SEISMOLOGISKA INSTITUTIONEN
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UPPSALA

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, 1966

1966					
Jan.	1	Up	iP	11 25 50.6	
		Um	iP	11 25 39.7	
		Luzon (h = 40 km).			
"	1	Um	iPKP	12 43 13.2	
		D'Entrecasteaux Islands (h = 30 km).			
"	1	Up	iP	20 49 05.3	C
"	1	Up	iP	22 37 16.8	C
"	2	Up	iP	00 27 47.1	
"	2	Up	iP	04 15 55.8	D
				microns sec	
			P	Z' 0.2 0.6	
		Ki	iP	04 15 22.0	D
				microns sec	
			P	Z' 0.2 0.9	
		Gb	iP	04 16 15.0	D
		Um	iP	04 15 36.3	D
			i	04 15 44.3	
		Ka	iP	04 16 13.3	
		South of Japan (h = 390 km).			
		Magn. = 5.9 (Up,Ki).			
"	2	Ki	iP	05 02 07.0	
		Um	iP	05 02 34.3	
		Unimak Island (h = 60 km).			
"	2	Um	iP	09 29 15.8	
"	2	Ki	iP	11 57 39.9	
		Baffin Bay (h = 30 km).			

1966					
Jan.	2	Um	iP	13 40 45.7	
"	2	Ki	eP	16 41 22	
		Um	iP	16 41 03.1	
		Iran.			
"	2	Up	iP	18 43 39.3	
		Ki	eP	18 43 13	
		Um	iP	18 43 14.4	
			i	18 43 34.0	
		Sinkiang (h = 30 km).			
"	2	Um	iSKP	19 03 03.5	
		South of Fiji Islands (h = 530 km).			
"	2	Up	iP	23 17 17.5	C
				microns sec	
			M	E 2.4 16	
		Ki	iP	23 18 30.0	
				microns sec	
			M	E 1.1 15	
			M	N 0.5 13	
			M	Z 0.7 13	
		Gb	iP	23 17 05.9	C
		Um	iP	23 17 55.6	C
		Ka	iP	23 16 40.6	
		Greece (h = 20 km).			
"	3	Um	iSKP	01 02 59.0	
		South of Fiji Islands (h = 540 km).			
"	3	Um	iP	03 19 23.0	
"	3	Ki	eP	03 38 46	

(cont.)

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

1966
Jan. 3 (cont.)

Um	iP	03 38 51.3
	i	03 39 00.4

" 3 Um iP 03 53 43.5

" 3

Ki	ePKP	13 51 39
	iSKP	13 54 15.9
Um	e(PKP)	13 51 40
	iPKP	13 51 49.6
	iSKP	13 54 28.2
Ka	iPKP	13 52 00.9

Fiji Islands (h = 540 km).

" 3

Ki	iPKP	16 03 18.8
Um	iPKP	16 03 25.1
	iSKP	16 06 25.4

New Hebrides Islands
(h = 250 km).

" 3

Up	iP	18 28 44.3 C
Ki	iP	18 28 46.4
Gb	iP	18 28 31.2
Um	iP	18 28 47.9 C

Colombia (h = 100 km).

" 3 Um eP 23 36 33

" 4

Ki	iSn	06 38 08.7
	iSg	06 38 32.7
Um	iSn	06 38 57.4
	iSg	06 39 41.6

Probably northwest Russia.
Origin time = 06 36 00.
Explosion?

" 4

Up	iP	07 58 38.7
Um	iP	07 58 26.7

Andaman Islands (h = 30 km).

" 4 Up iP 23 32 24.6

" 5 Um iP 05 58 00.2 C
Japan (h = 90 km).

" 5 Up iP 07 12 59.5
Aleutian Islands
(h = 30 km).

" 5

Up	iSg	09 10 01.7
Ka	i(P)	09 08 45.0
	iSg	09 09 26.0

" 5 Um iP 10 39 46.4

" 5 Up i(P) 17 32 52.2
(cont.)

1966
Jan. 5 (cont.)

Up	iP	17 32 59.0
	i(PcP)	17 33 18.3
	i	17 43 56

		microns	sec
P	Z'	0.2	1.5
M	E	1.9	17
M	N	4.1	20
M	Z	2.5	16

Ki	i(P)	17 32 52.0
	iP	17 32 57.7
	i	17 33 11.2
	iS	17 42 23
	i	17 42 47

		microns	sec
P	Z'	0.2	1.3
M	E	4.8	20
M	N	2.5	18
M	Z	6.3	20

D = 8100 km = 73°.

Gb	iP	17 33 16.7
	i	17 33 34.5
Um	i(P)	17 32 47.7 C
	iP	17 32 53.5
	i(pP)	17 33 02.5
	iS	17 42 10
Ka	iP	17 33 03.8
	i(pP)	17 33 13.8

Andaman Islands
(h = 40 km).
Magn. = 6.0 (Up,Ki).
(P) is a small-amplitude phase appearing about 6 sec before the much larger P. (P) is recorded only at our most sensitive stations (Up,Ki,Um); it could be a foreshock.

" 5

Up	$i(P^X)$	18 07 06.4
	iSn	18 08 00.9
Gb	iPg	18 06 21.2
	iSg	18 06 49.6

D = 230 km = 2.1°.

Um	e	18 09 59
	iSg	18 10 09.5
Ka	iSn	18 07 41.1
	iSg	18 08 08.3

South coast of Norway,
58.0°N, 8.1°E.
Origin time = 18 05 40.

" 5

Up	iP	18 22 50.2 D
	ipP	18 23 00.4

		microns	sec
P	Z'	0.1	0.7

(cont.)

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

1966					
Jan.	5	(cont.)			
		Ki	iP	18 22 19.5	
			ipP	18 22 30.5	
		Gb	iP	18 23 06.7	
		Um	iP	18 22 33.3	D
			ipP	18 22 43.6	
			i	18 22 52.1	
			i	18 23 08.4	
		Mariana Islands.			
		h = 40 km (Up,Ki,Um).			
"	5	Up	iP	20 53 19.3	
		Um	iP	20 53 18.5	
		Ka	iP	20 53 22.3	
		Tadzhik SSR (h = 30 km).			
"	6	Um	iP	11 12 30.3	
"	6	Up	iP	12 08 31.3	
"	6	Up	iP	12 22 05.2	
"	6	Um	iP	16 47 26.6	
		South of Japan			
		(h = 90 km).			
"	7	Up	iP	07 55 50.4	
		Ki	iP	07 54 57.1	
		Sk	iP	07 55 37.5	
		Gb	iP	07 56 11.1	
		Um	iP	07 55 22.7	
		Ka	iP	07 56 15.7	
		Kamchatka (h = 90 km).			
"	7	Ki	iP	14 44 20.1	
		Um	iP	14 44 25.2	
		Luzon (h = 40 km).			
"	7	Sk	ePKP	18 35 21	
		Um	iPKP	18 35 15.7	C
			i	18 35 31.2	
		Kermadec Islands			
		(h = 30 km).			
"	8	Up	iP	01 18 29.5	
			i	01 18 42.2	
		Ki	iP	01 18 10.3	
		Um	eP	01 18 16	
		Luzon (h = 60 km).			
"	8	Up	iPKP	04 26 27.4	
			i	04 26 30.7	
		South of Fiji Islands			
		(h = 390 km).			

1966					
Jan.	8	Ki	iPn	06 28 44.6	
			iSn	06 29 40.9	
			iSg	06 29 59.6	
			D = 490 km = 4.4°.		
		Um	iSn	06 30 25.2	
			i	06 30 41.7	
			iSg	06 31 04.7	
			D = 700 km = 6.3°.		
		Northwest Russia.			
		Origin time = 06 27 38.			
		Explosion?			
"	8	Um	iP	08 12 15.4	
		Japan (h = 90 km).			
"	8	Ki	iPn	13 15 16.6	
			eSn	13 16 15	
			iSg	13 16 34.6	
			D = 500 km = 4.5°.		
		Sk	eSg	13 19 06	
		Um	iPg	13 16 04.7	
			iSn	13 16 53.8	
			iSg	13 17 26.4	
			D = 670 km = 6.0°.		
		Northwest Russia,			
		67.3°N, 32.1°E.			
		Origin time = 13 14 07.			
		Explosion?			
"	8	Up	iP	15 40 21.5	D
		Atlantic Ocean (h = 30 km).			
"	8	Um	iP	17 11 59.5	
"	8	Ki	iPn	17 14 13.1	
			iP^x	17 14 22.4	
			iSn	17 15 02.1	
			iSg	17 15 15.9	
			D = 410 km = 3.7°.		
		Sk	eSg	17 18 02	
		Um	eSn	17 16 07	
			iS^x	17 16 24.1	
			iSg	17 16 44.5	
			D = 700 km = 6.3°.		
		Northwest Russia,			
		68.8°N, 30.2°E.			
		Origin time = 17 13 15.			
		Explosion?			
"	8	Up	iP	17 58 19.1	
"	8	Up	iP	22 33 37.3	
		Ki	iP	22 33 04.1	
		Um	iP	22 33 18.2	
		South of Japan (h = 420 km).			

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

1966
Jan. 8 Up iP 22 50 40.7
Ki iP 22 50 02.1
Sk iP 22 50 35.9
Um iP 22 50 18.7 C
ipP 22 50 22.0
Japan (h = 10 km).

" 9 Ki iP 00 28 19.9 C
Iran.

" 9 Um iP 06 20 34.9

" 9 Up iP 09 22 56.8
Ki iP 09 23 06.6 C
microns sec
P Z' 0.1 1.0
Sk iP 09 22 45.1 C
Windward Islands
(h = 160 km).

" 9 Up iPKP 23 42 37.3
Sk iPKP 23 42 32.1
Um iPKP 23 42 26.7
i 23 42 42.4

" 10 Up iP 01 31 30.6 C
ipP 01 32 06.7
microns sec
P Z' 0.1 C.7
Ki iP 01 31 13.3 C
ipP 01 31 49.8
microns sec
P Z' 0.2 1.5
Sk iP 01 31 36.5 C
i 01 32 03.1
Gb iP 01 31 48.3 C
ipP 01 32 23.4
Um iP 01 31 18.7 C
i 01 31 59.5
Mindoro.
h = 140 km (Up,Ki,Gb).
Magn. = 6.0 (Up,Ki).

" 10 Sk iP 11 25 14.2
√ Um iP 11 25 32.2
Colombia (h = 90 km).

" 10 Um iP 13 10 00.0 C
Japan (h = 90 km).

" 10 Sk iP 13 48 39.7 C

" 10 Sk eSg 15 50 12
e 15 50 34
Gb iPn 15 47 32.3
iSn 15 48 30.3
(cont.)

1966
Jan. 10 (cont.)
Gb iSg 15 48 47.0
D = 490 km = 4.4°.
Um iSg 15 51 43.7
Ka iSg 15 50 07.0
Off southwest coast of Norway,
58.2°N, 3.7°E.
Origin time = 15 46 24.

" 10 Up iP 20 36 44.5

" 11 Ki iP 03 24 02.6
Sk iP 03 24 22.9
Gb iP 03 24 30.9
Um iP 03 24 06.3
Celebes (h = 30 km).

" 11 Um iP 03 40 27.3

" 11 Up iP 09 21 00.3
Ki iP 09 21 09.1
Sk iP 09 21 25.7
Um iP 09 20 58.4
Ka iP 09 21 04.5
West Pakistan (h = 40 km).

" 11 Um iP 11 06 44.4

" 11 Um iP 13 00 56.6 D

" 11 Up i(PKP) 13 41 17.2 D
Um i(PKP) 13 41 13.2

" 11 Ki iP 14 17 17.7 C
Sk iP 14 17 49.6
Um iP 14 17 32.7 C
ipP 14 17 37.8
Japan.
h = 20 km (Um).

" 11 Ki iP 14 22 06.5
microns sec
P Z' 0.1 1.0
Sk iP 14 22 38.9
Um iP 14 22 21.6 C
ipP 14 22 26.4
Japan.
h = 20 km (Um).

" 11 Up iP 14 28 07.6 C
iS 14 37 42
microns sec
P Z' 0.5 1.7
M E 4.7 15
M N 4.7 18
M Z 8.1 13
(cont.)

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

1966 Jan. 11 (cont.)

Up D = 8300 km = 74 1/2°.
Ki iP 14 27 31.6
microns sec
P Z' 0.8 2.0
M E 6.8 16
M N 8.1 15
M Z 8.1 16
Sk iP 14 28 03.5 C
Um iP 14 27 46.7 C
ipP 14 27 51.7
iS 14 37 10
iSS 14 41 29
Japan.
h = 20 km (Um).
Magn. = 6.2 (Up,Ki).
In this and the other shocks in the Japanese area on Jan. 11, there is a very clear pP-phase at Um (but only there), and therefore this was made the basis for our depth computation.

" 11 Um iP 14 35 36.1

" 11 Ki iP 14 46 18.3
Um iP 14 46 33.2
Japan (h = 20 km).

" 11 Um iP 16 24 03.9
Tadzhik SSR.

" 11 Up iP 20 35 47.6

" 11 Um iP 22 00 26.3
Japan (h = 30 km).

" 11 Ki iP 23 50 05.2

" 12 Um iP 00 30 05.8 D

" 12 Up iP 01 49 10.6
Ki iP 01 48 24.5
Um iP 01 48 44.9
Kurile Islands (h = 30 km).

" 12 Um iP 05 45 19.4

" 12 Ki iP 10 32 49.3 C
Um iP 10 33 06.5 C
ipP 10 33 17.4
Japan.
h = 40 km (Um).

" 12 Sk eP 12 41 57
(cont.)

1966 Jan. 12 (cont.)

✓ Um iP 12 42 09.5
Mexico (h = 50 km).

" 13 Um iP 01 49 43.0
Turkey (h = 40 km).

" 13 Sk iP 09 40 32.2

" 13 Um iP 10 42 04.3
✓ Virgin Islands
(h = 40 km).

" 13 Up iP 10 51 56.8 C
microns sec
P Z' 1.3 1.5
M E 1.2 16
M N 2.2 18
M Z 1.7 18
Ki iP 10 51 02.5 C
eScS 11 00 57
microns sec
P Z 0.8 4
P Z' 0.4 1.1
M E 1.5 18
M N 1.7 20
M Z 1.8 17
Sk iP 10 51 36.9 C
Gb iP 10 52 14.8 C
Um iP 10 51 28.4 C
iPa 10 55 21
iS 10 59 49
Ka iP 10 52 21.1
Aleutian Islands (h = 15 km).
Magn. = 6.1 (Up,Ki).
The magnitude calculated from P (Z and Z') is 6.4, but only 5.6 from the surface waves.

" 13 Um iP 13 20 12.2

" 14 Ki iSn 05 22 01.9
iSg 05 22 21.9
Um iSn 05 22 47.4
iSg 05 23 29.1
Northwest Russia.
Origin time = 05 20 00.
Explosion?
Same location as for Jan. 8, 06 27.

" 14 Up iP 12 51 30.3
microns sec
P Z' 0.1 0.7

" 14 Up iP 18 45 01.1
(cont.)

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

1966
Jan. 14 (cont.)

Up	i	18 45 14.9	
Ki	iP	18 46 07.6	
Sk	iP	18 45 39.7	C
Um	iP	18 45 32.9	C

Crete (h = 30 km).

" 15 Um iP 04 02 40.1

" 15 Up iP 12 10 04.3
iS 12 18 18
D = 6650 km = 60°.
Ki iP 12 09 10.6
iS 12 16 44
microns sec
S N 0.9 9
M N 3.5 23
D = 5900 km = 53°.
Sk iP 12 09 36.2
Um iP 12 09 38.1
iS 12 17 31
Alaska (h = 30 km).

" 15 Um iP 16 17 42.8
Alaska (h = 30 km).

" 15 Up iP 18 12 53.2
Ki iP 18 14 02.5
Sk iP 18 13 30.0
Um eP 18 13 23
Ka iP 18 12 15.0 C
Greece (h = 40 km).

" 15 Up eL 20 36
microns sec
M E 0.7 18
M N 1.0 20
M Z 1.1 18
Chile-Argentina
(h = 40 km).

" 15 Up iPKP 22 16 16.3
Sk iPKP 22 16 12.6
Um iPKP 22 16 05.6 C
South of Kermadec Islands
(h = 30 km).

" 16 Up ---
microns sec
M E 0.8 21
M N 2.1 21
M Z 1.6 20
Ki ---
microns sec
M E 1.1 20
M N 1.0 20
Um i 00 56 21

1966
Jan. 16 Ki i(Sn) 05 24 03.6
iSg 05 24 33.0
Sk iSg 05 26 54.4
Um iSn 05 24 44.0
iSg 05 25 16.0
Northwest Russia,
67.0°N, 31.5°E.
Origin time = 05 22 11.
Explosion?

" 16 Up iP 07 19 38.0
Ki iP 07 19 43.7
Sk iP 07 19 59.9
Gb iP 07 19 59.4
Um iP 07 19 34.8
Nicobar Islands
(h = 30 km).

" 16 Um iP 09 03 43.8

" 16 Up iP 09 22 33.5 C
microns sec
P Z' 0.6 1.0
Ki iP 09 21 39.5 C
microns sec
P Z' 0.3 1.0
Sk iP 09 22 14.1 C
Gb iP 09 22 51.5 C
Um iP 09 22 05.0 C
Ka iP 09 22 57.3 C
Aleutian Islands
(h = 25 km).
Magn. = 6.4 (Up,Ki).

" 16 Up iP 12 35 41.2
i(S) 12 37 49.8
Gb i(P) 12 34 52.0
✓ Um iP 12 36 30.0
i 12 36 51.5
eS 12 39 56
Ka iP 12 35 04.1
i(S) 12 36 34.9
Belgium.

" 16 Um iP 15 49 25.1

" 16 Up iP 18 57 42.6
iPP 18 58 17.5
i 18 58 21.8
iS 19 02 22.1
microns sec
PP Z' 0.1 0.5
D = 3000 km = 27°.
Ki iP 18 58 48.9
Sk iP 18 58 21.7
Gb iP 18 57 34.8
(cont.)

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

1966 Jan.	16	(cont.)			
		Um	iP	18 58 15.4	
		Ka	iP	18 57 12.3	D
		Crete (h = 30 km).			
"	16	Up	iP	19 55 05.6	C
				microns sec	
			P	Z' 0.2 1.2	
		Ki	iP	19 54 10.2	C
				microns sec	
			P	Z' 0.2 1.0	
		Sk	iP	19 54 47.0	
		Gb	iP	19 55 24.7	C
		Um	iP	19 54 36.1	C
		Ka	iP	19 55 30.1	C
			i	19 55 39.1	
		Komandorsky Islands (h = 15 km).			
		Magn. = 6.0 (Up,Ki).			
"	16	Up	eP	20 20 51	
		Sk	eP	20 21 26	
		Crete (h = 40 km).			
"	16	Um	iP	23 52 57.7	
			ipP	23 53 11.2	
		Japan. h = 50 km (Um).			
"	17	Up	iP	08 44 10.1	
		Sk	iP	08 44 54.0	
		Um	iP	08 44 50.3	C
		Greece-Albania (h = 30 km).			
"	17	Um	iP	10 31 32.6	
"	17	Um	iP	12 07 14.6	
"	17	Ki	i(Sg)	12 52 52.9	
		Um	e(Sg)	12 51 29	
"	17	Up	iPKP	18 08 16.6	
		Ki	iPKP	18 08 09.7	
		Gb	iPKP	18 08 26.0	
		Um	i(PKP)	18 08 09.5	
			iPKP	18 08 16.4	
			iSKP	18 10 56.3	
		Ka	iPKP	18 08 28.2	
		Fiji Islands (h = 540 km).			
"	17	Up	iP	19 07 12.5	
		Ki	iP	19 06 19.3	
		Sk	eP	19 06 49	
		Um	iP	19 06 45.9	
		Aleutian Islands (h = 50 km).			

1966 Jan.	17	Up	iP	20 09 46.3	
		Gb	iP	20 09 34.0	
		Um	iP	20 10 24.4	
		Ka	iP	20 09 09.7	
		Greece (h = 70 km).			
"	17	Up	iP	20 50 00.7	
				microns sec	
			P	Z' 0.1 0.5	
"	18	Up	iP	01 24 56.5	
				microns sec	
			M	E 1.8 16	
			M	Z 1.9 15	
		Um	iP	01 24 38.9	
		Ryukyu Islands (h = 30 km).			
"	18	Ki	iSKP	06 48 23.9	
		Um	iPKP	06 45 45.5	
			eSKP	06 48 34	
		Fiji Islands (h = 360 km).			
"	18	Um	i(Sg)	07 24 13.4	
"	18	Um	i(Sg)	11 04 47.5	
"	18	Up	iP	12 22 18.2	
		Ki	iP	12 22 27.0	
		Ka	iP	12 22 22.8	
		Hindu Kush (h = 200 km).			
"	18	Um	iP	15 29 06.7	
"	18	Um	iP	16 06 31.7	
"	18	Um	iP	18 46 34.0	
"	18	Up	iP	20 23 51.9	
			i	20 23 55.2	
			i!	20 24 04.0	
			iS	20 26 29.1	
				microns sec	
			P	Z' 0.1 0.5	
		D = 1650 km = 15°.			
		Ki	iP	20 25 17.1	
			i	20 25 23.9	
		Sk	eP	20 24 53	
			eS	20 28 40	
		Um	iP	20 24 33.5	
			i	20 28 25.8	
		Ka	iP	20 23 21.4	
			iS	20 25 33.5	
		Rumania (h = 60 km). High-frequency motion throughout the records, especially on Z' at Up.			

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

1966 Jan.	18	Up	iP	20 33 19.0	
				microns sec	
			P	Z' 0.1 0.5	
		Ki	iP	20 32 14.7	
		Um	iP	20 32 57.3	
"	18	Up	iP	21 25 22.4	
		Sk	iP	21 26 00.5	
		Ka	iP	21 24 48.8	
		Crete (h = 50 km).			
"	18	Up	iP	21 57 58.2	
"	19	Up	iP	01 57 44.1	D
		Ki	iP	01 57 44.3	
		Um	iP	01 57 40.5	
		Sumatra (h = 30 km).			
"	19	Ki	i(P)	07 59 44.1	
		Um	iP	08 00 46.5	
"	19	Um	iP	08 40 10.4	
"	19	Up	ipP	21 19 31.1	
		Um	iP	21 18 45.4	
			ipP	21 19 17.3	
		Volcano Islands.			
		h = 130 km (Um).			
"	20	Um	iP	00 29 59.6	
"	20	Up	iP	00 43 43.8	
	✓	Sk	iP	00 44 26.8	
		Um	iP	00 44 21.1	
		Aegean Sea (h = 25 km).			
"	20	Up	eP	01 56 03	
		Ki	iP	01 55 25.1	C
				microns sec	
			M E	1.6 15	
			M N	1.5 14	
		Sk	iP	01 55 57.1	
		Um	iP	01 55 41.7	C
		Japan (h = 30 km).			
"	20	Um	iPKP	04 46 46.5	
		New Hebrides Islands			
		(h = 30 km).			
"	20	Um	iP	09 12 41.7	
"	20	Up	iPKP	11 22 36.3	
		Um	iSKP	11 25 20.7	
		South of Fiji Islands			
		(h = 500 km).			

1966 Jan.	20	Up	i(P)	14 56 44.9	
			iP	14 56 49.0	
				microns sec	
			P	Z' 0.1 0.5	
		Ki	iP	14 55 53.8	C
		Sk	iP	14 56 28.5	
		Gb	iP	14 57 06.4	C
		Um	iP	14 56 19.7	C
			ipP	14 56 28.3	
		Ka	iP	14 57 12.0	
		Aleutian Islands.			
		h = 30 km (Um).			
"	20	Um	iP	16 14 58.2	
		Kurile Islands (h = 30 km).			
"	20	Up	iP	16 43 18.3	
		Ki	iP	16 42 25.0	C
		Sk	eP	16 42 56	
		Gb	iP	16 43 33.1	
		Um	iP	16 42 52.1	
		Aleutian Islands (h = 20 km).			
"	20	Um	iP	17 56 44.8	
"	20	Up	iP	20 27 07.0	
"	20	Up	iP	20 46 32.9	
"	20	Um	iP	23 44 26.9	
"	20	Up	iP	23 48 48.9	
		Ki	eP	23 48 28	
		Um	iP	23 48 33.3	C
		Formosa (h = 60 km).			
"	21	Um	iSKP	01 53 21.1	
		South of Fiji Islands			
		(h = 610 km).			
"	21	Ki	iPn	05 44 15.8	
			iSn	05 45 11.7	
			iSg	05 45 34.5	
			D = 510 km = 4.6°.		
		Um	iSn	05 45 56.1	
			iSg	05 46 44.9	
		Northwest Russia.			
		Origin time = 05 43 04.			
		Explosion?			
"	21	Up	iP	09 54 28.5	
		Um	iP	09 54 04.1	
		Japan (h = 40 km).			
"	21	Um	eP	12 02 19	

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

1966
Jan. 21 Up iP 13 19 22.2 C
microns sec
P Z' 0.1 0.5

" 22 Up iP 00 28 52.6 C
iS 00 33 12
microns sec
S N 1.1 7
M N 1.4 14
D = 2650 km = 24°.
Ki eP 00 29 54
microns sec
M E 1.1 9
M N 0.5 10
M Z 0.7 9
Gb iP 00 28 50.4
Um iP 00 29 21.5
iS 00 34 02
i 00 34 16
Turkey (h = 25 km).

" 22 Up iP 02 31 46.2
California (h = 15 km).

" 22 Up iPKP 04 14 34.9
Sk iPKP 04 14 24.6
Um iPKP 04 14 21.6
Kermadec Islands
(h = 30 km).

" 22 Up iP 07 49 13.2
Ki iP 07 48 59.7
microns sec
P Z' 0.1 1.0
Sk iP 07 48 53.7
✓ Um iP 07 49 09.5
ipP 07 49 46.8
Mexico.
h = 150 km (Um).

" 22 Um iP 08 00 14.0
Mexico (h = 120 km).

" 22 Up i(PKP) 11 19 08.9
Ki iPKP 11 19 05.0
Sk ePKP 11 19 15
Um iPKP 11 19 11.1
iSKP 11 21 46.0
Ka iPKP 11 19 20.7
Fiji Islands (h = 600 km).

" 22 Um iP 13 15 36.9

" 22 Up iP 14 37 40.8 C
i 14 38 31.0
i 14 40 20.8
(cont.)

1966
Jan. 22 (cont.)
Up iS 14 46 18
iPS 14 46 42
microns sec
P Z' 0.2 1.0
S E 3.6 14
S N 3.4 17
M E 7.5 18
M N 8.4 19
M Z 9.2 18
D = 7100 km = 64°.
Ki iP 14 36 46.7 C
iS 14 44 34
microns sec
P N 0.6 8
P Z 1.0 8
P Z' 0.4 1.3
S E 4.6 15
S N 4.1 15
M E 4.6 18
M N 7.6 22
M Z 16 22
Sk iP 14 37 14.2 C
Gb iP 14 37 53.0 C
ipP 14 38 02.3
Um iP 14 37 14.5 C
iS 14 45 31
Ka iP 14 38 02.6
ipP 14 38 12.7
South of Alaska.
h = 40 km (Gb,Ka).
Magn. = 6.2 (Up,Ki).

" 22 Um iPKP 19 18 46.4
New Hebrides Islands
(h = 50 km).

" 22 Ki iP 22 16 22.7
microns sec
P Z' 0.2 1.5
Sk iP 22 16 50.0
Um iP 22 16 53.7 C
Alaska (h = 50 km).

" 22 Up iSg 23 51 40.7
Ki ePn 23 48 04
iSn 23 48 52.6
iSg 23 49 12.6
D = 440 km = 4.0°.
Sk eSn 23 50 34
iSg 23 51 22.8
Um ePn 23 48 19
iSn 23 49 14.0
iSg 23 49 42.0
D = 540 km = 4.9°.
Northwest Russia-Finland
(cont.)

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

1966
Jan. 22 (cont.)
border region,
66.5°N, 30.2°E.
Origin time = 23 47 00.
Explosion?

" 23 Um iP 00 43 05.5
Alaska (h = 120 km).

" 23 Up ---
microns sec
M E 0.8 18
M Z 1.3 20
Ki iS 01 20 27
microns sec
M E 1.2 18
M N 0.7 18
M Z 1.4 19
√ Um eP 01 10 07
i 01 10 15.2
iS 01 20 48
iPS 01 21 44
Mexico(h = 30 km).

" 23 Up iP 02 08 10.4
microns sec
P Z' 0.1 1.0
Ki iP 02 07 39.1
microns sec
P Z' 0.1 1.2
Sk eP 02 07 44
√ Um iP 02 07 56.9
New Mexico (h = 10 km).
Magn. = 5.8 (Up,Ki).

" 23 Um iP 11 27 00.2
Japan (h = 5 km).

" 23 Up iPKP 15 23 44.7
Um iPKP 15 23 34.6
Kermadec Islands
(h = 50 km).

" 23 Up iP 23 20 44.9
Ki iP 23 20 06.0
Sk iP 23 20 39.8
Um iP 23 20 23.4 C
ipP 23 20 36.1
Japan.
h = 50 km (Um).

" 24 Up iP 02 23 20.7
Ki eP 02 23 34
microns sec
M E 0.7 9
M N 0.4 8
m Z 0.7 9
(cont.)

1966
Jan. 24 (cont.)
Sk iP 02 23 49.0
Gb iP 02 23 39.9 C
Um iP 02 23 22.5
i 02 23 27.2
Afghanistan (h = 30 km).

" 24 Up iP 07 31 29.1 C
i(PP) 07 33 36.2
iS 07 38 09
iSS 07 41 44
iL(3.23) 07 49 31
microns sec
P Z' 0.1 0.7
S E 0.4 6
M E 4.4 21
M N 6.5 19
M Z 6.1 19
D = 5100 km = 46°.
Ki iP 07 31 44.6 C
iS 07 38 39
iSS 07 42 24
microns sec
P E 0.3 7
P Z 0.5 7
P Z' 0.1 1.1
S E 0.4 7
M E 2.3 15
M N 2.3 16
M Z 2.0 13
D = 5350 km = 48°.
Sk iP 07 31 56.8 C
Gb iP 07 31 47.7 C
Um iP 07 31 31.0 C
iPP 07 33 13
iS 07 38 14
iSS 07 41 34
i 07 42 02
West Pakistan (h = 10 km).
Magn. = 5.7 (Up,Ki).
Clear higher mode surface
waves.

" 24 Up iP 15 41 11.1 C
microns sec
M E 0.7 18
M N 1.1 21
M Z 1.5 19
Ki ---
microns sec
M N 0.4 13
Sk iP 15 41 39.1
Gb iP 15 41 30.1 C
Um iP 15 41 13.6
i 15 41 18.2
Ka iP 15 41 11.6
West Pakistan
(h = 5 km).

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

1966
Jan. 24 Up iP 22 04 14.8
microns sec
P Z' 0.1 0.5

" 25 Ki iPg 00 58 10.6
iSg 00 58 58.5
D = 420 km = 3.8°.
Sk iSg 00 59 02.3
Um iP[x] 00 58 30.6
iS[x] 00 59 36.8
iSg 01 00 00.2
Norwegian Sea,
67.5°N, 10.6°E.
Origin time = 00 56 55.

" 25 Um iP 17 12 35.4
√ Panama-Costa Rica
(h = 70 km).

" 25 Up iP 20 37 48.9
i 20 37 52.8
microns sec
P Z' 0.1 0.5

" 26 Up iPKP 01 19 03.3
i 01 19 18.3
Um iPKP 01 19 11.2 D
South Sandwich Islands
(h = 80 km).

" 26 Ki ePn 05 23 52
iSn 05 24 47.1
iSg 05 25 10.1
D = 500 km = 4.5°.
Um eSn 05 25 31
iSg 05 26 08.7
D = 700 km = 6.3°.
Northwest Russia,
67.8°N, 32.4°E.
Origin time = 05 22 42.
Explosion?

" 26 Up iP 10 43 05.6
Um iP 10 42 47.7 D
Bonin Islands (h = 500 km).

" 26 Up iP 11 30 20.0
i 11 30 27.8
i 11 30 33.2
Ki iP 11 29 59.4
ipP 11 30 11.4
microns sec
pP Z' 0.1 1.0
Um iP 11 30 05.7
ipP 11 30 15.6
Luzon.
h = 40 km (Ki,Um).

1966
Jan. 26 Ki ePn 13 19 56
iSn 13 20 41.1
iSg 13 20 55.2
D = 390 km = 3.5°.
Sk iSg 13 23 22.0
Um iSn 13 21 23.3
iSg 13 21 53.2
D = 580 km = 5.2°.
Northwest Russia-Finland
border region, 67.4°N,
29.6°E.
Origin time = 13 19 00.
Explosion?

" 26 Up eP 13 35 10
Sk iP 13 35 48.8
Greece (h = 50 km).

" 26 Up iP 14 52 59.5

" 26 Um iPKP 15 49 18.2
New Hebrides Islands
(h = 210 km).

" 26 Ki iPn 17 38 46.7
eSn 17 39 35
iSg 17 39 49.8
D = 410 km = 3.7°.
Um iSg 17 41 20.2
Northwest Russia.
Origin time = 17 37 48.
Explosion?

" 26 Up iP 20 57 35.8

" 26 Up iP 23 05 33.3 C
Ki iP 23 05 01.4
Um iP 23 05 14.5
Bonin Islands (h = 440 km).

" 26 Up iP 23 41 23.1

" 27 Um iSKP 02 22 18.1
Fiji Islands (h = 600 km).

" 27 Up iP 10 30 44.9
Um iP 10 30 18.9
Unimak Island (h = 30 km).

" 27 Um iP 10 55 24.1

" 27 Up iP 12 11 34.1
Um iP 12 11 10.8
iPcP 12 11 36.9
Japan (h = 70 km).

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

1966
Jan. 27 Um iPKP 17 35 16.0
Loyalty Islands
(h = 30 km).

" 27 Up iP 19 50 02.5
microns sec
P Z' 0.1 0.6
Ki iP 19 49 10.0 D
i 19 49 27.7
microns sec
P Z' 0.1 0.5
Sk iP 19 49 42.1
Um iP 19 49 35.4
i 19 49 42.3
Aleutian Islands
(h = 40 km).
Magn. = 6.0 (Up,Ki).

" 28 Up iPKP 00 04 32.7
Ki iPKP 00 04 18.6
Um iPKP 00 04 24.9
New Hebrides Islands
(h = 210 km).

" 28 Um iP 01 01 19.8

" 28 Up e(PKP) 04 55 02
iPKP 04 55 04.7
iSKP 04 57 44.6
Ki e(PKP) 04 54 43
iPKP 04 54 48.2
Sk e(PKP) 04 54 56
iPKP 04 54 59.2
iSKP 04 57 36.5
Gb iPKP 04 55 02.7
Um i(PKP) 04 54 53.5
iPKP 04 54 55.0
iSKP 04 57 30.1
iSS 05 14 08
Ka i(PKP) 04 55 04.3
iPKP 04 55 10.6
iSKP 04 57 53.3
Fiji Islands
(h = 560 km).
(PKP) is a small-amplitude precursor, PKP having the larger amplitudes.

" 28 Up iPKP 06 01 31.2
iPKS 06 04 59
i 06 08 05
microns sec
PKS N 0.6 3
M E 9.0 23
M N 10 23
M Z 9.1 23
(cont.)

1966
Jan. 28 (cont.)
Ki iPKP 06 01 16.4 C
microns sec
M E 5.6 20
M N 6.7 20
M Z 11 21
Sk iPKP 06 01 27.3
Um iPKP 06 01 23.2
i 06 04 14
iPKS 06 04 56
i 06 20 06
New Hebrides Islands
(h = 25 km).
Magn. = 6.6 (Up,Ki).

" 28 Up iP 08 59 35.9
iPP 09 01 10.4
microns sec
M E 0.7 15
M N 0.8 14
M Z 0.9 14
Ki iP 08 59 39.0
i 09 11 05
iLgl 09 13 09
microns sec
P Z' 0.1 1.1
M E 0.7 10
M N 0.9 9
M Z 1.0 10
Sk iP 09 00 00.0 C
Gb iPP 09 01 40.1
Um iP 08 59 31.3
i(Lgl) 09 11 56
Ka eP 08 59 41
Tadzhik-Sinkiang
(h = 20 km).
Beautiful higher mode surface waves.

" 28 Um iPKP 09 45 43.9
Fiji Islands (h = 580 km).

" 28 Ki iP 11 38 07.9

" 28 Up iP 14 50 05.3 C

" 28 Up iP 19 18 09.8
ipP 19 18 26.9
Aleutian Islands.
h = 70 km (Up).

" 28 Up iP 22 48 35.4
iPcP 22 49 09.6
Ki iP 22 47 41.7
i 22 48 12.6
Gb iP 22 48 56.7 C
(cont.)

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

1966 Jan. 28 (cont.)
Um iP 22 48 08.8
ipP 22 48 31.1
iPcP 22 48 53.0
Kamchatka.
h = 90 km (Um).

" 28 Um iP 23 57 38.1
Unimak Island
(h = 170 km).

" 29 Um iPKP 02 56 37.3 C
i 02 56 43.1
Kermadec Islands
(h = 30 km).

" 29 Up iP 08 03 06.1
ipP 08 03 19.1
Ki iP 08 02 19.6
ipP 08 02 31.9
microns sec
P Z' 0.1 0.8
Um iP 08 02 40.8
ipP 08 02 53.0
Kurile Islands.
h = 50 km (Up,Ki,Um).

" 29 Um iP 13 44 41.5

" 29 Ki e 13 59 22
iSg 13 59 40.5
Sk iSg 13 59 45.1
Um iPg 13 59 19.6
iSn 13 59 54.1
iSg 14 00 06.4
D = 390 km = 3.5°.
Nordlands Fylke, Norway,
66.4°N, 14.6°E.
Origin time = 13 58 11.
Solution checked by
Norwegian and Finnish
readings.

" 29 Up iP 14 53 09.5
Ki iP 14 52 58.2
Sk eP 14 52 47
Um iP 14 53 01.4
i 14 53 05.9
Mexico-Guatemala
(h = 5 km).

" 29 Up iP 15 10 24.8
Um iP 15 09 56.0 D
Aleutian Islands
(h = 30 km).

1966 Jan. 29 Up iP 19 54 01.1
microns sec
P Z' 0.1 1.0

" 30 Up iP 03 06 36.2 D
Ki iP 03 07 53.8
Sk iP 03 07 20.2
Um eP 03 07 14
i 03 07 17.0
Greece (h = 70 km).

" 30 Ki ePn 04 51 49
eSn 04 52 47
iSg 04 53 11.2
D = 520 km = 4.7°.
Sk eSg 04 55 43
Um iSn 04 53 26.4
iSg 04 54 00.7
Northwest Russia,
67.5°N, 32.7°E.
Origin time = 04 50 36.
Explosion?

" 30 Up iP 06 51 43.6
Sk iP 06 52 25.2
Um iP 06 52 21.4 C
i 06 52 31.1
Greece (h = 50 km).

" 30 Um iP 07 28 06.6
Jan Mayen-Spitsbergen
(h = 30 km).

" 30 Um iPKP 09 36 29.0
Ka iPKP 09 36 39.4
South of Kermadec Islands
(h = 50 km).

" 31 Up iP 00 56 34.4 D
Um iP 00 56 08.0
Kurile Islands (h = 30 km).

" 31 Up iP 02 45 25.8 C
i 02 45 34.5
Ki iP 02 45 12.7
microns sec
P Z' 0.1 1.2
Sk iP 02 45 39.4
Um iP 02 45 14.8
Yunnan (h = 30 km).

" 31 Um iP 03 15 09.3
Japan (h = 60 km).

" 31 Up iP 04 35 38.1
(cont.)

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

1966

Jan.	31	(cont.)			
		Um	iP	04 36 16.8	
		Greece (h = 40 km).			
"	31	Um	iP	05 05 19.8	C
		South of Japan			
		(h = 90 km).			
"	31	Um	iP	19 01 59.3	
"	31	Um	iP	19 31 07.8	
		Aleutian Islands			
		(h = 30 km).			
"	31	Um	iP	22 23 58.4	
			i	22 24 09.9	
"	31	Up	iP	23 14 20.4	
		Aleutian Islands			
		(h = 30 km).			

Markus Båth
July 15, 1966

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

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

FEBRUARY 1 - 28, 1966

1966 Feb.	1	Um	eP	03 29 23	
"	1	Up	iP	06 05 11.3	
			i	06 06 33.0	
		Ki	iP	06 05 20.9	D
		Sk	iP	06 05 36.9	
		Gb	iP	06 05 34.2	
		Um	iP	06 05 07.9	
			iPP	06 06 12.7	
			i	06 07 27.0	
			i	06 09 09.2	
		Ka	iP	06 05 15.0	
		Kazakh SSR (h = 30 km).			
"	1	Um	iP	06 22 48.0	
"	1	Ki	iP	07 14 48.6	
		Iran-Iraq (h = 5 km).			
"	1	Up	iP	10 25 57.6	
"	1	Up	iP	14 49 46.1	
"	1	Up	iP	16 52 18.5	
"	1	Sk	iP	19 13 31.4	
"	2	Ki	iP	09 28 22.7	
		Sk	iP	09 28 39.7	C
		Gb	iP	09 28 33.6	
		Um	iP	09 28 13.0	C
			i	09 28 19.2	
		Ka	iP	09 28 19.3	
			i	09 28 22.1	
		West Pakistan (h = 25 km).			

1966 Feb.	2	Ki	iPn	13 30 42.8	
			iSn	13 31 31.2	
			iSg	13 31 45.8	
			D = 410 km = 3.7°.		
		Um	iSg	13 33 13.5	
		Northwest Russia.			
		Origin time = 13 29 44.			
		Explosion?			
"	2	Up	iPKP	17 29 28.1	
		Sk	iPKP	17 29 25.7	
		Gb	iPKP	17 29 38.1	
		Um	iPKP	17 29 16.8	
			i	17 29 23.0	
		Ka	iPKP	17 29 41.2	
			i	17 29 59.5	
		Fiji Islands (h = 230 km).			
"	2	Up	iP	20 46 03.6	
				microns sec	
			P	Z' 0.1 0.5	
"	3	Up	iP	02 30 13.1	D
		Ki	iP	02 29 22.0	
		Um	iP	02 29 45.3	
		Kurile Islands (h = 120 km).			
"	3	Ki	ePn	03 53 24	
			iSn	03 54 10.5	
			iSg	03 54 27.5	
			D = 420 km = 3.8°.		
		Um	iSn	03 55 22.4	
			iSg	03 55 58.3	
		Northwest Russia, (cont.)			

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

1966
Feb. 3 (cont.)
69.1°N, 30.4°E.
Origin time = 03 52 23.
Explosion?

" 3 Ki iPn 05 41 08.9
iSn 05 42 04.7
iSg 05 42 22.4
D = 470 km = 4.2°.
Sk eSn 05 43 58
iSg 05 44 58.2
Um iPn 05 41 36.0
iSn 05 42 49.7
iSg 05 43 25.2
D = 690 km = 6.2°.
Northwest Russia,
68.1°N, 31.6°E.
Origin time = 05 40 03.
Explosion?

" 3 Up iP 06 01 25.9 C
iPP 06 05 32.2
Ki iP 06 01 12.1
i 06 01 15.5
microns sec
P Z' 0.3 1.2
M N 1.1 18
Sk iP 06 01 32.6
Um iP 06 01 16.7 C
Ka eP 06 01 35
Celebes (h = 130 km).

" 3 Up iP 12 10 47.6 D
i 12 10 50.3
ipP 12 11 04.4
microns sec
P Z' 0.2 0.9
Ki iP 12 10 28.6 D
i 12 10 30.9
microns sec
P Z' 0.2 1.0
Sk iP 12 10 52.7 D
Gb iP 12 11 06.0
Um iP 12 10 34.2
Ka iP 12 10 59.1
Luzon.
h = 70 km (Up).
Magn. = 6.0 (Up,Ki).

" 3 Up iP 13 27 55.6
Um iP 13 28 36.0
Ka iP 13 27 16.9 C
Sicily (h = 250 km).

" 3 Up iP 14 28 56.2

1966
Feb. 3 Up iP 14 31 38.1
microns sec
P Z' 0.1 0.6

" 3 Up iP 15 13 38.0

" 3 Up iP 17 23 13.6
microns sec
M E 1.8 19
M Z 1.6 17
Ki iP 17 22 46.2
microns sec
M E 1.1 13
M N 0.6 14
M Z 1.1 13
Um iP 17 22 56.0
Formosa (h = 25 km).

" 3 Up eP 17 32 50
i 17 33 03.5
microns sec
M E 1.9 17
M N 1.8 18
M Z 2.7 17
Ki eP 17 32 27
microns sec
M E 1.3 13
M N 0.7 16
M Z 1.4 13
Um iP 17 32 37.4
Formosa (h = 60 km).

" 3 Up iP 18 09 29.4 D
microns sec
M E 1.7 18
M N 1.8 22
M Z 2.3 18
Ki ---
microns sec
M E 1.1 13
M N 0.9 13
M Z 1.4 13
Um iP 18 09 13.9
Formosa (h = 40 km).
Magn. = 5.6 (Up,Ki).

" 3 Um iP 19 39 01.3

" 3 Um iP 20 10 34.7
Kurile Islands
(h = 30 km).

" 3 Up iP 20 41 41.0 D
microns sec
P Z' 0.1 0.6

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

1966
Feb. 3 Up iP 21 52 19.1 C

" 3 Up iP 22 31 17.6

" 4 Um iPKP 05 23 44.1
Tonga Islands
(h = 25 km).

" 4 Up eP 08 43 32
microns sec
M E 1.3 12
M N 1.8 18
M Z 1.6 17
Ki iP 08 44 40.4
microns sec
M N 1.0 13
M Z 1.4 13
Sk iP 08 44 09.9
Gb iP 08 43 23.2
Um iP 08 44 04.4
Ka iP 08 42 58.1
Crete (h = 20 km).

" 4 Up iPKP 10 58 01.8
iSKP 11 01 09.3
iPKS 11 01 28
eSP 11 10 19
microns sec
SKP N 0.7 3
SKP Z' 0.6 0.8
M N 2.4 20
M Z 4.3 22
Ki iPKP 10 57 46.9
iSKP 11 00 45.9
i 11 11 55
microns sec
M E 1.9 20
M N 2.0 20
M Z 1.8 21
Sk iPKP 10 58 00.9
iSKP 11 01 03.3
Gb iSKP 11 01 20.6
Um iPKP 10 57 54.0
iSKP 11 00 56.0
i 11 01 00.1
i 11 10 34.6
Ka iSKP 11 01 22.2
New Hebrides Islands
(h = 190 km).
Our stations cover the distance range 124°-134°, and the amplitudes of SKP show some striking variations with distance, compared to PKP:
(cont.)

1966
Feb. 4 (cont.)
Ki 124° SKP very small
Um 127 SKP slightly greater than PKP
Sk 130
Up 132 } SKP much greater than PKP
Ka,Gb 134

" 4 Up iP 13 01 26.6 C

" 4 Ki iP 14 48 50.4 C

" 4 Um eP 15 55 54

" 4 Um iPKP 21 04 11.4
South of Australia
(h = 30 km).

" 4 Up iP 21 05 56.0
Ki iP 21 05 42.4
microns sec
P Z' 0.1 1.0
Um iP 21 05 45.7 C
South China Sea
(h = 70 km).

" 5 Um iP 01 35 32.4
Kamchatka (h = 15 km).

" 5 Up iP 02 06 26.9
iS 02 10 14
i(S) 02 10 18
i 02 11 03
iLg1 02 12 49
i 02 13 29
iRg 02 14 15
microns sec
P N 1.9 3
P Z 1.6 3
P Z' 0.7 0.7
S E 12 8
S N 13 8
S Z 11 10
M E 73 14
M N 66 15
M Z 76 18
D = 2300 km = 20 1/2°.
Ki iP 02 07 43.1 C
iS 02 12 28
i 02 15 11
iLg1 02 17 09
iLg2 02 17 23
microns sec
P N 1.5 4
P Z 1.5 3
P Z' 0.7 1.0
(cont.)

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

1966 Feb. 5 (cont.)

Ki microns sec
S E 2.0 6
S N 3.4 10
M E 36 15
M N 34 15
M Z 36 15
D = 3150 km = 28 1/2°.

Sk iP 02 07 09.7
Gb iP 02 06 16.0
Um iP 02 07 06.0 C
iS 02 11 11
i(S) 02 11 29
Ka iP 02 05 48.3
Greece (h = 40 km).
Magn. = 6.2 (Up,Ki).
P exhibits multiplicity with successively larger onsets, arriving about 1.4 and 4.4 sec after the first one, especially clear on Um Z'. This is typical for Greek earthquakes. - Especially the long-period N and Z records at Up and Um show from P at least up to S, in addition to the short-period motion, also a long-period wave train, with periods around 50 sec. - Exceptionally well developed higher mode surface waves are also recorded, especially on Kiruna Galitzin.

" 5 Up iP 02 14 12.2
microns sec
P Z' 0.1 0.7
Um iP 02 14 22.3

" 5 Up iP 02 15 47.9
Sk iP 02 16 31.9
Greece (h = 30 km).

" 5 Up iP 03 02 38.9 D
microns sec
P Z' 0.1 0.5
Ki iP 03 03 54.4
i 03 03 59.0
microns sec
P Z' 0.1 1.3
Sk iP 03 03 21.5
i 03 03 26.8
Gb iP 03 02 34.2
Um iP 03 03 18.1
Greece (h = 50 km).
Magn. = 5.5 (Up,Ki).

1966 Feb. 5 Up iP 12 00 50.8 C

" 5 Up iP 14 35 12.3
Ki iP 14 34 18.2
Um iP 14 34 43.3
Gb iP 14 35 32.7 D
Kamchatka (h = 40 km).

" 5 Up iP 15 23 12.8 C
iS 15 31 57
microns sec
P E 0.8 4
P Z' 0.4 0.7
M E 10 17
M N 26 20
M Z 16 19
D = 7350 km = 66°.
Ki iP 15 22 58.1
iS 15 31 30
microns sec
P Z' 0.9 1.5
S E 2.5 8
S N 1.2 6
M E 13 14
M N 30 17
M Z 15 13
D = 7050 km = 63 1/2°.
Sk iP 15 23 24.6
Gb iP 15 23 34.9
Um iP 15 23 00.8 C
iS 15 31 34
iScS 15 32 54
iSS 15 35 46
Ka iP 15 23 25.1
Yunnan (h = 15 km).
Magn. = 6.6 (Up,Ki).

" 5 Up iP 16 18 38.9
Sk eP 16 18 45
Um iP 16 18 27.3
Yunnan (h = 30 km).

" 5 Up iP 16 26 31.7
microns sec
P Z' 0.5 0.7
Ki iP 16 25 40.7
i 16 25 47.3
ipP 16 26 12.7
microns sec
P Z' 0.4 1.0
Sk iP 16 26 17.4
ipP 16 26 51.9
iPP 16 28 35.8
Gb iP 16 26 52.6
Um iP 16 26 04.7 D
ipP 16 26 36.5
(cont.)

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

1966
Feb. 5 (cont.)
Ka iP 16 26 56.1
Kurile Islands.
h = 140 km (Ki,Sk,Um).
Magn. = 6.4 (Up,Ki).

" 5 Sk iP 18 35 03.3

" 5 Up iP 19 06 07.4 C
Ki iP 19 05 52.9
Um iP 19 05 55.8
Szechwan (h = 30 km).

" 5 Up iPKP 23 33 15.5 C
Solomon Islands
(h = 70 km).

" 6 Up iP 02 30 01.5
Ki iP 02 29 36.0
Philippine Islands
(h = 30 km).

" 6 Up iP 04 25 00.7
Ki iP 04 24 48.1 C
microns sec
P Z' 0.2 1.3
Sk iP 04 24 42.2
i 04 25 27.8
Um iP 04 24 56.4 C
i 04 25 24.3
Mexico (h = 90 km).

" 6 Ki iSn 07 42 12.8
iSg 07 42 36.2
D = 460 km = 4.2°.
Sk iSg 07 45 05.1
Um iSn 07 42 53.3
iSg 07 43 20.9
D = 620 km = 5.6°.
Northwest Russia,
66.9°N, 31.6°E.
Origin time = 07 40 18.
Explosion?

" 6 Up iP 09 24 04.7
microns sec
P Z' 0.1 0.6
Ki iP 09 23 49.7
microns sec
P Z' 0.1 1.2
Sk iP 09 24 15.8
Gb iP 09 24 26.0
Um iP 09 23 52.3
Ka iP 09 24 16.9
Yunnan (h = 5 km).
Magn. = 5.8 (Up,Ki).

1966
Feb. 6 Ki iPKP 10 11 41.2
Um iPKP 10 11 37.4
South Sandwich Islands
(h = 15 km).

" 6 Ki iP 10 17 13.4

" 6 Ki iP 10 27 20.7
Um iP 10 27 46.5
Off coast of northern
California (h = 30 km).

" 6 Ki iPn 12 33 23.7
iSn 12 34 09.0
iSg 12 34 24.8
D = 400 km = 3.6°.
Sk eSg 12 36 50
Um ePn 12 33 48
iSn 12 34 51.3
iSg 12 35 21.2
D = 590 km = 5.3°.
Northwest Russia,
67.5°N, 29.9°E.
Origin time = 12 32 26.
Explosion?

" 6 Up iP 13 29 19.5
Sk iP 13 30 01.9
Um iP 13 30 05.7
Greece (h = 40 km).

" 6 Um iP 19 16 16.5
Japan (h = 40 km).

" 6 Up iP 23 38 04.0
Ki iP 23 37 07.8 C
ipP 23 37 26.8
microns sec
P Z' 0.1 1.0
Sk iP 23 37 36.4
Gb iP 23 38 16.9
Um iP 23 37 37.0 C
ipP 23 37 55.8
Ka iP 23 38 28.5
Alaska.
h = 80 km (Ki,Um).

" 6 Um iP 23 42 23.1

" 7 Up iPKP 00 58 49.5 C
Um iPKP 00 58 37.2

" 7 Up iP 02 56 35.2

" 7 Up iP 04 34 32.3 C
i 04 34 33.8
i! 04 34 36.9
(cont.)

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

1966 Feb. 7 (cont.)

Up	iPP	04 36 30	
	i	04 36 55	
	eS	04 41 18	
	iSS	04 44 52	
		microns	sec
	P	Z' 0.7	0.9
	PP	E 1.0	4
	S	E 2.0	5
	M	E 46	17
	M	N 180	23
	M	Z 87	23
	D = 5050 km = 45 1/2°.		
Ki	iP	04 34 49.4	C
	i!	04 34 53.8	
	i	04 37 01.9	
	iS	04 41 35	
	i(SS)	04 44 49	
	iSa	04 45 34	
		microns	sec
	P	Z' 0.2	1.0
	S	E 1.8	5
	S	N 2.1	12
	M	E 60	17
	M	N 56	14
	M	Z 39	14
	D = 5300 km = 47 1/2°.		
Sk	iP	04 34 59.8	C
	i!	04 35 04.1	
Gb	iP	04 34 52.2	
	i!	04 34 57.9	
	iPP	04 36 55.7	
Um	iP	04 34 34.2	C
	i!	04 34 38.7	
	iPP	04 36 23	
	iS	04 41 13	
	iSS	04 44 47	
Ka	iP	04 34 33.3	C
	i!	04 34 37.0	
	iPP	04 36 16.9	

West Pakistan (h = 30 km).
Magn. = 6.4 (Up,Ki).
P shows multiplicity; the phase with exclamation mark, following P after 4.6 sec in average, has much larger amplitude than the initial P.

"	7	Um	iP	05 04 34.6
"	7	Um	iP	05 11 55.5
"	7	Up	iP	05 30 06.6
			i	05 30 14.1
			iPP	05 31 47.0

(cont.)

1966 Feb. 7 (cont.)

Up		microns	sec
	P	Z' 0.1	1.0
Ki	iP	05 30 27.4	
Sk	eP	05 30 38	
Gb	iP	05 30 27.3	
Um	iP	05 30 07.9	C
Ka	iP	05 30 07.5	
	i	05 30 42.8	

West Pakistan (h = 10 km).

"	7	Up	iP	05 38 35.3
			i	05 38 38.9
			microns	sec
		P	Z' 0.1	0.8
		Ki	iP	05 38 55.2
			microns	sec
		P	Z' 0.2	1.5
		Sk	iP	05 39 02.7
		Gb	iP	05 38 57.5
		Um	iP	05 38 37.1 C
		Ka	iP	05 38 37.9
			i	05 38 52.9

West Pakistan (h = 50 km).
Magn. = 5.8 (Up,Ki).

"	7	Um	iP	07 36 36.9

Pakistan.

"	7	Um	iP	08 46 37.4

West Pakistan (h = 15 km).

"	7	Um	iP	09 32 25.8
			i	09 32 35.8
"	7	Ki	iP	13 00 28.3
		Um	iP	13 00 55.8
			ipP	13 01 05.8

South of Alaska.
h = 40 km (Um).

"	7	Um	iP	14 20 41.2
"	7	Up	iP	23 14 55.3 C
			iPcP	23 16 34.5
			iPP	23 16 47
			iS	23 21 32
			eSS	23 24 56
			microns	sec
		P	Z' 0.2	1.0
		PP	E 0.8	6
		S	E 1.7	7
		S	N 1.2	6
		M	E 38	20
		M	N 71	18
		M	Z 58	22
		D = 5100 km = 46°.		

(cont.)

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

1966
Feb. 7 (cont.)

Ki	iP	23 15 10.3	
	i	23 15 42.7	
	iPcP	23 16 42.9	
	i	23 17 19.6	
	iS	23 22 06	
	iScS	23 25 04	
	iSS	23 25 35	
	microns	sec	
	P Z'	0.1	1.0
	S N	1.0	7
	M E	36	15
	M N	28	13
	M Z	19	15
	D = 5300 km = 47 1/2°.		
Sk	iP	23 15 23.1	
Gb	iP	23 15 14.7	
	iPP	23 17 00.9	
Um	iP	23 14 57.2	
	i	23 15 45	
	iPP	23 16 47	
	iS	23 21 31	
Ka	iP	23 14 56.7	

West Pakistan (h = 10 km).
Magn. = 6.1 (Up,Ki).
A similar multiplicity (with P2 - P1 = 4.5 sec) as for Feb. 7, 04 34, is observed also here, although less pronounced. - Clear higher mode surface waves.

" 8 Um iP 00 19 54.1
West Pakistan (h = 30 km).

" 8 Um iP 00 34 37.9

" 8 Up i(Sg) 01 32 59.2

" 8 Um iP 07 20 12.6
Japan (h = 40 km).

" 8

Up	iPKP	10 20 28.4
Gb	iPKP	10 20 38.4
Um	iPKP	10 20 22.7
	i	10 20 29.3
Ka	iPKP	10 20 40.6

Fiji Islands (h = 530 km).

" 8

Ki	iP	13 22 40.2
Gb	iP	13 21 30.4

Rhodes Island (h = 80 km).

" 8 Um iP 19 59 36.2
Alaska (h = 15 km).

1966
Feb. 8

Up	iP	20 12 27.2	C
	i	20 12 49.9	
	microns	sec	
	M E	1.1	15
	M Z	2.0	13
Ki	iP	20 13 43.6	
	microns	sec	
	M E	1.8	16
	M N	1.0	15
	M Z	1.1	15
Sk	iP	20 13 14.3	
Um	iP	20 13 06.4	
Ka	iP	20 11 52.6	

Greece-Bulgaria
(h = 30 km).

" 9 Ki ---

microns	sec	
M E	1.9	20
M N	0.7	18
M Z	2.5	20
Sk iP	01 07 46.9	
Um iP	01 08 01.9	

Mexico (h = 50 km).

" 9

Up	iPKP	04 59 16.9
	e(SS)	05 17 05
	microns	sec
	M E	4.3	19
	M N	7.2	18
	M Z	6.5	20
Ki	iPKP	04 59 33.1
	i	04 59 38.6
	iSKP	05 02 50
	microns	sec
	PKP Z'	0.2	1.5
	SKP E	0.7	5
	SKP N	0.7	7
	M E	4.1	19
	M N	3.6	18
	M Z	6.6	18
Um	iPKP	04 59 26.2	
	iPP	05 01 21	
	i	05 01 43	
	eSKSP	05 11 08	

South Sandwich Islands
(h = 25 km).
Magn. = 6.4 (Up,Ki).

" 9

Ki	iP	07 32 34.2	C
	microns	sec	
	P Z'	0.1	1.0
Sk	iP	07 32 51.6	C
Um	iP	07 32 35.5	
	iPP	07 37 00.9	

Sumbawa (h = 30 km).

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

1966 Feb.	9	Up	ipP	08 26 35.2	
			i	08 26 39.9	
		Ki	iP	08 26 23.9	
			ipP	08 26 41.7	
		Um	ipP	08 26 35.3	
		Sumatra.			
		h = 70 km (Ki).			
		This interpretation			
		(of pP and focal depth)			
		is supported by readings			
		at the Finnish			
		stations.			
"	9	Up	iP	08 30 37.8 C	
		Sk	iP	08 31 04.8	
		Gb	iP	08 30 56.2	
		Um	iP	08 30 39.5	
		Ka	iP	08 30 38.1	
		West Pakistan (h = 30 km).			
"	9	Ki	iPKP	09 01 30.6	
		South Sandwich Islands			
		(h = 30 km).			
"	9	Up	iPKP	10 12 44.4	
				microns sec	
			PKP Z'	0.1 0.6	
		South of Fiji Islands			
		(h = 170 km).			
"	9	Ki	iPKP	11 05 59.6	
				microns sec	
			PKP Z'	0.1 1.3	
		South Sandwich Islands			
		(h = 30 km).			
"	9	Ka	eP	12 27 00	
"	9	Up	iP	13 05 54.6 D	
"	9	Ki	iPKP	14 17 10.1	
		Um	iPKP	14 17 11.4 C	
		Ka	iPKP	14 17 09.1	
		Easter Island Rise			
		(h = 30 km).			
"	9	Up	iP	14 45 47.9	
"	9	Up	iP	14 55 00.3	
		Ki	iP	14 54 23.3 C	
			i	14 54 26.8	
		Sk	iP	14 54 55.5	
		Um	iP	14 54 38.7 C	
		Japan (h = 360 km).			

1966 Feb.	9	Ki	iPKP	20 15 56.4	
			i	20 16 17.0	
		Um	iPKP	20 15 52.9	
		South Sandwich Islands			
		(h = 30 km).			
"	9	Up	iP	23 44 49.6 C	
		Ki	iP	23 44 13.2	
		Um	iP	23 44 28.9	
		South of Japan			
		(h = 50 km).			
"	9	Up	iPn	23 55 22.2	
			i	23 55 23.9	
			iSn	23 56 16.4	
			iSg	23 56 45.3	
			D = 530 km = 4.8°.		
		Ki	iSg	00 00 01.8	
		Sk	eSn	23 56 41	
			iSg	23 57 13.4	
		Gb	iPn	23 54 37.2	
			iSg	23 55 06.2	
			D = 190 km = 1.7°.		
		Um	eSn	23 57 31	
			eS^x	23 58 04	
			iSg	23 58 21.0	
			i	23 58 25.2	
		Ka	eSn	23 55 57	
			iS^x	23 56 17.3	
			iSg	23 56 24.6	
		South coast of Norway,			
		58.3°N, 8.9°E.			
		Origin time = 23 54 07.			
"	10	Up	iPKP	01 44 02.7	
		Um	iPKP	01 43 50.4	
		Kermadec Islands			
		(h = 30 km).			
"	10	Up	iP	05 41 12.3	
				microns sec	
			M E	0.6 14	
			M N	1.2 20	
			M Z	1.3 17	
		Ki	eP	05 40 37	
			iS	05 50 01	
			iScS	05 50 41	
				microns sec	
			P Z'	0.1 1.2	
			M E	1.1 20	
			M N	1.3 20	
			M Z	1.6 16	
			D = 8050 km = 72 1/2°.		
		Um	iP	05 40 50.6	
			iS	05 50 26	

(cont.)

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

1966 Feb. 10 (cont.)

Ka iP 05 41 28.6
South of Japan
(h = 30 km).
Magn. = 5.6 (Up,Ki).

" 10 Um iP 06 15 32.6

" 10 Um iP 12 07 28.3

" 10 Ka iP 12 31 55.0

" 10 Up iP 12 49 21.5
Ki iP 12 48 26.7
i 12 48 43.2
microns sec
P Z' 0.1 1.0
Sk iP 12 48 54.3
Gb iP 12 49 33.1
Um iP 12 48 54.9
Ka iP 12 49 43.6
Kodiak Island (h = 10 km).

" 10 Ka iP 13 13 27.2

" 10 Sk iP 13 27 07.8
Um eP 13 27 06
Greece (h = 30 km).

" 10 Gb iP 13 43 11.2

" 10 Up iP 14 34 03.5
ipP 14 34 20.9
iPP 14 37 31
iSKS 14 44 39
iS 14 45 02
microns sec
P Z' 0.3 0.7
SKS E 1.0 5
S E 1.8 5
M E 6.5 21
M N 7.7 19
M Z 6.5 22
D = 9900 km = 89°.
Ki iP 14 33 33.5
eSKS 14 43 55
iScS 14 44 10
microns sec
P E 0.5 7
P N 0.5 10
P Z 1.8 7
P Z' 0.3 0.9
M E 4.8 20
M N 5.7 20
M Z 5.4 17
D = 9200 km = 83°.

(cont.)

1966 Feb. 10 (cont.)

Sk iP 14 34 00.5
ipP 14 34 16.6
iPP 14 37 29.9
Gb iP 14 34 20.1
ipP 14 34 35.2
iPP 14 38 04.9
Um iP 14 33 46.5 C
ipP 14 34 04.0
iSKS 14 44 04
iS 14 44 13
iScS 14 44 29
Ka iP 14 34 19.5
ipP 14 34 34.4
iPP 14 37 55.5
Mariana Islands.
h = 60 km (Up,Sk,Gb,Um,Ka).
Magn. = 6.4 (Up,Ki).

" 10 Um iP 14 53 58.1
Mariana Islands
(h = 30 km).

" 10 Um iP 16 28 44.4

" 10 Ki iPn 16 55 25.2 C
iP^x 16 55 34.3
iSn 16 56 14.1
iSg 16 56 29.6
D = 420 km = 3.8°.
Sk eSg 16 59 14
Um iPn 16 56 03.4
iSn 16 57 22.9
iSg 16 58 02.4
D = 740 km = 6.7°.
Northwest Russia,
69.4°N, 30.0°E.
Origin time = 16 54 24.
Explosion?

" 10 Up iP 20 24 06.7
iPcP 20 24 35.7
microns sec
P Z' 0.2 0.7
Ki iP 20 23 19.2
microns sec
P Z' 0.2 0.8
Sk iP 20 23 56.2
Gb iP 20 24 28.4
Um iP 20 23 40.9
iPcP 20 24 18.9
Ka iP 20 24 29.0
iPcP 20 24 50.0
Kurile Islands
(h = 160 km).
Magn. = 6.2 (Up,Ki).

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

1966 Feb.	10	Um	iP	23 44 08.6	
		Mexico (h = 60 km).			
"	11	Up	iP	06 54 17.4	
		Sk	iP	06 54 59.9	
		Gb	iP	06 54 06.5	
		Um	iP	06 54 57.0	
		Greece.			
"	11	Up	iP	08 14 30.4	
"	11	Gb	iP	13 36 00.8	
"	12	Um	iPKP	03 14 50.6	
		Kermadec Islands			
		(h = 30 km).			
"	12	Ki	iSg	03 50 13.3	
		Um	iSn	03 51 16.0	
			iSg	03 51 48.8	
		Northwest Russia.			
		Explosion?			
"	12	Um	iP	06 28 47.8	
		Japan (h = 30 km).			
"	12	Um	iP	08 12 19.4	
		Tadzhik SSR (h = 70 km).			
"	12	Um	iP	10 44 50.9	
"	12	Um	iP	11 07 42.9 C	
"	12	Um	iPKP	11 58 15.2	
		Tonga Islands (h = 190 km).			
"	12	Up	iP	13 41 03.5	
		Ki	iP	13 42 18.3	
		Sk	iP	13 41 44.3	
		Gb	iP	13 40 53.3	
		Um	iP	13 41 42.1	
		Greece (h = 30 km).			
"	12	Up	iP	16 41 38.5 D	
			microns sec		
			P Z' 0.1 0.5		
		Ki	iP	16 41 46.1	
		Sk	iP	16 42 04.4	
		Gb	iP	16 42 00.1	
		Um	iP	16 41 36.5 D	
		Ka	iP	16 41 44.6	
		Hindu Kush (h = 190 km).			
"	12	Um	eP	23 39 25	
			i	23 39 32.4	
			i	23 39 44.8	

1966 Feb.	13	Up	iP	05 04 53.2 C	
			iPn	05 05 56.0	
			iPP	05 06 11.0	
			iSn	05 12 14.8	
			i	05 12 32	
			iLgl	05 16 13	
			microns sec		
			P Z' 0.3 0.5		
			PP Z' 0.3 0.5		
			M E 0.7 9		
			D = 3900 km = 35°.		
		Ki	iP	05 04 37.1 C	
			iPP	05 05 36.9	
			iPcP	05 07 16.6	
			microns sec		
			P Z' 1.0 0.8		
			PP Z' 0.3 1.3		
			M E 0.6 10		
			M N 0.3 8		
			M Z 0.6 10		
			D = 3650 km = 33°.		
		Sk	iP	05 05 08.5 C	
			iPP	05 06 24.7	
			iPcP	05 07 30.0	
		Gb	iP	05 05 21.2 C	
			iPP	05 06 41.2	
		Um	iP	05 04 37.9 C	
			iPn	05 05 20.5	
			iLi	05 13 44	
		Ka	iP	05 05 09.2 C	
			iPP	05 06 30.4	
		Kazakh SSR.			
		Magn. = 6.6 (Up,Ki).			
		Underground explosion.			
"	13	Up	iP	06 18 31.9	
		Sk	iP	06 18 19.3	
		Um	iP	06 18 40.3	
		Windward Islands			
		(h = 190 km).			
"	13	Um	iP	06 50 05.4	
			iPP	06 54 38.9	
		Tanimbar Islands			
		(h = 10 km).			
"	13	Ki	iP	10 50 22.7	
			i	10 50 30.5	
			i	10 50 55.8	
			microns sec		
			P Z' 0.1 1.0		
		Sk	iP	10 50 41.0 C	
			iS	10 52 24.0	
		Um	iP	10 51 01.8	
		Norwegian Sea (h = 30 km).			

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

1966					
Feb.	13	Up	iP	10 55 22.2	
			i	10 55 24.0	
			iS	11 04 05	
				microns	sec
			P	Z' 0.5	0.7
			S	E 0.9	5
			S	N 1.8	7
			M	E 2.5	15
			M	N 5.3	20
			M	Z 1.4	15
			D = 7300 km = 65 1/2°.		
		Ki	iP	10 55 07.2	
				microns	sec
			P	Z' 0.4	1.0
		Sk	iP	10 55 33.8	
		Gb	iP	10 55 43.6	
		Um	iP	10 55 10.6	
			iS	11 03 42	
			iScS	11 04 57	
		Ka	iP	10 55 35.3 C	
		Yunnan (h = 30 km).			
		Magn. = 6.4 (Up,Ki).			
"	13	Up	iP	13 27 52.6	
		Um	iP	13 27 26.1	
		Unimak Island (h = 10 km).			
"	13	Up	iP	15 39 53.3	
"	13	Up	iP	15 42 42.7 D	
"	13	Up	iP	19 18 06.6 C	
				microns	sec
			M	E 1.7	18
			M	N 4.3	23
			M	Z 2.3	18
		Sk	iP	19 18 34.1	
		Gb	iP	19 18 24.5	
		Um	iP	19 18 08.6	
		West Pakistan (h = 30 km).			
"	14	Up	iP	05 49 27.6	
		Sk	iP	05 49 54.7	
		Um	iP	05 49 29.5 C	
		West Pakistan (h = 40 km).			
"	14	Um	iP	06 23 42.6	
		Celebes (h = 140 km).			
"	14	Ki	iPKP	06 32 35.2	
		Um	iPKP	06 32 26.9 C	
		South of Australia			
		(h = 30 km).			
"	14	Up	iPKP	08 51 31.5	
		Loyalty Islands			
		(h = 100 km).			

1966					
Feb.	14	Up	eP	12 54 29	
"	14	Up	iP	14 10 21.2 C	
"	14	Up	iP	14 12 17.1 C	
"	14	Up	iP	18 03 15.9	
			iPP	18 03 44.2	
				microns	sec
			P	Z' 0.1	1.0
			M	E 1.0	13
			M	N 2.0	11
			M	Z 2.0	11
		Ki	iP	18 04 22.5	
				microns	sec
			P	Z' 0.2	0.8
			M	E 0.9	18
			M	N 0.7	13
			M	Z 0.8	12
		Sk	iP	18 03 54.4 D	
		Gb	iP	18 03 10.6	
		Um	iP	18 03 47.0 D	
		Ka	iP	18 02 43.9	
		East of Crete (h = 50 km).			
		Magn. = 5.6 (Up,Ki).			
"	14	Up	iP	20 21 38.7	
			i	20 21 43.8	
		Sk	iP	20 22 22.5	
		Um	eP	20 22 18	
		Greece (h = 70 km).			
"	14	Up	eP	21 34 36	
"	15	Um	iP	01 20 56.0	
"	15	Up	iP	01 40 03.3	
			i	01 40 23.8	
		Ki	iP	01 39 33.4	
		Sk	iP	01 40 03.4	
		Gb	eP	01 40 23	
		Um	iP	01 39 45.6	
		Ryukyu Islands (h = 30 km).			
"	15	Ki	iP	03 01 53.8	
		Um	iP	03 02 19.1	
		Aleutian Islands			
		(h = 60 km).			
"	15	Up	iPKP	10 16 00.9	
		Ki	iPKP	10 15 51.6	
		Gb	i(PKP)	10 16 02.6	
			iPKP	10 16 10.8	
		Um	iPKP	10 15 59.5	
		Ka	i(PKP)	10 16 05.8	
			iPKP	10 16 13.6	
		South of Tonga Islands			
		(h = 30 km).			

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

1966 Feb.	15	Up	iPKP	22 33 10.3	C
		Gb	iPKP	22 33 19.4	
		Um	iPKP	22 32 58.2	
		Tonga-Kermadec Islands (h = 600 km).			
"	15	Up	iPKP	22 52 33.1	
			i	22 53 18.1	
		Ki	iSKP	22 54 56.6	
		Sk	iPKP	22 52 26.9	
		Gb	iPKP	22 52 42.4	
			ipPKP	22 55 00.4	
			i	22 55 05.4	
		Um	iPKP	22 52 20.2	
			iSKP	22 55 06.6	
		Ka	iPKP	22 52 43.7	
			ipPKP	22 54 59.6	
		Tonga-Kermadec Islands. h = 610 km (Gb,Ka).			
"	15	Um	iP	23 03 25.7	
"	15	Um	iPKP	23 56 37.9	
		New Hebrides Islands (h = 210 km).			
"	16	Um	iP	00 54 16.8	
"	16	Um	iP	02 17 08.6	
"	16	Up	i(PKP)	03 37 39.0	C
			iPKP	03 37 40.6	
			iPP	03 40 03.1	
			i	03 41 04.6	
			iPKS	03 41 14	
			eSKKS	03 46 51	
			e	03 49 28	
			microns	sec	
			PKP Z'	0.1 1.0	
			PP N	0.7 5	
			PP Z	1.7 8	
			PKS E	2.1 6	
			PKS N	3.8 6	
			M E	13 22	
			M N	30 23	
			M Z	25 21	
			(D = 14800 km = 133°).		
		Ki	iPKP	03 37 25.5	
			i	03 37 37.2	
			iPP	03 39 13	
			iPKS	03 40 38	
			iSKKS	03 46 08	
			iSKSP	03 49 09	
			iSS	03 56 23	
			microns	sec	
			PKP Z'	0.3 1.0	
		(cont.)			
1966 Feb.	16	(cont.)			
		Ki	microns	sec	
			PP E	0.5 8	
			PP N	0.9 8	
			PP Z	1.4 8	
			M E	19 24	
			M N	14 21	
			M Z	30 23	
			(D = 13900 km = 125°).		
		Sk	i(PKP)	03 37 27.0	
			iPKP	03 37 37.3	
			iPKS	03 40 59.2	
		Gb	e(PKP)	03 37 36	
			iPKP	03 37 47.0	
			i	03 37 57.3	
			iPKS	03 41 15.4	
		Um	i(PKP)	03 37 28.1	C
			iPKP	03 37 32.5	
			iPP	03 39 32	
			iPKS	03 40 46	
			iSKKS	03 46 29	
		Ka	i(PKP)	03 37 35.8	
			iPKP	03 37 48.8	
			iPKS	03 41 15.7	
		New Hebrides Islands (h = 30 km). Magn. = 6.8 (Up,Ki).			
"	16	Um	iP	10 36 31.0	
"	16	Up	iP	11 07 08.8	
		Ki	iP	11 08 14.5	C
		Sk	iP	11 07 34.3	
		Um	iP	11 07 44.0	C
		Algeria. Origin time = 11 00 00. Probably underground explosion.			
"	16	Up	iP	12 09 09.5	
			iPcP	12 09 34.8	
		Ki	iP	12 08 16.2	
		Gb	iP	12 09 24.3	
		Um	iP	12 08 43.5	
		Aleutian Islands (h = 50 km).			
"	16	Um	iP	13 38 40.5	
"	16	Um	iP	15 34 58.0	
"	16	Ki	eP	16 07 30	
		Indian Ocean (h = 30 km).			
"	16	Um	iP	17 22 04.5	

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

1966 Feb. 17 Um iP 00 58 15.5
Gulf of California
(h = 30 km).

" 17 Up iP 07 13 16.1
microns sec
P Z' 0.1 0.5

" 17 Sk eP 07 43 11

" 17 Um iPKP 08 02 08.8
South of Kermadec Islands
(h = 30 km).

" 17 Sk eP 10 46 49
Greece (h = 30 km).

" 17 Up ePKP 12 06 23
iSKS 12 12 45
microns sec
M E 5.9 25
M N 7.7 22
M Z 8.0 24
Ki iPP 12 07 02.5
iSKS 12 13 10
ePS 12 16 16
iSS 12 22 24
microns sec
SKS N 0.6 9
M E 4.5 22
M N 3.3 20
M Z 4.4 20
Sk iPP 12 06 57.4
Gb iPKP 12 06 30.7
iPP 12 06 50.7
Um ePKP 12 06 33
iSKS 12 12 50
ePS 12 15 48
Indian Ocean (h = 30 km).
Magn. = 6.3 (Up,Ki).

" 17 Um iP 18 34 39.3
Ka iP 18 34 39.1 C
West Pakistan (h = 20 km).

" 17 Up iPKP 18 38 56.5 C
Gb iPKP 18 39 06.5
Um iPKP 18 38 52.3
iSKP 18 41 36.0
Ka iPKP 18 39 09.0
South of Fiji Islands
(h = 550 km).

" 17 Up iP 19 02 30.4

" 17 Um iP 20 58 55.2
Sunda Strait (h = 30 km).

1966 Feb. 18 Up iP 00 39 16.5
microns sec
P Z' 0.1 0.6
Ki iP 00 38 37.8 C
Sk iP 00 39 11.3 C
Gb iP 00 39 37.2 C
Um iP 00 38 54.8 C
Ka iP 00 39 36.2 C
Japan (h = 70 km).

" 18 Up iP 03 55 55.8
Ki iP 03 55 41.4
Sk iP 03 56 07.6
Um iP 03 55 44.2
Ka iP 03 56 07.3
Yunnan (h = 40 km).

" 18 Ka iPKP 05 17 23.8
Fiji Islands (h = 480 km).

" 18 Up ---
microns sec
M E 1.6 17
M N 1.5 15
M Z 1.1 18
Ki iP 07 11 53.3
iS 07 22 39
microns sec
S E 0.8 9
S N 1.0 7
M E 2.4 18
M N 1.1 18
M Z 3.6 18
D = 9800 km = 88°.
Um iP 07 11 56.9
iSKS 07 22 30
iS 07 22 45
Mindanao (h = 60 km).

" 18 Um iP 14 25 15.2

" 18 Up iP 15 45 20.5 C

" 18 Up iP 19 13 21.1
microns sec
P Z' 0.1 0.6
Ki iP 19 12 36.2 C
microns sec
P Z' 0.1 1.0
Sk iP 19 13 12.1 C
Gb iP 19 13 42.8
Um iP 19 12 56.2 C
Ka iP 19 13 43.2
Japan (h = 230 km).
Magn. = 5.8 (Up,Ki).

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

1966					
Feb.	19	Up	iP	09 50 34.6	
		Um	iP	09 50 32.1	
		Ka	iP	09 50 39.5	
		Hindu Kush (h = 30 km).			
"	19	Up	iP	12 58 27.7	
			isP	12 58 54.6	
			iPP	13 00 21.2	
				microns sec	
			PP	Z' 0.1 1.3	
		Ki	isP	12 59 03.0	
		Sk	eP	12 58 56	
		Gb	eP	12 58 50	
			ipP	12 59 04.3	
		Um	iP	12 58 26.4	
		Ka	iP	12 58 31.8	
			ipP	12 58 48.2	
			isP	12 58 58.0	
		Hindu Kush.			
		h = 70 km (Up,Gb,Ka).			
"	19	Ki	iS^x	13 41 56.3	
			iSg	13 42 00.1	
		Sk	iSg	13 42 04.2	
		Um	iSn	13 42 15.3	
			iSg	13 42 28.8	
		Nordlands Fylke, Norway,			
		66.5°N, 14.6°E.			
		Origin time = 13 40 31.			
"	19	Um	iP	14 30 10.1	
		Japan (h = 210 km).			
"	20	Up	ipP	02 19 00.8	
		Ki	iP	02 17 36.1	
		Um	iP	02 18 04.5	
			ipP	02 18 34.8	
		Alaska.			
		h = 130 km (Um).			
"	20	Up	iP	05 00 53.8	
		Um	iP	05 00 38.0	
"	20	Ki	eP	05 10 56	
"	20	Up	iP	06 08 35.4 C	
		Ki	iP	06 07 41.4	
		Sk	iP	06 08 19.0 C	
		Gb	iP	06 08 55.8	
		Um	iP	06 08 07.0	
		Ka	iP	06 09 00.5	
		Kamchatka (h = 40 km).			
"	20	Um	iPKP	06 30 02.0	
			iSKP	06 32 38.0	
		Fiji Islands (h = 580 km).			
1966					
Feb.	20	Up	iP	08 38 56.0	
		Aleutian Islands			
		(h = 50 km).			
"	20	Up	iP	18 26 41.0	
			i	18 26 48.3	
		Ki	iP	18 25 51.1	
		Sk	iP	18 26 28.2	
		Gb	iP	18 27 01.3	
		Um	iP	18 26 14.4	
		Ka	iP	18 27 03.9	
		Kurile Islands			
		(h = 30 km).			
"	20	Up	iP	18 27 45.2	
		Ki	iP	18 26 55.1	
		Gb	iP	18 28 05.9	
		Um	iP	18 27 19.1	
		Ka	iP	18 28 08.2	
		Kurile Islands.			
		Origin time = 18 16 54.			
		This earthquake is only slightly smaller than the preceding one, but has been reported by only few stations and recognized as a new shock by a still less number of stations.			
"	20	Um	iP	20 06 46.9	
		Volcano Islands.			
		(h = 280 km).			
"	20	Up	iPKP	20 23 00.5 C	
				microns sec	
			PKP	Z' 0.1 0.5	
		Gb	iPKP	20 23 09.8	
		Ka	iPKP	20 23 11.4	
		Tonga-Kermadec Islands			
		(h = 350 km).			
"	21	Up	iPKP	00 41 19.4	
				microns sec	
			M	E 1.5 20	
			M	N 2.0 20	
			M	Z 3.0 19	
		Ki	iPKP	00 41 32.0	
			i	00 41 39.9	
				microns sec	
			PKP	Z' 0.2 1.1	
			M	E 1.2 18	
			M	N 1.4 18	
			M	Z 2.3 19	
		Sk	ePKP	00 41 24	
		Um	iPKP	00 41 26.3	
		(cont.)			

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

1966 Feb. 21 (cont.)
South Sandwich Islands
(h = 30 km).
Magn. = 5.9 (Up,Ki).

" 21 Ki iPKP 00 47 33.9 D
Um iPKP 00 47 27.1
South Sandwich Islands
(h = 10 km).

" 21 Ki ePn 05 35 10
iSn 05 36 05.4
iSg 05 36 28.5
D = 510 km = 4.6°.
Sk eSg 05 38 58
Um iSn 05 36 50.5
iSg 05 37 30.2
Northwest Russia,
67.9°N, 32.6°E.
Origin time = 05 33 58.
Explosion?

" 21 Um iP 09 43 19.5
Mindanao (h = 80 km).

" 21 Up iP 13 30 24.2 D
microns sec
P Z' 0.5 0.7
Ki iP 13 29 56.9
microns sec
P Z' 0.2 1.3
Sk iP 13 30 25.5 D
Gb iP 13 30 44.2
Um iP 13 30 07.2
Ka iP 13 30 39.6
East China Sea (h = 100 km).
Magn. = 6.2 (Up,Ki).

" 21 Up iP 14 24 44.9
Ki eP 14 23 58
Kamchatka (h = 30 km).

" 21 Um iP 16 58 21.1 C
Celebes (h = 190 km).

" 21 Um iP 20 35 28.5 C
Yugoslavia.

" 21 Ki iP 20 35 56.0 C
microns sec
P Z' 0.1 1.1
Sk iP 20 36 45.6
Gb iP 20 37 52.3
Um iP 20 36 45.8
Greenland Sea (h = 30 km).

1966 Feb. 21 Up iP 20 50 12.5 C

" 22 Up iP 01 47 18.4
Gb iP 01 47 39.3
Um iP 01 46 53.3
Ka iP 01 47 40.3
Kurile Islands (h = 30 km).

" 22 Up iP 02 10 53.5 C

" 22 Up iP 02 50 16.5
Um iP 02 49 58.2 C
Japan (h = 30 km).

" 22 Up iPKP 05 21 16.4
iPP 05 22 18
iPKKP 05 31 50.3
i 05 31 53.4
ePS 05 32 07
microns sec
PKP Z' 0.1 0.6
M E 18 23
M N 18 23
M Z 29 25
Ki iP 05 17 06.2
iPKP 05 21 04.7
i 05 27 29
ePS 05 30 58
microns sec
PKP Z' 0.1 1.0
M E 19 22
M N 11 20
M Z 27 22
Sk iPKP 05 21 15.6 D
Gb iPKP 05 21 23.4
iPKKP 05 31 38.7
Um iP 05 17 13.9
i 05 17 21.7
iPKP 05 21 09.4
i 05 21 12.7
iPP 05 21 54
iPS 05 31 30
iPKKP 05 32 02.4
Ka iPKP 05 21 22.7
New Britain (h = 30 km).
Magn. = 6.8 (Up,Ki).

" 22 Up iP 09 07 20.8

" 22 Up iPKP 09 35 39.0
Um iPKP 09 35 23.1 D
Kermadec Islands
(h = 290 km).

" 22 Um iP 12 31 41.9

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

1966 Feb.	22	Gb	iPKP	18 37 19.9	
		Um	iPKP	18 37 05.4	
		New Britain (h = 60 km).			
"	23	Ki	i	05 34 34.8	
			iSg	05 35 06.0	
		Sk	eSg	05 37 36	
		Um	iSn	05 35 29.2	
			iSg	05 36 05.8	
		Northwest Russia,			
		67.9°N, 32.6°E.			
		Origin time = 05 32 35.			
		Explosion?			
"	23	Um	iP	14 58 31.9	
"	23	Up	iP	20 36 10.8	
			i	20 36 12.1	
"	24	Ki	iP	00 18 53.9	
		Um	iP	00 18 55.7	C
			i	00 21 49.7	
"	24	Up	iP	00 26 39.8	
		Ki	iP	00 26 34.5	
		Sk	iP	00 26 56.8	
		Um	iP	00 26 32.3	
		Ka	iP	00 26 48.3	D
		Assam (h = 50 km).			
"	24	Up	iP	05 50 48.0	C
		Ki	iP	05 49 53.8	C
		Sk	iP	05 50 28.2	C
		Gb	iP	05 51 06.0	
		Um	iP	05 50 19.9	C
		Ka	iP	05 51 11.3	C
		Aleutian Islands			
		(h = 70 km).			
"	24	Um	iP	07 50 19.6	
"	24	Um	iP	12 11 28.1	
"	24	Um	iP	14 19 23.4	
"	24	Um	iP	15 18 20.0	
"	24	Up	iP	15 25 11.0	
"	24	Um	iP	16 03 16.2	
"	24	Up	iP	20 03 19.2	C
		Ki	iP	20 02 23.1	C
			i	20 02 27.7	
				microns sec	
			P	Z' 0.1 1.0	
		(cont.)			

1966 Feb.	24	(cont.)			
		Sk	iP	20 02 50.3	
		Gb	iP	20 03 30.4	C
		Um	iP	20 02 52.6	C
		Ka	iP	20 03 42.5	C
		Alaska (h = 25 km).			
"	24	Up	iP	20 29 36.2	
			i	20 29 39.2	
"	24	Up	eP	21 32 33	
		Um	iP	21 33 04.3	C
		Atlantic Ocean (h = 30 km).			
"	24	Um	iP	23 37 36.2	
"	25	Um	iPKP	03 04 25.7	
		Southeast Pacific Ocean			
		(h = 30 km).			
"	25	Um	iP	03 28 23.1	
"	25	Um	iP	08 45 42.5	
"	25	Um	iP	09 38 55.6	
"	25	Ki	iSg	11 55 54.4	
		Sk	iSg	11 55 59.1	
		Um	iSg	11 56 21.8	
		Nordlands Fylke, Norway,			
		66.5°N, 14.6°E.			
		Origin time = 11 54 25.			
"	25	Up		---	
				microns sec	
			M N	2.3 22	
			M Z	3.0 23	
		Ki	ePKP	23 09 58	
				microns sec	
			M E	1.9 20	
			M N	1.5 19	
			M Z	2.8 19	
		Sk	iPKP	23 10 12.9	
		Gb	iPKP	23 10 16.5	
		Um	e(PKP)	23 09 59	
			iPKP	23 10 06.3	
			iPKS	23 13 21	
			iSS	23 29 43	
		Tonga Islands			
		(h = 30 km).			
		Magn. = 5.9 (Up,Ki).			
"	26	Up	iP	00 44 33.9	C
			ipP	00 44 44.9	
				microns sec	
			P	Z' 0.4 0.9	
		(cont.)			

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

1966 Feb. 26 (cont.)

Ki	iP	00 43 40.4	C
	ipP	00 43 50.6	
		microns	sec
	P Z'	0.2	1.0
	M N	1.1	18
	M Z	2.5	20
Sk	iP	00 44 14.2	C
Gb	iP	00 44 52.0	
Um	iP	00 44 06.1	C
Ka	iP	00 44 57.9	C
	ipP	00 45 08.8	

Aleutian Islands.
h = 40 km (Up,Ki,Ka).
Magn. = 6.3 (Up,Ki).

" 26

Ki	iSn	05 49 23.1	
	iSg	05 49 46.9	
Um	iSn	05 50 08.7	
	iSg	05 50 45.3	

Northwest Russia,
67.9°N, 32.6°E.
Origin time = 05 47 15.
Explosion?

" 26 Um iPKP 11 07 20.2 C
New Hebrides Islands
(h = 160 km).

" 26

Ki	iP	14 01 24.1	
	i	14 02 43.4	
Um	i(P)	14 03 02.5	

" 26 Ki eP 16 27 53

" 26

Ki	iPKP	18 59 16.0	C
Um	iPKP	18 59 21.5	
	i	18 59 33.0	

New Zealand (h = 30 km).

" 26

Up	iSn	19 47 10.3	
	iSg	19 47 57.5	
	i	19 48 02.2	
Ki	ePn	19 44 45	
	iSn	19 45 11.8	
	iS[x]	19 45 19.6	
	iSg	19 45 24.1	
	D = 270 km = 2.4°.		
Sk	ePg	19 45 11	
	iSg	19 45 56.8	
	D = 380 km = 3.4°.		
Um	iPn	19 45 05.0	C
	iP[x]	19 45 13.2	
	iSn	19 45 53.5	
	iSg	19 46 09.0	
	D = 420 km = 3.8°.		

(cont.)

1966 Feb. 26 (cont.)
Nordlands Fylke, Norway,
67.0°N, 14.9°E.
Origin time = 19 44 04.

" 26

Up	iP	20 57 39.6	
Um	iP	20 57 54.7	

Iran (h = 60 km).

" 27

Up	iPKP	00 50 46.0	
Um	iPKP	00 50 54.7	

South Sandwich Islands
(h = 30 km).

" 27

Up	iPKP	03 07 51.3	
Ki	iPKP	03 08 06.3	
Sk	ePKP	03 07 58	
Um	iPKP	03 07 59.6	C

South Sandwich Islands
(h = 30 km).

" 27

Ki	eSn	05 00 50	
	iSg	05 01 15.5	
Sk	eSg	05 03 42	
Um	i	05 01 30.5	
	iSg	05 01 59.7	

Northwest Russia.
Explosion?

" 27

Ki	eSn	05 18 38	
	iSg	05 19 03.7	
Um	iS[x]	05 19 19.7	
	iSg	05 19 34.4	

Northwest Russia.
Explosion?

" 27

Up	iSg	05 34 11.8	
Ki	iSg	05 31 09.4	
Um	eS[x]	05 31 53	
	iSg	05 32 09.1	

Northwest Russia.
Explosion?

" 27 Um iP 12 02 07.4
Mexico (h = 30 km).

" 27

Up	iP	16 41 05.1	C
		microns	sec
	P Z'	0.2	1.0
Ki	iP	16 40 11.7	C
		microns	sec
	P Z'	0.1	0.9
Sk	iP	16 40 45.5	C
Gb	iP	16 41 22.8	
Um	iP	16 40 37.8	C
Ka	iP	16 41 29.5	

(cont.)

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

1966
Feb. 27 (cont.)
Aleutian Islands
(h = 50 km).
Magn. = 5.8 (Up,Ki).

" 27 Up iPKP 16 45 26.4
i 16 45 32.2
microns sec
PKP Z' 0.1 0.6
Sk iPKP 16 45 21.0
Um iPKP 16 45 15.5
Kermadec Islands
(h = 500 km).

" 27 Up iP 20 53 45.9
Ki iP 20 52 52.6
Um iP 20 53 20.1
Unimak Island
(h = 40 km).

" 27 Up iP 20 57 38.9
Ki iP 20 57 21.7
Sk iP 20 57 20.0
Um iP 20 57 32.2 D
Mexico (h = 90 km).

" 28 Up iP 02 12 38.4 D
iS 02 21 04
microns sec
P Z' 0.6 0.8
Ki iP 02 11 55.6 D
microns sec
P Z' 1.0 1.0
Sk iP 02 12 30.6
i 02 14 40.9
Gb iP 02 13 00.8 D
Um iP 02 12 14.9 D
iS 02 20 19
Ka iP 02 13 00.0 D
Sea of Japan (h = 230 km).
Magn. = 6.5 (Up,Ki).

" 28 Up iP 07 51 03.0
Um iP 07 50 44.0
Japan (h = 180 km).

" 28 Um iP 13 46 46.5 C

" 28 Up iP 13 47 20.3
microns sec
P Z' 0.1 1.0
M E 2.3 14
M N 2.2 14
M Z 3.5 14
Ki iP 13 46 49.5 C
(cont.)

1966
Feb. 28 (cont.)
Ki
microns sec
P Z' 0.1 1.0
M E 1.4 19
M N 1.4 18
M Z 2.8 19
Sk iP 13 47 19.4 C
Gb iP 13 47 40.4
Um iP 13 47 01.4 C
iScS 13 57 11
Ka iP 13 47 38.9
Ryukyu Islands
(h = 30 km).
Magn. = 5.7 (Up,Ki).

" 28 Up iP 19 10 21.4
Kurile Islands
(h = 270 km).

" 28 Um iP 20 10 34.1
Ka iP 20 10 45.5 C
Hindu Kush (h = 150 km).

" 28 Um iPKP 21 57 23.7 C
Chile (h = 70 km).

Markus Båth
July 22, 1966

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

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 R C H 1 - 31, 1966

1966 Mar. 1 Sk iP 05 07 47.2
Um iP 05 07 19.5
Hindu Kush (h = 80 km).

" 1 Ki ePn 11 50 01
iSn 11 50 39.6
iSg 11 50 53.8
D = 380 km = 3.4°.
Probably northwest Russia.
Origin time = 11 49 04.
Explosion?

" 1 Um i 12 39 08.5
Ka ePKP 12 39 47
Chile (h = 120 km).
Um has a very clear i-phase, which however does not fit the given USCGS data.

" 1 Sk iPKP 13 07 09.2
Um iPKP 13 07 05.2
South of Kermadec Islands (h = 40 km).

" 1 Up iPKP 16 03 50.6 C
South of Fiji Islands (h = 550 km).

" 1 Up iP 16 33 51.7

" 1 Ki eP 21 50 02
i 21 50 07.1

" 1 Up iPKP 23 27 26.6
Ki iPKP 23 27 42.4
microns sec
PKP Z' 0.1 1.0
(cont.)

1966 Mar. 1 (cont.)
Sk iPKP 23 27 31.1
Um iPKP 23 27 35.1
South Sandwich Islands (h = 30 km).

" 2 Up iP 02 42 17.4 C
iPcP 02 46 09.7
iS 02 46 26
iLgl 02 49 50
i 02 52 28.8
microns sec
P Z' 0.3 0.9
M E 2.6 13
M N 2.6 13
M Z 3.2 13
D = 2650 km = 24°.

Ki iP 02 42 54.7
iPn 02 43 19.9
iPP 02 43 51.3
iS 02 47 44
iSn 02 48 27.2
iX 02 49 22.3
i 02 50 13.4
i(Li) 02 51 27
iLgl 02 51 46.2
microns sec
P Z' 0.1 1.0
Pn Z' 0.2 1.0
M E 3.0 12
M N 2.6 11
M Z 3.9 11
D = 3150 km = 28½°.

Sk eP 02 42 55
iX 02 49 26.3

Gb iP 02 42 34.2 C
i 02 42 36.4
i(Sn) 02 47 48.6
(cont.)

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

1966 Mar. 2 (cont.)

Um	iP	02 42 29.1	C
	i	02 42 33.3	
	iS	02 46 53	
	iX	02 48 25.5	
	iLgl	02 50 11	
Ka	iP	02 42 09.5	C
	i	02 42 11.2	

Caucasus (h = 25 km).
Magn. = 5.6 (Up,Ki).
Multiple P-phases with a time difference of 2-4 sec between the first smaller and the later bigger movement. Well developed higher-mode waves.
Concerning Sn and Pn, see M. Båth: Propagation of Sn and Pn to teleseismic distances, Pure and Appl. Geophys. (in press).

" 2 Um eP 04 06 15

" 2

Ki	iP	06 04 01.8	C
Sk	iP	06 04 56.6	
Um	iP	06 04 47.7	
	iS	06 08 49	

North of Svalbard
(h = 30 km).

" 2 Um iP 07 38 42.7
Ceram (h = 40 km).

" 2

Ki	eP_n	11 21 42	
	iP^x	11 21 49.9	
	iSn	11 22 27.1	
	iSg	11 22 43.0	
	D = 400 km = 3.6°.		
Sk	iSg	11 25 09.2	
Um	iSn	11 23 05.5	
	iSg	11 23 36.3	
	D = 580 km = 5.2°.		

Northwest Russia,
67.3°N, 29.8°E.
Origin time = 11 20 45.
Explosion?

" 2 Um iP 11 41 42.8

" 2

Up	iP	12 02 05.8	
Ki	iP	12 01 11.9	
		microns	sec
	P	Z' 0.1	1.0
Sk	iP	12 01 46.3	
Gb	iP	12 02 23.7	C
Um	iP	12 01 38.0	C

(cont.)

1966 Mar. 2 (cont.)

Ka	iP	12 02 29.4	

Aleutian Islands
(h = 40 km).

" 2 Um iP 14 20 23.2
Formosa (h = 100 km).

" 2 Um iP 14 47 50.1

" 2 Um iP 15 20 30.4
Caucasus.

" 2 Up iP 20 38 18.9

" 3

Up	iP	03 36 13.5	C
	iPcP	03 36 45	
	iS	03 45 00	
		microns	sec
	P	Z' 0.2	0.6
	M	E 2.0	21
	M	N 4.6	19
	M	Z 5.5	19
	D = 7350 km = 66°.		
Ki	iP	03 35 25.0	C
	ePa	03 39 10	
		microns	sec
	M	E 3.7	20
	M	N 1.9	18
	M	Z 4.1	18
Sk	iP	03 36 01.7	
Gb	iP	03 36 35.4	C
Um	iP	03 35 47.1	C
	ipP	03 35 57.9	
	iPa	03 40 00	
Ka	iP	03 36 37.6	

Kurile Islands.
h = 40 km (Um).
Magn. = 5.9 (Up,Ki).

" 3 Up iP 03 56 02.3

" 3

Ki	iSn	05 18 07.9	
	iSg	05 18 29.6	
Um	iSg	05 19 32.9	

Northwest Russia.
Explosion?

" 3 Sk iP 08 00 12.5

" 3

Ki	iP	10 28 12.8	C
Um	iP	10 28 07.4	

North Atlantic Ocean
(h = 30 km).

" 3

Up	iP	11 27 14.7	
		microns	sec
	P	Z' 0.1	0.7

(cont.)

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

1966 Mar.	3	Um	iP	12 13 19.7	C
"	3	Um	iP	14 19 06.0	
"	3	Up	iP	15 05 53.5	
"	3	Up	iP	21 09 33.5	
			i	21 09 40.1	
"	3	Um	iPKP	21 47 46.4	
		Fiji Islands (h = 610 km).			
"	4	Um	iP	00 17 26.3	C
		Caucasus (h = 50 km).			
"	4	Up	iPKP	04 06 32.9	C
			i	04 06 36.2	
		Gb	iPKP	04 06 46.2	
		Um	iPKP	04 06 30.3	
		South of Fiji Islands			
		(h = 370 km).			
"	4	Up	iP	06 09 24.5	
		Um	iP	06 09 26.9	
		Ka	iP	06 09 23.8	
		West Pakistan (h = 30 km).			
"	4	Um	iP	06 15 54.0	C
"	4	Um	iP	07 52 25.1	
		Caucasus.			
"	4	Up	ePKP	08 24 30	
		Kermadec Islands			
		(h = 120 km).			
"	4	Up	iP	08 51 01.4	
"	4	Um	iP	11 26 00.5	
"	4	Um	iP	11 51 39.5	
"	4	Um	iP	12 37 28.5	
"	4	Up	iP	12 57 41.4	
"	4	Sk	iP	14 29 30.2	
			ipP	14 29 41.0	
		Kodiak Island.			
		h = 40 km (Sk).			
"	4	Up	iP	14 36 28.3	D
				microns sec	
			P Z'	0.1 0.9	
"	4	Up	eP	16 37 44	

1966 Mar.	4	Gb	iPKP	17 49 02.2	
		Ka	iPKP	17 49 05.6	
		South of Tonga Islands			
		(h = 30 km).			
"	4	Um	eP	21 12 52	
			i	21 12 56.1	
"	5	Up	ePKP	00 18 45	
			iPKP2	00 19 09.0	
				microns sec	
			M E	1.0 20	
			M N	1.0 20	
			M Z	1.5 23	
		Ki	iPKP	00 18 37.6	C
			i	00 18 54.4	
				microns sec	
			PKP Z'	0.1 1.2	
			M N	0.6 18	
			M Z	2.6 23	
		Sk	iPKP	00 18 51.4	
			i	00 18 59.6	
		Gb	ePKP	00 18 48	
		Um	iPKP	00 18 40.1	
			i	00 18 45.6	
		Ka	ePKP	00 18 51	
			iPKP2	00 19 25.7	C
		New Zealand (h = 25 km).			
"	5	Sk	eP	03 02 13	
"	5	Up	iP	04 59 34.1	C
		Ki	iP	04 58 50.3	C
		Sk	iP	04 59 26.5	
		Gb	eP	04 59 54	
		Um	iP	04 59 09.9	C
		Japan (h = 120 km).			
"	5	Gb	iP	07 00 23.4	D
"	5	Ki	i(Sg)	14 27 46.6	
		Um	i(Sg)	14 29 22.5	
"	5	Um	iP	16 13 50.0	
"	5	Up	iP	21 05 30.1	
			iS	21 14 16	
				microns sec	
			M N	1.1 18	
			M Z	1.2 19	
			D = 7300 km = $65\frac{1}{2}^{o}$.		
		Ki	iP	21 06 15.2	
				microns sec	
			M E	0.7 17	
			M N	0.7 18	
			M Z	0.7 15	
		Sk	iP	21 05 39.0	

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

1966
Mar. 5 (cont.)

Um	iP	21 05 54.9	
	iS	21 15 01	
Ka	iP	21 05 05.8	C

Atlantic Ocean (h = 30 km).

" 5

Up	iPKP	23 08 56.8	
Um	iPKP	23 08 45.0	C
Ka	iPKP	23 09 06.7	C

Tonga Islands (h = 40 km).

" 6

Up	iP	00 22 27.8	
		microns	sec
	M	E 1.5	16
	M	N 3.4	19
	M	Z 2.5	16
Ki		---	
		microns	sec
	M	E 1.1	15
	M	N 0.9	14
	M	Z 0.9	13
Um	eP	00 22 17	
	i	00 22 28.7	

Mindanao (h = 90 km).

" 6

Up	iP	02 19 47.1	
	i	02 19 51.0	
		microns	sec
	P	Z' 0.1	1.0
Ki	iP	02 19 49.4	
	i	02 19 53.1	
		microns	sec
	P	Z' 0.1	1.0
Sk	iP	02 20 10.3	
Um	iP	02 19 43.2	
Ka	iP	02 19 53.4	
	i	02 20 02.9	

Tibet (h = 40 km).
Magn. = 5.7 (Up,Ki).

" 6

Up	iP1	02 24 45.3	D
	iP2	02 24 49.3	
	iP3	02 24 53.3	
	iPP	02 26 42	
	iS	02 31 58	
		microns	sec
	P	E 2.2	6
	P	Z 2.4	5
	P	Z' 1.4	1.5
	PP	E 1.1	5
	PP	Z 1.6	5
	S	E 6.7	15
	S	N 7.1	12
	M	E 50	20
	M	N 240	20
	M	Z 65	21

D = 5500 km = 49½°.

(cont.)

1966
Mar. 6 (cont.)

Ki	iP1	02 24 47.4	
	iP2	02 24 50.8	
	iPP	02 26 43	
	iS	02 31 58	
	iSS	02 35 31	
		microns	sec
	P	E 2.1	6
	P	Z 3.1	6
	P	Z' 0.6	1.2
	PP	Z 2.8	6
	S	E 4.0	6
	S	N 5.1	12
	M	E 52	18
	M	N 86	18
	M	Z 89	20

D = 5500 km = 49½°.

Sk	iP1	02 25 07.8	
	iP2	02 25 12.3	
	iP3	02 25 15.0	
Gb	iP1	02 25 09.6	
	iP2	02 25 14.7	
	iPcP	02 26 23.9	
Um	iP1	02 24 41.4	
	iP2	02 24 44.7	
	iP3	02 24 49.4	
	iPP	02 26 24	
	iS	02 31 38	
	i	02 31 46	
	iSS	02 35 16	
Ka	iP1	02 24 51.4	
	iP3	02 24 58.9	

Tibet (h = 40 km).
Magn. = 6.6 (Up,Ki).
Three successive P-onsets with increasing amplitude can be distinguished, the average time differences being P2-P1 = 4.1 sec and P3-P1 = 7.7 sec. Other interpretations (e.g. in terms of pP) are possible. - Long-period N at Up (situated due west of the epicenter) exhibits exceptionally large Love waves.

" 6

Up	iP	02 54 21.2	
	i	02 54 26.8	
Um	iP	02 54 10.0	C

" 6

Um	iP	07 26 40.4	C

Japan (h = 120 km).

" 6

Up	i(P)	13 15 35.2	

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

1966 Mar. 6 Um iP 13 33 15.0

" 6 Um iP 15 24 09.5

" 6 Up iP 17 52 31.4
Mindanao (h = 80 km).

" 6 Up iP 18 09 51.1
Japan (h = 40 km).

" 6 Up ePKP 18 21 17
Gb iPKP 18 21 26.3 C
i 18 21 31.2
i 18 21 35.5
Um iPKP 18 21 13.9
Ka iPKP 18 21 30.8
i 18 21 58.8
South of Tonga Islands
(h = 30 km).

" 6 Um iP 23 36 06.0

" 7 Up iP 01 21 36.6
i 01 21 41.2
iS 01 26 11

		microns	sec
P	N	0.8	4
P	Z'	0.6	1.2
S	E	6.0	11
S	N	4.0	8
S	Z	3.1	9
M	E	5.4	19
M	N	11	18
M	Z	5.0	22

D = 2900 km = 26°.

Ki iP 01 22 24.9 C
i 01 22 28.8
i 01 23 17.0
eS 01 27 23

		microns	sec
P	Z'	0.4	1.0
S	N	2.3	16
M	E	6.1	12
M	N	6.2	15
M	Z	5.2	14

D = 3500 km = 31½°.

Sk iP 01 22 16.2
i 01 22 20.6
Gb iP 01 21 49.4 C
i 01 21 52.6
i 01 22 05.4
Um iP 01 21 55.6
i 01 21 59.6
i 01 22 16.8
iS 01 26 37
Ka iP 01 21 24.2 C
(cont.)

1966 Mar. 7 (cont.)
Ka i 01 21 29.1
Turkey (h = 15 km).
Magn. = 5.9 (Up,Ki).
The average time difference between the first and second onset is 4.2 sec.

" 7 Up iPKP 02 53 39.3
Ka iPKP 02 53 50.5
Fiji Islands (h = 600 km).

" 7 Um iPKP 04 44 33.8
South Sandwich Islands
(h = 110 km).

" 7 Ki iPn 16 27 51.2
iSn 16 28 39.5
iSg 16 28 53.3
D = 410 km = 3.7°.
Um eSn 16 29 50
iSg 16 30 23.0
Northwest Russia.
Origin time = 16 26 52.
Explosion?

" 7 Up eP 17 17 12
Ki iP 17 17 53.3
iPn 17 18 23.1
Sk iPn 17 18 38.0
Um iP 17 17 25.8
iPn 17 17 45.1
iSn 17 22 20.2
iLi 17 24 13.4
Ka iP 17 17 07.4 C
Caucasus (h = 30 km).
Clear teleseismic Pn-phases are found in the distance range of 25½° - 29°; in this way this case represents an extension of the range of observed teleseismic Pn-phases, reported by M. Båth: Propagation of Sn and Pn to teleseismic distances (Pure and Appl. Geophys., in press), where Pn-phases were found only in the distance range of 31.5° - 35°.

" 7 Ki iP 20 31 06.7
Um iP 20 31 33.6
Kodiak Island (h = 30 km).

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

1966 Mar. 7 Up iP 21 39 31.1 C
i 21 39 35.3
i 21 39 41.4
i 21 41 18.5
ePa 21 43 27
iS 21 48 01
iSS 21 52 17

		microns	sec
P	Z'	0.2	1.0
S	E	2.6	10
S	N	5.0	12
M	E	170	17
M	N	300	18
M	Z	210	17

(D = 6900 km = 62°).

Ki iP 21 39 04.5
i 21 39 12.7
iPP 21 41 33
iS 21 46 52
iSS 21 50 57

		microns	sec
P	Z	1.5	5
P	Z'	0.6	1.5
PP	E	1.0	5
S	E	2.1	8
M	E	87	15
M	N	81	14
M	Z	100	15

(D = 6450 km = 58°).

Sk iP 21 39 38.8
i 21 39 42.6
iPcP 21 40 31.0
Gb iP 21 40 03.6
Um iP 21 39 12.4
i 21 39 15.7
i 21 39 20.5
iPa 21 43 01
iS 21 47 21
Ka iP 21 39 51.4
i 21 39 56.4
China (h = 30 km).
Magn. = 6.4 from body waves and = 7.4 from surface waves (Up,Ki).
Three successive onsets can be distinguished, the second and third following the first P after 4.1 and 8.9 sec in average. Multiplicity of P-phases is probably more common than generally realized; complications arise partly from pP-phases, partly from the fact that cases with amplitudes, which decrease along the series of onsets, usually
(cont.)

1966 Mar. 7 (cont.)
escape attention.

" 7 Up iP 21 52 49.9

" 7 Up eP 22 44 26

" 7 Up iP 22 46 15.6

		microns	sec
P	Z'	0.1	0.9

Ki iP 22 46 02.6
Sk iP 22 46 27.3
Gb iP 22 46 37.2
Um iP 22 46 04.3
Ka iP 22 46 27.5 C
Tibet (h = 15 km).

" 8 Um ePKP 00 37 25
Tonga Islands (h = 30 km).

" 8 Up iPKP 01 32 41.9
i 01 32 49.6
iPKS 01 36 11.5

		microns	sec
M	E	3.8	22
M	N	5.4	22
M	Z	6.8	23

Ki iPKP 01 32 30.8 C

		microns	sec
M	E	2.2	20
M	N	2.3	20
M	Z	6.4	21

Sk iPKP 01 32 44.4
iPKS 01 36 11.7
Gb iPKS 01 36 22.6
i 01 36 35.8
Um iPKP 01 32 36.8 C
iPKS 01 36 02.5
i 01 36 20.4
Ka iPKP 01 32 50.1
iPKS 01 36 23.7
New Hebrides Islands (h = 40 km).
Magn. = 6.2 (Up,Ki).
The phase interpreted as PKS (or possibly SKP) is short-period and well recorded by the short-period instruments. This case then resembles the series of New Hebrides shocks in August 1965.

" 8 Up iP 02 56 44.6
Um iP 02 57 08.2 D

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

1966
Mar. 8 Up ---
microns sec
M E 1.3 17
M N 2.6 16
M Z 1.6 17
Ki ---
microns sec
M E 0.7 17
M N 0.4 12
M Z 0.9 17
Um eP 03 56 34
China (h = 30 km).

" 8 Up iP 05 54 37.1
i 05 54 48.1
iSKS 06 05 11
microns sec
M E 5.1 22
M N 5.4 22
M Z 7.6 23
Ki iP 05 54 20.8 C
microns sec
P Z' 0.2 1.0
M E 8.2 20
M N 2.9 21
M Z 8.2 20
Sk iP 05 54 41.9
Gb iP 05 54 57.8
Um iP 05 54 25.8 C
i 05 56 25.5
iPP 05 58 24
iSKS 06 04 57
iPS 06 06 54
Ka eP 05 54 46
i 05 58 01.2
iPP 05 58 53.7
Molucca Passage (h = 30 km).
Magn. = 6.2 (Up,Ki).

" 8 Up iP 06 13 37.6
Ki iP 06 13 22.3
Um iP 06 13 27.2
i 06 13 35.2
Molucca Passage (h = 30 km).

" 8 Ki eP 12 32 30
Um iP 12 32 34.4
Molucca Passage (h = 80 km).

" 8 Ki iP 14 54 41.8 C

" 8 Sk iPn 15 59 26.3
iSg 15 59 57.6
Um iSn 16 01 20.4
iSg 16 01 44.5
Probably central Norway.
Origin time = 15 58 49.

1966
Mar. 8 Sk iPn 16 01 57.5
iSg 16 02 27.5
Um iSn 16 03 52.5
iSg 16 04 17.3
Probably central Norway.
Origin time = 16 01 21.

" 8 Up iP 18 56 29.3
Ki eP 18 57 45
Sk iP 18 57 10.1
Um iP 18 57 09.1 C
Greece (h = 50 km).

" 8 Up iP 20 39 22.5
i 20 39 28.7

" 8 Up iPKP 21 04 28.7
Um iPP 21 04 47.6
Ka iPKP 21 04 13.5 C
Chile - Bolivia
(h = 120 km).

" 8 Up iP 23 37 19.9
Aleutian Islands
(h = 20 km).

" 9 Up iP 10 05 11.7
Ki iP 10 05 11.3 C
Um iP 10 05 08.2
Sumatra (h = 30 km).

" 9 Up iP 13 26 01.9

" 9 Um iP 13 49 11.6

" 9 Up iP 21 49 32.2

" 9 Ki eP 23 26 55
Java (h = 150 km).

" 10 Um iP 00 36 17.9 C

" 10 Up i(P) 00 46 08.3

" 10 Up iP 04 37 24.9 D
microns sec
P Z' 0.5 0.8
Ki iP 04 36 51.1 D
microns sec
P Z' 0.2 0.8
Sk iP 04 37 21.8 D
iPP 04 40 14.9
Gb iP 04 37 44.3 D
Um iP 04 37 05.5 D
iS 04 45 55
isS 04 48 28
(cont.)

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

1966
Mar. 10 (cont.)
Ka iP 04 37 42.3
South of Japan
(h = 380 km).
Magn. = 6.0 (Up,Ki).

" 10 Ki iPKP 07 20 41.6
Um iPKP 07 20 48.9 D
New Zealand (h = 140 km).

" 10 Ki iP 11 25 14.1
Um iP 11 24 42.2
Ka iP 11 24 05.9
Turkey.

" 10 Um iPKP 12 33 57.0
iSKP 12 36 57.3
Fiji Islands (h = 320 km).

" 10 Ki eP 12 54 59
Um iP 12 55 10.9
Molucca Passage
(h = 60 km).

" 10 Up iP 21 10 03.3

" 11 Um iP 00 46 14.5

" 11 Up ---
microns sec
M N 1.7 17
Um i 06 32 39.6
China (h = 30 km).

" 11 Um ePKP2 08 15 03
Easter Island Rise
(h = 30 km).

" 11 Up ipP 10 36 51.6
Ki iP 10 36 22.8
ipP 10 36 36.0
Um iP 10 36 33.9
ipP 10 36 47.5
Gulf of Mexico.
h = 50 km (Ki,Um).

" 11 Up iP 12 48 51.7 C

" 11 Up iP 20 07 14.6
iPcP 20 10 43.9
Ki iP 20 08 23.0
Sk iP 20 07 52.5
Gb iP 20 07 04.5
i 20 07 14.7
Um iP 20 07 47.0
Ka iP 20 06 40.6
(cont.)

1966
Mar. 11 (cont.)
Crete (h = 20 km).
The first motion of P seems to be a small compression followed by a much larger dilatation at all our stations.

" 11 Um iP 20 14 19.4

" 11 Sk iP 20 24 41.5
Um eP 20 24 40
Greece.

" 11 Up iP 22 36 52.1
Ki iP 22 35 15.7
Sk eP 22 36 05
Um iP 22 36 03.5
Arctic Ocean.

" 11 Ki iP 23 25 08.6
Um iP 23 25 06.5 C
North Atlantic Ocean
(h = 30 km).

" 12 Up iPKP 01 25 08.5
i 01 25 11.2
microns sec
PKP Z' 0.1 0.6
Ki ePKP 01 24 51
Sk iPKP 01 25 01.5
Gb iPKP 01 25 17.4
Um iPKP 01 24 57.4
Ka iPKP 01 25 20.1
Kermadec Islands
(h = 90 km).

" 12 Up iP 02 58 10.1

" 12 Ki iPn 05 16 19.7
iSn 05 17 13.6
iSg 05 17 38.7
D = 510 km = 4.6°.
Sk eSg 05 20 06
Um iSn 05 18 00.3
iSg 05 18 37.4
D = 710 km = 6.4°.
Northwest Russia,
67.8°N, 32.6°E.
Origin time = 05 15 07.
Explosion?

" 12 Up iP 08 38 06.4

" 12 Up iP 09 56 55.8

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

1966 Mar.	12	Um	iP	10 40 32.6	C
"	12	Up	iP	10 56 21.7	
"	12	Up	iP	11 17 10.2	
"	12	Ki	ePn	12 12 19	
			iSn	12 13 03.9	
			iSg	12 13 20.2	
			D = 400 km = 3.6°.		
		Sk	eSg	12 15 46	
		Um	iSg	12 14 16.9	
		Northwest Russia, 67.5°N, 29.8°E. Origin time = 12 11 21. Explosion?			
"	12	Up	iPKP	12 28 24.9	C
			i	12 28 29.0	
		Sk	iPKP	12 28 18.3	
		Um	iPKP	12 28 12.9	
		Kermadec Islands (h = 200 km).			
"	12	Um	eP	14 04 01	
"	12	Um	iPKP	14 46 06.9	
		Tonga Islands (h = 30 km).			
"	12	Um	eP	15 47 01	
"	12	Up	iP	15 51 20.3	
"	12	Up	iP	16 06 49.7	
		Ki	i(P)	16 05 53.5	
"	12	Up	iP	16 43 05.9	C
			ipP	16 43 13.0	
			ePP	16 46 02	
			iPa	16 48 00	
			iS	16 52 44	
			microns	sec	
			P E	1.3 3	
			P N	0.9 3	
			P Z	2.4 2	
			P Z'	2.0 1.1	
			pP E	8.9 3	
			pP N	9.0 4	
			pP Z	27 5	
			pP Z'	3.6 1.0	
			PP E	22 11	
			PP Z	31 10	
			S E	45 8	
			S N	57 10	
			M E	780 18	
			M N	2040 26	
			M Z	720 21	

(cont.)

1966 Mar.	12	(cont.) D = 8450 km = 76°.			
		Ki	iP	16 42 41.5	C
			ipP	16 42 50.0	
			iPa	16 47 05	
			iS	16 52 09	
			microns	sec	
			P E	2.3 4	
			P N	11 10	
			P Z	4.8 4	
			P Z'	2.5 1.5	
			pP E	34 8	
			pP Z	91 9	
			pP Z'	3.8 1.0	
			S E	59 11	
			S N	64 14	
			M E	480 20	
			M N	400 20	
			M Z	630 19	
			D = 8000 km = 72°.		
		Sk	iP	16 43 08.9	C
			ipP	16 43 16.5	
		Gb	iP	16 43 25.6	C
			ipP	16 43 36.6	
		Um	iP	16 42 49.9	C
			ipP	16 43 00.2	
		Ka	iP	16 43 20.2	C
			ipP	16 43 30.5	
		Formosa. h = 35 km (Up,Ki,Sk,Gb, Um,Ka). Magn. = 7.9 (Up,Ki). The phase interpreted as pP has considerably greater amplitude than P. An alternative interpretation would be in terms of a double shock. - Long-period surface waves are recorded. - The Up amplitudes for ME (Rayleigh) and MN (Love) are measured on the Wiechert records.			
"	12	Up	iP	16 53 04.9	
"	12	Up	iP	16 59 37.7	C
		Ki	iP	16 59 13.2	
		Sk	iP	16 59 40.7	
		Um	iP	16 59 21.9	C
			i	16 59 36.5	
		Formosa (h = 30 km).			
"	12	Up	iP	17 05 02.4	
		Ki	iP	17 04 38.0	
		Formosa (h = 80 km).			

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

1966 Mar. 12 Ki iPn 17 05 57.3 C
iP^{x} 17 06 06.4
iSn 17 06 45.6
iSg 17 07 01.6
D = 420 km = 3.8°.
Sk e(Sg) 17 09 44
Um iSn 17 08 01.3
iSg 17 08 34.2
Northwest Russia,
69.4°N, 30.0°E.
Origin time = 17 04 57.
Explosion?

" 12 Up iP 17 07 30.9

" 12 Up iP 17 19 41.8 C
i 17 19 52.5

" 12 Up iP 18 11 20.3 C
ipP 18 11 38.9
Ki iP 18 10 56.3 C
microns sec
P Z' 0.1 1.0
Sk iP 18 11 23.6 C
Gb iP 18 11 40.6
Um iP 18 11 04.9 C
Formosa.
h = 70 km (Up).

" 12 Up iP 18 25 28.3
Ki iP 18 25 04.2
Um iP 18 25 12.9
Formosa (h = 70 km).

" 12 Um iPKP 18 45 23.5 C
i 18 45 32.0
Chile (h = 60 km).

" 12 Up iP 19 07 26.3

" 12 Up iP 19 25 45.8
Ki iP 19 25 20.6
Sk iP 19 25 47.7
Um iP 19 25 30.5
Formosa (h = 50 km).

" 12 Up iP 19 34 47.3
Ki iP 19 34 23.2
Sk iP 19 34 50.5
Gb iP 19 35 07.2
Um iP 19 34 31.9 C
Formosa (h = 60 km).

" 12 Up iP 20 43 29.8
Sk eP 20 43 32
Um iP 20 43 13.9
Formosa (h = 60 km).

1966 Mar. 12 Up iP 20 53 18.6
Formosa (h = 130 km).

" 12 Up eP 21 03 37
Ki eP 21 03 11
Um iP 21 03 20.4
Formosa (h = 80 km).

" 12 Up iP 21 08 47.7
Um iP 21 08 31.4
Formosa (h = 110 km).

" 12 Up iP 22 52 22.2 D
Ki eP 22 53 35
Sk eP 22 52 50
Um iP 22 53 03.9
Western Mediterranean Sea
(h = 30 km).

" 12 Um iP 23 44 42.4
Formosa (h = 110 km).

" 13 Up iP 01 01 03.2
Ki eP 01 00 30
Um eP 01 00 42
Formosa (h = 60 km).

" 13 Um eP 01 16 29

" 13 Up e 01 17 51
iSg 01 17 53.0
microns sec
Sg Z' 0.2 0.6
Sk iSg 01 19 17.5
Um iPg 01 18 30.1
iSg 01 19 17.3
D = 400 km = 3.6°.
Gästrikland, Sweden,
60.7°N, 16.6°E.
Origin time = 01 17 18.
Blast?
A whole series of similar, but smaller events, probably all blasts, were recorded during the night of Mar 12-13, with approximate origin times at 22 56 07 (Mar 12), 01 50 33, 01 56 49 and 02 55 20 (Mar 13). In addition, possibly a number of much smaller blasts.

" 13 Up iP 01 22 43.1

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

1966 Mar.	13	Up	iP	01 32 09.1	
"	13	Up	iP	01 47 25.3	
"	13	Up	iP	01 52 41.6	
"	13	Up	iP	01 59 06.3	
"	13	Up	iP	03 17 20.7	
		Um	iP	03 17 04.9	
		Formosa (h = 80 km).			
"	13	Up	iP	03 22 20.1	
"	13	Up	iP	03 24 58.6	
"	13	Up	eP	03 30 23	
			i	03 30 47.3	
"	13	Up	iP	03 38 09.2	
"	13	Um	iP	04 09 00.7	
		Formosa (h = 50 km).			
"	13	Up	iP	04 22 48.2	
"	13	Up	iP	04 23 06.6	
		Um	eP	04 22 52	
		Formosa (h = 70 km).			
"	13	Up	iP	04 42 42.1	
			i	04 42 46.2	
		Ki	iP	04 42 17.0	
		Sk	eP	04 42 45	
		Um	iP	04 42 25.4	
			ipP	04 42 39.3	
			ePP	04 45 08	
		Formosa. h = 60 km (Um).			
"	13	Um	iP	05 07 01.7	
		Formosa (h = 60 km).			
"	13	Um	eP	05 16 13	
"	13	Up	iP	05 36 00.6	
"	13	Up	eP	05 54 08	
		Gb	iP	05 54 24.7	
		Formosa (h = 60 km).			
"	13	Up	iP	07 30 07.3 C	
"	13	Up	iP	08 14 30.8	
		Ki	iP	08 14 04.9	
		Sk	iP	08 14 32.5	
		Um	iP	08 14 14.1	
		Formosa (h = 80 km).			

1966 Mar.	13	Up	iP	12 44 08.5	
"	13	Up	iP	15 05 35.0	
		Ki	iP	15 05 10.8	
				microns sec	
			M	E 0.4 14	
			M	N 0.4 14	
			M	Z 0.8 14	
		Sk	eP	15 05 38	
		Um	iP	15 05 19.6	
		Formosa (h = 50 km).			
"	13	Up	iP	16 04 14.7	
"	13	Up	iP	16 26 14.0	
"	13	Up		---	
				microns sec	
			M	E 0.7 18	
			M	N 1.3 21	
			M	Z 1.3 20	
		Um	iPKP2	18 19 16.6	
			iSS	18 43 15	
		Easter Island Rise (h = 30 km).			
"	13	Um	ePKP	18 59 54	
		Tonga Islands (h = 70 km).			
"	13	Up	iP	19 13 38.0	
		Ki	eP	19 13 18	
		Sk	eP	19 13 37	
		Um	iP	19 13 22.0	
		Formosa (h = 50 km).			
"	13	Up	eP	19 40 38	
		Sk	iP	19 41 17.3	
		Um	iP	19 41 16.8	
		Greece (h = 10 km).			
"	13	Um	iP	22 30 10.1	
		Formosa (h = 60 km).			
"	13	Ki	iP	23 20 13.7	
"	14	Um	iP	02 18 13.5	
"	14	Ki	iP	03 33 08.7 C	
			i	03 33 16.0	
		Um	iP	03 32 54.3	
		Atlantic Ocean (h = 30 km).			
"	14	Up	iP	04 52 37.6 C	
			i	04 52 40.1	
				microns sec	
			P	Z' 0.1 0.6	

(cont.)

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

1966 Mar. 14 (cont.)

Ki	iP	04 52 21.5	
Sk	eP	04 52 48	
	i	04 52 52.9	
Um	iP	04 52 24.9	

Tibet
(h = 30 km).

" 14

Up	iP	06 49 29.0	C
Sk	iP	06 49 24.0	
Um	iP	06 49 07.1	C

Japan (h = 60 km).

" 14 Up iP 13 25 36.9

" 14

Up	iP	14 13 17.7	
		microns sec	
	M	E 1.3 14	
Ki	eP	14 14 34	
		microns sec	
	M	E 1.5 16	
Sk	iP	14 14 00.9	
Um	iP	14 14 02.9	
	i	14 14 07.5	

Greece (h = 50 km).

" 14

Up	i(PKP)	14 23 27.4	C
Um	iPKP	14 23 10.3	

Kermadec Islands
(h = 400 km).

" 14 Up iP 15 27 53.9

" 14 Up iP 16 01 11.0

" 14 Um iP 22 11 06.6
Molucca Passage
(h = 40 km).

" 15

Um	iPKP	05 07 19.1	

New Hebrides Islands
(h = 290 km).

" 15 Um eP 10 51 31

" 15

Up	iP	11 25 44.8	
Ki	iP	11 25 19.7	
		microns sec	
	P	Z' 0.1 1.2	
Sk	iP	11 25 47.5	
Gb	iP	11 26 03.5	
Um	iP	11 25 28.7	

Formosa (h = 70 km).

" 15 Um iP 13 31 25.8

" 15 Gb iPKP 16 28 50.5 D
(cont.)

1966 Mar. 15 (cont.)
South of Fiji Islands
(h = 590 km).

" 15

Up	i(P)	17 08 45.5	
Um	iP	17 08 22.7	D

" 15

Up	iP	23 43 34.6	
		microns sec	
	M	E 2.2 17	
	M	N 1.8 18	
	M	Z 2.9 18	
Ki	iP	23 43 10.5	
		microns sec	
	P	Z' 0.1 1.0	
Sk	eP	23 43 38	
Um	iP	23 43 18.4	

Formosa (h = 20 km).
Magn. = 5.8 (Up,Ki).

" 16

Up	iP	00 16 39.6	
Ki	iP	00 16 45.2	C
Um	iP	00 16 36.6	
Ka	iP	00 16 44.5	

Kashmir (h = 60 km).

" 16 Um iP 01 46 06.0 D

" 16 Up iP 05 24 52.3

" 16 Ki iP 10 45 32.8
Iraq-Iran (h = 30 km).

" 16

Um	iPKP	12 32 17.0	
Ka	iPKP	12 32 29.8	

Tonga Islands (h = 70 km).

" 16 Um iP 13 07 37.2

" 16 Um iP 14 33 00.9

" 16

Ki	iP_n	16 53 39.4	
	iP^x	16 53 45.0	
	iSn	16 54 28.2	
	iSg	16 54 44.0	

D = 420 km = 3.8°.

Um	iSg	16 56 13.0	

Northwest Russia.
Origin time = 16 52 39.
Explosion?

" 16 Um iP 17 10 01.0
Mindoro (h = 30 km).

" 16

Up	iP	20 51 15.8	D
		microns sec	
	M	E 0.7 16	

(cont.)

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

1966					
Mar.	16	(cont.)			
		Up		microns	sec
			M	N 1.0	16
			M	Z 1.1	18
		Ki	iP	20 51 00.6	
			iS	21 01 34	
				microns	sec
			S	N 0.7	10
			M	E 1.0	16
			M	N 1.0	15
			M	Z 1.0	16
			D = 9550 km = 86°.		
		Um	iP	20 51 05.3	
			iS	21 01 36	
		Sulu Sea (h = 25 km).			
"	17	Ki	iP	04 10 37.8	
		Um	iP	04 10 42.6	
		Molucca Passage (h = 80 km).			
"	17	Up	iP	05 53 49.3	
		Ki	iP	05 53 48.6	
		Um	iP	05 53 43.6	
		Tibet (h = 30 km).			
"	17	Um	iP	08 51 20.4	
		Negros (h = 80 km).			
"	17	Um	iP	11 34 15.5	
"	17	Up	i(PKP)	16 08 41.3	C
			iPKP	16 08 42.6	
			ipPKP	16 11 26.9	
			iSKP	16 11 50.8	
			iPKS	16 12 24	
			ipPKS	16 15 05	
			isPKS	16 15 55	
			e	16 20 01	
				microns	sec
			PKP Z	2.1	6
			PKP Z'	0.4	0.6
			SKP N	1.0	3
			SKP Z	2.5	3
			SKP Z'	1.0	1.5
			PKS E	0.9	3
			PKS N	1.5	3
			M E	1.0	18
			M N	3.2	20
			M Z	3.2	20
			(D = 15550 km = 140°).		
		Ki	i(PKP)	16 08 21.7	Po"
			i	16 08 24.3	P1"
			iPKP	16 08 33.7	P"
			iSKP	16 11 01	
			iPKS	16 12 01	
		(cont.)			

1966					
Mar.	17	(cont.)			
		Ki	ipPKS	16 14 15	
			isPKS	16 15 28	
				microns	sec
			PKP Z	1.2	5
			PKP Z'	0.6	1.0
			SKP N	0.8	5
			SKP Z	4.7	5
			SKP Z'	2.8	1.5
			PKS E	3.0	7
			PKS N	3.1	8
			(D = 14650 km = 132°).		
		Gb	iPKP	16 08 51.8	D
			iSKP	16 11 36.0	
		Um	i(PKP)	16 08 28.9	Po" C
			i	16 08 31.0	P1"
		Ka	iPKP	16 08 54.0	D
			iSKP	16 11 36.8	
			isPKP	16 12 13.3	
		Um	iPKP	16 08 36.6	P"
			i(pPKP)	16 11 08	
			i	16 11 13.1	
			ipPKP	16 11 15.5	
			iPKS	16 12 12	
			ipPKS	16 14 32	
			iSKS	16 14 54	
			isPKS	16 15 42	
		Fiji Islands (h = 630 km). The notation for the multiple PKP-phases given to the right of the times (Ki,Um) is taken from G. Payo Subiza and M. Båth: Core phases and the inner core boundary, Geophys. J., 8:496-513, 1964.			
"	17	Up	iP	16 44 58.0	
		Ki	iP	16 44 23.5	
		Um	iP	16 44 39.4	
"	17	Up	iP	20 50 24.8	
"	18	Ki	iSn	05 36 39.3	
			iSg	05 37 01.8	
		Um	iSn	05 37 24.4	
			iSg	05 38 01.9	
		Northwest Russia. Explosion?			
"	18	Um	eP	06 24 59	
"	18	Ki	ePn	11 35 53	
			iSn	11 36 37.4	
			iSg	11 36 57.7	
			D = 420 km = 3.8°.		
		Um	iSn	11 37 59.0	
		(cont.)			

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

1966
Mar. 18 (cont.)
Um iSg 11 38 31.4
Northwest Russia,
69.4°N, 30.0°E.
Origin time = 11 34 53.
Explosion?

" 18 Um iP 12 08 34.7

" 18 Up iP 14 25 11.3
Ki iP 14 24 18.2
Um iP 14 24 44.1
Aleutian Islands
(h = 60 km).

" 18 Um iP 18 16 36.0
Off coast of Oregon
(h = 30 km).

" 18 Ki iP 18 20 15.0 C
Um iP 18 20 43.7 C
Gb iP 18 21 21.6
Alaska (h = 30 km).

" 18 Um iPKP 21 05 23.6
New Hebrides Islands
(h = 80 km).

" 18 Um iP 23 19 27.4

" 19 Um iP 02 59 25.8 D

" 19 Um iP 03 03 59.2

" 19 Up iP 06 21 13.5
Kodiak Island (h = 2 km).

" 19 Up iP 08 22 45.9 C
microns sec
P Z' 0.1 0.5
Ki iP 08 22 01.7 C
microns sec
P Z' 0.1 1.0
Gb iP 08 23 07.0
Um iP 08 22 21.7 C
Ka iP 08 23 07.4
Japan (h = 10 km).
Magn. = 5.9 (Up,Ki).

" 19 Up iP 14 29 58.9
microns sec
P Z' 0.1 0.5

" 19 Up iP 15 11 26.9
Formosa (h = 40 km).

1966
Mar. 19 Up iPKP 16 47 40.6
South of Fiji Islands
(h = 510 km).

" 19 Um iP 16 54 40.5

" 19 Up eL 17 30
microns sec
M E 2.0 18
M N 4.6 19
M Z 2.7 17
Ki eL 17 30
microns sec
M E 1.6 15
M N 1.5 13
China (h = 30 km).

" 19 Up ---
microns sec
M E 1.8 19
M N 2.0 20
M Z 1.7 21
Ki ---
microns sec
M E 2.9 21
M N 1.4 18
M Z 3.2 20
Um iPKP 17 35 17.3
South of Africa
(h = 30 km).
Magn. = 6.0 (Up,Ki).

" 20 Up iP 01 52 52.8 C
ipP 01 53 05.9
iPP 01 55 13.6
iS 02 01 01
microns sec
P N 2.5 6
P Z 3.9 6
P Z' 0.6 1.5
pP Z' 2.1 2.0
PP Z' 1.2 2.0
S E 20 22
S N 6.3 8
M E 170 22
M N 88 19
M Z 87 20
D = 6650 km = 60°.
Ki i(P) 01 53 41.0
iP 01 53 43.5
ipP 01 53 52.6
iPa 01 58 03
iS 02 02 36
microns sec
P Z 3.8 6
P Z' 1.1 1.5
(cont.)

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

1966 Mar. 20 (cont.)

Ki — microns sec
pP Z' 1.2 1.1
S E 14 16
S N 10 15
M E 86 17
M N 53 17
M Z 100 19
D = 7450 km = 67°.

Sk iP 01 53 21.8 C
Gb iP 01 52 45.5
ipP 01 52 54.9
Um i(P) 01 53 15.2 C
iP 01 53 17.7
ipP 01 53 27.3
iPP 01 55 34
iS 02 01 43
Ka iP 01 52 29.6
ipP 01 52 40.7
Uganda. h = 40 km (Up,Ki, Gb,Um,Ka).
Magn. = 6.8 (Up,Ki).
(P) is a small-amplitude precursor (Ki,Um), possibly a foreshock. - S contains also prominent periods around 45-50 sec (Up).

" 20 Um iP 02 26 14.7

" 20 Um iP 02 28 06.2

" 20 Ki iP 02 50 35.2
Um iP 02 50 08.1
Congo (h = 10 km).

" 20 Ki iP 03 33 39.7
Um iP 03 33 13.7 C
i 03 33 19.7
Congo (h = 30 km).

" 20 Up iP 05 56 52.8 C
iPn 05 57 58.8
iPP 05 58 09.6
iLgl 06 07 42

microns sec
P Z' 0.4 0.5
Pn Z' 0.3 0.6
PP Z' 0.2 0.6
D = 3850 km = 34½°.

Ki iP 05 56 37.5 C
iPn 05 57 37.5
iPP 05 57 49.7

microns sec
P Z' 0.9 0.5
Pn Z' 0.2 1.0
(cont.)

1966 Mar. 20 (cont.)

Ki — microns sec
PP Z' 0.3 1.0
D = 3650 km = 33°.

Sk iP 05 57 08.7 C
iPP 05 58 31.3
Gb iP 05 57 21.4 C
iPn 05 58 34.8
iLgl 06 10 03.5
Um iP 05 56 37.8 C
iPn 05 57 39.0
iPP 05 57 52.9
Ka iP 05 57 09.3 C
iPn 05 58 22.3
Kazakh SSR.
Origin time = 05 50 00.
Magn. = 6.6 (Up.Ki).
Underground explosion.

" 20 Up iPKP 07 11 20.9
Um iPKP 07 11 15.5 C
Santa Cruz Islands (h = 270 km).

" 20 Um iPKP 08 06 50.7
Tonga Islands (h = 120 km).

" 20 Ki iP 09 04 29.7

" 20 Up iP 09 05 42.7
Ki iP 09 06 31.6
Um iP 09 06 06.0
Congo (h = 10 km).

" 20 Up iPKP 09 23 44.0 C
Um iPKP 09 23 42.7
Ka iPKP 09 23 54.9
Tonga Islands (h = 100 km).

" 20 Ki iP 10 14 02.2
Um iP 10 14 05.4
Java (h = 30 km).

" 20 Um iP 12 14 40.2

" 20 Up iP 17 39 56.7
ipP 17 40 03.6
Ki iP 17 39 37.4
Um iP 17 39 44.1 C
Luzon. h = 30 km (Up).

" 20 Um iP 18 02 04.2 D

" 20 Um iPKP 18 28 06.2
Santa Cruz Islands (h = 60 km).

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

1966 Mar. 20 Ki iP 21 52 08.9
Sk iP 21 52 21.6
Gb iP 21 53 41.6
Um iP 21 52 46.2 C
Jan Mayen (h = 30 km).

" 20 Up iP 22 32 34.9
iS 22 35 28.5
D = 1800 km = 16°.
Ki iP 22 31 09.7 C
iS 22 33 03.5
microns sec
P Z' 0.1 1.0
D = 1050 km = 9½°.
Sk iP 22 31 15.9
iS 22 33 06.2
Um iP 22 31 45.4
iS 22 33 58.0
Jan Mayen (h = 30 km).
As distinct from the preceding shock, there are clear S-phases recorded, even though the P-waves are the same or even smaller than in the previous case.

" 21 Up iP 00 14 45.9
Ki iP 00 14 20.8
Um iP 00 14 29.8
Formosa (h = 30 km).

" 21 Up iP 01 40 43.9
Ki iP 01 41 34.4 D
microns sec
P Z' 0.1 1.0
Sk iP 01 41 12.4
Um iP 01 41 08.6 D
Uganda (h = 30 km).

" 21 Up iP 01 53 50.8
Um iP 01 53 11.8
Greenland (h = 30 km).

" 21 Up iP 06 40 56.4 D
ipP 06 41 05.5
microns sec
P Z' 0.1 0.6
Ki iP 06 40 27.6 D
microns sec
P Z' 0.1 1.0
Sk iP 06 40 56.6 D
Gb iP 06 41 15.5 D
Um iP 06 40 38.4
Ryukyu Islands.
h = 35 km (Up).
Magn. = 6.0 (Up,Ki).

1966 Mar. 21 Ki iP 09 34 45.7
microns sec
P Z' 0.1 1.0
Um iP 09 34 20.6 C
Uganda (h = 30 km).

" 21 Um iP 12 22 53.1

" 21 Up i(P) 14 39 16.5
microns sec
(P) Z' 0.1 0.5
Ki iP 14 39 36.2

" 21 Um iP 17 51 32.1 D
Kurile Islands (h = 30 km).

" 21 Ki iPn 19 10 40.8
iSn 19 11 29.6
iSg 19 11 45.3
D = 420 km = 3.8°.
Probably northwest Russia.
Origin time = 19 09 41.
Explosion?

" 21 Up iP 20 33 30.4

" 21 Up iP 20 49 31.5 D
Ki iP 20 49 08.6
Um iP 20 49 16.6
Formosa (h = 50 km).

" 21 Um iP 23 03 24.6
Celebes Sea (h = 540 km).

" 22 Um iP 00 57 09.6

" 22 Up iP 08 21 54.5
Ki iP 08 21 24.9 C
microns sec
P Z' 0.4 1.5
Sk iP 08 21 57.4
Um iP 08 21 35.5 C
China (h = 10 km).

" 22 Up iP 08 29 51.4
ipP 08 29 59.1
iPP 08 32 18
iPa 08 33 54
iS 08 38 13
microns sec
P E 1.1 5
P Z' 0.3 1.0
pP Z' 0.4 0.8
PP E 1.7 6
S E 9.6 13
S N 12 10
(cont.)

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

1966 Mar. 22 (cont.)

Up		microns	sec
	M E	520	17
	M N	580	22
	M Z	360	18
	D = 6850 km = 61½°.		
Ki	iP	08 29 20.4	C
	i	08 29 22.8	
	ipP	08 29 31	
	iS	08 37 23	
		microns	sec
	P E	2.8	6
	P N	1.2	8
	P Z	5.1	8
	P Z'	0.7	1.1
	S E	9.2	7
	S N	18	9
	M E	120	13
	M N	160	15
	M Z	160	14
	D = 6350 km = 57°.		
Sk	iP	08 29 55.3	C
Gb	iP	08 30 16.8	C
	ipP	08 30 23.1	
	iPP	08 32 46.2	
Ka	iP	08 30 10.7	C
	ipP	08 30 16.3	

China. h = 30 km (Up,Ki, Gb,Ka).
Magn. = 6.8 from body waves and = 7.6 from surface waves (Up,Ki). Compare Mar. 7, 21 39, where a similar difference was found.

"	22	Um	iP	09 11 54.1 C
"	22	Ki	iP	10 37 53.2

Alaska (h = 100 km).

"	22	Up	iP	11 18 54.5
		Ki	iP	11 18 25.5
			microns	sec
			P Z' 0.1	1.0
		Sk	iP	11 18 58.3
		Um	eP	11 18 35

China (h = 30 km).

"	22	Um	iP	12 18 01.6 C

China (h = 30 km).

"	22	Um	iP	14 09 03.5
"	22	Um	iP	19 41 37.3
"	22	Up	iP	21 51 40.1

1966 Mar. 23

Up	iP	00 16 22.1	C
	iS	00 26 03	
	iScS	00 26 25	
		microns	sec
	P E	1.0	2
	P N	0.8	1
	P Z'	0.8	0.5
	S E	1.4	6
	M E	8.5	22
	M N	28	26
	M Z	10	25
	D = 8450 km = 76°.		
Ki	iP	00 15 57.7	C
	iPa	00 20 23	
	eS	00 25 16	
		microns	sec
	P E	2.4	5
	P Z	4.0	5
	P Z'	1.2	0.8
	S E	2.8	9
	S N	1.0	10
	M E	9.5	18
	M N	5.0	18
	M Z	8.7	18
	D = 8000 km = 72°.		
Sk	iP	00 16 25.1	C
Gb	iP	00 16 41.7	C
	ipP	00 16 59.5	
Um	iP	00 16 06.0	C
	iPP	00 18 49	
	iS	00 25 35	
Ka	iP	00 16 37.0	C

Formosa. h = 70 km (Gb).
Magn. = 6.9 (Up,Ki).
This is the largest aftershock in this series ($M - M_1 = 1.0$).

"	23	Up	iP	01 18 23.1
		Um	iP	01 18 05.6 C

Bonin Islands (h = 450 km).

"	23	Um	iPKP	04 30 32.2
			i	04 30 40.3

Chile (h = 30 km).

"	23	Um	iP	05 23 50.7
			ipP	05 24 05.5

Caribbean Sea.
h = 60 km (Um).

"	23	Um	iP	11 31 03.0
"	23	Up	iPKP	11 40 15.4
			i	11 40 25.1

(cont.)

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

1966
Mar. 23 (cont.)
Um iPKP 11 40 06.8 C
South of Kermadec Islands
(h = 40 km).

" 23 Um iP 14 10 57.5 C

" 23 Up ---
microns sec
M E 1.0 17
M N 1.8 18
M Z 1.5 16
Ki ---
microns sec
M N 0.9 13
Um iP 17 38 01.5
China (h = 30 km).

" 23 Up iP 23 02 26.1 C
i 23 02 31.7
Um iP 23 02 19.5 C

" 24 Up iP 03 33 02.8
Ki iP 03 32 08.7
Um iP 03 32 34.7 C
Aleutian Islands
(h = 30 km).

" 24 Up iSKP 04 27 23.5
Ki iSKP 04 26 59.9
Um iPKP 04 23 52.7
iSKP 04 27 11.6
Fiji Islands (h = 190 km).

" 24 Ki iPKP 08 46 38.9
Um iPKP 08 46 45.6
New Hebrides Islands
(h = 40 km).

" 24 Um iP 15 26 14.0

" 24 Ki iPn 20 01 48.2
iSn 20 02 26.5
iSg 20 02 43.4
D = 370 km = 3.3°.
Um iSn 20 03 32.0
iSg 20 04 06.3
D = 660 km = 5.9°.
Northwest Russia,
68.6°N, 29.2°E.
Origin time = 20 00 53.
Explosion?

" 24 Um iP 20 16 06.2 C
Java (h = 80 km).

1966
Mar. 25 Um iP 11 01 37.4

" 25 Up iP 13 05 53.4
ipP 13 05 58.0
microns sec
P Z' 0.1 0.6
Ki iP 13 04 59.4
Sk eP 13 05 34
Gb iP 13 06 10.0
Um iP 13 05 26.1
Aleutian Islands.
h = 20 km (Up).

" 25 Up iPKP 13 15 16.9
Ki iPKP 13 15 31.9
Um iPKP 13 15 24.8
South Sandwich Islands
(h = 25 km).

" 25 Ki iPn 17 22 55.6
iSn 17 23 44.5
iSg 17 23 59.9
D = 420 km = 3.8°.
Um iSn 17 24 41.4
iS^{x} 17 25 06.3
iSg 17 25 24.4
D = 700 km = 6.3°.
Northwest Russia,
68.7°N, 30.4°E.
Origin time = 17 21 56.
Explosion?

" 25 Um iP 22 07 10.3

" 25 Ki iP 22 08 31.4
Um iP 22 08 12.3
Uganda (h = 30 km).

" 25 Sk iP 22 09 16.0
Um iP 22 09 21.3
Alaska (h = 20 km).

" 25 Up iP 23 22 14.2
Sk iP 23 23 06.0 D
Um iP 23 22 47.9
Turkey (h = 30 km).

" 26 Up iP 09 54 18.1
Um iP 09 54 38.7
Rhodesia (h = 15 km).

" 26 Ki iP$_{n}$ 10 38 18.6
iP^{x} 10 38 27.0
iSn 10 39 05.0
iSg 10 39 20.1
D = 400 km = 3.6°.
(cont.)

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

1966 Mar. 26 (cont.)

Um iSn 10 40 14.7
iSg 10 40 55.1
D = 710 km = 6.4°.
Northwest Russia,
69.0°N, 29.8°E.
Origin time = 10 37 22.
Explosion?

" 26 Ki ---

		microns	sec
M	E	0.7	12
M	N	0.5	12
M	Z	0.6	11

Sk iP 12 33 54.2
Um iP 12 34 24.4
Iceland (h = 30 km).

" 26 Up iP 13 47 45.0
Ki iP 13 46 52.4
Aleutian Islands
(h = 40 km).

" 26 Up iP 14 21 13.9 C
ipP 14 21 22.4

		microns	sec
P	Z'	0.3	0.7

Ki iP 14 20 52.6
Sk iP 14 21 18.9
Gb iP 14 21 32.4
Um iP 14 21 00.3
ipP 14 21 09.3
Ka iP 14 21 26.1
Luzon. h = 35 km (Up,Um).

" 26 Ki iP 15 24 20.3
Sk iP 15 24 55.7
Um iP 15 24 30.7
China (h = 30 km).

" 26 Up iP 15 29 19.0
i 15 29 20.6
iS 15 37 43
iSS 15 42 03

		microns	sec
S	N	1.0	7
M	E	29	17
M	N	65	17
M	Z	20	18

D = 6850 km = 61½°.
Ki iP 15 28 51.2
iPP 15 31 07.8
iS 15 36 51
iSS 15 40 40
iLg2 15 51 08

		microns	sec
P	Z'	0.3	1.5
S	E	1.3	7
S	N	1.6	8
M	E	8.2	12
M	N	10	14
M	Z	8.3	13

D = 6400 km = 57½°.
Sk iP 15 29 24.0 C
Gb iP 15 29 44.9
Um iP 15 29 00.5
i 15 29 01.8
iS 15.37 11
iSS 15 41 09
China (h = 30 km).
Magn. = 6.2 (Up,Ki).
At Up and Um, P consists of a small-amplitude precursor followed after about 1.5 sec by a much larger phase. - This is the largest aftershock in this series, with $M - M_1$ approx. = 1.0.

" 26 Up ---

		microns	sec
M	E	5.4	19
M	N	14	19
M	Z	3.5	16

Ki iP 18 24 09.1 C
iS 18 31 58

		microns	sec
S	N	0.3	8
M	E	2.1	13
M	N	2.5	14
M	Z	2.0	13

D = 6350 km = 57°.
Sk iP 18 24 44.3 C
Um iP 18 24 20.2
iS 18 32 23
iSS 18 36 33
China (h = 30 km).
Magn. = 5.6 (Up,Ki).

" 26 Up iP 20 22 13.2
Sk iP 20 22 55.9 C
Um iP 20 22 53.4
Greece (h = 30 km).

" 27 Um iP 00 29 55.8 C

" 27 Um iP 01 25 53.6

" 27 Up iP 01 50 18.3
(cont.)

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

1966 Mar. 27 (cont.)

Up	ipP	01 50 24.5	
Ki	iP	01 50 51.5	C
Sk	eP	01 50 56	
Um	iP	01 50 31.2	C
	ipP	01 50 37.6	

Arabian Sea.
h = 25 km (Up,Um).

" 27 Up iP 01 53 55.9
Greece (h = 180 km).

" 27

Up	iP	02 21 19.5	C
	ipP	02 21 30.5	
Ki	iP	02 20 26.9	
Um	iP	02 20 51.5	

Kamchatka.
h = 40 km (Up).

" 27 Um iPKP 10 57 30.9
Santa Cruz Islands
(h = 190 km).

" 27

Up	iP	19 06 27.2	C
	microns	sec	
	P Z'	0.1 0.9	
Ki	iP	19 06 23.7	C
	iS	19 17 01	
	microns	sec	
	P Z'	0.6 2.0	
	M E	1.5 18	
	M N	1.0 17	
	M Z	2.0 18	

D = 9650 km = 87°.

Sk	iP	19 06 12.0	
Um	iP	19 06 28.2	
	iS	19 17 01	
Ka	iP	19 06 27.4	

Costa Rica (h = 40 km).

" 27 Sk iP 20 42 09.3

" 27 Sk iP 20 52 59.0

" 27

Ki	iP	21 07 05.6
Um	iP	21 07 15.7

China (h = 30 km).

" 27 Sk iP 21 13 05.4

" 28

Ki	iP	03 36 21.2
Um	iP	03 36 30.3

China (h = 30 km).

" 28

Sk	iP	04 10 06.6	
Um	iP	04 10 04.1	C

Greece (h = 30 km).

1966 Mar. 28 Up iP 09 26 02.3

" 28 Ki ---

	microns	sec	
M	E	1.2	23
M	N	1.1	23
M	Z	1.6	22

Um iP 15 42 56.0 D
Peru-Ecuador (h = 20 km).

" 28

Ki	iP	15 59 14.4	
Um	eP	15 59 28	

" 28

Up	iP	16 16 11.2	D
	microns	sec	
	P Z'	0.1 0.5	
Ki	iP	16 15 39.5	
Sk	iP	16 16 08.0	
Um	iP	16 15 53.1	D

Bonin Islands
(h = 550 km).

" 28 Um iP 17 56 21.6
Peru-Ecuador
(h = 50 km).

" 29

Up	iPKP	02 28 32.9	C
Sk	iPKP	02 28 26.9	
Um	iPKP	02 28 21.5	C

Kermadec Islands
(h = 30 km).

" 29

Up	iP	02 30 05.6	
	i	02 30 31.2	
	iS	02 40 18	
	microns	sec	
	P Z'	0.1 0.8	
	S E	1.2 4	
	S N	0.8 3	
	M E	1.1 20	
	M N	2.3 22	
	M Z	2.3 23	

D = 9450 km = 8.5°.

Ki	iP	02 29 35.6	
	iPP	02 32 33.2	
	iS	02 39 24	
	microns	sec	
	P Z'	0.2 1.0	
	S E	3.3 6	
	S N	1.2 8	
	M E	2.8 27	
	M N	0.7 16	
	M Z	2.9 24	

D = 8850 km = 79½°.

Sk	iP	02 30 03.0	
Gb	iP	02 30 24.5	

(cont.)

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

1966
Mar. 29 (cont.)

Gb	i	02 30 30.7	
Um	iP	02 29 49.0	
	iS	02 39 49	

Volcano Islands
(h = 80 km).
Magn. = 6.3 (Up,Ki).

" 29

Up	iP	06 22 17.3		
		microns	sec	
	M	E	6.8	18
	M	N	16	18
	M	Z	6.1	16
Ki	iP	06 21 48.4		
		microns	sec	
	P	Z'	0.4	2.0
	M	E	4.2	14
	M	N	4.0	14
	M	Z	4.5	14
Sk	iP	06 22 20.8 C		
Um	iP	06 21 58.4		

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

" 29

Sk	eP	15 55 17
Um	iP	15 54 55.5

China (h = 30 km).

" 29

Um	iP	17 34 35.3

Uganda (h = 30 km).

" 29

Ki	iP	23 07 09.3
Um	iP	23 07 37.3

Aleutian Islands
(h = 30 km).

" 30

Up	eP	04 27 26		
	i	04 27 30.1		
	iS	04 34 31		
		microns	sec	
	M	E	0.8	14
	M	N	1.8	18
	M	Z	1.6	20
	D = 5450 km = 49°.			
Ki	iP	04 27 52.6		
	iS	04 35 16		
		microns	sec	
	P	Z'	0.2	1.5
	S	E	0.9	15
	M	E	2.0	19
	M	N	2.8	22
	M	Z	4.0	19
	D = 5900 km = 53°.			
Sk	iP	04 27 56.0		
Um	iP	04 27 36.2		
	i	04 27 39.9		
	iS	04 34 50		

(cont.)

1966
Mar. 30 (cont.)

Ka	iP	04 27 25.5

Arabian Sea (h = 30 km).
Magn. = 5.5 (Up,Ki).

" 30

Up	iP	08 26 50.1
Ki	iP	08 26 18.7

Ryukyu Islands
(h = 20 km).

" 30

Up	---			
		microns	sec	
	M	E	1.5	16
	M	N	1.9	16
	M	Z	2.7	17
Ki	iP	12 50 14.0		
	iS	12 58 31		
		microns	sec	
	S	E	0.9	8
	S	N	0.5	8
	M	E	3.1	18
	M	N	3.2	22
	M	Z	3.4	19
	D = 6800 km = 61°.			
Sk	iP	12 50 32.2		
Um	iP	12 50 38.1		
	iS	12 59 16		

Vancouver Island
(h = 30 km).
Magn. = 5.9 (Ki).

" 30

Um	iP	18 57 14.0

Japan (h = 15 km).

" 30

Up	iPKP	21 00 35.9
	i	21 00 41.0
Um	iPKP	21 00 23.5

South of Kermadec Islands
(h = 15 km).

" 30

Um	iP	21 53 05.3 C

" 31

Um	iP	01 33 29.8
	i	01 33 43.1

Hindu Kush.

" 31

Up	iP	02 47 45.4 C

" 31

Ki	iPn	05 14 03.3
	iSn	05 14 45.4
	iSg	05 15 07.8
	D = 420 km = 3.8°.	
Um	iSn	05 15 30.2
	iSg	05 16 09.4
	D = 620 km = 5.6°.	

Northwest Russia,
67.8°N, 30.4°E.
(cont.)

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

1966 Mar. 31 (cont.)
Origin time = 05 13 00.
Explosion?

" 31 Ki iPKP 05 24 55.7
Um iPKP 05 25 02.3
New Hebrides Islands
(h = 30 km).

" 31 Up i(P) 09 27 03.3
i 09 27 08.1
Ka i(P) 09 26 58.9

" 31 Ki ePn 12 55 12
iSn 12 55 57.1
iSg 12 56 13.8
D = 400 km = 3.6°.
Sk eSg 12 58 40
Um iSn 12 56 37.5
iSg 12 57 09.6
D = 580 km = 5.3°.
Northwest Russia,
67.4°N, 29.8°E.
Origin time = 12 54 15.
Explosion?

" 31 Up iP 12 56 52.3
i 12 57 14.6

" 31 Um iP 14 42 00.3

" 31 Up iPKP 14 53 21.9
Sk iPKP 14 53 08.3
Um iPKP 14 53 03.7 C
South of Kermadec Islands
(h = 30 km).

" 31 Up iP 17 16 16.6 C

" 31 Um iP 19 04 53.0

" 31 Up iP 23 45 25.0 C
iPP 23 46 59.2
microns sec
P Z' 0.3 0.5
Ki iP 23 45 34.0 C
i 23 48 11.9
microns sec
P Z' 0.7 1.0
Sk iP 23 45 51.5 C
Gb iP 23 45 45.5 C
Um iP 23 45 23.4 C
ipP 23 46 09.3

1966 Mar. 31 (cont.)
Ka iP 23 45 29.4 C
ipP 23 46 15.3
Hindu Kush.
h = 220 km (Um,Ka).
Magn. = 6.3 (Up,Ki).

Markus Båth
August 25, 1966

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

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

A P R I L 1 - 30, 1966

1966 Apr. 1 Ki eP 01 13 31
Um iP 01 14 19.4
Jan Mayen-Spitsbergen
(h = 30 km).

" 1 Up iP 03 01 56.7 C
ipP 03 02 12.5
microns sec
P Z' 0.2 0.8
Ki iP 03 01 03.4 C
microns sec
P Z' 0.1 0.9
Sk iP 03 01 36.7
Gb iP 03 02 14.2
Um iP 03 01 29.5 C
Ka iP 03 02 19.9
Aleutian Islands.
h = 60 km (Up).
Magn. = 6.0 (Up,Ki).

" 1 Ki iP 03 47 23.7
Alaska (h = 30 km).

" 1 Up eL 04 28
microns sec
M N 2.0 20
M Z 1.4 18
Ki eL 04 34
microns sec
M E 1.5 18
M N 1.1 18
M Z 2.0 18
South Atlantic Ocean
(h = 30 km).

" 1 Up iP 13 19 51.9
(cont.)

1966 Apr. 1 (cont.)
Up microns sec
M E 1.7 18
M N 1.4 14
M Z 1.8 14
Ki iP 13 21 01.7
microns sec
M E 1.9 20
M N 1.0 17
M Z 1.5 18
Um iP 13 20 25.1 C
iS 13 24 52
Greece (h = 40 km).

" 1 Ka iP 15 06 38.1

" 1 Up iP 15 11 30.8 C

" 1 Um eP 15 26 09

" 1 Um iP 22 39 31.3

" 2 Up eP 02 05 26
i 02 05 33.4
Ki eP 02 05 06
i 02 05 45.9
eS 02 15 31
microns sec
S E 0.7 8
S N 0.6 8
M E 1.0 21
M N 0.9 23
M Z 2.0 22
D = 9350 km = 84°.
Sk eP 02 05 08
Um iP 02 05 19.9
(cont.)

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

1966
Apr. 2 (cont.)

Um	iSKS	02 15 44	
	iS	02 16 00	

Mexico (h = 40 km).
Magn. = 5.8 (Ki).

" 2 Um iP 15 13 16.6
Japan (h = 180 km).

" 2 Ka iPKP 21 27 41.4
Fiji Islands (h = 200 km).

" 2 Um iP 21 39 34.3

" 2 Up iP 22 54 40.5
Ki iP 22 53 59.9

		microns	sec
P	Z'	0.1	1.5
M	E	0.5	16
M	N	0.5	17
M	Z	0.9	17

Sk	iP	22 54 33.5
Gb	iP	22 55 01.3
Um	iP	22 54 17.8 C
	ipP	22 54 29.1
Ka	iP	22 55 00.3

Japan. h = 40 km (Um).

" 3 Ka iPKP 02 51 06.9
Fiji Islands (h = 630 km).

" 3 Up iP 04 55 05.0 C
iPP 04 57 46.9
iS 05 04 25

		microns	sec
P	Z'	0.3	0.8
PP	Z'	0.1	0.9
M	E	0.8	18
M	N	1.2	20
M	Z	1.3	20

D = 8100 km = 73°.

Ki	iP	04 54 26.0 C
	iPP	04 56 51.2
	eS	05 03 14
	eSS	05 07 36

		microns	sec
P	Z'	0.3	1.0
PP	Z'	0.1	1.0
S	N	0.4	11
M	E	2.1	18
M	N	0.8	19
M	Z	2.5	18

D = 7400 km = 66 1/2°.

Sk	iP	04 54 59.0 C
	iPP	04 57 37.0

(cont.)

1966
Apr. 3 (cont.)

Gb	iP	04 55 25.5 C
Um	iP	04 54 43.0 C
	iPP	04 57 06.5
	iS	05 03 46
	iSS	05 08 02
Ka	iP	04 55 24.1 C
	i	04 55 35.1
	e(PP)	04 57 54

Japan (h = 70 km).
Magn. = 6.3 (Up,Ki).

" 3 Up iP 05 17 03.3
Um iP 05 17 41.0
Algeria (h = 30 km).

" 3 Up eSg 05 58 38
Ki iPn 05 54 19.2
iSn 05 55 15.3
iSg 05 55 37.8
D = 510 km = 4.6°.
Sk e 05 57 51
iSg 05 58 08.8
Um iPn 05 54 46.0
iSn 05 56 00.7
eSg 05 56 38
D = 700 km = 6.3°.
Northwest Russia,
67.7°N, 32.6°E.
Origin time = 05 53 09.
Explosion?

" 3 Ki eSn 11 04 42
iSg 11 05 04.2
Sk eSg 11 07 32
Um iSn 11 05 30.3
iSg 11 05 54.7
Northwest Russia,
67.8°N, 31.4°E.
Origin time = 11 02 45.
Explosion?

" 3 Up iP 11 41 06.8
iS 11 45 03

		microns	sec
S	N	0.5	5
M	E	3.1	20
M	N	3.4	17
M	Z	2.7	17

D = 2350 km = 21°.

Ki	iP	11 42 22.9
	iS	11 47 15
	eLg2	11 52 28

		microns	sec
S	N	0.3	7

(cont.)

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

1966
Apr. 3 (cont.)

Ki		microns	sec
	M	E 1.8	16
	M	N 0.9	13
	M	Z 1.6	14
	D = 3200 km = 29°.		
Sk	iP	11 41 49.7	D
Gb	iP	11 40 55.4	
Um	iP	11 41 46.4	
	iS	11 46 12	
Ka	iP	11 40 28.6	
	i	11 40 41.0	

Greece (h = 25 km).
Magn. = 4.9 (Up,Ki).

" 3 Um iP 14 57 48.5 C

" 3

Ki	iP	19 40 58.6	
Um	iP	19 41 09.4	D

Mexico (h = 150 km).

" 3 Um eP 21 41 16

" 3

Ki	iP	23 04 47.0	
		microns	sec
	M	N 0.4	15
	M	Z 0.7	15
Sk	iP	23 05 00.5	
	iS	23 06 45.6	
Gb	iP	23 06 22.1	
Um	iP	23 05 25.0	
	i(S)	23 07 58.6	
Ka	iP	23 06 41.5	

Jan Mayen (h = 30 km).

" 4

Up	iP	02 28 41.1	
	ipP	02 28 47.4	
Ki	iP	02 28 41.8	
Gb	ipP	02 29 04.0	
Um	iP	02 28 37.4	
	ipP	02 28 44.4	

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

" 4

Up	eP	02 56 09	
Um	iP	02 55 59.2	
	i	02 56 05.9	

" 4

Up	iP	03 03 01.7	
	ipP	03 03 08.6	
Ki	iP	03 03 02.6	C
	ipP	03 03 09.3	
		microns	sec
	P	Z' 0.1	1.0

(cont.)

1966
Apr. 4 (cont.)

Sk	iP	03 03 18.8	C
	ipP	03 03 25.9	
Gb	iP	03 03 17.8	
	ipP	03 03 24.8	
Um	iP	03 02 58.5	C
	ipP	03 03 04.5	
Ka	iP	03 03 05.5	
	ipP	03 03 12.5	

Andaman Islands.
h = 25 km (Up,Ki,Sk,Gb,Um,Ka).

" 4

Up	e(PKP)	05 57 56	
Ki	ePKP	05 57 39	
Sk	ePKP2	05 58 08	
Um	iPKP	05 57 38.2	
	i	05 57 41.1	
Ka	iPKP	05 57 42.9	

West of Macquarie Islands
(h = 30 km).

" 4

Up	iP	06 53 35.4	
	ipP	06 53 42.5	
	iS	07 02 59	
		microns	sec
	pP	Z' 0.1	0.7
	M	E 1.4	18
	M	N 5.3	20
	M	Z 1.4	18
	D = 8000 km = 72°.		
Ki	iP	06 53 37.2	
	ipP	06 53 41.8	
	iS	07 02 59	
		microns	sec
	pP	Z' 0.2	1.2
	S	N 1.3	12
	M	E 2.8	17
	M	N 5.2	18
	M	Z 3.6	17
	D = 8000 km = 72°.		
Sk	iP	06 53 53.4	
Gb	ipP	06 53 56.0	
Um	iP	06 53 32.1	
	ipP	06 53 39.2	
	iS	07 02 50	
	iSa	07 10 56	
Ka	ipP	06 53 44.0	

Andaman Islands.
h = 25 km (Up,Ki,Um).
Magn. = 6.0 (Up,Ki).
In this series of Andaman Islands shocks, the amplitudes of pP are so far larger than of P at our stations. The average
(cont.)

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

1966
Apr. 4 (cont.)
amplitude ratio pP/P on Z' is 2.0 for Apr. 4, 03 03, and 3.8 for the present shock.

" 4 Um iP 09 33 08.8
Sakhalin (h = 50 km).

" 4 Up iP 13 27 29.9
i 13 27 38.1

" 4 Up iP 20 02 39.8
ipP 20 03 03.5
Ki eP 20 02 29
ipP 20 02 52.9
Sk iP 20 02 22.8 C
ipP 20 02 46.6
Gb iP 20 02 29.6
ipP 20 02 54.0
Um iP 20 02 38.4
ipP 20 03 01.1
Ka iP 20 02 41.3 C
El Salvador.
h = 90 km (Up,Ki,Sk,Gb,Um).

" 4 Ki iSg 23 30 43.7
Sk iSg 23 30 47.4
Um iPg 23 30 24.3
iSn 23 30 57.5
iSg 23 31 11.6
D = 410 km = 3.7°.
Nordlands Fylke, Norway, 66.5°N, 14.3°E.
Origin time = 23 29 12.

" 4 Um iPKP 23 51 12.1
Santa Cruz Islands
(h = 40 km).

" 5 Up iP 00 18 57.0
ipP 00 19 03.4
Ki iP 00 18 58.6 C
ipP 00 19 05.3
Um iP 00 18 54.4 C
ipP 00 19 00.4
Ka iP 00 19 01.5
ipP 00 19 07.6
Andaman Islands.
h = 25 km (Up,Ki,Um,Ka).
In this earthquake, the amplitude ratio pP/P on Z' averages 0.8 (compare remark to Apr. 4, 06 53; the differences reflecting (cont.)

1966
Apr. 5 (cont.)
corresponding variations in the focal mechanism orientation).

" 5 Up iP 05 08 38.1
microns sec
P Z' 0.1 0.6
Ki iP 05 07 52.4
microns sec
P Z' 0.1 1.0
Sk iP 05 08 28.8
Gb iP 05 08 58.8
Um iP 05 08 12.9
Ka iP 05 08 59.7
Kurile Islands (h = 30 km).
Magn. = 5.8 (Up,Ki).

" 5 Up iP 06 19 58.5
Ki iP 06 20 39.4
Sk iP 06 20 23.3
Gb iP 06 19 47.8
Um iP 06 20 19.0 D
i 06 20 22.0
Ka eP 06 19 36
Rhodesia (h = 25 km).

" 5 Up iP 09 02 41.8
microns sec
M E 0.6 13
M N 0.9 15
M Z 0.7 15
Ki iP 09 02 03.4 C
microns sec
M E 1.1 15
M N 0.8 14
M Z 1.2 16
Sk iP 09 02 32.0
Gb iP 09 03 02.4
Um iP 09 02 19.2
Ka iP 09 02 59.9
Japan (h = 5 km).

" 5 Um iPKP2 12 18 04.5
Macquarie Islands
(h = 5 km).

" 5 Ki iP 16 39 28.1
Um iP 16 39 39.0
China (h = 30 km).

" 6 Up iP 01 59 50.7
i 01 59 55.2
Ki iP 01 59 58.2 C
(cont.)

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

1966 Apr. 6 (cont.)

Ki		microns	sec
	P	Z' 0.1	1.0
	M	N 0.9	14
Sk	iP	02 00 15.3	C
Gb	iP	02 00 12.1	
Um	iP	01 59 48.4	C
Ka	iP	01 59 55.6	

West Pakistan (h = 40 km).

" 6

Up	iPKP	03 17 59.2	
	iSS	03 36 20	
		microns	sec
	M	E 4.3	22
	M	N 4.1	20
	M	Z 4.5	23
Ki	iPKP	03 18 06.2	
	eSS	03 37 04	
		microns	sec
	M	E 3.1	18
	M	N 1.8	17
	M	Z 4.0	19
Sk	iPKP	03 18 06.3	
Um	iPKP	03 17 58.5	
	i	03 22 14.5	
	iSKSP	03 29 35	
	iSS	03 36 41	

Indian Ocean (h = 30 km).
Magn. = 6.2 (Up,Ki).

" 6

Um	iP	13 51 16.5	

" 6

Ki	iPn	16 45 55.5	
	iSn	16 46 44.2	
	iSg	16 46 59.8	
	D = 420 km = 3.8°.		
Sk	eSg	16 49 45	
Um	iS[x]	16 48 06.4	
	iSg	16 48 28.1	

Northwest Russia,
68.8°N, 30.5°E.
Origin time = 16 44 55.
Explosion?

" 6

Ki	iP	18 16 20.7	
Um	iP	18 16 44.4	C

Okhotsk Sea (h = 240 km).

" 6

Um	iP	18 39 39.5	

" 6

Up	eP	19 57 33	
	ipP	19 57 43.4	
		microns	sec
	M	E 1.6	17
	M	N 1.7	21

(cont.)

1966 Apr. 6 (cont.)

Up		microns	sec
	M	Z 1.6	20
Ki	iP	19 57 00.3	
	ipP	19 57 13.3	
		microns	sec
	M	E 1.9	17
	M	N 1.8	17
	M	Z 3.2	17
Sk	iP	19 57 30.6	
Um	iP	19 57 13.2	
	ipP	19 57 24.3	

Japan. h = 40 km (Up,Ki,Um).
Magn. = 5.6 (Up,Ki).

" 6

Up	iP	22 06 09.5	
Ki	iP	22 05 51.4	
	ipP	22 06 05.7	
Sk	eP	22 06 16	
Um	iP	22 05 57.5	

Mindanao. h = 50 km (Ki).

" 6

Up	iP	22 39 07.6	C
	ipP	22 39 17.3	
		microns	sec
	P	Z' 0.1	0.7
Ki	iP	22 38 13.8	C
	ipP	22 38 22.9	
		microns	sec
	P	Z' 0.2	1.0
Sk	iP	22 38 41.3	C
Gb	iP	22 39 20.4	C
Um	iP	22 38 41.7	C
	ipP	22 38 50.5	
Ka	iP	22 39 31.1	C

Kodiak Island.
h = 35 km (Up,Ki,Um).
Magn. = 6.0 (Up,Ki).

" 7

Up	iP	03 30 39.5	
	i	03 31 37.6	
		microns	sec
	P	Z' 0.1	0.8
Ki	iP	03 31 52.9	
		microns	sec
	M	E 1.0	16
	M	N 0.2	15
Sk	iP	03 31 18.7	C
Gb	iP	03 30 25.1	C
Um	iP	03 31 16.8	
Ka	iP	03 30 02.2	

Greece (h = 40 km).

" 7

Up	iP	04 03 41.2	
Um	iP	04 03 16.9	

Kurile Islands (h = 25 km).

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

1966
Apr. 7 Up iP 09 54 20.3
ipP 09 54 32.3
microns sec
P Z' 0.3 1.0
M E 1.7 18
M N 1.4 18
M Z 1.7 18
Ki iP 09 53 52.4
microns sec
P Z' 0.1 1.0
M E 1.9 20
M N 1.1 16
M Z 1.8 15
Sk iP 09 54 21.6 C
Gb iP 09 54 40.5 C
ipP 09 54 53.4
Um iP 09 54 03.0 C
ipP 09 54 14.6
iS 10 03 26
Ka iP 09 54 36.4
Ryukyu Islands.
h = 45 km (Up,Gb,Um).
Magn. = 5.9 (Up,Ki).

" 7 Ki iP 13 30 24.5

" 7 Ki iPn 14 14 25.6
iSn 14 15 08.2
iSg 14 15 27.1
D = 400 km = 3.6°.
Sk eSg 14 17 53
Um iSn 14 15 53.2
iSg 14 16 20.6
D = 590 km = 5.3°.
Northwest Russia-Finland border, 67.5°N, 29.8°E.
Origin time = 14 13 27.
Explosion?

" 7 Gb iPKP 14 56 06.2
i 14 56 25.7
South of Tonga Islands (h = 30 km).

" 7 Up iP 16 49 47.6

" 8 Ki iP 00 06 39.7
Um iP 00 06 36.3
Sumatra.

" 8 Up iP 01 57 18.6 C
i 01 57 22.8
i 01 58 20
iPa 02 01 33
iS 02 05 47
eP'P' 02 25 50
(cont.)

1966
Apr. 8 (cont.)
Up
microns sec
P N 0.6 4
P Z 0.7 3
P Z' 1.3 2.5
M E 14 19
M N 20 21
M Z 22 22
D = 7100 km = 64°.
Ki iP 01 56 26.5 C
iPcP 01 57 22
iPa 01 59 48
iS 02 04 15
microns sec
P N 0.7 6
P Z 1.2 6
P Z' 1.3 2.7
S N 1.2 13
M E 16 20
M N 11 19
M Z 23 21
D = 6300 km = 56 1/2°.
Sk iP 01 57 02.7 C
Gb iP 01 57 39.3 C
Um iP 01 56 50.6 C
iPP 01 59 04
iPa 02 00 36
i 02 04 30
iS 02 04 57
eP'P' 02 26 04
Ka iP 01 57 42.2 C
iPcP 01 58 07.1
Kamchatka (h = 50 km).
Magn. = 6.2 (Up,Ki).
The initial part of PZ' is dominated by unusually long periods, around 2.5 sec, at all our stations.

" 8 Up iP 05 35 18.9 D
Ki iP 05 34 27.2
Gb iP 05 35 39.6
Um iP 05 34 51.4
Kamchatka (h = 50 km).

" 8 Up iP 05 58 33.7 C
i 05 58 38.1
microns sec
P Z' 0.3 1.0
M E 0.6 14
M N 1.1 18
M Z 1.5 23
Ki iP 05 58 41.8 C
ipP 05 58 52.7
microns sec
P Z' 0.1 1.0
(cont.)

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

1966 Apr. 8 (cont.)

Sk	iP	05 58 09.9	C
	ipP	05 58 19.7	
Gb	iP	05 58 10.5	C
Um	iP	05 58 40.9	C
Ka	iP	05 58 29.9	C
	ipP	05 58 40.4	

Atlantic Ocean.
h = 50 km (Ki,Sk,Ka).
Magn. = 5.6 (Up,Ki).

" 8

Up	iP	09 29 36.5	C
Ki	iP	09 28 42.3	C
Sk	iP	09 29 09.0	
Gb	iP	09 29 47.9	
Um	iP	09 29 10.1	C

Kodiak Island (h = 30 km).

" 8

Ki	eL	12 12	
		microns	sec
	M E	0.7	20
	M N	0.6	19
	M Z	1.4	21

Samoa Islands (h = 30 km).

" 8

Um	iP	12 37 25.9	

Kodiak Island (h = 30 km).

" 8

Up	iP	13 52 18.1	
Ki	iP	13 53 18.6	
Um	iP	13 52 44.1	

Eastern Mediterranean Sea
(h = 40 km).

" 8

Ki	iPn	17 03 05.6	
	iP^x	17 03 14.2	
	iSn	17 03 54.0	
	iSg	17 04 07.7	
	D = 420 km = 3.8°.		
Sk	eSg	17 06 54	
Um	iPn	17 03 43.2	
	eSn	17 05 03	
	iSg	17 05 42.6	
	D = 730 km = 6.6°.		

Northwest Russia,
69.3°N, 30.1°E.
Origin time = 17 02 06.
Explosion?

" 8

Up	iPKP	20 23 11.3	C
	i	20 23 32.9	
Um	iPKP	20 22 59.1	

Kermadec Islands
(h = 80 km).

1966 Apr. 8

Up	iP	22 21 25.9	
	i	22 21 35.2	
	i	22 21 43.1	
	iS	22 30 00	
		microns	sec
	M E	0.8	18
	M N	0.9	17
	M Z	0.8	17
	D = 7050 km = 63 1/2°.		
Ki	iP	22 20 32.0	
	eS	22 28 14	
		microns	sec
	P Z'	0.1	1.2
	S E	0.4	9
	M E	0.8	16
	M N	0.6	17
	M Z	1.8	17
	D = 6150 km = 55 1/2°.		
Sk	iP	22 20 58.8	
Gb	iP	22 21 38.0	
Um	iP	22 20 59.6	C
	iS	22 29 08	
Ka	iP	22 21 49.4	

Kodiak Island (h = 30 km).
Magn. = 5.4 (Up,Ki).

" 8

Um	iP	22 43 52.4	

Kodiak Island (h = 30 km).

" 8

Um	iP	22 47 07.6	

Kodiak Island (h = 30 km).

" 8

Ki	iP	23 20 45.7	
		microns	sec
	M E	0.9	15
	M N	0.6	15
	M Z	1.0	14
Um	iP	23 21 02.5	

Iceland (h = 30 km).

" 8

Up	iP	23 57 36.4	
	ipP	23 57 48.7	
Ki	iP	23 56 43.1	
Sk	iP	23 57 17.2	
Um	iP	23 57 09.6	
	ipP	23 57 20.4	

Aleutian Islands.
h = 45 km (Up,Um).

" 9

Up	iP	02 47 08.2	
	ipP	02 47 16.9	
		microns	sec
	P Z'	0.1	1.3
Ki	iP	02 47 04.1	C
		microns	sec
	P Z'	0.2	1.5

(cont.)

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

1966 Apr. 9 (cont.)

Sk	iP	02 46 52.9 C
Um	iP	02 47 09.0 C
	ipP	02 47 17.1

Costa Rica. h = 30 km (Up,Um).
Magn. = 5.9 (Up,Ki).

" 9

Up	iP	02 54 54.6 C
	i	02 55 06.9
	i	02 55 20.4
	i(SKS)	03 05 11
	iS	03 05 30
	microns	sec
	P Z'	0.3 1.4
	M E	1.4 18
	M N	1.7 21
	M Z	1.8 19
	D = 9700 km = 87 1/2°.	
Ki	iP	02 54 50.1 C
	iSKS	03 05 12
	iS	03 05 25
	microns	sec
	P Z	0.6 4
	P Z'	0.6 1.7
	S E	0.8 4
	M E	2.1 18
	M N	1.7 18
	M Z	3.2 17
	D = 9600 km = 86 1/2°.	
Sk	iP	02 54 39.9
Gb	iP	02 54 43.2 C
Um	iP	02 54 55.4 C
	iPP	02 58 14
	iSKS	03 05 18
	iScS	03 05 51
Ka	iP	02 54 54.5
	i	02 55 02.1

Costa Rica (h = 30 km).
Magn. = 6.2 (Up,Ki).

" 9 Up iP 06 46 43.9

" 9

Sk	iP	07 26 17.5
Um	iP	07 26 18.6

Kodiak Island (h = 30 km).

" 9 Um iP 08 15 38.0

" 9

Ki	iP	08 57 49.5
Um	iP	08 58 17.8

Kodiak Island (h = 30 km).

" 9 Um iP 10 54 37.5

" 9 Up iP 14 43 02.4
(cont.)

1966 Apr. 9 (cont.)

Um	iP	14 42 42.9

South of Japan (h = 370 km).

" 9

Up	iPKP	15 08 25.5
Ki	iPKP	15 08 11.1
	i	15 08 14.4
	microns	sec
	PKP Z'	0.1 0.9
Sk	iPKP	15 08 22.2 C
Um	iPKP	15 08 17.2 C
	i	15 08 20.6

New Hebrides Islands
(h = 50 km).

" 9

Up	iP	19 01 53.0
Ki	iP	19 00 58.3
Sk	eP	19 01 25
Um	i(P)	19 01 20.2
	iP	19 01 27.0

Alaska (h = 30 km).
(P) at Um is a small-amplitude precursor.

" 9

Sk	iP	19 20 25.4
Um	iP	19 20 13.7

Ethiopia (h = 30 km).

" 9

Up	iP	20 14 04.5
	i	20 14 10.2
Ki	iP	20 13 46.9 C
Sk	eP	20 14 10
Um	iP	20 13 52.5
	eS	20 24 38

Mindanao (h = 130 km).

" 9

Up	iP	20 19 07.3 C
	microns	sec
	P Z'	0.1 0.9
	M N	0.7 18
	M Z	1.3 20
Ki	iP	20 18 13.0 C
	microns	sec
	P Z'	0.1 0.9
	M E	0.4 16
	M N	0.7 18
	M Z	1.6 20
Sk	iP	20 18 39.9 C
Gb	iP	20 19 19.3
	i	20 19 26.6
Um	iP	20 18 41.1 C
Ka	iP	20 19 30.2 C

Kodiak Island (h = 30 km).
Magn. = 5.5 (Up,Ki).

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

1966
Apr. 9 Up iP 20 28 13.4
Ki iP 20 27 19.4 C
Sk iP 20 27 46.3
Um iP 20 27 47.7
Kodiak Island (h = 30 km).

" 10 Um iP 04 21 38.1
Aleutian Islands
(h = 30 km).

" 10 Up iP 06 45 03.1

" 10 Up ---
microns sec
M E 0.6 16
M N 1.4 18
M Z 1.0 16
Um iP 07 03 07.0
China (h = 30 km).

" 10 Up iP 10 45 52.2
ipP 10 46 35.6
Ki iP 10 45 54.5
Sk iP 10 45 38.5
Um eP 10 45 55
ipP 10 46 40.1
isP 10 46 54.4
Colombia.
h = 180 km (Up,Um).

" 10 Up iP 10 50 33.1 C
microns sec
P Z' 0.1 0.5
Ki iP 10 49 39.0 C
microns sec
P Z' 0.1 0.8
Sk iP 10 50 14.0 C
Um iP 10 50 05.1 C
Aleutian Islands
(h = 20 km).
Magn. = 5.9 (Up,Ki).

" 10 Up i(PP) 16 55 52
microns sec
M E 1.4 18
M N 1.0 17
M Z 1.8 19
Ki iPKP 16 54 56.8
i 16 55 21.9
iPP 16 56 19
e(PKKP) 17 06 00
e 17 12 35
eSS 17 13 06
microns sec
PP Z 0.5 6
(cont.)

1966
Apr. 10 (cont.)
Ki microns sec
(PKKP) E 0.4 10
M E 2.5 23
M N 0.6 17
M Z 2.1 21
Um iPKP 16 54 55.0 C
i 16 55 12.9
iPP 16 56 12
iPKKP 17 05 43
Chile (h = 60 km).
Magn. = 6.0 (Up,Ki).

" 10 Um iP 20 08 28.0
Japan (h = 30 km).

" 10 Um iP 21 17 18.9
Japan (h = 30 km).

" 10 Up iP 22 38 43.8
i 22 38 48.9
Ki iP 22 38 02.4
Sk iP 22 38 18.0
Um iP 22 38 26.1
Off coast of northern
California (h = 30 km).

" 11 Um iP 13 03 16.4

" 11 Ki iP 13 09 47.1
Um iP 13 10 00.3
Mariana Islands
(h = 30 km).

" 11 Up iP 16 16 27.9
ipP 16 16 37.6
microns sec
P Z' 0.1 0.8
Ki iP 16 15 34.0
Sk iP 16 16 08.4
Gb iP 16 16 45.7
Um iP 16 16 00.2 C
ipP 16 16 08.9
Aleutian Islands.
h = 35 km (Up,Um).

" 11 Up iP 16 50 18.5
iPn 16 51 41.2
iPP 16 51 54.2
microns sec
M E 0.7 13
M N 1.4 17
M Z 1.3 14
Ki iP 16 50 25.0
i 16 50 44.2
(cont.)

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

1966 Apr. 11 (cont.)

	Ki	eSa	16 59 04	
		eLi	17 02 00	
		iLgl	17 03 58	
		microns	sec	
		M E	1.9	10
		M N	0.9	11
		M Z	2.1	10
	Sk	eP	16 50 44	
		iPP	16 52 29.6	
	Um	iP	16 50 15.4	C
		eS	16 56 03	
		iSS	16 58 46	
		iLgl	17 03 19	
	Ka	iP	16 50 25.2	

Afghanistan-USSR (h = 30 km).
A clear Pn-phase is recorded at Up at a distance of 4350 km = 39°. This means an extension of the distance range for observed teleseismic Pn-phases, reported by M. Båth: Propagation of Sn and Pn to teleseismic distances, Pure and Appl. Geophys. (in press).

" 11	Up	iP	17 30 17.9		
		microns	sec		
		P Z'	0.2	1.5	
		M E	0.8	17	
		M N	0.9	17	
		M Z	1.4	18	
	Ki	iP	17 30 00.9	C	
		eS	17 40 29		
		microns	sec		
		P Z'	0.3	1.5	
		S E	0.7	12	
		S N	0.6	8	
		M E	1.3	16	
		M N	0.8	18	
		M Z	2.3	17	
		D = 9450 km = 85°.			
	Sk	iP	17 29 59.3	C	
	Gb	iP	17 30 12.7		
	Um	iP	17 30 12.1	C	
		ipP	17 30 22.4		
		iS	17 40 53		
	Ka	iP	17 30 23.8	C	
		ipP	17 30 34.0		

Mexico. h = 40 km (Um,Ka).
Magn. = 5.8 (Up,Ki).

" 11	Ki	iP	18 35 42.9	

(cont.)

1966 Apr. 11 (cont.)

	Ki	ipP	18 35 50.9	
	microns	sec		
	P Z'	0.1	1.0	
	Sk	iP	18 36 10.3	
	Gb	iP	18 36 53.3	
	Um	iP	18 36 10.9	
		ipP	18 36 20.5	

Kodiak Island.
h = 30 km (Ki,Um).

" 11	Um	iP	19 30 55.9	
" 11	Um	iP	20 43 22.4	
" 11	Up	iP	23 10 52.3	C
		eS	23 19 23	
	microns	sec		
	P Z'	0.4	1.5	
	S N	0.5	5	
	M E	1.4	18	
	M N	1.7	21	
	M Z	1.7	21	
	D = 7050 km = 63 1/2°.			
	Ki	iP	23 09 57.8	C
		iS	23 17 44	
	microns	sec		
	P N	0.4	5	
	P Z	0.5	5	
	P Z'	0.3	1.5	
	S E	0.7	9	
	S N	0.4	8	
	M E	0.8	17	
	M N	2.0	20	
	M Z	2.5	18	
	D = 6150 km = 55 1/2°.			
	Sk	iP	23 10 25.2	C
	Gb	iP	23 11 04.2	C
	Um	iP	23 10 26.5	C
		iS	23 18 33	
		iSa	23 24 25	

Kodiak Island
(h = 30 km).
Magn. = 5.9 (Up,Ki).

" 12	Up	iSg	17 30 38.0	
	Sk	eSg	17 31 19	
	Um	i(Pn)	17 30 23.4	
		iSg	17 31 17.4	

Probably Hälsingland, Sweden, 61 1/2°N, 16 1/4°E.
Origin time = 17 29 42.

" 12	Up	iP	18 34 27.7	
		i	18 34 34.4	

Mindoro (h = 130 km).

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

1966 Apr.	12	Up	iP	19 47 12.2	
		Um	iP	19 46 14.3	
"	12	Up	iP	22 14 11.7	
"	12	Up	iPKP	23 34 42.7	
		Ki	iPKP	23 34 27.9	
		Sk	iPKP	23 34 39.7	
		Um	iPKP	23 34 35.2	
		New Hebrides Islands (h = 30 km).			
"	12	Up	iPP	23 58 10.2	
			eS	00 06 17	
			e	00 07 47	
			ePPS	00 09 31	
			microns	sec	
			PP Z	0.3 4	
			M E	15 20	
			M N	12 19	
			M Z	22 20	
		Ki	iPKP	23 56 40.3	
			iPP	23 58 34	
			eSS	00 15 40	
			microns	sec	
			PP E	0.5 7	
			PP Z	0.8 6	
			M E	14 21	
			M N	8.5 19	
			M Z	16 21	
		Sk	iPKP	23 56 31.6	
		Um	iPKP	23 56 38.3	
			iPP	23 58 19	
			i	00 01 04	
			iSKKS	00 05 29	
			iS	00 06 24	
			iPKKP	00 07 09	
			iPS	00 08 09	
			iSS	00 15 15	
		Chile (h = 40 km).			
		Magn. = 6.5 (Up,Ki).			
"	13	Ki	iP	00 39 22.8 C	
		Um	iP	00 39 46.0	
"	13	Ki	eP	00 41 28	
			ipP	00 41 36.9	
		Sk	eP	00 41 57	
		Um	iP	00 41 57.9	
			ipP	00 42 04.7	
		Kodiak Island.			
		h = 30 km (Ki,Um).			
"	13	Ki	iP	02 25 12.0	
		Um	iP	02 24 46.1	
		Congo (h = 25 km).			
1966 Apr.	13	Um	iP	03 07 43.0 C	
		Hindu Kush (h = 180 km).			
"	13	Up	iPP	03 55 42	
			i(PS)	04 05 42	
			microns	sec	
			M E	2.5 19	
			M N	1.8 18	
			M Z	3.2 20	
		Ki	iPKP	03 54 14.2	
			i	03 54 22.6	
			iPP	03 56 06.0	
			iS	04 04 14	
			eSS	04 13 14	
			microns	sec	
			PP Z	0.5 7	
			M E	2.9 21	
			M N	1.7 18	
			M Z	3.9 22	
		Um	iPKP	03 54 11.5 C	
			i	03 54 24.2	
			eS	04 04 03	
			iSS	04 13 07	
		Chile (h = 40 km).			
		Magn. = 6.2 (Up,Ki).			
		A phase identified as S has been observed in this case and also in the Chile earthquake of Apr. 12, 23 56. It is recorded only on the long-period N-components at Up, Ki, Um, i.e. it is essentially a transverse, horizontal wave. Its period is between 20 and 25 sec. As the distances are around 125°, this would correspond to a diffraction around the core.			
"	13	Gb	iP	04 14 05.3	
"	13	Up	iPKP	04 46 18.4	
			i	04 46 25.0	
			microns	sec	
			PKP Z'	0.1 0.7	
		Ki	iPKP	04 46 08.8	
			iSKP	04 48 47.2	
		Sk	e(PKP)	04 46 13	
			iPKP	04 46 18.8	
		Gb	iPKP	04 46 29.1	
		Um	i(PKP)	04 46 06.2	
			iPKP	04 46 14.7	
			iSKP	04 48 59.2	
		(cont.)			

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

1966					
Apr.	13	(cont.)			
		Ka	iPKP	04 46 30.8	
		South of Fiji Islands			
		(h = 550 km).			
"	13	Up	iP	06 23 57.3	
"	13	Up	iP	09 40 40.0	C
"	13	Ki	iPn	14 34 01.4	
			iSn	14 34 45.9	
			iSg	14 35 05.1	
			D = 420 km = 3.8°.		
		Sk	eSg	14 37 27	
		Um	iSn	14 35 27.4	
			iSg	14 35 57.8	
			D = 600 km = 5.4°.		
		Northwest Russia,			
		67.4°N, 30.2°E.			
		Origin time = 14 33 00.			
		Explosion?			
"	14	Um	iP	02 08 48.5	C
"	14	Ki	iPn	05 15 20.5	
			iSn	05 16 16.2	
			iSg	05 16 35.2	
			D = 490 km = 4.4°.		
		Sk	eSn	05 18 11	
			iSg	05 19 10.2	
			D = 1000 km = 9.0°.		
		Um	iSn	05 17 01.2	
			iSg	05 17 40.6	
			D = 700 km = 6.3°.		
		Northwest Russia,			
		68.0°N, 32.0°E.			
		Origin time = 05 14 12.			
		Explosion?			
"	14	Ki	iSg	08 28 11.7	
		Sk	iSg	08 28 16.2	
		Um	iSg	08 28 38.7	
		Nordlands Fylke, Norway,			
		66.5°N, 14.3°E.			
		Origin time = 08 26 40.			
"	14	Up	iP	14 25 31.3	
		Ki	iP	14 24 57.4	
		Sk	iP	14 25 04.9	
		Um	iP	14 25 16.7	
		Probably Nevada.			
		Origin time = 14 13 41.			
		Artificial event?			
"	14	Ki	eP	16 45 38	
		Sumatra (h = 30 km).			

1966					
Apr.	14	Um	iP	17 38 30.0	
"	14	Um	iP	18 38 37.1	
"	14	Up	iP	18 57 16.9	
				microns	sec
			M	E 1.8	19
			M	Z 1.1	17
		Ki	iP	18 58 19.9	
				microns	sec
			M	E 1.3	13
			M	N 0.4	13
			M	Z 0.9	15
		Sk	iP	18 57 50.5	
		Um	iP	18 57 49.8	
		Crete (h = 30 km).			
"	14	Up	iP	21 13 41.9	
			iPn	21 14 52.4	
			iPP	21 15 13.2	
			iSa	21 21 50	
			iSn	21 22 11.6	
				microns	sec
			P	Z' 0.1	0.6
			PP	Z' 0.1	0.9
			M	E 1.2	16
			M	N 3.9	14
			M	Z 1.3	16
			D = 4350 km = 39°.		
		Ki	iP	21 13 48.3	
			iPn	21 15 15.3	
			iPP	21 15 29.7	
			iSn	21 22 21.7	
			iSS	21 22 38	
			i	21 24 45	
			iLi	21 25 29	
			iLgl	21 27 01	
				microns	sec
			PP	Z' 0.1	1.0
			M	E 1.1	11
			M	N 3.2	10
			M	Z 1.0	10
			D = 4450 km = 40°.		
		Sk	iP	21 14 06.9	
			iPn	21 15 37.6	
			iPP	21 15 50.0	
		Gb	iP	21 14 04.1	
			iPP	21 15 43.0	
		Um	iP	21 13 38.6	C
			iPn	21 14 51.5	
			iS	21 19 39	
			iSn	21 21 50.6	
			iSS	21 22 18	
			iLgl	21 27 05	
		Ka	iP	21 13 47.2	
		(cont.)			

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

1966
Apr. 14 (cont.)
Afghanistan-USSR
(h = 30 km).
Magn. = 5.8 (Up,Ki).
Clear Sn and especially Pn are recorded at teleseismic distances. The present case means a further extension of the range of observed Pn, to Sk at a distance of 4650 km = 42°.
Compare remark to Apr. 11. 16 50.

" 14 Up ipP 23 02 43.8
Ki epP 23 02 11
Um iP 23 02 16.3
ipP 23 02 26.7
South of Japan.
h = 40 km (Um).
The amplitude of pP is about 5 times the amplitude of P on Z' at Um.

" 15 Ki eP 00 36 45
Luzon (h = 25 km).

" 15 Ki iP 03 19 09.1
microns sec
P Z' 0.1 1.2
Um iP 03 18 43.3
Congo (h = 30 km).

" 15 Ki ePn 04 34 26
iSn 04 35 11.9
iSg 04 35 24.2
D = 390 km = 3.5°.
Sk eSg 04 38 18
Um eSg 04 36 55
Northwest Russia,
68.9°N, 29.6°E.
Origin time = 04 33 30.
Explosion?

" 15 Um iP 06 13 04.3
ipP 06 13 15.0
South of Japan.
h = 40 km (Um).

" 15 Um iP 06 56 07.8
South of Panama
(h = 30 km).

1966
Apr. 15 Up iP 14 30 56.7
microns sec
P Z' 0.1 0.7

" 15 Ki iPn 16 46 11.8
iSn 16 47 00.5
iSg 16 47 15.8
D = 420 km = 3.8°.
Um i 16 48 21.9
iSg 16 48 48.8
Northwest Russia.
Origin time = 16 45 12.
Explosion?

" 15 Up iP 18 11 01.3
Ki iP 18 10 22.3
ipP 18 10 33.6
Sk iP 18 10 55.3
Um iP 18 10 39.4 C
ipP 18 10 51.5
Japan. h = 40 km (Ki,Um).

" 15 Um iP 22 14 02.4

" 15 Um iP 23 07 10.5

" 16 Up iP 01 37 41.9 C
ipP 01 37 56.7
iS 01 46 13
eP'P' 02 06 45
microns sec
P N 0.4 3
P Z 1.5 6
P Z' 0.6 1.7
S E 2.2 8
S N 1.7 8
M E 3.7 18
M N 8.1 20
M Z 8.2 21
D = 7000 km = 63°.
Ki iP 01 36 47.5 C
iPP 01 39 06
iS 01 44 31
iScS 01 46 34
microns sec
P N 1.1 7
P Z 2.1 7
P Z' 0.6 1.5
PP N 0.6 6
S E 2.4 8
S N 1.0 9
M E 4.4 17
M N 5.5 21
M Z 14 23
D = 6150 km = 55 1/2°.

(cont.)

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

1966 Apr. 16 (cont.)

Sk	iP	01 37 15.1 C
	ipP	01 37 29.9
	iPP	01 39 29.6
Gb	iP	01 37 54.0 C
Um	iP	01 37 15.7 C
	ipP	01 37 30.0
	iS	01 45 22
	eP'P'	02 06 53
Ka	iP	01 38 05.2 C

Kodiak Island.
h = 50 km (Up,Sk,Um).
Magn. = 6.3 (Up,Ki).

" 16

Ki	iP	02 37 31.7
Sk	iP	02 37 51.6
Um	iP	02 37 35.5

Celebes (h = 200 km).

" 16

Ki	iP	04 50 17.6
Um	iP	04 50 45.6 C

Kodiak Island
(h = 30 km).

" 16

Ki	iP	07 23 50.2
Sk	iP	07 23 40.8
Um	eP	07 23 49
	i(pP)	07 24 02.5

Leeward Islands
(h = 30 km).

" 16 Up

		microns	sec
M	E	1.4	18
M	N	1.4	17
M	Z	0.9	14

Ki	iP	10 24 24.8 C
	eS	10 33 26

		microns	sec
M	E	1.8	16
M	N	1.0	15
M	Z	2.3	17

D = 7600 km = 68 1/2°.

Sk	iP	10 24 57.6
Um	iP	10 24 41.7 C
	iS	10 33 53
	iSS	10 38 13

Japan (h = 60 km).

" 16 Um iP 11 15 49.0

" 16

Up	iP	11 43 26.0
	ipP	11 43 35.3
Ki	iP	11 43 27.4
	ipP	11 43 36.0

(cont.)

1966 Apr. 16 (cont.)

Sk	iP	11 43 10.0
Um	iP	11 43 30.5
	ipP	11 43 39.5

Dominican Republic.
h = 35 km (Up,Ki,Um).

" 16

Up	iP	13 20 41.8
Ki	iP	13 19 47.4
Um	iP	13 20 13.8

Kodiak Island
(h = 30 km).

" 16

Up	eP	14 53 22	
Ki	iP	14 54 13.6	D
		microns	sec
	P	Z' 0.1	1.4
Sk	iP	14 53 52.8	
Um	iP	14 53 48.4	

Congo (h = 30 km).

" 16

Ki	iPg	15 02 31.0
	iSg	15 02 40.6

D = 80 km = 0.7°.

Sk	eSg	15 04 54
Um	iSg	15 04 02.2

Gällivare region, Sweden,
67.1°N, 20.3°E.
Origin time = 15 02 18.
Probably explosion.

" 16 Up iP 15 40 34.0

" 16

Up	iPKP	15 41 51.5
	iSKP	15 44 39.6
Ki	iPKP	15 41 43.1
	iSKP	15 44 25.0
Sk	i(PKP)	15 41 43.3
	iPKP	15 41 53.2
Gb	iPKP	15 41 59.9
Um	i(PKP)	15 41 38.4
	iPKP	15 41 50.2
	iSKP	15 44 37.0
Ka	iPKP	15 42 02.9

Fiji Islands (h = 510 km).
As our stations cover the distance range of about 131 1/2° to 143°, significant variations in the records can be observed: 1) SKP is very clear at 131 1/2°-135°, less clear at 137°-139 1/2°, and non-existent at 142 1/2°-143°; 2) the double PKP-
(cont.)

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

1966
Apr. 16 (cont.)
phases, marked by (PKP) and PKP, appear only at 135°-137°; 3) the amplitude increase of PKP in crossing the caustic is approx. 10 times.

" 16 Um iPP 15 59 53.6
Afghanistan-USSR.

" 16 Um iP 18 21 12.5

" 16 Sk iP 22 59 31.3
Um eP 22 59 37
Alaska (h = 5 km).

" 17 Um iP 01 32 38.9
Japan (h = 30 km).

" 17 Up iP 05 39 49.6 C
Ki eP 05 39 18
Um iP 05 39 28.7
Japan (h = 80 km).

" 17 Up iP 05 44 26.5

" 17 Up iP 06 11 31.2 C
Um iP 06 11 16.8
Philippine Islands
(h = 190 km).

" 17 Up iPKP 13 28 13.8
South of Fiji Islands
(h = 650 km).

" 17 Up iP 14 10 00.9
ipP 14 10 14.9
Ki iP 14 09 44.5
Um iP 14 09 46.9
Sinkiang. h = 50 km (Up).

" 17 Ki iP 16 56 39.4
Queen Charlotte Islands
(h = 30 km).

" 18 Up iP 00 04 27.9
Ki iP 00 04 24.2
Sk iP 00 04 44.2
Um iP 00 04 21.9

" 18 Um iP 03 05 09.3

" 18 Up iP 08 23 23.5
(cont.)

1966
Apr. 18 (cont.)
Up i 08 23 27.5
iS 08 30 46
microns sec
P Z' 0.1 0.7
M N 0.7 17
D = 5800 km = 52°.
Ki iP 08 24 05.5
eS 08 32 07
microns sec
P Z' 0.1 1.0
S E 0.3 6
S N 0.3 7
M E 0.7 19
M N 0.6 18
D = 6400 km = 57 1/2°.
Sk iP 08 23 56.7
Gb iP 08 23 27.2
Gulf of Aden (h = 60 km).
Magn. = 5.8 (Up,Ki).

" 18 Up iP 10 04 05.0
Ki iP 10 05 18.4
Sk iP 10 04 44.8
i 10 04 51.0
Um iP 10 04 45.3
Greece.

" 18 Um iP 12 07 45.3

" 18 Um iP 12 49 30.1

" 18 Um iP 22 46 18.8
Japan (h = 30 km).

" 19 Ki iP 01 19 30.3
iPn 01 19 54.9
Sk eP 01 19 48
iPn 01 20 15.1
Um iP 01 19 05.9
i(Pn) 01 19 27.2
Caucasus (h = 15 km).

" 19 Ki ePn 05 52 36
iSn 05 53 32.6
iSg 05 53 50.1
D = 480 km = 4.3°.
Sk e(Sg) 05 56 19
Um iSn 05 54 16.2
iSg 05 54 56.0
Northwest Russia,
68.0°N, 32.0°E.
Origin time = 05 51 30.
Explosion?

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

1966 Apr. 19 Um iP 11 01 15.8

" 19 Sk iP 12 12 36.6

" 19 Up iP 15 28 15.3

" 19 Up iP 15 55 18.6

" 19 Ki iP 18 10 29.6
Mindanao (h = 70 km).

" 19 Up iPKP 23 10 33.2 C
Ki iPKP 23 10 11.6
Sk iPKP 23 10 23.9
Gb iPKP 23 10 36.7
Um iPKP 23 10 16.8
ipPKP 23 11 06.4
Kermadec Islands.
h = 190 km (Um).

" 20 Up iP 02 45 58.1
i 02 47 01.3
microns sec
M E 0.5 17
M N 0.6 15
M Z 1.1 17
Ki iP 02 45 29.7
eSKS 02 55 49
microns sec
P Z' 0.1 1.5
SKS E 0.9 12
SKS N 0.3 10
M E 1.1 17
M N 0.6 17
M Z 1.2 16
D = 9600 km = 86 1/2°.
Sk iP 02 45 55.5
Um iP 02 45 40.1
iSKS 02 56 03
Mariana Islands
(h = 10 km).

" 20 Ki iP 02 53 23.5
Mariana Islands
(h = 10 km).

" 20 Up iP 03 08 34.0
Ki iP 03 08 04.3
Um iP 03 08 15.1
Mariana Islands
(h = 30 km).

" 20 Up eP 05 47 04
Ki eP 05 46 30
Sk iP 05 46 58.7
Um iP 05 46 47.1
(cont.)

1966 Apr. 20 (cont.)
Mariana Islands
(h = 40 km).

" 20 Up iP 06 13 46.7
microns sec
M E 0.5 17
M N 0.6 16
M Z 0.8 17
Ki iP 06 13 17.0
microns sec
M E 1.1 17
M N 0.7 18
M Z 1.4 17
Sk iP 06 13 43.0
Um iP 06 13 28.1
Mariana Islands
(h = 30 km).

" 20 Up iP 06 56 05.1
Ki iP 06 55 32.2
Um iP 06 55 49.7
Mariana Islands
(h = 50 km).

" 20 Up i(P) 08 08 13.8
Aleutian Islands
(h = 10 km).

" 20 Um iP 11 40 52.8

" 20 Up ---
microns sec
M E 0.7 18
M N 0.9 18
M Z 1.0 16
Ki ---
microns sec
M E 0.3 12
M N 0.5 13
Um iLg2 14 01 39
China (h = 30 km).
Concerning magnitude difference from body and surface waves, compare Mar. 7, 1966, 21 39.

" 20 Ki iP 14 13 59.3
Um iP 14 14 12.9
Mariana Islands
(h = 30 km).

" 20 Up ---
microns sec
M E 1.1 19
(cont.)

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

1966
Apr. 20 (cont.)

Up			microns	sec
	M	N	2.1	21
	M	Z	1.6	17
Ki	iP		14 41 12.9	
			microns	sec
	M	E	1.1	15
	M	N	1.0	13
	M	Z	1.1	15
Sk	iP		14 41 48.2	
Um	iP		14 41 25.1	

China (h = 30 km).

" 20

Ki	iPn	15 11 38.7
	iSn	15 12 36.8
	iSg	15 12 56.1
	D = 500 km = 4.5°.	
Sk	eSg	15 15 26
Um	iSn	15 13 17.5
	iSg	15 13 52.2
	D = 680 km = 6.2°.	

Northwest Russia,
67.6°N, 32.2°E.
Origin time = 15 10 30.
Explosion?

" 20

Up	iP	16 39 21.6	
		microns	sec
	P	Z' 0.1	0.7
Ki	iP	16 38 53.0	
		microns	sec
	P	Z' 0.1	1.3
Sk	iP	16 39 21.2	
	iPP	16 42 53.3	
Um	iP	16 39 05.6	C
	iS	16 49 33	
Ka	iP	16 39 39.6	

Mariana Islands
(h = 60 km).
Magn. = 5.8 (Up,Ki).

" 20

Up	iP1	16 47 36.6
	i	16 47 39.0
	iP2	16 47 47.0
	iS	16 52 04
	iX	16 52 16
	iSn	16 52 32.5
	iLg1	16 55 52
	i	16 56 10
	microns	sec
	P1 Z'	0.1 0.5
	P2 Z'	0.4 0.6
	M E	19 16
	M N	12 14
	M Z	22 16
	D = 2900 km = 26°.	

(cont.)

1966
Apr. 20 (cont.)

Ki	iP1	16 48 13.9
	iP2	16 48 23.7
	iPP	16 49 03
	iS	16 53 08
	iSn	16 53 58.1
	iSS	16 54 32
	i	16 55 13
	iLi	16 56 37
	iLg1	16 58 06
	microns	sec
	P1 Z'	0.1 0.9
	P2 Z	0.6 6
	P2 Z'	0.5 1.0
	PP E	0.7 6
	S E	1.1 5
	S N	1.4 13
	M E	16 15
	M N	13 17
	M Z	22 15
	D = 3350 km = 30°.	
Sk	iP1	16 48 13.8
	iP2	16 48 20.6
	iPP	16 49 07.0
	iSn	16 53 58.9
Gb	iP1	16 47 59.1
	iP2	16 48 10.7
	iPP	16 48 42.9
	iSn	16 53 21.5
Um	iP1	16 47 48.7
	iP2	16 47 56.7
	iS	16 52 25
	iX	16 52 44
	iSn	16 52 59.1
Ka	iP1	16 47 31.8
	iP2	16 47 38.3
	iSn	16 52 18.6

Caucasus (h = 20 km).
Magn. = 6.0 (Up,Ki).
These records are characterized especially by three things: 1) multiple P-phases, marked by P1 and P2 above, P2 being considerably larger than P1; 2) very clear Sn-phases; 3) remarkably well developed higher modes.

" 20

Ki	iSn	17 37 57.2
	iSg	17 38 08.9
	D = 330 km = 3.0°.	
Sk	eSg	17 40 57
Um	iSn	17 39 12.9
	iSg	17 39 47.1

(cont.)

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

1966
Apr. 20 (cont.)
Um D = 670 km = 6.0°.
Northern Finland,
69.0°N, 28.0°E.
Origin time = 17 36 30.
Explosion?

" 20 Up iP 21 46 23.9
Sk iP 21 47 03.4
Um iP 21 47 01.1
Ka iP 21 45 48.0
Greece (h = 30 km).

" 21 Um iP 03 01 35.5

" 21 Up iP 04 04 52.7 C
iPn 04 05 56.1
iPP 04 06 10.9
microns sec
PP Z' 0.1 0.9
Ki iP 04 04 37.2 C
microns sec
P Z' 0.2 0.6
Sk iP 04 05 08.5 C
iPn 04 06 25.1
iPP 04 06 29.9
Gb iP 04 05 20.5
Um iP 04 04 37.5 C
iPn 04 05 20.5
Ka iP 04 05 08.6
iPP 04 06 31.3
Kazakh SSR.
Magn. = 6.1 (Up,Ki).
Underground explosion.

" 21 Up iP 06 50 54.5
Ki iP 06 52 02.2
microns sec
P Z' 0.1 1.2
Sk iP 06 51 33.6 C
Um iP 06 51 26.8 C
Ka iP 06 50 22.0
Crete (h = 50 km).

" 21 Gb iP 08 02 54.9

" 21 Ki iP 09 28 39.3
Sk iP 09 29 06.0
Um iP 09 28 51.6
Mariana Islands
(h = 330 km).

" 21 Up eP 15 57 04
iS 16 06 27
eSSS 16 14 44
(cont.)

1966
Apr. 21 (cont.)
Up microns sec
S E 1.0 11
M E 1.8 19
M N 2.0 17
M Z 4.0 16
D = 8300 km = 74 1/2°.
Ki iP 15 56 22.8
iS 16 05 19
eSS 16 09 41
microns sec
S E 1.5 10
S N 0.6 11
M E 4.9 21
M N 3.6 22
M Z 7.2 15
D = 7550 km = 68°.
Sk iP 15 56 56.0
iPP 15 59 40.2
Gb eP 15 57 20
Um iP 15 56 36.6 C
iPcP 15 56 59
iPa 16 00 59
iS 16 05 49
iSS 16 10 13
Ka eP 15 57 26
Japan (h = 30 km).
Magn. = 5.9 (Up,Ki).
Compared with the USCGS solution for this earthquake and the Jeffreys-Bullen tables, all our P-phases are too late in this case, in average by 7 sec.

" 21 Um iP 16 49 16.0
Formosa (h = 60 km).

" 21 Up iP 17 48 32.8
iS 17 57 58
microns sec
M E 1.4 15
M N 1.9 14
M Z 2.5 16
D = 8350 km = 75°.
Ki eP 17 47 54
iS 17 56 46
eSS 18 00 56
microns sec
S E 0.7 10
S N 0.2 8
M E 2.3 16
M N 2.6 14
M Z 4.1 16
D = 7550 km = 68°.
(cont.)

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

1966 Apr.	21	(cont.)			
		Sk	iP	17 48 29.4	C
		Gb	eP	17 48 48	
		Um	iP	17 48 04.5	
			iS	17 57 19	
			iSS	18 01 53	
		Ka	iP	17 48 52.3	
		Japan (h = 50 km).			
		Magn. = 5.8 (Up,Ki).			
"	22	Um	iP	01 55 27.6	
"	22	Up	iP	03 02 47.2	C
				microns sec	
			P Z'	0.5 0.5	
		Ki	iP	03 03 19.1	C
			iPn	03 03 26.2	
		Sk	iP	03 03 24.7	
			iPn	03 03 34.3	
		Gb	iP	03 03 11.8	
			iPn	03 03 17.0	
		Um	iP	03 02 54.1	C
			i(Pn)	03 02 57.0	
			i	03 03 05.0	
		Ka	iP	03 02 47.7	
		Southwest Russia. The location within a stable mass is strange, if an earthquake. - There are no long-period records. - - The identification of Pn was possible only by a thorough intercomparison of our records. This case means a further extension of the range of observed teleseismic Pn-phases, down to around 21 1/2°. At shorter distances (as Up, Ka in this case), Pn is difficult to identify as it merges into P. Compare M. Båth: Propagation of Sn and Pn to teleseismic distances, Pure and Appl. Geophys. (in press). - - Another remarkable fact is that the amplitude of PZ' is many times larger at Up than at any other of our stations.				
"	22	Um	iP	03 19 26.1	
"	22	Up	iPP	03 27 01	
		(cont.)			

1966 Apr.	22	(cont.)			
		Up	eS	03 35 07	
			i	03 38 22	
				microns sec	
			M E	1.9 20	
			M N	1.9 19	
			M Z	2.6 20	
		Ki	iPKP	03 25 32.5	
			iSS	03 44 28	
				microns sec	
			M E	1.6 21	
			M N	1.1 18	
			M Z	2.8 21	
		Sk	iPKP	03 25 24.9	
		Um	iPKP	03 25 30.9	
			iPP	03 27 14	
			iPPP	03 29 58	
			iS	03 35 22	
			eSS	03 44 11	
		Chile (h = 20 km). Concerning S observed at Up and Um, compare Apr. 13, 03 54.			
"	22	Ki	iP	07 30 47.2	C
		Um	iP	07 30 21.5	
"	22	Ki	iP	07 33 24.2	
		Kodiak Island (h = 10 km).			
"	22	Um	iP	08 34 03.0	
		Aleutian Islands (h = 30 km).			
"	22	Up	iP	10 13 22.6	
		Ki	iP	10 13 30.8	C
		Sk	iP	10 13 48.1	
		Um	iP	10 13 20.6	
		Ka	iP	10 13 27.5	
		Hindu Kush (h = 230 km).			
"	22	Up	iP	10 26 17.4	
		Ki	iP	10 25 23.2	C
				microns sec	
			P Z'	0.1 1.0	
		Sk	iP	10 25 50.3	C
		Gb	iP	10 26 29.1	
		Um	iP	10 25 51.5	C
		Ka	iP	10 26 39.1	
		Kodiak Island (h = 30 km).			
"	22	Up	iP	12 06 41.2	
				microns sec	
			P Z'	0.1 0.7	

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

1966 Apr. 22 Ki ePKP 12 36 49
Um iP 12 33 36.9
iPKP 12 36 44.7
i 12 36 56.5
South Sandwich Islands
(h = 30 km).

" 22 Ki ePn 12 43 37
iSn 12 44 23.0
iSg 12 44 38.5
D = 400 km = 3.6°.
Um iSn 12 45 33.7
iSg 12 46 10.5
D = 710 km = 6.4°.
Northwest Russia,
69.1°N, 29.6°E.
Origin time = 12 42 40.
Explosion?

" 22 Ki eP 13 13 38
Um iP 13 13 47.5
Mariana Islands
(h = 60 km).

" 22 Ki iPn 13 20 53.6
iP[x] 13 21 01.7
iSn 13 21 38.7
iSg 13 21 55.0
D = 400 km = 3.6.
Um iSn 13 22 19.9
iSg 13 22 48.0
D = 580 km = 5.2°.
Northwest Russia,
67.4°N, 29.7°E.
Origin time = 13 19 57.
Explosion?

" 22 Um iPKP 17 13 17.5
Fiji Islands (h = 540 km).

" 22 Up iP 18 27 26.2 C

" 22 Up iPg 18 37 01.9
iSg 18 37 34.3
microns sec
Pg Z' 0.1 0.5
D = 250 km = 2.3°.
Sk i(Sn) 18 38 38.2
iSg 18 38 59.3
Gb iPg 18 36 41.9
iSg 18 37 03.8
D = 160 km = 1.4°.
Um i 18 39 21.6
iSg 18 39 31.5
Ka iSg 18 37 33.7

(cont.)

1966 Apr. 22 (cont.)
Västergötland, Sweden,
58.6°N, 13.9°E.
Origin time = 18 36 14.
Agreement between data not
completely satisfactory.

" 22 Up iP 20 28 30.9 D
i 20 28 34.7
microns sec
P Z' 0.1 0.7

" 22 Um eP 21 22 32

" 22 Um eP 21 33 03

" 22 Um eP 21 38 18
i 21 38 47.6

" 22 Um iP 21 50 05.5

" 22 Up iP 23 37 44.9 D
ipP 23 37 50.7
iS 23 46 07
iP'P' 00 06 47.3
microns sec
P Z' 0.6 1.5
pP N 0.6 2
pP Z 0.8 3
pP Z' 0.8 1.5
S N 1.1 11
M E 1.9 17
M N 2.6 21
M Z 2.7 21
D = 6950 km = 62 1/2°.
Ki iP 23 36 49.8 D
ipP 23 36 56.6
eS 23 44 30
microns sec
P N 0.5 8
P Z 0.8 5
P Z' 0.7 1.7
pP Z' 1.1 1.6
S N 0.8 10
M E 2.4 19
M N 2.4 19
M Z 5.1 20
D = 6100 km = 55°.
Sk iP 23 37 17.0 D
ipP 23 37 22.9
Gb iP 23 37 56.6
ipP 23 38 02.7
Um iP 23 37 18.6 D
ipP 23 37 25.2
iS 23 45 23

(cont.)

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

1966 Apr.	22	(cont.)			
		Um	iP'P'	00 06 56.5	
		Ka	iP	23 38 07.4	
			ipP	23 38 13.8	
		Kodiak Island.			
		h = 25 km (Up,Ki,Sk,Gb,Um, Ka).			
		Magn. = 6.1 (Up,Ki).			
"	23	Up	i(P)	00 14 54.7	
"	23	Up	eP	00 23 08	
			iPP	00 27 05.5	
			i	00 27 11.2	
			iPPP	00 29 16	
			iX	00 33 17	
			iS	00 34 33	
			i	00 55 49	
			microns	sec	
			P Z'	0.5	2.0
			PP Z	2.5	8
			PP Z'	0.4	1.3
			M E	9.3	21
			M N	17	19
			M Z	12	24
		D = 10900 km = 98°.			
		Ki	iP	00 22 53.6	
			iPP	00 26 40.7	
			iS	00 34 00	
			iPKKP	00 39 51.6	
			microns	sec	
			P Z	1.5	8
			P Z'	0.8	2.0
			PP E	1.7	7
			PP Z	1.9	7
			PP Z'	1.5	2.4
			S N	2.7	15
			M E	15	19
			M N	41	22
			M Z	18	18
		D = 10550 km = 95°.			
		Sk	iP	00 23 13.2	
			iPP	00 27 07.4	
		Gb	iP	00 23 22.9	
			iPP	00 27 36.8	
		Um	iP	00 22 56.9	
			ipP	00 23 02.9	
			i	00 26 13.4	
			iPP	00 26 46	
			iX	00 33 00	
			iS	00 34 06	
			iPKKP	00 39 42.8	
		Ka	iP	00 23 14.0	
			ipP	00 23 21.1	
			iPP	00 27 10.9	
		(cont.)			

1966 Apr.	23	(cont.)			
		Celebes.			
		h = 25 km (Um,Ka).			
		Magn. = 6.7 (Up,Ki).			
"	23	Ki	eP	01 05 04	
			eT	01 09 49	
			i	01 09 59.0	
			i	01 10 43.7	
		Sk	iP	01 05 45.9	
			iS	01 07 31.9	
			eT	01 12 21	
			i	01 13 09.8	
		Gb	iP	01 07 04.0	
		Um	iP	01 05 53.4	
			iS	01 07 54.4	
			iT	01 11 20.5	
		Jan Mayen-Spitsbergen (h = 30 km).			
		The T-phases (Ki,Um,Sk) are exceptionally strong.			
"	23	Gb	iPKP	03 47 57.9	
		Tonga Islands (h = 50 km).			
"	23	Um	iP	04 02 29.0	
		Celebes (h = 15 km).			
"	23	Up	iP	04 27 25.5	C
			ipP	04 27 33.1	
			microns	sec	
			pP Z'	0.1	0.5
		Ki	iP	04 27 21.3	
			ipP	04 27 28.9	
		Sk	iP	04 27 43.0	
			ipP	04 27 50.5	
		Um	iP	04 27 19.1	
			ipP	04 27 26.4	
		Ka	iP	04 27 33.4	
			ipP	04 27 41.2	
		India.			
		h = 30 km (Up,Ki,Sk,Um,Ka).			
"	23	Up	iP	05 46 35.0	
		Ki	iP	05 46 18.1	
		Um	eP	05 46 19	
		Mindanao (h = 60 km).			
"	23	Um	iPKP	06 04 14.0	
			iSKP	06 07 04.6	
		South of Fiji Islands (h = 510 km).			
"	23	Up	i(PKP)	07 09 49.0	
			iPKP2	07 10 03.4	
		(cont.)			

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

1966 Apr.	23	(cont.)			
		Ki	iPKP	07 09 25.7	
			i	07 09 33.2	
				microns sec	
			PKP Z'	0.2 1.5	
		Sk	iPKP	07 09 41.4	
		Um	iPKP	07 09 32.4	C
			i	07 09 40.4	
		New Zealand (h = 15 km).			
"	23	Um	iP	07 38 55.1	
"	23	Um	iP	08 11 16.0	
"	23	Up	eP	09 10 22	
			i	09 13 35.6	
			iPP	09 14 14.2	
			iS	09 21 27	
			iSS	09 28 29	
			microns sec		
			PP Z'	0.1 1.2	
			M E	2.0 18	
			M N	4.3 21	
			M Z	3.9 20	
		D = 11000 km = 99°.			
		Ki	iP	09 09 59.1	
			i	09 10 08.0	
			ePP	09 13 53	
			eS	09 21 06	
			iSKS	09 22 02	
			microns sec		
			P Z'	0.1 1.5	
			PP Z	0.8 5	
			S N	1.4 15	
			SKS E	0.6 13	
			M E	3.7 18	
			M N	8.0 22	
			M Z	4.4 20	
		D = 10450 km = 94°.			
		Sk	iPP	09 14 22.4	
		Um	iP	09 10 02.9	C
			ePP	09 13 52	
			iS	09 21 10	
			iScS	09 21 27	
			iSS	09 27 58	
		Celebes (h = 80 km).			
		Magn. = 6.1 (Up,Ki).			
"	23	Ki	iP	09 29 30.3	
		Mindanao (h = 10 km).			
"	23	Up	iP	11 12 50.9	
		Ki	iP	11 14 05.2	
		Sk	eP	11 13 34	
		Um	eP	11 13 29	
		Greece (h = 40 km).			
1966 Apr.	23	Um	iP	12 16 38.1	
"	23	Up	iP	18 16 06.5	
		Ki	iP	18 15 12.9	
		Sk	iP	18 15 43.4	
		Um	iP	18 15 39.8	C
		Aleutian Islands (h = 30 km).			
"	24	Ki	iP	02 33 47.5	
		Sk	eP	02 34 16	
		Um	iP	02 33 52.2	
"	24	Up	iSKP	03 49 07.4	
		Ki	iPKP	03 46 30.2	
		Sk	iPKP	03 46 41.6	
		Um	iPKP	03 46 36.6	
		Santa Cruz Islands (h = 660 km).			
"	24	Um	iP	05 27 23.5	
"	24	Gb	iPKP	07 20 42.4	
		Ka	iPKP	07 20 44.5	
		Fiji Islands (h = 640 km).			
"	24	Um	iP	10 41 03.1	
"	24	Um	iP	15 23 59.8	
			iPcP	15 24 35.9	
		Aleutian Islands (h = 70 km).			
"	24	Um	iP	19 50 34.6	
"	24	Up	iP	20 18 03.2	
"	24	Ki	iP	20 56 05.7	
		Um	eP	20 56 11	
		Molucca Passage (h = 60 km).			
"	24	Um	eP	21 38 30	
		Yukon (h = 50 km).			
"	24	Um	iP	23 15 14.8	C
		Leeward Islands (h = 30 km).			
"	25	Um	iP	05 20 48.4	
"	25	Ki	iP	07 58 12.8	
		Um	iP	07 58 39.7	
		Aleutian Islands (h = 30 km).			

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

1966
Apr. 25 Um iP 09 33 41.4
Ascension Island
(h = 30 km).

" 25 Up iSKP 11 03 06.5
Ki iPKP 10 59 58.6
i 11 00 08.6
iSKP 11 02 43.0
microns sec
SKP Z' 0.2 1.5
Sk ePKP 11 00 08
iSKP 11 02 59.4
Gb iPKP 11 00 24.3
iSKP 11 03 14.8
Um iPKP 11 00 02.7
i 11 00 08.7
i 11 00 13.7
iSKP 11 02 54.9
Ka iPKP 11 00 26.3 C
iSKP 11 03 16.6
Fiji Islands (h = 560 km).

" 25 Um eP 14 15 55
i 14 16 06.1

" 25 Um iP 15 16 28.1

" 25 Um iP 15 58 01.2

" 25 Um iP 18 49 36.2

" 25 Up iP 23 29 57.4
iPP 23 31 19.4
i 23 31 35.3
eS 23 35 33
iLgl 23 42 36
microns sec
M E 0.6 12
M N 1.1 14
D = 4050 km = 36 1/2°.
Ki iP 23 30 01.6
eSa 23 37 45
eLgl 23 41 58
microns sec
M E 0.8 11
M N 1.5 11
M Z 0.5 10
Sk iP 23 30 22.0
Um iP 23 29 51.8
i 23 29 53.6
i 23 34 56.9
iSa 23 37 35
iLi 23 40 48
iLgl 23 41 16
(cont.)

1966
Apr. 25 (cont.)
Ka iP 23 30 04.7
iS 23 36 03.7
Kirghiz SSR.
The focal depth is probably much less than normal, which would at least partly explain the extensive damage (according to Russian reports) for this low-magnitude earthquake.

" 26 Um iP 02 50 06.1
ipP 02 50 16.7
Aleutian Islands.
h = 40 km (Um).

" 26 Ki iPn 05 50 12.4
iSn 05 51 07.8
iSg 05 51 26.7
D = 490 km = 4.4°.
Sk iSg 05 54 01.7
Um iSn 05 51 52.7
iSg 05 52 38.5
Northwest Russia,
68.2°N, 32.1°E.
Origin time = 05 49 03.
Explosion?

" 26 Ki iP 10 55 50.8
Sk iP 10 56 17.9
Um iP 10 55 54.1
Ka iP 10 56 15.0
Burma (h = 30 km).

" 26 Um iP 13 34 58.6

" 26 Up iP 16 49 44.3

" 26 Ki iSKP 19 54 38.7
Fiji Islands (h = 550 km).

" 26 Um iSKP 23 29 00.3
Fiji Islands (h = 350 km).

" 27 Up iP 00 43 15.9 C
Ki iP 00 42 28.3
Sk iP 00 43 03.4
Um iP 00 42 50.0 C
Ka iP 00 43 38.7
Kurile Islands
(h = 70 km).

" 27 Um eP 03 14 34

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

1966					1966				
Apr.	27	Um	i(P)	09 30 16.6	Apr.	27	(cont.)		
			i	09 30 48.4			Sk	iPKP	23 06 47.0
"	27	Um	iP	10 11 02.6 C			Gb	iPKP	23 07 01.9
							Um	iPKP	23 06 41.3 C
"	27	Up	iP	19 54 29.9			Ka	iPKP	23 07 03.2
			i	19 54 32.4			Probably Kermadec Islands.		
			iPa	19 54 49			Origin time = 22 47 09.		
			eS	19 59 08	"	28	Gb	iPKP	00 36 15.2 C
			iSa	19 59 24			Ka	iPKP	00 36 17.3
				microns sec			Fiji Islands (h = 600 km).		
			P Z'	0.1 1.0					
			M E	1.5 12	"	28	Ki	iPKP	01 35 32.5
			M N	3.1 17				iPKP2	01 35 46.2
			M Z	2.0 13			Sk	iPKP2	01 36 07.5
		Ki	iP	19 55 17.6			Um	iPKP	01 35 36.1
			i	19 55 19.8				iPKP2	01 35 53.0
			eS	20 00 30			Auckland Islands		
			eSa	20 01 36			(h = 5 km).		
				microns sec					
			P Z'	0.5 0.9	"	28	Sk	iP	01 59 54.5
			S N	0.4 6			Greece.		
			M E	3.1 12					
			M N	2.5 17	"	28	Ki	eSg	03 54 15
			M Z	2.9 15			Sk	iSg	03 53 57.1
			D = 3600 km = 32 1/2°.				Um	iSg	03 54 35.2
		Sk	iP	19 55 10.3			Nordlands Fylke, Norway,		
		Gb	iP	19 54 40.4			66.4°N, 13.0°E.		
			i(Pn)	19 55 05.0			Origin time = 03 52 27.		
		Um	iP	19 54 48.5					
			i	19 54 50.4	"	28	Ki	eP	06 51 11
			iS	19 59 42			Aleutian Islands		
		Ka	iP	19 54 17.3			(h = 30 km).		
			i	19 54 19.4					
		Turkey (h = 25 km).			"	28	Sk	iP	10 51 39.3
		Magn. = 5.4 (Up,Ki).					Mexico (h = 30 km).		
		P is multiple with a small							
		phase, followed after 2-2.5			"	28	Ki	iPg	11 15 27.4
		sec by a much larger phase						iSg	11 16 10.1
		(especially clear on Up, Ki,						D = 370 km = 3.3°.	
		Um and Ka Z').					Sk	iPg	11 15 17.2
								iSg	11 15 53.2
"	27	Up	iPKP	21 51 49.8				D = 300 km = 2.7°.	
				microns sec			Um	i	11 16 07.0
			PKP Z'	0.1 0.7				i	11 16 16.0
		Ki	iSKP	21 54 16.9				iSg	11 16 29.8
		Gb	iPKP	21 52 00.8			Nordlands Fylke, Norway,		
		Um	iPKP	21 51 47.6			66.4°N, 13.0°E.		
			iSKP	21 54 35.3			Origin time = 11 14 22.		
		Ka	iPKP	21 52 02.5					
		South of Fiji Islands			"	28	Ki	eP	11 53 28
		(h = 500 km).					Sk	iP	11 52 54.6
							Um	iP	11 52 52.1
"	27	Up	iPKP	23 06 52.6			Greece (h = 50 km).		
			i	23 06 55.7					
		(cont.)			"	28	Um	iP	11 57 21.6

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

1966 Apr.	28	Um	iP	13 05 56.5	
"	28	Um	i(P)	13 34 17.8	
			i	13 34 31.5	
"	28	Um	iPKP	14 13 59.5	
		New Hebrides Islands (h = 180 km).			
"	28	Um	iP	14 21 32.5	
"	28	Up	iP	15 53 24.4	
"	28	Up		---	
				microns sec	
			M E	0.7 18	
			M N	0.9 21	
			M Z	0.9 18	
		Ki	iPKP	17 15 41.6	
			ePP	17 17 42	
			ePKS	17 18 50	
			eSS	17 35 09	
				microns sec	
			PKS N	0.4 6	
			PKS Z	0.5 8	
			M E	0.7 17	
			M N	0.9 21	
			M Z	1.4 19	
		Um	ePKS	17 19 06	
			eSS	17 35 51	
		Tonga Islands (h = 25 km).			
"	28	Ki	iPn	18 19 14.0	
			iSn	18 20 01.0	
			iSg	18 20 16.5	
			D = 410 km = 3.7°.		
		Sk	iSg	18 23 01.7	
		Um	iSg	18 21 46.8	
		Northwest Russia, 69.0°N, 30.0°E. Origin time = 18 18 15. Explosion?			
"	28	Up	iP	18 19 38.5	
				microns sec	
			M E	0.7 18	
			M N	0.8 19	
			M Z	0.8 17	
		Sk	iP	18 20 06.7	
		Um	iP	18 19 48.0	
		Indian Ocean (h = 30 km).			
"	28	Um	iP	21 29 44.8	
"	28	Ka	eP	22 06 40	

1966 Apr.	28	Up	iP	22 41 32.5	
			i	22 41 38.5	
		Ki	eP	22 40 58	
		Gb	iP	22 41 42.1	
		Um	iP	22 41 13.9	
		Ka	eP	22 41 49	
		Off coast of Oregon (h = 20 km).			
"	29	Up	iP	01 57 30.3 D	
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	01 56 37.1 D	
				microns sec	
			P	Z' 0.1 0.9	
		Sk	iP	01 57 05.2	
		Gb	iP	01 57 42.6 D	
		Um	iP	01 57 04.4 D	
			ipP	01 57 13.9	
			iS	02 05 23	
		Ka	iP	01 57 52.8 D	
			ipP	01 58 02.6	
		South of Alaska. h = 35 km (Um,Ka). Magn. = 5.7 (Up,Ki).			
"	29	Up	eP	02 36 14	
		Um	iP	02 36 00.5	
			ipP	02 36 21.9	
		Japan. h = 80 km (Um).			
"	29	Um	iP	03 15 58.8	
			i	03 16 32.6	
"	29	Um	iP	10 37 04.8	
"	29	Up	iP	23 14 13.2	
		Ki	iP	23 13 20.0	
		Gb	iP	23 14 31.9	
		Um	iP	23 13 46.4	
		Ka	iP	23 14 37.4	
		Kamchatka (h = 30 km).			
"	30	Um	iSg	01 10 41.2	
		Probably Nordlands Fylke, Norway.			
"	30	Ki	eSg	02 48 42	
		Um	iSg	02 49 02.9	
		Probably Nordlands Fylke, Norway.			
"	30	Up	iP	02 51 01.5	
"	30	Ki	eSg	04 43 50	
		(cont.)			

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

1966 Apr. 30 (cont.)

Sk	eSg	04 43 56	
Um	iSg	04 44 17.3	

Nordlands Fylke, Norway.

" 30

Ki	ePn	05 44 08	
	iSn	05 45 05.4	
	iSg	05 45 22.4	
	D = 480 km = 4.3°.		
Sk	iSg	05 47 58.3	
Um	iSn	05 45 48.7	
	iSg	05 46 24.7	
	D = 690 km = 6.2°.		

Northwest Russia,
67.9°N, 31.9°E.
Origin time = 05 43 00.
Explosion?

" 30

Um	iPKP	06 43 53.7	

New Hebrides Islands
(h = 40 km).

" 30

Um	iP	07 15 32.4	

" 30

Up	iPP	08 31 15.9	

Off coast of Chile
(h = 30 km).

" 30

Up	iP	12 12 53.0	
Ki	iP	12 13 27.9	
	e	12 15 36	
	i	12 17 16.7	
Sk	i	12 20 23.9	
	i	12 21 16.5	
Um	iP	12 13 02.8	
	iPcP	12 16 27.9	
	iSn	12 18 35.0	
	i	12 18 51.0	
Ka	iP	12 12 55.1	

Caucasus.

" 30

Up	iP	13 48 28.2	C
	iLg1	14 01 21	
	iLg2	14 01 58	
	iRg	14 04 10	

		microns	sec
M	E	1.3	12
M	N	1.4	12
M	Z	1.2	13

Ki	iP	13 48 31.0	C
	i	13 48 37.1	
	e	13 58 42	
	eLg1	14 00 53	

		microns	sec
P	Z'	0.1	0.7

(cont.)

1966 Apr. 30 (cont.)

		microns	sec
Ki			
M	E	4.0	11
M	N	1.7	12
M	Z	6.4	14

Sk	iP	13 48 50.1	
Um	iP	13 48 22.8	C
Ka	iP	13 48 35.9	C
	i	13 49 00.3	

Kirghiz SSR (h = 20 km).

" 30

Up	iP	14 12 50.7	
Ki	iP	14 12 19.3	
Um	iP	14 12 32.9	

Bonin Islands (h = 480 km).

" 30

Um	i(P)	14 59 49.3	

" 30

Ki	iPn	16 31 59.5	
	iSn	16 32 47.6	
	iSg	16 33 04.8	
	D = 420 km = 3.8°.		
Um	iSg	16 34 32.8	

Northwest Russia,
68.9°N, 30.3°E.
Origin time = 16 31 00.
Explosion?

Markus Båth
September 16, 1966

SEISMOLOGISKA INSTITUTIONEN
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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, 1966

1966 May 1 Ki ePg 08 00 15
iSn 08 00 46.7
iSg 08 01 05.5
D = 440 km = 4.0°.
Um iSg 08 01 54.2
Probably northwest Russia.
Origin time = 07 58 55.
Explosion?

" 1 Up iP 16 36 16.4 D
ipP 16 36 56.2
iSKS 16 46 32
iS 16 47 24
microns sec
P Z' 0.3 1.5
SKS E 1.3 10
S E 1.5 5
S N 2.7 8
D = 11000 km = 99°.
Ki iP 16 36 22.1
ipP 16 37 02.5
iS 16 47 37
microns sec
P Z' 0.2 1.5
S N 2.6 10
D = 11100 km = 100°.
Sk iP 16 36 07.0
Gb iP 16 36 02.2
ipP 16 36 41.4
Um iP 16 36 21.8
ipP 16 37 02.2
iSKS 16 46 42
iS 16 47 37
isS 16 48 44
i 16 49 09
ePKKP 16 52 36
(cont.)

1966 May 1 (cont.)
Ka iP 16 36 11.0
Peru-Brazil.
h = 160 km (Up,Ki,Gb,Um).

" 1 Ki i(P) 16 53 23.2

" 1 Up iP 18 42 30.7 C
ipP 18 42 57.8
iPP 18 45 28.0
Ki iP 18 41 55.7
Sk iP 18 42 26.3
iPP 18 45 21.6
Gb iP 18 42 49.5
Um iP 18 42 10.3
ipP 18 42 36.7
South of Japan.
h = 100 km (Up,Um).

" 1 Up iP 22 32 58.5
Atlantic Ocean (h = 30 km).

" 1 Um iP 22 41 27.8 C
Costa Rica (h = 80 km).

" 1 Um eP 23 59 11
i 23 59 24.9

" 2 Up ---
microns sec
M E 1.5 20
M N 2.7 19
M Z 3.2 20
Ki ---
microns sec
M E 1.8 18
(cont.)

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

1966 May 2 (cont.)

Ki		microns	sec
	M	N 2.3	20
	M	Z 3.2	20
Um	iPKP		10 11 17.8
	iPP		10 12 04
	ePS		10 21 36
	iSS		10 27 40

New Britain (h = 50 km).
Magn. = 6.0 (Up,Ki).

" 2 Um iP 10 45 09.1
Japan (h = 140 km).

" 2

Sk	iPKP	11 11 43.0
Um	iPKP	11 11 36.6
	i	11 11 40.6
Ka	iPKP	11 11 49.2

Fiji Islands (h = 540 km).

" 2

Ki	iP	13 58 07.1
Ka	iP	13 57 05.5

Turkey (h = 30 km).

" 2

Ki	iP	14 01 28.4
Ka	iP	14 00 28.4 C

Turkey (h = 50 km).

" 2 Up iP 14 23 18.9

" 2

Up	iP	15 38 04.4
Um	iP	15 37 13.8

" 2

Up	iP	16 53 22.9
Ki	iP	16 53 16.2
Sk	iP	16 53 32.7
Um	iP	16 53 16.3

Bali Island (h = 100 km).

" 2

Ki	iP	20 47 08.0
Ka	iP	20 46 06.8

Turkey (h = 15 km).

" 2 Up iP 22 14 20.6

" 2

Up	iP		23 18 01.9
	iPP		23 18 37.1
		microns	sec
	M	E 1.1	15
	M	N 1.4	14
Ki	iP		23 18 49.2 D
		microns	sec
	P	Z' 0.1	1.0
	M	E 1.0	14
	M	N 0.8	12
	M	Z 1.4	13

(cont.)

1966 May 2 (cont.)

Gb	eP	23 18 14
Um	iP	23 18 20.4
	i	23 18 28.1
Ka	iP	23 17 48.2

Turkey (h = 40 km).

" 2

Up	iP	23 32 12.4
	i	23 32 37.1

Aleutian Islands (h = 25 km).

" 3 Up iP 03 03 07.4 C
Aleutian Islands (h = 30 km).

" 3

Ki	iPn	11 32 10.9
	iP^x	11 32 19.5
	iSn	11 32 55.8
	iSg	11 33 09.6

D = 390 km = 3.5°.
Possibly northwest Russia.
Origin time = 11 31 16.
Explosion?

" 3

Ka	i(P)	14 51 22.1
	i	14 51 26.6
	i	14 51 33.8

" 3 Um iP 18 56 52.9
West Caroline Islands
(h = 30 km).

" 3 Um iPKP 19 27 17.8
Australia (h = 40 km).

" 3

Ki	iP	20 40 52.9
Ka	iP	20 39 52.6

Turkey (h = 30 km).
It is a remarkable fact that in this series of Turkey earthquakes, Ki and Ka show the highest sensitivity among our stations.

" 3 Ki iP 21 50 34.2

" 3 Um iP 23 00 20.1
Aleutian Islands (h = 30 km).

" 4 Um iP 01 59 48.4
Japan (h = 100 km).

" 4 Um eP 02 15 09

" 4

Up	iP	06 41 39.8
	i	06 41 42.9

(cont.)

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

1966 May 4 (cont.)

Up	iS	06 45 31	
		microns	sec
	P	Z' 0.1	0.5
	S	Z 0.5	7
	M	E 2.4	16
	M	Z 2.6	14
	D = 2350 km = 21°.		
Ki	iP	06 42 56.7	
	eS	06 47 47	
		microns	sec
	P	Z' 0.1	1.0
	M	E 1.6	10
	M	N 1.5	14
	M	Z 2.2	15
	D = 3200 km = 29°.		
Sk	iP	06 42 21.9	
	iPP	06 43 05.5	
Gb	eP	06 41 26	
Um	iP	06 42 19.0	
	iS	06 46 40	
Ka	iP	06 41 03.6	

Greece (h = 40 km).
Magn. = 5.5 (Up,Ki).
PZ' is multiple.

" 4 Up iP 07 43 41.7
Sk iP 07 44 21.1
Um iP 07 44 19.5
Greece (h = 50 km).

" 4 Um iP 08 56 18.1 C
Iceland (h = 30 km).

" 4 Up i 14 24 54.8
Um i(P) 14 22 33.6

" 4 Sk epP 18 26 37
Um iP 18 26 31.3
ipP 18 26 47.9
Nicaragua.
h = 60 km (Um).

" 4 Ki iP 20 18 19.1

" 4 Up iP 21 54 05.2
iPP 21 54 32.4
iS 21 58 16

		microns	sec
	S	N 1.1	8
	M	E 5.4	17
	M	N 3.1	17
	M	Z 1.7	11

D = 2600 km = 23 1/2°.

Ki iP 21 55 11.9
(cont.)

1966 May 4 (cont.)

Ki	i	21 55 43.2	
	iS	22 00 12	
	iLi	22 04 12	
	iLgl	22 04 36	
		microns	sec
	M	E 2.1	9
	M	N 1.2	9
	M	Z 1.9	9
	D = 3400 km = 30 1/2°.		
Sk	iP	21 54 45.3	
Gb	iP	21 53 58.3	
Um	iP	21 54 36.3	C
	iS	21 59 07	
Ka	iP	21 53 32.0	

Turkey (h = 15 km).
Magn. = 5.2 (Up).

" 5 Um iP 02 27 12.5
Celebes (h = 150 km).

" 5 Up iP 04 06 53.0

" 5 Ki iSn 05 40 02.3
iSg 05 40 25.6
D = 490 km = 4.4°.
Sk eSg 05 42 53
Um iSn 05 40 47.4
iSg 05 41 24.8
D = 690 km = 6.2°.
Northwest Russia,
67.8°N, 32.0°E.
Origin time = 05 38 00.
Explosion?

" 5 Um iP 06 27 11.0
Aleutian Islands (h = 30 km).

" 5 Up iP 06 48 30.9
Ki iP 06 48 13.9 C

		microns	sec
	P	Z' 0.1	1.0
Sk	iP	06 48 34.9	
Um	iP	06 48 19.0	C

" 5 Up iP 06 50 01.5 C
ipP 06 50 10.4

		microns	sec
	P	Z' 0.1	0.9
Ki	iP	06 49 08.9	
	ipP	06 49 18.5	
		microns	sec
	M	E 0.4	17
	M	N 0.3	15
	M	Z 0.8	16

(cont.)

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

1966
May 5 (cont.)

Sk	iP	06 49 41.9	
Gb	iP	06 50 18.6	
	i	06 50 39.5	
Um	iP	06 49 34.4	
	ipP	06 49 43.4	
Ka	iP	06 50 24.9	
	ipP	06 50 34.0	

Aleutian Islands.
h = 35 km (Up,Ki,Um,Ka).

" 5 Um iP 13 25 04.0

" 5 Up iP 14 33 05.3 C
iS 14 42 47
iSKS 14 43 10

		microns	sec
P	Z	0.8	4
P	Z'	0.4	1.3
S	E	0.7	5
S	N	1.8	10
SKS	E	0.6	3
M	E	10	19
M	N	27	21
M	Z	17	19

D = 8400 km = 75 1/2°.

Ki	iP	14 32 40.4	C
	iPa	14 37 02	
	iS	14 42 02	

		microns	sec
P	E	0.7	5
P	Z	1.5	5
P	Z'	0.4	1.4
S	E	1.1	11
S	N	1.5	11
M	E	12	17
M	N	10	17
M	Z	12	17

D = 7900 km = 71°.

Sk	iP	14 33 08.0	C
	i	14 33 30.8	
Gb	iP	14 33 24.4	
	i	14 33 27.9	
	i	14 33 41.1	
Um	iP	14 32 49.3	C
	i	14 32 52.9	
	iPP	14 35 31	
	iPa	14 37 18	
	iS	14 42 15	
Ka	iP	14 33 22.8	

Formosa (h = 60 km).
Magn. = 6.4 (Up,Ki).
The first onset (PZ') is followed after 3.5 sec by a much larger phase.

1966
May 5

Up	eP	15 21 21	
	i	15 21 25.7	
Ki	iP	15 21 15.0	
Sk	eP	15 20 43	
Gb	eP	15 21 02	
Um	iP	15 21 19.2	C

Iceland (h = 30 km).

" 5 Up iP 15 30 02.5
Ki iP 15 29 53.9
Sk iP 15 29 24.2
Um iP 15 30 00.0 D
Iceland (h = 30 km).

" 5 Um iSKP 15 44 25.5
Fiji Islands (h = 600 km).

" 5 Up iP 15 57 31.4
iS 16 01 38

		microns	sec
P	E	0.4	5
P	Z'	0.1	1.0
S	E	0.6	5
S	N	0.5	5
M	E	1.4	18
M	N	1.3	16
M	Z	1.7	18

D = 2450 km = 22°.

Ki	iP	15 57 22.6	
	iS	16 01 30	

		microns	sec
P	E	1.1	3
P	Z	0.8	4
P	Z'	1.5	3.0
S	E	1.0	5
S	N	1.1	8
M	E	1.9	14
M	N	2.0	17
M	Z	1.8	15

D = 2350 km = 21°.

Sk	iP	15 56 53.1	
Gb	iP	15 57 12.3	
Um	iP	15 57 28.2	D
	i	15 57 30.2	

Iceland (h = 30 km).
Magn. = 5.7 (Up,Ki).

" 5 Up i(P) 18 12 14.7

		microns	sec
(P)	Z'	0.1	0.8

" 5 Up i(P) 18 45 54.3

" 5 Ki iP 20 51 01.7
Sk iP 20 51 29.6
Formosa (h = 30 km).

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

1966
May 6 Up iP 00 19 06.0
microns sec
M E 0.8 18
M N 1.4 18
M Z 1.1 17
Ki iP 00 19 04.2
microns sec
M E 0.4 13
M N 0.3 12
M Z 0.3 13
Sk iP 00 19 22.6
Um iP 00 18 47.3
i 00 18 59.5
Ka iP 00 19 13.5

" 6 Um iP 02 20 02.2
Japan (h = 30 km).

" 6 Up iP 02 48 45.0
i 02 48 50.7
microns sec
P Z' 0.1 1.0
Ki iP 02 49 24.2
Sk iP 02 49 09.7
i 02 49 15.2
Gb iP 02 48 39.1
i 02 48 44.2
Um iP 02 49 03.9
i 02 49 09.5
Ka i(P) 02 48 31.7
Southeast Africa (h = 30 km).
If the second (larger) onset
is interpreted as pP, the
focal depth is only 20 km
(Up,Sk,Gb,Um).

" 6 Up eL 04 32
microns sec
M E 0.9 16
M N 0.9 18
M Z 1.3 16
Ki eL 04 34
microns sec
M E 0.5 13
M N 0.5 16
M Z 0.7 15
Formosa (h = 30 km).

" 6 Up iPKP 07 32 46.7
microns sec
PKP Z' 0.1 0.6
Ki iSKP 07 35 19.3
Gb iPKP 07 32 56.8
Um iPKP 07 32 35.2
iSKP 07 35 29.6
(cont.)

1966
May 6 (cont.)
Ka iPKP 07 32 49.1
i 07 32 58.9
South of Fiji Islands
(h = 490 km).

" 6 Um iP 10 19 17.8
Japan (h = 150 km).

" 6 Up iP 15 11 47.9
Ki iP 15 11 14.0
i 15 11 31.1
Sk iP 15 11 21.9 C
Um iP 15 11 33.3 C
Nevada.
Origin time = 15 00 00.
Underground explosion.

" 6 Up iP 16 20 39.9
Ki iP 16 20 11.4
Sk iP 16 20 36.4
Um iP 16 20 22.8
Mariana Islands (h = 330 km).

" 7 Um iP 03 37 15.7
Aleutian Islands (h = 50 km).

" 7 Up iP 04 04 54.6
iPn 04 05 56.3
iPP 04 06 09.9
Ki iP 04 04 37.7 C
Sk iP 04 05 08.8
Um iP 04 04 38.9
i 04 05 15.0
Ka iP 04 05 09.7
Kazakh SSR.
Underground explosion.

" 7 Ki iSn 05 24 37.2
iSg 05 24 55.8
Um i 05 25 21.5
iSn 05 25 38.2
iSg 05 26 10.3
Probably northwest Russia.
Explosion?

" 7 Gb iPKP 05 28 31.8
Ka iPKP 05 28 34.0
South of Fiji Islands
(h = 600 km).

" 7 Up iP 09 15 50.5
Aleutian Islands (h = 70 km).

" 7 Um iP 10 59 33.3

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

1966 May	7	Um	iP	12 46 06.4	
"	7	Up	iP	13 13 22.4	C
			i	13 13 25.4	
			iPcP	13 17 11.4	
			iS	13 17 31	
			iLg2	13 21 14	
			microns	sec	
			P Z'	0.2 1.7	
			S E	1.3 12	
			S N	2.1 8	
			M E	9.6 17	
			M N	4.5 16	
			M Z	4.5 16	
			D = 2600 km = 23 1/2°.		
		Ki	iP	13 14 29.6	C
			iS	13 19 35	
			eLi	13 23 53	
			eLgl	13 24 50	
			microns	sec	
			P Z'	0.2 1.5	
			S N	0.8 12	
			M E	3.9 10	
			M N	1.9 14	
			M Z	2.6 9	
			D = 3450 km = 31°.		
		Sk	iP	13 14 03.2	
			i	13 14 05.7	
			iPcP	13 17 21.9	
		Gb	iP	13 13 16.1	
			i	13 13 18.5	
			iPP	13 13 52.4	
		Um	iP	13 13 54.2	C
			i	13 13 55.7	
			i	13 15 54.7	
			iPcP	13 17 18.3	
			iS	13 18 23	
		Ka	iP	13 12 50.2	
			iPcP	13 17 05.7	
		Turkey (h = 10 km).			
		Magn. = 5.4 (Up,Ki).			
		Multiple P. Unusually clear PcP.			
"	7	Ki	iPn^x	17 45 53.9	
			iP^x	17 46 03.6	
			iSn	17 46 42.5	
			iSg	17 46 58.2	
			D = 420 km = 3.8°.		
		Sk	eSg	17 49 42	
		Um	iPn	17 46 31.6	
			iSn	17 47 49.7	
			iSg	17 48 26.4	
			D = 710 km = 6.4°.		
		Northwest Russia, 68.9°N, 30.4°E. (cont.)			

1966 May	7	(cont.)			
		Origin time = 17 44 55.			
		Explosion?			
"	7	Ka	iP	18 36 18.0	
		Afghanistan (h = 15 km).			
"	7	Um	iP	21 17 24.5	
		Tashkent.			
"	7	Up	eP	22 13 49	
			i	22 13 52.3	
			iSn	22 17 33.5	
		Ki	eP	22 14 52	
			i	22 15 06.4	
		Sk	iP	22 14 41.0	
		Gb	eP	22 14 00	
			i	22 14 08.7	
		Um	iP	22 14 18.3	
		Ka	iP	22 13 28.1	
			iSn	22 16 51.1	
		Black Sea (h = 15 km).			
"	8	Up	iP	01 36 18.9	
		Um	iP	01 35 53.6	
		Kurile Islands (h = 50 km).			
"	8	Up	iP	03 53 27.6	
		Sk	iP	03 54 10.4	
		Greece (h = 50 km).			
"	8	Up	iP	06 27 41.7	
		Sk	iP	06 28 24.0	
		Greece.			
"	8	Up	iP	08 40 57.2	
		Um	iP	08 40 32.2	
		Kurile Islands (h = 30 km).			
"	8	Up	iP	12 39 00.7	
		Um	iP	12 38 45.6	
			i	12 38 56.4	
		Mariana Islands (h = 90 km).			
"	8	Um	iP	17 14 31.8	
		Japan (h = 60 km).			
"	8	Up	iP	22 30 47.7	
			i	22 30 59.4	
"	9	Up	iP	00 48 25.4	C
			i	00 48 27.9	
			iS	00 52 48	
			i	00 53 00	
			iLgl	00 56 59	
		(cont.)			

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

1966 May 9 (cont.)

Up		microns	sec	
	P	Z'	0.6	0.7
	S	E	0.8	4
	S	N	0.8	5
	M	E	15	11
	M	N	22	16
	M	Z	19	15
	D = 2900 km = 26°.			
Ki	iP		00 49 32.5	
	i		00 49 34.6	
	eS		00 54 50	
	iSa		00 56 29	
		microns	sec	
	P	N	0.4	7
	P	Z'	0.6	0.8
	S	E	1.7	5
	S	N	1.1	10
	M	E	40	14
	M	N	10	14
	M	Z	14	14
	D = 3700 km = 33 1/2°.			
Sk	iP		00 49 04.8	
Gb	iP		00 48 17.7 C	
	i		00 49 39.2	
Um	iP		00 48 57.2 C	
	iPP		00 49 43	
	iS		00 53 38	
	iSS		00 54 56	
Ka	iP		00 47 53.3 C	
	iS		00 52 03.5	

Crete (h = 30 km).
Magn. = 5.9 (Up,Ki).
Multiple P.

" 9 Um iP 03 07 49.5

" 9 Up iP 03 09 03.9
Ki iP 03 08 23.7
Um iP 03 08 41.6 C
Japan (h = 20 km).

" 9 Up iP 03 56 17.4 D
i 03 56 30.0
iS 04 00 35

	microns	sec	
P	Z'	0.1	1.0
S	E	0.4	4
S	N	0.5	4

Ki iP 03 57 19.4
isP 03 57 57.2

	microns	sec	
P	Z'	0.1	1.0

Sk eP 03 57 03
ipP 03 57 26.5
(cont.)

1966 May 9 (cont.)

Gb iP 03 56 15.0 C
ipP 03 56 35.7
Um iP 03 56 45.5
ipP 03 57 13.7
iPcP 04 00 00.1
Ka iP 03 55 48.7 C
ipP 03 56 12.2
Turkey.
h = 120 km (Ki,Sk,Gb,Um, Ka).
Magn. = 5.4 (Up,Ki).

" 9 Ka iP 04 36 46.9

" 9 Ki iP 04 41 09.7 C
Um eP 04 40 39
Ka iP 04 40 09.2
Turkey (h = 30 km).

" 9 Up iP 06 13 59.6
i 06 14 09.1

	microns	sec	
M	E	0.6	17
M	N	0.7	18
M	Z	0.9	15

Ki iP 06 15 06.7 C
i 06 15 14.2

	microns	sec	
M	E	1.2	18
M	N	0.6	14
M	Z	0.8	14

Sk iP 06 14 39.4 C
Um iP 06 14 32.5
Ka iP 06 13 28.3
i 06 13 36.9
Crete (h = 30 km).

" 9 Up iP 06 28 13.7
i 06 28 20.5
Ki eP 06 28 52
Sk eP 06 28 53
Um iP 06 28 29.7 D
Ka iP 06 28 01.4
Gulf of Aden.

" 9 Sk iPKP 10 19 13.4
Um iPKP 10 19 08.5
New Hebrides Islands
(h = 210 km).

" 9 Um iP 14 36 43.2

" 9 Sk i(P) 15 06 03.9

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

1966 May	9	Up	iP	16 57 48.8	
		Ki	iP	16 58 53.7	
		Um	eP	16 58 17	
"	9	Sk	iP	17 28 26.2	
"	9	Up	iP	18 08 49.1	
		Ka	iP	18 08 45.5	
"	9	Ki	iP	18 52 34.4	
		Tashkent.			
"	10	Up	iP	02 53 16.9	
		Ki	iP	02 54 23.4	
		Um	iP	02 53 50.2	
			i	02 53 57.5	
		Crete (h = 30 km).			
"	10	Sk	iP	03 23 55.9	
"	10	Um	iPKP	05 51 29.0	C
		New Hebrides Islands			
		(h = 30 km).			
"	10	Ki	iP	10 19 15.4	
		Sk	iP	10 19 49.8	
		Um	iP	10 19 34.1	D
			i	10 19 49.8	
		Japan (h = 40 km).			
"	10	Um	iP	11 53 13.2	
"	10	Ki	eP	13 24 28	
		Sk	iP	13 25 40.5	
		Um	iP	13 25 35.7	
			i	13 25 58.6	
"	10	Um	iP	16 03 36.0	
"	10	Up	iP	21 12 11.3	
			ipP	21 12 17.9	
			i	21 13 10.8	
			iS	21 18 45	
			iLi	21 24 35	
			iLg2	21 27 54	
			microns	sec	
			M E	2.3 14	
			M N	1.4 12	
			M Z	2.6 14	
			D = 4850 km = 43 1/2°.		
		Ki	iP	21 11 37.0	
			ipP	21 11 43.1	
			iPP	21 13 15	
			microns	sec	
			P Z'	0.1 1.0	
		(cont.)			

1966 May	10	(cont.)			
		Ki		microns	sec
			PP E	0.7 6	
			M E	1.9 14	
			M N	1.7 18	
			M Z	2.7 17	
		Sk	iP	21 12 15.1	
		Gb	eP	21 12 40	
			ipP	21 12 46.3	
		Um	iP	21 11 48.3	
			ipP	21 11 53.8	
			iPP	21 13 26	
			iS	21 18 01	
			iSS	21 20 55	
		USSR-Mongolia.			
		h = 20 km (Up,Ki,Gb,Um).			
		Magn. = 5.7 (Ki).			
"	11	Up	iP	01 28 20.8	
		Ki	iP	01 29 26.9	
			microns	sec	
			M E	0.6 15	
		Sk	iP	01 28 59.7	C
		Um	iP	01 28 51.5	
		Crete (h = 90 km).			
"	11	Ki	iP	01 35 05.5	
		Um	eP	01 35 35	
		Alaska (h = 90 km).			
"	11	Up	iP	02 01 46.2	
			iPP	02 03 31.2	
			microns	sec	
			P Z'	0.1 0.5	
			M E	0.7 15	
			M N	0.7 12	
			M Z	1.3 16	
		Ki	iP	02 01 58.0	
			iLgl	02 17 33	
			microns	sec	
			M E	0.7 15	
			M N	0.7 13	
			M Z	1.0 10	
		Sk	iP	02 02 13.0	C
			i	02 03 15.4	
			iPP	02 04 00.3	
		Gb	eP	02 02 07	
			i	02 03 10.0	
		Um	iP	02 01 49.5	
			iPn	02 03 12.0	
			iLgl	02 16 55	
		Ka	iP	02 01 49.5	C
		Afghanistan (h = 25 km).			
		Um at a distance of 42 1/2°			
		is the maximum distance			
		(cont.)			

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

1966 May 11 (cont.)

at which we have observed a clear onset of the teleseismic Pn (compare M. Båth: Observations of teleseismic Pn phases, Pure and Appl. Geophys., in press).

" 11 Ki iPKP 04 08 09.9
ipPKP 04 08 38.0
Um iPKP 04 08 02.7
South Sandwich Islands.
h = 100 km (Ki).

" 11 Up iP 10 27 21.4
Ki iP 10 28 24.4
Sk eP 10 27 58
Um iP 10 27 52.9
i 10 28 01.5
Crete (h = 10 km).

" 11 Up iP 10 58 39.0 C
i 10 58 41.7

" 11 Ki iSg 12 40 08.7
Sk iSg 12 40 13.2
Um iSg 12 40 36.0
Nordlands Fylke, Norway,
66.4°N, 14.6°E.
Origin time = 12 38 40.
Artificial?

" 11 Um iP 13 36 03.8

" 11 Sk iP 13 58 07.2

" 11 Up iP 14 28 24.8 C
i 14 28 26.3
ipP 14 28 36.1
eS 14 37 10
microns sec
P Z' 0.2 0.5
S E 1.8 16
S N 1.3 13
M E 5.8 19
M N 9.5 23
M Z 11 18
D = 7450 km = 67°.
Ki iP 14 27 33.4 C
i 14 27 35.5
ipP 14 27 46.0
iPa 14 31 20
microns sec
P Z' 0.2 1.0

(cont.)

1966 May 11 (cont.)

Sk iP 14 28 11.3
ipP 14 28 22.3
Gb iP 14 28 45.5
ipP 14 28 58.1
Um iP 14 27 57.6 C
ipP 14 28 09.9
iPa 14 31 52
iS 14 36 17
Ka iP 14 28 48.3 C
Kurile Islands.
h = 45 km (Up,Ki,Sk,Gb,Um).
Magn. = 6.1 (Up,Ki).
Multiple P.

" 11 Up iP 14 37 28.8
Ki iP 14 36 37.7
Sk iP 14 37 14.3
Um iP 14 37 01.3
Ka iP 14 37 51.7
Kurile Islands (h = 30 km).

" 11 Up i(P) 15 10 15.1

" 11 Up iP 15 11 34.4
Ki iP 15 12 39.5
microns sec
P Z' 0.2 0.9
Sk iP 15 12 12.3
Um iP 15 12 04.3
Ka eP 15 11 01
Crete (h = 30 km).

" 11 Ki iP 18 10 27.0
Kurile Islands (h = 30 km).

" 11 Up iP 21 50 23.9 C
eS 21 59 14
microns sec
M E 3.8 20
M N 3.4 21
M Z 2.4 19
D = 7400 km = 66 1/2°.
Ki iP 21 49 32.9
Sk iP 21 50 10.0
Gb iP 21 50 44.0 C
ipP 21 50 54.4
Um iP 21 49 57.4 C
ipP 21 50 07.5
eS 21 58 16
iScS 21 59 46
Ka iP 21 50 47.0
ipP 21 50 59.0
Kurile Islands.
h = 40 km (Gb,Um,Ka).

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

1966					
May	11	Up	iPKP	23 40 54.5	
			i	23 40 59.1	
			i	23 41 01.7	
		Sk	iPKP	23 40 48.7	
			ipPKP	23 42 17.5	
		Um	iPKP	23 40 42.4	
		Kermadec Islands.			
		h = 370 km (Sk).			
"	12	Ka	iPKP	01 35 31.0	
		Fiji Islands (h = 610 km).			
"	12	Ki	iP	06 42 30.9	
		Sk	eP	06 42 58	
		Um	iP	06 42 39.8	
		Formosa (h = 60 km).			
"	12	Up	iP	11 06 21.2	
		Sk	iP	11 07 00.8	
		Um	eP	11 06 59	
		Ka	iP	11 05 44.3	
		Greece (h = 130 km).			
"	12	Up	eP	11 50 34	
			i	11 50 36.5	
			iLgl	12 04 53	
			microns	sec	
			P Z'	0.2 1.2	
			M E	0.4 8	
			M N	0.6 7	
			M Z	0.6 8	
		Ki	iP	11 50 31.4	
			i(Lgl)	12 05 05	
			microns	sec	
			M E	1.4 17	
			M N	1.0 9	
			M Z	0.9 8	
		Sk	iP	11 50 55.2	
		Gb	iP	11 50 58.9	
		Um	iP	11 50 27.5	
			iLgl	12 03 56	
		Ka	iP	11 50 44.3 C	
		Sinkiang (h = 30 km).			
"	12	Up	iP	12 27 42.4 C	
			i	12 27 50.0	
		Ki	iP	12 26 57.9	
		Gb	iP	12 27 02.1	
		Um	iP	12 27 22.3	
		Kurile Islands (h = 25 km).			
"	12	Um	iP	12 49 24.5	
"	12	Um	iP	13 22 34.3 C	
"	12	Um	iP	16 37 31.4	

1966					
May	12	Up	iP	19 31 33.0	
		Ki	iP	19 30 46.3	
"	12	Up	iP	20 35 53.5	
			microns	sec	
			M E	0.5 14	
			M N	0.6 12	
			M Z	0.7 12	
		Ki	iP	20 37 04.7	
		Sk	iP	20 36 35.4	
		Gb	iP	20 35 45.0	
		Um	iP	20 36 29.4	
			iS	20 41 07	
		Ka	iP	20 35 18.6	
		Aegean Sea (h = 30 km).			
"	13	Um	iP	04 14 04.7	
"	13	Ki	iSg	06 16 58.0	
			i	06 17 12.1	
		Sk	i(Sg)	06 19 47.5	
			i	06 19 58.7	
		Um	iPn	06 16 29.8	
			iSn	06 17 42.7	
			iSg	06 18 20.2	
			D = 690 km = 6.2°.		
		Northwest Russia.			
		Origin time = 06 14 55.			
		Explosion?			
"	13	Ki	iP	10 22 54.5	
		Sk	iP	10 22 25.8	
		Um	iP	10 22 23.5	
		Eastern Mediterranean.			
"	13	Um	iP	11 07 41.2	
"	13	Ki	eSg	12 36 09	
		Sk	iSx	12 36 08.2	
			iSg	12 36 13.4	
		Um	iPg	12 35 48.9	
			iSg	12 36 36.8	
			D = 390 km = 3.5°.		
		Nordlands Fylke, Norway, 66.4°N, 14.6°E.			
		Origin time = 12 34 40.			
		Artificial?			
"	13	Ki	eP	13 12 18	
		Sk	iP	13 11 45.6	
		Crete (h = 10 km).			
"	13	Up	iP	13 17 20.7	
			microns	sec	
			M E	0.6 11	
		(cont.)			

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

1966						
May	13	(cont.)				
		Up		microns	sec	
			M	N 0.5	11	
			M	Z 0.6	10	
		Ki	iP	13 18 27.6		
				microns	sec	
			P	Z' 0.1	1.0	
		Um	iP	13 17 52.3		
			i	13 18 01.6		
			i	13 18 19		
			iS	13 22 50		
		Ka	eP	13 16 45		
			iS	13 21 00.5		
		Crete (h = 30 km).				
"	13	Up	iP	13 41 48.5		
				microns	sec	
			P	Z' 0.3	1.3	
		Ki	iP	13 41 14.8 C		
				microns	sec	
			P	Z' 0.1	1.4	
		Sk	iP	13 41 22.8 C		
		Gb	iP	13 41 48.9		
		Um	iP	13 41 34.0 C		
		Ka	iP	13 42 02.0 C		
		Nevada.				
		Origin time = 13 30 00.				
		Magn. = 6.0 (Up,Ki).				
		Underground explosion.				
"	13	Ki	iP	14 42 11.2		
"	13	Up	i(P)	15 52 21.2		
"	13			---		
				microns	sec	
			M	N 0.7	18	
		Um	eP	23 21 03		
			i	23 21 14.7		
		West Pakistan (h = 25 km).				
"	14	Um	iP	00 02 01.2		
		Afghanistan.				
"	14	Up	iP	02 22 49.0		
			i	02 23 14.3		
"	14	Up	iP	04 21 28.4		
		Ki	iP	04 20 07.9		
		Sk	i	04 21 44.3		
		Um	iP	04 20 50.7		
		Arctic Ocean (h = 30 km).				
"	14	Um	iP	10 33 25.0		

1966						
May	14	Ki	iPn	13 27 51.5		
			iSn	13 28 50.1		
			iSg	13 29 10.1		
			D = 500 km = 4.5°.			
		Um	iSg	13 30 05.3		
		Northwest Russia,				
		67.6°N, 32.2°E.				
		Origin time = 13 26 42.				
		Explosion?				
"	14	Um	iP	16 08 08.2		
"	14	Up	iP	17 11 29.5		
		Ki	iP	17 10 51.5		
		Sk	eP	17 11 24		
		Gb	iP	17 11 52.4		
		Um	iP	17 11 07.4 C		
		Japan (h = 50 km).				
"	14	Up	iP	17 15 34.7		
				microns	sec	
			M	E 1.4	19	
			M	N 2.8	20	
			M	Z 1.2	19	
		Ki	eP	17 14 58		
				microns	sec	
			M	E 2.4	19	
			M	N 1.9	18	
			M	Z 1.8	17	
		Sk	iP	17 15 31.0		
		Gb	eP	17 16 02		
		Um	iP	17 15 12.7		
		Japan (h = 30 km).				
		Magn. = 5.8 (Up,Ki).				
"	14	Up	iP	20 39 16.9		
			ipP	20 39 20.4		
		Ki	iP	20 39 26.0 C		
			ipP	20 39 29.8		
		Sk	iP	20 39 05.0		
			ipP	20 39 09.0		
		Gb	iP	20 38 59.7		
		Um	iP	20 39 28.6		
		Ka	iP	20 39 09.7		
			ipP	20 39 13.9		
		Venezuela.				
		h = 15 km (Up,Ki,Sk,Ka).				
"	14	Up	iP	23 05 46.3		
			i	23 05 48.8		
			iPP	23 06 26.5		
		Ki	iP	23 07 03.0		
		Sk	iP	23 06 28.5		
		Um	i(P)	23 06 16.2		
			iP	23 06 27.4		

(cont.)

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

1966
May 14 (cont.)

Ka	i(P)	23 05 03.3	
	iP	23 05 12.4	

Greece (h = 30 km).
(P) at Um and Ka is a small-amplitude onset, possibly belonging to a different event.

" 14	Ka	iP	23 52 40.0

Greece.

" 15	Um	iP	00 35 46.6
" 15	Up	iP	02 20 35.7 C
	Ki	iP	02 20 37.1
	Sk	iP	02 21 01.7
	Um	iP	02 20 29.9
	Ka	iP	02 20 43.7

Sinkiang (h = 50 km).

" 15	Up	iP	08 34 17.5
	Sk	iP	08 34 58.0

Greece.

" 15	Up	iP	10 16 31.2
		iPP	10 17 12.6
	Ki	iP	10 17 37.9
	Ka	iP	10 16 02.2

Crete (h = 50 km).

" 15	Up	iP	11 11 49.2
		i	11 11 55.3
	Sk	e(P)	11 12 41
	Um	iP	11 11 17.6
		i	11 11 23.2
" 15	Up	iP	14 57 04.8 C
		iPa	15 01 23
		iS	15 06 01
		iP'P'	15 25 21.1

	microns	sec	
P	Z'	0.2	0.8
S	E	0.8	6

D = 7550 km = 68°.

Ki	iP	14 56 12.0 C	
	ePP	14 58 37	
	iS	15 04 19	
	iP'P'	15 25 39.3	

	microns	sec	
P	N	0.7	7
P	Z	1.0	8
P	Z'	0.2	1.3
PP	N	1.1	8
S	E	1.0	9

(cont.)

1966
May 15 (cont.)

Ki		microns	sec
	M	E 3.7	18
	M	N 3.6	18
	M	Z 4.5	17

D = 6650 km = 60°.

Sk	iP	14 56 43.9	
	eP'P'	15 25 33	
Gb	iP	14 57 21.0	
Um	iP	14 56 37.7 C	
	iPP	14 58 59	
	iS	15 05 05	
	iP'P'	15 25 23.2	
Ka	iP	14 57 28.2 C	

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

" 15	Up	iP	15 02 27.6
" 15	Up	i(P)	15 20 27.7
" 15	Up	i(P)	16 47 44.3
" 15	Up	iP	17 23 38.8
	Ki	iP	17 23 46.4
	Um	iP	17 23 36.9
	Ka	iP	17 23 43.8

Hindu Kush (h = 210 km).

" 15	Ka	iP	17 46 17.9
		i	17 46 25.0

Greece.

" 16	Up	iP	03 00 32.9
	Ki	iP	03 00 18.4 C
		iPKP	03 04 13.1

	microns	sec	
P	Z'	0.1	1.0

Sk	iP	03 00 39.7	
Um	iP	03 00 23.6 C	
Ka	iPKP	03 04 47.7	
	i	03 05 13.2	

Banda Sea (h = 210 km).
The distance range covered by our stations is about 103° - 109° and the records give interesting informations on the relative amplitudes of P and PKP as the distance varies: P is large at Ki and Um, small or not recorded at the other stations, whereas PKP is small or not recorded, except at Ka. The transition is gradual.

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

1966 May	16	Um	iP	05 54 48.2	
			ipP	05 54 54.1	
		Ka	iP	05 54 01.2	
			ipP	05 54 06.2	
		Uganda-Congo.			
		h = 20 km (Um,Ka).			
"	16	Um	iP	10 06 01.6	
"	16	Up	iP	13 18 08.9	
				microns sec	
			P	Z' 0.1 0.5	
		Ki	iP	13 17 37.9	
		Sk	iP	13 18 07.3	
		Um	iP	13 17 50.5	
		Ka	iP	13 18 26.5	
		Japan (h = 70 km).			
"	16	Up	iP	17 36 25.1	
			i	17 36 27.9	
				microns sec	
			M	E 0.6 15	
			M	N 0.7 14	
		Ki	iP	17 37 31.9	
				microns sec	
			P	Z' 0.1 1.0	
			M	E 0.9 18	
			M	Z 1.0 20	
		Sk	iP	17 37 03.1	
		Um	iP	17 36 59.0	
		Ka	iP	17 35 58.4	
		Crete (h = 30 km).			
"	16	Up	iP	20 07 09.6	
		Um	iP	20 07 11.6	
		Iceland.			
"	16	Ki	iP	20 21 29.2	
		Um	iP	20 21 34.5	
		Ka	iP	20 22 00.1	
		Luzon (h = 50 km).			
"	16	Up	iP	21 47 13.7	
		Um	i(P)	21 46 48.5	
"	17	Up	iP	01 10 33.9 C	
			ipP	01 10 46.6	
				microns sec	
			P	Z' 0.1 1.0	
		Ki	iP	01 09 55.5	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	01 10 28.3	
		Gb	iP	01 10 53.8 C	
		Um	iP	01 10 12.1 C	
		(cont.)			

1966 May	17	(cont.)			
		Um	ipP	01 10 25.0	
		Ka	iP	01 10 53.0	
			ipP	01 11 06.8	
		Japan.			
		h = 50 km (Up,Um,Ka).			
		Magn. = 5.7 (Up,Ki).			
"	17	Up	iP	01 29 37.3	
"	17	Um	iP	04 44 29.1	
		Banda Sea (h = 200 km).			
"	17	Up	iP	07 13 36.4	
			iPcP	07 14 20.8	
				microns sec	
			M	E 1.3 17	
			M	N 0.8 16	
			M	Z 1.2 15	
		Ki	iP	07 14 24.8	
				microns sec	
			P	Z' 0.2 0.7	
			M	E 1.5 18	
			M	N 0.6 15	
			M	Z 1.2 16	
		Sk	iP	07 14 03.5	
		Um	iP	07 13 59.6	
			iS	07 22 32	
		Ka	iP	07 13 11.3 D	
		Uganda-Congo (h = 15 km).			
"	17	Up	i(P)	15 06 24.9	
"	17	Up	i(P)	15 45 32.9	
"	17	Up	i(P)	15 52 25.4	
"	17	Up	e(P)	15 59 51	
"	17	Up	i(P)	16 29 40.7 C	
"	17	Up	i(P)	16 53 32.7	
				microns sec	
			(P)	Z' 0.1 1.0	
		This is probably a series of local blasts.			
"	17	Ki	iPKP	17 17 28.3	
		Sk	iPKP	17 17 18.5	
		Um	iPKP	17 17 24.5	
		Chile (h = 30 km).			
"	18	Up	iPKP	00 18 03.2	
				microns sec	
			PKP	Z' 0.1 1.0	
		(cont.)			

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

1966
May 18 (cont.)

Ki	ePKP	00 17 45	
Sk	iPKP	00 17 55.7	C
	ipPKP	00 18 07.4	
Gb	iPKP	00 18 11.0	
Um	iPKP	00 17 50.5	C
	ipPKP	00 18 02.4	
Ka	iPKP	00 18 12.8	

Kermadec Islands.
h = 40 km (Sk,Um).

" 18

Ki	iP	01 57 27.6	C
Um	iP	01 57 01.9	C
Ka	iP	01 56 14.5	

Uganda-Congo (h = 30 km).

" 18

Up	iP	03 47 41.9	

" 18

Up	iP	07 44 35.5	
	eS	07 55 03	
	eScS	07 55 12	
		microns	sec
	M	E 1.5	16
	M	N 2.5	18
	M	Z 2.9	18

D = 9350 km = 84°.

Ki	iP	07 44 15.0	
		microns	sec
	P	Z' 0.3	1.8
	M	E 2.0	16
	M	N 2.0	16
	M	Z 2.2	15
Sk	iP	07 44 16.4	
Gb	eP	07 44 37	
Um	iP	07 44 29.0	
	ipP	07 44 36.7	
Ka	eP	07 44 42	

Gulf of California.
h = 30 km (Um).
Magn. = 6.0 (Up,Ki).

" 18

Up	iP	09 22 25.2	

" 18

Up	iP	12 50 57.7	

" 18

Up	iP	17 38 43.7	
Ki	iP	17 38 32.3	
	i	17 38 37.3	
		microns	sec
	P	Z' 0.2	1.0
Sk	iP	17 38 53.6	
Um	iP	17 38 34.9	

Borneo (h = 50 km).

" 18

Up	iP	21 34 34.0	

1966
May 19

Ki	iP	06 06 27.8	

Sinkiang (h = 30 km).

" 19

Up	iP	07 17 14.1	
	iSKS	07 27 07	
		microns	sec
	P	Z' 0.1	0.5
	M	E 2.9	19
	M	N 10	24
	M	Z 9.1	23

D = 7350 km = 66°.

Ki	iP	07 16 19.7	
	iPS	07 24 36	
		microns	sec
	P	Z' 0.4	1.1
	M	E 3.7	20
	M	N 3.0	18
	M	Z 5.1	19

D = 6450 km = 58°.

Sk	iP	07 16 50.9	
Gb	iP	07 17 28.5	
	i	07 17 39.8	
Um	iP	07 16 47.2	C
	i	07 16 47.9	
	iPcP	07 17 27.8	
	iS	07 25 08	
	iP'P'	07 45 49.3	
Ka	iP	07 17 37.3	

Unimak Island (h = 30 km).
Magn. = 6.0 (Up,Ki).

" 19

Ki	iP	09 28 25.9	
Um	iP	09 28 52.0	

Unimak Island (h = 40 km).

" 19

Up	iPKP	12 16 05.1	
Sk	iPKP	12 15 58.3	
Um	iPKP	12 15 53.0	

Kermadec Islands (h = 25 km).

" 19

Ki	iP	12 58 37.1	

Pamir (h = 160 km).

" 19

Up	iP	14 08 16.6	C
	iPcP	14 08 33.4	
		microns	sec
	P	Z' 0.2	1.0
Ki	iP	14 07 42.6	C
	iPcP	14 08 01.6	
		microns	sec
	P	Z' 0.3	1.3
Sk	iP	14 07 50.6	
Gb	iP	14 08 16.5	C
Um	iP	14 08 02.0	C
Ka	iP	14 08 29.7	

(cont.)

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

1966
May 19 (cont.)
Nevada.
Origin time = 13 56 28.
Magn. = 6.3 (Up,Ki).
Underground explosion.

" 20 Up iP 03 05 40.9
microns sec
P Z' 0.1 0.9
M E 0.7 15
M N 0.6 14
M Z 12 15
Ki iP 03 05 13.0
microns sec
M E 0.5 15
M N 0.4 18
Sk iP 03 05 41.8
Gb iP 03 06 00.6
Um iP 03 05 23.1
Ryukyu Islands (h = 60 km).

" 20 Um iP 07 41 11.2
Upper Silesia.

" 20 Up iP 09 24 41.0
Ki iP 09 25 46.4
Um iP 09 25 14.4
Crete (h = 40 km).

" 20 Up iP 09 28 08.1 D
iSKS 09 38 37
microns sec
SKS E 0.9 8
SKS N 1.2 12
M E 2.7 18
M N 3.3 18
M Z 3.8 17
Ki iP 09 27 41.0 D
iSKS 09 38 08
microns sec
SKS E 1.7 12
SKS N 0.8 12
M E 3.1 18
M N 3.3 20
M Z 4.6 19
Um iP 09 27 51.7 D
iSKS 09 38 17
Mariana Islands (h = 70 km).

" 20 Um iP 14 54 34.3

" 20 Up iP 18 14 42.2 C
i 18 14 44.7
microns sec
P Z' 0.2 0.8
(cont.)

1966
May 20 (cont.)
Up
microns sec
M E 1.0 18
M N 1.6 16
M Z 1.4 15
Ki iP 18 14 21.2 C
i 18 14 41.4
microns sec
P Z' 0.1 1.0
M E 1.0 13
M N 0.8 15
Sk iP 18 14 46.4 C
Gb iP 18 15 01.4
Um iP 18 14 28.4 C
Ka iP 18 14 55.0
Luzon (h = 100 km).
Magn. = 5.9 (Up,Ki).

" 20 Up iP 18 25 55.4
Luzon (h = 40 km).

" 21 Up eP 00 09 49
Ki iP 00 09 01.0
Vancouver Island (h = 40 km).

" 21 Up iPKP 08 26 59.5 D
microns sec
PKP Z' 0.1 0.5
Gb iPKP 08 27 09.7
Ka iPKP 08 27 11.7
South of Fiji Islands
(h = 520 km).

" 21 Um iP 11 12 26.1

" 21 Um iP 13 50 36.9
i 13 50 43.1

" 21 Ki iP 18 54 35.9
Mindanao (h = 60 km).

" 21 Ka iP 22 18 32.7
Greece.

" 22 Ki iPn 05 16 03.5
iSn 05 16 58.4
iSg 05 17 16.7
D = 470 km = 4.2°.
Sk iSg 05 19 52.4
Um iSn 05 17 44.2
iSg 05 18 31.1
Northwest Russia,
68.0°N, 31.6°E.
Origin time = 05 14 59.
Explosion?

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

1966 May 22 Um iP 07 05 10.0
i 07 05 19.0

" 22 Up eP 07 42 22
eLg2 07 49 28
microns sec
M E 2.2 17
M N 1.3 16
M Z 1.5 16
Ki iP 07 43 33.0
microns sec
M E 1.4 11
M N 0.8 15
M Z 0.9 13
Sk eP 07 43 08
Gb eP 07 42 17
Um iP 07 42 58.0
i 07 43 07.3
iS 07 47 33
Ka iP 07 41 53.5
Turkey (h = 40 km).

" 22 Up iP 07 47 05.3
Sk eP 07 47 46
Um iP 07 47 45.6
Greece.

" 22 Ki iP 07 55 12.0
microns sec
M E 0.8 14
M N 1.2 22
M Z 1.5 18
Revilla Gigedo Islands
(h = 50 km).

" 22 Up iP 08 34 57.0

" 22 Up iP 11 20 26.4
Greece (h = 80 km).

" 22 Sk eP 16 18 59
Um iP 16 19 33.3
North Atlantic Ocean
(h = 30 km).

" 22 Sk iP 20 23 11.7
Crete (h = 40 km).

" 22 Up iP 22 30 25.9
Ki iP 22 29 32.7
Aleutian Islands (h = 30 km).

" 23 Up iPKP 00 21 30.9
Solomon Islands (h = 110 km).

1966 May 23 Up iP 01 34 49.7
Sk iP 01 34 25.8
North Atlantic Ocean
(h = 30 km).

" 23 Um iP 03 05 21.8

" 23 Um iP 07 16 42.1
South of Japan (h = 100 km).

" 23 Ki iP 07 17 13.1 C
Um iP 07 17 28.4
South of Japan (h = 100 km).

" 23 Up iP 07 58 53.3
Um iP 07 58 45.0
Burma (h = 30 km).

" 23 Up iP 08 51 36.1
ipP 08 51 44.5
microns sec
M E 1.4 19
M N 1.1 14
Ki iP 08 51 10.5
ipP 08 51 18.1
microns sec
M E 1.3 16
M N 1.4 15
M Z 1.1 15
Sk iP 08 51 40.1
Um iP 08 51 24.0
South of Japan.
h = 30 km (Up,Ki).

" 23 Up eL 12 36
microns sec
M E 1.5 20
M N 2.3 22
M Z 2.6 20
Ki eL 12 34
microns sec
M E 1.4 17
M N 1.3 20
M Z 2.3 19
Revilla Gigedo Islands
(h = 60 km).

" 23 Ki iP 14 35 31.3 C
i 14 35 43.3
microns sec
P Z' 0.1 1.0
M E 0.9 15
M N 1.0 17
M Z 1.4 17
(cont.)

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

1966
May 23 (cont.)

Um	iP	14 35 36.9	
	i	14 35 43.0	
	iSKS	14 46 14	

Mariana Islands (h = 40 km).

" 23

Up	iP	15 52 31.9	
	microns sec		
	P	Z' 0.1	0.5
Ka	i(P)	15 53 10.1	

" 23

Up	iP	20 57 53.3	C
Ki	eP	20 57 12	
	i	20 57 27.7	
Um	iP	20 57 33.9	

South of Japan (h = 25 km).

" 24

Um	iP	04 38 08.9	

" 24

Ki	iP	06 00 19.6	
Um	iP	06 00 41.5	

Off coast of northern California.
Underwater explosion.

" 24

Sk	iPP	07 39 17.2	

Bouvet Island (h = 30 km).

" 24

Up	iP	09 44 24.5	
	iS	09 48 30	
	microns sec		
	P	Z' 0.1	0.7
	M	E 2.5	15
	M	N 1.4	12
	M	Z 2.4	19

D = 2500 km = 22 1/2°.

Ki	iP	09 45 37.5	
	microns sec		
	P	Z' 0.1	1.7
	M	E 2.5	17
	M	N 0.8	15
	M	Z 0.9	13
Sk	iP	09 45 03.7	D
Gb	iP	09 44 06.9	
Um	iP	09 45 02.4	
	iS	09 49 30	
Ka	iP	09 43 47.3	

Greece (h = 30 km).
Magn. = 5.2 (Up,Ki).

" 24

Up	iP	11 14 22.4	
Ki	iP	11 15 35.3	
Sk	iP	11 15 01.3	
Gb	iP	11 14 05.8	
Um	iP	11 15 01.3	

(cont.)

1966
May 24 (cont.)

Ka	iP	11 13 46.1	

Greece (h = 50 km).

" 24

Um	iP	12 10 10.1	C

" 24

Ki	iP	14 52 48.8	C
Sk	iP	14 52 20.3	

Crete (h = 50 km).

" 24

Up	iPKP	15 48 30.1	
	i	15 48 32.0	
	microns sec		
	PKP	Z' 0.1	0.7
Ki	iPKP	15 48 21.5	
Gb	iPKP	15 48 42.1	

Tonga-Kermadec Islands (h = 110 km).

" 24

Ki	iP	17 50 07.8	
Sk	iP	17 49 39.0	

Crete (h = 50 km).

" 24

Up	iP	20 50 38.9	

" 24

Up	eL	21 08	
	microns sec		
	M	E 0.8	20
	M	N 0.6	16
	M	Z 1.1	18
Ki	eL	21 04	
	microns sec		
	M	E 0.5	14
	M	N 0.8	22
	M	Z 0.6	14

Revilla Gigedo Islands (h = 60 km).

" 25

Ki	iPn	05 22 35.2	
	iSn	05 23 30.6	
	iSg	05 23 54.4	

D = 510 km = 4.6°.

Sk	eSg	05 26 24	
Um	iSn	05 24 16.5	
	iSg	05 24 54.0	

D = 710 km = 6.4°.

Northwest Russia, 67.9°N, 32.6°E.
Origin time = 05 21 23.
Explosion?

" 25

Up	iP	08 43 11.7	
Ki	iP	08 42 55.7	
	microns sec		
	P	Z' 0.1	1.2

(cont.)

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

1966
May 25 (cont.)

Um	iP	08 43 01.0	
	i	08 43 26.5	

Tanimbar Islands (h = 40 km).

" 25

Up	iP	09 11 25.0	
		microns	sec
	M E	0.6	14
	M N	0.8	13
	M Z	0.9	12
Ki	iP	09 12 42.6	
		microns	sec
	M E	1.1	15
	M N	0.8	14
	M Z	0.8	14
Sk	iP	09 12 07.6	
	i	09 13 39.4	
Um	iP	09 12 05.7	
	i	09 12 11.8	
Ka	iP	09 10 44.6	

Albania (h = 30 km).

" 25

Up		---	
		microns	sec
	M E	0.8	21
	M N	1.3	21
	M Z	1.4	22
Ki	iPKP	12 26 11.7	
	iSKP	12 29 30.1	
		microns	sec
	PKP Z'	0.1	1.3
	SKP Z'	0.2	1.8
	M E	0.3	21
	M N	0.9	23
	M Z	1.6	22
Sk	iPKP	12 26 22.9	
Um	iPKP	12 26 18.1	
	iSKP	12 29 41.9	

Loyalty Islands (h = 40 km).

" 25

Up	iPKP	13 40 47.6	C
	iPKP2	13 41 24.5	
	iPP	13 45 04.7	
		microns	sec
	PKP Z	0.8	5
	PKP2 E	0.4	4
	PKP2 Z	1.0	3
	PKP2 Z'	1.9	2.5
	PP E	1.1	12
	PP Z	1.5	7
	PP Z'	0.6	2.5
	M E	1.9	20
	M N	2.8	20
	M Z	3.2	20

D = 17800 km = 160°.
(cont.)

1966
May 25 (cont.)

Ki	iPKP	13 40 45.0	C
	ipPKP	13 40 55.4	
	iPKP2	13 41 12.7	
	iPP	13 44 48.3	
		microns	sec
	PKP Z	1.2	6
	PKP Z'	0.3	2.1
	PKP2 E	0.5	6
	PKP2 Z	1.3	4
	PKP2 Z'	0.9	2.0
	PP E	1.2	6
	PP Z	3.2	7
	PP Z'	1.5	3.0
	M E	3.3	20
	M N	2.6	23
	M Z	4.2	21

D = 17200 km = 155°.

Sk	iPKP	13 40 49.3	
	iPKP2	13 41 32.2	
	i	13 42 42.1	
	iPP	13 45 10.7	
Gb	iPKP2	13 41 37.9	
Um	iPKP	13 40 47.1	
	ipPKP	13 40 57.9	
	iPKP2	13 41 15	
	iPP	13 44 53.3	
	iSS	14 04 36	
Ka	iPKP	13 40 48.7	
	iPKP2	13 41 28.0	
	iPP	13 45 10.0	

Macquarie Islands.
h = 35 km (Ki,Um).
Magn. = 6.6 (Up,Ki).
The phases have exceptionally long periods on the short-period records.

" 25

Up	iPKP	14 17 47.2	
		microns	sec
	M E	1.4	18

Tonga-Kermadec Islands
(h = 430 km).

" 25 Up iP 15 07 57.4

" 25

Ka	iP	15 39 24.1	
	i	15 41 49.5	

" 25 Ka iP 18 26 39.4

Hindu Kush (h = 180 km).

" 25

Up	iP	23 01 09.0	
Ki	iP	23 00 33.2	D

(cont.)

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

1966 May 25 (cont.)

Ki — microns sec
P Z' 0.3 2.5
Sk iP 23 01 05.8
Um iP 23 00 48.3
ipP 23 00 53.2
Japan.
h = 20 km (Um).

" 26 Ki iP 00 12 44.4
ipP 00 12 55.4
Aleutian Islands.
h = 40 km (Ki).

" 26 Um iPKP 04 52 52.3
New Hebrides Islands
(h = 30 km).

" 26 Sk iP 06 37 46.0
Um iP 06 37 43.3
Greece.

" 26 Up iSg 09 07 07.3
Um iPg 09 06 39.5
iSg 09 07 08.6
Gulf of Bothnia.
Underwater explosion.

" 26 Up iPg 09 47 38.7
iSg 09 48 06.0
microns sec
Pg Z' 0.1 0.5
Sg Z' 0.1 0.5
Sk iPg 09 48 13.0
iSg 09 49 09.3
Um iPg 09 47 38.9
iSg 09 48 06.8
Gulf of Bothnia.
Underwater explosion.

" 26 Up iPg 11 07 38.5
iSg 11 08 05.2
microns sec
Pg Z' 0.2 0.5
Sg Z' 0.2 0.5
Sk iPn 11 08 03.9
iPg 11 08 13.1
iSg 11 09 07.3
Um iPg 11 07 40.0
iSg 11 08 06.7
Gulf of Bothnia.
Underwater explosion.

" 26 Up iPg 11 55 38.9
iSg 11 56 04.0
(cont.)

1966 May 26 (cont.)

Up — microns sec
Pg Z' 0.1 0.5
Um iPg 11 55 40.2
iSg 11 56 08.9
Gulf of Bothnia.
Underwater explosion.

" 26 Ki iPg 12 07 02.4
iSn 12 07 22.6
iSg 12 07 25.1
D = 190 km = 1.7°.
Origin time = 12 06 29.

" 26 Um iP 12 13 32.5

" 26 Up iPKP 12 18 46.5
i 12 18 54.5
iPKP2 12 19 16.9
Um iPKP 12 18 27.3
Kermadec Islands (h = 30 km).

" 26 Up iP 12 20 20.6
Ki iP 12 19 32.8
Um iP 12 19 54.3
Kurile Islands (h = 40 km).

" 26 Sk i(Sg) 12 42 56.2

" 26 Up iPKP 12 45 03.6 C
microns sec
PKP Z' 0.2 0.5
Ki iPKP 12 44 51.3
iSKP 12 47 41.5
Sk iPKP 12 44 59.8
iSKP 12 47 55.7
Gb iPKP 12 45 12.7
ipPKP 12 47 04.8
Um iPKP 12 44 51.5
iSKP 12 47 51.2
Ka iPKP 12 45 14.5
Tonga-Kermadec Islands.
h = 480 km (Gb).

" 26 Um iP 13 07 38.3
i 13 08 10.4

" 26 Up iP 13 43 50.5

" 26 Um iP 15 37 25.2

" 26 Up iPg 16 38 43.2
iSg 16 39 13.3
microns sec
Pg Z' 0.2 0.5
(cont.)

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

1966 May 26 (cont.)

Up		microns	sec
	Sg	Z' 0.2	0.5
Sk	iPg	16 39	17.8
	iSg	16 40	14.9
Um	iPg	16 38	39.9
	iSg	16 39	07.9

Gulf of Bothnia.
Underwater explosion.

" 26 Um iP 16 49 55.2

" 26

Up	iPg	17 25 44.3
	iSg	17 26 14.5
Sk	eSg	17 27 16
Um	iPg	17 25 40.8
	iSg	17 26 08.8
	i	17 26 24.0

Gulf of Bothnia.
Underwater explosion.

" 26

Up	eX	18 51	06
	iSKP	18 52	23.2
Ki	iPKP	18 48	52.6
	iX	18 50	32.7
	iSKP	18 52	00.2
		microns	sec
	SKP	Z' 0.5	2.5
Sk	iPKP	18 48	57.6
	ePP	18 52	05
	iSKP	18 52	16.3
Gb	iPKP	18 49	08.8
Um	iPKP	18 48	59.3
	iX	18 50	47.5
	iSKP	18 52	11.6
Ka	iPKP	18 49	12.7

Fiji Islands (h = 230 km).
The phase marked X at Up, Ki, Um does not lend itself to any immediate interpretation, perhaps an independent event.

" 26

Up	iP	21 00	30.4
Ki	iP	20 59	37.8 C
Sk	iP	21 00	10.8
Um	iP	21 00	03.7

Aleutian Islands (h = 30 km).

" 26

Up	iP	23 10	49.9
		microns	sec
	M	E 0.7	16
	M	N 0.6	15
	M	Z 1.1	17
Ki	iP	23 10	19.1

(cont.)

1966 May 26 (cont.)

Ki		microns	sec
	M	E 0.5	14
	M	N 0.4	15
	M	Z 0.8	16
Sk	eP	23 10	49
Um	iP	23 10	30.0

Ryukyu Islands (h = 30 km).

" 26

Up	iPKP	23 31	24.4 C
		microns	sec
	PKP	Z' 0.1	0.6
Gb	iPKP	23 31	33.8
Um	ePKP	23 31	10
	iSKP	23 34	07.6
Ka	iPKP	23 31	34.4

Tonga-Kermadec Islands (h = 530 km).

" 27

Ki	iP	01 56	37.6
Um	iP	01 56	15.3

" 27 Up iP 05 12 11.4

" 27

Sk	iP	08 21	49.7
	i	08 21	56.6

" 27

Up	iPg	10 37	45.1
	iSg	10 38	17.2
Sk	iSg	10 39	19.1
Um	iPg	10 37	39.8
	iSg	10 38	08.7
	i	10 38	23.2

Gulf of Bothnia.
Underwater explosion.

" 27

Up	iPg	11 30	43.0
	iSg	11 31	15.0
Sk	iSg	11 32	16.2
Um	iPg	11 30	37.8
	iSg	11 31	07.2
	i	11 31	22.0

Gulf of Bothnia.
Underwater explosion.

" 27

Up	iPg	12 07	42.7
	iSg	12 08	13.2
Um	iPg	12 07	38.5
	iSg	12 08	06.7
	i	12 08	22.2

Gulf of Bothnia.
Underwater explosion.

" 27

Ki	iPn	12 44	11.8
	iP^X	12 44	19.8

(cont.)

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

1966
May 27 (cont.)

Ki	iSn	12 44 58.3	
	iSg	12 45 11.0	
	D = 390 km = 3.5°.		
Um	iSg	12 46 45.5	

Northwest Russia.
Origin time = 12 43 17.
Explosion?

" 27 Up	iP	14 45 08.3	
Ki	iP	14 45 06.7	C
Sk	iP	14 45 30.8	C
Um	iP	14 45 07.2	C

Burma-India (h = 50 km).

" 27 Up	iP	16 04 38.5	
Gb	iPg	16 04 18.0	
	iSg	16 04 39.5	
Ka	i(P)	16 05 09.5	
" 27 Um	iP	16 57 44.2	
" 27 Up	iP	19 07 20.9	
Ki	iP	19 05 55.8	
	iS	19 09 03	
	microns	sec	
	S E	0.5 7	
Sk	iP	19 06 48.0	
Gb	iP	19 07 46.0	
Um	iP	19 06 42.2	
	iS	19 10 14	

Arctic Ocean (h = 30 km).

" 27 Up	iP	20 11 48.4	
Ki	iP	20 11 14.5	
Sk	iP	20 11 22.2	
Gb	iP	20 11 48.4	
Um	iP	20 11 33.7	

Nevada.
Origin time = 20 00 00.
Underground explosion.

" 27 Up	iP	22 15 35.8	
	i	22 15 48.9	
" 27 Up	iP	22 18 42.8	
Ki	iP	22 17 49.0	
	iPcP	22 18 34.2	
Um	iP	22 18 15.0	
	iPcP	22 18 49.8	

Aleutian Islands (h = 30 km).

" 27 Up	iP	22 23 09.7	
	microns	sec	
	M E	0.5 17	

(cont.)

1966
May 27 (cont.)

Up		microns	sec
	M N	0.7	15
Ki	iP	22 23 28.7	C
	microns	sec	
	P Z'	0.1	1.0
	M E	0.6	17
	M N	0.3	13
	M Z	0.7	15
Sk	iP	22 23 37.4	
Gb	iP	22 23 25.6	
Um	iP	22 23 13.7	C

India-West Pakistan
(h = 5 km).

" 28 Up	iP	00 15 42.5	C
	iS	00 25 22	
	iSKS	00 25 44	
	microns	sec	
	P Z'	0.1	0.5
	SKS N	0.4	6
	M E	3.1	20
	M N	7.7	22
	M Z	5.0	22
	D = 8450 km = 76°.		
Ki	iP	00 15 18.4	C
	iPcP	00 15 34.2	
	iPa	00 19 45	
	iS	00 24 38	
	microns	sec	
	P E	0.3	7
	P Z	0.6	6
	P Z'	0.2	0.9
	S N	0.4	10
	M E	3.1	18
	M N	2.5	16
	M Z	2.3	17
	D = 8000 km = 72°.		
Sk	iP	00 15 46.3	C
Gb	iP	00 16 03.1	
Um	iP	00 15 27.4	C
	i	00 16 00.9	
	iS	00 24 53	
	i	00 25 17	
Ka	eP	00 15 57	

Formosa (h = 30 km).
Magn. = 6.1 (Up,Ki).

" 28 Up	iP	01 41 30.6	
" 28 Gb	iPKP	02 28 19.4	

South of Fiji Islands
(h = 600 km).

" 28 Ki	iP	02 32 18.1	

Aleutian Islands (h = 30 km).

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

1966 May 28 Gb i(P) 03 26 38.3
Um eP 03 25 36

" 28 Up ---
microns sec
M E 0.4 12
M N 0.6 13
Ki iP 05 32 10.0
microns sec
M E 0.8 16
M N 0.5 13
M Z 0.7 13
Sk iP 05 32 44.4
Um iP 05 32 25.2
Japan (h = 20 km).

" 28 Up iP 06 05 15.0 C
ipP 06 05 23.0
microns sec
P Z' 0.1 0.8
M E 0.6 17
M N 1.0 20
M Z 1.1 18
Ki iP 06 04 49.1 C
microns sec
M E 0.7 17
M N 0.5 16
M Z 0.8 16
Sk iP 06 05 17.0 C
Gb eP 06 05 34
Um iP 06 04 58.2
ipP 06 05 08.4
Ryukyu Islands.
h = 30 km (Up,Um).

" 28 Ki iPn 16 33 41.3
iSn 16 34 29.6
iSg 16 34 44.4
D = 410 km = 3.7°.
Probably northwest Russia.
Origin time = 16 32 43.
Explosion?

" 28 Ki iP 20 46 39.4
Atlantic Ocean (h = 30 km).

" 28 Up iP 22 01 10.9 C
Ki iP 22 00 17.1
iPcP 22 01 02.3
Um eP 22 00 44
iPcP 22 01 18.2
Aleutian Islands (h = 30 km).

" 29 Ki iP 02 37 07.9
Uganda-Congo (h = 30 km).

1966 May 29 Up iP 04 06 47.6
Ki iP 04 06 01.8
Um iP 04 06 24.0
Kurile Islands (h = 30 km).

" 29 Ki iPKP 08 49 43.9
Samoa Islands (h = 30 km).

" 29 Up iP 10 44 15.0
Ki iP 10 44 17.0
Um iP 10 43 59.5
Sumatra.

" 29 Ki iPg 13 27 15.7
iSg 13 27 36.1
Um iSg 13 28 31.0
Lapland, Sweden,
66.9°N, 17.4°E.
Origin time = 13 26 47.
Solved by combination with
Tromsö reading.

" 29 Up iPKP 14 02 54.5
i 14 03 07.5
i 14 04 50.1
Ki ePKP 14 02 36
i 14 02 48.0
iSKP 14 05 26.5
microns sec
SKP Z' 0.1 1.0
Sk ePKP 14 02 50
iSKP 14 05 43.5
Gb iPKP 14 03 04.2
Um iPKP 14 02 43.3
i 14 02 49.2
iSKP 14 05 38.1
Ka iPKP 14 03 06.1
Fiji Islands (h = 520 km).

" 29 Ki iP 15 14 07.4
Um iP 15 14 05.7
Burma (h = 70 km).

" 29 Um iP 15 52 26.4

" 29 Up iP 16 25 41.1

" 30 Um iP 01 16 11.7 C

" 30 Up iP 03 22 11.6
Ki iP 03 22 12.9 C
i 03 22 24.3
microns sec
P Z' 0.1 1.2
(cont.)

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

1966

May	30	(cont.)			
		Sk	iP	03 21 58.3	C
		Gb	eP	03 21 59	
		Um	iP	03 22 15.3	C
		Colombia (h = 30 km).			
"	30	Up	iP	12 59 06.5	
		Sk	iP	12 59 34.1	
		Hindu Kush (h = 220 km).			
"	30	Ki	iP	14 55 26.3	C
		Sk	iP	14 55 33.7	
			iS	14 57 24.2	
		Jan Mayen (h = 30 km).			
"	30	Up	iP	15 25 12.1	
"	31	Ki	iP	07 53 03.1	C
		Gb	iP	07 54 10.3	
		Aleutian Islands (h = 30 km).			
"	31	Up	iP	15 36 03.1	
"	31	Ka	iP	16 21 00.8	

Markus Båth
October 8, 1966

SEISMOLOGISKA INSTITUTIONEN
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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 N E 1 - 30, 1966

1966
June 1 Up iP 02 44 53.8 C
microns sec
P Z' 0.1 0.9
Ki iP 02 44 00.6 C
Sk iP 02 44 34.0
Gb iP 02 45 10.5
Um iP 02 44 26.5 C
ipP 02 44 34.5
Ka iP 02 45 16.9 C
Aleutian Islands.
h = 30 km (Um).

" 1 Ki iPKP 04 07 13.9
Sk iPKP 04 07 24.3
Um iPKP 04 07 18.4
Ka iPKP 04 07 31.1
New Britain (h = 60 km).

" 1 Sk e(Sg) 05 09 04

" 1 Up iP 09 38 06.5

" 1 Ki iPKP 10 33 30.8
Sk ePKP 10 33 42 C
Um iPKP 10 33 36.9 C
New Hebrides Islands
(h = 50 km).

" 1 Um eP 10 44 37
i 10 44 43.1

" 1 Up iPg 11 58 39.0
iSg 11 59 07.9
microns sec
Sg Z' 0.1 0.5
Um iPg 11 58 38.4
(cont.)

1966
June 1 (cont.)
Um iSg 11 59 06.9
Gulf of Bothnia.
Underwater explosion.

" 1 Up ---
microns sec
M E 0.7 19
Ki iPKP 12 06 50.5
e 12 09 04
ePP 12 09 22
iPKS 12 10 20
eSKSP 12 19 24
microns sec
PP N 0.3 9
PKS E 0.3 7
PKS N 0.4 11
M E 0.4 17
M N 0.6 18
M Z 0.9 17
(D = 14950 km = 134 1/2°).
Gb iPKP 12 07 08.9
i 12 07 23.5
Um iPKP 12 06 52.7
i 12 09 35
iPP 12 09 44
iPKS 12 10 31
iSKSP 12 19 45
Ka iPKP 12 07 11.1
Tonga Islands (h = 25 km).

" 1 Ki i 12 35 17.1
i 12 35 27.2
Um i(P) 12 35 58.4
i 12 36 27.6
i 12 36 58.9

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

1966
June 1 Up iPg 12 45 39.6
iSg 12 46 08.4
microns sec
Sg Z' 0.2 0.5
Um iPg 12 45 38.4 C
iSg 12 46 06.4
Gulf of Bothnia.
Underwater explosion.

" 1 Up iSKP 12 56 49.9
Ki iPKP 12 53 19.4
Um iPKP 12 53 26.2
New Hebrides Islands
(h = 90 km).

" 1 Um i(P) 13 16 29.0
Ka iP 13 16 07.8

" 1 Um iP 14 02 07.9
Alaska (h = 120 km).

" 1 Um iP 17 05 34.0

" 2 Up iP 02 10 51.1
i 02 10 52.5
Um iP 02 10 36.3

" 2 Up iP 03 38 49.5 D
ipP 03 39 03.9
iS 03 47 43
microns sec
P N 0.5 4
P Z 0.5 3
P Z' 1.1 1.5
S E 0.3 5
S N 0.6 6
M E 1.0 18
M N 1.5 19
M Z 1.4 18
D = 7550 km = 68°.
Ki iP 03 37 56.7 D
ipP 03 38 09.1
iS 03 46 06
eP'P' 04 07 18
microns sec
P N 0.5 5
P Z 0.9 5
P Z' 0.8 1.5
S E 1.0 13
S N 0.6 9
M E 1.5 20
M N 1.4 18
M Z 2.5 18
D = 6650 km = 60°.
Sk iP 03 38 30.0 D
(cont.)

1966
June 2 (cont.)
Gb iP 03 39 06.9
ipP 03 39 20.2
Um iP 03 38 22.4 D
ipP 03 38 36.6
iS 03 46 55
i 03 47 42
eP'P' 04 07 20
Ka iP 03 39 12.6 D
ipP 03 39 25.7
Aleutian Islands.
h = 50 km (Up,Ki,Gb,Um,
Ka). Magn. = 6.2 (Up,Ki).

" 2 Ki iP 07 21 08.0
Um iP 07 21 12.0 C
Celebes (h = 190 km).

" 2 Up i(PKP) 08 02 14.9
iPKP 08 02 19.6
i 08 02 26.6
Ki iPKP 08 01 46.6
i 08 01 56.3
microns sec
PKP Z' 0.1 0.9
Sk iPKP 08 02 01.8
i 08 02 11.6
Um iPKP 08 01 57.0 C
i 08 02 02.2
Ka ePKP 08 02 29
New Zealand (h = 30 km).

" 2 Ki iP 08 16 15.0
Um iP 08 16 44.1
Aleutian Islands
(h = 40 km).

" 2 Um iP 08 33 24.0
Aleutian Islands
(h = 90 km).

" 2 Um iP 12 18 48.0
Japan (h = 120 km).

" 2 Um iP 12 41 36.1

" 2 Up iP 15 41 48.2 C
microns sec
P Z' 0.1 0.5
Ki iP 15 41 14.3 C
microns sec
P Z' 0.2 1.2
Sk iP 15 41 21.9 C
Gb iP 15 41 47.9 C
Um iP 15 41 33.6 C
(cont.)

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

1966
June 2 (cont.)
Ka iP 15 42 01.2 C
Nevada.
Origin time = 15 30 00.
Magn. = 6.1 (Up,Ki).
Underground explosion.

" 2 Ki iP 16 42 48.5
i 16 43 03.0

" 2 Um eP 18 44 11
Gibraltar (h = 30 km).

" 2 Up iP 20 41 41.9
microns sec
P Z' 0.1 0.7

" 2 Up iP 21 50 39.6

" 2 Up iP 22 56 29.0
microns sec
M E 1.1 15
M N 0.6 15
Ki ---
microns sec
M E 0.5 14
M N 0.2 10
Um iP 22 56 55.5
eS 23 01 29
Turkey (h = 30 km).

" 3 Up iP 00 50 03.1

" 3 Um iP 01 41 06.9

" 3 Ki iPn 06 00 48.1
iSn 06 01 44.1
iSg 06 02 01.8
D = 490 km = 4.4°.
Sk eSg 06 04 35
Um iSn 06 02 29.4
iSg 06 03 08.3
D = 700 km = 6.3°.
Northwest Russia,
68.0°N, 32.1°E.
Origin time = 05 59 39.
Explosion?

" 3 Up iPg 07 16 40.6
iSg 07 17 09.7
microns sec
Sg Z' 0.2 0.5
D = 240 km = 2.2°.
Sk iPg 07 17 15.4
iSg 07 18 11.6
(cont.)

1966
June 3 (cont.)
Um iPg 07 16 39.0 C
iSg 07 17 07.4
D = 230 km = 2.1°.
Gulf of Bothnia,
61.7°N, 20.3°E.
Origin time = 07 15 57.
Underwater explosion.

" 3 Ki iP 07 25 36.5

" 3 Up iPg 07 59 41.3
iSg 08 00 10.3
microns sec
Sg Z' 0.2 0.5
Sk ePg 08 00 09
iSg 08 01 12.5
Gulf of Bothnia.
Underwater explosion.

" 3 Up iPg 08 56 41.4
iSg 08 57 11.2
microns sec
Pg Z' 0.1 0.5
Sg Z' 0.1 0.5
Sk iPg 08 57 15.7
iSg 08 58 14.0
Um iPg 08 56 38.9
iSg 08 57 06.8
Gulf of Bothnia.
Underwater explosion.

" 3 Up iPg 10 17 42.4
iSg 10 18 12.3
Um iPg 10 17 39.2
iSg 10 18 07.1
Gulf of Bothnia.
Underwater explosion.

" 3 Gb i(Sg) 11 16 13.4

" 3 Up iP 14 11 48.7 C
microns sec
P Z' 0.3 1.2
Ki iP 14 11 14.9 C
iPcP 14 11 31.0
microns sec
P Z' 0.2 1.3
Sk iP 14 11 22.7 C
Gb iP 14 11 48.9
Um iP 14 11 34.4 C
Ka iP 14 12 02.2
Nevada.
Origin time = 14.00 00.
Magn. = 6.1 (Up,Ki).
Underground explosion.

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

1966 June 3 Um iP 14 48 01.8

" 3 Um iP 14 52 31.7 C
i 14 52 36.8

" 3 Up iP 15 43 53.3

" 3 Up iP 18 33 04.2

" 3 Ki iP 18 53 30.0 C
Sumatra (h = 30 km).

" 3 Up iP 20 40 38.8

" 4 Up iP 01 48 26.4
Formosa (h = 50 km).

" 4 Up eP 04 34 28

" 4 Up iP 05 19 18.3 C
i 05 19 22.5
ipP 05 20 06.8
iPP 05 20 51
i 05 28 03
microns sec
P Z' 0.4 0.5
PP Z' 0.2 1.0
D = 4500 km = 40 1/2°.

Ki iP 05 19 27.5 C
i 05 19 36.0
ipP 05 20 12.4
microns sec
P Z' 0.5 1.2

Sk iP 05 19 43.7 C
iPP 05 21 19.5

Gb iP 05 19 39.5 C
iPP 05 21 23.2

Um iP 05 19 16.8 C
iPP 05 20 48.9
i 05 21 45
iS 05 24 58
isS 05 26 32
e 05 28 02

Ka iP 05 19 23.0 C
iPP 05 20 55.1

Hindu Kush.
h = 230 km (Up,Ki).
Magn. = 6.1 (Up,Ki).

" 4 Up iP 06 21 58.1 C
microns sec
P Z' 0.1 0.7

Ki iP 06 23 10.4 C
i 06 23 32.2

Sk iP 06 22 36.3

Gb iP 06 21 44.5

(cont.)

1966 June 4 (cont.)

Um iP 06 22 35.9
iPP 06 23 15.2
iPcP 06 25 52.0

Ka iP 06 21 21.7

Ionian Sea (h = 80 km).

" 4 Up iP 07 11 06.8

" 4 Up iSKP 08 55 40.9

Sk iSKP 08 55 34.0

Um iSKP 08 55 27.6

New Hebrides Islands
(h = 660 km).

" 4 Um iP 13 03 29.9
i 13 03 50.2

" 4 Ki iP 14 43 04.1 C

Celebes Sea (h = 80 km).

" 4 Ki iP 16 10 30.5

Mindanao (h = 80 km).

" 4 Up iPKP 21 57 34.4
i 21 57 37.9

Sk iPKP 21 57 27.8

Gb i(PKP) 21 57 51.5 D

Um iPKP 21 57 22.2 D

Kermadec Islands
(h = 210 km).

" 4 Up iP 22 56 58.2

" 4 Up iP 23 59 13.8
ipP 23 59 28.0
iS 00 07 59
iScS 00 09 02
microns sec
P Z' 0.2 1.0
pP Z' 0.4 0.7
S N 1.1 14
M E 4.0 21
M N 4.5 22
M Z 5.8 22
D = 7500 km = 67 1/2°.

Ki iP 23 58 26.5
ipP 23 58 39.8
ePa 00 02 07
eS 00 06 32
microns sec
P Z 0.8 6
pP Z' 0.1 0.6
S E 0.7 9
S N 0.9 14

(cont.)

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

1966 June 4 (cont.)

Ki		microns	sec
	M	E 8.5	19
	M	N 6.4	22
	M	Z 9.4	22
	D = 6700 km = 60 1/2°.		
Sk	iP	23 59 01.4	
	ipP	23 59 15.5	
Gb	iP	23 59 34.2	
	ipP	23 59 48.7	
Um	iP	23 58 47.6 C	
	ipP	23 59 02.1	
	iPa	00 02 47	
	iS	00 07 11	
Ka	iP	23 59 35.8	
	ipP	23 59 49.9	

Kurile Islands.
h = 50 km (Up,Ki,Sk,Gb,Um, Ka). Magn. = 6.0 (Up,Ki).
The wave interpreted as pP has an amplitude on Z' which is between 1.7 and 4.6 times the amplitude of PZ'.

" 5 Sk iP 02 22 50.2
West of Svalbard (h = 30 km).

" 5 Um iP 03 05 53.1

" 5 Up ---

		microns	sec
	M	E 0.9	22
	M	N 1.7	21
Ki	eP	05 01 16	

Formosa (h = 30 km).

" 5

Up	eP	08 39 42	
Sk	iP	08 40 07.3	
Um	iP	08 39 45.3	

Burma-India (h = 30 km).

" 5

Up	iP	09 19 09.9	
	i	09 19 19.8	
Ki	iP	09 20 06.3 C	
		microns	sec
	M	E 0.5	13
Um	iP	09 19 31.1 C	
	iS	09 24 10	

Turkey (h = 40 km).

" 5 Up iP 10 01 52.5

" 5 Um iP 12 38 11.9 C
Kurile Islands (h = 70 km).

" 5 Up eP 20 57 02
(cont.)

1966 June 5 (cont.)

Ki	eP	20 58 16	
		microns	sec
	M	E 0.3	18
	M	N 0.3	9
Sk	iP	20 57 43.3	
Um	iP	20 57 41.0	
Ka	iP	20 56 26.6	

Greece (h = 30 km).

" 5

Up	iP	20 59 01.9
Ki	iP	21 00 14.9
Um	iP	20 59 41.3
Ka	iP	20 58 22.8

Greece.

" 6

Ki	iPKP	02 04 37.7
Sk	ePKP	02 04 48
Um	i(PKP)	02 04 30.1
	iPKP	02 04 43.7

New Hebrides Islands (h = 40 km).

" 6

Up	iP	04 46 30.9	
Ki	iP	04 45 37.9	
	i	04 46 19.3	
		microns	sec
	M	E 0.3	8
	M	N 0.1	9
	M	Z 0.3	8

" 6

Up	iP	05 09 22.8
	i	05 09 49.8
	iPP	05 10 09.9
Ki	iP	05 09 52.8
	iPP	05 10 38.0
Sk	iPP	05 10 38.9
Ka	iP	05 09 20.6
	i	05 09 41.9

Caspian Sea (h = 25 km).

" 6

Up	iP	07 53 39.9 C	
	ipP	07 54 25	
	isPP	07 56 19	
	iScP	07 59 08	
	iS	07 59 37	
	isS	08 00 51	
	iSS	08 02 34	
		microns	sec
	P	E 5.1	2
	P	N 1.0	2
	P	Z 5.3	2
	P	Z' 1.7	0.8
	S	N 12	8
	S	Z 12	7
	M	E 19	13

(cont.)

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

1966 June 6 (cont.)

Up		microns	sec
	M N	51	13
	M Z	47	15
	D = 4550 km = 41°.		
Ki	iP	07 53 48.1	C
	ipP	07 54 33.6	
	isP	07 54 55	
	isPP	07 56 26	
	iPcS	07 59 27	
	iS	07 59 46	
		microns	sec
	P E	11	5
	P N	3.7	6
	P Z	14	6
	P Z'	2.2	1.0
	M E	51	9
	M N	42	9
	M Z	32	10
	D = 4650 km = 42°.		
Sk	iP	07 54 05.3	C
	ipP	07 54 51.5	
Gb	iP	07 54 01.1	C
	ipP	07 54 48.2	
Um	iP	07 53 38.1	C
	ipP	07 54 25	
	isP	07 54 47	
	isPP	07 56 10	
	iS	07 59 21	
Ka	iP	07 53 45.0	C
Hindu Kush. h = 220 km (Up,Ki,Sk,Gb,Um).			
Magn. = 7.0 (Up,Ki).			

" 6 Up iP 14 25 49.4

" 6 Up iP 20 51 00.4
i 20 51 31.0

" 6 Up iP 21 00 10.6 C
iSKS 21 10 37
iS 21 11 02

		microns	sec
P	Z'	0.2	1.2
SKS	E	0.8	9
S	E	1.1	6
S	N	1.7	11
M	E	3.4	20
M	N	3.7	20
M	Z	4.5	20

D = 10050 km = 90 1/2°.

Ki	iP	20 59 52.5	C
	ePP	21 03 19	
	iSKS	21 10 15	
	iS	21 10 23	
		microns	sec
	P E	0.4	6

(cont.)

1966 June 6 (cont.)

Ki		microns	sec
	P Z	1.2	6
	P Z'	0.2	1.1
	PP E	0.3	8
	SKS E	1.6	11
	S N	2.6	10
	M E	3.7	18
	M N	2.2	18
	M Z	4.6	18
	D = 9600 km = 86 1/2°.		
Sk	iP	21 00 14.8	C
	i	21 00 39.3	
Um	iP	20 59 59.0	C
	iPP	21 03 29	
	iSKS	21 10 22	
	iS	21 10 41	
Ka	iP	21 00 21.5	C
	ipP	21 00 31.7	
Mindanao. h = 40 km (Ka).			
Magn. = 6.3 (Up,Ki).			

" 6 Up iP 23 20 29.6
Ki iP 23 20 12.2 C
eS 23 30 50

		microns	sec
M	E	0.6	17
M	N	0.5	17
M	Z	0.6	19

D = 9600 km = 86 1/2°.
Um iP 23 20 20.6
Mindanao (h = 50 km).

" 6 Up iP 23 29 32.7
Ki iP 23 29 14.9 C
Mindanao (h = 50 km).

" 6 Up iP 23 49 31.7
Ki iP 23 49 13.8
Mindanao (h = 50 km).

" 7 Up iP 00 10 42.6

" 7 Ki iP 00 11 57.2
Sk iP 00 12 19.6
Ka iP 00 12 24.6
Mindanao (h = 50 km).

" 7 Up iP 01 13 48 C
iSKS 01 24 26
iS 01 25 41

		microns	sec
SKS	E	1.3	14
S	N	2.5	14
M	E	4.6	20
M	N	4.6	19
M	Z	5.2	20

D = 11550 km = 104°.

(cont.)

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

1966
June 7 (cont.)

Ki	eP	01 13 56	
	e	01 18 02	
	eS	01 25 54	
	microns	sec	
	S N	1.3	12
	M E	7.8	20
	M N	2.0	22
	M Z	6.8	19
Um	iP	01 13 55	
	e	01 17 27	
	iSKS	01 24 29	
	iS	01 25 53	
	iPS	01 27 33	

Peru (h = 50 km).

" 7

Ki	iP	03 33 27.9	
	i	03 33 32.1	
Um	iP	03 33 27.3	

Bengal Bay.

" 7

Um	iP	09 10 09.2	
	i	09 10 22.0	

" 7

Up	iPg	09 29 32.2	C
	iSg	09 29 45.9	

" 7

Up	iP	09 30 16.2	
Ki	iP	09 29 51.3	
Sk	iP	09 30 19.1	
Um	iP	09 30 00.0	D

Formosa (h = 240 km).

" 7

Up	i(Sg)	10 49 08.1	
Um	i(Sg)	10 50 16.6	

" 7

Up	iP	11 56 37.7	
	microns	sec	
	M E	1.4	18
	M N	1.0	19
	M Z	1.7	18
Ki	iP	11 56 12.7	
	microns	sec	
	M E	0.7	17
	M N	0.5	17
	M Z	0.9	17
Sk	iP	11 56 40.3	
Um	iP	11 56 21.1	C
Ka	iP	11 56 54.0	

Formosa (h = 40 km).

" 7

Up	iP	12 12 43.0	

" 7

Up	iP	14 12 54.1	C
	iX	14 16 05	
	iPP	14 16 49.7	
	iSKS	14 23 26	

(cont.)

1966
June 7 (cont.)

Up	iPKKP	14 29 49.2	
	microns	sec	
	P E	0.4	5
	P N	0.4	5
	P Z	1.3	5
	P Z'	0.5	1.0
	PP Z'	0.5	1.5
	SKS E	3.7	6
	SKS N	2.6	6
	M E	32	19
	M N	39	21
	M Z	58	20

D = 10500 km = 94 1/2°.

Ki	iP	14 12 30.9	C
	iX	14 15 35	
	iPP	14 16 07	
	i	14 17 44	
	iSKS	14 22 54	
	iP'P'	14 38 07.7	
	microns	sec	
	P E	1.0	5
	P N	0.7	5
	P Z	3.0	5
	P Z'	1.5	1.2
	PP E	1.8	7
	SKS E	6.1	7
	SKS N	4.0	7
	M E	100	21
	M N	39	21
	M Z	92	21

D = 9950 km = 89 1/2°.

Sk	iP	14 12 54.1	C
	iX	14 16 08.3	
	i(PP)	14 16 35.9	
	iPKKP	14 29 48.8	
Gb	iP	14 13 10.9	C
	i	14 13 19.5	
	iX	14 16 14.0	
Um	iP	14 12 40.2	C
	iX	14 15 49	
	iPP	14 16 15.1	
	iPPP	14 18 27	
	iSKS	14 23 10	
Ka	iP	14 13 07.7	C
	iPKKP	14 29 42.1	

West Caroline Islands
(h = 50 km).
Magn. = 6.7 (Up,Ki).
The phase marked X (at Up, Ki,Sk,Gb,Um) is an unidentified phase, arriving clearly before PP and with a travel-time curve (in the distance range of 89 1/2° - 98°) which has a significantly different curvature from PP.

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

1966 June	7	Up	iPg	14 41 45.5	
			iSg	14 42 17.6	
				microns sec	
			Pg	Z' 0.1 0.5	
			D = 270 km = 2.4°.		
		Sk	iSg	14 43 17.9	
		Um	iPg	14 41 38.3	C
			iSg	14 42 05.7	
			i	14 42 20.1	
			D = 230 km = 2.1°.		
		Gulf of Bothnia, 61.8°N, 20.7°E.			
		Origin time = 14 40 58.			
		Underwater explosion.			
"	7	Ka	iP	15 13 10.9	
"	7	Up	iP	15 32 31.2	
"	7	Up	iPg	15 34 45.4	
			iSg	15 35 17.1	
				microns sec	
			Sg	Z' 0.1 0.5	
		Um	iPg	15 34 39.3	
			iSg	15 35 07.3	
			i	15 35 22.6	
		Ka	iSg	15 37 14.2	
		Gulf of Bothnia.			
		Underwater explosion.			
"	7	Up	iPg	16 36 44.7	
			iSg	16 37 15.7	
				microns sec	
			Sg	Z' 0.1 0.5	
		Sk	iSg	16 38 18.6	
		Um	iPg	16 36 40.7	
			iSg	16 37 08.6	
			i	16 37 23.6	
		Gulf of Bothnia.			
		Underwater explosion.			
"	7	Up	iP	17 29 22.5	C
"	7	Up	iP	17 44 51.2	
			i	17 45 01.4	
		Ki	iP	17 44 20.4	C
		Sk	eP	17 44 31	
		Um	iP	17 44 29.9	
"	7	Up	iSKP	19 26 45.9	
		Ki	iSKP	19 26 22.5	
				microns sec	
			SKP	Z' 0.1 1.5	
		Gb	iPKP	19 24 09.2	D
		Um	iSKP	19 26 34.2	
		Ka	iPKP	19 24 11.5	D
		Fiji Islands (h = 610 km).			
1966 June	7	Um	iP	23 55 12.1	
		Tibet.			
"	8	Up	iP	04 38 21.4	
"	8	Sk	eP	06 35 10	
		Um	iP	06 34 56.1	
			i	06 35 11.0	
		Kurile Islands (h = 30 km).			
"	8	Up	i(P)	07 31 47.2	
			i	07 32 20.5	
"	8	Up	iPg	07 36 43.5	
			iSg	07 37 13.9	
		Sk	iPg	07 37 25.9	
			iSg	07 38 16.9	
		Um	iPg	07 36 40.0	
			iSg	07 37 08.2	
			i	07 37 23.0	
			i	07 37 47.7	
		Gulf of Bothnia.			
		Underwater explosion.			
"	8	Up	iPg	08 18 43.1	
			iSg	08 19 12.7	
				microns sec	
			Sg	Z' 0.1 0.5	
		Sk	iSg	08 20 16.1	
		Um	iPg	08 18 40.5	
			iSg	08 19 08.9	
			i	08 19 25.0	
		Gulf of Bothnia.			
		Underwater explosion.			
"	8	Up	iPg	09 07 42.0	
			iSg	09 08 11.1	
		Um	iPg	09 07 40.9	
			iSg	09 08 09.9	
		Gulf of Bothnia.			
		Underwater explosion.			
"	8	Ki	eP	10 57 44	
				microns sec	
			M	E 0.4 12	
			M	N 0.5 17	
			M	Z 0.6 12	
		Formosa (h = 30 km).			
"	8	Ka	i(P)	12 50 00.4	
			i	12 52 03.8	
"	8	Ka	i(P)	13 08 31.4	
			i	13 09 38.9	
"	8	Up	iPg	13 27 39.0	C
		(cont.)			

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

1966
June 8 (cont.)

Up	iSg	13 28 05.9	
		microns	sec
	Sg Z'	0.1	0.5

Gulf of Bothnia.
Underwater explosion.

" 8

Up	iPg	13 53 38.5	
	iSg	13 54 04.9	
		microns	sec
	Pg Z'	0.3	0.5
	Sg Z'	0.2	0.5
Sk	iPn	13 54 09.0	
	iSg	13 55 16.4	

Gulf of Bothnia.
Underwater explosion.

" 8

Up	iPg	14 31 37.4	C
	iSg	14 32 03.5	
		microns	sec
	Pg Z'	0.3	0.5
	Sg Z'	0.2	0.5
Sk	ePn	14 32 10	
	iSn	14 33 00.0	
	iSg	14 33 17.6	

Gulf of Bothnia.
Underwater explosion.

" 8

Up	iP	14 38 01.6	
		microns	sec
	P Z'	0.2	1.0
Ka	e(P)	14 39 12	

" 8

Up	iPg	15 20 35.4	
	iSn	15 20 56.0	
	iSg	15 21 01.5	
		microns	sec
	Pg Z'	0.3	0.5
	Sg Z'	0.2	0.5
Sk	iSg	15 22 14.6	

Gulf of Bothnia.
Underwater explosion.

" 8

Um	iP	17 52 42.2	
	i	17 53 04.9	
Ka	iP	17 53 25.1	

" 8

Up	eP	17 59 10	
Ki	eP	17 58 53	
Sk	iP	17 59 22.6	
Um	iP	17 58 49.9	

Tienshan.

" 8

Up	iP	19 22 01.4	C

" 8

Up	iP	20 07 03.8	C
	ipP	20 07 10.2	

(cont.)

1966
June 8 (cont.)

Up	iS	20 15 45	
		microns	sec
	P Z'	0.4	0.8
	M E	0.6	17
	M N	0.7	17
	M Z	1.1	18

D = 7300 km = 65 1/2°.

Ki	iP	20 06 09.7	C
	ipP	20 06 16.7	
	eS	20 14 00	
		microns	sec
	P N	0.2	6
	P Z	0.4	6
	P Z'	0.4	1.0
	S E	0.3	7
	M E	0.5	14
	M N	0.6	17
	M Z	0.7	15

D = 6400 km = 57 1/2°.

Sk	iP	20 06 44.2	C
	ipP	20 06 49.8	
Gb	iP	20 07 22.5	C
	ipP	20 07 29.5	
Um	iP	20 06 32.2	C
	ipP	20 06 37.6	
Ka	iP	20 07 27.8	C
	ipP	20 07 34.9	

Aleutian Islands.
h = 25 km (Up,Ki,Sk,Gb,Um,Ka).
Magn. = 6.0 (Up,Ki).

" 8

Um	iP	21 47 09.6	

Japan (h = 30 km).

" 8

Ki	iP	22 13 58.1	
Sk	iP	22 14 20.1	
	ipP	22 14 31.7	
Um	iP	22 14 00.9	

Mindanao. h = 40 km (Sk).

" 9

Up	eP	00 23 57	
	eS	00 33 36	
		microns	sec
	M E	0.8	20
	M N	1.4	22
	M Z	0.6	18

D = 8450 km = 76°.

Ki	iP	00 23 59.7	C
	ipP	00 24 04.4	
	eS	00 33 37	
		microns	sec
	P Z'	0.1	1.0
	S N	0.3	8
	M E	0.8	19
	M N	1.0	17

(cont.)

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

1966 June 9 (cont.)

Ki microns sec
M Z 0.8 16
D = 8500 km =76 1/2°.
Sk iP 00 24 14.6
Gb iP 00 24 13.0
Um iP 00 23 51.6 C
ipP 00 23 56.5
Ka iP 00 24 02.2
Nicobar Islands.
h = 20 km (Ki,Um).
Magn. = 5.8 (Ki).

" 9 Up iP 02 08 03.2
ipP 02 08 43.4
Ki iP 02 07 31.1
Um iP 02 07 41.3 D
i 02 07 48.8
Kurile Islands.
h = 160 km (Up).

" 9 Up iP 02 23 22.3 C
Sk iP 02 23 50.3
Ka iP 02 23 32.5
Pamir (h = 180 km).

" 9 Ki ePn 04 40 56
eSn 04 41 52
iSg 04 42 10.9
D = 490 km = 4.4°.
Um eSg 04 43 27
Northwest Russia.
Origin time = 04 39 47.
Explosion?

" 9 Ki iP 07 02 37.6
i 07 02 45.1
eS 07 06 36
microns sec
P N 0.4 7
P Z 0.5 5
S E 0.7 9
S N 0.5 7
M E 0.6 17
M N 0.3 10
M Z 0.2 11
D = 2400 km = 21 1/2°.
Sk iP 07 03 25.0
Gb iP 07 04 17.2
Um iP 07 03 12.8
Arctic Ocean (h = 30 km).
Magn. 5.4 (Ki).

" 9 Ki iP 07 19 52.8
Sk iP 07 20 41.6
Um eP 07 20 30
Arctic Ocean (h = 30 km).

1966 June 9 Up iPg 07 25 56.2
iSg 07 26 18.6

" 9 Sk iPn 10 41 08.0
iSg 10 42 17.1
Gulf of Bothnia.
Underwater explosion.

" 9 Sk iPn 11 19 08.0
iSn 11 19 58.9
iSg 11 20 16.6
Gulf of Bothnia.
Underwater explosion.

" 9 Ki iP 11 32 45.2
eS 11 42 13
microns sec
S E 0.3 12
M E 0.5 15
M N 0.4 17
D = 8100 km = 73°.
Sk eP 11 33 15
South of Japan (h = 40 km).

" 9 Ki iP 13 18 38.4
Japan (h = 60 km).

" 9 Up iP 15 08 25.0

" 9 Up iPg 15 37 34.5
iSg 15 37 57.9
Gulf of Bothnia.
Underwater explosion.

" 9 Up iP 15 50 18.4 C
i 15 50 25.1
iS 15 59 09
microns sec
P Z' 0.1 0.5
D = 7550 km = 68°.
Ki iP 15 49 32.4 C
iS 15 57 45
microns sec
P Z' 0.2 1.2
M E 0.6 15
M N 0.3 16
M Z 0.6 14
D = 6700 km = 60 1/2°.
Sk iP 15 50 08.0 C
Gb iP 15 50 40.7
Ka iP 15 50 40.8
i 15 51 22.0
Kurile Islands (h = 110 km).
Magn. = 6.0 (Up,Ki).

" 9 Sk eP 15 59 02

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

1966 June 9 Up iPg 16 02 33.9 C
iSg 16 02 57.3
microns sec
Pg Z' 0.2 0.5
Sg Z' 0.2 0.5
Sk eSn 16 04 00
iSg 16 04 16.0
Gulf of Bothnia.
Underwater explosion.

" 9 Up iPg 16 51 33.3 C
iSg 16 51 56.7
microns sec
Pg Z' 0.2 0.5
Sg Z' 0.4 0.5
Sk ePg 16 52 18
iSg 16 53 14.8
Gulf of Bothnia.
Underwater explosion.

" 9 Up iPg 17 31 32.7 C
iSg 17 31 55.3
microns sec
Pg Z' 0.2 0.5
Sg Z' 0.1 0.5
Sk iPg 17 32 18.7
iSn 17 33 03.9
eSg 17 33 17
Gulf of Bothnia.
Underwater explosion.

" 9 Ki eP 22 26 29

" 9 Up iP 22 28 29.2
iS 22 38 29
microns sec
M E 1.0 18
M N 0.8 20
M Z 1.1 17
D = 8900 km = 80°.
Ki iP 22 27 54.2
eS 22 37 21
microns sec
S E 0.7 10
S N 0.5 10
M E 1.4 15
M N 1.0 20
M Z 1.4 17
D = 8150 km = 73 1/2°.
Sk eP 22 28 22
ePP 22 31 23
Gb iP 22 28 51
i 22 29 02
Ka iP 22 28 55.4
South of Japan (h = 10 km).

" 9 Up iP 22 32 16.3 C
(cont.)

1966 June 9 (cont.)
Ki iP 22 32 53.5 C
Sk iP 22 32 51.2 C
i 22 34 34.0
Gb iP 22 32 28
Ka iP 22 32 05.8
Iran (h = 10 km).

" 10 Up iP 04 36 04.2
i 04 36 38.6
microns sec
M N 0.7 22
Ki iP 04 35 11.7 C
Sk iP 04 35 45.1
Gb iP 04 36 24
Ka iP 04 36 30.1
Aleutian Islands (h = 30 km).

" 10 Up iPg 07 38 33.9
iSg 07 38 57.0
Gulf of Bothnia.
Underwater explosion.

" 10 Up iPg 08 02 34.9
iSg 08 02 59.0
microns sec
Pg Z' 0.3 0.5
Sg Z' 0.1 0.5
Sk eSn 08 03 59
iSg 08 04 17.4
Gulf of Bothnia.
Underwater explosion.

" 10 Up iPg 08 39 35.2
iSg 08 39 59.4
microns sec
Pg Z' 0.3 0.5
Sg Z' 0.1 0.5
Sk iSg 08 41 14.9
Gulf of Bothnia.
Underwater explosion.

" 10 Ki eP 09 17 00
Sk iP 09 16 27.1
Rumania.

" 10 Up iP 09 16 19.4
i 09 16 27.7
i 09 16 55.5
i 09 20 16.0
Ki iP 09 17 47.2
e 09 25 07
Sk iP 09 17 13.6
iS 09 20 59.9
Gb eP 09 16 21
Ka iP 09 15 43.7
Rumania.

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

1966
June 10 Ki iP 10 53 30.4
North Atlantic Ocean
(h = 30 km).

" 10 Up iPg 11 33 30.8
iSg 11 33 51.9
microns sec
Sg Z' 0.1 0.5
Gulf of Bothnia.
Underwater explosion.

" 10 Up iPg 11 59 29.9
iSg 11 59 50.3
microns sec
Pg Z' 0.2 0.5
Sg Z' 0.2 0.5
Gulf of Bothnia.
Underwater explosion.

" 10 Up iPg 12 32 29.3
iSg 12 32 49.1
microns sec
Pg Z' 0.2 0.5
Sg Z' 0.4 0.5
Sk ePg 12 33 17
iSg 12 34 17.2
Gulf of Bothnia.
Underwater explosion.

" 10 Up iPg 13 11 28.7
iSg 13 11 47.0
microns sec
Pg Z' 0.1 0.5
Sg Z' 0.2 0.5
Gulf of Bothnia.
Underwater explosion.

" 10 Up iP 14 19 38.6
Ki iP 14 18 53.6 D
Sk iP 14 19 28.4
Kurile Islands.

" 10 Ki iP 14 21 39.5
Sk iP 14 22 07.9
Alaska (h = 70 km).

" 10 Up iP 19 22 02.3
Ki iP 19 21 08.8 C
Sk iP 19 21 42.7 C
Gb iP 19 22 19.0
Ka iP 19 22 25.0
Aleutian Islands (h = 50 km).

" 10 Ki iP 22 23 24.9 C
Sk iP 22 22 50.1
Gb iP 22 22 35.6
North Atlantic Ocean (h = 10 km).

1966
June 10 Up iP 22 50 31.2 C
microns sec
M E 0.4 11
M N 0.7 11
M Z 0.6 10
Ki iP 22 50 04.8 C
eSS 23 00 15
microns sec
P Z' 0.1 1.0
M E 0.6 14
M N 0.7 13
M Z 0.8 14
Sk iP 22 50 38.7 C
Ka iP 22 50 49.3
Mongolia (h = 30 km).

" 10 Up iP 23 34 10.6
Ki eP 23 32 46
microns sec
M E 1.1 17
M N 0.5 17
M Z 1.2 16
Sk iP 23 33 13.1
i 23 34 55.3
Gb iP 23 34 35.3
Norwegian Sea (h = 30 km).

" 11 Sk eP 02 50 20
Revilla Gigedo Islands
(h = 50 km).

" 11 Up iP 03 12 52.3 C
ipP 03 12 58.4
iS 03 22 29
microns sec
S E 0.3 6
S N 0.4 6
M E 1.7 15
M N 3.7 17
M Z 1.1 14
D = 8400 km = 75 1/2°.
Ki iP 03 12 29.6 C
iS 03 21 50
microns sec
S N 0.4 10
M E 2.9 21
M N 3.0 17
M Z 2.0 16
D = 8000 km = 72°.
Sk iP 03 12 56.9
Gb eP 03 13 13
ipP 03 13 18.7
Ka iP 03 13 06.6
ipP 03 13 12.8
Formosa. h = 20 km
(Up,Gb,Ka).
Magn. = 5.8 (Up,Ki).

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

1966
June 11 Sk iPKP 05 23 04.7
Santa Cruz Islands
(h = 100 km).

" 11 Ki iP 06 16 41.1 D
Sk iP 06 16 58.4
West Pakistan (h = 100 km).

" 11 Up iP 08 16 22.2

" 11 Up iP 10 26 35.7
iS 10 30 28
microns sec
P Z' 0.1 0.6
M E 0.7 10
M N 1.0 10
M Z 1.0 8
D = 2350 km = 21°.
Ki iP 10 27 51.2
microns sec
P Z' 0.1 1.2
M E 0.9 10
M N 0.6 11
M Z 0.7 9
Sk iP 10 27 17.9 C
eS 10 31 42
Gb iP 10 26 24.5
Ka eP 10 25 59
iS 10 29 17.2
Greece (h = 40 km).
Magn. = 5.5 (Up,Ki).

" 11 Up iP 12 09 58.6 C
i 12 10 15.5
microns sec
P Z' 0.1 0.6
M E 0.5 10
M N 0.8 14
M Z 1.1 14
Ki iP 12 11 11.9 C
microns sec
M E 0.6 14
M N 0.3 13
M Z 0.4 13
Sk iP 12 10 38.0 C
Gb iP 12 09 44.8
Ka iP 12 09 22.2 C
Greece (h = 50 km).

" 11 Up iP 17 49 49.4

" 11 Up iP 18 24 35.4 C
ipP 18 24 49.0
microns sec
P Z' 0.1 0.5
Ki iP 18 23 42.2 C
(cont.)

1966
June 11 (cont.)
Ki iPcP 18 24 27.5
microns sec
M E 0.5 18
M N 0.4 17
M Z 0.8 18
Sk iP 18 24 14.1
iPcP 18 24 47.0
Gb iP 18 24 50.3
iPcP 18 25 10.2
Um iP 18 24 08.1 C
iPcP 18 24 43.5
Ka iP 18 24 58.4
Aleutian Islands.
h = 50 km (Up).

" 11 Up iP 22 37 00.8
Ki iP 22 37 10.3
Sk iP 22 37 26.6
Ka iP 22 37 05.7
Hindu Kush (h = 190 km).

" 12 Up iP 00 54 33.1
Ki ---
microns sec
M E 0.4 16
M N 0.3 15
M Z 0.5 17
Sk iP 00 54 29.5
Um iP 00 54 09.5
i 00 54 11.5
Japan (h = 100 km).

" 12 Up iP 02 10 26.8 C
Ki iP 02 09 58.7 C
Um iP 02 10 12.2
Mariana Islands (h = 190 km).

" 12 Sk iPKP 03 52 44.0
New Hebrides Islands
(h = 60 km).

" 12 Ki iPn 04 20 45.5
i 04 21 32.2
iSn 04 21 42.9
iSg 04 22 09.2
D = 520 km = 4.7°.
Sk eSg 04 24 28
Um eSg 04 22 56
Northwest Russia, 67.5°N,
32.7°E. Origin time =
04 19 33. Explosion?

" 12 Ki iPn 04 30 55.7
iSn 04 31 54.3
iSg 04 32 14.4
D = 500 km = 4.5°.
(cont.)

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

1966 June	12	(cont.)			
		Sk	iSg	04 34 43.3	
		Um	iSn	04 32 34.6	
			iSg	04 33 07.3	
			D = 690 km = 6.2°.		
		Northwest Russia,			
		67.7°N, 32.4°E.			
		Origin time = 04 29 46.			
		Explosion?			
"	12	Sk	iP	04 48 09.4	
"	12	Ki	eP	06 58 57	
		Aleutian Islands (h = 30 km).			
"	12	Um	iP	08 13 40.1	
"	12	Up	iP	09 31 59.5	
"	12	Up	eP	14 05 20	
		Sk	eP	14 06 02	
		Ionian Islands.			
"	12	Ki	iPn	16 30 08.8	
			iP*	16 30 17.8	
			iSn	16 30 57.2	
			iSg	16 31 13.4	
			D = 420 km = 3.8°.		
		Um	iSg	16 32 36.3	
		Northwest Russia,			
		68.8°N, 30.4°E.			
		Origin time = 16 29 09.			
		Explosion?			
"	12	Gb	iPKP	16 52 33	
		South of Fiji Islands			
		(h = 400 km).			
"	12	Um	iP	16 59 45.6	
"	12	Up	iP	20 32 22.5	
		Ki	iP	20 32 59.5 C	
		Sk	iP	20 32 28.4	
		Um	iP	20 32 44.3 C	
		Ka	iP	20 32 03.8	
		Atlantic Ocean (h = 20 km).			
"	12	Sk	eP	21 57 38	
"	13	Up	iP	01 10 56.0	
		Um	eP	01 11 09	
		Iran (h = 70 km).			
"	13	Um	iP	03 00 55.9	
		South of Panama			
		(h = 50 km).			

1966 June	13	Ki	eP	04 02 45	
		Um	eP	04 02 16	
"	13	Up	ePKS	07 56 14	
			microns	sec	
			M E	1.9	20
			M N	3.9	21
			M Z	4.5	20
		Ki	ePP	07 54 34	
			eX	07 55 24	
			ePKS	07 56 07	
			microns	sec	
			M E	3.3	21
			M N	1.7	20
			M Z	3.2	20
		Sk	iPKP	07 52 42.0	
		Um	iPKP	07 52 30.6	
			i	07 53 03	
			iX	07 55 32	
			iSS	08 13 07	
		New Hebrides Islands			
		(h = 50 km).			
"	13	Up	iP	08 49 55.5	
		Ka	i(P)	08 49 37.2	
"	13	Up	iP	11 34 48.9	
		Ki	iP	11 34 55.1	
		Sk	iP	11 35 13.3	
		Um	iP	11 34 46.1	
		Ka	iP	11 34 54.6	
		Pamir (h = 220 km).			
"	13	Sk	iP	11 50 36.8	
		Ka	iP	11 49 21.1	
		Greece.			
"	13	Ki	iP	12 12 06.7	
		Um	iP	12 12 35.8	
		Alaska (h = 10 km).			
"	13	Ki	eP	13 07 44	
			iT	13 13 22.1	
			i	13 13 40.6	
		Sk	iP	13 08 23.8	
			iS	13 10 07.1	
		Norwegian Sea (h = 30 km).			
"	13	Ki	iP	13 18 45.3	
		Sk	eP	13 19 24	
			eS	13 21 08	
		Um	eP	13 19 33	
		Norwegian Sea.			
		Origin time = 13 17 04.			
"	13	Ki	iP	13 21 16.0	
		(cont.)			

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

1966 June 13 (cont.)

	Ki	iPP	13 21 26.2
		iS	13 22 29.2
		iSS	13 22 46.6
		iT	13 26 04.1
		i	13 26 58.3
		microns	sec
		M E 0.6	15
		M N 0.4	15
		M Z 0.9	15
		D = 780 km = 7°.	
	Sk	iP	13 21 55.7
		iS	13 23 37.3
	Gb	iP	13 23 15
	Um	iP	13 22 03.9
		iS	13 24 10.1
		iSS	13 24 30.7
		i	13 24 45.0
		iT	13 28 40.2
		i	13 28 52.5
	Ka	iP	13 23 43.2
	Norwegian Sea (h = 30 km).		
	The T phases are strong,		
	especially at Ki and Um.		
" 13	Up	iP	14 17 39.1
		iS	14 21 21
		microns	sec
		M E 0.4	8
		M N 0.6	13
		D = 2300 km = 20 1/2°.	
	Ki	iP	14 16 02.7
		iS	14 18 23.5
		microns	sec
		M E 0.8	17
		M N 0.4	13
		M Z 0.6	12
		D = 1450 km = 13°.	
	Sk	iP	14 16 50.8
	Gb	iP	14 17 54
	Ka	iP	14 18 10.1
	West of Svalbard (h = 30 km).		
" 13	Ki	eP	14 49 03
		eT	14 54 04
	Sk	iP	14 49 41.9
		iS	14 51 26.7
	Um	iP	14 49 53.5
	Norwegian Sea (h = 30 km).		
" 13	Up	i(PKP)	18 27 09.8
		iPKP	18 27 12.7 C
		iPP	18 29 06.7
		ipPP	18 30 28
		iPKKP	18 36 39.8
		iSKKP	18 39 53.8
	(cont.)		

1966 June 13 (cont.)

	Up	i!	18 40 21.3
		microns	sec
		PKP Z	1.1 2
		PKP Z'	1.5 1.5
		PP Z'	0.6 2.0
		SKKP Z'	0.2 1.5
		M E	3.0 22
		M N	2.6 21
		M Z	3.4 21
		(D = 14100 km = 127°).	
	Ki	iPKP	18 26 58.8 C
		ipPKP	18 28 19
		epPP	18 29 48
		isPP	18 30 14.4
		iX	18 35 18
		iPKKP	18 37 07.8
		eSKKP	18 40 36
		microns	sec
		PKP Z'	0.9 1.3
		PKKP Z'	0.3 1.5
		M E	3.2 22
		M N	2.0 20
		M Z	3.2 20
		(D = 13450 km = 121°).	
	Sk	e(PKP)	18 26 54
		iPKP	18 27 09.8 C
		ipPKP	18 28 11.3
		iPP	18 29 08.1
		iPKKP	18 36 46.6
		iSKKP	18 40 12.4
	Gb	e(PKP)	18 27 02
		iPKP	18 27 15 C
		ipPKP	18 28 19
		iPP	18 29 24
		iSKP	18 30 20
		iSKKP	18 39 48
	Um	iP	18 23 39
		i(PKP)	18 26 51.3
		iPKP	18 27 04.9 C
		i	18 27 51.5
		i	18 28 37
		iPP	18 28 48
		ipPP	18 30 20.4
		iX	18 35 24
		iPKKP	18 36 56
		iPS	18 39 15.7
		iSKKP	18 40 37.0
	Ka	i(PKP)	18 27 07.9
		iPKP	18 27 20.3
		iPP	18 29 29.9
		iSKP	18 30 21.9
		ipPP	18 30 47.4
		iSKSP	18 39 23.9
	Santa Cruz Islands.		
	h = 320 km (Ki,Sk,Gb).		
	(PKP) is a small-amplitude precursor.		

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

1966 June 13 Ki iP 22 02 30.1

" 14 Up i(P) 00 58 08.1

" 14 Up iP 02 51 35.1

		microns	sec
M	E	0.4	15
M	N	0.6	15

Ki iP 02 52 22.4

		microns	sec
P	Z'	0.1	1.0
M	E	0.5	13
M	N	0.4	18
M	Z	0.5	15

Sk iP 02 52 13.8
Gb iP 02 51 45
Um iP 02 51 51.5
i 02 51 54.0
Ka iP 02 51 23.0
i 02 51 37.9
Turkey (h = 40 km).

" 14 Ka iPKP 02 57 06.0
Fiji Islands
(h = 550 km).

" 14 Ki iPn 05 23 43.7
iSn 05 24 38.6
iSg 05 25 01.8
D = 500 km = 4.5°.
Sk iSg 05 27 29.1
Um iSn 05 25 24.5
iSg 05 26 01.6
D = 710 km = 6.4°.
Northwest Russia,
68.1°N, 32.4°E.
Origin time = 05 22 33.
Explosion?

" 14 Sk iSg 08 51 16.3
iL 08 51 35.5
Um iPg 08 50 16.5
iSg 08 50 35.1
iL 08 50 45.6
D = 160 km = 1.4°.
North Sweden, possibly at
64.8°N, 18.0°E.
Origin time = 08 49 49.
Explosion?

" 14 Up iSg 09 29 35.0
Ki e 09 31 21
iSg 09 31 31.7
Sk ePg 09 27 41
iSn 09 28 22.9
iSg 09 28 41.8
D = 510 km = 4.6°.
(cont.)

1966 June 14 (cont.)
Gb iSg 09 28 33
Um iSg 09 30 24.5
West coast of Norway,
60.6°N, 5.3°E.
Origin time = 09 26 12.

" 14 Ki iP 10 45 37.7

" 14 Ki iP 12 06 19.8 C
Sk iP 12 05 40.3
Atlantic Ocean
(h = 30 km).

" 14 Up iPP 16 57 05.0
Ki iP 16 52 29.0
e 16 54 44
iPP 16 56 38.7
Sk iPP 16 57 19.0
Um iPP 16 56 49.0
Banda Sea (h = 660 km).

" 14 Um iPP 19 14 12.6
Celebes (h = 150 km).

" 14 Up iP 21 15 02.0 D
ipP 21 16 35.0

		microns	sec
P	Z'	0.1	0.5

Ki iP 21 14 28.4 D
ipP 21 15 54.3
iS 21 23 15

		microns	sec
P	Z'	0.2	1.1
S	N	0.4	7

Sk iP 21 14 58.3 D
ipP 21 16 29.9
iPP 21 17 55.8
Gb iP 21 15 20.6 D
i 21 15 48.0
ipP 21 16 51.4
i 21 18 04.1
Um iP 21 14 42.0
ipP 21 16 08.3
Ka iP 21 15 18.9 D
South of Japan.
h = 400 km (Up,Ki,Sk,Gb,Um).
Magn. = 5.5 (Up,Ki).

" 15 Up iP 01 15 12
e(PKP) 01 18 40
iPKP 01 18 43.3
iPP 01 20 25.8
iPKKP 01 28 29.6

		microns	sec
PP	E	0.8	9
PP	N	1.2	9
PP	Z	1.7	8

(cont.)

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

1966 June 15 (cont.)

Up

		microns	sec
PP	Z'	0.2	1.5
M	E	130	23
M	N	130	20
M	Z	140	19

(D = 13800 km = 124°).

Ki	eP	01	14 47
	i(PKP)	01	18 28.2
	iPKP	01	18 32.0
	e	01	18 59
	iPP	01	19 37
	iSKKS	01	26 36
	iPKKP	01	29 02.6

		microns	sec
PP	E	1.9	12
PP	N	2.3	11
PP	Z	8.7	11
PKKP	Z'	0.2	1.5
M	E	250	21
M	N	170	20
M	Z	350	22

(D = 13000 km = 117°).

Sk	i(PKP)	01	18 38.8
	iPKP	01	18 47.9
	iPKKP	01	28 38.3
Gb	i(PKP)	01	18 47.0
	iPKP	01	18 51.2
	iPP	01	20 58.0
Um	iP	01	14 54
	i(PKP)	01	18 32.6
	iPKP	01	18 43.3
	e	01	19 12
	iPP	01	19 47
	iSKS	01	25 28
	iPKKP	01	28 39.7
Ka	i(PKP)	01	18 46.6
	iPKP	01	18 51.7
	iPP	01	20 41.5

Solomon Islands
(h = 30 km).
Mang. = 6.9 from body waves, but = 7.8 from surface waves (Up,Ki).
(PKP) is a small-amplitude precursor to PKP.

" 15 Up iPKP 01 31 41.5
Solomon Islands
(h = 30 km).

" 15 Up iPKP 01 32 20.5
Sk iPKP 01 32 16.5
(cont.)

1966 June 15 (cont.)

Um iPKP 01 32 11.9
Solomon Islands.
Origin time = 01 13 (25).

" 15 Up iPKP 01 51 49.3
iPP 01 53 31.6

		microns	sec
PKP	Z'	0.2	1.5
PP	Z'	0.2	1.5

Ki	iPKP	01	51 39.8
Sk	e(PKP)	01	51 46
	iPKP	01	51 50.6
Gb	iPKP	01	51 57.5
	ePP	01	54 02
Um	i(PKP)	01	51 41.9
	iPKP	01	51 45.6
	iPP	01	53 06.5
Ka	iPKP	01	51 55.6

Solomon Islands
(h = 30 km).

" 15 Up iP 02 32 24.1
Ki eP 02 32 11
Sk iP 02 32 04.4
Gb iP 02 32 15.3
Mexico (h = 40 km).

" 15 Um iPKP 02 55 23.6
Solomon Islands
(h = 30 km).

" 15 Ki iPKP 03 22 14.5
Sk iPKP 03 22 25.4
Gb iPKP 03 22 33.5
Solomon Islands
(h = 30 km).

" 15 Ki iPn 03 31 00.3
iPx 03 31 08.9
iSn 03 31 46.7
iSg 03 31 59.8
D = 420 km = 3.8°.
Sk eSn 03 33 53
iSg 03 34 49.8
Um iSg 03 33 33.5
Northwest Russia.
Origin time = 03 30 (00).
Explosion?

" 15 Gb e(PKP) 04 03 05
Solomon Islands
(h = 30 km).

" 15 Gb iPKP 04 23 40.9
Solomon Islands
(h = 30 km).

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

1966
June 15 Up ePKP 06 24 43
Sk iPKP 06 24 32.7
Gb ePKP 06 24 50
Um iPKP 06 24 26.9
i 06 24 30.3
Ka iPKP 06 24 53.7
Kermadec Islands
(h = 40 km).

" 15 Ki iPKP 06 32 41.2
ePKKP 06 43 11
microns sec
PKKP E 0.3 9
M E 1.8 22
M N 1.0 20
M Z 2.1 21
Sk ePKP 06 32 43
Gb iPKP 06 32 54.7
Um iPKP 06 32 48.8
Ka iPP 06 34 52.4
Solomon Islands
(h = 40 km).

" 15 Up iPg 10 23 39.2
iSg 10 24 07.6
microns sec
Pg Z' 0.1 0.5
Sg Z' 0.2 0.5
Sk iSg 10 25 15.2
Um iPg 10 23 41.2
iSg 10 24 11.7
Gulf of Bothnia.
Underwater explosion.

" 15 Up iPg 10 57 40.2
iSg 10 58 09.1
microns sec
Sg Z' 0.1 0.5
Sk iPg 10 58 16.7
iSg 10 59 15.5
Um iPg 10 57 41.0
iSg 10 58 10.7
Gulf of Bothnia.
Underwater explosion.

" 15 Up iPg 11 39 41.1
iSg 11 40 09.6
microns sec
Pg Z' 0.1 0.5
Sg Z' 0.1 0.5
Sk iPg 11 40 17.3
iSg 11 41 15.3
Um iPg 11 39 40.4
iSg 11 40 09.4
Gulf of Bothnia.
Underwater explosion.

1966
June 15 Up iPg 12 24 41.5
iSg 12 25 10.6
Um iPg 12 24 40.5
iSg 12 25 09.2
Gulf of Bothnia.
Underwater explosion.

" 15 Up i(P) 13 00 54.4
Um iP 13 01 10.5

" 15 Up iP 13 35 40.5

" 15 Ki iP 15 41 11.4
Kamchatka (h = 30 km).

" 15 Um iPKP 16 35 58.0
Solomon Islands
(h = 20 km).

" 15 Up iPKP 16 55 17.4
microns sec
M E 0.8 20
M N 1.0 19
M Z 1.4 21
Ki ---
microns sec
M E 0.9 20
M N 0.8 20
M Z 1.6 20
Um iPKP 16 55 12.4
Solomon Islands
(h = 20 km).

" 15 Up iP 18 14 35.2 C
Ki iP 18 14 01.0
Sk iP 18 14 09.0 C
Gb iP 18 14 35.3
Um iP 18 14 20.6 C
Ka iP 18 14 48.4
Nevada.
Origin time = 18 02 47.
Underground explosion.

" 15 Sk iPKP 23 02 40.9
Santa Cruz Islands
(h = 110 km).

" 16 Ki iSg 07 46 59.8
Sk iSg 07 47 04.0
Um iSg 07 47 27.4
Nordlands Fylke, Norway,
66.4°N, 14.6°E.
Origin time = 07 45 31.

" 16 Up iP 14 00 50.9

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

1966 June 16 Ki eL 15 33
microns sec
M E 0.6 20
M N 0.5 20
M Z 1.3 20
Solomon Islands
(h = 40 km).

" 16 Up eP 17 08 40
i 17 08 53.7
microns sec
M E 0.8 18
M N 1.0 20
M Z 1.4 21
Ki iP 17 07 31.7
iS 17 09 22.9
microns sec
P E 0.3 10
P N 0.2 10
P Z' 0.1 1.3
M E 2.6 20
M N 2.1 15
M Z 3.6 16
Sk iP 17 07 43.6 C
eS 17 09 32
Gb iP 17 08 58
i 17 09 06
Um iP 17 08 09.4
i 17 10 09
Ka iP 17 09 22.7
i 17 09 25.2
Jan Mayen.

" 16 Up ---
microns sec
M E 0.6 20
M N 0.7 22
M Z 1.0 20
Ki eP 18 12 05
microns sec
M E 0.9 20
M N 0.4 17
M Z 1.6 20
Um iS 18 20 56
Atlantic Ocean
(h = 30 km).

" 16 Ki iPKP 18 58 18.1
Solomon Islands
(h = 50 km).

" 16 Um iSS 23 01 36
Indian Ocean
(h = 30 km).

" 17 Ki ---
(cont.)

1966 June 17 Ki
microns sec
M E 0.5 18
M N 0.5 19
M Z 1.1 19
Um iPKP 01 03 48.5
Solomon Islands
(h = 30 km).

" 17 Um iP 01 25 22.2
Mona Passage
(h = 110 km).

" 17 Gb iP 01 35 38

" 17 Up iP 08 59 30.1
Ki iP 08 58 46.2
Um iP 08 59 05.3
Japan (h = 70 km).

" 17 Up iPg 09 41 31.5
iSg 09 41 51.6
microns sec
Pg Z' 0.2 0.5
Sg Z' 0.1 0.5
D = 180 km = 1.6°.
Sk iPg 09 42 17.8
iSg 09 43 15.4
D = 460 km = 4.1°.
Um iPg 09 41 47.5
iSg 09 42 22.3
D = 280 km = 2.5°.
Gulf of Bothnia,
61.3°N, 19.5°E.
Origin time = 09 41 00.
Underwater explosion.

" 17 Gb iPKP 10 22 33 D
Ka iPKP 10 22 34.3
Fiji Islands (h = 540 km).

" 17 Up iPg 10 32 30.5
iSg 10 32 50.9
microns sec
Pg Z' 0.1 0.5
Sg Z' 0.2 0.5
Sk iPg 10 33 17.7
iSg 10 34 15.4
Um iPg 10 32 48.3
iSg 10 33 24.1
Gulf of Bothnia.
Underwater explosion.

" 17 Up iPg 11 13 31.1
iSg 11 13 50.3
Um iPg 11 13 49.4
iSg 11 14 25.8
Gulf of Bothnia.
Underwater explosion.

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

1966 June	17	Up	iP	11 53 41.9	
		Hindu Kush (h = 160 km).			
"	17	Um	iP	12 48 47.5	C
			i	12 48 57.9	
"	17	Um	iP	14 18 50.1	
"	17	Up	iP	14 41 30.9	
"	17	Up	iPg	14 56 26.9	
			iSg	14 56 45.0	
			i	14 56 48.9	
			microns	sec	
			Sg Z'	0.1 0.5	
		Gulf of Bothnia.			
		Underwater explosion.			
"	17	Um	iP	15 03 38.5	
"	17	Up	iPg	15 18 26.4	
			iSg	15 18 43.3	
			i	15 18 48.2	
			microns	sec	
			Sg Z'	0.3 0.5	
		Sk	iPg	15 19 19.2	
			iSg	15 20 16.1	
		Um	iPg	15 18 53.6	
			iSg	15 19 32.3	
		Gulf of Bothnia.			
		Underwater explosion.			
"	17	Up	iPg	17 55 23.1	
			i	17 55 24.8	
			iSg	17 55 40.7	
			microns	sec	
			Sg Z'	0.1 0.5	
		Sk	iPg	17 56 18.4	
			iSg	17 57 15.8	
		Um	iPg	17 55 52.9	
			iSg	17 56 32.2	
		Gulf of Bothnia.			
		Underwater explosion.			
"	17	Ki	iP	18 42 48.0	
		Sk	eP	18 42 27	
		Um	iP	18 42 22.3	C
		Congo (h = 30 km).			
"	17	Up	iPg	18 45 23.9	
			iSg	18 45 39.7	
			microns	sec	
			Pg Z'	0.1 0.5	
			Sg Z'	0.2 0.5	
		Sk	iPg	18 46 19.0	
			iSg	18 47 17.9	
		(cont.)			

1966 June	17	(cont.)			
		Um	iPg	18 45 54.0	
			iSg	18 46 32.4	
		Gulf of Bothnia.			
		Underwater explosion.			
"	17	Up	iPg	21 19 17.0	C
			i	21 19 26.0	
			iSg	21 20 16.8	
			microns	sec	
			Pg Z'	0.1 0.5	
			Sg Z'	0.1 0.5	
			D = 460 km = 4.1°.		
		Sk	eSg	21 22 36	
		Gb	iSg	21 20 48.3	
		Ka	iPg	21 18 59.1	
			iSg	21 19 40.6	
			D = 340 km = 3.1°.		
		Coast of Baltic States, 56 1/4°N, 21°E.			
		Origin time = 21 17 56.			
		Explosion?			
"	17	Ki	iP	23 03 42.5	
		Um	eP	23 03 52	
		Formosa (h = 70 km).			
"	18	Sk	e(P)	04 00 25	
"	18	Up	iPg	08 18 24.8	
			iSg	08 18 42.6	
			i	08 18 47.5	
			microns	sec	
			Sg Z'	0.1 0.5	
		Um	iPg	08 18 52.1	
			iSg	08 19 30.3	
		Gulf of Bothnia.			
		Underwater explosion.			
"	18	Up	iPg	08 46 26.2	
			iSg	08 46 44.7	
			i	08 46 48.1	
			microns	sec	
			Sg Z'	0.3 0.5	
		Sk	iSg	08 48 14.6	
		Um	iPg	08 46 52.0	
			iSg	08 47 28.4	
		Gulf of Bothnia.			
		Underwater explosion.			
"	18	Up	iPg	09 24 27.3	
			i	09 24 33.9	
			iSg	09 24 46.2	
			microns	sec	
			Sg Z'	0.1 0.5	
		Sk	iPg	09 25 18.0	
		(cont.)			

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

1966 June	18	(cont.)			
		Sk	iSg	09 26 15.1	
		Um	iPg	09 24 50.5	
			iSg	09 25 27.5	
		Gulf of Bothnia.			
		Underwater explosion.			
"	18	Up	iP	09 52 38.9	
			i	09 52 49.6	
		Ka	i(P)	09 52 46.5	
"	18	Um	iP	12 36 50.5	
"	18	Um	i(P)	12 53 19.9	
"	18	Um	iP	12 59 20.9	
			i	12 59 36.4	
"	18	Up	iP	14 32 22.2	
			i	14 32 38.4	
			microns	sec	
			M E	0.5 19	
			M N	1.0 20	
		Ki	iP	14 32 02.9	
		Um	iP	14 32 14.4	
"	18	Um	iP	16 13 11.3	
"	18	Up	---		
			microns	sec	
			M E	1.1 20	
			M N	1.2 23	
			M Z	1.4 21	
		Ki	---		
			microns	sec	
			M E	1.0 19	
			M N	0.8 20	
		Um	iSKS	19 40 18	
			i	19 41 21	
			ePS	19 43 17	
			ePPS	19 44 28	
			eSS	19 49 12	
		New Guinea (h = 15 km).			
"	19	Up	iP	00 18 00.1	
		Ki	iP	00 17 06.2	
		Sk	iP	00 17 30.1	
		Um	iP	00 17 34.6	
		Alaska (h = 25 km).			
"	19	Up	iP	01 04 55.1	
		Ki	iP	01 05 45.5	
		Sk	iP	01 05 24.2	
		Um	iP	01 05 20.1	
		Congo (h = 30 km).			

1966 June	19	Up	iP	01 15 46.1	
		Um	iP	01 16 22.4	
		Greece.			
"	19	Um	iP	05 46 20.1	
"	19	Ki	ePKP	08 11 02	
		New Guinea (h = 50 km).			
"	19	Up	iP	11 12 09.2	
"	19	Ki	iP	13 04 49.1	
		Alaska (h = 110 km).			
"	19	Up	iP	17 51 50.8	
"	19	Up	iP	18 00 24.1	
			i	18 00 27.5	
			iPP	18 00 45.6	
			iS	18 04 34	
			microns	sec	
			M E	2.8 15	
			M N	1.5 15	
			M Z	1.1 14	
			D = 2450 km = 22°.		
		Ki	eP	18 01 34	
			i	18 01 46.9	
			microns	sec	
			M E	0.7 10	
			M N	0.4 11	
		Sk	iP	18 01 11.8	
		Um	iP	18 00 59.4	
			i	18 01 26.4	
			iS	18 05 28	
		Turkey (h = 30 km).			
"	19	Ki	eP	18 11 10	
"	19	Up	iP	19 24 39.8	
		Ki	iP	19 24 17.1	
		Formosa (h = 50 km).			
"	19	Up	iP	19 39 38.7	
			i	19 39 40.6	
			iP'P'	20 08 09.6	
			microns	sec	
			P Z'	0.1 0.7	
			M N	1.0 20	
			M Z	1.0 20	
		Ki	iP	19 38 45.5 C	
			e(P'P')	20 08 06	
			microns	sec	
			M E	0.5 19	
			M N	0.4 22	
		Sk	iP	19 39 19.0 C	
		Um	iP	19 39 11.8	
		(cont.)			

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

1966
June 19 (cont.)

Um	ipP	19 39 25.3	
	iPcP	19 39 48.0	
	iP'P'	20 08 05.0	

Aleutian Islands.
h = 50 km (Um).

" 19	Up	iP	19 42 31.2
" 19	Up	iP	22 54 52.7
	Ki	iP	22 54 00.5

Aleutian Islands
(h = 50 km).

" 20	Up	iP	01 35 12.5
		i	01 35 29.7
	Ki	iP	01 34 18.0
	Um	iP	01 34 41.0

Aleutian Islands
(h = 30 km).

" 20	Um	iP	01 59 36.3
" 20	Up	iP	04 21 46.9
		ipP	04 21 54.3
	Ki	iP	04 22 12.0
		ipP	04 22 18.5
	Sk	eP	04 22 14
	Um	iP	04 21 56.5
		ipP	04 22 02.7

Indian Ocean. h = 25 km
(Up,Ki,Um).

" 20	Ki	iP	04 41 49.3
	Um	iP	04 42 08.2

Japan (h = 140 km).

" 20	Um	iPg	16 07 29.3
		iSn	16 07 49.8
		iSg	16 07 54.0

D = 220 km = 2.0°.
Origin time = 16 06 48.
Blast?

" 20	Um	iPg	16 55 27.9
		iSn	16 55 47.9
		iSg	16 55 52.5

D = 220 km = 2.0°.
Origin time = 16 54 47.
Blast?

" 20	Up	iP	18 12 03.7
" 20	Um	iP	22 46 07.2
" 21	Up	i	01 04 24.3

(cont.)

1966
June 21 (cont.)

Up			microns sec
	M	E	0.8 18
	M	N	1.8 22
	M	Z	1.7 21
Ki	eSKSP		01 13 08
			microns sec
	M	E	1.0 19
	M	N	0.9 21
Sk	ePKP		01 02 19
Um	iPKP		01 02 11.8
	iPP		01 03 44
	iSKSP		01 13 38

Santa Cruz Islands
(h = 25 km).

" 21	Um	iP	03 15 23.9
		ipP	03 15 29.8

Japan. h = 20 km (Um).

" 21	Up	iP	04 02 33.7
	Ki	eP	04 01 58
		i	04 02 30.7
	Um	iP	04 02 13.2

Bonin Islands (h = 15 km).

" 21	Ki	iPn	05 13 31.8
		iSn	05 14 27.7
		iSg	05 14 41.1

D = 440 km = 4.0°.

	Um	iSg	05 15 51.5

Northwest Russia.
Explosion?

" 21	Um	iPg	09 12 32.8
		iSn	09 12 51.3
		iSg	09 12 56.5

D = 220 km = 2.0°.
Origin time = 09 11 51.
Blast?

" 21	Sk	iSg	13 12 04.4
	Um	iPg	13 10 29.6
		iSg	13 10 45.5

D = 130 km = 1.2°.
Origin time = 13 10 06.
Blast?

" 21	Um	iP	13 16 15.8

Japan (h = 30 km).

" 21	Sk	iSg	14 16 03.3
	Um	iPg	14 14 29.6
		iSg	14 14 45.1

D = 130 km = 1.2°.
Origin time = 14 13 57.
Blast?

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

1966					
June	21	Sk	iPg	15 10 11.0	
			iSg	15 11 02.3	
			D = 430 km = 3.9°.		
		Um	iPg	15 09 26.5	
			iSg	15 09 44.8	
			D = 160 km = 1.4°.		
		Origin time = 15 08 56.			
		Blast?			
"	21	Up	iP	15 58 40.1	
		Um	iP	15 58 15.3	
		Japan (h = 70 km).			
"	21	Up	eP	18 24 22	
			ipP	18 24 42.6	
		Ki	eP	18 24 08.2	
			ipP	18 24 26.3	
		Sk	iP	18 24 03.3	
		Um	iP	18 24 18.8	
			iS	18 34 53	
		Mexico. h = 70 km (Up,Ki).			
"	21	Um	iP	19 54 10.0	
		Ka	iP	19 54 16.5 D	
		Hindu Kush (h = 180 km).			
"	21	Up	iP	23 17 09.8	
			i	23 17 22.1	
			i	23 18 18.0	
			microns sec		
			M E 1.1 20		
			M N 1.4 22		
			M Z 1.0 20		
		Ki	iP	23 16 18.3	
			microns sec		
			M E 1.2 18		
			M N 0.8 18		
			M Z 1.3 18		
		Sk	iP	23 16 53.8	
		Gb	i(P)	23 17 37	
			i	23 17 48	
		Um	iP	23 16 43.3	
			iS	23 25 11	
		Ka	iP	23 17 34.0	
			i	23 17 44.0	
		Kurile Islands (h = 15 km).			
"	21	Ki	iPKP	23 56 24.1	
		South Sandwich Islands (h = 110 km).			
"	22	Up	~~iSg~~	~~00 54 45.5~~	sörn.
		Ki	iPg	00 50 56.7	
			iSg	00 51 ~~11.9~~ 12.2	
			D = 130 km = 1.2°.		Rg 005123,6
		(cont.)			

1966					
June	22	(cont.)			Un Sg 00 52 18
		Sk	eSg	00 52 53	
		Probably Swedish Lapland, ~~67.7~~ 68.9°N, ~~17.1~~ 18.8°E.			
		Origin time = 00 50 ~~32~~ 38.			
"	22	Ki	iPKP	02 08 53.6	
		Um	iPKP	02 09 06.7	
		New Hebrides Islands (h = 15 km).			
"	22	Ki	iPn	05 30 05.7	
			iSn	05 31 01.4	
			iSg	05 31 20.0	
			D = 480 km = 4.3°.		
		Sk	eSg	05 34 00	
		Um	iSg	05 32 25.8	
		Northwest Russia, 68.2°N, 31.8°E.			
		Origin time = 05 28 59.			
		Explosion?			
"	22	Um	eS	07 33 56	
		Mexico (h = 90 km).			
"	22	Up	iP	10 06 46.5	
"	22	Ki	iP	11 07 11.9	
			iS	11 08 27.2	
			eT	11 12 10	
			D = 780 km = 7°.		
		Sk	iP	11 07 51.0	
			iS	11 09 34.3	
		Um	iP	11 08 02.1	
			i(S)	11 10 25.2	
		Norwegian Sea (h = 30 km).			
"	22	Up	iPg	11 36 34.1	
			iSg	11 36 48.2	
			iL	11 36 53.7	
"	22	Up	iP	11 48 46.3	
			ipP	11 48 54.8	
		Ki	iP	11 47 50.5	
			ipP	11 47 58.2	
			microns sec		
			P Z' 0.1 1.0		
		Sk	iP	11 48 17.3	
			ipP	11 48 26.0	
		Um	iP	11 48 19.4 D	
			ipP	11 48 27.7	
		Ka	iP	11 49 09.6	
			ipP	11 49 18.1	
		Alaska. h = 30 km (Up,Ki,Sk,Um,Ka).			

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

1966 June	22	Um	iP	18 57 23.9	
"	22	Ki	i(Sg)	19 43 41.2	
"	22	Up	iP	20 42 21.0	
			ipP	20 44 19.2	
			iPP	20 46 34.6	
			ipPP	20 48 23	
			iSKS	20 52 00	
			iSP	20 55 02	
			iPKKP	20 57 58.5	
				microns sec	
			pP E	0.4 5	
			pP Z'	0.2 1.5	
			PP Z'	0.1 1.1	
			SKS E	3.3 6	
			SKS N	1.3 8	
			M E	6.4 22	
			M N	5.7 19	
			M Z	6.8 21	
			(D = 11600 km = 104 1/2°).		
		Ki	iP	20 42 02.6	
			i	20 42 08.3	
			ipP	20 43 57.7	
			ipPP	20 47 58	
			iSKS	20 51 50	
			iSKKS	20 52 33	
			iPKKP	20 58 05.4	
			i	20 58 34.1	
			iP'P'	21 06 13.6	
				microns sec	
			P Z	0.9 6	
			P Z'	0.3 1.0	
			pP Z	1.1 6	
			pP Z'	0.2 1.1	
			SKS E	7.7 9	
			SKS N	1.9 8	
			PKKP Z'	0.1 1.0	
			P'P'Z'	0.4 2.0	
			M E	7.4 19	
			M N	7.7 21	
			M Z	6.1 16	
			(D = 11350 km = 102°).		
		Sk	iP	20 42 21.8	
			ipP	20 44 21.9	
			iPP	20 46 37.2	
			ipPP	20 48 34.2	
			iPKKP	20 57 57.9	
			i	20 58 14.6	
		Gb	iP	20 42 37	
			ipP	20 44 35	
			ipPP	20 48 59	
		Um	iP	20 42 05.9	
			i	20 42 34.2	
		(cont.)			

1966 June	22	(cont.)			
		Um	ipP	20 44 04.0	
			iPP	20 46 20.7	
			ipPP	20 48 09	
			iSKS	20 51 52	
			iSP	20 54 42	
			iPKKP	20 58 04.2	
		Ka	iP	20 42 23.4	D
			i	20 42 29.3	
			ipP	20 44 20.1	
			ipPP	20 48 34.6	
			iSP	20 55 22.9	
			i(PKKP)	20 58 14.5	
			i	21 05 50.4	
		Banda Sea. h = 530 km (Up,Ki,Sk,Gb,Um,Ka). Magn. = 6.7 (Up,Ki).			
"	22	Up	iP	23 47 30.4	
		Um	i(P)	23 47 20.7	
"	23	Up	iP	05 12 08.5	D
			iPcP	05 12 35.9	
			iPP	05 14 33.9	
				microns sec	
			P Z'	0.2 0.7	
		Ki	iP	05 11 25.6	D
			iPcP	05 12 09.4	
				microns sec	
			P Z'	0.3 1.0	
		Sk	iP	05 12 00.9	D
			iPcP	05 12 30.8	
			iPP	05 14 17.6	
		Gb	iP	05 12 29.7	D
			iPcP	05 12 49.0	
		Um	iP	05 11 44.3	D
			i	05 11 50.3	
			iPcP	05 12 21.2	
			i	05 13 14.0	
		Ka	iP	05 12 30.0	D
			i	05 12 40.8	
			iPcP	05 12 50.4	
		Sea of Japan (h = 220 km). Magn. = 6.0 (Up,Ki).			
"	23	Ki	iP	05 49 41.2	
		Sk	iP	05 50 14.4	
		Um	iP	05 49 58.3	D
		Japan (h = 140 km).			
"	23	Ki	iP	09 49 21.1	
		Angola (h = 30 km).			
"	23	Up	iSg	13 05 37.3	
		Ka	iPg	13 03 27.9	
			iSg	13 03 42.2	
		(cont.)			

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

1966
June 23 (cont.)
Probably underwater explosion in the southern Baltic Sea.

" 23 Ka iPg 13 26 58.9
eSg 13 27 15
Probably underwater explosion in the southern Baltic Sea.

" 23 Ka iP 17 49 47.0
Hindu Kush (h = 110 km).

" 23 Ki iP 18 22 25.1
Cyprus (h = 100 km).

" 23 Up iP 22 03 30.9
Ki eP 22 02 32
ipP 22 02 50.4
Sk iP 22 03 24.1
Um iP 22 02 50.0
ipP 22 03 08.5
Japan. h = 70 km (Ki,Um).

" 24 Um iP 06 26 14.3

" 24 Up iP 07 12 46.2
Um iP 07 12 43.8
Hindu Kush (h = 190 km).

" 24 Ki iPn 07 24 36.2
iP[x] 07 24 44.3
iSn 07 25 22.7
iSg 07 25 37.5
D = 400 km = 3.6°.
Sk eSg 07 28 26
Um iSg 07 27 07.7
Northwest Russia.
Explosion?
The readings at our stations (Ki,Sk,Um) permit a unique solution, but this disagrees beyond error limits with readings at Kirkenes and Tromsö. The same is true for a similar event in nearly the same location on June 15 at 03 30.

" 24 Up iPKP 08 37 08.8 C
ipPKP 08 37 47.1
iSKP 08 40 27.8
microns sec
PKP Z' 0.4 1.0
(cont.)

1966
June 24 (cont.)
Ki ePKP 08 36 50
i 08 36 54.5
Sk iPKP 08 37 01.1
ipPKP 08 37 39.1
Gb iPKP 08 37 17.7 C
i 08 37 21.4
Um iPKP 08 36 56.4
Ka iPKP 08 37 19.6 C
i 08 37 24.2
i 08 37 44.0
Tonga-Kermadec Islands.
h = 140 km (Up,Sk).

" 24 Um iPKP 14 05 57.8
i 14 08 11.0
iSKP 14 08 47.7
South of Fiji Islands
(h = 620 km).

" 24 Up iP 15 10 46.9
Italy (h = 30 km).

" 24 Ki ePn 17 17 57
eSn 17 18 52
iSg 17 19 12.0
D = 490 km = 4.4°.
Um iSg 17 20 43.2
Northwest Russia.
Origin time = 17 16 48.
Explosion?

" 24 Up iP 18 58 02.0 D

" 24 Up iP 22 39 08.4
Ki iP 22 40 24.1
microns sec
M E 0.4 10
M N 0.3 9
M Z 0.4 9
Sk iP 22 39 50.9
Gb iP 22 39 02.6
Um iP 22 39 49.2 C
Ka iP 22 38 32.3
Greece (h = 25 km).

" 25 Up iP 01 58 14.7 C
iS 02 08 13
microns sec
P Z' 0.1 1.0
M E 1.3 17
M N 1.4 18
M Z 0.9 18
D = 8850 km =
79 1/2°.
Ki iP 01 57 40.6 C
(cont.)

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

1966
June 25 (cont.)

Ki	i	01 57 45.2		
	eS	02 06 58		
	microns	sec		
	P	Z' 0.1	1.2	
	S	E 0.7	10	
	S	N 0.5	10	
	M	E 1.9	20	
	M	N 1.7	20	
	M	Z 1.5	18	
	D = 8100 km = 73°.			
Sk	iP	01 58 10.5	C	
	i	01 58 15.2		
	ePP	02 01 00		
Gb	iP	01 58 33.3		
Um	iP	01 57 55.6	C	
	i	01 58 00.0		
	iPP	02 00 46.4		
	iS	02 07 38		
Ka	iP	01 58 31.8	C	
	iPP	02 01 42.2		
	i	02 01 57.0		

South of Japan (h = 50 km).
Magn. = 5.8 (Up,Ki).

" 25 Ki iPKP 10 50 47.9
Um iPKP 10 50 55.1
New Hebrides Islands
(h = 200 km).

" 25 Up iP 11 58 59.1
Um iP 11 59 14.6
Iran (h = 30 km).

" 25 Up iP 13 28 56.5
Ki iP 13 28 22.5
Um iP 13 28 37.4
South of Japan
(h = 40 km).

" 25 Ki iPn 16 15 46.2
iSn 16 16 45.3
Sk iSg 16 19 33.1
Um iSn 16 17 24.3
iSg 16 18 02.3
Northwest Russia.
Explosion?

" 25 Um iP 16 26 02.1

" 25 Up iP 17 37 14.7 C
Ki iP 17 37 04.3 C
Sk iP 17 36 57.3 C
Gb iP 17 37 05.3
Um iP 17 37 12.4 C
Guatemala (h = 120 km).

1966
June 25 Ki iPKP 18 56 50.6
Um iPKP 18 56 53.6
i 18 56 55.8
New Britain (h = 120 km).

" 25 Um iP 20 19 05.6
i 20 19 08.6

" 25 Up iP 21 42 50.1 C
Ki iP 21 41 56.3 C
Sk iP 21 42 31.2
Gb iP 21 43 08.5
Um iP 21 42 22.2
Aleutian Islands
(h = 30 km).

" 25 Ki iP 23 40 16.9

" 25 Um iS 23 40 26
Mexico (h = 40 km).

" 26 Sk iP 07 46 08.2
Um iP 07 45 55.5 D
Japan (h = 30 km).

" 26 Up iP 11 06 13.9 C
Sk iP 11 06 29.9
ipP 11 06 42.5
Um iP 11 06 06.0 C
ipP 11 06 18.6
Ka iP 11 06 22.9
India.
h = 50 km (Sk,Um).

" 26 Up iP 13 22 27.2
Turkey (h = 30 km).

" 26 Up iP 23 41 05.9 C
Ki ---

microns	sec		
M	E	0.4	12
M	N	0.2	11
M	Z	0.6	12

Um iP 23 40 53.7
Szechwan (h = 30 km).

" 27 Up i 06 51 27.7
iSg 06 51 33.2
Sk iLgl 06 53 46.0
Um iLgl 06 53 20.5
Ka i 06 50 18.0
iSg 06 51 04.2
Near coast of the Baltic
States.
Explosion?

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

1966 June	27	Up	iP	08 12 19.7	
"	27	Gb	iP	08 38 12.6	
"	27	Gb	ePKP	08 58 25	
		Um	iPKP	08 58 19.6	
		Ka	iPKP	08 58 31.4	
		Tonga Islands (h = 60 km).			
"	27	Ki	iPKP	10 35 21.3	
		Sk	iPKP	10 35 34.3	
		Um	iPKP	10 35 29.1	
		New Zealand (h = 230 km).			
"	27	Up	iP	10 50 11.6 C	
			iPP	10 52 10	
			iS	10 57 28	
				microns sec	
			P E	1.5 8	
			P Z	3.1 9	
			P Z'	0.5 1.0	
			PP E	2.2 10	
			PP Z	2.5 10	
			S E	1.6 9	
			S N	3.6 12	
			M E	28 17	
			M N	27 19	
			M Z	33 17	
			D = 5650 km = 51°.		
		Ki	iP	10 50 14.5 C	
			iPP	10 52 12	
			iS	10 57 38	
				microns sec	
			P E	2.0 8	
			P N	0.7 8	
			P Z'	0.7 1.1	
			PP E	1.7 9	
			PP Z	2.3 11	
			S E	2.8 9	
			S N	3.4 11	
			M E	22 15	
			M N	32 15	
			M Z	29 17	
			D = 5800 km = 52°.		
		Sk	iP	10 50 33.1 C	
		Gb	iP	10 50 32.5	
		Um	iP	10 50 07.7 C	
			iPP	10 52 00	
			iS	10 57 18	
		Ka	iP	10 50 17.1 C	
		Nepal-India (h = 40 km).			
		Magn. = 6.5 (Up,Ki).			
"	27	Up	iP	10 56 49.4	
		Ki	iP	10 56 51.4 C	
		(cont.)			
1966 June	27	(cont.)			
		Um	iP	10 56 44.4	
		Ka	iP	10 56 54.0	
		Nepal-India (h = 30 km).			
"	27	Up	iP	10 58 53.2	
				microns sec	
			P	Z' 0.3 1.0	
		Ki	iP	10 58 54.9	
				microns sec	
			P	Z' 0.3 1.0	
		Sk	iP	10 59 13.3	
		Gb	iP	10 59 13.0	
		Um	iP	10 58 48.6 C	
		Ka	iP	10 58 56.5	
		Nepal-India (h = 30 km).			
		Magn. = 6.2 (Up,Ki).			
"	27	Up	iP	11 08 21.1 C	
			iPP	11 10 21	
				microns sec	
			P E	2.0 7	
			P Z	5.6 9	
			P Z'	0.9 1.0	
			PP E	4.1 9	
			M E	60 17	
			M N	41 17	
			M Z	81 17	
		Ki	iP	11 08 24.1 C	
				microns sec	
			P Z'	1.1 1.1	
			M E	47 15	
			M N	49 15	
			M Z	58 16	
		Sk	iP	11 08 42.5 C	
		Gb	iP	11 08 41.4 C	
			i	11 09 16.0	
			iPP	11 10 43.5	
		Um	iP	11 08 17.2 C	
		Ka	iP	11 08 26.6 C	
			iPP	11 10 29.9	
		Nepal-India (h = 40 km).			
		Magn. = 6.7 (Up,Ki).			
"	27	Up	iP	11 30 46.7	
		Ki	iP	11 30 49.5	
		Sk	iP	11 31 07.9	
		Um	iP	11 30 42.7	
		Ka	iP	11 30 52.3 C	
		Nepal-India (h = 30 km).			
"	27	Ki	iP	11 33 15.2 C	
"	27	Ki	iP	11 39 57.8 C	
"	27	Up	iP	14 04 55.4 C	
		(cont.)			

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

1966
June 27 (cont.)

Up		microns	sec
	M	E 0.7	16
	M	N 1.0	19
	M	Z 0.7	15
Ki	iP	14 04 58.3	C
	i	14 05 07.4	
		microns	sec
	P	Z' 0.1	1.5
	M	E 0.6	14
	M	N 0.8	15
	M	Z 0.7	15
Sk	iP	14 05 16.7	C
Gb	iP	14 05 15.7	C
Um	iP	14 04 50.8	
Ka	iP	14 05 01.1	C

Nepal-India (h = 40 km).

" 27 Up iSg 15 03 12.6
Ki eP 15 00 02
iPg 15 00 08.4
iSn 15 00 38.2
iSg 15 01 00.0
D = 440 km = 4.0°.
Sk iPg 14 59 58.5
iSg 15 00 43.9
i 15 01 21.4
D = 410 km = 3.7°.
Um iSn 15 01 19.8
iSg 15 01 52.3
D = 620 km = 5.6°.

Norwegian Sea, 67.3°N, 9.9°E.
Origin time = 14 58 48.
Solution checked by Finnish and Norwegian readings.

" 27 Ki iP 21 25 57.6

" 27 Up iPKP 22 06 55.9
iPKP2 22 07 11.2
i! 22 07 38.2
Ki i(PKP) 22 06 36.3
iPKP 22 06 39.6
microns sec
PKP Z' 0.2 1.2
Sk i(PKP) 22 06 45.1
iPKP 22 06 52.4
i 22 07 30.8
Um i(PKP) 22 06 42.8
iPKP 22 06 47.4 C
iPP 22 10 32.4

New Zealand (h = 50 km).

" 28 Up iP 00 05 14.7
Um iP 00 05 40.1

Rumania (h = 150 km).

1966
June 28 Um iPKP 01 18 24.1

Santa Cruz Islands (h = 230 km).

" 28 Up iP 03 43 53.8

" 28 Ki iP 04 20 24.0
Sk iP 04 20 33.2

California (h = 5 km).

" 28 Up iP 04 38 21.5
eS 04 48 22
iPS 04 48 56
microns sec
M E 4.1 18
M N 4.0 18
M Z 4.0 18
D = 8700 km = 78 1/2°.
Ki iP 04 37 42.4
i 04 37 46.5
i 04 40 01
iS 04 47 05
microns sec
S E 0.3 8
S N 0.5 8
M E 4.2 17
M N 4.5 16
M Z 5.7 16
D = 8050 km = 72 1/2°.
Sk iP 04 37 51.3
Um iP 04 38 06.0
iS 04 47 38

California (h = 5 km).
Magn. = 6.0 (Up,Ki).

" 28 Ka iP 08 04 27.7 C

" 28 Um iPg 11 25 24.5
iSg 11 25 41.2
D = 140 km = 1.3°.

Origin time = 11 24 59.
Blast?

" 28 Ki i(Sg) 12 40 42.8

" 28 Ki iP 15 52 46.1 C

Nepal (h = 30 km).

" 28 Up iP 16 59 24.8 C
microns sec
P Z' 0.1 1.0
Ki iP 16 58 57.0 C
Sk iP 16 59 26.0
Gb iP 16 59 44.9
Um iP 16 59 07.0

Ryukyu Islands (h = 100 km).

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

1966 June	28	Sk	eP	22 48 38	
"	29	Ki	iP	00 51 17.9	C
		Nepal-India (h = 10 km).			
"	29	Ki		---	
				microns sec	
			M E	0.5 16	
			M N	0.3 14	
			M Z	0.4 13	
		Sk	iP	00 54 36.6	
		Um	eP	00 54 40	
		Ka	iP	00 53 14.2	C
		Albania (h = 15 km).			
"	29	Ki	iP	01 17 04.0	
"	29	Gb	iPKP	02 58 26.3	
		South of Fiji Islands (h = 500 km).			
"	29	Up	i(P)	05 43 03.5	
		Ki	iP	05 47 57.3	
"	29	Ki	iP	07 04 37.2	C
				microns sec	
			P Z'	0.2 0.5	
		Sk	iP	07 05 08.1	C
			iPP	07 06 25.5	
			iPcP	07 07 30.3	
		Gb	iP	07 05 21.0	
			iPn	07 06 16.8	
			iPP	07 06 39.8	
		Um	iP	07 04 37.4	C
			iPn	07 05 25.8	
		Ka	iP	07 05 08.9	
			iPP	07 06 30.9	
		Kazakh SSR.			
		Underground explosion.			
"	29	Gb	iP	08 59 27.2	
"	29	Um	iP	14 33 50.7	
"	29	Ki	iP	17 45 31.1	
		Um	iP	17 45 42.1	
"	29	Up	iP	20 05 29.8	
		Ki	iP	20 04 52.7	
				microns sec	
			M E	0.5 18	
			M N	0.5 17	
			M Z	0.7 17	
		Sk	eP	20 05 02	
		Um	iP	20 05 12.7	
		California (h = 5 km).			

1966 June	29	Ki	iP	21 43 55.8	
"	29	Up	i	22 09 17	
				microns sec	
			M E	1.1 22	
			M N	1.8 22	
			M Z	2.2 22	
		Ki	iPKP	22 05 44.6	
				microns sec	
			M E	1.4 22	
			M N	0.8 19	
			M Z	1.0 18	
		Sk	iPKP	22 05 54.8	C
		Um	iPKP	22 05 50.4	
			i	22 07 22	
			iPP	22 07 41	
			iSKSP	22 17 36	
		New Hebrides Islands (h = 40 km).			
"	29	Up	iP	23 03 11.8	
			ipP	23 03 20.8	
				microns sec	
			M E	0.8 17	
			M N	1.0 20	
			M Z	1.1 18	
		Ki	iP	23 02 45.0	
				microns sec	
			M E	0.6 16	
			M N	0.3 14	
			M Z	0.5 14	
		Sk	eP	23 03 30	
		Um	iP	23 02 52.5	
		Formosa. h = 30 km (Up).			
"	30	Up	iP	09 09 35.7	D
				microns sec	
			P Z'	0.2 0.6	
		Ki	iP	09 08 55.4	
			iPP	09 11 07.4	
			eS	09 16 08	
				microns sec	
			P Z'	0.2 0.5	
		Sk	iP	09 09 30.9	D
			iPP	09 11 55.2	
			iS	09 17 23.4	
		Gb	iP	09 09 58.0	D
		Um	iP	09 09 13.0	D
			iPcP	09 09 51.4	
		Ka	iP	09 09 56.5	D
		Near Vladivostok (h = 450 km).			
		Magn. 6.0 (Up,Ki).			
"	30	Up	iP	12 40 42.5	
			iSKS	12 51 10	

(cont.)

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

1966
June 30 (cont.)

	Up	iS	12 51 34
			microns sec
		M E	1.0 18
		M N	1.1 18
		M Z	1.8 19
		D = 10100 km = 91°.	
	Ki	iP	12 40 24.2
		ipP	12 40 35.4
		iSKS	12 50 47
		iS	12 51 03
		microns sec	
		P Z	0.5 7
		S E	1.0 13
		S N	0.9 8
		M E	1.1 17
		M N	1.3 17
		M Z	1.5 18
		D = 9650 km = 87°.	
	Sk	iP	12 40 45.9
		ipP	12 40 57.3
	Um	iP	12 40 30.9 C
		iSKS	12 50 50
		iS	12 51 12

Mindanao.
h = 40 km (Ki,Sk).
Magn. = 6.0 (Ki).

" 30	Up	iP	15 57 11.2 C
		microns sec	
		M E	1.1 20
		M N	1.0 20
		M Z	1.6 20
	Ki	iP	15 56 45.9
		microns sec	
		M E	0.5 13
		M N	0.4 15
		M Z	0.6 12
	Sk	iP	15 57 13.6
	Um	iP	15 56 54.6

Formosa (h = 50 km).

" 30	Um	iP	16 21 09.5
" 30	Um	iP	17 13 33.6
" 30	Up	iP	19 20 50.9
		i	19 20 57.6
		microns sec	
		P Z'	0.2 1.0
" 30	Ki	---	
		microns sec	
		M E	0.6 16
	Sk	eP	19 26 36
	Um	iP	19 26 32.0
		i	19 26 47.5

Yugoslavia-Albania.

1966
June 30

	Ki	iSg	20 38 04.4
	Sk	iSg	20 38 08.5
	Um	iPg	20 37 43.8
		iSg	20 38 31.1

Nordlands Fylke, Norway,
66.4°N, 14.6°E.
Origin time = 20 36 35.

" 30	Ki	i(P)	20 42 02.4
		i	20 42 08.0
	Um	i(Sg)	20 43 28.8
" 30	Up	iSg	21 41 40.0
	Sk	ePn	21 39 18
		iSg	21 40 04.3
	Gb	iSg	21 41 24.5
	Um	iSg	21 41 49.9
	Ka	iSg	21 42 39.9

Norway, near Ålesund,
62.5°N, 6.8°E.
Origin time = 21 38 27.
Solution checked with
Norwegian readings.

" 30	Up	iP	22 26 47.8 C
		i(PcP)	22 27 06.6
		microns sec	
		P Z'	0.1 0.5
	Ki	iP	22 26 13.7 C
		iPcP	22 26 32.5
		i	22 28 39.0
		microns sec	
		P Z'	0.3 1.2
		M E	0.9 15
		M N	0.6 15
		M Z	1.4 15
	Sk	iP	22 26 21.7 C
	Gb	iP	22 26 47.9 C
		i	22 26 54.3
	Um	iP	22 26 33.1 C
		iPP	22 29 15.4
	Ka	iP	22 27 01.4 C
		i	22 27 09.5

Nevada.
Origin time = 22 15 00.
Magn. = 6.2 (Up,Ki).
Underground explosion.

Markus Båth
November 9, 1966

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

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, 1966

1966
July 1 Ki iP 05 03 42.7
Aleutian Islands
(h = 20 km).

" 1 Up iP 06 02 13.3 C
i 06 02 14.3
iPcP 06 02 31
ipP 06 02 42
iPa 06 06 54.9
iS 06 11 43

		microns	sec
P	E	0.9	2
P	N	0.7	2
P	Z	2.6	2
P	Z'	0.8	0.8
S	E	1.2	7
S	N	1.7	8
M	E	3.8	20
M	N	8.6	21
M	Z	4.2	15

D = 8350 km = 75°.

Ki iP 06 01 48.9 C
i 06 01 50.3
ipP 06 02 18.3
iPP 06 04 24.4
iS 06 10 59
iScS 06 11 38
isS 06 11 49
iP'P' 06 29 31.4

		microns	sec
P	E	2.0	6
P	N	0.5	6
P	Z	4.6	6
P	Z'	2.0	1.0
PP	Z'	0.9	1.7
S	E	2.1	7
S	N	2.1	9
M	E	6.6	16

(cont.)

1966
July 1 (cont.)

Ki

		microns	sec
M	N	2.1	15
M	Z	4.5	16

D = 7900 km = 71°.

Sk iP 06 02 16.4 C
i 06 02 17.6
ipP 06 02 47.6
iPP 06 05 08.7

Gb iP 06 02 33.1
i 06 02 34.2

Um iP 06 01 57.2 C
i 06 01 58.7
iPcP 06 02 11.3
iPP 06 04 36
ePa 06 06 22
iS 06 11 12

Ka iP 06 02 28.3 C
ipP 06 02 58.7
i(PP) 06 05 11.0

Formosa.
h = 120 km (Up,Ki,Sk,Ka).
Magn. = 6.8 (Up,Ki).
P is multiple, with a small onset followed after 1.2 sec (in average) by a much larger phase. The phase identified as Pa (at Up, Um) has remarkably high velocity (average = 8.57 km/sec). This is confirmed by earlier results for similar paths (Båth and Lopez Arrory, Pa and Sa waves and the upper mantle, Geofis. pura e appl., 56: 67-92, 1963).

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

1966					
July	1	Ki	e	14 58 28	
			iSg	14 58 32.2	
		Sk	iSg	14 58 35.7	
			i	14 58 44.6	
		Um	iSn	14 58 45.2	
			iSg	14 59 06.4	
		Nordlands Fylke, Norway, 66.6°N, 14.1°E.			
		Origin time = 14 57 00.			
"	1	Ki	iP	17 36 12.5	
		Arabian Sea (h = 30 km).			
"	1	Up	iP	19 16 11.8	
		Ki	iP	19 15 18.1	C
		Sk	iP	19 15 51.9	C
		Um	iP	19 15 44.1	
		Aleutian Islands (h = 60 km).			
"	1	Up	iPKP	19 38 50.4	C
		Sk	e(PKP)	19 38 33	
		Tonga-Kermadec Islands (h = 500 km).			
"	1	Ki	ePn	20 10 53	
			iSn	20 11 40.0	
			iLgl	20 11 54.6	
			D = 440 km = 4.0°.		
		Sk	e(Lgl)	20 14 47	
		Um	i(Lgl)	20 13 27.2	
		Northwest Russia.			
		Origin time = 20 09 49.			
		Explosion?			
"	1	Ki	iP	20 29 59.6	
		Sk	iP	20 29 50.8	
		Um	iP	20 30 04.5	
			ipP	20 30 57.3	
		El Salvador.			
		h = 220 km (Um).			
"	1	Up	iP	21 08 35.1	
"	2	Ki	i(P)	01 51 53.0	
		Sk	i(P)	01 49 32.5	
"	2	Up	iP	06 18 37.2	
			i	06 18 43.9	
			microns	sec	
			P Z'	0.1	0.5
"	2	Up	iP	07 08 55.9	
"	2	Up	iPg	07 23 54.5	
			iSn	07 24 26.3	
		(cont.)			

1966					
July	2	(cont.)			
		Ki	ePn	07 24 23	
			iSn	07 25 20.3	
			iSg	07 25 53.1	
		Sk	iSg	07 24 57.4	
		Um	iPg	07 23 24.5	
			iSg	07 23 41.3	
		Gulf of Bothnia.			
		Underwater explosion.			
"	2	Up	iPg	08 14 55.5	
			iSg	08 15 32.3	
		Sk	iSg	08 15 55.7	
		Um	iPg	08 14 24.2	
			iSg	08 14 40.8	
		Gulf of Bothnia.			
		Underwater explosion.			
"	2	Um	iPg	08 44 23.8	
			iSg	08 44 40.5	
		Gulf of Bothnia.			
		Underwater explosion.			
"	2	Up	iPg	08 59 50.7	
			iSg	09 00 31.8	
		Sk	ePn	09 00 00	
			iSg	09 00 53.4	
		Gulf of Bothnia.			
		Underwater explosion.			
"	2	Ki	iP	11 32 24.2	C
			i	11 32 29.3	
		Sk	iP	11 32 02.6	
		Um	iP	11 32 03.7	
		Uganda-Congo (h = 30 km).			
"	2	Up	iPg	12 14 56.9	
			iSn	12 15 29.9	
		Um	iPg	12 14 29.5	
			i	12 14 31.7	
			iSg	12 14 49.1	
		Gulf of Bothnia.			
		Underwater explosion.			
"	2	Up	iPg	12 45 56.5	
			iSn	12 46 29.1	
		Um	iPg	12 45 29.0	
			i	12 45 31.0	
			iSg	12 45 49.0	
		Gulf of Bothnia.			
		Underwater explosion.			
"	2	Up	iP	14 27 10.4	
"	2	Ki	iP	23 01 22.1	
		Banda Sea (h = 570 km).			

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

1966 July	3	Up	i(P)	01 45 54.5	
"	3	Up	iP	03 46 20.6	
"	3	Up	iP	04 06 06.7	
			iPcP	04 06 28.9	
		Ki	iP	04 05 13.6	
		Sk	iPcP	04 06 18.4	
		Gb	iP	04 06 21.6	
		Um	iP	04 05 40.1 C	
		Aleutian Islands (h = 70 km).			
"	3	Ka	iPKP	04 29 00.8	
			i	04 29 12.4	
		Tonga Islands (h = 30 km).			
"	3	Up	e(Sg)	05 46 48	
		Ki	iPn	05 42 29.3	
			iSn	05 43 29.7	
			iLgl	05 43 51.8	
			D = 580 km = 5.2°.		
		Sk	eSg	05 46 17	
		Um	iSg	05 44 43.9	
		Northwest Russia, 67.1°N, 33.8°E.			
		Origin time = 05 41 08.			
		Explosion?			
"	3	Up	iPP	06 54 44.7	
		Chile (h = 30 km).			
"	3	Up	iPg	10 44 52.2	
			iSg	10 45 30.4	
		Um	iPg	10 44 26.9	
			iSg	10 44 44.9	
		Gulf of Bothnia.			
		Underwater explosion.			
"	3	Up	iPg	11 41 54.3	
			i(Sg)	11 42 28.0	
		Sk	iSg	11 43 02.8	
		Um	iPg	11 41 26.0	
			iSg	11 41 44.5	
		Gulf of Bothnia.			
		Underwater explosion.			
"	3	Um	iPg	12 46 25.2	
			iSg	12 46 43.1	
		Gulf of Bothnia.			
		Underwater explosion.			
"	3	Ki	iP	12 54 40.6	
		Um	iP	12 54 29.9	
		Hindu Kush (h = 230 km).			
"	3	Ki	iSg	13 27 55.2	
		(cont.)			
1966 July	3	(cont.)			
		Sk	iSg	13 26 58.1	
		Um	iPg	13 25 24.3	
			iSg	13 25 42.0	
			i	13 25 47.8	
		Gulf of Bothnia.			
		Underwater explosion.			
"	3	Um	iPg	14 03 24.2	
			iSg	14 03 41.4	
		Gulf of Bothnia.			
		Underwater explosion.			
"	3	Up	iP	15 32 28.4	
		Aleutian Islands (h = 15 km).			
"	4	Ki	ePKP	00 23 33	
		Drake Passage (h = 30 km).			
"	4	Ki	01 54 27.5		
		Formosa (h = 180 km).			
"	4	Up	iP	03 06 29.6 C	
			i	03 06 38.9	
				microns sec	
			P Z'	0.5 0.8	
		Ki	iP	03 05 36.1 C	
				microns sec	
			P Z'	0.2 0.8	
			M E	0.6 18	
			M N	0.5 19	
			M Z	0.8 18	
		Sk	iP	03 06 09.3 C	
		Gb	iP	03 06 46.7 C	
		Um	iP	03 06 01.9 C	
		Ka	iP	03 06 52.8 C	
			i	03 07 08.0	
		Aleutian Islands (h = 30 km).			
		Magn. = 6.3 (Up,Ki).			
"	4	Up	iP	03 25 25.1	
		Ki	iP	03 24 31.6	
		Sk	iP	03 25 04.7	
		Um	iP	03 24 57.3	
		Aleutian Islands.			
		Origin time = 03 14 31.4.			
		Probably same epicenter and depth as for the preceding shock.			
"	4	Gb	iPKP	07 40 51.0 D	
		Ka	iPKP	07 40 52.9	
		South of Fiji Islands (h = 600 km).			

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

1966
July 4 Ka iP 08 53 27.0
Hindu Kush (h = 120 km).

" 4 Up iP 12 22 17.4
ePP 12 23 35
iS 12 27 28

		microns	sec
P	Z	0.4	5
PP	Z	0.5	5
S	N	0.3	5
M	E	3.6	19
M	N	2.1	15
M	Z	4.5	20

D = 3850 km = 34 1/2°.

Ki iP 12 22 55.9
iPP 12 24 30
iS 12 28 51

		microns	sec
P	E	0.6	5
P	Z	0.6	6
P	Z'	0.3	2.0
PP	E	0.9	12
S	E	1.8	10
S	N	1.4	12
S	Z	1.0	12
M	E	3.3	16
M	N	1.2	15
M	Z	3.1	18

D = 4400 km = 39 1/2°.

Sk eP 12 22 16
Gb iP 12 21 48.2
Um iP 12 22 40.3
iPP 12 24 06
i 12 27 56
iS 12 28 13
Ka iP 12 21 58.6 C
Azores Islands (h = 30 km).
Magn. = 5.7 (Up,Ki).

" 4 Up iP 13 28 38.2

" 4 Up iP 13 37 35.4

		microns	sec
P	Z'	0.1	0.5

" 4 Up iPl 18 44 34.3
i 18 44 35.8
i 18 44 50
iPP 18 47 09
iS 18 53 28
iP'P' 19 12 50.0

		microns	sec
P	N	3.9	6
P	Z	3.7	3
P	Z'	1.1	0.9
PP	N	2.1	6
S	E	10	9

(cont.)

1966
July 4 (cont.)
Up

		microns	sec
S	N	8.4	8
P'P'	Z	1.1	3
M	E	41	20
M	N	66	20
M	Z	79	20

D = 7550 km = 68°.

Ki iPl 18 43 41.1
i 18 43 43.3
iP2 18 43 45.7
iP4 18 43 56.8
iPa 18 47 26
iS 18 51 45
i 18 52 00
iP'P' 19 13 13.9
i 19 13 21.9

		microns	sec
P	E	0.9	3
P	N	1.7	4
P	Z	3.2	4
P	Z'	1.8	1.5
PP	N	5.5	6
PP	Z	4.6	6
S	E	18	9
S	N	9.0	9
P'P'	Z'	0.4	1.7
M	E	60	17
M	N	80	17
M	Z	74	16

D = 6650 km = 60°.

Sk iP2 18 44 15.5
iP4 18 44 25.8
iP'P' 19 13 04.8
Gb iPl 18 44 51.9
iP2 18 44 54.2
iP4 18 45 05.2
iPP 18 47 30.5
iP'P' 19 12 51.5
i 19 12 57.3
Um iPl 18 44 06.5
iP2 18 44 09.9
iP4 18 44 21.5
iPa 18 48 19
iS 18 52 35
iP'P' 19 13 01.8
i 19 13 10.9
Ka iPl 18 44 58.9
iP4 18 45 11.5
iPP 18 47 38.4
iP'P' 19 12 52.8
Aleutian Islands
(h = 15 km).
Magn. = 7.0 (Up,Ki).
Multiple P with several successively larger onsets, following the first small P.
(cont.)

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

1966
July 4 (cont.)

The double S at Ki might suggest a corresponding multiplicity of this phase. See further remark to July 5, 02 32.

"	4	Up	iP	19 01 20.8
			microns	sec
			P Z' 0.1	1.0
		Ki	iP	19 00 27.8 C
			microns	sec
			P Z' 0.1	1.5
		Gb	iP	19 01 36.4
		Um	iP	19 00 52.0
		Ka	iP	19 01 44.0

Aleutian Islands
(h = 30 km).
Magn. = 5.6 (Up,Ki).

"	4	Up	iP	19 10 08.0
		Ki	iP	19 09 14.9
		Um	iP	19 09 40.9

Aleutian Islands.
Origin time = 18 59 10.

"	4	Up	iP	19 28 55.2
		Gb	iP	19 29 09.1

"	4	Up	iP	20 05 44.3 C
		Ki	eP	20 04 50

Aleutian Islands
(h = 30 km).

"	4	Up	iP	21 13 07.4
		Ki	iP	21 12 05.4
		Um	iP	21 12 30.7
			i	21 12 39.5

Aleutian Islands
(h = 20 km).

"	4	Ki	iP	22 24 17.3

Aleutian Islands
(h = 20 km).

"	5	Up	iP	02 29 14.3 C
		Ki	iP	02 29 52.5
		Um	iP	02 29 37.0

Azores Islands (h = 25 km).

"	5	Up	iP1	02 32 34.4
			iP2	02 32 40.3
			iP3	02 32 45.9
			iP4	02 32 49.4
			eS	02 41 33
			microns	sec
			P Z' 1.1	1.2

(cont.)

1966
July 5 (cont.)

Up			microns	sec
	S	E	0.4	4
	S	N	0.2	4
	M	E	1.7	18
	M	N	1.8	18
	M	Z	1.7	18

D = 7450 km = 67°.

Ki	iP1	02 31 38.4	
	iP3	02 31 47.7	
	iP4	02 31 53.1	
	iPa	02 35 41	
	eS	02 39 59	
	microns	sec	
	P Z' 0.2	1.0	
	S E 1.0	9	
	S N 0.3	7	
	M E 2.4	19	
	M N 1.8	17	
	M Z 3.2	17	

D = 6550 km = 59°.

Sk	iP3	02 32 19.7
	iP4	02 32 25.8
Gb	iP3	02 33 03.0
	iP4	02 33 06.4
Um	iP1	02 32 08.4
	iP2	02 32 12.7
	iP3	02 32 18.8
	iP4	02 32 22.5
	iS	02 40 43
	i	02 40 55
	iP'P'	03 01 14.5
Ka	iP2	02 33 02.8
	iP3	02 33 08.4
	iP4	02 33 12.4

Aleutian Islands
(h = 70 km).
Magn. = 6.2 (Up,Ki).

As in the Aleutian Islands earthquake of July 4, 18 44, there are clear multiple P waves, and at least four onsets can be well distinguished. The notation above (P1, P2, P3, P4) is used to denote identically the same phase at the different stations in both these earthquakes. P1 has the smallest amplitude, and P4 the largest one. The following table summarizes the average time differences (sec):

	July 4	July 5
P4-P1	14.2	14.6
P4-P2	11.0	9.5
P4-P3	no P3	4.4

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

1966
July 5 Ki iPKP 03 41 18.1
Um iPKP 03 41 25.9
Tonga Islands
(h = 250 km).

" 5 Up iP 05 15 55.2
i 05 16 01.3
microns sec
M E 0.8 18
M N 0.6 14
M Z 1.1 18
Ki iP 05 16 33.7
i 05 16 40.3
e(Pa) 05 18 33
eS 05 22 38
microns sec
P Z' 0.1 1.5
S N 0.3 9
M E 1.0 16
M N 0.3 13
M Z 0.7 15
D = 4400 km = 39 1/2°.
Sk iP 05 15 57.7
Um iP 05 16 18.5
i 05 16 24.0
ePP 05 17 47
e 05 21 51
eS 05 22 13
Ka iP 05 15 35.9
i 05 15 45.3
Azores Islands (h = 10 km).
Magn. = 5.3 (Ki).

" 5 Up iP 10 11 15.4
microns sec
P Z' 0.1 0.6
Ki eP 10 11 08
Sk iP 10 11 30.9
Um iP 10 11 06.9 D
India-China (h = 80 km).

" 5 Um iPg 17 22 28.2
iSg 17 22 47.7
Northern Gulf of Bothnia.
Underwater explosion.

" 5 Um iPg 17 39 28.4
iSg 17 39 48.0
Northern Gulf of Bothnia.
Underwater explosion.

" 5 Ki iP 20 46 49.3 C

" 5 Um iPg 21 06 27.5
iSg 21 06 46.5
Northern Gulf of Bothnia.
Underwater explosion.

1966
July 5 Sk iSg 21 44 26.6
Um iPg 21 42 27.3
iSg 21 42 46.0
Northern Gulf of Bothnia.
Origin time = 21 42 00.
Underwater explosion.

" 6 Um iS 00 32 01
Peru (h = 5 km).

" 6 Um iP 02 27 03.9
South of Japan
(h = 170 km).

" 6 Up iP 04 29 03.3 C
microns sec
M E 0.3 10
M N 0.4 10
M Z 0.3 10
Ki iP 04 30 25.7
microns sec
M E 0.4 11
M N 0.3 10
M Z 0.5 10
Sk iP 04 29 42.6
Um iP 04 29 45.6
iS 04 33 51
i 04 34 03
Ka iP 04 28 19.1
Italy (h = 25 km).

" 6 Up iPKP 05 11 02.2
South Sandwich Islands
(h = 80 km).

" 6 Up iP 06 29 21.8
Ki iP 06 28 25.2
Sk iP 06 28 53.2
Ka iP 06 29 45.8 C
Alaska (h = 110 km).

" 6 Um iP 09 45 16.9
Japan (h = 70 km).

" 6 Up iP 10 35 24.7
Sk iP 10 36 07.3
Greece.

" 6 Um iPg 11 29 29.5
iSg 11 29 50.1
Northern Gulf of Bothnia.
Underwater explosion.

" 6 Um iPg 11 53 30.1
iSg 11 53 52.6
Northern Gulf of Bothnia.
Underwater explosion.

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

1966
July 6 Up iP 12 04 52.4
Ki iP 12 04 58.4
iPP 12 06 24.9
Sk eP 12 05 18
iPP 12 06 59.1
Um iP 12 04 49.0
Ka iP 12 04 58.8
Afghanistan-USSR
(h = 20 km).

" 6 Um iPg 12 33 30.9
iSg 12 33 52.1
Northern Gulf of Bothnia.
Underwater explosion.

" 6 Up iP 14 07 00.1
iLgl 14 20 53
i 14 21 22.1
microns sec
M E 0.7 9
M N 2.9 18
M Z 0.6 8
Ki iP 14 06 47.4 C
microns sec
M E 1.0 11
M N 1.7 15
M Z 0.9 11
Sk iP 14 07 16.3 C
iLgl 14 22 07.4
Gb iP 14 07 26.5
Um iP 14 06 47.0 C
iPP 14 08 25.0
iS 14 12 49
eSa 14 15 05
i 14 17 11
iLgl 14 20 11.8
Sinkiang (h = 30 km).
Clear Lgl waves are recorded on the short-period (Z') records (Up,Sk,Um).

" 6 Um iPg 17 38 30.6
iSg 17 38 52.0
Northern Gulf of Bothnia.
Underwater explosion.

" 6 Um iPg 18 02 30.1 C
iSg 18 02 50.2
Northern Gulf of Bothnia.
Underwater explosion.

" 6 Um iPg 18 50 29.6 C
iSg 18 50 49.7
Northern Gulf of Bothnia.
Underwater explosion.

" 6 Ki ePg 19 28 02
(cont.)

1966
July 6 (cont.)
Ki iSg 19 28 36.3
Sk eSg 19 29 32
Um iPg 19 27 29.4
iSg 19 27 49.0
Northern Gulf of Bothnia.
Origin time = 19 27 00.
Underwater explosion.

" 6 Up iP 20 33 39.7
microns sec
M E 0.7 16
M N 0.6 16
M Z 1.3 16
Ki eP 20 33 11
i 20 33 16.0
microns sec
M E 0.5 13
M N 0.5 12
M Z 0.7 13
Sk iP 20 33 40.5
Gb iP 20 34 02.2
Um iP 20 33 22.5
Ka iP 20 33 54.2
Ryukyu Islands
(h = 25 km).

" 6 Ki iPg 20 48 16.4
iSg 20 48 31.7
iL 20 48 40.7
D = 130 km = 1.2°.
Sk iSg 20 50 12.3
Um iSg 20 49 27.1
Swedish Lapland,
66.7°N, 19.6°E.
Origin time = 20 47 52.
Probably blast.

" 6 Um iPKP 23 00 52.6
South of Kermadec Islands
(h = 270 km).

" 7 Up iP 01 27 52.5

" 7 Um iP 10 21 11.9

" 7 Um iPg 14 46 31.6
iSg 14 46 54.6
Northern Gulf of Bothnia.
Underwater explosion.

" 7 Um iP 15 06 12.0

" 7 Um iPg 15 16 31.0
iSg 15 16 52.6
Northern Gulf of Bothnia.
Underwater explosion.

" 7 Ki iP 22 19 53.7
(cont.)

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

1966 July	7	(cont.)			
		Um	iP	22 20 12.5	
"	7	Um	iPKP	23 41 18.8	
		Tonga Islands (h = 25 km).			
"	8	Ki	iP	02 11 05.8	
		Um	i(P)	02 11 03.9	
"	8	Up	iP	03 58 50.7	
		Ki	iP	03 59 26.0	
		Sk	iP	03 59 24.8	
		Um	eP	03 59 09	
		Persian Gulf.			
"	8	Sk	iP	04 04 26.9	
		Um	iP	04 04 43.5	
		Panama-Costa Rica (h = 50 km).			
"	8	Up	iP	07 30 38.1	
		Ki	eP	07 30 35	
		Um	iP	07 30 30.0	
			i	07 30 36.5	
"	8	Up	i(P)	12 31 23.8	
		Um	iP	12 31 17.0	
"	8	Up	iP	20 22 26.2	
"	9	Sk	eP	03 33 58	
		Greece (h = 40 km).			
"	9	Ki	iPn	07 30 43.7	
			iSn	07 31 39.8	
			iLgl	07 31 59.0	
			D = 530 km = 4.7°.		
		Sk	eSg	07 34 32	
		Um	iSn	07 32 24.5	
			iSg	07 33 04.3	
		Northwest Russia 67.9°N, 33.0°E. Origin time = 07 29 30. Explosion?			
"	9	Up	iPKP	08 11 32.1	
		Ki	iPKP	08 11 12.0	
		Sk	iPKP	08 11 26.4	
		Gb	iPKP	08 11 39.4	
		Um	iPKP	08 11 21.5	
		South of Kermadec Islands (h = 60 km).			
"	9	Ki	iP	11 20 25.1	
		Ka	iP	11 18 32.3	
		Greece.			

1966 July	9	Up	iPKP	14 32 55.7	
		Fiji Islands (h = 560 km).			
"	9	Ki	iPn	14 42 08.8	
			iSn	14 43 06.9	
			iLgl	14 43 25.0	
		Northwest Russia. Explosion?			
"	9	Ki	iPn	18 22 58.8	
			iP^x	18 23 07.4	
			iSn	18 23 46.2	
			iLgl	18 23 58.8	
			D = 460 km = 4.1°.		
		Sk	e(Sg)	18 26 47	
		Um	iLgl	18 25 31.4	
		Russia-Norway border, 69.6°N, 30.5°E. Origin time = 18 21 54. Explosion ?			
"	9	Um	iP	19 30 45.0	C
		Mariana Islands (h = 60 km).			
"	10	Um	iSKP	02 11 22.3	
		Tonga-Kermadec Islands (h = 550 km).			
"	10	Um	iP	06 54 59.3	
		Japan (h = 30 km).			
"	10	Um	iP	09 24 13.8	
			i	09 24 31.3	
"	10	Up	iPKP	10 20 21.9	C
			i	10 20 26.1	
				microns sec	
			PKP Z'	0.1 1.0	
			M N	1.2 24	
		Ki	e(PKP)	10 19 58	
			iPKP	10 20 04.3	
			iPP	10 23 16.4	
			iPKS	10 23 41	
				microns sec	
			PKP Z'	0.1 1.8	
			M E	0.6 20	
			M N	0.7 20	
			M Z	1.6 22	
		Sk	e(PKP)	10 20 13	
			iPKP	10 20 15.4	
		Gb	iPKP	10 20 29.9	
			i	10 20 34.2	
		Um	iPKP	10 20 09.0	C
			iPKS	10 23 48.8	

(cont.)

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

1966 July 10 (cont.)

Ka	iPKP	10 20 31.4	
	i	10 20 40.2	

Kermadec Islands
(h = 40 km).

" 10 Up	iP	16 24 36.5	C
	ipP	16 24 47.3	
	i	16 25 32.6	
	eS	16 34 18	
		microns sec	
	P N	0.4 6	
	P Z	0.8 3	
	P Z'	0.4 1.0	
	S N	0.7 9	
	M E	25 18	
	M N	18 19	
	M Z	37 18	
	D = 8600 km = 77 1/2°.		
Ki	iP	16 24 10.4	C
	ipP	16 24 20.7	
	iS	16 33 28	
		microns sec	
	P E	0.8 6	
	P Z	1.7 6	
	P Z'	0.7 1.5	
	S E	0.8 8	
	S N	0.7 10	
	M E	21 18	
	M N	6.0 13	
	M Z	23 18	
	D = 8100 km = 73°.		
Sk	iP	16 24 38.2	C
	ipP	16 24 48.8	
Gb	iP	16 24 56.1	C
	ipP	16 25 06.2	
Um	iP	16 24 19.9	C
	ipP	16 24 30.4	
	iPa	16 28 54	
	iS	16 33 47	
Ka	iP	16 24 50.5	C
	ipP	16 25 00.8	

Ryukyu Islands. h = 40 km
(Up,Ki,Sk,Gb,Um,Ka).
Magn. = 6.3 (Up,Ki).
The velocity of Pa (Um) is 8.52 km/sec; compare remark to July 1, 06 02.

" 10 Up	iP	19 10 01.8	
	ipP	19 10 12.4	
Ki	iP	19 09 35.6	
	ipP	19 09 46.7	
Sk	ipP	19 10 12.0	
Um	iP	19 09 45.3	

Ryukyu Islands.
Origin time = 18 58 06.8.
h = 40 km (Up,Ki).

1966 July 10

Up	iP	22 16 12.8	
Ki	iP	22 15 46.7	
		microns sec	
	M E	0.4 16	
	M Z	0.5 18	
Sk	iP	22 16 14.9	
Gb	iP	22 16 33.1	
Um	iP	22 15 56.3	C
Ka	iP	22 16 27.2	

Ryukyu Islands
(h = 60 km).

" 11 Sk	i	01 12 50.7	
	iSg	01 12 59.5	
Um	iSg	01 14 47.2	

Probably Norway.

" 11 Ki	eP	01 21 17	
Um	iP	01 21 44.0	

Aleutian Islands
(h = 25 km).

" 11 Up	iP	05 45 56.9	
Um	iP	05 45 34.4	C

" 11 Up	i(Pn)	21 39 59.6	
	iSn	21 41 15.3	
	iLi	21 41 35.7	
	iLgl	21 41 51.8	
	iSg	21 42 07.5	
Ki	iPn	21 38 49.8	
	i	21 39 25.4	
	iSn	21 39 46.8	
		microns sec	
	Sn Z'	0.3 0.5	
	M E	0.6 9	
	M N	0.5 14	
	M Z	0.6 9	
	D = 450 km = 4°.		
Sk	iPn	21 38 45.9	D
	iSn	21 39 31.2	
	iSg	21 39 55.2	
	i	21 40 08.4	
Gb	iSg	21 43 10.7	
Um	iPn	21 39 10.3	
	i	21 39 14.9	
	iSg	21 40 39.8	
Ka	iPn	21 40 42.4	

Norwegian Sea
(h = 40 km).

" 11 Up	iPKS	23 08 55	
		microns sec	
	M E	0.7 18	
	M N	0.8 20	
	M Z	0.6 20	
Ki	e(PKP)	23 04 56	

(cont.)

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

1966
July 11 (cont.)

Ki	iPKP	23 05 04.8	
	microns	sec	
	M E	0.6	17
	M N	0.6	18
	M Z	1.1	19
Um	iPKP	23 05 11.4	
	i	23 05 23.7	
	iPP	23 07 39	
	iPKS	23 08 39	
	iSS	23 25 27	

Tonga Islands
(h = 120 km).

" 12

Up	iP	00 09 37.3	
	eS	00 14 16	
Ki	iP	00 10 23.5	
Um	iP	00 10 10.6	

Turkey (h = 60 km).

" 12

Ki	iPn	02 38 33.9	
	iSn	02 39 21.4	
	iLgl	02 39 36.4	
	D = 440 km = 4.0°.		
Sk	iSg	02 42 31.5	
Um	iSn	02 40 31.0	
	iLgl	02 41 09.2	

Russia-Norway border,
69.6°N, 30.5°E.
Origin time = 02 37 30.
Explosion?
This solution, like the one of July 9 at 18 22, agrees perfectly with readings at Kirkenes and Tromsö. The reason for the discrepancy mentioned on June 24, 1966, 07 24, is that we had interpreted the largest onset as being Sg, but it now turns out that agreement is achieved if this is instead interpreted as Lgl (at Ki and Um, but not at Sk!). However, even if some of our earlier reported Sg should be Lgl, this does not appear to be a general rule in this series of events.

" 12 Up iP 02 59 06.9 C

" 12

Up	iP	03 01 43.4	
	iS	03 06 01	
	microns	sec	
	P Z'	0.1	0.5
	S E	0.3	3

(cont.)

1966
July 12 (cont.)

Up	microns	sec	
	M E	1.4	18
	M N	0.6	13
	M Z	0.7	14
	D = 2700 km = 24 1/2°.		
Ki	iP	03 02 52.8 C	
	i	03 03 02.8	
	eS	03 07 53	
	microns	sec	
	P Z'	0.1	1.0
	M E	2.0	19
	M N	0.9	13
	M Z	1.1	13
	D = 3550 km = 32°.		
Sk	eP	03 02 21	
	i	03 02 33.7	
Gb	iP	03 01 32.6	
	iPP	03 02 08.2	
Um	iP	03 02 16.0	
	iPP	03 03 17.9	
	iPcP	03 05 38.5	
	iS	03 06 46	
	i	03 07 13	
Ka	iP	03 01 07.7	

South of Greece
(h = 15 km).
Magn. = 5.6 (Up,Ki).

" 12 Ki eP 03 20 42

" 12

Sk	iPKP	07 12 07.3	
Um	iPKP	07 12 01.8	

Kermadec Islands
(h = 30 km).

" 12 Um iP 07 15 35.0
South of Japan
(h = 40 km).

" 12

Up	iP	13 34 30.3	
	i	13 34 39.7	

" 12

Up	iP	15 16 25.9	
	i	15 16 41.5	

" 12

Um	iPKP	17 56 22.3	
	i	17 56 28.6	

Loyalty Islands
(h = 130 km).

" 12 Up iP 18 34 28.0 C

" 12

Up	iP	18 57 30.0 D	
	iS	19 00 46	
	iSa	19 01 02	
	iLg2	19 03 32	

(cont.)

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

1966
July 12 (cont.)

Up
microns sec
P E 2.4 3
P N 2.9 3
P Z 3.5 3
P Z' 1.2 0.7
M E 9.5 15
M N 11 18
M Z 15 17
D = 2100 km = 19°.

Ki iP 18 58 31.0 D
i 18 58 40
iS 19 02 48
iSn 19 03 05.9
iLgl 19 06 21
microns sec
P E 1.4 5
P N 1.8 6
P Z 2.4 5
P Z' 2.6 1.0
S E 2.7 6
S N 3.9 5
S Z 3.6 8
M E 13 9
M N 14 10
M Z 19 10
D = 2800 km = 25°.

Sk iP 18 58 18.1
i 18 58 23.8
iS 19 02 33.7

Gb iP 18 57 44.2 D
iS 19 01 20.7

Um iP 18 57 56.4 D
iS 19 01 48
iLgl 19 04 27

Ka iP 18 57 11.8 D
iS 19 00 37.8

Caucasus (h = 25 km).
Magn. = 6.5 (Up,Ki).
Well developed higher-mode surface waves. Long waves between P and S (especially on long-period Um and Up records), otherwise pronounced high-frequency motion.

" 12 Up i(P) 19 12 20.7

" 12 Up iP 20 35 59.9

" 12 Up iP 21 41 09.4

" 12 Up i(P) 22 10 53.8

" 13 Up iP 00 54 33.4

1966
July 13 Up iPKP 06 07 09.6
Sk iPKP 06 07 02.3 C
Kermadec Islands
(h = 120 km).

" 13 Ki iSKP 07 07 48.9
Sk ePKP 07 05 13
iSKP 07 08 04.2
Gb iPKP 07 05 29.8
Um iSKP 07 07 59.3
Ka iPKP 07 05 32.7
Tonga-Kermadec Islands
(h = 540 km).

" 13 Up iP 07 44 52.8

" 13 Up iP 08 33 45.7
Ki eP 08 33 27
microns sec
M E 0.7 23
M N 0.4 22
M Z 0.9 23
Sk eP 08 33 33
i 08 33 40.1
Um iP 08 33 50.1
i 08 33 57.3
Nicaragua (h = 60 km).

" 13 Ki iP 09 54 36.0

" 13 Ki eS 10 44 29
microns sec
M E 0.6 15
M N 0.4 17
M Z 0.9 17
Sk eP 10 39 14
North Atlantic Ocean
(h = 25 km).

" 13 Um iP 12 02 52.0

" 13 Ki iP 14 53 54.8
Sk eP 14 54 01
Um iSKS 15 04 01
Celebes (h = 130 km).

" 13 Ki i(Sg) 15 03 42.2
Sk e(Sg) 15 03 02
Um i(Sg) 15 01 43.4

" 14 Ki iP 04 45 40.9
Congo-Uganda
(h = 30 km).

" 14 Up iP 06 30 15.3 C
microns sec
P Z' 0.1 1.0
(cont.)

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

1966 July 14 (cont.)

Ki
microns sec
M E 0.9 15
M N 0.5 15
M Z 1.1 17

Sk	iP	06 30 10.8	C
Gb	iP	06 30 36.1	
Um	iP	06 29 54.3	C

Japan (h = 70 km).

" 14	Up	iP	09 02 26.7	
" 14	Up	iP	10 08 58.7	
	Ki	iP	10 08 11.3	

microns sec
P Z' 0.1 1.0

Um	iP	10 08 32.7	

Kurile Islands
(h = 30 km).

" 14	Um	eP	11 52 01	
	Ka	iP	11 52 59.5	
" 14	Up	iP	12 28 47.1	C
	Ki	iP	12 27 53.4	
	Sk	iP	12 28 18.8	
	Um	iP	12 28 21.3	C
		iS	12 36 33	

Alaska (h = 30 km).

" 14	Up	iPn	13 57 39.9
		iPg	13 57 41.4
		iSn	13 57 58.3
		iSg	13 58 02.1

microns sec
Sg Z' 0.1 0.5
D = 180 km = 1.6°.

Sk	eSg	13 59 21	
Um	ePg	13 58 01	
	iSg	13 58 36.5	

D = 290 km = 2.7°.
Gulf of Bothnia,
61.2°N, 19.4°E.
Origin time = 13 57 09.
Probably underwater explosion.

" 14	Gb	iP	14 17 18.3	
" 14	Ki	iPn	14 47 41.1	
		iSn	14 48 35.4	
		iSg	14 48 54.4	
	Sk	ePn	14 47 35	
		iPg	14 47 49.1	
		iSn	14 48 16.8	
		i	14 48 54.1	
	Um	iSn	14 48 57.5	

(cont.)

1966 July 14 (cont.)

Um	iSg	14 49 29.8	

Norwegian Sea.
Origin time = 14 46 37.
Aftershock of July 11, 21 39.

" 14	Up	iP	18 17 44.7	C

microns sec
P Z' 0.1 0.5

Ki	iP	18 16 50.9	C

microns sec
P Z' 0.1 0.8

Sk	iP	18 17 25.1	C
Gb	iP	18 18 02.9	C
	ipP	18 18 10.5	
	i	18 18 35.6	
Um	iP	18 17 16.6	C
Ka	iP	18 18 08.4	C

Aleutian Islands.
h = 30 km (Gb).
Magn. = 5.9 (Up,Ki).

" 14	Up	iP	18 19 33.3
	Ki	iP	18 18 40.0
	Sk	iP	18 19 15.0
	Um	iP	18 19 04.7
	Ka	iP	18 19 54.8

Aleutian Islands
(h = 30 km).

" 14	Ki	iPKP	20 18 49.4

South of Africa
(h = 30 km).

" 15	Um	iP	02 34 23.5

North Atlantic Ocean
(h = 30 km).

" 15	Ki	ePn	04 30 05
		iSn	04 31 02.4
		iSg	04 31 17.6
	Sk	iSn	04 30 43.4
	Um	iSg	04 31 56.1

Norwegian Sea.
Origin time = 04 29 02.
Aftershock of July 11, 21 39.

" 15	Up	iP	08 11 11.5	
		i	08 11 15.2	
	Ki	iP	08 11 13.6	
		i	08 11 24.5	
	Sk	iP	08 10 50.9	
		i	08 11 02.1	
	Um	iP	08 11 12.7	
		i	08 11 23.8	

Leeward Islands (h = 90 km).

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

1966				
July 15	Ki	eSn	08 26 55	
		iLgl	08 27 44.2	
	Um	ePn	08 24 23	
		iSn	08 25 26.3	
		iLgl	08 25 43.3	
" 15	Ki	iP	10 45 53.8	
	Um	iP	10 45 58.8	
" 15	Um	iP	14 08 50.9	
" 15	Ki	iP	20 39 20.5	
	Mindanao (h = 60 km).			
" 15	Ki	iP	21 36 08.9	
	Um	iP	21 36 36.0	
	Aleutian Islands (h = 30 km).			
" 15	Up	iP	23 54 57.6	
	Ki	eP	23 56 06	
		i	23 56 21.6	
	Sk	iP	23 55 35.6	
	Um	iP	23 55 34.3	
	Greece (h = 40 km).			
" 16	Um	iP	00 47 35.8	
	Celebes (h = 180 km).			
" 16	Ki	iPKP	07 38 35.7	
	Sk	iPKP	07 38 46.9	
	Um	iPKP	07 38 41.9	C
	Santa Cruz Islands (h = 70 km).			
" 16	Ki	iPn	07 49 04.7	
		iSn	07 50 00.8	
		i(Lgl)	07 50 18.6	
		(D = 510 km = 4.6°).		
	Sk	e(Sg)	07 52 50	
	Um	iSn	07 50 44.8	
		i	07 51 00.1	
		iSg	07 51 24.8	
		i	07 51 33.8	
	Northwest Russia. Explosion? Compare July 12, 02 38. In this case more data would be needed for a unique solution, although it appears clear that now it is Sg and not Lgl which is recorded, at least at Um.			
" 16	Ki	iPn	10 15 36.2	
		iSn	10 16 31.2	
	(cont.)			

1966				
July 16	(cont.)			
	Ki	iLgl	10 16 49.4	
		iSg	10 16 54.1	
		D = 510 km = 4.6°.		
	Sk	e(Lgl)	10 19 18	
	Um	iSn	10 17 16.6	
		iSg	10 18 04.4	
	Northwest Russia. Explosion?			
" 16	Um	iP	12 28 47.7	
" 16	Sk	iP	12 38 52.8	
" 16	Up		--	
		microns	sec	
		M E	0.4	12
		M N	0.7	11
		M Z	0.7	12
	Ki	iP	19 50 54.3	
		microns	sec	
		M E	0.8	16
		M N	1.2	13
		M Z	1.2	16
	Um	iP	19 50 49.8	
		iSS	19 59 22	
		iScS	20 01 01	
		iLgl	20 03 50	
	Kirghiz-Sinkiang (h = 30 km).			
" 17	Up	iP	01 13 41.6	
	Ki	iP	01 12 38.7	C
	Um	iP	01 13 06.2	
	Alaska (h = 40 km).			
" 17	Up	iPKP	02 43 23.9	
		i	02 43 28.3	
	Ki	iPKP	02 43 10.2	
	Sk	iPKP	02 43 19.8	
	Um	iPKP	02 43 16.6	
		iPKS	02 46 43	
	Loyalty Islands (h = 60 km).			
" 17	Up	iP	06 06 18.8	
		i	06 06 25.0	
	Um	iP	06 06 08.0	
" 17	Up	iP	08 56 26.0	
	Ki	iP	08 55 13.0	C
	Um	iP	08 55 42.5	
		iPcP	08 56 44.5	
	Alaska (h = 100 km).			
" 17	Up	iP	10 19 38.5	
	Ki	iP	10 19 12.5	
	(cont.)			

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

1966 July 17 (cont.)

Sk	iP	10 19 41.4	
Um	iP	10 19 23.1	
Ki	iP	10 41 06.3	
Um	iP	10 41 11.2	

Banda Sea (h = 140 km).

Ki	iP	22 59 57.8	
Sk	iP	23 00 03.0	
	iS	23 01 55.3	
Um	iS	23 02 44.8	

Jan Mayen (h = 30 km).

Ki	eP	23 23 46	

Up	iPKP	01 06 46.3	
Gb	iPKP	01 06 56.2	

Tonga Islands
(h = 140 km).

Up	iP	02 05 04.4	
Ki	iP	02 05 36.6	
	i	02 05 44.4	
Sk	eP	02 05 34	
Gb	eP	02 05 11	
Um	iP	02 05 25.1	
	iS	02 13 39	

Indian Ocean
(h = 30 km).

Ki	iP	03 37 08.0	

Alaska (h = 30 km).

Up	iP	04 50 39.4	
Ki	iP	04 49 59.6	C
Sk	iP	04 50 32.9	
Um	iP	C4 50 16.7	C
Ka	iP	04 51 00.3	

Japan (h = 70 km).

Up	iP	10 08 39.2	
Ki	iP	10 09 13.2	

		microns	sec
P	Z'	0.1	1.5
M	E	0.6	17
M	N	0.3	19
M	Z	0.7	17

Sk	iP	10 09 10.9	C
Gb	iP	10 08 47.8	
Um	iP	10 08 52.7	C
	iS	10 16 44	
Ka	eP	10 08 22	

Arabian Sea
(h = 30 km).

Ki	iP	11 14 38.8	C

Aleutian Islands (h = 20 km).

1966 July 18

Up	iP	19 47 45.0	

Indian Ocean.

Ki	eL	00 33	

		microns	sec
M	E	0.5	14
M	Z	1.0	18

North Atlantic Ocean
(h = 30 km).

Up	eL	01 27	

		microns	sec
M	E	0.7	19
M	N	1.5	19

Ki	eL	01 28	

		microns	sec
M	E	0.5	13
M	N	0.5	13
M	Z	0.6	14

Up	iP	01 51 09.8	C
	i	01 51 14.3	
	iS	01 59 26	

		microns	sec
P	Z'	0.3	1.2
S	E	0.9	12
S	N	1.4	14
M	E	7.7	21
M	N	12	21
M	Z	14	22

D = 6850 km = 61 1/2°.

Ki	iP	01 50 13.6	
	i	01 50 16.4	
	i	01 50 28.0	
	iS	01 57 44	

		microns	sec
P	N	0.5	5
P	Z	0.9	5
P	Z'	0.2	1.0
S	E	1.1	8
S	N	2.1	12
M	E	7.5	17
M	N	8.5	19
M	Z	16	20

D = 5950 km = 53 1/2°.

Sk	eP	01 50 52	
	i	01 50 56.0	
Gb	iP	01 51 29.4	
Um	iP	01 50 40.8	
	i	01 50 43.6	
	iPa	01 54 01	
	iS	01 58 31	
Ka	iP	01 51 34.1	

Komandorsky Islands
(h = 20 km).
Magn. = 6.1 (Up,Ki).

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

1966
July 19 Up iP 02 10 58.9
North Atlantic Ocean
(h = 30 km).

" 19 Ki iP 03 36 35.3
Um iP 03 36 23.9
Ka iP 03 36 30.8
Hindu Kush (h = 140 km).

" 19 Ki iP 06 33 02.7
Um iP 06 33 16.2 C
Bonin Islands
(h = 550 km).

" 19 Up iP 19 31 30.7
ipP 19 31 44.5
microns sec
P Z' 0.1 0.5
M E 0.8 18
M N 1.1 18
M Z 1.1 18
Ki iP 19 30 38.4
ipP 19 30 51.2
eS 19 38 48
microns sec
M E 1.8 16
M N 0.7 16
M Z 2.0 18
D = 6650 km = 60°.
Sk iP 19 31 09.8
iPcP 19 31 42.1
Gb iP 19 31 46.5
ipP 19 31 59.4
Um iP 19 31 03.5 C
ipP 19 31 17.1
eS 19 39 35
Ka iP 19 31 53.4 C
ipP 19 32 06.0
Aleutian Islands.
h = 50 km (Up,Ki,Gb,Um,Ka).
Magn. = 5.8 (Up,Ki).

" 20 Ki iP 09 44 18.6
Um iP 09 44 50.2
Aleutian Islands
(h = 70 km).

" 20 Up iP 10 06 57.2 C

" 20 Up iP 10 20 49.2
i 10 20 54.2
Ki iP 10 21 59.9
microns sec
M E 0.4 10
M N 0.3 15
M Z 0.4 13
Sk iP 10 21 30.0
(cont.)

1966
July 20 (cont.)
Um iP 10 21 28.5
iS 10 25 51
Greece (h = 30 km).

" 20 Um iP 11 32 31.1
Japan (h = 80 km).

" 20 Ki ePn 13 10 10
iSn 13 10 54.9
iSg 13 11 09.1
D = 390 km = 3.5°.
Um iSn 13 11 37.1
iSg 13 12 04.7
D = 580 km = 5.2°.
Russia-Finland border
region. Explosion?

" 20 Um iP 13 46 58.6

" 20 Ki eSS 13 59 02
microns sec
M E 0.8 19
M N 0.8 20
M Z 1.7 19
Easter Island Rise
(h = 30 km).

" 20 Um iP 21 03 48.5
Mariana Islands
(h = 110 km).

" 20 Ka iP 22 17 57.2

" 21 Up iPKP2 03 53 39.0
Um iPKP2 03 53 31.3
Macquarie Islands
(h = 30 km).

" 21 Up iP 04 04 53.1 C
iPn 04 05 56.2
microns sec
P Z' 0.1 0.7
Ki iP 04 04 37.8 C
microns sec
P Z' 0.2 0.8
Sk iP 04 05 08.5 C
Gb iP 04 05 21.4
iPn 04 06 41.4
Um iP 04 04 38.0 C
iPn 04 05 41.6
i 04 06 42.3
e 04 16 58
Ka iP 04 05 09.5 C
iPn 04 06 12.7
Kazakh SSR.
Magn. = 5.9 (Up,Ki).
(cont.)

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

1966 July					
21	(cont.)				
	Underground explosion.				
	With regard to the reported				
	Pn phases, reference is				
	made to M. Båth:				
	Observations of teleseismic				
	Pn phases, Pure and Appl.				
	Geophys. (in press).				
" 21	Up	iP	05 17 17.2	C	
	Ki	eP	05 16 56		
	Um	iP	05 17 03.4	C	
	Luzon (h = 30 km).				
" 21	Up	iPKP2	06 10 28.9		
	Um	iPKP2	06 10 22.8		
	Macquarie Islands				
	(h = 30 km).				
" 21	Up	iP	09 13 26.0		
	Ki	iP	09 12 32.9	C	
		microns sec			
		P Z'	0.1	1.0	
	Sk	iP	09 13 02.7		
	Gb	iP	09 13 40.3		
	Um	iP	09 12 59.1		
	Aleutian Islands				
	(h = 30 km).				
" 21	Up	iP	10 13 29.7		
" 21	Up	iP	10 13 47.1		
	Ki	iP	10 12 53.7		
	Aleutian Islands				
	(h = 50 km).				
" 21	Ki	e	12 22 11		
		iSg	12 22 20.0		
	Sk	eSg	12 22 25		
	Um	iSg	12 22 46.5		
	Nordlands Fylke, Norway.				
" 21	Up	iP	12 31 23.7		
" 21	Um	iP	13 44 06.7		
		i	13 44 12.5		
" 21	Ki	ePn	15 25 21		
		iSn	15 26 16.6		
		iLgl	15 26 36.0		
		D = 520 km = 4.7°.			
	Um	i(Lgl)	15 28 06.8		
	Northwest Russia.				
	Origin time = 15 24 08.				
	Explosion?				
" 21	Up	e(PKP)	18 48 24		
	(cont.)				

1966 July				
21	(cont.)			
	Up	i	18 48 37.9	
		iSKP	18 51 08.4	
	Ki	iPKP	18 48 15.2	
		iSKP	18 50 43.8	
		eSKKP	19 00 42	
		microns sec		
		SKP Z'	0.1	1.0
	Sk	ePKP	18 48 27	
		iSKP	18 51 00.7	
	Gb	iPKP	18 48 27.7	
		iSKP	18 51 17.2	
	Um	iPKP	18 48 23.9	
		iSKP	18 50 52.9	
		i	18 50 54.9	
		i	19 01 50	
		iSS	19 07 41	
	Ka	iPKP	18 48 31.9	
		iSKP	18 51 18.6	
	Fiji Islands			
	(h = 590 km).			
" 22	Ki	iP	03 02 18.9	C
	Congo-Uganda			
	(h = 30 km).			
" 22	Up	iP	03 47 57.3	C
		iSS	03 57 15	
		iLgl	04 02 39	
		microns sec		
		P Z'	0.2	1.0
		M E	0.7	9
		M N	1.4	12
		M Z	1.1	9
	Ki	iP	03 47 44.7	C
		i	03 48 07.8	
		iPP	03 49 19.8	
		i(Lgl)	04 02 29	
		microns sec		
		P Z'	0.1	1.1
		M E	0.7	8
		M N	0.7	10
		M Z	0.5	8
	Sk	iP	03 48 13.0	
		i	03 48 15.9	
	Gb	iP	03 48 23.3	
		i	03 48 51.9	
		iPP	03 50 06.8	
	Um	iP	03 47 44.7	
		i	03 47 47.5	
	Ka	iP	03 48 10.6	
		i	03 48 14.5	
	Sinkiang (h = 30 km).			
	Magn. = 5.9 (Up,Ki).			
" 22	Ki	iPKP	08 00 42.1	
	Um	iPKP	08 00 48.3	
	New Hebrides Islands			
	(h = 30 km).			

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

1966
July 22 Up iPP 08 47 05.0
iSKP 08 47 52.9
Ki iPKP 08 44 29.3
ipPKP 08 45 21.6
microns sec
PKP Z' 0.1 1.1
Sk iPKP 08 44 41.4 C
Gb iPKP 08 44 50.9
Um iPKP 08 44 37.0 C
ipPKP 08 45 31.1
i 08 46 06.0
Ka iPKP 08 44 51.3
New Hebrides Islands.
h = 210 km (Ki,Um).

" 22 Up iP 10 28 19.9 C
iS 10 37 19
eP'P' 10 56 32
i 10 56 44.8
microns sec
P Z' 0.1 0.5
M E 1.4 18
M N 1.5 19
M Z 2.0 21
D = 7550 km = 68°.
Ki iP 10 27 26.2 C
iPcP 10 28 13.1
ePP 10 29 44
eS 10 35 34
eP'P' 10 57 06
microns sec
P N 0.3 10
P Z 0.6 9
P Z' 0.2 1.5
PP N 0.3 10
M E 2.2 17
M N 1.8 17
M Z 3.1 18
D = 6650 km = 60°.
Sk iP 10 27 57.4
iPcP 10 28 32.4
Gb iP 10 28 34.5 C
Um iP 10 27 53.0 C
ipP 10 28 03.6
iPcP 10 28 27.5
iPa 10 31 51
iS 10 36 29
eP'P' 10 56 48
Ka iP 10 28 42.8
Aleutian Islands.
h = 50 km (Um).
Magn. = 5.8 (Up,Ki).

" 22 Ki ePKP2 13 27 10
Balleny Islands
(h = 30 km).

1966
July 22 Ki iPn 17 15 32.9
iSn 17 16 21.9
iLgl 17 16 36.8
D = 440 km = 4.0°.
Um i(Lgl) 17 18 06.7
Northwest Russia.
Origin time = 17 14 30.
Explosion?

" 22 Sk eP 17 27 47
i 17 27 53.3

" 23 Up iP 03 48 54.0
i 03 49 32.8
Ki iP 03 48 01.6
iPcP 03 48 46.3
Sk iP 03 48 31.7
Um iP 03 48 28.4
iPcP 03 49 02.1
Ka iP 03 49 17.1
Aleutian Islands
(h = 40 km).

" 23 Ki iPn 07 51 00.9
i 07 51 14.6
iSn 07 51 56.3
iSg 07 52 19.6
D = 510 km = 4.6°.
Sk eSg 07 54 50
Um iSn 07 52 42.0
iSg 07 53 18.8
D = 710 km = 6.4°.
Northwest Russia,
67.9°N, 32.7°E.
Origin time = 07 49 49.
Explosion?
Compare remarks to July 9, 18 22, July 12, 02 38 and July 16, 07 49. In the present case it is definitely Sg, and not Lgl, which is recorded, as evidenced by collation of our readings, both internally and with the Tromsö reading.

" 23 Up iP 08 37 09.0
ipP 08 37 17.7
Ki eP 08 36 16
ipP 08 36 23.9
Um iPcP 08 37 24.0
Aleutian Islands.
h = 30 km (Up,Ki).

" 23 Ki eP 14 10 43

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

1966					
July 23	Up	iP	14 42 48.3		
			microns	sec	
		P	Z'	0.1	0.9
		M	E	1.3	17
		M	N	2.0	20
		M	Z	2.3	18
	Ki	iP	14 41 55.2		
			microns	sec	
		M	E	2.8	16
		M	N	1.4	18
		M	Z	2.5	18
	Sk	iP	14 42 26.7		
		iPcP	14 43 00.1		
	Gb	iP	14 43 03.9		
	Um	iP	14 42 21.7		
		iPcP	14 42 56.9		
		e(S)	14 51 09		
	Ka	iP	14 43 11.0	C	
		ipP	14 43 25.9		
	Aleutian Islands.				
	h = 60 km (Ka).				
" 23	Ki	i(P)	15 36 37.1		
" 23	Ki	iP	17 52 30.9		
	Um	iP	17 52 20.1		
	Hindu Kush (h = 210 km).				
" 23	Up	iP	20 22 59.0		
	Ki	iP	20 22 05.6		
	Sk	iP	20 22 36.5		
	Um	iP	20 22 31.6		
		iPcP	20 23 06.9		
	Aleutian Islands				
	(h = 40 km).				
" 24	Up	iP	01 32 23.3		
	Greece (h = 30 km).				
" 24	Up	iP	04 33 10.5		
" 24	Up	iP	05 16 02.6		
	Ka	iP	05 16 02.0		
	West Pakistan				
	(h = 10 km).				
" 24	Up	iPKP	06 49 12.8		
	Sk	ePKP	06 49 01		
	Um	iPKP	06 48 55.6		
" 24	Up	iPKP	11 09 18.0		
	Ki	iPKP	11 08 46.7		
	Sk	iPKP	11 08 59.5		
	Um	iPKP	11 08 54.9		
" 24	Up	iPKP	17 37 23.6		
		isPKP	17 38 09.5		
	(cont.)				

1966				
July 24	(cont.)			
	Ki	ePKP	17 37 15	
	Sk	iPKP	17 37 27.1	
	Gb	iPKP	17 37 32.5	
	Um	iPKP	17 37 24.5	
	Ka	iPKP	17 37 35.5	
		i	17 38 43.9	
	Tonga Islands			
	(h = 110 km).			
" 25	Up	iP	09 29 35.6	
	Ki	iP	09 28 42.5	C
		microns	sec	
		P	Z'	0.1 1.0
	Sk	eP	09 29 13	
	Um	iP	09 29 09.0	
	Aleutian Islands			
	(h = 30 km).			
" 25	Sk	iPKP	11 10 56.2	
	Um	iPKP	11 10 50.8	
	South of Kermadec Islands			
	(h = 330 km).			
" 25	Ki	iP	11 53 06.7	
	Atlantic Ocean			
	(h = 30 km).			
" 25	Up	iPKP2	13 29 16.8	
	Ki	iPKP	13 28 47.8	
		i	13 28 59.8	
	Sk	iPKP	13 29 04.3	
	Um	iPKP	13 28 54.4	C
	New Zealand (h = 30 km).			
" 25	Ki	eP	20 07 08	
" 26	Up	iP	03 58 43.0	
		ipP	03 58 50.4	
	Ki	iP	03 57 47.6	C
		ipP	03 57 54.9	
	Sk	iP	03 58 26.3	
	Komandorsky Islands.			
	h = 25 km (Up,Ki).			
" 26	Ki	iPKP	06 02 30.4	
	Fiji Islands (h = 600 km).			
" 26	Ki	iP	12 57 03.2	
	Um	iP	12 57 22.9	
	Japan (h = 140 km).			
" 26	Ki	iP	15 23 13.4	
	Sk	iP	15 23 30.8	
	Um	iP	15 23 02.9	
	Hindu Kush (h = 110 km).			

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

1966
July 26 Up iP 22 36 27.3
i 22 39 23.2

" 26 Up iPKP 22 59 08.9
i 22 59 10.1
microns sec
PKP Z' 0.4 0.7
Ki iPKP 22 58 50.7
Sk iPKP 22 59 02.2
Gb iPKP 22 59 17.7 C
Um iPKP 22 58 58.0
Ka iPKP 22 59 20.4
Kermadec Islands
(h = 140 km).

" 27 Up iP 03 37 08.9 D

" 27 Up ePS 05 17 24
microns sec
M E 1.0 20
M N 1.0 20
M Z 1.2 19
Ki ePKP 05 07 31
Um iPP 05 08 09
iS 05 15 53
iPS 05 17 43
Chile (h = 40 km).

" 27 Up iPg 06 01 15.8
iSg 06 01 35.6
Sk eSg 06 04 07
Um iSg 06 03 30.2
Ka iSg 06 02 34.6
Baltic Sea.
Probably underwater explosion.

" 27 Up iP 07 27 07.2
microns sec
P Z' 0.1 0.6
Ki iP 07 26 36.3
Sk iP 07 27 04.0
Um iP 07 26 49.6
Bonin Islands
(h = 460 km).

" 27 Up iP 14 15 11.8 D
microns sec
P Z' 0.1 0.5

" 27 Um iP 14 41 29.2

" 27 Up iP 14 55 44.9 C
ipP 14 55 50.0
iPn 14 56 35.1
iS 15 01 08
iSS 15 03 10
(cont.)

1966
July 27 (cont.)
Up microns sec
P Z' 0.1 0.5
pP Z' 0.2 0.6
M E 0.8 18
M N 0.9 18
M Z 1.6 17
D = 3800 km = 34°.
Ki iP 14 56 25.7 C
ipP 14 56 31.9
iPP 14 57 53
iS 15 02 28
microns sec
pP Z' 0.1 1.0
PP N 0.4 7
M E 1.1 15
M N 1.3 20
M Z 2.5 20
D = 4350 km = 39°.
Sk iP 14 56 21.6 C
Gb iP 14 55 55.7 C
iPP 14 57 24.3
Um iP 14 55 59.9
ipP 14 56 06.0
iPn 14 56 50.5
iPP 14 57 21
iS 15 01 35
Ka iP 14 55 33.7
i 14 56 00.1
iPn 14 56 25.4
Iran.
h = 30 km (Up,Ki,Um).
Magn. = 5.7 (Up,Ki).
The existence of clear Pn waves at Up, Um, Ka is quite remarkable, considering epicenter location and path properties (compare M. Båth: Observations of teleseismic Pn phases, Pure and Appl. Geophys., in press).

" 27 Up iP 15 37 08.5
Ki iP 15 37 49.5
Sk iP 15 37 49.1
Um iP 15 37 24.5
Ka iP 15 36 58.8
Iran (h = 50 km).

" 27 Up iP 17 12 45.0
Iran (h = 70 km).

" 27 Ki ePKP 18 02 05
Um iPKP 18 02 13.6
New Zealand (h = 40 km).

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

1966
July 27 Up iP 18 13 15.2
i 18 15 00.3
Ki iP 18 13 56.2
Sk iP 18 13 51.8
Ka iP 18 13 04.3
Iran (h = 40 km).

" 27 Up iP 19 46 51.0
Ki iP 19 47 31.5 C
Um eP 19 47 07
Ka iP 19 46 41.4
Iran (h = 50 km).

" 27 Ki eP 20 35 40
eT 20 40 46
i 20 41 05.1
Sk iP 20 36 22.1
iS 20 38 09.4
Um iP 20 36 28.5 C
Norwegian Sea, 72 1/2°N, 7°E. Origin time = 20 34 04.

" 27 Up iP 21 16 50.3
Iran (h = 60 km).

" 28 Ki iPKP 01 37 27.9
New Hebrides Islands
(h = 15 km).

" 28 Sk iP 02 03 55.8
Um iP 02 03 57.1 D
Yugoslavia.

" 28 Up iP 04 21 17.2

" 28 Um iPP 06 00 51.4
Chile (h = 120 km).

" 28 Ka iPKP 07 31 40.6 C
Fiji Islands (h = 600 km).

" 28 Um iP 09 31 17.1

" 28 Ki eP 11 01 02
Um iP 11 01 06.7
Molucca Sea (h = 100 km).

" 28 Up iPKP 12 27 29.0 C
microns sec
PKP Z' 0.1 0.7
Ki ePKP 12 27 04
i 12 27 14.8
Sk iPKP 12 27 21.5 C
Gb iPKP 12 27 37.3
Um iPKP 12 27 15.9 C
Ka iPKP 12 27 38.8 C
iPKP2 12 28 03.7
Kermadec Islands (h = 60 km).

1966
July 28 Um iP 12 45 26.7

" 28 Gb iPKP 14 43 41.2
Fiji Islands
(h = 560 km).

" 28 Ki iPn 16 49 38.4
iSn 16 50 26.9
iLgl 16 50 40.7
D = 450 km = 4.1°.
Sk e(Lgl) 16 53 28
Um iLgl 16 52 11.4
Russia-Norway border region.
Origin time = 16 48 33.
Explosion?

" 28 Up iP 19 38 38.0 C

" 28 Up iPKP 23 41 00.3
Tonga-Kermadec Islands
(h = 180 km).

" 29 Up iP 04 46 35.1 C
Ki iP 04 46 23.4
Sk iP 04 46 10.2
Um iP 04 46 32.7
Off east coast of USA.
Explosion.

" 29 Gb iP 06 06 44.3

" 29 Up iP 06 37 17.3
Ryukyu Islands
(h = 20 km).

" 29 Up iP 07 19 04.2
Japan (h = 100 km).

" 29 Um iP 07 44 15.2

" 29 Up iP 08 28 11.4
Ki eP 08 28 49
Sk eP 08 28 46
Um iP 08 28 25.3
Iran (h = 30 km).

" 29 Um iPP 12 06 29
iSP 12 16 01
Solomon Islands
(h = 80 km).

" 29 Up iP 18 24 15.4

" 29 Up iP 19 59 04.3
Ki iP 19 58 16.4
Um iP 19 58 38.7 C
Kurile Islands
(h = 30 km).

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

1966				
July 29	Up	iP	22 19 28.5	
	Ki	iP	22 18 49.6	C
	Sk	iP	22 19 23.3	
	Um	iP	22 19 06.9	
		ipP	22 19 17.9	
	Japan. h = 40 km (Um).			
" 29	Ki	i(P)	23 40 27.3	
	Sk	i(P)	23 38 53.3	
	Um	i(P)	23 41 06.7	
" 30	Up	iP	05 15 39.1	
	Um	iP	05 15 36.9	C
" 30	Ki	iP	05 24 44.6	
	Sk	iP	05 24 03.6	
		i	05 24 07.6	
	Um	iP	05 24 04.7	C
		i	05 24 08.6	
	Yugoslavia (h = 30 km).			
" 30	Ki	iPn	07 31 06.6	
		iSn	07 32 02.7	
		iLgl	07 32 20.5	
		D = 520 km = 4.7°.		
	Sk	iSg	07 34 56.4	
	Um	iSn	07 32 47.5	
		iSg	07 33 26.6	
		D = 720 km = 6.5°.		
	Northwest Russia, 68.0°N, 32.9°E.			
	Origin time = 07 29 53.			
	Explosion?			
" 30	Ki	iP	17 36 10.1	
	Sk	iP	17 35 54.0	
	Colombia (h = 70 km).			
" 30	Up	iP	17 52 26.3	
	Ki	iP	17 52 03.8	
	Sk	iP	17 52 25.6	
	Mindanao (h = 40 km).			
" 30	Ki	iP	20 36 57.5	
	Arctic Ocean (h = 30 km).			
" 31	Up	iP	03 33 32.2	
		i	03 33 41.5	
		iPP	03 34 08.3	
	Ki	iP	03 34 08.9	
		iPn	03 34 35.7	
		iSn	03 39 50.9	
	Sk	iPn	03 34 33.3	
	Ka	iP	03 33 25.8	
	Caucasus (h = 30 km).			
" 31	Up	iP	04 27 24.7	
	(cont.)			

1966				
July 31	(cont.)			
	Up	i	04 27 31.8	
	Ki	iP	04 28 46.7	
	Sk	eP	04 28 14	
		i	04 28 33.6	
	Ka	iP	04 27 02.2	
	Greece.			
" 31	Ki	iP	15 28 12.4	
		i	15 28 15.9	
	Sk	iP	15 27 51.2	
	Gb	iP	15 27 18.4	
	Uganda-Congo (h = 30 km).			
" 31	Ki	iP	18 52 18.9	
		i	18 52 27.4	
		iS	18 53 44.5	
	Sk	iP	18 52 40.9	
	Norwegian Sea (h = 30 km).			
" 31	Up	iP	23 37 05.4	
	Ki	iP	23 36 11.5	
	Aleutian Islands (h = 30 km).			

Markus Båth
December 8, 1966

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

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

A U G U S T 1 - 31, 1966

1966					
Aug.	1	Up	iP	02 34 06.7	
		Ki	iP	02 33 39.7	
"	1	Ki	iPKP	03 41 39.0	
		Sk	iPKP	03 41 49.0	
		Solomon Islands (h = 70 km).			
"	1	Ki	iP	03 57 24.3	
		Sk	iP	03 57 35.1	
"	1	Up	iP	06 36 52.3	C
			microns	sec	
			P Z' 0.1	0.7	
		Ki	iP	06 35 58.5	
		Sk	iP	06 36 31.5	
		Gb	iP	06 37 08.7	
		Ka	iP	06 37 13.5	
		Aleutian Islands (h = 40 km).			
"	1	Up	iP	12 02 27.1	
		Ki	iP	12 01 58.2	
		Sk	iP	12 02 24.2	
		Mariana Islands (h = 310 km).			
"	1	Um	iP	16 00 58.1	
		Aleutian Islands (h = 15 km).			
"	1	Ki	iP	17 27 37.7	
		Congo-Uganda (h = 40 km).			
"	1	Up	eP	19 10 38	
"	1	Up	iP	19 18 11.1	C
			iPP	19 20 01	
			iS	19 24 46	
		(cont.)			

1966					
Aug.	1	(cont.)			
		Up	iSa	19 27 52	
			i	19 35 29	
			microns	sec	
			P Z' 0.2	0.5	
			PP E 0.4	4	
			PP Z 0.6	4	
			S E 1.1	6	
			S N 0.7	6	
			M E 13	17	
			M N 18	17	
			M Z 23	18	
			D = 5000 km = 45°.		
		Ki	iP	19 18 26.8	C
			i	19 19 39.0	
			eS	19 25 21	
			microns	sec	
			P N 0.3	4	
			P Z 0.5	5	
			P Z' 0.2	1.2	
			S E 1.9	12	
			S N 0.6	12	
			M E 14	14	
			M N 9.8	12	
			M Z 13	13	
			D = 5200 km = 47°.		
		Sk	iP	19 18 38.5	C
			ipP	19 18 43.8	
		Gb	iP	19 18 29.1	C
		Um	iP	19 18 13.4	C
			ipP	19 18 19.0	
			iPcP	19 19 51.6	
			iPP	19 20 03	
			iS	19 24 52	
		Ka	iP	19 18 11.4	C
			ipP	19 18 18.8	
			iPP	19 20 05.9	
		West Pakistan. h = 25 km (Sk,Um,Ka). Magn. = 6.0 (Up,Ki).			

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

1966
Aug. 1 Up iP 19 28 53.9
Sk iP 19 29 21.4
Um iP 19 28 56.1 C
West Pakistan.
Origin time = 19 20 37.9.
Probably same coordinates as for the preceding shock.

" 1 Up iP 19 50 22.8
Sk iP 19 50 23.0
Um iP 19 50 17.8

" 1 Ki iPKP 20 04 26.9
Tonga Islands (h = 30 km).

" 1 Um iP 20 35 52.6

" 1 Up iP 20 39 11.6 C
iPP 20 40 57
iS 20 45 49
i 20 56 44

		microns	sec
P	Z'	0.1	0.6
PP	E	0.6	4
PP	N	0.3	5
PP	Z	0.9	4
S	E	0.4	5
S	N	0.3	5
M	E	4.8	17
M	N	8.0	15
M	Z	5.6	16

D = 5000 km = 45°.

Ki iP 20 39 27.5 C
iPcP 20 40 59.9
iPP 20 41 16
iS 20 46 19
iSS 20 49 49

		microns	sec
P	E	0.6	5
P	N	0.3	6
P	Z	1.0	4
PP	E	0.7	5
PP	N	0.4	5
PP	Z	0.8	5
S	E	1.1	13
M	E	7.4	13
M	N	4.9	10
M	Z	7.7	12

D = 5200 km = 47°.

Sk iP 20 39 39.2 C
Gb iP 20 39 29.5 C
Um iP 20 39 13.9 C
iPP 20 41 04.7
iS 20 45 52
iSS 20 49 18
Ka iP 20 39 11.4 C
i 20 39 14.5
iPP 20 41 02.9
West Pakistan (h = 30 km).
Magn. = 6.0 (Up,Ki).

1966
Aug. 1 Up iP 20 43 03.5
ipP 20 43 09.7

		microns	sec
P	Z'	0.1	0.5

Ki iP 20 42 17.5
Sk iP 20 42 53.5
Um iP 20 42 38.5
Ka iP 20 43 27.4
Kurile Islands.
h = 25 km (Up).

" 1 Up iP 21 11 13.0 C
iPP 21 12 54
i 21 13 12
iS 21 17 46
i 21 28 32

		microns	sec
P	E	1.5	4
P	Z'	0.9	0.6
PP	E	1.7	4
PP	Z	2.7	4
S	E	1.9	5
S	N	1.2	4
M	E	47	16
M	N	110	14
M	Z	77	16

D = 5000 km = 45°.

Ki iP 21 11 29.1 C
i 21 11 33.7
iS 21 18 18

		microns	sec
P	Z	3.4	6
P	Z'	0.8	1.4
S	E	6.4	12
M	E	77	11
M	N	110	15
M	Z	100	12

D = 5200 km = 47°.

Sk iP 21 11 40.4 C
i 21 11 43.7
Gb iP 21 11 32.4 C
Um iP 21 11 15.5 C
i 21 11 18.5
Ka iP 21 11 14.5 C
iPP 21 13 08.0
West Pakistan (h = 30 km).
Magn. = 6.7 (Up,Ki).
P is multiple, with a smaller P followed after 3 - 4 1/2 sec by a much larger onset.

" 1 Up iP 21 44 01.0
Ki iP 21 44 16.9
Sk iP 21 44 25.7
Um iP 21 44 04.8
West Pakistan (h = 30 km).

" 1 Up i(P) 22 27 16.6
(cont.)

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

1966
Aug. 1 (cont.)

	Up	i	22 27 22.5
		i	22 28 34.6
" 1	Up	iP	22 39 10.8 C
		iPcP	22 40 50.4
		microns	sec
		P Z' 0.2	0.9
	Ki	eP	22 39 26
		i	22 39 32.5
		microns	sec
		P Z' 0.1	1.5
	Sk	iP	22 39 38.3 C
	Gb	iP	22 39 26.7
	Um	iP	22 39 13.2 C
	Ka	iP	22 39 10.5

West Pakistan (h = 30 km).
Magn. = 5.8 (Up,Ki).

" 1	Ki	ePKP	23 55 05

West of Macquarie Islands
(h = 30 km).

" 2	Up	iP	04 34 13.9
" 2	Up	iP	05 49 52.3
		microns	sec
		M N 0.5	18
	Ki	iP	05 50 08.2
	Sk	iP	05 50 19.9 C
	Ka	iP	05 49 53.9

West Pakistan (h = 30 km).

" 2	Ka	iP	05 53 35.7
" 2	Up	iPn	06 54 55.5
		iSn	06 55 50.6
		microns	sec
		Sn Z' 0.1	0.4
	Ki	iSn	06 58 09.0
		eSg	06 59 32
	Sk	iSn	06 56 12.4
		iSg	06 56 45.2
	Gb	iPn	06 54 10.6 C
		iPg	06 54 17.8
		iSg	06 54 39.4
	Ka	ePn	06 54 43
		iSg	06 55 42.4
		i	06 55 52.4

South coast of Norway,
58.3°N, 8.5°E.
Origin time = 06 53 34.
Solution checked by
Norwegian and Danish
readings. On February 9,
1966, an earthquake
occurred in nearly the
same place.

1966
Aug. 2

	Up	eP	09 27 17
	Ki	iP	09 27 31.2
		microns	sec
		M E 0.4	10
		M N 0.3	10
		M Z 0.6	11
	Sk	iP	09 27 42.9
	Ka	iP	09 27 16.1

West Pakistan (h = 20 km).

" 2	Ki	iP	11 52 07.1
" 2	Ki	iP	12 18 27.3 C
" 2	Up	--	
		microns	sec
		M E 0.6	15
		M N 0.9	15
	Ki	iP	18 59 23.0 C
		microns	sec
		M E 0.9	15
		M N 0.8	15
		M Z 0.9	17
	Um	iP	18 59 39.0
		iS	19 08 40

Japan (h = 2 km).

" 2	Up	eP	19 09 06
" 2	Up	iP	19 52 44.0
	Ki	iP	19 52 35.4
	Sk	iP	19 52 59.9 C
	Um	iP	19 52 34.9

Probably Tibet-India.
Reports from other stations
found only for Sodankylä.

" 3	Ki	iP	04 35 58.2
		microns	sec
		M E 0.5	15
		M N 0.2	16
		M Z 0.6	16
	Um	iP	04 36 18.3

Kurile Islands
(h = 30 km).

" 3	Up	iP	06 22 15.5
" 3	Up	iP	11 12 17.8
	Ki	eP	11 11 44
	Sk	iP	11 12 18.4
	Um	iP	11 12 00.2

Ryukyu Islands
(h = 50 km).

" 3	Ka	iP	11 27 55.1

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

1966
Aug. 3 Ki iP 16 10 04.9
Komandorsky Islands
(h = 30 km).

" 3 Up iP 20 06 52.1

" 3 Up iP 22 20 58.9
i 22 21 08.1
Ki iP 22 21 06.1
Sk iP 22 21 23.4 C
Gb iP 22 21 20.8
Um iP 22 21 04.9
Ka iP 22 21 04.2 C
Hindu Kush (h = 30 km).

" 4 Um iP 08 13 16.1
i 08 13 26.0

" 4 Up iP 08 56 52.9

" 4 Up iP 19 08 56.8

" 4 Um iP 20 48 04.8
Aleutian Islands
(h = 30 km).

" 4 Up iP 22 37 40.5
i 22 37 51.8
Ki iP 22 37 59.3
Sk iP 22 38 10.8
Um iP 22 37 42.9
West Pakistan (h = 50 km).

" 4 Up iP 23 25 39.5

" 5 Up iP 01 11 41.4
i 01 11 43.6
i 01 11 48.5
microns sec
P Z' 0.1 0.5
M E 0.5 17
M N 0.6 12
M Z 1.1 18
Ki iP 01 11 43.3
i 01 11 45.7
microns sec
P Z' 0.1 0.7
M E 0.5 11
M N 0.3 10
M Z 0.5 10
Sk iP 01 12 05.1 C
Gb iP 01 12 04.8 C
Um iP 01 11 38.9
i 01 11 47.5
iS 01 18 33
eSS 01 22 05
Ka iP 01 11 47.8 C
i 01 11 49.9
Kashmir-Tibet (h = 60 km).
Magn. = 5.9 (Up,Ki).

1966
Aug. 5 Up iP 04 04 52.4 C
iPn 04 05 58.1
eRg 04 18 45
microns sec
P Z' 0.1 0.5
Ki iP 04 04 37.1 C
iPn 04 05 31.0
microns sec
P Z' 0.3 0.5
Sk iP 04 05 08.2 C
iPn 04 06 21.6
Gb iP 04 05 20.6
Um iP 04 04 37.4 C
iPn 04 05 38.5
iPP 04 05 52.4
iRg 04 17 42
Ka iP 04 05 08.5 C
iPP 04 06 31.6
Kazakh SSR.
Magn. = 6.1 (Up,Ki).
Underground explosion.

" 5 Ki iP 04 35 41.5
Um iP 04 36 00.2
ipP 04 36 55.8
Japan. h = 240 km (Um).

" 5 Up --
microns sec
M N 0.5 17
M Z 0.6 19
Ki iPKP 04 51 44.5
microns sec
M E 0.5 15
M N 0.8 20
M Z 0.9 17
Sk iPKP 04 51 54.8
Um iPKP 04 51 49.9
Solomon Islands
(h = 90 km).

" 5 Up iP 15 01 16.1 C

" 5 Up iP 15 15 51.0
Um iP 15 15 06.6

" 5 Up iP 15 34 01.3

" 5 Up --
microns sec
M E 0.4 10
M N 0.5 10
M Z 0.5 10
Sk iP 17 52 32.6
Um iP 17 52 32.2
iS 17 56 28
Yugoslavia (h = 30 km).

" 5 Um iP 19 45 39.8

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

1966
Aug. 5 Up iP 20 11 26.7 D
microns sec
P Z' 0.1 0.7
Ki iP 20 10 54.6
Um iP 20 11 08.3
Bonin Islands (h = 440 km).

" 6 Ki iPg 00 03 18.4
iSg 00 03 33.8
D = 130 km = 1.2°.
Sk iSg 00 05 15.1
Swedish Lapland,
66.7°N, 19.6°E.
Origin time = 00 02 54.
Probably blast.
Compare July 6, 1966.

" 6 Up iP 02 35 11.3
iS 02 38 29
microns sec
P Z' 0.1 1.0
M E 1.4 15
M N 2.2 10
M Z 1.7 9
D = 1950 km = 17 1/2°.
Ki iP 02 36 35.4 C
iPP 02 37 16.8
microns sec
P Z' 0.2 2.0
M E 2.1 15
M N 1.6 10
M Z 1.9 10
Sk iP 02 35 56.0
i 02 36 06.2
Gb iP 02 34 48.7
Um iP 02 35 55.7 C
i 02 35 59.8
eS 02 39 52
Ka iP 02 34 33.2
Yugoslavia (h = 30 km).
Magn. = 5.3 (Up,Ki).

" 6 Ki eP 05 12 17
i 05 13 06.2
Sk iP 05 12 40.9
Jan Mayen-Spitsbergen
(h = 30 km).

" 6 Up iP 05 56 06.6
microns sec
M E 0.5 11
M N 1.0 10
M Z 0.9 10
Ki eP 05 57 27
microns sec
M E 0.9 15
M N 1.5 10
M Z 0.8 10
(cont.)

1966
Aug. 6 (cont.)
Sk iP 05 56 47.8
Um iP 05 56 47.7 D
i 05 56 51.5
iS 06 00 46
Ka iP 05 55 24.8
Yugoslavia (h = 10 km).

" 6 Ki iPn 07 44 49.1
iSn 07 45 45.3
iLgl 07 45 58.7
D = 520 km = 4.7°.
Sk iLgl 07 48 34.4
Um iSn 07 46 30.6
iSg 07 47 18.9
Northwest Russia,
68.3°N, 33.0°E.
Origin time = 07 43 34.
Explosion?

" 6 Up iP 08 33 02.1
Ki iP 08 32 27.1
Um iP 08 32 41.5 D
South of Japan (h = 120 km).

" 6 Up iP 18 10 27.0
Ki iP 18 10 01.6
ipP 18 10 27.9
Um iP 18 10 12.7 D
Ryukyu Islands. h = 100 km (Ki).

" 6 Ki iP 18 20 46.1
Um iP 18 20 07.9

" 6 Ki iP 18 32 51.6
i 18 32 57.3
eT 18 38 03
i 18 38 32.0
Sk iP 18 33 27.0
i 18 33 31.8
iS 18 35 11.4
Norwegian Sea.
Origin time = 18 31 06.

" 6 Up iP 18 37 25.2 C
i 18 37 35.0
Ki iP 18 38 42.5
i 18 39 03.4
Sk iP 18 38 05.0
i 18 38 13.8
Gb iP 18 37 12.2
Greece (h = 60 km).

" 6 Ki eT 18 43 49
i 18 44 19.5
Sk iP 18 39 23.1 C
iS 18 41 07.3
Norwegian Sea.
Origin time = 18 37 03.

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

1966					
Aug.	6	Up	iP	19 44 21.5	
			microns	sec	
			M N	0.9	17
			M Z	0.9	18
		Ki	iP	19 43 35.7	
			microns	sec	
			M E	0.6	15
			M N	0.5	15
			M Z	0.9	15
		Kurile Islands			
		(h = 40 km).			
"	6	Ki	iP	20 05 47.9	
"	6	Ki	iP	20 14 19.4	
			i	20 14 24.3	
			i	20 15 20.4	
			eT	20 19 13	
			i	20 19 46.4	
			i	20 20 04.3	
		Sk	iP	20 14 50.5	
			i	20 14 57.1	
			iS	20 16 36.5	
		Norwegian Sea (h = 30 km).			
"	6	Up	iP	20 30 29.7	
			i	20 30 46.2	
		Ki	iP	20 29 42.7	
		Kurile Islands			
		(h = 40 km).			
"	6	Up	iP	21 15 24.1	
		Ki	iP	21 14 30.7	
		Sk	iP	21 15 03.8	
		Um	iP	21 14 57.0	
			i	21 15 07.8	
		Aleutian Islands			
		(h = 30 km).			
"	7	Up	iP	02 24 11.9 D	
			iPP	02 26 39	
			iS	02 33 14	
			i	02 33 19	
			iP'P'	02 52 08.6	
			i	02 52 19.2	
			microns	sec	
			P E	0.5	5
			P N	5.0	5
			P Z	9.6	5
			P Z'	1.4	0.7
			PP N	3.2	8
			PP Z	3.6	9
			S E	4.4	6
			S N	13	5
			P'P' Z'	0.6	1.4
			M E	9.3	21
			M N	32	23
			M Z	27	23
			D = 7700 km = 69 1/2°.		
		(cont.)			

1966					
Aug.	7	(cont.)			
		Ki	iP	02 23 19.3	D
			iPP	02 25 41	
			iS	02 31 39	
			i	02 31 43	
			iP'P'	02 52 35.3	
			microns	sec	
			P E	0.9	4
			P N	8.3	7
			P Z	18	7
			P Z'	2.7	1.0
			PP Z	7.8	11
			S E	15	11
			S N	18	10
			S Z	13	11
			M E	12	17
			M N	14	20
			M Z	35	21
			D = 6850 km = 61 1/2°.		
		Sk	iP	02 23 49.8	D
			iS	02 32 38.7	
			iP'P'	02 52 23.7	
			i	02 52 31.5	
		Gb	iP	02 24 26.3	D
			iS	02 33 45.3	
		Um	iP	02 23 45.5	D
			iPP	02 26 06	
			iS	02 32 22	
			i	02 32 27	
			iP'P'	02 52 23.7	
		Ka	iP	02 24 34.2	
		Aleutian Islands			
		(h = 40 km).			
		Magn. = 7.2 (Up,Ki).			
		There is clear indication of a multiple S-phase (Up, Ki,Um) with a time difference of 4-5 sec between the smaller first onset and the second larger one.			
"	7	Ki	iP	05 32 24.3	
			iS	05 33 42.1	
			eT	05 37 52	
			i	05 38 05.1	
		Sk	iP	05 32 59.4	
			iS	05 34 45.4	
		Norwegian Sea.			
		Origin time = 05 30 39.			
"	7	Up	iP	10 36 32.6	
			ipP	10 36 44.4	
		Ki	iP	10 36 19.6	C
		Sk	iP	10 36 48.6	
		Sinkiang. h = 40 km (Up).			
"	7	Up	iPKP	14 00 33.3	
		Ki	ePKP	14 00 22	
		(cont.)			

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

1966
Aug. 7 (cont.)

Ki	iSKP	14 03 03.4	
Sk	iSKP	14 03 19.4	
Gb	iPKP	14 00 44.8	
Um	iSKP	14 03 14.9	

Tonga-Kermadec Islands
(h = 540 km).

" 7

Up	iP	14 22 00.5	
Ki	iP	14 21 05.1	
	eS	14 28 30	
		microns sec	
	S N	0.3 9	
	M E	0.6 17	
	M N	0.4 13	

D = 5800 km = 52°.

Sk	iP	14 21 31.1	
Gb	iP	14 22 11.1	
Um	iP	14 21 32.5	
	iS	14 29 18	
Ka	iP	14 22 23.5	D

Gulf of Alaska
(h = 5 km).

" 7

Up	iP	14 35 53.3	
Ki	iP	14 37 04.2	
Sk	iP	14 36 31.4	
Um	iP	14 36 38.4	
Ka	iP	14 35 16.8	

Greece (h = 50 km).

" 7

Up	iP	17 48 41.9	D
	iS	17 58 45	
		microns sec	
	P Z	0.9 10	
	P Z'	0.1 1.0	
	S E	1.3 10	
	S N	2.5 9	
	M E	17 18	
	M N	18 20	
	M Z	30 20	

D = 9000 km = 81°.

Ki	iP	17 48 08.1	
	i	17 48 10.6	
	iS	17 57 46	
		microns sec	
	P E	0.4 9	
	P N	0.3 9	
	P Z	1.1 9	
	P Z'	0.1 1.2	
	S E	2.2 10	
	S N	2.5 10	
	M E	20 16	
	M N	20 18	
	M Z	36 20	

D = 8350 km = 75°.

Sk	iP	17 48 19.4	

(cont.)

1966
Aug. 7 (cont.)

Um	iP	17 48 29.0	D
	i	17 48 35.4	
	iPP	17 51 24	
	iS	17 58 22	
Ka	iP	17 48 55.1	
	i	17 49 35.5	

Gulf of California
(h = 30 km).
Magn. = 6.2 (Up,Ki).
P appears on long-period records 3-4 sec earlier than PZ' (Up, Um), the reason being that P begins with a relatively long-period motion.

" 7

Up	iP	20 29 38.9	C
	i	20 29 51.5	
		microns sec	
	P Z'	0.1 0.9	
Ki	iP	20 28 55.2	C
Sk	iP	20 29 30.2	
Gb	iP	20 30 00.4	
Um	iP	20 29 14.6	C
	i	20 29 21.9	
Ka	iP	20 29 59.7	

Japan (h = 70 km).

" 8

Up		--	
		microns sec	
	M N	0.4 13	
Ki	iP	00 48 04.6	
		microns sec	
	M E	0.5 16	
	M N	0.5 14	
	M Z	0.9 17	
Um	iP	00 48 21.2	

Japan (h = 50 km).

" 8

Um	iP	02 08 53.6	

" 8

Up	iPKP	05 32 00.4	
	i	05 32 11.5	
Ki	iPKP	05 31 42.8	
Sk	iPKP	05 31 55.5	C
Um	iPKP	05 31 49.9	
	i	05 32 04.7	

South of Kermadec Islands
(h = 30 km).

" 8

Ki	ePKP	07 43 03	
Sk	ePKP	07 43 15	
Um	iPKP	07 43 09.3	

Santa Cruz Islands
(h = 15 km).

" 8

Up	e	08 16 10	

(cont.)

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

1966
Aug. 8 (cont.)

Up	iSKS	08 26 10	
		microns	sec
	SKS E	0.3	9
	SKS N	0.5	10
	M E	2.5	19
	M N	2.4	20
	M Z	4.3	19
Ki	iP	08 15 21.4	
	iPP	08 18 33.7	
	eSKS	08 25 40	
		microns	sec
	P Z'	0.2	2.2
	SKS E	1.6	10
	SKS N	1.5	10
	M E	7.8	16
	M N	3.5	17
	M Z	9.7	16

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

" 8 Sk eP 11 48 53
Greece.

" 8 Um iP 12 34 50.6 C

" 8 Ki iP 12 53 50.3
Um iP 12 54 00.7
Mariana Islands
(h = 50 km).

" 8 Um iP 14 02 50.1

" 8 Um iP 17 22 48.4

" 8 Ki eP 23 23 14
Mexico (h = 30 km).

" 9 Up iP 00 26 40.0
Ki iP 00 27 20.6
Sk eP 00 27 17
Um iP 00 26 43.2
Ka iP 00 26 32.6
Iran (h = 50 km).

" 9 Up iP 01 09 42.9
Ki e(P) 01 11 15
Sk iP 01 10 24.8
Um iP 01 10 24.0
Yugoslavia (h = 30 km).

" 9 Up iP 03 38 43.4 C

		microns	sec
	M E	0.5	13
	M N	0.7	15
	M Z	0.9	15
Ki	iP	03 39 59.2	
	i	03 40 03.4	

(cont.)

1966
Aug. 9 (cont.)

Ki		microns	sec
	M E	0.7	12
	M N	0.5	10
	M Z	0.8	12
Sk	iP	03 39 24.0	
	i	03 39 27.1	
Gb	iP	03 38 37.5	
Um	iP	03 39 22.4	
	iS	03 43 30	
Ka	eP	03 38 02	

Albania (h = 30 km).

" 9 Ki iP 11 25 20.5

		microns	sec
	M E	0.3	16
	M Z	0.4	16
Um	iP	11 25 31.3	

Costa Rica (h = 40 km).

" 9 Ka iP 14 34 58.6

" 9 Ki iP 17 41 06.6
Um iP 17 41 09.3 C

" 9 Um iP 19 50 41.7

" 10 Up iP 02 44 40.3

" 10 Up iP 03 31 27.1 C
i 03 31 31.6
Ki iP 03 31 18.5
Sk iP 03 31 42.6
Um iP 03 31 16.4
Probably Tibet-India.
Reports from other stations found only for Kajaani, Warsak, Quetta and Tromsö.
Compare Aug. 2, 19 52.

" 10 Up iPKP 05 20 15.6
iPP 05 23 28.0
iSKP 05 23 52

		microns	sec
	PKP Z'	0.1	1.0
Ki	i(PKP)	05 20 06.9	
	iPKP	05 20 09.8	
	iSKP	05 23 28.8	
		microns	sec
	PKP Z'	0.4	2.0
	SKP N	0.3	6
	SKP Z	0.7	9
	SKP Z'	1.0	2.5
Sk	e(PKP)	05 20 08	
	iPKP	05 20 20.4	
	ipPKP	05 20 47.9	
	eSKP	05 23 43	
Gb	iPKP	05 20 25.9	
	i	05 20 33.8	

(cont.)

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

1966
Aug. 10 (cont.)

Um	i(PKP)	05 20 04.7	
	iPKP	05 20 17.7	
	iSKP	05 23 39.7	
	i	05 35 28	
	iSS	05 40 39	
Ka	iPKP	05 20 28.8	C
	iSKP	05 24 03.9	

Tonga Islands (h = 100 km).

" 10

Up	iP	05 32 11.7	
Ki	eP	05 30 46	
Sk	eP	05 31 24	

Probably Norwegian Sea.

" 10

Up	iPP	12 53 26	
		microns	sec
	M E	1.1	23
	M N	1.6	20
	M Z	2.3	18
Ki	ePS	13 02 11	
		microns	sec
	M E	1.4	19
	M N	1.2	19
	M Z	2.8	19
Um	iPP	12 53 02	
	iPS	13 02 36	

New Britain
(h = 40 km).

" 10

Up	iP	15 27 47.9	
Ki	iP	15 28 59.1	
	i	15 29 14.8	
Sk	iP	15 28 26.4	
Um	iP	15 28 32.2	
Ka	iP	15 27 11.9	C

Greece (h = 5 km).

" 10

Up	iP	22 13 02.3	C
	iPn	22 14 18.4	
		microns	sec
	P Z'	0.1	1.0
	M N	0.9	11
	M Z	1.8	14
Ki	iP	22 13 10.6	C
	iPP	22 14 43.4	
	eLgl	22 26 13	
		microns	sec
	P Z'	0.2	1.2
	M E	2.2	10
	M N	1.2	10
	M Z	2.5	10
Sk	iP	22 13 28.3	C
	iPP	22 15 07.1	
Um	iP	22 13 00.1	C
	iPP	22 14 31.8	
	iS	22 18 58	
Ka	iP	22 13 07.4	C

Tadzhik SSR (h = 5 km).
Magn. = 5.7 (Up,Ki).

1966
Aug. 11

Up	iP	00 28 34.0	C
		microns	sec
	P Z'	0.1	0.7
	M N	0.6	13
	M Z	0.9	12
Ki		--	
		microns	sec
	M E	0.5	19
Sk	iP	00 29 13.4	
Gb	iP	00 28 20.2	
Um	iP	00 29 14.8	
Ka	iP	00 27 56.4	C

Ionian Sea (h = 40 km).

" 11

Up	iP	04 38 59.5	
	i	04 39 02.0	
Ki	iP	04 40 13.6	
		microns	sec
	M E	0.9	15
	M N	0.4	10
	M Z	0.6	10
Sk	iP	04 39 42.0	C
Um	iP	04 39 38.5	
Ka	iP	04 38 27.9	

Greece (h = 30 km).

" 11

Ki	iPn	04 53 53.8	
	iSn	04 54 47.5	
	iLgl	04 55 06.2	

D = 500 km = 4.5°.

Um	i(Sg)	04 56 32.9	

Probably northwest Russia.
Origin time = 04 52 44.
Explosion?

" 11

Up		--	
		microns	sec
	M N	1.8	22
	M Z	2.2	22
Ki	ePKP	05 31 52	
	iPKS	05 35 14	
		microns	sec
	PKS N	0.7	8
	M E	1.7	19
	M N	0.8	18
	M Z	1.6	20
Sk	e(PKP)	05 32 17	
Um	iPKP	05 31 57.7	
	iPKS	05 35 33	

Tonga Islands
(h = 30 km).

" 11

Um	iSKP	09 00 52.1	

Fiji Islands
(h = 570 km).

" 11

Up	iP	10 56 50.9	
Ki	iP	10 55 57.2	
	iPcP	10 56 44.4	

(cont.)

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

1966 Aug.	11	(cont.)			
		Ki		microns	sec
			P	Z' 0.1	0.8
		Sk	iP	10 56 27.7	
		Um	iP	10 56 24.0	
			i	10 56 51.0	
		Aleutian Islands (h = 60 km).			
"	11	Ki	iP	15 16 32.3	
		Mindanao (h = 120 km).			
"	11	Up	i(P)	20 56 29.6	
"	11	Gb	iPKP	20 59 31.0	
		Tonga Islands (h = 30 km).			
"	11	Up	iPKP	23 45 05.0	
				microns	sec
			M N	1.7	21
			M Z	1.4	22
		Ki	iPKP	23 44 54.3	
			iPKS	23 48 24	
				microns	sec
			PKS N	0.4	9
			M E	0.9	18
			M N	0.6	17
			M Z	1.4	19
		Gb	iPKP	23 45 11.7	
		Um	iPKP	23 44 57	
			iPP	23 47 48	
			iPKS	23 48 34	
		Ka	iPKP	23 45 14.2	
		Tonga Islands (h = 40 km).			
"	12	Up	iP	00 53 03.0	
"	12	Ki	iPKP	02 07 58.6	
		Samoa Islands (h = 30 km).			
"	12	Up	iPKP	04 18 58.9	
		Ki	iPKP	04 18 51.3	
		Sk	e(PKP)	04 18 51	
			e	04 18 59	
		Gb	iPKP	04 19 08.7	
			i	04 19 13.7	
		Um	iPKP	04 18 57.1	
		Ka	iPKP	04 19 11.6 C	
		Tonga Islands (h = 130 km).			
"	12	Um	iP	06 00 44.5	
"	12	Sk	iP	09 56 56.9	

1966 Aug.	12	Up	i	13 44 04.5	
			i	13 45 15.1	
			iSg	13 45 48.9	
		Ki	iSn	13 44 21.8	
			iSg	13 45 47.1	
		Sk	i	13 44 34.1	
			eSg	13 46 55	
		Um	iSn	13 43 57.8	
			iSg	13 45 06.2	
		Northern Russia.			
"	12	Ki		--	
				microns	sec
			M E	0.6	17
			M Z	0.8	18
		Gb	iPKP	14 57 27.7 C	
			i	14 57 36.5	
		Ka	iPKP	14 57 30.5	
		Tonga Islands (h = 60 km).			
"	12	Ki	iPn	14 57 45.9	
			iSn	14 58 34.4	
			iLgl	14 58 50.2	
			D = 440 km = 4.0° .		
		Um	iSn	14 59 56.2	
			iLgl	15 00 21.7	
			D = 790 km = 7.1° .		
		Norway - northwest Russia border region.			
		Origin time = 14 56 43.			
		Explosion?			
"	12	Up	iP	15 07 10.1	
"	12	Ka	iP	15 29 32.0	
"	12	Sk	eP	15 41 49	
		North Atlantic Ocean (h = 30 km).			
"	12	Ki		--	
				microns	sec
			M E	0.6	17
			M Z	0.8	18
		Sk	eP	16 11 57	
		North Atlantic Ocean (h = 30 km).			
"	12	Up	iP	19 33 26.1 D	
			i	19 33 34.7	
				microns	sec
			P Z'	0.1	0.5
		Ki	iP	19 32 51.0 D	
				microns	sec
			P Z'	0.1	0.8
		Sk	iP	19 33 22.2 D	
		Gb	iP	19 33 46.3	
		(cont.)			

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

1966
Aug. 12 (cont.)

Um	iP	19 33 05.9	D
Ka	iP	19 33 44.6	

Japan (h = 320 km).
Magn. = 5.8 (Up,Ki).

" 12

Up	iP	20 27 56.2	
	ipP	20 28 06.0	

		microns	sec
P	Z'	0.2	0.9

Ki	iP	20 27 03.4	
	ipP	20 27 13.1	
	iS	20 35 12	

		microns	sec
P	Z'	0.2	0.9
S	N	0.4	8
M	E	0.5	18
M	N	0.5	17

D = 6600 km = 59 1/2°.

Sk	iP	20 27 32.0	
Gb	iP	20 28 09.5	C
	ipP	20 28 19.2	
	i	20 28 46.0	
Um	iP	20 27 29.7	
	ipP	20 27 39.7	
Ka	iP	20 28 19.0	
	ipP	20 28 28.8	

South of Alaska.
h = 35 km (Up,Ki,Gb,Um,Ka).
Magn. = 6.1 (Up,Ki).

" 12

Up	iP	21 20 28.6	
Ki	iP	21 19 58.4	C
Um	iP	21 20 11.4	

Volcano Islands
(h = 100 km).

" 12

Ki	iPg	21 53 23.7	
	iSg	21 53 39.3	

D = 130 km = 1.2°.

Sk	iSg	21 55 20.1	
Um	i(Sg)	21 54 44.3	

Swedish Lapland, 66.7°N, 19.6°E. Origin time = 21 53 00. Probably blast. Compare July 6 and Aug. 6, 1966.

" 12

Up	iP	22 35 05.0	
	i	22 35 07.2	
Ki	iP	22 34 36.0	
Um	iP	22 34 49.0	

South of Japan
(h = 470 km).

" 12

Up	iP	23 26 36.3	

" 13

Ki	iPn	07 29 02.6	
	iSn	07 29 58.2	
	iLg1	07 30 18.1	

D = 510 km = 4.6°.

(cont.)

1966
Aug 13 (cont.)

Sk	eSg	07 32 52	
Um	iSn	07 30 42.7	
	iSg	07 31 18.2	

D = 700 km = 6.3°.
Northwest Russia, 67.8°N, 32.6°E. Origin time = 07 27 52. Explosion?

" 13

Gb	iP	20 36 18.4	C
	i	20 36 30.7	

" 13

Up	iP	22 43 40.7	
	i	22 43 45.4	
Gb	iP	22 43 26.9	
Ka	eP	22 42 56	

Ionian Sea.

" 14 The short-period vertical-component records, especially at Ka, exhibit very regular microseisms, evidently due to a low-pressure area over the North Sea ("North Sea microseisms").

" 14

Um	iP	00 40 14.2	
	i	00 41 03.7	

" 14

Ki	ePn	04 20 13	
	iSn	04 20 54.9	
	i(Sg)	04 21 15.1	

D = 380 km = 3.4°.

Um	eSg	04 22 08	

Northwest Russia.
Explosion?

" 14

Up	iP	05 16 04.8	
Ki	iP	05 16 08.5	C

Tadzhik-Sinkiang
(h = 100 km).

14

Up	iP	05 45 44.3	
Ki	iP	05 44 51.4	

Aleutian Islands
(h = 50 km).

" 15

Up	iP	02 24 33.9	D

		microns	sec
P	Z'	0.3	0.9
M	E	0.7	16
M	N	0.9	18
M	Z	0.9	14

Ki	iP	02 24 40.0	D

		microns	sec
P	Z'	0.4	1.1
M	E	1.1	13
M	N	0.9	14
M	Z	1.8	15

(cont.)

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

1966 Aug. 15 (cont.)

Sk	iP	02 24 57.0	D
	i	02 25 46.9	
Gb	iP	02 24 53.7	
Um	iP	02 24 31.3	
Ka	iP	02 24 38.1	D

India (h = 50 km).
Magn. = 6.3 (Up,Ki).

" 15 Up

	iP	02 58 09.2	
	eS	03 08 36	

		microns	sec
P	Z'	0.4	1.0
S	E	1.1	12
S	N	0.8	8
M	E	3.9	16
M	N	18	27
M	Z	6.8	21

D = 9550 km = 86°.

Ki

	iP	02 57 51.6	
	i	02 57 58.7	
	eS	03 08 08	

		microns	sec
P	Z'	0.2	1.5
S	E	2.4	10
S	N	1.4	10
M	E	12	18
M	N	10	17
M	Z	15	18

D = 9150 km = 82 1/2°.

Sk	iP	02 58 15.0	
	i	02 58 21.7	
Gb	iP	02 58 25.7	
Um	iP	02 57 57.6	
	i	02 57 59.5	
	iS	03 08 16	
	iSS	03 13 48	

Mindoro (h = 15 km).
Magn. = 6.4 (Up,Ki).
S appears 4-8 sec later on long-period N than on long-period E (Up,Ki,Um).

" 15 Up

	iP	10 31 27.6	
	iS	10 40 13	

		microns	sec
P	Z'	0.2	1.2
M	E	1.1	20
M	N	2.3	22
M	Z	2.7	21

D = 7350 km = 66°.

Ki

	iP	10 31 51.0	D
	ipP	10 31 58.0	
	iS	10 40 55	

		microns	sec
P	Z	0.6	5
P	Z'	0.2	1.5
S	E	0.9	12
M	E	2.4	18
M	N	1.9	18

(cont.)

1966 Aug. 15 (cont.)

Ki

		microns	sec
M	Z	4.6	19

D = 7700 km = 69 1/2°.

Sk	iP	10 31 51.6	
Um	iP	10 31 37.2	D
	ipP	10 31 44.7	
	iS	10 40 29	
	iPS	10 40 58	

Indian Ocean.
h = 25 km (Ki,Um).
Magn. = 5.8 (Up,Ki).

" 15 Um iP 12 19 12.2
West Pakistan
(h = 30 km).

" 15 Up

	iP	13 46 32.2	
	iS	13 54 37	

		microns	sec
P	Z'	0.1	1.0

D = 6700 km = 60 1/2°.

Ki

	iP	13 45 32.0	C
	ipP	13 45 36.9	
	eS	13 52 52	
	iScS	13 55 21	

		microns	sec
P	Z'	0.2	1.0
S	E	0.6	11
S	N	0.6	9
M	E	0.8	18
M	N	1.2	19
M	Z	1.7	19

D = 5800 km = 52°.

Sk	iP	13 45 58.4	
	ipP	13 46 03.1	
Gb	iP	13 46 38.3	
	ipP	13 46 42.4	
Um	iP	13 46 01.2	
	iS	13 53 42	
Ka	iP	13 46 50.7	

Alaska. h = 15 km (Ki,Sk, Gb).
Magn. = 5.7 (Up,Ki).

" 15 Ki iP 19 46 25.5
Alaska (h = 100 km).

" 15 Sk iP 20 15 34.9

" 16 Up

	iP	02 23 44.6	C
	i!	02 24 48	
	i!	02 26 20	
	iSS	02 32 32	
	i	02 34 35	

		microns	sec
P	Z'	0.9	0.6
M	E	0.8	14
M	N	1.4	10
M	Z	1.4	15

(cont.)

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

1966 Aug. 16 (cont.)

Ki	iP	02 23 53.4	C
	i	02 23 59.6	
	iPP	02 25 33	
	i	02 26 17	
	i	02 26 30	
	iSS	02 32 50	
		microns sec	
	P E	0.9 3	
	P Z	0.9 5	
	P Z'	1.4 1.1	
	M E	2.1 10	
	M N	1.0 13	
	M Z	3.2 16	
Sk	iP	02 24 10.2	C
	i	02 24 26.8	
Gb	iP	02 24 06.7	C
	iPP	02 25 48.0	
	i	02 36 22.4	
Um	iP	02 23 42.8	C
	i!	02 24 44	
	iPP	02 25 22.4	
	ipPP	02 26 02	
	iS	02 29 40	
	i	02 32 08	
Ka	iP	02 23 48.9	C
	ipP	02 24 31.5	

Hindu Kush. h = 210 km (Ka).
Magn. = 6.5 (Up,Ki).

" 16

Ki	iP	02 50 08.1	
		microns sec	
	P Z'	0.1 1.0	
Sk	iP	02 50 16.4	C
	iS	02 52 06.1	
	i	02 52 11.2	
Um	iP	02 50 41.2	
	iS	02 53 32.0	
	i	02 53 36.4	

Jan Mayen (h = 30 km).

" 16

Sk	iP	03 34 05.1	

Albania.

" 16

Up	iP	03 58 10.6	
	iS	04 01 58	
		microns sec	
	P Z'	0.1 0.6	
	M E	1.3 17	
	M N	1.5 13	
	M Z	1.5 12	
Ki	iP	03 59 29.0	C
		microns sec	
	M E	1.8 15	
	M N	1.4 13	
	M Z	1.8 12	
Sk	iP	03 58 53.7	
	i	03 59 00.0	

(cont.)

1966 Aug. 16 (cont.)

Gb	iP	03 57 55.7	
Um	iP	03 58 52.2	C
	iS	04 03 12	
Ka	iP	03 57 31.4	

Albania (h = 30 km).

" 16

Um	iP	06 30 13.4	

" 16

Ki	iP	09 56 37.2	

Sumatra (h = 30 km).

" 16

Ki	iP	13 55 59.4	C
Sk	iP	13 55 58.4	
Um	iP	13 55 42.1	

" 16

Up	iP	14 33 20.2	
Ki	iP	14 32 27.6	
Gb	iP	14 33 41.8	
Um	iP	14 32 53.0	

Kamchatka.

" 16

Up	iP	14 41 51.4	

" 16

Um	iP	14 54 21.7	

" 16

Ki	iP	15 13 21.0	
Um	iP	15 13 09.1	

Indian Ocean
(h = 30 km).

" 16

Up	i(P)	16 24 36.3	

" 16

Up	iPKP	18 06 58.2	C
		microns sec	
	PKP Z'	0.1 0.5	
Ka	iPKP	18 07 08.2	

Kermadec Islands
(h = 190 km).

" 16

Up	iP	18 14 20.2	
		microns sec	
	P Z'	0.1 0.7	
	M E	0.8 17	
	M N	2.3 22	
	M Z	1.3 20	
Ki	iP	18 13 46.4	
	eS	18 22 53	
		microns sec	
	S E	0.4 9	
	M E	2.1 21	
	M N	0.8 18	
	M Z	1.7 19	
Um	iP	18 14 06.0	
	iS	18 23 33	
Ka	iP	18 14 33.2	C

Nevada (h = 30 km).
Magn. = 5.7 (Up,Ki).

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

1966
Aug. 16 Um iP 19 29 14.5

" 16 Up iPKS 20 08 33
microns sec
M E 2.0 21
M N 3.9 21
M Z 4.1 21
Ki iPP 20 06 58
iPKS 20 08 08
microns sec
PKS E 0.3 7
PKS N 0.4 7
M E 4.1 22
M N 2.7 19
M Z 5.7 20
Um i(PP) 20 07 32
Loyalty Islands
(h = 40 km).
Magn. = 6.2 (Up,Ki).

" 16 Gb i(P) 20 29 51.5

" 16 Up iP 21 42 31.8
Gb iP 21 42 31.1

" 16 Ki iP 22 20 08.2 C
Sk iP 22 20 19.5
Um iP 22 20 45.7
Ka iP 22 22 01.0 C
Jan Mayen
(h = 30 km).

" 16 Um iP 23 14 43.6

" 17 Up iP 05 48 46.1
Ki iP 05 47 53.2
Sk iP 05 48 26.1
Um iP 05 48 18.8
Ka iP 05 49 09.1
Aleutian Islands
(h = 50 km).

" 17 Um iP 05 57 45.7

" 17 Um iP 08 13 43.0

" 17 Ki iPn 15 46 41.1
iSn 15 47 26.9
iLgl 15 47 41.0
D = 420 km = 3.8°.

" 17 Ki iP 17 48 22.0
Kurile Islands.

" 17 Ki iP 20 06 57.0 C
Sk iP 20 07 15.9
Um iP 20 07 00.5
Banda Sea
(h = 540 km).

1966
Aug. 17 Up i(P) 21 09 25.3
iP 21 09 26.9
ipP 21 09 37.9
microns sec
P Z' 0.3 0.9
M E 0.6 20
M N 1.9 23
M Z 2.9 22
Ki iP 21 08 32.0 C
ipP 21 08 42.6
i 21 08 51.5
eS 21 16 26
microns sec
P Z' 0.1 1.0
M E 0.9 20
M N 0.9 19
M Z 1.7 19
D = 6500 km = 58 1/2°.
Sk iP 21 09 06.4
Gb iP 21 09 44.1
Um iP 21 08 57.7
iS 21 17 18
Ka iP 21 09 50.4
ipP 21 10 00.9
Aleutian Islands.
h = 40 km (Up,Ki,Ka).
Magn.= 6.0 (Up,Ki).

" 17 Up iP 22 53 19.7

" 18 Up iP 00 17 54.0
Ki iP 00 17 52.4 C
i 00 18 12.8
Um iP 00 17 51.1
i 00 18 03.9
Ka iP 00 17 57.6
i 00 18 11.2
Sumatra (h = 20 km).

" 18 Up iP 06 48 58.5 C
i 06 49 13.7
microns sec
P Z' 0.1 0.6
Ki iP 06 48 03.5 C
microns sec
P Z' 0.1 0.7
Sk iP 06 48 38.9
Gb iP 06 49 15.2
Um iP 06 48 31.4
Ka iP 06 49 21.8 C
ipP 06 49 33.5
Aleutian Islands.
h = 40 km (Ka).
Magn. = 5.8 (Up,Ki).

" 18 Up iP 10 45 54.2
eSKS 10 56 12
microns sec
SKS E 1.2 13
(cont.)

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

1966 Aug. 18 (cont.)

Up		microns	sec	
	M	E	5.8	23
	M	N	6.0	26
	M	Z	14	23
Ki	iP		10 45 43.9	
	eSKS		10 55 59	
	iS		10 56 09	
		microns	sec	
	P	Z	1.6	7
	P	Z'	0.2	1.2
	S	N	0.7	8
	M	E	6.3	22
	M	N	2.7	19
	M	Z	3.6	17
	D = 9450 km = 85°.			
Sk	iP		10 45 36.2 C	
Gb	iP		10 45 45.1	
	ipP		10 46 02.3	
Um	iP		10 45 51.6 C	
	iPP		10 49 30.5	
	iSKS		10 56 02	
	iS		10 56 12	
Ka	iP		10 45 55.0	
	ipP		10 46 13.6	

Guatemala. h = 70 km (Gb,Ka).
Magn. = 6.2 (Up,Ki).

" 18	Up	i(P)	11 49 54.4
	Gb	i(P)	11 48 48.2
" 18	Up	iP	14 47 33.9
		iPS	15 00 31
		microns	sec
	P	Z'	0.1 0.8
	Ki	iP	14 47 19.7 C
		microns	sec
	P	Z'	0.3 1.5
	Gb	iP	14 47 49.5
	Um	iP	14 47 24.1 C
		i	14 47 29.6
		iS	14 58 37
	Ka	iP	14 47 43.1
		i	14 48 46.8
		i	14 50 35.5

Molucca Sea
(h = 60 km).
Magn. = 6.4 (Up,Ki).

" 18	Up	i(P)	14 51 39.9
		iPP	14 55 32
		microns	sec
	M	E	2.2 23
	M	N	3.3 23
	M	Z	6.4 24
	Ki	iP	14 51 14.6
		microns	sec
	P	Z'	0.3 1,7
	M	E	3.1 17
	M	N	2.3 20

(cont.)

1966 Aug. 18 (cont.)

Ki	microns	sec	
	M	Z	5.6 18
Um	iP		14 51 18.2
	i		14 54 07.0
Ka	iP		14 51 38.5
	i		14 55 04.2

Molucca Sea
(h = 30 km).
Magn. = 6.2 (Up,Ki).

" 18	Ka	iP	16 09 49.0
" 18	Up	iP	17 10 52.9
	Um	iP	17 10 34.6 C
	Ka	eP	17 11 08
" 18	Sk	eP	19 01 58
	Um	iP	19 02 17.5
		i	19 02 28.5
" 18	Ki	iP	22 00 14.6
" 18	Ka	eP	22 13 35
		iS	22 17 19.3

Dodecanese Islands
(h = 120 km).

" 19	Up	iP	00 16 53.3
" 19	Up	iP	03 20 09.1
	Ki	iP	03 19 15.1
	Sk	iP	03 19 40.8
	Gb	iP	03 20 20.0
	Um	iP	03 19 43.0
		iS	03 27 37
	Ka	iP	03 20 32.5
		ipP	03 20 39.0

Gulf of Alaska.
h = 25 km (Ka).

" 19	Up	iP	03 33 54.3
	Gb	iP	03 34 28.0
" 19	Up	iP	03 47 01.0
	Gb	iP	03 47 18.4
" 19	Ki	iP	03 59 37.4
	Um	iP	03 59 37.8 C

Kazakh SSR.
Underground explosion.

" 19	Ka	iP	06 51 19.6
" 19	Ki	iP	11 33 02.2
		i	11 33 19.8
	Um	i(P)	11 33 46.4

Aleutian Islands
(h = 50 km).

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

1966 Aug. 19 Up iP 12 27 37.8 C
i 12 27 41.5
iS 12 32 06
microns sec
P E 12 9
P N 13 8
P Z 28 9
P Z' 2.3 1.1
S E 99 12
S N 220 18
S Z 84 11
M E 180 20
M N 230 18
M Z 69 14
D = 2850 km = 25 1/2°.

Ki iP 12 28 25.7
i 12 28 28.2
i 12 28 33.9
iS 12 33 38
microns sec
P E 2.8 8
P N 4.7 8
P Z 8.0 8
P Z' 2.6 1.6
S E 78 18
S N 73 17
M E 190 16
M N 93 12
M Z 100 12
D = 3450 km = 31°.

Sk iP 12 28 16.6 C
i 12 28 24.8
iPP 12 29 04.6

Gb iP 12 27 47.1 C
i 12 27 53.5

Um iP 12 27 56.5 C
i 12 27 58.4

Ka iP 12 27 24.3 C
i 12 27 28.5

Turkey (h = 25 km).
Magn. = 6.9 (Up,Ki).
Clear PL-waves recorded. - - Initial motion of P is complicated with apparently opposite direction on Up SP (C) and Up LP (D).

" 19 Up iP 12 42 05.6 C
microns sec
P Z' 0.1 1.0
Um iP 12 42 23.0 C
Ka iP 12 41 50.2
Turkey. Origin time = 12 36 36.
Approx. origin times are given for those aftershocks which have not been reported by USCGS.

1966 Aug. 19 Ka iP 12 43 05.2

" 19 Up iP 12 57 55.0
microns sec
P Z' 0.2 1.2
Ki iP 12 57 17.0
Sk iP 12 57 49.4
Gb iP 12 58 15.5
i 12 58 26.6
Um iP 12 57 33.0
Ka iP 12 58 13.9
Japan (h = 30 km).

" 19 Ki iP 13 00 16.7
Ka iP 12 59 30.0

" 19 Um iP 13 01 10.0

" 19 Ki iP 13 14 53.1
Ka iP 13 13 50.4
Turkey. Origin time = 13 08 37.
It is a remarkable fact that among our stations, Ka and Ki exhibit the highest sensitivity to this series of Turkish earthquakes.

" 19 Ka iP 13 15 21.1

" 19 Sk eP 13 18 44
i 13 18 47.9

" 19 Up iP 13 20 37.2
microns sec
P Z' 0.2 1.2
Ki iP 13 21 24.6
microns sec
P Z' 0.1 1.0
Gb iP 13 20 47.7
Um iP 13 20 54.4
Ka iP 13 20 21.8 C
Turkey (h = 30 km).
Magn. = 5.5 (Up,Ki).

" 19 Up i(P) 13 21 09.2
Sk iP 13 22 02.5

" 19 Um iP 13 27 06.8

" 19 Ki iP 13 34 28.6
Ka iP 13 33 24.9 C
Turkey. Origin time = 13 28 12.

" 19 Ki iP 13 39 09.6
Gb i(P) 13 38 46.5
Ka iP 13 38 06.3 C
Turkey. Origin time = 13 32 53.

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

1966 Aug. 19 Ki iP 13 46 23.1
Ka iP 13 45 20.8
Turkey. Origin time = 13 40 07.

" 19 Ki iP 13 50 15.2

" 19 Up iP 13 59 54.5 C
iS 14 04 36
microns sec
P Z' 0.3 1.2
S E 0.5 5
S N 2.1 8
M E 2.3 20
M N 4.1 17
Ki iP 14 00 41.4
iPP 14 01 38.4
microns sec
P Z' 0.3 1.5
PP Z' 0.3 1.5
Sk iP 14 00 34.1
i 14 00 38.4
Gb iP 14 00 05.3
Um iP 14 00 13.1
Ka iP 13 59 40.3
Turkey (h = 30 km).
Magn. = 5.8 (Up,Ki).

" 19 Up iP 14 09 24.7
Ki iP 14 10 11.8
Gb iP 14 09 37.2
Um iP 14 09 45.0
Ka iP 14 09 09.3 C
Turkey (h = 30 km).

" 19 Ka iP 14 15 51.1
Turkey.

" 19 Up iP 14 23 21.0
i 14 23 23.1
eS 14 28 00
microns sec
P Z' 0.1 0.8
S E 0.5 9
M N 1.4 18
Ki iP 14 24 10.5
microns sec
P Z' 0.2 1.1
Sk eP 14 23 59
Gb iP 14 23 31.0
i 14 23 47.4
Um iP 14 23 40.4
iLg2 14 32 47
Ka iP 14 23 07.6 C
Turkey (h = 50 km).
Magn. = 5.6 (Up,Ki).

" 19 Ka eP 14 28 33

1966 Aug. 19 Ka iP 14 50 52.4
Turkey.

" 19 Up iP 15 16 02.5
microns sec
M E 1.0 20
M N 1.7 21
M Z 2.0 21

" 19 Ki iP 16 37 12.1
Ka iP 16 36 09.6
Turkey. Origin time = 16 30 56.

" 19 Ka iP 16 53 47.5 C

" 19 Um iP 17 09 50.1

" 19 Ka iP 17 09 51.3
Turkey.

" 19 Um iP 18 45 38.7

" 19 Up iP 18 46 46.4
i 18 46 55.0
iS 18 51 22
D = 2900 km = 26°.
Ki iP 18 47 31.1
i 18 47 37.0
microns sec
P Z' 0.1 1.1
Um eP 18 47 01
iS 18 51 54
Ka iP 18 46 28.9
i 18 46 36.1
Turkey (h = 30 km).
Possibly a double event, the second slightly greater than the first one.

" 19 Gb iP 18 47 13.3

" 19 Ki iP 21 02 42.1

" 19 Ka iP 21 10 50.7
(Turkey).

" 19 Ka iP 21 25 14.3
Turkey.

" 19 Ka iP 21 43 58.1
i 21 44 04.0
Turkey.

" 19 Ka iP 21 48 02.0 C
Turkey.

" 20 Ka iP 00 32 38.5
Turkey.

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

1966 Aug.	20	Up	eP	02 18 56	
			i	02 18 58.5	
		Ka	iP	02 18 40.2	
			i	02 18 46.0	
		Turkey. Origin time = 02 13 27.			
"	20	Up	iP	02 49 22.2	
		Ka	iP	02 49 04.3	
		Turkey. Origin time = 02 43 52.			
"	20	Ka	iP	04 50 37.5	
		Turkey.			
"	20	Ki	iPn	07 42 40.5	
			iSn	07 43 36.0	
			iLgl	07 43 52.9	
			D = 510 km = 4.6°.		
		Sk	e(Sg)	07 46 27	
		Um	iSn	07 44 20.5	
			iSg	07 45 07.6	
			D = 720 km = 6.5°.		
		Northwest Russia, 68.1°N, 32.7°E.			
		Origin time = 07 41 29.			
		Explosion?			
"	20	Up	iP	07 56 38.1	
		Ka	iP	07 56 35.5	
			ipP	07 57 06.4	
		Peru-Ecuador.			
		h = 120 km (Ka).			
"	20	Ki	iP	08 38 53.6	
			ipP	08 39 30.5	
		Sk	iP	08 39 18.8	
		Um	iP	08 39 05.4	
			ipP	08 39 38.5	
		Volcano Islands.			
		h = 140 km (Ki,Um).			
"	20	Up	iP	09 43 09.0 D	
			iS	09 51 46	
			microns	sec	
			P Z'	0.5 1.0	
			S E	0.4 7	
		Ki	iP	09 42 26.5 D	
			microns	sec	
			P Z'	0.4 1.0	
		Sk	iP	09 43 01.2 D	
		Gb	iP	09 43 31.0 D	
			ipP	09 44 11.1	
			iS	09 52 36.1	
		Um	iP	09 42 45.1 D	
			iS	09 51 05	
			isS	09 52 21	
			iSS	09 55 19	
		(cont.)			

1966 Aug.	20	(cont.)		
		Ka	iP	09 43 30.3 D
		Japan.		
		h = 170 km (Gb,Um).		
		Magn. = 6.3 (Up,Ki).		
"	20	Up	iP	09 45 12.8
		Sk	i(P)	09 45 23.6
		Gb	iP	09 45 37.1
		Ka	iP	09 45 41.8
		As these phases cannot be interpreted as belonging to the preceding shock, they probably derive from an independent shock.		
"	20	Um	iP	11 01 25.5
"	20	Up	iP	11 44 12.0
		Ki	iP	11 44 11.7 C
		Sk	iP	11 44 25.0 C
		Um	iP	11 44 08.8
		Sumatra (h = 110 km).		
"	20	Up	iP	12 04 34.5
			i	12 04 35.6
			iPP	12 05 07
			iS	12 08 58
			microns	sec
			P E	1.2 6
			P N	2.4 6
			P Z	2.8 6
			P Z'	0.4 0.8
			PP E	1.3 6
			S E	9.9 12
			S N	19 16
			S Z	9.3 10
			M E	34 18
			M N	76 18
			M Z	23 16
			D = 2800 km = 25°.	
		Ki	iP	12 05 25.2 C
			iPP	12 06 19
			iS	12 10 29
			microns	sec
			P Z'	0.5 1.0
			PP E	1.4 5
			PP N	1.3 5
			S E	3.8 13
			S N	5.0 13
			M E	41 16
			M N	30 17
			M Z	46 18
			D = 3400 km = 30 1/2°.	
		Sk	iP	12 05 15.0 C
			iPP	12 06 09.3
		Gb	iP	12 04 45.1 C
		(cont.)		

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

1966
Aug. 20 (cont.)

Um	iP	12 04 54.8	C
	i	12 05 00.9	
	iS	12 09 37	
Ka	iP	12 04 20.4	

Turkey (h = 40 km).
Magn. = 6.3 (Up,Ki).

" 20

Up	iP	12 07 07.7	
		microns sec	
	P N	1.7 5	
	P Z'	0.6 1.0	
Ki	iP	12 07 58.6	
		microns sec	
	P Z'	0.3 1.0	
Sk	iP	12 07 46.2	
Gb	iP	12 07 17.4	
Um	iP	12 07 27.9	D
Ka	iP	12 06 53.9	

Turkey (h = 30 km).
Magn. = 6.1 (Up,Ki).

" 20

Up	iP	12 09 24.0	
		microns sec	
	P Z'	0.2 0.9	
Sk	iP	12 10 06.0	
Um	iP	12 10 07.7	D
	i	12 10 11.4	
Ka	iP	12 08 44.7	

Yugoslavia
(h = 20 km).

" 20

Up	iP	13 12 15.4	
	i	13 12 22.2	
Sk	iP	13 12 56.0	
Um	iP	13 12 59.4	
Ka	iP	13 11 33.7	

Yugoslavia
(h = 30 km).

" 20 Ka iP 15 22 43.6
Turkey.

" 20

Up	iP	16 09 44.4	
Um	iP	16 09 18.5	

Kurile Islands
(h = 70 km).

" 20

Up	iP	17 59 30.2	
Ki	eP	18 00 19	
Gb	iP	17 59 38.2	
Ka	iP	17 59 14.6	

Turkey (h = 30 km).

" 20 Ka eP 18 34 46
Turkey.

" 20

Ka	iP	18 38 59.6	
	i	18 39 14.1	

Turkey.

1966
Aug. 20

Up	iP	19 12 27.4	
		microns sec	
	M E	0.5 13	
	M N	0.6 10	
	M Z	0.6 10	
Ki	eP	19 14 03	
		microns sec	
	M N	0.5 9	
Sk	iP	19 13 10.9	
Gb	iP	19 12 11.5	
Um	iP	19 13 09.9	
Ka	iP	19 11 43.8	
	i	19 11 48.0	

Yugoslavia
(h = 20 km).

" 20

Up	iPKP	23 14 26.5	
	iPKS	23 18 05	
Ki	iPKP	23 14 17.2	C
	iPKS	23 17 46	
		microns sec	
	PKS N	0.5 10	
	M E	1.7 19	
	M N	0.8 17	
	M Z	2.5 20	
Gb	iPKP	23 14 34.6	
Um	iPKP	23 14 24.4	
	iPKS	23 17 57	
Ka	iPKP	23 14 37.7	

Tonga Islands
(h = 60 km).

" 20

Gb	iPKP	23 32 55.4	
Ka	iPKP	23 33 02.8	

" 21

Up	iP	00 20 30.7	
		microns sec	
	M E	1.0 18	
	M N	2.1 21	
	M Z	2.7 21	
Ki	iP	00 21 19.1	
Gb	iP	00 20 44.1	
Ka	iP	00 20 17.9	

Turkey (h = 30 km).

" 21

Up	iP	01 35 23.0	
	i	01 35 27.0	
	iS	01 39 15	
	iLg2	01 41 52	
		microns sec	
	P Z'	0.1 1.0	
	M E	11 20	
	M N	8.7 18	
	M Z	5.2 12	

D = 2300 km = 20 1/2°.

Ki	iP	01 36 38.2	
	e(S)	01 41 39	
	i	01 42 26	

(cont.)

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

1966 Aug. 21 (cont.)

Ki		microns	sec
	M E	7.3	10
	M N	2.4	12
	M Z	3.1	10
Sk	iP	01 36 10.0	
	i	01 36 12.0	
Gb	iP	01 35 18.4	
	iPP	01 35 32.5	
Um	iP	01 35 58.9	
	i	01 36 04.8	
	iS	01 40 13	
Ka	iP	01 34 47.4	C
	i(S)	01 37 34.7	

Turkey (h = 30 km).
Magn. = 5.3 (Up).

" 21 Ki iP 01 43 22.3

" 21 Up iP 02 30 36.2
Ki iP 02 31 22.9
i 02 31 43.9
Ka iP 02 30 20.5
Turkey (h = 30 km).

" 21 Gb iPKP 02 33 36.2
i 02 33 47.7
Ka iPKP 02 33 48.9
Tonga Islands
(h = 30 km).

" 21 Up iP 05 13 28.7 C
ipP 05 13 40.3
iSKS 05 23 54
iS 05 24 22

		microns	sec
P	Z'	0.2	0.8
S	N	0.7	4
M	E	1.9	20
M	N	2.1	21
M	Z	2.7	21

D = 10100 km = 91°.

Ki iP 05 13 11.2 C
iSKS 05 23 33
iS 05 23 50

		microns	sec
P	Z'	0.4	1.4
SKS	E	0.9	12
S	N	1.8	11
M	E	3.7	20
M	N	1.8	21
M	Z	4.9	21

D = 9650 km = 87°.

Sk iP 05 13 32.5 C
Gb iP 05 13 44.4 C
ipP 05 13 56.1
Um iP 05 13 16.9 C
iSKS 05 23 41
iS 05 23 59
(cont.)

1966 Aug. 21 (cont.)
Ka iP 05 13 39.0 C
ipP 05 13 51.1
Mindanao.
h = 45 km (Up,Gb,Ka).
Magn. = 6.2 (Up,Ki).

" 21 Um eP 10 46 37

" 21 Gb iP 11 54 31.4
Um iP 11 55 29.5 D
i 11 55 33.2
iPP 11 55 59.9
Yugoslavia
(h = 30 km).

" 21 Up iP 12 27 42.8 C

" 21 Um iP 13 09 16.0

" 21 Um iP 13 21 08.0

" 21 Up iP 18 12 11.9

" 21 Up iP 20 37 23.7

		microns	sec
P	Z'	0.1	1.0

Ki iP 20 36 53.2 C
Sk iP 20 37 23.2
Gb iP 20 37 42.7
Um iP 20 37 05.4
South of Japan
(h = 30 km).

" 21 Um iP 21 39 27.5
Ascension Island
(h = 30 km).

" 21 Up iP 21 48 34.7

" 21 Ki iP 22 42 51.4 D
Ka iP 22 41 49.5 D
Turkey. Origin time =
22 36 36.

" 22 Um iP 03 01 13.1

" 22 Up iP 04 28 16.8

" 22 Ki iP 11 20 03.8
Um iP 11 20 30.0 C
Unimak Island
(h = 40 km).

" 22 Up iP 13 04 34.8

" 22 Um iP 14 12 10.4
i 14 12 26.6

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

1966				
Aug. 22	Up	iP	14 30 41.1	D
		iPcP	14 31 11.2	
		ipP	14 32 47.2	
		microns	sec	
		P Z'	0.1	0.5
	Ki	iP	14 29 54.1	D
		ipP	14 31 52.4	
		i	14 33 40.6	
		microns	sec	
		P Z'	0.1	1.0
	Sk	iP	14 30 29.5	
	Gb	iP	14 31 01.9	
		ipP	14 33 09.9	
	Um	iP	14 30 15.5	D
		ipP	14 32 18.5	
		i!	14 33 54.1	
	Ka	iP	14 31 03.6	
	Okhotsk Sea.			
	h = 660 km (Up,Ki,Gb,Um).			
	Magn. = 5.2 (Up,Ki).			
" 22	Up	iP	15 05 32.5	D
" 22	Um	iP	15 29 54.6	
" 22	Up	iP	15 54 27.2	
" 22	Up	eP	16 00 55	
	Ki	i(P)	16 03 41.0	
	Sk	i(P)	16 03 01.7	
	Um	iP	16 01 42.1	C
" 22	Up	iSKS	17 26 43	
		microns	sec	
		M E	1.1	19
		M N	1.6	20
		M Z	1.7	21
	Ki	iP	17 15 50.3	
		microns	sec	
		M E	1.5	20
		M N	0.9	19
		M Z	2.5	20
	Um	iPP	17 20 10.9	
		iSKS	17 26 33	
		eSS	17 34 30	
	New Guinea			
	(h = 15 km).			
" 22	Up	iPKP	18 01 28	
		iPP	18 04 27	
		ePKS	18 05 00	
		microns	sec	
		M E	4.3	22
		M N	11	22
		M Z	9.8	23
	Ki	iPKP	18 01 22.4	
		iPKS	18 04 44.2	
		microns	sec	
		PKS E	1.6	11
		PKS N	1.4	10

(cont.)

1966				
Aug. 22	(cont.)			
	Ki	microns	sec	
		PKS Z'	0.2	1.5
		M E	5.2	20
		M N	4.3	20
		M Z	8.9	20
	Sk	iPKP	18 01 28.5	
		ePKS	18 04 59	
	Gb	iPKP	18 01 37.1	
		ePKS	18 05 06	
	Um	i(PKP)	18 01 19.4	
		iPKP	18 01 23.9	
		iPKS	18 04 53.2	
		i	18 04 57.9	
	Ka	ePKP	18 01 35	
	Loyalty Islands			
	(h = 40 km).			
	Magn. = 6.5 (Up,Ki).			
" 22	Up	iP	19 08 52.8	
" 22	Up	iP	20 39 15.5	
		i	20 39 56.5	
		microns	sec	
		P Z'	0.1	0.6
	Ki	iP	20 39 37.6	
		i	20 42 25.9	
" 22	Ki	iP	21 37 16.8	
	West Pakistan			
	(h = 30 km).			
" 22	Up	iS	21 55 56.9	
		i	21 56 01.8	
		microns	sec	
		M E	0.8	15
		M N	1.5	19
		M Z	1.2	15
	Ki	iP	21 52 01.8	
		iS	21 54 09.7	
		microns	sec	
		M E	2.4	19
		M N	1.8	19
		M Z	2.0	18
		D = 1300 km = 11 1/2°.		
	Sk	eP	21 52 15	
		iS	21 54 12.1	
		i	21 54 15.7	
	Um	eP	21 52 36	
		i	21 52 46.6	
		i	21 54 13.4	
		eS	21 54 57	
		i	21 55 03.3	
		iSS	21 55 35.5	
	Jan Mayen (h = 30 km).			
" 22	Ki	iP	22 05 53.3	
" 22	Up	i(P)	22 39 17.3	
		i	22 40 12.1	

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

1966
Aug. 22 Gb iP 22 43 27.3

" 23 Ki iP 01 42 01.7
Um iP 01 41 34.5
Turkey (h = 30 km).

" 23 Ki iP 02 54 34.2
Java (h = 30 km).

" 23 Ki iP 03 57 06.3
Sumatra.

" 23 Ki iP 05 57 21.9
Um iP 05 57 34.4
Bonin Islands
(h = 480 km).

" 23 Up iPg 11 17 08.1
iSg 11 17 31.0
Explosion.

" 23 Up iPg 11 42 09.7
iSg 11 42 34.2
Explosion.

" 23 Up iP 14 31 06.0
i 14 33 33.3

" 23 Ki iPn 14 54 11.2
iP^x 14 54 19.5
i 14 55 10.1
iSg 14 55 15.2

" 23 Ki iP 15 55 57.1
Um iP 15 56 41.9

" 23 Up iP 18 34 06.9 C
iS 18 43 48

		microns	sec
P	Z'	0.1	0.5
M	E	0.9	19
M	N	2.3	19
M	Z	1.4	18

D = 8500 km = 76 1/2°.

Ki iP 18 33 43.0 C
iS 18 43 04

		microns	sec
P	Z'	0.1	1.3
M	E	1.1	17
M	N	0.6	16
M	Z	0.9	15

D = 8050 km = 72 1/2°.

Sk iP 18 34 10.1 C
Gb iP 18 34 26.6 C
Um iP 18 33 51.3 C
i 18 33 59.3
iS 18 43 15
Ryukyu Islands (h = 40 km).
Magn. = 6.0 (Up,Ki).

1966
Aug. 23 Ki iP 19 23 16.7
Aleutian Islands
(h = 50 km).

" 23 Up i(P) 22 35 11.4
Um i(P) 22 35 02.3

" 24 Sk iPKP 02 10 44.4
Um iPKP 02 10 38.4 C
Kermadec Islands
(h = 20 km).

" 24 Ki eP 02 54 49
Sk eP 02 55 07
Um iP 02 54 37.9
i 02 57 44.5
i 02 58 14.9
Tadzhik SSR
(h = 70 km).

" 24 Ki iP 03 42 13.1

" 24 Um iP 04 40 10.8
Tadzhik SSR
(h = 160 km).

" 24 Up iP 06 59 30.3 C
Ki iP 06 59 46.9

		microns	sec
M	E	0.4	9
M	N	0.3	10
M	Z	0.5	10

Sk iP 06 59 58.0 C
Um iP 06 59 32.5 C
iPP 07 01 25.3
iSS 07 09 41
West Pakistan (h = 30 km).

" 24 Um iPP 07 36 15.8
iSP 07 45 01
iSS 07 50 53
Chile (h = 100 km).

" 24 Ki iP 07 47 00.2
Um iP 07 46 24.8

" 24 Ki iP 16 27 32.1

" 25 Up i(P) 00 44 41.9
Ki e(P) 00 43 37

		microns	sec
M	E	0.3	15
M	N	0.3	14
M	Z	0.5	15

Um i(P) 00 44 19.6
Japan (h = 30 km).

" 25 Gb iP 01 54 51.7

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

1966 Aug. 25 Up iP 02 14 54.1

" 25 Up iP 03 17 54.0
i 03 18 17.4
Um iP 03 17 05.3
i 03 18 14.1

" 25 Sk iP 12 47 27.0

" 25 Ki ePn 13 55 24
iSn 13 56 08.6
iSg 13 56 28.1
D = 410 km = 3.7°.
Um iSn 13 56 51.1
iSg 13 57 21.6
D = 600 km = 5.4°.
Northwest Russia-Finland border region, 67.5°N, 30.1°E. Origin time = 13 54 25.
Explosion?

" 25 Um eS 23 45 07
Chile (h = 110 km).

" 25 Up --

		microns	sec
M	E	0.5	18
M	N	1.4	18

Sk eP 23 53 14
Um iP 23 52 40.1
China (h = 30 km).

" 26 Up iPKP 01 11 23.2 C
ipPKP 01 11 42.8

	microns	sec
PKP Z'	0.1	1.0

Ki iPKP 01 11 04.1
Sk iPKP 01 11 15.1
Gb iPKP 01 11 31.9
ipPKP 01 11 49.8
Um iPKP 01 11 12.3
ipPKP 01 11 35.3
Ka iPKP 01 11 33.8
Kermadec Islands.
h = 70 km (Up,Gb,Um).

" 26 Ki iPg 01 50 33.0
iSg 01 50 48.0
D = 130 km = 1.2°.
Sk iSg 01 52 26.0
Um eSn 01 51 43
iSg 01 51 53.0
Swedish Lapland, 66.9°N, 19.0°E. Origin time = 01 50 08.
Probably blast.

" 26 Um iP 04 38 11.1
(cont.)

1966 Aug. 26 (cont.)
Um i 04 38 18.8
Japan (h = 60 km).

" 26 Up iP 06 02 07.5

		microns	sec
M	E	0.4	14
M	N	0.7	14
M	Z	0.7	14

Ki --

		microns	sec
M	E	0.5	13
M	N	0.4	12

Gb iP 06 01 36.1
Um iP 06 02 39.8 C
Ka iP 06 01 43.6
Portugal (h = 30 km).

" 26 Up iPKP 09 26 19.5
iPKS 09 30 10

		microns	sec
M	E	1.1	22
M	N	2.1	21
M	Z	2.2	22

Ki iPKS 09 29 34

		microns	sec
M	E	1.6	21
M	N	1.5	21
M	Z	2.3	22

Um iPKS 09 29 36
iSS 09 46 07
Loyalty Islands (h = 30 km).
Magn. = 6.0 (Up,Ki).

" 26 Ki iP 10 27 59.5
Sk iP 10 28 30.6
Um iP 10 28 24.8 C
i 10 28 30.1
i 10 28 40.3
Alaska (h = 15 km).

" 26 Sk iPKP 13 51 46.4
Loyalty Islands (h = 70 km).

" 26 Ki iPn 15 28 06.0
iSn 15 28 53.8
iLgl 15 29 09.1
D = 440 km = 4.0°.
Northwest Russia. Origin time = 15 27 03.
Explosion?

" 27 Ki iP 02 49 30.3
Halmahera (h = 170 km).

" 27 Gb iPKP 03 22 04.8
i 03 22 17.8
Tonga Islands (h = 60 km).

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

1966					
Aug. 27	Ki	iP	04 48 36.0	C	
	Mindanao (h = 120 km).				
" 27	Sk	eP	09 34 00		
		i	09 34 08.0		
" 27	Up	iP	13 10 02.4		
	Ki	iP	13 09 21.9		
	Sk	iP	13 09 55.8		
	Um	iP	13 09 39.3		
		iPcP	13 10 09.8		
	Japan (h = 100 km).				
" 27	Up	iP	17 23 24.0		
			microns	sec	
		P	Z' 0.1	0.6	
	Ki	iP	17 23 05.8		
			microns	sec	
		M	E 0.6	16	
		M	N 0.5	17	
	Um	iP	17 23 12.4		
	Luzon (h = 15 km).				
" 27	Up	iPKP	18 10 22.8		
	Tonga-Kermadec Islands (h = 510 km).				
" 28	Um	iP	02 05 32.2		
		i	02 05 39.7		
" 28	Ki	iP	02 24 34.9		
" 28	Up	iP	04 20 54.0		
			microns	sec	
		M	E 0.8	18	
		M	N 1.6	16	
		M	Z 0.8	16	
	Ki	iP	04 20 10.9		
			microns	sec	
		M	E 1.3	16	
		M	N 1.5	17	
		M	Z 1.8	17	
	Um	iP	04 20 25.2		
	Japan (h = 25 km).				
" 28	Up	iP	04 22 18.8		
			microns	sec	
		M	E 0.6	11	
		M	N 0.8	10	
		M	Z 0.7	9	
	Ki	eP	04 23 42		
			microns	sec	
		M	E 0.7	9	
		M	N 0.7	10	
		M	Z 0.8	10	
	Sk	iP	04 23 00.5	C	
	Gb	iP	04 22 03.4		
	Um	iP	04 22 59.3		
	Yugoslavia (h = 40 km).				

1966				
Aug. 28	Up	iPKP	07 49 17.1	C
		i	07 49 29.1	
		iPP	07 53 00.0	
			microns	sec
		PKP Z'	0.2	0.6
	Ki	iPKP	07 48 58.5	
			microns	sec
		PKP Z'	1.6	1.6
	Sk	i(PKP)	07 49 07.4	
		iPKP	07 49 13.3	C
	Gb	i(PKP)	07 49 14.0	C
		iPKP	07 49 26.7	
		iPKP2	07 49 43.1	
		iPP	07 53 15.4	
	Um	i(PKP)	07 49 03.7	
		iPKP	07 49 08.2	C
	Ka	iPKP2	07 49 44.0	
	New Zealand (h = 90 km).			
" 28	Up	iPKP	10 20 47.2	
		iPKKP	10 31 19.3	
	Ki	iPKP	10 20 36.6	
		iPKKP	10 31 40.3	
	Sk	iPKP	10 20 46.7	
		iPKKP	10 31 22.7	
	Gb	iPKP	10 20 54.7	
		ePKKP	10 30 37	
		i	10 31 07.2	
	Um	iPKP	10 20 41.1	
		iPKKP	10 31 31.8	
		i	10 31 41.3	
	Solomon Islands (h = 510 km).			
" 28	Up	iP	10 23 36.6	
	Um	iP	10 23 26.2	
" 28	Up	iP	10 50 28.4	
		ipP	10 51 07.9	
		i	10 53 19.6	
		iS	10 56 26	
		i	10 59 09	
			microns	sec
		P	Z' 0.1	1.0
	Ki	iP	10 50 38.5	
		ipP	10 51 12.5	
		isS	10 57 46.7	
	Sk	iP	10 50 54.0	
		ipP	10 51 33.7	
	Gb	iP	10 50 49.9	
		ipP	10 51 28.8	
		iPP	10 52 35.2	
		i	10 53 31.7	
	Um	iP	10 50 26.6	
		ipP	10 51 05.8	
		i	10 52 56.1	
		iS	10 56 41.2	

(cont.)

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

1966 Aug. 28 (cont.)

Ka	iP	10 50 33.5	
	ipP	10 51 12.7	
	isP	10 51 31.1	

Hindu Kush.
h = 190 km (Up,Ki,Sk,Gb,Um, Ka).

" 28

Ki	iP	12 46 46.1	
Sk	iP	12 45 55.2	C
Um	iP	12 45 54.3	

Yugoslavia
(h = 30 km).

" 28

Up	iP	13 40 04.2	
Ki	iP	13 39 11.5	
Um	iP	13 39 36.8	

Aleutian Islands
(h = 70 km).

" 28

Up --

		microns	sec
M	E	0.4	14
M	N	0.6	13

Ki	iP	15 47 04.6	

		microns	sec
M	E	0.8	16
M	N	0.6	12
M	Z	1.1	17

Sk	iP	15 47 37.4	
Um	iP	15 47 20.1	

Japan (h = 15 km).

" 28

Up	iP	19 08 40.5	C
Ki	iP	19 08 23.4	C
	i	19 09 01.7	
Sk	eP	19 08 46	

Mindoro (h = 110 km).

" 28

Up	iP	20 15 01.1	
Ki	iP	20 14 23.3	
Sk	eP	20 14 55	
Um	iP	20 14 39.8	

Japan (h = 70 km).

" 28

Up	iP	22 44 24.8	
Ki	iP	22 44 07.8	

		microns	sec
M	E	0.8	19
M	N	0.5	19
M	Z	0.6	16

Sk	iP	22 44 28.3	
Um	iP	22 44 13.6	

Halmahera
(h = 80 km).

" 29

Up	iP	00 38 08.2	

1966 Aug. 29

Um	iP	03 06 04.4	
	i	03 06 36.6	

" 29

Um	iP	04 15 29.2	

" 29

Ki	iPKP2	13 31 48.4	

Balleny Islands
(h = 30 km).

" 29

Up	iP	13 39 25.2	
	ipP	13 39 39.0	
Ki	eP	13 38 23	
Um	iP	13 38 45.5	
	ipP	13 38 59.4	

Kurile Islands.
h = 50 km (Up,Um).

" 29

Um	iP	14 53 43.3	
	i	14 54 02.2	

" 29

Sk	iP	19 44 03.6	
Um	iP	19 44 20.0	

Panama (h = 30 km).

" 29

Up	iP	22 40 54.0	
Ki	iP	22 40 00.4	
	ipP	22 40 08.8	
Sk	iP	22 40 26.8	
	ipP	22 40 35.3	
Gb	eP	22 41 03	
Um	eP	22 40 27	
	ipP	22 40 36.3	

Kodiak Island.
h = 30 km (Ki,Sk,Um).

" 30

Ki	iPn	04 35 18.0	
	iP[x]	04 35 26.4	
	iSn	04 36 04.5	
	iLgl	04 36 16.9	

D = 430 km = 3.9°.

Sk	eSg	04 39 05	
Um	iSg	04 37 52.8	

Northwest Russia, 69.2°N, 30.5°E.
Origin time = 04 34 16.
Explosion?

" 30

Up	iP	06 18 55.3	
	iS	06 25 39	

		microns	sec
M	E	0.7	13
M	N	1.1	14
M	Z	1.2	13

D = 5100 km = 46°.

Ki	iP	06 18 21.8	D
	iPP	06 20 09.4	
	iS	06 24 36	
	iSS	06 28 00	

(cont.)

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

1966 Aug. 30	(cont.)				
	Ki		microns	sec	
		M	E	1.4	15
		M	N	0.6	12
		M	Z	1.3	14
		D = 4650 km = 42°.			
	Sk	iP	06 18 57.0		
		i	06 19 05.5		
	Gb	iP	06 19 23.9		
	Um	iP	06 18 30.7		
		i	06 18 40.3		
		eS	06 24 50		
		i	06 25 01		
		e	06 30 05		
	Lake Baikal (h = 30 km).				
" 30	Sk	ePKP	08 55 49		
		i	08 55 56.4		
	Um	iPKP	08 55 39.7 C		
	South of Kermadec Islands (h = 40 km).				
" 30	Up	iP	12 19 24.6		
	Um	iP	12 19 54.4 C		
" 30	Ki	eP	12 21 47		
	Sk		12 21 14.6		
" 30	Up	iP	12 52 54.3 C		
		i	12 53 10.4		
		iS	13 03 16		
			microns	sec	
		P	Z'	0.1	0.7
		M	E	0.6	20
		M	N	1.2	23
		M	Z	1.0	21
		D = 9450 km = 85°.			
	Ki	iP	12 52 37.5 C		
			microns	sec	
		P	Z'	0.1	1.0
		M	E	0.9	18
		M	N	0.6	18
		M	Z	1.7	19
	Sk	eP	12 53 00		
	Gb	iP	12 53 10.4		
	Um	iP	12 52 42.4 C		
		ipP	12 53 03.6		
		eS	13 02 52		
	Mindoro. h = 80 km (Um). Magn. = 5.9 (Up,Ki).				
" 30	Gb	iP	13 39 48.1		
" 30	Um	eP	13 47 47		
" 30	Ki	iSn	15 02 34.7		
		i(Lgl)	15 02 50.6		
	Sk	i(Sg)	15 05 14.9		
	(cont.)				

1966 Aug. 30	(cont.)				
	Um	iSn	15 03 15.4		
		i(Sg)	15 03 43.4		
	Northwest Russia. Explosion?				
" 30	Up	i(P)	16 03 31.6		
			microns	sec	
		(P) Z'	0.5	0.5	
" 30	Ki	eP	19 55 45		
	Taland Islands (h = 30 km).				
" 30	Up	iP	20 30 47.8 D		
		ipP	20 30 56		
		iS	20 38 48		
			microns	sec	
		P	Z'	0.2	1.2
		S	N	0.4	5
		M	N	1.8	22
		M	Z	1.9	23
		D = 6500 km = 58 1/2°.			
	Ki	iP	20 29 51.7 D		
		iS	20 37 02		
			microns	sec	
		P	Z'	0.3	1.2
		S	E	0.8	8
		S	N	0.9	9
		M	E	1.0	21
		M	N	2.0	22
		M	Z	3.1	22
		D = 5600 km = 50 1/2°.			
	Sk	iP	20 30 18.6		
	Gb	iP	20 30 59.3		
		ipP	20 31 08.4		
	Um	iP	20 30 20.1		
		i	20 30 37.1		
		iS	20 37 53		
	Ka	iP	20 31 10.8		
		iPcP	20 31 49.7		
	Alaska. h = 30 km (Up,Gb). Magn. = 5.8 (Up,Ki).				
" 30	Up	iP	20 33 13.3		
	Ki	iP	20 32 16.0		
			microns	sec	
		P	Z'	0.1	1.0
	Sk	iP	20 32 46.6		
	Gb	iP	20 33 22.6		
	Um	iP	20 32 45.2		
	Ka	iP	20 33 39.2		
	Alaska (h = 30 km).				
" 30	Ki	iPg	21 53 01.4		
		iSg	21 53 16.4		
	Sk	eSg	21 54 57		
	Um	e(Sn)	21 54 02		
		iSg	21 54 21.8		
	(cont.)				

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

1966
Aug. 30 (cont.)
Swedish Lapland, 66.9°N, 19.1°E. Origin time = 21 52 39.
Probably blast.

" 30 Gb i(P) 23 48 53.5

" 31 Up --

		microns	sec
M	E	0.8	18
M	N	1.0	20
M	Z	1.1	17

Ki --

		microns	sec
M	E	1.4	19
M	N	1.6	22
M	Z	2.3	19

Um eS 00 00 50
Mexico (h = 50 km).

" 31 Up i(P) 00 42 21.0

" 31 Up iP 01 26 39.1
Um iP 01 26 37.3
Ka iP 01 26 44.4
Hindu Kush
(h = 80 km).

" 31 Up i(P) 01 30 50.0

" 31 Ki iP 08 31 25.9

" 31 Up iPKP 09 57 47.0
Kermadec Islands
(h = 60 km).

" 31 Um iP 11 47 55.2

" 31 Ki iP 13 24 51.1
Sk iP 13 25 02.9
Um iP 13 25 28.3
Jan Mayen. Origin time = 13 22 44.

" 31 Up iP 15 54 32.3
Ki iP 15 54 14.4
Sk iP 15 54 37.6
Um iP 15 54 19.8
Luzon (h = 80 km).

" 31 Up iP 17 17 05.4

		microns	sec
P	Z'	0.1	0.7

" 31 Um iP 17 49 17.7
Japan (h = 80 km).

1966
Aug. 31 Up iP 18 18 58.9
iS 18 21 49

		microns	sec
M	E	1.5	16
M	N	1.7	17
M	Z	3.2	20

D = 1550 km = 14°.
Ki iP 18 17 47.1 C
i 18 19 18.0
iS 18 19 36.4

		microns	sec
P	Z'	0.1	1.0
S	Z'	1.0	2.5
M	E	6.8	19
M	N	4.9	14
M	Z	5.8	15

Sk iP 18 17 59.2
iS 18 19 47.2
Gb iP 18 19 11.2
i 18 19 19.3
Um iP 18 18 23.7 C
i 18 19 36.5
Ka iP 18 19 34.8
i 18 19 40.3
i 18 21 11.0
i 18 21 32.9
Jan Mayen (h = 30 km).

" 31 Up iP 22 50 15.8

Markus Båth
January 13, 1967.

SEISMOLOGISKA INSTITUTIONEN
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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

S E P T E M B E R 1 - 30, 1966

1966 Sept. 1 Up iP 01 41 54.3
microns sec
M E 0.8 15
M N 1.6 20
M Z 1.7 21
Ki iP 01 40 40.5
iS 01 42 17.8
eT 01 47 56
microns sec
P Z' 0.2 1.0
S Z' 0.3 1.5
M E 3.7 18
M N 2.8 14
M Z 3.2 15
D = 1000 km = 9°.
Sk iP 01 40 52.6 C
iS 01 42 40.9
Gb eP 01 42 04
i 01 42 12.5
Um iP 01 41 17.9 C
i 01 41 20.1
Ka iP 01 42 34.4
Jan Mayen (h = 15 km).

" 1 Up iP 02 24 37.4

" 1 Ki eP 02 43 57
Sk iP 02 44 11.5
iS 02 45 55.2
Jan Mayen.
Origin time = 02 41 46.

" 1 Ki iP 03 02 29.9
iS 03 04 18.4
microns sec
M N 0.3 14
(cont.)

1966 Sept. 1 (cont.)
Sk iP 03 02 41.8
Gb eP 03 03 53
i 03 04 00.6
Um iP 03 03 06.9
i 03 03 19.4
Ka iP 03 04 24.2
Jan Mayen (h = 30 km).

" 1 Up iP 08 15 28.8
Ki iP 08 15 16.9 C
Um iP 08 15 12.0 C

" 1 Up i(P) 12 40 10.0
iP 12 40 29.7
Ki ---
microns sec
M E 0.4 12
M N 0.2 13
Sk iP 12 41 05.6
Gb e(P) 12 40 11
Um iP 12 41 07.5
i 12 41 22.6
iS 12 45 36
Greece (h = 40 km).

" 1 Ki iP 14 27 33.6 C
microns sec
P Z' 0.1 0.9
Sk iP 14 28 03.7
Um iP 14 27 48.9
South of Japan
(h = 40 km).

" 1 Up iP 14 27 57.5
iPP 14 28 38
(cont.)

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

1966
Sept. 1 (cont.)

Up	iS	14 31 56	
	i	14 32 07	
		microns	sec
	P	Z' 0.3	0.5
	S	E 1.1	3
	S	N 1.3	3
	S	Z 1.3	5
	M	E 5.7	20
	M	N 10	17
	M	Z 8.1	16
	D = 2550 km = 23°.		
Ki	iP	14 29 09.4	
	iPP	14 30 06	
	iS	14 34 07	
	i(ScS)	14 39 37	
		microns	sec
	P	Z' 0.2	1.0
	PP	N 0.4	7
	S	E 1.5	5
	S	N 0.9	7
	S	Z 0.6	5
	M	E 8.9	18
	M	N 5.4	16
	M	Z 7.3	16
	D = 3400 km = 30 1/2°.		
Sk	iP	14 28 36.5	
Gb	iP	14 27 44.4	D
	i	14 27 50.7	
	iS	14 31 50.5	
Um	iP	14 28 33.1	
	iS	14 33 03	
Ka	iP	14 27 20.1	
	iS	14 30 57.2	

Greece (h = 15 km).
Magn. = 5.9 (Up,Ki).
PL, SL and higher-mode surface waves recorded.

" 1	Up	iP	19 21 20.9	
			microns	sec
		P	Z' 0.1	0.6
		M	E 0.8	17
		M	N 1.1	18
		M	Z 1.2	19
	Ki	iP	19 20 09.2	
		iS	19 21 44.9	
		i(SS)	19 22 00	
		eT	19 27 28	
			microns	sec
		P	Z' 0.3	1.2
		S	Z' 0.2	1.1
		M	E 3.1	18
		M	N 2.1	15

(cont.)

1966
Sept. 1 (cont.)

Ki		microns	sec
	M	Z 2.6	14
	D = 970 km = 8.7°.		
Sk	iP	19 20 21.0	
	iS	19 22 08.2	
Gb	iP	19 21 33.4	
	i	19 21 41.0	
Um	iP	19 20 45.7	
	iS	19 22 40	
Ka	iP	19 21 59.5	
	i	19 22 03.1	

Jan Mayen (h = 30 km).
In this series of Jan Mayen shocks, Gb exhibits clear multiplicity of P, with a first onset followed after about 8 sec by a much larger one (compare Sept. 1, 01 41 and 03 02).

" 1	Up	iP	21 11 33.8	
" 1	Sk	iP	21 14 32.8	

North Atlantic Ocean (h = 30 km).

" 1	Sk	iP	21 32 30.0
	Um	iP	21 33 04.1
		iS	21 37 43

North Atlantic Ocean (h = 30 km).

" 1	Sk	eP	21 35 59

North Atlantic Ocean (h = 30 km).

" 1	Up	iP	23 29 09.6	
	Ki	iP	23 28 00.6	
		i	23 28 12.5	
			microns	sec
		P	Z' 0.1	1.0
	Sk	iP	23 28 34.5	
	Gb	iP	23 29 19.9	
	Um	iP	23 28 32.1	
		i	23 28 40.7	
		iPcP	23 29 46.2	
	Ka	iP	23 29 25.0	

Alaska (h = 80 km).

" 2	Um	iP	00 42 15.8

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

1966 Sept.	2	Up	iP	01 05 42.2	D
			ipP	01 05 52.8	
				microns sec	
			P	Z' 0.1 0.6	
		Ki	iP	01 04 49.1	
			ipP	01 04 59.9	
				microns sec	
			M	E 0.6 17	
			M	N 0.3 17	
			M	Z 0.8 18	
		Sk	eP	01 05 22	
			ipP	01 05 33.2	
		Gb	iP	01 05 58.9	
			ipP	01 06 10.1	
		Um	iP	01 05 14.8	
			ipP	01 05 25.4	
		Ka	iP	01 06 05.3	
		Aleutian Islands.			
		h = 40 km (Up,Ki,Sk,Gb,Um).			
"	2	Up	iP	02 04 54.3	
"	2	Up	iP	02 09 21.0	
		Um	iP	02 08 55.1	
		Kurile Islands (h = 40 km).			
"	2	Um	iP	02 56 12.2	
"	2	Up	eS	08 25 50	
				microns sec	
			M	E 0.9 19	
			M	N 1.5 19	
			M	Z 1.6 20	
		Ki	eS	08 25 24	
			eSS	08 32 57	
				microns sec	
			S	N 0.3 9	
			M	E 2.4 19	
			M	N 1.8 21	
			M	Z 2.8 19	
		Easter Island Rise			
		(h = 30 km).			
		Magn. = 5.8 (Up,Ki).			
"	2	Sk	iP	10 51 10.4	
		Gulf of Aden (h = 30 km).			
"	2	Up	iP	11 20 32.1	
		Ki	iP	11 21 09.4	C
		Sk	iP	11 21 08.9	
		Um	iP	11 20 45.9	
		Iran (h = 30 km).			

1966 Sept.	2	Up	i(P)	13 22 45.9	
				microns sec	
			(P)	Z' 0.2 0.5	
		Ki	e(P)	13 21 39	
"	2	Sk	iP	14 29 45.0	
		Um	iP	14 29 43.0	
			i	14 29 46.9	
		Yugoslavia.			
"	2	Um	iP	18 02 37.9	
"	2	Ki	iP	22 55 45.5	
		Sk	iP	22 56 13.8	
		Alaska (h = 30 km).			
"	3	Up	iP	06 48 40.9	
"	3	Ki	iPn	07 49 01.1	
			iSn	07 49 56.3	
			iLgl	07 50 09.6	
			D = 510 km = 4.6°.		
		Sk	iSg	07 52 50.1	
		Um	iSn	07 50 42.0	
			iSg	07 51 21.5	
			D = 720 km = 6.5°.		
		Northwest Russia,			
		68.0°N, 32.5°E.			
		Origin time = 07 47 48.			
		Explosion?			
"	3	Up	iP	08 22 37.7	
		Ki	iP	08 21 52.2	
			i	08 22 15.3	
		Um	iP	08 22 12.3	
		Kurile Islands			
		(h = 70 km).			
"	3	Ki	i(P)	10 00 33.7	
"	3	Up	iSn	10 10 33.0	
			iSg	10 11 08.1	
		Ki	iSg	10 11 42.5	
		Sk	e	10 12 07	
			iSg	10 12 16.8	
		Um	ePg	10 09 16	
			iS*	10 10 09.4	
			iSg	10 10 23.2	
		Northwest of Lake Ladoga,			
		61.7°N, 30.0°E.			
		Origin time = 10 07 39.			
		Explosion?			

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

1966
Sept. 3 Up iPKP 12 27 28.7
Ki iPKP 12 27 43.7
i 12 27 59.2
microns sec
PKP Z' 0.1 1.0
Sk ePKP 12 27 33
Um iPKP 12 27 38.5
i 12 27 52.0
South Sandwich Islands
(h = 30 km).

" 3 Ki eSS 16 54 53
microns sec
M E 0.7 17
M N 0.3 15
M Z 0.9 17
Um iSS 16 55 19
Off coast of Mexico
(h = 50 km).

" 4 Up iP 01 32 54.5 D
i 01 33 07.0
iS 01 35 35.9
microns sec
P Z' 0.1 0.5
Ki eP 01 34 18
i 01 34 23.7
iLi 01 39 58.9
Sk eP 01 33 48
Um iP 01 33 36.6 D
i 01 33 51.7
iS 01 36 51.2
i 01 37 42.1
iLgl 01 38 52.4
Ka iP 01 32 20.0
Rumania (h = 120 km).

" 4 Up iP 04 48 27.5
ipP 04 48 40.1
microns sec
P Z' 0.1 0.6
Ki iP 04 48 28.7 D
microns sec
P Z' 0.1 1.0
Sk iP 04 48 44.6
i(pP) 04 49 01.1
Gb iP 04 48 41.8
Um iP 04 48 24.0 D
i(pP) 04 48 33.4
Ka iP 04 48 32.6
ipP 04 48 45.4
Andaman Islands.
h = 50 km (Up,Ka).
Magn. = 5.9 (Up,Ki).

1966
Sept. 4 Ki iSn 05 22 57.9
iLgl 05 23 17.1
Um i 05 24 05.9
iSg 05 24 16.5
Northwest Russia.
Explosion?

" 4 Ki ePn 06 24 27
iSn 06 25 26.7
iLgl 06 25 42.0
D = 560 km = 5.0°.
Possibly northwest Russia.
Origin time = 06 23 08.
Explosion?

" 4 Up i(Pn) 08 41 56.3
iSn 08 42 59.3
iSg 08 43 32.7
microns sec
Sg Z' 0.5 0.7
Ki iPn 08 42 08.2
iSn 08 43 32.4
iSg 08 44 25.7
D = 860 km = 7.7°.
Sk iPn 08 41 07.4
iSg 08 41 47.7
Gb iSn 08 42 52.7
i 08 43 14.5
iSg 08 43 20.1
Um iPn 08 41 49.5
iSn 08 43 02.5
iSg 08 43 39.0
Ka e(Sn) 08 44 03
iS[x] 08 44 31.3
iSg 08 44 40.0
Off coast of Norway
(h = 30 km).

" 4 Up ---
microns sec
M E 1.0 21
M N 1.8 22
M Z 0.9 19
Ki eP 09 55 18
microns sec
M E 0.8 21
M N 0.7 20
M Z 0.5 17
Um iS 10 07 16
iSS 10 14 33
New Guinea (h = 40 km).

" 4 Up iP 13 09 56.0
i 13 10 19.0
(cont.)

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

1966
Sept. 4 (cont.)

Ki	iP	13 09 03.4	
Um	iP	13 09 28.4	

Probably Aleutian Islands.
Origin time = 12 59 04.

" 4

Up	iP	22 14 36.2	D
Ki	iP	22 13 43.5	
Um	iP	22 14 09.9	

Probably Aleutian Islands.
Origin time = 22 03 45.

" 4

Up	iP	22 27 35.8	
	i	22 27 50.0	
Ki	iP	22 27 39.6	C
		microns sec	
	P	Z' 0.1 1.2	
Um	iP	22 27 46.0	

Colombia (h = 5 km).

" 5

Up	iPKP	00 26 59.0	
Ki	ePKP	00 26 55	
Um	e(PKP)	00 26 50	
	iPKP	00 27 02.7	
Ka	iPKP	00 27 13.2	

Fiji Islands (h = 210 km).

" 5

Up	iP	00 39 29.5	
Ki	iP	00 38 36.9	
Um	iP	00 39 01.5	

Probably Aleutian Islands.
Origin time = 00 28 38.

" 5

Up	iP	00 40 45.4	
Ki	iP	00 39 51.9	
Um	iP	00 40 17.5	

Probably Aleutian Islands.
Origin time = 00 29 53.

" 5

Up	iP	08 59 10.6	
		microns sec	
	P	Z' 0.1 0.8	
Ki	iP	08 58 17.1	C
Um	iP	08 58 43.0	C

Aleutian Islands (h = 60 km).

" 5

Up	i(P)	14 24 58.2	
		microns sec	
	(P)	Z' 0.1 0.5	

" 5

Ki	iPKP	18 17 24.0	
	i	18 17 36.9	
Sk	iPKP	18 17 34.9	
Um	iPKP	18 17 30.3	

(cont.)

1966
Sept. 5 (cont.)

Ka	iPKP	18 17 59.0	

New Hebrides Islands
(h = 40 km).

" 5

Um	iP	22 11 24.0	

" 5

Up	iP	22 39 05.5	
Sk	iP	22 39 45.0	

Greece (h = 30 km).

" 6

Sk	i(P)	08 06 20.2	
Um	iP	08 06 43.2	

" 6

Up	iP	12 36 57.1	
	ipP	12 37 24.2	
Ki	iP	12 38 04.0	D
Ka	iP	12 36 25.6	D

Dodecanese Islands.
h = 140 km (Up).

" 6

Sk	iP	12 43 59.1	C
Um	iP	12 43 57.9	C
	i	12 44 01.9	

Yugoslavia (h = 30 km).

" 6

Up	iPg	13 18 16.8	
	iSg	13 19 08.2	
		microns sec	
	Sg	Z' 0.1 0.5	
Sk	eSg	13 20 03	
Gb	iPg	13 17 16.1	
	iSg	13 17 22.8	
	iRg	13 17 26.3	
Ka	iPg	13 18 01.5	
	iSg	13 18 39.2	

Skagerack, 58.0°N, 10.5°E.
Origin time = 13 16 54.
Explosion?

" 6

Ki	i(PKP)	17 03 56.9	D
	iPKP	17 04 07.3	
Um	iPKP	17 04 13.4	

New Zealand (h = 50 km).

" 6

Up	iP	17 54 17.1	C
Ki	iP	17 53 26.4	
Um	iP	17 53 50.2	

Kurile Islands
(h = 30 km).

" 6 Up i(P) 18 39 47.5

" 6

Ki	iP	19 25 08.5	

Aleutian Islands
(h = 50 km).

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

1966 Sept.	6	Up	iP	22 38 24.2	
"	6 -7	Long-period microseisms (periods around 20 sec) recorded at Um.			
"	7	Ki	iP	03 35 10.1	
"	7	Ki	iP	03 58 36.9	
		Sk	iP	03 59 07.6	
		Um	iP	03 58 37.7	
		Kazakh SSR. Origin time = 03 52 00. Probably underground explosion.			
"	7	Up	iPn	10 04 55.3	
			i	10 06 06.4	
			i(Sg)	10 06 22.0	
			i	10 06 38.7	
		Ki	i(Pn)	10 05 13.1	
			e	10 06 34	
			iS[x]	10 07 15.2	
			iSg	10 07 32.6	
		Sk	e(Sn)	10 07 01	
			iSg	10 07 41.3	
		Um	ePn	10 04 43	
			iSn	10 05 37.4	
			iSg	10 05 55.8	
		Southeast Finland, 61.3°N, 27.8°E. Origin time = 10 03 33. Explosion?			
"	7	Ki	ePn	12 27 10	
			iSn	12 27 56.0	
			iLgl	12 28 11.1	
		Probably northwest Russia. Explosion?			
"	7	Ki	i(P)	15 10 36.5	
		Sk	i(P)	15 09 55.4	
		Um	i(P)	15 08 37.9	
"	7	Um	iP	16 30 57.3	
		Japan (h = 40 km).			
"	8	Ka	iPP	08 47 21.1	
		Argentina (h = 200 km).			
"	8	Up	eP	09 04 28	
		Um	i(P)	09 04 19.5	
"	8	Um	iP	12 20 43.3	
		South Atlantic Ocean (h = 30 km).			

1966 Sept.	8	Up	iP	12 25 34.8	
			ipP	12 26 23.1	
		Ki	iP	12 25 44.4	C
			ipP	12 26 30.5	
		Sk	eP	12 26 01	
		Um	iP	12 25 33.6	C
		Ka	iP	12 25 39.2	
		Hindu Kush. h = 230 km (Up,Ki).			
"	8	Up	i(P)	13 37 27.7	
"	8	Up	iP	18 36 50.4	C
"	8	Up	iP	18 40 49.7	
"	8	Up	iP	21 29 19.2	C
			iX	21 32 56	
			iPP	21 33 21.3	
			iY	21 37 01	
			iSKS	21 39 50	
				microns	sec
			P Z	1.7	4
			P Z'	0.2	1.0
			PP Z'	1.0	2.0
			M E	21	22
			M N	22	24
			M Z	29	22
			(D = 10800 km = 97°).		
		Ki	iP	21 29 02.2	C
			i	21 31 46.5	
			iPP	21 32 50	
			iY	21 36 32	
			iSKS	21 39 44	
				microns	sec
			P Z	3.6	8
			P Z'	2.6	2.4
			PP E	3.4	8
			PP Z	6.2	8
			SKS E	8.2	10
			SKS N	2.6	9
			M E	54	22
			M N	16	20
			M Z	56	22
			(D = 10450 km = 94°).		
		Sk	iP	21 29 23.8	C
			iX	21 32 58.5	
			ipPP	21 33 54.6	
			iSKS	21 39 55.4	
		Gb	i(P)	21 29 45.4	
			iPP	21 33 57.9	
		Um	iP	21 29 07.9	C
			iX	21 32 43	
			iPP	21 33 04.0	
			iY	21 36 46	
			(cont.)		

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

1966
Sept. 8 (cont.)

Um	iSKS	21 39 45	
	ipS	21 40 39	
	iPS	21 41 38	
Ka	i(P)	21 29 45.0	
	iX	21 32 51.6	
	iPP	21 33 38.6	

Halmahera (h = 100 km).
Magn. = 6.9 (Up,Ki).
X and Y are phases which have not lent themselves to any obvious interpretation.

" 8

Up	iPKP	21 36 32.6	
		microns sec	
	PKP Z'	0.1 0.6	
Gb	iPKP	21 36 43.3	
Um	iPKP	21 36 30.3	
Ka	iPKP	21 36 44.7	D

Fiji Islands (h = 80 km).

" 8

Up	iP	22 06 38.8	
Ki	iP	22 05 50.8	C
Um	iP	22 06 12.5	
	i	22 06 33.9	

Kurile Islands (h = 30 km).

" 8

Up	i(P)	22 26 53.6	

" 8

Up	iP	22 42 32.1	D
Ki	iP	22 41 38.6	D
Sk	iP	22 42 12.6	
Um	iP	22 42 04.9	

Aleutian Islands
(h = 60 km).

" 9

Ki	e	09 44 23	
	iSg	09 44 45.8	

Blast?

" 9

Ki	iPn	11 07 38.4	
	iPg	11 07 46.8	
	iSg	11 08 24.5	
	i	11 08 37.9	

D = 310 km = 2.8°.

" 9

Um	iP	11 18 05.8	

" 9

Up	iP	12 17 33.8	
Ki	iP	12 17 33.7	
Um	iP	12 17 30.9	

Sumatra (h = 25 km).

1966
Sept. 9

Ki	iP	15 46 08.6	
Um	iP	15 46 22.4	

Alaska (h = 60 km).

" 9

Up	iPn	16 02 04.9	C
	iSg	16 02 36.7	
Sk	eSn	16 03 42	
	eSg	16 04 04	
Gb	i(P)	16 01 44.0	
	iSg	16 02 05.9	
Ka	iSg	16 02 38.5	

Västergötland, Sweden,
58.5°N, 13.9°E.
Origin time = 16 01 20.

" 9

Up	iP	18 33 11.1	C
	i	18 34 09.4	

" 9

Ki	iP	18 52 06.6	
Sk	iP	18 51 51.8	
Um	iP	18 52 10.4	C

Venezuela (h = 10 km).

" 9

Up	iP	20 51 09.5	
	i	20 51 20.5	
Ki	iP	20 51 50.2	
Sk	iP	20 51 44.7	
Um	iP	20 51 28.1	
	i	20 51 29.6	
Ka	iP	20 50 58.9	

Gulf of Aden (h = 30 km).

" 9

Ki	ePn	22 39 05	
	iSn	22 39 59.2	
Sk	eSg	22 42 47	
Um	iSn	22 40 38.4	
	iSg	22 41 14.9	

Northwest Russia.
Explosion?

" 10

Up	iP	02 37 55.0	
	i	02 38 23.8	
Ki	iP	02 37 09.6	
Sk	iP	02 37 45.3	
Um	iP	02 37 30.4	
Ka	iP	02 38 17.0	

Okhotsk Sea (h = 340 km).

" 10

Um	iP	05 23 23.0	
	i	05 23 37.0	

" 10

Ki	iPn	07 35 49.8	
	iSn	07 36 45.8	

(cont.)

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

1966 Sept.	10	(cont.)			
		Ki	iLgl	07 36 58.2	
			D = 510 km = 4.6°.		
		Sk	eSg	07 39 39	
		Um	i	07 37 47.1	
			iSg	07 38 12.2	
		Northwest Russia, 68.0°N, 32.6°E.			
		Origin time = 07 34 37.			
		Explosion?			
"	10	Up	iP	10 15 15.6	
			i	10 15 34.0	
		Ki	iP	10 16 05.7	
		Turkey (h = 30 km).			
"	10	Sk	iP	10 50 12.9	
"	10	Up	iP	11 00 19.6	
			ipP	11 00 46.3	
		Ka	iP	10 59 41.9	
		Dodecanese Islands.			
		h = 140 km (Up).			
"	10	Sk	e(Sg)	14 47 04	
		Um	i(Sg)	14 45 13.9	
"	10	Um	iP	17 22 12.7	
"	10	Up	iPKP	17 50 26.5	
		Ki	ePKP	17 50 16	
		Gb	iPKP	17 50 37.2	
		Ka	iPKP	17 50 38.6	
		Tonga Islands (h = 550 km).			
"	10	Sk	eP	22 09 55	
		Um	iP	22 10 09.8	
		Mona Passage (h = 30 km).			
"	11	Up	iPKP	04 08 04.9	
		Ki	ePKP	04 08 20	
		Um	iPKP	04 08 13.3	
		South Sandwich Islands (h = 30 km).			
"	11	Up	iPKP	04 08 25.7	
		Ki	iPKP	04 08 40.5	
		Um	iPKP	04 08 33.9	
		South Sandwich Islands.			
		Origin time = 03 49 34.1.			
		This shock is somewhat stronger than the preceding one. An alternative interpretation would be as pPKP to the preceding shock, which then would imply a focal depth of about 80 km.			

1966 Sept.	11	Ki	e	04 27 20	
			i(Sg)	04 27 40.2	
		Blast?			
"	11	Up	iP	06 49 42.3	
"	11	Um	iP	07 08 09.6	
"	11	Um	iP	11 30 03.0	
"	11	Up	iP	11 44 42.4	
		Gb	iP	11 44 20.4	
"	11	Up	iP	16 05 31.9	
			ipP	16 05 40.7	
		Ki	iP	16 05 23.6	
			ipP	16 05 31.6	
		Sk	iP	16 05 47.5	
			ipP	16 05 55.0	
		Um	iP	16 05 23.7	
			ipP	16 05 31.5	
		Burma-India.			
		h = 30 km (Up,Ki,Sk,Um).			
"	11	Up	iP	17 50 19.2	C
			i	17 50 25.2	
			i	17 50 33.2	
				microns sec	
			P	Z' 0.1 0.6	
		Ki	iP	17 50 22.6	C
			i	17 50 27.6	
				microns sec	
			P	Z' 0.6 1.2	
		Sk	iP	17 50 06.3	C
			i	17 50 12.4	
			ipP	17 50 46.4	
			isP	17 51 11.2	
		Gb	iP	17 50 05.6	D
			ipP	17 50 44.8	
		Um	iP	17 50 23.4	
			iS	18 00 41	
			ipS	18 01 44	
		Ka	iP	17 50 15.7	D
			ipP	17 50 55.7	
		Colombia.			
		h = 160 km (Sk,Gb,Ka).			
		Magn. = 6.2 (Up,Ki).			
"	12	Up	i(P)	01 28 07.1	
"	12	Ki	e	05 29 08	
			i(Sg)	05 29 30.5	
		Blast?			
"	12	Um	iP	09 42 54.8	
		Greece.			

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

1966
Sept. 12 Up iPKP 11 49 03.3
iPP 11 51 55
iPKS 11 52 31
microns sec
PKP Z 2.0 8
PP Z 0.7 6
PKS E 1.6 8
PKS N 3.0 7
PKS Z 3.0 8
M E 3.8 20
M N 8.0 24
M Z 7.6 23
(D = 15350 km = 138°).
Ki e(PKP) 11 48 42
iPKP 11 48 47.6
iPP 11 51 03
iPKS 11 52 12
i 11 52 29.0
microns sec
PKP Z 1.5 6
PP Z 1.8 11
PKS E 4.0 7
PKS N 3.6 9
PKS Z 5.4 7
PKS Z' 0.7 2.0
M E 7.0 21
M N 4.0 20
M Z 9.5 20
(D = 14550 km = 131°).
Sk e(PKP) 11 48 54
iPKP 11 48 58.9
Gb i(PKP) 11 49 04.0
iPKP 11 49 08.5
Um iPKP 11 48 54.3
i 11 49 08.7
iPP 11 51 25
iPKS 11 52 22.8
iSS 12 09 03
Ka iPKP 11 49 04.9
iPP 11 52 12.8
Loyalty Islands (h = 50 km).
Magn. = 6.5 (Up,Ki).

" 12 Up iP 16 52 43.7
microns sec
M E 2.2 19
M N 4.3 23
M Z 4.0 18
Ki iP 16 52 08.1 C
microns sec
M E 5.3 21
M N 3.0 17
M Z 5.1 20
(cont.)

1966
Sept. 12 (cont.)
Sk iP 16 52 18.4
i 16 52 24.7
Gb eP 16 52 59
i 16 53 04.3
Um iP 16 52 29.6
iS 17 01 51
Ka iP 16 52 59.7
i 16 53 30.3
California (h = 10 km).
Magn. = 6.0 (Up,Ki).

" 12 Up i(P) 19 13 38.1

" 12 Up iSg 21 45 26.0
Ka i(P) 21 42 59.8
iSg 21 43 30.2

" 12 Ka i(P) 22 02 36.9
eSg 22 03 11

" 13 Um iPKP 01 10 01.2
Loyalty Islands
(h = 30 km).

" 13 Ki eP 03 16 31
Sk eP 03 16 31
Um iP 03 17 06.4 C

" 13 Up iP 04 35 32.3
Um i(P) 04 35 26.7

" 13 Up iP 20 10 44.3

" 13 Ki iP 20 30 01.7
microns sec
M E 0.4 10
M N 0.3 12
Ka iP 20 29 04.0
Turkey (h = 30 km).

" 13 Gb iPKP 23 13 30.6
South of Tonga Islands
(h = 50 km).

" 13 Up iP 23 58 12.6
Ki iP 23 57 54.7
Sk iP 23 58 17.0
Mindanao (h = 70 km).

" 14 Up iP 00 56 23.7
Ki eP 00 56 50
i 00 57 02.6
Ka iP 00 56 11.2 C
Arabian Sea (h = 25 km).

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

1966
Sept. 14 Up iP 02 19 06.5

" 14 Um iP 10 33 00.1

" 14 Up iP 14 20 51.6 C
microns sec
P Z' 0.1 0.7

" 14 Up i(P) 16 26 17.9
microns sec
(P) Z' 0.1 0.5
Um iP 16 26 06.1

" 14 Up iP 20 17 33.9
Um iP 20 17 38.3

" 14 Up iPKP 21 22 32.0
Tonga-Kermadec Islands
(h = 160 km).

" 14 Up i(PKP) 23 37 36.7
iPKP 23 37 38.9
ePP 23 39 22
iPKS 23 41 10.9
microns sec
PKP Z 0.8 4
PKP Z' 0.3 0.7
PP Z 1.7 8
M E 11 22
M N 25 20
M Z 22 22
(D = 13900 km = 125°).
Ki i(PKP) 23 37 49.3
iPKP 23 37 53.6
iPP 23 40 16
iPKS 23 41 15.5
iPS 23 50 12
iSS 23 57 52
microns sec
PKP Z 2.0 9
PKP Z' 0.3 1.5
PP N 1.4 16
PKS E 4.3 8
PKS N 5.0 8
PKS Z 5.8 9
PKS Z' 0.8 1.8
M E 15 18
M N 22 18
M Z 39 18
(D = 14600 km =
131 1/2°).
Sk i(PKP) 23 37 43.6
iPKP 23 37 48.8
iPKS 23 41 07.7
(cont.)

1966
Sept. 14 (cont.)
Gb iPKP 23 37 31.6
Um iP 23 34 39 C
i(PKP) 23 37 44.3
iPKP 23 37 46.8
iPP 23 39 47
iPKS 23 41 02.5
i 23 48 22
iSS 23 57 01
i(Sa) 00 13 41
Ka iPKP 23 37 32.3
South Sandwich Islands
(h = 30 km).
Magn. = 6.8 (Up,Ki).
i(Sa) at Um is a pronounced, large-amplitude phase, tentatively interpreted as Sa; its group velocity is 4.3 km/sec.

" 15 Up iPKP 02 05 25.5
i 02 06 16.2
Ki iPKP 02 05 40.3
i 02 05 44.5
Um iPKP 02 05 33.5
i 02 05 54.8
South Sandwich Islands
(h = 30 km).

" 15 Up iPKP 02 43 47.4
ipPKP 02 43 56.5
Ki iPKP 02 44 02.6
iPKS 02 47 29.1
Um iPKP 02 43 55.2
ipPKP 02 44 04.8
iPKS 02 47 14.8
South Sandwich Islands.
h = 35 km (Up,Um).

" 15 Um iP 03 14 11.9
i 03 14 28.8

" 15 Up iPKP 04 26 30.7
microns sec
M N 1.3 21
M Z 2.0 24
Ki eSS 04 46 35
microns sec
M E 1.1 20
M N 0.8 20
M Z 1.8 21
Gb iPKP 04 26 35.6
i 04 26 48.1
Um iPKP 04 26 24.9
Tonga Islands (h = 70 km).

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

1966
Sept. 15 Um iPKP 06 27 00.1
South Sandwich Islands
(h = 30 km).

" 15 Ki iPn 12 08 34.9
iSn 12 09 21.4
iSg 12 09 38.9
D = 420 km = 3.8°.
Probably northwest Russia.
Origin time = 12 07 34.
Explosion?

" 15 Up iPKP 12 10 51.5

		microns	sec
M	E	2.4	18
M	N	5.4	19
M	Z	5.5	19

Ki iPKP 12 11 07.7
iPKS 12 14 30.4
iSS 12 31 04

		microns	sec
PKP	Z	0.8	7
PKS	E	2.0	7
PKS	N	1.9	8
PKS	Z	1.7	5
M	E	3.0	19
M	N	5.8	18
M	Z	7.7	17

Sk ePKP 12 11 08
Um iPKP 12 11 00.3
i 12 12 02.6
iPP 12 13 07
iPKS 12 14 17
i 12 21 24
iSS 12 30 21
South Sandwich Islands
(h = 30 km).
Magn. = 6.3 (Up,Ki).

" 15 Um iPKP 12 19 01.1
i 12 19 11.8
South Sandwich Islands
(h = 30 km).

" 15 Ki iP 12 28 47.6

" 15 Up iP 17 22 35.9 C
eS 17 32 23

		microns	sec
P	Z'	0.1	0.6
M	E	4.2	16
M	N	8.6	22
M	Z	7.1	15

D = 8500 km = 76 1/2°.
(cont.)

1966
Sept. 15 (cont.)
Ki iP 17 22 13.0 C
i 17 22 17.7
eS 17 31 38

		microns	sec
P	Z'	0.2	1.1
S	N	0.9	9
M	E	6.8	13
M	N	4.5	16
M	Z	6.1	14

D = 8050 km = 72 1/2°.
Sk iP 17 22 39.8
i 17 22 44.8
Gb iP 17 22 55.6
Um iP 17 22 20.8 C
iS 17 31 51
Formosa (h = 50 km).
Magn. = 6.1 (Up,Ki).

" 15 Up iP 17 36 34.1
Ki iP 17 36 10.0
Sk iP 17 36 41.6
Um iP 17 36 18.9
Formosa (h = 50 km).

" 15 Up iP 19 10 39.7
i 19 11 25.4

" 16 Um iPKP 00 03 17.0
Chile (h = 70 km).

" 16 Ki iP 02 13 26.8

		microns	sec
M	E	0.4	13

Um iP 02 13 33.6
Formosa (h = 30 km).

" 16 Up i(P) 02 15 52.1

" 16 Up iP 02 59 07.9 D

		microns	sec
P	Z'	0.1	0.7

Ki iP 02 58 14.0 D

		microns	sec
P	Z'	0.1	1.0

Sk iP 02 58 43.3
Gb iP 02 59 21.6
Um iP 02 58 41.0
iPcP 02 59 19.1
Unimak Island (h = 40 km).
Magn. = 5.8 (Up,Ki).

" 16 Up iP 14 11 07.4

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

1966
Sept. 16 Ki iP 17 20 33.4
Unimak Island (h = 30 km).

" 16 Up iP 20 45 37.6
i 20 45 45.2
microns sec
P Z' 0.1 0.7

" 16 Ki iPg 21 49 41.7
iSg 21 49 57.5
D = 130 km = 1.2°.
Probably blast.

" 17 Up iP 00 39 12.9

" 17 Ki iP 01 32 35.8
Kodiak Island (h = 50 km).

" 17 Up iP 11 16 22.2

" 17 Up iPKP 20 37 03.5
i 20 37 18.3
microns sec
PKP Z' 0.1 1.0
Ka iPKP 20 37 13.2
Kermadec Islands (h = 40 km).

" 17 Up iPKP 21 24 22.8
Um iPKP 21 24 14.1
Fiji Islands (h = 220 km).

" 18 Up eP 03 44 08
i 03 44 19.6

" 18 Up iP 05 33 27.4 C
i 05 33 31.7
microns sec
P Z' 0.1 0.9
Ki iP 05 32 44.3
Um iP 05 33 03.3 C
ipP 05 33 21.6
Japan. h = 70 km (Um).

" 18 Ki iP 12 08 31.6
Arabian Sea (h = 30 km).

" 18 Ki iP 12 30 22.5
Burma-China (h = 30 km).

" 18 Up iP 14 26 55.6
i 14 27 01.1
microns sec
P Z' 0.1 0.8
M E 0.3 18
M N 2.0 20
(cont.)

1966
Sept. 18 (cont.)
Up microns sec
M Z 0.8 23
Ki iP 14 26 41.4
i 14 26 44.8
microns sec
P Z' 0.1 1.0
M E 0.5 13
M N 1.8 19
M Z 1.0 16
Sk iP 14 27 07.4 D
Gb iP 14 27 15.2
Um iP 14 26 45.6
Ka iP 14 27 05.9
i 14 27 17.1
Yunnan (h = 30 km).
Magn. = 5.6 (Up,Ki).

" 18 Up iPKP 15 33 20.9
Ki iPKP 15 33 37.3 C
microns sec
M N 0.9 19
Sk iPKP 15 33 29.5
Um iPKP 15 33 29.0
South Sandwich Islands
(h = 30 km).

" 18 Um iPKP 18 17 23.4 D
i 18 17 38.1
South Sandwich Islands
(h = 40 km).

" 18 Up iP 18 52 55.8

" 18 Up iP 19 56 17.8 D
Gb iP 19 56 37.0
Formosa (h = 50 km).

" 18 Up iP 20 51 33.0 C
iPP 20 53 05
microns sec
P Z' 0.6 0.5
M E 1.7 22
M N 2.4 20
M Z 2.3 18
Ki iP 20 52 08.6 C
ipP 20 52 13.6
iPP 20 53 54.7
iS 20 58 36
iScS 21 02 07
microns sec
P Z' 1.2 1.0
PP Z' 0.4 1.2
S E 1.1 5
M E 2.7 13
(cont.)

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

1966 Sept. 18 (cont.)

Ki		microns	sec
	M	N 2.1	13
	M	Z 2.6	13
	D = 5000 km = 45°.		
Sk	iP	20 52 07.5	C
	ipP	20 52 12.8	
	i	20 59 25.8	
Gb	iP	20 51 44.4	C
	ipP	20 51 49.8	
	i(PP)	20 53 34.6	
	i(S)	20 58 14.3	
Um	iP	20 51 45.7	C
	ipP	20 51 51.2	
	iPP	20 53 23.5	
	iS	20 58 08	
Ka	iP	20 51 23.6	C

Iran. h = 25 km (Ki,Sk,Gb,Um).
Magnitudes computed from different waves range over 6.9 to 5.3 in such way that $M_P > M_{PP} > M_S > M_L$.

" 19

Ki	iP	02 10 04.0	
		microns	sec
	P	Z' 0.1	1.0
Ka	iP	02 09 01.9	

Turkey (h = 40 km).

" 19

Up	iP	04 34 50.5	C
		microns	sec
	P	Z' 0.1	0.6
Gb	iP	04 35 09.7	
Um	iP	04 34 23.3	

Kurile Islands (h = 80 km).

" 19

Up	iP	05 04 21.1	
Um	iP	05 04 01.9	

South of Japan (h = 450 km).

" 19

Up	iP	05 14 27.7	
		microns	sec
	P	Z' 0.1	0.9
Ki	iP	05 14 18.3	
Sk	iP	05 14 41.3	
Um	iP	05 14 18.9	
Ka	iP	05 14 37.2	

Burma-China (h = 15 km).

" 19

Up	iPKP	07 20 26.5	
		microns	sec
	PKP	Z' 0.1	0.9

(cont.)

1966 Sept. 19 (cont.)

Ki	ePKP	07 20 19	
Gb	iPKP	07 20 35.4	
Um	iPKP	07 20 19.6	
Ka	iPKP	07 20 37.8	

Fiji Islands (h = 580 km).

" 20

Up	iP	04 46 06.9	C

" 20

Ki	iP	06 23 44.6	

Aleutian Islands (h = 20 km).

" 20

Sk	iP	07 19 15.5	

" 20

Ki	i	15 05 22.9	
	iSg	15 05 45.2	
Um	iSg	15 04 26.0	

Blast?

" 20

Up	iPKP	17 51 41.9	
	i	17 52 06.8	

Kermadec Islands (h = 70 km).

" 20

Ki	iP	23 08 19.4	
	iT	23 13 25.4	
	i	23 13 50.7	
Sk	eS	23 10 42	
Um	iP	23 09 09.9	

Norwegian Sea (h = 30 km).

" 20

Up	iP	23 47 57.3	
Ki	iP	23 47 48.0	
Sk	iP	23 48 11.6	
Um	iP	23 47 48.4	C
	i	23 47 53.9	

Burma-China (h = 30 km).

" 21

Ki	iP	00 28 09.8	
	iT	00 33 48.2	
Sk	iP	00 28 49.6	
Um	iP	00 29 00.2	

Norwegian Sea (h = 30 km).

" 21

Up	iP	06 45 33.0	
Ka	i(P)	06 45 06.3	

" 21

Up	iP	14 26 55.8	
Um	iP	14 26 11.9	C

" 22

Up	iP	00 14 55.0	C
		microns	sec
	P	Z' 0.1	0.5

(cont.)

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

1966 Sept.	22	(cont.)			
		Ki	iP	00 14 01.3	
		Gb	iP	00 15 15.2	C
		Um	iP	00 14 26.4	C
		Ka	iP	00 15 18.8	C
		Kamchatka (h = 60 km).			
"	22	Sk	iP	04 26 42.7	
		Um	iP	04 26 25.5	D
		Japan (h = 60 km).			
"	22	Ka	iP	04 58 47.7	
		Tadzhik SSR (h = 140 km).			
"	22	Ki	i	13 55 22.2	
			iSg	13 55 42.2	
		Blast?			
"	22	Um	iP	18 32 30.9	
			i	18 32 36.4	
		South of Japan (h = 30 km).			
"	22	Up	iP	19 09 14.0	
		Nevada (h = 30 km).			
"	22	Up	iP	22 05 01.2	
			i	22 05 06.3	
		Ki	iP	22 04 45.7	
		Um	iP	22 04 48.9	
		China (h = 10 km).			
"	23	Up	iP	00 54 38.1	
"	23	Up	iP	00 57 47.1	
"	23	Up	iP	01 40 49.4	
			1!	01 41 04.3	
				microns sec	
			M E	1.9 20	
			M N	3.1 19	
			M Z	2.9 18	
		Ki	e(P)	01 40 10	
				microns sec	
			M E	1.5 16	
			M N	1.4 18	
			M Z	3.1 18	
		Gb	iP	01 41 10.0	
		Um	iP	01 40 22.6	
		Ka	iP	01 41 12.2	
		Kurile Islands (h = 30 km).			
"	23	Up	iP	02 17 26.2	
		(cont.)			
1966 Sept.	23	(cont.)			
		Ki	iP	02 16 32.2	
		Sk	eP	02 17 13	
		Kamchatka (h = 70 km).			
"	23	Up	iP	08 51 12.4	
"	23	Ki	iPg	14 13 08.1	C
			iSg	14 13 23.2	
			D = 130 km = 1.2°.		
		Probably blast.			
"	23	Up	iPKP	18 44 46.7	C
		Ki	iPKP	18 45 02.6	
		Um	iPKP	18 44 54.0	C
			i	18 45 04.3	
		South Sandwich Islands (h = 30 km).			
"	23	Ki	iP	20 47 31.8	
		Sk	iP	20 47 13.5	
		Crete (h = 180 km).			
"	23	Up	i(P)	22 03 48.7	
			i	22 04 15.9	
			i	22 04 28.7	
"	23	Up	iP	23 52 41.4	
		Sk	iP	23 53 21.5	
		Um	iP	23 53 21.0	
		Greece (h = 90 km).			
"	24	Up	iP	10 08 27.6	
				microns sec	
			P	Z' 0.1 0.7	
		Ki	iP	10 09 03.3	C
				microns sec	
			P	Z' 0.2 1.0	
			M E	1.3 16	
			M N	1.6 16	
			M Z	0.9 13	
		Sk	iP	10 09 01.1	C
			ipP	10 09 08.3	
		Gb	iP	10 08 38.6	
		Um	iP	10 08 40.5	C
			iPP	10 10 20.8	
		Ka	iP	10 08 19.7	
		Iran. h = 25 km (Sk).			
		Magn. = 5.9 (Up,Ki).			
"	24	Up	iP	10 41 14.8	
"	24	Up	iP	12 06 18.4	
"	24	Up	iP	13 50 30.4	

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

1966					
Sept.	24	Up	iP	16 57 09.4	
"	24	Up	iP	18 37 46.8	
"	24	Up	iP	18 43 33.8	
"	24	Up	iP	20 26 05.3	
			ipP	20 26 30.6	
		Sk	iP	20 26 45.3	
		Gb	iP	20 25 53.1	
		Um	iP	20 26 43.7 D	
		Greece. h = 130 km (Up).			
"	25	Up	iP	05 02 24.0	
			ipP	05 02 57.4	
		Ki	iP	05 01 56.0	
			ipP	05 02 24.2	
		Um	iP	05 02 09.1	
			epP	05 02 41	
		Mariana Islands.			
		h = 120 km (Up,Ki,Um).			
"	25	Up	iP	06 15 08.9	
			i	06 15 17.2	
			i	06 15 39.2	
			iSKS	06 25 34	
				microns sec	
			P Z'	0.1 0.7	
			SKS E	0.5 5	
			M E	0.9 23	
			M Z	1.4 22	
			D = 9650 km = 87°.		
		Ki	iP	06 14 53.0	
			i	06 15 14.0	
			iSKS	06 25 11	
				microns sec	
			P Z'	0.4 1.5	
			SKS E	2.1 14	
			SKS N	1.7 13	
			M E	0.7 17	
			M N	0.6 18	
			M Z	1.3 23	
			D = 9350 km = 84°.		
		Sk	iP	06 14 49.7 D	
			i	06 15 06.2	
			i	06 15 38.9	
		Gb	iP	06 15 03.3 D	
		Um	iP	06 15 02.9 D	
			i	06 15 51.1	
			iSKS	06 25 24	
		Ka	iP	06 15 14.2	
		Mexico (h = 60 km).			
"	25	Um	iP	06 21 23.5	
		Japan (h = 70 km).			

1966				
Sept.	25	Up	iPKP	09 04 37.2
		Um	i	09 06 12.1
		Tonga-Kermadec Islands		
		(h = 480 km).		
"	25	Up	iP	12 18 36.4
"	25	Ki	iP	14 10 11.5
		Pamir.		
"	25	Up	iP	15 45 43.2
"	25	Up	i(P)	18 51 31.4
"	25	Up	iP	20 30 07.8 C
		Ki	iP	20 29 14.2
		Sk	iP	20 29 51.8
		Gb	iP	20 30 28.2 C
		Um	iP	20 29 39.2 C
		Ka	iP	20 30 31.8
		Kamchatka (h = 50 km).		
"	25	Up	eP	00 00 33
	-26		i	00 00 41.3
		Ki	iP	23 59 50.5
		Sk	eP	00 00 25
			ipP	00 00 44.6
		Um	iP	00 00 06.9 C
		Japan. h = 70 km (Sk).		
"	26	Up	iP	02 54 47.0
"	26	Ki	iPKP	03 55 38.4
		New Zealand (h = 30 km).		
"	26	Up	iP	04 34 37.4
			ipP	04 34 44.7
				microns sec
			pP Z'	0.1 0.7
		Ki	iP	04 34 16.9
			ipP	04 34 23.8
				microns sec
			P Z'	0.1 1.2
			M E	0.8 14
			M N	1.0 17
		Sk	eP	04 34 46
		Um	iP	04 34 23.6
			ipP	04 34 30.7
		Ka	iP	04 34 58.4 C
		Formosa.		
		h = 25 km (Up,Ki,Um).		
"	26	Up	iP	05 20 56.3 C
			i	05 21 14.3
		(cont.)		

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

1966
Sept. 26 (cont.)

Up		microns	sec
	P	Z' 0.2	0.8
	M	E 2.6	17
	M	N 2.0	17
	M	Z 3.0	16
Ki	iP	05 20 49.5	
	eLg1	05 41 44	
	eLg2	05 42 35	
		microns	sec
	P	Z' 0.1	1.1
	M	E 3.2	13
	M	N 1.7	15
	M	Z 5.3	16
Sk	iP	05 21 12.6	
	ipP	05 21 18.2	
Gb	iP	05 21 17.1	
Um	iP	05 20 48.1 C	
	ipP	05 20 53.7	
	i	05 21 22.1	
	eS	05 28 39	
Ka	iP	05 21 04.9 C	
	ipP	05 21 10.2	

India-China.
h = 20 km (Sk,Um,Ka).
Magn. = 5.8 (Up,Ki).

"	26	Ki	iP	12 36 19.4
		Sk	iP	12 36 26.3
		Um	iP	12 36 46.6

These three phases could possibly be Sg instead of P.

"	26	Up	iP	21 36 07.0
"	26	Up	iP	22 05 50.8
"	27	Ka	iP	10 59 24.4

Greece
(h = 20 km).

"	27	Ki	iP	15 08 29.9
			iPg	15 09 01.1
		Sk	i(S)	15 12 43.5
		Um	iP	15 09 52.4

Svalbard (h = 30 km).

"	27	Um	iPKP	19 34 04.1

New Britain (h = 70 km).

"	28	Up	iP	00 59 14.6 D
"	28	Up	iP	14 10 47.2 D
			i	14 10 50.4
			iS	14 19 19

(cont.)

1966
Sept. 28 (cont.)

Up	i	14 19 27	
		microns	sec
	P	E 0.4	3
	P	Z 1.0	3
	P	Z' 0.2	0.5
	S	E 1.0	6
	S	N 1.7	7
	M	E 5.1	18
	M	N 20	20
	M	Z 7.0	17

D = 7000 km = 63°.

Ki	iP	14 10 33.8	
	i	14 10 36.4	
	iS	14 18 55	
		microns	sec
	P	E 0.7	7
	P	Z 1.9	7
	P	Z' 0.4	1.2
	S	E 1.5	8
	S	N 1.9	10
	M	E 20	19
	M	N 17	17
	M	Z 10	16

D = 6800 km = 61°.

Sk	iP	14 10 58.9	
	i	14 11 01.8	
Gb	iP	14 11 11.3	
	iPcP	14 11 40.6	
Um	iP	14 10 35.6 D	
	i	14 10 38.4	
	iS	14 18 59	
	iSS	14 23 08	
Ka	iP	14 10 56.8	
	i	14 11 00.9	

Yunnan (h = 30 km).
Magn. = 6.4 (Up,Ki).
Multiple P with an average time difference of 3 sec between the first small and the second larger onset.

"	28	Up	iP	19 10 41.8
"	28	Up	i(P)	20 40 53.7
"	28	Up	i(P)	20 42 15.3
"	28	Up	i(P)	22 28 15.7
"	29	Gb	iPKP	03 03 15.7
		Ka	iPKP	03 03 19.5 C

Fiji Islands (h = 250 km).

"	29	Up	i(P)	03 11 07.5
			i	03 11 28.1

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

1966					
Sept.	29	Up	iP	08 23 52.9	
"	29	Ki	iP	17 52 48.8	
		Um	iP	17 52 29.8	
		Iran (h = 25 km).			
"	29	Up	iP	18 37 27.3	
"	29	Up	iP	20 41 29.4	
"	30	Up	iP	04 40 51.5	
"	30	Up	iP	06 06 51.7	C
			i	06 07 23.0	
			i	06 07 50.4	
			iPn	06 08 04.3	
				microns sec	
			P Z'	0.1 0.6	
		Sk	iP	06 07 20.6	
			i(Pn)	06 08 32.9	
		Gb	iP	06 07 13.0	C
			iPn	06 08 34.5	
		Um	iP	06 06 52.4	C
			i(Pn)	06 07 44.6	
			iPP	06 08 11.4	
			i	06 08 32.4	
		Ka	iP	06 06 54.8	C
			iPn	06 08 08.3	
		Uzbekistan.			
"	30	Sk	eP	09 17 56	
			i	09 17 59.3	
"	30	Sk	i(P)	12 42 38.6	
"	30	Up	iP	13 53 49.7	C
"	30	Ki	iPn	14 29 22.7	D
			iSn	14 30 10.4	
			iLg1	14 30 24.4	
			D = 430 km = 3.9°.		
		Probably northwest Russia.			
		Origin time = 14 28 21.			
		Explosion?			
"	30	Up	iP	23 51 44.5	

Markus Båth
February 3, 1967

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

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, K A R L S K R O N A and U D D E H O L M

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
Uddeholm	(Ud):	60°05.4'N,	13°36.4'E;	h = 240 m

O C T O B E R 1 - 31, 1966

1966 Oct.	1	Um	iP	02 52 52.2	
"	1	Up	iP	07 46 21.5	
			i	07 46 48.5	
			i	07 47 38.2	
			iPP	07 48 06.6	
		Ki	eP	07 46 34	
			iPP	07 48 32.0	
				microns sec	
			M E	0.7 12	
			M N	0.3 12	
			M Z	0.8 12	
		Sk	iP	07 46 49.2	
		Um	iP	07 46 20.9	
			i	07 46 31.2	
			i	07 47 00.6	
			iPP	07 48 11.9	
		Ka	iP	07 46 26.0	
			i	07 46 26.9	
			iPP	07 48 17.0	
			i	07 50 33.4	
		West Pakistan (h = 25 km).			
"	1	Ki	iPn	08 16 44.7	
			iSn	08 17 39.9	
			iLgl	08 17 57.6	
			D = 520 km = 4.7°.		
		Um	iPn	08 17 10.9	
			iSn	08 18 33.0	
			iSg	08 19 13.5	
			D = 740 km = 6.7°.		
		(cont.)			
1966 Oct.	1	(cont.)			
		Northwest Russia,			
		68.2°N, 32.9°E.			
		Origin time = 08 15 31.			
		Explosion?			
"	1	Ki	iPn	15 30 45.9	
			iSn	15 31 41.4	
			iLgl	15 32 00.8	
			D = 510 km = 4.6°.		
		Probably northwest Russia.			
		Origin time = 15 29 35.			
		Explosion?			
"	2	Up	iP	02 35 10.3	
		Ki		---	
				microns sec	
			M E	1.0 16	
			M N	1.1 18	
		Um	iP	02 34 47.2	
		China (h = 30 km).			
"	2	Up	iP	04 42 07.8 C	
				microns sec	
			P Z'	0.1 0.5	
		Ki	iP	04 42 01.2	
		Sk	iP	04 42 23.1 C	
		Um	iP	04 41 59.9 C	
			ipP	04 42 21.0	
		Ka	iP	04 42 16.2	
			ipP	04 42 37.7	
		Burma-India.			
		h = 80 km (Um,Ka).			

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

1966					
Oct.	2	Um	iP	07 15 13.6	
"	2	Up	iP	07 34 34.7	
			ipP	07 34 48.6	
				microns	sec
			P	Z' 0.1	0.5
			M	E 1.7	18
			M	N 3.6	22
			M	Z 3.2	20
		Ki	iP	07 33 40.9	
			iS	07 42 00	
				microns	sec
			M	E 1.4	17
			M	N 1.3	17
			M	Z 2.5	18
			D = 6650 km = 60°.		
		Sk	iP	07 34 13.0	
		Gb	iP	07 34 51.4	
			ipP	07 35 06.5	
		Um	iP	07 34 08.0	
			ipP	07 34 24.3	
			iS	07 42 46	
		Ka	iP	07 34 57.5	
			i	07 35 00.5	
			i	07 35 38.9	
		Aleutian Islands.			
		h = 60 km (Up,Gb,Um).			
		Magn. = 5.7 (Up,Ki).			
"	2	Up	iSn	09 32 55.5	
			iSg	09 33 31.0	
		Ki	i(Sn)	09 33 27.5	
			iSg	09 34 02.4	
		Sk	iSg	09 34 36.3	
		Um	ePg	09 31 39	
			e	09 32 27	
			iSg	09 32 45.8	
			D = 560 km = 5.0°.		
		USSR-Finland border region, 61.8°N, 30.2°E.			
		Origin time = 09 29 59.			
		Explosion?			
"	2	Um	iP	10 21 32.4 C	
"	2	Up	iP	11 25 08.6 C	
			iX	11 25 23.7	
			iS	11 27 46	
				microns	sec
			P	Z' 0.5	0.6
			S	E 1.2	3
			S	N 1.4	3
		(cont.)			

1966					
Oct.	2	(cont.)			
		Up		microns	sec
			M	E 2.5	5
			M	N 1.2	4
			M	Z 0.9	4
		Ki	iP	11 26 32.3 C	
			i	11 26 38.6	
			ipP	11 26 56.1	
			iS	11 30 31	
			i	11 30 48	
			i	11 31 09.1	
			i(Li)	11 33 09	
			iLgl	11 33 43.3	
				microns	sec
			P	Z' 0.3	1.3
			pP	Z' 0.6	0.8
			S	N 0.9	7
			M	E 2.1	5
			M	N 0.7	11
			M	Z 0.8	10
		Sk	iP	11 26 02.0	
			i(X)	11 26 21.5	
			iS	11 29 36.7	
			iLgl	11 32 09.8	
		Gb	iP	11 25 06.1	
			i	11 25 12.2	
			iS	11 27 44.3	
		Um	iP	11 25 50.6 C	
			iX	11 26 05.4	
			e	11 28 54	
			iS	11 29 05	
			iLi	11 30 53	
			iLgl	11 31 16	
		Ka	iP	11 24 33.6	
			iX	11 24 50.3	
		Rumania (h = 140 km).			
		Magn. = 5.7 (Up,Ki).			
"	2	Up	iP	12 18 57.8 C	
		Ki	iP	12 18 04.1 C	
		Aleutian Islands			
		(h = 60 km).			
"	2	Ki	ePKP	20 01 53	
		West of Macquarie Islands			
		(h = 60 km).			
"	3	Up	eP	11 45 55	
"	3	Up	ePP	17 12 52	
		Ki	eP	17 12 20	
		Iran (h = 40 km).			

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

1966
Oct. 3 Up i(P) 18 39 11.6
Um i(P) 18 40 04.8

" 3 Up i(P) 20 43 29.0
microns sec
(P) Z' 0.1 0.5

" 3 Up iP 22 29 24.7
Ki e(P) 22 28 20

" 4 Up iP 02 15 48.3
Ki eP 02 15 51

" 4 Up iP 09 05 13.7

" 4 Up iPKP 23 56 11.7
Um iSKP 23 58 44.7
Tonga-Kermadec Islands
(h = 490 km).

" 5 Ki iPKP 05 44 02.3 C
Um iPKP 05 44 08.8
Santa Cruz Islands
(h = 250 km).

" 5 Ki iP 08 45 37.3
ipP 08 45 45.4
microns sec
M E 0.6 13
M N 0.5 14
M Z 0.6 14
Um iP 08 45 11.7
ipP 08 45 19.8
Congo. h = 30 km (Ki,Um).

" 5 Up iPg 09 28 12.0
iSg 09 28 34.2

" 5 Um i(Sg) 10 23 11.2

" 5 Um iP 11 55 34.7

" 6 Ki i(P) 13 48 18.9
Um iP 13 46 20.3

" 6 Up iP 13 59 10.4
Ki iP 13 58 18.7 C
Gb eP 13 59 28
Um iP 13 58 43.2 C
Kamchatka (h = 30 km).

" 6 Up iP 15 05 33.6
(cont.)

1966
Oct. 6 (cont.)
Up
microns sec
P Z' 0.1 0.8

" 6 Up iPg 15 39 55.6 C
iSg 15 40 24.4
D = 230 km = 2.1°.
Ki eSn 15 42 29
iLg1 15 43 00.9
Sk eSg 15 42 11
Um iSg 15 40 58.3
Southwest Finland,
60.7°N, 21.6°E.
Origin time = 15 39 15.
Explosion?

" 7 Um iP 03 02 16.7

" 7 Up iP 04 41 44.8
Ki iP 04 41 27.9 C
microns sec
P Z' 0.1 0.8
Sk iP 04 41 48.6
Um iP 04 41 33.0 C
Talaud Islands
(h = 90 km).

" 7 Um iP 13 43 38.3 C

" 7 Um iP 14 36 52.8 C

" 7 Up i(PKP) 16 14 03.3
iPKP 16 14 16.6
i 16 14 38.3
ePP 16 16 59
iSKP 16 17 32.0
i 16 17 39.7
iX 16 23 36
microns sec
PKP Z' 0.1 0.6
SKP E 1.6 9
SKP N 1.0 5
SKP Z 4.1 6
SKP Z' 0.7 1.0
M E 6.4 25
M N 4.5 22
M Z 4.8 21
(D = 15200 km
= 137°).
Ki i(PKP) 16 13 50.6
iPKP 16 14 00.4
iPP 16 16 09.3
(cont.)

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

1966
Oct. 7 (cont.)

Ki	iSKP	16 17 08.3	
	iPKS	16 17 24.1	
	iX	16 22 51	
	e	16 26 28	
		microns	sec
	PKP	Z' 0.4	1.5
	PP	E 1.0	9
	PP	N 1.1	10
	PP	Z 2.9	10
	SKP	E 1.3	7
	SKP	N 1.6	7
	SKP	Z 9.0	7
	SKP	Z' 2.8	1.5
	PKS	E 3.0	10
	PKS	N 3.2	10
	M	E 4.1	22
	M	N 2.6	21
	M	Z 6.4	21
	(D = 14450 km = 130°).		
Sk	i(PKP)	16 14 03.4	
	iPKP	16 14 11.5	
	iSKP	16 17 26.9	
Gb	i(PKP)	16 14 15.1	
	iPKP	16 14 18.0	
	iSKP	16 17 41.4	
	iPKS	16 17 55.2	
Um	i(PKP)	16 14 02.1	
	iPKP	16 14 09.1	
	iPP	16 16 31	
	iSKP	16 17 19.8	
	iSKKS	16 22 51	
	iX	16 23 13.2	
	i	16 28 19	
	iSS	16 34 02	
Ka	i(PKP)	16 14 11.4	
	iPKP	16 14 19.5	
	iPP	16 17 20.8	
	iSKP	16 17 41.9	
	iPKS	16 17 55.0	
	iSKSP	16 26 59.8	

Loyalty Islands (h = 160 km).
Magn. = 6.2 (Ki).
(PKP) are small-amplitude precursors to PKP. SKP is very large at all our stations, which cover the distance range of 130° - 140°.

" 7 Up i(PP) 20 14 30.5
New Guinea (h = 160 km).

" 7 Up iP 20 37 36.1

1966
Oct. 7

Up	iP	21 05 46.4	
Ki	iP	21 04 49.9	
	i	21 06 22.7	
		microns	sec
	P	Z' 0.1	1.0
Sk	iP	21 05 17.7	D
Gb	iP	21 05 58.5	D
	ipP	21 06 15.4	
Um	iP	21 05 19.7	
	i	21 06 13.1	
Ka	iP	21 06 10.4	

Alaska. h = 60 km (Gb).

" 8 Up ---

		microns	sec
	M	E 1.1	19
	M	N 2.3	19
	M	Z 3.2	24
Ki	i	00 59 17	
		microns	sec
	M	E 1.9	20
	M	N 2.9	21
	M	Z 6.1	23
Um	eSS	00 51 16	
	iSSP	00 51 44	

Fiji Islands (h = 30 km).

" 8 Up ---

		microns	sec
	M	E 1.1	20
	M	N 2.8	20
	M	Z 1.9	20
Ki	eSS	03 12 28	
		microns	sec
	M	E 1.9	20
	M	N 2.0	22
	M	Z 4.2	21
Um	iSS	03 13 20	

Fiji Islands (h = 60 km).

" 8 Up iP 03 17 07.6
Ki eP 03 16 12
ipP 03 16 18.7
Sk iP 03 16 39.8 C
ipP 03 16 45.7
Gb iP 03 17 19.2
ipP 03 17 25.1
Um iP 03 16 41.1
Kodiak Island.
h = 25 km (Ki,Sk,Gb).

" 8 Ki iP 04 05 05.3
Mariana Islands
(h = 30 km).

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

1966
Oct. 8 Up iLgl 06 07 16.2
Ki ePn 06 04 28
iS^{x} 06 05 08.3
iSg 06 05 11.0
D = 300 km = 2.7°.
Sk e(Pn) 06 04 36
iSg 06 05 18.9
Um iPn 06 04 41.6
iP^{x} 06 04 50.6
iSn 06 05 27.6
iSg 06 05 44.9
D = 410 km = 3.7°.
Nordlands Fylke, Norway,
66.5°N, 14.4°E.
Origin time = 06 03 43.

" 8 Up iPn 07 12 08.5
iSn 07 13 21.8
iLgl 07 13 51.2
D = 700 km = 6.3°.
Ki ePn 07 12 26
eSn 07 13 55
iLgl 07 14 31.5
D = 840 km = 7.6°.
Sk iPn 07 12 39.5
e 07 14 57
iSg 07 15 06.2
D = 920 km = 8.3°.
Um ePn 07 11 54
iP^{x} 07 12 05.1
iSn 07 12 53.4
iLgl 07 13 11.2
D = 570 km = 5.1°.
Near Lake Ladoga,
61.5°N, 30.1°E.
Origin time = 07 10 32.
Explosion?

" 8 Ki ePn 10 07 39
iSn 10 08 34.5
iLgl 10 08 55.2
D = 520 km = 4.7°.
Sk eSg 10 11 34
Um iSn 10 09 19.5
iSg 10 10 00.1
Northwest Russia,
67.9°N, 32.8°E.
Origin time = 10 06 26.
Explosion?

" 8 Up iP 12 13 38.2
Ki eP 12 13 01
(cont.)

1966
Oct. 8 (cont.)
Sk iP 12 13 34.0
Um iP 12 13 16.6
Japan (h = 70 km).

" 8 Um iP 12 47 43.3
Nevada (h = 40 km).

" 8 Ki iPn 14 45 12.4
iSn 14 46 01.1
iLgl 14 46 16.3
D = 460 km = 4.1°.
Possibly northwest Russia.
Origin time = 14 44 07.
Explosion?

" 8 Um iSKP 15 04 59.5
Fiji Islands (h = 420 km).

" 8 Up iP 17 54 55.1
iPcP 17 55 23.4
Ki iP 17 54 02.9
iPcP 17 54 47.3
Sk iP 17 54 34.2
Gb iP 17 55 10.8
Um iP 17 54 28.6
iPcP 17 55 03.2
Ka iP 17 55 17.8
iPcP 17 55 33.0
Aleutian Islands
(h = 40 km).

" 8 Up iP 19 51 18.4 D
Ki iP 19 51 27.7
Sk iP 19 51 07.5
Gb iP 19 51 01.0
Ka iP 19 51 11.3
Venezuela (h = 90 km).

" 8 Up iP 21 08 29.4
Um iP 21 08 03.5 C
Kurile Islands (h = 30 km).

" 8 Ka iP 21 58 43.5

" 9 Up iP 00 30 40.3
Um iP 00 30 14.4

" 9 Ki iPKP 02 24 30.1
Um e(PKP) 02 24 32
iPKP 02 24 38.5
Fiji Islands (h = 640 km).

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

1966					
Oct.	9	Up	iP	06 57 20.9	
			i	06 58 36.2	
			eS	07 04 15	
			i	07 10 54	
				microns	sec
			S E	0.8	11
			S N	0.8	13
			M E	4.5	17
			M N	5.1	17
			M Z	4.3	17
			D = 5400 km = 48 1/2°.		
		Ki	iP	06 58 16.6	
			iS	07 06 01	
				microns	sec
			P Z'	0.2	1.3
			S E	1.3	10
			S N	0.4	9
			M E	6.4	17
			M N	1.9	14
			M Z	4.1	17
			D = 6200 km = 56°.		
		Sk	iP	06 57 54.0	
		Gb	iP	06 57 14.1	
		Um	iP	06 57 47.5	
			iPcP	06 59 02.5	
			iS	07 05 06	
			iScS	07 07 37	
			iSS	07 09 01	
		Ka	iP	06 56 55.4	
		Sudan (h = 10 km).			
		Magn. = 5.8 (Up,Ki).			
"	9	Up	iPg	07 31 08.5	
			iSg	07 31 38.0	
			D = 240 km = 2.2°.		
		Sk	eSg	07 34 03	
		Ka	eSg	07 31 50	
		Baltic Sea, 57.9°N, 19.2°E.			
		Origin time = 07 30 25.			
		Explosion?			
"	9	Ki	iP	08 22 10.3	
		Gulf of California			
		(h = 30 km).			
"	9	Ki	iP	10 37 58.8	
				microns	sec
			M E	0.9	18
			M N	0.4	17
			M Z	0.8	18
		Sk	eP	10 37 35	
		Sudan (h = 40 km).			

1966					
Oct.	9	Up	i(Sg)	12 06 39.2	
		Ki	iPn	12 02 21.2	
			iSn	12 03 17.7	
			iSg	12 03 41.5	
			D = 530 km = 4.8°.		
		Sk	iSg	12 06 06.2	
			i	12 06 13.3	
		Um	iSg	12 04 30.1	
		Northwest Russia,			
		67.3°N, 33.0°E.			
		Origin time = 12 01 05.			
		Explosion?			
"	9	Ka	iP	14 49 35.9	
"	10	Sk	iP	10 56 00.7	
		Formosa (h = 40 km).			
"	10	Up	iP	21 27 46.9	
		Ki	iP	21 26 55.1	
		Sk	iP	21 27 17.4	C
		Um	iP	21 27 22.5	
		Alaska (h = 30 km).			
"	11	Ki	iP	01 32 28.7	
		Um	iP	01 32 38.4	
		Mariana Islands			
		(h = 60 km).			
"	11	Up	iPKP	06 44 52.0	
			ipPKP	06 45 02.8	
				microns	sec
			PKP Z'	0.1	0.6
			M E	2.2	23
			M N	1.7	17
			M Z	2.9	22
		Ki	iPKP	06 45 05.7	
			ipPKP	06 45 17.1	
			iPKS	06 48 34.4	
				microns	sec
			PKP Z'	0.2	1.4
			PKS E	0.9	7
			PKS N	1.1	8
			M E	1.9	20
			M N	2.2	21
			M Z	3.5	21
		Sk	iPKP	06 44 55.9	
			ipPKP	06 45 07.6	
		Gb	iPKP	06 44 46.8	
			ipPKP	06 44 56.5	
		Um	iPKP	06 44 59.1	
			ipPKP	06 45 10.2	

(cont.)

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

1966 Oct. 11 (cont.)

Um	iPP	06 47 07	
	iPKS	06 48 13	
	i(SS)	07 03 48	

South Sandwich Islands.
h = 40 km (Up,Ki,Sk,Gb,Um).
Magn. = 6.0 (Up,Ki).

" 11

Up	iPKP	08 18 39.6	
Ki	ipPKP	08 19 03.8	
Sk	ipPKP	08 18 53.7	
Um	iPKP	08 18 45.5	

South Sandwich Islands
(h = 40 km).

" 11

Up	iP	10 16 53.2	
Ki	iP	10 16 38.6	
		microns	sec
	M	E 0.8	13
	M	N 1.5	21
Sk	eP	10 17 04	
Um	iP	10 16 40.2	

Szechwan, China
(h = 30 km).

" 11

Up	iP	12 18 40.8	D
		microns	sec
	P	Z' 0.1	0.6
Sk	iP	12 18 46.8	

Mindoro (h = 80 km).

" 11

Up	iP	14 39 05.5

" 11

Up	iPKP	18 09 40.4
Sk	iPKP	18 09 34.8
Um	iPKP	18 09 29.0

South of Kermadec Islands
(h = 40 km).

" 11

Up	iP	18 37 30.0

" 11

Up	iPKP	21 00 26.9	
		microns	sec
	M	N 1.0	19
	M	Z 1.4	22
Ki	ePKP	21 00 05	
		microns	sec
	M	N 0.8	22
	M	Z 2.3	22
Sk	iPKP	21 00 21.4	
	i	21 00 26.4	
Um	iPKP	21 00 16.0	C

South of Kermadec Islands
(h = 30 km).

1966 Oct. 11

Up	i(P)	21 31 19.3	

" 12

Up	e	00 35 23	
		microns	sec
	M	E 1.5	20
	M	N 5.1	27
	M	Z 1.8	19
Ki	iP	00 20 45.7	
	i	00 20 58.4	
	eSKS	00 31 22	
	i(S)	00 32 51	
		microns	sec
	SKS	E 0.7	9
	(S)	N 0.7	8
	M	E 2.1	21
	M	N 1.2	19
	M	Z 3.9	22
Sk	e(PKP)	00 25 00	
Um	iPKP	00 25 00.3	
	iPP	00 25 16	
	iSKS	00 31 21	
	iS	00 32 45	
	i	00 34 19	

Southwest of Timor
(h = 30 km).
Magn. = 6.0 (Up,Ki).

" 12

Up	iP	02 13 21.3

" 12

Ki	eP	03 28 28

Alaska (h = 30 km).

" 12

Ki	iP	03 29 20.5	C

Mariana Islands
(h = 30 km).

" 12

Up	iPKP	04 42 02.3	
	i	04 42 06.4	
		microns	sec
	PKP	Z' 0.2	0.8
	M	N 1.3	25
	M	Z 1.2	24
Ki	iPKP	04 41 41.2	
Sk	iPKP	04 41 56.7	
	i	04 42 01.5	
Gb	ePKP	04 42 10	
	i	04 42 19.5	
Um	iPKP	04 41 50.1	D
	i	04 41 56.3	
	iSS	05 04 01	
Ka	iPKP	04 42 13.8	
	i	04 42 19.9	

(cont.)

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

1966 Oct.	12	(cont.) Kermadec Islands (h = 15 km).			
"	12	Up	iP	07 42 49.5	
			ipP	07 43 00.3	
		Ki	iP	07 42 31.3	
			ipP	07 42 41.3	
		Sk	eP	07 43 06	
		Um	iP	07 42 37.0	
			ipP	07 42 47.8	
		Luzon. h = 40 km (Up,Ki,Um).			
"	12	Ki	iP	08 29 43.9	
		Alaska (h = 25 km).			
"	12	Up	iPKP	16 08 06.9	
			ipPKP	16 08 14.1	
		Ki	iPKP	16 08 21.1	
			ipPKP	16 08 28.9	
		Sk	iPKP	16 08 10.1	
		Um	ePKP	16 08 13	
			ipPKP	16 08 22.1	
		South Sandwich Islands. h = 30 km (Up,Ki,Um).			
"	12	Up	iP	20 12 28.0	
"	12	Up	iP	20 32 43.5	
		Ki	eP	20 32 41	
				microns sec	
			M E	1.4 19	
			M N	0.7 18	
			M Z	1.5 18	
		Um	iP	20 32 49.1	
		Nicaragua (h = 40 km).			
"	12	Up	iP	20 43 18.1	
"	12	Up	iP	21 13 10.8	
		Japan (h = 80 km).			
"	12	Ki	iP	22 34 03.4	
"	13	Up	iP	02 25 53.6	
		Ki	iP	02 24 58.8	
		Sk	iP	02 25 24.7	
		Gb	iP	02 26 04.0	
			ipP	02 26 11.7	
		Um	iP	02 25 27.5	
			ipP	02 25 35.7	
		Alaska. h = 30 km (Gb,Um).			

1966 Oct.	13	Ka	iP	06 00 32.0	
"	13	Um	iP	15 58 43.2	C
		Peru-Brazil (h = 160 km).			
"	13	Um	i(P)	17 30 11.2	
"	13	Up	iP	18 55 29.5	
			eS	19 04 22	
				microns sec	
			S N	1.2 12	
			M E	0.7 16	
			M N	1.7 17	
			M Z	1.4 18	
		Ki	iP	18 54 35	
			iS	19 02 47	
				microns sec	
			S E	0.7 9	
			S N	1.2 10	
			S Z	1.4 11	
			M E	1.1 13	
			M N	1.1 14	
			M Z	2.4 16	
		Sk	i(P)	18 55 02.4	
		Um	e(P)	18 55 07	
			iS	19 03 31	
		Aleutian Islands. Magn. = 5.6 (Up,Ki).			
"	13	Ki	iP_n	19 22 40.5	
			iP^x	19 22 48.5	
			iSn	19 23 38.8	
			iLgl	19 24 00.6	
			D = 530 km = 4.8°.		
		Northwest Russia. Origin time = 19 21 26. Explosion?			
"	14	Up	iP	01 13 33.1	C
			i	01 13 36.6	
			ePP	01 15 26	
			eS	01 20 34	
			iPS	01 20 47	
			iSa	01 24 21	
			iLgl	01 30 42	
				microns sec	
			P Z'	0.1 0.8	
			S N	0.6 8	
			M E	2.9 19	
			M N	7.8 14	
			M Z	4.0 16	
			D = 5500 km = 49 1/2°.		

(cont.)

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

1966 Oct.	14	(cont.)				
		Ki	iP	01 13 23.5		
			ePP	01 15 17		
			iS	01 20 27		
			iScS	01 23 15		
			iSa	01 24 08		
				microns	sec	
			PP	E	0.8	6
			PP	Z	1.1	4
			PP	Z'	0.4	2.0
			S	E	0.7	10
			S	N	0.7	11
			M	E	5.1	13
			M	N	11	20
			M	Z	5.7	13
			D = 5400 km = 48 1/2°.			
		Sk	iP	01 13 48.8		
			i	01 13 53.0		
		Gb	eP	01 13 56		
		Um	iP	01 13 22.2		
			i	01 13 26.4		
			iPP	01 15 15.8		
			iS	01 20 14		
			iScS	01 23 14		
			iSa	01 23 51		
		Sinkiang (h = 25 km). Magn. = 5.9 (Up,Ki). Well-developed higher-mode surface waves. Multiple P.				
"	14	Up	iP	01 19 52.1		
			i	01 19 54.2		
				microns	sec	
			P	Z'	0.1	0.6
		Ki	iP	01 19 46.8		
		Sk	iP	01 20 05.9		
			i	01 20 12.5		
		Gb	iP	01 20 16.7		
		Um	iP	01 19 45.7		
		Ka	iP	01 20 02.2		
		Sinkiang (h = 30 km).				
"	14	Up	eP	02 49 14		
"	14	Um	iSKP	02 55 47.4		
		South of Fiji Islands (h = 460 km).				
"	14	Um	i(P)	11 07 35.4		
			i(Sg)	11 08 03.8		

1966 Oct.	14	Ki	(ePg	11 13 13)		
			iSg	11 13 54.4		
			D = 370 km = 3.3°.			
		Sk	eSg	11 14 20		
		Um	iSg	11 12 35.6		
		Coast of north Sweden, 64.6°N, 21.5°E. Origin time = 11 12 06. Prob. n. Gulf of Bothnia				
"	14	Um	iP	12 22 53.9		
"	14	Um	eP	12 27 19		
			i	12 27 27.1		
"	14	Ki	iP	12 52 39.5		
"	14	Ki	ePn	14 07 40		
			iSn	14 08 24.1		
			iSg	14 08 40.7		
			D = 400 km = 3.6°.			
		Sk	eSg	14 11 06		
		Um	eSg	14 09 33		
		Northwest Russia-Finland border region, 67.3°N, 29.8°E. Origin time = 14 06 42. Explosion?				
"	14	Ki	ePg	16 09 11		
			iSg	16 09 47.3		
			D = 300 km = 2.7°.			
		Sk	eSg	16 10 48		
		Um	iPg	16 08 52.7		
			iSg	16 09 14.6		
			D = 190 km = 1.7°.			
		Northern Gulf of Bothnia, 65.3°N, 22.4°E. Origin time = 16 08 19.				
"	14	Up	iP	16 31 11.2		
"	15	Ki	iPKP	04 14 43.3		
		New Zealand (h = 80 km).				
"	15	Ki	iP	04 29 30.0		
"	15	Up	iP	07 02 45.2	C	
			iX	07 02 59.0		
			iS	07 05 24		
			i(Sn)	07 05 40		
		(cont.)				

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

1966 Oct. 15 (cont.)

Up		microns	sec
	P	Z' 0.1	0.5
	M	E 0.5	4
Ki	iP	07 04 08.2	C
	eS	07 07 53	
	i	07 08 05	
	i(Sn)	07 08 35.8	
	iLgl	07 10 39.2	
		microns	sec
	P	Z' 0.2	1.5
	S	N 0.8	9
	M	E 0.6	16
	M	N 0.5	14
	M	Z 1.1	17
Sk	iP	07 03 38.8	
	i(Sn)	07 07 33.3	
Gb	iP	07 02 42.4	
	iX	07 02 56.9	
	i	07 07 42.5	
Um	iP	07 03 26.7	
	iX	07 03 41.9	
	iS	07 06 39	
	i	07 06 46	
	i	07 07 13.7	
	iLgl	07 08 42.3	
Ka	iP	07 02 10.0	
	i	07 06 09.8	

Rumania (h = 120 km).
Magn. = 5.4 (Up,Ki).
The unidentified phase X appears about 15 sec after P.
Compare Oct. 2 at 11 25.

" 15 Ki ePn 08 15 36
i 08 16 16.9
iSn 08 16 25.4
iSg 08 16 43.9
D = 460 km = 4.1°.
Probably northwest Russia.
Origin time = 08 14 30.
Explosion?

" 15 Ki iP 11 06 25.0

" 15 Ki iPn 11 07 10.6
iSn 11 08 06.7
iLgl 11 08 24.5
D = 520 km = 4.7°.
Sk eSg 11 10 56
Um iSn 11 08 51.0
iSg 11 09 28.4
(cont.)

1966 Oct. 15 (cont.)

Um D = 710 km = 6.4°.
Northwest Russia,
67.7°N, 32.8°E.
Origin time = 11 05 57.
Explosion?

" 15 Ki iP 12 19 07.7
Alaska (h = 30 km).

" 15 Up iP 18 11 05.5
ipP 18 11 21.5
Ki iP 18 10 24.9
Um iP 18 10 44.0
Japan. h = 60 km (Up).

" 16 Up iP 09 25 37.2
ipP 09 25 56.7

		microns	sec
	M	E 1.2	21
	M	N 1.7	17
	M	Z 1.5	19
Ki	iP	09 25 03.8	
	iS	09 34 30	
		microns	sec
	S	E 0.3	7
	M	E 0.8	14
	M	N 1.2	15
	M	Z 1.7	13

D = 8200 km = 74°.
Sk iP 09 25 36.2
Um iP 09 25 19.2
South of Japan.
h = 70 km (Up).

" 16 Up iP 09 34 49.9
Ki eP 09 35 05
Sk iP 09 35 17.5
Gb iP 09 35 08.4
Um iP 09 34 52.2
eSS 09 44 55
Ka iP 09 34 51.0
West Pakistan (h = 30 km).

" 16 Um i(P) 11 51 04.2

" 16 Up iPKP 13 14 10.0 C
iPKKP 13 24 11.0

		microns	sec
	PKP	Z' 0.1	0.5
Ki	iPKP	13 14 25.4	C
	ipPKP	13 14 51.0	

(cont.)

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

1966 Oct.	16	(cont.)			
		Ki		microns	sec
			PKP Z'	0.2	0.9
		Sk	iPKP	13 14 14.7	
		Um	iPKP	13 14 18.1	C
			ipPKP	13 14 45.9	
		Ka	iPKP	13 14 03.7	
		Ud	iPKP	13 14 10	C
			iPKKP	13 24 19	
		South Sandwich Islands.			
		h = 100 km (Ki,Um).			
"	16	Ka	iP	17 16 33.9	
"	16	Ud	iP	23 39 42	
		Afghanistan-USSR			
		(h = 230 km).			
"	17	Ki	iSKP	07 51 05.2	
		Gb	iPKP	07 48 45.6	
		Um	iSKP	07 51 15.7	
		Ud	iPKP	07 48 37	
		South of Fiji Islands			
		(h = 500 km).			
"	17	Ud	iP	08 36 00	
		Hindu Kush (h = 200 km).			
"	17	Um	i(P)	10 08 21.7	
			i	10 08 45.9	
"	17	Ki	i(P)	10 21 17.4	
		Sk	i(P)	10 23 38.2	
"	17	Up		---	
				microns	sec
			M E	1.5	20
			M N	2.0	20
			M Z	1.7	21
		Ki		---	
				microns	sec
			M E	2.2	20
			M N	1.3	20
			M Z	3.5	21
		Sk	iPKP	10 34 37.6	
		Um	iPKP	10 34 33.1	
			iPP	10 36 15	
			eSKSP	10 45 53	
		Ud	ePKP	10 34 48	
		Santa Cruz Islands			
		(h = 60 km).			
"	17	Up	iP	11 49 53.6	C

1966 Oct.	17	Um	iP	12 33 53.7	
		Ka	iP	12 34 39.2	
		Ud	eP	12 34 11	
"	17	Ki	iP	13 19 40.3	
			ipP	13 19 52.7	
		Sk	iP	13 20 00.7	
			i(pP)	13 20 09.9	
		Um	iP	13 20 08.0	C
			ipP	13 20 19.6	
		Ud	iP	13 20 35	
			ipP	13 20 46	
		Unimak Island.			
		h = 40 km (Ki,Um,Ud).			
"	17	Up	iP	16 41 43.4	
		Um	iP	16 41 18.0	
			i	16 44 51.2	
		Ud	iP	16 41 48	
"	17	Up	iPKP	18 38 20.4	
			iSKP	18 41 04.9	
		Ki	e(PKP)	18 38 01	
			iPKP	18 38 12.5	
			iSKP	18 40 43.1	
				microns	sec
			SKP Z'	0.1	1.3
		Sk	iPKP	18 38 13.9	
			iSKP	18 40 59.2	
		Gb	iPKP	18 38 30.3	D
		Um	i(PKP)	18 38 10.6	
			iPKP	18 38 19.1	
			iSKP	18 40 54.2	
		Ka	iPKP	18 38 32.0	D
			i	18 38 49.0	
			i(SKP)	18 41 02.5	
		Ud	iPKP	18 38 22	
			i	18 38 30	
			iSKP	18 41 08	
		South of Fiji Islands			
		(h = 640 km).			
"	17	Up	iP	21 55 49.4	C
			i	21 56 05.9	
			iPP	22 00 04	
			i	22 03 28.5	
			iSKS	22 06 28	
			iS	22 07 30	
			iPKKP	22 12 04.7	
				microns	sec
			P E	2.5	15
			P Z	16	16
		(cont.)			

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

1966 Oct. 17 (cont.)

Up		microns	sec	
	P	Z' 0.3	1.5	
	PP	E 3.2	7	
	PP	Z 20	14	
	PP	Z' 0.8	1.7	
	SKS	E 34	14	
	S	N 100	24	
	M	E 490	24	
	M	N 220	20	
	M	Z 650	24	
	D = 11350 km = 102°.			
Ki	eP	21 55 50	C	
	i	21 55 57.0		
	iPP	22 00 11.1		
	eSKS	22 06 35		
	iSKKS	22 07 04		
	iPKKP	22 12 00.6		
		microns	sec	
	P	E 5.6	17	
	P	N 0.7	16	
	P	Z 18	17	
	P	Z' 0.7	2.5	
	PP	E 6.9	10	
	PP	N 2.5	15	
	PP	Z 31	18	
	PP	Z' 1.7	2.5	
	SKS	E 18	15	
	M	E 430	26	
	M	N 150	22	
	M	Z 360	22	
	D = 11400 km = 102 1/2°.			
Sk	eP	21 55 40		
	i	21 55 43.5		
	i	21 56 02.3		
	iPP	21 59 47.1		
	iPKKP	22 12 12.6		
Gb	iP	21 55 36.4		
	i	21 55 40.6		
	i	21 55 52.8		
	iPP	21 59 37.7		
	ePKKP	22 12 17		
Um	iP	21 55 53	C	
	i	21 59 47		
	iPP	22 00 12.7		
	iPKKP	22 11 59.9		
	i	22 12 12.1		
Ka	iP	21 55 44.9	C	
	i	21 55 48.8		
	i	21 56 13.4		
	i	21 59 26.3		

(cont.)

1966 Oct. 17 (cont.)

Ud	iP	21 55 44	C
	i	21 55 56	
	iPP	21 59 53	
	i	22 03 17	

Peru (h = 40 km).
Magn. = 7.5 (Up,Ki).
The records have a pronounced long-period character throughout.

" 18	Up	iPKP	04 21 32.9	
	Ki	iPKP	04 21 23.4	
	Sk	ePKP	04 21 26	
	Gb	iPKP	04 21 43.3	D
	Um	iPKP	04 21 26.6	
		i	04 21 31.7	
	Ka	iPKP	04 21 44.7	D
	Ud	iPKP	04 21 36	

South of Fiji Islands (h = 520 km).

" 18	Up	iP	06 12 35.9	C
" 18	Up	iP	07 54 36.7	
" 18	Ki	iSg	12 34 33.2	
	Sk	iSg	12 34 37.8	
	Um	iSg	12 35 00.7	

Nordlands Fylke, Norway, 66.4°N, 14.7°E.
Origin time = 12 33 05.

" 18	Ud	iP	13 19 05	
" 18	Um	iP	13 56 42.8	
" 18	Up	iP	18 56 33.0	
	Ki	iP	18 56 36.4	C
	Sk	iP	18 56 20.4	
	Um	iP	18 56 39.3	
	Ud	iP	18 56 23	C

Colombia (h = 50 km).

" 18	Up	iP	20 44 56.1	D
		ipP	20 45 20.2	
	Ki	iP	20 44 49.1	
		ipP	20 45 16.8	
	Sk	iP	20 45 10.8	
	Um	iP	20 44 47.7	
		ipP	20 45 15.8	
	Ka	iP	20 45 03.8	

(cont.)

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

1966 Oct. 18 (cont.)

	Ka	ipP	20 45 29.1	
	Ud	iP	20 45 10	
	Burma-India.			
	h = 110 km (Up,Ki,Um,Ka).			
" 19	Um	iP	00 13 19.0	
" 19	Ud	iP	02 13 49	
" 19	Up	iP	04 04 52.5	C
		i	04 05 39.5	
		iPn	04 05 57.2	
		i	04 10 05.4	
		microns	sec	
		P Z'	0.3 0.8	
	Ki	iP	04 04 37.2	C
		iPn	04 05 36.6	
		microns	sec	
		P Z'	0.5 0.6	
	Sk	iP	04 05 08.3	C
		iPn	04 06 21.9	
		iPP	04 06 28.7	
	Gb	iP	04 05 20.9	
		iPP	04 06 46.6	
	Um	iP	04 04 37.6	C
		iPn	04 05 38.8	
		iPP	04 05 52.5	
		iRg	04 17 41	
	Ka	iP	04 05 08.8	C
		iPP	04 06 28.4	
	Ud	iP	04 05 11	C
	Kazakh SSR.			
	Magn. = 6.3 (Up,Ki).			
	Underground explosion.			
" 19	Um	eP	04 28 44	
" 19	Up	iP	06 42 47.8	
	Ki	iP	06 42 18.8	C
	Sk	iP	06 42 44.9	
	Um	iP	06 42 31.1	
	Ud	iP	06 42 53	
	Volcano Islands			
	(h = 250 km).			
" 19	Up	iP	08 12 19.8	
		i	08 12 21.3	
		iPl	08 12 37	
		iPP	08 14 55.9	
		iPa	08 16 31	
		iS	08 21 13	

(cont.)

1966 Oct. 19 (cont.)

Up		microns	sec	
	P	E	1.4 5	
	Pl	N	2.5 5	
	P	Z	1.6 5	
	Pl	Z	5.5 5	
	P	Z'	0.2 0.6	
	PP	Z'	0.3 1.3	
	S	E	5.4 8	
	M	E	48 16	
	M	N	87 21	
	M	Z	92 20	
	D = 7400 km			
	= 66 1/2°.			
Ki	iP		08 13 04.3	
	i		08 13 05.9	
	iPl		08 13 22.2	
	iPP		08 15 53.4	
	iS		08 22 37	
	i		08 22 46	
	i		08 22 54	
	microns	sec		
	Pl	E	1.8 5	
	P	N	1.0 5	
	Pl	N	2.1 6	
	P	Z	1.7 6	
	Pl	Z	4.9 6	
	P	Z'	0.4 1.4	
	Pl	Z'	2.2 1.7	
	PP	N	1.8 7	
	PP	Z	4.3 8	
	S	N	3.2 8	
	M	E	8.3 19	
	M	N	63 21	
	M	Z	170 22	
	D = 8150 km			
	= 73 1/2°.			
Sk	iP		08 12 31.6	C
	i		08 12 42.6	
Gb	iP		08 11 58.2	
	i		08 12 09.3	
	iPP		08 14 22.0	
Um	iP		08 12 44.7	C
	i		08 12 46.2	
	i		08 12 56.7	
	iPl		08 13 03	
	iPP		08 15 16.0	
	iPa		08 17 47	
	iS		08 22 00	
	i		08 22 33	
Ka	iP		08 11 56.3	C
	i		08 12 06.2	

(cont.)

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

1966 Oct. 19 (cont.)

Ka	iP1	08 12 13.2	
Ud	iP	08 12 14	C
	i	08 12 15	
	i	08 12 26	
	iPP	08 14 53	

North of Ascension Island
(h = 30 km).
Magn. = 6.8 (Up,Ki).
Multiple P with onsets arriving in average 1 1/2, 11 and 17 1/2 sec after the first P. The amplitudes are successively bigger and the last one is denoted P1 above. Corresponding multiplicity of S is suggested, especially at Ki.

" 19 Ud iP 10 17 39

" 19

Up	iPKP	11 40 53.6	
	i	11 41 03.9	
Ki	iPKP	11 40 40.2	C
Sk	iPKP	11 40 51.0	
Um	iPKP	11 40 46.3	C
	ipPKP	11 41 43.6	
Ud	iPKP	11 40 56	C

Santa Cruz Islands.
h = 230 km (Um).

" 19

Up	iP	19 36 16.5	C
		microns sec	
	P	Z' 0.1 0.5	
Ki	iP	19 35 24.1	
	i	19 35 34.9	
Gb	iP	19 36 37.0	C
Um	iP	19 35 48.7	C
Ud	iP	19 36 21	C

Kamchatka (h = 30 km).

" 19

Up	iP	19 37 21.0	
Um	iP	19 36 52.6	
Ud	iP	19 37 26	

Kamchatka.
Origin time = 19 26 43.
The earthquake reported by USCGS is followed after 1 min 04 sec by another shock in the same locality.

" 19

Up	iP	19 47 02.2	C

(cont.)

1966 Oct. 19 (cont.)

Up		microns sec	
	P	Z' 0.1 0.7	
Ki	iP	19 46 10.1	
		microns sec	
	P	Z' 0.1 1.1	
	M	E 0.3 15	
	M	N 0.5 17	
	M	Z 0.8 14	
Gb	iP	19 47 22.4	
	ipP	19 47 33.5	
Um	iP	19 46 34.1	
Ka	iP	19 47 26.8	C
Ud	iP	19 47 07	C
	ipP	19 47 18	

Kamchatka.
h = 40 km (Gb,Ud).
Magn. = 5.8 (Up,Ki).

" 19 Gb iP 20 03 10.8

" 19

Up	iP	20 46 17.3	C
Ki	iP	20 45 25.1	
Gb	iP	20 46 37.6	
Um	iP	20 45 49.8	
Ud	iP	20 46 24	C

Kamchatka (h = 30 km).

" 19 Ud iP 21 56 02

" 20

Up	eP	01 02 10	
	i	01 02 14.1	
		microns sec	
	M	E 1.6 17	
	M	N 3.3 18	
	M	Z 2.3 18	
Ki	iP	01 02 12.6	
	i	01 02 17.6	
		microns sec	
	P	Z' 0.1 1.0	
	M	E 0.9 12	
	M	N 1.3 12	
	M	Z 0.8 10	
Um	iP	01 02 05.7	
	iS	01 08 51	
	iSS	01 12 18	
Ka	iP	01 02 20.1	
Ud	iP	01 02 25	
	i	01 02 30	
	iPP	01 04 25	

Kashmir-Tibet (h = 25 km).

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

1966 Oct.	20	Um	iP	05 03 08.5	
		Yugoslavia.			
"	20	Up	iP	09 42 24.6	
		Italy (h = 30 km).			
"	20	Ki	iP	10 19 40.4	D
"	20	Up	iPKP	13 54 44.9	
		Ki	iPKP	13 54 30.9	
		Sk	ePKP	13 54 41	
		Um	iPKP	13 54 36.9	
		Ud	iPKP	13 54 47	
		New Hebrides Islands			
		(h = 140 km).			
"	20	Sk	iP	14 40 46.5	
"	21	Up	iP	02 07 57.4	
		Ki	iP	02 07 30.4	
		Um	iP	02 07 41.0	
		Ud	iP	02 08 06	
		East Chinese Sea			
		(h = 110 km).			
"	21	Ud	iP	05 07 42	
			i	05 07 46	
"	21	Up	iP	08 07 07.0	
"	21	Up	iP	16 21 35.6	C
		Ki		---	
				microns sec	
			M E	0.3 13	
			M N	0.4 14	
			M Z	0.5 14	
		Sk	iP	16 22 17.9	
		Um	i(P)	16 22 33.1	C
			iS	16 26 43	
		Ka	iP	16 20 58.3	
		Ud	iP	16 21 40	
			i	16 21 45	
		Greece (h = 30 km).			
"	21	Ud	iP	20 58 13	
"	22	Up	iP	03 13 49.4	C
			ipP	03 14 13.6	
				microns sec	
			P Z'	0.1 0.6	
		Ki	iP	03 13 43.9	
			ipP	03 14 08.1	
		(cont.)			

1966 Oct.	22	(cont.)			
		Ki		microns sec	
			pP Z'	0.1 1.0	
		Sk	iP	03 14 05.5	
			ipP	03 14 28.9	
		Gb	iP	03 14 09.2	
			ipP	03 14 34.4	
		Um	iP	03 13 42.1	C
			ipP	03 14 06.7	
		Ka	iP	03 13 57.5	C
			ipP	03 14 22.2	
		Ud	iP	03 13 58	
			ipP	03 14 23	
		Burma-India. h = 100 km			
		(Up,Ki,Sk,Gb,Um,Ka,Ud).			
"	22	Up	eP	05 42 37	
		Sk	iP	05 43 24.2	
		Um	iP	05 43 17.8	
		Ka	iP	05 42 00.8	
		Ud	eP	05 42 45	
		Greece-Bulgaria			
		(h = 5 km).			
"	22	Um	iP	11 32 43.3	
		Ka	iP	11 33 25.8	
		Ud	iP	11 33 11	
"	22	Up	iP	12 57 32.0	C
			ipP	12 57 48.0	
		Ki	iP	12 56 37.3	C
			i	12 56 46.1	
			ipP	12 56 52.8	
			i	12 57 03.3	
				microns sec	
			P Z'	0.2 1.5	
			M E	1.0 23	
		Sk	iP	12 57 14.2	
			ipP	12 57 29.6	
		Gb	iP	12 57 52.3	C
			ipP	12 58 08.4	
		Um	iP	12 57 03.0	C
			ipP	12 57 17.8	
			i	12 57 30.4	
		Ka	iP	12 57 56.9	
			ipP	12 58 12.1	
		Ud	iP	12 57 34	
			ipP	12 57 51	
		Kamchatka. h = 60 km (Up,			
		Ki,Sk,Gb,Um,Ka,Ud).			
"	22	Up	iP	22 51 18.7	
		Ud	i(P)	22 51 39	

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

1966 Oct. 23 Up iP 00 08 16.3 C
Ki eP 00 08 34
Sk iP 00 08 44.3
Gb iP 00 08 34.5
Um iP 00 08 19.2 C
Ud iP 00 08 30 C
West Pakistan (h = 25 km).

" 23 Ki eP 00 13 33
i 00 13 42.8
Ud i(P) 00 14 07
Molucca Passage (h = 60 km).

" 23 Um iP 02 25 15.8
Japan (h = 30 km).

" 23 Up eP 05 40 24

" 23 Up iP 07 19 58.0 C
iS 07 28 38
microns sec
P Z' 0.2 0.7
M E 1.3 14
M N 2.4 15
M Z 2.4 15
D = 7200 km = 65°.
Ki iP 07 19 06.4
microns sec
P Z' 0.2 0.8
M E 1.8 18
M N 1.5 17
M Z 2.7 17
Sk iP 07 19 42.9 C
Gb iP 07 20 19.6 C
ipP 07 20 28.6
Um iP 07 19 30.8
iS 07 27 45
Ka iP 07 20 22.7 C
ipP 07 20 34.0
Ud iP 07 20 04 C
ipP 07 20 15
Kamchatka.
h = 40 km (Gb,Ka,Ud).
Magn. = 6.0 (Up,Ki).

" 23 Up iP 07 21 05.3
i 07 21 14.6
Ki iP 07 20 14.7
Gb iP 07 21 26.7
Um iP 07 20 38.8
Ud iP 07 21 12 C
Kamchatka.
(cont.)

1966 Oct. 23 (cont.)
Origin time = 07 10 29.
The earthquake reported by USCGS is followed after 1 min 08 sec by another shock in the same locality.
Compare Oct. 19, 19 37.

" 23 Up iP 07 25 41.4
Um iP 07 25 14.3
Ud eP 07 25 44
Kamchatka.
Origin time = 07 15 03.

" 23 Ud iP 07 31 11

" 23 Up i(Sg) 08 08 18.7
Ki iPn 08 04 06.6
iSn 08 05 04.2
iLgl 08 05 22.6
D = 530 km = 4.8°.
Sk i(Sg) 08 07 53.0
Um iSn 08 05 44.6
iSg 08 06 23.3
D = 710 km = 6.4°.
Ud i(Sg) 08 08 54
Northwest Russia,
67.5°N, 33.1°E.
Origin time = 08 02 52.
Explosion?

" 23 Up iP 12 25 54.7
microns sec
P Z' 0.2 1.0
M E 0.8 14
M N 0.8 14
M Z 1.1 14
Ki iP 12 25 03.0
microns sec
P Z' 0.1 1.2
M E 0.8 17
M N 0.7 13
M Z 1.5 18
Sk iP 12 25 40.0
Gb iP 12 26 16.9
Um iP 12 25 28.0
Ud iP 12 26 01
Kamchatka (h = 30 km).
Magn. = 5.8 (Up,Ki).

" 23 Ki iP 17 33 48.9
Um iP 17 33 52.9
Banda Sea (h = 100 km).

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

1966 Oct.	24	Um	eP	12 03 59	
"	24	Ki	iP	14 03 16.1	
		Komandorsky Islands (h = 30 km).			
"	24	Um	iP	14 16 57.7	C
"	24	Up	iPP	14 39 18.7	
		Ki	iP	14 38 29.6	C
			iPP	14 39 47.7	
			microns	sec	
			P Z'	0.1 1.0	
		Sk	iP	14 38 37.9	C
			iPP	14 39 53.3	
		Gb	iP	14 38 25.3	
			i(PP)	14 39 49.9	
		Um	iP	14 38 11.8	C
			i(Sn)	14 46 07.1	
		Ud	iP	14 38 23	
		Iran-USSR (h = 30 km).			
"	24	Um	iP	15 10 28.1	
		Kamchatka (h = 30 km).			
"	24	Sk	iPKP	15 57 04.4	
		Um	iPKP	15 56 58.3	
		Ud	iPKP	15 57 10	
		Kermadec Islands (h = 25 km).			
"	24	Up	iP	18 57 46.5	
			ipP	18 57 58.8	
			microns	sec	
			P Z'	0.1 0.6	
		Ki	iP	18 57 17.5	
		Um	iP	18 57 30.3	
			ipP	18 57 42.5	
		Ud	iP	18 57 55	
		Ryukyu Islands. h = 45 km (Up,Um).			
"	25	Ki	iPn	09 44 27.4	
			iSn	09 45 23.2	
			i(Sg)	09 45 44.9	
			D = 520 km = 4.7°.		
		Um	iSn	09 46 08.0	
			iSg	09 46 45.2	
		Northwest Russia. Origin time = 09 43 13. Explosion?			
"	25	Up	iP	10 15 17.7	C
		(cont.)			

1966 Oct.	25	(cont.)			
		Up		microns	sec
			P	Z' 0.1	0.5
		Ki	iP	10 15 33.5	C
				microns	sec
			M	E 1.8	18
			M	N 1.1	12
			M	Z 2.0	16
		Sk	iP	10 15 45.0	C
		Gb	iP	10 15 35.4	
		Um	iP	10 15 18.2	
			i	10 15 48.9	
		Ka	iP	10 15 16.7	
			i	10 15 21.9	
		Ud	iP	10 15 33	C
			i	10 15 40	
		West Pakistan (h = 5 km).			
"	25	Up	iP	18 15 33.6	
			i	18 15 37.7	
			microns	sec	
			P Z'	0.1 1.0	
		Ki	iP	18 14 55.4	C
			microns	sec	
			P Z'	0.1 1.0	
			M E	1.8 18	
			M N	1.1 14	
			M Z	1.6 16	
		Sk	iP	18 15 28.5	C
		Gb	iP	18 15 54.8	
		Um	iP	18 15 11.3	C
		Ka	iP	18 15 52.9	
		Ud	iP	18 15 41	C
		Japan (h = 30 km). Magn. = 5.7 (Up,Ki).			
"	25	Ka	e(P)	18 28 21	
			i	18 28 32.7	
"	25	Um	iPKP	23 34 41.2	
		New Hebrides Islands (h = 180 km).			
"	26	Up	iP	00 37 52.3	
		Ud	e(P)	00 37 02	
"	26	Up	iP	02 40 18.8	
"	26	Ud	eP	07 45 16	
"	26	Ud	eP	09 16 04	
"	26	Um	iP	15 10 48.8	

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

1966
Oct. 26 Ki iPKP 18 47 52.7
microns sec
PKP Z' 0.2 1.5
Sk iPKP 18 48 03.9
Gb iPKP 18 48 15.1
Um iPKP 18 47 59.5
i 18 48 11.6
Ud iPKP 18 48 10
New Hebrides Islands
(h = 40 km).

" 26 Ud iP 19 37 01
Crete (h = 40 km).

" 26 Ki iP 20 21 49.8
Um iP 20 21 55.1
Ud iP 20 22 18
Mindoro (h = 50 km).

" 26 Up iP 20 50 31.4

" 26 Um iP 23 56 57.0

" 27 Ki iP 02 40 30.4
Um iP 02 40 42.2
Ud iP 02 41 04
Mariana Islands (h = 130 km).

" 27 Up iP 06 02 25.4 C
iS 06 06 00
iLg2 06 08 22
microns sec
P N 3.8 3
P Z' 1.2 0.5
S E 3.8 4
S N 7.1 4
S Z 8.3 4
M E 5.4 9
M N 14 8
M Z 18 7
D = 2100 km = 19°.
Ki iP 06 00 54.5 C
iS 06 03 05
iSS 06 03 25
microns sec
P E 4.7 4
P N 3.0 3
P Z 4.9 3
S E 28 2
S N 25 2
S Z 11 3
M E 14 8
(cont.)

1966
Oct. 27 (cont.)
Ki
microns sec
M N 15 7
M Z 10 6
D = 1350 km = 12°.
Sk iP 06 02 03.9 C
iS 06 05 17.1
Gb iP 06 03 03.2 C
iS 06 07 11.2
i 06 08 42.5
Um iP 06 01 32.6 C
iPP 06 01 42
i 06 02 08
iS 06 04 12
Ka iP 06 03 06.4 C
iS 06 07 16.4
Ud iP 06 02 32 C
iS 06 06 11
i 06 13 05
Novaya Zemlya.
Magn. = 6.6 (Up).
Probably the largest underground explosion ever carried out. Clear Love waves are recorded on long-period instruments (in addition to Rayleigh waves).

" 27 Um iP 06 37 05.2

" 27 Ki iP 09 30 31.7
ipP 09 30 59.4
Sk eP 09 30 57
Um iP 09 30 44.2
ipP 09 31 11.0
Ud epP 09 31 33
Mariana Islands.
h = 100 km (Ki,Um).

" 27 Up iP 14 18 55.1 C
microns sec
P Z' 0.1 0.6
Ud i(P) 14 18 02

" 27 Up iP 14 33 52.2 D
ipP 14 34 01.6
iPP 14 37 19.2
iSKS 14 44 15
iS 14 44 27
microns sec
P Z' 0.6 1.1
S N 1.2 4
(cont.)

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

1966 Oct. 27 (cont.)

Up		microns	sec	
	M	E	2.3	20
	M	N	3.8	19
	M	Z	3.4	18
	D = 9800 km = 88°.			
Ki	iP	14 33 22.1 D		
	iS	14 43 31		
		microns	sec	
	P	Z	1.5	5
	P	Z'	1.0	2.0
	S	N	3.5	8
	M	E	4.5	20
	M	N	5.0	18
	M	Z	7.8	23
	D = 9100 km = 82°.			
Sk	iP	14 33 48.7 D		
	ipP	14 33 58.1		
	iPP	14 37 07.0		
Gb	iP	14 34 08.8 D		
	ipP	14 34 16.7		
	i	14 34 27.3		
Um	iP	14 33 35.1 D		
	ipP	14 33 44.7		
	iPP	14 36 52.7		
	iS	14 43 52		
	iSS	14 49 24		
Ka	iP	14 34 07.8		
	iPP	14 37 46.1		
Ud	iP	14 34 00		
	ipP	14 34 09		
	iPP	14 37 31		
	iPKPK	14 51 31		

North of Mariana Islands.
h = 30 km (Up,Sk,Gb,Um,Ud).
Magn. = 6.5 (Up,Ki).

" 27 Ud eP 17 43 37
i 17 43 50

" 27 Sk iP 18 01 38.0
Um iP 18 01 23.0
South of Japan (h = 20 km).

" 27 Ud iP 19 20 37

" 27 Ud iP 19 35 38

" 27 Up i(P) 20 40 35.2
microns sec
(P) Z' 0.2 0.5
Ud i(Sg) 20 41 30
Probably a blast near Up.

1966 Oct. 27 Up iP 23 57 46.4 C
iPcP 23 58 09.4
Ki iP 23 57 04.1
microns sec
P Z' 0.1 0.8
Sk iP 23 57 39.5
Gb iP 23 58 08.1 C
Um iP 23 57 22.8 C
ipP 23 57 41.7
Ka iP 23 58 13.9
Ud iP 23 57 56
i 23 58 34
Japan. h = 70 km (Um).

" 28 Up iP 02 26 49.8
microns sec
M E 0.6 20
M N 1.2 20
M Z 1.0 21

" 28 Up iP 13 31 55.2
microns sec
P Z' 0.1 1.0
Ki iP 13 31 17.5 C
Sk iP 13 31 50.3 C
Um iP 13 31 34.1 C
Ud iP 13 32 07
Japan (h = 80 km).

" 28 Up iP 17 45 46.2 C
microns sec
P Z' 0.1 0.6
Gb iP 17 46 06.1 C
Um iP 17 45 18.1 C
i(pP) 17 45 25.0
Ud iP 17 45 52 C
i(pP) 17 46 03
Kamchatka.
h = 30 km (Um,Ud).

" 28 Ud iP 18 41 12

" 28 Up iP 19 26 10.0

" 28 Ki iPKP 22 30 51.1
microns sec
M E 0.9 20
M N 0.8 20
M Z 0.8 22
Sk iPKP 22 31 05.6
Um ePKP 22 30 59
Ud iPKP 22 31 17
Loyalty Islands
(h = 20 km).

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

1966
Oct. 28 Um iPKP 23 43 29.8
Loyalty Islands (h = 25 km).

" 29 Up iP 00 56 18.4 C
microns sec
P Z' 0.1 0.6
Ki iP 00 55 24.8 C
microns sec
M E 0.4 14
M N 0.8 19
M Z 0.6 20
Sk iP 00 56 02.1
Gb iP 00 56 38.5 C
Um iP 00 55 50.4 C
Ud iP 00 56 25 C
ipP 00 56 37
Kamchatka. h = 40 km (Ud).

" 29 Up iP 02 44 11.0 D
iS 02 47 57
microns sec
P N 2.2 3
P Z 1.7 3
P Z' 0.4 0.6
S E 2.5 3
S N 5.7 7
M E 7.0 11
M N 22 10
M Z 23 11
D = 2350 km = 21°.
Ki iP 02 45 25.5
iS 02 50 14
iLgl 02 55 02
microns sec
P N 0.7 5
P Z 1.1 4
P Z' 0.6 1.4
S E 2.2 5
S N 1.8 9
S Z 1.1 5
M E 9.1 11
M N 9.1 15
M Z 11 14
D = 3200 km = 29°.
Sk iP 02 44 52.7 D
iS 02 49 23.5
Gb iP 02 43 56.6
iPP 02 44 15.6
iS 02 47 39.2
Um iP 02 44 49.7
iS 02 49 06
iLi 02 51 26
(cont.)

1966
Oct. 29 (cont.)
Um i 02 52 02.3
Ka eP 02 43 28
iS 02 46 53.7
Ud iP 02 44 24
iPP 02 44 51
iS 02 48 22
Greece (h = 20 km).
Magn. = 6.1 (Up,Ki).
P at Um shows small compression followed by large dilatation.

" 29 Um iP 05 58 31.6
Ud iP 05 59 10
Japan.

" 29 Up iP 06 41 31.8 C
Ki iP 06 40 44.4
Um iP 06 41 04.8
Ud iP 06 41 37
Japan (h = 30 km).

" 29 Up iP 07 51 49.4
i 07 51 58.6

" 29 Um iP 07 56 50.0
i 07 56 52.4

" 29 Up iP 09 07 56.1
ipP 09 08 09.0
i 09 08 17.7
microns sec
P Z' 0.1 0.5
Ki iP 09 08 16.1
ipP 09 08 29.3
Sk iP 09 08 25.1
ipP 09 08 38.1
Gb iP 09 08 11.7
Um iP 09 08 00.9
i 09 08 19.0
Ud iP 09 08 16
i 09 08 34
West Pakistan.
h = 60 km (Up,Ki,Sk).

" 29 Um i(Sg) 11 01 35.9

" 29 Up eP 12 18 34
Ki iP 12 19 38.6
microns sec
P Z' 0.1 0.8
(cont.)

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

1966
Oct. 29 (cont.)
Sk iP 12 19 12.8
Um iP 12 19 04.8 D
Ud iP 12 18 42
East of Crete (h = 60 km).

" 29 Up iP 12 24 57.5

" 29 Up iP 14 43 46.7 C
ipP 14 43 56.9
eS 14 52 52
microns sec
P Z' 0.1 1.0
M E 1.0 20
M N 1.1 18
M Z 1.1 17
D = 7700 km = 69 1/2°.
Ki iP 14 43 03.4
iPP 14 45 18.3
microns sec
P Z' 0.1 1.3
Sk iP 14 43 37.3
Gb iP 14 44 08.0
Um iP 14 43 22.8 C
iS 14 52 06
Ud iP 14 43 53 C
ipP 14 44 04
Japan. h = 40 km (Up,Ud).
Magn. = 5.6 (Up,Ki).

" 29 Up iP 14 54 27.9
Ki iP 14 54 37.9
Sk iP 14 54 54.8
Gb iP 14 54 49.9
Um iP 14 54 26.5
iPP 14 55 58.4
Ka iP 14 54 33.1
Ud iP 14 54 45
iPP 14 56 21
Hindu Kush (h = 70 km).

" 29 Up ---
microns sec
M E 0.8 20
M N 0.8 19
M Z 0.9 19
Um iSKS 15 56 56
Peru (h = 20 km).

" 29 Up iP 17 55 43.7 C
Sk iP 17 56 25.5
Greece (h = 30 km).

1966
Oct. 30 Up iP 02 14 58.2 C
Ki iP 02 16 14.0
Sk iP 02 15 40.1 C
i 02 15 44.6
Gb eP 02 14 47
Um iP 02 15 38.4
Ka iP 02 14 19.4
Greece (h = 30 km).

" 30 Up iP 05 16 06.4
Ki iP 05 17 04.8
Sk eP 05 16 38
Um iP 05 16 30.4
i 05 16 40.5
Lake Tanganyika (h = 5 km).

" 30 Up iP 05 42 41.4

" 30 Up iP 07 23 14.0

" 30 Up iP 08 47 56.2
i 08 48 05.9

" 30 Um i(Sg) 09 37 36.8

" 30 Gb iPKP 10 08 46.9
Fiji Islands (h = 500 km).

" 30 Up iPg 12 02 55.5
iSn 12 03 29.8
iSg 12 03 49.3
microns sec
Sg Z' 0.1 0.5
D = 440 km = 4.0°.
Gb eSg 12 04 59
Um iSg 12 05 12.3
Ka iPg 12 03 02.5
iSg 12 04 04.5
Riga Bay, 57.5°N, 23.4°E.
Origin time = 12 01 37.
Explosion?

" 30 Up iP 15 31 37.9
Aleutian Islands
(h = 30 km).

" 30 Up iP 17 45 07.5 C
i 17 45 13.2
iS 17 49 28.3
i(Sn) 17 50 25.4
Ki eP 17 45 52
i(Sn) 17 52 05.4
(cont.)

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

1966

Oct.	30	(cont.)			
		Ki		microns	sec
			M	E 0.7	12
			M	N 0.4	11
		Sk	iP		17 45 48.4
			iPP		17 46 30.7
			iS		17 50 20.5
		Um	iP		17 45 19.5
			iS		17 50 01.4
			iLg2		17 53 53
		Ka	iP		17 45 00.2
		Ud	eP		17 45 22
			i		17 45 26
		Caucasus (h = 30 km).			
"	30	Up	iP		19 15 45.7
		Um	iP		19 15 24.0 C
		Ud	iP		19 15 55
		Japan (h = 80 km).			
"	30	Up	iPKP		22 42 07.7
			i		22 42 13.5
		Sk	iPKP		22 42 03.0
		Gb	iPKP		22 42 15.5
		Um	iPKP		22 41 56.9
		Ka	iPKP		22 42 16.6
		Ud	iPKP		22 42 11
		Kermadec Islands (h = 210 km).			
"	31	Up	iP		00 08 15.8
		Ud	iP		00 08 17
		Aleutian Islands (h = 30 km).			

Markus Båth
March 16, 1967

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

Seismological Institute
Uppsala

March, 1967

U D D E H O L M

Uddeholm (abbreviated Ud in the bulletin) is a new seismograph station, in operation since October 16, 1966. It is located at 60°05.4'N, 13°36.4'E in the county of Värmland, Sweden, at an altitude of 240 m above m.s.l. The bedrock is granite.

Uddeholm is equipped with a short-period vertical-component Grenet seismograph (T_0 = 1.4 sec, T_g = 0.7 sec, V_{max} = 12990). Arrival times are given to the nearest second, awaiting the installation of more accurate timing equipment.

Uddeholm was found to be a very suitable place for seismograph recordings with an unusually high sensitivity already in a test performed in 1964 (see M. Båth: Seismic recording possibilities in Sweden, Dec. 1965).

Markus Båth

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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, K A R L S K R O N A and U D D E H O L M

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
Uddeholm	(Ud):	60°05.4'N,	13°36.4'E;	h = 240 m

N O V E M B E R 1 - 30, 1966

1966 Nov.	1	Up	iP	07 11 46.9	C
			iPcP	07 12 11.2	
				microns sec	
			P	Z' 0.3 0.8	
		Ki	iP	07 11 02.7	C
			i	07 11 08.6	
				microns sec	
			P	Z' 0.4 1.0	
		Sk	iP	07 11 39.2	
		Gb	iP	07 12 08.4	
		Um	iP	07 11 22.2	C
			ipP	07 11 54.1	
			i	07 12 22.7	
		Ka	iP	07 12 08.5	C
			ipP	07 12 39.3	
		Ud	iP	07 11 53	C
			ipP	07 12 25	
		Japan. h = 130 km (Um,Ka,Ud).			
		Magn. = 6.2 (Up,Ki).			
"	1	Ki	iP	22 28 56.4	
		Sk	iP	22 28 25.1	
		Ka	iP	22 27 12.2	
		Ud	iP	22 27 45	
		Crete (h = 70 km).			
"	2	Ud	iP	01 07 00	
		Tadzhik-Afghanistan.			
"	2	Up	iP	12 02 16.9	
				microns sec	
			P	Z' 0.1 0.5	
		(cont.)			
1966 Nov.	2	(cont.)			
		Ki	iP	12 01 45.6	
				microns sec	
			P	Z' 0.1 1.0	
		Gb	iP	12 02 36.9	
		Um	iP	12 01 59.6	
		Ud	iP	12 02 25	
		Bonin Islands (h = 420 km).			
		Magn. = 5.5 (Up,Ki).			
"	2	Ki	e	12 14 51	
			i(Sg)	12 15 01.2	
		Ud	i(Sg)	12 15 20	
"	2	Um	iP	12 28 33.4	
"	2	Up	i(Sg)	12 36 03.8	
		Ud	ePg	12 34 44	
			iSg	12 35 04	
"	2	Ki	i(Sg)	13 18 03.5	
"	2	Um	iP	15 59 30.7	
"	2	Up	iP	17 36 47.7	
		Ud	iP	17 36 54	
		Japan (h = 60 km).			
"	3	Up	iPKP	03 48 08.9	
		Ki	iPKP	03 47 54.7	
		Sk	iPKP	03 48 06.1	
		Um	iPKP	03 48 00.5	
		(cont.)			

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

1966 Nov. 3 (cont.)
Ud iPKP 03 48 08
New Hebrides Islands (h = 150 km).

" 3 Ud i(PP) 08 23 07
Bolivia (h = 40 km).

" 3 Um iP 11 48 45.1
Ud eP 11 48 27
Mona Passage (h = 50 km).

" 3 Up i(Sn) 13 59 40.8
i 13 59 55.9
i(Sg) 14 00 01.0
microns sec
(Sg) Z' 0.1 0.7
Ud e(Pn) 13 59 13
i(Sg) 14 00 40

" 3 Up iP 16 35 50.3
iS 16 45 07
microns sec
P Z' 0.1 1.0
S E 1.5 10
M E 4.1 18
M N 3.1 17
M Z 6.9 18
D = 7950 km = 71 1/2°.
Ki iP 16 35 53.7
iPcP 16 36 13.2
i 16 39 38
iS 16 45 11
microns sec
P Z' 0.1 1.0
S E 3.4 10
S N 2.1 10
M E 2.8 17
M N 1.8 17
M Z 3.2 17
D = 8000 km = 72°.
Sk iP 16 35 34.6 D
Gb iP 16 35 34.1
Um iP 16 35 56.0
iPcP 16 36 19.6
iPP 16 38 36
i 16 39 26.7
iS 16 45 14
Ka iP 16 35 46.4
Ud iP 16 35 (34)
iPcP 16 35 (56)
Mona Passage (h = 20 km).
Magn. = 6.1 (Up,Ki).

1966 Nov. 3 Ki e(Sg) 16 45 46

" 3 Up iP 20 18 45.4
Ka i(P) 20 18 46.6

" 3 Ki ePn 21 01 10
iSn 21 01 49.3
iSg 21 02 05.2
D = 360 km = 3.2°.
Um iSn 21 03 01.0
iSg 21 03 34.6
D = 670 km = 6.0°.
Northwest Russia-Finland border region. Origin time = 21 00 18.
Explosion?

" 3 Up iP 21 53 30.0
Um iP 21 53 41.7
Ud iP 21 53 36
i 21 53 43
Indian Ocean (h = 30 km).

" 4 Um i(P) 02 16 35.4 D

" 4 Ud iP 07 33 25
i 07 33 35
Ryukyu Islands (h = 30 km).

" 4 Ki iP 09 08 39.5
Ud eP 09 08 58
Sinkiang (h = 30 km).

" 4 Up iP 10 09 05.9
microns sec
P Z' 0.1 0.5

" 4 Ki eP 15 02 45
Mexico (h = 60 km).

" 4 Up iPKP 16 01 32.8 D
microns sec
PKP Z' 0.2 0.5
Gb iPKP 16 01 42.3
Um iPKP 16 01 20.8
Ud iPKP 16 01 36 D
Tonga-Kermadec Islands (h = 620 km).

" 4 Up iP 18 43 35.6

" 4 Up iP 20 01 16.7
i 20 01 23.9

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

1966				
Nov.	4	Up	iP	22 39 35.1
			i	22 40 15.7
"	5	Um	iPKP	02 49 28
		New Hebrides Islands (h = 30 km).		
"	5	Ki	iP	07 07 21.7
		Um	iP	07 07 48.2
		Unimak Island (h = 60 km).		
"	5	Up	iP	07 23 40.3
"	5	Ki	ePn	07 43 06
			iSn	07 43 52.5
			iSg	07 44 11.2
			D = 430 km = 3.9°.	
		Sk	eSg	07 46 46
		Um	iSn	07 44 37.5
			iSg	07 45 19.1
			D = 640 km = 5.8°.	
		Northwest Russia, 67.8°N, 30.8°E.		
		Origin time = 07 42 03.		
		Explosion?		
"	5	Ki	ePn	10 11 23
			iSn	10 12 18.7
			iLg1	10 12 37.5
			D = 520 km = 4.7°.	
		Sk	eSg	10 15 12
		Um	iSn	10 13 03.3
			iSg	10 13 41.0
			D = 710 km = 6.4°.	
		Northwest Russia, 67.7°N, 32.8°E.		
		Origin time = 10 10 10.		
		Explosion?		
"	5	Ki	iPn	12 47 44.6
			iSn	12 48 21.6
			iSg	12 48 37.1
			D = 330 km = 3.0°.	
		Sk	eSg	12 51 03
		Um	iSn	12 49 03.4
			iSg	12 49 34.9
			D = 520 km = 4.7°.	
		Northern Finland, 67.3°N, 28.1°E.		
		Origin time = 12 46 56.		
		Explosion?		
"	5	Up	i	13 08 31
		(cont.)		

1966				
Nov.	5	(cont.)		
		Up		microns sec
			M E	3.1 20
			M N	6.4 21
			M Z	7.9 22
		Ki		---
				microns sec
			M E	3.0 20
			M N	2.7 20
			M Z	7.1 21
		Um	iSS	13 24 04
		Tonga Islands (h = 40 km).		
		Magn. = 6.3 (Up,Ki).		
"	5	Ki	iPn	14 20 07.9
			iSn	14 20 56.2
			i(Sg)	14 21 12.6
"	5	Up	iP	19 02 26.8
		Ki	iP	19 02 27.5 C
		Sk	eP	19 02 47
		Um	iP	19 02 22.0
		Ud	iP	19 02 40 C
			i	19 02 44
		Nepal (h = 30 km).		
"	5	Up	iP	19 16 44.3
"	6	Ki	iP	01 36 37.7
		Ud	iP	01 37 00 C
		Sinkiang (h = 50 km).		
"	6	Ki	iP	04 00 21.3
		Ud	iP	04 01 12
		Kurile Islands (h = 30 km).		
"	6	Up	iP	08 34 23.4
		Ki	iP	08 34 16.8
				microns sec
			P Z'	0.1 1.5
			M E	1.0 16
			M N	5.7 16
			M Z	1.0 14
		Sk	iP	08 33 47.5
		Um	iP	08 34 21.5
		Ud	iP	08 34 00
		North Atlantic Ocean (h = 30 km).		
"	6	Ki	e(P)	08 57 28
			e(Sg)	08 57 53
"	6	Up	iPn	15 07 51.1
		(cont.)		

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

1966					
Nov.	6	(cont.)			
		Up	iPg	15 08 14.0	
			i(Sg)	15 09 50.0	
			i	15 10 22.5	
			D = 690 km = 6.2°.		
		Sk	eSn	15 08 09	
			iSg	15 08 40.9	
		Ud	iPn	15 07 22	
			iPg	15 07 42	
			iSn	15 08 14	
			iRg	15 08 55	
			D = 470 km = 4.2°.		
		Sognefjord, Norway, 61.2°N, 5.3°E. Origin time = 15 06 16. Solution obtained by combination with readings at Bergen and Lillehammer.			
"	6	Up	iP	18 55 49.0	
		Sk	iP	18 56 33.7	
			i	18 56 36.5	
		Um	iP	18 56 31.5	
			i	18 56 35.7	
		Ud	eP	18 55 55	
		Yugoslavia (h = 30 km).			
"	7	Ki	iP	00 52 49.2	
		Szechwan, China (h = 30 km).			
"	7	Up	iP	04 16 49.0	
		Ki	iP	04 16 48.4	
		Sk	eP	04 17 09	
		Um	iP	04 16 45.0	
		Ud	iP	04 17 05	
		Tibet (h = 30 km).			
"	7	Ki	ePn	07 49 51	
			eSn	07 50 41	
			iSg	07 51 03.4	
			D = 470 km = 4.2°.		
		Sk	eSg	07 53 31	
		Um	iSg	07 51 56.1	
			i	07 52 08.8	
		Northwest Russia. Origin time = 07 48 44. Explosion?			
"	7	Ki	iP	09 08 38.1	
		Ud	iP	09 09 13	
		Mindanao (h = 80 km).			
"	7	Up	iP	17 59 36.7	
1966					
Nov.	7	Um	i(P)	20 24 01.8	
		Ud	i(P)	20 25 06	
"	8	Up	iLgl	01 17 49.6	
		Sk	e(Sn)	01 17 00	
			iLgl	01 17 21.1	
		Gb	iLgl	01 16 51.5	
		Um	iLgl	01 18 48.3	
		Ka	eLgl	01 18 07	
		Ud	e(Pn)	01 16 00	
			iPg	01 16 06	
			iSg	01 16 48	
			i	01 16 56	
		Southwest Norway, 60.1°N, 7.2°E. Origin time = 01 15 05. Solution obtained by combination with readings at Bergen, Kongsberg and Lillehammer.			
"	8	Up	e(P)	02 19 59	
"	8	Up	iP	03 20 34.9	
			iPP	03 21 27.5	
		Ki	iP	03 21 12.4 D	
			i	03 21 15.5	
			iPP	03 22 27.7	
		Um	iP	03 20 48.4	
			i	03 20 51.5	
		Ud	iP	03 20 54	
			iPP	03 21 57	
		Iran (h = 25 km).			
"	8	Ki	i(Sg)	11 17 02.2	
"	8	Up	iP	11 46 51.1	
		Ki	eP	11 45 48	
		Aleutian Islands (h = 40 km).			
"	8	Up	iPg	12 16 27.4 D	
			iSg	12 16 43.5	
			microns sec		
			Pg Z' 0.1 0.5		
			D = 130 km = 1.2°.		
		Um	iSg	12 18 42.4	
		Ka	iSn	12 17 26.0	
			iSg	12 17 46.2	
		Baltic Sea, off coast of Södermanland, Sweden. Explosion.			

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

1966
Nov. 8 Up iPg 12 20 39.2
iSg 12 20 55.8
microns sec
Pg Z' 0.1 0.5
D = 130 km = 1.2°.
Same location as for the preceding event.
Explosion.

" 8 Up iP 14 40 25.1
Ki eP 14 40 16
Ud iP 14 40 37
Burma (h = 50 km).

" 8 Ki iP 15 49 33.2
Sumatra (h = 30 km).

" 8 Ud iP 18 11 00
Greece.

" 9 Ki eP 01 37 03

" 9 Ud iP 01 45 13

" 9 Up iP 02 53 41.9

" 9 Ud iP 10 19 32
i 10 19 40
Afghanistan-USSR
(h = 90 km).

" 9 Ud iP 10 56 28
Afghanistan-USSR
(h = 190 km).

" 9 Up iP 11 38 06.0
microns sec
M E 0.8 14
M N 1.3 16
M Z 1.0 13
Ki iP 11 37 38.2
microns sec
M E 0.7 12
M N 0.4 13
M Z 0.7 13
Sk iP 11 38 07.7
Um iP 11 37 45.6
Ud iP 11 38 15
Ryukyu Islands (h = 40 km).

" 9 Ki e 12 26 10
iSg 12 26 35.8
Sk ePg 12 26 05
(cont.)

1966
Nov. 9 (cont.)
Sk iSg 12 26 38.6
Um iSg 12 27 01.2
Nordlands Fylke, Norway,
66.4°N, 14.8°E.
Origin time = 12 25 07.

" 9 Ud iP 14 20 40
Aleutian Islands
(h = 50 km).

" 9 Up iP 15 17 05.9
microns sec
P Z' 0.1 0.5
M E 0.5 10
M N 0.5 11
Ki ---
microns sec
M E 1.8 16
M N 0.5 15
Sk iP 15 17 49.7
Um iP 15 17 51.4
Ud eP 15 17 06
i 15 17 12
Greece-Albania
(h = 30 km).

" 9 Up iSg 17 07 15.5
Sk ePn 17 04 52
iSg 17 05 31.0
Gb e 17 07 07
iSg 17 07 12.3
Um iSg 17 07 20.0
Ud iPg 17 05 27
iSg 17 06 20
West coast of Norway,
63.0°N, 7.1°E.
Origin time = 17 04 04.
Solution checked by readings at Bergen, Kongsberg and Lillehammer.

" 10 Ki iPKP 03 21 07.7 C
Um iPKP 03 21 04.6
ipPKP 03 21 36.9
Ud iPKP 03 20 58
ipPKP 03 21 30
Argentina. h = 130 km
(Um,Ud).

" 10 Up iP 03 32 11.8
Ud eP 03 32 21

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

1966 Nov.	10	Up	iP	05 18 31.6
		Bonin Islands (h = 30 km).		
"	10	Um	iP	11 02 46.8 C
"	10	Ud	iP	13 30 07
			i	13 30 18
"	11	Up	iP	14 02 49.7
				microns sec
			P	Z' 0.1 0.8
		Um	iP	14 04 24.1
"	11	Up	iP	15 42 01.0
			ipP	15 42 12.4
				microns sec
			P	Z' 0.2 1.4
			M	E 0.8 17
			M	N 1.4 18
			M	Z 1.3 16
		Ki	iP	15 41 07.5 C
			ipP	15 41 18.8
			e	15 49 59
				microns sec
			P	Z' 0.3 1.4
			M	E 1.2 18
			M	N 1.0 17
			M	Z 1.4 17
		Gb	iP	15 42 14.8 C
			ipP	15 42 25.6
		Um	iP	15 41 33.8 C
			ipP	15 41 45.8
			e	15 50 16
		Ud	iP	15 42 00
		Aleutian Islands.		
		h = 40 km (Up,Ki,Gb,Um).		
		Magn. = 5.9 (Up,Ki).		
"	11	Up	iP	16 14 03.2
				microns sec
			P	Z' 0.1 0.6
		Ki	iP	16 13 12.0
		Um	iP	16 13 36.1
		Ka	iP	16 14 27.0
		Ud	eP	16 14 06
		Kurile Islands (h = 150 km).		
"	11	Ud	iP	18 32 40
		Off coast of California		
		(h = 30 km).		
"	11	Um	iP	18 45 39.8
		Aleutian Islands		
		(h = 40 km).		

1966 Nov.	12	Um	iP	02 56 30.3
"	12	Up	iP	03 22 19.8
"	12	Um	iP	04 20 15.9
		Ud	iP	04 20 05
		Costa Rica (h = 40 km).		
"	12	Up	iP	07 31 19.3 D
"	12	Up	iP	07 46 35.9
"	12	Ki	iPn	08 22 47.4
			iSn	08 23 43.2
			iSg	08 24 06.0
		Possibly northwest Russia.		
		Explosion?		
"	12	Ki	eP	08 37 29
		Um	iP	08 37 15.6
		Near coast of West Pakistan		
		(h = 30 km).		
"	12	Up	iPKP	10 10 29.6 C
		Ud	iPKP	10 10 32
		Tonga-Kermadec Islands		
		(h = 20 km).		
"	12	Ki	ePn	10 25 08
			iSn	10 26 03.5
			iLgl	10 26 22.8
			D = 520 km = 4.7°.	
		Um	iSn	10 26 48.0
			iSg	10 27 27.9
			D = 710 km = 6.4°.	
		Northwest Russia.		
		Origin time = 10 23 55.		
		Explosion?		
"	12	Um	iP	11 07 07.6 C
"	12	Up	iP	12 13 12.1
				microns sec
			M	N 0.7 15
		Ki	iP	12 12 38.3
				microns sec
			M	E 0.8 14
			M	N 0.9 16
			M	Z 0.8 14
		Um	iP	12 12 52.2
		Ud	iP	12 13 21
		Japan.		

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

1966 Nov. 12 Ud iP 12 25 47
Afghanistan.

" 12 Up iP 12 34 43.5

" 12 Up iP 13 00 50.4 C
ipP 13 00 59
iS 13 09 55

		microns	sec
P	Z'	0.4	1.0
S	E	0.7	5
M	E	7.3	20
M	N	5.4	18
M	Z	6.1	19

D = 7700 km = 69 1/2°.

Ki iP 13 00 06.8 C
ipP 13 00 16.7
iPcP 13 00 42.8
eS 13 08 30
iPS 13 08 45

		microns	sec
P	Z'	0.5	1.2
S	E	1.1	7
S	N	1.0	7
M	E	22	23
M	N	7.4	18
M	Z	7.8	21

D = 6950 km = 62 1/2°.

Gb iP 13 01 11.0 C
ipP 13 01 21.6
Um iP 13 00 26.1 C
i(PP) 13 02 43.3
iS 13 09 08
iPS 13 09 27
Ka iP 13 01 11.1 C
iPP 13 03 51.8
Ud iP 13 00 57 C
i(PP) 13 03 23
Japan. h = 35 km (Up,Ki,Gb).
Magn. = 6.2 (Up,Ki).

" 12 Up iP 13 24 28.9

" 12 Ki i(Sg) 14 44 17.9

" 12 Ud iP 16 10 28 C
New Guinea (h = 30 km).

" 12 Up iP 17 44 53.2
Ki iP 17 44 05.6 C
Um iP 17 44 27.1
Ud iP 17 45 01
Kurile Islands (h = 30 km).

1966 Nov. 12 Up i(PKP) 19 04 08.2
iPKP 19 04 10.1
iPKS1 19 07 32.8
iPKS2 19 07 56.8

		microns	sec
PKP	Z'	0.1	0.5
PKS1	E	0.7	5
PKS1	N	1.7	6
PKS1	Z'	1.1	1.5
PKS2	Z'	0.6	1.5
M	E	9.4	22
M	N	14	23
M	Z	13	22

(D = 14450 km = 130°).

Ki iPKP 19 03 55.4
i 19 04 19.3
iPKKP 19 13 45.2

		microns	sec
PKP	Z'	0.3	0.8
M	E	13	23
M	N	10	22
M	Z	13	23

Gb iPKP 19 04 18.7
i 19 04 41.1
iPKS 19 07 46.6
Um i(PKP) 19 03 59.7
iPKP 19 04 02.0
i 19 05 38
iPP 19 06 00
iPKS 19 07 22.7
Ka e(PKP) 19 04 12
iPKP 19 04 18.3
iPKS1 19 07 44.6
iPKS2 19 08 05.3
Ud e(PKP) 19 04 09
iPKP 19 04 15
iPKS1 19 07 42
iPKS2 19 08 02
New Hebrides Islands
(h = 40 km).
Magn. = 6.8 (Up,Ki).
(PKP) is a small-amplitude precursor. PKS1 and PKS2 refer to different branches of the PKS travel-time curve.

" 12 Up iP 23 16 15.3
Ki iP 23 15 25.4
Ud iP 23 16 20
ipP 23 16 28
Japan. h = 30 km (Ud).

" 13 Up i(P) 02 04 52.1
Ka i(P) 02 04 32.6

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

1966 Nov. 13 Up iP 03 02 56.9
Ki iP 03 03 05.5 C
ipP 03 03 26.2
microns sec
P Z' 0.1 1.0
Um iP 03 03 05.0
Ka iP 03 02 50.2 C
ipP 03 03 09.8
Ud iP 03 02 51
Leeward Islands.
h = 70 km (Ki,Ka).

" 13 Ud iP 03 07 49
Japan (h = 60 km).

" 13 Ud iP 14 37 49
Peru-Brazil (h = 180 km).

" 13 Ud iP 15 08 38
Crete (h = 30 km).

" 13 Ki iP 21 19 44.1
Komandorsky Islands
(h = 30 km).

" 14 Up iP 03 20 42.4
ipP 03 21 15.8
Ki iP 03 20 42.3
Um iP 03 20 38.5
ipP 03 21 12.5
Ud iP 03 20 53
ipP 03 21 27
Sumatra. h = 140 km (Up,Um,Ud).

" 14 Up iP 04 21 08.5
i 04 21 19.5

" 15 Microseisms of around 20 sec period are recorded by the long-period seismographs at Umeå.

" 15 Up iP 00 19 04.1
microns sec
P Z' 0.1 0.7
Ki iP 00 18 11.5
Gb iP 00 19 20.9
Um iP 00 18 37.1
Ud iP 00 19 06 C
Aleutian Islands
(h = 40 km).

" 15 Up iP 16 30 06.5
(cont.)

1966 Nov. 15 (cont.)
Up microns sec
P Z' 0.1 0.8
Ki iP 16 29 12.5
iPcP 16 29 58.4
Um iPcP 16 30 12.9
Ka iP 16 30 30.0
Ud iP 16 30 06
Aleutian Islands
(h = 50 km).

" 15 Up iP 16 37 01.2
Ud iP 16 37 02
Aleutian Islands
(h = 60 km).

" 16 Ud iP 02 11 39
Aleutian Islands
(h = 30 km).

" 16 Ki e(P) 10 54 38
e(Sg) 10 55 11

" 16 Ud e 12 16 03
i 12 16 09
i(Sg) 12 16 25

" 16 Up iP 20 54 57.7
microns sec
P Z' 0.1 1.0
Ki eP 20 54 08
Um iP 20 54 31.5 C
ipP 20 54 41.4
Ud iP 20 55 04
ipP 20 55 15
Kurile Islands.
h = 40 km (Um,Ud).

" 16 Up iP 21 30 59.1
microns sec
P Z' 0.1 1.0
Ki iP 21 30 34.3
Ud iP 21 30 48 C

" 16 Up iPKP 23 14 59.8
Ki ePKP 23 14 40
Um iPKP 23 14 48.4 C
Ud iPKP 23 15 01
South of Kermadec Islands
(h = 30 km).

" 16 Up iP 23 27 05.1
ePcP 23 27 29
(cont.)

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

1966 Nov.	16	(cont.)			
		Ki	iP	23 26 10.9	C
		Gb	iP	23 27 18.3	
		Um	iP	23 26 37.6	
			iPcP	23 27 13.4	
		Ud	iP	23 27 03	C
		Aleutian Islands (h = 30 km).			
"	17	Up	iSg	08 43 24.4	
		Ka	e(Pg)	08 41 17	
			i(Sg)	08 41 32.3	
			i	08 41 47.3	
		Ud	iSg	08 43 23	
		South Baltic. Probably explosion.			
"	17	Ki	iPn	09 00 48.8	
			iSn	09 01 35.1	
			iSg	09 01 52.4	
		Possibly northwest Russia. Explosion?			
"	17	Ki	e(Sg)	12 33 02	
"	17	Ud	iP	14 05 02	
		Aleutian Islands (h = 60 km).			
"	17	Ud	eP	14 52 35	
		Aleutian Islands (h = 40 km).			
"	17	Up	iP	14 54 09.8	
			i	14 54 28.6	
		Ud	iP	14 54 11	
		Aleutian Islands (h = 50 km).			
"	17	Up	iP	19 38 02.9	
		Ki	iP	19 37 15.2	
		Um	iP	19 37 36.9	
		Ud	iP	19 38 07	C
			ipP	19 38 19	
		Kurile Islands. h = 40 km (Ud).			
"	17	Up	iP	20 36 16.4	
			i	20 36 20.3	
			microns	sec	
			P Z'	0.1	0.6
"	18	Up	iP	00 36 48.0	
		(cont.)			

1966 Nov.	18	(cont.)			
		Ki	iP	00 35 54.0	
		Ud	iP	00 36 52	C
		Aleutian Islands (h = 60 km).			
"	18	Ka	i	08 37 07.1	
			iSg	08 37 14.2	
		Ud	i	08 38 15	
			iSg	08 39 36	
		Probably South Baltic. Explosion?			
"	18	Ka	i	09 23 12.6	
			iSg	09 23 28.6	
		Ud	iSg	09 25 48	
		Probably South Baltic. Explosion?			
"	18	Ki	i	09 23 15.9	
			iSg	09 24 14.8	
"	18	Ud	iPKP	09 31 20	
		Easter Island Rise (h = 30 km).			
"	18	Up	iP	10 15 11.4	C
"	18	Ud	i(Sg)	12 19 00	
"	18	Ka	iSg	13 13 07.8	
		Ud	e	13 15 08	
			iSg	13 15 43	
		Probably South Baltic. Explosion?			
"	18	Ki	eP	18 09 36	
			eT	18 14 39	
			e	18 15 20	
		Um	iP	18 10 24.3	
		Ud	iP	18 10 57	
		Norwegian Sea (h = 30 km).			
"	18	Up	iP	18 39 00.9	
"	18	Up	iS	18 54 29.5	
			i	18 54 44.4	
			i	18 55 13.6	
			microns	sec	
			M E	1.0	18
			M N	4.3	17
			M Z	4.6	18
		Ki	iP	18 50 27.8	
		(cont.)			

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

1966
Nov. 18 (cont.)

Ki	iS	18 51 40.1	
	eT	18 55 28	
		microns	sec
	P N	0.8	10
	P Z'	0.1	1.0
	M E	2.3	16
	M N	1.7	14
	M Z	6.3	19
	D = 800 km = 7°.		
Um	iP	18 51 14.9	
	i	18 51 17.4	
	iS	18 52 59.8	
	i	18 53 37.7	
	iT	18 57 30.9	
	i	18 57 47.7	
Ud	iP	18 51 47	
	i	18 51 52	
	iS	18 54 11	

Norwegian Sea (h = 30 km).

" 18 Ud iP 19 52 59
North Atlantic Ocean
(h = 30 km).

" 19 Up iP 05 31 16.1 C

		microns	sec
	P Z'	0.1	0.8
Ki	iP	05 30 36.8 C	
		microns	sec
	P Z'	0.1	1.0
Um	iP	05 30 54.2 C	
Ud	iP	05 31 23 C	
	ipP	05 31 37	

Japan. h = 50 km (Ud).
Magn. = 5.7 (Up,Ki).

" 19 Up iP 07 18 02.4

	eS	07 22 15	
		microns	sec
	P Z'	0.1	1.0
	M E	4.4	18
	M N	6.1	17
	M Z	5.3	13
	D = 2800 km = 25°.		
Ki	iP	07 19 10.3	
		microns	sec
	M E	3.0	15
	M N	3.7	15
	M Z	6.1	16
Um	iP	07 18 34.9	
	i	07 18 45.7	
	iPP	07 19 13.6	

(cont.)

1966
Nov. 19 (cont.)

Ka	iP	07 17 27.5
Ud	iP	07 18 02 C
	i	07 19 08

Crete (h = 30 km).

" 19 Ki iP 07 41 58.3

Um	iP	07 42 13.1
	i	07 42 16.6
Ud	iP	07 42 43

Japan (h = 30 km).

" 19 Up iP 07 53 23.5 C

	i!	07 53 44.1	
		microns	sec
	P Z'	0.1	0.6
Ki	iP	07 53 19.6 C	
	i!	07 53 40.9	
		microns	sec
	P Z'	0.1	1.0
Um	iP	07 53 17.4 C	
Ka	iP	07 53 30.1	
Ud	iP	07 53 31 C	
	i(pP)	07 53 45	

Burma
(h = 60 km).
Magn. = 5.9 (Up,Ki).
If the clear phase about 21 sec after P (Up, Ki) is interpreted as pP, the focal depth becomes about 80 km.

" 19 Ki ePn 07 58 46

	iSn	07 59 41.7
	iLgl	08 00 01.9
	D = 520 km = 4.7°.	
Um	iSn	08 00 25.3
	iSg	08 01 03.2
	D = 710 = 6.4°.	

Northwest Russia.
Origin time = 07 57 33.
Explosion?

" 19 Ki iPn 10 13 20.9

	iSn	10 14 17.3
	iLgl	10 14 34.3
	D = 520 km = 4.7°.	
Um	iSn	10 15 00.8
	iSg	10 15 40.8
	D = 710 km = 6.4°.	

Northwest Russia.
Origin time = 10 12 07.
Explosion?

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

1966				
Nov.	19	Ki	eP	16 48 36
		Sk	iP	16 49 04.3
		Um	iP	16 49 04.5
		Ud	eP	16 49 30
		Kodiak Island (h = 30 km).		
"	19	Um	iP	17 05 01.6
"	19	Up	iP	19 13 08.9
		Um	iP	19 13 06.2
		Ud	iP	19 13 27
		Hindu Kush (h = 130 km).		
"	19	Up	iP	20 37 20.1
		Hindu Kush (h = 140 km).		
"	20	Up	iP	09 40 56.8
			iPcP	09 41 21.5
		Um	iP	09 40 30.0
			iPcP	09 41 03.1
		Ud	iP	09 40 57
		Aleutian Islands (h = 50 km).		
"	20	Up	---	
			microns	sec
		M	E	1.5 20
		M	Z	1.7 18
		Um	iPKP2	17 08 27.5
			eSS	17 33 19
		South Pacific Ocean (h = 30 km).		
"	20	Up	iP	22 52 51.5
		Ki	iP	22 52 27.0
		Sk	iP	22 52 54.9
		Ud	iP	22 53 05
		Formosa (h = 100 km).		
"	20	Up	iP	23 44 12.7
		Ud	iP	23 44 31
		West Pakistan (h = 40 km).		
"	21	Up	iP	03 18 43.0
"	21	Ud	iP	06 18 53
"	21	Ka	i	08 17 22.4
			i	08 17 29.4
			i(Sg)	08 18 10.2
		Ud	e(Sn)	08 19 10
			iSg	08 19 51
		South Baltic. Explosion?		

1966				
Nov.	21	Ka	i	09 12 22.2
			i	09 12 29.4
			i(Sg)	09 13 09.7
		Ud	eSn	09 14 15
			iSg	09 14 52
		South Baltic. Explosion?		
"	21	Ki	iPg	09 21 19.9
			iSg	09 21 30.4
"	21	Ki	e(Sg)	11 11 26
"	21	Sk	iSg	11 21 10.8
		Ka	i	11 16 49.0
			i	11 16 56.1
			i(Sg)	11 17 36.2
		Ud	iSg	11 19 22
		South Baltic. Explosion?		
"	21	Ki	iP	11 24 26.4
		Um	iP	11 24 36.7
			i	11 24 49.7
			i	11 24 55.3
		Mexico (h = 90 km).		
"	21	Up	iP	12 30 20.4 C
			microns	sec
		P	Z'	0.2 1.0
		Ki	iP	12 29 32.3
			microns	sec
		P	Z'	0.1 1.0
		M	E	1.4 22
		M	N	0.9 19
		M	Z	1.7 19
		Sk	iP	12 30 08.2
			i!	12 30 31.1
		Um	iP	12 29 54.9
			i!	12 30 17.4
		Ud	iP	12 30 27
			i	12 30 41
		Kurile Islands (h = 40 km). Magn. = 5.8 (Up,Ki). The phases appearing about 23 sec after P (Sk, Um) may be either P of another shock in the same region, or pP; in the latter case the focal depth is about 80 km.		
"	21	Sk	iSg	12 46 12.3
		Ka	i	12 41 50.7
			i	12 41 57.3

(cont.)

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

1966
Nov. 21 (cont.)

Ka	i(Sg)	12 42 38.1	
Ud	ePn	12 42 45	
	iSg	12 44 24	

South Baltic. Explosion?

" 21

Um	iPKP	12 51 33.2	

New Hebrides Islands
(h = 130 km).

" 21

Up	iP	19 29 29.1	
Um	iP	19 29 08.0	C
Ud	iP	19 29 36	

Japan (h = 250 km).

" 21

Up	iP	20 57 40.9	

" 22

Up	iP	06 39 46.0	C
	ipP	06 41 18.8	
	iS	06 47 48.9	
		microns sec	
	P	Z' 0.3 0.5	
Ki	iP	06 38 59.6	C
		microns sec	
	P	Z' 0.4 1.0	
Sk	iP	06 39 35.3	C
Um	iP	06 39 20.0	C
	ipP	06 40 58.4	
	iS	06 47 01.4	
Ka	iP	06 40 07.4	C
	i	06 40 24.3	
Ud	iP	06 39 51	C
	ipP	06 41 30	
	iPP	06 42 36	
	i	06 43 35	
	iS	06 47 59	

Okhotsk Sea. h = 470 km (Up, Um,Ud). Magn. = 6.0 (Up,Ki).

" 22

Ki	iPKP	07 20 16.5	
	iPKS	07 23 35.2	
		microns sec	
	PKP	Z' 0.3 1.5	
	PKS	Z' 0.2 1.6	
Um	iPKP	07 20 09.0	
Ud	ePKP	07 20 05	
	iPKKP	07 29 59	

South Sandwich Islands
(h = 40 km).

" 22

Up	iP	09 03 03.8	
Ki	iP	09 02 10.4	C
	i	09 02 37.2	

(cont.)

1966
Nov. 22 (cont.)

Ki		microns sec	
	P	Z' 0.1 1.0	
Sk	iP	09 02 45.0	
Um	iP	09 02 36.2	C
Ud	iP	09 03 05	C

Aleutian Islands
(h = 60 km).

" 22

Ka	iPg	11 32 51.3	
	iSg	11 33 00.0	

" 22

Ud	iPKP	12 17 26	

Tonga-Kermadec Islands
(h = 140 km).

" 22

Up	iPg	13 04 51.7	
	iSg	13 05 18.8	
	D = 230 km = 2.1°.		
Sk	eLgl	13 06 42	
Um	iPg	13 05 03.4	
	iSg	13 05 39.0	
	D = 300 km = 2.7°.		

Southwest Finland,
61.2°N, 21.3°E.
Origin time = 13 04 10.
Explosion?

" 22

Sk	iSg	13 58 22.8	
Um	iPg	13 56 46.0	
	iSg	13 57 18.6	
	D = 280 km = 2.5°.		
Ud	eSg	13 57 51	

Gulf of Bothnia,
61.3°N, 20.4°E.
Origin time = 13 55 57.
Underwater explosion.

" 22

Up	iP	16 05 46.0	
	ipP	16 05 56.9	
Ki	iP	16 04 52.7	
Um	iP	16 05 17.8	
	ipP	16 05 29.1	
Ud	iP	16 05 53	

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

" 22

Ud	iP	19 46 42	

Aleutian Islands
(h = 60 km).

" 22

Up	i(P)	21 05 17.8	

(cont.)

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

1966 Nov. 22 (cont.)

Up		microns	sec
	(P)	Z' 0.1	0.5
Um	i(P)	21 04 34.5	

" 23

Up	iPKP	02 38 19.8
	iPKS1	02 41 37.8
	iPKS2	02 41 59.9
	microns	sec
	PKS1 Z' 0.1	1.0
	M E 1.1	20
	M N 1.9	23
	M Z 2.1	25
Ki	i(PKP)	02 38 04.5 C
	iPKP	02 38 07.5
	microns	sec
	PKP Z' 0.1	1.0
Sk	iPKP	02 38 18.1
Um	i(PKP)	02 38 10.8 C
	iPKP	02 38 13.7
	i	02 38 22.9
Ka	iPKP	02 38 29.6
Ud	i(PKP)	02 38 18 C
	iPKP	02 38 21
	iPKS1	02 41 39
	i	02 41 47
	iPKS2	02 42 00

New Hebrides Islands
(h = 50 km).
PKS1 and PKS2 refer to different branches of the PKS travel-time curve; compare Nov. 12 at 19 03.

" 23

Up	iPg	09 11 39.3
	iSg	09 12 05.0
	D = 220 km = 2.0°.	
Sk	iSg	09 13 33.1
Um	iSg	09 12 32.5

Gulf of Bothnia,
61.1°N, 20.9°E.
Origin time = 09 10 59.
Explosion.

" 23

Ki	iPn	12 35 55.1
	iP^x	12 36 04.0
	iSn	12 36 42.2
	iLgl	12 36 54.7
	D = 430 km = 3.9°.	
Um	e	12 38 22
	iSg	12 38 35.1

Northwest Russia.
Origin time = 12 34 53.
Explosion?

1966 Nov. 23

Up	iP	12 54 52.6
Ud	e(P)	12 55 01

" 23

Ud	iPKP	18 36 21

Fiji Islands (h = 470 km).

" 23

Ki	iSg	20 20 49.4
Sk	iSg	20 20 53.0
Um	iPg	20 20 27.5
	iSn	20 21 00.3
	iSg	20 21 15.1
Ud	eLgl	20 22 41

Nordlands Fylke, Norway,
66.4°N, 14.8°E.
Origin time = 20 19 21.

" 24

Up	iP	07 03 55.3
	ipP	07 04 06.1
Ki	iP	07 03 11.8 C
	microns	sec
	P Z' 0.1	1.0
Sk	iP	07 03 39.2
Um	iP	07 03 40.4
Ka	iP	07 04 29.0 C
Ud	iP	07 04 00 C

Kodiak Island.
h = 40 km (Up).

" 24

Up	iPKP	07 51 37.2
	i	07 51 42.4
	microns	sec
	PKP Z' 0.1	0.6
Ki	ePKP	07 51 18
Sk	iPKP	07 51 31.0 C
	i	07 51 37.0
Um	iPKP	07 51 25.9 C
	i	07 51 29.7
Ka	iPKP	07 51 46.8 C
	i	07 51 51.8
Ud	iPKP	07 51 36 C
	i	07 51 41

Kermadec Islands
(h = 10 km).
If the second onset, appearing about 5 sec after PKP, is interpreted as pPKP, then the focal depth would be around 17 km.

" 24

Up	iP	09 47 58.1

" 24

Ud	eP	10 18 32

Alaska (h = 5 km).

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

1966				
Nov.	24	Up	iP	11 06 08.6
"	24	Up	iP	12 18 48.8
"	24	Up	iPKP	13 17 48.5
		Ud	iPKP	13 17 50 C
		Tonga-Kermadec Islands (h = 520 km).		
"	24	Ki	i(P)	15 17 08.4
		Sk	iP	15 17 25.4
		Ud	iP	15 17 45
		Kodiak Island (h = 30 km).		
"	24	Ka	iP	18 29 18.5
"	24	Up	iP	20 19 56.3
		Ud	iP	20 20 04
		Japan (h = 120 km).		
"	25	Um	i(P)	12 55 20.8
			i	12 55 26.7
"	25	Ud	iP	20 39 09
		Kirghiz SSR (h = 30 km).		
"	25	Gb	iP	23 46 50.5
"	26	Up	eP	03 28 05
			iS	03 31 47
			microns	sec
			M N	2.1 21
			M Z	1.7 21
		Ki	iP	03 26 28.0
			microns	sec
			M E	1.4 17
			M N	1.7 18
			M Z	3.6 18
		Sk	eP	03 27 24
		Gb	iP	03 28 21.0
		Um	iP	03 27 24.4
		Ud	eP	03 28 03
		Svalbard (h = 30 km).		
"	26	Um	iP	05 36 29.8
		Japan (h = 60 km).		
"	26	Up	iP	12 08 52.0
			i	12 08 53.2
"	26	Up	iP	13 56 00.4
		Ki	---	
			microns	sec
			M N	0.3 16
		(cont.)		

1966				
Nov.	26	(cont.)		
		Ud	iP	13 56 29
		Iran-USSR (h = 30 km).		
"	26	Ki	ePn	20 34 42
			iSn	20 35 19.9
			iSg	20 35 32.4
			D = 340 km = 3.1°.	
		Um	iSg	20 37 04.7
		Northwest Russia-Finland border region.		
		Origin time = 20 33 51.		
		Explosion?		
"	26	Sk	iP	21 37 34.5
"	27	Sk	eP	00 41 46
"	27	Ki	iP	03 04 30.7
			microns	sec
			M N	0.5 16
		Um	i(P)	03 05 19.8
			iP	03 05 26.9
		Ud	iP	03 06 06
		Svalbard (h = 30 km).		
"	27	Ki	iP	04 19 45.6
			i	04 19 53.7
		Um	iP	04 20 18.0
			i	04 20 31.2
		Ud	eP	04 20 41
		Alaska (h = 30 km).		
"	27	Ki	iP	04 24 41.7 C
		Gb	iP	04 25 50.2
		Um	iP	04 25 12.2 C
			iPcP	04 26 10.3
		Ud	iP	04 25 32
		Alaska (h = 10 km).		
"	27	Ud	iPKP	09 18 29 C
		Tonga-Kermadec Islands (h = 500 km).		
"	27	Ud	iP	11 11 57
		Kurile Islands (h = 40 km).		
"	27	Ki	i	12 18 06.4
			i(Sg)	12 18 28.9
		Um	i(Sg)	12 19 21.4
			i	12 19 24.7
"	27	Up	iP	12 58 52.4
		(cont.)		

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

1966
Nov. 27 (cont.)

Up	ipP	12 59 02.4	
Ki	iP	12 58 02.4	
Gb	iP	12 59 12.7	
Um	iP	12 58 25.6	
Ud	iP	12 59 01	

Kurile Islands.
h = 35 km (Up).

" 27 Ki i(Sg) 13 35 05.2

" 27 Ki iP 13 53 35.0
i 13 54 44.7
Mariana Islands (h = 210 km).

" 27 Ki iP 15 51 00.0

" 27 Up iP 20 17 22.5 D
i 20 17 29.1
iS 20 21 10

microns sec

P	N	1.1	5
P	Z'	0.1	1.0
S	N	2.2	7
M	E	1.8	16
M	N	4.5	20
M	Z	6.8	21

D = 2100 km = 19°.

Δ = 19°
5.32
- 0.48
4.8.3

Ki iP 20 15 45.3

microns sec

P	Z'	0.4	1.5
M	E	4.4	17
M	N	3.9	18
M	Z	10	18

Sk iP 20 16 34.5 D
Gb iP 20 17 43.1 D
i 20 18 02.1
Um iP 20 16 35.1 D
i 20 16 41.5
Ka iP 20 18 01.1
Ud iP 20 17 24 D
Svalbard (h = 30 km).
Magn. = 5.3 (Up).

" 28 Sk iP 07 45 36.1 D
ipP 07 45 42.6
Um iP 07 45 50.8
ipP 07 45 57.6
Ud iP 07 45 40
South of Panama.
h = 25 km (Sk,Um).

" 28 Ki iP 18 12 03.8 C

1966
Nov. 28 Up iP 20 54 49.2 C

" 29 Ki i(P) 03 17 02.4
Um iP 03 16 19.4

" 29 Up iPKP 08 18 38.3
Fiji Islands (h = 370 km).

" 29 Ud iP 14 19 22
Japan (h = 30 km).

" 29 Ud iP 17 27 45
Japan (h = 40 km).

" 29 Up iPKP 22 36 23.5
iSKP 22 39 29.7
Ki iPKP 22 36 06.4
Sk iPKP 22 36 17.1 C
Um iPKP 22 36 11.7 C
ipPKP 22 36 57.4
Ud iPKP 22 36 25
iSKP 22 39 35
isPKS 22 40 49
New Hebrides Islands.
h = 180 km (Um).

" 30 Ki iP 00 41 56.7
Um iP 00 42 10.2
South of Japan (h = 20 km).

" 30 Ki iP 13 02 22.6
i 13 02 26.2
iS 13 03 38.9
eT 13 07 26
i 13 07 54.3

microns sec

P	Z'	0.1	0.9

D = 800 km = 7°.

Um iP 13 03 09.9
Ud iP 13 03 48
Norwegian Sea (h = 30 km).

" 30 Ki iP 13 16 14.4

Markus Båth
April 7, 1967

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

Seismological Institute
Uppsala

SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, GÖTEBORG, UMEÅ, KARLSKRONA and UDDEHOLM

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
Uddeholm	(Ud):	60°05.4'N,	13°36.4'E;	h = 240 m

DECEMBER 1 - 31, 1966

1966 Dec.					
Dec.	1	Ki	iP	03 38 02.6	
"	1	Up	iP	04 39 29.4	
		Ki	iP	04 38 30.4	C
		Sk	iP	04 38 57.0	
		Gb	iP	04 39 37.0	
		Um	iP	04 38 57.2	
		Ud	iP	04 39 26	
		Alaska (h = 40 km).			
"	1	Up	iPKP	05 15 51.8	
			iPKS	05 19 04.0	
			i	05 19 07.0	
				microns sec	
			PKP Z'	0.3 0.5	
			PKS E	1.8 10	
			PKS N	2.1 7	
			PKS Z'	0.6 1.0	
			M E	2.5 19	
			M N	4.2 19	
			M Z	6.8 23	
			(D = 14200 km = 128°).		
		Ki	i(PKP)	05 15 35.6	
			iPKP	05 15 37.5	
			e	05 17 35	
			i(PKS)	05 19 05.4	
			e	05 23 49	
			iPKKP	05 25 37.8	
			iSKSP	05 27 00	
				microns sec	
			PKP Z'	0.5 0.8	
			(PKS)Z'	0.5 1.5	
			M E	3.6 22	
		(cont.)			

1966 Dec.					
Dec.	1	(cont.)			
		Ki		microns sec	
			M N	3.7 21	
			M Z	5.6 21	
			(D = 13500 km = 121 1/2°).		
		Sk	i(PKP)	05 15 37.2	
			iPKP	05 15 48.3	
			iPKS	05 19 00.9	
		Gb	iPKP	05 15 57.9	
			iPKS	05 19 15.5	
		Um	i(PKP)	05 15 35.0	
			iPKP	05 15 43.1	
			iPP	05 17 34	
			iPKS	05 18 49.6	
			i(PKS)	05 19 13.6	
			i	05 24 15	
			i	05 26 40	
			iSKSP	05 27 14	
		Ka	iPKP	05 15 59.5	
			iPKS	05 19 15.3	
		Ud	iPKP	05 15 57	
			iPKS	05 19 11	
		New Hebrides Islands (h = 130 km). (PKP) is a small-amplitude precursor to PKP.			
"	1	Up	eP	19 07 06	
			i	19 09 26.6	
			iPP	19 09 40.4	
		Ki	iP	19 06 24.2	
			i	19 06 30.6	
		(cont.)			

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

1966
Dec. 1 (cont.)

Ki	iPP	19 08 42.0	
		microns sec	
	P	Z' 0.1 1.0	
Sk	eP	19 06 57	
	i	19 07 00.5	
	iPP	19 09 24.2	
Gb	iP	19 07 27.7	
	iPP	19 10 11.8	
Um	iP	19 06 42.7	D
	i	19 06 52.9	
	ipP	19 07 22.9	
	eSa	19 22 27	
Ka	iP	19 07 27.2	
Ud	iP	19 07 08	
	i	19 07 17	

Japan. h = 160 km (Um).

" 2

Up	iP	03 15 25.7	
	i	03 15 30.5	
Ki	iP	03 16 02.1	
	i	03 16 06.9	
Sk	iP	03 16 00.8	
Gb	eP	03 15 39	
	i	03 15 43.7	
Um	iP	03 15 39.9	
	i	03 16 00.0	
Ka	iP	03 15 17.8	
Ud	iP	03 15 40	
	i	03 15 45	

Iran (h = 40 km).

" 2

Up	iP	09 44 37.3	
Ki	iP	09 44 23.9	C
Um	eP	09 44 30	
Ud	iP	09 44 48	

North of Halmahera
(h = 90 km).

" 2

Up	iSg	12 35 40.4	
Sk	iSg	12 37 35.5	
Um	iPn	12 35 20.8	
	iSn	12 36 02.7	
	iSg	12 36 20.3	
	D = 380 km = 3.4°.		
Ud	eSn	12 36 21	

Southwest of Finland.
Origin time = 12 34 27.
Explosion?

" 2

Up	iP	13 58 32.8	
		microns sec	
	P	Z' 0.1 0.8	

1966
Dec. 2

Ki	iPn	14 36 50.2	
	eSn	14 37 39	
	iLgl	14 37 52.4	
	D = 460 km = 4.1°.		

Possibly northwest Russia.
Origin time = 14 35 44.
Explosion?

" 2

Up	iP	21 54 33.2	C
		microns sec	
	P	Z' 0.1 0.6	

" 2

Up	i(P)	22 14 25.2	
	i	22 14 57.0	
Ud	iP	22 14 45	

" 3

Ki	iPn	10 09 22.2	
	iSn	10 10 17.7	
	iLgl	10 10 32.0	
	D = 520 km = 4.7°.		
Sk	iSg	10 13 08.8	
Um	iSn	10 11 02.8	
	iSg	10 11 43.1	
	D = 720 km = 6.5°.		

Northwest Russia,
68.0°N, 32.9°E.
Origin time = 10 08 07.
Explosion?

" 3

Ki	iPn	14 13 42.4	
	eSn	14 14 30	
	iSg	14 14 46.8	
	D = 440 km = 4.0°.		

Probably northwest Russia.
Origin time = 14 12 37.
Explosion?

" 3

Up	iPKP	14 31 57.7	D
	i(pPKP)	14 34 12.3	
		microns sec	
	PKP	Z' 0.3 0.6	
Ki	iPKP	14 31 39.3	
	i	14 31 46.0	
	iSKP	14 34 31.5	
Gb	iPKP	14 32 08.2	D
Um	iPKP	14 31 46.3	
	iSKP	14 34 41.3	
Ka	iPKP	14 32 09.4	D
Ud	iPKP	14 31 59	D
	i(pPKP)	14 34 13	

Tonga-Kermadec Islands
(h = 490 km).

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

1966				
Dec.	3	Ki	eSg	15 36 58
		Um	eSg	15 37 26
"	4	Ud	iP	07 34 50
"	4	Gb	i(P)	14 09 09.7
"	4	Um	iP	14 24 33.4
"	4	Um	iP	19 21 25.8
"	4	Ka	i(P)	23 23 10.6
"	4	Gb	iP	23 41 06.3
"	5	Um	iP	07 34 22.5
		Japan (h = 30 km).		
"	5	Ki	ePg	13 42 00
			eSn	13 42 35
			iSg	13 43 00.8
			D = 510 km = 4.6°.	
		Origin time = 13 40 28.		
"	5	Up	iP	20 53 57.6
			microns	sec
			P Z' 0.1	0.6
"	5	Up	iP	22 42 58.5
		Um	iP	22 42 39.5
		Volcano Islands (h = 30 km).		
"	6	Up	iP	02 38 27.5 C
			i	02 38 34.1
		Ka	iP	02 38 32.3
		Ud	iP	02 38 45
		Hindu Kush (h = 60 km).		
"	6	Up	iP	07 29 24.0
			i	07 29 26.6
			microns	sec
			P Z' 0.1	0.8
		Ki	iP	07 28 33.2
			microns	sec
			P Z' 0.1	1.0
		Gb	iP	07 29 45.7
		Um	iP	07 28 59.1
			i	07 29 18.9
		Kurile Islands (h = 25 km).		
		Magn. = 5.7 (Up,Ki).		
"	7	Ki	iP	07 01 05.2
		South of Japan (h = 350 km).		

1966				
Dec.	7	Ki	iP	15 35 52.5
"	7	Up	iP1	17 28 49.1
			iP2	17 28 56.3
			iP3	17 29 07.5
			iPP	17 31 29.3
			microns	sec
			P1 Z' 0.4	1.1
			P2 Z' 0.4	1.0
			P3 Z' 0.4	1.0
		Ki	iP1	17 28 03.3
			iP2	17 28 12.2
			iP3	17 28 21.1
			microns	sec
			P1 Z' 0.2	1.0
			P2 Z' 0.5	1.1
			P3 Z' 0.5	1.1
		Sk	iP1	17 28 37.8
			iP2	17 28 43.7
		Gb	iP1	17 29 09.6
			iP2	17 29 17.4
			iP3	17 29 28.0
			i	17 31 31.5
			iPP	17 32 03.4
		Um	iP1	17 28 24.6
			iP2	17 28 33.5
			iP3	17 28 42.5
			i	17 30 10.1
			iS	17 37 02
		Ka	iP1	17 29 11.3
			iP2	17 29 18.7
			iP3	17 29 32.0
		Kurile Islands (h = 25 km).		
		Magn. = 6.5 (Up,Ki).		
		In the P-wave group it is possible to distinguish at least three clear onsets, here denoted P1, P2 and P3. The average time differences are P2 - P1 = 7 sec and P3 - P1 = 18 sec. Some of these may be pP or P of another shock.		
"	7	Up	i(PP)	18 40 49.0
		Ecuador (h = 80 km).		
"	7	Up	i(P)	18 54 31.6
			i	18 54 36.3
			i	18 54 37.8
			microns	sec
			(P) Z' 0.3	0.5
		Ud	i(P)	18 55 31

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

1966 Dec.	7	Up	iP	19 14 08.6	
"	7	Up	i(P)	19 28 50.0	
			i	19 28 59.3	
			i	19 29 12.8	
				microns sec	
			(P)	Z' 0.3 0.5	
"	7	Up	iP	20 04 36.8	
				microns sec	
			P	Z' 0.1 0.7	
		Gb	iP	20 04 51.2	
"	8	Up	eP	00 05 47	
			i	00 05 49.4	
		Ki	iP	00 05 50.1 C	
			ipP	00 06 27.6	
		Sk	iP	00 05 32.2	
		Um	iP	00 05 52.8 C	
			i	00 05 57.3	
		Ud	iP	00 05 36	
		Mona Passage. h = 150 km (Ki).			
"	8	Up	iP	02 15 30.5	
		Ki	iP	02 15 46.4	
		Sk	iP	02 15 57.7	
		Um	i(P)	02 15 19.5	
		West Pakistan (h = 40 km).			
"	8	Up	iP	11 35 25.1	
			i	11 35 31.6	
		Ki	iP	11 36 58.4	
		Sk	iP	11 36 09.3	
			i	11 36 14.0	
	✓	Um	iP	11 36 08.0 C	
			i	11 36 13.4	
			i	11 36 45.5	
		Ka	iP	11 34 39.6	
			i	11 34 47.0	
		Ud	iP	11 35 30	
			i	11 35 45	
		Yugoslavia (h = 25 km).			
"	8	Sk	eP	23 22 26	
"	9	Up	iP	01 18 04.9	
"	9	Up	iSKP	02 21 23.0	
		Fiji Islands (h = 500 km).			
"	9	Up	iP	03 22 19.6	
			i	03 22 22.4	

1966 Dec.	9	Up	iPKP	04 19 48.2 C	
				microns sec	
			PKP	Z' 0.1 0.9	
		South of Fiji Islands (h = 690 km).			
"	9	Ki	ePn	12 12 16	
			iP^{x}	12 12 24.4	
			iSn	12 13 02.2	
			iSg	12 13 19.5	
			D = 420 km = 3.8°.		
		Probably northwest Russia.			
		Origin time = 12 11 15.			
		Explosion?			
"	9	Up	iP	16 54 51.8	
			i	16 55 08.2	
				microns sec	
			P	Z' 0.3 1.0	
		Ki	iP	16 53 59.0	
				microns sec	
			P	Z' 0.2 1.3	
		Sk	iP	16 54 32.7	
		Gb	iP	16 55 09.8	
		Um	iP	16 54 24.5	
			i	16 54 36.0	
		Ka	iP	16 55 15.5	
		Ud	iP	16 54 54	
			i	16 55 02	
		Aleutian Islands (h = 20 km).			
		Magn. = 6.1 (Up,Ki).			
"	9	Ud	iP	21 35 24	
"	10	Gb	iP	06 30 24.3	
"	10	Up	iP	13 19 15.1	
			i	13 20 30.0	
			i(SKS)	13 29 17	
				microns sec	
			P	Z 3.1 14	
			P	Z' 0.1 0.8	
			(SKS)	E 3.1 10	
			M	E 14 22	
			M	N 11 21	
			M	Z 22 22	
		Ki	eP	13 19 01	
			eS	13 29 24	
				microns sec	
			P	E 1.1 11	
			P	N 0.7 10	
			P	Z 3.4 11	
			S	E 8.8 16	

(cont.)

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

1966
Dec. 10 (cont.)

Ki		microns	sec	
	S	N 2.5	15	
	M	E 15	18	
	M	N 8.5	17	
	M	Z 32	24	
Sk	iP		13 18 55.1	C
	i		13 18 59.7	
Gb	iP		13 19 04.0	
	i		13 19 08.1	
Um	iP		13 19 10.6	C
	i		13 19 13.5	
	i		13 20 01.6	
	i		13 21 48	
	iSKS		13 29 25	
	iS		13 29 36	
Ka	iP		13 19 17.4	
Ud	iP		13 19 03	

Guatemala (h = 70 km).
Magn. = 6.4 (Up,Ki).

" 10

Up	iP		17 13 20.7	
	iPP		17 13 41	
	iS		17 17 01	
	iPcP		17 17 24	
	iLgl		17 19 41	
		microns	sec	
	P	Z' 0.2	0.6	
	S	E 1.1	4	
	S	N 1.2	4	
	S	Z' 0.2	1.0	
	M	E 1.9	13	
	M	N 2.8	12	
	M	Z 3.2	13	

D = 2400 km = 21 1/2°.

Ki	eS		17 19 17	
	iLi		17 22 31	
	i		17 22 45	
		microns	sec	
	S	E 2.1	9	
	M	E 8.3	18	
	M	N 3.3	12	
	M	Z 5.2	14	
Sk	iP		17 14 04.2	
	i		17 19 01.9	
Gb	iP		17 13 21.9	
	iS		17 17 16.3	
Um	iP		17 13 48.2	C
	iS		17 18 00	
	i		17 18 08	
	i		17 18 28	
Ka	iP		17 13 00.2	
	i		17 13 36.0	

(cont.)

1966
Dec. 10 (cont.)

Ka	eS		17 16 25
Ud	iP		17 13 38 C
	i		17 13 51
	i		17 14 24

Turkey (h = 15 km).
Magn. = 5.6 (Up,Ki).
Clear higher-mode waves (paths cross the Black Sea!).

" 10

Up		---		
		microns	sec	
	M	E 4.1	18	
	M	N 5.0	19	
	M	Z 8.0	18	
Ki		---		
		microns	sec	
	M	E 3.7	20	
	M	N 3.3	20	
	M	Z 8.2	20	
Um	iPP		18 27 05	
	iSKS		18 33 09	
	iPS		18 36 20	
	iSS		18 42 06	

New Guinea (h = 30 km).
Magn. = 6.3 (Up,Ki).

" 11

Ud	iP		02 18 00

Unimak Island (h = 50 km).

" 11

Up	iP		15 43 06.1

" 11

Ud	iP		17 34 21 C

Costa Rica (h = 90 km).

" 11

Up	iP		19 58 32.8
Ki	iP		19 57 48.0
	ipP		19 58 02.9
Gb	iP		19 58 54.4
Um	iP		19 58 08.4
Ud	iP		19 58 40 C

Japan. h = 60 km (Ki).

" 11

Up	iSKS		20 16 09
Ki	iP		20 05 05.6
Um	iSKS		20 15 43

Mariana Islands (h = 60 km).

" 11

Ki	ipP		20 11 36.4
Ud	eP		20 11 36
	ipP		20 12 25

Aleutian Islands.
h = 200 km (Ud).

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

1966
Dec. 11 Up ---

			microns sec	
		M	E 1.3	17
		M	N 1.1	18
		M	Z 1.6	17
	Ki	iP	20 21 16.7	
		i	20 21 34.5	
		eSKS	20 31 54	
			microns sec	
		SKS	N 0.4	8
		M	E 1.2	18
		M	N 1.2	19
		M	Z 2.0	18
	Um	iSKS	20 31 59	
	Ud	iP	20 21 51	

Mariana Islands (h = 50 km).

"	12	Gb	iPKP	05 45 45.2

Fiji Islands (h = 560 km).

"	12	Ki	iP	11 35 50.3
"	12	Ki	iP	13 21 41.5
"	12	Up	iP	18 47 53.1
"	12	Up	i(P)	22 25 33.0
"	13	Ki	ePn	08 33 31
			iP^x	08 33 39.0
			iSn	08 34 17.3
			iLgl	08 34 32.1
			D = 420 km = 3.8°.	

Probably northwest Russia.
Origin time = 08 32 31.
Explosion?

"	13	Up	iP	12 28 32.9
			isP	12 29 21.3
			iPP	12 30 06.2
			ipPP	12 30 54.8
			microns sec	
		P	Z' 0.1	0.5
		Ki	iP	12 28 38.6
			ipP	12 29 08.4
			iPP	12 30 25.3
			microns sec	
		P	Z' 0.2	1.0
		Sk	iP	12 28 57.1 D
			iPP	12 30 41.9
		Gb	iP	12 28 54.8
		Um	iP	12 28 29.4 D
			ipP	12 28 57.8

(cont.)

1966
Dec. 13 (cont.)

Um	iPP	12 30 01.2	
Ka	iP	12 28 37.9	
	ipP	12 29 06.9	
Ud	iP	12 28 50	D
	ipP	12 29 16	
	isP	12 29 35	
	iPP	12 30 28	
	i	12 31 30	

Hindu Kush.
h = 140 km (Up,Ki,Um,Ka,Ud).
Magn. = 6.0 (Up,Ki).

"	13	Ud	iPKP	20 35 29 C

Tonga-Kermadec Islands
(h = 420 km).

"	14	Um	i(P)	02 10 12.7
"	14	Up	iP	03 54 29.0
			i!	03 54 46.7
			ipP	03 55 32.8
		Ki	iP	03 53 35.8 C
			i!	03 53 52.0
			i	03 54 49.3
			microns sec	
		P	Z' 0.2	1.5
		Sk	eP	03 54 13
		Um	iP	03 54 14.3
			i	03 55 03.6
			iS	04 02 09
		Ud	iP	03 54 27
			i!	03 54 44
			ipP	03 55 30

Aleutian Islands.
h = 270 km (Up,Ud).

"	14	Ki	iP	06 53 41.3
		Um	iS	07 02 33
		Ud	iP	06 52 55

Atlantic Ocean (h = 30 km).

"	14	Ud	iP	08 21 09
"	14	Up	iP	11 15 48.0
		Ki	iP	11 15 09.9
		Um	iP	11 15 26.5
		Ud	iP	11 15 55 D
			ipP	11 16 10

Japan. h = 60 km (Ud).

"	14	Up	iPKP	11 35 10.8
			i	11 35 13.4

(cont.)

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

1966
Dec. 14 (cont.)

Sk	iPKP	11 35 03.2	
Ud	iPKP	11 35 12	

Kermadec Islands
(h = 300 km).

" 14 Up	iP	14 53 24.5	
	i!	14 53 26.6	
	i	14 53 38.6	
	iLi	14 57 20.8	
		microns sec	
	P	Z' 0.1 0.5	
Ki	iP	14 54 46.5	
	i	14 54 53.1	
		microns sec	
	P	Z' 0.2 1.0	
Sk	iP	14 54 16.6	
	i!	14 54 19.7	
Gb	iP	14 53 26.5	C
Um	iP	14 54 04.7	
	i!	14 54 06.5	
	i	14 54 21.2	
	iLgl	14 59 31.3	
Ka	iP	14 52 48.5	
Ud	iP	14 53 37	
	i!	14 53 39	
	iLg2	14 59 03	

Rumania (h = 160 km).
Magn. = 5.5 (Up,Ki).
Multiple P with a time difference of 2-3 sec between the first small and the second much larger onset (Up,Sk,Um,Ud).

" 14 Up	iP	19 30 43.9	
Sk	iP	19 31 31.1	
Ud	eP	19 30 47	

Greece.

" 14 Up	iPKP	21 26 19.0	
Ki	iP	21 22 01.6	
	i	21 22 17.4	
	ePP	21 26 34	
	eSKS	21 32 26	
	i	21 35 57	
	i	21 36 40	
		microns sec	
	PP	E 0.9 8	
	PP	N 0.5 8	
	PP	Z 1.8 6	
	SKS	E 1.5 9	
	SKS	N 0.7 10	

(cont.)

1966
Dec. 14 (cont.)

Ki		microns sec	
	M	E 6.2 21	
	M	N 4.0 20	
	M	Z 11 21	

(D = 11800 km = 106°).

Sk	iPKP	21 26 18.1	
Gb	i(PKP)	21 26 23.3	
	iPKP	21 26 28.8	
Um	iP	21 22 11	
	iPKP	21 26 17.3	
	iPP	21 26 40	
	iSKS	21 32 42	
	iS	21 34 10	
	i	21 35 50	
	iSS	21 41 39	
Ud	iPKP	21 26 22	
	iPP	21 26 57	

New Guinea (h = 70 km).

" 15 Up	iP	02 18 34.9	C
	i	02 19 44.2	
		microns sec	
	P	Z' 0.2 0.8	
Ki	iP	02 18 29.6	C
		microns sec	
	P	Z' 0.2 1.0	
	M	E 0.8 17	
	M	N 0.5 15	
	M	Z 1.0 16	
Sk	iP	02 18 50.6	C
	ipP	02 19 15.8	
Gb	ipP	02 19 24.3	
Um	iP	02 18 27.9	C
	ipP	02 18 53.8	
	eS	02 26 51	
	i(sS)	02 27 30	
Ka	iP	02 18 42.5	
	ipP	02 19 08.7	
Ud	iP	02 18 49	C
	ipP	02 19 14	

Burma.
h = 100 km (Sk,Um,Ka,Ud).
Magn. = 6.0 (Up,Ki).

" 15 Sk	ePKP	19 28 11	
Um	iPKP	19 28 01.3	
Ud	iPKP	19 28 19	

Tasman Sea (h = 30 km).

" 15 Up	i(P)	21 06 38.3	
" 16 Up	iP	20 51 20.8	

(cont.)

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

1966
Dec. 16 (cont.)

Up	i	20 51 27.1	
	microns	sec	
	P Z'	0.1	0.7
Um	i(P)	20 50 43.4	

" 16 Up iP 21 01 21.8
iS 21 08 44
iSS 21 12 37

	microns	sec	
P	E	0.6	5
P	Z	1.3	5
P	Z'	0.2	1.0
M	E	15	17
M	N	15	20
M	Z	18	17

D = 5800 km = 52°.

Ki iP 21 01 23.9
iSS 21 12 43

	microns	sec	
P	E	1.3	7
P	Z	1.8	7
P	Z'	0.4	1.1
M	E	10	14
M	N	14	15
M	Z	14	15

Sk iP 21 01 43.7
Gb iP 21 01 41.9
Um iP 21 01 17.7
iPP 21 03 11
iS 21 08 27
iSS 21 12 20
Ka iP 21 01 27.0
i 21 01 33.3
i 21 01 42.4
Ud iP 21 01 34
Nepal (h = 10 km).
Magn. = 6.3 (Up,Ki).

" 16 Ki iP 22 22 00.6 C
Ud iP 22 22 10
Nepal-India (h = 5 km).

" 17 Up iP 06 03 03.9
i 06 03 09.1

	microns	sec	
P	Z'	0.1	0.8
M	E	0.8	15
M	N	2.2	16
M	Z	2.2	17

Ki iP 06 02 02.4
iS 06 04 15.9
iSS 06 04 31.6
(cont.)

1966
Dec. 17 (cont.)

Ki

	microns	sec	
P	Z'	0.1	1.0
M	E	2.5	15
M	N	3.5	15
M	Z	2.6	14

D = 1350 km = 12°.

Sk iP 06 02 08.6
i 06 02 13.7
iS 06 04 15.3
Gb iP 06 03 12.6
Um iP 06 02 36.2
i 06 02 43.3
iS 06 05 10.2
iSS 06 05 37.8
Ka iP 06 03 37.6
Ud iP 06 02 44
iPP 06 03 00
eS 06 05 51
Jan Mayen (h = 25 km).
As a rule, P-waves are complicated from this area. Double onsets are recorded at Up, Sk, Um. The onsets at the other stations (Ki, Gb, Ka, Ud) correspond to the second onsets at Up, Sk, Um.

" 17 Up iP 12 20 03.8
Ud i(P) 12 20 40

" 17 Ki iPn 14 50 15.5
iP[x] 14 50 24.8
iSn 14 51 03.9
iLgl 14 51 17.0
D = 440 km = 4.0°.
Probably northwest Russia.
Origin time = 14 49 12.
Explosion?

" 17 Up iPKP 20 36 24.6
i 20 36 33.3
Um iPKP 20 36 14.2
i 20 36 26.3
Ud iPKP 20 36 27
i 20 36 40
South of Kermadec Islands
(h = 180 km).

" 18 Up iP 05 04 50.3 C
iPn 05 05 42.1
iLi 05 14 54
iLgl 05 16 04
(cont.)

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

1966 Dec.	18	(cont.)			
		Up		microns	sec
			P	Z' 0.3	0.5
			Pn	Z' 0.1	0.5
		Ki	iP	05 04 35.1	C
			iPn	05 05 34.7	
			iPcP	05 07 18.6	
				microns	sec
			P	Z' 0.7	0.5
			Pn	Z' 0.2	0.8
		Sk	iP	05 05 06.1	C
			i	05 05 22.1	
			iPn	05 06 19.9	
		Gb	iP	05 05 19.4	
			i	05 06 18.9	
			iPn	05 06 38.0	
		Um	iP	05 04 34.9	C
			i	05 05 07.1	
			iPn	05 05 32.8	
			iPP	05 05 47.3	
		Ka	iP	05 05 06.5	C
			iPP	05 06 28.0	
		Ud	iP	05 05 11	C
			iPn	05 06 19	
		Kazakh SSR.			
		Magn. = 6.5 (Up,Ki).			
		Underground explosion.			
"	18	Up	eP	07 47 47	
		Ki	iP	07 48 50.3	D
		Sk	eP	07 48 26	
		Ud	iP	07 47 52	
		Dodecanese Islands			
		(h = 30 km).			
"	18	Ud	iP	15 42 37	
"	18	Ud	iP	20 43 24	
"	19	Up	i(P)	00 13 46.8	
			i	00 13 49.8	
		Local?			
"	19	Up	iP	08 24 47.1	
"	19	Ki	iPn	15 30 21.2	D
			iSn	15 31 09.4	
			iLg1	15 31 23.8	
			D = 440 km = 4.0°.		
		Um	i(Sg)	15 33 02.9	
		Probably northwest Russia.			
		Origin time = 15 29 18.			
		Explosion?			

1966 Dec.	19	Up	iP	23 03 33.3	C
				microns	sec
			P	Z' 0.1	0.5
		Ud	iP	23 03 37	
"	20	Ki	iP	00 34 44.9	C
				microns	sec
			P	Z' 0.1	1.1
		Sk	iP	00 35 14.2	
		Um	iP	00 35 15.6	
		Ud	iP	00 35 39	
		Alaska (h = 30 km).			
"	20	Up	iP	01 07 10.1	D
		Ki	iP	01 06 10.3	
				microns	sec
			P	Z' 0.1	0.8
		Sk	iP	01 06 39.8	D
		Gb	iP	01 07 23.3	
		Um	iP	01 06 41.1	D
		Ud	iP	01 07 04	D
		Alaska (h = 30 km).			
"	20	Up	iP	12 40 16.2	
			iPKP	12 44 18.6	
			i!	12 44 41.1	
			iPKKP	12 55 46.2	
		Ki	iPKP	12 44 23.0	
			iPP	12 45 11.5	
				microns	sec
			PP	Z' 0.1	1.1
		Sk	ePKP	12 44 15	
		Gb	iP	12 39 57.6	
			iPKP	12 44 11.0	
		Um	iPKP	12 44 20.7	
			iPP	12 45 00.4	
			i	12 45 46.1	
			i(pPP)	12 47 01.5	
			i	12 58 11.0	
		Ka	iPKP	12 44 11.9	
			i	12 44 24.2	
		Ud	iP	12 40 06	
			iPKP	12 44 11	
			i!	12 44 32	
			i(pPP)	12 46 54	
			iPKKP	12 55 55	
		Argentina (h = 590 km).			
"	20	Gb	i(P)	13 04 00.1	
		Ud	eP	13 03 42	
			i(Sg)	13 04 06	
"	20	Up	iP	13 20 13.6	
		(cont.)			

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

1966 Dec.	20	(cont.)				
		Up	ipP	13 20 22.3		
		Ki	eP	13 19 42		
			ipP	13 19 50.7		
		Um	iP	13 19 55.1		
			ipP	13 20 03.5		
		Ud	iP	13 20 20		
			ipP	13 20 29		
		Volcano Islands.				
		h = 30 km (Up,Ki,Um,Ud).				
"	20	Um	iP	13 27 40.0		
		Ud	iP	13 28 29		
"	20	Up	iP	15 41 47.9 C		
			iPcP	15 42 09.6 very late		
			ePP	15 44 30		
				microns	sec	
			P	Z 0.9	5	
			P	Z' 0.3	1.0	
			M	E 1.2	16	
			M	N 1.7	17	
			M	Z 1.6	17	
		Ki	iP	15 41 13.2 C		
			iPcP ???	15 41 48.2 very late		
			iPP	15 43 47.8		
				microns	sec	
			P	Z' 0.7	1.7	
			M	E 2.8	17	
			M	N 1.0	17	
			M	Z 3.2	17	
		Sk	iP	15 41 21.5 C		
			iPcP	15 41 40.0		
		Gb	iP	15 41 47.7 C		
			i	15 42 31.3		
		Um	iP	15 41 33.0 C		
			iPP	15 44 16.4		
		Ka	iP	15 42 01.1 C		
		Ud	iP	15 41 36 C		
			iPcP	15 41 57		
			iPP	15 44 12		
		Nevada. Origin time = 15 30 00. Magn. = 6.4 (Up,Ki), from P-waves only. Underground nuclear explosion. Surface waves, incl. Love waves, are recorded by the long-period instruments. The arrivals of PcP are generally late and those of PP generally early, compared to P and assuming a surface focus.				
"	20	Up (cont.)	iPP	16 37 45.1		
1966 Dec.	20	(cont.)				
		Um	ePP	16 37 36		
			i	16 37 47.5		
		Ud	ePP	16 37 56		
		Banda Sea (h = 440 km).				
"	20	Up	iP	18 52 11.6		
			i	18 52 18.7		
			eSKS	19 02 30		
				microns	sec	
			P	Z 1.3	6	
			P	Z' 0.1	0.7	
			M	E 3.9	16	
			M	N 16	22	
			M	Z 4.3	17	
		Ki	iP	18 51 52.8		
			i	18 52 00.5		
				microns	sec	
			P	Z' 0.4	1.5	
			M	E 3.0	19	
			M	N 7.2	22	
			M	Z 5.6	18	
		Sk	iP	18 52 16.2		
			i	18 52 24.3		
			i	18 52 46.2		
		Gb	iP	18 52 35.8		
		Um	iP	18 51 59.0		
			i	18 52 06.5		
			iS	19 02 07		
		Ka	iP	18 52 31.0		
			i	18 53 28.5		
		Ud	iP	18 52 14		
			i	18 52 21		
		Luzon (h = 40 km). Magn. = 6.2 (Up,Ki). Multiple P (alternatively P and pP), second onset larger than the first, time interval about 7.5 sec (Up, Ki, Sk, Um, Ud).				
"	20	Um	iP	22 03 09.0 C		
		Volcano Islands (h = 20 km).				
"	21	Up	eP	05 40 54		
		Ki	iP	05 40 03.8 C		
		Gb	iP	05 41 16.7		
		Um	iP	05 40 28.7		
		Ud	iP	05 41 00		
		Kamchatka (h = 30 km).				
"	21	Um (cont.)	iP	06 41 21.1		

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

1966					
Dec.	21	(cont.)			
		Ud	e(P)	06 41 36	
		Volcano Islands			
		(h = 30 km).			
"	21	Ud	iP	07 39 54	
"	21	Up	i(PKP)	09 10 36.1	
			i	09 10 46.1	
			iPKP	09 10 50.6	
			iPP	09 13 37.6	
			iSKP	09 13 58.8	
				microns sec	
			SKP Z'	0.4 1.5	
		Ki	iPKP	09 10 37.8 C	
			iSKP	09 13 34.7	
				microns sec	
			PKP Z'	0.4 1.3	
			SKP Z'	1.2 2.5	
		Sk	iPKP	09 10 45.4	
			iSKP	09 13 53.0	
		Gb	i(PKP)	09 10 49.2	
			iPKP	09 10 57.0	
			iPP	09 13 52.9	
			iSKP	09 14 09.6	
		Um	i(PKP)	09 10 33.0	
			iPKP	09 10 43.5	
			iPP	09 12 58.8	
			iSKP	09 13 45.9	
			iPKS	09 14 07	
			iSKSP	09 22 40	
		Ka	i(PKP)	09 10 40.8	
			iPKP	09 10 48.8	
			iSKP	09 14 09.1	
			i	09 14 19.4	
		Ud	iPKP	09 10 43	
			iPP	09 13 29	
			iSKP	09 14 00	
		New Hebrides Islands			
		(h = 250 km).			
"	21	Ki	iP	11 50 58.0	
		Ud	iP	11 51 23	
		Mindanao (h = 100 km).			
"	21	Ud	iP	21 22 32	
"	21	Ud	iP	21 25 23 C	
"	21	Up	iP	22 20 04.8	
		Ki	iP	22 20 07.6 C	
		Sk	iP	22 20 25.7	
		Gb	iP	22 20 25.0	
		(cont.)			

1966				
Dec.	21	(cont.)		
		Um	iP	22 20 00.8 C
		Ka	iP	22 20 10.1 C
		Ud	iP	22 20 18 C
		Nepal-India (h = 30 km).		
"	22	Ud	iP	01 39 41
"	22	Ki	iP	02 22 46.7
		Ud	iP	02 23 42
			i(pP)	02 23 54
		Unimak Island (h = 30 km).		
"	22	Up	iP	02 30 51.8
		Ud	iP	02 30 52
		Unimak Island (h = 30 km).		
"	22	Ud	iP	02 43 35
"	22	Ud	iP	03 04 54
"	22	Ud	iP	03 17 38
"	22	Ud	iP	05 12 35 C
"	22	Ud	iP	12 37 29
		Uzbekistan.		
"	22	Up	i(P)	13 38 22.8
		Ka	i(P)	13 37 14.4
"	22	Up	i(P)	13 45 46.4
"	22	Up	iP	17 37 31.6
		Um	iP	17 37 07.0
		Ud	iP	17 37 33
		Kurile Islands (h = 40 km).		
"	22	Sk	iP	17 59 42.8
		Um	i(P)	17 59 58.1
			iPP	18 00 13.7
		Ud	iP	17 59 06
		Greece.		
"	22	Up	iP	19 34 46.0
		Ki	iP	19 33 57.0
		Um	iP	19 34 20.0
		Ud	iP	19 34 49
		Kurile Islands (h = 80 km).		
"	23	Ud	iP	00 45 22
"	23	Up	iPg	08 21 23.5
		(cont.)		

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

1966					
Dec.	23	(cont.)			
		Up	iS[x]	08 22 01.0	
			iSg	08 22 12.2	
			D = 370 km = 3.3°.		
		Sk	eLgl	08 24 01	
		Um	i	08 22 43.3	
			iSg	08 22 49.8	
		Ud	iPn	08 21 44	
			eSn	08 22 47	
			iLgl	08 23 07	
			D = 600 km = 5.4°.		
		Gulf of Finland, 59.6°N, 24.2°E.			
		Origin time = 08 20 19.			
		Explosion?			
		Sg dominates over Lgl at distances below 5.0°, whereas the reverse is true for greater distances.			
"	23	Up	iP	14 43 54.9	
		Ud	iP	14 44 02	
		Sumatra (h = 60 km).			
"	23	Up	e(PKP)	16 09 14	
			iSKKS	16 16 53	
			eSKSP	16 19 42	
			microns sec		
			M E	8.1 21	
			M N	17 23	
			M Z	27 25	
		Ki	iP	16 04 47.3	
			iPKP	16 08 47.1	
			iSKS	16 15 23	
			iSKKS	16 16 14	
			iPS	16 18 46	
			iPPS	16 19 55	
			microns sec		
			SKS E	4.3 6	
			SKS N	3.0 6	
			M E	8.4 23	
			M N	6.3 20	
			M Z	16 21	
			(D = 12200 km = 110°).		
		Sk	iPKP	16 08 58.9	
		Gb	iPKP	16 09 23.6	
		Um	ePKP	16 08 52	
			i	16 09 12.2	
			iSKS	16 15 29	
			iPS	16 18 55	
		Ud	iPKP	16 09 16	
		New Guinea (h = 40 km).			
		Magn. = 6.6 (Up,Ki).			

1966				
Dec.	23	Up	iP	16 20 11.2
		Ki	iP	16 19 49.8
"	24	Up	iP	06 13 28.2
		Ki	iP	06 12 57.3
		Sk	eP	06 13 26
		Um	iP	06 13 10.4
		Ud	iP	06 13 37 C
		Volcano Islands (h = 20 km).		
"	24	Ki	iPn	10 17 06.3
			iSn	10 18 02.3
			iLgl	10 18 21.3
			D = 520 km = 4.7°.	
		Sk	iSg	10 20 54.8
		Um	iSn	10 18 47.8
			iSg	10 19 27.4
			D = 720 km = 6.5°.	
		Northwest Russia, 67.9°N, 32.9°E.		
		Origin time = 10 15 53.		
		Explosion?		
"	24	Up	iP	22 39 06.9 D
			i	22 39 37.7
		Ki	iP	22 38 01.2
			i	22 38 03.8
		Sk	eP	22 38 30
		Gb	iP	22 39 10.4
		Um	iP	22 38 33.2
			i	22 38 43.3
		Ud	iP	22 38 58
		Alaska (h = 110 km).		
"	25	Up	iP	05 52 02.1
			i	05 52 09.7
		Ki	iP	05 52 36.9
		Sk	iP	05 52 40.7
		Ud	iP	05 52 10
		Arabian Sea (h = 30 km).		
"	25	Ki	eP	05 59 37
		Arabian Sea (h = 30 km).		
"	25	Up	iP	12 00 41.1
		Ki	iPP	12 02 35.3
		North Atlantic Ocean (h = 30 km).		
"	25	Up	iP	17 14 30.0
		Um	iP	17 14 24.6
		Ka	iP	17 14 38.3
		(cont.)		

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

1966
Dec. 25 (cont.)
Ud iP 17 14 46
Hindu Kush (h = 90 km).

" 25 Ud iP 19 57 10
i 19 57 21
South of Rhodes Island
(h = 50 km).

" 25 Up iP 20 49 38.8

" 25 Up iP 23 14 13.7
microns sec
P Z' 0.1 0.9
Ki iP 23 13 20.6 C
Sk iP 23 13 54.0 C
Um iP 23 13 46.6
Ud iP 23 14 16 C
Aleutian Islands (h = 50 km).

" 26 Up iP 01 35 30.2
Ki iP 01 35 40.3
Sk iP 01 35 56.3
Um iP 01 35 28.9
Ud iP 01 35 51 D
Hindu Kush (h = 180 km).

" 26 Up iP 04 26 30.2 C
Ki iP 04 27 19.6
Ud iP 04 26 53
Turkey (h = 60 km).

" 26 Up iP 14 03 33.7

" 27 Up iP 00 57 40.8
i 00 57 46.7

" 27 Up iP 01 33 39.6 C
ipP 01 33 59.2
microns sec
P Z' 0.1 1.0
Ki iP 01 33 00.3
ipP 01 33 19.5
microns sec
P Z' 0.1 1.1
Sk iP 01 33 33.8 C
ipP 01 33 51.9
Gb iP 01 34 00.1 C
Um iP 01 33 17.6 C
ipP 01 33 36.9
Ud iP 01 33 43 C
ipP 01 34 02
Japan.
(cont.)

1966
Dec. 27 (cont.)
h = 70 km (Up,Ki,Sk,Um,Ud).
Magn. = 5.7 (Up,Ki).

" 27 Up iPKP 12 09 35.9
Gb iPKP 12 09 46.0
Um iPKP 12 09 31.1
Ud iPKP 12 09 39
Tonga-Kermadec Islands
(h = 520 km).

" 27 Um iP 13 13 46.1

" 27 Ki iP 14 05 10.7
Sk iP 14 05 56.0
Gb iP 14 07 07.5
Um iP 14 06 00.8
i 14 06 09.9
Ud iP 14 06 37 C
i 14 06 45
Svalbard (h = 30 km).

" 27 Up iP 17 43 22.6
Ki iP 17 42 55.1
Sk iP 17 43 20.1
Mariana Islands
(h = 300 km).

" 27 Up i(P) 19 08 46.2
Ud i(P) 19 08 14

" 27 Up iP 21 34 53.1
Ki iP 21 34 43.3
Um iP 21 34 50.4
eS 21 45 09
El Salvador (h = 70 km).

" 28 Up iP 04 08 33.2
Ud iP 04 08 48.6
Central Asia.

" 28 Up iP 08 32 39.2 C
iX 08 35 58.8
iPKP 08 36 37.9
iPP 08 37 10
iSKS 08 43 12
iS 08 44 52
iPS 08 46 43
microns sec
P Z 18 22
PKP Z' 0.3 1.5
PP E 6.4 7
PP Z 9.5 6
(cont.)

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

1966 Dec. 28 (cont.)

Up		microns	sec	
	SKS	E 12	13	
	SKS	N 6.1	14	
	S	N 27	15	
	M	E 410	23	
	M	N 160	21	
	M	Z 620	24	
	(D = 12400 km = 111 1/2°).			
Ki	eP	08 32 53		
	iX	08 36 25.8		
	iPKP	08 36 47.0		
	iPP	08 37 31		
	iSKS	08 43 25		
	iS	08 45 24		
	iPS	08 46 58		
	iPKKP	08 47 30.0		
	i	08 50 22.9		
		microns	sec	
	P	E 2.5	17	
	P	Z 9.5	20	
	PKP	Z' 0.6	1.5	
	PP	E 6.4	9	
	PP	N 2.0	7	
	PP	Z 11	8	
	SKS	E 12	9	
	S	N 18	15	
	PKKP	Z' 0.5	1.8	
	M	E 310	24	
	M	N 140	20	
	M	Z 520	23	
	(D = 12700 km = 114 1/2°).			
Sk	iP	08 32 38.1	C	
	iX	08 36 08.6		
	iPKP	08 36 35.8		
	iPP	08 37 09.2		
	i(PKKP)	08 47 39.1		
	iPKKP	08 47 44.6		
Gb	iP	08 32 28.0		
	iX	08 35 55.6		
	iPP	08 36 49.6		
	iPKKP	08 48 02.6		
	iP'P'	08 56 11.9		
Um	iP	08 32 47	C	
	i	08 35 49		
	iX	08 36 20.8		
	iPKP	08 36 44.4		
	iPP	08 37 24		
	iPKKP	08 47 28.5		
Ka	iPKP	08 36 36.7		
	iPP	08 37 01.4		

(cont.)

1966 Dec. 28 (cont.)

Ka	iPKKP	08 47 56.8	
Ud	iP	08 32 35	
	iPKP	08 36 33	
	i	08 36 51	
	iPP	08 37 00	
	iPKKP	08 47 47	
	i	08 47 57	

Chile (h = 50 km).
Magn. = 7.9 (Up,Ki).
An unidentified phase (X) is found at Up, Ki, Sk, Gb, Um, in average 3 28 after P, possibly another earthquake in the same location. - Clear G-waves are recorded on long-period N.

" 28	Up	iP	20 43 23.8	
" 29	Up	iP	06 33 29.9	
		i	06 33 31.7	
		i	06 33 43.0	
		i	06 37 37.5	
		microns	sec	
		P Z'	0.1	0.5
	Ki	iP	06 35 00.5	
	Sk	eP	06 34 22	
		i	06 34 26.2	
	Um	iP	06 34 11.8	
		i	06 34 26.9	
	Ka	iP	06 32 56.0	
	Ud	iP	06 33 46	

Rumania (h = 120 km).

" 29	Ki	eP	07 47 39

South of Turkey (h = 60 km).

" 29	Ki	iP	11 13 56.0
" 29	Up	iP	11 24 46.6
	Ka	iP	11 24 44.9
	Ud	iP	11 24 49
" 29	Up	eSS	12 36 44
	Ki		---
		microns	sec
		M E	1.5 20
		M N	1.1 21
		M Z	2.5 20
	Um	i(SS)	12 37 00

Easter Island (h = 30 km).

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

1966
Dec. 29 Up iP 18 35 31.8

" 29 Up iP 21 43 36.8 C
Ki iP 21 43 53.6
Sk iP 21 44 04.9
Ud iP 21 43 53 C
i 21 44 14
West Pakistan (h = 15 km).

" 29 Up iP 21 58 55.1

" 29 Up ---
microns sec
M E 1.1 20
M N 1.9 19
M Z 1.6 20
Ki ---
microns sec
M E 1.1 20
M N 1.0 20
M Z 2.3 17
Um iSS 22 56 36
Easter Island (h = 30 km).

" 29 Um iPKP 23 28 14.7
New Zealand (h = 170 km).

" 30 Up iP 04 50 36.4
Ki iP 04 49 42.1
Kamchatka (h = 30 km).

" 30 Ki iSg 10 24 57.9
Sk iSg 10 25 02.6
Possibly Nordlands Fylke, Norway.

" 31 Ki e(P) 00 37 32
microns sec
M N 0.4 13
Sk e(P) 00 38 14
Um i(P) 00 38 24.4
Ud iP 00 39 02
Lake Baikal region.

" 31 Up iP 11 07 40.0

" 31 Um iP 15 41 47.6
Atlantic Ocean (h = 30 km).

" 31 Up i(P) 18 38 59
iPKP 18 42 04.7
iX 18 42 21.7
ePP 18 44 13
(cont.)

1966
Dec. 31 (cont.)
Up i 18 44 40.9
microns sec
PKP Z 1.3 6
PP N 14 30
PP Z 24 30
M E 450 22
M N 620 22
M Z 760 23
(D = 14050 km = 126 1/2°).
Ki e(P) 18 38 33
iPKP 18 41 50.4
iX 18 42 08
ePP 18 43 24
i 18 44 21.5
iPKKP 18 52 16.5
iSKSP 18 53 27
microns sec
PP N 1.6 12
PP Z 5.7 13
M E 300 23
M N 240 22
M Z 590 23
(D = 13350 km = 120°).
Sk iPKP 18 42 00.7 C
iX 18 42 16.0
Gb i(PKP) 18 42 30.9
i 18 43 16.0
i 18 45 01.1
Um iP 18 38 39
iPKP 18 41 56.2
iX 18 42 10.7
iPP 18 43 46
iPKKP 18 51 48.3
i 18 51 54.6
Ud iPKP 18 42 08
iX 18 42 22
i 18 42 50
i(PP) 18 44 32
Santa Cruz Islands (h = 30 km).
Magn. = 7.1 from PP and = 8.2 from surface waves (Up, Ki). X is an unidentified phase, appearing 14-17 sec after PKP (Up, Ki, Sk, Um, Ud).

" 31 Up iP 18 55 31.4 C
i 18 55 41.3
Um iP 18 55 06.5
(cont.)

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

1966
Dec. 31 (cont.)

Um	i	18 55 21.4	
Ud	eP	18 55 36	
" 31 Up	iPKP	19 12 13.2	
Ki	iPKP	19 12 00.7	C
Sk	iPKP	19 12 11.9	C
Gb	iPP	19 14 44.2	
Um	iPKP	19 12 06.1	
	iPKS	19 15 29.0	
Ud	iPKP	19 12 19	

Santa Cruz Islands
(h = 30 km).

" 31 Um	iP	19 18 34.4	
" 31 Ki	iPKP	19 57 18.0	
Sk	iPKP	19 57 29.2	C
Um	iPKP	19 57 24.7	C
Ud	iPKP	19 57 40	

Santa Cruz Islands
(h = 30 km).

" 31 Ki	iPKP	21 18 31.2	
Um	iPKP	21 18 36.8	C

Santa Cruz Islands
(h = 30 km).

" 31 Up	i(PKP)	22 34 28.2		
	iPP	22 36 08		
		microns	sec	
	PP	E	1.8	16
	PP	N	6.2	23
	M	E	28	18
	M	N	49	18
	M	Z	65	19
Ki	i(PKP)	22 34 17.5		
	ePP	22 35 31		
	iSKSP	22 45 22		
		microns	sec	
	PP	E	1.8	15
	PP	N	2.5	16
	M	E	39	18
	M	N	42	20
	M	Z	74	20
Sk	iPKP	22 34 10.0		
	iX	22 34 28.6		
Gb	iPKP	22 34 26.3		
	iX	22 34 35.7		
Um	iPKP	22 34 03.7		
	i	22 34 09.0		
	i	22 34 14.8		
	ePKKP	22 44 12		

(cont.)

1966
Dec. 31 (cont.)

Um	i	22 47 06.0	
Ud	iPKP	22 34 26	C
	i	22 34 36	

Santa Cruz Islands
(h = 30 km).
Magn. = 7.1 (Up,Ki).
The phase X (Sk, Gb) corresponds to X in Dec. 31, 18 42. (PKP) at Up, Ki correspond better to this X than to PKP.

Markus Båth
April 27, 1967