Seismological Laboratory
Uppsala

PRELIMINARY

SEISMOLOGICAL BULLETIN

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, and U M E Å

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°49.0'N,	20°14.1'E;	h = 20 m

R e m a r k s.

(1) Our Preliminary Seismological Bulletins for the months of August-December, 1960, have not yet been issued, but they will be sent as soon as they are ready. From this bulletin on, we have resumed giving amplitudes and magnitudes (Gutenberg-Richter scale, M), whenever possible.

(2) Umeå is a new seismograph station, situated near the Baltic coast of Sweden (coordinates see above). The station is housed in a water tower, which is no longer in use. It is situated directly on bed-rock, which here consists mainly of gneiss (biotite mica gneiss in contact with pegmatite). The station started its operation on October 10, 1960. Like Skalstugan and Göteborg it is equipped with a short-period vertical seismograph of type Grenet-Coulomb of high sensitivity. The records are sent weekly to the Seismological Laboratory, Uppsala, where they are measured and stored. In the bulletins Umeå will be abbreviated Um. - Umeå has shown to be a very good location with very small background noise and with a sensitivity which probably surpasses that of any other station in Sweden.

J A N U A R Y 1 - 31, 1961

1961
Jan 1 Ki iP 02 14 29

" 1 Up iP 13 34 34
i 13 34 39
Ki eP 13 34 12
Sk iP 13 34 34

" 1 Ki iP 14 04 22
Near north coast of Luzon, Philippine Islands.
(h = 80 km).

" 1 Ki iP 16 34 39

" 1 Up iPKP 16 56 29
Ki iPKP 16 56 28
Fiji Islands region.
(h = 660 km).

" 1 Ki iP 18 50 24
Arctic Ocean (h = 25 km).

" 1 Ki iPKP 19 52 07
Bouvet Island region.
(h = 90 km).

" 1 Up iPKP 22 30 51
i 22 31 06
Sk iPKP 22 30 41 C
Kermadec Islands region.
(h = 120 km).

" 2 Ki iP 02 04 00

" 2 Up iPKP 10 30 47 C
i 10 31 07
iPP 10 32 41
i 10 34 23
iSKS 10 37 48

		microns	sec
PKP	Z'	0.5	1.5
SKS	N	0.4	3
M	E	4.5	23
M	N	8.1	23
M	Z	10	23

(D = 14100 km = 127°).

Ki iPKP 10 30 33 C
i 10 30 53
eSKS 10 37 15
iPKKP 10 40 40
ePS 10 41 46

		microns	sec
PKP	Z'	0.5	1.5

cont.

1961
Jan 2 cont.

	SKS	E	0.8	9
	SKS	N	0.7	11
	PKKP	Z'	0.3	1.5
	M	E	6.4	23
	M	N	2.6	20
	M	Z	5.5	20

(D = 13200 km = 119°).

Sk iPKP 10 30 44 C
i 10 31 04
Gb iPKP 10 30 54 C
i 10 31 14
i(PKS) 10 34 13
Santa Cruz Islands region.
(h = 160 km).

" 2 Up eP 10 43 20
i 10 43 50
Sk eP 10 43 58

" 2 Ki iP 13 02 17
i 13 02 41
Near Mindanao, Philippine Islands (h = 70 km).

" 2 Up iP 16 32 05
Ki iP 16 31 13
Near east coast of Kamchatka.
(h = 40 km).

" 3 Up eP 00 52 31
i 00 52 36

" 3 Up iP 02 41 24 D
Ki iP 02 40 36
Kurile Islands (h = 40 km).

" 3 Ki iP 11 54 38
Banda Sea (h = 70 km).

" 3 Ki i(P) 13 24 53

" 3 Sk iP 22 41 24

" 4 Ki iP 02 02 13 C
Celebes Sea (h = 630 km).

" 4 Ki eP 12 16 53

" 4 Ki iP 12 17 09
i 12 17 20
Sk iP 12 17 16
Near coast of Guerrero, Mexico (h = 40 km).

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

1961						
Jan	4	Up	iP	20 46 21		
"	5	Gb	iP	06 38 08	D	
"	5	Up	iP	13 29 24	C	
"	5	Up	iP	14 17 28	C	
			iPP	14 19 59		
			iS	14 26 21		
			iP'P'	14 45 39		
			i	14 45 54		
				microns sec		
			P	N 1.2 6		
			P	Z' 0.4 1.0		
			PP	N 0.8 5		
			PP	Z 1.3 6		
			S	E 3.3 24		
			S	N 3.9 13		
			P'P'	Z' 0.1 1.0		
			M	E 20 21		
			M	N 51 22		
			M	Z 60 22		
			D = 7550 km = 68°.			
		Ki	iP	14 16 34	C	
			ePP	14 18 43		
			iS	14 24 43		
			eP'P'	14 45 55		
			i	14 46 20		
				microns sec		
			P	N 1.6 9		
			P	Z 4.1 9		
			P	Z' 0.2 1.0		
			PP	N 2.2 9		
			PP	Z 1.9 9		
			S	E 2.1 10		
			S	N 2.5 11		
			P'P'	Z' 0.7 3.0		
			M	E 28 19		
			M	N 18 17		
			M	Z 36 21		
			D = 6650 km = 60°.			
		Sk	iP	14 17 06	C	
			iP'P'	14 45 48		
		Gb	iP	14 17 43		
			iPcP	14 18 05		
		Andreanof Islands, Aleutian Islands (h = 40 km). Magn. = 6.6 (Up, Ki).				
"	5	Up	iP	15 17 01		
				microns sec		
			P	Z' 0.1 0.5		
"	5	Up	iP	15 20 37	C	
		cont.				

1961						
Jan	5		iPcP	15 21 05		
cont.				microns sec		
			P	Z' 0.1 0.6		
		Ki	iP	15 19 50	C	
				microns sec		
			P	Z' 0.2 1.0		
		Sk	iP	15 20 26	C	
		Gb	iP	15 20 58		
		Kurile Islands (h = 20 km).				
"	5	Up	ePKP	16 12 17		
			iPP	16 13 01		
			i	16 13 44		
				microns sec		
			PP	Z 1.1 3		
			PP	Z' 0.2 1.4		
			M	E 3.6 21		
			M	N 5.3 20		
			M	Z 5.5 20		
			(D = 12200 km = 110°).			
		Ki	iP	16 07 58		
			i	16 11 21		
			iPP	16 12 24		
			i	16 19 25		
			i(PS)	16 21 43		
				microns sec		
			PP	E 1.2 6		
			PP	N 0.6 6		
			PP	Z 2.3 6		
			PP	Z' 0.4 1.5		
			M	E 4.8 21		
			M	N 2.6 18		
			M	Z 5.4 21		
			(D = 11650 km = 105°).			
		Sk	ePKP	16 12 20		
			iPP	16 12 46		
		Gb	i(PKP)	16 12 07		
			iPP	16 13 20		
		New Guinea (h = 110 km). Magn. = 7.0 (Up, Ki).				
"	5	Up	iPKP	18 17 11		
			iPP	18 19 52		
			iPKS	18 20 42		
				microns sec		
			PKP	Z 0.6 4		
			PKP	Z' 0.1 1.0		
			PP	Z 0.9 5		
			PKS	E 1.8 10		
			PKS	N 3.6 12		
			PKS	Z' 0.1 1.2		
			M	E 12 22		
			M	N 15 20		
			M	Z 17 24		
		cont.				

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

1961 Jan 5 cont.

(D = 15100 km = 136°).

Ki iPKP 18 16 55
iPP 18 19 05
iPKS 18 20 19

		microns	sec
PKP	Z	0.8	6
PKP	Z'	0.4	1.1
PP	N	0.6	10
PP	Z	2.2	10
PKS	E	2.1	10
PKS	N	1.6	9
M	E	14	21
M	N	11	22
M	Z	26	22

(D = 14350 km = 129°).

Sk iPKP 18 17 04
iPKS 18 20 36
i 18 20 47

Gb iPKP 18 17 12
i 18 17 17
iPKS 18 20 53

Loyalty Islands region.
(h = 120 km).

" 5 Up iPKP 18 33 57
iPP 18 36 29
iPKS 18 37 27

		microns	sec
PKS	E	3.2	11
PKS	N	5.6	14
PKS	Z'	0.1	1.0
M	E	14	22
M	N	26	20
M	Z	28	21

(D = 15100 km = 136°).

Ki iPKP 18 33 42 C
i 18 33 53
iPP 18 35 50
iPKS 18 37 04

		microns	sec
PKP	Z'	0.3	1.2
PP	E	1.2	14
PP	Z	4.3	10
PKS	E	2.9	11
PKS	N	2.9	10
M	E	23	22
M	N	17	22
M	Z	43	22

(D = 14350 km = 129°).

Sk iPKP 18 33 52 C
iPKS 18 37 23

Gb iPKP 18 33 55
ePP 18 37 03

Loyalty Islands.
(h = 120 km).

1961 Jan 5 Up iP 18 48 53
Andreanof Islands, Aleutian Islands (h = 30 km).

" 6 Up iPKP 00 17 07
i 00 17 22

		microns	sec
PKP	Z'	0.1	1.0

Ki iPKP 00 16 45
Sk iPKP 00 17 02 D
Gb ePKP 00 17 15
i 00 17 29

Kermadec Islands region.
(h = 170 km).

" 6 Up iP 01 02 37

" 6 Up iP 01 31 35
iPcP 01 31 59
Ki iP 01 30 52
i 01 30 55
eS 01 39 12

		microns	sec
P	Z'	0.1	1.3
M	E	0.3	19
M	Z	0.3	19

D = 6850 km = 61½°.

Sk iP 01 31 27
Gb iP 01 31 58
Hokkaido, Japan (h = 20 km).

" 6 Up e(Sg) 05 16 20
Ki iPg 05 12 50
i 05 12 54
iSg 05 13 18
D = 240 km = 2.2°.
Sk e(Sn) 05 14 10
eSg 05 14 28
D = 490 km = 4.4°.
On the coast of Norway, near Lofoten, 68°N, 15°E.
Origin time = 05 12 05.

" 6 Up iP 06 32 36

		microns	sec
P	Z'	0.1	1.0

Ki iP 06 31 45
Andreanof Islands, Aleutian Islands (H = 50 km).

" 6 Up iP 07 16 16
Ki iP 07 15 23
Sk iP 07 16 00
Gb iP 07 16 37
Kamchatka (h = 20 km).

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

1961
Jan 6 Sk iP 11 01 07 D
Off south coast of Mexico.
(h = 50 km).

" 6 Ki iP 23 20 00
Kamchatka (h = 290 km).

" 7 Ki iP 10 37 17 C
iS 10 42 26
microns sec
P Z' 0.2 1.0
Sk iP 10 36 49
Gb eP 10 35 54
Dodecanese Islands.
(h = 130 km).

" 7 Up iP 15 57 50 C
iS 16 01 52
microns sec
P Z' 0.4 0.6
M E 0.4 14
M N 1.7 13
M Z 1.6 13
D = 2450 km = 22°.
Ki iP 15 59 04
microns sec
P Z' 0.1 1.1
M E 1.1 17
M N 0.8 16
M Z 1.0 17
Sk iP 15 58 31
Gb iP 15 57 37
Near west coast of Greece.
(h = 20 km).

" 7 Ki e(P) 17 01 49

" 7 Up iPKP 18 35 44
i 18 35 53
iPKKP 18 45 43
Ki iPKP 18 35 59
i 18 36 10
microns sec
PKP Z' 0.3 1.5
Sk iPKP 18 35 49
Sandwich Islands.
(h = 90 km).

" 7 Up i(P) 18 38 23
i 18 38 30

" 7 Up i(P) 19 05 38
Ki i(P) 19 04 37

1961
Jan 7 Up iP 21 49 07
Ki iP 21 48 48 C
Gb iP 21 49 25

" 8 Ki iP 01 28 30
Halmahera region.
(h = 110 km).

" 8 Up -
microns sec
M N 1.0 17
Ki iP 03 09 37
Halmahera region.
(h = 120 km).

" 8 Up iPKP 10 19 43 D
microns sec
PKP Z' 0.2 0.6
Ki iSKP 10 22 18
Sk ePKP 10 19 35
Gb iPKP 10 19 52
Kermadec Islands region.
(h = 540 km).

" 9 Up iPKP 08 14 07
Gb iPKP2 08 14 30
Um ePKP 08 13 49
Kermadec Islands region.
(h = 25 km).

" 9 Ki i(P) 08 57 20

" 9 Ki iP 11 18 14 D
i 11 18 27
Sk iP 11 17 52 C
Um iP 11 18 13
Leeward Islands (h = 25 km).

" 9 Ki iP 11 22 27 D
Sk iP 11 22 04
Leeward Islands (h = 50 km).

" 9 Up iP 19 12 54

" 9 Ki iP 19 33 21
Um iP 19 33 19
Leeward Islands (h = 30 km).

" 9 Up i(P) 20 44 30

" 10 Um iP 07 35 01

" 10 Ki iP 09 26 44 C
cont.

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

1961
Jan 10 Um iP 09 26 47
cont. Banda Sea (h = 80 km).

" 10 Up iP 14 33 00 C
i 14 33 09
iPa 14 37 12
iS 14 41 31

		microns	sec
P	Z	3.6	9
P	Z'	0.3	1.0
S	E	2.2	12
S	N	3.9	13
M	E	39	19
M	N	86	20
M	Z	96	20

D = 7150 km = 64°½.

Ki iP 14 32 09 C
ePa 14 35 44
eS 14 39 59

		microns	sec
P	N	1.2	9
P	Z	3.2	8
P	Z'	0.6	0.8
S	E	3.2	15
S	N	2.1	14
M	E	42	18
M	N	19	18
M	Z	40	18

D = 6350 km = 57°.

Sk iP 14 32 45
Gb iP 14 33 21
Um iP 14 32 31
Kurile Islands region.
(h = 30 km).
Magn. = 6.6 (Up, Ki).

" 10 Um iP 14 42 36

" 10 Um e(P) 15 01 28

" 10 Ki iP 19 12 16
i 19 12 33

" 10 Ki iP 23 41 37

" 11 Um i(P) 11 52 28

" 11 Ki iP 12 08 27
Um iP 12 08 53
Fox Islands, Aleutian
Islands (h = 40 km).

" 11 Up iP 12 10 56
iScS 12 20 40
cont.

1961
Jan 11
cont.

		microns	sec
P	Z'	0.3	1.0
M	E	2.5	18
M	N	6.7	18
M	Z	6.3	18

Ki iP 12 10 03 D
eS 12 18 11

		microns	sec
P	Z'	0.7	1.0
S	N	0.8	9
M	E	7.0	17
M	N	4.8	16
M	Z	8.6	17

D = 6600 km = 59°½.

Sk iP 12 10 32
Gb iP 12 11 11 D
Um iP 12 10 29
eP'P' 12 39 08
Fox Islands, Aleutian
Islands (h = 50 km).
Magn. = 6.2 (Up, Ki).

" 11 Gb i(P) 12 58 29

" 11 Um ePKP2 21 57 40
Near Macquarie Islands.
(h = 25 km).

" 12 Ki i(P) 05 09 11

" 12 Um iP 11 00 35

" 12 Up iP 14 23 52
Ki iP 14 22 57

		microns	sec
P	Z'	0.1	0.6

Sk iP 14 23 25
Alaska Peninsula (h = 40 km).

" 12 Ki iP 16 40 14

" 12 Ki iP 17 36 43

" 12 Ki i(P) 19 20 32

" 12 Ki i(P) 21 22 35

" 13 Up iP 22 43 32

" 14 Up eP 02 37 05
Ki iP 02 36 07
i 02 36 32
Um eP 02 36 38
Near Islands, Aleutian
Islands (h = 90 km).

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

1961					
Jan	14	Up	i(P)	07 18 37	
"	14	Up	iP	12 04 40	
"	14	Up	iP	16 29 43	C
		Ki	iP	16 29 46	D
		Sk	iP	16 29 30	D
		Um	i(P)	16 29 33	
			ipP	16 30 27	
		Colombia (h = 180 km).			
"	14	Up	iP	16 49 46	D
				microns sec	
			P Z'	0.2 0.8	
			M E	2.2 17	
			M N	3.9 17	
			M Z	3.7 18	
		Ki	iP	16 48 53	
			i	16 49 01	
				microns sec	
			P Z'	0.2 1.0	
		Sk	iP	16 49 22	
		Gb	iP	16 50 00	
		Um	iP	16 49 06	D
		Unimak Island region.			
		(h = 40 km).			
		Magn. = 6.0 (Up, Ki).			
"	15	Up	iP	00 19 29	
"	15	Ki	ePKP	01 22 48	
		Um	iPKP	01 22 33	
		South of Australia.			
		(h = 25 km).			
"	15	Up	iP	04 18 01	
		Ki	iP	04 17 26	
		Um	iP	04 17 30	
		South of Honshu, Japan.			
		(h = 290 km).			
"	15	Ki	eP	12 03 44	
		Near east coast of Honshu,			
		Japan (h = 80 km).			
"	15	Up	iPKP	17 03 49	
		Ki	iPKP	17 03 34	
		Um	iPKP	17 03 41	
			iSKP	17 06 53	
		Loyalty Islands region.			
		(h = 180 km).			
"	15	Up	iP	20 46 46	
		cont.			

1961					
Jan	15			microns sec	
cont.			P Z'	0.1 0.9	
		Ki	iP	20 46 41	
		Um	iP	20 46 37	D
		Java Sea (h = 570 km).			
"	16	Ki	iP	04 11 16	
		Um	eP	04 11 27	
			i	04 11 42	
		Near coast of Mexico.			
		(h = 150 km).			
"	16	Up	iP	07 31 44	C
			iPP	07 34 27	
			i(S)	07 41 12	
			ipS	07 41 30	
			iP'P'	07 59 21	
				microns sec	
			P E	2.2 6	
			P N	3.1 5	
			P Z	7.5 6	
			P Z'	0.7 1.0	
			PP E	1.8 6	
			PP N	2.3 7	
			(S) E	3.9 6	
			(S) N	4.3 7	
			M E	88 16	
			M N	85 17	
			M Z	98 16	
			(D = 8100 km = 73°).		
		Ki	iP	07 31 05	C
			iPP	07 33 29	
			iS	07 39 55	
			eP'P'	07 59 41	
				microns sec	
			P E	3.9 9	
			P N	3.2 10	
			P Z	15 9	
			P Z'	1.1 1.3	
			PP Z'	3.2 3.0	
			S E	16 10	
			S N	9.8 11	
			M E	100 18	
			M N	85 17	
			M Z	240 17	
			(D = 7450 km = 67°).		
		Sk	iP	07 31 39	
			iPP	07 34 11	
		Gb	iP	07 32 04	C
			i	07 32 07	
			i	07 34 45	
			iPP	07 35 13	
		Um	iP	07 31 20	
			i	07 31 35	
			iP'P'	07 59 49	
		cont.			

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

1961 Jan 16 cont.

Near east coast of Honshu, Japan (h = 130 km). Magn. = 7.0 (Up, Ki).

" 16	Up	iP	08 59 43	
	Ki	iP	08 59 03	
	Gb	iP	09 00 13	
	Um	iP	08 59 20	

Near east coast of Honshu, Japan (h = 190 km).

" 16	Up	iP	09 05 02	

" 16	Um	iP	10 25 10	

Near east coast of Honshu, Japan (h = 130 km).

" 16	Up	iP	11 31 10	C
			microns sec	
		P Z'	0.3 1.3	
		M E	6.4 17	
		M N	8.8 19	
		M Z	7.2 18	
	Ki	iP	11 30 32	
		eS	11 39 27	
			microns sec	
		P Z'	0.2 1.0	
		M E	15 20	
		M N	13 19	
		M Z	23 16	
	Sk	iP	11 31 05	C
		iPP	11 33 46	
	Gb	iP	11 31 30	
	Um	iP	11 30 48	C

Near east coast of Honshu, Japan (h = 160 km).

" 16	Up	iP	11 52 33	
		i	11 52 37	
	Ki	iP	11 51 54	
	Sk	i(PcP)	11 52 39	
	Gb	eP	11 53 02	
	Um	iP	11 52 11	C
		i	11 52 23	

Near east coast of Honshu, Japan (h = 150 km).

" 16	Up	iP	12 24 00	C
		iS	12 33 29	
		i	12 33 47	
			microns sec	
		P E	1.4 5	
		P N	1.7 6	
		P Z	3.9 6	

cont.

1961 Jan 16 cont.

		P Z'	0.3 0.8	
		S E	2.8 6	
		M E	41 16	
		M N	73 16	
		M Z	57 16	

(D = 8200 km = 74°).

	Ki	iP	12 23 21	C
		i	12 23 32	
		iS	12 32 16	
			microns sec	
		P Z	8.3 9	
		P Z'	0.4 1.2	
		S E	9.6 10	
		S N	5.0 11	
		M E	84 16	
		M N	63 15	
		M Z	105 14	

(D = 7450 km = 67°).

	Sk	iP	12 23 53	C
		iSP	12 24 34	
		iPP	12 26 40	
	Gb	iP	12 24 20	
		i	12 24 32	
	Um	iP	12 23 38	C
		i	12 23 49	

Honshu, Japan (h = 110 km). Magn. = 6.6 (Up, Ki).

" 16	Ki	iP	12 30 22	

" 16	Um	iP	12 47 58	

" 16	Up	iP	13 20 43	
		i	13 20 54	
	Ki	iP	13 20 05	
		i	13 20 15	
	Sk	eP	13 20 35	
		i	13 20 48	
	Gb	eP	13 21 04	
		e	13 21 15	
	Um	iP	13 20 21	
		i	13 20 33	

Near east coast of Honshu, Japan (h = 140 km).

" 16	Um	iP	14 08 16	

" 16	Up	iP	14 15 29	
		i	14 15 37	
			microns sec	
		P Z'	0.2 1.0	
		M E	5.9 20	
		M N	8.5 17	
		M Z	3.8 15	

cont.

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

1961						
Jan	16	Ki	iP	14 14 50		
cont.			eS	14 23 49		
				microns	sec	
			P	Z'	0.2	1.1
			M	E	16	16
			M	N	9.9	15
			M	Z	21	16
		Sk	iP	14 15 24		
		Gb	iP	14 15 51 D		
		Um	iP	14 15 08		
		Near east coast of Honshu, Japan (h = 130 km).				
"	16	Um	iP	14 48 29		
"	16	Up	iP	14 55 39		
		Ki	e(P)	14 55 13		
		Sk	iP	14 55 34		
		Gb	iP	14 56 00		
		Um	iP	14 55 18		
		Honshu, Japan (h = 110 km).				
"	16	Um	iP	15 34 09		
"	16	Up	iP	15 37 42		
		Um	iP	15 37 31		
		Near east coast of Honshu, Japan (h = 140 km).				
"	16	Um	iP	15 47 19		
"	16	Up	iP	15 52 44 C		
			iPP	15 55 31		
			iS	16 02 12		
			i	16 02 30		
				microns	sec	
			P	E	0.5	3
			P	N	1.1	4
			P	Z	1.6	3
			P	Z'	0.6	1.3
			S	E	1.8	6
			S	N	1.5	6
			M	E	18	19
			M	N	21	21
			M	Z	27	16
			(D = 8100 km = 73°).			
		Ki	iP	15 52 05 C		
			iPP	15 54 41		
			iS	16 00 59		
			i	16 01 15		
				microns	sec	
			P	Z	3.1	6
			P	Z'	1.6	2.0
			PP	Z'	2.7	3.0

cont.

1961						
Jan	16		S	N	2.5	9
cont.			M	E	42	16
			M	N	28	14
			M	Z	69	17
			(D = 7450 km = 67°).			
		Sk	iP	15 52 37 C		
			iPP	15 55 13		
			i	15 55 29		
		Gb	iP	15 53 04		
			i	15 53 18		
		Um	iP	15 52 22 C		
		Near east coast of Honshu, Japan (h = 150 km).				
		Magn. = 6.5 (Up, Ki).				
"	16	Ki	iP	16 32 47		
		Gb	eP	16 33 41		
		Um	iP	16 33 04		
"	16	Gb	iP	18 13 16		
"	16	Up	i(P)	18 34 16		
"	16	Up	iP	20 31 50 C		
"	16	Ki	iP	21 17 14		
"	17	Up	iP	00 41 02		
		Ki	iP	00 40 24		
		Sk	iP	00 40 56		
		Um	iP	00 40 44		
		Near east coast of Honshu, Japan (h = 100 km).				
"	17	Up	iP	06 53 04		
			i	06 53 15		
		Ki	iP	06 52 26		
		Sk	eP	06 52 57		
			i	06 53 07		
		Gb	iP	06 53 24		
			i	06 53 35		
		Um	iP	06 52 43		
			i	06 52 54		
		Honshu, Japan (h = 100 km).				
"	17	Ki	i(P)	08 58 36		
"	17	Um	iP	10 12 25 C		
"	18	Ki	iP	05 15 04		
		Sk	iP	05 15 10		
		Um	iP	05 15 14 D		
"	18	Up	iP	06 01 16		

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

1961
Jan 18 Um iP 07 23 52
Near east coast of Honshu, Japan (h = 100 km).

" 18 Um iP 07 38 59
Near east coast of Honshu, Japan (h = 100 km).

" 18 Um iP 10 22 58

" 18 Um iP 14 13 45 C

" 18 Um iP 16 59 34
Near east coast of Honshu, Japan (h = 140 km).

" 19 Up iP 00 56 16
i 00 56 35

" 19 Up iPKP 04 40 26
iPKS 04 44 00
Sk iPKP 04 40 22
Um iPKP 04 40 19
New Hebrides Islands region (h = 30 km).

" 19 Up e(P) 04 47 24

" 19 Up i(P) 04 54 17

" 19 Um iP 09 51 36 C

" 19 Ki eP 14 14 56

" 19 Up iP 17 33 01

		microns	sec
P	Z'	0.1	0.8
M	E	2.5	20
M	N	6.1	20
M	Z	5.5	20

Ki iP 17 32 10
i 17 32 23

		microns	sec
P	Z'	0.3	0.7
M	E	2.3	19
M	N	2.9	23
M	Z	4.2	21

Sk iP 17 32 47 C
Gb iP 17 33 22 C
i 17 33 33
i 17 34 05
Um iP 17 32 36
Kurile Islands (h = 30 km).
Magn. = 6.0 (Up, Ki).

1961
Jan 19 Up i(P) 18 58 00

" 19 Um i(P) 21 16 37

" 20 Up iP 01 07 29

		microns	sec
P	Z'	0.1	1.0

Ki iP 01 06 35
Sk iP 01 07 02
Um iP 01 07 05
Near Kodiak Island, Alaska. (h = 60 km).

" 20 Up iP 03 31 52

" 20 Up iP 05 33 45
Ki iP 05 32 51

		microns	sec
P	Z'	0.1	1.0

Sk iP 05 33 17
Gb iP 05 33 56
Um iP 05 33 22
Near Kodiak Island, Alaska. (H = 60 km).

" 20 Sk iP 05 41 06

" 20 Sk iP 08 34 39

" 20 Um iP 11 34 20

" 20 Up iP 13 43 42
Ki iP 13 42 48
Sk iP 13 43 15 C
Um iP 13 43 16
Near Kodiak Island, Alaska. (h = 40 km).

" 20 Up iP 13 45 10

" 20 Um iP 14 23 47

" 20 Up iP 17 19 46 C
iS 17 28 21

		microns	sec
P	Z'	0.4	0.9
S	E	1.8	14
S	N	1.5	13
M	E	3.4	19
M	N	5.6	21
M	Z	4.2	20

D = 7000 km = 63°.
Ki iP 17 18 52 D
cont.

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

1961 Jan 20 cont.

			microns	sec	
	P	Z'	0.6	1.0	
	M	E	3.8	19	
	M	N	6.8	20	
	M	Z	8.3	20	
Sk	iP		17 19 19		C
Gb	iP		17 19 58		
Um	iP		17 19 18		C

Sea of Okhotsk (h = 50 km).
Magn. = 6.3 (Up, Ki).

" 20	Up	iP	17 23 39		C
			microns	sec	
	P	Z'	0.1	1.0	
Ki	iP		17 22 45		
			microns	sec	
	P	Z'	0.2	1.0	
Sk	iP		17 23 13		D
Gb	iP		17 23 51		
Um	iP		17 23 12		

Sea of Okhotsk.

" 20	Gb	iP	17 55 36	
" 20	Um	iP	20 36 24	
" 20	Um	iP	21 02 18	
" 20	Up	iP	21 09 18	
	Sk	iP	21 09 43	
	Um	iP	21 08 59	
		i	21 09 18	
" 20	Up	iP	21 41 37	
	Ki	iP	21 40 43	C
	Sk	iP	21 41 08	
	Gb	iP	21 41 50	
	Um	iP	21 41 09	

Near Kodiak Island, Alaska.
(h = 40 km).

" 20	Up	iP	21 47 58	
	Ki	iP	21 47 03	
	Sk	iP	21 47 31	
	Um	iP	21 47 31	

Near Kodiak Island, Alaska.
(h = 14 km).

" 20	Up	iP	21 58 06	
	Ki	iP	21 57 27	
	Um	iP	21 57 44	
" 20	Up	iP	22 46 13	
		i(pP)	22 46 25	

cont.

1961 Jan 20 cont.

			microns	sec	
	P	Z'	0.1	1.0	
Ki	iP		22 45 33		
	i(pP)		22 45 44		
			microns	sec	
	P	Z'	0.1	1.0	
Sk	iP		22 46 06		C
	i(pP)		22 46 18		
Gb	iP		22 46 34		
	i(pP)		22 46 46		
Um	iP		22 45 51		C
	i(pP)		22 46 03		

Near east coast of Honshu, Japan (h = 50 km).

" 21	Up	e(P)	05 31 59	
		iSn	05 33 30	
		iSg	05 34 21	
		microns	sec	
	Sg	Z'	0.1	0.5

D = 970 km = 8.7°.

Ki	iPg		05 30 44	
	i		05 30 53	
	iSg		05 31 27	
	i		05 31 41	
		microns	sec	
	Sg	Z'	1.4	0.6

D = 370 km = 3.3°.

Sk	iPg		05 30 58	D
	i		05 31 03	
	iSn		05 31 28	
	iSg		05 31 50	

D = 440 km = 4.0°.

Um	iPg		05 31 14	D
	i		05 31 19	
	iSg		05 32 18	
	i		05 32 41	

D = 540 km = 4.9°.

Off coast of Norway, near Lofoten, 68°N, 12°E.
Origin time = 05 29 37.

" 21	Um	iP	13 29 31	

Near Kodiak Island, Alaska.
(h = 60 km).

" 21	Um	iP	17 54 11	

Honshu, Japan (h = 25 km).

" 21	Sk	iP	21 34 16	
" 21	Sk	iP	21 56 53	
" 22	Sk	iP	01 31 49	

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

1961					
Jan	22	Sk	iP	03 35 01	
"	22	Up	iPKP	03 43 13	
			i	03 43 18	
			ePP	03 45 18	
			i	03 46 26	
				microns sec	
			M E	14 18	
			M N	29 19	
			M Z	28 19	
			(D = 14100 km = 127°).		
		Ki	ePKP	03 42 53	
			i	03 43 00	
				microns sec	
			M E	15 17	
			M N	19 19	
			M Z	20 19	
			(D = 13200 km = 119°).		
		Sk	iPKP	03 43 04	
			i	03 43 11	
			i	03 45 16	
		Gb	ePKP	03 43 15	
		Um	iPKP	03 42 58	
			i	03 43 09	
			i	03 43 20	
		Santa Cruz Islands region.			
		(h = 25 km). Magn. = 7.1			
		(Up, Ki).			
"	22	Sk	iPKP	06 35 32	
		Um	iPKP	06 35 21	
		Santa Cruz Islands.			
		(h = 16 km).			
"	22	Sk	iP	13 07 15	
		Um	iP	13 07 07	
"	22	Up	i(P)	14 59 17	
"	22	Up	iPKP	16 29 15 D	
			i	16 29 26	
				microns sec	
			PKP Z'	0.1 0.8	
		Sk	iPKP	16 29 07 D	
			i	16 29 18	
		Um	iPKP	16 29 03 C	
		Kermadec Islands region.			
		(h = 70 km).			
"	22	Up	e(P)	18 08 16	
"	22	Up	e(P)	19 01 46	
"	22	Sk	iPKP	19 23 58	
		cont.			

1961					
Jan	22	Um	iPKP	19 23 50	
cont.		Santa Cruz Islands.			
		(h = 40 km).			
"	22	Up	iP	19 35 30	
		Ki	eP	19 35 11	
		Um	iP	19 35 19	
		Leyte, Philippine Islands.			
		(h = 190 km).			
"	23	Up	iP	04 59 25	
				microns sec	
			P Z'	0.2 0.8	
			M E	0.7 18	
			M N	0.8 16	
			M Z	1.1 17	
		Ki	iP	04 58 40	
				microns sec	
			M E	1.1 20	
			M N	1.3 20	
			M Z	2.2 19	
		Sk	iP	04 59 16	
			i	04 59 26	
		Um	iP	04 58 58	
		Hokkaido, Japan (h = 50 km).			
"	23	Up	i(P)	19 19 49	
"	23	Sk	e(P)	23 12 08	
"	24	Up	iPKP	07 43 55	
			iSKP	07 47 08	
			iPKS	07 47 19	
				microns sec	
			SKP Z'	0.3 1.1	
		Ki	iPKP	07 43 41 C	
				microns sec	
			PKP Z'	0.2 1.2	
		Sk	iPKP	07 43 51	
			iSKP	07 47 03	
		Gb	iPKP	07 44 01	
			iSKP	07 47 22	
		Um	i(PKP)	07 43 40	
			iPKP	07 43 48	
		New Hebrides Islands region.			
		(H = 200 km).			
"	24	Ki	ePKP2	08 23 04	
		Antarctic Ocean, south of			
		Australia (h = 25 km).			
"	24	Um	iP	10 27 42	
"	24	Ki	i(P)	11 26 13	

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

1961					
Jan	24	Ki	iP	15 48 50	
"	24	Up	iP	20 26 32	C
"	24	Sk	iP	22 18 01	
"	25	Ki	iP	01 07 06	
		Sk	iP	01 07 19	
		Um	iP	01 07 05	D
		Near west coast of Sumatra (h = 140 km).			
"	25	Sk	eP	04 25 45	
"	25	Sk	e(P)	04 49 27	
		Um	iP	04 48 17	
"	25	Sk	eP	05 11 58	
"	25	Um	ePKP	05 40 25	
		New Hebrides Islands region (h = 200 km).			
"	25	Sk	iP	06 38 12	
"	25	Sk	iP	07 14 25	
"	25	Sk	iP	07 34 09	
"	25	Sk	iP	09 06 34	
"	25	Um	iP	17 33 45	D
		Celebes (h = 60 km).			
"	25	Up	iP	19 14 59	
			iPcP	19 15 30	
		Ki	iP	19 14 07	
				microns sec	
			P Z'	0.1 0.6	
		Sk	iP	19 14 44	
		Gb	iP	19 15 20	
		Um	iP	19 14 32	
		Kurile Islands (h = 100 km).			
"	25	Up	iP	19 27 13	
				microns sec	
			M E	1.1 15	
			M N	1.6 16	
			M Z	2.0 20	
		Sk	eP	19 27 19	
"	26	Up	iP	01 58 09	
		Um	iP	01 58 06	C
		Southern Burma (h = 70 km).			

1961					
Jan	26	Um	iP	02 36 17	
"	26	Sk	iP	07 07 14	
"	26	Sk	iP	10 54 47	C
"	26	Um	iP	12 46 47	
"	26	Um	iP	13 03 58	C
"	26	Um	ePKP	13 31 35	
		Loyalty Islands region. (h = 80 km).			
"	26	Up	eSKP	16 35 57	
				microns sec	
			SKP N	2.8 14	
			M E	4.0 19	
			M N	4.7 18	
			M Z	8.7 20	
		Ki	ePKP	16 32 22	
			M E	5.7 21	
			M N	3.9 18	
			M Z	6.2 21	
		Um	iPKP	16 32 33	
			i(PKS)	16 35 57	
		Loyalty Islands (h = 120 km).			
"	26	Up	iPKP	19 08 09	
		Ki	iPKP	19 07 57	
				microns sec	
			PKP Z'	0.1 1.0	
		Sk	iPKP	19 08 05	
		Gb	e(PKP)	19 08 06	
			iPKP	19 08 15	
		Um	iPKP	19 08 01	
			iSKP	19 11 22	
		Loyalty Islands region. (h = 110 km).			
"	26	Up	iP	21 57 29	
"	26	Up	i(P)	22 44 07	
		Ki	iPg	22 44 22	
			iSg	22 44 33	
		Possibly two different shocks, of which the one recorded at Ki may be an explosion.			
"	27	Um	iPKP	01 10 54	
		Solomon Islands (h = 20 km).			
"	27	Sk	e(PKP)	14 13 28	

cont.

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

1961
Jan 27 cont. New Ireland region. (h = 120 km).

" 27 Up iP 20 17 57
Kurile Islands (h = 60 km).

" 28 Up iP 07 22 53
microns sec
P Z' 0.1 0.6
Ki iP 07 24 07
Sk iP 07 23 35
Um iP 07 23 30
Northern Greece (h = 90 km).

" 28 Um iP 09 29 51

" 28 Up iP 11 28 06
microns sec
P Z' 0.2 0.7
Ki iP 11 28 05
Gb iP 11 28 28
Um iP 11 28 00

" 28 Ki iP 12 57 17
i 12 57 22
microns sec
P Z' 0.3 0.8

" 28 Up iPKP 14 25 42
Ki iPKP 14 25 45
microns sec
PKP Z' 0.5 1.0
Um iPKP 14 25 43 C
South Pacific Ocean, south of Easter Island. (h = 140 km).

" 29 Up iP 13 34 55
Ki eP 13 34 03
Andreanof Islands, Aleutian Islands. (h = 40 km).

" 29 Up iP 18 44 23

" 30 Ki iP 12 21 13
microns sec
P Z' 0.1 1.3
Sk eP 12 21 39
i 12 21 56
Um iP 12 21 43 C
Central Alaska (h = 30 km).

" 31 Up iP 00 57 52

1961
Jan 31 Up iP 00 59 12 C
i 00 59 15
iS 01 07 50
microns sec
P Z' 0.1 0.5
M E 9.2 18
M N 5.0 19
M Z 6.6 18
D = 7100 km = 64°.
Ki iP 00 58 18 C
i 00 58 28
iS 01 06 04
microns sec
P Z' 0.4 1.0
S E 2.5 8
S N 3.2 8
M E 7.4 19
M N 7.2 21
M Z 11 20
D = 6200 km = 56°.
Sk iP 00 58 46
i 00 58 55
Gb iP 00 59 24 C
i 00 59 31
Um iP 00 58 48
i 00 58 56
Near Kodiak Island, Alaska. (h = 30 km). Magn. = 6.2 (Up, Ki).

" 31 Ki iPn 09 00 59
iPg 09 01 07
iSg 09 01 44
D = 310 km = 2.8°.
Sk e(S^x) 09 03 50
e 09 04 43
Um eSg 09 02 45
Northern Finland.
Origin time = 09 00 11.

" 31 Up iP 11 43 19

" 31 Gb i(P) 13 37 56
i 13 38 03

" 31 Up iP 18 43 19
microns sec
P Z' 0.1 0.5
Ki iP 18 42 25
iPeP 18 43 10
Sk eP 18 43 19
Um iP 18 42 51
Andreanof Islands, Aleutian Islands (h = 50 km).

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

1961					
Jan	31	Up	iP	20 42 15	
"	31	Up	iP	23 25 48	

Markus Båth
27.3.1961

Seismological Laboratory
Uppsala

P R E L I M I N A R Y
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, and U M E Å

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°49.0'N,	20°14.1'E; h = 20 m

F E B R U A R Y 1 - 28, 1961

1961
Feb 1 Ki iP 00 46 07
Off coast of Vancouver Island (h = 40 km).

" 1 Ki iP 05 06 42
microns sec
M E 0.9 18
M N 0.5 18
Um iP 05 06 54
Mariana Islands region (h = 100 km).

" 1 Ki eP 17 59 30

" 1 Ki eP 18 49 43
Sk iP 18 50 19
Um iP 18 50 03
Near north coast of Honshu, Japan (h = 40 km).

" 2 Ki iP 00 54 51
Um iP 00 55 00
Near south coast of Mindanao, Philippine Islands (h = 160 km).

" 2 Ki iP 11 26 17 D
Sk iP 11 26 42
Um iP 11 26 28
Mariana Islands (h = 130 km).

" 2 Ki iP 19 43 57

1961
Feb 2 Um iP 20 09 34 C

" 3 Up iP 02 38 12 C
Ki iP 02 38 12 C
Sk iP 02 38 27
Um iP 02 38 11
Near coast of Sumatra (h = 15 km).

" 3 Um iP 06 39 55

" 3 Up iP 07 23 04
Um i(P) 07 23 45

" 3 Sk iPP 12 20 44
Near coast of central Chile (h = 20 km).

" 3 Up iPKP 12 53 01
microns sec
PKP Z' 0.1 1.0
Ki iPKP 12 52 31
i 12 54 40
microns sec
PKP Z' 0.1 1.3
Sk iPKP 12 52 45
Um iPKP 12 52 39
Off north coast of North Island, New Zealand (h = 300 km).

" 3 Up iP 13 43 10

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

1961 Feb 3 cont.

			microns sec		
		P	Z'	0.1	1.0
	Ki	iP		13 42 31	
	Sk	i(P)		13 42 51	
	Gb	iP		13 43 31	
		i		13 43 40	
	Um	iP		13 42 48	D
		i		13 42 59	

Honshu, Japan (h = 100 km).

" 3	Up	iP	14 31 58	
" 3	Up	iP	14 50 40	
" 3	Up	iP	20 37 00	
" 3	Um	i(P)	21 04 09	
" 4	Up	iP	09 02 01	C
		i(S)	09 10 14	
		i	09 10 45	

			microns sec		
		P	Z'	0.4	0.7
	Ki	iP		09 01 54	C
		ipP		09 02 25	
		i(S)		09 09 58	
	Sk	iP		09 02 16	C
		ipP		09 02 47	
	Gb	iP		09 02 21	C
		ipP		09 02 53	
	Um	iP		09 01 54	C
		ipP		09 02 25	
		i(S)		09 10 05	

Northern Burma . h = 140 km (Ki,Sk,Gb,Um).

" 4	Up	iP	12 11 28	
" 4	Up	iP	13 00 03	
	Ki	iP	12 59 12	
	Sk	iP	12 59 49	
	Gb	iP	13 00 26	
	Um	eP	12 59 36	

Kamchatka (h = 160 km).

" 4	Up	eL	16 30	

		microns sec		
	M	E	0.7	16
	M	N	0.9	17
	M	Z	1.1	17

Fiji Islands region (h = 60 km).

" 4	Up	iP	19 21 05	

1961 Feb 4 cont.

		i	19 21 32	
		iSKS	19 31 09	
		e	19 40 01	

		microns sec		
	P	Z'	0.1	0.7
	M	E	9.6	17
	M	N	8.0	18
	M	Z	12	17

D = 8450 km = 76°.

	Ki	iP	19 20 40	C
		eLgl	19 46 50	

		microns sec		
	P	Z'	0.1	1.1
	M	E	6.0	22
	M	N	4.6	17
	M	Z	5.4	17

	Sk	iP	19 21 08	C
	Gb	iP	19 21 28	C
	Um	iP	19 20 50	

Off east coast of Formosa (h = 14 km). Magn. = 6.1 (Up, Ki).

" 5	Up	iP	00 09 50	
	Ki	iP	00 09 04	
	Sk	iP	00 09 41	
	Um	iP	00 09 23	

Kurile Islands (h = 25 km).

" 5	Up	iP	02 52 39	C
	Ki	iP	02 52 40	
	Um	iP	02 52 34	
		i	02 52 51	
" 5	Um	iSKP	08 00 44	

Fiji Islands (h = 590 km).

" 5	Ki	iP	10 29 26	
" 5	Ki	iP	11 31 11	
" 5	Up	iP	15 51 23	D
		eS	16 02 08	
		iPS	16 03 00	

		microns sec		
	P	Z'	0.1	1.0
	M	E	0.8	17
	M	N	0.6	15
	M	Z	1.3	17

D = 9700 km = 87 1/2°.

	Ki	iP	15 51 19	
		iS	16 01 51	

		microns sec		
	P	Z'	0.4	1.6
	S	E	1.0	10

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

1961 Feb 5 cont.

		M	E	1.2	18
		M	N	0.6	15
		M	Z	1.8	16
		D = 9550 km = 86°.			
	Sk	iP		15 51 09	D
	Gb	iP		15 51 14	D
	Um	iP		15 51 24	D
	South of Panama (h = 50 km).				
" 5	Ki	e(P)		17 00 10	
" 5	Up	i(P)		17 48 10	
" 5	Up	eL		18 42	
			microns	sec	
		M	E	0.8	18
		M	N	1.6	22
		M	Z	1.1	18
	Ki	eL		18 42	
			microns	sec	
		M	E	1.2	18
		M	N	0.8	17
		M	Z	1.0	15
	Indian Ocean.				
" 6	Um	iP		08 56 04	
" 6	Up	iP		12 23 24	
		i		12 23 36	
			microns	sec	
		P	Z'	0.1	0.5
		M	E	1.0	17
		M	N	1.3	18
		M	Z	1.2	19
	Ki	iP		12 22 31	
			microns	sec	
		M	E	0.6	16
		M	N	0.5	16
		M	Z	1.0	17
	Sk	iP		12 22 59	
	Gb	iP		12 23 40	
	Um	iP		12 22 58	
	Aleutian Islands (h = 80 km).				
" 6	Up	iS^x		13 59 29	
		iSg		13 59 43	
		D = 610 km = 5.5°.			
	Ki	$i(P^x)$		13 58 06	
		iSn		13 58 50	
		iSg		13 59 15	
		D = 510 km = 4.6°.			
	Sk	iPg		13 57 10	
		iSg		13 57 27	
		D = 140 km = 1.3°.			

1961 Feb 6 cont.

	Um	iPg		13 57 57	
		i		13 58 05	
		iSn		13 58 32	
		iSg		13 58 47	
		D = 420 km = 3.8°.			
	Coast region of central Norway, 64.8°N, 11.9°E.				
	Origin time = 13 56 43				
" 6	Up	iP		18 26 23	D
		i		18 26 35	
		i(PcP)		18 26 49	
			microns	sec	
		P	Z'	0.1	0.5
		M	E	0.9	16
		M	N	1.9	19
		M	Z	1.4	18
	Ki	iP		18 25 36	
			microns	sec	
		M	E	1.2	18
		M	N	0.9	18
		M	Z	1.2	17
	Sk	iP		18 26 13	
		i		18 26 42	
	Um	iP		18 26 00	
		iPcP		18 26 36	
	Kurile Islands (h = 25 km).				
" 6	Up	iPKP		22 03 56	C
		iPKKP		22 14 15	
		i		22 14 30	
		eSS		22 21 26	
			microns	sec	
		PKP	Z'	0.2	0.6
		PKKP	Z'	0.1	1.0
		M	E	6.1	21
		M	N	8.8	23
		M	Z	7.5	21
	Ki	iP		21 59 47	
		iPKP		22 03 45	
		iPP		22 04 35	
		iPS		22 14 00	
		iPKKP		22 14 36	
			microns	sec	
		PKP	Z'	0.2	1.0
		PP	E	0.9	7
		PP	Z	0.9	8
		M	E	14	21
		M	N	11	20
		M	Z	14	20
		D = 12400 km = 111 1/2°.			
	Sk	iPKP		22 03 55	C
		iPKKP		22 14 18	
	Gb	iPKP		22 04 13	

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

1961 Feb 6 cont.

Um iPKP 22 03 51
iPKKP 22 14 35
i 22 14 49
Solomon Islands (h = 60 km).
Magn. = 6.7 (Up, Ki).

" 7 Ki iP 03 07 43

" 7 Up iP 05 24 45
microns sec
P Z' 0.1 0.5
Ki iP 05 24 45 C
microns sec
P Z' 0.2 0.8
Sk iP 05 24 58 C
i 05 25 10
Um iP 05 24 44
Sumatra (h = 80 km).

" 7 Ki e(P) 14 10 49

" 7 Ki eP 14 48 10
ePP 14 50 46
Off east coast of Honshu, Japan (h = 25 km).

" 7 Up iP 15 40 23
Ki iP 15 40 01
Sk eP 15 40 26
Near east coast of Formosa (h = 40 km).

" 7 Up iP 21 12 40
iPcP 21 13 05
microns sec
P Z' 0.1 0.8
Ki iP 21 11 54 C
microns sec
P Z' 0.1 1.0
Sk iP 21 12 29
Gb iP 21 12 56
Um iP 21 12 15
Kurile Islands (h = 40 km).

" 7 Up iP 22 20 23
Ki iP 22 19 32
Kurile Islands (h = 60 km).

" 7 Up iP 23 38 16
Ki iP 23 37 21
Aleutian Islands (h = 15 km).

" 8 Up iPKP 02 55 36
iSKP 02 58 49

1961 Feb 7 cont.

Ki iPKP 02 55 22 C
microns sec
PKP Z' 0.2 0.9
Sk iPKP 02 55 33
Gb iPKP 02 55 38
Um iPKP 02 55 27
New Hebrides Islands region (h = 160 km).

" 8 Up iPKP 04 53 25 C
Kermadec Islands region (h = 430 km).

" 8 Up iP 06 20 17
Sk iP 06 21 04

" 8 Ki iP 08 16 57
Sk iP 08 16 40 C
ipP 08 18 52
Brazil-Peru border.
h = 610 km (Sk).

" 8 Gb i(P) 14 56 59

" 8 Up iP 15 34 54

" 8 Up iPKP 18 09 04
iSKP 18 11 59
microns sec
SKP Z' 0.2 1.0
Ki iPKP 18 08 58
iSKP 18 11 35
microns sec
SKP Z' 0.5 1.5
Sk i(PKP) 18 08 53
iPKP 18 09 08
iSKP 18 11 51
Gb iPKP 18 09 17
iSKP 18 12 10
Um iPKP 18 08 57
iSKP 18 11 45
Tonga Islands (h = 540 km).

" 8 Up iP 20 19 31

" 8 Um iP 22 37 35 C

" 9 Up iPKP 02 27 53 C
microns sec
PKP Z' 1.3 0.7
M E 1.9 22
M N 3.1 23
M Z 4.5 23
Ki iPKP 02 27 32

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

1961
Feb 9 cont.

	i		02 27 38
	iPP		02 30 32
	ePKS		02 31 13
		microns	sec
	PKP	Z' 0.3	1.5
	PP	Z' 0.4	2.0
	PKS	N 1.0	7
	M	E 2.7	20
	M	N 2.3	20
	M	Z 3.8	20
Sk	iPKP		02 27 47 C
Gb	ePKP		02 27 57 C
	i		02 28 02
	iPP		02 30 53
Um	iPKP		02 27 44 D
	i		02 27 55

Kermadec Islands region (h = 40 km). Magn. = 6.4 (Up, Ki).

" 9	Ki	e(P)	02 39 05
	Um	iP	02 38 23
" 9	Gb	iP	04 36 11
" 9	Up	i(P)	05 51 32
" 9	Um	iPKP	09 22 50

Santa Cruz Islands (h = 80 km).

" 9	Up	eL	21 13
		microns	sec
	M	E 1.3	20
	M	N 1.2	20
	M	Z 1.9	20
	Ki	eL	21 13
		microns	sec
	M	E 1.8	21
	M	N 1.4	19
	M	Z 2.1	20

Off south coast of Java (h = 70 km).

" 10	Sk	iPKP	00 57 14
	Um	iPKP	00 57 03

Kermadec Islands (h = 25 km).

" 10	Up	i(P)	14 33 58
" 10	Gb	iP	17 15 07
" 11	Ki	eP	02 46 53
	Um	eP	02 46 59

1961
Feb 11 cont.

Mariana Islands region (h = 60 km).

" 11	Up	iP	06 23 53
		i(PP)	06 27 02
		microns	sec
		P Z' 0.4	0.6
	Ki	iP	06 23 21 D
		i	06 27 36
		microns	sec
		P Z' 0.2	0.6
	Sk	iP	06 23 50
		i(PP)	06 27 05
	Gb	iP	06 24 11
	Um	iP	06 23 36
		i	06 27 22
		i	06 27 28

North of Bonin Islands region (h = 360 km). The phases after P possibly belong to another earthquake of different location.

" 11	Up	iP	09 18 48 C
		i	09 18 53
	Sk	iP	09 19 26 C
	Um	iP	09 19 22
" 11	Up	i(P)	11 19 27
" 11	Ki	iP	12 36 42 C

Near coast of Mindanao, Philippine Islands (h = 200 km).

" 11	Um	iP	14 56 33
		i	14 56 46
" 11	Ki	ePKP	17 05 09
	Um	iPKP	17 05 15

Fiji Islands (h = 260 km).

" 11	Up	iPKP	21 20 43
		i	21 22 03
		iPKS	21 24 24
		microns	sec
		PKP Z' 2.9	0.8
		M E 1.3	19
		M N 4.2	24
		M Z 3.0	23
	Ki	iPKP	21 20 21
		iPKS	21 24 01
		microns	sec
		PKP Z' 0.8	1.3

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

1961						
Feb 11			PKS	Z'	0.2	1.3
cont.			M	E	2.7	22
			M	N	1.8	21
			M	Z	4.6	21
		Sk	iPKP		21 20 37	
		Gb	iPKP		21 20 49	
			i		21 20 55	
		Um	iPKP		21 20 30	
		Kermadec Islands (h = 40 km).				
		Magn. = 6.3 (Up, Ki).				
"	11	Up	i(P)		21 31 45	
"	12	Gb	i(P)		00 46 08	
"	12	Um	iPKP		01 38 38	
		Easter Island region.				
"	12	Gb	i(P)		05 15 01	
"	12	Ki	iP		10 38 15	
		Um	iP		10 37 47	
"	12	Um	iPKP		12 28 02	
		Samoa Islands region				
		(h = 280 km).				
"	12	Up	i(SKP)		13 17 47	
			i		13 17 57	
				microns	sec	
			(SKP)	Z'	0.1	0.5
		Gb	i(SKP)		13 17 56	
		Um	iPKP		13 15 12	
			i		13 15 22	
			i(SKP)		13 17 52	
		New Hebrides Islands region				
		(h = 600 km).				
"	12	Up	iP		22 04 46	C
			ePa		22 09 14	
			iS		22 13 45	
			iP'P'		22 32 59	
				microns	sec	
			P	E	1.3	7
			P	N	2.6	5
			P	Z	4.7	5
			P	Z'	0.4	0.6
			S	E	26	25
			S	N	12	21
			P'P'	Z'	0.3	2.2
			M	E	103	18
			M	N	104	18
			M	Z	120	20
		D = 7550 km = 68°.				

1961						
Feb 12		Ki	iP		22 04 00	C
cont.			i		22 04 12	
			i		22 05 40	
			iS		22 12 18	
			iPS		22 12 38	
			iP'P'		22 33 12	
			i		22 33 27	
				microns	sec	
			P	E	5.3	17
			P	N	3.7	15
			P	Z	12	15
			P	Z'	1.0	1.2
			S	N	9.2	15
			P'P'	Z'	1.4	3.0
			M	E	170	18
			M	N	92	17
			M	Z	210	18
		D = 6800 km = 61°.				
		Sk	iP		22 04 35	
		Gb	iP		22 05 03	C
		Um	iP		22 04 21	
		Kurile Islands (h = 50 km).				
		Magn. = 6.9 (Up, Ki).				
"	12	Up	iP		23 02 33	
		Ki	iP		23 01 49	
		Gb	iP		23 02 56	
		Um	iP		23 02 10	
		Kurile Islands (h = 20 km).				
"	12	Up	iP		23 24 09	
		Gb	iP		23 24 31	
		Um	eP		23 23 34	
"	12	Up	iP		23 37 39	D
				microns	sec	
			P	Z'	0.2	0.7
			M	E	9.9	17
			M	N	14	18
			M	Z	14	20
		Ki	iP		23 36 52	C
				microns	sec	
			P	Z'	0.4	1.2
			M	E	19	17
			M	N	14	16
			M	Z	22	15
		Sk	iP		23 37 29	
		Gb	iP		23 38 00	C
		Um	iP		23 37 14	
		Kurile Islands (h = 20 km).				
		Magn. = 6.3 (Up, Ki).				
"	13	Up	iP		00 42 58	
		Kurile Islands (h = 25 km).				

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

1961 Feb 13 Up iP 02 41 08
Gb iP 02 41 24
Kurile Islands (h = 20 km).

" 13 Up iP 02 42 21
Gb iP 02 42 36
Um iP 02 41 54
Kurile Islands (h = 60 km).

" 13 Up iP 04 54 27
Gb iP 04 54 44
Um iP 04 54 01
Kurile Islands (h = 50 km).

" 13 Up -

		microns	sec
M	E	3.1	20
M	N	4.3	21
M	Z	5.8	21

Ki -

		microns	sec
M	E	3.7	20
M	N	2.6	19
M	Z	5.5	20

Um iPKP 07 04 40
Tonga Islands region (h = 40 km). Magn. = 6.3 (Up, Ki).

" 13 Up iP 09 18 02 D
Ki iP 09 17 16
Sk iP 09 17 51
Gb iP 09 18 20 D
Um iP 09 17 37
Kurile Islands (h = 25 km).

" 13 Um iP 14 22 18 C

" 13 Up iP 16 19 25
Ki iP 16 19 28 C
Nepal-Tibet border (h = 40 km).

" 13 Up iP 16 31 21
Ki iP 16 31 07 D
Um iP 16 31 14
Banda Sea (h = 70 km).

" 13 Up iP 16 38 27 C
i 16 38 37

		microns	sec
P	Z'	0.3	0.6
M	E	2.8	15
M	N	3.8	18
M	Z	4.7	15

1961 Feb 13 cont. Ki iP 16 37 41 C
iPP 16 39 48

		microns	sec
P	Z'	0.6	1.5
M	E	5.9	15
M	N	4.4	15
M	Z	10	15

Sk iP 16 38 17
i 16 38 28
Um iP 16 38 03
i 16 38 13
Kurile Islands (h = 25 km).
Magn. = 6.2 (Up, Ki).

" 13 Up iP 18 01 18
Ki iP 18 00 32
Um iP 18 00 51
Kurile Islands (h = 40 km).

" 13 Up iP 20 33 47

" 13 Up iP 21 22 42
Kurile Islands (h = 50 km).

" 13 Up eP 22 48 18
i 22 48 30
Ki iP 22 47 29
Um iP 22 47 49
Kurile Islands (h = 40 km).

" 14 Up iP 00 26 39
Ki iP 00 25 53
Um eP 00 26 09
Kurile Islands (h = 90 km).

" 14 Up iP 03 02 11
Ki iP 03 01 25

		microns	séc
P	Z'	0.1	1.3

Um iP 03 01 43
Kurile Islands (h = 100 km).

" 14 Up iP 03 26 31
Ki iP 03 25 45
Um iP 03 26 04
Kurile Islands (h = 25 km).

" 14 Up iP 03 33 07
i 03 33 23

		microns	sec
P	Z'	0.2	0.6
M	E	4.6	20
M	N	3.8	19
M	Z	4.6	19

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

1961						
Feb 14 cont.	Ki	iP		03 32 21		
				microns	sec	
		P	Z'	0.3	1.3	
		M	E	5.3	17	
		M	N	5.0	19	
		M	Z	11	18	
	Sk	iP		03 32 57		
	Um	iP		03 32 40		
	Kurile Islands (h = 20 km).					
	Magn. = 6.2 (Up, Ki).					
" 14	Up	i(P)		12 17 42		
		i		12 17 50		
" 14	Ki	eP		19 32 18		
" 14	Up	iP		20 15 08 D		
	Um	iP		20 14 30 D		
" 14	Um	iP		23 31 57		
" 15	Up	iPKP		06 46 36		
		i		06 46 39		
				microns	sec	
		PKP	Z'	0.1	0.5	
	Um	iPKP		06 46 24		
	Southwest of Tonga Islands (h = 150 km).					
" 15	Um	e(P)		08 02 54		
" 15	Um	iP		08 45 42 D		
" 15	Up	iP		10 56 17 C		
		i		10 56 33		
		iS		11 05 17		
				microns	sec	
		P	Z'	0.3	0.8	
		S	N	3.6	18	
		M	E	13	15	
		M	N	13	16	
		M	Z	12	17	
	D = 7550 km = 68°.					
	Ki	iP		10 55 31		
				microns	sec	
		P	Z'	0.7	1.2	
		M	E	17	15	
		M	N	10	16	
		M	Z	33	18	
	Sk	iP		10 56 07		
	Um	iP		10 55 51		
		i		10 56 04		
	Kurile Islands (h = 70 km).					
	Magn. = 6.4 (Up, Ki).					

1961						
Feb 15	Up	iP		11 38 03		
				microns	sec	
		P	Z'	0.1	0.8	
	Ki	iP		11 38 01		
				microns	sec	
		P	Z'	0.1	1.3	
	Sk	iP		11 38 22		
	Um	iP		11 37 56		
	Tibet (h = 70 km).					
" 15	Up	iP		15 01 57		
				microns	sec	
		P	Z'	0.1	1.0	
" 15	Sk	iP		18 30 06		
	Um	iP		18 30 05		
" 16	Up	iP		03 49 11		
				microns	sec	
		M	E	1.0	17	
		M	N	1.1	21	
		M	Z	1.1	17	
	Ki			-		
				microns	sec	
		M	N	0.5	13	
	Sk	iP		03 49 54		
	Um	eP		03 49 47		
	Near coast of Albania (h = 140 km).					
" 16	Um	iP		07 15 45		
" 16	Gb	iP		09 06 36		
	South of Honshu, Japan (h = 300 km).					
" 16	Up	iP		12 34 35		
" 16	Up	iP		14 05 53		
		i		14 06 02		
				microns	sec	
		P	Z'	0.2	0.6	
		M	E	2.0	15	
		M	N	2.4	17	
		M	Z	1.9	15	
	Ki	iP		14 05 07		
				microns	sec	
		P	Z'	0.4	1.5	
		M	E	3.6	16	
		M	N	2.1	16	
		M	Z	6.6	16	
	Sk	iP		14 05 44		
		i		14 05 59		
	Gb	iP		14 06 15 C		

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

1961 Feb 16 cont.		i	14 06 22	
	Um	iP	14 05 28	
		i	14 05 39	
	Kurile Islands (h = 70 km).			
	Magn. = 6.3 (Up, Ki).			
" 16	Up	iP	14 42 48	
	Um	iP	14 43 00	C
" 16	Up	iP	15 05 29	
	Ki	iP	15 04 44	
	Gb	iP	15 05 51	
	Um	iP	15 05 04	
	Kurile Islands (h = 25 km).			
" 16	Up	iP	15 25 06	
" 17	Up	$i(P^x)$	03 23 31	
		iSn	03 24 28	
		i(Lgl)	03 24 58	
		D = 680 km = 6.1°.		
	Ki	iPn	03 22 38	
		i	03 23 22	
		iSg	03 23 25	
		D = 320 km = 2.9°.		
	Sk	ePn	03 23 10	
		eSn	03 24 07	
		iSg	03 24 37	
		D = 580 km = 5.2°.		
	Gb	i(Lgl)	03 26 40	
	Um	iPg	03 22 28	
		iSn	03 22 47	
		i	03 22 54	
		iSg	03 22 56	
		D = 230 km = 2.1°.		
	Northern part of the Gulf of Bothnia, 65.3°N, 24.0°E. Origin time = 03 21 47.			
" 17	Ki	iP	06 59 22	
	Um	iP	06 59 43	
	Kurile Islands (h = 25 km).			
" 17	Up	i(P)	08 42 23	
" 17	Up	iP	13 15 51	
	Hindu Kush (h = 230 km).			
" 17	Um	iP	13 42 43	
" 17	Um	iP	13 46 57	C
" 17	Up	iP	15 16 28	
	Um	eP	15 16 06	

1961 Feb 17	Ki	iP	15 51 13	C
	Um	iP	15 51 19	
	Banda Sea (h = 250 km).			
" 17	Um	iP	22 11 45	
" 17	Um	iP	23 12 17	
" 18	Up	iP	01 15 05	
	Ki	iP	01 14 19	
	Gb	iP	01 15 30	
	Um	iP	01 14 41	
	Kurile Islands (h = 30 km).			
" 18	Um	iP	02 01 30	
" 18	Um	iP	03 27 23	
" 18	Um	iP	05 41 54	
" 18	Up	iP	08 33 35	
	Ki	eP	08 32 41	
	Gb	iP	08 33 55	
	Um	iP	08 33 13	C
" 18	Ki	i(P)	11 01 53	
" 18	Up	iP	11 03 35	
	Ki	i(P)	11 04 06	
		i	11 05 36	
	Sk	iP	11 04 18	
	Um	eP	11 04 16	
" 18	Up	i(P)	11 08 36	
" 18	Um	iPKP	12 24 53	
	Loyalty Islands region (h = 40 km).			
" 18	Ki	iP	12 37 37	
	Um	iP	12 36 02	
" 18	Up	iP	15 14 35	
	Ki	iP	15 15 16	
	Um	iP	15 16 12	
	Probably more than one shock.			
" 18	Up	iP	16 05 07	
	Kurile Islands (h = 25 km).			
" 18	Up	i(P)	17 12 50	
	Ki	iP	17 13 44	
	Sk	eP	17 13 10	

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

1961				
Feb 18		i	17 13 18	
cont.	Um	iP	17 13 24	C
		i	17 13 30	
	Atlantic Ocean, north of Ascension Island (h = 25 km).			
" 18	Up	iP	20 13 49	
	Ki	iP	20 13 35	C
	Um	iP	20 13 42	
	Off coast of Mindanao, Philippine Islands (h = 70 km).			
" 19	Up	i(P)	04 50 13	
" 19	Up	iP	08 05 59	
	Ki	iP	08 05 05	
	Sk	iP	08 05 31	
	Um	iP	08 05 33	
	Kodiak Island, Alaska (h = 60 km).			
" 19	Up	eP	11 11 07	
" 19	Up	iP	12 21 49	C
	Ki	iP	12 20 56	C
	Sk	iP	12 21 23	C
	Gb	iP	12 22 00	
	Um	eP	12 21 18	
		i	12 21 22	
	Kodiak Island, Alaska (h = 40 km).			
" 19	Up	iP	12 45 35	
	Sk	iP	12 45 46	
	Um	iP	12 45 56	
	South Atlantic Ocean (h = 100 km).			
" 19	Up	iP	13 18 18	D
	Ki	iP	13 17 25	
	Sk	iP	13 17 52	
	Gb	iP	13 18 28	
	Um	iP	13 17 53	
	Kodiak Island, Alaska (h = 40 km).			
" 19	Um	iP	14 01 41	
" 20	Um	iP	05 17 38	D
" 20	Up	iP	13 15 44	C
	Ki	iP	13 14 51	
" 20	Up	iP	14 01 13	C

1961				
Feb 20	Um	iP	18 44 16	C
		i	18 44 47	
" 20	Up	iP	18 55 25	
	Um	e(P)	18 55 13	
" 20	Ki	iP	18 58 53	
	Um	iP	18 58 48	
	Near north coast of Sumatra (h = 140 km).			
" 21	Up	iP	03 07 03	
	Ki	iP	03 08 15	
	Sk	iP	03 07 43	
		i	03 07 59	
	Gb	iP	03 06 50	
		i	03 07 07	
	Um	iP	03 07 49	
		i	03 08 00	
	Near south coast of Greece (h = 50 km).			
" 21	Up	iP	10 27 49	
" 21	Up	eP	11 31 42	
	Um	iP	11 32 08	
" 21	Sk	i(P)	13 29 12	
" 21	Up	iP	15 48 01	
" 22	Up	iP	03 00 10	
	Um	iP	02 59 37	
	Aleutian Islands (h = 100 km).			
" 22	Um	eP	09 05 32	
" 22	Um	iP	13 31 52	
" 22	Up	iP	15 55 31	
	Ki	iP	15 55 31	
	Near coast of Sumatra (h = 40 km).			
" 22	Up	iPKP	22 13 10	C
			microns	sec
		PKP Z'	0.2	0.6
	Ki	iPKP	22 12 49	
	Sk	iPKP	22 13 03	D
	Gb	iPKP	22 13 13	C
		i	22 13 18	
	Um	iPKP	22 12 58	
	Kermadec Islands region (h = 80 km).			

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

1961
Feb 23 Up iP 01 12 54
Um iP 01 12 45

" 23 Up iP 03 25 00
Ki iP 03 25 41
Sk iP 03 25 15
Gb eP 03 24 28

" 23 Up -
microns sec
M E 1.6 17
M N 1.4 14
Ki iP 03 29 51
Sk eP 03 29 33
Gb eP 03 28 36
Dodecanese Islands region (h = 20 km).

" 23 Um iP 04 16 41 C

" 23 Up iP 04 27 43 C
iPP 04 30 32
iS 04 37 04
microns sec
P Z' 0.3 1.0
M E 6.5 20
M N 8.0 19
M Z 9.7 20
D = 8000 km = 72°.
Ki iP 04 27 02 C
i 04 27 10
e(S) 04 35 52
microns sec
P Z' 0.2 1.0
M E 19 21
M N 9.2 22
M Z 8.4 19
Sk iP 04 27 35 C
Gb iP 04 28 05 C
iPP 04 30 55
Um iP 04 27 22
i 04 27 30
Off east coast of Honshu, Japan (h = 120 km).
Magn. = 6.3 (Up, Ki).

" 23 Up iSn 04 49 20
iSg 04 49 59
microns sec
Sg Z' 0.1 0.5
D = 830 km = 7.5°.
Ki iPg 04 47 09
i 04 47 16
iSn 04 47 44
iSg 04 47 59

1961
Feb 23 cont.
microns sec
Sg Z' 0.5 0.5
D = 420 km = 3.8°.
Sk ePg 04 47 09
i 04 47 15
iSg 04 47 55
(D = 390 km = 3.5°).
Gb i 04 50 24
iSg 04 50 59
D = 1020 km = 9.2°.
Um iPg 04 47 36
iSn 04 48 09
iS[x] 04 48 19
eSg 04 48 34
D = 530 km = 4.8°.
Off coast of central Norway, 66.9°N, 11.1°E. Origin time = 04 45 56.

" 23 Up iP 09 11 09
Um eP 09 13 19

" 23 Up i(P) 13 58 06
Gb iP 13 58 15

" 23 Um i(P) 16 03 41

" 23 Up i(P) 21 06 46

" 23 Up iP 21 22 48
Um iP 21 22 06

" 23 Up eP 21 51 06
Ki eP 21 52 08
Sk iP 21 51 45
Gb iP 21 50 56
Um iP 21 51 38
Dodecanese Islands (h = 25 km).

" 23 Up iP 21 51 48
iS 21 56 10
microns sec
S N 1.5 6
M E 2.5 15
M N 3.5 16
M Z 3.3 15
D = 2650 km = 24°.
Ki iP 21 52 54
microns sec
M E 1.4 13
M N 1.1 10
M Z 1.8 12
Sk iP 21 52 31
Gb iP 21 51 43

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

1961							
Feb	23	Um	iP		21 52 19		
cont.		Northern Aegean Sea.					
"	23	Up	iP		22 02 01		
			i(S)		22 05 49		
					microns sec		
			(S)	N	1.1	6	
			M	E	1.9	16	
			M	N	1.7	17	
			M	Z	1.9	15	
		Ki	iP		22 03 09		
					microns sec		
			M	E	1.3	11	
			M	N	0.9	10	
			M	Z	1.1	9	
		Sk	iP		22 02 41		
		Gb	iP		22 01 56		
		Um	iP		22 02 35		
		Turkey (h = 14 km).					
"	23	Um	iP		23 03 16		
"	24	Up	iP		03 15 59		
			i		03 16 00		
					microns sec		
			P	Z'	0.4	0.7	
			M	E	0.9	16	
			M	N	1.0	16	
			M	Z	0.5	17	
		Ki	iP		03 15 33		
					microns sec		
			P	Z'	0.2	1.0	
		Sk	iP		03 16 02		
			i		03 16 45		
		Gb	iP		03 16 22		
		Um	iP		03 15 44		
		Ryukyu Islands (h = 25 km).					
"	24	Um	iP		13 27 28		
"	24	Um	iP		16 43 16		
"	24	Um	iP		16 47 49		
"	25	Ki	iSKP		05 16 08		
		Gb	iPKP		05 13 52	C	
		Fiji Islands region (h = 610 km).					
"	25	Um	iPKP		08 43 01		
			iSKP		08 45 38		
		South of Fiji Islands region (h = 580 km).					
1961							
Feb	25	Up	iP		12 18 50		
"	25	Up	iP		15 34 33		
		Ki	iP		15 33 56		
		Um	iP		15 34 12		
"	26	Up	eSS		06 29 12		
					microns sec		
			M	E	1.5	20	
			M	N	1.1	18	
			M	Z	2.4	19	
		Ki	iPKP		06 08 07		
			i		06 08 20		
					microns sec		
			M	E	1.6	18	
			M	N	1.6	20	
			M	Z	3.1	19	
		Um	iPKP		06 08 12	C	
		Easter Island region (h = 30 km).					
"	26	Sk	iP		09 44 47		
			i		09 45 18		
"	26	Um	i(P)		11 47 42		
			i		11 48 38		
"	26	Up	i(P)		12 21 24	C	
"	26	Gb	i(P)		13 04 32		
"	26	Um	iP		13 12 57	C	
"	26	Um	iP		15 01 11		
			i		15 01 29		
"	26	Up	iP		18 22 20	C	
			i(PP)		18 24 54		
			iPP		18 25 02		
			iPa		18 26 58		
			i		18 30 56		
			iS		18 31 45		
			iSS		18 36 42		
					microns sec		
			P	E	9.1	14	
			P	N	8.3	16	
			P	Z	25	16	
			P	Z'	1.5	0.8	
			PP	E	7.5	15	
			PP	N	5.7	13	
			PP	Z	23	20	
			S	E	29	20	
			M	E	280	17	

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

1961 Feb 26 cont.

		M	N	370	20
		M	Z	470	20
		D = 8050 km = 72 1/2°.			
	Ki	iP		18 21 47	C
		iPP		18 24 19	
		iPa		18 25 54	
		iS		18 30 36	
		iPS		18 31 06	
		iP'P'		18 49 59	
		microns		sec	
		P	E	6.5	9
		P	N	2.9	10
		P	Z	16	9
		P	Z'	0.9	1.4
		PP	E	13	17
		PP	Z	16	14
		S	E	30	18
		P'P'	Z'	1.6	3.3
		M	E	560	24
		M	N	480	24
		M	Z	1200	24
		D = 7450 km = 67°.			
	Sk	iP		18 22 18	C
		iPP		18 25 07	
	Gb	iP		18 22 40	C
	Um	iP		18 22 01	C
		iP'P'		18 50 02	
	Near coast of Kyushu, Japan (h = 50 km). Magn. = 7.3 (Up, Ki).				
" 26	Up	iP		21 13 30	C
		microns		sec	
		P	Z'	0.1	1.0
	Ki	iP		21 13 11	C
		microns		sec	
		P	Z'	0.2	1.2
	Sk	iP		21 13 34	
	Gb	iP		21 13 48	C
		i		21 13 55	
	Um	iP		21 13 18	
		i		21 13 25	
	Luzon, Philippine Islands (h = 30 km).				
" 27	Up	iP		01 20 06	
	Ki	iP		01 20 10	
	Sk	iP		01 19 53	C
		i		01 20 36	
	Um	iP		01 20 08	
" 27	Ki	ePKP		10 48 59	
	Southern Chile (h = 60 km).				

1961

Feb 27	Up	iP		13 17 31	
	Ki	iP		13 16 38	C
		i		13 16 44	
		microns		sec	
		P	Z'	0.2	1.0
	Sk	iP		13 17 07	
		i		13 17 35	
	Gb	iP		13 17 44	
	Um	iP		13 17 03	C
	Aleutian Islands (h = 60 km).				
" 27	Up	iP		15 57 01	
	Ki	iP		15 56 56	
	microns		sec		
		P	Z'	0.1	1.5
	Um	iP		15 57 03	C
	Near coast of Costa Rica (h = 100 km).				
" 27	Up	iP		18 01 21	
	Ki	iP		18 01 25	
	microns		sec		
		P	Z'	0.1	0.8
	Um	iP		18 01 16	
	Tadzhik, U.S.S.R. (h = 50 km).				
" 27	Gb	iPg		20 28 46	C
		eSg		20 29 07	
	D = 180 km = 1.6°.				
	Seismic ?				
" 27	Up	iP		21 45 17	
	microns		sec		
		M	N	1.8	11
		M	Z	1.7	10
	Ki	iP		21 46 21	
		i		21 46 28	
	microns		sec		
		M	E	1.5	19
	Gb	iP		21 45 09	
" 27	Ki	iP		21 50 02	
" 27	Up	i(P)		22 00 07	
	microns		sec		
		M	N	2.8	14
		M	Z	2.2	14
	Ki	iP		22 00 54	
	Aegean Sea (h = 30 km).				
" 28	Up	i(P)		12 17 43	
" 28	Up	iP		12 44 29	

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

1961							
Feb	28		iPeP	12	44	54	
cont.				microns		sec	
			P	Z'	0.2	0.6	
		Ki	iP	12	43	42	D
				microns		sec	
			P	Z'	0.1	0.8	
		Gb	iP	12	44	50	
		Um	iP	12	44	04	
		Kurile Islands (h = 30 km).					
"	28	Up	i(P)	15	18	13	
"	28	Up	i(P)	20	38	07	
"	28	Ki	iP	21	40	02	

Markus Båth
April 10, 1961.

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

Seismological Institute
University
Uppsala, Sweden

P R E L I M I N A R Y
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, and U M E Å

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°49.0'N,	20°14.1'E;	h = 20 m

March 1 - 31, 1961

1961 Mar	1	Ki	iP	00 36 18
		Um	iP	00 36 23
		Mariana Islands region (h ~220 km).		
"	1	Up	iP	12 27 39
			i	12 27 42
		Local ? Seismic ?		
"	1	Um	iP	13 27 36
		Near coast of Java (h~30 km).		
"	1	Ki	iP	14 18 20
		Um	iP	14 18 37
		Molucca Passage (h ~ 60 km).		
"	1	Ki	iP	14 21 17
		Um	iP	14 22 17
"	1	Up	iP	14 43 48 D
		Um	iP	14 44 09
		South Atlantic Ocean (h ~ 70 km).		
"	1	Gb	i(P)	15 26 38
"	1	Um	iP	16 37 01
"	1	Ki	i(P)	16 51 49
"	1	Um	eP	19 39 20
		Mariana Islands (h ~ 70 km).		

1961 Mar	1	Up	iP	20 34 52
"	1	Um	iP	23 12 00
"	1	Um	iP	00 11 37
"	2	Um	iP	00 15 08
"	2	Um	iP	00 41 00
"	2	Up	i(P)	01 00 39
			i(Sg)	01 01 14
		Local ?		
"	2	Um	iP	01 16 56
"	2	Up	iP	13 57 55
"	3	Up	iP	05 27 00
		Ki	iP	05 26 19
			i	05 26 30
		Um	iP	05 26 35
		Hokkaido, Japan (h ~ 60 km)		
"	3	Um	iPKP	06 44 53
		Loyalty Islands region (h ~ 30 km).		
"	3	Up	iPKP	08 37 22
		Um	iPKP	08 37 06
			i	08 37 10
		Kermadec Islands region (h ~ 60 km).		

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

1961					
Mar	3	Um	iP	09 30 14	
"	3	Um	iP	11 31 28	C
"	3	Gb	iP	13 59 57	C
"	3	Up	i(P)	15 05 49	
"	3	Ki	iPKP	23 10 23	
		Near coast of southern Chile (h ~ 100 km).			
"	4	Up	iP	07 52 34	
		Aleutian Islands (h ~ 50 km).			
"	4	Ki	iP	19 09 58	
		Um	iP	19 10 28	
		Aleutian Islands (h ~ 100 km).			
"	4	Up	iP	22 37 26	
		Ki	iP	22 36 46	
		Um	iP	22 37 03	
			i	22 37 12	
		Near coast of Honshu, Japan (h ~ 60 km).			
"	5	Up	iPKP	21 45 13	
		Tonga Islands region (h ~ 60 km).			
"	6	Um	iP	03 44 36	
			i	03 44 57	
"	6	Up	iP	16 54 35	
"	7	Ki	iP	00 21 06	
		Seismic ?			
"	7	Up	iP	02 59 29	
		West of Bonin Islands (h ~ 25 km).			
"	7	Up	iP	04 28 52	
			i	04 31 06	
		Bonin Islands region (h ~ 120 km).			
"	7	Up	iPKP	10 30 18	D
			i	10 33 26	
			iPP	10 33 39	
			iSKSP	10 43 56	
				microns sec	
			PKP E	8.0 11	
			PKP N	14 10	

1961					
Mar	7		PKP Z	67 12	
cont.			PKP Z'	0.9 0.7	
			PP N	7.1 9	
			M E	23 17	
			M N	32 22	
			M Z	47 23	
			D ~ 16200 km ~ 146°.		
		Ki	iPKP	10 29 57	D
			i	10 30 02	
			i	10 31 13	
			iPP	10 32 58	
			iPKS	10 33 38	
			iPS	10 43 13	
				microns sec	
			PKP Z	13 8	
			PKP Z'	0.5 1.5	
			PP N	4.7 8	
			PP Z	14 8	
			PKS E	8.1 8	
			PKS N	12 9	
			M E	20 18	
			M N	16 17	
			M Z	29 18	
			D ~ 15350 km ~ 138°.		
		Gb	iPKP	10 30 25	
		Um	iPKP	10 30 09	
		Kermadec Islands region (h ~ 40 km). Magn. = 7.5 (Up, Ki).			
"	7	Um	iP	14 01 46	C
"	7	Up	iP	15 54 33	
				microns sec	
			P Z'	0.1 0.6	
"	7	Up	iPKP	20 08 21	C
			i	20 08 27	
		Gb	iPKP	20 08 27	
		Um	iPKP	20 07 58	
		Kermadec Islands region (h ~ 50 km).			
"	7	Up	iPKP	23 30 35	
		Ki	iP	23 26 21	
			iPP	23 30 56	
		Gb	iPKP	23 30 43	
		Um	iPKP	23 30 30	
		New Britain region (h ~ 90 km).			
"	8	Up	iP	00 28 56	
		Ki	iP	00 28 03	
		Gb	iP	00 29 10	

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

1961 Mar 8 cont.	Um	iP	00 28 31	C	
		i	00 28 35		
	Aleutian Islands (h ~ 60 km).				
" 8	Up	iP	05 11 21		
" 8	Up	ePKP	05 48 13		
		i	05 48 18		
		i	05 48 25		
			microns	sec	
		PKP Z'	0.1	0.6	
	Gb	iPKP	05 48 32		
	Um	iPKP	05 48 06		
	Kermadec Islands region (h ~ 60 km).				
" 8	Um	iP	09 18 44		
" 8	Up	iP	23 13 52		
	Um	iP	23 13 27		
	Off coast of Honshu, Japan (h ~ 40 km).				
" 9	Up	iP	04 09 54		
		i	04 10 02		
			microns	sec	
		P Z'	0.1	1.0	
		M E	1.2	16	
		M N	1.4	20	
	Ki	iP	04 10 19		
		i	04 10 29		
	Gb	eP	04 09 38		
	Um	iP	04 10 18		
	Atlantic Ocean (h ~ 30 km).				
" 9	Um	iP	08 35 49		
" 9	Um	iP	13 06 59		
" 9	Um	iP	15 07 49		
" 9	Um	iP	15 56 46	C	
" 9	Up	i(P)	16 12 12		
" 9	Um	iP	17 18 38		
" 10	Ki	iPKP	03 20 38		
	Macquarie Island region (h ~ 120 km).				
" 10	Up	iP	14 37 03	C	
			microns	sec	
		P Z'	0.1	0.5	

1961 Mar 10	Up	iP	15 31 33		
	Um	i(P)	15 31 23		
" 10	Ki	i(P)	17 32 09		
" 10	Ki	e(P)	21 14 36		
		i	21 14 41		
" 11	Up	eP	01 42 24		
			microns	sec	
		P Z'	0.1	1.0	
		M E	7.1	18	
		M N	18	22	
		M Z	19	23	
	Ki	iP	01 41 32		
			microns	sec	
		P Z'	0.2	1.5	
		M E	14	22	
		M N	12	22	
		M Z	20	19	
	Um	iP	01 41 52		
		iPeP	01 42 28		
	Kurile Islands (h ~ 30 km). Magn. = 6.3 (Up, Ki).				
" 11	Um	i(P)	03 41 48		
" 11	Um	iP	03 49 31		
" 11	Up	iP	08 50 13		
		i	08 50 17		
			microns	sec	
		P Z'	0.1	1.0	
	Ki	iP	08 50 59	C	
			microns	sec	
		P Z'	0.4	1.5	
	Um	iP	08 50 35		
	Near coast of British Somaliland (h ~ 20 km).				
" 12	Up	iPKP	23 41 17		
			microns	sec	
		PKP Z'	0.1	0.9	
	Gb	iPKP	23 41 28		
	Um	iPKP	23 41 08		
		i	23 41 13		
	Tonga Islands region (h ~ 110 km).				
" 13	Up	iPKP	08 02 10		
	Tonga Islands region (h ~ 450 km).				
" 13	Um	iP	15 36 19		

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

1961						
Mar	13	Up	iP		19 22 47	
					microns	sec
			P	Z'	0.2	0.8
			M	E	2.6	14
			M	N	2.2	15
			M	Z	2.8	14
		Ki	iP		19 23 55	
					microns	sec
			P	Z'	0.2	0.8
		Sk	iP		19 23 25	
		Gb	iP		19 22 41	
		Um	iP		19 23 19	
		Orete (h ~ 25 km).				
"	13	Ki	iPKP		20 54 16	
			i		20 54 33	
		Sandwich Islands (h ~ 60 km).				
"	13	Um	iP		22 23 50	
"	15	Um	iP		04 52 25	
"	15	Ki	iP		23 32 19	
					microns	sec
			P	Z'	0.1	0.9
		Um	iP		23 32 30	
"	16	Gb	iPKP		04 49 25	
		Um	iSKP		04 51 59	
		Kermadec Islands region (h ~ 540 km).				
"	16	Ki	iP		05 08 02	
			i		05 08 29	
		Um	iP		05 08 29	
		Aleutian Islands (h ~ 40 km).				
"	16	Um	iP		10 53 02	
"	16	Ki	iP		11 33 38	
			i		11 34 06	
		Um	iPP		11 38 06	
		Banda Sea (h ~ 80 km).				
"	16	Up	ePKP		14 03 23	
			iPP		14 03 59	
					microns	sec
			M	E	15	19
			M	N	24	21
			M	Z	12	20
		Ki	iP		13 59 25	
			i(PKP)		14 03 07	
			iPP		14 03 41	
			iSKS		14 10 02	

1961						
Mar	16		iPS		14 12 45	
cont.					microns	sec
			SKS	E	2.9	7
			M	E	19	21
			M	N	12	21
			M	Z	21	20
		Um	i(PP)		14 03 33	
		Flores Island (h ~ 70 km).				
		Magn. = 6.9 (Up, Ki).				
"	16	Gb	ePKP		20 24 54	
		Tonga Islands region (h ~ 100 km).				
"	17	Up	iP		11 11 22	
			i		11 11 26	
		Local ? Seismic ?				
"	17	Up	iP		13 51 05	
			i		13 51 10	
		Local ? Seismic ?				
"	17	Gb	iPKP		14 26 23	
		Tonga Islands region (h ~ 120 km).				
"	17	Up	iP		15 02 59	
			i		15 03 01	
					microns	sec
			P	Z'	0.2	0.6
		Ki	e(P)		15 02 35	
"	17	Up	iP		15 20 45	
"	17	Gb	i(P)		16 36 38	
"	17	Up	e(P)		19 09 01	
"	17	Up	iPKP		20 30 03	
			i		20 30 12	
		Ki	iPKP		20 29 55	
		Gb	iPKP		20 30 12	
			i		20 30 23	
		Tonga Islands region (h ~ 80 km).				
"	17	Up	iP		22 51 57	
		Ki	iP		22 51 19	
		Um	iP		22 51 38	C
			i		22 51 55	
		Off south coast of Honshu, Japan (h ~ 120 km).				
"	18	Um	iP		09 45 55	

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

1961
Mar 18 Up iPKP 09 59 44
Ki iPKP 09 59 29
Sk iPKP 09 59 37
Kermadec Islands region
(h ~ 670 km).

" 18 Up iP 10 28 03
Ki iP 10 27 30
Um iP 10 27 30
Bonin Islands region
(h ~ 500 km).

" 18 Um iP 12 08 39

" 18 Ki iP 13 09 16
microns sec
P Z' 3.1 0.5
Sk i(Sg) 13 12 01
Explosion of 48 ton
dynamite in the Kiruna
iron ore mines.

" 18 Um iP 13 24 52

" 18 Up iPKP$_2$ 15 15 46
i 15 16 20
i 15 30 10
i 15 31 20
microns sec
M E 11 24
M N 27 23
M Z 16 23
D ~ 17800 km ~160°.
Ki iPKP 15 15 02
i 15 15 11
ePP 15 18 53
i 15 21 13
ePPP 15 22 24
iSS 15 38 22
microns sec
PKP E 0.9 6
PKP Z' 0.6 2.2
PP Z 2.8 6
M E 11 18
M N 10 20
M Z 16 19
D ~ 17100 km ~154°.
South of New Zealand
(h ~ 40 km). Magn. = 7.0
(Up, Ki).

1961
Mar 18 Um eP 16 24 27

" 18 Ki iP 17 52 26
Off east coast of Mindanao
(h ~ 60 km).

" 18 Up e(P) 18 32 34
i 18 32 54

" 19 Up iP 05 03 07
microns sec
P Z' 0.1 1.0
Ki iP 05 02 25
i 05 02 36
Um iP 05 02 40
i 05 02 51
North of Honshu, Japan
(h ~ 14 km).

" 19 Up iP 05 12 30
Ki iP 05 12 28
i 05 12 39
Um iP 05 12 25
Soenda Strait (h ~ 120 km).

" 19 Up -
microns sec
M E 1.1 20
M N 2.1 21
M Z 2.2 22
Ki iPKP 07 33 58
microns sec
M E 1.2 21
M N 1.0 20
M Z 2.6 22
Um iPKP 07 34 03
New Hebrides Islands
(h ~ 90 km).

" 19 Ki iP 08 04 45
Um eP 08 04 49
Molucca Passage (h ~ 80 km).

" 19 Up iP 09 30 14 D
Ki iP 09 29 33
Sk iP 09 30 19
Gb iP 09 30 33
Um iP 09 29 51
Honshu, Japan (h ~ 120 km).

" 19 Um iP 09 53 38 D

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

1961						
Mar	19	Um	iP		09 59 57	
"	19	Um	i(P)		10 02 12	D
"	19	Up	iPKS		12 28 35	
			i		12 28 43	
					microns	sec
			PKS	Z'	0.1	1.0
			M	N	1.4	23
			M	Z	1.9	23
		Ki	iPKP		12 24 49	
			i		12 24 50	
		Um	iPKP		12 24 55	
		New Hebrides Islands (h ~ 16 km).				
"	19	Um	eP		13 27 45	
"	19	Up	iP		13 46 02	
"	19	Gb	iPKP		20 53 44	
		Tonga Islands region (h ~ 40 km).				
"	20	Um	iP		02 30 05	
		Mariana Islands (h ~ 100 km).				
"	20	Up	iP		03 38 03	C
			i		03 38 13	
					microns	sec
			P	Z'	0.1	0.5
		Ki	iP		03 38 12	C
					microns	sec
			P	Z'	0.1	0.6
		Sk	iP		03 38 29	C
		Gb	iP		03 38 27	C
		Um	iP		03 38 04	
		Hindu Kush (h ~ 120 km).				
"	20	Ki	iP		06 28 55	
					microns	sec
			M	E	5.6	17
			M	N	2.6	18
			M	Z	5.7	17
		Um	iP		06 29 09	
			i		06 29 23	
		Off west coast of Nicaragua (h ~ 120 km).				
"	20	Um	iP		06 50 05	
"	20	Up	iP		11 48 47	C
			iPcP		11 49 16	
					microns	sec
			P	Z'	0.2	0.5
1961						
Mar	20	Ki	iP		11 48 02	C
cont.		Sk	iP		11 48 38	
		Gb	iP		11 49 09	
		Um	iP		11 48 22	
			iPcP		11 49 00	
			ipP		11 49 40	
		Sakhalin Island (h ~ 350 km).				
"	20	Um	iP		13 09 24	
"	20	Up	iP		14 08 42	
			i		14 09 06	
		Ki	iP		14 08 43	
			i		14 09 07	
					microns	sec
			P	Z'	0.1	1.0
		Sk	iP		14 09 04	
		Um	iP		14 08 36	
		Northern India (h ~ 70 km).				
"	20	Ki	i(Sg)		15 45 03	
		Sk	e(Pg)		15 42 10	
			iSg		15 42 22	
			iSn		15 42 28	
			i		15 42 32	
		Um	i(Sg)		15 44 10	
		Norway, district of Trondheim.				
"	20	Up	iPKP		16 12 07	
			i		16 12 16	
			iPP		16 15 07	
			iSKP		16 15 31	
			iPKS		16 15 50	
			ipPKS		16 16 43	
			i		16 17 13	
					microns	sec
			PKP	Z'	0.2	0.9
			PP	Z'	0.1	1.0
			SKP	Z	1.8	4
			PKS	E	1.0	4
			PKS	N	2.8	7
			M	E	3.7	25
			M	N	3.6	22
			M	Z	4.2	23
			D ~ 15350 km ~ 138°.			
		Ki	iPKP		16 11 55	
			i		16 12 04	
			iPP		16 14 14	
			iSKP		16 15 09	
			iPKS		16 15 24	
					microns	sec
			PKP	Z	1.1	5
			PKP	Z'	0.4	1.0
			PP	N	1.2	7
			PP	Z	2.5	6

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

1961						
Mar 20		SKP	Z	4.7	6	
cont.		SKP	Z'	2.6	2.5	
		PKS	E	2.4	7	
		PKS	N	4.2	7	
		M	E	2.9	20	
		M	N	1.6	19	
		M	Z	3.7	19	
		D ~ 14450 km ~ 130°.				
	Sk	iPKP		16 12 06		C
		i		16 12 13		
		iSKP		16 15 27		
	Gb	iPKP		16 12 17		
	Um	iPKP		16 11 59		
		i		16 12 07		
		i		16 12 11		
		iSKP		16 15 23		
	Tonga Islands (h ~ 180 km).					
	Magn. = 6.5 (Ki).					
" 20	Up	iP		16 24 22		
	Um	iP		16 24 26		
" 20	Up	iP		16 48 19		
" 20	Um	iP		18 43 20		
		i		18 43 29		
" 21	Up	iPKP		00 02 07		
				microns	sec	
		M	E	1.9	20	
		M	N	6.1	20	
		M	Z	6.1	21	
	Ki	iPKP		00 01 59		
				microns	sec	
		M	E	2.4	18	
		M	N	4.5	20	
		M	Z	7.7	21	
	Sk	iPKP		00 02 07		
	Gb	iPKP		00 02 13		
		i		00 02 16		
	Um	ePKP		00 01 58		
	Tonga Islands region (h ~ 25 km).					
	Magn. = 6.5 (Up, Ki).					
" 21	Up	iP		03 28 50		C
" 21	Um	iP		06 12 42		
" 21	Gb	iPKP		09 41 03		
	South of Fiji Islands (h ~ 600 km).					
" 21	Um	iP		15 08 04		

1961						
Mar 21	Ki	iP		19 53 35		
" 21	Um	iPKP		20 14 04		
	Loyalty Islands region (h ~ 20 km).					
" 22	Um	iP		00 41 31		
" 22	Um	i(P)		05 19 15		
" 22	Up	iPKP		21 47 15		
	Ki	iPKP		21 46 55		
	Gb	iPKP		21 47 33		
	South of Fiji Islands (h ~ 520 km).					
" 23	Ki	iP		01 07 13		
	Italy (h ~ 120 km).					
" 23	Ki	iP		02 00 50		
	Celebes (h ~ 10 km).					
" 23	Ki	iP		04 12 25		
" 23	Up	iP		14 22 13		
" 24	Um	i(P)		09 41 03		C
" 24	Um	iP		15 03 00		
		i		15 03 12		
" 24	Ki	i(P)		20 59 53		
" 24	Up	iP		23 08 43		C
				microns	sec	
		P	Z'	0.4	1.2	
		M	E	2.4	21	
		M	N	2.4	20	
		M	Z	2.7	21	
	Ki	iP		23 08 04		C
		iPP		23 10 30		
				microns	sec	
		P	Z'	0.2	1.0	
		PP	Z'	0.1	1.2	
		M	E	6.9	17	
		M	N	3.1	23	
		M	Z	5.9	17	
	Sk	iP		23 08 38		
		iPP		23 11 18		
	Um	iP		23 08 17		C
		i		23 08 29		
	Near east coast of Honshu, Japan (h ~ 100 km).					
	Magn. = 6.0 (Up, Ki).					

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

1961
Mar 25 Up iP 12 06 56
i 12 06 59
microns sec
P Z' 0.1 0.6

" 25 Up iP 13 21 45
Ki iP 13 22 57
Sk iP 13 22 24
Gb eP 13 21 32
Um iP 13 22 20
Greece.

" 26 Up iP 01 34 18
i 01 34 26
Ki eP 01 34 05
Luzon, Philippine Islands
(h ~ 70 km).

" 26 Gb iP 02 50 09

" 26 Ki iP 05 34 47

" 26 Um iP 09 51 19

" 26 Up iP 14 42 34
microns sec
P Z' 0.1 1.0
Ki iP 14 42 14 C
microns sec
P Z' 0.4 1.1
Um iP 14 42 25
Mindanao, Philippine Islands
(h ~ 150 km).

" 26 Up iP 20 21 05
Ki iP 20 20 12
Um iP 20 20 41 C
Bristol Bay (h ~ 220 km).

" 26 Up iP 23 20 53
i 23 20 56
microns sec
P Z' 0.1 1.0
Ki iP 23 20 51
Southern Tibet (h ~ 20 km).

" 27 Um iP 04 36 06
Banda Sea (h ~ 40 km).

" 27 Um iP 13 43 16

" 27 Up iPKP 16 48 43 D
i 16 48 49
microns sec
PKP Z' 0.2 0.5

1961
Mar 27 cont. Ki iPKP 16 48 21
Gb iPKP 16 48 52
Um iPKP 16 48 35 D
Kermadec Islands (h ~ 510 km).

" 28 Um iP 00 49 34

" 28 Um i(P) 04 14 55

" 28 Ki iP 06 09 52 C
Um iP 06 10 19 D
Aleutian Islands (h ~ 50 km).

" 28 Up e 09 40 43
iSg 09 40 51
D = 1110 km = 10.0°.
Ki iPn 09 36 17
iP 09 36 25
iSn 09 37 02
iSg 09 37 18
D = 390 km = 3.5°.
Sk eSn 09 39 03
eSg 09 39 59
D = 930 km = 8.4°.
Um iSn 09 38 05
iSg 09 38 38
D = 670 km = 6.0°.
Northwestern Russia, 68.5°N,
29.7°E. Origin time=09 35 22.
Explosion ?

" 28 Up iP 09 49 24 C
i 09 52 38
iPP 09 53 28
i 09 53 57
iSKS 09 59 47
iS 10 00 36
microns sec
P Z' 0.2 0.6
PP E 2.3 5
PP Z 2.5 5
SKS E 1.5 3
M E 32 24
M N 46 19
M Z 26 20
D ~ 10900 km ~ 98°.
Ki iP 09 49 11 C
i 09 52 28
ePP 09 53 01
e(S) 10 00 00
i(PKKP) 10 06 08
microns sec
P Z 3.9 6
P Z' 1.5 1.5
PP E 4.5 9

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

1961						
Mar	28		(S)	N	2.9	10
cont.			(PKKP)	Z'	0.2	1.5
			M	E	55	22
			M	N	51	22
			M	Z	63	21
			D ~ 10550 km ~ 95°.			
		Sk	iP		09 49 30	
		Gb	iP		09 49 40	C
			iPP		09 53 55	
		Um	iP		09 49 15	C
			i		09 49 27	
			i(PKKP)		10 06 10	
		Northern Celebes (h ~ 80 km). Magn. = 7.0 (Up, Ki).				
"	28	Up	iP		10 00 14	
"	28	Um	iP		10 15 43	
"	28	Um	iP		10 17 01	
"	28	Um	iP		10 23 15	C
"	28	Up	iP		12 40 09	C
			i		12 40 34	
			iP'P'		13 08 26	
					microns	sec
			P	Z'	0.3	1.0
			P'P'	Z'	0.2	1.3
			M	E	3.4	18
			M	N	10	21
			M	Z	11	21
		Ki	iP		12 39 16	C
			iP'P'		13 08 47	
					microns	sec
			P	Z'	0.2	1.2
			M	E	5.5	20
			M	N	3.4	18
			M	Z	7.7	21
		Gb	iP		12 40 25	
		Um	iP		12 39 42	
			i		12 40 08	
			iP'P'		13 08 29	
		Aleutian Islands (h ~ 60 km). Magn. = 6.2 (Up, Ki).				
"	28	Up	iP		14 10 00	
		Ki	eP		14 09 04	
			i		14 09 22	
		Aleutian Islands (h ~ 90 km).				
"	28	Up	iP		14 26 10	
					microns	sec
			P	Z'	0.1	0.6

1961						
Mar	28	Ki	iP		23 01 54	
"	29	Up	iP		06 55 20	
		Ki	eP		06 54 38	
		Sk	eP		06 55 14	
		Gb	eP		06 55 23	
		Um	iP		06 54 59	C
		Near east coast of Honshu, Japan (h ~ 120 km).				
"	29	Ki	e(P)		07 35 35	
"	29	Ki	iP		09 48 16	
		Um	eP		09 48 21	
		Northern Celebes (h ~ 80 km).				
"	29	Um	iP		10 00 27	
"	29	Up	iP		13 29 04	
			i		13 29 08	
		Local ? Seismic.?				
"	29	Up	iP		16 02 55	
					microns	sec
			P	Z'	0.1	0.6
"	29	Up	iP		18 21 45	
					microns	sec
			P	Z'	0.1	1.0
		Ki	iP		18 21 05	
		Sk	eP		18 21 38	
		Um	iP		18 21 18	C
			i		18 21 31	
		Near east coast of Honshu, Japan (h ~ 130 km).				
"	29	Ki	iP		21 36 10	
"	30	Up	-			
					microns	sec
			M	E	1.2	18
			M	N	2.3	19
			M	Z	1.7	18
		Ki	-			
					microns	sec
			M	E	2.0	21
			M	N	1.1	20
			M	Z	1.7	17
		Um	iP		07 55 53	
		Gulf of California (h ~ 2(km).				
"	30	Up	-			

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

1961

Mar	30				microns	sec
cont.			M	N	2.3	22
			M	Z	1.7	21
		Ki	iPKP		09 08	49
					microns	sec
			M	E	2.2	20
			M	N	1.3	20
			M	Z	2.8	20
		Samoa Islands region (h ~ 25 km).				
"	30	Ki	i(P)		11 41	05
"	30	Ki	iP		12 09	58
					microns	sec
			M	E	0.9	13
			M	N	0.7	16
			M	Z	0.8	12
		Um	eP		12 10	07
		Szechwan Province, China (h ~ 80 km).				
"	30	Up	i(P)		12 41	23
			i		12 41	44
"	30	Ki	iPg		13 31	18
			iSg		13 31	27
			iS		13 31	30
			iSn		13 31	34
		D = 80 km = 0.7°.				
		Explosion of 15.6 ton dynamite in the iron ore mines at Malmberget.				
"	31	Ki	iP		05 31	36
		Um	iP		05 31	55
		South of Honshu, Japan.				
"	31	Up	iP		11 11	29
		Ki	iP		11 11	02
		Sk	iP		11 11	33
		Um	iP		11 11	12
		Outer Mongolia (h ~ 80 km).				
"	31	Gb	e(P)		21 16	21

Markus Båth
July 31, 1961

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

Seismological Laboratory
Uppsala

P R E L I M I N A R Y
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, and U M E Å

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°49.0'N,	20°14.1'E;	h = 20 m

A P R I L 1 - 30, 1961

1961 Apr	1	Up	iP		02	52	33		
		Ki	iP		02	51	59		
		Sk	iP		02	52	26		
		Um	iP		02	52	08		
		South of Honshu, Japan (h = 140 km).							
"	1	Ki	iP		03	09	25		
				microns	sec				
			P	Z'	0.1	1.5			
"	1	Ki	iP		08	18	11		
		Um	iP		08	18	37		
		Off east coast of Kamchatka (h = 40 km).							
"	1	Um	iP		12	36	12	C	
			i		12	36	40		
"	1	Up	iP		15	26	13		
			i		15	26	16		
			iPP		15	27	51		
			i		15	31	56		
			iS		15	32	34		
			iSS		15	35	29		
				microns	sec				
			P	E	4.6	5			
			P	Z	7.3	4			
			P	Z'	2.2	1.5			
			PP	E	13	9			
1961 Apr cont.	1	Up	PP	N	1.5	5			
			PP	Z	11	9			
			S	E	16	10			
			S	N	4	4			
			S	Z	7	8			
			M	E	58	8			
			M	N	87	15			
			M	Z	69	8			
			D = 4550 km = 41°.						
		Ki	iP		15	26	11	C	
			i		15	26	14		
			iPP		15	27	44		
			iS		15	32	30		
			i		15	35	38		
				microns	sec				
			P	E	6.8	6			
			P	N	1.7	6			
			P	Z	9.5	5			
			P	Z'	2.3	0.5			
			PP	E	12	8			
			PP	N	3.6	7			
			PP	Z	11	5			
			S	E	11	5			
			S	N	4.9	6			
			S	Z	8.2	7			
			M	E	120	10			
			M	N	73	9			
			M	Z	170	9			
			D = 4550 km = 41°.						
		Sk	iP		15	26	37		

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

1961 Apr 1 cont.	Gb	eP	15 26 39		
		i	15 26 41		
		iPP	15 28 23		
	Um	iP	15 26 05		
	Sinkiang Province, China (h = 20 km). Magn. = 7.2 (Up, Ki).				
" 2	Up	iP	08 00 03		
" 2	Up	iP	12 59 58		
	Ki	eP	13 00 33		
	Sk	iP	13 00 33		
	Um	e(P)	13 00 07		
" 2	Up	iP	13 13 16	D	
	Ki	iP	13 13 16		
	Um	iP	13 13 13		
	Near coast of Sumatra (h = 25 km).				
" 2	Um	iP	13 39 03		
" 2	Ki	iP	17 46 03		
" 3	Up	iP	01 22 45		
	Ki	iP	01 22 49		
	Um	iP	01 22 46		
	Colombia (h = 220 km).				
" 3	Up	eP	02 54 18		
	Ki	iP	02 53 25	D	
	Um	iP	02 53 46		
	Near east coast of Kamchatka (h = 25 km).				
" 3	Up	iP	08 07 55		
	Ki	eP	08 07 47		
	Um	iP	08 07 53		
	North of Swan Island, Caribbean Sea (h = 90 km).				
" 3	Up	iP	16 42 35	D	
	Ki	iP	16 41 41		
	Sk	iP	16 42 18		
	Gb	iP	16 42 55	C	
	Um	iP	16 42 09		
	Near east coast of Kamchatka (h = 40 km).				
" 4	Up	iP	01 25 46		
			microns	sec	
	M	E	0.7	19	
	M	N	0.5	18	
	M	Z	0.8	17	

1961 Apr 4 cont.	Ki	iP	01 25 44	C	
			microns	sec	
	P	Z'	0.2	1.0	
	M	E	2.0	16	
	M	N	0.8	16	
	M	Z	2.1	15	
	Sk	iP	01 26 08		
	Um	iP	01 25 37		
	Sinkiang Province, China (h = 80 km).				
" 4	Ki	iP	01 33 55		
			microns	sec	
	P	Z'	0.1	1.0	
	Sk	iP	01 34 20		
	Um	eP	01 33 48		
	Sinkiang Province, China (h = 60 km).				
" 4	Ki	iP	06 40 30		
" 4	Um	iP	07 13 06		
" 4	Um	i(P)	07 22 48		
		i	07 22 53		
" 4	Up	iP	07 50 35		
			microns	sec	
	P	Z'	0.1	1.0	
	Ki	eP	07 50 20		
	Ryukyu Islands (h = 50 km).				
" 4	Up	iP	09 54 29		
		i	09 54 35		
		iPP	09 56 09		
		i(S)	10 00 43		
		eS	10 00 53		
		iSS	10 03 57		
		iLgl	10 08 24		
			microns	sec	
	P	E	0.7	5	
	P	Z	1.3	5	
	P	Z'	0.3	1.0	
	PP	E	0.7	5	
	S	E	11	30	
	S	N	1.6	10	
	M	E	78	21	
	M	N	47	17	
	M	Z	90	20	
	D = 4600 km = 41°.5.				
	Ki	iP	09 54 26		
		i	09 54 31		
		iPP	09 56 10		
		iS	10 00 49		
		eSS	10 03 52		

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

1961 Apr cont.	4	Ki	iLg1		10 08 16	
					microns	sec
			P	E	1.0	6
			P	Z	1.4	5
			P	Z'	0.9	1.0
			PP	E	1.0	6
			PP	Z	0.9	5
			M	E	110	16
			M	N	54	14
			M	Z	150	17
			D = 4600 km = 41½°.			
		Sk	iP		09 54 50	
			i		09 54 52	
			iPP		09 56 39	
			iLg1		10 09 53	
		Gb	eP		09 54 56	
			i		09 55 00	
			iPP		09 56 43	
		Um	iP		09 54 22	
			iPP		09 56 01	
		Sinkiang Province, China (h = 20 km). Magn.= 6.4 (Up, Ki).				
"	4	Up	i(Sg)		11 50 40	
			i		11 50 43	
		Sk	i(Sg)		11 52 16	
		Gb	i(Sg)		11 49 21	
		Um	e(Sg)		11 52 47	
		Local.				
"	4	Um	iP		12 00 09	
"	4	Up	iP		12 06 19	D
		Ki	iP		12 06 58	
		Um	iP		12 06 33	
		Persian Gulf (h = 25 km).				
"	4	Ki	iP		22 17 24	
"	4	Up	iPn		22 44 34	
			i(P[x])		22 44 50	
			iSn		22 46 08	
			i(S[x])		22 46 39	
					microns	sec
			Pn	Z'	0.1	0.5
			(P[x])	Z'	0.4	0.5
		Ki	iPn		22 45 04	
			iSn		22 47 15	
			iSg		22 48 08	
					microns	sec
			Sn	Z'	0.1	0.7
			Sg	Z'	0.3	0.8
1961 Apr cont.	4	Sk	iPn		22 43 58	C
			i		22 44 02	
			iPg		22 44 20	
			iSn		22 44 53	
			iSg		22 45 26	
		Gb	iPn		22 44 13	
			i		22 44 21	
			iSn		22 45 17	
			iSg		22 46 05	
		Um	iPn		22 44 47	
			iSn		22 46 16	
			iS[x]		22 46 57	
			iSg		22 47 10	
		North Sea. Agreement between the stations as well as between different phases is not good.				
"	5	Ki	iP		01 53 35	
					microns	sec
			P	Z'	0.7	0.5
"	5	Up	iP		04 54 23	
		Ki	iP		04 54 08	
		Um	iP		04 54 11	
"	5	Up	iP		05 15 17	
		Um	iP		05 15 01	
"	5	Up			microns	sec
			M	N	1.3	18
		Ki	iP		06 54 52	
					microns	sec
			M	E	0.6	11
			M	N	1.5	15
			M	Z	0.5	10
		Sinkiang Province, China (h = 80 km).				
"	5	Gb	iP		09 17 20	
"	5	Sk	iP		10 20 56	
"	5	Um	e(P)		10 24 52	
"	5	Ki	iP		10 28 16	
"	5	Gb	i(P)		10 47 14	
		Seismic?				
"	5	Gb	e(P)		12 02 16	
		Seismic?				
"	5	Um	e(P)		23 45 04	

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

1961

Apr	6	Up	iP		01 41 39	
			eSS		01 50 59	
			iLgl		01 55 30	
				microns	sec	
			P	Z'	0.1	1.5
			M	E	2.9	20
			M	N	1.4	18
			M	Z	4.2	20
		Ki	iP		01 41 36	
			ePP		01 43 14	
			iPcP		01 43 33	
			eSS		01 50 54	
			iLgl		01 55 28	
				microns	sec	
			P	Z'	0.2	0.8
			M	E	3.7	14
			M	N	2.1	10
			M	Z	4.7	12
		Sk	iP		01 42 00	
			i		01 42 18	
		Um	iP		01 41 32	
			iLgl		01 54 44	
		Sinkiang Province, China (h = 30 km).				
"	6	Up	iP		03 29 32	
		Ki	iP		03 28 47	
		Kurile Islands (h = 30 km).				
"	6	Up	iP		04 16 35	
				microns	sec	
			P	Z'	0.1	1.0
		Ki	iP		04 15 56	
				microns	sec	
			P	Z'	0.1	1.4
			M	E	0.7	20
			M	N	0.3	15
			M	Z	0.5	17
		Sk	iP		04 16 08	
		Gb	iP		04 16 37	
		Um	iP		04 16 16	
		Near coast of northern California (h = 70 km).				
"	6	Gb	iP		10 59 06	
"	6	Ki	i(P)		11 02 04	
"	6	Sk	iP		12 39 22	
		Italy				
"	6	Sk	eP		12 53 45	

1961

Apr	6	Up	iP		14 17 27	C
			eS		14 27 42	
		D = 9200 km = 83°.				
		Ki	iP		14 17 27	C
			i		14 17 38	
			iS		14 27 44	
				microns	sec	
			P	Z'	0.3	1.0
			M	E	0.5	17
			M	N	0.4	16
			M	Z	0.8	18
		D = 9200 km = 83°.				
		Sk	iP		14 17 42	C
			i		14 19 53	
		Gb	iP		14 17 40	
		Um	iP		14 17 25	C
			i		14 17 32	
		Near coast of Sumatra (h = 25 km).				
"	6	Ki	iPKP		15 52 35	
		Sk	iPKP		15 52 47	
		Loyalty Islands region (h = 120 km).				
"	6	Up	iP		18 20 23	
			i		18 20 29	
			iS		18 26 45	
			eSS		18 29 52	
				microns	sec	
			P	Z'	0.2	0.6
			M	E	1.5	18
			M	N	2.9	19
			M	Z	2.2	17
		D = 4550 km = 41°.				
		Ki	iP		18 20 54	
			i		18 21 00	
			iPP		18 22 53	
			iS		18 27 35	
			iSS		18 30 47	
				microns	sec	
			P	Z'	0.3	1.2
			S	E	1.0	12
			M	E	5.0	15
			M	N	3.2	18
			M	Z	8.3	15
		D = 5000 km = 45°.				
		Sk	iP		18 20 56	
			i		18 21 02	
		Gb	iP		18 20 34	C
			i		18 20 40	

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

1961 Apr cont.	6	Um	iP		18 20 34	
			i		18 20 40	
		Southern Iran (h = 110 km).				
"	6	Sk	iP		18 28 07	
"	6	Up	iP		21 33 02	
		Sk	iP		21 33 38	
		Um	iP		21 33 18	
"	6	Gb	i(P)		21 39 59	
"	6	Up	iP		22 38 54	D
		Ki	iP		22 38 55	
				microns	sec	
			P	Z'	0,1	1,2
		Sk	iP		22 39 10	
			i		22 39 26	
		Gb	i(P)		22 39 07	
		Um	iP		22 38 53	
		Near coast of Sumatra (h = 25 km).				
"	7	Um	iP		02 29 07	
"	7	Up	iP		04 48 19	D
				microns	sec	
			P	Z'	0,1	0,6
		Ki	iP		04 48 27	
		Sk	iP		04 48 44	
			i		04 49 10	
		Um	iP		04 48 16	C
		Hindu Kush region (h = 70 km).				
"	7	Up	iP		05 00 23	
		Ki	iP		05 00 31	
		Sk	iP		05 00 49	
		Um	iP		05 00 20	
		Hindu Kush region (h = 60 km).				
"	7	Um	eP		06 24 58	
"	7	Up	iP		06 56 45	C
				microns	sec	
			P	Z'	0,1	0,9
		Ki	iP		06 57 11	C
				microns	sec	
			P	Z'	0,1	1,0
		Sk	iP		06 57 10	
		Gb	iP		06 56 52	
		Um	iP		06 56 53	C

1961 Apr	7	Um	i(P)		07 00 04	
"	7	Um	eP		08 46 04	
		Near coast of Kamchatka (h = 30 km).				
"	7	Up	iP		10 19 25	D
				microns	sec	
			P	Z'	0,1	0,6
		Ki	iP		10 19 27	D
		Sk	iP		10 19 40	
		Gb	iP		10 19 38	
		Um	iP		10 19 20	
		Near coast of Sumatra. (h = 25 km).				
"	7	Ki	iP		18 34 49	
"	7	Up	eP		20 05 01	
			i		20 05 29	
			iS		20 13 13	
				microns	sec	
			P	Z'	0,1	1,0
			M	E	1,0	20
			M	N	1,0	19
			M	Z	0,5	11
		D = 6650 km = 60°).				
		Ki	iP		20 04 05	
			i		20 04 18	
			iS		20 11 31	
				microns	sec	
			P	Z'	0,1	1,0
			S	N	0,5	7
			M	E	1,6	18
			M	N	1,4	17
			M	Z	1,2	17
		D = 5800 km = 52°.				
		Sk	iP		20 04 51	
		Gb	iP		20 05 21	
			i		20 05 35	
		Um	iP		20 04 33	
		Near east coast of Kamchatka (h = 20 km). Magn.= 5,7. (Up, Ki).				
"	7	Up	iP		21 25 16	
			i		21 25 23	
			iP		21 26 45	
			i		21 26 57	
			iS		21 31 15	
			iSS		21 33 38	
			iLgl		21 38 44	

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

1961 Apr 7 cont.

			microns	sec	
Up	P	Z'	0.2	0.9	
	M	E	1.7	13	
	M	N	2.1	15	
	M	Z	1.4	13	
Ki	iP		21 25 20		
	i		21 25 30		
	eSS		21 34 06		
	i		21 39 06		
			microns	sec	
	P	Z'	0.2	0.9	
	M	E	3.4	13	
	M	N	0.7	12	
	M	Z	3.4	13	
Sk	iP		21 25 41		
	i		21 25 49		
Gb	iP		21 25 40	C	
	i		21 25 51		
	i		21 27 27		
Um	iP		21 25 13		
	i		21 25 21		
	i		21 25 25		

Kirghiz-Tadzhik border (h = 40 km).

" 7	Up	i(P)	21 33 53	
" 7	Gb	i(P)	21 35 38	
" 8	Um	iP	00 42 44	C

" 8 Up - -

		microns	sec
M	E	0.4	20
Ki	iP	05 00 28	
Gb	eP	05 00 13	

Ecuador (h = 25 km).

" 8	Ki	i(P)	12 07 57

" 8 Up -

		microns	sec
M	E	9.7	19
M	N	8.0	18
M	Z	15	19
Ki	iPKP	18 18 45	
	eSS	18 37 39	
		microns	sec
M	E	9.1	20
M	N	4.1	18
M	Z	9.7	20
Um	iPKP	18 18 40	

Chile (h = 60 km).

1961 Apr 8

Up	iP		19 30 33		
			microns	sec	
	P	Z'	0.1	1.4	
Ki	eP		19 29 48		
Um	iP		19 29 36		

Honshu, Japan (h = 190 km).

" 8	Up	iP		21 49 52	
		i		21 49 53	
			microns	sec	
		P	Z'	0.1	0.6
	Ki	iP		21 49 24	
		i		21 50 08	
			microns	sec	
		P	Z'	0.1	0.6
	Sk	iP		21 49 50	C
	Gb	iP		21 50 09	
	Um	iP		21 49 33	

Mariana Islands region (h = 110 km).

" 9	Up	eP	00 43 44	
		i	00 44 11	
		i	00 44 18	
	Ki	iP	00 44 15	
" 9	Um	eP	05 43 38	

" 9 Up -

		microns	sec
M	E	0.8	17
M	N	1.4	16
M	Z	1.6	17
Ki	iP	07 34 44	
		microns	sec
M	E	2.2	16
M	N	2.0	17
M	Z	3.4	17
Um	iP	07 35 02	

San Benito County, California (h = 10 km).

" 9	Up	iPKP	09 39 54	D
			microns	sec
	PKP	Z'	0.3	0.5
	Ki	ePKP	09 39 35	
			microns	sec
	PKP	Z'	0.1	1.2
	Sk	iPKP	09 39 47	
	Gb	iPKP	09 40 03	
	Um	iPKP	09 39 40	
		iSKP	09 42 24	

South of Fiji Islands (h = 660 km).

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

1961
Apr 9 Um iP 10 57 20

" 9 Up iP 15 46 57 C
i 15 47 08
i(Pa) 15 51 44
iS 15 56 37

		microns	sec
P	E	0.5	3
P	N	0.5	3
P	Z	0.9	2
P	Z'	0.3	1.0
S	E	3.3	15
S	N	3.6	15
M	E	75	18
M	N	62	19
M	Z	105	18

D = 8450 km = 76°.

Ki iP 15 46 33 C
i(Pa) 15 50 58
iS 15 55 53

		microns	sec
P	E	1.5	8
P	Z	3.3	7
P	Z'	2.9	2.5
S	E	4.0	12
S	N	2.2	13
M	E	21	14
M	N	27	15
M	Z	42	15

D = 8000 km = 72°.

Sk iP 15 47 01 C
iPP 15 50 01

Gb iP 15 47 17
iPP 15 50 19

Um iP 15 46 41

Near coast of Formosa (h = 10 km). Magn.= 6.8 (Up, Ki).

" 9 Ki iP 20 08 53

		microns	sec
P	Z'	0.2	1.7

Mariana Islands region (h = 70 km).

" 10 Um iP 02 39 39

" 10 Sk e(P) 03 04 49

" 10 Ki iP 07 08 40

		microns	sec
M	E	9.7	17
M	N	0.3	13
M	Z	0.6	15

Near coast of Formosa (h = 20 km).

1961
Apr 10 Ki iP 08 26 01
iSg 08 26 28

Local?

" 10 Um eP 17 26 56
i(pP) 17 27 15

Near coast of Honshu, Japan (h = 60 km).

" 10 Ki eL 20 30

		microns	sec
M	E	1.1	20
M	N	0.4	16
M	Z	1.7	20

Near coast of New Guinea (h = 40 km).

" 11 Ki eP 00 40 33

		microns	sec
M	E	0.4	16
M	N	0.2	15
M	Z	0.3	14

Um iP 00 40 51

Off east coast of Honshu, Japan (h = 100 km).

" 11 Ki iP 10 20 39

Sinkiang Province, China.

" 12 Up iPKP 03 26 22
i 03 26 27
Ki iPKP 03 26 04
Sk iPKP 03 26 16
i 03 26 20
Gb iPKP 03 26 30
i 03 26 34
Um iPKP 03 26 13 C

Kermadec Islands region (h = 190 km).

" 12 Ki iP 04 39 32

" 12 Ki iP 12 47 54

" 12 Gb i(P) 13 00 12

" 12 Up eP 17 31 13
Ki iP 17 31 05
Sk iP 17 31 25
Um iP 17 31 07

Northern Celebes (h = 120 km).

" 12 Up iP 17 38 35

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

1961 Apr 12 cont.	Up			microns	sec	
		M	N	0.9	18	
		M	Z	0.9	18	
	Ki	eP		17 37 46		
				microns	sec	
		M	E	0.6	18	
		M	N	1.0	24	
		M	Z	1.2	19	
	Kurile Islands (h = 40 km).					
" 12	Up	iP		18 04 37		
		i		18 04 40		
	Ki	iP		18 04 05		
	Sk	iP		18 04 32		
	Um	iP		18 04 17		
	Mariana Islands region (h = 60 km).					
" 12	Up	i(P)		21 08 56		
" 12	Up	iP		22 33 07		
		i		22 36 30		
		iPP		22 36 50		
		iSKS		22 43 24		
		iPS		22 44 54		
				microns	sec	
		P	Z'	0.2	1.1	
		PP	Z	0.4	3	
		SKS	E	1.9	17	
		M	E	4.5	23	
		M	N	1.6	22	
		M	Z	6.1	23	
		D = 9650 km = 87°.				
	Ki	iP		22 33 00		
		i		22 33 13		
		i		22 36 14		
		iSKS		22 43 16		
				microns	sec	
		P	Z'	0.5	1.0	
		SKS	E	3.5	13	
		SKS	N	1.2	13	
		M	E	1.8	19	
		M	N	1.6	22	
		M	Z	2.8	20	
		D = 9450 km = 85°.				
	Sk	iP		22 32 51		
		i		22 33 57		
		i		22 36 01		
	Gb	iP		22 32 58		
	Um	iP		22 33 07		
		i		22 33 19		
		i		22 36 28		
	El Salvador (h = 120 km).					
	Magn.= 6.5 (Up, Ki).					

1961 Apr 13	Up	iP		04 36 24		D
				microns	sec	
		P	Z'	0.1	0.7	
	Ki	iP		04 36 18		
	Sk	iP		04 36 40		D
	Um	iP		04 36 17		
	Central Burma (h = 100 km).					
" 13	Um	iP		10 13 05		
" 13	Up	iP		15 37 40		
	Sk	eP		15 37 39		
	Ryukyu Islands (h=200 km).					
" 13	Up	iP		16 42 30		C
		iPP		16 44 07		
		iS		16 48 47		
		iSS		16 51 53		
		iLgl		16 56 03		
				microns	sec	
		P	E	0.9	5	
		P	Z	0.5	2	
		P	Z'	0.1	0.6	
		PP	E	5.1	12	
		PP	Z	4.0	10	
		S	E	21	29	
		M	E	240	21	
		M	N	64	16	
		M	Z	250	20	
		D = 4600 km = 41°½.				
	Ki	iP		16 42 28		C
		iPP		16 44 09		
		iS		16 48 46		
		iSS		16 51 48		
		i		16 55 44		
		iLgl		16 56 08		
				microns	sec	
		P	E	1.3	5	
		P	Z	1.8	5	
		P	Z'	0.9	0.5	
		PP	E	4.0	13	
		PP	Z	4.1	12	
		S	E	28	29	
		S	N	2.3	16	
		M	E	130	12	
		M	N	54	13	
		M	Z	230	15	
		D = 4600 km = 41°½.				
	Sk	iP		16 42 51		C
		iPP		16 44 35		
	Gb	iP		16 42 53		C
		iPP		16 44 37		

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

1961 Apr 13 cont.	Um	iP	16 42 20		
		i	16 42 27		
		iPP	16 43 57		
		Sinkiang, China (h = 20 km). Magn.= 6,6 (Up, Ki). Unusually long period of S (see also the Sinkiang earthquake of Apr 4, 09.54).			
" 13	Ki	iP	17 18 43		
		Sinkiang Province, China			
" 13	Up	iP	17 50 32		
	Sk	iP	17 51 12		
" 13	Ki	iP	20 21 08		
	Sk	iP	20 21 31		
		Sinkiang Province, China (h = 60 km).			
" 14	Um	iP	00 14 42		
" 14	Up	iP	00 37 03		
" 14	Up	i(P)	01 08 11		
" 14	Ki	i(P)	01 29 16		
" 14	Up	iP	02 54 39		
" 14	Up	iPKP	04 22 16		
		i	04 22 22		
	Ki	ePKP	04 21 54		
	Sk	iPKP	04 22 07		
	Gb	iPKP	04 22 22		
	Um	iPKP	04 22 04		
		Kermadec Islands (h = 60 km).			
" 14	Ki	iP	05 17 43		
" 14	Ki	e(P)	16 10 34		
" 15	Up	iP	00 26 26		
	Ki	iP	00 25 50		
	Um	iP	00 26 08		
		Off east coast of Honshu, Japan (h = 100 km).			
" 15	Up	iPKP	01 36 56	D	
	Ki	iPKP	01 36 43		

1961 Apr 15 cont.	Sk	iPKP	01 36 54	C	
		New Hebrides Islands (h = 230 km).			
" 15	Ki	iP	03 03 21		
		Sinkiang Province, China (h = 25 km).			
" 15	Up	iPKP	09 56 03		
		i	09 56 11		
	Sk	iPKP	09 55 58		
	Um	iPKP	09 55 55		
		Kermadec Islands region (h = 130 km).			
" 15	Up	iP	12 16 08		
		i	12 16 40		
" 16	Up	iP	06 28 43	D	
			microns sec		
		P Z'	0.1	0.5	
	Ki	iP	06 28 10		
			microns sec		
		P Z'	0.1	0.7	
	Sk	iP	06 28 39		
	Um	iP	06 28 24		
		South of Honshu, Japan (h = 390 km)			
" 16	Up	iP	11 51 05	D	
		i	11 51 10		
			microns sec		
		P Z'	0.2	0.5	
	Ki	iP	11 50 12		
			microns sec		
		P Z'	0.1	1.0	
	Sk	iP	11 50 49	D	
	Gb	iP	11 51 26	D	
		iPeP	11 51 55		
	Um	iP	11 50 37		
		Kamchatka (h = 30 km).			
" 16	Up	iP	12 33 31		
		i	12 33 36		
			microns sec		
		P Z'	0.1	1.1	
	Ki	iP	12 32 46		
			microns sec		
		P Z'	0.1	1.2	
	Sk	eP	12 33 03		
	Gb	iP	12 33 42		
		Off northwest coast of Vancouver Island (h= 50 km).			

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

1961 Apr	16	Gb	iP	13 19 43	
"	16	Um	iP	14 26 36	
			i	14 26 42	
"	16	Gb	iP	15 36 08	
"	16	Up	iPKP	17 08 01	
			i	17 08 19	
		Ki	ePKP	17 07 49	
		Sk	iPKP	17 07 58	
		Gb	iPKP	17 08 09	
			i	17 08 19	
		Um	iPKP	17 07 50	
			i	17 08 04	
		(New Zealand region).			
"	16	Up	iP	23 27 02	
			i	23 27 16	
		Ki	iP	23 26 44	
		Near south coast of New Guinea (h = 60 km).			
"	17	Ki	i(P)	00 23 14	
"	17	Ki	iP	05 53 10	
"	17	Ki	i(P)	11 45 15	
"	17	Gb	iP	12 58 02	
"	17	Um	iP	13 19 49	
			i	13 20 01	
		South of Honshu, Japan (h = 140 km).			
"	17	Up	iP	16 32 05	
			i	16 32 14	
		Ki	iP	16 32 40	
		Gb	iP	16 31 43	
		Mid-Atlantic Ocean (h = 25 km).			
"	17	Up	e(P)	20 16 26	
"	17	Um	iP	20 46 58	
"	17	Gb	iPKP	21 06 43	
		Tonga Islands region (h = 550 km).			
"	18	Up	iPKP2	04 30 35	

1961 Apr cont.	18	Um	iPKP	04 30 23	
			i	04 30 46	
		Kermadec Islands. (h = 25 km).			
"	18	Up	i(P)	05 10 26	
		Um	iP	05 10 10	
"	18	Ki	iP	05 40 13	
"	18	Up	iP	15 05 13	
"	18	Ki	i(P)	15 47 03	
"	18	Up	iP	16 06 45	
				microns sec	
			P Z'	0.1 0.5	
"	18	Um	i(P)	17 48 22	
"	18	Um	iP	18 12 53	
"	18	Ki	ePKP	19 08 31	
		Near coast of southern Chile (h = 30 km).			
"	18	Up	iP	22 06 38	
			i	22 06 44	
"	19	Up	iP	07 05 47	D
		Sk	iP	07 06 15	
		Um	iP	07 05 50	
		West Pakistan.			
"	19	Um	i(P)	07 15 07	
"	19	Um	iP	11 29 20	
"	19	Ki	e(P)	14 35 50	
		Um	iP	14 35 06	
"	19	Ki	i(P)	16 14 04	
		Um	iP	16 15 45	
			i	16 16 13	
"	19	Up	iP	16 23 30	D
				microns sec	
			P Z	0.7 3	
			P Z'	0.1 0.6	
			M E	0.8 21	
			M N	1.7 19	
			M Z	1.0 20	

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

1961
Apr 19 Ki iP 16 22 43
cont. microns sec
P Z' 0.1 1.0
Sk iP 16 23 20
i 16 23 44
Gb eP 16 23 48
i 16 23 51
Um iP 16 23 01
i 16 23 32
Kurile Islands (h = 50 km).

" 19 Um i(P) 17 02 55

" 19 Up i(P) 17 39 45
i 17 39 59
i 17 40 03
Local?

" 19 Up iP 18 24 14 D
microns sec
P Z' 0.1 0.7
M E 0.8 18
M N 0.9 21
Ki iP 18 23 19 D
microns sec
P Z' 0.3 1.1
Gb iP 18 24 34 D
iPcP 18 25 05
Um iP 18 23 44
Kamchatka (h = 20 km).

" 19 Um iP 19 03 37
i 19 04 23

" 19 Ki i(P) 20 23 19
Um iP 20 23 28

" 19 Up iP 20 26 46

" 19 Up iP 20 30 51
i 20 30 56
microns sec
P Z' 0.1 0.5
M E 2.3 19
M N 2.7 18
M Z 2.4 19
Ki iP 20 30 04
microns sec
P Z' 0.1 0.9
M E 2.9 17
M N 2.2 15
M Z 4.6 16

1961
Apr 19 Sk iP 20 30 40 C
cont. Gb iP 20 31 13
Um iP 20 30 24
Kurile Islands (h = 30 km).
Magn. = 5.9 (Up, Ki).

" 19 Up iP 22 18 52
microns sec
P Z' 0.1 0.5
M E 0.5 19
M N 0.7 15
M Z 0.8 17
Ki iP 22 18 05
microns sec
P Z' 0.1 0.8
Sk iP 22 18 41 D
Um iP 22 18 29
Kurile Islands (h = 30 km).

" 20 Ki iP 04 07 15
Sk iP 04 07 27

" 20 Up iP 10 05 23
i(Sg) 10 05 28
i 10 05 34
Local? Seismic?

" 20 Up iP 12 15 39
i(Sg) 12 15 44
i 12 15 48
microns sec
(Sg) Z' 0.1 0.5
Local? Seismic?

" 20 Up eP 17 24 04
i(Sg) 17 24 09
i 17 24 13
microns sec
(Sg) Z' 0.1 0.5
Local? Seismic?

" 20 Up iP 18 23 57
i(Sg) 18 24 02
i 18 24 07
microns sec
(Sg) Z' 0.1 0.5
Local? Seismic?

" 20 Up iPKP 19 39 15
i 19 39 22
Sk iPKP 19 39 11
i 19 39 35

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

1961					
Apr	20	Um	iPKP	19 39 05	
cont.			Kermadec Islands region (h = 60 km).		
"	20	Up	iP	20 42 47	
"	20	Um	iP	21 57 32	
"	20	Up	iPKP	21 58 29	
			ePKS	22 02 13	
				microns sec	
			M E	0.6	21
			M N	2.0	21
			M Z	1.4	22
		Ki	i(PKP)	21 58 24	
				microns sec	
			M E	1.6	20
			M N	1.0	20
			M Z	1.4	20
		Sk	iPKP	21 58 23	
			e	21 58 38	
		Um	iPKP	21 58 20	
			i	21 58 37	
		South of Samoa Islands (h = 25 km).			
"	21	Um	i(P)	06 53 16	
"	21	Up	iP	07 13 38	
"	21	Up	e(P)	07 26 16	
		Ki	e(P)	07 24 58	
"	21	Up	iP	07 57 45	
			i(Sg)	07 57 51	
				microns sec	
			(Sg) Z'	0.1	0.5
			Local?	Seismic?	
"	21	Gb	i(P)	10 41 46	
"	21	Up	iP	11 42 19	
			i(Sg)	11 42 24	
			Local?	Seismic?	
"	21	Up	iP	13 49 31	
			i(Sg)	13 49 37	
			Local?	Seismic?	
"	21	Up	iPKP	14 08 34	
		Sk	iPKP	14 08 29	D
		Um	iPKP	14 08 23	

1961					
Apr	21	Up	iP	14 27 52	
"	21	Up	iP	14 44 14	
			i(Sg)	14 44 19	
				microns sec	
			(Sg) Z'	0.1	0.5
			Local?	Seismic?	
"	21	Up	iP	18 37 15	
				microns sec	
			P Z'	0.1	0.6
"	21	Up	iP	19 41 30	
				microns sec	
			M E	1.2	24
			M N	1.3	16
			M Z	1.5	16
		Ki	iP	19 40 42	
				microns sec	
			M E	1.5	19
			M N	0.7	16
			M Z	1.7	18
		Kurile Islands (h = 20 km).			
"	21	Up	iP	20 21 32	
			eS	20 30 21	
				microns sec	
			P Z'	0.2	0.5
			S E	0.8	10
			M E	1.6	17
			M N	7.2	18
			M Z	7.3	19
		D = 7400 km = 66 1/2°.			
		Ki	iP	20 20 43	
			eS	20 28 51	
				microns sec	
			M E	6.6	19
			M N	2.1	16
			M Z	5.2	17
		D = 6550 km = 59°.			
		Sk	iP	20 21 19	
		Gb	iP	20 21 53	D
		Um	iP	20 21 06	
		Kurile Islands (h = 30 km). Magn. = 6.0 (Up, Ki).			
"	21	Up	iP	21 37 44	
			i	21 38 01	
				microns sec	
			P Z'	0.1	0.5
			M E	0.5	18
			M N	1.0	20
			M Z	0.9	18

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

1961
Apr 21 Ki iP 21 36 51
cont. i 21 37 06

		microns	sec
P	Z'	0.1	1.0
M	E	1.0	18
M	N	0.7	17
M	Z	1.5	17

Sk eP 21 37 23
i 21 37 35
Gb iP 21 37 59
Um iP 21 37 17
i 21 37 30
Andreanof Islands, Aleutian Islands (h = 40 km).

" 22 Up eL 01 20

		microns	sec
M	E	0.9	23
M	N	2.0	22
M	Z	1.2	20

Ki eL 01 20

		microns	sec
M	E	1.4	21
M	N	1.1	21
M	Z	1.7	20

0 22 Up iP 05 48 11

" 22 Up iP 10 55 59
Sk iP 10 55 47
Um iP 10 55 43

" 22 Um i(P) 12 06 13

" 22 Up i(P) 12 30 48

" 22 Up iP 19 12 51
Ki iP 19 12 48

		microns	sec
M	E	0.4	18
M	N	1.0	16
M	Z	0.6	19

Sk eP 19 13 07
Um iP 19 12 41
Sinkiang Province, China

" 22 Um iP 21 14 51

" 23 Up iP 05 26 22 D
i 05 26 32
iSeS 05 36 15

1961
Apr 23 Up

		microns	sec
P	E	0.3	3
P	N	0.2	3
P	Z	0.6	3
P	Z'	0.1	0.6
M	E	3.4	21
M	N	3.2	21
M	Z	3.2	20

D = 8650 km = 78°.
Ki iP 05 25 53 D
ipP 05 26 22
iSeS 05 35 21

		microns	sec
P	Z	1.2	5
P	Z'	0.1	1.0
M	E	2.4	18
M	N	1.5	18
M	Z	2.7	17

D = 8000 km = 72°.
Sk iP 05 26 22 D
Gb iP 05 26 41 D
i 05 26 48
Um iP 05 26 03
i 05 26 11
Ryukyu Islands (h = 110 km).
Magn. = 6.0 (Up, Ki).

" 23 Ki iP 06 54 35
Um iP 06 55 24 C

" 23 Up iP 09 12 43 C
ePeS 09 17 10
iS 09 21 40
eP'P' 09 41 04
i 09 41 12

		microns	sec
P	Z'	0.2	0.6
S	Z	1.1	9
M	E	48	22
M	N	42	18
M	Z	69	19

D = 7550 km = 68°.
Ki iP 09 11 56 C
i 09 12 17
iS 09 20 29
iP'P' 09 41 26

		microns	sec
P	E	2.4	18
P	N	1.1	10
P	Z	4.3	10
P	Z'	0.2	1.2
S	E	7.4	16

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Götgborg, Um = Umeå

1961 Apr cont.	23	Ki	M	E	50	15	
			M	N	45	16	
			M	Z	77	15	
			D = 6800 km = 61°.				
		Sk	iP		09 12 33		
			i		09 13 04		
		Gb	iP		09 13 04	C	
			i		09 13 15		
		Um	iP		09 12 17		
		Kurile Islands (h = 40 km).					
		Magn. = 6.6 (Up, Ki).					
"	23	Up	iP		09 24 55		
"	23	Up	iP		12 28 57	C	
				microns	sec		
			P	Z'	0.1	0.5	
			M	N	0.9	17	
			M	Z	0.8	16	
		Ki	iP		12 28 10		
				microns	sec		
			M	E	0.9	15	
			M	N	0.6	15	
			M	Z	1.3	16	
		Sk	iP		12 28 46		
		Gb	eP		12 29 19		
		Um	iP		12 28 32		
		Kurile Islands (h = 80 km).					
"	23	Up	iP		15 06 24		
		Ki	i(P)		15 05 38		
"	23	Up	iP		17 02 02		
				microns	sec		
			P	Z'	0.1	0.8	
			M	E	2.3	19	
			M	N	3.6	18	
			M	Z	2.8	16	
		Ki	iP		17 01 17		
				microns	sec		
			M	E	2.2	18	
			M	N	1.6	17	
			M	Z	5.2	15	
		Sk	iP		17 01 52		
		Gb	iP		17 02 18	D	
		Um	iP		17 01 38		
		Kurile Islands (h = 80 km).					
"	23	Ki	iP		20 53 19		
		Fox Islands, Aleutian Islands (h = 40 km).					
"	23	Up	iP		22 15 30		
1961 Apr cont.	23	Ki	iP		22 14 59		
		Sk	iP		22 15 27		
		Um	iP		22 15 12	D	
		Bonin Islands (h = 580 km).					
"	23	Up	iP		23 57 20		
			i		23 57 27		
		Ki	e(P)		23 56 53		
		Um	iP		23 57 12		
"	24	Um	iP		02 27 14		
"	24	Up	eP		05 03 27		
		Ki	iP		05 02 49		
		Fox Islands, Aleutian Islands (h = 60 km).					
"	24	Um	iP		05 20 48		
"	24	Up	iP		12 38 40		
				microns	sec		
			M	E	0.8	18	
			M	N	1.2	17	
			M	Z	1.0	16	
		Ki	eP		12 37 52		
				microns	sec		
			M	E	1.1	17	
			M	N	0.8	17	
			M	Z	1.7	18	
		Um	iP		12 38 15		
		Kurile Islands (h = 80 km).					
"	24	Up	eP		13 07 19		
			i		13 07 28		
		Um	iP		13 07 17		
"	24	Up	iPKP		13 29 37		
		Gb	iPKP		13 29 45		
		Kermadec Islands (h = 25 km).					
"	24	Up	iP		21 16 47		
		Ki	iP		21 16 48		
		Um	iP		21 16 44		
"	25	Up	iP		00 39 15		
			i		00 39 41		
		Ki	iP		00 38 28		
			i		00 38 55		
				microns	sec		
			M	E	0.4	15	
			M	N	0.5	21	
			M	Z	0.9	16	

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

1961					
Apr	25	Um	iP	00 38 51	
cont.			i	00 39 18	
		Kurile Islands (h = 70 km).			
		The phase arriving 26-27 sec after P may belong to another shock in the same area.			
"	25	Um	iP	00 55 52	
"	25	Up	iP	01 21 43	
		Ki	iP	01 21 34	
		Um	iP	01 21 42	
			i	01 22 45	
		Guatemala (h = 140 km).			
"	25	Up	iP	01 28 40 0	
			i	01 28 56	
			eS	01 37 50	
			isS	01 38 34	
				microns sec	
			P Z	0.1 0.6	
			M E	2.7 18	
			M N	4.7 18	
			M Z	3.7 18	
			D = 7800 km = 70°.		
		Ki	iP	01 27 54	
			i	01 28 05	
			eS	01 36 26	
			i	01 37 46	
				microns sec	
			P Z	0.1 0.8	
			S E	1.0 10	
			M E	2.3 17	
			M N	2.7 18	
			M Z	4.4 18	
			D = 6900 km = 69°.		
		Gb	iP	01 29 04	
			i	01 29 17	
		Um	iP	01 28 18	
			i	01 28 31	
		Kurile Islands (h = 80 km).			
"	25	Up	iP	08 41 44	
				microns sec	
			P Z	0.1 0.5	
"	25	Ki	iP	09 26 29	
"	25	Up	iPKP	11 36 31	
			i	11 36 39	

1961					
Apr	25	Up		microns sec	
cont.			M E	0.4 20	
			M N	1.0 20	
			M Z	1.0 20	
		Ki	iPKP	11 36 10	
				microns sec	
			M E	0.4 18	
			M N	0.4 19	
			M Z	1.2 19	
		Gb	iPKP	11 36 42	
			i	11 36 53	
		Um	iPKP	11 36 20	
			i	11 36 45	
		Kermadec Islands region (h = 50 km).			
"	25	Up	iP	16 02 59	
"	25	Um	iP	19 55 48	
"	25	Up	eP	21 11 32	
		Um	iP	21 11 17	
"	25	Up	iP	23 52 23	
		Ki	iP	23 51 53	
		Sk	eP	23 52 24	
		Um	iP	23 52 06	
		Ryukyu Islands (h = 25 km).			
"	26	Ki	iP	02 21 49	
		Sk	iP	02 22 13	
		Sinkiang Province, China.			
"	26	Up	iP	02 34 23	
		Southern Sumatra. (h = 90 km).			
"	26	Up	iP	05 30 47 0	
		Ki	iP	05 30 55	
		Um	iP	05 30 45	
		Hindu Kush (h = 200 km).			
"	26	Up	iP	06 15 51	
		Sk	iP	06 15 46	
		Um	iP	06 1 5 42	
"	26	Gb	iPKP	07 41 23	
		Fiji Islands region (h = 620 km).			

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

1961						
Apr	26	Up	iP		07 50 00	C
			i		07 50 39	
			eS		07 58 57	
			ePˈPˈ		08 18 11	
					microns sec	
			P	M	0.1	3
			P	Z	0.2	2
			P	Zˈ	0.1	0.5
			S	E	1.1	12
			S	N	1.0	10
			M	E	12	20
			M	N	16	18
			M	Z	15	18
			D = 7600 km = 68°½.			
		Ki	iP		07 49 13	C
			i		07 49 26	
			e		07 57 15	
			eS		07 57 34	
			iScS		07 59 03	
			ePˈPˈ		08 18 50	
					microns sec	
			P	E	0.3	8
			P	N	0.6	11
			P	Z	1.9	11
			P	Zˈ	0.1	0.9
			S	E	2.3	13
			M	E	13	22
			M	N	11	20
			M	Z	10	21
			D = 6850 km = 61°½.			
		Sk	iP		07 49 49	
			i		07 50 19	
		Gb	iP		07 50 24	
		Um	iP		07 49 35	
			i		07 49 51	
		Kurile Islands (h = 20 km).				
		Magn. = 6.1 (Up, Ki).				
"	26	Ki	iP		10 19 16	
		Sk	iP		10 19 28	
"	26	Up	iP		11 56 49	
		Ki	iP		11 56 41	
		Sk	iP		11 57 05	
		India-Burma border region (h = 220 km).				
"	26	Ki	iP		12 14 12	
		Sk	iP		12 14 11	
		Um	iP		12 13 53	

1961						
Apr	26	Sk	iP		13 34 41	
		Um	iP		13 34 37	
"	26	Up	iP		14 55 21	
					microns sec	
			P	Zˈ	0.1	0.5
"	26	Um	iP		15 41 08	
"	26	Up	iP		19 43 35	C
			i		19 43 44	
					microns sec	
			M	E	1.0	20
			M	N	1.8	18
			M	Z	1.5	19
		Ki	iP		19 42 48	
					microns sec	
			P	Zˈ	0.1	1.1
			M	E	1.0	18
			M	N	0.8	16
			M	Z	2.2	16
		Sk	iP		19 43 26	
		Gb	iP		19 43 54	
		Um	iP		19 43 12	
		Kurile Islands (h = 50 km).				
"	26	Up	iP		21 52 45	
"	27	Up	iPKP		00 44 27	
					microns sec	
			PKP	Zˈ	0.1	0.5
		Gb	iPKP		00 44 37	
		South of Fiji Islands (h = 500 km).				
"	27	Ki	i(P)		00 53 44	
					microns sec	
			M	E	0.7	8
			M	N	0.7	13
			M	Z	0.7	9
"	27	Sk	iP		09 15 47	
"	27	Up	iP		11 17 56	
			i		11 18 08	
		Ki	iP		11 17 04	
		Sk	eP		11 17 26	
"	27	Gb	iP		11 51 47	
"	27	Up	i(P)		15 17 27	

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

1961
Apr 27 Up iP 20 43 46
microns sec
P Z' 0.1 0.5

" 28 Up i(P) 02 42 26
Um e(P) 02 41 42

" 28 Um iP 05 21 46

" 28 Up eP 22 25 41
Ki iP 22 25 14

" 29 Up iSg 09 05 29
i 09 05 33
D = 110 km = 9,°9
Ki iPn 09 00 58 C
iP^x 09 01 07
iSn 09 01 44
microns sec
Pn Z' 0.2 0.5
Sn Z' 0.2 0.5
D = 420 km = 3,°8.
Sk iPn 09 02 09
iSn 09 03 55
iSg 09 04 44
D = 940 km = 8,°5.
Um e(Sn) 09 02 52
iSg 09 03 19
D = 670 km = 6,°0.
Northwestern Russia, 68,°2 N, 30,°5 E. Origin time = 09 00 01. Explosion.

" 29 Up iP 09 31 15 D
i 09 31 24
microns sec
P N 0.5 3
P Z 0.5 2
P Z' 0.2 1.0
Ki iP 09 30 55
i 09 30 42
microns sec
P E 0.4 7
P N 0.4 7
P Z 1.0 7
P Z' 0.9 2.0
Sk iP 09 30 49 D
i 09 30 56
Um iP 09 31 01
i 09 31 08
Off coast of northern California (h = 30 km). Magn.= 6.3 (Up, Ki).

1961
Apr 29 Up iP 09 32 46 C
i 09 34 23
i 09 35 27
iS 09 35 59
microns sec
P E 0.6 2
P N 1.4 2
P Z 1.1 2
P Z' 0.4 0.5
M E 43 16
M N 38 18
M Z 44 18
D = 1700 km = 15°½.
Ki iP 09 31 41 D
iS 09 33 26
eT 09 40 18
microns sec
P E 4.7 10
P N 2.3 10
P Z 3.5 10
P Z' 0.2 0.5
M E 46 15
M N 43 15
M Z 33 14
D = 1100 km = 10°.
Sk iP 09 31 46 D
iS 09 33 40
D = 1150 km = 10°½.
Um iP 09 32 17
iS 09 34 34
i 09 35 01
D = 1450 km = 13°.
Jan Mayen Island region (h = 15 km). Magn.= 5.8 (Up).
A T phase was recorded at Kiruna but not at the other stations, not even at Skalstugan. The reason is probably different properties (Slope etc) of the transition ocean-continent at the points, where T hits the coast.

" 29 Up iP 10 55 02 D
microns sec
M E 0.9 16
M N 1.8 16
M Z 1.0 13

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

1961
Apr 29 cont.

Ki	iP		10 54 35	
		microns	sec	
	M	E	2.2	15
	M	N	0.9	15
	M	Z	3.5	15
Sk	iP		10 55 11	
Um	iP		10 54 46	

Outer Mongolia (h = 25 km).

" 29

Up	iP		14 14 32	
Ki	iP		14 14 57	
		microns	sec	
	P	Z'	0.1	0.9

" 30

Sk	ePKP		00 29 40	
	i		00 29 54	

About 1500 km south of western Australia (h = 25 km).

" 30

Ki	iP		00 55 59	
Sk	iP		00 56 07	
	i		00 58 01	

" 30

Up	iP		07 39 43	
	eS		07 44 26	
		microns	sec	
	P	Z'	0.1	0.9
	S	N	0.3	7
	M	E	2.8	16
	M	N	2.5	18
	M	Z	1.9	17
	D = 3050 km = 27½°.			
Ki	iP		07 39 54 0	
	eS		07 44 08	
		microns	sec	
	S	E	0.2	6
	M	E	2.5	18
	M	N	1.2	17
	M	Z	3.0	18
	D = 3200 km = 29°.			
Sk	iP		07 39 21	
Um	iP		07 39 55	

North Atlantic Ocean (h = 40 km). Magn. = 5.1 (Up, Ki).

" 30

Up	iP		11 11 37
Ki	iP		11 10 50
Sk	iP		11 11 26
Um	iP		11 11 12

Kurile Islands (h = 100 km).

1961
Apr 30

Up	iP		11 26 18	
	i		11 27 14	
	eS		11 35 21	
	iScS		11 36 15	
		microns	sec	
	P	Z'	0.1	0.5
	M	E	4.0	19
	M	N	7.7	17
	M	Z	6.3	18
	D = 7500 km = 67½°.			
Ki	iP		11 25 31	
	eS		11 33 38	
	iPS		11 33 58	
	iScS		11 35 21	
		microns	sec	
	P	Z	0.4	19
	P	Z'	0.1	0.9
	S	N	0.3	12
	M	E	5.6	22
	M	N	5.2	21
	M	Z	8.1	16
	D = 6650 km = 60°.			
Sk	iP		11 26 08	
Um	iP		11 25 53	

Kurile Islands (h = 70 km). Magn. = 5.9 (Up, Ki).

" 30

Up	ePKS		15 11 07	
		microns	sec	
	M	E	0.4	19
	M	N	0.7	18
	M	Z	1.0	20
Ki	eSS		15 26 28	
		microns	sec	
	M	E	0.6	21
	M	N	0.3	17
	M	Z	1.7	20
Sk	iPKP		15 07 30	
Um	iPKP		15 07 28	

Samoa Islands region (h = 25 km).

" 30

Up	iP		17 42 22
Sk	iP		17 41 56
Um	iP		17 42 03

Off coast of northern California (h = 40 km).

" 30

Up	iP		18 27 54
Sk	iP		18 28 29
Um	eP		18 28 33

Cephalonia Island.

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

1961						
Apr	30	Ki	i(P)	18	46	21
		Sk	iP	18	46	36
"	30	Um	iP	18	57	46
"	30	Um	iP	21	56	55

Markus Båth
December 21, 1961

Seismological Institute
The University
Uppsala, Sweden

PRELIMINARY SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, GÖTEBORG, and UMEÅ

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°49.0'N,	20°14.1'E; h = 20 m

MAY 1 - 31, 1961

1961				
May 1	Up	iP	00 53 40	
	Ki	iP	00 53 05	
	Sk	iP	00 53 33	
	Um	iP	00 53 19	
	Near coast of Honshu, Japan (h 140 km).			
" 1	Up	eP	01 44 45	
		i	01 46 06	
	Ki	eP	01 45 10	
		i	01 46 22	
			microns sec	
		M	E 0.4 14	
		M	N 0.2 12	
		M	Z 0.6 15	
	Sk	iP	01 45 18	
		i	01 46 41	
	Um	iP	01 44 48	
		i	01 46 16	

1961			
May 1	Ki	iP	02 52 46
	Sk	iP	02 53 01
	Um	iP	02 53 13
	Off coast of northern California (h= 30 km).		
" 1	Ki	eP	03 01 53
	Sk	iP	03 02 08
	Um	iP	03 02 19
	Off coast of northern California (h= 50 km).		
" 1	Ki	iP	03 35 03
	Off coast of northern California (h= 25 km).		
" 1	Ki	eP	07 32 20
	Sk	eP	07 32 38
	Off coast of northern California (h= 50 km).		

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

1961					
May 1	Up	iP		12 30 54	
			microns	sec	
		P	Z'	0.1	1.0
	Ki	iP		12 30 12	
	Um	iP		12 30 35	
	Off coast of northern California (h= 30 km).				
" 1	Up	iP		14 25 47	
	Sk	iP		14 26 29	
" 1	Up	eP		18 57 09	
	Ki	iP		18 56 31	
	Sk	iP		18 56 42	
	Um	iP		18 56 59	
	Off coast of northern California (h= 70 km).				
" 2	Ki	iP		03 06 41	
		i		03 07 33	
	Sk	iP		03 07 28	
" 2	Up	iP		03 15 23	
		iS		03 18 17	
		i		03 18 36	
			microns	sec	
		M	E	1.4	15
		M	N	1.0	16
		M	Z	0.8	16
		D= 1700 km = $15^{\circ}\frac{1}{2}$.			
	Ki	iP		03 14 14	
		i		03 14 18	
		iS		03 16 21	
		eT		03 22 06	
		e		03 22 33	

1961					
May 2			microns	sec	
cont.		P	Z'	0.2	0.8
		S	Z'	0.1	0.8
		M	E	2.3	16
		M	N	1.3	13
		M	Z	3.5	15
		D= 1150 km = $10^{\circ}\frac{1}{2}$.			
	Sk	iP		03 14 19	
		i		03 14 31	
		iS		03 16 13	
		e(T)		03 22 54	
		D= 1150 km = $10^{\circ}\frac{1}{2}$.			
	Um	iP		03 14 53	
		i(S)		03 17 08	
		i		03 17 37	
	Jan Mayen Island region (h= 20 km).				
" 2	Ki	iP		08 32 47	
		eT		08 40 46	
		e		08 41 20	
	Sk	iP		08 32 52	
		iS		08 34 49	
	Um	iP		08 33 24	
		i(S)		08 35 40	
		i		08 36 03	
	Jan Mayen Island region.				
" 2	Ki	iP		11 21 20	
" 2	Up	iP		11 47 42	
" 2	Um	iPKP		19 10 08	
	Samoa Islands region (h= 70 km).				

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

1961						
May 2	Up	iPKP		19 57 51		
		i		19 58 06		
			microns	sec		
		PKP	Z'	0.1	0.8	
	Sk	iPKP		19 57 44		
	Gb	iPKP		19 58 04		
		i		19 58 18		
	Um	ePKP		19 57 42		
	Kermadec Islands region (h= 50 km).					
" 2	Up	iPKP		19 59 15 (D)		
	Ki	ePKP		19 58 57		
	Sk	iPKP		19 59 07		
	Gb	iPKP		19 59 26		
	Um	iPKP		19 59 06		
	Kermadec Islands region (h= 80 km).					
" 2	Ki	iP		20 17 35		
" 2	Up	iP		20 20 17		
" 2	Up	iPKP		21 09 19		
	Ki	ePKP		21 09 00		
	Sk	iPKP		21 09 12		
		i		21 09 28		
	Um	iPKP		21 09 12		
		i		21 09 24		
	(Kermadec Islands region).					
" 2	Um	i(P)		21 28 54		
" 2	Um	i(P)		21 44 11		

1961						
May 2	Up	iPKP		23 04 24 C		
		i		23 04 37		
		iPP		23 07 47		
		iSKSP		23 17 57		
			microns	sec		
		PKP	E	0.7	10	
		PKP	N	0.6	6	
		PKP	Z	3.3	7	
		PKP	Z'	0.3	0.5	
		PP	Z	2.8	9	
		SKSP	E	0.7	8	
		M	E	4.3	19	
		M	N	6.3	19	
		M	Z	7.6	19	
	D= 16100 km = 145°.					
	Ki	iPKP		23 04 06		
		iPP		23 07 03		
		iPKS		23 07 46		
		i(PPP)		23 09 54		
			microns	sec		
		PKP	Z	1.0	9	
		PP	N	0.7	8	
		PKS	E	0.9	8	
		PKS	N	1.8	8	
		PKS	Z	1.7	9	
		M	E	4.6	20	
		M	N	5.9	19	
		M	Z	18	20	
	D = 15350 km = 138°.					
	Sk	iPKP		23 04 16		
	Gb	iPKP		23 04 37		
		i		23 04 49		
	Um	iPKP		23 04 15		

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

1961
May 2 cont.

i 23 04 23
Kermadec Islands region (h= 50 km). Magn. = 6.6 (Up, Ki).

" 2 Um i(P) 23 15 07

" 2

Up	iPKP	23 43 37	D
	i	23 43 52	
Ki	ePKP	23 43 20	
Sk	iPKP	23 43 30	
Gb	iPKP	23 43 51	
Um.	iPKP	23 43 31	
	i	23 43 45	

Kermadec Islands region (h= 80 km).

" 3

Up	iP	00 37 17	
Ki	iP	00 37 55	
Sk	iP	00 37 23	
Um	iP	00 37 44	

Mid- Atlantic Ocean (h= 25 km).

" 3 Ki i(P) 09 00 08
Off coast of northern California (h= 25 km).

" 3 Ki iP 12 26 56
Fox Islands, Aleutian Islands (h= 50 km).

" 3

Up	iP	13 22 20	
Ki	iP	13 21 59	
Sk	iP	13 22 27	

1961
May 3 Um iP 13 22 08
Near coast of Luzon, Philippine Islands (h= 25 km).

" 3

Up	iP	14 16 02	
Ki	iP	14 15 45	
Sk	iP	14 15 43	
Um	iP	14 15 56	

Near coast of Mexico (h= 20 km).

" 3 Sk e(P) 16 56 20

" 3

Up	iPKP	17 13 51	D	
		microns	sec	
	PKP Z'	0.1	0.8	
Sk	iPKP	17 13 43		
Gb	iPKP	17 14 00		
Um	iPKP	17 13 40		

Kermadec Islands region (h= 50 km).

" 3

Up	iPKP	17 22 44	
		microns	sec
	PKP Z'	0.1	1.0
Sk	iPKP	17 22 36	
Gb	iPKP	17 22 53	

Kermadec Islands region (h= 60 km).

" 3

Up	iPKP	19 20 20	
Ki	ePKP	19 19 59	

Kermadec Islands region (h= 40 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Uneå

1961				
May 3	Up	iP	20 16 10	C
	Ki	iP	20 15 39	C
	Sk	iP	20 16 07	
	Um	iP	20 15 55	
" 3	Um	i(P)	21 57 21	
" 4	Up	iP	01 20 30	
	Ki	iP	01 20 09	
	Um	iP	01 20 22	
" 4	Up	iP	02 29 19	
		i	02 29 26	
			microns sec	
		P Z'	0.1 0.9	
	Ki	iP	02 28 39	
	Sk	iP	02 28 50	
	Gb	iP	02 29 27	
	Um	iP	02 29 05	
		i	02 29 13	
	Off coast of northern California (h= 25 km).			
" 4	Ki	iP	03 51 08	
	Um	iP	03 51 20	
	Fiji Islands region (h= 600 km).			
" 4	Um	i(P)	04 55 55	
" 4	Up	iP	07 10 54	
	Ki	iP	07 11 16	
	Um	iP	07 11 14	
	Atlantic Ocean (h= 20 km).			

1961				
May 4	Um	iP	12 35 53	
" 4	Up	iP	15 35 57	C
	Ki	iP	15 35 58	
	Sk	iP	15 36 12	
	Near coast of Sumatra (h= 40 km).			
" 4	Ki	i(P)	16 29 05	
" 4	Up	iP	21 10 51	
	Ki	eP	21 10 11	
	Gb	eP	21 10 58	
	Off coast of northern California (h= 70 km).			
" 4	Um	i(P)	22 23 23	
" 4	Um	i(P)	23 03 40	
" 4	Um	i(P)	23 28 20	
" 5	Um	i(P)	06 47 02	
" 5	Um	i(P)	06 51 45	
" 5	Up	iPKP	06 58 42	
	Ki	iPKP	06 58 24	
	Sk	ePKP	06 58 41	
	Kermadec Islands region (h= 80 km).			
" 5	Up	iPKP	09 03 56	
	Sk	ePKP	09 03 56	

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

1961				
May 5 cont.	Gb	iPKP	09 04 05	
		i	09 04 10	
	Kermadec Islands region (h= 40 km).			
" 5	Um	i(P)	09 07 09	
" 5	Um	iP	10 30 08	
" 5	Up	iP	12 32 25	
	Ki	iP	12 32 39	
	Sk	iP	12 32 45	
		i	12 34 40	
" 5	Up	iP	13 19 40	
	Ki	e(P)	13 18 48	
	Sk	iP	13 19 14	
	Gb	i(P)	13 19 43	
	Off coast of northern California (h= 40 km).			
" 5	Up	iPKP	14 02 57	C
		i	14 03 31	
		iSS	14 25 22	
			microns	sec
		PKP Z	0.4	7
		M E	0.9	17
		M N	1.2	20
		M Z	1.3	20
	Ki	ePKP	14 02 40	
		ePP	14 05 32	
		ePKS	14 06 22	
		iPS	14 15 57	
			microns	sec

1961				
May 5 cont.		PP N	0.2	8
		M E	1.0	19
		M N	1.4	19
		M Z	3.1	20
	Sk	iPKP	14 02 51	
	Gb	iPKP	14 03 15	
	Um	iPKP	14 02 43	
	Kermadec Islands region (h= 80 km).			
" 5	Um	iP	14 13 36	
" 5	Um	iP	14 29 43	
" 5	Um	iP	14 34 50	
" 5	Up	i(P)	14 49 46	
" 5	Um	iP	14 54 14	
" 5	Um	iP	15 08 00	
" 5	Um	iP	15 33 49	
" 5	Up	iPKP	15 48 30	C
	Sk	iPKP	15 48 21	
	Gb	ePKP	15 48 39	
	Um	iPKP	15 48 10	
	Kermadec Islands region (h= 60 km).			
" 5	Um	iP	17 06 34	

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

1961				
May 5	Um	iP		18 14 38
" 5	Um	iP		18 21 17
		i		18 22 53
" 5	Um	iP		18 39 40
" 5	Um	iP		18 56 56
" 5	Ki	iP		19 38 41 C
		i		19 52 50
		i		19 53 28
			microns sec	
		M	E 0.5	10
		M	N 0.7	11
		M	Z 0.8	11
" 5	Up	i(PKP)		20 56 51
	Ki	i		20 59 00
	Sk	i(PKP)		20 56 42
	Um	i(PKP)		20 56 42
" 5	Up	iPKP		21 06 37 C
	Sk	iPKP		21 06 29
	Kermadec Islands region (h= 600 km).			
" 5	Um	iP		23 39 07
" 6	Um	iP		06 50 24
" 6	Sk	iP		09 02 59

1961				
May 6	Up	i(P)		10 16 20
	Ki	e(P)		10 16 22
" 6	Gb	i(P)		10 18 24
	Um	i(P)		10 18 23
" 6	Up	iP		10 37 42
			microns sec	
		P	Z' 0.1	0.5
	Ki	eP		10 36 21
" 6	Ki	i(P)		12 16 15
" 6	Up	i(P)		12 19 17
	Ki	i(P)		12 18 41
" 6	Up	iP		16 09 34
			microns sec	
		P	Z' 0.1	0.9
	Ki	iP		16 10 49
		iS		16 15 48
			microns sec	
		P	Z' 0.1	1.0
		M	E 0.4	15
		M	N 0.1	11
		M	Z 0.2	11
	D= 3400 km = $30^{\circ}\frac{1}{2}$.			
	Sk	iP		16 10 06
	Gb	iP		16 09 10
	Um	iP		16 10 15
	Mediterranean Sea, off coast of Tunisia (h= 30 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Uneå

1961
May 6 Up iP 19 48 30

" 6 Up iP 19 48 54
eS 19 57 43
microns sec
M E 1.0 20
M N 1.4 20
M Z 1.6 20
D= 7350 km = 66°.
Ki iP 19 49 39
i 19 49 55
eS 19 59 06
microns sec
S N 0.2 4
M E 2.1 18
M N 1.3 17
M Z 3.3 18
D= 8100 km = 73°.
Sk iP 19 49 05
i 19 49 21
Um iP 19 49 18
i 19 49 35
Atlantic Ocean, north of Ascension Island (h= 25 km).
Magn. = 5.7 (Up, Ki).

" 6 Up iP 21 17 06
Sk iP 21 17 21
Um iP 21 16 58

" 6 Up iP 21 29 45
Ki iP 21 29 28
i 21 29 35

1961
May 6 cont. Sk iP 21 29 50
Near coast of Mindanao, Philippine Islands (h= 90 km).

" 6 Up iP 22 36 20 C
Ki iP 22 35 28 C
Andreanof Islands, Aleutian Islands (h= 20 km).

" 6 Up iP 22 45 59
eSKS 22 56 23
Ki iP 22 45 42
ipP 22 46 05
iSKS 22 56 04
iS 22 56 24
i 22 57 04
microns sec
SKS E 0.5 4
S E 0.5 4
S N 0.2 5
M E 0.3 18
M N 0.3 17
M Z 0.8 18
D= 10000 km = 90°.
Sk iP 22 46 07
ipP 22 46 29
Um iP 22 45 48
Near coast of Mindanao, Philippine Islands
h= 90 km (Ki, Sk).

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

1961					
May 6	Up	iPKS		23 36 03	
				microns	sec
		PKS	E	0.4	6
		PKS	N	0.6	6
		M	E	0.6	21
		M	N	0.9	23
		M	Z	1.0	21
	Ki	ePKP		23 32 24	
				microns	sec
		M	E	0.8	21
		M	N	0.6	22
		M	Z	2.4	23
	Sk	iPKP		23 32 38	
	Um	iPKP		23 32 28	
	New Hebrides Islands region				
	(h= 100 km).				
" 7	Up	iPP		00 45 31	
		ePS		00 55 17	
				microns	sec
		M	E	3.8	19
		M	N	2.9	18
		M	Z	3.2	20
	Ki	iPP		00 44 51	
		e		00 45 11	
		iSS		01 00 28	
				microns	sec
		M	E	5.6	22
		M	N	4.4	23
		M	Z	14	23
	Sk	iPP		00 45 15	
	Solomon Islands region				
	(h= 120 km).				

1961					
May 7	Up	iP		01 10 10	
				microns	sec
		P	Z'	0.1	0.5
	Ki	iP		01 09 24	
	Sk	iP		01 09 59	
	Um	iP		01 09 46	
	Kurile Islands (h= 40 km).				
" 7	Up	iP		02 07 51	
	Ki	iP		02 08 16	
				microns	sec
		M	E	0.9	20
		M	N	0.8	20
		M	Z	1.7	22
	Um	iP		02 08 10	
	Atlantic Ocean (h= 25 km).				
" 7	Ki	iP		02 55 14	
	Atlantic Ocean (h= 50 km).				
" 7	Up	iP		04 45 12	
	Kurile Islands (h= 70 km).				
" 7	Up	iP		04 45 48 C	
				microns	sec
		P	Z'	0.1	0.6
		M	E	1.0	20
		M	N	1.4	23
		M	Z	1.4	21
	Ki	iP		04 45 43 C	
		i		04 45 48	
				microns	sec
		P	Z'	0.1	1.0
		M	E	1.5	19

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

1961 May 7 cont.		M	N	0.8	18
		M	Z	2.5	19
	Sk	iP		04 45 59	C
		i(pP)		04 46 17	
		i		04 48 38	
		iPP		04 50 11	
	Um	iP		04 45 47	C
	Near coast of Java (h= 110 km).				
" 7	Up	iPKP		08 05 32	
		i		08 05 38	
	Ki	iPKP		08 05 23	
	Sk	ePKP		08 05 25	
	Um	iPKP		08 05 20	
	Kermadec Islands region (h= 370 km).				
" 7	Um	i(P)		08 47 08	
" 7	Up	iP		10 35 57	
		ipP		10 36 26	
		iS		10 46 57	
				microns	sec
		P	Z'	0.1	0.6
		S	E	0.6	6
		S	N	0.7	6
		M	E	2.6	22
		M	N	5.6	21
		M	Z	1.9	20
	D= 10500 km = $94^{\circ}\frac{1}{2}$.				
	Ki	iP		10 35 40	
		ipP		10 36 02	

1961 May 7 cont.		i(SKS)		10 46 05	
		iS		10 46 30	
		isS		10 47 05	
		i		10 48 18	
				microns	sec
		P	Z'	0.3	0.8
		(SKS)	E	0.4	7
		S	E	1.8	7
		S	N	1.1	6
		M	E	2.7	20
		M	N	1.2	18
		M	Z	5.0	19
	D= 10050 km = $90^{\circ}\frac{1}{2}$.				
	Sk	iP		10 36 02	
		ipP		10 36 26	
	Gb	iP		10 36 12	
	Um	iP		10 35 43	
		i		10 36 16	
	Off coast of Mindanao, Philippine Islands h= 100 km (Up,Ki,Sk), Magn.= 6.3 (Up,Ki)				
" 7	Up	iP		12 25 40	
				microns	sec
		P	Z'	0.2	1.2
		M	E	0.5	12
		M	N	0.6	14
	Ki	iP		12 25 05	
		i		12 25 08	
				microns	sec
		P	Z'	0.2	1.3
		M	E	0.6	16

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

1961					
May 7		M	N	0.4	13
cont.		M	Z	1.1	13
	Sk	iP		12 25 40	
	Um	iP		12 25 19	
	Honshu, Japan (h= 25 km).				
" 7	Ki	iP		12 30 51	
" 7	Sk	iP		15 16 17	
" 7	Up	iP		15 44 24	
		iS		15 47 10	
		i		15 47 43	
		iT		15 54 33	
		microns		sec	
		P	Z	0.3	4
		S	Z'	0.1	0.5
		M	E	1.5	12
		M	N	2.5	11
		M	Z	1.7	10
		D= 1600 km = $14\frac{0}{2}$.			
	Ki	iP		15 43 18	
		i		15 43 23	
		iS		15 45 14	
		eT		15 50 55	
		i		15 51 51	
		microns		sec	
		P	E	0.6	8
		P	N	0.5	8
		P	Z	0.6	9
		P	Z'	0.2	0.5
		S	Z'	0.1	0.8
		M	E	5.0	15
		M	N	3.1	13
		M	Z	7.2	14
		D= 1100 km = 10°.			

1961					
May 7	Sk	iP		15 43 24	
cont.		iS		15 45 19	
		eT		15 51 01	
		e		15 51 57	
		D= 1100 km = 10°.			
	Gb	iP		15 44 40	
	Um	iP		15 43 48	
		i		15 44 00	
		iS		15 46 08	
		i		15 46 38	
		iT		15 51 37	
		i		15 52 59	
		D= 1350 km = 12°.			
	Jan Mayen Island region (h= 70 km).				
" 7	Up	iP		16 51 19	
" 8	Ki	iP		13 05 35	
" 8	Ki	i(P)		14 43 03	
	Sk	iP		14 44 17	
" 8	Ki	i(P)		19 40 37	
" 8	Up	iPS		19 52 09	
		microns		sec	
		M	E	1.3	22
		M	N	1.0	19
		M	Z	2.3	23
	Ki	iPS		19 52 42	
		microns		sec	
		M	E	1.5	19

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

1961 May 8 cont.

		M	N	1.1	21
		M	Z	3.1	21

Northern Chile (h= 50 km).

" 8	Up	eP	20 03 04
" 8	Up	i(P)	22 44 01
	Ki	i(P)	22 44 13
" 8	Up	iP	22 49 43
	Ki	eP	22 51 15

Italy (h= 20 km).

" 9	Up	i(P)	00 37 03
	Ki	e(P)	00 36 25
" 9	Up	iP	12 18 09
	Ki	iP	12 17 30
	Sk	iP	12 17 43

Off coast of northern California (h= 50 km).

" 9	Up	i(P)	15 11 02		
			microns	sec	
		(P)	Z'	0.1	0.5
" 9	Up	iSg	16 44 58		
		i	16 45 02		

D= 380 km = 3°,4.

	Ki	eSg	16 48 15

D= 1040 km = 9°.4.

	Sk	iSg	16 45 29

D= 490 km = 4°.4.

	Gb	iPg	16 43 33
		iSg	16 43 53

1961 May 9 cont.

D= 170 km = 1°.5.

	Um	iSg	16 46 27

D= 690 km = 6°.2.

South Norway, 59°.2 N, 11°.1 E. Origin time = 16 43 04.

" 10	Ki	iP	08 12 04
		i	08 12 07
	Um	iP	08 12 19
" 10	Up	iP	12 19 59
" 10	Up	iP	15 38 15
" 10	Up	i	17 17 39
			microns sec
		M E	0.3 15
		M N	0.3 14
	Ki	e(P)	17 14 52
	Um	iP	17 14 00
		i	17 14 20
" 10	Um	iP	17 33 02
" 10	Um	iP	18 48 01
" 10	Um	iP	19 28 03
" 10	Um	iP	21 40 47
" 10	Um	iP	23 08 02
" 10	Up	iP	23 43 49
			microns sec
		P	Z' 0.1 0.6

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

1961					
May 10	Gb	i(P)		23 43 57	
cont.					
" 11	Ki	iP		04 47 33	
" 11	Up	iP		05 04 40	
	Um	iP		05 04 20	
" 11	Ki	iPKP		08 57 25	
		i		08 58 18	
		iPP		08 59 17	
		i		09 00 40	
		iPS		09 09 13	
		iSS		09 16 17	
			microns	sec	
		PP	E 0.2	6	
		PP	Z 0.4	6	
		M	E 3.7	20	
		M	N 1.2	19	
		M	Z 6.6	20	
	Um	iPKP		08 57 17	
	Near coast of southern Chile (h= 50 km). Magn. = 6.2 (Ki).				
" 11	Um	i(P)		10 42 54 D	
		i		10 43 11	
" 11	Um	iP		10 45 27	
" 11	Um	iP		10 48 02	
		i		10 48 57	
" 11	Up	iP		13 36 47	
	Ki	iP		13 36 04	

1961					
May 11	Sk	iP		13 36 36	
cont.	Off northeast coast of Hokkaido, Japan (h= 40 km).				
" 11	Up	iP		13 47 38 C	
	Ki	iP		13 46 52	
	Sk	iP		13 47 33	
	Kurile Islands (h= 60 km).				
" 11	Um	iP		14 57 55 D	
" 11	Ki	iP		18 59 54	
	Sk	eP		19 00 13	
	Um	iP		19 00 13	
	Off coast of northern California (h= 40 km).				
" 12	Up	iP		03 52 51	
		i		03 52 56	
	Ki	eP		03 52 50	
		i		03 52 58	
	Um	iP		03 52 48	
		i		03 52 54	
	Near coast of Sumatra (h= 80 km).				
" 12	Up	iPKP		05 04 09	
	Ki			———	
			microns	sec	
		M	N 0.2	21	
		M	Z 0.7	20	
	Sk	iPKP		05 04 03	
	Gb	iPKP		05 04 15	

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

1961				
May 12 cont.	Um	iPKP	05 03 55	
	Kermadec Islands region (h= 60 km).			
" 12	Up	iP	06 40 00	
	Um	iP	06 39 30	
" 12	Up	iP	06 59 14	C
	Ki	iP	06 58 49	
	Gb	iP	06 59 30	
	Um	iP	06 58 54	
	Ryukyu Islands (h= 100 km).			
" 12	Um	iP	07 30 58	
" 12	Up	iPKP	07 43 43	
		i	07 43 57	
	Gb	iPKP	07 43 51	
	Kermadec Islands region (h= 20 km).			
" 12	Up	iP	14 12 45	
			microns	sec
		P Z'	0.1	0.6
" 12	Up	i(P)	16 54 37	
" 12	Um	iP	17 48 29	
	Off coast of Northern California (h= 30 km).			
" 13	Um	iP	06 03 20	
" 13	Up	iP	08 59 22	
	Ki	iP	08 58 42	

1961				
May 13 cont.	Um	iP	08 59 05	
	Off coast of northern California (h= 40 km).			
" 13	Up	iPKP	14 01 28	
	Ki	iPKP	14 01 15	
			microns	sec
		M E	0.6	13
	Sk	ePKP	14 01 27	
	Um	iPKP	14 01 19	
	Kermadec Islands region (h= 30 km).			
" 13	Up	iPKP	14 38 23	
		i	14 38 34	
		eSS	15 00 45	
			microns	sec
		PKP Z'	0.1	0.6
		M N	0.9	21
		M Z	0.9	18
	Ki	iPKP	14 38 07	
			microns	sec
		M E	0.5	16
		M N	0.9	21
	Sk	iPKP	14 38 16	
	Gb	iPKP	14 38 33	
		i	14 38 41	
	Um	iPKP	14 38 13	
	Kermadec Islands region (h= 25 km).			
" 13	Up	iPKP	15 11 05	
		iSKP	15 14 00	
	Ki	e(PKP)	15 10 46	
		iPKP	15 11 03	

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

1961						
May 13		iSKP		15 13 12		
cont.				microns	sec	
		PKP	Z'	0.1	1.0	
	Sk	i(PKP)		15 11 01		
		iPKP		15 11 14		
		iSKP		15 13 53		
	Gb	iPKP		15 11 18		
		i		15 11 24		
	Um	iPKP		15 11 08		
		i		15 11 12		
		iSKP		15 13 50		
	Fiji Islands region					
	(h= 560 km).					
" 13	Up	iP		16 00 36		
				microns	sec	
		P	Z'	0.1	0.5	
		M	E	0.4	16	
		M	N	0.6	15	
	Ki	iP		15 59 50		
		i		16 00 39		
				microns	sec	
		P	Z'	0.3	1.0	
		M	E	0.8	16	
		M	N	0.6	17	
	Sk	iP		16 00 24		
	Gb	iP		16 00 57		
		i		16 01 06		
	Um	iP		16 00 12		
	Off northeastern coast of					
	Hokkaido, Japan (h= 30 km).					
	Magn. = 6.2 (Up,Ki).					
" 13	Up	iP		19 30 55 D		

1961						
May 13				microns	sec	
cont.		P	Z'	0.1	0.5	
	Ki	iP		19 30 30 D		
				microns	sec	
		P	Z'	0.1	1.0	
	Sk	iP		19 30 58 D		
		i		19 31 13		
	Gb	iP		19 31 16		
	Um	iP		19 30 41 D		
	Off northeast coast of					
	Formosa (h= 260 km).					
" 14	Up	i(P)		00 27 07		
" 14	Ki	iPKP		00 32 20		
				microns	sec	
		PKP	Z'	0.1	0.8	
	Um	iPKP		00 32 29 C		
	North Island, New Zealand					
	(h= 40 km).					
" 14	Up	iPKP		03 03 01		
	Sk	iPKP		03 02 54		
	Gb	iPKP		03 03 09		
	Kermadec Islands region					
	(h= 50 km).					
" 14	Ki	iP		03 17 15		
" 14	Up	iP		03 33 21		
	Sk	iP		03 33 12		
	Um	iP		03 33 02		
		i		03 33 07		

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

1961

May 14	Up	eP		03 54 23	
" 14	Up	i(P)		11 08 35	
	Gb	e(P)		11 08 00	
" 14	Sk	iP		13 54 28	
" 14	Up	iP		13 58 21	
" 14	Up	iP		14 03 08	
" 14	Ki	iP		15 08 43	
" 14	Up	iP		15 12 07	
			microns	sec	
		M	E	0.6	20
		M	N	0.4	15
		M	Z	0.8	16
	Ki	iP		15 11 32	
		i		15 11 39	
		eS		15 14 38	
			microns	sec	
		P	E	0.4	6
		M	E	1.1	15
		M	N	0.6	14
		D= 1650 km = 15°.			
	Sk	iP		15 11 27	
	Um	iP		15 11 57	
	North of Iceland (h= 50 km).				
" 14	Up	iP		15 42 13	
		iS		15 45 39	
		i		15 45 45	
			microns	sec	
		P	E	0.4	5

1961

May 14 cont.		P	N	0.5	6
		P	Z	0.4	6
		S	E	0.2	4
		S	N	0.2	4
		S	Z	0.3	4
		M	E	1.0	17
		M	N	1.4	13
		M	Z	1.5	16
		D= 1950 km = 17°½ ,			
	Ki	iP		15 41 38	
		i		15 41 45	
		iS		15 44 42	
			microns	sec	
		P	E	0.6	7
		P	N	0.3	7
		M	E	2.6	15
		M	N	1.6	15
		D= 1650 km = 15°.			
	Um	iP		15 42 01	
	North of Iceland (h= 20 km).				
	Magn. = 4.9 (Up,Ki).				
" 14	Up	iP		19 43 16	
	Ki	iP		19 42 39	
	Sk	eP		19 42 55	
	Gb	eP		19 43 15	
	Um	iP		19 42 58	
	Off coast of northern California (h= 50 km).				
" 15	Sk	iP		14 12 27	
" 15	Up	iP		17 09 47	
" 15	Ki	iPKP		19 31 03	

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

1961			
May 15	Sk	iPKP	19 31 10
cont.	Um	iPKP	19 31 14
	Santa Cruz Islands (h=60 km).		
" 15	Um	iP	19 45 09
" 15	Ki	iPKP	20 07 59
		i	20 08 06
	Sk	iPKP	20 08 16
	Um	iPKP	20 08 16
	New Hebrides Islands region (h= 110 km).		
" 15	Um	iP	20 14 34
" 15	Um	iP	20 31 40
" 15	Up	iPKP	21 12 10
		microns sec	
		PKP Z'	0.1 0.6
	Ki	iPKP	21 12 02
		i	21 14 22
		iPP	21 14 34
		i	21 14 43
		microns sec	
		PP Z'	0.4 0.5
	Sk	i(PKP)	21 12 00
		iPKP	21 12 09
		iPP	21 15 00
	Gb	iPKP	21 12 24
	Um	i(PKP)	21 12 06
		iPKP	21 12 09
		i	21 12 15
		iPP	21 15 00
	Tonga Islands region		

1961			
May 15	(h= 90 km).		
cont.			
" 15	Um	iP	22 49 45
" 15	Up	iP	23 07 23
	Ki	iP	23 07 16
	Sk	i(P)	23 07 21
" 15	Um	i(P)	23 52 43
" 16	Um	iP	00 56 40
" 16	Um	iP	01 22 14
		i	01 22 24
" 16	Ki	iP	03 42 18
	Um	iP	03 42 47
	Fox Islands, Aleutian Islands (h= 40 km).		
" 16	Ki	iP	04 02 46
	Um	iP	04 03 16
	Fox Islands, Aleutian Islands (h= 60 km).		
" 16	Um	iP	07 25 34
" 16	Um	iP	07 37 22
		i(P)	07 41 02
" 16	Um	iP	08 02 42
" 16	Um	iP	08 52 55
" 16	Um	iP	10 30 37

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

1961			
May 16 cont.		i(P)	10 33 10
" 16	Ki	i(P)	11 09 47 C
" 16	Um	iP	13 08 34
" 16	Um	iP	13 32 35
		i	13 32 52
" 16	Um	iP	15 10 18
" 16	Um	iP	17 41 00
" 16	Up	iPKP	17 47 11 D
		i	17 47 23
		microns	sec
		PKP Z'	0.1 0.6
	Ki	e(PKP)	17 47 11
	Sk	iPKP	17 47 04 D
		i	17 47 16
	Gb	iPKP	17 47 22
		i	17 47 33
	Um	iPKP	17 47 01
	Kermadec Islands region (h= 50 km).		
" 16	Um	iP	17 59 56
" 16	Um	iP	18 02 45
" 16	Um	iP	18 07 23
" 16	Sk	iP	18 09 20
	Um	iP	18 09 39
	Near coast of Honduras		

1961			
May 16 cont.		(h= 120 km).	
" 16	Um	iP	19 58 59
" 16	Um	i(P)	20 11 08
" 16	Um	i(P)	20 57 51
" 16	Ki	iP	21 16 04
" 16	Up	iP	21 57 08 D
		i	21 57 18
		iS	22 06 42
		microns	sec
		P E	0.2 2
		P N	0.1 2
		P Z	0.5 2
		P Z'	0.3 1.0
		S E	1.1 4
		S N	0.3 4
		S Z	0.5 4
		M E	3.8 17
		M N	5.1 20
		M Z	4.1 21
		D= 8350 km = 75°.	
	Ki	iP	21 56 35
		i	21 56 46
		iS	22 05 43
		microns	sec
		P Z'	0.7 1.5
		S E	2.7 5
		S N	0.6 5
		M E	6.6 20
		M N	6.9 20

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

1961				
May 16		D= 7700 km = 69°½.		
cont.	Sk	iP	21 57 06	
	Gb	iP	21 57 29	
		i	21 57 40	
	Um	iP	21 56 50	
		i	21 57 01	
	Ryukyu Islands (h= 25 km).			
	Magn. = 6.4 (Up,Ki).			
" 17	Um	i(P)	00 52 35	
" 17	Um	iP	02 11 15	
" 17	Um	iP	05 13 04	
" 17	Ki	iPg	08 13 06	
		iSg	08 14 02	
		D= 480 km = 4°.3.		
	Sk	eSg	08 16 48	
		D= 1030 km = 9°.3.		
	Um	i(Sn)	08 14 49	
	Northwest Russia, 68°3/4 N,			
	32° E. Origin time = 08 11 40.			
	Possibly explosion.			
" 17	Um	iP	09 19 16	
" 17	Um	iP	10 10 37	
" 17	Um	iP	13 00 13	
" 17	Um	iP	14 31 02	
" 17	Up	iP	19 40 12 C	
		i	19 40 32	

1961				
May 17		iS	19 48 59	
cont.			microns	sec
	P	N	0.9	3
	P	Z	1.4	3
	P	Z'	0.2	0.5
	S	E	2.0	11
	S	N	0.5	4
	M	E	3.1	20
	M	N	7.3	20
	M	Z	7.8	20
	D= 7400 km = 66°½.			
Ki	iP		19 39 18 C	
	i		19 40 14	
	iPa		19 43 00	
	iS		19 47 18	
	iP'P'		20 08 54	
	i		20 09 36	
			microns	sec
	P	E	0.2	7
	P	N	0.7	7
	P	Z	1.5	5
	P	Z'	0.4	1.0
	S	E	1.2	7
	S	N	1.4	8
	M	E	8.5	21
	M	N	7.9	18
	M	Z	20	19
	D= 6550 km = 59°.			
Sk	iP		19 39 52 C	
	iP'P'		20 08 42	
Gb	iP		19 40 28 C	
	i		19 40 48	
	iS		19 49 35	
	iP'P'		20 08 34	

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

1961

May 17	Um	iP		19 39 43	C
		i		19 49 11	
		iP'P'		20 08 40	
	Near Islands, Aleutian Islands				
	(h= 20 km). Magn.= 6.4 (Up,Ki).				
" 18	Up	iP		00 33 36	C
		i		00 33 39	
			microns	sec	
		P	Z' 0.1	0.7	
	Ki	iP		00 33 20	
			microns	sec	
		M	E 0.3	14	
		M	N 0.3	16	
		M	Z 0.5	14	
	Sk	iP		00 33 48	
	Um	iP		00 33 20	
	Sinkiang Province, China				
	(h= 30 km).				
" 18	Up	i(P)		07 58 29	D
			microns	sec	
		P	Z' 0.2	0.5	
" 18	Um	iP		09 09 14	
" 18	Up	i		09 45 42	
		i		09 45 54	
			microns	sec	
		M	E 0.4	14	
		M	N 0.9	17	
		M	Z 0.8	16	
	Ki	iP		09 41 06	
		eT		09 46 06	

1961

May 18		i		09 46 46	
cont.			microns	sec	
		P	E 0.2	8	
		P	N 0.2	8	
		M	E 0.7	18	
		M	N 0.6	18	
		M	Z 1.7	18	
	Sk	iP		09 41 42	D
		iS		09 43 22	
		i		09 45 42	
	D= 970 km = $8^{\circ}.7$.				
	Gb	iP		09 43 09	
	Um	iP		09 41 53	
		iS		09 43 44	
		i		09 48 21	
		i		09 48 37	
	D= 1080 km = $9^{\circ}.7$.				
	Arctic Ocean, near 73° N,				
	11° E. Origin time= 09 39 30				
" 18	Up	iP		09 49 41	
	Ki	iP		09 49 00	
	Sk	iP		09 49 19	
	Off coast of northern				
	California (h= 40 km).				
" 18	Up	i(P)		10 19 51	
			microns	sec	
		(P)	Z' 0.1	0.6	
	Ki	e(P)		10 19 26	
" 18	Ki	iP		13 07 07	
		i		13 07 55	
	Sk	iP		13 07 42	

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

1961				
May 18		i	13 09 26	
cont.				
" 18	Ki	iP	15 24 29	
" 18	Up	i(P)	15 45 26	
	Ki	iP	15 45 33	
	Gb	i(P)	15 45 48	
" 18	Up	iP	18 24 20	
" 18	Ki	iP	20 50 53	D
		ipP	20 51 28	
	Um	iP	20 50 59	
	Near south coast of Mindanao, Philippine Islands. h = 140 km (Ki).			
" 19	Ki	iP	01 03 26	
	Um	iP	01 03 32	
	Off south coast of Mindanao (h= 80 km).			
" 19	Up	iPKP	02 39 54	
	Ki	iPKP	02 39 46	
	Sk	ePKP	02 39 48	
	Gb	iPKP	02 40 07	
	Um	iPKP	02 39 51	
		i	02 39 56	
	Fiji Islands region (h= 600 km).			
å" 19	Ki	iP	09 38 11	
		i	09 38 25	

1961				
May 19	Sk	iP	09 38 04	
cont.	Um	iP	09 38 36	
	Off coast of Nicaragua (h= 30 km).			
" 19	Ki	iP	14 58 47	
	Um	iP	14 59 07	
" 19	Up	iP	16 14 59	
" 19	Up	iP	16 49 17	
		i	16 49 29	
	Ki	iP	16 48 53	C
		iS	16 58 17	
			microns	sec
		P	Z 0.1	0.8
		S	E 0.2	8
		S	N 0.5	9
		M	E 1.2	18
		M	N 0.9	18
		M	Z 1.9	19
	Sk	iP	16 49 20	C
		i	16 49 33	
	Gb	iP	16 49 36	
		i	16 49 51	
	Um	iP	16 49 02	
		i	16 49 13	
	Ryukyu Islands (h= 70 km). Magn.= 6.1 (Ki).			
" 19	Up	iP	21 37 57	
		iPP	21 39 30	
	Ki	iP	21 38 01	
		iPP	21 39 33	

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

1961			
May 19	Sk	iP	21 38 21
cont,		iPP	21 40 03
	Gb	iP	21 38 20
		iPP	21 40 03
	Um	iP	21 37 54
		iPP	21 39 26
	Tadzhik, U.S.S.R. (h= 40 km).		
" 20	Ki	iP	00 54 14
	Um	iP	00 54 43
	Fox Islands, Aleutian Islands (h= 70 km).		
" 20	Ki	iP	07 08 33
		i	07 08 42
		eT	07 13 27
		i	07 14 21
	Sk	iP	07 09 13
		i	07 09 19
		eS	07 10 52
	D= 1050 km= $9^{\circ}\frac{1}{2}$.		
	Um	iP	07 09 35
	Arctic Ocean (h= 50 km).		
" 20	Up	iP	12 02 02
	Ki	iP	12 01 18
	Um	iP	12 01 37
	Kurile Islands (h= 60 km).		
" 20	Ki	iP	17 25 14
		i	17 25 20
		iT	17 30 19
		i	17 30 35

1961			
May 20	Sk	iP	17 25 51
cont.		iS	17 27 31
		i	17 27 35
	D= 1050 km = $9^{\circ}\frac{1}{2}$.		
	Um	iP	17 26 06
	Svalbørd region (h= 60 km).		
" 20	Ki	iP	17 49 03
		eT	17 53 56
		i	17 54 51
		microns	sec
	M	E	0.4 18
	M	N	0.4 19
	M	Z	1.1 18
	Sk	iP	17 49 39
		iS	17 51 20
		i	17 51 25
	D= 1050 km = $9^{\circ}\frac{1}{2}$.		
	Um	iP	17 49 50
		iS	17 51 41
		i(T)	17 56 25
	D= 1150 km = $10^{\circ}\frac{1}{2}$.		
	Arctic Ocean (h= 50 km).		
" 20	Up	iP	18 02 15
" 20	Up	iP	18 02 56
	Ki	i(P)	18 03 32
		iP	18 03 42
		microns	sec
	P	Z'	0.1 1.3
	M	E	0.3 18
	M	N	0.4 19

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

1961				
May 20	Sk	iP	18 03 20	
cont.	Gb	eP	18 02 44	
	Um	i(P)	18 03 13	
		iP	18 03 18	
	Tanganyika (h= 60 km).			
" 20	Ki	iP	18 13 45	
" 21	Up	iP	01 13 28	D
		i	01 13 42	
	Ki	iP	01 13 07	
		i	01 13 23	
	Sk	iP	01 13 55	
	Um	iP	01 13 09	
		i	01 13 24	
	Kazakh, U.S.S.R. - Sinkiang, China border (h= 90 km).			
" 21	Ki	e(P)	05 04 50	
" 21	Up	iP	05 35 23	C
	Ki	iP	05 34 40	
	Sk	iP	05 35 14	
	Um	iP	05 34 55	
	Near east coast of Hokkaido, Japan (h= 60 km),			
" 21	Up	iP	05 40 02	
" 21	Up	iP	10 25 37	
	Ki	iP	10 25 13	
	Sk	iP	10 25 41	

1961				
May 21	Gb	iP	10 25 53	
cont.	Ryukyu Islands (h= 60 km).			
" 21	Gb	iP	15 27 06	
	Off coast of northern California (h= 25 km).			
" 21	Up	iP	16 50 16	
" 21	Up	iP	17 41 51	
" 21	Um	iPKP	18 32 17	
		i	18 32 36	
	Tonga Islands (h= 60 km).			
" 21	Um	iP	18 49 21	C
" 21	Up	iP	19 27 31	D
	Ki	iP	19 27 00	D
			microns	sec
		M E	0.2	12
		M N	0.4	13
	Um	iP	19 27 16	D
" 21	Ki	iP	21 23 13	
	Molucca Passage (h= 100 km).			
" 21	Ki	ePKP	21 59 26	
	Gb	ePKP	21 59 39	
	Um	iPKP	21 59 28	
	New South Wales, Australia (h= 30 km).			

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

1961						1961					
May 22	Up	iP		08 30 05		May 22	Up	iPKP		17 51 45	
								i		17 51 47	
" 22	Ki	iP		09 07 09				iPP		17 54 56	
	Kurile Islands (h= 30 km).							iPKS		17 55 29	
								ePPS		18 07 19	
" 22	Up	ePKP		14 03 50				iSS		18 13 16	
		iPKS		14 07 35					microns	sec	
		e(SPP)		14 19 12				PKP	Z'	0.1	0.5
			microns	sec				PKS	E	0.4	10
		PKS	E	0.1	3			PKS	N	0.7	12
		PKS	N	0.3	3			PKS	Z	1.1	12
		M	E	1.3	20			M	E	2.3	20
		M	N	1.6	20			M	N	4.5	21
		M	Z	1.3	20			M	Z	5.5	21
		(Δ= 15650 km = 141°).						(D= 15650 km = 141°).			
	Ki	e(PKP)		14 03 57			Ki	iPKP		17 51 26	
		iPP		14 06 19				i		17 51 38	
		iPKS		14 07 08				iPKS		17 55 04	
		iSS		14 23 40				i		17 55 11	
			microns	sec				i		17 55 37	
		PP	Z	0.5	4				microns	sec	
		PKS	E	0.8	4			PKS	E	0.7	11
		PKS	N	0.7	4			PKS	N	0.9	11
		M	E	1.8	20			PKS	Z	1.6	7
		M	N	1.6	20			PKS	Z'	0.4	1.5
		M	Z	2.8	20			M	E	2.7	20
		(D= 14900 km = 134°).						M	N	3.5	20
	Sk	ePKP		14 03 45				M	Z	7.7	21
		i		14 06 31				(D= 15000 km = 135°).			
	Gb	iPKP		14 04 02			Sk	iPKP		17 51 40	
	Um	iPKP		14 03 53				i		17 51 49	
	Tonga Islands (h= 100 km).							iPP		17 54 38	
							Gb	iPKP		17 51 56	

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

1961			
May 22		i	17 52 14
cont.	Um	iPKP	17 51 35
		i	17 51 41
		i	17 51 48
		i	17 55 50
	Tonga Islands region (h= 40 km). Magn.= 6.4 (Up,Ki).		
" 23	Gb	iPKP	00 05 50
	Tonga Islands region (h= 530 km).		
" 23	Up	iP	01 12 37
	Ki	iP	01 11 44
	Andreanof Islands, Aleutian Islands (h= 50 km).		
" 23	Up	iP	02 50 31 C
		iS	02 54 44
		iLg	02 58 12
		microns	sec
		P E 5.4	5
		P N 13	5
		P Z 8.6	4
		P Z' 0.3	0.5
		S E 26	9
		S N 45	12
		S Z 20	10
		M E 43	11
		M N 97	17
		M Z 81	16
	D= 2650 km = 24°.		

1961			
May 23	Ki	iP	02 51 38 C
cont.		i	02 55 27
		iS	02 56 41
		i	02 57 44
		microns	sec
		P E 1.2	4
		P N 4.1	5
		P Z 5.0	5
		P Z' 1.8	1.0
		S E 6.2	10
		S N 9.2	11
		M E 26	7
		M N 51	18
		M Z 100	18
	D= 3450 km = 31°.		
	Sk	iP	02 51 11 C
	Gb	iP	02 50 29 C
		iS	02 54 57
		iPcS	02 57 48
	Um	iP	02 51 05 C
	Dodecanese Islands (h= 50 km). Magn.= 6.6 (Up,Ki).		
" 23	Up	iP	03 53 02
		microns	sec
		P Z' 0.1	1.0
		M E 0.8	20
		M N 1.0	19
		M Z 0.9	18
	Ki	iP	03 52 58
		i	03 53 08
		iS	04 03 23
		microns	sec

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

1961					
May 23		P	Z'	0.3	1.5
cont.		S	N	0.5	7
		M	E	1.0	18
		M	N	0.5	16
		M	Z	1.2	17
	Sk	iP		03 52 46	
	Gb	iP		03 52 54	
	Um	iP		03 53 06	
	Costa Rica (h= 140 km).				
" 23	Up	iP		03 55 45	
	Ki	iP		03 55 41	
		i		03 55 57	
		iPP		03 59 16	
	Sk	iP		03 55 29	
		i		03 55 46	
	Gb	iP		03 55 38	
	Um	iP		03 55 49	
	Costa Rica.				
" 23	Um	iP		04 05 00	
" 23	Ki	i(P)		05 30 27	
" 23	Ki	iP		07 13 40	
		eT		07 18 52	
		i		07 19 28	
	Sk	iP		07 14 12	
		iS		07 15 54	
	D= 1000 km = 9°.				
	Um	eP		07 14 25	
	Arctic Ocean.				

1961					
May 23	Um	i(P)		08 43 40	
" 23	Um	iP		08 51 39	
" 23	Up	i(P)		08 59 33	
		i		08 59 34	
		microns sec			
		(P)	Z'	0.1	0.8
" 23	Um	iP		10 34 04	
" 23	Um	iP		11 17 03	
" 23	Ki	iP		12 27 45	
" 23	Up	i(P)		13 19 25	
		i		13 19 26	
		microns sec			
		(P)	Z'	0.1	0.7
" 23	Ki	e(P)		16 23 48	
" 23	Up	iP		16 57 29	
		i		17 00 17	
		iPP		17 00 52	
		eS		17 07 59	
		isS		17 09 15	
		microns sec			
		M	E	0.5	19
		M	N	0.6	19
		M	Z	1.6	24
	(D= 9650 km = 87°).				

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

1961					
May 23	Ki	iP		16 57 22	
cont.		iPP		17 00 41	
		iS		17 07 36	
			microns	sec	
		P	E	0.3	4
		P	Z	0.5	7
		P	Z'	0.2	1.3
		PP	E	0.4	3
		PP	Z	0.5	3
		S	E	0.4	13
		S	N	0.2	11
		M	E	0.6	16
		M	N	0.5	18
		M	Z	1.1	16
		(D= 9350 km = 84°).			
	Sk	iP		16 57 11	C
		ipP		16 57 38	
		iPP		17 00 27	
	Gb	iP		16 57 16	
	Um	iP		16 57 27	
		ipP		16 57 55	
		iPP		17 00 49	
	Near coast of Nicaragua				
	h = 110 km (Sk,Um). Magn.=				
	6.2 (Ki).				
" 23	Up	iP		17 08 54	
		i		17 08 58	
	Ki	iP		17 08 35	
	Um	iP		17 08 40	
" 24	Up	i(P)		09 11 37	
	Seismic?				

1961					
May 24	Up	iP		16 09 20	
	Gb	i(P)		16 09 55	
" 24	Up	i(P)		18 33 44	
		i		18 33 51	
" 24	Up	iP		20 34 18	
" 25	Up	i(P)		08 40 06	
		i		08 40 07	
	Seismic?				
" 25	Up	iP		09 30 29	
		i		09 30 30	
			microns	sec	
		P	Z'	0.1	0.5
	Ki	iP		09 29 55	
			microns	sec	
		P	Z'	0.1	0.6
	Sk	iP		09 30 24	
	Gb	iP		09 30 46	
	Um	iP		09 30 09	
	South of Honshu, Japan				
	(h= 170 km).				
" 25	Up	i(P)		12 37 31	
	Seismic?				
" 25	Ki	iP		13 41 16	
" 25	Up	i(P)		15 02 10	
	Seismic?				

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

1961

May25 Up i(P) 16 03 51
Seismic?

" 25 Ki iPKP 18 59 25
Tonga Islands (h= 40 km).

" 25 Up iP 19 46 03
Ki iP 19 46 03
microns sec
P Z' 0.1 0.8
Um iP 19 45 59
Sumatra (h= 90 km).

" 25 Up iP 22 55 54
Ki iP 22 55 35

" 25 Up iP 03 01 13

" 26 Ki iP 05 18 45
Sk iP 05 18 37
i 05 19 32
Western Guatemala (h= 120 km).

" 26 Ki i(P) 08 02 43

" 26 Up iP 23 01 11
Ki iP 23 00 30
Um iP 23 00 48
Near east coast of Honshu, Japan (h= 60 km).

" 27 Up iP 05 22 18 C
i 05 22 33

1961

May 27 iPP 05 23 58
cont.
microns sec
P Z' 0.1 0.5
Ki iP 05 22 27 C
i 05 22 37
microns sec
P Z' 0.1 1.1
Sk iP 05 22 43 C
iPP 05 24 31
Um iP 05 22 18 C
Hindu Kush (h= 90 km).

" 27 Up ——
microns sec
M E 0.4 22
M N 0.9 23
M Z 1.0 21
Ki iP 07 28 25 C
i 07 28 40
microns sec
M E 0.5 17
M N 0.6 17
M Z 0.5 17
Sk iP 07 29 08
i 07 29 16
iPP 07 31 24
Gb iP 07 29 37 C
Um iP 07 28 45 C
i 07 29 01
Near north coast of Honshu, Japan (h= 160 km).

" 27 Up iP 10 34 20

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

1961					
May 27	Ki	iP		10 33 39	
cont.	Um	iP		10 33 58	
		i		10 34 17	
" 27	Up	iP		10 45 28	
		i		10 45 31	
		iPP		10 47 05	
			microns	sec	
		M	E	0.1	14
		M	N	0.5	13
	Ki	eP		10 45 37	
		i		10 45 43	
			microns	sec	
		M	E	0.3	9
		M	N	0.2	10
		M	Z	0.2	9
	Sk	iP		10 45 54	
	Gb	iP		10 45 43	
	Um	iP		10 45 28	
	Hindu Kush (h= 30 km).				
" 27	Ki	iP		11 45 26	
" 27	Um	iP		13 59 43	
" 27	Um	iP		15 52 53	
" 27	Up	iP		17 04 51	
		i		17 04 59	
		eS		17 15 17	
			microns	sec	
		S	N	0.1	3
		M	E	0.1	16
		M	N	0.6	20

1961					
May 27	D= 9350 km = 84°.				
cont.	Ki	iP		17 04 52	
		iS		17 15 19	
		iScS		17 15 31	
			microns	sec	
		P	Z'	0.1	0.9
		S	E	0.3	4
		S	N	0.3	5
		M	E	0.7	18
		M	N	0.6	20
		M	Z	1.2	19
	D= 9400 km = 84°½.				
	Sk	iP		17 05 06	
		i		17 05 14	
	Gb	i(P)		17 05 13	
	Um	iP		17 04 47	
		i		17 04 56	
	Near coast of northern Sumatra (h= 40 km). Magn.= 5.9 (Up,Ki).				
" 27	Up	iP		17 39 03	
		i		17 39 12	
	Ki	iP		17 39 04	
		i		17 39 13	
	Sk	iP		17 39 21	
	Um	iP		17 38 59	
	Near northwest coast of Sumatra (h= 40 km).				
" 27	Up	iP		22 50 50	
	Ki	iP		22 50 30	
		i		22 50 48	
			microns	sec	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Un = Uneå

1961 May 27 cont.

		M	E	0.5	20
		M	N	0.2	15
		M	Z	0.6	19
	Un	iP		22 50 37	

Near coast of Luzon, Philippine Islands (h= 90 km).

" 28	Up	iP		02 08 02
" 28	Un	iP		02 15 22
" 28	Un	iP		03 41 56
" 28	Up	iP		04 13 00
	Ki	iP		04 12 59
	Sk	iP		04 13 13
	Un	iP		04 13 00

Off coast of southern Sumatra (h= 70 km).

" 28	Up	iPKP	13 00 59

South of Fiji Islands (h= 90 km).

" 28	Up	iPKP		19 47 38	D
		i		19 47 42	
			microns	sec	
		PKP	Z'	0.1	0.7
	Ki	ePKP		19 47 20	
	Sk	iPKP		19 47 30	
	Gb	iPKP		19 47 50	
		i		19 47 54	
	Un	ePKP		19 47 27	

South of Fiji Islands (h= 220 km).

1961

May 29	Un	iP		00 05 44	
" 29	Up	iP		00 33 51	
	Ki	iP		00 32 58	
		i		00 33 09	
			microns	sec	
		P	Z'	0.2	1.4
	Sk	iP		00 33 28	
	Gb	iP		00 34 10	
		i		00 34 42	
	Un	iP		00 33 29	
		i		00 33 41	

Fox Islands, Aleutian Islands (h= 70 km).

" 29	Ki	iP		05 09 38
	Sk	iP		05 09 23
	Un	iP		05 09 17
" 29	Ki	iP		06 52 49
" 29	Up	——		
		microns	sec	
	M	E	1.4	19
	M	N	0.8	20
	M	Z	1.5	19
Ki	iPKP		07 47 32	
	eSS		08 06 23	
		microns	sec	
	M	E	1.1	20
	M	N	0.7	21
	M	Z	1.0	17
Un	iPKP		07 47 24	

Near coast of southern Chile (h= 10 km).

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

1961

May 29	Up	iP	10 41 45	D
		i	10 41 53	
		i	10 42 00	
			microns sec	
		P	Z' 0.1 0.5	
	Ki	iP	10 41 12	
	Sk	iP	10 41 41	
	Gb	iP	10 42 02	
	Um	iP	10 41 25	
	Bonin Islands (h= 25 km).			
" 29	Up	iP	11 01 12	
		eS	11 08 41	
			micrins sec	
		S	N 0.3 7	
		M	E 0.6 17	
		M	N 0.7 22	
		D= 5800 km = 52°.		
	Ki	eP	11 02 00	
		eS	11 10 00	
			microns sec	
		M	E 0.7 17	
		M	N 0.4 15	
		M	Z 0.9 17	
		D= 6450 km = 58°.		
	Sk	iP	11 01 44	C
	Gb	iP	11 01 10	
	Um	iP	11 01 34	
	Ethiopia (h= 25 km).			
" 29	Up	iP	11 49 05	
	Ki	iP	11 49 50	
	Sk	iP	11 49 35	C

1961

May 29	Up	iP	17 04 09	
	Ki	iP	17 03 42	
		i	17 04 13	
	Sk	iP	17 04 06	
	Um	iP	17 03 58	
	Near coast of Luzon, Philippine Islands (h= 25 km).			
" 29	Up	iP	19 33 13	
	Ki	iP	19 34 02	C
		eS	19 42 14	
			microns sec	
		S	N 0.2 8	
		M	E 0.4 14	
		M	N 0.4 16	
		M	Z 0.2 15	
		D= 6500 km = 58°½.		
	Sk	iP	19 33 46	C
	Gb	iP	19 33 11	
	Um	iP	19 33 34	
	Ethiopia (h= 50 km).			
" 29	Ki	iP	19 50 25	
	Sk	iP	19 50 10	
	Um	iP	19 49 58	
" 30	Ki	iP	13 21 06	
	Sk	i(P)	13 20 59	
" 30	Ki	iP	15 01 11	
		i	15 01 26	
			microns sec	
		P	Z' 0.3 0.8	

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

1961

May 31	Up	iP			09 05 56	
				microns	sec	
		P	Z′	0.1	0.7	
" 31	Ki	i(P)			10 00 27	
" 31	Ki	iP			10 22 55	
" 31	Up	i(P)			13 23 03	
				microns	sec	
		(P)	Z′	0.1	0.8	
	Gb	i(P)			13 24 20	
" 31	Up	eS			14 40 17	
				microns	sec	
		M	E	2.4	18	
		M	N	2.0	20	
		M	Z	2.9	18	
	Ki	eP			14 29 30	
		eS			14 39 23	
				microns	sec	
		S	N	0.3	8	
		M	E	2.4	17	
		M	N	2.2	16	
		M	Z	4.4	17	

D= 8650 km= 78°.

Gulf of California (h= 70 km).

Magn.= 5.8 (Up,Ki).

" 31	Up	iP	14 50 06
	Ki	iP	14 49 14
	Sk	iP	14 49 51
	Um	iP	14 49 40

Kurile Islands (h= 50 km).

1961

May 31	Sk	iP			17 18 44	
" 31	Up	——				
				microns	sec	
		M	E	1.3	19	
		M	N	1.6	22	
		M	Z	1.9	20	
	Ki	ePS			19 44 15	
				microns	sec	
		M	E	1.2	19	
		M	N	0.6	18	

New Britain (h= 60 km).

" 31	Up	iP	20 26 07
	Sk	i(P)	20 26 13

Markus Båth

March 17, 1962

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

Seismological Laboratory
Uppsala

P R E L I M I N A R Y
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, and U M E Å

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°49.0'N,	20°14.1'E,	h = 20 m

J U N E 1 – 30, 1961

1961
June 1 Um i(P) 03 36 15

" 1 Up iP 03 37 59
Ki iP 03 37 05
Sk iP 03 37 41
Near east coast of
Kamchatka (h = 25 km).

" 1 Ki i(P) 08 40 30
Local?

" 1 Up i(P) 08 43 05
microns sec
(P) Z' 0.1 0.7
Um i(P) 08 43 48

" 1 Ki iP 10 14 08
Um iP 10 14 13
Sk iP 10 13 49
Near coast of Dominican
Republic (h = 50 km)

" 1 Up iPg 13 49 46
iSg 13 50 14
D = 230 km = 2°.1.

" 1 Up i(P) 14 02 16
microns sec
(P) Z' 0.1 0.6
Local?

" 1 Ki i(P) 14 52 58
Local?

1961
June 1 Up iP 15 09 22 D
microns sec
P Z' 0.1 0.6
Local? Seismic?

" 1 Up iP 16 37 08
Ki iP 16 38 03
Gb eP 16 37 14
Um eP 16 37 33
Southern Turkey (h = 60 km).

" 1 Up iP 18 59 31
Ki iP 18 59 16
Celebes Sea (h = 90 km).

" 1 Sk iP 21 16 59
Gb iP 21 16 24

" 1 Up iP 23 38 28 D
i 23 38 37
iPcP 23 39 52
iPS 23 45 51
microns sec
P E 0.5 4
P Z 1.6 4
M E 21 20
M N 18 20
M Z 9.4 22
Ki iP 23 39 16
i 23 39 24
microns sec
P Z' 0.2 1.9
M E 14 15
M N 9.8 18

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

1961 June cont.	1	Gb	iP	23 38 27	
			i	23 38 35	
		Sk	iP	23 39 01	
			i	23 39 10	
		Um	iP	23 38 51	
			i	23 39 00	
		Ethiopia (h =50 km).			
		Magn. = 6.2 (Up, Ki).			
"	2	Up	iP	00 05 58	C
		Ki	iP	00 06 47	C
		Sk	iP	00 06 31	
		Um	iP	00 06 20	C
		Ethiopia (h = 60 km).			
"	2	Up	iP	00 10 55	
		Ki	iP	00 11 45	
		Sk	iP	00 11 27	
		Gb	iP	00 10 53	
		Um	iP	00 11 17	
			i	00 11 21	
		Ethiopia (h = 30 km).			
"	2	Up	iP	00 18 06	
			i	00 18 08	
			iPcP	00 19 14	
		Ki	iP	00 18 54	
		Sk	iP	00 18 38	
			iPcP	00 19 46	
		Gb	iP	00 18 03	
		Um	iP	00 18 27	
			iPcP	00 19 34	
		Ethiopia (h = 60 km).			
"	2	Up	iP	00 30 32	
		Ki	iP	00 31 20	
		Sk	iP	00 31 04	
		Gb	iP	00 30 30	
		Um	iP	00 30 54	
		Ethiopia.			
"	2	Up	iP	01 07 08	C
		Ki	iP	01 07 54	
		Sk	iP	01 07 41	C
		Gb	iP	01 07 04	C
		Um	iP	01 07 30	C
		Ethiopia.			
"	2	Up	iP	01 25 23	C
		Ki	iP	01 26 12	C
		Sk	iP	01 25 55	C
		Gb	eP	01 25 21	C
		Um	iP	01 25 44	
		Ethiopia (h = 60 km).			
"	2	Sk	iP	01 29 17	
		Gb	eP	01 28 40	

1961 June	2	Up	iP	02 44 43	
		Ki	iP	02 45 32	
		Sk	iP	02 45 17	
		Gb	i(P)	02 44 41	
		Um	iP	02 45 06	
		Ethiopia.			
"	2	Up	iP	03 28 51	C
		Sk	iP	03 29 23	
		Gb	eP	03 28 49	
		Um	iP	03 29 16	
		(Ethiopia).			
"	2	Up	iP	03 58 23	
		Ki	iP	03 59 11	
		Sk	iP	03 58 56	
		Gb	eP	03 58 18	
		Um	iP	03 58 45	
		Ethiopia.			
"	2	Up	iP	05 00 24	D
			iS	05 07 40	
			iSP	05 07 49	
				microns	sec
			P	E 1.3	9
			P	N 1.6	9
			P	Z 4.7	9
			P	Z' 0.3	1.0
			M	E 9.4	19
			M	N 13	19
			M	Z 8.2	19
		D = 5850 km = 52 1/2°.			
		Ki	iP	05 01 11	D
			i	05 01 55	
			iS	05 09 21	
				microns	sec
			P	E 0.9	8
			P	N 1.4	7
			P	Z' 0.6	1.2
			S	E 4.2	13
			S	N 4.2	10
			M	E 9.9	16
			M	N 8.2	17
		D = 6600 km = 59 1/2°.			
		Sk	iP	05 00 56	D
			i	05 01 22	
		Gb	iP	05 00 24	D
			ii	05 00 55	
		Um	iP	05 00 48	
			i	05 00 58	
		Ethiopia (h = 40 km).			
		Magn. = 6.4 (Up, Ki).			
"	2	Up	iP	05 22 21	
		Gb	iP	05 22 32	

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

1961
June 2 Up iP 05 31 41 D
i 05 31 46
iS 05 39 10
microns sec
P Z 0.2 2.0
P Z' 0.1 0.9
D = 5750 km = 52°.
Ki iP 05 32 29 D
i 05 32 34
microns sec
P Z' 0.1 1.0
Sk iP 05 32 14
i 05 32 18
Gb iP 05 31 41 D
i 05 31 46
Um iP 05 32 06 D
i 05 32 10
Ethiopia (h = 25 km).

" 2 Up iP 05 42 51
Gb eP 05 42 52

" 2 Up iP 05 54 04
i 05 54 09
iS 06 01 31
microns sec
P E 0.1 3
P Z' 0.1 0.9
M E 4.2 18
M N 4.7 21
M Z 3.9 20
Ki iP 05 54 52 D
microns sec
P Z' 0.2 1.5
Sk iP 05 54 36
Gb iP 05 54 03
i 05 54 10
Um iP 05 54 28
i 05 54 33
Ethiopia (h = 30 km).
Magn. = 5.8 (Up, Ki).

" 2 Up iP 06 26 22
Ki iP 06 27 09
Sk iP 06 26 55
Gb iP 06 26 21
Um iP 06 26 46
Ethiopia (h = 40 km).

" 2 Up iP 06 30 05
i 06 30 10
Ki iP 06 29 50
Um iP 06 29 54

" 2 Sk iP 06 39 54
Um iP 06 39 45

1961
June 2 Up microns sec
M E 1.0 17
M N 0.9 17
M Z 1.3 17
Ki iP 07 12 48
i 07 12 52
iSP 07 21 02
microns sec
M E 1.2 19
M N 0.8 15
Sk iP 07 12 32
i 07 12 36
Gb iP 07 11 58
Um iP 07 12 23
i 07 12 27
Ethiopia (h = 50 km).
Magn. = 5.2 (Up, Ki).

" 2 Up iP 07 30 55
Ki iP 07 31 44
Sk iP 07 31 29
Gb iP 07 30 54
Um iP 07 31 19
Ethiopia.

" 2 Ki iP 11 09 41 D
Sk iP 11 10 32
Um iP 11 10 34
Svalbard region (h = 25 km).

" 2 Ki i(P) 11 27 11

" 2 Up iP 14 27 07
Local? Seismic?

" 2 Up iP 14 32 48 D
microns sec
P 0.1 0.5
Local? Seismic?

" 2 Um i(P) 18 06 35

" 2 Up iP 18 22 17 D
i 18 22 27
microns sec
M E 0.3 18
M N 0.3 17
M Z 0.3 17
Ki iP 18 21 47
iScS 18 32 05
microns sec
M E 0.4 15
M N 0.3 15
Sk iP 18 22 13
Gb iP 18 22 31
Um iP 18 21 59
i 18 22 10
Mariana Islands region
(h = 40 km).

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

1961
June 2 Up iP 22 28 43
Um i(P) 22 29 05

" 2 Up iP 23 41 47
i 23 41 51
Ki iP 23 42 35
microns sec
M E 0.2 12
M N 0.2 15
Sk iP 23 42 20
Gb iP 23 41 47
Um iP 23 42 11
Ethiopia.

" 3 Up iP 01 23 42 D
i 01 23 52
iS 01 32 04
microns sec
S E 0.2 5
M E 1.9 22
M N 2.8 20
M Z 2.3 20
D = 6850 km = 61½°.
Ki iP 01 22 47 D
i 01 22 54
iS 01 30 22
microns sec
P Z' 0.1 1.1
S E 0.5 7
S N 0.4 7
M E 1.6 16
M N 1.3 18
D = 5950 km = 53½°.
Sk iP 01 23 24
Gb iP 01 24 01
i 01 24 12
Um iP 01 23 14 D
Off east coast of
Kamchatka (h = 30 km).
Magn. = 5.7 (Up, Ki).

" 3 Up iP 02 14 45
i 02 14 50
Sk iP 02 15 18
Gb i(P) 02 14 43
Um iP 02 15 08
Ethiopia.

" 3 Ki ePKP 03 37 24
New Hebrides Islands
(h = 30 km).

" 3 Ki iPKP 03 59 21
New Hebrides Islands
(h = 40 km).

1961
June 3 Up iP 06 18 36
Sk iP 06 18 31
Um iP 06 18 27 D

" 3 Up iP 06 21 17
i 06 21 32
microns sec
M E 0.4 11
M N 0.3 11
Ki iP 06 22 19
microns sec
M E 0.4 11
M N 0.1 13
Sk iP 06 21 51
Gb iP 06 21 19
i 06 21 30
Um iP 06 21 46
i 06 21 56
Turkey (h = 60 km).

" 3 Up iP 14 03 49
i 14 03 54
Local? Seismic?

" 3 Up iP 15 29 37 C
Ki iP 15 30 25 C
Sk iP 15 30 09
Gb iP 15 29 36 C
Um iP 15 30 00 C
Ethiopia (h = 60 km).

" 3 Up iP 15 32 28 D
oS 15 39 54
microns sec
P E 0.1 2
P N 0.2 3
S E 0.3 7
S N 0.6 7
M E 0.4 14
M N 0.5 16
M Z 0.5 17
D = 5750 km = 52°.
Ki iP 15 33 17 D
iS 15 41 28
microns sec
P N 0.2 5
P Z' 0.1 1.0
S E 0.3 5
S N 0.3 8
M E 0.4 14
M N 0.3 14
D = 6550 km = 59°.
Sk iP 15 33 01 D
Gb iP 15 32 28 D
Um iP 15 32 51 D
Ethiopia (h = 50 km).
Magn. = 5.8 (Up, Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Un = Umeå

1961
June 3 Up iP 16 35 02 C
Ki iP 16 35 51 C
Sk i iP 16 35 35 C
Gb iP 16 35 03
Un iP 16 35 24 C
Ethiopia.

" 3 Ki iP 17 56 36
Northern Celebes (h = 90 km).

" 3 Ki i(P) 22 55 54
Sk iP 22 56 31
i 22 58 10
Un iP 22 56 43

" 4 Up iP 00 50 51
Sk iP 00 51 24
Gb iP 00 50 52
(Ethiopia).

" 4 Up iP 07 41 46 D
iPP 07 43 39
iS 07 48 48
i 07 49 00
iSS 07 52 27

		microns	sec
P	E	1.3	3
P	Z	2.3	3
P	Z'	0.5	0.9
PP	E	1.9	5
PP	Z	1.9	5
S	E	0.7	5
S	N	1.1	5
M	E	21	17
M	N	28	17
M	Z	23	16

D = 5400 km = 48°.

Ki iP 07 41 45 D
i 07 41 50
iPP 07 43 37
iScP 07 47 04
iSP 07 48 59

		microns	sec
P	E	2.6	6
P	N	0.8	6
P	Z'	0.7	1.5
PP	E	3.7	7
PP	N	0.9	6
M	E	31	12
M	N	15	9

D = 5350 km = 48°.

Sk iP 07 42 06 D
Gb iP 07 42 08 D
iPcP 07 43 28
Un iP 07 41 39 D
i 07 41 50
iPcP 07 43 08
Tibet (h = 50 km).
Magn. = 6.6 (Up, Ki).

1961
June 4 Up iP 07 52 26 D
i 07 52 31

		microns	sec
P	E	0.3	1
P	Z	0.4	1
P	Z'	0.3	1.0

Ki iP 07 52 24 D
i 07 52 42

		microns	sec
P	Z'	0.1	1.0

Sk iP 07 52 46
Gb iP 07 52 49 D
Un iP 07 52 19
Tibet (h = 30 km).

" 4 Ki iP 08 18 08
Local? Seismic?

" 4 Un iP 11 17 37

" 4 Up iP 11 21 51
Local? Seismic?

" 4 Up iP 11 25 59 D
Ki iP 11 26 06
Hindu Kush (h = 190 km).

" 4 Up iP 14 00 12 C
iPcP 14 01 40

		microns	sec
M	E	0.4	15
M	N	0.7	15
M	Z	0.5	10

Ki iP 14 00 10
iLg 14 17 44

		microns	sec
P	Z'	0.1	0.8
M	E	0.7	12
M	N	0.4	13

Sk iP 14 00 32
Gb iP 14 00 35
Un iP 14 00 07
i 14 00 09
iPcP 14 01 38
Tibet (h = 40 km).

" 4 Un iPKP 23 13 30
New Hebrides Islands
(h = 220 km).

" 4 Up iP 23 43 49
Ki iP 23 43 56 D
Sk eP 23 44 13
Un iP 23 43 46
Northern India (h = 25 km).

" 5 Up iP 02 20 23
Ki iP 02 20 03
Un iP 02 20 09

Up = Uppsala, Ki = kiruna, Sk = skalstugan, Gb = Göteborg, Un = Uneå

1961 June	5	Up	iP		03 38 34	
			i		03 38 37	
				microns	sec	
			M	E	0.5	17
			M	N	0.4	15
		Ki	eP		03 39 03	
			i		03 39 14	
			iScS		03 49 07	
				microns	sec	
			M	E	0.4	14
			M	N	0.4	15
		Sk	iP		03 39 11	
		Gb	iP		03 38 47	
		Un	iP		03 38 49	
			iPP		03 40 28	
		Southern Iran (h = 80 km).				
"	5	Ki	iP		06 19 43	
"	5	Ki	iP		06 47 43	
"	5	Gb	i(P)		07 44 14	
"	5	Ki	i(P)		12 17 57	
			i		12 21 11	
"	5	Sk	iP		16 08 02	
"	6	Up	iP		01 37 15	
"	6	Up	iP		03 47 17	
"	6	Ki	iP		07 29 56	
"	6	Up	iP		09 53 38	
		Ki	iP		09 54 15	
		Un	iP		09 53 50	
		Iran (h = 25 km).				
"	6	Up	i(P)		15 52 26	
		Local? Seismic?				
"	6	Up	i(P)		16 17 34	
		Local? Seismic?				
"	6	Sk	i(P)		16 18 48	
"	6	Ki	iP		17 45 28	
"	6	Ki	iP		19 43 32	
"	6	Up	iP		20 50 22	
"	6	Up	iP		21 04 04	
			iLg2		21 18 18	
				microns	sec	
			M	E	0.4	13
			M	Z	0.6	12

1961 June cont.	6	Ki	iP		21 04 03	
				microns	sec	
			M	E	1.1	17
			M	Z	1.1	16
		Sk	iP		21 04 25	
			iPP		21 06 10	
		Gb	iP		21 04 31	
			iPP		21 06 15	
		Un	iP		21 04 00	
		Sinkiang Province, China (h = 70 km).				
"	7	Ki	iP		13 12 41	
"	7	Ki	iP		13 15 15	
		Un	iP		13 15 31	
		Korea - China border (h = 300 km).				
"	7	Up	iP		14 26 26	D
			i		14 26 32	
			iS		14 35 30	
			eP'P'		14 54 37	
				microns	sec	
			P	E	0.2	3
			P	N	0.4	3
			P	Z	0.8	3
			P	Z'	0.3	1.5
			S	E	0.5	5
			S	N	0.9	8
			M	E	1.8	19
			M	N	3.0	21
			M	Z	3.0	19
			D = 7650 km = 69°.			
		Ki	iP		14 27 12	D
			i		14 27 17	
			iS		14 37 01	
				microns	sec	
			P	Z	1.8	8
			P	Z'	0.5	1.8
			S	E	0.8	10
			S	N	1.1	9
			M	E	1.8	18
			M	N	1.8	18
			M	Z	3.3	18
			D = 8500 km = 76°½.			
		Sk	iP		14 26 40	
		Gb	iP		14 26 06	
			iP'P'		14 54 47	
		Un	iP		14 26 51	D
			i		14 27 04	
		Ascension Island region (h = 15 km).				
		Magn. = 6.2 (Up, Ki).				
"	7	Ki	iP		15 11 14	
		Sk	iP		15 10 55	
		Un	iP		15 10 49	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Un = Umeå

1961
June 7 Up iP 15 41 11
Local? Seismic?

" 7 Ki iP 15 56 40
iSKKS 16 15 58
Sk iPKP 15 56 51
Un iPKP 15 56 47
Santa Cruz Islands
(h = 210 km).

" 7 Gb i(P) 20 44 44

" 8 Up iP 02 29 36

" 8 Up iP 04 06 45
Hindu Kush (h = 260 km).

" 8 Up iPP 16 02 27

		microns	sec
M	E	0.4	19
M	N	0.6	20
M	Z	0.3	21

Ki iPP 16 02 01
eSKS 16 08 29
iPS 16 11 15
eSS 16 16 52

		microns	sec
PP	Z	0.4	8
SKS	E	0.2	7
M	E	0.7	20
M	N	0.6	22
M	Z	0.8	18

Un ePP 16 02 06
Flores Sea (h = 25 km).

" 8 Up iP 16 12 46

" 8 Up iP 20 37 31

" 8 Up iP 21 44 04

" 9 Up iP 04 03 49
i 04 03 51
Ki iP 04 03 59
Sk iP 04 04 16
Gb i(P) 04 04 13
Un iP 04 03 52
Northern India (h = 110 km).

" 9 Up iP 09 42 38 C
i 09 42 42
i 09 42 53
iPP 09 43 11
iS 09 47 51
iSS 09 48 06

1961
June 9 cont.

Up

		microns	sec
S	N	0.2	1
M	E	0.5	19
M	Z	1.0	21

D = 3100 km = 28°.

Ki iP 09 43 12 D
i 09 43 27
iPP 09 44 02
i 09 49 21 —
i 09 49 35
i(SS) 09 49 43

		microns	sec
P	Z'	0.1	0.7
M	E	0.3	10
M	N	0.2	12
M	Z	0.3	9

D = 3450 km = 31°.

Sk iP 09 43 38 C
Gb iP 09 42 55 C
i 09 43 10
i 09 48 33 —
Un iP 09 42 50 D
i 09 43 00
i 09 43 15
iPP 09 43 29
i 09 48 34 —
Caspian Sea (h = 15 km).

" 9 Up iP 14 34 44 D

		microns	sec
P	Z'	0.1	0.5

Ki iP 14 34 12 D

		microns	sec
P	Z'	0.1	Q77

Sk iP 14 34 40
Gb iP 14 35 02
Un iP 14 34 26 D
South of Honshu, Japan
(h = 470 km).

" 9 Up iP 14 45 45
Local? Seismic?

" 9 Up iP 15 21 20
Local? Seismic?

" 9 Up iP 15 29 51
i 15 30 06
Ki iP 15 29 52
i 15 32 17
Sk iP 15 30 07
Un iP 15 29 49 D
i 15 30 05
Near coast of Sumatra
(h = 100 km).

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

1961
June 9 Up iP 15 54 48 D
i 15 54 58
Ki iP 15 54 14 D
Um iP 15 54 29 D
South of Honshu, Japan
(h = 170 km).

" 9 Um iP 18 53 23

" 10 Ki iP 06 09 55

" 10 Up iP 08 24 27
Ki iP 08 23 33

" 10 Ki eP 09 04 35

" 10 Ki e 09 17 32
e(PcPPKP) 09 23 01

		microns	sec
(PcPPKP)E		0.3	12
M	E	0.5	17
M	N	0.4	18
M	Z	0.8	18

Banda Sea (h = 80 km).

" 10 Up iP 11 43 16 C
Ki iP 11 42 23
Andreanof Islands,
Aleutian Islands (h = 30 km).

" 10 Up i(P) 14 38 35

" 10 Up i(P) 14 41 58

" 10 Up ePP 20 53 14
iSKKKS 21 10 41

		microns	sec
M	E	0.7	16
M	N	1.5	17
M	Z	1.0	16

Ki iPKP 20 50 58
iPP 20 52 56
ePPP 20 56 04
ePSP
or SPP 21 04 22

		microns	sec
PP	E	0.2	7
PP	N	0.2	8
PP	Z	0.8	7
M	E	2.9	22
M	N	2.2	22
M	Z	3.7	17

1961
June 10 cont. Ki D = 14250 km = 128°½.
Easter Island region
(h = 50 km).
Magn. = 6.2 (Up, Ki).

" 11 Up iP 04 13 21 D
Ki iP 04 12 29 D
Sk iP 04 12 58
Gb iP 04 13 41
Um iP 04 12 54 D
Kamchatka (h = 25 km).

" 11 Up iP 05 18 04 C
i 05 18 07
iPP 05 19 43
iS 05 24 20
iSS 05 27 22

		microns	sec
P	E	2.8	5
P	N	2.6	6
P	Z	4.7	5
P	Z'	0.6	0.5
PP	E	3.2	4
PP	N	2.9	4
PP	Z	3.2	4
S	E	12	10
S	N	8.9	9
S	Z	5.0	8
M	E	54	20
M	N	100	32
M	Z	72	26

D = 4550 km = 41°.

Ki iP 05 18 39 C
i 05 18 42
iPP 05 20 32
iPPP 05 21 12
iS 05 25 23
iSS 05 28 41

		microns	sec
P	E	2.7	5
P	N	3.2	6
P	Z	6.1	5
P	Z'	2.5	1.0
PP	E	6.0	4
PP	N	5.2	5
S	E	10	7
S	Z	5.3	8
M	E	28	12
M	N	38	15
M	Z	48	16

D = 5000 km = 45°.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Uneå

1961 June 11 cont.

Sk iP 05 18 39
Gb iP 05 18 06
Um iP 05 18 15 C
iPP 05 19 53
Southern Iran (h = 40 km).
Magn. = 7.0 (Up, Ki).

" 11 Up iP 05 32 39
Ki iP 05 32 11

" 11 Up iP 05 37 51 C
microns sec
P Z' 0.1 0.5
Ki iP 05 38 25 C
i 05 39 02
Sk iP 05 38 25
Gb iP 05 38 02
Um iP 05 38 01
Southern Iran (h = 25 km).

" 11 Up iP 05 49 46
Ki iP 05 50 20 D

" 11 Up iP 06 03 33 C
i 06 03 43
microns sec
P Z' 0.1 0.5
Ki iP 06 02 40 C
Sk iP 06 03 08
Gb iP 06 03 53 C
Um iP 06 03 03 C
Near south coast of
Kamchatka (h = 20 km).

" 11 Up iP 06 18 21
Ki iP 06 18 55
(Iran).

" 11 Up i(P) 06 27 07 C
i 06 27 48
i(P) 06 27 54
Ki iP 06 27 41 C
i 06 28 28
Gb i(P) 06 28 06
Um eP 06 28 02

" 11 Up iP 06 [illegible]
Ki iP 06 40 14 D
Gb i(P) 06 39 00

" 11 Up iP 06 47 06
Ki iP 06 47 41
(Iran).

1961 June 11

Up iP 06 54 27
i 06 54 44
Ki iP 06 55 02
Sk eP 06 55 20
Gb iP 06 54 39
Um iP 06 54 37
iPP 06 56 16
Iran (h = 25 km).

" 11 Up iP 06 59 07
Ki iP 06 59 42
Sk iP 06 59 41
Gb iP 06 59 15
Um iP 06 59 17
iPP 07 00 51
Southern Iran (h = 40 km).

" 11 Up iP 07 46 35
microns sec
M E 1.2 19
M N 1.2 20
M Z 1.1 18
(Iran).

" 11 Up iP 08 11 48
Ki iP 08 12 22
Iran (h = 25 km).

" 11 Ki iP 09 29 52
microns sec
M N 0.2 14
Sk iP 09 29 54
Um iP 09 29 27
Iran (h = 20 km).

" 11 Ki iP 10 08 49

" 11 Up iP 10 10 44
Ki iP 10 11 19 C
Um iP 10 10 57
(Iran).

" 11 Up iP 11 31 47
i 11 31 56
Ki iP 11 32 22
microns sec
M E 0.5 14
M N 0.3 17
Sk iP 11 32 26
Um iPP 11 33 37
Iran (h = 30 km).

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

1961
June 11 Up iP 12 38 01 D
Ki iP 12 38 36 D

		microns	sec
P	Z'	0.1	1.0

Sk iP 12 38 36
i 12 38 58
Gb iP 12 38 12
Um iP 12 38 15
Iran (h = 60 km).

" 11 Up iP 12 39 05 C
iPP 12 40 41
iS 12 45 14

		microns	sec
P	E	0.2	2
P	N	0.1	3
P	Z	0.4	2
P	Z'	0.1	0.5
PP	E	0.4	4
PP	N	0.4	4
PP	Z	0.5	4
S	E	0.9	5
S	N	0.6	5
M	E	3.6	19
M	N	2.9	18
M	Z	2.7	19

D = 4550 km = 41°.
Ki iP 12 39 41 C
iPP 12 41 31
iS 12 46 16

		microns	sec
P	E	0.9	3
P	N	0.8	4
P	Z	1.0	4
P	Z'	0.4	1.0
PP	E	0.1	4
PP	N	1.1	4
PP	Z	0.8	4
S	E	1.2	6
S	N	0.8	5
M	E	3.9	14
M	N	3.7	20
M	Z	4.3	13

D = 5000 km = 45°.
Sk iP 12 39 40 C
Gb iP 12 39 17
Um iP 12 39 19
i 12 40 58
Iran (h = 40 km).
Magn. = 6.2 (Up, Ki).

" 11 Up iP 12 50 23
Ki iP 12 50 59
Iran (h = 60 km).

1961
June 11 Up iP 14 05 38 C
i 14 06 04

		microns	sec
P	Z'	0.4	1.0
M	E	1.1	20
M	N	0.5	16
M	Z	0.9	18

Ki iP 14 06 13 C
iPP 14 08 01
iS 14 13 09
iSS 14 16 10
iScS 14 16 26

		microns	sec
P	Z'	0.7	1.2
S	N	0.5	3
M	E	0.8	16
M	N	1.0	16
M	Z	1.1	16

D = 5050 km = 45½°.
Sk iP 14 06 12
Gb iP 14 05 49
i 14 10 02
Um iP 14 05 52
iPP 14 07 29
Southern Iran (h = 60 km).

" 11 Up iPKP 15 06 39
Gb iPKP 15 06 49
Kermadec Islands region
(h = 600 km).

" 11 Up iP 15 13 56
Ki iP 15 14 28
Sk iP 15 14 30
Um e(P) 15 14 21
Southern Iran (h = 60 km).

" 11 Up iP 17 09 36
i 17 09 54
Ki iP 17 11 02
i 17 11 26
Gb iP 17 09 38 C
Um iP 17 10 17

" 11 Um e(P) 17 15 03
Seismic?

" 11 Up iP 17 26 07
eS 17 34 48

		microns	sec
P	Z'	0.1	0.7
M	E	0.6	16
M	N	3.6	21
M	Z	0.8	17

D = 7150 km = 64½°.

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

1961 June cont.	11	Ki	iP		17 25 56	
			eS		17 34 31	
				microns	sec	
			M	E 1.1	16	
			M	N 2.3	17	
			M	Z 1.0	15	
			D = 7000 km = 63°.			
		Sk	iP		17 26 22	
		Gb	iP		17 26 28	
		Um	iP		17 25 58	D
		Burma (h = 40 km).				
"	11	Up	iP		20 41 03	
		Ki	iP		20 41 31	
"	11	Up	iP		20 53 30	C
				microns	sec	
			P	Z' 0.1	0.9	
		Ki	iP		20 52 38	C
				microns	sec	
			P	Z' 0.1	0.9	
		Sk	iP		20 53 15	
		Gb	iP		20 53 50	
		Um	iP		20 53 03	
		Near south coast of Kamchatka (h = 40 km).				
"	11	Ki	iP		22 13 14	
		Um	iP		22 12 58	
		Volcano Islands region (h = 100 km).				
"	11	Up	iP		23 20 46	
		Ki	iP		23 21 21	
		Sk	iP		23 21 20	
		Gb	iP		23 20 58	
		Um	iP		23 20 59	
			i		23 22 24	
		Iran (h = 25 km).				
"	12	Up	eL		00 55	
				microns	sec	
			M	E 0.4	19	
			M	N 0.3	16	
			M	Z 0.6	18	
		Ki	eL		00 55	
				microns	sec	
			M	E 0.5	19	
			M	N 0.3	15	
			M	Z 0.5	17	
"	12	Up	iP		03 59 38	
		Ki	iP		04 00 13	

1961 June	12	Ki	iPKP		07 55 20	
			$iPKP_2$		07 55 37	
		Um	$iPKP^2$		07 55 26	
			$iPKP_2$		07 55 44	
		Southwest of South Island, New Zealand (h = 30 km).				
"	12	Up	iP		10 09 31	C
			i		10 09 35	
				microns	sec	
			P	Z' 0.2	0.9	
			M	E 0.7	15	
			M	N 0.5	16	
			M	Z' 0.8	13	
		Ki	iP		10 09 18	C
				microns	sec	
			P	Z' 0.2	1.0	
			M	E 1.1	14	
			M	N 1.8	20	
			M	Z 1.2	13	
		Sk	iP		10 09 42	C
		Gb	iP		10 09 51	
		Um	iP		10 09 20	C
			i		10 09 31	
		North Viet-Nam (h = 60 km).				
"	12	Ki	iP		10 49 33	
		Um	iP		10 49 56	
		Kamchatka (h = 60 km).				
"	12	Ki	iP		11 31 50	
"	12	Gb	iP		12 37 55	
"	12	Ki	iP		14 03 46	
"	12	Up	iP		17 12 46	
		Ki	iP		17 13 18	
		Sk	eP		17 13 19	
		Um	iP		17 13 00	
		Iran (h = 50 km).				
"	12	Ki	iP		19 31 46	
"	12	Up	iP		21 10 19	
		Ki	iP		21 10 54	
		Sk	iP		21 10 54	
		Iran (h = 60 km).				
"	12	Up	iP		21 56 05	
			i		21 56 13	
		Ki	iP		21 56 46	
		Sk	iP		21 56 46	

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

1961 June cont.

12 Gb iP 21 56 18
Um eP 21 56 28
Iran (h = 40 km).

" 13 Up iP 02 35 23
Ki iP 02 34 31
i 02 34 43
Andreanof Islands, Aleutian Islands, (h = 60 km).

" 13 Um iP 07 28 59
South Atlantic Ocean (h = 40 km).

" 13 Up iPKP 13 35 59
Kermadec Islands (h = 260 km).

" 13 Up iP 15 27 13
Ki iP 15 26 27
Gb iP 15 27 33
Kurile Islands (h = 40 km).

" 13 Up iPKP 21 57 02
i 21 57 09
i 21 57 46
iPP 21 59 54
iPKS 22 00 36
iPKS 22 00 46
i 22 01 28

		microns	sec
PKP	Z'	0.1	0.5
PKS	E	0.1	2
PKS	N	0.2	2

D = 15550 km = 140°.

Ki iPKP 21 56 42
i 21 56 55
iPP 21 59 17
iPKS 22 00 11
iPKS 22 00 22
e 22 07 08

		microns	sec
PP	Z	0.3	6
PKS	E	0.4	5
PKS	N	0.3	6
PKS	Z	0.8	5
PKS	Z'	0.4	1.4
M	E	0.3	18
M	N	0.2	15

D = 14650 km = 132°.

Sk iPKP 21 56 56
i 21 57 05
i 21 57 47

1961 June cont.

13 Sk iPP 21 59 47
iPKS 22 00 27
Gb iPKP 21 57 12
i 21 57 55
iPKS 22 00 42
Um iPKP 21 56 51
i 21 56 59
i 21 57 45
iPKS 22 00 23
Tonga Islands region (h = 150 km).

" 14 Up iP 00 32 05 C
Ki iP 00 32 39
Sk iP 00 32 40
Gb iP 00 32 16
Um iP 00 32 19
iPP 00 33 58
Iran (h = 60 km).

" 14 Up iP 00 51 32 C
i 00 51 38
eS 00 59 52

		microns	sec
P	Z'	0.2	0.5
M	E	0.4	20
M	N	0.4	13

D = 6900 km = 62°.

Ki iP 00 51 26
i(pP) 00 51 46
iS 00 59 42

		microns	sec
P	Z'	0.1	0.7
S	E	0.6	7
M	E	0.6	16
M	N	0.8	20
M	Z	0.7	16

D = 6850 km = 61½°.

Sk iP 00 51 49 C
i 00 51 55
i(pP) 00 52 10
i 00 52 20
Gb iP 00 51 53
Um iP 00 51 27
i(pP) 00 51 48
Northern Burma (h = 50 km).
(pP) could be P of a second shock.

" 14 Up iP 08 16 54
i 08 16 55
Local? Seismic?

Up = Uppsala, Ki = Kiruna, Sk = Skallstugan, Gb = Göteborg, Um = Umeå

1961
June 14 Sk iP 08 21 35

" 14 Up iP 09 11 16
Ki iP 09 11 50

		microns	sec
M	E	0.2	15
M	N	0.2	14
M	Z	0.4	15

Sk iP 09 11 50
Um eP 09 11 35
Iran (h = 60 km).

" 14 Up iP 09 19 42
Ki iP 09 19 20
Gb i 09 20 26
Um iP 09 19 30
Off north coast of
Luzon, P.I. (h = 25 km).

" 14 Ki iP 09 43 56
Sk i(P) 09 43 55
Um i(P) 09 43 36

" 14 Up i(P) 13 03 46
Local? Seismic?

" 14 Up iP 15 54 30 C

		microns	sec
P	Z'	0.1	0.5

Local? Seismic?

" 14 Up iP 20 41 29 D
eS 20 48 58

		microns	sec
P	E	0.2	5
P	N	0.2	4
P	Z	0.5	4
S	E	0.3	7
S	N	0.5	6
M	E	0.8	18
M	N	1.0	17
M	Z	0.7	14

D = 5700 km = 51½°.
Ki iP 20 42 17 D
iS 20 50 25
i(ScPPcS) 20 57 47

		microns	sec
P	N	0.3	6
P	Z	0.6	5
S	E	0.3	5
S	N	0.3	8
M	E	1.2	15
M	N	0.7	15

1961
June 14 cont. Ki M Z 1.2 15
D = 6450 km = 58°.
Sk iP 20 42 01 D
Gb eP 20 41 27
Um iP 20 41 52 D
Ethiopia (h = 60 km).
Magn. = 5.7 (Up, Ki).

" 15 Up iP 00 01 23

" 15 Up iP 00 01 50
Ki iP 00 00 56
Fox Islands, Aleutian
Islands (h = 100 km).

" 15 Ki i(P) 01 09 55

" 15 Up eL 01 39

		microns	sec
M	E	0.6	17
M	N	0.4	19
M	Z	0.6	18

Ki eL 01 41

		microns	sec
M	E	0.2	16
M	N	0.2	15
M	Z	0.4	15

Venezuela (h = 200 km).

" 15 Up eP 04 36 22

" 15 Up iP 06 29 15 D
i 06 29 18
Ki iP 06 29 49
eSS 06 39 37

		microns	sec
M	E	0.4	13
M	N	0.2	13
M	Z	0.5	13

Sk iP 06 29 48
Gb iP 06 29 31
Um iP 06 29 33
iPP 06 31 12
Southern Iran (h = 110 km).

" 15 Up iP 09 14 02

		microns	sec
P	Z'	0.1	0.5

Local? Seismic?

" 15 Ki iP 20 05 03

" 15 Ki iP 20 57 12

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

1961 June 15 cont.

	Ki		microns	sec
		M E	0.2	11
		M Z	0.4	11
	Sk	iP	20 57 31	
		iPP	20 59 02	
	Um	iP	20 57 01	

Tadzhik, U.S.S.R. (h = 50 km).

" 15	Up	iP	22 36 28	
	Ki	iP	22 35 35	
	Sk	iP	22 36 13	
	Gb	iP	22 36 48	
	Um	iP	22 36 01	D

Near south coast of Kamchatka (h = 25 km).

" 15	Up	iP	22 50 16	
	Ki	iP	22 49 31	
	Um	iP	22 49 51	

Off east coast of Honshu, Japan (h = 80 km).

" 15	Up	iP	23 35 40	C
		ipP	23 35 50	
		iPPS	23 45 25	
		iScS	23 45 52	
			microns	sec
		P Z'	0.1	0.5
		M E	1.4	21
		M N	2.0	20
		M Z	1.9	20
	Ki	iP	23 34 53	
		i	23 35 11	
		eS	23 43 06	
			microns	sec
		P Z'	0.2	1.0
		M E	1.8	16
		M N	1.6	21
		M Z	3.1	19
		D = 6750 km = 61°.		
	Sk	iP	23 35 29	
	Gb	iP	23 36 01	
	Um	iP	23 35 15	C
		i	23 35 50	

Kurile Islands (h = 40 km).
Magn. = 6.0 (Up, Ki).

" 16	Ki	iP	06 44 49	
	Sk	iP	06 45 02	
	Um	iP	06 44 59	

Andreanof Islands, Aleutian Islands (h = 25 km).

1961 June 16

	Up	iPP	07 28 53	
			microns	sec
		M E	0.8	20
		M N	0.7	18
		M Z	1.0	21
	Ki	iPKP	07 27 26	
		iPKS	07 30 50	
		ePKKP	07 37 47	
		eSS	07 47 07	
			microns	sec
		PKS	0.5	5
		M E	0.7	20
		M N	0.3	19
		M Z	0.3	20
		D = 14350 km = 129°½.		

Off coast of southern Chile (h = 15 km).

" 16	Up	iP	07 44 15	
" 16	Ki	iP	08 53 46	

Iran (h = 25 km).

" 16	Gb	i(P)	10 27 52	
" 16	Up	iP	10 44 13	D
		ipP	10 44 43	
		i	10 44 54	
		iS	10 54 20	
		iPS	10 55 10	
			microns	sec
		P E	0.4	2
		P N	0.2	2
		P Z	1.3	2
		P Z'	0.8	0.7
		S E	0.5	3
		S N	1.3	3
		D = 9400 km = 84°½.		
	Ki	iP	10 44 15	D
		ipP	10 44 42	
		iS	10 54 25	
		iPS	10 55 15	
			microns	sec
		P E	0.7	5
		P N	0.3	4
		P Z	2.3	5
		P Z'	1.1	0.7
		S E	0.7	5
		S N	1.6	10
		M E	0.3	15
		M N	0.2	16
		M Z	0.4	15
		D = 9450 = 85°.		

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

1961

June 16 cont.

	Sk	iP	10 43 59	D
		ipP	10 44 28	
	Gb	iP	10 43 58	D
		ipP	10 44 27	
	Um	iP	10 44 18	D
		ipP	10 44 47	
		i	10 45 02	

Northern Colombia (h = 120 km).
Magn. = 6.7 (Up, Ki).

" 16 Sk iP 14 47 41

" 16

Up	i(PP)	15 05 51	
Ki	iP	15 06 21	
Sk	iP	15 05 53	

Crete (h = 120 km).

" 17

Up	iP	08 13 31	
	i	08 13 45	
Ki	iP	08 14 06	
	eSS	08 23 51	
	iSSS	08 24 08	

		microns	sec
M	E	1.0	15
M	N	0.3	11
M	Z	1.6	15

Sk	iP	08 14 06	
Gb	eP	08 13 49	
Um	iP	08 13 42	
	i	08 13 51	
	i	08 15 37	

Southern Iran (h = 25 km).

" 17 Sk iP 09 50 33

" 17

Up	iPKP	09 53 25	
	i	09 53 28	
Sk	iPKP	09 53 18	

Kermadec Islands (h = 250 km).

" 17

Up	eL	11 45	

		microns	sec
M	E	0.6	20
M	Z	0.7	21

Ki	eL	11 47	

		microns	sec
M	E	0.6	18
M	N	0.4	18
M	Z	1.0	20

Peru (h = 25 km).

1961

June 17

Ki	iP	14 45 15	

Mindanao, Philippine Islands (h = 25 km).

" 17

Up	iP	15 20 12	
	eS	15 30 29	

		microns	sec
M	E	2.5	19
M	N	2.5	19
M	Z	2.9	18

Ki	iP	15 20 02	
	iS	15 30 20	

		microns	sec
P	Z	0.8	4
S	E	1.8	14
S	N	0.3	14
M	E	2.7	15
M	N	2.1	18
M	Z	4.0	14

D = 9600 km = 86½°.

Sk	iP	15 19 55	
Gb	iP	15 20 04	
Um	iP	15 20 12	

Mexico-Guatemala border (h = 150 km).

" 17

Up	iP	15 38 28	
Ki	iP	15 38 08	
Gb	i(P)	15 38 31	

Central New Guinea (h = 140 km).

" 17 Ki iSKP 22 10 02 x)
Um iSKP 22 10 13
Fiji Islands region (h = 630 km).

" 18

Up	iP	03 25 09	
	iPP	03 29 04	
	i	03 29 17	
Ki	iP	03 25 01	
	iSKS	03 34 41	
Sk	iP	03 25 19	
	iPP	03 29 35	

Java Sea (h = 640 km).

" 18 Um iP 06 30 35

" 18

Up	iP	06 34 48	C
Ki	iP	06 34 45	

Tibet (h = 50 km).

x) June 17 Ki e(P) 18 52 26, Sk iP 18 52 11, Um iP 18 52 28, Near coast of Guatemala (h = 110 km).

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

1961 June 18 Up iP 10 17 50
Ki iP 10 18 25
Iran (h = 20 km).

" 18 Up iP 10 59 45
Ki iP 11 00 19
Iran (h = 25 km).

" 18 Up iPKP 14 14 16
i 14 14 23
i 14 14 37
microns sec
PKP Z' 0.6 0.5
D = 16500 km = 148°½.
Ki iPKP 14 13 54
i 14 13 59
D = 15650 km = 141°.
Sk iPKP 14 14 11
iPKS 14 17 32
Gb iPKP 14 14 25 D
i 14 14 37
Um iPKP 14 14 06
i 14 14 20
i 14 14 40
Kermadec Islands region
(h = 430 km).

" 18 Ki iP 14 59 47

" 18 Um iP 19 12 49
i 19 14 54

" 18 Up i(P) 22 31 17

" 19 Up iP 01 58 02 D
i 01 58 08
microns sec
P Z' 0.2 1.0
M E 2.1 20
M N 3.7 17
M Z 2.2 17
Ki iP 01 57 45 D
iS 02 08 01
microns sec
P Z' 0.5 1.0
S N 0.9 9
M E 3.4 18
M N 2.1 18
M Z' 3.7 17
D = 9400 km = 84°½.
Sk iP 01 58 08
Um iP 01 57 52
Luzon, Philippine Islands
(h = 120 km).

1961 June 19 Up iP 02 35 31
Ki iP 02 35 14
Um iP 02 35 21
Near south coast of Luzon,
P.I. (h = 20 km).

" 19 Up iP 02 57 17 D
Ki iP 02 56 45
microns sec
M E 2.6 20
M N 0.9 15
M Z 3.7 17
Um iP 02 56 57 D
i 02 57 06
Off east coast of Honshu,
Japan (h = 90 km).

" 19 Up iP 03 03 37
Ki iP 03 03 20
Um iP 03 03 28 C

" 19 Gb i(P) 06 16 14

" 19 Up iP 07 49 44
microns sec
P Z' 0.1 0.8
Ki iP 07 49 03
i 07 49 14
iPP 07 51 24
microns sec
M E 4.1 19
M N 2.2 20
M Z 4.3 15
D = 8200 km = 65°.
Gb iP 07 50 20
Um iP 07 49 21
Off east coast of Honshu,
Japan (h = 100 km).

" 19 Ki iP 08 10 16
Um iP 08 10 35
Near east coast of Honshu,
Japan (h = 25 km).

" 19 Um iP 13 06 37

" 19 Up iP 15 05 21
microns sec
P Z' 0.1 0.5
Local? Seismic?

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

1961
June 19 Up iPg 15 19 11
iSg 15 19 15
microns sec
Sg Z' 0.2 0.5
D = 33 km = 0.3°.

" 19 Um e(P) 15 44 16

" 19 Up iP 17 12 01 C
i 17 12 11
ipP 17 12 44
iPP 17 13 45
i 17 14 36
iS 17 17 58
iSS 17 20 48
microns sec
P E 0.6 2
P Z 0.8 1
P Z' 0.3 0.5
PP E 1.0 3
S N 0.8 3
D = 4550 km = 41°.
Ki iP 17 12 11 C
i 17 12 20
ipP 17 12 52
microns sec
P Z' 0.6 1.0
Sk iP 17 12 26
iS 17 18 34
Gb iP 17 12 22 C
ipP 17 13 05
iPP 17 14 09
Um iP 17 12 01 C
ipP 17 12 44
Hindu Kush (h = 150 km).
Magn. = 6.7 (Up, Ki).

" 19 Ki iP 17 28 03

" 19 Up iP 22 27 41
Ki iP 22 26 46
Sk iP 22 27 23
Gb iP 22 28 01
Kamchatka (h = 25 km).

" 19 Up iP 03 30 39
i 03 30 41
microns sec
M E 1.3 17
M N 4.0 19
M Z 1.6 20
Ki iP 03 31 23

1961
June 19 Ki i 03 31 27
cont. microns sec
M E 2.7 17
M N 2.6 17
M Z 2.6 14
Gulf of Aden (h = 30 km).

" 20 Ki i(P) 06 36 07

" 20 Up i(P) 12 26 22
microns sec
(P) Z' 0.1 0.5
Seismic?

" 20 Um iP 13 12 49
Local? Seismic?

" 20 Um iP 13 15 37
i 13 15 54

" 20 Um iP 13 43 29
Local? Seismic?

" 20 Up iP 15 48 08
Local? Seismic?

" 20 Um iP 21 34 10
Near north coast of
Honduras (h = 140 km).

" 20 Ki i(P) 21 54 27

" 21 Up iP 02 55 25
Ki iP 02 54 57
Mariana Islands region
(h = 80 km).

" 21 Up iP 04 10 06
Ki iP 04 09 58
Sk iP 04 09 49
Um iP 04 10 04
Northwestern Honduras
(h = 110 km).

" 21 Up iP 06 47 02 C
iPP 06 48 34
microns sec
P Z' 0.1 0.5
D = 4550 km = 41°.
Ki iP 06 47 36 C
iPP 06 49 16

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Un = Uneå

1961 June 21 cont.	Ki			microns	sec	
		P	Z'	0.2	1.0	
		M	E	0.9	13	
		M	N	0.7	13	
		M	Z	1.6	14	
		D = 5050 km = 45°½.				
	Sk	iP		06 47 36		C
		i		06 47 40		
	Gb	iP		06 47 13		C
	Un	iP		06 47 12		C
		i		06 47 16		
		iPP		06 48 50		
	Iran (h = 50 km).					
" 21	Ki	iPP		09 19 16		
	Near north coast of Mindanao, P.I. (h = 620 km).					
" 21	Up	i(P)		11 04 13		
	Local?					
" 21	Ki	i(P)		11 16 25		
" 21	Ki	i(P)		13 28 39		
" 21	Up	iP		14 18 07		
" 21	Up	iP		16 09 52		
		iS		16 14 01		
				microns	sec	
		S	E	0.2	6	
		M	E	5.3	17	
		M	N	4.3	11	
		M	Z	3.9	11	
		D = 2600 km = 23°½.				
	Ki	iP		16 10 57		
				microns	sec	
		M	E	4.5	10	
		M	N	2.0	11	
		M	Z	2.6	10	
	Sk	iP		16 10 32		
	Un	iP		16 10 19		
	Western Turkey.					
" 21	Up	iP		19 22 14		
		i		19 22 18		
	Ki	iP		19 22 49		
	Sk	iP		19 22 49		
	Un	iP		19 22 24		
	Iran (h = 80 km).					
" 21	Up	iP		20 38 22		D

1961 June 21 cont.	Up	iSKS		20 48 47		
		iS		20 49 14		
				microns	sec	
		P	Z'	0.1	0.5	
		S	E	0.4	4	
		SKS	E	0.4	3	
		SKS	N	0.2	4	
		M	E	0.7	16	
		M	N	1.0	19	
		M	Z	1.3	17	
		D = 10900 km = 98°.				
	Ki	iP		20 38 17		
				microns	sec	
		P	Z'	0.1	0.7	
		M	E	0.8	15	
		M	N	0.6	16	
		M	Z	1.5	17	
	Sk	iP		20 38 33		
	Un	iP		20 38 15		
	Near north coast of Java (h = 160 km).					
" 21	Up	iP		20 40 34		
		i		20 40 47		
				microns	sec	
		P	Z'	0.1	0.8	
	Ki	iP		20 39 42		
	Gb	iP		20 40 53		
	Un	iP		20 40 05		
" 22	Up	iP		01 00 07		C
				microns	sec	
		P	N	0.1	2	
		M	E	1.8	11	
		M	N	5.0	12	
		M	Z	1.9	11	
	Ki	iP		01 01 30		
		i		01 01 42		
				microns	sec	
		M	E	4.6	13	
		M	N	3.0	11	
		M	Z	3.6	10	
	Sk	iP		01 00 52		C
		i		01 01 42		
	Gb	iP		00 59 54		
	Un	iP		01 00 50		
		i		01 01 01		
	Northern Albania-Yugoslavia border (h = 50 km).					

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Um = Uneå

1961
June 22 Up iP 15 35 49 C
Local? Seismic?

" 22 Up iP 15 42 01
microns sec
P Z' 0.1 0.5
Sk iP 15 42 24

" 23 Up iP 09 07 24
iS 09 16 51
microns sec
S E 1.6 9
S N 0.9 9
M E 3.4 26
M N 1.3 19
M Z 2.6 20
D = 8200 km = 74°.
Ki iP 09 06 40
iS 09 15 30
microns sec
P Z 0.3 5
S E 2.1 10
S N 1.0 9
M E 2.5 19
M N 2.2 19
M Z 3.9 18
D = 8450 km = 67°.
Sk iP 09 07 02
Um iP 09 07 06
Off coast of Oregon
(h = 60 km).
Magn. = 6.5 (Up, Ki).

" 23 Up iP 09 34 14
Ki iP 09 33 32
Sk eP 09 33 46
Um iP 09 33 50
Off coast of Oregon
(h = 50 km).

" 23 Up iP 10 18 12
Ki iP 10 17 44
Sk iP 10 18 09
Mariana Islands
(h = 269 km).

" 23 Up iP 11 16 23
Ki iP 11 15 46
Sk iP 11 16 19
Um iP 11 16 03
Honshu, Japan (h = 140 km).

" 23 Up iP 13 31 11 C
i 13 31 23

1961
June 23 Up microns sec
cont. P Z' 0.1 0.6
Ki iP 13 30 22
Sk iP 13 30 57
Um iP 13 30 45
Kurile Islands (h = 40 km).

" 23 Up iP 16 44 04
i 16 44 10
iS 16 50 12
microns sec
P Z' 0.1 0.7
M E 0.4 20
M N 0.5 18
D = 4550 km = 41°.
Ki iP 16 44 38
iPP 16 46 30
iS 16 51 16
iSS 16 54 33
microns sec
P Z' 0.1 0.9
S E 0.4 6
M E 0.6 16
M Z 0.6 13
D = 5050 km = 45½°.
Sk iP 16 44 38
Um iP 16 44 17
iPP 16 45 57
Iran (h = 50 km).
Magn. = 5.8 (Up, Ki).

" 24 Ki eL 05 52
microns sec
M E 0.4 18
M Z 0.6 15
Near coast of El Salvador
(h = 90 km).

" 24 Gb i(P) 09 46 00

" 24 Up iP 09 48 13
i 09 48 26
microns sec
M E 0.7 19
M Z 1.3 20
Ki iP 09 48 10
eS 09 58 18
microns sec
S N 0.2 9
M E 1.5 18
M N 1.1 21
M Z 0.9 14
Sk iP 09 48 22

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

1961 June cont.	24	Um	iP	09 48 06	
		Sumatra (h = 190 km).			
"	24	Ki	iPn	10 40 58	
			iP	10 41 07	
			iSn	10 41 44	
			iSg	10 42 00	
			D = 410 km = 3.7°.		
		Sk	i	10 44 27	
			iSg	10 44 43	
			D = 960 km = 8.6°.		
		Um	iSg	10 43 15	
			D = 660 km = 5.9°.		
		Northwestern Russia, 68.2°N, 30.2°E. Origin time = 10 40 00. Probably explosion.			
"	24	Ki	iP	16 33 18	
		Near north coast of New Guinea (h = 210 km).			
"	24	Ki	iP	17 59 21	
"	24	Ki	iP	19 48 22	
		Ceram Sea (h = 20 km).			
"	25	Up	iP	02 40 43 C	
			i	02 40 49	
		Ki	iP	02 39 59	
		Sk	iP	02 40 34	
		Gb	iP	02 40 59	
		Um	iP	02 40 18	
		Near north coast of Honshu, Japan (h = 60 km).			
"	25	Ki	iP	10 22 01	
"	25	Ki	iP	12 48 33	
		Um	iP	12 48 14	
		Iran (h = 90 km).			
"	25	Ki	iP	16 33 32	
		Um	iP	16 33 42	
		Near north coast of Luzon, P.I. (h = 140 km).			
"	25	Up	iP	16 59 21	
			e	17 09 41	
			iS	17 10 06	
			i	17 10 47	
			microns	sec	
			M E	1.1	17

1961 June cont.	25	Up	M	N 1.9	16
			M	Z 0.8	16
			D = 9700 km = 87°½.		
		Ki	iP	16 58 53	
			e	16 59 08	
			iS	17 09 01	
			microns	sec	
			S E	0.5	10
			S N	0.5	6
			M E	4.1	19
			M N	1.5	18
			M Z	3.1	20
			D = 9050 km = 81°½.		
		Sk	iP	16 59 19	
		Um	iP	16 59 22	
		North of Mariana Islands (h = 15 Km).			
		Magn. = 6.0 (Up, Ki).			
"	25	Um	iP	19 25 15	
		Near east coast of Honshu, Japan (h = 25 km).			
"	25	Ki	i(P)	19 45 55	
"	26	Up	iP	03 02 02	
			i	03 02 14	
		Ki	iP	03 01 31	
		Sk	iP	03 01 45	
		Um	iP	03 01 41	
			i	03 01 47	
			i	03 01 56	
"	26	Up	eL	08 05	
			microns	sec	
			M E	0.4	20
			M N	0.7	23
			M Z	0.7	21
		Loyalty Islands (h = 90 km).			
"	26	Ki	i(P)	11 02 38	
"	26	Up	iP	14 58 16 C	
			i	14 58 23	
			iS	15 07 06	
			iScS	15 08 08	
			microns	sec	
			P N	0.2	1
			P Z	0.3	1
			P Z'	0.4	1.1
			S E	0.4	3
			M E	1.9	20

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

1961 June 26 cont.

Up M N 3.4 19
M Z 3.6 22
D = 7400 km = 66½°.

Ki iP 14 57 23 C
i 14 57 32
iS 15 05 24

		microns	sec
P	N	0.3	6
P	Z	0.8	7
P	Z'	0.3	1.0
S	E	0.6	7
S	N	0.3	7
M	E	3.3	18
M	N	3.4	18
M	Z	4.4	18

D = 6500 km = 58½°.

Sk iP 14 57 56 C
i 14 58 05
i 14 58 32

Gb iP 14 58 34 C

Um iP 14 57 47 C
i 14 57 56

Near Islands, Aleutian Islands (h = 60 km).
Magn. = 6.2 (Up, Ki).

" 27 Up iP 03 32 55
Ki iP 03 32 12
Sk iP 03 32 31
Gb iP 03 33 09
Um iP 03 32 32

Unimak Island region (h = 90 km).

" 27 Up iP 07 14 04
i 07 14 09
iS 07 22 31

		microns	sec
S	E	1.5	12
S	N	2.9	13
M	E	5.6	18
M	N	23	28
M	Z	9.1	19

D = 6950 km = 62½°.

Ki iS 07 22 00

		microns	sec
S	E	0.5	9
M	E	5.4	15
M	N	11	20

Sk iP 07 14 15
i 07 14 20
i 07 14 25

Gb iP 07 14 26
i 07 14 31

1961 June 27 cont.

Um iP 07 13 52 C
i 07 13 56
i 07 14 09

Yunan Province, China (h = 30 km).
Magn. = 6.2 (Up, Ki).

" 27 Up iP 08 02 43 D
i 08 02 49
i 08 03 04

		microns	sec
P	Z	1.0	8
P	Z'	0.1	0.5

Sk iP 08 02 26 D

Gb iP 08 03 04 D
i 08 03 34

Um iP 08 02 13
i 08 03 04

Kamchatka (h = 20 km).

" 27 Up i(P) 10 56 30
Seismic?

" 27 Sk iPKP 11 00 16
Kermadec Islands (h = 25 km)

" 27 Up eL 11 13

		microns	sec
M	E	0.6	16
M	N	0.4	19
M	Z	0.7	15

" 27 Um i(P) 11 48 56

" 27 Um i(P) 14 14 18

" 27 Sk iP 14 55 13
i 14 55 22

" 27 Um i(P) 14 59 41 D

" 27 Up iP 22 06 25
Yunan Province, China (h = 40 km).

" 28 Sk iP 00 35 04

" 28 Up eP 00 43 43

" 28 Up iP 04 32 12 C
i 04 32 33

		microns	sec
P	Z'	0.1	0.7

Sk iP 04 32 21

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Un = Uneå

1961
June 28 Un iP 04 31 55
cont. Szechwan Province, China
(h = 40 km).

" 28 Sk iP 05 32 00
i 05 33 55

" 28 Sk iP 06 37 15

" 28 Sk iP 19 08 02
i 19 08 43
i 19 09 44

" 28 Ki eL 19 06
microns sec
M E 0.5 16

" 29 Up iPP 09 44 03
i 09 45 14
microns sec
M E 1.0 20
M N 2.2 21
M Z 1.9 20
Sk iPKP 09 42 00
New Hebrides Islands
(h = 40 km).

" 29 Up iP 14 13 35
iPcP 14 14 02
Sk iP 14 13 13
Gb eP 14 13 51
i 14 14 51
Andreanof Islands,
Aleutian Islands
(h = 80 km).

" 29 Up iP 18 12 23
i 18 12 37
Sk iP 18 13 19
Gb i(P) 18 12 33

" 29 Up iPP 22 08 16
microns sec
M E 1.3 22
M N 0.8 16
M Z 0.8 16
Ki iP 22 06 18
iS 22 10 20
microns sec
P N 1.0 7
S E 2.5 11
S N 1.5 13
D = 2450 km = 22°.

1961
June 29 Sk iP 22 07 04
cont. Un iP 22 07 02
Severnaya Zemlya region
(h = 10 km).

" 30 Up iP 05 10 52
i 05 10 58
Sk iP 05 11 32
Un iP 05 11 27

" 30 Up eL 05 18
microns sec
M E 0.3 18
Tonga Islands (h = 170 km).

" 30 Un i(P) 05 52 00

" 30 Up iP 18 04 41
Seismic?

" 30 Up iP 19 05 12
Banda Sea (h = 180 km).

" 30 Ki i(P) 20 26 31
Un i(P) 20 26 55

" 30 Up iP 20 47 46

" 30 Ki iP 20 59 00

" 30 Ki iP 21 21 47

Seweryn Duda Markus Båth

July 18, 1962

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

Seismological Institute
Uppsala

P R E L I M I N A R Y

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 and U M E Å

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°49.0'N,	20°14.1'E;	h = 20 m

J U L Y 1 – 31, 1961

1961 July	1	Um	i(P)	00 15 30	
"	1	Up	iPn	01 33 12	
			iSn	01 34 26	
			iSg	01 34 58	
			D = 670 km = 6.0°.		
		Ki	ePn	01 33 31	
			eSn	01 34 52	
			D = 780 km = 7.0°.		
		Sk	iPn	01 33 43	
			iSg	01 36 05	
			D = 880 km = 7.9°.		
		Gb	e(Pn)	01 34 00	
			iSn	01 35 49	
			iSg	01 36 57	
			D = 1060 km = 9.5°.		
		Um	ePn	01 33 00	
			iS[x]	01 34 11	
			iSg	01 34 18	
			D = 500 km = 4.5°.		
		Finland, 61.9°N, 29.1°E.			
		Origin time = 01 31 44.			
"	1	Up	iP	07 01 20	
		Seismic?			
"	1	Up	iP	07 33 40	
		Seismic?			
"	1	Up	iP	07 56 24	
		Seismic?			
"	1	Up	iP	08 07 23	
		Seismic?			

1961 July	1	Up	iP	08 12 04	
		Ki	iP	08 11 30	
		Sk	iP	08 11 59	
		Gb	iP	08 12 23	
		Bonin Islands (h = 180 km).			
"	1	Up	iP	08 43 54	
		Seismic?			
"	1	Up	iP	08 52 23	
		Seismic?			
"	1	Up	iP	10 33 24	
		Sk	iP	10 34 11	
		Greece.			
"	1	Ki	iP	11 53 52	
"	1	Up	iP	13 50 25	
"	1	Up	iP	23 54 41	
		Ki	iP	23 53 52	
			i	23 53 59	
				microns sec	
			P	Z' 0.1 1.2	
		Near Islands region, Aleutian Islands (h = 20 km).			
"	2	Up	iP	02 18 03 C	
		Ki	iP	02 17 20	
		Gb	iP	02 18 23	
		Hokkaidɔ, Japan (h = 150 km).			

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

1961 July	2	Up	iP	07 02 54 C	
		Sk	iP	07 03 33	
"	2	Ki	iPn	09 00 59	
			iSn	09 01 44	
			iSg	09 02 01	
			D = 410 km = 3.7°.		
		Sk	i(Sg)	09 04 27	
		Northwest Russia, Origin time = 09 00 00. Probably explosion.			
"	2	Up	iP	09 06 20 D	
			i	09 06 31	
		Ki	iP	09 06 01 D	
		Sk	iP	09 06 16 D	
"	2	Up	iP	10 23 01	
		Ki	iP	10 22 33 D	
			microns sec		
			P Z'	0.1 0.9	
		Sk	iP	10 22 58	
		Bonin Islands (h = 60 km).			
"	2	Up	iP	16 48 41	
		Ki	eP	16 48 (58)	
"	2	Gb	iP	18 10 21 C	
		Near Islands region, Aleutian Islands (h = 50 km).			
"	2	Gb	iP	18 26 32	
"	2	Ki	i(P)	19 00 07 D	
			microns sec		
			(P) Z'	0.4 2.0	
"	3	Ki	iP	09 09 42	
		Sk	iP	09 09 24 C	
"	3	Ki	iP	14 32 18	
			i	14 35 33	
"	4	Up	iP	02 32 52	
"	4	Up	iP	05 07 31 C	
		Ki	iP	05 06 54	
		Sk	iP	05 07 04	
		Western Nevada (h = 60 km).			
"	4	Um	i(P)	06 18 26	

1961 July	4	Up	iP	06 23 41 C	
			i	06 23 50	
			microns sec		
			P Z'	0.3 0.8	
		Ki	iP	06 23 12 C	
			microns sec		
			P Z'	0.8 1.2	
		Sk	iP	06 23 38	
		Gb	iP	06 23 57	
		Um	iP	06 23 26 C	
		Mariana Islands (h = 150 km). Magn. = 6.5 (Up, Ki).			
"	4	Up	ePKP	12 26 26	
		Um	iPKP	12 26 10 C	
		Kermadec Islands (h = 450 km).			
"	5	Up	iP	02 33 40	
		Ki	iP	02 33 09	
		Sk	eP	02 33 26	
		Ryukyu Islands (h = 100 km).			
"	5	Up	eL	03 46	
			microns sec		
			M E	0.5 18	
			M N	0.7 18	
			M Z	0.6 20	
		Southwest of Macquarie Island (h = 25 km).			
"	5	Ki	iP	05 13 51	
		Sk	iP	05 13 28	
		Windward Islands (h = 90 km).			
"	5	Up	iP	05 58 19	
			i	05 58 23	
			microns sec		
			P Z'	0.1 0.7	
		Ki	iP	05 58 05	
		Sk	iP	05 58 30	
		Gb	eP	05 58 37	
"	5	Up	iP	06 42 20	
		Ki	iP	06 42 17	
			microns sec		
			P Z'	0.1 1.0	
		Sk	iP	06 42 41 D	
		Sinkiang Province, China.			
"	5	Ki	iP	08 26 07	
		Sk	iP	08 26 06	

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

1961						
July	5	Gb	iP		13 41 20	
"	5	Sk	i(P)		15 18 33	
"	6	Up	iP		16 19 41	
				microns	sec	
			P	Z	0.1	1.1
		Sk	iP		16 19 52	
		Gb	iP		16 19 18	
		Ascension Island region (h = 20 km).				
"	6	Up	iP		20 17 08	
"	6	Up	iPKP		22 28 34	
			i(PKP)		22 28 49	
			iPP		22 31 25	
			iPKS		22 32 16	
			iScPPKS		22 40 23	
				microns	sec	
			PKP	Z	0.5	3
			PKP	E	0.1	0.9
			PP	Z	0.4	3
			PKS	E	0.2	1.0
			PKS	N	1.0	3
			PKS	Z	0.2	0.9
			M	E	18	22
			M	N	30	22
			M	Z	35	22
			D = 15000 km = 135°.			
		Sk	iPKP		22 28 36	
			i(PKP)		22 28 44	
			iPKS		22 32 11	
			iSKSP		22 41 00	
		Gb	iPKP		22 28 46	
			i(PKP)		22 28 55	
			iPKS		22 32 27	
			iScPPKP		22 40 27	
		New Hebrides Islands (h = 50 km). Magn. = 6.7 (Up).				
"	7	Up	iP		02 08 29	
"	7	Up	iP		08 15 54	
			i		08 16 02	
		Sk	eP		08 15 41	
			i		08 15 48	
		Kurile Islands (h = 110 km).				
"	7	Up	iPP		13 30 28	
			i		13 39 29	
				microns	sec	
			PP	N	0.2	3

1961						
July cont.	7	Up	PP	Z	0.9	7
			M	E	7.6	20
			M	N	12	24
			M	Z	14	21
			D = 12800 km = 115°.			
		Sk	iPKP		13 29 28	
			i		13 30 04	
			i(PP)		13 30 27	
			iPKKP		13 39 49	
			iPS		13 40 11	
		New Britain (h = 60 km). Magn. = 6.7 (Up).				
"	7	Up	iP		15 04 34	
		Sk	iP		15 04 30	
"	7	Up	iP		15 20 19	
		Gb	iP		15 21 10	
"	7	Up	iP		15 38 43	
		Sk	iP		15 38 27	
		Near east coast of Kamchatka (h = 20 km).				
"	7	Up	iP		16 07 43	
"	7	Up	iP		17 12 30	
				microns	sec	
			M	E	0.3	17
			M	N	1.3	21
		Sk	iP		17 12 43	
		Burma-China border (h = 25 km).				
"	7	Up	iP		18 26 05	
"	7	Up	iP		19 37 12	
			i		19 37 30	
		Sk	iP		19 37 51	
"	7	Up	iP		20 09 22	D
"	7	Up	iPKP		22 38 49	
			iPKS		22 42 18	
				microns	sec	
			PKS	N	0.2	4
			M	E	0.4	22
			M	N	0.9	22
			M	Z	0.7	21
		Sk	iPKP		22 38 44	
		Loyalty Islands region (h = 90 km).				

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

1961 July	7	Up	i(P)	23 44 06	
"	8	Up	iPKP	02 54 35	
			iPP	02 57 13	
			iPKS	02 58 07	
				microns	sec
			PKS	E 0.5	10
			PKS	N 0.8	10
			M	E 2.1	20
			M	N 2.6	21
			M	Z 3.6	20
			D = 14650 km = 132°.		
		Sk	iPKP	02 54 33	
			i	02 54 45	
		Loyalty Islands (h = 50 km).			
		Magn.= 6.1 (Up).			
"	8	Sk	iPKP	03 44 38	
		Loyalty Islands (h = 25 km).			
"	8	Um	i(P)	04 04 41	D
"	8	Um	i(P)	04 10 22	D
"	8	Um	iP	04 31 42	
"	8	Ki	eP	07 54 34	
		Sk	iP	07 55 09	
			i	07 56 52	
		Um	iP	07 55 22	
			i	07 55 29	
"	8	Ki	iP	07 57 52	
		Sk	iP	07 58 30	
			i	08 00 16	
		Um	iP	07 58 45	
			i	07 58 56	
"	8	Ki	iP	08 02 57	
			i	08 03 20	
"	8	Up	iP	10 26 50	
		Sk	iP	10 27 33	
		Corfou Island.			
"	8	Um	iP	11 25 56	
"	8	Up	iPn	12 10 21	
			eSn	12 11 35	
			i	12 12 03	
			iSg	12 12 07	
			D = 670 km = 6.0°.		

1961 July cont.	8	Ki	iPn	12 10 40	
			e	12 12 08	
			iS[x]	12 12 22	
			D = 780 km = 7.0°.		
		Sk	iPn	12 10 53	
			eSg	12 13 11	
			i	12 13 19	
			D = 880 km = 7.9°.		
		Gb	ePn	12 11 08	
			iSn	12 12 58	
			D = 1060 km = 9.5°.		
		Um	e(Sg)	12 11 35	
			D = 500 km = 4.5°.		
		Finland, 61.9°N, 29.1°E.			
		Origin time = 12 08 50.			
"	8	Ki	eP	14 08 54	
		Sk	iP	14 09 40	
			i	14 11 19	
"	8	Ki	i(P)	14 35 38	
"	8	Up	iPKP	15 53 57	
			ePP	15 56 24	
			iPKS	15 57 25	
			i	15 57 39	
			i	16 03 07	
				microns	sec
			PKP	Z 0.2	3
			PP	Z 0.4	7
			PKS	E 0.4	4
			PKS	N 0.7	4
			M	E 2.4	21
			M	N 5.7	24
			M	Z 4.7	22
			D = 14650 km = 132°.		
		Ki	iPKP	15 53 42	C
			ePP	15 55 25	
			e	15 55 42	
			iPKS	15 57 00	
				microns	sec
			PKP	Z 0.3	7
			PKP	Z' 0.2	1.5
			PP	E 0.2	7
			PKS	E 0.6	7
			PKS	N 0.5	7
			M	E 3.8	20
			M	N 2.9	20
			M	Z 6.2	21
			D = 13800 km = 124°.		
		Sk	iPKP	15 53 49	
			i	15 55 14	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Un = Uneå

1961 July cont.

8	Sk	iPKS	15 57 21	
	Gb	iPKP	15 54 02	
		i(SKKS)	16 03 13	
	Un	iPKP	15 53 51	
		i	15 54 05	
		iPKS	15 57 14	
		iPKS	15 57 24	
		i(SKKS)	16 02 50	

Loyalty Islands (h = 40 km).
Magn. = 6.2 (Up, Ki).

" 8	Up	iPKS	21 36 52	
		i	21 36 55	
	Ki	iPKP	21 33 13	
	Sk	iPKP	21 33 24	
		iPKS	21 36 48	
	Un	ePKS	21 36 31	

Loyalty Islands (h = 60 km).

" 8	Up	e	22 09 01	
		ePKS	22 11 29	
			microns	sec
		PKS	N 0.1	3
		M	E 0.8	21
		M	N 1.0	19
		M	Z 1.0	21
	Ki	iPKP	22 07 48	
		iPP	22 09 52	
		iPKS	22 11 10	
			microns	sec
		PKS	E 0.2	7
		PP	Z 0.4	8
		M	E 0.8	19
		M	N 0.7	19
	Sk	iPKP	22 07 54	
	Un	ePKP	22 07 45	
		ePKS	22 11 20	

Loyalty Islands region (h = 70 km).
Magn. = 5.8 (Up, Ki).

" 8	Up	eL	22 50	
			microns	sec
		M	E 0.4	22
		M	N 1.1	21
		M	Z 0.6	20

Tonga Islands region (h = 25 km).

" 9	Ki	i(P)	00 18 38	
" 9	Sk	iP	05 09 36	C

British Honduras (h = 150 km).

1961 July

9	Up	iP	06 45 14	
	Ki	iP	06 45 06	
	Sk	iP	06 44 55	
	Un	iP	06 45 11	

Honduras (h = 170 km).

" 9	Ki	eP	07 40 11	
" 9	Up	iP	08 13 22	
		iS	08 19 32	
			microns	sec
		S E	0.1	2
		M E	0.2	18
		M N	0.3	15

D = 4450 km = 40°.

	Ki	iP	08 13 57	C
		i	08 14 10	
		iS	08 20 37	
		iSSS	08 24 06	
			microns	sec
		P Z'	0.1	0.8
		S N	0.2	5
		M E	0.5	16
		M N	0.2	11

D = 4900 km = 44°.

	Sk	iP	08 13 56	
		iPP	08 15 37	
		i	08 19 29	
	Gb	iP	08 13 42	
	Un	iP	08 13 34	

Iran (h = 25 km).

" 9	Sk	iP	14 03 13	
	Un	iP	14 03 31	
" 9	Un	iP	14 25 38	
" 9	Up	iP	16 56 58	
		i	16 57 13	
	Ki	iP	16 56 05	
	Sk	iP	16 56 41	
	Un	iP	16 56 30	
		i	16 56 45	

Rat Islands, Aleutian Islands (h = 30 km).

" 10	Up	eP	01 28 29	
" 10	Sk	iP	13 06 48	

Off coast of Jalisco, Mexico (h = 20 km).

" 10	Sk	iP	14 29 49	

Campeche, Mexico (h = 60 km).

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

1961
July 10 Up iPKP 14 40 39
i 14 40 44
Ki iPKP 14 40 23
Sk iPKP 14 40 33 D
Um iPKP 14 40 27 D
Kermadec Islands region
(h = 330 km).

" 11 Up iPKP 06 05 06
Ki iPKP 06 04 47
Sk iPKP 06 04 58 D
Um iPKP 06 04 55
Kermadec Islands region
(h = 60 km).

" 11 Up iP 09 43 29
iS 09 52 50
iSP 09 53 04
microns sec
P E 0.2 4
P Z 0.5 3
S N 0.3 7
M E 4.8 20
M N 6.1 22
M Z 6.5 20
D = 8450 km = 77°.
Ki iP 09 43 30
i 09 53 15
microns sec
P E 0.8 4
P Z 1.3 4
P Z' 1.3 3
M E 4.8 17
M N 5.5 20
M Z 6.9 17
Sk iP 09 43 46
Gb iP 09 43 47
Um iP 09 43 26
Nicobar Islands region
(h = 160 km).
Magn. = 5.9 (Up, Ki).

" 11 Um i(P) 11 22 32

" 11 Ki iP 13 00 08 C
i 13 00 10
microns sec
P Z' 0.2 0.5

" 11 Up iP 13 59 00 D

" 11 Up iP 17 33 06
Sk iP 17 33 33
Northeastern India
(h = 25 km).

1961
July 11 Ki iP 18 18 13

" 12 Up iP 02 53 12 C
iPP 02 53 33
microns sec
P N 0.1 3
M E 0.9 14
M N 0.5 17
M Z 0.7 15
Ki iP 02 54 26
microns sec
M E 0.9 13
M N 0.3 12
Sk iP 02 53 56 C
Um iP 02 53 56
Northeastern Greece
(h = 130 km).

" 12 Ki iP 05 07 13 D
Sk iP 05 07 23
Um iP 05 07 54

" 12 Ki iSn 06 19 29
iSg 06 19 51
D = 500 km = 4.5°.
Sk eSg 06 22 27
D = 1020 km = 9.2°.
Northwest Russia, 67.7°N,
32.4°E. Origin time =
06 17 23.

" 12 Up iP 13 40 58
Ki iP 13 40 11 C
i 13 40 19
microns sec
P Z' 0.1 0.9
Sk iP 13 40 46
Gb iP 13 41 18
Um iP 13 40 34
Kurile Islands (h = 40 km).

" 12 Um eP 18 08 14

" 13 Up iP 02 23 26
Ki iP 02 22 55
Sk i(P) 02 23 23
Um iP 02 23 08
Volcano Islands region
(h = 400 km).

" 13 Up iP 09 36 35
i 09 36 40
Ki iP 09 37 09
i 09 37 26

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Un = Umeå

1961 July cont.	13	Sk	iP	09 37 09	
			i	09 37 21	
		Um	iP	09 36 48	D
			iPP	09 38 26	
		Iran (h = 60 km).			
"	13	Up	iP	21 56 29	
			i(PcP)	21 56 43	
			eS	22 06 14	
				microns sec	
			M E	1.7	22
			M N	4.0	23
			M Z	1.1	18
		D = 8650 km = 78°.			
		Ki	iP	21 56 05	
			i(PcP)	21 56 21	
			eS	22 05 26	
			i	22 05 39	
				microns sec	
			P Z'	0.1	1.1
			S N	0.3	10
			M E	0.8	19
			M N	0.9	19
			M Z	1.4	15
		D = 8150 km = 73½°.			
		Sk	iP	21 56 35	
			i	21 56 43	
		Um	iP	21 56 16	
			i(PcP)	21 56 31	
		Off east coast of Formosa (h = 100 km).			
"	13	Up	iPKP	22 28 40	
		Ki	iPKS	22 31 16	
		Um	iPKS	22 31 26	
		Kermadec Islands region (h = 530 km).			
"	13	Um	iP	23 52 37	D
"	14	Up	iP	00 19 00	D
		Ki	iP	00 18 41	D
		Sk	iP	00 19 05	
		Um	iP	00 18 47	
		Luzon, Philippine Islands (h = 170 km).			
"	14	Up	iP	02 41 54	
			i	02 41 58	
			i	02 42 10	
				microns sec	
			P Z'	0.1	0.6
1961 July cont.	14	Ki	iP	02 43 08	
		Sk	iP	02 42 33	D
		Gb	iP	02 41 40	D
		Un	iP	02 42 32	
		Greece.			
"	14	Ki	iP	03 44 22	
		Sinkiang Province, China.			
"	14	Sk	iP	07 38 45	
"	14	Un	eP	08 41 40	
			i	08 45 59	
"	14	Up	iP	10 15 19	
		Un	iP	10 16 32	
"	14	Un	iP	15 20 51	
			i	15 21 11	
			i	15 21 59	
"	14	Un	iP	18 28 31	
"	14	Up	iP	20 37 21	
"	14	Sk	iP	21 54 40	
		Un	iP	21 54 34	
		Fox Islands, Aleutian Islands (h = 50 km).			
"	15	Up	iP	00 30 22	
			i	00 30 33	
			i	00 32 59	
				microns sec	
			P Z'	0.2	0.6
			M E	0.8	17
			M N	2.5	22
			M Z	1.4	18
		Sk	iP	00 30 29	D
		Un	iP	00 30 10	D
		Luzon, Philippine Islands (h = 50 km).			
"	15	Up	iP	05 54 02	
			i	05 54 08	
				microns sec	
			P Z'	0.1	1.1
		Sk	iP	05 53 56	D
		Gb	iP	05 54 28	
		Un	iP	05 53 32	
			i	05 53 40	
		Off southern coast of Kamchatka (h = 20 km).			

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

1961 July	15	Ki	i(P)	11 29 01	
"	15	Ki	iP	14 08 12	
				microns sec	
			P	Z' 0.1 1.5	
		Java Sea (h = 570 km).			
"	16	Up	iP	00 57 59	
		Southeastern Alaska (h = 40 km).			
"	16	Ki	iPKP	05 41 26	
		Tonga Islands (h = 200 km).			
"	16	Up	iPKP	07 06 18	
		Ki	iPKP	07 06 12	
			iPKS	07 09 15	
		Um	iPKP	07 06 20	
			iPKS	07 09 28	
		Tonga Islands (h = 170 km).			
"	16	Up	iP	09 12 04 C	
		Ki	iP	09 12 13 C	
			i	09 12 23	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	09 12 30	
		Gb	eP	09 12 25	
		Um	iP	09 12 03	
		Hindu Kush (h = 240 km).			
"	16	Up	iPKP	14 21 03	
				microns sec	
			M	E 0.4 21	
			M	N 0.7 22	
			M	Z 1.1 22	
		Ki	iPKP	14 20 49	
			i	14 21 03	
			ePKS	14 24 09	
				microns sec	
			PKS	N 0.2 7	
			PKS	Z 0.4 8	
			M	E 0.4 18	
			M	N 0.6 19	
			M	Z 0.9 19	
		Um	iPKP	14 20 58	
		Loyalty Islands region (h = 60 km).			
"	16	Ki	iP	18 13 05	
		Um	eP	18 13 16	
"	16	Up	iPKP	20 19 57	

1961 July cont.	16	Up	i	20 20 07	
		Ki	iPKP	20 19 37 D	
			i	20 19 51	
				microns sec	
			PKP	Z' 0.2 1.6	
		Sk	iPKP	20 19 51	
		Um	iPKP	20 19 46 D	
			i	20 20 01	
		Kermadec Islands region (h = 190 km).			
"	16	Ki	iP	21 05 04	
		Um	i(P)	21 04 49	
"	16	Up	iP	21 19 30	
				microns sec	
			M	E 0.4 21	
			M	N 0.9 21	
			M	Z 0.7 21	
		Ki	iP	21 18 39	
		Sk	iP	21 19 17	
		Um	iP	21 19 03	
		Kurile Islands (h = 30 km).			
"	16	Up	iPKP	23 21 38	
		Ki	iPKP	23 21 32	
		Gb	iPKP	23 21 38	
		Um	iPKP	23 21 39	
		Fiji Islands region (h = 590 km).			
"	17	Up	iP	01 13 53	
		Ki	iP	01 13 39	
			iS	01 24 12	
				microns sec	
			P	Z 0.3 5	
			S	E 0.6 6	
			S	N 0.3 6	
			M	E 1.1 22	
			M	N 0.5 21	
			M	Z 1.4 20	
			D = 9350 km = 84°.		
		Sk	iP	01 13 35 C	
			i	01 13 45	
		Gb	iP	01 13 47	
			i	01 14 20	
		Um	iP	01 13 50 D	
		Oaxaca, Mexico (h = 70 km). Magn. = 6.0 (Ki).			
"	17	Sk	iP	03 43 17	
		Oaxaca, Mexico (h = 80 km).			

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

1961 July	17	Up	iP		05 21 04	
			i		05 21 08	
			i		05 21 17	
		Ki	iP		05 21 38	
			iPP		05 23 30	
			eScS		05 31 44	
				microns	sec	
			P	Z	0.1	0.7
			M	E	0.2	12
			M	N	0.2	9
			M	Z	0.1	12
		Sk	iP		05 21 38	
		Gb	iP		05 21 16	
		Um	eP		05 21 15	
			i		05 21 20	
			iPP		05 22 59	
		Iran (h = 60 km).				
"	17	Um	i(P)		09 11 34	
"	17	Up	iP		15 00 44	D
			iPP		15 02 14	
			iLg		15 13 53	
				microns	sec	
			P	Z	0.1	0.9
			M	E	0.3	12
			M	N	0.2	11
			M	Z	0.2	12
		Ki	iP		15 00 46	
			iLg		15 13 35	
				microns	sec	
			M	E	1.2	14
			M	N	0.2	11
			M	Z	1.1	12
		Sk	iP		15 01 08	
			iPP		15 02 40	
		Gb	iP		15 01 09	D
			iPP		15 02 39	
		Um	iP		15 00 38	
		Kirghiz, U.S.S.R. (h = 70 km).				
"	17	Up	iP		16 31 50	
			i		16 32 00	
			iS		16 41 21	
				microns	sec	
			P	N	0.1	2
			P	Z	0.2	2
			P	Z	0.2	1.5
			S	E	0.3	6
			S	N	0.3	5
			M	E	3.1	18
			M	N	3.3	19

1961 July cont.	17	Up	M	Z	3.0	16
			D = 8100 km = 73°.			
		Ki	iP		16 31 05	
			i		16 31 12	
			i		16 31 21	
			iPP		16 33 40	
			iS		16 40 09	
				microns	sec	
			P	Z	0.3	4
			P	Z	0.2	1.9
			PP	Z	0.1	1.5
			S	E	0.5	6
			S	N	0.3	7
			M	E	4.5	17
			M	N	1.8	17
			M	Z	6.6	17
			D = 7450 km = 67°.			
		Sk	iP		16 31 45	
			i		16 31 54	
			iPP		16 34 29	
		Gb	iP		16 32 11	
			i		16 32 20	
		Um	iP		16 31 24	
			i		16 31 33	
		Near coast of Honshu, Japan (h = 80 km). Magn. = 5.9 (Up, Ki).				
"	17	Up	iP		22 17 04	
"	18	Um	e(P)		06 53 40	
"	18	Up	iPKP		07 36 35	
		Sk	iPKP		07 36 27	
		Gb	iPKP		07 36 43	
		Tonga Islands region (h = 60 km).				
"	18	Up	iP		14 15 23	D
			iS		14 25 00	
				microns	sec	
			P	E	1.3	2
			P	N	1.6	2
			P	Z	5.6	2
			P	Z	1.6	0.6
			S	E	15	8
			S	N	5.3	9
			S	Z	0.1	1.0
			M	E	104	21
			M	N	96	19
			M	Z	76	15
			D = 8350 km = 75°.			

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

1961 July cont.	18	Sk	iP	14 15 21	D
			i	14 25 22	
			iScS	14 25 30	
		Gb	iP	14 15 43	D
			iS	14 25 41	
			eP'P'	14 42 27	
			i	14 42 32	
			D = 8800 km = 79°.		
		Um	iP	14 15 06	D
			i	14 15 13	
			iP'P'	14 42 44	
		Northern Ryukyu Islands (h = 20 km). Magn.= 7,3 (Up).			
"	18	Sk	iP	14 25 22	
			i	14 25 30	
"	18	Up	iP	14 45 46	D
			i	14 46 08	
				microns sec	
			P	Z' 0.5	0.8
		Ki		microns sec	
			M	E 11	16
			M	N 7.0	15
			M	Z 14	16
		Gb	iP	14 46 06	D
		Um	iP	14 45 30	D
		Northern Ryukyu Islands (h = 70 km).			
"	18	Up	iP	14 54 30	
		Um	iP	14 54 13	
"	18	Up	iP	14 55 24	
			i	14 55 32	
				microns sec	
			P	Z' 0.1	1.0
		Sk	iP	14 55 22	
			i	14 55 30	
		Gb	iP	14 55 44	
		Um	iP	14 55 08	
		Northern Ryukyu Islands.			
"	18	Sk	iP	15 15 45	D
"	18	Up	iP	15 27 58	D
			i	15 28 07	
				microns sec	
			P	Z' 0.1	1.0
		Ki	iP	15 27 25	D
			i	15 27 35	
				microns sec	
			P	Z' 0.1	1.0
1961 July cont.	18	Sk	iP	15 27 57	
			i	15 28 06	
		Gb	iP	15 28 18	D
			i	15 28 28	
		Um	iP	15 27 40	D
			i	15 27 51	
		Northern Ryukyu Islands (h = 25 km).			
"	18	Up	iP	15 48 33	
			i	15 48 43	
		Ki	iP	15 48 06	
			i	15 48 11	
		Sk	iP	15 48 31	
		Gb	iP	15 48 52	
		Um	iP	15 48 19	
			i	15 48 26	
		Northern Ryukyu Islands (h = 25 km).			
"	18	Up	iP	16 31 50	
		Ki	iP	16 31 18	D
		Sk	iP	16 31 40	
		Gb	iP	16 32 11	
		Um	iP	16 31 31	
		Northern Ryukyu Islands (h = 60 km).			
"	18	Up	iP	17 00 20	
			i	17 00 24	
		Ki	iP	16 59 49	
		Gb	iP	17 00 42	C
		Um	iP	17 00 03	
		Northern Ryukyu Islands (h = 60 km).			
"	18	Up	iP	18 28 29	
"	18	Up	iP	18 45 21	
		Ki	iP	18 44 49	
		Sk	eP	18 45 21	
		Um	iP	18 45 01	
		Northern Ryukyu Islands (h = 80 km).			
"	18	Up	iP	19 40 51	
			i	19 40 54	
				microns sec	
			M	E 0.6	16
			M	N 1.0	17
			M	Z 0.5	16
		Ki	iP	19 40 21	
			i	19 40 24	

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

1961 July cont.	18	Ki			microns	sec	
			P	Z	0.3		6
			P	Z'	0.1	1.0	
			M	E	1.1		16
			M	N	1.1		16
			M	Z	1.7		20
		Sk	iP		19 40 52		
		Gb	iP		19 41 11		
			i		19 41 16		
		Um	iP		19 40 30		
			i		19 40 47		
		Northern Ryukyu Islands (h = 60 km).					
"	18	Up	iP		19 41 43		
		Ki	iP		19 41 12		
		Um	iP		19 41 23		
		Northern Ryukyu Islands.					
"	18	Up	iP		19 44 24		
			i		19 45 33		
		Ki	iP		19 45 01		
"	18	Up	iP		20 04 12		
		Ki	iP		20 03 40		
		Um	iP		20 03 51		
		Northern Ryukyu Islands.					
"	18	Up	iP		21 35 56		
		Ki	iP		21 36 28		
					microns	sec	
			P	Z'	0.1	1.5	
		Sk	iP		21 36 26		
		Um	iP		21 36 06		
			i		21 36 15		
		Arabian Sea (h = 40 km).					
"	18	Up	iP		22 08 21		
"	18	Up	iP		23 54 21 D		
					microns	sec	
			P	Z'	0.1	1.0	
			M	E	0.6		17
			M	N	0.7		17
			M	Z	0.5		17
		Ki	iP		23 53 50		
					microns	sec	
			P	Z'	0.1	1.3	
			M	E	0.6		16
			M	N	0.7		16
			M	Z	0.7		14
		Sk	iP		23 54 19		
		Gb	iP		23 54 42		

1961 July cont.	18	Um	iP		23 54 02		
		Northern Ryukyu Islands (h = 40 km).					
"	19	Ki	iP		00 21 04		
		Um	iP		00 21 22		
		Off west coast of Honshu, Japan (h = 25 km).					
"	19	Up	iPKP		04 09 36		
		Ki	iPKP		04 09 50		
		Sk	iPKP		04 09 43		
		Um	iPKP		04 09 43 D		
		Sandwich Islands (h = 40 km).					
"	19	Up	iP		05 41 42		
			i		05 41 51		
					microns	sec	
			P	Z'	0.1	1.1	
		Ki	iP		05 41 10 C		
					microns	sec	
			M	E	0.4		13
			M	N	0.2		13
			M	Z	0.5		14
		Sk	iP		05 41 38		
		Um	iP		05 41 21		
			i		05 41 31		
		Northern Ryukyu Islands (h = 60 km).					
"	19	Up	iP		06 45 06		
			i		06 45 14		
			iS		06 54 44		
					microns	sec	
			S	E	0.1		3
			M	E	1.3		15
			M	N	1.3		16
			M	Z	1.3		14
			D = 8400 km = $75\frac{1}{2}^{o}$.				
		Ki	iP		06 44 34		
			i		06 44 43		
			iS		06 53 45		
					microns	sec	
			P	Z'	0.1	1.1	
			S	E	0.6		6
			M	E	1.2		17
			M	N	1.4		15
			M	Z	1.8		16
			D = 7800 km = 70^{o}.				
		Sk	iP		06 45 06		
		Gb	iP		06 45 25		
		Um	iP		06 44 45		
		Northern Ryukyu Islands (h = 30 km).					

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

1961
July 19 Um iP 09 30 30
i 09 30 43
Off coast of Honshu, Japan (h = 25 km).

" 19 Ki iP 10 22 22

" 19 Ki iP 10 45 53
Sk iP 10 45 18

" 19 Up iP 10 47 26
i 10 49 03

		microns	sec
M	E	0.3	17
M	N	0.5	18
M	Z	0.5	16

Ki iP 10 46 59
eS 10 56 06

		microns	sec
S	E	0.3	5
M	E	0.4	18
M	N	0.4	16
M	Z	0.7	17

D = 7800 km = 70°.
Sk eP 10 47 19
Gb iP 10 47 50
Um iP 10 47 08
Northern Ryukyu Islands (h = 20 km).

" 19 Up iP 12 10 29
iS 12 20 06

		microns	sec
P	Z'	0.2	1.0
S	E	0.2	3
M	E	0.7	12
M	N	1.4	14
M	Z	1.0	13

D = 8350 km = 75°.
Ki iP 12 09 57 C
iS 12 19 09

		microns	sec
P	Z'	0.1	1.0
S	E	0.7	5
M	E	1.4	15
M	N	1.0	15
M	Z	1.7	18

D = 7800 km = 70°.
Sk iP 12 10 28
Gb iP 12 10 50
i 12 10 58
Um iP 12 10 10 C
i 12 10 25

1961
July 19 cont. Northern Ryukyu Islands (h = 30 km).
Magn. = 6.0 (Up, Ki).

" 19 Ki iP 19 56 44
Sk iP 19 57 16
Gb iP 19 57 37
Um eP 19 56 55
Northern Ryukyu Islands (h = 40 km).

" 19 Up iP 23 05 51
iS 23 09 55

		microns	sec
P	E	0.1	4
P	N	0.3	4
P	Z	0.4	3
S	E	0.4	4
S	N	0.7	5
M	E	2.3	10
M	N	2.2	11
M	Z	2.8	13

D = 2450 km = 22°.
Ki iP 23 07 06
iPP 23 07 59
e 23 12 57

		microns	sec
PP	Z'	0.2	1.5
M	E	3.5	13
M	N	2.1	13
M	Z	3.4	12

D = 3350 km = 30°.
Sk iP 23 06 29
iPP 23 07 01
i 23 08 31
Gb iP 23 05 37
Um iP 23 06 29 D
i 23 06 39
Near coast of Greece (h = 40 km).
Magn. = 5.5 (Up, Ki).

" 20 Sk iPP 00 58 33
Tadzhik, U.S.S.R.

" 20 Ki iP 02 25 03 D
Sk iP 02 25 20
Gb iP 02 25 19
Um iP 02 24 56
i 02 25 10

" 20 Ki iP 03 15 55 D

		microns	sec
P	Z'	0.1	1.5

Sk iP 03 16 17

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

1961 July cont.	20	Sk	i	03 16 27	
		Gb	iP	03 16 47	C
			i	03 16 56	
		Um	iP	03 16 08	
		Northern Ryukyu Islands (h = 50 km).			
"	20	Up		microns	sec
			M E	0.4	21
			M N	3.4	22
		Ki	i	07 10 46	
				microns	sec
			M E	0.4	18
			M N	1.0	19
			M Z	0.7	17
		Sk	iP	07 06 53	D
"	20	Up	iP	08 47 53	
		Sk	iP	08 48 32	
"	20	Sk	iP	08 56 53	
		Um	iP	08 57 06	
		Off coast of Jalisco, Mexico (h = 15 km).			
"	20	Up	iP	09 14 25	
			eS	09 24 03	
				microns	sec
			M E	0.3	14
			M N	0.6	15
			M Z	0.6	18
			D = 8450 km = 76°.		
		Ki	iP	09 13 54	
			iS	09 23 06	
				microns	sec
			P Z'	0.1	1.0
			S E	0.4	6
			M E	0.5	16
			M N	0.6	16
			M Z	0.5	14
			D = 7900 km = 71°.		
		Sk	iP	09 14 23	
		Gb	iP	09 14 46	C
		Um	iP	09 14 07	
		Northern Ryukyu Islands (h = 25 km).			
"	20	Up	iP	10 20 36	
"	20	Ki	ePn	12 01 32	
			iSn	12 02 16	
			iSg	12 02 37	
			D = 420 km = 3.8°.		
1961 July cont.	20	Northwest Russia. Origin time = 12 00 30. Probably explosion.			
"	20	Ki	iPn	12 09 02	
			iSn	12 09 45	
			iSg	12 10 00	
			D = 390 km = 3.5°.		
		Sk	e(Sg)	12 12 48	
			i	12 12 56	
		Northwest Russia. Origin time = 12 08 05. Probably explosion.			
"	20	Sk	iSKP	15 31 22	
		Fiji Islands (h = 570 km).			
"	20	Up	iP	15 59 38	
"	20	Up	iPKP	20 17 52	
		Ki	iPKP	20 17 33	
		Sk	iPKP	20 17 45	
			i	20 18 12	
		Gb	iPKP	20 17 59	
		Um	iPKP	20 17 39	
			i	20 17 53	
		Kermadec Islands (h = 40 km).			
"	20	Ki	iP	20 37 03	
"	20	Sk	iP	22 12 33	
"	20	Up	iP	23 04 05	D
			i	23 04 22	
		Ki	iP	23 03 59	
			i	23 04 17	
		Sk	iP	23 04 20	
			i	23 04 38	
		Gb	iP	23 04 25	
		Um	iP	23 03 54	
			i	23 04 12	
"	21	Ki	iPn	06 12 17	
			iSn	06 13 12	
			iSg	06 13 35	
			D = 500 km = 4.5°.		
		Sk	iSg	06 16 11	
			D = 1020 km = 9.2°.		
		Um	iSn	06 13 58	
			eSg	06 14 35	
			i	06 14 45	
			D = 700 km = 6.3°.		

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

1961 July cont. 21 Northwest Russia, 67.7°N, 32.4°E. Origin time = 06 11 06.

" 21 Um iP 12 34 14

" 21 Up iP 18 10 58
Ki iP 18 10 26
Um iP 18 10 37
Northern Ryukyu Islands
(h = 40 km).

" 21 Up iP 18 46 03
Ki iP 18 45 32
Sk iP 18 46 02
Um iP 18 45 41
Northern Ryukyu Islands.

" 21 Up iP 19 02 37

		microns	sec
P	Z'	0.1	1.1
M	E	0.6	16
M	N	0.5	17
M	Z	0.5	15

Ki iP 19 02 05
i 19 02 14
eS 19 11 20

		microns	sec
P	Z'	0.1	1.2
M	E	0.8	16
M	N	1.1	15
M	Z	1.3	16

D = 7800 km = 70°.
Sk iP 19 02 37
Gb iP 19 02 57
Um iP 19 02 16 C
Northern Ryukyu Islands
(h = 20 km).

" 21 Up iP 19 09 34
Ki iP 19 09 03

" 21 Up iP 22 51 39

		microns	sec
M	E	0.2	13
M	N	0.5	13

Ki iP 22 51 07 D
iS 23 00 21

		microns	sec
S	E	0.4	5
M	E	0.3	15
M	N	0.6	15
M	Z	0.6	13

D = 7800 km = 70°.

1961 July cont. 21 Sk iP 22 51 37
Gb iP 22 51 59
Um iP 22 51 19
Northern Ryukyu Islands
(h = 30 km).

" 22 Up iP 14 01 17 D

		microns	sec
P	Z'	0.1	0.5

Ki iP 14 01 27 C
Sk iP 14 01 43 D
Um iP 14 01 18
Northeastern Afganistan
(h = 100 km).

" 22 Ki iPKP 18 32 19
Sk ePKP 18 32 27
South of Tasmania
(h = 80 km).

" 22 Up ePP 21 01 39
Ki iP 21 00 43 C
Sk iP 21 01 02
iPP 21 02 24
Um iP 21 00 32
Kirghiz, U.S.S.R.
(h = 220 km).

" 22 Sk iP 21 12 28

" 22 Ki iP 22 39 16

" 22 Up iP 22 41 14
Ki iP 22 40 41

		microns	sec
P	Z'	0.1	1.0

Sk iP 22 41 14
Gb iP 22 41 36
Northern Ryukyu Islands.

" 23 Up e(P) 05 47 40

" 23 Up e 14 24 38
iPP 14 25 40
ePKS 14 26 24

		microns	sec
PKS	E	0.7	9
PKS	N	0.8	8
M	E	2.8	22
M	N	4.5	23
M	Z	3.4	23

Ki iPKP 14 22 39
i(PP) 14 24 34
i(PKS) 14 25 54

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

1961						
July cont.	23	Ki	i		15 02 24	
				microns	sec	
			PKP	Z'	0.1	1.1
			(PP)	Z	0.5	9
			(PKS)	E	0.3	9
			(PKS)	N	0.2	9
			M	E	4.4	23
			M	N	2.6	22
			M	Z	7.3	21
			D = 14100 km = 127°.			
		Sk	iPKP		14 22 51	
			iPKS		14 26 18	
		Um	iPKP		14 22 49	
			iPKS		14 26 11	
		New Hebrides Islands (h = 40 km). Magn. = 6.2 (Up, Ki).				
"	23	Ki	iPKP		14 35 36	
		New Hebrides Islands (h = 50 km).				
"	23	Ki	iP		14 51 44	
			iPP		14 55 55	
				microns	sec	
			P	Z'	0.1	1.5
		Pacific Ocean, about 2000 miles northwest of Galapagos Islands (h = 90 km).				
"	23	Ki	iP		15 08 16	
"	23	Up	iPKP		15 49 35	
			iPKS		15 53 00	
				microns	sec	
			PKS	E	0.2	6
			PKS	N	0.4	5
			M	E	1.7	22
			M	N	3.8	23
			M	Z	2.5	22
		Ki	iPKP		15 49 17	
				microns	sec	
			PKP	Z'	0.1	1.2
			M	E	3.2	23
			M	N	2.0	22
			M	Z	1.9	21
		Sk	iPKP		15 49 32	D
			iPKS		15 52 53	
		Gb	iPKP		15 49 42	
		Um	iPKP		15 49 24	
			iPKS		15 52 45	
		New Hebrides Islands (h = 110 km).				

1961						
July	23	Up	iP		17 16 13	
		Ki	i(P)		17 15 58	
"	23	Up	iPKP		22 10 20	
			i		22 10 29	
			i(PP)		22 12 47	
			iPKS		22 13 49	
				microns	sec	
			PKP	N	0.5	5
			PKP	Z	3.3	7
			(PP)	E	6.7	16
			(PP)	N	4.7	8
			(PP)	Z	12	10
			PKS	E	21	11
			PKS	N	29	11
			PKS	Z'	0.7	2.0
			M	E	83	22
			M	N	180	24
			M	Z	130	22
			D = 14950 km = 134½°.			
		Ki	iPKP		22 10 07	
			i		22 10 10	
			iPP		22 11 59	
			iPKS		22 13 22	
				microns	sec	
			PKP	Z	1.5	5
			PKP	Z'	0.2	1.0
			PP	E	2.8	8
			PP	N	3.5	9
			PP	Z	10	9
			PP	Z'	1.0	2.5
			PKS	E	11	11
			PKS	N	7.7	11
			M	E	150	23
			M	N	100	22
			M	Z	170	23
			D = 14100 km = 127°.			
		Sk	iPKP		22 10 16	
			i		22 10 21	
			i		22 12 30	
			iPKS		22 13 45	
		Gb	iPKP		22 10 30	
			i(PP)		22 13 08	
		Um	iPKP		22 10 13	
			i		22 10 17	
			iPKS		22 13 34	
		New Hebrides Islands (h = 40 km). Magn. = 7.4 (Up, Ki).				
"	23	Up	i(PKP)		22 21 03	
			i		22 22 34	

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

1961 July cont.	23	Up		microns	sec	
			(PKP) Z'	0.1	1.5	
		Ki	iPKP	22 20 57		
				microns	sec	
			PKP Z'	0.2	1.1	
		Sk	iPKP	22 21 08		
			iPKS	22 24 33		
		Um	iPKP	22 21 01		
			iPKS	22 24 23		
		New Hebrides Islands (h = 40 km).				
"	23	Sk	ePKP	23 41 39		
		New Hebrides Islands (h = 50 km).				
"	24	Ki	iPKP	00 05 20		
		New Hebrides Islands (h = 25 km).				
"	24	Up	iP	00 09 02		
		Sk	iP	00 08 57	C	
		Um	iP	00 08 48		
			i	00 08 58		
"	24	Up	iPKP	01 49 09		
			iPP	01 51 55		
		Ki	iPKP	01 49 02		
			iPP	01 51 32		
				microns	sec	
			PP Z	0.4	4	
			PP Z'	0.3	1.5	
			M Z	0.7	20	
		Sk	iPKP	01 49 03		
			iPP	01 51 48		
		Gb	iPKP	01 49 19	D	
		Um	iPP	01 51 42		
		Fiji Islands region (h = 640 km).				
"	24	Ki	iPKP	02 17 52		
		New Hebrides Islands (h = 20 km).				
"	24	Ki	iP	09 01 21		
				microns	sec	
			P Z'	0.1	0.9	
			M E	0.4	16	
			M Z	0.2	17	
		Sk	iP	09 01 40		
		Um	iP	09 01 24		
		Northern Celebes region (h = 160 km).				

1961 July	24	Um	iP	10 21 26		
"	24	Ki	iP	16 31 24		
"	25	Up	i(P)	01 43 00		
"	25	Ki	iP	03 00 52		
		Sk	iP	03 00 36	C	
			i	03 02 44		
		Western Brazil (h = 640 km)				
"	25	Ki	iP	06 09 06	D	
		Near east coast of Kamchatka (h = 25 km).				
"	25	Up	iP	12 13 04		
		Ki	iP	12 12 39		
		Sk	iP	12 13 07		
		Off east coast of Formosa (h = 60 km).				
"	25	Up	iP	18 52 05		
		Ki	iP	18 51 24	D	
				microns	sec	
			P Z'	0.1	1.0	
		Sk	iP	18 51 58		
		Um	iP	18 51 42		
"	25	Ki	iP	18 52 47		
				microns	sec	
			P Z'	0.1	1.4	
			M E	0.4	17	
			M N	0.2	17	
			M Z	0.5	17	
		Sk	iP	18 53 07		
		Um	iP	18 52 53		
		Northern Celebes (h = 40 km).				
"	25	Ki	iP	19 33 42		
"	25	Ki	iP	23 49 15		
"	26	Up	iP	01 12 26		
"	26	Up	iPKP	09 38 54	D	
			i	09 38 58		
				microns	sec	
			PKP Z'	0.1	0.5	
		Ki	iPKP	09 38 28	C	
			i	09 38 35		
				microns	sec	
			PKP Z'	0.2	1.2	

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

1961 July cont.	26	Sk	iPKP	09 38 41	C
		Um	iPKP	09 38 34	
			i	09 38 42	
			i	09 38 56	
		North Island, New Zealand (h = 100 km).			
"	26	Ki	i(P)	20 49 32	
			i	20 49 46	
"	27	Up	iPKP	02 26 24	
			i	02 26 37	
		Sk	iPKP	02 26 26	
			i	02 26 42	
		Um	iPKP	02 26 10	
			i	02 26 22	
		Kermadec Islands (h = 480 km).			
"	27	Ki	eP	02 41 17	
			e	02 41 31	
"	27	Gb	iPKP	11 53 04	
		New Hebrides Islands (h = 160 km).			
"	27	Um	iP	13 45 43	
			i	13 45 56	
"	27	Up	iP	14 10 15	
		Ki	iP	14 09 32	D
			i	14 09 43	
				microns sec	
			P	Z' 0.1 0.9	
		Sk	iP	14 09 46	
			i	14 09 56	
"	27	Um	iP	14 46 05	
"	27	Ki	iP	15 09 56	C
			i	15 10 07	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	15 10 11	
"	27	Um	iP	15 29 24	
			i	15 29 29	
			i	15 29 35	
"	27	Ki	iP	15 42 55	
			i	15 43 07	
		Sk	iP	15 43 38	

1961 July	27	Ki	iP	15 53 15	D
			i	15 53 26	
				microns sec	
			P	Z' 0.2 1.1	
		Sk	iP	15 53 29	
			i	15 53 41	
"	27	Ki	iP	16 09 44	C
				microns sec	
			P	Z' 0.1 0.7	
"	27	Up	iP	18 41 10	
			i	18 41 22	
		Ki	iP	18 42 16	
				microns sec	
			M	E 1.0 19	
		Sk	iP	18 41 47	
		Um	iP	18 41 42	
		Aegean Sea (h = 70 km).			
"	27	Ki	iP	20 45 20	
			i	20 45 25	
				microns sec	
			P	Z' 0.1 1.0	
		Sk	iP	20 45 34	
		Um	eP	20 45 28	
"	28	Ki	iP	00 07 13	
		Sk	iP	00 07 54	
		Lake Baikal region, U.S.S.R. (h = 60 km).			
"	28	Ki	iP	00 14 12	
		North of Celebes (h = 90 km).			
"	28	Up	iP	00 45 50	C
			ipP	00 46 29	
				microns sec	
			P	Z' 0.1 0.6	
		Ki	iP	00 45 22	
			i	00 45 32	
		Sk	iP	00 45 51	
			i	00 45 59	
		Um	iP	00 45 32	
		Ryukyu Islands (h = 140 km).			
"	28	Up	iP	01 18 34	
			i	01 18 48	
			ipP	01 19 12	
			i	01 21 43	

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

1961 July cont.	28	Up	iPP		01	22	18
			iSKS		01	28	52
			iS		01	29	30
				microns		sec	
			P	Z	0.3		3
			P	Z'	0.1		0.9
			PP	Z	0.5		3
			PP	Z'	0.1		1.0
			SKS	E	2.1		5
			S	N	0.3		5
			M	E	1.9		20
			M	N	2.6		23
			M	Z	1.7		21
			D = 10400 km = 93½°.				
		Ki	iP		01	18	38
			ipP		01	19	15
			i		01	21	44
			ipPP		01	23	00
			iSKS		01	29	01
			iS		01	29	37
				microns		sec	
			P	Z	0.6		5
			P	Z'	0.2		1.7
			SKS	E	6.8		8
			SKS	N	1.1		8
			SKS	Z	1.0		7
			S	E	1.3		5
			S	N	0.6		5
			M	E	0.8		15
			M	N	0.7		19
			M	Z	1.0		17
			D = 10550 km = 95°.				
		Sk	iP		01	18	24
			i		01	18	33
			ipP		01	19	00
			iPP		01	22	00
		Gb	iP		01	18	23
			ipP		01	18	59
		Um	iP		01	18	34
			i		01	18	51
			ipP		01	19	14
			i		01	22	28
			ipPP		01	22	56
		Ecuador. h= 150 km (Up, Ki, Sk, Gb, Um).					
		Magn. = 6.1 (Up, Ki).					
"	28	Ki	iP		01	35	32
		Sk	iP		01	35	41
"	28	Up	iPKS		06	34	25
				microns		sec	
			PKS	E	0.4		8
1961 July cont.	28	Up	PKS	N	0.7		7
			M	E	0.4		22
			M	N	0.9		22
			M	Z	1.1		22
		Ki	iPKP		06	30	40
			i		06	30	49
			iPP		06	32	37
				microns		sec	
			PP	N	0.3		8
			PP	Z	0.3		5
			M	E	0.7		17
			M	N	0.4		14
			M	Z	0.7		17
		Sk	iPKP		06	30	54
		New Hebrides Islands (h = 40 km).					
"	28	Up	iPg		08	30	44
			iSg		08	31	25
				microns		sec	
			Sg	Z'	0.1		0.5
			D = 340 km = 3.1°.				
		Ki	e(Sn)		08	33	24
			eSg		08	34	08
			D = 890 km = 8.0°.				
		Sk	e(S^x)		08	32	54
			iSg		08	33	22
			i		08	33	33
			D = 730 km = 6.6°.				
		Gb	iSg		08	33	21
			D = 730 km = 6.6°.				
		Um	i(Sg)		08	32	07
			D = 460 km = 4.2°.				
		Southwest Finland, 60.0°N, 23.8°E. Origin time = 08 29 43.					
"	28	Up	iSg		08	39	07
		Ki	i		08	41	41
			iSg		08	41	58
		Sk	eSg		08	41	03
		Southwest Finland.					
"	28	Up		microns		sec	
			M	E	1.8		19
			M	N	1.4		20
			M	Z	1.5		19
		Ki	iP		10	26	22
			iS		10	36	55
				microns		sec	
			P	Z'	0.1		1.5
			S	E	0.4		6
			S	N	0.3		6

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

1961 July cont.

July	28	Ki	H	E	2.2 21
			M	N	1.4 19
			M	Z	2.8 18
			D = 9350 km = 84°.		
			Pacific Ocean, west of Jalisco, Mexico (h = 40 km).		
			Magn. = 5.8 (Up, Ki).		
"	28	Ki	iP		10 50 53
			Pacific Ocean, west of Jalisco, Mexico (h = 110 km).		
"	28	Ki	eL		14 05
				microns	sec
			M	E	0.4 17
			M	N	0.6 20
			M	Z	0.3 19
			Celebes (h = 40 km).		
"	28	Up	iP		15 30 43
			i		15 30 54
		Ki	iP		15 29 58 C
				microns	sec
			P	Z'	0.1 1.1
			M	E	0.5 19
			M	N	0.5 20
			M	Z	0.9 19
		Sk	iP		15 30 34
		Gb	iP		15 31 05
			i		15 31 15
		Um	iP		15 30 18 C
			i		15 30 28
			Kurile Islands (h = 30 km).		
"	28	Ki	iP		19 14 25
"	28	Ki	i(P)		19 41 51
"	28	Ki	i(P)		20 08 15
"	28	Ki	iP		23 59 54 D
			i		00 00 07
"	29	Up	iPKP		16 46 48
			i		16 47 00
				microns	sec
			M	E	0.4 20
			M	N	0.6 21
		Ki	iPKP		16 46 39
			i		16 46 50
			iPKS		16 50 10
				microns	sec
			PKS	N	0.3 4
			M	E	0.5 19

1961 July cont.

July	29	Ki	M	N	0.4 21
			M	Z	0.7 20
		Sk	iPKP		16 46 41
		Gb	iPKP		16 46 58
			i		16 47 11
		Um	iPKP		16 46 39
			Tonga Islands region (h = 25 km).		
"	29	Ki	iP		19 04 18
			i		19 04 35
				microns	sec
			P	Z'	0.2 0.6
"	30	Up	iP		00 12 08
"	30	Jp	iP		02 43 59
		Ki	iP		02 43 58 D
		Sk	iP		02 44 12
			Sumatra (h = 150 km).		
"	30	Up	iP		16 18 41
		Ki	iP		16 18 26
		Sk	iP		16 18 41
		Um	iP		16 18 33
			i		
"	31	Ki	ipP		00 29 49
			Off north coast of Java (h = 240 km).		
"	31	Up	iP		06 39 19 C
"	31	Up	e(P)		23 15 59
"	31	Ki	iP		23 58 25

Ingrid Pettersson Markus Båth

July 24, 1962

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

Seismological Institute
Uppsala

PRELIMINARY

SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, GÖTEBORG, and UMEÅ

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°49.0'N,	20°14.1'E;	h = 20 km

AUGUST 1 - 31, 1961

NOTE. The operation of the Umeå station was temporarily interrupted from August 7, 1961, onwards. Construction works were started in order to house a complete installation of six seismographs, long- and short-period.

1961 Aug	1	Up	iPKP	01 14 28	C	
			i	01 14 39		
		Ki	iPKP	01 14 13	C	
		Sk	iPKP	01 14 23	C	
			i	01 14 20		
		Gb	iPKP	01 14 39		
		Um	iPKP	01 14 17	C	
			i	01 14 20		
		New Hebrides Islands region.				
"	1	Up	iPKP	01 36 55		
			i	01 36 59		
		Ki	iPKP	01 36 40		
			i	01 36 45		
		Sk	iPKP	01 36 51		
		Um	iPKP	01 36 45		
		New Hebrides Islands region (h = 25 km).				
"	1	Up	iPKP	05 58 48		
			i	05 58 57		
			iPP	06 00 30		
			i	06 06 40		
			iPS	06 10 17		
				microns	sec	
			PP N	0.4	10	
			PP Z	0.9	10	
			M E	7.1	21	
			M N	10	21	
			M Z	12	22	
1961 Aug 1 cont.		Up	D = 13650 km = 123°.			
		Ki	iPKP	05 58 35		
			i	05 58 45		
			ePP	05 59 41		
			iSKS	06 05 28		
				microns	sec	
			PP N	0.3	8	
			PP Z	1.1	8	
			SKS E	0.6	7	
			M E	19	22	
			M N	8.9	23	
			M Z	24	23	
			D = 12950 km = 116½°.			
		Sk	iPKP	05 58 46		
			i	05 58 55		
		Gb	iPKP	05 58 54		
			i	05 59 05		
		Um	iPKP	05 58 42		
			i	05 58 52		
		Solomon Islands region (h = 50 km). Magn. = 6.5 (Up, Ki).				
"	1	Up		microns	sec	
			M E	4.7	19	
			M N	5.2	19	
			M Z	7.9	19	
		Ki	iPKP	07 40 18		
			i	07 40 25		
			i(SKP)	07 43 37		
			iPKS	07 43 46		

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

1961 Aug 1 cont.

Ki microns sec
(SKP) Z 1.6 9
PKS E 1.1 10
PKS N 0.8 10
M E 5.0 18
M N 2.1 18
M Z 6.9 17
D = 14350 km = 129°.
Sk ePKP 07 40 25
Um iPKP 07 40 22
Sandwich Islands region
(h = 40 km).
Magn. = 6.4 (Up, Ki).

" 1 Ki iPKP 09 43 20
i 09 43 27
i(PPS) 09 57 00
Sandwich Islands region
(h = 60 km).

" 1 Up ePS 10 04 53
microns sec
M E 1.1 20
M N 1.7 19
M Z 1.8 19
Ki iPKP 09 53 44
i 09 54 08
microns sec
PKP Z 0.6 5
M E 1.3 18
M N 1.3 17
M Z 2.4 16
Sk iPKP 09 53 36
Um iPKP 09 53 36
Sandwich Islands
(h = 30 km).
Magn. = 5.9 (Up, Ki).

" 1 Ki iP 14 43 08
Sk iP 14 43 08
Um iP 14 43 19
Near coast of Mexico
(h = 60 km).

" 1 Ki iP 15 01 33
i 15 01 43

" 1 Up iPKP 16 37 26 C
microns sec
PKP Z² 0.1 0.5
South of Fiji Islands
(h = 530 km).

" 1 Ki iP 21 17 48

1961 Aug 1 cont.

Sk iP 21 17 13
North of Ascension Island
(h = 25 km).

" 2 Ki ePKP 02 23 03
New Hebrides Islands region
(h = 20 km).

" 2 Up eL 02 33
microns sec
M E 0.3 18
M N 0.4 21
M Z 0.6 19
South Pacific Ocean
(h = 20 km).

" 2 Up microns sec
M E 0.3 16
M N 0.9 17
M Z 0.5 17
Ki iPKP 02 50 34
ePKPPKS 03 12 31
microns sec
M E 0.7 18
M N 0.7 17
M Z 1.4 18
Sandwich Islands (h = 25 km).
Magn. = 5.6 (Up, Ki).

" 2 Up iP 12 23 02 D
microns sec
P Z² 0.2 0.8
Ki iP 12 22 15 D
microns sec
P Z² 0.1 1.0
Sk iP 12 22 50 D
Gb iP 12 23 23
Um iP 12 22 36 D
Kurile Islands (h = 70 km).

" 2 Up i(P) 13 43 56

" 2 Up iP 14 42 59 D
Ki iP 14 42 06
Sk iP 14 42 43
Gb iP 14 43 19 D
Um iP 14 42 30
Near coast of Kamchatka
(h = 50 km).

" 2 Ki e(P) 18 23 22

" 2 Up iPKP 23 57 05
Fiji Islands region (h = 330 km).

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

1961
Aug 3 Up iP 00 50 41
i 00 50 48
Ki iP 00 51 19
i 00 51 37
microns sec
M E 0.4 17
M N 0.2 14
Sk iP 00 51 13
i 00 51 22
Um iP 00 50 56
Gulf of Aden (h = 80 km).

" 3 Up iP 03 19 12 D
microns sec
P Z' 0.1 0.7
Ki iP 03 19 16 D
iS 03 28 28
iSP 03 29 10
microns sec
P Z' 0.3 1.0
S E 0.1 6
S N 0.2 6
Sk iP 03 18 57 D
Gb iP 03 18 56
Um iP 03 19 17 D
i 03 19 34
Puerto Rico (h = 140 km).

" 3 Ki eL 07 41
microns sec
M E 1.3 22
M N 0.7 21
M Z 1.2 19
Ceram (h = 20 km).

" 3 Up iP 14 35 47
Ki iP 14 34 53
Sk iP 14 35 28
Near Islands, Aleutian Islands (h = 40 km).

" 3 Sk iPKP 15 38 16
Kermadec Islands region (h = 50 km).

" 3 Ki iP 22 46 39

" 3 Up microns sec
M E 0.6 17
M N 0.8 19
M Z 1.0 20
Ki iSKS 23 57 09

1961
Aug 3 cont. Ki microns sec
SKS E 0.4 6
M E 0.7 18
M N 0.5 17
M Z 0.7 16
Um iP 23 46 52
Mariana Islands region (h = 20 km).

" 4 Ki iP 03 03 05

" 4 Sk i(P) 04 39 08

" 4 Sk eP 07 28 40
Eastern Hokkaido, Japan (h = 20 km).

" 4 Up iP 10 47 31
Andreanof Islands, Aleutian Islands (h = 20 km).

" 4 Up i(P) 13 50 52
i(Sg) 13 51 07
Local? Seismic?

" 4 Up iPKP 18 38 36
Loyalty Islands region (h = 120 km).

" 4 Up iSS 18 53 27
microns sec
M E 0.3 17
M N 1.0 19
M Z 1.0 20
Ki iP 18 43 53
i 18 44 00
eS 18 50 47
microns sec
S E 0.3 10
M E 1.2 18
M N 1.0 22
M Z 0.6 18
D = 5200 km = 47°.
Sk iP 18 43 28
North Atlantic Ocean (h = 25 km).
Magn. = 5.3 (Ki).

" 4 Up iP 19 42 30

" 4 Up iP 23 03 53
i 23 04 00
microns sec

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

1961 Aug 4 cont.	Up	P	Z'	0.1	0.9	
		M	E	3.8	24	
		M	N	4.0	24	
		M	Z	3.0	23	
	Ki	iP		23 03 06		
		i		23 03 15		
		eS		23 11 16		
				microns	sec	
		S	N	0.2	9	
		M	E	4.3	17	
		M	N	2.9	19	
		M	Z	5.3	16	
		D = 6800 km = 61°.				
	Sk	iP		23 03 41		
	Um	iP		23 03 27		
	Kurile Islands (h = 20 km).					
	Magn. = 5.7 (Up, Ki).					
" 4	Up	iPKP		23 51 04		
				microns	sec	
		PKP	Z'	0.1	0.5	
	Ki	iPKP		23 50 54		
		iSKP		23 53 41		
	Um	iSKP		23 53 52		
	South of Fiji Islands (h = 500 km).					
" 5	Up	iP		02 36 17	C	
	Ki	iP		02 35 21		
	Sk	iP		02 35 49		
	Gb	iP		02 36 29	C	
	Um	iP		02 35 50		
		i		02 35 59		
	Kenai Peninsula, Alaska (h = 110 km).					
" 5	Sk	iPKP		07 02 34		
	Kermadec Islands region (h = 70 km).					
" 5	Up	iP		07 13 14		
	Ki	e(P)		07 13 16		
" 5	Up	iP		19 10 53		
		i		19 11 14		
	Ki	iP		19 10 48		
		i		19 11 45		
	Sk	iP		19 11 09		
	Burma (h = 50 km).					
" 6	Up	iP		03 33 00		
		i		03 33 12		
				microns	sec	

1961 Aug 6 cont.	Up	P	Z'	0.1	1.0	
	Ki	iP		03 32 27		
	Sk	iP		03 32 55		
		iPP		03 35 59		
	Um	iP		03 32 42		
	Bonin Islands region (h = 40 km).					
" 6	Up	iP		09 09 28	D	
	Ki	iP		09 10 36	D	
	Sk	iP		09 10 07		
	Um	iP		09 09 59	D	
	Crete (h = 40 km).					
" 7	Up	iP		03 38 44		
	Sk	iP		03 39 23		
" 7	Up	iP		04 13 13		
	Ki	iP		04 12 30		
	Sk	iP		04 13 04		
	Gb	iP		04 13 35		
	Um	iP		04 12 44		
	Hokkaido, Japan (h = 25 km).					
" 7	Up	iP		04 36 04		
		eSKS		04 46 40		
				microns	sec	
		M	E	0.9	19	
		M	N	1.4	20	
		M	Z	1.1	22	
		D = 11000 km = 99°.				
	Ki	iP		04 35 51		
		iSKS		04 46 28		
		iS		04 47 11		
				microns	sec	
		S	N	0.3	9	
		SKS	E	0.4	8	
		M	E	1.2	19	
		M	N	0.9	19	
		M	Z	1.4	18	
		D = 10650 km = 96°.				
	Sk	iP		04 36 10		
	Um	iP		04 35 50		
	Celebes (h = 20 km).					
	Magn. = 5.7 (Up, Ki).					
" 7	Ki	iP		10 56 38	D	
	Um	iP		10 56 40		
	Celebes (h = 80 km).					
" 7	Up	iPKP		12 42 03		
		i		12 42 08		

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

1961 Aug cont.	7	Up			microns	sec	
			PKP	Z'	0.1	0.7	
		Ki	iPKP		12 41 46		
		Sk	iPKP		12 41 54		
		Gb	iPKP		12 42 12		
		Um	iPKP		12 41 53		
		Kermadec Islands region (h = 40 km).					
"	7	Ki	iPKP$_2$		16 32 28		
		North of Balleny Islands (h = 50 km).					
"	7	Up	iPKP		17 17 26		
			i		17 17 35		
		Ki	iPKP		17 17 09		
		Sk	iPKP		17 17 19		
		Gb	iPKP		17 17 35		
			i		17 17 41		
		Um	iPKP		17 17 11		
		Kermadec Islands region (h = 60 km).					
"	7	Up	iP		20 36 18		
"	7	Up	iPKP		23 49 45		
		Sk	iPKP		23 49 37		
		Kermadec Islands region (h = 25 km).					
"	8	Up	iPKP		00 38 31		
			i		00 38 34		
		Ki	ePKPPKS		00 59 27		
					microns	sec	
			M	E	0.1	18	
			M	N	0.3	19	
			M	Z	0.3	19	
		Sk	iPKP		00 38 23		
		Gb	iPKP		00 38 39		
		Kermadec Islands region (h = 50 km).					
"	8	Up	eP		05 47 23		
		Ki	iP		05 46 30		
		Andreanof Islands, Aleutian Islands (h = 60 km).					
"	8	Up	iPKP		08 09 03		
		West of Eastern Island (h = 40 km).					
"	8	Up	iP		09 21 05		
		Banda Sea (h = 440 km).					
1961 Aug	8	Up	iP		10 28 11		
"	8	Up	iP		12 29 28	D	
			iS		12 38 27		
			iP'P'		12 57 33		
					microns	sec	
			P	N	0.5	2	
			P	Z	0.9	2	
			P	Z'	0.3	0.5	
			S	E	2.0	9	
			S	N	4.4	8	
			M	E	6.8	19	
			M	N	8.7	18	
			M	Z	12	18	
		D = 7650 km = 69°.					
		Ki	iP		12 28 35	D	
			i		12 28 47		
			iPP		12 30 56		
			i		12 31 07		
			iS		12 36 50		
					microns	sec	
			P	N	1.7	7	
			P	Z	3.6	7	
			P	Z'	1.3	1.0	
			S	E	3.5	9	
			S	N	4.9	9	
			S	Z	2.7	8	
			M	E	11	17	
			M	N	6.2	18	
			M	Z	9.0	19	
		D = 6800 km = 61°.					
		Sk	iP		12 29 05	D	
		Gb	iP		12 29 43	D	
			i		12 29 57		
			iPoP		12 30 07		
		Fox Islands, Aleutian Islands (h =25 km). Magn. = 6.6 (Up, Ki).					
"	8	Up	iP		12 57 34		
					microns	sec	
			P	Z'	0.1	1.0	
		Ki	iP		12 57 56		
		Sk	iP		12 57 44		
"	8	Ki	iP		13 48 17		
		Fox Islands, Aleutian Islands (h = 40 km).					
"	8	Up	iP		15 14 59		
			i		15 15 01		
		Local? Seismic?					

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

1961
Aug 8 Up iP 15 54 28 D
Ki iP 15 53 35
Sk iP 15 54 05
Gb iP 15 54 43
Fox Islands, Aleutian Islands (h = 60 km).

" 8 Up iP 19 01 30 D
Ki iP 19 01 37 D
Sk iP 19 01 54
Gb iP 19 01 51
Northern India (h = 25 km).

" 8 Up iP 23 56 19 C
Ki iP 23 55 26
(Aleutian Islands).

" 8-9 Up iP 00 00 20 C
Ki iP 23 59 27
Gb iP 00 00 35
Fox Islands, Aleutian Islands (h = 25 km).

" 9 Up iP 00 18 36

" 9 Up iP 04 13 36
i 04 13 43
Ki iP 04 12 54
Sk iP 04 13 21
Near coast of northern Honshu, Japan (h = 110 km).

" 9 Up iPKP 06 13 30
New Hebrides Islands region (h = 20 km).

" 9 Up iPKP 16 21 45
i 16 21 50
i(PP) 16 24 18
iPKS 16 25 18

		microns	sec
PKS	N	0.2	2
M	E	0.6	22
M	N	1.2	23
M	Z	1.1	22

D = 15000 km = 135°.
Ki iPKP 16 21 35 C
i 16 21 49

		microns	sec
PKP	Z'	0.1	0.8
M	E	1.2	21
M	N	0.9	21
M	Z	2.1	22

1961
Aug 9 cont. Sk i(PKP) 16 21 35
iPKP 16 21 46
iPP 16 24 24
New Hebrides Islands region (h = 70 km)

" 9 Sk i(P) 17 46 48

" 9 Up iP 21 37 20
Ki i(P) 21 37 04
Sk i(P) 21 37 29

" 10 Ki eLg2 02 01 09

		microns	sec
M	E	0.3	14
M	N	0.3	12
M	Z	0.4	12

Eastern U.S.S.R. (h = 25 km).

" 10 Up iPKP 02 03 09
Sk ePKP 02 03 03
Kermadec Islands region (h = 300 km).

" 10 Up iP 10 33 00

" 10 Up i(P) 10 36 23

" 10 Sk iP 12 08 55

" 10 Up iP 12 14 41
Sk iP 12 14 33
Near west coast of Honshu, Japan (h = 50 km).

" 10 Up iP 12 16 25
i 12 16 30
i 12 16 57
Ki

		microns	sec
M	E	0.5	14
M	N	0.3	12
M	Z	0.4	12

Northern Hokkaido, Japan (h = 25 km).

" 11 Up eP 00 53 47
i 00 53 53
Ki

		microns	sec
M	E	0.2	14
M	N	0.2	14
M	Z	0.6	15

Sk i(P) 00 53 19
Kamchatka (h = 25 km).

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

1961							
Aug	11	Up	i(P)		03	55	08
"	11	Ki	eL		05	06	
				microns	sec		
			M	E	0.3	13	
			M	N	0.1	13	
			M	Z	0.3	13	
			Kyushu, Japan (h = 25 km).				
"	11	Up		microns	sec		
			M	E	0.6	15	
			M	N	1.0	17	
			M	Z	1.0	16	
		Ki	eLg_2		06	45	21
				microns	sec		
			M	E	1.0	14	
			M	N	0.6	13	
			M	Z	1.2	15	
			Eastern Kyushu, Japan (h = 25 km).				
"	11	Up	iPKS		10	47	38
		Ki	iPKP		10	44	00
		Sk	iPKS		10	47	35
			New Hebrides Islands (h = 25 km).				
"	11	Up	iP		11	17	59
			i		11	18	04
			iPP		11	21	53
		Ki	iP		11	17	45
			i		11	17	53
			iSKS		11	28	09
				microns	sec		
			SKS	E	0.2	6	
			M	E	0.2	15	
		Sk	iP		11	18	05
		Gb	e(P)		11	18	16
			Northern Celebes (h = 140 km).				
"	11	Ki	i(P)		13	36	46
"	11	Up	iP		16	02	35 C
			iS		16	11	30
			iSP		16	11	51
			iP'P'		16	30	39
			i		16	30	57
				microns	sec		
			P	E	4.2	4	
			P	N	7.0	4	
			P	Z	15	4	
			P	Z'	2.0	1.0	
			S	E	13	5	

1961							
Aug	11	Up	S	N	27	6	
cont.			S	Z	9.8	7	
			M	E	72	18	
			M	N	110	19	
			M	Z	110	20	
			D = 7550 km = 68°.				
		Ki	iP		16	01	50 C
			iS		16	10	02
			iPa		16	05	47
			iScS		16	11	27
			iP'P'		16	31	06
				microns	sec		
			P	E	8.4	6	
			P	N	8.5	6	
			P	Z	25	6	
			P	Z'	2.8	1.0	
			S	E	20	8	
			S	N	34	9	
			S	Z	14	8	
			M	E	150	21	
			M	N	120	20	
			M	Z	200	20	
			D = 6800 km = 61°.				
		Sk	iP		16	02	26 C
		Gb	iP		16	02	56 C
			i		16	03	08
			iS		16	12	13
			D = 7900 km = 71°.				
			Eastern Hokkaido, Japan (h = 70 km).				
			Magn. = 7.5 (Up, Ki).				
"	11	Up	eP		22	51	00
			iSKS		23	01	43
			iS		23	02	31
				microns	sec		
			SKS	E	0.2	3	
			S	N	0.6	10	
			M	E	0.8	21	
			M	N	1.4	20	
			D = 10950 km = 98½°.				
		Ki	iP		22	50	54
			iSKS		23	01	30
			iS		23	02	13
				microns	sec		
			SKS	E	0.7	10	
			S	N	0.4	8	
			M	E	1.5	18	
			M	N	0.9	19	
			M	Z	2.5	18	
			D = 10700 km = 96½°.				
		Sk	iP		22	51	17
			Eastern Celebes (h = 20 km).				
			Magn. = 5.8 (Up, Ki).				

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

1961 Aug	11	Up	iP		23 22 44	
			ipP		23 23 07	
		Ki	iP		23 22 02	
		Sk	iP		23 22 37	
		Off north coast of Honshu, Japan (h = 120 km).				
"	11	Up	iP		23 44 52	C
			i		23 45 04	
				microns	sec	
			P	Z' 0.6	0.6	
		Ki	iP		23 44 08	C
			i		23 44 18	
			i		23 44 33	
				microns	sec	
			P	Z' 0.4	1.0	
			M	E 0.7	18	
			M	N 0.6	20	
			M	Z 0.8	18	
		Sk	iP		23 44 43	C
			i		23 45 08	
		Gb	iP		23 45 13	C
			i		23 45 25	
		Eastern Hokkaido, Japan (h = 70 km).				
"	12	Ki	i(P)		02 09 16	
"	12	Ki	iP		22 20 49	
"	13	Up	iP		02 47 09	
		Ki	iP		02 46 54	
		Banda Sea (h = 40 km).				
"	13	Up	iP		03 31 57	
			i		03 32 05	
		Ki	iP		03 32 28	
"	13	Up	iPKP		04 07 48	
			i		04 07 51	
		Kermadec Islands (h = 600 km).				
"	13	Up	iP		06 12 51	
			i		06 12 59	
				microns	sec	
			M	E 0.8	18	
			M	N 1.5	21	
			M	Z 1.3	17	
		Ki	iP		06 12 22	
			i		06 12 32	
				microns	sec	
			M	E 0.8	16	
			M	N 0.2	14	
			M	Z 0.6	15	
1961 Aug cont.	13	Sk	iP		06 12 57	
		Near north coast of Formosa (h = 25 km).				
"	13	Up	iP		13 47 44	
		Ki	eP		13 47 49	
		Sk	iP		13 47 31	C
		Windward Islands (h = 160 km).				
"	13	Up	i(P)		15 03 23	
"	13	Ki	iP		16 04 23	
		Fox Islands, Aleutian Islands (h = 80 km).				
"	13	Up	iP		22 38 01	
		Ki	iP		22 39 39	
		Sk	iP		22 38 36	
		Northern Italy (h = 20 km).				
"	14	Sk	eP		01 04 29	
		Italy.				
"	14	Up	iP		01 06 38	
		Ki	iP		01 08 05	
		Sk	iP		01 07 12	
		Italy.				
"	14	Sk	i(P)		07 24 15	
"	14	Up	i(P)		10 36 11	
"	14	Ki	iP		13 55 28	
		Sk	iP		13 55 56	
		Gb	iP		13 56 40	
		Alaska Peninsula (h = 90 km).				
"	14	Up	iP		17 33 16	C
				microns	sec	
			P	Z' 0.1	0.5	
		Local? Seismic?				
"	14	Gb	i(P)		18 14 34	
"	14	Up	iPKP		19 10 21	
				microns	sec	
			M	E 0.6	22	
			M	N 1.8	22	
			M	Z 1.4	22	
		Ki	iPKP		19 10 08	
			e		19 10 23	
			ePKS		19 13 43	

Up = Uppsala, Ki = Kiruna, Sk = Skallstugan, Gb = Göteborg, Um = Umeå

1961 Aug 14 cont.

Ki microns sec
PKS N 0.4 11
M E 0.6 21
M N 1.4 22
M Z 1.3 22
Sk iPKP 19 10 15
Gb iPKP 19 10 30
Tonga Islands region (h = 20 km).
Magn. = 6.0 (Up, Ki).

" 14 Up iP 22 16 43
microns sec
M E 1.0 14
M N 1.3 15
M Z 1.4 18
Ki iP 22 16 09
iS 22 25 09
microns sec
M E 1.9 18
M N 1.0 20
M Z 2.0 17
D = 7650 km = 69°.
Sk iP 22 16 41
Gb iP 22 17 05
Off south coast of Kyushu, Japan (h = 15 km).

" 14 Up iPKP 23 48 00
i 23 48 15
ePP 23 50 38
iPKS 23 51 32
microns sec
PP Z 0.2 3
PKS E 0.3 4
PKS N 0.4 4
M E 3.0 22
M N 5.4 22
M Z 5.0 22
D = 15000 km = 135°.
Ki iPKP 23 47 47
i 23 47 58
iPP 23 49 46
iPKS 23 51 06
microns sec
PKP Z' 0.3 1.1
PP E 0.1 5
PP N 0.2 6
PP Z 1.0 7
PKS E 0.5 7
PKS N 0.4 7
M E 4.9 23
M N 2.2 21
M Z 4.6 21

1961 Aug 14 cont.

Ki D = 14200 km = 128°.
Sk iPKP 23 47 50
i 23 47 58
Gb iPKP 23 48 06
New Hebrides Islands region (h = 100 km).
Magn. = 6.2 (Up, Ki).

" 15 Ki i(P) 00 10 19
i 00 10 32

" 15 Up eP 02 06 42

" 15 Up iP 03 26 50 C

" 15 Sk iP 08 34 51

" 15 Sk iP 12 34 05
i 12 34 09

" 15 Up iP 19 15 48 D
i 19 16 14
iPP 19 18 41
iS 19 25 32
microns sec
P Z' 0.7 0.8
S E 0.9 6
S N 0.4 6
M E 1.7 18
M N 2.9 16
M Z 2.0 18
D = 8450 km = 76°.
Ki iP 19 15 11 D
iS 19 24 23
microns sec
P E 0.5 4
P N 0.3 5
P Z 1.1 4
S E 1.1 7
S N 0.3 8
M E 3.3 19
M N 2.2 18
M Z 2.5 19
D = 7800 km = 70°.
Sk iP 19 15 43
i 19 15 52
Gb iP 19 16 06
i 19 16 21
iPP 19 19 10
South of Honshu, Japan (h = 40 km).
Magn. = 6.4 (Up, Ki).

" 16 Up iP 01 05 08

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

1961 Aug cont.	16	Up	i	01 05 20	
"	16	Up	i(P)	02 06 27	
"	16	Up	iPKP	03 53 37	
			i	03 53 43	
			i	03 53 59	
		Sk	iPKP	03 53 32	
		Gb	ePKP	03 53 47	
			i	03 53 57	
		Kermadec Islands (h = 70 km).			
"	16	Sk	iP	08 58 31	
"	16	Up	iP	09 09 33	
			i	09 09 47	
		Ki	iP	09 08 56	
		Sk	iP	09 09 29	
		South of Honshu, Japan (h = 30 km).			
"	16	Up	iPg	10 03 58	
			iSn	10 04 19	
			iSg	10 04 23	
			D = 230 km = 2.1°.		
		Ki	eS[x]	10 06 41	
			eSg	10 07 00	
		Sk	iSg	10 05 48	
			D = 500 km = 4.5°.		
		Baltic, 61.4°N, 20.8°E. Origin time = 10 03 20. Explosion?			
"	16	Ki	iP	12 30 45	
		Hindu Kush (h = 260 km).			
"	16	Up	i(P)	15 03 58	
			i	15 04 06	
			i	15 04 17	
		Local? Seismic?			
"	16	Up	iP	16 04 44	
		Ki	iP	16 04 09	
		Sk	iP	16 04 40	
		Off south coast of Honshu, Japan (h = 330 km).			
"	16	Up	iP	16 27 57	
				microns	sec
			M E	0.6	17
			M N	0.7	18
			M Z	0.9	19
		Ki	iP	16 28 37	

1961 Aug cont.	16	Ki	i	16 28 44	
			iS	16 39 11	
				microns	sec
			S N	0.3	8
			M E	1.5	23
			M N	0.5	16
			M Z	0.6	15
		D = 9450 km = 85°.			
		Sk	iP	16 28 12	
		Gb	iP	16 27 38	
		South of Ascension Island (h = 25 km).			
"	16	Up	iPKP	19 38 48	
		Sk	ePKP	19 38 41	
		Kermadec Islands (h = 50 km).			
"	16	Ki	iP	22 34 41	
			i	22 34 55	
		Philippine Islands (h = 310 km).			
"	17	Sk	iPKP	01 24 31	
		Kermadec Islands (h = 50 km).			
"	17	Up	iP	03 43 07	
		Sk	iP	03 43 33	
		Hindu Kush (h = 180 km).			
"	17	Ki	iP	11 47 39	
		Central Honshu, Japan (h = 110 km).			
"	17	Sk	iPKP	13 14 37	
		Kermadec Islands (h = 25 km).			
"	17	Up	iP	21 27 06	D
			iPcP	21 27 36	
			i	21 27 49	
			iS	21 35 43	
			i	21 36 45	
			i	21 37 58	
			iP'P'	21 55 14	
				microns	sec
			P E	0.6	6
			P N	1.6	5
			P Z	4.7	6
			P Z'	0.5	0.6
			S E	0.8	4
			S N	1.6	5
			M E	4.9	17

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

1961						
Aug cont.	17	Up	M	N	5.1	20
			M	Z	5.7	17
			D = 7550 km = 68°.			
		Ki	iP		21 26 19	D
			iPcP		21 27 00	
			iS		21 34 17	
			i		21 35 03	
			isS		21 35 29	
			i		21 35 54	
			$iP_2'P_2'$		21 56 30	
				microns	sec	
			P	E	1.6	7
			P	N	2.0	7
			P	Z	4.9	7
			P	Z'	1.1	1.0
			S	E	3.1	6
			S	N	2.7	7
			M	E	6.8	18
			M	N	5.0	18
			M	Z	8.7	19
			D = 6650 km = 60°.			
		Sk	iP		21 26 55	D
			iPcP		21 27 27	
			iP'P'		21 55 34	
			i		21 56 18	
		Gb	iP		21 27 28	D
			i		21 27 51	
		Kurile Islands (h = 190 km).				
		Magn. = 6.6 (Up, Ki).				
"	17	Up	i(P)		22 03 52	
"	18	Ki	iP		03 03 19	
"	18	Ki	iPn		05 22 12	
			iSn		05 23 07	
			iSg		05 23 30	
			D = 500 km = 4.5°.			
		Sk	eSn		05 25 08	
			i		05 26 00	
			iSg		05 26 07	
			D = 1020 km = 9.2°.			
		Northwest Russia, 67.7°N, 32.4°E. Origin time = 05 21 02. Explosion?				
"	18	Ki	iP		06 49 31	
"	18	Up	iPKP		11 19 59	
				microns	sec	
			PKP	Z'	0.1	0.6
		Ki	ePP		11 22 15	

1961						
Aug cont.	18	Ki	iSKP		11 22 31	
		Sk	e(PP)		11 22 30	
		Gb	iPKP		11 20 09	
		Kermadec Islands region (h = 520 km).				
"	18	Up	iP		16 03 21	
			i		16 03 26	
"	19	Up	iP		02 54 01	C
			i		02 54 15	
		Sk	iP		02 53 52	C
		Gb	iP		02 54 23	C
		Eastern Hokkaido, Japan (h = 30 km).				
"	19	Up	iP		05 22 24	D
			ipP		05 24 36	
			iPP		05 26 34	
			i		05 29 25	
			iSKS		05 31 58	
			iSKKS		05 32 32	
			iS		05 32 59	
			iPKKP		05 38 51	
				microns	sec	
			P	E	0.6	5
			P	Z	4.8	7
			P	Z'	0.2	0.7
			PP	Z	2.4	5
			S	E	5.1	5
			S	N	3.5	5
			SKS	E	7.2	6
			SKS	N	1.9	5
			SKKS	N	3.9	6
			PKKP	Z'	0.2	1.0
			D = 11100 km = 100°.			
		Ki	iP		05 22 34	D
			ipP		05 24 45	
			iPP		05 26 46	
			iSKS		05 32 14	
			iS		05 33 16	
			iSP		05 34 43	
				microns	sec	
			P	E	1.3	5
			P	Z	3.1	6
			PP	E	1.6	6
			PP	Z	2.8	6
			S	N	5.2	6
			D = 11200 km = 101°.			
		Sk	iP		05 22 16	D
			ipP		05 24 31	
			iSKS		05 31 54	

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

1961 Aug cont.	19	Sk	iPKKP	05 38 56	
			i	05 41 20	
			D = 10800 km = 97°.		
		Gb	iP	05 22 10	D
			ipP	05 24 22	
			i	05 28 12	
			iSKS	05 32 02	
			i	05 32 07	
			iPKKP	05 39 00	
			iP'P'	05 47 11	
			D = 10600 km = 95½°.		
		Peru-Brazil border (h = 650 km).			
		Magn. = 7.1 (Up, Ki).			
"	19	Up	iP	05 44 56	C
			i	05 47 06	
			iS	05 54 16	
				microns sec	
			P Z	2.6 6	
			P Z'	0.4 1.3	
			S E	8.8 8	
			M E	69 18	
			M N	79 13	
			M Z	41 13	
			D = 7950 km = 71½°.		
		Ki	iP	05 44 19	
			iS	05 53 08	
			iSS	05 57 12	
				microns sec	
			P Z	4.8 6	
			S E	16 8	
			S N	3.9 9	
			M E	120 16	
			M N	87 13	
			M Z	81 18	
			D = 7300 km = 65½°.		
		Sk	iP	05 44 52	
			i(PKKP)	06 04 17	
		Gb	iP	05 45 17	C
		Off west coast of Honshu, Japan (h = 15 km).			
		Magn. = 7.0 (Up, Ki).			
"	19	Ki	iP	08 18 06	
		Near west coast of Honshu, Japan (h = 25 km).			
"	19	Up	iP	12 56 01	
		Ki	iP	12 55 17	
		Sk	iP	12 55 51	
		Near east coast of Hokkaido, Japan (h = 20 km).			
1961 Aug	19	Ki	eL	14 00	
				microns sec	
			M E	0.4 15	
			M N	0.2 12	
"	19	Up	iP	15 03 49	D
			ipP	15 04 14	
				microns sec	
			M E	0.6 20	
			M Z	0.7 21	
		Ki	iP	15 03 51	D
			ipP	15 04 17	
			iS	15 13 13	
				microns sec	
			P Z	0.4 3	
			S E	1.0 9	
			S N	0.3 8	
			M E	0.2 16	
			D = 8000 km = 73°.		
		Sk	iP	15 03 32	
			ipP	15 03 58	
		Gb	iP	15 03 32	
		Mona Passage, h = 100 km (Up, Ki, Sk).			
"	19	Up	i(P)	19 52 43	
"	19	Up	iP	20 38 43	
				microns sec	
			P Z'	0.1 0.5	
		Ki	iP	20 38 43	
				microns sec	
			P Z'	0.1 1.0	
		Sk	iP	20 38 56	
		Gb	iP	20 38 56	
		Off west coast of Sumatra (h = 25 km).			
"	19	Ki	iP	21 10 48	
"	19	Ki	iP	21 35 00	
		Near south coast of Mindanao, P.I. (h = 220 km).			
"	19	Ki	iPKP	22 05 42	
		New Hebrides Islands (h = 100 km).			
"	20	Up	i(P)	03 12 58	
			i	03 15 03	
"	20	Up	iPKP	05 22 24	D
			i	05 22 34	

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

1961 Aug. cont.

20	Ki	iPKP	05 22 09	
		i	05 22 20	
		iSKP	05 24 51	
	Sk	iPKP	05 22 18	
		i	05 22 30	
		iSKP	05 25 08	
	Gb	iPKP	05 22 32	
		i	05 22 41	
		iSKP	05 25 26	
		iPP	05 25 51	
	Fiji Islands (h = 590 km).			
" 20	Sk	eP	09 22 23	
	Peru - Brazil border (h = 680 km).			
" 20	Up	iP	18 07 25	
	Sk	iP	18 07 26	
" 21	Gb	iPKP	02 25 19	C
	Fiji Islands region (h = 550 km).			
" 21	Up	iP	07 07 57	D
		i(pP)	07 08 27	
			microns sec	
		P Z'	0.1 0.5	
	Ki	iP	07 08 05	D
		i(pP)	07 08 32	
	Sk	iP	07 08 22	D
		ipP	07 09 00	
	Gb	iP	07 08 19	D
	Hindu Kush (h = 150 km).			
" 21	Up	eP	09 52 36	
" 21	Gb	ePKP	16 26 20	
	Tonga Islands (h = 70 km).			
" 21	Up	iP	17 11 39	C
		iPcP	17 12 04	
			microns sec	
		P Z'	0.1 0.8	
	Ki		microns sec	
		M E	0.8 15	
		M N	0.3 17	
	Sk	iP	17 11 33	C
		i	17 13 37	
	Gb	iP	17 12 01	
	Off coast of northern Honshu, Japan (h = 50 km).			

1961

Aug 21	Up	iP	20 34 05	
			microns sec	
		P Z'	0.1 0.5	
" 21	Ki	eP	20 59 19	
" 22	Ki	i(P)	00 52 11	
" 22	Ki	eP	01 03 07	
" 22	Ki	iP	02 12 24	D
" 22	Up		microns sec	
		M E	0.4 22	
		M N	0.7 22	
		M Z	0.7 21	
	Sk	iPKP	09 18 27	
	New Hebrides Islands (h = 60 km).			
" 22	Up	i(P)	10 28 33	
" 22	Up	iP	14 30 28	
" 23	Up	eP	01 34 30	
" 23	Ki	i(P)	03 24 28	
		i	03 24 35	
" 23	Up	iP	04 19 55	
		iPP	04 21 24	
		i	04 25 18	
		i	04 27 37	
		iLg1	04 32 56	
			microns sec	
		P Z'	0.2 0.5	
		M E	3.6 18	
		M N	1.7 12	
		M Z	4.0 17	
	D = 4200 km = 38°.			
	Ki	iP	04 20 05	
		iPP	04 21 50	
		iSS	04 29 09	
		iSoS	04 30 08	
		iLg1	04 32 45	
		iLg2	04 33 46	
			microns sec	
		P Z'	0.3 0.6	
		M E	3.2 10	
		M N	2.0 13	
		M Z	3.1 11	
	D = 4350 km = 39°.			

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

1961					
Aug cont.	23	Sk	iP	04 20 22	
			i	04 20 32	
			i(PP)	04 22 07	
			i	04 23 51	
		Gb	iP	04 20 19	
			i	04 20 27	
			iPP	04 21 46	
		Tadzhik, U.S.S.R. (h = 25 km). Magn. = 6.4 (Up, Ki).			
"	23	Up	iP	20 37 37	
"	23	Ki	i(P)	22 45 19	
		Seismic?			
"	24	Up	i(P)	00 55 50	
"	24	Up	iP	05 03 24	D
			i	05 03 35	
			i(pP)	05 03 47	
				microns sec	
			P Z'	0.1 0.5	
		Ki	iP	05 02 39	
			i(pP)	05 03 04	
		Sk	iP	05 03 15	
"	24	Ki	iP	07 03 14	
			i	07 04 00	
"	24	Up	iP	10 02 03	D
"	24	Up	iP	22 51 55	C
			i	22 52 07	
				microns sec	
			P Z'	0.1 0.6	
		Ki	iP	22 51 11	
				microns sec	
			P Z'	0.1 1.2	
		Sk	iP	22 51 46	
			i	22 51 59	
		Gb	iP	22 52 16	C
		Eastern Hokkaido, Japan (h = 20 km).			
"	25	Ki	iP	07 09 29	
		Sk	iP	07 10 00	
			i	07 10 08	
"	25	Ki	i(P)	07 49 23	
"	25	Ki	i(P)	09 04 43	

1961					
Aug	25	Ki	iP	12 26 40	
		Sk	iP	12 25 48	
		The Alps.			
"	25	Ki	eP	12 32 59	
"	25	Up	i(P)	16 35 02	
"	25	Up	e(P)	19 47 20	
"	25	Ki	iP	21 40 06	
		Flores Sea (h = 190 km).			
"	26	Up	iP	02 06 41	
"	26	Ki	ePKP	18 21 21	
		Sk	iPKP	18 21 33	
		New Hebrides Islands (h = 70 km).			
"	26	Up	iP	19 02 52	
		Ki	iP	19 02 24	
				microns sec	
			P Z'	0.2 1.3	
		Sk	iP	19 02 50	
		Mariana Islands (h = 50 km).			
"	27	Up	iP	02 03 55	
			i	02 04 01	
		Ki	iP	02 04 34	
			i	02 04 44	
			iS	02 15 19	
			e	02 15 35	
				microns sec	
			S N	0.5 4	
			M E	0.7 19	
			M N	0.6 19	
			M Z	0.8 18	
		D = 9600 km = 86½°.			
		Sk	iP	02 04 07	
		Gb	iP	02 03 38	
		South of Ascension Island (h = 50 km).			
"	27	Up	iP	16 33 07	C
			i	16 33 16	
			iPa	16 38 00	
			iS	16 42 02	
				microns sec	
			P N	1.4 4	
			P Z	2.6 4	
			P Z'	0.5 0.7	

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

1961 Aug cont	27	Up	S	E	0.8	11	
			S	N	1.2	10	
			M	E	4.4	20	
			M	N	7.2	18	
			M	Z	4.3	19	
			D = 7500 km = 67½°.				
		Ki	iP		16 32 18		C
			iPa		16 36 00		
			iS		16 40 34		
			microns sec				
			P	E	0.5	7	
			P	N	0.7	7	
			P	Z	2.0	7	
			P	Z'	1.3	2.2	
			S	E	1.8	11	
			S	N	0.7	8	
			M	E	6.0	16	
			M	N	4.8	17	
			M	Z	6.9	17	
			D = 6650 km = 60°.				
		Sk	iP		16 32 54		C
			i		16 33 14		
		Gb	iP		16 33 27		C
		Kurile Islands (h = 30 km).					
		Magn. = 6.5 (Up, Ki).					
"	27	Up	iP		17 00 52		C
			i		17 00 57		
			i		17 01 18		
			iSKS		17 11 18		
			D = 10050 km = 90½°.				
		Ki	iP		17 00 23		C
			i		17 01 06		
			iS		17 10 48		
			microns sec				
			P	Z'	0.5	1.0	
			S	N	1.8	9	
			D = 9450 km = 85°.				
		Sk	iP		17 00 49		
			i		17 01 14		
			i(PP)		17 04 35		
		Gb	iP		17 01 08		
		Mariana Islands (h = 30 km).					
"	27	Ki	iP		17 35 51		
		Mariana Islands (h = 110 km).					
"	27	Up	iP		18 11 00		
		Ki	iP		18 10 32		
		Sk	iP		18 10 56		
		Mariana Islands (h = 70 km).					

1961 Aug	27	Up	iP		20 01 41		
			microns sec				
			P	Z'	0.1	0.5	
		Ki	eP		20 00 53		
		Sk	iP		20 01 28		
		Kurile Islands (h = 50 km).					
"	27	Up	iP		21 07 15		C
			i		21 07 28		
			microns sec				
			P	Z'	0.6	0.8	
		Ki	iP		21 06 26		
		Sk	iP		21 07 02		C
		Gb	iP		21 07 36		
			i		21 07 48		
		Kurile Islands (h = 25 km).					
"	27	Up	iP		21 10 39		C
		Sk	iP		21 10 27		
		(Kurile Islands).					
"	27	Ki	iP		21 24 12		
"	27	Up	iP		22 14 03		D
			iPP		22 14 27		
			iS		22 18 20		
			microns sec				
			P	N	0.4	3	
			P	Z	0.4	2	
			P	Z'	0.1	0.9	
			S	N	0.5	5	
			M	E	3.0	22	
			M	N	3.1	23	
			M	Z	1.7	15	
			D = 2650 km = 24°.				
		Ki	iP		22 15 12		D
			i		22 15 33		
			i(SSS)		22 22 40		
			microns sec				
			P	Z'	0.2	0.6	
			M	E	3.9	19	
			M	N	0.9	12	
			M	Z	2.2	16	
		Sk	iP		22 14 42		D
			i		22 14 54		
		Gb	iP		22 13 52		
			i		22 13 59		
			iPP		22 14 18		
		Near west coast of Crete (h = 70 km).					
		Magn. = 5.7 (Up, Ki).					

Up = Uppsala, Ki = Kiruna, Sk = Skälstugan, Gb = Göteborg, Un = Umeå

1961 Aug	28	Sk	iP		00 25 13
"	28	Up	iSKP		08 01 45
				microns	sec
			SKP	Z' 0.1	0.5
		Ki	iPKP		07 59 08
		Sk	iPKP		07 59 19
		Gb	iSKP		08 01 57
		Santa Cruz Islands (h = 660 km).			
"	28	Ki	iP		09 19 41
		Kamchatka (h = 25 km).			
"	28	Up	iPKP		10 02 29
			i		10 02 38
		Ki	iPKP		10 02 21
		Sk	iPKP		10 02 33
		Gb	iPKP		10 02 36
		Fiji Islands (h = 570 km).			
"	28	Up	iP		12 24 46
			i		12 24 57
				microns	sec
			P	Z' 0.1	0.5
		Ki	iP		12 23 57
		Sk	iP		12 24 33
			i		12 24 40
		Gb	iP		12 25 07
		Kurile Islands (h = 20 km).			
"	28	Ki	iP		13 03 40
"	28	Up	iP		13 19 01
		Ki	iP		13 18 12
		Kurile Islands (h = 30 km).			
"	28	Up	i(P)		15 45 59
		Ki	i(P)		15 45 41
			i		15 45 47
"	28	Ki	iP		17 45 08
"	28	Up	iP		18 12 55 D
			i		18 13 06
				microns	sec
			P	Z' 0.1	1.0
		Ki	iP		18 12 06 D
		Sk	iP		18 12 42
		Kurile Islands (h = 30 km).			
"	28	Ki	eP		22 54 48

1961 Aug	28	Up	iP		23 15 25
		Ki	eP		23 15 28
		Sk	iP		23 15 41
"	29	Up	iP		06 06 39 D
		Ki	eP		06 05 49
			i		06 05 54
		Sk	iP		06 06 30
		Kurile Islands (h = 25 km).			
"	29	Ki	i(P)		08 11 29
"	29	Up	i(P)		10 29 35
"	29	Up	iPg		12 44 45
			iSg		12 44 55
"	29	Up	iP		15 02 12
				microns	sec
			M	E 0.5	18
			M	N 0.9	17
			M	Z 0.9	18
		Sk	iP		15 01 51
			i		15 02 17
		Gb	iP		15 02 27
		Fox Islands, Aleutian Islands (h = 40 km).			
"	29	Up	iP		15 31 30
"	29	Up	i(P)		15 53 53
"	29	Up	iP		20 00 53 C
				microns	sec
			P	Z' 0.1	0.5
		Sk	iP		20 00 41
		Gb	iP		20 01 15
		Kurile Islands (h = 15 km).			
"	29	Ki	iPKP		21 52 38
		New Hebrides Islands (h = 25 km).			
"	29	Sk	eP		23 28 28
"	30	Ki	iP		01 08 44
"	30	Up	iP		02 36 32
		Ki	iP		02 35 38
		Fox Islands, Aleutian Islands (h = 70 km).			

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

1961						
Aug	30	Up	iP		03 45 52	
			i		03 45 59	
				microns	sec	
			M	E	1.0	20
			M	N	0.9	21
			M	Z	1.1	22
		Ki	eP		03 46 29	
			i		03 46 34	
			eS		03 55 34	
				microns	sec	
			M	E	1.2	23
			M	N	0.4	16
			M	Z	1.4	23
			D = 7900 km = 71°.			
		Sk	eP		03 46 01	
		Gb	eP		03 45 34	
		North Atlantic Ocean (h = 70 km).				
"	30	Up	iPg		14 19 12	
			i		14 19 26	
			iSg		14 19 28	
			iL		14 19 37	
			i		14 19 50	
				microns	sec	
			Sg	Z'	0.2	0.5
			D = 130 km = 1.2°.			
		Sk	iSg		14 22 03	
			D = 660 km = 5.9°.			
		Gb	iSg		14 20 55	
			D = 420 km = 3.8°.			
		Baltic, 58.7°N, 18.8°E. Origin time = 14 18 48. Explosion?				
"	30	Ki	iP		14 59 24	
		Sinkiang Province, China.				
"	31	Up	iPKP		00 42 25	C
			i		00 42 35	
			i		00 42 51	
			i(PcPPKP)		00 54 07	
				microns	sec	
			PKP	Z'	0.1	0.7
		Sk	iPKP		00 42 17	D
			i		00 42 24	
		Gb	iPKP		00 42 33	C
			i		00 42 39	
		Kermadec Islands (h = 60 km).				
"	31	Up	iP		02 01 13	
			ipP		02 03 24	

1961						
Aug	31	Up	iPP		02 05 22	
cont.			iSKS		02 10 51	
			iS		02 11 48	
			i		02 18 45	
			iSS		02 19 20	
			i		02 21 40	
				microns	sec	
			P	Z	0.8	4
			P	Z'	0.2	1.0
			PP	E	0.6	5
			PP	Z	1.9	6
			SKS	E	3.3	5
			SKS	N	1.1	4
			S	E	3.9	6
			S	N	4.4	7
			D = 11100 km = 100°.			
		Sk	iP		02 01 05	D
			ipP		02 03 15	
			i		02 03 59	
			isP		02 04 12	
			iS		02 11 46	
			D = 10800 km = 97°.			
		Gb	iP		02 00 59	D
			i		02 01 00	
			i		02 01 04	
			ipP		02 03 09	
			i		02 03 27	
			iPP		02 04 59	
			D = 10600 km = 95½°.			
		Peru - Brazil border (h = 630 km). Magn. = 6.6 (Up).				
"	31	Up	iP		02 09 44	
			i		02 09 45	
			i		02 10 11	
			ipP		02 12 01	
			iSKKS		02 19 49	
			iS		02 20 17	
			iPKKP		02 26 11	
			iP'P'		02 34 27	
			i		02 40 17	
				microns	sec	
			P	E	1.7	6
			P	N	0.7	6
			P	Z	4.9	6
			P	Z'	0.5	1.0
			S	E	17	7
			S	N	7.1	8
			SKKS	E	7.7	6
			M	E	10	17
			M	N	23	23
			M	Z	22	19
			D = 11100 km = 100°.			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg, Un = Umeå

1961				
Aug	31	Sk	iP	02 09 33
cont.			i	02 23 30
			iPKKP	02 26 19
			i	02 28 33
			iP'P'	02 34 25
			D = 10800 km = 97°.	
		Gb	iP	02 09 27
			i	02 09 31
			ipP	02 11 46
			i	02 11 53
			i	02 12 05
			iSKS	02 19 09
			iSP	02 21 06
			iPKKP	02 26 22
			iP'P'	02 34 31
			D = 10600 km = 95½°.	
		Peru - Brazil border (h = 630 km).		
		Magn. = 7.5 (Up).		

Seweryn Duda Markus Båth

July 31, 1962

Seismological Institute
Uppsala

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

P R E L I M I N A R Y

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 and G Ö T E B O R G

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

S E P T E M B E R 1 - 30, 1961

1961
Sept 1 Up iPKP 00 28 19 C
ipPKP 00 28 55
i 00 29 55
iPP 00 30 01
i 00 31 36
i 00 31 56
iS 00 37 49
i(PKKP) 00 38 07
i 00 41 29
i 00 42 30
i 00 48 20

		microns	sec
PKP	Z	1.4	1.0
PP	E	1.0	9
PP	N	2.7	9
PP	Z	5.6	8
S	E	3.3	12
S	N	2.8	9
M	E	6.5	20
M	N	6.3	20
M	Z	6.5	20

D = 13650 km = 123°.

Sk iPKP 00 28 24 C
iPP 00 30 19

Gb iPKP 00 28 13
iPP 00 29 47
i 00 31 36
isS 00 38 20

Sandwich Islands region
(h = 130 km).
Magn. = 6.9 (Up).

" 1 Up iP 03 28 32
Sk iP 03 28 14
Honduras (h = 160 km).

1961
Sept 1 Up iP 04 42 19
i 04 42 29
Kurile Islands
(h = 50 km).

" 1 Up iP 04 56 09
Chiapas, Mexico
(h = 160 km).

" 1 Up iP 09 14 54

" 1 Up iP 17 04 09
i 17 04 35
Kern County, California
(h = 20 km).

" 1 Up iP 19 03 24
iSKS. 19 13 53

		microns	sec
P	Z	1.6	4
P	Z'	0.1	1.0
SKS	E	2.0	8
M	E	5.1	22
M	N	2.7	22
M	Z	8.7	23

D = 9650 km = 87°.

Sk iP 19 03 08 C
i 19 03 17

Gb iP 19 03 16 C
Off coast of Guatemala
(h = 40 km).
Magn. = 6.1 (Up).

" 1 Up iP 19 11 03
Honshu, Japan (h = 90 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Sept 2 Up iP 00 37 06
i 00 37 18
iPcP 00 37 32
microns sec
P Z' 0.2 1.0
Sk iP 00 36 43 C
iPcP 00 37 18
Gb iP 00 37 21 C
Fox Islands, Aleutian Islands
(h = 40 km).

" 2 Up iPKP 06 38 42
Kermadec Islands region
(h = 20 km).

" 2 Up iP 11 01 53
Southwest of Maldive Islands,
Indian Ocean (h = 130 km).

" 2 Up iP 14 20 52
Sk iP 14 21 37
Near coast of Greece
(h = 20 km).

" 3 Up iP 17 39 56
Gb iP 17 40 16 D
Near coast of Kamchatka
(h = 20 km).

" 4 Up iP 01 03 14 C
Ki iP 01 02 21
Sk iP 01 02 44
Near Islands, Aleutian
Islands (h = 40 km).

" 4 Up iP 03 28 35 D
microns sec
P Z' 0.1 0.5
Ki iP 03 28 02
Sk iP 03 28 32 D
Gb iP 03 28 54
South of Honshu, Japan
(h = 490 km).

" 4 Up iP 05 04 11 C
i 05 04 18
microns sec
P Z' 0.2 0.9
Ki iP 05 03 23
Sk iP 05 03 58 C

1961
Sept 4 Gb iP 05 04 32
cont. Kurile Islands (h = 20 km).

" 4 Up iP 10 00 11 C
i 10 00 25
iPcP 10 00 34
i 10 01 14
iP'P' 10 28 20
microns sec
P Z' 0.2 0.5
M E 1.2 18
M N 1.0 19
M Z 1.4 22
Sk iP 09 59 50
iPcP 10 00 23
iP'P' 10 28 31
Gb iP 10 00 27 C
iPcP 10 00 48
Andreanof Islands,
Aleutian Islands (h = 40 km).

" 4 Gb iP 16 22 27
Halmahera (h = 160 km).

" 4 Up iP 17 26 36
Near Islands, Aleutian
Islands (h = 70 km).

" 4 Gb iP 18 35 20

" 4 Up iP 19 23 26 C
Sk iP 19 23 13
Fox Islands, Aleutian
Islands (h =50 km).

" 5 Up iP 00 44 20 C
i 00 44 26
Sk iP 00 45 02
Gb iP 00 44 10
Near coast of Greece
(h = 25 km).

" 5 Up iP 01 21 41 C
microns sec
M E 0.4 15
M N 0.5 11
M Z 0.7 14
Sk iP 01 22 22
i 01 22 41
Near coast of Greece
(h = 25 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961					
Sept	5	Up	iP	02 32 54	D
			i	02 33 09	
		Hokkaido, Japan			
		(h = 60 km).			
"	5	Up	iP	02 42 22	C
			iS	02 46 23	
			microns	sec	
			P N	0.3	3
			S E	0.2	4
			S N	0.5	5
			M E	0.4	14
			M N	0.6	15
			M Z	0.9	19
			D = 2350 km = 21°.		
		Ki	iP	02 40 54	
			i	02 41 30	
			iS	02 43 34	
			microns	sec	
			P N	0.7	4
			P Z	0.5	2
			P Z'	0.6	1.5
			S E	0.5	4
			M E	0.8	12
			M N	0.7	13
			M Z	0.5	11
			D = 1550 km = 14°.		
		Sk	iP	02 41 40	C
			iPP	02 41 53	
		Gb	iP	02 42 42	
			i	02 42 48	
		Arctic Ocean (h = 20 km).			
		Magn. = 5.4 (Up).			
"	5	Up	iP	06 20 30	D
			i	06 20 34	
			iPcP	06 22 03	
			iS	06 26 37	
			i	06 29 00	
			iSS	06 29 28	
			microns	sec	
			P Z'	0.1	0.6
			M E	1.9	17
			M N	1.3	16
			M Z	1.9	15
			D = 4450 km = 40°.		
		Ki	iP	06 20 34	
			i	06 20 47	
			iPcP	06 22 10	
			iS	06 26 41	
			i	06 27 28	
			iSS	06 29 38	

1961					
Sept cont.	5	Ki	microns	sec	
			P Z'	0.2	0.6
			S E	0.7	4
			M E	2.7	14
			M N	1.8	13
			M Z	2.0	12
			D = 4450 km = 40°.		
		Sk	iP	06 20 54	D
			i	06 21 01	
			i	06 21 24	
			iPP	06 22 35	
		Gb	iP	06 20 52	D
		Tadzhik, U.S.S.R.			
		(h = 50 km).			
		Magn. = 6.0 (Up, Ki).			
"	5	Up	iP	10 45 42	C
		Andreanof Islands, Aleutian			
		Islands (h = 60 km).			
"	5	Up	iP	11 44 42	D
			i	11 44 53	
			i	11 44 58	
			iS	11 52 51	
			i	11 53 12	
			iScS	11 54 32	
			iP'P'	12 14 09	
			i	12 14 22	
			microns	sec	
			P Z'	1.2	1.0
			M E	1.0	21
			M N	3.2	21
			M Z	2.3	20
			D = 6600 km = 59½°.		
		Sk	iP	11 44 14	D
			i	11 44 27	
			i	11 44 56	
		Gb	iP	11 44 57	
			i	11 45 07	
			iP'P'	12 14 16	
		Kenai Peninsula			
		(h = 40 km).			
"	5	Up	e(P)	14 16 55	
		Sk	iP	14 17 01	
			iPP	14 18 13	
		Gb	i	14 17 26	
		Northern Iran (h = 60 km).			
"	6	Up	iP	08 27 44	C
		Sk	iP	08 27 49	
		Molucca Passage (h = 60 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept	6	Up	iP		13 43 05	D
				microns	sec	
			P	Z' 0.1	0.5	
		Ki	iP		13 43 14	
				microns	sec	
			P	Z' 0.1	0.5	
		Sk	iP		13 43 30	
		Hindu Kush (h = 240 km).				
"	7	Ki	e(P)		09 01 52	
"	7	Gb	iP		14 38 10	
"	7	Up	iP		20 37 18	
"	8	Ki	iP		00 13 48	
		Sk	eP		00 14 14	
		Alaska (h = 140 km).				
"	8	Up	i(P)		02 08 03	
		Sk	iP		02 07 18	
"	8	Up	iP		05 02 56	
			i		05 03 01	
				microns	sec	
			M	E 0.9	19	
			M	N 0.8	19	
			M	Z 1.0	20	
		Ki	iP		05 02 12	
				microns	sec	
			P	Z' 0.2	1.4	
		Sk	iP		05 02 25	C
			i		05 02 31	
		Queen Charlotte Islands (h = 50 km).				
"	8	Sk	iP		05 47 32	
"	8	Up	iP		10 43 33	
		Sk	iP		10 44 12	C
"	8	Up	iPKP		11 45 10	
			i(pPKP)		11 45 39	
			iPP		11 46 40	
			i		11 46 58	
			i		11 48 38	
			iSKS		11 51 56	
			iSKKS		11 52 43	
			i		11 53 28	
			iPKKP		11 55 13	
			iPS		11 56 35	
			iSS		12 03 02	

1961 Sept 8 cont.		Up		microns	sec	
			PKP	Z' 0.4	0.5	
			PP	E 0.5	4	
			PP	N 1.5	6	
			PP	Z 1.6	4	
			SKS	E 1.4	5	
			SKS	N 5.1	6	
			PKKP	Z' 0.1	0.5	
			M	E 31	19	
			M	N 46	19	
			M	Z 59	19	
			D = 13450 km = 121°.			
		Ki	iPKP		11 45 25	C
			i(pPKP)		11 45 51	
			iPP		11 47 31	
			i		11 47 55	
			iSKP		11 48 35	
			i(PKKP)		11 55 00	
				microns	sec	
			PKP	N 1.2	5	
			PKP	Z 6.1	5	
			PKP	Z' 1.6	1.0	
			PP	E 1.1	5	
			PP	N 1.2	5	
			PP	Z 2.7	5	
			SKP	E 2.7	6	
			SKP	N 5.5	8	
			SKP	Z 20	9	
			SKP	Z' 4.1	2.5	
			M	E 46	21	
			M	N 35	20	
			M	Z 36	19	
			D = 14350 km = 129°.			
		Sk	iPKP		11 45 15	
			i		11 45 24	
			i(pPKP)		11 45 45	
			iPKKP		11 55 07	
			iPS		11 56 37	
		Gb	iPKP		11 45 05	
			iPP		11 46 45	
			iPKKP		11 55 30	
		Sandwich Islands region (h = 130 km).				
		Magn. = 7.0 (Up,Ki).				
"	9	Up	iP		09 21 24	
		Ki	iP		09 20 27	
				microns	sec	
			M	E 0.5	16	
			M	N 0.5	17	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept cont.

9 Gb iP 09 21 36
Fox Islands, Aleutian Islands (h = 60 km).

" 9 Ki iP 20 04 00

" 9 Up iP 21 15 28
Ki eP 21 16 27
i 21 16 35
Near Crete.

" 10 Up iP 01 53 59 C
i 01 54 11
Ki iP 01 53 08
Off south coast of Kamchatka (h = 30 km).

" 10 Up iPKP 03 10 55 D
i 03 11 11
Ki ePKP 03 10 45
Gb iPKP 03 11 06
Kermadec Islands region (h = 50 km).

" 10 Ki iPKP 05 02 58
Gb iP 04 58 26 C
iPKP 05 02 40
Salta Province, Argentina (h = 520 km).

" 10 Up iP 05 01 28
i 05 01 46
Local?

" 10 Up i(P) 05 02 30
i 05 02 59
Local?

" 10 Ki e 05 51 53
iPn 05 52 05
iSn 05 52 50
iSg 05 53 07
D = 410 km = 3.7°.
Possibly explosion in northwest Russia. Origin time = 05 51 05.

" 10 Up iP 09 04 36
iS 09 08 08
iLg2 09 10 45

1961 Sept cont.

10 Up microns sec
M E 2.5 11
M N 5.1 10
M Z 5.3 10
D = 2170 km = 19.5°.
Ki iP 09 03 04
iPP 09 03 15
iS 09 05 17
i 09 05 23
iSS 09 05 36
iSSS 09 05 50
D = 1380 km = 12.4°.
Gb eP 09 05 14
Novaya Zemlya, 74.4°N, 52.5°E. Origin time = 09 00 04. H-bomb.

" 10 Up iP 16 22 52 C
i 16 22 59
Ki iP 16 23 44 C
Gb iP 16 22 47
Turkey (h = 30 km).

" 10 Up iPKP 18 28 28 D
i 18 28 49
ipPKP 18 29 13
Kermadec Islands region (h = 150 km).

" 11 Up i(P) 01 56 03

" 11 Up iP 02 57 46 C
i 02 57 59
microns sec
P Z' 0.2 0.5
M E 0.5 19
M N 0.9 21
Ki iP 02 56 53 C
microns sec
P Z' 0.2 0.8
M E 0.3 14
M N 0.3 15
M Z 0.4 15
Gb iP 02 58 02 C
Andreanof Islands, Aleutian Islands (h = 15 km).
Magn. = 6.4 (Up, Ki).

" 11 Ki eP 04 50 32
Off coast of California (h = 20 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Sept 11 Up iP 05 30 22
i 05 30 28
microns sec
P Z' 0.1 0,6
Ki iP 05 30 19 D
Tibet-Nepal border
(h = 20 km).

" 11 Up iP 09 13 42
Ki iP 09 12 49
Andreanof Islands,
Aleutian Islands
(h = 25 km).

" 11 Up iP 09 23 51 D
Ki iP 09 22 58
Kamchatka (h = 25 km).

" 11 Up iP 10 30 09
i 10 31 56

" 11 Ki iP 11 49 57
Northern Celebes
(h = 80 km).

" 11 Up iP 22 26 35 C
microns sec
P Z' 0.1 0.5
Ki iP 22 26 44 C
ipP 22 27 14
microns sec
P Z' 0.4 1.0

" 11 Gb iP 22 26 17
Off north coast of
Venezuela (h = 130 km).

" 11 Up i(P) 23 51 34

" 11 Up iP 23 58 24 C
i 23 58 41
microns sec
P Z' 0.1 0.6
Ki iP 23 57 40 D
microns sec
P Z' 0.1 1.0
Gb iP 23 58 45
Near east coast of
Hokkaido, Japan
(h = 20 km).

1961
Sept 12 Ki iP 05 46 43
Southern Alaska
(h = 70 km).

" 12 Up i(P) 05 51 54
i 05 52 19
Seismic?

" 12 Up iP 10 12 47
eS 10 16 19
iLi 10 18 04
iLg1 10 18 40
microns sec
M E 1.3 10
M N 2.5 10
M Z 2.6 10
D = 2170 km = 19.5°.
Ki iP 10 11 09
iS 10 13 22
iSS 10 13 43
iSSS 10 13 56
microns sec
P Z' 0.1 1.0
M E 1.3 9
M N 1.0 9
D = 1380 km = 12.4°.
Novaya Zemlya, 74.4°N,
52.5°E. Origin time =
10 08 12. H-bomb.

" 12 Up iP 12 38 08 D
microns sec
M E 0.3 17
M N 0.5 17
M Z 0.3 17
Ki iP 12 37 21
i 12 37 30
microns sec
P Z' 0.1 1.3
Gb iP 12 38 29 D
Near east coast of
Hokkaido, Japan
(h = 100 km).

" 12 Up iP 15 45 41

" 12 Ki iP 19 30 27
Baja California
(h = 25 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept 12 Up e 20 07 06
microns sec
M E 0.5 17
M N 1.0 20
M Z 0.9 19
Ki ePKS 19 51 55
e 19 52 17
microns sec
M E 1.4 21
M N 1.0 20
M Z 1.2 21
Sandwich Islands (h = 25 km).
Magn. = 5.8 (Up, Ki).

" 13 Up iP 07 18 16

" 13 Up iP 11 31 59 D
Ki iP 11 31 11
Kurile Islands (h = 25 km).

" 13 Up iP 13 17 40
i 13 17 50
Gb iP 13 17 38
Greece.

" 13 Up iP 14 12 10
Ki iP 14 12 53
Iraq-Iran border
(h = 100 km).

" 13 Up iP 15 54 59 D
i 15 55 03
Ki iP 15 55 41
Iran- Iraq border
(h = 70 km).

" 13 Up iP 20 23 50

" 13 Up iPKP 21 38 18
microns sec
PKP Z' 0.1 1.2
M E 1.5 20
M N 1.5 21
M Z 3.2 22
Ki iPKP 21 38 26 D
iPP 21 40 38
iSKP 21 41 49
microns sec
PKP Z 0.5 4
PKP Z' 0.3 1.2

1961 Sept cont. 13 Ki PP Z 0.8 6
SKP E 1.3 5
M E 1.7 23
M N 1.0 18
M Z 0.7 17
D = 14450 km = 130°.
Southern Chile (h = 150 km).

" 13 Up iP 23 28 46
Ki iP 23 28 06
i 23 28 11
Honshu, Japan
(h = 100 km).

" 14 Up iP 08 09 43 C
i 08 09 48
i 08 09 55
microns sec
P Z' 0.1 0.5
Ki iP 08 10 31 C
microns sec
P Z' 0.2 1.1
Gb iP 08 09 53 C
Iran (h = 30 km).

" 14 Up iP 10 00 55 C
microns sec
M E 1.4 10
M N 3.2 10
M Z 3.4 10
Ki eP 09 59 08
iS 10 01 27
iSS 10 01 41
iSSS 10 01 56
microns sec
M N 1.4 10
D = 1380 km = 12.4°.
Novaya Zemlya, 74.4°N, 52,5°E. Origin time = 09 56 16. H-bomb.

" 14 Up i(P) 10 27 24

" 14 Up eP 20 49 46
i 20 51 01

" 14 Ki iP 22 01 25
Near east coast of
Honshu, Japan
(h = 60 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Sept 14 Up i(P) 22 28 07
i 22 28 56

" 14 Ki ePKP 22 57 57
Tonga Islands (h = 25 km).

" 15 Up i(P) 00 48 29
i 00 48 38

" 15 Up iP 01 51 50
iPcP 01 55 11
iS 01 56 25
i 01 56 51

		microns	sec
P	Z'	0.4	0.5
S	E	1.0	6
S	N	1.0	5
S	Z	1.4	6
M	E	9.2	15
M	N	17	21
M	Z	11	19

D = 2950 km = 26½°.

Ki iP 01 52 50 C
i 01 53 03
iPcP 01 55 29
eS 01 58 11

		microns	sec
P	N	0.6	6
P	Z	0.8	4
P	Z'	0.4	1.1
S	E	1.9	8
S	N	1.0	7
M	E	18	17
M	N	8.2	17
M	Z	13	18

D = 3700 km = 33½°.

Gb iP 01 51 50 C
iPcP 01 55 12
Cyprus (h = 25 km).
Magn. = 6.0 (Up, Ki).

" 15 Up eP 10 33 17

" 15 Up iP 12 26 38

" 16 Up iP 07 39 04

" 16 Up iP 09 12 41
iS 09 16 23

		microns	sec
M	E	1.2	9

1961
Sept cont. 16 Up M N 2.2 10
M Z 2.5 10
D = 2170 km = 19.5°.
Ki iP 09 11 09 C
iS 09 13 28
iSS 09 13 45
D = 1380 km = 12.4°.
Novaya Zemlya, 74.4°N, 52.5°E. Origin time = 09 08 09. H-bomb.

" 16 Up i(P) 09 39 02

" 16 Ki iP 10 28 37

" 16 Up iP 12 21 05
iPcP 12 21 20
Ki iP 12 20 43

		microns	sec
P	Z'	0.1	0.8

South of Honshu, Japan (h = 390 km).

" 16 Ki iP 13 42 35
Mid-Atlantic Ocean (h = 20 km).

" 16 Up iP 17 28 18
Ki iP 17 27 27
Gb iP 17 28 39
i 17 28 58
Kamchatka (h = 50 km).

" 16 Up iP 21 27 50
Ki iP 21 28 13
Gb iP 21 27 55
Indian Ocean, 900 km southwest of Chagos Islands (h = 25 km).

" 17 Up iP 01 25 47
Ki iP 01 25 31
Banda Sea (h = 50 km).

" 17 Up ePP 05 37 46
Ki iP 05 37 17
Iran (h = 25 km).

" 17 Up iP 08 53 43 C
i 08 53 57

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept cont.	17	Up			microns	sec
			P	Z'	0.1	0.6
			M	E	13	18
			M	N	11	21
			M	Z	14	17
		Ki	iP		08 53 19	C
					microns	sec
			P	Z'	0.4	1.7
			M	E	5.0	16
			M	N	3.5	17
			M	Z	7.3	20
		Gb	iP		08 54 03	C
		Off coast of Formosa (h = 40 km). Magn. = 6.2 (Up, Ki).				
"	18	Ki	iP		00 29 22	
"	18	Up	iP		02 36 21	
			i		02 36 31	
		Vancouver Island region (h = 20 km).				
"	18	Up	iP		05 14 01	
			i		05 14 08	
			i		05 14 16	
			i		05 14 22	
		Ki	iP		05 15 09	
		Sk	iP		05 14 40	
		Crete (h = 80 km).				
"	18	Sk	iP		07 11 29	
"	18	Up	i(SS)		08 08 16	
			iP		08 13 31	
					microns	sec
			M	E	1.2	10
			M	N	3.0	10
			M	Z	2.8	10
		Ki	iP		08 02 34	
			iS		08 04 52	
			iSS		08 05 08	
					microns	sec
			M	E	1.3	9
			M	N	1.6	10
			M	Z	1.6	10
			D = 1380 km = 12.4°.			
		Novaya Zemlya, 74.4°N, 52.5°E. Origin time = 07 59 33. H-bomb.				

1961 Sept	18	Up	iP		11 06 47	D
			iPP		11 07 35	
			i		11 10 51	
			i		11 11 55	—
					microns	sec
			P	E	0.5	3
			P	Z'	0.2	0.5
			PP	E	0.4	2
			M	E	2.1	22
			M	N	2.2	18
			M	Z	2.9	20
			D = 3000 km = 27°.			
		Ki	iP		11 07 22	D
			i		11 08 00	
					microns	sec
			P	Z'	0.3	0.4
			M	E	2.2	20
			M	N	3.1	21
			M	Z	3.7	19
		Sk	iP		11 07 23	D
			iPP		11 08 13	
		Gb	iP		11 07 04	D
			i		11 07 29	
			i		11 09 26	
			i		11 12 38	—
		Caspian Sea (h = 30 km). Magn. = 5.8 (Up, Ki).				
"	19	Up	iP		02 38 50	
			i		02 39 01	
			i(PKP)		02 42 58	
			iPP		02 43 09	
			iSKS		02 48 32	
			iS		02 49 44	
			iSP		02 51 19	
			ipS		02 52 36	
			iPKKP		02 55 03	
					microns	sec
			PP	Z'	0.1	1.0
			SKS	E	1.2	3
			SKS	N	0.4	3
			S	N	0.4	4
			M	E	1.1	22
			M	N	1.2	24
			M	Z	1.1	23
			D = 11450 km = 103°.			
		Ki	isP		02 42 18	
			iPP		02 43 35	
			iSKS		02 48 50	
			iS		02 50 17	

Up = Uppsala, Ki = Kiruna, Sk = Skallstugan, Gb = Göteborg

1961 Sept cont.

19 Ki i 02 51 01
iPKKP 02 54 31

		microns	sec
PP	Z	0.8	3
PP	Z'	0.4	1.5
SKS	E	1.1	5
S	N	1.2	5
M	E	2.0	19
M	N	1.0	17

D = 11800 km = 106°.
Sk iP 02 38 46
Gb iP 02 38 34 D
Southern Bolivia
(h = 610 km).
Magn. = 6.3 (Up, Ki).

" 19 Ki iP 06 22 47
Mariana Islands
(h = 60 km).

" 19 Ki iP 08 43 34

" 19 Ki iP 09 32 06
Molucca Passage
(h = 80 km).

" 19 Up iP 09 58 20
i 09 58 26

" 19 Up iP 09 59 17
i 09 59 20
eS 10 09 58

		microns	sec
S	E	1.0	11
S	N	0.7	7
M	E	3.3	24
M	N	2.8	23
M	Z	4.8	24

D = 9900 km = 89°.
Ki iP 09 59 16
iPP 10 02 46
iSKS 10 09 43

		microns	sec
P	Z'	0.4	2.2
SKS	E	0.5	5
M	E	2.6	19
M	N	1.3	18
M	Z	2.5	17

D = 9900 km = 89°.
Sk iP 09 59 00
i 09 59 03

1961 Sept cont.

19 Gb iP 09 59 04
i 09 59 11
South of Panama
(h = 30 km).
Magn. = 5.9 (Up, Ki).

" 19 Up iP 10 24 01

" 19 Ki iP 13 57 45 C
Molucca Passage
(h = 50 km).

" 19 Up iPKP 18 43 44
Ki iPKP 18 43 35
Sk iPKP 18 43 36
Gb iPKP 18 43 53 C
Fiji Islands region
(h = 640 km).

" 19 Up iP 20 11 02
i 20 11 40
Ki iP 20 11 36 D

		microns	sec
P	Z'	0.1	0.6

Sk iP 20 11 37
Gb iP 20 11 19
Caspian Sea (h = 50 km).

" 19 Up iPKP 21 53 38
Ki iPKP 21 53 53 C
iPKS 21 57 23

		microns	sec
PKS	E	0.4	5
PKS	N	0.7	4
M	E	0.2	20
M	N	0.4	18

Sk iPKP 21 53 44
Gb iPKP 21 53 32
Sandwich Islands region
(h = 60 km).

" 20 Up i(P) 02 09 04

" 20 Up i(P) 02 16 09

" 20 Up iRg 08 23 21
iZ 08 26 09

		microns	sec
M	E	1.1	11
M	N	2.0	10
M	Z	2.2	10

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept cont.

20 Ki iS 08 17 28
i 08 19 48
microns sec
M E 0.8 9
M N 0.8 10
M Z 1.1 9
Sk iP 08 16 19
Novaya Zemlya, 74.4°N, 52.5°E. Origin time = 08 12 09. H-bomb.

" 20 Sk iP 11 48 39
(Greece).

" 20 Up i(P) 12 23 20

" 20 Up iP 14 19 08
microns sec
P Z' 0.2 0.7

" 20 Up i(SS) 19 38 44
microns sec
M E 3.6 20
M N 3.4 22
M Z 5.8 21
Ki iSKS 19 28 36
eSS 19 37 46
e 19 41 05
microns sec
SKS E 0.6 6
SKS N 0.2 5
M E 4.0 22
M N 3.6 21
M Z 3.8 20
New Britain (h = 30 km).
Magn. = 6.2 (Up, Ki).

" 21 Up iP 20 40 14
i 20 40 21
Local explosion?

" 22 Up iRg 08 12 50
microns sec
M E 0.5 11
M N 1.0 10
M Z 1.1 10
Ki iP 08 03 54
eS 08 06 14
microns sec
M E 0.5 10
M N 0.5 10

1961 Sept cont.

22 Ki M Z 0.6 10
D = 1380 km = 12.4°.
Novaya Zemlya, 74.4°N, 52.5°E, Origin time = 08 00 53. H-bomb.

" 23 Up eP 03 14 51
Ki iP 03 14 33

" 23 Up eP 03 15 22
Hawaii Island, Hawaii (h = 30 km).

" 23 Up iP 03 58 23
Sea of Japan (h = 530 km).

" 23 Up iPg 05 38 22
iS 05 38 59
Ki iSg 05 42 37
i 05 42 50
Sk e 05 41 07
iSg 05 41 17
Gb i 05 40 16
iSg 05 40 36
Riga Bay, Baltic. Origin time =05 37 19 .
Probably explosion.

" 23 Up ePg 05 49 34
Ki iSg 05 53 41
Sk eS 05 52 16
iSg 05 52 38
Gb iSg 05 51 30
Riga Bay, Baltic. Origin time = 05 48 (27).
Probably explosion.

" 23 Ki iP 05 51 55

" 23 Up iPg 06 02 19
iS 06 02 56
Ki iSg 06 06 19
i 06 06 39
Sk iSg 06 05 05
Gb e 06 04 18
iSg 06 04 27
Riga Bay, Baltic. Origin time = 06 01 11.
Probably explosion.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept 23

Up	iPg	06	16 00
	iSg	06	16 44
Ki	i(Sg)	06	20 21
Sk	i(Sg)	06	18 46
Gb	i	06	17 56
	iSg	06	18 03

Riga Bay, Baltic. Origin time = 06 14 (54). Probably explosion.

" 23

Up	iPg	06	24 23
Ki	iSg	06	28 28
	i	06	28 38
Sk	i	06	27 10
	iSg	06	27 25
Gb	i	06	26 22
	iSg	06	26 44

Riga Bay, Baltic. Origin time = 06 23 21. Probably explosion.

" 23

Up	iPg	06	33 57
Ki	e	06	37 54
	iSg	06	38 07
Sk	iSg	06	36 43
Gb	iSg	06	35 58

Riga Bay, Baltic. Origin time =06 32 (47). Probably explosion.

" 23

Up	iPg	06	48 55
Ki	i	06	52 44
	iSg	06	53 04
Sk	eSg	06	51 46
	e	06	52 08
Gb	iSg	06	50 57

Riga Bay, Baltic. Origin time =06 47 46. Probably explosion.

" 23

Up	iPg	07	00 05
Ki	eSg	07	04 05
Sk	eSg	07	02 50
Gb	iSg	07	02 09

Riga Bay, Baltic. Origin time = 06 58 53. Probably explosion.

" 23

Up	iP	07	04 33
Ki	iP	07	04 15
Sk	iP	07	04 37

1961 Sept 23

Up	ePg	07	09 29
Ki	i	07	13 1.
	eSg	07	13 32
Sk	eS[x]	07	11 56
	iSg	07	12 18
Gb	iSg	07	11 33

Riga Bay, Baltic. Origin time = 07 08 19. Probably explosion.

" 23

Up	iPg	07	18 13
Ki	iSg	07	22 19
Sk	eSg	07	21 05
Gb	e	07	19 55
	eSg	07	20 22

Riga Bay, Baltic. Origin time = 07 17 06. Probably explosion.

" 23

Up	iPg	07	27 06
Ki	eSg	07	31 11
	e	07	31 21
Sk	e	07	29 54
	iSg	07	30 08
Gb	e	07	29 07
	iSg	07	29 20

Riga Bay, Baltic. Origin time = 07 26 02. Probably explosion.

" 23

Up	iPg	07	43 06
Ki	iSg	07	47 11
Sk	eSg	07	45 50
Gb	iSg	07	45 05

Riga Bay, Baltic. Origin time = 07 41 54. Probably explosion.

" 23

Up	iPg	07	53 11
	iS[x]	07	53 46
	iSg	07	53 54
	D = 370 km = 3.3°		
Ki	iSg	07	57 15
	D = 1040 km = 9.4°		
Sk	e	07	55 59
	iSg	07	56 08
	D = 820 km = 7.4°		
Gb	i	07	54 55
	iSg	07	55 23
	D = 670 km = 6.0°		

Riga Bay, Baltic, 58.4°N, 23.1°E. Origin time = 07 52 05. Probably explosion.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Sept 23 Up iPg 08 01 33
Ki iSg 08 05 38
Sk iSg 08 04 18
Gb iSg 08 03 33
Riga Bay, Baltic. Origin time = 08 00 21.
Probably explosion.

" 23 Up iPKP 08 35 59
i 08 36 15
Sk iPKP 08 35 52
Gb iPKP 08 36 08
Kermadec Islands
(h = 20 km).

" 23 Gb iP 09 51 09

" 23 Ki iP 11 48 22

" 24 Gb eP 01 14 53

" 24 Up iP 04 59 53
i 05 00 03
Ki e(P) 05 00 28
Sk iP 04 59 48

" 24 Up iP 19 17 15
Ki iP 19 17 00 D

		microns	sec
P	Z'	0.5	1.0
M	E	0.5	15
M	N	0.4	13

Sk iP 19 16 57 D
Gb iP 19 17 10
ipP 19 17 31
Puebla, Mexico
(h = 80 km).

" 24 Up iP 21 52 40
i 21 52 44
iPcP 21 52 57
eS 22 02 19

		microns	sec
P	Z'	0.1	0.5
S	E	0.2	3
S	N	0.3	3
M	E	1.0	20
M	N	1.4	17
M	Z	1.2	19

D = 8500 km = 76½°.

1961
Sept 24 cont. Ki iP 21 52 04
i 21 52 06
e(S) 22 01 17

		microns	sec
P	Z'	0.1	1.0
(S)	N	0.3	6
M	E	3.6	18
M	N	1.9	16
M	Z	2.7	17

Sk iP 21 52 36
Gb iP 21 53 01
i 21 53 10
South of Honshu, Japan
(h = 90 km).
Magn. = 5.8 (Up, Ki).

" 25 Up iP 00 46 08
i 00 46 21

" 25 Up iP 02 37 08
ipP 02 37 42
Ki iP 02 36 11
Sk iP 02 36 39 C
Gb iP 02 37 20
ipP 02 37 54
Southern Alaska.
h = 140 km (Up, Gb).

" 25 Ki iP 20 31 33
Southern Alaska
(h = 200 km).

" 25 Ki iP 21 14 52
i 21 14 53
eT 21 22 51

		microns	sec
P	Z'	0.1	0.7
M	E	0.3	12
M	N	0.9	18

Svalbard region
(h = 60 km).

" 27 Sk iP 06 52 19

" 27 Up iPKP 06 55 06 C

		microns	sec
P	Z'	0.1	0.6

Ki iPKP 06 54 41

		microns	sec
P	Z'	0.3	1.5

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept cont. 27 Sk iPKP 06 54 58
Gb iPKP 06 55 29 C
Fiji Islands (h = 580 km).

" 27 Up iP 08 29 53
Ki iP 08 30 09
Southern Iran (h = 80 km).

" 27 Up iP 11 31 47
microns sec
P Z' 0.1 0.7
Ki iP 11 30 54
microns sec
P Z' 0.2 0.6
Sk iP 11 31 24 C
Gb iP 11 32 02
Fox Islands, Aleutian Islands (h = 30 km).

" 27 Up iPKP 12 26 25
microns sec
PKP Z' 0.1 0.6
M E 0.7 18
M N 1.2 17
M Z 1.3 17
Ki iPKP 12 26 41
iPKS 12 30 06
microns sec
PKS E 0.7 6
PKS N 1.3 3
M E 1.0 19
M N 1.8 17
M Z 1.7 17
Sk iPKP 12 26 31
i(PP) 12 28 21
Sandwich Islands (h = 110 km).

" 27 Up iP 19 31 45
microns sec
P Z' 0.1 0.7
M E 1.2 21
M N 1.9 21
M Z 1.6 20
Ki iP 19 30 52
i 19 32 14
microns sec
P Z' 0.4 0.9
M E 1.9 18
M N 1.2 17
M Z 1.3 16

1961 Sept cont. 27 Gb iP 19 32 09
Fox Islands, Aleutian Islands (h = 40 km).

" 27 Up iP 19 38 01 C
microns sec
P Z' 0.3 1.2
Ki iP 19 37 09 C
ePS 19 45 36
microns sec
P Z' 0.3 0.7
Gb iP 19 38 16 C
i 19 38 20
Fox Islands, Aleutian Islands (h = 20 km).

" 27 Up iP 20 25 02
Near north coast of Luzon, Philippine Islands (h = 70 km).

" 27 Up iP 21 18 42
Ki iP 21 18 15
Ryukyu Islands (h = 20 km).

" 27 Ki iP 23 12 01

" 28 Up iP 01 36 57 C
ipP 01 37 14
iPP 01 40 36
ipS 01 48 04
microns sec
P Z' 0.1 0.5
PP Z 0.3 3
M N 1.0 24
D = 10000 km = 90°.
Ki iP 01 36 56 C
ipP 01 37 13
isP 01 37 29
microns sec
P Z' 0.4 0.4
D = 10000 km = 90°.
Sk iP 01 37 10 C
ipP 01 37 25
Sumatra, h = 70 km (Up, Ki).
Magn. = 6.3 (Up, Ki).

" 28 Up iP 03 36 37
iS 03 46 19
microns sec
P Z 0.3 2

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept cont.

28 Up P Z' 0.1 0.5
S E 0.4 4
M E 1.3 14
M N 1.9 16
M Z 2.7 17
D = 8650 km = 78°.
Ki iP 03 36 02
i(ScS) 03 45 25
microns sec
P Z' 0.4 2.0
M E 2.8 15
M N 2.6 18
M Z 4.9 17
D = 8000 km = 72°.
Sk iP 03 36 33
ipP 03 36 52
Gb iP 03 36 57
South of Honshu, Japan
(h = 130 km).
Magn. = 5.8 (Up, Ki).

" 28 Up iP 03 43 01
Ki iP 03 42 08 C
microns sec
P Z' 0.1 1.0
Sk iP 03 42 27

" 28 Up iP 04 31 07 C
Sk eP 04 31 02
South of Honshu, Japan
(h = 80 km).

" 28 Up iP 05 08 07 D
microns sec
P Z' 0.1 0.5
Ki iP 05 08 16 D
microns sec
P Z' 0.1 0.6
Sk iP 05 08 33
Hindu Kush (h = 230 km).

" 28 Up iP 15 12 20
microns sec
P Z' 0.1 0.5

" 28 Up iP 20 37 26

" 28 Up iP 22 44 13
i(pP) 22 44 26
microns sec
P Z' 0.1 0.7
Ki iP 22 44 47 C

1961 Sept cont.

28 Sk iP 22 44 49
i 22 44 59
Gb iP 22 44 38
i 22 44 46
Southern Iran
(h = 60 km).

" 29 Up iPKP 05 54 33
i 05 54 38
Sk iPKP 05 54 27
Kermadec Islands
(h = 60 km).

" 29 Up iP 08 35 26 D
Ki iP 08 34 32

" 29 Up iP 08 56 38
ipP 08 56 58
microns sec
P Z' 0.1 0.7
Ki iP 08 56 38 C
Andaman Islands
(h = 130 km).

" 29 Up i 10 05 12
Ki eS^x 10 06 06
iSg 10 06 18
Sk iPn 10 04 36
iSn 10 05 09
iSg 10 05 16
D = 280 km = 2.5°.

" 29 Up i 10 30 03
i 10 30 37
Ki $e(S^x)$ 10 31 26
eSg 10 31 44
Sk iPn 10 29 59
iP^x 10 30 03
iS^x 10 30 36
iSg 10 30 39
D = 280 km = 2.5°.

" 29 Up iP 12 24 54

" 29 Up iP 17 01 37 C
microns sec
P Z' 0.2 0.5
Ki iP 17 00 53 C
i 17 01 04
microns sec
P Z' 0.1 0.9
Sk iP 17 01 28 C

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Sept cont. 29 Gb iP 17 01 58 C
Near east coast of Hokkaido, Japan
(h = 40 km).

" 29 Up iP 18 28 26
Ki e(P) 18 27 37
Sk i(P) 18 28 13

" 29 Up eS 19 30 35

		microns	sec
S	E	0.4	4
M	E	1.1	22
M	N	1.5	19
M	Z	1.2	19

Ki iP 19 19 17
iS 19 30 06
ipS 19 30 22
iSS 19 36 35
isSS 19 37 16

		microns	sec
S	N	0.5	4
M	E	3.3	24
M	N	4.9	23
M	Z	1.4	18

D = 10350 km = 93°.
Sk eP 19 19 41
Northern Celebes
(h = 110 km).

" 29 Up iP 22 46 00

		microns	sec
P	Z'	0.1	0.5

Ki iP 22 45 57
Sk iP 22 46 18 D
Gb iP 22 46 20
Southern Tibet
(h = 80 km).

" 29 Ki iP 22 51 26
Near coast of southern Colombia (h = 60 km).

" 30 Up iP 00 32 20 D
Ki iP 00 31 37
Gb iP 00 32 41
Kurile Islands
(h = 50 km).

1961 Sept 30 Up iP 01 48 25
Ki iP 01 47 59
Sk e(P) 01 48 28
Gb iP 01 48 55
Ryukyu Islands
(h = 100 km).

Ingrid Pettersson Markus Båth

August 7, 1962

Seismological Institute
Uppsala

SEISMOLOGISKA INSTITUTIONEN
UNIVERSITETET
UPPSALA

P R E L I M I N A R Y

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 and G Ö T E B O R G

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

O C T O B E R 1 - 31, 1961

1961
Oct 1 Up iP 00 26 09
microns sec
M N 1.5 15
Ki iP 00 25 49
Kansu Province, China
(h = 30 km).

" 1 Ki iP 03 14 59
Sinkiang Province, China
(h = 25 km).

" 1 Up iP 03 39 41
Kamchatka (h = 25 km).

" 1 Ki eP 04 13 47

" 1 Up i(P) 10 46 46

" 1 Up iP 14 25 16
Ki iP 14 25 23
Sk iP 14 25 41
Hindu Kush region
(h = 120 km).

" 1 Up iP 14 36 36

" 1 Up iP 23 23 55
Ki iP 23 23 32
Near coast of Formosa
(h = 25 km).

" 2 Up eP 00 20 43

" 2 Up iPKP 06 13 33
Ki iPKP 06 13 15
Sk iPKP 06 13 28

1961
Oct 2 cont. Sk i 06 13 34
Off coast of North
Island, New Zealand
(h = 30 km).

" 2 Up iPKP 06 27 29
Sk iPKP 06 27 25
Off coast of North Island,
New Zealand (h = 50 km).

" 2 Up iP 06 34 56 C
Ki iP 06 34 53 C
microns sec
P Z' 0.2 0.6
Sk iP 06 35 08 C
Near coast of Java
(h = 90 km).

" 2 Up iPKP 07 22 28
microns sec
M E 1.1 22
M N 2.6 23
M Z 3.8 25
Ki iPKP 07 22 16
microns sec
M E 0.8 17
M N 0.6 18
M Z 3.3 18
Sk iPKP 07 22 20
Off coast of North Island,
New Zealand (h = 60 km).

" 2 Up iP 07 26 50 C
iS 07 31 02
microns sec
P Z' 0.6 0.5

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Oct 2 cont.

Up S Z' 0.1 1.0
M E 5.0 13
M N 10 19
M Z 11 20
D = 2550 km = 23°.
Ki iP 07 28 02 C
iPP 07 28 52
iS 07 33 07
iRg 07 40 12
microns sec
P Z' 0.4 1.5
PP Z' 0.1 0.8
S N 1.3 4
M E 10 18
M N 4.4 10
M Z 7.7 10
D = 3350 km = 30°.
Sk iP 07 27 26
i 07 27 29
Gb iP 07 26 36 C
i 07 26 43
Near coast of Greece (h = 70 km).
Magn. = 6.2 (Up, Ki).

" 2 Up iP 08 20 07
Ki iP 08 19 15
Andreanof Islands, Aleutian Islands (h = 50 km).

" 2 Up iP 09 09 32
i 09 09 34

" 2 Up ———
microns sec
M E 0.5 10
M N 1.1 10
M Z 0.9 10
Ki eSS 10 36 14
microns sec
M E 0.4 10
M N 0.5 10
M Z 0.6 10
Novaya Zemlya, 74.4°N, 52.5°E. Origin time = 10 30 43 . H-bomb.

" 2 Up iP 13 25 13
i 13 27 31
Sk iP 13 25 53
Greece.

1961
Oct 2 Up iP 19 14 27

" 3 Up iP 01 06 32 D
Ki iP 01 07 42 D
Sk iP 01 07 11 D
Gb iP 01 06 21 D
Mediterranean Sea, near Crete (h = 40 km).

" 3 Up iPg 20 39 33
iSg 20 39 40
microns sec
Sg Z' 0.1 0.5

" 3 Up iPKP 22 41 22
i 22 41 29
Sk ePKP 22 41 18
Kermadec Islands region (h = 370 km).

" 3 Up iP 23 34 00
Mariana Islands region (h = 25 km).

" 4 Up eL 03 26
microns sec
M E 1.1 22
M N 1.3 21
M Z 1.4 22
Ki eL 03 26
microns sec
M E 0.6 18
M N 0.6 20
M Z 1.2 19
Sk iPKP 02 42 19
New Hebrides Islands region (h = 70 km).

" 4 Up iPKP 03 42 50
Sk iPKP 03 42 44
Kermadec Islands region (h = 100 km).

" 4 Up iP 04 41 20 D
microns sec
P Z' 0.1 0.6
Ki iP 04 40 27 D
Sk iP 04 41 04 D
Gb iP 04 41 41 D
Near coast of Kamchatka (h = 25 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Oct 4 Up iP 07 35 24
iS 07 38 52
iLg1 07 41 08
iLg2 07 41 33
microns sec
M E 2.0 11
M N 4.1 10
M Z 4.3 10
D = 2170 km = 19.5°.
Sk iP 07 35 03
i 07 35 07
iS 07 38 09
i 07 38 16
D = 1960 km = 17.6°.
Novaya Zemlya, 74.4°N, 52.5°E. Origin time = 07 30 55. H-bomb.

" 4 Up iP 08 35 48

" 5 Sk iP 01 46 43

" 5 Up iPg 10 22 20
iSg 10 22 28
D = 70 km = 0.6°.
Sk eSg 10 24 25
Presumably near the Baltic coast, NNE of Uppsala.

" 5 Up iP 16 15 28

" 5 Up iPKP 18 27 56 C
Ki iPKP 18 27 42 C
microns sec
PKP Z' 0.1 1.0
Sk ePKP 18 27 47
i 18 27 53
Gb ePKP 18 28 03
Loyalty Islands region (h = 60 km).

" 5 Ki iP 19 40 16
Mariana Islands region (h = 50 km).

" 5 Up iP 22 46 44
ipP 22 46 58
iS 22 56 24
microns sec
M E 2.1 17
M N 1.8 22
M Z 2.3 18
D = 8350 km = 75°.

1961
Oct 5 cont. Ki iP 22 46 20
ipP 22 46 38
iS 22 55 39
microns sec
M E 1.6 16
M N 0.5 15
M Z 1.0 15
D = 7900 km = 71°.
Sk eP 22 46 53
ipP 22 47 07
Near coast of Formosa. h = 60 km (Up, Ki, Sk).

" 5 Up iP 23 10 47 D
iPcP 23 11 18
microns sec
P Z' 0.1 0.6
Ki iP 23 09 59
microns sec
P Z' 0.1 0.8
Sk iP 23 10 35
Gb iP 23 11 09
Sea of Okhotsk (h = 520 km).

" 6 Up iP 07 04 34
eS 07 08 09
iLi 07 09 54
iLg2 07 10 47
iX 07 14 23
microns sec
M E 2.2 11
M N 5.1 10
M Z 5.6 10
D = 2170 km = 19.5°.
Sk iP 07 04 16
eS 07 07 27
iSS 07 07 43
iLi 07 08 42
D = 1960 km = 17.6°.
Novaya Zemlya, 74.4°N, 52.5°E. Origin time = 07 00 08. H-bomb.

" 6 Up iP 13 38 53
Sk eP 13 38 58
Near coast of Luzon, P.I. (h = 70 km).

" 7 Ki eP 04 30 18
West Pakistan (h = 60 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Oct 7 Up iPKP 08 34 01
Ki iPKP 08 34 17
Sandwich Islands
(h = 100 km).

" 7 Up iP 13 16 31

" 7 Ki iP 16 04 48
Off coast of Oregon
(h = 25 km).

" 7 Ki iPKP 19 43 34
Sandwich Islands region
(h = 80 km).

" 7 Sk eP 23 03 14

" 8 Up iP 03 08 56
Ki eP 03 08 03
Fox Islands, Aleutian
Islands (h = 25 km).

" 8 Up iP 03 37 43
Ki iP 03 36 59

" 8 Up iP 10 56 18

" 8 Up iP 22 07 41
Ki iP 22 06 42
microns sec
M E 0.7 17
M N 0.5 17
Fox Islands, Aleutian
Islands (h = 50 km).

" 8 Up iP 23 55 06
iSKS 00 05 24
Ki iP 23 54 43
iPP 23 58 32
iSKS 00 05 06
microns sec
P Z' 0.1 1.0
SKS E 0.7 5
M E 0.7 19
M N 0.7 23
D = 10450 km = 94°.
Sk eP 23 55 19
Halmahera (h = 100 km).

" 9 Up iP 01 48 23 D
Ki iP 01 49 30 D
Sk iP 01 49 02 D
Greece.

1961
Oct 9 Up iP 06 59 22
i 06 59 29
Sk iP 06 59 36

" 9 Up iP 10 36 29
Sk i(P) 10 36 43

" 9 Ki iP 22 27 31

" 10 Ki iP 01 56 47

" 10 Up iPKP 04 03 01
Gb iPKP 04 03 12
South of Fiji Islands
(h = 580 km).

" 10 Up iP 15 37 48
i 15 37 50
microns sec
P Z' 0.1 0.5

" 10 Ki eL 18 16
microns sec
M E 1.2 23
M N 0.6 20
M Z 1.2 21
New Guinea (h = 40 km).

" 11 Up iPKP 00 49 14 C
Sk iPKP 00 49 06 C
i 00 49 18
Gb iPKP 00 49 23 C
Kermadec Islands (h = 90 km).

" 11 Up iP 05 53 38
i 05 53 46

" 11 Sk iP 07 13 54 D
Gb iP 07 14 34
Kodiak Island (h = 40 km).

" 11 Up iP 11 38 05

" 11 Up iPKP 16 22 44
Gb iPKP 16 22 54
South of Fiji Islands
(h = 560 km).

" 11 Ki i(PP) 17 33 51
microns sec
(PP) Z' 0.1 1.0
(Ryukyu Islands; h = 50 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Oct 11 Up iP 19 59 03
South of Honshu, Japan
(h = 40 km).

" 12 Ki iP 03 55 41 D
microns sec
P Z' 0.1 0.8
Talaud Islands (h = 120 km).

" 12 Up i(P) 05 53 31

" 12 Up iPKP 07 55 56
Sk iPKP 07 55 45
Kermadec Islands
(h = 300 km).

" 13 Up i(P) 01 08 51

" 13 Up iP 05 52 04
i(Sg) 05 52 13
Local?

" 13 Up iPKP 11 05 45
Sk iPKP 11 05 49
Sandwich Islands region
(h = 40 km).

" 13 Up i(P) 12 36 36

" 13 Up i 13 11 19
iSg 13 11 24
Sk e 13 13 21
iSg 13 13 37
Possibly Southern Baltic
(compare Oct. 17, 1961,
at 13 12).

" 13 Up iPKP 17 47 25 C
microns sec
PKP Z' 0.1 0.5
Ki iPKP 17 47 15
iSKP 17 50 28
microns sec
SKP Z' 0.3 1.2
Sk iPKP 17 47 17 C
Gb iPKP 17 47 35 C
i 17 47 38
Tonga Islands region
(h = 160 km).

" 14 Up i(P) 04 40 40

1961
Oct 14 Up iP 12 33 06

" 14 Up iP 12 42 32
ipP 12 42 46
Sk eP 12 42 27
Gb iP 12 42 52
South of Honshu, Japan
(h = 50 km).

" 14 Up iP 17 45 44
Greece.

" 14 Up iP 22 09 31 C
i 22 09 39
ipP 22 09 52
microns sec
P Z' 0.1 0.4
Ki eP 22 08 40
Sk iP 22 09 15 C
Gb iP 22 09 51 C
ipP 22 10 11
Kamchatka.
h = 80 km (Up, Gb).

" 15 Up iP 17 20 55 D
Ki iP 17 20 55 D
microns sec
P Z' 0.1 0.7
Sk iP 17 21 09
Near southwest coast of
Sumatra (h = 70 km).

" 17 Up eSS 05 03 36
microns sec
M E 1.0 20
M N 1.5 21
Bouvet Islands region
(h = 25 km).

" 17 Up iPn 13 12 04 C
iSn 13 12 57
i 13 13 16
iSg 13 13 21
D = 510 km = 4.6°.
Sk e 13 15 08
eSg 13 15 23
Gb iPg 13 11 43
iSg 13 12 22
D = 330 km = 3.0°.
Southern Baltic, 55.4°N,
15.5°E. Origin time =
13 10 47.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Oct 17 Up i(P) 17 24 00
i 17 24 05
Ki eP 17 24 13

" 18 Up iPKP 03 09 38 C
i 03 09 42
i 03 09 57
microns sec
PKP Z' 0.2 0.5
Ki iPKP 03 09 18
i 03 09 26
Sk iPKP 03 09 31 C
i 03 09 36
Gb iPKP 03 09 47 C
Kermadec Islands
(h = 70 km).

" 18 Up iP 05 51 22

" 18 Ki iP 10 54 08 C
microns sec
P Z' 0.1 0.7
Fox Islands, Aleutian
Islands (h = 50 km).

" 18 Up iP 11 10 05

" 18 Up iPKP 17 10 49
iPP 17 12 22
i 17 19 18
iS 17 20 17
iPS 17 22 17
iSS 17 29 01
microns sec
PP Z 0.7 3
M E 13 20
M N 11 20
M Z 20 20
D = 13550 km = 122°.
Ki iPKP 17 10 53
i 17 10 57
iPP 17 12 43
ePKS 17 14 07
i 17 16 51
iPKKP 17 20 44
ePS 17 22 37
iSS 17 29 35
microns sec
PP E 1.1 7
PP Z 1.8 7
PP Z' 0.4 2.0

1961
Oct 18 Ki PKS E 1.0 7
cont. PKKP N 1.4 12
M E 13 20
M N 5.8 19
M Z 17 20
D = 13850 km = 124½°.
Sk iPKP 17 10 47
Near coast of southern
Chile (h = 70 km).
Magn. = 6.8 (Up, Ki).

" 18 Up iP 18 04 10 C

" 18 Up iP 20 40 14

" 19 Up i(P) 05 01 30

" 19 Ki iP 08 36 45
Sk iP 08 37 02

" 19 Ki ePKP 09 32 19
West of Macquarie Island
(h = 90 km).

" 19 Ki iP 11 06 42
Sea of Japan
(h = 240 km).

" 19 Ki iPKP 11 38 01
ipPKP 11 38 44
Sk iPKP 11 37 53
Neuquen Province,
Argentina (h = 160 km).

" 19 Up iPKP 19 46 26 D
microns sec
PKP Z' 0.1 0.8
Ki iPKP 19 46 26 D
i 19 46 36
microns sec
PKP Z' 0.2 1.0
Sk iPKP 19 46 34 D
South of Australia
(h = 50 km).

" 20 Ki e(P) 00 57 33

" 20 Up i(Rg) 08 18 04
microns sec
M E 1.1 10
M N 2.4 10
M Z 2.5 10

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Oct cont.

20 Ki iP 08 10 04
iPP 08 10 12
iS 08 12 16
iSS 08 12 34
microns sec
M E 0.8 10
M N 1.0 11
D = 1340 km = 12.1°.
Sk iP 08 11 11 C
iPP 08 11 23
iSS 08 14 49
D = 1920 km = 17.3°.
Novaya Zemlya, 70.4°N, 54.0°E. Origin time = 08 07 05. H-bomb.

" 20 Sk i(P) 11 21 00

" 20 Up iP 17 56 00
Western China (h = 25 km).

" 21 Up i(P) 06 48 20

" 21 Up i(P) 07 19 00
Gb e(P) 07 18 39

" 21 Up iPKP 17 53 16 D
Ki iPKP 17 53 03 D
Sk iPKP 17 53 14 D
Santa Cruz Islands (h = 190 km).

" 22 Up eL 10 48
microns sec
M E 1.4 21
M N 1.1 19
M Z 1.0 20
Ki eL 10 41
microns sec
M E 1.8 22
M N 0.9 21
M Z 1.5 21
New Hebrides Islands (h = 180 km).

" 22 Up i(P) 23 04 14
Ki iP 23 04 49

" 23 Up iPKP 00 27 34 D
i 00 27 40
iSS 00 46 47

1961 Oct cont.

23 Up microns sec
M E 2.3 19
M N 1.9 19
M Z 2.4 19
D = 14100 km = 127°.
Ki iPKP 00 27 50
i 00 27 53
i 00 27 56
iPP 00 30 25
iPKS 00 31 24
microns sec
PKP Z 1.0 4
PKP Z' 1.2 3.0
PP E 0.9 4
PKS N 1.1 9
PKS Z 2.0 5
M E 5.6 22
M N 3.6 21
M Z 6.4 22
D = 14900 km = 134°.
Sk iPKP 00 27 44 D
Sandwich Islands region (h = 25 km).

" 23 Up iP 02 19 27

" 23 Up iP 04 48 01 C
i 04 48 03
Ki iP 04 48 36 C
i 04 48 39
microns sec
P Z' 0.1 0.7
Sk iP 04 48 34 C
Iran (h = 40 km).

" 23 Up iP 08 35 51 C
iPP 08 36 12
iS 08 39 29
iPcP 08 40 17
iLi 08 40 59
i(Lg1) 08 41 49
iLg2 08 42 15
iT 08 45 38
microns sec
P N 0.4 3
S N 0.5 4
M E 5.0 11
M N 11 10
M Z 12 10
D = 2170 km = 19.5°.
Ki eP 08 34 22
iS 08 36 47

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Oct 23 Ki iLi 08 37 28
cont. iT 08 43 01
microns sec
P E 0.4 13
S N 0.3 4
M E 5.2 10
M N 5.4 10
M Z 7.1 10
D = 1380 km = 12.4°.
Sk iP 08 35 29 C
Novaya Zemlya, 74.4°N, 52.5°E. Origin time = 08 31 21. H-bomb.

" 23 Up iP 10 35 03 C
i 10 35 05
iS 10 38 17
iLi 10 39 51
iLg2 10 40 39
microns sec
P Z' 0.1 0.5
D = 2020 km = 18.2°.
Sk iP 10 34 50 C
i 10 34 52
i 10 34 56
iPP 10 35 07
iS 10 37 59
iLi 10 39 13
D = 1920 km = 17.3°.
Gb iP 10 35 43
iSS 10 40 23
iLi 10 41 09
i(Lg1) 10 41 50
D = 2410 km = 21.7°.
Novaya Zemlya, 70.4°N, 54.0°E. Origin time = 10 30 48. Underwater atomic explosion.

" 23 Up iP 14 53 06
i 14 53 13
i 14 56 16
iPP 14 57 03
iS 15 04 15
microns sec
S N 1.8 6
M E 6.5 20
M N 16 22
M Z 7.8 20
D = 10650 km = 96°.
Ki iP 14 52 47

1961
Oct 23 Ki iPcP 14 52 52
cont. iPP 14 56 32
i 15 03 20
iS 15 03 47
microns sec
P Z' 0.2 1.0
PP E 0.7 13
S N 2.3 8
M E 11 20
M N 8.9 20
M Z 12 21
D = 10200 km = 92°.
Sk iP 14 53 11
iPP 14 57 22
Molucca Passage (h = 25 km).
Magn. = 6.5 (Up, Ki).

" 23 Ki iP 15 05 41
microns sec
P Z' 0.1 1.5
Molucca Passage (h = 30 km).

" 23 Ki iP 17 58 26
Molucca Passage (h = 100 km).

" 23 Ki iP 20 51 37
Molucca Passage (h = 25 km).

" 24 Ki iP 01 32 46
Molucca Passage (h = 25 km).

" 24 Up iP 03 00 22

" 24 Ki eP 05 29 46

" 24 Up iP 07 36 09
i 07 36 19
Ki iP 07 35 23
i 07 35 35
Sk eP 07 36 04
Gb iP 07 36 41
Off north coast of Hokkaido, Japan (h = 80 km).

" 24 Ki eP 15 43 22
Northern Celebes (h = 130 km).

" 25 Ki iP 00 11 22
i 00 11 37

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Oct 25 cont.

Ki
microns sec
P Z' 0.1 1.0

" 25 Up i(P) 07 12 37

" 25 Up iPn 08 29 31
iPg 08 29 39
iS 08 30 14
iSg 08 30 19
D = 320 km = 2.9°
Ki eSg 08 33 07
Sk eSg 08 32 15
Southwest coast of Finland, 59.9°N, 23.2°E.
Origin time = 08 28 43.

" 25 Up ———
microns sec
M E 0.5 10
M N 1.2 9
M Z 1.6 10
Ki iSS 08 36 39
microns sec
M E 0.6 10
M N 0.6 10
M Z 0.6 10
Novaya Zemlya. Origin time = 08 31 03. H-bomb.

" 25 Ki ePKP 13 08 45
Sk iPKP 13 08 58
Kermadec Islands region (h = 25 km).

" 25 Up iP 16 33 37 D
Ki iP 16 34 10 D
i 16 34 16
i(PcS) 16 39 17
microns sec
P Z' 0.2 1.2
M E 1.2 17
M N 0.9 18
M Z 1.7 18
Sk iP 16 34 07
Gulf of Aden (h = 40 km).

" 26 Up i 01 06 54
iPS 01 07 05
microns sec
M E 5.4 19
M N 11 19
M Z 9.1 19

1961 Oct 26 cont.

Ki iP 00 52 33
iPP 00 56 58
iSKS 01 03 19
microns sec
PP Z 1.4 6
SKS N 0.8 6
M E 12 24
M N 6.5 19
M Z 12 20
D = 11800 km = 106°.
Bismark Sea (h = 15 km).
Magn. = 6.7 (Up, Ki).

" 26 Ki iPKP 11 30 17
New Hebrides Islands (h = 120 km).

" 26 Up iP 15 39 43 C
i 15 39 53
iSKS 15 50 06
iS 15 50 12
microns sec
P E 0.7 4
P Z 0.6 3
P Z' 1.6 2.5
SKS E 0.8 5
S E 1.1 6
S N 2.4 8
M E 3.0 22
M N 6.1 20
M Z 6.0 24
D = 9500 km = 85½°.
Ki iP 15 39 44 C
i 15 39 54
iSKS 15 50 05
iS 15 50 16
microns sec
P E 0.6 6
P Z 1.8 5
P Z' 1.2 2.4
SKS E 0.8 5
S E 1.2 7
S N 2.7 8
M E 10 21
M N 4.5 16
M Z 9.3 21
D = 9550 km = 86°.
Sk iP 15 39 58 C
Gb iP 15 39 58
Off west coast of Sumatra (h = 20 km).
Magn. = 6.6 (Up, Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Oct 26 Up iP 16 18 22 C
i 16 18 31
Ki iP 16 18 22 C
Off west coast of Sumatra (h = 90 km).

" 26 Up iP 19 41 13
i 19 41 22
Ki iP 19 41 14
i 19 41 24
microns sec
P Z' 0.1 1.3
M E 2.2 22
M N 1.1 20
Sk iP 19 41 37
Gb iP 19 41 37
Off west coast of Sumatra (h = 60 km).

" 26 Up iP 22 08 32
Ki iP 22 08 33
microns sec
P Z' 0.1 1.5
Sk iP 22 08 20
Colombia (h = 170 km).

" 27 Up i(P) 08 34 44
Ki iP 08 33 20
iS 08 35 31
D = 1300 km = 11.7°.
Sk iP 08 34 29
i 08 34 34
Novaya Zemlya. Origin time = 08 30 29. Atomic explosion, probably under water.

" 28 Up iP 10 53 15 D
iSS 11 00 48
microns sec
P Z' 0.3 0.5
Ki iP 10 53 56
i 10 54 20
iPP 10 55 25
microns sec
P Z' 0.2 1.0
M E 1.6 19
M N 1.0 16
M Z 3.5 20
D = 4200 km = 38°.
Sk iP 10 53 52

1961 Oct cont. 28 Sk i 10 53 54
Gb iP 10 53 27
Iran (h = 30 km).

" 28 Ki iPKP 15 08 15
Near coast of Chile (h = 40 km).

" 28 Up iP 22 54 15
i 22 54 21
microns sec
M E 2.6 14
M N 3.9 13
M Z 4.8 14
Ki iP 22 53 33
i 22 53 41
iPP 22 55 21
i 22 55 30
microns sec
M E 1.4 14
M N 0.7 12
M Z 1.0 11
Sk iP 22 54 14
Baikal Sea region, U.S.S.R.

" 28 Up i(PP) 23 05 35
isPP 23 06 27
iSKP 23 06 46
iPKS 23 06 54
i 23 08 06
Ki iPKP 23 03 20
i 23 06 43
e 23 08 08
Sk iPKP 23 03 36
New Hebrides Islands (h = 90 km).

" 29 Up iP 09 22 01

" 29 Up iP 09 23 17 D
i 09 23 22
iS 09 32 21
microns sec
S N 1.0 7
M E 3.1 19
M N 3.9 17
M Z 2.7 17
D = 7550 km = 68°.
Ki iP 09 22 43 D
microns sec
P Z' 0.2 1.5
M E 3.4 18

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961 Oct cont.

29 Ki M N 2.6 18
M Z 3.9 18
Sk iP 09 22 49
i 09 22 56
i 09 23 01
Vancouver Island region (h = 15 km).
Magn. = 5.9 (Up, Ki).

" 29 Up iP 14 51 28

" 30 Ki iP 01 55 44
Off coast of Oregon (h = 50 km).

" 30 Ki iP 02 27 26
iS 02 36 14
microns sec
S N 0.6 11
D = 7450 km = 67°.
Gb iP 02 28 08
Off coast of Oregon (h = 40 km).

" 30 Ki iP 04 57 48
Off south coast of Kamchatka (h = 30 km).

" 30 Up iP 08 37 57
i 08 38 02
i(PPP) 08 38 21
iS 08 41 30
iSS 08 42 02
iLi 08 42 55
i(Lg1) 08 43 11
i(Lg2) 08 43 52
i[illegible] 08 47 20
microns sec
P Z' 0.1 0.8
S N 1.1 11
M E 11 10
M N 27 10
M Z 33 10
D = 2160 km = 19.4°.
Ki iP 08 36 25 C
iS 08 38 38
iSS 08 38 58
i(Li) 08 39 11
i(Lg1) 08 39 37
i(Lg2) 08 40 03
i[illegible] 08 45 03

1961 Oct cont.

30 Ki microns sec
P Z' 0.3 1.2
S E 1.7 5
M E 12 10
M N 12 10
M Z 17 10
D = 1370 km = 12.3°.
Sk iP 08 37 36 C
i 08 37 40
iS 08 40 45
iSS 08 41 07
D = 1980 km = 17.8°.
Gb iP 08 38 34 C
Novaya Zemlya, 74.0°N, 53.3°E. Origin time = 08 33 26. H-bomb.

" 30 Up iP 12 10 51
microns sec
P Z' 0.2 1.4

" 30 Up iP 16 07 43
Ki eP 16 06 51

" 30 Up iPKP 17 54 22 C
ipPKP 17 55 18
microns sec
PKP Z' 0.1 0.5
Ki iPKP 17 54 09
Sk iPKP 17 54 15
Gb iPKP 17 54 30
Kermadec Islands (h = 220 km).

" 30 Up i(P) 20 08 30

" 30 Up iP 21 27 47
i 21 27 55
Ki iP 21 27 13
i 21 27 23
microns sec
P Z' 0.1 0.6
Sk i(P) 21 27 56
South of Honshu, Japan (h = 30 km).

" 30 Up iPKP 22 30 35
i(pPKP) 22 31 32
Sk ePKP 22 30 28
Kermadec Islands region.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Gb = Göteborg

1961
Oct 31 Up iP 01 54 47 C
i 01.54 56
microns sec
P Z' 0.2 0.9
Ki iP 01 53 54 C
i 01 54 06
microns sec
P Z' 0.2 0.7
Sk iP 01 54 27 C
Rat Islands, Aleutian Islands (h = 40 km).

" 31 Up i 03 33 15
Ki iP 03 32 36
Near coast of Sumatra (h = 25 km).

" 31 Up iPKP 04 05 25
isPKP2 04 06 56
Ki iPKP 04 05 06
Sk iPKP 04 05 19
Kermadec Islands (h = 230 km).

" 31 Up iP 08 33 54 C
i(Rg) 08 42 02
microns sec
M E 1.1 10
M N 4.1 (14)
M Z 3.8 11
Ki iP 08 32 24 C
iS 08 34 45
microns sec
P Z' 0.1 1.0
M E 3.2 10
M N 2.5 13
M Z 4.1 12
D = 1390 km = 12.5°.
Sk iP 08 33 33 C
Novaya Zemlya, 73.8°N, 54.0°E. Origin time = 08 29 22. H-bomb.

" 31 Up iP 08 42 47
Ki iP 08 41 15 C
eS 08 43 51
microns sec
M E 1.5 9
M N 1.6 11
M Z 2.9 11
D = 1540 km = 13.9°.

1961
Oct 31 Sk iP 08 42 23 C
cont. i 08 51 23
Novaya Zemlya. Origin time = 08 37 54. H-bomb.

" 31 Sk iP 13 42 06 D
Central Italy.

" 31 Ki iP 13 48 50
i(Sg) 13 49 23
i 13 49 26
Local.

" 31 Up iP 14 36 04

" 31 Up i(P) 18 33 26

" 31 Ki i(P) 20 50 24

Seweryn Duda Markus Båth

August 13, 1962

Seismological Institute
Uppsala

P R E L I M I N A R Y

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 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
Karlskrona	(Ka):	56°09.8'N,	15°35.5'E;	h = 11 m

N O V E M B E R 1 - 30, 1961

NOTE: Karlskrona is a new seismograph station in south Sweden. Location: 56°09.8'N, 15°35.5'E, height above m.s.l. = 11 meters, ground is granite. Equipment consists of one short-period vertical seismograph Grenet-Coulomb: T_o = 1.45 sec, T_g = 0.70 sec, max. magnification = 11590 at 0.5 sec, critical damping. The station has been in operation since November 6, 1961. In our bulletins it will be denoted by Ka.

1961 Nov	1	Ki	iP	00 09 10
			Off east coast of Hokkaido, Japan.	
"	1	Up	iP	06 03 49
"	1	Ki	i(P)	06 51 06
"	1	Ki	iP	09 04 56
"	1	Ki	iP	13 01 11
			i	13 01 22
"	1	Up	iPg	13 53 47
			iSn	13 54 25
			i	13 54 41
			iSg	13 54 46
			D = 500 km = 4.5°.	
		Sk	iSg	13 54 48
			i	13 55 10
		Gb	iPg	13 52 59
			iSg	13 53 27
			D = 240 km = 2.2°.	
		South Norway, 59.3°N, 9.0°E. Origin time = 13 52 17.		
"	1	Ki	iP	17 30 22
1961 Nov	1	Up	i(P)	18 42 28
"	1	Ki	eP	18 54 33
"	1	Ki	iPKP	20 28 22
		Fiji Islands (h = 630 km).		
"	1	Ki	iP	21 27 06
"	2	Ki	iP	06 44 54
"	2	Ki	iP	08 44 26
		Sk	iP	08 45 35
		Novaya Zemlya, Origin time = 08 41 35. Nuclear explosion.		
"	2	Up	iP	23 46 37
		Ki	iP	23 45 44 C
		Alaska Peninsula (h = 40 km).		
"	3	Up	iP	04 51 35
"	3	Ki	iP	05 24 11
"	3	Up	i(P)	06 10 27
			i	06 10 51

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

1961
Nov 3 Up iPKP 22 35 10
i 22 35 39
Loyalty Islands region
(h = 90 km).

" 4 Up iP 03 49 12
Ki iP 03 48 23
Kurile Islands
(h = 30 km).

" 4 Up iP 07 24 56
iS 07 28 41
microns sec
S N 1.2 5
M N 1.8 22
M Z 2.5 22
D = 2190 km = 19.7°.
Ki iP 07 23 25
iS 07 25 48
microns sec
P Z' 0.1 1.3
M E 2.2 11
M N 1.8 11
M Z 2.2 11
D = 1410 km = 12.7°.
Novaya Zemlya, 74.2°N,
54.2°E. Origin time =
07 20 21. H-bomb.

" 4 Up iP 13 14 35 D
Ki iP 13 14 26
Sk iP 13 14 51
Gb iP 13 14 58
Eastern Tibet
(h = 25 km).

" 4 Up iP 18 28 02
Ki iP 18 27 07 D
i 18 27 20
microns sec
P Z' 0.3 1.4
Sk iP 18 27 39
Gb iP 18 28 15
i 18 28 26
Fox Islands, Aleutian
Islands (h = 15 km).

" 5 Up iP 00 21 16
Sk eP 00 21 53
Greece.

" 5 Up iP 03 27 14
Honshu, Japan
(h = 60 km).

" 5 Up iP 03 52 46 D

1961
Nov 5 cont. Sk iP 03 52 35
Gb iP 03 53 07
iPcP 03 53 24
Kurile Islands (h = 20 km).

" 5 Up iP 08 44 07
Ki iP 08 44 41

" 5 Up iP 08 47 17 C
i 08 47 22
microns sec
P Z' 0.1 0.6
Ki iP 08 47 57
Sk iP 08 47 54
Gb iP 08 47 30
Southern Iran (h = 90 km).

" 5 Up iP 10 47 22
i 10 47 33
ipP 10 47 50
Ki iP 10 46 36
Sk iP 10 47 25
Gb iP 10 47 44
Kurile Islands
(h = 140 km).

" 5 Up iPKP 13 24 32
i 13 24 42
Gb iPKP 13 24 50
Tonga Islands region
(h = 60 km).

" 6 Ki iPKP 00 16 30
Northwest of Auckland
Islands, New Zealand
(h = 40 km).

" 6 Up iPKS 05 50 50
i 05 51 23
microns sec
M E 3.0 21
M N 2.8 20
M Z 4.2 20
Ki iPKP 05 47 11
Santa Cruz Islands
region (h = 210 km).

" 6 Up iP 08 09 04
Sk iP 08 09 21
Bhutan (h = 70 km).

" 6 Ki eP 08 31 00

" 6 Ki iP 12 36 49
Gb iP 12 37 03
Hindu Kush (h = 110 km).

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

1961					
Nov	6	Up	iP	17 30 57	
		Ki	iP	17 30 52	
"	7	Up	eP	01 25 46	
		Ki	iP	01 25 55	
"	7	Ki	iP	08 44 05	
"	7	Up	iP	08 47 15	
		Ki	iP	08 47 50	
		Sk	eP	08 47 49	
"	7	Ki	iP	08 59 17	
"	7	Up	iPKP	12 34 37	
			i	12 34 40	
			i	12 34 48	
		Gb	iPKP	12 34 54 C	
		South of Tonga Islands (h = 50 km).			
"	7	Up	iPKP	21 29 32	
		Ki	ePKP	21 29 13	
		Sk	iPKP	21 29 31	
		South of Kermadec Islands (h = 40 km).			
"	8	Ki	iP	05 07 29	
		Near coast of Oaxaca, Mexico (h = 50 km).			
"	8	Ka	iP	10 17 40	
"	8	Gb	i(P)	10 35 07	
"	8	Up	iP	13 46 59	
		Sk	eP	13 46 11	
"	8	Up	iP	15 16 55	
"	8	Up	iP	18 46 17	
"	8	Up	i(P)	19 31 06	
"	9	Sk	eP	08 13 24	
"	9	Up	iSn	08 40 56	
			iSg	08 41 15	
		D = 420 km = 3.8°.			
		Sk	e	08 41 44	
			iSg	08 41 48	
		Ka	iSg	08 41 21	
		Oslo Fjord, 59.0°N, 10.5°E. Origin time = 08 39 10.			

1961					
Nov	9	Ka	i(Sg)	13 43 13	
			i	13 43 34	
"	10	Up	iP	05 50 48	
"	10	Up	i(P)	07 13 03	
"	10	Ka	i(P)	14 48 24	
		Seismic?			
"	11	Up	iP	12 07 42	
				microns	sec
			P	Z' 0.1	0.5
"	11	Ka	iP	12 37 06	
"	11	Up	iP	12 39 36	
		Off coast of Guatemala (h = 90 km).			
"	11	Sk	eP	22 37 56	
"	12	Up	iP	02 25 20	D
			iPcP	02 26 08	
			eS	02 33 39	
				microns	sec
			M	E 1.0	20
			M	N 1.2	20
			M	Z 1.5	19
		D = 6650 km = 60°.			
		Ki	iP	02 26 11	D
				microns	sec
			P	Z' 0.2	0.9
		Sk	iP	02 25 49	D
			i	02 25 59	
		Ka	iP	02 24 59	
		Congo region (h = 40 km).			
"	12	Sk	eP	08 56 42	
"	12	Ki	iPKP	10 34 58	
		Near coast of South Island, New Zealand (h = 20 km).			
"	12	Sk	iP	20 14 28	
"	13	Up	e(P)	02 03 32	
"	13	Up	e(P)	02 50 38	
		Sk	eP	02 50 17	
"	13	Up	iP	07 28 11	
"	13	Ki	eP	09 11 37	

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

1961
Nov 13 Ki iP 09 19 53
Sk iP 09 20 13
Hindu Kush (h = 160 km).

" 13 Up iPg 11 43 05
iSn 11 43 32
iSg 11 43 53

" 13 Gb i(P) 12 29 02

" 13 Ki iP 14 14 58
Sk eP 14 15 05
i 14 17 04

" 13 Sk iP 14 37 41

" 13 Up iP 19 49 14 C
i 19 49 19
microns sec
P Z' 0.1 1.0
Ki iP 19 48 25
Sk iP 19 49 00
Gb iP 19 49 37
Kurile Islands
(h = 40 km).

" 13 Up iPKP 20 05 13
Sk iPKP 20 05 05
Kermadec Islands
(h = 25 km).

" 13 Up iP 20 42 10

" 14 Up iP 04 55 21
iSKS 05 05 46
iS 05 06 12
microns sec
SKS E 0.5 4
S N 0.5 4
M E 3.4 22
M N 4.7 23
M Z 5.0 25
D = 9850 km = 88½°.
Ki iP 04 55 29
i 04 55 33
microns sec
P Z' 0.7 2.2
M E 4.5 22
M N 3.2 20
Sk eP 04 55 06
i 04 55 20
Off coast of Panama
(h = 30 km).
Magn. = 6.2 (Up, Ki).

1961
Nov 14 Up iP 10 13 45 C
microns sec
P Z' 0.1 0.7
Ki iP 10 13 08 C
microns sec
P Z' 0.1 1.0
Sk iP 10 13 41 C
Gb iP 10 14 02
Honshu, Japan
(h = 170 km).

" 14 Up iP 10 39 32 D
i 10 39 43
Ki iP 10 38 44
Sk iP 10 39 18
Kurile Islands
(h = 25 km).

" 14 Up iPKP 12 58 40 D
i 12 58 49
microns sec
P Z' 0.1 0.5
Ki iPKP 12 58 21
Sk iPKP 12 58 35 D
Off coast of North Island,
New Zealand (h = 50 km).

" 14 Up i(P) 14 38 36

" 14 Up iP 17 27 16 C
Ki iP 17 27 15 C
Sk iP 17 27 29 C
Near coast of Sumatra
(h = 20 km).

" 15 Up iP 07 28 14 C
i 07 28 29
iS 07 37 12
iPS 07 37 31
microns sec
P E 1.5 3
P N 3.2 3
P Z 2.3 3
P Z' 0.6 0.6
S E 7.4 5
S N 11 5
S Z' 0.2 1.6
M E 36 16
M N 39 20
M Z 51 18
D = 7550 km = 68°.
Ki iP 07 27 30 C
iS 07 35 50

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

1961
Nov 15 Ki microns sec
cont. P Z 11 6
P Z' 2.5 1.5
S E 4.9 7
S N 12 8
M E 64 20
M N 50 20
M Z 69 20
D = 6800 km = 61°.
Sk iP 07 28 05 C
i 07 28 51
Gb iP 07 28 35 C
iS 07 37 53
Near coast of Hokkaido, Japan (h = 40 km).
Magn. = 7.1 (Up, Ki).

" 15 Up iP 14 38 17 D
Near coast of Mindanao, Philippine Islands (h = 190 km).

" 16 Jp iP 06 15 09
i 06 15 15

" 16 Up iP 12 27 18

" 16 Gb iP 12 39 45

" 17 Up iP 14 35 58

" 17 Up iP 15 00 01
Ki iP 14 59 07 D
Fox Islands, Aleutian Islands (h = 25 km).

" 18 Up iP 01 51 22
West Pakistan (h = 60 km).

" 18 Up iP 03 22 16 C
i 03 22 19
i 03 22 29
Ki iP 03 23 38
Rumania (h = 100 km).

" 18 Up iPKP 11 36 30 C
i 11 36 38
microns sec
PKP Z' 0.1 0.6
Ki iPKP 11 36 19
Gb iPKP 11 36 38
Kermadec Islands region (h = 60 km).

1961
Nov 18 Up iP 13 13 04
microns sec
P Z' 0.1 0.5

" 18 Up e(P) 14 36 54

" 18 Ki iP 14 56 00
Sk iSg 14 58 45
Explosion of 86 ton dynalite in the Kiruna iron ore mines. Origin time = 14 55 58.

" 18 Up iP 22 21 38 C
ipP 22 21 57
microns sec
P Z' 0.1 0.5
Ki iP 22 21 14 C
ipP 22 21 35
microns sec
P Z' 0.1 0.9
M E 1.8 20
Sk iP 22 21 40
Gb iP 22 21 56
ipP 22 22 14
Near coast of Formosa.
h = 80 km (Up,Ki,Gb).

" 19 Up iP 00 46 10
Ki iP 00 45 15
Andreanof Islands, Aleutian Islands (h = 70 km).

" 19 Sk iP 19 03 22

" 19 Up iP 23 35 12 C
iSKS 23 45 28
microns sec
P Z' 0.1 0.6
SKS E 0.4 3
M E 0.8 20
M N 1.3 19
D = 10900 km = 98°.
Ki iP 23 34 58
iSKS 23 45 12
iS 23 45 49
microns sec
SKS E 1.5 4
S E 0.9 7
M E 2.5 19
M N 1.0 16
D = 10550 km = 95°.

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

1961
Nov 19 cont. Sk iP 23 35 18
Northern Celebes
(h = 160 km).

" 20 Up iP 04 11 38 C
i 04 11 41
microns sec
M E 0.5 13
M N 1.2 12
Ki iP 04 11 11
microns sec
M E 1.1 14
M N 1.8 15
M Z 1.0 14
Sk iP 04 11 48
Outer Mongolia-Siberia
border (h = 50 km).

" 20 Up iP 04 43 56
Ki iP 04 43 18
Sk iP 04 43 51 C
Near east coast of
Honshu, Japan
(h = 80 km).

" 20 Up iP 06 50 36
Ki iP 06 49 42
Near east coast of
Kamchatka (h = 70 km).

" 20 Ki i(P) 09 02 46

" 20 Up eL 12 41
microns sec
M E 1.4 21
M N 1.1 19
M Z 1.6 20
Loyalty Islands region
(h = 30 km).

" 20 Up iP 14 28 27
i 14 28 31

" 20 Up iP 18 06 54 D
i 18 06 59
microns sec
P Z' 1.6 2.0
Ki iP 18 07 16
Sk iP 18 06 42 D
i 18 07 08
North Atlantic Ocean
(h = 40 km).

" 20 Up iP 23 19 01 D
South of Honshu, Japan
(h = 530 km).

1961
Nov 21 Up iP 01 27 34 D
microns sec
P Z' 0.1 0.5
Northern Hokkaido,
Japan (h = 170 km).

" 21 Up iP 05 51 22 C

" 22 Up iP 03 02 02
microns sec
P Z' 0.1 0.5

" 22 Up iP 13 43 22 C
microns sec
P Z' 0.1 0.7

" 22 Up iPKP 20 58 50
i 20 58 56
Gb iPKP 20 58 57
Kermadec Islands region
(h = 80 km).

" 22 Up iP 22 50 26 D

" 23 Up iP 01 15 38
Northern Italy.

" 23 Up iPKP 06 14 38 C
Sk iPKP 06 14 33 C
Kermadec Islands
(h = 110 km).

" 23 Up iP 07 28 46

" 23 Up iP 09 45 18

" 23 Up iP 11 36 55

" 23 Up iP 12 04 39
i 12 04 43
microns sec
P Z' 0.1 1.0
Sk e(P) 12 04 17

" 23 Up iP 12 27 48

" 23 Up iP 13 12 16
microns sec
P Z' 0.1 0.7

" 24 Up iP 17 27 23

" 24 Up i(P) 21 57 13
Ki iP 21 56 35

" 25 Up iP 10 16 33

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

1961
Nov 25 Up iP 15 13 45

" 25 Up i(P) 20 31 06 C
iP 20 31 20
i 20 31 28
microns sec
P Z' 0.1 1.0
Ki iP 20 30 42 C
Sk iP 20 31 15
Near east coast of Honshu, Japan (h = 60 km).

" 26 Up iP 03 52 22

" 27 Up iP 05 21 28
Ka iP 05 20 52

" 27 Up iP 05 33 54

" 27 Up iP 06 08 43 D
iPcP 06 08 59
microns sec
M E 7.1 18
M N 14 21
M Z 8.5 19
Ki iP 06 08 12 D
microns sec
P Z' 0.5 1.5
M E 12 21
M N 6.7 18
M Z 12 18
Sk iP 06 08 42 D
Gb iP 06 09 03
i 06 09 05
Ka iP 06 09 11
Near south coast of Kyushu, Japan (h = 25 km).
Magn. = 6.4 (Up, Ki).

" 27 Sk iP 13 58 16

" 27 Up ePP 17 28 14
i 17 28 26
iSKS 17 34 54
microns sec
SKS E 2.3 4
SKS N 0.3 3
M E 5.1 22
M N 5.3 20
M Z 9.4 22
D = 11100 km = 100°.

1961
Nov 27 Ki iP 17 24 09
cont. iSKS 17 34 43
microns sec
SKS E 1.9 9.0
M E 7.7 19
M N 2.6 18
M Z 7.2 18
D = 10800 km = 97°.
Gb ePP 17 28 49
Ka ePP 17 28 48
Halmahera region (h = 25 km).
Magn. = 6.4 (Up, Ki).

" 28 Up iP 08 04 35 D
Ki iP 08 03 47
Kurile Islands (h = 80 km).

" 28 Up iP 09 03 17 C
i 09 03 20
iS 09 06 54
iLg2 09 09 54
microns sec
M E 3.1 15
M N 3.8 12
M Z 3.2 12
D = 2150 km = 19½°.
Ki iP 09 04 34
iPP 09 05 27
microns sec
M E 2.7 15
M N 1.3 12
M Z 1.8 11
Sk iP 09 04 04
Ka iP 09 03 01
Greece-Turkey border (h = 120 km).

" 28 Up iP 10 22 45 D
i 10 22 51
Ki iP 10 22 53
i 10 24 18
Sk iP 10 23 10
Gb iP 10 23 10
Ka iP 10 22 49
India-Pakistan border (h = 30 km).

" 28 Up iP 16 46 03 C

" 28 Up iP 16 49 32
Honshu, Japan (h = 100 km).

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

1961				
Nov	28	Up	iP	20 38 16
"	29	Ki	iP	07 25 22
"	29	Gb	i(P)	11 09 33
			Banda Sea (h = 50 km).	
"	29	Up	iP	14 41 36
"	29	Up	iP	20 37 46
"	29	Ki	iPKP	23 35 41
			North Island, New Zealand (h = 70 km).	
"	30	Up	i(P)	00 22 10
"	30	Up	iSg	10 04 57
		Gb	e(Pg)	10 03 30
			iSg	10 03 33
"	30	Up	iSg	10 49 22
		Gb	e(Pg)	10 47 57
			iSg	10 48 00
"	30	Up	i(Sg)	11 11 42
		Gb	iSg	11 10 20
"	30	Sk	i(P)	11 51 42
"	30	Up	iSg	12 15 37
		Gb	e(Pg)	12 14 11
			iSg	12 14 14
"	30	Up	iP	12 29 55
		Ki	iP	12 29 15
		Sk	iP	12 29 51
			Near Vladivostok, U.S.S.R. (h = 470 km).	
"	30	Up	iP	14 55 53
"	30	Up	i(P)	18 31 38
"	30	Ki	iP	18 40 15

Ingrid Pettersson Markus Båth

August 21, 1962

Seismological Institute
Uppsala

P R E L I M I N A R Y

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 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
Karlskrona	(Ka):	56°09.8'N,	15°35.5'E;	h = 11 m

D E C E M B E R 1 - 31, 1961

1961 Dec	1	Up	iP	05 49 59	
			i	05 50 36	
"	1	Up	iP	07 44 28	C
		Ki	iP	07 43 35	C
			microns	sec	
			M E	1.1 15	
			M N	0.4 14	
		Sk	eP	07 44 23	
		Kamchatka (h = 20 km).			
"	1	Ki	iP	08 11 27	
		Off coast of Negros, Philippine Islands (h = 40 km).			
"	1	Gb	e(P)	09 10 33	
			e	09 10 45	
"	1	Gb	e(P)	10 12 39	
		Seismic?			
"	1	Sk	iP	12 06 43	
"	1	Gb	iPg	14 08 01	
			iSg	14 08 03	
		Explosion?			
"	1	Up	iP	20 29 58	
			microns	sec	
			P Z'	0.1 0.6	
		Ki	iP	20 29 25	
		Sk	iP	20 29 54	
			i	20 30 05	
		Volcano Islands region (h = 25 km).			

1961 Dec	1	Up	iP	21 24 27	D
			iPcP	21 24 42	
			ipP	21 25 20	
			iS	21 33 47	
			isS	21 35 25	
			microns	sec	
			P Z'	0.3 1.2	
			pP Z'	1.0 1.0	
			S E	1.9 8	
			M E	1.6 19	
			M N	4.7 20	
			M Z	2.4 14	
		D = 8350 km = 75°.			
		Ki	iP	21 24 00	D
			ipP	21 24 52	
			iS	21 32 57	
			isS	21 34 33	
			microns	sec	
			P Z'	0.6 1.5	
			pP Z'	1.1 1.0	
			S E	2.5 10	
			M E	4.0 20	
			M N	2.9 17	
			M Z	2.5 18	
		D = 7850 km = 70½°.			
		Sk	iP	21 24 29	D
			ipP	21 25 22	
		Gb	iP	21 24 47	
			ipP	21 25 40	
		Ka	iP	21 24 43	
			ipP	21 25 31	
		East China Sea. h = 210 km (Up,Ki,Sk,Gb,Ka).			
		Magn. = 6.1 (Up, Ki).			
		The pP and sS waves have exceptionally large amplitudes.			

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

1961						
Dec	2	Up	iP		07 23 06	
"	2	Up	iP		12 45 30	C
			i		12 45 41	
			eS		12 49 47	
				microns	sec	
			P	N	0.9	4
			P	Z	0.7	3
			S	E	0.7	5
			M	E	2.2	16
			M	N	2.0	12
			M	Z	2.4	13
			D = 2650 km = 24°.			
		Ki	iP		12 46 40	C
				microns	sec	
			M	E	3.0	16
			M	N	2.2	16
			M	Z	2.6	14
		Sk	iP		12 45 58	
		Gb	iP		12 45 04	
		Ka	iP		12 44 51	
		Northern Tunisia (h = 60 km). Magn. = 5.5 (Up).				
"	2	Up	e(P)		18 31 35	
			i		18 32 25	
"	2	Up	iP		19 31 19	
"	3	Up	iP		08 52 02	D
			i		08 52 38	
		Ki	iP		08 51 37	D
			ipP		08 52 12	
		Sk	eP		08 52 05	
		Off coast of Formosa (h = 90 km).				
"	3	Ki	iP		09 39 53	
		Kirghiz, U S.S.R. (h = 25 km).				
"	3	Up	iP		18 37 18	D
			ipP		18 37 32	
			i		18 42 15	
				microns	sec	
			P	Z'	0.1	0.6
			M	E	3.4	18
			M	N	3.2	16
		Ki	iP		18 38 02	
			ipP		18 38 16	
			i		18 40 32	

1961						
Dec	3	Ki		microns	sec	
cont.			M	E	2.2	13
			M	N	1.7	11
			M	Z	2.7	11
		Sk	eP		18 38 20	
			i		18 40 28	
		Gb	iP		18 37 43	
		Ka	iP		18 37 07	
		Armenia, U.S.S.R.-Turkey border region (h = 50 km).				
"	3	Up	iP		20 05 05	D
			i		20 05 20	
			iPcP		20 05 33	
			iS		20 13 15	
				microns	sec	
			P	Z'	0.1	0.5
			D = 7150 km = 64½°.			
		Ki	iP		20 04 24	D
			i		20 04 51	
			iScP		20 08 32	
			iS		20 12 08	
			D = 6550 km = 59°.			
		Sk	iP		20 05 01	D
		Gb	iP		20 05 28	D
		Near Vladivostok, U.S.S.R. (h = 420 km).				
"	4	Ki	iP		03 52 20	D
		Off south coast of Alaska Peninsula (h = 110 km).				
"	4	Sk	eP		11 21 45	
			i		11 21 50	
"	4	Up	iP		12 47 49	D
			i		12 47 58	
			iS		12 55 36	
				microns	sec	
			P	Z'	0.3	1.0
			S	E	1.0	5
			M	E	6.4	12
			M	N	18	18
			M	Z	6.3	12
			D = 6150 km = 61½°.			
		Ki	iP		12 47 34	
			i		12 47 40	
			iS		12 55 11	
			iSS		12 59 13	
				microns	sec	
			P	Z'	0.1	1.0
			S	E	1.0	9

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

1961
Dec 4 cont.

Ki S N 0.8 8
M E 13 13
M N 14 15
D = 5950 km = 53½°.
Sk eP 12 48 01
i 12 48 07
Gb iP 12 48 12
Tibet (h = 50 km).
Magn. = 6.2 (Up, Ki).

" 4 Up iP 17 41 08 D
i 17 43 40
iS 17 43 44
iSS 17 44 00
i 17 44 29
D = 1560 km = 14.0°.
Ki iP 17 40 01 D
i 17 40 08
i(S) 17 41 51
e(SSS) 17 42 07
D = 1010 km = 9.1°.
Sk iP 17 40 06 D
iS 17 41 56
D = 1070 km = 9.6°.
East of Jan Mayen, 70.6°N, 4.0°W. Origin time = 17 37 46.
The solution is based on both Swedish and Finnish observations (Nurmijärvi, Kajaani, Sodankylä).

" 5 Up iPKP 13 20 45 C
microns sec
PKP Z' 0.2 1.0
M E 3.2 18
M N 3.9 20
M Z 4.5 20
Ki iPKP 13 20 43
microns sec
M E 4.4 20
M N 2.9 21
Sk iPKP 13 20 50
Ka ePKP 13 20 39
Southwest of Tasmania (h = 60 km).
Magn. = 6.3 (Up, Ki).

" 5 Up i(PKP) 13 21 48
iSKP 13 24 32
New Hebrides Islands (h = 150 km).

" 5 Gb i(P) 14 51 27

1961
Dec 5 Up i(P) 18 35 49

" 6 Ki iP 02 26 44 C
Off east coast of Honshu, Japan (h = 50 km).

" 6 Up iP 05 59 57 D
microns sec
P Z 2.2 5
P Z' 0.2 0.5
M E 2.7 16
M N 8.5 23
M Z 3.0 16
Ki iP 05 59 57 D
iS 06 09 19
microns sec
P Z' 0.7 1.5
S N 1.1 12
M E 4.9 19
M N 3.7 20
M Z 3.9 17
D = 7900 km = 71°.
Sk iP 06 00 14 D
Gb iP 06 00 11 D
Ka iP 05 59 58
Andaman Islands (h = 50 km).
Magn. = 6.4 (Up, Ki).

" 6 Up iPKP 13 55 14
microns sec
PKP Z' 0.1 0.7
Ki ePKP 13 55 03
microns sec
M E 1.8 20
M N 1.0 19
M Z 2.8 20
Gb iPKP 13 55 23
i 13 55 34
Tonga Islands region (h = 20 km).

" 6 Ka iP 14 37 25

" 6 Up e(P) 15 46 15
i 15 48 45

" 6 Up iP 16 50 19 C
i 16 50 30
iPa 16 54 35
iS 16 59 02
microns sec
P Z' 0.1 0.5
S N 1.1 5
M E 17 21

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

1961 Dec 6 cont.	Up	M	N	35	22	
		M	Z	40	24	
		D = 7300 km = 65½°.				
	Ki	iP		16 49 27		
		i		16 51 13		
		iPa		16 53 06		
				microns	sec	
		M	E	26	20	
		M	N	11	18	
		M	Z	12	18	
	Sk	iP		16 50 05		
		iPcP		16 50 43		
	Gb	iP		16 50 36		
		iPcP		16 51 01		
	Kurile Islands (h = 20 km). Magn. = 6.4 (Up, Ki).					
" 7	Gb	iPKP		00 38 02		
		i		00 38 13		
	Tonga Islands region (h = 50 km).					
" 7	Up	i(P)		06 03 14	C	
		i		06 03 54		
" 8	Up	iP		10 29 13		
		i		10 29 17		
		i		10 29 23		
	Ki	iP		10 29 11		
				microns	sec	
		M		1.1	14	
	Sk	iP		10 29 34		
	Gb	iP		10 29 32		
	Ka	iP		10 29 23		
	Tibet (h = 50 km).					
" 8	Ki	iP		10 50 31		
	Gulf of Aden (h = 25 km).					
" 8	Up	i(P)		17 13 57	D	
" 8	Ki	iP		20 41 30		
" 9	Up	iP		00 09 06	D	
" 9	Up	iP		02 25 56	C	
		i		02 26 06		
		i		02 27 10		
		iS		02 34 34		
				microns	sec	
		P	Z'	0.1	0.6	
		S	E	0.7	5	
		S	N	1.2	6	

1961 Dec 9 cont.	Up	M	E	2.5	18	
		M	N	2.9	18	
		M	Z	2.6	18	
		D = 7050 km = 63½°.				
	Ki	iP		02 25 02	C	
		i		02 25 13		
		iS		02 32 48		
		i(PS)		02 33 04		
				microns	sec	
		P	Z'	0.3	1.0	
		S	E	1.7	6	
		S	N	1.6	7	
		M	E	4.0	21	
		M	N	3.2	21	
		M	Z	5.1	22	
		D = 6150 km = 55½°.				
	Sk	iP		02 25 29	C	
		i		02 25 32		
	Gb	iP		02 26 04	C	
		i		02 26 14		
	Ka	iP		02 26 15		
		i		02 26 34		
	Kodiak Island, Alaska region (h = 30 km). Magn. = 6.1 (Up, Ki).					
" 9	Up	iP		04 45 48	D	
		i		04 46 01		
		i(pP)		04 46 09		
		i		04 46 22		
	Ki	iP		04 45 30	C	
		i(pP)		04 45 51		
				microns	sec	
		P	Z'	0.1	0.7	
	Sk	iP		04 45 43	C	
		i(pP)		04 46 04		
" 9	Up	iP		10 31 33	D	
		ipP		10 32 30		
	Ki	iP		10 31 25		
	Java (h = 300 km).					
" 9	Up	iPKP		11 37 13	C	
		i		11 37 22		
		i		11 37 27		
		i(PKS)		11 40 32		
		iPS		11 49 23		
				microns	sec	
		(PKS)	E	1.2	6	
		M	E	12	18	
		M	N	12	21	
		M	Z	13	24	
		D = 14350 km = 129°.				

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

1961					
Dec 9	Ki	iPKP		11 37 18	C
cont.		i		11 37 21	
		i		11 37 25	
		iPP		11 39 43	
		iPKS		11 40 49	
				microns sec	
		PKP	Z	1.6 7	
		PP	Z	1.8 5	
		PKS	E	6.2 6	
		PKS	Z	1.7 5	
		M	E	10 20	
		M	N	6.5 21	
		M	Z	9.7 18	
		D = 14650 km = 132°.			
	Sk	ePKP		11 37 09	
		i		11 37 15	
		i		11 37 26	
	Gb	iPKP		11 37 05	
		i		11 37 21	
	Ka	iPKP		11 37 05	C
		i		11 37 22	
		Near coast of southern Chile (h = 30 km). Magn. = 6.8 (Up, Ki).			
" 9	Gb	iPg		12 25 01	
		iSg		12 25 03	
		Explosion? Same source as for Dec. 1, 1961, at 14 08.			
" 9	Ki	iP		16 49 20	
		South of Java (h = 40 km).			
" 9	Up	iPKP		20 07 58	D
		i		20 08 07	
		iPP		20 11 08	
				microns sec	
		PP	Z'	0.1 1.0	
	Ki	iPKP		20 07 40	D
		i		20 07 52	
	Sk	iPKP		20 07 50	D
		i		20 08 02	
	Gb	iPKP		20 08 02	D
	Ka	iPKP		20 08 05	D
		Fiji Islands (h = 620 km).			
" 9	Ki	iP		21 31 29	
	Sk	iP		21 31 55	
" 10	Up	iP		04 35 02	
" 10	Up	iP		04 42 38	C
	Ki	iP		04 42 20	

1961					
Dec 10	Up	iP		05 09 07	
	Ki	iP		05 08 13	
	Sk	iP		05 08 39	C
		Kodiak Island region (h = 70 km).			
" 10	Up	iP		08 44 36	
		i		08 45 25	
		iS		08 49 03	
		D = 2850 km = 25½°.			
	Ki	iP		08 45 44	
				microns sec	
		M	E	1.1 13	
		M	N	0.7 15	
	Sk	i(PP)		08 45 11	
	Ka	iP		08 44 16	
		i		08 44 37	
		Aegean Sea (h = 80 km).			
" 10	Up	iP		11 34 47	
		i		11 35 34	
" 10	Up	iP		14 39 00	
" 10	Up	iP		19 11 51	C
	Ki	iP		19 11 25	
	Sk	iP		19 11 24	
		New Mexico, U.S.A. Underground nuclear explosion of 5 kiloton (Project Gnome).			
" 11	Ki	iP		09 50 11	
" 11	Up	iP		10 02 40	C
	Ki	iP		10 02 34	C
	Sk	eP		10 03 02	
		i		10 03 22	
		Burma (h = 90 km).			
" 11	Up	iP		16 58 17	C
		i		16 58 25	
		iS		17 02 25	
		i		17 02 45	
		D = 2600 km = 23½°.			
	Ki	iP		16 59 27	C
		i(SS)		17 06 00	
	Sk	iP		16 58 56	C
		eS		17 03 37	
		i(SS)		17 05 04	
		D = 3050 km = 27½°.			
	Gb	iP		16 58 04	C
		i		16 58 20	
	Ka	iP		16 57 39	C

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

1961
Dec 11 cont. Ka iS 17 01 20
D = 2200 km = 20°.
Near coast of southern Greece (h = 25 km).

" 12 Up iP 03 48 35 C

" 12 Ki iP 05 56 46

" 12 Ki i(P) 09 21 58

" 12 Ki iP 11 52 32

" 12 Up iP 14 41 06

" 12 Up iP 17 35 56
i 17 36 03
microns sec
P Z' 0.1 0.7
Ki iP 17 35 27
microns sec
M E 1.1 15
M N 0.7 13
Sk eP 17 35 54
Northern Mariana Islands region (h = 25 km).

" 12 Up iP 20 35 18
Gb i(P) 20 34 46

" 12 Ki i(P) 21 17 23

" 12 Ki iP 21 31 08

" 12 Up iP 23 17 20 C
i 23 17 25
iPP 23 19 52
microns sec
P Z' 1.3 1.0
Ki iP 23 16 35 D
microns sec
P Z' 1.0 1.0
M E 1.2 16
M N 1.2 17
M Z 3.2 17
Sk iP 23 17 10
Gb iP 23 17 43 C
i 23 17 58
Ka iP 23 17 42 C
Near east coast of Hokkaido, Japan (h = 40 km).

" 13 Up i(P) 00 47 45

1961
Dec 13 Up i(P) 01 58 24

" 13 Up iP 08 52 49
i 08 53 02
Sk iP 08 52 49
Gb iP 08 52 56
i 08 53 10
Ryukyu Islands (h = 160 km).

" 13 Up ePKP 17 09 20
New Hebrides Islands (h = 30 km).

" 13 Up iP 17 40 18
i 17 40 26
Sk eP 17 41 00
Greece.

" 13 Up iP 20 54 27

" 14 Up
microns sec
M E 2.3 19
M N 2.2 20
M Z 3.0 19
Ki iSKS 07 35 10
microns sec
SKS E 1.2 8
M E 2.4 18
M N 1.3 18
M Z 3.6 18
Near north coast of New Guinea (h = 40 km).
Magn. = 6.0 (Up, Ki).

" 14 Gb i(P) 15 59 34
i 15 59 37

" 14 Gb iP 17 50 58

" 14 Up iPKP 23 44 42 D
microns sec
PKP Z' 0.1 0.6
South of Fiji Islands (h = 500 km).

" 15 Up eP 22 08 44
iPP 22 09 20
Sk eP 22 09 15
i 22 09 29
Gb iP 22 08 39
Crete.

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

1961					
Dec	16	Up	cP	01 41 20	
			i	01 41 32	
"	16	Up	iP	13 51 00	D
			i	13 51 13	
				microns sec	
			P Z'	0.1 1.0	
		Ki	iP	13 50 07	D
			i	13 50 17	
		Sk	iP	13 50 57	
		Gb	iP	13 51 18	
			i	13 51 33	
			iPcP	13 51 42	
		Ka	iP	13 51 23	
			i	13 51 35	
		Near east coast of Kamchatka (h = 25 km).			
"	16	Up	iPKP	20 54 32	D
			i	20 54 49	
				microns sec	
			PKP Z'	0.1 0.6	
		Ki	iPKP	20 54 20	
		Sk	iPKP	20 54 25	D
		Gb	iPKP	20 54 41	D
			i	20 54 48	
		Ka	iPKP	20 54 42	D
			i	20 54 50	
		Kermadec Islands (h = 420 km).			
"	17	Up	iPKP	22 32 29	D
		Ki	iPKP	22 32 12	
			i	22 32 24	
		South of Tasmania (h = 50 km).			
"	17	Ki	iP	22 40 20	
			i	22 40 23	
"	18	Up	iP	02 30 39	
		Ki	iP	02 30 24	
		Off north coast of Luzon, P.I. (h = 30 km).			
"	18	Up	iP	03 14 32	
		Sk	e(P)	03 13 38	
		Gb	i(P)	03 14 04	
"	18	Gb	i(P)	05 58 15	
"	18	Up	i(P)	13 03 43	

1961					
Dec	18	Up	iP	16 52 34	C
				microns sec	
			P Z'	0.1 0.5	
		Sk	iP	16 52 47	C
		Ka	iP	16 52 38	C
		Burma-India border (h = 90 km).			
"	18	Up	iP	20 36 00	D
"	18	Up	iP	21 40 22	
			i	21 40 25	
		Sk	iP	21 41 05	
		Gb	eP	21 40 04	
		Ionian Islands.			
"	19	Up	iP	03 18 12	
"	19	Gb	i(P)	14 09 57	
"	19	Up	iP	17 42 06	
		Ki	iP	17 41 32	
		Sk	eP	17 42 07	
		Gb	iP	17 42 17	
		Near east coast of Formosa (h = 90 km).			
"	20	Up	i(Sn)	03 23 02	
			iLg1	03 23 28	
			iSg	03 23 38	
			D = 780 km = 7.0°.		
		Ki	iPg	03 20 44	
			iSg	03 21 20	
			D = 310 km = 2.8°.		
		Sk	e(P^x)	03 20 44	
			i(S^x)	03 21 25	
			iSg	03 21 28	
			D = 340 km = 3.1°.		
		West coast of Norway, 66.8°N, 14.0°E. Origin time = 03 19 47.			
"	20	Up	iP	13 38 04	D
			ipP	13 38 45	
			ipPP	13 42 34	
			iS	13 48 31	
			iSP	13 49 41	
				microns sec	
			P E	1.6 5	
			P N	1.9 5	
			P Z	1.7 5	
			P Z'	0.2 0.5	

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

1961 Dec 20 cont.	Up	S	E	1.2	4	
		S	N	15	11	
		M	E	4.1	18	
		M	N	6.3	22	
		M	Z	5.8	20	
		D = 9800 km = 88°.				
	Ki	iP		13 38 06		D
		ipP		13 38 48		
		iS		13 48 37		
		iSP		13 49 36		
		iSS		13 54 27		
		i(SSS)		13 57 43		
			microns	sec		
		P	Z'	0.8	0.7	
		S	E	4.3	8	
		S	N	15	9	
		M	E	4.1	16	
		M	N	4.3	16	
		M	Z	7.4	16	
		D = 9850 km = 88½°.				
	Sk	iP		13 37 52		D
		i		13 38 22		
	Gb	iP		13 37 49		D
		ipP		13 38 32		
		isP		13 38 58		
		D = 9350 km = 84°.				
	Ka	iP		13 37 58		D
	West-central Colombia. h = 170 km (Up,Ki,Gb). Magn. = 6.9 (Up, Ki).					
" 21	Ki	iP		00 57 24		C
	Near coast of Mindanao, P.I. (h = 25 km).					
" 21	Up	iP		20 09 02		
		i		20 09 59		
" 21	Ki	iP		21 58 15		
" 21	Up	iP		22 14 05		D
	Ki	eP		22 13 19		D
" 22	Ki	iP		15 08 15		C
	Sk	iP		15 08 42		C
	Kodiak Island, Alaska (h = 25 km).					
" 22	Ki	iP		19 01 57		
		i		19 02 11		
" 22	Up	i(P)		21 11 58		

1961 Dec 22	Ki	iP		22 58 44		
	Mariana Islands (h = 160 km).					
" 22	Ki	iP		23 55 41		
" 23	Up	i(P)		03 48 46		G
" 23	Up	iP		09 22 26		
" 23	Up	iP		18 16 34		D
	Ki	iP		18 16 43		D
	Gb	iP		18 16 48		D
	Ka	iP		18 16 32		
	Hindu Kush (h = 180 km).					
" 23	Up	iP		19 23 03		
	Near east coast of Honshu, Japan (h = 270 km).					
" 23	Up	iP		22 49 41		D
	Ki	iP		22 49 41		D
" 24	Up	iP		06 32 54		
" 24	Up	iP		07 01 43		
		i		07 01 58		
		i		07 02 07		
			microns	sec		
		P	Z'	0.8	1.0	
	Ki	iP		07 01 00		
			microns	sec		
		P	Z'	0.5	1.4	
	Sk	iP		07 01 34		
	Gb	iP		07 02 03		
	Ka	iP		07 02 03		
	Near coast of northern Hokkaido, Japan (h = 80 km).					
" 24	Up	iP		07 22 33		D
		i		07 22 55		
			microns	sec		
		P	Z'	0.1	0.9	
		M	E	2.4	17	
		M	N	2.4	20	
		M	Z	2.6	20	
	Ki	iP		07 22 35		D
			microns	sec		
		P	Z'	0.2	0.7	
		M	E	3.3	18	
		M	N	2.3	17	
	Sk	iP		07 22 55		D

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

1961						
Dec	24	Gb	iP	07 22 54	D	
cont.		Ka	iP	07 22 37	D	
		Nepal (h = 20 km).				
		Magn. = 5.7 (Up, Ki).				
"	24	Ki	iP	20 30 05		
"	25	Up	eL	00 40		
				microns	sec	
			M E	3.1	18	
			M N	2.7	19	
			M Z	3.0	19	
		Ki	eL	00 42		
				microns	sec	
			M E	4.2	20	
			M N	3.2	19	
			M Z	4.1	18	
		Near coast of Chile				
		(h = 30 km).				
		Magn. = 6.2 (Up, Ki).				
"	25	Ki	iP	08 14 10		
		Ceram (h = 50 km).				
"	25	Ki	iP	09 22 50		
"	25	Up	iP	11 29 05		
		Ki	eP	11 29 06		
		Bhutan-India border				
		(h = 50 km).				
"	25	Up	iP	15 55 40		
			i	15 55 44		
"	25	Up	iP	21 37 42	D	
"	25	Up	iP	21 58 17	D	
		Ki	iP	21 57 33		
		Hokkaido, Japan				
		(h = 250 km).				
"	25	Up	iP	21 58 42		
		Ki	iP	21 58 41		
		Sinkiang Province, China.				
"	26	Up	iP	04 37 29	C	
				microns	sec	
			P Z'	0.1	0.5	
		Ki	iP	04 37 22	C	
		Sk	iP	04 37 40		
		Java Sea (h = 570 km).				
"	26	Up	iP	21 54 46	D	
		Ki	iP	21 53 28		
1961						
Dec	27	Up	iP	02 13 06		
"	27	Up	iP	16 57 16		
		Ki	iP	16 58 09		
		Sk	eP	16 57 32		
		Gb	iP	16 56 48		
		Ka	iP	16 56 44		
			i	16 56 51		
		Atlantic Ocean, north of				
		Ascension Island				
		(h = 40 km).				
"	27	Up	iP	19 16 29		
"	27	Up	iP	22 19 30		
"	28	Up	iPKP2	00 08 22		
			i	00 08 27		
			i	00 08 33		
				microns	sec	
			M E	6.8	18	
			M N	8.1	20	
			M Z	9.5	21	
		Ki	iPKP	00 07 48		
			i	00 08 02		
				microns	sec	
			PKP Z'	0.6	1.5	
			M E	12	21	
			M N	6.1	20	
			M Z	14	18	
		Near coast of North Island,				
		New Zealand (h = 60 km).				
		Magn. = 6.7 (Up, Ki).				
"	28	Ki	e(P)	09 07 03		
"	29	Ki	iPKP	00 14 38		
		Sk	ePKP	00 14 51		
		Santa Cruz Islands region				
		(h = 100 km).				
"	29	Ki	iP	08 10 25		
		Hokkaido, Japan				
		(h = 40 km).				
"	30	Up	iP	00 20 10		
			i	00 20 28		
"	30	Up	iP	00 50 17	C	
			i	00 50 19		
			iS	00 59 14		
				microns	sec	
			P Z	2.4	5	
			P Z'	1.0	1.0	

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

1961 Dec 30 cont.	Up	S	E	4.5	5	
		S	N	2.7	5	
		M	E	21	21	
		M	N	39	21	
		M	Z	36	23	
		D = 7450 km = 67°.				
	Ki	iP		00 49 23		C
		i		00 49 29		
		iS		00 57 33		
		i(PPS)		00 57 52		
				microns	sec	
		P	N	2.8	5	
		P	Z	3.8	5	
		P	Z'	0.5	1.3	
		S	E	13	11	
		S	N	3.4	8	
		M	E	28	16	
		M	N	14	18	
		M	Z	54	17	
		D = 6550 km = 59°.				
	Sk	iP		00 49 58		D
	Gb	iP		00 50 37		C
		i		00 51 12		
	Ka	iP		00 50 45		C
	Rat Islands, Aleutian Islands (h = 50 km). Magn. = 6.8 (Up, Ki).					
" 30	Up	iP		00 57 14		
" 30	Up	iP		01 22 12		
	Ki	iP		01 21 19		
" 30	Up	iP		01 53 17		
" 30	Up	iP		02 35 59		
" 30	Up	iP		04 11 41		
	Greece.					
" 30	Ki	eP		04 41 27		
" 30	Up	iP		04 56 02		D
" 30	Up	iP		07 16 21		C
		iPP		07 18 00		
		iSS		07 25 28		
		D = 4600 km = 41½°.				
	Ki	iP		07 16 20		C
		iLg1		07 30 08		
		i		07 30 31		
				microns	sec	
		P	Z'	0.1	0.7	

1961 Dec 30 cont.	Ki	M	E	5.7	14	
		M	N	2.6	8	
		M	Z	8.3	14	
	Sk	iP		07 16 42		
	Sinkiang Province, China.					
" 30	Gb	iP		09 19 20		D
" 30	Up	iP		09 28 06		C
	Ki	iP		09 27 16		
	Rat Islands, Aleutian Islands (h = 60 km).					
" 30	Up	iP		10 25 31		C
		i		10 25 40		
	Ki	iP		10 24 37		C
	Sk	iP		10 25 23		
	Gb	iP		10 25 49		C
	Rat Islands, Aleutian Islands (h = 60 km).					
" 30	Up	iP		16 52 46		
		i		16 52 48		
	Ki	iP		16 51 51		
				microns	sec	
		M	E	1.1	15	
		M	N	0.8	14	
		M	Z	1.4	15	
	Rat Islands, Aleutian Islands (h = 60 km).					
" 31	Up	e(P)		03 20 26		
" 31	Ki	iP		13 59 07		C
				microns	sec	
		P	Z'	0.1	1.3	
" 31	Up	i(P)		16 21 19		
	Ki	eP		16 21 10		
	Sk	iP		16 21 24		
	Near coast of Java (h = 70 km).					
" 31	Ki	eL		16 30		
				microns	sec	
		M	E	0.5	15	
		M	N	0.3	14	
		M	Z	1.0	15	
" 31	Ki	iP		17 58 34		
	Fox Islands, Aleutian Islands (h = 50 km).					

Seweryn Duda Markus Båth

August 28, 1962