No. 9. 1932.

Geodætisk Institut

Proviantgaarden, Copenhagen, Denmark.

Bulletin

of the seismological station

SCORESBY-SUND

$\varphi = 70°29'$ N. $\lambda = 21°57'$ W. $h = 69$ m.

Lithologic foundation: Gneiss.

No. 9. Jan.—Aug. 1932.

Instruments:

Galitzin pendulums with galvanometric registration.

Constants:

Component	l	A_1		T_1	μ^2	T	k
	cm	cm		sec		sec	
N	12.0	100	$^1/_1$—$^{25}/_1$	12.4	0.06	12.4	48
			$^{25}/_1$—$^{11}/_5$	11.8	0.05	11.8	44
			$^{11}/_5$—$^{27}/_8$	11.8	0.1	12.0	96
E	12.0	100	$^1/_1$—$^{13}/_5$	11.9	0.1	12.0	44
			$^{13}/_5$—$^{27}/_8$	11.9	0.1	12.0	96
Z	14.1	100	$^1/_1$—$^{20}/_5$	10.1		5	40
			$^{20}/_5$—$^{24}/_7$	10.1		5	90

Time-corrections have been determined daily by means of Nauen scientific time-signals and time is known with an accuracy of about $^1/_{10}$ sec.

On July 24. the Z pendulum was dismounted. It was replaced by the pendulum which had been mounted in København.

Recording was suspended on August 27. owing to repairs. On September 8. the station house was destroyed by fire. The instruments were saved and were again set working at the end of 1933 after the house had been rebuilt.

Scoresby-Sund.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1932 Jan.		*m s*	*m s*	*h m s*	*m s*	*h m*	*h m*	°	
1	2	23					.9			
2	5	2					.7			Small preceding movement.
3*	9*	10			40 54	50 6				New Guinea.
4	17	8					.8			
5	24	4			.1		.7			Masked by microseisms.
6*	27*	19	45 23	48 59						
7*	29*	13			70 53	78.1	88			
8	30	3			34		1.2			
9	31	5						.7		Faint.
	Febr.									
10	3	6	26 5	34 22	34 41	38.1			61	Cuba.
11	3	7			55 32					Superposed on preceding shock.
12	3	9					.9			
13	3	13					.4			Small preceding movement.
14	12	1			11.5	19.8	.7			Golf of Aden.
15	13	8					20			Small preceding movement. Not very distant.
16	14	13					.2			Faint. Recording interrupted 12^h6^m —13^h12^m.
17	14	23					.9			Small preceding movement.
18	16	14					59			Recording interrupted 12^h10^m—14^h [59^m.
19	17	16					.7			
20	17	23					.4			
21	22	15						.7		Faint.
22*	23*	0			36 31	40 9	1.1			Southern Atlantic Ocean.
23	23	20					1.1			Small preceding movement.
	March									
24	2	18					.2			
25	8	4	39.3	47.7	43 16	50.8	.9			*P* quite small, uncertain.
26	8	18			39.3		1.0			
27	9	3					.2			
28	9	10					40			
29	10	6			0		.3			
30	14	4			33		.7			
31	14	22	*i* 54 4	63.2					70	Panama.
32	15	4			57					
33	15	8					10			
34	15	10					.8			Faint.
35	18	5			.8	60.0	1.2			
36	19	11	12 56		23 24	24.0				*PP* 16^m43^s. Marianne Islands.
37	19	23			38.8		1.1			
38	23	13					.1			Preceding movement disturbed.
39	24	3					.7			
40*	26*	0	6 35	13 4	8 21	16 17			44	Alaska.
41	26	10			11.5	19.4	.8			*e* 27^m. New Guinea.
42	28	1			.1					
43	29	0						.9		Faint.
44	29	4					.2			

Scoresby-Sund.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1932 March		*m s*	*m s*	*h m s*	*m s*	*h m*	*h m*	°	
45	30	16					.0			Faint.
	April									
46	3	21			2 2		1.8			
47	4	19	*i* 27 57	*i* 37 19	39 58					Japan. Deep focus.
48	6	9					.9			Faint.
	8									No records 12^h-16^h.
49	13	0			12	17.9	.8			$19^m.0$; $21^m.7$. New Guinea.
50*	14*	1	41 33				45			
51	16	3					.6			Small preceding movement.
52	17	7					49			Not very distant.
53	17	13					38			" " "
54	18	11	34 9	42.9			.9		66	Persia. *P* and *S* small.
55	22	5			17		.9			Sumatra.
56	24	6			30 38		.7			
57	26	8			20		.8			
58	29	19	28.2		32.0	40	.8			*P* and *S* quite small, *S* about 36^m.
59	30	1	18.2		28 40		.8			Faint.
	May									
60	1	2					59			Faint.
61	1	4			37 36		1.3			
62	1	19			30.6					
63	2	23			51		1.2			
64	3	20					.7			Faint.
65	4	0			57 19	60 47				
66	5	4			21 58	30 58				
67	5	8			43.8		1.6			
68	6	4					.8			Small preceding movement.
69	11	7			15.1		.6			
70*	14*	13			29 48					
71	15	10					.0			
	17									No records $12^h48^m-16^h7^m$.
72	17	17			56					
73	17	21						54		
74	18	19			.2		1.0			
75	20	5						22		
76	20	7					.2			Faint.
77	20	8					.3			"
78	20	10						14		
79	20	19		32 49	27.2	36.5	.8			Persia.
80*	21*	10	*i* 21 14	*i* 30 18	25 35				64	Central America.
81	21	15			55	64.9	1.2			
82	21	22			4.1					
83	22	1			47.7		52			
84	22	11			50 32					Small preceding movement.
85	22	17			10.7		.4			
86	22	22	51.1	60.2			1.3			*P* and *S* quite small. No *E* record.
87	23	22						35		Faint.
88	24	23			47		1.0			

Scoresby-Sund.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1932 May		*m s*	*m s*	*h m s*	*m s*	*h m*	*h m*	°	
89	26	5					.9			Small preceding movement.
90*	26*	16								New Hebrides region.
91	26	22			40 4	43 34				*e* 45m38s.
92	27	1			50 26					
93	27	10					.9			
94	28	2	33 24	43 28	36 35	39.6	1.0		80	Pacific Ocean.
95	29	1					.8			
96	30	0						46		
97	31	3						43		Small.
98	31	5						49		"
99	31	8			49.2	55 26	63			
100	31	11					.3			
101	31	14						.3		Faint.
	June									
102	2	14						46		Small. Possibly due to same shock.
103	2	14						50		
104	2	19			58		1.2			
105	3	0	30 11	39 25			.9		71	Japan.
106*	3*	10	47 57							Mexico.
107	3	17					.0			
108*	3*	17					1.3			
	3—4*									
109	4	20					.2			
110	5	9			15.7		.6			
111	5	14					.0			Faint.
112	5	19					.3			
113	6	8	54 4	61 56	62 16	65 44	72		57	California.
114	6	12					.4			No records 12^h4^m—12^h25^m.
115	7	5					46			Faint.
116	8	2			56.3		1.8			
117	8	5			3 38		.3			
118	8	7					.0			Faint.
119	8	8	0 41		2.4	6.1				Alaska.
120	8	11					.2			Faint preceding movement.
121	8	15		18 10	.2		.7			
122	9	4						.0		
123	9	4	46 50	55.9			1.2		69	
124	9	7					.4			
125	9	15					.1			Small preceding movement.
126	9	20						59		
127	9	22					.4			
128	10	3					.8			
129	10	13					.0			
130	10	20	35 7		45 41	46 19	1.2			39^m21^s. Pacific Ocean.
131	10	22					.1			
132	10	23					.4			Small preceding movement.
133	11	8		53.7	50.2		1.2			Arabian Sea.
134	11	17			23 50		.8			Marianne Islands region.
135	12	23			35	38.9	50			

København.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1932 June		*m s*	*m s*	*h m s*	*m s*	*h m*	*h m*	°	
136	13	21	10 23		13.8	21 2	.7			*SS* 27.m0. Luzon region.
137	14	6	12 20		22 42	23 19	42			*PP* 15m46s; *SS* 29m. Luzon region.
138	14	11			43.7	49.9	1.2			Sumatra.
139	16	1	32.4		42 42	43 30	69			*PP* 36m8s; *SS* 50m.2. Sumatra.
140	16	12			20.4		.6			
141	16	23						40		
142	18	0			38		1.0			
143*	18*	10	23 15							
144	18	18					.5			
145	18	22					.4			
146	19	9					.4			
147	20	4			10		57			
148	20	6					.8			
149	20	9	13 1				.6			
150	20	9					.9			Superposed on preceding shock.
151	20	14					.8			Faint.
152	20	15					.7			
153	20	19			37.7					
154	21	4			54 10		69			
155	21	7					1.0			Small preceding movement.
156	21	9						.9		Faint.
157	21	23					.8			Small preceding movement.
158	22	0	47 30	56 27			1.2		73	Japan.
159*	22*	13	10 35	20 9					74	Pacific Ocean off Mexico.
160	22	17					.4			Superposed on preceding shock.
161	23	2			.5		1.2			
162	23	10			28					Faint.
163	23	19					.6			
164	23	22					.6			
165	23	22					53			Superposed on preceding shock.
166	24	10					.3			
167	25	2			55.0		1.2			
168	25	12					.3			
169	25	21					.5			
170	26	10					33			Small.
171	26	19	29 39	38.2	39 37		.8		64	Kurile Islands region.
172	27	0					46			Small.
173	27	3					.6			
174	27	5					.8			Faint.
175	27	6						52		Small.
176	27	9					.5			
177	28	17					.0			
178	29	2			39 50		.8			
179	29	11					.0			
180	29	18			35 47		.8			
181	29	23					.0			
182	30	6						33		Small.
183	30	17					.8			
184	30	22					.5			

Scoresby-Sund.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1932 July		*m s*	*m s*	*h m s*	*m s*	*h m*	*h m*	°	
185	1	1					.3			
186	2	2					.0			
187	2	2			40.9	46.0	1.1			
188	5	10					.8			
189	5	11					.8			Preceding movement disturbed.
190	5	15			26		.6			
191*	7*	16	26 23	34 54	30.2	38.9			63	California.
192	8	0					.4			
193	8	11					.7			
	9									No records 11^h4^m—13^h19^m.
194	9	13								
195	9	20			21 50	23 30	.8			
196	10	0	53 5		48 0		1.2			Sea of Okhotsk.
197	10	7	56 25	65 36	59.1		1.4		70	Pacific Ocean *E* of Japan.
198	11	8			38.7		1.2			
199	11	19						10		Small.
200	11	21					.2			
201	12	12						26		
202	12	14					.5			
203*	12*	19	*i*34 54	43 35	47.4	50.5	.9		65	Gulf of California.
204	13	3					.0			
205	13	4					.7			
206	13	8						20		Small.
207	13	20					.1			
208	14	9			12 45	22 23	.8			
	15									No records 9^h36^m—11^h57^m.
209	15	16					.5			Faint preceding movement.
210	15	21			13 23					
211	15	22					.4			
212	15	23			37					
213	16	21			20.3		.7			
214	17	5						24		} Small trains of *L* waves.
215	17	7						18		∫
216	17	18						20		*e* $18^m.0$.
217	18	1					.2			
218	18	5			22 29	25 27	.8			*e* 27^m26^s. Small preceding movement.
219	19	14							2	
220	20	5			22.8					
221*	20*	20			27.3	28 5				
222	21	12			59.4	65.2	1.6			*e* 66^m5^s; 68^m35^s. New Guinea.
223	21	16			46 5		1.4			Some preceding movement.
224	23	1			1.6		.5			
225	23	22							36	Small.
226	24	2						.5		,,
227	24	9					.8			
228	24	19					.7			
229	25	8	35 34	44 33					68	Sea of Japan.
230	25	9	23 59	33 13	33.7	38.2	.8		71	Mexico.
										No records 25^d11^h—30^d19^h.
231	31	6			38.2		.9			

Scoresby-Sund.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1932 Aug.		*m s*	*m s*	*h m s*	*m s*	*h m*	*h m*	°	
232	1	11			9		.3			
233	2	4			44 6	50.2	1.3			*e* 53^m29^s.
234	5	21					.6			
235	5	22					.5			
236	9	8					.1			
237	10	1			36		1.1			
238	10	3					.9			
239	11	9					1.2			Small preceding movement.
240	11	12					.1			
241*	12*	3	*i*33 31		*i*43 23	45.3	.9			Aleutian Islands.
242	12	20					.7			
243	12	22			32.8		1.4			
244	13	21			16.8	30.7	1.1			New Zealand.
245	14	1			12.5					
246*	14*	4	*i*51 5							
247	14	11					.8			
248	14	12			47.9					Recording interrupted from 12^h51^m.
249	15	4			42.6	48 25				
250	15	15					.3			
251	16	13						32		
252	17	9			12.3		27			
253	18	14					.7			
254	18	20					.8			
255	19	18								Disturbed.
256	21	4	27.9	38.3	35	44	1.0			Formosa.
257	22	11	23.9	33 14	28.2	37.6	.9			Yellow Sea. *P* quite small.
258	24	4					.3			
259	24	12			34 14		.9			
260	25	8			26.2		38			

Scoresby-Sund.

NOTES

No. 3. Jan. 9. 10^h. New Guinea, $\triangle$ = ca. 115°. *PP* 40^m54^s, clearly marked on *Z* and *N*; on *N* preceded by quite small movement beginning at about 37^m. On *N*, *PS* 50^m6^s clearly marked and followed by clearly marked pulses 50^m46^s, 51^m58^s, 52^m28^s and 53^m39^s. *SS* $56^m.6$. *L* small.

No. 6. Jan. 27. 19^h. The identification of phases not quite certain. First phase read clearly marked on *N* and *Z*, second phase clearly marked on *E*. *L* small, irregular.

No. 7. Jan. 29. 13^h. Beginning lost by change of sheets. Forerunners large on *N*. On *E*, in first part of *L* some large waves of period of about 1 min.; strong increase of *L* $15^h.3$. On *N*, a train of *L* waves begins $16^h.6$; L' or L of a second shock?

No. 22. Februar 23. 0^h. Southern Atlantic Ocean. $\triangle$ = ca. 135°. Small movement discernible previous to first phase read, possibly $\overline{P_cP_cS}$. *SS* $52^m.2$ and following pulses, $55^m.1$, $57^m.1$, clearly marked on *E*.

No. 40. Febr. 26. 0^h. Alaska. iP_Z 6^m37^s. *PP* 8^m21^s, much larger than *P*. *S* on *E* only, not very clearly marked. PS_N 13^m27^s. *L* irregular, soon after *SS*.

No. 50. April 14. 1^h. Forerunners inconspicuous. *S* possibly $44^m.3$. *L* earliest on *E*, rather large, regular.

No. 70. May 14. 13^h. Celebes. $\triangle$ = ca. 110°. Very strong record. Beginning lost by change of sheets. No time-marks on *N*. e_E 28^m49^s. PP_Z 29^m48^s, e_E 30^m4^s, large. e_E 32^m41^s. e_E 35^m7^s; strong increase of movement about $36^m.0$; on *E*, subsequent movement very large, trace no longer discernible. PS_Z 38^m51^s, very large. L_Z 14^h2^m.

No. 80. May 21. 10^h. Central America. Phases clearly marked. *P* large. *PP* 23^m58^s, not large, on *E* only. *PPP* 25^m35^s, larger than *P*. e_N 27^m6^s. *S* followed by a group of large oscillations. e_N $32^m.2$. *SS* $34^m.5$. A group of large regular *M* waves $10^h.8$.

No. 90. May 26. 16^h. New Hebrides region; $\triangle$ = ca. 130°. Deep focus. *e* $25^m.2$, quite small. *e* $27^m.9$; *i* 28^m4^s, large oscillations on *Z*. $e_{E,Z}$ 30^m12^s; i_Z 30^m31^s; $i_{N,E,Z}$ 30^m37^s very large on *Z*. $i_{N,E}$ 31^m37^s, very large. $e_{N,E}$ $32^m.4$. $i_{N,E,Z}$ 34^m36^s, very large on *N* and *E*. Subsequent movement strong and variable, but phases not clearly marked. *L* small.

No. 106. June 3. 10^h. Mexico. Very strong record. The beginning of *P* quite small, increase $e_{E,Z}$ 48^m3^s; $i_{E,Z}$ 48^m18^s and i_N 48^m21^s followed by very large oscillations. Rest of *E* record unreadable, the trace being too faint. 2 min. in first part of *Z* record unreadable. e_N $49^m.9$ $e_{N,Z}$ $52^m.3$. S_N about 58^m34^s; rest of *N* record unreadable. e_Z 58^m51^s; e_Z $63^m.5$. L_Z about 70^m.

No. 108. June 3. 17^h. *L* waves preceded by movement which seems to be due partly to forerunners and partly to *L* of a different shock. e_Z about 51^m (in break of record); e_E 60^m26^s.

June 3.—4. From June 3. 20^h to June 4. 22^h a great number of trains of *L* waves has been recorded; it is not always possible to distinguish between waves due to different shocks.

No. 143. June 18. 10^h. Mexico. Very strong record. Beginning of *P* quite small, $e_{E,Z}$ 23^m15^s; increase 23^m23^s; *i* 23^m40^s, large oscillations. Continued strong oscillatory movement. e_E 25^m15^s; e_N 25^m34^s. $e_{E,Z}$ 26^m25^s; e_E $28^m.4$. No definite *S*; increase of movement e_E 32^m30^s; e_E 33^m3^s; e_N 33^m9^s; i_E 33^m56^s very large. $e_{N,E}$ $37^m.4$. Very large *M*.

No. 159. June 22. 13^h. Pacific coast off Mexico. The beginning of *P* quite small, increasing oscillations. $i(P_cP)_Z$ 11^m13^s. PP_E 13^m31^s. S_N 20^m9^s; S_E 20^m15^s, preceded by increase of movement 19^m57^s. e_N 20^m38^s, e_E $21^m.0$. e_E $24^m.7$. *M* large.

No. 191. June 7. 16^h. California. *P* small but well defined. *PPP* $30^m.2$. eS_N 34^m54^s; i_N 35^m2^s. eS_E $35^m.0$. Large *M* about $16^h.9$.

No. 203. July 12. 19^h. Gulf of California. iP_E. *S* clearly marked on *N*. *L* earliest on *N*. A large *M* group.

No. 221. July 20. 20^h. South of Tonga Islands; $\triangle$ = ca. 130°. The beginning quite small, about 25^m on *Z*. *e* $27^m.3$. *e* 28^m5^s, large on *Z*. i_N 29^m3^s. i_Ne_E $(\overline{S_cP_cP_cS})$ 34^m4^s. *SS* 45^m.

July 24. From this date no *Z* records. Until Aug. 21. the other records often disturbed by work at the station.

No. 241. Aug. 12. 3^h. Aleutian Islands. Phases clearly marked but the beginning of *S* not very well defined; e_E $41^m.0$ small, larger movement begins 41^m15^s; e_N 41^m19^s. 43^m24^s (S_cS) large on *E*.

No. 246. Aug. 14. 4^h. According to *USSR* two shocks of different epicentres, Tibet and China. First *P* small, second *P* 51^m31^s, much larger. *e* $53^m.9$; *e* $56^m.0$. *iS* 60^m31^s large on *E*, small on *N*. e_N 60^m52^s; $i_{N,E}$ 61^m5^s, large; i_N 61^m23^s, very large. *e* $64^m.7$; *e* $66^m.0$.