Seismological Institute
Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G, U M E Å and K A R L S K R O N A

Uppsala	(Up):	59°51.5'N,	17°37.6'E; h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E; h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E; h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E; h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E; h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E; h = 11 m

J A N U A R Y 1 - 31, 1965

1965 Jan.	1	Um	iP	06 53 33.0
"	1	Up	iP	12 58 30.7
		Formosa (h = 30 km).		
"	1	Up	iP	18 58 48.6
"	1	Ki	iP	21 27 29.1 C
"	1	Up	iP-	21 44 02.7
			iS	21 48 35
			microns	sec
			P Z' 0.1	1.0
			S N 2.6	5
			M E 5.4	14
			M N 5.4	16
			M Z 4.6	18
			D = 2950 km = 26½°.	
		Ki	iP	21 45 14.2
			i	21 45 25.8
			microns	sec
			P Z' 0.2	1.3
			M E 9.8	15
			M N 4.1	15
			M Z 2.9	14
		Sk	iP	21 44 28.0
		Gb	iP	21 43 33.1
			iPP	21 43 58.6
		Um	iP	21 44 43.4
			i	21 44 59.0
		Ka	iP	21 43 34.7
		Algeria (h = 10 km).		
		Magn. = 5.5 (Up,Ki).		
"	1	Up	iP	22 59 17.8
		Ka	i(P)	22 58 19.8
"	2	Up	iP	08 27 41.3
			i	08 28 08.2
1965 Jan.	2	Gb	iPKP	09 55 21.5
		South of Fiji Islands (h = 560 km).		
"	2	Up	iP	10 23 04.6
		Ki	eP	10 22 39
		Um	iP	10 22 49.0
		Formosa (h = 140 km).		
"	2	Up	iP	13 57 04.6
			i	13 57 15.2
			iPP	14 00 41.9
			microns	sec
			P Z' 0.5	0.6
			PP Z' 0.1	0.9
			M E 2.0	21
			M N 1.6	20
		Ki	iP	13 56 36.8
			i	13 56 44.0
			i	14 03 39.3
			iS	14 06 52
			ipS	14 07 41
			microns	sec
			P Z' 0.4	0.9
			S N 1.7	8
		Sk	iP	13 57 02.3
			iPP	14 00 38.1
		Gb	iP	13 57 21.5
		Um	iP	13 56 49.4
			ipP	13 57 19.5
		Ka	iP	13 57 20.0
		Mariana Islands.		
		h = 120 km (Um).		
		Magn. = 6.5 (Up,Ki).		
"	2	Up	iP	18 23 00.9
			ipP	18 23 31.1
		Mariana Islands.		
		h = 120 km (Up).		

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1965 Jan.	3	Up	iP	03 47 53.0	
"	3	Um	iP	11 09 01.1	Molucca Sea (h = 40 km).
"	3	Up	iP	15 52 23.0	
		Ki	iP	15 51 49.3	
		Sk	eP	15 52 19	
		Um	iP	15 52 03.8 C	South of Japan (h = 40 km).
"	3	Up	iP	23 23 46.8	
		Ki	iP	23 22 52.0	
		Sk	iP	23 23 19.1	
		Gb	iP	23 23 58.3	
			iPcP	23 24 36.2	
		Um	iP	23 23 20.1	
		Ka	iP	23 24 10.4	Alaska (h = 90 km).
"	4	Ka	iP	03 43 33.7	
"	4	Um	iP	05 35 40.1	Banda Sea (h = 150 km).
"	4	Ki	iSKP	07 28 07.0	
		Um	iSKP	07 28 20.5	Fiji Islands (h = 570 km).
"	4	Up	iPKP	08 37 45.4	
			i	08 37 50.2	
		Sk	iPKP	08 37 38.8	
		Gb	iPKP	08 37 53.1 C	
"	4	Ki	iP	11 42 59.3	
				microns sec	
			P Z'	0.2 1.0	
		Um	iP	11 43 04.6 D	Halmahera (h = 80 km).
"	4	Up	iP	16 15 36.4	
				microns sec	
			P Z'	0.1 0.5	
"	4	Up	iP	19 35 39.3	
"	4	Ki	iP	20 57 05.1	Yukon, Canada (h = 30 km).
"	4	Up	iP	22 37 43.9	Mariana Islands (h = 60 km).
"	4-5 cont.	Strong microseisms, with rapid amplitude increases at Sk, Jan. 4, around 05^h, at Ka around midnight Jan. 4-5. The former are of Atlantic origin, the latter of Baltic origin, both deriving from the same low-pressure area, which travels across the middle of Scandinavia from NW towards SE.			
"	5	Up	iP	14 40 35.0 C	
"	5	Up		---	
				microns sec	
		M	E	1.9 17	
		M	Z	1.5 19	
		Ki		---	
				microns sec	
		M	E	1.5 16	
		M	N	1.8 17	
		M	Z	2.7 17	
		Um	iSS	18 45 54	Tonga Islands (h = 30 km).
"	5	Up	iP	20 46 36.1	Mindoro, Philippine Islands (h = 160 km).
"	5	Um	iP	20 56 29.2	
			ipP	20 57 21.4	Japan. h = 220 km (Um). I have not been able to confirm the USCGS depth of 363 km. The depth given here is confirmed by all stations for which I have found pP readings, i.e. Pasadena, Orville, Cine.
"	6	Ki	iP	01 08 19.4 C	Flores Sea (h = 550 km).
"	6	Up	iP	02 12 20.9 C	
		Ki	iP	02 11 43.7	Idaho, USA (h = 5 km).
"	6	Um	eP	17 07 05	
			i	17 07 07.9	
"	6	Up	iP	18 37 36.4	
		Ki	iP	18 36 42.3	
		Sk	iP	18 37 08.2	
cont.					

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1965 Jan. cont.	6	Gb	iP	18 37 52.6	
		Um	iP	18 37 08.0	
		Ka	iP	18 37 59.2	
		Alaska (h = 50 km).			
"	6	Up	iP	18 37 56.7	
			i	18 38 02.8	
		Ki	iP	18 36 59.2	
			iPcP	18 38 12.9	
				microns sec	
			P	Z' 0.2 1.3	
		Sk	iP	18 37 26.4	
			iPcP	18 38 27.7	
		Gb	iP	18 38 09.1	
		Um	iP	18 37 28.6	
			iPcP	18 38 27.3	
		Alaska. Origin time = 18 27 53. This is a separate shock, distinct from the preceding one, especially as evidenced by the clear PcP phases. This shock, although somewhat greater than the preceding, is not reported by USCGS.			
"	7	Up	iP	10 27 30.7 C	
		Ki	iP	10 28 37.4	
		Sk	iP	10 28 09.9	
		Gb	iP	10 27 23.2	
			i	10 28 22.0	
		Um	iPP	10 28 47.5	
			iS	10 32 57	
		Ka	iP	10 27 00.4	
		Dodecanese Islands (h = 50 km).			
"	7	Sk	iP	11 17 26.0 C	
		Mexico (h = 70 km).			
"	7	Sk	iP	16 09 07.0	
		Um	iP	16 09 21.0	
		Mexico (h = 40 km).			
"	7	Ki	iP	17 20 42.1	
		Um	iP	17 20 38.5 C	
		Nicobar Islands (h = 10 km).			
"	7	Up	iP	19 01 45.3	
		Ki	iP	19 01 25.4 C	
				microns sec	
			P	Z' 0.1 1.3	
		Sk	eP	19 01 51	
cont.					
1965 Jan. cont.	7	Um	iP	19 01 29.1	
		Luzon (h = 30 km).			
"	7	Up	iP	19 03 55.3	
		Um	iP	19 03 44.4	
"	7	Ka	i(P)	20 20 14.7	
"	7	Up	iP	20 40 01.1	
				microns sec	
			P	Z' 0.1 0.7	
"	7	Um	iP	21 29 42.7	
		Luzon (h = 30 km).			
"	7	Up	iP	22 12 00.6	
"	8	Up	e(P)	01 30 49	
		Um	i(P)	01 30 16.7	
"	8	Um	iP	03 00 26.6	
"	8	Up	i(P)	05 51 53.2	
"	8	Sk	iP	11 36 00.6	
		Kodiak Island (h = 30 km).			
"	8	Up	iP	13 12 10.2	
				microns sec	
			P	Z' 0.1 0.5	
"	8	Up	iP	16 42 12.5	
		Kurile Islands (h = 40 km).			
"	8	Sk	i(Sg)	16 48 25.9	
"	8	Up	iPKP	19 08 36.7 C	
			i	19 08 47.8	
		Ki	iPKP	19 08 52.2	
		Um	iPKP	19 08 44.7	
		South Sandwich Islands (h = 40 km).			
"	9	Up	eP	00 50 40	
"	9	Up	iP	02 53 00.9 C	
"	9	Up	iP	03 40 40.8 C	
		Ki	iP	03 39 53.5	
		Um	iP	03 40 15.0	
		Kurile Islands (h = 30 km).			
"	9	Um	iPKP	04 48 33.4 C	
		South of Kermadec Islands (h = 70 km).			

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1965 Jan.	9	Up	iP	13 45 42.5	
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	13 45 22.9	
				microns sec	
			P	Z' 0.1 1.0	
			M	E 2.2 17	
			M	N 1.7 18	
		Um	iP	13 45 29.1 D	
		Samar (h = 5 km).			
		Magn. = 5.8 (Up,Ki).			
"	9	Up	iP	19 07 47.6	
"	10	Up	iP	02 55 50.6	
			i	02 56 03	
			iS	02 58 32	
			i!	02 58 44	
			iLi	02 59 22	
				microns sec	
			P	Z' 0.2 0.5	
			M	E 1.3 3	
			M	N 1.6 4	
			M	Z 1.6 5	
		Ki	iP	02 57 13.9	
			i	02 57 20.7	
			iS	03 01 20.2	
				microns sec	
			P	Z' 0.2 0.9	
			M	E 2.4 7	
		Sk	iP	02 56 43.2	
		Gb	eP	02 55 48	
			i	02 55 54.5	
			iLi	02 59 23.8	
		Um	iP	02 56 30.4	
			iS	02 59 50.0	
			i	03 00 59.6	
		Ka	iP	02 55 16.1	
			i	02 55 21.5	
			iLg2	02 59 18.8	
		Rumania (h = 130 km).			
		Magn. = 5.5 (Up,Ki).			
		Both P and S phases are generally multiple, as indicated above.			
"	10	Ki	iP	07 51 45.3	
		New Guinea (h = 110 km).			
"	10	Up	iP	08 07 32.0	
		Ki	iP	08 08 47.7	
		Sk	iP	08 08 14.7	
		Um	iP	08 08 15.2	
		Greece.			
"	10	Um	iP	13 39 16.2	

1965 Jan.	10	Up	iPKP	13 55 34.9	
			i	13 55 36.6	
			iX	13 56 00.0	
			iPP	13 57 38	
			iSKP	13 58 49	
			e	14 08 12	
				microns sec	
			PKP	Z' 0.1 0.5	
			PP	Z 2.5 8	
			SKP	E 1.2 6	
			SKP	N 1.2 5	
			M	E 15 22	
			M	N 29 22	
			M	Z 38 22	
		(D = 14200 km = 128°).			
		Ki	iPKP	13 55 19.8 D	
			ePP	13 56 49	
			e	13 58 21	
			iPKKP	14 05 24.6	
			eY	14 06 14	
			ePS	14 06 35	
				microns sec	
			PKP	Z' 0.2 0.8	
			M	E 16 22	
			M	N 13 22	
			M	Z 34 22	
		(D = 13550 km = 122°).			
		Sk	iPKP	13 55 31.2 D	
			i	13 56 19.9	
		Gb	iPKP	13 55 43.1	
		Um	iP	13 52 11	
			iPKP	13 55 23.6	
			i	13 55 26.3	
			iPP	13 57 13	
			iSKP	13 58 41	
			iPKKP	14 05 12.0	
			iY	14 06 04.9	
			e	14 06 37	
			ePPS	14 08 28	
		Ka	iPKP	13 55 41.1	
			iX	13 56 08.0	
			eSKP	13 59 05	
		New Hebrides Islands (h = 30 km).			
		Magn. = 7.0 (Up,Ki).			
"	10	Ki	eP	15 03 56	
		Um	eP	15 04 04	
		China (h = 30 km).			
"	10	Up	iPKP	16 57 50.4	
		Um	iPKP	16 57 38.7	
			iSKP	17 00 32.9	
		Ka	iPKP	16 58 03.0 D	
		South of Fiji Islands (h = 520 km).			

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1965 Jan.	10	Um	iP	17 14 30.3	
"	10	Up	eP	20 14 03	
		Ki	iP	20 15 26.2	
		Sk	iP	20 14 42.4	
		Um	iP	20 14 44.1	
		Yugoslavia (h = 10 km).			
"	10	Um	iP	20 58 37.9	
"	11	Sk	i(Sg)	04 21 42.9	
		Um	i(Sg)	04 23 06.4	
"	11	Sk	e	07 30 35	
			i(Sg)	07 31 21.7	
"	11	Ki	iPn	07 29 28.4	
			iSn	07 30 23.4	
			iSg	07 30 41.4	
		Um	iS^x	07 31 09.0	
			iSg	07 31 26.4	
		Northwest Russia.			
		Explosion?			
"	11	Um	iPKP	07 39 16.0	
		South of Kermadec Islands			
		(h = 30 km).			
"	11	Sk	iP	07 51 40.2	
"	11	Sk	eP	09 23 33	
		Banda Sea (h = 130 km).			
"	11	Up	iP	17 07 30.5 C	
		Ki	iP	17 06 25.9	
			i	17 06 33.2	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	eP	17 06 53	
		Um	iP	17 06 54.8	
		Ka	iP	17 07 57.5	
		Alaska (h = 60 km).			
"	11	Up	iP	20 25 08.0	
		Ki	iP	20 24 24.3 C	
				microns sec	
			P	Z' 0.1 0.7	
		Sk	eP	20 24 59	
		Um	iP	20 24 42.5	
		Sea of Japan (h = 190 km).			
"	11	Up	iP	21 21 59.0 C	
			i	21 22 05.9	
				microns sec	
			i	Z' 0.3 0.6	

1965 Jan.	11	Up	iP	22 57 42.3 D	
		Sk	iP	22 57 30.2	
		Um	iP	22 57 16.0	
		Kurile Islands			
		(h = 100 km).			
"	12	Up	iP	09 33 29.7	
		Mindanao (h = 30 km).			
"	12	Up	i(P)	10 55 09.0 C	
"	12	Up	iP	13 42 07.2 C	
			i	13 42 20.3	
			iS	13 50 08	
				microns sec	
			P	E 0.9 3	
			P	Z' 1.3 1.0	
			M	E 4.2 15	
			M	N 3.9 15	
			M	Z 6.1 15	
			D = 6350 km = 57°.		
		Ki	iP	13 42 04.9	
			eS	13 49 52	
				microns sec	
			P	Z' 0.4 1.0	
			M	E 7.0 17	
			M	N 3.5 12	
			M	Z 7.2 15	
			D = 6300 km = 56½°.		
		Sk	iP	13 42 24.7	
		Gb	iP	13 42 28.5 C	
			i	13 42 40.4	
		Um	iP	13 42 00.3 C	
			iS	13 49 50	
			iSS	13 53 48	
		Ka	iP	13 42 14.4 C	
			i	13 42 21.8	
		Nepal (h = 25 km).			
		Magn. = 6.5 (Up,Ki).			
"	12	Up	iP	14 05 02.7	
				microns sec	
			P	Z' 0.1 0.6	
		Ki	iP	14 04 59.4 C	
		Sk	iP	14 05 21.1 C	
		Gb	iP	14 05 23.2	
			i	14 05 43.9	
		Um	iP	14 04 56.5	
			i	14 05 02.8	
		Ka	iP	14 05 10.3	
		Nepal (h = 30 km).			
"	12	Gb	iP	14 09 28.4	
"	12	Up	iP	14 58 29.7	

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1965 Jan.	12	Um	iPKP	16 14 21.7	
		South of Kermadec Islands (h = 10 km).			
"	12	Up	iP	16 28 32.6	
				microns sec	
			M	N 1.4 18	
		Ki	iP	16 28 08.5	
				microns sec	
			M	E 0.9 12	
			M	N 1.7 20	
		Sk	iP	16 28 39.4	
		Um	iP	16 28 16.8	
		Ka	iP	16 28 49.4 C	
		China (h = 30 km).			
"	12	Ki	eP	21 03 28	
			i	21 03 34.2	
		Sumatra (h = 30 km).			
"	13	Up	iP	04 48 49.9	
"	13	Sk	eP	19 51 23	
"	13	Ki	iP	22 28 33.0	
			i	22 28 35.5	
		Celebes (h = 130 km).			
"	14	Up	iP	00 22 28.5	
		Gb	iP	00 22 11.0	
		Ka	iP	00 22 07.2	
"	14	Up	iP	01 21 27.5	
		Ki	iP	01 20 36.9	
		Kurile Islands (h = 30 km).			
"	14	Up	iP	01 44 37.2	
				microns sec	
			P	Z' 0.1 1.5	
		Ki	iP	01 44 06.8	
		Sk	iP	01 44 36.9	
		Japan (h = 140 km).			
"	14	Up	iP	03 57 02.7	
"	14	Up	iP	11 35 06.1	
"	14	Ki	iPKP	19 05 53.9 C	
		Um	iPKP	19 06 01.4 C	
		New Zealand (h = 80 km).			
"	15	Up	iP	00 41 35.4 C	
			iPP	00 43 15.0	
				microns sec	
			P	Z' 0.1 0.5	

cont.

1965 Jan. cont.	15	Ki	iP	00 41 44.1 C	
				microns sec	
			P	Z' 0.1 0.6	
		Sk	iP	00 42 00.5	
		Gb	iP	00 41 56.4 C	
		Um	iP	00 41 33.6 C	
		Ka	iP	00 41 39.6	
		Hindu Kush (h = 250 km).			
		Magn. = 5.6 (Up,Ki).			
"	15	Up	iPKP	03 48 36.9	
		Fiji Islands (h = 600 km).			
"	15	Up	iP	06 06 56.4 C	
			i	06 07 11.3	
			iLi	06 17 09	
			iLgl	06 18 36	
				microns sec	
			P	Z' 1.2 0.7	
		Ki	iP	06 06 40.3 C	
			i	06 06 57.6	
			iPP	06 07 42.1	
				microns sec	
			P	Z' 0.9 0.7	
			PP	Z' 0.4 1.5	
		Sk	iP	06 07 11.9 C	
		Gb	iP	06 07 25.0 C	
			iPP	06 08 49.5	
		Um	iP	06 06 41.5 C	
		Ka	iP	06 07 13.2 C	
			i	06 08 15.0	
		Kazakh SSR. Underground nuclear explosion. Magn. = 6.7 (Up,Ki). Clear higher-mode surface waves are recorded (Up), but no S or fundamental-mode surface waves. PP arrives 6 sec too early, compared with P (Ki,Gb), which could be explained by reflection at some crustal discontinuity instead of at the free surface.			
"	15	Up	iP	15 01 40.1	
		Sk	eP	15 02 16	
		Greece (h = 110 km).			
"	15	Up	iP	18 45 55.5 D	
				microns sec	
			P	Z' 0.1 0.7	
		Ki	iP	18 45 32.2	
		Sk	i(P)	18 45 50.9	

cont.

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1965 Jan. cont.	15	Gb	iP	18 46 32.7	
		Um	iP	18 45 40.8	
			iPcP	18 45 59.2	
		Formosa (h = 30 km).			
"	15	Um	iPKP	21 26 25.3	
		New Hebrides Islands (h = 90 km).			
"	15	Up	iP	23 52 59.4	
		Gb	iP	23 52 30.1	
		Algeria (h = 30 km).			
"	16	Um	iPKP	05 49 00.9	
			i	05 49 14.9	
		New Hebrides Islands (h = 50 km).			
"	16	Up	iP	06 03 02.9	
		Gb	i(P)	06 03 29.1	
"	16	Up	iPKP	11 51 17.0	
				microns sec	
			PKP Z'	0.1 0.5	
		Ki	iPKP	11 51 32.7	
			iSKP	11 54 40.6	
				microns sec	
			PKP Z'	0.2 1.0	
			SKP Z'	0.6 2.0	
		Sk	iPKP	11 51 22.5	
		Um	iPKP	11 51 25.7	
		South Sandwich Islands (h = 100 km).			
		Well developed Love waves of pronounced long period (max. amplitudes at periods around 1 min) and insignificant Rayleigh waves.			
"	16	Up	iPKP	13 10 06.9 C	
				microns sec	
			PKP Z'	0.2 0.5	
		Ki	iPKP	13 09 56.2	
		Gb	iPKP	13 10 15.8	
		Ka	iPKP	13 10 18.1 C	
		South of Fiji Islands (h = 450 km).			
"	16	Sk	i(Sg)	17 03 25.2	
"	17	Strong microseisms of long period (around 10 sec) due to an enormous low-pressure area covering the whole of North Atlantic Ocean and			

cont.

1965 Jan. cont.	17	Europe. Its center is situated just NW of Scotland at 06^h Jan 17 and has a pressure of 955 mb. Compare Båth, Geophys. J., 6: 450-461, 1962.			
"	17	Up	eP	02 19 11	
		Ki	iP	02 20 09.6	
		Sk	eP	02 20 13	
		Um	iP	02 19 23.5	
		Caucasus.			
"	17	Up	iP	02 23 45.0	
			i	02 23 58.8	
		Ki	iP	02 22 49.7 C	
		Sk	iP	02 23 17.5	
		Um	iP	02 23 18.2	
			i	02 23 23.2	
		Kodiak Island (h = 30 km).			
"	17	Up	iP	03 45 04.7	
			iPP	03 45 36.4	
		Ki	iP	03 46 10.9	
				microns sec	
			P Z'	0.1 0.5	
		Sk	iP	03 45 44.2	
		Um	iP	03 45 35.6	
		South of Rhodes Island (h = 40 km).			
"	17	Up	iPKP	11 01 41.8 C	
			i	11 01 44.3	
		Ki	iSKP	11 04 09.9	
				microns sec	
			SKP Z'	0.1 1.0	
		Sk	eSKP	11 04 23	
		Um	iSKP	11 04 19.6	
		South of Fiji Islands (h = 570 km).			
"	17	Up	iP	19 05 00.4	
"	17	Um	iP	20 30 33.6	
"	17	Up	iP	21 10 43.8	
			ipP	21 11 41.9	
		Ki	iP	21 10 40.1	
			ipP	21 11 35.3	
				microns sec	
			pP Z'	0.1 1.0	
		Sk	iP	21 10 55.5	
			ipP	21 11 54.0	
		Ki	iP	21 10 40.1	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Jan. cont.	17	Ki	ipP	21 11 35.3	
				microns sec	
			pP	Z' 0.1 1.0	
		Sk	iP	21 10 55.5	
			ipP	21 11 54.0	
		Java. h = 240 km (Up,Ki,Sk).			
"	17	Ki	iP	21 15 27.7 D	
				microns sec	
			P	Z' 0.1 1.3	
		Sk	eP	21 15 03	
			i	21 15 40.9	
"	18	Sk	ePKP	00 21 59	
		Um	iPKP	00 22 05.9	
		Chile (h = 50 km).			
"	18	Up	iP	00 31 14.9	
				microns sec	
			P	Z' 0.1 0.5	
		Ki	iP	00 30 42.0	
		Sk	iP	00 31 11.2 D	
		Um	iP	00 30 55.4	
		South of Japan (h = 420 km).			
"	18	Um	iP	01 35 50.0 C	
"	18	Up	iP	03 36 03.5	
				microns sec	
			P	Z' 0.1 0.5	
		Ki	iP	03 36 10.2 C	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	03 36 28.3	
		Um	iP	03 36 00.5 C	
		Ka	iP	03 36 07.9	
		Tadzhik SSR (h = 30 km). Magn. = 5.8 (Up,Ki).			
"	18	Up	iP	11 47 35.1	
"	18	Up	iP	15 31 09.6	
				microns sec	
			P	Z' 0.1 0.5	
		Sk	iP	15 31 22.1 D	
		Tsinghai, China (h = 40 km).			
"	18	Um	iP	16 01 14.2	
"	18	Up	e(P)	22 15 58	
"	19	Up	i(P)	02 19 28.3	

1965 Jan.	19	Um	iP	13 02 00.4	
			i	13 02 36.8	
			i	13 03 02.2	
"	19	Up	iPKP	21 24 32.9	
		Sk	iPKP	21 24 26.1	
		Gb	iPKP2	21 24 50.9	
		Um	iPKP	21 24 20.5 C	
		Ka	ePKP2	21 24 55	
		South of Kermadec Islands (h = 30 km).			
"	20	Up	iPKP	01 52 59.5 C	
		Sk	iPKP	01 52 53.6 C	
		Gb	iPKP2	01 53 17.8	
		Um	iPKP	01 52 48.1	
		South of Kermadec Islands (h = 30 km).			
"	20	Um	iP	04 04 27.3	
"	20	Up	iP	05 58 57.7	
"	20	Um	iP	07 09 29.9	
			i	07 15 04.4	
"	20	Up	iSg	11 08 44.8	
		Ka	iPg	11 06 56.9	
			i	11 07 00.8	
			iSg	11 07 02.7	
		Southern Baltic, near the south tip of Öland. Underwater explosion?			
"	20	Up	iP	20 38 01.2	
		Ki	iP	20 37 13.6	
		Um	iP	20 37 34.2	
		Kurile Islands (h = 30 km). Origin time = 20 26 51. This is obviously a foreshock to the following earthquake. In addition to our stations, readings of this foreshock have been found for Nurmijärvi, Quetta, Cine and China Lake.			
"	20	Up	iP	20 38 16.0	
		Ki	iP	20 37 28.5	
		Sk	eP	20 38 04	
		Um	iP	20 37 49.9	
			iPcP	20 38 26.0	
		Kurile Islands (h = 30 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
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1965 Jan.	20	Um	iP	20 57 24.0	
"	20	Up	iP	23 11 01.2	
"	21	Um	iP	01 51 52.6	
"	21	Up	eP	02 30 25	
"	21	Um	iP	02 52 24.7 C	
		Japan (h = 15 km).			
"	21	Um	iP	06 24 58.0	
"	21	Sk	ePKP	06 29 51	
		Um	iPKP	06 29 38.2	
			iPKP2	06 29 59.4	
		South of Kermadec Islands (h = 30 km).			
"	21	Up	iP	13 09 54.0	
"	21	Up	iP	13 40 26.4 D	
				microns sec	
			M	N 6.5 24	
		Ki	iP	13 40 18.3	
				microns sec	
			M	E 1.9 17	
			M	N 3.3 17	
			M	Z 2.4 16	
		Sk	iP	13 40 42.9	
		Um	iP	13 40 17.1	
		Tibet (h = 30 km).			
		Magn. = 5.6 (Up,Ki).			
		The Love waves are very well developed at our stations, but there are hardly any Rayleigh waves.			
"	21	Up	iPKP	16 07 21.4	
			i	16 07 25.9	
				microns sec	
			PKP	Z' 0.1 0.5	
		Sk	iPKP	16 07 15.0	
		Gb	iPKP	16 07 28.6	
		Um	iPKP	16 07 09.2	
		Ka	iPKP	16 07 30.4	
		Kermadec Islands (h = 250 km).			
"	22	Up	iP	02 52 16.4	
		Ki	iP	02 52 12.0	
		Sk	iP	02 52 32.2 C	
		Burma (h = 80 km).			
"	22	Um	i(P)	04 12 58.6	
1965 Jan.	22	Up	iP	14 01 59.3 D	
		Ka	iP	14 00 18.5	
"	22	Up	iP	14 59 52.8	
		Gb	eP	14 59 35	
"	22	Um	iP	20 42 23.2	
"	23	Very well developed microseisms of about 20 sec period are recorded by the Press-Ewing instruments at Um and Up (especially pronounced at Um) in the morning of Jan. 23. These microseisms have Rayleigh-wave motion and arrive from NW-N.			
"	23	Sk	eP	02 43 59	
		Um	eP	02 43 59	
		Yugoslavia (h = 30 km).			
"	23	Up	eP	03 36 55	
"	23	Up	iP	09 07 20.6	
"	23	Up	iSg	11 12 39.7	
				microns sec	
			Sg	Z' 0.1 0.5	
		Ki	iPn	11 10 29.6	
			iP^x	11 10 33.1	
			iS^x	11 11 13.1	
			iSg	11 11 18.0	
			D = 330 km = 3.0°.		
		Sk	eP^x	11 11 04	
			ePg	11 11 15	
			eSn	11 11 50	
			iSg	11 12 12.6	
			D = 520 km = 4.7°.		
		Um	iPn	11 10 10.1	
			iPg	11 10 12.0	
			iSg	11 10 32.8	
			D = 180 km = 1.6°.		
		Gulf of Bothnia, 65.0°N, 22.8°E. Origin time = 11 09 40.			
"	23	Ki	iP	11 30 03.2	
		Iran-USSR (h = 30 km).			
"	23	Um	iP	11 33 18.0 D	
"	23	Up	eP	16 13 43	
		Luzon (h = 70 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Jan. 23 Ki iP 16 43 45.4
iS 16 45 20.7
iT 16 48 43.3
i 16 48 57.9
i 16 49 26.8
D = 800 km = 7°.
Sk iP 16 44 19.9
iS 16 46 01.6
Um iP 16 44 31.2
i 16 44 37.3
iS 16 46 21.3
i 16 47 08.7
eT 16 51 17
Ka iP 16 46 03.5
Norwegian Sea (h = 30 km).

" 23 Up iP 20 20 15.7
Ki eP 20 20 13
Um iP 20 20 17.7
Costa Rica (h = 50 km).

" 23 Ki i(P) 21 31 55.6
iL 21 31 59.1
microns sec
L Z' 0.3 1.3
Um e 21 33 10
i 21 33 22.1
eL 21 33 44
Probably blast in the mines in the Kiruna area.

" 23 Up iP 22 02 38.3 C
microns sec
P Z' 0.1 0.6
Ki iP 22 01 59.2 C
Sk iP 22 02 32.5
Gb eP 22 02 58
Um iP 22 02 16.6 C
Ka eP 22 02 58
Japan (h = 60 km).

" 23 Up iP 22 10 46.9 C
Ki iP 22 10 52.4
Sk iP 22 11 11.7
Gb iP 22 11 08.9
Um iP 22 10 44.4 C
iPP 22 12 19.4
Ka iP 22 10 52.7
West Pakistan
(h = 200 km).

" 23 Up iP 22 50 52.1
Ki eP 22 50 36
Um eP 22 50 43
Luzon (h = 50 km).

1965 Jan. 23 Up iP 23 36 31.2
Ki iP 23 36 15.9
microns sec
P Z' 0.1 1.0
Sk iP 23 36 36.4 D
Gb iP 23 36 47.5
Um iP 23 36 21.2 D
Ka eP 23 36 41
Mindanao (h = 630 km).

" 24 Up iP 00 25 02.7
iX 00 25 16.9
i 00 28 56
iPP 00 29 18.1
iPKP 00 29 29.0
iSKS 00 35 55
iSS 00 43 47
microns sec
P E 8.9 15
P N 3.8 16
P Z 28 16
X Z' 0.1 0.7
PP E 56 13
PP N 17 12
PP Z 76 12
PP Z' 1.0 1.6
PKP Z' 9.6 2.5
SKS E 29 12
M E 110 21
M N 200 25
M Z 170 21
(D = 11200 km = 101°).
Ki iP 00 24 49.0 C
iX 00 25 03.9
iY 00 28 28.5
iPP 00 28 59.4
iPKP 00 29 13
iS 00 36 04
iPKKP 00 41 27.7
i 00 41 40.8
eP'P' 00 49 45
microns sec
P E 13 15
P Z 26 13
P Z' 0.5 2.0
X Z' 0.6 1.5
PP E 44 12
PP Z 86 13
PP Z' 8.4 2.8
PKP N 10 13
M E 100 18
M N 120 17
M Z 160 19
(D = 10900 km = 98°).
Sk iP 00 25 10.7

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Jan. cont.	24	Sk	iX	00 25 24.2		
			iY	00 28 34.1		
			iPP	00 29 35.1		
			iPKKP	00 41 28.4		
		Gb	eP	00 25 13		
			iX	00 25 31.1		
			iY	00 28 43.4		
			iPP	00 29 40.7		
			i	00 29 51.3		
			e	00 39 04		
		Um	iP	00 24 53.4		
			iX	00 25 09.4		
			i	00 28 50.8		
			iPP	00 28 59.3		
			iPKKP	00 41 23.8		
			i	00 41 38.7		
			i	00 47 00.8		
		Ka	iP	00 25 14.1		
			iX	00 25 27.3		
			i(Y)	00 28 25.9		
			iPP	00 29 21.6		
			i	00 29 42.6		
			i	00 41 45.8		
		Ceram Sea (h = 5 km).				
		Magn. = 7.8 (Up,Ki).				
		The phases marked X and Y are both very clear but not identified. X has a larger amplitude than P. Either X is pP, which would then imply a focal depth around 60 km, or it belongs to a new shock in the same location. Y could also be another shock. - Well developed G waves recorded on long-period N components.				
"	24	Up	iP	01 31 47.1		
		Ki	iP	01 31 51.1		
		Sk	iP	01 31 34.6	D	
		Um	iP	01 31 52.3		
		Ka	iP	01 31 51.6		
		Colombia (h = 170 km).				
"	24	Um	iP	02 44 58.2		
		Ceram Sea (h = 25 km).				
"	24 KIR	Ki	iSn	06 28 44.1		
			iSg	06 29 09.6		
			D = 510 km = 4.6°.			
	SKA	Sk	eSg	06 31 37		
		Um	iSn	06 29 25.5		
	UME		iS^X	06 29 42.0		
			iSg	06 29 57.9		
			D = 680 km = 6.1°.			

cont.

1965 Jan. cont.	24	Northwest Russia, 67.6°N, 32.4°E. Origin time = 06 26 38. Explosion?				
"	24	Um	iP	16 11 13.0	C	
			i	16 11 28.2		
"	24	Up	eP	22 42 26		
			eS	22 45 25		
			D = 1650 km = 15°.			
		Ki	iP	22 40 39.0		
			iS	22 42 14.1		
			eT	22 45 34		
			i	22 46 25.5		
			D = 800 km = 7°.			
		Sk	iP	22 41 15.2	C	
			e	22 42 51		
			iS	22 42 54.9		
		Gb	eP	22 42 41		
		Um	iP	22 41 27.3		
			iS	22 43 16.3		
			iSS	22 43 46.9		
			i	22 44 02.6		
			eT	22 46 37		
			i	22 48 17.1		
		Ka	iP	22 42 53.1		
		Norwegian Sea (h = 30 km).				
"	25	Um	iP	04 25 16.1		
		Japan (h = 30 km).				
"	25	Um	iP	09 05 10.9		
		Atlantic Ocean, just SW of Peninsula Iberica.				
"	25	Um	iPKP	10 51 50.4		
		Santa Cruz Islands (h = 210 km).				
"	25	Up	iP	12 24 25.3		
			i	12 24 53.9		
		Ki	iP	12 25 18.7		
		Gb	eP	12 24 14		
		Um	iP	12 24 45.1		
		Cyprus (h = 15 km).				
"	25	Um	iP	12 43 22.8		
"	25	Um	iP	16 57 11.4		
			ipP	16 57 45.0		
		Mariana Islands. h = 120 km (Um).				
"	25	Up	iP	22 07 19.5		
"	26	Up	iP	01 04 43.9		

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Jan.	26	Ki	iP	01 28 06.8	
		Um	iP	01 28 36.4	
		Alaska (h = 140 km).			
"	26	Ki	iP	02 03 50.7	
		Um	iP	02 04 05.2	
			ipP	02 05 28.5	
		Japan. h = 380 km (Um).			
"	26	Ki	iP	02 40 19.2	C
		Um	iP	02 40 31.6	
		Ryukyu Islands (h = 30 km).			
"	26	Ki	ePKP	05 13 09	
			iSKP	05 15 51.6	
		Um	iSKP	05 16 00.8	
		South of Fiji Islands			
		(h = 470 km).			
"	26	Ki	iP	06 38 20.4	C
			ipP	06 38 47.6	
		Um	eP	06 38 12	
		Sumatra. h = 100 km (Ki).			
"	26	Ki	iP	07 26 04.1	
		Um	iP	07 26 22.1	
		North of Iceland			
		(h = 30 km).			
"	26	Um	iP	09 42 31.2	
"	26	Ki	iP	12 03 04.4	
		Tien-Shan.			
"	26	Ki	iP	13 29 26.1	
"	26	Ka	e(P)	14 30 35	
			i	14 30 36.9	
"	26	Up	iP	20 34 40.0	
"	26	Ki	eP	22 14 26	
				microns sec	
			P	Z' 0.1 1.5	
"	26	Up	iP	23 58 57.8	D
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	23 58 20.0	D
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	23 58 53.1	D
		Um	iP	23 58 36.6	D
		Japan (h = 100 km).			
		Magn. = 5.6 (Up,Ki).			

1965 Jan.	27	Up	iP	05 37 48.1	D
				microns sec	
			P	Z' 0.1 1.1	
"	27	Up	iP	05 58 21.9	
		Gb	e(P)	05 58 56	
"	27	Sk	iP	14 24 36.0	C
"	27	Um	iP	15 42 26.4	C
		Japan (h = 90 km).			
"	27	Gb	iPKP	20 32 06.9	
		Um	iPKP	20 31 56.9	
		Fiji Islands			
		(h = 560 km).			
"	27	Ki	eSn	20 42 22	
		KIR	iSg	20 42 29.1	
		Sk	ePg	20 41 55	
		SKA	iS^{x}	20 42 33.5	
			iSg	20 42 36.8	
			D = 320 km = 2.9°.		
		Um	eP^{x}	20 42 01	
		UME	iSn	20 42 40.2	
			iSg	20 42 56.0	
			D = 390 km = 3.5°.		
		Nordlands Fylke, Norway, 66.5°N, 14.6°E. Origin time = 20 41 00.			
"	27	Um	iP	21 00 14.7	
"	28	Up	iP	02 46 57.6	
		Ki	iP	02 46 56.6	C
			ipP	02 47 06.4	
				microns sec	
			P	Z' 0.1 0.8	
		Sk	iP	02 47 10.0	C
			ipP	02 47 20.1	
		Um	iP	02 46 54.6	
		Sumatra. h = 40 km			
		(Ki,Sk).			
"	28	Sk	iP	04 16 05.0	D
		Um	eP	04 16 20	
		Mexico (h = 30 km).			
"	28	Up	iP	09 04 57.3	
"	28	Sk	iP	23 15 34.5	C
		Um	iP	23 15 28.3	C
		Bulgaria (h = 30 km).			
"	29	Up	iP	01 20 21.6	
			i	01 20 31.1	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Jan.	29	Um	iP	01 34 06.6	
		Japan (h = 30 km).			
"	29	Um	iP	01 56 53.3	
"	29	Um	iPKP	03 46 36.9	
		Fiji Islands			
		(h = 550 km).			
"	29	Up	iP	09 45 44.6	C
			microns	sec	
		P	Z'	0.3	1.2
		M	E	0.6	17
		M	N	1.2	20
		M	Z	1.2	19
		Ki	iP	09 44 50.7	
			microns	sec	
		P	Z'	0.2	1.0
		M	E	1.1	15
		M	N	0.6	17
		M	Z	1.6	14
		Sk	iP	09 45 26.9	
		Gb	iP	09 46 05.1	
		Um	iP	09 45 16.6	
		Ka	iP	09 46 09.5	
		Kamchatka (h = 30 km).			
		Magn. = 6.2 (Up,Ki).			
"	29	Up	iP	20 14 00.0	
		Ki	iP	20 14 07.0	D
		Sk	iP	20 14 24.7	D
		Gb	iP	20 14 18.4	
		Um	iP	20 13 57.3	
		Ka	iP	20 14 05.3	
			i	20 14 10.6	
		Kashmir (h = 30 km).			
"	29	Up	iP	22 42 55.5	
		Ki	iP	22 42 02.5	
		Um	iP	22 42 28.2	
		Aleutian Islands			
		(h = 30 km).			
"	29	Up	eP	23 44 32	
			microns	sec	
		M	E	1.0	17
		M	N	1.4	14
		M	Z	1.1	14
		Ki	iP	23 45 37.9	D
		Sk	eP	23 45 10	
		Um	iP	23 45 02.8	
		South of Rhodes Island			
		(h = 40 km).			
"	30	Up	iP	04 48 11.6	C
			microns	sec	
		P	Z'	0.1	0.7

cont.

1965 Jan. cont.	30	Ki	iP	04 47 18.7	C
		Sk	iP	04 47 51.1	
		Um	iP	04 47 44.1	
		Ka	iP	04 48 34.1	
		Aleutian Islands			
		(h = 30 km).			
"	30	Up	iPKP	09 00 19.1	C
			ipPKP	09 00 31.0	
		Sk	iPKP	09 00 12.5	
		Um	iPKP	09 00 08.2	
			ipPKP	09 00 20.6	
		South of Kermadec Islands.			
		h = 50 km (Up,Um).			
"	30	Up	iP	10 49 31.5	
"	30	Up	iPKP	18 00 06.7	
			iSKP	18 02 31.6	
		Sk	iPKP	18 00 04.3	C
		Gb	iPKP	18 00 13.6	
			iSKP	18 02 41.1	
		Um	iPKP	17 59 59.8	C
		Ka	iPKP	18 00 14.3	
			iSKP	18 02 46.7	
		Santa Cruz Islands			
		(h = 650 km).			
"	30	Up	iPKP	18 24 16.4	
			iSKP	18 26 40.9	
			microns	sec	
		SKP	Z'	0.1	0.7
		Sk	iPKP	18 24 13.8	
		Um	iPKP	18 24 08.8	
		Ka	iSKP	18 26 53.9	
		Santa Cruz Islands			
		(h = 650 km).			
"	30	Up	i(P)	19 03 13.0	
		Ka	iP	19 02 28.4	
"	31	Up	iP	01 10 17.5	
		Um	iP	01 10 25.8	
			i(pP)	01 10 40.6	
"	31	Up	iP	01 13 44.3	
		Um	iP	01 13 52.9	
			i(pP)	01 14 06.8	
"	31	Um	iP	02 49 23.9	
"	31	Um	iP	03 18 50.9	
		Alaska (h = 30 km).			
"	31	Up	iP	08 19 23.9	

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1965					
Jan.	31	Up	iP	12 12 35.0	
		Um	iP	12 12 10.1	D
		Kurile Islands			
		(h = 30 km).			
"	31	Up	iP	23 47 13.3	C
			ipP	23 47 23.4	
		Ki	iP	23 46 20.5	
		Sk	iP	23 46 52.0	
		Um	iP	23 46 45.0	
		Ka	iP	23 47 35.9	
		Aleutian Islands.			
		h = 40 km (Up).			

Markus Båth
September 16, 1965

Seismological Institute
Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G, U M E Å and K A R L S K R O N A

UPP	Uppsala	(Up):	59°51.5'N,	17°37.6'E;	h = 14 m
KIR	Kiruna	(Ki):	67°50.4'N,	20°25.0'E;	h = 390 m
SKA	Skalstugan	(Sk):	63°34.8'N,	12°16.8'E;	h = 580 m
GOT	Göteborg	(Gb):	57°41.9'N,	11°58.7'E;	h = 66 m
UME	Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
KLS	Karlskrona	(Ka):	56°09.9'N,	15°35.5'E;	h = 11 m

F E B R U A R Y 1 - 28, 1965

1965
Feb. 1 Up iPKP 05 45 25.2
iSKP 05 48 21.7
Ki iPKP 05 45 19.1
iSKP 05 47 56.4
microns sec
SKP Z' 0.3 1.5
Sk ePKP 05 45 20
iSKP 05 48 16.5
Gb iPKP 05 45 33.9
Um iPKP 05 45 22.2
iSKP 05 48 09.4
i 05 48 13.6
Ka iPKP 05 45 37.3
Fiji Islands (h = 470 km).
Our stations cover the distance range of 129°-140°. Over this range there is a gradual decrease of the amplitude ratio SKP/PKP, due both to increasing PKP and decreasing SKP.

" 1 KIR ePn 14 12 59
iSn 14 13 47.5
iSg 14 14 04.1
D = 420 km = 3.8°.
SKA iSg 14 16 22.7
UME iS[x] 14 14 29.5
iSg 14 14 45.1
Northwest Russia,
66.9°N, 29.9°E.
Origin time = 04 12 00.
Explosion?

" 1 Up iP 17 28 06.2 C

" 2 Up iP 01 04 06.0

" 2 Ki iP 02 10 08.7

cont.

1965
Feb. 2 Sk eP 02 12 22
cont. Um iP 02 13 15.0
North Atlantic - Arctic Ocean.

" 2 Up iP 02 44 08.7 C

" 2 Ki iP 04 24 24.6
Um iP 04 24 42.1 C
i! 04 25 38.2
Japan (h = 30 km).

" 2 Up iP 04 42 58.9
Sk iP 04 42 41.3
Gb iP 04 42 51.6 C
Um iP 04 42 55.3
Mexico (h = 140 km).

" 2 Up iPKP 10 17 21.1
Um iPKP 10 17 19.2
iSKP 10 20 33.9
Fiji Islands (h = 170 km).

" 2 Up iP 16 04 34.2
i 16 04 36.6
iPP 16 06 10.4
iS 16 10 56
iSS 16 13 42
iScS 16 14 33
iLg2 16 19 10
microns sec
P Z' 0.2 1.0
PP E 0.2 2
PP N 0.5 5
PP Z 0.4 3
PP Z' 0.1 1.0
S N 0.8 4
M E 6.9 16
M N 33 16
M Z 7.4 14
D = 4550 km = 41°.

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. cont.	2	Ki	iP	16 04 40.5	D
			i	16 04 44.0	
			iPP	16 06 22.6	
			iSS	16 13 55	
			iLgl	16 18 37	
				microns sec	
			P	Z' 0.1 1.0	
			PP	Z' 0.1 1.0	
			M	E 13 16	
			M	N 18 17	
			M	Z 11 14	
			D = 4650 km = 42°.		
		Sk	iP	16 04 58.9	
			i	16 05 02.0	
			iPP	16 06 45.1	
		Gb	iP	16 04 58.2	
			iPP	16 06 43.1	
		Um	iP	16 04 31.3	
			i	16 04 33.8	
			iPP	16 06 08.0	
			iS	16 10 38	
		Ka	iP	16 04 42.2	

Tadzhik SSR (h = 30 km).
Magn. = 6.0 (Up,Ki).
P is multiple with a small onset followed after 2.4-3.5 sec by a larger onset (Up,Ki,Sk,Um). This could possibly mean two shocks with slightly different epicenters.
- Well developed higher modes.

"	2	Up	iP	17 56 12.6	
				microns sec	
			P	Z' 0.1 1.0	
"	2	Up	iP	19 33 04.0	
		Ki	iP	19 32 09.2	C
		Um	iP	19 32 33.6	
			ipP	19 32 46.5	

Aleutian Islands.
h = 50 km (Um).

"	3	Sk	iP	01 23 24.0	C
		Um	iP	01 23 20.6	C

Yugoslavia (h = 30 km).

"	3	Up	iP	14 53 57.9	
"	3	Ki	iSg	16 13 44.4	
		Sk	eSg	16 15 55	
		Um	i	16 16 47.0	
			i	16 17 18.0	

Presumably off Norwegian coast, in the Lofoten area.

1965 Feb.	3	Ki R	iPn	17 45 08.6	
			iSn	17 45 56.7	
			iSg	17 46 12.9	
			~~D = 420 km = 3.8°.~~		
		Sk A	c(Sg)	17 48 57	
		Um	i	17 47 12.8	
			iSg	17 47 42.2	

Northwest Russia,
69.0°N, 30.2°E.
Origin time = 17 44 08.
Explosion?

"	3	Up	iP	20 42 49.0	D
"	4	Up	iPKP	03 44 43.8	
				microns sec	
			PKP	Z' 0.3 1.2	
			M	E 1.0 20	
			M	N 1.7 21	
			M	Z 1.6 20	
		Ki	iPKP	03 44 40.3	
			i	03 44 46.5	
			i	03 45 04	
			iSS	04 07 14	
				microns sec	
			PKP	Z 1.0 8	
			PKP	Z' 0.4 1.0	
			M	E 1.9 20	
			M	N 2.2 21	
			M	Z 3.5 21	
		Sk	iPKP	03 44 49.5	
			i	03 44 55.2	
		Gb	iPKP	03 44 48.4	
			i	03 44 53.8	
		Um	iPKP	03 44 39.7	
			i	03 44 45.7	
			iSKKS	03 55 01	
			iSS	04 07 33	
		Ka	iPKP	03 44 42.6	
			i	03 44 47.6	

South of Australia
(h = 30 km).
Magn. = 6.0 (Up,Ki).
At most stations there are two clear PKP phases, a small one followed after 5.0-6.2 sec by a larger one - P^{II} and P^{II}_{o} resp. in the notation of Payo Subiza and Båth (Geophys. J., 8: 496-513, 1964).

"	4	Ki	eP	03 50 30	
		Um	iP	03 50 59.4	
			i	03 51 06.5	

(Aleutian Islands).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Feb. 4 Ki iP 04 46 19.0
i 04 46 35.5
Um iP 04 46 24.9
North of Halmahera
(h = 40 km).

" 4 Up iP 05 04 54.3 C
microns sec
P Z' 0.1 0.5
Ki iP 05 04 02.7
Sk iP 05 04 37.3
Gb iP 05 05 15.0
Um iP 05 04 28.5
Ka iP 05 05 21.5 C
Aleutian Islands
(h = 40 km).

" 4 Up iP1 05 12 17.4
iP2 05 12 21.3
iP3 05 12 27
iP4 05 12 37
i(P5) 05 12 53
iS3 05 21 29
microns sec
P5 E 5.9 6
P5 N 21 6
S3 E 44 8
S3 N 54 13
M E 830 17
M N 1220 18
Ki iP1 05 11 26.0 C
iP2 05 11 29.1
iP3 05 11 35 C
iP4 05 11 43 C
i(P5) 05 11 55
microns sec
P1 N 2.6 9
P1 Z 2.2 7
P2 Z' 2.5 1.0
P3 Z 4.7 6
P4 E 2.7 10
P4 N 57 16
P4 Z 43 10
(P5) E 18 15
M E (440) 18
M N (490) 18
M Z (680) 18
(D = 6650 km = 60°).
Sk iP1 05 12 01.1
iP2 05 12 05.7
Gb iP1 05 12 36.1
iP2 05 12 38.8
iP3 05 12 44.0
Um iP1 05 11 49.1
iP2 05 11 52

cont.

1965
Feb. 4 cont. Um iP3 05 11 59.6
iP4 05 12 09
Ka iP1 05 12 42.2
iP2 05 12 45.1
Aleutian Islands
(h = 40 km).
Magn. = 8.1 (Up,Ki).
Complicated P with several onsets: P1, P2, P3, P4. They arrive with the following intervals: P2 - P1 = 3 sec, P3 - P1 = 10 sec, P4 - P1 = 20 sec. The amplitudes increase successively in the order from P1 to P4. A probable reason may be multiple shocks. If this is true, a detailed study of many records may demonstrate the progression of the faulting. - The Uppsala amplitudes are measured on the Wiechert records for this earthquake.

" 4 Up iP 05 28 16.5
i(pP) 05 28 22.3
i 05 28 40.6
microns sec
P Z' 0.2 1.3
(pP) Z' 0.4 1.3

" 4 Up iP 05 30 14.6
ipP 05 30 27.5
microns sec
P Z' 0.2 1.0
pP Z' 0.8 1.4
Ki iP 05 29 22.2
ipP 05 29 33.6
Gb iP 05 30 33.7
ipP 05 30 45.0
Um iP 05 29 48.7
ipP 05 30 00.0
Ka iP 05 30 40.1
Aleutian Islands.
h = 50 km (Up,Ki,Gb,Um).

" 4 Up iP 05 35 47.0 C
microns sec
P Z' 0.2 0.7
Gb iP 05 36 04.7
Aleutian Islands.
Origin time = 05 24 50.

cont.

Upp : 50 N 173 E, 33 km

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 4 Approximate origin times are given only for those aftershocks which have not been reported by USCGS and for which we have at least two readings. The mean error of our origin times is ± 4 sec, due to corresponding shifts in epicenter location. Identification has been made by comparison with other bulletins.

" 4 Gb iP 05 37 46.4
Aleutian Islands.

" 4 Ki iP 05 44 44.0

" 4 Gb iP 05 59 02.2 D

" 4 Gb iP 06 00 10.6

" 4 Ki iP 06 00 55.2 D

" 4 Ki iP 06 02 05.0

" 4 Gb iP 06 06 55.6 C

" 4 Up iP 06 15 49.1
microns sec
P Z' 0.2 0.7
Ki iP 06 14 55.0
Gb iP 06 16 06.6
i 06 16 10.9
Um iP 06 15 21.6 C
Aleutian Islands
(h = 40 km).

" 4 Ki iP 06 26 14.6 C
Gb iP 06 27 26.2
ipP 06 27 34.9
Aleutian Islands.
h = 30 km (Gb).

" 4 Ki iP 06 27 26.5
Gb iP 06 28 40.9
Aleutian Islands.
Origin time = 06 17 30.

52.2N 172.6E 30 km

" 4 Um iP 06 31 03.0 C

" 4 Ki iP 06 31 56.0
Aleutian Islands.

" 4 Ki iP 06 33 27.0 D

1965 Feb. 4 Up iP 06 36 05.5
microns sec
P Z' 0.1 0.7
Ki iP 06 35 12.1 C
ipP 06 35 22.0
microns sec
P Z' 0.1 1.0
Gb iP 06 36 23.8
Aleutian Islands.
h = 40 km (Ki).
Origin time = 06 25 14.
Magn. = 5.8 (Up,Ki).

" 4 Ki iP 06 39 07.0
Aleutian Islands.

" 4 Up iP 06 41 20.9
(Aleutian Islands).

" 4 Um iP 06 44 09.8

" 4 Up iP 06 45 10.7
microns sec
P Z' 0.1 0.5
Ki iP 06 44 16.5
microns sec
P Z' 0.1 1.2
Um iP 06 44 42.3
Aleutian Islands
(h = 25 km).
Magn. = 5.8 (Up,Ki).

" 4 Up iP 06 47 48.1 C
microns sec
P Z' 0.4 0.7
Ki iP 06 46 55.5 C
microns sec
P Z' 0.2 1.2
Sk iP 06 47 30.5
Gb iP 06 48 10.1
ipP 06 48 19.0
Um iP 06 47 21.7
ipP 06 47 34.2
Aleutian Islands.
h = 40 km (Gb,Um).
Magn. = 6.2 (Up,Ki).

" 4 Up iP 06 50 23.1
microns sec
P Z' 0.2 1.0
Ki iP 06 49 30.0
microns sec
P Z' 0.1 1.0
Sk iP 06 50 03.9
Gb iP 06 50 41.5 C
Um iP 06 49 56.4 C
Aleutian Islands
(h = 30 km).
Magn. = 5.9 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Feb. 4 Up iP 06 52 44.2
Ki iP 06 51 51.9
Um ~~iP~~ ~~06 52 18.1~~
Aleutian Islands.
Origin time = 06 41 53.

" 4 Up iP 06 54 21.8
Ki iP 06 53 13.0 C

" 4 Ki iP 06 54 17.4 C
Um ~~iP~~ ~~06 54 43.2~~
Aleutian Islands.
Origin time = 06 44 18.

" 4 Up iP 06 56 30.9

" 4 Um iP 06 57 52.2

" 4 Up iP 06 58 45.0
Ki iP 06 57 51.8
Um ~~iP~~ ~~06 58 18.2~~
Aleutian Islands.
Origin time = 06 47 54.

" 4 Up iP 06 59 54.5
Ka ~~iP~~ ~~07 00 25.0~~
Aleutian Islands.
Origin time = 06 49 (06).

" 4 Ka iP 07 02 07.9
i(pP) 07 02 13.5

" 4 Up iP 07 03 40.1
microns sec
P Z' 0.1 0.5
Ki iP 07 02 46.5 C
microns sec
P Z' 0.2 1.0
Sk iP 07 03 21.1 C
Gb iP 07 03 57.9 C
Um iP 07 03 12.8 C
Ka iP 07 04 04.0
Aleutian Islands
(h = 30 km).
Magn. = 6.0 (Up,Ki).

" 4 Ki iP 07 03 32.8
Um iP 07 03 58.5
~~i(pP)~~ ~~07 04 11.9~~
Aleutian Islands.
h = 50 km (Um).
Origin time = 06 53 34.

" 4 Up iP 07 19 20.1
Ki iP 07 18 39.3
Um iP 07 18 55.1

1965
Feb. 4 Up iP 07 22 20.1
ipP 07 22 31.8
microns sec
P Z' 0.6 0.8
Ki iP 07 21 27.3
microns sec
P Z' 0.2 1.0
Sk iP 07 22 01.9
Gb iP 07 22 37.3
Um iP 07 21 53.1
Ka iP 07 22 43.2
Aleutian Islands.
h = 50 km (Up).
Magn. = 6.3 (Up,Ki).

" 4 Ka iP 07 23 22.1

" 4 Um iP 07 24 00.7

" 4 Up iP 07 25 49.4
ipP 07 25 59.9
microns sec
P Z' 0.1 1.0
Ki iP 07 24 56.0
ipP 07 25 06.3
microns sec
P Z' 0.2 0.8
Sk iP 07 25 30.2
ipP 07 25 40.4
Gb iP 07 26 07.3 D
ipP 07 26 17.7
Um iP 07 25 22.1 D
Ka iP 07 26 13.7
ipP 07 26 23.9
Aleutian Islands.
h = 40 km (Up,Ki,Sk,Gb,Ka).
Magn. = 6.0 (Up,Ki).

" 4 Ki iP 07 26 00.8
ipP 07 26 11.9
microns sec
P Z' 0.2 1.0
Um iP 07 26 27.0
Aleutian Islands.
h = 40 km (Ki).
Origin time = 07 16 02.

" 4 Up iP 07 34 02.6
ipP 07 34 10.1
microns sec
pP Z' 0.5 1.5
Ki iP 07 33 09.5
ipP 07 33 15.8
microns sec
pP Z' 0.3 1.2
Sk eP 07 33 45
ipP 07 33 50.6

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 4 cont.

	Gb	iP	07 34 21.9	
		ipP	07 34 27.8	
	Um	iP	07 33 34.4	
		ipP	07 33 42.0	
	Ka	iP	07 34 27.2	
		ipP	07 34 33.6	

Aleutian Islands.
h = 25 km (Up,Ki,Sk,Gb, Um,Ka).
At all our stations, the phase interpreted as pP has a considerably larger amplitude than P. An alternative interpretation would naturally be in terms of two different shocks.

" 4	Up	iP	07 36 03.0	

Aleutian Islands.

" 4	Up	iP	07 40 48.1	
	Ki	iP	07 39 54.0	
	Sk	iP	07 40 28.5	
	Um	iP	07 40 20.6	C

Aleutian Islands.
Origin time = 07 29 56.

" 4	Up	iP	07 43 02.5	
	Ki	iP	07 42 09.5	
	Um	iP	07 42 34.7	

Aleutian Islands
(h = 25 km).

" 4	Up	iP	07 51 28.8	
		ipP	07 51 38.1	
	Ki	iP	07 50 39.3	

Aleutian Islands.
h = 40 km (Up).

" 4	Up	iP	07 53 26.9	C
		ipP	07 53 37.7	
	Ki	iP	07 52 33.4	

Aleutian Islands.
h = 40 km (Up).
Origin time = 07 42 35.

" 4	Up	iP	07 54 27.5	
			microns	sec
		P	Z' 0.1	0.5
	Ki	iP	07 53 33.8	
			microns	sec
		P	Z' 0.1	1.0
	Sk	iP	07 54 08.4	
	Gb	iP	07 54 47.0	C
	Um	iP	07 53 59.5	

cont.

1965 Feb. 4 cont.

	Ka	iP	07 54 51.8	

Aleutian Islands
(h = 30 km).
Magn. = 6.0 (Up,Ki).

" 4	Um	iP	07 54 41.8	
" 4	Up	iP	07 57 09.7	
	Ki	iP	07 56 16.1	

Aleutian Islands.
Origin time = 07 46 17.

" 4	Up	iP	08 02 28.8	
	Ki	iP	08 01 40.5	
	Um	iP	08 02 02.4	

Aleutian Islands
(h = 20 km).

" 4	Up	iP	08 03 45.6	C
	Ki	iP	08 02 52.0	
			microns	sec
		P	Z' 0.1	1.3
	Um	iP	08 03 18.0	

Aleutian Islands.
Origin time = 07 52 54.

" 4	Up	iP	08 04 24.9	
	Sk	iP	08 04 04.1	
	Gb	iP	08 04 41.0	

Aleutian Islands
(h = 30 km).

" 4	Up	iP	08 07 24.5	
	Um	iP	08 06 57.9	

Aleutian Islands
(h = 30 km).

" 4	Ki	iP	08 07 26.0	
" 4	Up	iP	08 10 17.9	
	Ki	iP	08 09 23.8	
	Um	iP	08 09 50.2	

Aleutian Islands.
Origin time = 07 59 25.

" 4	Up	iP	08 11 29.3	
	Um	iP	08 11 01.3	

Aleutian Islands
(h = 30 km).

" 4	Up	iP	08 14 57.7	C
	Ki	iP	08 14 04.0	C
			microns	sec
		P	Z' 0.1	1.0
	Sk	iP	08 14 38.3	
	Gb	iP	08 15 15.5	C

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 4 Um iP 08 14 30.1 C
cont. Aleutian Islands
(h = 30 km).

" 4 Up iP 08 17 05.6
Ki iP 08 16 12.5 C
ipP 08 16 25.5
microns sec
P Z' 0.1 1.3
Sk iP 08 16 46.7 C
Gb iP 08 17 22.8
Um iP 08 16 38.6
ipP 08 16 51.6
Ka iP 08 17 29.8
ipP 08 17 41.2
Aleutian Islands.
h = 50 km (Ki,Um,Ka).
Origin time = 08 06 14.

" 4 Up iP 08 17 21.5 C
microns sec
P Z' 0.3 0.9
Ki iP 08 16 27.5
Gb iP 08 17 38.9
ipP 08 17 50.1
Um iP 08 16 53.7
ipP 08 17 02.9
Ka iP 08 17 44.7
ipP 08 17 55.6
Aleutian Islands.
h = 40 km (Gb,Um,Ka).
Origin time = 08 06 30.

" 4 Up iP 08 20 59.2
Ki iP 08 20 06.2
Um iP 08 20 32.0
Aleutian Islands
(h = 30 km).

" 4 Up iP 08 22 04.7 D
Ki iP 08 21 11.2 D
Um iP 08 21 36.8
Aleutian Islands.
Origin time = 08 11 13.

" 4 Up iP 08 25 35.4 D
Ki iP 08 24 42.1 D
Um iP 08 25 08.0
Aleutian Islands.
Origin time = 08 14 43.

" 4 Up iP 08 27 36.9
Ki iP 08 26 41.0
Aleutian Islands.
Origin time = 08 16 43.

" 4 Up iP 08 31 43.6
cont.

1965 Feb. 4 Ki iP 08 30 51.0
cont. Um iP 08 31 15.8
i(pP) 08 31 30.0
Aleutian Islands.
Origin time = 08 20 52.

" 4 Up iP 08 33 59.4

" 4 Up iP 08 35 02.7

" 4 Up iP 08 35 45.5
Ki iP 08 34 51.9
Aleutian Islands.
Origin time = 08 24 54.

" 4 Up iP 08 44 31.9
ipP 08 44 38.9
microns sec
P Z' 0.2 1.3
Ki iP 08 43 37.8 C
microns sec
P Z' 0.1 1.3
Sk iP 08 44 12.0 C
Gb iP 08 44 49.2
Um iP 08 44 03.5
Ka iP 08 44 55.0 C
Aleutian Islands.
h = 30 km (Up).
Magn. = 5.8 (Up,Ki).

" 4 Up iP 08 48 05.9
ipP 08 48 16.0
microns sec
P Z' 0.2 1.0
Ki iP 08 47 12.1 C
ipP 08 47 24.0
microns sec
P Z' 0.1 1.3
Sk iP 08 47 46.6
ipP 08 47 58.3
Gb iP 08 48 23.4
ipP 08 48 34.2
Um iP 08 47 38.7
Ka iP 08 48 28.3
ipP 08 48 40.7
Aleutian Islands.
h = 45 km (Up,Ki,Sk,Gb,Ka).
Magn. = 5.8 (Up,Ki).

" 4 Up iP 08 48 52.3

" 4 Up iP 08 49 28.5

" 4 Up iP 08 50 22.0
microns sec
P Z' 0.1 1.0
cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 4 cont.

Ki iP 08 49 28.5
microns sec
P Z' 0.1 1.3
Sk iP 08 50 01.1
Gb iP 08 50 37.9
Aleutian Islands
(h = 25 km).
Magn. = 5.7 (Up,Ki).

" 4 Up iP 08 51 36.7 C
eS 09 00 34
iP'P' 09 19 46.7
i 09 19 59.6
microns sec
P N 27 18
P Z 37 20
P Z' 1.2 0.5
S E 25 20
S N 24 18
P'P' Z' 1.1 2.0
M E 86 19
M N 130 20
M Z 110 20
D = 7500 km = 67 1/2°.
Ki iP 08 50 45.7 C
i 08 51 06
iS 08 58 52
iP'P' 09 20 20.1
microns sec
P Z 5.5 6
P Z' 0.9 0.7
S E 54 22
S N 19 16
M E 160 19
M N 110 18
M Z 240 20
D = 6650 km = 60°.
Sk iP1 08 51 14.4
iP2 08 51 18.7
iP'P' 09 19 53.7
Gb iP1 08 51 52.8
iP2 08 51 55.5
Um iP 08 51 11.6
iP'P' 09 20 00.7
Ka iP1 08 51 58.5
iP2 08 52 02.5
Aleutian Islands
(h = 40 km).
Magn. = 7.2 (Up,Ki).
As in the main shock, the P phases are multiple, this time with two clear onsets separated by about 3-4 sec, the second one being the larger, probably due to multiple shocks. - This is

cont.

1965 Feb. 4 cont.

the largest aftershock; its magnitude is 1.0 lower than for the main shock, this being an average of determinations at Uppsala, Kiruna, Pasadena, Moscow, USCGS. This is fairly good agreement with the average rule for shallow shocks: M - Ml = 1.2.

" 4 Up iP2 09 05 01.4
Ki iP1 09 04 00.8
iP2 09 04 06.7
Um iP1 09 04 25.5
iP2 09 04 35.9
Gb iP2 09 05 16.4
Aleutian Islands
(h = 30 km).
Probably two separate shocks, 1 and 2.

" 4 Up iP 09 08 45.6
Um iP 09 08 17.2
Aleutian Islands
(h = 30 km).

" 4 Up iP 09 10 04.9
microns sec
P Z' 0.2 1.0
Ki iP 09 09 11.5 D
microns sec
P Z' 0.1 1.0
Sk iP 09 09 46.2
Gb iP 09 10 22.9
ipP 09 10 30.5
i 09 10 36.7
Um iP 09 09 37.7
Ka iP 09 10 29.0
ipP 09 10 36.8
Aleutian Islands.
h = 30 km (Gb,Ka).
Magn. = 5.9 (Up,Ki).

" 4 Up iP 09 11 21.4
microns sec
P Z' 0.1 0.5
Ki iP 09 10 28.0
microns sec
P Z' 0.1 1.0
Sk iP 09 11 02.0
Gb iP 09 11 39.1 C
Um iP 09 10 53.6
Aleutian Islands
(h = 40 km).
Magn. = 5.9 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb.	4	Um	iP	09 12 17.7	
"	4	Up	iP	09 17 23.4	
		Gb	iP	09 17 42.2	
		Um	iP	09 16 56.0	
		Aleutian Islands (h = 40 km).			
"	4	Up	iP	09 22 52.9	
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	09 21 58.5	
		Sk	iP	09 22 34.1	
		Gb	eP	09 23 10	
		Um	iP	09 22 25.9	
			ipP	09 22 33.6	
		Aleutian Islands. h = 30 km (Um).			
"	4	Up	iP	09 30 56.6	
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	09 30 05.0	
			ipP	09 30 16.7	
		Sk	iP	09 30 37.7	
		Gb	iP	09 31 14.1	
		Um	iP	09 30 29.9	
			ipP	09 30 42.4	
		Aleutian Islands. h = 50 km (Ki,Um).			
"	4	Um	iP	09 34 07.3	
"	4	Up	iP	09 35 47.9	
		Um	iP	09 35 20.7 C	
		Aleutian Islands. Origin time = 09 24 56.			
"	4	Up	iP	09 39 06.4	
		Ki	iP	09 38 12.7 C	
		Um	iP	09 38 38.7	
		Aleutian Islands. Origin time = 09 28 14.			
"	4	Up	iP	09 41 05.5	
"	4	Up	iP	09 42 24.1	
		Ki	iP	09 41 30.0	
		Um	iP	09 41 56.6	
		Aleutian Islands. Origin time = 09 31 32.			
"	4	Up	iP	09 46 14.3	
			ipP	09 46 21.5	
				microns sec	
			P	Z' 0.2 1.3	
			pP	Z' 0.3 1.0	

cont.

1965 Feb. cont.	4	Ki	iP	09 45 20.5	
			ipP	09 45 27.5	
				microns sec	
			P	Z' 0.1 1.4	
			pP	Z' 0.1 1.0	
		Sk	iP	09 46 01.4	
		Gb	iP	09 46 30.4	
			ipP	09 46 38.6	
		Um	iP	09 45 46.5	
			ipP	09 45 54.1	
		Ka	iP	09 46 36.9	
			ipP	09 46 44.8	
		Aleutian Islands. h = 30 km (Up,Ki,Gb,Um,Ka). Magn. = 5.7 (Up,Ki).			
"	4	Up	iP	09 48 22.4	
			ipP	09 48 30.0	
				microns sec	
			P	Z' 0.1 1.0	
			pP	Z' 0.2 1.0	
		Ki	iP	09 47 28.7	
			ipP	09 47 36.5	
				microns sec	
			P	Z' 0.1 1.0	
			pP	Z' 0.1 1.0	
		Sk	iP	09 48 10.1	
		Gb	iP	09 48 39.6	
			ipP	09 48 47.2	
		Um	iP	09 47 54.5	
			ipP	09 48 02.4	
		Aleutian Islands. h = 30 km (Up,Ki,Gb,Um). Magn. = 5.7 (Up,Ki).			
"	4	Up	iP	09 49 25.5	
"	4	Um	iP	09 51 38.2	
		(Aleutian Islands).			
"	4	Up	eP	09 53 46	
		Ki	iP	09 52 50.2	
		Sk	iP	09 53 26.8	
		Um	iP	09 53 19.1	
		Aleutian Islands (h = 15 km).			
"	4	Up	iP	09 59 21.2 C	
		Ki	iP	09 58 25.9	
		Um	iP	09 58 58.0	
		Aleutian Islands (h = 25 km).			
"	4	Up	iP	10 02 56.9	
				microns sec	
			P	Z' 0.3 1.5	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 4 cont.

Ki iP 10 02 03.9
microns sec
P Z' 0.1 1.2
Sk iP 10 02 37.5
Gb iP 10 03 14.4
Um iP 10 02 29.8
i 10 02 48.8
Aleutian Islands
(h = 30 km).
Magn. = 5.8 (Up,Ki).

" 4 Up iP 10 11 53.9
Ki iP 10 11 00.5
Sk iP 10 11 34.3
Gb iP 10 12 11.5
Um iP 10 11 26.3
i(PcP) 10 12 04.4
Aleutian Islands
(h = 30 km).

" 4 Up iP 10 15 18.2 C
Ki iP 10 14 24.9
microns sec
P Z' 0.1 1.0
Um iP 10 14 50.2
Aleutian Islands
(h = 40 km).

" 4 Ki iPg 10 16 32.1 C
iSn 10 17 02.5
iSg 10 17 08.0
Sk eSg 10 18 17
Um iSg 10 17 06.9
Near the northern end of
the Gulf of Bothnia.

" 4 Up iP 10 23 22.2
ipP 10 23 30.7
Ki iP 10 22 27.6
Um iP 10 22 52.1
Aleutian Islands.
h = 30 km (Up).

" 4 Up iP 10 25 17.4
Ki iP 10 24 22.5
Gb eP 10 25 33
Um iP 10 24 48.8
Aleutian Islands
(h = 30 km).

" 4 Up iP 10 26 16.3
Ki iP 10 25 22.3
Um iP 10 25 48.4 C
Aleutian Islands.
Origin time = 10 15 24.

" 4 Ki iP 10 36 29.5
cont.

1965 Feb. 4 cont.

Gb iP 10 37 40.3
Aleutian Islands
(h = 15 km).

" 4 Up iP 10 38 37.1
Ki iP 10 37 43.5
Um iP 10 38 10.2
Aleutian Islands.
Origin time = 10 27 45.

" 4 Up iP 10 41 29.9
Ki iP 10 40 36.1
Um iP 10 41 02.4
ipP 10 41 11.3
Aleutian Islands.
h = 40 km (Um).

" 4 Ki iP 10 48 45.0
Aleutian Islands
(h = 40 km).

" 4 Up iP 10 50 19.4
Ki iP 10 49 25.7
Gb iP 10 50 36.8
Um iP 10 49 51.4
Aleutian Islands
(h = 30 km).

" 4 Up iP 10 52 29.0
microns sec
P Z' 0.1 0.8
Ki iP 10 51 35.0
Sk iP 10 52 09.5
Um iP 10 52 01.1
Aleutian Islands
(h = 40 km).

" 4 Ki iP 11 03 31.5

" 4 Ki iP 11 09 04.2
Um iP 11 09 31.0
Aleutian Islands.
Origin time = 10 59 06.

" 4 Up iP 11 11 22.1
ipP 11 11 34.6
microns sec
P Z' 0.1 0.8
pP Z' 0.3 1.0
Ki iP 11 10 28.0
ipP 11 10 39.5
microns sec
pP Z' 0.1 1.0
Sk iP 11 11 02.5
ipP 11 11 13.9
Gb iP 11 11 49.5

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. cont.	4	Um	iP	11 10 54.3	
			ipP	11 11 06.5	
		Ka	iP	11 11 57.6	
		Aleutian Islands.			
		h = 50 km (Up,Ki,Sk,Um).			
		Magn. = 5.8 (Up,Ki).			
"	4	Ki	eP	11 16 25	
		Aleutian Islands			
		(h = 25 km).			
"	4	Um	iP	11 19 11.6	
		Aleutian Islands			
		(h = 40 km).			
"	4	Up	iP	11 26 25.7	
		Um	iP	11 25 58.2	
		Aleutian Islands			
		(h = 20 km).			
"	4	Up	iP	11 29 37.0	
		Ki	iP	11 28 42.5	
		Um	iP	11 29 09.8	D
		Aleutian Islands			
		(h = 25 km).			
"	4	Um	iP	11 31 06.9	
		Aleutian Islands			
		(h = 30 km).			
"	4	Up	iP	11 34 00.6	
			ipP	11 34 11.9	
		Ki	iP	11 33 07.0	C
		Gb	iP	11 34 19.1	
		Um	iP	11 33 33.0	
		Aleutian Islands.			
		h = 40 km (Up).			
"	4	Up	iP	11 38 17.8	
		Ki	iP	11 37 20.5	
			ipP	11 37 29.0	
		Gb	iP	11 38 33.7	
		Um	iP	11 37 48.4	
		Aleutian Islands.			
		h = 30 km (Ki).			
"	4	Ki	iP	11 42 57.5	
		Um	iP	11 43 23.1	
		Aleutian Islands			
		(h = 40 km).			
"	4	Up	iP	11 51 29.9	
		Ki	iP	11 50 27.6	
			i(pP)	11 50 37.5	
"	4	Up	iP	11 59 19.8	
			microns	sec	
			P Z' 0.1	0.7	

cont.

1965 Feb. cont.	4	Gb	iP	11 59 37.6	
		Um	iP	11 58 52.5	
			ipP	11 59 06.9	
		Aleutian Islands.			
		h = 60 km (Um).			
"	4	Up	iP	12 09 00.3	C
			microns	sec	
			P Z' 0.1	0.8	
		Ki	iP	12 08 07.0	
		Sk	iP	12 08 40.4	
		Gb	iP	12 09 17.5	C
		Um	iP	12 08 32.9	C
			ipP	12 08 45.8	
		Aleutian Islands.			
		h = 50 km (Um).			
"	4	Up	iP	12 16 47.6	
			i	12 16 49.4	C
			iPP	12 19 25	
			iS	12 25 33	
			iScS	12 26 42	
			iP'P'	12 45 32	
			microns	sec	
			P N	5.1	10
			P Z	4.1	6
			P Z'	0.3	0.6
			PP Z	0.6	4
			S E	2.6	5
			S N	2.3	5
			M E	11	17
			M N	13	19
			M Z	13	19
			D = 7350 km = 66°.		
		Ki	iP	12 15 54.0	
			i	12 15 55.7	C
			i	12 16 09	
			iPP	12 17 59	
			iPa	12 19 39	
			eS	12 23 51	
			iScS	12 25 43	
			eP'P'	12 45 53	
			microns	sec	
			P N	2.6	5
			P Z	6.1	6
			P Z'	0.6	1.0
			PP Z	1.4	4
			S E	9.5	13
			S N	1.5	10
			M E	13	18
			M N	14	21
			M Z	30	22
			D = 6450 km = 58°.		
		Sk	iP	12 16 29.3	
			i	12 16 30.8	
			i	12 17 47.4	
		Gb	iP	12 17 06.3	D
			i	12 17 07.9	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. cont.	4	Gb	ipP	12 17 15.5	
			eP'P'	12 45 20	
		Um	iP	12 16 19.7	
			i	12 16 21.8	
			iP'P'	12 45 39.1	
		Ka	iP	12 17 12.0	D
			i	12 17 13.7	
			ipP	12 17 21.7	

Aleutian Islands.
h = 40 km (Gb,Ka).
Magn. = 6.7 (Up,Ki).
Again, the P phase is multiple with a small phase followed by a much larger phase after 1.7 sec on the average. Compare similar remarks to the main shock (05 12) and to the next largest one, so far (08 51). The opposite case, i.e. with a large phase followed after a few seconds by a small P, will not be discovered, for obvious reasons.

"	4	Um	iP	12 25 43.0	
"	4	Up	iP	12 27 45.2	D
		Um	iP	12 27 17.2	

Aleutian Islands.
Origin time = 12 16 53.

"	4	Ki	eP	12 30 06	

Aleutian Islands
(h = 30 km).

"	4	Up	iP	12 51 28.1	C
"	4	Up	iP	12 52 54.3	
"	4	Up	iP	12 53 10.3	
		Ki	iP	12 52 16.7	

Aleutian Islands
(h = 25 km).

"	4	Up	iP	12 55 00.4	D
		Um	eP	12 54 32	

Aleutian Islands
(h = 30 km).

"	4	Up	iP	13 01 51.1	C
			ipP	13 01 58.4	
				microns	sec
			P	Z' 0.3	1.1
		Ki	iP	13 00 57.5	

cont.

1965 Feb. cont.	4	Ki	ipP	13 01 04.9	
				microns	sec
			P	Z' 0.1	1.4
		Sk	iP	13 01 31.6	
		Gb	iP	13 02 08.4	C
			ipP	13 02 15.5	
		Um	iP	13 01 23.6	C
			ipP	13 01 31.0	
		Ka	iP	13 02 15.0	
			ipP	13 02 21.9	

Aleutian Islands.
h = 30 km (Up,Ki,Gb,Um,Ka).
Magn. = 5.8 (Up,Ki).

"	4	Up	iP	13 03 58.2	
		Ki	iP	13 03 04.5	
		Gb	iP	13 04 15.5	
		Um	iP	13 03 29.5	

Aleutian Islands
(h = 25 km).

"	4	Up	iP	13 05 19.2	
				microns	sec
			P	Z' 0.1	0.9
		Ki	iP	13 04 25.6	
		Um	iP	13 04 52.1	

Aleutian Islands.
Origin time = 12 54 27.

"	4	Up	iP	13 17 57.6	C
		Um	iP	13 17 29.6	

Aleutian Islands
(h = 30 km).

"	4	Um	iP	13 22 14.7	

Aleutian Islands
(h = 30 km).

"	4	Up	iP	13 23 30.9	
			ipP	13 23 36.8	
		Um	iP	13 23 02.6	
			ipP	13 23 08.9	

Aleutian Islands.
h = 25 km (Up,Um).

"	4	Up	iP	13 34 37.3	
		Sk	iP	13 34 22.3	

Aleutian Islands
(h = 30 km).

"	4	Up	iP	13 40 47.6	
				microns	sec
			P	Z' 0.1	1.0
		Ki	iP	13 39 54.1	
		Sk	iP	13 40 28.0	C
		Gb	iP	13 41 05.4	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. cont.	4	Um	iP	13 40 19.6	C	Aleutian Islands (h = 30 km).
"	4	Up	iP	13 44 05.4		
		Um	iP	13 43 37.3		Aleutian Islands (h = 30 km).
"	4	Up	iP	13 56 02.8		
			ipP	13 56 15.2		
		Ki	iP	13 55 09.0		
			ipP	13 55 21.2		
		Um	iP	13 55 34.5		
			ipP	13 55 47.4		Aleutian Islands. h = 50 km (Up,Ki,Um).
"	4	Um	iP	13 58 32.9		
"	4	Up	iP	14 02 59.6		
		Ki	iP	14 02 07.2		Aleutian Islands (h = 30 km).
"	4	Up	iP	14 13 23.5		
		Ki	iP	14 12 29.6	D	Aleutian Islands (h = 30 km).
"	4	Gb	iP	14 15 54.3		Aleutian Islands (h = 30 km).
"	4	Up	iP	14 16 37.0		(Aleutian Islands).
"	4	Um	iP	14 23 45.7		Aleutian Islands (h = 25 km).
"	4	Up	iP	14 29 09.1	C	
			ePa	14 33 15		
			iS	14 37 50		
				microns	sec	
			P	N 1.5	5	
			P	Z 2.8	5	
			P	Z' 0.6	0.5	
			S	E 3.3	5	
			S	N 1.5	5	
			M	E 9.0	16	
			M	N 12	22	
			M	Z 9.5	21	
			D = 7300 km = 65 1/2°.			
		Ki	iP	14 28 14.5	C	
			ePa	14 31 46		
			iS	14 36 11		

cont.

1965 Feb. cont.	4	Ki	iScS	14 38 02		
				microns	sec	
			P	N 1.8	5	
			P	Z 3.3	5	
			P	Z' 1.0	0.8	
			S	E 5.6	8	
			S	N 2.1	8	
			M	E 8.7	14	
			M	N 13	17	
			M	Z 17	17	
			D = 6400 km = 57 1/2°.			
		Sk	iP	14 28 50.2	C	
			ipP	14 28 59.2		
		Gb	iP	14 29 27.6	C	
			iPP	14 31 59.9		
			iS	14 38 29.4		
		Um	iP	14 28 41.3	C	
		Ka	iP	14 29 33.1	C	
			iS	14 38 40.7		Aleutian Islands. h = 40 km (Sk). Magn. = 6.6 (Up,Ki).
"	4	Up	iP	14 37 49.4		(Aleutian Islands).
"	4	Up	iP	14 40 40.5		
				microns	sec	
			P	Z' 0.1	1.0	
		Ki	iP	14 39 47.0	C	
				microns	sec	
			P	Z' 0.1	1.0	
		Sk	iP	14 40 20.0		
		Um	iP	14 40 13.0	C	Aleutian Islands (h = 40 km). Magn. = 5.7 (Up,Ki).
"	4	Up	iP	14 41 21.7	C	
				microns	sec	
			P	Z' 0.2	1.0	
		Ki	iP	14 40 28.3		
				microns	sec	
			P	Z' 0.1	0.9	
		Sk	iP	14 41 01.9	C	
		Gb	iP	14 41 39.1	C	
		Um	iP	14 40 54.5		Aleutian Islands (h = 30 km). Magn. = 5.9 (Up,Ki).
"	4	Up	iP	14 45 59.0		
"	4	Gb	iP	14 56 56.7		
"	4	Up	eP	14 59 49		

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 4 cont.

	Ki	iP	14 58 55.7	C
		ipP	14 59 05.5	
	Um	iP	14 59 14.8	
		ipP	14 59 21.7	

Aleutian Islands.
h = 30 km (Ki,Um).

" 4	Up	iP	15 14 29.0	
	Ki	iP	15 13 36.4	
	Gb	iP	15 14 47.3	
	Um	iP	15 14 01.6	

Aleutian Islands
(h = 30 km).

" 4	Up	iP	15 15 07.5	

" 4	Ki	iP	15 16 06.4	
	Um	iP	15 16 32.0	

Aleutian Islands
(h = 30 km).

" 4	Up	iP	15 42 02.4	
	Ki	iP	15 41 04.6	
	Gb	iP	15 42 17.0	
	Um	iP	15 41 30.2	
		i	15 41 49.7	

Aleutian Islands
(h = 50 km).

" 4	Up	iP	15 55 52.1	

Aleutian Islands
(h = 30 km).

" 4	Up	iP	16 02 05.0	C
		ipP	16 02 12.5	
		iS	16 10 47	

		microns	sec
P	Z	0.7	3
P	Z'	0.8	1.5
S	E	0.9	5
S	N	0.7	7
M	E	2.4	17
M	N	2.5	18
M	Z	2.2	17

D = 7200 km = 65°.

	Ki	iP	16 01 10.7	C
		eS	16 09 05	

		microns	sec
P	Z	1.2	5
P	Z'	0.7	1.2
S	E	1.3	7
S	N	0.7	7
M	E	1.9	17
M	N	2.3	17
M	Z	3.4	19

D = 6350 km = 57°.

cont.

1965 Feb. 4 cont.

	Sk	iP	16 01 45.5	C
	Gb	iP	16 02 23.4	C
		ipP	16 02 31.0	
	Um	iP	16 01 36.8	C
	Ka	iP	16 02 28.5	C
		ipP	16 02 36.4	

Aleutian Islands.
h = 30 km (Up,Gb,Ka).
Magn. = 6.1 (Up,Ki).

" 4	Up	iP	16 10 20.0	D
	Ki	iP	16 09 26.6	
	Sk	eP	16 10 00	
	Um	iP	16 09 52.1	
		ipP	16 10 00.1	

Aleutian Islands.
h = 30 km (Um).

" 4	Up	iP	16 14 37.6	
	Ki	iP	16 13 44.0	
		ipP	16 13 55.0	
	Um	iP	16 14 09.8	
		i(sP)	16 14 25.6	

Aleutian Islands.
h = 40 km (Ki).

" 4	Up	eP	16 39 09	
	Ki	iP	16 38 17.0	
	Sk	iP	16 38 55.2	
	Gb	iP	16 39 26.8	C
	Um	iP	16 38 42.8	

Aleutian Islands
(h = 40 km).

" 4	Up	iP	16 43 25.0	
		ipP	16 43 33.8	

		microns	sec
pP	Z'	0.1	1.0

	Ki	iP	16 42 32.1	D
		ipP	16 42 39.8	

		microns	sec
pP	Z'	0.2	1.2

Sk	ipP	16 43 14.8	
Gb	iP	16 43 44.0	
	ipP	16 43 51.8	
Um	iP	16 42 57.9	
	ipP	16 43 05.4	
Ka	iP	16 43 51.0	

Aleutian Islands.
h = 30 km (Up,Ki,Gb,Um).
In this and several other aftershocks the pP phase is larger than the P phase. In such cases there is a certain risk at many stations that the true pP will be taken for P.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb.	4	Up	iP	17 02 27.4	
		Ki	iP	17 01 34.2	
		Gb	iP	17 02 44.6	
		Um	iP	17 01 57.5	
			ipP	17 02 05.9	
		Ka	iP	17 02 56.5	
		Aleutian Islands.			
		h = 30 km (Um).			
"	4	Um	iP	17 12 56.5	C
			i(pP)	17 13 04.4	
"	4	Up	iP	17 14 26.9	
		Gb	iP	17 14 45.4	
		Um	iP	17 13 59.0	
		Aleutian Islands			
		(h = 30 km).			
"	4	Up	iP	17 15 33.9	C
			ipP	17 15 46.2	
			microns	sec	
			P	Z' 0.1	0.9
		Ki	iP	17 14 40.5	C
			ipP	17 14 53.1	
			microns	sec	
			M	E 1.1	17
			M	N 0.7	16
			M	Z 1.2	16
		Sk	iP	17 15 14.2	
		Gb	iP	17 15 50.7	C
			ipP	17 16 03.6	
		Um	iP	17 15 06.5	C
		Ka	iP	17 15 57.3	
			ipP	17 16 09.6	
		Aleutian Islands.			
		h = 50 km (Up,Ki,Gb,Ka).			
"	4	Up	iP	17 17 00.2	
			i(pP)	17 17 08.7	
"	4	Up	iP	17 28 20.5	
			ipP	17 28 27.7	
			microns	sec	
			pP	Z' 0.1	1.0
		Ki	iP	17 27 27.9	
			ipP	17 27 34.0	
		Gb	iP	17 28 37.4	
		Um	iP	17 27 53.0	
			ipP	17 27 59.5	
		Aleutian Islands.			
		h = 25 km (Up,Ki,Um).			
"	4	Up	iP	17 57 57.4	
		Aleutian Islands			
		(h = 30 km).			
"	4	Um	iP	17 59 39.1	

1965 Feb.	4	Up	iP	18 01 35.1	
			ipP	18 01 41.2	
			microns	sec	
			pP	Z' 0.2	1.0
		Ki	iP	18 00 42.5	
			ipP	18 00 48.2	
		Gb	iP	18 01 52.1	
			ipP	18 02 00.0	
		Um	iP	18 01 08.7	
			ipP	18 01 13.9	
		Ka	ipP	18 02 06.5	
		Aleutian Islands.			
		h = 25 km (Up,Ki,Gb,Um).			
"	4	Up	iP	18 12 22.6	
		Um	iP	18 11 54.8	C
		Aleutian Islands			
		(h = 40 km).			
"	4	Up	iP	18 17 56.4	
			i	18 17 59.2	
		Gb	eP	18 18 16	
		Um	iP	18 17 28.5	
			ipP	18 17 39.3	
		Aleutian Islands.			
		h = 40 km (Um).			
"	4	Up	iP	18 24 41.4	
			ipP	18 24 51.0	
		Ki	iP	18 23 47.1	
		Gb	ipP	18 25 09.1	
		Um	iP	18 24 14.6	
			ipP	18 24 24.0	
		Aleutian Islands.			
		h = 40 km (Up,Um).			
"	4	Um	iP	18 30 01.8	
"	4	Up	iP	18 45 03.3	C
			microns	sec	
			P	Z' 0.3	1.0
		Ki	iP	18 44 10.3	C
			microns	sec	
			P	Z' 0.1	1.1
		Sk	iP	18 44 44.3	
		Gb	iP	18 45 21.3	C
			i(pP)	18 45 31.8	
		Um	iP	18 44 35.8	C
			i(pP)	18 44 42.3	
		Ka	iP	18 45 26.9	
		Aleutian Islands.			
		h = 30 km (Gb,Um).			
		Magn. = 6.0 (Up,Ki).			
"	4	Up	iP	18 50 40.7	
			ipP	18 50 49.0	
		Ki	iP	18 49 50.4	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Feb. 4 Gb iP 18 50 58.1
cont. Um iP 18 50 13.7
Aleutian Islands.
h = 30 km (Up).

" 4 Up iP 18 54 43.9
Aleutian Islands
(h = 30 km).

" 4 Up iP 18 59 01.0 C
microns sec
P Z' 0.1 0.9
M E 0.7 18
M N 1.4 22
M Z 1.4 22
Ki iP 18 58 07.5 C
iPcP 18 58 56.1
microns sec
M E 0.9 18
M N 0.8 17
M Z 1.0 16
Sk iP 18 58 41.6 C
iPcP 18 59 17.4
Gb iP 18 59 18.5
Um iP 18 58 33.8 C
ipP 18 58 42.9
Ka iP 18 59 24.8 C
ipP 18 59 34.5
Aleutian Islands.
h = 40 km (Um,Ka).
Magn. = 5.4 (Up,Ki).

" 4 Up iP 19 02 34.0
Ki ipP 19 01 53.0
Um iP 19 02 07.0 C
Aleutian Islands
(h = 40 km).

" 4 Up iP 19 07 02.9
Ki iP 19 07 27.6
Atlantic Ocean
(h = 30 km).

" 4 Up iP 19 08 59.9 C
ipP 19 09 08.3
Ki iP 19 08 02.9
Um iP 19 08 31.9
ipP 19 08 40.8
Aleutian Islands.
h = 30 km (Up,Um).

" 4 Up eP 19 12 18 C
Ki iP 19 11 24.4 C
ipP 19 11 35.0
microns sec
P Z' 0.1 1.0

cont.

1965
Feb. 4 Sk iP 19 11 59.9
cont. Gb iP 19 12 36.5
Um iP 19 11 50.0 C
Ka iP 19 12 42.1
Aleutian Islands.
h = 40 km (Ki).

" 4 Up iP 19 23 01.3
ipP 19 23 11.8
microns sec
pP Z' 0.1 1.0
Ki iP 19 22 09.0
Gb ipP 19 23 28.6
Um iP 19 22 31.5
ipP 19 22 44.3
Aleutian Islands.
h = 50 km (Up,Um).

" 4 Up eP 19 27 38
Ki iP 19 26 48.4 D
Sk iPcP 19 27 58.6
Um iP 19 27 14.2
Aleutian Islands
(h = 30 km).

" 4 Ki iP 19 31 46.7
Aleutian Islands
(h = 30 km).

" 4 Up eP 19 48 49

" 4 Up iP 19 54 44.1
ipP 19 54 55.1
iS 20 03 25
microns sec
S N 0.7 7
M E 1.8 19
M N 4.7 23
M Z 2.6 20
D = 7200 km = 65°.
Ki iP 19 55 06.5
iS 20 04 11
microns sec
P Z' 0.2 1.4
S N 1.0 9
M E 4.5 21
M N 1.0 17
M Z 6.3 20
D = 7600 km = 68 1/2°.
Sk iP 19 54 44.9 C
Gb iP 19 54 19.6 C
ipP 19 54 32.4
Um iP 19 55 01.0
iS 20 03 56
Ka iP 19 54 34.4
ipP 19 54 42.0
Atlantic Ocean.
h = 40 km (Up,Gb,Ka).
Magn. = 5.9 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb.	4	Up	iP	20 05 32.1	
		Ki	iP	20 04 38.5	
		Gb	iP	20 05 49.6	
		Aleutian Islands (h = 25 km).			
"	4	Up	iP	20 08 43.3	C
			microns sec		
			P Z' 0.2 1.0		
		Ki	iP	20 07 49.6	C
		Sk	iP	20 08 23.7	C
		Gb	iP	20 09 00.8	
			ipP	20 09 08.9	
		Um	iP	20 08 15.7	C
		Ka	iP	20 09 06.8	C
			ipP	20 09 15.0	
		Aleutian Islands. h = 30 km (Gb,Ka).			
"	4	Up	iP	20 16 36.8	
		Ki	iP	20 15 43.4	
		Um	iP	20 16 09.8	
		Aleutian Islands (h = 30 km).			
"	4	Up	iP	20 28 07.3	
		Aleutian Islands (h = 30 km).			
"	4	Ki	iP	20 31 39.1	
		Aleutian Islands (h = 30 km).			
"	4	Up	iP	20 43 18.4	C
			microns sec		
			P Z' 0.3 1.0		
		Ki	iP	20 42 25.1	
			microns sec		
			P Z' 0.1 1.0		
		Sk	iP	20 42 58.7	
		Gb	iP	20 43 36.0	
		Um	iP	20 42 53.1	C
			ipP	20 43 04.9	
		Ka	iP	20 43 42.1	C
		Aleutian Islands. h = 50 km (Um). Magn. = 6.0 (Up,Ki).			
"	4	Um	iP	20 43 59.5	
"	4	Up	iP	20 58 15.8	
		Ki	iP	20 57 21.6	
		Sk	iP	20 58 00.8	
		Gb	iP	20 58 32.6	
		Um	iP	20 57 47.8	
		Ka	iP	20 58 38.5	
		Aleutian Islands (h = 30 km).			

1965 Feb.	4	Up	iP	21 35 07.3	
			microns sec		
			P Z' 0.1 1.0		
		Gb	iP	21 35 24.8	
		Aleutian Islands (h = 30 km).			
"	4	Up	iP	21 36 19.7	
		Um	iP	21 35 52.3	
		Aleutian Islands. Origin time = 21 25 28.			
"	4	Up	iP	21 40 29.7	
			ipP	21 40 41.6	
		Ki	iP	21 39 32.6	D
		Gb	iP	21 40 47.2	
		Um	iP	21 39 58.1	
		Ka	iP	21 40 53.5	
		Aleutian Islands. h = 50 km (Up).			
"	4	Um	iP	21 42 22.1	
			i(pP)	21 42 27.7	
"	4	Up	iP	21 46 45.8	
			ipP	21 46 56.3	
			microns sec		
			P Z' 0.1 0.8		
		Ki	iP	21 45 52.8	D
		Gb	iP	21 47 02.7	
		Um	iP	21 46 18.7	
			ipP	21 46 29.1	
		Aleutian Islands. h = 40 km (Up,Um).			
"	4	Up	iP	21 49 44.6	
		Ki	iP	21 48 51.5	
		Um	iP	21 49 18.2	
		Aleutian Islands (h = 30 km).			
"	4	Um	iP	21 55 23.2	
"	4	Up	iP	22 02 42.3	
		Aleutian Islands (h = 30 km).			
"	4	Up	iP	22 06 23.9	C
			i	22 06 39.3	
		Um	iP	22 05 56.0	C
		Aleutian Islands (h = 30 km).			
"	4	Um	iP	22 11 12.7	
"	4	Up	iP	22 24 54.1	
		Ki	iP	22 24 03.8	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Feb. 4 Um iP 22 24 30.2 D
cont. Aleutian Islands
(h = 30 km).

" 4 Up iP 22 40 56.9
microns sec
P Z' 0.3 1.0
Ki iP 22 40 03.8
ipP 22 40 10.0
microns sec
P Z' 0.1 1.0
Sk iP 22 40 37.6
Gb iP 22 41 14.4 D
Um iP 22 40 28.6
Ka iP 22 41 20.1 D
Aleutian Islands.
h = 25 km (Ki).
Magn. = 6.0 (Up,Ki).

" 4 Up iP 23 24 36.9 C
Um iP 23 24 09.4
Aleutian Islands
(h = 30 km).

" 4 Up iP 23 37 19.8
microns sec
P Z' 0.1 0.8
Ki iP 23 36 26.5
microns sec
P Z' 0.1 1.3
Sk iP 23 36 59.8 C
Gb iP 23 37 36.9
Um iP 23 36 52.4
Aleutian Islands
(h = 30 km).
Magn. = 5.7 (Up,Ki).

" 5 Up iP 00 34 02.1
ipP 00 34 14.8
Aleutian Islands.
h = 50 km (Up).

" 5 Up iP 00 42 26.0 C
microns sec
P Z' 0.1 0.8
Ki iP 00 41 32.3
microns sec
P Z' 0.1 1.0
Sk iP 00 42 05.9
Gb iP 00 42 43.5
Um iP 00 41 58.5
Aleutian Islands
(h = 40 km).
Magn. = 5.8 (Up,Ki).

" 5 Up iP 00 42 48.2
cont.

1965
Feb. 5 Up ipP 00 42 59.0
cont. microns sec
P Z' 0.2 1.0
pP Z' 0.5 1.0
Ki iP 00 41 55.3
ipP 00 42 04.8
microns sec
P Z' 0.2 1.0
pP Z' 0.2 1.0
Sk iP 00 42 28.7
ipP 00 42 38.9
Gb iP 00 43 05.9
ipP 00 43 16.7
Um iP 00 42 18.6
ipP 00 42 30.5
eS 00 50 57
iScS 00 52 14
Ka iP 00 43 13.6
ipP 00 43 22.4
Aleutian Islands.
h = 40 km (Up,Ki,Sk,Gb,
Um,Ka).
Origin time = 00 31 56.
Magn. = 6.0 (Up,Ki).

" 5 Up iP 00 53 19.7
microns sec
P Z' 0.1 1.0
M N 0.7 18
Ki i(P) 00 52 14.7
Gb iP 00 53 37.6
Um iP 00 52 40.6
ipP 00 52 52.0
Ka iP 00 53 43.9
Aleutian Islands.
h = 50 km (Um).

" 5 Um iP 00 55 27.5

" 5 Up iP 01 17 12.2
microns sec
P Z' 0.2 1.5
Ki iP 01 16 10.6 D
Um iP 01 16 35.7
ipP 01 16 44.6
Aleutian Islands.
h = 40 km (Um).

" 5 Um iP 01 24 08.3

" 5 Up iP 01 32 20.6
Aleutian Islands
(h = 40 km).

" 5 Um iP 01 58 41.0

" 5 Up iP 02 17 27.1
cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 5 cont.

Ki iP 02 16 33.8
Aleutian Islands
(h = 15 km).

" 5
Up iP 02 39 19.3
Ki iP 02 38 25.5 C
Um iP 02 38 53.3
ipP 02 39 02.8
Aleutian Islands.
h = 40 km (Um).

" 5
Up iP 02 44 29.3
Ki iP 02 43 35.7 C
microns sec
P Z' 0.1 1.0
Gb iP 02 44 47.5
Um iP 02 44 01.0
Aleutian Islands
(h = 30 km).

" 5 Ki iP 03 07 28.6 C

" 5
Up iP 03 09 21.8
ipP 03 09 32.3
microns sec
pP Z' 0.3 1.0
Ki iP 03 08 26.3
ipP 03 08 39.1
microns sec
pP Z' 0.1 1.0
Sk ipP 03 09 08.7
Gb ipP 03 09 49.1
Um iP 03 08 54.3 C
ipP 03 09 05.3
Ka ipP 03 09 55.3
Aleutian Islands.
h = 50 km (Up,Ki,Um).
As the phase interpreted as pP has considerably larger amplitude than P, an alternative solution could be that pP instead is P of another shock in the Aleutians.

" 5
Up iP 03 13 40.0
Ki iP 03 12 46.9
Aleutian Islands
(h = 30 km).

" 5 Ki iP 03 13 12.1

" 5
Up iP 04 12 33.5
Ki iP 04 11 40.2
Um iP 04 12 06.4
Aleutians Islands
(h = 30 km).

1965 Feb. 5

Up iP 04 33 20.4
Aleutian Islands.

" 5
Up iP 04 48 17.4
Aleutian Islands
(h = 30 km).

" 5
Up iP 04 57 39.8
Aleutian Islands
(h = 30 km).

" 5
Up iP 05 16 04.3 C
Ki iP 05 15 10.6 C
Um iP 05 15 36.7
Aleutian Islands
(h = 40 km).

" 5
Up iP 05 17 44.7
Um iP 05 17 17.1
Aleutian Islands
(h = 50 km).

" 5
Um iP 05 23 43.6
Aleutian Islands
(h = 30 km).

" 5
Ki iP 05 50 08.6
Um iP 05 50 34.8
ipP 05 50 45.7
Aleutian Islands.
h = 40 km (Um).
Origin time = 05 40 10.

" 5 Ki iP 06 09 38.2
Aleutian Islands
(h = 40 km).

" 5
Up iP 06 36 11.3
ipP 06 36 17.3
Ki iP 06 35 16.9
ipP 06 35 22.6
Gb eP 06 36 27
ipP 06 36 33.3
Um iP 06 35 40.2
ipP 06 35 48.3
Ka ipP 06 36 39.4
Aleutian Islands.
h = 25 km (Up,Ki,Gb,Um).

" 5
Up iP 06 42 34.7
Um iP 06 42 07.2 C
ipP 06 42 14.6
Aleutian Islands.
h = 30 km (Um).

" 5
Up iP 06 50 41.2
microns sec
P Z' 0.6 1.0

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Feb. 5 Ki iP 06 49 47.6 C
cont.
microns sec
P Z' 0.1 1.0
M E 1.4 19
M N 1.4 18
M Z 3.2 20
Sk iP 06 50 22.6
ipP 06 50 30.6
Gb iP 06 50 59.9
ipP 06 51 09.5
Um iP 06 50 14.0
Ka iP 06 51 05.6 C
i 06 51 36.0
Aleutian Islands.
h = 35 km (Sk,Gb).

" 5 Um iP 06 55 21.0

" 5 Up iP 07 18 53.0
Ki iP 07 17 59.1
Sk iP 07 18 33.5
Gb iP 07 19 09.5
ipP 07 19 18.4
Um iP 07 18 25.6
Aleutian Islands.
h = 35 km (Gb).

" 5 Up iP 07 30 06.2 D
ipP 07 30 16.4
microns sec
P Z' 0.1 0.9
Ki iP 07 29 13.1 D
microns sec
P Z' 0.1 1.0
Sk eP 07 29 47
Gb iP 07 30 23.8
ipP 07 30 35.4
Um iP 07 29 38.0
Aleutian Islands.
h = 40 km (Up,Gb).
Magn. = 5.7 (Up,Ki).

" 5 Um iP 07 39 47.0
Aleutian Islands
(h = 40 km).

" 5 Up iP 07 42 25.6
Ki iP 07 41 31.7
Um iP 07 41 59.9
Aleutian Islands
(h = 30 km).

" 5 Um iP 08 00 58.0 C
Aleutian Islands
(h = 25 km).

1965
Feb. 5 Ki iP 08 11 25.6
Aleutian Islands
(h = 25 km).

" 5 Up iP 08 48 12.9
Mexico (h = 15 km).

" 5 Up iP 09 02 12.0 C
microns sec
P Z' 0.2 0.9
Ki iP 09 01 18.2 C
Sk iP 09 01 52.4 C
Gb iP 09 02 29.8
Um iP 09 01 44.3
Ka iP 09 02 35.7
Aleutian Islands
(h = 40 km).

" 5 Up iP 09 42 56.0 C
ipP 09 43 06.8
iS 09 51 42
microns sec
P N 1.7 5
P Z 1.9 5
P Z' 1.3 0.7
M E 2.9 19
M N 11 22
M Z 11 22
D = 7400 km = 66 1/2°.
Ki iP 09 42 02.0 C
ipP 09 42 13.6
i(S) 09 49 51
iS 09 50 06
microns sec
P N 1.5 6
P Z 2.0 5
P Z' 0.9 1.0
S E 1.8 11
(S) N 1.6 11
M E 8.5 19
M N 5.5 19
M Z 16 23
D = 6500 km = 58 1/2°.
Sk iP 09 42 36.4 C
Gb iP 09 43 13.8 C
ipP 09 43 24.8
Um iP 09 42 27.3 C
ipP 09 42 39.6
iPa 09 46 37
i(S) 09 50 33
iS 09 50 47
iP'P' 10 11 24.5
Ka iP 09 43 18.9 C
ipP 09 43 30.9
Aleutian Islands.
h = 45 km (Up,Ki,Gb,Um,Ka).
Magn. = 6.5 (Up,Ki).

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 5 cont.

The N-components at Ki and Um show S-phases, denoted (S), which arrive too early. A possible reason is partial conversion of incident S into P at Moho or deeper.

" 5 Gb iP 09 51 15.8

" 5 Ki iP 10 14 58.4
Aleutian Islands
(h = 40 km).

" 5 Up iP 10 19 34.3
Ki iP 10 18 40.9
Um iP 10 19 05.7
Aleutian Islands
(h = 30 km).

" 5 Up iP 11 01 12.9
ipP 11 01 24.0
Ki iP 11 00 18.8
Sk iP 11 00 53.8
Um iP 11 00 44.6
Aleutian Islands.
h = 45 km (Up).

" 5 Up iP 11 50 38.7
(Aleutian Islands).

" 5 Up iP 12 33 38.8 C
Aleutian Islands
(h = 30 km).

" 5 Up iP 12 40 23.3
Ki iP 12 39 30.7 D
Um iP 12 39 56.4
Aleutian Islands
(h = 40 km).

" 5 Up iP 13 37 41.6 C
Ki iP 13 36 48.1 C
Um iP 13 37 14.3
Aleutian Islands
(h = 40 km).

" 5 Um iP 13 43 40.1
Aleutian Islands
(h = 40 km).

" 5 Up iP 13 49 36.1 D
microns sec
P Z' 0.2 1.0
Ki iP 13 48 42.7 D
microns sec
P Z' 0.1 1.0

1965 Feb. 5 cont.

Sk iP 13 49 16.9
Gb iP 13 49 53.9 D
Um iP 13 49 08.6 D
Ka iP 13 49 59.1
Aleutian Islands
(h = 40 km).
Magn. = 5.9 (Up,Ki).

" 5 Up iP 14 02 36.8 C
Ki iP 14 01 42.8 C
microns sec
P Z' 0.1 1.0
Sk iP 14 02 17.3
Gb iP 14 02 55.4
Um iP 14 02 09.2 C
Aleutian Islands
(h = 40 km).

" 5 Up iP 14 19 14.3 C
microns sec
P Z' 0.2 1.0
Ki iP 14 18 20.9
microns sec
P Z' 0.1 1.0
Sk iP 14 18 54.7 C
Gb iP 14 19 31.9
Um iP 14 18 46.8
ipP 14 18 57.9
Ka iP 14 19 37.4 C
Aleutian Islands
(h = 40 km).
Magn. = 5.9 (Up,Ki).

" 5 Up iP 14 27 02.0 C
microns sec
P Z' 0.2 0.5

" 5 Up iP 14 39 33.8
Ki iP 14 38 40.7
Sk iP 14 39 14.1
Gb iP 14 39 52.3
Um iP 14 39 04.2
Aleutian Islands
(h = 30 km).

" 5 Up iP 14 49 13.5
Ki eP 14 48 20
Gb iP 14 49 31.8 C
Um iP 14 48 45.6
Aleutian Islands
(h = 30 km).

" 5 Sk iP 14 50 56.2 D

" 5 Um iP 15 11 02.8

" 5 Up iP 15 25 32.2
Aleutian Islands
(h = 40 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb.	5	Up	iP	15 40 54.1	
		Ki	iP	15 40 01.2	
		Um	iP	15 40 27.4	
		Aleutian Islands (h = 40 km).			
"	5	Um	iP	16 05 24.5	
		Aleutian Islands (h = 40 km).			
"	5	Up	iP	16 15 00.6	
			ipP	16 15 10.2	
		Um	iP	16 14 32.8	
		Aleutian Islands. h = 40 km (Up).			
"	5	Ka	i(P)	16 28 30.5	
"	5	Ki	iP	16 49 52.1	
		Um	iP	16 50 18.5	
		Aleutian Islands (h = 30 km).			
"	5	Up	iP	17 01 43.5	
		Um	iP	17 01 11.3	
		Aleutian Islands (h = 40 km).			
"	5	Ki	iP	17 15 59.6	
"	5	Um	iP	18 08 09.2	
"	5	Up	eP	18 27 01	
			ipP	18 27 06.7	
		Ki	eP	18 26 05	
		Gb	iP	18 27 16.0	
		Um	iP	18 26 30.7 C	
		Aleutian Islands. h = 25 km (Up).			
"	5	Up	iP	18 34 57.3	
			microns	sec	
			P Z' 0.1	1.0	
		Ki	iP	18 34 03.8	
		Sk	iP	18 34 37.6	
		Gb	iP	18 35 14.7	
		Um	iP	18 34 29.7 C	
		Aleutian Islands (h = 30 km).			
"	5	Up	iP	18 52 02.2 C	
		Ki	iP	18 51 07.6	
		Um	iP	18 51 33.2	
		Aleutian Islands. Origin time = 18 41 10.			
"	5	Up	iP	19 11 31.9	
		Ki	iP	19 10 38.6	
cont.		Sk	iP	19 11 13.9	

1965 Feb. cont.	5	Um	iP	19 11 03.3	
		Aleutian Islands.			
"	5	Up	iP	19 11 39.4	
			microns	sec	
		P	Z' 0.5	1.5	
		Ki	iP	19 10 46.4	
			microns	sec	
		P	Z' 0.3	1.5	
		Sk	iP	19 11 20.6	
		Gb	iP	19 11 56.5	
		Um	iP	19 11 11.1	
		Ka	iP	19 12 02.6	
		Aleutian Islands (h = 25 km). Magn. = 6.2 (Up,Ki). An alternative solution, although less likely, would be that these are pP to the preceding shock.			
"	5	Ki	iP	20 49 14.5	
		Um	iP	20 49 40.6	
		Aleutian Islands (h = 30 km).			
"	5	Up	iP	20 58 03.6 C	
			iS	21 06 52	
			microns	sec	
		P	Z' 0.4	0.7	
		S	N 0.7	7	
		M	E 2.5	19	
		M	N 2.2	18	
		M	Z 1.7	18	
		D = 7450 km = 67°.			
		Ki	iP	20 57 09.9 C	
			iS	21 05 16	
			microns	sec	
		P	N 1.0	5	
		P	Z 1.2	6	
		P	Z' 0.3	1.5	
		S	E 1.4	9	
		S	N 1.2	8	
		M	E 2.4	18	
		M	N 3.3	20	
		M	Z 5.1	19	
		D = 6550 km = 59°.			
		Sk	iP	20 57 43.9	
		Gb	iP	20 58 19.7	
		Um	iP	20 57 34.2 C	
			iPa	21 01 25	
			iS	21 06 04	
		Ka	iP	20 58 27.7	
		Aleutian Islands (h = 40 km). Magn. = 6.1 (Up,Ki).			
"	5	Up	iP	21 41 34.9	
		Um	iP	21 41 07.8 C	
		Aleutian Islands (h = 40 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Feb. 5 Up iP 21 54 57.3
Ki iP 21 54 03.8
Um iP 21 54 30.3
Aleutian Islands
(h = 25 km).

" 5 Up iP 21 59 25.9
microns sec
P Z' 0.2 0.9
Ki iP 21 58 33.7
microns sec
P Z' 0.1 1.0
Sk iP 21 59 06.6
Gb iP 21 59 41.9
Um iP 21 58 58.8
iPcP 21 59 34.1
Ka iP 21 59 48.9
Aleutian Islands
(h = 25 km).
Magn. = 6.0 (Up,Ki).

" 5 Up iP 22 26 55.0 C
ipP 22 27 09.7
microns sec
P Z' 0.3 0.9
pP Z' 0.4 1.0
M E 0.6 17
M N 2.1 21
M Z 1.6 20
Ki iP 22 26 02.1
ipP 22 26 14.2
microns sec
P Z' 0.1 1.0
pP Z' 0.2 0.9
M E 1.4 17
M N 1.1 16
M Z 1.5 18
Sk iP 22 26 35.5
ipP 22 26 51.9
iPcP 22 27 10.4
Gb iP 22 27 12.8 C
ipP 22 27 26.8
Um iP 22 26 28.1 C
ipP 22 26 42.5
Ka iP 22 27 18.9
ipP 22 27 33.1
Aleutian Islands.
h = 60 km (Up,Ki,Sk,Gb,
Um,Ka). Magn. = 6.0 (Up,Ki).

" 5 Um iP 22 55 34.3

" 5 Um iP 23 00 11.6
Aleutian Islands
(h = 30 km).

1965
Feb. 5 Ki iP 23 24 16.7
Um iP 23 24 42.1
Aleutian Islands
(h = 30 km).

" 5 Um iP 23 51 00.0

" 6 Up iP 00 19 09.8
Ki iP 00 18 18.8
Gb eP 00 19 22
iPcP 00 19 43.6
Um iP 00 18 43.5
Aleutian Islands
(h = 25 km).

" 6 Up iP 00 22 53.9
Um iP 00 22 25.4
Aleutian Islands
(h = 30 km).

" 6 Ki iP 00 42 46.2
Um iP 00 43 12.6
Aleutian Islands
(h = 30 km).

" 6 Up ipP 01 26 33.7
Ki iP 01 25 31.8 C
ipP 01 25 39.9
microns sec
pP Z' 0.1 1.0
Um iP 01 25 57.4
ipP 01 26 04.4
Aleutian Islands.
h = 30 km (Ki,Um).

" 6 Up iP 01 51 26.3 D
iPP 01 53 50
iS 02 00 14
iP'P' 02 19 44.1
microns sec
P N 5.5 7
P Z 9.8 7
P Z' 0.9 1.0
PP N 1.2 4
PP Z 1.3 4
S E 2.2 6
S N 12 9
S Z 3.7 8
P'P' Z' 0.4 1.5
M E 6.1 18
M N 13 18
M Z 7.1 20
D = 7450 km = 67°.
Ki iP 01 50 32.8 D
iPP 01 52 46

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. cont.	6	Ki	iS	01 58 39	
			eP'P'	02 19 57	
				microns	sec
			P	E 1.4	4
			P	N 6.6	7
			P	Z 14	7
			P	Z' 2.4	1.5
			PP	Z 3.8	5
			S	E 10	6
			S	N 12	9
			S	Z 9.6	7
			P'P'	Z' 0.5	2.0
			M	E 7.3	18
			M	N 10	17
			M	Z 15	17
			D = 6550 km = 59°.		
		Sk	iP	01 51 00.4	D
			iP'P'	02 19 52.9	
		Gb	iP	01 51 38.9	D
			ipP	01 51 51.1	
			iPP	01 54 16.0	
			eS	02 00 46	
			iP'P'	02 19 40.7	
		Um	iP	01 50 59.8	D
			iS	01 59 26	
			iP'P'	02 19 52.5	
		Ka	iP	01 51 47.4	
			ipP	01 52 00.8	
			eP'P'	02 19 40	
		Alaska. h = 50 km (Gb,Ka).			
		Magn. = 7.0 (Up,Ki).			
		Up N and Ki N show clear double S-phases, 4-6 sec apart, the second being the larger one.			
"	6	Um	iP	01 57 31.3	D
		Aleutian Islands.			
"	6	Up	iP	02 02 48.1	
"	6	Um	iP	02 12 27.8	
			ipP	02 12 35.4	
		Aleutian Islands.			
		h = 30 km (Um).			
"	6	Ki	iP	02 40 04.4	
		Aleutian Islands (h = 30 km).			
"	6	Up	iP	03 25 50.9	
		Um	iP	03 25 24.0	
		Aleutian Islands (h = 40 km).			

1965 Feb.	6	Up	iP	03 33 20.7	
		Ki	iP	03 32 29.9	D
			ipP	03 32 42.0	
		Um	eP	03 32 55	
		Aleutian Islands.			
		h = 50 km (Ki).			
"	6	Up	iP	03 33 40.7	
		Ki	iP	03 32 53.0	
		Aleutian Islands (h = 30 km).			
"	6	Up	iP	03 50 10.0	
		Ki	iP	03 49 16.7	C
		Um	iP	03 49 41.5	
		Aleutian Islands (h = 30 km).			
"	6	Up	iP	03 53 18.8	
		Ki	iP	03 54 24.2	D
		Sk	iP	03 53 57.4	
		Um	iP	03 53 48.5	
		Crete (h = 50 km).			
"	6	Um	iP	03 57 09.5	
"	6	Up	iP	04 13 42.6	C
			ipP	04 13 54.5	
			iS	04 22 33	
			microns	sec	
			P N	0.8	5
			P Z	0.5	3
			P Z'	0.2	0.6
			pP Z'	0.3	0.8
			S E	0.5	4
			S N	1.0	5
			M E	5.3	20
			M N	14	24
			M Z	15	24
			D = 7450 km = 67°.		
		Ki	iP	04 12 49.5	C
			iS	04 20 51	
			microns	sec	
			P N	0.8	5
			P Z	1.6	7
			P Z'	0.2	1.0
			S N	1.5	8
			M E	8.6	20
			M N	9.2	24
			M Z	17	22
			D = 6550 km = 59°.		
		Sk	iP	04 13 23.0	
		Gb	iP	04 14 00.0	C
			ipP	04 14 13.0	
			iPcP	04 14 29.9	
		Um	iP	04 13 15.3	C

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 6 cont.

Um iS 04 21 38
Ka iP 04 14 06.1
Aleutian Islands.
h = 50 km (Up,Gb).
Magn. = 6.2 (Up,Ki).

" 6
Up iP 04 26 37.8
Um iP 04 26 12.6
ipP 04 26 24.7
Aleutian Islands.
h = 50 km (Um).

" 6
Um iP 04 42 18.7
i(pP) 04 42 26.8

" 6
Up iP 05 01 48.8
Ki eP 05 00 57
Um eP 05 01 22
ipP 05 01 32.1
Gb iP 05 02 10.7
Aleutian Islands.
h = 40 km (Um).

" 6
Um iP 05 06 03.0

" 6
Up iP 05 43 08.5 C
Ki iP 05 42 14.0
Um iP 05 42 40.7
Gb iP 05 43 25.8 C
Aleutian Islands
(h = 30 km).

" 6
Ki iP 06 18 39.9
Aleutian Islands
(h = 25 km).

" 6
Up iP 06 34 28.0
ipP 06 34 38.5
microns sec
pP Z' 0.2 1.0
Ki ---
microns sec
M E 0.6 17
M N 0.5 15
M Z 1.4 15
Sk i(P) 06 34 01.3
Gb iP 06 34 45.8 C
ipP 06 34 57.5
Um iP 06 34 00.5
ipP 06 34 11.1
Ka iP 06 34 52.7
ipP 06 35 03.4
Aleutian Islands.
h = 40 km (Up,Gb,Um,Ka).

1965 Feb. 6

Up iP 06 39 04.8
microns sec
P Z' 0.1 0.8
Sk iP 06 38 45.2
Gb iP 06 39 21.6
Um iP 06 38 37.5
Aleutian Islands
(h = 25 km).

" 6
Ki iP 06 46 22.0
Aleutian Islands
(h = 25 km).

" 6
Ki iP 06 58 28.7
Um iP 06 58 49.9
Aleutian Islands
(h = 40 km).

" 6
Ki iP 07 01 55.9 C
Um iP 07 02 22.0
Aleutian Islands
(h = 30 km).

" 6
Up iP 07 19 45.3 C
Aleutian Islands
(h = 25 km).

" 6
Up iP 07 25 33.4
ipP 07 25 42.1
microns sec
P Z' 0.2 1.0
Ki iP 07 24 40.1 D
ipP 07 24 48.7
microns sec
P Z' 0.2 1.0
Sk iP 07 25 14.0 D
Gb iP 07 25 51.6
ipP 07 25 59.7
Um iP 07 25 05.3
ipP 07 25 14.2
Aleutian Islands.
h = 35 km (Up,Ki,Gb,Um).
Magn. = 6.0 (Up,Ki).

" 6
Ki iP 07 37 16.2 C
Um iP 07 37 42.2
Aleutian Islands
(h = 30 km).

" 6
Up iP 08 08 13.2
Ki iP 08 07 20.0
Um iP 08 07 45.8 C
Aleutian Islands
(h = 20 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb.	6	Up	iP	08 57 43.2		
			microns sec			
			P	Z' 0.1	1.0	
		Ki	iP	08 56 49.6		
			microns sec			
			P	Z' 0.1	1.0	
			M	E 0.8	16	
			M	N 0.6	16	
			M	Z 1.4	19	
		Sk	iP	08 57 23.5		
		Gb	iP	08 58 00.3		
			ipP	08 58 08.6		
		Um	iP	08 57 15.0		
		Ka	iP	08 58 06.1		
		Aleutian Islands. h = 30 km (Gb).				
		Magn.= 5.7 (Up,Ki).				
"	6	Up	iP	09 05 30.2		
		Ki	iP	09 04 36.7	C	
		Sk	iP	09 05 10.1		
		Gb	iP	09 05 45.1		
			ipP	09 05 58.6		
		Um	iP	09 05 02.2	C	
		Aleutian Islands.				
		h = 50 km (Gb).				
"	6	Ki	iP	09 14 09.7	D	
		Aleutian Islands				
		(h = 40 km).				
"	6	Up	iP	09 36 28.4		
		Um	iP	09 36 00.9		
		Aleutian Islands				
		(h = 20 km).				
"	6	Gb	iP	10 43 11.9		
		Um	iP	10 42 22.5		
		Aleutian Islands				
		(h = 30 km).				
"	6	Um	iP	10 55 57.3		
"	6	Up	iP	11 43 09.2		
		Um	iP	11 42 42.0		
		Aleutian Islands				
		(h = 30 km).				
"	6	Up	iP	12 33 18.5		
			ipP	12 33 29.5		
			microns sec			
			P	Z' 0.2	1.0	
		Ki	iP	12 32 25.2		
			microns sec			
			P	Z' 0.1	1.0	
		Sk	iP	12 32 58.6		
		Gb	iP	12 33 36.0	D	

cont.

1965 Feb. cont.	6	Um	iP	12 32 51.0	D	
		Ka	iP	12 33 42.0		
		Aleutian Islands.				
		h = 40 km (Up).				
		Magn. = 5.9 (Up,Ki).				
"	6	Up	iP	13 02 31.1	C	
		Ki	iP	13 01 38.2		
		Um	iP	13 02 03.8		
		Aleutian Islands				
		(h = 30 km).				
"	6	Up	iP	13 26 08.4		
		Um	iP	13 25 40.6		
		Aleutian Islands				
		(h = 25 km).				
"	6	Up	iP	13 45 38.0		
		Ki	iP	13 44 45.0		
		Um	iP	13 45 10.6		
		Aleutian Islands				
		(h = 30 km).				
"	6	Up	iP	14 10 02.4	C	
		Ki	iP	14 09 08.7		
		Aleutian Islands				
		(h = 30 km).				
"	6	Up	iP	14 22 01.1	D	
			ipP	14 22 09.8		
			microns sec			
			P	Z' 0.1	1.0	
		Ki	iP	14 21 07.3		
			microns sec			
			P	Z' 0.1	1.2	
		Sk	iP	14 21 42.6		
			i(pP)	14 21 55.6		
		Gb	iP	14 22 18.1		
			ipP	14 22 27.4		
		Um	iP	14 21 32.4		
		Ka	iP	14 22 24.0		
			ipP	14 22 33.3		
		Aleutian Islands.				
		h = 35 km (Up,Gb,Ka).				
		Magn. = 5.7 (Up,Ki).				
"	6	Up	iP	14 34 28.9		
		Ki	eP	14 33 35		
		Um	iP	14 34 01.2	C	
		Aleutian Islands				
		(h = 30 km).				
"	6	Up	iP	14 45 18.0		
		Ki	iP	14 44 24.7	C	
		Um	iP	14 44 50.9	C	
			ipP	14 45 00.9		
		Alaska. h = 40 km (Um).				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 6 Up iP 15 42 32.8 C
Um iP 15 42 05.7
ipP 15 42 16.1
Aleutian Islands.
h = 40 km (Um).

" 6 Up iP 16 42 02.1
Ki iP 16 41 09.4
Aleutian Islands
(h = 30 km).

" 6 Up iP 17 01 21.1 D
ipP 17 01 35.2
eS 17 10 08
iScS 17 11 17
iP'P' 17 29 43.7

		microns	sec
P	N	2.8	7
P	Z	3.7	8
P	Z'	0.5	1.0
pP	Z'	0.6	1.0
S	E	2.6	8
S	N	7.0	7
S	Z	2.4	6
P'P'	Z'	0.2	1.8
M	E	4.2	20
M	N	12	21
M	Z	8.9	21

D = 7450 km = 67°.
Ki iP 17 00 27.3 D
iS 17 08 29

		microns	sec
P	N	2.9	8
P	Z	6.0	9
P	Z'	0.9	1.2
S	E	5.3	7
S	N	9.3	7
S	Z	6.6	7
M	E	8.3	17
M	N	9.5	17
M	Z	18	17

D = 6550 km = 59°.
Sk iP 17 00 57.8
Gb iP 17 01 33.5
ipP 17 01 47.3
iP'P' 17 29 41.4
Um iP 17 00 54.0
iS 17 09 23
iP'P' 17 29 49.5
Ka iP 17 01 42.1
ipP 17 01 56.6
Alaska. h = 60 km (Up,Gb,Ka).
Magn. = 6.8 (Up,Ki).
S phases are double, 7 sec apart, the latter phase being the larger, especially clear on Up N and Ki N.

1965 Feb. 6 Up iP 17 06 17.0
Ki iP 17 05 23.4
Gb iP 17 06 34.9
Um iP 17 05 48.7
Aleutian Islands
(h = 30 km).

" 6 Up iP 18 18 20.9
ipP 18 18 33.3

		microns	sec
P	Z'	0.1	1.3

Ki iP 18 17 28.7
Gb iP 18 18 38.6
Um iP 18 17 54.8
Ka iP 18 18 44.6
Aleutian Islands.
h = 50 km (Up).

" 6 Up iP 18 21 23.8 C
ipP 18 21 37.4

		microns	sec
P	Z'	0.4	1.1
M	E	1.3	17
M	N	1.9	19
M	Z	1.3	20

Ki iP 18 20 30.5 C

		microns	sec
P	Z'	0.2	1.2
M	E	2.8	17
M	N	1.8	16
M	Z	2.8	16

Gb iP 18 21 39.9
ipP 18 21 52.7
Um iP 18 20 56.4 C
Ka iP 18 21 47.1 C
ipP 18 21 58.9
Aleutian Islands.
h = 50 km (Up,Gb,Ka).
Magn. = 6.0 (Up,Ki).

" 6 Up iP 18 50 16.9
Aleutian Islands
(h = 30 km).

" 6 Up iP 18 53 26.8 C
ipP 18 53 39.0

		microns	sec
P	Z'	0.1	1.0

Ki iP 18 52 33.7 C
Gb iP 18 53 44.1
Um iP 18 52 59.7 C
Ka iP 18 53 50.5
Aleutian Islands.
h = 50 km (Up).

" 6 Up iP 19 30 39.2
cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. cont.	6	Up	ipP	19 30 54.6	
		Ki	e(P)	19 29 55	
			ipP	19 30 01.9	
		Um	ipP	19 30 27.5	
		Aleutian Islands.			
		h = 60 km (Up).			
"	6	Up	iP	19 59 10.1	
		Aleutian Islands			
		(h = 20 km).			
"	6	Up	iP	20 54 59.2	
		Ki	iP	20 54 04.1	
		Aleutian Islands.			
		Origin time = 20 44 06.			
"	6	Up	iP	21 13 44.5	C
			microns	sec	
			P Z' 0.1	1.0	
		Ki	iP	21 12 50.2	C
		Sk	iP	21 13 25.3	
		Gb	iP	21 14 02.5	
		Um	iP	21 13 16.6	
		Ka	iP	21 14 07.9	
		Aleutian Islands			
		(h = 20 km).			
"	6	Up	iP	22 31 05.7	
		Aleutian Islands			
		(h = 30 km).			
"	6	Up	iP	22 37 04.9	
		Ki	iP	22 36 11.6	C
		Gb	iP	22 37 21.7	
		Um	iP	22 36 37.7	
		Aleutian Islands			
		(h = 30 km).			
"	6	Up	iP	22 45 40.3	
			ipP	22 45 50.6	
		Um	iP	22 45 12.5	
			ipP	22 45 23.8	
		Aleutian Islands.			
		h = 40 km (Up,Um).			
"	6	Up	iP	23 13 21.8	
		Aleutian Islands			
		(h = 30 km).			
"	6	Up	iP	23 20 50.0	
		Aleutian Islands			
		(h = 30 km).			
"	6	Up	iP	23 34 35.6	
			microns	sec	
			P Z' 0.1	0.9	

cont.

1965 Feb. cont.	6	Ki	iP	23 33 42.7	D
			microns	sec	
			P Z' 0.1	1.0	
		Sk	iP	23 34 16.1	
		Gb	iP	23 34 52.5	
		Um	iP	23 34 08.3	
		Ka	iP	23 34 58.8	
		Aleutian Islands			
		(h = 30 km).			
		Magn. = 5.7 (Up,Ki).			
"	6	Up	iP	23 59 06.6	
		Ki	iP	23 58 13.8	C
		Gb	iP	23 59 25.2	
		Um	iP	23 58 39.6	
		Aleutian Islands			
		(h = 30 km).			
"	7	Up	iP	00 55 03.9	
		Ki	iP	00 54 10.7	
		Aleutian Islands			
		(h = 25 km).			
"	7	Up	iP	01 10 59.4	C
			microns	sec	
			P Z' 0.1	1.0	
		Ki	iP	01 10 04.7	C
			microns	sec	
			P Z' 0.3	1.0	
		Sk	iP	01 10 40.5	C
			i	01 11 53.7	
		Gb	iP	01 11 17.7	
		Um	iP	01 10 30.8	
		Ka	iP	01 11 23.9	
		Aleutian Islands			
		(h = 30 km).			
		Magn. = 6.0 (Up,Ki).			
"	7	Up	iP	02 10 59.6	
		Aleutian Islands			
		(h = 25 km).			
"	7	Up	iP	02 28 01.4	D
			iP'P'	02 56 22.3	
			microns	sec	
			P Z' 0.3	0.5	
			M E 1.0	18	
			M N 1.7	17	
			M Z 2.3	18	
		Ki	iP	02 27 08.7	D
			i!	02 27 24.2	
			microns	sec	
			P Z' 0.3	1.0	
		Sk	iP	02 27 43.4	
			ipP	02 27 56.8	
			iPcP	02 28 17.8	

cont.

Up = Uppsala, Ki= Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. cont.

7 Gb iP 02 28 20.1
i 02 30 23.5
Um iP 02 27 34.6
iS 02 36 13
iP'P' 02 56 33.5
Ka iP 02 28 25.0
ipP 02 28 37.5
Aleutian Islands.
h = 50 km (Sk,Ka).
Magn. = 6.3 (Up,Ki).

" 7 Up iP 04 14 06.6 C
Aleutian Islands
(h = 30 km).

" 7 Um iP 04 19 50.2 C
Alaska (h = 30 km).

" 7 Up iP 04 22 11.8 C

		microns	sec
P	Z'	0.2	1.0
M	E	1.9	20
M	N	2.1	21
M	Z	2.6	20

Ki iP 04 21 16.1
Sk iP 04 21 52.8
Gb iP 04 22 29.4 C
Um iP 04 21 44.3
Ka iP 04 22 36.0 C
ipP 04 22 44.5
Aleutian Islands.
h = 30 km (Ka).

" 7 Gb eP 04 35 38
Um iP 04 34 55.6
Aleutian Islands
(h = 30 km).

" 7 KiR eSn 04 41 43
iSg 04 42 04.6
UmE iSg 04 42 55.9
Northwest Russia,
67.3°N, 30.2°E.
Origin time = 04 40 00.
Explosion?

" 7 Up iP 04 45 00.6

" 7 Up iP 04 46 42.2 D

		microns	sec
P	Z'	0.1	1.2

Ki eP 04 45 50
Gb iP 04 46 59.2
Um iP 04 46 14.6
Aleutian Islands
(h = 30 km).

1965 Feb.

7 KiR eSn 04 54 36
iSg 04 54 55.3
UmE iSn 04 55 14.8
iSg 04 55 46.2
Northwest Russia,
67.3°N, 30.2°E.
Origin time = 04 52 50.
Explosion?

" 7 Up iP 05 42 54.6
Aleutian Islands
(h = 30 km).

" 7 UpP eSg 06 01 47
KiR iSn 05 58 19.2
iSg 05 58 37.3
SkA eSg 06 01 14
UmE iSn 05 59 04.3
iSg 05 59 43.1
Northwest Russia,
67.8°N, 30.4°E.
Origin time = 05 56 30.
Explosion?

" 7 Up iP 06 09 48.1 C

		microns	sec
P	Z'	0.2	1.0

Ki iP 06 08 54.7
Gb iP 06 10 03.8
Um iP 06 09 20.8
Ka iP 06 10 11.1
iPcP 06 10 33.9
Aleutian Islands
(h = 25 km).

" 7 Up iP 07 07 44.4 C
Aleutian Islands
(h = 30 km).

" 7 Up iP 07 36 51.8
Aleutian Islands
(h = 30 km).

" 7 Up iP 07 56 05.1 C
Um iP 07 55 37.5
Aleutian Islands
(h = 30 km).

" 7 Um iP 08 48 10.6
Aleutian Islands
(h = 30 km).

" 7 Ki iP 08 50 07.9
Sk iP 08 50 46.3
Gb iP 08 51 14.8
Um iP 08 50 29.7 D
Ka iP 08 51 20.3
Aleutian Islands
(h = 40 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Feb. 7 Up iP 09 36 48.7
microns sec
P Z' 0.2 0.9
M E 1.9 20
M N 2.4 20
M Z 3.7 19
Ki iP 09 35 55.5
microns sec
P Z' 0.1 1.0
Sk iP 09 36 28.3
Gb iP 09 37 06.3
Um iP 09 36 23.0
i 09 36 44.4
Ka iP 09 37 11.1
Aleutian Islands
(h = 30 km).
Magn. = 5.8 (Up,Ki).

" 7 Up iP 09 55 16.0
ipP 09 55 29.0
Ki iP 09 54 22.4
Um iP 09 54 48.2
Ka iP 09 55 38.6
Aleutian Islands.
h = 50 km (Up).

" 7 Up iP 11 34 01.0
ipP 11 34 08.6
microns sec
pP Z' 0.3 1.6
Gb epP 11 34 24
Um iP 11 33 33.2
Ka iP 11 34 24.8
ipP 11 34 31.2
Aleutian Islands.
h = 30 km (Up,Ka).

" 7 Gb iP 11 41 49.8 C
Um iP 11 41 10.0
Alaska (h = 10 km).

" 7 Up iP 11 56 49.6
microns sec
P Z' 0.1 0.8
Ki iP 11 55 57.3 C
microns sec
P Z' 0.1 1.2
Gb iP 11 57 06.6 C
Um iP 11 56 22.5 C
Ka iP 11 57 13.2
ipP 11 57 23.7
Aleutian Islands.
h = 40 km (Ka).
Magn. = 5.7 (Up,Ki).

1965
Feb. 7 Up iP 12 32 03.7 C
Ki eP 12 31 09
Gb iP 12 32 22.1 C
Um iP 12 31 30.6
i(pP) 12 31 36.1
Ka iP 12 32 26.4
i(pP) 12 32 36.7
Aleutian Islands.
h = 30 km (Um,Ka).

" 7 Um iP 12 44 26.9 C
Aleutian Islands
(h = 30 km).

" 7 Ki iP 13 04 58.5 C
Gb iP 13 06 10.6
Aleutian Islands
(h = 25 km).

" 7 Up iP 13 31 43.2 C
ipP 13 31 57.3
Ki iP 13 30 49.2
Um iP 13 31 15.7
ipP 13 31 29.0
i 13 31 34.7
Aleutian Islands.
h = 50 km (Up,Um).

" 7 Up iP 14 58 03.5
microns sec
P Z' 0.1 0.7
Ki iP 14 57 10.2
Gb iP 14 58 21.4
Um iP 14 57 36.0
Ka iP 14 58 25.6
Aleutian Islands
(h = 30 km).

" 7 Up iP 15 04 09.1 C
Aleutian Islands
(h = 25 km).

" 7 Up iP 16 14 49.7
Ki iP 16 13 56.0
Aleutian Islands
(h = 40 km).

" 7 Up iP 17 23 55.6
microns sec
P Z' 0.2 1.0
Ki iP 17 23 02.6
microns sec
P Z' 0.3 1.5
Sk iP 17 23 36.8
Gb iP 17 24 14.1

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. cont.	7	Um	iP	17 23 28.0	
			ipP	17 23 38.2	
		Ka	iP	17 24 19.4	
		Aleutian Islands.			
		h = 40 km (Um).			
		Magn. = 6.0 (Up,Ki).			
"	7	Up	iP	19 39 51.0	C
		Ki	iP	19 38 52.8	
		Gb	iP	19 40 20.3	C
		Komandorsky Islands			
		(h = 20 km).			
"	7	Up	iP	20 21 32.1	
		Aleutian Islands			
		(h = 40 km).			
"	7	Um	i(P)	23 46 41.8	D
"	8	Up	iP	02 37 39.7	C
		Aleutian Islands			
		(h = 40 km).			
"	8	Ki	iP	06 43 12.6	D
		Mariana Islands			
		(h = 120 km).			
"	8	Ki	iP	06 57 06.5	C
		Aleutian Islands			
		(h = 30 km).			
"	8	Ki	iP	07 24 17.0	
		Aleutian Islands			
		(h = 25 km).			
"	8	Up	iP	07 34 00.6	
			ipP	07 34 11.7	
				microns sec	
			P	Z' 0.2 1.0	
		Ki	iP	07 33 07.5	
			i	07 33 22.5	
				microns sec	
			P	Z' 0.3 1.5	
		Sk	eP	07 33 42	
		Gb	iP	07 34 18.3	
		Um	iP	07 33 30.8	
		Aleutian Islands.			
		h = 40 km (Up).			
		Magn. = 6.0 (Up,Ki).			
"	8	Ki	iP	07 59 39.1	
		Aleutian Islands			
		(h = 25 km).			
"	8	Up	iP	08 08 00.6	D
			ipP	08 08 09.0	
		Aleutian Islands.			
		h = 30 km (Up).			
1965 Feb. cont.	8	Ki	iP	08 20 01.0	
		Aleutian Islands			
		(h = 30 km).			
"	8	Ki	iP	09 39 28.0	
		Um	iP	09 39 54.1	
		Aleutian Islands			
		(h = 25 km).			
"	8	Ki	iP	09 47 46.7	D
		Aleutian Islands			
		(h = 25 km).			
"	8	Up	iP	10 20 13.0	D
			ipP	10 20 19.1	
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	10 19 19.5	D
		Gb	iP	10 20 30.5	
		Um	iP	10 19 45.0	
		Aleutian Islands.			
		h = 25 km (Up).			
"	8	Up	iP	13 45 20.8	C
		Ki	iP	13 44 27.5	C
		Um	iP	13 44 53.3	
		Aleutian Islands			
		(h = 20 km).			
"	8	Ki	i(P)	13 48 48.8	
			iSg	13 49 21.0	
		Um	iSg	13 50 52.9	
"	8	Up	iP	14 11 30.4	
		Ki	iP	14 11 30.4	
		Um	iP	14 11 19.3	
			i	14 11 25.3	
		Afghanistan-USSR			
		(h = 220 km).			
"	8	Up	eP	14 31 22	
"	8	Up	iP	14 46 39.6	
"	8	Up	iP	15 52 03.4	D
			i	15 52 05.9	
				microns sec	
			P	Z' 0.2 1.3	
		Ki	iP	15 51 12.3	
		Sk	iP	15 51 47.0	
		Um	iP	15 51 38.5	
		Aleutian Islands			
		(h = 25 km).			
"	8	Up	iP	15 57 10.5	D
cont.			ipP	15 57 21.5	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 8 cont.

Up iS 16 05 36
microns sec
P N 0.7 3
P Z 1.7 5
P Z' 0.3 1.0
pP Z' 1.8 1.8
S E 0.8 6
M E 3.0 16
M N 3.4 17
M Z 5.4 17
D = 6950 km = 62 1/2°.

Ki iP 15 56 15.6 D
ipP 15 56 26.4
iS 16 03 49
iPS 16 04 01
microns sec
P N 1.4 6
P Z' 0.2 1.0
pP Z' 0.9 2.0
M E 3.9 15
M N 2.7 20
M Z 5.7 19
D = 6050 km = 54 1/2°.

Sk iP 15 56 52.3 D
ipP 15 57 01.5

Gb iP 15 57 30.3
ipP 15 57 41.2

Um iP 15 56 41.6
ipP 15 56 52.4
iPa 16 00 17
iS 16 04 41

Ka iP 15 57 36.0
ipP 15 57 45.7

Komandorsky Islands.
h = 40 km (Up,Ki,Sk,Gb, Um,Ka). Magn. = 6.2 (Up,Ki).

" 8 Up iP 17 47 46.6
microns sec
P Z' 0.1 0.9

Ki iP 17 46 51.3 C
microns sec
P Z' 0.1 1.0

Sk iP 17 47 28.1
Gb iP 17 48 00.2
Um iP 17 47 17.8
ipP 17 47 25.1

Komandorsky Islands.
h = 30 km (Um).
Magn. = 5.7 (Up,Ki).

" 8 Up iP 17 48 24.6
Ki iP 17 47 30.6
Sk iP 17 48 07.5
Um iP 17 47 56.8

Komandorsky Islands.
Origin time = 17 38 04. CSS

1965 Feb. 8 Um iP 18 13 59.2
Aleutian Islands
(h = 30 km).

" 8 Up iP 18 32 59.7 C

" 8 Ki iP 20 07 20.6
Aleutian Islands
(h = 25 km).

" 8 Ki iP 20 27 30.8
Aleutian Islands
(h = 30 km).

" 8 Um iP 21 42 54.9
Aleutian Islands
(h = 15 km).

" 8 Up iPKP 22 52 34.7
e 22 52 43
Sk ePKP 22 52 25
i 22 52 34.0
Gb ePKP 22 52 44
Um iPKP 22 52 23.8
i 22 52 26.5
Kermadec Islands
(h = 50 km).

" 9 Up iP 00 21 26.0

" 9 Um iP 00 48 25.9

" 9 Up iP 04 45 50.8
microns sec
P Z' 0.1 1.0
Ki iP 04 44 58.0
Um iP 04 45 23.9
Aleutian Islands
(h = 40 km).

" 9 Ki iPKP 06 00 43.5
Sk iPKP 06 00 54.5
Um iPKP 06 00 48.8
i 06 02 35.6
New Hebrides Islands
(h = 220 km).

" 9 Ki iP 07 48 19.0
Um iP 07 48 45.4 D
Aleutian Islands
(h = 30 km).

" 9 Ki iP 08 25 15.9
Um iP 08 25 30.7
i 08 25 42.2
Bonin Islands
(h = 30 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Feb. 9 Um iP 09 19 15.8
Aleutian Islands
(h = 30 km).

" 9 Um iP 10 06 24.4
Aleutian Islands
(h = 30 km).

" 9 Up i(Sg) 11 41 29.3

" 9 Um eP 13 56 56

" 9 Um iPKP 17 12 43.9
Loyalty Islands
(h = 30 km).

" 9 Up iPKP 17 19 05.0 C
microns sec
PKP Z' 0.1 0.7
South of Fiji Islands
(h = 490 km).

" 9 Up iP 17 47 58.3 D
microns sec
P Z' 0.6 1.0
Ki iP 17 47 04.3 D
ipP 17 47 16.8
microns sec
P Z' 0.4 1.0
Sk iP 17 47 38.0
Gb iP 17 48 16.1
Um iP 17 47 30.2 D
Ka iP 17 48 21.6
Aleutian Islands.
h = 50 km (Ki).
Magn. = 6.4 (Up,Ki).

" 9 Up iP 18 29 15.3
Ki iP 18 28 24.0
Aleutian Islands
(h = 10 km).

" 9 Up iP 20 43 36.0
i 20 43 46.7
microns sec
P Z' 0.1 0.8
Ki iP 20 44 52.6
Sk iP 20 44 15.3
Gb iP 20 43 29.4
Um iP 20 44 14.9
Ionian Sea (h = 50 km).

" 9 Up iP 23 22 15.1 C
i 23 22 29.6
Ki iP 23 21 20.7

cont.

1965 Feb. cont. 9 Gb iP 23 22 38.3
Um iP 23 21 44.0
Aleutian Islands
(h = 30 km).

" 9 Up iP 23 37 49.2
Sk iP 23 38 29.5
Um iP 23 38 29.2
Ionian Sea (h = 40 km).

" 10 Up iP 00 48 53.2 C
Ki iP 00 48 00.8
ipP 00 48 13.1
Um iP 00 48 26.1
Aleutian Islands.
h = 50 km (Ki).

" 10 Um iPKP 01 44 10.5
Santa Cruz Islands
(h = 270 km).

" 10 Up iP 02 19 19.8
microns sec
P Z' 0.1 1.0
Ki iP 02 18 26.4 C
microns sec
P Z' 0.1 1.2
Um iP 02 18 52.2
Aleutian Islands
(h = 30 km).
Magn. = 5.7 (Up,Ki).

" 10 Up eP 06 03 33

" 10 Up iP 08 22 54.7
Ki iP 08 22 02.1
Um iP 08 22 27.5
Aleutian Islands
(h = 40 km).

" 10 Up iP 13 40 05.4

" 10 Ki iP 16 16 31.9
Gb iP 16 16 03.9
Iran (h = 50 km).

" 10 Ki iP 18 38 03.9
Aleutian Islands
(h = 25 km).

" 11 Ki iP 00 41 49.6 D
Um iP 00 42 15.3 D
ipP 00 42 26.1
Aleutian Islands.
h = 40 km (Um).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
Feb.	11	Up	iPKP	02 52 32.9	
			iSKP	02 55 59.3	
				microns sec	
			SKP	Z' 0.2 1.3	
		Ki	ePKP	02 52 24	
			iSKP	02 55 36.3	
				microns sec	
			SKP	Z' 0.6 2.0	
		Sk	iSKP	02 55 52.1	
		Gb	iPKP	02 52 40.2	
			iSKP	02 56 07.6	
		Um	i(PKP)	02 52 19.1	
			iPKP	02 52 29.9	
			iSKP	02 55 47.9	
		Fiji Islands (h = 170 km).			
"	11	Um	iP	03 24 30.1	
		Aleutian Islands (h = 30 km).			
"	11	Ki	iP	04 53 31.2	
			i(pP)	04 53 38.4	
		Sk	iP	04 52 57.7	
		Gb	iP	04 52 25.3 C	
			i	04 52 35.0	
		Um	iP	04 53 10.8 C	
		Atlantic Ocean (h = 30 km).			
"	11	Ki	iP	06 26 57.1	
"	11	Up	iP	06 57 07.0	
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	06 56 12.1	
		Gb	iP	06 57 25.3	
		Um	iP	06 56 39.2 D	
		Aleutian Islands (h = 25 km).			
"	11	Up	iP	11 32 53.3	
		Ki	iP	11 32 28.3	
		Um	iP	11 32 34.2	
		Mongolia (h = 30 km).			
"	11	Up	iP	12 38 39.8	
"	11	Up	iP	14 04 58.2	
"	11	Up	iP	15 38 46.3	
			ipP	15 38 55.9	
		Aleutian Islands. h = 40 km (Up).			
"	11	Up	i(P)	18 42 10.8	
"	11	Up	iP	19 53 01.1	

1965					
Feb.	11	Um	iP	22 22 36.5 C	
"	11	Um	iP	22 37 31.5	
"	12	Up	iP	00 54 11.8	
			i	00 55 30.9	
				microns sec	
			P	Z' 0.1 0.9	
		Ki	iP	00 53 18.3	
		Sk	iP	00 54 02.6	
		Gb	iP	00 54 28.6	
			ipP	00 54 38.6	
		Um	eP	00 53 46	
			iS	01 02 22	
		Ka	iP	00 54 35.8 C	
		Aleutian Islands. h = 40 km (Gb).			
"	12	Up	iP	01 05 54.9 C	
				microns sec	
			P	Z' 0.4 1.0	
			M	E 2.7 20	
			M	N 3.4 17	
			M	Z 2.9 18	
		Ki	iP	01 05 01.8 C	
				microns sec	
			P	Z' 0.3 1.0	
			M	E 2.8 18	
			M	N 2.8 18	
			M	Z 4.0 19	
		Sk	iP	01 05 35.7	
		Gb	iP	01 06 13.3	
		Um	iP	01 05 27.6 C	
			iPa	01 09 25	
			iS	01 14 00	
		Ka	iP	01 06 18.6	
		Aleutian Islands (h = 25 km). Magn. = 6.1 (Up,Ki).			
"	12	Up	i(P)	01 07 41.0	
		Sk	i(P)	01 07 51.4	
"	12	Up	iP	01 14 12.3 C	
			ipP	01 14 26.1	
				microns sec	
			P	Z' 0.2 1.0	
		Ki	iP	01 13 18.9 C	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	01 13 53.8	
		Gb	iP	01 14 29.9	
		Um	iP	01 13 44.8	
		Ka	iP	01 14 36.3	
		Aleutian Islands. h = 55 km (Up). Magn. = 5.9 (Up,Ki).			

Seismological Institute
Uppsala

SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, GÖTEBORG

UMEÅ and KARLSKRONA

Uppsala	(Up):	59°51.5'N,	17°37.6'E; h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E; h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E; h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E; h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E; h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E; h = 11 m

MARCH 1 - 31, 1965

1965 Mar. 1 Um iPKP 07 39 28.2 C
iPP 07 40 15
ePS 07 49 35
New Britain (h = 40 km).

" 1 Up eL 08 20
microns sec
M E 1.1 19
M N 1.5 19
M Z 1.9 20
Ki eL 08 20
microns sec
M E 0.8 19
M N 0.7 18
M Z 1.3 18
New Britain (h = 60 km).

" 1 Up iP 08 30 55.2 D
ipP 08 31 03.3
microns sec
pP Z' 0.1 0.6
M E 1.2 16
M N 1.0 17
M Z 2.0 16
Ki iP 08 30 33.8
ipP 08 30 44.0
microns sec
pP Z' 0.2 1.2
M E 1.7 17
M N 1.1 18
M Z 1.4 17
Sk eP 08 31 01
Gb eP 08 31 22
Um iP 08 30 40.3
Formosa. h = 40 km (Up,Ki).

" 1 Up iP 10 05 31.4
Ki iP 10 04 37.6 C
Aleutian Islands (h = 25 km).

1965 Mar. 1 Um iP 11 45 53.8

" 1 Up iP 13 32 54.4 C
microns sec
P Z' 0.1 0.7
M E 0.9 16
M N 0.8 16
M Z 1.5 16
Ki iP 13 32 32.9
microns sec
P Z' 0.3 1.1
M E 1.4 17
M N 0.7 18
M Z 0.8 14
Sk iP 13 32 59.8
Um iP 13 32 39.6
iS 13 42 20
Formosa (h = 40 km).
Magn. = 6.0 (Up,Ki).

" 1 Um iP 14 18 18.7

" 1 Up iP 19 32 51.1
microns sec
P Z' 0.1 0.8
Ki iP 19 31 57.7
microns sec
P Z' 0.1 1.0
Sk eP 19 32 32
Um iP 19 32 23.5 D
Aleutian Islands
(h = 30 km).
Magn. = 5.8 (Up,Ki).

" 1 Ki iPKP 20 21 38.3
Um iPKP 20 21 44.4
Santa Cruz Islands
(h = 190 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå, Ka = Karlskrona

1965 Mar. 1 Up iP 21 44 44.5
isP 21 45 26.3
iSKS 21 55 01
i 21 56 26
microns sec
P Z 0.8 5
SKS E 1.9 7
SKS N 0.8 4
M E 3.6 21
M N 3.8 23
M Z 5.5 21
(D = 9650 km = 87°).
Ki iP 21 44 33.1 C
isP 21 45 12.0
iPP 21 48 10.1
eSKS 21 54 47
microns sec
P Z 1.7 6
P Z' 0.5 1.7
PP Z' 0.1 1.5
SKS E 4.9 13
SKS N 1.4 13
M E 8.2 21
M N 4.8 23
M Z 7.8 22
(D = 9450 km = 85°).
Sk iP 21 44 26.4
ipP 21 44 51.2
Um iP 21 44 40.9 C
iPP 21 48 24.4
i 21 47 43
iSSS 21 55 00
Ka isP 21 45 32.5
Mexico-Guatemala.
h = 100 km (Up,Ki,Sk).
Magn. 6.1 (Up,Ki).

" 1 Up iPKP 22 10 28.9
i 22 12 16.5
Ki iPKP 22 10 18.5
iSKP 22 12 56.9
Sk iPKP 22 10 22.5
Um i(PKP) 22 10 15.9 C
iPKP 22 10 27.6
iSKP 22 13 07.2
Ka iPKP 22 10 40.0
South of Fiji Islands
(h = 540 km).

" 1 Ki iP 23 59 07.6
Aleutian Islands
(h = 40 km).

" 2 Up ePKP 00 12 07
Um ePKP 00 11 54
Kermadec Islands
(h = 30 km).

1965 Mar. 2 Up iPKP 03 10 10.4
i 03 10 16.3
microns sec
PKP Z' 0.1 1.0
Kermadec Islands (h = 30 km).

" 2 Up iPKP 04 59 47.6
Kermadec Islands (h = 30 km).

" 2 Up iPKP 05 59 55.2
i 05 59 59.9
Kermadec Islands (h = 30 km).

" 2 Up iPKP 06 17 11.9 C
i 06 17 43.6
microns sec
PKP Z' 0.1 1.4
Um iPKP 06 17 06.2
Kermadec Islands (h = 30 km).

" 2 Up iPKP 06 46 58.6
Kermadec Islands (h = 50 km).

" 2 Up iPKP 07 44 51.9
Um iPKP 07 44 45.2
Kermadec Islands (h = 70 km).

" 2 Ki iP 09 33 34.2 C
iS 09 34 51.7
eT 09 38 40
e 09 39 13
microns sec
M E 0.7 15
M N 1.6 22
M Z 1.0 14
D = 800 km = 7°.
Sk iP 09 34 10.7
iS 09 35 53.0
Um iP 09 34 20.4
iS 09 36 11.5
iSS 09 36 44.1
iT 09 39 04.2
i 09 41 15.7
Norwegian Sea (h = 30 km).
Well developed T phase, especially at Ki.

" 2 Up iPKP 09 39 15.7
i 09 39 31.5
microns sec
PKP Z' 0.2 1.3
Ka iPKP 09 39 26.2
Kermadec Islands (h = 40 km).

" 2 Ki iP 09 54 38.5
eS 09 55 55

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. 2 cont.

		Ki	iT	09 59 33.4
		SKA	iP	09 55 14.5
			iS	09 56 56.9
		Um	iP	09 55 27.1 C
			iS	09 57 12.0

Norwegian Sea, 73.5°N, 7.2°E.
Origin time = 09 52 55.

" 2 Up iPKP 10 43 08.9
microns sec
PKP Z' 0.1 1.3
Kermadec Islands (h = 30 km).

" 2 Up iP 10 46 46.2
Um iP 10 46 06.5
Aleutian Islands (h = 30 km).

" 2 Up iPKP 13 12 34.4 C
microns sec
PKP Z' 0.1 0.6
South of Fiji Islands
(h = 80 km).

" 2 Ki iPg 13 31 20.3
iSg 13 31 51.7
D = 270 km = 2.4°.
Origin time = 13 30 33.

" 2 Up iP 13 46 08.8

" 2 Up iPKP 14 42 42.9
microns sec
PKP Z' 0.2 1.5
Kermadec Islands
(h = 30 km).

" 2 Up iPKP 14 51 48.5 C
Kermadec Islands (h = 10 km).

" 2 Up iPKP 15 32 13.3
Kermadec Islands
(h = 30 km).

" 2 Up iPKP 15 37 58.9
(Australia; h = 30 km).

" 2 Up iPKP 15 42 57.3 C
Kermadec Islands (h = 90 km).

" 2 Up iPKP 16 08 04.8
Kermadec Islands (h = 30 km).

" 2 Up iPKP 16 44 31.4
i 16 44 38.3
Kermadec Islands (h = 30 km).

1965 Mar. 2 Up ePKP 16 53 55
i 16 53 57.8
microns sec
PKP Z' 0.1 1.0
Um iPKP 16 53 50.9
Kermadec Islands (h = 70 km).

" 2 Up iPKP 20 10 35.3
microns sec
PKP Z' 0.2 1.3
Kermadec Islands (h = 30 km).

" 2 Up iPKP 20 43 52.2
Kermadec Islands (h = 30 km).

" 2 Up iP 20 53 41.3

" 2 Up ePKP 21 26 54
Kermadec Islands (h = 30 km).

" 2 Up iPKP 21 41 59.8
South of Fiji Islands
(h = 30 km).

" 2 Up iP 21 47 56.4 C
iS 21 57 15.8
microns sec
P Z' 0.2 0.5
Ki iP 21 47 25.0 C
iS 21 56 17
microns sec
P Z' 0.2 0.9
S N 1.0 6
Sk iP 21 47 53.6 C
iPP 21 51 02.1
Um iP 21 47 38.6 C
iS 21 56 41.9
Bonin Islands (h = 500 km).
Magn. = 6.0 (Up,Ki).

" 2 Up iP 22 02 07.2

" 2 Up iP 22 05 06.8
iS 22 09 18
microns sec
S E 1.9 7
S N 3.4 9
M E 18 18
M N 11 18
M Z 4.1 13
D = 2550 km = 23°.
Ki iP 22 06 09.5 C
iS 22 11 12
microns sec
S N 1.9 14

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. 2 cont.

Ki microns sec
M E 9.2 14
M N 4.8 11
M Z 6.4 11
D = 3300 km = 29 1/2°.
Sk iP 22 05 44.8
Um iP 22 05 35.6
iS 22 10 05
Turkey (h = 50 km).
Magn. = 5.6 (Up,Ki).

" 2 Up ePKP 23 01 36
Kermadec Islands
(h = 30 km).

" 2 Up iPKP 23 50 05.8
microns sec
PKP Z' 0.1 1.0
Um iPKP 23 50 00.3
South of Fiji Islands
(h = 110 km).

" 2 Up iPKP 23 53 12.4
microns sec
PKP Z' 0.1 1.0
Um iPKP 23 53 08.6
Kermadec Islands
(h = 30 km).

" 3 Ki eP 01 05 41
Um iP 01 06 15.4 C
Aleutian Islands (h = 30 km).

" 3 Up iPKP 01 21 58.5
Kermadec Islands
(h = 30 km).

" 3 Up iPKP 02 55 43.9
Kermadec Islands
(h = 30 km).

" 3 Up iPKP 03 36 38.9
microns sec
PKP Z' 0.2 1.0
M E 1.3 22
M N 2.3 22
M Z 2.4 24
Ki ---
microns sec
M E 1.0 19
M N 1.0 22
M Z 1.7 19
Sk iPKP 03 36 35.3

cont.

1965 Mar. 3 cont.

Um iPKP 03 36 31.6
Kermadec Islands
(h = 30 km).
Magn. = 6.0 (Up,Ki).

" 3 Um iP 03 40 05.8
Banda Sea (h = 340 km).

" 3 Up iPKP 06 12 34.6
Kermadec Islands (h = 30 km).

" 3 Up iP 06 21 52.0 C
ePP 06 22 58
microns sec
P Z' 0.1 0.5
PP Z' 0.1 1.0
Ki iP 06 21 36.1 C
microns sec
P Z' 0.2 0.5
Sk iP 06 22 07.3 C
iPP 06 23 28.4
Um iP 06 21 36.5 C
Ka iP 06 22 08.6
Kazakh SSR. Magn. = 6.0 (Up,Ki)
Underground explosion.
The magnitude given is in the earthquake magnitude scale. However, the seismic wave energy from an underground explosion corresponds to a magnitude, which is about 0.7 units lower, i.e. 5.3 in this case.

" 3 Up iP 07 29 37.0
Ki iP 07 29 09.6
Sk eP 07 29 45
Um iP 07 29 17.7
Mongolia (h = 30 km).

" 3 Ka iPg 10 35 41.8
iSg 10 35 47.0

" 3 Up iP 10 53 27.4
Ki iP 10 52 33.0
Um iP 10 52 58.2
Aleutian Islands (h = 40 km).

" 3 Um iP 11 00 00.4

" 3 Up iPKP 11 44 53.0
Kermadec Islands
(h = 80 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Mar. 3 Up iPKP 11 56 03.8
microns sec
PKP Z' 0.1 1.0
Um ePKP 11 55 57
Kermadec Islands
(h = 30 km).

" 3 Ki eSn 13 18 27
iSg 13 18 52.1
Um iSg 13 19 54.9
Probably northwest Russia.
Explosion?

" 3 Ki i 14 00 05.6
iSg 14 00 28.9

" 3 Ki iPn 14 04 42.3 D
iPg 14 04 53.1
iSg 14 05 31.6
D = 330 km = 3.0°.
Origin time = 14 03 53.

" 3 Up iP 14 07 31.9 C
Um iP 14 07 04.6
Aleutian Islands
(h = 20 km).

" 3 Up iPKP 14 58 37.8 D
microns sec
PKP Z 0.8 3
PKP Z' 0.5 1.3
Gb ePKP 14 58 44
Um iPKP 14 58 27.7
Ka ePKP 14 58 52
Kermadec Islands
(h = 40 km).
The series of shocks in the Kermadec Islands the first days of March, 1965, is a typical earthquake swarm. It seems to be some regularity in the occurrence of the shocks in this swarm, but this could possibly be explained as chance occurrence.

" 3 Up iPKP 15 32 56.8
iPP 15 33 54
ePS 15 43 20
microns sec
PP Z 2.6 12
M E 23 21
M N 24 21
M Z 34 21

cont.

1965
Mar. 3 Ki iP 15 28 37
cont. ePKP 15 32 39
ePP 15 33 08
microns sec
PP N 0.8 15
PP Z 4.1 17
M E 26 23
M N 21 22
M Z 34 21
Sk ePKP 15 32 46
i 15 32 57.7
Um iP 15 28 44
iPKP 15 32 48.2
iPP 15 33 32
iSKS 15 39 36
i 15 42 48
iPS 15 43 06
New Britain (h = 40 km).
Magn. = 6.9 (Up,Ki).

" 3 Up iP 16 58 08.3 C
ipP 16 58 16.1
microns sec
P Z' 0.7 1.0
M E 2.2 19
M N 2.3 19
M Z 2.4 19
Ki iP 16 57 14.6 C
microns sec
P Z' 0.7 1.0
Sk iP 16 57 49.5 C
iPcP 16 58 35.8
Gb eP 16 58 25 C
Um iP 16 57 40.5 C
Ka iP 16 58 31.6
Aleutian Islands.
h = 30 km (Up).

" 3 Up iP 19 24 49.0
microns sec
P Z' 0.1 0.7
Ki iP 19 24 14.9
Sk iP 19 24 20.5
Um iP 19 24 34.3 C
Nevada, U.S.A. Origin time = 19 13 00. Probably underground explosion.

" 3 Up iP 19 40 13.4
iPcP 19 40 39.0
Ki iP 19 39 26.6
Um iP 19 39 47.5
Kurile Islands (h = 30 km).

" 3 Up iPKP 20 14 50.8
cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Mar. 3 Up microns sec
cont. PKP Z' 0.2 1.7
Kermadec Islands
(h = 30 km).

" 3 Up iPKP 21 31 54.3
Kermadec Islands
(h = 30 km).

" 4 Um iP 00 51 40.1
France.

" 4 Up iP 01 53 42.9 C
microns sec
P Z' 0.1 1.0
Ki iP 01 52 50.2
microns sec
P Z' 0.1 1.0
Um iP 01 53 16.0 C
Aleutian Islands (h = 50 km).
Magn. = 5.7 (Up,Ki).

" 4 Up eP 01 58 51
Um eP 01 58 26

" 4 Up iP 02 00 42.9
microns sec
P Z' 0.1 1.0
Um iP 02 00 30.1

" 4 Up iP 02 12 23.9 C
microns sec
P Z' 0.2 1.0
Ki iP 02 11 30.5 C
microns sec
P Z' 0.1 1.0
Sk iP 02 12 04.6
Um iP 02 11 56.4
Aleutian Islands
(h = 25 km).
Magn. = 5.9 (Up,Ki).

" 4 Up iP 02 33 44.5
Ki eP 02 32 51
Um iP 02 33 16.7 C
Kamchatka (h = 30 km).

" 4 Up iP 04 51 32.1
Sk eP 04 51 43
Um iP 04 51 57.0
Atlantic Ocean (h = 30 km).

" 4 Up iP 06 41 06.3 C
microns sec
P Z' 0.2 1.0

cont.

1965
Mar. 4 Ki iP 06 40 12.9 C
cont. microns sec
P Z' 0.1 1.0
Sk iP 06 40 46.4
Um iP 06 40 38.4 C
Aleutian Islands (h = 40 km).
Magn. = 5.9 (Up,Ki).

" 4 Up iPKP 08 43 55.4
Kermadec Islands (h = 30 km).

" 4 Up iPKP 21 22 47.8
Um ePKP 21 22 46
South Sandwich Islands
(h = 50 km).

" 4 Um ePKP 23 27 29
Kermadec Islands (h = 30 km).

" 5 Um iP 00 09 44.4 C
Aleutian Islands (h = 30 km).

" 5 Um iP 04 21 27.9

" 5 Up iP 06 26 00.4
iPP 06 28 34.6
microns sec
P Z' 0.2 0.8
M E 0.8 18
M N 1.1 19
M Z 1.2 19
Ki iP 06 25 08.8
iPcP 06 25 50.1
microns sec
P Z' 0.1 1.0
M E 1.5 18
M N 1.1 16
M Z 1.0 16
Sk iP 06 25 41.1
i 06 26 02.4
Um iP 06 25 34.6
i 06 25 50.3
Ka iP 06 26 25.4
Aleutian Islands (h = 25 km).
Magn. = 6.0 (Up,Ki).

" 5 Up iP 06 37 04.9
microns sec
P Z' 0.1 1.0
Ki iP 06 36 12.7
Sk iP 06 36 45.6
Um iP 06 36 38.1
Aleutian Islands
(h = 15 km).

" 5 Um iP 06 54 28.0

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Mar. 5 Um iP 10 17 39.2 C
Aroe Islands (h = 30 km).

" 5 Um iP 13 26 27.5

" 5 Up iP 13 53 33.0 C
ipP 13 53 44.4
iS 14 02 21

		microns	sec
P	Z'	0.8	0.9
M	E	0.7	19
M	N	1.8	22
M	Z	2.3	23

D = 7400 km = 66 1/2°.
Ki iP 13 52 39.9 C
eS 14 00 37

		microns	sec
P	Z'	0.5	1.0
S	N	0.3	9
M	E	1.0	19
M	N	1.1	18
M	Z	1.9	20

D = 6500 km = 58 1/2°.
Sk iP 13 53 13.5 C
Um iP 13 53 05.8 C
iPa 13 57 15
iS 14 01 29
Ka iP 13 53 56.6 C
Aleutian Islands.
h = 45 km (Up).
In this and many other Aleutian Islands shocks, the surface waves are abnormally small compared to the body waves, especially P, at our stations. This cannot always be explained by focal depths greater than normal.

" 5 Up iP 14 12 53.6
Aleutian Islands
(h = 15 km).

" 5 Ki iPKP 14 49 50.4
iPP 14 50 46.3
e 14 59 40
Um iPKP 14 49 47.1
Argentina (h = 570 km).

" 5 Um iP 15 00 45.3
i 15 00 56.7

" 5 Um iP 15 42 41.5

" 5 Um iP 16 32 52.8
Japan (h = 30 km).

1965
Mar. 5 Um iP 16 44 11.5
Aleutian Islands
(h = 40 km).

" 5 Up iPKP 17 28 32.6 C
Sk iPKP 17 28 25.4 C
Um iPKP 17 28 20.3
Kermadec Islands
(h = 20 km).

" 5 Up iP 18 10 01.5 C
i 18 11 37.9
eS 18 18 44

		microns	sec
P	Z'	0.5	1.0
S	N	0.3	5
M	N	1.9	23
M	Z	1.4	22

D = 7400 km = 66 1/2°.
Ki iP 18 09 08.0 C
eS 18 17 11

		microns	sec
P	Z'	0.2	1.0
S	N	0.2	8
M	E	0.9	18
M	N	0.8	17
M	Z	1.1	19

D = 6500 km = 58 1/2°.
Sk iP 18 09 41.9 C
Um iP 18 09 34.1 C
Ka iP 18 10 25.2 C
Aleutian Islands (h = 40 km).
Magn. = 5.8 (Up,Ki).

" 5 Up iPKP 19 56 23.5

		microns	sec
PKP	Z'	0.1	1.2

Um ePKP 19 56 19
Kermadec Islands (h = 30 km).

" 5 Up ePKP 21 19 49
Kermadec Islands (h = 30 km).

" 5 Up iP 22 16 38.4

" 5 Up iP 23 40 02.9 C
i 23 41 21.0

		microns	sec
P	Z'	0.1	1.0
M	E	0.6	17
M	N	0.7	15
M	Z	0.7	15

Ki iP 23 39 09.4 C

		microns	sec
P	Z'	0.1	1.0
M	E	0.5	13

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Mar. 5 cont.

Ki		microns	sec	
	M	N	0.3	16
	M	Z	0.6	14
Sk	iP		23 39 44.0	C
Um	iP		23 39 35.4	C
	ePa		23 43 26	
	iS		23 47 54	
Ka	iP		23 40 27.0	

Aleutian Islands (h = 50 km).
Magn. = 5.7 (Up,Ki).

" 6 Ki iP 03 42 03.4
Kodiak Island (h = 30 km).

" 6

Up	iPKP	04 26 23.1	
	i	04 26 28.5	
	microns	sec	
	PKP Z'	0.1	1.0
Um	iPKP	04 26 18.2	
Ka	iPKP	04 26 35.0	C

South of Fiji Islands
(h = 25 km).

" 6

Up	iP	06 03 43.9	C
	ipP	06 03 54.5	
Ki	iP	06 02 50.3	
	ipP	06 03 01.6	
	microns	sec	
	P Z'	0.1	1.0
Sk	iP	06 03 24.6	
Um	iP	06 03 16.2	
	ipP	06 03 26.3	

Aleutian Islands.
h = 40 km (Up,Ki,Um).

" 6 Up iP 06 20 25.2
Um iP 06 20 08.4

" 6

Up	iP	08 30 19.4	C
	microns	sec	
	P Z'	0.4	1.0
	M E	0.6	20
	M N	1.4	22
	M Z	1.8	22
Ki	iP	08 29 25.8	C
	microns	sec	
	P Z'	0.2	0.9
	M E	0.9	18
	M N	0.8	17
	M Z	1.3	18
Sk	iP	08 30 00.0	C
Um	iP	08 29 51.7	C
Ka	iP	08 30 43.2	

Aleutian Islands (h = 25 km).

1965
Mar. 6

Up	iPKP	10 08 39.6	

Kermadec Islands (h = 30 km).

" 6

Sk	iPKP	11 29 58.1	
Um	iPKP	11 30 02.0	

South Pacific Ocean
(h = 40 km).

" 6

Up	iP	13 52 07.0	
	microns	sec	
	M E	0.9	22
	M N	1.4	23
	M Z	1.5	23
Ki	iP	13 51 12.5	
	eS	13 59 19	
	microns	sec	
	M E	0.8	19
	M N	0.8	20
	M Z	2.0	22
	D = 6500 km = 58 1/2°		
Sk	iP	13 51 46.7	
Gb	iP	13 52 24.7	
Um	iP	13 51 38.9	
	iS	14 00 06	
	iScS	14 01 28	

Aleutian Islands (h = 40 km).

" 6

Up	iP	14 46 45.7
Gb	iP	14 47 02.7
Um	iP	14 46 19.2

Aleutian Islands (h = 30 km).

" 6

Up	iPKP	16 21 37.4
Sk	iPKP	16 21 28.9
Gb	iPKP	16 21 45.9
Um	iPKP	16 21 24.8

Kermadec Islands (h = 60 km).

" 6

Up	iP	17 21 12.0
	ipP	17 21 22.3
Um	iP	17 20 44.6

Aleutian Islands.
h = 40 km (Up).

" 6 Sk iP 17 39 22.8

" 6

Up	iP	18 36 31.8
Um	iP	18 36 04.5 C

Aleutian Islands (h = 30 km).

" 6 Um iP 19 14 59.5

" 6

Up	iP	20 35 57.8 C
	iS	20 45 54

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. 6 cont.	Up			microns	sec	
		P	Z'	0.2	0.9	
		S	E	0.5	4	
		M	E	3.3	15	
		M	N	2.2	16	
		M	Z	5.1	16	
		D = 8900 km = 80°.				
	Ki	iP		20 35 37.3		
		eS		20 45 11		
				microns	sec	
		P	Z'	0.2	1.1	
		S	E	1.0	9	
		S	N	0.4	6	
		M	E	1.4	15	
		M	N	1.2	13	
		M	Z	1.8	17	
		D = 8450 km = 76°.				
	Sk	iP		20 36 02.4		
	Gb	iP		20 36 16.7		
		i		20 37 14.4		
	Um	iP		20 35 43.8	C	
		i		20 35 49.9		
		iS		20 45 26		
	Ka	iP		20 36 10.3	C	
	Philippine Islands					
	(h = 10 km).					
	Magn. = 5.9 (Up,Ki).					
" 7	Up	iP		00 12 20.4		
		ipP		00 12 32.5		
	Aleutian Islands.					
	h = 50 km (Up).					
" 7	Up	iP		01 47 51.6		
		iPcP		01 48 24.4		
	Ki	iP		01 47 08.4		
	Um	iP		01 47 26.7		
	Ka	iP		01 48 13.4		
	Sikhota Alin					
	(h = 330 km).					
" 7	Up	iPKP		02 02 47.3		
		i		02 02 49.7	C	
				microns	sec	
		PKP	Z'	0.2	0.7	
		M	E	0.9	22	
		M	N	1.2	20	
		M	Z	2.4	24	
	Ki	ePKP		02 02 30		
		ePKS		02 06 06		
				microns	sec	
		M	E	1.2	21	
		M	N	1.5	19	
		M	Z	2.1	21	
	Sk	iPKP		02 02 43.3	C	

cont.

1965 Mar. 7 cont.	Gb	iPKP		02 02 57.8	C	
	Um	iPKP		02 02 38.0	C	
	Ka	iPKP		02 02 58.9		
	Kermadec Islands					
	(h = 60 km).					
" 7	Up	iP		03 02 13.3	D	
	Aleutian Islands					
	(h = 25 km).					
" 7	Up	iP		07 41 47.2		
	Gb	eP		07 41 48		
	Um	eP		07 42 08		
	Ka	iP		07 41 28.5		
	Gulf of Aden (h = 40 km).					
" 7	Up	iP		07 51 39.5	D	
		ipP		07 51 44.2		
		iS		07 59 03		
				microns	sec	
		S	E	0.4	4	
		M	E	1.6	17	
		M	N	2.0	20	
		M	Z	1.3	16	
		D = 5800 km = 52°.				
	Ki	iP		07 52 23.3		
				microns	sec	
		M	E	1.5	18	
		M	N	1.8	17	
		M	Z	2.7	17	
	Sk	eP		07 52 07		
	Gb	iP		07 51 41.2		
	Um	iP		07 51 57.8		
		ipP		07 52 02.5		
	Ka	eP		07 51 14		
	Gulf of Aden.					
	h = 20 km (Up,Um).					
	Magn. = 5.4 (Up,Ki).					
" 7	Up	iP		11 15 31.5	C	
				microns	sec	
		P	Z'	0.3	0.9	
	Ki	iP		11 14 38.0		
				microns	sec	
		P	Z'	0.2	1.0	
	Sk	iP		11 15 11.4		
	Gb	iP		11 15 48.6	C	
	Um	iP		11 15 03.9	C	
	Ka	iP		11 15 55.0	C	
		i		11 16 10.2		
	Aleutian Islands					
	(h = 40 km).					
	Magn. = 6.1 (Up,Ki).					
" 7	Up	iPKP		16 28 30.0		
	Ka	iPKP		16 28 40.2		
	Kermadec Islands (h = 30 km).					

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
Mar.	7	Um	iP	18 17 15.4	C
		Aleutian Islands			
		(h = 30 km).			
"	7	Up	iP	19 52 11.9	
		Aleutian Islands			
		(h = 15 km).			
"	8	Ki	iSg	05 45 00.7	
		Um	i(Sn)	05 45 45.4	
			iSg	05 46 33.4	
		Probably northwest Russia.			
		Explosion?			
"	8	Up	iP	12 37 26.5	
		Ki	iP	12 37 06.5	
		Um	iP	12 37 13.6	
			ipP	12 37 26.1	
		Philippine Islands.			
		h = 50 km (Um).			
"	8	Up	iPg	13 29 28.9	
			iSg	13 29 41.9	
			D = 110 km = 1.0°.		
		Origin time = 13 29 09.			
		Explosion?			
"	8	Up	iPg	13 31 32.7	
			iSg	13 31 45.1	
			D = 110 km = 1.0°.		
		Origin time 13 31 13.			
		Explosion?			
"	8	Up	iP	16 47 37.4	
"	8	Um	iP	19 45 05.2	
"	8	Um	iP	22 24 20.1	
		Alaska (h = 30 km).			
"	8	Up	iP	23 07 46.5	
		Gb	iP	23 07 33.0	
		Um	iP	23 08 23.6	
			i	23 08 38.8	
		Greece (h = 60 km).			
"	9	Up	iPKP	01 55 16.4	D
		Ki	iPKP	01 55 04.9	
		Um	iPKP	01 55 11.6	
			iSKP	01 58 00.6	
		Fiji Islands (h = 390 km).			
"	9	Ki	iP	03 46 44.9	
			iS	03 48 56.9	
			D = 1350 km = 12°.		

cont.

1965					
Mar.	9	Um	iP	03 47 36.7	
cont.			i	03 48 12.6	
			i(S)	03 50 57.8	
		Svalbard.			
		Origin time = 03 43 53.			
		Solution obtained by			
		combination with readings fro			
		Finnish and Norwegian station			
"	9	Up	iP	11 12 56.5	
		Aleutian Islands			
		(h = 30 km).			
"	9	Um	iP	17 12 28.9	
"	9	Um	iPKP	17 48 10.3	
		Santa Cruz Islands			
		(h = 130 km).			
"	9	Up	iP	18 02 36.5	C
			iS	18 06 29	
			microns	sec	
			P E	1.2	5
			P N	2.9	4
			P Z	3.1	5
			P Z'	0.6	0.7
			S E	3.0	4
			S N	19	12
			S Z	14	11
			M E	120	14
			M N	59	10
			M Z	75	12
			D = 2350 km = 21°.		
		Ki	iP	18 03 50.6	C
			i	18 08 28	
			iS	18 08 38	
			iSa	18 09 49	
			microns	sec	
			P Z'	1.6	2.0
			S N	6.9	13
			M E	130	11
			M N	60	12
			M Z	75	13
			D = 3200 km = 29°.		
		Sk	iP	18 03 20.1	C
		Gb	iP	18 02 27.2	C
			i	18 04 03.9	
		Um	iP	18 03 14.6	C
			iS	18 07 34	
		Ka	iP	18 01 58.8	C
		Aegean Sea (h = 20 km).			
		Magn. = 6.3 (Up,Ki).			
"	9	Up	iP	18 42 35.8	
			microns	sec	
			P Z'	0.1	0.8

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. 9 cont.

Up microns sec
M E 2.8 15
M N 2.8 14
M Z 2.0 13
Ki iP 18 43 49.9
microns sec
M E 4.5 11
M N 3.2 11
M Z 3.4 11
Sk iP 18 43 18.6 C
Gb iP 18 42 26.5
Um iP 18 43 13.5
Aegean Sea (h = 30 km).

" 9 Up iP 18 56 44.5
Sk iP 18 57 24.1
Um iP 18 57 26.3
Aegean Sea (h = 30 km).

" 9 Um iP 19 04 42.6 C
Aegean Sea (h = 5 km).

" 9 Up iP 19 51 42.3
microns sec
M E 2.2 15
M N 1.5 15
M Z 1.1 14
Ki iP 19 52 55.0
microns sec
M E 3.2 11
M N 1.9 12
M Z 2.0 12
Sk iP 19 52 24.3
Gb iP 19 51 31.5
Um iP 19 52 20.1
Aegean Sea (h = 20 km).

" 9 Up iP 21 24 49.6
i 21 24 53.8
microns sec
M E 2.5 15
M N 2.3 13
M Z 2.8 13
Ki iP 21 26 03.8
microns sec
M E 1.8 16
M N 1.3 12
M Z 1.6 11
Sk iP 21 25 32.8
Gb iP 21 24 39.7
i 21 24 44.4
Um iP 21 25 26.9
iS 21 29 59
Aegean Sea (h = 15 km).

1965 Mar. 9

Up iP 21 56 02.2
Um iP 21 55 33.8 D
Aleutian Islands (h = 25 km).

" 9 Up eP 22 23 52.3
microns sec
M E 0.8 14
M N 1.1 11
M Z 0.9 10
Ki ---
microns sec
M E 1.5 13
M N 0.9 12
M Z 1.3 12
Sk iP 22 24 33.7
Gb iP 22 23 41.3
Um iP 22 24 27.9 C
Aegean Sea (h = 5 km).

" 9 Sk eP 22 40 09
Aegean Sea.
Origin time = 22 34 45
(Athens).

" 9 Up iP 22 39 58.3 C
iPP 22 40 20.5
microns sec
M E 1.1 12
M N 1.4 10
M Z 1.7 11
Ki iP 22 41 11.9
microns sec
M E 2.7 11
M N 1.7 12
M Z 2.3 11
Sk eP 22 40 41.2
Gb iP 22 39 48.5 C
Um iP 22 40 36.4
Ka eP 22 39 24
Aegean Sea (h = 30 km).

" 9 Um iP 23 19 00.1 D

" 10 Ki ---
microns sec
M E 1.1 13
Sk eP 00 10 02
Um iP 00 09 56.8
Aegean Sea.
Origin time = 00 04 37.

" 10 Um iP 00 25 28.6 D
Kurile Islands (h = 30 km).

" 10 Up iP 01 09 16.4

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Mar. 10 Up iP 01 40 49.2
i 01 40 52.7
microns sec
P Z' 0.1 0.8
M E 1.7 15
M N 1.7 11
M Z 2.0 11
Ki iP 01 42 06.8
microns sec
M E 3.2 11
M N 1.1 12
M Z 1.4 11
Sk iP 01 41 33.9
Gb iP 01 40 42.9
i 01 40 54.9
i 01 41 16.7
Um iP 01 41 27.6
iS 01 45 54
Aegean Sea (h = 30 km).

" 10 Up iP 04 08 05.1
iSS 04 12 17.0
Ki iP 04 06 21.1
iS 04 08 31.2
microns sec
P Z' 0.1 1.0
D = 1350 km = 12°.
Sk eP 04 07 19
iSS 04 11 04.4
i 04 11 29.0
Gb iP 04 08 31.2
Um iP 04 07 12.9
iS 04 10 15.8
iSS 04 10 44.4
Ka iP 04 08 42.1
Svalbard (h = 30 km).

" 10 Up iP 05 51 31.2
microns sec
M E 1.8 16
M N 0.9 15
M Z 2.5 15
Ki iP 05 52 11.2
microns sec
M E 1.9 17
M N 1.8 19
M Z 3.6 18
Sk iP 05 52 07.4
Gb iP 05 51 41.7
i 05 51 54.4
Um iP 05 51 44.7
eS 05 57 16
iSS 05 59 35
Ka iP 05 51 19.8
Iran (h = 30 km).

1965
Mar. 10 KiR iPn 06 31 54.8
iSn 06 32 50.3
iSg 06 33 08.4
~~D = 470 km = 4.2°.~~
SKA eSg 06 35 44
UME iSn 06 33 35.6
iSg 06 34 14.5
D = 690 km = 6.2°.
Northwest Russia, 68.0°N, 31.5°E. Origin time = 06 30 50
Explosion?

" 10 Up iP 13 03 59.5

" 10 Um iP 14 26 24.3

" 10 Up iP 14 55 54.6

" 10 Up iSg 15 21 17.3
Gb iPg 15 19 16.6
i(Sg) 15 19 24.0
i 15 19 32.5
Ka iSg 15 20 28.7
i 15 20 37.4
West coast of Sweden.
Probably two events, 8.6 sec apart.

" 10 Up iP 15 34 06.5

" 10 Up iPKP 16 11 55.3
Ki iPKP 16 11 48.1
Gb iPKP 16 12 05.9
Um i(PKP) 16 11 43.5
iPKP 16 11 53.9
iSKP 16 14 32.4
Ka iPKP 16 12 07.0 C
South of Fiji Islands
(h = 550 km).

" 10 Up iP 21 28 02.5
Um iP 21 27 56.2
i 21 27 58.1

" 10 Up iP 21 55 00.0
microns sec
M E 0.6 14
M N 0.8 13
Ki iP 21 56 13.4
microns sec
M E 0.8 17
M N 0.6 14
Sk iP 21 55 43.3 C
Um iP 21 55 37.4
Aegean Sea (h = 15 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Mar. 10 Up eP 22 03 29
Ki iP 22 02 35.9
Sk iP 22 03 03.8
Gb eP 22 03 42
Um iP 22 03 03.9
Ka iP 22 03 51.0
Kodiak Island (h = 30 km).

" 10 Ka iP 22 27 23.8

" 11 Up iPKP 02 13 33.4
Um iPKP 02 13 23.1 D

" 11 Um iP 06 16 22.1
i 06 16 32.0
Sumatra (h = 60 km).

" 11 Up iP 08 41 59.2
Ki iP 08 41 11.4
Um iP 08 41 33.6
Kurile Islands (h = 50 km).

" 11 Up iPg 08 54 14.5
iSg 08 55 01.2
~~D = 390 km = 3.5°~~.
Ka iSg 08 55 20.6
Gt iSg 08 54 09.1
Oslo Fjord, 59.6° N, 10.8° E.
Origin time = 08 53 05.
Solution obtained by combination with readings at Kongsberg.

" 11 Ki iP 11 00 29.9
iS 11 02 46.7
Um iP 11 01 25.6
iS 11 04 16.0
e 11 05 01
i 11 06 39.1
Svalbard.
Origin time = 10 57.8.
Solution obtained by combination with readings at Sodankylä and Kevo.

" 11 Um iP 11 36 02.1

" 11 Up iP 12 14 05.0
Aleutian Islands
(h = 40 km).

" 11 Up iP 12 18 24.1
ipP 12 18 31.5
Ki iP 12 17 29.3
Gb iP 12 18 42.3

cont.

1965
Mar. cont. 11 Um iP 12 17 54.6
Aleutian Islands.
h = 30 km (Up).

" 11 Um iP 12 43 38.9

" 11 Up iP 14 16 59.8
Um iP 14 16 23.8
i 14 16 33.9
South of Alaska (h = 10 km).

" 11 Um i(P) 17 33 55.8
e(Sg) 17 34 31

" 11 Ki ---
microns sec
M N 1.1 18
M Z 1.1 19
Um iPS 17 36 44
i 17 43 50
Bouvet Island (h = 30 km).

" 11 Up iP 19 27 21.8
Ki iP 19 26 38.5
Gb iP 19 27 41.3
Um iP 19 26 57.4
Japan (h = 40 km).

" 11 Up iP 21 30 41.0
Um iP 21 30 13.1 C
Aleutian Islands (h = 40 km).

" 11 Up iP 23 42 00.6
Ki iP 23 41 14.0
Um iP 23 41 35.7
Kurile Islands (h = 50 km).

" 12 Up iP 00 19 00.2

" 12 Up iP 02 06 11.4
Aleutian Islands (h = 40 km).

" 12 Up iP 02 27 44.5 C
Aleutian Islands (h = 40 km).

" 12 Ki eP 07 01 28.5
i 07 01 40.0
microns sec
P Z' 0.1 1.5
Sk eP 07 01 56
i 07 02 19.3
Gb iP 07 02 34.4
Um iP 07 01 56.2
South of Alaska (h = 15 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar.	12	Up	i(P)	08 47 43.5	
				microns	sec
			(P)	Z' 0.2	0.6
"	12	Ki	iPKP	09 01 29.7	C
		Um	iPKP	09 01 21.6	
		South Sandwich Islands (h = 30 km).			
"	12	Um	iP	10 59 57.8	
"	12	Up	iP	14 56 12.7	
"	12	Up	iPKP	17 50 35.0	
		Gb	iPKP	17 50 43.9	
		South of Fiji Islands (h = 50 km).			
"	12	Up	iP	19 39 52.9	
		Aleutian Islands (h = 40 km).			
"	12	Up	eP	20 23 44	
		Sk	eP	20 24 25	
		Gb	iP	20 23 26.9	
		Um	iP	20 24 23.9	
		Italy (h = 70 km).			
"	12	Up	iP	21 00 36.0	
"	12	Up	iP	23 48 07.5	
		Aleutian Islands (h = 40 km).			
"	13	Up	iP	04 13 25.6	
		Ki	iP	04 14 39.4	
		Sk	iP	04 14 08.4	
		Gb	iP	04 13 15.1	
		Um	iP	04 14 03.0	D
		Ka	iP	04 12 47.0	
		Aegean Sea (h = 10 km).			
"	13	Up	iP	04 14 19.5	
			i	04 14 22.2	
				microns	sec
			P	Z' 0.1	0.7
			M	E 5.0	15
			M	N 4.8	16
			M	Z 7.5	11
		Ki	iP	04 15 34.0	
				microns	sec
			M	E 10	12
			M	N 4.8	13
			M	Z 5.9	12
		Sk	iP	04 15 02.9	
			i	04 15 05.6	

cont.

1965 Mar. cont.	13	Gb	iP	04 14 12.6	
		Um	iP	04 14 58.6	
			i	04 15 00.4	
			iS	04 19 26	
		Ka	iP	04 13 41.2	
		Aegean Sea (h = 30 km).			
"	13	Up	iP	07 06 22.0	
		Um	iP	07 05 55.7	
		Kurile Islands (h = 40 km).			
"	13	Up	iP	07 44 15.9	
			ipP	07 44 26.8	
				microns	sec
			pP	Z' 0.1	1.0
		Ki	iP	07 43 22.9	D
			ipP	07 43 33.8	
				microns	sec
			pP	Z' 0.2	1.1
		Sk	iP	07 43 51.0	
		Gb	iP	07 44 29.4	D
		Um	iP	07 43 48.7	
			ipP	07 44 00.6	
		Ka	iP	07 44 38.2	D
			ipP	07 44 49.5	
		South of Alaska. h = 45 km (Up,Ki,Um,Ka). The amplitude ratio pP/P on Z' is 1.9(Ki), 1.6(Um), 1.5(Up 1.1(Gb), 1.0(Ka), thus exhibiting a regular decrease with increasing distance withi the range covered by our stations. There is indication both of decreasing pP and increasing P.			
"	13	Up	iPKP	09 15 09.3	
		Um	iPKP	09 15 04.0	
		South of Fiji Islands (h = 30 km).			
"	13	Up	iP	12 03 21.9	
"	13	Up	iP	12 48 57.0	C
		Aleutian Islands (h = 40 km).			
"	13	Up	iPKP	14 12 57.7	C
		Gb	iPKP	14 13 05.5	
		Um	iPKP	14 12 55.3	
		Ka	iPKP	14 13 08.2	C
		Fiji Islands (h = 470 km).			
"	13	Ka	iPg	14 23 03.8	
			iSg	14 23 22.1	
			D = 160 km = 1.4°.		

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. 13 cont.

Southern Baltic.
Origin time = 14 22 36.
Explosion?

" 13 Up iP 15 36 58.6
Ki iP 15 36 06.2
Aleutian Islands (h = 50 km).

" 13 Up iP 15 37 56.1
Ki iP 15 37 04.0 C
Gb iP 15 38 16.8
Um iP 15 37 28.5
Aleutian Islands.
Origin time = 15 27 01.

" 13 Up iP 15 46 58.5
Sk eP 15 47 43
Aegean Sea (h = 30 km).

" 13 Um iP 16 22 24.0 C
Gb iP 16 23 12.9
Kamchatka (h = 30 km).

" 13 KiR iPn 17 10 55.3 D
iSn 17 11 43.5
iSg 17 11 59.0
~~D = 400 km = 3.6°~~.
SKA eSg 17 14 44
UME iSn 17 12 53.2
iSg 17 13 26.7
D = 700 km = 6.3°.
Northwest Russia, 68.9°, 29.8°E.
Origin time = 17 10 00.
Explosion?

" 13 Up iP 21 07 25.1
Gb iP 21 07 46.5
Um iP 21 07 02.7
Japan (h = 30 km).

" 14 Up eP 05 18 54
Um iP 05 18 52.9
Ka iP 05 19 02.6
Kashmir (h = 160 km).

" 14 Ki eSg 05 37 29
Um iSn 05 38 05.6
~~iSg 05 38 35.9~~
Probably northwest Russia.
Explosion?

" 14 Um iP 06 10 12.7

" 14 Up iP 09 04 45.1

cont.

1965 Mar. 14 cont.

Ka iP 09 04 48.5
i 09 04 59.3
Mexico (h = 100 km).

" 14 Up iP 11 49 18.7
i 11 49 26.2
Sk eP 11 49 46
i 11 49 54.3
Um e(P) 11 49 27
Ka iP 11 49 22.6
i 11 49 30.6
Hindu Kush (h = 90 km).

" 14 Um iP 12 15 15.2
Japan (h = 70 km).

" 14 Up iP 15 01 02.0 D
Um iP 15 00 33.8
Aleutian Islands (h = 30 km).

" 14 Up iP 16 00 29.5 C
iPP 16 02 11
iS 16 06 16

		microns	sec
P	Z'	2.4	0.7
S	E	42	6
M	E	220	11
M	N	240	14
M	Z	420	18

(D = 4550 km = 41°).

Ki iP 16 00 38.5 C
iS 16 06 24

		microns	sec
P	E	83	7
P	N	35	7
P	Z	78	7
P	Z'	4.5	0.7
S	E	47	10
S	N	22	12
M	E	170	10
M	N	120	11
M	Z	210	11

(D = 4700 km = 42 1/2°)
Sk iP 16 00 54.8 C
Gb iP 16 00 50.6 C
Um iP 16 00 27.7 C
iS 16 06 07
Ka iP 16 00 33.9 C
Hindu Kush (h = 220 km).
Magn. = 7.6 (Up,Ki).

" 15 Up iP 02 14 01.6

		microns	sec
M	E	1.0	17
M	N	1.2	15
M	Z	1.5	16

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. 15 cont.

	Ki	iP		02 13 43.4
			microns	sec
		M	E 2.1	12
		M	N 0.9	12
		M	Z 2.0	13
	Sk	eP		02 14 17
	Um	iP		02 13 51.9
		iS		02 23 21

Formosa (h = 30 km).

" 15	Up	iP	05 10 53.8

Aleutian Islands (h = 20 km).

" 15	Up	iP	07 42 52.2
	Ki	iP	07 41 59.4
	Um	iP	07 42 25.0

Aleutian Islands (h = 60 km).

" 15	Up	iP	08 36 49.8
	Ki	iP	08 35 56.9
	Um	iP	08 36 22.6 C

Aleutian Islands (h = 30 km).

" 15	Ki	iP	12 48 52.9

South of Alaska (h = 20 km).

" 15	Up	i(P)	15 27 43.4
" 15	KiR	iSg	20 07 11.9
	SKA	eSg	20 07 15
	UME	eSn	20 07 23
		iSg	20 07 39.3

D = 400 km = 3.6°.
Nordlands Fylke, Norway, 66.4°N, 14.5°E.
Origin time = 20 05 42.

" 15	Up	iP	23 13 11.3
		i	23 13 16.2
	Sk	iP	23 13 55.4
	Um	iP	23 13 51.1

Aegean Sea (h = 30 km).

" 16	Ki	iPn	02 07 36.0
		iSn	02 08 18.7
		iSg	02 08 31.8

D = 360 km = 3.2°.
Possibly northwest Russia.
Origin time = 02 06 45.
Explosion?

" 16	Up	iP	02 23 59.4
	Gb	eP	02 23 44

cont.

1965 Mar. 16 cont.

	Um	iP	02 24 19.6
	Ka	iP	02 23 39.2

Atlantic Ocean (h = 30 km).

" 16	Up	iP	11 00 42.7
" 16	Up	iSg	12 44 01.7
	Ka	iPg	12 41 40.5
		iSg	12 41 58.7

D = 160 km = 1.4°.
Southern Baltic.
Origin time = 12 41 13.
Explosion?

" 16	Ki	iP	13 15 02.1
	Um	iP	13 15 20.7

Japan (h = 40 km).

" 16	Up	iP	14 46 44.2 D
" 16	Up	iP	15 18 16.1
" 16	Up	iP	16 57 25.1 C
		iPP	17 00 00.8
		iS	17 06 28
		iPS	17 06 53

		microns	sec
P	E	0.5	4
P	N	0.8	4
P	Z	1.5	3
P	Z'	2.2	2.0
PP	E	0.6	4
PP	Z	0.8	3
PP	Z'	0.4	1.2
S	E	1.2	6
S	N	1.0	5
M	E	27	21
M	N	33	20
M	Z	32	22

D = 7800 km = 70°.

	Ki	iP	16 56 43.2 C
		iPP	16 59 02.8
		iS	17 05 12
		iPS	17 05 37

		microns	sec
P	Z	1.8	5
P	Z'	1.3	2.0
PP	E	1.2	4
PP	Z	1.1	4
PP	Z'	1.0	2.0
S	E	2.0	8
S	N	2.0	8
M	E	42	18
M	N	27	18
M	Z	50	19

D = 7000 km = 63°.

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. cont.	16	Sk	iP	16 57 17.4	C
			iPP	16 59 44.0	
		Gb	iP	16 57 46.4	
			iPP	17 00 25.0	
		Um	iP	16 57 01.9	C
			ipP	16 57 10.5	
			iPa	17 01 18	
			iS	17 05 50	
		Ka	iP	16 57 46.1	C
			iPP	17 00 32.1	
		Japan. h = 30 km (Um).			
		Magn. = 6.7 (Up,Ki).			
"	16	Up	iP	18 35 05.0	
		Ki	iP	18 34 11.3	
		Sk	iP	18 34 45.3	
		Um	iP	18 34 37.3	
		Aleutian Islands (h = 40 km).			
"	16	Um	eP	21 44 05	
		Japan (h = 30 km).			
"	16	Up	iP	22 06 46.9	
"	17	Up	iP	00 43 24.6	
			i	00 43 29.6	
		Sk	iP	00 43 18.5	
		Um	iP	00 43 13.4	C
			i	00 43 23.0	
"	17	Up	iP	03 58 25.5	C
		Ki	iP	03 59 26.7	
		Gb	iP	03 58 24.8	
		Um	iP	03 58 53.0	
		Cyprus (h = 40 km).			
"	17	Up	iP	07 26 38.5	
		Sk	eP	07 27 09	
		Gb	eP	07 26 55	
		Um	iP	07 26 49.6	
			i	07 26 56.4	
		Iran (h = 60 km).			
"	17	Up	iP	08 05 47.0	
		Ki	iP	08 04 53.6	
		Um	iP	08 05 20.0	
		Aleutian Islands. Origin time = 07 54 55.			
"	17	Up	iP	11 42 42.5	
"	17	Up	iP	13 21 26.7	
			iPP	13 22 44.6	
				microns	sec
			M	N 2.7	15

cont.

1965 Mar. cont.	17	Ki	iP	13 21 32.9	
			iLgl	13 34 21	
				microns	sec
			M	E 1.8	10
			M	N 0.8	10
			M	Z 1.8	12
		Sk	eP	13 21 54	
			iPP	13 23 20.1	
		Gb	iP	13 21 49.2	
		Um	iP	13 21 21.1	
		Kirghiz SSR (h = 30 km).			
"	17	Up	iP	14 37 56.6	C
				microns	sec
			P	Z' 0.2	0.5
		Ki	iP	14 37 02.7	C
				microns	sec
			P	Z' 0.3	1.0
			M	E 0.9	18
			M	N 1.3	23
			M	Z 2.6	23
		Sk	iP	14 37 37.5	C
		Gb	iP	14 38 15.5	
			i	14 38 28.6	
		Um	iP	14 37 29.1	C
			iS	14 45 48	
		Ka	iP	14 38 20.0	
		Aleutian Islands (h = 25 km). Magn. = 6.3 (Up,Ki).			
"	17	Ki	iP	18 28 09.3	
		Um	eP	18 28 25	
"	18	Up	iP	02 50 26.9	
		Ki	iP	02 50 31.6	C
		Um	iP	02 50 24.7	
		Nepal-India (h = 30 km).			
"	18	Up	iP	04 45 47.2	
		Um	iP	04 45 45.8	
		Hindu Kush (h = 210 km).			
"	18	Um	iP	05 00 23.7	
			i	05 00 32.4	
		Japan (h = 40 km).			
"	18	Ki	iPn	06 13 43.9	
			iSn	06 14 39.4	
			iSg	06 14 56.9	
		~~D = 470 km = 4.2°~~			
		Ka	eSg	06 17 30	
		Um	iSn	06 15 24.5	
			iSg	06 16 08.3	
		Northwest Russia, 68.1°N, 31.6°E. Origin time = 06 12 39. Explosion?			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar.	18	Up	eP	06 23 26	
"	18	Up	iPKP	06 41 04.7	
		Ki	iPKP	06 41 02.4	
			iSKP	06 44 03	
			i	06 45 45	
				microns sec	
			SKP	Z 1.1 9	
		Sk	ePKP	06 41 04	
		Gb	iPKP	06 41 12.2	
		Um	iPKP	06 41 03.3	
			iSKP	06 44 15.0	
			i	06 53 16.1	
			iSS	07 01 10	
		Ka	iPKP	06 41 13.6	
		Fiji Islands (h = 150 km).			
"	18	Ki	iPKP	12 05 40.6	
		South Sandwich Islands (h = 30 km).			
"	18	Ki	iPKP	12 59 43.4	
		Um	iPKP	12 59 38.3	
		South Sandwich Islands (h = 90 km).			
"	18	Ki	iP	16 38 31.6	
		Um	iP	16 38 21.1	
		Hindu Kush (h = 200 km).			
"	18	Sk	iPKP	18 29 09.4	
		Southeast of Australia (h = 30 km).			
"	18	Up	iP	19 31 11.5	
"	19	Sk	iP	04 40 54.7	
		Um	iP	04 40 50.1	
		Yugoslavia (h = 10 km).			
"	19	Up	iP	07 46 12.3	
		Ki	iP	07 45 19.0 C	
		Sk	iP	07 45 52.6 C	
		Um	iP	07 45 44.5	
		Aleutian Islands (h = 40 km).			
"	19	Ki	iP	12 02 36.1	
			i	12 03 09.3	
			i	12 06 39.8	
			i	12 07 29.4	
			eT	12 10 37	
			i	12 11 09.7	
			i	12 12 13.2	
		Um	iP	12 03 12.2	
			i	12 03 42.9	

cont.

1965 Mar. cont.	19	Um	i	12 08 45.2	
			iT	12 12 28.0	
			i	12 14 03.1	
		Jan Mayen-Svalbard.			
"	19	Um	iP	15 19 30.2	
"	19	Up	iP	15 34 24.2	
			i	15 34 26.5	
				microns sec	
			P	Z' 0.4 0.5	
"	19	Up	e(PP)	16 38 14	
				microns sec	
			M	E 2.3 20	
			M	N 7.3 21	
			M	Z 3.2 20	
		Ki	iP	16 34 08.1	
			i(PP)	16 37 59.3	
				microns sec	
			P	Z' 0.1 1.2	
			M	E 2.7 19	
			M	N 2.7 20	
			M	Z 4.0 19	
		Sk	iP	16 34 29.2 C	
		Um	iP	16 34 10.9	
			i(PP)	16 37 51.2	
			iSKS	16 44 44	
		Celebes (h = 50 km).			
		Magn. = 6.0 (Up,Ki).			
"	19	Ki	iSKP	17 57 47.3	
				microns sec	
			SKP	Z' 0.1 1.5	
		Um	iSKP	17 58 00.0	
		Fiji Islands (h = 620 km).			
"	19	Up	iP	23 11 50.0	
		Ki	iP	23 11 36.8	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	23 11 57.1	
		Um	iP	23 11 40.9 C	
		Celebes (h = 170 km).			
"	19	Um	eP	23 42 31	
		Yugoslavia (h = 30 km).			
"	20	Up	iP	01 08 17.3	
		Gb	i(P)	01 07 38.3	
"	20	UPP	iSg	02 49 18.0	
		KiR	iPg	02 45 32.7	
			iSg	02 46 00.2	
				microns sec	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. cont. 20 ~~KIR~~ ~~microns sec~~
~~Sg Z' 0.5 0.5~~
~~D = 210 km = 1.9°.~~
SKA eSn 02 47 50
iSg 02 48 26.9
~~D = 710 km = 6.4°.~~
UME iPn 02 46 00.6
iPg 02 46 13.5
~~i 02 47 04.7~~
iSg 02 47 09.0
~~D = 440 km = 4.0°.~~
Northern Finland, 67.3°N, 25.2°E.
Origin time = 02 44 57.

" 20 Um iP 06 42 23.8
Japan (h = 120 km).

" 21 KIR eSg 01 19 55
SKA eSg 01 19 17
UME iSg 01 19 55.2
Nordlands Fylke, Norway, 65.7°N, 14.0°E.
Origin time = 01 18 07.

" 21 Up iP 01 31 52.9
Ki iP 01 31 00.8
Um iP 01 31 26.3 C
Aleutian Islands (h = 20 km).

" 21 Um iP 09 55 21.4
Nicaragua (h = 40 km).

" 21 Up e(P) 11 22 12
i 11 25 21.8
iPP 11 26 12.1
i 11 26 26
iSKS 11 32 48
i 11 40 50
microns sec
PP Z' 0.2 1.1
SKS E 1.5 6
M E 7.7 21
M N 14 22
M Z 11 22
(D = 11100 km = 100°).
Ki iP 11 21 45.5
i 11 21 57.7
iPP 11 25 42.1
i 11 25 59
iSKS 11 32 30
i 11 40 08
microns sec
P Z' 0.3 1.5
PP Z' 1.3 2.5

cont.

1965 Mar. cont. 21 Ki microns sec
SKS E 4.4 13
M E 9.5 17
M N 5.5 19
M Z 9.2 18
(D = 10800 km = 97°).
Gb i 11 25 46.2
i 11 26 08.2
iPP 11 26 37.4
Um iP 11 21 50.6
i 11 22 02.8
iPP 11 26 05.3
i 11 32 05
i(S) 11 33 32
Ka i 11 25 40.9
i 11 26 11.5
iPP 11 26 41.5
Molucca Sea (h = 30 km).
Magn. = 6.6 (Up,Ki).
Our stations cover the distance range 97°- 104°, around the beginning of the shadow zone. The records are complicated and several phases not explained.

" 21 Up e(P) 11 42 53

" 21 Up iP 12 52 42.7 D
microns sec
P Z' 0.1 0.8
Ki iP 12 52 05.3
microns sec
P Z' 0.1 1.0
Gb iP 12 53 03.3
Um iP 12 52 21.2
Japan (h = 270 km).
Magn. = 5.6 (Up,Ki).

" 21 Up iP 15 17 01.7
Ki iP 15 16 58.6
Um iP 15 16 54.2
i 15 17 05.0
Sinkiang, China (h = 30 km).

" 21 Up iP 21 25 24.8

" 22 Up iPKP 03 04 02.4
iPP 03 06 43
iPKS 03 07 43
microns sec
PKS N 1.5 6
M E 3.6 23
M N 6.8 22
M Z 7.2 22

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Mar. 22 Ki iPKP 03 03 46.8
cont. microns sec
PKP Z' 0.1 1.2
M E 5.7 21
M N 5.9 21
M Z 5.6 21
Sk iPKP 03 03 57.2
Gb iPKP 03 04 07.4
i 03 04 16.9
iPP 03 06 59.0
Um iPKP 03 03 54.5
i(PP) 03 06 04
ePP 03 06 17
iPKS 03 07 16
e 03 16 24
Ka iPKP 03 04 09.8
Tonga Islands (h = 50 km).
Magn. = 6.5 (Up,Ki).

" 22 Up iP 03 27 08.7
Sk iP 03 27 52.4
Um iP 03 27 46.7
Aegean Sea (h = 30 km).

" 22 Um iPKP 06 27 38.5
New Zealand (h = 120 km).

" 22 Ki iPg 10 58 23.5
iSg 10 58 48.1
D = 210 km = 1.9°.
Origin time = 10 57 45.

" 22 Up iPn 11 36 17.1
iPg 11 36 21.0
iSn 11 36 51.5
iSg 11 36 58.6
iRg 11 37 11.2
D = 290 km = 2.6°.
KIR i(Sn) 11 38 54.2
~~iRg1~~ ~~11 39 44.2~~
SKA iSn 11 38 20.0
iSg 11 38 54.3
GOT i(P*) 11 37 16.0
iSg 11 38 51.1
UME iP* 11 36 41.8
~~i~~ ~~11 37 15.9~~
iSn 11 37 26.4
iSg 11 37 41.3
D = 440 km = 4.0°.
Ka ~~iSg 11 38 25.0~~
Southwest coast of Finland,
59.9°N, 22.7°E.
Origin time = 11 35 33.
Explosion?

1965
Mar. 22 Up iP 11 43 29.6
i 11 43 37.4
Sk iP 11 43 25.7
Um iP 11 43 11.9
Mariana Islands (h = 310 km).

" 22 Up iP 14 46 58.5
Um iP 14 46 34.2
Aleutian Islands
(h = 60 km).

" 22 Up iP 15 44 08.2 C

" 22 Up iP 22 13 14.2 C
Ki iP 22 12 20.6
Um iP 22 12 46.5
Aleutian Islands (h = 30 km).

" 22 Up iPKP 23 15 04.8
iPP 23 16 12.4
microns sec
M E 2.5 19
M N 2.4 23
M Z 2.9 22
Ki iPKP 23 15 12.2
ipPKP 23 15 26.2
iSS 23 33 01
microns sec
PKP Z' 0.3 1.6
M E 1.5 18
M N 1.3 17
M Z 3.2 20
Gb iPKP 23 14 59.1
iPP 23 15 47.7
Um iPKP 23 15 08.9
ipPKP 23 15 24.5
i 23 24 17
eSKSP 23 26 34
iSS 23 32 49
Ka iPKP 23 15 01.2 D
Chile. h = 60 km (Ki,Um).

" 23 Um iP 02 46 02.9
Adriatic Sea.

" 23 Up iP 05 41 47.5 C
Aleutian Islands (h = 30 km).

" 23 Up iP 10 40 18.4
Aleutian Islands
(h = 50 km).

" 23 Up iP 11 49 06.6 C

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Mar. 23 Up iP 12 55 56.2 C
ipP 12 56 06.6
microns sec
P Z' 0.2 0.8
Ki iP 12 55 03.2 C
Gb iP 12 56 13.0 C
Um iP 12 55 29.2
Ka iP 12 56 19.0
Aleutian Islands.
h = 40 km (Up).

" 23 Up iP 13 46 44.1
Ki iP 13 45 51.4
Um iP 13 46 17.2
Ka iP 13 47 07.5
Aleutian Islands
(h = 50 km).

" 23 Up iP 17 03 12.2 D
Greece (h = 140 km).

" 23 Up iP 23 02 38.3

" 24 Up iPP 00 15 56.5
ePKS 00 16 54
microns sec
M E 2.0 21
M N 3.6 22
M Z 4.3 22
Ki ---
microns sec
M E 3.3 20
M N 3.7 21
M Z 4.9 21
Um iPKP 00 13 14.0
iPKS 00 16 37
iSKS 00 20 19
i 00 22 18
i(SP) 00 25 27
e 00 35 16
Tonga Islands
(h = 130 km).

" 24 Up iP 01 16 49.9 D
Um iP 01 16 54.5
West Pakistan (h = 40 km).

" 24 Up iP 01 17 44.1
Um iP 01 17 28.7

" 24 Up iP 02 36 21.0

" 24 Up iP 07 04 31.5
Ki iP 07 05 17.1
Um iP 07 04 48.2
Turkey.

1965
Mar. 24 Up iP 07 18 17.1
Ki iP 07 17 22.7
Sk iP 07 17 49.5
Gb iP 07 18 29.4
Um iP 07 17 51.1
Kodiak Island (h = 20 km).

" 24 Um iP 07 46 50.3
Kodiak Island (h = 20 km).

" 24 Up iP 08 18 35.2
microns sec
P Z' 0.1 0.6
M N 1.7 21
M Z 1.8 19
Ki iP 08 17 40.8
eS 08 25 34
microns sec
P Z' 0.1 1.0
S N 0.6 8
M E 1.1 20
M N 2.2 21
M Z 2.5 18
D = 6200 km = 56°.
Sk iP 08 18 07.7
Gb iP 08 18 47.4
Um iP 08 18 09.3
iS 08 26 22
Ka iP 08 18 58.1
Kodiak Island (h = 30 km).
Magn. = 5.7 (Up,Ki).

" 24 Up iSKP 08 21 38.3
microns sec
SKP Z' 0.2 0.7
Sk iSKP 08 21 31.9
Gb iSKP 08 21 49.7
i 08 21 54.7
Um iSKP 08 21 23.4
Ka iSKP 08 21 49.7
i 08 21 53.9
New Hebrides Islands
(h = 190 km).

" 24 Um iPKP 10 00 04.5
New Hebrides Islands
(h = 210 km).

" 24 Gb iP 12 40 35.4 D
Aleutian Islands (h = 20 km).

" 24 Ki iP 13 39 31.9
ipP 13 39 40.7
Sk iP 13 39 58.7
ipP 13 40 07.1

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. cont.	24	Gb	iP	13 40 35.4	
		Um	iP	13 40 00.3	C
			ipP	13 40 09.4	
		Alaska.			
		h = 35 km (Ki,Sk,Um).			
"	24	Up	iP	16 24 08.5	
"	24	Up	iPKP	18 43 16.2	C
			microns	sec	
			PKP Z'	0.2 0.8	
		Gb	iPKP	18 43 25.8	
		Um	iPKP	18 43 04.4	
		Ka	iPKP	18 43 27.6	
		South of Fiji Islands			
		(h = 140 km).			
"	24	Up	iP	20 50 53.7	D
"	24	Up	iP	22 55 13.6	
			microns	sec	
			M E	1.3 22	
			M Z	1.3 20	
		Ki	iP	22 54 56.3	
		Sk	iP	22 55 18.7	
		Um	iP	22 55 02.3	
			eSKS	23 05 23	
			eS	23 05 50	
		Mindanao (h = 50 km).			
"	25	Um	iP	05 31 33.8	
		Aleutian Islands			
		(h = 15 km).			
"	25	Ki	iPKP	07 35 52.0	
		Sk	iPKP	07 36 03.1	
		Um	iPKP	07 35 58.2	D
		New Hebrides Islands			
		(h = 210 km).			
"	25	Up	iP	09 04 01.7	
			ipP	09 04 11.0	
			microns	sec	
			P Z'	0.1 0.9	
		Ki	iP	09 03 07.8	
			microns	sec	
			P Z'	0.2 1.3	
			M N	0.8 17	
		Sk	iP	09 03 42.3	
		Gb	iP	09 04 19.1	C
			ipP	09 04 28.7	
		Um	iP	09 03 33.6	C
			ipP	09 03 42.6	
		Aleutian Islands.			
		h = 40 km (Up,Gb,Um).			
		Magn. = 5.8 (Up,Ki).			
1965 Mar.	25	Up	iP	09 40 44.5	
		Ki	iP	09 39 50.7	
		Um	iP	09 40 16.9	
			ipP	09 40 26.9	
		Aleutian Islands.			
		h = 40 km (Um).			
"	25	Up	iP	11 24 04.3	
"	25	Um	iP	20 01 16.0	D
		Iran (h = 50 km).			
"	25	Um	iP	22 33 03.4	
		Atlantic Ocean (h = 30 km).			
"	26	Up	iPKP	00 39 07.3	
		Gb	iPKP	00 39 17.5	
		Um	iPKP	00 39 02.3	
			i	00 39 08.2	
		Ka	iPKP	00 39 19.8	
		Fiji Islands (h = 570 km).			
"	26	Up	iP	02 31 01.2	
		Ki	iP	02 30 14.0	
		Um	iP	02 30 35.8	
		Kurile Islands (h = 30 km).			
"	26	Um	iP	10 41 21.1	
"	26	Um	iP	15 45 41.6	C
"	26	Up	iP	16 19 16.6	
"	26	Up	iP	16 23 34.7	C
			ipP	16 23 48.6	
			microns	sec	
			P Z'	0.2 1.0	
		Ki	iP	16 22 41.1	
			microns	sec	
			P Z'	0.1 1.0	
		Um	iP	16 23 07.6	
		Ka	iP	16 23 58.6	
		Aleutian Islands.			
		h = 55 km (Up).			
		Magn. = 5.8 (Up,Ki).			
"	26	Ka	ePKP	16 32 11	
		Tonga Islands (h = 30 km).			
"	26	Up	i(P)	17 37 51.2	
"	26	Up	iP	20 34 32.9	
			i	20 34 34.4	
			iPcP	20 38 08.3	
			microns	sec	
			P Z'	0.1 0.5	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. cont.	26	Ki	iP	20 35 35.9	D
		Gb	iP	20 34 31.9	C
		Um	iP	20 35 01.3	
			iPcP	20 38 15.1	
			iScP	20 41 45.1	
		Ka	iP	20 34 05.6	C

Turkey (h = 110 km).

"	27	KIR	iPn	05 06 10.2	
			iSn	05 07 06.2	
			iSg	05 07 24.7	
			~~D = 490 km = 4.4°.~~		
		SKA	eSg	05 10 04	
		UME	iSn	05 07 50.9	
			iSg	05 08 30.1	
			D = 710 km = 6.4°.		

Northwest Russia,
68.1°N, 32.2°E.
Origin time = 05 05 00.
Explosion?

"	27	Um	iP	05 29 26.8	

Aleutian Islands
(h = 25 km).

"	27	Ki	iP	06 26 57.7	
				microns	sec
			P	Z' 0.1	1.0

"	27	Um	iP	14 30 26.8	

Sea of Japan (h = 25 km).

"	27	Up	iPKP	15 06 43.1	
		Um	iPKP	15 06 32.4	C

South of Kermadec Islands
(h = 30 km).

"	28	Um	iP	00 10 36.5	

Ceram Sea (h = 30 km).

"	28	Um	iP	00 17 28.6	
			iS	00 28 59	

Ceram Sea (h = 30 km).

"	28	Up	iP	08 52 41.0	
			ipP	08 52 49.4	
		Gb	iP	08 53 01.1	

Japan. h = 30 km (Up).

"	28	Up	iP	13 33 14.7	C
			eS	13 41 35	
				microns	sec
			P	Z' 0.7	1.4
			M	E 2.8	21
			M	N 3.7	20

cont.

1965 Mar. cont. 28 Up

		microns	sec
M	Z	4.1	21

D = 6850 km = 61 1/2°.

Ki	iP	13 32 19.2	C
	microns	sec	
P	Z'	0.5	1.3
M	E	2.9	21
M	N	1.0	17
M	Z	2.3	14
Sk	iP	13 32 57.0	C
Gb	iP	13 33 35.0	C
	ePP	13 35 56	
Um	iP	13 32 45.5	C
	iPcP	13 33 38.1	
	iPa	13 36 20	
Ka	iP	13 33 39.5	C

Kamchatka (h = 30 km).
Magn. = 6.4 from PZ' and = 5.7 from surface waves (Up,Ki).

"	28	Up	iP	16 48 09	
			iPKP	16 51 51.5	
			iPP	16 53 02.0	
			iSKS	16 58 35	
			iSKKS	16 59 54	
			iS	17 00 43	
			iPKKP	17 02 22.2	
			i	17 02 44.3	
			microns	sec	
		PKP	Z'	0.3	1.4
		PP	E	2.2	6
		PP	N	0.8	5
		PP	Z	4.7	6
		PP	Z'	0.7	1.5
		SKS	E	3.3	6
		S	N	15	17
		PKKP	Z'	0.1	1.0
		M	E	73	24
		M	N	48	26
		M	Z	98	22

(D = 13100 km = 118°).

	Ki	e(P)		16 48 43	
		iPKP		16 51 58.4	
		i		16 53 00	
		iPP		16 53 25.1	
		iPPP		16 55 59	
		iSKS		16 58 49	
		iS		17 01 14	
		iPKKP		17 02 05.5	
		iPS		17 03 11	
		iSS		17 09 43	
		microns		sec	
		PKP	Z'	0.6	1.5
		PP	E	4.9	6
		PP	N	1.0	6
		PP	Z	7.3	6

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. cont.	28	Ki		microns	sec	
			PP	Z' 2.7	2.5	
			SKS	E 13	13	
			S	N 8.5	14	
			PKKP	Z' 0.1	1.2	
			M	E 39	20	
			M	N 34	23	
			M	Z 56	21	
			(D = 13450 km = 121°).			
		Sk	iPKP	16 51 51.0 C		
			iPP	16 52 50.7		
		Gb	iPKP	16 51 46.1 C		
			iPP	16 52 36.9		
			iPKKP	17 02 36.7		
			i	17 02 59.4		
		Um	eP	16 48 16		
			i	16 48 39		
			iPKP	16 51 56.5		
			i	16 52 12.6		
			i	16 52 52		
			iPP	16 53 14.9		
			i	16 56 30.2		
			iPKKP	17 02 10.7		
		Ka	iPKP	16 51 47.9		
			iPP	16 52 44.3		
			ePKKP	17 02 16		
			i	17 02 33.3		
		Chile (h = 60 km).				
		Magn. = 7.5 (Up,Ki).				
"	28	Up	iPKP	21 31 43.6		
		South of Fiji Islands				
		(h = 490 km).				
"	28	Up	iP	21 52 49.1		
			ipP	21 53 02.2		
		Ki	iP	21 51 56.6		
		Um	iP	21 52 21.7 C		
		Gb	iP	21 53 10.0		
		Kamchatka. h = 50 km (Up).				
"	28	Um	iP	22 27 00.2		
		Aleutian Islands				
		(h = 50 km).				
"	29	Up	iP	00 18 52.7		
		Ki	eP	00 18 26		
		Um	iP	00 18 37.1		
		Mariana Islands (h = 60 km).				
"	29	Um	iP	09 39 15.0 C		
		Eastern Siberia (h = 30 km).				
"	29	Up	iP	10 58 47.0 C		
			iPP	11 01 20		
			iS	11 07 51		
cont.						

1965 Mar. cont.	29	Up	iPS	11 08 16		
				microns	sec	
			P	E 0.8	3	
			P	N 1.2	4	
			P	Z 2.0	3	
			P	Z' 2.2	1.7	
			PP	E 0.8	4	
			PP	N 1.4	4	
			PP	Z 2.0	4	
			S	E 0.8	4	
			S	N 1.1	5	
			M	E 21	21	
			M	N 22	20	
			M	Z 23	22	
			D = 7800 km = 70°.			
		Ki	iP	10 58 04.9 C		
			iPP	11 00 19.4		
			eS	11 06 33		
			iPS	11 06 54		
				microns	sec	
			P	E 1.1	5	
			P	N 0.9	6	
			P	Z 2.6	5	
			P	Z' 2.0	1.9	
			PP	E 1.5	5	
			PP	N 1.0	6	
			PP	Z 1.9	4	
			PP	Z' 2.1	2.5	
			S	E 2.1	6	
			S	N 1.9	8	
			M	E 31	19	
			M	N 22	19	
			M	Z 34	19	
			D = 7000 km = 63°.			
		Sk	iP	10 58 39.4 C		
			iPP	11 01 03.4		
		Gb	iP	10 59 08.0 C		
			i	10 59 17.4		
			i	11 01 08.3		
			iPP	11 01 40.6		
			iPS	11 08 53.1		
		Um	iP	10 58 23.7 C		
			iPP	11 00 47		
			iS	11 07 02		
		Ka	iP	10 59 08.0 C		
			iPP	11 01 52.1		
		Japan (h = 30 km).				
		Magn. = 6.8 (Up,Ki).				
"	29	Gb	iP	12 30 36.8		
"	29	Up	eP	12 46 52		
" cont.	29	Up	iP	14 43 31.6		

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. 29 cont.

Up
microns sec
M E 1.1 20
M N 2.4 23
M Z 2.5 25
Ki iP 14 42 38.2 C
microns sec
M E 0.8 16
M N 1.4 18
M Z 2.6 23
Sk eP 14 43 13
Um iP 14 43 04.0 C
Aleutian Islands (h = 30 km).

" 29 Up eP 15 23 03
Um iP 15 22 37.1
Aleutian Islands (h = 60 km).

" 30 Up iPKP 00 16 47.4
epPKP 00 17 44
microns sec
PKP Z' 0.2 0.6
Ki iPKP 00 16 25.7
Sk iPKP 00 16 40.6 D
Gb iPKP 00 16 55.9 D
Um iPKP 00 16 35.0
Ka iPKP 00 16 57.6
Kermadec Islands.
h = 230 km (Up).

" (30) Ki R iPn 00 25 25.4
iSn 00 26 06.1
~~i 00 26 12.2~~
iSg 00 26 23.6
~~D = 390 km = 3.5°.~~
Um E eSn 00 27 12
iSg 00 27 55.4
D = 690 km = 6.2°.
Northwest Russia, 69°N, 29 3/4°E.
Origin time = 00 24 28.
Explosion?

" 30 Ki iPP 00 42 28
iPKS 00 43 35
eSS 01 00 07
microns sec
PKS Z 0.8 7
M E 0.8 17
M N 1.0 20
M Z 2.1 21
Um iPKP 00 40 18.1 C
Tonga Islands (h = 30 km).

" 30 Up iP 02 38 07.7 D
iPa 02 42 21
iS 02 47 13

cont.

1965 Mar. 30 Up iP'P' 03 06 12.5
cont. eX 03 36 35
iY 03 36 56.0
iZ 03 37 25.3
microns sec
P E 9.6 13
P N 25 10
P Z 60 10
P Z' 1.3 0.6
S E 71 11
S N 46 8
P'P' Z' 1.0 1.6
Y Z' 0.1 1.0
Z Z' 0.3 1.2
M E 240 23
M N 210 21
M Z 170 21
D = 7600 km = 68 1/2°.
Ki iP 02 37 15.4 D
iS 02 45 21
i(P'P') 03 06 22.2
iP'P' 03 06 35.5
iX 03 35 10.2
iY 03 35 56.7
microns sec
P E 10 15
P N 36 10
P Z 73 9
P Z' 1.7 0.7
S E 75 10
S N 26 15
P'P' Z' 1.2 1.9
Y Z' 0.5 2.0
M E 220 20
M N 120 16
M Z 170 16
D = 6700 km = 60 1/2°.
Sk iP 02 37 49.0
i(P'P') 03 06 20.6
iP'P' 03 06 27.3
eX 03 36 59
Gb iP 02 38 25.4
iPP 02 40 56.8
iS 02 47 46.5
iP'P' 03 06 11.1
iX 03 37 16.2
Um iP 02 37 40.8 D
iS 02 46 26.1
i(P'P') 03 06 15.2
iP'P' 03 06 31.1
iX 03 36 09.4
iY 03 36 20.3
Ka iP 02 38 31.3
iS 02 48 00.3
i(P'P') 03 05 58.6
iP'P' 03 06 17.4

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. 30 cont.

Ka iX 03 37 10.2
iY 03 37 17.8
Aleutian Islands (h = 50 km).
Magn. = 7.7 (Up,Ki).
The phases marked X, Y, Z have the appearance of core phases. However, efforts to explain them in this way have not been successful. An alternative explanation, perhaps somewhat more likely, is that they are due to an independent earthquake, possibly in the Arctic area, but even then no good agreement could be achieved.

" 30 Up iP 02 57 39.9
Ki eP 02 56 46
Aleutian Islands.
Origin time = 02 46 39.

" 30 Up iP 03 04 18.4
Gb iP 03 04 32.6
Um iP 03 03 49.3
Aleutian Islands (h = 30 km).

" 30 Up iP 03 22 13.2
Aleutian Islands (h = 30 km).

" 30 Um iP 03 26 08.4

" 30 Up iP 03 40 51.7 C
microns sec
P Z' 0.1 1.0
Ki iP 03 39 58.5 C
i 03 40 13.7
microns sec
P Z' 0.1 1.0
Um iP 03 40 24.5
Ka iP 03 41 15.3
Aleutian Islands.
Origin time = 03 29 51.
Magn. = 5.7 (Up,Ki).

" 30 Up iP 03 50 59.7
Aleutian Islands (h = 30 km).

" 30 Up iP 03 58 24.8
Aleutian Islands (h = 30 km).

" 30 Up iP 04 43 52.9 C
microns sec
P Z' 0.1 0.9
Ki iP 04 43 00.0
Um iP 04 43 25.3
Aleutian Islands (h = 40 km).

1965 Mar. 30 Up iP 06 36 06.3
microns sec
P Z' 0.1 0.7
Ki iP 06 35 14.0 D
Sk iP 06 35 47.1
Um iP 06 35 39.1
Aleutian Islands (h = 30 km).

" 30 Up iP 07 21 58.9 D
Ki iP 07 21 08.7
Aleutian Islands (h = 40 km).

" 30 Up iP 07 51 41.6 D
microns sec
P Z' 0.1 1.0
Aleutian Islands (h = 30 km).

" 30 Ki iP 08 03 22.6
Aleutian Islands (h = 40 km).

" 30 Up iP 08 22 09.2
Aleutian Islands (h = 40 km).

" 30 Gb iP 09 16 33.7 D
Aleutian Islands (h = 40 km).

" 30 Up iP 12 21 16.7
Ki iP 12 20 40.9 C
microns sec
P Z' 0.1 1.0
Sk iP 12 21 13.5
Um iP 12 20 55.5
ipP 12 22 17.3
Japan. h = 360 km (Um).

" 30 Ki iP 12 48 16.9
Um iP 12 48 43.6
Aleutian Islands (h = 40 km).

" 30 Up iP 16 10 43.3 C
microns sec
P Z' 0.1 1.0
M E 1.1 20
M N 1.6 20
M Z 1.6 20
Ki iP 16 10 00.6
microns sec
P Z' 0.1 1.0
M E 1.5 18
M N 1.1 18
M Z 2.8 19
Sk iP 16 10 35.7
Gb iP 16 11 04.4
Um iP 16 10 19.3
Japan (h = 30 km).
Magn. = 5.7 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar.	30	Up	iP	16 19 51.4	
		Ki	iP	16 18 57.7	C
		Sk	iP	16 19 28.5	
		Um	iP	16 19 25.2	
		Aleutian Islands (h = 30 km).			
"	30	Up	iP	16 21 24.8	
			i	16 21 42.8	
		Ki	iP	16 20 32.4	D
			ipP	16 20 46.4	
		Sk	iP	16 21 01.2	
		Um	iP	16 20 58.4	
		Aleutian Islands.			
		h = 60 km (Ki).			
"	30	Up	iP	16 43 27.9	
		Aleutian Islands (h = 30 km).			
"	30	Um	iP	17 29 35.0	
		Japan (h = 30 km).			
"	30	Up	iP	19 12 12.8	
		Ki	iP	19 11 21.3	
		Gb	eP	19 12 33	
		Um	iP	19 11 45.5	C
		Kurile Islands (h = 30 km).			
"	30	Up	iP	01 52 29.2	
"	31	Up	iP	08 32 25.0	
		Ki	iP	08 31 31.7	
		Um	iP	08 31 54.0	
		Aleutian Islands (h = 40 km).			
"	31	Up	iP	09 52 14.4	C
			iS	09 56 07	
			microns	sec	
			P	Z' 2.4	0.7
			S	E 110	11
			S	N 57	10
			S	Z 50	12
			M	E 150	14
			M	N 160	19
			M	Z 240	22
			D = 2400 km 21 1/2°.		
		Ki	iP	09 53 27.1	C
			i	09 57 30	
			iS	09 58 15	
			microns	sec	
			P	E 0.9	3
			P	N 8.7	8
			P	Z 18	11
			P	Z' 3.0	0.8
			S	E 21	9
			S	N 16	10
			M	E 73	12

cont.

1965 Mar. cont.	31	Ki		microns	sec
			M	N 66	11
			M	Z 91	12
			D = 3300 km = 29 1/2°.		
		Sk	iP	09 52 55.4	C
		Gb	iP	09 52 02.3	C
			iS	09 55 51.0	
		Um	iP	09 52 51.2	C
			iS	09 57 12	
		Ka	iP	09 51 36.8	C
		Greece (h = 80 km).			
		Magn. = 7.1 (Up,Ki).			
"	31	Up	iP	10 57 12.9	
			ipP	10 57 22.1	
			microns	sec	
			P	Z' 0.1	1.0
		Ki	iP	10 56 19.8	
			microns	sec	
			P	Z' 0.1	1.0
		Sk	iP	10 56 52.8	
		Gb	iP	10 57 29.4	
			ipP	10 57 38.7	
		Um	iP	10 56 46.3	
		Ka	eP	10 57 35	
		Aleutian Islands.			
		h = 35 km (Up,Gb).			
		Magn. = 5.7 (Up,Ki).			
"	31	Up	iP	12 05 54.9	C
			microns	sec	
			P	Z' 0.1	0.7
		Gb	iP	12 05 41.9	
		Um	iP	12 06 34.3	
		Greece (h = 70 km).			
"	31	Up	eSg	12 30 28	
		Ka	iPg	12 28 18.4	
			iSg	12 28 37.3	
			~~D = 160 km = 1.4°.~~		
		Southern Baltic.			
		Origin time = 12 27 51.			
		Explosion?			
"	31	Up	iP	13 34 30.6	
		Aleutian Islands (h = 40 km).			
"	31	Um	iP	14 45 20.5	
"	31	Up	iP	15 31 09.6	D
		Um	iP	15 30 38.6	
		Aleutian Islands (h = 30 km).			
"	31	KIR	iPg	15 37 15.7	
			iSg	15 37 38.9	
			D = 200 km = 1.8°.		

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Mar. cont.	31	SKA	e(Sn)	15 39 00	
			iSg	15 39 21.6	
		UME	iSg	15 39 15.6	
		Lofoten, Norway, 68.4°N, 15.9°E. Origin time = 15 36 39.			
"	31	Up	iP	16 06 45.7	
"	31	Up	iP	17 20 16.5	
		Ki	iP	17 19 22.2	C
		Sk	iP	17 19 56.4	
		Gb	iP	17 20 33.1	
			ipP	17 20 44.6	
		Um	iP	17 19 49.2	C
		Aleutian Islands. h = 50 km (Gb).			
"	31	Up	iP	19 49 07.9	
		Um	iP	19 48 41.4	
		Aleutian Islands (h = 50 km).			
"	31	Ki	iP	19 58 42.3	
		Aleutian Islands (h = 25 km).			
"	31	Up	iP	20 13 07.1	
				microns	sec
			M E	1.2	16
			M N	1.1	11
			M Z	1.4	15
		Ki		---	
				microns	sec
			M E	2.7	15
			M N	1.6	12
			M Z	2.0	13
		Sk	iP	20 13 50.0	
		Gb	iP	20 12 55.8	
		Um	iP	20 13 44.8	C
			iS	20 18 16	
		Aegean Sea (h = 30 km).			
"	31	Up	iP	22 43 35.7	
			ipP	22 43 44.0	
		Ki	iP	22 42 44.4	
		Gb	iP	22 43 53.8	
			ipP	22 44 00.5	
		Um	iP	22 43 09.9	
			ipP	22 43 17.5	
		Ka	iP	22 43 59.2	
		Aleutian Islands. h = 30 km (Up,Gb,Um).			

Markus Båth
November 19, 1965

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	2	Ki	ePn	15 54 59	
			iSn	15 56 17.2	
			i	15 56 35.0	
		Sk	ePn	15 54 16	
			i	15 54 22.5	
			iSn	15 55 14.0	
		Um	iPn	15 54 54.0	
			iSn	15 56 26.0	
			i	15 56 29.9	
		Norwegian Sea (h = 30 km).			
"	2	Up	iPKP	16 02 52.8	
				microns sec	
			PKP	Z' 0.2 0.7	
		Ki	iPKP	16 02 37.3	
		Sk	iPKP	16 02 45.8	
		Gb	iPKP	16 03 02.5	
		Um	iPKP	16 02 41.5	
			iSKP	16 05 44.4	
		Ka	iPKP	16 03 03.5	
		Kermadec Islands (h = 380 km).			
"	2	Up	iP	16 39 24.7	
			ipP	16 39 32.7	
		Ki	iP	16 38 31.8	
		Um	eP	16 38 58	
			ipP	16 39 06.3	
		Aleutian Islands. h = 30 km (Up, Um).			
"	2	Um	iP	16 51 00.9	
			i(Sg)	16 51 25.3	
"	2	Up	iP	22 15 37.2	
			i	22 15 41.2	
		Um	iP	22 15 21.1	
			i	22 15 25.3	
"	2	Up	iP	22 33 24.1 C	
				microns sec	
			P	Z' 0.1 0.6	
		Ki	iP	22 32 51.0	
		Um	iP	22 33 05.3 C	
		South of Japan (h = 450 km).			
"	2	Up	iP	22 34 07.1	
				microns sec	
			P	Z' 0.1 0.6	
			M	E 1.1 19	
			M	N 1.1 9	
			M	Z 1.3 20	
		Ki	iP	22 34 22.0	
				microns sec	
			M	E 0.5 14	
			M	N 0.5 12	

cont.

1965 Apr. cont.	2	Sk	iP	22 34 35.7	
			iPP	22 36 12.2	
		Gb	iP	22 34 29.1	
			iPP	22 35 58.2	
			i	22 36 13.8	
		Um	iP	22 34 08.8	
			iPP	22 35 30.6	
		Ka	iP	22 34 11.0	
			i(pP)	22 34 20.5	
		Hindu Kush (h = 40 km). Well developed higher mode surface waves (especially on Up N).			
"	2	Up	i(P)	22 42 14.8	
"	2	Sk	iP	22 46 25.9	
"	3	Up	iP	02 48 49.5 C	
			ipP	02 49 00.2	
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	02 47 56.3 C	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	02 48 31.6	
		Gb	iP	02 49 07.1	
		Um	iP	02 48 22.4 C	
		Aleutian Islands. h = 40 km (Up). Magn. = 5.7 (Up, Ki).			
"	3	Up	iP	03 09 45.5	
			i	03 09 51.7	
		Ki	iP	03 09 32.7 C	
		Um	iP	03 09 33.5 C	
		Sinkiang (h = 10 km).			
"	3	Up	iPKP	03 49 02.7	
		Tonga-Kermadec Islands (h = 30 km).			
"	3	Up	i(P)	08 26 35.8	
"	3	Up	i(P)	08 27 29.7	
"	3	Up	iPKP	08 59 06.4	
				microns sec	
			PKP	Z' 0.1 1.0	
		Gb	iPKP	08 59 16.6 C	
		Um	iPKP	08 59 00.9	
		Ka	iPKP	08 59 18.8	
		Tonga-Kermadec Islands (h = 110 km).			
"	3	Up	iP	11 33 36	
			iPP	11 37 02	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. 3 cont.

	Up	i	11 43 53	
		iS	11 44 28	
			microns	sec
		S N	1.2	9
	Ki	iP	11 33 22	
		ePP	11 36 37	
		eSKS	11 43 42	
		eS	11 43 51	
			microns	sec
		P Z	0.8	7
		PP Z	0.9	9
		SKS E	2.2	10
		S N	1.6	12
	Um	iP	11 33 33.5	C
		iPP	11 36 56	
		iSKS	11 44 00	
		iSS	11 49 47	

Mexico (h = 15 km).
Magn. = 6.2 (Up,Ki).
Relative weakness (indefinite beginnings, long period) often occurs for P waves from this source region, at our stations.

" 3

Up	iP	11 42 07.9	
	iPP	11 45 38	
	iSKS	11 52 37	
	iS	11 53 00	
		microns	sec
	SKS E	0.4	9
	S N	1.2	9
	M E	1.4	19
	M N	1.8	22
	M Z	1.4	18
	D = 9950 km = 89½°.		
Ki	iP	11 41 54.5	C
	eSKS	11 52 16	
	iS	11 52 28	
		microns	sec
	P Z	0.8	6
	SKS E	1.3	8
	S N	2.6	9
	M E	5.4	22
	M N	1.9	18
	M Z	4.9	21
	D = 9650 km = 87°.		
Um	eP	11 42 01	
	eS	11 52 47	
	iSS	11 58 20	

Mexico (h = 50 km).
Magn. = 6.4 (Up,Ki).

" 3 Up iP 12 03 17.8

1965 Apr. 3

Up	iP	14 35 37.8	C
		microns	sec
	P Z'	0.1	0.8
	M N	1.0	13
	M Z	1.1	14
Ki	eP	14 37 05	
Sk	iP	14 36 18.1	C
Gb	iP	14 35 24.2	
Um	iP	14 36 18.0	
Ka	iP	14 34 59.2	

Greece (h = 20 km).

" 3

Up	iP	15 06 07.5	
Sk	eP	15 06 46	
Um	eP	15 06 54	

Ionian Sea (h = 50 km).

" 3

Up	iP	16 11 33.9	
	i	16 11 42.2	
	iS	16 14 54.9	
Ki	iP	16 12 36.8	
Um	iP	16 11 59.9	
	i	16 12 14.7	
	eS	16 16 00	

Black Sea (h = 30 km).

" 3

Up	iPKP	18 51 14.8	D
		microns	sec
	PKP Z'	0.1	1.0

Tonga-Kermadec Islands (h = 30 km).

" 3

Up	iP	23 03 59.0	
	i	23 04 09.8	
Ki	iP	23 03 43.5	
	i	23 03 52.5	
		microns	sec
	M E	0.8	19
	M Z	1.3	18
Um	iP	23 03 49.1	
	i	23 03 58.0	

Philippine Islands (h = 90 km).
The second phase (i) is larger than the first: either there are two shocks in the same place or the second phase is pP to the first, implying a focal depth of only 40 km.

" 4

Ki	iP	12 09 42.6	
Um	iP	12 09 34.0	
	i	12 09 45.2	

Kirghiz SSR (h = 30 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr.	4	Up	iP	13 41 28.3	C
			ipP	13 41 38.2	
			iS	13 50 20	
			iP'P'	14 09 41.2	
			i	14 09 53.5	
				microns sec	
			P Z'	0.4 1.4	
			S E	0.9 7	
			P'P' Z'	0.1 1.2	
			M E	1.0 17	
			M N	2.2 18	
			M Z	1.7 18	
			D = 7450 km = 67°.		
		Ki	iP	13 40 35.7	
			ipP	13 40 44.6	
			iS	13 48 43	
			eP'P'	14 10 15	
				microns sec	
			P Z'	0.1 1.0	
			S E	1.2 10	
			S N	0.6 6	
			M E	2.2 17	
			M N	1.8 17	
			M Z	2.5 18	
			D = 6550 km = 59°.		
		Sk	iP	13 41 09.4	
		Gb	eP	13 41 46	
			i	13 41 48.8	
			ipP	13 41 54.4	
		Um	iP	13 41 01.0	
			iS	13 49 29	
			iP'P'	14 09 53.8	
		Ka	iP	13 41 53.3	C
			i	13 41 59.4	
		Aleutian Islands.			
		h = 40 km (Up, Ki, Gb).			
		Magn. = 5.9 (Up, Ki).			
"	4	Up	iP	14 01 50.7	
		Um	iP	14 01 24.9	
		Kurile Islands (h = 60 km).			
"	4	Up	iPKP	15 55 47.1	C
			i	15 55 54.7	
				microns sec	
			PKP Z'	0.1 1.0	
		Ki	iPKP	15 55 30.4	
		Gb	iPKP	15 55 56.0	
		Um	ePKP	15 55 34	
		Ka	iPKP	15 55 58.0	C
		Tonga-Kermadec Islands			
		(h = 30 km).			
"	4	Up	iPKP	16 01 21.2	
		Gb	iPKP	16 01 30.8	
		Um	iPKP	16 01 11.0	
cont.					

1965 Apr. cont.	4	Ka	iPKP	16 01 32.0	
		Tonga-Kermadec Islands.			
		Origin-time = 15 41 47.			
"	4	Up	iPKP	16 12 22.7	C
			i	16 12 32.9	
				microns sec	
			PKP Z'	0.1 1.0	
		Gb	iPKP	16 12 31.1	
		Um	ePKP	16 12 12	
		Ka	iPKP	16 12 33.5	
		Tonga-Kermadec Islands			
		(h = 30 km).			
"	4	Up	iPKP	16 29 44.4	C
		Gb	iPKP	16 29 53.8	
		Um	iPKP	16 29 31.8	
		Ka	iPKP	16 29 54.6	
		Tonga-Kermadec Islands			
		(h = 30 km).			
"	4	Up	iPKP	16 52 20.8	
		Gb	iPKP	16 52 29.0	
		Um	iPKP	16 52 10.1	
			i	16 52 14.5	
		Ka	iPKP	16 52 31.5	
		Tonga-Kermadec Islands			
		(h = 10 km).			
"	4	Up	eP	16 56 53	
"	4	Up	iP	17 25 59.2	
"	4	Up	iP	18 20 24.9	
"	4	Up	iP	20 12 04.5	
"	4	Up	iP	20 23 04.2	
			ipP	20 23 41.6	
		Ki	iP	20 23 48.3	
		Gb	iP	20 22 51.1	
		Um	iP	20 23 10.7	
		Peru-Brazil.			
		h = 150 km (Up).			
"	4	Um	iP	22 18 16.4	D
"	4	Up	iP	22 59 31.0	
		Um	iP	22 59 03.6	
		Aleutian Islands			
		(h = 20 km).			
"	5	Up	iPKP	02 16 15.7	
		Tonga-Kermadec Islands			
		(h = 30 km).			
" cont.	5	Ki	iP	02 23 40.7	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Apr. 5 Um iP 02 23 58.3
cont. Japan (h = 50 km).

" 5 Up iP 02 58 34.3
Um iP 02 58 29.5
Ka iP 02 58 40.5 C

" 5 Up iP 03 17 49.3
i 03 17 59
iS 03 21 51

		microns	sec
P	Z'	1.2	0.8
S	E	14	16
S	N	9.9	10
M	E	50	14
M	N	35	19
M	Z	24	18

D = 2500 km = 22½°.

Ki iP 03 19 03.0
i 03 19 07.4
iPP 03 20 07
iS 03 23 59
i 03 24 13
eSS 03 25 37
iLg2 03 29 32

		microns	sec
P	N	0.6	6
P	Z'	0.5	1.3
PP	N	1.2	7
M	E	65	21
M	N	16	14
M	Z	21	13

D = 3350 km = 30°.

Sk iP 03 18 30.0
i 03 18 37.1
Gb iP 03 17 36.4
i 03 17 47.3
Um iP 03 18 26.3
i 03 18 35
iS 03 22 54
i 03 23 08.7
Ka iP 03 17 12.4 C
iS 03 20 41.6
Greece (h = 30 km).
Magn. = 6.2 (Up, Ki).
The P-phase is multiple, with several successively larger onsets. There is also clear evidence of shear-coupled waves on the long-period records.

" 5 Um iP 03 48 28.9
Aleutian Islands
(h = 40 km).

1965
Apr. 5 Up eL 07 14

		microns	sec
M	N	1.1	18
M	Z	1.2	19

Ki eL 07 10

		microns	sec
M	E	1.6	24
M	N	0.8	18
M	Z	1.9	20

Bismarck Sea (h = 10 km).

" 5 Um eP 10 46 25

" 5 Up iP 11 16 48.0
Um iP 11 16 56.3

" 5 Ki iPg 12 30 02.0
iSn 12 30 25.9
iSg 12 30 30.9
D = 230 km = 2.1°.
Probably northwest coast of Norway.
Origin time = 12 29 21.

" 5 Ki iPg 13 39 59.7
iSg 13 40 26.4
D = 220 km = 2.0°.
Probably northwest coast of Norway.
Origin time = 13 39 20.

" 5 Up iP 14 03 11.5 C
ipP 14 03 33.6
eS 14 12 11

		microns	sec
P	Z'	1.0	0.8
M	E	2.5	19
M	N	3.2	22
M	Z	2.9	22

D = 7700 km = 69½°.

Ki iP 14 02 24.6 C
iPP 14 04 38.4
iS 14 10 46

		microns	sec
P	Z	1.2	5
P	Z'	1.1	1.2
S	E	0.8	9
M	E	4.0	18
M	N	2.4	19
M	Z	3.1	18

D = 6900 km = 62°.

Sk iP 14 02 59.8
Gb iP 14 03 32.0 C
Um iP 14 02 46.4 C
iS 14 11 24

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	5	Ka	iP	14 03 33.6	C
		Kurile Islands.			
		h = 90 km (Up).			
		Magn. = 7.0 (Up, Ki).			
"	5	Ki	iPg	14 10 36.0	
			iSg	14 11 03.5	
			D = 230 km = 2.1°.		
		Sk	eSg	14 13 08	
			e	14 13 26	
		Um	iSg	14 12 58.4	
		Northwest coast of Norway, near Västerålen.			
		Origin time = 14 09 55.			
"	5	Up	iPKP	14 53 10.9	
		Ka	ePKP	14 53 23	
		Tonga-Kermadec Islands (h = 50 km).			
"	5	Up	iP	16 20 08.5	
"	5	Up	iP	17 06 34.7	
		Ki	iP	17 05 41.3	
		Um	iP	17 06 06.5	
		Ka	iP	17 06 58.0	
		Aleutian Islands (h = 40 km).			
"	5	Up	iP	17 57 23.7	
		Aleutian Islands (h = 20 km).			
"	5	Up	iP	18 14 49.6	
		Um	iP	18 14 23.3	
		Aleutian Islands (h = 40 km).			
"	5	Up	eP	18 28 30	
"	6	Up	iP	02 38 39.4	
		Aleutian Islands (h = 90 km).			
"	6	Um	iP	03 04 06.5	
"	6	Um	iP	03 15 12.6	
"	6	Up	iP	03 29 50.0	C
			microns	sec	
		P	Z' 0.1	1.0	
		Ki	iP	03 28 56.9	C
			microns	sec	
		P	Z' 0.1	1.0	
		Sk	iP	03 29 30.9	
		Gb	iP	03 30 08.3	

cont.

1965 Apr. cont.	6	Um	iP	03 29 22.4	C
			i(pP)	03 29 34.5	
		Ka	iP	03 30 14.1	
		Aleutian Islands (h = 30 km).			
		Magn. = 5.7 (Up, Ki).			
"	6	Up	iPKP	04 38 50.4	
		Gb	iPKP	04 38 58.9	
		Ka	iPKP	04 38 59.7	
		Tonga-Kermadec Islands (h = 50 km).			
"	6	Up	iP	05 43 24.0	C
			microns	sec	
		P	Z' 0.3	0.7	
		Ki	iP	05 42 45.8	C
			iPP	05 45 13.3	
			microns	sec	
		P	Z' 0.2	1.0	
		PP	Z' 0.1	1.0	
		Sk	iP	05 43 18.6	C
			iPP	05 45 58.7	
		Gb	iP	05 43 44.4	C
			iPP	05 46 38.5	
		Um	iP	05 43 02.4	C
		Ka	iP	05 43 42.9	
			iPP	05 46 33.7	
		Japan (h = 70 km).			
		Magn. = 6.3 (Up, Ki).			
"	6	Up	iP	09 55 57.7	
			ePP	09 59 52	
			eSKS	10 06 23	
			eS	10 07 12	
			microns	sec	
		PP	Z	1.1	7
		M	E	1.9	20
		M	N	6.3	22
		M	Z	3.4	21
		D = 10800 km = 97°.			
		Ki	iP	09 55 41.4	
			iSKS	10 06 18	
			iS	10 06 47	
			microns	sec	
		P	Z'	0.3	1.9
		SKS	E	1.0	5
		M	E	3.6	17
		M	N	3.2	22
		M	Z	4.4	20
		D = 10400 km = 93½°.			
		Sk	ePP	10 00 11	
		Gb	iP	09 56 11.3	
		Um	iP	09 55 46.6	
			iPP	09 59 41	
			iSKS	10 06 20	
			iS	10 06 51	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Apr. 6 Ka iP 09 55 58.7
cont. i 09 58 57.0
i(PP) 10 00 06.1
Celebes (h = 30 km).
Magn. = 6.2 (Up, Ki).

" 6 Ki iP 12 19 14.8
Um iP 12 19 05.0

" 6 Ki iPg 12 25 10.4
iSn 12 25 42.3
iSg 12 25 59.2
D = 420 km = 3.8°.
Origin time = 12 23 54.

" 6 Up iP 12 45 33.2
Um eP 12 45 05
Aleutian Islands
(h = 30 km).

" 6 Up iP 13 29 59.3
microns sec
P Z' 0.2 0.9
Ki iP 13 29 06.0
Sk iP 13 29 38.9
Gb iP 13 30 15.7
Um iP 13 29 32.1
Ka iP 13 30 22.2 C
Aleutian Islands
(h = 50 km).

" 6 Ki iPg 13 35 29.9
iSn 13 36 00.4
iSg 13 36 12.9
D = 370 km = 3.3°.
Origin time = 13 34 24.

" 6 Up iP 13 41 49.0
Ki iP 13 40 56.6 C
microns sec
P Z' 0.1 1.0
Gb iP 13 42 05.3
Um iP 13 41 21.4
Ka iP 13 42 12.1
Aleutian Islands
(h = 40 km).

" 6 Up iP 14 28 03.0
Aleutian Islands
(h = 40 km).

" 6 Sk eP 17 06 25
Um iP 17 06 40.6
Mexico (h = 60 km).

" 6 Up iPKP 17 46 21.1
Tonga-Kermadec Islands
(h = 40 km).

1965
Apr. 6 Um iP 18 54 19.9
ipP 18 54 29.9
Alaska. h = 40 km (Um).

" 6 Ka iP 20 33 43.7

" 6 Up iP 22 01 21.9
Kurile Islands
(h = 15 km).

" 7 Um iP 02 22 02.7

" 7 Um iP 02 35 38.8

" 7 Sk iP 04 22 18.0
Ka iP 04 21 01.5
Greece (h = 70 km).

" 7 Ki iSg 04 35 56.8
Sk iSg 04 36 01.2
Um iSg 04 36 24.2
Nordlands Fylke, Norway,
66.4°N, 14.5°E.
Origin time = 04 34 27.

" 7 Ki iPn 05 30 56.6
iSn 05 31 52.5
iSg 05 32 15.4
D = 510 km = 4.6°.
Sk eSg 05 34 42
Um iSn 05 32 37.2
i 05 32 54.2
iSg 05 33 16.9
D = 710 km = 6.4°.
Northwest Russia,
67.9°N, 32.6°E.
Origin time = 05 29 45.
Explosion?

" 7 Sk iP 06 54 52.6
Crete (h = 30 km).

" 7 Up iP 07 01 31.2

" 7 Ki ePn 10 49 21
iPg 10 49 27.8
iSg 10 49 56.0
D = 240 km = 2.2°.
Um i 10 50 58.4
iSg 10 51 58.4
Possibly off northwest
coast of Norway.
Origin time = 10 48 43.

" 7 Ki iP 11 05 53.2

" 7 Up iP 16 32 32.9 C

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr.	7	Ki	iPKP	18 07 06.3	
			iSKP	18 09 39.9	
				microns sec	
			SKP Z'	0.1 1.3	
		Sk	iSKP	18 09 56.4	
		Gb	iPKP	18 07 24.3	
		Um	i(PKP)	18 07 02.6	Po"
			i	18 07 08.6	P1"
			iPKP	18 07 13.6	P"
			iSKP	18 09 51.8	
		Ka	iPKP	18 07 26.3	
		Fiji Islands (h = 570 km). The three PKP-phases at Um (distance about 135°) are very distinct and an excellent confirmation of the identifications of multiple PKP-phases by Payo Subiza and Båth (Geophys. J., 8: 496-513, 1964); their notation is given to the right.			
"	7	Up	iP	21 30 48.2	
"	7	Um	iP	22 01 36.7	
"	8	Um	iP	00 02 05.4	
"	8	Up	iP	02 08 58.3	C
		Ki	iP	02 08 05.5	
		Sk	iP	02 08 38.3	
		Um	iP	02 08 31.4	C
		Aleutian Islands (h = 30 km).			
"	8	Up	iP	03 18 02.3	
"	8	Up	iP	06 06 03.9	
"	8	Um	iP	11 37 34.4	
"	8	Ki	iSKP	13 11 59.2	
		Sk	iSKP	13 12 17.7	
		Um	iPKP	13 09 36.3	
			iSKP	13 12 13.3	
		Fiji Islands (h = 580 km).			
"	8	Um	iP	13 22 07.9	
"	8	Up	iP	13 54 39.7	C
			i	13 54 43.3	
			iS	14 03 29	
				microns sec	
			P N	0.6 4	
			P Z'	0.4 1.0	

cont.

1965 Apr. cont.	8	Up		microns sec	
			S E	0.7 5	
			M E	4.1 17	
			M N	4.1 20	
			M Z	5.2 18	
			D = 7350 km = 66°.		
		Ki	iP	13 53 45.9	C
			i	13 53 49.8	
			ePa	13 57 28	
			iS	14 01 53	
				microns sec	
			P N	0.5 8	
			P Z	1.2 8	
			P Z'	0.5 1.0	
			S E	1.6 11	
			M E	3.7 19	
			M N	5.7 20	
			M Z	7.1 21	
			D = 6450 km = 58°.		
		Sk	iP	13 54 19.9	C
		Gb	iP	13 54 57.3	C
			i	13 55 02.3	
			i	13 55 07.4	
		Um	iP	13 54 11.8	C
			i	13 54 15.7	
			iS	14 02 38	
		Ka	iP	13 55 01.4	
			i	13 55 07.0	
		Aleutian Islands (h = 50 km). Magn. = 6.3 (Up, Ki). PZ' is complicated: the first phase is followed after 4.5 sec (average) by a 4 times larger phase, and after 10 sec by still another phase, of about the same amplitude as the second. The first two may represent successive shocks, while the latter phase could be pP.			
"	8	Um	iP	14 21 12.9	
			i	14 21 33.7	
			e	14 23 16	
"	8	Um	iP	14 31 34.7	
			i	14 33 59.0	
"	8	Up	iP	14 42 00.1	C
				microns sec	
			P Z'	0.1 1.0	
		Ki	iP	14 41 06.4	
				microns sec	
			P Z'	0.1 1.0	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	8	Sk	iP	14 41 40.5	C
		Gb	iP	14 42 16.5	
		Um	iP	14 41 32.1	C
			ipP	14 41 37.0	
			iPP	14 43 45.3	
		Aleutian Islands.			
		h = 20 km (Um).			
		Magn. = 5.7 (Up,Ki).			
"	8	Um	iP	14 58 14.3	
"	8	Up	iP	15 55 10.8	
		Ki	iP	15 54 17.9	
		Um	iP	15 54 44.0	
		Aleutian Islands			
		(h = 30 km).			
"	8	Up	iP	17 54 52.5	
		Ki	iP	17 53 58.8	
		Um	iP	17 54 25.0	
		Aleutian Islands			
		(h = 40 km).			
"	8	Um	iP	18 59 18.7	
"	8	Ki	iP	19 09 04.8	
		Um	iP	19 09 31.1	
		Aleutian Islands			
		(h = 30 km).			
"	9	Up	iP	01 22 41.9	
		Ki	iP	01 22 46.9	
		Um	iP	01 22 38.9	
		Ka	iP	01 22 49.7	
		Tadzhik SSR (h = 150 km).			
"	9	Up	eP	03 13 47	
		Ki	iP	03 12 54.1	
		Um	iP	03 13 20.0	
		Aleutian Islands			
		(h = 30 km).			
"	9	Up	iP	03 31 02.9	
		Aleutian Islands			
		(h = 40 km).			
"	9	Ki	iP	05 58 52.2	
		Um	iP	05 59 19.8	
		Aleutian Islands			
		(h = 40 km).			
"	9	Up	e(PKP)	11 05 15	
			iPKP	11 05 22.1	
			microns	sec	
		PKP	Z' 0.5	1.3	
		M	E 0.7	18	
		M	N 1.1	18	
		M	Z 1.2	19	

cont.

1965 Apr. cont.	9	Ki	e(PKP)	11 04 46	
			iPKP	11 04 54.8	
			i	11 15 03	
			microns	sec	
		M	E 0.8	18	
		M	N 0.9	19	
		M	Z 1.9	20	
		Sk	iPKP	11 05 09.8	
		Gb	iPKP	11 05 17.1	
		Um	iPKP	11 05 04.3	C
		Kermadec Islands			
		(h = 50 km).			
"	9	Um	iP	11 15 20.1	C
"	9	Up	iP	11 39 59.9	C
			microns	sec	
		P	Z' 0.1	0.7	
"	9	Ki	eP	14 16 49	
"	9	Up	iP	14 43 27.1	
			microns	sec	
		P	Z' 0.1	0.5	
		Ki	iP	14 42 51.9	
			microns	sec	
		P	Z' 0.1	1.0	
		Sk	iP	14 43 23.2	
		Um	iP	14 43 06.7	
			i	14 43 13.2	
		Japan (h = 330 km).			
		Magn. = 5.7 (Up,Ki).			
"	9	Ki	eP	17 42 52	
		Sk	iP	17 43 20.9	
		Um	eP	17 43 24	
			i(pP)	17 43 34.8	
		Alaska (h = 50 km).			
"	9	Up		--	
			microns	sec	
		M	E 1.7	22	
		M	N 2.4	20	
		M	Z 2.3	23	
		Ki		--	
			microns	sec	
		M	E 2.6	20	
		M	N 2.0	22	
		M	Z 3.2	20	
		Um	iP	23 06 23.5	
		New Guinea (h = 30 km).			
		Magn. = 6.0 (Up,Ki).			
"	9	Up	iP	23 10 21.0	
		Um	iP	23 09 59.0	
		Aleutian Islands			
		(h = 50 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Apr. 10 Ki iP 00 01 07.9
Um iP 00 01 12.6
New Guinea (h = 30 km).

" 10 Up iP 00 02 23.7 C
iS 00 06 42
microns sec
P E 1.0 5
P N 2.9 3
P Z 4.0 3
P Z' 0.7 0.5
S E 9.6 7
S N 8.1 6
S Z 3.5 7
M E 43 20
M N 26 16
M Z 28 16
D = 2800 km = 25°.
Ki iP 00 03 32.3 C
e 00 08 14
iS 00 08 44
iSS 00 10 33
iLi 00 12 56
iLgl 00 13 28
microns sec
P N 1.5 6
P Z 2.0 6
P Z' 1.0 1.0
S E 2.7 8
S N 2.1 10
M E 52 18
M N 24 16
M Z 29 16
D = 3600 km = 32½°.
Sk iP 00 03 02.2 C
Gb iP 00 02 13.9 C
iS 00 06 33.8
Um iP 00 02 56.5 C
i 00 07 25
iS 00 07 42
Ka iP 00 01 50.2 C
iS 00 05 47.6
Crete (h = 50 km).
Magn. = 6.5 (Up,Ki).
Shear-coupled waves,
especially clear on the
long-period Um records.

" 10 Up iP 00 25 22.7
i 00 25 39.8
microns sec
P Z' 0.1 1.0
Ki iP 00 26 30.8 C
Sk iP 00 26 01.1 C
Gb iP 00 25 12.6 C
Um iP 00 25 55.3

cont.

1965
Apr. 10 Ka iP 00 24 48.8
cont. Crete (h = 60 km).

" 10 Up iP 01 33 16.1
Ki eP 01 32 23
Aleutian Islands
(h = 15 km).

" 10 Ki iPg 07 00 48.5
iSg 07 00 55.8
microns sec
Sg Z' 0.5 0.8
Sk iSg 07 03 11.7
Um iSg 07 02 22.1
Gällivare, Sweden,
67.1°N, 20.7°E.
Origin time = 07 00 33.
Probably explosion.

" 10 Um eP 10 28 03

" 10 Um iP 11 36 34.6

" 10 Up iP 14 19 05.5
i 14 19 24.0
iPP 14 20 35.8
i 14 30 44
microns sec
M E 2.2 17
M N 6.4 16
M Z 1.9 15
Ki iP 14 19 10.7
eLgl 14 33 27
microns sec
P Z' 0.1 1.0
M E 2.7 15
M N 5.0 16
M Z 3.5 14
Sk iP 14 19 30.8
iPP 14 21 11.9
Gb iP 14 19 28.5
Um iP 14 19 01.9
i 14 19 17.2
iS 14 25 14
Ka iP 14 19 11.7
Tadzhik SSR (h = 30 km).

" 10 Up iP 14 32 20.7 D

" 10 Um iPKP 15 05 55.4
Tonga Islands (h = 30 km).

" 10 Gb iP 15 18 31.6
Aleutian Islands
(h = 30 km).

" 10 Ki iSg 16 33 24.4
cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	10	Sk	eSg	16 33 29	
		Um	iSg	16 33 51.6	
		Nordlands Fylke, Norway, 66.4°N, 14.5°E.			
		Origin time = 16 31 55.			
"	10	Up	iP	17 05 39.5	C
			ipP	17 05 45.6	
			microns	sec	
			P Z'	0.3 1.0	
		Ki	iP	17 04 45.9	C
			microns	sec	
			P Z'	0.4 1.0	
			M N	0.8 17	
		Sk	iP	17 05 20.4	
		Gb	iP	17 05 57.9	
		Um	iP	17 05 11.8	C
			ipP	17 05 17.6	
		Ka	iP	17 06 00.5	
			i	17 06 03.4	
			iPcP	17 06 25.7	
		Aleutian Islands.			
		h = 20 km (Up, Um).			
		Magn. = 6.4 (Up,Ki).			
"	10	Up	iP	21 28 56.1	
		Ki	eP	21 29 02	
		Sk	iP	21 29 21.6	
		Um	iP	21 28 53.0	
		Ka	iP	21 29 02.1	C
		Afghanistan-USSR			
		(h = 140 km).			
"	10	Up	i(PKP)	22 50 58.6	
			iPKP	22 51 07.3	
			iSKP	22 53 51.0	
			microns	sec	
			SKP Z'	0.5 1.5	
		Ki	i(PKP)	22 50 44.8	
			iPKP	22 50 50.9	
			i	22 52 58.8	
			ipPKP	22 53 07	
			iSKP	22 53 25.7	
			iPKS	22 54 13	
			microns	sec	
			PKP Z'	0.2 1.3	
			SKP Z	1.5 5	
			SKP Z'	1.9 2.0	
			PKS E	0.9 6	
		Sk	i(PKP)	22 50 54.8	
			iPKP	22 51 04.0	
			i(SKP)	22 53 39.4	
			iSKP	22 53 42.6	
		Gb	iPKP	22 51 06.8	
			iSKP	22 53 55.1	
		Um	i(PKP)	22 50 49.7	

cont.

1965 Apr. cont.	10	Um	iPKP	22 50 57.8	
			iPP	22 53 27	
			iSKP	22 53 36.6	
			iPKS	22 54 21	
			isPKS	22 57 27	
		Ka	iPKP	22 51 06.3	
			iSKP	22 54 00.7	
		Fiji Islands (h = 540 km).			
"	10	Up	iPKP	23 11 03.0	
			iSKP	23 13 27.0	
			i	23 15 10.8	
			microns	sec	
			SKP Z'	0.8 0.8	
		Ki	iPKP	23 10 47.4	
		Sk	iPKP	23 10 59.9	
			iSKP	23 13 20.9	
		Gb	iSKP	23 13 39.3	
		Um	iPKP	23 10 53.5	
			iSKP	23 13 14.4	
		Ka	iSKP	23 13 40.6	
		New Hebrides Islands (h = 640 km).			

The amplitudes of PKP and SKP exhibit a remarkable variation at our stations, as evidenced by the following table:

	D	PKP Z' microns	SKP Z' microns
Ki	122°	0.13	0
Um	125	0.34	0.07
Sk	126	0.06	0.14
Up	128	0.01	0.77
Gb	131	0	0.24
Ka	132	0	0.69

"	11	Up	i(PKP2)	00 31 36.3	
			iPKP2	00 31 44.1	
			microns	sec	
			PKP2 Z'	0.1 1.0	
		Ki	ePKP	00 30 56	
			i	00 31 00.6	
			i	00 31 09.4	
			microns	sec	
			PKP Z'	0.7 1.5	
			M E	1.1 20	
			M N	0.7 20	
			M Z	1.7 19	
		Sk	iPKP	00 31 12.5	
			iPKP2	00 31 41.3	
		Gb	iPKP2	00 32 01.9	
		Um	iPKP	00 31 07.7	
		Ka	iPKP2	00 31 58.2	
		New Zealand (h = 5 km).			

Note that PKP dominates at

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. 11 cont.

the nearer of our stations (Ki, Um), but PKP2 at the more distant stations (Up, Ka, Gb), while Sk (intermediate) records both phases.

" 11 Um iP 01 48 28.1

" 11 Up iPKP 02 30 21.2
Sk iPKP 02 30 15.1
Um iPKP 02 30 09.2 C
Kermadec Islands
(h = 70 km).

" 11 Ki i 05 09 45.4
iSg 05 10 10.7
Sk eSg 05 12 43
Um iSg 05 11 03.4
Northwest Russia.
Explosion?

" 11 Ki iP 05 12 17.0
Revilla Gigedo Islands
(h = 30 km).

" 11 Um iP 07 42 48.0 C

" 11 Up iP 14 38 13.8
Szechwan (h = 30 km).

" 11 Gb iPKP 17 13 07.3
Santa Cruz Islands
(h = 80 km).

" 11 Up iPKP 17 21 14.5
Sk iPKP 17 21 08.8
Um iPKP 17 21 02.9
Kermadec Islands.
Origin time = 17 01 36.
This interpretation agrees with readings in the New Zealand network.

" 11 Up iPKP 17 23 24.9
i 17 23 34.2
microns sec
PKP Z' 0.1 1.0
Ki ePKP 17 23 03
Sk iPKP 17 23 18.6 C
Gb iPKP 17 23 33.0
i 17 23 36.5
Um iPKP 17 23 13.4 C
Ka iPKP 17 23 34.1
Kermadec Islands
(h = 70 km).

1965 Apr. 11 Up iPKP 19 10 06.1 D
microns sec
PKP Z' 0.6 0.7
Ki ePKP 19 09 47
i 19 09 53.9
Sk iPKP 19 09 59.2
Gb iPKP 19 10 16.6
i 19 10 20.2
ipPKP 19 12 21.7
Um iPKP 19 09 54.6
Ka iPKP 19 10 17.2
i 19 10 21.7
ipPKP 19 12 21.7
South of Fiji Islands.
h = 560 km (Gb,Ka).

" 11 Up iP 22 43 04.6 C
ipP 22 43 18.0
microns sec
P Z' 0.1 0.5
Ki iP 22 42 58.4
Sk iP 22 43 21.1
Um iP 22 42 56.9 C
ipP 22 43 10.1
Ka iP 22 43 13.0 C
ipP 22 43 26.5
India. h = 50 km
(Up,Um,Ka).

" 12 Up iP 02 05 12.9 C

" 12 Up iP 04 10 09.6
Ki iP 04 09 15.5
microns sec
P Z' 0.1 1.5
Sk iP 04 09 41.9
Gb eP 04 10 23
Um iP 04 09 44.6
Ka iP 04 10 32.5
Kodiak Island (h = 30 km).

" 12 Up iP 04 47 08.9
Ki iP 04 46 15.9
Um iP 04 46 42.4
Aleutian Islands
(h = 15 km).

" 12 Up iP 04 54 06.8
Ki iP 04 53 12.9 C
Um iP 04 53 40.3 C
Aleutian Islands
(h = 20 km).

" 12 Up iPKP 09 11 08.3
Ki iPKP 09 10 49.5
Sk iPKP 09 11 01.2

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	12	Gb	ePKP2	09 11 27	
		Um	iPKP	09 10 55.5	
		South of Kermadec Islands (h = 20 km).			
"	12	Ki	iP	09 21 46.3	
		Unimak Island (h = 40 km).			
"	12	Um	iP	10 36 40.3	
"	12	Um	iP	11 06 52.4	
"	12	Um	iP	11 42 23.7	
"	12	Um	iP	13 11 52.9	
"	12	Up	iP	15 30 05.0	
"	12	Um	iPKP	15 32 54.1	
		South of Kermadec Islands (h = 10 km).			
"	12	Up	iP	16 02 03.5	
		Ki	iP	16 01 25.5	
		Sk	iP	16 01 59.5	
		Um	iP	16 01 42.1	
		Japan (h = 80 km).			
"	12	Ki	iPn	17 28 53.7 D	
			iSn	17 29 42.3	
			iSg	17 29 58.2	
			D = 400 km = 3.6°.		
		Um	eSg	17 31 26	
		Northwest Russia, 68.8°N, 30.0°E. Origin time = 17 28 00. Explosion?			
"	12	Up	iP	18 32 03.0	
"	12	Up	iP	19 18 01.0 C	
			iS	19 20 47.6	
			microns sec		
			P Z' 0.1 0.5		
			D = 1650 km = 15°.		
		Ki	iP	19 19 26.3	
		Um	iP	19 18 42.6	
			eS	19 22 22	
		Rumania (h = 60 km).			
"	12	Up	iPKP	20 45 49.0	
			i	20 45 54.0	
			microns sec		
			PKP Z' 0.1 1.0		
		Ki	ePKP	20 45 31	
		Sk	iPKP	20 45 42.1	

cont.

1965 Apr. cont.	12	Gb	iPKP	20 45 57.2	
		Um	iPKP	20 45 36.7	
		Ka	iPKP	20 45 59.2	
		South of Kermadec Islands (h = 170 km).			
"	12	Up	iP	20 52 30.2	
			i(X)	20 52 51.4	
			iPP	20 55 33.8	
			iS	21 01 45	
			microns sec		
			P Z' 0.4 0.8		
		Ki	iP	20 51 57.4 C	
			microns sec		
			P Z' 0.1 0.9		
		Sk	iP	20 52 26.9	
			ipP	20 54 03.5	
			iPP	20 55 25.9	
		Gb	iP	20 52 49.0	
			iX	20 53 13.8	
			iS	21 02 22.8	
		Um	iP	20 52 11.4 C	
			iX	20 52 36.3	
			ipP	20 53 49.0	
			iS	21 01 09	
		Ka	iP	20 52 46.5	
		South of Japan. h = 440 km (Sk,Um).			
"	12	Up	iPKP	21 47 47.5	
		Ki	iPKP	21 47 25.4	
		Sk	iPKP	21 47 41.7	
			iPKP2	21 48 02.9	
		Gb	iPKP2	21 48 16.1	
		Um	iPKP	21 47 36.2	
		South of Kermadec Islands (h = 30 km).			
"	13	Um	iP	04 01 26.3	
		Japan (h = 80 km).			
"	13	Up	eP	12 11 26	
"	13	Up	iP	13 47 31.7	
"	13	Ki	iP	15 33 03.0	
		Um	iP	15 33 29.3	
			i	15 33 44.6	
		Aleutian Islands (h = 40 km).			
"	13	Up	iP	17 34 22.2 C	
"	13	Up	iPKP	17 42 13.5	
			i	17 42 24.2	
			microns sec		
			PKP Z' 0.1 0.9		

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	13	Gb	ePKP	17 42 22	
			i	17 42 33.6	
		Um	i(PKP)	17 41 52.3	
			i	17 42 20.6	
		Ka	iPKP	17 42 28.2	
			i	17 42 39.1	
		Tonga-Kermadec Islands (h = 30 km).			
"	13	Up	iP	17 56 04.0	
				microns sec	
			P	Z' 0.3 1.4	
		Ki	iP	17 55 10.8	C
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	17 55 48.6	
		Gb	iP	17 56 23.4	
		Um	iP	17 55 35.9	C
		Ka	iP	17 56 26.5	
		Kamchatka (h = 30 km). Magn. = 6.0 (Up,Ki).			
"	13	Up	iP	18 06 34.6	
		Ki	iP	18 05 43.3	
		Um	iP	18 06 07.3	
		Aleutian Islands (h = 30 km).			
"	13	Up	iP	20 45 29.0	
"	13	Up	iP	21 17 15.5	
		Aleutian Islands (h = 40 km).			
"	13	Up	iP	21 55 01.6	
"	13	Up	iP	23 33 42.3	
		Ki	iP	23 32 48.5	
				microns sec	
			P	Z' 0.1 1.4	
		Gb	iP	23 33 56.8	
		Um	iP	23 33 16.9	
			iPcP	23 33 56.3	
		Unimak Island (h = 40 km).			
"	14	Um	iP	02 56 45.3	
			ipP	02 56 57.1	
		Kurile Islands. h = 50 km (Um).			
"	14	Um	eP	04 28 55	
"	14	Up	iP	07 46 12.4	C
			ipP	07 46 19.5	
		Sk	iP	07 45 45.4	C
			ipP	07 45 53.9	
1965 Apr. cont.	14	Gb	iP	07 46 24.4	
			ipP	07 46 32.5	
		Um	iP	07 45 46.3	
			ipP	07 45 54.2	
		Kodiak Island. h = 30 km (Up,Sk,Gb,Um).			
"	14	Up	iP	10 31 14.5	
				microns sec	
			P	Z' 0.1 0.7	
		Sk	iP	10 30 54.7	
		Um	iP	10 31 09.9	
		Ka	iP	10 31 17.6	
		Mexico (h = 110 km).			
"	14	Up	iP	11 05 42.6	
				microns sec	
			P	Z' 0.1 1.1	
		Gb	iP	11 06 02.7	
		Um	iP	11 05 14.4	C
			ipP	11 05 21.2	
		Kamchatka. h = 25 km (Um).			
"	14	Up	iPKP	12 09 11.7	
		Sk	iPKP	12 09 04.6	
		Um	iPKP	12 08 58.6	
		South of Kermadec Islands (h = 30 km).			
"	14	Up	iP	13 06 40.1	
			i	13 06 44.6	
"	15	Up	iP	05 21 17.5	C
				microns sec	
			P	Z' 0.3 0.5	
		Sk	iP	05 21 20.3	
		Gb	iP	05 21 36.8	C
		Um	iP	05 21 01.3	C
			iPcP	05 21 17.5	
		Ka	iP	05 21 31.1	
		Formosa (h = 190 km).			
"	15	Um	iP	07 57 10.0	C
"	15	Up	ePKP	08 04 11	
			i	08 04 18.0	
		Sk	iPKP	08 04 06.9	
		Gb	iPKP	08 04 20.0	
		Um	iPKP	08 04 00.7	
		South of Kermadec Islands (h = 150 km).			
"	15	Up	iP	15 22 57.5	
		Um	iP	15 22 29.1	
		Aleutian Islands (h = 40 km).			

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. 15 Ki iPn 16 43 57.3 C
iSn 16 44 45.3
iSg 16 45 01.4
D = 410 km = 3.7°.
~~Sk~~ eSg 16 47 46
~~Up~~ ~~i 16 46 10.8~~
~~iSg 16 46 31.1~~
Northwest Russia,
69.0°N, 30.1°E.
Origin time = 16 43 00.
Explosion?

" 15 Ki eL 23 14
microns sec
M E 1.1 20
M N 1.3 23
M Z 1.9 20
Southeast Indian Rise
(h = 30 km).

" 16 Gb iPKP 00 35 13.8
Ka iPKP 00 35 16.8
i 00 35 27.1
Tonga Islands (h = 120 km).

" 16 Ki iPKP 10 18 05.6
Sk iPKP 10 18 16.5
New Hebrides Islands
(h = 60 km).

" 16 Up iP 14 44 52.9
Um eP 14 44 25
Aleutian Islands
(h = 40 km).

" 16 Up iP 23 31 57.4 C
i 23 32 12.9
iS 23 39 42
microns sec
P Z' 0.1 1.3
S E 1.1 6
M E 5.1 22
M N 8.5 24
M Z 4.3 22
D = 6150 km = 55½°.
Ki --
microns sec
M E 7.4 23
M N 4.8 23
M Z 6.6 18
Sk iP 23 31 29.5
i 23 31 33.8
Gb iP 23 32 11.1
Um iP 23 31 28.4 C
iS 23 38 50
Ka iP 23 32 23.0 C
Alaska (h = 5 km).
Magn. = 5.8 (Up,Ki).

1965 Apr. 17 Up iP 00 11 14.0
ipP 00 11 26.2
microns sec
P Z' 0.2 0.9
Sk iP 00 10 54.6
Gb iP 00 11 31.7
Um iP 00 10 46.1
ipP 00 10 58.4
Ka iP 00 11 37.5
Aleutian Islands.
h = 50 km (Up,Um).

" 17 Up iP 02 56 59.7
ipP 02 57 07.1
microns sec
pP Z' 0.1 1.0
Um iP 02 57 09.1 C
ipP 02 57 15.8
Indian Ocean.
h = 30 km (Up,Um).

" 17 Um iP 03 16 49.7

" 17 Up iP 03 48 01.5
Um iP 03 47 42.8
South of Japan
(h = 490 km).

" 17 Up iP 06 19 58.2 C
Aleutian Islands
(h = 50 km).

" 17 Up iP 12 34 15.2
Aleutian Islands
(h = 40 km).

" 17 Up iP 19 17 19.6
Aleutian Islands
(h = 10 km).

" 17 Up eP 19 21 13
Sk iP 19 21 50.5
Greece.

" 18 Up iPKP 02 53 01.8 D
South of Fiji Islands
(h = 470 km).

" 18 Up iP 06 45 39.5
Sk eP 06 45 11
Gb iP 06 45 41.1
Um iP 06 45 21.6
i 06 45 26.5
i 06 45 31.5
California (h = 20 km).

" 18 Up iPKP 09 58 13.4
cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	18	Up	i	09 58 20.9	
			microns sec		
			PKP	Z' 0.1 0.5	
			M	E 3.1 23	
			M	N 2.6 21	
			M	Z 3.8 23	
		Ki	iPKP	09 58 28.0	C
			iPKS	10 01 55	
			microns sec		
			PKS	E 1.7 5	
			PKS	N 1.2 6	
			M	E 1.9 20	
			M	N 3.3 20	
			M	Z 6.4 21	
		Sk	ePKP	09 58 22	
			i	09 58 52.1	
		Um	iPKP	09 58 21.1	C
			i	09 58 35.4	
			iPP	10 00 27	
			iPKS	10 01 40	
		South Sandwich Islands			
		(h = 30 km).			
		Magn. = 6.2 (Up,Ki).			
"	18	Up	iPKP	13 00 49.9	
			microns sec		
			M	E 2.2 23	
			M	N 2.8 20	
			M	Z 1.9 20	
		Ki	iPKP	13 01 04.8	
			ePKS	13 04 30	
			microns sec		
			M	E 1.4 19	
			M	N 2.3 20	
			M	Z 3.5 21	
		Um	iPKP	13 00 58.5	D
			iPKS	13 04 14	
		South Sandwich Islands			
		(h = 25 km).			
		Magn. = 6.1 (Up,Ki).			
"	18	Sk	iP	13 15 44.6	
		Central America			
		(h = 30 km).			
"	18	Up	iPKP	14 27 35.6	
			microns sec		
			PKP	Z' 0.1 1.0	
		Ki	ePKP	14 27 22	
		Gb	iPKP	14 27 45.1	
		Um	iPKP	14 27 31.2	
		Ka	iPKP	14 27 48.0	D
		Tonga-Kermadec Islands			
		(h = 30 km).			
"	18	Um	iP	16 30 58.9	C
			i	16 31 11.3	
			i	16 31 19.7	

1965 Apr.	18	Up	iP	18 23 30.4	C
			ipP	18 23 41.1	
		Ki	iP	18 23 08.6	
		Sk	eP	18 23 50	
		Um	iP	18 23 16.6	C
			ipP	18 23 28.4	
		Philippine Islands.			
		h = 45 km (Up,Um).			
"	18	Up	iPKP	19 45 58.1	
		Um	iPKP	19 46 06.4	
		South Sandwich Islands			
		(h = 30 km).			
"	18	Sk	e	23 20 51	
			iSg	23 21 14.8	
"	19	Up	iPKP	04 59 41.8	
			i	04 59 44.9	
		Sk	iPKP	04 59 34.4	
		Um	iPKP	04 59 28.8	
		Kermadec Islands			
		(h = 30 km).			
"	19	Up	iP	06 52 07.6	
			i	06 52 35.9	
		Ki	iP	06 53 12.8	C
		Sk	iP	06 52 46.2	C
		Rhodes Island (h = 30 km).			
"	19	Ki	iP	07 24 57.8	
		Alaska (h = 80 km).			
"	19	Up	iP	08 18 25.6	
		Ki	iP	08 18 26.0	
			ipP	08 18 42.3	
			microns sec		
			pP	Z' 0.2 1.3	
		Sk	iP	08 18 41.6	
		Gb	iP	08 18 47.6	
		Um	eP	08 18 23	
			i	08 18 28.8	
			i	08 18 35.7	
		Sumatra (h = 60 km).			
"	19	Ki	iP	09 01 52.3	
		Alaska (h = 30 km).			
"	19	Ki	iP	16 19 01.1	
		Aleutian Islands			
		(h = 15 km).			
"	19	Up	iSKP	17 21 34.6	
		New Hebrides Islands			
		(h = 650 km).			
"	19	Sk	iPKP	18 37 15.8	
		Fiji Islands (h = 500 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. 19 Up iP 23 53 29.5 C
ipP 23 53 41.7
iS 00 02 55
microns sec
P Z' 0.3 1.0
S N 0.8 4
M E 2.9 19
M N 2.7 19
M Z 5.7 18
D = 8150 km = 73½°.
Ki iP 23 52 52.5
iS 00 01 47
microns sec
P Z' 0.1 1.0
S E 0.8 7
S N 1.4 8
M E 9.5 17
M N 7.2 18
M Z 11 17
D = 7500 km = 67½°.
Sk iP 23 53 25.5
Gb iP 23 53 50.0 C
Um iP 23 53 08.6 C
iS 00 02 15
eSS 00 06 38
Ka iP 23 53 48.2
ipP 23 54 00.2
Japan. h = 50 km (Up,Ka).
Magn. = 6.3 (Up,Ki).

" 20 Up iP 05 24 05.6 C
Tibet (h = 30 km).

" 20 Up iP 06 53 54.3 C
ipP 06 54 05.4
microns sec
P Z' 0.2 0.9
Ki iP 06 53 00.6 C
microns sec
P Z' 0.3 1.0
M E 0.6 17
M N 0.4 15
M Z 0.9 15
Sk iP 06 53 35.0
Gb iP 06 54 12.3
ipP 06 54 23.7
Um iP 06 53 26.6 C
ipP 06 53 37.7
Ka iP 06 54 17.5 C
ipP 06 54 27.7
Aleutian Islands.
h = 40 km (Up,Gb,Um,Ka).
Magn. = 6.3 (Up,Ki).

" 20 Up iP 07 00 37.5
Ki iP 06 59 42.9
microns sec
P Z' 0.1 0.8

cont.

1965 Apr. cont. 20 Sk iP 07 00 20.6
Gb iP 07 00 58.0
Um iP 07 00 09.1
Ka iP 07 01 02.5
Kamchatka (h = 30 km).

" 20 Um iP 07 05 35.1
i 07 05 39.6
Japan (h = 40 km).

" 20 Ki eP 14 06 58

" 20 Um iP 14 53 06.1
i 14 53 17.6

" 20 Ki iP 17 28 11.1
Um iP 17 28 19.8
Mariana Islands
(h = 60 km).

" 20 Um iP 19 08 55.7

" 20 Ki iP 22 32 59.7
Um iP 22 33 28.9
Aleutian Islands (h = 50 km).

" 21 Up iP 00 11 57.7
Ki iP 00 11 31.9 C
Sk iP 00 11 59.9
Gb iP 00 12 17.3
Um iP 00 11 41.5 C
Ryukyu Islands (h = 100 km).

" 21 Ki ePn 05 47 28
iSn 05 48 10.3
iSg 05 48 24.7
D = 390 km = 3.5°.
Sk eSg 05 51 04
Um iSn 05 48 55.8
iS[x] 05 49 12.5
iSg 05 49 35.6
D = 610 km = 5.5°.
Northwest Russia,
67.8°N, 29.8°E. Origin time =
05 46 30. Explosion?

" 21 Um iP 07 55 53.3

" 21 Um iP 15 11 24.3 C

" 21 Um iP 16 25 12.0

" 21 Um iP 21 36 45.9
Kurile Islands (h = 30 km).

" 21 Up iP 21 48 35.8
Ki iP 21 47 43.7
Um iP 21 48 09.9
Aleutian Islands (h = 40 km).

" 21 Um iP 22 11 35.3

" 21 Um iP 23 03 43.9
Japan (h = 70 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstuga, [illegible] Ka = Karlskrona

1965 Apr.	22	Up	iPKP	01 24 34.5	
			iSKP	01 27 39.5	
		Ki	iPKP	01 24 20.2	
		Sk	iPKP	01 24 30.8	
		Gb	iPKP	01 24 42.5	
			iSKP	01 27 52.2	
		Um	iPKP	01 24 26.3	
			ipPKP	01 25 21.3	
		Ka	iSKP	01 27 51.6	
		New Hebrides Islands (h = 200 km). The SKP-phase is not seen on our Z'-records for distances less than 127½° (Ki,Um,Sk), but is clearly recorded for greater distances (Up,Gb,Ka). Compare remark to Apr. 10, 1965, 23 11.			
"	22	Ki	eP	04 18 18	
		Um	iP	04 18 17.4	
"	22	Up	iP	06 02 43.2	
"	22	Um	iP	08 20 13.4	
		Kamchatka (h = 30 km).			
"	22	Ki	iPn	15 49 15.4	
			iSn	15 50 14.2	
			iSg	15 50 37.2	
			D = 530 km = 4.8°.		
		Sk	eSg	15 53 23	
		Origin time = 15 48 00. Explosion?			
"	22	Up	iP	16 09 54.0	
			i	16 09 56.4	
				microns sec	
			P	Z' 0.2 0.5	
"	22	Up	iP	18 46 53.4	
				microns sec	
			P	Z' 0.1 1.0	
			M	E 0.5 19	
			M	N 0.9 22	
			M	Z 1.1 22	
		Ki	iP	18 46 00.2	
				microns sec	
			M	E 1.2 18	
			M	N 0.8 17	
			M	Z 1.2 16	
		Sk	iP	18 46 33.5 C	
		Gb	iP	18 47 10.5	
		Um	iP	18 46 25.8 C	
			ipP	18 46 38.1	
			iS	18 54 52	
		Ka	iP	18 47 16.4 C	
		Aleutian Islands. h = 50 km (Um).			
"	22	Up	iP	20 48 54.9	
"	23	Um	iP	01 19 32.9	
"	23	Up	iP	02 08 59.1	
1965 Apr. cont.	23	Ki	iP	02 08 04.7	
		Um	iP	02 08 31.1	
		Aleutian Islands (h = 40 km).			
"	23	Sk	eP	09 11 48	
		Hindu Kush.			
"	23	Ki	iPn	14 25 11.7	
			eSn	14 26 10	
			iSg	14 26 33.4	
			D = 530 km = 4.8°.		
		Sk	eSg	14 29 19	
		Probably same location as for Apr. 22, 15 49. Origin time = 14 23 56. Explosion?			
"	23	Up	iP	21 41 33.3	
"	24	Up	iPKP	00 24 18.1	
			i	00 24 20.8	
				microns sec	
			PKP Z'	0.2 1.0	
		Ki	ePKP	00 23 57	
			i	00 24 05.7	
		Sk	iPKP	00 24 13.1	
		Gb	ePKP	00 24 26	
		Um	iPKP	00 24 07.2	
			i	00 24 28.6	
		South of Kermadec Islands (h = 30 km).			
"	24	Um	iP	00 34 01.4	
"	24	Um	iP	00 44 34.4	
"	24	Um	iP	01 19 17.9	
"	24	Um	iP	01 45 09.1	
"	24	Sk	iP	02 02 30.0	
		Um	iP	02 02 19.4	
			i	02 02 33.0	
		Sk	iPKP	02 56 56.5	
		Um	iPKP	02 56 51.6	
"	24	Ki	iP	03 18 45.4 C	
		Sk	eP	03 19 09	
		Um	iP	03 18 51.8	
		Mindanao (h = 100 km).			
"	24	Remarkably long-period microseisms (around 17 sec period) are recorded, especially on the Um N.			
"	24	Up	iP	07 46 45.4	
		Aleutian Islands (h = 30 km).			

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr.	24	Up	iP	08 14 33.5		
			i	08 14 41.5		
		Ki	iP	08 14 12.2 D		
				microns sec		
			M	E 0.8 18		
			M	N 0.7 18		
			M	Z 0.8 16		
		Sk	iP	08 14 37.9		
		Um	iP	08 14 19.4 D		
			ipP	08 14 30.0		
		Philippine Islands (h = 40 km).				
"	24	Sk	iP	10 30 35.7		
		Gb	iP	10 31 15.5 D		
		Um	iP	10 30 36.0		
		Kodiak Island (h = 60 km).				
"	24	Um	iP	12 41 04.1		
"	24	Ki	iPn	19 21 07.9		
			iP*	19 21 16.6		
			iSn	19 21 56.3		
			iSg	19 22 10.6		
			D = 430 km = 3.8°.			
		Sk	iPn	19 22 19.0		
			eSn	19 24 02		
			eSg	19 24 57		
			D = 990 km = 8.9°.			
		Um	iPn	19 21 44.8		
			iSn	19 23 02.4		
			iS*	19 23 18.7		
			iSg	19 23 39.1		
			D = 720 km = 6.5°.			
		Northwest Russia, 68.9°N, 30.7°E. Origin time = 19 20 06. Explosion?				
"	24	Ki	eP	20 09 34		
			ePP	20 11 08		
		Sk	eP	20 09 46		
		Um	iP	20 09 19.7		
			i	20 09 24.1		
		Hindu Kush (h = 30 km).				
"	24	Up	iP	20 23 25.5		
		Ki	iP	20 22 31.5 C		
				microns sec		
			P	Z' 0.1 0.9		
		Sk	iP	20 23 05.9		
		Gb	iP	20 23 43.6		
		Um	iP	20 22 57.5 C		
		Aleutian Islands (h = 25 km).				

1965 Apr.	24	Up		---		
				microns sec		
			M	E 2.2 19		
			M	N 1.4 18		
			M	Z 3.0 19		
		Ki	iP	22 08 19.7 C		
				microns sec		
			P	Z' 0.1 1.0		
			M	E 3.6 22		
			M	N 1.5 17		
			M	Z 2.5 18		
		Sk	eP	22 08 44		
		Um	iP	22 08 29.3 C		
		Caroline Islands (h = 60 km).				
"	25	Ki	iP	00 31 48.3		
		Um	iP	00 32 01.9		
		Volcano Islands (h = 80 km).				
"	25	Up	iPKP	00 45 03.1		
			i	00 45 16.2		
		Ki	ePKP	00 44 47		
		Sk	iPKP	00 44 56.9		
		Um	iPKP	00 44 52.4 C		
		South of Kermadec Islands (h = 30 km).				
"	25	Up	iP	01 12 44.9 C		
			i	01 12 56.8		
			iPP	01 16 02.0		
			iS	01 23 07		
				microns sec		
			P	Z' 0.2 0.8		
			S	E 1.5 7		
			S	N 0.7 4		
			M	E 3.4 18		
			M	N 3.2 22		
			M	Z 3.8 17		
			D = 9450 km = 85°.			
		Ki	iP	01 12 14.7 C		
			iS	01 22 10		
				microns sec		
			P	Z 1.0 8		
			P	Z' 0.3 0.9		
			S	E 3.5 8		
			S	N 1.7 7		
			M	E 4.6 18		
			M	N 5.5 21		
			M	Z 8.1 18		
			D = 8800 km = 79°.			
		Sk	iP	01 12 42.1 C		
			i	01 12 50.4		
			iPP	01 15 55.9		
		Gb	iP	01 13 02.6 C		
			i	01 13 09.8		

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	25	Um	iP	01 12 28.0	C
			iS	01 22 33	
		Ka	iP	01 13 01.1	C
		Volcano Islands (h = 15 km).			
		Magn. = 6.2 (Up,Ki).			
"	25	Up	iP	01 27 12.6	
"	25	Ki	iP	01 53 28.1	
		Um	iP	01 53 55.4	
		Aleutian Islands			
		(h = 50 km).			
"	25	Ki	iP	01 59 04.9	
		Sk	iP	01 59 32.3	
		Um	iP	01 59 18.3	
			i	01 59 23.7	
"	25	Ki	iP	02 35 15.5	C
		Um	iP	02 35 04.3	
			ipP	02 35 51.0	
		Hindu Kush.			
		h = 230 km (Um).			
"	25	Up	ePKP	03 05 28	
			i	03 05 34.9	
		Sk	iPKP	03 05 21.4	
			i	03 05 38.4	
		Um	iPKP	03 05 16.6	C
		South of Kermadec Islands			
		(h = 30 km).			
"	25	Up	iP	05 50 01.8	
			ipP	05 50 24.0	
		Ki	iP	05 50 03.4	C
			ipP	05 50 24.6	
		Um	iP	05 49 58.8	
			ipP	05 50 20.1	
		Nicobar Islands.			
		h = 80 km (Up,Ki,Um).			
"	25	Ki	iP	08 49 28.0	C
		Sk	iP	08 50 01.2	C
		Gb	iP	08 50 38.7	
		Um	iP	08 49 54.0	C
		Aleutian Islands (h = 50 km).			
"	25	Ki	iP	10 12 23.5	
				microns sec	
			P	Z' 0.1 1.5	
		Um	iP	10 11 58.8	
		Lake Tanganyika (h = 15 km).			
"	25	Um	iP	12 50 37.9	
			ipP	12 50 49.1	
		Volcano Islands.			
		h = 45 km (Um).			

1965 Apr.	25	Up	iP	14 18 09.4	C
			i	14 18 28.2	
		Ki	iP	14 17 36.5	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	14 18 05.1	
		Gb	iP	14 18 27.2	
		Um	iP	14 17 50.4	
			i	14 17 50.8	
		Ka	iP	14 18 25.4	
		Bonin Islands (h = 50 km).			
"	25	Up	iP	14 42 36.3	
		Ki	iP	14 41 48.5	
		Um	iP	14 42 10.5	D
		Kurile Islands (h = 30 km).			
"	25	Up	iP	15 03 48.6	
"	25	Ki	iP	15 33 40.5	
			ipP	15 33 51.2	
				microns sec	
			P	Z' 0.1 1.3	
		Um	iP	15 34 06.1	
			ipP	15 34 16.8	
		Aleutian Islands.			
		h = 40 km (Ki,Um).			
"	25	Ki	iP	15 42 33.8	
			ipP	15 42 44.4	
		Um	eP	15 43 00	
			ipP	15 43 10.8	
		Aleutian Islands.			
		h = 40 km (Ki,Um).			
"	25	Up	eP	16 46 51	
		Ki	iP	16 47 30.0	
		Um	eP	16 47 05	
		Iran (h = 30 km).			
"	25	Up	eP	21 26 33	
		Ki	iP	21 25 39.5	
			iPcP	21 26 23.5	
		Um	eP	21 26 06	
			iPcP	21 26 39.4	
		Aleutian Islands (h = 40 km).			
"	25	Up	iP	21 40 21.4	
				microns sec	
			M	E 0.9 16	
			M	N 1.0 17	
			M	Z 1.4 15	
		Ki	iP	21 39 50.5	
				microns sec	
			M	E 1.5 20	
			M	N 0.8 17	
			M	Z 2.5 20	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	25	Um	iP	21 40 02.9	
		Ryukyu Islands (h = 30 km).			
"	25	Ki	iPKP	22 04 55.9	
		South Sandwich Islands (h = 30 km).			
"	26	Up	iP	02 07 24.1	
		Ki	iP	02 06 30.3	
		Sk	iP	02 06 54.4	
		Gb	iP	02 07 34.5	
		Um	iP	02 06 58.4	
		Ka	iP	02 07 46.8	
		Alaska.			
		Origin time = 01 57 03.			
"	26	Up	iP	02 07 34.9 D	
				microns sec	
			P	Z' 0.1 1.4	
		Ki	iP	02 06 40.8	
				microns sec	
			P	Z' 0.2 1.3	
			M	E 0.8 17	
			M	N 0.7 18	
			M	Z 1.3 18	
		Sk	iP	02 07 06.3	
		Gb	iP	02 07 45.7	
		Um	iP	02 07 08.8	
			iS	02 14 59	
		Ka	iP	02 07 58.0	
		Alaska (h = 30 km).			
		Magn. = 5.8 (Up,Ki).			
		The P-phases of this shock have amplitudes which are 2.5-5.0 times those of the preceding shock. An alternative interpretation would be that these P are instead pP to the preceding earthquake.			
"	26	Ki	iP	09 07 25.2	
		Sk	eP	09 07 59	
		Um	iP	09 07 51.4	
		Aleutian Islands (h = 30 km).			
"	26	Ki	eP	10 00 59	
				microns sec	
			M	E 1.0 19	
			M	N 0.7 21	
			M	Z 1.3 18	
		Um	eP	10 01 02	
			ePP	10 05 04	
		Molucca Sea (h = 15 km).			
"	26	Up	iP	11 32 23.9	
1965 Apr.	26	Ki	iP	13 38 40.1 C	
		Sk	eP	13 38 56	
		Um	iP	13 38 42.9	
			i	13 38 55.7	
		Ka	eP	13 38 55	
		Andaman Islands (h = 30 km).			
"	26	Up	i(P)	15 35 41.3 C	
				microns sec	
			(P)	Z' 0.1 0.5	
"	26	Ki	iP	19 37 06.8	
		Um	iP	19 37 11.4	
		Molucca Sea (h = 120 km).			
"	26	Up	iP	20 39 49.6 C	
				microns sec	
			P	Z' 0.3 1.0	
			M	E 0.8 20	
			M	N 1.4 18	
			M	Z 1.5 19	
		Ki	iP	20 38 56.4 C	
			eS	20 47 07	
				microns sec	
			P	Z' 0.6 1.1	
			S	N 0.2 8	
			M	E 1.1 22	
			M	N 0.8 18	
			M	Z 1.7 19	
		D = 6450 km = 58°.			
		Sk	iP	20 39 25.7 C	
		Gb	iP	20 40 04.2 C	
		Um	iP	20 39 23.6	
			i	20 39 43.3	
			iP'P'	21 08 31.7	
		Ka	iP	20 40 13.4 C	
		Alaska (h = 50 km).			
		Magn. = 6.5 (Up,Ki).			
"	26	Gb	eP	21 17 38	
		Unimak Island (h = 30 km).			
"	26	Um	eP	21 48 33	
		Kurile Islands (h = 30 km).			
"	26	Up	iP	22 12 12.0 D	
		Iran (h = 30 km).			
"	26	Up	iP	22 27 40.2 D	
			iS	22 37 31	
				microns sec	
			P	Z' 0.4 1.0	
			S	E 1.6 10	
			S	N 2.2 10	
			M	E 15 17	
			M	N 9.8 18	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. 26 cont. Up microns sec
M Z 18 16
D = 8650 km = 78°.
Ki iP 22 27 18.7 D
ipP 22 27 31.0
ePa 22 31 53
iS 22 36 53
microns sec
P E 0.5 7
P Z 1.1 5
P Z' 0.4 1.1
pP Z' 0.5 1.1
S E 2.1 11
S N 2.3 9
M E 13 18
M N 7.0 17
M Z 15 18
D = 8300 km = 74 1/2°.
Sk iP 22 27 44.6 D
iPP 22 30 47.0
Gb iP 22 27 59.1 D
Um iP 22 27 26.0 D
ipP 22 27 37.3
iPa 22 32 07
iS 22 37 05
Ka iP 22 27 52.7
Formosa. h = 45 km (Ki,Um).
Magn. = 6.4 (Up,Ki).
The group velocities of Pa are 8.53 km/sec both to Ki and Um, i.e. a rather extreme continental velocity. Compare Båth and Lopez Arroyo, Geofis. pura e appl., 56: 67-92, 1963.

" 26 Up iP 22 35 07.8
Um iP 22 34 54.0
ipP 22 35 04.4
Formosa. h = 40 km (Um).

" 26 Up iPKP 22 46 55.1
i 22 47 00.8
i 22 47 08.4
Sk iPKP 22 46 47.8
Gb iPKP 22 47 13.5
Um iPKP 22 46 42.8 C
i 22 46 54.5
Ka ePKP 22 47 18
e 22 47 26
Kermadec Islands (h = 30 km).

" 26 Up eP 23 09 08
Aleutian Islands (h = 50 km).

" 27 Um iP 00 46 01.4

1965 Apr. 27 Ki iP 01 01 21.8
Um iP 01 01 13.2
Kashmir (h = 140 km).

" 27 Um iP 02 29 19.1 C
Japan (h = 30 km).

" 27 Um iP 07 30 38.9

" 27 Up iP 11 08 56.6
Ki iP 11 08 20.6 C
ePP 11 12 38
Sk eP 11 08 41
ePP 11 12 45
Um iP 11 08 25.5 C
Banda Sea (h = 70 km).

" 27 Ki eP 11 51 04
Kodiak Island (h = 25 km).

" 27 Up iP 13 47 08.0

" 27 Up iP 14 14 21.5 D
i 14 14 43.9
iS 14 18 37
microns sec
P N 1.1 5
P Z' 0.1 0.6
S E 2.8 6
S N 6.3 8
M E 3.6 11
M N 11 18
M Z 8.6 18
D = 2700 km = 24 1/2°.
Ki iP 14 15 31.1 D
iS 14 20 39
microns sec
P Z' 0.3 0.8
S E 1.1 8
S N 1.0 8
M E 9.5 13
M N 7.0 16
M Z 13 17
D = 3550 km = 32°.
Sk iP 14 15 00.1 D
iS 14 19 47.0
Gb iP 14 14 10.6 D
eS 14 18 23
Um iP 14 14 54.9 D
i 14 15 22.3
iS 14 19 37
Ka iP 14 13 47.0
iS 14 17 39.6
Crete (h = 50 km).
Magn. = 5.8 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr.	27	Up	iP	15 00 47.7	
			i	15 00 52.6	
			iPcP	15 01 16.6	
				microns sec	
			P	Z' 0.1 0.5	
		Ki	iP	15 00 01.2 D	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	15 00 37.0 D	
		Um	iP	15 00 22.5 D	
			iPcP	15 01 00.5	
		Okhotsk Sea (h = 430 km).			
"	27	Up	iPKP	15 06 11.5	
		Gb	iPKP	15 06 24.2	
		South of Fiji Islands (h = 410 km).			
"	27	Um	iP	19 57 20.7	
"	27	Up	---		
				microns sec	
			M	E 1.5 25	
			M	N 0.9 21	
			M	Z 2.5 25	
		Um	eS	20 33 51	
		Off coast of Ecuador (h = 30 km).			
"	27	Um	iP	21 45 37.7	
"	28	Up	iP	01 36 37.7	
		Ki	iP	01 35 44.1	
		Aleutian Islands (h = 50 km).			
"	28	Ki	iPn	07 25 09.8	
			iPg	07 25 18.6	
			iSn	07 25 56.3	
			iSg	07 26 11.6	
			~~D = 410 km = 3.7°.~~		
		Sk	eSg	07 29 00	
		Um	iSg	07 27 49.6	
		Northwest Russia, 69.5°N, 29.6°E. Origin time = 07 24 09. Explosion?			
"	28	Up	iPKP	10 46 19.1	
		Ki	ePKP	10 45 59	
		Tonga-Kermadec Islands (h = 30 km).			
"	28	Up	iP	12 19 10.7	
		Ki	iP	12 18 43.1	
		Sk	iP	12 19 12.2	
		Gb	iP	12 19 29.9	
		Um	iP	12 18 53.8	
		Ryukyu Islands (h = 30 km).			
1965 Apr.	28	Sk	ePKP	14 45 13	
		Ka	eP	14 41 05	
			i	14 41 06.9	
		Banda Sea (h = 160 km).			
"	28	Um	iP	16 43 45.5	
		Japan (h = 80 km).			
"	28	Up	iPKP	17 01 45.2	
			i	17 02 12.6	
		Tonga-Kermadec Islands (h = 30 km).			
"	28	Up	iP	17 42 23.6	
		Gb	i(P)	17 42 09.9	
"	29	Up	iP	09 52 09.0	
				microns sec	
			M	E 1.4 18	
			M	N 0.8 14	
			M	Z 1.5 16	
		Ki	iP	09 53 14.9	
				microns sec	
			M	E 2.2 17	
			M	N 0.6 12	
		Sk	eP	09 52 40	
		Gb	iP	09 51 59.9	
			i	09 52 12.1	
		Um	eP	09 52 31	
			e	09 52 41	
		Dodecanese Islands (h = 30 km).			
"	29	Gb	iPKP	10 03 03.3 D	
		Um	iPKP	10 02 51.4	
			iSKP	10 05 29.8	
		Ka	iPKP	10 03 05.2	
		South of Fiji Islands (h = 540 km).			
"	29	Um	iP	11 32 11.4	
		Mariana Islands (h = 130 km).			
"	29	Up	iPKP	11 48 02.6 C	
			i	11 48 09.2	
		Sk	iPKP	11 47 57.0 C	
		Um	iPKP	11 47 50.4	
			i	11 47 51.7	
		South of Kermadec Islands (h = 60 km).			
"	29	Up	iP	15 39 39.0 D	
			ipP	15 39 57.9	
			iS	15 48 31	
			eP'P'	16 07 50	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Apr. 29 Up microns sec
cont.
P N 2.1 3
P Z 2.6 2
P Z' 2.1 1.0
pP E 0.8 4
pP N 2.6 5
pP Z 4.7 6
S E 21 9
S N 13 10
P'P' Z 5.0 7
P'P' Z' 1.0 2.0
M E 9.0 19
M N 18 18
M Z 23 19
D = 7550 km = 68°.

Ki iP 15 38 56.8 D
ipP 15 39 15.2
iS 15 47 13
iP'P' 16 08 05.4
microns sec
P E 1.0 5
P N 1.3 5
P Z 6.5 5
P Z' 2.4 1.5
pP E 2.2 5
pP N 2.8 6
pP Z 6.9 6
S E 38 10
S N 18 9
S Z 7.4 8
P'P' Z 4.7 6
M E 19 22
M N 11 17
M Z 22 20
D = 6850 km = 61 1/2°.

Sk iP 15 39 10.6
eS 15 47 45
eP'P' 16 07 59

Gb iP 15 39 42.6
ipP 15 40 00.1
eP'P' 16 07 41
i 16 07 49.5

Um iP 15 39 19.6 D
i 15 39 35
ipP 15 39 39.2
iS 15 47 55
iP'P' 16 07 57.8
i 16 08 18.5

Ka iP 15 39 55.9
ipP 15 40 14.3
iP'P' 16 07 41.6
i 16 07 44.8

Washington State, USA.
h = 70 km (Up,Ki,Gb,Um,Ka).
Magn. = 7.2 (Up,Ki).

1965
Apr. 29 Up iP 16 01 30.6
V iPP 16 05 32.1
microns sec
P Z' 0.2 0.6
Ki iP 16 01 24.9
X microns sec
P Z' 0.1 0.7
Sk iP 16 01 41.7 D
iPP 16 05 53.1
Gb iPP 16 05 57.6
Um iP 16 01 24.6
i 16 01 25.4
iPP 16 05 16.9
Ka ePP 16 05 38
Java Sea (h = 500 km).
Magn. = 6.3 (Up,Ki).

" 29 Up iP 19 18 02.5
i 19 18 18.9

" 29 Up iP 21 23 51.5

" 29 Up iPKP 22 51 53.2
Sk iPKP 22 51 47.2
Gb iPKP 22 52 00.7
Um iPKP 22 51 42.2 C
South of Kermadec Islands
(h = 30 km).

" 30 KiR iPg 03 12 43.7 C
iS* 03 13 09.9
iSg 03 13 12.6
~~microns sec~~
~~Sg Z' 0.2 0.5~~
~~D = 240 km = 2.2°.~~
SKA i(Pg) 03 13 15.6
iSg 03 14 16.0
UmME iSg 03 14 23.0
~~i 03 14 27.3~~
Northwest coast of Norway,
67.7°N, 14.9°E.
Origin time = 03 12 00.

" 30 Up eP 06 12 31

" 30 Sk iP 07 23 42.2
Um iP 07 23 19.0
India-China (h = 30 km).

" 30 KiR ePn 11 20 29
iSg 11 21 04.1
~~D = 240 km = 2.2°.~~
SKA iSg 11 22 03
UmME iPn 11 20 58.7
iSg 11 22 12.0
~~D = 490 km = 4.4°.~~

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Apr. cont.	30	Northwest coast of Norway, 67.7°N, 14.9°E. Origin time = 11 19 49.		
"	30	Up	iP	11 57 05.1
		Ki	iP	11 57 14.6
		Sk	iP	11 56 53.3 C
		Venezuela (h = 90 km).		
"	30	Up	iP	16 11 50.4
		Um	iP	16 11 24.1
		Ka	iP	16 12 14.1
		Aleutian Islands (h = 30 km).		
"	30	Um	iP	19 41 53.5
			i(pP)	19 42 06.3
		South of Japan (h = 40 km).		
"	30	Ki R	eSg	22 29 09.2
		Sk KA	eSg	22 31 41
		Um ME	~~i~~	~~22 29 58.3~~
			iSg	22 30 04.9
		Northwest Russia, 67.5°N, 30.7°E. Origin time = 22 27 00. Explosion?		

Markus Båth
December 14, 1965

Seismological Institute
Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G,

U M E Å and K A R L S K R O N A

Uppsala	(Up):	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E;	h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E;	h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E;	h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E;	h = 11 m

M A Y 1 - 31, 1965

1965
May 1 Up iP 02 04 56.0
microns sec
M E 1.1 15
M N 0.9 12
M Z 0.9 12
Ki iP 02 06 02.1
microns sec
M E 0.9 15
Sk eP 02 05 35
Gb iP 02 04 47.4
i 02 04 57.7
Um iP 02 05 27.8
Ka iP 02 04 21.2
Turkey (h = 30 km).

" 1 Up iP 02 08 05.7
ipP 02 08 11.2
Ki iP 02 07 09.7 C
microns sec
P Z' 0.1 1.0
Sk iP 02 07 36.5 C
Gb iP 02 08 16.8 C
Um iP 02 07 38.9 C
Ka iP 02 08 28.1
Alaska, h = 20 km (Up).

" 1 Up iP 02 27 29.6 D
i 02 27 39.1
microns sec
P Z' 0.1 0.7
Ki iP 02 26 53.9 D
Sk iP 02 27 25.0
Gb iP 02 27 49.4
Um iP 02 27 09.3 D
South of Japan (h = 230 km).

1965
May 1 Up eP 04 23 23
Ki ---
microns sec
M E 1.3 16
M N 0.6 19
M Z 1.2 16
Um iP 04 22 58.2
iS 04 32 35
South of Japan (h = 40 km).

" 1 Ki ePKP 08 56 42
Um iPKP 08 56 51.3
New Zealand (h = 170 km).

" 1 Ki iP 13 15 47.5
microns sec
M E 0.5 18
M N 0.5 17
Um iP 13 15 58.2
i 13 16 01.8
Mariana Islands (h = 5 km).

" 1 Ki eL 19 48
microns sec
M E 0.5 16
M N 0.3 13
M Z 0.6 16
East China Sea (h = 110 km).

" 1 Up iP 21 18 22.0 D

" 1 Up iP 21 37 55.2 C
iS 21 46 03
microns sec
P Z' 0.1 1.0
D = 6600 km = 59 1/2°.
Ki iP 21 36 59.9 C

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
May 1 Ki iS 21 44 14
cont.
microns sec
P Z' 0.2 1.0
S N 0.4 10
M E 0.7 19
M N 0.8 19
M Z 1.3 20
D = 5700 km = 51 1/2°.
Sk iP 21 37 25.9 C
ipP 21 37 30.5
Gb iP 21 38 06.3
ipP 21 38 10.9
Um iP 21 37 28.3 C
ipP 21 37 33.8
iS 21 45 14
Ka iP 21 38 18.4 C
ipP 21 38 22.9
Alaska. h = 20 km (Sk,Gb, Um,Ka).
Magn. = 5.5 (Up,Ki).

" 2 Up iP 00 15 21.5
Ki iP 00 14 45.7 C
iS 00 24 10
microns sec
M E 0.7 19
M N 0.3 15
M Z 0.9 17
D = 8050 km = 72 1/2°.
Sk iP 00 15 23.3
Um iP 00 15 01.5 C
South of Japan (h = 30 km).

" 2 Um iP 00 46 30.2
South of Japan (h = 30 km).

" 2 Up ---
microns sec
M E 2.5 19
M N 3.9 21
M Z 1.7 18
Ki ---
microns sec
M E 2.4 18
M N 3.3 18
M Z 2.7 17
Um iS 07 34 22
eSS 07 39 06
Ryukyu Islands (h = 30 km).
Magn. = 6.0 (Up,Ki).

" 2 Up iP 09 15 41.8
Ki iP 09 14 52.3
Um iP 09 15 15.1
Sakhalin (h = 5 km).

1965
May 2 Up iPKP 11 10 25.8 C
Ki ePKP 11 10 18
Sk ePKP 11 10 19
Um ePKP 11 10 17
i 11 10 26.5
Ka iPKP 11 10 36.6
Fiji Islands (h = 580 km).

" 2 Up eP 22 38 40
Ki iP 22 39 49.8 C
Sk iP 22 39 18.8
Um iP 22 39 14.1
Ka iP 22 38 05.3
Crete (h = 40 km).

" 2 Up iSg 22 48 46.2
Ki iPn 22 45 53.3
iS^{x} 22 46 34.0
iSg 22 46 38.8
~~D = 310 km = 2.8°.~~
Sk ePg 22 46 01
iSg 22 46 42.0
~~D = 320 km = 2.9°.~~
Um iPn 22 46 05.7 C
iSn 22 46 54.8
i(S^{x}) 22 47 10.1
iSg 22 47 14.3
~~D = 440 km = 4.0°.~~
Nordlands Fylke, Norway, 66.6°N, 14.0°E.
Origin time = 22 45 05.

" 3 Um iPKP 01 28 11.2
e 01 39 10
Chile-Argentina (h = 80 km).

" 3 Up eP 04 08 51
i(pP) 04 08 58.3
Ki iP 04 09 37.9
Um iP 04 09 12.7
i(pP) 04 09 19.5
South Atlantic Ocean
(h = 30 km).

" 3 Ki i(Sg) 04 49 36.5

" 3 Up iP 10 14 22.4
iSKS 10 24 51
microns sec
M E 1.4 19
M N 1.6 20
M Z 4.0 24
Ki eP 10 14 10
eSKS 10 24 20
microns sec
P Z' 0.1 1.3

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
May 3 Ki microns sec
cont. SKS E 1.2 12
SKS N 0.7 10
M E 2.6 20
M N 2.8 17
M Z 4.1 16
Sk iP 10 14 00.6
Um iP 10 14 17.1
i 10 14 27.1
iS 10 24 52
Ka eP 10 14 24
El Salvador (h = 25 km).
Magn. = 5.8 (Up,Ki).

" 3 Sk iPKP 11 18 17.4
Um iPKP 11 18 12.2
Kermadec Islands
(h = 30 km).

" 3 Ki iP 12 54 52.6
Um iP 12 55 17.8
Aleutian Islands
(h = 40 km).

" 3 Up iP 17 51 49.2 C
microns sec
P Z' 0.1 0.5
Ki iP 17 50 55.3 C
ipP 17 51 08.5
microns sec
P Z' 0.1 0.9
Sk iP 17 51 28.4 C
Gb iP 17 52 05.1
Um iP 17 51 21.3 C
ipP 17 51 34.3
Ka eP 17 52 11
Aleutian Islands.
h = 50 km (Ki,Um).
Magn. = 5.9 (Up,Ki).

" 3 Up iP 21 14 00.8
Um iP 21 13 41.2
South of Japan
(h = 90 km).

" 3 Um iP 22 07 44.8 D

" 3 Um iP 22 36 44.3

" 4 Ki iP 00 13 25.9
Um iP 00 13 22.2
Sumatra (h = 40 km).

" 4 Ki iPKP 03 59 44.6
South Sandwich Islands
(h = 30 km).

1965
May 4 Up eP 05 18 38
Ki eP 05 19 23
Sk eP 05 19 19
Iran (h = 15 km).

" 4 Ka iP 07 59 37.4

" 4 Up i(P) 08 42 27.4
iP 08 42 33.6 C
i(PP) 08 44 06
iPP 08 44 12.8
i 08 47 52
iS 08 48 39
iSa 08 51 14
iScS 08 52 37
iLgl 08 56 03
microns sec
P Z' 0.5 1.1
S E 0.3 5
M E 4.9 9
M N 3.9 13
M Z 8.2 12
D = 4550 km = 41°.
Ki i(P) 08 42 20.9 C
iP 08 42 27.7
i 08 42 32.0
ePP 08 43 59
ePcS 08 48 18
iS 08 48 28
eSS 08 51 28
eLgl 08 55 44
microns sec
P Z' 0.3 1.5
M E 24 13
M N 12 14
M Z 29 13
D = 4500 km = 40 1/2°.
Sk i(P) 08 42 46.4 C
iP 08 42 52.9 C
Gb iP 08 42 58.8 C
i 08 43 03.5
iPP 08 44 35.8
i 08 54 25.2
Um i(P) 08 42 17.5
iP 08 42 23.9 C
iPP 08 43 52.1
iLi 08 54 15
Ka e(P) 08 42 42
iP 08 42 44.2 C
iPP 08 44 25.4
Kirghiz-Sinkiang
(h = 5 km).
Magn. = 5.9 (Up,Ki).
The P-phase is multiple, the time difference P - (P) = 6.5 sec and the amplitude

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
May 4 cont. ratio P/(P) = 3-6 (Up,Ki, SK,Um), the probable reason being two shocks in the same place. This earthquake has given exceptionally well developed higher-mode surface waves at our stations.

" 4 Ki eP 17 53 19

" 4
Ki	iR	iSg	18 13 48.4
Sk	KA	iSg	18 13 52.8
Um	ME	iSn	18 13 58.0
		iSg	18 14 16.0
		D = 420 km = 3.8°.	

Nordlands Fylke, Norway, 66.7°N, 14.0°E.
Origin time = 18 12 11.

" 4 Um iP 22 50 12.0
South of Japan
(h = 180 km).

" 5 Ki eL 18 24

		microns	sec
M	E	0.7	15
M	N	0.4	15
M	Z	0.7	13

East China Sea (h = 30 km).

" 5 Up iP 20 42 20.1

" 5
Up	iP	21 44 59.1	
Ki	iP	21 44 14.5	C
Sk	iP	21 44 49.9	
Um	iP	21 44 34.5	
	iPcP	21 45 06.9	

Japan (h = 30 km).

" 5 Up iP 23 12 48.0 C

		microns	sec
P	Z'	0.2	0.8

Ki	iP	23 11 54.4	C
	i(pP)	23 12 08.7	

		microns	sec
P	Z'	0.1	0.9
M	N	0.8	19
M	Z	1.0	18

Sk	iP	23 12 28.4	C
Gb	iP	23 13 05.9	C
Um	iP	23 12 20.1	C
Ka	iP	23 13 11.7	C

Aleutian Islands (h = 30 km).
Magn. = 6.0 (Up,Ki).

1965
May. 5
Up	iP	23 36 41.6	
Ki	iP	23 36 14.2	
Um	iP	23 36 25.8	

Mariana Islands (h = 60 km).

" 6 Up iP 00 26 14.6

" 6
Ki	R	iPn	05 26 50.3
		iSn	05 27 45.5
		iSg	05 28 08.9
		D = 510 km = 4.6°.	
Sk	KA	e(Sg)	05 30 48
Um	ME	iSn	05 28 30.9
		iSg	05 29 18.3
		D = 720 km = 6.5°.	

Northwest Russia, 68.1°N, 32.5°E.
Origin time = 05 25 38.
Explosion?

" 6
Up	iPg	10 03 07.0	
	iSg	10 03 23.6	
	iRg	10 03 28.2	
	D = 140 km = 1.3°.		
Sk	KA	iSg	10 04 41.6
Um	ME	iSg	10 05 02.7

Near Ludvika, central Sweden, 60.2°N, 15.0°E.
Origin time = 10 02 41.

" 6
Up	iPg	13 20 57.6	
	eSg	13 21 11	
	D = 110 km = 1.0°.		
Sk	KA	eSg	13 23 35
Um	ME	iSg	13 23 10.9

Baltic Sea, off Swedish coast, 59.3°N, 19.1°E.
Origin time = 13 20 38.
Probably underwater explosion.

" 6 Um i(P) 14 50 43.5 C

" 6
Ki	iPg	16 29 05.6	
	i	16 29 17.5	
	iSg	16 29 22.4	

" 6
Up	iP	23 50 38.4	
Ki	iP	23 50 21.3	
Um	iP	23 50 27.1	

Mindanao (h = 550 km).

" 7
Ki	iP	01 10 12.4	
Um	iP	01 09 50.7	
	i	01 09 58.1	

Iran (h = 30 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
May 7 Ki iP 02 41 54.6
Um iP 02 42 05.5
Mariana Islands
(h = 60 km).

" 7 Up

		microns	sec
M	E	0.6	15
M	N	0.6	13
M	Z	0.7	14

Ki

		microns	sec
M	E	0.8	16
M	N	0.7	16
M	Z	1.0	14

Um eSS 07 56 56
East China Sea (h = 130 km).
It is remarkable that surface waves seem to be better recorded than P waves (especially at Ki) in this earthquake as well as in two preceding earthquakes in the same area, (May 1, 19 48, and May 5, 18 24), even if the focal depth is more than 100 km in at least two of these cases.

" 7 Um iP 11 47 57.1

" 7 Ki iPKP 13 21 18.6
i(sPKP) 13 22 03.5
Um iPKP 13 21 11.7
South Sandwich Islands
(h = 100 km).

" 7 Ki iP 14 39 56.7
Kirghiz (h = 30 km).

" 7 Up iP 14 47 20.5 C
i 14 47 49.1
Ki iP 14 48 27.4
Sk iP 14 48 00.1
Ka iP 14 46 49.4
Dodecanese Islands
(h = 160 km).

" 7 Up iPKP 16 03 10.9 C
Ki iPKP 16 02 56.5
Sk iPKP 16 03 05.0 C
Gb iPKP 16 03 18.6
Um iPKP 16 03 00.6 C
i 16 03 05.4
South of Kermadec Islands
(h = 30 km).

1965
May 7 Ki iPn 16 33 43.0
iPg 16 33 52.4
iSn 16 34 31.4
iSg 16 34 45.2
D = 400 km = 3.6°.
SKA eSg 16 37 35
UME eSg 16 36 19
Northwest Russia,
69.2°N, 29.6°E.
Origin time = 16 32 45.
Explosion?

" 7 Up iPKP 16 52 18.4 C
iX 16 52 32.9

	microns	sec
PKP Z'	0.2	1.5

Ki iPKP 16 52 01.2
Sk iPKP 16 52 12.8 C
i 16 52 26.8
Gb ePKP 16 52 23
iX 16 52 39.1
Um iPKP 16 52 08.2 C
iX 16 52 21.7
Ka ePKP 16 52 40
South of Kermadec Islands
(h = 30 km).

" 7 Up iPKP 17 12 00.6
iX 17 12 19.0
Ki ePKP 17 11 42
Sk ePKP 17 11 57
Gb ePKP 17 12 10
Um iPKP 17 11 49.7
iX 17 12 08.8
Ka iPKP 17 12 22.2
South of Kermadec Islands
(h = 30 km).
If the phases marked X in this and the preceding case are interpreted as pPKP, this would mean somewhat greater depth to the foci.

" 7 Up iP 21 32 19.6 C
Sk eP 21 31 52
Um iP 21 31 48.9
i 21 32 03.1

" 7 Ki iPg 22 21 35.8
iSg 22 21 44.6
D = 80 km = 0.7°.
SKA eSg 22 23 58
UME eSg 22 23 08
Gällivare, north Sweden,
67.1°N, 20.3°E.
Origin time 22 21 22.
Mine explosion?

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
May	7	Um	iP	23 27 41.7	
			i	23 27 54.1	
"	8	Um	iSKS	00 20 56	
			iS	00 22 29	
			i	00 24 10	
			iSS	00 30 16	
			Chile (h = 80 km).		
"	8	Up	iP	01 29 13.3	
		Ki	iP	01 28 03.3	
			microns sec		
			M E 0.3 15		
		Sk	iP	01 28 49.5	
			i	01 28 58.3	
		Gb	iP	01 29 38.7	
		Um	eP	01 28 37	
		Ka	iP	01 29 46.3	
			i	01 29 58.9	
		Arctic Ocean (h = 30 km).			
"	8	Up	iP	03 17 45.2 C	
			microns sec		
			P Z' 0.1 0.7		
			M E 0.6 21		
			M N 0.7 17		
		Ki	iP	03 17 25.4 C	
			microns sec		
			M E 0.5 16		
			M N 0.9 23		
			M Z 0.7 17		
		Sk	iP	03 17 51.0	
		Gb	iP	03 18 03.3	
		Um	iP	03 17 31.9 C	
		Ka	iP	03 17 57.1 C	
		Luzon (h = 60 km).			
		Magn. = 6.0 (Up,Ki).			
"	8	Up	iP	07 33 37.3	
"	9	Um	iP	14 24 04.4	
			i	14 24 10.2	
		South of Panama (h = 60 km).			
"	9	Up	iSg	23 34 13.6	
		Ki	eS	23 31 34	
			iSg	23 31 56.2	
		Sk	eSg	23 34 05	
		Um	eS	23 32 03	
			iSg	23 32 25.0	
		Kola Peninsula, 66 1/4°N, 39°E.			
		Origin time 23 27 53.			
"	10	Up	iPKP	00 09 45.0	
		Gb	iPKP	00 09 55.8	
		South of Fiji Islands (h = 560 km).			

1965					
May	10	Ki	iSg	05 27 40.1	
		Um	iSn	05 28 25.2	
			iSg	05 29 03.3	
		Probably northwest Russia. Explosion?			
"	10	Um	iP	10 34 52.9	
"	10	Up	iP	11 42 12.1	
"	10	Up	iP	14 51 32.5 D	
"	11	Ki	iP	05 51 00.4	
		Caspian Sea (h = 30 km).			
"	11	Ki	iP	06 46 37.4 C	
		Sk	iP	06 47 08.4	
		Kazakh SSR. Underground explosion?			
"	11	Ki	e(P)	08 17 27	
"	11	Sk	iP	08 17 42.1	
		Puerto Rico (h = 70 km).			
"	11	Up	iP	10 49 31.2	
"	11	Ki	iP	12 14 35.8	
		Aleutian Islands (h = 30 km).			
"	11	Up	iP	17 47 30.3	
			iS	17 55 27	
			microns sec		
			P Z' 0.1 0.5		
			D = 6450 km = 58°.		
		Ki	iP	17 46 34.5 D	
			ipP	17 46 49.3	
			iS	17 53 45	
			microns sec		
			pP Z' 0.1 1.0		
			M E 0.5 15		
			M N 0.8 22		
			M Z 1.6 22		
			D = 5650 km = 51°.		
		Sk	iP	17 47 02.1	
			ipP	17 47 17.0	
		Gb	eP	17 47 43	
			i	17 47 48.2	
		Um	iP	17 47 04.2	
			ipP	17 47 19.4	
			i	17 47 26.9	
			eS	17 54 54	
		Ka	iP	17 47 55.0	
			i	17 48 16.7	
		Alaska. h = 60 km (Ki,Sk,Um).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 May 11 Up iP 22 39 26.9
i 22 39 38.1
iS 22 42 07.3
D = 1650 km = 15°.
Ki iP 22 40 52.1
iS 22 44 56.3
eLgl 22 47 13
D = 2450 km = 22°.
Sk iP 22 40 23.3
eS 22 44 05
iLgl 22 46 07.2
Um iP 22 40 10.4
iS 22 43 22.3
Ka iP 22 39 03.3
i 22 39 20.8
iS 22 41 09.4
Rumania (h = 80 km).

" 12 Sk eP 00 39 14
Japan (h = 170 km).

" 12 Up iP 10 47 43.4
iPKP 10 51 54.2
iSKS 10 58 08
eS 10 59 15
microns sec
M E 0.6 20
M N 1.1 21
(D = 11900 km = 107°).
Ki iP 10 47 27.7 C
iPKP 10 51 47.0
iSS 11 06 18
microns sec
P Z' 0.1 1.3
PKP Z' 0.2 2.0
M E 0.8 16
M N 0.7 21
M Z 1.4 21
(D = 11550 km = 104°).
Sk ePKP 10 51 57
Gb ePKP 10 52 37
Um iP 10 47 33.0
iPKP 10 51 50.4
iSKS 10 57 54
iS 10 59 00
Ka iPKP 10 52 18.1
Banda Sea (h = 130 km).

" 12 Um iP 11 41 44.5

" 12 Um iP 11 54 29.2
ipP 11 54 38.1
Bonin Islands.
h = 35 km (Um).

" 12 Ki eP 15 51 04

1965 May 12 Up ePKP 17 31 07
South of Fiji Islands
(h = 560 km).

" 12 Um iP 23 28 19.0

" 13 Um iP 00 19 31.6
Puerto Rico (h = 30 km).

" 13 Ki eP 01 36 23

" 13 Um iP 04 38 13.3
Ka iP 04 38 20.8
Hindu Kush (h = 90 km).

" 13 Up iP 11 00 15.9
Ki iP 11 00 19.3 C
Sk iP 11 00 38.1
Um iP 11 00 12.3 C
Ka iP 11 00 21.6 C
Napal-India (h = 30 km).

" 13 Up iP 11 35 10.6 C

" 13 Up iPg 14 23 56.7
eSg 14 24 12
eRg 14 24 18
D = 130 km = 1.2°.
Possibly underwater explosio
in the Baltic Sea.

" 13 Gb iP 14 28 55.0 C

" 13 Up iP 16 11 37.0 C

" 13 Ki iP 16 47 30.2
Um iP 16 47 51.6
Kurile Islands (h = 70 km).

" 13 Up iP 19 34 24.7 D
microns sec
P Z' 0.1 0.5
Ki iP 19 33 49.5 D
Sk iP 19 34 20.9
Um iP 19 34 04.2 D
Ka iP 19 34 42.3
Japan (h = 320 km).

" 13 Up iP 21 13 52.3
i 21 13 57.9
Greece-Albania (h = 30 km).

" 13 Ki eP 22 58 10

" 14 Up iPKP 02 08 12.1
Kermadec Islands (h = 80 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
May 14 Up iP 09 57 09.8
Aleutian Islands
(h = 50 km).

" 14 Up iP 17 01 20.0 C
Aleutian Islands
(h = 30 km).

" 15 Um iP 04 09 01.3
Japan (h = 340 km).

" 15 Ki iP 09 38 02.9

" 15 Ki iP 10 04 21.8

" 15 Um i(Sg) 11 58 53.4

" 15 Ki ePKP2 16 59 05
i 16 59 10.0
Um iPKP2 16 59 13.7
eSS 17 22 36
New Zealand (h = 15 km).

" 15 Ki iP 18 49 40.3
Um iP 18 49 01.3
Caucasus (h = 30 km).

" 15 Up iP 21 12 08.7
Ki iP 21 11 15.3
microns sec
P Z' 0.1 1.2
Sk iP 21 11 49.5
Gb iP 21 12 26.0
Um iP 21 11 41.3
Aleutian Islands
(h = 10 km).

" 15 Up iP 22 53 48.2
Aleutian Islands
(h = 30 km).

" 15 Um iPKP 23 51 54.9
Tonga Islands (h = 250 km).

" 16 Up eP 00 12 53
microns sec
M E 1.1 20
M N 1.1 18
M Z 1.2 19
Ki iP 00 12 29.9
microns sec
M E 1.1 20
M N 1.0 20
M Z 1.9 20

cont.

1965
May 16 Um eP 00 12 35
cont. i 00 12 40.8
New Guinea (h = 30 km).
Magn. = 5.6 (Up,Ki).

" 16 Up iP 01 41 19.8
microns sec
M E 0.3 11
M N 0.8 14
M Z 0.9 14
Ki iP 01 42 25.0
microns sec
M E 0.4 12
M N 0.3 14
M Z 0.5 14
Sk iP 01 41 59.0
Gb eP 01 41 19
Um eP 01 41 52
Ka iP 01 40 53.0
South of Rhodes Island
(h = 30 km).

" 16 Ki eSn 05 13 42
iSg 05 14 02.6
Um eSg 05 14 52
Probably northwest Russia.
Explosion?

" 16 Ki iP 05 51 03.2
Um iP 05 51 21.2
Colombia (h = 180 km).

" 16 Um iPKP 06 14 43.0
Santa Cruz Islands
(h = 170 km).

" 16 Up iP 11 35 09.2
iS 11 39 45
microns sec
S N 0.3 5
D = 2850 km = 25 1/2°.
Ki iP 11 35 59.2
Um iP 11 35 33.5
iS 11 40 36
Turkey (h = 30 km).

" 16 Up iP 11 45 39.0 D
microns sec
P Z' 0.1 0.9
Ki iP 11 44 51.5
Sk iP 11 45 26.9
Um iP 11 45 13.5 D
Kurile Islands (h = 10 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
May 16 Up iP 11 49 00.2
i 11 49 16.8
microns sec
M E 1.9 20
M N 2.3 22
M Z 2.6 20
Ki eP 11 48 40
i 11 49 59.2
i 11 49 16.7
microns sec
M E 1.8 18
M N 2.3 20
M Z 1.7 19
Sk eP 11 49 05
Um iP 11 48 49.5
Mindanao (h = 40 km).
Magn. = 5.9 (Up,Ki).

" 17 Um iP 01 48 40.0
Aleutian Islands
(h = 30 km).

" 17 Ki iP 13 34 11.3
Um iP 13 34 34.0 D
Kurile Islands (h = 40 km).

" 17 Up iP 17 31 19.9 C
ipP 17 31 48
iPP 17 34 18.3
ePa 17 36 18
iS 17 41 03
iSKS 17 41 35
microns sec
P Z' 1.1 0.8
pP E 1.7 5
pP Z 4.7 5
PP Z' 0.3 1.3
S E 8.4 13
S N 13 11
SKS N 12 7
M E 16 15
M N 50 19
M Z 14 16
D = 8600 km = 77 1/2°.
Ki iP 17 30 56.9 C
ipP 17 31 26
iPa 17 35 49
iS 17 40 21.7
iPS 17 40 49
iLgl 17 58 35
microns sec
P E 2.0 7
P N 0.5 8
P Z 4.0 6
P Z' 2.5 1,0
pP E 4.7 6

cont.

1965
May 17 Ki microns sec
cont. pP Z 11 5
S N 12 10
M E 31 18
M N 34 17
M Z 31 19
D = 8150 km = 73 1/2°.
Sk iP 17 31 24.2 C
iPP 17 34 24.5
Gb iP 17 31 39.4 C
iPP 17 34 48.3
iS 17 41 41.9
Um iP 17 31 05.0 C
iPP 17 33 58
iPa 17 35 54
iS 17 40 34
Ka iP 17 31 33.2 C
Formosa.
h = 110 km (Up,Ki).
Magn. = 7.0 (Up,Ki).
The records exhibit a number of interesting features: 1) the pP-phases are very well pronounced on the long-period E and Z components at Up and Ki; 2) well recorded Pa-phases with high velocities (8.3-8.5 km/sec), typical for paths from Formosa across Eurasia; 3) well developed Lgl waves (Ki) along the longest possible continental paths to our stations. —The focal depth is probably in excess of normal (our readings are confirmed by reports from Rome, Pruhonice, Caracas, Byerly, Raciborz, Chorzow, Ifrane; Moscow reports a depth of 64 km, whereas USCGS gives only 21 km); on the other hand, the surface waves are as developed as they should be for a shock of this magnitude at shallow depth.

" 17 Up iP 20 31 53.1 C
microns sec
P Z' 0.1 1.3
Ki iP 20 30 57.2
Sk iP 20 31 34.9 C
Gb iP 20 32 12.8 C
Ka iP 20 32 18.2 C
Komandorsky Islands
(h = 70 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
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1965
May 18 Up iP 01 16 29.0
microns sec
P Z' 0.1 1.0
Ki iP 01 17 02.2
microns sec
P Z' 0.2 1.4
Sk iP 01 16 52.3
Gb iP 01 16 28.4
Um iP 01 16 44.5 D
Ka iP 01 16 15.2
Madagascar (h = 30 km).
Magn. = 5.8 (Up,Ki).

" 18 Um iP 08 16 37.0
Volcano Islands (h = 10 km).

" 18 Um iP 08 43 46.0

" 18 Um iPKP 09 54 45.0
i 09 54 56.8
South of Kermadec Islands
(h = 30 km).

" 18 Up eL 12 50
microns sec
M E 0.4 14
M N 0.7 15
M Z 0.6 13
Ki eL 12 45
microns sec
M E 0.9 15
M N 0.6 16
M Z 0.8 14
East China Sea (h = 30 km).
Compare remark to an East
China Sea earthquake on
May 7, 07 56.

" 18 Um iP 19 49 17.7
Costa Rica (h = 30 km).

" 18 Up iP 22 12 49.0

" 18 Up iP 22 57 30.3
Ki iP 22 56 45.8
Sk eP 22 57 24
e 22 57 49
Gb iP 22 57 52.9
Um iP 22 57 06.6
Kurile Islands (h = 50 km).

" 18 Um iPKP 23 47 18.8 C
South of Kermadec Islands
(h = 370 km).

1965
May 19 Up iPKP 03 19 46.7
Ki iPKP 03 19 34.7 C
Sk iPKP 03 19 45.5
Um iPKP 03 19 40.0
Ka iPKP 03 19 53.2
Solomon Islands (h = 50 km).

" 19 Up iP 03 21 57.8
Ki iP 03 21 04.2
Um iP 03 21 30.1
Aleutian Islands (h = 50 km).

" 19 Up iPKP 04 40 44.8
Ki iPKP 04 40 39.9
Gb i 04 41 18.6
Um ePKP 04 40 42
iPKS 04 44 17.8
Ka iPKP 04 40 59.4
i 04 41 22.3
South of Fiji Islands
(h = 30 km).

" 19 Ki iSn 05 22 03.9
iSg 05 22 22.0
Possibly northwest Russia.
Explosion?

" 19 Ki iP 06 17 10.4 C
microns sec
M E 0.9 18
M N 0.7 16
M Z 1.0 18
Sunda Strait (h = 70 km).

" 19 Up iPg 10 55 38.8
i 10 55 40.2
iSg 10 55 53.2
D = 120 km = 1.1°
UME iSg 10 57 55.3
Baltic Sea, off Swedish coast,
59°N, 19°E.
Origin time = 10 55 17.
Probably underwater explosion.

" 19 Up iP 18 07 06.7
Ki iP 18 06 19.5 C
Um iP 18 06 41.2
Kurile Islands (h = 30 km).

" 19 Up iP 22 18 08.2 C
microns sec
P Z' 0.1 1.0
Ki iP 22 17 14.9 C
Sk iP 22 17 48.3

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 May 19 cont.

Gb	iP	22 18 25.5	C
Um	iP	22 17 40.7	C

Aleutian Islands (h = 40 km).

" 19

Up	iP	22 28 54.6	
Ki	iP	22 28 07.5	
Um	iP	22 28 29.2	

Kurile Islands (h = 10 km).

" 19

Up	iPKP	23 50 31.1	
	i	23 50 32.3	
	microns	sec	
	PKP Z'	0.2	0.9
Ki	iPKP	23 50 23.7	
	iSKP	23 53 04.3	
	microns	sec	
	PKP Z'	0.1	1.0
Sk	iPKP	23 50 23.3	
	i	23 50 34.3	
	iSKP	23 53 20.8	
Gb	iPKP	23 50 41.0	
Um	iPKP	23 50 18.9	Po"
	i	23 50 25.8	P1"
	i	23 50 30.7	P"
	iSKP	23 53 16.1	
	i	23 53 34.3	
Ka	iPKP	23 50 42.9	

Fiji Islands (h = 550 km).
The existence of three distinct PKP-phases, Po", P1" and P" (see Payo Subiza and Båth, Geophys. J., 8:496-513, 1964), is excellently confirmed by the Um-records.

" 20 Ka iP 00 41 54.4

" 20

Up	e(PKP)	00 59 19	
	iPKP	00 59 32.5	
	ePP	01 01 23	
	iPKS	01 02 42	
	iPKS2	01 02 53	
	microns	sec	
	PKP Z	0.9	5
	PKP Z'	0.4	1.5
	PP N	0.7	5
	PP Z	2.2	7
	PKS2 E	2.2	6
	PKS2 N	3.3	5
	PKS2 Z	2.8	5
	M E	43	22
	M N	68	23
	M Z	86	22

(D = 14350 km = 129°).

cont.

1965 May 20 cont.

Ki	i(PKP)	00 59 08.0	
	iPKP	00 59 14.4	
	iPP	01 00 43	
	microns	sec	
	PKP Z'	0.2	1.0
	PP N	0.6	8
	PP Z	1.4	6
	M E	67	24
	M N	51	23
	M Z	73	23

(D = 13550 km = 122°).

Sk	iPKP	00 59 21.7
Gb	e(PKP)	00 59 26
	iPKP	00 59 39.9
	iPKS	01 02 56.6
Um	i(PKP)	00 59 13.6
	iPKP	00 59 25.1
	iPP	01 01 04
	iSKS	01 06 09
	iSKKS	01 07 58
	iPKKS	01 12 38
Ka	e(PKP)	00 59 33
	iPKP	00 59 39.5
	iPKS	01 02 56.9

New Hebrides Islands (h = 15 km).
Magn. = 6.9 (Up,Ki).
PKP has considerably larger amplitudes than (PKP).

" 20

Ki	iPKP	02 23 14.0	D
	i	02 23 27.3	
Um	iPKP	02 23 20.9	
	i	02 23 28.7	

New Zealand (h = 50 km).

" 20

Up	iP	02 24 28.9
Ki	iP	02 23 39.5

Aleutian Islands (h = 40 km).

" 20

Up	iP	08 27 14.8
Ka	i(P)	08 28 16.8

" 20

Up	eP	14 19 20	
Ki	eP	14 19 19	
	microns	sec	
	M E	0.7	17
	M N	0.6	18
Um	iP	14 19 16.6	

Sumatra (h = 70 km).

" 20

Up	iPKP2	20 57 54.7	
Ki	iPKP	20 57 21.9	
	iPKP2	20 57 46.2	
	microns	sec	
	PKP Z'	0.2	1.1

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 May cont.	20	Um	iPKP	20 57 27.1	C
		Gb	iPKP2	20 58 08.6	
		New Zealand (h = 110 km).			
"	20	Up	iP	21 49 31.1	
"	21	Ki R	iSn	05 37 55.2	
			iSg	05 38 13.4	
			D = 460 km = 4.1°.		
		Sk KA	eSg	05 40 48	
		Um ME	iSn	05 38 38.2	
			iSg	05 39 18.9	
			D = 660 km = 5.9°.		
		Northwest Russia, 67.7°N, 31.2°E. Origin time = 05 36 00. Explosion?			
"	21	Up	iP	10 43 58.4	C
"	21	Ki	iPKP	16 14 05.7	
		New Zealand (h = 30 km).			
"	21	Up	iPKP2	19 01 12.1	C
		Ki	iPKP	19 00 41.5	
			iPKP2	19 00 53.1	
		Sk	iPKP	19 00 55.6	
		Um	iPKP	19 00 51.2	
		New Zealand (h = 30 km).			
"	21	Up	iP	20 45 12.0	C
"	22	Ki	iP	03 19 02.4	C
		Sk	eP	03 19 23	
			e	03 22 43	
		Molucca Passage (h = 25 km).			
"	22	Up	iP	06 03 22.9	
"	22	Up	iP	08 38 36.5	
"	22	Up	iP	09 24 14.6	
		Ki	iP	09 23 44.3	
			i	09 23 55.4	
		Sk	eP	09 23 58	
"	22	Up	iP	10 21 30.5	
			microns	sec	
			P Z'	0.1 0.5	
"	22	Up	iPKP	10 49 55.4	
			iSKP	10 52 48.5	
			iPKS	10 53 39	
			microns	sec	
			PKP Z'	0.2 0.8	

cont.

1965 May cont.	22	Ki	i(PKP)	10 49 35.7	
			iPKP	10 49 48.3	
			ePP	10 52 15	
			iSKP	10 52 25.5	
			iPKS	10 53 15	
			microns	sec	
			PKP Z'	0.2 1.0	
			PP Z	0.5 6	
			SKP Z'	0.3 1.5	
			PKS E	0.7 6	
			PKS N	0.7 7	
		Sk	i(PKP)	10 49 46.7	
			iPKP	10 49 58.6	
			iSKP	10 52 41.4	
		Gb	iPKP	10 50 04.7	
		Um	i(PKP)	10 49 44.0	
			iPKP	10 49 55.1	
			iSKP	10 52 37.4	
			iPKS	10 53 26	
			isPKS	10 56 29	
		Ka	iPKP	10 50 06.7	
		Fiji Islands (h = 580 km).			
"	22	Um	iP	11 02 07.4	
"	22	Um	iPKP	13 38 11.8	
		New Hebrides Islands (h = 25 km).			
"	22	Sk	ePKP	14 29 52	
		Um	ePKP	14 29 46	
		New Hebrides Islands (h = 15 km).			
"	22	Um	iP	15 37 28.5	
			i	15 37 36.4	
		South Atlantic Ocean (h = 30 km).			
"	22	Ki R	iSg	15 48 09.2	
		Sk KA	eSg	15 48 14	
		Um ME	iSg	15 48 36.0	
		Nordlands Fylke, Norway, 66.7°N, 14.0°E. Origin time = 15 46 32.			
"	22	Up	eP	16 21 26	
			microns	sec	
			P Z'	0.1 1.2	
		Ki	iP	16 22 05.2	
			microns	sec	
			P Z'	0.1 1.5	
		Sk	iP	16 21 37.7	
		Gb	eP	16 21 07	
			i	16 21 12.6	
		Um	iP	16 21 47.7	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 May cont.	22	Um	i	16 21 53.5	
		South Atlantic Ocean (h = 30 km). Magn. = 5.6 (Up,Ki).			
"	22	Ki	i(Pn)	16 30 49.1	C
			iSn	16 31 37.9	
			iSg	16 31 53.0	
			D = 380 km = 3.4°.		
		Sk KA	eSg	16 34 42	
		Um ME	iSn	16 32 43.0	
			iSg	16 33 21.3	
			D = 670 km = 6.0°.		
		Northwest Russia, 68.7°N, 29.5°E. Origin time = 16 30 00. Explosion?			
"	22	Sk	iP	20 12 07.0	
		Italy.			
"	22	Ki	iP	19 02 58.8	
		Um	iP	19 03 17.3	
		Japan (h = 40 km).			
"	22	Up	iPKP2	22 34 45.0	
		Ki	iPKP	22 34 14.9	C
			microns sec		
			PKP Z' 0.1 1.2		
		Sk	ePKP	22 34 29	
		Um	iPKP	22 34 24.7	
"	22	Ki	iPKP	23 46 28.3	
			i	23 46 40.0	
		Um	iPKP	23 46 37.5	
"	23	Ki	iP	00 26 26.4	
		Sinkiang.			
"	23	Ki	iP	01 46 55.4	
		Um	iP	01 47 21.2	
		Aleutian Islands (h = 40 km).			
"	23	Up	iP	01 57 54.9	
		Um	iP	01 57 36.2	
"	23	Up	iP	04 09 27.6	
		Ki	iP	04 08 45.4	
		Um	iP	04 09 04.4	C
			i	04 09 13.1	
		East of Japan (h = 30 km).			
"	23	Up	iP	07 58 29.6	D
			microns sec		
			P Z' 0.1 1.0		

cont.

1965 May cont.	23	Ki	iP	07 59 09.4	D
			microns sec		
			P Z' 0.1 1.2		
		Sk	iP	07 58 41.3	
		South Atlantic Ocean (h = 30 km). Magn. = 5.7 (Up,Ki).			
"	23	Up	iP	16 16 24.6	C
		Ki	iP	16 16 11.4	
			microns sec		
			M N 1.1 23		
		Sk	eP	16 16 34	
		Yunnan (h = 30 km).			
"	23	Up	iP	23 57 03.1	C
			iS	00 05 50.7	
			iP'P'	00 25 10.2	
			i	00 25 32.5	
			microns sec		
			P Z' 0.7 0.8		
			S E 0.4 7		
			S N 0.7 5		
			P'P'Z' 0.1 1.2		
			M E 2.2 19		
			M N 8.1 23		
			M Z 8.3 23		
			D = 7450 km = 67°.		
		Ki	iP	23 56 09.7	C
			eS	00 04 12	
			eP'P'	00 25 43	
			microns sec		
			P N 0.7 6		
			P Z 1.2 5		
			P Z' 0.7 0.8		
			S E 0.8 9		
			S N 1.0 8		
			P'P'Z' 0.1 1.5		
			M E 3.3 20		
			M N 4.4 23		
			M Z 7.8 23		
			D = 6550 km = 59°.		
		Sk	iP	23 56 43.7	
			i	23 56 49.6	
		Gb	iP	23 57 21.4	C
		Um	iP	23 56 35.3	C
			iPcP	23 57 16.1	
			ePa	00 00 40	
			iS	00 04 57	
			iP'P'	00 25 43.3	
		Ka	iP	23 57 27.3	C
		Aleutian Islands (h = 20 km). Magn. = 6.2 (Up,Ki).			
"	24	Ki	eP	03 45 45	
		Sk	iP	03 46 33.4	
		Laptev Sea (h = 15 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
May	24	Ki	iP	13 59 12.8	
		Sk	iP	13 59 46.5	
		Um	iP	13 59 30.4	C
			i	13 59 41.2	
		East of Japan (h = 30 km).			
"	24	Ki	eP	16 53 28	
		Um	iP	16 53 33.1	
		Molucca Sea (h = 70 km).			
"	24	Up	iP	23 33 53.4	C
			ipP	23 34 03.4	
			i	23 34 45.7	
			iS	23 44 23	
			microns	sec	
			P Z'	0.2	0.8
			S E	0.8	9
			S N	1.0	7
			M E	1.9	20
			M N	3.1	19
			M Z	2.9	22
			D = 9650 km = 87°.		
		Ki	iP	23 33 34.9	C
			ipP	23 33 43.7	
			iS	23 43 51	
			iScS	23 44 06	
			microns	sec	
			P E	0.4	6
			P Z	1.3	7
			P Z'	0.3	0.9
			pP Z'	0.8	1.5
			S N	1.6	10
			M E	3.0	16
			M N	1.9	18
			M Z	3.4	19
			D = 9200 km = 83°.		
		Sk	iP	23 33 57.2	C
			ipP	23 34 10.8	
		Gb	iP	23 34 10.0	C
			ipP	23 34 22.2	
		Um	iP	23 33 41.2	C
			ipP	23 33 51.0	
			iPP	23 36 58	
			iS	23 44 01	
			iScS	23 44 13	
		Ka	iP	23 34 04.7	
			ipP	23 34 17.1	
		Samar. h = 40 km (Up,Ki, Sk,Gb,Um,Ka).			
		Magn. = 6.2 (Up,Ki).			
"	25	Ki	iP	01 42 19.3	
			ipP	01 42 40.6	
		Um	iP	01 42 33.2	
			ipP	01 42 53.9	
		Volcano Islands. h = 80 km (Ki,Um).			
1965					
May	25	Up	iP	13 18 46.1	C
			eS	13 27 43	
			microns	sec	
			P Z'	0.1	0.6
			M E	1.8	19
			M N	1.5	19
			M Z	1.5	19
			D = 7500 km = 67 1/2°.		
		Ki	iP	13 17 54.7	
			eS	13 25 54	
			microns	sec	
			P Z	0.5	6
			S E	0.4	12
			S N	0.3	9
			M E	3.1	18
			M N	1.5	17
			M Z	3.6	17
			D = 6650 km = 60°.		
		Sk	eP	13 18 26	
			i	13 18 51.9	
		Gb	eP	13 19 02	
		Um	iP	13 18 20.5	C
			iPcP	13 18 55.3	
			iS	13 26 49	
			ePS	13 27 10	
			iP'P'	13 47 13.6	
			i	13 47 23.4	
		Ka	iP	13 19 10.4	
			i(pP)	13 19 20.7	
			i	13 19 42.6	
		Aleutian Islands (h = 40 km).			
		Magn. = 5.7 (Up,Ki).			
"	25	Up	iPKP2	17 43 40.8	
		Ki	iPKP	17 43 11.2	C
			i	17 43 22.1	
			microns	sec	
			PKP Z'	0.1	1.0
		Sk	iPKP	17 43 25.7	
		Um	iPKP	17 43 24.4	
		New Zealand (h = 30 km).			
"	25	Up	---		
			microns	sec	
			M E	0.8	20
			M N	0.6	20
			M Z	0.7	21
		Ki	iPKP	18 53 36.4	
			microns	sec	
			M E	0.6	18
			M N	0.4	18
			M Z	1.2	22
		Um	eSS	19 13 15	
		Fiji Islands (h = 15 km).			
"	26	Up	iP	05 11 21.8	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 May cont.	26	Up	i	05 11 48.4	
		Sk	eP	05 11 03	
		Gb	iP	05 11 12.1	
		Um	iP	05 11 19.9	
		Guatemala (h = 40 km).			
"	26	Up	iPKP	07 02 43.5	
			i	07 02 48.1	
			iPKP2	07 02 54.9	
			microns	sec	
			PKP2 Z'	0.1	0.5
		Ki	iPKP	07 02 24.6	C
			microns	sec	
			PKP Z'	0.2	1.0
		Sk	iPKP	07 02 39.1	C
			iPKP2	07 02 52.5	
		Gb	iPKP2	07 03 07.7	
		Um	iPKP	07 02 34.2	C
		New Zealand (h = 60 km).			
"	26	Up	iPKP2	08 53 26.7	
		Ki	iPKP	08 52 56.6	
			iPKP2	08 53 05.7	
			microns	sec	
			PKP Z'	0.1	1.3
			PKP2 Z'	0.3	1.5
		Sk	iPKP	08 53 10.7	C
			iPKP2	08 53 21.9	
		Um	iPKP	08 53 06.3	
			iPKP2	08 53 17.5	
		New Zealand (h = 50 km).			
"	26	Ki	ePn	10 46 02	
			iSg	10 46 35.1	
		~~D = 210 km = 1.9°.~~			
		Sk	iSg	10 47 31.4	
		Um	~~i~~	~~10 47 29.8~~	
			iSg	10 47 36.6	
		Nordlands Fylke, Norway, 67.1°N, 15.5°E.			
		Origin time = 10 45 31.			
"	26	Ka	eP	11 33 30	
"	26	Up	iP	14 04 09.6	
			microns	sec	
			M N	0.8	19
		Ki	iP	14 04 55.1	
			microns	sec	
			M E	0.9	18
			M N	0.8	18
			M Z	0.8	12
		Sk	iP	14 04 47.9	
		Um	iP	14 04 27.3	
			i	14 04 48.9	
		Ka	iP	14 03 57.2	
		Iraq (h = 50 km).			

1965 May cont.	26	Ki	iP	14 22 56.1	
		Um	iP	14 23 05.0	
"	26	Um	iP	14 24 00.2	
"	26	Um	iP	14 26 09.4	
"	26	Ki	iP	19 03 33.3	
		Sk	eP	19 04 20	
		Um	iP	19 04 27.0	
"	26	Up	iP	19 26 41.5	
			microns	sec	
			P Z'	0.1	0.9
		Ki	iP	19 25 48.2	C
		Sk	iP	19 26 21.9	C
		Um	iP	19 26 14.4	C
		Ka	iP	19 27 05.2	C
		Aleutian Islands (h = 40 km).			
"	26	Up	iPKP	20 02 47.5	
			ipPKP	20 03 18.8	
			iPKKP	20 12 50.8	
			i	20 16 04.3	
			microns	sec	
			PKP Z'	0.1	0.6
			M E	0.5	18
			M N	0.5	18
		Ki	iPKP	20 03 03.2	C
			ipPKP	20 03 33.1	
			iSKP	20 06 09.2	
			microns	sec	
			PKP Z'	0.5	1.0
			M E	0.7	20
			M N	1.0	20
			M Z	1.6	20
		Sk	iPKP	20 02 52.7	C
			ipPKP	20 03 24.2	
		Gb	iPKP	20 02 42.0	
		Um	iPKP	20 02 56.1	C
			i	20 03 02.2	
			ipPKP	20 03 26.8	
			ipPP	20 05 22.4	
			iPKS	20 06 17.7	
			i	20 11 46.3	
			i	20 15 54.9	
		Ka	iPKP	20 02 41.3	C
			ipPKP	20 03 12.6	
			iPKKP	20 13 04.6	
		South Sandwich Islands. h = 110 km (Up,Ki,Sk,Um,Ka).			
"	26	Up	iPKP	22 19 50.7	
			i	22 19 59.9	
		Sk	iPKP	22 19 45.9	
			i	22 19 50.3	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 May cont.	26	Um	iPKP	22 19 40.6	D
		Ka	iPKP2	22 20 15.2	
		South of Kermadec Islands (h = 100 km).			
"	26	Up	iPKP	23 38 32.2	
			microns	sec	
			PKP Z'	0.1 0.5	
		Sk	iPKP	23 38 24.6	
		Gb	iPKP	23 38 40.1	
		Um	ePKP	23 38 20	
		Ka	iPKP	23 38 42.5	
		Kermadec Islands (h = 170 km).			
"	26	Up	iP	23 43 03.0	
		Ki	iP	23 42 14.3	
		Sk	iP	23 42 52.8	
		Um	iP	23 42 38.3	
		Kurile Islands (h = 30 km).			
"	27	Ki	eP	13 06 43	
		Unimak Island (h = 30 km).			
"	27	Up	iPKP	13 24 33.1	C
			microns	sec	
			PKP Z'	0.1 0.6	
		Um	iSKP	13 27 19.5	
		Ka	iPKP	13 24 44.0	
		South of Fiji Islands (h = 470 km).			
"	27	Up	iP	14 07 31.2	
		Aleutian Islands (h = 30 km).			
"	27	Up	iP	19 40 13.8	
		Ki	iP	19 39 20.9	
			microns	sec	
			P Z'	0.1 1.3	
		Sk	iP	19 39 48.2	
		Gb	iP	19 40 25.4	
			ipP	19 40 35.7	
		Um	iP	19 39 48.7	
			iS	19 48 19	
		Ka	iP	19 40 36.1	
			ipP	19 40 45.6	
		South of Alaska. h = 40 km (Gb,Ka).			
"	27	Up	iP	22 40 38.3	
		Ki	iP	22 39 44.6	C
		Sk	iP	22 40 20.0	
		Gb	iP	22 40 56.6	
		Um	iP	20 40 11.3	C
		Ka	iP	22 41 02.6	C
		Aleutian Islands (h = 40 km).			
1965 May	28	Up	i	03 59 55.5	
			eS^x	04 00 11	
			iSg	04 00 19.9	
			microns	sec	
			Sg Z'	0.3 0.6	
		Ki	e	04 00 07	
			i	04 00 27.9	
			iSg	04 00 56.7	
		Sk	ePn	03 57 44	
			iSg	03 58 28.3	
		Gb	eSn	03 59 39	
			iS^x	04 00 08.1	
			iSg	04 00 15.2	
		Um	ePn	03 58 30	
			iP^x	03 58 37.8	
			iSn	03 59 31.7	
			iS^x	04 00 11.6	
			iSg	04 00 16.6	
		Ka	eSn	04 00 36	
			i	04 00 50.7	
			iSg	04 01 23.0	
		Coast of Norway. The agreement between these data and the BCIS solution is not quite satisfactory.			
"	28	Up	iP	05 28 36.3	
			ipP	05 28 46.3	
		Ki	eP	05 28 16	
			ipP	05 28 24.7	
		Sk	eP	05 28 52	
		Um	iP	05 28 30.9	
		Philippine Islands. h= 40 km (Up,Ki).			
"	28	Gb	iP	07 14 29.8	
		Um	iP	07 13 42.4	
		Kurile Islands (h = 30 km).			
"	28	Up	iP	09 38 30.6	
		Ki	iP	09 38 40.1	
		Sk	iP	09 38 56.1	
		Gb	iP	09 38 51.7	
		Um	iP	09 38 29.6	D
		Ka	iP	09 38 35.1	
			ipP	09 39 33.5	
			i	09 39 55.6	
		Hindu Kush. h = 290 km (Ka).			
"	28	Up	iP	14 19 58.8	
"	28	Up	iP	14 52 07.0	
" cont.	28	Up	iP	18 24 59.3	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 May 28 cont.

Ki iP 18 24 06.1
Gb iP 18 25 16.9
Um iP 18 24 31.0
Aleutian Islands
(h = 70 km).

" 29 Up iP 01 53 04.3
Ki iP 01 54 15.7
i 01 54 19.7
Sk eP 01 53 43
i 01 53 50.8
Ka eP 01 52 31
i 01 52 34.1
Crete (h = 70 km).

" 29 Ki eL 02 34
microns sec
M E 0.7 19
M N 0.5 19
Indian Ocean (h = 70 km).

" 29 Up iP 04 20 14.2 C
i 04 20 17.3
iS 04 24 37
microns sec
P Z' 0.1 1.1
M E 0.5 13
M N 1.0 16
M Z 0.6 13
D = 2700 km = 24 1/2°.
Ki iP 04 21 24.6
microns sec
P Z' 0.1 1.0
M E 0.3 12
M N 0.3 13
M Z 0.6 13
Sk iP 04 20 52.4
Gb eP 04 20 02
Um iP 04 20 48.7 C
Ka iP 04 19 39.1
i 04 19 43.2
iS 04 23 32.4
Crete (h = 60 km).
Magn. = 5.5 (Up,Ki).
The Up PZ' exhibits a first arrival of lower frequency (period 1.1 sec), followed after 3.1 sec by waves of higher frequency (period 0.4 sec). Ka Z' shows a similar picture.

" 29 Up iP 09 28 14.2
microns sec
P Z' 0.1 0.6
Ka iP 09 28 49.7

1965 May 29 Um iP 12 06 29.8
Panama-Colombia (h = 30 km).

" 29 Up iP 13 05 36.2
Iraq.

" 29 Um iP 14 02 46.6

" 29 Ka iP 14 13 36.0

" 29 Up ---
microns sec
M E 1.1 23
M N 1.2 20
M Z 1.6 20
Ki e 16 12 38
microns sec
M E 1.1 20
M N 1.0 20
M Z 2.6 23
Um iSS 16 22 57
South Pacific Ocean
(h = 30 km).
Magn. = 5.8 (Up,Ki).

" 29 Up iP 19 13 31.1

" 29 Up iP 22 49 26.4
Hindu Kush (h = 200 km).

" 29 Ki ---
microns sec
M E 0.4 16
M N 0.4 15
M Z 0.8 16
Um iP 23 00 41.9
Iceland (h = 30 km).

" 30 Up iP 01 25 11.2 C
ipP 01 25 20.9
Um iP 01 24 43.5
Aleutian Islands.
h = 40 km (Up).

" 30 Up iPKP 02 46 41.2
South of Fiji Islands
(h = 570 km).

" 30 Sk iP 03 09 22.5

" 30 Um iP 05 02 45.9
i 05 02 59.3

" 30 Um iP 05 57 09.2

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 May	30	Up	iP	08 58 29.6	
		Burma-India (h = 90 km).			
"	30	Ki	iP	09 24 32.4	
		Luzon (h = 50 km).			
"	30	Ki	eSn	09 37 44	
			iSg	09 38 07.6	
		Sk	iSg	09 40 35.3	
		Um	i(S^x)	09 38 52.6	
			iSg	09 39 12.8	
		Northwest Russia.			
		Explosion?			
"	30	Up	iP	11 46 00.8	
			ipP	11 46 42.9	
		Ki	iP	11 46 11.2	
			ipP	11 46 55.2	
		Sk	epP	11 47 08	
		Ka	epP	11 46 36	
			i	11 46 47.6	
		Hindu Kush.			
		h = 210 km (Up,Ki).			
"	30	Gb	i(P)	13 04 27.3	
"	30	Up	eSS	14 01 34	
		Ki	iP	13 57 02.7	
			i	13 57 09.2	
		Sk	iP	13 57 09	
			i	13 57 19.6	
			iS	13 59 04.5	
		Um	iP	13 57 38.7	
			iS	13 59 55.5	
			iSS	14 00 27.0	
		Jan Mayen (h = 15 km).			
"	30	Ki	iP	22 53 01.2	
"	31	Up	iP	00 20 44.5	
			i	00 21 17.8	
		Ki	eP	00 20 11	
		Sk	eP	00 20 34	
			i	00 20 45.4	
"	31	Up	iP	02 13 17.3	
			eLg2	02 30 38	
				microns sec	
			M E	1.4 13	
			M N	3.2 16	
			M Z	1.8 14	
		Ki	iP	02 13 21.2	
			i	02 15 39.2	
			iSS	02 23 57	

cont.

1965 May cont.	31	Ki		microns sec	
			P	Z' 0.1 1.0	
			M	E 0.8 11	
			M	N 1.9 14	
			M	Z 1.3 12	
		Sk	iP	02 13 40.8	
		Gb	eP	02 13 40	
			i	02 13 44.3	
		Ka	iP	02 13 23.4	
		Kashmir-Tibet (h = 30 km).			
"	31	Up	iP	03 31 40.1	
			i	03 31 46.4	
		Sk	iP	03 31 11.3	
		Vancouver Island			
		(h = 10 km).			
"	31	Up	iP	04 11 38.6	
"	31	Ki	iP	04 51 39.2	
		Sk	iP	04 51 51.6	
		Afghanistan.			
"	31	Up	iP	08 49 27.1 C	
				microns sec	
			P	Z' 0.3 0.7	
		Ki	iP	08 48 49.4 C	
			iPP	08 51 13.6	
				microns sec	
			P	Z' 0.2 0.9	
			PP	Z' 0.1 1.0	
		Sk	iP	08 49 22.5 C	
			iPP	08 52 01.6	
		Gb	iP	08 49 47.7 C	
			ipP	08 50 14.3	
		Ka	iP	08 49 45.7 C	
			i	08 49 53.6	
		Japan.			
		h = 100 km (Gb).			
		Magn. = 6.2 (Up,Ki).			
"	31	Sk	eP	09 27 02	
		Italy (h = 30 km).			
"	31	Up	iP	11 03 23.6	
		Ki	iP	11 02 29.0	
		Sk	iP	11 02 56.9 D	
		Kodiak Island (h = 30 km).			
"	31	Ki	iP	11 35 06.6	
		South of Japan (h = 40 km).			
"	31	Up	iPKP	11 57 01.5	
			iSKS	12 03 11	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965						
May	31	Up			microns	sec
cont.			M	E	0.8	21
			M	N	2.0	24
			M	Z	1.4	21
		Ki	iP		11 52 28.0	
			iPKS		12 00 36	
			iSKS		12 02 57	
					microns	sec
			SKS	E	0.9	7
			M	E	1.8	22
			M	N	0.9	19
			M	Z	1.8	21
		Banda Sea (h = 40 km).				
		Magn. = 5.8 (Up,Ki).				
"	31	Up	iP		14 14 45.0	
"	31	Ka	iP		14 25 29.3	C
"	31	Up	iP		14 33 31.7	
"	31	Sk	iP		15 10 32.7	
		Atlantic Ocean (h = 30 km).				
"	31	Ki	eP		20 29 23	
		Alaska (h = 30 km).				
"	31	Ki	iP		23 56 56.2	
		New Zealand (h = 30 km).				

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January 17, 1966

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Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G,

U M E Å and K A R L S K R O N A

Uppsala	(Up):	59°51.5'N, 17°37.6'E;	h = 14 m
Kiruna	(Ki):	67°50.4'N, 20°25.0'E;	h = 390 m
Skalstugan	(Sk):	63°34.8'N, 12°16.8'E;	h = 580 m
Göteborg	(Gb):	57°41.9'N, 11°58.7'E;	h = 66 m
Umeå	(Um):	63°48.9'N, 20°14.2'E;	h = 16 m
Karlskrona	(Ka):	56°09.9'N, 15°35.5'E;	h = 11 m

J U N E 1 - 30, 1965

1965 June 1 Up iP 04 43 29.4 C
i 04 43 45.2
ipP 04 43 51.5
microns sec
P Z' 0.1 0.6
Ki iP 04 43 25.1
ipP 04 43 45.2
i 04 43 51.5
microns sec
P Z' 0.1 1.0
Sk iP 04 43 45.2 C
ipP 04 44 07.7
Gb iP 04 43 48.2
ipP 04 44 10.4
Ka iP 04 43 36.6
ipP 04 43 58.8
Burma. h = 80 km (Up,Ki,Sk, Gb,Ka).
Magn. = 6.0 (Up,Ki).
Searching bulletins, we find that our interpretation pP - P = 22 sec is confirmed by readings at 11 other stations, whereas only one station suggested pP - P = 16 sec. However, in our records we find a small phase about 16 sec after P, but P and pP are much larger. Other interpretations than the one given above are naturally possible.

" 1 Ki iPn 07 55 31.4
iSn 07 56 08.5
iSg 07 56 25.6
Probably northwest Russia. Explsion?

1965 June 1 Up iP 08 01 45.4 C
eS 08 09 06
microns sec
P Z' 0.1 0.9
M E 0.6 17
M N 1.1 19
M Z 1.4 21
D = 5950 km = 53 1/2°.
Ki iP 08 01 46.3 C
eSa 08 13 40
microns sec
P Z' 0.1 0.9
M E 1.5 18
M N 1.4 18
M Z 2.5 18
Sk iP 08 02 05.6 C
Gb iP 08 02 05.4 C
Ka iP 08 01 51.1 C
i 08 01 55.1
i 08 02 00.9
Nepal (h = 30 km).
Magn. = 5.8 (Up,Ki).

" 1 Up iP 15 25 18.9
Ki iP 15 26 03.9
i 15 26 09.2
Azores Islands (h = 5 km).

" 1 Up iP 15 36 45.6

" 1 Up iP 21 29 35.1

" 1 Ki iP 23 48 31.7 C
i 23 48 39.7
Sk iP 23 48 36.6
iS 23 50 25.3
D = 1050 km = 9 1/2°.
Jan Mayen.
Origin time = 23 46 20.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June	2	Up	iPKP	05 31 24.3	
			microns	sec	
			PKP Z'	0.2	0.9
		Ki	i(PKP)	05 30 58.9	
			iPKP	05 31 13.9	
			iSKP	05 33 54.6	
			microns	sec	
			PKP Z'	0.1	1.0
		Sk	iPKP	05 31 16.3	
		Gb	iPKP	05 31 34.6	C
			ipPKP	05 33 40.9	
		Ka	iPKP	05 31 35.0	
			i	05 31 58.8	
			ipPKP	05 33 42.5	
		South of Fiji Islands.			
		h = 570 km (Gb,Ka).			
"	2	Up	iPKP	15 03 59.2	
			i	15 04 04.0	
			iSKP	15 06 42.9	
		Ki	ePKP	15 03 52	
			i	15 03 53.1	
			iSKP	15 06 15.6	
			iPKS	15 07 16.0	
			microns	sec	
			SKP Z'	0.1	1.2
		Sk	ePKP	15 03 52	
			iSKP	15 06 33.4	
		Gb	iPKP	15 04 07.1	
			iSKP	15 06 51.3	
		Ka	iPKP	15 04 10.7	
		Fiji Islands (h = 640 km).			
"	2	Up	iP	15 23 40.7	D
"	2	Up	iP	23 50 51.1	D
			iS	23 59 23	
			microns	sec	
			P E	0.2	3
			P Z	0.5	3
			P Z'	0.6	2.0
			S E	0.6	7
			S N	1.2	7
			M E	2.4	18
			M N	2.0	17
			M Z	2.9	18
			D = 7000 km = 63°.		
		Ki	iP	23 51 13.1	
			eS	00 00 03	
			iPS	00 00 28	
			microns	sec	
			P Z'	0.7	2.0
			S N	1.3	9
			M E	5.4	22
			M N	2.6	23
			M Z	6.3	22
			D = 7400 km = 66 1/2°.		

cont.

1965 June cont.	2	Sk	iP	23 50 43.8	
		Gb	iP	23 50 29.0	D
		Ka	iP	23 50 38.3	D
			i	23 50 49.7	
		North Atlantic Ocean			
		(h = 30 km).			
		Magn. = 6.0 (Up,Ki).			
"	3	Up	iP	07 54 28.2	C
			ipP	07 54 39.0	
			microns	sec	
			P Z'	0.1	1.0
		Ki	iP	07 53 34.5	C
			ipP	07 53 45.3	
			microns	sec	
			P Z'	0.2	1.0
			M E	0.8	19
			M N	0.7	21
			M Z	1.0	18
		Sk	iP	07 54 08.2	C
		Gb	iP	07 54 45.1	C
		Ka	iP	07 54 51.3	C
			ipP	07 55 00.7	
		Aleutian Islands.			
		h = 40 km (Up,Ki,Ka).			
		Magn. = 5.9 (Up,Ki).			
"	3	Up	eP	11 08 37	
		Ki	iP	11 08 39.3	C
			microns	sec	
			P Z'	0.1	1.5
			M E	0.8	21
			M N	0.7	21
			M Z	1.0	20
		Sk	iP	11 08 21.7	C
			ipP	11 08 33.4	
		Gb	iP	11 08 23.0	
			ipP	11 08 34.3	
		Ka	iP	11 08 34.8	
			ipP	11 08 46.2	
		Dominican Republic.			
		h = 40 km (Sk,Gb,Ka).			
"	3	Up	iP	15 38 13.9	
"	3	Up	iP	18 36 25.9	
			iS	18 40 08	
			microns	sec	
			M E	2.7	18
			M N	1.5	13
			M Z	1.3	17
			D = 2300 km = 20 1/2°.		
		Ki	eP	18 37 31	
			i	18 37 48.1	
			microns	sec	
			M E	2.3	15

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont.	3	Ki			microns sec	
			M	N	0.9	13
			M	Z	0.9	11
		Sk	iP		18 37 09.9	
		Gb	iP		18 36 14.9	
		Ka	iP		18 35 48.6	
		Aegean Sea (h = 30 km).				
"	3	Up	iP		20 41 22.3	C
					microns sec	
			P	Z'	0.1	0.7
		Ki	iP		20 40 37.3	
					microns sec	
			P	Z'	0.1	0.8
		Sk	iP		20 41 12.5	C
		Gb	iP		20 41 42.9	
		Ka	iP		20 41 44.0	C
		Japan (h = 40 km).				
		Magn. = 5.9 (Up,Ki).				
"	4	Up	iP		00 57 21.4	
		Sk	eP		00 57 26	
			i		00 57 33.0	
		Ka	iP		00 56 57.9	
		Atlantic Ocean (h = 30 km).				
"	4	Ki	i(P)		05 09 02.1	
			i		05 09 15.6	
			i		05 09 44.2	
			iSg		05 09 48.2	
		Sk	e(Sg)		05 12 48	
		Possibly off northwest coast of Norway.				
"	4	Up	iP		12 47 10.9	
"	4	Ki	iP		13 43 46.3	C
		Mariana Islands (h = 60 km).				
"	4	Ki	iSg		14 08 31.4	
		Sk	iSg		14 08 36.1	
"	4	Up	i(P)		15 11 44.3	
"	4	Up	iP		15 13 16.4	
			ipP		15 13 26.8	
					microns sec	
			P	Z'	0.1	0.9
			M	E	0.7	18
			M	N	1.1	18
			M	Z	0.8	16
		Ki	iP		15 12 23.9	
					microns sec	
			M	E	0.7	17
			M	N	0.7	16
			M	Z	0.8	16
		Sk	eP		15 12 57	

cont.

1965 June cont.	4	Ka	iP		15 13 39.3	
			i		15 14 27.2	
		Sk	eP		15 12 57	
		Aleutian Islands.				
		h = 40 km (Up).				
"	4	Up	iPKP		15 46 12.0	D
			i		15 46 15.8	
					microns sec	
			PKP	Z'	0.2	1.0
		Ki	ePKP		15 45 51	
		Sk	iPKP		15 46 05.3	
		Gb	iPKP		15 46 20.1	D
			i		15 46 28.2	
		Ka	iPKP		15 46 21.1	D
			i		15 46 30.9	
		Kermadec Islands (h = 230 km).				
"	5	Up	iP		00 38 54.1	
"	5	Up	iP		01 11 50.0	C
		Ki	iP		01 11 01.6	
		Sk	iP		01 11 35.9	
		Aleutian Islands (h = 20 km).				
"	5	Ki	eP		04 02 34	
		Molucca Sea (h = 30 km).				
"	5	Up	iP		07 15 20.5	
		Ki	iP		07 15 02.2	
"	5	Ka	iPg		07 31 56.4	
			iSg		07 32 19.5	
		South Baltic. Explosion. For this series of events (there are at least 66 this month) we report as a rule only the Ka readings.				
"	5	Ka	iPg		08 10 03.7	
			iSg		08 10 26.4	
		South Baltic. Explosion.				
"	5	Ka	iPg		09 18 43.9	
			iSg		09 19 06.9	
		South Baltic. Explosion.				
"	5	Ka	iPg		10 14 32.0	
			iSg		10 14 54.6	
		South Baltic. Explosion.				
"	5	Ki	iP		12 20 19.2	
"	5	Ki	eL		14 48	
					microns sec	
			M	E	0.4	12
			M	N	0.4	14
			M	Z	0.5	12

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June	6	Ki	eP	09 47 49	
			i	09 47 56.7	
			iT	09 53 21.6	
		Sk	iP	09 48 19.6	
			iS	09 50 00.0	
		Jan Mayen-Spitsbergen (h = 30 km).			
"	6	Up	iP	11 33 08.2	C
		Ki	iP	11 32 45.5	
			microns	sec	
			M E 0.5	15	
			M N 0.3	13	
			M Z 0.4	13	
		Sk	eP	11 33 14	
		Formosa (h = 40 km).			
"	6	Sk	iP	15 52 32.6	
		Ka	iP	15 51 21.6	
		Crete (h = 90 km).			
"	6	Up	iP	20 37 30.2	
		Hindu Kush (h = 30 km).			
"	6	Up	iPKP	21 48 13.0	
		South of Fiji Islands (h = 420 km).			
"	7	Up	iP	05 01 40.0	
		Kurile Islands (h = 70 km).			
"	7	Up	iPKP	06 36 32.9	
			i	06 36 38.2	
		Sk	iP	06 36 26.8	
		Gb	iPKP	06 36 40.9	
		Kermadec Islands (h = 280 km).			
"	7	Ka	i(P)	06 50 45.7	
			i	06 50 52.2	
"	7	Up	iP	10 32 02.4	
		Ki	iP	10 32 01.5	
		Sumatra (h = 30 km).			
"	7	Ki	iP	13 53 46.2	
		Sk	iP	13 53 32.4	
		Ethiopia (h = 40 km).			
"	7	Up	iP	15 43 50.6	
"	7	Ki	iPg	19 50 29.0	
			iSg	19 50 33.9	
			D = 40 km = 0.4°.		
"	8	Ki	iP	06 25 26.5	
		Japan (h = 60 km).			

1965 June	8	Up	iS	14 03 15	
			microns	sec	
			M E 0.5	18	
			M N 0.7	18	
			M Z 1.1	18	
		Ki	iP	13 52 16.0	
			microns	sec	
			P Z' 0.1	2.0	
			M E 1.1	17	
			M N 0.9	16	
			M Z 1.0	14	
		Gulf of California (h = 30 km).			
"	8	Up	iP	23 35 21.7	C
			iPcP	23 35 48.5	
		Ki	iP	23 34 33.8	
		Sk	iP	23 35 09.3	
		Gb	iP	23 35 41.6	
		Ka	iP	23 35 44.0	
		Kurile Islands (h = 25 km).			
"	9	Ki	iP	01 21 26.0	
"	9	Up	iP	13 37 39.2	
		Ki	iP	13 36 45.4	
			ipP	13 36 54.6	
			microns	sec	
			P Z' 0.1	1.0	
		Sk	iP	13 37 19.8	
		Gb	iP	13 37 56.9	
		Ka	iP	13 38 02.8	
		Aleutian Islands. h = 35 km (Ki).			
"	9	Ka	iPg	13 56 26.4	
			iSg	13 56 51.1	
		South Baltic. Explosion.			
"	9	Up	i(P)	15 04 18.5	
		Ki	i(P)	15 06 42.1	
"	9	Up	iP	15 18 54.9	
"	9	Up	iPKP	16 14 20.0	D
			microns	sec	
			PKP Z' 0.1	0.7	
		Ki	ePKP	16 13 59	
			i	16 14 04.7	
		Sk	iPKP	16 14 16.3	
		Ka	iPKP	16 14 30.7	
		Kermadec Islands (h = 200 km).			
"	9	Sk	e	18 02 13	
			i(Sg)	18 02 16.6	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
June 9 Up iP 18 27 54.8 C

" 10 Up iP 05 56 33.0
microns sec
P Z' 0.2 0.8
Ki iP 05 56 43.0
i 05 56 52.7
iPP 05 58 12.5
microns sec
P Z' 0.1 1.0
Sk iP 05 56 59.7
Gb iP 05 56 54.3
Ka iP 05 56 38.0
Hindu Kush (h = 130 km).
Magn. = 6.0 (Up,Ki).

" 10 Up iP 07 04 53.3
Ki i(P) 07 04 59.9

" 10 Up iP 15 29 18.9
Ki iP 15 30 26.7
Sk iP 15 29 58.9
Gb eP 15 29 13
Ka iP 15 28 48.1 C
iS 15 32 32.2
Dodecanese Islands
(h = 150 km).

" 10 Ki iP 15 29 59.3
Molucca Passage
(h = 110 km).

" 10 Sk i(P) 15 36 35.4

" 10 Up iP 18 07 48.9

" 10 Up eL 20 46
microns sec
M E 0.5 17
M N 0.9 17
M Z 0.8 17
Ki eL 20 47
microns sec
M E 0.6 18
M N 0.5 16
North Atlantic Ocean
(h = 30 km).

" 10 Up iP 23 25 25.6
Ki iP 23 24 32.6
Aleutian Islands
(h = 40 km).

" 11 Ka iPKP 01 53 40.5
Easter Island Rise
(h = 30 km).

1965
June 11 Up iP 02 48 25.7 C
ipP 02 48 35.8
iS 02 57 16
microns sec
P Z' 0.3 1.0
S N 0.3 4
M E 0.8 17
M N 0.9 17
M Z 0.8 16
D = 7450 km = 67°.
Ki iP 02 47 32.6 C
ipP 02 47 41.3
i 02 47 49.4
i 02 48 11.9
microns sec
P Z' 0.2 1.0
M E 1.5 18
M N 0.9 16
M Z 1.4 15
Sk iP 02 48 06.6 C
Gb iP 02 48 43.3 C
ipP 02 48 53.1
Ka iP 02 48 49.3 C
ipP 02 48 58.7
Aleutian Islands.
h = 40 km (Up,Ki,Gb,Ka).
Magn. = 6.0 (Up,Ki).

" 11 Up iP 03 25 28.2
Aleutian Islands
(h = 40 km).

" 11 Up iP 03 44 42.4 C
microns sec
P E 0.4 5
P N 0.8 5
P Z 1.6 5
P Z' 0.5 0.8
Ki iP 03 43 55.5 C
i 03 43 57.4
eS 03 52 16
microns sec
P E 2.3 6
P Z 3.1 8
P Z' 0.1 0.8
D = 6800 km = 61°.
Sk iP 03 44 32.5 C
Gb iP 03 45 03.8 C
Ka iP 03 45 05.3 C
Kurile Islands.
Magn. = 6.4 (Up,Ki).

" 11 Up iP 03 44 58.6
iS 03 53 56
eP'P' 04 13 05

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June 11 cont.

Up
microns sec
P N 2.7 5
P Z 5.5 5
P Z' 0.5 0.5
S E 7.0 12
S N 11 16
M E 77 18
M N 110 18
M Z 120 18
D = 7550 km = 68°.

Ki iP 03 44 13.6
iS 03 52 29
eP'P' 04 13 18
microns sec
P N 3.1 9
P Z 8.2 9
P Z' 0.3 1.0
S E 16 16
S N 7.5 15
M E 150 19
M N 100 18
M Z 210 18
D = 6800 km = 61°.

Sk iP 03 44 49.5
eP'P' 04 13 04
Gb iP 03 45 21.3
Ka iP 03 45 20.8
Kurile Islands.
Origin time = 03 34 02.
Magn. = 6.9 (Up,Ki).
It should be noted that this is the main shock in this sequence and is distinct from the preceding (fore) shock. An interpretation in terms of P and pP phases of one and the same shock does not seem possible in this case. In this and the following cases, we give approximate origin times, only when USCGS have given no report.

" 11 Up iP 03 51 56.5

" 11 Up iP 03 52 01.9
Sk iP 03 51 51.0
Gb iP 03 52 22.7
Ka iP 03 52 24.0
Kurile Islands.
Origin time = 03 41 04.

" 11 Up iP 03 54 57.3

" 11 Up iP 03 55 32.6
microns sec
P Z' 0.2 0.7

cont.

1965 June 11 cont.

Ki iP 03 54 45.9
Gb iP 03 55 53.8
Ka iP 03 55 55.2
Kurile Islands.
Origin time = 03 44 35.

" 11 Up iP 03 57 53.3 C
Ki iP 03 57 07.0
Kurile Islands.
Origin time = 3 46 56.

" 11 Up iP 04 03 57.3 C
microns sec
P Z' 0.1 0.9
Ki iP 04 03 13.1
Sk iP 04 03 47.2
Gb iP 04 04 17.8 C
Ka iP 04 04 19.4 C
i 04 04 32.0
Kurile Islands.
Origin time = 03 53 00.

" 11 Up iP 04 11 46.5
microns sec
P Z' 0.1 0.9
Gb iP 04 12 07.4
Ka iP 04 12 08.6
Kurile Islands.
Origin time = 04 00 49.

" 11 Up iP 04 14 16.3
Gb iP 04 14 37.3
Ka iP 04 14 38.2
Kurile Islands.
Origin time = 04 03 18.

" 11 Up iP 04 25 51.2
Ki iP 04 25 04.5
Gb iP 04 26 12.1
Ka iP 04 26 13.4
Kurile Islands (h = 50 km).

" 11 Up iP 04 55 54.0 C
microns sec
P Z' 0.2 0.6
Ki iP 04 55 07.4
Sk iP 04 55 44.8
Gb iP 04 56 15.8
Ka iP 04 56 17.1 C
Kurile Islands (h = 40 km).

" 11 Up eSg 05 05 15
Ki iPn 05 00 56.0
i 05 01 08.2
iSn 05 01 50.8
iSg 05 02 14.6
D = 440 km = 4.0°.

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont. 11 SKA iSg 05 04 44.3
Northwest Russia, 67.6°N, 31.2°E. Origin time = = 05 00 00. Explosion?

" 11 Up iP 05 08 57.8
Ka iP 05 09 19.2
Kurile Islands (h = 40 km).

" 11 Up iP 05 10 38.1
Gb iP 05 10 59.2
Ka iP 05 11 00.7
Kurile Islands (h = 40 km).
It is a remarkable fact that Gb and Ka exhibit an unusually great sensitivity for these aftershocks (Gb and Ka are otherwise our least sensitive stations). As the noise level is practically the same at all our stations, the reason is probably related to the focal mechanism, shown up as a distance effect (Gb and Ka are the most distant of our stations in relation to the Kurile Islands). This is verified by the fact that in all these shocks the PZ'-amplitudes show a steady increase over the range of our stations, from Ki (61°) to Ka (71 1/2°), the Ka PZ' having about 5 times the amplitude of Ki PZ'. This demonstrates the necessity to take mechanism effects into account in absorption measurements of body waves.

" 11 Up iP 05 22 26.0

" 11 Up iP 05 37 52.8
Kurile Islands (h = 30 km).

" 11 Up iP 05 56 01.5
microns sec
P Z' 0.1 0.8
Gb iP 05 56 22.4
Ka iP 05 56 23.6 C
Kurile Islands (h = 60 km).

" 11 Up iP 06 08 11.2
microns sec
P Z' 0.1 0.6
Gb iP 06 08 32.0

cont.

1965 June cont. 11 Ka iP 06 08 33.4
Kurile Islands (h = 50 km).

" 11 Up iP 06 15 26.3
Kurile Islands (h = 30 km).

" 11 Up iP 06 59 10.1

" 11 Up iP 07 22 04.5 C
microns sec
P Z' 0.3 1.0
M E 1.0 17
M N 1.1 19
M Z 1.4 18
Ki iP 07 21 17.9
microns sec
M E 1.1 17
M N 0.7 16
M Z 1.6 16
Sk iP 07 21 54.6 C
Gb iP 07 22 26.3 C
Ka iP 07 22 27.3 C
Kurile Islands (h = 50 km).

" 11 Up iP 07 38 46.5
microns sec
P Z' 0.1 0.6
M E 1.7 18
M N 1.0 17
M Z 1.3 17
Ki iP 07 37 59.5
microns sec
M E 2.4 18
M N 1.4 18
M Z 2.0 16
Sk iP 07 38 36.0
Gb iP 07 39 07.4
ipP 07 39 19.7
Ka iP 07 39 07.9
ipP 07 39 21.4
Kurile Islands.
h = 50 km (Gb,Ka).
Magn. = 5.7 (Up,Ki).

" 11 Up iP 08 27 30.2 D
Kurile Islands (h = 30 km).

" 11 Ka iPg 08 32 00.4
iSg 08 32 23.3
South Baltic. Explosion.

" 11 Up iP 08 43 59.9
Kurile Islands (h = 30 km).

" 11 Up iP 08 52 00.9

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont. 11 Up iP 08 51 16.0
microns sec
P Z' 0.1 0.9
M E 1.8 16
M N 1.4 16
M Z 2.8 16
Sk iP 08 51 50.0 C
Gb iP 08 52 21.6 C
Ka iP 08 52 22.6 C
ipP 08 52 29.4
Kurile Islands.
h = 25 km (Ka).
Magn. = 5.8 (Up,Ki).

" 11 Up iP 09 07 49.2 C
Ka iP 09 08 10.7
Kurile Islands (h = 30 km).

" 11 Up iP 09 18 58.3
Sk iP 09 18 54.5
Ka iP 09 19 21.4
Kurile Islands (h = 60 km).

" 11 Ka iPg 09 46 43.0
iSg 09 47 05.8
South Baltic. Explosion.

" 11 Up iP 10 10 34.3
Ka iP 10 10 56.0
Kurile Islands (h = 50 km).

" 11 Up iP 10 27 38.9
microns sec
P Z' 0.1 0.5
Ki iP 10 26 54.6
Gb iP 10 28 00.1
Ka iP 10 28 01.5
Kurile Islands (h = 30 km).

" 11 Up iP 10 30 49.6 C
microns sec
P Z' 0.1 0.6
M E 1.1 19
M N 1.1 19
M Z 1.1 18
Ki iP 10 30 01.5
microns sec
M E 1.0 16
M N 0.8 17
M Z 1.5 18
Gb iP 10 31 10.3

cont.

1965 June cont. 11 Ka iP 10 31 11.5 C
Kurile Islands.
Origin time = 10 19 52.

" 11 Up iP 10 32 40.5
Gb iP 10 33 00.6
Ka iP 10 33 02.0 C
Kurile Islands.
Origin time = 10 21 43.

" 11 Ka iPg 10 33 26.0
iSg 10 33 48.8
South Baltic. Explosion.

" 11 Up iP 10 52 12.1 C
ipP 10 52 25.0
microns sec
P Z' 0.1 0.6
Ki iP 10 51 24.7
ipP 10 51 36.7
Gb iP 10 52 32.4
ipP 10 52 44.9
Ka iP 10 52 33.5 C
ipP 10 52 46.4
Kurile Islands.
h = 50 km (Up,Ki,Gb,Ka).

" 11 Ka iP 11 18 01.2
Kurile Islands (h = 50 km).

" 11 Ka iPg 11 51 43.3
iSg 11 52 06.4
South Baltic. Explosion.

" 11 Up iP 12 11 03.3
microns sec
P Z' 0.1 0.5
M E 1.4 19
M N 1.6 20
M Z 1.7 18
Ki iP 12 10 16.7
microns sec
M E 1.9 17
M N 1.5 19
M Z 2.7 17
Gb eP 12 11 24
Ka iP 12 11 25.0
Kurile Islands (h = 30 km).

" 11 Up iP 12 12 06.5
microns sec
M E 0.9 16

" 11 Ka iPg 12 54 53.3
iSg 12 55 16.2
South Baltic. Explosion.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
June	11	Up	iP	12 56 37.0	
			i(pP)	12 56 48.6	
		Ka	iP	12 58 07.4	
		Kurile Islands (h = 30 km).			
"	11	Up	iP	12 57 45.1	
		Kurile Islands (h = 140 km).			
"	11	Up	iP	13 51 34.2	C
				microns	sec
			P	Z' 0.1	0.5
"	11	Up	iP	13 55 08.1	
		Ka	iP	13 55 30.6	
		Kurile Islands (h = 60 km).			
"	11	Ka	iPg	13 57 11.5	
			iSg	13 57 33.9	
		South Baltic. Explosion.			
"	11	Up	iP	14 39 57.0	
		Ka	iP	14 40 18.7	
		Kurile Islands.			
		Origin time = 14 29 00.			
"	11	Ka	iPg	14 54 35.3	
			iSg	14 54 57.7	
		South Baltic. Explosion.			
"	11	Up	iP	15 25 51.3	
		Kurile Islands (h = 50 km).			
"	11	Up	iP	15 50 35.2	C
		Gb	iP	15 50 56.2	
		Ka	iP	15 50 56.8	C
		Kurile Islands (h = 60 km).			
"	11	Up	iP	15 53 22.9	
		Ki	iP	15 53 15.2	
		Ka	iP	15 53 31.3	
	11	KLS	ipP	15 54 04.7	
		Burma. h = 140 km (Ka).			
"	11	Ka	iPg	15 58 41.6	
			iSg	15 59 04.3	
		South Baltic. Explosion.			
"	11	Up	iP	16 32 10.1	
		Ki	iP	16 31 17.3	
		Ka	iP	16 32 34.9	
		Aleutian Islands (h = 60 km).			
"	11	Ka	iPg	16 44 45.4	
			iSg	16 45 08.0	
		South Baltic. Explosion.			

1965					
June	11	Up	iP	17 23 11.2	
		Ka	iP	17 23 31.6	
		Kurile Islands (h = 50 km).			
"	11	Up	iP	18 12 39.6	
	11	KLS	iP	18 13 01.1	
		Kurile Islands.			
		Origin time = 18 01 42.			
"	11	Up	iP	18 40 47.2	
			ipP	18 40 59.7	
		Kurile Islands. h = 50 km (Up).			
"	11	Up	iP	19 11 49.9	
"	11	Up	iP	20 43 25.3	
"	11	Up	iP	20 55 21.9	C
		Gb	eP	20 55 41	
		Ka	iP	20 55 43.7	
			ipP	20 55 54.3	
		Kurile Islands.			
		h = 40 km (Ka).			
"	11	Up	iP	23 03 30.7	
		Kurile Islands (h = 30 km).			
"	12	Ka	iP	00 11 46.3	
"	12	Up	iP	00 31 58.9	
		Ki	iP	00 31 15.1	
		Ka	iP	00 32 20.6	
		Kurile Islands (h = 30 km).			
"	12	Ki	i(P)	02 13 43.8	
"	12	Up	iP	02 14 05.7	
		Kurile Islands (h = 30 km).			
"	12	Up	iP	03 20 48.0	
			ipP	03 20 54.4	
				microns	sec
			P	Z' 0.1	0.8
		Ki	iP	03 20 02.5	C
		Sk	iP	03 20 39.2	
		Ka	iP	03 21 10.6	C
		Kurile Islands.			
		h = 25 km (Up).			
"	12	Up	iP	05 39 27.8	
		Ka	iP	05 39 49.0	
		Kurile Islands (h = 30 km).			
"	12	Up	iP	05 39 42.0	
				microns	sec
			P	Z' 0.1	0.9

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June 12 cont.

Ki iP 05 38 54.8
Gb iP 05 40 02.0
Ka iP 05 40 04.0
Kurile Islands (h = 40 km).

" 12 Up iP 05 42 22.3
Ka iP 05 42 43.8 C
Kurile Islands.
Origin time = 05 31 24.

" 12 Up iP 05 51 59.8 C

		microns	sec
P	Z'	0.3	0.8
M	E	1.7	18
M	N	1.8	18
M	Z	1.3	17

Ki iP 05 51 13.0

		microns	sec
P	Z'	0.2	1.0
M	E	1.6	15
M	N	1.5	17
M	Z	3.2	17

Sk iP 05 51 49.9 C
Gb iP 05 52 21.4 C
Ka iP 05 52 21.5 C
ipP 05 52 34.4
Kurile Islands.
h = 50 km (Ka).
Magn. = 5.9 (Up,Ki).
This is the largest after-shock in this sequence with a magnitude 1.0 lower than for the main shock, in good agreement with the rule $M - M_1 = 1.2$.

" 12 Up iP 06 14 35.2

		microns	sec
P	Z'	0.1	1.0
M	E	1.8	19
M	N	1.7	17
M	Z	1.3	17

Ki iP 06 13 48.8

		microns	sec
P	Z'	0.1	1.1
M	E	2.5	17
M	N	2.3	17
M	Z	2.8	16

Sk iP 06 14 25.3 C
Gb iP 06 14 55.4
Ka iP 06 14 57.4
Kurile Islands (h = 50 km).
Magn. = 5.7 (Up,Ki).

" 12 Up iP 06 57 28.5

cont.

1965 June 12 cont.

Up

		microns	sec
M	E	1.0	17
M	N	1.1	18
M	Z	1.1	18

Ki eP 06 56 41

		microns	sec
M	E	0.9	15
M	N	0.7	18
M	Z	1.2	16

Gb eP 06 57 49
Ka iP 06 57 49.8 C
Kurile Islands (h = 40 km).

" 12 Up iP 07 07 59.9
i 07 08 18.7
Kurile Islands (h = 50 km).

" 12 Up iP 18 53 39.7 C
Ki eP 18 52 50
Sk iP 18 53 28.8
Gb iP 18 53 59.8
Ka iP 18 54 01.3
Kurile Islands (h = 60 km).

" 12 Up iP 18 56 45.8

		microns	sec
P	Z'	0.2	0.8
M	E	0.7	15
M	N	0.8	20
M	Z	1.1	18

Ki iP 18 56 00.0

		microns	sec
P	Z'	0.1	1.0
M	E	0.8	18
M	N	0.8	19
M	Z	1.2	16

Sk iP 18 56 35.7
Gb iP 18 57 07.0
Ka iP 18 57 08.2
Kurile Islands (h = 40 km).
Magn. = 5.8 (Up,Ki).

" 12 Up ePP 19 08 36
eSKS 19 14 41
Ki ePKP 19 08 34
iPP 19 09 03.7
eSKS 19 14 56
Gb ePP 19 08 05
Ka iPP 19 08 20.1
Chile-Bolivia (h = 100 km).

" 12 Ki eP 19 19 51

" 12 Up iP 22 27 47.0 D

		microns	sec
M	E	0.6	17

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona,

1965 June cont. 12 Up
M N 1.0 19
M Z 1.1 18
Ki ---
microns sec
M E 0.8 17
M N 0.5 15
M Z 1.0 16
Kurile Islands (h = 50 km).

" 13 Up iP 02 31 53.2 C
i 02 31 55.8
microns sec
P Z' 0.2 0.9
M E 0.7 19
M N 1.1 18
M Z 1.0 16
Ki iP 02 31 06.6
microns sec
M E 0.8 17
M N 0.5 17
M Z 0.7 15
Sk iP 02 31 42.5
Gb iP 02 32 13.8 C
ipP 02 32 20.7
Um iP 02 31 29.4 C
Ka iP 02 32 15.0 C
ipP 02 32 21.7
Kurile Islands.
h = 25 km (Gb,Ka).

" 13 Ki ---
microns sec
M E 0.3 9
M N 0.3 12
M Z 0.4 10
Um iP 04 28 54.5
Afghanistan (h = 60 km).

" 13 Up iP 07 17 18.2 C
iPP 07 19 51
iS 07 26 21
microns sec
P N 0.3 3
P Z' 0.2 0.9
S E 0.9 10
S N 0.8 7
M E 7.2 22
M N 10 20
M Z 7.9 22
D = 7650 km = 69°.
Ki iP 07 16 35.6 C
ipP 07 16 45.1
iS 07 25 01
iScS 07 26 25

cont.

1965 June cont. 13 Ki
microns sec
P E 0.4 6
P N 0.5 6
P Z 1.2 6
P Z' 0.3 1.5
S E 1.5 8
S N 1.2 8
M E 14 20
M N 5.8 19
M Z 7.7 17
D = 6950 km = 62 1/2°.
Sk iP 07 17 10.6 C
i 07 17 30.7
Gb iP 07 17 39.6 C
Um iP 07 16 56.5 C
Ka iP 07 17 40.0 C
Japan. h = 40 km (Ki).
Magn. = 6.3 (Up,Ki).

" 13 Ka iPg 09 40 52.1
iSg 09 41 15.2
South Baltic. Explosion.

" 13 Ka iPg 10 22 04.7
iSg 10 22 27.7
South Baltic. Explosion.

" 13 Up iP 11 10 19.8
Ki iP 11 09 35.6
Um iP 11 09 54.2
Sea of Japan (h = 30 km).

" 13 Ka iPg 11 45 48.8
iSg 11 46 11.8
South Baltic. Explosion.

" 13 Ka iPg 12 37 12.8
iSg 12 37 37.5
South Baltic. Explosion.

" 13 Ka iPg 13 19 14.3
iSg 13 19 37.3
South Baltic. Explosion.

" 13 Ka iPg 13 26 10.8
iSg 13 26 35.8
South Baltic. Explosion.

" 13 Ka iPg 14 05 39.2 D
iSg 14 06 02.1
South Baltic. Explosion.

" 13 Um iP 14 28 00.0

" 13 Ka iPg 14 42 12.3
iSg 14 42 37.3
South Baltic. Explosion.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
June 13 Ka iPg 14 47 34.9
iSg 14 47 58.2
South Baltic. Explosion.

" 13 Ka iPg 15 30 18.3
iSg 15 30 41.4
South Baltic. Explosion.

" 13 Ka iPg 15 38 51.3
iSg 15 39 15.8
South Baltic. Explosion.

" 13 Ka iPg 16 23 18.4
iSg 16 23 43.0
South Baltic. Explosion.

" 13 Ka iPg 17 01 03.5
iSg 17 01 28.0
South Baltic. Explosion.

" 13 Ka iPg 17 07 29.9
iSg 17 07 52.5
South Baltic. Explosion.

" 13 Um iPKP 19 06 57.0 C
South of Kermadec Islands
(h = 25 km).

" 13 Up iP 20 06 56.4
eS 20 11 06
iLgl 20 14 17
iL(3.24) 20 15 11

		microns	sec
P	E	0.7	5
P	N	1.8	5
P	Z	1.3	4
P	Z'	0.1	1.0
S	E	5.8	7
S	N	17	9
S	Z	5.2	12
M	E	7.9	12
M	N	14	13
M	Z	15	14

D = 2600 km = 23 1/2°.

Ki iP 20 08 01.5
i 20 11 46
iS 20 13 05
i 20 15 47
iLgl 20 17 57

		microns	sec
P	N	0.7	4
P	Z	0.8	4
P	Z'	0.2	1.3
S	E	0.8	9
S	N	2.5	10
M	E	7.0	12

cont.

1965
June 13 Ki

		microns	sec
M	N	7.6	14
M	Z	8.7	14

D = 3450 km = 31°.

Sk iP 20 07 38.2
Gb iP 20 06 51.8
i 20 06 57.5
Um iP 20 07 26.3 D
iS 20 11 52
Ka iP 20 06 24.3 C
iS 20 10 19.9
iL(3.26) 20 13 27.0
Turkey (h = 20 km).
Magn. = 5.9 (Up,Ki).
Exceptionally well developed higher mode surface waves.

" 14 Ka iP 02 09 40.1 C

" 14 Ka iPg 08 12 49.5
iSg 08 13 14.1
South Baltic. Explosion.

" 14 Up eL 08 13

		microns	sec
M	E	0.8	20
M	N	0.9	21
M	Z	1.2	19

Ki eL 08 15

		microns	sec
M	E	0.7	17
M	N	0.4	18
M	Z	0.7	17

Indian Ocean (h = 30 km).

" 14 Ka iPg 08 19 34.5
iSg 08 19 57.6
South Baltic. Explosion.

" 14 Ka iPg 08 55 56.6
iSg 08 56 22.0
South Baltic. Explosion.

" 14 Ka iPg 09 03 58.2
iSg 09 04 20.7
South Baltic. Explosion.

" 14 Up iP 09 51 41.3 C
Ki eP 09 50 53
eS 09 59 40

		microns	sec
S	E	0.4	9
M	E	0.5	13
M	N	0.5	17
M	Z	0.7	15

D = 7350 km = 66°.

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont. 14 Sk iP 09 51 08.8
Gb iP 09 51 44.0
Um iP 09 51 13.8
i 09 51 22.6
iS 10 00 21
Off coast of Oregon
(h = 30 km).

" 14 Ka iPg 09 51 22.9
iSg 09 51 46.1
South Baltic. Explosion.

" 14 Um iPKP 10 21 39.2
South Sandwich Islands
(h = 30 km).

" 14 Ka iPg 10 41 52.8
iSg 10 42 20.1
South Baltic. Explosion.

" 14 Ka iPg 11 35 31.6
iSg 11 35 56.1
South Baltic. Explosion.

" 14 Ka iPg 11 43 56.0
iSg 11 44 19.1
South Baltic. Explosion.

" 14 Ka iPg 12 35 45.2
iSg 12 36 09.3
South Baltic. Explosion.

" 14 Ka iPg 12 45 05.9
iSg 12 45 28.3
South Baltic. Explosion.

" 14 Up iP 13 26 16.7 D
ipP 13 26 20.1
microns sec
P Z' 0.2 0.7
pP Z' 0.3 0.8
M E 0.6 15
M N 0.6 16
M Z 0.7 15
Ki iP 13 26 10.8 D
ipP 13 26 14.1
microns sec
P Z' 0.1 1.0
M E 0.6 13
M N 1.9 18
M Z 0.9 13
Sk iP 13 26 34.5
ipP 13 26 38.1
Gb iP 13 26 38.8 D
ipP 13 26 42.1

cont.

1965 June cont. 14 Um iP 13 26 08.3 D
ipP 13 26 12.0
Ka iP 13 26 26.2
ipP 13 26 29.8
Tibet. h = 15 km (Up,Ki,Sk, Gb,Um,Ka).
Magn. = 6.1 (Up,Ki).
The onset interpreted as pP has slightly larger amplitude than P and apparently opposite phase.

" 14 Um iP 14 39 13.8
Japan (h = 150 km).

" 14 Up iP 16 58 07.6
microns sec
P Z' 0.1 1.2
Ki iP 16 58 37.5
microns sec
P Z' 0.1 1.2
Sk iP 16 58 06.7 C
Gb iP 16 57 44.6
ipP 16 57 52.2
Um iP 16 58 25.7
ipP 16 58 34.5
Ka iP 16 57 50.4
ipP 16 57 58.3
Atlantic Ocean.
h = 30 km (Gb,Um,Ka).
Magn. = 5.8 (Up,Ki).

" 14 Up iP 20 51 19.7
i 20 51 26.4
microns sec
P Z' 0.1 0.6

" 14 Up iP 21 27 55.6
microns sec
P Z' 0.1 0.5

" 15 Up iP 01 56 15.0
Ki iP 01 55 18.6
ipP 01 55 29.1
Gb eP 01 56 36
Um iP 01 55 46.8
Ka iP 01 56 36.8
Kurile Islands.
h = 40 km (Ki).

" 15 Up iP 04 57 18.3
i 04 57 19.6
eS 05 06 24
microns sec
P Z' 0.1 0.9
M E 0.6 20

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June 15 cont.

Up microns sec
M N 0.8 20
M Z 1.1 23
D = 7650 km = 69°.
Ki iP 04 56 26.5 C
eS 05 04 45
microns sec
P N 0.2 7
P Z 0.4 6
P Z' 0.1 1.2
S N 0.4 8
M E 0.7 17
M N 0.6 18
M Z 0.9 17
D = 6800 km = 61°.
Sk iP 04 56 59.6 C
Gb iP 04 57 35.8
i(pP) 04 57 46.1
Um iP 04 56 52.8 C
eS 05 05 28
Ka iP 04 57 41.4
Aleutian Islands
(h = 30 km).
Magn. = 5.6 (Up,Ki).

" 15 Up iP 05 54 54.2
microns sec
P Z' 0.1 0.5

" 15 Up iP 08 09 16.9
microns sec
M N 0.6 14
Ki iP 08 09 05.7 C
microns sec
M N 0.5 17
M Z 0.6 13
Sk iP 08 09 31.0 C
Um iP 08 09 06.4
Ka iP 08 09 27.9
India-China (h = 30 km).

" 15 Up iPKP2 09 40 34.9
i 09 42 54.1
microns sec
PKP2 Z' 0.4 0.8
Ki iPKP 09 40 00.9
i 09 40 03.4
microns sec
PKP Z' 0.1 1.0
Sk iPKP 09 40 16.9 C
Gb iPKP2 09 40 51.0
Um iPKP 09 40 11.8 C
Ka iPKP2 09 40 50.6
New Zealand (h = 60 km).

" 15 Up iP 10 22 37.9

1965 June 15 cont.

Up iP 13 03 13.9 D
Gb iP 13 03 34.6
Um iP 13 02 48.9
Ka iP 13 03 35.6
Kurile Islands (h = 30 km).

" 15 Up iPKP 13 11 26.3
i 13 11 38.1
Gb iPKP 13 11 29
Ka iPKP 13 11 36.7
Kermadec Islands (h = 50 km).

" 15 Ki eP 13 17 17
Um iP 13 18 02.6

" 15 Up iP 13 20 22.7
Ka iP 13 20 44.7
Kurile Islands (h = 30 km).

" 15 Up iP 13 29 48.2 D
Kurile Islands (h = 30 km).

" 15 Um iP 13 44 08.4

" 15 Up iP 14 30 01.2
microns sec
P Z' 0.1 0.6
M E 0.6 20
M N 0.6 16
Ki eP 14 29 11
microns sec
M E 0.8 17
M N 0.7 20
M Z 0.8 16
Um iP 14 29 37.4 D
Ka iP 14 30 22.6
Kurile Islands (h = 20 km).

" 15 Up iP 15 25 48.8
microns sec
P Z' 0.1 0.6
Ki iP 15 24 55.2
Sk iP 15 25 29.0 C
Um iP 15 25 21.6
Ka iP 15 26 12.1
Aleutian Islands (h = 40 km).

" 15 Up iP 16 18 12.3
Um iP 16 17 47.2
Kurile Islands (h = 30 km).

" 15 Up iP 16 25 07.8

" 15 Up iP 16 37 05.7

" 15 Up iP 16 37 38.6
cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont.	15	Um	iP	16 37 11.8	
		Aleutian Islands (h = 40 km).			
"	15	Up	iP	16 50 21.3	
				microns	sec
			M E	1.1	20
			M N	2.4	20
			M Z	1.1	18
		Ki	iP	16 50 59.9	C
				microns	sec
			M E	0.9	18
			M N	1.0	15
			M Z	1.5	18
		Sk	iP	16 50 52.9	
		Um	iP	16 50 37.3	C
			i	16 50 49.1	
			eS	16 58 05	
			i	17 02 23	
		Ka	iP	16 50 06.9	
		Gulf of Aden (h = 30 km).			
"	15	Um	iP	18 01 12.4	
"	15	Up	iP	19 13 10.5	
		Ki	iP	19 12 17.4	
		Um	iP	19 12 44.1	
			iPcP	19 13 18.2	
		Ka	iP	19 13 33.7	
		Aleutian Islands (h = 40 km).			
"	15	Up	iP	22 08 56.3	
"	15	Up	i	23 33 46	
				microns	sec
			M E	2.8	21
			M N	6.4	21
			M Z	5.5	21
		Ki	ePKP	23 29 35	
			ePKS	23 32 49	
				microns	sec
			M E	5.3	21
			M N	3.0	18
			M Z	9.9	21
		Um	ePKP	23 29 35	
			iPP	23 32 07	
			iPKS	23 33 08	
			eSS	23 49 56	
			iSSP	23 50 23	
		New Hebrides Islands (h = 20 km). Magn. = 6.5 (Up,Ki).			
"	16	Up	ePKS	04 18 17	
				microns	sec
			M E	0.8	18
			M N	0.8	16
			M Z	1.4	18

cont.

1965 June cont.	16	Ki	e(PKP)	04 14 27	
			iPKP	04 14 44.1	
			e	04 17 38	
			ePKS	04 18 20	
				microns	sec
			PKS N	0.2	6
			M E	1.4	19
			M N	0.6	19
			M Z	2.3	19
		Um	iPKP	04 14 48.3	
		Easter Island Rise (h = 30 km).			
"	16	Up	iP	05 09 35.8	
		Ki	iP	05 09 02.1	
		Sk	iP	05 09 31.4	
		Um	iP	05 09 16.4	
		Ka	eP	05 09 51	
		South of Japan (h = 40 km).			
"	16	Up	iPKP	06 27 16.8	
			i	06 27 26.1	
		Sk	iPKP	06 27 06.6	
		Gb	iPKP2	06 27 31.7	
		Ka	iPKP2	06 27 27.1	
		Kermadec Islands (h = 10 km).			
"	16	Ka	iPg	07 34 11.4	
			iSg	07 34 34.8	
		South Baltic. Explosion.			
"	16	Up	iP	07 51 31.1	
		Gb	iP	07 51 53.2	
		Um	iP	07 51 06.7	
		Kurile Islands (h = 30 km).			
"	16	Ka	iPg	12 26 51.5	
			iSg	12 27 14.3	
		South Baltic. Explosion.			
"	16	Ka	iPg	13 44 00.5	
			iSg	13 44 24.4	
		South Baltic. Explosion.			
"	16	Sk	iP	14 46 42.0	
"	16	Up	iP	14 56 34.6	
"	16	Um	iP	22 30 36.7	
"	16	Up	iP	23 58 18.7	
			ipP	23 58 22.5	
				microns	sec
			P Z'	0.1	0.5
		Ki	iP	23 58 13.0	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont.	16	Ki		microns	sec
			M	E 0.4	14
			M	N 0.6	18
			M	Z 0.6	13
		Sk	iP	23 58 36.6	
		Gb	iP	23 58 40.7	
		Um	iP	23 58 10.3	
		Tibet. h = 15 km (Up).			
"	17	Up	iP	03 03 34.9	
			iS	03 07 43	
				microns	sec
			S	N 1.2	9
			M	E 0.6	12
			M	N 0.8	13
			M	Z 0.6	10
		Ki	iP	03 04 35.3	
			iLgl	03 14 30	
				microns	sec
			M	E 0.5	12
			M	N 0.3	10
			M	Z 0.6	12
		Sk	iP	03 04 12.4	
		Gb	iP	03 03 26.8	
		Um	iP	03 04 00.7 C	
			eS	03 08 35	
		Ka	eP	03 03 07	
		Turkey (h = 10 km).			
"	17	Up	iP	03 51 52.9 C	
			iPP	03 52 59.1	
				microns	sec
			P	Z' 0.1	0.5
		Ki	iP	03 51 37.0 C	
			iPP	03 52 39.0	
				microns	sec
			P	Z' 0.1	0.5
		Sk	iP	03 52 07.7 C	
			iPP	03 53 29.7	
			iPcP	03 54 30.2	
		Gb	iP	03 52 22.0 C	
			iPP	03 53 46.2	
		Um	iP	03 51 37.6	
			i	03 51 54.5	
			iPP	03 52 41.4	
			iPcP	03 54 18.7	
		Ka	iP	03 52 08.7	
			iPP	03 53 30.9	
		Kazakh SSR. Magn. = 5.8 (Up,Ki). Underground explosion. The seismic energy corresponds approximately to that of an earthquake of 0.7 lower magnitude, i.e. magnitude 5.1 (see Båth, Earthquake			

cont.

1965 June cont.	17	energy and magnitude, Phys. and Chem. of the Earth, in press).		
"	17	Ka	iPg	07 17 55.4
			iSg	07 18 18.9
		South Baltic. Explosion.		
"	17	Ka	iPg	08 04 15.4
			iSg	08 04 40.4
		South Baltic. Explosion.		
"	17	Ka	iPg	08 10 54.9
			iSg	08 11 18.0
		South Baltic. Explosion.		
"	17	Ka	iPg	09 33 22.9
			i(Sg)	09 33 52.2
		South Baltic. Explosion.		
"	17	Ka	eP	09 39 41
"	17	Ka	iPg	09 42 49.8
			iSg	09 43 16.4
		South Baltic. Explosion.		
"	17	Up	iP	10 55 24.2
			microns	sec
			P Z' 0.1	0.7
		Ki	iP	10 54 59.3
			microns	sec
			M E 0.8	19
			M N 0.4	15
			M Z 0.6	13
		Sk	iP	10 55 27.1 C
		Gb	iP	10 55 31.5
		Um	iP	10 55 08.4
		Ka	iP	10 55 38.3
		Ryukyu Islands (h = 50 km).		
"	17	Up	iPKP	11 11 27.4
			i	11 11 34.7
		Ki	iPKP	11 11 06.6
		Sk	iPKP	11 11 18.4 C
			i	11 11 22.9
		Um	iPKP	11 11 10.5
			i	11 11 17.6
		South of Kermadec Islands (h = 30 km).		
"	17	Ka	ePg	12 21 16
			iSg	12 21 40.7
		South Baltic. Explosion.		
"	17	Up	iP	13 13 14.8

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June

17	KiR	ePg	14 17 35	
		e	~~14 19 10~~	
	SkA	iP^x	14 17 11.7	
		iPg	14 17 17.4	
		iSn	14 17 52.8	
		iSg	14 18 13.8	
		D = 470 km = 4.2°.		
	UmE	iSg	14 19 20.0	

Norwegian Sea, 67 1/2°N, 8°E.
Origin time = 14 15 55.

"	17	Up	iP	15 43 33.9
"	17	Ki	i(P)	17 46 02.9
			iSg	17 46 51.2
"	17	Up	i(P)	17 47 58.6 C
"	17	Up	iP	19 15 55.8
			ipP	19 16 06.5
			microns sec	
			P Z' 0.1 0.9	
		Ki	iP	19 15 03.2
			ipP	19 15 11.9
			microns sec	
			P Z' 0.1 1.2	
			M E 0.5 15	
			M N 0.5 16	
			M Z 1.0 18	
		Sk	iP	19 15 37.2 D
			ipP	19 15 47.1
		Um	iP	19 15 29.3 D
		Ka	iP	19 16 20.3
			ipP	19 16 30.7

Aleutian Islands.
h = 40 km (Up,Ki,Sk,Ka).
Magn. = 5.7 (Up,Ki).

"	17	Up	iP	20 24 07.1
			ipP	20 24 11.7
			iS	20 31 40
			iLgl	20 43 19
			microns sec	
			P Z' 0.1 0.6	
			S E 0.3 6	
			M E 2.8 15	
			M N 4.1 16	
			M Z 3.3 15	
			D = 5900 km = 53°.	
		Ki	iP	20 24 01.4
			ipP	20 24 05.6
			eS	20 31 28
			microns sec	
			pP Z' 0.2 1.5	
			M E 5.8 14	

cont.

1965 June cont.

17	Ki		microns sec	
		M	N 16 17	
		M	Z 7.2 13	
		D = 5800 km = 52°.		
	Sk	iP	20 24 24.6	
		ipP	20 24 29.8	
	Gb	iP	20 24 29.4	
		ipP	20 24 33.5	
	Um	iP	20 23 58.9	
		ipP	20 24 02.8	
		iS	20 31 23	
		eSa	20 35 23	
	Ka	iP	20 24 17.6	
		ipP	20 24 21.4	

Tibet. h = 15 km (Up,Ki, Sk,Gb,Um,Ka).
Magn. = 5.8 (Up,Ki).

"	18	Up	iP	01 27 52.2 D
			ipP	01 27 56.2
			microns sec	
			P Z' 0.1 0.5	
			M E 0.4 10	
			M N 0.6 14	
			M Z 0.5 10	
		Ki	iP	01 27 46.4
			ipP	01 27 49.7
			microns sec	
			P Z' 0.1 1.2	
			M E 0.6 14	
			M N 1.7 18	
			M Z 1.0 14	
		Sk	iP	01 28 10.1 D
		Gb	iP	01 28 14.6
			ipP	01 28 18.8
		Um	iP	01 27 44.2 D
			i	01 27 47.8

Tibet. h = 15 km (Up,Ki, Gb,Um). Magn. = 5.8 (Up,Ki).

"	18	Up	iP	08 27 52.7
			ipP	08 28 06.4
			microns sec	
			P Z' 0.1 0.9	
			pP Z' 0.2 0.9	
		Ki	---	
			microns sec	
		M	E 0.6 18	
		M	Z 0.9 17	
		Sk	iP	08 28 09.1
			ipP	08 28 23.7
		Gb	iP	08 28 13.3
		Um	iP	08 27 45.2 C
			ipP	08 27 59.3
		Ka	iP	08 28 01.1
			ipP	08 28 15.5

India.
h = 60 km (Up,Sk,Um,Ka).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June	18	Up	iP	12 37 04.1	
"	18	Up	iP	13 56 46.8	
		Iran (h = 50 km).			
"	18	Sk	iP	22 58 41.6	
			ipP	22 59 11.5	
		Peru. h = 120 km (Sk).			
"	18	Up	iP	23 09 51.8	
		Sk	iP	23 09 47.2	
		Um	iP	23 09 31.3 C	
		Japan (h = 50 km).			
"	19	Up	iP	06 48 56.8 C	
			ipP	06 49 08.9	
			i	06 52 14.7	
				microns sec	
			P	Z' 0.2 1.0	
			M	E 0.6 16	
			M	N 0.6 16	
			M	Z 0.9 15	
		Ki		---	
				microns sec	
			M	E 0.8 16	
			M	N 0.4 14	
			M	Z 0.8 14	
		Sk	iP	06 48 37.3 C	
		Gb	iP	06 49 14.2	
			ipP	06 49 26.3	
		Um	iP	06 48 28.7 C	
			i	06 48 34.2	
			iS	06 56 52	
		Ka	iP	06 49 20.4 C	
			ipP	06 49 32.5	
		Aleutian Islands.			
		h = 50 km (Up,Gb,Ka).			
"	19	Up	iP	09 09 58.7	
"	19	Sk	iP	11 14 23.0 C	
		North Atlantic Ocean			
		(h = 30 km).			
"	19	Up	iP	11 57 21.7	
"	19	Up	iP	12 37 17.8	
		Ki	eP	12 37 54	
		Um	iP	12 37 27.6	
		Caucasus (h = 30 km).			
"	19	Um	i(P)	12 46 01.1	
"	19	Up	iP	13 00 38.8	
		Ki	iP	12 59 45.2	
		Sk	iP	13 00 22.5	

cont.

1965 June cont.	19	Um	iP	13 00 10.4	
		Ka	iP	13 01 02.9	
		Kamchatka (h = 100 km).			
"	20	Up	iP	00 45 32.3	
			e	00 53 01	
		Sk	iP	00 46 14.0	
		Um	iP	00 46 11.6	
		Greece.			
"	20	Up	iP	02 08 24.5 C	
				microns sec	
			P	Z' 0.1 0.6	
			M	E 0.8 18	
			M	N 1.1 19	
			M	Z 1.1 18	
		Ki	iP	02 07 36.8	
				microns sec	
			M	E 0.7 15	
			M	N 0.7 18	
			M	Z 1.3 18	
		Sk	iP	02 08 13.3	
		Gb	iP	02 08 44.9	
		Um	iP	02 07 58.8 C	
		Ka	iP	02 08 45.2	
		Kurile Islands (h = 40 km).			
"	20	Um	iP	06 15 45.6	
		Banda Sea (h = 150 km).			
"	20	Up	iP	12 04 07.7	
"	20	Up	iP	16 40 29.8	
		Ki	iP	16 41 08.6	
				microns sec	
			M	E 0.4 16	
			M	N 0.3 13	
		Sk	iP	16 41 02.2	
		Um	iP	16 40 46.8 D	
		Gulf of Aden (h = 30 km).			
"	20	Up	eP	18 16 05	
			i	18 16 10.0	
		Ki	eP	18 15 24.	
			i	18 15 29.7	
			iS	18 24 19	
				microns sec	
			P	Z' 0.1 1.5	
			S	E 0.4 9	
			M	E 0.5 15	
			M	N 0.3 15	
			D = 7400 km = 66 1/2°.		
		Sk	eP	18 15 39	
		Um	eP	18 15 48	
			i	18 15 51.9	
			iS	18 25 03	
		Off coast of Oregon (h = 30 km)			
		Magn. = 5.7 (Ki).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June	20	Up	iP	18 18 44.9	
		Ki	iP	18 18 53.2	C
		Sk	iP	18 19 10.2	
		Um	iP	18 18 42.7	C
		Ka	iP	18 18 49.5	C
		Hindu Kush (h = 180 km).			
"	20	Ki	iP	19 28 26.6	
			microns	sec	
			M E	0.4 14	
			M N	0.2 13	
			M Z	0.5 14	
		Um	iP	19 28 41.6	C
			i(pP)	19 28 47.3	
		Gulf of California (h = 30 km).			
"	20	Ki	eP	22 01 20	
		Um	iP	22 01 48.0	
		Kamchatka (h = 40 km).			
"	21	Up	iP	00 28 55.5	C
			ePP	00 30 37	
			iPcS	00 34 46	
			iS	00 35 05	
			microns	sec	
			P Z'	0.4 1.0	
			PP E	0.4 5	
			S N	1.1 9	
			M E	1.5 16	
			M N	2.5 18	
			M Z	1.4 15	
			D = 4550 km = 41°.		
		Ki	iP	00 29 29.1	
			iS	00 36 05	
			iSS	00 39 22	
			microns	sec	
			P E	0.4 5	
			P N	0.4 5	
			P Z	0.6 5	
			P Z'	0.7 1.0	
			S E	2.4 6	
			S N	0.9 7	
			M E	1.7 12	
			M N	2.7 12	
			M Z	3.1 12	
			D = 5000 km = 45°.		
		Sk	iP	00 29 29.2	
			i	00 29 46.2	
			i	00 36 37.3	
		Gb	iP	00 29 08.5	
			iPP	00 30 52.9	
		Um	iP	00 29 07.3	C
			i	00 29 28.4	
			iPP	00 30 48	
			iS	00 35 17	
			iSS	00 38 21	

cont.

1965 June cont.	21	Ka	iP	00 28 47.5	
			i(pP)	00 28 53.2	
			iS	00 34 43.9	
		Iran (h = 30 km).			
		Magn. = 6.0 (Up,Ki).			
		Well developed higher mode surface waves.			
"	21	Up	iP	01 38 14.9	
		Ki	iP	01 38 48.1	
		Sk	iP	01 38 49.5	
		Um	iP	01 38 27.4	
		Ka	iP	01 38 09.4	
		Iran (h = 30 km).			
"	21	Ki	iP	11 23 28.1	
			ipP	11 23 34.7	
		Um	iP	11 23 03.8	
		Tanganyika. h = 25 km (Ki).			
"	21	Ki	iP	13 31 46.5	
		Atlantic Ocean (h = 30 km).			
"	21	Up	iP	22 23 58.2	
		Ki	eP	22 23 04	
		Aleutian Islands (h = 40 km).			
"	22	Um	iP	01 07 44.3	
		Molucca Sea (h = 30 km).			
"	22	Up	iP	05 57 30.5	C
			i	05 57 55.7	
			microns	sec	
			P Z'	0.1 0.5	
		Ki	iP	05 57 31.5	C
			i	05 58 09.7	
		Sk	iP	05 57 52.5	C
		Um	iP	05 57 24.9	C
		Ka	iP	05 57 37.5	C
		Kashmir-Sinkiang (h = 30 km).			
"	22	Ki	i(P)	14 01 23.0	
			iSg	14 02 09.5	
"	22	Ki	eL	14 18	
			microns	sec	
			M E	1.0 23	
			M N	0.8 22	
			M Z	1.9 24	
		New Hebrides Islands (h = 80 km).			
"	22	Ki	iP	20 12 06.5	C
"	23	Up	iP	00 01 08.6	C
			eSKS	00 11 32	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont.	23	Up	eS	00 12 10		
				microns	sec	
			P	Z' 0.2	0.8	
			M	E 6.1	20	
			M	N 6.8	21	
			M	Z 8.4	20	
			D = 10200 km = 92°.			
		Ki	iP	00 00 52.8	C	
			i	00 00 53.9		
			iPP	00 04 25.0		
			iSKS	00 11 17		
			iS	00 11 38		
				microns	sec	
			P	Z 0.9	8	
			P	Z' 0.2	1.0	
			PP	E 0.4	10	
			PP	Z 0.9	9	
			SKS	E 1.0	9	
			S	N 0.9	7	
			M	E 7.3	15	
			M	N 6.3	18	
			M	Z 8.9	16	
			D = 9800 km = 88°.			
		Sk	iP	00 01 14.0		
		Gb	iP	00 01 24.3		
		Um	iP	00 00 58.3	C	
			iPP	00 04 30		
			eSKS	00 11 14		
			iS	00 11 44		
		Ka	iP	00 01 18.4	C	
			i	00 01 22.9		
		Mindanao (h = 60 km).				
		Magn. = 6.3 (Up,Ki).				
"	23	Up	iPKP	11 18 58.5		
		Sk	iPKP	11 18 53.0	C	
		Um	iPKP	11 18 48.0	C	
		South of Kermadec Islands (h = 80 km).				
"	23	Up	iP	11 19 44.8	C	
			iS	11 28 17		
			iPS	11 28 30		
			iP'P'	11 48 49.3		
				microns	sec	
			P	N 2.4	6	
			P	Z 1.5	4	
			P	Z' 0.5	1.0	
			M	E 7.2	19	
			M	N 8.3	18	
			M	Z 9.1	19	
			D = 7050 km = 63 1/2°.			
		Ki	iP	11 18 50.0	C	
			ipP	11 19 04.7		
			iS	11 26 35		

cont.

1965 June cont.	23	Ki	i(sP)	11 26 56		
			iScS	11 28 36		
				microns	sec	
			P	N 1.5	8	
			P	Z 3.2	9	
			P	Z' 0.6	1.0	
			S	E 2.9	9	
			S	N 5.8	11	
			M	E 10	19	
			M	N 9.6	18	
			M	Z 18	17	
			D = 6150 km = 55 1/2°.			
		Sk	iP	11 19 17.5	C	
			eP'P'	11 49 00.4		
		Gb	iP	11 19 56.8	C	
			eP'P'	11 48 45		
		Um	iP	11 19 18.5	C	
			ipP	11 19 32.6		
			iS	11 27 27		
		Kodiak Island.				
		h = 60 km (Ki,Um).				
		Magn. = 6.5 (Up,Ki).				
"	23	Up	iP	12 13 15.0		
		Ki	iP	12 12 21.2		
		Sk	iP	12 12 48.1		
			ipP	12 12 54.9		
		Kodiak Island.				
		h = 25 km (Sk).				
"	23	Sk	eP	12 29 39		
"	23	Up	iP	12 33 52.9		
				microns	sec	
			P	Z' 0.1	0.7	
		Ki	iP	12 32 58.7	C	
				microns	sec	
			P	Z' 0.1	1.0	
		Sk	iP	12 33 25.9		
			ipP	12 33 34.7		
		Gb	iP	12 34 04.7		
		Um	iP	12 33 26.8	C	
		Kodiak Island.				
		h = 35 km (Sk).				
		Magn. = 5.8 (Up,Ki).				
"	23	Up	i(P)	13 35 30.5		
		Ki	e(P)	13 35 03		
"	23	Ki	iP	14 32 19.3		
		Sk	iP	14 32 46.6		
		Um	iP	14 32 47.5		
		Kodiak Island (h = 30 km).				
"	23	Ki	iP	16 23 00.3		

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont.	23	Um	iP	16 23 06.3	
		New Guinea (h = 30 km).			
"	23	Up	iP	16 28 41.3	C
"	24	Up	iP	04 59 46.3	
		Ki	iP	04 59 10.6	
		Sk	iP	04 59 43.7	
		Um	iP	04 59 26.1	D
			i	04 59 36.3	
			ipP	05 00 48.4	
		Japan. h = 370 km (Um).			
"	24	Up	iP	07 58 22.8	
			eSKS	08 09 05	
				microns sec	
			P Z'	0.1 1.0	
			M E	1.7 22	
			M N	3.2 22	
			M Z	1.8 22	
		Ki	iP	07 58 05.6	C
			iSKS	08 08 29	
			iS	08 08 54	
				microns sec	
			P Z'	0.4 1.0	
			S N	0.9 8	
			M E	2.2 20	
			M N	2.6 25	
			M Z	3.8 20	
			D = 9900 km = 89°.		
		Sk	iP	07 58 27.7	C
			ipP	07 58 41.1	
		Um	iP	07 58 11.6	C
			ipP	07 58 27.0	
			iSKS	08 08 37	
			iS	08 09 01	
			iPS	08 10 11	
		Mindanao. h = 55 km (Sk,Um).			
		Magn. = 6.0 (Up,Ki).			
"	24	Um	iP	10 12 18.7	
"	24	Up	iP	11 01 16.6	
		Um	iP	11 01 31.4	
		Iran (h = 30 km).			
"	24	Um	iP	12 30 10.6	
"	24	Ka	iPg	13 38 39.9	
			iSg	13 39 03.3	
		South Baltic. Explosion.			
"	24	Ka	iPg	14 18 22.6	
			iSg	14 18 45.4	
		South Baltic. Explosion.			

1965 June	24	Up	iPKP	14 27 49.8	
		Ki	e(PKP)	14 27 30	
			iPKP	14 27 37.6	
		Sk	e(PKP)	14 27 42	
		Gb	iPKP	14 27 56.6	C
			i	14 28 41.3	
		Um	i(PKP)	14 27 37.9	
			iPKP	14 27 44.9	
			iSKP	14 31 12.5	
		Ka	iPKP	14 27 59.3	
			i	14 28 07.9	
			ipPKP	14 28 24.5	
		South of Fiji Islands. h = 90 km (Ka).			
"	24	Ka	iPg	14 53 23.1	
			iSg	14 53 47.8	
		South Baltic. Explosion.			
"	24	Ka	iPg	15 34 08.4	
			iSg	15 34 34.9	
		South Baltic. Explosion.			
"	24	Gb	eSg	16 23 29	
		Ka	iPg	16 22 24.4	
			iSg	16 22 50.2	
		South Baltic. Explosion.			
"	24	Ka	iPg	16 58 02.5	
			iSg	16 58 28.9	
		South Baltic. Explosion.			
"	24	Ka	iPg	17 36 04.5	
			iSg	17 36 29.5	
		South Baltic. Explosion.			
"	24	Up	iP	18 11 10.0	
		Um	iP	18 10 44.6	
		Kurile Islands (h = 30 km).			
"	24	Up	eP	23 20 47	
				microns sec	
			M E	1.0 14	
			M N	0.9 15	
			M Z	1.4 15	
		Ki	eP	23 20 21	
				microns sec	
			M E	0.9 15	
			M N	0.8 15	
		Um	iP	23 20 27.1	
			i	23 20 30.4	
		Philippine Islands (h = 30 km).			
"	25	Ki	iP	03 35 30.0	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June	25	Ki	eP	04 37 54	
"	25	Ki	iP	08 00 22.0	C
"	25	Up	iSn	09 43 41.3	
			iSg	09 44 11.5	
		Sk	e(Sg)	09 45 49	
		Gb	eSg	09 42 40	
		Um	iSg	09 46 24.8	
		Ka	iPg	09 41 46.9	
			iSg	09 42 13.8	
			D = 230 km = 2.1°.		
			South Baltic, 54.8°N, 12.6°E.		
			Underwater explosion.		
"	25	Ka	iPg	12 39 30.0	
			iSg	12 39 55.0	
			South Baltic. Explosion.		
"	25	Up	iP	13 03 26.9	
			Mindanao (h = 70 km).		
"	25	Ka	iPg	14 26 44.0	
			iSg	14 27 11.0	
			South Baltic. Explosion.		
"	25	Ka	iPg	15 01 14.3	
			iSg	15 01 39.7	
			South Baltic. Explosion.		
"	25	Ka	iPg	15 32 17.7	
			iSg	15 32 41.0	
			South Baltic. Explosion.		
"	25	Ka	iPg	16 11 25.3	
			iSg	16 11 49.0	
			South Baltic. Explosion.		
"	25	Ki	iPn	16 49 34.5	
			iSn	16 50 22.8	
			iSg	16 50 38.1	
			D = 410 km = 3.7°.		
			Possibly northwest Russia.		
			Origin time = 16 48 36.		
			Explosion?		
"	25	Um	iP	21 54 39.6	
			Japan (h = 70 km).		
"	26	Ka	iPg	07 12 01.9	
			iSg	07 12 27.4	
			South Baltic. Explosion.		
"	26	Gb	iSg	07 50 24.6	
		Ka	iPg	07 49 20.1	
			iSg	07 49 45.5	
			South Baltic. Explosion.		

1965 June	26	Ka	iPg	08 23 11.0	
			iSg	08 23 35.4	
			South Baltic. Explosion.		
"	26	Ka	iPg	09 00 03.5	
			iSg	09 00 27.9	
			South Baltic. Explosion.		
"	26	Ka	iPg	10 30 03.6	
			iSg	10 30 27.6	
			South Baltic. Explosion.		
"	26	Ka	iPg	11 13 09.4	
			iSg	11 13 34.6	
			South Baltic. Explosion.		
"	26	Up	iP	16 59 29.2	
		Ki	iP	16 58 58.2	
				microns sec	
			M E	0.8 19	
			M N	0.6 18	
		Um	iP	16 59 11.0	
			Ryukyu Islands (h = 30 km).		
"	26	Ki	eP	22 13 03	
			i	22 13 09.4	
			Nicobar Islands (h = 90 km).		
"	26	Up	i(P)	22 54 01.8	
"	27	Up	iPKP	01 14 57.3	
		Ki	ePKP	01 14 45	
		Sk	iPKP	01 14 52.8	
			i	01 15 24.6	
		Um	iPKP	01 14 47.7	
			i	01 14 58.7	
			South of Kermadec Islands (h = 30 km).		
"	27	Up	iP	01 16 07.9	
		Ki	iP	01 16 09.4	
		Sk	iP	01 16 25.3	
		Gb	iP	01 16 32.6	
		Um	iS	01 25 35	
			Nicobar Islands (h = 10 km).		
"	27	Up	iP	01 20 26.3	
		Ki	iP	01 20 27.6	C
			ipP	01 20 35.6	
		Um	iP	01 20 23.4	
			ipP	01 20 31.2	
			Nicobar Islands.		
			h = 30 km (Ki,Um).		
			Origin time = 01 08 42.		
" cont.	27	Ki	iPn	05 30 39.1	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June cont.

27 Ki iSn 05 31 35.2
iSg 05 31 53.3
D = 490 km = 4.4°.
Sk iSg 05 34 30.6
Um iSn 05 32 20.9
iSg 05 32 59.2
D = 700 km = 6.3°.
Northwest Russia,
67.9°N, 32.2°E.
Origin time = 05 29 30.
Explosion?

" 27 Up iP 07 35 40.8
Ki iP 07 35 08.5
Um iP 07 35 22.4 C
South of Japan (h = 470 km).

" 27 Ki iPKP 10 04 39.6 C
microns sec
PKP Z' 0.1 1.3
M E 0.6 18
M N 0.7 18
Bouvet Island (h = 30 km).

" 27 Up iP 11 18 56.9
microns sec
M E 0.6 17
M N 0.9 17
M Z 1.7 18
Ki iP 11 18 02.0 C
iS 11 25 31
microns sec
P Z' 0.1 1.0
S N 0.6 7
M E 0.5 14
M N 0.6 15
D = 5700 km = 51 1/2°.
Sk iP 11 18 27.3
Um iP 11 18 31.2
Ka iP 11 19 19.4
Alaska (h = 10 km).

" 27 Ki iP 11 33 52.3
Sk iP 11 34 17.6 D
Alaska (h = 40 km).

" 27 Up iP 11 47 56.9 C
microns sec
M E 6.4 17
M N 14 21
M Z 9.8 18
Ki iP 11 47 33.0 C
ePa 11 52 02
e(S) 11 57 09
microns sec
(S) E 1.4 11
(S) N 1.1 10

cont.

1965 June cont.

27 Ki microns sec
M E 8.6 13
M N 3.9 15
Um eP 11 47 41
i 11 47 55.7
eS 11 57 14
Ka iP 11 48 10.3
Formosa (h = 25 km).
Magn. = 6.3 (Up,Ki).

" 27 Up iP 14 56 32.3
Ki iP 14 55 39.1
Um iP 14 56 05.1
Aleutian Islands (h = 50 km).

" 27 Ki iP 15 54 47.1
Alaska (h = 30 km).

" 27 Up iP 17 48 49.5
Ki iP 17 48 12.1
Talaud Islands (h = 90 km).

" 27 Up iP 22 11 21.5
Um eP 22 11 02
South of Japan (h = 10 km).

" 28 Up iPKP 03 52 13.9
microns sec
M E 1.5 20
M N 1.7 21
M Z 3.0 19
Ki iPKP 03 52 04.0
microns sec
M E 2.0 19
M N 2.6 23
Um iPKP 03 52 09.3
iS 04 00 07
eSS 04 08 40
New Ireland (h = 50 km).

" 28 Ki iP 12 23 35.1
West Pakistan (h = 30 km).

" 28 Up ---
microns sec
M E 0.6 15
M N 0.7 15
M Z 1.4 15
Ki eP 15 56 17
i 15 56 30.0
microns sec
M E 1.0 12
M N 0.4 13
Formosa (h = 30 km).

" 28 Ki iPKP 18 15 47.0
iSKP 18 18 20.1

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 June 28 cont.

Ki microns sec
SKP Z' 0.1 1.4
Gb iPKP 18 16 05.3 C
Um iPKP 18 15 48.7
iSKP 18 18 32.1
Ka iPKP 18 16 07.3
Fiji Islands (h = 560 km).

" 28 Up iP 20 36 46.5

" 28 Up iP 22 54 39.3

" 28 Up iP 22 59 15.5

" 29 Sk iP 00 47 39.4
Austria (h = 40 km).

" 29 Up iP 02 15 22.3
Ki iP 02 14 35.6
microns sec
M E 0.7 19
M N 0.7 21
Um iP 02 14 57.1
Kurile Islands (h = 30 km).

" 29 Up iPKP 02 25 24.9
Um iPKP 02 25 09.4
New Hebrides Islands
(h = 640 km).

" 29 Up iP 04 34 06.4 C
Ki iP 04 35 00.0
Um iP 04 34 36.8
North Atlantic Ocean
(h = 30 km).

" 29 Up iP 05 20 06.6
Kurile Islands (h = 30 km).

" 29 Up iP 10 50 49.6 C

" 29 Up iPKP 15 06 20.9
Sk iPKP 15 06 14.3
Gb iPKP 15 06 29.1
Um iPKP 15 06 09.2 C
i 15 06 12.4
Ka iPKP 15 06 29.8
Kermadec Islands (h = 70 km).

" 29 Up iP 15 46 03.6
Ki iP 15 47 10.5
Sk iP 15 46 42.0
Um iP 15 46 35.0
i 15 47 08.4
Ka eP 15 45 30
i 15 45 36.8
Crete (h = 15 km).

1965 June 29 cont.

Ka iP 16 30 00.3

" 29 Up i(P) 20 47 15.0

" 30 Up ---
microns sec
M E 0.8 18
M N 1.4 23
M Z 1.5 19
Ki iP 03 06 45.7 C
ePP 03 10 43
microns sec
PP E 0.8 8
M E 1.7 19
M N 0.9 19
Um iP 03 06 50.3
iPP 03 10 56
iSKS 03 17 28
Molucca Sea (h = 30 km).

" 30 Ki iP 03 16 05.9
Um iP 03 16 15.8
Ryukyu Islands (h = 110 km).

" 30 Up iP 08 44 22.3 C
ipP 08 44 38.9
iS 08 53 14
microns sec
P Z' 0.6 0.8
M E 1.1 19
M N 1.8 22
M Z 3.0 23
D = 7450 km = 67°.
Ki iP 08 43 29.1 C
microns sec
P Z' 0.4 1.0
M E 1.7 19
M N 1.8 19
M Z 3.4 19
Sk iP 08 44 02.6 C
Gb iP 08 44 39.7 C
ipP 08 44 53.8
Um iP 08 43 55.0 C
Ka iP 08 44 45.3 C
ipP 08 45 00.7
i 08 45 35.6
Aleutian Islands.
h = 60 km (Up,Gb,Ka).
Magn. = 6.4 (Up,Ki).

" 30 Up iP 12 47 04.9
microns sec
P Z' 0.1 1.0
Ki iP 12 46 11.1 C
microns sec
P Z' 0.1 1.0
cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965

June	30	Sk	iP	12 46 48.1
cont.		Gb	iP	12 47 25.4
		Um	iP	12 46 36.6 C
		Ka	iP	12 47 29.3

Kamchatka (h = 30 km).
Magn. = 5.7 (Up,Ki).

"	30	Up	iP	17 21 42.8
				microns sec
			P Z'	0.1 0.8
		Ki	iP	17 20 50.0 C
				microns sec
			P Z'	0.1 1.0
		Um	iP	17 21 16.0 C
			ipP	17 21 32.1

Aleutian Islands.
h = 60 km (Um).
Magn. = 5.8 (Up,Ki).

Markus Båth
February 17, 1966

DO NOT PUNCH

Seismological Institute
Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G, U M E Å and K A R L S K R O N A

Uppsala	(Up):	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E;	h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E;	h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E;	h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E;	h = 11 m

J U L Y 1 - 31, 1965

1965 July 1 Um iP 01 35 04.9
South of Japan (h = 40 km).

" 1 Ki eSn 05 20 18
iSg 05 20 35.9
Possibly northwest Russia.
Explosion?

No.

" 1 Up iP 07 29 48.3
Ki iP 07 29 19.6 C
microns sec
P Z' 0.1 0.9
Sk iP 07 29 44.8
Um iP 07 29 31.6 C
Mariana Islands (h = 90 km).

" 1 Up iP 11 11 41.4

" 1 Up iP 14 21 14.8

" 1 Up iP 15 55 56.8
microns sec
P Z' 0.1 0.5

" 1 Up iP 17 52 15.6
microns sec
P Z' 0.1 0.7
Ki iP 17 51 24.4
ipP 17 51 37.9
microns sec
P Z' 0.1 1.0
Gb iP 17 52 35.7
ipP 17 52 48.7
iPcP 17 52 59.1
Um iP 17 51 48.5
Ka iP 17 52 39.4 C
Kurile Islands.
h = 50 km (Ki,Gb).
Magn. = 5.8 (Up,Ki).

1965 July 1 Ki iP 20 04 21.0
Kodiak Island (h = 30 km).

" 1 Ki iP 22 53 56.0 C

" 1 Up i 23 43 41
eSKKS 23 45 11
microns sec
M E 1.4 19
M N 2.3 22
M Z 3.0 19
Ki iPKP2 23 34 24.9
iPP 23 38 17
microns sec
PKP2 Z 0.6 5
PKP2 Z' 0.8 3.0
PP Z 0.8 6
M E 1.9 20
M N 1.4 18
M Z 2.0 18
Um iPKP 23 32 49.0
iPKP2 23 34 37.6
iPP 23 38 35.2
i 23 41 39.5
iSKKS 23 45 22
Ka iPKP 23 32 47.6
South Pacific Ocean
(h = 30 km).
Magn. = 5.9 (Up,Ki).
This earthquake is interesting as our stations are situated around the antipodal point, which is at 63.0 N, 16.3 E. The waves on the Z'-records are remarkably long-period, around 2-3 sec.

" 1 Ki iP 23 54 19.7
Mindanao (h = 100 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
July 2 Up iP 05 18 02.1
Ki iP 05 17 09.0 C
Um iP 05 17 34.0
Aleutian Islands (h = 100 km).

" 2 Up iPKP2 05 27 19.0
Ki ePKP 05 26 45
Um iPKP 05 26 54.9
New Zealand (h = 60 km).

" 2 Up iP 08 44 59.8
microns sec
P Z' 0.1 0.6

" 2 Ki iP 12 03 26.7
microns sec
P Z' 0.1 1.5
Um eP 12 03 35

" 2 Gb eP 12 18 23

" 2 Up iP 15 23 10.6

" 2 Up iP 15 34 43.7

" 2 Up i(Sn) 19 00 28.0
iSg 19 00 50.6
Um iPg 19 00 29.2
iSg 19 01 36.3
D = 520 km = 4.7°.
Ka iSg 19 02 08.0
Off north coast of Esthonia, 59.6°N, 24.4°E.
Origin time = 18 58 57.
Explosion?

" 2 Up iP 20 22 23.9

" 2 Up iP 20 30 31.5 C
i(pP) 20 30 43.2
microns sec
P Z' 0.1 0.8
Ki iP 20 29 38.0
microns sec
P Z' 0.2 1.2
Gb iP 20 30 49.3
i 20 30 54.4
Um iP 20 30 03.9 C
Aleutian Islands (h = 40 km).
Magn. = 5.9 (Up,Ki).

" 2 Up iP 21 09 29.3 C
iPa 21 13 59
iS 21 18 14
iScS 21 19 24
iP'P' 21 37 45.7

cont.

1965
July 2 Up
cont.
microns sec
P N 4.6 2
P Z 8.3 2
P Z' 1.1 0.5
S E 2.5 4
S N 14 9
P'P' Z' 1.0 1.5
M E 20 20
M N 24 20
M Z 19 19
D = 7400 km = 66 1/2°.
Ki iP 21 08 36.0 C
ipP 21 08 50
iPP 21 10 44
i(Pa) 21 12 50
iS 21 16 32
iP'P' 21 38 11.5
microns sec
P N 8.1 8
P Z 14 9
pP E 2.3 8
PP N 8.6 13
S E 7.7 10
S N 12 11
P'P' Z' 0.7 1.3
M E 36 22
M N 36 22
M Z 44 21
D = 6500 km = 58 1/2°.
Gb iP 21 09 43.3 C
eP'P' 21 37 35
i 21 37 44.9
Um iP 21 09 02.8 C
iS 21 17 24
eP'P' 21 37 56
Ka iP 21 09 52.0 C
iP'P' 21 37 40.1
Aleutian Islands.
h = 60 km (Ki).
Magn. = 7.3 (Up,Ki).
This earthquake exhibits an unusually long-period character, both in body and surface waves. For instance, on Up long-period records S has a pronounced period of about 35 sec, in addition to the one reported above.

" 2 Up iP 21 43 01.1
Ki iP 21 42 32.5
Um iP 21 42 44.8

" 2 Up iP 23 04 51.1

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July 3 Up eP 02 28 04
iS 02 32 49
microns sec
P Z' 0.2 1.5
S E 1.0 11
M E 1.7 18
M N 3.6 18
M Z 2.2 22
D = 3050 km = 27 1/2°.
Ki iP 02 28 23.4
eS 02 33 04
microns sec
S E 1.1 13
M E 3.6 22
M N 1.7 15
M Z 2.3 14
D = 3300 km = 29 1/2°.
Gb iP 02 27 43.5
i 02 27 54.6
Um eP 02 28 14
iS 02 32 59
North Atlantic Ocean
(h = 40 km).
Magn. = 5.2 (Up,Ki).

" 3 Um iP 05 46 53.2
North Atlantic Ocean
(h = 30 km).

" 3 Um iP 10 41 49.9

" 3 Up iP 11 37 06.0
iS 11 46 07
microns sec
P Z' 0.1 0.8
M E 3.0 22
M N 9.0 22
M Z 3.0 19
D = 7550 km = 68°.
Ki iP 11 36 54.9
iPcP 11 37 25.9
microns sec
P Z' 0.2 1.0
M E 4.1 19
M N 1.9 14
M Z 3.6 18
Gb iP 11 37 26.2
Um iP 11 36 57.0
iS 11 45 49
Ka iP 11 37 16.3
Burma-China (h = 30 km).
Magn. = 5.9 (Up,Ki).

" 3 Up iP 12 02 19.5
Um eP 12 02 10

1965 July 3 Um iP 13 56 18.8

" 3 Up iP 15 35 34.1
i 15 35 42.8
Ki iP 15 34 56.6
Um iP 15 35 13.1 C
i 15 35 18.2
Japan (h = 130 km).

" 3 Ki e(P) 21 23 56
Um iP 21 24 48.1

" 4 Up iP 16 05 36.2
Aleutian Islands (h = 30 km).

" 4 Up iP 20 15 41.9
microns sec
P Z' 0.1 1.3

" 5 Up iP 01 48 42.0
Ki iP 01 48 11.2 C
Um iP 01 48 32.4 C
i 01 49 19.7
Kurile Islands (h = 30 km).

" 5 Up iP 08 37 55.8 C
eS 08 42 43
microns sec
P Z' 0.2 1.0
S E 0.5 5
M E 1.2 13
M N 1.9 16
M Z 1.8 19
D = 3200 km = 29°.
Ki iP 08 38 03.0
i 08 38 22.0
microns sec
M E 4.8 20
M N 2.3 20
M Z 4.4 20
Sk iP 08 37 32.2
Gb iP 08 37 33.7
Um iP 08 38 02.9
Ka iP 08 37 52.5
North Atlantic Ocean
(h = 30 km).
Magn. = 5.2 (U-,Ki).

" 5 Um eP 13 35 12

" 5 Up iP 23 52 21.8 C
Ki iP 23 52 17.2
Sk iP 23 52 37.2
Um iP 23 52 14.8
Burma (h = 40 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July	6	Ki	iP	01 21 55.4	
		Um	iP	01 22 24.1	C
		Alaska (h = 50 km).			
"	6	Ki	~~e~~	~~02 22 09~~	
		KIR	iSg	02 22 12.9	
		Sk	~~e~~	~~02 22 16~~	
		SKA	iSg	02 22 19.8	
		Um	iPg	02 21 52.4	
		UME	iSn	02 22 27.7	
			iSg	02 22 40.4	
		D = 380 km = 3.4°.			
		Nordlands Fylke, Norway,			
		66.4°N, 15.0°E.			
		Origin time = 02 20 47.			
"	6	Ki	iPKP	03 23 27.2	
		Um	ePKP	03 23 31	
		Loyalty Islands (h = 40 km).			
"	6	Up	iP	03 23 32.5	D
			iS	03 27 28	
			iLg1	03 30 20	
			iL(3.23)	03 31 05	
			microns	sec	
			P E	1.4 5	
			P N	11 7	
			P Z	14 7	
			P Z'	1.5 1.0	
			S E	21 9	
			S N	20 13	
			S Z	22 11	
			M E	110 19	
			M N	68 9	
			M Z	80 10	
			D = 2400 km = 21 1/2°.		
		Ki	iP	03 24 45.5	D
			iPP	03 25 41	
			iS	03 29 35	
			iSa	03 30 46	
			iLg2	03 34 42	
			microns	sec	
			P N	2.8 7	
			P Z	3.2 7	
			P Z'	0.3 1.3	
			PP N	4.9 6	
			PP Z	4.1 5	
			S E	4.1 9	
			S N	8.8 11	
			M E	100 15	
			M N	35 10	
			M Z	40 10	
			D = 3200 km = 29°.		
		Sk	iP	03 24 13.6	D
			iS	03 28 55.2	
		Gb	iP	03 23 20.4	D

cont.

1965 July cont.	6	Um	iP	03 24 10.5	D
			iS	03 28 37	
		Ka	eP	03 22 55	
			i	03 22 56.1	
		Greece (h = 30 km).			
		Magn. = 6.6 (Up,Ki).			
		Well developed higher modes.			
		Um (especially N) exhibits			
		long-period motion (periods			
		around 50 sec) between P and S.			
"	6	Sk	iP	03 27 42.9	
		Um	iP	03 27 41.6	
"	6	Um	iP	03 31 18.9	
"	6	Ka	iP	03 52 37.8	
"	6	Up	iP	04 19 40.2	C
			iPcP	04 20 07.0	
			microns	sec	
			P Z'	0.1 0.5	
		Ki	iP	04 18 52.3	C
			microns	sec	
			P Z'	0.1 0.8	
		Sk	iP	04 19 27.7	C
		Gb	iP	04 20 00.8	C
		Um	iP	04 19 14.0	
		Ka	iP	04 20 02.4	C
		Kurile Islands (h = 40 km).			
		Magn. = 5.9 (Up,Ki).			
"	6	Ki	iP	04 47 14.0	
			i	04 47 23.8	
		Philippine Islands			
		(h = 50 km).			
"	6	Up	iP	05 01 24.0	
		Ki	eP	05 01 17	
		Um	iP	05 01 16.7	
		Borneo (h = 40 km).			
"	6	Up	iP	05 09 13.7	
			microns	sec	
			M E	0.7 15	
			M N	0.8 19	
			M Z	0.7 15	
		Ki	iP	05 08 18.1	
			microns	sec	
			M E	1.0 16	
			M N	0.6 17	
			M Z	1.1 17	
		Sk	iP	05 08 54.9	
		Gb	iP	05 09 33.5	
		Um	iP	05 08 43.4	
		Ka	iP	05 09 38.1	
		Kamchatka (h = 30 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July	6	Ki	iP	05 27 59.4	
		Mindanao (h = 100 km).			
"	6	Ka	iP	05 55 04.7	
"	6	Sk	iP	06 28 10.1	
		Um	eP	06 28 06	
		Greece.			
"	6	Ki	iP	13 19 52.3	
		Philippine Islands			
		(h = 30 km).			
"	6	Up	eP	13 28 42	
		Ki	iP	13 28 45.2	
		Sk	eP	13 29 07	
		Um	iP	13 28 36.7	
			i	13 28 41.2	
		Kashmir (h = 170 km).			
"	6	Ki	iP	13 40 46.8	C
		Sk	iP	13 40 18.6	
		Um	iP	13 40 10.6	
		Crete (h = 60 km).			
"	6	Up	iP	13 57 21.1	
				microns	sec
			P	Z' 0.1	0.7
"	6	Up	iPKP	15 08 21.3	
		Ki	iPKP	15 08 35.6	
		Um	iPKP	15 08 29.3	
		South Sandwich Islands			
		(h = 60 km).			
"	6	Up	iP	15 39 14.4	
				microns	sec
			P	Z' 0.1	0.9
		Ki	iP	15 38 20.5	
		Sk	iP	15 38 54.9	C
		Gb	iP	15 39 32.9	
		Um	iP	15 38 46.8	
		Aleutian Islands (h = 50 km).			
"	6	Up	iP	16 17 08.4	
				microns	sec
			P	Z' 0.1	0.5
"	6	Ki	iP	17 07 27.8	
		Algeria.			
"	6	Up	iPKP	18 54 31.3	
			iX	18 55 22.4	
			iPP	18 55 43.3	
			ipPP	18 57 23	
			iSKS	19 00 30	

cont.

1965 July cont.	6	Up	iY	19 01 47	
			eSP	19 04 27	
			i	19 05 04.1	
			iPKKP	19 05 11.7	
				microns	sec
			PP	N 0.4	5
			PP	Z' 0.1	1.0
			SKS	E 0.7	6
			SKS	N 0.8	5
			M	E 0.7	18
			M	N 0.8	19
			M	Z 0.9	18
		(D = 12800 km = 115°).			
		Ki	ipP	18 52 18.7	
			iPKP	18 54 19.9	
			iPP	18 54 57.8	
			iSKS	19 00 08	
			iY	19 01 07	
			iSP	19 03 38	
			i	19 05 24.7	
			iPKKP	19 05 38.2	
				microns	sec
			PP	E 0.4	6
			PP	N 0.3	6
			PP	Z 1.0	4
			SKS	E 1.1	10
			SKS	N 0.8	10
			PKKP	Z' 0.1	1.2
			M	E 0.5	16
			M	N 0.5	17
			M	Z 0.7	17
		(D = 12000 km = 108°).			
		Sk	iPKP	18 54 29.6	
			iX	18 55 18.0	
			iPP	18 55 38.1	
			iPKKP	19 05 06.7	
		Gb	iPP	18 55 50.6	
			i	18 56 06.9	
			iPKKP	19 04 52.8	
			i	19 06 06.1	
		Um	ipP	18 52 25	
			i	18 53 51.7	
			iPKP	18 54 24.6	
			iPP	18 55 01.8	
			i!	18 55 17	
			ipPP	18 56 57	
			isPP	18 57 41	
			iSKS	19 00 17	
			iY	19 01 22	
			iSP	19 03 46	
			i	19 05 16.4	
			iPKKP	19 05 26.5	
		Ka	iPKP	18 54 37.9	
			ePP	18 55 49	
		Solomon Islands (h = 510 km).			
		Magn. = 6.4 (Up,Ki).			

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July cont.	6		X (Up,Sk) and Y (Up,Ki,Um) are significant but unidentified phases.		
"	6	Um	i(Sg)	22 58 02.7	
"	7	Ki	iP	00 05 46.0	
			Jan Mayen (h = 40 km).		
"	7	Ki	iP	02 22 05.9	C
"	7	Um	iP	04 08 49.3	
"	7	Ki	iP	04 59 00.1	
		Sk	iP	04 59 20.9	
		Um	iP	04 58 52.9	D
			Tadzhik-Sinkiang (h = 30 km).		
"	7	Um	iP	11 23 04.3	
"	7	Ki	iPKP	12 27 54.0	
		Sk	ePKP	12 27 59	
		Um	iPKP	12 27 50.4	
			South of Australia (h = 30 km).		
"	7	Up	iP	14 32 57.7	
		Ki	iP	14 32 03.9	C
		Sk	iP	14 32 37.8	
		Um	iP	14 32 30.0	C
			Aleutian Islands (h = 50 km).		
"	7	Up	iP	17 26 48.0	
			ipP	17 26 57.8	
		Ki	iP	17 25 55.2	
		Sk	iP	17 26 28.6	C
		Um	iP	17 26 21.0	
			Aleutian Islands.		
			h = 40 km (Up).		
"	7	Up	iP	21 50 13.4	
			ipP	21 51 09.9	
				microns sec	
			P	Z' 0.3 0.7	
		Ki	iP	21 49 38.0	
			i	21 49 50.6	
			ipP	21 50 32.1	
			iS	21 58 29	
				microns sec	
			P	Z' 0.2 1.2	
			S	E 0.7 7	
			M	E 0.5 16	
			M	N 0.4 18	
			M	Z 0.7 17	
			D = 7800 km = 70°.		

cont.

1965 July cont.	7	Sk	iP	21 50 09.1	C
			eS	21 59 31	
		Gb	iP	21 50 32.8	C
		Um	iP	21 49 53.3	C
			ipP	21 50 50.3	
		Ka	iP	21 50 31.3	
		Um	iS	21 58 57.4	
			i	21 59 33	
			i	21 59 59	
			South of Japan.		
			h = 240 km (Up,Ki,Um).		
			Magn. = 6.1 (Up,Ki).		
"	7	Up	iP	23 13 17.7	
		Ki	iP	23 13 15.7	D
				microns sec	
			P	Z' 0.1 0.9	
		Sk	iP	23 13 30.2	
		Um	iP	23 13 14.3	
			Sunda Strait (h = 110 km).		
"	7	Um	iP	23 16 30.5	
			i	23 16 45.4	
"	7	Up	iP	23 46 23.0	C
			ipP	23 46 32.5	
				microns sec	
			P	Z' 0.1 1.0	
			M	E 0.7 19	
			M	N 0.9 18	
			M	Z 1.0 16	
		Ki	iP	23 45 30.2	C
				microns sec	
			M	E 2.2 17	
			M	N 1.4 15	
			M	Z 2.8 16	
		Sk	iP	23 46 02.7	C
		Gb	iP	23 46 40.0	
			ipP	23 46 50.7	
		Um	iP	23 45 55.8	C
			ipP	23 46 07.6	
		Ka	iP	23 46 46.1	
			Aleutian Islands.		
			h = 40 km (Up,Gb,Um).		
"	8	Up	eP	00 17 13	
			i	00 17 22.5	
		Ki	iP	00 15 59.1	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	00 16 14.2	
			iS	00 18 00.8	
		Gb	iP	00 17 33.6	
			i	00 17 38.9	
		Um	iP	00 16 36.9	
		Ka	iP	00 17 54.6	
			Jan Mayen (h = 30 km).		

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
July 8 Ki iP 04 12 02.4
microns sec
P Z' 0.1 1.0
Sk iP 04 12 10.9
Sunda Strait (h = 90 km).

" 8 Ki iPn 05 25 02.0
iSn 05 25 57.2
iSx 05 26 10.5
iSg 05 26 20.5
D = 490 km = 4.4°.
Sk eSg 05 28 48
i 05 29 00.1
Um iPn 05 25 30.9
iSn 05 26 40.3
iSg 05 27 30.5
D = 690 km = 6.2°.
Northwest Russia,
67.8°N, 32.1°E.
Origin time = 05 23 55.
Explosion?

" 8 Sk iP 06 30 51.2

" 8 Ki ePn 08 25 20
iSg 08 25 53.2
Sk eSg 08 26 37
Um iSg 08 26 50.5
Nordlands Fylke, Norway,
67.2°N, 14.8°E.
Origin time = 08 24 37.

" 8 Ka iPg 10 50 40.7
iSg 10 51 07.5
South Baltic.
Explosion.

" 8 Sk iPKP 13 32 11.2
Um iPKP 13 32 04.2

" 8 Up iP 17 08 55.8

" 8 Ki iPn 18 34 32.0
iSn 18 35 20.4
iSg 18 35 35.8
D = 420 km = 3.8°.
Sk eSg 18 38 21
Um iPn 18 35 09.5
iSg 18 37 04.3
D = 720 km = 6.5°.
Northwest Russia,
69.0°N, 30.4°E.
Origin time = 18 33 30.
Explosion?

1965
July 8 Up iPKP 20 47 12.4
Ki iPKP 20 46 41.7
Sk iPKP 20 46 54.5
Um iPKP 20 46 51.4 C
New Zealand (h = 220 km).

" 9 Up i(P) 08 15 06.7

" 9 Up iP 16 10 22.5

" 9 Up i(P) 21 09 46.1
Um i(P) 21 09 30.0

" 10 Up ---
microns sec
M E 0.9 19
M N 1.5 19
M Z 2.0 21
Sk iP 04 36 48.9
Kamchatka (h = 30 km).

" 10 Up iP 08 15 14.3
Sk iP 08 15 51.6 C
Ka iP 08 14 39.5 C
Crete (h = 30 km).

" 10 Up iP 13 03 22.3 D
microns sec
P Z' 0.1 1.0
Sk eP 13 03 10
Kurile Islands (h = 30 km).

" 10 Sk iSg 14 19 05.5
Um iSg 14 19 28.2
Possibly Nordlands Fylke,
Norway.

" 10 Um eP 17 36 19

" 10 Um iP 19 32 44.6
Japan (h = 140 km).

" 11 Up iP 06 22 35.9
Sk iP 06 22 08.7
Um iP 06 22 09.8
Kodiak Island (h = 30 km).

" 11 Sk iP 07 22 53.6
Um iP 07 22 55.2 D
Kodiak Island (h = 10 km).

" 11 Ka iPg 09 58 55.5
iSg 09 59 22.7
South Baltic.
Explosion.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July	11	Ka	iPg	10 42 53.2	
			iSg	10 43 20.0	
		South Baltic.			
		Explosion.			
"	11	Ka	iPg	11 46 01.2	
			iSg	11 46 28.5	
		South Baltic.			
		Explosion.			
"	11	Ka	iPg	12 31 44.9	
			iSg	12 32 11.9	
		South Baltic.			
		Explosion.			
"	11	Ka	iPg	13 37 01.6	
			iSg	13 37 28.5	
		South Baltic.			
		Explosion.			
"	11	Um	iP	13 41 26.3	
			i	13 41 38.7	
"	11	Up	eP	16 26 42	
		Sk	eP	16 26 38	
		Um	iP	16 26 21.3	
			ipP	16 26 35.8	
		Japan.			
		h = 60 km (Um).			
"	12	Sk	i(P)	01 16 29.5	
		Um	ePn	01 15 57	
			iSn	01 17 04.6	
			iSg	01 17 36.0	
			D = 620 km = 5.6°.		
		Region of northern Fennoscandia.			
		Origin time = 01 14 31.			
"	12	Um	iP	03 17 24.6	
"	12	Um	iP	06 53 28.2	
		Unimak Island (h = 20 km).			
"	12	Um	iP	09 39 34.0	
"	12	Um	iP	09 57 23.2	
			iS	10 02 03	
			i	10 02 15	
		Turkey (h = 20 km).			
"	12	Um	iP	11 32 23.4	
		Japan (h = 60 km).			
"	12	Um	iP	12 56 00.5	

1965 July	12	Up	iP	14 00 01.8	
		Ki	iP	14 00 04.4	
			i	14 00 11.0	
		Sk	iP	14 00 27.2	
		Um	iP	14 00 00.1	
		Ka	iP	14 00 06.6	
		Hindu Kush (h = 220 km).			
"	12	Ki	iPKP	14 15 43.4 C	
		Argentina (h = 120 km).			
"	12	Up	iP	16 30 33.1	
"	12	Up	iP	18 52 46.8	
		Ki	iP	18 52 45.9	
			i	18 52 48.7	
			microns	sec	
			P	Z' 0.1	1.0
		Sk	iP	18 52 59.8 D	
		Um	iP	18 52 44.1 D	
		Sumatra (h = 70 km).			
"	12	Up	iP	21 54 39.8	
"	13	Ki	ePn	06 44 18	
			iSn	06 45 13.9	
			iSg	06 45 33.4	
			D = 490 km = 4.4°.		
		Sk	eSg	06 48 04	
		Northwest Russia.			
		Origin time = 06 43 09.			
		Explosion?			
"	13	Ki	iP	10 17 01.8	
		Java (h = 60 km).			
"	13	Up	iP	14 20 17.7 D	
			i	14 20 52.6	
		Ki	iP	14 19 23.1	
		Aleutian Islands (h = 60 km).			
"	13	Ki	eL	15 26	
			microns	sec	
		M	E	0.6	21
		M	N	0.7	23
		M	Z	1.3	23
		Celebes (h = 100 km).			
"	13	Um	iP	15 48 19.8	
"	13	Up	iP	23 17 17.1	
		Ki	iP	23 17 26.0 C	
		Sk	iP	23 17 42.7	
		Um	iP	23 17 15.4	
		Ka	iP	23 17 22.1	
		Hindu Kush (h = 160 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
July 14 Ki eP 02 38 56
Gulf of Alaska (h = 10 km).

" 14 Ki iP 12 26 39.6 C
Gb iP 12 27 47.3
Um iP 12 27 06.2 C
Ka iP 12 27 55.9 C
Aleutian Islands
(h = 20 km).

" 14 Ki iP 13 56 00.7
Um iP 13 56 27.7
Ka iP 13 57 17.5
Aleutian Islands (h = 20 km).

" 14 Up eP 17 09 19
Sk i(P) 17 09 28.6

" 14 Up iP 18 06 50.0
microns sec
P Z' 0.1 1.0
Ki iP 18 05 57.2
microns sec
P Z' 0.2 1.0
Sk iP 18 06 27.6
ePcP 18 07 02
Gb iP 18 07 05.1
Um iP 18 06 24.2
Ka iP 18 07 13.9
Aleutian Islands (h = 10 km).
Magn. = 5.8 (Up,Ki).

" 14 Up iP 18 07 32.7
Ki iP 18 06 39.0
Um iP 18 07 06.3
Ka iP 18 07 55.1
Aleutian Islands.
Origin time = 17 56 33.
An alternative interpretation would be that these are pP-phases to the preceding shock, which then would have a focal depth of 180 km.

" 14 Up iP 18 12 27.1
Ki iP 18 11 34.0
Um iP 18 12 00.7 D
Ka iP 18 12 50.5
Aleutian Islands (h = 25 km).

" 15 Sk iPKP 02 36 00.1
Fiji Islands (h = 590 km).

" 15 Up iSn 06 19 26.6
~~i 06 19 41.3~~
iSg 06 20 10.2

cont.

1965
July 15 ~~Up i 06 20 22.4~~
cont. Ki ePg 06 17 13
KIR iSg 06 17 50.4
microns sec
Sg Z' 0.2 0.8
D = 300 km = 2.7°.
Sk ePg 06 17 22
~~i 06 17 40.7~~
SKA iS^x 06 18 01.9
iSg 06 18 07.9
D = 360 km = 3.2°.
GOT Gb iSg 06 21 16.8
Um iPn 06 17 25.2
UME iSn 06 18 13.4
~~i 06 18 30.2~~
iSg 06 18 34.1
~~D = 440 km = 4.0°.~~
Nordlands Fylke, Norway,
66.8°N, 14.0°E.
Origin time = 06 16 21.

" 15 Up iPg 10 21 20.3
iSg 10 21 47.4
~~UPP~~ iL(2.78) 10 21 59.8
No microns sec
Sg Z' 0.1 0.5
~~SKA~~ Sk iSg 10 23 12.7
Um iPg 10 21 34.8
~~UME~~ iSg 10 22 11.1
iL(2.80) 10 22 31.2
Gulf of Bothnia.
Explosion.

" 15 Up iPg 13 47 37.0
iSg 13 48 03.0
~~UPP~~ microns sec
Sg Z' 0.1 0.5
No ~~SKA~~ Sk eSg 13 49 28
Um iPg 13 47 49.7
~~UME~~ iSg 13 48 26.6
~~Gulf of Bothnia.~~
Explosion.

" 15 Up ~~UPP~~ iP 14 26 13.8
Ki ~~KIR~~ eP 14 26 20
Sk ~~SKA~~ iP 14 25 48.6
Um ~~UME~~ eP 14 26 11
No Ka ~~KAS~~ iP 14 26 16.6
Off east coast of USA.
Explosion.

" 15 Up iPg 15 27 34.6
~~UPP~~ iSg 15 27 59.1
microns sec
No Sg Z' 0.3 0.5

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Kalrskrona

1965 July cont.	15	Ki	iSg	15 30 31.6		
		Sk	ePg	15 28 23		
			iSg	15 29 23.1		
		Um	iPg	15 27 48.6	D	
			iSg	15 28 23.5		
		Ka	iSg	15 29 53.3		
		Gulf of Bothnia.				
		Explosion.				
"	15	Up	iPg	16 31 35.3		
			iSg	16 32 00.2		
		Um	iPg	16 31 49.8		
			iSg	16 32 25.2		
		Gulf of Bothnia.				
		Explosion.				
"	15	Up	iP	18 02 11.8		
			iX	18 02 38.9		
		Ki	iP	18 01 39.0	D	
		Gb	iP	18 02 30.7		
		Um	iP	18 01 53.3	D	
			iX	18 02 22.0		
		Ka	iP	18 02 29.0		
		South of Japan (h = 410 km).				
		The phase marked X is a				
		significant onset, which				
		could be pP (implying a				
		focal depth of only 110				
		km) or P of a new shock.				
"	15	Up	i(P)	18 45 32.1		
			iP	18 45 34.2		
			iSKS	18 55 07		
			iS	18 55 39		
				microns	sec	
			P	Z' 0.3	0.9	
			M	E 0.6	13	
			M	N 1.2	20	
			M	Z 0.8	13	
		(D = 10100 km = 91°).				
		Ki	iP	18 45 17.9	D	
			iS	18 55 11		
				microns	sec	
			P	Z' 0.6	1.0	
			M	E 1.0	16	
			M	N 1.8	17	
			M	Z 1.4	17	
		(D = 9800 km = 88°).				
		Sk	iP	18 45 40.4	D	
		Gb	iP	18 45 48.4		
			i	18 45 56.4		
		Um	iP	18 45 23.3	D	
			i	18 46 10.1		
			i	18 52 33		
		Ka	i(P)	18 45 30.4		
			iP	18 45 44.4	D	
cont.						

1965 July cont.	15	Ka	isP	18 48 49.5		
			iPP	18 49 28.1		
		Mindanao (h = 590 km).				
		Magn. = 6.5 (Up,Ki).				
		(P) at Up, Ka marks a small				
		phase, preceding the actual P.				
"	15	Um	iSKP	20 54 05.5		
		South of Fiji Islands				
		(h = 530 km).				
"	15	Up	iPKP	21 24 09.9		
			i	21 24 14.4		
		Sk	iPKP	21 24 04.2		
			i	21 24 05.2		
		Gb	iPKP	21 24 18.6		
			i	21 24 28.1		
		Um	iPKP	21 23 58.6		
		Ka	iPKP	21 24 19.5		
		Kermadec Islands (h = 310 km).				
"	16	Up	eL	23 38		
				microns	sec	
			M	E 0.5	19	
			M	N 0.7	18	
			M	Z 0.9	19	
		Santa Cruz Islands				
		(h = 30 km).				
"	17	Up		---		
				microns	sec	
			M	E 1.2	21	
			M	N 2.4	20	
			M	Z 3.2	20	
		Ki	iPKP	07 39 10.1		
			i	07 39 43.5		
			ePS	07 49 49		
			iSKSP	07 50 03		
				microns	sec	
			M	E 1.9	20	
			M	N 1.1	21	
			M	Z 2.3	22	
		Sk	iPKP	07 39 26.8		
			iPP	07 40 55.1		
		Um	iPKP	07 39 20.8		
			i	07 40 00.1		
			iPP	07 40 36		
			iSKS	07 46 15		
			iSKKS	07 47 37		
			iSKSP	07 50 18		
		Solomon Islands (h = 25 km).				
		Magn. = 6.0 (Up,Ki).				
"	17	Um	iP	11 11 55.7		
"	17	Ki	eSg	11 28 06		
cont.						

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July cont.	17	Sk	SKA	eSg	11 28 12	
		Um	UME	iSn	11 28 20.7	
				iSg	11 28 35.0	
		Nordlands Fylke, Norway, 66.5°N, 14.6°E.				
		Origin time = 11 26 37.				
"	17	Up		iPg	12 46 33.0	
			UPP	iSg	12 46 57.1	
				microns	sec	
				Pg	Z' 0.1	0.5
				Sg	Z' 0.1	0.5
		Um		iPg	12 46 48.2	
				iSg	12 47 23.8	
		Gulf of Bothnia.				
		Explosion.				
"	17	Sk		iPP	13 07 47.3	
		Um		ePKP	13 06 24	
				ePP	13 07 29	
				i	13 18 26	
		New Britain (h = 30 km).				
"	17	Up		iPKP	13 18 45.9	C
				i	13 18 51.5	
				i	13 19 07.0	
				microns	sec	
				PKP	Z' 0.4	1.1
		Ki		iPKP	13 18 36.8	
				microns	sec	
				PKP	Z' 0.1	1.2
				M	E 0.8	19
				M	N 0.6	18
				M	Z 1.3	20
		Sk		iPKP	13 18 43.5	
				i	13 18 50.1	
		Gb		iPKP	13 18 54.2	
				i	13 18 59.0	
		Um		iPKP	13 18 41.6	
		Ka		iPKP	13 18 57.2	
				i	13 19 02.1	
		Kermadec Islands (h = 25 km).				
		PKP is multiple at Up, Sk, Gb, Ka with a smaller onset followed after 5-6 sec by a much larger onset.				
"	17	Up		iPg	14 29 33.3	C
			UPP	iSg	14 29 55.6	
				microns	sec	
				Pg	Z' 0.2	0.5
				Sg	Z' 0.2	0.5
		Ki	KIR	eSn	14 31 57	
				eSg	14 32 29	
		Sk	SKA	iPg	14 30 20.1	
				iSg	14 31 18.2	

cont.

1965 July cont.	17	Um	UME	iPg	14 29 48.2	
				iSg	14 30 23.5	
		Gulf of Bothnia.				
		Explosion.				
"	17	Ki		iP	16 03 42.2	
		Sk		iP	16 03 19.9	
		Um		iP	16 03 41.0	
		Leeward Islands (h = 40 km).				
"	17	Up		iP	18 32 17.2	C
		Ki		iP	18 31 23.1	C
		Sk		iP	18 31 53.0	
		Gb		iP	18 32 30.8	
		Um		iP	18 31 50.8	C
		Alaska (h = 30 km).				
"	18	Ki		iP	07 33 38.6	
		Alaska (h = 30 km).				
"	18	Ki		eP	08 08 33	
		Um		iP	08 08 51.9	
		Japan (h = 100 km).				
"	18	Ki		eP	10 09 52	
		Um		iP	10 10 13.6	
		Kurile Islands (h = 20 km).				
"	18	Ki		iP	12 50 16.9	
		Um		iP	12 49 49.8	C
"	18	Up		iPKP	13 51 20.6	
		Um		ePKP	13 51 16	
		Kermadec Islands (h = 30 km).				
"	18	Up		iP	18 00 13.1	
		Ki		iP	17 59 20.5	
		Um		eP	17 59 46	
		Aleutian Islands (h = 15 km).				
"	18	Up		iP	22 26 01.8	C
				microns	sec	
				P	Z' 0.1	0.9
				M	E 0.7	19
				M	N 0.5	18
				M	Z 0.9	18
		Ki		iP	22 25 15.0	
				ipP	22 25 26.2	
				microns	sec	
				P	Z' 0.2	1.0
				M	E 0.8	18
				M	N 0.6	17
				M	Z 1.1	19
		Sk		iP	22 25 50.4	C
		Gb		iP	22 26 23.0	
		Um		iP	22 25 36.7	C

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July cont.

18 Um ipP 22 25 47.2
Ka iP 22 26 24.3 C
Kurile Islands.
h = 40 km (Ki,Um).
Magn. = 5.8 (Up,Ki).

" 19 Up iP 00 14 52.4
Ki iP 00 14 05.7
Sk eP 00 14 41
Um iP 00 14 26.8
Kurile Islands (h = 30 km).

" 19 Up eP 04 25 33
ipP 04 25 41.9
Ki iP 04 25 38.5
ipP 04 25 44.9
microns sec
P Z' 0.1 1.3
Sk iP 04 25 20.9 C
ipP 04 25 30.7
Gb iP 04 25 17.7
ipP 04 25 26.1
Um iP 04 25 39.2
ipP 04 25 47.3
iS 04 35 55
Ka iP 04 25 30.1
Venezuela.
h = 30 km (Up,Ki,Sk,Gb,Um).

" 19 Up iP 06 58 43.5
Ki iP 06 58 12.1
Sk iP 06 58 41.2
Gb iP 06 59 01.4
Um iP 06 58 25.7
Bonin Islands (h = 490 km).

" 19 Ki iP 07 44 52.7
Um iP 07 45 19.2
Unimak Island (h = 40 km).

" 19 Ki iP 09 19 31.8 C
Sk iP 09 19 45.8
Um iP 09 19 27.5 C
Sumatra (h = 60 km).

" 19 Up iP 09 21 57.7 C
Ki iP 09 21 59.2
ipP 09 22 05.3
microns sec
P Z' 0.1 1.0
Sk iP 09 22 13.0
Gb iP 09 22 19.7
Um iP 09 21 55.3
Sumatra.
h = 25 km (Ki).

1965 July

19 Up iP 10 26 55.7
Kurile Islands (h = 60 km).

" 19 Um iP 13 30 06.7

" 19 Ka iPg 13 46 03.1
KIR iSg 13 46 24.3
South Baltic.
Explosion.

" 19 Ka iPg 14 45 00.5
KIR iSg 14 45 21.7
South Baltic.
Explosion.

" 19 Up iPn 22 41 16.7
UPP iSn 22 42 25.1
iSg 22 43 03.6
D = 670 km = 6.0°.
KIR Ki e 22 43 11
iSg 22 43 46.1
Sk ePn 22 41 48
SKA e(Sn) 22 43 33
eSg 22 44 13
D = 900 km = 8.1°.
Um ePn 22 41 06
UME iSg 22 42 25.1
i 22 42 38.7
D = 520 km = 4.7°.
Finland-USSR border region,
61.7°N, 29.4°E.
Origin time = 22 39 47.
Explosion?

" 20 Up iPKP 00 12 31.1 D
microns sec
PKP Z' 0.1 0.6
Ki eSKP 00 15 07
Gb iPKP 00 12 40.6 D
Um iSKP 00 15 16.9
South of Fiji Islands
(h = 480 km).

" 20 Up iP 01 05 16.6
Ki iP 01 04 47.1
microns sec
M E 0.4 14
M N 0.3 15
Sk iP 01 04 52.3
Gb iP 01 05 15.2
Um eP 01 05 02
Ka iP 01 05 28.4
Lower California.
Origin time = 00 52 50.

" 20 Um iP 04 15 10.0
Japan (h = 30 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July	20	Up	iP	07 50 53.6	D
			ipP	07 51 35.1	
			iPP	07 52 15.2	
				microns sec	
			P	Z' 0.1 0.5	
		Ki	iP	07 51 01.6	D
			i	07 51 11.2	
		Sk	iP	07 51 18.7	D
			iPP	07 53 03.9	
		Gb	iP	07 51 15.1	D
			i	07 52 21.2	
			iPP	07 53 01.1	
		Um	iP	07 50 51.6	D
			iPP	07 52 25.0	
		Ka	iP	07 50 58.5	D
		Hindu Kush.			
		h = 200 km (Up).			
"	20	Up	iP	11 30 38.9	
		Ki	iP	11 29 48.6	
				microns sec	
			M	E 0.7 19	
			M	N 0.3 15	
		Gb	iP	11 30 59.7	
		Um	iP	11 30 11.5	
		Ka	iP	11 31 01.6	
		Kurile Islands (h = 5 km).			
"	20	Up	iP	13 31 31.1	C
				microns sec	
			P	Z' 0.2 1.3	
			M	E 1.0 20	
			M	N 2.3 22	
			M	Z 1.4 22	
		Ki	iP	13 31 14.2	C
			ipP	13 31 26.3	
			iSKS	13 41 34	
				microns sec	
			P	Z' 0.2 1.4	
			SKS	E 0.6 13	
			M	E 1.1 20	
			M	N 1.6 22	
			M	Z 1.6 20	
		Sk	iP	13 31 35.6	C
		Gb	iP	13 31 46.8	C
		Um	iP	13 31 19.7	C
			iSKS	13 41 47	
			iS	13 42 09	
			eSS	13 48 14	
		Ka	eP	13 31 41	
		Mindanao.			
		h = 50 km (Ki).			
		Magn. = 5.9 (Up,Ki).			
" cont.	20	Up	iPKP	14 12 19.6	

1965 July cont.	20	Up		microns sec	
			PKP	Z' 0.1 0.8	
		Ki	ePKP	14 12 00	
		Gb	iPKP	14 12 27.7	
		Um	iPKP	14 12 08.4	
		Ka	iPKP	14 12 30.5	
		South of Fiji Islands			
		(h = 30 km).			
"	20	Ki	iP	20 21 32.5	
			ipP	20 21 50.5	
		Um	iP	20 21 56.8	
		Aleutian Islands.			
		h = 70 km (Ki).			
"	20	Up	iP	21 21 27.4	
"	21	Up	iPKP	00 49 50.3	
		Kermadec Islands (h = 30 km).			
"	21	Up	e(PKP)	03 10 53	
			iPKP	03 11 02.3	
				microns sec	
			M	E 1.2 21	
			M	N 2.7 22	
			M	Z 2.9 22	
		Ki	iPKP	03 10 52.8	
			iPKS	03 14 18	
				microns sec	
			PKS	N 0.3 8	
			M	E 1.0 19	
			M	N 0.9 19	
			M	Z 1.5 18	
		Gb	ePKP	03 11 08	
			ePKS	03 14 45	
		Um	ePKP	03 10 55	
			ePKS	03 14 22	
		Ka	ePKP	03 11 07	
		Tonga Islands (h = 60 km).			
"	21	Ka	iP	03 56 03.4	
"	21	Ki	eSn	05 13 58	
			eSg	05 14 20	
		Possibly northwest Russia.			
		~~Explosion?~~			
"	21	Ka	iPg	06 51 26.7	
			iSg	06 51 47.8	
		South Baltic.			
		~~Explosion.~~			
"	21	Ka	iPg	07 46 22.1	
			iSg	07 46 43.3	
		South Baltic.			
		Explosion.			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July	21	Ka	iPg	08 34 17.8	
			iSg	08 34 39.0	
		South Baltic. Explosion.			
"	21	Ka	iPg	11 42 33.9	
			iSg	11 42 55.0	
		South Baltic. Explosion.			
"	21	Ka	iPg	12 53 32.5	
			iSg	12 53 53.5	
		South Baltic. Explosion.			
"	21	Up	iP	17 07 41.0	
		Ki	iP	17 06 47.3	
		Gb	iP	17 07 58.4	
		Um	iP	17 07 13.5	
		Aleutian Islands (h = 50 km).			
"	21	Up	iP	18 03 10.0 C	
			microns	sec	
			P	Z' 0.3 1.0	
			M	E 0.6 17	
			M	N 1.0 20	
			M	Z 1.3 20	
		Ki	iP	18 02 16.0 C	
			ipP	18 02 28.2	
			eS	18 10 10	
			microns	sec	
			P	Z 0.6 5	
			P	Z' 0.2 1.0	
			S	N 0.4 6	
			M	E 1.0 16	
			M	N 0.6 15	
			M	Z 1.8 21	
		D = 6350 km = 57°.			
		Sk	iP	18 02 50.8 C	
		Gb	iP	18 03 28.7 C	
			ipP	18 03 40.8	
		Um	iP	18 02 41.9 C	
			ipP	18 02 53.5	
			iPcP	18 03 25.0	
		Ka	iP	18 03 34.1 C	
		Um	iPa	18 06 29	
			iS	18 10 55	
		Aleutian Islands. h = 50 km (Ki,Gb,Um). Magn. = 6.0 (Up,Ki).			
"	21	Up	iP	22 48 03.4	
		Um	iP	22 48 00.9	
		Hindu Kush (h = 140 km).			
"	22	Up	iP	01 29 48.3 D	
cont.					
1965 July cont.	22	Ki	iP	01 28 55.4 D	
			microns	sec	
			P	Z' 0.1 1.3	
		Sk	iP	01 29 28.2 D	
		Gb	iP	01 30 05.8	
		Um	iP	01 29 21.1 D	
		Aleutian Islands (h = 30 km).			
"	22	Ka	iPg	07 44 48.5	
			iSg	07 45 10.0	
		South Baltic. Explosion.			
"	22	Ka	iPg	08 04 35.0	
			iSg	08 04 56.6	
		South Baltic. Explosion.			
"	22	Ka	iPg	08 34 01.1	
			iSg	08 34 22.4	
		South Baltic. Explosion.			
"	22	Ka	iPg	09 09 26.3	
			iSg	09 09 47.4	
		South Baltic. Explosion.			
"	22	Ka	iPg	11 17 37.0	
			iSg	11 17 58.0	
		South Baltic. Explosion.			
"	22	Um	iP	11 39 13.4	
			i	11 40 46.5	
"	22	Ka	iPg	12 30 29.6	
			iSg	12 30 51.0	
		South Baltic. ~~Explosion.~~			
"	22	Um	eP	12 37 08	
			i	12 37 38.9	
"	22	Ka	iPg	13 02 05.2	
			iSg	13 02 26.5	
		South Baltic. ~~Explosion.~~			
"	22	Um	iP	14 04 27.1	
"	22	Ka	iPg	14 45 07.5	
			iSg	14 45 28.5	
		South Baltic. Explosion.			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July 23 Up iP 03 53 10.9 D
Gb i(P) 03 54 33.3

" 23 Um iPKP 05 20 25.0
South Sandwich Islands
(h = 130 km).

" 23 Um iP 16 53 15.1
i 16 53 35.5

" 23 Up iP 17 11 48.6 C
UPP microns sec
P Z' 0.1 0.9
SKA Sk iP 17 11 22.4 C
GOT Gb iP 17 11 48.6
UME Um iP 17 11 34.0 C
i 17 12 09.5
KLS Ka iP 17 12 02.1
Nevada, USA.
Origin time = 17 00 00.
Probably underground explosion.

" 23 Up iPn 20 31 58.9
iSn 20 33 17.4
~~iLgl 20 33 48.6~~
UPP ~~iSg 20 34 00.5~~
microns sec
Sg Z' 0.1 0.7
D = 760 km = 6.8°.
Sk ePg 20 31 47
iSn 20 32 21.4
SKA iS^x 20 32 37.7
iSg 20 32 49.1
~~D = 520 km = 4.7°.~~
Gb e(P) 20 31 42
iSn 20 32 34.0
GOT ~~i 20 33 01.1~~
iSg 20 33 06.6
D = ~~580 km~~ = 5.2°.
Um ePn 20 32 14
UME i(Sn) 20 33 42.9
iS^x 20 34 25.3
iSg 20 34 45.2
~~D = 910 km = 8.2°.~~
Ka eSn 20 33 40
KLS ~~e 20 33 51~~
iSg 20 34 23.7
~~D = 840 km = 7.6°.~~
Norwegian Sea, 61.0°N, 4.0°E.
Origin time = 20 30 15.

" 23 Up iP 21 38 02.1
Um iP 21 38 07.8
West Pakistan (h = 30 km).

" 24 Um iP 03 22 23.6

1965 July 24 Um iP 03 58 13.2 C
Kurile Islands (h = 30 km).

" 24 Up iP 11 55 29.3
Ki ---
microns sec
M E 0.5 18
M N 0.6 18
M Z 0.6 16
Kamchatka (h = 30 km).

" 24 Up iP 18 05 04.8 C
microns sec
P Z' 0.1 0.6
Sk iP 18 05 30.1 C
Gb iP 18 05 26.8
Um iP 18 05 02.7 C
Ka iP 18 05 09.5 C
Hindu Kush (h = 230 km).

" 25 Up iP 03 53 01.7
iS 04 03 26
microns sec
P Z' 0.1 1.0
M E 1.1 19
M N 1.4 18
M Z 1.5 19
D = 9400 km = 84 1/2°.
Ki iS 04 03 24
microns sec
S E 0.7 6
S N 0.5 10
M E 1.8 18
M N 1.5 17
M Z 2.0 18
Sk iP 03 53 18.2
Gb iP 03 53 16.2
ipP 03 53 39.8
Um iP 03 52 57.6
i 03 53 02.8
iS 04 03 19
Sumatra. h = 90 km (Gb).
Magn. = 6.0 (Up,Ki).

" 25 Sk e(Sg) 05 16 32
~~Sk i 05 16 55.3~~
Um iSn 05 14 38.0
~~UME~~ iSg 05 15 19.3
Probably northwest Russia.
Explosion?

" 25 Up iP 07 28 35.8

" 25 Up iP 08 56 04.7 C
Um iP 08 55 39.8
i 08 55 46.8
Off coast of northern California
(h = 30 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July 25 Up iP 13 44 20.1 D
iS 13 53 32
microns sec
P Z' 0.3 0.8
S N 0.4 4
M E 1.2 16
M N 0.9 15
M Z 1.6 17
D = 7900 km = 71°.
Ki iP 13 43 37
eS 13 52 10
microns sec
P Z 0.7 8
S E 0.8 9
S N 0.6 9
M E 1.5 18
M N 1.3 14
M Z 1.4 17
D = 7100 km = 64°.
Sk iP 13 44 10.9
Um iP 13 43 55.6 D
iS 13 52 44
iSS 13 57 03
Ka iP 13 44 39.7
ipP 13 44 49.7
Japan. h = 40 km (Ka).
Magn. = 6.0 (Up,Ki).

" 25 Up iPKP 17 38 03.5
South of Fiji Islands
(h = 470 km).

" 25 Up iP 21 57 39.3 C
iS 22 06 35
microns sec
P Z' 0.3 1.0
M E 0.8 17
M N 1.0 17
M Z 1.6 17
D = 7500 km = 67 1/2°.
Ki iP 21 56 46 C
iS 22 04 56
microns sec
M E 1.7 17
M N 1.5 17
M Z 3.6 18
D = 6600 km = 59 1/2°.
Sk iP 21 57 19.9
Um iP 21 57 12.2 C
iS 22 05 43
Ka iP 21 58 03.1 C
Aleutian Islands
(h = 40 km).

" 25 Up iP 22 02 41.6
Um iP 22 02 13.9
Aleutian Islands (h = 25 km).

1965 July 26 Sk iP 00 46 10.4
Um iP 00 45 33.8
i 00 45 39.6
Kirghiz SSR (h = 30 km).

" 26 Ki ---
microns sec
M E 0.7 19
M N 0.8 22
M Z 1.3 20
Um iPP 15 45 14
iPKS 15 46 20
Samoa Islands (h = 25 km).

" 26 Up iP 16 29 08.0
i 16 29 35.3
microns sec
P Z' 0.1 0.5
Sk iP 16 29 04.4
Um iP 16 28 48.9 D
Ka iP 16 29 23.4
i 16 29 35.5
South of Japan (h = 400 km).

" 26 Um iP 18 34 11.8 C
Atlantic Ocean (h = 30 km).

" 27 Up iPKP 08 46 19.9
i 08 46 24.2
iPKP2 08 46 29.3
Sk iPKP 08 46 16.1
i 08 46 19.5
iPKP2 08 46 29.1
South of Kermadec Islands
(h = 15 km).

" 27 Up iP 11 31 24.5 C
microns sec
P Z' 0.2 1.0
Sk iP 11 31 04.4
ipP 11 31 13.5
Aleutian Islands.
h = 35 km (Sk).

" 27 Up iP 17 16 37.8 C

" 27 Up iP 17 57 10.6
ipP 17 57 21.0
i 17 59 16.6
Sk iP 17 56 58.4
Kurile Islands.
h = 40 km (Up).

" 27 Up iP 21 26 49.4
iPP 21 29 23.9
Ki iP 21 26 09.0 D

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July cont.	27	Ki		microns	sec
			P	Z' 0.1	0.7
		Sk	iP	21 26 43.2	D
			iPP	21 29 10.8	
		Um	iP	21 26 26.2	
			i	21 26 42.2	
		Japan (h = 200 km).			
"	27	Ki	iP	21 46 12.6	
		Um	iP	21 46 57.9	
		North of Svalbard (h = 30 km).			
"	28	Ki	iP	02 35 12.6	
"	28	Ki	ePn	05 21 31	
			iSn	05 22 16.9	
			iSg	05 22 30.8	
			D = 420 km = 3.8°.		
		Sk	eSg	05 25 13	
		Um	iSn	05 23 02.4	
		Northwest Russia. Origin time = 05 20 30. Explosion?			
"	28	Up	iP	22 41 48.2	
			i	22 45 03.2	
			iPP	22 45 19.6	
			iSKS	22 52 01	
			iS	22 52 20	
			isS	22 53 20	
			iSS	22 58 27	
				microns	sec
			S N	1.0	3
			D = 9900 km = 89°.		
		Ki	iP	22 41 47.3	D
			i	22 41 55.7	
			ipP	22 42 21.0	
			iPP	22 45 18.8	
			iS	22 52 18	
			isS	22 53 21	
				microns	sec
			P Z'	0.1	0.7
			S E	0.9	6
			S N	0.8	5
			D = 9900 km = 89°.		
		Sk	iP	22 42 01.6	
			i	22 42 11.1	
			iPP	22 45 44.4	
		Um	iP	22 41 45.3	
			ipP	22 42 17.9	
			iPP	22 45 17.8	
			iS	22 52 16	
			isS	22 53 11	
			iSS	22 58 05	
		Ka	iP	22 41 52.8	

cont.

1965 July cont.	28	Sumatra. h = 130 km (Up,Ki,Um). Magn. = 6.3 (Up,Ki).			
"	29	Ki	iP	03 11 37.3	C
		Sk	iP	03 12 08.5	
		Um	iP	03 11 38.4	
		Kazakh SSR. Underground explosion?			
"	29	Up	iP	08 40 27.9	D
			ipP	08 40 33	
			iS	08 49 36	
			iScS	08 50 27	
			iP'P'	09 08 32.7	
				microns	sec
			P Z'	1.6	0.8
			pP N	10	5
			pP Z	16	5
			S E	9.8	9
			S N	16	8
			M E	42	17
			M N	72	23
			M Z	60	23
			D = 7700 km = 69 1/2°.		
		Ki	iP	08 39 34.1	D
			ipP	08 39 40.1	
			iS	08 47 56	
			iScS	08 49 25	
			e(P'P')	09 08 45	
			iP'P'	09 09 00.1	
				microns	sec
			P N	7.4	8
			P Z	14	7
			pP E	2.3	8
			pP Z'	2.4	1.3
			S E	14	10
			S N	17	9
			S Z	11	10
			P'P' Z'	1.5	2.5
			M E	48	20
			M N	56	18
			M Z	110	18
			D = 6800 km = 61°.		
		Sk	iP	08 40 05.0	D
			ipP	08 40 10.4	
			iS	08 48 54.8	
			iP'P'	09 08 46.3	
		Um	iP	08 40 00.7	D
			ipP	08 40 06.2	
			iS	08 48 45	
			e(P'P')	09 08 35	
			iP'P'	09 08 47.0	
		Ka	iP	08 40 49.8	
			ipP	08 40 56.4	
			eS	08 50 16	
			eP'P'	09 08 38	

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July cont. 29 Aleutian Islands.
h = 25 km (Up,Ki,Sk,Um,Ka).
Magn. = 7.3 (Up,Ki).
The PZ'-amplitudes increase from north to south over Sweden (compare remark to the Kurile Islands earthquake on June 11, 1965). An alternative interpretation to the above would be that P and pP in fact are multiple P, the first smaller and of longer period followed after 5-6 sec by a much larger onset of shorter period.

" 29
Ki iP 09 05 17.9
Sk iP 09 04 54.7
Um iP 09 05 17.4 C
Leward Islands (h = 30 km).

" 29
Up iP 11 19 36.3
Ki iP 11 18 41.7
Aleutian Islands
(h = 30 km).

" 29
Up iP 12 31 27.4
i 12 31 39.7
Ki iP 12 30 35.2
microns sec
P Z' 0.4 2.5
Sk iP 12 31 05.2
Gb iP 12 31 43.1
Um iP 12 31 01.5
Ka iP 12 31 50.5
Aleutian Islands
(h = 30 km).
PZ' has an exceptionally long period (2.5 sec) at all our stations.

" 29
Up iP 14 29 20.9

" 29
Up iP 15 19 42.4 C
microns sec
P Z' 0.1 1.0
Ki iP 15 18 48.4 C
ipP 15 19 03.3
Sk iP 15 19 19.7
ipP 15 19 32.6
Gb iP 15 19 57.0
Um iP 15 19 15.0
ipP 15 19 28.5
iS 15 27 53
Ka iP 15 20 04.0
Aleutian Islands.
h = 55 km (Ki,Sk,Um).

1965 July 29
Up iP 15 21 15.8
Ki iP 15 20 23.1
ipP 15 20 35.2
Um iP 15 20 49.0
Aleutian Islands.
h = 50 km (Ki).

" 30
Up iP 07 32 23.7
microns sec
P Z' 0.1 0.6
Ki iP 07 32 27.8 C
i 07 32 32.6
microns sec
P Z' 0.4 1.2
Sk iP 07 32 11.7
Gb iP 07 32 09.8
Um iP 07 32 29.0 C
Colombia (h = 170 km).
Magn. = 6.1 (Up,Ki).

" 30
Up iP 08 21 14.4
Ki iP 08 20 20.2
Um iP 08 20 49.6
Aleutian Islands
(h = 60 km).

" 30
Up iP 08 42 22.5
Aleutian Islands
(h = 30 km).

" 30
Up iP 19 11 48.0

" 30
Sk iP 19 15 27.6
Um iP 19 15 04.8
Iran (h = 50 km).

" 30
Up iP 21 01 07.7
Ki iP 21 00 41.5
Gb iP 21 01 42.9

" 31
Up iP 07 48 03.9
iS 07 57 37
microns sec
S E 0.4 9
M E 1.0 17
M N 1.5 15
M Z 1.2 15
D = 8150 km = 73 1/2°.
Ki iP 07 47 25.7
eS 07 56 21
microns sec
S E 0.7 9
S N 0.3 10
M E 2.5 21
M N 1.8 17
M Z 3.6 16
D = 7500 km = 67 1/2°.

cont.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 July cont.	31	Sk	eP	07 47 56	
		Gb	iP	07 48 26.1	
		Um	iP	07 47 42.0	
			i	07 47 51.5	
			iS	07 56 52	
			iSS	08 01 24	
		Japan (h = 50 km).			
		Magn. = 5.7 (Up,Ki).			
"	31	Up	eP	11 26 37	
		Ki	iP	11 25 42.3	
			ipP	11 25 50.4	
		Sk	iP	11 26 11.2	
		Um	iP	11 26 11.9	
			ipP	11 26 21.3	
			iS	11 34 34	
		Kodiak Island.			
		h = 35 km (Ki,Um).			
"	31	Up	iP	11 30 21.6	
"	31	Gb	iPKP	12 06 34.6	
		Tonga Islands (h = 30 km).			
"	31	Up	iPKP	14 45 05.6 C	
				microns sec	
			PKP	Z' 0.2 0.6	
		Sk	iPKP	14 44 58.5	
		Gb	iPKP	14 45 15.3	
		South of Fiji Islands			
		(h = 460 km).			
"	31	Up	iP	16 46 25.3	
				microns sec	
			M	N 0.8 16	
		Ki		---	
				microns sec	
			M	N 0.4 15	
		Sk	iP	16 46 40.1	
		Tibet (h = 30 km).			
"	31	Up	iP	17 17 25.4 C	
				microns sec	
			P	Z' 0.1 0.5	
			M	E 0.7 16	
			M	N 1.4 17	
			M	Z 1.1 17	
		Ki	iP	17 17 13.9	
				microns sec	
			M	E 1.3 16	
			M	N 0.8 15	
			M	Z 1.0 14	
		Sk	iP	17 17 37.2	
			i	17 17 40.1	
		Um	iP	17 17 11.5	
			iS	17 24 48	
1965 July cont.	31	Um	iSS	17 28 28	
		Tibet (h = 30 km).			
"	31	Up	iP	19 10 39.5	
		Ki	iP	19 10 28.3 C	
				microns sec	
			M	E 0.3 12	
			M	N 0.3 11	
			M	Z 0.3 11	
		Sk	iP	19 10 54.2	
		Um	iP	19 10 31.9	
		Tibet (h = 30 km).			
"	31	Up	iP	20 08 21.1	
		Um	iP	20 08 01.3	
			i	20 08 08.0	
		South of Japan (h= 100 km).			
"	31	Up	iP	21 54 19.5	
			i	21 54 22.8	
				microns sec	
			P	Z' 0.1 0.6	
			M	E 0.6 15	
			M	N 0.7 15	
			M	Z 0.6 13	
		Ki	eP	21 54 09	
			i	21 54 12.2	
				microns sec	
			M	E 0.6 13	
			M	N 0.3 13	
			M	Z 0.6 13	
		Sk	iP	21 54 34.5 D	
		Um	iP	21 54 09.0	
			i	21 54 12.3	
		Tibet (h = 20 km).			

Markus Båth
March 7, 1966

cont.

Seismological Institute
Uppsala

SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, GÖTEBORG, UMEÅ and KARLSKRONA

Uppsala	(Up):	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E;	h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E;	h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E;	h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E;	h = 11 m

AUGUST 1 - 31, 1965

1965 Aug. 1 Ki ePn 05 12 30
iSn 05 13 26.0
iSg 05 13 44.1
D = 460 km = 4.1°.
Sk eSg 05 16 15
Um iSn 05 14 11.2
~~i 05 14 25.4~~
iSg 05 14 50.2
D = 670 km = 6.1°.
Northwest Russia,
67.9°N, 31.2°E.
Origin time = 05 11 30.
Explosion?

" 1 Up iPKP 07 47 15.5
Sk ePKP 07 47 13
i 07 47 29.8
Fiji Islands (h = 260 km).

" 1 Ki e(Pn) 08 57 16
iSn 08 58 22.0
iSg 08 58 51.0
D = 580 km = 5.2°.
Sk eSg 09 01 11
Um iSg 08 59 34.0
Northwest Russia,
67.1°N, 33.8°E.
Origin time = 08 56 00.
Explosion?

" 1 Ki iP 09 33 12.5
Molucca Passage (h = 90 km).

" 1 Up iP 14 23 34.8
Ki iP 14 23 24.1
Sk iP 14 23 49.8
Um eP 14 23 24
Tibet (h = 30 km).

1965 Aug. 1 Up iP 15 12 53.9 D
iS 15 21 02
microns sec
P Z' 0.4 0.8
D = 7150 km = 64 1/2°.
Ki iP 15 12 08.3
ipP 15 13 33.7
iPP 15 14 21.8
iS 15 19 33
iScS 15 21 16
microns sec
P Z' 0.3 0.8
S E 0.3 8
M E 0.8 21
M N 0.8 22
M Z 1.6 22
D = 6450 km = 58°.
Sk iP 15 12 44.4 D
iPP 15 15 05.5
Gb iP 15 13 16.8
Um iP 15 12 28.3
iPP 15 14 44.6
iScS 15 21 38
Ka iP 15 13 16.2
Sakhalin.
h = 420 km (Ki).

" 1 Up iP 16 50 49.8 D
microns sec
P Z' 0.6 0.6
Ki iP 16 49 59.2 D
microns sec
P Z' 0.6 0.7
Sk iP 16 50 35.3 D
i 16 50 40.7
Gb iP 16 51 10.7 D
Um iP 16 50 22.4 D
iPcP 16 51 07.3
Ka iP 16 51 13.3
Okhotsk Sea (h = 460 km).
Magn. = 6.3 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug.	1	Up	iPKP	19 47 24.5	
		Gb	iPKP	19 47 34.7	
		Ka	iPKP	19 47 38.5	
		South of Tonga Islands (h = 30 km).			
"	1	Up	iP	20 18 49.4	
			i	20 18 51.9	
				microns sec	
			P	Z' 0.1 0.5	
			M	E 0.7 16	
			M	N 0.8 16	
			M	Z 1.0 16	
		Ki	iP	20 18 38.3	
			i	20 18 40.9	
				microns sec	
			M	E 0.6 15	
			M	N 0.6 16	
			M	Z 0.8 14	
		Sk	iP	20 19 04.0 D	
			i	20 19 06.2	
		Gb	iP	20 19 14.1	
		Um	iP	20 18 38.1	
			i	20 18 41.1	
			eS	20 26 15	
			eSa	20 30 36	
		Ka	iP	20 19 02.6	
		Tibet (h = 30 km). PZ' is multiple: a small first phase is followed after 2.6 sec (average) by a much larger phase.			
"	1	Ki	iPKP	20 53 09.8	
		Sk	iPKP	20 53 20.8	
		New Hebrides Islands (h = 30 km).			
"	2	Up	iPKP	00 04 12.8 C	
				microns sec	
			PKP	Z' 0.1 0.6	
			M	E 0.8 20	
			M	N 1.3 21	
			M	Z 1.7 21	
		Ki	iPKP	00 03 51.7	
			i	00 03 55.3	
			ePP	00 07 07	
				microns sec	
			PKP	Z 0.3 5	
			M	E 1.0 23	
			M	N 0.7 20	
			M	Z 2.0 22	
		Sk	iPKP	00 04 04.4	
			i	00 04 07.5	
		Gb	iPKP	00 04 21.7	
			i	00 04 37.1	
		(cont.)			

1965 Aug.	2	(cont.)			
		Um	iPKP	00 04 01.0 C	
			iPP	00 07 20	
		Ka	iPKP	00 04 21.8	
			i	00 04 37.8	
		South of Kermadec Islands (h = 40 km).			
"	2	Up	iP	05 05 30.0	
		Ki	iP	05 06 06.5	
		Sk	eP	05 06 02	
		Arabian Sea (h = 40 km).			
"	2	Up	ePKP	13 39 56	
			i	13 40 36.7	
			iPKP2	13 40 42.8	
			i	13 45 37	
				microns sec	
			PKP2	Z 1.9 5	
			PKP2	Z' 0.2 1.0	
			M	E 13 22	
			M	N 19 21	
			M	Z 26 22	
		(D = 17550 km = 158°).			
		Ki	iPKP	13 39 54.2	
			iPKP2	13 40 28.3	
			ePP	13 44 09	
				microns sec	
			PKP	Z 2.1 10	
			PKP2	Z 3.1 6	
			PKP2	Z' 0.6 1.5	
			PP	E 1.4 5	
			PP	Z 4.0 5	
			M	E 22 20	
			M	N 14 21	
			M	Z 39 23	
		(D = 17350 km = 156°).			
		Sk	ePKP	13 40 00	
			i	13 40 08.8	
			iPKP2	13 40 47.7	
		Gb	e(PKP)	13 40 13	
			iPKP2	13 40 48.4	
			i	13 40 56.1	
		Um	iPKP	13 39 52 C	
			i	13 40 19.3	
			iPKP2	13 40 38.0	
			iPP	13 44 08	
			iSKSP	13 54 20	
			iSS	14 03 57	
		Ka	i(PKP)	13 39 46.6	
			i	13 40 07.5	
			iPKP2	13 40 44.4	
		Macquarie Island (h = 30 km). Magn. = 7.0 (Up,Ki).			
"	2	Up	iP	14 47 04.7	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 2 (cont.)

Ki	iP	14 47 04.9	
	ipP	14 47 12.0	
		microns	sec
	P	Z' 0.2	1.5
Sk	iP	14 46 51.8	C
	ipP	14 46 58.5	
Um	iP	14 47 08.3	
	ipP	14 47 14.1	
Ka	iP	14 47 03.2	

Panama.
h = 25 km (Ki,Sk,Um).

" 2

Up	iP	14 48 53.8	
Ki	iP	14 48 52.4	C
		microns	sec
	P	Z' 0.1	1.5
Sk	eP	14 48 39	
Um	iP	14 48 55.8	
	ipP	14 49 01.6	
Ka	iP	14 48 51.9	C

Panama. h = 25 km (Um).
Origin time = 14 36 10.
This is no doubt another shock in Panama 01 48 after the preceding one and slightly smaller. USCGS reports only the preceding shock.

" 2

Up	iP	16 55 55.9	C
	i	16 55 58.8	
	iSKS	17 06 23	
		microns	sec
	M	E 0.9	23
	M	N 0.9	23
	M	Z 1.3	20
	D = 9650 km = 87°.		
Ki	iP	16 55 55.9	C
	i	16 56 04.1	
	iPP	16 59 19	
	eSKS	17 06 20	
		microns	sec
	P	E 0.4	6
	P	Z 0.8	6
	P	Z' 0.4	2.0
	SKS	E 0.7	9
	SKS	N 0.4	8
	M	E 1.1	22
	M	N 0.9	23
	M	Z 2.9	26
	D = 9650 km = 87°.		
Sk	iP	16 55 42.5	C
Gb	iP	16 55 46.4	
Um	iP	16 55 59.1	
	i	16 56 21.3	
Ka	iP	16 55 54.1	

Panama (h = 5 km).
Magn. = 6.4 (Ki).

1965 Aug. 2

Up	iP	17 59 16.5	
Ki	iP	17 59 06.2	
Sk	iP	17 59 32.1	

Tibet (h = 30 km).

" 2

Ki	iP	18 17 38.4	
Sk	iP	18 17 25.0	

Panama (h = 30 km).

" 2

Ki	iP	18 57 04.1	
Sk	eP	18 56 50	

Panama (h = 30 km).

" 2

Up	iP	19 20 38.7	C
	iSKS	19 31 03	
Ki	iP	19 20 38.8	C
	eSKS	19 31 04	
		microns	sec
	P	Z' 0.1	1.5
	SKS	E 0.6	9
	SKS	N 0.3	9
	M	E 0.5	19
	M	N 0.4	17
	M	Z 0.7	17
Sk	iP	19 20 25.3	C
Um	iP	19 20 42.3	C
	iSKS	19 31 08	
	iS	19 31 21	
Ka	iP	19 20 36.7	C

Panama (h = 30 km).

" 2

Ki	iP	19 30 28.8	

Panama (h = 40 km).

" 2

Ki	iP	19 48 51.1	

Japan (h = 30 km).

" 2

Up	iP	20 56 11.8	
	ipP	20 56 17.9	
Ki	iP	20 56 11.5	
	ipP	20 56 16.7	
Sk	iP	20 55 58.0	
Um	iP	20 56 14.9	
	ipP	20 56 21.1	

Panama.
h = 25 km (Up,Ki,Um).

" 2

Up	i(P)	21 20 41.8	
Ka	iP	21 21 42.3	

" 3

Up	iPP	02 19 47	
Ki	ePP	02 19 52	
	ePS	02 28 51	
		microns	sec
	PP	Z 0.3	6
	M	E 1.1	24

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 3 (cont.)

Ki		microns	sec
	M	N 0.6	22
	M	Z 1.0	20
Sk	iP	02 15 26.2	
Um	iPP	02 19 45	
	iSKS	02 26 22	

Peru (h = 50 km).

" 3

Ki	eP	07 10 12
Sk	iP	07 10 39.5
Um	iP	07 10 11.0 C
Ka	iP	07 10 16.6

Hindu Kush (h = 100 km).

" 3

Up	iP	07 44 41.0	
	i	07 44 44.3	
Ki	iP	07 44 31.1	
		microns	sec
	M	N 0.3	10
Sk	iP	07 44 56.9 C	
Um	iP	07 44 30.1	
	i	07 44 34.1	
Ka	eP	07 44 53	

Tibet (h = 40 km).
If the second phase, 3-4 sec after P (Up,Um), is pP, the depth is reduced to around 15 km. See remark to Aug. 1, 20 18.

" 3

Up	iP	08 42 19.8	
	iS	08 51 54	
		microns	sec
	M	N 0.5	12
	D = 8150 km = 73 1/2°.		
Ki	eP	08 41 42	
	i	08 41 48.6	
	eS	08 50 44	
		microns	sec
	S	E 0.3	6
	S	N 0.2	8
	M	E 0.8	18
	M	N 0.6	16
	M	Z 0.6	13
	D = 7550 km = 68°.		
Sk	eP	08 42 16	
Um	iP	08 41 59.0 C	
	iS	08 51 12	

Japan (h = 70 km).

" 3

Um	iP	08 47 44.8

Japan (h = 110 km).

" 3

Ki	iP	09 23 24.2
	i	09 23 56.8

Alaska (h = 60 km).

1965
Aug. 3

Ki	iPKP	09 54 46.2
Ka	iPKP	09 55 04.7

Fiji Islands (h = 570 km).

" 3

Ki	iP	14 00 51.5
Um	iP	14 01 07.5 C

Japan (h = 90 km).

" 3

Um	iP	14 29 51.8

" 3

Um	iP	15 52 44.7

Japan (h = 30 km).

" 3

Up	iP	16 22 32.9

" 3

Ki	iPKP	18 19 14.3
Sk	ePKP	18 19 25
Um	iPKP	18 19 21.2

New Hebrides Islands (h = 130 km).

" 3

Um	iP	20 09 00.3

Panama (h = 30 km).

" 4

Up	iP	01 18 23.4	
	ipP	01 18 47.9	
	iSKS	01 28 36	
Ki	iP	01 18 09.7	
	ipP	01 18 35.2	
	eSKS	01 28 18	
		microns	sec
	SKS	E 0.5	7
Sk	iP	01 18 03.5 C	
	ipP	01 18 30.4	
Gb	iP	01 18 13.8	
	ipP	01 18 39.6	
	i	01 19 01.3	
Um	iP	01 18 17.8	
	ipP	01 18 44.3	
	iSKS	01 28 31	
	iS	01 28 45	
Ka	iP	01 18 26.2	
	ipP	01 18 51.0	

Mexico.
h = 100 km (Up,Ki,Sk,Gb,Um,Ka).

" 4

Um	iPKP	06 59 04.5

South of Kermadec Islands (h = 30 km).

" 4

Up	iP	08 26 43.0

" 4

Up	iPKP	09 05 51.5
Ki	iPKP	09 05 37.6 C
	iPKKP	09 15 40.1

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 4 (cont.)

Ki		microns	sec	
	PKP	Z' 0.1	0.7	
Sk	iPKP	09 05 48.6		C
Gb	iPKP	09 05 58.6		
	iSKP	09 09 07.9		
	i	09 09 10.5		
Um	iPKP	09 05 43.5		
Ka	iPKP	09 05 58.8		
	iSKP	09 09 06.3		

New Hebrides Islands
(h = 240 km).

" 4	Up	i(P)	10 59 44.4	
" 4	Ki	iPn	11 37 10.8	
		ePg	11 37 18	
		iSn	11 37 57.1	
		iSg	11 38 08.2	
		D = 360 km = 3.2°.		
	Sk	eSg	11 40 47	
	Um	iSg	11 39 45.3	

USSR-Finland border region,
69°N, 28 1/2°E.
Origin time = 11 36 20.
Explosion?

" 4	Up	iP	11 53 45.2	
	Ki	eP	11 55 07	
		i	11 55 21.7	
		microns	sec	
	M	E 0.3	10	
	M	N 0.2	8	
	M	Z 0.3	8	
	Sk	eP	11 54 25	
		i	11 54 28.9	
	Um	iP	11 54 32.5	
		iS	11 58 30	

Italy (h = 30 km).

" 4	Ki	iPn	16 38 19.2	
		iSn	16 39 07.3	
		iSg	16 39 19.9	
		D = 400 km = 3.6°.		

Possibly northwest Russia.
Explosion?

" 4	Up	iP	17 25 19.4	C
" 4	Up	iP	19 20 33.5	
	Ki	iP	19 21 30.8	
	Ka	iP	19 19 58.7	

Crete (h = 30 km).

" 4	Up	i(P)	20 49 31.9	
	Ki	iP	20 48 31.3	C

(cont.)

1965 Aug. 4 (cont.)

Um	i(P)	20 49 29.4		

Some of these onsets must be related to different events.

" 4	Up	iP	21 00 37.0	
" 4	Up	iP	21 38 56.6	
	Um	iP	21 38 37.9	

South of Japan (h = 490 km).

" 4	Up	iP	23 54 17.8	
" 5	Up	iP	00 22 40.9	
		iPKP	00 26 28.0	
		i	00 26 32.5	
		ePP	00 27 23	
		iSKS	00 33 07	
		iPKKP	00 37 02.8	
		iSKSP	00 37 18	
		microns	sec	
	M	E 6.7	23	
	M	N 7.7	22	
	M	Z 12	23	

(D = 12650 km = 114°).

Ki	eP	00 22 08		
	iPKP	00 26 16.5		
	iPP	00 26 48		
	i	00 27 04.5		
	iSKS	00 32 48		
	iPKKP	00 37 22.7		
	i	00 37 34.4		
	microns	sec		
	PP E	0.4	10	
	PP Z	1.0	10	
	SKS N	0.5	10	
	M E	12	23	
	M N	7.5	23	
	M Z	18	24	

(D = 12100 km = 109°).

Sk	iPKP	00 26 27.0		
	ePP	00 27 25		
	iPKKP	00 37 11.8		
Gb	iPKP	00 26 35.0		
Um	iP	00 22 22		
	iPKP	00 26 22.1		
	iPP	00 27 00		
	i	00 27 21.7		
	iSKS	00 32 48		
Ka	iPKP	00 26 34.0		

New Britain (h = 50 km).
Magn. = 6.5 (Up,Ki).

" 5	Ki	iP	04 37 23.8	
" 5	Up	iSg	07 18 30.1	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug.	5	(cont.)			
		Sk	eSg	07 20 17	
		Um	iSg	07 19 24.2	
		Baltic, off southwest tip of Finland.			
		Explosion?			
"	5	Up	i(Pg)	07 45 59.7	
			iSg	07 46 29.9	
		Um	iPn	07 46 07.0	
			iSg	07 47 16.9	
		Baltic, off southwest tip of Finland.			
		Explosion?			
"	5	Up	iP	14 57 58.1	
"	5	Up	iP	17 48 59.4	
"	5	Ki	iP	19 17 39.8	C
		Guatemala (h = 30 km).			
"	5	Up	iP	20 01 46.4	
			iS	20 11 36	
			D = 8650 km = 78°.		
		Ki	iP	20 02 13.1	
			eS	20 12 24	
			microns	sec	
			P	Z' 0.2 1.7	
			M	E 0.6 17	
			M	N 0.5 19	
			M	Z 0.5 18	
			D = 9200 km = 83°.		
		Sk	eP	20 02 10	
		Indian Ocean (h = 30 km).			
"	5	Up	i(P)	21 21 27.6	C
		Ki		---	
			microns	sec	
			M	E 0.6 17	
			M	N 0.5 19	
"	6	Up	eP	01 15 45	
"	6	Up	iP	02 09 29.9	C
			iS	02 18 22	
			D = 7400 km = 66 1/2°.		
		Ki	iP	02 10 12.3	
			i	02 10 17.1	
			iS	02 19 43	
			microns	sec	
			S	N 0.3 8	
			M	E 0.5 16	
			M	N 0.6 19	
			M	Z 1.3 20	
			D = 8150 km = 73 1/2°.		

(cont.)

1965 Aug.	6	(cont.)			
		Sk	iP	02 09 39.1	
		Um	iP	02 09 54.6	
			eS	02 19 06	
		Ka	iP	02 09 07.1	C
		Atlantic Ocean (h = 30 km).			
"	6	Up	iP	03 03 41.3	
			i	03 04 09.0	
"	6	Gb	iPKP	03 15 52.5	
		Ka	iPKP	03 15 54.0	
		Fiji Islands (h = 570 km).			
"	6	Up	iP	10 41 53.8	C
			i	10 43 33.2	
		Sk	e(P)	10 41 56	
"	6	Up	iP	18 24 58.9	D
			iPP	18 27 37.4	
			microns	sec	
			P	Z' 0.2 0.6	
		Ki	iP	18 24 21.6	D
			microns	sec	
			P	Z' 0.2 0.8	
		Sk	iP	18 24 54.9	
			i	18 28 12.0	
		Gb	iP	18 25 19.7	
		Um	iP	18 24 37.3	D
			ipP	18 26 30.4	
		Ka	iP	18 25 18.5	D
		Sea of Japan.			
		h = 580 km (Um).			
		Magn. = 5.6 (Up,Ki).			
"	7	Up	iP	06 59 04.6	
		Ki	iP	06 58 10.8	
		Aleutian Islands (h = 10 km).			
"	7	Um	iPKP	11 38 08.1	
		Kermadec Islands (h = 30 km).			
"	7	Ki	iP	13 39 11.4	C
		Mindanao (h = 80 km).			
"	7	Up	iP	18 01 51.5	
"	7	Ki	iP	21 23 34.0	
		Sk	iP	21 24 19.2	
		Um	iP	21 24 03.1	
		Alaska (h = 30 km).			
"	8	Ki	iP	04 45 34.0	
		Mindanao (h = 70 km).			
"	8	Up	iP	05 30 12.1	C

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 8 (cont.)
Ki iP 05 29 18.5 C
Sk iP 05 29 52.6
Um iP 05 29 44.4
Ka iP 05 30 35.8
Aleutian Islands (h = 40 km).

" 8 Up iP 10 00 07.4
ipP 10 00 17.5
Ki iP 09 59 37.6
ipP 09 59 50.4
microns sec
P Z' 0.1 1.5
M E 0.6 16
M N 0.5 17
M Z 0.9 17
Um iP 09 59 44.9
ipP 09 59 56.0
Halmahera.
h = 45 km (Up,Ki,Um).

" 8 Up iP 13 00 19.1
microns sec
P Z' 0.1 1.0
M E 0.8 21
M N 1.4 23
M Z 1.9 23
Ki iP 12 59 26.1
ipP 12 59 37.6
microns sec
M E 0.7 19
M N 0.5 17
M Z 1.0 18
Sk iP 12 59 57.3
Um iP 12 59 51.3
Ka iP 13 00 42.0
Aleutian Islands.
h = 45 km (Ki).

" 8 Up iP 16 25 29.4
microns sec
M N 0.6 15
M Z 0.9 14
Ki iP 16 25 35.2
microns sec
M E 0.5 12
M N 0.4 12
M Z 0.6 12
Um iP 16 25 33.0
West Pakistan (h = 40 km).

" 8 Up iP 16 39 06.4 D
Kurile Islands (h = 30 km).

" 9 Up iP 02 20 45.2

1965
Aug. 9 Ki iP 02 47 10.3
Banda Sea
(h = 580 km).

" 9 Up iP 03 40 36.7
Ki iP 03 39 44.3
i 03 40 17.8
Aleutian Islands (h = 30 km).

" 9 Ki ePg 05 40 05
iSn 05 40 32.6
iSg 05 40 50.1
D = 420 km = 3.8°.
Possibly northwest Russia.
Explosion?

" 9 Um iP 10 28 28.1
ipP 10 28 39.3
Japan. h = 45 km (Um).

" 9 Ki iP 16 52 32.6
Halmahera (h = 130 km).

" 10 As in June and July, 1965, Karlskrona and several of our other stations recorded numerous explosions in the South Baltic on August 10, 13, 14, 15, 16 and 20. These readings are excluded from the bulletin.

" 10 Up iP 04 18 28.9
Ki iP 04 17 32.7
Um iP 04 17 59.9
Aleutian Islands (h = 30 km).

" 10 Up iP 08 28 06.9 D
Davis Strait (h = 30 km).

" 10 Ki iPn 10 58 25.0
iSn 10 59 11.3
iSg 10 59 23.4
D = 380 km = 3.4°.
Sk eSg 11 02 17
Um iSg 11 01 00.6
Northwest Russia-Finland
border region, 69.3°N, 29.0°E.
Origin time = 10 57 30.
Explosion ?

" 10 Up iP 11 26 05.3
Ki iP 11 25 11.6 C
ipP 11 25 20.3
Sk iP 11 25 45.7
Um iP 11 25 37.3

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 10 (cont.)
Aleutian Islands.
h = 35 km (Ki).

" 10 Sk iPKP 15 03 32.6
Tonga-Kermadec Islands
(h = 540 km).

" 11 Ki iPKP 03 29 04.1
Um iPKP 03 29 12.0
New Hebrides Islands
(h = 40 km).

" 11 Up iP 03 56 55 C
i(PKP) 04 00 00.5
iPKP 04 00 07.8
ePP 04 02 11
iPKS 04 03 27
iSKSP 04 12 29.9

		microns	sec
PKP	Z'	0.2	0.5
PP	E	1.7	15
PP	N	3.3	15
PP	Z	6.1	13
PKS	E	3.9	8
PKS	N	9.5	8
PKS	Z	4.2	8
PKS	Z'	0.3	1.0
M	E	29	22
M	N	62	23
M	Z	86	23

(D = 14450 km =130°).

Ki eP 03 56 22
i(PKP) 03 59 51.4
iPKP 03 59 55.1
iPP 04 01 19
iSKKS 04 08 28
iPKKP 04 09 43.8
i 04 13 15.6
iPKKS 04 13 34.8

		microns	sec
PKP	Z	1.2	5
PKP	Z'	0.9	0.6
PP	E	1.9	17
PP	N	1.8	16
PP	Z	6.1	16
PP	Z'	0.3	1.3
PKKP	Z'	0.1	1.5
M	E	29	22
M	N	27	23
M	Z	41	22

(D = 13650 km = 123°).

Sk i(PKP) 03 59 54.3
iPKP 04 00 05.6
ePKS 04 03 20
iPKKS 04 12 57.9
(cont.)

1965 Aug. 11 (cont.)
Gb i(PKP) 04 00 03.8
iPKP 04 00 15.5
iPKS 04 03 45.8
Um eP 03 56 37 C
i(PKP) 03 59 51.9
i 03 59 53.7
iPKP 04 00 01.0
iPP 04 01 39
i 04 03 05
i 04 09 29.7
iPKKP 04 10 15.5
Ka e(PKP) 04 00 06.5
iPKP 04 00 15.4
iPP 04 02 21.3
iPKS 04 03 43.1
New Hebrides Islands
(h = 25 km).
Magn. = 7.1 (Up,Ki).

" 11 Up iPKS 07 41 16

		microns	sec
M	E	1.1	22
M	N	1.4	22
M	Z	2.0	21

Ki iPKP 07 37 39.4

		microns	sec
M	E	1.2	23
M	N	0.7	21
M	Z	1.6	22

Sk ePKP 07 37 52
iPKS 07 41 17.8
New Hebrides Islands
(h = 10 km).
Magn. = 5.8 (Up,Ki).

" 11 Ki iP 08 14 00.2

" 11 Up iPKP 12 42 35.4
i 12 42 38.9
Ki iPKP 12 42 15.9
Sk iPKP 12 42 30.0
South of Kermadec Islands
(h = 30 km).

" 11 Ki iPKP 14 26 35.3
Sk ePKP 14 26 46
New Hebrides Islands
(h = 40 km).

" 11 Sk iP 18 28 11.2
Costa Rica (h = 5 km).

" 11 Up iP 18 39 46.8
eS 18 48 01
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 11 (cont.)

Up			microns	sec
	M	E	0.6	16
	M	N	1.7	21
	M	Z	1.7	21
	D = 6650 km = 60°.			
Ki	iP		18 38 51.5	
	i		18 39 04.2	
	eS		18 46 22	
			microns	sec
	S	E	0.5	12
	S	N	0.5	9
	M	E	1.2	18
	M	N	1.5	19
	M	Z	2.5	20
	D = 5850 km = 52 1/2°.			
Sk	iP		18 39 17.9	
Gb	iP		18 39 57.6	
Um	iP		18 39 25 C	
	iS		18 47 10	
Ka	eP		18 40 09	

Alaska (h = 25 km).

" 11 Sk eP 19 09 26

" 11

Up	iPKS	20 10 14
Ki	iPKP	20 06 38.6
Sk	iPKP	20 06 49.6

New Hebrides Islands
(h = 40 km).

" 11

Up	eP		20 08 28 C	
	iPKP		20 11 42.9	
	ePP		20 13 53	
	iPKS		20 15 01	
			microns	sec
	PKP	Z	1.1	9
	PKP	Z'	0.1	0.5
	PP	E	0.9	16
	PP	N	1.8	15
	PP	Z	3.8	15
	PKS	E	2.0	9
	PKS	N	4.7	10
	PKS	Z	1.7	9
	PKS	Z'	0.2	1.0
	M	E	15	22
	M	N	30	22
	M	Z	39	21
	(D = 14450 km = 130°).			
Ki	i(PKP)		20 11 25.2	
	iPKP		20 11 29.2	
	ePP		20 13 06	
			microns	sec
	PKP	Z	0.6	10
	PKP	Z'	0.2	0.7
	PP	E	1.0	16

(cont.)

1965 Aug. 11 (cont.)

Ki			microns	sec
	PP	N	0.8	12
	PP	Z	3.2	16
	M	E	20	23
	M	N	13	22
	M	Z	20	22
	(D = 13650 km = 123°).			
Sk	i(PKP)		20 11 32.1	
	iPKP		20 11 39.6	
	iPKS		20 14 59.4	
Gb	e(PKP)		20 11 41	
	iPKP		20 11 51.9	
	iPKS		20 15 17.5	
Um	iP		20 08 14	
	iPKP		20 11 28	
	iPP		20 13 11	
Ka	iPKP		20 11 48.2	
	iPKS		20 15 17.6	

New Hebrides Islands
(h = 30 km).
Magn. = 6.8 (Up,Ki).

" 11

Ki	iPKP	20 27 49.0
Sk	ePKP	20 27 59

New Hebrides Islands.
Origin time = 20 08 50.
In this series of New Hebrides earthquakes, we give (as usual) approximate origin times only when USCGS has not reported the quake.

" 11

Up	ePKP		20 33 09	
	iPKS		20 36 29.1	
			microns	sec
	PKS	Z'	0.2	1.1
Ki	i(PKP)		20 32 51.9	
	iPKP		20 32 56.1	
Sk	i(PKP)		20 33 02.6	
	iPKP		20 33 06.2	
	iPKS		20 36 25.4	
	i		20 36 31.9	
Gb	ePKP		20 33 13	
	iPKS		20 36 42.2	
	i		20 36 49.1	
Ka	iPKP		20 33 17.6	
	iPKS		20 36 41.6	
	i		20 36 49.3	

New Hebrides Islands.
Origin time = 20 13 56.

" 11

Up	iPKS	21 17 49.0
Ki	e(PKP)	21 14 08
	iPKP	21 14 10.9
Sk	ePKP	21 14 22

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 11 (cont.)

Sk iPKS 21 17 45.5
New Hebrides Islands
(h = 25 km).

" 11 Up iP 22 47 46 C
iPKP 22 50 58.0 C
i 22 51 11.1
iPP 22 53 10
iPKS 22 54 20
iPKS2 22 54 32
iSKP 23 03 27

		microns	sec
PKP	Z'	0.1	0.5
PP	E	3.6	13
PP	N	5.1	13
PP	Z	13	14
PKS	E	1.6	5
PKS	N	4.3	5
PKS	Z'	3.1	1.5
PKS2	E	6.1	6
PKS2	N	15	7
PKS2	Z	12	8
M	E	43	20
M	N	81	23
M	Z	100	25

(D = 14450 km = 130°).

Ki eP 22 47 13
iPKP 22 50 44.7 C
i 22 50 56.9
iPP 22 52 34

		microns	sec
P	Z	1.6	14
PKP	Z	2.4	6
PKP	Z'	0.7	0.8
PP	E	4.0	18
PP	N	3.2	14
PP	Z	4.3	8
M	E	63	20
M	N	39	20
M	Z	61	22

(D = 13650 km = 123°).

Sk i(PKP) 22 50 50.5
iPKP 22 50 55.7
iPKS 22 54 23.9
iPKS2 22 54 34.3
Gb iPKP 22 51 04.4
iPP 22 53 41.8
iPKS 22 54 49.7
Um iPKP 22 50 50 C
iPP 22 52 47
Ka i(PKP) 22 51 02.1
iPKP 22 51 04.9
iPKS 22 54 35.2
i 22 54 42.4
New Hebrides Islands
(cont.)
(h = 30 km).
Magn. = 7.3 (Up,Ki).
There is no trace of PKS on Ki Z' (123°), whereas the phase is very strong at Sk (129°) and the other stations, at greater distance. This is typical for this whole series, and PKS is very clear on both long- and short-period instruments. The onset of PKS is generally a few seconds earlier on the long-period instruments.

" 11 Sk iP 23 13 25.9

" 11 Up iPKP 23 18 07.2
ePKS 23 21 27
Ki iPKP 23 17 47.8
Sk e(PKP) 23 17 57
iPKP 23 18 01.7
iPKS 23 21 11.1
Gb iPKP 23 18 09.4
Ka iPKS 23 21 38.1
New Hebrides Islands.
Origin time = 22 58 51.

" 11 Up iPKP 23 23 01.6
i 23 24 37.4
iPKS 23 26 20.9
Ki iPKP 23 22 43.0
Sk iPKP 23 22 53.6
iPKS 23 26 17.2
New Hebrides Islands.
Origin time = 23 03 48.

" 11 Ki iPKP 23 32 34.2
New Hebrides Islands.
Origin time = 23 13 35.

" 11 Ki iPKP 23 57 04.7
Sk ePKP 23 57 14
New Hebrides Islands.
Origin time = 23 38 05.

" 12 Gb iPKP 01 44 35.7
Ka iPKP 01 44 38.0
i 01 44 52.6
Tonga Islands (h = 30 km).

" 12 Ki iP 01 46 49.7
Molucca Passage (h = 60 km).

" 12 Up iPKS 02 44 07.1
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 12 (cont.)

Ki	iPKP	02 40 27.0	C
Sk	iPKP	02 40 38.9	
	ePKS	02 44 00	

New Hebrides Islands (h = 50 km).

" 12 Sk iP 03 42 13.3
Lake Tanganyika (h = 30 km).

" 12 Up iPKP 08 20 53.0
iPP 08 23 04
i(PKS) 08 24 11.9
iPKS 08 24 18.0

		microns	sec
PKP	Z'	0.1	0.5
PP	E	0.8	15
PP	N	1.6	16
PP	Z	2.8	15
PKS	E	2.2	12
PKS	N	1.8	6
PKS	Z'	1.8	1.5
M	E	9.9	23
M	N	27	25
M	Z	26	25

(D = 14450 km = 130°).

Ki	iPKP	08 20 39.0	C
	iPP	08 22 06	

		microns	sec
PKP	Z'	0.3	1.0
PP	E	0.8	18
PP	N	0.6	14
PP	Z	0.6	10
M	E	22	23
M	N	12	22
M	Z	23	23

(D = 13650 km = 123°).

Sk	i(PKP)	08 20 42.1	
	iPKP	08 20 49.4	
	iPKS	08 24 10.5	
Gb	i(PKP)	08 20 50.1	
	iPKP	08 21 01.2	
	iPKS	08 24 28.1	
Um	eP	08 17 24	
	i(PKP)	08 20 38.8	
	iPKP	08 20 44.4	
	iPP	08 22 44	
	iPKS	08 24 02	
Ka	e(PKP)	08 20 48	
	iPKP	08 21 00.7	
	iPKS	08 24 27.9	

New Hebrides Islands (h = 25 km).
Magn. = 6.7 (Up,Ki).
(cont.)

1965 Aug. 12 (cont.)
In this series of New Hebrides shocks, PKP is multiple with a small onset, (PKP), followed by a larger one, PKP, after a few seconds. The time difference PKP - (PKP) seems to increase with distance over the range of our stations, being around 4 sec at Ki (123°) and around 11 sec at Gb (133°), although there are individual variations.

" 12 Up eP 13 12 00
iPKP 13 15 57.6
iPP 13 16 48
iSKS 13 22 40

		microns	sec
PP	E	1.2	16
PP	N	1.6	16
PP	Z	2.8	15
M	E	14	22
M	N	23	22
M	Z	30	20

(D = 12800 km = 115°).

Ki	e(PKP)	13 15 41	
	iPKP	13 15 47.6	
	ePP	13 16 19	
	iSKS	13 22 10	
	iPS	13 25 30	

		microns	sec
PP	E	1.4	17
PP	N	0.7	16
PP	Z	1.3	12
SKS	E	0.9	10
SKS	N	0.6	9
M	E	29	22
M	N	27	24
M	Z	31	22

(D = 12200 km = 110°).

Sk	e(PKP)	13 15 46	
	iPKP	13 15 54.1	
Gb	e(PKP)	13 16 02	
	iPKP	13 16 06.8	
Um	eP	13 11 44	
	i(PKP)	13 15 41.3	
	iPKP	13 15 49.1	
	iPP	13 16 26	
	iPS	13 25 51	
	iSKSP	13 26 07	
Ka	i(PKP)	13 16 01.8	
	iPKP	13 16 05.9	

New Britain (h = 40 km).
Magn. = 6.8 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug.	12	Up	iP	14 08 39.8	
"	12	Ki	iPn	16 31 17.6	
			iSn	16 32 06.2	
			iSg	16 32 21.6	
			D = 410 km = 3.7°.		
			Possibly northwest Russia,		
			Origin time = 16 30 19.		
			Explosion?		
"	12	Up	iPKP	18 24 17.1	D
			iPKS	18 27 26	
			iPKS2	18 27 39	
				microns sec	
			PKS	Z' 0.1 1.0	
			M	E 0.9 23	
			M	N 1.9 23	
			M	Z 1.8 22	
		Ki	i(PKP)	18 23 48.5	
			iPKP	18 24 03.0	
				microns sec	
			PKP	Z' 0.1 1.0	
			M	E 2.0 23	
			M	N 1.2 22	
			M	Z 2.2 23	
		Sk	e(PKP)	18 23 59	
			iPKP	18 24 12.5	
			iPKS	18 27 22.2	
		Gb	i(PKP)	18 24 09.4	
			iPKP	18 24 22.3	
		Um	i(PKP)	18 23 54.3	
			iPKP	18 24 07.8	
			ePP	18 25 53	
		Ka	iPKP	18 24 21.5	
		New Hebrides Islands			
		(h = 50 km).			
		Magn. = 6.0 (Up,Ki).			
"	12	Up	iP	18 52 52.2	
"	12	Um	iP	19 02 43.0	C
"	12	Up	iP	19 34 36.8	
		Ki	iP	19 34 19.9	
		Sk	eP	19 34 43	
		Mindoro.			
		Origin time = 19 22 07.			
"	13	Up	iP	02 25 44.0	
				microns sec	
			P	Z' 0.1 0.5	
			M	E 0.7 19	
			M	N 1.0 24	
			M	Z 1.0 20	
		Ki	iP	02 25 28.0	
		(cont.)			

1965 Aug.	13	(cont.)			
		Ki		microns sec	
			M	E 1.2 18	
			M	N 0.8 19	
			M	Z 1.3 18	
		Sk	iP	02 25 50.2	
		Um	iP	02 25 33.0	
			iS	02 35 42	
		Ka	iP	02 25 56.5	
		Mindoro (h = 40 km).			
"	13	Up	i(PKP)	05 00 03.5	
			iPKS	05 03 27	
				microns sec	
			PKS	Z' 0.3 1.5	
			M	E 0.6 22	
			M	N 1.2 24	
			M	Z 1.4 22	
		Ki	i(PKP)	04 59 50.1	
			iPKP	05 00 04.3	
				microns sec	
			M	E 1.2 23	
			M	N 0.7 21	
			M	Z 1.6 22	
		Sk	i(PKP)	05 00 00.3	
			iPKP	05 00 14.2	
			iPKS	05 03 21.2	
		Gb	iPKP	05 00 25.5	
		Um	i(PKP)	04 59 56.5	
			iPKP	05 00 09.9	
		New Hebrides Islands			
		(h = 30 km).			
		Magn. = 5.7 (Up,Ki).			
		In this as well as the shock of Aug. 12 at 18 24, the time difference PKP - (PKP) is 13.7 sec in average, and does not show the distance variation mentioned under Aug. 12 at 08 20. Evidently, the shocks can be grouped into classes according to this behaviour. A probable explanation is that the phases Po", P1" and P" (in the notation of Payo Subiza and Båth, Geophys. J., 8:496-513, 1964) show up to varying degrees, although complications from pPKP cannot be excluded.			
"	13	Up	iP	11 14 06.7	
		Ki	iP	11 14 14.9	
		Ka	iP	11 14 10.7	
		Hindu Kush.			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 13 Up iPKS 11 47 23
microns sec
M E 0.8 21
M N 1.5 19
M Z 1.6 20
Ki iPKP 11 43 50.8 C
microns sec
M E 1.5 20
M N 0.9 21
M Z 2.1 21
Sk iPKP 11 44 01.7
Um iPKP 11 43 58.0
i 11 44 12.3
iPKS 11 47 10
New Hebrides Islands
(h = 30 km).
Magn. = 5.8 (Up,Ki).

" 13 Ki iP 12 09 20.7
Sk iP 12 09 49.6
Formosa (h = 70 km).

" 13 Ki e(PKP) 12 59 05
iPKP 12 59 11.7
Sk ePKP 12 59 23
Um iPKP 12 59 18.9
New Hebrides Islands
(h = 30 km).
This shock, identified with the one for which USCGS gives the origin time 12 40 08.3, is only a minor foreshock to the following larger earthquake, which occurred 24 sec later.

" 13 Up i(PKP) 12 59 43.8
iPKP 12 59 46.3
iPP 13 01 50
i 13 02 12.6
iPKS 13 03 03
microns sec
PKP Z' 0.1 0.6
PP E 1.8 16
PP N 2.9 16
PP Z 6.1 16
PKS E 3.8 9
PKS N 6.5 9
PKS Z 6.2 10
PKS Z' 0.3 1.0
M E 33 22
M N 78 21
M Z 81 21
(D = 14450 km = 130°).
Ki e(PKP) 12 59 28
iPKP 12 59 32.3
(cont.)

1965
Aug. 13 (cont.)
Ki iPP 13 00 53
microns sec
PKP Z 1.4 8
PKP Z' 0.2 1.0
PP E 3.0 19
PP N 1.8 16
PP Z 5.3 16
M E 50 22
M N 31 20
M Z 46 19
(D = 13650 km = 123°).
Sk iPKP 12 59 40.6
iPKS 13 03 03.2
Gb iPKP 12 59 48.1
i 13 00 25.4
iPKS 13 03 18.1
Um iPKP 12 59 33.5
iPP 13 01 12
Ka i(PKP) 12 59 42.5
iPKP 12 59 52.0
iPKS 13 03 24.9
New Hebrides Islands
(h = 30 km).
Origin time = 12 40 32.
Magn. = 7.1 (Up,Ki).
This series does not conform to the rule $M - M_1 = 1.2$ and it rather seems to be an earthquake swarm. But, on the other hand, it agrees well with the generalized relation between magnitudes of main shocks and aftershocks, indicated by M. Båth (Tectonophysics, 2: 483-514, 1965.

" 13 Up i 15 29 50.5
Ki iP 15 28 11.2
Alaska (h = 100 km).

" 13 Up iPKS 18 19 07
microns sec
M E 2.8 21
M N 7.1 23
M Z 6.8 21
Ki iPKP 18 15 22.1
microns sec
M E 4.5 20
M N 4.4 21
M Z 6.3 22
Um iPP 18 17 44
i 18 18 53
iPKS 18 19 10
New Hebrides Islands
(h = 40 km).
Magn. = 6.5 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 13 Up ---

			microns	sec
	M	E	1.7	22
	M	N	1.9	19
	M	Z	3.7	19
Ki	iPKP			22 16 06.7
	i			22 26 15
			microns	sec
	M	E	3.0	20
	M	N	2.1	19
	M	Z	2.5	18
Um	iPP			22 16 50
	iSKS			22 22 47
	i			22 26 16

New Britain (h = 50 km).
Magn. = 6.1 (Up,Ki).

" 14 Ki eP 00 35 33
iS 00 37 43.4
i 00 38 37.6
D = 1350 km = 12°.
Um i 00 41 22.6
Barent's Sea.
Origin time = 00 32 48.
By combination with
Finnish reports.

" 14 Up iPKP 00 51 46.3
i 00 51 50.7
Ki ePKP 00 51 21
Gb iPKP 00 51 54.0
Um iPKP 00 51 34.6 C
Kermadec Islands
(h = 30 km).

" 14 Up iSn 03 27 05.9
iSg 03 27 21.0
Gb eSg 03 29 13
Um iSn 03 26 49.8
iSg 03 27 13.8
iRg 03 27 31.1
Ka iSg 03 28 54.5
Lathis, Finland.
Explosion of 200 tons of
explosives.

" 14 Up iPn 03 26 43.5
iSn 03 27 33.6
iSg 03 27 51.1
Ki ePn 03 27 26
iSn 03 28 40.8
iSg 03 29 24.6
Gb iSg 03 29 36.0
Um iSg 03 27 39.9
iRg 03 27 59.0
Ka iPn 03 27 22.1
(cont.)

1965
Aug. 14 (cont.)
Ka iSg 03 29 19.4
Lathis, Finland.
Explosion of 300 tons of
explosives.

" 14 Ki iPn 04 01 36.9
iSg 04 02 05.9

			microns	sec
Sg	Z'	0.3	0.5	

Um iPn 04 02 31.5
iSg 04 04 08.5
Explosion at 69.7°N, 18.1°E
(according to Bergen).

" 14 Up iP 04 52 38.2 C
Greece (h = 60 km).

" 14 Ki iPKP 09 52 08.3
New Hebrides Islands
(h = 15 km).

" 14 Up iPKS 11 30 17

			microns	sec
	M	E	1.2	21
	M	N	2.1	21
	M	Z	2.7	21

Ki iPKP 11 26 46.0

			microns	sec
	M	E	1.2	18
	M	N	0.8	17
	M	Z	1.9	20

Um iPP 11 28 48
i 11 36 46
iSS 11 45 47
New Hebrides Islands
(h = 30 km).
Magn. = 5.9 (Up,Ki).

" 14 Ki iP 11 49 45.9 C
Japan (h = 90 km).

" 14 Up ---

			microns	sec
	M	E	0.9	22
	M	N	1.0	20
	M	Z	1.4	21

Ki e(PKP) 13 36 49
iPKP 13 37 07.4

			microns	sec
	M	E	1.0	23
	M	N	0.7	20
	M	Z	1.0	20

Sk e(PKP) 13 36 51
iPKP 13 36 59.8
Santa Cruz Islands
(h = 50 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
Aug.	14	Up	iP	13 58 57.7	
"	14	Gb	iPKP	14 33 24.3	
		Tonga Islands (h = 25 km).			
"	14	Ki	iSKP	16 27 20.2	
		Fiji Islands (h = 580 km).			
"	14	Up	iP	17 22 11.5	
		Ki	iP	17 22 18.0	
		Sk	iP	17 22 36.6	
		Um	iP	17 22 08.4 C	
		Ka	iP	17 22 17.5	
		Hindu Kush (h = 220 km).			
"	15	Up	iP	04 56 52.4	
		Ki	iP	04 56 35.7	
		Sk	iP	04 56 58.0 C	
		Um	iP	04 56 42.2	
		Luzon (h = 100 km).			
"	15	Ki	iPn	05 17 43.2	
			iSn	05 18 39.3	
			iSg	05 18 52.9	
		Sk	iSg	05 21 40.3	
		Um	iSn	05 19 24.2	
			iSg	05 20 03.9	
		Northwest Russia.			
		Explosion?			
"	15	Up	iP	06 07 11.8 C	
		Ki	iP	06 07 20.2 C	
		Sk	iP	06 07 37.3 C	
		Gb	iP	06 07 33.2	
		Um	iP	06 07 10.0 C	
		Ka	iP	06 07 16.4 C	
		Hindu Kush (h = 210 km).			
"	15	Up	iP	20 02 46.5	
		Um	iP	20 02 45.3	
		Ka	iP	20 02 51.3	
		Hindu Kush.			
"	15	Ki	iP	23 01 15.3	
		Alaska (h = 30 km).			
"	16	Up	iSg	04 06 16.9	
		Ki	iPn	04 01 37.0 C	
			iSg	04 02 04.7	
			microns	sec	
			Pn Z'	0.3 0.5	
			Sg Z'	0.5 0.5	
		Sk	iPn	04 02 39.6	
			iSn	04 03 54.3	
			iSg	04 04 27.9	
		Um	iPn	04 02 31.3	
		(cont.)			

1965					
Aug.	16	(cont.)			
		Um	iSg	04 04 08.2	
		Explosion at 69.7°N, 18.1°E			
		(Bergen).			
"	16	Up	iP	04 44 25.2	
			eS	04 50 40	
			microns	sec	
			M E	1.1 20	
			M N	1.4 18	
			M Z	1.3 20	
			D = 4600 km = 41 1/2°.		
		Ki	eP	04 44 55	
			i	04 45 09.3	
			eS	04 51 27	
			microns	sec	
			M E	1.1 17	
			M N	2.0 22	
			M Z	1.1 19	
			D = 5000 km = 45°.		
		Um	iP	04 44 41.6	
			iS	04 51 16	
			iSS	04 54 27	
		North Atlantic Ocean			
		(h = 30 km).			
		Magn. = 5.1 (Up,Ki).			
"	16	Up	iP	11 04 08.3	
"	16	Up	iP	12 29 41.2	
			eSKS	12 40 03	
			iS	12 40 22	
			D = 9900 km = 89°.		
		Ki	iP	12 29 42.3	
			ipP	12 29 50.7	
			eSKS	12 40 09	
			iS	12 40 27	
			microns	sec	
			S E	1.1 8	
			S N	0.6 9	
			D = 9900 km = 89°.		
		Sk	iP	12 29 27.9	
		Gb	iP	12 29 28.7	
		Um	iP	12 29 37.5	
			iSKS	12 40 10	
			iS	12 40 28	
		Ka	iP	12 29 38.5	
		Colombia.			
		h = 30 km (Ki).			
"	16	Ki	iP	12 32 25.6	
			ipP	12 32 34.8	
			iS	12 42 53	
			D = 9850 km = 88 1/2°.		
		Sk	iP	12 32 12.0	
		Gb	iP	12 32 11.5	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 16 (cont.)

Um	iP	12 32 19.6	
	ipP	12 32 28.1	
Ka	iP	12 32 22.0	
	ipP	12 32 31.4	

Colombia.
h = 35 km (Ki,Um,Ka).

" 16

Up	iP	12 47 13.3	C
	iS	12 56 05	

		microns	sec
P	E	0.4	4
P	N	0.7	4
P	Z	1.5	4
P	Z'	1.5	2.0
S	E	1.8	9
S	N	2.2	7
M	E	2.9	19
M	N	4.7	18
M	Z	7.2	24

D = 7450 km = 67°.

Ki	iP	12 47 55.5	C
	i	12 48 07.6	
	iS	12 57 26	

		microns	sec
P	Z	1.8	4
P	Z'	1.2	2.0
S	E	2.2	10
S	N	3.6	10
M	E	5.9	23
M	N	3.0	16
M	Z	4.6	18

D = 8200 km = 74°.

Sk	iP	12 47 22.3	C
Gb	iP	12 46 51.1	C
Um	iP	12 47 36.7	C
	iS	12 56 51	
Ka	iP	12 46 51.1	C

Atlantic Ocean (h = 30 km).
Magn. = 6.4 (Up,Ki).
P(Z') is exceptionally long-period, equal to 2.0 sec at all our stations.

" 16

Ki	iPKP	15 03 47.0	
Um	iPKP	15 04 00.4	

New Hebrides Islands
(h = 20 km).

" 16

Up	i	15 28 27.0	
	iSg	15 28 54.1	

" 16

Um	i(P)	16 57 23.2	

" 17

Ki	iPKP	17 21 29.6	
	iPKP2	17 22 05.6	

(cont.)

1965
Aug. 16 (cont.)

Ki		microns	sec
	M E	0.9	22
	M N	0.7	20
	M Z	1.1	19

Balleny Islands (h = 30 km).

" 16

Up	iPKKP	18 20 51.7	
Ki	iPKP	18 10 35.1	
Sk	ePKS	18 14 09	
Um	iPKP	18 10 43.0	
	i	18 10 50.3	

New Hebrides Islands
(h = 20 km).

" 16

Up		---	

		microns	sec
M	E	0.6	16
M	N	0.8	16
M	Z	1.0	16

Ki	eP	20 01 30	

		microns	sec
M	E	0.5	16
M	N	0.8	22
M	Z	1.0	18

Sk	iP	20 00 58.8	
Gb	iP	20 00 36.9	
Um	iP	20 01 28.0	
Ka	iP	20 00 56.5	

North Atlantic Ocean
(h = 30 km).

" 16

Up	iP	20 43 48.4	

" 16

Ki	ePKP	23 18 26	
Um	iPKP	23 18 26.7	C

New Hebrides Islands
(h = 30 km).

" 17

Ki	eP	00 30 41	

		microns	sec
M	E	0.6	18
M	N	0.9	23
M	Z	1.1	19

Um	iP	00 30 32.5	

North Atlantic Ocean
(h = 30 km).

" 17

Ki	iP	00 34 39.0	
Um	iP	00 34 46.3	

" 17

Up	iP	07 49 00.8	
	iS	07 59 42	

		microns	sec
M	E	0.5	17
M	N	0.8	19

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 17 (cont.)

Up		microns	sec	
	M	Z	0.9	18
D = 9700 km = 87 1/2°.				
Ki	iP		07 48 42.4	
	eS		07 59 05	
	microns		sec	
	S	N	0.4	7
	M	E	0.6	17
	M	N	0.8	22
	M	Z	0.8	16
D = 9300 km = 83 1/2°.				
Sk	iP		07 49 04.1	
Um	iP		07 48 48.4	
	iS		07 59 14	
Ka	iP		07 49 11.6	

Samar (h = 80 km).

" 17 Up iP 07 53 29.6 C
Ki iP 07 53 11.1
i 07 53 21.2
Sk eP 07 53 33
Um iP 07 53 17.5
Ka iP 07 53 40.8
Samar.
Origin time = 07 40 46.
This shock is slightly larger than the preceding, the PZ'-amplitudes being in the ratio of 1.3:1.

" 17 Ki iP 08 18 30.2

microns	sec		
M	E	0.5	16
M	N	0.6	19
M	Z	0.8	16

Um iP 08 18 36.2
Ka iP 08 18 59.0
Samar (h = 120 km).

" 17 Ki iP 08 55 34.7
Ka iP 08 56 53.1
Kamchatka (h = 5 km).

" 17 Ki iP 10 30 32.8 D
Um iP 10 30 58.9
Aleutian Islands
(h = 30 km).

" 17 Up iP 10 47 08.5

microns	sec		
M	E	6.1	19
M	N	4.7	21
M	Z	8.4	20

Ki iP 10 47 09.9 C
(cont.)

1965 Aug. 17 (cont.)

Ki	microns	sec	
P	Z'	0.2	1.0
M	E	7.7	18
M	N	8.4	21
M	Z	10	19
Sk iP		10 47 24.9	
Gb iP		10 47 22.5	
Um iP		10 47 06.2 C	
ipP		10 47 15.6	
Ka iP		10 47 11.5	
ipP		10 47 21.6	

Sumatra.
h = 40 km (Um,Ka).
Magn. = 6.3 (Up,Ki).

" 17 Up iP 10 57 07.6
Ki iP 10 57 09.3
Um iP 10 57 04.6
Ka iP 10 57 15.7
Sumatra.
Origin time = 10 45 04.
These P arrive at about the same time that S from the preceding shock should arrive. That this is nevertheless a new shock is testified both by the appearance of these PZ' and by reports from other stations where this coincidence does not occur.

" 17 Ki eP 13 04 42
Sk iP 13 04 58.7
Sumatra (h = 100 km).

" 17 Ki iPKP 13 22 51.0 C
New Guinea (h = 90 km).

" 17 Up iP 13 27 09.5 C
Ki iP 13 26 17.0
Sk eP 13 26 49
Ka iP 13 27 32.8
Aleutian Islands (h = 30 km).

" 17 Ki iP 14 14 37.8 C
Sk iP 14 14 30.9 C
Um iP 14 14 45.8
isP 14 15 28.9
Mexico-Guatemala
(h = 120 km).

" 17 Up ---

microns	sec		
M	E	0.6	20
M	N	0.9	21

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 17 (cont.)

Up		microns sec	
	M	Z	1.3 20
Ki	iPKP		16 36 37.5
		microns sec	
	M	E	0.7 19
	M	N	0.7 20
	M	Z	0.9 19
Sk	iPKP		16 36 54.1
Um	iPKP		16 36 49.9
	i		16 36 58.9

New Hebrides Islands
(h = 20 km).

" 17 Up ePKP 22 35 40

" 17 Up iPKP 23 25 32.3
i 23 25 37.9
Sk iPKP 23 25 27.0
Gb iPKP 23 25 38.9
Um iPKP 23 25 21.7 D
Ka ePKP 23 25 42
i 23 25 53.8

" 18 Up iPn 04 03 24.8
iSn 04 05 11.4
iSg 04 06 10.4
Ki iPn 04 01 37.1
iSg 04 02 05.7
microns sec
Pn Z' 0.3 0.4
Sg Z' 0.6 0.5
Sk iPn 04 02 39.5
iSg 04 04 28.2
Um iPn 04 02 30.4
iSn 04 03 40.5
iSg 04 04 08.6
Ka e(Lg) 04 08 10

Explosion at 69.7°N, 18.1°E (Bergen).

" 18 Up iPn 04 31 19.1
iSn 04 32 19.1
iSg 04 32 48.4
~~Ki iLg 04 35 52.8~~
Sk eSn 04 32 53
~~iLg 04 33 03.8~~
Gb iPn 04 30 38.0
iSg 04 31 05.7
~~Um iLg 04 34 17.7~~
Ka eSn 04 31 58
iSg 04 32 18.7

Explosion at ~~50°N, 8°E~~
(Bergen).
In this case the largest Z'-amplitudes occur in Sg for
(cont.)

1965
Aug. 18 (cont.)
D < 6° but in Lg1 for D > 6°.
In addition to distance, also path properties may be significant.

" 18 Ki eSn 07 38 12
iSg 07 38 31.6
Sk eSg 07 41 18
Um iSg ~~07 40 05.4~~
Northwest Russia, 69.1°N, 30.0°E.
Origin time = 07 36 30.
Explosion?

" 18 Um iP 10 03 38.5

" 18 Um iP 11 27 07.6
Banda Sea (h = 140 km).

" 18 Ki iPg 13 43 04.8
iSg 13 43 41.7
~~iRg 13 43 57.7~~
D = 340 km = 3.1°.
Sk eSg 13 46 17
Um ~~iSg~~ 13 44 53.4

Finland-Russia border region, 67.8°N, 28.8°E.
Origin time = 13 42 00.
Explosion?

" 18 Gb iP 14 16 49.0

" 18 Gb ePKP 14 34 04
Ka ePKP 14 34 00
Tonga Islands (h = 20 km).

" 18 Gb iPKP 14 45 08.3
Tonga Islands (h = 20 km).

" 18 Gb iP 14 47 13.6

" 18 Gb iPKP 14 48 38.8
Ka iPKP 14 48 21.9
Tonga Islands (h = 30 km).

" 18 Up iPKP 15 10 48.1
ePP 15 13 00
iPKS 15 14 01
microns sec
PKS E 0.7 8
PKS N 0.9 8
M E 3.6 21
M N 8.5 23
M Z 11 22

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug.	18	(cont.)			
		Ki	e(PKP)	15 10 29	
			iPKP	15 10 34.4	
			e	15 11 47	
				microns sec	
			M E	6.4 23	
			M N	4.0 21	
			M Z	8.5 21	
		Sk	e(PKP)	15 10 41	
			iPKP	15 10 46.5	
			iPKS	15 14 14.7	
		Um	i(PKP)	15 10 37.2	
			iPKP	15 10 41.2	
			iPP	15 12 20	
			iPKS	15 13 51	
		Ka	iPKP	15 10 54.0	
		New Hebrides Islands (h = 5 km). Magn. = 6.5 (Up,Ki).			
"	18	Ki	eP	15 28 53	
		Sk	iP	15 29 47.0	
		Um	eP	15 29 36	
		Northwest of Svalbard (h = 30 km).			
"	18	Gb	iPKP	16 15 57.0	
		Tonga Islands (h = 90 km).			
"	18	Up	iP	17 36 16.0	
"	19	Up	iP	01 01 03.3	
		Ki	iP	01 00 29.1	
		Um	iP	01 00 44.0 C	
			i	01 00 48.4	
		Bonin Islands (h = 30 km).			
"	19	Um	iP	02 49 06.5	
"	19	Ki	iP	03 06 52.8	
		Mindanao (h = 50 km).			
"	19	Up	iP	10 42 50.9	
"	19	Ka	iP	12 35 38.7	
"	19	Up	iP	14 11 50.1	
"	19	Ki	eP	18 25 05	
			ipP	18 25 40.8	
		Aleutian Islands. h = 150 km (Ki).			
"	19	Up	iP	19 58 34.8	
				microns sec	
			P Z'	0.1 0.5	
		(cont.)			

1965 Aug.	19	(cont.)			
		Ki	iP	19 58 01.6	
			iPP	20 00 47.0	
		Sk	iP	19 58 30.9	
			iPP	20 01 30.9	
		Um	iP	19 58 15.5	
		South of Japan (h = 440 km).			
"	19	Ka	iP	20 08 20.9	
"	19	Up	iP	20 37 49.0	
"	19	Ki	iP	23 56 51.5	
"	20	Ki	i(Sg)	00 42 48.8	
"	20	Up	iPn	04 03 22.1	
			iSg	04 06 12.7	
		Ki	iPn	04 01 37.0 C	
			iSg	04 02 05.7	
				microns sec	
			~~Pn Z'~~	~~0.3 0.4~~	
			~~Sg~~	~~0.6 0.5~~	
		Sk	iPn	04 02 39.5	
			iSn	04 03 53.8	
			iSg	04 04 28.4	
		Um	iPn	04 02 31.1	
			~~i~~	~~04 02 49.2~~	
			iSn	04 03 40.5	
			iSg	04 04 08.5	
		Explosion at 69.7°N, 18.1°E (Bergen).		04 01 (00)	
"	20	Up	iPn	04 31 19.0	
			iSn	04 32 18.7	
			iSg	04 32 41.4	
		~~Ki~~	~~iLgl~~	~~04 35 55.6~~	
		~~Sk~~	~~e~~	~~04 32 30~~	
			~~iLgl~~	~~04 33 03.4~~	
			~~i~~	~~04 33 12.4~~	
		Gb	iPn	04 30 37.6	
			iSg	04 31 05.5	
		~~Um~~	~~iLgl~~	~~04 34 18.1~~	
		Ka	ePg	04 31 23	
			iSg	04 32 17.4	
		Explosion at 58°N, 8°E (Bergen).		04 30 (01)	
"	20	Ki	iPn	05 46 39.2	
			iSn	05 47 35.2	
			iSg	05 47 53.2	
			~~D = 490 km = 4.4~~		
		Sk	eSn	05 49 29	
			iSg	05 50 30.6	
		Um	iSn	05 48 19.4	
			iSg	05 48 58.7	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 20 (cont.)
Northwest Russia,
67.9°N, 32.2°E.
Origin time = 05 45 30.
Explosion?

" 20 Up iP 06 08 23.4
i 06 11 39
iPP 06 12 44
iSKS 06 18 25
iS 06 19 41
microns sec
PP Z' 0.5 1.6
SKS E 1.7 6
SKS N 0.7 4
M E 2.2 19
M N 4.1 20
M Z 3.9 20
(D = 11650 km = 105°).
Ki iP 06 08 07.8 C
ipP 06 09 36.7
iPP 06 12 24
iSKS 06 18 11
iS 06 19 14
iSS 06 26 30
microns sec
P Z' 0.4 1.5
PP Z 1.7 8
PP Z' 1.5 2.5
SKS E 4.6 9
SKS N 0.9 6
S N 3.7 10
M E 4.6 18
M N 3.0 20
M Z 5.7 19
(D = 11350 km = 102°).
Sk eP 06 08 29
ipP 06 09 56.3
iPP 06 12 58.2
Gb iPP 06 13 06.7
Um iP 06 08 11.9 C
ipP 06 09 30.1
i 06 12 00.6
iPP 06 12 29
iSKS 06 18 14
iS 06 19 21
Ka eP 06 08 30
iPP 06 12 54.1
Banda Sea.
h = 360 km (Ki,Sk,Um).
Magn. = 6.7 (Up,Ki).

" 20 Ki iP 09 10 12.9
iSg 09 10 41.8

1965
Aug. 20 Sk iP 09 57 09.2 C
Ka iP 09 57 02.9 C
These are too late to be P
to the following earthquake.

" 20 Up iPKP 10 00 57.8 C
i 10 02 01.2
iSKS 10 07 06
i 10 09 55
microns sec
SKS E 0.8 6
M E 1.1 22
M N 0.9 18
M Z 1.4 18
(D = 11650 km = 105°).
Ki iPKP 10 01 16.4 C
i 10 01 23.8
iSKS 10 07 21
iS 10 08 45
i 10 10 21
microns sec
PKP Z' 0.3 2.0
SKS E 1.5 10
S N 0.7 11
M E 1.5 20
M N 0.8 17
M Z 1.4 19
(D = 11900 km = 107°).
Sk iPKP 10 00 47.4 C
Gb iPKP 10 00 32.7
Um iPKP 10 01 13.2 C
iPP 10 01 44
iSKS 10 07 17
iS 10 08 33
i 10 10 12
iSS 10 15 42
Ka iPKP 10 00 41.0 C
Chile (h = 130 km).
The surface wave amplitudes are concentrated to one single wavelength of Love and Reyleigh waves each, about 50 sec period. This is exceptionally clear on the Uppsala Press-Ewing, less clear on the Umeå Press-Ewing.

" 20 Ki iP 10 12 16.9
i 10 12 31.6
i 10 13 04.1
Sk iP 10 12 30.7
Um iP 10 12 19.0
i 10 12 34.0
i 10 12 37.5
Ka iP 10 12 52.8

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 20 Up iPKP 21 41 08.5
iPKS 21 44 47.0
iPKS2 21 45 02.4
i 21 45 22
microns sec
PKP Z' 0.1 0.5
PKS2 Z' 0.2 1.5
M E 0.8 20
M N 2.1 21
M Z 1.6 20
Ki i(PKP) 21 40 50.9
iPKP 21 41 00.8
iPKS 21 44 25.1
microns sec
PKS E 0.5 6
PKS N 0.6 7
PKS Z' 0.9 2.0
M E 1.9 20
M N 1.3 23
M Z 3.2 20
Sk iPKP 21 41 03.5
iPKS 21 44 38.2
Gb iPKP 21 41 18.0
iPKS 21 44 53.6
Um i(PKP) 21 40 57.7
iPKP 21 41 06.0
i 21 41 09.8
ipPKP 21 41 26.7
iPP 21 44 04
iPKS 21 44 36.0
eSS 22 01 53
Ka iPKP 21 41 20.7 D
iPKS 21 44 56.1
South of Tonga Islands
(h = 80 km).

" 20 Up iP 22 21 10.2
Ki iP 22 20 45.7
Formosa (h = 60 km).

" 20 Ki iP 23 52 28.2
Aleutian Islands
(h = 30 km).

" 21 Up iP 01 14 49.9 D
Ki iP 01 14 32.4
Sk iP 01 15 01.6 D
Um iP 01 14 35.5
Tsinghai (h = 30 km).

" 21 Up iPKP 01 27 58.8
i 01 28 10.2
Ki ePKP 01 27 43
Sk iPKP 01 27 51.6
Um iPKP 01 27 47.0
i 01 27 59.1
South of Kermadec Islands
(h = 30 km).

1965
Aug. 21 Gb iPKP 03 36 19.0 D
Ka iPKP 03 36 21.0
South of Fiji Islands
(h = 590 km).

" 21 Um iP 04 02 39.0 C

" 21 Up iPn 07 31 19.1
iSn 07 32 19.0
iSg 07 32 42.3
~~Ki iLgl 07 35 54.6~~
~~Sk eLgl 07 33 04~~
Gb iPn 07 30 38.2
iSg 07 31 05.6
~~Um iLgl 07 34 19.2~~
Ka iSg 07 32 18.4
Explosion at 58°N, 8°E
(Bergen).

" 21 Up i(P) 08 17 30.1
Ki i(P) 08 18 14.9
Um i(P) 08 16 53.7
Ka i(P) 08 16 51.7

" 21 Ki iPn 13 15 33.9
iPg 13 15 48.4
iSg 13 16 29.1
~~i 13 16 36.2~~
~~D = 370 km = 3.3°.~~
Sk iPn 13 15 40.3
iP^x 13 15 48.7
iSn 13 16 32.1
iSg 13 16 41.9
~~D = 420 km = 3.8°.~~
Um iPn 13 15 59.6
iP^x 13 16 11.0
iSn 13 17 02.6
iSg 13 17 26.4
~~D = 570 km = 5.1°.~~
Off coast of Norway, near
Lofoten, 67.5°N, 11.8°E.
Origin time = 13 14 40.

" 21 Up iP 15 17 29.6
Ki iP 15 17 28.7 C
microns sec
M E 0.6 17
M N 0.5 17
M Z 0.8 16
Sk eP 15 17 43
Um iP 15 17 26.3 C
ipP 15 17 36.7
iS 15 28 32
Sumatra.
h = 40 km (Um).

" 21 Um iP 16 32 35.4

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug.	21	Ki	iPn	17 06 26.1	
			iSn	17 07 14.4	
			iSg	17 07 28.6	
			D = 400 km = 3.6°.		
		Probably northwest Russia.			
		Origin time = 17 05 30.			
		Explosion?			
"	21	Up	iP	23 31 41.4	
		Ki	iP	23 30 53.8	
		Um	iP	23 31 15.9	
		Kurile Islands (h = 30 km).			
"	21	Ki	iP	23 38 02.9	
"	22	Ki	iP	03 20 14.6	
		KIR	iS	03 21 51.1	
			~~iT~~	~~03 28 40.9~~	
		SKA	Sk	iP	03 21 10.3
		JME	Um	iP	03 21 09.5
			iS	03 23 08.5	
		Jan Mayen-Svalbard,			
		74°N, 12°E.			
		Origin time = 03 18 36.			
		By combination with			
		Finnish and Norwegian data.			
"	22	Ki	eP	03 40 24	
			i	03 40 31.9	
"	22	Up	iPKP	04 08 27.0	
			i	04 08 38.9	
		Sk	ePKP	04 08 20	
		Um	ePKP	04 08 16	
		Ka	iPKP	04 08 39.3	
		Kermadec Islands			
		(h = 30 km).			
"	22	Up	iPKP	05 07 18.6 C	
			i	05 07 28.2	
		Ki	iPKP	05 06 59.1	
		Sk	iPKP	05 07 13.3	
		Um	iPKP	05 07 08.0	
		South of Kermadec Islands			
		(h = 10 km).			
"	22	Up	iP	05 22 29.7	
		Aleutian Islands			
		(h = 40 km).			
"	22	Up	iPKP	10 59 26.1 D	
			microns sec		
			PKP Z' 0.1 0.8		
		Ki	iPKP	10 59 08.9	
		Sk	iPKP	10 59 18.6 D	
		(cont.)			

1965 Aug.	22	(cont.)			
		Gb	iPKP	10 59 33.9	
			i	10 59 41.5	
		Um	iPKP	10 59 13.9 D	
		Ka	iPKP	10 59 36.1	
		Kermadec Islands			
		(h = 15 km).			
"	22	Um	iP	12 01 36.9	
"	22	Up	iP	13 29 44.1 D	
			i	13 29 48.7	
			iPcP	13 30 15.0	
		Ki	iP	13 28 55.6 D	
		Um	iP	13 29 17.8	
		Ka	iP	13 30 07.4	
		Okhotsk Sea (h = 490 km).			
"	22	Up	iP	22 47 56.9	
		Ki	iP	22 47 58.9	
		Sk	iP	22 48 19.0	
"	22	Sk	iP	23 20 56.7	
"	23	Up	eP	09 01 20	
"	23	Up	eP	14 13 31	
			i	14 13 34.9	
			iS	14 17 05	
			iLg2	14 19 59	
			iL(3.23)	14 20 26	
			microns sec		
			P N 1.0 3		
			P Z' 0.4 1.0		
			S E 1.1 5		
			S N 1.7 7		
			S Z 1.5 7		
			M E 34 16		
			M N 24 16		
			M Z 12 14		
			D = 2200 km = 20°.		
		Ki	iP	14 14 44.5	
			i	14 14 49.2	
			eS	14 19 21	
			iSS	14 20 56	
			iLg1	14 23 32	
			iLg2	14 24 09	
			microns sec		
			P Z' 0.4 1.3		
			S E 0.7 7		
			M E 35 12		
			M N 10 10		
			M Z 16 11		
			D = 3100 km = 28°.		
		Sk	iP	14 14 15.9	
			i	14 14 21.6	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 23 (cont.)

Gb	eP	14 13 29	
	i	14 13 31.7	
Um	iP	14 14 07.6	C
	i	14 14 13.4	
	iS	14 18 18	
Ka	iP	14 12 56.2	

Turkey (h = 30 km).
Magn. = 5.7 (Up,Ki).
The double P onsets (a small phase followed after about 4-5 sec by a much larger phase) is typical for earthquakes in this region, as recorded at our stations. Well developed higher modes.

" 23

Up	iP	19 58 48.0	C
	i	19 58 51.9	
	iPP	20 02 13	
	iSKS	20 09 14	
	iS	20 09 25	

		microns	sec
P	E	12	13
P	N	16	16
P	Z	61	15
P	Z'	0.2	0.8
PP	E	15	16
PP	Z	34	12
PP	Z'	9.7	3.0
S	N	55	16
M	E	250	21
M	N	270	23
M	Z	420	

D = 9700 km = 87 1/2°.

Ki	iP	19 58 34.7	C
	i	19 58 38.6	
	iPP	20 01 46	
	iS	20 08 58	
	iScS	20 09 10.8	

		microns	sec
P	E	21	11
P	N	10	11
P	Z	68	11
P	Z'	1.5	3.0
PP	E	23	15
PP	Z	51	15
PP	Z'	11	3.0
S	N	81	12
M	E	420	23
M	N	200	17
M	Z	600	22

D = 9450 km = 85°.

Sk	iP	19 58 30.3	C
	i	19 58 34.0	
	iPP	20 01 43.6	

(cont.)

1965
Aug. 23 (cont.)

Gb	iP	19 58 36.6	C
	i	19 58 40.1	
Um	iP	19 58 44.1	C
	i	19 58 48.0	
Ka	iP	19 58 51.4	
	i	19 58 55.9	

Mexico (h = 30 km).
Magn. = 7.9 (Up,Ki).
Double P-onsets, 3.9 sec apart, the second having an amplitude about 6 times the first one. On the whole, this earthquake exhibits a striking long-period character, which is characteristic for this epicentral region. One consequence of this is that PZ' in this case yields far too low magnitudes.

" 23

Up	iPKP	21 49 39.6	
	i	21 49 44.3	

		microns	sec
PKP	Z'	0.1	0.7

Ki	ePKP	21 49 22	
Sk	iPKP	21 49 33.4	C
Gb	iPKP	21 49 43.5	
Um	iPKP	21 49 28.3	C
Ka	iPKP	21 49 49.3	
	i	21 49 54.7	

Kermadec Islands (h = 50 km).

" 23

Sk	iP	23 24 52.0	
Um	iP	23 25 05.6	

Mexico (h = 30 km).

" 23

Up	iP	23 26 30.8	
Ki	iP	23 26 18.3	
Sk	iP	23 26 12.6	
Um	iP	23 26 26.5	

Mexico (h = 50 km).

" 24

Ki	eP	01 08 57	C

		microns	sec
P	Z	0.8	10

Sk	iP	01 08 52.5	C
Um	iP	01 09 06.6	C

Mexico (h = 10 km).

" 24

Up	iP	01 13 46.2	C
	ePP	01 17 08	

		microns	sec
M	E	1.1	22
M	N	1.6	25
M	Z	2.0	21

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 24 (cont.)

Ki	iP	01 13 32.9	C
	i	01 14 41.7	
	ePP	01 16 47	
	iPa	01 19 31	
	iS	01 24 06	
		microns	sec
	P	Z 0.6	10
	PP	Z 0.5	7
	S	E 1.6	11
	S	N 0.6	9
	M	E 2.0	19
	M	N 1.5	17
	M	Z 2.3	19
	D = 9450 km = 85°.		
Sk	iP	01 13 28.0	C
Gb	iP	01 13 37.5	
Um	iP	01 13 41.7	C
	ePP	01 16 48	
	ePa	01 19 31	
	e	01 19 56	
Ka	iP	01 13 50.1	
Mexico (h = 30 km).			
Magn. = 6.0 (Up,Ki).			

" 24

Up	iP	01 16 21.0	C
Ki	iP	01 17 31.0	C
Sk	iP	01 16 59.7	
Gb	iP	01 16 08.8	
Um	iP	01 17 03.9	
Ka	iP	01 15 45.9	C
Crete (h = 30 km).			

" 24

Up	i(PKP)	07 25 36.9	
	iPKP	07 25 38.6	
	iSKP	07 28 55.0	
		microns	sec
	SKP	Z' 0.3	1.5
Ki	iPKP	07 25 29.8	
	iSKP	07 28 32.2	
		microns	sec
	SKP	Z' 0.6	1.8
Sk	e(PKP)	07 25 29	Po"
	iPKP	07 25 39.2	P"
	iSKP	07 28 48.3	
	i	07 28 57.1	
Gb	iPKP	07 25 46.9	
	iSKP	07 29 03.5	
Um	i(PKP)	07 25 26.4	Po"
	i	07 25 31.2	P1"
	iPKP	07 25 37.0	P"
	iSKP	07 28 44.1	
Ka	iPKP	07 25 49.6	D
Fiji Islands (h = 290 km).			

1965

Aug. 24	Ka	i(P)	09 09 31.5	
		i	09 09 37.0	
" 24	Ki	iP	12 58 19.1	
		iS	12 59 36.9	
	Sk	eP	12 58 29	
		eS	13 00 08	
	Um	iP	12 58 49.8	
Jan Mayen-Svalbard.				
" 24	Up	eP	13 22 28	
		i	13 22 44.2	
		iS	13 30 42	
		microns	sec	
	S	N 0.3	7	
	M	E 0.5	17	
	M	N 0.7	18	
	M	Z 1.0	20	
	D = 6800 km = 61°.			
	Ki	eP	13 21 33	C
		i	13 21 47.3	
		eS	13 29 00	
		microns	sec	
	P	Z 0.5	8	
	S	E 0.4	9	
	S	N 0.7	8	
	M	E 0.6	16	
	M	N 1.0	20	
	M	Z 1.9	20	
	D = 5900 km = 53°.			
	Sk	iP	13 21 58.6	
	Um	iP	13 22 01.0	C
		iS	13 29 51	
Alaska (h = 20 km).				
Magn. = 5.4 (Up,Ki).				
" 24	Up	i(P)	14 50 09.5	
" 24	Up	i(P)	16 42 09.5	
		iSg	16 42 40.0	
" 24	Ki	iPn	18 30 00.6	
		iPg	18 30 10.1	
		iSn	18 30 48.9	
		iSg	18 31 05.3	
		~~D = 420 km = 3.8°.~~		
	Sk	eSg	18 33 49	
	Um	~~eSg~~	18 32 34	
Northwest Russia, 69.0°N, 30.4°E. Origin time = 18 29 00. Explosion?				
" 24	Um	iP	19 31 34.7	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug.	24	Up	iPKP	22 41 05.8		
		South of Fiji Islands (h = 380 km).				
"	25	Up	iP	00 02 14.2		
				microns	sec	
			M	E 0.8	14	
			M	N 1.5	11	
			M	Z 1.2	10	
		Ki		---		
				microns	sec	
			M	E 0.6	10	
			M	N 0.7	10	
			M	Z 1.0	10	
		Sk	eP	00 02 55		
		Um	iP	00 02 51.4		
			eS	00 06 58		
		Turkey (h = 40 km).				
"	25	Up	iP	05 03 15.4		
			i	05 03 22.0		
			iS	05 07 38		
				microns	sec	
			M	E 1.0	14	
			M	N 0.8	13	
			M	Z 1.1	14	
			D = 2850 km = 25 1/2°.			
		Ki	iP	05 04 22.5		
				microns	sec	
			M	E 3.1	18	
			M	N 0.4	11	
			M	Z 0.7	15	
		Sk	iP	05 03 53.0		
		Gb	iP	05 03 04.8		
			i	05 03 29.2		
			i	05 04 05.9		
		Um	iP	05 03 46.9		
			i	05 03 52.5		
			eS	05 08 51		
		Ka	iP	05 02 41.9		
			i	05 03 00.5		
			iS	05 06 38.4		
		Crete (h = 25 km).				
"	25	Sk	eP	07 55 58		
"	25	Up	eP	08 33 36		
"	25	Up	eP	08 46 28		
"	25	Up	iP	13 57 02.3		
"	25	Ki	iP	16 20 45.2		
		Aleutian Islands (h = 30 km).				
1965 Aug.	25	Up	i(P)	18 21 37.3		
			i	18 22 16.4		
"	25	Sk	eP	23 56 10		
"	26	Up	eP	04 23 28		
"	26	Ki	iPn	05 33 31.5		
			iSn	05 34 26.9		
			iSg	05 34 46.8		
			D = 490 km = 4.4°.			
		Sk	eSg	05 37 21		
		Probably northwest Russia. Origin time = 05 32 23. Explosion?				
"	26	Up	iP	09 04 14.6 C		
		Sk	iP	09 04 56.1		
		Greece.				
"	26	Up	iP	11 06 22.7		
"	27	Up	iP	04 29 13.8		
			i	04 29 24.8		
			i	04 29 28.7		
		Ki	eP	04 29 46		
			i	04 30 39.8		
			iSn	04 36 18.4		
				microns	sec	
			M	E 0.8	19	
			M	N 0.7	18	
			M	Z 1.4	19	
		Sk	eP	04 30 01		
			i	04 30 36.5		
			iPP	04 31 11.9		
		Ka	iP	04 29 07.0		
			i	04 29 15.4		
		Caspian Sea (h = 30 km).				
"	27	Up	iP	07 23 13.0		
		Bonin Islands (h = 30 km).				
"	27	Up	iP	15 08 55.3		
"	27	Ka	iP	15 37 07.2		
"	27	Up	iP	18 33 02.3		
			ipP	18 33 12.1		
				microns	sec	
			P	Z' 0.2	0.5	
		Ki	iP	18 32 16.1		
			ipP	18 32 28.1		
				microns	sec	
			P	Z' 0.2	0.9	
		Sk	iP	18 32 51.4		

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Aug. 27 (cont.)

	Um	iP	18 32 36.9
	Ka	iP	18 33 24.3

Kurile Islands.
h = 40 km (Up,Ki).
Magn. = 6.2 (Up,Ki).

" 28	Up	~~eLgl~~	~~05 04 16~~
		iSg	05 04 21.4
	~~Ki~~	~~eLgl~~	~~05 05 45~~
	Sk	ePn	05 02 12
		iSn	05 03 01
		iSg	05 03 13
	~~Um~~	~~iLgl~~	~~05 04 52.6~~
	~~Ka~~	~~eLgl~~	~~05 04 58.5~~

Explosion at 61.4°N, 5.0°E
(Bergen).

" 28	Up	iP	08 01 17.5 C
	Ki	iP	08 00 24.2 C
	Um	iP	08 00 49.4 C

Kamchatka (h = 30 km).

" 28	Ki	iP	13 39 16.4
" 28	Up	iP	17 53 10.3
" 28	Up	iPKP	18 50 26.3 C
		i	18 50 34.4
	Sk	iPKP	18 50 19.2

Kermadec Islands
(h = 180 km).

" 28	Ki	iP	20 47 51.5 C
	Um	iP	20 48 18.8

Unimak Island (h = 25 km).

" 29	Up	eP	01 58 54	
		iS	02 09 33	
			microns	sec
		S N	0.6	7
		M E	0.9	24
		M N	0.9	23
		M Z	1.5	23
		D = 10100 km = 91°.		
	Ki	iP	01 58 20.0 C	
		i	01 58 46.1	
		iS	02 08 42	
			microns	sec
		S E	0.4	12
		M E	1.5	20
		M N	1.1	21
		M Z	5.3	25
		D = 9350 km = 84°.		
	Sk	iP	01 58 13.3	
		i	01 58 32.5	

(cont.)

1965
Aug. 29 (cont.)

	Um	iP	01 58 29.0 C
		i	01 58 50.5
		iPP	02 01 44
		eS	02 08 39

Guatemala (h = 110 km).

			04 01 04
" 29	Up	eSn	04 03 55
		~~eLgl~~	~~04 04 16~~
		iSg	04 04 23.3
	~~Ki~~	~~iLgl~~	~~04 05 45.5~~
	Sk	iPn	04 02 10.3
		iSn	04 03 01.0
	Um	iSn	04 04 24.7
		~~iLgl~~	~~04 04 51.4~~
	Ka	~~iLgl~~	~~04 04 54.2~~
		iSg	04 05 10.8

Explosion at 61.4°N, 5.0°E
(Bergen).
Comparing these records with those of the explosion on Aug. 28 in the same location, we find that Sg dominates at D < 5°, Sg and Lgl can exist together at 5° - 7 1/2°, and Lgl dominates at greater distances.

" 29	Up	iP	06 30 22.6

Aleutian Islands
(h = 30 km).

" 29	Up	iPKS	13 09 14.0	
			microns	sec
		M E	1.0	20
		M N	1.8	22
		M Z	2.0	21
	Ki	iPKP	13 05 33.8	
			microns	sec
		M E	1.6	21
		M N	1.8	21
		M Z	1.9	20
	Sk	ePKP	13 05 48	
	Um	iPKP	13 05 40.6	

New Hebrides Islands
(h = 10 km).
Magn. = 6.0 (Up,Ki).

" 29	Ki	ePKP	13 14 31
	Um	iPKP	13 14 39.4

New Hebrides Islands
(h = 30 km).

" 29	Up	iP	13 44 03.1
	Ki	iP	13 45 17.4
	Sk	iP	13 44 46.6 C
	Um	iP	13 44 41.0 C

Aegean Sea (h = 20 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 29 Up iSKP 14 18 15.9
Ki iPKP 14 15 22.5
iSKP 14 17 52.0
microns sec
SKP Z' 0.3 2.0
Sk iSKP 14 18 10.5
Um iPKP 14 15 28.6 C
iSKP 14 18 04.8
Fiji Islands (h = 570 km).

" 29 Up iP 16 09 29.8
Ki iP 16 08 52.1
Um iP 16 09 08.3
Japan (h = 70 km).

" 30 Ki iPKP 01 15 06.5
i 01 15 12.3
Um iPKP 01 15 18.7
New Hebrides Islands
(h = 10 km).

" 30 Ki iPKP 01 44 58.6
New Hebrides Islands
(h = 20 km).

" 30 Ki iPKP 02 35 42.3
New Hebrides Islands
(h = 20 km).

" 30 Up iPKS 03 54 35
i 03 54 57
microns sec
M E 1.1 22
M N 2.6 21
M Z 2.0 21
Ki iPKP 03 51 02.9 D
microns sec
M E 1.1 20
M N 0.8 20
M Z 1.9 20
Sk ePKP 03 51 12
iPKS 03 54 40.0
Um iPKP 03 51 09.8
New Hebrides Islands
(h = 15 km).
Magn. = 5.9 (Up,Ki).

" 30 Up iSg 04 04 22.0
Sk ePn 04 02 11
iSn 04 03 00.8
iSg 04 03 12.5
Explosion at 61.4°N, 5.0°E
(Bergen).

" 30 Ki iPKP 06 03 49.4 C
New Hebrides Islands
(h = 30 km).

1965 Aug. 30 Ki iP 18 22 54.9 C
microns sec
P Z' 0.1 1.0
Sk iP 18 23 09.2
Sunda Strait (h = 70 km).

" 31 Ki iP 02 41 41.8
Um eP 02 41 52
i 02 41 58.9
Sea of Japan (h = 30 km).

" 31 Up iP 03 57 37.9
Ki iP 03 57 39.7 D
Um iP 03 57 34.6
Nicobar Islands (h = 25 km).

" 31 Ki ePg 07 31 42
iSn 07 32 19.1
iSg 07 32 31.1
Possibly northwest Russia.
Origin time = 07 30 30.
Explosion?

" 31 Up iP 07 35 12.6 D
iS 07 39 37
microns sec
P Z' 0.2 1.0
S E 1.7 13
S N 2.4 15
M E 5.8 18
M N 13 18
M Z 5.7 18
D = 2850 km = 25 1/2°.
Ki iP 07 36 02.6 D
iS 07 41 04
iLi 07 45 11
microns sec
P Z' 0.3 1.3
S E 0.9 8
S N 1.7 13
M E 12 18
M N 10 17
M Z 5.6 18
D = 3450 km = 31°.
Sk iP 07 35 53.3
iPP 07 36 38.9
Um iP 07 35 32.8
iPP 07 36 03
Ka iP 07 34 58.4 D
Turkey (h = 20 km).
Magn. = 5.6 (Up,Ki).

" 31 Up iP 07 59 53.2
i 08 00 12.7
microns sec
M E 0.6 16
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Aug. 31 (cont.)

	Up		microns	sec
		M	N 1.0	19
		M	Z 1.0	16
	Ki	iP	07 59 14.3	
	Japan (h = 30 km).			
" 31	Up	iP	08 15 34.3	
	Sk	iP	08 15 24.0	
	Um	iP	08 15 09.1	
	Ka	iP	08 15 56.8	
	Japan (h = 30 km).			
" 31	Up	---		
			microns	sec
		M	E 0.9	22
		M	N 0.8	19
		M	Z 1.1	17
	Um	eS	09 32 49	
		iPS	09 33 15	
	Atlantic Ocean			
	(h = 30 km).			
" 31	Up	iP	10 56 50.3	
		i	10 56 56.5	
	Ka	iP	10 56 18.7	
	Greece (h = 90 km).			
" 31	Um	iP	11 43 58.4	
" 31	Up	iPg	15 43 35.5	
		iSg	15 44 01.7	
			microns	sec
		Sg	Z' 0.1	0.5
	Sk	eSg	15 45 27	
	Um	iPg	15 43 49.6 D	
		iSg	15 44 25.8	
	Gulf of Bothnia.			
	Explosion.			
" 31	Ki	iPn	16 30 11.6 D	
		iSn	16 31 00.1	
		iSg	16 31 15.4	
		D = 410 km = 3.7°.		
	Possibly northwest Russia.			
	Origin time = 16 29 13.			
	Explosion?			
" 31	Ki	ePKP	16 55 31	
	New Hebrides Islands			
	(h = 30 km).			
" 31	Up	iPg	16 57 34.9	
		iSg	16 58 00.5	
			microns	sec
		Sg	Z' 0.2	0.5
	(cont.)			

1965 Aug. 31 (cont.)

	Sk	iSg	16 59 24.5
	Um	iPg	16 57 49.1
		iSg	16 58 25.2
	Gulf of Bothnia.		
	Explosion.		
" 31	Up	iP	19 55 46.7 C
	Ki	iP	19 55 19.3
		microns	sec
		P Z' 0.1	1.3
	Um	iP	19 55 30.4
	Mariana Islands		
	(h = 340 km).		
" 31	Sk	iP	23 30 37.9
	Um	iP	23 30 52.4 C
		i	23 31 00.0
	Mexico (h = 30 km).		

Markus Båth
April 7, 1966

Seismological Institute
Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G, U M E Å and K A R L S K R O N A

Uppsala	(Up):	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E;	h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E;	h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E;	h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E;	h = 11 m

S E P T E M B E R 1 - 30, 1965

1965
Sep. 1 Up iP 04 38 56.0 D
iPcP 04 39 27.3
microns sec
P Z' 0.3 0.5
Ki iP 04 38 06.6 D
microns sec
P Z' 0.3 1.0
Sk iP 04 38 41.9
i 04 38 52.6
Gb iP 04 39 16.8 D
Ka iP 04 39 18.9 D
Okhotsk Sea (h = 540 km).
Magn. = 5.9 (Up,Ki).

" 1 Up iPKP 05 07 16.0 C
i 05 07 25.7
microns sec
PKP Z' 0.1 0.9
Ki iPKP 05 06 55.3
i 05 07 04.0
iPP 05 10 24.4
microns sec
PKP Z' 0.2 1.5
Sk iPKP 05 07 10.3
isPKP 05 07 51.1
Ka i(PKP) 05 07 40.9
South of Kermadec Islands
(h = 110 km).

" 1 Up iPKP 06 57 23.2
iSKP 07 00 29.7
Ki iPKP 06 57 09.3
microns sec
PKP Z' 0.1 1.0
Sk iPKP 06 57 19.0
Gb iPKP 06 57 30.4
Ka iPKP 06 57 30.5
(cont.)

1965
Sep. 1 (cont.)
New Hebrides Islands
(h = 190 km).

" 1 Ki iP 07 13 19.8
Sk iP 07 13 52.4
Japan (h = 50 km).

" 1 Ki iSg 09 44 05.8
Sk iSg 09 44 11.1

" 1 Ka iSKP 16 52 46.6
Fiji Islands (h = 390 km).

" 2 Up iP 00 31 34.7
Kurile Islands (h = 30 km).

" 2 Ki ePKP 03 20 44
Sk iPKP 03 20 55.2
New Hebrides Islands
(h = 20 km).

" 2 Up UPP iSg 04 04 20.3
Ki KIR iSg 04 06 05.7
Sk SKA ePg 04 02 19
iSg 04 03 18.3
Gb GOT iSg 04 03 27.4
Explosion at 60.8°N, 4.7°E
(Bergen).
04 01 (02)

" 2 Up iP 04 37 29.1 C
ipP 04 37 38.5
iS 04 46 26
microns sec
P Z' 0.4 0.8
M E 0.8 20
M N 2.4 23
M Z 2.3 23
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 2 (cont.)

D = 7450 km = 67°.

Ki	iP	04 36 36.1	C
	ipP	04 36 44.5	
	iPcP	04 37 24.2	
	eS	04 44 35	

		microns	sec
P	Z	0.4	5
P	Z'	0.3	1.0
S	E	0.3	8
S	N	0.3	9
M	E	1.4	19
M	N	1.1	18
M	Z	2.5	20

D = 6550 km = 59°.

Sk	iP	04 37 09.5	C
	ipP	04 37 18.6	
Gb	iP	04 37 46.6	C
	ipP	04 37 55.4	
Ka	iP	04 37 52.5	C
	ipP	04 38 02.0	

Aleutian Islands.
h = 35 km (Up,Ki,Sk,Gb,Ka).
Magn. = 6.1 (Up,Ki).

" 2 Sk eP 07 13 07
e 07 13 52

" 2 Ki eSn 09 08 50
iSg 09 09 04.6
Possibly northwest Russia.
Explosion?

" 2 Up eP 11 52 35
i 11 52 38.7
Ki eSn 12 49 05
iSg 12 49 28.9
Sk e(Sg) 12 51 08
Possibly northwest Russia.
Explosion?

" 2 Up iP 17 11 29.5

" 2 Up iP 19 39 39.4
Kurile Islands (h = 40 km).

" 3 Up iSn 04 03 34.5
UPP
iSg 04 04 20.7
KIR Ki iSg 04 06 07.4
Sk ePg 04 02 19
SKA
iSg 04 03 18.8
GOT Gb iSg 04 03 23.7
Explosion at 60.8°N, 4.7°E
(Bergen).
04 01 (01)

" 3 Up iPn 04 31 13.6
(cont.)

1965
Sep. 3 (cont.)

Up	iSn	04 32 09.5	
UPP	eSg	04 32 28	
Sk	~~e~~	~~04 32 44~~	
SKA	iSg	04 32 56.2	
Gb	iPg	04 30 33.4	
GOT	iSg	04 30 58.2	
Ka KLS	iSg	04 32 13.7	

Explosion at 58.3°N, 8.7°E
(Bergen). 04 30 (01)

" 3 Up iPg 08 19 33.7
UPP
iSg 08 19 57.2
SKA Sk eSg 08 21 20
Explosion at 61.1°N, 20.3°E;
08 19 01.3 (Helsinki).
~~08 19~~ (03)

" 3 Up iPg 08 54 33.2 C
UPP
iSg 08 54 56.3

		microns	sec
Pg	Z'	0.2	0.4
Sg	Z'	0.2	0.4

SKA Sk iSg 08 56 18.7
KLS Ka eSg 08 56 50
Explosion at 61.1°N, 20.2°E;
08 54 01.2 (Helsinki).
~~08 54~~ (03)

" 3 Up iPg 09 38 32.9 C
UPP
iSg 09 38 55.6

		microns	sec
Pg	Z'	0.2	0.4
Sg	Z'	0.2	0.4

KIR Ki eSn 09 40 56
iSx 09 41 15.1
SKA Sk iPg 09 39 20.0
iSg 09 40 18.0
KLS Ka eSg 09 40 54
Explosion at 61.1°N, 20.1°E;
09 38 01.3 (Helsinki).
09 38 00

" 3 Up iPg 11 40 31.3
UPP
iSg 11 40 54.0

		microns	sec
Pg	Z'	0.2	0.4
Sg	Z'	0.3	0.4

KIR Ki eS* 11 43 15
Sk iPg 11 41 16.0
SKA
iSg 11 42 11.8
KLS Ka eSg 11 42 54
Explosion at 61.2°N, 19.7°E;
11 40 01.2 (Helsinki).
11 40 (03)

" 3 Up iPg 12 36 31.3
UPP
iSg 12 36 54.3

		microns	sec
Pg	Z'	0.3	0.4
Sg	Z'	0.4	0.4

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 3 (cont.)
Sk iPg 12 37 16.9
SKA iSg 12 38 15.3
Explosion at 61.2°N, 19.7°E;
12 36 01.3 (Helsinki).
12 36 (58)

" 3 Up iPg 13 35 31.8
UPP iSg 13 35 53.8
microns sec
Pg Z' 0.1 0.4
Sg Z' 0.2 0.4
Sk iPg 13 36 17.4
SKA iSg 13 37 14.9
KLS Ka iSg 13 37 49.4
Explosion at 61.1°N, 19.8°E;
13 35 01.2 (Helsinki).
13 35 (02)

" 3 Up iPn 16 02 47.2
UPP iSn 16 03 43.6
~~Ki eLgl 16 07 10~~
~~Sk e 16 04 14~~
SKA iSg 16 04 24.8
Gb iPg 16 02 06.1
GOT iSg 16 02 31.8
Ka iPg 16 02 51.0
KLS iSg 16 03 47.8
Explosion at 58.3°N, 8.7°E
(Bergen). 16 01 (33)

" 3 Up iP 16 29 43.5 C
Ki iP 16 28 49.9 C
Sk iP 16 29 23.4 C
Aleutian Islands (h = 40 km).

" 3 Um iPKP 20 52 49.2
New Hebrides Islands
(h = 40 km).

" 4 Up iP 03 36 19.6

" 4 Up iP 03 38 23.7
Mariana Islands
(h = 220 km).

" 4 UPP Up iSg 04 04 20.6
KIR Ki iSg 04 06 07.5
SKA Sk ePg 04 02 19
iSg 04 03 18.6
GOT Gb iSg 04 03 27.5
UME Um iSg 04 05 03.5
~~Explosion at 60.8°N, 4.7°E~~
(Bergen). 04 01 (01)

" 4 Up iSn 04 32 09.9
UPP iSg 04 32 29.3
~~Ki eLgl 04 35 38~~
(cont.)

1965
Sep. 4 (cont.)
Sk iSn 04 32 29.3
SKA iSg 04 32 57.5
Gb iPg 04 30 33.9
GOT iSg 04 30 59.0
Um iSn 04 33 22.7
UME iSg 04 34 05.7
KLS Ka iSn 04 31 55.0
iSg 04 32 14.5
Explosion at 58.3°N, 8.7°E
(Bergen).
04 30 (00)

" 4 Up iP 07 59 43.1
ipP 07 59 50.0
Ki iP 07 58 49.7 C
ipP 07 58 57.4
microns sec
P Z' 0.1 1.0
M E 0.6 18
M N 0.5 17
M Z 0.7 17
Sk iP 07 59 23.8 C
Gb iP 07 59 58.8
ipP 08 00 04.1
Um iP 07 59 16.4 C
Aleutian Islands.
h = 25 km (Up,Ki,Gb).

" 4 Up iP 10 30 47.9 C
microns sec
P Z 0.8 5
P Z' 0.1 0.8
M E 1.9 17
M N 2.4 17
M Z 2.7 17
Ki iP 10 29 59.5
ipP 10 30 05.8
iPa 10 33 43
eS 10 38 14
microns sec
P N 0.6 6
P Z 1.2 5
P Z' 0.1 1.0
S E 1.4 17
S N 0.8 9
M E 5.0 22
M N 4.1 18
M Z 6.3 20
D = 6700 km = 60 1/2°.
Sk iP 10 30 35.9
i 10 30 49.1
Gb iP 10 31 08.9
Ka iP 10 31 11.1
Kurile Islands (h = 25 km).
Magn. = 5.9 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 4 Up iP 12 44 49.9
Ki iP 12 44 01.7
Um iP 12 44 23.5 C
Kurile Islands (h = 30 km).

" 4 Up iP1 14 43 07.8 C
iP2 14 43 16 D
iS 14 51 19
i 14 51 28
i 14 51 36
iP'P' 15 12 33.8
microns sec
P1 Z' 0.9 1.0
P2 N 4.1 4
P2 Z 4.5 3
M E 25 20
M N 110 21
M Z 110 21
D = 6900 km = 62°.
Ki iP1 14 42 12.6 C
iP2 14 42 21 D
iP3 14 42 36
iPcS 14 47 20
iS 14 49 46
iPS 14 50 05
e(P'P') 15 12 22
microns sec
P2 N 3.7 6
P2 Z 6.3 6
P2 Z' 1.9 1.0
P3 N 6.1 7
P3 Z 11 8
S E 11 11
M E 77 21
M N 190 23
M Z 400 23
D = 6000 km = 54°.
Sk iP1 14 42 40.0 C
iP2 14 42 48.7 D
i 14 42 56.2
iP'P' 15 12 53.6
Gb iP1 14 43 20.1 C
iP2 14 43 28.6 D
iP'P' 15 12 20.0
Um iP1 14 42 41.1 C
iP2 14 42 49.9
iPcP 14 43 36.7
eS 14 50 34
iP'P' 15 12 34.6
i 15 12 47.7
Ka iP1 14 43 31.1 C
iP2 14 43 38.1 D
i(P'P') 15 12 33.6
Kodiak Island (h = 20 km).
Magn. = 7.1 (Up,Ki).
(cont.)

1965
Sep. 4 (cont.)
Complicated shock with several successive onsets, especially for P but also for S. The time difference P2 - P1 is on the average 8.3 sec; the amplitude ratio P2/P1 on Z' is almost exactly 2; P1 is compressional, but P2 dilatational. There is a possibility that P2 is pP, which would mean a focal depth around 30 km, or else that more than one shock is involved.

" 4 Ki iPn 16 31 08.6 C
KIR iPg 16 31 17.2
iSn 16 31 57.4
iSg 16 32 09.1
D = 450 km = 4.1°.
SKA Sk iSg 16 34 57.8
Um iPn 16 31 46.0
UME eSn 16 33 07
iSg 16 33 46.0
D = 770 km = 6.9°.
Northwest Russia,
69.3°N, 30.8°E.
Origin time = 16 30 00.
Explosion?

" 4 Ki e(Sg) 17 38 53

" 4 Ki ---
microns sec
M E 0.6 18
M Z 0.9 19
Um iSS 22 17 05
Southern Pacific Ocean
(h = 30 km).

" 5 Ki eSn 05 04 22
iSg 05 04 45.4
Sk eSg 05 07 17
Um iS 05 05 23.9
iSg 05 05 38.1
Northwest Russia.
Explosion?

" 5 Ki eSg 17 19 26
Sk iPg 17 17 51.7
iSg 17 18 16.4
Possibly Nordlands Fylke, Norway.

" 5 Up iP 22 12 30.8
Ki iP 22 13 35.3
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 5 (cont.)
Sk eP 22 12 57
Gb iP 22 12 06.4
Um iP 22 13 06.6

" 5 Ki iP 23 13 32.7
microns sec
M E 0.5 13
M N 0.4 15
M Z 0.6 13
Formosa (h = 110 km).

" 6 Ki iP 03 07 52.3
Formosa (h = 25 km).

" 6 Up iP 03 30 37.5
iS 03 40 31
microns sec
M E 2.5 15
M N 2.6 16
M Z 3.9 14
D = 8700 km = 78 1/2°.
Ki iP 03 30 16.3
microns sec
M E 1.9 17
M N 1.3 17
M Z 2.3 19
Sk eP 03 30 52
Um iP 03 30 22.6
Formosa (h = 30 km).
Magn. = 5.7 (Up,Ki).

" 6 Up UPP iSg 07 06 27.3
Ki KIR ePn 07 05 44
iSg 07 08 19.4
D = 980 km = 8.8°.
SKA Sk iPn 07 04 25.2
iSg 07 05 23.6
~~i 07 05 29.2~~
~~D = 390 km = 3.5°.~~
GOT Gb iSg 07 05 39.8
UME ~~Um i 07 06 47.8~~
iSg 07 07 10.2
KLS ~~Ka iSg 07 06 53.3~~
Norway, 61.0°N, 7.3°E.
Origin time = 07 03 29.

" 6 Ki iPg 11 04 25.4
iSg 11 04 55.5

" 6 Up iP 11 53 31.8 C
Ki iP 11 52 43.8
Sk iP 11 53 19.4
Gb iP 11 53 52.2
Um iP 11 53 05.7
Ka iP 11 53 54.2
Kurile Islands (h = 30 km).

1965
Sep. 6 Um iP 11 59 51.0

" 6 Up UPP iSg 12 10 02.4
Um UME iSg 12 10 25.6
Explosion at 61.0°N, 20.8°E;
12 09 01.3 (Helsinki).

" 6 Up UPP iSg 12 37 03.1
Um UME iSg 12 37 26.5
Explosion at 61.0°N, 20.9°E;
12 36 01.3 (Helsinki).

" 6 Um iP 14 13 36.9

" 6 Up UPP iSg 14 26 06.1
Explosion at 61.0°N, 21.1°E;
14 25 01.3 (Helsinki).

" 6 Ki eP 14 55 34
KIR iS 14 56 47.3
~~i 14 57 01.1~~
~~eT 15 01 08~~
~~D = 710 km = 6.4°.~~
SKA Sk iS 14 58 10.1
UME Um iP 14 56 24.5
~~i 14 56 28.4~~
Between Jan Mayen and Svalbard,
near 73 1/4°N, 13°E.
Origin time 14 53 57.
By combination with Finnish
and Norwegian data.

" 6 Ki iP 20 42 05.6

" 6 Ki iSKS 21 37 03
microns sec
M E 0.7 17
M Z 0.9 17
Sk iP 21 26 15.9
Gb iP 21 26 18.2
Um iP 21 26 35.8
Central America (h = 20 km).

" 7 Sk iP 06 22 43.2
Ka iP 06 21 43.5
Algeria (h = 30 km).

" 7 Ki iPn 06 41 20.4
KIR iSn 06 42 15.9
iSg 06 42 39.2
~~D = 510 km = 4.6°.~~
Sk ~~e 06 44 28~~
SKA iSg 06 45 09.7
Um iSn 06 43 01.3
UME iS 06 43 17.9
i(Sg) 06 43 48.5
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep.	7	(cont.) Northwest Russia, 67.9°N, 32.5°E. Origin time = 06 40 08. Explosion?			
"	7	Up	iP	07 09 58.8	
			i	07 10 11.9	
			iS	07 20 21	
				microns	sec
			M E	0.8	21
			M N	0.8	19
			M Z	1.3	20
			D = 9450 km = 85°.		
		Ki	iP	07 09 28.2	C
			iS	07 19 24	
				microns	sec
			P Z'	0.1	1.2
			S E	0.5	6
			S N	0.5	6
			M E	1.2	18
			M N	0.8	19
			M Z	1.8	17
			D = 8800 km = 79°.		
		Sk	iP	07 09 56.0	C
			iPP	07 13 08.3	
		Um	iP	07 09 41.5	C
			i	07 09 49.5	
			iS	07 19 48	
		Volcano Islands (h = 15 km). Magn. = 5.7 (Up,Ki).			
"	7	Sk	iPKP	08 47 57.4	
		Um	iPKP	08 47 52.5	
		New Hebrides Islands (h = 30 km).			
"	7	Up	iPg	09 16 23.6	
			iSn	09 16 42.8	
			iSg	09 16 50.4	
		Um	ePn	09 16 27	
			iSg	09 17 28.4	
			i	09 17 48.5	
		Southwest Finland. Explosion?			
"	7	Up	iSKP	11 35 42.8	
		Fiji Islands (h = 390 km).			
"	7	Up	iP	13 17 50.6	
"	7	Ki	iP	15 52 20.2	
		Mariana Islands (h = 290 km).			
1965 Sep.	8	Up	eP	02 22 04	
"	8	Ki	iP	02 38 58.7	
		Revilla Gigedo Islands (h = 30 km).			
"	8	Up	iP	03 36 44.9	D
			ipP	03 36 51.7	
			iS	03 45 13	
				microns	sec
			P Z'	0.5	1.8
			pP Z'	0.1	0.9
			M E	0.6	17
			M N	1.1	19
			M Z	1.4	18
			D = 7000 km = 63°.		
		Ki	iP	03 35 49.5	D
			ipP	03 35 56.1	
			iS	03 43 29	
				microns	sec
			P Z'	0.2	1.5
			pP Z'	0.4	1.5
			S N	0.4	8
			M E	1.2	18
			M N	1.3	20
			M Z	2.5	20
			D = 6100 km = 55°.		
		Sk	iP	03 36 16.3	
			ipP	03 36 23.9	
		Gb	iP	03 36 56.2	
			ipP	03 37 02.8	
		Um	iP	03 36 17.6	D
			ipP	03 36 24.9	
			iS	03 44 20	
		Ka	eP	03 37 14	
		Kodiak Island. h = 30 km (Up,Ki,Sk,Gb,Um). Magn. = 5.9 (Up,Ki).			
"	8	Up	iP	07 14 17.7	
		Ki	iP	07 13 49.2	
				microns	sec
			P Z'	0.1	1.0
		Sk	iP	07 14 14.4	
		Mariana Islands (h = 140 km).			
"	8	Up	iP	08 57 31.7	
"	8	Up	iP	11 27 10.1	
			ipP	11 27 19.4	
			eS	11 35 45	
				microns	sec
			M E	0.6	17
			M N	1.0	17
			M Z	1.2	15
			D = 7150 km = 64 1/2°.		

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 8 (cont.)

Ki	iP	11 26 15.2	
	ipP	11 26 22.6	
	iS	11 34 07	
		microns	sec
	P Z'	0.2	1.1
	M E	1.4	17
	M N	0.8	19
	M Z	1.6	20
	D = 6300 km = 56 1/2°.		
Sk	iP	11 26 42.9	
	ipP	11 26 50.7	
Gb	iP	11 27 22.3	
Um	iP	11 26 43.4	C
	iS	11 34 58	

Kodiak Island.
h = 30 km (Up,Ki,Sk).

" 8	Up	iPKP	12 05 12.6	
		i	12 05 26.0	
		i	12 05 32.7	
			microns	sec
		PKP Z'	0.1	1.0

Kermadec Islands
(h = 70 km).

" 8	Up	iP	12 50 26.0	
" 8	Up	i(P)	13 17 27.1	
		i	13 17 41.8	
" 8	Up	iP	22 03 09.2	
" 9	Up	iP	04 50 40.1	
			microns	sec
		P Z'	0.2	1.5
		M E	1.1	19
		M N	1.1	19
		M Z	1.3	17
	Ki	iP	04 50 02.7	
			microns	sec
		M E	1.5	18
		M N	0.6	15
		M Z	3.2	16
	Sk	iP	04 50 38.0	
	Um	iP	04 50 15.5	

Japan (h = 30 km).

" 9	Up	iP	06 10 38.7	
" 9	Up	iP	10 15 29.9	
		iSKS	10 26 08	
			microns	sec
		SKS E	1.6	10
		SKS N	1.1	11
		M E	3.4	20

(cont.)

1965
Sep. 9 (cont.)

Up			microns	sec
	M N		4.3	21
	M Z		6.8	23
	D = 10200 km = 92°.			
Ki	iP	10 15 24.4		
	ipP	10 15 32.0		
	iSKS	10 26 00		
	iS	10 26 16		
		microns	sec	
	P Z	0.8	5	
	P Z'	0.3	2.0	
	SKS E	4.4	12	
	S N	1.2	10	
	M E	5.0	22	
	M N	4.8	23	
	M Z	6.1	23	
	D = 10050 km = 90 1/2°.			
Sk	iP	10 15 10.6		
Gb	iP	10 15 15.7		
Um	iP	10 15 28.3		
	iPP	10 19 03		
	iSKS	10 25 55		
Ka	iP	10 15 27.0		

Central America (h = 25 km).
Magn. = 6.2 (Up,Ki).

" 9	Up	eP	21 47 03	
" 9	Up	iP	23 38 45.0	

Hindu Kush (h = 250 km).

" 10	Up	iP	03 05 42.8	
	Ki	iP	03 05 25.5	
	Sk	iP	03 05 48.9	

Mindoro (h = 140 km).

" 10	Ki	iPKP	07 38 21.1	
		i	07 38 31.0	
	Sk	iPKP	07 38 33.4	

New Hebrides Islands
(h = 40 km).

" 10	Up	i(P)	10 34 33.9	
	Ka	i(P)	10 34 05.2	
" 10	Up	iP	14 29 17.5	
" 10	Up	iP	15 12 46.0	C
			microns	sec
		P Z'	0.1	1.0
	Ki	iP	15 12 02.3	C
			microns	sec
		P Z'	0.1	0.9
	Sk	iP	15 12 37.6	
	Um	iP	15 12 21.9	

Japan (h = 110 km).
Magn. = 5.5 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep.	10	Up	iP	19 05 20.7	
"	10	Up	iP	19 37 12.5	
			iPP	19 39 51.7	
		Ki	iP	19 36 32.7	
		Sk	iP	19 37 05.7	
		Um	iP	19 36 49.4	
		Ka	iP	19 37 33.7	
		Japan (h = 80 km).			
"	11	Up	iP	04 53 52.8	
		Ki	iP	04 55 08.2	
		Sk	iP	04 54 35.7	
		Um	iP	04 54 31.8	
		Greece (h = 70 km).			
"	11	Ki	iPn	06 36 29.0	
			iSn	06 37 24.0	
			iSg	06 37 41.9	
			D = 470 km = 4.2°.		
		Sk	e(Sg)	06 40 25	
		Um	iSn	06 38 10.0	
			iSg	06 38 49.6	
			D = 690 km = 6.2°.		
		Northwest Russia,			
		68.1°N, 31.6°E.			
		Origin time = 06 35 24.			
		Explosion?			
"	11	Up	iPKP	07 11 38.0	
			eSKS	07 18 19	
			iSKKS	07 19 36	
			i(PKKP)	07 22 09.4	
			microns	sec	
			SKS N	0.7 5	
			(PKKP)Z	0.6 4	
			M E	4.8 21	
			M N	4.1 20	
			M Z	8.4 20	
			(D = 12800 km = 115°).		
		Ki	e(PKP)	07 11 21	
			ePP	07 12 10	
			iSKS	07 17 56	
			iSKKS	07 18 59	
			iSP	07 21 22	
			iPKKP	07 22 42.2	
			microns	sec	
			PP Z	0.6 10	
			SKS E	1.7 7	
			SKS N	1.0 7	
			M E	7.8 21	
			M N	5.7 23	
			M Z	9.5 20	
			(D = 12200 km = 110°).		
		Sk	iPKP	07 11 40.4	
			ePKKP	07 22 33	
		(cont.)			

1965 Sep.	11	(cont.)			
		Gb	iPKP	07 11 45.6	
		Um	iPKP	07 11 31.9	
			iPP	07 12 25	
			iSKS	07 18 08	
			iSKKS	07 19 15	
			iSP	07 21 38	
			iPKKP	07 22 30.3	
		Ka	iPKP	07 11 43.3	
		New Britain (h = 70 km).			
"	11	Up	iP	10 46 29.2	
"	11	Up	iP	17 34 46.2	
		Ki	eP	17 34 13	
			i	17 34 25.8	
		Sk	iP	17 34 49.7	
		Um	iP	17 34 29.8 C	
			i	17 34 34.7	
		Ryukyu Islands (h = 70 km).			
"	11	Ki	iP	22 27 53.6 C	
		Sk	iP	22 27 37.0	
		Venezuela (h = 15 km).			
"	12	Ki	eP	03 23 39	
		Um	iP	03 23 51.4	
		Mariana Islands (h = 30 km).			
"	12	Up	iP	05 15 52.2	
		Sk	eP	05 16 27	
		Italy.			
"	12	Sk	iPKP	07 17 18.9	
		Um	iPKP	07 17 13.7	
		Santa Cruz Islands			
		(h = 120 km).			
"	12	Up	iPKP	08 58 52.4	
			eSKKS	09 06 51	
			iPKKP	09 09 21.3	
			iSP	09 09 25	
			microns	sec	
			M E	1.1 20	
			M N	2.4 23	
			M Z	3.2 24	
			(D = 12900 km = 116°).		
		Ki	iPKP	08 58 41.9	
			i	08 58 48.3	
			ePP	08 59 19	
			iSKS	09 05 16	
			iSKKS	09 06 15	
			eSP	09 08 39	
			iPKKP	09 09 40.2	
			microns	sec	
			PKP Z'	0.1 1.0	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep.	12	(cont.)					
		Ki			microns	sec	
			PP	Z	0.6	9	
			SKS	N	0.4	10	
			M	E	2.1	18	
			M	N	1.7	20	
			M	Z	3.8	20	
			(D = 12200 km = 110°).				
		Sk	iPKP		08 58 52.5		
			iPKKP		09 09 23.1		
		Gb	iPKP		08 58 59.0		
			iPKKP		09 09 08.8		
		Um	i(PKP)		08 58 43.7		
			iPKP		08 58 46.5		
			i		08 59 18		
			iPP		08 59 37		
			iSKS		09 05 10		
			iSKKS		09 06 27		
			iSP		09 08 53		
			iPKKP		09 09 32.1		
			i		09 09 40.2		
		Ka	iPKP		08 58 56.9		
		New Britain (h = 50 km).					
"	12	Up	iP		20 37 09.6		
"	12	Up	iP		21 35 31.6		
		Kamchatka (h = 30 km).					
"	12	Up	iP		22 06 52.7		
		Ki	iP		22 06 24.1	C	
		Sk	iP		22 06 50.0	C	
		Gb	iP		22 07 09.3		
		Um	iP		22 06 36.3		
		Mariana Islands					
		(h = 320 km).					
"	12	Up	iP		22 14 31.1	D	
			ipP		22 14 38.0		
			iS		22 24 23		
					microns	sec	
			P	Z	2.2	9	
			P	Z'	0.5	1.4	
			S	E	1.5	5	
			S	N	1.7	7	
			M	E	2.1	22	
			M	N	5.7	23	
			M	Z	3.6	22	
			D = 8650 km = 78°.				
		Ki	iP		22 14 52.7	D	
			iPP		22 18 10		
			iS		22 25 03		
					microns	sec	
			P	E	0.7	8	
			P	N	0.6	6	
			P	Z	2.1	6	
		(cont.)					

1965 Sep.	12	(cont.)					
		Ki			microns	sec	
			P	Z'	1.1	1.5	
			PP	N	0.9	7	
			S	E	3.1	9	
			S	N	4.4	9	
			M	E	3.9	15	
			M	N	4.1	15	
			M	Z	6.9	16	
			D = 9100 km = 82°.				
		Sk	iP		22 14 53.8	D	
			ipP		22 14 59.6		
		Gb	iP		22 14 38.6	D	
			ipP		22 14 44.1		
		Um	iP		22 14 39.3	D	
			iPP		22 17 38		
			iS		22 24 29		
		Ka	iP		22 14 24.6	D	
			ipP		22 14 30.2		
			iPP		22 17 25.6		
		Chagos Islands. h = 25 km (Up, Sk,Gb,Ka). Magn. = 6.4 (Up,Ki).					
"	13	Up	iP		00 10 37.9		
"	13	Ki	iP		00 55 56.9		
		Aleutian Islands (h = 80 km).					
"	13	Up	iP		13 18 09.8		
			ipP		13 18 15.6		
			eS		13 26 29		
					microns	sec	
			pP	Z	0.3	3	
			pP	Z'	0.4	1.4	
			S	E	0.5	10	
			M	E	2.8	21	
			M	N	3.7	20	
			M	Z	3.2	20	
			D = 6950 km = 62 1/2°.				
		Ki	iP		13 17 14.5		
			ipP		13 17 21.2		
			iPcP		13 18 25.9		
			eS		13 24 50		
					microns	sec	
			pP	N	0.5	5	
			pP	Z	0.9	5	
			pP	Z'	0.3	1.5	
			S	E	1.0	10	
			S	N	0.6	7	
			M	E	3.0	20	
			M	N	2.1	19	
			M	Z	3.8	20	
			D = 6050 km = 54 1/2°.				
		Sk	iP		13 17 50.9	C	
			ipP		13 17 57.3		
		Gb	i(P)		13 18 30.1		
			ipP		13 18 34.7		
		Um	iP		13 17 41.7		
		(cont.)					

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 13 (cont.)

	Um	ipP	13 17 47.0
		iPcP	13 18 39.3
		iPa	13 21 16
		eS	13 25 36
	Ka	iP	13 18 35.7
		ipP	13 18 41.1

Komandorsky Islands.
h = 25 km (Up,Ki,Sk,Um,Ka).
Magn. = 5.9 (Up,Ki).
On the average, the amplitude of pP(Z') is 2.4 times the amplitude of P(Z'). Another interpretation would be in terms of two shocks in the same location.

" 13 Up iSg 15 03 58.5
Explosion at 61.1°N, 20.3°E;
15 03 00.8 (Helsinki).

" 13 Up iSg 15 25 58.5
Explosion at 61.1°N, 20.4°E;
15 25 00.6 (Helsinki).

" 13	Up	iPKP	15 45 13.7
		i	15 46 02.1

Kermadec Islands
(h = 140 km).

" 13	Up	iPg	16 03 34.4
		iSg	16 03 58.5
		microns	sec
		Sg Z' 0.1	0.4
	Sk	iSg	16 05 22.8
	Um	iPg	16 03 48.5
		iSg	16 04 24.1

Explosion at 61.1°N, 20.5°E;
16 03 00.7 (Helsinki).

" 13	Ki	---	
		microns	sec
	M	E 0.8	18
	M	N 0.6	19
	M	Z 1.0	18
	Um	iPKP	16 35 09.6
		iPP	16 37 32

Southeast Pacific Ocean
(h = 30 km).

" 13	Up	iPg	16 39 35.0
		iSg	16 40 00.0
		microns	sec
		Sg Z' 0.1	0.4
	Sk	iSg	16 41 22.6

(cont.)

1965
Sep. 13 (cont.)

	Um	iPg	16 39 49.1
		iSg	16 40 24.4

Explosion at 61.1°N, 20.6°E;
16 39 01.1 (Helsinki).

" 14	Up	iPg	04 32 30.7
		iSg	04 32 51.0
		microns	sec
		Pg Z' 0.2	0.4
		Sg Z' 0.2	0.4
	Ki	eSg	04 35 29
	Sk	iPg	04 33 15.5
		iSg	04 34 11.0
	Um	iPg	04 32 47.5 C
		iSg	04 33 22.5
	Ka	eSg	04 34 47

Explosion at 61.2°N, 19.6°E;
04 32 00.8 (Helsinki).

" 14	Ki	i(Sg)	05 53 02.5

" 14	Up	iPg	06 02 30.5
		iSg	06 02 52.1
		microns	sec
		Pg Z' 0.2	0.4
		Sg Z' 0.3	0.4
	Ki	i	06 05 12.7
		iSg	06 05 29.0
	Sk	iPg	06 03 15.0
		iSg	06 04 11.4
	Um	iPg	06 02 47.7 C
		iSg	06 03 22.5
	Ka	eSg	06 04 50

Explosion at 61.2°N, 19.6°E;
06 02 00.9 (Helsinki).
In this series of underwater explosions in the Baltic, the amplitudes of Pg and Sg are up to now approximately equal on the Up Ben Z' for the largest yields (300 kg) and water depths over 100 m, whereas for smaller yields and/or smaller depths, the amplitudes of Sg far exceed those of Pg. However, also other factors seem to influence this amplitude ratio.

" 14	Up	iPg	07 00 27.7
		iSg	07 00 50.7
		microns	sec
		Sg Z' 0.1	0.4
	Sk	iSg	07 02 08.9

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep.	14	(cont.)			
		Um	iPg	07 00 45.6	
			iSg	07 01 20.7	
		Explosion at 61.2°N, 19.5°E; 06 59 59.0 (Helsinki).			
"	14	Um	iPKP	07 39 23.8	C
		Tonga-Kermadec Islands (h = 200 km).			
"	14	Up	iPg	08 00 30.4	
			iSg	08 00 53.1	
		Um	iPg	08 00 48.5	
			iSg	08 01 23.5	
		Explosion at 61.2°N, 19.4°E; 08 00 01.8 (Helsinki).			
"	14	Up	iP	08 20 00.5	
		Sk	iP	08 20 39.9	C
			i	08 20 53.3	
		Ionian Sea (h = 30 km).			
"	14	Up	iP	08 25 44.2	
"	14	Up	iP	08 40 23.1	
			ipP	08 40 33.4	
			iSKS	08 50 50	
			iS	08 51 19	
			microns	sec	
			M E	1.0 20	
			M N	3.0 21	
			M Z	1.6 20	
			D = 10200 km = 92°.		
		Ki	iP	08 40 04.6	
			ipP	08 40 17.1	
			iSKS	08 50 27	
			iS	08 50 47	
			microns	sec	
			P Z'	0.1 1.2	
			SKS E	1.6 10	
			S N	1.5 10	
			M E	1.9 20	
			M N	1.8 17	
			M Z	2.2 15	
			D = 9800 km = 88°.		
		Sk	eP	08 40 26	
			ipP	08 40 37.3	
		Um	iSKS	08 50 37	
			iS	08 51 01	
		Mindanao. h = 45 km (Up,Ki,Sk). Magn. = 6.0 (Up,Ki).			
"	14	Up	eP	09 12 19	
		Ki	iP	09 11 40.9	C
		Um	iP	09 11 57.1	
		Japan (h = 80 km).			

1965 Sep.	14	Up	iPg	13 33 33.4	
			iSg	13 33 57.4	
		Sk	iSg	13 35 28.2	
		Um	iSg	13 34 30.3	
		Explosion in the Gulf of Bothnia.			
"	14	Up	iP	14 29 00.5	
		Ki	iP	14 28 08.6	C
		Sk	iP	14 28 41.8	
		Um	iP	14 28 34.7	
		Aleutian Islands (h = 10 km).			
"	14	Up	iP	14 31 49.5	
"	14	Up	iP	16 27 41.8	
"	14	Ki	iP	21 13 50.3	
			microns	sec	
			M E	0.3 12	
			M Z	0.4 12	
		Formosa (h = 60 km).			
"	14	Ki	eP	22 06 47	
"	14	Up	iP	22 25 18.1	
"	14	Up	iP	22 59 56.2	C
		Ki	iP	22 59 29.4	
		Um	iP	22 59 39.1	C
		Formosa-Ryukyu Islands (h = 130 km).			
"	15	Ki	iP	13 17 26.8	
"	15	Ki	iP	13 32 01.2	C
		Um	iP	13 32 28.6	
		Aleutian Islands (h = 40 km).			
"	15	Up	i(P)	18 11 07.0	
"	15	Up	i(P)	18 13 26.0	
"	15	Up	iPKP	22 36 31.7	
			microns	sec	
			PKP Z'	0.1 0.6	
		South of Fiji Islands (h = 470 km).			
"	16	Up	iP	00 43 40.3	
			i	00 43 51.5	
			iS	00 46 15.8	
		Rumania (h = 30 km).			
"	16	Up	iP	04 22 05.2	C
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep.	16	(cont.)			
		Ki	iP	04 21 26.8	
		Sk	iP	04 21 39.1	
		Um	iP	04 21 47.9	
		Off coast of northern California (h = 30 km).			
"	16	Up	iP	06 09 46.2	
"	16	Up	iP	11 39 37.6	
		Ki	iP	11 38 36.2	
"	16	Up	iP	11 57 31.4	
		Ki	iP	11 57 06.3	
"	16	Up	iP	13 35 46.7	C
			microns	sec	
			P Z'	0.1 0.6	
		Ki	iP	13 34 58.1	C
		Sk	iP	13 35 34.2	
		Um	iP	13 35 20.6	C
		Okhotsk Sea (h = 430 km).			
"	16	Up	iP	14 03 05.8	C
			i	14 06 32.2	
			iSKS	14 13 21	
			microns	sec	
			P Z'	0.2 0.7	
		Ki	iP	14 02 49.0	C
			iS	14 13 30	
			isS	14 14 33	
			microns	sec	
			P Z'	0.9 0.9	
			S N	1.2 10	
		Sk	iP	14 03 10.6	C
		Gb	iP	14 03 22.6	
		Um	iP	14 02 54.2	C
			iPP	14 06 34	
			iSKS	14 13 04	
			iS	14 13 33	
			isS	14 14 41	
		Ka	iP	14 03 17.0	
			i	14 06 16.7	
			iPP	14 06 58.7	
		Mindanao.			
		h = 150 km (Ki,Um).			
		Magn. = 6.6 (Up,Ki).			
"	16	Ka	e(PKP)	16 38 35	
			iPKP	16 38 49.6	
		Fiji Islands (h = 530 km).			
"	16	Up	iP	20 09 07.4	
		Um	iP	20 09 11.9	
"	17	Ki	iP	00 04 36.7	C
		Molucca Passage (h = 140 km).			
1965 Sep.	17	Up	iP	00 05 27.8	
		Sk	iP	00 05 53.9	
		Hindu Kush (h = 120 km).			
"	17	Ki	iP	01 23 34.0	C
		Alaska (h = 50 km).			
"	17	Up UPP	iP	04 06 52.9	
		Ki	iP	04 06 37.4	C
		KIR	iPP	~~04 07 50.6~~	
			microns	sec	
			P Z'	0.1 0.6	
		SKA Sk	iP	04 07 08.5	C
		UME	iPP	04 08 24.9	
		Um	iP	04 06 38.0	
		Kazakh SSR.			
		Magn. = 5.5 (Up,Ki).			
		Underground explosion.			
"	17	Up	iP	05 35 11.4	
"	17	Up	iPKP	08 38 16.7	
		Ki	iSKP	08 40 47.4	
		Gb	iPKP	08 38 26.6	
		Ka	iPKP	08 38 28.2	
		South of Fiji Islands (h = 540 km).			
"	17	Up	iP	11 22 46.6	
"	17	Up	iP	11 26 54.3	C
			ePP	11 30 33	
			ipPP	11 31 30.1	
			iSKS	11 37 08	
			iS	11 37 44	
			ipS	11 38 57	
			microns	sec	
			P Z'	0.5 1.5	
			SKS E	2.2 8	
			SKS N	0.5 5	
			S N	1.4 8	
			M E	2.3 20	
			M N	3.0 24	
			M Z	3.2 20	
			D = 10550 km = 95°.		
		Ki	iP	11 26 55.7	C
			i	11 27 23.6	
			ipP	11 27 41	
			ePP	11 30 37	
			ipPP	11 31 28	
			iSKS	11 37 09	
			isS	11 39 14	
			microns	sec	
			P Z'	0.9 1.6	
			PP E	0.7 8	
			SKS E	9.2 9	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep. 17 (cont.)

Ki			microns	sec
	SKS	N	2.7	9
	M	E	2.6	20
	M	N	3.2	22
	M	Z	4.4	20
	D = 10550 km = 95°.			
Sk	iP		11 26 41.5	
Gb	iP		11 26 40.7	
Um	iP		11 26 56.7	C
	ipP		11 27 45.9	
	i		11 31 21	
	iSKS		11 37 13	
Ka	iP		11 26 49.6	

Ecuador.
h = 190 km (Ki,Um).
Magn. = 6.6 (Up,Ki).

" 17 Ki iP 11 54 47.7

" 17 Up iP 13 10 45.6
ipP 13 10 55.8

			microns	sec
M	E	1.0	18	
M	N	1.2	20	
M	Z	1.1	17	

Ki iP 13 10 07.1 C

			microns	sec
P	Z'	0.1	1.0	
M	E	1.5	18	
M	N	1.1	18	
M	Z	2.5	18	

Sk iP 13 10 40.4
Gb iP 13 11 06.1
ipP 13 11 17.2
Um iP 13 10 24.1
ipP 13 10 32.4

Japan.
h = 40 km (Up,Gb,Um).

" 17 Up iP 13 32 27.6
ipP 13 32 38.2

			microns	sec
M	E	1.0	17	
M	N	1.6	20	
M	Z	1.1	18	

Ki iP 13 31 48.5
ipP 13 31 59.3

			microns	sec
M	E	2.6	20	
M	N	1.4	15	
M	Z	3.6	18	

Sk iP 13 32 22.0
ipP 13 32 33.3
Gb iP 13 32 48.3
ipP 13 32 58.7
(cont.)

1965 Sep. 17 (cont.)

Um iP 13 32 05.5 C
ipP 13 32 16.1
Ka iP 13 32 46.2 C

Japan.
h = 40 km (Up,Ki,Sk,Gb,Um).

" 17 Ki iPn 13 45 07.6
eSn 13 45 52
iSg 13 46 08.1
D = 400 km = 3.6°.

Possibly northwest Russia.
Explosion?

" 17 Up iP 14 34 08.2
ipP 14 34 19.7
iS 14 43 35

			microns	sec
P	Z'	0.2	1.1	
M	E	0.8	15	
M	N	2.0	20	
M	Z	2.0	16	

D = 8150 km = 73 1/2°.

Ki iP 14 33 28.0
i 14 33 51.3
iPP 14 35 56.4
iS 14 42 25
iSS 14 46 45

			microns	sec
P	Z'	0.2	1.0	
S	E	0.7	8	
M	E	2.9	21	
M	N	2.1	19	
M	Z	4.5	17	

D = 7450 km = 67°.

Sk iP 14 34 02.8 C
ipP 14 34 13.7
iPP 14 36 43.5
i 14 37 09.8
Gb iP 14 34 29.0 C
ipP 14 34 39.4
Um iP 14 33 45.7

Japan.
h = 40 km (Up,Sk,Gb).
Magn. = 5.9 (Up,Ki).

" 17 Up iP 15 30 05.9 C
ipP 15 30 15.7
eS 15 39 33

			microns	sec
P	Z'	0.2	1.0	
M	E	1.4	19	
M	N	3.2	20	
M	Z	1.9	20	

D = 8100 km = 73°.
Ki iP 15 29 27.2 C
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep. 17 (cont.)

	Ki	ipP	15 29 37.8	
		iS	15 38 22	
		iPS	15 38 42	
		eSS	15 42 39	
			microns	sec
		P	Z' 012	1.0
		S	N 0.4	8
		M	E 3.7	19
		M	N 2.5	18
		M	Z 4.2	21
		D = 7400 km = 66 1/2°.		
	Sk	iP	15 30 00.0	C
		ipP	15 30 10.9	
		iPP	15 32 41.1	
		i	15 32 51.1	
	Gb	iP	15 30 26.3	C
		ipP	15 30 37.2	
	Um	iP	15 29 44.1	C
		ipP	15 29 54.9	
	Ka	iP	15 30 25.1	C
		ipP	15 30 36.0	
	Japan.			
	h = 40 km (Up,Ki,Sk,Gb,Um,Ka).			
	Magn. = 5.9 (Up,Ki).			
" 17	Ki	iPKP	16 07 23.8	
	Um	iPKP	16 07 30.1	
	New Hebrides Islands			
	(h = 200 km).			
" 17	Up	iP	16 32 48.5	C
		iS	16 42 13	
		isS	16 42 33	
			microns	sec
		P	N 1.3	3
		P	Z 1.9	2
		P	Z' 0.9	1.0
		S	E 1.7	6
		S	N 4.6	7
		M	E 32	19
		M	N 80	21
		M	Z 74	17
		D = 8100 km 73°.		
	Ki	iP	16 32 09.9	C
		ipP	16 32 21.8	
		iPP	16 34 31	
		iS	16 41 03	
		i	16 41 14	
			microns	sec
		P	E 2.0	7
		P	N 1.7	7
		P	Z 6.7	8
		P	Z' 2.0	1.5
		PP	Z 1.5	5
		S	N 9.3	8

(cont.)

1965 Sep. 17 (cont.)

	Ki		microns	sec
		M	E 120	18
		M	N 49	17
		M	Z 160	18
		D = 7400 km = 66 1/2°.		
	Sk	iP	16 32 43.1	C
		ipP	16 32 55.0	
	Gb	iP	16 33 09.0	C
		ipP	16 33 19.9	
	Um	iP	16 32 26.5	C
		ipP	16 32 37.5	
		iPP	16 35 03	
		iS	16 41 30	
	Ka	iP	16 33 07.8	C
		ipP	16 33 20.2	
	Japan.			
	h = 45 km (Up,Ki,Sk,Gb,Um,Ka).			
	Magn. = 7.0 (Up,Ki).			
" 17	Up	iP	17 10 48.1	
	Ki	iP	17 10 09.2	C
	Sk	iP	17 10 41.5	
	Um	iP	17 10 25.8	C
	Japan.			
" 17	Up	iP	20 44 44.5	
" 17	Up	iP	20 54 07.0	
	Ki	iP	20 53 28.4	
	Um	iP	20 53 44.9	
		ipP	20 53 57.6	
	Japan.			
	h = 50 km (Um).			
" 17	Up	iP	22 38 02.5	
" 17	Up	iP	23 57 22.4	
		i	23 57 30.3	
" 18	Up	eL	00 00	
			microns	sec
		M	N 1.1	22
		M	Z 1.5	23
	Ki	eL	00 00	
			microns	sec
		M	E 0.6	18
		M	Z 1.0	18
	Santa Cruz Islands			
	(h = 70 km).			
" 18	Ki KIR	iSn	05 44 30.5	
		iSg	05 44 47.8	
	Sk SKA	iSg	05 47 24.1	
	Um UME	iSn	05 45 14.9	
		iS[x]	05 45 30.7	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep. 18 (cont.) UME
Um iSg 05 45 53.9
Northwest Russia,
68.0°N, 30.5°E.
Origin time = 05 42 43.
Explosion?

" 18 Up iP 14 01 27.2

" 18 Ki KIR iSg 17 22 14.6
Sk SKA iSg 17 22 19.0
Um UME eSg 17 22 42
Nordlands Fylke, Norway,
66.4°N, 14.8°E.
Origin time = 17 20 45.

" 18 Up eP 18 18 32

" 18 Up ---
microns sec
M N 1.4 18
Ki iP 20 55 51.9 C
eS 21 03 25
iSa 21 08 08
microns sec
S N 1.2 7
M E 1.7 14
M N 1.9 18
M Z 3.2 20
D = 5900 km = 59°.
Sk iP 20 56 17.4 C
Um iP 20 56 21.2 C
ipP 20 56 28.1
iS 21 04 14
Gulf of Alaska.
h = 30 km (Um).

" 18 Up iP 22 16 22.8
iS 22 27 20
microns sec
M E 2.4 18
M N 4.3 21
M Z 2.6 20
D = 10200 km = 92°.
Ki iP 22 16 02.8 C
iS 22 26 42
microns sec
S E 0.9 8
S N 2.4 12
M E 3.3 17
M N 2.7 16
M Z 3.6 18
D = 9900 km = 89°.
Sk iP 22 16 27.1
Um iP 22 16 08.6
iS 22 26 57
Mindanao (h = 90 km).
Magn. = 6.2 (Up,Ki).

1965 Sep. 19 Up eL 02 45
microns sec
M N 1.0 19
M Z 1.5 19
Ki eL 02 38
microns sec
M E 1.1 20
M N 0.8 20
M Z 1.7 19
Tonga Islands (h = 30 km).

" 19 Up iP 06 44 51.9

" 19 Up iP 09 00 24.4 C
i 09 00 38.3
microns sec
P Z' 0.1 0.5
Ki iP 09 00 24.6 C
microns sec
P Z' 0.2 0.9
Um iP 09 00 20.4
i 09 00 29.3
Sumatra (h = 90 km).
Magn. = 6.0 (Up,Ki).

" 19 Ki iP 14 09 35.5
Turkey (h = 30 km).

" 19 Up eL 15 20
microns sec
M E 0.9 19
M N 0.8 20
M Z 1.3 17
Ki eL 15 15
microns sec
M E 0.7 19
M N 0.5 17
M Z 1.0 18
Solomon Islands (h = 120 km).

" 19 Ki iP 15 53 35.3
California (h = 20 km).

" 19 Up i(P) 18 56 18.9

" 19 Ki eP 23 36 30
Sk iP 23 36 15.0
Venezuela (h = 30 km).

" 20 Up iP 05 06 41.6

" 20 Up iP 09 05 08.2
Kurile Islands (h = 60 km).

" 20 Ki iP 11 14 18.9
i 11 14 30.5
Samar (h = 120 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 20 Up ---

			microns	sec
	M	E	0.6	16
	M	N	0.7	15
	M	Z	1.1	18

Ki eP 17 14 27

			microns	sec
	M	E	0.8	17
	M	N	0.8	14
	M	Z	1.4	15

Um iP 17 14 39.8
ipP 17 14 51.1
Japan.
h = 45 km (Um).

" 21 Up iP 01 49 49.6 D
ipP 01 50 37.0
iPa 01 55 38
iS 01 59 11

			microns	sec
P	N	0.8	5	
P	Z	4.7	10	
P	Z'	0.2	0.5	
P	Z'	4.2	3.0	
pP	Z'	0.4	1.0	
S	N	1.1	4	
M	E	6.5	20	
M	N	11	21	
M	Z	6.9	18	

D = 8350 km = 75°.

Ki iP 01 49 20.0 D
iPcP 01 49 42.7
ipP 01 50 08.6
iPP 01 51 56
eS 01 58 13
ipS 01 59 00
iP'P' 02 17 19.2

			microns	sec
P	E	3.3	14	
P	N	1.4	10	
P	Z	5.8	9	
P	Z'	2.7	3.0	
PP	Z	2.8	9	
S	E	3.8	11	
S	N	2.7	10	
P'P'	Z'	1.2	2.5	
M	E	7.0	18	
M	N	5.0	17	
M	Z	11	16	

D = 7800 km = 70°.

Sk iP 01 49 49.6
ipP 01 50 37.3
Um iP 01 49 31.5 D
ipP 01 50 17.7
iPP 01 52 13
iS 01 58 25
(cont.)

1965
Sep. 21 (cont.)
Ka iP 01 50 05.9
ipP 01 50 53.3
China Sea.
h = 190 km (Up,Ki,Sk,Um,Ka).
Magn. = 6.5 (Up,Ki).
P(Z') is essentially composed of two periods, 3.0 and 0.5 sec. The long-period dominates the motion in the first 2-3 sec, and then the short-period motion takes over.

" 21 Up iP 03 34 52.2
i 03 35 06.6

			microns	sec
M	E	1.1	22	
M	N	1.2	20	
M	Z	1.6	20	

Ki eP 03 35 00

			microns	sec
M	E	1.2	18	
M	N	0.8	19	
M	Z	1.0	18	

Sk iP 03 34 33.3
i 03 34 46.2
Um iP 03 34 59.5
i 03 35 06.3
Ka eP 03 34 55
i 03 35 09.1
North Atlantic Ocean
(h = 25 km).
Several successive onsets after P(Z'), with increasing amplitudes.

" 21 Ki iP 06 32 53.4
Libya (h = 30 km).

" 21 Up iP 13 14 46.1

" 21 Ki eP 15 54 19
Iran (h = 30 km).

" 21 Up iP 20 40 38.0

" 22 Up iP 04 35 45.4
i 04 35 52.2
iS 04 44 45

			microns	sec
M	E	1.6	17	
M	N	9.1	18	
M	Z	2.9	18	

D = 7550 km = 68°.

Ki iP 04 35 36.6
i 04 35 41.4
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep. 22 Ki
microns sec
M E 3.0 20
M N 2.1 15
M Z 4.9 21
Sk eP 04 35 58
Um iP 04 35 36.4
i 04 35 48.7
iS 04 44 29
Ka iP 04 35 53.7
Burma (h = 40 km).
Magn. = 5.8 (Up,Ki).

" 22 Up iP 06 56 35.6

" 22 Ki iP 07 07 50.3
Aleutian Islands
(h = 20 km).

" 22 Ki iP 07 37 50.0
Aleutian Islands
(h = 40 km).

" 22 Ki eP 09 49 06
New Guinea (h = 15 km).

" 22 Um iPKP 12 58 38.7 C
Kermadec Islands
(h = 30 km).

" 22 Up iP 13 01 25.5 C
microns sec
M E 1.2 16
M N 1.6 20
M Z 1.6 17
Ki iP 13 00 52.9
microns sec
M E 1.9 17
M N 1.3 17
M Z 2.3 17
Japan (h = 5 km).

" 22 Up iP 18 41 35.7
microns sec
P Z' 0.1 0.5
Ka i(P) 18 42 13.9

" 22 Up ---
microns sec
M E 0.7 18
M N 0.9 18
M Z 1.4 18
Ki iPKP 20 20 14.1 C
ipPKP 20 20 27.3
microns sec
M E 1.5 23
M N 1.5 21
M Z 3.2 20
(cont.)

1965 Sep. 22 (cont.)
Sk iPKP 20 20 24.5
Um iPKP 20 20 18.4
ipPKP 20 20 30.7
New Britain.
h = 45 km (Ki,Um).

" 22 Ki i 20 21 13.8
iSg 20 21 51.5
Um eSg 20 23 34

" 22 Up iP 20 44 20.7
microns sec
P Z' 0.1 0.5

" 22 Up iP 22 19 29.6 C
ipP 22 19 42.9
iPP 22 22 12
iS 22 28 54
microns sec
P N 0.8 5
P Z 1.2 3
P Z' 1.7 2.0
PP N 0.6 5
S E 1.4 7
S N 1.3 6
M E 7.2 19
M N 15 19
M Z 7.2 22
D = 8100 km = 73°.
Ki iP 22 18 51.3 C
iS 22 27 43
microns sec
P E 1.1 6
P N 0.6 6
P Z 2.4 6
P Z' 1.6 2.5
S E 2.7 8
S N 2.2 8
M E 27 18
M N 12 20
M Z 31 18
D = 7450 km = 67°.
Sk iP 22 19 24.0 C
ipP 22 19 35.2
Gb eP 22 19 56
Um iP 22 19 08.1 C
ePP 22 21 36
iS 22 28 15
Ka iP 22 19 49.0 C
ipP 22 20 02.2
Japan.
h = 50 km (Up,Sk,Ka).
Magn. = 6.6 (Up,Ki).

" 22 Ki iPKP 23 56 40.1
Sk iPKP 23 56 50.3
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 22 (cont.)
Santa Cruz Islands
(h = 120 km).

" 23 Up iP 04 09 52.4 D
Kamchatka (h = 30 km).

" 23 Up iP 15 25 48.9 C

" 23 Up iP 20 41 56.5

" 23 Sk iP 23 27 02.2
North Atlantic Ocean
(h = 30 km).

" 24 Up iPg 05 23 27.0
iSg 05 23 47.6
~~iPg 05 23 56.4~~
~~microns sec~~
~~Sg Z' 0.2 0.5~~
Ki iSg 05 26 27.4
Sk ePg 05 24 06
iSg 05 24 52.0
Um iPg 05 23 47.8
iSg 05 24 22.9
Ka iSg 05 25 46.0
Explosion at 61.3°N, 18.2°E;
05 23 00.7 (Helsinki).

" 24 Up iPg 06 15 26.4
iSg 06 15 48.9
Um iSg 06 16 24.6
Explosion at 61.3°N, 18.3°E;
06 15 00.7 (Helsinki).

" 24 Up iPg 06 40 27.7 D
~~i 06 40 29.0~~
eSg 06 40 49.9
microns sec
Pg Z' 0.2 0.4
Sk iPg 06 41 07.4
iSg 06 41 54.0
Um iPg 06 40 47.8
iSg 06 41 22.6
Explosion at 61.3°N, 18.4°E;
06 40 01.0 (Helsinki).
Exceptionally, Pg has a larger amplitude than Sg (Up,Um).

" 24 Up iPg 07 05 27.3
iSg 07 05 46.9
Um iPg 07 05 47.6
iSg 07 05 22.8
Explosion at 61.3°N, 18.5°E;
07 05 00.6 (Helsinki).
Pg of larger amplitude than Sg (Um).

1965
Sep. 24 Up i(Rg) 13 30 57.0
Explosion at 61.2°N, 18.7°E;
13 30 01.0 (Helsinki).

" 24 Um iP 14 19 59.4

" 24 Ki iP 17 26 18.4
i 17 26 23.2
Sk iP 17 26 17.7
Mexico (h = 30 km).

" 24 Um iP 18 39 15.5

" 24 Up iP 20 50 12.7
Ki iP 20 50 13.5
Sk iP 20 50 29.0
Sumatra (h = 30 km).

" 25 Up iSKS 00 17 30
microns sec
M E 1.0 17
M N 1.0 20
M Z 1.1 18
Ki iP 00 06 36.9
i 00 06 47.2
eSKS 00 17 08
microns sec
P Z' 0.2 1.5
SKS E 0.3 9
M E 0.8 19
M N 1.3 25
M Z 1.0 18
Sk iP 00 07 01.1
Um iP 00 06 47.8 C
i 00 06 52.6
iSKS 00 17 15
Mariana Islands (h = 60 km).

" 25 Ki eP 00 23 53
i 00 23 57.6
Sk e(P) 00 24 23
Um iP 00 24 03.3
i 00 24 10.1
Mariana Islands (h = 70 km).
If the second phase at Ki and Um is interpreted as pP, the focal depth will only be around 25 km.

" 25 Um iPKP 01 02 05.9
South of Tonga Islands
(h = 30 km).

" 25 Sk iPKP 01 47 14.2
Um iPKP 01 47 08.9
Kermadec Islands (h = 30 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep. 25 Gb iPKP 02 20 57.3
South of Tonga Islands
(h = 20 km).

" 25 Up iP 07 24 24.8 C

" 25 Ki e 08 52 17
iSg 08 52 41.5

" 25 Sk iP 10 16 59.9
North Atlantic Ocean
(h = 30 km).

" 25 Up iPKP 10 49 35.2
Kermadec Islands
(h = 30 km).

" 25 Up iP 11 06 56.5
Ki iP 11 07 37.2
Ka iP 11 06 34.7
Atlantic Ocean (h = 30 km).

" 25 Sk eP 12 05 34
North Atlantic Ocean
(h = 30 km).
It is worth noting that
earthquakes in this area are
better recorded at Sk than
at any other of our stations.

" 25 Um eP 12 10 47

" 25 Up iPKP 12 48 06.4
Gb iPKP 12 48 16.9
Ka iPKP 12 48 20.3
South of Tonga Islands
(h = 240 km).

" 25 Up iP 14 48 30.6 C
iS 14 57 47

		microns	sec
P	Z'	0.1	1.0
M	E	0.8	18
M	N	1.4	18
M	Z	1.6	20

D = 7900 km = 71°.

Ki iP 14 47 48.8
ipP 14 47 59.1
iS 14 56 22

		microns	sec
P	Z'	0.1	1.0
S	E	0.4	11
M	E	5.2	20
M	N	2.1	18
M	Z	4.1	16

D = 7100 km = 64°.
(cont.)

1965 Sep. 25 (cont.)
Sk iP 14 48 23.4 C
e(PP) 14 50 48
Gb iP 14 48 49.4 C
ipP 14 49 03.6
Um iP 14 48 06.7
iS 14 57 03
Ka iP 14 48 51.7
Japan.
h = 50 km (Ki,Gb).
Magn. = 5.7 (Up,Ki).

" 25 Up iP 14 53 43.9 C
Ki iP 14 53 02.5 C
ipP 14 53 14.3
Sk iP 14 53 37.5
Gb iP 14 54 02.5
Um iP 14 53 20.8 C
ipP 14 53 32.3
Japan.
h = 45 km (Ki,Um).

" 25 Up iP 15 04 51.5 C

		microns	sec
P	Z'	0.2	1.0
M	E	1.0	18
M	N	1.0	17
M	Z	1.6	20

Ki iP 15 04 09.3 C

		microns	sec
P	Z'	0.2	1.0
M	E	2.3	15
M	N	1.5	17
M	Z	3.2	16

Sk iP 15 04 43.3 C
Gb iP 15 05 09.3 C
Um iP 15 04 27.5 C
Ka iP 15 05 09.2
Japan (h = 40 km).
Magn. = 5.9 (Up,Ki).

" 25 Up iP 15 55 25.9 C
iPP 15 56 55
iSa 16 04 39
iLgl 16 08 28

		microns	sec
P	Z'	0.2	1.0
M	E	0.7	13
M	N	1.1	14
M	Z	1.9	12

Ki iP 15 55 24.5 C
iSa 16 04 05
iLi 16 07 14

		microns	sec
P	Z'	0.2	1.0
M	E	1.0	10

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 25 (cont.)

Ki			microns	sec
	M	N	1.5	9
	M	Z	1.0	8
Sk	iP		15 55 47.5	
	i		15 55 51.6	
	iLgl		16 09 52.6	
Gb	iP		15 55 48.5	
Um	iP		15 55 18.2	
	iPP		15 56 40.0	
	i		16 04 39	
	i		16 07 31	
	iLgl		16 07 55	
Ka	eP		15 55 36	

Kirghiz SSR (h = 30 km).
Magn. = 5.9 (Up,Ki).
Well developed higher-mode surface waves.

" 25

Up	eP		17 05 34	
	ipP		17 05 43.7	
			microns	sec
	M	E	0.6	16
	M	N	1.0	19
	M	Z	1.3	17
Ki	iP		17 05 06.8	
			microns	sec
	M	E	1.0	19
	M	N	0.6	18
	M	Z	1.1	17
Um	iP		17 05 17.9	
	i		17 05 22.1	

Mariana Islands (h = 40 km).

" 25 Ki iP 17 55 18.9
California (h = 15 km).

" 25

Up	eP		20 16 02	
	e		20 16 23	
	iPP		20 16 42.1	
			microns	sec
	M	E	1.5	20
	M	N	2.1	21
	M	Z	2.9	22
Ki	iP		20 16 05.8	C
	i		20 16 27.5	
	iPP		20 16 50.8	
			microns	sec
	M	E	0.8	18
	M	N	0.8	19
	M	Z	1.3	18
Sk	iP		20 15 37.6	
	i		20 15 55.2	
	iPP		20 16 16.4	
Um	iP		20 16 06.7	
	i		20 16 29.4	

(cont.)

1965
Sep. 25 (cont.)

Um	iPP	20 16 51.4	
	i	20 21 25	

North Atlantic Ocean
(h = 30 km).
The phase appearing very clearly 17-22 sec after P could possibly belong to another shock.

" 26

Ki	iP	00 48 47.5	
	ipP	00 49 06.6	
Sk	iP	00 48 44.9	
Um	iP	00 48 57.3	
	ipP	00 49 17.0	

Mexico.
h = 70 km (Ki,Um).

" 26

Up	iPKP	01 21 59.4	
	i	01 22 06.1	
Sk	iPKP	01 21 53.2	
Um	iPKP	01 21 48.5	

Kermadec Islands
(h = 390 km).

" 26 Ki eP 04 13 39
Aleutian Islands
(h = 30 km).

" 26

Ki	iSg	04 24 13.7	
Sk	eSg	04 26 49	
Um	i	04 24 56.8	
	iSg	04 25 14.1	

Northwest Russia.
Explosion?

" 26

Up		iPg	04 50 28.1	C
UPP		iSg	04 50 47.1	
KIR	Ki	eSg	04 53 27	
SKA	Sk	iSg	04 51 59.7	
UME	Um	iPg	04 50 47.3	
		iSg	04 51 22.6	

Explosion at 61.2°N, 18.7°E;
04 50 01.1 (Helsinki).

" 26

Up		iPg	05 30 27.6	C
UPP		iSg	05 30 49.3	
SkSKA		iSg	05 31 58.3	
Um UME		iPg	05 30 47.2	C
		iSg	05 31 23.3	

Explosion at 61.2°N, 18.6°E;
05 30 00.8 (Helsinki).

" 26

Up		iPg	05 50 28.2	C
UPP		iSg	05 50 50.3	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Sep. 26 (cont.)

Um	iPg	05 50 48.5	
UME	iSg	05 51 24.3	

Explosion at 61.3°N, 18.5°E; 05 50 01.8 (Helsinki).

" 26

Up	iPg	06 22 27.4	
UPP	iSg	06 22 49.6	
Um	iPg	06 22 47.9	
UME	iSg	06 23 23.1	

Explosion at 61.3°N, 18.5°E; 06 22 00.9 (Helsinki).

" 26 Up iP 06 37 27.2

" 26 Um iPKP 07 16 42.7
Kermadec Islands
(h = 60 km).

" 26

Up	eP	10 09 17	
		microns	sec
	M E	1.0	21
	M N	1.1	21
	M Z	1.7	21
Ki	iP	10 09 17.9	
		microns	sec
	M E	0.9	18
	M N	0.5	14
	M Z	1.0	18
Sk	eP	10 08 47	
Um	iP	10 09 19.1	
	iS	10 14 17	

North Atlantic Ocean
(h = 30 km).
P(Z') at Sk exhibits an unusually regular wave train with constant period and amplitude, lasting for 26 sec.

" 26

Up	iPg	12 59 28.0	
UPP	iSg	12 59 46.6	
KIR Ki	eSg	13 02 27	
UME Um	iPg	12 59 47.7	
	iSg	13 00 32.7	

Explosion at 61.2°N, 18.7°E; 12 59 01.0 (Helsinki).

" 26

Up	iPg	13 50 27.2	
UPP	iSg	13 50 48.3	
	~~iRg~~	~~13 50 57.1~~	
KIR Ki	eSg	13 53 28	
SKA Sk	iSg	13 52 00.9	
UME Um	iPg	13 50 47.6	
	iSg	13 51 23.4	

Explosion at 61.2°N, 18.8°E; 13 50 01.0 (Helsinki).

1965 Sep. 26

Up	iPg	14 27 28.2	
UPP	iSg	14 27 50.5	
	~~iRg~~	~~14 27 58.5~~	
SKA Sk	eSg	14 29 02	
UME Um	iPg	14 27 47.5	
	iSg	14 28 21.7	

Explosion at 61.2°N, 18.9°E; 14 27 01.0 (Helsinki).

" 26

Up	iPg	14 50 28.8	
UPP	iSg	14 50 48.8	
Sk	eSg	14 52 02	
Um	iPg	14 50 47.6	
	iSg	14 51 23.4	

Explosion at 61.2°N, 18.9°E; 14 50 01.3 (Helsinki).

" 26

Up	iPKP	21 52 45.8	
	iPKKP	22 02 39.9	
		microns	sec
	M N	1.0	17
	M Z	1.1	18
Ki	iPKP	21 53 00.6	C
	iPP	21 55 10.4	
	iSKP	21 56 20	
	eScSP	22 05 26	
		microns	sec
	PKP Z'	0.4	1.2
	SKP E	0.9	6
	SKP N	0.9	6
	SKP Z	0.6	5
	M E	0.8	17
	M N	0.6	16
	M Z	1.0	16
	(D = 14350 km = 129°).		
Sk	iPKP	21 52 49.8	C
	iPP	21 54 34.8	
Um	iPKP	21 52 53.1	C
	iPP	21 54 46	
	iSKP	21 56 08	
	iScSP	22 04 56	
Ka	iPKP	21 52 39.3	
	i	21 52 44.9	
	iPP	21 53 57.9	

South Georgia Island
(h = 30 km).

" 27

Up	iP	01 19 20.2	
Ki	iP	01 18 19.4	
Sk	iP	01 19 03.4	
Um	iP	01 18 47.5	C
	i	01 18 52.1	
Ka	iP	01 19 50.1	

Siberia (h = 30 km).

" 27

Um	iP	04 59 15.8	C
	i	04 59 23.8	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 27 Up iPg 05 15 27.5
UPP iSg 05 15 50.1
~~iRg 05 15 57.6~~
SKA Sk eSg 05 17 04
Um iPg 05 15 46.4
UME iSg 05 16 21.3
Explosion at 61.2°N, 18.9°E;
05 15 00.1 (Helsinki).

" 27 Up iP 05 20 04.0 C
ipP 05 20 12.1
microns sec
P Z' 0.1 0.5
M E 0.8 20
M N 1.9 23
M Z 1.9 23
Ki iP 05 19 10.6 C
microns sec
P Z' 0.1 0.9
M E 0.9 20
M N 0.8 20
M Z 1.6 20
Sk iP 05 19 44.3
iPcP 05 20 19.4
Gb iP 05 20 24.7
Um iP 05 19 36.4 C
iPcP 05 20 14.0
Ka iP 05 20 27.2
ipP 05 20 35.7
Aleutian Islands.
h = 30 km (Up,Ka).
Magn. = 5.8 (Up,Ki).

" 27 Up iPg 05 40 29.1
UPP iSg 05 40 51.3
Um iPg 05 40 46.9
UME iSg 05 41 22.8
Explosion at 61.2°N, 19.0°E;
05 40 01.2 (Helsinki).

" 27 Up iPg 06 05 29.1
UPP iSg 06 05 50.9
Um iPg 06 05 47.5
UME iSg 06 06 22.5
Explosion at 61.2°N, 19.1°E;
06 05 01.1 (Helsinki).

" 27 Up iPg 06 40 29.3
UPP iSg 06 40 51.7
~~microns sec~~
~~Pg Z' 0.1 0.4~~
~~Sg Z' 0.1 0.4~~
Sk ePg 06 41 12
SKA iSg 06 42 06.1
Um iPg 06 40 47.4
UME iSg 06 41 22.3
~~Explosion at 61.2°N, 19.2°E;~~
06 40 01.1 (Helsinki).

1965
Sep. 27 Up iP 08 41 56.2
Ki iP 08 41 03.5
Aleutian Islands
(h = 50 km).

" 27 Ki iPKP 10 19 42.1
Um iPKP 10 19 50.2
New Hebrides Islands
(h = 10 km).

" 27 Up iPg 10 30 08.1
UPP iSg 10 30 22.1
D = 130 km = 1.2°.
Sk eLgl 10 32 43
Baltic Sea, 58.6°N, 18.0°E.
Origin time 10 29 44.
Probably underwater explosion.

" 27 Up iPg 11 16 38.3
UPP iSg 11 16 53.6
~~D = 130 km = 1.2°.~~
~~Sk eLgl 11 19 11~~
KLS Ka iSg 11 17 47.5
Baltic Sea, 58.6°N, 18.0°E.
Origin time = 11 16 14.
Probably underwater explosion.

" 27 Up iSg 15 01 20.3
Sk iSg 15 02 33.1
Gb i 14 59 16.7
iSg 14 59 30.3
Um i 15 02 45.0
iSg 15 03 24.4
Probably in the region
southwest of Sweden. No
satisfactory solution found.

" 27 Um iP 15 48 05.2

" 27 Ki eSg 19 55 05
Sk iSg 19 55 18.1
Um e 19 55 18
e(Sg) 19 55 32
Probably Nordlands Fylke,
Norway.

" 27 Up iP 20 42 26.5

" 27 Up iP 20 50 36.7
Ki iP 20 49 49.5
Um iP 20 50 10.5
Kurile Islands (h = 30 km).

" 28 Up i(PKP) 05 26 13.3
iPKP 05 26 17.4 C
e 05 27 14
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Sep. 28 (cont.)

Up		microns	sec	
	PKP	N	0.4	6
	PKP	Z	0.9	6
	PKP	Z'	0.1	1.0
	M	E	2.3	20
	M	N	11	24
	M	Z	12	24
	(D = 16200 km = 146°).			
Ki	i(PKP)		05 26 08	
	ePP		05 28 55	
	ePKS		05 29 35	
		microns	sec	
	PP	Z	0.5	8
	PKS	E	0.4	6
	PKS	N	0.5	7
	M	E	7.4	21
	M	N	5.1	21
	M	Z	7.8	22
	(D = 15350 km = 138°).			
Sk	iPKP		05 26 09.8	
Gb	iPKP		05 26 22.2	
Um	iPKP		05 26 04.7	
	e		05 28 23	
	iSS		05 47 46	
	iSSP		05 48 15	

Kermadec Islands (h = 30 km).
Magn. = 6.5 (Up,Ki).

" 28

Up	iP	07 59 48.2	
Ki	iP	07 59 11.6	C
Sk	iP	07 59 41.5	
Um	iP	07 59 26.0	C
	ipP	07 59 32.0	

South of Japan.
h = 25 km (Um).

" 28

Ki	iP	08 14 40.8	
Sk	eP	08 15 10	
Um	iP	08 14 55.0	

South of Japan
(h = 30 km).

" 28

Sk	iPKP	10 20 03.4	
Um	iPKP	10 20 02.3	
	i	10 20 05.1	

New Hebrides Islands
(h = 25 km).

" 28

Ki	iP	22 16 10.0	D
Sk	iP	22 16 20.6	

" 29

Sk	iPKP	01 36 11.7	
Um	iPKP	01 36 04.2	

South of Kermadec Islands
(h = 30 km).

1965
Sep. 29

Um	iPKP	05 26 10.1	

South Sandwich Islands
(h = 30 km).

" 29

Up	iPg	05 59 29.9	
	iSg	05 59 51.0	
	~~iRg~~	~~06 00 00.8~~	
	~~microns~~	~~sec~~	
	~~Pg Z' 0.1~~	~~0.4~~	
	~~Sg Z' 0.1~~	~~0.4~~	
Ki	iSg	06 02 29.3	
Sk	iSg	06 01 06.4	
Um	iPg	05 59 47.7	
	iSg	06 00 22.8	

Explosion at 61.2°N, 19.2°E;
05 59 (Helsinki).

" 29

Up	iP	06 26 28.4	
	i	06 26 52.4	
Ki	iP	06 26 23.5	
Sk	iP	06 26 46.1	
	i	06 27 09.3	
Um	iP	06 26 20.8	
	i	06 26 44.6	

" 29

Up	iPg	06 50 28.7	
	iSg	06 50 50.6	
	~~microns~~	~~sec~~	
	~~Sg Z' 0.2~~	~~0.5~~	
Ki	iSg	06 53 32.1	
Sk	ePg	06 51 13	
	iSg	06 52 07.0	
Um	iPg	06 50 47.1	
	iSg	06 51 21.6	

Explosion at 61.2°N, 19.3°E;
06 50 01.6 (Helsinki).

" 29

Up	iPg	08 27 30.1	
	iSg	08 27 52.2	
	~~iRg~~	~~08 27 57.8~~	
	~~microns~~	~~sec~~	
	~~Pg Z' 0.1~~	~~0.4~~	
	~~Sg Z' 0.2~~	~~0.4~~	
Sk	iSg	08 29 08.9	
Um	iPg	08 27 46.9	
	iSg	08 28 22.3	

Explosion at 61.2°N, 19.3°E;
08 27 01.6 (Helsinki).

" 29

Up	iPg	09 09 30.2	
	iSg	09 09 53.3	
Um	iPg	09 09 47.5	
	iSg	09 10 22.8	

Explosion at 61.2°N, 19.4°E;
09 09 01.2 (Helsinki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
Sep.	29	Up	iP	14 00 18.4	
		Ki	iP	13 59 25.5	C
		Sk	iP	13 59 56.8	
			iPcP	14 00 30.5	
		Um	iP	13 59 51.8	
			iPcP	14 00 23.1	
		Ka	iP	14 00 41.0	
		Aleutian Islands			
		(h = 60 km).			
"	29	Up	iPKP	21 46 11.7	
		Kermadec Islands			
		(h = 80 km).			
"	29	Up	iP	23 26 33.6	C
		Ki	iP	23 26 59.9	
			microns	sec	
			M E	0.9 22	
			M N	0.4 15	
			M Z	0.7 15	
		Sk	iP	23 26 19.9	
		Gb	eP	23 26 07	
		Um	iP	23 26 49.2	
		North Atlantic Ocean			
		(h = 30 km).			
"	30	Up	iP	00 24 56.2	C
"	30	Ki	iP	01 32 24.0	
			i(Sg)	01 32 35.7	
"	30	Sk	eP	04 22 59	
		Mexico (h = 30 km).			
"	30	Ki	iSKP	07 27 08.8	
		Gb	iPKP	07 24 55.6	
		Fiji Islands (h = 630 km).			
"	30	Ki	iSKP	07 28 19.6	
		Sk	eSKP	07 28 36	
		Gb	iPKP	07 26 05.5	
		Fiji Islands (h = 600 km).			
"	30	Ki	iPn	16 50 09.6	
			iPg	16 50 18.9	
			iSn	16 50 58.1	
			iSg	16 51 13.3	
			D = 420 km = 3.8°.		
		Um	eSg	16 52 38	
		Probably northwest Russia.			
		Explosion?			
"	30	Up	eP	23 57 47	
			i	23 58 13	
			eS	00 06 09	
			iPS	00 06 24	
		(cont.)			

1965					
Sep.	30	(cont.)			
		Up		microns	sec
			S E	0.8	11
			M E	1.8	19
			M N	4.2	19
			M Z	2.9	18
			D = 6650 km = 60°.		
		Ki	iP	23 57 00.1	
			iX	23 57 18	
			iS	00 04 27	
			microns	sec	
			S E	2.7	15
			S N	1.5	8
			M E	2.4	18
			M N	6.2	21
			M Z	6.8	19
			D = 5950 km = 53 1/2°.		
		Sk	iP	23 57 16.8	
			i	23 57 52.8	
		Gb	eP	23 57 56	
		Um	iP	23 57 21.4	
			i	23 57 29.8	
			iX	23 57 37	
			iPa	23 59 56	
			iS	00 05 23	
		Ka	iP	23 58 10.0	
			iX	23 58 27.5	
		Gulf of Alaska (h = 20 km).			
		Magn. = 5.8 (Up,Ki).			

Markus Båth
May 6, 1966

Seismological Institute
Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G,

U M E Å and K A R L S K R O N A

Uppsala	(Up):	59°51.5'N,	17°37.6'E; h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E; h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E; h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E; h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E; h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E; h = 11 m

O C T O B E R 1 - 31, 1965

1965 Oct. 1 Up eP 04 25 04

" 1 Up iP 09 03 11.1 D
ipP 09 03 22.9
iPP 09 05 43
iPa 09 07 27
iS 09 12 13
eP'P' 09 31 11

		microns	sec
P	N	4.1	7
P	Z	7.6	7
P	Z'	1.5	1.0
PP	Z	1.4	5
S	E	1.4	7
S	N	3.2	6
M	E	9.0	23
M	N	13	21
M	Z	9.0	20

D = 7650 km = 69°.

Ki iP 09 02 18.8 D
i 09 02 43
iS 09 10 34
iScS 09 12 15
iP'P' 09 31 33.5

		microns	sec
P	E	1.2	14
P	N	5.6	7
P	Z	11	7
P	Z'	1.1	1.0
S	E	5.6	14
S	N	7.4	9
P'P'	Z'	0.4	2.0
M	E	21	20
M	N	10	19
M	Z	13	19

D = 6800 km = 61°.

(cont.)

1965 Oct. 1 (cont.)
Sk iP 09 02 50.7
eP'P' 09 31 29
Gb iP 09 03 24.0
iPa 09 07 53.5
Um iP 09 02 43.9 D
iS 09 11 22
iP'P' 09 31 26.0
Ka iP 09 03 33.4
ipP 09 03 45.2
i 09 05 59.7
iPa 09 08 04.9
Aleutian Islands.
h = 45 km (Up,Ka).
Magn. = 6.9 (Up,Ki).

" 1 Up iP 09 20 47.1
Ki iP 09 19 55.1 C
Aleutian Islands (h = 30 km).

" 1 Up iP 12 41 35.1 C

" 1 Up iPKP 13 40 40.9
iSKP 13 43 29.7
i 13 43 36.3

		microns	sec
SKP	Z'	0.3	1.0

Ki iPKP 13 40 34.1
iSKP 13 43 05.2

		microns	sec
SKP	Z'	0.7	1.5

Sk e(PKP) 13 40 33
iPKP 13 40 43.7
iSKP 13 43 23.8
Gb iPKP 13 40 45.4
i 13 40 51.0
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Oct.	1	(cont.)			
		Gb	iSKP	13 43 34.8	
			i	13 43 48.9	
		Um	i(PKP)	13 40 31.4	
			iPKP	13 40 40.1	
			i	13 43 05.0	
			iSKP	13 43 16.8	
		Ka	iPKP	13 40 49.6	
			iSKP	13 43 38.9	
		New Hebrides Islands (h = 550 km).			
	1	Um	iP	13 56 32.1	
			i	13 56 39.5	
"	1	Um	iP	18 43 44.9	
		Italy.			
"	1	Up	ePKP	20 04 05	
		Ki	iPKP	20 03 57.6	
		Sk	iPKP	20 04 05.7	
		Um	iPKP	20 03 56.1	
		West of Macquarie Islands (h = 30 km).			
"	1	Up	iP	22 23 05.1	
"	1	Up	iPKP	22 53 19.5	
			iPP	22 55 07.2	
		Ki	iPKP	22 53 33.8 D	
			iPP	22 55 55.1	
			microns sec		
			PKP Z' 0.1 1.3		
		Sk	iPKP	22 53 24.1	
			iPP	22 55 21.1	
		Um	iPKP	22 53 27.2	
			i	22 53 32.1	
			iPP	22 55 32	
			iPKS	22 56 48	
		South Sandwich Islands (h = 30 km).			
"	2	Up	iSn	05 21 27.8	
			iS	05 22 06.8	
			iSg	05 22 33.5	
		Ki	iPn	05 18 14.1	
			iSn	05 19 10.0	
			iSg	05 19 28.6	
			D = 490 km = 4.4°.		
		Sk	eSn	05 21 04	
			iSg	05 22 03.0	
		Um	iPn	05 18 40.9 C	
			iSn	05 19 54.2	
			iSg	05 20 33.5	
			D = 700 km = 6.3°.		
		Northwest Russia, (cont.)			

1965 Oct.	2	(cont.)			
		68.0°N, 32.0°E.			
		Origin time = 05 17 05.			
		Explosion?			
		This is definitely one of the strongest events in this whole series.			
"	2	Up	iP	07 50 39.6	
"	2	Ki	iP	08 45 06.2	
		Um	eP	08 45 03	
		Sumatra (h = 30 km).			
"	2	Up	iP	09 09 07.6	
		Ki	iP	09 08 43.2	
		Sk	iP	09 09 11.0	
		Um	iP	09 08 52.2	
		Formosa.			
"	2	Ki	e	11 26 48	
		Um	i	11 26 03.5	
			i(Sg)	11 26 31.7	
"	2	Up	iP	11 58 33.5	
"	2	Up	iP	12 19 34.1	
		Ki	iP	12 18 59.0	
		Sk	iP	12 19 31.5	
		Um	iP	12 19 14.5 D	
			ipP	12 19 27.1	
		South of Japan. h = 50 km (Um).			
"	2	Up	iP	13 23 55.6	
		Um	i(P)	13 23 35.6	
"	3	Up	iP	10 57 13.0	
			microns sec		
			P Z' 0.1 0.5		
		Ki	iP	10 56 20.1 C	
			microns sec		
			P Z' 0.2 0.6		
		Sk	iP	10 56 50.3 C	
			iPcP	10 57 25.0	
		Gb	iP	10 57 25.8	
		Um	iP	10 56 46.6 C	
			iPcP	10 57 22.3	
		Ka	iP	10 57 35.8 C	
		Aleutian Islands (h = 20 km). Magn. = 6.2 (Up,Ki).			
"	3	Up	iP	14 56 10.5 C	
			eS	15 04 53	
			microns sec		
			P N 0.7 5		
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Oct. 3 (cont.)

	Up		microns	sec
		P	Z 0.8	3
		P	Z' 0.4	1.0
		S	N 1.1	9
		M	E 3.0	22
		M	N 10	23
		M	Z 9.8	23
		D = 7350 km = 66°.		
	Ki	iP	14 55 20.3	C
		iPcP	14 56 11.0	
		eS	15 03 15	
			microns	sec
		P	N 0.9	5
		P	Z 1.1	5
		S	E 0.9	12
		S	N 0.7	13
		M	E 8.6	22
		M	N 3.3	18
		M	Z 5.1	18
		D = 6450 km = 58°.		
	Sk	iP	14 55 56.5	C
		i	14 56 15.9	
	Gb	eP	14 56 31	C
		ePcP	14 56 57	
	Um	iP	14 55 44.1	C
		iPP	14 58 01	
		iPa	14 59 39	
		iS	15 03 54	
	Ka	iP	14 56 34.6	C
	Kurile Islands (h = 30 km).			
	Magn. = 6.2 (Up,Ki).			
" 3	Up	eSS	16 52 59	
			microns	sec
		M	E 2.0	21
		M	N 2.4	20
		M	Z 3.9	20
	Ki	iPKP	16 34 05.1	
		iPP	16 36 22	
		iPKS	16 37 30	
		iX	16 44 41	
		iSS	16 53 58	
			microns	sec
		PKP	Z' 0.2	1.3
		PP	E 1.1	5
		PP	Z 0.9	6
		PKS	E 1.5	6
		PKS	Z 1.0	8
		M	E 2.8	18
		M	N 1.7	20
		M	Z 2.3	17
		(D = 14650 km = 132°).		
	Sk	iPKP	16 33 56.5	C
	Gb	ePKP	16 33 53	
	(cont.)			

1965
Oct. 3 (cont.)

	Um	iPKP	16 34 02.6	
		iPP	16 36 16	
		iPKS	16 37 25	
		iX	16 44 27	
		iSS	16 53 37	
		iPKPPKS	16 55 56	
	Chile (h = 30 km).			
	Magn. = 6.4 (Up,Ki).			
	The phase called X above, which is very clear on Ki and Um long-period N, does not lend itself to any immediate interpretation.			
" 4	Up	iP	00 13 19.3	
	Ki	iP	00 12 25.4	
	Sk	iP	00 12 59.7	
	Gb	eP	00 13 42	
	Um	iP	00 12 50.0	
	Aleutian Islands (h = 30 km).			
" 4	Up	---		
			microns	sec
		M	N 0.5	18
	Ki	iP	00 27 44.2	
		iPKP	00 31 47.4	
	Sk	iPKP	00 31 57.5	
	New Guinea (h = 80 km).			
" 4	Um	iP	01 36 04.5	C
" 4	Up	iP	01 37 47.9	
			microns	sec
		M	N 0.6	16
		M	Z 0.5	11
	Ki	iP	01 37 25.1	
			microns	sec
		M	E 1.1	13
		M	N 0.5	14
		M	Z 0.9	11
	Sk	iP	01 37 52.1	
	Gb	eP	01 38 13	
	Um	iP	01 37 32.4	
		i	01 37 41.9	
	Formosa.			
" 4	Up	iPKP	03 32 02.6	
		i	03 32 09.9	
	Ki	ePKP	03 31 35	
	Sk	iPKP	03 31 57.9	C
	Um	iPKP	03 31 52.1	
	South of Kermadec Islands (h = 170 km).			
" 4	Ki	eP	04 23 35	
	(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Oct.	4	(cont.)			
		Ki	i	04 23 38.6	
		Sk	iP	04 23 47.5	
		Gb	eP	04 24 20	
		Um	iP	04 24 01.5	
		Off coast of Oregon (h = 30 km).			
"	4	Ki	iP	05 45 32.5	C
		Sk	eP	05 45 15	
		Iceland (h = 30 km).			
"	4	Ki		---	
				microns sec	
			M	E 0.7 17	
			M	N 0.6 18	
			M	Z 1.0 18	
		Sk	eP	06 35 50	
		Um	eS	06 46 26	
		Panama-Costa Rica (h = 40 km).			
"	5	Up	iP	00 26 30.4	C
				microns sec	
			P	Z' 0.1 0.8	
		Ki	iP	00 25 34.2	C
				microns sec	
			P	Z' 0.1 0.8	
		Sk	iP	00 25 58.5	C
		Gb	eP	00 26 47	C
		Um	iP	00 26 03.9	C
		Ka	iP	00 26 54.2	C
		Yukon (h = 10 km). Magn. = 5.8 (Up,Ki).			
"	5	Um	iP	01 06 42.2	
		Banda Sea (h = 90 km).			
"	5	Um	iP	01 22 32.4	D
"	5	Um	i(P)	07 45 11.2	
			i	07 46 10.2	
"	5	Up	iP	09 56 29.8	
		Ki	iP	09 56 56.3	C
				microns sec	
			M	E 0.7 17	
			M	N 0.6 18	
		Sk	iP	09 56 55.7	
		Gb	eP	09 56 39	
		Um	eP	09 56 45	
			iS	10 06 47	
		Indian Ocean (h = 30 km).			
"	5	Up	i(P)	14 13 24.2	
		Gb	i(P)	14 13 39.0	

1965 Oct.	5	Ka	iP	15 09 25.0	
"	6	Up	iP	07 58 03.2	
"	6	Up	iP	08 13 06.0	
		Ki	eP	08 12 55	
		Sk	iP	08 13 20.3	
		Ka	iP	08 13 17.0	
		India-China (h = 25 km).			
"	6	Ka	iPKP	08 38 50.1	
		Tonga Islands (h = 40 km).			
"	6	Up	iP	15 42 24.8	C
				microns sec	
			P	Z' 0.2 0.7	
		Ki	iP	15 42 35.0	C
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	15 42 51.1	C
			iPP	15 44 32.8	
		Gb	iP	15 42 46.6	C
		Um	iP	15 42 23.8	C
			i	15 42 28.9	
		Ka	iP	15 42 29.4	C
			isP	15 43 32.3	
		Hindu Kush (h = 200 km). Magn. = 5.8 (Up,Ki).			
"	6	Up	iP	18 07 27.7	
			i	18 07 37.8	
		Ki	iP	18 08 06.0	
			i	18 08 31.9	
		Sk	iP	18 08 03.1	C
			iSn	18 13 30.8	
			iLi	18 16 08.0	
		Gb	iP	18 07 42.9	
		Um	iP	18 07 40.6	
			i	18 08 02.1	
			iSn	18 12 30.4	
		Ka	iP	18 07 22.8	
			i	18 07 35.3	
		Caucasus. This is another instance of Sn propagating to teleseismic distances (Sk,Um) across the Russian platform.			
"	6	Up	iP	20 37 32.4	
			i	20 37 35.6	
				microns sec	
			P	Z' 0.1 0.6	
"	6	Up	iP	22 48 54.5	C
		Ki	iP	22 49 03.5	
		Sk	iP	22 49 19.8	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Oct. 6 (cont.)

	Um	iP	22 48 52.7 C
	Ka	iP	22 48 59.6 C

Hindu Kush (h = 210 km).

" 7 Ka iPKP 01 28 37.8
Tonga Islands (h = 50 km).

" 7

Up	iP		03 48 22.9 C
	eS		03 58 37
		microns	sec
	P	Z' 0.3	0.8
	M	E 1.7	18
	M	N 2.9	18
	M	Z 2.3	18

D = 9200 km = 83°.

Ki	iP		03 48 09.4 C
	iS		03 58 08
		microns	sec
	P	Z 0.6	5
	P	Z' 0.6	0.9
	S	E 0.9	12
	M	E 4.5	20
	M	N 2.7	20
	M	Z 3.2	17

D = 8900 km = 80°.

Sk	iP	03 48 31.0 C
Gb	iP	03 48 36.3 C
Um	iP	03 48 12.8 C
	i	03 48 20.8
	iS	03 58 13
Ka	iP	03 48 33.1 C

South China Sea (h = 15 km).
Magn. = 6.1 (Up,Ki).

" 7

Up	iPKP	07 16 55.8
Ki	iPKP	07 16 46.5
	iSKP	07 19 39.8
Gb	iPKP	07 17 03.8
Um	iPKP	07 16 44.2
	i	07 16 54.0
	iSKP	07 19 47.2
Ka	iPKP	07 17 07.9

South of Fiji Islands
(h = 380 km).

" 7

Ki	iPKP	09 38 20.3
Um	iPKP	09 38 27.4

New Hebrides Islands
(h = 25 km).

" 7

Up	iP		14 17 07.8
Ki	iP		14 16 14.7
		microns	sec
	P	Z' 0.1	1.0
Gb	iP		14 17 23.9

(cont.)

1965
Oct. 7 (cont.)

	Um	iP	14 16 41.0

Aleutian Islands
(h = 25 km).

" 7

	Ki	iPn	16 34 28.0
KIR		iSn	16 35 16.3
		iSg	16 35 32.6
		~~D = 410 km = 3.7°~~.	
SKA	Sk	iSg	16 38 19.8
UME	Um	iSg	16 37 03.3

Northwest Russia,
68.9°N, 30.1°E.
Origin time = 16 33 30.
Explosion?

" 7

Um	iPKP	17 24 08.7
	i	17 24 21.9

Kermadec Islands
(h = 30 km).

" 8

Up	iP		06 06 53.5 C
	i		06 06 56.5
	iPn		06 07 56.8
	iPP		06 08 12.2
Ki	iP		06 06 37.5 C
	iPP		06 07 54.7
	i		06 08 06.6
		microns	sec
	P	Z' 0.2	0.6
Sk	iP		06 07 08.5 C
Gb	iP		06 07 20.9
	iPP		06 08 46.3
Um	iP		06 06 37.9
	i!		06 08 36.3
Ka	iP		06 07 08.9 C
	iPP		06 08 33.0

Kazakh SSR.
Magn. = 5.8 (Up,Ki).
Underground explosion.

" 8 Up iP 16 13 37.1
Aleutian Islands
(h = 40 km).

" 8

Up	iP	16 43 31.9
Ki	iP	16 42 38.7
	iPcP	16 43 22.8

Aleutian Islands
(h = 40 km).

" 8

Up	iPKP		22 19 16.1
		microns	sec
	PKP	Z' 0.2	0.7
Gb	iPKP		22 19 23.2 D
	i		22 19 34.1

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
Oct.	8	(cont.)			
		Ka	iPKP	22 19 26.8	
		Tonga-Kermadec Islands			
		(h = 30 km).			
"	9	Um	iP	00 30 44.0	
"	9	Up	iP	01 05 52.6	
"	9	Up	iP	04 42 54.3	C
		Sk	iP	04 43 18.9	
		West Pakistan.			
"	9	Um	iPKP	05 03 45.3	
		South of Kermadec Islands			
		(h = 170 km).			
"	9	Um	iP	07 48 21.8	
		Aleutian Islands			
		(h = 40 km).			
"	9	Up	iP	09 15 05.9	D
"	9	Ki	iPn	11 08 43.9	
		KIR	iPg	11 08 49.7	
			iSn	11 09 09.4	
			iSg	11 09 15.7	
		SKA	~~D = 220 km = 2.0°~~.		
			Sk	e(Sg)	11 11 18
		UME	Um	~~iSg~~	11 11 06.0
		Northwest coast of Norway,			
		69.0°N, 15.9°E.			
		Origin time = 11 08 09.			
"	9	Up	iP	13 35 22.6	C
			ipP	13 35 38.4	
		Um	iP	13 35 01.3	
			ipP	13 35 17.3	
		Japan.			
		h = 60 km (Up,Um).			
"	9	Um	iP	21 10 06.2	C
"	10	Up	iP	00 46 55.5	
		Gb	eP	00 47 06	
		Aleutian Islands			
		(h = 40 km).			
"	10	Up	iP	10 32 51.8	
			i	10 33 03.1	
			microns	sec	
			M E	1.4 15	
			M Z	2.5 16	
		Ryukyu Islands (h = 30 km).			
"	10	Up	iPKP	17 44 34.5	
			microns	sec	
			PKP Z'	0.1 0.8	
		(cont.)			

1965					
Oct.	10	(cont.)			
		Ki	iPKP	17 44 50.1	
		Um	iPKP	17 44 42.6	
			i	17 44 57.3	
		South Sandwich Islands			
		(h = 60 km).			
"	11	Ki	iP	05 04 57.6	C
			i	05 05 08.6	
		Sk	iP	05 05 19.5	
			i	05 05 30.6	
		Mindanao (h = 90 km).			
"	12	Ki	iP	06 22 02.7	
"	12	Up	iP	06 38 14.8	
			ipP	06 38 20.0	
		Ki	iP	06 37 20.5	
		Um	iP	06 37 46.8	
		Aleutian Islands.			
		h = 20 km (Up).			
"	12	Sk	iPKP	07 06 47.2	
		Kermadec Islands (h = 30 km).			
"	12	Ki	iP	08 25 39.9	
		Sk	iP	08 26 03.6	
		Um	iP	08 26 06.0	C
		Gulf of Alaska (h = 15 km).			
"	12	Up	i(P)	13 51 30.6	
			iP	13 51 32.8	
			iS	14 00 06	
			microns	sec	
			P Z'	0.1 0.6	
			S E	0.5 5	
			M E	1.4 18	
			M N	1.2 15	
			M Z	1.4 15	
			D = 7150 km = 64 1/2°.		
		Ki	i(P)	13 50 36.8	
			iP	13 50 38.8	
			ipP	13 50 48.4	
			eS	13 58 40	
			microns	sec	
			P Z'	0.3 0.8	
			S N	0.8 12	
			M E	2.5 23	
			M N	1.3 17	
			M Z	1.5 18	
			D = 6350 km = 57°.		
		Sk	i(P)	13 51 03.8	
			iP	13 51 06.3	
			ipP	13 51 15.4	
		Gb	i(P)	13 51 42.1	
			iP	13 51 44.0	
			ipP	13 51 53.1	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Oct.	12	(cont.)				
		Um	i(P)	13 51 02.5		
			iP	13 51 06.8		
			ipP	13 51 16.3		
			iS	13 59 19		
		Ka	i(P)	13 51 54.3		
			ipP	13 52 06.1		
		Kodiak Island.				
		h = 35 km (Ki,Sk,Gb,Um).				
		Magn. = 5.9 (Up,Ki).				
		In this interpretation, (P)				
		is assumed to be the P of a				
		(small) foreshock.				
"	12	Ki	iP	14 33 11.7		
		Kodiak Island (h = 25 km).				
"	12	Ki	iP	15 07 54.0		
		Sk	iP	15 08 21.5		
		Kodiak Island (h = 25 km).				
"	12	Up	iS[x]	18 10 01.6		
			iLgl	18 10 22.5		
		Ki	eS[x]	18 10 31		
			eLgl	18 10 47		
		Sk	eLgl	18 11 25		
		Um	eLgl	18 09 32		
		Near Lake Ladoga.				
		Explosion?				
"	12	Ki	iP	18 40 20.4		
		Crete (h = 30 km).				
"	13	Up	iP	03 57 30.3		
		Ki	eP	03 56 40		
		Sk	iP	03 56 44.7		
		Um	iP	03 57 06.9		
		Ka	iP	03 57 58.1		
		Greenland (h = 30 km).				
"	13	Up	iP	04 31 18.4		
"	13	Up	i(P)	11 43 14.9		
			iSg	11 43 45.6		
		Um	iSg	11 44 45.5		
"	13	Up	iP	15 54 25.1		
		Ki	iP	15 53 47.0		
		Um	iP	15 54 03.4		
		Japan (h = 130 km).				
"	14	Up	iP	08 13 47.2		
		Ki	iP	08 13 10.9		
		Um	iP	08 13 26.0		
		Japan (h = 60 km).				
1965 Oct.	14	Up	iP	08 48 53.8	D	
"	14	Up	iP	09 06 07.7	C	
"	15	Um	iSS	01 05 35		
		Off coast of Mexico				
		(h = 30 km).				
"	15	Up	iP	14 29 53.6	C	
		Ki	iP	14 29 52.7		
		Sk	iP	14 30 10.4		
		Um	iP	14 29 49.0		
		Ka	iP	14 29 58.8		
		Andaman Islands				
		(h = 30 km).				
"	15	Up	iPn	17 07 30.7		
			iSn	17 08 41.8		
			iS[x]	17 08 58.8		
			iLgl	17 09 18.3		
		Ki	eSn	17 09 03		
			iS[x]	17 09 30.4		
			iLgl	17 09 48.6		
		Sk	e	17 09 42		
			eLgl	17 10 21		
		Um	iP[x]	17 07 18.4		
			iLgl	17 08 34.9		
		Near Lake Ladoga.				
		Explosion?				
"	16	Ki	iPn	05 44 07.4		
			iPg	05 44 19.1		
			iSn	05 45 03.4		
			iSg	05 45 22.8		
			D = 470 km = 4.2°.			
		Um	i(Sn)	05 45 47.4		
		Probably northwest Russia.				
		Origin time = 05 43 00.				
		Explosion?				
"	16	Up	iP	14 35 39.9		
		Sk	iP	14 35 26.6		
		Um	iP	14 35 41.1		
		Costa Rica (h = 50 km).				
"	16	Up	iP	19 44 25.8	D	
		Sk	iP	19 44 42.3		
		Um	iP	19 44 20.3		
		Ka	iP	19 44 32.7		
		Burma (h = 30 km).				
"	16	Up	iP	20 12 05.7		
				microns sec		
			P	Z' 0.2 1.0		
		Ki	iP	20 11 10.5	D	
		(cont.)				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Oct.	16	(cont.)				
		Sk	iP	20 11 55.3		
		Gb	iP	20 12 26.3		
		Um	iP	20 11 47.3		
		Ka	iP	20 12 31.0	D	
		Komandorsky Islands				
		(h = 30 km).				
"	16	Up	iP	22 57 02.9		
				microns	sec	
			M	E 1.1	20	
			M	N 1.5	15	
			M	Z 1.3	14	
		Ki		---		
				microns	sec	
			M	E 2.3	15	
			M	N 1.7	15	
			M	Z 3.2	14	
		Kamchatka (h = 80 km).				
"	18	Up	iP	10 29 22.1		
			ipP	10 29 28.3		
			iPP	10 30 48.1		
			i	10 39 52		
			iLgl	10 42 00		
				microns	sec	
			pP	Z' 0.1	0.7	
			M	E 2.2	8	
			M	N 2.6	10	
			M	Z 3.6	9	
		Ki	iP	10 29 17.4	C	
			ipP	10 29 24.1		
			iLgl	10 41 51		
				microns	sec	
			pP	Z' 0.2	0.8	
			M	E 6.1	13	
			M	N 2.4	8	
			M	Z 4.3	12	
		Sk	iP	10 29 42.1		
		Gb	iP	10 29 51.3		
		Um	iP	10 29 13.6		
			ipP	10 29 19.5		
			iLgl	10 42 02		
		Ka	iP	10 29 33.3		
			ipP	10 29 38.8		
		Kirghiz-Sinkiang.				
		h = 25 km (Up,Ki,Um,Ka).				
		Exceptionally well developed				
		higher-mode Rayleigh waves.				
"	18	Ki	iP	14 38 50.6		
		Um	iP	14 38 13.5	C	
		Gb	iP	14 37 36.4		
		Turkey (h = 30 km).				
"	18	Um	iP	20 04 26.4		

1965 Oct.	18	Up	iPP	22 07 45.8		
			iSKS	22 14 29		
				microns	sec	
			SKS	E 0.9	10	
			M	E 7.2	19	
			M	N 11	18	
			M	Z 8.1	17	
		Ki	iP	22 03 39.5		
			i	22 03 41.4		
			iSKS	22 14 07		
			e(S)	22 14 49		
				microns	sec	
			P	Z' 0.1	1.2	
			SKS	N 0.7	4	
			(S)	N 0.9	7	
			M	E 15	20	
			M	N 7.6	19	
			M	Z 15	20	
		Um	iP	22 03 46.5	D	
			iPP	22 08 01		
			iSKS	22 14 17		
			i	22 17 32		
		Halmahera (h = 30 km).				
		Magn. = 6.5 (Up,Ki).				
"	19	Um	i	04 04 44.8		
			i(Sg)	04 04 54.5		
"	19	Up	eP	13 47 51		
"	19	Up	i(P)	20 47 55.5		
			i	20 48 01.6		
				microns	sec	
			(P)	Z' 0.2	0.6	
		Um	i(P)	20 47 12.2		
			i	20 58 35		
"	19	Up	i(P)	20 59 32.5	C	
			iP	20 59 33.7		
			iPP	21 02 03		
			iS	21 08 24		
				microns	sec	
			P	Z' 0.5	1.0	
			S	N 0.6	7	
			M	E 1.9	20	
			M	N 7.2	22	
			M	Z 5.8	22	
			D = 7350 km = 66°.			
		Ki	iP	20 58 40.1	C	
			i	20 59 08.4		
			iS	21 06 39		
				microns	sec	
			P	Z 0.7	9	
			P	Z' 0.2	1.0	
			S	E 1.0	10	
			S	N 0.9	7	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Oct. 19 (cont.)

Ki		microns	sec	
	M	E	5.2	18
	M	N	3.3	19
	M	Z	7.6	20
	D = 6450 km = 58°.			
Sk	iP	20 59 14.2		C
Gb	iP	20 59 54.0		C
	ipP	21 00 04.5		
Um	i(P)	20 59 04.8		
	iP	20 59 06.2		C
	ipP	20 59 17.1		
	iPa	21 03 08		
	iS	21 07 30		
Ka	iP	20 59 57.5		C

Aleutian Islands.
h = 40 km (Gb,Um).
Magn. = 6.0 (Up,Ki).
(P) at Up and Um is a very small phase, preceding P by about 1.3 sec, a foreshock?

" 20

Up	iP	02 57 48.1	
	ipP	02 58 00.8	

Philippine Islands.
h = 50 km (Up).

" 20

Up	iP	11 19 11.5		
		microns	sec	
	P	Z' 0.2	1.0	
Ki	iP	11 18 18.2		
		microns	sec	
	P	Z' 0.1	1.2	
Gb	iP	11 19 25.1		
Um	iP	11 18 44.0		
Ka	iP	11 19 33.2		

Aleutian Islands (h = 30 km).
Magn. = 5.8 (Up,Ki).

" 20

Ki	iP	19 58 24.9
Um	iP	19 58 47.0

Okhotsk Sea (h = 430 km).

" 21

Up	iP	00 07 23.5		
	iPP	00 10 45.6		
		microns	sec	
	P	Z' 0.1	1.0	
	M	E 1.9	30	
	M	N 1.4	23	
	M	Z 2.1	25	
Ki	iP	00 07 16.0		
		microns	sec	
	P	Z' 0.2	1.5	
Sk	iP	00 07 06.4		
Gb	iP	00 07 20.4		
Um	iP	00 07 22.5		
	iPP	00 10 44.0		

(cont.)

1965
Oct. 21 (cont.)

Ka	iP	00 07 23.7	
	i	00 07 32.9	

Nicaragua (h = 70 km).
Magn. = 6.0 (Up,Ki).

" 21

Up	iP	02 15 29.1	
Ki	iP	02 15 06.2	C
Um	iP	02 15 19.6	
Ka	iP	02 15 37.1	

Missouri, USA (h = 20 km).

" 21

Up	iP	02 53 17.3	C
Ki	iP	02 53 27.1	C
Sk	iP	02 53 43.3	C
Gb	iP	02 53 39.7	
Um	iP	02 53 15.9	
Ka	iP	02 53 21.9	

Hindu Kush (h = 110 km).

" 21

Up	iP	09 09 55.9

Aleutian Islands (h = 30 km).

" 21

Um	i(Sg)	15 04 34.4

" 21

Up	iP	16 04 34.9
	ipP	16 04 39.1
Ki	iP	16 04 19.0
Sk	iP	16 04 48.4
	ipP	16 04 53.1
Gb	eP	16 04 54
Um	iP	16 04 20.6
	ipP	16 04 24.7

Sinkiang.
h = 15 km (Up,Sk,Um).

" 21

Um	iP	18 57 17.9
	i	18 57 23.8

China.

" 22

Up	eP	02 14 48
Ki	iP	02 14 16.7
Sk	eP	02 14 49
Um	iP	02 14 30.3

Bonin Islands (h = 110 km).

" 22

Up	iPKP	13 35 39.6

Kermadec Islands (h = 380 km).

" 23

Up	iP	06 11 39.4		C
	i	06 11 48.4		
		microns	sec	
	P	Z' 0.2	0.7	
Ki	iP	06 10 45.6		C
		microns	sec	
	P	Z' 0.2	0.8	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Oct. 23 (cont.)

	Sk	iP	06 11 15.2
	Gb	eP	06 11 49 C
	Um	iP	06 11 12.8 C
	Ka	iP	06 12 02.6

Aleutian Islands (h = 15 km).
Magn. = 6.2 (Up,Ki).

" 23

Up	iP	08 05 31.3

Aleutian Islands (h = 30 km).

" 23

Up	iPKP	08 34 59.3
Ki	iPKP	08 34 59.0
Sk	iPKP2	08 35 23.8 D
Um	iPKP	08 34 52.4

West of Macquarie Islands
(h = 30 km).

" 23

Up	iPKP	08 53 51.2

West of Macquarie Islands
(h = 40 km).

" 23

Up	iP	14 41 56.1
Ki	iP	14 41 18.1

Japan (h = 80 km).

" 23

Up	iP	16 38 57.9 C

Washington, USA (h = 25 km).

" 24

Up	iP	06 29 41.8
	iS	06 31 50.2
	~~D = 1300 km = 11 1/2°.~~	
Ka	iP	06 29 21.8
	~~i~~	~~06 30 41.8~~
	iS	06 31 11.9

Carpathians, near 49°N, 22°E.
Origin time = 06 26 57.
By combination with bulletin
data for 7 more stations.

" 24

Up	iPn	11 31 08.7
	iSn	11 32 20.3
	iS[x]	11 32 37.8
	iLgl	11 32 51.8
Ki	ePn	11 31 26
	eSn	11 32 51
	iLgl	11 33 27.7
Sk	iPn	11 31 39.0
	iLgl	11 34 01.8
Gb	iP	11 31 55.7
	eSn	11 33 45
	eLgl	11 34 36
Um	iPn	11 30 56.1
	iLgl	11 32 13.2
Ka	iPn	11 31 45.6
	iSn	11 33 25.9
	eLgl	11 34 21

(cont.)

1965
Oct. 24 (cont.)
Near lake Ladoga.
Explosion?
Agreement between data not
quite satisfactory.

" 24

Up	eP	12 20 33
Ki	iP	12 21 57.3
Gb	eP	12 19 35
	e	12 22 53
Um	iP	12 21 16.4
Ka	iS	12 21 26.9
	i	12 23 09.2

Switzerland (h = 30 km).

" 24

Up	iP			14 45 18.5
	ipP			14 45 58.8
		microns	sec	
	M	E	0.5	19
	M	N	1.5	24
Ki	iP			14 45 02.2
	iSKS			14 55 17
		microns	sec	
	P	Z'	0.1	1.0
	M	E	0.7	19
	M	N	0.8	20
Sk	iP			14 45 19.3
Gb	eP			14 45 42
Um	iP			14 45 07.5
	iSKS			14 55 26
	iS			14 55 54
Ka	iP			14 45 28.5

Talaud Islands.
h = 160 km (Up).

" 24

Up	iP	16 46 04.8
Sk	iP	16 46 44.2
Gb	eP	16 45 54
Um	iP	16 46 43.3
Ka	iP	16 45 27.3

Ionian Sea (h = 30 km).

" 24

Ki	iP	17 51 49.4
Gb	eP	17 52 58

Alaska (h = 90 km).

" 24

Up	iP			18 25 46.9
		microns	sec	
	M	E	0.8	20
	M	N	1.9	23
	M	Z	1.8	22
Ki	iP			18 24 56.6
		microns	sec	
	M	E	1.1	22
	M	N	0.7	20
	M	Z	1.9	24

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Oct.	24	(cont.)			
		Sk	iP	18 25 33.2	
			iPcP	18 26 09.1	
		Gb	eP	18 26 08	
		Um	iP	18 25 21.2	C
		Ka	iP	18 26 11.3	
		Kurile Islands (h = 30 km).			
"	24	Up	iP	18 56 34.9	
		Gb	eP	18 56 54	
		Um	iP	18 56 13.1	
		Ka	iP	18 56 59.2	
		Kurile Islands (h = 50 km).			
"	24	Up	iP	19 18 26.8	
		Mexico (h = 210 km).			
"	24	Up	iP	20 38 23.6	
			microns	sec	
			M N	0.6 16	
		Ki	iP	20 38 00.9	
			microns	sec	
			M E	0.5 15	
			M N	0.5 17	
		Sk	iP	20 38 28.3	
		Gb	eP	20 38 44	
		Um	iP	20 38 08.9	
		Philippine Islands (h = 15 km).			
"	25	Up	iP	00 26 59.6	C
			ipP	00 27 11.8	
			microns	sec	
			P Z'	0.1 0.6	
		Ki	iP	00 26 33.9	
			microns	sec	
			M E	0.5 15	
			M N	0.6 19	
		Sk	iP	00 27 01.8	
		Gb	eP	00 27 24	C
			epP	00 27 37	
		Um	iP	00 26 43.1	
			i(pP)	00 26 52.1	
		Ryukyu Islands. h = 50 km (Up,Gb).			
"	25	Up	iP	14 25 50.5	
			microns	sec	
			P Z'	0.1 0.6	
		Ki	iP	14 25 31.1	
		Sk	iP	14 25 53.8	
		Gb	iP	14 26 05.9	
		Um	iP	14 25 37.4	
		Ka	iP	14 26 02.1	
		Luzon (h = 170 km).			

1965 Oct.	25	Ki	iP	15 30 49.8	
		Um	iP	15 31 17.3	
		Unimak Island (h = 15 km).			
"	25	Sk	iP	16 17 38.8	
		Mexico (h = 30 km).			
"	25	Um	iP	18 53 24.2	
			i	18 54 14.3	
		Unimak Island (h = 60 km).			
"	25	Up	iP	22 45 02.8	C
			iS	22 53 45	
			iScS	22 54 41	
			iP'P'	22 13 21	
			microns	sec	
			P E	4.1 3	
			P N	6.5 2	
			P Z'	2.0 0.8	
			S E	4.6 4	
			S N	12 6	
			S Z	5.0 6	
			S Z'	0.8 1.5	
			P'P' Z'	0.2 1.5	
			M E	6.5 19	
			M N	8.0 19	
			M Z	7.8 20	
			D = 7550 km = 6.8°.		
		Ki	i(P)	22 44 17.8	C
			iP	22 44 19.6	
			iPcP	22 44 57	
			iPa	22 48 50	
			iS	22 52 25	
			i	22 53 13	
			iScS	22 53 44	
			microns	sec	
			P E	4.0 8	
			P N	3.7 7	
			P Z	13 8	
			P Z'	3.1 1.0	
			S E	7.3 9	
			S N	9.3 9	
			S Z'	0.4 1.5	
			M E	15 18	
			M N	10 16	
			M Z	16 20	
			D = 6800 km = 61°.		
		Sk	i(P)	22 44 53.0	C
			iP	22 44 55.1	
			eP'P'	23 13 26	
		Gb	i(P)	22 45 28.0	C
			iP	22 45 30.2	
		Um	i(P)	22 44 37.6	C
			iP	22 44 40.1	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Oct. 25 (cont.)

Um	iPcP	22 45 22	
	iS	22 53 00	
Ka	i(P)	22 45 24.8	C
	iP	22 45 26.9	
	iS	22 54 31.3	

Japan (h = 180 km).
Magn. = 7.1 (Up,Ki).
P is multiple, with a small phase (P) followed after 2.1 sec in average by a much larger P. Compare similar remarks to Oct. 12, 13 51, and Oct. 19, 20 59. - Exceptionally large Sa, especially on the long-period Z-components.

" 26 Um iP 07 44 04.9

" 26 Sk iP 09 11 26.0
West Pakistan.

" 26

Ki	iPKP	10 40 49.1	C
Sk	iPKP	10 40 59.3	
Um	iPKP	10 40 53.0	

Loyalty Islands (h = 40 km).

" 26

Ki	iP	23 28 23.1	
		microns sec	
	P	Z' 0.1 1.0	

Mindanao (h = 140 km).

" 27

Up	iP	22 50 36.6	
		microns sec	
	P	Z' 0.1 0.5	
Ki	iP	22 49 51.3	C
Sk	iP	22 50 20.4	
Um	iP	22 50 10.8	

Sakhalin (h = 230 km).

" 28

Up	iP	01 57 35.2	
	ipP	01 57 51.0	
		microns sec	
	P	Z' 0.2 1.0	
Ki	iP	01 56 41.8	C
		microns sec	
	P	Z' 0.1 0.9	
Sk	iP	01 57 15.4	C
Um	iP	01 57 07.9	C

Aleutian Islands.
h = 60 km (Up).
Magn. = 6.0 (Up,Ki).

" 28

Sk	iP	04 32 42.0	
Gb	iP	04 31 53.0	

Greece (h = 15 km).

1965
Oct. 28

Sk	iP	14 44 22.4	C
Um	iP	14 44 19.7	
Ka	iP	14 42 57.6	C

Albania (h = 15 km).

" 29 Um iPKP 04 07 40.6
South of Kermadec Islands (h = 30 km).

" 29 Um iPKP 04 27 05.7 C
South of Kermadec Islands (h = 30 km).

" 29

Up	iPKP	04 28 39.5	
	i	04 28 48.1	
Sk	iPKP	04 28 32.9	
Um	iPKP	04 28 27.8	

South of Kermadec Islands (h = 30 km).

" 29 Um iP 06 07 36.5 C

" 29

Up	iSn	11 19 03.0	
	iLgl	11 19 32.6	
Ki	eSn	11 19 25	
	iLgl	11 20 06.3	
Sk	eLgl	11 20 41	
Um	iSn	11 18 29.9	
	iLgl	11 18 52.0	

Near Lake Ladoga.
Explosion?

" 29

Up	iP	21 10 57.7	C
	iPcP	21 11 26.3	
	iP'P'	21 39 16.1	
		microns sec	
	P	Z' 0.3 0.9	
	P'P'	Z' 0.1 1.0	
Ki	iP	21 10 04.1	C
	iPcP	21 11 49.5	
	iP'P'	21 39 30.0	
		microns sec	
	P	Z' 0.1 1.0	
Sk	iP	21 10 37.2	C
Um	iP	21 10 30.4	C
	iPcP	21 11 06.0	
	iP'P'	21 39 19.4	
	i	21 39 26.8	
Ka	iP	21 11 19.2	C

Aleutian Islands.
Magn. = 6.1 (Up,Ki).
Underground nuclear explosion.

" 30

Um	iP	08 56 40.0	
	ipP	08 56 50.1	

Kamchatka.
h = 40 km (Um).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965				
Oct.	30	Ki	iPg	13 45 11.6
			iSg	13 45 21.2
			i	13 45 23.4
		Sk	iSg	13 47 36.5
		Um	iSg	13 46 47.8
		Gällivare, North Sweden.		
		Probably mining blast.		
"	31	Up	iP	10 02 26.5
"	31	Ki	iPn	13 57 14.6
			iSn	13 57 59.9
			iSg	13 58 18.1
			D = 410 km = 3.7°.	
		Probably northwest Russia.		
		Origin time = 13 56 15.		
		Explosion?		
"	31	Up	iP	16 21 30.1
"	31	Up	iP	23 20 01.7
			iPP	23 21 35.0
		Ki	iP	23 20 06.5
			ipP	23 20 49.2
			microns sec	
			P Z' 0.1 0.8	
		Sk	iP	23 20 26.3
		Gb	iP	23 20 23.8
		Um	iP	23 19 57.7
			i	23 20 03.1
		Ka	iP	23 20 08.0
		Hindu Kush.		
		h = 210 km (Ki).		

Markus Båth
May 11, 1966

Seismological Institute
Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G,

U M E Å and K A R L S K R O N A

Uppsala	(Up):	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E;	h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E;	h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E;	h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E;	h = 11 m

N O V E M B E R 1 - 30, 1965

1965
Nov. 1 Um iP 17 01 36.0

" 1 Up iPKP 18 21 34.8 C
i! 18 22 14.1
microns sec
PKP Z' 0.1 0.6
Ki ePKP 18 21 16
iSKP 18 24 03.9
microns sec
SKP Z' 0.2 1.5
Sk iPKP 18 21 28.9
iSKP 18 24 18.6
Gb iPKP 18 21 46
i! 18 22 25
Um iPKP 18 21 23.5
i 18 21 34.2
iSKP 18 24 14.5
Ka iPKP 18 21 47.2
South of Fiji Islands
(h = 550 km).
The phase marked ! appears only at Up and Gb, is very pronounced, but has not been identified.

" 2 Up iPKP 01 07 39.9
Ki iPKP 01 07 19.6
iSKP 01 10 10.5
microns sec
SKP Z' 0.1 1.0
Gb iPKP 01 07 50
iSKP 01 10 39
Um iPKP 01 07 28.7
i 01 07 39.5
iSKP 01 10 22.4
South of Fiji Islands
(h = 520 km).

1965
Nov. 2 Up iP 03 31 49.8
microns sec
M E 3.2 17
Ki eP 03 33 04
microns sec
M E 3.9 15
M N 2.1 15
M Z 3.2 14
Sk iP 03 32 34.4 C
Um iP 03 32 28.8
i 03 32 39.5
Aegean Sea (h = 10 km).

" 2 Up eSn 13 00 45
iSg 13 01 17.0
~~microns sec~~
~~Sg Z' 0.1 0.5~~
Ki iPg 12 57 52.6
~~i 12 57 59.3~~
iSg 12 58 19.5
~~microns sec~~
~~Sg Z' 0.5 0.5~~
~~D = 220 km = 2.0°.~~
Sk iPn 12 58 21.0
iSn 12 59 07.4
iSg 12 59 18.8
~~D = 420 km = 3.8°.~~
Um iPn 12 58 23.3
iPg 12 58 31.1
iSn 12 59 10.8
iSg 12 59 23.7
~~D = 440 km = 3.9°.~~
Nordlands Fylke, Norway,
67.3°N, 15.6°E.
Origin time = 12 57 14.
Solution checked by Norwegian and Finnish readings.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Nov. 2 Ki iP 16 00 26.7 C
i 16 00 34.9
microns sec
P Z' 0.1 1.0
Sumatra (h = 10 km).

" 2 Ki iP 16 35 01.8
Eastern Siberia
(h = 30 km).

" 3 Up iP 01 51 35.2 C
ipP 01 53 41.5
iSKS 02 01 11
iS 02 02 05
iPKKP 02 08 09.5
microns sec
P Z' 0.2 1.0
SKS E 3.0 6
S E 2.8 6
(D = 10800 km = 97°).
Ki iP 01 51 42.6
ipP 01 53 49.7
iPP 01 55 50
i 01 56 20
iSKS 02 01 23
iSP 02 03 51
iPKKP 02 08 04.0
i 02 08 33.2
microns sec
P Z 1.6 11
P Z' 0.3 1.0
PP Z 1.5 6
SKS E 5.5 9
PKKP Z' 0.1 0.8
(D = 10900 km = 98°).
Sk iP 01 51 26.1
ipP 01 53 33.1
iPKKP 02 08 11.0
iP'P' 02 16 21.8
Gb iP 01 51 20.3
ipP 01 53 29.0
iPKKP 02 08 15.1
Um iP 01 51 42.0
ipP 01 53 49.1
iSKS 02 01 18
iS 02 02 15
iSP 02 03 43
isS 02 06 07
iPKKP 02 08 05.0
Ka iP 01 51 27.2
ipP 01 53 34.5
Peru-Brazil.
h = 580 km (Up,Ki,Sk,Gb,Um,Ka).
Magn. = 6.6 (Up,Ki).

" 3 Up iP 06 57 55.6

1965
Nov. 3 Sk iP 07 13 27.6
i 07 15 00.9

" 3 Sk iP 07 24 48.2 C

" 3 Ki eP 07 58 28
Sk iP 07 58 06.0
Um eP 07 58 34
North Atlantic Ocean
(h = 30 km).

" 3 Sk eP 08 02 28
Um iP 08 03 00.2
North Atlantic Ocean
(h = 30 km).

" 3 Ki eP 08 39 15
Sk iP 08 38 45.7
Um iP 08 39 16.3
North Atlantic Ocean
(h = 30 km).

" 3 Up iP 13 47 42.2
i 13 47 48.3
microns sec
P Z' 0.1 0.5

" 3 Up ---
microns sec
M E 1.6 21
M N 1.9 23
M Z 2.6 20
Ki ---
microns sec
M E 2.6 20
M N 1.1 21
M Z 3.2 20
Um iSS 18 59 36
Easter Island (h = 10 km).
Magn. = 6.0 (Up,Ki).

" 3 Up iP 20 21 01.7 C
microns sec
P Z' 0.1 0.5

" 4 Up iP 14 25 26.9

" 4 Ki iP 15 52 15.6
Panay (h = 80 km).

" 4 Um iPKP 19 19 43.6
i 19 19 54.2
Kermadec Islands (h = 30 km).

" 6 Um iP 01 34 26.5
South of Japan (h = 70 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965					
Nov.	6	Up	iP	06 48 39.4	
		Ki	iP	06 47 44.5	
				microns sec	
			P	Z' 0.2 1.5	
		Um	iP	06 48 12.6	
		Alaska (h = 40 km).			
"	6	Up	iPKP	08 08 15.3	
			ipPKP	08 09 29.8	
				microns sec	
			pPKP	Z' 0.1 1.2	
		Kermadec Islands.			
		h = 300 km (Up).			
"	6	Up	iP	09 08 54.4	
		Um	iP	09 08 31.5	
		South of Japan (h = 15 km).			
"	6	Up	iP	16 14 56.4	
		Bhutan (h = 30 km).			
"	6	Up	iP	22 41 15.8	
		Aleutian Islands			
		(h = 40 km).			
"	7	Ki	iP	18 13 58.2	
		Sk	iP	18 14 24.2	
		Alma-Ata (h = 30 km).			
"	7	Up	iPKP	23 17 56.4	
		Gb	iPKP	23 18 09 C	
		South of Fiji Islands			
		(h = 510 km).			
"	7	Ki	iP	23 26 42.8	
		Um	iP	23 27 09.8 D	
		Unimak Island (h = 40 km).			
"	8	Up	iP	02 05 11.1	
		Ki	iP	02 05 42.1	
		Sk	iP	02 05 44.4	
		Gb	iP	02 05 21	
		Um	iP	02 05 20.9	
		Ka	iP	02 05 02.6	
		Iran (h = 40 km).			
"	8	Up	iP	03 04 59.4 D	
		Um	iP	03 04 32.7	
		Aleutian Islands (h = 70 km).			
"	8	Ki	iP	15 13 50.7	
		Sk	eP	15 14 02	
		Gb	iP	15 15 17 C	
			i	15 15 24	
		Um	iP	15 14 31.5	
		Ka	iP	15 15 47.6	
		Jan Mayen (h = 30 km).			

1965					
Nov.	8	Up	iP	19 49 59.2 C	
		Ki	iP	19 49 23.7 C	
		Um	iP	19 49 38.9	
		South of Japan (h = 230 km).			
"	8	Um	iP	21 31 06.5 D	
			i	21 31 12.5	
		Ka	iP	21 31 13.9	
		West Pakistan (h = 50 km).			
"	9	Sk	iP	09 37 05.2	
"	9	Ki	iPKP	10 34 49.3	
			ipPKP	10 35 02.3	
			i	10 35 12.1	
		Sk	iPKP	10 35 04.6	
			ipPKP	10 35 17.6	
		Um	iPKP	10 35 00.3	
			ipPKP	10 35 13.1	
			i	10 35 25.3	
		South of Kermadec Islands.			
		h = 50 km (Ki,Sk,Um).			
"	9	Up	iP	11 49 06.9	
		Ki	eP	11 48 12	
		Sk	eP	11 48 47	
		Gb	iP	11 49 24	
		Um	iP	11 48 39.8	
			iS	11 57 11	
		Aleutian Islands (h = 30 km).			
"	9	Ki	iP	15 20 04.3	
"	9	Up	iP	15 38 57.9	
		Ki	eP	15 40 18	
		Sk	iP	15 39 23.9	
		Italy (h = 30 km).			
"	10	Ki	iSn	05 37 06.3	
			iSg	05 37 25.7	
		Northwest Russia?			
		Explosion?			
"	10	Up	iP	09 09 45.7	
"	10	Up	iP	10 11 29.9	
		Ki	eP	10 11 50	
		Persian Gulf.			
"	10	Up	iP	11 11 47.6	
"	10	Up	ePKP	13 19 13	
		South of Fiji Islands			
		(h = 560 km).			
"	11	Gb	iPKP	01 35 18.2 C	
		Fiji Islands (h = 600 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Nov. 11 Ki eP 02 31 07
Aleutian Islands
(h = 100 km).

" 11 Up ---

		microns	sec
M	E	2.4	24
M	N	2.0	24
M	Z	3.0	23

Ki iPKP2 03 12 03.7
i 03 12 18.1

		microns	sec
M	E	2.9	21
M	N	1.8	19
M	Z	1.8	21

Southwest of Macquarie
Islands (h = 30 km).
Magn. = 6.1 (Up,Ki).

" 11 Ki eSKP 09 07 47
Fiji Islands (h = 350 km).

" 11 Up iP 10 20 30.7

" 11 Ki iP 18 59 39.5
Sk iP 19 00 21.2
Um iP 19 00 23.3
Svalbard region.

" 11 Up iPKP 23 09 34.7
Sk iPKP 23 09 26.5
i 23 09 41.9
Gb ePKP 23 09 44
i 23 09 54.2
Kermadec Islands
(h = 50 km).

" 12 Ki iP 01 11 20.1
Aleutian Islands
(h = 30 km).

" 12 Up eL 03 25

		microns	sec
M	E	1.1	20
M	N	2.0	20
M	Z	1.5	19

Ki eL 03 25

		microns	sec
M	E	1.1	22
M	N	0.8	18
M	Z	0.9	17

Easter Island (h = 30 km).
Magn. = 5.9 (Up,Ki).

" 12 Sk iP 07 21 36.9
Italy.

1965 Nov. 12 Up iP 14 34 35.3

		microns	sec
P	Z'	0.1	0.5

" 12 Up iPKP 14 43 37.6
Sk iPKP 14 43 26.2
Um iPKP 14 43 17.8

" 12 Up iP 17 26 12.3
i 17 37 28

		microns	sec
M	E	1.4	19
M	N	1.8	18
M	Z	1.4	21

Ki iP 17 25 37.8

		microns	sec
P	Z	0.5	6
M	E	3.3	21
M	N	1.4	15
M	Z	1.4	15

Sk iP 17 26 07.6
iPP 17 28 59.7
Um iP 17 25 51.5
South of Japan (h = 150 km).

" 12 Up iP 18 04 20.3
iS 18 14 08

		microns	sec
P	E	0.9	6
P	N	0.8	4
P	Z	1.9	4
P	Z'	0.2	0.7
S	E	2.4	11
S	N	2.8	9
M	E	11	19
M	N	21	17
M	Z	7.9	19

D = 8650 km = 78°.
Ki iP 18 03 46.5
i 18 03 49.6
iPP 18 06 27.2
eS 18 13 05

		microns	sec
P	E	1.5	7
P	Z	3.8	6
P	Z'	1.0	2.0
PP	Z'	0.9	2.5
S	E	4.1	9
S	N	3.8	8
M	E	19	16
M	N	16	17
M	Z	14	16

D = 8000 km = 72°.
Sk iP 18 04 16.8
i 18 04 32.8
ePP 18 07 16
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Nov. 12 (cont.)

	Gb	iP	18 04 38.8
	Um	iP	18 04 00.0
		i	18 04 30.8
		iS	18 13 26
	Ka	iP	18 04 39.2

South of Japan (h = 40 km).
Magn. = 6.6 (Up,Ki).

" 12 Up iP 19 03 06.4 D

		microns	sec
	P	Z' 0.1	0.5

Ki iP 19 02 16.3

		microns	sec
	P	Z' 0.2	0.8

Sk	iP	19 02 51.7
Gb	iP	19 03 26.0
Um	iP	19 02 38.7

Okhotsk Sea (h = 470 km).
Magn. = 5.6 (Up,Ki).

" 13 Sk iPKP 01 03 18.9
Um iPKP 01 03 13.9
i 01 03 26.8
Kermadec Islands (h = 40 km).

" 13 Up iP 04 41 55.4 C
ipP 04 42 09
iPP 04 43 43
iS 04 48 24
iSa 04 51 07
iSS 04 51 30

		microns	sec
	P	E 2.5	3
	P	N 0.6	3
	P	Z 4.1	3
	P	Z' 0.5	0.8
	PP	E 2.4	3
	PP	N 1.1	3
	S	E 19	11
	S	N 14	13
	S	Z 7.4	8
	M	E 110	16
	M	N 140	15
	M	Z 110	15

D = 4850 km = 43 1/2°.

Ki iP 04 41 39.4 C
ipP 04 41 55.6
iPP 04 43 23
iS 04 47 47
iSa 04 50 30
iLi 04 53 39

		microns	sec
	P	E 3.6	6
	P	N 0.4	4
	P	Z 5.6	4

(cont.)

1965 Nov. 13 (cont.)

Ki

		microns	sec
	P	Z' 1.4	1.0
	pP	E 5.9	6
	pP	Z 8.4	5
	PP	E 11	8
	PP	Z 8.6	8
	S	E 21	11
	S	N 4.7	8
	S	Z 9.1	7
	M	E 100	16
	M	N 43	15
	M	Z 120	16

D = 4600 km = 41 1/2°.

Sk	iP	04 42 09.5 C
	i	04 42 16.6
	ipP	04 42 25.3
Gb	iP	04 42 22.1
	ipP	04 42 35.6
	iPP	04 44 24.9
Um	iP	04 41 41.2 C
	iPP	04 43 21
	iPcP	04 43 39
	iScP	04 47 22
	iS	04 47 56
Ka	iP	04 42 10.8

Sinkiang.
h = 70 km (Up,Ki,Sk,Gb).
Magn. = 7.0 (Up,Ki).
This earthquake has probably produced the strongest higher-mode surface waves ever recorded at our stations (especially well developed on Ki Galitzin records).

" 13 Up iP 06 22 54.5

		microns	sec
	M	E 1.5	16
	M	N 1.5	19
	M	Z 1.2	15

Ki iP 06 23 21.0

		microns	sec
	M	E 2.4	19
	M	N 2.3	16
	M	Z 2.5	18

Sk	iP	06 23 23.2 C
Gb	iP	06 23 09.2
Um	iP	06 22 59.6 C

West Pakistan (h = 20 km).
Magn. = 5.3 (Up,Ki).

" 13 Up iP 10 54 19.1
Ki iP 10 53 26.6 C
Sk iP 10 53 53.6
Gb iP 10 54 33.4
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Nov. 13 (cont.)

	Um	iP	10 53 54.3 C
		i	10 54 18.2

Kodiak Island (h = 30 km).

" 13	Ki	iP	14 21 09.8
		i	14 21 41.8
" 13	Up	iP	18 16 42.0
" 13	Up	iPKKP	18 29 07.3

		microns	sec
M	E	0.9	19
M	N	1.1	18
M	Z	1.6	17

	Ki	iPKP	18 18 20.5 C
		ePKKP	18 28 48

		microns	sec
M	E	0.8	18
M	Z	1.6	22

	Um	iPKP	18 18 17.9
		iPKKP	18 29 05

Argentina (h = 50 km).

" 14	Up	iP	06 05 40.6 C
		ipP	06 05 52.7

		microns	sec
P	Z'	0.1	0.8

	Ki	iP	06 05 01.7
		ipP	06 05 13.5

		microns	sec
P	Z'	0.1	1.0

	Sk	iP	06 05 34.5 C
		ipP	06 05 47.9
		iPP	06 08 13.8
	Gb	iP	06 06 00.7 C
		ipP	06 06 13.0
	Um	iP	06 05 18.6 C
		ipP	06 05 30.4
		i	06 06 42.8

Japan.
h = 50 km (Up,Ki,Sk,Gb,Um).
Magn. = 5.7 (Up,Ki).

" 14 Up (UPP)

iPn	08 21 55.9 D	
iP[x]	08 22 03.4	
iSn	08 22 50.1	
iS[x]	08 23 04.4	
iSg	08 23 17.3	

~~microns sec~~
~~Pn Z' 0.1 0.5~~
~~Sn Z' 0.3 0.5~~
~~D = 560 km = 5.0°.~~

(KIR) Ki ~~e 08 26 12~~
iSg 08 26 36.7

Sk ~~e 08 22 56~~
(SKA) iS[x] 08 23 23.6
iSg 08 23 47.1

(cont.)

1965
Nov. 14 (cont.)

	~~Sk~~	~~i~~	~~08 23 54.8~~
	Gb (GOT)	iPn	08 21 10.9 C
		iPg	08 21 18.1
		iSg	08 21 39.1
		~~D = 220 km = 2.0°.~~	
	Um (UME)	eSn	08 24 03
		iSg	08 24 58.9
	Ka	iPn	08 21 44.3
	(KLS)	iSn	08 22 42.4
		iSg	08 22 57.9
		~~D = 490 km = 4.4°.~~	

South coast of Norway,
58.3°N, 8.4°E.
Origin time = 08 20 35.
Solution checked by Norwegian and Finnish readings.

" 14	Um	iP	09 50 34.4 C
" 14	Up	iPKP	11 50 47.5
		i	11 50 56.4
	Sk	iPKP	11 50 42.4 D
	Um	iPKP	11 50 37.3

South of Kermadec Islands.

" 15	Up	iP	11 29 37.4 C
		ipP	11 29 45.2
		iPa	11 33 40
		iS	11 38 24

		microns	sec
P	Z	1.6	5
P	Z'	0.3	1.0
S	E	3.6	13
S	N	3.2	8
M	E	7.2	22
M	N	6.4	21
M	Z	9.4	22

D = 7400 km = 66 1/2°.

	Ki	iP	11 30 21.6 C
		ipP	11 30 27.7
		e	11 39 38
		iS	11 39 49

		microns	sec
P	E	0.5	7
P	N	0.5	6
P	Z	1.4	6
P	Z'	0.6	1.5
S	E	3.0	10
S	N	4.6	8
M	E	8.7	15
M	N	5.2	15
M	Z	6.5	16

D = 8150 km = 73 1/2°.

	Sk	iP	11 29 47.1 C
		ipP	11 29 54.1

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Nov. 15 (cont.)

Gb	iP	11 29 15.3	C
Um	iP	11 30 00.9	C
	ipP	11 30 08.8	
	iS	11 39 05	
Ka	iP	11 29 14.6	C

Atlantic Ocean.
h = 30 km (Up,Ki,Sk,Um).
Magn. = 6.4 (Up,Ki).
Another interpretation of the pP-phase could be in terms of a multiple P, which is usually observed for Atlantic earthquakes.

" 16

Up	iP	01 11 17.7	D
	i	01 11 31.0	
	ipP	01 12 08.8	
	iPP	01 12 55.5	
	iS	01 17 11	
		microns sec	
	P Z'	0.1 0.7	
	PP Z'	0.2 0.9	
Ki	iP	01 11 26.3	D
	ipP	01 12 16.0	
	iPP	01 13 07.7	
		microns sec	
	P Z'	0.2 1.0	
Sk	iP	01 11 42.9	D
	ipP	01 12 33.5	
	iPP	01 13 29.8	
Gb	iP	01 11 39.4	
	ipP	01 12 30.1	
	ePP	01 13 39	
Um	iP	01 11 15.8	D
	ipP	01 12 06.0	
	iPP	01 12 53.9	
Ka	iP	01 11 22.5	D
	ipP	01 12 14.7	
	iPP	01 13 10.7	

Hindu Kush.
h = 250 km (Up,Ki,Sk,Gb,Um,Ka).
Magn. = 5.7 (Up,Ki).

" 16

Ki	iP	06 58 45.2	C
		microns sec	
	P Z'	0.1 1.0	

Mindanao (h = 100 km).

" 16 Um eP 08 13 04

" 16 Up iP 08 45 00.3

" 16 Up iP 09 18 27.9

" 16 Up iP 14 17 39.9

1965
Nov. 16

Up	iP	15 33 24.3	D
	iPP	15 35 15	
	iS	15 40 27	
		microns sec	
	P E	0.6 3	
	P Z	1.2 3	
	P Z'	0.6 1.6	
	PP Z	0.8 5	
	S E	1.5 8	
	S N	0.7 6	
	M E	1.4 15	
	M N	2.0 20	
	M Z	3.6 22	
	D = 5400 km = 48 1/2°.		
Ki	iP	15 33 46.3	D
	i	15 33 52.5	
	ePP	15 35 54	
	eS	15 41 07	
		microns sec	
	P E	1.2 4	
	P Z	2.1 4	
	P Z'	1.2 1.8	
	PP E	0.9 7	
	S E	1.5 9	
	S N	0.6 6	
	M E	2.4 18	
	M N	1.1 18	
	M Z	2.0 16	
	D = 5700 km = 51 1/2°.		
Sk	iP	15 33 12.4	
Gb	eP	15 32 59	
Um	iP	15 33 39.1	D
	iS	15 40 50	
	iSS	15 44 26	
Ka	iP	15 33 12.5	

North Atlantic Ocean
(h = 15 km).
Magn. = 6.3 (Up,Ki).
P(Z') has longer periods than average.

" 16

Up	iP	15 49 34.8	
Ki	iP	15 49 56.5	
	i	15 50 02.3	
Sk	eP	15 49 26	

North Atlantic Ocean
(h = 30 km).

" 16

Up	iP	17 17 20.5	
		microns sec	
	P Z'	0.1 0.8	
	M E	0.8 15	
	M N	2.0 20	
	M Z	1.5 16	
Ki	iP	17 16 53.9	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Nov.	16	(cont.)			
		Ki		microns	sec
			P	Z' 0.2	1.0
			M	E 1.2	18
			M	N 0.6	15
			M	Z 1.5	18
		Sk	iP	17 17 22.2	D
		Gb	iP	17 17 40.9	
			i	17 18 24.3	
		Um	iP	17 17 03.8	
			i	17 17 14.5	
			iS	17 26 21	
		Ka	iP	17 17 38.6	
		Ryukyu Islands (h = 80 km).			
		Magn. = 6.2 (Up,Ki).			
"	16	Up	iP	23 45 46.9	
			i	23 46 17.6	
		Ki	iP	23 44 57.4	
		Sk	eP	23 45 35	
		Gb	iP	23 46 08.5	
		Um	iP	23 45 20.7	
		Kurile Islands (h = 100 km).			
"	17	Um	iP	03 05 09.5	
		Japan (h = 20 km).			
"	17	Up	iP	14 27 23.5	D
"	17	Up	iP	16 11 10.2	
"	17	Up	iP	16 52 30.7	
		Um	iP	16 52 02.7	
		Aleutian Islands (h = 30 km).			
"	17	Up	iP	21 00 26.0	C
"	17	Um	iP	22 00 00.9	
			i	22 00 18.0	
		Central Asia.			
"	18	Um	iP	05 38 30.4	
"	18	Um	iP	09 00 16.5	
		Off coast of Jalisco, Mexico (h = 30 km).			
"	18	Ki	iP	17 31 01.7	
		Um	iP	17 31 06.6	
		Banda Sea (h = 210 km).			
"	18	Up	iPKP	20 18 46.2	
			ePP	20 21 31	
			iSKP	20 21 48.3	
			eSKKP	20 30 42	
		(cont.)			

1965 Nov.	18	(cont.)			
		Up	i	20 30 48.4	
				microns	sec
			SKP	Z' 0.3	1.0
		Ki	e(PKP)	20 18 30	
			iPKP	20 18 40.4	
			ipPKP	20 20 35.8	
			iSKP	20 21 23.5	
			iPKS	20 22 03	
			iSKS	20 25 08	
			eSKKP	20 31 08	
				microns	sec
			PKP	Z' 0.1	1.0
			SKP	Z 4.3	4
			SKP	Z' 3.2	2.5
		(D = 14450 km = 130°).			
		Sk	e(PKP)	20 18 40	
			iPKP	20 18 44.2	
			iSKP	20 21 40.7	
			i	20 21 45.4	
		Gb	iPKP	20 18 55	
			iSKP	20 21 59	
		Um	e(PKP)	20 18 34	
			iPKP	20 18 42.9	
			iPP	20 21 17.4	
			iSKP	20 21 36.0	
			isPKS	20 24 40	
			iSKSP	20 30 42	
			iSKKP	20 31 01.4	
			i	20 31 10.4	
		Ka	iPKP	20 18 55.0	
			iSKP	20 21 56.9	
		Fiji Islands (h = 420 km).			
"	18	Um	iP	22 00 53.6	
"	18	Up	iP	22 08 39.6	C
				microns	sec
			P	Z' 0.8	1.0
			M	E 2.5	19
			M	N 4.1	20
			M	Z 4.8	21
		Ki	i(P)	22 07 44.1	
			iP	22 07 46.0	C
				microns	sec
			P	Z' 0.5	0.9
			M	E 2.6	20
			M	N 2.5	17
			M	Z 1.2	16
		Sk	iP	22 08 22.5	C
		Gb	iP	22 09 00	C
		Um	i(P)	22 08 10.4	
			iP	22 08 11.5	C
			iPa	22 11 53	
		Ka	iP	22 09 03.7	C
		Kamchatka (h = 10 km).			
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Nov. 18 (cont.)
Magn. = 6.6 (Up,Ki).
(P) is a small but clear phase preceding the much greater P, at Ki and Um.

" 18 Up iP 22 19 41.0
i 22 19 54.4
Ki iP 22 18 50.8
Sk eP 22 19 18
i 22 19 30.3
Gb iP 22 20 08
Um iP 22 19 16.2
i 22 19 28.7
South of Alaska (h = 10 km).
The phase appearing about 13 sec after P at Up, Sk, Um, is larger than P.

" 18 Um iP 23 29 20.3

" 19 Sk ePKP 01 34 05
Kermadec Islands
(h = 25 km).

" 19 Up iP 07 25 16.1
microns sec
P Z' 0.2 1.0
Ki iP 07 24 25.1
i 07 24 29.1
microns sec
P Z' 0.1 1.0
Sk iP 07 25 03.9
Gb iP 07 25 35 D
Um iP 07 24 50.5
Kurile Islands (h = 15 km).
Magn. = 5.8 (Up,Ki).

" 19 Up ---
microns sec
M E 1.4 18
M N 2.6 21
M Z 2.9 22
Ki ---
microns sec
M E 2.1 21
M N 1.7 20
M Z 3.2 20
Sk iPKP 07 27 47.8
Um iPKP 07 27 40.4
Kermadec Islands
(h = 30 km).
Magn. = 6.1 (Up,Ki).

" 19 Sk iP 10 30 35.5

1965
Nov. 19 Up iP 15 22 49.3
microns sec
P Z' 0.1 0.8
Ki iP 15 21 56.5
Aleutian Islands
(h = 30 km).

" 19 Up eP 22 43 14
microns sec
M E 2.8 21
M N 3.9 21
Ki iP 22 42 47.5
microns sec
M E 0.8 17
M N 1.4 18
M Z 0.8 14
Um iP 22 43 00.1
i 22 43 15.9
Formosa (h = 10 km).

" 19 Up iP 22 56 00.7

" 20 Up iP 09 04 06.8
i 09 04 15.2
iX 09 04 19.4
iLgl 09 19 28
microns sec
M E 0.8 15
M N 1.3 5
M Z 1.2 15
Ki iP 09 03 49.6 C
iX 09 04 02.8
e 09 13 41
eLi 09 16 09
microns sec
P Z' 0.1 0.8
M E 0.8 13
M N 0.7 10
M Z 0.6 9
Um iP 09 03 50.7 C
iX 09 04 05.0
i 09 15 41
Sinkiang (h = 30 km).
Well developed higher-mode surface waves. The phase X appearing about 13 sec after P has larger amplitudes at all three stations than P has.

" 20 Up ---
microns sec
M E 0.6 17
M N 1.0 20
Ki iP 15 19 23.7
i 15 19 25.8
iSKS 15 29 51
(cont.)

Up = Uppsala, Ki = Kiruna. Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Nov. 20 (cont.)

Ki	iSS	15 38 21	
		microns	sec
	P	Z' 0.1	1.0
	M	E 0.8	19
	M	N 0.8	22
	M	Z 1.0	16
Sk	iPP	15 24 22.8	
Um	iP	15 19 28.0	
	e	15 24 42	
	iSKS	15 29 55	

Banda Sea (h = 130 km).

" 20

Ki	iP	16 19 15.8	
	ipP	16 19 31.8	
		microns	sec
	P	Z' 0.1	1.0
Sk	iP	16 19 33.6	

Sumatra.
h = 60 km (Ki).

" 21

Up	iP	03 12 20.0	
Ki	iP	03 11 40.7	
		microns	sec
	M	E 0.5	13
	M	N 0.4	13
Sk	iP	03 12 19.9	
Um	iSS	03 22 24	

Lake Baikal (h = 30 km).

" 21

Up	iP	05 04 52.6	C
	iPn	05 05 58.9	
	iPP	05 06 10.8	
		microns	sec
	P	Z' 0.1	0.5
	PP	Z' 0.1	1.0
Ki	iP	05 04 37.0	C
	iPP	05 05 36.9	
		microns	sec
	P	Z' 0.3	0.5
Sk	iP	05 05 08.2	C
	iPP	05 06 29.4	
Gb	iP	05 05 18	
	iPP	05 06 44	
Um	iP	05 04 37.4	C
	iPP	05 05 38.6	
Ka	iP	05 05 08.7	

Kazakh SSR.
Magn. = 6.1 (Up,Ki).
Underground explosion.

" 21

Up	iP	10 45 53.5	
	i	10 46 00.1	
	i	10 49 07.7	
	i	10 49 28.9	
	iPKP	10 50 08.1	

(cont.)

1965
Nov. 21 (cont.)

Up	iPP	10 50 25	
	i	10 57 11	
		microns	sec
	P	Z' 0.1	1.0
	PKP	Z' 0.2	1.3
	M	E 2.0	18
	M	N 6.0	24
	M	Z 3.2	20

(D = 11850 km = 106 1/2°).

Ki	iP	10 45 39.4	C
	iPKP	10 49 51.6	
	i	10 50 41	
	iSKS	10 56 05	
	iS	10 57 06	
		microns	sec
	P	Z' 0.4	1.0
	PKP	Z' 0.3	1.3
	SKS	E 2.0	6
	S	E 2.1	11
	S	N 1.4	12
	M	E 1.9	17
	M	N 2.9	24
	M	Z 3.6	18

(D = 11450 km = 103°).

Sk	iP	10 46 00.0	
	iPKP	10 50 19.0	
	iPP	10 50 34.6	
Gb	iP	10 46 10	
	iPP	10 50 47	
Um	iP	10 45 43.8	C
	ePKP	10 49 50	
	iSKS	10 56 10	
	i(S)	10 57 03	
	iSP	10 59 05	
	iPS	10 59 28	

Banda Sea (h = 90 km).
Magn. = 7.0 (Ki).

" 21

Sk	iP	22 17 28.5	
Gb	iP	22 17 21	

North Atlantic Ocean
(h = 30 km).

" 21

Sk	iP	22 47 46.6	

Windward Islands (h = 130 km)

" 21

Up	iP	22 55 55.3	
	i	22 56 13.3	

" 22

Ki	iP	00 13 37.1	C
	iS	00 15 24.7	
	i	00 15 41.0	

D = 1090 km = 9.8°.
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Nov. 22 (cont.)

	Um	iP	00 14 30.7
		i	00 14 40.1
		iS	00 17 12.3

Svalbard (h = 30 km).

" 22 Um iP 18 08 44.0

" 22 Um iPKP 19 27 27.5
Santa Cruz Islands
(h = 330 km).

" 22

	Up	iP	20 36 28.3
		i	20 36 48.1
		iS	20 45 25
		iPS	20 45 41

		microns	sec
P	Z'	1.3	1.0
S	E	0.4	5
M	E	3.1	20
M	N	3.6	22
M	Z	3.7	19

D = 7550 km = 68°.

	Ki	iP	20 35 35.4 C
		eS	20 43 47

		microns	sec
P	Z	0.8	7
P	Z'	0.5	1.5
S	N	0.6	8
M	E	2.6	20
M	N	2.7	19
M	Z	5.1	19

D = 6650 km = 60°.

	Sk	iP	20 36 08.5
	Um	iP	20 36 00.9 C
		iS	20 44 36
	Ka	iP	20 36 51.9

Aleutian Islands
(h = 40 km).
Magn. = 6.0 (Up,Ki).

" 22

	Up	iP	20 50 48.8
		i	20 50 50.2

		microns	sec
P	Z'	0.2	0.9

	Ki	iP	20 49 56.5 C
	Um	iP	20 50 21.5

Aleutian Islands (h = 15 km).

" 22 Um iP 21 04 49.1

" 22 Up iP 22 52 05.0 C

" 23 Up ---

	microns	sec
M	E 4.2	20

(cont.)

1965 Nov. 23 (cont.)

Up

	microns	sec
M	N 8.6	22
M	Z 3.4	21

Ki	eP	01 30 54
	eSKS	01 41 37

	microns	sec
SKS N	0.4	12
M E	2.9	21
M N	8.8	22
M Z	2.5	20

Um	iP	01 30 42.5
	eSKS	01 41 10
	iS	01 41 45

Celebes Sea (h = 50 km).
Magn. = 6.4 (Up,Ki).

" 23

	Up	iP	02 28 46.0
		ipP	02 28 59.1

		microns	sec
P	Z'	0.4	0.7
M	E	2.4	21
M	N	2.7	19
M	Z	2.3	18

	Ki	iP	02 27 53.7

		microns	sec
P	Z'	0.1	1.0
M	E	2.4	18
M	N	2.4	19
M	Z	4.6	19

	Sk	iP	02 28 25.5
	Um	iP	02 28 19.0 C
	Ka	iP	02 29 11.3

Aleutian Islands.
h = 50 km (Up).
Magn. = 5.9 (Up,Ki).

" 23 Up iP 11 58 44.2

" 23 Ki e(P) 12 18 08
Um iP 12 18 18.9 C

" 23

	Ki	iP	13 08 33.7
	Um	iP	13 08 23.6
		i	13 08 36.8

Azores Islands (h = 30 km).

" 23 Up iP 13 55 36.9

" 23

	Ki	iPn	16 32 08.8
		iSn	16 32 57.5
		iSg	16 33 13.3

D = 420 km = 3.8°.

	Um	iSg	16 34 44.2

Probably northwest Russia.
Origin time = 16 31 09.
Explosion?

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965						
Nov.	23	Up	iP	16 44 41.0	C	
		Ki	iP	16 44 36.0		
		Um	iP	16 44 35.8		
		Java (h = 100 km).				
"	24	Ki	iP	08 31 14.8	C	
		Alaska (h = 130 km).				
"	24	Up	eSn	10 19 40		
			iSg	10 19 55.5		
			i	10 20 00.6		
		Um	eSg	10 22 11		
		South Baltic.				
		Underwater explosion?				
"	24	Up	iP	13 02 30.3		
"	24	Up	iP	15 19 29.3		
		Ki	iP	15 19 32.3	C	
		Um	iP	15 19 27.0		
		Sumatra (h = 30 km).				
"	25	Up	iP	02 11 58.1		
		Ki	iP	02 12 55.1		
		Turkey (h = 40 km).				
"	25	Up	iP	06 32 07.8		
"	25	Up	iP	06 40 53.0		
			i	06 41 05.0		
"	25	Up	iP	11 54 45.9		
"	25	Up	eSKP	12 05 01		
		New Hebrides Islands				
		(h = 180 km).				
"	25	Ki	iP	12 38 07.5		
		Aleutian Islands				
		(h = 40 km).				
"	25	Up	iP	15 05 56.5		
"	25	Up	iPKP	16 55 50.6		
		Sk	iPKP	16 55 43.7		
		Um	iPKP	16 55 39.6		
		Kermadec Islands				
		(h = 30 km).				
"	25	Um	iPKP	22 53 16.4		
		New Ireland (h = 460 km).				
"	26	Up	iP	00 29 06.5		
			ipP	00 29 22.6		
		Ki	iP	00 28 30.4		
		(cont.)				

1965						
Nov.	26	(cont.)				
		Sk	eP	00 29 04		
		Um	iP	00 28 45.1		
			ipP	00 28 59.0		
		South of Japan.				
		h = 60 km (Up,Um).				
"	26	Up UPP	iSg	06 00 59.4		
		Ki	iPn	05 56 32.5		
		KIR	iSn	05 57 27.9		
			iSg	05 57 45.4		
			D = 510 km = 4.6°.			
		Sk	eSn	05 59 21		
		SKA	iSg	06 00 29.2		
		Um	iPn	05 56 58.7		
		UME	iSn	05 58 12.6		
			iSg	05 58 52.2		
			D = ~~710 km = 6.4°~~.			
		Northwest Russia,				
		67.9°N, 32.6°E.				
		Origin time = 05 55 20.				
		Explosion?				
"	26	Ki	eP	06 49 06		
		Sinkiang (h = 30 km).				
"	26	Up	iP	07 05 29.1	D	
				microns sec		
			P	Z' 0.1 0.6		
		Ki	eP	07 05 09		
		Um	iP	07 05 16.4	D	
		Szechwan (h = 30 km).				
"	26	Sk	iP	09 09 23.1		
		Aegean Sea.				
"	26	Um	eP	14 46 44		
"	27	Up	iP	03 16 14.4		
				microns sec		
			M	E 3.1 20		
			M	N 1.7 17		
		Ki	iP	03 15 39.4		
			iS	03 25 03		
				microns sec		
			S	E 0.6 10		
			M	E 3.3 20		
			M	N 3.3 19		
			M	Z 1.6 16		
			D = 8000 km = 72°.			
		Sk	eP	03 16 13		
		Um	iP	03 15 54.7		
			i	03 16 00.4		
		South of Japan (h = 60 km).				
"	27	Up	iP	08 11 43.1		

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Nov.	27	Up	iP	08 54 06.4	C
			microns	sec	
			P Z' 0.1	0.5	
		Ki	iP	08 53 30.5	C
			iPP	08 56 05.3	
			microns	sec	
			P Z' 0.1	0.8	
		Sk	iP	08 54 01.8	C
			iPP	08 56 47.4	
		Um	iP	08 53 45.8	C
		South of Japan (h = 70 km).			
		Magn. = 6.1 (Up,Ki).			
"	27	Up	iP	11 08 15.2	
		Ki	eP	11 09 18	
			i	11 09 45.2	
		South coast of Turkey			
		(h = 40 km).			
"	27	Up	iP	12 05 29.4	
			i	12 05 33.4	
			i	12 06 08.7	
"	27	Up	---		
			microns	sec	
			M E 1.4	24	
			M N 1.2	20	
			M Z 1.5	19	
		Ki	iPKP	12 20 29.9	
			e	12 31 11	
			microns	sec	
			M E 1.1	20	
			M N 0.8	19	
			M Z 1.3	18	
		Solomon Islands			
		(h = 50 km).			
"	28	Up	---		
			microns	sec	
			M E 9.4	22	
			M N 8.1	23	
			M Z 12	22	
		Ki	iPKP	04 15 59.7	
			iPKS	04 19 31	
			microns	sec	
			PKP Z' 0.4	2.0	
			PKS E 0.4	11	
			M E 3.7	18	
			M N 1.8	19	
			M Z 5.1	19	
		Um	iPKS	04 19 18	
			iSS	04 35 48	
		Chile (h = 30 km).			
		Magn. = 6.5 (Up,Ki).			

1965 Nov.	28	Up	iP	05 31 18.5	C
			ipP	05 31 47	
			iS	05 35 26	
			iPcS	05 38 26.1	
			iScS	05 42 11.3	
			microns	sec	
			P E 0.9	3	
			P N 2.9	3	
			P Z 3.7	3	
			P Z' 0.7	0.5	
			S E 2.2	7	
			S N 5.7	4	
			M E 9.0	19	
			M N 11	18	
			M Z 11	18	
			D = 2650 km = 24°.		
		Ki	iP	05 32 25.1	C
			iPP	05 33 13	
			iS	05 37 29	
			i	05 38 19	
			iPcS	05 38 49.2	
			iX	05 39 26.4	
			microns	sec	
			P Z 1.2	6	
			P Z' 1.3	0.5	
			S N 1.7	9	
			M E 6.0	16	
			M N 2.2	10	
			M Z 2.0	9	
			D = 3450 km = 31°.		
		Sk	iP	05 31 58.1	C
			iPcS	05 38 38.0	
			iX	05 39 19.5	
		Gb	iP	05 31 12	C
			iPcS	05 38 24	
		Um	iP	05 31 49.5	C
			iPP	05 32 19.4	
			i	05 35 36	
			iPcS	05 38 36.4	
			iX	05 39 10.5	
		Ka	iP	05 30 47.6	C
			iS	05 34 40.9	
			iPcS	05 38 18.5	
		Dodecanese Islands.			
		h = 140 km (Up).			
		Magn. = 6.5 (Up,Ki).			
		Exceptionally strong PcS-			
		phases are recorded on Z'.			
"	28	Up	iPKP	13 11 03.0	
			microns	sec	
			PKP Z' 0.1	1.0	
		Sk	iPKP	13 10 55.9	
		Gb	iPKP	13 11 12.3	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Nov. 28 (cont.)
Gb i 13 11 21.6
Um iPKP 13 10 51.3 C
Kermadec Islands (h = 40 km).

" 28 Up iP 21 44 47.2
Ki iP 21 44 46.3 C
i 21 44 58.2
microns sec
P Z' 0.2 1.0
Sk iP 21 45 00.0
Um iP 21 44 43.8 C
Sumatra (h = 90 km).

" 29 Up iP 09 10 47.9
microns sec
P Z' 0.1 0.7
Ki iP 09 10 01.8
microns sec
P Z' 0.1 1.0
Sk eP 09 10 38
Um iP 09 10 22.4 C
Kurile Islands (h = 150 km).
Magn. = 5.7 (Up,Ki).

" 29 Up iP 14 29 37.6

" 30 Sk eP 09 01 20
North Atlantic Ocean
(h = 30 km).

Markus Båth
June 10, 1966

Seismological Institute
Uppsala

S E I S M O L O G I C A L B U L L E T I N

U P P S A L A, K I R U N A, S K A L S T U G A N, G Ö T E B O R G,

U M E Å and K A R L S K R O N A

Uppsala	(Up):	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(Ki):	67°50.4'N,	20°25.0'E;	h = 390 m
Skalstugan	(Sk):	63°34.8'N,	12°16.8'E;	h = 580 m
Göteborg	(Gb):	57°41.9'N,	11°58.7'E;	h = 66 m
Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
Karlskrona	(Ka):	56°09.9'N,	15°35.5'E;	h = 11 m

D E C E M B E R 1 - 31, 1965

1965 Dec.	1	Up	iPKP	05 18 50.5	D
		Kermadec Islands (h = 110 km).			
"	1	Ki	iP	07 36 23.7	
		Aleutian Islands (h = 30 km).			
"	1	Up	iP	10 37 05.8	
		Ki	iP	10 38 14.5	
		Sk	iP	10 37 33.8	
		Um	iP	10 37 44.2	
		Algeria. Underground explosion.			
"	1	Um	iP	12 50 10.8	C
		Japan (h = 130 km).			
"	1	Ki	iP	12 54 13.2	
"	1	Up	eP	14 31 30	
		New Guinea (h = 30 km).			
"	2	Ki	iP	02 07 28.1	
			iT	02 12 43.2	
			i	02 13 30.3	
		Sk	eP	02 08 12	
			eS	02 10 02	
		Um	iP	02 08 19.2	
		Norwegian Sea (h = 30 km).			
"	2	Up	iP	02 56 34.2	
			i	02 56 43.1	
"	2	Up	iP	06 09 40.3	
				microns	sec
			P	Z' 0.1	1.0
		(cont.)			

1965 Dec.	2	(cont.)			
		Ki	iP	06 08 46.1	
		Sk	iP	06 09 18.0	
		Um	iP	06 09 12.9	
		Aleutian Islands (h = 15 km).			
"	2	Up	iS	06 55 19	
				microns	sec
			S	N 0.8	7
			M	E 0.6	17
			M	N 0.9	15
			M	Z 0.9	12
		Turkey (h = 40 km).			
"	2	Ka	iPg	08 30 16.7	
			iSg	08 30 38.0	
"	2	Ka	iPg	08 46 35.1	
			iSg	08 46 55.9	
"	2	Ka	iPg	09 06 15.0	
			iSg	09 06 35.9	
		This and the preceding two events are probably underwater explosions in the South Baltic. There are more similar events the same day, not reported here.			
"	2	Um	iP	13 20 39.5	
"	2	Up	iSg	13 51 25.2	
		Gb	iPg	13 49 30.3	
			iSg	13 49 35.5	
		Ka	iSg	13 50 52.4	
		West coast of Sweden. Explosion?			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Dec. 3 Up iP 03 17 53.3
Um iP 03 17 27.3 C
Aleutian Islands
(h = 30 km).

" 3 Ki iP 07 18 16.8
Sk iP 07 18 31.5
Um iP 07 18 14.3
Sumatra (h = 20 km).

" 3 Sk iSg 10 07 40.9

" 3 Up iP 15 24 50.6 C
microns sec
P Z' 0.1 0.5
Ki iP 15 24 16.1 C
Sk iP 15 24 24.4 C
Um iP 15 24 35.7 C
Nevada.
Origin time = 15 11 00.
Probably underground explosion.

" 3 Up iPKP 18 26 30.4
i 18 26 34.7
Sk iPKP 18 26 24.7
Um iPKP 18 26 18.8
Kermadec Islands
(h = 30 km).

" 3 Up iP 21 25 12.6 C
ipP 21 25 21.2
iPP 21 26 52.3
microns sec
P Z' 0.1 0.6
pP Z' 0.6 1.0
PP Z' 0.2 1.0
M E 1.4 15
M N 1.7 14
M Z 2.4 15
Ki eP 21 25 23
i 21 25 30.0
ipP 21 25 33.1
microns sec
pP Z' 0.3 1.1
M E 1.3 13
M N 0.8 12
M Z 1.3 12
Sk iP 21 25 39.2
ipP 21 25 49.3
iPP 21 27 23.9
Gb iP 21 25 33.7
ipP 21 25 43.6
iPP 21 27 20.8
Um iP 21 25 11.6
ipP 21 25 21.8
i 21 26 23.5
(cont.)

1965
Dec. 3 (cont.)
Ka iP 21 25 16.2
ipP 21 25 26.5
Hindu Kush.
h = 45 km (Up,Ki,Sk,Gb,Um,Ka).
Magn. = 6.0 (Up).
The amplitude on Z' of pP is 6-7 times the amplitude of P. Interpretation in terms of a multiple shock is excluded by the fact that PP does not show multiplicity and that it fits with the readings of P.

" 4 Up iP 02 22 56.1 D
i 02 23 00.3
microns sec
P Z' 0.2 0.8
Ki iP 02 22 03.9
ipP 02 22 17.6
microns sec
P Z' 0.2 0.7
Sk iP 02 22 34.1 D
Gb iP 02 23 11.1 D
ipP 02 23 25.9
Um iP 02 22 29.6
Ka eP 02 23 18
ipP 02 23 33.5
Aleutian Islands.
h = 60 km (Ki,Gb,Ka).
Magn. = 6.2 (Up,Ki).

" 4 Um iP 10 39 30.6

" 4 Sk e(P) 10 41 59

" 4 Up e(P) 10 54 58
e 10 56 59

" 4 Up iP 11 59 38.6

" 4 Up iP 16 45 32.7
microns sec
M N 0.7 12
M Z 1.2 15
Ki iP 16 46 38.8
microns sec
M E 1.2 18
M N 1.1 14
M Z 1.0 14
Sk iP 16 46 10.9
Um iP 16 46 04.5
Ka iP 16 44 59.6
Crete (h = 20 km).

" 5 Up iP 03 56 13.4
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Dec. 5 (cont.)

Ki	iP	03 57 15.0	
Um	iP	03 56 47.5	

Morocco (h = 30 km).

" 5

Up	iP	16 42 52.2	
	ipP	16 42 57.4	
		microns	sec
	M N	2.3	22
Ki	eP	16 42 28	
	ipP	16 42 33.4	
Sk	iP	16 42 49.3	
Um	eP	16 42 35	
	ipP	16 42 41.8	

Formosa.
h = 25 km (Up,Ki,Um).

" 5

Up	iP	18 25 35.3 C	
		microns	sec
	P Z'	0.7	1.0
	M N	1.2	20
	M Z	1.3	17
Ki	iP	18 24 41.6 C	
		microns	sec
	P Z'	0.5	1.0
	M E	0.8	17
	M N	1.3	20
	M Z	2.5	20
Sk	iP	18 25 15.8 C	
	i	18 25 21.4	
Gb	iP	18 25 53.3 C	
Um	iP	18 25 07.4 C	
Ka	iP	18 25 59.1 C	
	i	18 26 12.1	

Aleutian Islands
(h = 40 km).
The magnitude from P(Z') is 6.5, but from surface waves only 5.5 (Up,Ki).

" 5

Up	iP	22 11 59.6 C	
	ipP	22 12 24.3	
		microns	sec
	pP Z'	0.1	0.7
Ki	iP	22 11 53.7 C	
Sk	iP	22 12 15.2 C	
	ipP	22 12 41.0	
Um	iP	22 11 52.3 C	
	ipP	22 12 18.6	
Ka	iP	22 12 08.7	

Burma-India.
h = 100 km (Up,Sk,Um).
This interpretation (of pP and focal depth) is confirmed by readings at Finnish stations and at Ljubljana.

1965
Dec. 6

Ki	iP	00 33 56.0 C	
Um	iP	00 34 16.1	

Unimak Island (h = 110 km).

" 6

Up	iP	01 33 37.4	
Ki	iP	01 32 44.6	
Sk	eP	01 33 18	
Um	iP	01 33 10.4	

Aleutian Islands
(h = 40 km).

" 6

Up	iP	08 05 03.9	
		microns	sec
	P Z'	0.1	0.8
Ki	iP	08 04 23.1	
		microns	sec
	P Z'	0.1	1.0
Sk	iP	08 04 58.8 C	
Gb	iP	08 05 26.9 C	
Um	iP	08 04 40.4 C	

Sikhota-Alin (h = 350 km).
Magn. = 5.4 (Up,Ki).

" 6

Up	i(S)	11 58 47	
		microns	sec
	(S) N	2.8	8
	M E	18	19
	M N	18	19
	M Z	24	19
Ki	iP	11 47 33.3	
	i	11 47 50	
	eSKS	11 58 04	
	eSa	12 09 45	
		microns	sec
	P Z	1.4	5
	P Z'	1.0	2.5
	SKS E	5.0	9
	SKS N	5.8	9
	M E	25	19
	M N	19	22
	M Z	27	20
	(D = 9550 km = 86°).		
Sk	eP	11 47 35	
Um	iP	11 47 44.6	
	iSKS	11 58 15	
	iSS	12 04 08	

Off coast of Jalisco, Mexico (h = 40 km).
Magn. = 6.6 (Up,Ki).

" 6

Up	---		
		microns	sec
	M E	1.7	18
	M N	1.9	19
	M Z	4.2	25

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Dec.	6	(cont.)			
		Ki		---	
				microns	sec
			M	E 2.4	19
			M	N 2.0	22
			M	Z 2.3	19
		Um	e(S)	19 06 21	
			iSS	19 12 00	
		Off coast of Jalisco, Mexico (h = 40 km). Magn. = 5.8 (Up,Ki).			
"	6	Up	iP	22 00 42.2	
		Ki	iP	21 59 49.5	
		Sk	iP	22 00 17.5	
		Um	iP	22 00 17.7	
		Kodiak Island (h = 25 km).			
"	7	Up	iP	00 36 51.1	
		Ki	iP	00 36 58.8	
		Um	iP	00 36 46.9	
		Hindu Kush (h = 230 km).			
"	7	Up	i(P)	03 00 35.8	
"	7	Um	iPKP	08 46 42.4	D
		New Zealand (h = 140 km).			
"	7	Up		---	
				microns	sec
			M	E 0.6	15
			M	N 1.1	19
		Ki	iP	14 58 21.6	
				microns	sec
			M	E 0.9	12
			M	N 1.1	14
		Sk	iP	14 58 42.0	
		Um	iP	14 58 13.5	
		Tadzhik-Sinkiang (h = 30 km).			
"	7	Up	eP	17 01 12	
"	7	Up	iPKP	22 37 41.4	
				microns	sec
			M	E 0.7	18
			M	N 1.4	18
		Ki	iPKP	22 37 27.3	
		Sk	iPKP	22 37 42.0	
		Um	iPKP	22 37 35.8	
		New Guinea (h = 110 km).			
"	8	Up	i(P)	10 16 31.8	
		Gb	i(P)	10 16 41.4	
"	8	Gb	iP	12 19 46.7	

1965 Dec.	8	Um	eP	16 47 21	
"	8	Up	iPKP	18 25 02.7	C
			i	18 25 16.6	
				microns	sec
			PKP Z'	0.1	0.8
		Ki	iPKP	18 24 43.6	C
			i	18 25 05.9	
			i	18 25 32.9	
				microns	sec
			PKP Z'	0.4	0.9
		Sk	i(PKP)	18 24 52.4	
			iPKP	18 24 59.4	
		Gb	iPKP	18 25 31.6	
		Um	i(PKP)	18 24 48.8	
			iPKP	18 24 54.3	
		Ka	iPKP	18 25 31.3	
			i(pPKP)	18 26 02.8	
		New Zealand (h = 170 km).			
"	8	Um	iP	18 34 33.5	
"	9	Up	eP	06 20 34	C
			iPP	06 23 58	
			i	06 25 11	
			iS	06 31 13	
				microns	sec
			P Z	3.3	15
			PP E	0.8	4
			PP N	0.5	4
			S E	3.6	16
			S N	2.7	15
			M E	10	22
			M N	6.9	19
			M Z	17	23
			D = 9700 km = 87 1/2°.		
		Ki	iP	06 20 18.6	C
			iPP	06 23 33.9	
			iS	06 30 46	
			iScS	06 30 57	
				microns	sec
			P E	1.0	12
			P Z	3.5	10
			P Z'	1.5	2.5
			PP E	1.9	14
			PP Z	2.9	13
			PP Z'	1.0	2.5
			M E	16	22
			M N	7.6	22
			M Z	23	22
			D = 9400 km = 84 1/2°.		
		Sk	iP	06 20 16.0	C
			ipP	06 20 28.9	
		Gb	iP	06 20 28.1	C
			i	06 22 07.5	
		Um	iP	06 20 28.6	C
			ipP	06 20 41.8	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Dec.	9	(cont.)			
		Um	iPP	06 23 52.0	
			i	06 30 14	
		Ka	iP	06 20 36.8	C
		Mexico.			
		h = 50 km (Sk,Um).			
		Magn. = 6.7 (Up,Ki).			
		The records have throughout a consistently long-period character, as is frequently found for Mexican earthquakes.			
"	9	Um	eP	12 33 18	
"	9	Ki	iPKP	13 30 50.7	C
			iSKP	13 33 14.8	
				microns sec	
			PKP Z'	0.1 1.3	
			SKP Z'	0.2 1.3	
		Sk	iPKP	13 31 00.9	
			iSKP	13 33 32.1	
		Um	iPKP	13 30 56.8	
			iSKP	13 33 26.8	
		Fiji Islands (h = 650 km).			
"	9	Um	iPKP	13 43 41.8	
		Fiji Islands (h = 650 km).			
"	9	Up	iSg	14 01 32.7	
		Gb	iPg	13 59 37.5	
			iSg	13 59 43.1	
		Ka	eSg	14 00 59	
		West coast of Sweden.			
		Explosion?			
		Compare Dec. 2.			
"	9	Up	iP	20 36 04.9	C
			ipP	20 36 21.0	
				microns sec	
			P Z'	0.3 0.9	
		Ki	iP	20 35 57.8	C
			ipP	20 36 14.7	
		Sk	iP	20 36 21.0	C
		Gb	iP	20 36 25.8	
		Um	iP	20 35 56.5	C
			ipP	20 36 11.0	
		Ka	iP	20 36 13.8	C
		India-China.			
		h = 60 km (Up,Ki,Um).			
"	10	Up	---		
			microns sec		
			M E	1.7 22	
			M N	2.3 22	
			M Z	2.9 22	
		(cont.)			

1965 Dec.	10	(cont.)			
		Ki	iPKP	22 12 01.1	
				microns sec	
			M E	2.2 24	
			M N	1.0 22	
			M Z	2.2 2.3	
		Sk	iPKP	22 12 11.6	
		Um	iPKP	22 12 07.5	
		Santa Cruz Islands			
		(h = 60 km).			
"	11	Up	iP	19 17 31.4	D
		Ki	iP	19 17 38.6	
		Um	iP	19 17 29.1	
		Hindu Kush (h = 240 km).			
"	11	Up	iPKP	22 59 38.2	
			i	22 59 48.7	
		Ki	iPKP	22 59 17.1	
		Sk	iPKP	22 59 33.4	
		Um	iPKP	22 59 27.3	
		South of Kermadec Islands			
		(h = 30 km).			
"	12	Up	iP	00 58 59.0	
		Ki	iP	00 58 05.8	
		Aleutian Islands			
		(h = 50 km).			
"	12	Ki	iP	03 38 51.3	
"	12	Up	iPKP	07 40 33.0	
			i	07 40 39.9	
		Gb	iPKP	07 40 41.5	
		Kermadec Islands			
		(h = 10 km).			
"	12	Um	iP	09 34 20.6	
"	12	Up	iP	10 34 35.4	C
		Ki	eP	10 34 42	
		Sk	iP	10 35 17.4	
		Um	iP	10 34 32.7	
		Ka	iP	10 34 39.3	
			i	10 35 06.4	
		Hindu Kush (h = 80 km).			
"	12	Up	iP	13 45 26.5	
		Ki	iP	13 44 33.1	C
			ipP	13 44 46.2	
		Sk	iP	13 45 06.7	
		Um	iP	13 44 59.0	C
		Aleutian Islands.			
		h = 50 km (Ki).			
"	12	Gb	iPKP	16 59 49.7	
		Tonga Islands (h = 30 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Dec.	12	Up	iP	19 34 56.2	C
			iPcP	19 35 26.3	
			microns	sec	
			P Z' 0.1	0.5	
		Ki	iP	19 34 07.2	
			microns	sec	
			P Z' 0.1	1.0	
		Sk	iP	19 34 43.6	C
		Gb	iP	19 35 17.0	C
		Um	iP	19 34 28.9	
			iPcP	19 35 09.4	
		Ka	iP	19 35 18.3	
		Okhotsk Sea (h = 440 km).			
		Magn. = 5.6 (Up,Ki).			
"	13	Gb	iPKP	03 32 43.8	
		Um	iSKP	03 35 13.5	
		South of Fiji Islands			
		(h = 510 km).			
"	13	Up	iP	05 09 24.9	
		Ki	iP	05 08 31.4	
		Sk	iP	05 09 05.1	
		Um	iP	05 08 56.8	
		Aleutian Islands			
		(h = 30 km).			
"	13	Up	iP	05 14 20.4	
		Ki	iP	05 14 59.7	
			iPP	05 16 40.8	
		Um	iP	05 14 34.8	
		Iran (h = 30 km).			
"	13	Up	iP	05 56 16.6	C
			i	05 56 29.5	
			microns	sec	
			M E 1.0	20	
			M N 1.5	19	
			M Z 1.5	19	
		Ki	iP	05 55 29.7	C
			microns	sec	
			M E 1.0	16	
			M N 0.6	15	
			M Z 1.1	17	
		Gb	iP	05 56 36.8	
		Um	iP	05 55 50.7	C
		Ka	iP	05 56 38.9	
		Kurile Islands (h = 30 km).			
"	13	Up	iP	11 03 09.8	C
			ipP	11 03 23.4	
			i	11 08 34.1	
			eS	11 12 20	
			microns	sec	
			P Z' 0.8	2.0	
			M E 5.4	19	
		(cont.)			

1965 Dec.	13	(cont.)			
		Up	microns	sec	
			M N 9.1	18	
			M Z 7.5	18	
			D = 7600 km = 68 1/2°.		
		Ki	iP	11 02 23.0	C
			ipP	11 02 33.4	
			eS	11 10 30	
			ePS	11 10 53	
			iScS	11 12 16	
			microns	sec	
			P Z 0.8	7	
			P Z' 0.2	1.2	
			S N 0.5	12	
			M E 4.7	19	
			M N 7.3	21	
			M Z 8.1	18	
			D = 6800 km = 61°.		
		Sk	iP	11 02 58.8	C
			iPP	11 05 23.7	
		Gb	iP	11 03 30.9	C
			ipP	11 03 43.1	
		Um	iP	11 02 44.2	C
			ipP	11 02 55.6	
			iPP	11 05 01	
			iPa	11 06 57	
			iS	11 11 23	
		Ka	iP	11 03 31.9	C
			ipP	11 03 43.0	
		Kurile Islands.			
		h = 45 km (Up,Ki,Gb,Um,Ka).			
		Magn. = 6.2 (Up,Ki).			
"	13	Up	iP	14 57 12.0	
			iS	15 06 10	
			microns	sec	
			M E 2.5	19	
			M N 4.7	18	
			M Z 3.4	18	
			D = 7600 km = 68 1/2°.		
		Ki	iP	14 56 25.4	
			microns	sec	
			M E 3.2	22	
			M N 3.7	21	
			M Z 3.1	18	
		Sk	eP	14 57 00	
		Gb	iP	14 57 32.3	
		Um	iP	14 56 46.4	
			iS	15 05 33	
		Ka	iP	14 57 34.0	
		Kurile Islands			
		(h = 30 km).			
		Magn. = 5.8 (Up,Ki).			
"	13	Up	iPKP	15 27 00.3	
		Ki	iPKP	15 27 15.5	
			i	15 27 45.8	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Dec. 13 (cont.)

	Ki	microns sec	
		PKP Z' 0.2 1.5	
	Sk	iPKP	15 27 05.2
	Um	iPKP	15 27 07.8

South Sandwich Islands
(h = 160 km).

" 13	Ka	eP	16 46 44
" 13	Um	iP	16 49 40.0 D
" 13	Sk	iPKP	17 08 12.9
	Um	iPKP	17 08 08.0
		i	17 09 19.8

New Hebrides Islands
(h = 640 km).

" 13	Up	eP	17 48 38
	Sk	iP	17 49 22.3
	Um	iP	17 49 20.2
	Ka	iP	17 47 59.7

Albania (h = 30 km).

" 13	Um	iP	18 04 07.4
" 13	Up	iP	22 48 35.3
	Ki	iP	22 47 52.7
	Um	iP	22 48 13.5 C

Kurile Islands
(h = 30 km).

" 13	Ki	iP	22 56 35.9 C
	Um	iP	22 56 57.5

Kurile Islands
(h = 30 km).

" 13	Up	iP	23 04 18.4 C
		microns sec	
		M E 1.0 17	
		M N 1.7 21	
		M Z 1.7 18	
	Ki	iP	23 03 32.4
		microns sec	
		M E 1.4 22	
		M N 1.3 20	
		M Z 1.6 16	
	Sk	eP	23 04 08
	Um	iP	23 03 53.2

Kurile Islands
(h = 30 km).
Magn. = 5.5 (Up,Ki).

" 14	Up	iP	00 15 03.3 C
	Ki	iP	00 14 28.2 C
	Sk	iP	00 14 59.5

(cont.)

1965
Dec. 14 (cont.)

	Um	iP	00 14 43.2 C

Japan (h = 360 km).

" 14	Ki	iP	05 00 43.9
	Um	iP	05 00 51.6
" 14	Ki	iPKP	05 52 58.1

South Sandwich Islands
(h = 110 km).

" 14	~~Up~~	~~i(Lgl)~~	~~08 19 54.8~~
	~~Sk~~	~~eLgl~~	~~08 21 08~~
	Gb	iPg	08 17 53.4
		iSg	08 18 10.6
		~~D = 160 km = 1.4°.~~	
	~~Um~~	~~iLgl~~	~~08 22 02.8~~
	Ka	iPg	08 18 17.0
		iSg	08 18 53.6
		~~D = 310 km = 2.8°.~~	

GOT
KLS

Jutland, Denmark,
56.5°N, 10.6°E.
Origin time = 08 17 26.
Explosion?

" 14	Sk	iP	08 30 32.3
" 14	Um	iP	14 33 16.1
		iPP	14 36 36.1

Guatemala (h = 280 km).

" 14	Ki	iP	17 39 09.9
	Um	iP	17 39 22.1 C

Gulf of California
(h = 30 km).

" 14	Ki	iP	18 03 31.3
	Um	iP	18 04 00.5

Alaska (h = 110 km).

" 14	Sk	iP	20 14 17.9
	Um	iP	20 14 06.5 C
	Ka	iP	20 14 59.6

Kamchatka (h = 50 km).

" 14	Up	iP	20 27 44.7
" 15	Um	iP	02 37 28.0

Atlantic Ocean (h = 30 km).

" 15	Up	iP	04 54 14.2
		i	04 54 26.2
		ipP	04 54 37.8
		microns sec	
		pP Z' 0.2 0.7	
	Ki	iP	04 54 09.2

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Dec.	15	(cont.)			
		Ki	i	04 54 21.4	
			ipP	04 54 32.1	
		Sk	iP	04 54 29.9	
			ipP	04 54 53.2	
		Gb	iP	04 54 57.3	
		Um	iP	04 54 07.3	C
			ipP	04 54 30.0	
		Ka	iP	04 54 21.8	C
			ipP	04 54 45.9	
		Burma.			
		h = 90 km (Up,Ki,Sk,Um,Ka).			
"	15	Up	iP	10 10 07.3	
"	15	Um	iP	10 31 07.1	
		Kurile Islands			
		(h = 30 km).			
"	15	Ki	iP	10 32 32.7	
			microns	sec	
			M N	0.7	21
			M Z	0.9	17
		Um	iP	10 33 04.4	
		Kurile Islands			
		(h = 70 km).			
"	15	Gb	iS	12 10 52.6	
		Ka	i(P)	12 09 31.4	
		Belgium (h = 10 km).			
"	15	Up	eL	13 30	
			microns	sec	
			M N	1.8	22
			M Z	1.9	20
		Ki	eL	13 30	
			microns	sec	
			M E	0.8	21
			M N	0.7	21
			M Z	1.6	20
		South Pacific Ocean			
		(h = 30 km).			
"	15	Up	iP	17 43 16.5	C
		Um	iP	17 42 57.4	
		South of Japan			
		(h = 440 km)			
"	15	Um	iPKP2	19 41 02.9	
		South Pacific Ocean			
		(h = 30 km).			
"	15	Up	iP	21 02 59.6	
		Ki	e	21 08 57	
			iSn	21 09 16.9	
		Sk	iSn	21 09 36.6	
		(cont.)			

1965 Dec.	15	(cont.)			
		Um	iP	21 03 02.3	
			i	21 03 31.0	
			eS	21 07 51	
		Caucasus.			
"	15	Up	eP	23 18 14	C
			iX	23 18 22	
			iS	23 28 54	
			microns	sec	
			P Z'	0.6	2.0
			S E	1.1	6
			S N	4.1	9
			M E	7.7	21
			M N	11	24
			M Z	10	21
			D = 9900 km = 89°.		
		Ki	iP	23 18 13.8	C
			i	23 18 47.9	
			iY	23 21 36.6	
			eSKS	23 28 41	
			iS	23 28 52	
			microns	sec	
			P E	1.1	5
			P Z	2.0	5
			P Z'	1.0	2.0
			SKS E	2.6	11
			S N	4.3	9
			M E	6.3	22
			M N	4.4	18
			M Z	7.1	18
			D = 9900 km = 89°.		
		Sk	iP	23 17 59.7	
		Gb	iP	23 18 00.2	
			iX	23 18 08.9	
		Um	iP	23 18 14.0	
			i	23 20 53	
			iY	23 21 37	
			iPP	23 21 51.9	
			i	23 28 19	
			iS	23 28 51	
		Ka	iP	23 18 13.7	C
			iX	23 18 22.8	
		South of Panama			
		(h = 15 km).			
		Magn. = 6.6 (Up,Ki).			
"	15	Up	iP	23 48 32.1	
"	16	Up	iP	01 49 49.6	
"	16	Up	iP	02 18 59.7	
"	16	Up	i(P)	18 18 53.7	
"	16	Up	iP	19 26 48.9	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Dec. 16 (cont.)

Up		microns	sec
	P	Z' 0.2	1.3
Ki	iP	19 26 14.8	
Sk	eP	19 26 23	
Gb	iP	19 26 50.4	
Um	iP	19 26 34.3	

Nevada.
Origin time = 19 15 00.
Probably underground explosion.
P(Z') has distinctly longer periods in this case than in the corresponding event on Dec. 3 (1.3 sec now compared to 0.5 sec on Dec. 3).

" 16 Um iP 20 29 07.4
Aleutian Islands
(h = 25 km).

" 16

Up	i(PKP)	23 24 48.9	
	iSKP	23 27 43.2	
		microns	sec
	SKP	Z' 0.1	1.0
Ki	iPKP	23 24 45.0	
	iSKP	23 27 17.0	
Sk	i(PKP)	23 24 44.8	
	i	23 27 23.1	
	iSKP	23 27 34.6	
Gb	iPKP	23 24 58.0	
	iSKP	23 27 52.4	
Um	i(PKP)	23 24 43.6	
	iPKP	23 24 51.9	
	iSKP	23 27 30.5	
Ka	iPKP	23 25 00.0	

Fiji Islands (h = 570 km).

" 17 Up iP 13 08 21.3

" 17 Up iP 20 37 43.7

" 17

Up	iPKP	21 38 24.3	
		microns	sec
	PKP	Z' 0.1	0.6
Sk	iPKP	21 38 16.9	
Um	iPKP	21 38 13.7	

Kermadec Islands
(h = 160 km).

" 18

Up	iP	08 41 47.8	
		microns	sec
	P	Z' 0.1	0.5
Ki	iP	08 41 00.8	
	iPcP	08 41 40.4	
Sk	iP	08 41 35.9	

(cont.)

1965
Dec. 18 (cont.)

Gb	iP	08 42 08.8
Um	iP	08 41 22.4
Ka	iP	08 42 10.3 D

Kurile Islands
(h = 30 km).

" 18

Up	iP	09 26 13.4
	i	09 27 16.2
Ki	iP	09 27 29.7
Sk	iP	09 26 56.0
Um	iP	09 26 58.3

Italy.

" 18

Up	iP	13 31 25.8	
	ipP	13 31 39.4	
Ki	iP	13 30 38.4	
		microns	sec
	M	E 1.5	20
	M	N 1.1	18
	M	Z 1.4	17
Um	iP	13 31 00.8	
	ipP	13 31 15.4	

Kurile Islands.
h = 60 km (Up,Um).

" 18 Ki iP 18 17 57.7
Aleutian Islands
(h = 30 km).

" 18

Ki	iPn	18 45 18.2	C
	iSn	18 46 06.9	
	iSg	18 46 22.3	
	D = 420 km = 3.8°.		
Um	iSg	18 47 52.3	

Probably northwest Russia.
Origin time = 18 44 18.
Explosion?

" 19 Up iP 05 19 50.9

" 19

Um	iP	05 26 47.7	C
Ka	iP	05 28 06.5	

Greenland Sea (h = 30 km).

" 19

Ki	iSn	07 56 16.2
	iSg	07 56 31.1
Um	iSg	07 57 26.6

Northwest Russia?
Explosion?

" 19 Um iP 14 36 35.3 D
Hindu Kush.

" 19

Ki	iP	19 28 43.7
Um	iP	19 28 54.7

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Dec. 19 (cont.)

	Um	i	19 29 05.1

Mariana Islands
(h = 30 km).

" 20	Up	iP1	00 12 47.1 C
		iP2	00 12 51.2
		iPP	00 13 03.4
		iS	00 16 23
		iL(3.26)	00 19 36
		i	00 19 50

		microns	sec
P2	Z'	0.4	1.5
S	E	3.7	10
M	E	31	11
M	N	26	11
M	Z	17	11

D = 2200 km = 20°.

	Ki	iP1	00 14 03.0
		iP2	00 14 05.5
		i	00 19 06
		i	00 20 28
		iLg1	00 23 20.4
		iLg2	00 23 39
		iL(3.24)	00 24 15

		microns	sec
P2	Z'	0.3	1.5
M	E	55	13
M	N	19	14
M	Z	25	14

	Sk	iP1	00 13 32.7
		iP2	00 13 36.3
	Gb	iP	00 12 41.0
	Um	iP1	00 13 25.9
		iP2	00 13 29.2
		iS	00 17 38
	Ka	iP1	00 12 10.4
		iP2	00 12 15.1

Aegean Sea (h = 30 km).
Magn. = 5.6 (Up, Ki).
The P-phase is multiple, as usually found for earthquakes in this region. The amplitude of P2 is much larger than for P1, and the time difference P2 - P1 exhibits a clear decrease with increasing distance (from 4.7 sec at Ka, 18°, to 2.5 sec at Ki, 28°). This seems to exclude a multiple shock as the reason, but rather suggests path effects.

"	20	Up	eP	00 35 32
		Um	eP	00 36 16

Aegean Sea.

1965
Dec. 20

	Up	iP	20 42 42.6
" 21	Up	iP	00 42 25.5
	Ki	iP	00 41 32.2
	Sk	eP	00 42 08
	Gb	iP	00 42 46.4 C
	Um	iP	00 41 57.5
		iPcP	00 42 43.9

Kamchatka (h = 70 km).

" 21	Up	i(P)	05 51 13.7
" 21	Gb	iP	07 50 08.3
" 21	Ki	eP	08 53 31
		ipP	08 53 39.8
	Sk	iP	08 53 26.2
		ipP	08 53 36.6
	Um	iP	08 53 40.6
		ipP	08 53 50.6

Mexico.
h = 40 km (Ki,Sk,Um).

" 21	Up	iS	10 05 16.3
	Gb	iS	10 03 22.6
	Um	iP	10 03 42.2
	Ka	iP	10 01 59.2
		iS	10 03 28.8

Belgium (h = 30 km).

" 21	Up	iPKP	10 57 34.0
		i	10 57 38.0

	microns	sec
PKP	Z' 0.2	1.0

	Ki	iPKP	10 57 07.6
	Sk	iPKP	10 57 26.9
	Gb	iPKP	10 57 41.9 D
		i	10 57 50.8
	Um	iPKP	10 57 21.5 D
	Ka	iPKP	10 57 42.9
		i	10 57 53.1

Kermadec Islands (h = 290 km).

"	21	Sk	iP	16 10 16.9
		Um	iP	16 10 15.9 D
		Ka	iP	16 08 53.5
"	22	Up	iP	00 39 22.9
			ipP	00 39 33
			iS	00 48 06

		microns	sec
P	Z'	0.5	1.5
M	E	2.8	21
M	N	3.2	22
M	Z	3.4	21

D = 7150 km = 64 1/2°.
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Dec. 22 (cont.)

	Ki	iP	00 38 29.3	C
		ipP	00 38 40.8	
		microns	sec	
		P Z'	0.3	1.3
		M E	4.1	19
		M N	3.0	17
	Sk	iP	00 39 04.6	
	Gb	iP	00 39 43.4	
		ipP	00 39 52.8	
	Um	iP	00 38 54.1	
		iS	00 47 12	
	Ka	iP	00 39 47.3	
		ipP	00 39 57.7	

Kamchatka.
h = 40 km (Up,Ki,Gb,Ka).
Magn. = 6.2 (Up,Ki).

"	22	Up	iP	00 48 59.8	
		Ki	iP	00 48 04.8	
		Um	iP	00 48 30.3	

Kamchatka (h = 30 km).

"	22	Up	iP	00 50 44.5	
		Um	iP	00 50 15.4	

Kamchatka (h = 30 km).

"	22	Up	iP	01 05 08.2	
		Ki	iP	01 04 53.0	
		Um	iP	01 04 57.1	
		Ka	iP	01 05 18.3	

Mindanao (h = 540 km).

"	22	Up	iP	03 32 41.7	
		Ki	iP	03 31 47.0	
		Sk	iP	03 32 25.9	
		Gb	iP	03 33 02.3	
		Um	iP	03 32 13.1	
		Ka	iP	03 33 05.7	
			ipP	03 33 15.7	

Kamchatka.
h = 40 km (Ka).

"	22	Um	iP	17 04 26.9	
		Ka	iP	07 05 17.0	

Kamchatka (h = 30 km).

"	22	Up	iP	07 37 52.3	
		microns		sec	
		P	Z'	0.1	0.8
	Ki	iP		07 36 59.4	C
		microns		sec	
		P	Z'	0.2	1.0
	Sk	iP		07 37 36.4	
	Gb	iP		07 38 13.7	
	Um	iP		07 37 24.4	C

(cont.)

1965 Dec. 22 (cont.)

	Ka	iP	07 38 16.5	
		ipP	07 38 27.3	

Kamchatka.
h = 40 km (Ka).
Magn. = 5.9 (Up,Ki).

"	22	Um	iP	11 37 38.5
"	22	Up	iP	14 03 39.1 C
"	22	Um	iPKP	19 30 40.4 C

New Hebrides Islands
(h = 40 km).

"	22	Up	iP	19 51 38.2	C
			ipP	19 51 50.7	
			iPcS	19 56 15.5	
			iS	19 59 55	
			iScS	20 01 21	
			iP'P'	20 20 46.4	
			i	20 21 04.0	
		microns		sec	
		P	N	1.2	2
		P	Z	2.1	2
		P	Z'	1.2	1.0
		S	E	4.7	7
		S	N	2.1	4
		P'P'	Z'	0.4	1.8
		M	E	2.6	22
		M	N	5.1	21
		M	Z	5.5	21

D = 6850 km = 61 1/2°.

Ki	iP	19 50 42.7	C	
	ipP	19 50 55.4		
	iS	19 58 13		
	i	19 58 45		
	iScS	20 00 26		
microns		sec		
P	N	1.5	7	
P	Z	2.7	5	
P	Z'	1.7	1.1	
S	E	6.6	9	
S	N	2.6	9	
M	E	8.5	27	
M	N	9.6	24	
M	Z	7.0	20	

D = 5950 km = 53 1/2°.

Sk	iP	19 51 09.9	C
	ipP	19 51 23.3	
	iP'P'	20 20 57.9	
Gb	iP	19 51 50.4	C
	ipP	19 52 04.0	
	iP'P'	20 20 39.2	
Um	iP	19 51 11.1	C
	ipP	19 51 24.6	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Dec. 22 (cont.)

	Um	iS	19 59 06
		iScS	20 00 54
		iP'P'	20 20 48.8
		i	20 20 59.4
		i	20 21 13.0
	Ka	iP	19 52 01.2 C
		ipP	19 52 14.2
		iS	20 00 42.7
		i	20 00 53.2
		iP'P'	20 20 39.7
		i	20 20 56.6

Kodiak Island.
h = 50 km (Up,Ki,Sk,Gb,Um,Ka).
Magn. = 6.8 (Up,Ki).

" 22 Up iP 20 23 48.4

" 22 Ki iP 23 35 12.7
Um iP 23 35 38.7
Kamchatka (h = 30 km).

" 23 Up iP 02 10 01.9
Ki iP 02 09 08.2
Um iP 02 09 33.9 C
Aleutian Islands
(h = 60 km).

" 23 Um iP 02 24 31.4
iPP 02 26 58.3
Alaska (h = 120 km).

" 23 Um iP 02 57 33.0 C
Mexico (h = 130 km).

" 23 Ki ePn 05 40 36
iSn 05 41 22.4
iSg 05 41 50.2
D = 470 km = 4.2°.
Um i 05 42 07.5
iSg 05 42 57.8
Northwest Russia.
Origin time = 05 39 30.
Explosion?

" 23 Up iP 06 08 12.1
Um iP 06 07 42.7
Kamchatka (h = 50 km).

" 23 Up eP 11 17 40
Ki iP 11 18 14.3
microns sec
P Z' 0.1 1.2
Sk eP 11 18 16
Um iP 11 17 54.8
iPP 11 19 32.9
Iran (h = 40 km).

1965
Dec. 23 Up iP 15 33 10.3 C
iS 15 36 31.4
i 15 36 39.0
microns sec
P Z' 0.1 0.7
Ki iP 15 34 26.0 C
microns sec
P Z' 0.1 1.0
Sk iP 15 33 46.4 C
Gb iP 15 32 49.1 C
Um iP 15 33 50.2 C
i 15 38 43.8
Ka iP 15 32 30.5 C
Italy (h = 310 km).
Magn. = 5.2 (Up,Ki).

" 23 Up iP 20 34 42.8 D

" 23 Up iP 20 57 33.7 C
iPcP 20 58 23.0
microns sec
P Z' 0.3 1.0
M N 1.7 17
M Z 2.0 16
Ki iP 20 56 39.3 C
e(S) 21 04 08
microns sec
P Z 0.8 7
P Z' 0.9 1.0
(S) N 0.4 9
M E 0.8 14
M N 1.1 16
M Z 1.4 15
Sk iP 20 57 04.1 C
Gb iP 20 57 44.1 C
Um iP 20 57 07.3 C
iS 21 04 48
Ka iP 20 57 56.7 C
ipP 20 58 05.3
Alaska.
h = 35 km (Ka).
Magn. = 5.9 (Up,Ki).

" 24 Um iP 02 45 04.4 D

" 24 Up eP 03 54 14
i 03 54 21.8

" 24 Up iP 04 27 36.7 C
ipP 04 27 48.7
microns sec
P Z' 0.1 0.6
Ki iP 04 26 44.2
microns sec
P Z' 0.1 0.8
Gb iP 04 27 57.0
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Dec.	24	(cont.)			
		Um	iP	04 27 08.8	C
			ipP	04 27 19.2	
		Kamchatka.			
		h = 45 km (Up,Um).			
		Magn. = 5.8 (Up,Ki).			
"	24	Up	iP	05 06 52.9	
		Ki	iP	05 06 37.4	
		Sk	iP	05 07 08.1	
		Um	iP	05 06 38.2	
		Kazakh SSR.			
		Underground explosion.			
"	24	Ki	iP	07 46 24.4	
			microns	sec	
			P Z' 0.1	1.1	
"	24	Gb	iPKP	08 27 52.2	D
		South of Fiji Islands			
		(h = 70 km).			
"	25	Ki	iP	01 20 09.9	
		Um	iP	01 20 15.4	
		Mindanao (h = 70 km).			
"	25	Up	i(PKP)	03 15 59.4	
			iPKP	03 16 04.7	
			iSKP	03 18 46.7	
			i	03 18 54.7	
			iPP	03 19 18.2	
		Ki	e(PKP)	03 15 50	
			iPKP	03 15 55.4	
			iSKP	03 18 20.2	
		Sk	e(PKP)	03 15 53	
			i	03 15 57.1	
			iPKP	03 16 05.0	
			iSKP	03 18 38.0	
		Gb	iPKP	03 16 09.3	
		Um	i(PKP)	03 15 45.9	
			iPKP	03 16 01.6	
			eSKP	03 18 25	
			i	03 18 33.2	
			iSS	03 35 24	
		Fiji Islands (h = 630 km).			
"	25	Um	iP	03 28 13.0	
"	25	Um	iP	10 50 26.6	
"	25	Gb	iPKP	12 02 37.6	
		Um	iSKP	12 05 07.4	
		South of Fiji Islands			
		(h = 550 km).			
"	25	Ki	eP	12 21 22	
		(cont.)			

1965 Dec.	25	(cont.)			
		Ki		microns	sec
			M	E 1.3	13
		Sk	iP	12 20 52.6	
		Um	iP	12 20 48.7	
		Aegean Sea (h = 10 km).			
"	25	Up	iP	14 15 53.2	
			ipP	14 16 01.2	
		Ki	iP	14 15 24.0	C
		Sk	iP	14 15 53.3	
		Gb	iP	14 16 13.8	
		Um	iP	14 15 35.6	C
			ipP	14 15 43.5	
		Ka	iP	14 16 01.3	
		Ryukyu Islands.			
		h = 30 km (Up,Um).			
"	25	Up	eP	15 15 34	
		Um	iP	15 16 20.9	
		Greece (h = 5 km).			
"	25	Up	iP	17 50 57.1	C
			i	17 51 02.6	
		Ki	iP	17 51 04.2	C
		Um	iP	17 50 54.4	
			i	17 50 59.7	
		Hindu Kush (h = 160 km).			
"	25	Up	iPKP	19 38 49.2	
			iSKP	19 41 33.0	
		Ki	iPKP	19 38 42.2	
			iSKP	19 41 07.7	
			microns	sec	
			SKP Z' 0.1	1.3	
		Sk	i(PKP)	19 38 41.7	
			iSKP	19 41 21.5	
		Gb	ePKP	19 38 56	
		Um	i(PKP)	19 38 38.4	
			iPKP	19 38 45.9	
			i	19 38 49.4	
			iSKP	19 41 20.5	
		Fiji Islands (h = 620 km).			
"	25	Um	iP	23 15 41.5	
"	26	Ki	iP	02 09 04.6	
		Um	iP	02 09 32.3	
"	26	Up	iPKP	04 11 43.7	
			eSKS	04 18 22	
			microns	sec	
			SKS N	0.5	5
			M E	1.0	20
			M N	1.6	20
			M Z	1.4	21
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965
Dec. 26 (cont.)

Ki	iPKP	04 11 35.0	
	iSKS	04 18 05	
		microns	sec
	M E	1.1	22
	M N	0.8	20
	M Z	1.4	19
Sk	ePKP	04 11 44	
Um	iPKP	04 11 37.9	
	i	04 11 44.0	
	iPP	04 12 18	
	iSKS	04 18 12	

New Britain (h = 130 km).

" 26 Um e(P) 04 31 27

" 26 Sk iP 07 37 04.6

" 26 Up iP 13 28 29.5
Um iP 13 29 07.7

" 26

Up	iPKP	18 24 06.5 C
Gb	iPKP	18 24 16.5
Um	iPKP	18 24 00.7
	iSKP	18 26 49.8

South of Fiji Islands
(h = 520 km).

" 27

Ki	iP	04 18 28.3
Um	iP	04 18 34.4
	ipP	04 18 44.2

Japan.
h = 40 km (Um).

" 27 Up iP 07 29 05.7

" 27 Up iP 20 20 48.2
Aleutian Islands
(h = 60 km).

" 28 Um e 03 04 36
iSg 03 05 16.2

" 28

Ki	iP	07 49 30.3
Um	iP	07 49 40.3 C
	ipP	07 50 12.0

Volcano Islands.
h = 130 km (Um).

" 28 Ki iP 11 41 16.0 C
Lake Tanganyika
(h = 30 km).

" 28 Ki iP 12 23 46.1
Talaud Islands
(h = 50 km).

1965
Dec. 28

Up	iP	20 44 38.5 C	
	ipP	20 44 51.0	
	iS	20 54 57	
		microns	sec
	P Z'	0.4	0.5
	S E	1.7	5
	S N	1.6	3
	M E	2.5	25
	M N	2.5	24
	M Z	2.6	26

D = 9050 km = 81 1/2°.

Ki	iP	20 44 05.1 C	
	ipP	20 44 19.8	
		microns	sec
	P Z'	1.0	2.0
	M E	2.6	20
	M N	1.8	17
	M Z	3.1	18
Gb	iP	20 44 56.3 C	
	ipP	20 45 06.5	
Um	iP	20 44 19.5 C	
	i	20 44 45.2	
	iS	20 54 08	
Ka	iP	20 44 54.7 C	
	ipP	20 45 05.9	

Bonin Islands.
h = 50 km (Up,Ki,Gb,Ka).
Magn. = 6.6 (Up,Ki).

" 30

Up	iP	02 17 19.4 C
	i	02 17 26.8
	iPcP	02 17 48.9
		microns sec
	M N	2.0 20
Ki	iP	02 16 24.5 C
	i	02 16 42.1
	eP'P'	02 46 09
		microns sec
	M E	3.5 23
	M N	1.1 16
Gb	iP	02 17 33.0
Um	iP	02 16 51.9
	iP'P'	02 45 57.7

Unimak Island (h = 30 km).

" 30

Up	iP	16 44 02.1 C
Ki	iP	16 43 06.8
		microns sec
	P Z'	0.1 1.0
Gb	iP	16 44 14.5
Um	iP	16 43 35.4 C

Kodiak Island (h = 30 km).

" 30 Up iP 17 07 54.1 C
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Umeå
Ka = Karlskrona

1965 Dec. 30 Up microns sec
P Z' 0.1 0.6
Ki iP 17 07 08.2 C
microns sec
P Z' 0.1 0.9
Um iP 17 07 29.2 C
Kurile Islands
(h = 70 km).
Magn. = 5.8 (Up,Ki).

" 30 Ki iPn 17 11 53.8
iSn 17 12 42.7
iSg 17 12 58.3
D = 390 km = 3.5°.
Um iSg 17 14 27.0
Northwest Russia.
Origin time = 17 11 00.
Explosion?

" 30 Up iP 20 34 32.0

" 30 Up iP 20 47 08.6

" 31 Up iP 02 40 28.3
Um iP 02 40 24.4
Sumatra (h = 30 km).

" 31 Ki eP 09 00 17
eT 09 05 36
Um iP 09 01 05.4 C
Norwegian Sea (h = 30 km).

" 31 Up i(PKP) 09 44 34.4
Ki iPKP 09 44 05.2
Um iPKP 09 44 14.0
i 09 44 32.5
i 09 44 43.4
South of Kermadec Islands
(h = 220 km).

" 31 Um iPKP 10 07 58.8
New Hebrides Islands
(h = 50 km).

" 31 Up iPKP 11 01 06.6
i 11 01 10.8
Gb iPKP 11 01 20.7
i 11 01 27.5
South of Fiji Islands
(h = 160 km).

" 31 Ki ePn 18 49 32
eSn 18 50 30
eSg 18 50 50
D = 460 km = 4.1°.
(cont.)

1965 Dec. 31 (cont.)
Um iSn 18 51 23.4
iSg 18 51 44.6
Northwest Russia.
Origin time = 18 48 30.
Explosion?

" 31 Um iPP 20 02 07.9 C
Timor (h = 30 km).

" 31 Ki iP 21 12 04.5
Um iP 21 12 08.7
Halmahera (h = 100 km).

Markus Båth
June 16, 1966