No. 58 1948

Geodætisk Institut
Proviantgården, Copenhagen, Denmark

Bulletin

of the seismological station

KØBENHAVN

$\varphi = 55°41'$ N. $\lambda = 12°26'$ E. $h = 13$ m.

Lithologic foundation: chalk

No. 58. Jan.—Dec. 1948.

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		0.07	12.6	103
E	12.5	100	12.69	$^1/_1$–$^{20}/_2$	0	11	99
				$^{21}/_4$–$^{31}/_{12}$	0	12.4	98
Z	14.5	100	11.56	$^1/_1$–$^{10}/_6$	0	9.5	90
				$^8/_{10}$–$^{31}/_{12}$	0	9.5	85

From $^{10}/_6$ to $^{13}/_8$ Z was not recording.

Wiechert 1000 kg. horizontal seismograph.

Wiechert 1300 kg. vertical seismograph.

Constants:

Component	T	v	ϱ	V
	sec		mm	
N	8.2	4.9	0.7	200
E	8.6	4.3	0.7	200
Z	5.6	$5^1/_2$	0.2	160

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

Benioff vertical seismograph, $T_1 = {}^1/_4{}^s$ $T = 1^s$. $V_{max} =$ ca 30000.

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No.	Date	Hour	Forerunners				*L*	△	Remarks
			P or *P′*		*S*				
	1948 Jan.		*m s*		*m s*	*m s*	*h m*	°	
1	4	9	i *i* 15 8—		17 26	18 17			19^m12^s. $21^m.6$. 32^m11^s. *SS* $36^m.5$. Deep focus. Tonga Islands region.
2	6	17	*e* 36 11		46 47	38 45 39.6		86	49^m34^s. *SS* $52^m.9$. Possibly 2 earth-
3	9	15				i 0 10			[quakes, the first one in Mexico.
4	10	5				61.7			Small preceding movement.
5	16	11	*e* 19 58		29 26		46	73	Aleutian Islands.
6	17	2				34 11	37		
7	17	7	*e* 24 51			38 38			*P* small, uncertain. Marianne Islands region.
8	20	10				e 4 32			*G* records masked by microseims.
9	20	20				i 35 48			Large swings.
10	22	14	i *i* 14 48			*e* 15 25	i 15 30		Very large on *BZ*. Tonga Islands.
11	24	17	*e* 59 53			e 59 57	e 60 6		*PP* 63^m15^s. *SKS* 70^m25^s. *PS* 71^m58^s. Philippine Islands. *P* (*x*, —2.3, +4.0; +2.5, +5.2, —9.7), per. 12^s.
12	26	14				27 41	34 22		34^m41^s. *PS* 36^m3^s. Aftershock.
13	27	12	i *i* 16 52			*i* 16 57	*i* 19 43		*iPP* 20^m18^s. 22^m23^s. 23^m13^s. 23^m27^s. 26^m37^s. 33^m25^s. Depth about 600 km.
14	27	12	i 27 53						[Tonga Islands region.
15	28	2	i 7 59						
16	28	4				5 55	14 17		16^m2^s. $19^m.9$.
17	28	15	i *i* 59 9		65 22	60 50	68 6	41	68^m28^s. No *GZ* record. *P* possibly 2^s earlier on *WZ*. Turkestan.
18	30	8	*e* 52 32		59 29	i 52 39	59 44	48	Arabian Sea.
	Febr.								
19	4	3	i 20 11						
20	4	4	i 56 8						
21	6	23					.1		
22	9	13	i *i* 3 16		7 15	7 40		22	*P* (—7, $+4^1/_2$, $-6^1/_2$; +26, —14, +24), per. (*Z*) 5^s. Strong microseisms.
23	10	16				e 3 57	11		[Aegean Sea.
24	11	15	e 52 8						
25	11	22	e 36 14						
26	12	22					39		Strong microseisms.
27	13	5	i *e* 6 0		13 30	i 6 6			Tibet.
28	15	18	e 59 56		64 2	*e* 59 58	64 26		Aegean Sea.
29	18	20	i *i* 35 41		40 29	40 16	40 41	28	Arctic Sea.
30	28	2	e *e* 9 5+		18 10	22 37		69	Queen Charlotte Islands region.
	March								
31	1	1	- *e* 26 40			30 19	31 16		*PPP* 33^m23^s. *SKS* 37^m21^s. *PS* 40^m6^s. *PPS* 41^m21^s. *SS* 46^m9^s. Moluccas.
32	3	9	e *e* 22 21		32 42	*i* 22 23	*i* 32 48	83	Luzon.
33	4	2	e 6 36						
34	5	20	e 7 34						
35	6	20	e 17 49				25		Crete.
36	7	19	e *e* 1 15		10 18	i 1 17		69	Kamchatka.

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No.	Date	Hour	Forerunners				*L*	△	Remarks
			P or *P'*	*S*					
	1948 March		*m s*	*m s*	*m s*	*m s*	*h m*	°	
37	8	16					1.1		
38	9	19			17 20	18 31	40		*SS* 23m.5. *SSS* 27m45s. New Guinea.
39	10	11			52.9	68.0			Strong microseisms.
40	13	20			28.2	29 30			Strong microseisms.
41	14	21	e 25 41		i 25 43		.7		
42	14	22			21 30				
43	15	2					17		
44	15	2	i 27 50						
45	15	2	i 51 24						
46	15	11	*e* 35 52	45 50	i 35 55	38 52		79	Japan
47	15	19	i 3 56				.6		
48	15	21					46		
49	16	2	e *e* 53 5	63 26	e 53 12		84	83	Luzon.
50	17	20					.5		
51	18	23	i *e* 22 19						Tonga Islands.
52	21	22					.6		
53	23	18	e *e* 22 19		i 22 41				Deep focus. Masked by microseisms.
54	24	5	e *e* 33 9+		37 4	43 41			*PS* 44m54s. Sumatra.
55	24	22					.7		
56	26	3	e 5 58				11		
57	26	13			41 9	47 44			*PS* 50m2s. Celebes.
58	29	2	i *e* 37 52	41 54				23	Turkey.
59	29	3	e 8 30						
60	29	10	i 27 32	31 22	i 27 35	i 27 39		21	31m30s. 31m40s Off Crete.
61	29	12	i *i* 10 14				53		
	April								
62	4	5					4		
63	9	15					.4		
64	12	6			37 51	39 10	67		39m21s. Off Guatemala.
65	12	9			9 35				Recording interrupted 9h11m—15h41m.
66	15	19			i 53 37		1.5		
67	17	16	i *i* 23 36	*i* 33 34	26 34	28 34		79	*SS* 38m49s. 40m59s. 42m38s. No *GZ* record. *P*(—6.0, —5.0, *x*; +9.0, +9.1, *x*) per. 8s. Japan.
68	18	12			39 14	46 54			48m43s. 49m40s. No *GZ* record. New
69	20	4	i 48 54						[Guinea.
70	21	15			44 0				
71	21	20	i *i* 33 20	*i* 42 26	35 50	39 26		69	*ScS* 43m23s. *eP* 33m15s quite small. *iP*(*x*, —2.2, —1.9; *x*, +6.0, +7.0) per. 6s. Near northeast coast of Dominican
72	21	21	i 10 29						[Republic.
73	22	0	e 39 33	*i* 48 41	*i* 39 36	49 32		69	Aftershock.
74	22	5					.3		Small preceding movement.
75	22	10	e *e* 46 53+	50 8	48 9	*i* 50 21		18	Greece.
76	22	15					43		Greece.
77	22	16					5		Greece.
78	22	17					8		Greece.

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No.	Date	Hour	Forerunners				*L*	△	Remarks
			P or *P'*	*S*					
	1948 April		*m s*	*m s*	*m s*	*m s*	*h m*	°	
79	23	5					51		Greece.
80	23	12	e *e* 1 33—	10 40	11 36	15 14	.4	69	Near northeast coast of Dominican Republic.
81	23	20	*e* 22 40	26 44				23	
82	24	12	e 32 36		i 32 43				
83	26	7					41		
84	26	9					40		
85	26	9	e *e* 38 10				46		North Atlantic Ocean.
86	30	14	e *e* 56 10	60 7					*P* small, masked by microseisms, the reading uncertain. Turkey.
	May								
87	1	2					12		Small preceding movement.
88	2	12					41		
89	3	12					.9		
90	3	14			1.9	9 5	.6		*PS* 11m19s. *SS* 16m.9 South Atlantic.
91	6	3	i 10 45		i 10 50				
92	6	9	i 0 20						
93	7	18	i 46 12		i 46 18				Felt in Denmark.
94	8	2	i *i* 57 59	67 24			83		Deeper than normal. Kurile Islands.
95	9	2	e *e* 21 5	31 3	21 17	24 6	47	79	*i* 31m22s. *SS* 36m16s. Japan.
96	9	8	e *i* 35 49						
97	11	9	i *i* 9 27 +		*i* 9 44	13 14			*SKS* 20m5s. 21m3s. 22m26s. 22m54s. Depth about 70 km. Peru.
98	12	1	- *i* 8 54 +	*i* 18 44	11 48	19 2	33	77	*SS* 23m36s. No *GZ* or *BZ* records. Japan.
99	12	12			9 18		13		
100	12	14					.9		
101	13	21	e 2 25				32		
102	14	0	e *e* 8 21		9 36	*i* 14 27			16m15s. Deeper than normal. Moluccas.
103	14	13	i *e* 31 5	40 56	34 2	45.8	1.0	78	Japan.
104	14	18	e *e* 51 16	60 46	*i* 51 19			74	Pacific Ocean.
105	14	19	i 10 4		i 10 15				
106	14	22	i *i* 42 57 +	*i* 52 5	47 14	52 57		70	56m.9. 57m24s. No *GZ* record. South of [Alaska.
107	14	23	e 10 58						
108	15	0	e 43 28						
109	15	2	i *i* 52 56 +		*i* 53 14				
110	15	18					51		
111	16	21	i *e* 28 32	38 24	e 28 41		57	78	Japan.
112	17	17	i *e* 59 42	68 49	*i* 59 45	*i* 60 0		70	69m12s. South of Alaska.
113	19	7	i 47 33						
114	19	17	e 57 39				1.1		
115	20	7	e 17 56		i 17 59		23		
116	22	5	i 12 50				19		
117	22	20					.5		Masked by microseisms.
118	23	4			34 12	*i* 34 51			35m54s. 37m16s. New Hebrides Islands region.
119	23	9					51		Small preceding movement.
120	25	7	e 22 2	30 47	i 22 19	*i* 22 23		66	*PP* 24m45s. *PPP* 26m2s. *SS* 35m36s. *SSS* 38m4s. China.

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No.	Date	Hour	Forerunners				*L*	△	Remarks
			P or *P′*	*S*					
	1948 May		*m s*	*m s*	*m s*	*m s*	*h m*	°	
121	25	15			34 40		.9		
122	25	16			40.1				
123	25	18	i 54 2	62 39					*P* possibly 4s earlier than read. China.
124	26	3					15		
125	26	9	i 27 53	*i* 36 54	*e* 27 55			68	South of Alaska.
126	26	16			31.9		34		
127	27	7	i 37 6		40 55				Near Crete.
128	28	14	e 56 47				82		Japan.
129	29	4	i *i* 51 58—	54 22	i 52 6				Rumania. Deep.
130	29	14					39		
131	31	15			9 7				
132	31	22					45		Small preceding movement.
	June								
133	1	3		42 11					Indian Ocean.
134	1	19	e 8 25	18 30	*e* 8 32	19 15		80	North of Sumatra.
135	1	20	i 27 20						
136	2	13	*e* 51 45		62 15				Off Guatemala.
137	7	7			e 17 42		19		Rhine valley.
138	8	3			44.1		1.0		
139	13	6			39.7				Italy. No *E* and *Z* Galitzin records.
140	14	21	i 55 13						
141	15	10					5		
142	15	11	i *e* 56 46—	66 40	59 43	72.0	.9	78	*i i* 56m48s. Japan.
143	15	21	i 14 28	24.7			45	82	
144	16	0	i 24 20		i 24 31		.9		
145	17	6	e *e* 56 52	60 33			63	20	Greece.
146	17	14	- *e* 14 52	19 50				29	Iran.
147	18	0					2		
148	18	1	i 12 47		14 23	19 47	1.3		*e* 20m45s. 21m21s. *SS* 31m4s. Solomon
149	18	8					2		[Islands region.
150	18	11					.2		
151	18	18	i 51 32	57 8			1.1	35	Iran.
152	19	17					34		
153	19	23			8 50		12		Azores.
154	20	0	i 44 39						
155	20	15		8 17			14		Turkey.
156	21	12			23 16	29 47			Celebes Sea.
157	22	3					.9		
158	23	23	i 31 56						
159	24	0					.1		
160	24	2					16		
161	27	0		28 12	32 17				China.
162	27	13	- *e* 0 30—	10 32	3 34			80	Off north coast of Honduras.
163	27	15	i 54 1						
164	27	21	i *e* 50 24	59 25			1.2	69	South of Alaska.
165	28	7	e *e* 25 22	35 10	i 25 24	i 25 39	47	77	*i* 25m51s. i_N 35m39s. e_N 37m56s.
166	28	8	e *e* 37 36						[Japan. Disturbed.

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No.	Date	Hour	Forerunners				*L*	△	Remarks
			P or *P′*		*S*				
	1948 June		*m* *s*		*m* *s*	*m* *s*	*h* *m*	°	
167	29	10	e 47.9			50 53	*i* 51 40		54m6s. *SS* 69m.2. Samoa Islands region.
168	29	16	- *i* 11 59		*i* 16 30	*i* 16 45	20	26	Caucasus region.
169	30	12	e *i* 25 21 +		28 37	28 46	30	18	Ionian Sea.
170	30	19					.8		
	July								
171	2	3					14		Small preceding movement.
172	3	15					.9		Disturbed.
173	4	23				9.6			
174	5	14	- *e* 1 2*		7 12	2 41	7 35	41	9m.6. 10m48s. Persia.
175	7	2	i *i* 31 19 +		41 18	46 31	61	79	Japan.
176	8	12	*e* 38 36		41 41	i 38 39	43	17	Greenland Sea.
177	11	16					35		
178	14	22				48.9	59 21	82	65m.4. New Guinea.
179	15	11				26 12	28 16	45	*SS* 33m23s. Pacific Ocean.
180	16	3						32	
181	16	7				35 29			Near coast of Guatemala.
182	16	7	e *e* 32 13			42 37	42 45		*SS* 48m.3. Near coast of Guatemala.
183	18	6							Near Celebes. No time-marks.
184	18	20					57		
185	18	23					.4		Some preceding movement.
186	19	18					16		Italy.
187	19	18					32		Italy.
188	20	1					37		Some preceding movement. No distinct phases.
189	20	11				26 46	27 47	36	28m13s. No *GN* or *BZ* records. Off coast of Peru.
190	22	18						13	Disturbed.
191	23	12				41.3	50.5	77	New Guinea.
192	23	21	e *e* 10 0		19 22				*P* small, uncertain.
193	24	6	i *i* 8 10 +		*i* 12 14				*P* and *S* very large. Deeper than normal.
194	24	14	i 41 45						[Near southwest coast of Crete.
195	25	3	i 36 56						
196	25	21	i 55 28						
197	26	11	e 31 26					41	
198	27	6						7	
199	28	8						24	
200	28	14				45 18			
201	28	15				29 5*			
202	29	0	i 44 41			*i* 44 44		1.2	Japan.
203	29	0	i 48 29			*i* 48 36			Japan.
204	29	8	i 59 47						
205	29	17	i 34 5						Seismic?
206	30	2	i 55 50						Japan.
207	30	3	e *e* 37 7		42 38			45 34	Persian Gulf.
208	30	22						2	
209	31	19				27 37		43	
	Aug.								
210	4	23				40 33		1.1	

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No.	Date	Hour	Forerunners				*L*	△	Remarks
			P or *P'*	*S*					
	1949 Aug.		*m s*	*m s*	*m s*	*m s*	*h m*	°	
211	7	14	*e* 52 28	62 25					Japan. *P* small, the reading uncertain.
212	8	17					.9		Disturbed.
213	10	13	i *i* 31 41	35 39			38	22	Turkey.
214	11	10	i *e* 48 52	59 16	52 8	59 3	68	84	60^m11^s. *SS* 64^m36^s. Southern Mexico.
215	12	4			35 13		39		
216	12	22			45 2	52 4	1.4		
217	14	2					4		
218	17	5					.5		
219	17	17	*e* 21 29	31 0			51		*P* small, uncertain. Japan.
220	17	19					44		
221	18	19	*e* 11 35	16 1			25	25	Anatolia.
222	18	21	e *e* 16 1		18 58			14	Adriatic Sea. *Lg* 20^m29^s. (ca. 4^s per.).
223	19	14	i *e* 0 56	*i* 9 7	5 4	9 38			10^m35^s. Deeper than normal. Alaska.
224	19	20	i *e* 11 58	22 47	22 29	24 0	38		Deeper than normal. South of Panama.
225	20	19			4.0	10 21	.6		12^m39^s. East of Mindanao.
226	21	3					34		
227	21	8			51 53			14	*Lg* 52^m49^s. (ca. 4^s per.). Adriatic Sea.
228	22	23							*Lg* 24^m27^s. (ca. 4^s per.). Some preceding movement. Adriatic Sea.
229	23	11	i *e* 54 44	58 8			60	19	Arctic Sea, north of Norway.
230	24	6					.5		
231	24	8					.8		
232	25	6	- *i* 23 25 —		27 38	34 5			$35^m.4$. *PS* 36^m45^s. *SS* $42^m.4$. Argentina.
233	27	10	*e* 47 36 —	50 22			51	15	Albania.
234	27	11					32		Albania.
235	27	17			12 52	13 45			15^m57^s. Argentina.
236	28	2	*e* 38 49	*i* 47 36	51.9		63	66	Kamchatka.
237	28	12	e *i* 44 2 +						Tonga Islands.
238	29	15					.4		
239	29	16					50		
240	29	17	*e* 57 19		60 15	61 0			67^m24^s. Samoa Islands region.
241	29	23	e *e* 41 50	51 54	52 29	57.1	70	80	South of Japan.
242	30	1	*e* 42 29	46 2			47	20	North of Iceland.
243	30	7					.7		
244	30	21	i 47 41				58		
245	31	10					.2		
	Sept.								
246	1	20					.0		
247	1	20			16 42		.6		
248	2	23	i *i* 48 12 +	59 34	52 4	52 52	80	97	*SKS* 58^m45^s. *PS* 60^m53^s. e_E $63^m.4$. *SS* $66^m.1$. Off Mindanao.
249	4	15		34 13					Disturbed. Indian Ocean.
250	4	17					57		
251	5	10	i *i* 12 3						
252	6	8			28.8	35 8	60		36^m21^s. *PS* 38^m5^s. Chile.
253	6	9					50		
254	6	16		58 16			1.3		Off Guatemala.

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No.	Date	Hour	Forerunners						*L*	△	Remarks
			P or *P′*		*S*						
	1948 Sept.		*m*	*s*	*m*	*s*	*m*	*s*	*h m*	°	
255	7	8	i *i* 23	5 +	*i* 29	19	*i* 23	48	24 9	43	24m49s. 25m42s. *sS* 30m32s. *SS* 32m28s. 32m52s. Depth about 200 km. Hindu Kush.
256	8	15	i *i* 28	50 +			32	2	35 25		35m36s. 36m.0. 39m.0. 39m20s. 40m42s. 42m16s. 43m8s. 44m.6. 51m.0. *P′* exceptionally large. Tonga Islands.
257	8	16	i	22 45							Repetition.
258	8	16	e	32 4							Repetition.
259	8	16	i	48 10							Repetition.
260	8	17	e	6 · 52							Repetition.
261	8	19	e	45 52							Repetition.
262	8	20	i	19 21							Repetition.
263	9	6	i	28 48							Repetition.
264	9	14							1.4		Repetition.
265	10	12	i	10 25	16	36				41	Turkestan.
266	10	14	i *i*	0 9	9	38	5	58	10 32	74	*SS* 14m36s. Japan.
267	11	8	i *e*	57 6	60	39	*i* 57	35			Deep focus. Gulf of Corinth.
268	12	3	i *i*	39 23							Tonga Islands.
269	12	14							1.5 7		
270	13	21					31	9	.9		
271	15	4							50		
272	16	8							52		
273	19	6							51		
274	20	18							.2		Strong microseisms.
275	21	17	i	45 59	56	4	*i* 46	12	57 7		
276	21	17	i *e*	58 30—	62	17				64 21	Greece.
277	23	1	e *e*	4 19	13.9					31 75	Japan.
278	23	15	e	22 58						52	Disturbed. Strong microseisms. *P* uncertain.
279	24	21					1	34	11.1	37	
280	24	23	*e*	40 28			50.9			70	Philippines.
281	25	4							.0		
282	26	1	e	18 14			20	8	20 35	1.0	*P′* small, the reading not certain.
283	26	8								28	Solomon Islands.
284	28	21	i *e*	47 35 +	*i* 56	23	i 47	38	i 47 42		57m1s. *SS* 60m.6. *SSS* 64m.0. Burma. Deeper than normal.
	Oct.										
285	1	3							54		
286	4	6	*e*	9 39					37		
287	5	20	i *i*	19 3—	24	35	*i* 19	7		35	Iran.
288	5	22	i	47 45							Iran.
289	6	1	i *e*	31 43	37	19					Iran.
290	7	1	e	29 54					57		
291	7	19	i	1 37							
292	8	9	i	18 28			i 18	41			No Galitzin records.
293	8	19	i	13 2	22	8			37	69	China.
294	10	2	e	17 46					42		*P* possibly earlier than read, no clear onset.
295	10	17	i *i*	47 57—	51	53	i 48	0	52 10	54 22	NW of Crete.

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No.	Date	Hour	Forerunners				*L*	△	Remarks
			P or *P′*	*S*					
	1948 Oct.		*m s*	*m s*	*m s*	*m s*	*h m*	°	
296	13	14					31		
297	14	22	i 1 3						
298	15	23			4.1	13.7	34		*SS* 20m.5. South Sandwich Islands.
299	18	9	i *e* 4 55 +	9 0	9.5		13	23	Dodecanese.
300	21	5	*e* 2 40				.7		*P* not clearly marked, the reading uncertain. No *GZ* record. Coast of Nicaragua.
301	21	5			22 25		59		Solomon Islands region.
302	23	5					.5		Masked by strong microseisms.
303	26	20					36		
304	28	20	i *i* 57 26	*i* 67 19	*i* 57 42	*i* 67 44	84		60m23s. 62m14s. Deeper than normal. Japan.
	Nov.								
305	1	12	i *i* 16 42 +	25 38	26 0		37	67	Kamchatka.
306	2	10					.5		
307	3	5	*e* 38 12				79		*P′* quite small, the reading uncertain. Later phases not clearly marked. Loyalty Islands.
308	4	13	i 28 52				1.0		Aleutian Islands.
309	8	18	i 10 1		i 12 43				
310	9	2	i 44 16						
311	13	4	e 49 10		i 49 28	i 49 33	54		e 49m42s. The earliest reading uncertain. No *GE* record. Turkey.
312	13	23	8.5				1.1		South Pacific.
313	14	6	e 27 26	37 17	27 36	37 41	56	78	Japan.
314	15	5	i 1 13						
315	16	22	i 9 5						
316	19	1	e *e* 16 59		27 27	28.8	.7		Off Costa Rica.
317	20	10	e 21 16						
318	21	19	e *e* 29 29		32 43				Strong microseisms. New Hebrides.
319	22	9	i 18 26				44		*P* uncertain. Aleutian Islands.
320	22	23	*e* 38 42				48		North of Spitsbergen.
321	25	2	e 53 51						Seismic?
322	26	5	e 55 19		56 29	66 4			72m.3. New Guinea.
323	27	17					31		
324	28	21	e 53 54	62.0	*e* 54 0	69.8			*P* uncertain, possibly several seconds earlier. Burma.
	Dec.								
325	4	0	e *e* 35 37		39 1	46 21			Strong microseisms. Off Mexico.
326	4	20	i 31 30		e 31 55				Seismic?
327	5	0					23		Strong microseisms.
328	5	6			70.8	77.1	1.5		Strong microseisms.
329	10	9	i 53 0				1.3		Kamchatka.
330	12	13					.9		Strong microseisms.
331	13	14					38		
332	14	16					53		
333	15	19	i *e* 24 11		i 24 25	34 21	56		34m45s. 36m1s. 40m.6. Deep. Bonin Islands.

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No.	Date	Hour	Forerunners				*L*	△	Remarks
			P or *P′*	*S*					
	1948 Dec		*m s*	*m s*	*m s*	*m s*	*h m*	°	
334	16	7					85		
335	23	8	e *i* 52 7	61 2	65 20		75	67	Kamchatka.
336	23	16					7		
337	24	9					37		
338	26	7			38 43	45 51	57		Chile.
339	27	7	i 32 17						
340	30	23					1.4		Strong microseisms.

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Seismometric readings: Notation

P— normal first preliminary tremors, longitudinal waves.
P +— first wave, as recorded on Galitzin or Wiechert instruments, condensational (away from the epicentre).
P—— first wave, as recorded on Galitzin or Wiechert instruments, dilatational (towards the epicentre).
P ($\pm a$, $\pm b$, $\pm c$) — *a*, *b* and *c* are trace amplitudes in mm. of first swing on NS, EW and vertical component Galitzin records respectively. + indicates ground motion directed to N, to E or up, — indicates ground motion to S, to W or down. When a second set of amplitudes is given it refers to the second swing. If an amplitude is not measurable the number is replaced by *x*.
PP . . .— longitudinal waves reflected at the earth's surface.
S— normal second preliminary tremors, transverse waves.
SS . . .— transverse waves reflected at the earth's surface.
PS; *PPS*; . . .— waves reflected at the earth's surface which travel partly as longitudinal, partly as transverse waves.
SKS— waves which traverse the mantle as transverse waves but are refracted through the core with longitudinal oscillation.
PKS — waves which pass the mantle on one side of the core as longitudinal waves, on the other side as transverse waves and are refracted through the core with longitudinal oscillation.
SKKS— waves which traverse the mantle as transverse waves, are refracted through the core with longitudinal vibration and are reflected on its inner boundary.
L— long, or surface, waves; main phase.
i, *i*— sharply defined beginning of a phase as recorded on Benioff seismograph and other seismographs respectively.
e, *e*— gradual beginning of a phase as recorded on Benioff seismograph and other seismographs respectively.
$\triangle$ — arcual distance from the station to the epicentre.
* affixed to time of phase indicates that the beginning is in a time-mark.