
8*	4*	4	36 17	42.3	37.8	45			40	Alaska.
9*	4*	7	18 7	21.2						
10*	4*	7								
11*	4*	8	0 25	3.4						
12	4	9			.8		1.2			
13*	5*	14	<i>i</i> 28 52	36 47	31.2	40.5			57	Aleutian Islands.
14*	5*	22	46 5	54.1	48.3	58.3			58	Pacific Ocean.
15	6	2	13 38	21.7	25.7					S uncertain.
16*	6*	9	56 14	<i>i</i> 64 19	68.1				59	Atlantic Ocean.
17	6	14					.3			
18	7	3					.3			
19	7	6			29		.7			
20	7	9			37.0		1.0			
21*	7*	21	<i>i</i> 32 59	40 57	35.4	44.8			57	Aleutian Islands.
22	8	2			14.5		.6			
23	8	10					.6			
24	8	17					.3			Some preceding movement.
25	8	18					.8			" " "
26	8	19			.4		.6			
27	9	1					.3			
28	9	5			55		1.7			
29	9	8			.9		1.1			
30	9	17			48		1.3			
31	10	15					.2			
32	10	16					.8			
33	11	1					.9			
34	11	13			54		1.0			
35	11	21	6 52	15	10.4	19	.4			Aleutian Islands.
36	12	16	2.5	8 38	4 0		15		41	Alaska.
37	12	18	11.5	21.6			.7			
38	12	23						40		Faint.
39	13	5					.8			Faint.
40	13	7			.8		1.0			
41	13	15			10.3		.7			
42	14	6					.8			Some preceding movement.
43	14	8					.6			
44	14	9			18.4					
45*	14*	9	47 4	55 28	50 55				62	Sea of Okhotsk.
46*	15*	7	53 37	61 13	55.6	64 52	1.2		54	Persia.
47	15	10					.3			In preceding shock.
48	16	1					.9			Faint preceding movement.
49	16	20					.2			
50*	17*	8	<i>i</i> 47 54	55 48	51.2	60.2			57	Pacific Ocean.

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No.	Date	Hour	Forerunners				L	Un-defined	△	Remarks
			P		S					
			m s	m s	h m s	m s	h m	h m	°	
51	1929 July 17	20			.4		1.0			Possibly 2 earthquakes. Small preceding movement.
52	18	7					.3			
53	20	12					.0			
54	21	10			47.2		1.1			
55	21	13			40.2		1.1			
56	23	15					.8			Faint preceding movement. Iceland.
57*	23*	18	44 48	45 56						Repetition.
58	23	20		7 23				2		"
59	23	21								
60	23	21					.8			
61	24	3					.6			
62	24	19						35		
63	25	0			33.9					
64	25	13					.1			
65	25	15	18 30	27.0			.7		63	Atlantic Ocean.
66	25	23	9 52		20.3					
67	26	18					.0			
68	26	22	59 46	69 16	62.6	69.9	1.4		72	Japan.
69	27	13			12.1		.3			
70	30	4	5 3	14.2			.5		69	
71	30	7	55.0	64.0			1.3			P and S small, uncertain.
72	Aug. 1	5	14 41		24 57	25 14				
73	1	8			35.1		1.4			
74	3	13			10.0		.8			
75	3	15			15.9		.9			
76	3	18	55 22	63 17			1.3		57	Aleutian Islands.
77	3	21						.9		
78	4	9			19.4	22.6	27			
79	4	15			25 33		28			
80	4	22			40		1.4			
81	5	14			.8		1.3			
82*	6*	1	31 27				.3			Jan Mayen.
83	6	13						23		
84	6	18					.6			
85	7	7					.9			
86	7	20								
87	8	13	9 31	19 37	12.6	24.6	.5		79	Burma. Faint.
88	9	3							10	
89	10	2								
90	11	18			28.8		1.3		43	
91	12	11					.9			
92	12	20					.9			
93	13	19			31				46	
94	13	20								
95	14	2			37.5		1.3			
96	14	6					57			
97	14	15						.8		Possibly 2 earthquakes.
98	14	19			13 9		.6			

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No.	Date	Hour	Forerunners				L	Un-defined	△	Remarks		
			P		S						h	m
			m	s	m	s	h	m	s			
	1929 Aug.									°		
99	15	15					.6					
100	15	20	8	9	17	45				73	Central America.	
101	16	11					.0					
102	16	21					48	58				
103	16	23	31	48					34			
104	17	8								3	Faint.	
105	17	23	52	2	61	20	56.3	59.8	1.3		70	Central America.
106	18	6					.8					
107	18	8					55		1.5			
108	19	2	55	27	65.7		58.6	71.2	1.4		81	Riou Kiou Islands region.
109	19	11					.6					
110	19	17					59.1		1.2			
111	19	20	56	50	67.1				1.5		81	China Sea.
112	20	16	50	41	60.9				1.3		80	Riou Kiou Islands.
113	21	10					.0					
114	22	17					.6					
115*	27*	23									29	
116*	28*	5									41	
117*	28*	5									59	
118*	28*	15									37	
119*	28*	15									49	
120*	28*	15									57	
121	28	19	2.8		12.0		5.4		.4			Japan.
122*	28*	22									44	
123	29	6							.5			Faint.
124	29	18									34	
125	29	20							.5			Faint preceding movement.
126*	29*	23									36	
127	30	7					34.7		1.0			
128	31	19					39.7		.9			
	Sept.											
129	1	16					.3		1.0			The beginning disturbed.
130	2	11					37	0	37	50		Faint beginning 31 ^m .
131	3	12	18.1		26	34	33.6		.7		62	Persia.
132	4	9							45			
133	4	22					45		.9			
134	5	10							.6			
135	5	14							.7			
136	8	8									32	Small movement lasts c. 1/2 min.
137	8	11							18			
138	8	14									.6	
139	9	4							.5			
140	10	20					42.9		1.4			
141	10	22							.5			
142	11	22					41	22	1.0			Formosa.
143	14	3							.2			
144	14	13					27.9		.6			
145	17	5					55		1.2			
146	17	13							.3			

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			P		S										
			m	s	h	m	s	m	s	h	m	h	m	°	
147*	1929 Sept. 17*	19			33.6		36.9	.7							Pacific Ocean.
148	21	17										0			
149	22	13										.4			
150	26	16						.3							
151	27	23			36			50							Strong microseisms.
152	Oct. 2	9			.8			1.4							
153	2	17										38			
154	5	3			.5			.9							
155*	5*	17	9	36	i 17	27		.5					57		Kamtchatka.
156	6	6			27.9			.7							
157*	6*	8	4.1		14	32		20.0		23.9					Pacific Ocean.
158	6	14						.6							
159	7	16						.3							
160	8	17			37	48	38	49							N record only.
161	14	10	19	16	27.0			30.5					56		" " "
162	14	20						.6							
163	16	20			48	59	54.0	1.1							Burma. Possibly another shock superposed.
164	18	0						.5							
165*	19*	10	26.5		36	50	37.8								Chile.
166	19	20			44	51									
167	20	16						.6							
168	21	11						.5							
169	24	7						.3							
170	Nov. 1	7			5	38		.2							Rumania.
171	4	16						.6							
172	5	12						.5							Faint preceding movement.
173	8	4						.0							
174	9	2						.2							Some preceding movement. Strong
175	11	12										28			Near earthquake. [microseisms.
176	13	1						.7							
177*	15*	19			8	30	15	4	.6						Caroline Islands.
178	16	11						.5							
179*	17*	4			1.2		8	2	.7						Mindanao region.
180	18	6						.7							
181*	18*	20	38	19	43	23									New Foundland.
182*	23*	0			21.3		28	15	1.0						New Guinea.
183	27	8						.3							
184	Dec. 6	12						.5							
185	6	17			.2			.7							Strong microseisms.
186	6	21						.4							Very strong microseisms.
187	9	7			.2										" " "
188	13	5			1.6			8							
189	13	9						.5							
190	14	22										32			

No. 4.

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			P		S									
			m	s	h	m	s	m	s	h	m	h	m	°
	1929 Dec.													
191	15	1										40		
192*	17*	11	8	16	16	8	10	46						
193	17	18								.2				Small preceding movement.
194	17	21					58.0			.4				
195	18	5								.5				
196	18	7					22			.7				
197	18	13								.5				Small preceding movement.
198	24	5								.8				
199	30	12								.1				
200	31	1					27.3	36.1		.8				
201	31	5								.6				

No. 4.

— 7 —

1929.

Scoresby-Sund.

NOTES

- No. 8. July 4. 4^h. Alaska. *P* small, *PP* larger. *S* quite small on *E*, larger but not very clearly marked on *N*. After *SS* movement continues into *L*, which is irregular.
- Nos. 9-11. July 4. 7^h, 8^h. 3 records of similar appearance, probably earthquakes from one and the same origin. The first shock the strongest, but *P* and *S* quite small, their readings not certain. The beginning of *L* uncertain; a regular *M* group. The second, smallest, shock about 17 min. after the first one, *P* and *S* not distinguishable. *P* and *S* of the third shock small, uncertain.
- No. 13. July 5. 14^h. Aleutian Islands. Strong record, phases clearly marked. *PP* small, *PPP* 32^m25^s much larger, and larger than *P*. *SSS* 43^m3 large and clearly marked on *N*. *M* large.
- No. 14. July 5. 22^h. Pacific Ocean. *PPP* 49^m6 larger than *P* and *PP*. *S* quite small, uncertain, followed by larger movement, which on *N* begins by a clearly marked pulse 54^m36^s, possibly *PS*. 56^m0 a clearly marked phase.
- No. 16. July 6. 9^h. Atlantic Ocean. First forerunners quite small. From about 70^m some waves of long period and large amplitude; following *L* small.
- No. 21. July 7. 21^h. Aleutian Islands. Large record, clearly marked phases. *PP* small. *PPP* 36^m4, larger than *P* and *PP*. A distinct phase 38^m9. Some increase of movement before *S*. *PS* large, 41^m28^s; following movement large. *SSS*, 47^m4, and following movement very large. Very large *M*.
- No. 45. July 14. 9^h. Sea of Okhotsk. No *E* record. Phases clearly marked. *P* increases 47^m15^s. *PPP* about as large as *P*. After *S*, movement of long period; the beginning of *L* uncertain. 10^h16^m3 a clearly marked phase on *Z*, possibly *P* of another shock, but other phases not distinguishable.
- No. 46. July 15. 7^h. Persia. Clearly marked phases. On *N*, a well defined phase 63^m24^s, possibly $\overline{S_c P_c S}$. *L* regular, not large.
- No. 50. July 17. 8^h. Pacific Ocean. No *Z* record. No *PP* but large *PPP*. The beginning of *S* small. 57^m7 possibly $\overline{S_c P_c S}$. 62^m4 *SSS* or the beginning of *L*.
- No. 57. July 23. 18^h. Iceland. No *N* record. *P* begins quite faintly, possibly a few seconds earlier than read; from 44^m57^s stronger movement of short period superposed on long period movement. 45^m56^s a pulse on *E*, read for *S*. i_E 46^m7^s, immediately followed by very large *M*. e_Z 46^m7^s; M_Z begin about 1/2 min. later.
- No. 82. Aug. 6. 1^h. Near earthquake; Jan Mayen according to *URSS*. The beginning of *P* not very clearly marked, followed by oscillations of period of about 10 sec., large on *E*. e_N 32^m23^s; large *M* groups begin on *N* 32^m8. On *E*, irregular not large movement from about 32^m5; small *M* groups begin about 33^m4, a large *M* group about 34^m7. In *M* period of about 8 sec.
- Nos. 115-120, 122. Aug. 27, 28. Small wave-groups, all very much alike but of different strength. They all begin quite faintly, earliest on *E*; *N* records on the whole stronger. The first group begins on *E* 28^m21^s with waves of period of about 10 sec.; from about 29^m3 smaller movement with waves of short period superposed; from about 30^m0 larger waves of period of 6-7 sec. *N* begins 28^m8 with somewhat irregular waves; from about 29^m7 quite regular waves of period of 6-7 sec. Small *Z* records of first 2 groups only.
- No. 126. Aug. 29. 23^h. Group of waves, larger and of a somewhat different type from nos. 115-120. The beginning more definite, and simultaneous on *N* and *E*, 35^m6. No *Z* record.
- No. 147. Sept. 17. 19^h. Pacific Ocean. No *Z* record. Very strong microseisms. Some movement previous to first phase read. e_N 33^m45^s. Large *M*.
- No. 155. Oct. 5. 17^h. Kamtchatka. *P* clearly marked on *N* and *Z*; *PP* and *PPP* distinct phases on *N*, but beginning not clearly marked. After *S*, about 19^m0, another phase. *SR* visible, but not clearly marked. On *N*, some large regular waves in first part of *L*.
- No. 157. Oct. 6. 8^h. Pacific Ocean. No *Z* record; some microseismic movement; the reading of *P* not certain. *PR* quite small.
- No. 165. Oct. 19. 10^h. Chile. No *Z* record; some microseismic movement; the beginning of *P* faint, possibly earlier than read. *PP* 29^m9, not large. 37^m8 on *N* only; followed by large movement of long period. e_E 38^m6. *SS* 43^m3. Rather strong movement of long period continues after *S*. In first part of *L* somewhat irregular large oscillations of long period; later *L* not large.
- No. 177. Nov. 15. 19^h. Caroline Islands; $\Delta = \text{ca. } 100^\circ$. *P* possibly 4^m3, quite faint. *PP* 8^m30^s. On *N*, following phases very clearly marked: $\overline{S_c P_c S}$ 15^m4^s; *PS* 17^m35^s; *SS* 23^m2. e_E 15^m7 possibly $\overline{S_c P_c P_c S}$.
- No. 179. Nov. 17. 4^h. Mindanao region. $\overline{S_c P_c S}$ 8^m2^s very clearly marked on *N* and *E*. Followed by irregular movement without clearly marked phases.
- No. 181. Nov. 18. 20^h. New Foundland. *N* and *E* records quite unreadable owing to exceptionally strong microseismic movement. The beginning of *P* not quite certain. *Z* stopped working at about 47^m.

5

No. 4.

1929.

Scoresby-Sund.

NOTES

- No. 182. Nov. 23. 0^h. New Guinea; $\Delta = \text{ca. } 110^\circ$. Additional readings: PS 30^m43^s; SS 36^m.6.
No. 192. Dec. 17. 11^h. Between Kamtchatka and Aleutian Islands according to Strasbourg. Very strong record. On Z, P seems to begin quite faintly 8^m16^s, increases 8^m23^s and again *i* 8^m38^s. The reading of S not quite certain owing to the difficulty of disentangling the traces of the different lines; later phases unreadable.