

Geodætisk Institut

Proviantgården, 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. 62. Jan.—Dec. 1952.

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		0.0	12.6	103
E	12.5	100	12.69	$1/1-27/11$	0.0	12.5	97
				$27/11-31/12$	-0.1	12.5	111
Z	14.5	100	11.56	$1/1-14/2$	0.1	$8^{1/2}$	89
				$14/2-31/12$	0	$8^{1/2}$	82

Wiechert 1000 kg. horizontal seismograph.

Wiechert 1300 kg. vertical seismograph.

Constants:

Component		T	ν	q	V
		sec		mm	
N		8.0	3.7	$1/2$	215
E		8.0	4.0	$1/2$	210
Z	$1/1-19/5$	4.9	4	0.3	175
	$19/5-31/12$	5.3	4	0.1	160

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

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								
			m	s	m	s	m	s	h	m	°		
1	1952 Jan. 3	6	e	9 13	13	43	e	9 15	13	56	18	26	Turkey.
2	11	7	i e	14 27+									Kurile Islands.
3	12	20	e	22 59	32	33	23	6	33	5		74	36 ^m .8. Aleutian Islands.
4	13	4	i	16 13	26	35	i	16 19	i	26 42		40	28 ^m .1. 31 ^m .8. 36 ^m .8. Off Formosa.
5	19	8										3	
6	20	14						59	40			.7	
7	21	3	e i	54 22	63	49	64	22				1.3	73 Aleutian Islands.
8	23	3	i	38 56								58	China.
9	28	6										41	
10	29	1										.7	
11	31	20						40.0				58	Mexico.
12	31	21						13 55	18.2			28	Africa.
13	Febr. 2	10	i	31 26			i	31 40				1.0	Aleutian Islands.
14	3	1	i	25 59									
15	3	20										55	
16	6	5	i i	36 43								57	China.
17	10	6	e e	14 7								19	Jan Mayen region.
18	11	7					e	17 54	24	15			Strong microseisms.
19	14	3	e	52 45				53.4	57	6		1.4	PP 57 ^m 23 ^s . PPP 60 ^m .0. 60 ^m 47 ^s . 62 ^m .7. 64 ^m .7. PS 66 ^m 34 ^s . 67 ^m .9. 71 ^m .0. 73 ^m .1. 76 ^m .9. Flores Sea, north of Timor.
20	14	21			25	29						44	Colombia.
21	17	17			59	26						1.3	Gulf of California.
22	18	4	e	6 55									
23	24	21		27 9			27	25					First onset quite small, masked by microseisms, second one clearer. Western Germany.
24	25	1	i e	36 30			39	35	40	13		85	PPP 42 ^m 47 ^s . e _N 49 ^m 43 ^s , 51 ^m 21 ^s , 52 ^m 5 ^s .
25	25	18	i	53 22			i	53 36					[SS 58 ^m .1. Tonga Islands.
26	26	11	i -	44 12	55	15	e	44 42	45	15		71	98 e 47 ^m 18 ^s . PP 48 ^m 8 ^s . e 48 ^m 36 ^s . pPP 49 ^m 8 ^s . SKS 54 ^m 25 ^s . pS 56 ^m 25 ^s . PS 57 ^m 9 ^s . 59 ^m 21 ^s . SS 61 ^m 59 ^s . sSS 63 ^m .5. 64 ^m .7. Depth 250 km. Peru-Bolivia border.
27	26	15			62.5		63	48					No GZ record. Near coast of Nicaragua.
28	26	22										.3	
29	28	0	i	39 54									
30	March 1	15	e	42 38									Japan.
31	2	4										32	
32	4	1	i i	34 20	i	44 5	i	34 31	i	34 39		58	76 35 ^m 20 ^s . 36 ^m 30 ^s . 37 ^m 25 ^s . 38 ^m .2. 40 ^m 35 ^s . 45 ^m 1 ^s . 49 ^m .0. 49 ^m .5, large oscillation of long period. L very large, initial period about 1 min. Off Japan.

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'		S				
			m s	m s	m s	m s	h m	°	
	1952 March								
33	4	1	i 51 21						Repetition. No GZ record.
34	4	1	i 51 44						»
35	4	2	i 3 35						»
36	4	2	i 20 7						»
37	4	2	i 51 24						»
38	4	3	i 20 2						»
39	4	3	i 23 45						»
40	4	4	i 5 13						»
41	4	4	i 22 56						»
42	4	16	ee 42 37	52 14			69	75	Japan.
43	4	17					57		
44	4	19					.1		
45	4	19	e 49 39						
46	4	20	ii 7 55	17 34	12 32	18 37	34	75	Japan.
47	4	21	i 1 7						
48	5	1	e 32 9				61		P masked by microseisms, the reading not certain.
49	5	4	ee 0 48	10 20			26		Japan.
50	5	9					55		Forerunners masked by microseisms. No BZ record.
51	5	16	e 6 2	15 33	9 32		.5	74	» Japan.
52	5	18					40		» Interrupted.
53	7	7	ie 44 30-	i 54 14	54 38	55 5		76	Japan.
54	7	9	e 56 18				84		»
55	7	11	e 56 8						»
56	7	18	i 27 39				55		»
57	7	20					24		
58	8	11	e 41 18						Jan Mayen region.
59	9	4					56		
60	9	5	e 48 52				54		Jan Mayen region.
61	9	16	e 48 40						
62	9	17	ii 15 23+	i 24 55	18.1	30.2	37	74	Japan.
63	9	20	ii 10 45+	19 24				65	Canada.
64	10	18	i 13 40				41		Japan.
65	11	0	i 45 19						
66	11	20	i 49 0		i 49 16		75		Japan.
67	12	8	e 16 52						
68	12	12	ee 17 35	21 14			22	20	Off Iceland.
69	13	4					.7		
70	13	6					40		Turkey.
71	13	14	e 9 19	i 18 52	10 24	20 6			SS 24 ^m .2. Depth about 200 km.
72	14	18					52		[Eastern China Sea.
73	14	21	i 6 56	i 16 30	i 7 6	17 25	34	74	Japan.
74	15	11			35 24	i 40 11	59		Off Sumatra.
75	15	12			24 1				
76	16	22	i 21 0	30.5	i 21 10		46	73	Japan.
77	18	11	e 15 41						

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No.	Date	Hour	Forerunners				L	△	Remarks	
			P or P'		S					
			m s	m s	m s	m s	h m	°		
78	1952 March	19	1	e i 31 51+	35 23	32 33		38	20	Lg 38 ^m 11 ^s , period ca. 5 ^s . Turkey.
79		19	8					.4		Disturbed.
80		19	9	e 15 27				40		Corea—Manchuria.
81		19	11	i 10 37	22 16	i 10 41	13 40	47		PP 14 ^m 21 ^s , 31 ^s . PPP 16 ^m 31 ^s . PPPP 17 ^m 56 ^s . 18 ^m 41 ^s . SKS 21 ^m 16 ^s . PS 23 ^m 8 ^s . PPS 23 ^m 56 ^s . 25 ^m 1 ^s . 25 ^m 32 ^s . SS 27 ^m 50 ^s . 28 ^m 41 ^s . 30 ^m .9. SSS 32 ^m 37 ^s . 34 ^m .6. [36 ^m .6. Philippine Islands.
82		21	0					.7		Faint preceding movement.
83		21	17					.4		
84		22	2	e 7 55				14		
85		22	5					.7		
86		22	15					12		Small preceding movement.
87		23	16					48		Mediterranean Sea.
88		25	3	i 40 11				.5		
89		25	10					26		
90		26	12							
91		27	16		29 35			.7		Ascension Island region.
92		27	22					36		
93	April	1	4					33		
94		1	15					.3		Disturbed.
95		1	21					3		No BZ record 1 ^d 7 ^h —3 ^d 7 ^h .
96		2	18			51 16	58 33	1.3		SS 64 ^m .4. Mexico.
97		3	3					30		Ionian Sea.
98		4	3	i i 4 4+	13 9	14 2	17.9	28	69	Kamchatka.
99		4	8					32		Disturbed.
100		8	10					.9		No Galitzin records.
101		9	8					25		
102		10	6	ee 9 39+	20.0	i 9 49	21 0	38	83	29 ^m .6. Riukiu Islands.
103		12	1		50.0					Indian Ocean.
104		14	1	i 23 49		i 26 38				
105		14	23	ee 3.4		14 32				P waves quite small, no clear onset.
106		15	6	i i 11 25	21 15			39		Moluccas.
107		15	9	i 34 39						Deeper than normal. Japan.
108		15	13	i 55 7						
109		15	19					.9		Forerunners small, masked by micro-seisms.
110		16	3	i 51 50						Kurile Islands region.
111		16	12					7		
112		17	4					50		
113		18	3	i 54 55						Tonga Islands region.
114		18	16			23 47	26.5	52		31 ^m .9. Marianne Islands region.
115		19	10	i i 11 8+	i 21 17	14 10	22 56	32	81	24 ^m .6. 26 ^m .8. Colombia—Venezuela
116		19	12					8		[border.
117		19	13					10		

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			P or P'		S							
			m	s	m	s	m	s	h	m	°	
118	1952 April 19	20							28			
119	20	7	e	27 7								Tonga.
120	22	4	i	45 36			i	46 0				Kermadec Islands region.
121	23	16							33			Tonga.
122	24	12	i	i 31 29-					42			Near Costa Rica.
123	25	3							.9			No Galitzin records. Kermadec Islands region.
124	25	6	i	e 14 45				25 24				P' small, no distinct onset. Tonga.
125	25	10										
126	27	8	i	e 32 16			i	32 21	i	32 27		
127	27	13	e	e 2.8								
128	28	1	i	19 34			i	19 40				
129	28	11	i	e 5 52	15 21		15 44	16 26	30	74		Japan.
130	29	2	i	i 47 9+	56 49		48 15	50 14				58 ^m 8 ^s . 58 ^m 46 ^s . Off north coast of Formosa.
131	29	3	i	19 6								
132	30	19	e	0 19								
133	May 1	16			26 32				34			Atlantic Ocean.
134	2	18	i	29 14								
135	3	11	i	14 25					.2			
136	3	13										
137	4	14	e	e 35 7			39.5		2			Tonga.
138	6	18										
139	8	1	i	e 10 41	i	20 34	21 4	25.9	37	78		Japan.
140	8	21					28.9	35 13				SKKS 36 ^m 5 ^s . PS 37 ^m 37 ^s . Molucca Passage.
141	9	3	i	i 48 11+			50 7		1.7			Kermadec Islands region.
142	9	18	e	e 6 37			8 22	18 10				e _Z 23 ^m 52 ^s . e _{N,E} 24 ^m .9. Solomon Islands.
143	10	15							3			
144	10	17					28 37					Molucca Passage.
145	12	19					44.4					Atlantic Ocean.
146	13	3	e	56 9								
147	13	19	i	44 18+			54 52	56 2				SS 61 ^m .0. Costa Rica.
148	14	0							.6			
149	14	0	i	i 48 37+	58 13		60.2		75	75		Japan.
150	14	21					34.1		.9			
151	15	11							10			
152	15	18							57			
153	15	19							28			
154	16	5					58 13	65.4	1.4			Guatemala.
155	16	10							53			
156	16	14	e	36 46	40 27				42	20		P and S small. Iceland.
157	16	16							54			
158	16	20	i	i 58 20-	69 14		68 50	69 46	85			Off Panama.
159	16	22	i	i 39 13								Tonga.
160	17	6					22 10	23 34	.9			Solomon Islands.

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			P or P'		S				
			m s	m s	m s	m s	h m	°	
161	1952 May	17 9	i i 59 53+	69 26	i 59 64	69 44	85	74	SS 74 ^{m.4} . East of Japan.
162		19 6					3		
163		19 18	i i 44 0-	53 33	44 15	46 44	67	74	PS 53 ^{m.52s} . SS 58 ^{m.4} . SSS 62 ^{m.1} . [Japan.
164		20 15					57		
165		20 19					6		
166		22 23	i e 20 29+	30 32			51		Riukiu Islands.
167		23 4	i e 32 55-		i 33 9		62		Japan.
168		24 2			17 24	24.1	45		24 ^{m.57s} . Off Chile.
169		24 16	i i 18 50		29 33		.8		Sumatra.
170		25 7					44		
171		25 16					44		
172		26 2	i e 57 0	65.4				62	Tibet, Assam and Burma border.
173		26 3	i e 45 42						Tonga.
174		28 7	i i 55 23+		56 34	58 18			SS 65 ^{m.6s} . Depth ca. 220 km. Hindu Kush.
175		28 8	i i 10 23-	i 19 40	24 44				Deep focus. Disturbed. Japan.
176		31 6					.1		
	June								
177		2 3					28		
178		2 10					40		
179		2 11					5		
180		3 5	i 56 35				61		Lg(BZ) 61 ^{m.08s} . Rumania.
181		4 6	i 28 26-		i 28 31		45		Tibet.
182		4 20					41		
183		4 21	i 43 30-		54 1				Near west coast of Colombia.
184		5 6	9.2	19 44					» » » » »
185		5 10					.1		
186		6 10					.9		
187		9 14		57 34			61		Dodecanese.
188		10 10	e 17 58		20 44	39.1	1.0		Fiji Islands region.
189		11 0	e 46.3		50 49	56.9			57 ^{m.56s} . PS 60 ^{m.3} . Argentina.
190		12 11			9.5		13		Near Crete.
191		13 1	i e 11 52+	15 35			18	21	Near west coast of Greece.
192		14 2	i e 16 14+						Alaska.
193		14 8	i e 7 43		i 7 52				Japan.
194		15 15	i e 25 58	34.2				60	Tibet.
195		15 16	i 32 10				1.0		Japan.
196		16 3	i i 57 8						Fiji Islands region.
197		17 4	i 27 23				1.0		Tonga.
198		17 12			.5				No clearly marked phases.
199		17 22		47 12	47 27		50		Off Portugal.
200		18 4					39		
201		19 0					32		
202		19 12	e e 24 15	33 25	41.2		45	70	China.
203		19 21			26 15	33 15			Tonga.
204		20 5	e i 58 30+	68.6			88	80	Near Formosa.
205		21 6	i i 40 29	49 53	i 40 30	i 40 39	65	73	Kurile Islands.

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			P or P'		S									
			m	s	m	s	m	s	m	s	h	m	°	
206	1952 June 22	3	e e	52 25.			i	52 39						Kermadec Islands region.
207	22	10	e i	19 46+	29	9					44		73	Kurile Islands.
208	22	21	i i	53 25+	62	49	63	28	67	49	76		73	P (-2.2, -1.5, +3.0; +7.1, +3.5, [-9.3). Kurile Islands.
209	22	22	i i	11 37+										Small, the reading uncertain.
210	23	11	e	17.0										
211	23	12			i	25 27					44			Formosa.
212	23	18									.8			Kurile Islands.
213	24	16	i	40 36	49	54					65			» » S quite small, the reading uncertain.
214	25	23	i	30 37	39	27							66	China.
215	26	13									.4			
216	26	15					44.6				48			Azores.
217	27	13					16	31			19			Greece.
218	29	8	i	16 18										Aleutian Islands.
219	30	21									.6			
220	July 2	17									34			
221	3	1	i e	5 5	15	41							86	Off Colombia.
222	4	5	i e	4 29-			i	7 16	i	7 25				Fiji Islands region. Deep focus.
223	4	20									41			Italy.
224	4	21									37			»
225	5	12	i e	59 40										Fiji Islands region.
226	5	17	i i	27 33+	33.8		i	28 16	i	28 39			44	28 ^m 53 ^s . iPP 29 ^m 17 ^s . pPP 29 ^m 55 ^s . sPP 30 ^m 19 ^s . sS 35 ^m 13 ^s . SS 37 ^m 6 ^s , 16 ^s . Depth 220 km. Hindu Kush.
227	6	6	i	20 47										Atlantic Ocean.
228	7	3	i	4 19										Aleutian Islands.
229	8	1	i	9 37			i	12 21						Japan Sea.
230	8	21	i	3 20										Off Greece.
231	9	18	e e	28 7				38 45			51			Off Panama. The reading of P uncertain.
232	9	20	e	49 45				60 15			75			Off Panama. The reading of P uncertain.
233	10	16	- i	3 45			i	6 25		10 2				e _N 12 ^m 53 ^s . e _N 13 ^m 24 ^s . e _E 24 ^m 56 ^s . Deep focus. Fiji Islands.
234	13	12	e	17 25			i	17 27	i	17 33				e _Z 18 ^m 45 ^s . 20 ^m 25 ^s . 21 ^m 9 ^s . 21 ^m 45 ^s . 25 ^m 5 ^s . 28 ^m 39 ^s . 30 ^m .5. 35 ^m .1. 38 ^m .2. Deep focus. New Hebrides.
235	13	17			60	45	53.2		55	28	78			57 ^m 35 ^s . SKS 59 ^m 27 ^s . PS 62 ^m .2. SS 68 ^m .0. SSS 71 ^m .9. Ceram Sea.
236	15	6	e	19.0				29 33			51			P quite small, no clear onset. Near [coast of Guatemala.
237	16	2									9			
238	17	16	i i	21 43-	i	31 30	i	21 56	i	22 3	42			i i 22 ^m 11 ^s . 31 ^m 55 ^s . Deeper than normal. Japan.
239	18	19						61 4		62 16	91			Easter Island region.
240	21	12	i i	4 29	14	39		7 38		15 34	26		81	16 ^m 6 ^s . SS 19 ^m 35 ^s . 20 ^m 39 ^s . California.
241	21	20					12.1				.5			

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			P or P'		S				
			m s	m s	m s	m s	h m	°	
	1952								
	July								
242	21	22					16		
243	23	0					10		
244	23	0	i 50 47+				78	California.	
245	23	14					.0	»	
246	24	10	i e 49 38				46	Kermadec Islands.	
247	24	22	i i 20 54+	30 23	i 21 16	31 19	46	Japan. Deeper than normal.	
248	25	14					1.6	South Pacific.	
249	25	19		32 6			49	California.	
250	25	20					23	»	
251	26	10	i 23 22						
252	26	13	e 44 33						
253	26	14			i 47 4			Japan.	
254	27	2			34.3		1.5	Burma.	
255	27	8	i - 42 6		i 45 0			Samoa.	
								P' very large. (Δ = ca. 145°).	
								Benioff record only. Fiji Islands.	
256	29	7	e 16.0	26.1	26.8		43	California.	
257	29	20	i 5 55				.5	Aleutian Islands.	
258	31	12			31.5		.8	California.	
	Aug.								
259	1	10					.9		
260	1	20					.5		
261	3	14					.1		
262	4	1	i e 56 38	62 10	i 56 43		70	35 S small, uncertain. Iran.	
263	6	5			25.5		37	Atlantic Ocean.	
264	7	21	i 35 2					Tonga.	
265	7	22	i i 5 8	14 41	15 0		32	74 S small, Japan.	
266	8	12	i 23 23						
267	9	10					.3		
268	12	6	i 16 21						
269	12	6	i 43 18	53 19				79 Off Sumatra.	
270	13	3					36	Small preceding movement.	
271	13	14	i 37 15					Iran.	
272	13	21		29 14			37		
273	14	16	e 13 41		i 24 6	32 48	44	Sumatra.	
274	14	23	i 35 55		37.2	47.1	1.2	P' quite small. Solomon Islands.	
275	15	19	i e 16 27						
276	15	20	i 10 54						
277	16	14			12.7	19 49	49	22 ^m .2. Solomon Islands.	
278	17	4	i i 37 11+		40 33			Indian Ocean.	
279	17	16	e e 12 13-	20 17	i 12 16	14 23	29	59 22 ^m .1. 24 ^m .1. P(x, +1.9, -1.0; -1.5, -9.0, +8.5). Tibet.	
280	18	13			24 12	33 50	57	Chile.	
281	19	11					31	Some preceding movement.	
282	20	15	e 36 51	46 39	i 37 6	46 46		47 ^m 31 ^s . First P wave quite small, the reading uncertain. Off coast of Oregon.	
283	21	4					31	Small preceding movement. Near Crete.	
284	21	16	i 37 33					Fiji Islands.	

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			P or P'		S				
			m s	m s	m s	m s	h m	°	
285	1952 Aug. 21	23					.3		Small preceding movement.
286	22	23					.4		California.
287	24	13					34		
288	24	20	e 49.4				57		P masked by microseisms. Mediterranean Sea.
289	25	1	i e 55 16		65.3		70		Assam.
290	27	11	i e 38 55	48.3	i 39 9	i 39 12	1.1		i 49 ^m 19 ^s . Deeper than normal. Alaska.
291	28	11	i e 3 52						Alaska.
292	29	6					.4		
293	31	16	i e 21 11+	30 38	31 4	35.6	46	73	Japan.
294	Sept. 7	3					37		
295	7	5					37		
296	7	22	i 31 37						Bonin Islands region.
297	9	13	i e 7 28	i 18 4	17 50			87	SS 24 ^m 0 ^s . Costa Rica.
298	10	4	i 20 48						Tyrrhenian Sea.
299	10	9					.5		
300	11	22	e 46 36		i 46 40	50 23	1.7		Kermadec Islands.
301	11	23	i 43 11		i 43 22				» »
302	12	1			12 5		15		Ionian Sea.
303	14	6	i 10 14						Fiji Islands.
304	14	9	e 44 9	52 13	i 44 12		63	59	China.
305	15	4	e 38 28		44.1				The readings uncertain; no clear onsets.
306	15	11	e 36 52	43 45				47	Turkestan.
307	15	18					32		Central Pakistan.
308	15	19					41		
309	19	18					.3		
310	20	14					.3		
311	21	2	i i 44 3+	i 55 19	45 39	i 47 53			PP 48 ^m 12 ^s . sPP 49 ^m 42 ^s . iSKS 54 ^m 21 ^s . iSKKS 54 ^m 59 ^s . 56 ^m 19 ^s . iS 57 ^m 25 ^s . Depth 250 km. Argentina-Bolivia border.
312	21	11					.9		Small preceding movement.
313	22	12					.3		California.
314	23	20		40 3			44		Turkey.
315	24	20	e 40 16	49 10	50 8			67	Alaska.
316	27	19	- e 16 52-	25 57	17 9		41		Deeper than normal. Kamchatka.
317	28	14			45.9				
318	28	19					.8		
319	28	22					46		
320	29	1	i 24 49						Kermadec Islands.
321	30	2	e 56 30				65		
322	30	13	e i 2 56	i 11 50	5 25	12 53	26	67	SS 16 ^m .3. LR 32 ^m . China.
323	Oct. 1	8					30		
324	1	10					.0		

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No.	Date	Hour	Forerunners				L	Δ	Remarks
			P or P'		S				
			m s	m s	m s	m s	h m	°	
325	1952 Oct. 2	13	e 23 30				50		Fiji Islands.
326	4	4			24.6	29.0	38		Atlantic Ocean.
327	5	10		29 16			32		Greece.
328	5	10					44		»
329	5	10	e i 59 19+	i 62 52	63 2		65	20	»
330	5	22	i i 14 6+	22 7			31		S possibly earlier than read. China.
331	6	3					2		
332	6	20					.0		
333	6	22		49.7			1.5		Kamchatka.
334	7	16					19		
335	7	18					31		Tibet.
336	8	14					.9		China.
337	10	11	e 56 23	59 51			62	19	P small, the reading uncertain. Greece.
338	10	16					1.0		Some preceding movement; no clearly marked phases. Samoa.
339	10	18	i e 56 9+	63 10	58.1	64 53		49	SS 67 ^m .1. Central Pakistan.
340	11	0			50.7		1.1		New Britain.
341	11	2					.1		Superposed on preceding shock.
342	12	10					.8		Faint preceding movement.
343	12	17					2		
344	13	13					.2		
345	13	16	e e 46 38	50 12	e 46 55		52	20	Greece.
346	13	23	e 44.1				1.8		South of Kermadec Islands.
347	15	0			19.4		46		Off Costa Rica.
348	15	3					.6		
349	15	18					7		
350	15	19	i 15 37						Japan.
351	17	15	i 27 48						»
352	18	0					.1		
353	18	5	e 42 0		44 39	45 33	1.4		New Hebrides.
354	18	12	e 7 51	16 10			23	61	Atlantic Ocean.
355	18	21	i 34 46				51		Hindu Kush.
356	19	3					50		
357	20	15							Phases not clearly marked.
358	22	4	19 48	23 46			27		Dodecanese.
359	22	17	e e 5 58	10 21			14		Southern Turkey.
360	26	8	e 31 54						
361	26	8	i i 52 35	i 62 6	i 53 45	54 17		79	62 ^m 25 ^s . PS 63 ^m 36 ^s . SS 67 ^m 17 ^s . Depth about 300 km. Japan.
362	26	13	e 32 7				61		Japan.
363	26	15					12		»
364	26	15	i 58 7				89		»
365	26	16	i e 4 56						Superposed on preceding shock.
366	26	18	e e 13 52	23 34	i 14 9	16 44	.7	76	Japan.
367	26	19	i i 31 9+	40 52	i 34 1	41.5	59	76	»
368	26	19	i 35 25		i 35 34				
369	26	20	i 39 17		i 39 26		69		Japan.
370	26	22	e 12 28		e 12 38		43		P quite small, uncertain. Japan.

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
			m s	m s	m s	m s	h m	°	
371	1952 Oct. 27	0					33		
372	27	3	ee 29 4+	38 48	i 29 16	31 56	56	76	e _Z 33 ^m 42 ^s . Japan.
373	27	20	i 50 25						
374	28	4	i 41 23	50 54	e 41 28			74	Haïti.
375	28	6	ie 42 54	52 40			61	77	Japan.
376	28	17					28		
377	31	10	e 15 19		i 15 24				
378	31	16	i 49 9	59 0			77	78	No Galitzin records Oct. 31. 8 ^h -
379	31	17	e 0 28		i 0 38				[Nov. 1. 8 ^h . Japan.
380	Nov. 1	0	i 2 4				22		China.
381	1	5	i 47 57						Fiji Islands.
382	2	0	ie 5 5		i 5 9	5 47			» »
383	4	10	i 28 34						
384	4	12					29		
385	4	17	ii 9 29+	i 18 39				70	Near east coast of Kamchatka. Very large, but first wave small.
386	4	17	e 47 40						Kamchatka.
387	4	17	e 49 52						»
388	4	18	ii 40 1						»
389	4	19	i 1 35						»
390	4	19	i 51 46						»
391	4	21	ii 0 4						»
392	4	21	i 11 59						»
393	4	22	ii 4 10						»
394	4	22	ii 24 6						»
395	4	22	i 25 34						»
396	4	22	ii 30 30						»
397	4	22	e 48 20						»
398	4	23	i 40 19				66		»
399	5	2		40 22			57		»
400	5	3	ii 41 0				66		»
401	5	6	ie 9 10	18 20			31	70	Kurile Islands.
402	5	8					.1		
403	5	9					18		
404	5	9					.6		
405	5	10					.2		
406	5	10					.9		
407	5	11					.9		
408	5	11	e 45 48						Kamchatka.
409	5	13	ii 17 35+	i 26 40	26 58		.7	69	»
410	5	17	e 49 26						»
411	5	19	ii 19 27+	28 29			.7	69	»
412	5	20	e 41 55						»
413	5	21	i 57 23		i 57 28				»
414	5	22	ie 57 15	66 23	i 57 23			70	»
415	6	1	i 9 56						»

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
	1952 Nov.		m s	m s	m s	m s	h m	°	
416	6	2	i 34 59						Kamchatka.
417	6	2	i 38 52						
418	6	4	e 5 42						Kamchatka.
419	6	5	i 39 11						
420	6	6			2 40		20		Kamchatka.
421	6	6	i 47 13						Tonga Islands.
422	6	8					50		No Galitzin records 9 ^h 50 ^m —15 ^h 10 ^m .
423	6	11	i 8 22		i 8 36				Kamchatka.
424	6	18					28		
425	6	19	i e 57 11+	66 21	66 37	69.9		70	Kamchatka.
426	6	20	i 50 19						»
427	6	23	e 40 19						» Small, uncertain.
428	6	23	i 46 51		i 47 2		69		»
429	7	2			51.1		60		
430	7	6	i 37 11				70		
431	7	7					.5		
432	7	12	i e 20 20	29 29			46	70	Kamchatka.
433	7	13	i e 52 54				79		»
434	7	14	e e 19 45				44		»
435	7	17	e 5 48		i 5 59				»
436	7	21			18 14		38		Lower Gulf of California.
437	7	22	i e 16 49	26 12	27 0		43	72	Kurile Islands.
438	7	23	i 24 11						
439	7	23	i e 32 2		i 32 5	i 32 10	1.5		Kermadec Islands.
440	8	2					55		
441	8	3					51		
442	8	5	i 11 7	20 10	e 11 12		38	69	Kamchatka.
443	8	8	e 16 10						
444	8	9	i 1 11						Kamchatka.
445	8	12	i 19 27						
446	8	14	e 7 8				.7		Kamchatka.
447	8	15	i 48 11						
448	8	17					42		
449	8	18					.6		
450	8	19					.3		
451	8	19	i 20 40						
452	8	19	i i 44 44+	54 7	55 6		70	72	Kurile Islands.
453	8	20	e 26 16						Kamchatka.
454	8	23	i 41 54						Japan.
455	9	0					32		
456	9	0	i i 33 42+				1.0		Kurile Islands.
457	9	1	i 28 47				55		Kamchatka.
458	9	1	i e 50 19						»
459	9	5					.2		
460	9	5	i 17 26				46		Kamchatka.
461	9	6	e e 8 17				39		»
462	9	15	i 19 51						»

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No.	Date	Hour	Forerunners				L	△	Remarks					
			P or P'		S									
			m	s	m	s	m	s	m	s	h	m	°	
	1952													
	Nov.													
463	9	15	i i	34 1+	43	16					1.0		71	Kamchatka.
464	9	15	i i	42 43+										Kurile Islands.
465	9	18	i	23 27							51			Kamchatka.
466	9	21									.4			
467	9	22	i	40 35										
468	9	22	i	42 20										
469	10	1	i e	6 21			i	6	33		.8			Kamchatka.
470	10	10									51			
471	10	11	i	59 16										Seismic?
472	10	18									29			
473	10	20	i e	37 44+							67			No Galitzin N or E records. Kamchatka.
474	10	22	e e	5 17							33			No Galitzin N or E records. Kamchatka.
475	10	23	i	41 24							69			No Galitzin N or E records. Kamchatka.
476	11	1	e e	8 4							35			No Galitzin N or E records.
477	11	8									58			
478	11	14	e	21 43							48			
479	11	19	i e	31 56+	41.3		i	32	6		57		72	Kamchatka.
480	11	21									46			
481	12	0									47			
482	12	3	i	17 4							47			
483	12	5									.3			
484	12	8	i	15 10										Kamchatka.
485	12	8	i	49 59			e	50	7					Tonga Islands.
486	12	14									17			
487	12	16									.3			
488	12	16	e e	53 15							1.3			
489	13	3	i	12 25										South of Tonga Islands.
490	13	8	e e	10 3			i	10	45					Disturbed. Kamchatka.
491	13	10	i	34 56			i	35	1					
492	13	15	e	33 48	42	57				1.0			70	
493	13	22	i i	36 53-	46	20				60			73	Kamchatka.
494	14	7	i	11 52										
495	14	13									3			
496	15	1									44			
497	15	5	e e	12 41							41			
498	15	5	e e	34 15							58			
499	15	8									58			
500	15	12									.2			
501	15	15									40			
502	16	0									54			
503	16	2									25			No Benioff Z record 1 ^h 9 ^m -7 ^h 31 ^m .
504	16	4									48			Small preceding movement.
505	16	7									1.6			New Guinea.
506	16	12	i	41 30							69			Kamchatka.
507	16	15									33			

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No.	Date	Hour	Forerunners				L	△	Remarks
			P or P'	S					
	1952		<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>h m</i>	°	
551	Dec. 6	3	<i>e</i> 45 38				72		Kamchatka.
552	6	3	<i>i</i> 53 19						
553	6	11	<i>i e</i> 0 23+		2 11	6.0	35		6 ^m 40 ^s . 9 ^m .1. 11 ^m .9. 13 ^m .5. 14 ^m 31 ^s . <i>e z</i> 17 ^m 33 ^s . SS 18 ^m .7. SSS 23 ^m .3. So- lomon Islands.
554	6	21	<i>e</i> 9 44+		11 25		52		Aftershock.
555	7	1	<i>i e</i> 1 38	10 56	<i>i</i> 1 41	2 23	26	72	4 ^m .4. 11 ^m 33 ^s , 41 ^s . 12 ^m 53 ^s . SS 15 ^m .6. SSS 18 ^m .7. <i>e</i> 23 ^m .8. Aleutian Islands.
556	7	16	<i>e e</i> 44 25	54 37			70		Kamchatka.
557	7	21					.4		
558	8	15			37.7		46		
559	10	6	<i>e i</i> 2 11	5 36				19	<i>e</i> 6 ^m 18 ^s . Jan Mayen region.
560	10	9					.3		
561	10	14					.5		
562	11	9	<i>i e</i> 9 36	18 49	19 37	24.2	32	71	27 ^m .5. Kurile Islands.
563	12	1					.5		
564	12	14	<i>i</i> 1 44						
565	12	15					2		
566	12	21					12		
567	13	13					45		
568	15	9	<i>e</i> 56 27	65 42			83	71	Kamchatka.
569	16	6					.9		
570	17	23	<i>i i</i> 9 1	<i>i</i> 13 6	13 23	13 57	16		<i>P</i> (+16.4, -7.3, +12.0; -26.8, +14.3, -27.8). Deep focus. Near south coast of Crete.
571	18	9		40 36			.9		Kamchatka.
572	18	11					10		
573	20	4	<i>i</i> 16 51						Kamchatka.
574	22	10					51		
575	22	22	<i>i e</i> 35 43	44 38	45 16	45 33	57	67	Kamchatka.
576	22	23	<i>e</i> 56 34						Near Crete.
577	23	23	<i>e</i> 13 3						Kamchatka.
578	24	9					40		
579	24	15					16		
580	24	18			60.0	69 56			71 ^m 14 ^s . SS 77 ^m .1. SSS 81 ^m .1. New Britain.
581	24	22					.7		Some preceding movement.
582	25	2			59.1	60.4	90		66 ^m .3. New Britain.
583	25	4			9.1		21		
584	25	22	<i>e e</i> 31 28	38 27			.8	48	Central Pakistan.
585	25	23	<i>i</i> 19 40						Kamchatka.
586	26	4					51		
587	26	11	<i>i i</i> 33 41						South of Fiji Islands.
588	26	23	<i>i e</i> 59 26		<i>i</i> 59 35	62 20			Tyrrhenian Sea.
589	27	1	<i>i i</i> 37 0		<i>i</i> 37 11	46 27	63		Kamchatka.
590	27	17					40		
591	28	5	<i>e</i> 5 10				.4		Alaska.
592	28	15					40		Faint. Philippines.

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No.	Date	Hour	Forerunners				L	△	Remarks				
			P or P'		S								
			m	s	m	s	m	s	h	m	°		
593	1952 Dec. 28	15	e 15	4			19	4	25	38	.8		Philippines.
594	28	18			56	14					1.2		Off south coast of Pakistan.
595	29	2	i e 20	39	29	59	i 20	50			46	72	Kamchatka.
596	29	9	i 31	40							61		Formosa.
597	29	12									57		
598	29	17									1.0		
599	29	23	i e 40	2			41	58					Fiji Islands.
600	30	12					30	7			.7		Costa Rica.
601	30	18	i e 47	20									Fiji Islands.
602	31	12									57		
603	31	14	i 53	38			57.7				60		Near Crete.
604	31	17	e 23	38			27	48			30		» »
605	31	22					5	15			21		Kurile Islands.