SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

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
Umeå	(Um):	63°48.9'N, 20°14.2'E;	h = 16 m
Uddeholm	(Ud):	60°05.4'N, 13°36.4'E;	h = 240 m
Delary	(De):	56°28.2'N, 12°52.2'E;	h = 150 m

J A N U A R Y 1 - 31, 1981

1981 Jan. 1

Up	iP		03 42 02.7	
Ki	iP		03 41 49.9	C
			micr sec	
	P	Z'	0.1 0.7	
Um	iP		03 41 59.3	

Chiapas, Mexico
(h = 120 km).

" 1

Um	iPKP		09 33 57.5	

" 1

Ki	iP		12 57 01.7	
Um	iP		12 57 10.8	

Mindanao, Philippine Islands
(h = 25 km).

" 1

Up	iP		23 13 29.2	

Tyrrhenian Sea (h = 430 km).

" 2

Um	iP		00 14 22.2	

" 2

Ki	iP		01 01 36.3	
	i		01 01 40.8	

North Atlantic Ridge
(h = 10 km).

" 2

Up	iP		05 04 39.4	C
Ki	iP		05 05 20.5	C
			micr sec	
	P	Z'	0.1 0.9	
Um	iP		05 04 54.9	C

Western Iran (h = N).

" 2

Um	iP		07 50 08.6	

South of Panama (h = N).

1981 Jan. 2

Up	iP		15 50 59.9	D
	i		15 51 02.9	
	ipP		15 52 00.7	
	iS		16 00 17	
			micr sec	
	P	Z'	5.2 1.8	
	Mx	Z	19 14	
Ki	iP		15 50 29.7	D
	i		15 50 33.5	
	ipP		15 51 26.9	
	iPP		15 53 07.6	
	iS		15 59 22	
			micr sec	
	P	Z'	4.5 2.1	
	Mx	Z	16 15	
Um	iP		15 50 41.7	D
	i		15 50 44.8	
	i		15 51 01.2	
	ipP		15 51 37.1	
	iS		15 59 44	

East China Sea.
h = 250 km (Up,Ki,Um).
m = 6.9, M = 6.5 (Up,Ki).
M not corrected for focal depth.

" 2

Up	iP		22 37 22.0	
	ipP		22 37 35.3	
			micr sec	
	P	Z'	0.1 0.9	
Ki	iP		22 36 37.1	
	i		22 37 08.1	
Um	iP		22 36 57.4	
	ipP		22 37 10.8	

Kuril Islands.
h = 50 km (Up,Um).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981 Jan.	3	Um	iP	00 06 43.9	
			ipP	00 06 54.9	
		Bonin Islands region (h = N).			
"	3	Ki	iP	01 36 44.8	
		Um	iP	01 36 47.1	
		South of Panama (h = N).			
"	3	Up	iPKP1	06 04 50.1	
			iPKP2	06 04 54.5	
		Um	iPKP1	06 04 38.7	
		Kermadec Islands region (h = 520 km).			
"	3	Up	iP	16 08 30.7	
		Um	iP	16 08 18.7	
		Talaud Islands (h = 80 km).			
"	3	Ki	eP	18 10 20	
		Um	ipP	18 11 04.7	
		New Britain region (h = 160 km).			
"	3	Up	i	19 28 52.7	
		Ki	iPKP	19 28 30.8	
			i	19 28 40.8	
		Um	iPKP	19 28 36.3	
			i	19 28 46.3	
		Solomon Islands (h = 30 km).			
"	3	Up	iPKP1	21 13 40.4	
			iPKP2	21 13 49.7	
		Ki	iPKP1	21 13 19.0	
		Um	iPKP1	21 13 28.8	
			i	21 13 51.2	
		South of Kermadec Islands (h = 190 km).			
"	4	Um	iP	05 28 25.6	
"	4	Up	iP	07 25 27.9	
			epP	07 25 39	
		Ki	iP	07 26 13.4	
		Um	eP	07 25 45	
		Turkey-Iran border region (h = N).			
"	4	Um	eP	11 58 56	
"	4	Ki	iP	14 52 37.2	
		Western Greenland (h = N).			
"	4	Ki	ePKP	15 26 31	
		Um	iPKP	15 26 23.9	
		South Sandwich Islands region (h = N).			
1981 Jan.	4	Um	iP	16 13 08.9	
"	4	Ki	iP	16 38 05.0	
		Um	iP	16 37 55.8	
		Tajik SSR (h = 90 km).			
"	4	Up	iP	21 18 06.5	
		Ki	eP	21 17 51	
		Um	iP	21 17 51.5	
		Kazakh-Sinkiang border region (h = N).			
"	4	Up	iP	22 41 09.3	
		Ki	iP	22 41 16.2	
		Um	iP	22 41 06.4	
		Afghanistan-USSR border region (h = 140 km).			
"	5	Up	iS	05 28 01.9	
		Ki	iP	05 24 04.6	
		Um	iP	05 24 39.5	
			iS	05 27 09.8	
			i	05 27 25.4	
			i	05 27 40.4	
		Jan Mayen Island region (h = 10 km).			
"	5	Ki	iP	06 07 09.0	
		Um	iP	06 07 33.3	
		Near east coast of Kamchatka (h = N).			
"	5	Up	iP	06 14 53.1	
		Ki	iP	06 14 00.6	
		Um	iP	06 14 25.9	
		Andreanof Islands, Aleutian Is. (h = 60 km).			
"	5	Um	iP	09 38 14.6	
		Lake Baikal region (h = N).			
"	5	Up	iP	16 48 22.1	
		Ki	iP	16 48 30.0	
		Um	iP	16 48 19.8 D	
		Afghanistan-USSR border region (h = 130 km).			
"	6	Up	iP	07 31 22.8	
		Ki	iP	07 31 54.9 D	
				micr sec	
			P Z'	0.1 0.6	
		Um	iP	07 31 33.7 D	
		Southern Iran (h = 70 km).			
"	6	Um	iP	09 49 02.0	
		Carlsberg Ridge (h = 10 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Jan. 6 Up iP 15 46 40.3 D
i 15 46 41.3
iS 15 55 53.2
micr sec
P Z' 0.1 0.8
Ki iP 15 46 05.2 D
i 15 46 06.3
micr sec
i Z' 0.1 0.6
Um iP 15 46 20.1 D
South of Honshu (h = 290 km).
m = 5.7 (Up,Ki).

" 6 Um iPKP 18 29 35.1
Solomon Islands (h = N).

" 6 Um iP 20 45 18.8

" 6 Ki eP 22 01 51
Um iP 22 02 16.7 D
ipP 22 02 35.6
Fox Islands, Aleutian Islands
(h = 80 km).

" 7 Ki iP 07 14 47.2
micr sec
P Z' 0.1 1.0
Um eP 07 14 49
South of Panama (h = 25 km).

" 7 Um iP 09 19 09.7
South of Panama (h = N).

" 7 Ki iPKP 16 11 30.7
Um iPKP 16 11 36.7
Santa Cruz Islands
(h = 170 km).

" 7 Ki iP 16 25 16.3
Um iP 16 25 31.8
South of Honshu, Japan
(h = N).

" 7 Up iPKP 16 35 13.5
Ki iPKP 16 34 56.8
Um i(PKP) 16 34 55.4
iPKP 16 35 03.3
Fiji Islands region
(h = 470 km).

" 7 Ki iP 16 53 46.9
Kodiak Island region (h = N).

" 7 Up iP 21 48 29.5 C
ipP 21 48 40.9
(cont.)

1981
Jan. 7 (cont.)
Up micr sec
P Z' 0.1 1.0
pP Z' 0.3 0.9
Mx Z 9.4 15
Ki iP 21 48 09.5 C
i 21 48 17.4
micr sec
P Z' 0.2 1.0
Mx Z 2.6 13
Um iP 21 48 15.9 C
ipP 21 48 27.8
iS 21 58 02
Philippine Islands region.
h = 40 km (Up,Um).
m = 6.2, M = 6.0 (Up,Ki).

" 8 Up iP 03 26 51.3
Ki iP 03 26 19.9
Um iP 03 26 34.2
i 03 26 58.4
Bonin Islands region
(h = 440 km).

" 8 Um iP 07 38 57.3
Hindu Kush region
(h = 80 km).

" 8 De iSgl 10 22 27.1
Halland, Sweden,
56.9°N, 13.6°E.
Origin time = 10 22 12.
Solution from SKI network
readings.

" 8 Up iP 22 53 59.2
Um eP 22 54 38
Ionian Sea (h = 10 km).

" 9 Um iP 07 59 40.3
North Atlantic Ridge
(h = 10 km).

" 9 Ki eP 08 43 18
Leeward Islands (h = 55 km).

" 9 Up iP 09 58 13.3
i 09 58 20.0
micr sec
P Z' 0.1 1.0
Ki iP 09 57 52.4
micr sec
P Z' 0.2 1.1
Um iP 09 57 59.5 C
i 09 58 10.0
Philippine Islands region
(h = 35 km).
m = 5.9 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981						
Jan.	10	Up	iP		13 22 25.2	C
			i		13 23 05.7	
					micr sec	
			P	Z'	0.3 0.8	
		Ki	iP		13 22 33.6	C
					micr sec	
			P	Z'	0.2 0.8	
		Um	iP		13 22 23.1	C
			i		13 23 04.8	
		Afghanistan-USSR border region (h = 140 km).				
		m = 6.0 (Up,Ki).				
"	11	Up	iP		06 16 12.9	
			ipP		06 16 22.4	
					micr sec	
			pP	Z'	0.1 1.0	
		Ki	iP		06 15 39.9	
			i		06 15 45.0	
		Um	iP		06 15 53.0	
			ipP		06 16 01.6	
		Bonin Islands region.				
		h = 30 km (Up,Um).				
"	11	Up	iP		06 37 04.9	
		Um	iP		06 36 42.0	
		Near east coast of Honshu, Japan (h = 70 km).				
"	11	Up	iP		15 22 07.2	C
			ipP		15 22 21.0	
			i		15 25 03.2	
					micr sec	
			P	Z'	0.2 0.7	
		Ki	iP		15 22 07.4	C
			i		15 22 31.1	
					micr sec	
			P	Z'	0.5 0.9	
		Um	iP		15 22 04.2	C
			ipP		15 22 16.6	
		Northern Sumatera.				
		h = 45 km (Up,Um).				
		m = 6.4 (Up,Ki).				
"	11	Up	iPKPl		17 45 48.0	
		Um	iPKPl		17 45 36.1	
		Kermadec Islands (h = 40 km).				
"	12	Up	iP		04 22 04.9	
			ipP		04 22 16.1	
					micr sec	
			P	Z'	0.1 1.0	
		Ki	iP		04 21 17.2	
					micr sec	
			P	Z'	0.1 1.0	
		(cont.)				

1981						
Jan.	12	(cont.)				
		Um	iP		04 21 38.7	
			ipP		04 21 51.6	
		Kuril Islands region.				
		h = 45 km (Up,Um).				
		m = 5.9 (Up,Ki).				
"	12	Um	iP		16 43 52.6	
		Fox Islands, Aleutian Islands (h = 15 km).				
"	13	Up	iP		03 22 35.4	C
					micr sec	
			P	Z'	0.2 0.9	
		Ki	iP		03 21 47.2	
		Um	iP		03 22 10.0	C
		Kuril Islands (h = N).				
"	13	Up	iP		11 02 02.0	
		Ki	iP		11 01 13.6	
		Um	iP		11 01 35.6	
		Kuril Islands (h = 150 km).				
"	14	Up	iP		01 13 54.9	
		Um	iP		01 13 48.8	
		Burma (h = 50 km).				
"	14	Up	iP		06 12 49.8	
					micr sec	
			P	Z'	0.1 1.2	
		Ki	eP		06 12 18	
		Um	iP		06 12 31.2	
		Kyushu, Japan (h = N).				
"	14	Um	iP		10 27 54.9	
		Fox Islands, Aleutian Islands (h = N).				
"	14	Um	iP		11 18 32.4	
"	14	Up	iP		15 17 43.8	D
					micr sec	
			P	Z'	0.1 0.9	
		Ki	iP		15 16 50.5	D
					micr sec	
			P	Z'	0.1 0.8	
		Um	iP		15 17 16.9	D
		Fox Islands, Aleutian Islands (h = 20 km).				
		m = 6.0 (Up,Ki).				
"	15	Up	iP		04 30 44.9	D
			ipP		04 30 47.1	
					micr sec	
			pP	Z'	0.2 1.1	
		(cont.)				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Jan. 15 (cont.)
Ki iP 04 31 53.7 D
ipP 04 31 55.6
micr sec
pP Z' 0.1 1.2
Um iP 04 31 22.1 D
ipP 04 31 23.6
Algeria.
h = 5 km (Up,Ki,Um).
m = 5.7 (Up,Ki).

" 15 Um iP 11 17 50.4
Southern Italy (h = 10 km).

" 15 Up iP 17 21 23.6
Ki iP 17 20 36.5
Um iP 17 20 57.6 C
Kuril Islands (h = 120 km).

" 15 Up iP 20 36 48.8 C
micr sec
P Z' 0.2 1.0
Ki iP 20 36 14.8 C
micr sec
P Z' 0.4 1.6
Um iP 20 36 34.1 C
Southern Nevada.
Underground explosion.
m = 6.2 (Up,Ki).

" 16 Up iP 00 42 07.7
micr sec
P Z' 0.2 1.2
Ki iP 00 43 29.9
micr sec
P Z' 0.1 1.1
Um iP 00 42 53.5
Southern Italy (h = 15 km).
m = 5.3 (Up,Ki).

" 16 Up iRg 21 02 48.5
Ud iRg 21 02 36.0
East central Sweden.
Near surface event.

" 16 Up iP 21 50 28.9
micr sec
P Z' 0.1 1.0
Ki iP 21 50 28.8
micr sec
P Z' 0.1 1.1
Um iP 21 50 26.1
Southern Sumatera
(h = 40 km).

1981
Jan. 16 Up iP 21 54 00.4
Ki eP 21 54 10
Um iP 21 53 58.3
Afghanistan-USSR border
region (h = 90 km).

" 16 Ki iP 23 50 28.5
Um iP 23 50 25.0
Northern Sumatera
(h = 80 km).

" 17 Um iP 03 09 08.8
Southern Italy (h = 10 km).

" 17 Up iP 05 19 07.2
Ki iP 05 18 33.2
Um iP 05 18 47.7 D
South of Honshu, Japan
(h = N).

" 17 Ki iP 05 27 45.0
i 05 28 01.7
Um iP 05 27 58.3
South of Honshu, Japan
(h = N).

" 17 Ki iP 07 36 42.9
micr sec
P Z' 0.1 1.0
Um iP 07 36 49.5
Mindanao, Philippine Islands
(h = 70 km).

" 17 Um iP 10 21 41.5
i 10 21 45.2

" 17 Up iP 11 32 11.3
Ki iP 11 31 24.7
Um iP 11 31 44.0
East of Lake Baikal (h = N).

" 17 Um iP 12 18 19.9

" 17 Up iP 15 22 58.4
i 15 23 10.9
Ki iP 15 22 10.8
Um iP 15 22 32.7
Kuril Islands (h = N).

" 18 Up iPKP 03 25 57.3
iSKP1 03 29 23.7
iPKS 03 29 35.3
Ki iPKP1 03 26 08.2
iPP 03 29 10.1
iSKP1 03 29 44.9
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Jan. 18 (cont.)

Um	iPKP		03 25 57.1	
	i		03 26 04.5	
	iSKP1		03 29 36.3	
	iPKS		03 29 46.6	

South Shetland Islands
(h = 20 km).

" 18

Up	iP		09 54 57.4	
	iS		10 04 18	
			micr	sec
	P	Z'	0.4	1.5
	Mx	Z	9.1	17
Ki	iP		09 54 17.2	
	i		09 54 48.6	
	iS		10 03 02	
			micr	sec
	P	Z'	0.1	1.0
	Mx	Z	4.2	14
Um	iP		09 54 35.0	C
	iS		10 03 37	

Off east coast of Honshu,
Japan (h = N).
m = 6.0, M = 6.0 (Up,Ki).

" 18

Up	iP		11 58 15.8	
	iS		12 07 36	
			micr	sec
	P	Z'	0.2	1.0
	Mx	Z	11	18
Ki	iP		11 57 35.0	
			micr	sec
	P	Z'	0.2	1.0
	Mx	Z	5.8	15
Um	iP		11 57 52.8	C
	i		11 58 30.8	
	iS		12 06 53	

Off east coast of Honshu,
Japan (h = N).
m = 6.1, M = 6.1 (Up,Ki).

" 18

Up	iP		12 01 19.1	
			micr	sec
	P	Z'	0.1	1.0
Um	iP		12 00 55.6	C

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

" 18

Up	iP		12 45 43.1	
Ki	iP		12 44 48.7	
Um	iP		12 45 16.4	

Alaska Peninsula (h = 45 km).

" 18

Um	iPKP		15 56 35.6	

South Shetland Islands
(h = N).

1981
Jan. 18

Up	iP		17 21 50.8	
			micr	sec
	P	Z'	0.1	1.1
	Mx	Z	2.2	15
Ki	iP		17 21 10.6	
	i		17 21 19.1	
Um	iP		17 21 28.3	C

Near east coast of Honshu,
Japan (h = 40 km).

" 18

Ki	iP		17 37 13.6	
Um	iP		17 37 10.0	

Andaman Islands region
(h = N).

" 18

Up	iP		18 22 49.6	
	iS		18 32 09	
			micr	sec
	P	Z'	0.5	1.3
Ki	iP		18 22 08.5	
			micr	sec
	P	Z'	0.3	1.4
Um	iP		18 22 26.5	

Near east coast of Honshu,
Japan (h = N).
m = 6.3 (Up,Ki).

" 18

Up	iP		18 28 45.6	
	ipP		18 28 53.8	
	iS		18 38 04	
			micr	sec
	P	Z'	0.3	1.0
	pP	Z'	1.1	1.3
	Mx	Z	251	16
Ki	iP		18 28 03.9	
	ipP		18 28 13.5	
	iS		18 36 48	
			micr	sec
	P	Z'	0.2	0.8
	pP	Z'	0.4	1.0
	Mx	Z	80	15
Um	iP		18 28 21.7	
	ipP		18 28 31.9	

Near east coast of Honshu,
Japan.
h = 30 km (Up,Ki,Um).
m = 6.6, M = 7.4 (Up,Ki).

" 18

Up	eP		20 45 45	
Ki	iP		20 45 03.7	
Um	iP		20 45 21.3	C

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

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981						
Jan.	18	Ki	iP		20 46 30.9	
		Um	iP		20 46 48.7	
		Near east coast of Honshu, Japan (h = N).				
"	18	Up	eP		21 19 38	
		Um	iP		21 20 15.9	
		Off east coast of Honshu, Japan (h = N).				
"	19	Up	iP		00 42 18.7	
		Ki	eP		00 41 38	
		Um	iP		00 41 55.5	
		Off east coast of Honshu, Japan (h = N).				
"	19	Up	iP		01 25 26.4	C
			iS		01 34 47	
					micr	sec
			P	Z'	0.3	1.0
			Mx	Z	13	15
		Ki	iP		01 24 45.6	C
			i		01 25 01.2	
					micr	sec
			P	Z'	0.2	1.0
			Mx	Z	4.4	15
		Um	iP		01 25 03.8	C
			i		01 25 36.6	
			iS		01 34 03	
		Near east coast of Honshu, Japan (h = N).				
		m = 6.2, M = 6.1 (Up,Ki).				
"	19	Ki	iP		02 21 10.3	
		Timor (h = N).				
"	19	Up	iP		02 53 22.9	
		Ki	iP		02 52 42.1	
		Um	iP		02 53 00.1	
		Off east coast of Honshu, Japan (h = N).				
"	19	Up	eP		08 23 05	
		Um	iP		08 23 20.9	
		Easter Gulf of Aden (h = 10 km).				
"	19	Up	iP		08 37 03.4	
"	19	Up	iP		14 13 57.4	
		Ki	iP		14 13 16.4	
		Um	iP		14 13 34.7	
		Near east coast of Honshu, Japan (h = N).				

1981						
Jan.	19	Up	iPdiff		15 25 25.3	
			i(PP)		15 29 55.6	
			iPP		15 30 06.7	
					micr	sec
			Mx	Z	28	24
		Ki	iPdiff		15 25 07.3	
			i		15 25 12.1	
					micr	sec
			i	Z'	0.2	1.5
			Mx	Z	12	20
		Um	iPdiff		15 25 15.4	
			i(PP)		15 29 21.0	
			iPP		15 29 39.9	
		West Irian (h = N).				
		M = 6.6 (Up,Ki).				
"	19	Up	Mx		22 53	
					micr	sec
			Mx	Z	17	17
		Ki	Mx		22 49	
					micr	sec
			Mx	Z	5.2	20
		Bismark Sea (h = N).				
		M = 6.4 (Up,Ki).				
"	20	Up	iP		00 25 21.2	
		Um	iP		00 24 58.5	
		Off east coast of Honshu, Japan (h = N).				
"	20	Up	iP		00 32 20.1	
		Um	iP		00 31 56.9	
		Off east coast of Honshu, Japan (h = N).				
"	20	Up	iP		08 33 16.5	
			i		08 33 21.7	
					micr	sec
			i	Z'	0.1	0.9
		Ki	iP		08 34 11.8	
		Um	iP		08 33 41.1	
			i		08 33 48.6	
			i		08 34 08.6	
		Turkey (h = 10 km).				
"	21	Up	iP		10 26 34.9	
		Ki	iP		10 25 54.1	C
		Um	iP		10 26 12.0	C
			i		10 26 55.0	
		Honshu, Japan (h = 150 km).				
"	21	Ki	iP		18 22 44.7	
		Um	iP		18 23 01.3	
		Off west coast of Baja California (h = 15 km).				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Jan. 21 Um iP 18 55 46.0

" 21 Up iPKP 19 48 12.5
Um iPKP 19 48 20.7
South Sandwich Islands region (h = N).

" 21 Up iPKPl 21 18 09.0
i 21 18 14.2
Ki ePKP 21 17 49
Um iPKPl 21 17 53.9
i 21 17 58.5
Kermadec Islands region (h = N).

" 22 Ki iP 00 33 11.0
Um iP 00 33 42.1
Central Siberia (h = N).

" 22 Up iP 03 23 36.9
Molucca Passage (h = 80 km).

" 22 Up iP 08 20 47.7
micr sec
P Z' 0.1 1.0
Ki iP 08 20 06.8
Um iP 08 20 25.2
ipP 08 20 34.3
Off east coast of Honshu, Japan (h = 30 km).

" 22 Um iP 14 05 21.2
Off east coast of Honshu, Japan (h = N).

" 22 Um iP 14 46 29.9
Southern Italy (h = 10 km).

" 22 Up iP 16 31 15.7
micr sec
Mx Z 3.1 13
Ki iP 16 32 22.7
micr sec
Mx Z 2.5 12
Um iP 16 31 47.7
Crete (h = N),
M = 5.1 (Up,Ki).

" 22 Up ePKP 17 39 14
Um iPKP 17 39 59.9

" 22 Up iP 19 46 04.4 C
iPP 19 48 48.0
iS 19 55 25
(cont.)

1981
Jan. 22 (cont.)
Up micr sec
P Z' 1.8 1.9
Mx Z 78 17
Ki iP 19 45 24.7 C
iS 19 54 11
micr sec
P Z' 1.2 2.0
Mx Z 23 15
Um iP 19 45 42.2 C
iS 19 54 38
Near east coast of Honshu, Japan (h = 20 km).
M = 6.8 (Up,Ki).

" 23 Ki iP 04 45 00.0
Mindanao, Philippine Islands (h = 150 km).

" 23 Up iP 05 09 19.6
i 05 09 20.9
ipP 05 09 50.4
iS 05 18 11
micr sec
i Z' 10.7 2.0
Mx Z 19 11
Ki iP 05 08 36.5 C
iS 05 16 52.2
micr sec
Mx Z 10 11
Um iP 05 08 55.3
i 05 08 56.1
ipP 05 09 25.5
iS 05 17 25.3
Hokkaido, Japan.
h = 130 km (Up,Um).
M = 6.5 (Up,Ki).
M not corrected for focal depth.

" 23 Up iP 08 09 47.8
Um iP 08 09 28.8

" 23 Up iP 10 33 58.8
iS 10 43 20
micr sec
P Z' 0.3 1.0
Mx Z 19 17
Ki iP 10 33 18.1
i 10 34 11.7
iS 10 42 07
micr sec
P Z' 0.4 1.5
Mx Z 6.9 15
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Jan. 23 (cont.)
Um iP 10 33 35.6
i 10 33 50.6
iS 10 42 36
Near east coast of Honshu, Japan (h = N).
m = 6.3, M = 6.3 (Up,Ki).

" 23 Ki iPKP 12 40 05.6
South Sandwich Islands region (h = 650 km).

" 23 Up iP 21 23 58.6
iS 21 32 17
micr sec
P Z' 0.5 1.3
Mx Z 86 17
Ki eP 21 23 42
i 21 23 44.1
micr sec
i Z' 0.7 1.4
Mx Z 37 14
Sichuan Province, China (h = N).
m = 6.5, M = 6.9 (Up,Ki).

" 23 Up iP 22 08 12.5
i 22 11 30.5
iPP 22 11 58.2
micr sec
Mx Z 13 16
Ki iP 22 08 37.9
i 22 08 49.9
iPP 22 12 46.7
micr sec
i Z' 0.1 1.1
Mx Z 11 16
Atlantic-Indian Rise (h = 10 km).
M = 6.5 (Up,Ki).

" 24 Up iSgl 00 38 46.2
iRg 00 38 49.8
Uppland, Sweden, 60.2°N, 17.8°E.
Rockburst at Dannemora ore mine.
Felt.

" 24 Up iP 22 34 08.2
micr sec
P Z' 0.1 1.0
Southern Sumatera (h = 40 km).

" 25 Up iPKP 01 09 32.9

1981
Jan. 25 Up iP 19 42 14.8
Ki iP 19 43 08.9
Um iP 19 42 35.1
Western Caucasus (h = N).

" 26 Um iP 20 13 18.4
Southern Honshu, Japan (h = 370 km).

" 28 Um iP 03 03 21.5
Banda Sea (h = 190 km).

" 28 Up iP 03 59 06.7
Ki iP 03 58 28.8
Um iP 03 58 45.5
Honshu, Japan (h = 70 km).

" 28 Up eP 04 34 51
Ki iP 04 35 22.7
Um eP 04 35 01
Southern Iran (h = N).

" 28 Up iP 06 06 40.5
Ki iP 06 06 14.7
Um iP 06 06 23.8
Northeast of Taiwan (h = 180 km).

" 28 Up iP 12 47 31.2

" 28 Up iSgl 14 46 41.6
Ki iSn 14 44 57.1
Sk iPgl 14 44 00.3
iSgl 14 44 33.1
Um iSgl 14 45 20.1
Ud iSgl 14 46 23.4
Coast of Nordland, Norway, 66.1°N, 12.4°E.
Origin time = 14 43 16.
M_L = 2.8 (Sk,Um,Ud).

" 28 Up iPKP2 19 46 05.6
Macquarie Islands region (h = 10 km).

" 29 Up iP 05 03 20.4
i 05 03 22.1
micr sec
i Z' 0.4 1.0
Mx Z 16 16
Ki iP 05 02 57.3
Um iP 05 03 05.7
Taiwan (h = N).

" 29 Up iP 05 09 02.4
Ki iP 05 08 16.9
Um iP 05 08 37.1
Kuril Islands (h = 60 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Jan. 29 Ki iP 06 21 02.5
Um iP 06 21 29.8
Unimak Island region
(h = N).

" 29 Up iPKP2 06 46 24.4
Um iPKP1 06 46 07.6
South of Kermadec Islands
(h = 460 km).

" 29 Up iP 07 29 36.9
Ki eP 07 30 38
Um iP 07 30 04.0
Turkey (h = 60 km).

" 29 Up iP 10 51 19.9
Um iP 10 51 58.2

" 29 Up iPKP1 13 35 28.5
South of Fiji Islands
(h = 480 km).

" 29 Up iP 13 39 31.2
Ki iP 13 39 03.0
Um iP 13 39 14.1
Mariana Islands
(h = 50 km).

" 29 Up iP 21 31 00.1
i 21 31 05.6
micr sec
i Z' 0.1 1.1
Ki eP 21 30 28
i 21 30 30.2
Um iP 21 30 40.5
Kyushu, Japan (h = N).

" 29 Up iP 23 05 06.4

" 29 Up iP 23 05 33.6

" 30 Up iPKP1 01 30 11.9
Ki iPKP1 01 29 52.9
Um iPKP1 01 30 01.4
South of Kermadec Islands
(h = 140 km).

" 30 Ki iP 05 28 08.7 C
Um iP 05 28 20.9
Mariana Islands region
(h = 300 km).

" 30 Up iPKP 05 37 05.3
Ki iPKP 05 37 20.7 C
micr sec
PKP Z' 0.2 0.9
(cont.)

1981
Jan. 30 (cont.)
Um iPKP 05 37 13.2
South Sandwich Islands
region (h = 115 km).

" 30 Up iP 09 03 36.1
iS 09 12 27
iP'P' 09 31 57.1
micr sec
P Z' 4.4 1.5
Mx Z 160 24
Ki iP 09 02 42.1
iS 09 11 12
iP'P' 09 32 14.0
micr sec
P Z' 1.3 1.1
Mx Z 68 22
Um iP 09 03 08.7
i 09 03 29.7
Ud iP'P' 09 32 03.2
Rat Islands, Aleutian Islands
(h = N).
m = 7.1, M = 7.0 (Up,Ki).

" 30 Up iP 09 14 47.9
Um iP 09 14 28.5

" 30 Up iP 09 23 13.5
micr sec
P Z' 0.2 1.2
Ki iP 09 22 20.1
micr sec
P Z' 0.2 1.0
Um iP 09 22 46.8
Rat Islands, Aleutian Islands
(h = 20 km).
m = 6.1 (Up,Ki).

" 30 Up iP 10 41 37.9
micr sec
P Z' 0.1 1.0
Ki iP 10 41 32.6 D
micr sec
P Z' 0.1 0.6
Um iP 10 41 32.8 D
Java Sea (h = 560 km).
m = 6.1 (Up,Ki).

" 30 Up iP 14 15 02.6
Ki iP 14 14 09.0
Um iP 14 14 34.7
Rat Islands, Aleutian Islands
(h = N).

" 30 Up iP 15 00 17.9 C
i 15 00 28.3
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Jan. 30 (cont.)
Up micr sec
P Z' 0.4 1.0
Ki iP 14 59 24.6 C
i 15 00 07.6
micr sec
P Z' 0.4 1.0
Um iP 14 59 50.6
i 15 00 28.6
Rat Islands, Aleutian Islands
(h = 20 km),
m = 6.5 (Up,Ki).

" 30 Up iP 18 08 42.8
Ki iP 18 07 50.0
Rat Islands, Aleutian Islands
(h = N).

" 30 Ki iP 18 35 01.5
Um iP 18 35 29.1

" 30 Up eP 23 35 19
Um eP 23 35 31
i 23 35 38.5
Southern Iran (h = N).

" 30 Up iSgl 23 49 14.4
Dalarna, Sweden, 60.2°N,
15.9°E.
Origin time = 23 48 43.
Felt south of Hedemora.
Solution from SKI network
readings.

" 31 Um iP 00 11 02.7
South of Panama (h = N).

" 31 Um iPKP 02 48 26.7
Santa Cruz Islands
(h = 70 km).

" 31 Up iP 07 06 31.5
Ki iP 07 07 05.6

" 31 Up iP 09 29 42.3
Ki iP 09 29 25.0
Um iP 09 29 30.4
Luzon, Philippine Islands
(h = N).

" 31 Up iP 13 49 52.1
Ki iP 13 49 59.9
Um iP 13 49 49.8
Pakistan (h = 80 km).

1981
Jan. 31 Up iPKP1 14 22 26.4
iPKP2 14 22 31.2
Ki ePKP1 14 22 05
Um iPKP1 14 22 14.6
i 14 22 32.0
Kermadec Islands region
(h = 320 km).

" 31 Up iPKP1 16 08 59.0
i 16 09 06.6
Ki iPKP 16 08 46.7
Um iPKP1 16 08 47.1
South of Fiji Islands
(h = 150 km).

" 31 Up iP 16 35 24.7
Ki iP 16 36 33.2
Um eP 16 36 02
Algeria (h = 10 km).

" 31 Up iP 18 09 16.8
Ki eP 18 10 22
Um iP 18 09 54.4
Algeria (h = 10 km).

" 31 Up iP 22 42 13.1
Um iP 22 42 01.8
i 22 42 03.4
i 22 42 16.0

November 19, 1982

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SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

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
Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(Ud):	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(De):	56°28.2'N,	12°52.2'E;	h = 150 m

F E B R U A R Y 1 - 28, 1981

1981 Feb. 1
Up iP 03 30 47.6
Ki eP 03 30 18
Um iP 03 30 31.1
Mariana Islands region (h = 80 km).

" 1
Up iPP 04 53 50.7
South of Sumbawa Island (h = N).

" 1
Up eP 09 38 14
Burma (h = N).

" 1
Up iP 12 35 37.3
Ki iP 12 35 20.9
Um iP 12 35 29.4
Mindanao, Philippine Islands (h = 70 km).

" 1
Up iP 13 25 28.5 C
micr sec
P Z' 0.4 1.0
Ki iP 13 26 39.2
micr sec
P Z' 0.7 1.4
Um iP 13 26 05.1 C
Algeria (h = 10 km).
m = 6.3 (Up,Ki).

" 1
Up iP 13 28 08.7 C
micr sec
P Z' 0.4 0.9
Ki iP 13 27 15.3 C
micr sec
P Z' 0.3 1.0
Um iP 13 27 41.2 C
Rat Islands, Aleutian Islands (h = 25 km).
m = 6.5 (Up,Ki).

1981 Feb. 1
Up iP 18 40 42.3
Um iP 18 40 15.3
Rat Islands, Aleutian Islands (h = 35 km).

" 1
Up iP 22 53 57.9 D
micr sec
P Z' 0.4 1.0
Ki iP 22 53 04.4 D
micr sec
P Z' 0.5 1.1
Um iP 22 53 29.7 D
Off east coast of Kamchatka (h = N).
m = 6.5 (Up,Ki).

" 1
Up iP 23 06 09.7
Um iP 23 06 46.6
Algeria (h = 10 km).

" 1
Up iP 23 52 27.8
Off coast of Hokkaido, Japan (h = 33 km).

" 2
Up iPKP1 20 01 11.6
Um iPKP1 20 01 59.5

" 3
Up iPKP1 09 46 46.5
Um iPKP1 09 46 35.9

" 3
Up iP 11 55 36.7
Ki iP 11 55 35.6
Um iP 11 55 32.9
Northern Sumatera (h = 180 km).

" 4
Ki iP 00 49 27.0
Um iP 00 49 18.3
Tajik SSR (h = N).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Feb. 4 Up iP 04 00 00.0
Ki iP 04 00 04.9
Um iP 03 59 56.4
i 03 59 59.5
Tajik SSR (h = 70 km).

" 4 Up ipP 04 54 01.1
Ki iP 04 52 57.3
ipP 04 53 08.2
Um iP 04 53 23.9
ipP 04 53 35.1
South of Alaska.
h = 40 km (Ki,Um).

" 4 Up iP 05 24 14.4 C
i 05 24 27.7
micr sec
P Z' 0.3 1.0
Ki iP 05 23 21.4
micr sec
P Z' 0.2 1.0
Um iP 05 23 47.0 C
i 05 23 59.4
Rat Islands, Aleutian
Islands (h = N).
m = 6.3 (Up,Ki).

" 5 Up iP 09 18 00.0
Um iP 09 18 38.0
Algeria (h = 10 km).

" 5 Up iPKP1 10 14 25.5
Um iPKP1 10 14 12.8

" 5 Up iP 11 03 10.3 D
i 11 03 21.0
micr sec
P Z' 0.7 0.8
Ki iP 11 02 17.4 D
micr sec
P Z' 0.3 1.1
Um iP 11 02 43.7 D
iP'P' 11 31 15.8
Andreanof Islands,
Aleutian Is. (h = 35 km).
m = 6.6 (Up,Ki).

" 5 Um iP 11 58 40.3

" 5 Up iPKP1 22 04 56.2
Ki iPKP 22 04 46.7
Um iPKP1 22 04 48.3
Fiji Islands region
(h = 540 km).

1981
Feb. 6 Up iPKP1 07 41 17.2
Ki i(PKP) 07 40 58.1
iPKP 07 41 09.9
iSKP1 07 43 40.5
Um i(PKP) 07 41 04.1
iPKP 07 41 09.5
iSKP1 07 43 52.3
Fiji Islands region
(h = 620 km).

" 6 Up iP 08 20 22.5

" 6 Um iP 08 26 59.7

" 6 Um eP 10 23 32

" 6 Um eP 11 48 14

" 6 Um iP 14 45 42.9
Near west coast of Honshu,
Japan (h = 40 km).

" 6 Up iP 16 56 55.5 D
ipP 16 58 40.5
iS 17 04 52.2
iScS 17 05 56.2
micr sec
P Z' 0.2 0.8
Ki iP 16 56 09.0
ipP 16 57 52.7
micr sec
P Z' 0.4 1.0
Um iP 16 56 30.1 D
ipP 16 58 13.9
iS 17 04 05.3
iScS 17 05 25.5
Sea of Okhotsk.
h = 520 km (Up,Ki,Um).
m = 5.8 (Up,Ki).

" 7 Up iP 04 02 28.2
micr sec
P Z' 0.1 1.0
Ki iP 04 02 02.1
Um iP 04 02 12.7
Philippine Sea (h = N).

" 7 Up iP 15 11 42.2
Ionian Sea (h = 60 km).

" 7 Up iP 15 29 35.1
Um eP 15 30 09
Ionian Sea (h = 45 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Feb. 8 Up iPKPl 00 23 47.7
South of Fiji Islands
(h = 510 km).

" 9 Up iP 07 04 33.3
Komandorsky Islands region
(h = N).

" 9 Up iP 12 33 59.8
Komandorsky Islands region
(h = 35 km).

" 9 Up iP 12 58 21.3
i 12 58 22.6
micr sec
P Z' 0.2 1.0
Ki iP 12 57 25.8
i 12 57 27.7
micr sec
P Z' 0.2 1.0
Um iP 12 57 52.2
i 12 57 53.7
Komandorsky Islands
(h = 35 km).
m = 6.2 (Up,Ki).

" 9 Um iP 13 38 16.8

" 9 Up iP 15 06 29.0 D
micr sec
P Z' 0.2 1.0
Ki iP 15 05 34.1
micr sec
P Z' 0.1 1.0
Um iP 15 06 00.2
Komandorsky Islands region
(h = N).
m = 6.0 (Up,Ki).

" 9 Up iP 15 59 14.2
Ki iP 15 59 10.0
Um iP 15 59 07.4
Bhutan (h = N).

" 9 Up iP 18 46 31.7
Komandorsky Islands region
(h = N).

" 9 Up iP 19 41 53.8
i 19 41 55.2
micr sec
P Z' 0.3 1.1
Ki iP 19 41 00.1 C
(cont.)

1981
Feb. 9 (cont.)
Ki micr sec
P Z' 0.2 1.3
Um iP 19 41 26.5 C
Komandorsky Islands region
(h = N).
m = 6.2 (Up,Ki).

" 9 Um iP 20 14 28.7
Hokkaido, Japan region
(h = 120 km).

" 9 Up iP 21 04 07.5
Ki iP 21 05 14.6
Um iP 21 04 38.7
Crete (h = N).

" 9 Up iP 23 21 55.0
micr sec
P Z' 0.2 1.2
Mx Z 5.5 12
Ki iP 23 21 46.1
micr sec
Mx Z 2.5 10
Um iP 23 21 43.4
Southern Sinkiang Prov.,
China (h = N).
M = 5.7 (Up,Ki).

" 10 Up iP 02 47 36.5 D
micr sec
P Z' 0.1 1.0
Ki iP 02 46 41.3
Um iP 02 47 07.4
Komandorsky Islands region
(h = 25 km).

" 10 Ud iSgl 03 15 06.9

" 10 Up iP 04 45 02.4
micr sec
P Z' 0.1 1.0
Um iP 04 44 32.9
Komandorsky Islands region
(h = 35 km).

" 10 Up iP 08 07 29.3
Um eP 08 08 14
Crete (h= 40 km).

" 10 Up iP 15 23 13.1 C
Ki iP 15 22 48.5
Um iP 15 22 57.4
Southwestern Ryukyu Islands
(h = 40 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Feb. 10 Up iP 17 23 22.2
Um iP 17 22 58.0

" 10 Up iP 18 54 45.5 C
micr sec
P Z' 0.1 0.9
Ki iP 18 54 45.4
micr sec
P Z' 0.2 1.0
Um iP 18 54 41.7
Northern Sumatera
(h = 120 km).
m = 5.6 (Up,Ki).

" 10 Up iP 19 30 18.8

" 10 Up iP 19 34 51.0
Ki iP 19 34 35.2
Um iP 19 34 36.8 C
Northern Sinkiang Prov.,
China (h = 20 km).

" 11 Up eP 04 10 37
Ki eP 04 11 47
Um eP 04 11 15
Crete (h = 20 km).

" 11 Up iP 11 44 48.6
Um iP 11 45 28.9
i 11 45 37.9
Greece-Albania border
region (h = 10 km).

" 11 Up iPKPl 12 27 59.7
Um iPKPl 12 27 47.5

" 12 Up iP 01 57 01.7
iS 02 02 32
micr sec
P Z' 0.3 1.5
Ki iP 01 57 36.2 C
micr sec
P Z' 0.2 1.2
Um iP 01 57 22.9 C
iS 02 03 18
Azores Islands (h = 10 km).
m = 5.9 (Up,Ki).

" 12 Ki iPgl 12 28 21.4
iSgl 12 28 51.9

" 12 Ki iP 13 48 26.6
Um iP 13 49 15.2
North of Svalbard
(h = 10 km).

1981
Feb. 12 Um iP 18 48 49.5
Eastern Caucasus (h = N).

" 12 Up iP 19 01 18.9
Ki iP 19 00 38.9 C
i 19 00 46.6
Um iP 19 00 57.0 C
i 19 01 04.8
Eastern Sea of Japan
(h = 280 km).

" 12 Ki eP 23 00 47
Um i 23 01 01.6
Northern Sumatera
(h = 100 km).

" 12 Up eP 23 23 17
Um eP 23 22 54
Bonin Islands region
(h = N).

" 13 Up iPgl 06 39 47.8
i 06 39 50.4
iSgl 06 40 15.0
Ki iSn 06 43 07.5
iSgl 06 44 01.6
Um ePgl 06 40 55
iSgl 06 42 06.9
Ud iPgl 06 39 31.3
i 06 39 33.2
iSgl 06 39 46.2
De iPgl 06 39 54.1
iSgl 06 40 26.2
Lake Vänern, Sweden,
58.9°N, 13.9°E.
Origin time = 06 39 11.
M_L = 3.3 (Up,Ki,Sk,Um,Ud,De).
Felt.
Special study of this event
is published in The Otterbäcken,
Sweden, Earthquake of February
13, 1981. Technical Report,
1981, Seismological Department,
Uppsala, 30 pp.

" 13 Up iP 11 21 34.6
micr sec
Mx Z 3.3 12
Ki iP 11 21 16.2
micr sec
P Z' 0.1 1.0
Mx Z 1.2 14
Um iP 11 21 22.7
Mindanao, Philippine Islands
(h = 45 km).
M = 5.8 (Up,Ki).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981 Feb.	13	Um	iP	20 54 59.0	
"	14	Ki	iP	04 57 21.1	
		Um	iP	04 57 37.1	
"	14	Up	iP	06 20 33.1	
			i	06 20 37.3	
		Ki	iP	06 19 52.0	
			i	06 19 55.7	
		Um	iP	06 20 14.3	
		Washington (h = 5 km).			
"	14	Up	iP	07 44 48.1	
		Ki	iP	07 44 31.3	
		Um	iP	07 44 37.0	
		North of Halmahera (h = 160 km).			
"	14	Up	iP	07 52 49.8	
		Um	iP	07 53 22.3	
		West of Gibraltar (h = 30 km).			
"	14	Up	iP	13 20 48.9	
				micr sec	
			P Z'	0.1 1.1	
			Mx Z	2.5 10	
		Ki	iP	13 21 58.3	
				micr sec	
			P Z'	0.2 1.5	
			Mx Z	2.0 13	
		Um	iP	13 21 25.7	
		Algeria (h = 10 km).			
		m = 5.6, M = 5.1 (Up,Ki).			
"	14	Up	iP	17 32 08.5	
			i	17 32 12.1	
				micr sec	
			Mx Z	1.7 17	
		Ki	eP	17 33 28	
				micr sec	
			Mx Z	0.7 9	
		Um	iP	17 32 51.3	
		Southern Italy (h = 10 km).			
"	15	Up	iP	03 06 51.8	
		Southern Greece (h = 80 km).			
"	15	Up	i(P)	08 32 24.7	
"	15	Ki	iP	12 54 08.3	
		Um	iP	12 54 00.5	
		Tajik-Sinkiang border region (h = 60 km).			

1981 Feb.	15	Ki	iP	13 12 49.5	
		Um	iP	13 13 33.9	
"	15	Up	iP	13 17 29.8	
		Um	iP	13 17 03.5	
		Aleutian Islands region (h = N).			
"	15	Ki	iP	14 47 50.3	
		Um	iP	14 47 52.7	D
		Mona Passage (h = 110 km).			
"	15	Um	iP	18 37 31.9	
		North Atlantic Ocean (h = 10 km).			
"	16	Up	iP	05 09 55.8	D
				micr sec	
			P Z'	0.6 2.0	
		Ki	iP	05 10 37.3	D
			i	05 10 45.0	
				micr sec	
			P Z'	0.6 1.8	
		Um	iP	05 10 19.0	
			i	05 10 26.9	
		Ascension Island region (h = 10 km).			
		m = 6.4 (Up,Ki).			
"	16	Um	iP	05 31 40.4	
			i	05 31 47.4	
		Ascension Island region (h = 10 km).			
"	16	Up	i(P)	19 25 22.7	
"	16	Up	iP	20 10 43.0	C
				micr sec	
			P Z'	0.1 1.0	
		Ki	iP	20 10 51.6	C
				micr sec	
			P Z'	0.1 0.6	
		Um	iP	20 10 41.3	C
		Afghanistan-USSR border region (h = 250 km).			
		m = 5.3 (Up,Ki).			
"	17	Up	iP	01 36 27.5	
		Ki	iP	01 35 37.0	
		Um	iP	01 36 00.7	
		Kuril Islands region (h = N).			
"	17	Up	iP	02 50 32.9	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Feb. 17 (cont.)
Ki iP 02 49 35.8
Um iP 02 50 05.0
Central Alaska (h = 120 km).

" 17 Up i(P) 14 07 12.3

" 17 Up iX 15 38 15.1
iSKP1 15 41 38.9
micr sec
Mx Z 21 25
Ki ePKP 15 37 43
micr sec
Mx Z 6.4 23
Um iPKP 15 37 49.4
i 15 37 54.7
iX 15 38 07.8
iSKP1 15 41 20.3
Loyalty Islands region
(h = 30 km).
M = 6.6 (Up,Ki).

" 17 Up iP 17 05 44.8
Um iP 17 06 02.0
Mozambique Channel (h = N).

" 17 Up iP 21 49 38.4
Ki iP 21 49 21.8
micr sec
P Z' 0.1 1.1
Um iP 21 49 26.6
Mindoro, Philippine Islands
(h = 260 km).

" 18 Up iP 15 59 51.5
micr sec
P Z' 0.1 1.0
Ki iP 15 59 19.4
micr sec
P Z' 0.1 1.2
Um iP 15 59 32.1
Ryukyu Islands (h = 35 km).
m = 5.8 (Up,Ki).

" 18 Up iP 23 55 20.0
i 23 55 29.5
Andreanof Islands,
Aleutian Is. (h = 35 km).

" 19 Up iP 01 57 18.8
Um iP 01 56 54.2
Lake Baikal region (h = N).

1981
Feb. 19 Up iP 02 47 29.4
i 02 47 37.0
Ki iP 02 48 25.9
Um iP 02 47 53.0
Jordan-Syria region (h = N).

" 19 Ki iPKP 08 42 09.1
iSKP1 08 45 32.3
Um iPKP 08 42 14.8
i 08 42 27.5
iSKP1 08 45 44.1
Loyalty Islands region
(h = N).

" 19 Um i(P) 16 14 26.9

" 19 Up iP 19 47 11.1 C
i 19 47 18.2
micr sec
P Z' 0.3 1.0
Mx Z 3.1 13
Ki iP 19 46 25.1
micr sec
P Z' 0.2 1.3
Mx Z 2.1 16
Um iP 19 46 46.1 C
Kuril Islands (h = N).
m = 6.3, M = 5.6 (Up,Ki).

" 19 Ki iP 21 36 20.2
Um iP 21 37 06.2 C
North of Svalbard (h = 10 km).

" 20 Up iPKP1 10 00 45.6
iPKP2 10 00 54.4
Ki iPKP1 10 00 30.3
Um iPKP1 10 00 34.4 C
i 10 01 24.2
South of Kermadec Islands
(h = N).

" 20 Um iP 10 20 11.9
Kirgiz-Sinkiang border region
(h = N).

" 20 Um iP 15 41 23.0

" 20 Up iP 16 07 13.4
Um iP 16 06 49.2
Kuril Islands (h = N).

" 20 Up iP 17 46 54.8
Ki iP 17 46 01.9
Um eP 17 46 32
Northwest Territories,
Canada (h = 10 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Feb. 20 Up iSgl 18 31 50.4
Ud iSgl 18 31 58.4
Dalarna, Sweden, 60.2°N, 15.9°E.
Origin time = 18 31 22.
Felt south of Hedemora.
Solution from SKI station readings.

" 20 Up iP 20 21 01.1
micr sec
Mx Z 1.4 15
Ki iP 20 20 38.7
micr sec
Mx Z 0.5 10
Um iP 20 20 46.1
Taiwan region (h = 25 km).
M = 5.3 (Up,Ki).

" 20 Um iP 23 04 14.4

" 21 Um iP 00 55 26.2

" 21 Um iP 10 41 07.4

" 21 Up iPKPl 23 12 26.3
Um iPKPl 23 12 16.0
i 23 12 18.0
i 23 12 51.7
South of Kermadec Islands (h = 50 km).

" 21 Um iP 23 27 14.6

" 21 Up iP 23 35 14.6
micr sec
P Z' 0.1 0.9
Ki iP 23 34 35.6
Um iP 23 34 52.8 C
i 23 35 01.3
Near east coast of Honshu, Japan (h = 70 km).

" 21 Um iP 23 38 42.4

" 22 Um iP 00 25 10.1
i 00 25 21.0

" 22 Up iP 03 20 59.0
Um iP 03 20 35.6
Near east coast of Honshu, Japan (h = 30 km).

" 22 Up iP 20 01 08.7
Sichuan Province, China (h = N).

1981
Feb. 22 Up iX 22 05 14.7
micr sec
Mx Z 6.3 21
Um iPKP 22 04 59.7
iX 22 05 03.7
Loyalty Islands region (h = N).

" 23 Up iP 04 12 01.8 C
i 04 12 03.4
i 04 12 12.4
iS 04 16 42
micr sec
i Z' 0.1 0.9
i Z' 0.3 0.9
Mx Z 6.2 15
Ki iP 04 12 41.2 C
i 04 13 13.1
micr sec
P Z' 0.2 0.8
Mx Z 2.9 12
Um iP 04 12 15.6 C
iS 04 17 24.9
Eastern Caucasus (h = N).
m = 6.0, M = 5.2 (Up,Ki).

" 23 Up iP 08 09 52.4
ipP 08 10 17.8
iPP 08 11 32.0
iS 08 15 58
micr sec
P Z' 0.3 0.6
Ki iP 08 10 00.8 D
micr sec
P Z' 0.3 0.8
Um iP 08 09 50.3
iPP 08 11 26.6
Hindu Kush region.
h = 120 km (Up).
m = 6.1 (Up,Ki).

" 23 Up iP 09 32 56.1
Ki iP 09 32 15.2
Um iP 09 32 33.3
Off east coast of Honshu, Japan (h = N).

" 23 Um iP 14 42 51.8

" 23 Up Mx 17 27
micr sec
Mx Z 3.2 23
Ki iPKP 16 31 12.0
Um iPKP 16 30 59.8
Vanuatu Islands (h = 70 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Feb. 23 Ki iPn 17 36 34.0
iSn 17 37 30.4
Sk iPn 17 37 06.2
iSn 17 38 25.9
Um iPn 17 37 18.3
iSn 17 38 45.7
Ud iPn 17 37 55.0
iSn 17 39 47.1
i 17 40 07.2
i 17 40 24.1
Norwegian Sea, near 71 1/4°N, 10°E.
Origin time = 17 35 17.
By combination with Tromsoe and Finnish station readings.

" 23 Um iP 20 51 54.2
Off east coast of Honshu, Japan (h = 30 km).

" 24 Um iP 05 55 03.1

" 24 Um ePKP 06 12 04
Loyalty Islands region (h = N).

" 24 Up iP 06 56 52.1
i 06 57 03.1
micr sec
P Z' 0.2 1.0
Mx Z 4.3 16
Ki iP 06 56 20.9
i 06 56 31.7
micr sec
P Z' 0.1 1.0
Mx Z 1.7 17
Um iP 06 56 33.8
i 06 56 46.2
Ryukyu Islands (h = 45 km).
m = 6.0, M = 5.7 (Up,Ki).

" 24 Up iPKPl 10 53 06.9
Ki iPKP 10 52 59.0
Um iPKPl 10 53 00.8
iPKP 10 53 05.3
iSKPl 10 55 43.6
Fiji Islands region (h = 600 km).

" 24 Up iPKP 16 35 34.7
micr sec
Mx Z 13 19
Ki iPKP 16 35 16.2
Um iPKP 16 35 27.4
iPKKP 16 46 26.9
New Britain region (h = 70 km).

1981
Feb. 24 Up iP 18 15 23.7 C
i 18 15 33.5
micr sec
P Z' 0.1 1.0
Mx Z 5.4 19
Ki iP 18 14 43.1 C
i 18 14 51.7
micr sec
P Z' 0.1 1.0
Um iP 18 15 01.2 C
i 18 15 15.4
Near east coast of Honshu, Japan (h = N).
m = 5.8 (Up,Ki).

" 24 Up iP 19 13 18.7
micr sec
Mx Z 2.1 16
Ki eP 19 12 29
Um iP 19 12 51.3
Kuril Islands (h = N).

" 24 Up iP 20 58 29.0
i 20 58 33.6
i 20 58 30.5
iS 21 02 31.3
micr sec
P Z' 0.1 0.5
i Z' 1.4 1.1
i Z' 4.5 1.4
Mx E 295 12
Mx N 214 12
Ki iP 20 59 43.2
i 20 59 45.7
micr sec
i Z' 0.7 1.3
Um iP 20 59 07.5
i 20 59 11.9
Greece (h = N).
m = 6.6 (Up,Ki), M = 7.0 (Up).
Up surface-wave ground amplitudes obtained from Wiechert readings.
Multiple event with successivly increasing amplitudes.

" 24 Up iP 21 40 04.6
Greece (h = N).

" 24 Um iP 22 32 02.7

" 24 Up iP 22 34 35.1
Um eP 22 35 13
Greece (h = N).

" 24 Um iP 22 47 05.8
Jordan-Syria region (h = N).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Feb. 25 Um iP 01 07 47.0

" 25 Up iP 02 02 48.7
iS 02 06 47
micr sec
Mx Z 2.7 12
Ki iP 02 04 05.0
Um iP 02 03 25.5
i 02 03 40.4
iS 02 08 04
Greece (h = N).

" 25 Up iP 02 34 53.6
Um iP 02 35 34.9
Greece (h = N).

" 25 Up iP 02 40 45.3
i 02 40 48.4
iS 02 44 48.9
micr sec
P Z' 0.1 0.9
i Z' 1.6 1.4
Mx E 124 12
Mx N 105 12
Ki iP 02 41 58.4
i 02 42 00.8
iS 02 47 07
micr sec
i Z' 0.8 1.9
Um iP 02 41 21.5
i 02 41 26.5
iS 02 46 02
Greece (h = N).
m = 6.3 (Up,Ki), M = 6.7 (Up).
Up surface-wave amplitudes obtained from Wiechert readings.

" 25 Up iP 03 43 56.6
Um iP 03 44 31.5
Greece (h = N).

" 25 Up iP 04 35 08.6
Um iP 04 35 45.8
Greece (h = N).

" 25 Up iP 05 13 08.4
iS 05 17 05
micr sec
Mx Z 4.6 11
Ki iP 05 14 21.9
Um iP 05 13 44.4
iS 05 18 23
Greece (h = N).

1981
Feb. 25 Up iP 06 13 34.7
Um iP 06 14 12.2
Greece (h = N).

" 25 Up iP 07 04 33.2
Um eP 07 05 12
Greece (h = N).

" 25 Up iP 10 12 37.8
Greece (h = N).

" 25 Up iP 13 14 22.1
Ki iP 13 13 41.6
Um iP 13 13 59.7
Off east coast of Honshu, Japan (h = 15 km).

" 25 Up iP 13 52 57.1
micr sec
Mx Z 1.5 10
Ki Mx 14 07
micr sec
Mx Z 0.5 11
Um iP 13 53 35.0
Greece (h = N).
M = 4.6 (Up,Ki).

" 25 Up i(P) 14 18 55.3

" 25 Up iP 16 32 25.8
Ki iP 16 32 01.9
Um iP 16 32 11.6
West Caroline Islands (h = 25 km).

" 25 Up iP 16 38 01.5 D
ipP 16 38 12.0
micr sec
P Z' 0.1 1.0
Mx Z 1.7 13
Ki iP 16 37 30.9 D
ipP 16 37 41.5
micr sec
P Z' 0.1 1.0
Mx Z 0.7 11
Um iP 16 37 43.0
ipP 16 37 53.9
Ryukyu Islands.
h = 40 km (Up,Ki,Um).
m = 5.9, M = 5.4 (Up,Ki).

" 25 Up iP 18 24 54.9
Andreanof Islands, Aleutian Is. (h = N).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Feb. 25 Up iP 20 32 49.7
Um iP 20 33 30.5
Greece (h = N).

" 25 Um iP 21 08 27.7
Near east coast of Honshu, Japan (h = N).

" 25 Up iP 21 15 35.8
Dodecanese Islands (h = 55 km).

" 26 Um iP 06 22 18.0

" 26 Up iP 14 50 12.5
micr sec
Mx Z 2.2 23
Ki iP 14 49 21.4
micr sec
P Z' 0.1 1.0
Um iP 14 49 44.8
i 14 49 46.5
Kuril Islands (h = N).

" 26 Up i(PKP 17 37 12.6
iPKP 17 37 17.8
iSKP 17 40 35
micr sec
Mx Z 16 20
Ki iPKP 17 37 01.8
i 17 37 06.5
micr sec
Mx Z 11 20
Um iPKP 17 37 08.4
Vanuatu Islands (h = 80 km).
M = 6.7 (Up,Ki).

" 26 Up iSgl 17 44 21.5
Ud iSgl 17 44 29.0
Dalarna, Sweden, 60.2°N, 15.9°E.
Origin time = 17 43 53.
Felt south of Hedemora.
Solution from SKI station readings.

" 26 Up iP 19 35 43.7
Um iP 19 36 22.1
Greece (h = N).

" 27 Um iP 13 55 31.5

" 27 Up iP 15 58 16.1 C
micr sec
P Z' 0.1 0.8
(cont.)

1981
Feb. 27 (cont.)
Ki iP 15 58 25.3 C
micr sec
P Z' 0.1 0.9
Um iP 15 58 14.6 C
Afghanistan-USSR border region (h = 230 km).
m = 5.3 (Up,Ki).

" 27 Up iP 16 47 48.0 C
micr sec
P Z' 0.1 0.8
Ki iP 16 46 54.3 C
micr sec
P Z' 0.1 0.8
Um iP 16 47 20.2 C
ipP 16 47 35.0
Rat Islands, Aleutian Islands (h = 50 km)
m = 5.9 (Up,Ki).

" 28 Up iP 02 08 31.4
Ki iP 02 08 24.0
Um iP 02 08 22.5
i 02 08 35.9
Eastern India (h = N).

" 28 Up iP 17 11 16.9
iS 17 15 15.6
micr sec
P Z' 0.1 1.3
Mx Z 3.2 10
Ki iP 17 12 29.6
Um iP 17 11 52.7
iS 17 16 32
Greece (h = N).

" 28 Up Mx 22 50
micr sec
Mx Z 8.1 22
Near coast of northern Peru (h = N).

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December 1, 1982

SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

SEISMOLOGICAL SECTION
BOX 12019
S-750 12 UPPSALA
SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

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
Umeå	(Um):	63°48.9'N,	20°14.2'E; h = 16 m
Uddeholm	(Ud):	60°05.4'N,	13°36.4'E; h = 240 m
Delary	(De):	56°28.2'N,	12°52.2'E; h = 150 m

M A R C H 1 - 31, 1981

1981							
Mar.	1	Up	iSgl	05 11 29.4			
		Sk	eSn	05 09 39			
			iSgl	05 09 45.8			
		Um	eSgl	05 11 35			
		Ud	ePgl	05 09 38			
			e	05 10 13			
			i	05 10 23.6			
			iSgl	05 10 39.3			
		Coast of Norway, near 62 3/4°N, 6°E.					
		Origin time = 05 08 15.					
		M_L = 2.7 (Ud).					
		Felt.					
		By combination with Bergen and Kongsberg readings.					
"	1	Up	iP	05 16 48.5			
			i	05 17 05.0			
		Um	iP	05 17 29.2			
			i	05 17 38.9			
		Greece (h = 35 km).					
"	1	Um	iP	15 23 54.2			
		Near east coast of Honshu, Japan (h = N).					
"	1	Um	eP	23 48 30			
		Albania (h = 10 km).					
"	2	Um	iP	00 11 42.2			
		South of Java (h = N).					
"	2	Up	eP	02 34 32			
		Ki	eP	02 34 40			
		Um	iP	02 34 30.4	C		
		Afghanistan-USSR border region (h = 70 km).					
"	2	Um	ipP	08 06 00.3			
		Windward Islands (h = 80 km).					

1981							
Mar.	2	Up	iP	12 25 37.5			
			ipP	12 25 45.4			
			iS	12 35 21			
				micr	sec		
			pP	Z'	0.1	0.9	
			Mx	Z	7.6	15	
		Ki	iP	12 25 12.5			
			i	12 25 22.3			
				micr	sec		
			i	Z'	0.2	1.0	
		Um	iP	12 25 22.3	D		
			ipP	12 25 30.5			
			iS	12 34 54			
		Taiwan region.					
		h = 30 km (Up,Ki,Um).					
		m = 6.0 (Up,Ki).					
"	2	Up	eP	13 18 40			
		Um	iP	13 19 16.6			
		Greece (h = 10 km).					
"	2	Up	i(P)	19 25 25.7			
"	2	Up	iP	21 42 15.0			
		Um	eP	21 42 51			
		Greece (h = 35 km).					
"	3	Up	iP	06 00 10.5			
			iPP	06 01 40.7			
			iS	06 06 15			
				micr	sec		
			P	Z'	0.1	1.1	
			Mx	Z	2.9	11	
		Ki	iP	06 00 14.6			
				micr	sec		
			P	Z'	0.1	0.6	
			Mx	Z	5.8	9	
		Um	iP	06 00 06.4			
			i	06 00 11.4			

(cont.)

Upp = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Mar. 3 (cont.)
Um i 06 00 26.5
Kirghiz SSR (h = 55 km).
m = 5.7 (Up,Ki).

" 3 Up iP 08 51 51.0
micr sec
P Z' 0.1 1.0
Ki iP 08 52 00.6 C
Um iP 08 51 50.1 C
Pakistan (h = 40 km).

" 3 Up iP 09 31 59.2
Ki eP 09 32 41
Um iP 09 32 23.5 C
Central Mid-Atlantic Ridge (h = 10 km).

" 3 Um eP 17 06 18
Greece (h = 25 km).

" 3 Um iP 22 59 45.8
i 22 59 59.2
Near east coast of Honshu, Japan (h = 55 km).

" 4 Um iP 00 53 23.1
Taiwan (h = 150 km).

" 4 Up iP 01 02 38.7 C
Ki iP 01 02 47.1 C
i 01 02 55.9
Um iP 01 02 36.5
i 01 02 49.6
Afghanistan-USSR border region (h = 110 km).

" 4 Ki e 02 09 52
Um iP 02 09 20.1
i 02 09 25.1
Uganda (h = 35 km).

" 4 Up iP 13 53 27.3
Um iP 13 54 01.6
Greece (h = 25 km).

" 4 Up iPKP1 15 35 30.2 C
Ki iPKP 15 35 19.5
Um iPKP1 15 35 18.8
i 15 35 27.3
South of Fiji Islands (h = 40 km).

" 4 Um iP 15 56 47.7
Banda Sea (h = 140 km).

1981
Mar. 4 Up eP 18 26 32
Greece (h = 20 km).

" 4 Up iP 18 53 38.7
Southern Sumatera (h = 60 km).

" 4 Ki eP 19 11 46
Um iP 19 12 02.2 D
Off east coast of Honshu, Japan (h = N).

" 4 Up iP 22 02 57.6
i2 22 03 01.6
i3 22 03 06.1
iS 22 07 01.2
micr sec
i2 Z' 1.2 1.4
i3 Z' 3.7 1.5
Mx Z 87 13
Ki iP 22 04 10.4 C
i2 22 04 15.4
iS 22 09 12
micr sec
P Z' 0.1 1.0
i2 Z' 0.6 1.4
Mx Z 72 12
Um iP 22 03 34.0 C
i2 22 03 38.9
i3 22 03 42.5
iS 22 08 04
Greece (h = 30 km).
m = 6.4, M = 6.5 (Up,Ki).
Multiple P, 4.6 s and 4.1 s apart, with successively increasing amplitudes. The second onset, when interpreted as pP, provides focal depth of 15 km.

" 4 Up iP 22 36 00.7
Um iP 22 36 35.4
Greece (h = 25 km).

" 4 Up iP 23 01 39.8
Um iP 23 02 14.4
Greece (h = 20 km).

" 4 Up iP 23 09 40.9
Um iP 23 10 16.6
Greece (h = 35 km).

" 4 Ki iP 23 10 22.8

" 4 Up iP 23 27 04.8
i 23 27 12.0
Um eP 23 27 40
Greece (h = 15 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Mar. 5 Up eP 00 04 12
Um iP 00 04 49.2
Greece (h = 30 km).

" 5 Um iP 00 40 49.2
Greece (h = 10 km).

" 5 Up iP 00 55 33.0
Um iP 00 56 11.9
Greece (h = N).

" 5 Up iP 01 15 07.4
Um iP 01 15 52.4
Greece (h = 35 km).

" 5 Up iP 01 27 05.5 C
Ki iP 01 28 12.0 C
micr sec
P Z' 0.1 1.4
Um iP 01 27 42.7 C
Spain (h = 10 km).

" 5 Up iP 02 58 39.7
i 02 58 43.6
Greece (h = 20 km).

" 5 Up iP 05 36 43.1
Ki iP 05 36 25.0

" 5 Up iP 07 03 58.9 C
i 07 04 04.8
iS 07 07 57
micr sec
P Z' 0.1 1.0
i Z' 0.8 1.8
Mx Z 4.9 10
Ki iP 07 05 11.0 C
micr sec
P Z' 0.1 1.4
Mx Z 3.7 12
Um iP 07 04 36.0 C
iS 07 09 15
Greece (h = 25 km).
m = 5.7, M = 5.3 (Up,Ki).

" 5 Ki iPgl 07 21 01.3
iSgl 07 21 23.3
Um iSgl 07 22 22.5
Finnish Lapland, 66.9°N, 24.2°E.
Origin time = 07 20 32.
M_L = 2.2 (Ki,Um).
By combination with Finnish station readings.

" 5 Up iP 10 34 41.0
Greece (h = 35 km).

1981
Mar. 5 Um iP 11 58 58.7

" 5 Up iP 12 02 11.0

" 5 Up iPKPl 13 13 24.1
i 13 13 42.3
Ki iPKPl 13 13 05.8
i 13 13 12.9
micr sec
i Z' 0.2 1.5
Um iPKPl 13 13 13.6
Off e. coast of N. Island, N.Z. (h = N).

" 5 Um iP 15 49 36.5
Greece (h = 20 km).

" 5 Up iP 19 10 10.1
Ki iP 19 09 35.6
Um iP 19 09 50.4
i 19 10 23.3
i 19 11 11.3
South of Honshu, Japan (h = 360 km).

" 5 Um iP 19 29 06.5

" 5 Ki iP 20 13 33.9
Um iP 20 14 06.4 C
Alaska (h = N).

" 5 Up iP 21 17 53.6
Ki iP 21 16 59.0
Um iP 21 17 27.0
Kodiac Island region (h = N).
Late arrivals when compared with NEIS solution.

" 5 Up eP 21 59 31
Um eP 22 00 07
Greece (h = 35 km).

" 5 Um iP 22 55 50.7
i 22 55 58.3
Central Mid-Atlantic Ridge (h = 10 km).

" 5 Up iP 23 58 09.5 D
micr sec
P Z' 0.2 1.5
Ki iP 23 57 16.2
Um iP 23 57 41.1
i 23 58 02.3
Off east coast of Kamchatka (h = 35 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Mar. 6 Um eP 01 40 04
Greece (h = 10 km).

" 6 Up iP 06 07 51.7
Ki iP 06 07 53.7 C
micr sec
P Z' 0.3 1.8
Um iP 06 07 46.9 C
Nepal-India border region
(h = 45 km).

" 6 Up iP 10 42 04.6
micr sec
P Z' 0.1 1.1
Ki iP 10 40 35.9
micr sec
P Z' 0.2 1.4
Um iP 10 41 22.6
Greenland Sea (h = 10 km).

" 6 Um iPKP 17 37 25.5
Solomon Islands (h = 70 km).

" 6 Up iP 19 56 14.1
iSKS 20 06 45
iS 20 07 15
micr sec
P Z' 0.1 1.3
Mx Z 16 19
Ki eP 19 56 10
i 19 56 11.4
iSKS 20 06 46
iS 20 07 18
micr sec
i Z' 0.2 1.7
Um iP 19 56 12.9
i 19 56 16.5
iPP 20 00 00.5
iSKS 20 06 47
iS 20 07 21
Off coast of Central
America (h = N).
m = 6.2 (Up,Ki).

" 7 Up iP 01 02 43.9
Ki iP 01 02 53.7
micr sec
P Z' 0.1 1.0
Um iP 01 02 52.9
Leeward Islands (h = N).

" 7 Um iPKP 04 07 08.0
Santa Cruz Islands
(h = 60 km).

1981
Mar. 7 Um iPKP 10 04 40.9
South of Fiji Islands
(h = 580 km).

" 7 Up iP 11 39 35.5
iS 11 43 34.8
micr sec
P Z' 1.0 1.4
Mx Z 7.0 8
Ki iP 11 40 48.2
i 11 41 08.6
micr sec
i Z' 0.5 1.7
Mx Z 4.2 11
Um eP 11 40 10
Greece (h = 35 km).
m = 6.1 (Up,Ki).

" 7 Up iP 11 56 29.5
micr sec
P Z' 0.2 1.7
Um eP 11 57 06
Greece (h = 30 km).

" 7 Up iP 15 05 21.2
micr sec
P Z' 0.1 1.0
Ki iP 15 05 35.7
Um iP 15 05 22.7 C
Pakistan (h = N).

" 7 Ud iSgl 15 30 42.0
Lake Vänern region, Sweden,
59.1°N, 13.2°E.
Origin time = 15 30 11.
M_L = 2.0 (Ud).
By combination with SKI
network readings.

" 7 Up iP 20 52 01.3
micr sec
P Z' 0.2 1.5
Ki iP 20 53 25.0
i 20 53 30.3
Um iP 20 52 41.7
Romania (h = 150 km).

" 7 Up iPKP1 23 49 51.4 C
micr sec
PKP1 Z' 0.2 1.3
Ki e(PKP) 23 49 19
iPKP 23 49 36.9
Um iPKP1 23 49 39.8 C
i 23 49 58.3
Kermadec Islands (h = N).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Mar. 8 Up iP 06 03 37.9
Um iP 06 03 22.6

" 8 Ki iP 08 55 27.2 C
micr sec
P Z' 0.2 1.7
Um iP 08 55 10.6 C
i 08 55 17.9
Central Mid-Atlantic Ridge (h = 10 km).

" 8 Um iP 11 58 12.6
Greece (h = N).

" 8 Ki iP 12 34 09.2
Um iP 12 34 36.1
Off east coast of Kamchatka (h = 35 km).

" 8 Up iP 14 55 16.2

" 8 Up eP 22 59 24
Um iP 22 59 58.4
i 23 00 06.6
Southern Italy (h = 10 km).

" 9 Up iSgl 04 49 58.4
Sk iSgl 04 48 31.5
Um eSgl 04 50 21
Ud iSgl 04 48 57.9
De iSgl 04 50 15.6
Coast of Norway, near 62°N, 5°E.
Origin time = 04 46 40.
M_L = 3.0 (Up,Sk,Um,Ud,De).
Felt.
By combination with Bergen and Kongsberg readings.

" 9 Up iP 05 34 34.6
i 05 34 47.7
Ki eP 05 35 07
Southern Iran (h = N).

" 9 Up iP 16 23 08.2
Ki iP 16 22 26.7
Um iP 16 22 45.0 C
i 16 22 58.5
Near east coast of Honshu, Japan (h = 50 km).

" 9 Up iP 17 30 39.8
Ki iP 17 30 24.1
Um iP 17 30 25.7
i 17 30 34.2

1981
Mar. 9 Up iP 19 05 17.3
Um iP 19 05 14.3
Afghanistan-USSR border region (h = 55 km).

" 9 Up iP 22 51 38.6
iS 23 02 07
micr sec
P Z' 0.1 1.1
Mx Z 4.5 17
Ki eP 22 51 20
i 22 51 22.1
i 22 51 30.4
i 22 51 58.2
micr sec
i Z' 0.5 1.4
Mx Z 5.5 17
Um iP 22 51 31.8 C
i 22 51 40.4
Near coast of Michoacan, Mexico (h = 55 km).
m = 6.2, M = 6.0 (Up,Ki).

" 10 Up iP 15 20 56.2 C
iS 15 24 44
micr sec
P Z' 0.3 0.7
Mx Z 9.3 11
Ki iP 15 22 12.6 C
micr sec
P Z' 0.6 2.0
Mx Z 3.9 13
Um iP 15 21 35.9 C
Greece-Albania border region (h = 30 km).
m = 5.9, M = 5.3 (Up,Ki).

" 11 Um iP 01 31 43.9
i 01 31 56.7

" 11 Up iP 03 39 10.5
Um iP 03 38 56.9
Philippine Islands region (h = N).

" 11 Um iP 07 27 50.4

" 11 Um iP 16 09 55.8
Pakistan (h = N).

" 11 Ki iP 19 27 28.7
Um iP 19 27 45.5 C
Near east coast of Honshu, Japan (h = 60 km).

" 11 Ki iP 22 13 48.1

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981					
Mar.	11	Um	iP		22 23 46.2
			i		22 23 58.9
"	12	Up	iP		01 54 32.7
			i		01 54 37.6
			i		02 01 43
					micr sec
			i	Z'	0.1 1.0
		Ki	eP		01 55 46
			i		01 55 50.2
		Um	iP		01 55 10.9 C
		Greece (h = N).			
"	12	Um	eP		02 24 15
"	12	Um	iP		03 29 51.5
		Nicaragua (h = N).			
"	12	Up	eP		04 10 38
			i		04 10 51.2
			i		04 15 46
		Ki	iP		04 11 49.1
		Um	iP		04 11 09.3
			i		04 11 13.1
			i		04 11 21.0
		Turkey (h = 10 km).			
"	12	Ki	iPdiff		10 56 55.4
			iPKP		11 00 57.4
		Um	iPdiff		10 57 04.5
			iPKP		11 01 01.4
		East Papua, New Guinea region (h = 180 km).			
"	12	Up	iP		15 18 19.0
			i		15 18 23.6
		Ki	iP		15 17 27.7 C
		Um	iP		15 17 52.5 C
		Kuril Islands (h = N).			
"	13	Ki	iPKP		01 56 08.4
		South Sandwich Islands region (h = 140 km).			
"	13	Um	iP		08 09 27.7
"	13	Up	iP		15 28 42.2
					micr sec
			P	Z'	0.1 1.0
		Ki	iP		15 28 23.6
					micr sec
			P	Z'	0.1 1.0
		Um	iP		15 28 30.1
		Samar, Philippine Islands (h = 55 km).			

1981					
Mar.	13	Up	iP		17 00 40.7
		Ki	i		17 00 06.2
		Um	eP		17 00 17
			i		17 00 30.7
		Kuril Islands (h = 40 km).			
"	13	Ki	iP		17 51 04.4
		Um	eP		17 51 11
		Samar, Philippine Islands (h = 55 km).			
"	13	Up	iP		18 33 56.3
			i		18 34 41.9
					micr sec
			P	Z'	0.2 1.0
		Ki	iP		18 33 39.6
					micr sec
			P	Z'	0.3 1.5
		Um	iP		18 33 44.6
		Mindoro, Philippine Islands (h = 140 km).			
		m = 6.0 (Up,Ki).			
"	13	Um	iP		19 54 46.7
		Halmahera (h = 250 km).			
"	13	Up	iP		21 38 36.9
		Ki	eP		21 37 54
		Um	iP		21 38 13.2
		Hokkaido, Japan region (h = 55 km).			
"	13	Up	iP		22 55 03.7
		Um	iP		22 55 17.7
		Western Iran (h = N).			
"	13	Ki	eP		23 32 28
		Um	eP		23 32 34
		Mindanao, Philippine Islands (h = 150 km).			
"	13	Up	iP		23 36 13.4
			ipP		23 36 27.0
			iSKS		23 46 43
					micr sec
			Mx	Z	3.8 23
		Ki	iP		23 36 07.7
					micr sec
			Mx	Z	1.3 19
		Um	iP		23 36 07.8
			ipP		23 36 19.7
			iSKS		23 46 39
		Java.			
		h = 45 km (Up,Um).			
		M = 5.7 (Up,Ki).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Mar. 14 Um iPKP 08 31 47.1
Santa Cruz Islands
(h = 55 km).

" 14 Um iP 16 39 58.5
i 16 40 09.1

" 14 Um iP 20 36 17.3
i 20 36 38.7
Southeast of Shikoku,
Japan (h = N).

" 14 Um iP 20 53 07.7
Southeast of Shikoku,
Japan (h = N).

" 15 Up iP 04 57 21.7
Ki iP 04 57 05.1
Um iP 04 57 09.9
Mindoro, Philippine
Islands (h = 70 km).

" 15 Up iP 07 59 05.6
Um iP 07 58 39.1
Alaska Peninsula
(h = 40 km).

" 15 Um iP 08 33 08.8
Off east coast of Honshu,
Japan (h = 50 km).

" 15 Up iP 08 48 30.3
Um iP 08 48 38.4

" 15 Um iP 11 24 55.3
Yugoslavia (h = 10 km).

" 15 Up iSgl 15 47 13.7
Ud iSgl 15 47 22.1
Dalarna, Sweden, 60.2°N,
15.9°E.
Origin time = 15 46 45.
Felt south of Hedemora.
Solution from SKI station
readings.

" 15 Up eP 20 37 29
Ryukyu Islands (h = N).

" 15 Up iSgl 20 40 11.6
Dalarna, Sweden, 60.2°N,
15.9°E.
Origin time = 20 39 42.
Felt south of Hedemora.
Solution from SKI station
readings.

1981
Mar. 15 Up eP 20 42 34
micr sec
Mx Z 2.1 13
Ki Mx 21 18
micr sec
Mx Z 1.0 17
Um i 20 42 24.2
Ryukyu Islands (h = N).
M = 5.4 (Up,Ki).

" 15 Up i 21 18 43.0
Um e 21 18 21
Ryukyu Islands (h = N).

" 15 Up eP 21 44 46
micr sec
Mx Z 3.3 13
Ki eP 21 44 19
micr sec
Mx Z 2.7 17
Um i 21 44 44.4
Ryukyu Islands (h = N).
M = 5.7 (Up,Ki).

" 16 Up iP 01 48 25.1
Ryukyu Islands (h = N).

" 16 Up iP 01 57 06.3
Ki iP 01 58 18.8 C
Um iP 01 57 44.9
i 01 57 56.7
Greece (h = N).

" 16 Um iPKP 07 52 04.9
Santa Cruz Islands
(h = N).

" 16 Up iP 12 29 34.5
micr sec
Mx Z 6.4 13
Ki eP 12 28 41
micr sec
Mx Z 3.4 17
Um iP 12 29 06.2
Near east coast of
Kamchatka (h = 80 km).
M = 5.8 (Up,Ki).

" 16 Up iP 12 40 08.5
Ki eP 12 39 37
Um eP 12 39 50
Ryukyu Islands (h = N).

" 16 Up iP 12 52 46.6
Ki eP 12 51 28
Um eP 12 52 06
Jan Mayen Island region
(h = 10 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Mar. 16 Up iPKP 13 59 29.7
Ki iPKP 13 59 37.5 C
Um iPKP 13 59 34.9 C
Central Chile (h = 55 km).

" 16 Up iP 18 09 05.7
Ki iP 18 08 49.2 C
Um iP 18 08 54.1
Halmahera (h = 35 km).

" 17 Up eP 10 37 31
Um iP 10 38 12.6
Sicily (h = 15 km).

" 17 Um eP 23 54 43

" 18 Um iP 05 31 09.7

" 18 Um iPKP 07 02 53.5
Fiji Islands region
(h = 470 km).

" 18 Um iP 08 05 55.1
Off east coast of Honshu,
Japan (h = 40 km).

" 18 Up iP 08 51 42.5
South of Atlantic Ridge
(h = 10 km).

" 18 Up iP 12 24 34.9 C
Um iP 12 25 14.3
Greece (h = 35 km).

" 18 Um i(P) 13 32 45.8

" 18 Up iP 13 42 56.6
Um iP 13 43 34.8
Greece (h = N).

" 18 Up iP 17 00 24.2
i 17 00 28.6
micr sec
P Z' 0.1 1.5
Um iP 17 01 02.8
i 17 01 06.3
Greece (h = 30 km).

" 18 Up eP 18 32 37
i 18 32 39.4
Ki iP 18 32 07.5 C
Um iP 18 32 19.8
i 18 32 36.8
Ryukyu Islands (h = N).

" 18 Um iP 19 45 56.9
Southeast of Shikoku,
Japan (h = N).

1981
Mar. 18 Up eP 21 07 15
ipP 21 07 26.0
Ki eP 21 06 37
ipP 21 06 45.2
Um iP 21 06 56.2
ipP 21 07 05.0
Southeast of Shikoku,
Japan.
h = 30 km (Up,Ki,Um).

" 19 Up iP 10 07 10.9
Um iP 10 07 08.3 C
Afghanistan - USSR border
region (h = N).

" 19 Um iP 15 24 19.9
Greece (h = N).

" 19 Um iP 15 34 25.4
Greece (h = N).

" 20 Up iSgl 05 15 37.5
Ki iPn 05 12 07.4
iPgl 05 12 15.6
iSn 05 12 55.4
iSgl 05 13 13.0
Sk iPn 05 12 15.2
iSn 05 13 09.9
Um iPn 05 12 35.8
i 05 12 42.5
iSn 05 13 43.9
Ud ePn 05 13 03
iSn 05 14 35.0
Off coast of northern
Norway, near 68 1/4°N,
9 1/2°E.
Origin time = 05 11 04.
M_L = 3.3 (Up,Ki).

" 20 Up ePKP2 09 58 35
Um ePKP2 09 58 13
South of Kermadec Islands
(h = 45 km).

" 20 Um iP 12 44 12.2

" 20 Up iP 15 44 12.0 C
i 15 44 19.1
iS 15 48 21.8
Ki iP 15 45 22.6 C
micr sec
P Z' 0.1 0.5
Um iP 15 44 46.1 C
Southern Greece (h = 110 km).

" 20 Um iP 17 05 59.3
South of Honshu, Japan
(h = 35 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De =Delary

1981
Mar. 20 Up iPKPl 20 58 22.2
i 20 58 40.8
Ki i 20 58 08.2
Um iPKPl 20 58 10.3 C
i 20 58 22.5
South of Kermadec Islands
(h = 40 km).

" 20 Um iP 21 13 08.0

" 20 Up i 23 45 29.4
Ki iP 23 45 04.9
Um iP 23 45 08.9
Molucca Passage (h = 35 km).

" 21 Up iP 06 26 01.7
Ki iP 06 26 38.0
Um iP 06 26 15.1
Southern Iran (h = N).

" 21 Up iP 08 37 17.7 C
Ki iP 08 36 35.0 C
Um iP 08 36 53.5
Hokkaido, Japan region
(h = 60 km).

" 21 Up iPKPl 22 33 42.8 D
Um iPKPl 22 33 31.6
iSKPl 22 36 32.2
South of Fiji Islands
(h = 440 km).

" 21 Up iPKP 23 10 49.5
Ki iPdiff 23 06 34.3
Um iPdiff 23 06 43.8
iPKP 23 10 43.6
East Papua, New Guinea
region (h = 230 km).

" 21 Ki iP 23 10 41.1
Um iP 23 11 12.7
i 23 11 17.7
i 23 11 22.1
Alaska Peninsula (h = 140 km).
Arrivals contaminated by
those due to the preceding
event. Separation difficult.

" 21 Up eP 23 21 28
Ki iP 23 21 53.4
Um iP 23 21 45.7

" 22 Ki iPn 05 51 27.6
Um iP 05 53 11.4
Norwegian Sea (h = 10 km).

1981
Mar. 22 Um iP 06 21 23.4
Sakhalin Island (h = N).

" 22 Um iP 08 11 54.0
Honshu, Japan (h = 60 km).

" 22 Um iPKP 17 26 58.6
South of Kermadec Islands
(h = 40 km).

" 22 Up iP 18 19 52.1
i 18 20 05.5
micr sec
P Z' 0.1 0.8
Ki iP 18 19 26.6
micr sec
P Z' 0.1 1.3
Um eP 18 19 35
Southwestern Ryukyu Islands
(h = 50 km).
m = 5.7 (Up,Ki).

" 22 Um iP 23 32 57.9

" 23 Up iP 09 56 08.1
Ki iP 09 56 17.1
Um iP 09 56 06.0
Hindu Kush region
(h = 220 km).

" 23 Ki iP 13 30 30.9 C
micr sec
P Z' 0.1 1.2
North Atlantic Ridge
(h = 10 km).

" 23 Um iPKP 19 46 57.5
Near coast of central
Chile (h = 45 km).

" 23 Up ePKP 23 21 16
Um iPKP 23 21 05.4
Loyalty Islands region
(h = N).

" 24 Ki iP 07 01 03.0
North Atlantic Ridge
(h = 10 km).

" 24 Ki iP 08 56 49.9
Um iP 08 57 06.4
Hokkaido, Japan region
(h = 45 km).

" 24 Um iP 11 31 17.9
South of Honshu, Japan
(h = 340 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Mar. 24 Um iP 11 37 02.9 C
South of Honshu, Japan
(h = N).

" 24 Um iP 18 28 35.4
Fox Islands, Aleutian
Islands (h = N).

" 24 Up iP 18 32 22.2 C
i 18 32 34.3
micr sec
P Z' 0.1 1.0
Ki iP 18 31 29.4
micr sec
P Z' 0.2 1.3
Um iP 18 31 55.8 C
Fox Islands, Aleutian
Islands (h = N).
m = 5.9 (Up,Ki).

" 25 Up iP 04 27 23.4
i 04 27 45.9
Ki eP 04 26 51
Um iP 04 27 05.4
Bonin Islands region
(h = N).

" 25 Um eP 16 32 40
Western Greenland
(h = 10 km).

" 25 Ki iP 23 00 25.1
Philippine Islands
region (h = 70 km).

" 26 Up iP 02 36 05.7
Ki iP 02 36 34.7
Um iP 02 36 16.1
Arabian Sea (h = 10 km).

" 26 Um iP 08 10 45.3
East Papua, New Guinea
region (h = 120 km).

" 26 Um iP 08 41 34.1
Costa Rica (h = N).

" 26 Up iP 10 24 38.1
Um iP 10 24 10.8
Rat Islands, Aleutian
Islands (h = 60 km).

" 26 Up i(PKP) 10 35 32.4
i 10 35 42.4
Um ePKPl 10 35 29
i 10 35 43.0
Tonga Islands (h = 45 km).

1981
Mar. 26 Up iP 14 45 05.8
Greece (h = N).

" 26 Up eP 15 39 16.8
Ionian Sea (h = N).

" 26 Um iP 17 44 39.6
Albania (h = 10 km).

" 26 Up iPP 18 22 53.8
iS 18 30 15
Um iPP 18 23 10.2
iSKS 18 29 11
Chile-Bolivia border
region (h = 140 km).

" 26 Up iP 21 43 30.0
ipP 21 43 44.3
i 21 54 01.7
micr sec
P Z' 0.1 0.8
pP Z' 0.1 1.0
Mx Z 37 22
Ki iP 21 43 12.8 C
ipP 21 43 29.8
i 21 47 00.5
micr sec
P Z' 0.2 1.2
pP Z' 1.1 2.1
Mx Z 19 20
Um iP 21 43 18.7 C
iPP 21 47 21.8
i 21 53 45.8
Talaud Islands.
h = 55 km (Up,Ki).
m = 6.4, M = 6.7 (Up,Ki).

" 27 Up iP 07 33 06.8
Philippine Islands region
(h = 15 km).

" 27 Ki eP 08 31 07
Um iP 08 31 21.3
Bonin Islands region
(h = N).

" 27 Up iP 16 25 22.9
Ki iP 16 25 06.2
Um iP 16 25 12.5
Philippine Islands region
(h = 40 km).

" 27 Up ePKP 22 21 28
Um ePKP 22 21 31
i 22 21 45.3
Scotia Sea (h = N).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981 Mar.	27	Up	iP	22 52 54.1	
		Ki	iP	22 52 30.5	
		Um	iP	22 52 39.4	C
		Taiwan region (h = 25 km).			
"	28	Up	iPKP	01 25 44.5	
		Ki	ePKP	01 25 32	
		Um	iPKP	01 25 37.3	
		New Britain region (h = 70 km).			
"	28	Um	iP	02 57 12.2	C
"	28	Um	iP	06 06 02.3	
		Albania (h = 10 km).			
"	28	Up	iPKP1	06 52 35.0	
			iPKP2	06 52 46.8	
		Ki	ePKP	06 52 17	
		Um	iPKP1	06 52 24.6	C
		South of Kermadec Islands (h = N).			
"	28	Um	iP	11 06 35.4	
		Southern Italy (h = 10 km).			
"	28	Up	iPKP1	18 05 25.6	
		Um	iPKP1	18 05 16.0	
		South of Kermadec Islands (h = N).			
"	28	Um	iP	18 12 46.4	
"	28	Um	iP	18 55 55.9	
"	28	Ki	iPKP	20 52 34.1	
		Um	iPKP	20 52 37.9	
		Loyalty Islands region (h = 50 km).			
"	28	Um	iP	23 08 01.3	
"	29	Up	iP	04 10 47.8	C
			iPn	04 10 58.3	
			iPP	04 12 06.8	
				micr sec	
			P Z'	0.5 0.9	
		Ki	iP	04 10 31.0	C
			i	04 10 55.4	
			i	04 11 07.6	
				micr sec	
			P Z'	0.4 0.7	
		Um	iP	04 10 32.4	C
		Eastern Kazakh SSR.			
		m = 6.5 (Up,Ki).			
		Underground explosion.			
1981 Mar.	29	Up	iP	09 03 21.7	
			i	09 03 27.1	
		Um	iP	09 03 58.9	
			i	09 04 04.2	
		Algeria (h = 15 km).			
"	29	Up	iP	13 44 03.8	
		Ki	iP	13 43 10.2	
		Um	iP	13 43 36.8	D
		Rat Islands, Aleutian Islands (h = 35 km).			
"	29	Up	iP	14 36 29.4	
		Rat Islands, Aleutian Islands (h = 40 km).			
"	29	Up	iP	16 08 33.8	
		Rat Islands, Aleutian Islands (h = 20 km).			
"	29	Up	eP	16 51 15	
		Um	iP	16 50 47.9	
		Kuril Islands (h = N).			
"	29	Up	iP	19 00 33.6	
		Um	iP	19 00 25.0	
"	29	Up	iP	19 29 20.2	
		Ki	iP	19 29 16.5	C
		Um	iP	19 29 12.1	
			i	19 29 18.7	
		Southern Sinkiang Prov., China (h = N).			
"	30	Up	eP	00 49 50	
		Ki	iP	00 49 42.1	
		Bali Sea (h = 610 km).			
"	30	Um	iP	09 08 05.5	
"	30	Up	ePdiff	17 18 04	
				micr sec	
			Mx Z	3.3 20	
		Ki	iP	17 18 35.7	
				micr sec	
			Mx Z	1.7 17	
		Um	iP	17 18 42.9	C
			i	17 18 54.9	
		West Irian (h = N).			
		M = 5.8 (Up,Ki).			
"	30	Up	iP	22 34 36.6	
		Um	iP	22 34 22.4	
		Taiwan (h = 25 km).			
"	31	Um	eP	03 46 18	
			i	03 46 29.4	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981					
Mar.	31	Up	iP	05 34 46.7	
		Ki	iP	05 33 52.4	
		Um	iP	05 34 18.5	
		Near east coast of Kamchatka (h = N).			
"	31	Up	iPKP1	05 40 31.6	
			iPKP2	05 40 43.9	
			i	05 41 10.0	
		Ki	iPKP1	05 40 13.8	C
			i	05 40 20.5	
				micr sec	
			PKP1 Z'	0.5 1.2	
		Um	iPKP1	05 40 24.0	C
		East of North Island, N.Z. (h = 45 km).			
"	31	Up	iPKP	05 51 57.9	
			i	05 52 08.5	
		Ki	iPKP	05 51 38.4	
				micr sec	
			PKP Z'	0.1 1.0	
		Um	iPKP	05 51 48.1	C
			i	05 51 52.4	
"	31	Up	iP	07 58 56.2	
		Ki	iP	07 58 39.7	
		Um	eP	07 58 41	
"	31	Um	iP	08 05 06.6	C
"	31	Up	i(PKP)	11 06 22.8	
		Um	ePKP	11 06 17	
		Fiji Islands region (h = 610 km).			
"	31	Up	iP	16 25 42.9	C
			i	16 25 51.4	
				micr sec	
			P Z'	0.1 0.9	
		Ki	iP	16 25 31.3	
			i	16 25 38.1	
		Um	iP	16 25 30.9	
		Northern Sinkiang Prov., China (h = N).			
"	31	Um	ePKP	22 25 28	
		Solomon Islands (h = 5 km).			
"	31	Up	iP	22 51 43.9	
			i	22 51 46.9	
		Um	iP	22 51 34.4	
		Burma (h = N).			

December 29, 1982

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SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

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
Umeå	(Um):	63°48.9'N, 20°14.2'E;	h = 16 m
Uddeholm	(Ud):	60°05.4'N, 13°36.4'E;	h = 240 m
Delary	(De):	56°28.2'N, 13°52.2'E;	h = 150 m

A P R I L 1 - 30, 1981

1981 Apr.	1	Up	iP	01 38 13.7	
		Um	iP	01 37 48.4	
		Kuril Islands (h = N).			
"	1	Up	iP	04 53 47.6	
			i	04 54 17.3	
		Um	iP	04 53 58.7	
			i	04 53 28.4	
		Carlsberg Ridge (h = 10 km).			
"	1	Up	iPKPl	05 18 47.6	
		Um	iPKPl	05 18 37.3	
"	1	Up	iP	10 24 11.1	
		Ki	iP	10 24 50.0	C
			iPP	10 26 30.3	
				micr	sec
			P Z'	0.1	0.9
		Um	iP	10 24 25.5	
		Southern Iran (h = N).			
"	1	Up	iP	12 25 37.6	
		Southeast of Shikoku, Japan (h = N).			
"	1	Up	eP	13 14 40	
"	1	Ki	iP	14 30 49.2	
		Um	iP	14 30 06.4	
		Yugoslavia (h = 10 km).			
"	1	Um	eP	17 37 06	
		Yugoslavia (h = 10 km).			
"	1	Up	iPdiff	18 17 04.4	
			iPKP	18 21 03.4	
			iPP	18 21 37.3	
		(cont.)			

1981 Apr.	1	(cont.)			
		Ki	iPKP	18 21 10.3	
			iPP	18 22 05.2	
		Um	iPKP	18 21 07.4	
			i	18 21 11.3	
		Santiago del Estero Prov., Arg. (h = 550 km).			
"	1	Up	ePKP	22 07 18	
		Sumbawa Island region (h = 25 km).			
"	2	Up	iPKPl	01 01 31.6	
			i	01 01 34.1	
		Ki	iPKP	01 01 26.6	
		Um	iPKP	01 01 27.2	
			i	01 01 32.9	
		Fiji Islands region (h = 550 km).			
"	3	Um	iP	09 12 11.0	
"	3	Up	iP	16 24 44.6	
		Um	iP	16 24 42.7	
		Near coast of Guatemala (h = 120 km).			
"	3	Up	eP	18 41 20	
		Um	iP	18 41 58.3	
		Aegean Sea (h = 10 km).			
"	4	Um	iP	02 22 06.3	
		Mindanao, Philippine Islands (h = 70 km).			
"	4	Up	iPKPl	04 29 01.3	
		Um	iPKPl	04 28 45.6	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Apr. 4 Up eP 15 31 54
i 15 32 03.3
i 15 32 30.4
Ki iP 15 31 03.3
i 15 31 09.9
Um iP 15 31 29.1
Unimak Island region
(h = 15 km).

" 4 Up eP 22 08 30
i 22 08 31.5
Burma-India border region
(h = 90 km).

" 4 Up iP 23 28 25.3
i 23 28 35.2
Rat Islands, Aleutian
Islands (h = N).

" 4 Ud iSgl 23 35 05.8
Lake Vänern region, Sweden,
58.5°N, 13.0°E.
Origin time = 23 34 16.
Solution from SKI network
readings.

" 5 Up iP 02 14 54.4
Ki eP 02 14 01
Um iP 02 14 26.0
Off east coast of Kamchatka
(h = N).

" 5 Up iPKP 03 35 50.5
iPP 03 37 09.5
iPKKP 03 46 16.6
Ki iPKP 03 35 39.5
Um iPKP 03 35 44.0
iPP 03 36 42.3
iSKP 03 38 42.9
Solomon Islands (h = 410 km).

" 5 Up eP 09 39 14
Um iP 09 38 51.0
Off east coast of Honshu,
Japan (h = 35 km).

" 5 Up iP 10 39 08.5
Ki iP 10 38 56.6
Um iP 10 39 05.4
Near coast of Chiapas,
Mexico (h = 40 km).

" 5 Up iPKPl 10 45 42.3 C
iSKPl 10 48 36.0
Ki ePKP 10 45 30
iSKPl 10 48 15.5
(cont.)

1981
Apr. 5 (cont.)
Um iPKPl 10 45 30.4
iPKP 10 45 36.0
iSKPl 10 48 25.3
South of Fiji Islands
(h = 500 km).

" 5 Up iP 13 35 14.1
Um iP 13 34 52.1
i 13 34 59.6
Near east coast of Honshu,
Japan (h = 50 km).

" 5 Up eP 13 59 34
i 13 59 39.7
Um iP 13 59 12.3
i 13 59 16.8
Southeastern Alaska
(h = 20 km).

" 5 Up iPKP 22 08 48.5
Ki iPKP 22 09 03.9
i 22 09 25.5
Um iPKP 22 08 56.5
South Sandwich Islands
region (h = 90 km).

" 5 Up iP 23 15 32.0
Um iP 23 15 13.1

" 6 Up iP 02 38 49.5

" 6 Um iPKP 14 52 44.4
i 14 53 09.7
Central Chile (h = 90 km).

" 6 Um iP 15 26 53.5

" 6 Up iP 19 22 33.8
Ki eP 19 22 04
Mariana Islands (h = 270 km).

" 6 Ki iP 20 36 30.0
Um iP 20 36 47.5
Davis Strait (h = 10 km).

" 7 Um iPKP 09 20 31.0
Vanuatu Islands (h = 70 km).

" 7 Up iPKPl 18 22 56.0
Ki iPKP 18 22 49.3
Um i(PKP) 18 22 45.2
iPKP 18 22 57.7
Fiji Islands region
(h = 580 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981 Apr.	8	Um	iP		02 18 26.3	
"	8	Um	iP		03 25 38.9	
		Gulf of California (h = 10 km).				
"	8	Um	iP		17 54 04.7	
			i		17 54 09.2	
"	8	Um	iP		23 42 19.1	
"	8	Up	iP		23 53 46.4	
			iS		24 02 44.2	
			i		24 03 46.1	
					micr	sec
			P	Z'	0.6	1.1
			Mx	Z	2.3	17
		Ki	iP		23 52 58.7	
			i		23 53 16.0	
					micr	sec
			P	Z'	0.7	1.1
			Mx	Z	2.8	20
		Um	iP		23 53 20.6	
			i		23 53 32.5	
			iS		24 01 55	
		Kuril Islands region (h = N).				
		m = 6.7, M = 5.5 (Up,Ki).				
"	9	Up	ePKP2		08 57 38	
					micr	sec
			Mx	Z	2.5	23
		Ki	iPKP1		08 57 20.4	
			iPKP2		08 57 40.5	
					micr	sec
			Mx	Z	2.6	19
		Um	ePKP1		08 57 18	
			iPKP2		08 57 38.4	
		West of Macquarie Island (h = 10 km).				
		M = 6.1 (Up,Ki).				
"	9	Up	iP		10 15 33.2	
		Mindanao, Philippine Islands (h = 30 km).				
"	9	Up	iP		15 12 45.2	
		Ki	iP		15 12 53.7	
		Um	iP		15 12 43.2	
		Afghanistan-USSR border region (h = 190 km).				
"	9	Up	iP		17 28 58.6	
		Ki	iP		17 28 58.1	
		Um	iP		17 28 53.4	
		Nepal (h = N).				
1981 Apr.	10	Up	Mx		01 33	
					micr	sec
			Mx	Z	3.6	18
		Ki	Mx		01 27	
					micr	sec
			Mx	Z	1.7	19
		Bismarck Sea (h = 25 km).				
		M = 5.9 (Up,Ki).				
"	10	Up	eP		02 47 33	
					micr	sec
			Mx	Z	1.0	24
		Um	iP		02 47 08.8	
		Kuril Islands region (h = 35 km).				
"	10	Up	i		05 03 20.9	
			iSg2		05 04 22.5	
		Um	iLg2		05 06 39.1	
		Ud	iPn		05 01 54.9	
			i		05 02 04.1	
			i		05 03 42.6	
		De	iPn		05 01 05.7	
			iSn		05 02 03.5	
			iSg2		05 02 38.1	
		Southwestern Poland.				
"	10	Up	iP		08 34 29.8	
		Um	eP		08 35 10	
		Greece (h = 30 km).				
"	10	Up	iP		08 38 12.2	
			i		08 38 19.4	
		Um	eP		08 38 55	
		Greece (h = 20 km).				
"	10	Up	iP		15 05 37.8	
		Ki	iP		15 04 53.0	
		Um	iP		15 05 12.8	
		Kuril Islands (h = N).				
"	10	Up	iPn		19 46 24.0	
			i		19 46 33.5	
			i		19 46 52.5	
			iSn		19 48 29.8	
			iLg1		19 49 48.0	
			i		19 49 52.7	
		Ki	iPn		19 45 03.2	C
			i		19 45 10.2	
			iPg1		19 45 21.3	
			iSn		19 46 08.2	
			i		19 46 20.6	
			iSg1		19 46 34.3	
		Sk	ePn		19 46 10	
		(cont.)				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Apr. 10 (cont.)

Sk	i	19 46 19.3	
	iSn	19 48 08.7	
	i	19 48 18.5	
	i	19 48 41.4	
	iLgl	19 49 17.5	
Um	iPn	19 45 33.1	
	i	19 45 39.5	
	iSn	19 47 03.2	
	iSgl	19 47 47.9	
Ud	iPn	19 46 37.3	
	i	19 46 43.3	
	iSn	19 48 59.8	
	iLgl	19 50 12.5	
De	iPn	19 47 21.2	
	i	19 47 29.8	
	i	19 49 52.9	
	i	19 50 24.3	
	iLgl	19 51 49.4	

Off coast of Kola Peninsula, USSR, near 69 1/2°N, 35 1/2°E.
Origin time = 19 43 36.
M_L = 4.5 (Up,Sk,Um,Ud,De).

" 10

Up	iP	21 55 34.3	
	i	21 55 42.8	
		micr	sec
	P Z'	0.1	1.0
Ki	iP	21 55 15.6	
Um	iP	21 55 21.2	
	i	21 55 30.2	

Luzon, Philippine Islands (h = 35 km).

" 11

Up	iP	00 21 22.3	
Ki	iP	00 21 04.0	
Um	iP	00 21 10.8	

Mindanao, Philippine Islands (h = 55 km).

" 11

Up	iP	01 34 16.9	
Um	iP	01 34 08.8	

Burma (h = 140 km).

" 11

Up	iP	05 41 57.3	
	i	05 41 59.9	
	iS	05 52 18	
		micr	sec
	i Z'	0.6	1.3
Ki	iP	05 41 40.3	
	i	05 41 43.3	
		micr	sec
	i Z'	0.6	1.4
Um	iP	05 41 45.2	
	i	05 41 48.1	

(cont.)

1981
Apr. 11 (cont.)

Um	i	05 42 01.9	

Luzon, Philippine Islands (h = N).
m = 6.5 (Up,Ki).

" 11 Up i(P) 06 22 28.3

" 12 Up iP 03 17 20.4

Windward Islands (h = 150 km).

" 12

Up	iP	10 29 54.7	
		micr	sec
	P Z'	0.1	1.1
Ki	iP	10 30 03.0	
		micr	sec
	P Z'	0.1	1.1
Um	iP	10 29 55.2	

Bay of Bengal (h = N).
m = 6.9 (Up,Ki).

" 12

Up	iSgl	13 47 26.6	
Ud	iSgl	13 46 29.7	

Off coast of Norway, near 62 1/4°N, 4°E.
Origin time = 13 43 54.
M_L = 2.6 (Ud).
By combination with Bergen and NORSAR readings.

" 12 Up iP 21 32 05.5

Philippine Islands region (h = 25 km).

" 13

Up	iP	03 15 36.1	C
	i	03 15 42.5	
		micr	sec
	P Z'	0.5	1.1
Ki	iP	03 14 56.2	C
	i	03 15 06.3	
		micr	sec
	P Z'	0.3	1.1
Um	iP	03 15 14.2	C
	i	03 15 23.0	

Off east coast of Honshu, Japan (h = 30 km).
m = 6.3 (Up,Ki).

" 13 Um iP 09 30 13.3

" 13 Um iP 11 00 05.8

Norwegian Sea (h = 10 km).

" 13

Up	iP	16 57 35.3	
Ki	iP	16 57 14.0	

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Apr. 13 (cont.)
Um iP 16 57 21.6
Philippine Islands region
(h = 55 km).

" 14 Ki iP 04 45 17.9
Um iP 04 45 35.4
ipP 04 45 49.8
Near east coast of Honshu, Japan.
h = 50 km (Um).

" 14 Up iP 14 05 29.3
micr sec
P Z' 0.1 0.7
Ki iP 14 06 43.4
Um iP 14 06 07.5
i 14 06 16.1
Greece (h = 35 km).

" 14 Up iP 17 49 53.7
Ki iP 17 49 04.4
Um iP 17 49 27.2
Kuril Islands (h = N).

" 14 Up iP 21 57 34.2
Um iP 21 57 22.7
Samar, Philippine Islands
(h = 40 km).

" 15 Up iP 02 58 18.1
micr sec
P Z' 0.1 1.0
Ki iP 02 57 43.4 C
micr sec
P Z' 0.1 1.0
Um iP 02 57 57.4
Southern Honshu, Japan
(h = N).
m = 5.9 (Up,Ki).

" 15 Um iP 10 10 19.1
North Atlantic Ridge
(h = 10 km).

" 15 Um iP 18 11 32.1
Honshu, Japan (h = 60 km).

" 15 Ki eP 20 23 06
Um iP 20 23 10.7
Minahassa Peninsula
(h = 300 km).

" 16 Um iP 06 24 55.4
Kuril Islands (h = N).

1981
Apr. 16 Up iP 10 35 02.1 C
micr sec
P Z' 0.1 0.8
Ki iP 10 35 34.7 C
i 10 35 47.4
micr sec
P Z' 0.2 0.7
Um iP 10 35 13.7 C
Southern Iran (h = 25 km).
m = 5.9 (Up,Ki).

" 16 Up iPKP 11 17 10.9
Ki iPKP 11 17 26.5
ipPKP 11 17 50.1
micr sec
PKP Z' 0.1 1.0
Um iPKP 11 17 19.2
South Sandwich Islands region.
h = 90 km (Ki).

" 17 Um iP 04 41 53.4
Western Caucasus (h = N).

" 17 Up iP 09 37 48.5
Ki iP 09 38 21.5
Um iP 09 38 00.6
Arabian Sea (h = 10 km).

" 17 Up iP 16 10 01.5
Ki iP 16 09 07.8
Um iP 16 09 34.5
i 16 09 41.3
Andreanof Islands, Aleutian Is. (h = 35 km).

" 17 Ud eSgl 18 59 35
Skagerrak, near
57 3/4°N, 7 1/2°E.
Origin time = 18 57 27.
M_L = 2.4 (Ud).
By combination with SKI network readings.

" 17 Up iP 21 55 40.5
micr sec
Mx Z 1.4 17
Ki
micr sec
Mx Z 1.7 17
Ryukyu Islands (h = N).
M = 5.4 (Up,Ki).

" 17 Ki iP 23 38 33.9
Alaska Peninsula (h = 90 km).

" 18 Up iP 02 16 42.4 D
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Apr. 18 (cont.)
Up ipP 02 17 05.3
iS 02 26 18
micr sec
P Z' 0.3 0.8
Mx Z 1.0 18
Ki iP 02 16 15.4
micr sec
P Z' 0.2 1.0
Um iP 02 16 25.0 D
iS 02 25 49
Southwestern Ryukyu Islands.
h = 90 km (Up).
m = 6.0 (Up,Ki).

" 18 Up i(Pn) 03 39 12.4
iRg 03 39 30.3
Ud i(Pn) 03 39 11.1
iRg 03 39 30.9
Collapse in the Glanshammar mine, Sweden, 59.3°N, 15.5°E.
Origin time = 03 38 49.
By combination with SKI network readings.

" 18 Ud iRg 04 54 34.5
Glanshammar mine collapse.
Origin time = 04 53 52.
By combination with SKI network readings.

" 18 Up iRg 04 54 47.7
Ud i(Pn) 04 54 29.7
iRg 04 54 49.9
Glanshammar mine collapse.
Origin time = 04 54 07.
By combination with SKI network readings.

" 18 Up iP 08 11 59.5
Um iP 08 12 36.3
Greece (h = 30 km).

" 18 Up iP 12 42 04.7
Ki iP 12 41 16.2
Um iP 12 41 38.4
Kuril Islands (h = 120 km).

" 18 Ki iP 13 43 40.1
Southern Iran (h = N).

" 19 Ud iSg1 13 52 57.8
Värmland, Sweden, 59.8°N, 12.9°E.
Origin time = 13 52 43.
Solution from SKI network readings.

1981
Apr. 19 Ki iP 15 05 03.2
Um iP 15 05 25.2
Kuril Islands (h = N).

" 19 Up iPKP 19 34 38.5
iSKP1 19 37 48.0
Ki iPKP 19 34 24.1
Um iPKP 19 34 30.6
Vanuatu Islands (h = 150 km).

" 19 Up iP 20 20 43.3
Ki iP 20 20 09.2
Um iP 20 20 23.6
South of Honshu, Japan (h = 370 km).

" 20 Ud iRg 03 36 08.0
Glanshammar mine collapse.
Origin time = 03 35 25.
Cf the events on April 18.

" 20 Up iP 06 02 58.5
Um iP 06 02 52.6
Guatemala (h = 60 km).

" 20 Up iPKP1 14 37 18.1
South of Fiji Islands (h = 580 km).

" 21 Up iP 08 44 30.0
micr sec
P Z' 0.3 1.2
Ki iP 08 44 39.1
micr sec
P Z' 0.2 1.0
Um iP 08 44 28.6
Hindu Kush region (h = 210 km).
m = 5.5 (Up,Ki).

" 21 Up iPKP1 09 17 45.1
i 09 17 57.7
South of Tonga Islands (h = N).

" 21 Up iP 13 50 37.0
Ki iP 13 50 45.9
Um iP 13 50 36.0 C
Afghanistan-USSR border region (h = 230 km).

" 22 Up iP 01 24 09.1 C
iPn 01 25 13.3
iPP 01 25 26.6
micr sec
P Z' 1.3 0.8
Ki iP 01 23 52.8 C
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Apr. 22 (cont.)

Ki			micr	sec
	P	Z'	1.5	0.6
Um	iP		01 23	53.6 C

Eastern Kazakh SSR.
m = 7.0 (Up,Ki).
Underground explosion.

" 22

Ki	iP	04 31	49.2
Um	iP	04 31	10.7
	i	04 31	14.0

Corsica (h = 20 km).

" 22

Up	iP	13 28	37.1
Um	iP	13 28	44.9
	i	13 28	56.2

Chagos Archipelago region
(h = 10 km).

" 22

Up	iP	23 27	43.2
Ki	iP	23 28	13.8
Um	iP	23 28	02.7

Central Mid-Atlantic Ridge
(h = 10 km).

" 23

Ki	iPKP	00 49	38.4
Um	iPKP	00 49	45.1

Vanuatu Islands (h = N).

" 23

Up	iP	09 17	42.3

Mindoro, Philippine Islands
(h = 110 km).

" 23

Up			micr	sec
	Mx	Z	1.6	15
Ki	eP		09 55	06
Um	iP		09 55	00.5

Southern Sinkiang Prov.,
China (h = N).

" 23

Up	iP	11 13	14.1
	i	11 13	22.1
Um	iP	11 13	55.0

Greece (h = 10 km).

" 23

Up	iPKPl	17 11	09.9

South of Fiji Islands
(h = 650 km).

" 23

Up	iPKP	17 16	23.7
Um	iPKP	17 16	08.1

" 23

Ki	eP	22 17	46
	i	22 18	07.7

" 23

Um	iP	22 18	36.1

Albania (h = 10 km).

1981
Apr. 24

Up			micr	sec
	Mx	Z	3.0	22
Ki	ePKP		15 03	28
	i		15 03	40.9
			micr	sec
	Mx	Z	1.6	21
Um	iPKP		15 03	34.3
	i		15 03	47.2

Santa Cruz Islands
(h = 45 km).
M = 5.8 (Up,Ki).

" 24

Up	iPdiff	22 05	56
	iPKP	22 09	08.4
	i	22 09	13.5
	iPP	22 11	10
	iSKP	22 12	31.1
	iSKKP	22 22	55

			micr	sec
	Mx	Z	52	21
Ki	iPKP		22 08	54.1
	i		22 08	58.4
			micr	sec
	Mx	Z	18	21
Um	i(PKP)		22 08	54.0
	iPKP		22 09	00.7
	i		22 09	06.1

Vanuatu Islands (h = N).
M = 7.0 (Up,Ki).

" 25

Um	iPKP	05 31	12.8

Vanuatu Islands (h = N).

" 25

Up	iPKP	05 49	18.3	
			micr	sec
	Mx	Z	3.0	22
Ki	iPKP		05 49	05.3
			micr	sec
	Mx	Z	1.9	20
Um	iPKP		05 49	11.4

Vanuatu Islands (h = N).
M = 5.9 (Up,Ki).

" 25

Up	iPdiff	05 51	26
	iPKPl	05 54	56.8
	iSKPl	05 57	46.6
Ki	e(PKP)	05 54	40
	iPKP	05 54	48.6
	iSKPl	05 57	24.2
Um	i(PKP)	05 54	44.8
	iPKP	05 54	52.6
	iSKPl	05 57	35.3

South of Fiji Islands
(h = 590 km).

" 25

Ki	iPKP	06 50	08.4
Um	iPKP	06 50	14.5

Vanuatu Islands (h = N).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981					
Apr.	25	Ud	iSgl	11 32 05.9	
"	25	Up	iP	11 42 33.7	C
			ipP	11 43 05.5	
			iS	11 50 49.6	
				micr sec	
			P Z'	1.0 0.7	
		Ki	iP	11 42 26.1	C
			i	11 42 30.6	
			ipP	11 42 58.3	
				micr sec	
			P Z'	1.1 1.0	
		Um	iP	11 42 25.6	C
		Burma.			
		h = 150 km (Up,Ki).			
		m = 6.8 (Up,Ki).			
"	25	Up		micr sec	
			Mx Z'	0.9 22	
		Ki	iPKP	12 47 40.8	
		Um	iPKP	12 47 50.2	
		Vanuatu Islands (h = N).			
"	25	Up	iP	23 15 44.5	
		Ki	iP	23 15 02.8	
		Um	iP	23 15 20.3	
		Northeastern China (h = N).			
"	26	Up	iSgl	00 05 34.4	
			i	00 05 43.4	
		Baltic Sea, near 58.5°N, 18.4°E.			
		Origin time = 00 04 52.			
		Possibly explosion.			
		Solutions by combination with SKI network readings.			
"	26	Um	iP	00 31 59.7	
"	26	Up	iP	08 33 55.8	
		Um	iP	08 33 52.4	
		Andaman Islands region (h = N).			
"	26	Up	iPKPl	10 13 13.8	
		South of Fiji Islands (h = 520 km).			
"	26	Up	iP	12 21 36.8	
			i	12 21 39.4	
			iS	12 31 41	
				micr sec	
			i Z'	0.1 1.0	
			Mx Z	10 17	
		Ki	iP	12 21 06.7	
		(cont.)			

1981					
Apr.	26	(cont.)			
		Ki		micr sec	
			P Z'	0.2 1.5	
			Mx Z	5.5 16	
		Um	iP	12 21 24.1	
			i	12 21 27.0	
		Southern California (h = 5 km).			
		m = 5.9, M = 6.1 (Up,Ki).			
"	26	Up	iP	14 18 44.4	C
			ipP	14 18 59.7	
			iS	14 23 13.0	
			iScP	14 25 52.3	
			iScS	14 29 38.1	
				micr sec	
			P Z'	1.1 1.2	
			Mx Z	8.0 17	
		Ki	iP	14 19 47.3	C
			i	14 20 04.2	
				micr sec	
			P Z'	0.3 1.2	
			Mx Z	2.6 8	
		Um	iP	14 19 12.9	C
			i	14 19 26.0	
			iS	14 24 18	
		Turkey (h = 70 km).			
		m = 6.1, M = 5.4 (Up,Ki).			
		M not corrected for focal depth.			
		Extremely clear CMB reflected phases at Uppsala.			
"	27	Um	iPKP	04 47 09.2	
			i	04 47 21.9	
		Santa Cruz Islands (h = 50 km).			
"	27	Ki	eP	05 22 08	
		Um	iP	05 21 49.8	
		North of Ascension Island (h = 10 km).			
"	27	Ki	eP	06 06 44	
		Southwest of Sumatera (h = N).			
"	27	Up	ePKP	18 37 29	
			iPKPl	18 37 35.7	
				micr sec	
			Mx Z	10 26	
		Ki	iPKPl	18 37 34.5	
				micr sec	
			Mx Z	5.8 23	
		Um	iPKP	18 37 26.4	
			iPKPl	18 37 33.5	
		(cont.)			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981 Apr.	27	(cont.) West of Macquarie Island (h = 10 km). M = 6.5 (Up,Ki).				
"	27	Ki	iP		19 03 19.2	
			i		19 03 23.8	
		Um	iP		19 03 21.4	
		Northern Colombia (h = N).				
"	27	Up	iP		20 41 37.4	
			i		20 41 38.6	
			i		20 41 48.4	
					micr	sec
			i	Z'	0.1	1.0
			Mx	Z	1.6	12
		Ki	iP		20 41 08.5	
			i		20 41 11.0	
			i		20 41 22.7	
					micr	sec
			Mx	Z	0.9	13
		Um	iP		20 41 19.3	
			i		20 41 23.4	
		Ryukyu Islands (h = N). M = 5.4 (Up,Ki).				
"	27	Ki	iP		23 05 55.0	
			i		23 06 06.0	
		Um	iP		23 05 57.3	
		Northern Colombia (h = N).				
"	28	Ki	iP		00 09 49.7	
		Um	iP		00 10 16.5	
		Fox Islands, Aleutian Islands (h = N).				
"	28	Up	iP		02 40 43.6	
		Kuril Islands (h = N).				
"	28	Ki	iP		04 58 16.5	
		Northern Sumatera (h = 60 km).				
"	28	Up	iP		18 01 41.7 D	
			ipP		18 02 24.9	
			iS		18 07 39	
					micr	sec
			P	Z'	0.1	0.5
		Ki	iP		18 01 50.9 D	
			ipP		18 02 32.7	
					micr	sec
			P	Z'	0.2	0.7
		Um	iP		18 01 40.2 D	
			ipP		18 02 20.0	
		Hindu Kush region. h = 200 km (Up,Ki,Um). m = 5.7 (Up,Ki).				

1981 Apr.	28	Up	iPKPl		21 33 13.2	
			iPP		21 35 14	
			iSKPl		21 36 06.5	
			iSS		21 54 06	
					micr	sec
			PKPl	Z'	0.3	0.7
			Mx	Z	2.0	24
		Ki	i(PKP)		21 32 54.3	
			iPKP		21 33 04.2	
			iSKPl		21 35 44.0	
					micr	sec
			(PKP)	Z'	0.1	1.0
			Mx	Z	0.7	13
		Um	i(PKP)		21 33 00.5	
			iPKP		21 33 13.2	
			iSKPl		21 35 54.8	
		South of Fiji Islands (h = 540 km). M = 5.7 (Up,Ki). M not corrected for focal depth.				
"	29	Um	iP		17 29 55.1	
		Near east coast of Honshu, Japan (h = 80 km).				
"	29	Up	iP		22 29 51.6	
			i		22 29 56.5	
		Ki	iP		22 29 30.0	
			i		22 29 36.0	
		Um	iP		22 29 37.4	
			i		22 29 42.8	
		Philippine Islands region (h = N).				
"	30	Up	iP		14 52 48.4	
			i		14 52 52.3	
			i		14 53 03.3	
			iS		15 01 58	
					micr	sec
			P	Z'	0.2	1.0
			i	Z'	0.7	0.9
			i	Z'	1.2	1.1
			Mx	Z	18	15
		Ki	iP		14 52 03.6	
			i		14 52 07.9	
			i		14 52 17.9	
			iS		15 00 38.5	
			iP'P'		15 21 12.8	
					micr	sec
			P	Z'	0.3	1.3
			i	Z'	1.1	1.3
			i	Z'	0.8	1.1
			Mx	Z	12	16
		Um	iP		14 52 24.0	
		(cont.)				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
Apr. 30 (cont.)
Um i 14 52 28.2
i 14 52 38.4
iS 15 01 19.9
Kuril Islands region
(h = 50 km).
m = 6.7, M = 6.4 (Up,Ki).
Multiple event with
successively increasing
amplitudes.

" 30 Ki iP 15 47 39.4
Luzon, Philippine Islands
(h = 200 km).

" 30 Ki iP 23 22 16.4
Near Islands, Aleutian
Islands (h = 40 km).

May 27, 1983

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SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

SEISMOLOGICAL SECTION
BOX 12019
S-750 12 UPPSALA
SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

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
Umeå	(Um):	63°48.9'N,	20°14.2'E; h = 16 m
Uddeholm	(Ud):	60°05.4'N,	13°36.4'E; h = 240 m
Delary	(De):	56°28.2'N,	13°52.2'E; h = 150 m

M A Y 1 - 31, 1981

1981 May	1	Up	iP		04 18 33.7	
			i		04 18 58.9	
					micr	sec
			P	Z'	0.1	1.0
		Ki	iP		04 18 27.3	
			i		04 18 52.5	
		Um	iP		04 18 26.0	
			i		04 18 51.1	
		Burma (h = 100 km).				
"	1	Up	iP		08 10 01.0	
		Ki	iP		08 09 13.4	
		Kuril Islands region (h = N).				
"	2	Ki	eP		11 22 49	
"	2	Um	iPKPl		11 32 17.5	
"	2	Up	iP		12 07 08.1	
			i		12 07 13.9	
			iS		12 17 24	
					micr	sec
			P	Z'	0.1	1.0
			i	Z'	0.2	0.8
			Mx	Z	1.8	17
		Ki	iP		12 06 50.9	
			i		12 06 57.4	
					micr	sec
			i	Z'	0.1	0.8
			Mx	Z	1.5	16
		Um	iP		12 06 56.9	
			i		12 07 02.9	
		Mindoro, Philippine Islands region (h = 60 km). m = 6.1, M = 5.5 (Up,Ki).				
"	2	Up	iP		16 12 18.8	C
			ipP		16 13 05.4	
			isP		16 13 28	
			iSp		16 18 08	
			iS		16 18 16	
		(cont.)				

1981 May	2	(cont.)				
		Up			micr	sec
			P	Z'	6.1	1.3
		Ki	iP		16 12 28.5	C
			iS		16 18 33.0	
					micr	sec
			P	Z'	2.4	1.0
		Um	iP		16 12 17.2	C
			ipP		16 13 03.0	
			iS		16 18 06	
		Afghanistan-USSR border region. h = 200 km (Up,Sk,Um,Ud). m = 6.7 (Up,Ki). The Sp-phase at Uppsala denotes a wave generated by an S to P conversion at the base of the crust under the receiver.				
"	2	Up	iRg		23 45 35.3	
		Dannemora, Sweden. 60.1°N, 17.5°E. This event is the first in a series of rockbursts at the Dannemora iron ore mines in northern Uppland, located about 40 km from the Uppsala seismograph station. Due to the superficial nature of these events the Uppsala records are characterized by the dominative Rg-waves which also reveal a clear dispersion. Origin times are obtained by subtracting 17 s from the Rg arrival times at Uppsala.				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
May 3 Up iRg 02 22 24.9
Ud eSgl 02 23 18
Dannemora.

" 3 Up iRg 02 44 41.0

" 3 Up i 02 47 45.2
iRg 02 47 48.3
Ud iSgl 02 48 42.1
Dannemora.

" 3 Up iRg 03 37 00.5
Ud iSgl 03 37 54.1
Dannemora.

" 3 Up i 03 38 18.9
iRg 03 38 22.0
Ud iSgl 03 39 15.1
iRg 03 39 26.1
Dannemora.

" 3 Up i 04 08 02.0
iRg 03 08 05.3
Ud iSgl 04 08 58.2
Dannemora (mine collapse).
Felt.

" 3 Up iRg 06 02 12.1
Dannemora.

" 3 Ki iPKP 09 02 00.5
micr sec
PKP Z' 0.1 1.0
Um iPKPl 09 01 57.9
Kermadec Islands region.

" 3 Up iRg 10 17 57.8
Dannemora.

" 3 Up iPKPl 11 33 43.2
South of Fiji Islands.

" 3 Up iPKPl 13 07 45.2
Um iPKPl 13 07 33.2
iSKPl 13 10 33.5
South of Fiji Islands
(h = 460 km).

" 3 Up iPKP 17 58 15.2
iPKPl 17 58 18.6
iPKP2 17 58 22.8
micr sec
PKPl Z' 0.1 1.0
PKP2 Z' 0.2 0.7
Ki iPKPl 17 57 56.2
iPKP 17 58 00.8
Um iPKPl 17 58 06.8
Kermadec Islands region
(h = 430 km).

1981
May 3 Up iP 20 00 03.0
Turkey (h = 60 km).

" 3 Up eP 20 45 45
Um iP 20 46 20.7
i 20 46 26.4
Turkey (h = 25 km).

" 4 Up iPKPl 04 46 56.3
Sk iPKPl 04 46 49.0
South of Fiji Islands.

" 4 Up iPgl 14 47 15.3
i 14 47 18.9
iRg 14 47 20.5
Ud iPgl 14 47 46.4
iSgl 14 48 14.1
iRg 14 48 23.9
Dannemora.
Felt.

" 4 Up iRg 14 48 05.2
Dannemora.

" 4 Up iPgl 14 48 30.3
iRg 14 48 35.3
Dannemora.

" 4 Up iRg 14 48 46.4
Dannemora.

" 4 Up iRg 14 57 57.7
Dannemora.

" 4 Up iRg 14 58 49.4
Dannemora.

" 4 Up iRg 15 41 40.9
Dannemora.

" 4 Ki iP 16 20 59.6
Iran-Iraq border region
(h = N).

" 4 Up iPgl 16 25 06.2
i 16 25 13.4
iRg 16 25 14.4
Dannemora.

" 4 Up iRg 16 25 41.7
Dannemora.

" 5 Up iRg 00 49 48.2
Dannemora.

" 5 Up iRg 00 51 50.5
Dannemora.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
May 5 Up iSn 03 03 07.9
iSgl 03 03 37.9
Sk eSg2 03 05 31
Um eSgl 03 05 47
Ud iSgl 03 03 30.5
De iPgl 03 01 16.7
iSgl 03 01 39.5
Southern Baltic Sea, near 54 3/4°N, 13°E.
Origin time = 03 00 46.
M_L = 2.7 (Up,Um,Ud,De).

" 5 Up iP 09 26 48.5
Ki iP 09 26 17.3
Um iP 09 26 31.2
Bonin Islands region (h = 430 km).

" 5 Up iRg 14 36 45.0

" 5 Up iPKPl 20 01 45.9
Um iPKPl 20 01 34.0
Kermadec Islands region.

" 5 Up iP 20 57 23.2
Um iP 20 58 11.8
Greece-Albania border region (h = 10 km).

" 6 Up iP 00 23 04.8
iS 00 26 53
micr sec
Mx Z 0.7 5
Ki iP 00 24 19.3
Um iP 00 23 43.1
iS 00 28 09
Greece (h = 30 km).

" 6 Up iP 01 48 24.2
i 01 48 35.0
Ki eP 01 48 04
i 01 48 14.4
Um iP 01 48 10.5
i 01 48 22.2
Philippine Islands region (h = N).

" 6 Up i(P) 05 25 28.3

" 6 Um iPKPl 12 33 49.7

" 6 Up iRg 14 06 27.0

" 6 Up eP 15 43 01
Um eP 15 42 53
Burma (h = 45 km).

" 6 Up iRg 16 49 19.0

1981
May 6 Um iP 17 17 30.9
Greece (h = 10 km).

" 6 Um iPKP 17 53 49.6
Fiji Islands region (h = 280 km).

" 6 Up iP 19 19 08.1
Um eP 19 18 51

" 6 Up iRg 19 35 08.5
Dannemora.

" 6 Up iPgl 19 40 03.7
iRg 19 40 10.1
Ud iPgl 19 40 33.9
iSgl 19 41 02.4
iRg 19 41 13.8
Dannemora.

" 6 Up iRg 19 51 42.7
Dannemora.

" 6 Up iRg 19 52 59.1
Dannemora.

" 6 Up iPgl 19 54 23.9
iRg 19 54 30.4
Ud iSgl 19 55 22.7
Dannemora.

" 6 Up iRg 21 33 27.3
Dannemora.

" 6 Up iRg 21 48 08.4
Dannemora.

" 6 Um eP 21 48 17
Near coast of Ecuador (h = N).

" 6 Up iP 21 49 32.0
iPP 21 53 19
iSKS 22 00 07
iS 22 00 45
micr sec
Mx Z 9.0 19
Ki iP 21 49 32.4
micr sec
P Z' 0.1 1.5
Um iP 21 49 34.0
iS 22 00 53
Near coast of Ecuador (h = N).

" 7 Up iRg 02 06 44.7
Dannemora.

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981					
May	7	Up	eP	04 40 15	
			i	04 40 27.6	
		Ki	i	04 39 46.3	
		Um	iP	04 39 48.9	
			i	04 40 03.3	
		South of Honshu, Japan (h = 80 km).			
"	7	Up	iP	05 21 24.9	
		Ki	iP	05 20 36.5	
		Um	iP	05 20 58.8	
		Kuril Islands (h = N).			
"	7	Up	iP	07 55 13.5	
			i	07 56 33.0	
		Ki	iP	07 55 17.3	
				micr sec	
			P Z'	0.1 0.9	
		Um	iP	07 55 09.0	
			i	07 55 12.9	
			i	07 56 29.3	
		Kirghiz SSR (h = 70 km).			
"	7	Up	iSgl	11 39 36.0	
		Ud	iRg	11 39 07.0	
"	7	Up	iRg	12 41 17.4	
		Dannemora.			
"	7	Up	iRg	13 05 17.8	
		Dannemora.			
"	7	Up	iRg	13 50 23.6	
		Dannemora.			
"	7	Up	iRg	13 55 28.5	
		Dannemora.			
"	7	Up	iRg	15 26 16.8	
		Dannemora.			
"	7	Up	eP	17 29 49	
		Ki	iP	17 28 52.7	
		Andreanof Islands, Aleutian Is. (h = N).			
"	7	Ki	iPKP	20 10 53.8	
		Um	iPKP	20 10 59.0	
		New Ireland region (h = 460 km).			
"	7	Ki	iP	21 09 22.6	
"	8	Up	iP	01 23 44.9	
		Um	eP	01 23 18	
		Kuril Islands (h = N).			

1981					
May	8	Up	iP	01 40 17.4	
			i	01 40 27.6	
			i	01 40 45.8	
				micr sec	
			Mx Z	1.7 16	
		Ki	iP	01 39 25.7	
				micr sec	
			Mx Z	0.6 16	
		Um	iP	01 39 50.5	
		Kuril Islands region (h = N).			
		M = 5.1 (Up,Ki).			
"	8	Up	iP	01 47 00.1	
			i	01 47 08.8	
				micr sec	
			Mx Z	2.5 17	
		Ki	iP	01 46 09.0	
				micr sec	
			Mx Z	0.7 14	
		Um	iP	01 46 34.4	
			i	01 46 44.4	
		Kuril Islands (h = N).			
		M = 5.3 (Up,Ki).			
"	8	Up	iP	02 22 23.7	
		Kuril Islands (h = N).			
"	8	Up	iPKP	03 21 56.6	
		Ki	ePKP	03 22 11	
		Um	iPKP	03 22 06.0	
		South Sandwich Islands region (h = N).			
"	8	Up	iP	05 29 20.7	
		Ki	eP	05 28 28	
		Um	iP	05 28 53.9	
		Kuril Islands (h = N).			
"	8	Up	iP	06 55 27.1 D	
			i	06 55 54.4	
		Um	iP	06 55 02.3 D	
		Kuril Islands region (h = 130 km).			
"	8	Up	iP	09 24 43.1	
		Ki	iP	09 25 49.5	
		Dodecanese Islands (h = 110 km).			
"	8	Up	iRg	18 13 51.5	
		Dannemora.			
"	8	Up	iRg	18 51 08.9	
		Dannemora.			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981					
May	8	Ki	iP	22 16 35.3	
		Um	iP	22 17 29.3	
"	8	Up	iP	23 45 17.4	D
			i	23 45 26.4	
			ipP	23 46 05.4	
			iS	23 53 51.2	
			i	23 53 57.7	
			iScS	23 54 49.5	
			iP'P'	24 13 14.0	
			i	24 13 33.5	
				micr sec	
			P Z'	0.6 1.2	
			Mx Z	9.1 17	
		Ki	iP	23 44 35.2	D
			i	23 45 17.4	
			i	23 45 29.0	
			iS	23 52 33.6	
			iP'P'	24 13 36.2	
			i	24 13 50.2	
			i	24 13 58.6	
				micr sec	
			P Z'	0.4 0.7	
			Mx Z	3.7 14	
		Um	iP	23 44 53.6	D
			iS	23 53 08.3	
			iP'P'	24 13 27.7	
			i	24 13 44.6	
		Hokkaido, Japan region.			
		h = 220 km (Up).			
		m = 6.2, M = 5.9 (Up,Ki).			
		M uncorrected for focal depth.			
"	9	Up	i(P)	04 45 25.9	
"	9	Up	i(P)	05 16 38.7	
"	9	Up	i(P)	05 19 54.0	
"	9	Up	i(P)	07 16 20.9	
"	9	Up	iP	07 28 18.7	
		Ki	iP	07 29 26.1	
		Um	iP	07 28 50.8	
		Crete (h = 50 km).			
"	9	Up	iPKP	09 59 28.0	
		Um	iPKP	09 59 14.7	
			i	09 59 20.1	
		Vanuata Islands			
		(h = 50 km).			
"	9	Up	iP	14 05 49.9	
		Ki		micr sec	
			Mx Z	0.2 5	
		Um	iP	14 06 46.9	
		Greece (h = 20 km).			

1981					
May	9	Up	iPKP	16 25 00.9	C
			iPKKP	16 35 31.7	
				micr sec	
			Mx Z	0.8 20	
		Ki	ePKP	16 24 49	
			i	16 25 23.1	
				micr sec	
			Mx Z	1.2 22	
		Um	iPKP	16 24 54.3	C
			i	16 25 10.5	
			i	16 25 42.7	
		Solomon Islands (h = 70 km).			
		M = 5.4 (Up,Ki).			
"	9	Up	iPKPl	17 12 46.4	
		Ki	iPKP	17 12 37.4	
		Um	iPKPl	17 12 34.4	
		South of Fiji Islands			
		(h = 540 km).			
"	10	Up	iRg	01 39 29.8	
		Dannemora.			
"	10	Up	iPKPl	01 59 32.9	
		South of Fiji Islands.			
"	10	Up	iP	02 48 56.0	D
		Ki	iP	02 50 10.5	D
		Um	iP	02 49 35.0	D
		Southern Italy (h = 290 km).			
"	10	Up	iP	03 36 23.7	
		Yunnan Province, China			
		(h = 50 km).			
"	10	Up	iP	04 25 02.2	
		Um	iP	04 24 45.0	
		Off coast of Oregon			
		(h = 10 km).			
"	10	Up	iPKPl	06 06 54.2	
		Um	iPKPl	06 06 43.4	
		Kermadec Islands region.			
"	10	Up	iP	06 21 44.9	
		Greece (h = 40 km).			
"	10	Up	iP	07 49 24.8	
		Yunnan Province, China			
		(h = N).			
"	10	Up	iRg	07 58 55.6	
		Dannemora.			
"	10	Up	iRg	08 29 05.4	
		Dannemora.			
"	10	Up	iRg	08 29 24.8	
		Dannemora.			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
May 10 Up iP 11 48 02.4
Um iP 11 47 44.2
Volcano Islands region
(h = N).

" 10 Up i(P) 19 10 10.3

" 10 Up iP 22 35 07.3
Windward Islands
(h = 120 km).

" 10 Up iP 23 58 34.1
Ionian Sea (h = N).

" 11 Up iP 06 24 06.1
micr sec
Mx Z 1.1 16
Ki iP 06 23 15.2
Um iP 06 23 40.1
Kuril Islands region
(h = N).

" 11 Up iRg 07 07 20.5
Dannemora.

" 11 Up iP 15 08 24.8
Um iP 15 07 58.6

" 11 Up iP 19 20 36.4
iS 19 25 03
micr sec
Mx Z 1.9 14
Ki iP 19 21 43.8
micr sec
Mx Z 0.3 10
Um iP 19 21 11.0
iS 19 26 05
Dodecanese Islands
(h = 25 km).
M = 4.5 (Up,Ki).

" 11 Um iP 22 56 16.7

" 12 Up iRg 12 23 27.2
Dannemora.
Mine collapse.

" 12 Up iRg 13 09 02.7

" 12 Up iRg 13 23 52.9

" 12 Up iP 17 48 18.4
i 17 48 19.7
i 17 48 24.3
iS 17 52 32
iLg2 17 56 06
(cont.)

1981
May 12 (cont.)
Up micr sec
i Z' 0.1 1.1
i Z' 0.1 0.7
Ki iP 17 48 56.2
i 17 49 09.4
i 17 53 20.7
Um iP 17 48 30.6
i 17 48 43.8
i 17 53 01.3
i 17 53 36.7
Eastern Caucasus (h = N).

" 13 Up iP 01 52 59.4
iPP 01 56 51
iSKS 02 03 20.0
iS 02 03 58.6
iSP 02 05 12
micr sec
P Z' 0.2 0.8
Mx Z 2.7 22
Ki iP 01 52 41.3 C
i 01 52 41.9
iS 02 03 24
micr sec
i Z' 0.9 0.9
Mx Z 2.1 16
Um iP 01 52 47.9 C
iPP 01 56 30.8
iS 02 03 32
i 02 10 05.4
Philippine Islands region
(h = 150 km).
m = 6.9, M = 5.8 (Up,Ki).
M uncorrected for focal
depth.

" 13 Up iP 02 16 44.7
Ki iP 02 16 43.5
Um iP 02 16 39.0
Tibet (h = N).

" 13 Up iRg 12 52 53.8
Dannemora.

" 13 Up iRg 15 41 39.1

" 13 Ki iP 21 00 43.4
Um iP 21 01 05.9
Kuril Islands (h = N).

" 13 Up iP 21 39 11.0
Ki iP 21 39 10.0
Um iP 21 39 13.3
i 21 39 17.1
North Atlantic Ocean
(h = 10 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
May 14 Up iP 07 35 30.1
Kuril Islands (h = N).

" 14 Ki iPKP 08 41 05.2
Um iPKP 08 41 12.0
Tonga Islands (h = 80 km).

" 14 Up iP 11 12 04.4
Ki iP 11 11 53.4
Um iP 11 11 54.8
Burma-China border region
(h = N).

" 14 Ki iP 17 27 14.5
i 17 27 20.5
Molucca Passage (h = 80 km).

" 14 Up iRg 18 29 03.3
Dannemora.

" 14 Up iRg 18 29 11.0
Dannemora.

" 14 Ki eP 21 34 23
Taiwan (h = 30 km).

" 15 Ki iP 01 58 48.6
Um iP 01 58 41.0
Tajik-Sinkiang border
region (h = 120 km).

" 15 Up iPKP 04 15 47.9
i 04 16 02.2
Ki i(PKP) 04 15 46.8
iPKP 04 16 03.1
micr sec
PKP Z' 0.1 0.9
Um iPKP 04 15 54.2
South Sandwich Islands
region (h = 100 km).

" 15 Up iRg 10 27 56.2

" 15 Up iP 17 31 52.3 C
micr sec
P Z' 0.1 1.0
Ki iP 17 31 53.3 C
micr sec
Mx Z 0.3 15
Um iP 17 31 43.4 C
Nepal (h = 35 km).

" 15 Up iRg 18 47 11.5
Dannemora.

" 15 Up iP 20 00 00.8
Ki eP 19 59 23
Um iP 19 59 39.6 C
(cont.)

1981
May 15 (cont.)
Off east coast of Honshu,
Japan (h = 60 km).

" 15 Um iP 22 34 30.1
Off east coast of Honshu,
Japan (h = N).

" 16 Up iP 00 21 21.3
micr sec
Mx Z 5.9 17
Ki iP 00 20 30.1
micr sec
Mx Z 1.6 15
Um iP 00 20 54.9
Kuril Islands region
(h = N).
M = 5.6 (Up,Ki).

" 16 Up iRg 02 10 18.4
Dannemora.

" 16 Up iRg 02 55 20.2
Dannemora.

" 16 Up iP 02 23 10.6
Um iP 03 22 53.0
Ryukyu Islands (h = 180 km).

" 16 Up iRg 03 41 30.6
Dannemora.

" 16 Up iRg 06 53 17.9
Dannemora.

" 16 Up iRg 07 38 05.8
Dannemora.

" 16 Up iPgl 08 06 14.9
iRg 08 06 21.2
Dannemora.

" 16 Up iRg 08 09 17.3
Dannemora.

" 16 Up iRg 08 16 23.4
Dannemora.

" 16 Up iRg 08 16 47.5
Dannemora.

" 16 Up iP 09 16 54.4
Ki iP 09 16 55.2
i 09 17 03.9
micr sec
P Z' 0.2 1.8
Um iP 09 16 58.8
Panama-Colombia border
region (h = 25 km).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
May 16 Up iP 16 07 52.2
Ki iP 16 09 06.6
Um iP 16 08 33.1
Ionian Sea (h = N).

" 16 Up iRg 17 35 55.8
Dannemora.

" 16 Up iRg 17 36 42.4
Dannemora.

" 16 Up iRg 17 50 54.0
Dannemora.

" 16 Up iRg 18 07 05.0
Dannemora.

" 16 Up iP 18 39 50.3
Ionian Sea (h = N).

" 16 Up iP 19 29 10.7
micr sec
Mx Z 0.2 6
Ki iP 19 30 24.3
micr sec
Mx Z 0.1 9
Um iP 19 29 48.9
i 19 29 50.9
Ionian Sea (h = N).

" 16 Up iRg 19 31 28.5
Dannemora.

" 16 Up iP 20 08 54.3
Ki iP 20 08 07.3
Um iP 20 08 28.8
Kuril Islands (h = 160 km).

" 16 Up iRg 20 35 13.7
Dannemora.

" 16 Up iRg 21 02 29.6
Dannemora.

" 16 Up iRg 22 33 32.0
Dannemora.

" 16 Ki iP 22 34 50.7
Rat Islands, Aleutian
Islands (h = 50 km).

" 17 Up iRg 05 04 51.6
Dannemora.

" 17 Um iP 09 10 26.0
Unimak Island region
(h = 35 km).

1981
May 17 Up iP 09 28 05.8
micr sec
P Z' 0.1 1.0
Mx Z 1.7 16
Ki iP 09 27 14.8
micr sec
Mx Z 0.6 16
Um iP 09 27 38.9
Kuril Islands region
(h = 50 km).
M = 5.1 (Up,Ki).

" 17 Up iP 22 04 57.5
iS 22 08 57
Ki eP 22 06 12
Um iP 22 05 37.4
Ionian Sea (h = N).

" 18 Up iP 02 51 10.8
micr sec
P Z' 0.1 1.0
Mx Z 1.4 17
Ki iP 02 50 17.4
micr sec
Mx Z 0.6 16
Um iP 02 50 43.8
Andreanof Islands, Aleutian
Is. (h = 35 km).
M = 5.1 (Up,Ki).

" 18 Up iRg 04 28 47.1
Dannemora.

" 18 Up iP 08 07 52.4
Andreanof Islands, Aleutian
Is. (h = 45 km).

" 18 Up iP 09 12 38.5
Ki iP 09 11 45.1
Andreanof Islands, Aleutian
Is. (h = 50 km).

" 18 Up iPKP2 10 28 08.0
micr sec
Mx Z 1.4 25
Ki micr sec
Mx Z 0.9 20
Um iPKP1 10 27 49.5
i 10 27 56.0
Kermadec Islands region
(h = N).
M = 5.6 (Up,Ki).

" 18 Um iP 11 27 00.1

" 18 Up iRg 11 48 55.5

" 18 Up iRg 12 32 13.9

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981 May	18	Up	iRg	13 49 19.9	
"	18	Ki	eP	15 42 38	
		Um	iP	15 42 51.2	
		Near west coast of Honshu, Japan (h = 35 km).			
"	18	Up	iP	18 13 08.8	
		Ki	iP	18 12 15.5	
		Um	iP	18 12 41.7	
		Andreanof Islands, Aleutian Is. (h = 50 km).			
"	18	Up	iP	19 43 58.8	
		Ki	iP	19 44 33.3	
		Um	iP	19 44 11.3	
		Southern Iran (h = N).			
"	19	De	iPgl	06 27 49.5	
			iRg	06 28 12.7	
"	19	Up	iRg	11 17 18.0	
"	19	Up	iP	17 24 41.8	
		Ki	iP	17 24 24.8 C	
		Um	iP	17 24 30.6	
		Mindanao, Philippine Islands (h = 110 km).			
"	19	Up	iRg	17 44 35.8	
"	19	Up	iRg	18 45 22.5	
"	19	Ki	ePKP	19 16 27	
		Um	iPKP	19 16 35.2	
		Fiji Islands region (h = N).			
"	19	Up	iP	20 30 37.8	
		Ki	eP	20 29 44	
		Andreanof Islands, Aleutian Is. (h = 45 km).			
"	20	Up	i(P)	02 27 08.0	
"	20	Up	iRg	08 35 41.2	
"	20	Up	iPgl	11 34 56.2	
			iSgl	11 35 19.7	
			iRg	11 35 30.6	
		Ud	iSgl	11 35 27.0	
		De	iSgl	11 35 28.4	
			iRg	11 35 38.8	
		Östergötland, Sweden, 58.3°N, 15.7°E.			
		Origin time = 11 34 25.			
		Near-surface event.			

1981 May	20	Up	iRg	11 49 30.6	
"	20	Up	iSgl	11 51 02.9	
"	20	Up	iRg	13 07 28.5	
"	20	Up	iP	14 02 27.7 C	
			i	14 02 40.9	
			iS	14 11 27	
				micr sec	
			P Z'	0.1 1.0	
			Mx Z	1.9 18	
		Ki	iP	14 01 43.9 C	
				micr sec	
			P Z'	0.1 1.0	
			Mx Z	0.7 14	
		Um	iP	14 02 03.5 C	
			iS	14 10 48	
		Hokkaido, Japan region. m = 5.9, M = 5.3 (Up,Ki).			
"	20	Up	iRg	19 03 08.9	
"	20	Um	iP	22 04 56.1	
"	20	Up	iPKPl	23 36 46.7	
			i	23 36 55.2	
				micr sec	
			PKPl Z'	0.1 1.6	
			i Z'	0.2 1.0	
		Ki	ePKP	23 36 32	
			i	23 36 37.5	
		Um	iPKPl	23 36 34.8	
		Kermadec Islands (h = 20 km).			
"	21	Um	iP	08 30 48.6	
		Dominican Republic region (h = N).			
"	21	Ki	iP	09 54 11.3	
		Um	iP	09 53 49.3	
		Lake Tanganyika region (h = N).			
"	21	Ud	iPgl	12 55 30.6	
			iSgl	12 55 51.7	
			iRg	12 56 00.6	
		De	i	12 56 30.1	
			iSgl	12 56 44.4	
		Coast of southeastern Norway. Near-surface event.			
"	21	Up	iRg	13 59 31.2	
"	21	Up	iP	16 52 22.6	
			i	16 52 49.8	
		Um	iP	16 51 57.3	
		Kuril Islands (h = 80 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstuga, Um = Umeå, Ud = Uddeholm, De = Delary

1981						
May	21	Up	iRg		18 32 19.8	
"	21	Up	iRg		18 33 15.8	
"	21	Up	iRg		18 35 42.5	
"	21	Up	iP		18 53 44.2	
		Um	iP		18 53 23.2	
"	22	Ki	iP		00 58 29.5	
		Um	iP		00 58 19.4	
"	22	Up	iP		03 09 35.3	
			iPP		03 14 06.7	
			iS		03 21 26	
					micr	sec
			PP	Z'	0.1	1.0
			Mx	Z	1.7	24
		Ki	iP		03 09 18.2	
					micr	sec
			P	Z'	0.1	1.0
			Mx	Z	0.8	18
		Um	iP		03 09 24.5	
			iPP		03 13 38.4	
			iSKS		03 20 00	
			iS		03 21 10	
		Tanimbar Islands region				
		(h = 70 km).				
		m = 6.3, M = 5.4 (Up,Ki).				
		M uncorrected for focal				
		depth.				
"	22	Up	iSgl		03 45 47.2	
		Ki	iPn		03 43 14.4	
			iPgl		03 43 16.5	
			iSgl		03 43 49.7	
			i		03 43 53.6	
		Sk	eSn		03 44 40	
			iSgl		03 45 11.1	
		Um	iPgl		03 43 10.2	
			i		03 43 15.2	
			iSgl		03 43 38.6	
			i		03 43 43.4	
		De	iSgl		03 47 52.6	
		Northern Gulf of Bothnia,				
		65.5°N, 23.4°E.				
		Origin time = 03 42 30.				
		M_L = 2.9 (Up,Ki,Sk,Um).				
		Felt.				
"	22	Up	iP		05 08 54.1	
		Ki	iP		05 07 56.4	
					micr	sec
			P	Z'	0.1	1.2
		Eastern Siberia				
		(h = 10 km).				

1981						
May	22	Up	iP		09 59 43.6	
		Ki	eP		09 59 06	
		Um	iP		09 59 20.5	
		Lake Baikal region				
		(h = 30 km).				
"	22	Up	eP		11 46 52	
		Ki	iP		11 46 35.9	
		Um	iP		11 46 42.3	
		Sichuan Province, China				
		(h = N).				
"	22	Um	eP		14 42 43	
		Near coast of Jalisco,				
		Mexico (h = 90 km).				
"	22	Up	iP		18 42 03.6	C
					micr	sec
			P	Z'	0.1	1.1
			Mx	Z	0.7	18
		Ki	iP		18 41 23.7	
					micr	sec
			P	Z'	0.1	1.0
			Mx	Z	0.8	18
		Um	iP		18 41 41.7	C
			iS		18 50 48	
		Off east coast of Honshu,				
		Japan (h = 35 km).				
		m = 5.8, M = 5.0 (Up,Ki).				
"	22	Up	iRg		20 45 35.9	
"	22	Up	iRg		21 02 00.3	
		Ud	iRg		21 01 28.3	
"	22	Up	iRg		21 24 30.4	
"	22	Um	iP		23 57 46.4	
		South of Honshu, Japan				
		(h = N).				
"	23	Up	iP		08 09 04.5	C
					micr	sec
			P	Z'	0.1	1.0
		Ki	iP		08 08 33.8	C
					micr	sec
			P	Z'	0.1	0.7
		Um	iP		08 08 46.4	C
			i		08 08 50.5	
		Ryukyu Islands region				
		(h = 35 km).				
		m = 5.9 (Up,Ki).				
"	23	Up	iP		08 26 30.7	
"	23	Up	iPKPl		11 37 10.7	
		South of Fiji Islands				
		(h = 45 km).				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
May 23 Up iP 14 36 38.6

" 23 Up eP 21 05 32
Um iP 21 06 03.3
Aegean Sea (h = 25 km).

" 23 Up iP 23 53 02.7

" 24 Up iP 05 31 50.7
Ki eP 05 31 45
Um iP 05 31 53.3
North Atlantic Ocean
(h = 10 km).

" 24 Um iP 12 58 18.5

" 24 Up iP 13 27 40.5
Um iP 13 27 41.8
North Atlantic Ocean
(h = 10 km).

" 24 Up iP 13 30 40.3
Ki iP 13 30 38.3
micr sec
P Z' 0.1 1.5
Um iP 13 30 43.0
North Atlantic Ocean
(h = 10 km).

" 24 Um iP 19 37 16.6
Cuba region (h = N).

" 24 Ki iP 21 18 51.1
Um ipP 21 18 36.9
N.W. Iran-USSR border
region (h = 40 km).

" 24 Up iP 22 12 52.6
il 22 12 56.4
Ki iP 22 13 35.2
il 22 13 39.8
Um il 22 13 12.3
N.W. Iran-USSR border
region (h = N).

" 24 Up iP 22 52 32.2

" 25 Um iPKP 04 24 16.1
North Island, New
Zealand (h = 180 km).

" 25 Up iP 05 04 00.2
i 05 04 01.6
micr sec
i Z' 0.5 1.0
Mx Z 1.1 8
(cont.)

1981
May 25 (cont.)
Ki iP 05 02 51.9
i 05 02 53.2
micr sec
i Z' 0.6 0.8
Um iP 05 03 14.6
European USSR.
Underground explosion.

" 25 Up iPdiff 05 43 21.0
iPKP 05 45 05
iPKP1 05 45 18.8
iPKP2 05 45 39.0
i 05 45 52.6
micr sec
PKP1 Z' 0.1 1.4
i Z' 0.5 1.3
Mx Z 149 21
Ki iPKP 05 45 04.7
Um iPKP 05 45 03.5
i 05 45 08.4
iPKP1 05 45 13.6
i 05 45 25.6
Off w. coast of S. Island,
N.Z. (h = N).

" 25 Up iP 09 30 19.0
micr sec
P Z' 0.1 1.1
Ki iP 09 29 33.8
Um iP 09 29 54.0 C
Sakhalin Island (h = N).

" 25 Ki iPKP1 11 04 25.1
Um iPKP1 11 04 31.1
Auckland Islands region
(h = N).

" 25 Ki iP 13 41 10.8
Um iP 13 41 17.2
Halmahera (h = 30 km).

" 25 Up iP 14 50 38.2
Ki iP 14 50 17.9
Um iP 14 50 24.7
Samar, Philippine Islands
(h = 80 km).

" 25 Up iPKP1 21 12 51.9
Fiji Islands region
(h = 610 km).

" 25 Up iP 23 08 42.6
Ki eP 23 10 03
Greece (h = N).

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981						
May	26	Up	iP		07 01 02.0	
					micr	sec
			P	Z'	0.1	0.8
			Mx	Z	0.9	13
		Um	iP		07 00 50.5	
			iS		07 11 57	
		Philippine Islands region				
		(h = 50 km).				
"	26	Up	iP		12 08 29.9	
					micr	sec
			P	Z'	0.1	0.9
		Um	iP		12 08 05.9	
		Hokkaido, Japan region				
		(h = 90 km).				
"	26	Up	iRg		16 45 06.5	
"	27	Up	iRg		00 29 52.9	
"	27	Up	iPKPl		00 45 49.3	
		South of Fiji Islands				
		(h = 80 km).				
"	27	Up	iPKPl		02 03 47.9	
			i		02 04 19.9	
					micr	sec
			PKPl	Z'	0.2	0.7
		Um	iPKPl		02 03 36.1	
			iSKPl		02 06 33.7	
		South of Fiji Islands				
		(h = 460 km).				
"	27	Up	iPKPl		02 35 24.4	
"	27	Up	iP		04 05 10.5	C
			iPn		04 06 16.3	
			iPP		04 06 28.5	
					micr	sec
			P	Z'	0.4	0.9
		Um	iP		04 04 55.0	C
		Eastern Kazakh SSR.				
		Underground explosion.				
"	27	Up	ePKPl		10 07 18	
		South of Fiji Islands				
		(h = 80 km).				
"	27	Up	iRg		10 16 01.4	
"	27	Up	iP		15 08 44.0	
			i		15 08 46.3	
			iS		15 12 35	
					micr	sec
			i	Z'	0.1	0.8
		Ki	iP		15 10 01.2	C
		(cont.)				

1981						
May	27	(cont.)				
		Ki			micr	sec
			P	Z'	0.1	1.1
		Um	iP		15 09 23.8	
			i		15 09 25.2	
		Greece (h = N).				
		m = 5.4 (Up,Ki).				
"	27	Up	iP		15 30 36.1	
			i		15 30 38.7	
			iS		15 34 26	
					micr	sec
			i	Z'	0.1	0.9
		Ki	iP		15 31 53.6	
					micr	sec
			P	Z'	0.1	1.1
		Um	iP		15 31 17.2	C
		Greece (h = 30 km).				
		m = 5.4 (Up,Ki).				
"	27	Up	iP		18 16 45.8	
			i		18 16 48.9	
			iS		18 20 38	
					micr	sec
			i	Z'	0.1	0.6
			Mx	Z	3.4	9
		Ki	iP		18 18 02.9	
					micr	sec
			P	Z'	0.1	1.0
			Mx	Z	1.2	9
		Um	iP		18 17 24.8	
			iS		18 21 52	
		Greece (h = N).				
		m = 5.5 (Up,Ki).				
"	27	Up	iP		21 34 31.5	C
			i		21 34 38.4	
			iS		21 41 19	
		Ki	iP		21 33 49.9	C
			i		21 35 15.1	
			i		21 35 30.2	
		Um	iP		21 34 06.3	C
		Lake Baikal region				
		(h = N).				
"	28	Up	iP		07 33 05.3	
			i		07 33 10.3	
		Ki	eP		07 34 22	
		Um	iP		07 33 45.7	
		Greece (h = 40 km).				
"	28	Up	eP		09 21 49	
		Ki	iP		09 21 09.2	
		Washington (h = 5 km).				
"	28	Up	iPKP		16 29 02.4	
			iSKPl		16 32 13.6	
		(cont.)				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
May 28 (cont.)
Up i 16 33 17.9
micr sec
Mx Z 1.2 22
Ki iPKP 16 28 47.5
micr sec
PKP Z' 0.2 0.8
Mx Z 0.5 20
Um i(PKP) 16 28 45.6
iPKP 16 28 54.7
i 16 29 29.6
Vanuta Islands (h = 130 km).
M = 5.4 (Up,Ki).

" 28 Up iRg 19 20 12.6

" 28 Up iPKP 22 37 29.7 C
iPKKP 22 48 02.9
micr sec
Mx Z 7.3 24
Ki iPKP 22 37 18.9 C
iPKKP 22 48 23.0
micr sec
PKP Z' 0.1 0.8
Mx Z 3.8 20
Um iPKP 22 37 23.6 C
New Britain region
(h = 70 km).
M = 6.1 (Up,Ki).

" 28 Up iP 23 22 50.4
i 23 22 54.1
micr sec
i Z' 0.1 0.9
Ki iP 23 22 54.4
i 23 22 56.5
micr sec
i Z' 0.1 0.9
Um iP 23 22 46.9
i 23 22 49.3
Tibet-India border
region (h = N).
m = 5.7 (Up,Ki).

" 29 Up iP 03 47 12.9
Hindu Kush region
(h = N).

" 29 Up i(P) 06 30 35.9
Ud i(P) 06 29 58.9

" 29 Up iPKP1 12 45 29.5
South of Fiji Islands
(h = 45 km).

" 29 Up i(P) 12 57 05.8

1981
May 30 Up iPKP2 10 07 45.3
Um iPKP2 10 07 34.4
Auckland Islands region
(h = N).

" 30 Up iP 15 03 37.6

" 31 Up iP 01 49 30.9
Um iP 01 49 25.5
South of Java (h = 80 km).

" 31 Up iP 04 34 13.5
Um eP 04 34 53
Greece (h = 30 km).

" 31 Up iP 08 53 22.3
iS 09 02 28.5
micr sec
P Z' 0.1 0.8
Um iP 08 53 03.3 C
iS 09 01 53.3
South of Honshu, Japan
(h = 470 km).

" 31 Um iP 13 13 06.2
Lake Tanganyika region
(h = N).

" 31 Up eP 17 53 32
Greece (h = 60 km).

" 31 Up iPKP1 22 44 41.7
Um iPKP1 22 44 35.9
South of Fiji Islands
(h = 460 km).

September 29, 1982

Klaus Meyer
Rutger Wahlström

SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

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
Umeå	(Um):	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(Ud):	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(De):	56°28.2'N,	13°52.2'E;	h = 150 m

J U N E 1 - 30, 1 9 8 1

1981 June 1

Up	iP		00 09 43.2
	ipP		00 10 49.5
	iS		00 17 57.6
	iScS		00 19 04.2
		micr	sec
	P	Z' 0.3	1.0
Um	iP		00 09 19.2
	ipP		00 10 24.6
	iS		00 17 13.5
	iScS		00 18 36.9

Eastern Sea of Japan (h = 300 km).

" 1

Up	iP		08 52 43.0
	iS		08 57 03
		micr	sec
	Mx	Z 1.2	10
Ki	iP		08 53 50.0
		micr	sec
	P	Z' 0.2	1.2
	Mx	Z 0.5	10
Um	iP		08 53 15.6

Crete (h = 80 km).
M = 4.7 (Up,Ki).

" 1

Up	iP		11 01 59.5
Ki	iP		11 01 06.6

Rat Islands, Aleutian Islands (h = N).

" 1

Up	iS		15 36 37
		micr	sec
	Mx	Z 4.4	18
Ki	eP		15 25 32
	i		15 25 40.5
	i		15 25 47.3

Off coast of Jalisco, Mexico (h = N).

1981 June 2

Up	iP		02 42 54.6
Ki	iP		02 42 15.0
Um	iP		02 42 32.6

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

" 2

Ki	iPgl		04 47 46.3
	iSgl		04 48 00.5
	i		04 48 03.1
Um	iPn		04 48 28.2
	iSgl		04 49 38.1

Norrbotten, Sweden, 67.7°N, 23.3°E.
Origin time = 04 47 27.
M_L = 2.0 (Ki).
By combination with Finnish station readings.

" 2

Up		micr	sec
	Mx	Z 0.4	10
Ki	eP		19 13 17
Um	iP		19 12 39.6
	i		19 12 42.0

Turkey (h = 10 km).

" 3

Um	iP		01 38 32.1

North of Severnaya Zemlya (h = 10 km).

" 3

Up	iP		05 50 36.5
Ki	iP		05 49 55.4
Um	iP		05 50 13.7

Eastern Sea of Japan (h = 280 km).

" 3

Up	e		06 01 44

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
June 3 (cont.)
Up iPP 06 05 37
iSKS 06 12 09
iS 06 13 11
micr sec
Mx Z 14.4 20
Ki iPP 06 06 33.7
micr sec
Mx Z 2.5 15
South Atlantic Ridge
(h = 10 km).
M = 6.3 (Up,Ki).

" 4 Ki iPKP 07 58 37.3
Juan Fernandoz Islands region
(h = N).

" 4 Up iP 08 33 36.6
micr sec
Mx Z 1.1 16
Ki iP 08 33 15.3
Philippine Islands region
(h = 35 km).

" 4 Up iPKPl 18 14 17.6
Ki iPKPl 18 14 03.1
Um iPKPl 18 14 07.1
i 18 14 11.2
i 18 14 44.7
Kermadec Islands region
(h = N).

" 5 Up iP 03 20 54.5
i 03 20 59.3

" 5 Up iP 07 20 16.6 D
micr sec
P Z' 0.1 0.8
Um iP 07 19 50.8 D
i 07 19 53.9
iP'P' 07 48 41.3
Aleutian Islands region
(h = N).

" 5 Up iP 19 52 48.5
i 19 52 49.3
i 19 53 12.6
micr sec
i Z' 0.1 0.7
Ki iP 19 52 02.1
i 19 52 03.5
Um iP 19 52 24.9
Kuril Islands (h = N).

1981
June 5 Up iPKPl 19 57 26.3
Kermadec Islands region
(h = 50 km).

" 6 Up iP 01 23 54.6
micr sec
Mx Z 2.0 14
Ki iP 01 25 06.3
micr sec
Mx Z 0.5 10
Um iP 01 24 30.9
Southern Greece (h = N).
M = 4.6 (Up,Ki).

" 6 Up iP 18 11 48.1 C
Ki iP 18 11 13.8 C
i 18 11 33.2
Um iP 18 11 33.4 C
Southern Nevada.
Underground explosion.

" 7 Up iP 00 47 31.3

" 7 Um iP 02 29 00.9

" 7 Up iP 04 29 59.7
Greece (h = 25 km).

" 7 Up iP 13 05 55.3
iS 13 10 03
micr sec
P Z' 0.1 1.2
Mx Z 0.5 12
Ki iP 13 07 09.2
micr sec
P Z' 0.2 1.2
Um iP 13 06 34.8
i 13 06 41.5
Sicily (h = 20 km).
m = 5.5 (Up,Ki).

" 7 Up iP 14 03 26.3
Ki iP 14 03 34.6
Um iP 14 03 24.5
Hindu Kush region (h = 210 km).

" 7 Ki eP 18 02 29
Um iP 18 02 56.0
Fox Islands, Aleutian Islands
(h = N).

" 7 Up iP 21 53 12.7 C
i 21 53 27.9
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
June 7 (cont.)

Up	ipP		21 54 27.8	
	iSKS		22 03 12	
	iS		22 03 45	
			micr	sec
	P	Z'	0.4	1.0
	Mx	Z	1.5	19
Ki	iP		21 52 45.2	C
	ipP		21 53 54.5	
	iSKS		22 02 37	
	iS		22 02 51	
			micr	sec
	P	Z'	0.3	1.2
	Mx	Z	0.9	16
Um	iP		21 52 56.7	C
	ipP		21 54 12.3	
	iSKS		22 02 52	
	iS		22 03 19	

Mariana Islands.
h = 320 km (Up,Ki,Um).
m = 6.2, M = 5.5 (Up,Ki).
M uncorrected for focal depth.

" 8 Um iP 06 00 31.1
Off coast of Central America (h = 100 km).

" 8 Up iP 09 35 56.9
Um iP 09 36 12.7

" 8 Um iPgl 21 30 45.1
iSgl 21 31 18.0
eRg 21 31 33
Origin time = 21 30 01.
Near-surface event.

" 9 Up iP 00 36 31.5

" 9 Ki iP 04 19 19.7
ipP 04 19 47.7
Um iP 04 19 11.6
Tajik-Sinkiang border region.
h = 110 km (Ki).

" 9 Up iPKPl 05 41 26.7
South of Fiji Islands (h = N).

" 9 Up iP 22 17 35.3
iS 22 25 08

			micr	sec
	P	Z'	0.2	1.0
	Mx	Z	26.5	14

(cont.)

1981
June 9 (cont.)

Ki	iP		22 17 24.8	
	i		22 17 27.6	
	iPP		22 19 25.4	
			micr	sec
	P	Z'	0.1	1.1
	Mx	Z	18.6	13
Um	iP		22 17 26.1	
	i		22 17 27.6	
	iS		22 24 37	

Qinghai Province, China (h = 10 km).
m = 5.9, M = 6.4 (Up,Ki).

" 9 Up iSgl 23 50 48.2
Off coast of southwestern Norway, near 61°N, 4°E.
Origin time = 23 47 20.
Solution from Bergen and NORSAR station readings.

" 10 Up iP 19 11 32.6
Ki iP 19 11 38.3
Um iP 19 11 29.6
Tajik SSR (h = 100 km).

" 11 Up eP 03 04 17
Ki iP 03 04 00.4

			micr	sec
	P	Z'	0.1	1.0
Um	iP		03 04 05.7	

Talaud Islands (h = 100 km).

" 11 Up iP 07 31 59.7
i 07 32 06.2
iPP 07 33 28
i 09 37 56
iS 07 38 09

			micr	sec
	P	Z'	0.4	1.3
	i	Z'	4.9	2.6
	Mx	Z	65	15
Ki	iP		07 32 29.8	D
	i		07 32 37.6	
	iPP		07 34 21.2	
	iS		07 39 10	
			micr	sec
	P	Z'	2.0	2.4
	i	Z'	23.3	3.5
	Mx	Z	67	12
Um	iP		07 32 09.3	C
	i		07 32 15.2	
	iS		07 38 37	

Southern Iran (h = N).
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981						
June	11	(cont.)				
		m = 7.1, M = 6.7 (Up,Ki).				
		Double event, small and				
		large. Interpreting the				
		second phase as pP the				
		focal depth would be 25 km.				
"	11	Ki	iP		14 40 46.4	
		Southern Iran (h = N).				
"	11	Up	iP		18 46 42.2	
			iS		18 56 53	
					micr	sec
			Mx	Z	1.2	22
		Ki	iP		18 46 34.4	
			i		18 46 43.1	
					micr	sec
			P	Z'	0.1	1.0
			Mx	Z	1.0	17
		Um	iP		18 46 41.2	
			i		18 46 58.2	
			iS		18 56 53	
		Caribbean Sea (h = 20 km).				
		M = 5.3 (Up,Ki).				
"	12	Up	iP		01 19 56.7	
		Ki	iP		01 20 23.5	
		Southern Iran (h = N).				
"	12	Ki	eP		01 51 18	
			i		01 51 24.9	
		Southern Iran (h = N).				
"	12	Um	iP		06 51 45.0	
		Southern Iran (h = N).				
"	12	Up	iPKPl		23 49 17.1	
		Ki	iPKP		23 49 03.9	
		South of Fiji Islands				
		(h = 90 km).				
"	13	Up	iP		01 05 37.8	
		Ki	iP		01 05 43.4	
					micr	sec
			P	Z'	0.1	1.0
		Um	iP		01 05 36.2	
		Tibet - India border region				
		(h = N).				
"	13	Up	Mx		03 06	
					micr	sec
			Mx	Z	4.8	22
		Ki	Mx		03 11	
					micr	sec
			Mx	Z	1.7	22
		Mocquarie Island region				
		(h = N).				
1981						
June	13	Up	iP		07 36 42.5	
			i		07 36 45.0	
			iPP		07 38 11.7	
			iS		07 42 40	
					micr	sec
			Mx	Z	9.7	18
		Ki	iP		07 36 55.4	
			i		07 37 04.1	
					micr	sec
			Mx	Z	2.0	12
		Um	iP		07 36 43.1	
			i		07 36 50.1	
		Hindu Kush region (h = 25 km).				
		M = 5.5 (Up,Ki).				
"	13	Ki	iP		08 00 37.4	
		Southern Iran (h = N).				
"	13	Up	iP		13 32 05.6	
		Ki	iP		13 31 11.4	
			i		13 31 23.1	
					micr	sec
			P	Z'	0.1	1.0
		Um	iP		13 31 36.6	
			i		13 31 50.3	
		Unimak Island region				
		(h = 25 km).				
"	13	Ki	iP		18 51 41.8	
		Northern Colombia (h = 160 km).				
"	14	Um	iPKPl		02 44 17.7	
		South of Kermadec Islands				
		(h = N).				
"	14	Ki	eP		04 01 30	
		Um	iP		04 01 51.3	
		Kuril Islands (h = N).				
"	14	Up	iP		19 08 28.4	
			i		19 08 32.0	
		Ki	iP		19 07 31.6	C
		Um	iP		19 08 01.8	C
			i		19 08 05.5	
		Northern Yukon Territory,				
		Canada (h = 5 km).				
"	14	Up	iP		20 54 33.0	
		Ki	iP		20 54 14.5	
		Samar, Philippine Islands				
		(h = 80 km).				
"	14	Up	iP		23 10 28.6	
			i		23 10 41.9	
			iS		23 13 55	
		(cont.)				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
June 14 (cont.)

Up			micr	sec
	Mx	Z	1.6	17
Ki	eP		23 09 00	
	i		23 09 01.2	
			micr	sec
	i	Z'	0.3	1.5
	Mx	Z	3.1	18
Um	iP		23 09 53.7	

Svalbard region (h = 10 km).

" 15 Up ePKP2 02 51 49

			micr	sec
	Mx	Z	0.8	20
Ki	iPKP1		02 51 14.8	
Um	iPKP1		02 51 15.5	
	iPKP2		02 51 36.4	

Off w. coast of S. Island, N.Z. (h = N).

" 15 Up iP 07 41 01.1
Algeria (h = 10 km).

" 15

Up	iP	08 52 06.5
Ki	iP	08 52 46.9
	i	08 52 53.0
Um	iP	08 52 22.4
	i	08 52 28.3

Western Iran (h = N).

" 15

Up	eSgl	12 56 41
De	eSn	12 56 06

Norwegian Sea, near 61 1/2°N, 3°E.
Origin time = 12 52 56.
By combination with Bergen, Kongsberg and NORSAR station readings.

" 15

Up	iPKP1	16 26 56.4
Um	iPKP1	16 26 45.8

" 15

Up	iP	23 04 35.6
	ipP	23 04 38.0
Um	iP	23 05 13.5
	ipP	23 05 18.0

Algeria (h = 10 km).

" 16 Um iP 09 16 48.7

" 16

Ki	iPKP2	16 23 55.7
Um	iPKP2	16 24 03.0

Auckland Islands region (h = N).

1981
June 16

Up	iP	18 57 12.4
Ki	iP	18 56 58.8
Um	iP	18 57 03.1

Molucca Sea (h = 70 km).

" 16 Ki iPKP 19 15 05.9
South Sandwich Islands region (h = 55 km).

" 18 Ki iP 17 06 12.2
Off coast of Hokkaido, Japan (h = 100 km).

" 18 Ki iP 17 33 26.6
Kodiak Island region (h = N).

" 18 Ki iP 21 56 13.8
Mindanao, Philippine Islands (h = 60 km).

" 19

Ki	iP	03 04 24.7
Um	iP	03 04 29.2

Banda Sea (h = 180 km).

" 19 Up iP 06 31 45.7

" 19 Up iP 09 32 36.5

" 19

Up	iP	16 56 17.7
Ki	eP	16 57 33
Um	iP	16 56 57.7

Southern Italy (h = 10 km).

" 19

Up	iP	18 54 17.0
Ki	iP	18 53 34.5
Um	iP	18 53 52.0

Kuril Islands region (h = 10 km).

" 20

Up	iPKP		04 29 17.2	
	i		04 29 27.1	
			micr	sec
	Mx	Z	2.0	21
Ki	iPKP		04 29 01.4	
	i		04 29 12.2	
Um	iPKP		04 29 08.3	
	i		04 29 19.4	
	iSKP1		04 32 49.4	

Vanuatu Islands (h = 35 km).

" 20 Up iPKP 12 51 07.5

	iSKP1		12 54 40.3	
			micr	sec
	Mx	Z	3.4	18

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981 June	20	(cont.)				
		Ki	ePKP		12 50 53	
			iSKP1		12 54 16.7	
					micr	sec
			Mx	Z	1.4	20
		Um	iPKP		12 50 59.8	
			iSKP1		12 54 27.0	
			i		12 54 35.1	
			i		12 54 57.9	
		Loyalty Islands region (h = N).				
		M = 6.0 (Up,Ki).				
"	20	Up	iP		13 23 47.3	
		Um	iP		13 24 26.2	
		Ionian Sea (h = 55 km).				
"	20	Up	i		18 04 46.9	
		Ki	ePKP		18 04 29	
			i		18 04 34.0	
		Um	iPKP		18 04 34.9	
			i		18 04 40.1	
		Loyalty Islands region				
		(h = 25 km).				
"	20	Up	iP		22 58 15.9	C
		Ki	iP		22 57 52.2	C
		Um	iP		22 57 58.5	C
		Northern China (h = N).				
"	21	Ki	iP		01 06 32.6	
		Southwestern Ryukyu Islands				
		(h = N).				
"	21	Up	iPKP1		01 40 51.0	
			i		01 40 55.1	
		Ki	iPKP		01 40 45.8	
		Um	i(PKP)		01 40 46.2	
			iPKP		01 40 50.9	
		Fiji Islands region				
		(h = 230 km).				
"	21	Up	eP		05 15 02	
		Greece (h = 35 km).				
"	21	Ki	iPKP		05 29 04.6	
		Um	iPKP		05 29 11.9	
		Loyalty Islands region				
		(h = 25 km).				
"	21	Up	i(P)		06 30 18.0	
"	21	Up	Mx		11 32	
					micr	sec
			Mx	Z	1.0	18
		Ki	Mx		11 28	
					micr	sec
			Mx	Z	1.6	21
		(cont.)				

1981 June	21	(cont.)				
		Near coast of northern Chile				
		(h = 35 km).				
"	21	Up	iP		13 16 24.3	
			i		13 16 35.2	
		Ki	iP		13 16 51.9	
			i		13 16 58.6	
		Um	iP		13 16 31.7	
			i		13 16 37.0	
			i		13 16 40.2	
		Southern Iran (h = 20 km).				
"	21	Up	iP		18 53 47.8	C
		Um	iP		18 54 28.3	
			i		18 54 36.1	
		Greece - Albania border				
		region (h = 10 km).				
"	21	Up	iP		20 16 18.1	
		Um	iP		20 17 00.4	
		Greece - Albania border				
		region (h = 10 km).				
"	22	Up	iP		00 12 18.1	
		Um	iP		00 12 22.7	
		Northern Peru (h = 100 km).				
"	22	Up	iSKP1		03 17 52.6	
		Vanuatu Islands (h = 130 km).				
"	22	Up	iS		04 42 17.2	
			i		04 42 51.0	
		Ki	iP		04 40 13.2	C
			i		04 40 23.0	
			iS		04 41 42.0	
			i		04 41 58.7	
		Um	iP		04 40 18.9	C
			iS		04 41 50.8	
			i		04 41 53.4	
		De	eP		04 40 57	
			iS		04 42 52.8	
			iLg1		04 43 47.2	
		Norwegian Sea (h = 10 km).				
		M_L = 3.5 (De).				
"	22	Up	iP		09 41 12.4	
			iS		09 45 10	
					micr	sec
			P	Z'	0.1	1.1
			Mx	Z	0.8	12
		Ki	iP		09 42 24.5	
					micr	sec
			Mx	Z	0.6	10
		Um	iP		09 41 49.6	
			i		09 41 58.1	
		(cont.)				

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981 June	22	(cont.)			
		Um	iS	09 46 18	
		Sicily (h = 15 km).			
		M = 4.5 (Up,Ki).			
"	22	Up	iP	09 53 57.2	
		Ki	iP	09 55 11.7	
		Sicily (h = 10 km).			
"	22	Ki	ipP	10 34 59.2	
		Celebes Sea (h = 310 km).			
"	22	Up	iPn	18 54 01.5	
			iPgl	18 54 05.4	
			iSn	18 54 30.2	
			iSgl	18 54 34.4	
			i	18 54 38.1	
		Ki	iSn	18 56 45.0	
			iSgl	18 57 35.4	
		De	ePn	18 54 47	
			iSn	18 55 42.5	
			i	18 55 58.1	
			iSgl	18 56 11.2	
		Off coast of southwestern Finland, near 59 3/4°N, 22°E.			
		Origin time = 18 53 26.			
		M_L = 3.1 (Up,Sk,Ud,De).			
		Felt.			
"	22	Up	iPgl	19 28 27.0	
			iSn	19 28 51.8	
			iSgl	19 28 55.9	
			i	19 28 59.7	
		De	iSgl	19 30 32.2	
		Same locations as the event 18 53.			
		Origin time = 19 27 48.			
		M_L = 2.5 (Up,Ud,De).			
		Felt.			
"	22	Up	i(P)	21 58 54.8	
"	23	Up	i(P)	03 12 04.0	
"	23	Up	iP	04 26 13.4	
		Ki	iP	04 26 35.4	
		North Atlantic Ridge (h = 10 km).			
"	23	Ki	iP	20 02 20.0	
		Southwestern Kashmir (h = N).			
"	23	Ki	iP	23 09 39.4	
		Near coast of Venezuela (h = 10 km).			
1981 June	24	Up	iP	02 46 58.0	
			i	02 47 07.5	
		Ki	iP	02 46 28.4	
		Um	iP	02 46 40.1	
		Ryukyu Islands (h = N).			
"	24	Up	iP	05 09 03.6	
		Um	iP	05 08 52.8	
"	24	Up	iP	18 46 21.4	
			i	18 46 22.9	
			iS	18 50 21	
				micr sec	
			i Z'	0.1 0.7	
			Mx Z	7.6 14	
		Ki	iP	18 47 36.4	
				micr sec	
			P Z'	0.2 1.7	
		Um	iP	18 47 00.2	
			i	18 47 03.4	
			iS	18 51 31	
		Ionian Sea (h = 20 km).			
		m = 5.5 (Up,Ki).			
"	24	Up	iP	22 57 06.1	
			iS	23 01 10	
				micr sec	
			P Z'	0.1 1.2	
			Mx Z	3.2 11	
		Ki	iP	22 58 22.6	
		Um	iP	22 57 46.4	
			iS	23 02 16	
		Ionian Sea (h = 35 km).			
"	25	Up	iP	01 47 18.3	
		Ki	iP	01 46 24.0	
		Um	iP	01 46 51.3	
			i	01 47 02.0	
		South of Alaska (h = N).			
"	25	Up	iP	01 58 19.5	
		Ki	iP	01 57 25.8	
		Um	iP	01 57 50.8	
		Off east coast of Kamchatka (h = 40 km).			
"	25	Up	iP	04 31 46.4	
		Um	iP	04 32 25.4	
		Greece (h = N).			
"	25	Up	iP	06 21 26.8	
		Ionian Sea (h = 40 km).			
"	25	Up	iP	06 42 05.2	
		Ki	iP	06 41 40.4	
		Um	iP	06 41 50.9	
		Philippine Islands region (h = 40 km).			

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
June 25 Up iP 22 39 24.5
Ki iP 22 38 33.3
Um iP 22 38 57.0
Sea of Okhotsk (h = 490 km).

" 26 Up iPKP 01 10 26.3
iPKP1 01 10 29.9
micr sec
PKP Z' 0.1 1.0
Mx Z 0.9 21
Ki i(PKP) 01 10 07.0
iPKP 01 10 12.6
micr sec
PKP Z' 0.2 1.0
Um iPKP1 01 10 18.0
Kermadec Islands (h = 180 km).

" 27 Up iPKP1 02 33 59.0
South of Fiji Islands
(h = 580 km).

" 27 Up iP 02 37 21.4
Luzon, Philippine Islands
(h = 60 km).

" 27 Um iP 02 45 31.7
Hokkaido, Japan region
(h = 45 km).

" 27 Up eP 23 10 41
Um iP 23 10 11.1
Unimak Island region
(h = 30 km).

" 28 Up iP 08 13 32.1
ipP 08 13 59.2
iS 08 23 16.3
i 08 23 25.8
micr sec
P Z' 0.1 0.8
Ki iP 08 13 10.0
ipP 08 13 40.3
Um iP 08 13 17.7
ipP 08 13 44.4
Taiwan region.
h = 110 km (Up,Ki,Um).

" 28 Up iP 11 24 08.5
iS 11 28 08
micr sec
P Z' 0.1 0.7
Mx Z 3.2 15
Ki eP 11 25 27
Um iP 11 24 49.1
i 11 25 00.3
Ionian Sea (h = N).

1981
June 28 Up iP 12 44 49.9
Um iP 12 45 27.7
Ionian Sea (h = 50 km).

" 28 Up iP 13 24 56.3
Greece (h = N).

" 28 Up iP 17 25 16.9 D
iS 17 29 16
micr sec
P Z' 0.3 0.7
Mx Z 11.2 12
Ki iP 17 26 30.9
iS 17 31 23
micr sec
P Z' 0.1 1.3
Um iP 17 25 55.5
iS 17 30 20
Ionian Sea (h = N).
m = 5.7 (Up,Ki).

" 28 Up iP 18 25 42.0
Um iP 18 26 07.6
Ionian Sea (h = N).

" 29 Up iP 05 45 56.9
Ki eP 05 45 18
Um iP 05 45 35.8
Off east coast of Honshu,
Japan (h = 30 km).

" 29 Up iP 07 47 51.9
Rat Islands, Aleutian Islands
(h = 20 km).

" 29 Up iP 07 53 00.2
iS 07 56 58
micr sec
Mx Z 2.0 15
Ki eP 07 54 15
Um iP 07 53 39.3
iS 07 58 13
Ionian Sea (h = 40 km).

" 29 Up iP 08 53 11.1
iS 08 57 10
micr sec
P Z' 0.1 0.9
Mx Z 2.2 15
Ki eP 08 54 28
Um iP 08 53 49.1
iS 08 58 16
Ionian Sea (h = 35 km).

" 29 Up eP 11 57 45
i 11 57 52.1
(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary

1981
June 29 (cont.)
Um eP 11 58 26
Ionian Sea (h = 40 km).

" 29 Up iPKP1 12 22 19.0
Ki iPKP 12 22 11.4
Fiji Islands region
(h = 590 km).

" 29 Up iP 18 31 48.6
Um iP 18 32 29.1
Ionian Sea (h = 50 km).

" 29 Up eP 22 26 09
Um eP 22 26 48
Ionian Sea (h = N).

" 29 Up iP 22 45 44.5
Ionian Sea (h = 40 km).

" 29 Up iP 22 47 45.3
micr sec
Mx Z 1.1 12
Um eP 22 48 28
iS 22 53 06
Ionian Sea (h = N).

" 29 Up iP 23 45 49.2
Ionian Sea (h = N).

" 30 Up iP 00 36 37.5
micr sec
Mx Z 0.4 11
Um iP 00 37 17.8
iS 00 41 57
Ionian Sea (h = 50 km).

" 30 Up iP 02 04 08.4
iPn 02 05 14.0
Ki iP 02 03 52.7 C
micr sec
P Z' 0.1 0.6
Um iP 02 03 53.3 C
Eastern Kazakh SSR.
Underground explosion.

" 30 Up iP 02 46 33.2
Greece - Albania border
region (h = 20 km).

" 30 Up iP 03 25 48.3
Ki iP 03 26 22.3
Um iP 03 26 00.5
Southern Iran (h = N).

" 30 Up iP 08 04 40.2
Ki iP 08 05 37.5
(cont.)

1981
June 30 (cont.)
Um iP 08 05 05.1
Turkey (h = N).

" 30 Up iSg1 12 33 25.8
Ud iSg1 12 33 04.0
De iSg1 12 33 06.5
Västergötland, Sweden, 58.3°N,
13.9°E.
Origin time = 12 32 12.
M_L = 2.2 (Ud,De).
By combination with SKI
network readings.

" 30 Up iP 14 53 20.9
Um iP 14 53 22.2
Turkmen SSR (h = N).

" 30 Up iP 15 14 18.9
iS 15 18 18
micr sec
P Z' 0.2 1.1
Mx Z 2.1 16
Ki iP 15 15 33.1
micr sec
P Z' 0.2 1.7
Um iP 15 14 56.8
Ionian Sea (h = N).
m = 5.6 (Up,Ki).

" 30 Up i(P) 18 38 34.6

" 30 Up iP 22 06 23.6 C
Ki iP 22 06 18.1
Um iP 22 06 17.9
Burma (h = 20 km).

March 23, 1983

Ingrid Båth
Klaus Meyer
Rutger Wahlström

SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

SEISMOLOGICAL DEPARTMENT
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S-750 12 UPPSALA
SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

Uppsala	(UPP):	59°51.5'N,	17°37.6'E; h = 14 m
Kiruna	(KIR):	67°50.4'N,	20°25.0'E; h = 390 m
Skalstugan	(SKA):	63°34.8'N,	12°16.8'E; h = 580 m
Umeå	(UME):	63°48.9'N,	20°14.2'E; h = 16 m
Uddeholm	(UDD):	60°05.4'N,	13°36.4'E; h = 240 m
Delary	(DEL):	56°28.2'N,	13°52.2'E; h = 150 m

NOTE: Starting with this bulletin, magnitudes of regional earthquakes are computed according to the M_L(UPP) scale. Reference: R. Wahlström and T. Ahjos, 1982. Determination of local magnitude and calibration of magnitude scales for earthquakes in the Baltic Shield. Seismol. Dept., Uppsala, Report 1-82, 39 pp. A list of M_L(UPP) magnitudes for Baltic Shield earthquakes 1963-1979 is given in the report. Magnitudes are announced with standard deviation (in parentheses) and number of stations used.

J U L Y 1 - 31, 1 9 8 1

1981 July	1	UPP	iP	00 55 08.7		
		Greece (h = 50 km).				
"	1	KIR	eP	02 07 46		
		Bonin Islands region (h = N).				
"	1	UPP	iP	05 02 45.2		
		KIR	iP	05 02 03.4		
		Off east coast of Honshu, Japan (h = N).				
"	1	UPP	iP	18 13 59.5		
		KIR	i	18 13 37.0		
		UME	iP	18 13 41.6		
			i	18 13 58.8		
		South of Honshu, Japan (h = 120 km). P-phases at UPP and UME are about 11 s delayed when related to the NEIS solution.				
"	1	UPP	iP	19 19 30.3		
		Greece-Albania border region (h = 10 km).				
"	2	UPP	iP	01 37 15.7		
				micr	sec	
			P	Z' 0.1	1.2	
		KIR	iP	01 37 09.9		
				micr	sec	
			P	Z' 0.1	1.3	
		(cont.)				

1981 July	2	(cont.)				
		UME	iP	01 37 15.0		
		North Atlantic Ocean (h = 10 km). m = 5.0 (UPP,KIR).				
"	2	UME	iP	06 21 57.3		
		Ionian Sea (h = 30 km).				
"	2	UPP	iP	08 46 13.6		
		UME	ipP	08 47 04.5		
		Greece-Albania border region (h = 50 km).				
"	2	UME	iP	09 58 02.8		
		Iceland region (h = 10 km).				
"	2	UME	iPKPl	13 02 59.9		
		South of Kermadec Islands (h = 140 km).				
"	2	UPP	iP	22 50 25.4		
		Ionian Sea (h = 45 km).				
"	3	UPP	eP	00 13 31		
		Ionian Sea (h = 10 km).				
"	3	UPP	iP	02 37 22.4		
			iS	02 41 23		
				micr	sec	
			P	Z' 0.1	0.8	
			Mx	Z 1.8	10	
		(cont.)				

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
July 3 (cont.)

KIR	iP	02 38 37.3	
		micr	sec
	P Z'	0.1	1.4
UME	iP	02 38 02.6	
	iS	02 42 30	

Ionian Sea (h = 15 km).
m = 5.2 (UPP,KIR).

" 3	UPP	eP	02 40 48	
	UME	iP	02 41 25.8	

Ionian Sea (h = 10 km).

" 3	UPP	iP	03 59 48.4	C
		iPP	04 01 26.5	
	KIR	iP	04 00 21.9	C
			micr	sec
		P Z'	0.1	0.5
	UME	iP	04 00 00.2	C
		iPP	04 01 43.3	

Southern Iran (h = N).

" 3	UPP	iP	05 08 20.4	
	UME	iP	05 09 01.3	

Ionian Sea (h = 15 km).

" 3	UPP	iP	06 13 46.7	
	UME	eP	06 14 28	

Ionian Sea (h = 25 km).

" 3	UPP	iP	10 04 02.8	
	UME	eP	10 03 41	

Bonin Islands region (h = N).

" 3	UPP	iP	15 38 05.2	

" 3	UPP	iP	21 07 31.8	
	KIR	iP	21 08 11.6	
		i	21 08 19.0	
	UME	iP	21 07 48.8	
		i	21 07 54.9	

Eastern Gulf of Aden
(h = 10 km).

" 3	UPP	iP	21 47 31.2	C
		i	21 47 32.0	
		iS	21 51 23	
			micr	sec
		i Z'	0.2	0.6
		Mx Z	10	13
	KIR	iP	21 48 48.1	
		i	21 48 48.9	
			micr	sec
		i Z'	0.1	1.0
	UME	iP	21 48 12.1	
		i	21 48 21.9	

(cont.)

1981
July 3 (cont.)

UME	iS	21 52 36	

Greece-Albania border region
(h = 30 km).
m = 5.5 (UPP,KIR).
Double P, small and large, at
UPP and KIR.

" 4	UPP	iP	01 39 08.8	
	KIR	eP	01 40 26	
	UME	i	01 39 55.3	

Greece-Albania border region
(h = 10 km).

" 4	UPP	iPKP1	02 19 43.8	
		iPKP2	02 19 54.3	
			micr	sec
		PKP2 Z'	0.1	0.7
	KIR	iPKP1	02 19 25.2	
	UME	iPKP	02 19 31.0	
		iPKP1	02 19 34.7	

Off e. coast of N. Island,
N.Z. (h = N).

" 4	KIR	iP	02 23 07.9	
	UME	iP	02 23 17.6	

" 4	UPP	iP	02 51 08.2	
	UME	iP	02 50 56.8	

Leyte, Philippine Islands
(h = 40 km).

" 4	UPP	e	05 00 33	
		iPKP1	05 00 34.8	
		iPKP2	05 00 39.6	
			micr	sec
		PKP1 Z'	0.1	0.5
		PKP2 Z'	0.2	1.0
	KIR	iPKP1	05 00 13.5	
	UME	iPKP	05 00 22.3	
		iPKP1	05 00 23.3	

Kermadec Islands (h = 170 km).

" 4	UPP	iP	05 43 25.8	
	KIR	epP	05 43 30	

Oaxaca, Mexico (h = 70 km).

" 4	KIR	iP	07 53 12.8	
		i	07 54 15.1	
	UME	iP	07 53 44.2	

Alaska (h = N).

" 4	UPP	iSg1	09 50 39.8	
	KIR	iPn	09 48 37.6	
		iSn	09 49 12.2	
		iSg1	09 49 21.5	

(cont.)

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
July 4 (cont.)
UME iPg1 09 48 13.3
iSg1 09 48 28.2
UDD iSg1 09 50 58.2
Västerbotten, Sweden,
65.0°N, 21.0°E.
Origin time = 09 47 52.
M_L(UPP) = 2.8 (0.28) 6.

" 4 UDD iSg1 11 29 17.2
Norwegian Sea, approximate
location 61°N, 4°E.
Origin time = 11 26 35.
M_L(UPP) = 2.4 1.
Location and origin time
from NORSAR bulletin.

" 4 UPP iP 13 46 19.9

" 4 UPP iP 16 17 28.5
Ionian Sea (h = 10 km).

" 4 UME ipP 23 03 23.8
Samar, Philippine Islands
(h = 120 km).

" 5 UPP iP 04 55 32.0
KIR iP 04 55 03.8
UME iP 04 55 16.0
i 04 55 29.8
Mariana Islands (h = 45 km).

" 5 UPP iPKP1 19 11 59.1 C
micr sec
PKP1 Z' 0.2 1.2
KIR ePKP 19 11 41
UME iPKP1 19 11 47.6 C
Kermadec Islands (h = 60 km).

" 5 UME iSg1 22 54 03.4
Hälsingland, Sweden,
61.9°N, 17.8°E.
Origin time = 22 53 00.
M_L(UPP) = 2.1 1.
Solution from SKI network
readings.

" 6 UME iP 00 14 03.4
Java (h = 120 km).

" 6 KIR iPKP 01 21 25.7
UME iPKP 01 21 33.2
Tonga Islands (h = N).

1981
July 6 KIR iP 01 30 11.9
UME iP 01 30 43.0
Alaska (h = N).

" 6 UPP iPdiff 03 24 59
i(PKP) 03 27 36.7
i(PKP) 03 27 39.6
iPKP 03 27 43.7
i 03 28 04.3
iPP 03 30 38
micr sec
PKP Z' 0.2 1.2
PP Z' 1.6 1.9
KIR i(PKP) 03 27 27.8
i(PKP) 03 27 31.5
iPKP 03 27 33.6
iPP 03 29 54.3
micr sec
PKP Z' 0.4 1.8
PP Z' 1.7 2.4
UME i(PKP) 03 27 25.3
i(PKP) 03 27 30.0
i(PKP) 03 27 35.1
iPKP 03 27 40.3
i 03 27 45.4
iPP 03 30 10.4
Loyalty Islands region (h = N).
m = 6.9 (UPP,KIR).

" 6 UPP iP 06 05 14.5 C
KIR iP 06 06 29.0
UME iP 06 05 55.4
Ionian Sea (h = 35 km).

" 6 UPP eP 06 55 39
Crete (h = N).

" 6 UPP iPKP 08 45 17.6
UME iPKP 08 45 21.6
Southern Pacific Ocean
(h = 10 km).

" 6 UPP iP 15 35 06.6
Ionian Sea (h = 10 km).

" 6 UPP iPKP2 17 46 06.7
KIR ePKP1 17 45 39
UME iPKP1 17 45 44.5
Off e. coast of N. Island,
N.Z. (h = 150 km).

" 6 UPP iP 20 11 46.8
ipP 20 11 53.4
KIR iP 20 11 31.5
(cont.)

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
July 6 (cont.)

KIR			micr	sec
	P	Z'	0.1	0.9
UME	iP		20 11	33.0
	ipP		20 11	39.5

Northern Sinkiang Prov., China.
h = 25 km (UPP,UME).

" 6	UPP	iPKP1	23 14	23.3
	UME	iPKP1	23 14	10.0
" 7	UPP	iPKP1	00 57	23.1 C
		iPKP2	00 57	27.4
		i	00 57	41.6
			micr	sec
		PKP1 Z'	0.1	0.8
	KIR	iPKP	00 57	05.5
	UME	iPKP	00 57	09.4
		iPKP1	00 57	11.0

Kermadec Islands region (h = 120 km).

" 7	UPP	iP	01 45	19.5
	KIR	iP	01 44	32.6
	UME	iP	01 44	54.0
" 7	UPP	iP	02 39	36.8 C
	KIR	iP	02 39	26.9
	UME	iP	02 39	28.7

Burma-China border region (h = N).

" 7	KIR	eP	09 55	08

Alaska (h = N).

" 7	KIR	eP	10 38	50
	UME	iP	10 38	55.0

South of Panama (h = 15 km).

" 7	UPP	eP	13 34	36

Greece (h = 35 km).

" 7	UPP	iP	21 21	45.7
		i	21 21	48.4
		iS	21 30	43
			micr	sec
		i Z'	0.1	1.1
		Mx Z	32	20
	KIR	iP	21 22	30.7
		i	21 22	32.3
		iS	21 32	13
			micr	sec
		i Z'	0.3	1.2

(cont.)

1981
July 7 (cont.)

UME	iP		21 22	10.9
	i		21 22	12.3
	iS		21 31	32

Central Mid-Atlantic Ridge (h = 10 km).
m = 6.2 (UPP,KIR).

" 7	UPP	iPKP1	23 43	13.0
		iSKP1	23 46	04.7
	KIR	iPKP	23 43	02.9
		iSKP1	23 45	43.1
			micr	sec
		SKP1 Z'	0.2	1.7
	UME	i(PKP)	23 43	01.0
		iPKP	23 43	07.3
		iSKP1	23 45	53.9

South of Fiji Islands (h = 540 km).

" 8	UPP	iPKP	00 41	11.9
	KIR	iPKP	00 40	58.3
	UME	iPKP	00 41	04.9
" 8	UPP	iP	03 14	58.8
	KIR	iP	03 14	58.6
	UME	iP	03 14	55.0

Southern Sumatera (h = 60 km).

" 8	UME	iP	04 04	54.7

Albania (h = 10 km).

" 8	UPP	iP	04 06	24.0 C
		iPP	04 08	00.3
			micr	sec
		P Z'	0.4	1.0
	KIR	iP	04 06	32.9 C
		ipP	04 07	19.1
			micr	sec
		P Z'	0.7	1.2
	UME	iP	04 06	22.4 C
		ipP	04 07	10.3
		iPP	04 07	54.4

Hindu Kush region.
h = 230 km (KIR,UME).
m = 5.9 (UPP,KIR).

" 8	UPP	iPKP1	06 52	05.8

South of Fiji Islands (h = 520 km).

" 8	UPP	iP	10 29	23.2
	KIR	iP	10 29	04.9
	UME	iP	10 29	13.9

Molucca Sea (h = 35 km).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981 July	8	UPP	iPKPl	12 53 53.7
		Kermadec Islands region (h = 80 km).		
"	8	KIR	eP	19 50 11
		UME	iP	19 50 19.8
"	9	UME	iP	00 24 01.0
		Near east coast of Honshu, Japan (h = 60 km).		
"	9	UPP	iRg	01 03 13.4
		Dannemora, Uppland, Sweden, 60.1°N, 17.5°E.		
		Origin time = 01 02 56.		
		Rockburst.		
"	9	UPP	iPgl	01 08 40.0
			iRg	01 08 46.0
		UDD	iSgl	01 09 38.9
		Origin time = 01 08 34.		
		Dannemora rockburst.		
"	9	UPP	iRg	01 09 39.0
		UDD	iSgl	01 10 31.9
		Origin time = 01 09 22.		
		Dannemora rockburst.		
"	9	UPP	iPgl	01 28 28.7
			iRg	01 28 34.3
		UDD	iSgl	01 29 27.3
			iRg	01 29 40.8
		Origin time = 01 28 17.		
		Dannemora rockburst.		
"	9	UPP	iPg	01 29 20.1
			iRg	01 29 26.8
		UDD	iSgl	01 30 19.6
			iRg	01 30 31.2
		Origin time = 01 29 09.		
		Dannemora rockburst.		
"	9	UPP	iPg	01 35 40.6
			iRg	01 35 46.7
		Origin time = 01 35 29.		
		Dannemora rockburst.		
"	9	UPP	iP	01 40 03.7
		KIR	iP	01 39 22.3
		UME	iP	01 39 40.5
		Off east coast of Honshu, Japan (h = N).		
"	9	UPP	iP	01 48 16.0

1981 July	9	UPP	eP	01 56 31
		UME	iP	01 56 03.8
"	9	UPP	iRg	02 00 34.5
		UDD	iSgl	02 00 29.4
		Origin time = 02 00 17.		
		Dannemora rockburst.		
"	9	UPP	iRg	02 37 19.6
		Origin time = 02 37 02.		
		Dannemora rockburst.		
"	9	UPP	iP	20 45 09.4
		Greece-Albania border region (h = 55 km).		
"	9	UPP	iP	23 26 00.6
"	10	UPP	iP	01 50 25.9
			i	01 50 45.2
		KIR	iP	01 49 34.2
			i	01 49 51.2
		Andreanof Islands, Aleutian Is. (h = 55 km).		
"	10	UPP	iP	03 50 42.3
"	10	UPP	iP	12 07 03.8
		KIR	iP	12 06 33.7
		UME	iP	12 06 47.1
		Volcano Islands region (h = 70 km).		
"	10	UPP	iP	12 46 33.7
		KIR	iP	12 46 03.9
				micr sec
			P Z'	0.1 1.2
		UME	iP	12 46 16.7 C
		Volcano Islands region (h = 45 km).		
"	10	UPP	iPgl	13 41 27.4
			iSgl	13 41 30.1
			i	13 41 32.5
			iRg	13 41 34.2
		UDD	iPgl	13 41 58.0
			iSgl	13 42 26.4
			iRg	13 42 39.1
		Origin time = 13 41 17.		
		Dannemora rockburst.		
		This event is the strongest one so far in the series of rock-bursts which started on May 2, 1981. Cf. remark on May 2 at 23 45.		

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
July 10 UPP iSgl 15 12 08.2
KIR iSgl 15 12 27.8
SKA iPgl 15 10 44.6
iSgl 15 11 10.5
i 15 11 17.3
UME iPgl 15 10 37.8
i 15 10 43.7
iSgl 15 10 57.4
UDD iSgl 15 12 11.0
DEL iSgl 15 13 57.9
Ångermanland, Sweden,
63.6°N, 16.7°E.
Origin time = 15 10 11.
M_L(UPP) = 2.5 (0.11) 6.

" 10 KIR iPKP 18 21 22.1
micr sec
PKP Z' 0.2 2.5
UME iPKP 18 21 23.0
Southern Pacific Ocean
(h = 10 km).

" 10 UPP iP 21 44 39.7
KIR iP 21 45 37.9
Turkey (h = 130 km).

" 11 UPP iP 00 53 17.5
KIR iP 00 52 59.2
UME iP 00 53 08.8

" 11 UPP eP 00 55 24
Ionian Sea (h = 10 km).

" 11 UPP iP 03 58 25.3
iS 04 02 24
micr sec
Mx Z' 3.0 15
KIR eP 03 59 39
UME eP 03 59 05
iS 04 03 38
Ionian Sea (h = 35 km).

" 11 UPP iP 06 45 56.3
i 06 45 57.5
ipP 06 46 16.5
KIR iP 06 45 13.8
i 06 45 14.9
micr sec
i Z' 0.1 1.2
UME iP 06 45 33.0
i 06 45 33.9
ipP 06 45 52.8
Hokkaido, Japan region.
h = 70 km (UPP,UME).
Double P, small and large,
average separation 1.1 s.

1981
July 11 UPP iP 09 09 00.8
KIR iP 09 08 07.7
UME iP 09 08 34.5
Fox Islands, Aleutian Islands
(h = 50 km).

" 11 KIR iP 12 38 59.6
Molucca Passage (h = 60 km).

" 11 UPP iP 17 00 52.7
i 17 00 56.4
Greece (h = 20 km).

" 12 UPP iP2 01 37 09.0
micr sec
Mx Z 1.8 26
KIR iP1 01 36 05.3
iP2 01 36 07.6
micr sec
P2 Z' 0.1 1.1
Mx Z 1.3 19
UME iP1 01 36 37.1
iP2 01 36 39.1
iS 01 43 38.3
Alaska (h = N).
M = 5.0 (UPP,KIR).
Double P, small and large.

" 12 UPP eP 02 41 31
Greece (h = N).

" 12 UPP eP 04 01 38
Greece (h = 50 km).

" 12 UPP iP 06 37 45.6
eS 06 41 53
UME iP 06 38 24.9
Ionian Sea (h = N).

" 12 UPP iP 08 54 04.9
KIR iP 08 54 11.4
UME iP 08 54 02.7
Kashmir-India border region
(h = 50 km).

" 12 UPP iP 12 01 44.8
iS 12 03 28.3
iSg1 12 04 23.3
iSg2 12 04 43.7
micr sec
Sg2 Z' 0.1 1.1
KIR iP 12 03 31.5
iLg1 12 08 40.7
micr sec
Lg1 Z' 0.1 1.9

(cont.)

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
July 12 (cont.)
UME iP 12 02 37.1
iS 12 05 12.7
iLg2 12 06 42.9
Poland (h = 10 km).

" 12 UPP iP 14 43 06.3
KIR iP 14 42 07.0
UME iP 14 42 37.7
Alaska (h = N).

" 12 UPP iP 17 14 20.2
micr sec
P Z' 0.1 1.1
KIR iP 17 13 27.2
ipP 17 13 44.8
iPcP 17 14 14.1
micr sec
P Z' 0.1 1.1
UME iP 17 13 54.2
ipP 17 14 12.1
iPcP 17 14 30.7
Fox Islands, Aleutian Islands.
h = 70 km (KIR,UME).
m = 5.6 (UPP,KIR).

" 12 UPP iP 17 19 32.7
i 17 19 34.7
i 17 19 39.3
iS 17 23 32
micr sec
i Z' 0.1 0.8
Mx Z 5.7 11
KIR iP 17 20 47.7
micr sec
Mx Z 2.4 13
UME iP 17 20 13.8
i 17 20 15.3
i 17 20 25.8
iS 17 24 40
Ionian Sea (h = 30 km).
M = 5.2 (UPP,KIR).

" 12 UPP iP 20 20 44.8
Ionian Sea (h = N).

" 12 UME iP 22 34 08.0
Yugoslavia (h = 10 km).

" 13 KIR iP 06 06 14.3
micr sec
P Z' 0.1 1.0
UME iP 06 06 46.0
Alaska (h = 10 km).

1981
July 13 UPP iS 08 16 53.7
Germany (h = 10 km).

" 13 UPP iP 10 36 18.2
KIR iP 10 36 00.2
West Irian region (h = N).

" 13 UPP iPKP2 13 52 33.6
UME iPKP1 13 52 17.4
South of Kermadec Islands
(h = N).

" 13 UPP iP 19 39 32.1
KIR iP 19 38 48.3
UME iP 19 39 07.9
Hokkaido, Japan region
(h = 55 km).

" 13 UPP iP 22 21 15.2 D
ipP 22 21 18.3
iP'P' 22 49 10.2
micr sec
P Z' 0.3 1.0
KIR iP 22 20 22.7 D
ipP 22 20 25.5
micr sec
P Z' 0.2 0.9
UME iP 22 20 48.7 D
ipP 22 20 51.6
iP'P' 22 49 22.2
Andreanof Islands, Aleutian Is.
h = 10 km (UPP,KIR,UME).
m = 6.5 (UPP,KIR).

" 14 UPP iP 00 48 50.1
KIR iP 00 48 49.2
UME iP 00 48 47.3
Southern Sumatera (h = N).

" 14 KIR iP 01 37 40.6
Fox Islands, Aleutian Islands
(h = 30 km).

" 14 UPP iP 02 50 06.6
KIR eP 02 49 13
Near east coast of Kamchatka
(h = N).

" 14 UPP iPKP2 13 59 48.5
UME iPKP2 13 59 37.1
South of Kermadec Islands
(h = 35 km).

" 14 UPP iPKP1 14 00 32.2
iPKP2 14 00 37.8
(cont.)

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981 July 14 (cont.)

UPP		micr	sec
	PKP2 Z'	0.2	1.3
KIR	iPKP1	14 00 09.5	
UME	iPKP1	14 00 19.5	
	iPKP2	14 00 21.9	

South of Kermadec Islands (h = 160 km).

" 14

UPP	Mx	18 26	
		micr	sec
	Mx Z	2.3	19
KIR	Mx	18 28	
		micr	sec
	Mx Z	1.1	18

Mid-Indian Rise (h = 10 km). M = 5.7 (UPP,KIR).

" 14

UPP	iP	20 29 44.9

Greece (h = 35 km).

" 14

UPP	iP	23 15 33.8

Ionian Sea (h = N).

" 15

KIR	iP	06 42 04.9

" 15

UPP	iP	08 02 53.9
KIR	iP	08 02 00.7
	iPcP	08 02 45.7
UME	iP	08 02 27.6
	iPcP	08 03 01.9

Andreanof Islands, Aleutian Is. (h = 40 km).

" 15

KIR	iSn	08 13 39.4
SKA	ePn	08 11 36
	eSn	08 12 35
UME	iSn	08 13 49.2

Norwegian Sea, approximate location 66°N, 1°E. Origin time = 08 10 14.

" 15

UPP	iPdiff	08 15 29	
	iPKP	08 18 32.1	
	i	08 18 47.6	
	iPP	08 20 54	
	iPKS	08 21 51.3	
		micr	sec
	Mx Z	50	21
KIR	iPKP	08 18 15.7	
	i	08 18 26.5	
		micr	sec
	Mx Z	18	20
UME	i(PKP)	08 18 16.5	
	iPKP	08 18 23.1	
	i	08 18 37.9	
	ePKS	08 21 41	

(cont.)

1981 July 15 (cont.)

Vanuatu Islands (h = 30 km). M = 7.0 (UPP,KIR). P- and PKP-phases are some 10-15 s delayed when related to the NEIS solution.

" 15

KIR	iP	08 27 44.8
UME	iP	08 27 50.8

" 15

UPP	iPKP	08 35 08.4
KIR	iPKP	08 34 47.5
UME	ePKP	08 34 54

" 15

UPP	iP	08 36 36.6
KIR	iP	08 35 43.7

Andreanof Islands, Aleutian Is. (h = 40 km).

" 15

KIR	iP	08 47 13.0
UME	iP	08 47 19.8

" 15

UPP	ipP	08 58 16.4
KIR	ipP	08 57 23.2
UME	ipP	08 57 47.4

Aleutian Islands region (h = N).

" 15

KIR	iP	08 58 32.1
UME	iP	08 58 36.3

" 15

UPP	iPKP	09 19 55.1
KIR	iPKP	09 19 41.0
UME	iPKP	09 19 47.6

Vanuatu Islands (h = 35 km).

" 15

UPP	iP	09 22 28.6
KIR	iP	09 21 35.7

" 15

KIR	iPKP	09 51 28.4
UME	iPKP	09 51 34.5

Vanuatu Islands (h = N).

" 15

KIR	iPKP	09 58 00.0
UME	iPKP	09 58 04.5

Vanuatu Islands (h = N).

" 15

UPP	i	10 20 38.6
KIR	iPKP	10 20 19.2
UME	iPKP	10 20 22.9
	i	10 20 31.9

Vanuatu Islands (h = N).

" 15

KIR	iPKP	11 03 56.7
UME	iPKP	11 04 03.6

Vanuatu Islands (h = N).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
July 15 KIR ePKP 11 24 30
UME ePKP 11 24 39

" 15 KIR iPKP 11 43 39.8
UME iPKP 11 43 46.8

" 15 KIR iPKP 11 56 05.5
UME iPKP 11 56 11.1
Vanuatu Islands (h = 35 km).

" 15 UME ePKP 12 37 21
Vanuatu Islands (h = N).

" 15 UPP iP 13 16 40.1 D
KIR iP 13 15 46.9 D
UME iP 13 16 13.3 D
Andreanof Islands, Aleutian Is. (h = 35 km).

" 15 KIR iPKP 15 13 50.5
Vanuatu Islands (h = N).

" 15 UPP iPKP 15 41 06.7
KIR iPKP 15 40 51.6
i 15 41 02.2
UME iPKP 15 40 58.1
i 15 41 09.4

" 15 KIR iPKP 15 50 20.1
UME iPKP 15 50 26.1
Vanuatu Islands (h = N).

" 15 KIR iPKP 16 13 25.3
UME iPKP 16 13 32.2

" 15 KIR iPKP 16 52 02.3
i 16 52 12.2
UME iPKP 16 52 09.2
i 16 52 20.0
Vanuatu Islands (h = N).

" 15 KIR iPKP 17 10 31.8
micr sec
PKP Z' 0.1 1.2
UME iPKP 17 10 38.1
Vanuatu Islands (h = 40 km).

" 15 KIR ePKP 17 43 32
UME iPKP 17 43 39.8
Vanuatu Islands (h = N).

" 15 KIR iPKP 22 16 25.0
UME iPKP 22 16 28.7
Vanuatu Islands (h = N).

1981
July 15 UPP iPKP 22 30 05.9
KIR iPKP 22 29 51.1
micr sec
PKP Z' 0.1 1.0
UME iPKP 22 29 58.1
Vanuatu Islands (h = 30 km).

" 15 KIR iPKP 23 39 40.5
UME iPKP 23 39 46.7
Vanuatu Islands (h = 30 km).

" 16 KIR iPKP 00 11 20.0
UME iPKP 00 11 26.9
Vanuatu Islands (h = N).

" 16 KIR iP 04 30 13.9
Alaska (h = N).

" 16 UME iPKP 06 27 58.2
Vanuatu Islands (h = 30 km).

" 16 KIR ePKP 09 22 12
UME iPKP 09 22 17.8
Vanuatu Islands (h = N).

" 16 KIR iP 09 23 38.2
UME iP 09 23 20.0
Carlsberg Ridge (h = 10 km).

" 16 KIR ePKP 11 51 50
UME ePKP 11 51 57
Vanuatu Islands (h = N).

" 16 KIR ePKPl 12 24 59
West of Macquarie Island (h = 10 km).

" 16 KIR iP 15 41 50.4
Taiwan region (h = 10 km).

" 16 UPP iP 15 57 58.5
KIR iP 15 57 24.3
UME iP 15 57 38.5
ipP 15 57 53.5
Shikoku, Japan (h = 60 km).

" 16 UPP iPKPl 19 02 57.3
KIR iPKP 19 02 48.9
UME i(PKP) 19 02 45.8
iPKP 19 02 54.7
South of Fiji Islands (h = 220 km).

" 17 KIR iPKP 01 16 30.5
UME iPKP 01 16 41.8
Vanuatu Islands (h = 35 km).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981 July 17
UPP iP 02 44 11.1 C
KIR iP 02 43 55.2 C
micr sec
P Z' 0.1 0.5
UME iP 02 43 56.2
Eastern Kazakh SSR.
Underground explosion.

" 17
UPP iP 06 36 21.5
iS 06 40 44.6
micr sec
P Z' 0.4 1.5
Mx Z 1.5 8
KIR iP 06 37 29.7
micr sec
P Z' 0.1 0.7
Mx Z 0.7 9
UME iP 06 36 54.5
iS 06 41 42.8
Mediterranean Sea (h = 10 km).
m = 5.9 (UPP,KIR).

" 17
KIR ePKP 07 50 59
Vanuatu Islands (h = N).

" 17
KIR iP 13 56 33.4
UME iP 13 56 39.5
Luzon, Philippine Islands
(h = 35 km).

" 17
UPP iP 16 49 15.3
KIR iP 16 48 36.8
UME iP 16 48 58.4
Near coast of northern Calif.
(h = 20 km).

" 18
UPP iP 00 06 23.5
i 00 06 37.9
iS 00 09 01
micr sec
P Z' 0.2 0.9
KIR iP 00 07 46.4
i 00 07 54.1
ipP 00 08 13.0
iS 00 12 00.2
micr sec
P Z' 0.2 1.3
UME iP 00 07 04.5
i 00 07 05.5
i 00 07 23.5
iS 00 10 16
Romania (h = 150 km).

" 18
KIR iPKP 00 45 07.0
UME iPKP 00 45 13.9
Vanuatu Islands (h = N).

1981 July 18
UME iP 01 44 13.8

" 18
KIR iPKP 09 07 05.3
i 09 07 09.1
Vanuatu Islands (h = N).

" 18
UPP iP 09 10 54.2
KIR iP 09 10 47.1
UME iP 09 10 46.2
Burma-India border region
(h = 70 km).

" 18
KIR iPKP 16 18 32.6
UME iPKP 16 18 38.1
Vanuatu Islands (h = N).

" 19
UPP iP 00 22 24.5
UME iP 00 23 04.7
Romania (h = 170 km).

" 19
UPP iP 00 30 21.4
KIR iP 00 29 56.4
Southwestern Ryukyu Islands
(h = N).

" 19
UPP iP 01 09 07.0
micr sec
Mx Z 3.4 18
KIR eP 01 08 20
micr sec
Mx Z 1.5 18
UME iP 01 08 42.7
Kuril Islands (h = N).
M = 5.4 (UPP,KIR).

" 19
UPP eP 04 32 26
UME iP 04 32 03.1
Off east coast of Honshu,
Japan (h = N).

" 19
UPP ePKP 05 02 11
iSKP1 05 05 37.9
micr sec
Mx Z 1.4 21
KIR iPKP 05 01 55.3
micr sec
PKP Z' 0.1 1.2
UME iPKP 05 02 01.2
Vanuatu Islands (h = 45 km).

" 19
UPP iPKP1 05 32 19.2
i 05 32 21.8
KIR ePKP 05 32 02
UME iPKP1 05 32 06.8
Kermadec Islands region
(h = 540 km).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981					
July	19	KIR	iPKP	15 49 44.8	
		UME	iPKP	15 49 51.9	
		Vanuatu Islands (h = 25 km).			
"	19	UPP	iP	17 04 56.5	
			iS	17 14 57	
				micr sec	
			P Z'	0.1 0.9	
		KIR	iP	17 04 21.8	
			i	17 04 31.0	
		UME	iP	17 04 37.0	
			i	17 04 48.9	
		South of Honshu, Japan (h = 30 km).			
"	19	UME	iP	21 27 49.5	
"	19	UPP	iP	22 18 34.5	
		UME	iP	22 19 10.1	
		Greece (h = 20 km).			
"	20	UME	iP	06 25 23.9	
"	20	KIR	iPKP	10 33 54.8	
		UME	iPKP	10 34 01.7	
		Vanuatu Islands (h = 30 km).			
"	20	UPP	iP	14 24 14.4	
		KIR	iP	14 24 26.5	
		UME	iP	14 24 14.8	
		Pakistan (h = 60 km).			
"	20	KIR	iP	15 02 22.9	
		UME	iP	15 02 52.6	
		Southern Yukon Territory, Canada (h = 15 km).			
"	20	UME	eP	20 44 51	
		Mindanao, Philippine Islands (h = 100 km).			
"	20	KIR	iPKP	22 50 41.6	
		UME	ePKP	22 50 48	
		Vanuatu Islands (h = 20 km).			
"	20	UPP	iP	23 29 42.8	
		KIR	iP	23 28 57.7	
		UME	iP	23 29 18.0	
		Off coast of Hokkaido, Japan (h = N).			
"	21	KIR	iP	03 26 30.0	
		UME	iP	03 26 59.0	
		Southern Alaska (h = 80 km).			
1981					
July	21	UPP	iP	04 51 09.8	C
			ipP	04 51 20.9	
			iPn	04 51 46.4	
				micr sec	
			pP Z'	0.1 1.0	
		KIR	iP	04 51 40.1	C
			ipP	04 51 51.3	
			iPP	04 52 45.1	
			iSn	04 58 26.8	
				micr sec	
			P Z'	0.1 0.7	
			pP Z'	0.1 1.0	
		UME	iP	04 51 18.3	C
			ipP	04 51 29.6	
			iPP	04 52 16.7	
			iS	04 56 21	
		Turkmen SSR.			
		h = 40 km (UPP,KIR,UME).			
		m = 5.7 (UPP,KIR).			
"	21	KIR	il	09 26 59.6	
		UME	iP	09 27 04.3	
			il	09 27 09.5	
		Near coast of Guerrero, Mexico (h = 25 km).			
"	21	UPP	eP	10 35 39	
		KIR	il	10 35 31.1	
		UME	il	10 35 40.5	
		Near coast of Guerrero, Mexico (h = 55 km).			
		il-denoted phases are about 6 s late when related to the NEIS solution.			
"	21	UPP	iP	11 20 18.0	
		UME	iP	11 20 57.7	
		Ionian Sea (h = 30 km).			
"	21	UPP	i(PKP)	12 05 54.6	
			iPKP	12 05 55.6	
			i	12 09 08.0	
			iSKP1	12 09 09.3	
			iPKS	12 09 18.6	
				micr sec	
			PKP Z'	0.1 1.0	
		KIR	e(PKP)	12 05 36	
			iPKP	12 05 41.1	
				micr sec	
			PKP Z'	0.2 0.8	
		UME	i(PKP)	12 05 39.0	
			iPKP	12 05 47.4	
			i	12 06 19.3	
			iSKP	12 08 57.5	
		Vanuatu Islands (h = 140 km).			

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981 July 21 UPP iP 12 18 15.8

" 21 KIR iP 17 30 14.4
UME i 17 30 39.1
Hokkaido, Japan region
(h = N).

" 21 KIR iP 17 53 50.8
UME iP 17 54 04.8

" 21 UPP iP 19 56 30.2
UME iP 19 56 13.3

" 22 UPP iP 00 03 48.3
KIR iP 00 03 56.4
UME iP 00 03 46.3
Afghanistan-USSR border
region (h = 130 km).

" 22 KIR ePKP 13 21 52
Vanuatu Islands (h = 20 km).

" 22 KIR iPKP 16 29 29.6
UME iPKP 16 29 33.3
Loyalty Islands region
(h = 35 km).

" 22 UPP iP 18 43 59.6 D
micr sec
P Z' 0.2 0.9
KIR iP 18 43 41.7 D
micr sec
P Z' 0.2 1.0
UME iP 18 43 47.5 D
Luzon, Philippine Islands
(h = 70 km).
m = 6.0 (UPP,KIR).

" 22 KIR iP 19 50 36.2
Near coast of Oaxaca, Mexico
(h = 40 km).

" 22 KIR iP 20 51 07.8
Southern Sinkiang Prov., China
(h = 60 km).

" 22 UPP iPKPl 23 33 23.3
i 23 33 28.8
micr sec
i Z' 0.1 0.7
KIR iPKPl 23 33 01.4
UME iPKPl 23 33 12.2
Kermadec Islands region
(h = N).

1981 July 23 KIR iP 00 06 51.9
North of Halmahera (h = N).

" 23 UPP iP 00 11 26.0
i 00 11 27.5
iS 00 16 14
micr sec
i Z' 0.1 0.9
Mx Z 17 17
KIR iP 00 12 09.8 D
i 00 12 11.6
iS 00 17 36.3
micr sec
i Z' 0.6 1.3
Mx Z 7.6 14
UME iP 00 11 42.7
i 00 11 44.2
iS 00 16 44
Northwestern Iran (h = N).
m = 6.0, M = 5.7 (UPP,KIR).
Double P, small and large.

" 23 UPP iPKP 01 09 37.0
i 01 09 43.2
micr sec
Mx Z 2.6 21
KIR iPKP 01 09 24.4
i 01 09 27.6
micr sec
Mx Z 1.4 17
UME iPKP 01 09 30.4
Loyalty Islands region
(h = N).
M = 5.9 (UPP,KIR).

" 23 UPP iP 06 19 56.8
KIR iP 06 21 15.9
UME iP 06 20 35.7
Bulgaria (h = 30 km).

" 23 UPP iP 06 31 42.4
UME iP 06 32 09.9
Zaire Republic (h = 15 km).

" 23 UME iPKP 06 40 04.6
Loyalty Islands region
(h = N).

" 23 UPP iPKPl 10 33 11.9
UME iPKPl 10 32 59.7

" 23 KIR eP 14 13 52
Northwestern Iran (h = N).

" 23 UME iP 16 40 44.4
Turkey (h = 15 km).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
July 23 UPP iPKP1 17 41 59.6
UME iPKP1 17 41 46.6
i 17 41 48.3
Kermadec Islands region (h = 40 km).

" 24 UPP eP 01 09 40
Ionian Sea (h = N).

" 24 UPP iP 02 36 47.2
Greece-Albania border region (h = N).

" 24 UPP iP 03 51 35.7
KIR eP 03 51 34
Kashmir-Sinkiang border region (h = N).

" 24 UME iPKP 10 18 31.2
Vanuatu Islands (h = 60 km).

" 24 UPP iP 12 10 29.4
i 12 10 42.9
UME iP 12 10 07.7
Off east coast of Honshu, Japan (h = 25 km).

" 24 UPP eP 12 33 49
Central Mid-Atlantic Ridge (h = 10 km).

" 25 UPP iP 01 59 54.2

" 25 UPP iP 03 26 16.2
Greece-Albania border region (h = 60 km).

" 25 UME iP 04 56 23.5

" 25 UPP iP 09 22 13.9
Greece-Albania border region (h = N).

" 25 UME iPKP 09 46 57.6
Vanuatu Islands (h = N).

" 25 UPP iP 15 29 40.9

" 25 UME iP 16 43 49.2
Near east coast of Honshu, Japan (h = 55 km).

" 25 UPP iSKP1 18 22 15.9
UME eSKP 18 22 15
Vanuatu Islands (h = 190 km).

1981
July 25 KIR ipP 23 58 31.2
Kodiak Island region (h = N).

" 26 UME iP 00 39 04.2
Honshu, Japan (h = 170 km).

" 26 UPP eP 04 21 21
i 04 21 30.1
Greece (h = 15 km).

" 26 KIR iP 04 42 28.9

" 26 KIR iSKP1 05 12 36.7
micr sec
SKP1 Z' 0.1 1.9
UME iSKP1 05 12 50.2
Fiji Islands region (h = 550 km).

" 26 UPP iS 05 37 55
micr sec
Mx Z 1.5 16
KIR iP 05 26 56.0
ipP 05 27 03.6
micr sec
P Z' 0.1 1.5
Mx Z 1.4 15
UME iP 05 27 05.0
ipP 05 27 12.5
iS 05 37 42
Guerrero, Mexico.
h = 25 km (KIR,UME).
M = 5.5 (UPP,KIR).

" 26 UPP iPKP1 07 48 24.4
KIR iPKP 07 48 14.4
iSKP1 07 50 56.1
UME iPKP 07 48 21.4
iSKP1 07 51 07.0
South of Fiji Islands (h = 530 km).

" 26 KIR iP 10 40 29.1
UME iP 10 40 41.3
East China Sea (h = 280 km).

" 26 UPP ipP 17 57 41.4
KIR eP 17 56 37
ipP 17 56 46.4
Komandorsky Islands region (h = 40 km).

" 26 UPP iP 21 04 06.4
micr sec
Mx Z 0.9 17
KIR iP 21 03 39.7 C
(cont.)

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981						
July	26	(cont.)				
		KIR			micr	sec
			Mx	Z	1.4	20
		UME	iP		21 03 49.7	C
		West Caroline Islands				
		(h = 55 km).				
		M = 5.4 (UPP,KIR).				
"	26	UPP	Mx		21 20	
					micr	sec
			Mx	Z	1.8	26
		KIR	Mx		21 26	
					micr	sec
			Mx	Z	1.1	18
		Tristan da Cunha region				
		(h = 10 km).				
		M = 5.1 (UPP,KIR).				
"	26	UPP	ipP		22 44 09.8	
		KIR	ipP		22 43 13.8	
		Kenai Peninsula, Alaska				
		(h = 70 km).				
"	26	UPP	iPKPl		23 50 52.9	
		UME	iPKPl		23 50 42.7	C
"	27	UPP	iP		01 47 00.5	
		KIR	iP		01 46 17.5	
		UME	iP		01 46 36.6	
			i		01 46 40.2	
		Hokkaido, Japan region (h = N).				
"	27	UPP	iP		10 18 10.3	
		Greece-Albania border region				
		(h = N).				
"	27	UPP	i		13 43 00.6	
			iRg		13 43 05.3	
		UDD	i(Sgl)		13 43 43.4	
		Origin time = 13 42 48.				
		Dannemora rockburst.				
"	27	UME	iP		17 39 10.6	
		Hokkaido, Japan region				
		(h = 170 km).				
"	27	KIR	iP		23 01 07.3	
		UME	iP		23 01 16.5	
"	27	UPP	iP		23 14 50.8	
		KIR	iP		23 13 53.3	
		UME	iP		23 14 23.0	
		Central Alaska (h = 120 km).				

1981						
July	28	KIR	iPKP		03 22 24.7	
			i		03 22 42.1	
		UME	iPKP		03 22 22.5	
			i		03 22 36.9	
		Near coast of southern Chile				
		(h = 45 km).				
"	28	KIR	iP		04 46 40.3	
		UME	iP		05 01 59.1	
"	28	KIR	iP		05 01 22.8	
		UME	iP		05 01 41.2	
"	28	UPP	iPKPl		11 38 41.4	
			i		11 38 45.6	
					micr	sec
			PKPl	Z'	0.1	1.0
		KIR	ePKPl		11 38 19	
		UME	iPKPl		11 38 30.0	C
		Kermadec Islands (h = 60 km).				
"	28	UPP	iP		17 11 39.8	D
			i		17 11 51.2	
			ipP		17 12 21.6	
			iPP		17 14 12.0	
					micr	sec
			i	Z'	0.2	1.0
		KIR	iP		17 10 58.1	
			i		17 11 04.0	
			i		17 11 07.5	
					micr	sec
			i	Z'	0.3	0.7
		UME	iP		17 11 16.5	D
			i		17 11 25.6	
			ipP		17 11 59.1	
		Hokkaido, Japan region.				
		h = 180 km (UPP,UME).				
		m = 6.0 (UPP,KIR).				
		Multiple P-phases.				
"	28	UPP	iP		17 29 57.2	
			i		17 30 04.2	
			i		17 30 14.3	
			iPP		17 31 47.7	
			iS		17 36 12	
					micr	sec
			i	Z'	0.2	1.0
			i	Z'	0.6	1.0
			Mx	Z	229	21
		KIR	iP		17 30 28.6	
			i		17 30 33.8	
			iPP		17 32 26.9	
		(cont.)				

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
July 28 (cont.)

KIR			micr	sec
	P	Z'	0.1	0.7
	i	Z'	0.3	1.0
	Mx	Z	197	13
UME	iP		17 30 09.1	
	i		17 30 14.0	

Iran (h = N).
m = 6.2, M = 7.2 (UPP,KIR).

" 28 KIR iP 18 12 31.9

" 28
KIR	iP	18 38 28.8
UME	iP	18 38 09.1

Iran (h = N).

" 28
KIR	iP	18 56 36.7
UME	iP	18 56 16.4

Iran (h = N).

" 28
UPP	iP	19 13 27.0
	ipP	19 13 36.2
KIR	eP	19 13 58
	ipP	19 14 00.6
UME	iP	19 13 36.5
	ipP	19 13 39.4

Iran.
h = 10 km (UPP,KIR,UME).

" 28
UPP	iP	19 14 59.7
KIR	iP	19 15 39.3

" 28
UPP	iP	20 40 36.5
KIR	eP	20 41 05
UME	iP	20 40 43.5

Iran (h = N).

" 28 KIR eP 20 46 24

" 28
UPP	iP		22 01 59.2	
KIR	eP		22 02 27	
	i		22 02 30.7	
			micr	sec
	i	Z'	0.1	1.0
UME	iP		22 02 03.8	
	i		22 02 10.5	

Iran (h = N).

" 28
KIR	iP	22 43 18.9
UME	iP	22 42 58.9

Southern Iran (h = N).

" 28
UPP	iP	23 04 19.8
KIR	iP	23 04 50.3
UME	iP	23 04 29.2

Iran (h = N).

1981
July 29
UPP	e(PKP)		01 30 20	
	iPKP		01 30 33.1	
			micr	sec
	Mx	Z	5.1	23
KIR	iPKP		01 30 18.0	
	iSKP1		01 33 39.1	
			micr	sec
	Mx	Z	5.8	23
UME	iPKP		01 30 24.9	
	iSKP1		01 33 50.2	

Loyalty Islands region
(h = 40 km).
M = 6.2 (UPP,KIR).

" 29
UPP	iP	02 36 39.2
KIR	iP	02 36 21.5
UME	iP	02 36 27.0

Mindoro, Philippine Islands
(h = 290 km).

" 29
UPP	iP	05 12 15.7
	iPP	05 13 53.4
KIR	i	05 12 50.7
UME	i	05 12 32.2
	iPP	05 14 08.5

Iran (h = N).

" 29
UPP	iP	05 19 12.5
KIR	eP	05 19 42
UME	iP	05 19 25.3

Iran (h = N).

" 29
KIR	iPKP	05 28 09.9
UME	iPKP	05 28 16.4

Vanuatu Islands (h = N).

" 29 UDD iSgl 06 28 43.3
Värmland, Sweden,
59.0°N, 13.3°E.
Origin time = 06 28 09.
Solution from SKI network
readings.

" 29
KIR	iP	07 07 21.1
UME	iP	07 07 00.9
	ipP	07 07 09.9

Iran (h = N).

" 29 KIR iPKP 22 24 15.8
Tonga Islands (h = 40 km).

" 30
UPP	iRg	14 58 43.7
UDD	iSgl	14 59 22.8

Origin time = 14 58 26.
Dannemora rockburst.

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981

July	30	UPP	iP		16 56 42.8
			i		16 56 46.4
		KIR	iP		16 57 32.2
			i		16 57 35.8
		UME	iP		16 57 06.5
		Lake Tanganyika region (h = N).			
"	30	UPP	iP		23 10 41.5
		KIR	iP		23 10 16.0
		UME	iP		23 10 25.6
		Northeast of Taiwan			
		(h = 200 km).			
"	31	UPP	iPKPl		07 18 24.4
		South of Fiji Islands			
		(h = 460 km).			
"	31	UME	iP		16 49 22.7
"	31	UPP	iP		21 17 25.4
				micr	sec
			Mx	Z 2.7	24
		KIR	iP		21 16 33.3
				micr	sec
			Mx	Z 1.0	14
		UME	iP		21 16 59.5
		Near east coast of Kamchatka			
		(h = 50 km).			
		M = 5.3 (UPP,KIR).			

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April 16, 1983

SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

SEISMOLOGICAL DEPARTMENT
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S-750 12 UPPSALA
SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

Uppsala	(UPP):	59°51.5'N, 17°37.6'E;	h = 14 m
Kiruna	(KIR):	67°50.4'N, 20°25.0'E;	h = 390 m
Skalstugan	(SKA):	63°34.8'N, 12°16.8'E;	h = 580 m
Umeå	(UME):	63°48.9'N, 20°14.2'E;	h = 16 m
Uddeholm	(UDD):	60°05.4'N, 13°36.4'E;	h = 240 m
Delary	(DEL):	56°28.2'N, 12°52.2'E;	h = 150 m

A U G U S T 1 - 31, 1981

1981 Aug.	1	UPP	iP	01 52 12.4	
			ipP	01 52 39.4	
		KIR	iP	01 51 17.0	D
			ipP	01 51 43.0	
				micr sec	
			P Z'	0.1 0.9	
		UME	iP	01 51 46.0	
			ipP	01 52 13.0	
		Southern Alaska.			
		h = 110 km (UPP,KIR,UME).			
"	1	UPP	iP	02 09 44.0	
"	1	UPP	iP	04 16 54.2	
		KIR	iP	04 16 53.4	
		UME	iP	04 16 50.2	
		Andaman Islands region (h = N).			
"	1	UPP	eP	06 11 40	
		KIR	iP	06 11 18.0	
		UME	iP	06 11 25.9	
		Southwestern Ryukyu Islands			
		(h = 80 km).			
"	1	UPP	i(PKP)	06 29 20.0	
		KIR	iPKP	06 29 16.7	
		UME	iPKP	06 29 25.7	
		Tonga Islands (h = N).			
"	1	UPP	iP	07 21 31.8	
		KIR	iP	07 21 14.5	
		UME	iP	07 21 19.9	
		Luzon, Philippine Islands			
		(h = 35 km).			
"	1	KIR	eP	11 32 38	
		Guerrero, Mexico (h = 60 km).			
"	1	UPP	iP	16 40 45.0	
		KIR	iP	16 40 01.9	
		(cont.)			
1981 Aug.	1	(cont.)			
		UME	iP	16 40 21.2	
		Hokkaido, Japan region			
		(h = 120 km).			
"	1	UPP	iP	19 30 40.4	
"	1	UPP	iP	22 47 51.1	
		KIR	iP	22 47 32.0	
		Luzon, Philippine Islands			
		(h = 50 km).			
"	2	UME	eP	03 28 27	
"	2	UPP	iP	06 51 21.0	
		KIR	iP	06 50 27.3	
			i	06 50 38.5	
		UME	iP	06 50 54.6	
		Fox Islands, Aleutian Islands			
		(h = N).			
"	2	KIR	iP	13 45 29.1	
		UME	iP	13 45 11.1	
		Iran (h = N).			
"	2	UME	iP	17 47 00.9	
"	2	UPP	iP	18 19 46.9	
		KIR	iP	18 20 31.5	
		UME	iP	18 20 11.7	C
		Ascension Island region			
		(h = 10 km).			
"	3	KIR	iP	03 03 49.5	
		UME	iP	03 03 30.1	
		Iran (h = N).			
"	3	KIR	ipP	07 57 32.7	
		Northwest of Taiwan			
		(h = 160 km).			

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981
Aug. 3 KIR eP 14 19 39
Molucca Passage (h = 90 km).

" 3 UPP iP 17 34 36.1
KIR iP 17 34 34.9 C
Southern Sumatera (h = 50 km).

" 4 UPP eP 07 42 36

" 4 UPP iP 18 41 45.3 C
iS 18 46 40
micr sec
P Z' 0.1 0.9
Mx Z 6.8 16
KIR iP 18 42 22.4 C
micr sec
P Z' 0.4 0.8
Mx Z 3.4 18
UME iP 18 41 57.6 C
iS 18 47 01
Caspian Sea (h = 25 km).
m = 6.0, M = 5.3 (UPP,KIR).

" 4 UPP iP 18 59 52.2
KIR iP 19 01 04.7
UME iP 19 00 39.8

" 4 UPP iP 22 11 23.6
i 22 11 31.6
KIR iP 22 11 32.4 C
i 22 11 39.6
micr sec
P Z' 0.1 0.8
i Z' 0.1 0.9
UME iP 22 11 31.8
i 22 11 40.7
Leeward Islands (h = 50 km).

" 5 KIR iP 00 20 27.8
Caspian Sea (h = N).

" 5 UPP iPKP 15 55 03.0
South of Fiji Islands
(h = 630 km).

" 6 UPP iP 01 48 10.7
KIR iP 01 47 38.3
UME eP 01 47 52

" 6 UPP iP 04 27 48.6
KIR iP 04 27 11.2
UME iP 04 27 31.2
South of Honshu, Japan
(h = 50 km).

" 6 UPP iPKP 08 38 31.9
New Britain region
(h = 45 km).

1981
Aug. 6 UPP iP 12 22 08.5
Afghanistan-USSR border
region (h = 120 km).

" 6 UPP iP 16 52 28.6

" 6 UPP eP 17 41 34
KIR eP 17 41 04
UME iP 17 41 21.0 C
Mariana Islands (h = N).

" 6 UPP eP 18 14 42
KIR iP 18 15 04.7
micr sec
P Z' 0.1 1.6
North Atlantic Ridge.
(h = 10 km).

" 6 KIR eP 18 38 28
Kirgiz-Sinkiang border
region (h = N).

" 6 UPP iP 21 38 06.9
KIR iP 21 38 07.8
South of Panama (h = N).

" 7 UPP iP 00 29 25.4

" 7 UPP iP 00 47 24.7

" 7 KIR iP 07 11 48.9 C
South of Mariana Islands
(h = 20 km).

" 7 UPP iP 07 47 57.6
KIR iP 07 47 43.8
Mexico-Guatemala border
region (h = N).
Late arrivals when compared
with NEIS solutions.

" 7 KIR eP 08 07 04
UME iP 08 07 20.4 C
Near east coast of Honshu,
Japan (h = 60 km).

" 7 UPP iPKP 11 53 57.0
micr sec
Mx Z 4.0 21
KIR ePKP 11 53 44
micr sec
Mx Z 2.4 20
UME ePKP 11 53 49
New Britain region (h = 70 km).
M = 5.9 (UPP,KIR).
M not corrected for focal depth.

" 8 UPP iP 03 29 16.6 C
micr sec
P Z' 0.1 0.9
(cont.)

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981
Aug. 8 (cont.)
KIR iP 03 28 32.8 C
micr sec
P Z' 0.1 1.4
UME iP 03 28 52.1 C
i 03 29 15.6
Hokkaido, Japan region
(h = 90 km).
m = 5.7 (UPP,KIR).

" 8 UPP iRg 03 48 42.5
UDD iSgl 03 49 35.8
Dannemora, Uppland,
60.1°N, 17.5°E.
Origin time = 03 48 25.
Probably rockburst.

" 8 KIR iP 04 25 49.1 C
UME iP 04 25 28.9
Southern Iran (h = N).

" 8 UME iP 17 29 09.9 C

" 8 UPP iP 21 42 52.9
i 21 43 17.5
KIR iP 21 41 59.7
UME iP 21 42 23.4
Rat Islands, Aleutian Islands
(h = 110 km).

" 8 KIR iP 21 50 03.6
Southern Sumatera (h = 100 km).

" 9 UPP iP 08 01 23.8
micr sec
P Z' 0.1 1.0
KIR iP 08 00 34.1
UME iP 08 00 57.2
Kuril Islands region (h = N).

" 9 UPP iPKP 08 43 56.2
UME iPKP 08 44 03.6
South Sandwich Islands region
(h = N).

" 9 UPP iP 10 01 51.7
KIR eP 10 01 55
UME iP 10 01 47.1 D
Tajik-Sinkiang border region
(h = 150 km).

" 9 KIR iSgl 10 29 57.0
Northern Finland,
68.4°N, 24.0°E.
Origin time = 10 29 18.
M_L(UPP) = 2.3 (0.38) 3.
By combination with Finnish
station readings.

1981
Aug. 9 UPP iP 10 36 30.3

" 9 UPP iP 13 14 51.9
micr sec
Mx Z 0.8 12
KIR iP 13 15 23.0
iPP 13 16 38.6
micr sec
Mx Z 1.6 11
UME iP 13 15 01.4
iPP 13 16 11.8
Iran (h = 30 km).
M = 4.9 (UPP,KIR).

" 9 KIR iP 13 36 05.0

" 9 UPP iP 15 00 18.1
KIR eP 14 59 29
UME iP 14 59 52.4 C
Kuril Islands (h = N).

" 9 KIR iP 18 51 20.7 C
UME iP 18 51 40.4
Hokkaido, Japan region
(h = 70 km).

" 9 KIR iPKP 20 43 39.3
Vanuatu Islands (h = N).

" 9 KIR iP 21 21 52.4
UME iP 21 22 10.1

" 10 UPP iP 01 31 56.8

" 10 UPP iP 05 26 47.0
KIR iP 05 27 49.8
i 05 28 05.0
UME i 05 27 24.8
Eastern Mediterranean Sea
(h = 50 km).

" 10 UPP iP 08 35 38.0
KIR i 08 35 50.1
UME iP 08 36 34.6
Near coast of Guatemala
(h = 90 km).

" 10 UPP iP 11 07 07.5
KIR iP 11 07 12.1
Northern India (h = N).

" 10 UPP iP 15 07 53.7

" 10 UPP iPKPl 17 12 44.1
i 17 13 00.6
KIR iPKP 17 12 26.9
(cont.)

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981
Aug. 10 (cont.)
UME iPKPl 17 12 31.8
i 17 12 54.2
Kermadec Islands region
(h = 90 km).

" 10 UPP iP 17 26 45.2
i 17 26 57.1
micr sec
Mx Z 1.5 22
KIR eP 17 27 25
i 17 27 35.7
UME iP 17 27 10.4 C
iS 17 36 46
Ascension Island region
(h = 10 km).

" 10 UME iP 23 34 01.9

" 10 UPP iP 23 48 25.9

" 11 UPP iPKPl 13 42 54.7 C
micr sec
PKP Z' 0.1 1.0
UME iPKPl 13 42 44.5
Norfolk Island region
(h = 10 km).

" 11 UPP iPKP 17 14 29.3
South of Fiji Islands
(h = 210 km).

" 11 KIR i 20 06 27.4
UME iP 20 05 59.9
i 20 06 02.4
Ascension Island region
(h = 10 km).

" 11 KIR iPKPl 22 22 08.2
UME iPKPl 22 22 14.6
Vanuatu Islands (h = 200 km).

" 11 KIR iP 22 43 55.5 C
Mariana Islands (h = 190 km).

" 11 KIR eP 23 52 13
UME iP 23 51 22.6
Czechoslovakia (h = 10 km).

" 12 UPP iP 01 14 28.1
micr sec
Mx Z 1.1 14
KIR iP 01 14 26.2
UME iP 01 14 20.7
Southern Sinkiang Prov.,
China (h = N).

" 12 UME iP 03 53 17.0
Northeastern China (h = N).

1981
Aug. 12 UPP iP 05 22 39.4 C
micr sec
Mx Z 5.1 16
KIR iP 05 22 08.0 C
micr sec
P Z' 0.1 0.9
UME iP 05 22 20.3
Ryukyu Islands (h = 40 km).

" 12 KIR iPn 18 00 23.6 C
micr sec
Pn Z' 0.1 1.0
UME iP 18 01 15.3 C
Greenland Sea (h = 10 km).

" 12 KIR iP 19 22 14.8
UME iP 19 22 12.6

" 13 UPP iP 03 01 44.2
iS 03 04 40
micr sec
Mx Z 35 10
KIR eP 03 03 18
iS 03 07 34
micr sec
P Z' 1.8 1.9
UME iP 03 02 34.6
iS 03 06 14
Yugoslavia (h = 15 km).

" 13 UPP iP 11 17 17.2
KIR iP 11 16 45.8
UME iP 11 16 59.4
Bonin Islands region
(h = 460 km).

" 13 KIR eP 13 11 17
Colombia (h = 60 km).

" 13 UPP iP 20 13 05.8
KIR iP 20 13 15.5
UME iP 20 13 05.1
Afghanistan-USSR border
region (h = 110 km).

" 13 KIR eP 22 45 28
UME iP 22 44 39.3

" 14 UPP iP 02 34 08.1
KIR iP 02 33 52.5 C
UME iP 02 33 53.1
Eastern Kazakh.
Probably underground explosion.

" 14 KIR iP 05 54 31.4
Volcano Islands region
(h = N).

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981
Aug. 14 UPP iP 06 20 03.7
micr sec
P Z' 0.1 0.8
KIR iP 06 19 53.8 D
UME iP 06 19 54.0 D
Burma-China border region
(h = 35 km).

" 14 KIR iP 06 37 56.6
micr sec
P Z' 0.1 1.4
UME iP 06 38 03.1
Molucca Passage (h = 40 km).

" 14 UPP iP 21 49 42.7
Greece (h = N).

" 15 UME iP 03 05 35.0
Near s. coast of Honshu,
Japan (h = 35 km).

" 15 KIR iP 10 40 30.4 C
ipP 10 40 44.4
UME iP 10 40 59.0
ipP 10 41 13.0
Alaska peninsula.
h = 50 km (KIR,UME).

" 15 UME iP 18 34 06.1

" 15 KIR iP 20 05 25.3
UME iP 20 05 32.8
Mindaro, Philippine Islands
(h = 150 km).

" 15 KIR iP 20 59 05.0
Hindu Kush region
(h = 200 km).

" 15 UME iP 22 15 30.0
Tajik-Sinkiang border
region (h = N).

" 16 KIR eP 06 38 15
Burma (h = 40 km).

" 16 UPP
micr sec
Mx Z 1.3 10
KIR iP 18 01 44.5 C
ipP 18 01 48.7
micr sec
P Z' 0.1 0.8
pP Z' 0.1 1.2
Mx Z 0.5 11
UME iP 18 01 53.8
ipP 18 01 58.8
iPP 18 03 30.9
USSR-Mongolia border region.
h = 15 km (KIR,UME).
M = 4.9 (UPP,KIR).

1981
Aug. 16 KIR eP 18 23 55
UME iP 18 23 45.0
Afghanistan-USSR border
region (h = 120 km).

" 16 UPP
micr sec
Mx Z 0.8 12
KIR iP 19 05 56.8
micr sec
P Z' 0.1 1.3
Mx Z 0.5 11
UME iP 19 05 56.4 C
Burma (h = 35 km).
M = 5.1 (UPP,KIR).

" 17 UPP iP 00 04 55.2
micr sec
Mx Z 2.2 23
KIR iP 00 04 07.1
micr sec
P Z' 0.1 0.9
Mx Z 2.6 21
UME iP 00 04 29.5 C
Kuril Islands (h = N).
M = 5.4 (UPP,KIR).

" 17 KIR eP 00 26 46
Central Mid-Atlantic Ridge
(h = 10 km).

" 17 UPP iP 02 31 48 C
iS 02 42 13
i 02 42 33
KIR iP 02 31 35.5
i 02 31 47.5
i 02 42 10
micr sec
P Z' 0.1 1.3
i Z' 0.4 1.9
UME iP 02 31 44.0
i 02 31 50.2
iS 02 42 11
Near coast of Chiapas, Mexico
(h = 35 km).
Arrival times coincide with
those corresponding to the
02 17 41.5 earthquake near n.
coast of West Irian.
Separation difficult.

" 17 KIR iPKP 05 23 54.6
UME iPKP 05 23 47.9
South Sandwich Islands
region (h = N).

" 17 KIR eP 06 13 01
UME iP 06 12 51.8
Azores Islands region
(h = 10 km).

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981						
Aug.	17	UPP	iP		09 19 39.1	
					micr	sec
			P	Z'	0.1	1.0
		KIR	iP		09 19 45.3	
			i		09 19 54.2	
					micr	sec
			P	Z'	0.1	1.0
			Mx	Z	0.7	11
		Eastern Kashmir (h = 60 km).				
		m = 5.7 (UPP,KIR).				
"	17	KIR	iSg1		13 09 41.0	
		UME	iSg1		13 11 16.2	
		Lapland, Sweden, 67.5°N,				
		21.9°E.				
		Origin time = 13 09 17.				
		M_L (UPP) = 2.6 1.				
		By combination with Finnish				
		station readings.				
"	17	UPP	iPKP1		17 26 29.4	C
			i		17 26 31.9	
					micr	sec
			PKP1	Z'	0.1	0.5
			i	Z'	0.1	0.6
		KIR	iPKP		17 26 15.5	
			iSKP1		17 29 13.6	
		UME	ePKP1		17 26 17	
			iSKP1		17 29 24.1	
		South of Fiji Islands				
		(h = 380 km).				
"	17	UPP	iPKP1		19 32 26.1	
			i		19 32 51.0	
					micr	sec
			PKP1	Z'	1.0	0.1
		KIR	ePKP		19 32 06	
		UME	iPKP1		19 32 13.8	C
		Kermadec Islands (h = N).				
"	18	KIR	eP		05 43 15	
		UME	iP		05 43 21.0	
		Banda Sea (h = 35 km).				
"	18	KIR	eP		14 19 24	
			i		14 19 41.5	
		UME	iP		14 19 42.8	C
		Honshu, Japan (h = 70 km).				
"	18	UPP	iP		17 27 28.7	
		Burma (h = N).				
"	18	KIR	eP		19 26 46	
"	18	KIR	iP		23 05 13.6	
		Alaska Peninsula (h = 60 km).				

1981						
Aug.	19	KIR	iP		01 26 52.5	
"	19	UPP	iPKP1		02 00 35.9	
		KIR	ePKP1		02 00 16	
		South of Kermadec Islands				
		(h = 190 km).				
"	19	UPP	iPKP1		03 19 37.2	
		South of Fiji Islands				
		(h = 510 km).				
"	19	KIR	iPKP		06 25 34.9	
		Loyalty Islands region				
		(h = 25 km).				
"	19	UPP	ePn		12 43 18	
		KIR	iP		12 45 10.0	
		Poland (h = 10 km).				
"	19	KIR	iP		17 28 40.8	
		UME	iP		17 28 37.8	
		Andaman Islands region				
		(h = N).				
"	19	UPP	iP		20 47 57.4	
		UME	iP		20 48 38.1	
		Yugoslavia (h = 10 km).				
"	19	UPP	iP		23 02 57.0	C
			iS		23 12 52	
			i		23 17 44	
					micr	sec
			P	Z'	0.2	1.3
			Mx	Z	4.2	22
		KIR	iP		23 03 18.9	C
			i		23 03 33.8	
					micr	sec
			P	Z'	0.3	1.1
			Mx	Z	1.7	19
		UME	iP		23 03 06.5	C
			iS		23 13 11	
		Mid-Indian Rise (h = 10 km).				
		m = 6.2, M = 5.6 (UPP,KIR).				
"	20	UPP	iPKP1		00 11 53.9	
		UME	iPKP1		00 11 44.5	
		Kermadec Islands region				
		(h = N).				
"	20	UME	iPKP		00 16 09.6	
		Fiji Islands region				
		(h = 480 km).				
"	20	UPP	iPKP		02 38 42.2	
		KIR	iPKP		02 38 29.0	
		UME	iPKP		02 38 35.4	
		Santa Cruz Islands				
		(h = 70 km).				

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981
Aug. 20 UPP iP 03 43 36.1
Kyushu, Japan (h = 60 km).

" 20 UPP iPKPl 15 28 59.6
KIR iPKP 15 28 45.3
UME i(PKP) 15 28 47.1
iPKPl 15 28 49.1
i 15 28 55.1
Kermadec Islands region
(h = 350 km).

" 20 KIR iP 16 35 43.0
UME eP 16 35 57

" 20 UPP iP 19 09 42.3
KIR eP 19 10 12
UME iP 19 09 51.0 C
(Iran (h = 25 km).

" 20 UME iP 19 51 43.5
Zaire republic (h = N).

" 21 UPP iP 11 14 39.3

" 21 KIR iSgl 12 59 03.5
North western USSR,
64.0°N, 37.4°E.
Origin time = 12 54 58.
M_L(UPP) = 2.8 1.
Solution from Helsinki
regional bulletin.

" 21 KIR eP 13 57 10

" 21 UPP iP 14 40 24.8
KIR iP 14 39 53.2
UME iP 14 40 06.8
Bonin Islands region
(h = 510 km).

" 21 KIR iP 18 55 43.8
Azores Islands region
(h = 10 km).

" 21 UPP iP 19 53 18.9
KIR iP 19 52 21.9 C
UME iP 19 52 51.9 C
Northern Yukon territory,
Canada (h = N).

" 21 UME iP 22 47 57.5
Turkey (h = 10 km).

" 21 UME iP 22 55 29.9

" 22 UPP iP 02 50 37.2

" 22 UPP iP 08 35 06.9
i 08 35 11.0

1981
Aug. 22 KIR eP 08 44 07
Zambia (h = N).

" 22 UPP iP 16 28 41.7
UME iP 16 28 31.6 C

" 22 KIR eP 17 09 07
Southwestern Ryukyu Islands
(h = N).

" 22 UPP iP 21 48 14.3
Greece (h = N).

" 23 UPP ipP 01 35 16.8
UME ipP 01 35 10.6
Burma-India border region
(h = 90 km).

" 23 KIR iP 01 48 53.0

" 23 KIR iPn 02 01 29.9
i 02 01 34.3
iTPg 02 06 25.6
UME iPn 02 02 16.9
iSn 02 04 07.8
i 02 04 37.9
Greenland Sea (h = N).

" 23 UPP iPKP 02 19 03.9
KIR iPKP 02 18 48.8
UME iPKP 02 18 56.4
Loyalty Islands region
(h = 100 km).

" 23 UME iP 02 22 16.1

" 23 UPP eP 02 30 38
KIR iPn 02 29 05.0
iTSg 02 34 24.2
UME iPn 02 29 33.1
iP 02 29 53.3
Greenland Sea (h = 10 km).

" 23 UPP iP 08 49 56.7
i 08 50 17.1
KIR iP 08 50 04.6 C
UME iP 08 49 54.8
Afghanistan-USSR border region
(h = 230 km).

" 23 UPP iP 09 40 24.0
i 09 40 49.3
micr sec
P Z' 0.1 0.8
KIR iP 09 40 18.2
micr sec
P Z' 0.1 0.9
UME iP 09 40 16.4
Burma (h = 90 km).
m = 5.8 (UPP,KIR).

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981
Aug. 23 KIR iP 11 48 43.8
Windward Islands (h = N).

" 23 UPP iP 12 11 15.7 C
ipP 12 11 25.9
iS 12 20 04
micr sec
P Z' 0.8 1.3
Mx Z 13 23
KIR iP 12 10 25.2 C
i 12 10 44.1
iS 12 18 33
iP'P' 12 39 58.8
micr sec
P Z' 2.8 2.0
Mx Z 3.4 18
UME iP 12 10 48.7 C
ipP 12 10 59.1
i 12 11 07.5
iS 12 19 13
iP'P' 12 39 48.0
Kuril Islands region.
h = 35 km (UPP,UME).
m = 6.8, M = 5.8 (UPP,KIR).

" 23 KIR epP 16 06 36
Burma (h = 80 km).

" 23 KIR iPKP 18 26 19.9
UME iPKP1 18 26 29.1
Off e. coast of N. Island,
N.Z. (h = 160 km).

" 24 KIR iP 01 01 45.7
i 01 01 53.3

" 24 KIR iP 01 53 18.3
South of Alaska (h = N).

" 24 KIR iP 11 27 06.6
Davis Strait (h = 10 km).

" 24 UPP iP 15 57 22.9
micr sec
P Z' 1.2 0.1
KIR iP 15 56 29.5 C
i 15 57 15.2
UME i 15 57 31.1
Andreanof Islands, Aleutian
Is. (h = 55 km).

" 24 UPP iP 17 00 37.8
KIR iP 17 00 11.8
UME iP 17 00 21.3
Southwestern Ryukyu Islands
(h = 70 km).

1981
Aug. 24 UPP iSg1 23 56 07.1
UDD iPg1 23 55 15.0
iSg1 23 55 24.7
Värmland, Sweden,
59.4°N, 13.5°E.
Origin time = 23 55 02.
M_L(UPP) = 1.8 1
By combination with SKI
network readings.

" 25 UPP iP 04 16 47.0
KIR iP 04 16 18.4
Mariana Islands (h = N).

" 25 KIR iPKP1 05 39 48.7 C
micr sec
PKP1 Z' 0.1 1.3
UME iPKP1 05 39 59.2 C
i 05 40 13.2
South of Kermadec Islands
(h = 70 km).

" 25 UPP iP 07 07 19.6
micr sec
P Z' 0.1 1.0
KIR iP 07 06 43.9
i 07 09 15.0
micr sec
P Z' 0.1 1.0
UME iP 07 06 59.0
Southern Honshu, Japan
(h = 330 km).
m = 5.5 (UPP,KIR).

" 25 UPP ePKP 07 36 22
micr sec
Mx Z 1.4 21
KIR iPKP 07 36 13.1
micr sec
Mx Z 1.1 18
UME iPKP 07 36 16.7
Tonga Islands region (h = N).
M = 5.7 (UPP,KIR).

" 25 UPP iPKP 07 42 12.2
KIR ePKP 07 42 00
i 07 42 07.6
Tonga Islands region (h = N).

" 25 UPP iP 07 59 06.4
Ionian Sea (h = N).

" 25 UPP iP 17 07 17.3
i 17 07 39.8
(cont.)

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981
Aug. 25 (cont.)
KIR iP 17 07 19.0 C
micr sec
P Z' 0.2 1.3
UME iP 17 07 21.3
Northern Colombia (h = N).

" 25 UPP iP 17 41 45.6
KIR iP 17 41 46.6 D
micr sec
P Z' 0.1 1.3
UME iP 17 41 49.4
Northern Colombia (h = N).

" 25 UPP ipP 17 53 07.7
KIR ipP 17 53 08.7
Northern Colombia (h = N).

" 25 UPP iP 20 20 47.7
KIR iP 20 20 19.8 C
Mariana Islands (h = N).

" 25 KIR i 21 18 36.4
iSgl 21 18 51.9

" 25 UPP iP 22 16 40.3
KIR iP 22 16 09.1
UME iP 22 16 22.5
Bonin Islands region
(h = N).

" 26 UPP iP 00 24 14.6

" 26 KIR iSgl 06 59 39.6
UME iPgl 06 57 47.2
iSgl 06 57 51.3
UDD iSgl 07 00 15.6
Västerbotten, 64.0°N, 20.1°E.
Origin time = 06 57 42.
M_L(UPP) = 2.3 (0.23) 2
By combination with Finnish
station readings.

" 26 UPP iP 10 46 15.8
i 10 46 25.0
UME iP 10 47 01.6
Yugoslavia (h = 15 km).

" 26 UPP iPKP 16 50 49.7
i 16 51 27.5
micr sec
Mx Z 2.1 30
KIR iPKP 16 50 39.4 C
ipPKP 16 50 53.0
micr sec
Mx Z 1.7 22
(cont.)

1981
Aug. 26 (cont.)
UME iPKP 16 50 43.2
ipPKP 16 50 58.9
New Britain region
(h = 70 km).
M = 5.6 (UPP,KIR).

" 27 UPP iP 04 49 43.8
Greece (h = 20 km).

" 27 UPP iP 14 05 17.7
KIR iP 14 05 22.4
Northern Colombia (h = N).

" 27 KIR eP 14 18 26
Northern Colombia (h = N).

" 27 KIR iP 17 58 00.7
UME eP 17 58 03
Northern Colombia (h = N).

" 28 UPP iP 09 14 12.1
micr sec
P Z' 0.1 1.2
KIR iP 09 13 16.6
i 09 13 39.7
micr sec
P Z' 0.1 0.9
Southern Alaska (h = 70 km).
m = 5.8 (UPP,KIR).

" 28 KIR iP 12 46 52.9
Fox Islands, Aleutian Islands
(h = 40 km).

" 28 UPP iP 23 26 05.7
KIR iP 23 25 38.3
UME iP 23 25 48.5 D

" 29 KIR iP 02 21 12.2
Yugoslavia (h = 10 km).
Late arrival when compared
with the NEIS solution.

" 29 KIR eP 05 00 45
Mozambique Channel (h = N).

" 29 KIR iP 07 54 38.9 C
i 07 54 52.9
UME iP 07 54 36.2
Southern Sumatera
(h = 55 km).

" 29 UPP iP 08 58 09.9
KIR iP 08 58 16.5 C
UME iP 08 58 06.2
Tajik SSR (h = 200 km).

UPP=Uppsala, KIR=Kiruna, SKA=Skalstugan, UME=Umeå, UDD=Uddeholm, DEL=Delary

1981

Aug.	29	UPP	iP	22 32 23.8	C
			i	22 33 05.4	
		KIR	iP	22 31 21.7	
			i	22 32 06.0	
		UME	i	22 32 33.3	
		Eastern Siberia (h = N).			
"	30	KIR	iP	04 12 16.5	
		Alma-Ata region (h = N).			
"	30	UPP	iRg	10 28 24.3	
		East-central Sweden.			
		Near-surface event.			
"	30	UPP	iPKP	11 54 34.4	
		KIR	iPKP	11 54 18.8	C
			iSKP1	11 56 47.1	
		UME	iPKP	11 54 25.9	
		Fiji Islands region			
		(h = 610 km).			
"	30	UPP	i	13 42 54.1	
		KIR	iPKP2	13 42 35.4	C
		UME	iPKP1	13 42 42.6	
		Off e. coast of N. Island,			
		N.Z. (h = N).			
"	30	UPP	iRg	16 27 56.5	
		UDD	iSg1	16 28 50.1	
		Dannemora, Uppland,			
		60.1°N, 17.5°E.			
		Origin time = 16 27 39.			
		Probably rockburst.			
"	30	KIR	eP	21 02 49	
		UME	i	21 03 19.8	
		Northern Colombia (h = N).			
"	30	KIR	iP	22 01 00.6	
		UME	iP	22 01 10.4	
"	31	UPP	eP	06 24 54	
		KIR	eP	06 24 00	
		Komandorsky Islands region			
		(h = N).			
"	31	UPP	iPKP1	10 53 55.5	
			i	10 53 57.6	
		UME	iPKP1	10 53 43.8	
		Kermadec Islands (h = 55 km).			
"	31	KIR	iP	12 40 11.8	
		Kashmir-Tibet border region			
		(h = N).			

May 9, 1983

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SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

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, U M E A, U D D E H O L M and D E L A R Y

Uppsala	(UPP)	59°51.5'N,	17°37.6'E; h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E; h = 390 m
Skalstugan	(SKA)	63°34.8'N,	12°16.8'E; h = 580 m
Umeå	(UME)	63°48.9'N,	20°14.2'E; h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E; h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E; h = 150 m

NOTE: The station SKA (Skalstugan) was closed down on Sept. 15.

S E P T E M B E R 1 - 30, 1981

1981 Sept.	1	KIR	iP		03 59 45.8		
		Arabian Sea (h = 10 km).					
"	1	UME	iPKPl		04 48 52.6	C	
"	1	UPP	Mx		08 37		
					micr	sec	
			Mx	Z	1.1	20	
		KIR	Mx		08 33		
					micr	sec	
			Mx	Z	1.1	18	
		Tonga Islands (h = N).					
		M = 5.6 (UPP,KIR).					
"	1	UPP	iPdiff		09 45 51		
			i(PKP)		09 48 39.6		
			iPKP		09 48 51.2		
			iPP		09 51 19.8		
					micr	sec	
			Mx	Z	111	20	
		KIR	i(PKP)		09 48 26.0		
			iPKP		09 48 34.1		
			iPP		09 50 23.7		
					micr	sec	
			Mx	Z	94	19	
		UME	i(PKP)		09 48 29.7		
			i(PKP)		09 48 36.5		
			iPKP		09 48 42.7		
			i		09 49 08.3		
			iSKPl		09 51 17.0		
		Samoa Islands region					
		(h = 25 km).					
		M = 7.6 (UPP,KIR).					
"	1	UME	iPKP		10 18 41.0		
		Tonga Islands (h = N).					
"	1	UPP	iPKP		10 24 44.9		
		UME	iPKP		10 24 32.6		
1981 Sept.	1	KIR	iP		14 53 46.4		
			i		14 53 54.5		
		UME	iP		14 54 25.4		
		Jan Mayen Island region					
		(h = 10 km).					
"	1	UME	iPKP		16 14 47.7		
		South Sandwich Islands					
		region (h = 120 km).					
"	1	UME	iPKP		18 57 56.4		
		Tonga Islands (h = N).					
"	2	UPP			micr	sec	
			Mx	Z	1.1	20	
		UME	iPKP		00 14 55.1		
			i		00 15 13.0		
		Tonga Islands (h = N).					
"	2	UPP	iP		04 04 26.8		
		KIR	iP		04 04 02.2		
		UME	iP		04 04 00.7		
		Ural Mountains region.					
		Underground explosion.					
"	2	UPP	iP		09 36 15.0		
			iS		09 45 41		
					micr	sec	
			P	Z'	0.3	1.3	
			Mx	Z	2.2	20	
		KIR	iP		09 35 37.8	C	
			iPP		09 38 03.2		
					micr	sec	
			P	Z'	0.2	1.3	
			Mx	Z	3.4	18	
		UME	iP		09 35 54.6	C	
			iS		09 45 03		
		Near east coast of Honshu,					
		Japan (h = 60 km).					
		m = 6.1, M = 5.6 (UPP,KIR).					

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Sept. 2 KIR iP 14 51 01.8
micr sec
P Z' 0.1 1.3
UME iP 14 51 29.1
i 14 51 38.6
South of Alaska (h = N).

" 3 UPP iP 04 10 06.2
i 04 10 08.5
i 04 10 21.3
KIR eP 04 09 22
i 04 09 23.5
Hokkaido, Japan region
(h = 50 km).

" 3 UPP iP 04 42 58.5
i 04 43 18.3
iSKS 04 53 23
iS 04 53 59
micr sec
Mx Z 2.4 25
KIR iP 04 42 42.5 C
eSKS 04 53 05
iS 04 53 24
micr sec
P Z' 0.3 1.3
Mx Z 2.3 22
UME iSKS 04 53 09
Mindanao, Philippine Islands
(h = 90 km).
M = 5.6 (UPP,KIR).
M not corrected for focal
depth.

" 3 UPP iP 05 46 44.9 C
iS 05 55 40.7
iP'P' 06 14 54.5
micr sec
P Z' 3.6 1.2
Mx Z 36 17
KIR iP 05 45 59.1 C
iS 05 54 10
iP'P' 06 14 15.6
micr sec
P Z' 1.6 1.0
Mx Z 57 17
UME iP 05 46 19 C
iS 05 54 55
Kuril Islands (h = 45 km).
m = 7.2, M = 6.8 (UPP,KIR).

" 3 UPP iP 06 39 16.8
Kuril Islands (h = N).

" 3 KIR eP 15 26 13
Mindanao, Philippine Islands
(h = 70 km).

1981
Sept. 3 KIR iP 17 13 23.4
i 17 13 28.1
Southern Iran (h = N).

" 3 UPP ePn 18 42 07
iLgl 18 44 45
micr sec
Mx Z 3.6 8
KIR iPn 18 40 28.3 C
iPgl 18 40 34.7
micr sec
Mx Z 6.4 7
UME iPn 18 41 13.7
i 18 41 20.1
iSn 18 42 21.2
iSgl 18 42 54.1
UDD iPn 18 41 57.9
i 18 42 05.0
iSn 18 43 37.1
DEL iPn 18 42 44.7
iPgl 18 43 33.3
iSn 18 45 00.3
iLgl 18 46 21.7
i 18 46 32.1
Off coast of northern Norway,
near 69 1/2°N, 13 1/2°E.
Origin time = 18 39 42.
M_L(UPP) = 4.7 (0.34) 2.
Felt.

" 3 UPP iS 20 00 31
micr sec
Mx Z 1.8 19
KIR iP 19 50 21.5 C
micr sec
P Z' 0.1 1.1
Mx Z 2.4 17
UME iP 19 50 37
iS 19 59 51
Near east coast of Honshu,
Japan (h = 45 km).
M = 5.5 (UPP,KIR).

" 3 KIR iP 20 05 55.0
Philippine Islands region
(h = N).

" 4 UPP micr sec
Mx Z 1.9 20
KIR iS 08 46 40
micr sec
Mx Z 2.6 23
UME iS 08 45 59
South Atlantic Ridge
(h = 10 km).
M = 5.5 (UPP,KIR).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981 Sept.	4	UPP	iP		11 27 03.6	D
			i		11 27 10.2	
			iSKS		11 36 30	
			iS		11 36 57	
					micr sec	
			P	Z'	0.3 1.1	
			i	Z'	0.4 1.0	
			Mx	Z	2.7 20	
		KIR	iP		11 26 46.7	D
			i		11 26 53.5	
			iS		11 36 25	
					micr sec	
			P	Z'	0.5 1.0	
			i	Z'	1.1 1.0	
			Mx	Z	1.7 14	
		UME	iP		11 26 53	D
			iSKS		11 36 15	
			iS		11 36 35	
		Mindanao, Philippine Islands (h = 650 km). m = 6.3, M = 5.7 (UPP,KIR). M not corrected for focal depth.				
"	4	UPP	iP		16 03 02.3	
			iS		16 13 06	
					micr sec	
			P	Z'	0.1 1.4	
			Mx	Z	7.7 17	
		KIR	iP		16 02 30.4	
			eS		16 12 10	
					micr sec	
			P	Z'	0.1 1.5	
			Mx	Z	5.8 16	
		UME	iP		16 02 49.3	
			iS		16 12 41	
		Southern California (h = 5 km). m = 5.6, M = 6.1 (UPP,KIR).				
"	4	UPP	iRg		20 28 20.1	
		UDD	iRg		20 27 56.6	
		Bergslagen area, Sweden. Probably rockburst.				
"	4	UPP	iP		22 44 29.9	
		KIR	iP		22 44 13.3	
		UME	eP		22 44 19	
		Halmahera (h = 45 km).				
"	5	KIR	ePKP		00 03 30	
		UME	ePKP		00 03 35	
		Solomon Islands (h = 40 km).				
"	5	UME	iP		01 58 53.0	
		Near east coast of Honshu, Japan (h = 70 km).				
1981 Sept.	5	KIR	iP		02 48 41.0	
		UME	eP		02 48 12	
		Iraq (h = N).				
"	5	UPP	iP		03 27 23.9	
			i		03 27 34.6	
		KIR	i		03 27 25.2	
		UME	i		03 27 25.7	
		Burma-India border region (h = 35 km).				
"	5	KIR	iP		04 30 32.8	
		UME	i		04 31 18.8	
		Southern California (h = 10 km).				
"	5	UPP	iP		05 51 15.4	
		UME	iP		05 51 14.7	
		Caribbean Sea (h = 10 km).				
"	5	UPP	iP		06 59 59.2	
		KIR	eP		07 00 19	
		UME	iP		07 00 04.2	
		West Pakistan (h = N).				
"	5	UPP	iP		08 11 37.1	
		UME	iP		08 11 12.2	
		Kuril Islands (h = N).				
"	5	UPP	iPKPl		11 05 49.6	
		Tonga Islands region (h = N).				
"	6	UPP	iPn		04 13 30.0	C
			i		04 13 36.7	
			iSn		04 14 34.5	
		KIR	iPn		04 15 02.9	
			i		04 17 56.1	
			iLgl		04 18 23.5	
		UME	iPn		04 14 20.4	
			iSn		04 15 50.8	
			i		04 16 43.7	
			iSgl		04 16 51.7	
		UDD	iPn		04 13 07.7	D
			i		04 13 14.7	
			iSn		04 13 58.9	
		DEL	iPn		04 12 57.8	C
			i		04 13 04.5	
			i		04 13 12.8	
		Skagerrak, near 57°N, 7°E. Origin time = 04 11 58. M_L(UPP) = 3.8 (0.20) 5.				
"	6	UPP	iPKP		11 22 02.3	
			iSKPl		11 25 30.3	
		KIR	iPKP		11 21 47.8	
		(cont.)				

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Sept. 6 (cont.)

KIR	iSKPl	11 25 07.3	
UME	iPKP	11 21 53.9	
	iSKPl	11 25 18.2	

Loyalty Islands region
(h = 30 km).

" 7

UPP	iSn	07 57 25.5	
KIR	iPn	07 53 28.6	
	iSn	07 54 26.6	
UME	iPn	07 54 19.9	
	iSn	07 55 55.2	
UDD	iPn	07 55 05.4	
	iSn	07 57 22.2	
DEL	iPn	07 55 58.1	

Norwegian Sea (h = 10 km).
M_L(UPP) = 3.9 (0.25) 3.

" 7

UPP	iPKPl	15 30 27.2	
	i	15 30 28.2	
		micr	sec
	i Z'	0.3	0.8
KIR	iPKP	15 30 16.4	
	i	15 30 22.2	
UME	iPKPl	15 30 16.9	
	i	15 30 24.2	

South of Fiji Islands
(h = 230 km).

" 7

UPP	iP	16 31 26.9	
KIR	iP	16 30 54.0	
UME	iP	16 31 07.3	

South of Honshu, Japan
(h = 440 km).

" 7

UPP	iP	19 18 03.2	D
	iS	19 27 56.9	
		micr	sec
	P Z'	0.5	1.1
KIR	iP	19 17 28.5	
		micr	sec
	P Z'	0.5	1.0
UME	iP	19 17 43.5	D

South of Honshu, Japan
(h = N).
m = 6.5 (UPP,KIR).

" 7

UPP	iP	20 19 24.5	
	i	20 19 26.1	
KIR	iP	20 18 50.9	
UME	iP	20 19 06.0	

South of Honshu, Japan
(h = 30 km).

" 8

UPP	iPKPl	00 13 34.2	

South of Fiji Islands
(h = 110 km).

1981
Sept. 8

UPP	iP	03 04 15.9	
	ipP	03 04 38.9	

Rat Islands, Aleutian Islands.
h = 90 km (UPP).

" 8

UME	iP	05 52 33.1	

" 8

UPP	iP	07 12 13.1	
KIR	iP	07 11 19.5	

Andreanof Islands, Aleutian
Islands (h = 55 km).

" 8

UPP	iP	16 07 39.9	

" 8

KIR	eP	17 11 29	
UME	iP	17 11 09.9	
	i	17 11 24.5	

Southern Iran (h = N).

" 8

UPP	iP	19 37 26.8	C
	i	19 37 35.4	
	i	19 46 20	
		micr	sec
	P Z'	0.2	1.0
	Mx Z	3.3	19
KIR	iP	19 36 42.0	
		micr	sec
	P Z'	0.2	1.1
	Mx Z	5.1	19
UME	iP	19 37 02.4	
	i	19 37 35.5	
	iS	19 45 35	

Kuril Islands (h = 45 km).
m = 6.1, M = 5.6 (UPP,KIR).

" 9

UPP	iP	07 51 31.3	
KIR	eP	07 52 20	
UME	eP	07 51 49	
	i	07 51 53.6	

Turkey (h = 10 km).

" 10

KIR	iP	01 39 20.9	

Central Alaska (h = 100 km).

" 10

UPP	eP	03 56 14	
KIR	iP	03 56 16.7	

Nepal (h = N).

" 10

UPP	iP	13 51 21.4	

Kuril Islands (h = 55 km).

" 10

UPP	iP	14 29 36.9	
	ipP	14 30 11.9	
KIR	iP	14 29 38.4	
	ipP	14 30 13.2	

(cont.)

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Sept. 10 (cont.)

UME	iP	14 29 34.1	
	i	14 29 57.9	

Northern Sumatera.
h = 120 km (UPP,KIR).

" 10

KIR	ePKP	21 13 39	
UME	iPKP	21 14 42.7	

Loyalty Islands region
(h = 35 km).

" 10

UPP	eP	21 47 46	

Crete (h = N).

" 10

UPP	eP	23 35 05	
KIR	iP	23 34 34.3	
	iPP	23 38 20.1	
		micr	sec
	P Z'	0.1	1.0
UME	iP	23 34 44.5	

South of Mariana Islands
(h = 15 km).

" 11

KIR	iP	05 07 10.7	
UME	iP	05 07 32.7	

Northwest of Kuril Islands
(h = 270 km).

" 11

UPP	iPKPl	08 52 04.7	
	iSKPl	08 54 54.8	
KIR	iPKP	08 51 55.4	
	iSKPl	08 54 33.2	
UME	i(PKP)	08 51 52.6	
	iPKP	08 51 59.1	
	iSKPl	08 54 44.1	

South of Fiji Islands
(h = 540 km).

" 11

KIR	iP	22 31 48.7	
UME	iP	22 31 42.6	

North Atlantic Ridge
(h = 10 km).

" 12

KIR	iP	02 37 34.3	
UME	iP	02 37 13.1	

Southern Iran (h = N).

" 12

UPP	iP	05 36 18.0	
	i	05 36 20.5	
KIR	eP	05 36 10	
UME	iP	05 36 09.5	
	i	05 36 29.1	

Burma-China border region
(h = 15 km).

" 12

UPP	iP	07 23 51.0	
	i	07 23 51.7	
	i	07 25 32.0	

(cont.)

1981
Sept. 12 (cont.)

		micr	sec
i	Z'	0.7	1.0
Mx	Z	24	13
KIR iP		07 23 57.4	C
i		07 24 55.0	
eS		07 30 29	
		micr	sec
P	Z'	0.5	1.0
UME iP		07 23 48.3	C
i		07 23 48.8	
iPP		07 25 32.0	
iS		07 30 11	

Northwestern Kashmir (h = N).
m = 6.3 (UPP,KIR).

" 12

UPP	iP	08 25 30.4	
	i	08 25 36.9	
KIR	iP	08 25 08.6	
	i	08 25 14.6	
UME	iP	08 25 13.6	
	i	08 25 20.2	

Kansu Province, China
(h = N).

" 12

UPP	iPKPl	14 13 35.6	
	iSKPl	14 16 48.3	
		micr	sec
	PKPl Z'	0.1	0.8
UME	iPKPl	14 13 24.3	

South of Fiji Islands
(h = 170 km).

" 12

UPP	iP	15 02 17.2	C
	i	15 03 10.4	
		micr	sec
	P Z'	0.1	0.9
KIR	iP	15 01 33.6	C
		micr	sec
	P Z'	0.1	1.2
UME	iP	15 01 53.3	C
	i	15 02 26.4	

Hokkaido, Japan region
(h = 110 km).
m = 5.7 (UPP,KIR).

" 12

UPP	iP	16 26 46.6	
KIR	iP	16 26 13.7	

Bonin Islands region (h = N).

" 12

UPP	iP	17 46 46.7	
UME	iP	17 46 43.7	

Northwestern Kashmir (h = N).

" 12

UPP	iP	23 26 51.7	
KIR	iP	23 26 30.8	

Philippine Islands region
(h = N).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Sept. 12 UPP iP 23 44 44.7
KIR iP 23 44 21.8
UME iP 23 44 29.6
Taiwan region (h = 35 km).

" 13 UPP iP 01 31 45.1
i 01 31 57.1
KIR iP 01 31 07.0
i 01 31 19.7
UME iP 01 31 23.3
i 01 31 32.7
Near east coast of Honshu, Japan (h = 40 km).

" 13 UPP iP 02 24 16.7 C
iPn 02 25 20.8
iPP 02 25 35.0
micr sec
P Z' 2.6 1.0
Mx Z 2.9 11
KIR iP 02 23 59.9 C
i 02 24 58.9
UME iP 02 24 01.3 C
i 02 24 42.9
Eastern Kazakh SSR.
m = 7.0 (UPP).
Underground explosion.

" 13 UPP iP 06 08 24.8
KIR iP 06 08 31.2
UME iP 06 08 22.0
Northwestern Kashmir (h = N).

" 13 UPP micr sec
Mx Z 0.9 17
KIR ePKP 07 44 28
UME iPKP 07 44 18.9
Southwestern Atlantic Ocean (h = 10 km).

" 13 UPP iP 09 29 07.8
iS 09 36 57
micr sec
P Z' 0.3 1.5
Mx Z 5.1 30
KIR iP 09 29 27.4
iS 09 37 35
micr sec
P Z' 0.5 1.4
UME iP 09 29 22.6
iS 09 37 23
North Atlantic Ridge
(h = 10 km).
m = 6.3 (UPP,KIR).

1981
Sept. 13 UPP iP 20 35 29.8
KIR iP 20 34 51.4
UME iP 20 35 07.9
ipP 20 35 26.9
Honshu, Japan.
h = 90 km (UME).

" 13 UPP iP 23 30 52.6
i 23 31 00.3
micr sec
Mx Z 7.1 10
KIR iP 23 32 00.5
i 23 32 11.2
UME iP 23 31 25.0
i 23 31 28.1
Crete (h = 45 km).

" 14 UPP iP 01 27 06.8
micr sec
Mx Z 2.5 9
KIR iP 01 28 13.4
i 01 28 21.2
UME iP 01 27 42.5
i 01 28 15.1
Crete (h = 45 km).

" 14 KIR iP 05 06 28.0
UME iP 05 05 58.9
Crete (h = 35 km).

" 14 KIR iP 12 10 25.9
UME iP 12 09 57.6
Northwestern Iran
(h = 45 km).

" 14 UPP iP 12 55 39.5
ipP 12 56 18.3
iS 13 04 51
micr sec
P Z' 0.3 1.3
Mx Z 5.4 21
KIR iP 12 55 41.3
i 12 55 58.8
ipP 12 56 21.9
iS 13 04 56
micr sec
P Z' 0.4 1.4
UME iP 12 55 44.6
ipP 12 56 24.4
iS 13 05 02
Mona Passage.
h = 170 km (UPP,KIR,UME).
m = 5.9 (UPP,KIR).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981						
Sept.	14	UPP	iP		15 20 42.5	
					micr	sec
			Mx	Z	5.4	21
		KIR	iP		15 20 08.4	C
					micr	sec
			P	Z'	0.1	1.0
		UME	iP		15 20 23.6	
			i		15 20 30.7	
		South of Honshu, Japan (h = N).				
"	14	UPP	iRg		18 26 13.4	
		UDD	iSgl		18 27 06.7	
		East-central Sweden. Near-surface event.				
"	14	UPP	iP		18 50 07.0	
					micr	sec
			P	Z'	0.1	0.7
		KIR	iP		18 51 20.8	
		UME	iP		18 50 46.7	
		Ionian Sea (h = 50 km).				
"	15	UPP	iP		03 40 15.4	
			i		03 40 20.2	
		KIR	iP		03 40 17.8	
			i		03 40 22.4	
		Eastern Kashmir (h = 50 km).				
"	15	UPP	iP		05 54 18.7	
"	15	UPP	iP		09 26 21.8	
		KIR	iP		09 26 27.8	
		Northwestern Kashmir (h = N).				
"	15	KIR	iP		14 25 54.4	
			iPP		14 30 10.2	
		UME	iP		14 25 59.5	
			iPP		14 30 09.5	
		Banda Sea (h = 100 km).				
"	15	UPP	iP		20 54 32.2	
					micr	sec
			P	Z'	0.1	0.7
		KIR	iP		20 54 05.6	D
		UME	iP		20 54 15.6	
		Northwest of Taiwan (h = 170 km).				
"	16	UME	eP		07 18 21	
		Northwestern Kashmir (h = N).				
"	16	KIR	iPKP		12 07 05.7	
		Bouvet Island region (h = 10 km).				
1981						
Sept.	16	UME	iP		15 13 48.4	
"	17	UPP				
					micr	sec
			Mx	Z	3.3	26
		KIR	eP		06 33 03	
			i		06 33 13.9	
					micr	sec
			Mx	Z	2.6	23
		UME	iP		06 33 06.3	
			iSKS		06 43 47	
		Banda Sea (h = N). M = 5.8 (UPP,KIR).				
"	17	UPP	iPKP		08 42 51	
					micr	sec
			Mx	Z	16	26
		KIR	iPKP		08 42 40.3	
					micr	sec
			Mx	Z	11	23
		UME	iPKP		08 42 48.4	
			i		08 42 50.9	
		Loyalty Islands region (h = 30 km). M = 6.6 (UPP,KIR).				
"	17	UPP	iP		10 03 22.6	
			i		10 03 30.1	
					micr	sec
			Mx	Z	2.4	15
		KIR	iP		10 03 09.6	
			i		10 03 46.5	
					micr	sec
			Mx	Z	2.1	16
		UME	iP		10 03 17.9	
			i		10 03 23.5	
		Near coast of Guerrero, Mexico (h = 20 km). M = 5.7 (UPP,KIR).				
"	17	KIR	iPKP		13 00 51.6	
			iSKP1		13 03 39.9	
		UME	iPKP		13 00 58.5	
			iSKP1		13 03 53.8	
		Fiji Islands region (h = 360 km).				
"	17	UPP	iP		17 22 23.5	
		KIR	iP		17 21 59.8	
		Philippine Islands region (h = 200 km).				
"	17	UPP	ipP		21 23 11.5	
		KIR	iP		21 22 07.5	
			ipP		21 22 15.5	
		Near east coast of Kamchatka (h = N).				

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Sept. 18 UPP iP 04 25 12.4
Greece (h = 35 km).

" 18 UPP iP 05 04 13.5
Greece (h = 35 km).

" 18 UPP iP 05 51 17.2
KIR iP 05 52 32.2
Greece (h = 45 km).

" 18 UPP iP 14 28 36.3
KIR iP 14 28 20.4
UME iP 14 28 25.5
Talaud Islands (h = 150 km).

" 18 UPP iP 17 12 55.8
KIR iP 17 13 02.0
UME iP 17 12 53.2
i 17 14 30.0
Northwestern Kashmir
(h = 60 km).

" 18 KIR eP 20 35 09
UME iP 20 35 20.9

" 19 UPP iP 07 01 52.3
micr sec
Mx Z 2.7 20
KIR micr sec
Mx Z 1.0 14
UME iP 07 01 42.4
Yunan Province, China
(h = N).
M = 5.4 (UPP,KIR).

" 19 KIR iP 07 35 58.3
UME iP 07 36 14.9
E. Russia-n.e. China border
region (h = N).

" 19 KIR iP 07 45 57.1
Mindoro, Philippine Islands
(h = 190 km).

" 19 KIR iPKP 11 59 58.5
UME iPKP 11 59 56.3
Off coast of central Chile
(h = 30 km).

" 19 UPP iP 14 14 52.5
KIR iP 14 14 35.6
i 14 15 11.1
Philippine Islands region
(h = 130 km).

" 19 UPP iP 16 52 37.3
Greece (h = 35 km).

1981
Sept. 20 KIR eP 04 51 06
UME iP 04 51 21.8
South of Honshu, Japan
(h = N).

" 20 UPP micr sec
Mx Z 2.5 23
KIR iPKP 05 04 33.0
iSKP1 05 07 57.0
micr sec
Mx Z 1.1 18
UME iPKP 05 04 40.5
iSKP1 05 08 07.6
Loyalty Islands region
(h = N).
M = 5.8 (UPP,KIR).

" 20 UPP iPKP1 05 56 29.8
i 05 56 32.4
UME iPKP1 05 56 19.9
i 05 56 28.0
Kermadec Islands region
(h = 15 km).

" 20 KIR eP 07 46 36
Mindanao, Philippine Islands
(h = 140 km).

" 20 KIR iP 10 13 43.3
UME iP 10 13 48.2
Banda Sea (h = 170 km).

" 20 UME iP 16 52 25.8

" 20 KIR iP 17 47 04.7
UME iP 17 47 10.0
Molucca Passage (h = 90 km).

" 20 UME iP 18 19 56.0

" 21 UPP iP 07 56 57.7
i 07 57 07.4
micr sec
P Z' 0.1 1.0
KIR iP 07 56 41.1 D
micr sec
P Z' 0.1 1.0
UME iP 07 56 46.1
i 07 57 56.2
Luzon, Philippine Islands
(h = N).
m = 5.9 (UPP,KIR).

" 21 UPP iP 13 55 24.9
i 13 55 30.9

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981					
Sept.	21	UPP	iSKP1	14 14 50.3	
		KIR	iSKP1	14 14 27.1	
		UME	iPKP	14 11 10.8	
			iSKP1	14 14 38.4	
		Loyalty Islands region			
		(h = N).			
"	21	UPP		micr	sec
			Mx Z	6.0	23
		KIR	iPKP	14 43 52.6	
				micr	sec
			Mx Z	1.7	19
		UME	e(PKP)	14 43 53	
			iPKP	14 43 58.1	
		Loyalty Islands region			
		(h = N).			
		M = 6.1 (UPP,KIR).			
"	21	UME	iP	16 17 36.1	
		Southern Italy (h = 5 km).			
"	21	UPP	iPKP1	22 39 34.6	
			iPKP2	22 39 38.7	
				micr	sec
			PKP2 Z'	0.1	0.8
		KIR	iPKP1	22 39 10.9	
			i	22 39 14.2	
		UME	iPKP1	22 39 22.1 C	
		Kermadec Islands			
		(h = 130 km).			
"	22	UME	iP	18 30 08.3	
		Kuril Islands (h = N).			
"	24	UME	iPKP1	02 38 28.7	
		Kermadec Islands region			
		(h = N).			
"	24	UPP	iP	02 51 51.4	
		KIR	iP	02 51 07.9	
				micr	sec
			P Z'	0.1	0.8
		UME	iP	02 51 27.2 C	
			i	02 51 41.0	
		Hokkaido, Japan region			
		(h = 35 km).			
"	24	UPP	iP	04 47 54.1	
"	24	UPP	iP	17 33 01.6	
			iS	17 43 02	
				micr	sec
			Mx Z	2.7	17
		KIR	iP	17 32 25.2 D	
			eS	17 42 00	
		(cont.)			

1981					
Sept.	24	(cont.)			
		KIR		micr	sec
			P Z'	0.2	1.0
			Mx Z	1.7	17
		UME	iP	17 32 40.2 D	
			i	17 33 11.6	
			iPP	17 35 32.3	
			iS	17 42 26	
		Bonin Islands region (h = N).			
		M = 5.6 (UPP,KIR).			
"	25	KIR	eP	04 44 36	
		Tadzhik SSR (h = 90 km).			
"	25	UPP	iP	09 29 21.5	
		KIR	iP	09 30 29.3	
		UME	iP	09 29 58.4	
		Algeria (h = 10 km).			
"	25	UPP	iPKP	14 50 31.8	
			iPKP1	14 50 34.1	
			iPKP2	14 50 38.1	
		KIR	iPKP1	14 50 13.1	
		UME	iPKP1	14 50 22.1	
		Kermadec Islands (h = 45 km).			
"	25	UPP	iP	15 12 45.7 C	
			iS	15 22 06	
				micr	src
			P Z'	0.2	1.0
			Mx Z	8.1	20
		KIR	iP	15 12 04.3 C	
				micr	sec
			P Z'	0.1	1.0
			Mx Z	4.6	16
		UME	iP	15 12 22.5 C	
			iS	15 21 22	
		Off east coast of Honshu,			
		Japan (h = 25 km).			
		m = 6.0, M = 5.9 (UPP,KIR).			
"	25	KIR	iPKP	17 01 54.7	
		South of Fiji Islands			
		(h = 360 km).			
"	25	UPP	iP	17 19 48.0	
		KIR	iP	17 19 15.1	
		UME	iP	17 19 28.8	
		Kyushu, Japan (h = 45 km).			
"	26	UPP	iP	05 04 55.8 C	
				micr	sec
			P Z'	0.9	0.7
		KIR	iP	05 05 27.8 C	
			i	05 05 39.5	
				micr	sec
			P Z'	0.2	0.8
		(cont.)			

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Sept. 26 (cont.)
UME iP 05 05 04.2
i 05 05 05.2
Southwestern Russia.
m = 6.1 (UPP,KIR).
Underground explosion.

" 26 UPP iP 05 08 55.8 C
micr sec
P Z' 0.9 0.7
KIR iP 05 09 27.4
i 05 09 39.3
micr sec
P Z' 0.3 0.8
UME iP 05 09 05.2
Southwestern Russia.
m = 6.1 (UPP,KIR).
Underground explosion.

" 26 UPP iP 09 41 16.0
KIR iP 09 40 42.0
UME iP 09 40 56.3
South of Honshu, Japan
(h = 370 km).

" 26 UPP iSgl 17 09 45.3
UDD iPgl 17 08 47.4
iSgl 17 09 10.9
DEL iSgl 17 09 20.0
Västergötland, Sweden,
58.4°N, 12.7°E.
Origin time = 17 08 16.
M_L(UPP) = 2.2 (0.02) 2.

" 26 KIR iP 17 51 59.7
Central Alaska (h = 60 km).

" 27 UPP iRg 08 21 40.6
UDD iSgl 08 22 34.7
Dannemora rockburst.
Origin time = 08 21 23.

" 27 UPP iP 13 45 09.5
KIR iP 13 44 58.7
UME iP 13 45 06.8
i 13 45 39.3
Guatemala (h = 90 km).

" 27 KIR iPKPl 17 35 07.1
UME iPKPl 17 35 06.2
West of Macquarie Island
(h = 10 km).

" 28 UPP iP 00 40 44.7
KIR eP 00 40 39
UME iP 00 40 42.9

1981
Sept. 28 KIR eP 00 43 36
UME iP 00 43 39.6

" 28 UPP iP 03 47 49.1
i 03 47 57.8
micr sec
P Z' 0.1 1.0
Mx Z 1.6 20
KIR iP 03 47 07.4
i 03 47 17.1
micr sec
P Z' 0.1 1.0
Mx Z 1.2 16
UME iP 03 47 25.6
i 03 47 47.7
iS 03 56 22
Off east coast of Honshu,
Japan (h = 30 km).
m = 5.9, M = 5.3 (UPP,KIR).

" 28 UME iP 04 39 12.5
Off east coast of Honshu,
Japan (h = N).

" 28 UPP iP 16 23 10.7
KIR iP 16 22 53.5
Tsinghai Province, China
(h = N).

" 28 UPP iPKP 18 15 20.5
iPKPl 18 15 23.9
KIR iPKPl 18 15 00.7
iSKPl 18 18 05.6
UME iPKPl 18 15 11.2 D
Kermadec Islands region
(h = 320 km).

" 28 KIR i 20 45 05.2
iSgl 20 45 19.2
UME iPn 20 44 26.5
iSn 20 45 31.5
iSgl 20 45 56.9
eSgl 20 46 52
Norwegian Sea, near
67 1/2°N, 8°E.
Origin time = 20 42 57.
M_L(UPP) = 3.0 (0.20) 3.

" 28 KIR iP 21 32 09.8
UME iP 21 32 57.5
Greenland Sea (h = 10 km).

" 30 UPP iPKPl 02 03 10.2
i 02 03 25.3
South of Tonga Islands
(h = N).

UPP = Uppsala, KIR = Kiruna, SKA = Skalstugan, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981						
Sept.	30	UPP	iP		07 41 30.2	
			iS		07 45 54	
					micr	sec
			Mx	Z	3.3	13
		KIR	iP		07 42 41.1	
					micr	sec
			P	Z'	0.1	1.1
			Mx	Z	2.8	11
		UME	iP		07 42 05.0	
			iS		07 46 59	
		Crete (h = N).				
		M = 5.2 (UPP,KIR).				
"	30	UPP	iP		12 05 18.3	
			iS		12 15 06	
					micr	sec
			P	Z'	0.2	1.5
			Mx	Z	5.1	20
		KIR	iP		12 04 43.9	
			iS		12 14 03	
					micr	sec
			P	Z'	0.6	2.2
			Mx	Z	3.4	17
		UME	iP		12 05 03.2	
			iS		12 14 38	
		California-Nevade border region (h = 5 km).				
		m = 6.1, M = 5.8 (UPP,KIR).				
"	30	UPP	iP		23 48 35.5	
		UME	iP		23 48 11.5	
		Hokkaido, Japan region (h = 50 km).				

June 16, 1983

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SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

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S-750 12 UPPSALA
SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m

O C T O B E R 1 - 31, 1981

1981 Oct.	1	UME	iP		03 24 12.3	
"	1	UPP	i(P)		04 19 36.1	
"	1	UPP	iP		12 19 24.3	
					micr	sec
			P	Z'	0.7	0.7
		KIR	iP		12 17 53.1	
					micr	sec
			P	Z'	1.5	0.6
		UME	iP		12 18 31.5	
		Novaya Zemlya.				
		m = 6.0 (UPP).				
		Underground explosion.				
"	1	UPP	iPKP		16 22 34.1	
			iPKP1		16 22 41.6	
					micr	sec
			PKP1	Z'	0.1	0.9
		KIR	iPKP1		16 22 19.7	
					micr	sec
			PKP1	Z'	0.2	1.5
		UME	iPKP		16 22 29.8	C
		South of Kermadec Islands				
		(h = N).				
"	1	UPP	iP		17 15 26.9	D
			i		17 15 46.7	
			iS		17 24 12	
			iP'P'		17 43 51.7	
					micr	sec
			P	Z'	0.4	1.1
			Mx	Z	9.5	13
		KIR	iP		17 14 34.0	D
			iS		17 22 41	
					micr	sec
			P	Z'	0.5	1.5
			Mx	Z	6.6	14
		UME	iP		17 14 59.0	D
			i		17 23 23	
		(cont.)				

1981 Oct.	1	(cont.)				
		UME	iP'P'		17 44 02.4	
		Kuril Islands region				
		(h = N).				
		m = 6.4, M = 6.1 (UPP,KIR).				
"	1	UPP	iP		19 11 48.9	
		KIR	iP		19 11 14.2	
		UME	iP		19 11 35.6	
		Southern Nevada.				
		Underground explosion.				
"	2	UPP	iP		13 28 31.5	
		UME	iP		13 28 21.5	
"	3	KIR	iP		04 26 05.3	
		Fox Islands, Aleutian Islands				
		(h = 45 km).				
"	3	UPP	iP		07 32 42.9	
		UME	iP		07 32 17.9	
		Kuril Islands (h = 80 km).				
"	3	UPP	iP		09 11 34.0	
		UME	iP		09 11 25.3	
		Tibet (h = N).				
"	3	UPP	iP		17 00 47.3	
		KIR	iP		17 00 30.0	
		UME	iP		17 00 35.8	
		Mindoro, Philippine Islands				
		(h = 240 km).				
"	3	UDD	iSg1		22 45 09.1	
		Småland, Sweden,				
		57.9°N, 14.8°E.				
		Origin time = 22 43 57.				
		Solution from SKI station				
		readings.				

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Oct. 4 UPP Mx 01 10
micr sec
Mx Z 11 17
KIR Mx 01 06
micr sec
Mx Z 8.5 24
East Papua New Guinea region
(h = N).
M = 6.4 (UPP,KIR).

" 4 UPP iP 04 22 37.8
KIR eP 04 22 00
UME iP 04 22 16.8
Near east coast of Honshu,
Japan (h = 40 km).

" 4 UME iPKP 10 46 27.9
Solomon Islands (h = 25 km).

" 5 KIR iP 04 37 16.2
UME iP 04 37 32.5 D
E. USSR - n.e. China border
reg. (h = 530 km).

" 5 UPP i(P) 21 16 05.9

" 6 UPP eP 07 51 08
Rat Islands, Aleutian Islands
(h = 25 km).

" 7 UPP iPKP1 03 20 22.9
iSKP1 03 23 10.7
iSKKP 03 31 39.6
UME i(PKP) 03 20 10.5
iPKP 03 20 18.4
iSKP1 03 22 59.1
Fiji Islands region
(h = 620 km).

" 7 UPP iPg1 04 37 42.2 D
iSg1 04 38 03.1
iRg 04 38 11.3
UME iSn 04 39 40.2
iSg1 04 40 05.1
UDD iPg1 04 37 39.5 D
iSg1 04 37 59.4
i 04 38 02.4
DEL iPg1 04 37 54.7
iSg1 04 38 26.8
iRg 04 38 40.1
Mine collapse in Zinkgruvan,
Närke, Sweden, 58.8°N, 15.1°E.
Origin time = 04 37 12.
M_L (UPP) = 2.8 1
Felt.

1981
Oct. 7 UPP iPg1 05 06 06.7
iSg1 05 06 28.2
iRg 05 06 37.4
UDD iPg1 05 06 03.5
iSg1 05 06 24.2
i 05 06 27.0
DEL iSg1 05 06 51.2
Mine collapse in Zinkgruvan.
Origin time = 05 05 37.
Felt.

" 7 UME iPKP 08 51 30.1
Solomon Islands (h = 40 km).

" 7 UPP iP 13 31 35.9
micr sec
P Z' 0.5 1.4
UME iP 13 31 45.8 D
i 13 31 58.2
Mid-Indian Rise (h = 10 km).

" 7 UME iPKP 23 57 51.7
Fiji Islands region
(h = 460 km).

" 8 UPP iP 01 14 21.1
Kuril Islands (h = N).

" 9 KIR iP 05 33 16.7
UME iP 05 33 15.4
Burma-India border region
(h = 110 km).

" 9 UPP iPKP 12 38 32.1
micr sec
Mx Z 12 23
KIR iPKP 12 38 19.7
UME iPKP 12 38 25.2
Solomon Islands (h = 50 km).

" 9 UME iP 20 29 47.4
Albania (h = 10 km).

" 11 KIR iP 00 49 18.6
micr sec
P Z' 0.1 1.0
UME iP 00 49 21.5
Minahassa Peninsula (h = 90 km).

" 12 UPP iPKP1 07 19 19.4
UME iPKP1 07 19 07.3
Kermadec Islands (h = N).

" 12 UPP iPKP1 11 06 57.9
Kermadec Islands (h = N).

UPP = Uppsala, KIR = Kiruna, UME =Umeå, UDD = Uddeholm, DEL = Delary

1981
Oct. 13 UPP iP 13 13 17.8
KIR iP 13 12 51.2
UME iP 13 13 01.3
Northeast of Taiwan
(h = 150 km).

" 13 UPP iPKP 13 20 42.8
UME iPKP 13 20 55.4
South Sandwich Islands region
(h = 70 km).

" 13 UPP iP 16 04 19.7
KIR iP 16 03 27.9
UME iP 16 03 53.8
Near east coast of Kamchatka
(h = 110 km).

" 14 UPP iP 09 20 13.6
KIR iP 09 20 43.8
UME iP 09 20 23.8
Southern Iran (h = N).

" 14 UPP iP 11 03 14.5
UME iP 11 03 51.6
i 11 03 55.8
Aegean Sea (h = 15 km).

" 14 UPP iP 12 42 21.7
KIR iP 12 41 53.5
Mariana Islands (h = 210 km).

" 14 UPP iP 13 40 02.2
United Kingdom (h = 10 km).

" 14 UPP iP 20 21 50.3
KIR iP 20 21 22.7
Mariana Islands (h = 130 km).

" 15 UPP iP 01 59 02.6 C
iS 02 08 12
micr sec
P Z' 0.4 1.0
Mx Z 62 20
KIR iP 01 58 20.8 C
micr sec
P Z' 0.8 1.0
Mx Z 3.7 16
UME iP 01 58 39.3 C
iS 02 07 27
Near east coast of Honshu,
Japan (h = 45 km).
m = 6.6, M = 5.8 (UPP,KIR).

" 15 UPP iP 20 58 34.5
micr sec
Mx Z 1.6 15
(cont.)

1981
Oct. 15 (cont.)
KIR iP 20 58 14.0
UME iP 20 58 20.0
Philippine Islands region
(h = 25 km).

" 16 UDD iSgl 00 45 29.0
Southeastern Norway.
By combination with SKI
network readings.

" 16 UPP iPdiff 03 40 47.2
iPKP 03 44 28.3
iPP 03 45 40.5
iPKKP 03 54 46.3
micr sec
PKP Z' 0.1 1.1
Mx Z 49 19
KIR iPKP 03 44 33.2
iPP 03 45 07.5
iPKKP 03 54 32.7
micr sec
PKP Z' 0.5 1.4
Mx Z 19 19
UME iPKP 03 44 30.2
Off coast of central Chile
(h = N).
M = 7.0 (UPP,KIR).

" 16 UPP iP 13 05 02.8

" 16 UPP iP 14 54 22.6
i 14 54 31.0
iSKS 15 04 53
iS 15 05 33
micr sec
Mx Z 3.4 18
KIR iP 14 54 06.0
North of Halmahera (h = 55 km).

" 16 KIR iPKP 21 20 36.3
micr sec
PKP Z' 0.3 1.5
UME iPKP 21 20 30.9
South Sandwich Islands region
(h = 120 km).

" 17 UPP iP 00 14 27.5
KIR iP 00 13 41.4
UME iP 00 14 02.3
Kuril Islands (h = 80 km).

" 17 UPP iP 06 58 50.1
micr sec
Mx Z 5.4 19
(cont.)

UPP = Uppsala, KIR = Kiruna, UME =Umeå, UDD = Uddeholm, DEL = Delary

1981
Oct. 17 (cont.)

KIR	iP		06 58 34.6	
			micr	sec
	P	Z'	0.2	0.9
UME	iP		06 58 39.5	
	iSKS		07 09 03	
	iS		07 10 09	

Banda Sea (h = 180 km).

" 17

UPP	Mx		13 13	
			micr	sec
	Mx	Z	5.7	21

Near n. coast of Papua New Guinea (h = 25 km).

" 17

UPP	Mx		15 37	
			micr	sec
	Mx	Z	5.7	20

South Atlantic Ridge (h = 10 km).

" 17

UPP	iP		20 16 25.7	
			micr	sec
	P	Z'	0.1	0.9
KIR	iP		20 16 11.5	
			micr	sec
	P	Z'	0.3	1.1
UME	iP		20 16 16.2	

Celebes Sea (h = 630 km).
m = 6.0 (UPP,KIR).

" 18

UPP	iP		04 04 00.5	C
			micr	sec
	P	Z'	0.6	0.5
KIR	iP		04 03 44.2	C
			micr	sec
	P	Z'	1.1	0.7
UME	iP		04 03 44.9	C

Eastern Kazakh SSR.
m = 6.8 (UPP,KIR).
Underground explosion.

" 18

UPP	iP		04 43 23.6	
	ipP		04 43 36.4	
			micr	sec
	P	Z'	0.1	1.0
	Mx	Z	2.7	20
KIR	iP		04 43 27.2	
	ipP		04 43 38.2	
			micr	sec
	P	Z'	0.1	1.0
UME	iP		04 43 28.7	
	ipP		04 43 40.3	

Venezuela.
h = 45 km (UPP,KIR,UME).
m = 5.8 (UPP,KIR).

1981
Oct. 18

UPP	iP		05 27 38.1	
	iS		05 31 49	
			micr	sec
	P	Z'	0.1	1.1
	Mx	Z	61	11
KIR	iP		05 28 16.6	
UME	iP		05 27 50.9	
	iS		05 32 13	

Eastern Caucasus (h = N).

" 18 UPP iPKP1 15 35 46.9
South of Fiji Islands (h = 530 km).

" 18 UME iP 18 23 22.8
Eastern Caucasus (h = N).

" 19 UME iP 05 55 13.0
Eastern Caucasus (h = N).

" 20

UPP	iPKP		14 09 46.7
	iSKP1		14 12 32.0
KIR	iPKP		14 09 41.4
	iSKP1		14 12 05.7
UME	iPKP		14 09 44.5
	iSKP1		14 12 19.3

Fiji Islands region (h = 640 km).

" 20

UPP	iP		14 16 45.8
KIR	eP		14 17 25
UME	iP		14 16 59.0

Eastern Caucasus (h = N).

" 20

UPP	iPKP1		14 43 54.5
UME	iPKP1		14 43 42.0

Kermadec Islands region (h = 220 km).

" 21 UPP i(P) 08 17 43.6

" 21 UPP i(P) 08 26 30.5

" 21 UPP iP 11 33 08.7

" 21

UPP	iP		20 48 50.1
KIR	iP		20 48 49.6

Southern Sumatera (h = 60 km).

" 21

UPP	eP		21 53 25
KIR	eP		21 53 22

Nicobar Islands region (h = N).

" 22

UPP	iP		14 06 57.6
KIR	iP		14 06 07.6
UME	iP		14 06 27.9

Central Siberia.
Underground explosion.

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Oct. 22 UPP iP 14 15 41.6
ipP 14 15 53.3
KIR iP 14 14 57.3
ipP 14 15 07.7
UME iP 14 15 18.0
Kuril Islands.
h = 40 km (UPP,KIR).

" 22 UPP eP 18 34 58
KIR eP 18 35 43
UME iP 18 35 06.7
Eastern Caucasus (h = N).

" 23 UPP iPKPl 02 58 44.3
UME ePKPl 02 58 31
South of Fiji Islands
(h = 520 km).

" 23 UME iP 06 46 29.7
North of Ascension Island
(h = 10 km).

" 23 UPP iP 08 31 55.6
KIR iP 08 31 37.9
micr sec
P Z' 0.1 0.8
UME iP 08 31 43.8
Mindanao, Philippine Islands
(h = 160 km).

" 23 UPP micr sec
Mx Z 1.8 15
KIR iP 13 19 25.3
micr sec
Mx Z 1.5 13
South of Java (h = N).
M = 5.7 (UPP,KIR).

" 23 UPP iP 23 54 42.3
KIR iP 23 54 32.8
UME iP 23 54 35.6
India-China border region
(h = N).

" 24 KIR iP 01 49 10.8
India-China border region
(h = N).

" 24 KIR iP 04 35 17.9
Samar, Philippine Islands
(h = 60 km).

" 24 UPP iPKPl 05 16 38.3 C
South of Fiji Islands
(h = 390 km).

1981
Oct. 24 KIR iP 05 51 42.3
Mariana Islands (h = 220 km).

" 24 UPP iP 06 24 05.8
KIR iP 06 24 17.2
Hindu Kush region (h = N).

" 24 UPP i(P) 22 36 20.8

" 25 UPP iP 03 35 03.9
i 03 35 07.1
i 03 35 11.9
iPP 03 38 31
iS 03 45 37
micr sec
i Z' 0.1 0.8
i Z' 0.2 1.0
Mx Z 273 26
KIR iP 03 34 43.3
i 03 34 54.4
iS 03 45 18
micr sec
P Z' 0.2 0.9
i Z' 8.8 2.5
Mx Z 196 16
UME iP 03 34 58.1
i 03 35 04.1
Michoacan, Mexico (h = N).
m = 6.9, M = 7.6 (UPP,KIR).

" 25 UPP iP 03 48 27.9
KIR iP 03 48 10.8
micr sec
P Z' 0.1 1.1
UME iP 03 48 22.1
Near coast of Michoacan,
Mexico (h = N).

" 25 UME iP 21 29 13.7

" 26 UPP iP 13 44 59.7
KIR iP 13 44 42.4
Mindoro, Philippine Islands
(h = 170 km).

" 26 UPP iP 18 44 34.7
Tibet (h = N).

" 26 UPP iP 20 32 14.9
Kuril Islands (h = 40 km).

" 28 UPP iPKP 04 53 40.2
micr sec
Mx Z 6.3 18
KIR micr sec
Mx Z 6.0 19
Easter Island region (h = 10 km).
M = 6.4 (UPP,KIR).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Oct. 29 UPP iP 03 09 06.2
KIR iP 03 08 33.1
UME iP 03 08 47.5
South of Honshu, Japan
(h = 390 km).

" 29 UPP iSgl 05 05 55.3
Hälsingland, Sweden,
61.4°N, 16.9°E.
Origin time = 05 05 08.
Solution from SKI network
readings.

" 29 UPP iP 06 48 35.9
Greece (h = 20 km).

" 29 UPP iP 07 39 56.2
Greece (h = 10 km).

" 29 UPP iP 23 03 52.4
KIR iP 23 03 04.6
UME iP 23 03 26.8
Kuril Islands (h = 45 km).

" 30 UPP iSgl 09 55 17.7
UDD iSgl 09 55 09.4
i 09 55 13.9
Skåne, Sweden,
55.7°N, 13.9°E.
Origin time = 09 52 56.
M_L (UPP) = 2.8 (0.04) 2
By combination with SKI
station readings.

" 31 KIR iPKP 07 55 01.2
UME iPKP 07 55 06.3
Santa Cruz Islands region
(h = 650 km).

" 31 UPP eP 10 47 26
KIR iP 10 48 06.0

" 31 UPP iP 10 51 40.3
i 10 51 44.9
micr sec
i Z' 0.2 1.1
KIR iP 10 52 57.0
micr sec
P Z' 0.1 1.4
UME iP 10 52 19.5
Southern Greece (h = 40 km).
m = 5.5 (UPP,KIR).

" 31 UPP iP 12 52 42.7
micr sec
P Z' 0.1 1.0
(cont.)

1981
Oct. 31 (cont.)
KIR iP 12 53 11.4
micr sec
P Z' 0.1 1.2
UME iP 12 52 54.3
Carlsberg Ridge (h = 10 km).
m = 5.9 (UPP,KIR).

July 5, 1983

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SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

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SWEDEN

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, U M E Å,

U D D E H O L M and D E L A R Y

Uppsala	(UPP)	59°51.5'N,	17°37.6'E; h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E; h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E; h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E; h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E; h = 150 m

N O V E M B E R 1 - 31, 1981

1981 Nov.	1	UPP	iP		09 30 00.8 C	
					micr	sec
			P	Z'	0.4	0.8
		KIR	iP		09 30 09.5 C	
			i		09 30 18.9	
					micr	sec
			P	Z'	0.6	1.1
		UME	iP		09 29 59.3 C	
		Hindu Kush region (h = 210 km).				
		m = 6.0 (UPP,KIR).				
"	1	KIR	eP		17 16 27	
		UME	iP		17 16 33.0	
		Caribbean Sea (h = 10 km).				
"	1	UPP	iP		23 31 22.4	
		KIR	iP		23 31 05.1	
			i		23 31 16.1	
		UME	iP		23 31 14.7 C	
		Guerrero, Mexico (h = 60 km).				
"	2	KIR	iP		18 57 38.5	
		UME	iP		18 57 52.2	
		Volcano Islands region				
		(h = 90 km).				
"	2	UPP	iP		21 21 49.2 C	
					micr	sec
			P	Z'	0.2	0.8
		KIR	iP		21 21 49.5 C	
					micr	sec
				Z'	0.2	0.9
		UME	iP		21 21 45.4 C	
		Andaman Islands region				
		(h = N).				
		m = 6.2 (UPP,KIR).				
"	2	UPP	iP		23 08 01.8	
		KIR	iP		23 08 18.2	
		UME	iP		23 08 04.4	
		West Pakistan (h = 20 km).				
1981 Nov.	3	KIR	eP		03 00 47	
		Bonin Islands region (h = N).				
"	3	UPP	iP		04 28 01.8	
		KIR	iP		04 28 17.9	
		West Pakistan (h = 25 km).				
"	3	KIR	iP		07 15 49.1	
		Ecuador (h = 130 km).				
"	3	KIR	iPKP		07 48 08.8	
		UME	iPKP		07 48 15.9	
		New Hebrides Islands				
		(h = 240 km).				
"	3	UPP	iP		08 58 27.0	
"	3	UPP	iP		10 15 23.1	
			i		10 15 34.0	
		KIR	iP		10 14 58.4	
			i		10 15 07.6	
		UME	iP		10 15 07.1	
			i		10 15 16.5	
		Ryukyu Islands region				
		(h = N).				
"	3.	UPP	iP		13 59 05.2	
			i		13 59 09.7	
			iS		14 08 35	
					micr	sec
			P	Z'	0.1	0.9
			i	Z'	0.4	1.0
			Mx	Z	10.9	17
		KIR	iP		13 58 24.0 C	
			i		13 58 26.9	
			iS		14 07 16	
					micr	sec
			P	Z'	0.1	1.2
			i	Z'	1.4	2.0
			Mx	Z	7.9	15

(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Nov. 3 (cont.)
UME iP 13 58 46.4
i 13 58 50.9
iS 14 07 58
iP'P' 14 26 46.5
Off coast of Oregon
(h = 10 km).
m = 6.6, M = 6.2 (UPP,KIR).

" 4 UPP iP 05 35 59.6
KIR iP 05 35 05.1
Fox Islands, Aleutian Islands
(h = 40 km).

" 4 UPP iPKPl 14 57 27.3
KIR iPKP 14 57 20.1
UME iPKP 14 57 26.9
Tonga Islands (h = N).

" 4 KIR iPKPl 22 48 51.1
UME iPKPl 22 48 58.3
North Island, New Zealand
(h = 40 km).

" 5 UPP iP 02 16 23.5

" 5 UPP iP 23 14 12.2
KIR iP 23 13 28.8
UME iP 23 13 48.8
Hokkaido, Japan region
(h = N).

" 6 UPP iP 15 19 39.1
KIR iP 15 19 45.8
Afghanistan-USSR border region
(h = 130 km).

" 6 UPP iPS 17 16 20
iSS 17 22 35
micr sec
Mx Z 42.9 21
KIR eP 17 02 00
micr sec
Mx Z 9.6 11
Near n. coast of Papua,
New Guinea (h = N).
M = 6.9 (UPP,KIR).

" 7 UPP iPKP 03 48 30.1
iPP 03 49 35.6
iSKS 03 55 41
micr sec
Mx Z 45.7 28
KIR iPKP 03 48 34.2
iPP 03 50 03.0
iPKKP 03 58 41.9
UME iPKP 03 48 32.0
Near c. of central Chile
(h = 70 km).

1981
Nov. 7 UPP eP 05 41 47
KIR iP 05 41 27.7
Luzon, Philippine Islands
(h = 50 km).

" 7 UME iP 05 59 30.5
Yugoslavia (h = 10 km).

" 7 UME iPKP 07 45 31.6
North Island, New Zealand
(h = 200 km).

" 7 UPP iP 09 55 38.9
iS 10 06 06
micr sec
Mx Z 8.9 21
KIR iP 09 56 02.9
i 09 59 43.3
Mascarene Islands region
(h = 10 km).

" 7 UPP iP 11 04 52.6
micr sec
P Z' 0.1 0.8
KIR iP 11 04 33.5 C
micr sec
P Z' 0.1 1.0
UME iP 11 04 38.4C
Sichuan Province, China
(h = N).
m = 5.9 (UPP,KIR).

" 7 UPP iRg 14 19 58.4
UDD iSgl 14 20 55.2
Uppland, Sweden, 60.1°N, 17.5°E.
Rockburst at the Dannemora
iron ore mine.

" 7 UPP iRg 14 20 02.6
Dannemora rockburst.

" 7 UPP iRg 14 20 09.5
Dannemora rockburst.

" 7 UPP iRg 17 26 00.7
Dannemora rockburst.

" 7 UPP iRg 20 49 54.8
Dannemora rockburst.

" 7 UPP iRg 21 41 28.6
UDD iSgl 21 42 20.8
Dannemora rockburst.

" 7 UPP iP 22 15 08.5
i 22 15 14.5
iPP 22 18 33.1
iS 22 25 28
(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Nov. 7 (cont.)

UPP	i		22 26 48	
			micr	sec
	i	Z'	0.1	1.0
KIR	eP		22 14 59	
	ipP		22 15 45.5	
	iPP		22 18 14.0	
UME	iP		22 15 06.6	
	ipP		22 15 52.3	
	iPP		22 18 26.0	

Guatemala.
h = 200 km (KIR,UME).

" 8 UPP iRg 08 22 47.4
Dannemora rockburst.

" 8 UPP iRg 11 37 43.2
Dannemora rockburst.

" 8

UPP	iP		13 53 48.6	D
			micr	sec
	P	Z'	0.1	0.5
KIR	iP		13 53 41.9	D
UME	iP		13 53 42.4	D

Java (h = 630 km).

" 8

UPP			micr	sec
	Mx	Z	9.6	16
KIR	eP		18 10 57	
UME	iP		18 11 06.1	
	i		18 11 08.7	

Northeastern China (h = 15 km).

" 8

UPP	iP		22 05 32.3	C
			micr	sec
	P	Z'	0.1	1.0
	Mx	Z	0.9	22
KIR	iP		22 04 33.7	C
			micr	sec
	P	Z'	0.4	1.5
UME	iP		22 05 01.1	C

Eastern Siberia (h = N).
m = 5.9 (UPP,KIR).

" 9

UPP	iP	00 16 30.8	
KIR	iP	00 16 58.4	
UME	iP	00 16 40.7	

Arabian Sea (h = 10 km).

" 9

UPP	iP		09 45 19.3	D
			micr	sec
	P	Z'	0.1	1.0
KIR	iP		09 45 25.5	D
UME	iP		09 45 16.1	

Northwestern Kashmir
(h = 70 km).

1981
Nov. 9

UPP	iP		16 55 57.4	C
			micr	sec
	Mx	Z	4.8	21
KIR	iP		16 55 02.9	C
			micr	sec
	P	Z'	0.1	0.8
UME	iP		16 55 30.5	C

Fox Islands, Aleutian Islands
(h = N).

" 10 UPP eP 05 11 01

" 11 UPP iPKP 00 16 07.9
UME ePKP 00 16 02
South of Fiji Islands
(h = 230 km).

" 11

UPP	iSgl	02 50 43.4	
UME	i	02 52 20.7	
	iSgl	00 52 44.7	
UDD	i	02 50 20.1	
	iSgl	02 50 25.0	
DEL	iPgl	02 49 05.3	D
	iSgl	02 49 14.7	

Halland-Småland-Västergötland,
Sweden, 57.1°N, 13.1°E.
Origin time = 02 48 52.
M_L (UPP) = 2.9 (0.22) 6.
Felt.
By combination with SKI
station readings.

" 11

UPP	iP	10 34 41.6	
KIR	iP	10 35 43.6	
	i	10 35 54.1	
UME	iP	10 35 12.5	

Turkey (h = 55 km).

" 11

UPP	iSgl	12 04 27.2	
UME	iPgl	12 03 32.0	
	i	12 03 50.9	
	iSgl	12 03 54.4	

Medelpad, Sweden,
62.5°N, 17.5°E.
Origin time = 12 03 01.
M_L (UPP) = 2.8 1.
By combination with Finnish
station readings.

" 11 UME eP 12 31 48
i 12 31 55.9

" 11 KIR eP 20 11 15
UME iP 20 11 35.6
Southern Nevada.
Underground explosion.

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Nov. 12 UME iP 07 15 08.5

" 12 UPP iP 15 11 28.2
micr sec
P Z' 0.1 1.0
KIR iP 15 11 14.8 D
micr sec
P Z' 0.1 1.0
UME iP 15 11 34.2 D
Southern Nevada.
m = 5.8 (UPP,KIR).
Underground explosion.

" 12 KIR iP 16 23 33.3

" 12 UPP iP 19 40 29.1 C
KIR iP 19 40 28.4 C
micr sec
P Z' 0.2 1.0
UME iP 19 40 25.6
Southern Sumatera
(h = 55 km).

" 13 UPP iPKP 06 25 26.3
KIR ePKP 06 25 20
Fiji Islands region
(h = 500 km).

" 13 UPP iP 08 06 50.8
UME iP 08 06 49.0
Nicobar Islands region
(h = 50 km).

" 13 UPP iP 08 18 23.7
UME iP 08 18 21.0
Northern Sumatera
(h = 45 km).

" 13 UPP iP 08 54 14.3

" 13 UPP iP 09 10 51.1
i 09 10 57.1
iS 09 13 41.9
micr sec
i Z' 0.3 0.7
KIR iP 09 12 15.4
i 09 12 18.9
micr sec
i Z' 0.3 1.0
UME iP 09 11 30.0
iS 09 14 54.7
Southwestern Russia
(h = 10 km).

" 13 UPP iP 19 46 05.2
KIR iP 19 45 20.5
UME iP 19 45 40.8
Kuril Islands (h = 60 km).

1981
Nov. 14 UPP iP 00 53 45.6
KIR iP 00 52 51.3
micr sec
P Z' 0.1 1.0
UME iP 00 53 18.8
Unimak Island region
(h = 70 km).

" 14 UPP iRg 03 48 46.2
Dannemora, Sweden,
60.1°N, 17.5°E.
Rockburst.
A series of rockbursts at the Dannemora iron ore mines started on May 2, 1981, with an extremely high occurrence of events during the month of May. Since Nov. 7, the series has again shown an increasing frequency of events. Cf. also bulletins 1981(19) and 1981(46).

" 14 UPP iP 04 02 20.6
KIR iP 04 01 33.7
UME eP 04 01 54
Kuril Islands (h = 50 km).

" 14 UPP iRg 04 49 51.6
Dannemora rockburst.

" 14 UPP iP 09 12 44.7
iS 09 18 33
micr sec
P Z' 0.1 0.9
Mx Z 3.6 18
KIR iP 09 13 44.1
micr sec
P Z' 0.1 1.0
Mx Z 1.7 22
UME iP 09 13 12.6
United Arab Republic
(h = 10 km).
m = 5.5, M = 5.1 (UPP,KIR).

" 14 UPP iPKPl 10 13 21.2
UME iPKPl 10 13 09.6
Kermadec Islands (h = 130 km).

" 14 KIR iP 15 46 02.7
Leyte, Philippine Islands
(h = 230 km).

" 14 UPP iP 15 51 43.3
Southern Greece (h = 55 km).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Nov. 14 KIR iP 17 51 14.9
Talaud Islands (h = 180 km).

" 14 UPP iRg 20 00 32.1
Dannemora rockburst.

" 15 UPP iRg 03 40 15.5
Dannemora rockburst.

" 15 UPP iRg 04 56 47.9
Dannemora rockburst.

" 15 UPP iRg 06 04 24.3
Dannemora rockburst.

" 15 UPP iRg 07 36 16.6
Dannemora rockburst.

" 15 UPP iPgl 07 37 25.1
iRg 07 37 30.7
UDD iSgl 07 38 25.3
iRg 07 38 39.5
Dannemora rockburst.

" 15 UPP iRg 07 37 49.0
Dannemora rockburst.

" 15 UPP iRg 07 45 22.8
Dannemora rockburst.

" 15 UPP iRg 07 46 42.7
Dannemora rockburst.

" 15 UPP iRg 08 43 15.9
Dannemora rockburst.

" 15 UPP iRg 09 33 25.8
Dannemora rockburst.

" 15 UPP iRg 09 43 19.6
Dannemora rockburst.

" 15 UPP iRg 09 43 43.2
Dannemora rockburst.

" 15 UPP iRg 11 26 47.5
Dannemora rockburst.

" 15 UPP iRg 15 55 02.7
Dannemora rockburst.

" 15 UPP iRg 16 08 59.4
Dannemora rockburst.

" 15 UPP iRg 16 09 04.4
Dannemora rockburst.

" 15 UPP iRg 21 00 51.0
Dannemora rockburst.

1981
Nov. 15 UPP iRg 23 09 17.1
Dannemora rockburst.

" 15 UPP iRg 23 10 17.1
Dannemora rockburst.

" 16 KIR iPgl 03 40 26.5 C
iSgl 03 40 28.2
Swedish Lapland.
Rockburst and mine collapse
at Kiruna iron ore mines.

" 16 UPP iP 08 02 31.7

" 16 UPP iP 11 44 44.8
KIR eP 11 45 51
Dodecanese Islands
(h = 160 km).

" 16 UPP iPKP2 12 22 33.5
KIR iPKP 12 22 02.7
Off e. coast of n. Island,
N.Z. (h = 170 km).

" 16 UPP ePKP 14 12 40
KIR ePKP 14 12 26
UME iPKP 14 12 33.8
Loyalty Islands region
(h = N).

" 16 UPP iPKP1 20 02 27.2
KIR iPKP1 20 02 08.0
UME iPKP1 20 02 16.1
South of Kermadec Islands
(h = N).

" 16 UPP iPKP1 20 58 59.0
UME iPKP1 20 58 49.5
South of Kermadec Islands
(h = N).

" 16 UPP iPKP1 21 46 29.3
UME iPKP1 21 46 19.1

" 17 UPP iP 20 57 10.7

" 17 KIR eP 21 43 04
Luzon, Philippine Islands
(h = 60 km).

" 18 UPP iP 09 27 52.9
i 09 27 55.2
micr sec
i Z' 0.2 1.2
KIR iP 09 28 44.7
i 09 28 46.3
micr sec
i Z' 0.2 1.1
(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Nov. 18 (cont.)
UME iP 09 28 18.7
i 09 28 20.5
Republic of the Congo
(h = 5 km).
m = 6.2 (UPP,KIR).

" 18 UPP iPKPl 17 57 30.5
KIR iPKPl 17 57 08.5
UME iPKPl 17 57 17.7
i 17 57 28.8
Kermadec Islands (h = N).

" 18 UPP iPKPl 18 02 02.8
UME iPKPl 18 01 50.3
Kermadec Islands region
(h = N).

" 18 UPP iPKPl 18 14 21.3
Kermadec Islands region
(h = N).

" 18 KIR iP 18 50 31.9

" 18 KIR ipP 23 02 42.4
Kyushu, Japan (h = 45 km).

" 19 UPP iP 04 30 51.2
micr sec
P Z' 0.1 1.0
KIR iP 04 29 57.0
UME iP 04 30 23.4
Near Islands, Aleutian
Islands (h = 40 km).

" 19 UPP iPKPl 05 55 11.8
Kermadec Islands
(h = 150 km).

" 19 UPP iRg 12 04 05.2
Dannemora rockburst.

" 19 UPP iP 14 16 22.2
KIR iP 14 16 54.1 C
micr sec
P Z' 0.1 0.7
UME iP 14 16 29.4
Eastern Caucasus (h = N).

" 19 UPP iRg 21 16 53.6
Dannemora rockburst.

" 20 UPP iP 05 03 59.1
KIR iP 05 03 42.8 C
UME iP 05 03 43.6
Eastern Kazakh SSR.
Underground explosion.

1981
Nov. 20 UPP eP 21 03 49
KIR iP 21 02 14.5
micr sec
P Z' 1.2 2.3
UME iP 21 03 08.2
Greenland Sea (h = 10 km).

" 21 UPP iP 02 02 47.3
KIR eP 02 02 46
UME iP 02 02 40.5
Burma-India border region
(h = 50 km).

" 22 UPP iP 11 49 30.2
KIR eP 11 48 46
UME iP 11 49 11.2
Off coast of Oregon
(h = 10 km).

" 22 UPP iPKPl 14 06 10.5
KIR iPKP 14 06 01.1
iSKPl 14 08 43.0
UME iSKPl 14 08 53.8
South of Fiji Islands
(h = 510 km).

" 22 UPP iP 15 17 30.7 D
i 15 27 34
micr sec
P Z' 0.8 1.4
Mx Z 33.9 14
KIR iP 15 17 10.6 D
micr sec
P Z' 3.4 2.4
UME iP 15 17 17.0 D
iS 15 26 57
iSKS 15 27 36
Luzon, Philippine Islands
(h = 25 km).
m = 6.8 (UPP,KIR).

" 22 UPP eP 23 48 31
KIR eP 23 49 38
Eastern Mediterranean Sea
(h = 60 km).

" 23 UPP iP 10 28 25.4 C
iS 10 37 26
micr sec
P Z' 0.7 1.0
Mx Z 9.5 19
KIR iP 10 27 40.9 C
micr sec
P Z' 0.5 1.1
Mx Z 7.2 19
UME iP 10 28 00.3 C
Kuril Islands (h = 40 km).
m = 6.6, M = 6.0 (UPP,KIR).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981
Nov. 23 UPP iP 21 37 48.9
micr sec
P Z' 0.1 0.9
KIR iP 21 37 59.1
micr sec
P Z' 0.2 1.0
UME iP 21 37 46.8
Hindu Kush region (h = 230 km).
m = 5.4 (UPP,KIR).

" 24 UPP iP 20 20 44.8

" 24 UPP iRg 22 39 02.5
Dannemora rockburst.

" 24 UPP iPKP1 23 49 51.3
micr sec
Mx Z 24.3 21
KIR ePKP 23 49 45
micr sec
Mx Z 12.8 20
UME iPKP 23 49 48.1
Loyalty Islands region
(h = 30 km).
M = 6.8 (UPP,KIR).

" 24 UPP iPKP 23 53 29.5
KIR iPKP 23 53 07.2
UME iPKP 23 53 18.8 C

" 25 KIR eP 11 47 52

" 25 UPP iP 14 54 21.2
KIR iP 14 53 36.8
UME iP 14 53 56.9
Off coast of Hokkaido,
Japan (h = 35 km).

" 25 KIR iP 15 04 26.6
UME iP 15 04 43.1
Near s. coast of Honshu,
Japan (h = 140 km).

" 26 UPP iPKP1 00 09 27.3
KIR i(PKP) 00 09 07.7
iPKP 00 09 19.8
iSKP1 00 11 52.3
UME i(PKP) 00 09 16.5
iPKP 00 09 21.1
Fiji Islands region
(h = 610 km).

" 26 UPP iP 06 56 33.1
KIR iP 06 55 43.2
UME iP 06 56 06.5
Kuril Islands (h = 50 km).

1981
Nov. 26 UPP iRg 07 23 13.3
Dannemora rockburst.

" 26 UPP iP 22 16 40.1
micr sec
P Z' 0.1 0.9
KIR iP 22 16 22.4
i 22 16 25.9
micr sec
P Z' 0.2 0.8
UME iP 22 16 28.5
Philippine Islands region
(h = 55 km).
m = 6.3 (UPP,KIR).

" 27 UPP iP 17 31 25.7
i 17 31 28.6
iS 17 39 19
iScS 17 40 21
micr sec
i Z' 0.7 1.2
KIR iP 17 30 47.0
i 17 30 48.7
iS 17 38 06.8
micr sec
i Z' 0.7 1.0
UME iP 17 31 03.1
iS 17 38 37.0
E. Russia-n.e. China border
region (h = 540 km).
m = 6.0 (UPP,KIR).

" 28 KIR iP 06 50 20.5
Iran (h = 35 km).

" 28 KIR iP 19 34 07.5
North Atlantic Ridge
(h = 10 km).

" 28 UPP iPKP2 23 51 21.7
UME iPKP1 23 51 04.9
South of Kermadec Islands
(h = N).

" 29 UPP iP 03 42 06.7 C
micr sec
P Z' 0.3 0.5
KIR iP 03 41 50.3 C
micr sec
P Z' 0.9 0.8
UME iP 03 41 51.9
Eastern Kazakh SSR.
m = 6.6 (UPP,KIR).
Underground explosion.

" 29 UPP iP 05 11 11.5
UME iP 05 11 53.8
Southern Italy (h = N).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary

1981					
Nov.	29	UPP	iP		11 17 44.2
		KIR	iP		11 17 14.6
		East China Sea (h = 260 km).			
"	29	UPP	iP		23 43 11.3
			iS		23 47 41
			i		23 48 33
					micr sec
			P	Z'	0.2 1.3
			Mx	Z	10.2 14
		KIR	iP		23 43 46.3 C
					micr sec
			P	Z'	0.6 1.3
			Mx	Z	3.3 9
		UME	iP		23 43 21.4 C
			iS		23 48 04
		Eastern Caucasus (h = 45 km).			
		m = 5.9 (UPP,KIR).			
"	30	UME	iP		00 38 03.2
			i		00 38 16.9 C
		Honshu, Japan (h = 60 km).			
"	30	UPP	iP		04 23 05.2
		UME	iP		04 23 02.7 C
		Afghanistan-USSR border region			
		(h = N).			

October 31, 1983

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SEISMOLOGICAL DEPARTMENT
BOX 12019
S-750 12 UPPSALA
SWEDEN

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SWEDEN

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, U M E Å, U D D E H O L M,

D E L A R Y and M Y R V I K E N

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYR)	62°56.5'N,	14°20.8'E;	h = 345 m

NOTE: Myrviken, equipped with a Geotech S-500 seismometer, was opened on December 15, 1981. It replaces Skalstugan (SKA), which was closed on September 15, 1981.

D E C E M B E R 1 - 31, 1981

1981 Dec.	1	UPP	iPKP1	17 17 25.8			
		UME	iPKP1	17 17 13.3			
			i	17 17 29.9			
		Kermadec Islands (h = N).					
"	1	UPP	iPKP2	18 06 51.5			
			i	18 07 04.8			
		KIR	iPKP1	18 06 22.0			
		UME	iPKP1	18 06 30.8			
			iPKP2	18 06 36.7			
		Off e. coast of N. Island, N.Z. (h = 35 km).					
"	1	UPP	iPKP	18 11 50.9			
		KIR	ePKP	18 11 24			
		UME	iPKP	18 11 28.3			
"	1	UPP	iPKP2	18 19 19.3			
		KIR	iPKP2	18 18 58.7			
		UME	iPKP1	18 18 55.9			
"	1	UPP	iP	18 28 34.1			
"	2	UPP	iP	00 57 11.3			
			i	00 57 16.3			
				micr	sec		
			Mx	Z	2.4	13	
		KIR	iP	00 57 50.7	C		
			i	00 57 54.4			
				micr	sec		
			P	Z'	0.2	1.0	
			i	Z'	0.3	0.9	
			Mx	Z	1.6	11	
		(cont.)					

1981 Dec.	2	(cont.)					
		UME	iP	00 57 24.9	C		
			i	00 57 29.3			
		Eastern Caucasus (h = N).					
		M = 5.0 (UPP,KIR).					
"	2	UPP	eP	05 31 20			
		KIR	eP	05 31 07			
		UME	iP	05 31 11.2			
		Banda Sea (h = 130 km).					
"	2	UPP	iP	06 35 47.4	C		
			i	06 36 09.7			
			iS	06 44 48			
				micr	sec		
			P	Z'	0.1	1.0	
		KIR	iP	06 35 05.1	C		
			i	06 35 26.0			
			iS	06 43 32			
				micr	sec		
			P	Z'	0.2	0.9	
			Mx	Z	4.2	14	
		UME	iP	06 35 24.1	C		
			i	06 35 32.4			
			i	06 35 46.4			
			iS	06 44 06			
		Near east coast of Honshu, Japan.					
		h = 80 km (UPP,KIR,UME).					
		m = 5.9 (UPP,KIR).					
"	2	UPP	e(PKP)	15 33 48			
		KIR	iPKP	15 33 45.1			
		UME	i(PKP)	15 33 39.9			
		Fiji Islands region (h = 580 km).					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYR = Myrviken

1981
Dec. 2 UPP iP 19 15 22.4
KIR iP 19 15 30.2
South Indian Ocean
(h = 10 km).

" 2 UPP iP 23 40 14.8
KIR iP 23 40 15.5
Southern Sinkiang Prov.,
China (h = N).

" 3 UPP iRg 15 15 48.7
Uppland, Sweden, 60.1°N,
17.5°E.
Rockburst at the Dannemora
iron ore mines.

" 4 UPP ipP 02 41 24.2
KIR eP 02 41 52
UME iP 02 41 26.5
Eastern Caucasus (h = N).

" 4 UPP iP 06 21 22.4
KIR eP 06 20 35
i 06 20 38.7
Kuril Islands (h = 110 km).

" 4 UPP iP 21 38 10.5
KIR iP 21 39 22.1
Southern Greece (h = 55 km).

" 5 UPP iP 10 20 29.8
micr sec
Mx Z 7.3 18
KIR iP 10 20 47.6
micr sec
Mx Z 2.4 11
UME iP 10 20 33.4
West Pakistan (h = N).
M = 5.6 (UPP,KIR).

" 5 UPP iP 18 56 16.3
iS 19 03 50
micr sec
P Z' 0.1 0.8
KIR iP 18 56 48.4
micr sec
P Z' 0.3 1.4
UME iP 18 56 32.5
iS 19 04 13
Arabian Sea (h = 10 km).
m = 6.1 (UPP,KIR).

" 5 UPP iP 18 59 49.1
KIR iP 19 00 21.0 C
micr sec
P Z' 0.4 1.7
UME iP 19 00 01.0
Arabian Sea (h = 10 km).

1981
Dec. 6 UPP iPKP 13 09 30.3
micr sec
Mx Z 6.0 20
KIR iPdiff 13 05 24.1
iPKP 13 09 20.0
micr sec
Mx Z 3.7 21
UME iPKP 13 09 24.3
iSKS 13 16 07
New Britain region (h = N).
M = 6.1 (UPP,KIR).

" 6 UPP iP 15 05 20.5
micr sec
P Z' 0.2 1.3
Mx Z 3.7 21
KIR iP 15 05 52.2
micr sec
P Z' 0.1 1.5
Mx Z 1.0 17
UME iP 15 05 39.8
Central Mid-Atlantic Ridge
(h = 10 km).
m = 5.9, M = 5.4 (UPP,KIR).

" 7 UPP iP 03 43 30.0
Kuril Islands (h = N).

" 7 UPP iRg 04 19 26.8
Dannemora rockburst.

" 7 UPP iP 22 11 44.0
KIR iP 22 11 41.4
UME iP 22 11 39.5
Andaman Islands region
(h = N).

" 8 UPP iP 08 31 39.5
micr sec
P Z' 0.1 0.8
KIR iP 08 31 38.5
i 08 32 00.2
micr sec
P Z' 0.2 1.0
UME iP 08 31 36.1
Southern Sumatera (h = 80 km).
m = 6.1 (UPP,KIR).

" 10 UPP iP 02 37 09.3
KIR iP 02 36 15.7
Rat Islands, Aleutian Islands
(h = 110 km).

" 11 UPP Mx 10 51
micr sec
Mx Z 4.4 23
New Britain region
(h = 70 km).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYR = Myrviken

1981
Dec. 11 UPP iP 11 32 19.7
Burma-India border region
(h = 110 km).

" 11 UPP iP 20 13 44.6
micr sec
P Z' 0.1 0.9
KIR iP 20 13 03.1
micr sec
P Z' 0.1 1.0
UME iP 20 13 21.5
Off east coast of Honshu,
Japan (h = 25 km).
m = 5.9 (UPP,KIR).

" 12 UPP iP 05 04 37.4 C
iS 05 14 29
micr sec
P Z' 1.9 0.8
Mx Z 84 17
KIR iP 05 04 12.1 C
micr sec
P Z' 1.6 1.4
UME iP 05 04 21.8 C
iS 05 13 58
Southwestern Ryukyu Islands
(h = 10 km).
m = 7.0 (UPP,KIR).

" 12 UPP iP 23 42 08.3
KIR iP 23 42 29.5 D
i 23 42 44.6
micr sec
P Z' 0.1 1.0
UME iP 23 42 15.2
Maldive Islands region
(h = 20 km).

" 13 UME iPKP 01 57 48.4
Solomon Islands (h = 50 km).

" 13 UPP iP 20 49 34.2
KIR iP 20 49 29.6
UME iP 20 49 29.2
South of Java (h = 80 km).

" 13 UPP iP 21 52 52.8
KIR iP 21 52 55.5
UME iP 21 52 57.7
Northern Colombia
(h = 160 km).

" 14 UPP iP 09 29 51.0
KIR iP 09 28 55.8
UME iP 09 29 21.4
Near east coast of Kamchatka
(h = 55 km).

1981
Dec. 14 UPP iPKP 12 24 35.8
KIR iPKP 12 24 48.7 D
ipPKP 12 25 15.1
micr sec
PKP Z' 0.5 1.5
UME iPKP 12 24 41.9 D
i 12 24 49.2
South Sandwich Islands region.
h = 100 km (KIR).

" 15 KIR iP 04 02 43.3
Jan Mayen Island region
(h = 10 km).

" 15 KIR iP 21 22 59.4
UME iP 21 22 49.5
Hindu Kush region
(h = 90 km).

" 16 UPP iP 12 57 54.5
i 12 58 03.1
UME iP 12 58 34.1
Ionian Sea (h = 20 km).

" 17 UME iP 21 32 24.4
Hindu Kush region (h = 140 km).

" 18 UPP iP 01 58 52.2 C
i 01 59 03.6
micr sec
P Z' 0.2 1.0
KIR iP 01 58 06.0
micr sec
P Z' 0.2 1.0
UME iP 01 58 26.7
Kuril Islands (h = 40 km).
m = 6.2 (UPP,KIR).

" 18 UPP iP 16 01 19.0 C
i 16 01 30.2
micr sec
P Z' 0.2 1.3
KIR iP 16 00 30.5 C
i 16 00 42.0
micr sec
P Z' 0.1 1.2
UME iP 16 00 53.0
i 16 01 04.2
Kuril Islands (h = 35 km).
m = 5.9 (UPP,KIR).

" 18 UME iP 21 45 05.6
Ryukyu Islands region
(h = N).

" 19 UPP iP 14 15 36.6 C
iS 14 19 28
(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYR = Myrviken

1981
Dec. 19 (cont.)
UPP micr sec
P Z' 3.4 1.4
KIR iP 14 16 49.7 C
iS 14 21 39
micr sec
P Z' 2.3 1.9
UME iP 14 16 13.3 C
Aegean Sea (h = 10 km).
m = 6.6 (UPP,KIR).
M = 7.6 (UPP).
M has been determined from Wiechert instrument.

" 19 UME iP 15 21 17.3
i 15 21 26.3
Aegean Sea (h = 10 km).

" 19 UME iP 18 16 16.2
Aegean Sea (h = 15 km).

" 19 UME iP 18 38 19.8
Aegean Sea (h = 10 km).

" 19 UPP eP 21 19 12
micr sec
Mx Z 2.0 10
KIR eP 21 20 25
micr sec
Z 0.6 10
UME iP 21 19 49.3
Aegean Sea (h = 15 km).
M = 4.7 (UPP,KIR).

" 20 UPP iP 01 34 12.7
KIR iP 01 33 53.2
UME iP 01 33 58.5
Mindoro, Philippine Islands (h = 70 km).

" 20 KIR eP 02 47 42
UME iP 02 47 00.3
Southern Italy (h = 80 km).

" 20 UPP iP 22 44 51.4
UME iP 22 45 32.5
Greece-Albania border region (h = 15 km).

" 21 UPP eP 10 44 54
micr sec
Mx Z 9.9 28
KIR iP 10 44 38.7
i 10 45 05.1
micr sec
Mx Z 6.0 26
UME iP 10 44 47.3
(cont.)

1981
Dec. 21 (cont.)
UME i 10 45 14.0
Near coast of Chipas, Mexico (h = 70 km).
M = 6.0 (UPP,KIR).

" 21 UPP iP 13 59 25.7
iS 14 03 25
micr sec
P Z' 0.1 1.1
Mx Z 4.2 10
KIR iP 14 00 39.1
UME iP 14 00 02.9
i 14 00 21.4
Aegean Sea (h = 15 km).

" 21 UPP iP 14 18 00.6
micr sec
Mx Z 5.2 11
KIR eP 14 19 15
i 14 19 18.1
UME iP 14 18 40.5
Aegean Sea (h = 15 km).

" 21 UPP iP 14 20 32.8
micr sec
Mx Z 3.2 7
KIR iP 14 21 46.6
UME iP 14 21 10.4
Aegean Sea (h = 15 km).

" 22 KIR iP 04 37 42.4
UME iP 04 37 43.5
Eastern Kazakh SSR.
Underground explosion.

" 22 UME iP 05 06 17.0
Near east coast of Honshu, Japan (h = 35 km).

" 22 UPP iPKPl 21 18 16.9
South of Fiji Islands (h = 510 km).

" 23 UPP iPKP 00 47 45.9
KIR iPKP 00 47 39.8
UME iPKP 00 47 42.4
New Ireland region (h = 450 km).

" 23 UPP iP 01 48 51.0
KIR iP 01 48 26.1
Taiwan region (h = 130 km).

" 23 UPP e(PKP) 19 06 23
iPKP 19 06 27.8
KIR iPKP 19 06 13.9
(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYR = Myrviken

1981
Dec. 23 (cont.)
UME i(PKP) 19 06 12.6
iPKP 19 06 22.3
i 19 06 50.8
Tonga Islands (h = 70 km).

" 24 KIR eP 04 37 06
UME iP 04 37 09.6
Luzon, Philippine Islands
(h = 40 km).

" 24 UPP iPKPl 05 53 03.2 C
micr sec
Mx Z 40 24
KIR iPKPl 05 52 40.5 C
UME iPKPl 05 52 50.3 C
Kermadec Islands (h = 30 km).

" 24 UME iP 06 59 40.0

" 24 UME iP 08 06 36.0

" 24 UME iP 08 48 20.5

" 24 UPP iPKPl 10 03 32.3
i 10 03 36.1
UME iPKPl 10 03 20.8 C
Kermadec Islands (h = N).

" 24 UPP iPKPl 10 44 26.3
UME iPKPl 10 44 14.2
Kermadec Islands (h = N).

" 24 UPP iPKPl 13 22 23.2
i 13 22 31.5
KIR ePKPl 13 22 09
UME iPKPl 13 22 10.6
i 13 22 18.8
Kermadec Islands (h = N).

" 24 UME iP 14 37 40.0

" 24 UPP iPKP2 19 21 07.3
UME iPKPl 19 20 48.8
i 19 20 55.0
Kermadec Islands (h = N).

" 24 UPP ePKPl 20 04 36
i 20 04 41.6
UME iPKPl 20 04 23.0
i 20 04 29.5
Kermadec Islands (h = N).

" 24 KIR eP 22 08 16
UME eP 22 07 50
Western Iran (h = N).

1981
Dec. 24 UPP iPKPl 22 56 10.9
KIR iPKP 22 55 57.5
UME iPKPl 22 55 58.2
Kermadec Islands (h = 35 km).

" 25 UPP iP 00 41 18.5
KIR iP 00 41 05.6
i 00 41 23.7
micr sec
P Z' 0.1 1.0
UME iP 00 41 08.6
i 00 41 31.4
Borneo (h = 40 km).

" 25 UME iP 04 55 25.0

" 25 KIR eP 06 05 34
i 06 05 41.3
UME iP 06 06 30.7
Svalbard region (h = 10 km).

" 25 UPP iRg 07 11 37.0
Dannemora rockburst.

" 25 UPP iPKP2 07 57 05.0
UME iPKPl 07 56 45.0
Kermadec Islands (h = N).

" 25 UPP eP 08 12 53
UME iP 08 12 27.8
Kuril Islands (h = N).

" 25 UPP iPKPl 09 31 49.1
KIR iPKP 09 31 34.4
UME iPKPl 09 31 37.4 C
Kermadec Islands (h = N).

" 25 UPP i 10 57 05.1
UME iPKPl 10 56 40.5
Kermadec Islands (h = N).

" 25 UPP iPKPl 11 08 27.3
KIR ePKP 11 08 12
UME iPKPl 11 08 16.3 C
Kermadec Islands (h = N).

" 25 UPP iP 12 47 23.3
micr sec
P Z' 0.1 0.8
KIR iP 12 47 33.5
UME iP 12 47 32.2
Near coast of Venezuela
(h = 90 km).

" 25 KIR eP 18 12 52
UME iP 18 13 11.8
i 18 13 16.8

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYR = Myrviken

1981
Dec. 25 KIR iP 19 58 29.2
i 19 58 41.5
UME iP 19 58 39.7 D
i 19 58 44.3

" 26 UME iP 02 51 36.4

" 26 UPP iP 14 33 59.9
UME iP 14 34 36.0
Aegean Sea (h = 10 km).

" 26 UPP ePdiff 17 22 50
iPKP 17 25 11.2
iPKP1 17 25 13.7
micr sec
Mx Z 27 23
KIR iPKP1 17 24 53.7
iPKP 17 24 56.6
micr sec
Mx Z 38 22
UME iPKP1 17 25 01.9
Kermadec Islands (h = N).
M = 7.1 (UPP,KIR).

" 26 UME iP 17 44 44.8

" 26 UPP iPKP1 18 13 12.2
UME iPKP1 18 13 00.4
Kermadec Islands (h = N).

" 26 UME iP 18 53 18.4

" 26 UPP iPKP1 19 20 11.0
UME iPKP1 19 19 58.4
i 19 20 12.1
Kermadec Islands (h = N).

" 26 UME iP 19 27 12.9

" 26 UME iP 19 35 43.8

" 26 UME iP 21 28 29.0

" 27 UPP iP 03 50 11.6 C
KIR iP 03 49 55.3 C
i 03 50 35.8
micr sec
P Z' 1.5 0.5
UME iP 03 49 56.1 C
Eastern Kazakh SSR.
m = 7.0 (UPP,KIR).
Underground explosion.

" 27 UPP iPKP1 06 42 31.7
iPKP2 06 42 35.3
KIR ePKP1 06 42 11
UME iPKP1 06 42 19.7
i 06 42 31.5
Kermadec Islands (h = N).

1981
Dec. 27 KIR iPKP1 17 38 31.0 C
UME iPKP1 17 38 38.2 C
iPKP2 17 38 46.1
North Island, New Zealand
(h = 40 km).

" 27 UPP iP 17 44 02.0 C
i 17 44 05.2
iS 17 48 01
micr sec
i Z' 0.7 1.4
Mx Z 147 10
KIR iP 17 45 14.2
i 17 45 18.5
iS 17 50 14
micr sec
i Z' 1.4 2.7
UME iP 17 44 38.6 C
i 17 44 43.6
iS 17 49 11
Aegean Sea (h = 15 km).
m = 6.1 (UPP,KIR).

" 28 UME iP 01 11 43.6
South of Honshu, Japan
(h = N).

" 28 UME iPKP2 08 19 53.4
Off coast of S. Island,
N. Z. (h = 10 km).

" 28 UME iP 09 41 26.1
Mariana Islands region
(h = N).

" 28 KIR iPKP 12 59 11.8
UME iPKP 12 59 18.1
New Hebrides Islands (h = N).

" 28 KIR iP 13 20 41.5
UME iP 13 20 54.0
Mariana Islands region
(h = N).

" 28 UME iP 14 16 02.1

" 28 KIR iP 14 56 39.1
i 14 56 43.6
UME iP 14 56 11.8
Iran-Iraq border region
(h = N).

" 28 UME iP 14 57 50.2
Turkey (h = 10 km).

" 28 UME iP 17 36 20.6
Mariana Islands region
(h = 25 km).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYR = Myrviken

1981					
Dec.	28	KIR	iP	17 53 05.3	
		UME	iP	17 53 17.5	
		Mariana Islands region			
		(h = N).			
"	28	UPP	iP	18 22 20.9	
				micr sec	
			P Z'	0.1 1.0	
		KIR	iP	18 22 18.6	
		UME	iP	18 22 15.6	
		Andaman Islands region			
		(h = N).			
"	28	UME	iP	18 25 53.1	
		Mariana Islands region			
		(h = N).			
"	28	UME	iP	21 08 29.6	
		Mariana Islands region			
		(h = N).			
"	28	UME	iP	22 54 51.9	
		Andaman Islands region			
		(h = N).			
"	29	UPP	iP	01 54 30.6	
		UME	iP	01 54 15.0	
		Mariana Islands region			
		(h = N).			
"	29	UME	iP	02 35 29.0	
		Mariana Islands region			
		(h = 35 km).			
"	29	UME	iP	07 06 34.2	
			i	07 06 46.8	
"	29	UPP	iP	08 05 35.6	
			iS	08 09 31	
				micr sec	
			P Z'	0.2 1.4	
			Mx Z	8.4 10	
		KIR	iP	08 06 48.5	
		UME	iP	08 06 12.2	
			iS	08 10 38	
		Aegean Sea (h = 10 km).			
"	29	UPP	ePKPl	10 55 44	
		UME	iPKPl	10 55 30.0	
		Kermadec Islands (h = N).			
"	29	UME	iP	17 23 02.1	
		Nicobar Islands region			
		(h = 30 km).			
"	29	UPP	iPKPl	19 26 10.6	
			iPKP2	19 26 14.1	
		(cont.)			

1981					
Dec.	29	(cont.)			
		KIR	iPKP	19 25 53.3	
		UME	iPKPl	19 25 58.5	C
		Kermadec Islands (h = 60 km).			
"	29	UPP	iPKPl	21 28 18.2	
		UME	iPKPl	21 28 04.2	
		Kermadec Islands (h = N).			
"	29	KIR	iP	23 01 16,4	
		UME	iP	23 01 28.6	
		Mariana Islands region			
		(h = N).			
"	29	UPP	iP	23 17 03.4	
		Ionian Sea (h = 10 km).			
"	30	UPP	iP	11 37 38.4	D
				micr sec	
			P Z'	0.1 0.8	
		KIR	iP	11 36 52.6	
		UME	iP	11 37 12.8	
		Kuril Islands (h = 60 km).			
"	30	KIR	eP	14 09 08	
		UME	iP	14 09 39.2	
			i	14 09 48.2	
		Central Alaska (h = 25 km).			
"	30	KIR	iP	17 57 00.7	
		Mindanao, Philippine Islands			
		(h = 70 km).			
"	31	UPP	iP	05 19 34.0	
		KIR	iP	05 19 02.5	
		UME	iP	05 19 15.8	
			i	05 19 16.7	
		Bonin Islands region			
		(h = 490 km).			
"	31	UPP	iPKP2	05 47 12.8	
		KIR	ePKPl	05 46 42	
		UME	iPKPl	05 46 52.1	
		South of Kermadec Islands			
		(h = 50 km).			
"	31	UPP	iPKPl	07 14 40.6	C
		KIR	iPKPl	07 14 20.4	
		UME	iPKP	07 14 28.5	
			iPKPl	07 14 31.4	
		South of Kermadec Islands			
		(h = N).			
"	31	UPP	iP	09 33 07.4	
		KIR	iP	09 32 55.1	
		UME	iP	09 32 56.8	
		Northern Celebes (h = 300 km).			

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1981

Dec.	31	UPP	iPKP2	12 19 13.8	
		UME	iPKP1	12 18 57.0	C
		South of Kermadec Islands (h = 300 km).			
"	31	UPP	iP	22 16 51.7	
		KIR	iP	22 16 12.8	
		UME	iP	22 16 31.0	
		Off east coast of Honshu, Japan (h = N).			

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