

SEISMOLOGICAL DEPARTMENT  
 BOX 12019  
 S-750 12 UPPSALA  
 SWEDEN

SEISMOLOGICAL SECTION  
 BOX 12019  
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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, UMEÅ,

UDDEHOLM and DELARY

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

JANUARY 1 - 31, 1980

1980

Jan. 1 Ki iP 00 28 06.9  
 i 00 28 16.1  
 Sk iP 00 28 24.8  
 Um iP 00 28 46.9  
 Ud iP 00 29 11.3

" 1 Up eP 01 36 07  
 i 01 36 22.7  
 Ki iP 01 36 05.8  
 Sk eP 01 36 24  
 Um iP 01 36 02.8  
 Ud iP 01 36 18.7  
 Andaman Islands region  
 (h = 20 km).

" 1 Up iP 02 53 58.4  
 iPP 02 55 52.8  
 Ki iP 02 54 23.2  
 Sk iP 02 54 27.5  
 i 02 54 41.8  
 Um iP 02 54 05.7  
 iPP 02 55 57.4  
 Ud iP 02 54 11.4  
 De iP 02 53 59.2  
 Southern Iran (h = N).

" 1 Up i(P) 12 06 30.9

" 1 Up iP 16 49 35.7  
 i 16 49 41.8  
 iS 16 54 56  
 micr sec  
 P Z' 0.4 1.5  
 i Z' 2.0 1.9  
 Mx E 152 14  
 Mx N 199 18  
 Mx Z 156 12

(cont.)

1980

Jan. 1 (cont.)  
 Ki iP 16 50 09.4  
 i 16 50 14.9  
 iS 16 56 13  
 micr sec  
 P Z' 0.8 1.5  
 i Z' 5.5 2.0  
 Mx E 96 13  
 Mx N 152 12  
 Mx Z 77 17  
 Sk iP 16 49 29.3  
 i 16 49 33.6  
 Um iP 16 49 57.5  
 i 16 50 04.7  
 Ud iP 16 49 20.8  
 i 16 49 23.9  
 De iP 16 49 12.0  
 i 16 49 15.6  
 Azores Islands (h = 10 km).  
 m = 6.8, M = 7.1 (Up,Ki).

" 1 Up iP 19 32 30.4  
 Ki iP 19 32 13.1  
 Um iP 19 32 18.5  
 Ud iP 19 32 37.9  
 Talaud Islands (h = 55 km).

" 1 Up iPKP 21 53 34.1  
 Ki iPKP 21 53 21.2  
 Sk iPKP 21 53 32.7  
 Um iPKP 21 53 27.4  
 Ud iPKP 21 53 37.4  
 De iPKP 21 53 43.5  
 New Hebrides Islands  
 (h = 60 km).

" 2 Ki iP 11 39 09.4  
 (cont.)

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

1980				1980			
Jan.	2	(cont.)		Jan.	2	(cont.)	
		Um	iP 11 39 14.0			Mindanao, Philippine	
			Ceram (h = 70 km).			Islands (h = 60 km).	
						m = 6.8, M = 7.2 (Up,Ki).	
"	2	Up	iP 12 58 00.7	"	2	Up	iP 22 01 26.2
		Ki	iP 12 58 56.6				micr sec
		Sk	iP 12 58 40.7			P	Z' 0.1 1.0
		Um	iP 12 58 24.9			Ki	iP 22 01 09.5
		De	iP 12 57 49.6				micr sec
			Jordan-Syria region			P	Z' 0.3 1.0
			(h = 10 km).			Sk	iP 22 01 31.2
"	2	Up	iP 18 09 00.8			Um	iP 22 01 14.6
		Ki	iP 18 10 15.6			Ud	iP 22 01 34.0
		Sk	eP 18 09 44			De	iP 22 01 40.7
		Ud	iP 18 09 10.9				Mindanao, Philippine
			Greece (h = 10 km).				Islands (h = 80 km).
							m = 6.3 (Up,Ki).
"	2	Ud	iP 20 00 20.8	"	2	Up	iP 22 12 49.7
		De	iP 20 00 32.5			Ki	iP 22 12 33.0
"	2	Up	iP 21 11 55.5			Sk	iP 22 12 53.9
		i	21 12 01.7			Ud	iP 22 12 57.8
		iPP	21 15 48				Mindanao, Philippine
		iSKS	21 22 27.1				Islands (h = 70 km).
		iS	21 23 02.0				
			micr sec	"	2	Ki	iP 22 44 26.0
		P	Z' 0.2 1.1			Sk	iP 22 44 10.6
		i	Z' 0.4 1.1			Um	iP 22 44 26.5
		Mx	E 47 23				Off coast of Peru
		Mx	N 57 20				(h = 15 km).
		Mx	Z 68 19	"	2	Up	iP 23 58 39.8
		Ki	iP 21 11 38.6			Ki	iP 23 58 40.3
		i	21 11 42.7			Sk	iP 23 58 54.9
		iPP	21 15 14.0			Um	iP 23 58 37.1
		iPKKP	21 29 07.2			Ud	iP 23 58 50.6
		iSKS	21 22 04				Northern Sumatera
		iS	21 22 28				(h = 90 km).
			micr sec	"	3	Ki	iP 04 00 53.0
		P	Z' 0.2 0.7			Ud	iP 04 01 17.8
		i	Z' 0.6 1.0				Mindanao, Philippine
		Mx	E 72 23				Islands (h = 50 km).
		Mx	N 62 20	"	3	Up	iP 07 38 35.6
		Mx	Z 48 22			Ki	iP 07 38 14.3
		Sk	iP 21 12 00.8			Um	iP 07 38 22.1
		i	21 12 04.3				Philippine Islands region
		Um	iP 21 11 44.4				(h = 60 km).
		i	21 11 50.0	"	3	Ki	iP 15 25 05.4
		iSKS	21 22 14				Tadzhik SSR (h = N).
		iS	21 22 39	"	3	Up	iP 18 23 09.5 C
		Ud	iP 21 12 03.8				(cont.)
		iPKKP	21 28 57.8				
		De	iP 21 12 10.0				
		i	21 12 13.2				
		iPP	21 16 14.1				
			(cont.)				

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1980				1980					
Jan.	3	(cont.)		Jan.	4	Ki	iP	04 56	58.0
		Up	iS					micr	sec
							P	Z'	0.2 1.0
						Sk	iP	04 57	19.4
						Um	iP	04 57	04.9
						Mindanao, Philippine Islands (h = 55 km).			
		Ki	iP		"	4	Up	iPKP	04 57 22.7
							Ki	iPKP	04 57 09.0
								micr	sec
								PKP	Z' 0.2 1.0
							Um	iPKP	04 57 15.4
							De	iPKP1	04 57 21.5
							Fiji Islands region (h = 570 km).		
						"	4	Up	iP
								micr	sec
							Mx	E	1.4 18
							Mx	N	2.9 20
							Mx	Z	3.0 20
						Ki	iP	06 35	04.0
								micr	sec
							P	Z'	0.1 1.0
							Mx	E	2.7 19
							Mx	N	4.2 24
							Mx	Z	2.4 20
						Sk	iP	06 35	25
						Um	iP	06 35	08.6
							i	06 35	19.6
							iSKS	06 45	38
						Mindanao, Philippine Islands (h = 55 km). M = 5.9 (Up,Ki).			
					"	4	Ki	iP	08 39 07.4
						Mindanao, Philippine Islands (h = 60 km).			
					"	4	Um	i(P)	15 01 29.1
					"	4	Up	iP	16 53 04.7
							Ki	eP	16 52 21
							Sk	eP	16 52 56
							Um	iP	16 52 41.7
							De	iP	16 53 31.6
						Hokkaido, Japan region (h = 90 km).			
					"	4	Up	i(P)	21 51 47.2
					"	4	Ki	iP	21 52 38.7
						Mindanao, Philippine Islands (h = 45 km).			
Jan.	3								
		Up	iS	18 32 24					
				micr sec					
		P	Z'	0.3 1.5					
		Mx	E	1.6 21					
		Mx	N	3.2 20					
		Mx	Z	3.3 20					
		Ki	iP	18 23 33.9 C					
				micr sec					
		Mx	E	3.9 18					
		Mx	N	2.0 15					
		Mx	Z	3.4 19					
		Sk	iP	18 23 34.7 C					
		Um	iP	18 23 18.9 C					
			iS	18 32 42					
		Ud	iP	18 23 20.3					
		De	iP	18 23 08.5 C					
			i	18 23 15.6					
		Carlsberg Ridge (h = 10 km).							
		M = 5.7 (Up,Ki).							
"	3	Up	iP	20 09 34.5					
		Ki	iP	20 09 04.6					
		Sk	iP	20 09 37.8					
		Um	iP	20 09 17.9					
		Ud	iP	20 09 46.3					
		De	iP	20 09 58.5					
		Ryukyu Islands (h = 130 km).							
"	3	Up	iP	20 35 32.5					
			i	20 35 57.6					
				micr sec					
		P	Z'	0.1 0.9					
		Mx	N	1.4 20					
		Ki	iP	20 35 17.1					
				micr sec					
		P	Z'	0.2 0.9					
		Mx	N	1.3 17					
		Um	iP	20 35 22.2					
			i	20 35 33.0					
		Ud	iP	20 35 41.7					
		De	iP	20 35 47.7					
			i	20 35 51.6					
		Mindanao, Philippine Islands (h = 110 km).							
		M = 5.4 (Up,Ki).							
"	3	Ki	iP	22 13 40.1					
		Ud	iP	22 13 15.8					
		De	iP	22 12 59.1					
		Iran (h = N).							
"	4	Ki	iP	03 16 19.6					
		Mindanao, Philippine Islands (h = 80 km).							

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1980				1980			
Jan.	5	Up	i(P) 04 27 27.2	Jan.	6	Up	iP 19 26 41.5
"	5	Up	iP 06 43 42.9 Luzon, Philippine Islands (h = 110 km).			Ki	iP 19 26 45.0
"	5	Ki	iP 08 57 40.2 Mindanao, Philippine Islands (h = 55 km).			Sk	iP 19 26 29.0
"	5	Up	iP 14 36 12.0			Um	iP 19 26 45.9
		Ki	iP 14 37 42.0	"	6		ipP 19 27 27.0
		Sk	iP 14 36 51.0			Ud	iP 19 26 32.0
		Um	iP 14 37 06.4				ipP 19 27 12.7
			Northern Italy (h = 10 km).			De	iP 19 26 32.6
"	5	Ki	iP 16 03 38.5 Mindanao, Philippine Islands (h = 55 km).				Northern Colombia. h = 170 km(Um,Ud).
"	5	Up	iP 17 26 06.5			Up	iP 20 01 58.1
		Ki	iP 17 26 31.1			Ud	iP 20 01 58.4
		Sk	iP 17 26 31.8				Andreanof Islands, Aleutian Islands (h = 57 km).
		Um	iP 17 26 16.1	"	6	Up	eP 20 09 08
			Carlsberg Ridge (h = 10 km).				iS 20 11 47.5
"	5	Ki	iP 19 28 30.3 Mindanao, Philippine Islands (h = 60 km).				i 20 12 18.5
"	5	Ki	iP 22 40 04.8 Taiwan region (h = N).			Ki	iP 20 08 00.2
"	6	Up	iP 01 16 46.1				i 20 08 05.5
		Ki	iP 01 15 53.7				micr sec
		Sk	iP 01 16 30.9				i Z' 0.1 0.6
		Um	iP 01 16 19.3			Mx	N 0.7 13
"	6	Up	iP 04 41 10.5			Sk	iP 20 08 05.8
		Um	iP 04 40 57.3				i 20 08 10.2
			Sichuan Province, China (h = 35 km).				iS 20 09 58.8
"	6	Um	iPKP 05 27 22.4 New Hebrides Islands (h = 230 km).	"	6	Um	iP 20 08 35.0
"	6	Up	iP 17 02 19.5				iS 20 10 48.9
		Ki	iP 17 02 00.8			Ud	iP 20 08 51.1
		Um	iP 17 02 06.3				Jan Mayen region, approximate location 71°N, 5°W. Origin time = 20 05 42.
		Ud	eP 17 02 28			Um	iSKP1 22 32 00.2
			Luzon, Philippine Islands (h = 35 km).			Ud	iPKP1 22 29 20.7
"	6	Up	iP 17 44 18.7			De	iPKP1 22 29 31.3
		Ud	iP 17 44 28.1				South of Fiji Islands (h = 470 km).
			Greece (h = 50 km).	"	7	Ki	iP 00 46 38.6
							ipP 00 46 50.4
						Sk	iP 00 46 25.1
							ipP 00 46 37.5
						Um	iP 00 46 40.7
							ipP 00 46 52.9
						Ud	iP 00 46 28.7
							ipP 00 46 40.8
						De	iP 00 46 30.3
							ipP 00 46 43.3
							Near west coast of Colombia. h = 40 km (Ki,Sk,Um,Ud,De).
"	6	Up	iP 17 44 18.7	"	7	Um	iP 16 56 35.5
		Ud	iP 17 44 28.1				ipP 16 56 45.4
			Greece (h = 50 km).			Ud	iP 16 57 04.1

(cont.)



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1980		1980	
Jan.	7	Jan.	8
	(cont.)		(cont.)
	De iP 16 57 20.0		Sk i 10 22 57.9
	Off east coast of Honshu,		Um iP 10 21 40.4
	Japan (h = N).		i 10 21 42.2
"	7 Up iRg 18 49 46.8		Ud iP 10 21 59.5
	Ud iRg 18 49 20.4		i 10 22 01.5
	Central Sweden.		De eP 10 22 05
	Near-surface event.		i 10 22 07.0
"	7 Ki iP 19 45 23.9		Mindanao, Philippine
	Ud iP 19 45 51.0		Islands (h = 110 km).
	Mindanao, Philippine		m = 6.2, M = 5.5 (Up,Ki).
	Islands (h = 55 km).	"	8 Up iP 22 06 16.6
"	7 Up iP 20 17 20.4		Ud iP 22 06 33.1
	i 20 17 54.1		Kashmir-Sinkiang border
	iS 20 25 44		region (h = N).
	micr sec	"	9 Um eSgl 01 27 34
	P Z' 0.1 0.9		Dagö, Esthonia, near
	Ki iP 20 16 28.7		59°N, 22 1/2°E.
	i 20 16 30.1		Origin time = 01 24 53.
	micr sec		Solution from Helsinki
	i Z' 0.1 0.6		regional bulletin.
	Sk iP 20 17 06.1	"	9 Up iPKP 03 26 48.2
	Um iP 20 16 53.1		iSKPl 03 29 56.9
	i 20 17 37.9		Ki iPKP 03 26 33.7
	Ud iP 20 17 25.4		Sk iPKP 03 26 45.2
	De iP 20 17 45.6		Um iPKP 03 26 39.9
	i 20 17 57.2		i 03 27 31.4
	Kamchatka (h = 110 km).		Ud iPKP 03 26 50.3
	m = 5.9 (Up,Ki).		i 03 27 31.3
"	7 Um iP 23 54 39.7		iSKPl 03 30 01.1
	North Korea (h = 10 km).		i 03 31 10.6
"	8 Ki iP 06 47 07.4		De iPKP 03 26 56.5
	Southern Sumatera (h = N).		i 03 27 36.1
"	8 Up iP 10 21 51.0		iSKPl 03 30 06.4
	i 10 21 53.1		New Hebrides Islands
	micr sec		(h = 170 km).
	i Z' 0.1 1.0	"	9 Ki iP 15 01 19.6
	Mx E 0.8 14		Sk iP 15 00 59.8
	Mx N 1.1 16		Um iP 15 00 55.5
	Mx Z 1.1 16		i 15 01 01.3
	Ki iP 10 21 34.7		Ud iP 15 00 35.5
	i 10 21 36.7		De iP 15 00 12.2
	micr sec		Zaire Republic (h = 10 km).
	i Z' 0.2 0.9	"	9 Up iP 17 40 39.2 D
	Mx E 0.7 16		i 17 40 59.6
	Mx N 1.2 16		Ki eP 17 39 46
	Mx Z 0.8 15		Um iP 17 40 11.8
	Sk iP 10 22 56.0		Ud iP 17 40 40.0
	(cont.)		De iP 17 41 02.0
			Andreanof Islands, Aleutian
			Islands (h = N).

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

1980				1980			
Jan.	10	Up iP	03 59 19.9	Jan.	11	Um iP	23 06 46.8
		Um iP	03 59 03.1			Ud eP	23 06 17
		Ud iP	03 59 29.0			North of Ascension Island	
		Ryukyu Islands (h = 100 km).				(h = 10 km).	
"	10	Up iP	04 15 43.2	"	11	Up iP	23 12 31.0
			micr sec			Um iP	23 12 55.6
		P Z'	0.1 1.1			Ud iP	23 12 25.6
		Ki iP	04 16 08.2			North of Ascension Island	
		Um iP	04 15 53.3			(h = 10 km).	
		Ud iP	04 15 55.0	"	11	Um iP	23 13 51.5
		De iP	04 15 41.9			Ud iP	23 13 20.5
		Carlsberg Ridge (h = 10 km).					
"	10	Up iP	09 13 35.7	"	12	Ki iP	09 04 02.0
		i	09 13 38.2			Um iP	09 04 28.8
		Ud eP	09 13 42			Ud iP	09 04 54.8
		Mid-Indian Rise (h = 10 km).				Fox Islands, Aleutian	
"	10	Sk i(Pgl)	10 10 59.0	"	12	Islands (h = 35 km).	
		i(Rg)	10 11 02.0			Up iP	15 38 48.1 C
"	10	Ki iP	11 46 49.8			iPP	15 40 20.8
		Mindanao, Philippine				iS	15 44 32
		Islands (h = 50 km).					micr sec
"	10	Um iP	12 41 51.3			P Z'	0.4 1.5
"	10	Up iP	19 41 15.9			Mx E	7.4 10
		Sk iP	19 42 04.4			Mx N	10.9 11
		Um iP	19 42 00.6			Mx Z	14.1 10
		Ud iP	19 41 28.3			Ki iP	15 39 16.9 C
		Greece-Albania border				i	15 39 19.8
		region (h = N).				iPP	15 41 00.0
"	10	Ki iP	23 35 28.2			iS	15 45 32
		Ud iP	23 36 10.6				micr sec
		Jan Mayen Island region				P Z'	0.2 1.1
		(h = 10 km).				i Z'	0.3 1.1
"	11	Ud iP	00 44 35.6			Mx E	40 14
		Greece (h = 10 km).				Mx N	23 15
"	11	Um iP	03 44 21.2			Mx Z	32 13
		Ud iP	03 43 47.6			Sk iP	15 39 22.9
		Greece (h = N).				Um iP	15 38 56.7 C
"	11	Up iP	22 49 25.6			Ud iP	15 39 04.9 C
		Ki iP	22 50 11.0			De iP	15 38 52.6 C
		Um iP	22 49 51.0 C			Iran (h = N).	
		Ud iP	22 49 20.1 C			m = 6.0, M = 6.2 (Up,Ki).	
		North of Ascension Island		"	12	Up iP	16 08 07.1 C
		(h = 10 km).				ipP	16 08 16.8
							micr sec
						P Z'	0.8 1.4
						Mx E	7.9 25
						Mx N	8.3 22
						Mx Z	10.0 19

(cont.)



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1980			1980		
Jan.	14	(cont.) De iP 15 10 55.3 C Romania (h = 140 km). m = 5.4 (Up,Ki).	Jan.	16	(cont.) Ud iP 22 53 32.1 Unimak Island region (h = 35 km).
"	14	De i(PKP) 20 18 16.0 Fiji Islands region (h = 510 km).	"	17	Up iP 02 04 11.3 iS 02 13 55 micr sec P Z' 0.2 1.5 Mx E 1.4 18 Ki i 02 03 51.3 C micr sec i Z' 0.6 2.0 Mx E 1.2 18 Mx N 1.5 15 Um iP 02 03 50.6 C iS 02 13 21 Ud iP 02 04 18.4 C De i 02 04 48.5 South of Honshu, Japan (h = 20 km). m = 6.2, M = 5.4 (Up,Ki).
"	15	Up i(PKP) 04 43 59.9 Um i(PKP) 04 43 51.3 De iPKP1 04 44 13.3 D South of Fiji Islands (h = 610 km).	"	17	Um iP 02 07 08.5 Ud iP 02 07 36.2
"	15	Ud iP 12 31 06.4 Mariana Islands region (h = 320 km).	"	17	Um eP 04 24 13 Ud eP 04 24 32 Pakistan (h = 20 km).
"	16	Up iP 01 32 16.0 Um iP 01 31 49.2 Ud iP 01 32 16.9 D Andreanof Islands, Aleutian Islands (h = 50 km).	"	17	Up iP 09 33 08.8 micr sec P Z' 0.4 1.0 Ki iP 09 32 37.1 C micr sec P Z' 0.3 0.9 Sk iP 09 33 05.9 C Um iP 09 32 50.7 Ud iP 09 33 15.7 De iP 09 33 27.4 C Bonin Islands region (h = 540 km). m = 5.8 (Up,Ki).
"	16	Up ePKP 04 19 46 micr sec Mx N 2.2 24 Mx Z 2.0 24 Ki iPKP 04 19 29.2 Um iPKP 04 19 37.3 Ud iPKP 04 19 43.0 C De iPKP1 04 19 47.0 Loyalty Islands region (h = 45 km).	"	17	Up eP 22 54 42 Ki iP 22 54 49.2 Um iP 22 54 39.7 Ud iP 22 54 59.3 De iP 22 54 59.5 Tadzhik SSR (h = 55 km).
"	16	Up iP 09 01 51.7 Ki iP 09 01 05.5 C Um iP 09 01 25.5 Ud iP 09 01 57.6	"	18	Um i(P) 13 29 11.3
"	16	Um iP 12 55 10.3 Ud iP 12 54 34.2 Yugoslavia (h = 10 km).	"	18	Um iP 13 45 12.2 Off east coast of Honshu, Japan (h = 60 km).
"	16	Um iP 14 24 55.1			
"	16	Up i(P) 14 27 15.6			
"	16	Up iP 18 51 26.1 Ud iP 18 51 40.4 De iP 18 51 43.8 Qinghai Province, China (h = N).			
"	16	Um iP 22 53 07.7 (cont.)			



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1980				1980			
Jan.	20	(cont.)		Jan.	22	Ki iP	09 26 13.0
		Um iP	07 41 45.0 C			Fox Islands, Aleutian Islands (h = 50 km).	
		Ud iP	07 42 04.1				
		Halmahera (h = 210 km).		"	22	Sk eP	13 02 05
		m = 6.1 (Up,Ki).				Yugoslavia (h = 10 km).	
"	20	Up iP	10 10 56.1	"	23	Up iP	02 02 16.0
		Ud iP	10 10 58.0			iS	02 10 52.3
"	20	Ud iP	15 59 37.8				micr sec
"	20	Up iP	22 10 13.9 C			P	Z' 0.5 1.0
		i	22 13 38.0			Mx	E 6.4 22
		Ki iPn	22 08 32.7			Mx	N 7.1 19
		iSn	22 09 37.2			Mx	Z 10.8 20
		Sk iPn	22 09 22.3			Ki iP	02 01 22.8
		Um iPn	22 09 30.2			i	02 02 17.7
		iSn	22 11 09.9				micr sec
		Ud iP	22 10 09.2			P	Z' 0.4 0.9
		i	22 10 23.8			Mx	E 5.4 17
		De iP	22 11 00.9			Mx	N 5.4 15
		Norwegian Sea (h = 10 km).				Mx	Z 6.0 15
"	21	Ud iP	07 20 44.1			Sk iP	02 02 00.1
		Aegean Sea (h = N).				Um iP	02 01 48.0
"	21	Up iSgl	07 43 57.4			iS	02 10 06
		Ud iSgl	07 43 38.9			Ud iP	02 02 21.2
		De iPgl	07 41 50.0			De iP	02 02 41.6
		i	07 41 52.6			Off east coast of Kamchatka (h = N).	
		iSgl	07 42 04.9			m = 6.4, M = 5.9 (Up,Ki).	
		Zealand, Denmark, near 56°N, 12°E.		"	23	Up iP	02 44 44.2
		Origin time = 07 41 30.				ipP	02 44 54.8
		M <sub>L</sub> = 2.4 (Ud,De).				iS	02 53 19.7
"	21	Up iP	07 51 42.0				micr sec
		Ki e	07 53 16			P	Z' 1.4 1.2
		Sk iP	07 52 24.8			Mx	E 3.8 22
		Ud iP	07 51 49.5			Mx	N 3.6 20
		i	07 51 53.5			Mx	Z 6.1 19
		Greece (h = N).				Ki iP	02 43 51.8
"	21	Ud eP	12 20 20			ipP	02 44 02.2
		Southern Sinkiang Prov., China (h = N).					micr sec
"	21	Ki iP	21 16 43.1			P	Z' 0.8 1.1
		Ud iP	21 17 29.8			pP	Z' 0.4 1.1
		Hokkaido, Japan region (h = 130 km).				Mx	E 3.3 17
"	21	Ud iP	23 04 19.0			Mx	N 4.0 17
		De iP	23 04 30.5			Mx	Z 3.0 15
		South of Fiji Islands (h = 420 km).				Sk iP	02 44 28.7 D
						Um iP	02 44 17.4 D
						ipP	02 44 27.5
						Ud iP	02 44 48.7
						ipP	02 44 58.8
						De iP	02 45 10.0
						ipP	02 45 20.2
						Off east coast of Kamchatka. h = 35 km (Up,Ki,Um,Ud,De). m = 6.7, M = 5.7 (Up,Ki).	

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

1980

Jan. 23 Up iP 02 52 26.7  
 Ki iP 02 51 33.1  
 Um iP 02 51 58.4  
 Ud iP 02 52 30.5  
 De iP 02 52 52.3  
 Off east coast of Kamchatka  
 (h = N).

" 23 Sk iP 03 52 53.8  
 Um iP 03 52 54.4  
 Ud iP 03 52 16.5  
 Yugoslavia (h = 10 km).

" 23 Up iP 05 51 02.8  
 micr sec  
 P Z' 0.1 1.0  
 Ki iP 05 51 08.6  
 Um iP 05 50 34.7  
 Ud iP 05 51 07.7  
 De iP 05 51 27.5  
 Off east coast of Kamchatka  
 (h = N).

" 23 Up iP 07 03 21.6 C  
 i 07 03 31.7  
 iS 07 11 58.1  
 micr sec  
 P Z' 1.8 1.3  
 i Z' 0.3 1.0  
 Mx E 1.9 20  
 Mx N 2.2 20  
 Ki iP 07 02 28.6 C  
 micr sec  
 P Z' 0.6 1.3  
 Mx E 1.5 18  
 Mx N 2.6 18  
 Mx Z 1.9 15  
 Sk iP 07 03 05.1  
 Um iP 07 02 54.0 C  
 iS 07 11 12  
 Ud iP 07 03 24.4  
 De iP 07 03 46.4  
 Off east coast of Kamchatka  
 (h = N).  
 m = 6.7, M = 5.4 (Up,Ki).

" 23 Up iP 07 26 13.3 D  
 micr sec  
 P Z' 0.1 0.8  
 Ki iP 07 25 19.6 D  
 micr sec  
 P Z' 0.1 1.0  
 Sk iP 07 25 56.5  
 Um iP 07 25 44.8 D  
 (cont.)

1980

Jan. 23 (cont.)  
 Ud iP 07 26 16.7  
 Off east coast of Kamchatka  
 (h = N).  
 m = 6.0 (Up,Ki).

" 23 Up iP 07 33 08.2  
 i 07 33 18.0  
 micr sec  
 P Z' 0.1 0.9  
 i Z' 0.2 1.1  
 Mx E 1.2 20  
 Mx N 1.1 20

Ki iP 07 32 19.5  
 micr sec  
 P Z' 0.1 1.1  
 Mx E 2.4 18  
 Mx N 1.2 16

Sk iP 07 32 52.4  
 Um iP 07 32 40.7  
 Ud iP 07 33 07.3  
 De iP 07 33 33.1  
 Off east coast of Kamchatka  
 (h = N).  
 m = 5.9, M = 5.3 (Up,Ki).

" 23 Ud iP 07 37 27.8  
 De iP 07 37 56.2  
 Off east coast of Kamchatka  
 (h = N).

" 23 Up iP 07 39 10.8  
 Um iP 07 38 42.7  
 Ud iP 07 39 12.6  
 De iP 07 39 35.4  
 Near east coast of Kamchatka  
 (h = N).

" 23 Up iP 08 03 35.5  
 Ki iP 08 02 42.7  
 Sk iP 08 03 20.1  
 Um iP 08 03 07.3  
 Ud iP 08 03 40.8  
 De iP 08 03 59.6  
 Off east coast of Kamchatka  
 (h = N).

" 23 Up iP 08 08 55.3  
 Ki iP 08 08 01.5  
 Sk iP 08 08 37.7  
 Um iP 08 08 27.0  
 Ud iP 08 08 58.2  
 De iP 08 09 19.9  
 Off east coast of Kamchatka  
 (h = N).

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

1980

1980

Jan. 23 Up iP 08 22 59.2 C  
 iS 08 31 34.3  
 micr sec  
 P Z' 2.0 1.3  
 Mx E 2.1 16  
 Mx N 3.1 16  
 Mx Z 3.6 18  
 Ki iP 08 22 05.6 C  
 micr sec  
 P Z' 1.0 1.1  
 Mx E 1.6 17  
 Mx N 1.7 16  
 Mx Z 1.9 15  
 Sk iP 08 22 42.2 C  
 Um iP 08 22 31.5 C  
 Ud iP 08 23 02.5 C  
 De iP 08 23 24.1 C  
 Off east coast of Kamchatka  
 (h = N).  
 m = 6.8, M = 5.5 (Up,Ki).

" 23 Up iP 08 27 52.8  
 Ki iP 08 27 00.0  
 Sk iP 08 27 37.3  
 Um iP 08 27 25.4  
 Ud iP 08 27 55.8  
 De iP 08 28 17.6  
 Off east coast of Kamchatka  
 (h = N).

" 23 Up iP 08 33 25.2 C  
 micr sec  
 P Z' 0.4 1.4  
 Ki iP 08 32 31.7 C  
 micr sec  
 P Z' 0.2 1.0  
 Sk iP 08 33 09.0  
 Um iP 08 32 57.1  
 Ud iP 08 33 28.9  
 De iP 08 33 50.2 C  
 Off east coast of Kamchatka  
 (h = N).  
 m = 6.2 (Up,Ki).

" 23 Ki iP 08 50 32.6  
 De iP 08 51 51.7  
 Off east coast of Kamchatka  
 (h = N).

" 23 Um iP 09 58 24.5  
 Ud iP 09 57 59.6  
 Namibia (h = N).

" 23 Up iP 10 17 43.8  
 ipP 10 17 54.3  
 (cont.)

Jan. 23 (cont.)

Up micr sec  
 P Z' 0.2 0.9  
 Ki iP 10 16 50.8  
 micr sec  
 P Z' 0.2 1.0  
 Sk iP 10 17 28.4  
 Um iP 10 17 16.3  
 ipP 10 17 25.6  
 Ud iP 10 17 49.2  
 De iP 10 18 08.7  
 Off east coast of Kamchatka.  
 h = 35 km (Up,Um).  
 m = 6.2 (Up,Ki).

" 23 Up iRg 10 30 19.5  
 Local near-surface event.

" 23 Up iP 12 06 34.6  
 micr sec  
 Mx E 0.9 16  
 Mx N 1.5 17  
 Ki iP 12 05 40.4  
 micr sec  
 Mx E 1.4 17  
 Mx N 1.2 16  
 Sk iP 12 06 18.1  
 Um iP 12 06 06.6  
 Ud iP 12 06 37.3  
 De iP 12 06 59.6  
 Off east coast of Kamchatka  
 (h = N).  
 M = 5.3 (Up,Ki).

" 23 Up iP 12 07 14.9  
 micr sec  
 P Z' 0.1 1.1  
 Ki iP 12 06 10.7  
 micr sec  
 P Z' 0.2 1.0  
 Sk iP 12 06 58.4  
 Um iP 12 06 46.7  
 ipP 12 06 55.7  
 Ud iP 12 07 19.2  
 De iP 12 07 39.6  
 Off east coast of Kamchatka  
 (h = N).  
 m = 5.9 (Up,Ki).

" 23 Ud i(P) 14 13 00.7

" 23 Up iP 14 14 29.2  
 Ki iP 14 13 36.6  
 Ud iP 14 14 33.3  
 De iP 14 14 54.3  
 Off east coast of Kamchatka  
 (h = N).



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

1980				1980			
Jan.	23	Up iP	14 52 05.8	Jan.	24	Ki iP	12 57 46.4
		Ki iP	14 51 20.9			Off east coast of Kamchatka (h = N).	
		Um iP	14 51 41.4				
		Ud iP	14 52 11.9				
		Hokkaido, Japan region (h = N).		"	24	Ud iP	17 47 06.5
"	23	Ud iRg	15 59 49.4	"	24	Southern Greece (h = 100 km).	
		Local near-surface event.					
"	23	De iP	21 25 40.8				
		Sicily (h = 10 km).					
"	23	De iP	22 05 32.8				
		Off east coast of Kamchatka (h = N).					
"	23	Up iP	22 33 36.8				
		Ki iP	22 32 43.3				
		Um iP	22 33 06.2				
		Ud iP	22 33 37.9				
		De iP	22 34 02.0				
		Off east coast of Kamchatka (h = N).					
"	23	Up iP	22 38 08.2				
		Ki iP	22 38 17.4				
		Sk iP	22 37 56.4				
		Ud iP	22 37 57.2				
		Near coast of Venezuela (h = 160 km).		"	25	Up iP	02 27 16.9
"	24	Up iPKP1	05 18 10.9			Ki iP	02 26 43.1
		Ud iPKP1	05 18 12.9			Um iP	02 26 57.5
		De iPKP1	05 18 22.0			Ud iP	02 26 24.0
"	24	Sk iPKP	06 54 47.6			South of Honshu, Japan (h = 460 km).	
		Um iPKP	06 54 43.0	"	25	Um iP	04 44 05.1
		New Hebrides Islands (h = N).				Off east coast of Honshu, Japan (h = N).	
"	24	Up iP	07 06 22.6	"	25	Ud i(P)	08 56 40.3
			micr sec				
		P	Z' 0.3 1.2	"	25	Up iP	10 28 03.1
		Ki iP	07 05 29.1			Ki iP	10 27 09.6
			micr sec			Sk iP	10 27 46.1
		P	Z' 0.2 1.1			Um iP	10 27 40.6
		Sk iP	07 06 06.5			Ud iP	10 28 06.7
		Um iP	07 05 53.9			De iP	10 28 28.4
		Ud iP	07 06 25.6			Off east coast of Kamchatka (h = N).	
		De iP	07 06 47.9	"	25	Up ipP	11 22 32.8
		Off east coast of Kamchatka (h = N).				Ki ipP	11 21 52.3
		m = 6.2 (Up,Ki).				Um iP	11 22 05.5
"	24	Ud i(P)	09 29 47.2			ipP	11 22 09.7
						Ud iP	11 22 35.5
						ipP	11 22 39.7
						Near east coast of Honshu, Japan. h = 15 km (Um,Ud).	

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

1980

Jan.	25	Up	iP	11 49 28.9
			ipP	11 49 40.0
			iS	11 58 07
				micr sec
			P	Z' 0.6 1.3
			pP	Z' 0.9 1.5
			Mx	E 3.6 16
			Mx	N 1.9 18
			Mx	Z 1.6 17
		Ki	iP	11 48 35.3
			ipP	11 48 46.6
				micr sec
			P	Z' 0.7 1.6
			pP	Z' 0.3 1.1
			Mx	E 1.1 15
			Mx	N 1.4 14
		Sk	iP	11 49 12.1
			ipP	11 49 22.4
		Um	iP	11 49 00.8
			ipP	11 49 11.8
		Ud	iP	11 49 32.5
			ipP	11 49 43.7
		De	iP	11 49 53.4
			ipP	11 50 04.0
				Off east coast of Kamchatka.
				h = 40 km (Up,Ki,Sk,Um,Ud,De).
				m = 6.5, M = 5.5 (Up,Ki).
"	25	Up	iP	13 05 17.0
			ipP	13 05 29.2
			i	13 05 40.0
				micr sec
			pP	Z' 0.1 1.1
		Ki	iP	13 04 23.3
			ipP	13 04 35.1
			i	13 04 46.7
				micr sec
			pP	Z' 0.1 0.9
		Sk	iP	13 05 00.2
			ipP	13 05 12.0
		Um	iP	13 04 49.3
			ipP	13 05 01.5
		Ud	eP	13 05 21
			ipP	13 05 32.3
		De	iP	13 05 42.0
			ipP	13 05 53.7
			i	13 06 03.5
				Off east coast of Kamchatka.
				h = 40 km (Up,Ki,Sk,Um,Ud,De).
"	25	Sk	iP	14 58 45.0
			i	14 58 52.0
"	25	Um	iP	15 11 38.4
			(cont.)	

1980

Jan.	25	(cont.)		
		Ud	iP	15 12 11.1
				Off east coast of Kamchatka
				(h = N).
"	25	Sk	iP	15 30 15.0
"	25	Ki	iP	16 16 24.9
		Um	iP	16 16 40.1
		Ud	iP	16 17 07.0
				South of Honshu (h = 60 km).
"	25	Up	iPKP	16 41 19.5
		Sk	iPKP1	16 41 17.3
		Um	iPKP1	16 41 12.5
		Ud	iPKP1	16 41 26.3
		De	iPKP1	16 41 34.6
				Kermadec Islands (h = N).
"	25	Up	iP	17 19 07.2
		Ki	iP	17 18 13.9
		Sk	iP	17 18 50.4
		Um	iP	17 18 39.0
				Off east coast of Kamchatka
				(h = N).
"	25	Up	iP	23 12 59.1
		Ud	iP	23 13 06.5
				Aegean Sea (h = N).
"	26	Up	iP	01 10 19.9
			iS	01 17 55
		Ki	iP	01 10 52.3
		Sk	iP	01 10 50.4
		Um	iP	01 10 30.4
			i	01 10 41.7
			iS	01 18 18
		Ud	iP	01 10 31.7
		De	iP	01 10 16.8
				Arabian Sea (h = 10 km).
"	26	Ud	i(P)	16 02 53.2
"	26	Ud	i(P)	20 57 37.5
"	27	Up	iP	02 45 29.5
		Ki	iP	02 44 53.0
		Sk	iP	02 45 04.1
		Um	iP	02 45 13.1
		Ud	iP	02 45 21.6
				Central California
				(h = 15 km).
"	27	Ki	iP	03 38 07.3
		Ud	iP	03 38 24.3
				Tibet (h = N).

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

1980				1980			
Jan.	27	Ki iP	03 45 57.8	Jan.	28	Up iP	14 59 04.6
		Ud iP	03 46 14.5				micr sec
		Tibet (h = N).				P	Z' 0.2 1.5
"	27	Ki iP	03 55 54.2			Ki iP	14 59 12.6
		Ud iP	03 56 11.6				micr sec
		Tibet (h = N).				P	Z' 0.1 1.1
"	27	Up iP	05 10 38.1			Sk iP	14 59 23.0
		Um i	05 10 23.8			Um iP	14 59 06.0
		Ud iP	05 10 36.6			ipP	14 59 17.8
		Andreanof Islands, Aleutian Islands (h = 25 km).				Ud iP	14 59 15.4
"	27	Ud i(P)	10 56 24.8			De iP	14 59 10.5
						ipP	14 59 22.0
"	27	Ki ePKP	16 57 25			South Indian Ocean.	
			micr sec			h = 40 km (Um,De).	
		Mx E	1.1 17	"	28	Ud i(P)	17 04 26.1
		Mx N	1.3 19				
		Mx Z	1.3 19	"	29	Up iP	07 18 12.8
		Um iPKP	16 57 24.1			Ki iP	07 17 55.5
		Ud iPKP	16 57 20.9				micr sec
		Easter Islands Cordillera (h = 10 km).				P	Z' 0.2 1.3
"	28	Ud i(P)	08 41 41.0			Um iP	07 18 01.0
						Ud iP	07 18 20.9
"	28	Up iPKP1	10 23 16.6			Halmahera (h = 45 km).	
		Um iPKP	10 23 09.5	"	29	Ki iP	15 02 35.8
		i	10 23 16.0			Sk iP	15 03 10.8
		Ud iPKP1	10 23 16.9			Um iP	15 03 00.5
		De iPKP1	10 23 28.0			Ud iP	15 03 34.3
		Fiji Islands region (h = 560 km).				Off east coast of Kamchatka (h = N).	
"	28	Ud iP	10 37 30.5	"	29	Um iP	18 38 45.0
		North of Halmahera (h = 55 km).				Off east coast of Honshu, Japan (h = N).	
"	28	Up iPKP2	12 51 07.3	"	29	Ud i(P)	18 55 27.5
		Ki iPKP1	12 50 36.6				
			micr sec	"	29	Up iPKP	20 08 34.6
		PKP1 Z'	0.1 1.0			Um iPKP	20 08 27.9
		Um iPKP1	12 50 41.5			Loyalty Islands region (h = 80 km).	
		Ud iPKP2	12 51 14.1	"	30	Ud iP	00 23 03.5
		South Island, New Zealand (h = 150 km).		"	30	Um iP	00 50 13.0
"	28	Up iP	13 58 00.2			Ud iP	00 50 30.9
		ipP	13 58 07.8			Celebes Sea (h = 610 km).	
		Ki iP	13 57 49.0	"	30	Up iPKP1	11 47 43.8
		Um iP	13 57 52.5			iSKP1	11 50 30.7
		Ud iP	13 58 15.9			Ki iP	11 47 36.1
		Philippine Islands region (h = N).				iSKP1	11 50 07.9
						Sk i(PKP)	11 47 37.1
						Um i(PKP)	11 47 31.8

(cont.)

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

1980					
Jan.	30	(cont.)			
		Um	i(PKP)	11 47	37.8
			iPKP	11 47	44.0
			iSKP1	11 50	19.6
		Ud	iPKP1	11 47	45.3
			iSKP1	11 50	32.7
		De	iPKP1	11 47	55.9
			i	11 48	01.3
		Fiji Islands region (h = 610 km).			
"	30	Um	i(P)	11 56	25.0
"	30	Ud	i(P)	15 01	41.8
"	30	Ki	iP	15 44	32.8
		Ud	iP	15 44	44.6
		Southern Sumatera (h = 70 km).			
"	30	Up	iP	19 00	40.9
		Ki	iP	19 00	29.0
				micr	sec
		P	Z'	0.1	1.1
		Sk	iP	19 00	22.5
		Um	iP	19 00	37.7
		Ud	iP	19 00	31.5
		Near coast of Chiapas, Mexico (h = 80 km).			
"	30	Ud	iP	19 43	56.9
		Iran (h = 10 km).			
"	31	Up	iP	08 24	22.9
		Ki	iP	08 24	49.0
		Um	iP	08 24	40.6
		Ud	iP	08 24	08.1
		North Atlantic Ridge (h = 10 km).			
"	31	Um	iRg	14 30	24.8
		Local near-surface event.			
"	31	Up	iP	15 07	49.3
			iS	15 16	22
				micr	sec
		Mx	E	1.1	21
		Mx	N	1.9	21
		Ki	iP	15 07	00.7
				micr	sec
		Mx	E	1.1	17
		Mx	N	1.7	16
		Sk	iP	15 07	33.0
		Um	iP	15 07	21.6
		(cont.)			

1980					
Jan.	31	(cont.)			
		Um	iS	15 15	35
		Ud	iP	15 07	52.1
		De	iP	15 08	14.1
		Off east coast of Kamchatka (h = N). M = 5.3 (Up,Ki).			
"	31	Um	iP	20 01	10.8
		Ud	iP	20 01	42.9
		De	iP	20 02	03.3
		Off east coast of Kamchatka (h = 35 km).			
"	31	Up	iP	21 43	08.6
		Um	iP	21 42	41.2
		Ud	iP	21 43	10.9
		De	iP	21 43	33.5
		Off east coast of Kamchatka (h = 40 km).			

December 1, 1981

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, UMEÅ,

UDDEHOLM and DELARY

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

FEBRUARY 1 - 29, 1980

1980					1980				
Feb.	1	Um	iP	11 03 37.1	Feb.	2	Um	iP	10 08 18.0
				Taloud Islands (h = 140 km).					Honshu, Japan (h = 60 km).
"	1	Up	iP	17 37 44.0	"	2	Up	iP	12 39 42.1
			i	17 37 59.7					micr sec
				micr sec					
		P	Z'	0.1 1.0			Mx	E	0.7 19
		Mx	E	0.4 16			Mx	N	1.3 18
		Ki	iP	17 36 35.6			Ki	iP	12 39 29.5
			i	17 36 48.6					micr sec
			i	17 37 14.8					
				micr sec			Mx	E	1.2 15
		P	Z'	0.2 1.2			Mx	N	1.3 13
		Mx	E	0.5 18			Sk	iP	12 39 54.5
		Mx	N	1.0 17			Um	iP	12 39 31.4
		Sk	iP	17 37 26.9			Ud	iP	12 39 54.2
		Um	iP	17 37 09.7			De	iP	12 39 59.7
			iPP	17 38 26.0					Sichuan Province, China
		Ud	iP	17 37 50.5					(h = N).
			i	17 38 02.9					M = 5.7 (Up,Ki).
		De	iP	17 38 17.2	"	2	Ud	i(P)	15 28 34.8
			i	17 38 29.1	"	2	Um	iP	23 36 18.3
				Near coast of central					South Indian Ocean
				Siberia (h = 25 km).					(h = 10 km).
				m = 5.7, M = 4.9 (Up,Ki).	"	3	Ki	iP	04 09 14.8
"	1	Up	eP	18 12 28			Ud	iP	04 09 39.0
		Ki	iP	18 12 49.6					Molucca Passage (h = 45 km).
		Um	iP	18 12 35.3	"	3	Up	i(PKP)	12 17 50.5
		Ud	iP	18 12 40.4				iPKP	12 17 57.2
		De	iP	18 12 30.5				i	12 20 43.4
				Southern Iran (h = N).				iPP	12 20 51.1
"	1	Up	iP	18 59 33.6				iSKP1	12 21 34.0
			i	18 59 54.2				i	12 21 43.3
		Um	iP	18 59 28.0				iSKKP	12 30 02.2
		Ud	iP	18 59 46.3					micr sec
		De	iP	18 59 45.9					
				Afghanistan-USSR border			Mx	E	0.9 20
				region (h = 90 km).			Mx	N	2.1 22
							Mx	Z	3.4 20

(cont.)

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

1980				1980			
Feb.				Feb.			
3	(cont.)			4	(cont.)		
	Ki	iPKP	12 17 44.8		Ud	iP	01 09 02.1
		i	12 17 54.7		South of Panama (h = 10 km).		
		iSKP1	12 21 07.1				
			micr sec	"	4	Up	iP 02 31 52.8 D
		PKP	Z' 0.1 1.2			i	02 32 00.4
		Mx	E 0.1 20				micr sec
		Mx	N 1.5 22			P	Z' 0.1 1.0
	Sk	iPKP	12 17 51.2		Ki	iP	02 31 16.2 D
		i	12 17 58.5				micr sec
		iPP	12 20 32.0			P	Z' 0.1 1.0
	Um	i(PKP)	12 17 39.9		Sk	iP	02 31 47.8 D
		iPKP	12 17 53.2		Um	iP	02 31 31.6 D
		i	12 18 03.5		Ud	iP	02 31 59.6 D
		iPP	12 20 24.4		De	iP	02 32 12.7 D
		iSKP1	12 21 25.6		South of Honshu, Japan		
		iSKKP	12 30 25.0		(h = 200 km).		
	Ud	i(PKP)	12 17 48.9		m = 5.5 (Up,Ki).		
		iPKP	12 18 00.6	"	4	Up	iP 02 34 51.6
		i	12 18 09.4			Ki	iP 02 36 06.1
		iPP	12 20 46.3			Sk	iP 02 35 26.5
	De	iPKP1	12 18 01.5			Um	iP 02 35 30.1
		iPKP	12 18 09.7			Ud	iP 02 34 53.8
	Tonga Islands region					De	iP 02 34 16.8
	(h = N).				Sicily (h = 260 km).		
	M = 6.4 (Up,Ki).						
"	3	Ud	i(P) 13 09 59.0	"	4	Up	iPKP 04 04 53.4
"	3	Up	iP 16 33 42.2				micr sec
		Ki	iP 16 32 53.4			Mx	E 0.5 20
		Um	iP 16 33 15.8			Mx	N 0.8 18
		Ud	iP 16 33 46.8			Mx	Z 1.8 20
	Kuril Islands (h = N).					Ki	iPKP 04 05 09.3
"	3	Ki	iP 20 35 33.6				micr sec
		Ud	iP 20 35 58.5			PKP	Z' 0.1 1.4
	Mindanao, Philippine Islands (h = 60 km).					Mx	E 0.7 17
"	3	Ki	iP 20 49 39.3			Mx	N 1.1 17
		Um	iP 20 49 58.0			Um	iPKP 04 05 01.2
		Ud	iP 20 50 30.0			Ud	iPKP 04 04 52.5
	Hokkaido, Japan region (h = 70 km).				Southwestern Atlantic Ocean (h = 10 km).		
"	3	Up	iP 21 29 22.2		M = 6.0 (Up,Ki).		
		Ki	iP 21 28 37.5	"	4	Up	iP 05 46 13.3
		Um	iP 21 28 57.4			Ud	iP 05 46 14.7
		Ud	iP 21 29 28.6			De	eP 05 46 26
	Kuril Islands (h = N).			"	4	Ki	iP 11 05 02.6
"	4	Ud	iP 00 31 10.8			Um	iP 11 05 20.6
"	4	Up	iP 01 09 10.6			Ud	iP 11 05 50.3
		Ki	iP 01 09 07.0				ipP 11 06 05.6
		Sk	iP 01 08 56.6		Near east coast of Honshu, Japan (h = 60 km).		
		Um	iP 01 09 10.8	"	4	Up	iP 11 10 20.6
	(cont.)					Ki	iP 11 10 28.5
						Um	iP 11 10 18.2
						Ud	iP 11 10 37.9
					(cont.)		

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

1980				1980				
Feb.	4	(cont.)		Feb.	6	Up	iP	10 54 39.1
		De	iP			Ki	iP	10 53 46.1
		Afghanistan-USSR border region (h = 90 km).				Sk	iP	10 54 19.0
						Um	iP	10 54 12.5
"	4	Up	i(P)			Ud	iP	10 54 40.5
						Andreanof Islands, Aleutian Is. (h = 30 km).		
"	4	Ud	i(P)	"	6	Up	iP	13 03 47.9
"	4	Up	i(P)			Ki	iP	13 04 23.5
								micr sec
"	4	Up	iP				P	Z' 0.1 0.9
		Ud	iP			Sk	iP	13 04 22.1
		South of Honshu, Japan (h = 70 km).				Um	iP	13 04 00.6
						Ud	iP	13 04 02.4
"	4	Up	iP			De	iP	13 03 47.2
		Ki	iP			Southern Iran (h = N).		
		Um	iP	"	6	Um	iPKP	13 30 45.8
		Ud	iP			De	iPKP1	13 30 55.4
		Mariana Islands region (h = N).				Fiji Islands region (h = 490 km).		
"	4	Ud	iP	"	6	Up	iP	14 01 17.6
"	4	Up	i(P)			Ud	iP	14 01 20.2
"	4	Up	i(P)	"	6	Ud	iP	15 01 49.0
"	4	Um	iP	"	6	Ki	iP	16 43 36.5
		Ud	iP			Ud	iP	16 44 28.2
						Lake Baikal region (h = N).		
"	5	Um	iP	"	7	Up	iPKP2	11 09 45.2
"	5	Up	iPKP1			Ud	iPKP2	11 09 55.7
		Ki	ePKP1			Macquarie Islands region (h = 10 km).		
		Sk	iPKP1					
		Um	iPKP1					
		Ud	iPKP1	"	7	Up	iPKP2	11 09 57.9
		De	iPKP1					micr sec
		Kermadec Islands (h = 100 km).					PKP2	Z' 0.1 0.9
							Mx	E 2.4 20
							Mx	N 2.0 19
"	5	Um	iP				Mx	Z 6.9 20
"	6	Up	iP			Ki	iPKP	11 09 20.7
		Ki	eP				iPKP2	11 09 48.8
		Sk	iP					micr sec
		Um	iP				Mx	E 1.5 19
		Ud	iP				Mx	N 1.6 19
"	6	Up	iPKP			Sk	iPKP	11 09 21.8
		Um	iPKP				iPKP2	11 10 07.5
			iPP			Um	iPKP	11 09 17.9
		Ud	iPKP				iPKP1	11 09 30.3
			iPP				iPKP2	11 09 52.2
		Solomon Islands (h = 40 km).				Ud	iPKP2	11 10 06.7
						De	iPKP2	11 10 05.0
						Macquarie Islands region (h = 10 km).		
						M = 6.2 (Up,Ki).		

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

1980

Feb. 7 Up iPKP2 11 19 42.0  
 micr sec  
 PKP2 Z' 0.1 1.0  
 Ki iPKP1 11 19 13.5  
 iPKP2 11 19 31.7  
 micr sec  
 PKP1 Z' 0.1 1.1  
 PKP2 Z' 0.1 1.1  
 Sk iPKP2 11 19 51.3  
 Um iPKP1 11 19 15.1  
 iPKP2 11 19 36.1  
 Ud iPKP2 11 19 50.8  
 De iPKP2 11 19 49.4  
 Macquarie Islands region  
 (h = 10 km).

" 7 Up iP 19 09 01.3  
 Sk iP 19 09 41.3  
 Um iP 19 09 39.3  
 Ud iP 19 09 08.1  
 De iP 19 08 31.9  
 Southern Greece (h = 55 km).

" 7 Up i(P) 19 53 58.9  
 " 7 Up iP 21 26 12.6  
 Ki iP 21 26 49.4  
 Sk iP 21 26 47.1  
 Um iP 21 26 25.6  
 Ud iP 21 26 27.7  
 De iP 21 26 10.5  
 i 21 26 20.0  
 Southern Iran (h = N).

" 8 Up iP 01 30 55.0  
 Sk iP 01 31 11.6  
 Um iP 01 30 49.1  
 Ud iP 01 31 08.4  
 Burma (h = 50 km).

" 8 Um iP 01 44 09.7

" 8 Um iP 02 38 56.6  
 Ud iP 02 39 14.8

" 8 Ki iP 12 31 37.4  
 Um iP 12 32 07.8  
 Northern Yukon Territory,  
 Canada (h = 20 km).

" 8 Up iP 13 19 23.6 C  
 iPP 13 22 49.7  
 iSKS 13 29 19.2  
 iS 13 29 29.7  
 micr sec  
 P Z' 0.1 1.0  
 Ki iP 13 18 55.1 C  
 iS 13 28 35.3

(cont.)

1980

Feb. 8 (cont.)  
 Ki micr sec  
 P Z' 0.3 1.0  
 Sk iP 13 19 21.2 C  
 iPP 13 22 43.1  
 Um iP 13 19 07.3 C  
 i 13 19 12.8  
 iS 13 28 58.9  
 Ud iP 13 19 30.4 C  
 i 13 19 35.2  
 iPP 13 23 00.7  
 iS 13 29 44.1  
 De iP 13 19 41.7 C  
 i 13 19 45.6  
 Volcano Islands region  
 (h = 270 km).  
 m = 5.8 (Up,Ki).

" 8 Up iP 20 50 28.0  
 Ki iP 20 50 25.2  
 Sk iP 20 50 10.3  
 Um iP 20 50 30.3 C  
 Ud iP 20 50 33.9 C  
 De iP 20 50 21.3  
 Cuba region (h = N).

" 9 Up iP 00 38 13.1  
 Ki iP 00 37 27.2  
 Sk iP 00 38 02.9  
 Um iP 00 37 47.6  
 Ud iP 00 38 19.1  
 De iP 00 38 36.5  
 Kuril Islands (h = 60 km).

" 9 Up iP 01 39 58.5  
 Ki iP 01 39 05.0  
 Ud iP 01 39 59.6  
 Rat Islands, Aleutian  
 Islands (h = N).

" 9 Up eP 04 09 44  
 Um iP 04 09 47.9  
 Ud iP 04 09 56.1  
 Pakistan (h = N).

" 9 Up iP 14 20 56.3  
 Ud iP 14 20 57.6

" 9 Up iPKP1 17 42 55.9  
 Ki ePKP 17 42 39  
 Sk iPKP1 17 42 48.2  
 Um iPKP1 17 42 43.6  
 Ud iPKP1 17 42 57.3  
 i 17 43 00.7  
 De iPKP1 17 43 07.5  
 Kermadec Islands region  
 (h = N).



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

1980				1980							
Feb.	9	Up	iPKP1	19 47 41.0	Feb.	11	Um	iP	14 56 40.4		
		Ki	i(PKP)	19 47 21.5		"	11	Up	iP	15 40 07.2	
			iPKP	19 47 31.7					micr sec		
		Sk	iPKP	19 47 34.8				P	Z'	0.1 1.0	
		Um	i(PKP)	19 47 27.6			Ki	iP	15 39 13.5		
			iPKP	19 47 39.9				iPcP	15 40 13.4		
			iSKP1	19 50 22.0					micr sec		
		Ud	iPKP1	19 47 43.4				P	Z'	0.1 0.7	
			i	19 48 20.8			Sk	iP	15 39 50.6		
		De	iPKP1	19 47 52.0				iPcP	15 40 34.3		
			i	19 50 02.3			Um	iP	15 39 38.8 C		
		South of Fiji Islands						iPcP	15 40 27.5		
		(h = 540 km).					Ud	iP	15 40 10.8 C		
"	10	Up	iP	04 55 38.1				iPcP	15 40 45.9		
		Ki	iP	04 54 56.1			De	iP	15 40 32.7 C		
		Sk	iP	04 55 34.5			Near east coast of				
		Um	iP	04 55 13.1			Kamchatka (h = 45 km).				
		Ud	iP	04 55 47.7			m = 5.9 (Up,Ki).				
		Northeastern China				"	11	Ki	iPKP	23 47 52.6	
		(h = N).						Um	iPKP	23 47 58.8	
"	10	Up	iP	12 05 26.5			New Hebrides Islands				
		Ki	iP	12 04 41.3			(h = 130 km).				
		Sk	iP	12 05 17.0			"	12	Up	iPdiff	03 35 12.8
		Um	iP	12 05 01.7					iPKP	03 38 57.3	
		Ud	iP	12 05 32.8 C					iPP	03 39 56.6	
		De	iP	12 05 50.2 C					iSKS	03 45 51.2	
		Kuril Islands (h = 70 km)							micr sec		
"	10	Up	iP	12 52 58.4 D				Mx	E	0.7 23	
			i	12 53 02.3				Mx	N	1.0 23	
				micr sec				Mx	Z	2.0 21	
			P	Z'	0.1 1.1		Ki	iPdiff	03 34 42.3		
		Ki	iP	12 52 12.2				iPKP	03 38 47.7		
				micr sec					micr sec		
			P	Z'	0.1 1.3			Mx	E	0.9 24	
		Sk	iP	12 52 48.0				Mx	N	1.8 23	
		Um	iP	12 52 33.8			Sk	iPdiff	03 35 07		
			i	12 52 37.0				iPKP	03 38 56.8		
		Ud	iP	12 53 04.0 D				iPP	03 39 54.5		
			i	12 53 15.5			Um	iPdiff	03 34 54.3		
		De	iP	12 53 22.3				iP	03 38 50.5		
		Kuril Islands region					Ud	iPdiff	03 35 16.1		
		(h = N).						iPKP	03 39 00.8		
		m = 5.8 (Up,Ki).						iPP	03 40 08.3		
"	10	Ki	iP	14 48 20.8			De	iPKP	03 39 05.4		
		Volcano Islands region					New Ireland region				
		(h = N).					(h = 80 km).				
		M = 6.2 (Up,Ki).				"	12	Up	i(P)	08 19 59.2	
"	10	Ud	iP	15 19 17.7			"	12	Ud	iPKP1	08 42 30.3
		Kuril Islands region						De	iPKP1	08 42 41.2	
		(h = N).					Fiji Islands region				
"	11	Ud	i(P)	05 41 27.5			(h = 560 km).				
"	11	Ud	i	13 39 31.4							
			iSgl	13 39 42.5							

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

1980				1980			
Feb.	12	Up	eP	08 53 20	Feb.	13	(cont.)
		Ki	iP	08 52 26.4			De iP KP2 19 41 30.4
			i	08 52 43.2			Kermadec Island region
		Sk	iP	08 52 59.2			(h = 390 km).
		Um	iP	08 52 53.5	"	13	Up iP 20 01 54.6
			i	08 53 09.6			Ki iP 20 01 00.3
		Ud	iP	08 53 19.4			Sk eP 20 01 33
			i	08 53 36.9			Um iP 20 01 26.6
		De	iP	08 53 42.8			ipP 20 01 36.8
		Andreanof Islands, Aleutian					Ud iP 20 01 57.0
		Is. (h = 80 km).					De iP 20 02 19.8
"	12	De	i(P)	10 03 44.6			Off east coast of
"	12	Ud	i(P)	11 17 56.8			Kamchatka (h = N).
"	12	Ud	i(P)	12 07 55.3	"	13	Up ePKP1 20 56 32
"	12	Um	i(P)	13 01 33.8			iSKP1 20 59 20.6
"	12	Um	iP	23 04 10.8			Ki iPKP 20 56 24.5
		Ud	iP	23 04 38.2			iSKP1 20 58 57.3
		Ryukyū Islands (h = N).					Sk iSKP1 20 59 14.0
"	13	Um	iP	02 28 35.8			Um i(PKP) 20 56 20.2
		Ud	iP	02 29 00.4			iPKP 20 56 31.5
		De	iP	02 29 24.1			iSKP1 20 59 09.2
		Unimak Island region					Ud iPKP1 20 56 33.8
		(h = 50 km).					i 20 56 43.0
"	13	Ud	iP	06 52 50.5			iSKP1 20 59 22.4
"	13	Ud	i(P)	09 56 42.4			De iPKP1 20 56 44.8
"	13	Up	iP	17 17 33.6			iSKP1 20 59 31.4
		Ki	iP	17 16 40.2			Fiji Islands region
		Um	iP	17 17 05.6			(h = 590 km).
			i	17 17 16.0	"	13	Up iP 21 10 29.9
		Ud	iP	17 17 38.0			Um iP 21 10 12.0
		De	iP	17 17 58.5			Ud iP 21 10 37.5
		Off east coast of					De iP 21 10 49.3
		Kamchatka (h = N).					"
"	13	Ki	iP	17 40 39.5			Up iP 22 17 32.0 C
		Sk	iP	17 40 41.5			i 22 17 59.8
		Um	iP	17 40 19.5			i 22 18 07.8
		Ud	iP	17 40 23.9			iPP 22 19 13.9
		De	iP	17 40 10.2			iS 22 23 55.7
		Southern Iran (h = N).					micr sec
"	13	Up	iPKP1	19 41 07.4			P Z' 1.0 1.0
			iPKP2	19 41 13.3			Ki iP 22 17 33.7 C
		Ki	iPKP1	19 40 46.9			iPP 22 19 22.3
		Sk	iPKP1	19 41 01.9			iS 22 23 59
		Um	iPKP	19 40 56.1			Sk iP 22 17 54.5 C
			iPKP1	19 40 57.1			i 22 18 20.1
		Ud	iPKP1	19 41 09.6			i 22 18 29.3
			iPKP2	19 41 16.9			Um iP 22 17 27.0 C
		De	iPKP1	19 41 17.9			i 22 17 52.6
							i 22 18 01.8
							iS 22 23 40
							Ud iP 22 17 48.1 C
							iS 22 24 28.3
							De iP 22 17 46.9 C
							Kashmir-Sinkiang border
							region (h = 60 km).

(cont.)

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary			
1980			1980
Feb.	14	Um iP 00 14 24.5 Ud iP 00 13 33.2 Northern Italy (h = 10 km).	Feb. 14 Up iPKP 19 34 07.1 Sk iPKP 19 33 59.1 Ud iPKP 19 34 07.5 De iPKP 19 34 17.6
"	14	Ki eP 01 20 59 Um iP 01 21 03.5 ipP 01 21 35.6 Mona Passage (h = 130 km).	" 14 Ud iP 19 43 56.5 Afghanistan-USSR border region (h = 50 km).
"	14	Um iP 02 55 12.3 Ud iP 02 55 43.2	" 14 Um iP 20 19 55.9 Ud iP 20 19 33.5 Turkey (h = 10 km).
"	14	Up iP 03 57 35.1 C Ki iP 03 57 35.7 C micr sec P Z' 0.1 0.7 Sk iP 03 57 57.8 C Um iP 03 57 30.0 C Ud iP 03 57 51.4 C De iP 03 57 50.3 C Kashmir-Sinkiang border region (h = 90 km).	" 14 Ud iPKP1 23 31 15.5 De iPKP1 23 31 27.9 i 23 31 42.0 Tonga Islands region (h = N).
"	14	Um iPKP 08 52 14.9 Ud iPKP 08 52 25.4 New Hebrides Islands (h = 200 km).	" 15 Ud iP 01 15 25.5
"	14	Up iP 10 44 36.8 Ki eP 10 44 46 Um iP 10 44 35.5 Ud iP 10 44 54.0 De iP 10 44 49.2 Afghanistan-USSR border region (h = 80 km).	" 15 Um iP 03 41 57.7 Ud iP 03 41 27.4 Eastern Sea of Japan (h = 30 km).
"	14	Sk eP 11 47 20 Um iP 11 46 49.0 Ud iP 11 47 08.6 Afghanistan-USSR border region (h = 70 km).	" 15 Up iP 09 13 05.8 Um iP 09 12 38.8 De iP 09 13 30.2 Kuril Islands (h = N).
"	14	Up i(P) 13 08 01.0	" 15 Ki iP 09 17 17.6
"	14	Ud iP 16 14 24.4	" 15 Um i(P) 09 56 54.3
"	14	Up iP 17 22 50.7 Ki iP 17 22 54.6 Um iP 17 22 56.7 ipP 17 23 11.1 Ud iP 17 22 39.7 De iP 17 22 34.0 Virgin Islands (h = 55 km).	" 15 Up iP 10 08 19.6 Ki iP 10 07 48.2 Um iP 10 08 00.8 i 10 08 31.0 i 10 08 38.8 De iP 10 08 37.5 Volcano Islands region (h = 90 km).
"	14	Ud iP 19 18 20.7	" 15 Up iP 11 57 49.3 D micr sec P Z' 0.1 0.6 Ki iP 11 57 22.6 D micr sec P Z' 0.2 1.0 Sk iP 11 57 50.6 Um iP 11 57 32.3 D Ud iP 11 57 58.3 D De iP 11 58 08.2 Northeast of Taiwan (h = 170 km). m = 5.8 (Up,Ki).

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

1980						1980							
Feb.	15	Up	iP	12 25	48.6	Feb.	15	Up	iP	17 45	13.6		
		Um	iP	12 25	22.1			Um	iP	17 44	48.0		
		Ud	iP	12 25	52.8			Ud	iP	17 45	19.5 D		
		De	iP	12 26	12.4			Kuril Islands (h = N).					
		Kuril Islands (h = 50 km).						"	15	Ki	eP	18 01	44
"	15	Up	iP	13 06	07.3			Um	iP	18 01	56.7		
		Ki	iP	13 05	36.7			Ud	iP	18 02	25.2		
		Um	iP	13 05	50.1				i	18 02	36.9		
		Ud	iP	13 06	14.4			Kyushu, Japan (h = 35 km),					
		Bonin Islands region (h = 520 km).						"	15	Up	iP	18 59	54.5
		Ud	iP	18 59	59.4			La Rioja Province, Argentina (h = 150 km).					
"	15	Up	iP	14 36	49.8 C			"	15	Up	iP	19 10	16.3
		i		14 36	56.7					i		19 10	18.4
		i		14 37	08.2			Ki	eP	19 09	30		
		iSKS		14 46	58			Um	iP	19 09	52.2		
		P	Z'	0.1	1.0			Ud	iP	19 10	22.2		
		Mx	E	2.2	17				i	19 10	24.3		
		Mx	N	3.3	18			De	iP	19 10	41.6		
		Mx	Z	6.1	18			Kuril Islands (h = 55 km).					
		Ki	iP	14 36	03.3			"	15	Ud	iP	19 19	25.3
		i		14 36	08.0			Kuril Islands (h = N).					
		i		14 36	46.8			"	15	Up	iP	19 26	28.2
		P	Z'	0.1	1.0			Um	iP	19 27	05.8		
		Mx	E	3.0	16			Ud	iP	19 26	40.2		
		Mx	N	5.5	15			Aegean Sea (h = N).					
		Mx	Z	3.4	17			"	15	Up	iP	19 52	08.9
		Sk	iP	14 36	38.7			Ki	iP	19 51	21.3		
		Um	iP	14 36	23.4			Um	iP	19 51	42.3		
		ipP		14 36	32.9			Ud	iP	19 52	13.6		
		Ud	iP	14 36	55.4 C				ipP	19 52	28.9		
		ipP		14 37	05.1			De	iP	19 52	31.8		
		De	iP	14 37	13.9 C			Kuril Islands (h = 55 km).					
		ipP		14 37	24.3			"	15	Ud	iP	20 11	40.3
		Kuril Islands. h = 35 km (Um,Ud,De). m = 6.0, M = 6.2 (Up,Ki).						Kuril Islands (h = N).					
"	15	Up	iP	14 46	29.3			"	15	Ud	iP	20 36	32.8
		Ud	iP	14 46	34.6			Kuril Islands (h = N).					
		Kuril Islands (h = N).						"	15	Up	iP	20 45	12.9
"	15	Up	iP	15 12	04.1 D			Ud	iP	20 45	17.9		
		Ki	iP	15 11	16.9 D			Kuril Islands (h = N).					
		Sk	iP	15 11	53.4			"	15	Up	iP	22 49	18.1
		Um	iP	15 11	38.1 D			Turkey (h = 10 km).					
		Ud	iP	15 12	09.6 D			"	15	Up	iP	00 31	42.2
		ipP		15 12	20.9			Um	iP	00 31	18.2		
		i		15 12	27.6			Ud	iP	00 31	48.6 D		
		De	iP	15 12	27.5			De	iP	00 32	06.8 D		
		Kuril Islands (h = 45 km).						Kuril Islands (h = 50 km).					
"	15	Ud	iP	15 15	00.8			"	16	Up	iP	00 31	42.2
"	15	Up	iP	16 12	20.7			Um	iP	00 31	18.2		
		Ki	iP	16 11	32.3			Ud	iP	00 31	48.6 D		
		Ud	iP	16 12	26.3			De	iP	00 32	06.8 D		
		Kuril Islands (h = 50 km).						Kuril Islands (h = 50 km).					

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

1980				1980			
Feb.	16	Um iP	01 28 18.3	Feb.	16	Um iP	18 52 49.5
		Carlsberg Ridge (h = 10 km).				Ud iP	18 53 06.9
"	16	Up iP	02 07 50.4	"	16	Sk iP	19 14 14.4
		Ki iP	02 08 19.1			Ud iP	19 13 41.4
		i	02 08 28.5			ipP	19 13 49.8
		Um iP	02 08 01.7			De iP	19 13 09.0
		i	02 08 13.0			ipP	19 13 18.5
		Ud iP	02 08 03.5			Crete.	
		i	02 08 14.0			h = 35 km (Ud,De).	
		De iP	02 07 49.0	"	17	Up iP	05 55 14.6
		i	02 07 53.1			Ki iP	05 54 52.2
		Carlsberg Ridge (h = 10 km).				Sk eP	05 55 20
"	16	Um iP	02 17 48.2			Um iP	05 55 00.9
		Carlsberg Ridge (h = 10 km).				Ud iP	05 55 23.9
"	16	Um iP	03 11 40.6			De iP	05 55 31.0
		Carlsberg Ridge (h = 10 km).				Luzon, Philippine Islands (h = 40 km).	
"	16	Ki iP	10 35 28.0	"	17	Um iP	06 58 57.4
		Um iP	10 35 34.7			Ud iP	06 58 06.3
		West Irian region (h = N).		"	17	Up i(P)	13 37 55.0
"	16	Up iP	13 05 07.5	"	17	Up iP	16 57 03.3
		Ki iP	13 05 31.5			Ki iP	16 56 16.8
		Um iP	13 05 16.5			Sk iP	16 56 52.8
		Ud iP	13 05 18.7 D			Um iP	16 56 37.7
		Carlsberg Ridge (h = 10 km).				Ud iP	16 57 09.2
"	16	Up iP	13 14 58.5			De iP	16 57 27.4
		Ki iP	13 15 23.5			Northwest of Kuril Islands (h = 360 km).	
		ipP	13 15 29.2	"	17	Up iP	18 10 28.4
		Um iP	13 15 07.1			Rat Islands, Aleutian Islands (h = 20 km).	
		ipP	13 15 13.7	"	17	Up iP	19 13 00.1 C
		Ud iP	13 15 09.0			iPcP	19 13 35.3
		ipP	13 14 15.2			Ki iP	19 12 07.7 C
		De iP	13 14 55.8			iPcP	19 13 06.5
		Carlsberg Ridge				Sk iP	19 12 43.9 C
		h = 20 km (Ki,Um,Ud).				Um iP	19 12 32.7 C
"	16	Up iP	13 57 18.9			iPcP	19 13 18.8
		Um iP	13 57 01.5			Ud iP	19 13 04.3 C
		i	13 57 13.0			De iP	19 13 25.1 C
		Ud iP	13 57 26.1			Near east coast of Kamchatka (h = N).	
"	16	Up iPKP1	14 25 57.6	"	17	Ud iP	20 25 30.9
		Sk iPKP1	14 25 50.4			Kuril Islands (h = N).	
		iPKP2	14 25 54.4	"	18	Up iP	02 04 30.1
		Um iPKP1	14 25 45.5			Ud iP	02 04 36.1
		Ud iPKP1	14 25 57.6			Kuril Islands (h = N).	
		South of Kermadec Islands (h = N).		"	18	Ud iP	02 16 04.4
"	16	Ki iP	16 24 55.0			De iP	02 15 35.4
		Um iP	16 24 38.8			Turkey (h = 10 km).	
		Ud iP	16 24 40.5				
		i	16 24 47.1				
		Carlsberg Ridge (h = 10 km).					



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

1980				1980			
Feb.	19	(cont.)		Feb.	20	Um iP	00 29 45.6
		Sk iPKP	09 15 47.3			Nicobar Islands region	(h = N).
		iSKP1	09 18 26.9				
		Um i(PKP)	09 15 32.3	"	20	Ud iPn	02 00 57.5
		iPKP	09 15 42.2			De iPn	01 59 59.5
		iSKP1	09 18 21.6			iSn	02 00 55.3
		Ud iPKP1	09 15 45.7			Poland (h = 10 km).	
		iSKP1	09 18 34.7				
		De iPKP1	09 15 58.7 C	"	20	Up iP	02 38 43.0
		iSKP1	09 18 43.5			Ki iP	02 39 58.8
		Fiji Islands region				Sk iP	02 39 19.7
		(h = 600 km).				Um iP	02 39 24.4
"	19	Ud iP	14 21 46.9			i	02 39 29.3
		De iP	14 21 14.5			Ud iP	02 38 45.6
		Dodecanese Islands				Southern Italy (h = 10 km).	
		(h = 10 km).		"	20	Up iP	02 44 57.8
"	19	Up iP	17 39 24.4			Sk iP	02 45 37.8
			micr sec			Um iP	02 45 38.8
		Mx E	0.3 16			Ud iP	02 45 01.1
		Mx N	1.0 15			Southern Italy (h = 10 km).	
		Ki eP	17 39 26	"	20	Ki eP	03 25 09
		ipP	17 39 36.9			Ud iP	03 26 50.6
			micr sec			De iP	03 27 31.6
		Mx E	0.8 13			Svalbard region	
		Mx N	2.0 15			(h = 10 km).	
		Mx Z	0.7 16	"	20	Up iPKP1	04 11 18.4
		Sk ipP	17 39 50.9			iPKP2	04 11 24.2
		i	17 40 02.7			Ki iPKP2	04 10 56.5
		Um iP	17 39 21.3			Sk iPKP1	04 11 12.5
		ipP	17 39 31.9			Um iPKP1	04 11 07
		Ud iP	17 39 35.0			Ud iPKP1	04 11 20.6
		ipP	17 39 45.6			De iPKP1	04 11 28.6
		De iP	17 39 32.9			iPKP2	04 11 40.6
		ipP	17 39 43.9			Kermadec Islands region	
		Nicobar Islands region.				(h = 210 km).	
		h = 20 km (Ki,Um,Ud,De).		"	20	Up iP	08 19 45.2
		M = 5.8 (Up,Ki).				Sk iP	08 20 01.7
"	19	Um iP	18 18 10.6			Um iP	08 19 35.7
		ipP	18 18 19.6			Ud iP	08 19 59.7
		Ud iP	18 18 25.8			De iP	08 20 03.5
		De iP	18 18 22.7			Tibet (h = N).	
		Nicobar Islands region		"	20	De i(P)	09 49 42.8
		(h = N).		"	20	Ud iP	10 31 48.5
"	19	Up iPKP	19 52 01.0			De iP	10 31 17.4
		Sk ePKP	19 51 50			Eastern Mediterranean Sea	
		Um iPKP	19 51 44.6			(h = 70 km).	
		Ud ePKP	19 51 59				
		De ePKP	19 52 09				
"	19	Up eP	21 16 36				
		Ki iP	21 16 18.1				
		Philippine Islands					
		region (h = 40 km).					

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

1980				1980												
Feb.	20	Up	iP	15 16	54.4	Feb.	21	De	i(P)	13 03	51.7					
		Ki	iP	15 17	02.7			"	21	Up	iRg	13 12	08.3			
		Sk	iP	15 17	19.9			"	21	Up	eP	13 15	35			
		Um	iP	15 16	52.6					Ud	iP	13 15	42.4			
		Ud	iP	15 17	10.8					De	iP	13 15	54.1			
		De	iP	15 17	07.5					"	21	Up	iP	14 03	39.5	
		Afghanistan-USSR border region (h = 240 km).										Ud	iP	14 03	54.6	
"	20	Up	iP	15 44	00.2 D							De	iP	14 03	36.3	
		Ki	iP	15 43	28.0 D							Iran-Iraq border region (h = N).				
		Sk	iP	15 43	57.7					"	21	Up	iP	14 06	24.8	
		Um	iP	15 43	42.0 D							Ki	iP	14 07	06.6	
		Ud	iP	15 44	07.0							Um	iP	14 06	41.4	
		De	iP	15 44	19.6 D							Ud	iP	14 06	39.9 C	
			i	15 44	58.8							De	iP	14 06	21.5 C	
		Bonin Islands region (h = 400 km).										Iran-Iraq border region (h = N).				
"	20	Ud	iPn	17 37	17.1					"	21	Up	iP	14 14	53.4	
		De	iPn	17 36	19.9							Ki	iP	14 15	36.0	
			iSn	17 37	14.9							Ud	iP	14 15	08.9 C	
		Poland (h = 10 km).										De	iP	14 14	50.2 C	
"	20	Ki	iP	18 30	50.7							Iran-Iraq border region (h = N).				
		Sk	iP	18 31	20.1					"	21	Up	iRg	14 19	59.4	
		Um	iP	18 31	19.5					"	21	Up	iPKP1	14 44	07.4	
		Ud	iP	18 31	42.6								i	14 44	19.8	
		De	iP	18 32	07.3										micr sec	
		Alaska Peninsula (h = 100 km).											PKP1	Z'	0.1	1.1
"	20	Up	iPKP	18 46	27.7							Ki	iPKP	14 43	50.1	
		Ki	iPKP	18 46	42.4							Sk	iPKP1	14 44	00.5	
		Um	iPKP	18 46	35.4							Um	iPKP1	14 43	55.5	
		Ud	iPKP	18 46	25.8							Ud	iPKP1	14 44	07.9	
		South Sandwich Islands region (h = 60 km).										De	iPKP1	14 44	17.8	
"	21	Up	iP	03 29	51.1							Kermadec Islands (h = N).				
"	21	Ud	iP	03 44	19.8					"	21	Up	iPKP	14 47	25.2	
"	21	Up	iPKP1	11 33	23.3								i	14 47	36.9	
					micr sec							Sk	iPKP	14 47	18.4	
			PKP1	Z'	0.1	1.0							i	14 47	30.2	
		Ki	iPKP	11 33	04.3							Um	iPKP	14 47	13.2	
		Sk	iPKP1	11 33	15.4							Ud	iPKP	14 47	26.1	
			i	11 33	21.7								i	14 47	38.5	
		Um	iPKP1	11 33	10.7							De	iPKP	14 47	35.1	
		Ud	iPKP1	11 33	24.5								i	14 47	47.4	
			iPKP2	11 33	29.5							Kermadec Islands.				
		De	iPKP1	11 33	33.7					"	21	Up	iPKP	14 51	22.9	
			iPKP2	11 33	39.9							Sk	iPKP	14 51	15.3	
		Kermadec Islands (h = N).										Um	iPKP	14 51	10.4	
"	21	Up	iRg	12 22	03.2							Ud	iPKP	14 51	24.5	
												De	iPKP	14 51	33.3	
												Kermadec Islands.				





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

1980				1980				
Feb.	22	(cont.)		Feb.	22	Up	iPP	21 36 19.1
Up				Up				
				micr sec				
		P	Z' 0.4 1.0			Mx	E	0.5 20
		Mx	E 10.2 15			Mx	N	0.7 20
		Mx	N 5.2 17			Mx	Z	1.9 21
		Mx	Z 12.4 18			Ki		micr sec
		Ki	iP 03 12 09.1 D			Mx	E	1.1 20
			i 03 14 13.8			Mx	N	0.7 20
			iS 03 19 46			Mx	Z	0.8 20
			micr sec			Sk	iPKP	21 34 31.2
		P	Z' 0.7 1.4			Um	iPKP	21 34 26.9
		Mx	E 8.5 15			Ud	iPKP	21 34 34.5
		Mx	N 34.4 18			De	iPKP	21 34 38.0
		Mx	Z 9.2 14			Solomon Islands (h = 70 km).		
		Sk	iP 03 12 32.3 D			M = 6.0 (Up,Ki).		
		Um	iP 03 12 06.5 D					
			iS 03 19 42	"	23	Up	eP	01 50 21
		Ud	iP 03 12 28.4 D			Ud	iP	01 50 24.4
		De	iP 03 12 29.9 D					
		Tibet (h = N).		"	23	Sk	iP	02 37 17.9
		m = 6.5, M = 6.7 (Up,Ki).				Um	iP	02 37 22.9
"	22	Up	iP 03 30 22.2	"	23	Up	iP	06 02 02.5 C
			i 03 30 25.1				i	06 02 03.4
		Sk	iP 03 30 41.0				i	06 02 10.1
			i 03 30 42.9				iS	06 10 40
		Um	iP 03 30 14.7				iP'P'	06 30 10.6
		Ud	iP 03 30 35.6				i	06 30 31.9
		De	iP 03 30 38.5					micr sec
			i 03 30 41.6				i	Z' 3.1 1.2
		Tibet (h = N).					Mx	E 15.9 24
"	22	Up	iP 04 26 17.1				Mx	N 21.9 21
		Sk	eP 04 26 28				Mx	Z 31.0 23
		Ud	iP 04 26 31.4 C			Ki	eS	06 09 35
		Tibet (h = N).						micr sec
"	22	Up	i(P) 04 46 41.1				Mx	E 42.5 17
							Mx	N 20.7 17
"	22	Up	iP 07 15 10.7				Mx	Z 44.0 18
		Ud	iP 07 15 23.4			Sk	iP	06 01 52.2
		Tibet (h = N).					i	06 01 54.0
"	22	Up	ePKP 11 06 48			Um	iP	06 01 37.4 C
			iSKP1 11 09 33.0				i	06 01 38.9
		Ki	iPKP 11 06 41.4				iP'P'	06 30 20.5
		Um	iPKP 11 06 46.9			Ud	iP	06 02 09.0 C
			iSKP1 11 09 21.5			De	iP	06 02 26.7 C
		Ud	iPKP1 11 06 50.7			Kuril Islands (h = 45 km).		
			iSKP1 11 09 34.7			M = 7.1 (Up,Ki).		
		De	iPKP1 11 07 02.0	"	23	Up	iP	07 00 24.8 C
		South of Fiji Islands					i	07 00 25.6
		(h = 640 km).					iPP	07 02 57.4
"	22	Ud	i(P) 11 35 25.7					micr sec
							i	Z' 0.4 1.3
"	22	Up	iP 12 08 08.5			Sk	iP	07 00 15.4
		Ud	iP 12 08 24.3				i	07 00 17.6
		Tibet (h = N).				Um	iP	06 59 59.4
"	22	Up	iP 12 08 08.5				i	07 00 00.9
		Ud	iP 12 08 24.3				iPP	07 02 32.2
		Tibet (h = N).				Ud	iP	07 00 29.6
						(cont.)		

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

1980				1980			
Feb.	23	(cont.)		Feb.	23	(cont.)	
		Ud	i 07 00 31.6			Ki	micr sec
			iPP 07 03 03.5			Mx E	4.2 13
		De	iP 07 00 49.0			Mx N	7.3 15
			i 07 00 50.4			Sk	iP 22 49 45.0 C
			Kuril Islands (h = 60 km).				i 22 49 46.1
"	23	Ud	iP 07 12 50.3			Um	iP 22 49 29.6 C
"	23	Up	iP 07 25 12.9				i 22 49 31.5
		Um	iP 07 25 17.5				ipP 22 49 42.1
		Ud	iP 07 24 49.1				eS 22 58 13
		De	iP 07 24 55.9			Ud	iP 22 50 01.2 C
			North Atlantic Ocean				i 22 50 02.4
			(h = 10 km).				ipP 22 50 12.7
"	23	Ud	i(P) 10 30 57.1			De	iP 22 50 18.9 C
"	23	Up	iP 15 09 02.2				i 22 50 19.9
		Um	iP 15 08 40.4 C	"	24		Kuril Islands.
		Ud	iP 15 09 10.0				h = 40 km (Up,Um,Ud).
		De	iP 15 09 19.9				M = 6.3 (Up,Ki).
			Off east coast of Honshu,			Up	iPKP 00 03 47.9
			Japan (h = 45 km).			Sk	iPKP 00 03 40.5
"	23	Um	i(P) 17 21 39.3			Um	iPKP 00 03 35.9
			i 17 21 51.1			Ud	iPKP 00 03 49.5
"	23	Up	iP 17 38 32.0			De	iPKP 00 03 58.5
		Um	iP 17 38 24.4	"	24	Up	iP 00 21 53.7
		Ud	iP 17 38 44.3			Um	iP 00 21 27.3
			Burma-India border region			Ud	iP 00 21 55.2
			(h = 80 km).				Rat Islands, Aleutian
"	23	Ud	iP 19 05 34.4				Islands (h = 45 km).
			Kuril Islands (h = N).	"	24	Ud	iP 01 04 17.3
"	23	Um	iPKP 19 28 23.5	"	24	Um	iP 02 35 24.2
		De	iPKP1 19 28 31.2			Ud	iP 02 35 54.7
			Fiji Islands region				Kuril Islands (h = N).
			(h = 410 km).	"	24	Up	iP 02 38 06.2
"	23	Up	iP 22 39 51.6			Sk	iP 02 37 56.2
		Um	iP 22 39 32.2			Um	iP 02 37 41.6 C
		Ud	iP 22 39 59.6				i 02 37 53.0
			Ryukyu Islands (h = 45 km).			Ud	iP 02 38 12.1 C
"	23	Up	iP 22 49 55.1 C			De	iP 02 38 29.8
			i 22 49 56.1				Kuril Islands (h = 40 km).
			ipP 22 50 06.9	"	24	Up	iP 02 55 06.9
			iS 22 58 48				iPcP 02 55 30.5
			micr sec			Sk	iP 02 54 57.5
			i Z' 2.0 1.3			Um	iP 02 54 42.2
			Mx E 1.5 13				ipP 02 54 54.8
			Mx N 3.3 18				i 02 55 06.7
			Mx Z 7.4 14			Ud	iP 02 55 13.0
			(cont.)				ipP 02 55 25.5
							iPcP 02 55 37.0
						De	iP 02 55 30.9
							Kuril Islands.
							h = 45 km (Um,Ud).

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

1980				1980							
Feb.	24	Up	iP	03 23	58.9	Feb.	24	Up	iP	15 42	16.7
		Um	iP	03 23	36.2				ipP	15 42	28.2
		Ud	iP	03 24	07.0			Sk	iP	15 42	06.5
		De	iP	03 24	24.2			Um	iP	15 41	51.8
		Kuril Islands		(h = N).				Ud	iP	15 42	22.6 C
"	24	Up	iP	03 31	22.6 C				ipP	15 42	34.1
		Sk	iP	03 31	12.8 C			De	eP	14 42	40
		Um	iP	03 30	57.9 C			Kuril Islands.			
		Ud	iP	03 31	28.8 C			h = 40 km (Up,Ud).			
			i	03 31	34.8	"	24	Up	iP	15 57	41.2
		De	iP	03 31	45.4			Um	iP	15 57	16.7
		Kuril Islands		(h = N).				Ud	iP	15 57	47.6
"	24	Up	iP	03 36	33.8			Kuril Islands (h = N).			
		Ud	iP	03 36	41.6	"	24	De	iPKP1	16 51	50.9
"	24	Um	iP	04 48	25.0			Fiji Islands region			
		Ud	iP	04 48	55.0			(h = 580 km).			
		Kuril Islands		(h = 40 km).		"	24	Up	iP	17 00	35.9
"	24	Up	iP	06 26	24.4			Um	iP	17 00	11.2
		Um	iP	06 25	58.7			Ud	iP	17 00	41.9
		Kuril Islands		(h = N).				De	eP	17 01	02
"	24	Um	iP	06 26	12.8			Kuril Islands (h = N).			
"	24	Ud	i(P)	07 43	12.9	"	24	Ud	iP	17 07	04.8
			i	07 43	47.5				i	17 07	12.7
"	24	Up	iP	09 00	46.3	"	25	Um	iPKP	00 25	43.9
			i	09 00	57.7			Ud	ePKP	00 25	59
		Sk	eP	09 00	53	"	25	Ud	iP	01 34	40.2
		Um	iP	09 00	33.0	"	25	Up	iP	02 03	23.7
		Ud	iP	09 00	54.9				i	02 03	35.8
			i	09 01	07.1				i	02 03	52.1
		De	iP	09 01	03.8			Um	iP	02 02	58.9
		Philippine Islands region		(h = 25 km).					i	02 03	27.5
"	24	Up	iP	12 43	41.4			Ud	iP	02 03	29.5
		Sk	iP	12 43	31.8				i	02 03	41.6
		Um	iP	12 43	16.1			Kuril Islands region			
			i	12 43	23.5			(h = N).			
		Ud	iP	12 43	47.1	"	25	Um	iP	06 55	40.3
		De	iP	12 44	04.1			Andaman Islands region			
		Kuril Islands		(h = 40 km).				(h = N).			
"	24	De	iP	13 07	58.1	"	25	Um	iP	06 56	16.5
"	24	Um	iP	13 09	25.5			Ud	iP	06 56	47.9
"	24	Up	iP	14 10	49.0			Hokkaido, Japan region			
		Um	iP	14 10	46.8			(h = 110 km).			
		Ud	iP	14 11	00.5	"	25	Ud	iP	07 28	36.4
		De	iP	14 10	57.6	"	25	Sk	iP	10 44	13.3
		Northern Sumatera		(h = 45 km).				Um	iP	10 44	31.5
								Near coast of Oaxaca, Mexico (h = N).			

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

1980				1980					
Feb.	25	Up	iP	10 59 50.0	Feb.	25	Ud	iP	22 37 13.1
		Ki	iP	10 59 17.6	"	25	Up	iP	22 49 40.9
		Um	iP	10 59 35.7			Um	iP	22 49 16.5
		Ud	iP	10 59 42.1			Ud	iP	22 49 46.6
		De	iP	10 59 58.0			Kuril Islands (h = 45 km).		
		Southern California (h = 5 km).			"	25	Ud	iP	23 16 23.8
"	25	Ud	i(P)	11 46 05.2	"	26	Up	iPKP	05 08 29.5
"	25	Up	iP	14 27 26.4 C			Ud	iPKP	05 08 30.8
		Ki	iP	14 26 40.0 C			De	iPKP	05 08 40.3
		Um	iP	14 27 02.0 C	"	26	Up	iP	10 07 12.0
		Ud	iP	14 27 32.6 C			i	10 07 26.4	
		De	iP	14 27 50.1 C			micr sec		
		Kuril Islands (h = 45 km).					P	Z'	0.1 1.0
"	25	Up	iP	14 45 31.5			Ki	iP	10 06 26.7 C
		Ki	iP	14 44 46.5			micr sec		
		Ud	iP	14 45 37.3 C			P	Z'	0.1 0.9
		De	iP	14 45 54.8			Sk	iP	10 06 59.3
		Kuril Islands (h = 40 km).					Um	iP	10 06 47.5
"	25	Up	iPKP1	17 37 32.3			Ud	iP	10 07 18.2 C
		i		17 37 43.2			De	iP	10 07 34.9
		Um	iPKP1	17 37 19.5			Kuril Islands (h = 35 km).		
		i		17 37 28.7			m = 5.9 (Up,Ki).		
		Ud	iPKP1	17 37 33.5	"	26	Up	iP	10 15 25.6
"	25	Ud	iP	18 37 02.4			Ud	iP	10 15 30.7
"	25	Up	eP	18 46 50			ipP	10 15 40.1	
		Ud	eP	18 47 07			Kuril Islands (h = N).		
		De	iP	18 46 48.0	"	26	Ud	iP	11 04 24.3
"	25	Up	ePKP	19 52 29	"	26	Ud	iP	11 35 50.6
		iSKP1		19 55 22.8	"	26	Ud	i(P)	12 03 25.9
		Ki	iPKP	19 52 21.0	"	26	Sk	i(P)	12 04 49.2
		iSKP1		19 55 11.1	"	26	Up	iP	12 30 37.9 C
		Sk	iPKP	19 52 32.3			ipP	12 30 47.9	
		iSKP1		19 55 16.9			Ki	iP	12 29 52.3
		Um	iPKP	19 52 28.5			micr sec		
		iSKP1		19 55 10.2			P	Z'	0.1 1.0
		Ud	iPKP	19 52 38.5			Sk	iP	12 30 29.3
		iSKP1		19 55 24.4			Um	iP	12 30 13.2
		De	iPKP1	19 52 36.9			ipP	12 30 24.6	
		iSKP1		19 55 34.4			Ud	iP	12 30 44.1 C
		Fiji Islands region (h = 510 km).					ipP	12 30 55.0	
"	25	Up	iP	22 20 40.2			De	iP	12 31 01.4
		Ki	iP	22 19 53.5			Off coast of Hokkaido, Japan.		
		Um	iP	22 20 20.9			h = 40 km (Up,Um,Ud).		
		Ud	iP	22 20 46.2	"	26	Up	iRg	12 45 44.3
		Kuril Islands (h = N).					Ud	iSgl	12 46 24.9
"	25	Up	iP	22 26 32.4			East-central Sweden.		
		Ud	iP	22 26 38.4			Near-surface event.		



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

1980					1980				
Feb.	27	(cont.)			Feb.	28	Ud	iRg	15 20 32.1
		Um	i	21 36 04.7					Local near-surface event.
			iPKKP	21 46 46.6					
		Ud	iPKP	21 36 04.3	"	28	Up	iP	21 08 46.4
		De	ePKP	21 36 04			Ki	iP	21 10 09.3
			i	21 36 09.0			Um	iP	21 09 30.6
			ePKKP	21 46 23			Ud	iP	21 08 44.8
		New Britain region					Central Italy (h = 10 km).		
		(h = 55 km).							
		M = 6.7 (Up,Ki).			"	28	Up	iP	23 50 07.1
"	27	Up	ePKP	21 53 56			i	23 50 11.2	
		Um	iPKP	21 53 50.8			Um	iP	23 50 43.2
		De	iPKP	21 54 00.9			i	23 50 51.9	
		New Britain region					Ud	iP	23 50 15.3
		(h = 70 km).					De	iP	23 49 41.9
							Greece (h = 20 km).		
"	27	Up	iP	23 13 43.5 C	"	29	Up	iPKP1	07 44 45.1
			ipP	23 13 54.4			Um	iPKP1	07 44 34.1
				micr sec			Ud	iPKP	07 44 46.9
		P	Z'	0.3 1.1			Kermadec Islands region		
		Ki	iP	23 12 59.1 C			(h = N).		
				micr sec	"	29	Up	iP	11 26 33.0
		P	Z'	0.2 0.6			i	11 26 38.1	
		Sk	iP	23 13 34.7 C			ipP	11 27 01.6	
		Um	iP	23 13 18.2 C			ipP	11 30 10.1	
			ipP	23 13 27.8			iSKS	11 36 57	
		Ud	iP	23 13 50.5 C			iS	11 37 39	
		De	iP	23 14 07.7 C				micr sec	
			ipP	23 14 18.0			i	Z'	0.1 1.0
		Kuril Islands.					Ki	iP	11 26 15.4
		h = 35 km (Up,Um,De).					i	11 26 15.8	
		m = 6.3 (Up,Ki).					ipP	11 26 42.4	
"	27	Up	iP	23 43 10.4				micr sec	
		Ki	iP	23 43 19.5			i	Z'	0.4 1.1
				micr sec			Sk	iP	11 26 41.2
		P	Z'	0.1 0.9			Um	iP	11 26 21.9
		Sk	eP	23 43 37			Ud	iP	11 26 41.2
		Um	iP	23 43 09.6			i	11 26 45.6	
		Ud	iP	23 43 27.3			ipP	11 27 07.8	
		De	iP	23 43 24.6			De	iP	11 26 48.0
		Afghanistan-USSR border					Mindanao, Philippine		
		region (h = 130 km).					Islands.		
"	28	Up	eP	02 47 30			h = 110 km (Up,Ki,Ud).		
		Um	eP	02 47 40			m = 6.3 (Up,Ki).		
		Ud	iP	02 47 47.3	"	29	Ud	i(P)	13 43 58.1
		De	iP	02 47 29.9	"	29	Up	iP	14 29 43.1
"	28	Up	iPKP	04 20 37.4			Ki	iP	14 29 11.0
		Ud	iPKP	04 20 35.5			Um	iP	14 29 27.1
		De	iPKP	04 20 49.4			i	14 29 33.5	
"	28	Up	iRg	12 10 08.2			Ud	iP	14 29 51.8
		Um	iSgl	12 11 32.5			Kyushu, Japan (h = 45 km).		
		Ud	iSgl	12 10 23.2	"	29	De	i(P)	16 31 38.5
		East-central Sweden.					i	16 31 51.7	
		Near-surface event.							

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

1980

Feb. 29 Up iP 18 40 55.8  
Um iP 18 40 33.2  
Ud iP 18 41 00.9  
De iP 18 41 14.4  
Off east coast of Honshu,  
Japan (h = 25 km).

" 29 Up iP 19 31 32.9  
Ki iP 19 30 39.6  
Um iP 19 31 09.8  
Ud iP 19 31 33.3  
Andreanof Islands,  
Aleutian Is. (h = 55 km).

" 29 Up iP 20 45 23.0  
i 20 45 28.3  
Ki iP 20 46 32.1  
Sk eP 20 45 45  
Um iP 20 46 03.0  
Ud iP 20 45 11.5  
De iP 20 44 37.4  
Pyrenees (h = 10 km).

" 29 Up iP 22 57 20.6  
Um iP 22 56 55.9  
Ud iP 22 57 26.0  
Kuril Islands (h = 70 km).

December 8, 1981.

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, UMEÅ,

UDDEHOLM and DELARY

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

MARCH 1 - 31, 1980

1980				1980			
Mar.	1	Um iP	01 31 38.9	Mar.	2	Up iP	23 32 25.7
		Central Italy (h = 15 km).				Ki iP	23 31 56.9
"	1	Ki eP	06 14 10			Ud iP	23 32 33.8
		Um iP	06 14 02.3			East China Sea (h = N).	
		South Sandwich Islands region (h = N).		"	2	Up iP	23 40 46.9
"	1	Ud iP	13 12 26.9			ipP	23 40 57.7
"	1	Up iP	17 10 22.2			iPP	23 43 47.4
		Ki iP	17 10 50.8			iS	23 50 21
		Um iP	17 10 40.5				micr sec
		Azores Islands region (h = 10 km).				pP	Z' 0.1 1.0
"	1	Um iP	19 06 10.2			Mx E	40 16
		Ud iP	19 05 35.0			Mx N	42 16
		Southern Italy (h = 10 km).				Mx Z	69 18
"	2	Ki iPKP	02 52 37.9			Ki eP	23 40 13
		Um iPKP	02 52 43.9			ipP	23 40 22.2
		Fiji Islands region (h = 620 km).				i	23 40 53.5
"	2	Ud eP	03 32 43				micr sec
"	2	Um iP	05 37 38.2			pP	Z' 0.1 1.0
		Turkey (h = 5 km).				Mx E	27 14
						Mx N	26 14
"	2	Up iP	18 18 10.8			Mx Z	20 14
		Ki iP	18 17 39.3			Sk ipP	23 40 52.9
		Sk iP	18 18 08.0			Um iP	23 40 30.4
		Um iP	18 17 52.9			i	23 40 40.6
		Ud iP	18 18 17.8			iS	23 49 47
		De iP	18 18 29.5			Ud iP	23 40 50.1
		Bonin Islands region (h = 350 km).				ipP	23 41 00.4
						De iP	23 41 08.2
						East China Sea.	
						h = 35 km (Up,Ki,Um,Ud).	
						M = 6.9 (Up,Ki).	

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

1980						1980						
Mar.	3	Ki	iP	00 46 46.9		Mar.	3	Um	iPKP	23 07 09.9		
				micr sec				Ud	iPKP1	23 07 11.6		
			P	Z' 0.1 1.1				Loyalty Islands region				
		Um	iP	00 46 57.4				(h = N).				
		Ud	iP	00 47 19.3			"	4	Ki	iPKP	01 23 35.6	
		South of Mariana Islands							Sk	iPKP	01 23 46.7	
		(h = N).							Um	iPKP	01 23 42.0	
"	3	Up	iP	14 28 49.8				Santa Cruz Islands				
		Ki	eP	14 28 14				(h = 70 km).				
		Um	iP	14 28 30.5			"	4	Up	iP	05 17 51.0	
		Ud	iP	14 28 40.1					ipP	05 18 01.8		
		Off coast of northern California (h = 5 km).							i	05 18 11.4		
"	3	Up	iP	15 33 08.4					i	05 18 20.9		
		Ki	iP	15 32 23.6				Ki	eP	05 19 00		
			P	Z' 0.1 1.0					i	05 19 23.6		
		Um	iP	15 32 44.2				Sk	iP	05 18 29.7		
		Ud	iP	15 33 14.7 C					i	05 18 42.6		
		Kuril Islands (h = N).						Um	iP	05 18 24.9		
"	3	Up	iP	16 14 26.7					i	05 18 44.6		
		Ki	iP	16 13 41.3				Ud	iP	05 17 57.9		
		Um	iP	16 14 01.4					ipP	05 18 08.3		
		Ud	iP	16 14 32.8					i	05 18 25.7		
		Kuril Islands (h = N).						De	iP	05 18 24.0		
"	3	Up	iP	17 12 17.2					i	05 18 27.7		
		Ki	eP	17 11 32					ipP	05 18 35.8		
			P	Z' 0.1 1.0				Crete.				
		Sk	iP	17 12 08.5				h = 45 km (Up,Ud,De).				
		Um	iP	17 11 53.0			"	4	Up	iP	07 26 14.9	
		Ud	iP	17 12 23.3					Sk	eP	07 26 34	
		Kuril Islands (h = N).							Um	iP	07 26 08.9	
"	3	Up	iP	17 30 30.0 C					Ud	iP	07 26 30.3	
			ipP	17 30 41.5				Tibet (h = N).				
			P	Z' 0.1 1.0				"	4	Up	iP	08 31 31.3 C
		Ki	iP	17 29 45.4 C					Ki	iP	08 30 44.8 C	
			ipP	17 29 56.8							micr sec	
			P	Z' 0.3 1.4							P Z' 0.1 0.9	
		Sk	iP	17 30 20.2 C					Sk	iP	08 31 20.6 C	
		Um	iP	17 30 05.4					Um	iP	08 31 06.0 C	
			ipP	17 30 16.8					Ud	iP	08 31 37.5 C	
		Ud	iP	17 30 36.5 C					De	iP	08 31 55.9	
			ipP	17 30 48.0				Northwest of Kuril Islands				
		De	iP	17 30 53.8 C				(h = 270 km).				
			ipP	17 31 05.9				"	4	Um	iP	10 58 51.5
		Kuril Islands.							Ud	iP	10 59 23.2	
		h = 40 km (Up,Ki,Um,Ud,De).						"	4	Sk	eP	11 09 34
		m = 6.0 (Up,Ki).							Um	iP	11 09 28.6	
								"	4	Ki	iP	17 30 02.7
									Ud	eP	17 30 41	
								Southern Iran (h = 15 km).				







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

1980				1980			
Mar.	9	Up eP Ud eP	15 32 33 15 32 43	Mar.	10	De iP Loyalty Islands region (h = N).	04 08 32.3
"	9	Ud ePKP1 De iP Loyalty Islands region (h = 50 km).	15 44 08 15 44 13.7	"	10	Ki iP Sk eP Um iP Ud iP Molucca Passage (h = 90 km).	13 10 53.4 13 11 15 13 10 58.8 13 11 17.7
"	9	Up eP i Ki iP Sk iP Um eP Ud iP i De eP i Bulgaria (h = 20 km).	16 56 24 16 56 26.8 16 57 47.6 16 57 13.0 16 57 07 16 56 33.5 16 56 44.1 16 55 55 16 56 02.5	"	10	De iP Loyalty Islands region (h = 60 km).	22 14 03.7
"	9	Up eP Ki iP Sk iP i Um iP Ud eP Kodiak Island region (h = N).	18 40 38 18 39 43.4 18 40 10.8 18 40 17.0 18 40 11.5 18 40 27	"	10	Ud iP De iP Crete (h = N).	23 04 02.9 23 03 32.2
"	9	Up iP Ki iP Um iP Ud iP Afghanistan-USSR border region (h = 140 km).	21 35 36.0 21 35 43.2 21 35 33.1 21 35 52.4	"	11	Up iP ipP Ki iP ipP P Z' 0.1 1.0 Sk iP ipP Um iP ipP Ud iP ipP De eP ipP Fox Islands, Aleutian Islands. h = 40 km (Up,Ki,Sk,Um,Ud,De).	03 58 01.7 03 58 12.7 03 57 08.3 C 03 57 19.6 micr sec 03 57 39.0 03 57 49.8 03 57 35.2 C 03 57 46.7 03 58 00.7 C 03 58 12.3 03 58 23 03 58 34.9
"	9	De iP Loyalty Islands region (h = 50 km).	22 07 42.5	"	11	Up iP Ki iP Sk iP Um iP i Ud iP De iP South Indian Ocean (h = 10 km).	06 36 37.3 06 36 45.4 06 36 54.9 06 36 38.3 06 36 44.3 06 36 47.4 06 36 42.5
"	10	Ki eP Sk eP Um iP i i Oaxaca, Mexico (h = 70 km).	00 00 45 00 00 41 00 00 54.9 00 01 10.6 00 01 29.6	"	11	De iP Fiji Islands region (h = 560 km).	08 41 56.3
"	10	Up iP i Ki iP Sk iP Um iP Ud iP i De iP Kuril Islands (h = 50 km).	00 37 03.0 00 37 08.6 00 36 17.9 00 36 53.3 00 36 38.2 00 37 09.4 00 37 15.6 00 37 26.9	"	11	Up i(P) Up iRg Ud iSgl East-central Sweden. Near-surface event.	09 48 28.3 12 10 30.5 12 10 46.0



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

1980				1980					
Mar.	14	Up	i(P)	12 16 18.0	Mar.	16	Ud	iPKP1	03 57 12.8
									Loyalty Islands region
									(h = 25 km).
"	14	Up	iP	13 36 02.3					
		Ki	iP	13 36 05.5	"	16	Ki	iP	06 01 46.9
		Sk	iP	13 35 49.9				iS	06 03 00.7
		Um	iP	13 36 06.7			Sk	iP	06 02 24.2
		Ud	iP	13 35 52.6				iS	06 04 05.8
				Northern Colombia			Um	iP	06 02 35.3
				(h = 170 km).				iS	06 04 24.4
"	14	Ud	iP	18 46 00.6			Ud	iP	06 03 11.6
				Mindanao, Philippine					Arctic Ocean, approximate
				Islands (h = 70 km).					location 72°N, 7°E.
									Origin time = 06 00 13.
"	14	Um	iP	19 35 20.0	"	16	Ki	iP	08 43 16.5
				Ryukyu Islands (h = 30 km).			Sk	iP	08 42 33.4
"	14	Up	i	21 01 59.8			Um	iP	08 42 41.9
			iRg	21 02 04.1				i	08 43 26.3
		Um	iSgl	21 03 43.2			Ud	eP	08 42 04
		Ud	i	21 01 46.7					Mediterranean Sea
			iRg	21 01 51.1					(h = 35 km).
				Bergslagen area, central	"	16	Up	iP	09 32 56.9
				Sweden.			Ki	iP	09 32 24.5
				Near-surface event.			Sk	eP	09 32 54
"	14	Ki	eP	21 51 30			Um	iP	09 32 38.5
		Um	iP	21 51 09.0			Ud	iP	09 33 03.9
				Northwest of Madagascar					South of Honshu, Japan
				(h = 10 km).					(h = 430 km).
"	15	Ud	iPKP1	02 10 23.9	"	16	Up	iP	10 36 04.2 C
				South of Fiji Islands				i	10 36 09.6
				(h = 510 km).					micr sec
"	15	Ud	iP	17 48 35.0				i	Z' 0.1 0.8
"	15	Up	iP	21 55 55.9			Ki	iP	10 37 14.9 C
		Ki	iP	21 55 02.1			Sk	eP	10 36 43
		Sk	iP	21 55 36.4			Um	iP	10 36 38.6
		Um	iP	21 55 28.1 C			Ud	iP	10 36 11.4
		Ud	iP	21 55 57.7				i	10 36 17.8
				Near Islands, Aleutian				i	10 36 22.7
				Islands (h = 30 km).			De	iP	10 35 36.7
								i	10 35 40.3
									Mediterranean Sea (h = 45 km).
"	15	Up	i(PP)	23 17 36.7	"	16	Up	eP	10 46 39
		Ki	eP	23 16 38			Ki	iP	10 46 20.3
		Sk	eP	23 16 45				i	10 46 26.3
		Um	eP	23 16 18			Sk	eP	10 46 45
		Ud	iP	23 16 28.5				i	10 47 12.3
				Iran (h = N).			Um	eP	10 46 26
							Ud	iP	10 46 45.9
"	16	Ki	eP	01 09 55				ipP	10 46 58.1
		Sk	iP	01 09 09.4					Taloud Islands (h = 45 km).
			i	01 09 12.9					
		Um	iP	01 09 16.2	"	16	Um	iP	13 00 23.7
				Central Italy (h = 15 km).					



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

1980				1980			
Mar.	16	Up	iP	21 51	46.2	C	
					micr sec		
			P	Z'	0.2	1.1	
			Mx	N	1.0	18	
			Mx	Z	1.9	20	
		Ki	iP	21 51	04.5	C	
			iPP	21 53	24.4		
					micr sec		
			P	Z'	0.2	1.0	
			Mx	N	0.7	16	
		Sk	iP	21 51	38.8	C	
			i	21 51	50.2		
			iPP	21 54	10.4		
		Um	iP	21 51	22.8	C	
			ipP	21 51	37.9		
			i(PP)	21 53	24.7		
		Ud	iP	21 51	53.1	C	
			ipP	21 52	08.7		
			iPP	21 54	26.0		
		De	iP	21 52	09.2		
							Near east coast of Honshu, Japan. h = 55 km (Um,Ud). m = 6.0, M = 5.0 (Up,Ki).
"	17	Ud	iP	07 47	24.0		Southern Alaska (h = 130 km).
"	17	Ki	eP	08 32	28		
			i	08 32	37.0		
		Um	iP	08 32	23.8		
			i	08 32	32.4		
							Nicobar Islands region (h = 30 km).
"	17	Um	iSgl	14 00	26.7		
"	17	Um	iP	14 16	54.6		South of Mariana Islands (h = 40 km).
"	17	Um	iP	18 41	23.8		Mariana Islands (h = 35 km).
"	17	Um	iP	23 11	16.1		Near s. coast of Honshu, Japan (h = 40 km).
"	17	Sk	iSgl	23 30	29.8		
		Ud	iSgl	23 30	46.2		
							Off coast of southwestern Norway, near 61 1/4° N, 4 1/2° E. (cont.)
Mar.	17						(cont.) Origin time = 23 28 15. M <sub>L</sub> = 2.3 (Ud). By combination with Bergen readings.
"	18	Up	iP	00 56	29.4		
		Ki	iP	00 56	29.1		
			ipP	00 56	42.7		
					micr sec		
			P	Z'	0.1	1.0	
			pP	Z'	0.1	1.0	
		Sk	iP	00 56	43.2		
		Um	iP	00 56	26.5	C	
			ipP	00 56	40.4		
			iPP	00 59	59.3		
		Ud	iP	00 56	38.9	C	
			i	00 56	57.1		
							Southern Sumatera. h = 50 km (Ki,Um).
"	18	Um	iP	01 24	27.4		Near east coast of Honshu, Japan (h = N).
"	18	Ki	iP	05 14	08.1		
		Um	iP	05 14	53.0		
"	18	Ud	iP	19 26	57.0		
"	19	Ki	iP	00 15	00.4		
		Um	iP	00 15	35.3		
							North of Severnaya Zemlya (h = N).
"	19	Up	eP	00 49	49		
					micr sec		
			Mx	E	0.6	11	
			Mx	Z	1.4	12	
		Ki	iP	00 49	52.2		
					micr sec		
			Mx	E	0.7	7	
			Mx	N	0.5	11	
			Mx	Z	0.5	8	
		Sk	iP	00 50	14.6		
		Um	iP	00 49	46.1		
			i	00 49	53.1		
		Ud	iP	00 50	09.2		
			i	00 50	26.1		
							Kirgiz SSR (h = 50 km).
"	19	Ki	iP	01 54	06.5	C	
		Um	iP	01 54	45.9		
							North of Severnaya Zemlya (h = N).

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

1980				1980			
Mar.	19	Ud iP	02 06 59.7	Mar.	20	Up iP	18 41 54.7
		Tadzhik-Sinkiang border region (h = 100 km).				Ud iP	18 42 02.2
						Greece (h = N).	
"	19	Um iP	05 08 16.1	"	20	Up iP	20 03 43.5
						Ki iP	20 03 41.6
"	19	Ki eP	06 02 15				micr sec
		i	06 02 21.0			P	Z' 0.1 1.0
		Um iP	06 02 47.5			Um iP	20 03 39.9
		i	06 02 56.1			Ud iP	20 03 52.9
		North of Severnaya Zemlya (h = N).				De eP	20 03 52
						Java (h = N).	
"	19	Up iPKP1	06 39 40.0	"	20	Ud iP	22 42 57.8
		Sk iPKP1	06 39 32.7				
		i	06 39 39.7	"	20	Up iP	23 23 27.2
		Ud iPKP1	06 39 42.5 C			iPP	23 25 00.8
		Kermadec Islands region (h = 45 km).				i	23 32 01.1
							micr sec
"	19	Ud iRg	13 53 42.2			P	Z' 0.3 1.2
		Local near-surface event.				Ki iP	23 23 36.8
						iPP	23 25 11.0
							micr sec
"	19	Ud iPKP1	15 37 37.3			P	Z' 0.2 1.2
		De iPKP1	15 37 47.8			Sk iP	23 23 53.6 C
		Fiji Islands region (h = 560 km).				iPP	23 25 36.1
						Um iP	23 23 25.5
"	20	Ud iP	03 43 18.2			i	23 23 29.4
						ipP	23 23 57.2
"	20	Ki i	11 13 30.5			iPP	23 25 06.5
		North of Severnaya Zemlya (h = N).				Ud iP	23 23 43.9
						i	23 23 48.0
"	20	Ud iP	13 02 00.8			ipP	23 24 15.5
		Kuril Islands (h = N).				De iP	23 23 40.2
						ipP	23 24 12.5
						iPP	23 25 19.0
"	20	Ud iRg	14 11 33.0			Hindu Kush region.	
		Local near-surface event.				h = 150 km (Um,Ud,De).	
						m = 5.7 (Up,Ki).	
"	20	Ud iSgl	14 19 29.6	"	21	De iPKP	01 38 46.4
		De iSgl	14 17 45.9			Loyalty Islands region (h = 45 km).	
"	20	Up iP	14 47 19.5				
		Um iP	14 46 58.5 C	"	21	Up iP	04 55 44.7
		Ud iP	14 47 26.5				micr sec
		Off east coast of Honshu, Japan (h = 30 km).				P	Z' 0.1 0.6
						Ki iP	04 55 11.2
"	20	Up iP	17 06 37.1			Sk eP	04 55 42
		Ki iP	17 06 29.4			Um iP	04 55 25.6
		Um iP	17 06 36.7			Ud iP	04 55 52.2 D
		i	17 06 51.1			De iP	04 56 05.2 D
		Caribbean Sea (h = 25 km).				South of Honshu, Japan (h = 370 km).	

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

1980				1980					
Mar.	21	Up	iP	09 11 35.9	Mar.	22	Up	iP	10 37 48.4 C
			ipP	09 11 43.6				ipP	10 38 06.8
			i	09 11 57.3					micr sec
				micr sec			P	Z'	0.4 1.1
			pP	Z' 0.2 1.4			Mx	N	4.8 22
			Mx	N 3.2 20			Ki	iP	10 36 53.4 C
		Ki	iP	09 11 12.8				ipP	10 37 11.9
			ipP	09 11 18.9					micr sec
				micr sec			P	Z'	0.3 0.7
			P	Z' 0.1 1.0			Mx	N	2.9 18
			Mx	N 2.2 13			Sk	iP	10 37 30.8 C
		Sk	eP	09 11 43				ipP	10 37 49.0
		Um	iP	09 11 20.6			Um	iP	10 37 19.2 C
			i	09 11 32.6				ipP	10 37 37.7
		Ud	iP	09 11 45.6				iS	10 45 09
		De	iP	09 11 53.6			De	iP	10 38 14.1 C
				Taiwan.					Near east coast of Kamchatka.
				h = 25 km (Up,Ki).					h = 70 km (Up,Ki,Sk,Um).
				m = 5.9, M = 5.6 (Up,Ki).					m = 6.4, M = 5.5 (Up,Ki).
									M not corrected for focal depth.
"	21	Ud	iRg	15 29 48.3	"	22	Up	iP	11 06 53.5
				Local near-surface event.			Um	iP	11 06 58.4
"	21	Up	iP	15 50 04.4	"	22	Up	iP	14 05 35.7
			ipP	15 50 09.9			Um	iP	14 05 36.6
		Ki	iP	15 50 02.2					Costa Rica (h = 40 km).
			ipP	15 50 07.1	"	22	Up	iP	14 42 26.3
		Sk	i	15 50 26.5			Um	iP	14 42 51.1
		Um	iP	15 49 59.3			Ud	iP	14 42 20.4
			ipP	15 50 04.8					North of Ascension Island (h = 10 km).
		Ud	iP	15 50 17.2	"	22	Up	iP	15 41 24.7
			ipP	15 50 22.3	"	22	Up	iP	16 06 24.6
				Andaman Islands region.			Ki	iP	16 06 06.6
				h = 15 km (Up,Ki,Um,Ud).			Sk	iP	16 06 30.2
"	22	Up	eP	01 11 02			Um	iP	16 06 12.9
		Sk	eP	01 10 45			Ud	iP	16 06 32.9
			i	01 10 58.9					Mindoro, Philippine Islands (h = 70 km).
		Um	iP	01 11 01	"	22	Up	iPKP1	18 03 54.9
			i	01 11 14.7			Ki	iPKP	18 03 48.6
				South of Panama (h = N).			Sk	e(PKP)	18 03 49
"	22	Ki	iP	02 27 57.1				iPKP	18 03 58.4
		Um	eP	02 28 42			Um	e(PKP)	18 03 47
			i	02 28 47.5				i	18 03 49.8
				Northern Sumatra (h = 100 km).				iPKP	18 03 54.7
"	22	Up	iPKP	10 25 12.3			Ud	iPKP1	18 03 57.1
		Ki	iPKP	10 25 28.1			De	iPKP1	18 04 08.4
		Um	iPKP	10 25 19.8					Fiji Islands region (h = 530 km).
				South Sandwich Islands region (h = 55 km).					

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

1980					1980				
Mar.	22	Up	eP	19 40 48	Mar.	24	(cont.)		
			i	19 40 56.3			Ud	iP	02 28 29.3
		Ki	e	19 41 07			De	iP	02 28 52.0
		Um	i	19 40 50.8			Fox Islands, Aleutian Islands (h = N).		
		Ud	iP	19 41 03.2					
			i	19 41 09.0					
		Hindu Kush region (h = 80 km).			"	24	Up	iP	04 10 43.3 C
"	23	Up	iPKP	13 57 44.7			i	04 10 45.5	
		Um	iPKP	13 57 51.9			iPcP	04 11 11.4	
			i	13 57 56.3			iS	04 19 37	
		South Sandwich Islands region (h = 70 km).					iP'P'	04 39 02.9	
								micr sec	
"	23	Up	iP	15 09 57.2 D			P	Z' 0.4	1.5
			ipP	15 10 28.4			i	Z' 1.3	1.2
		Ki	iP	15 09 22.7 D			Mx	E 23	25
		Sk	iP	15 09 53.6			Mx	N 52	20
		Um	iP	15 09 37.4 D			Mx	Z 89	20
			ipP	15 10 08.1		Ki	iP	04 09 50.2 C	
		Ud	iP	15 10 04.8 D			i	04 09 52.3 C	
			ipP	15 10 34.9			iPcP	04 10 39.7	
		De	iP	15 10 18.1			iP'P'	04 39 25.0	
		South of Honshu, Japan. h = 130 km (Up,Um,Ud).						micr sec	
							P	Z' 0.1	1.2
							i	Z' 0.9	1.2
							Mx	E 16	17
							Mx	N 65	19
							Mx	Z 40	19
"	23	Ki	iPKP	19 46 10.3		Sk	iP	04 10 20.0 C	
		Sk	iPKP	19 46 21.3			i	04 10 22.3	
		Um	iPKP	19 46 16.4			iPcP	04 10 59.4	
		Santa Cruz Islands (h = 310 km).					iP'P'	04 39 17.8	
						Um	iP	04 10 16.9 C	
"	23	Um	iPKP	19 56 22.4			i	04 10 19.1	
		Ud	iPKP	19 56 26.3			iPcP	04 10 57.0	
		Tuamotu Archipelago region (h = 0 km).					iS	04 18 53.8	
							iP'P'	04 39 16.1	
"	23	Up	iP	20 16 37.4		Ud	iP	04 10 42.3 C	
		Sk	iP	20 17 04.0			i	04 10 44.7	
		Um	iP	20 16 35.9			iPcP	04 11 10.4	
		Ud	iP	20 16 54.3			iP'P'	04 39 05.9	
		Hindu Kush region (h = N).				De	iP	04 11 05.2 C	
							i	04 11 07.5	
							iP'P'	04 38 45.3	
"	23	Up	iPKP1	21 50 52.4			Fox Islands, Aleutian Islands (h = N). m = 6.8, M = 6,8 (Up,Ki). Double P, small and large, in average 2.2 s' apart.		
			iPKP2	21 51 00.7					
		Sk	iPKP1	21 50 47.7					
		Um	iPKP1	21 50 41.9					
		Ud	iPKP1	21 50 54.4					
			iPKP2	21 51 04.0	"	24	Up	iP	04 13 13.0
"	24	Up	iP	02 28 29.9			iP'P'	04 41 24.8	
		Ki	iP	02 27 36.8				micr sec	
		Sk	eP	02 28 08			P	Z' 0.2	1.0
		Um	iP	02 28 03.8		Ki	iP	04 13 08.1	
		(cont.)					iP'P'	04 41 53.2	
							(cont.)		

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

1980				1980					
Mar.	24	(cont.)		Mar.	24	Up	eP	08 48 38	
		Ki					i	08 48 45.6	
			micr sec					micr sec	
		P	Z' 0.2 1.0					Z' 0.1 1.0	
		Sk	iP 04 12 49.8			Ki	iP	08 47 43.4	
			iPcP 04 13 26.9			Sk	iP	08 47 43.2	
		Um	iP 04 12 47.4			Um	iP	08 48 14.2	
			iPcP 04 13 24.7				i	08 48 21.1	
			iP'P' 04 41 42.1			Ud	i	08 48 22.7	
		Ud	iP 04 13 12.5			De	iP	08 48 57.6	
			iPcP 04 13 41.2				i	08 49 03.2	
		De	iP 04 13 34.4			Jan Mayen Island region			
			i 04 13 35.6			(h = 10 km).			
		Fox Islands, Aleutian				"	24	Ud	iPKP1 15 09 32.9
		Islands (h = N).						De	iPKP1 15 09 43.8
		m = 6.1 (Up,Ki).				South of Fiji Islands			
"	24	Up	iP 04 47 35.4			(h = 550 km).			
		Sk	eP 04 47 19			"	24	Up	iP 22 10 48.5
		Um	iP 04 47 16.8					Ki	iP 22 10 58.4
		Ud	iP 04 47 35.0					Sk	iP 22 10 36.9
"	24	Up	iP 04 52 51.4					Ud	iP 22 10 37.5
		Ki	iP 04 51 58.7			Near coast of Venezuela			
		Um	iP 04 52 26.0			(h = 90 km).			
		Ud	iP 04 52 51.0			"	25	Ki	iP 00 36 11.2
			i 04 53 01.8					i	00 36 36.2
		De	iP 04 53 14.7					Um	iP 00 35 57.7
		Fox Islands, Aleutian						Ud	iP 00 36 19.5
		Islands (h = N).				Afghanistan-USSR border			
"	24	Um	iP 05 18 09.7			region (h = 70 km).			
		Ud	iP 05 18 21.2			"	25	Up	e 04 03 27
"	24	Up	iP 07 20 07.8					Ki	eP 04 03 50
		Um	iP 07 19 41.5					Um	iP 04 03 24.9
			iPcP 07 20 18.4					Ud	eP 04 03 31
		Ud	iP 07 20 06.8			N.W. Iran-USSR border			
		De	iP 07 20 29.7			region (h = 40 km).			
		Fox Islands, Aleutian				"	25	Up	i 04 31 20.9
		Islands (h = N).						Ki	eP 04 31 49
"	24	Ki	iP 07 23 00.6					Um	iP 04 31 22.0
		Um	iP 07 23 01.6					Ud	iP 04 31 23.6
		Ud	iP 07 23 18.2			N.W. Iran-USSR border			
		Molucca Sea (h = 60 km).				region (h = 60 km).			
"	24	Up	iP 08 46 57.0			"	25	Up	iP 07 52 59.2
		Sk	iP 08 45 59.2						micr sec
		Um	iP 08 46 34.4					Mx	E 0.9 16
			i 08 46 36.8					Mx	N 0.9 16
		Ud	iP 08 46 37.7					Ki	micr sec
		Jan Mayen Island region						Mx	E 0.7 16
		(h = 10 km).				(cont.)			

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

1980				1980			
Mar.	25	(cont.)		Mar.	26	(cont.)	
		Ki	micr sec			Ki	ipP 07 35 49.5
		Mx	N 1.3 15			Sk	epP 07 36 13
		Sk	eP 07 52 54			Um	iP 07 35 43.8
		Um	iP 07 52 39.2				i 07 35 49.7
			iS 08 02 22				ipP 07 36 01.4
		Ud	iP 07 53 06.0			Ud	e 07 36 17
		South of Honshu, Japan				South of Mariana Islands.	
		(h = N).				h = 60 km (Up,Ki,Um).	
		M = 5.4 (Up,Ki).					
"	25	Up	iRg 08 10 19.8	"	26	Up	iRg 09 40 10.6
		Ud	iSgl 08 10 39.1			Local near-surface event.	
		East-central Sweden.				"	26 Um iP 09 50 55.0
		Near-surface event.					Ud iP 09 51 18.6
"	25	Ud	iP 10 28 25.8			Mindoro, Philippine Islands	
		Fox Islands, Aleutian				(h = N).	
		Islands (h = N).		"	26	Ud	iRg 15 29 34.8
						Local near-surface event.	
"	25	Up	iP 13 58 30.9	"	26	Up	iP 16 56 59.2
		Ki	iP 13 59 13.4			Ki	iP 16 56 39.6
		Sk	iP 13 58 44.1			Sk	iP 16 57 04.8
		Um	iP 13 58 53.2			Um	iP 16 56 46.1
		Ud	iP 13 58 26.1			Ud	iP 16 57 08.9 D
		Ascension Island region					i 16 57 10.4
		(h = 10 km).				De	iP 10 57 15.7
"	25	Um	iP 16 16 14.7			Luzon Philippine Islands	
		Ud	eP 16 16 35			(h = 100 km).	
		Afghanistan-USSR border		"	26	Ud	iP 20 42 22.7
		region (h = 210 km).				"	26 Up iP 20 53 19.4
"	25	Up	eP 21 55 49				iS 21 01 14
		Ki	eP 21 54 52				micr sec
			i 21 55 16.6			P	Z' 0.5 1.6
		Um	iP 21 55 19.0			Mx	E 21 22
		Ud	iP 21 55 43.4			Mx	N 17 25
		De	iP 21 56 07.5			Mx	Z 49 22
		Fox Islands, Aleutian				Ki	iP 20 53 40.3
		Islands (h = 45 km).					iS 21 01 47
"	25	Up	iPKP1 23 32 46.5				micr sec
			iPKP2 23 32 50.5			P	Z' 0.3 1.6
		Sk	iPKP1 23 32 40.0			Mx	E 6.6 18
			iPKP2 23 32 41.2			Mx	N 20 23
		Um	iPKP1 23 32 34.6			Mx	Z 6.5 17
		Ud	iPKP1 23 32 48.6			Sk	iP 20 53 09.1
			iPKP2 23 32 52.9			Um	iP 20 53 33.5
		De	iPKP1 23 32 57.7				iS 21 01 32
			iPKP2 23 33 06.6			Ud	iP 20 53 05.3
"	26	Up	iP 07 36 00.0				i 20 53 31.4
			ipP 07 36 16.7			De	iP 20 53 01.2
		Ki	eP 07 35 33			North Atlantic Ridge	
		(cont.)				(h = 10 km).	
						m = 6.1, M = 6.3 (Up,Ki).	



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

1980				1980			
Mar.	28	(cont.)		Mar.	29	(cont.)	
		Ud	ipP 16 26 00.2			Um	iPKP 04 25 20.9
		De	ipP 16 26 00.4			i	04 25 24.3
		Burma-India border region.				i	04 25 29.0
		h = 100 km (Up,Ki,Sk,Um,Ud).				iPP	04 26 18.2
"	28	Up	iP 21 23 04.6			ipPKP	04 27 22.9
		Ki	iP 21 22 11.4			ipPP	04 27 51.2
		Um	iP 21 22 36.5			iSKS	04 31 22
		Ud	eP 21 23 03		Ud	iPKKP	04 36 12.4
		De	iP 21 23 26.1			iPKP	04 25 30.5
		Fox Islands, Aleutian Islands (h = 55 km).				iPKP	04 25 34.8
						i(PP)	04 26 30.6
						iPP	04 26 41.6
						i	04 28 10.3
"	29	Um	iP 02 11 12.7			ipPP	04 28 30.5
		Ud	iP 02 11 28.1			ipPKKP	04 35 56.3
		De	iP 02 11 25.3		De	iPKP	04 25 35.6
		Southwestern Kashmir (h = N).				i	04 25 39.3
						i	04 25 42.9
"	29	Up	i(P) 02 50 31.0			iPP	04 27 11.3
"	29	Up	iP 04 03 22.8			ipPKP	04 27 34.5
		Ki	eP 04 04 27			iPKKP	04 35 52.2
		Sk	eP 04 04 02			Solomon Islands (h = 500 km).	
		Um	eP 04 03 58			M = 6.1 (Up,Ki).	
			i 04 04 14.4			M not corrected for focal depth.	
		Ud	iP 04 03 31.8				
		De	iP 04 03 00.4	"	29	Ki	iP 06 50 27.3
		Dodecanese Islands (h = 80 km).				Um	eP 06 50 33
						Mindanao, Philippine Islands (h = 20 km).	
"	29	Up	ePKP 04 25 27	"	29	Up	
			i 04 25 30.5				micr sec
			i 04 25 35.2			Mx	E 1.2 20
			i(PP) 04 26 26.4			Mx	Z 2.3 17
			iPP 04 26 42.8			Ki	iPKP 07 00 59.9
			ipPP 04 28 20.0			Sk	iPKP 07 00 51.6
			iPKKP 04 36 00.5			Um	iPKP 07 00 58.2
						Off coast of southern Chile (h = N).	
			micr sec	"	29	Um	iP 13 44 06.1
		Mx	E 1.8 19			Near coast of Oaxaca, Mexico (h = 30 km).	
		Mx	N 4.0 22				
		Mx	Z 4.0 21	"	29	Up	iPn 14 15 38.2
		Ki	ePKP 04 25 16				iSn 14 17 30.1
			i 04 25 19.7			Ki	iPn 14 13 52.4
			i 04 25 23.7				i 14 13 58.0
			epPP 04 27 31				i 14 14 06.6
			iPKKP 04 36 19.8				iSn 14 14 29.3
						Sk	iPn 14 14 51.0
			micr sec				iSn 14 16 07.8
		Mx	E 1.5 20			Um	iPn 14 14 46.5
		Mx	N 6.0 22				iSn 14 15 59.6
		Sk	i 04 25 28.6				iSgl 14 16 41.7
			i 04 25 34.1			(cont.)	
			iPP 04 26 29.0				
			ipPP 04 28 13.7				
			iPKKP 04 36 03.0				
		(cont.)					







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SEISMOLOGICAL BULLETIN

U P P S A L A, K I R U N A, S K A L S T U G A N, U M E Å,

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

Uppsala	(Up):	59 <sup>0</sup> 51.5'N,	17 <sup>0</sup> 37.6'E;	h = 14 m
Kiruna	(Ki):	67 <sup>0</sup> 50.4'N,	20 <sup>0</sup> 25.0'E;	h = 390 m
Skalstugan	(Sk):	63 <sup>0</sup> 34.8'N,	12 <sup>0</sup> 16.8'E;	h = 580 m
Umeå	(Um):	63 <sup>0</sup> 48.9'N,	20 <sup>0</sup> 14.2'E;	h = 16 m
Uddeholm	(Ud):	60 <sup>0</sup> 05.4'N,	13 <sup>0</sup> 36.4'E;	h = 240 m
Delary	(De):	56 <sup>0</sup> 28.2'N,	13 <sup>0</sup> 52.2'E;	h = 150 m

A P R I L 1 - 30, 1980  
 .....

- NOTES: (1) Starting with this bulletin, teleseismic data will be given for UPP-, KIR- and UME-stations only. Costs of compilation and printing have forced this decision. For Fennoscandian events, data from all six stations will be reported, as before, whenever available.
- (2) Starting with this bulletin, surface-wave magnitudes are determined from vertical-component readings in contrast to horizontal-component readings used prior to April 1980. Formulae now applied read

$$\text{Uppsala: } M = \log (A_z/T_z) + 1.66 \log \Delta + 3.2$$

$$\text{Kiruna: } M = \log (A_z/T_z) + 1.66 \log \Delta + 3.5$$

and provide the closest possible fit in M to the horizontal-component approach. For more details see M Båth, 1979, Teleseismic magnitude relations, Seismol. Inst., Uppsala, Report 2-79, 36 pp.

1980					1980				
Apr.	1	Up	iP	07 39 13.6	Apr.	1	Up	iP	16 31 13.1
			ipP	07 39 28.8			Um	iP	16 31 51.9
			i	07 39 39.2					
		Ki	iP	07 39 51.1 D	"	1	Up	iP	16 34 01.5
		Um	iP	07 39 26.2 D			i	16 34 05.3	
		Eastern Caucasus (h = 70 km).							micr sec
							Mx	Z	8.3 17
"	1	Up	iP	08 36 37.2			Ki	iP	16 34 01.8
		Um	iP	08 36 19.3			i	16 34 15.6	
		Bonin Islands region							micr sec
		(h = 440 km).					Mx	Z	2.9 22
"	1	Up	iP	10 15 17.7			Um	iP	16 33 58.5
							iS	16 44 02	
		Northern Sumatera (h = 40 km).					M = 5.9 (Up,Ki).		
"	1	Up	Mx	12 30					
				micr sec					
		Mx	Z	3.5 20	"	1	Um	iP	19 50 21.9
		Ki	Mx	12 30			Tuamoto Archipelago region		
				micr sec			(h = 0).		
		Mx	Z	21.4 20					
		Tonga Islands (h = 35 km).			"	1	Up	iP	20 06 26.5
		M = 6.0 (Up,Ki).					(cont.)		

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

1980				1980					
Apr.	1	(cont.)		Apr.	2	(cont.)			
		Ki	iP	20 07 01.3		Ki	iSgl	15 01 41.0	
		Um	iP	20 06 46.9		Sk	iSgl	14 59 57.2	
		Central Mid-Atlantic Ridge				Um	iSgl	14 59 27.0	
		(h = 10 km).				Ud	iPn	14 57 02.7	
"	1	Um	iP	22 41 24.2			iSgl	14 58 22.6	
		Carlsberg Ridge (h = 10 km).				De	iPn	14 56 43.7	
"	1	Up	iP	23 06 11.6			iPgl	14 56 52.3	
		Um	iP	23 05 53.9			iSgl	14 57 45.0	
		Bonin Islands region				Coast of Latvia, near			
		(h = 480 km).				56 1/2°N, 21°E.			
"	2	Ki	ePKP	02 04 14		Origin time = 14 55 41.			
		Um	iPKP	02 04 19.6		$M_L = 3.0$ (Up,Um,Ud,De).			
		New Hebrides Islands				Probably explosion.			
		(h = 120 km).		"	2	Up	iP	17 05 34.4	
"	2	Up	iP	02 33 43.8			i	17 05 47.0	
		Um	iP	02 33 27.5		Ki	iP	17 04 46.3	
		South of Honshu, Japan				Um	iP	17 05 08.7	
		(h = 360 km).				Kuril Islands (h = N).			
"	2	Up	iP	07 25 05.2	"	2	Up	iP	18 26 09.5 C
		Ki	iP	07 24 30.5			Ki	eP	18 26 12
		Um	eP	07 24 46			Um	iP	18 26 13.9
			i	07 25 14.4			Northern Colombia		
		(h = 70 km).				(h = 110 km).			
"	2	Up	iP	09 50 22.0	"	2	Up	iP	18 41 55.0
		Ki	iP	09 49 40.1			Ki	iP	18 41 31.9
		Um	iP	09 49 58.8			Um	iP	18 41 40.1
		Hokkaido, Japan region				Taiwan (h = 25 km).			
		(h = 70 km).		"	2	Ki	eP	19 04 23	
"	2	Up	i	10 36 56.7		Um	iP	19 04 29.0	
			iRg	10 37 03.1		Luzon, Philippine Islands			
		Ud	i	10 37 52.0		(h = N).			
			i	10 37 57.7	"	3	Up	iP	03 55 41.1
			iRg	10 38 08.0			Ki	iP	03 54 43.0
		East-central Sweden.					i	03 55 05.2	
		Near-surface event.				Um	iP	03 55 12.3	
"	2	Ud	iSgl	12 40 18.6			i	03 55 14.3	
		Värmland, Sweden, 60.6°N,					ipP	03 55 34.5	
		13.7°E.				Central Alaska (h = 90 km).			
		Origin time = 12 40 04.		"	3	Up	iP	10 31 32.7	
		Solution from HFS array					i	10 31 37.7	
		readings.					i	10 31 46.0	
"	2	Up	ePn	14 56 42		Ki	iP	10 31 32.6	
			iPgl	14 56 49.5			i	10 31 45.6	
			iSgl	14 57 40.3		Um	eP	10 31 29	
		Ki	iPgl	14 59 03.1			i	10 31 35.0	
			i	15 01 19.4			i	10 31 43.0	
		(cont.)				Southern Sumatera (h = N).			





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

1980				1980								
Apr.	10	Up Ki	iP iP	04 13 52.3 04 13 37.4	C	Apr.	10	(cont.) Sweden, 57.9°N, 12.1°E. Origin time = 04 19 11. M <sub>L</sub> = 2.7 (Up,Um,Ud,De). Felt.				
			P	Z'	0.1 0.5							
		Um	iP	04 13 38.1								
		Eastern Kazakh SSR. Underground explosion.										
"	10	Um	iP	09 09 27.7		"	11	Up Ki	iP iP	10 55 52.0 10 55 55.4		
									P	Z'	0.1 0.5	
"	10	Up Ki Um	iP iP iP	09 34 35.7 09 34 16.2 09 34 22.9				Um	iP	10 55 47.6		
		Luzon, Philippine Islands (h = 45 km).								Tadzhik-Sinkiang border region (h = 140 km).		
"	10	Up	iP	11 17 22.6		"	11	Up	ePKP	22 15 14		
		Vancouver Island region (h = 10 km).								Mx	Z	7.5 22
								Ki	Mx	Z	6.4 19	
"	10	Up	iPKP1 iPKP2	15 47 25.9 15 47 34.1				Um	iPKP i	22 15 07.8 22 15 18.1		
		Ki	ePKP1	15 47 05				Loyalty Islands region (h = N). M = 6.4 (Up,Ki).				
		Um	iPKP1 i	15 47 15.6 15 47 20.1								
		South of Kermadec Islands (h = N).						"	12	Um	iP	07 42 03.8
"	11	Up Ki Um	iP iP iP	00 17 13.5 00 15 45.4 00 16 27.2		"	12	Up	iP iS	09 15 01.4 C 09 18 51		
			i	00 16 33.3					P	Z'	0.2 0.9	
		North of Svalbard (h = 10 km).								Mx	Z	4.6 11
								Ki	iP	09 16 16.8 C		
"	11	Up Ki Um	iP iP iP	01 56 03.1 D 01 55 15.7 01 55 42.9					Mx	Z	2.5 11	
		Vancouver Island region (h = 10 km).								Um	iP i	09 15 40.3 C 09 15 42.9
								Greece (h = 10 km). M = 5.1 (Up,Ki).				
"	11	Up	eSn iSg1 i	04 20 46 04 20 56.7 04 21 02.8		"	12	Up	iP iS	11 36 58.4 C 11 40 57		
		Ki	eSg1	04 24 48					P	Z'	0.1 0.6	
		Sk	iSg1	04 22 07.7					Mx	Z	3.4 12	
		Um	iSg1	04 22 50.0				Ki	iP	11 38 14.3		
		Ud	ePgl iSg1	04 19 52 04 20 22.3					Mx	Z	1.3 10	
		De	iPgl i i iSg1	04 19 42.0 04 19 42.9 04 19 46.4 04 20 04.8				Um	iP	11 37 38.4 C		
		Västergötland-Bohuslän, (cont.)						"	12	Um	iPKP	17 04 31.0
								Loyalty Islands (h = N).				





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

1980				1980			
Apr.	14	(cont.) Ki iP	10 25 02.8	Apr.	14	Ki iP	22 17 34.5
			micr sec			Um iP	22 18 00.9
		P Z'	0.1 1.2			Fox Islands, Aleutian Islands (h = 45 km).	
		Mx Z	4.3 10				
		Um iP	10 24 52.1 C	"	14	Up iP	22 53 13.5
		i	10 24 57.8			Um iP	22 52 50.3
		iS	10 30 57			Off east coast of Honshu, Japan (h = 40 km).	
		Hindu Kush region (h = 60 km). m = 5.7, M = 5.7 (Up,Ki). M not corrected for focal depth.		"	14	Um iP	23 05 54.1
"	14	Up iP	10 29 56.3 C	"	14	Up iP	23 10 59.4
		Um iP	10 29 55.2			Ki iP	23 10 28.9
		Hindu Kush region (h = 40 km).				Um iP	23 10 37.0
"	14	Up iP	12 00 21.8	"	15	Up iPKP	00 15 53.8
		i	12 00 22.9			Um iPP	00 16 08.9
			micr sec			Chile-Bolivia border region (h = 100 km).	
		i Z'	0.1 0.8	"	15	Up iP	00 27 16.2
		Ki iP	12 00 10.4			Ki iP	00 26 51.6
		i	12 00 11.4			Um iP	00 26 54.7
		Um iP	12 00 11.4	"	15	Up iPKP1	04 29 02.3
		i	12 00 12.0			iSKP1	04 31 56.8
		Tibet (h = N).				Ki iSKP1	04 31 36.2
"	14	Up iPKP	12 58 03.9			Um iSKP1	04 31 46.2
		iPP	12 59 56.4			South of Fiji Islands (h = 420 km).	
			micr sec	"	15	Up iP	08 01 11.7
		Mx Z	6.1 18			i	08 01 27.8
		Ki iPKP	12 57 49.9			Ki iP	08 01 20.0
			micr sec			Andreanof Islands, Aleutian Is. (h = 70 km).	
		Mx Z	2.8 16	"	15	Up iSg1	14 42 35.6
		Um iPKP	12 57 55.7			Sk iSg1	14 43 04.7
		Santa Cruz Islands region (h = N). M = 6.2 (Up,Ki).				Ud iPg1	14 41 15.6
"	14	Up iP	19 24 39.4			iRg	14 41 45.2
		ipP	19 24 42.8			De i	14 42 15.3
		iSKS	19 35 08			iSg1	14 42 29.2
		iS	19 35 16			Southeast Norway, near 59 1/4°N, 11°E. Origin time = 14 40 52. M <sub>L</sub> = 2.7 (De). Near-surface event.	
			micr sec	"	15	Up iPKP1	14 54 08.5
		Mx Z	3.5 25			iPKP2	14 54 16.5
		Ki iP	19 25 02.8			i	14 54 30.7
		ipP	19 25 05.8			Um iPKP1	14 53 58.4 C
			micr sec			South of Kermadec Islands (h = N).	
		Mx Z	1.7 17				
		Um iP	19 24 48.5				
		ipP	19 24 51.8				
		iSKS	19 35 19				
		iS	19 35 33				
		Mascarene Islands region. h = 10 km (Up,Ki,Um). M = 5.7 (Up,Ki).					

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

1980				1980			
Apr.	15	Up	iP	18 42	13.7		
		Um	iP	18 41	49.4		
		Hokkaido, Japan region (h = 120 km).					
"	16	Up	iP	07 01	59.1	D	
			i	07 03	01.2		
			iPP	07 05	05.1		
			iS	07 11	42.8		
					micr sec		
		P	Z'	0.4	0.9		
		Ki	iP	07 01	27.2	D	
					micr sec		
		P	Z'	0.3	0.6		
		Um	iP	07 01	40.7	D	
			i	07 02	46.5		
		Bonin Islands region (h = 240 km). m = 6.1 (Up,Ki).					
"	16	Um	iP	08 42	22.5		
			i	08 42	29.7		
"	16	Up	iP	12 31	46.0	C	
			iPP	12 35	45.4		
					micr sec		
		P	Z'	0.1	1.4		
		Ki	iP	12 31	42.1	C	
					micr sec		
		P	Z'	0.2	1.2		
		Um	iP	12 31	41.6	C	
		Java (h = 80 km). m = 6.3 (Up,Ki).					
"	16	Up	iP	12 37	14.2		
			i	12 42	14		
			i	12 44	22		
					micr sec		
		P	Z'	0.1	0.9		
		Mx	Z	3.3	20		
		Ki	iP	12 37	10.4		
					micr sec		
		P	Z'	0.2	1.0		
		Mx	Z	4.1	17		
		Um	iP	12 37	09.6		
			i	12 44	11.5		
		Java (h = 80 km). m = 6.5, M = 6.0 (Up,Ki). M not corrected for focal depth.					
"	16	Up	iP	20 11	48.6	C	
					micr sec		
		P	Z'	0.1	0.9		
		Ki	iP	20 11	15.6	C	
		(cont.)					
Apr.	16	(cont.)					
		Um	iP	20 11	33.6	C	
		Southern Nevada. Underground explosion.					
"	16	Um	iP	20 21	07.3		
		Alaska Peninsula (h = 60 km).					
"	16	Up	iPKP1	21 08	40.9		
		Ki	iPKP	21 08	32.9		
		Um	i(PKP)	21 08	28.9		
			iPKP	21 08	35.4		
		South of Fiji Islands (h = 190 km).					
"	17	Up	i(P)	06 33	38.2		
"	17	Up	iP	06 41	09.6	D	
					micr sec		
		P	Z'	0.2	0.8		
		Ki	iP	06 40	42.5	D	
					micr sec		
		P	Z'	0.1	0.8		
		Um	iP	06 40	53.4	D	
		Ryukyu Islands region (h = N). m = 6.0 (Up,Ki).					
"	17	Um	i(P)	13 06	37.3		
"	17	Um	iPKP	15 26	41.7		
		South of Fiji Islands (h = 250 km).					
"	17	Up	iP	16 24	37.9	C	
					micr sec		
		P	Z'	0.1	1.0		
		Ki	iP	16 23	43.7	C	
		Um	iP	16 24	09.7		
		Near Islands, Aleutian Islands (h = 30 km).					
"	17	Up	iP	19 25	42.9		
		Ki	iP	19 26	17.1		
		Um	iP	19 25	56.4		
		Carlsberg Ridge (h = 10 km).					
"	17	Up	iP	19 34	57.8	D	
		Ki	iP	19 34	37.8		
		Um	iP	19 34	42.2		
		Qinghai Province, China (h = N).					
"	17	Up	iP	19 39	10.3		
"	18	Um	iP	03 30	37.7		
		Hokkaido, Japan region (h = 70 km).					

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

1980				1980										
Apr.	18	Um	iP	04 31	09.2	Apr.	20	(cont.)						
"	18	Up	iP	19 00	10.6 C			Um	iP	20 12	37.6 D			
		Um	iP	18 59	43.9 C			Bonin Islands region (h = 530 km).						
		Aleutian Islands region (h = N).					"	21	Ki	iP	02 51	43.0		
"	19	Um	iP	07 07	57.4			Luzon, Philippine Islands (h = 80 km).						
		South of Mariana Islands (h = 40 km).					"	21	Up	iP	03 14	39.7		
"	19	Um	iP	19 42	10.7			Um	iP	03 14	20.0			
"	20	Up	iP	02 47	32.2			"	21	Um	iP	03 19	49.3	
			i	02 47	37.3			"	21	Up	iPKP1	09 45	34.7	
			i	02 48	42.8						i	09 45	50.4	
								Um	iPKP1	09 45	24.0			
			P	Z'	0.1 0.9			Kermadec Islands region (h = N).						
			i	Z'	0.2 1.1			"	21	Up	iPKP1	09 57	47.0	
			Mx	Z	40 22						i	09 58	01.9	
		Ki	iP	02 48	04.8			Um	ePKP1	09 57	37			
			i	02 48	10.5			Kermadec Islands region (h = 55 km).						
								"	21	Up	iPKP1	12 06	03.1	
			P	Z'	0.1 1.1			Um	iPKP1	12 05	52.1			
			i	Z'	0.4 1.5			Kermadec Islands region (h = 40 km).						
			Mx	Z	13 16			"	21	Um	iPKP	23 37	21.1	
		Um	iP	02 47	44.5			Tonga Islands (h = 90 km).						
		Arabian Sea (h = 10 km). m = 6.2, M = 6.4 (Up,Ki).					"	22	Um	iPKP	03 13	17.1		
"	20	Ki	iSg1	04 23	28.9						iSKP1	03 15	59.2	
		Sk	eSg1	04 25	29			South of Fiji Islands (h = 560 km).						
		Um	iSg1	04 24	03.3			"	22	Up	iP	05 45	18.5 D	
		Norrbotten, Sweden, 66.4°N, 23.1°E. Origin time = 04 22 38. M <sub>L</sub> = 2.3 (Ki,Um). By combination with Finnish station readings.					"				i	05 45	20.9	
"	20	Up	iP	07 29	19.2						ipP	05 46	50.6	
		Um	iP	07 28	54.1						iS	05 54	26	
		Sakhalin Island (h = 300 km).										iScS	05 54	49
"	20	Um	iP	08 23	05.2									
		Tanimbar Islands region (h = 40 km).										i	Z'	0.4 0.7
											Mx	Z	4.7 16	
"	20	Ki	iP	18 49	49.4			Um	iP	05 44	59.1			
		Um	iP	18 50	10.9						i	05 45	00.9	
		Kuril Islands (h = 50 km).							South of Honshu, Japan (h = 390 km).					
"	20	Up	iP	20 12	55.2 D			"	22	Up	i(PKP)	07 13	34.4	
		Ki	iP	20 12	24.3 D						iPKP	07 13	45.1	
		(cont.)							(cont.)					

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

1980				1980				
Apr.	22	(cont.)		Apr.	25	Up	iP	11 47 02.7 C
		Up	iSKP1 07 16 25.0				i	11 47 36.0
		Ki	iPKP 07 13 29.5					micr sec
			iSKP1 07 15 59.1				P	Z' 0.1 0.9
		Um	iPKP 07 13 37.0			Ki	iP	11 46 53.3
			iSKP1 07 16 12.6			Um	iP	11 46 44.6 C
		Fiji Islands region (h = 590 km).				Ryukyu Islands (h = 130 km).		
"	22	Up	iRg 12 02 45.0	"	25	Up	iP	13 34 25.2
		Ud	iRg 12 02 56.8			Ki	iP	13 34 10.2
		East-central Sweden. Near-surface event.					P	Z' 0.1 1.0
						Um	iP	13 34 16.0
						Talaud Islands (h = 70 km).		
"	23	Up	iP 08 08 22.9	"	25	Um	iP	13 58 33.6
		Um	iP 08 08 03.7			Haiti region (h = N).		
		South of Honshu, Japan (h = 390 km).						
"	23	Up	iSg1 15 51 06.2	"	25	Ki	iP	18 22 47.0
		Ud	iPg1 15 49 40.8			Um	iP	18 22 38.6
			iSg1 15 50 06.4				i	18 22 43.0
		De	iSg1 15 50 53.3			North Atlantic Ridge (h = 10 km).		
		Southeast Norway, near 59 1/4°N, 10°E. Origin time = 15 49 06. M <sub>L</sub> = 2.2 (Ud). Explosion?		"	25	Up	iPKP	21 24 54.9
						Ki	ePKP	21 24 42
						Um	iPKP	21 24 47.6
							i	21 25 30.0
						New Britain region (h = N).		
"	24	Up	iP 08 09 00.5	"	25	Up	iP	23 17 50.8
		Qinghai Province, China (h = N).				Um	iP	23 17 31.6
						South of Honshu, Japan (h = 440 km).		
"	24	Up	iPKP1 15 27 08.9	"	26	Um	iP	13 08 50.1
		Kermadec Islands region (h = N).				North Atlantic Ridge (h = 10 km).		
"	24	Up	iP 21 43 13.8	"	26	Up	iP	17 11 48.4 C
		Um	iP 21 43 05.8			Um	iP	17 11 33.6 C
		Sichuan Province, China (h = N).				Southern Nevada. Underground explosion.		
"	25	Um	iP 00 00 22.3	"	26	Up	iP	21 39 57.7
		Minihassa Peninsula (h = 130 km).				Um	iP	21 39 40.0
						Volcano Islands region (h = 110 km).		
"	25	Up	iP 04 03 54.7 C	"	26	Up	iPKP	22 54 45.8
			micr sec			Um	iPKP	22 54 38.0
			P Z' 0.3 0.8				i	22 54 41.5
		Um	iP 04 03 39.5 C			New Hebrides Islands (h = 110 km).		
		Eastern Kazakh SSR. Underground explosion.						

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

1980				1980					
Apr.	27	Up	iP	02 12 29.2	Apr.	28	Up	iP	07 12 57.5 C
		Um	iP	02 12 08.5				iPP	07 14 43.9
		South of Honshu, Japan (h = 190 km).							micr sec
"	27	Up	iPn	03 07 13.3				P	Z' 0.1 0.6
			i	03 07 20.3			Ki	Mx	Z 1.7 24
			iSn	03 08 45.3				iP	07 13 19.8 C
			iSgl	03 09 23.1				i	07 14 28.1
		Sk	iP	03 08 03.5					micr sec
		Um	iP	03 08 08.2				P	Z' 0.2 0.6
			iLgl	03 11 29.4				Mx	Z 1.1 13
		Ud	iPn	03 07 16.4			Um	iP	07 13 03.2 C
			i	03 07 24.7				iPP	07 14 54.4
			iSn	03 08 55.9			Pakistan (h = 35 km).		
		De	iPn	03 06 27.1			m = 6.1, M = 5.0 (Up,Ki).		
			iSn	03 07 25.3	"	29	Up	iP	02 46 48.3
			iRg	03 08 11.3				i	02 46 51.2
		Western Poland. Near-surface event.					Dodecanese Islands (h = 55 km).		
"	27	Um	iP	09 59 50.2	"	29	Ki	iP	04 00 36.4
		Turkey (h = 10 km).			"	29	Ud	iPgl	12 30 55.7
"	27	Up	iP	17 09 31.3				iSgl	12 31 18.2
			i	17 09 36.2			De	iSgl	12 32 24.0
		Ki	eP	17 09 38			Southeastern Norway, near 59 3/4°N, 10°E.		
			i	17 09 43.4			Origin time = 12 30 26.		
		Um	iP	17 09 29.6			Explosion?		
			i	17 09 33.9	"	29	Up	iP	16 10 39.2
		Northern India (h = N).						i	16 10 41.2
"	27	Up	ePKP1	21 01 31				i	16 10 46.8
			iPKP	21 01 36.2			Ki	iP	16 11 03.6
		Ki	iPKP	21 01 22.5				i	16 11 06.1
		Um	ePKP	21 01 25			Um	iP	16 10 55.4
			i	21 01 30.7				i	16 10 58.0
		Fiji Islands region (h = 580 km).						i	16 11 03.3
"	27	Um	iP	22 09 58.6			North Atlantic Ridge (h = 10 km).		
		Honshu, Japan (h = 110 km).			"	29	Up	iP	16 26 58.4
"	28	Up	eP	02 59 00			Ki	iP	16 26 16.8
		Ki	iP	02 58 33.0			Um	iP	16 26 35.3
		Um	iP	02 58 13.2 C			Hokkaido, Japan region (h = 70 km).		
		Arabian Sea (h = 10 km).			"	30	Ki	iP	02 34 44.0
"	28	Up	iP	05 51 21.5			Um	iP	02 34 13.7
		Ki	iP	05 50 51.8			Turkey (h = N).		
		Um	iP	05 51 04.1	"	30	Up	iP	08 14 53.3
		Ryukyu Islands region (h = N).					Um	iP	08 14 33.4
							Kyushu, Japan (h = 45 km).		

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

1980

Apr.	30	Um	iPKP	11 43 52.3
				South of Fiji Islands
				(h = 510 km).
"	30	Um	iPKP	11 56 21.9
				Tonga Islands (h = 20 km).
"	30	Up	iP	13 27 19.8
		Ki	iP	13 26 47.5
		Um	iP	13 27 00.6
				Kyushu, Japan (h = 45 km).
"	30	Up	iP	15 38 11.9
		Ki	iP	15 37 46.2
		Um	iP	15 37 55.7
				Southwestern Ryukyu
				Islands (h = 80 km).
"	30	Um	iP	18 41 48.8
			i	18 41 59.2
				Arabian Sea (h = 10 km).
"	30	Ki	iP	21 38 13.6
		Um	iP	21 38 20.5
				Philippine Islands region
				(h = N).

January 20, 1982

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**SWEDEN**

SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, UMEÅ,

UDDEHOLM and DELARY

Uppsala	(Up):	59 <sup>0</sup> 51.5'N,	17 <sup>0</sup> 37.6'E;	h = 14 m
Kiruna	(Ki):	67 <sup>0</sup> 50.4'N,	20 <sup>0</sup> 25.0'E;	h = 390 m
Skalstugan	(Sk):	63 <sup>0</sup> 34.8'N,	12 <sup>0</sup> 16.8'E;	h = 580 m
Umeå	(Um):	63 <sup>0</sup> 48.9'N,	20 <sup>0</sup> 14.2'E;	h = 16 m
Uddeholm	(Ud):	60 <sup>0</sup> 05.4'N,	13 <sup>0</sup> 36.4'E;	h = 240 m
Delary	(De):	56 <sup>0</sup> 28.2'N,	13 <sup>0</sup> 52.2'E;	h = 150 m

MAY 1 - 31, 1980

1980				1980					
May	1	Up	iP	00 07 13.5	May	2	(cont.)		
		Ki	iP	00 06 30.1					
		Um	iP	00 06 49.4					
		Hokkaido, Japan region (h = 50 km).							
"	1	Up	iP	01 40 55.7					
		Hindu Kush region (h = 55 km).							
"	1	Um	iPKP1	16 31 33.4					
"	1	Ki	eP	16 57 48					
		Um	iP	16 57 40.6					
		Northern Sumatera (h = 50 km).							
"	2	Up	iP	01 59 31.9	"	2	Up	iSg1	22 09 20.3
		Ki	iP	01 59 35.2			Sk	iSg1	22 07 32.1
			i	01 59 41.8			Um	eSg1	22 09 21
		Um	iP	01 59 36.5			Ud	i	22 08 03.7
			i	01 59 42.5				iSg1	22 08 27.8
		Northern Colombia (h = 50 km).						i	22 08 34.0
"	2	Up	iPKP1	04 35 00.3			De	eSg1	22 10 10
			iPKP2	04 35 10.5			Coast of Central Norway, near 63 <sup>0</sup> N, 8 1/2 <sup>0</sup> E. Origin time = 22 06 36. M <sub>L</sub> = 2.6 (Up,Sk,Ud).		
		Ki	ePKP1	04 34 40					
			i	04 34 49.7	"	2	Ki	iP	23 21 16.4
		Um	iPKP1	04 34 48.6			Um	iP	23 21 19.5
			i	04 34 59.8			Panama-Colombia border region (h = N).		
		South of Kermadec Islands (h = 80 km).							
"	2	Up	iP	05 36 24.7					
			i	05 36 26.5					
			iS	05 40 48					
		(cont.)							

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

1980						1980					
Apr.	3	Up	iP	03 40 15.8	D	Apr.	4	Up	iP	09 27 05.1	
May			i	03 40 34.8				Um	iP	09 27 36.8	
			iS	03 47 49				Turkey (h = 20 km).			
				micr sec							
			P	Z' 0.2	0.9		"	4	Um	iPKP	12 43 05.4
			Mx	Z 1.4	20			Fiji Islands region			
		Ki	iP	03 41 02.1				(h = 620 km).			
				micr sec							
			P	Z' 0.3	1.6		"	4	Up	iP	18 41 21.3
			Mx	Z 1.2	16				i	18 41 28.0	
		Um	iP	03 40 36.1					iS	18 46 08	
			iS	03 48 25						micr sec	
		Northwestern Somalia							i	Z' 0.1	1.0
		(h = 10 km).							Mx	Z 68	20
		m = 6.1, M = 5.1 (Up,Ki).						Ki	iP	18 41 59.1	
"	3	Um	iP	04 31 27.6					iS	18 47 22	
		Turkey (h = 20 km).								micr sec	
"	3	Up	iP	09 41 01.7				P	Z' 0.2	1.0	
			i	09 41 21.7				Mx	Z 36	19	
			iS	09 49 59				Um	iP	18 41 34.2	
			iP'P'	10 09 16.6					i	18 41 40.9	
				micr sec					iS	18 46 37	
			P	Z' 0.3	1.3			Caspian Sea (h = 45 km).			
			Mx	Z 1.6	17			m = 5.8, M = 6.3 (Up,Ki).			
		Ki	iP	09 40 09.1		"	5	Ki	iP	10 28 29.1	
			i	09 40 18.2					i	10 28 35.2	
			iS	09 48 24				Caspian Sea (h = N).			
				micr sec		"	5	Um	iP	13 26 18.8	
			P	Z' 0.5	1.8			Iceland (h = 10 km).			
			Mx	Z 0.9	16						
		Um	iP	09 40 34.3		"	5	Up	iP	16 39 22.9	
			iS	09 49 05				Ki	iP	16 38 50.1	
			iP'P'	10 09 34.7				Um	iP	16 39 03.9	
			i	10 09 47.7				Bonin Islands region			
		Near Islands, Aleutian						(h = 80 km).			
		Islands (h = N).					"	5	Ki	iP	18 22 53.0
		m = 6.3, M = 5.2 (Up,Ki).						Um	iP	18 22 59.4	
"	3	Up	iPKP1	16 04 05.8				Mindanao, Philippine Islands			
								(h = 50 km).			
"	3	Up	iPKP	21 07 15.7							
		Um	iPKP	21 07 08.2		"	5	Up	iP	23 14 20.2	
		Santa Cruz Islands								micr sec	
		(h = 130 km).							Mx	Z 1.4	20
"	4	Up	iP	02 12 43.1				Ki		micr sec	
		Um	iP	02 12 42.6					Mx	Z 1.4	20
			ipP	02 13 00.5				Um	iP	23 13 55.2	
		El Salvador.						Solomon Islands (h = N).			
		h = 80 km (Um).						M = 5.6 (Up,Ki).			





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

1980				1980			
May	10	Ki ePKP	13 13 23	May	13	Up i	13 40 49.9
		New Hebrides Islands				Ud iRg	13 40 47.8
		(h = N).				Central Sweden.	
"	11	Up iP	02 52 37.1	"	13	Up iP	15 28 31.3
		Ki iP	02 52 55.2			Ki iP	15 27 59.0
		Um iP	02 52 40.5			Um iP	15 28 12.4
		Pakistan (h = N).				South of Honshu, Japan	
"	11	Ki iP	03 21 44.6			(h = 400 km).	
		West Caroline Islands		"	14	Up iP	01 45 28.8
		(h = 30 km).				iS	01 49 08
"	11	Up iPKP	15 08 56.1				micr sec
		Ki iPKP	15 08 45.8			Mx Z	1.3 10
		Um iPKP	15 08 50.2			Ki eP	01 46 50
		New Britain region				i	01 47 06.0
		(h = 110 km).					micr sec
"	11	Um iP	16 12 05.5			Mx Z	0.8 10
		i	16 12 20.3			Um iP	01 46 14.3
		Near east coast of Honshu,				iS	01 50 26
		Japan (h = 60 km).				Southern Italy (h = 25 km).	
"	11	Up iP	16 54 26.4	"	14	Up eSgl	03 02 55
"	12	Up iP	01 22 38.1			i	03 03 01.1
		Tyrrhenian Sea (h = 340 km).				Um iP	03 00 54.7
"	12	Ki iP	09 57 27.8			Poland (h = 10 km).	
		Sk eP	09 57 39	"	14	Up iP	08 18 05.9 C
		Um i(S)	10 00 26.6			Ki iP	08 17 23.0 C
"	12	Up iPKP1	14 42 52.7			Um iP	08 17 42.0 C
		iSKP1	14 46 33.9			Hokkaido, Japan region	
		Ki e(PKP)	14 42 35			(h = 80 km).	
		iPKP	14 42 44.6	"	14	Up eP	09 05 17
		iSKP1	14 46 02.5			Um iP	09 06 04.0
		Um i(PKP)	14 42 41.8			Central Italy (h = 10 km).	
		iPKP	14 42 51.6	"	14	Up iPKP	11 44 42.3
		iSKP1	14 46 11.2			iPKKP	11 55 04.4
		i	14 46 22.3			iSKKP	11 58 10.5
		South of Fiji Islands					micr sec
		(h = 170 km).				Mx Z	4.5 22
"	12	Up iPKP	16 56 42.1			Ki	micr sec
		iPP	16 58 48.4			Mx Z	9.4 26
			micr sec			Um iPKP	11 44 36.4
		Mx E	2.6 21			iPP	11 45 24.4
		Ki iPKP	16 56 29.3			Solomon Islands (h = 55 km).	
			micr sec			M = 6.2 (Up,Ki).	
		Mx E	1.3 19	"	15	Up iP	08 42 19.3
		Um iPKP	16 56 35.0			Ki iP	08 42 25.7
		New Hebrides Islands				Um iP	08 42 16.5
		(h = 20 km).				Tadzhik SSR (h = N).	
		M = 5.8 (Up,Ki).					

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

1980				1980					
May	15	Up	eP	19 12 33	May	16	Up	iP	17 50 04.1
			e(PP)	19 15 40			Ki	eP	17 50 50
			iPP	19 16 49.8			Um	iP	17 50 24.5
				micr sec			Northwestern Somalia (h = 10 km).		
			Mx	Z 7.0 25					
		Ki	iP	19 12 14.7	"	16	Up	iP	19 08 41.8
			iPP	19 16 31.2			Ki	eP	19 08 23
				micr sec			Um	iP	19 08 30.1
			Mx	Z 6.0 19			Philippine Islands region (h = 45 km).		
		Um	iP	19 12 19.0					
			iPP	19 16 38.3					
		Banda Sea (h = N). M = 6.2 (Up,Ki).			"	16	Up	iPKP1	21 16 53.0
"	15	Um	iPKP	22 13 11.9			i	21 17 01.0	
		Solomon Islands (h = 70 km).					Um	iPKP1	21 16 43.5 C
"	15	Um	iP	22 55 31.0	"	16	Up	iP	22 45 00.8
		Afghanistan-USSR border region (h = 170 km).					i	22 45 11.8	
"	16	Up	iP	00 42 45.3 D			Ki	eP	22 44 16
			i	00 42 51.3			Um	iP	22 44 41.0
			iS	00 47 04.3			i	22 44 47.9	
				micr sec			Vancouver Island region (h = 10 km).		
			i	Z' 0.1 0.7	"	17	Ki	eP	06 00 13
			Mx	Z 6.0 13			Um	iP	06 00 18.1
		Ki	iP	00 43 51.7			iS	06 10 50	
			i	00 43 57.3			Near coast of Guatemala (h = 70 km).		
				micr sec	"	17	Up	eP	12 14 52
			i	Z' 0.2 0.5			Um	iP	12 14 56.4
			Mx	Z 1.0 12			Hindu Kush region (h = 55 km).		
		Um	eP	00 43 16	"	17	Up	iP	21 03 43.6
			i	00 43 21.9			Ki	iP	21 03 29.7
			iPcP	00 46 41.4			Um	iP	21 03 39.1
			iS	00 48 06			Iceland region (h = 10 km).		
			iScP	00 50 04.0	"	17	Up	eP	21 20 05
		Dodecanese Islands (h = 70 km). m = 5.8, M = 5.0 (Up,Ki).			"	17	Ki	iP	21 19 51.1
"	16	Up	iP	05 06 07.4			Um	iP	21 19 59.0
		Ki	iP	05 06 13.6			i	21 20 02.6	
		Um	iP	05 06 13.0			Iceland (h = 10 km).		
		Peru-Brazil border region (h = 190 km).			"	18	Up	iP	04 24 52.5
"	16	Ki	iSg1	11 58 44.3			Ki	iP	04 25 00.8
		Um	iSg1	11 58 19.7			Um	iP	04 24 50.8 C
"	16	Up	iP	15 47 56.8			Afghanistan-USSR border region (h = 220 km).		
		Ki	iP	15 47 34.3					
		Um	iP	15 47 42.1					
		Taiwan region (h = 30 km).							

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

1980				1980								
May	18	Up	iP	06 37	37.7	May	18	Up	iP	20 45	25.5	
			iPP	06 38	59.1			Ki	iP	20 46	54.5	
		Ki	iP	06 38	02.8			Um	iP	20 46	10.7	
		Um	iP	06 37	44.7			Yugoslavia (h = 10 km).				
		Iran (h = 30 km).										
"	18	Up	iP	07 22	10.9	"	19	Ki	iP	02 47	15.9	
			ipP	07 22	37.4			Near coast of Guerrero, Mexico (h = 60 km).				
			iPP	07 25	34.6			"	19	Up		
			iS	07 32	40						micr sec	
									Mx	Z	0.6 8	
									Um	iP	04 05 19.2	
			Mx	Z	2.1 30			Yugoslavia (h = 10 km).				
		Ki	iP	07 21	59.6			"	19	Up		
			ipP	07 22	26.2						micr sec	
		Um	iP	07 22	07.2					Mx	Z	0.7 11
			ipP	07 22	33.3				Um	eP	07 26 59	
			iPP	07 25	29.2			Yugoslavia (h = 10 km).				
		Guatemala.										
		h = 110 km (Up, Ki, Um).										
"	18	Up	iP	08 35	54.2	"	19	Up	iP	15 55	55.6	
		Um	iP	08 35	29.7			Ki	iP	15 56	52.5	
								Um	iP	15 56	19.8	
		Turkey (h = N).										
"	18	Up	eP	12 14	25	"	19	Um	iP	17 07	48.2	
		Um	iP	12 14	51.5			Tadzhik SSR (h = N).				
			i	12 15	05.8			"	19	Up	iP	
											19 07 50.0 C	
"	18	Up	iP	20 06	49.9			Ki	iP	19 07	11.2	
			iS	20 09	49.9			Um	iP	19 07	28.2 C	
								Near east coast of Honshu, Japan (h = 45 km).				
								"	19	Ki	iPKP	
			P	Z'	0.6 1.1					Um	iPKP	
			Mx	Z	78 8						19 41 43.0	
		Ki	iP	20 08	19.4						19 41 36.0	
			i	20 08	21.1			South Sandwich Islands region (h = 100 km).				
			iS	20 12	38			"	20	Up	iP	
											01 20 52.2	
										Ki	iP	
										Um	iP	
											01 20 13.2	
											01 20 30.3	
								Near east coast of Honshu, Japan (h = 50 km).				
								"	20	Up	iPKP1	
										Ki	iSKP1	
										Um	iSKP1	
											04 43 15.2	
											04 45 46.4	
											04 45 57.2	
								South of Fiji Islands (h = 540 km).				
"	18	Up	iP	20 30	37.2	"	20	Up	iP	13 30	11.8	
			iS	20 33	46				ipP	13 30	33.6	
								Ki	iP	13 30	05.3	
								Um	iP	13 30	04.3	
									ipP	13 30	25.3	
			P	Z'	0.1 1.1			Burma-India border region.				
			Mx	Z	15 7			h = 90 km (Up, Um).				
		Ki	iP	20 32	03.2							
			P	Z'	0.3 1.5							
			Mx	Z	6.5 7							
		Um	iP	20 31	22.7							
		Yugoslavia (h = 10 km).										
		m = 5.3 (Up, Ki).										

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

1980				1980					
May	21	Up	iPKP1	00 35 19.7	May	24	Up	iPg1	03 03 11.0
			i	00 35 26.4				iSg1	03 03 24.9
		Um	iPKP1	00 35 09.6 C				iRg	03 03 32.0
			i	00 35 19.9			Um	iSg1	03 05 26.0
		South of Kermadec Islands (h = N).					Ud	iPg1	03 03 38.1
								iSg1	03 04 12.8
"	21	Ud	i	06 33 27.9			De	iSg1	03 04 34.5
			iRg	06 33 29.7			Off coast of Södermanland, Sweden, 58.8°N, 18.3°E.		
		Local near-surface event.					Origin time = 03 02 52.		
"	21	Um	iPKP1	07 25 52.4 C			M <sub>L</sub> = 2.4 (Ud).		
		South of Kermadec Islands (h = N).					Near-surface earthquake.		
"	21	Ud	iSg1	17 47 22.7	"	24	Up	iP	08 37 09.0
			iRg	17 47 26.5			Ki	iP	08 36 53.0
		Local near-surface event.					Um	iP	08 36 58.1
							Talaud Islands (h = 70 km).		
"	22	Up	iP	04 03 52.6 C	"	24	Up	iP	10 15 05.5
			iPn	04 04 58.3			Ki	iP	10 14 28.2
			iPP	04 05 11.3			Um	iP	10 14 51.0
				micr sec			Utah (h = 5 km).		
			P	Z' 0.1 1.0	"	24	Up	iP	20 20 09.8
		Ki	iP	04 03 37.1 C				i	20 20 13.1
			iPP	04 04 37.5			Ki	iP	20 21 33.9
				micr sec				i	20 21 35.7
			P	Z' 0.3 0.5			Um	iP	20 20 55.1
		Um	iP	04 03 37.7 C			Central Italy (h = 10 km).		
		Eastern Kazakh SSR.			"	25	Up	ePKP1	04 55 16
		m = 6.1 (Up,Ki).					South of Fiji Islands		
		Underground explosion.					(h = 600 km).		
"	22	Ki	iP	21 16 52.8	"	25	Up	iP	06 58 28.5
"	22	Up	iP	23 27 55.1	"	25	Ki	iPKP	09 10 05.2
		Um	iP	23 27 35.0			Balleny Islands region		
		South of Honshu, Japan (h = 300 km).					(h = N).		
"	23	Up	iP	00 19 43.4	"	25	Up	iP	09 59 37.5
		Um	iP	00 20 22.9			Um	iP	09 59 11.3
		Greece (h = 55 km).					Kuril Islands (h = 25 km).		
"	23	Ki	iP	10 46 48.4	"	25	Ki	iP	12 20 27.0
				micr sec			Java (h = 70 km).		
			P	Z' 0.1 1.0	"	25	Ki	eP	15 56 15
		Um	iP	10 46 52.4 C			Colombia (h = 70 km).		
		Banda Sea (h = 112 km).			"	25	Up	iP	16 45 36.1
"	23	Up		micr sec				i	16 45 41.8
		Ki	Mx	1.4 12				iS	16 55 24
			iP	12 31 48.3					micr sec
			i	12 32 10.3				P	Z' 0.1 1.0
				micr sec			(cont.)		
			Mx	Z 0.4 12					
		Um	iP	12 31 05.1					
		Yugoslavia (h = 10 km).							

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

1980				1980			
May	25	(cont.)		May	25	(cont.)	
		Up				Um	iP 20 47 26.2
		i	Z' 1.6 2.0			California-Nevada border region (h = 10 km).	
		Mx	Z 18 23				
		Ki	iP 16 45 01.0		"	25	Um iP 23 32 40.3
		i	16 45 02.2			Kuril Islands (h = 60 km).	
		i	16 45 06.8				
		iP'P'	17 13 04.7		"	26	Um iP 10 59 37.6
		iS	16 54 20				
			micr sec		"	26	Up iP 11 48 54.8
		i	Z' 0.1 1.5			Ki	iP 11 48 55.9
		i	Z' 1.3 2.0			Um	iP 11 48 51.5
		Mx	Z 8.5 15			i	11 49 08.5
		Um	iP 16 45 20.4			Andaman Islands region (h = 70 km).	
		i	16 45 26.2		"	26	Um iP'PKP 14 11 29.0
		iS	16 54 53			Fiji Islands region (h = 630 km).	
		California-Nevada border region (h = 5 km). m = 6.7, M = 6.3 (Up,Ki).			"	26	Ki eP 14 47 07
"	25	Up	iP 17 01 20.1		"	26	Um iP 14 47 24.2
		P	Z' 0.1 1.0			Off east coast of Honshu, Japan (h = 40 km).	
		Ki	iP 17 00 45.5		"	26	Up i 18 55 53.6
		P	Z' 0.1 1.5			iPP	19 00 00.6
		Um	iP 17 01 04.9			iSKS	19 06 07
		i	17 01 09.4			iS	19 07 22
		California-Nevada border region (h = 25 km). m = 5.8 (Up,Ki).				iPKKP	19 11 37.1
"	25	Up	iP 19 56 43.8				micr sec
		i	19 56 46.3			Ki	Mx Z 6.1 19
		iS	20 06 30			e	18 56 07
			micr sec			iPP	19 00 15.1
		i	Z' 0.1 1.3			iPKKP	19 11 13.0
		Mx	Z 8.2 23			i	19 11 27.4
		Ki	iP 19 56 09.4				micr sec
		i	19 56 23.0			Um	Mx Z 3.5 24
		iS	20 05 28			i	18 56 01.5
			micr sec			iPP	19 00 09.0
		P	Z' 0.2 1.6			iSKS	19 06 08
		Mx	Z 6.1 16			iS	19 07 40
		Um	iP 19 56 27.2			iPKKP	19 11 13.0
		i	19 56 30.8			i	19 11 30.3
		iS	20 06 01			Northern Chile (h = 110 km). M = 6.1 (Up,Ki). M uncorrected for focal depth.	
		California-Nevada border region (h = 15 km). m = 5.8, M = 6.0 (Up,Ki).			"	25	Up iP 20 47 41.9
"	25	Up	iP 20 47 41.9			Ki	eP 20 47 07
		Ki	eP 20 47 07			(cont.)	

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

1980				1980								
May	26	Up	iP	19 09	46.9	May	27	(cont.)				
		Ki	iP	19 09	12.5			Sk	i	16 58	05.7	
		Um	iP	19 09	32.5				iSg1	16 58	16.6	
		California-Nevada border region (h = 5 km).							Um	iPn	16 57	03.3
"	26	Ki	iPKP	21 05	55.9				iSn	16 57	53.7	
		Um	i(PKP)	21 05	52.8				iSg1	16 58	14.1	
			iPKP	21 06	01.6			Ud	ePn	16 57	50	
		New Hebrides Islands (h = 140 km).								iSn	16 59	10.1
"	27	Up	iPKP2	02 46	53.6				iSg1	17 00	00.0	
		Ki	iPKP2	02 46	51.3			De	iLg1	17 01	46.3	
		Um	iPKP2	02 46	51.6			Coast of Nordland, Norway 67.6°N, 15.7°E.				
		Macquarie Islands region (h = N).							Origin time = 16 56 03			
"	27	Up	iPKP1	13 20	48.7		"	27	Up	i	19 29	19.1
		Ki	iPKP	13 20	40.0					iSg1	19 29	25.1
			iSKP1	13 23	57.1					iRg	19 29	59.2
								Ki	eSg1	19 31	22	
								Sk	eSg1	19 31	14	
								Um	i	19 29	23.7	
									iSg1	19 29	41.7	
									i	19 29	50.9	
									iRg	19 30	14.1	
								Ud	i	19 30	08.4	
									iSg1	19 30	28.6	
									i	19 30	40.1	
								De	i	19 30	25.2	
									iSg1	19 30	54.1	
								Esthonia-Leningrad, near 59 1/4°N, 28°E.				
								Origin time = 19 26 40.				
								Near-surface event.				
								Explosion?				
"	27	Up	iP	15 02	49.6		"	27	Up	iSn	20 47	17.3
			iS	15 12	38					i	20 47	39.5
								Ki	e	20 47	36	
								Sk	ePn	20 44	58	
									iSn	20 45	47.3	
									iSg1	20 45	51.9	
								Um	iSn	20 47	09.6	
									i	20 47	25.9	
									iSg1	20 47	40.7	
								Ud	iPn	20 45	13.8	
									iSn	20 46	13.0	
									iSg1	20 46	44.1	
								Norwegian Sea, approximate location 64°N, 5°E.				
								Origin time = 20 44 14.				
								M <sub>L</sub> = 2.7 (Sk,Um,Ud).				
"	27	Up	iPn	16 57	59.5		"	28	Up	iSg1	10 41	01.4
			iSn	16 59	16.7				Ki	iPgl	10 37	12.1
			iSg1	17 00	05.1			(cont.)				
		Ki	iPn	16 56	31.1							
			iPgl	16 56	35.3							
			iSn	16 56	56.5							
			iSg1	16 56	59.1							
		Sk	iPn	16 57	01.2							
			i	16 57	09.8							
			iSn	16 57	51.2							
		(cont.)										

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1980		1980	
May	28	(cont.)	May 30
		Ki i 10 37 16.4	Up iP 08 12 12.2
		iSgl 10 37 32.0	micr sec
		Sk iSn 10 39 34.2	P Z' 0.1 1.1
		iSgl 10 40 06.5	Ki iP 08 12 57.2
		Um iSn 10 38 32.2	micr sec
		iSgl 10 38 55.0	P Z' 0.1 1.5
		Ud iSgl 10 41 27.4	Um iP 08 12 32.4 C
		Northern Finland, 67.7°N,	i 08 13 30.6
		24.4°E.	Northwestern Somalia
		Origin time = 10 36 45.	(h = 10 km).
		M <sub>L</sub> = 3.1 (Ki,Sk,Um,Ud).	m = 5.7 (Up,Ki).
		Felt.	
"	28	Um iP 13 48 04.5	" 30 Um iP 08 32 05.9
		Sea of Japan (h = 370 km).	
"	28	Up iP 19 56 08.2	" 30 Up i 09 05 36.1
		i 19 56 13.4	i 09 05 38.4
		iS 20 00 10	iRg 09 05 40.9
		micr sec	Ud iSgl 09 06 23.4
		i Z' 0.6 1.0	East-central Sweden.
		Mx Z 3.9 11	Near-surface event.
		Ki iP 19 57 25.0 C	" 30 Up iP 18 28 16.1
		micr sec	i 18 28 38.6
		P Z' 0.7 1.0	micr sec
		Mx Z 11 11	Mx Z 1.8 26
		Um iP 19 56 48.9 C	Ki iP 18 27 27.2
		iS 20 01 16	micr sec
		Sicily (h = 15 km).	Mx Z 1.6 21
		m = 6.2, M = 5.5 (Up,Ki).	Um iP 18 27 49.3
			Kuril Islands (h = 50 km).
			M = 5.2 (Up,Ki).
"	28	Up iP 21 04 54.4	" 31 Up iPgl 02 38 28.3
		Ki iP 21 05 03.2	iSgl 02 38 47.3
		Um iP 21 04 52.8	iRg 02 38 55.4
		Afghanistan-USSR border	Ud iPgl 02 38 12.7
		region (h = 140 km).	iSgl 02 38 20.5
			iRg 02 38 23.8
"	29	Up iP 03 50 55.5	Yxsjöberg, Bergslagen,
		Ki iP 03 50 20.7	Sweden, near 60.0°N, 14.9°E.
		Um iP 03 50 40.4	Origin time = 02 38 02.
		Southern California	Rockburst.
		(h = 5 km).	Felt.
"	29	Up iP 12 48 37.3	" 31 Ki iP 02 49 19.0
		Ki iP 12 48 40.5	Um iP 02 50 02.6
		Um iP 12 48 33.0	North of Svalbard
		Tadzhik-Sinkiang border	(h = 10 km).
		region (h = 130 km).	
"	29	Up iP 17 57 17.8	" 31 Up ePKP 11 42 16
		Ki iP 17 56 40.3	Ki iPKP 11 42 08.5
		Um iP 17 57 00.8	Um iPKP 11 42 15.3
		Off coast of Northern	Fiji Islands region
		California (h = 15 km).	(h = 600 km).



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1980

May	31	Up	iP	11 45 52.7
			i	11 46 05.6
		Ki	eP	11 47 02
			i	11 47 17.0
		Um	iP	11 46 41.8
"	31	Um	iP	13 10 54.2
		Central Italy (h = 10 km).		
"	31	Up	iP	13 24 36.9
		Ki	eP	13 24 21
		Um	iP	13 24 25.6
		Luzon, Philippine Islands (h = N).		
"	31	Ki	eP	19 57 17
			i	19 57 30.6
		Guerrero, Mexico (h = 70 km).		

March 29, 1982

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1980				1980			
June				June			
3	(cont.)			5	Up	iPKP1	19 08 31.8
	Ki		micr sec		Um	iPKP	19 08 30.1
		P	Z' 0.2 1.3				Fiji Islands region
	Um	iP	01 14 34.7 D				(h = 390 km).
			Azores Islands region	"	6	Up	iP 05 31 29.9
			(h = 10 km).			Ki	iP 05 30 42.1
"	3	Up	iP 20 41 35.1			Um	iP 05 31 04.4
			i 20 41 37.4				Kuril Islands (h = 140 km).
			eS 20 49 14	"	6	Um	iPgl 17 48 44.2
			micr sec				iSgl 17 49 02.2
		Mx	Z 1.4 15				i 17 49 06.3
	Ki	iP	20 41 30.2				Coast of Angermanland, Sweden,
	Um	iP	20 41 27.6				near 62 3/4°N, 18 1/2°E.
		ipP	20 41 35.3				Origin time = 17 48 20.
		iS	20 49 01				Explosion?
			Tibet (h = N).				By combination with Finnish
"	4	Up	iP 01 32 45.9				station readings.
			i 01 32 58.9	"	6	Up	iP 18 50 15.3
	Ki	iP	01 32 11.9				i 18 50 33.5
			i 01 32 22.2			Ki	iP 18 49 38.9
	Um	iP	01 32 26.7 C			Um	iP 18 49 54.9
			i 01 32 35.3				South of Honshu, Japan
			South of Honshu, Japan				(h = 55 km).
			(h = 25 km).	"	6	Um	eP 20 48 17
"	4	Up	iSKS 09 56 58				i 20 48 27.1
			micr sec				Near coast of Nicaragua
		Mx	Z 1.1 21				(h = 70 km).
			New Britain region	"	6	Up	iP 21 59 48.6
			(h = 100 km).			Um	eP 22 00 37
"	5	Up	iP 04 56 02.5	"	6	Up	iP 22 02 40.8
		Ki	iP 04 57 14.0			Ki	iP 22 02 21.8
			Sicily (h = N).			Um	iP 22 02 30.6
"	5	Up	iP 06 27 09.4				Taiwan region (h = 25 km).
"	5	Up	iSgl 10 11 24.2	"	6	Up	iPP 23 51 24.5
		Sk	iSgl 10 10 12.7				micr sec
		Ud	iSgl 10 10 22.5				Mx Z 0.5 20
		De	iSgl 10 11 30.6			Ki	iP 23 46 30.3
			Coast of southwestern Norway,			Um	iP 23 46 38.7
			near 61 1/4°N, 4 1/2°E.				iPKP 23 50 49.1
			Origin time = 10 07 45.				Papua New Guinea (h = 110 km).
			M <sub>L</sub> = 2.9 (Ud).	"	7	Up	iP 00 01 56.3
"	5	Sk	eS 12 17 07			Um	iP 00 02 05.7
		Ud	iSn 12 15 44.1	"	7	Up	iPKP1 00 41 22.8
		De	iPn 12 13 20.6			Um	iPKP1 00 41 11.1
			iP 12 13 25.4				Kermadec Islands (h = 60 km).
			iSn 12 14 36.4				
			Netherlands (h = 20 km).				

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1980				1980			
Month	Day	Station	Time	Month	Day	Station	Time
June	7	Up	iP 04 04 25.7	June	8	(cont.)	
		Ki	iP 04 04 11.6			Ki	i 08 02 43.7
		Um	iP 04 04 21.1				iSg1 08 03 21.6
			ipP 04 04 32.4			Sk	iPn 07 59 22.9
			Near coast of Guerrero, Mexico (h = 50 km).				iPgl 07 59 34.7
"	7	Up	iP 05 20 22.0				iSn 08 00 16.6
"	7	Up	eLg2 09 28 12				i 08 00 31.5
		Ki	iP 09 20 07.1			Um	iPn 08 00 09.0
			iS 09 22 21.2				i 08 00 14.1
			iLg2 09 23 55.4				iSn 08 01 35.7
		Um	iP 09 21 02.0				iSg1 08 02 25.5
			iS 09 24 09.1			Ud	iPn 07 59 23.3 C
		Ud	iP 09 21 48.2				i 07 59 29.7
			Svalbard region.				iPgl 07 59 41.1
			Origin time = 09 17 15.				i 08 00 17.2
"	7	Up	iS 11 36 15.0				iSg1 08 00 44.5
			i 11 36 46.2			De	i 07 59 57.6
			Poland (h = 10 km).				iSn 08 01 04.9
"	7	Up	eP 12 26 39				iSg1 08 01 42.8
		Ki	eP 12 26 19				Off coast of southwestern Norway, near 61°N, 3 1/2°E.
		Um	eP 12 26 27				Origin time = 07 58 08.
			Taiwan region (h = 40 km).				M <sub>L</sub> = 4.1 (Up,Ki,Sk,Um,Ud,De).
"	7	Up	iP 18 38 51.8				Felt.
			ipP 18 38 55.8	"	8	Up	iPKP2 20 49 05.0
			i 18 38 58.4				micr sec
			micr sec				Mx Z 2.3 21
			Mx Z 1.1 10			Ki	iPKP2 20 49 07.1
		Ki	iP 18 40 19.8			Um	iPKP2 20 49 06.2
			i 18 40 29.5				Macquarie Islands region (h = 10 km).
		Um	iP 18 39 40.6	"	8	Up	iP 23 57 26.7
			i 18 39 48.5			Um	eP 23 57 01
			i 18 39 58.4	"	9	Up	iP 03 40 33.3
			iS 18 43 35				ipP 03 40 37.0
			Northern Italy (h = 15 km).				iS 03 50 40
"	8	Up	iP 05 16 36.9				micr sec
		Ki	iP 05 16 45.8				pP Z' 0.3 1.3
		Um	iP 05 16 35.3				Mx Z 34 16
			Afghanistan-USSR border region (h = 200 km).			Ki	iP 03 40 02.0
"	8	Up	iPn 07 59 50.9 C				ipP 03 40 06.2
			iSn 08 01 05.5				iS 03 49 41
			iSg1 08 01 46.3				micr sec
		Ki	iPn 08 00 32.5			Um	pP Z' 0.3 1.5
			i 08 00 39.9				iP 03 40 20.0
			i 08 02 31.5				ipP 03 40 24.0
			(cont.)				i 03 41 38.4
							iS 03 50 14
							California-Mexico border region. h = 15 km (Up,Ki,Um). m = 6.1 (Up,Ki).



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1980				1980								
June	10	Up	iP	05 38 44.2	June	11	(cont.)					
		Ki	iP	05 39 30.0 C			Ki	iPP	08 27 21.3			
		Um	iP	05 39 09.8 C					micr sec			
		North of Ascension Island (h = 10 km).						P	Z'	0.1 1.0		
"	10	Up	iP	17 41 46.1			Um	iP	08 23 06.9 D			
		Um	iP	17 41 25.1				i	08 23 22.1			
		South of Honshu, Japan (h = 40 km).						iSKS	08 32 53			
"	10	Up	Mx	21 36				i	08 36 39			
				micr sec			Banda Sea (h = 530 km).					
			Mx	Z	0.3 10		"	11	Ki	iP	10 20 40.1	
		Yugoslavia (h = 10 km).						11	Um	iP	10 20 52.3	
"	10	Up	iP	23 22 55.3 D			Mariana Islands region (h = N).					
			iPcP	23 23 27.1			"	11	Up	eP	10 54 24	
			iS	23 30 40.0					i	10 54 43.6		
			i	23 30 55.6					Ki	iP	10 54 30.5 C	
				micr sec						iP	10 54 52.4	
			P	Z'	0.2 0.7				Um	iP	10 54 20.5 C	
		Ki	iP	23 22 06.0 D			Afghanistan-USSR border region (h = 100 km).					
			iS	23 29 07.6			"	11	Up	iP	14 27 03.3	
				micr sec					Ki	eP	14 26 22	
			P	Z'	0.3 0.6				Um	iP	14 26 41.7 C	
		Um	iP	23 22 28.7 D			Near east coast of Honshu, Japan (h = 35 km).					
			i	23 22 39.9			"	11	Up	Mx	15 31	
			iS	23 29 52.1							micr sec	
		Sea of Okhotsk (h = 540 km). m = 5.8 (Up,Ki).								Mx	Z	1.5 18
"	11	Um	iP	02 51 05.3					Ki	Mx	15 27	
		Guatemala (h = 100 km).										micr sec
"	11	Up	iP	04 03 22.1						Mx	Z	1.3 23
		Ki	iP	04 03 01.7			Near coast of central Chile (h = 35 km).					
		Um	iP	04 03 09.8			M = 5.6 (Up,Ki).					
		West Irian region (h = 30 km).					"	12	Up	eP	00 49 29	
"	11	Up	iP	05 35 12.1			Rat Islands, Aleutian Islands (h = 70 km).					
		India-Bangladesh border region (h = N).					"	12	Up	iP	03 33 55.9 C	
"	11	Up	iSg1	07 27 01.6							micr sec	
		Sk	e	07 25 35					P	Z'	0.5 0.9	
			e	07 25 45					Ki	iP	03 33 39.0 C	
			eSn	07 26 30							micr sec	
		Um	iSg1	07 28 24.6					P	Z'	0.4 0.8	
		Ud	eSg1	07 25 53					Um	iP	03 33 40.1 C	
		De	eSg1	07 25 33			Eastern Kazakh SSR. Underground explosion. m = 6.4 (Up,Ki).					
		Probably North Sea. Phase identification uncertain.					"	12	Ki	iP	06 59 54.7	
"	11	Up	iP	08 23 16.3			Mindanao, Philippine Islands (h = 40 km).					
			iPP	08 27 45.1								
		Ki	iP	08 23 03.6 D								
		(cont.)										

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1980				1980			
June	12	Ki iP	07 44 37.1	June	13	(cont.)	
		Mindanao, Philippine Islands				Um iS	01 27 18
		(h = 50 km).				Gulf of California	
						(h = 15 km).	
"	12	Up iP	08 11 44.9	"	13	Up iP	02 14 14.4 C
		Um iP	08 11 35.1 D			i	02 14 24.1
"	12	Ki eP	08 27 27			i	02 14 44.6
		Um iP	08 27 31.7				micr sec
		Mindanao, Philippine Islands				P Z'	0.1 0.9
		(h = 45 km).				Ki iP	02 15 22.4 C
							micr sec
"	12	Um iP	08 49 59.6			P Z'	0.1 0.7
		Mariana Islands region				Um iP	02 14 47.0 C
		(h = N).				Mediterranean Sea (h = N).	
"	12	Up i	13 52 55.8	"	13	Up iP	02 30 50.1
		iRg	13 53 03.1				micr sec
		Ud iRg	13 52 53.5			Mx Z	1.1 17
		Central Sweden.				Ki eP	02 30 29
		Near-surface event.				Um eP	02 30 35
"	12	Ki iP	17 02 24.1			iS	02 41 20
		Um iP	17 02 43.8			Mindanao, Philippine Islands	
		Hokkaido, Japan region				(h = 30 km).	
		(h = 320 km).		"	13	Up iPKP1	11 04 14.8
"	12	Up iP	17 26 48.5			Um iPKP1	11 04 03.4
			micr sec			Kermadec Islands (h = N).	
		P Z'	0.1 1.2	"	13	Up iP	13 35 07.3
		Ki iP	17 26 14.1 C			Um iP	13 34 51.8
			micr sec			Mariana Islands (h = 270 km).	
		P Z'	0.1 1.3	"	13	Ki eP	17 09 15
		Um iP	17 26 33.4 C			Philippine Islands region	
		i	17 26 48.6			(h = 30 km).	
		Southern Nevada.		"	13	Up eP	20 32 39
		Underground explosion.				Ki iP	20 32 21.2
		m = 5.8 (Up,Ki).				Mindanao, Philippine Islands	
"	12	Up iP	17 41 33.0 C			(h = 55 km).	
			micr sec	"	14	Up iP	00 13 48.5
		P Z'	0.1 0.6			Ki iP	00 12 54.9
		Mx Z	0.4 11			Um iP	00 12 19.5
		Um iP	17 42 12.8			Near Islands, Aleutian Islands	
		i	17 42 32.2			(h = 40 km).	
		Greece (h = 10 km).		"	14	Um iP	03 08 12.4
"	12	Up iPKP1	22 25 04.7			Near east coast of Honshu,	
		Um iPKP1	22 24 52.6			Japan (h = 35 km).	
		Kermadec Islands (h = 150 km).		"	14	Up iP	04 04 06.7
"	13	Up iS	01 27 39			Um iP	04 03 46.7
			micr sec			Near s. coast of Honshu,	
		Mx Z	1.4 17			Japan (h = 360 km).	
		(cont.)					

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

1980				1980						
June	14	Up	e(PKP)	19 50 45	June	15	Up	iP	08 33 17.6	
			iSKP1	19 53 39.4			Ki	iP	08 32 59.4	
		Ki	ePKP	19 50 42			Um	iP	08 33 06.1	
			iSKP1	19 53 14.3			Mindanao, Philippine Islands (h = 60 km).			
		Um	i(PKP)	19 50 35.4						
			iPKP	19 50 46.1						
			iSKP1	19 53 26.8		"	15	Up	iP	10 02 14.0
		Fiji Islands region (h = 550 km).					Ki	eP	10 01 36	
"	14	Up	iP	20 02 28.2			Um	iP	10 01 52.7	
			i	20 03 13.3			Off east coast of Honshu, Japan (h = 30 km).			
		Um	iP	20 02 54.5		"	15	Up	iP	11 45 29.9
			i	20 03 15.7						
"	14	Up	iP	21 01 04.0		"	15	Up	iP	13 59 58.0
			i	21 01 06.5						
				micr sec						
			i	Z' 0.1 1.0		"	15	Up	iP	15 07 25.9
			Mx	Z 1.7 12			Ki	iP	15 07 07.6	
		Ki	eP	21 02 28			Um	iP	15 07 12.6	
				micr sec			Mindanao, Philippine Islands (h = 55 km).			
			P	Z' 0.1 1.0		"	15	Up	iP	15 14 55.4
		Um	iP	21 01 50.0 C			Ki	iP	15 14 37.2	
			i	21 02 03.8			Um	iP	15 14 44.3	
			i	21 02 28.7			Mindanao, Philippine Islands (h = 70 km).			
			iS	21 05 55		"	15	Up	iP	16 41 21.5
		Southern Italy (h = 10 km). m = 5.2 (Up,Ki).					Ki	iP	16 41 03.4	
"	15	Up	iP	07 08 35.9				i	16 41 14.8	
		Ki	eP	07 08 18			Um	iP	16 41 08.8	
			i	07 08 29.0				i	16 41 20.9	
		Um	iP	07 08 23.8			Mindanao, Philippine Islands (h = 35 km).			
		Mindanao, Philippine Islands (h = N).				"	15	Up	iP	19 17 32.7
"	15	Up	iP	08 16 44.8 C				ipP	19 17 46.2	
			iSKS	08 27 12					micr sec	
			iS	08 27 36				Mx	Z 1.1 16	
				micr sec			Ki	iP	19 17 02.5	
			P	Z' 0.1 0.8				ipP	19 17 16.3	
			Mx	Z 3.6 18					micr sec	
		Ki	iP	08 16 26.4 C				P	Z' 0.1 1.1	
			eS	08 27 03			Um	iP	19 17 16.3 D	
				micr sec				iS	19 27 33	
			P	Z' 0.1 1.0			Volcano Islands region. h = 50 km (Up,Ki).			
		Um	iP	08 16 32.5 C		"	15	Up	iP	20 09 17.4
			iSKS	08 26 59			Ki	eP	20 08 43	
			iS	08 27 15			Um	iP	20 08 57.5	
		Mindanao, Philippine Islands (h = 45 km). m = 6.1 (Up,Ki).					South of Honshu, Japan (h = 110 km).			



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

1980				1980			
June	15	Ki iP	22 18 43.1	June	16	Up iP	14 48 48.3
						i	14 48 49.8
						Ki eP	14 50 11
						i	14 50 13.5
						Um eP	14 49 34
						i	14 49 47.9
						Southern Italy (h = 10 km).	
"	15	Up iP	22 27 42.5	"	16	Up iP	14 52 57.3
		i	22 27 56.3			Ki iP	14 52 41.9
		Ki iP	22 27 06.3			Um iP	14 52 46.8
		i	22 27 19.2			Minahassa Peninsula (h = 140 km).	
		Um iP	22 27 22.0 D				
		i	22 27 35.3				
		South of Honshu, Japan. h = 45 km (Up,Ki,Um).					
"	16	Up Mx	00 49	"	16	Up i(PKP)	20 07 44.3
			micr sec			Fiji Islands region (h = 410 km).	
		Mx Z	1.1 17	"	16	Up iP	21 02 55.6
		Near coast of Peru (h = 25 km).				i	21 03 16.0
"	16	Ki iP	00 23 04.6			iPP	21 07 18.5
		Philippine Islands region (h = 50 km).				iSKS	21 13 18
"	16	Up iP	01 29 35.3				micr sec
		Rat Islands, Aleutian Islands (h = 55 km).				Ki iP	21 02 40.5 C
"	16	Up iP	03 51 43.5			i	21 02 42.8
		Ki iP	03 51 25.3			iPP	21 06 58.7
		Mindanao, Philippine Islands (h = 50 km).				iSKS	21 13 05
"	16	Up iP	05 56 10.2				micr sec
		Ki iP	05 55 49.4			Um iP	21 02 45.1 C
"	16	Up iP	07 35 47.1			iPP	21 07 02.4
			micr sec			iSKS	21 13 10
		Mx Z	0.7 18			Banda Sea (h = 170 km).	
		Ki iP	07 35 29.0	"	17	Up i(PKP)	09 01 07.6
		Um iP	07 35 35.4			iSKP1	09 03 59.1
		Mindanao, Philippine Islands (h = 50 km).				Ki iPKP	09 01 02.5
"	16	Ki iP	09 29 18.2			iSKP1	09 03 34.4
		Philippine Islands region (h = 70 km).				Um e(PKP)	09 00 57
"	16	Up i	14 11 12.8			i(PKP)	09 01 02.9
		iRg	14 11 16.8			iPKP	09 01 07.9
		Ud iRg	14 11 12.3			iSKP1	09 03 46.8
		De iSgl	14 11 47.9			Fiji Islands region (h = 580 km).	
		South-central Sweden. Near-surface event.		"	17	Up eP	14 32 36
						i	14 32 40.3
						Ki eP	14 32 09
						i	14 32 17.6
						Taiwan region (h = 20 km).	
				"	17	Ki eP	15 06 03
						Um iP	15 06 06.5
						Mindanao, Philippine Islands (h = 40 km).	

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

1980				1980 (cont.)			
June	17	Up	iP	16 57 06.6	June	18	Taiwan region (h = 70 km). m = 6.5 (Up,Ki).
		Ki	iP	16 56 13.4 C			
		Um	iP	16 56 39.4			
		Near Islands, Aleutian Islands (h = 60 km).			"	18	Up ePKP 11 08 19 i 11 11 55.8 micr sec
"	17	Up	iP	21 56 51.5			Mx Z 12 25
			i	21 56 57.0			Ki ePKP 11 08 09 micr sec
			i	21 57 10.7			Um PKP Z' 0.1 1.2 iPKP 11 08 16.8
				micr sec			i 11 08 30.1
		Mx	Z	2.7 22			i 11 08 45.1
		Ki	eP	21 56 38			i 11 11 40.9
		Um	iP	21 56 40.9 D			Tonga Islands (h = 45 km).
			iS	22 05 28			"
		Yunnan Province, China (h = N).			"	18	Up iPKP1 13 18 42.3 Ki iPKP 13 18 33.9 Um iPKP 13 18 40.7
"	17	Um	iP	22 19 17.7			Fiji Islands region (h = 450 km).
		Yugoslavia (h = 10 km).					"
"	18	Up	iP	07 36 34.5 C		18	Up iSg1 15 09 54.5 Sk e 15 08 26 iSg1 15 08 43.5
		Ki	iP	07 35 56.6 C			Um iSg1 15 10 33.4
		Um	iP	07 36 13.1 C			Ud i 15 08 42.0 iSg1 15 08 51.8
			i	07 36 31.9			De eSg1 15 09 55
			i	07 36 37.9			Off coast of southwestern Norway, near 61 1/4°N, 4 1/2°E. Origin time = 15 06 28. M <sub>L</sub> = 2.7 (Up,Um,Ud)
		Near east coast of Honshu, Japan (h = 80 km).					By combination with Bergen readings.
"	18	Up	iP	07 51 04.4			"
		Um	iP	07 51 44.9		18	Up iP 17 27 54.1 i 17 27 59.8 i 17 28 10.8
		Romania (h = 130 km).					iSKS 17 38 27 iS 17 38 51.1 micr sec
"	18	Ki	eP	09 33 03			P Z' 0.2 0.9 Mx Z 42 19
		Um	iP	09 33 07.9			Ki iP 17 27 36.0 i 17 27 41.3 i 17 27 48.5
"	18	Up	iPKP	09 37 07.6			iSKS 17 38 02 iS 17 38 13 micr sec
			i	09 37 10.0			i Z' 0.1 1.0 i Z' 0.2 1.1
			i	09 38 03.9			Um iP 17 27 42.5 i 17 27 47.5 iS 17 38 30.9
		Ki	e(PKP)	09 36 49			(cont.)
			iPKP	09 36 56.6			
		Um	iPKP	09 37 01.5			
			i	09 37 52.2			
		New Britain region (h = 60 km).					
"	18	Up	iP	09 44 11.2 C			
			i	09 44 13.3			
			iS	09 53 57.3			
				micr sec			
		P	Z'	0.1 0.7			
		i	Z'	1.1 1.4			
		Ki	iP	09 43 48.5 C			
				micr sec			
		P	Z'	0.6 1.4			
		Um	iP	09 43 56.2 C			
			i	09 43 58.4			
			iS	09 53 30			
		(cont.)					







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

1980				1980							
June	23	Up	iPKP1	10 14 08.7	June	24	Ki	iP	01 54 31.4		
			i	10 14 18.8					Kuril Islands (h = N).		
		Ki	ePKP	10 13 50			"	24	Up	iP	06 41 25.4
		Um	iPKP1	10 13 57.3 C					Ki	iP	06 41 18.4
				Kermadec Islands region			"	24	Up	iPKP1	07 14 58.5
				(h = N).							Kermadec Islands region
"	23	Ki	eP	12 18 40							(h = 50 km).
				Luzon, Philippine Islands			"	24	Up	iP	07 45 01.5
				(h = 90 km).					i		07 45 06.0
"	23	Ki	iP	13 58 56.1					i		07 45 14.7
				Mindanao, Philippine Islands					iS		07 52 29
				(h = 55 km).					i		07 56 30
"	23	Ki	iP	14 06 18.4							micr sec
		Um	i	14 06 31.4					i	Z'	0.2 1.1
				Mindanao, Philippine Islands					Mx	Z	6.0 13
				(h = 50 km).					Ki	eP	07 44 54
"	23	Ki	eP	15 07 40					i		07 44 58.5
				Mindanao, Philippine Islands							micr sec
				(h = N).					Um	i	Z' 0.1 1.1
"	23	Up	iPKP2	17 05 34.3 C						iS	07 44 57.4
		Ki	iPKP1	17 04 59.0							07 52 11
		Um	iPKP1	17 05 06.8							Tibet (h = N).
			iPKP2	17 05 17.3							m = 5.8 (Up,Ki).
				North Island, New Zealand							Double P, small and large,
				(h = 60 km).							in average 4.5 s apart. The
"	23	Up	ePKP1	18 06 44							second onset, when interpreted
		Ki	iPKP1	18 06 19.6							as pP provides focal depth of
				Kermadec Islands region							15 km.
				(h = N).			"	24	Up	iP	08 08 34.8
"	23	Up	iPKP1	20 32 58.5			"	24	Up	ePKP1	12 02 53
				micr sec					i		12 03 03.8
			PKP1	Z' 0.1 1.0							Kermadec Islands region
			Mx	Z 5.1 19							(h = N).
		Ki	e(PKP)	20 32 28			"	24	Ki	iP	15 21 15.8
			iPKP	20 32 38.7							Southern Nevada (h = 0).
		Um	iPKP	20 32 47.7							Underground explosion.
			i	20 33 08.7			"	24	Up	iPKP1	16 28 04.8 C
				Kermadec Islands region					i		16 28 11.7
				(h = 50 km).							Kermadec Islands region
"	23	Up	iP	20 59 54.7							(h = N).
"	23	Up	iPKP1	21 24 15.9			"	24	Ki	iP	18 05 46.0
				micr sec							Mindanao, Philippine Islands
			PKP1	Z' 0.1 1.1							(h = 60 km).
		Ki	iPKP	21 24 01.6			"	24	Up	iPKP1	18 45 14.4
		Um	iPKP	21 24 05.5 C							Kermadec Islands (h = 230 km).
				Kermadec Islands region							
				(h = 60 km).							

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

1980								1980	
June	24	Up	iPKP1	20 53	07.2	June	25	(cont.)	
		Um	ePKP1	20 52	57			Colombia.	
		Kermadec Islands region						h = 180 km (Up,Ki,Um).	
		(h = N).						m = 6.3, M = 5.5 (Up,Ki).	
"	24	Up	iP	21 30	26.2			M not corrected for focal depth.	
					micr sec			Double P, small and large,	
			P	Z'	0.2 1.3			in average 2.7 s apart.	
			Mx	Z	1.5 16				
		Ki	iP	21 29	35.8	"	25	Up	iP
		Um	iP	21 29	59.4				i
		Kuril Islands (h = N).						Um	iP
									12 31 32.4
									12 31 37.4
									12 31 21.2
"	24	Um	iP	21 47	08.8	"	25	Up	eP
									19 06 49
									micr sec
"	24	Up	eP	21 47	34				Mx Z
		Ki	iP	21 47	14.4			Ki	eP
		Um	iP	21 47	27.4				19 06 39
		South of Mariana Islands							micr sec
		(h = 50 km).							Mx Z
								Um	eP
									19 06 44
"	25	Up	eP	03 03	12			East Papua New Guinea region (h = 20 km).	
					micr sec			M = 5.4 (Up,Ki).	
			Mx	Z	0.9 14				
		Ki	eP	03 03	08	"	25	Up	ePdiff
		Um	iP	03 03	05.9				iPKP
		Tibet (h = N).							i
									iPKKP
									23 47 30
									micr sec
"	25	Up	iP	04 42	49.2				Mx Z
		Mindanao, Philippine Islands							Ki
		(h = 70 km).							ePdiff
									23 32 46
									ePKP
									23 36 44
"	25	Up	iP	07 01	04.6				i
		Ki	iP	07 01	10.9 C				23 37 27.0
		Um	iP	07 01	02.0 C				micr sec
		Tajik SSR (h = 190 km).							Mx Z
								Um	iPKP
									23 36 49.8
									i
									23 37 35.8
"	25	Up	iP	12 17	28.6 C			New Britain region	
			ipP	12 18	10.8			(h = 50 km).	
			iSKS	12 27	40			M = 6.5 (Up,Ki).	
			iS	12 27	56				
					micr sec				
			P	Z'	0.2 0.7			"	26
			Mx	Z	2.7 22			Up	iP
		Ki	eP	12 17	30				eP
			i	12 17	32.5				02 49 48.6
			ipP	12 18	14.2				02 50 00
			eSKS	12 27	48			Afghanistan-USSR border region (h = N).	
			eS	12 28	01				
					micr sec			"	26
			i	Z'	1.0 1.8			Ki	iP
			Mx	Z	1.3 19				05 09 05.7
		Um	iP	12 17	31.5			Fox Islands, Aleutian Islands (h = N).	
			i	12 17	34.4				
			ipP	12 18	16.2				
			iS	12 28	04			"	26
					micr sec			Up	iP
									05 55 39.8 C
								Ki	iP
									05 54 54.4 C
								Um	iP
									05 55 15.1 C
								Kuril Islands (h = N).	

(cont.)

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

1980				1980			
June	26	Up	iPKP1	12 31 09.1	June	28	(cont.)
			iPKP2	12 31 13.9			Um eP
		Um	iPKP1	12 30 57.4 D			i
				Kermadec Islands region (h = 520 km).			03 16 14
							03 16 21.0
							Near s. coast of Honshu, Japan (h = 10 km).
"	26	Up	i	16 01 10.6	"	28	Ki iP
		Ki	iP	16 00 40.3			03 40 41.9
			i	16 00 52.5			East of Severnaya Zemlya (h = 10 km).
				Philippine Islands region (h = N).			
"	26	Up	iP	20 36 21.0	"	28	Up iP
		Ki	iP	20 36 19.9 C			05 27 26.8
			i	20 36 38.2			micr sec
		Um	iP	20 36 16.7			Mx Z 0.4 15
				Southern Sumatera (h = 70 km).			Ki iP
							05 26 52.5
							Um iP
							05 27 07.5 C
							i
							05 27 12.9
							South of Honshu, Japan (h = N).
"	26	Um	iP	21 06 18.8	"	28	Up iPKP
				Near s. coast of Honshu, Japan (h = 25 km).			07 13 45.8
							Um iPKP
							07 13 53.6
							South Sandwich Islands region (h = N).
"	26	Up	eP	21 17 56	"	28	Up iP
			i	21 18 07.2			21 55 21.0
		Ki	iP	21 17 19.5			Um iP
		Um	iP	21 17 35.5			21 55 08.1 C
				Near s. coast of Honshu, Japan (h = 15 km).			
"	27	Up	Mx	20 11	"	29	Up iP
				micr sec			iPn
				Mx Z 0.9 21			02 39 55.3 C
				West Irian region (h = N).			02 40 56.5
							micr sec
"	27	Up	iPKP1	21 41 05.4			P Z' 0.3 0.5
			i	21 41 16.9			Ki iP
		Ki	ePKP	21 40 56			02 39 38.7 C
		Um	i(PKP)	21 40 59.4			micr sec
			iPKP	21 41 05.8			P Z' 1.0 0.6
				Fiji Islands region (h = 590 km).			Um iP
							02 39 39.6 C
							Eastern Kazakh SSR. m = 6.7 (Up,Ki). Underground explosion.
"	28	Up	iP	01 23 55.5	"	29	Um iP
		Um	iP	01 23 36.3			06 43 50.4 C
				South of Honshu, Japan (h = 430 km).			South of Honshu, Japan (h = 20 km).
"	28	Um	eP	03 01 55	"	29	Up iP
			i	03 02 05.0			06 47 28.9
				Near s. coast of Honshu, Japan (h = 20 km).			micr sec
							P Z' 0.1 1.0
							Um iP
							06 47 08.4 D
							South of Honshu, Japan (h = 20 km).
"	28	Ki	eP	03 16 02	"	29	Um iP
			i	03 16 04.6			06 50 44.2
				(cont.)			South of Honshu, Japan (h = N).



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

1980				1980			
June	29	Up	iP	07 31	41.6	C	
			iS	07 41	08		
					micr	sec	
			P	Z'	0.5	1.4	
			Mx	Z	29	15	
		Ki	iP	07 31	04.0	C	
			i	07 31	10.1		
			iS	07 40	02		
			iP'P'	07 59	26		
					micr	sec	
			P	Z'	0.2	1.0	
			i	Z'	0.3	1.4	
		Um	iP	07 31	20.3	C	
			i	07 31	28.1		
			iS	07 40	43.3		
							Near s. coast of Honshu, Japan (h = 15 km). m = 6.3 (Up,Ki).
"	29	Ki	iP	12 59	36.0		
							Southern Sumatera (h = 55 km).
"	29	Up	iP	16 30	23.0		
					micr	sec	
			P	Z'	0.1	1.2	
		Ki	iP	16 29	42.6	C	
		Um	iP	16 29	55.4	C	
			i	16 30	09.1		
							Near east coast of Honshu, Japan (h = 55 km).
"	29	Ki	eP	17 34	25		
		Um	iP	17 34	42.5		
			i	17 34	52.5		
							Near s. coast of Honshu, Japan (h = 22 km).
"	29	Um	iP	17 55	02.4		
							Near s. coast of Honshu, Japan (h = 25 km).
"	29	Ki	ePKP	18 52	46		
		Um	e(PKP)	18 52	43		
			iPKP	18 52	51.5		
							Fiji Islands region (h = 550 km).
"	30	Um	iP	10 19	24.5		
							Near coast of Nicaragua (h = 70 km).
"	30	Um	iSKP	11 00	37.2		
							New Hebrides Islands (h = 35 km).
June	30	Up	ePKP1	11 40	26		
			iPKP2	11 40	37.1		
		Ki	ePKP1	11 40	07	C	
		Um	iPKP1	11 40	16.8		
							Off e. coast of N. Island, N.Z. (h = 190 km).
"	30	Up	iP	18 17	41.0		
			ipP	18 17	44.8		
		Ki	iP	18 16	46.7		
			ipP	18 16	50.8		
					micr	sec	
			pP	Z'	0.1	1.3	
		Um	iP	18 17	15.1		
			ipP	18 17	19.3		
							Southeastern Alaska. h = 15 km (Up,Ki,Um).
"	30	Up	eP	19 09	33		
			iS	19 17	42		
					micr	sec	
			P	Z'	0.1	1.4	
			Mx	Z	1.1	16	
		Ki	iP	19 08	38.5		
			ipP	19 08	43		
			eS	19 16	02		
					micr	sec	
			pP	Z'	0.1	1.1	
			Mx	Z	0.8	14	
		Um	eP	19 09	03		
			ipP	19 09	07.3		
			iS	19 16	48		
							Southeastern Alaska. m = 5.7, M = 5.0 (Up,Ki). h = 15 km (Ki, Um).
							Ingrid Båth Conny Holmqvist Ota Kulhånek Rutger Wahlström April 7, 1982

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SEISMOLOGICAL BULLETIN

U P P S A L A , K I R U N A , S K A L S T U G A N , U M E Å

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

Uppsala (Up): 59<sup>0</sup>51.5'N, 17<sup>0</sup>37.6'E; h = 14 m  
 Kiruna (Ki): 67<sup>0</sup>50.4'N, 20<sup>0</sup>25.0'E; h = 390 m  
 Skalstugan (Sk): 63<sup>0</sup>34.8'N, 12<sup>0</sup>16.8'E; h = 580 m  
 Umeå (Um): 63<sup>0</sup>48.9'N, 20<sup>0</sup>14.2'E; h = 16 m  
 Uddeholm (Ud): 60<sup>0</sup>05.4'N, 13<sup>0</sup>36.4'E; h = 240 m  
 Delary (De): 56<sup>0</sup>28.2'N, 12<sup>0</sup>52.2'E; h = 150 m

J U L Y 1 - 31, 1980

1980				1980			
Jul.	1	Ki eP	14 14 51	Jul.	2	(cont.)	
		Um iP	14 15 20.0			Um iP	09 56 56.2
		Fox Islands, Aleutian Islands (h = 25 km).				Mindanao, Philippine Islands (h = N).	
"	1	Ki eP	16 12 33	"	2	Up iP	15 38 42.7 C
		Um iP	16 12 46.6				micr sec
"	1	Up iP	22 05 42.0 C			P Z'	0.1 0.7
		Um iP	22 05 40.4 C			Ki iP	15 37 57.9
		Hindu Kush region (h = 210 km).				Um iP	15 38 17.8 C
"	1	Up iP	23 25 55.1	"	2	Ki iPKP	16 07 08.7
		Ki iP	23 25 09.4			Um iPKP	16 07 16.1
		Hokkaido, Japan region (h = 80 km).				Tonga Islands (h = N).	
"	2	Up iP	02 42 47.9 C	"	2	Up iP	17 15 28.8
		iS	02 46 44			ipP	17 15 33.9
			micr sec				micr sec
		Mx Z	0.7 11			P Z'	0.1 1.1
		Ki iP	02 44 02.0 C			Mx Z	1.1 16
			micr sec			Ki iP	17 16 42.8
		Mx Z	0.5 10			ipP	17 16 48.0
		Um iP	02 43 25.7 C				micr sec
		iS	02 47 54			Mx Z	0.8 12
		Greece (h = 10 km).				Um iP	17 16 06.7
		M = 4.4 (Up,Ki).				Greece.	
"	2	Up iP	07 59 21.6	"	3	Um iP	00 26 01.6
"	2	Ki iP	09 19 27.9	"	3	Up iP	01 18 41.0
		Mindanao, Philippine Islands (h = 80 km).				Um iP	01 18 15.8
"	2	Up iP	09 57 06.3			Southern Yukon Territory, Canada (h = N).	
		Ki iP	09 56 47.5	"	3	Up ePKP1	02 08 45
		(cont.)				(cont.)	

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

1980				1980			
Jul.	3	(cont.)		Jul.	3	Up iP	16 18 14.0
		Up iPKP2	02 08 57.7			Romania (h = 180 km).	
		Ki iPKP1	02 08 24.5				
		iPKP2	02 08 30.6	"	3	Up iP	22 11 04.4
		Um iPKP1	02 08 32.1			Ki iP	22 11 38.9
		i	02 08 38.5			Central Mid-Atlantic	
		North Island, New Zealand				Ridge (h = 10 km).	
		(h = 20 km).					
"	3	Up iPKP2	02 22 56.6	"	3	Up iP	23 05 01.9
		Ki iPKP1	02 22 22.8			ipP	23 05 08.3
		iPKP2	02 22 28.6			Ki iP	23 05 36.5
		Um iPKP1	02 22 30.2			ipP	23 05 42.6
		North Island, New Zealand				Um iP	23 05 22.3
		(h = N).				Central Mid-Atlantic Ridge.	
						h = 20 km (Up,Ki).	
"	3	Up iP	03 08 15.2	"	3	Up ipP	23 48 47.6
		Mindanao, Philippine				Ki iP	23 48 17.3
		Islands (h = N).				ipP	23 48 28.8
"	3	Ki iPKP	05 36 26.8			Um iP	23 48 21.7
		Um iPKP	05 36 34.2			Mindanao, Philippine	
		Tonga Islands (h = 250 km).				Islands (h = 40 km).	
"	3	Um iP	06 32 56.8 D	"	4	Up iP	02 36 23.3
"	3	Up iPKP1	09 12 56.0			Central Mid-Atlantic	
		Kermadec Islands region				Ridge (h = 10 km).	
		(h = 110 km).		"	4	Up iP	06 18 29.6 D
"	3	Um iP	10 59 57.6 C			Ki iP	06 17 35.7 D
		Near east coast of Honshu,				i	06 17 45.7
		Japan (h = 70 km).				Um iP	06 18 03.3 D
"	3	Um iP	13 12 11.3			Unimak Island region	
						(h = N).	
"	3	Up eP	14 50 58	"	4	Up iP	07 23 25.7
		ipP	14 52 02.5	"	4	Up iP	08 47 54.0
		iS	14 59 36	"	4	Up iSg1	09 36 19.4
		micr sec				Ud iSg1	09 36 20.7
		Mx Z 1.5 19				iRg	09 36 32.3
		Ki iP	14 51 31.6			De iSg1	09 36 23.7
		ipP	14 51 35.1			Östergötland, Sweden,	
		micr sec				58.3°N, 15.4°E.	
		Mx Z 0.8 15				Origin time = 09 35 20.	
		Central Mid-Atlantic				M <sub>L</sub> = 2.2 (De).	
		Ridge (h = 10 km).				Near-surface event.	
		M = 5.2 (Up,Ki).		"	4	Up iSg1	11 51 05.8
"	3	Up eP	15 32 39			Ud iPn	11 49 41.6
		Ki iP	15 32 58.6			iPg1	11 49 43.1
		North Atlantic Ridge				iSg1	11 50 07.4
		(h = 10 km).				(cont.)	

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

1980		1980	
Jul.		Jul.	
4	(cont.) De eSgl 11 50 58 Southern Norway, near, 59 1/4°N, 10 1/2°E. Origin time = 11 49 10. M <sub>L</sub> = 2.4 (Ud).	5	Up iP 02 53 31.9 i 02 53 51.4 Ki iP 02 54 32.6 Um iP 02 53 59.9 Turkey (h = 40 km).
"	4 Ki iP 13 55 06.3 Um iP 13 55 12.7 Vanuatu Islands (h = N).	"	5 Up iPgl 03 26 29.4 iSgl 03 26 34.5 iRg 03 26 35.4 Ud iSgl 03 27 28.4 iRg 03 27 41.0 Uppland, Sweden, 60.2°N, 17.8°E. Origin time = 03 26 23. Probably rockburst at Dannemora iron ore mines.
"	4 Up iP 14 04 50.9 Ki iP 14 04 51.4 Um iP 14 04 45.1 Southern Sinkiang Prov., China (h = N).	"	5 Ud i 03 26 53.2 iSgl 03 26 55.8 De iPgl 03 25 03.1 iSgl 03 25 08.2 Skåne, Sweden, 56.1°N, 13.5°E. Origin time = 03 24 56. By combination with SKI network readings.
"	4 Ki iP 17 56 54.4 Um iP 17 57 39.0 Norwegian Sea, East of Jan Mayen, 72.1°N, 4.8°E. Origin time = 17 55 15.	"	5 Up iP 05 39 18.0 Ki iP 05 40 32.9 Um iP 05 39 56.4 Greece (h = 10 km).
"	4 Up i(P) 18 42 28.3	"	5 Up iP 08 10 48.9 C Ki iP 08 12 03.5 Um iP 08 11 27.1 Greece (h = 30 km).
"	4 Up iP 19 34 07.3 i 19 34 17.1	"	5 Up iP 09 05 22.1 Aegean Sea (h = 10 km).
"	4 Up iP 20 24 55.5 i 20 25 01.4 iS 20 28 42 micr sec i Z' 0.1 1.0 Mx Z 1.7 18 Ki iP 20 26 10.4 micr sec Mx Z 1.0 12 Um iP 20 25 34.0 iS 20 29 54 Greece (h = 15 km). M = 4.6 (Up,Ki).	"	5 Up iP 10 00 52.0 Um iP 10 01 32.8 Greece (h = 10 km).
"	4 Up iP 22 36 01.2 micr sec P Z' 0.1 1.2 Ki iP 22 35 42.2 ipP 22 36 01.6 Um iP 22 35 48.6 ipP 22 36 07.8 Luzon, Philippine Islands. h = 70 km (Ki,Um).	"	5 Up iP 14 50 30.0 D i 14 50 33.4 ipP 14 50 43.4 Ki iP 14 50 09.1 i 14 50 12.5 Um iP 14 50 15.9 D i 14 50 18.6 ipP 14 50 29.0 Philippine Islands region h = 45 km (Up,Um).
"	5 Up iP 02 00 24.6 Greece (h = 10 km).		

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1980				1980			
Jul.	5	Up	iP	15 30	18.5		
			ipP	15 30	31.2		
						micr	sec
			P	Z'	0.1	1.0	
		Ki	iP	15 29	25.4		
			ipP	15 29	39.2		
		Um	iP	15 29	51.5		
		Andreanof Islands, Aleutian Is. h = 50 km (Up,Um).					
"	5	Up	iSKP1	16 50	15.0		
		Um	iSKP1	16 49	57.5		
		Fiji Islands region (h = 450 km).					
"	5	Ki	iP	18 59	29.4		
		Philippine Islands region (h = 50 km).					
"	5	Up	iP	19 26	16.6		
			i	19 26	49.0		
"	5	Up	iP	20 33	00.0	C	
			ipP	20 33	05.5		
			iPn	20 34	28		
			iS	20 39	15		
			i	20 43	59.2		
			iLg1	20 46	21.2		
						micr	sec
			P	Z'	0.2	1.0	
			Mx	Z	8.7	10	
		Ki	iP	20 32	56.2	C	
			ipP	20 33	00.7		
			iPn	20 34	23.9		
			iLg1	20 46	14.2		
						micr	sec
			P	Z'	0.2	0.6	
			Mx	Z	8.4	12	
		Um	iP	20 32	52.1	C	
			ipP	20 32	56.7		
			iPn	20 34	10.9		
			iS	20 38	52		
			iLg1	20 45	42.5		
		Kirghiz-Sinkiang border region. h = 15 km (Up,Ki,Um). m = 5.8, M = 5.9 (Up,Ki). Large Lg1-amplitudes.					
"	5	Up	iPKP1	23 10	47.0		
			i	23 10	52.0		
		Ki	iPKP	23 10	30.1		
		Um	iPKP1	23 10	35.4	C	
		Kermadec Islands region (h = 120 km).					
		Up	iP	23 32	06.8		
		Romania (h = 120 km).					
"	6	Up	iP	04 32	41.3		
			i	04 32	45.0		
		Greece (h = 10 km).					
"	6	Ki	iPKP	05 37	41.6		
		Um	iPKP	05 37	47.7		
		Vanuatu Islands (h = 45 km).					
"	6	Up	iP	05 39	23.8		
			iS	05 43	14		
						micr	sec
			Mx	Z	2.1	10	
		Ki	iP	05 40	38.5		
						micr	sec
			Mx	Z	1.5	13	
		Um	i	05 40	02.6	D	
			iS	05 44	31		
		Greece (h = 15 km). M = 4.8 (Up,Ki).					
"	6	Up	iP	08 57	33.4		
		Greece (h = 10 km).					
"	6	Up	iP	11 34	22.3		
		Greece (h = 10 km).					
"	6	Up	iP	11 37	18.3		
		Ki	iP	11 35	55.8		
		Um	iP	11 36	39.6		
		North of Svalbard (h = 10 km).					
"	6	Up	iP	12 33	34.0		
		Um	iP	12 33	11.6		
"	6	Up	ePKP	12 42	43		
			iPKP1	12 42	50.6		
		Ki	iPKP	12 42	42.1		
			iPKP1	12 42	46.2		
						micr	sec
			PKP1	Z'	0.1	1.0	
		Um	iPKP1	12 42	43.7		
		South of Australia (h = 10 km).					
"	6	Up	iPKP1	12 45	23.6		
						micr	sec
			PKP1	Z'	0.2	1.5	
		Ki	iPKP	12 45	18.8		
			iPKP1	12 45	22.9		
						micr	sec
			PKP1	Z'	0.1	1.3	
		Um	iPKP1	12 45	22.1		
		South of Australia (h = 10 km).					

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

1980				1980					
Jul.	6	Ki	eP	14 19 31	Jul.	7	Up	eP	09 27 10
"	6	Up	iP	14 28 53.0			i	09 27 14.3	
			i	14 28 59.5			Um	iP	09 27 12.5
		Ki	eP	14 29 23			i	09 27 15.6	
		Um	iP	14 29 04.9			North Atlantic Ocean		
		Carlsberg Ridge (h = 10 km).					(h = 10 km).		
"	6	Up	iP	14 30 56.6	"	7	Um	iP	10 37 13.4
			ipP	14 31 03.7			Albania (h = 10 km).		
		Ki	iP	14 31 25.6	"	7	Um	iP	10 59 31.4
			ipP	14 31 32.7			North Atlantic Ocean		
		Um	iP	14 31 07.8			(h = 10 km).		
			ipP	14 31 14.9	"	7	Ki	iP	11 38 30.8
		Carlsberg Ridge.					Um	iP	11 39 17.0
		h = 25 km (Up,Ki,Um).							
"	6	Up	iP	16 18 02.7	"	7	Up	iPn	15 19 38.6
			i	16 18 06.3			i	15 22 19.1	
		Um	iP	16 17 50.4			iSg1	15 22 24.3	
			i	16 17 51.4			Um	iSg1	15 23 20.6
"	6	Um	iP	18 45 43.5			Ud	iSg1	15 23 25.7
		Guatemala (h = 55 km).					De	eSg1	15 22 55
"	6	Up	iP	18 56 00.8 C			Western USSR, near		
			i	18 56 11.4			54 1/4°N, 33 1/4°E.		
			iS	19 04 34.0			Origin time = 15 17 09.		
				micr sec	"	7	Up	iP	16 09 20.8
				Z' 0.2 1.5			iS	16 13 10	
		Ki	iP	18 55 06.6 C				micr sec	
			ipP	18 55 14.3			Mx	Z 3.6 11	
				micr sec			Ki	iP	16 10 35.8
				Z' 0.1 0.9			Um	iP	16 09 58.0
		Um	iP	18 55 34.6 C			i	16 10 00.8	
			ipP	18 55 42.2			iS	16 14 27	
			iS	19 03 44			Greece (h = 30 km).		
		Kodiak Island region.			"	7	Up	iPg1	16 46 26.1
		h = 25 km (Up,Ki,Um).					iSg1	16 46 31.0	
		m = 6.0 (Up,Ki).					iRg	16 46 32.2	
"	6	Up	iP	20 19 18.6			Ud	iSg1	16 47 24.3
		Ki	iP	20 19 28.1			iRg	16 47 36.9	
		Um	iP	20 19 17.3			Uppland, Sweden, 60.2°N,		
		Hindu Kush region					17.8°E.		
		(h = 120 km).					Origin time = 16 46 20.		
"	6	Up	iP	23 00 31.1			Probably rockburst at		
		Um	iP	23 00 38.9			Dannemora iron ore mines.		
"	7	Up	iP	01 50 44.2	"	7	Up	iP	16 57 59.9
		Um	iP	01 50 46.3			Um	iP	16 57 42.5
		North Atlantic Ocean					i	16 57 43.2	
		(h = 10 km).			"	7	Up	iP	19 35 39.6
"	7	Ki	iP	02 51 39.7			Greece (h = 10 km).		
"	7	Up	iP	07 33 19.1					
		Aegean Sea (h = 10 km).							









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1980				1980			
Jul.	10	Up	iP	19 40	29.7		
		Ki	iP	19 40	36.6		
		Um	iP	19 40	26.1		
		Pakistan (h = N).					
"	10	Up	iP	19 43	44.0	D	
			i	19 43	47.5		
			iS	19 47	34.8		
					micr sec		
			P	Z'	0.1 1.2		
			i	Z'	0.3 1.0		
			Mx	Z	11 18		
		Ki	iP	19 44	58.7	D	
			i	19 45	00.7		
			iS	19 49	47		
					micr sec		
			i	Z'	0.1 1.1		
			Mx	Z	5.9 12		
		Um	iP	19 44	22.0	D	
			i	19 44	23.7		
			iS	19 48	46.7		
			iLg1	19 51	50.8		
		Greece (h = 10 km).					
		m = 5.7, M = 5.4 (Up,Ki).					
"	10	Ki	iSg1	21 25	41.8		
		Um	iSg1	21 27	23.1		
"	11	Up	iP	02 54	39.9		
		Ki	iP	02 54	07.8		
			i	02 54	18.5		
		Um	iP	02 54	20.9		
		Kyushu, Japan (h = N).					
"	11	Up	iP	03 06	09.7		
		Ki	iP	03 05	37.8		
		Um	iP	03 05	50.8		
		Kyushu, Japan (h = N).					
"	11	Ki	ePKP	03 21	29		
		Um	iPKP	03 21	35.9		
		Vanuatu Islands (h = N).					
"	11	Ki	iPKP	03 33	09.0		
			i	03 33	12.9		
		Um	iPKP	03 33	12.8		
		Vanuatu Islands (h = N).					
"	11	Up	iPKP	07 03	41.4		
			ipPKP	07 03	58.4		
		Ki	iPKP	07 03	57.2		
			ipPKP	07 04	14.6		
		Um	iPKP	07 03	49.8		
			ipPKP	07 04	07.1		
		South Sandwich Islands region.					
		h = 60 km (Up,Ki,Um).					
Jul.	11	Up	iP	09 54	58.7	D	
		Ki	iP	09 54	29.6	D	
					micr sec		
			P	Z'	0.1 1.0		
		Um	iP	09 54	42.5	D	
		Mariana Islands region (h = N).					
"	11	Up	iP	11 54	43.3		
					micr sec		
			P	Z'	0.1 1.2		
		Ki	iP	11 54	48.7	C	
					micr sec		
			P	Z'	0.1 0.8		
		Um	iP	11 54	39.5	C	
		Tajik SSR (h = N).					
		m = 5.6 (Up,Ki).					
"	11	Up	eP	12 38	59		
			i	12 39	11.2		
			iS	12 43	42		
		Ki	iP	12 39	49.6	C	
					micr sec		
			P	Z'	0.1 0.9		
		Um	iP	12 39	19.6	C	
		Turkey (h = 10 km).					
"	11	Ki	iP	13 04	03.9		
		Um	iP	13 04	24.9		
		Kuril Islands (h = 160 km).					
"	11	Up	iP	19 21	44.5		
"	12	Ki	iP	00 43	21.5		
			iPP	00 47	53.2		
		Um	iPP	00 48	11.7		
		New Britain region (h = 190 km).					
"	12	Up	iP	05 36	50.4		
			i	05 36	53.0		
		Um	iP	05 37	27.8		
		Greece (h = 10 km).					
"	12	Um	iPKP	07 14	06.5		
			i	07 14	16.7		
		Santa Cruz Islands (h = 90 km).					
"	12	Up	iP	07 26	51.8		
		Greece (h = 10 km).					
"	12	Up	iP	07 46	16.7		
		Um	iP	07 46	53.2		
			iS	07 51	23		
		Greece (h = 10 km).					

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1980				1980								
Jul.	12	Up	iP	08 56	36.7	Jul.	12	Up	iP	20 48	45.9 C	
		Ki	eP	08 57	49				ipP	20 48	52.7	
		Um	eP	08 57	13						micr sec	
			iS	09 01	41				P	Z'	0.3 0.7	
		Greece (h = 10 km).								pP	Z'	0.4 0.7
"	12	Up	iP	09 55	10.6				Mx	Z	0.9 16	
			i	09 55	19.8			Ki	iP	20 48	31.0 C	
		Ki	eP	09 54	44				ipP	20 48	38.0	
		Um	iP	09 54	53.7						micr sec	
		Southwestern Ryukyu Islands (h = 70 km).								P	Z'	0.1 0.8
"	12	Up	iP	12 19	11.0 C				pP	Z'	0.1 0.8	
		Um	iP	12 19	59.5				Mx	Z	1.5 16	
"	12	Ki	iPKP	15 51	56.0			Um	iP	20 48	32.8 C	
		Um	iPKP	15 52	03.8				ipP	20 48	39.7	
		Tonga Islands (h = 260 km).							Qinghai Province, China. h = 25 km (Up,Ki,Um). m = 6.2, M = 5.0 (Up,Ki).			
"	12	Up	iP	18 45	12.1 C	"	12	Up	iP	21 56	22.3	
			i	18 45	20.8			Ki	iP	21 55	46.0	
			ipP	18 45	23.5			Um	iP	21 56	01.2	
					micr sec			Sea of Japan (h = 440 km).				
			P	Z'	0.1 1.1	"	12	Up	iP	22 35	19.7	
			Mx	Z	6.4 16			Aegean Sea (h = 10 km).				
		Ki	iP	18 44	46.6 C	"	13	Up	iP	02 25	51.2	
			ipP	18 44	57.3			Greece (h = 10 km).				
					micr sec	"	13	Ki	iPKP	06 39	13.4	
			P	Z'	0.1 1.0				ipPKP	06 39	38.2	
			Mx	Z	2.1 19				iPP	06 40	35.8	
		Um	iP	18 44	56.0 C				i	06 41	07.7	
			ipP	18 45	06.8			Um	iPKP	06 39	11.0	
		Southwestern Ryukyu Islands. h = 40 km (Up,Ki,Um). m = 5.6, M = 5.8 (Up,Ki).								ipPKP	06 39	36.6
"	12	Um	iP	19 38	27.7			Chile-Argentina border region. h = 90 km (Ki,Um).				
"	12	Up	iP	20 17	37.0	"	13	Up	iP	13 44	34.7	
			ipP	20 17	47.5			Aegean Sea (h = 10 km).				
		Ki	iP	20 17	11.4	"	13	Up	iPKP1	19 11	48.1 C	
			ipP	20 17	21.8			Ki	iPKP	19 11	37.4	
		Um	iP	20 17	20.7			Um	iPKP	19 11	44.4	
			ipP	20 17	31.0				iSKP1	19 14	31.6	
		Southwestern Ryukyu Islands. h = 35 km (Up,Ki,Um).							South of Fiji Islands (h = 500 km).			
"	12	Ki	iP	20 23	49.2	"	13	Up	iPKP1	19 58	46.0	
		Um	iP	20 24	06.7 C				iPKP2	19 58	52.2	
		Off east coast of Honshu, Japan (h = 30 km).										micr sec
									PKP1	Z'	0.1 1.0	
									PKP2	Z'	0.1 1.0	

(cont.)

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

1980				1980			
Jul.	13	(cont.)		Jul.	13	(cont.)	
		Ki	iPKP1	19	58	24.7	
			i	19	58	31.5	
		Um	iPKP	19	58	35.2	
			iPKP1	19	58	35.5	
		Kermadec Islands region (h = 350 km).					
"	13	Up	iP	20	58	12.4	
		Yugoslavia (h = 10 km).					
"	13	Up	iP	21	25	09.0	
		Ki	iP	21	25	46.4	
		Um	iP	21	25	22.5	
		Southern Iran (h = N).					
"	13	Up	iPKP2	22	13	55.7	
		Ki	iPKP1	22	13	27.7	
			i	22	13	31.3	
			iPKP2	22	13	46.6	
		Um	iPKP1	22	13	29.2	
			i	22	13	33.3	
			iPKP2	22	13	50.2	
		Macquarie Islands region (h = 15 km).					
"	13	Up	ePKP	22	32	53	
			iPKP	22	33	16.2	
						micr sec	
			pPKP	Z'	0.1	1.9	
			Mx	Z	0.9	21	
		Ki	iPKP	22	32	36.2	
			iPKP	22	33	01.9	
						micr sec	
			pPKP	Z'	0.1	1.4	
		Um	iPKP	22	32	43.2	
			i	22	33	00.0	
			iPKP	22	33	09.4	
		Tonga Islands (h = N). h = 90 km (Ki,Um).					
"	13	Up	iP	22	53	16.6	
			ipP	22	53	28.0	
		Ki	iP	22	52	57.3	
						micr sec	
			P	Z'	0.1	1.1	
		Um	iP	22	53	04.5	
			ipP	22	53	16.7	
		Philippine Islands region. h = 45 km (Up,Um).					
"	13	Up	eP	23	49	51	
			i	23	49	59.0	
		(cont.)					
		Um	iP	23	49	52.0	
		Costa Rica (h = 45 km).					
"	14	Up	iP	02	23	50.5	
			i	02	23	59.7	
		Um	iP	02	24	05.8	
"	14	Up	iP	02	27	50.2	
		Ki	iP	02	27	22.0	
		Um	iP	02	27	32.9	
		Ryukyu Islands (h = N).					
"	14	Up	eP	04	32	16	
			i	04	32	19.6	
			iS	04	38	35	
			iSS	04	41	40	
						micr sec	
			Mx	Z	2.3	17	
		Ki	iP	04	32	45.0	
			i	04	32	48.7	
						micr sec	
			i	Z'	0.2	1.9	
			Mx	Z	1.0	12	
		Um	iP	04	32	34.1	
			i	04	32	41.3	
			iS	04	39	05	
		North Atlantic Ridge (h = 10 km). M = 5.1 (Up,Ki).					
"	14	Up	iP	06	07	03.6	
		Ki	iP	06	06	49.0	
		Um	iP	06	06	54.0	
		Banda Sea (h = 260 km).					
"	14	Up	iPKP1	07	30	39.4	
		Ki	iPKP	07	30	30.9	
		Um	iPKP	07	30	33.9	
		South of Fiji Islands (h = 230 km).					
"	14	Up	iP	10	15	57.2	
		Ki	iP	10	15	51.1	
		Um	iP	10	15	57.2	
			ipP	10	16	21.9	
		Nicaragua. h = 100 km (Um).					
"	14	Up	iP	10	30	53.1	
		Ki	iP	10	30	09.3	
		Um	iP	10	30	28.8	
		Hokkaido, Japan region (h = 50 km).					

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1980				1980			
July	14	Ud	i	13 53 47.9	July	14	(cont.)
			iRg	13 53 55.5			Up
		De	iSgl	13 54 17.8			PKP1 Z' 0.2 1.0
		Local near-surface event.					Ki iPKP 17 00 46.3
"	14	Um	iP	14 19 01.5			Um iPKP1 17 00 51.9
			i	14 19 10.6			Kermadec Islands (h = N).
		Banda Sea (h = N).			"	14	Up iP 17 12 11.3
"	14	Up	i	15 38 47.6	"	14	Up iP 18 45 19.7
			iRg	15 38 50.8	"	14	Up iP 18 46 18.7
		Local near-surface event.			"	14	Up iP 18 55 10.0
"	14	Up	iPKP1	16 34 39.3	"	14	Up iP 18 55 10.0
			i	16 34 43.3	"	14	Up iPKP 19 11 39.4
			i	16 34 46.1			iPKP2 19 11 50.8
							Kermadec Islands (h = 170 km).
			PKP1 Z'	0.1 0.8	"	14	Up iP 20 04 42.0
			i Z'	0.2 1.0	"	14	Up iP 20 14 06.9
			i Z'	0.9 1.2			Greece (h = 10 km).
			Mx Z	11 17	"	14	Up iPKP1 21 10 10.5
		Ki	iPKP	16 34 20.6			Um iPKP1 21 09 58.2
			i	16 34 27.1	"	14	Um iPKP 21 44 22.1
			i	16 34 37.0			iPKP2 21 45 33.7
							South Pacific Cordillera
							(h = 10 km).
					"	14	Up iP 21 49 38.2
					"	14	Up iPKP1 22 01 32.8
							Um iPKP1 22 01 20.3
					"	14	Up eP 22 44 10
							Um iP 22 44 50.4
							Greece (h = 10 km).
"	14	Up	iPKP1	16 41 32.0	"	15	Um iP 00 22 17.9
		Um	iPKP1	16 41 18.4	"	15	Up iP 00 36 25.8
"	14	Up	iPKP1	16 42 10.8			Ki iP 00 37 40.2
		Um	iPKP1	16 41 58.0			Um iP 00 37 05.0
"	14	Up	iPKP1	16 42 33.6 C			Aegean Sea (h = 10 km).
					"	15	Up iPKP1 02 43 45.5
			PKP1 Z'	0.1 1.0			Ki iPKP 02 43 28.5
		Um	IPKP1	16 42 21.8 C			Um iPKP1 02 43 33.4
"	14	Up	iPKP1	16 53 33.9			Kermadec Islands region
		Um	iPKP1	16 53 21.4			(h = 70 km).
"	14	Up	iPKP1	17 01 04.3			
		(cont.)					

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

1980					1980				
July	15	Up	iPKP1	03 12 09.6	July	15	Up	iPKP1	14 10 05.2
			iPKP2	03 12 12.7				iPKP2	14 10 07.8
			i	03 12 21.9				Kermadec Islands region	
		Ki	ePKP	03 11 52				(h = 45 km).	
		Um	iPKP1	03 11 57.8	"	15	Up	iPKP1	14 27 37.0
				Kermadec Islands (h = 90 km).			Kermadec Islands (h = 130 km).		
"	15	Up	iP	03 31 28.7	"	15	Up	iP	15 29 53.1
"	15	Up	iP	03 36 48.9	"	15	Up	iP	17 20 15.4
		Um	iP	03 36 36.2	"	15	Up	iPKP1	17 23 25.5
"	15	Up	iPKP1	04 02 53.4	"	15	South of Fiji Islands		
			iPKP2	04 02 55.7			(h = 200 km).		
		Ki	ePKP	04 02 36	"	15	Up	iP	17 56 27.0
		Um	iPKP1	04 02 41.0			Aegean Sea (h = 10 km).		
			i	04 02 49.0	"	15	Up	iP	18 58 46.3
				Kermadec Islands			Andreanof Islands,		
				(h = 130 km).			Aleutian Is. (h = 55 km).		
"	15	Up	iP	04 25 22.5	"	15	Up	iP	18 59 12.7
			i	04 25 34.7	"	15	Up	iP	21 47 06.5
		Um	eP	04 25 08				i	21 47 08.0
"	15	Up	ePKP1	05 17 46	"	15	Um	iP	21 47 44.4
			iPKP2	05 17 48.0			Greece (h = 10 km).		
			i	05 17 58.9	"	15	Up	iP	21 54 06.9
				Kermadec Islands (h = N).				i	21 54 13.2
"	15	Up	iP	05 23 57.8	"	15		i	21 54 18.8
		Um	iP	05 23 43.0			Um	iP	21 53 54.3
"	15	Up	iP	11 39 35.3	"	15	Up	iP	22 33 33.2
			i	11 39 37.8				ipP	22 33 43.5
			iS	11 43 31			Ki	iP	22 33 06.5
		Ki	iP	11 40 49.6			Um	iP	22 33 16.3
			i	11 40 52.4				ipP	22 33 26.8
		Um	iP	11 40 14.1			Southwestern Ryukyu Islands.		
				Aegean Sea (h = 10 km).			h = 35 km (Up,Um).		
"	15	Up	eP	12 20 39	"	16	Up	iP	00 11 38.8
			iLg2	12 24 43.9				i	00 12 02.6
		Ki	iP	12 22 07.0 C				iS	00 15 33
		Um	iP	12 21 31.5					micr sec
			iLg2	12 26 45.8				P	Z' 0.4 1.4
				Switzerland (h = 20 km).				Mx	Z 1.2 9
				P-arrivals at Up and Um			Ki	iP	00 12 54.0
				are about 9 s late when				i	00 12 56.2
				related to the NEIS					micr sec
				solution.				P	Z' 0.1 1.0
"	15	Up	iP	12 46 26.0				Mx	Z 0.4 9
		Ki	iP	12 47 39.8			(cont.)		
				Greece (h = 10 km).					

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1980				1980			
July	16	(cont.)		July	16	(cont.)	
		Um	iP 00 12 17.4			De	iSg1 18 13 24.0
			i 00 12 29.4			Coast of southwestern Norway,	
			iS 00 16 47			near 59 1/4°N, 6°E.	
		Greece (h = 20 km).				Origin time = 18 10 47.	
		m = 5.5 (Up,Ki).				M <sub>L</sub> = 2.7 (Up,Ud).	
"	16	Ki	iP 00 43 16.7	"	16	Um	iP 18 57 48.7
		Greece (h = 10 km).				East China Sea (h = 160 km).	
"	16	Up	eP 03 16 26	"	16	Up	iPdiff 20 11 14.2
							i(PP) 20 15 11.3
"	16	Up	iP 04 11 38.1				iPP 20 15 54.5
							micr sec
"	16	Up	iP 06 44 29.3				Pdiff Z' 0.1 1.2
		Ki	iP 06 44 12.1				PP Z' 2.5 2.1
			micr sec				Mx Z 58 20
		P	Z' 0.1 1.0			Ki	iPdiff 20 10 49.4 C
		Um	iP 06 44 18.0				i(PP) 20 14 14.6
		Philippine Islands region					iPP 20 15 15.5
		(h = 120 km):					micr sec
"	16	Up	iP 08 30 53.8 C				Pdiff Z' 0.2 1.4
			micr sec				PP Z' 1.1 2.4
		P	Z' 0.1 1.2				Mx Z 82 21
		Ki	iP 08 30 13.9 C			Um	iPdiff 20 11 01.6 C
		Um	iP 08 30 31.7 C				i(PP) 20 15 08.9
			i 08 30 42.5				iPP 20 15 30.3
		Near east coast of Honshu,				Papua New Guinea (h = 80 km).	
		Japan (h = 30 km).				m = 7.4, M = 7.3 (Up,Ki).	
"	16	Up	iP 09 01 04.0			M not corrected for focal	
		Ki	iP 09 01 42.3 D			depth.	
		Southern Iran (h = N).		"	16	Ki	iPKP 20 52 25.8
							i 20 52 27.4
"	16	Up	iP 15 03 27.0 D			Um	iPKP 20 52 32.3
			i 15 03 31.8				i 20 52 33.9
		Ki	iP 15 02 56.0 D			Vanuatu Islands (h = N).	
		Um	iP 15 03 09.6 D	"	16	Up	iP 21 06 01.4 C
			i 15 03 15.4			Ki	eP 21 05 53
			i 15 03 46.7			Um	iP 21 05 53.4
		Volcano Islands region				Burma (h = N).	
		(h = N).		"	16	Ki	iP 23 24 08.0
"	16	Up	iP 18 10 21.6			Um	iP 23 23 40.7
		Greece (h = 10 km).					iPcP 23 25 05.9
"	16	Up	iSg1 18 13 46.3			Red Sea (h = 10 km).	
		Sk	iSg1 18 13 29.6	"	17	Ki	iP 00 17 34.9
		Um	eSg1 18 14 58			Red Sea (h = 10 km).	
		Ud	iPg1 18 11 57.6	"	17	Up	iP 00 52 04.1
			i 18 12 44.8			(cont.)	
			iSg1 18 12 49.6				
		(cont.)					







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1980				1980			
Jul.	20	Up	iP	12 17 36.2	Jul.	21	(cont.)
		Ki	iP	12 16 45.1			De iPn 14 41 52.4
		Um	iP	12 17 08.7			iSn 14 42 49.8
		Northwest of Kuril Islands					iSgl 14 43 20.4
		(h = 400 km).				Poland (h = 10 km).	
"	20	Ki	iP	14 08 01.2	"	21	Up iP 15 47 01.2
		Peru (h = 130 km).					Ki iP 15 46 41.4
"	20	Ki	epP	15 19 35			Luzon, Philippine Islands
		Philippine Islands region					(h = 70 km).
		(h = N).		"	21	Up iPKP 16 53 22.0 D	
"	20	Up	iP	21 23 00.8			Ki iPKP 16 53 08.6 D
		Um	iP	21 22 49.7			Um iPKP 16 53 13.8 D
							i 16 53 26.2
"	20	Up	i(PKP)	21 38 07.8			Santa Cruz Islands
			iPKP	21 38 18.7			(h = 80 km).
			iSKP1	21 40 58.3	"	21	Up iP 19 19 04.0
			iPKS	21 41 52.8			
				micr sec	"	21	Up iPKP 21 39 20.1
				PKP Z' 0.1 0.9			i 21 39 23.4
				SKP1 Z' 0.2 1.0			i 21 39 34.9
		Ki	i(PKP)	21 37 47.6			micr sec
			i(PKP)	21 37 55.6			Mx Z 5.0 24
			iPKP	21 38 04.2			Ki ePKP' 21 39 06
			iSKP1	21 40 33.2			i 21 39 09.8
				micr sec			micr sec
				PKP Z' 0.2 1.2			Mx Z 2.6 21
				SKP1 Z' 0.4 1.2			Um iPKP 21 39 12.1
		Um	i(PKP)	21 37 55.8			i 21 39 15.1
			i(PKP)	21 38 07.0			Santa Cruz Islands
			iPKP	21 38 11.1			(h = 80 km).
			iSKP1	21 40 45.8			M = 6.0 (Up,Ki).
			iPKS	21 41 38.6	"	21	Ki iP 21 49 13.7
		Fiji Islands region					micr sec
		(h = 590 km).					P Z' 0.1 1.2
"	20	Ki	iP	22 04 24.3			Um iP 21 49 02.0
		Um	iP	22 04 28.6	"	21	Up iPKP 23 05 39.5
		Banda Sea (h = 390 km).					iSKP1 23 08 02.8
"	21	Up	iPKP1	09 42 25.1			iPKS 23 09 00.0
		South of Fiji Islands					Ki iPKP 23 05 25.0
		(h = 580 km).					Um iPKP 23 05 31.1 C
"	21	Up	iSn	14 44 11.0			Santa Cruz Islands region
		Ki	i	14 47 46.4			(h = 640 km).
		Sk	i	14 48 34.8	"	22	Up iP 02 11 37.2
		Um	i	14 46 39.3			Aegean Sea (h = 10 km).
		Ud	iPn	14 42 41.4	"	22	Up iP 05 23 20.4
			i	14 42 50.2			i 05 23 45.3
			iSn	14 44 17.2			iPn 05 23 56.9
			i	14 44 33.6			(cont.)
		(cont.)					

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1980					1980				
Jul.	22	(cont.)			Jul.	22	(cont.)		
		Up	iS	05 28 20			Um	iP	11 37 33.3 D
				micr sec				ipP	11 38 11.6
			P	Z' 0.1 1.3			Northern Sumatera.		
			Mx	Z 2.8 14			h = 160 km (Up,Ki,Um).		
		Ki	iP	05 23 56.5					
			i	05 23 57.6	"	22	Up	iP	17 52 40.3
			i	05 24 02.5			Um	iP	17 52 16.6
			iPP	05 25 08.9			Hokkaido, Japan region		
				micr sec			(h = 80 km).		
			i	Z' 0.2 1.0					
			PP	Z' 0.3 1.2			Up	iP	21 29 55.3
			Mx	Z 5.0 18			Ki	i	21 29 44.0
		Um	iP	05 23 32.3			Um	eP	21 29 41
			i	05 23 33.5			Southwestern Ryukyu		
			i	05 23 38.9			Islands (h = 45 km).		
			iS	05 28 41					
		Caspian Sea (h = 60 km).			"	23	Um	iP	04 36 04.0
		m = 5.7, M = 5.2 (Up,Ki).			"	23	Up	iPn	08 12 44.8
"	22	Up	e(PKP)	07 25 15				iSn	08 14 14.7
			iPKP	07 25 27.6				i	08 14 30.0
			ipPKP	07 25 59.8				i	08 14 45.4
			iSKP1	07 28 48.0				iSg1	08 14 56.7
			iSS	07 45 59			Ki	iPn	08 11 34.1
				micr sec				i	08 11 42.4
			PKP	Z' 0.1 1.0				iPg1	08 11 48.6
			Mx	Z 3.6 26				iSn	08 12 19.2
		Ki	e(PKP)	07 25 07				i	08 12 27.0
			iPKP	07 25 14.7			Sk	iPn	08 11 43.6 D
			ipPKP	07 25 46.2				i	08 11 51.8
			i	07 27 46.4				i	08 12 33.1
			iSKP1	07 28 24.3				iSn	08 12 36.8
				micr sec				iSg1	08 13 02.2
			PKP	Z' 0.4 1.7			Um	iPn	08 12 01.8 D
			Mx	Z 1.0 17				i	08 12 08.1
		Um	i(PKP)	07 25 10.4				iSn	08 13 06.9
			iPKP	07 25 20.5				i	08 13 20.9
			ipPKP	07 25 52.6				i	08 13 28.5
			iSKP1	07 28 30.9			Ud	iPn	08 12 32.1
		Vanuatu Islands.						i	08 12 40.5
		h = 120 km (Up,Ki,Um).						iSn	08 13 52.5
		M = 5.8 (Up,Ki).						i	08 14 17.2
		M not corrected for focal depth.					De	eSn	08 15 29
								iLg1	08 16 48.5
							Norwegian Sea, near		
							68 1/4°N, 9 1/2°E.		
							Origin time = 08 10 33.		
							M <sub>L</sub> = 3.5 (Up,Sk,De).		
							Possibly 2 shocks, 8 s apart.		
"	22	Up	iP	11 37 36.8 D					
			ipP	11 38 14.2					
		Ki	iP	11 37 36.2 D					
			ipP	11 38 14.7					
				micr sec					
			P	Z' 0.1 0.9					
		(cont.)							



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1980				1980			
Jul.	25	Um iP	06 08 27.4	Jul.	26	(cont.)	
			North of Ascension Island (h = 10 km).			Up iS	13 13 05 micr sec
"	25	Ki iP	13 42 22.1			P	Z' 0.1 1.3
		Um iP	13 43 15.8			i	Z' 0.1 1.1
"	25	Up iP	14 13 25.2			Mx	Z 3.3 20
		Ki iP	14 13 34.8			Ki iP	13 04 57.3
		Um iP	14 13 23.7			i	13 05 01.7
			Hindu Kush region (h = 140 km).			i	Z' 0.1 1.1
"	25	Um iPKP1	15 47 57.5			Mx	Z 1.4 20
			South of Kermadec Islands (h = 290 km).			Um iP	13 04 44.1
"	25	Up iP	19 16 48.4 C			i	13 04 50.5
		i	19 17 09.6			iS	13 13 47
		P	Z' 0.1 1.3				Central Mid-Atlantic Ridge (h = 10 km). m = 5.9, M = 5.4 (Up,Ki).
		Ki iP	19 16 14.2 C	"	26	Up eP	14 54 43
		P	Z' 0.1 1.1			iPP	14 56 16.2
		Um iP	19 16 33.5 C			Ki eP	14 54 47
		i	19 16 54.4			i	14 54 50.1
			Southern Nevada. m = 5.8 (Up,Ki). Underground explosion.			Um iP	14 54 37.4
"	25	Up iSgl	21 47 30.1			i	14 54 41.7
		Ki eSgl	21 47 11				Tajik SSR (h = N).
		Um iPgl	21 45 17.3 D	"	26	Ki iP	16 29 46.5
		i	21 45 18.8			Um iP	16 30 13.1
		iSgl	21 45 20.9	"	27	Up iPKP1	00 46 47.7
		Ud eSgl	21 47 47			iSKP1	00 49 41.6
			Västerbotten, Sweden, 64.0°N, 20.4°E. Origin time = 21 45 12. Felt.			Ki i(PKP)	00 46 38.1
"	26	Up iP	00 23 45.6			iPKP	00 46 41.5
		Ki iP	00 24 49.2			iSKP1	00 49 16.6
		Um iP	00 24 10.9			Um i(PKP)	00 46 35.5
"	26	Um iPKP	02 31 36.4			iPKP	00 46 46.5
			Solomon Islands (h = 160 km).			iSKP1	00 49 28.9
"	26	Up eP	03 59 52			i	00 49 32.5
		Um iP	03 59 36.0				South of Fiji Islands (h = 530 km).
"	26	Up iP	13 04 24.1	"	27	Up iP	07 10 31.7
		i	13 04 26.9			Ki iP	07 10 32.9
		(cont.)				Um iP	07 10 29.0
"	26	Up eP	03 59 52				Northern Sumatera (h = 45 km).
		Um iP	03 59 36.0	"	27	Ki iP	09 14 18.5
"	26	Up iP	13 04 24.1			i	09 14 26.2
		i	13 04 26.9			i	09 14 42.8
		(cont.)					Central Alaska (h = 20 km).
"	26	Up iP	13 04 24.1	"	27	Um iP	09 17 16.4
		i	13 04 26.9				Near s. coast of Honshu, Japan (h = 25 km).

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

1980				1980						
Jul.	27	Up	iP	19 02 47.7 C	Jul.	29	Up	iP	03 08 43.8	
			i	" 19 02 51.6			Um	iP	03 08 27.8	
				micr sec		"	29	Up	iPKP	03 30 55.3
			P	Z' 0.1 1.1				iPP	03 32 55.7	
			i	Z' 0.3 1.0				iSKP	03 34 28.8	
		Ki	iP	19 02 28.7 C					micr sec	
			i	19 02 32.0				PP	Z' 0.1 1.4	
				micr sec				Mx	Z 36 21	
			P	Z' 0.1 1.0			Ki	iPKP	03 30 42.1	
			i	Z' 0.1 0.9				i	03 30 43.8	
		Um	iP	19 02 41.5 C				iPKKP	03 40 48.5	
			i	19 02 45.0					micr sec	
				Kentucky (h = 10 km).				i	Z' 0.1 1.2	
				m = 6.2 (Up,Ki).			Um	iPKP	03 30 48.8	
"	28	Up	iPKP1	16 31 53.3				i	03 30 50.7	
		Ki	iPKP1	16 31 32.9				iPP	03 32 30.1	
		Um	iPKP1	16 31 41.9				iSKP	03 34 15.9	
			i	16 32 06.9					Vanuatu Islands (h = 50 km).	
				South of Kermadec Islands	"	29	Ki	iSg1	09 33 04.3	
				(h = N).				iSn	09 33 08.8	
"	28	Up	eP	17 16 22			Um	iSg1	09 34 57.9	
				Northern Colombia					Northern Finland, 68.6°N,	
				(h = 160 km).					23.3°E.	
"	28	Um	iPKP	17 47 17.6					Origin time = 09 32 26.	
			i	17 47 21.8					M <sub>L</sub> = 2.5 (Um).	
				Santa Cruz Islands					By combination with Finnish	
				(h = 50 km).					station readings.	
"	28	Up	iPKP1	19 18 46.1	"	29	Up	iP	10 01 13.5	
		Um	iPKP1	19 18 32.0			Um	iP	10 01 12.9	
				Kermadec Islands region					Uzbek SSR (h = N).	
				(h = N).	"	29	Up	i	11 15 38.0	
"	28	Up	iPKP1	20 32 39.7				iRg	11 15 42.4	
		Ki	iPKP	20 32 31.1			Ud	iRg	11 15 54.9	
		Um	iPKP1	20 32 27.8					Central Sweden.	
			iPKP	20 32 36.9					Near-surface event.	
				Tonga Islands region	"	29	Up	iP	11 41 11.7	
				(h = 70 km).					Hokkaido, Japan region	
"	28	Up	eP	20 43 49					(h = 70 km).	
		Um	iP	20 44 28.0	"	29	Up	iP	12 32 18.5	
				Aegean Sea (h = 35 km).				i	12 32 19.3	
"	29	Up	ePKP	02 39 47					micr sec	
		Um	iPKP	02 39 37.7				i	Z' 0.2 1.0	
				Vanuatu Islands region				Mx	Z 11 16	
				(h = N).			Ki	iP	12 32 21.1	
								i	12 32 21.6	
								(cont.)		

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

1980					1980						
Jul.	29	(cont.)			Jul.	29	(cont.)				
		Ki		micr sec			Ki	iP	20 47 25.7 D		
		i	Z'	0.1 0.6			Um	iP	20 46 49.4 D		
		Um	iP	12 32 14.5				iS	20 51 12		
		i		12 32 15.5			Greece (h = 20 km).				
		Nepal (h = 35 km).				"	29	Up	iP	22 06 43.5	
		m = 6.0 (Up,Ki).						Um	iP	22 06 39.7	
		Double P onsets, small and large.						i		22 06 46.8	
"	29	Up	iP	12 39 58.4		"	29	Up	iP	22 37 03.9	
		Ki	iP	12 40 22.3				Ki	iP	22 36 47.5	
		North Atlantic Ridge (h = 10 km).						Um	iP	22 36 53.0	
"	29	Up	iI	15 07 47.4 C		"	30	Um	iPKP	00 17 42.1	
			iPP	15 09 49					i(PP)	00 18 14.7	
			iS	15 15 07					iPP	00 18 29.7	
				micr sec				North of Solomon Islands (h = 480 km).			
			iI	Z' 0.6 1.0							
			Mx	Z 102 20			"	30	Up	iP	01 09 46.5
		Ki	iP	15 07 49.4 C				Ki	iP	01 09 48.9 C	
			iI	15 07 50.1						micr sec	
				micr sec					P	Z' 0.1 0.5	
			iI	Z' 0.6 1.0				Um	iP	01 09 42.4 C	
		Um	iP	15 07 43.3 C				Nepal-India border region (h = N).			
			iI	15 07 43.8		"	30	Up	iP	02 51 25.8	
			iS	15 14 59.2				Greece (h = 10 km).			
		Nepal (h = 20 km).				"	30	Ki	iP	05 39 55.9	
		m = 6.5 (Up,Ki).						Nepal-India border region (h = N).			
		Double P onsets, small and large, at Ki and Um.				"	30	Ki	iP	06 50 30.1	
"	29	Ki	iPKP	16 23 15.5			Um	iP	06 50 42.8		
			ipPKP	16 23 25.2			Lake Baikal region (h = N).				
		Um	iPKP	16 23 22.0		"	30	Up	iP	07 09 19.4 D	
			ipPKP	16 23 31.5				i		07 09 22.0	
		Vanuatu Islands. h = 30 km (Ki,Um).						iPP		07 13 01.2	
"	29	Ki	iP	18 53 30.9				iSKS		07 19 47	
		Nepal-India border region (h = N).						iS		07 20 15	
"	29	Um	iP	20 04 34.1					micr sec		
		Near east coast of Honshu, Japan (h = N).						SKS	Z' 0.4 2.4		
"	29	Up	iP	20 46 11.3 D				Mx	Z 7.6 23		
			iS	20 50 01			Ki	iP	07 09 17.3 D		
				micr sec				i	07 09 19.9		
			P	Z' 0.1 0.8				iPP	07 12 54.1		
			Mx	Z 2.1 8					micr sec		
		(cont.)						P	Z' 0.1 1.8		
							(cont.)				





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1980

Jul. 31 Ki iP 19 37 23.7  
" 31 Ki iP 19 40 09.8  
Talaud Islands (h = 100 km).

May 3, 1982

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, UMEÅ,

UDDEHOLM and DELARY

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

AUGUST 1 - 31, 1980

1980					1980						
Aug.	1	Up	iP	02 33 11.3	Aug.	1	Up	i(PKP)	19 21 41.0		
			i	02 33 28.0			Um	iPKP	19 21 41.3		
		Ki	iP	02 33 01.3			Fiji Islands region				
		Um	iP	02 33 01.1			(h = 620 km).				
		Burma (h = N).					"	1	Up	iPKP1	21 40 39.7
"	1	Up	iP	04 31 46.1			Ki	ePKP	21 40 29		
		Ki	iP	04 31 46.5 D				iSKP1	21 43 12.8		
			ipP	04 32 21.4			Um	iPKP	21 40 33.8		
		Um	iP	04 31 42.5 D				iSKP1	21 43 23.1		
			ipP	04 32 17.8			South of Fiji Islands				
		Andaman Islands region.					(h = 520 km).				
		h = 150 km (Ki,Um).					"	1	Up	iP	23 17 21.8 D
"	1	Up	iP	08 28 52.2				ipP	23 17 28.2		
			ipP	08 29 15.2				iS	23 25 33		
			iPP	08 32 17.4				iP'P'	23 46 56.2		
		Ki	iP	08 28 44.9				micr sec			
			ipP	08 29 07.7				P	Z' 0.1 1.0		
			iPP	08 32 02.5			Ki	iP	23 16 26.7 D		
		Um	iP	08 28 52.2				ipP	23 16 32.9		
			ipP	08 29 14.8				micr sec			
			iPP	08 32 14.4				P	Z' 0.4 1.0		
		Near coast of Nicaragua.					Um	iP	23 16 55.6 D		
		h = 90 km (Up,Ki,Um).						ipP	23 17 01.8		
								iS	23 24 44		
"	1	Up	iP	10 18 25.4			Kenai Peninsula, Alaska.				
		Ki	iP	10 17 55.2			h = 20 km (Up,Ki,Um).				
		Um	iP	10 18 08.1			m = 6.1 (Up,Ki).				
		Volcano Islands region					"	2	Up	iP	00 02 18.9
		(h = N).						Ki	iP	00 01 51.4	
"	1	Ki	i(P)	13 43 13.0				Um	iP	00 02 03.3	
			i	13 43 42.4			Mariana Islands region				
		Um	i(P)	13 43 36.3			(h = 80 km).				
"	1	Up	iP	16 50 47.3			"	2	Up	iP	01 06 15.4
		Ki	eP	16 50 13					iS	01 16 53	
		Um	iP	16 50 32.1				micr sec			
		California-Nevada border						Mx	Z 1.0 16		
		region (h = 5 km).					(cont.)				

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

1980		1980	
Aug.	2	Aug.	3
	(cont.)		(cont.)
	Ki	Up	i
	Mx Z		Mx Z
	1.3 19		0.5 23
	Um iP	Ki	iP
	01 06 11.8		07 21 47.9 C
	iS		i
	01 16 54		07 22 23.3
	Near coast of Chiapas,		i
	Mexico (h = 50 km).		07 22 45.9
	M = 5.4 (Up,Ki).		micr sec
"	2 Up iP		P Z'
	02 05 59.9		0.1 0.9
"	2 Up iP		Mx Z
	07 18 14.9 C		1.3 19
	micr sec	Um	iP
	P Z'		07 22 14.4 C
	0.1 1.1		i
	Mx Z		07 23 00.2
	0.6 22		Fox Islands, Aleutian
	Ki iP		Islands (h = N).
	07 17 21.7 C		M = 4.9 (Up,Ki).
	micr sec	"	3 Up iPKP
	P Z'		14 01 57.6
	0.2 1.1		Um iPKP
	Mx Z		14 01 58.9
	0.9 16		Southern Pacific Ocean
	Um iP		(h = 10 km).
	07 17 48.2 C	"	3 Up iP
	Fox Islands, Aleutian		18 06 42.7
	Islands (h = N).		Ki iP
	m = 6.0, M = 4.9 (Up,Ki).		18 06 16.5
"	2 Up iPKP1		Um iP
	09 26 33.8		18 06 26.9 C
	Kermadec Islands region		South of Mariana Islands
	(h = 60 km).		(h = 210 km).
"	2 Up iP	"	3 Ki iP
	10 57 11.8		18 27 27.1
	Ki iP		Um iP
	10 56 18.9 D		18 27 43.6
	Um iP	"	4 Up iP
	10 56 45.5 D		00 35 34.5
	Fox Islands, Aleutian		micr sec
	Islands (h = N).		Mx Z
"	2 Up		0.3 19
	16 58		Ki iP
	micr sec		00 35 21.2
	Mx Z		Um iP
	5.4 23		00 35 30.8
	Ki ePKP		i
	16 06 12		00 35 38.9
	micr sec		Oaxaca, Mexico (h = N).
	Mx Z	"	4 Up iP
	5.2 21		09 51 48.7
	Um iPKP		Um iP
	16 06 17.7		09 51 23.9
	Santa Cruz Islands (h = N).	"	4 Ki iP
	M = 6.2 (Up,Ki).		17 01 47.9
"	2 Um iPKP		Nepal-India border region
	16 17 59.4		(h = N).
	Santa Cruz Islands	"	5 Ki iP
	(h = N).		11 23 28.9
"	3 Ki iP		Um iP
	00 09 55.6		11 24 43.4
	Um iP		Shikoku, Japan (h = N).
	00 10 00.4	"	6 Ki iP
	Molucca Sea (h = 80 km).		01 48 38.2
"	3 Ki iPKP		Volcano Islands region
	03 19 26.7		(h = 60 km).
	Um iPKP	"	6 Up iP
	03 19 24.3		10 56 08.9
	Chile-Argentina border		Ki iP
	region (h = 150 km).		10 55 22.1
"	3 Up iP		micr sec
	07 22 41.0		P Z'
	i		0.1 1.0
	07 23 26.6		Um iP
	(cont.)		10 55 43.5
			Kuril Islands (h = 130 km).

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

1980		1980	
Aug.	6	Um iP	16 12 09.4 Ascension Island region (h = 10 km).
"	6	Ki iPKP1 iPKP2	22 36 17.0 22 36 26.6 Off W. coast of S. Island, N.Z. (h = N).
"	7	Up i Ki iP i Um i	03 51 18.7 03 50 44.9 03 50 57.6 03 51 05.0 Philippine Islands region (h = N).
"	7	Up iP Ki iP Um iP	19 25 53.4 19 24 55.9 19 25 26.1 Central Alaska (h = 10 km).
"	8	Up iP Ki iP	04 15 38.5 04 16 45.0 Crete (h = N).
"	8	Ki iP	07 35 51.2 Sumba Island region (h = N).
"	9	Up iP i iPP iS i P Z' Mx Z Ki iP i iPP iS P Z' Mx Z Um iP iS	05 57 40.9 05 57 51.4 06 00 58.1 06 07 59 06 24 46 micr sec 0.4 1.1 7.9 24 05 57 32.0 05 57 43.8 06 00 40.0 06 07 45 micr sec 1.9 2.1 15.4 17 05 57 39.5 06 07 58 Honduras (h = 20 km), m = 6.7, M = 6.3 (Up,Ki).
"	9	Ki iP	16 07 35.1 Philippine Islands region (h = 50 km).
"	9	Ki eP	17 11 45 Tibet (h = N).
"	10	Ki iP	01 51 37.7 North of Halmahera (h = 45 km).
Aug.	10	Ki iP	08 01 43.9 Alaska Peninsula (h = N).
"	10	Up iP Ki iP Um iP	09 21 40.9 09 20 46.2 09 21 15.1 Unimak Island region (h = N).
"	10	Up iPKP1 Ki iPKP1 Um iPKP1	10 20 53.5 10 20 32.2 10 20 41.0 Kermadec Islands (h = N).
"	10	Up iP Ki iP Um iP	18 36 33.9 18 35 08.5 18 35 47.6
"	11	Up iP Ki iP Um iP	07 41 30.0 07 41 31.4 07 41 26.8 Eastern Kashmir (h = 80 km).
"	11	Up iP iS P Z' Mx Z Ki iP	09 20 40.0 D 09 24 31 micr sec 0.1 0.9 4.5 19 09 21 54.8 D micr sec 0.1 0.9 1.6 10 Um iP iS
"	11	Up eP Ki iP	17 25 46 17 26 17.8 Southern Iran (h = N).
"	12	Up iP ipP pP Z' Ki iP Um iP	01 45 44.4 01 45 47.5 micr sec 0.1 0.9 01 46 59.4 01 46 22.3 Greece (h = 10 km).
"	12	Up iP	03 20 12.2 Greece (h = 10 km).
"	12	Ki iP Um iP	10 30 18.3 10 30 23.3 Celebes Sea (h = 630 km).
"	12	Up iP iS	12 15 42.5 C 12 19 07 (cont.)

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

1980				1980					
Aug.	12	(cont.)		Aug.	14	Ki	iP	00 20 30.7	
		Up	micr sec			Um	iP	00 20 47.5 C	
		P	Z' 1.3 2.4			Near east coast of Honshu, Japan (h = 35 km).			
		Mx	Z 6.4 12			"	14	Up	
		Ki	iP 12 15 22.3					iP	02 01 35.9
			i 12 15 24.6					ipP	02 01 43.1
			iS 12 18 29			Ki	iP	02 02 43.7	
			micr sec			Um	ipP	02 02 16.4	
			i Z' 0.7 1.7			Crete (h = N).			
			Mx Z 6.1 14			"	14	Up	
		Um	iP 12 15 33.5					iP	02 57 15.5
			iS 12 18 38					i	02 57 34.5
		Iceland (h = 10 km).				Ki	eP	02 58 29	
		m = 5.6, M = 4.6 (Up,Ki).				Um	ipP	02 58 08.4	
"	12	Up	iP 16 54 20.5 C			Southern Greece (h = 80 km).			
			i 16 54 26.7			"	14	Up	
		Ki	iP 16 54 13.8					ipPKP1	03 48 41.2
		Um	iP 16 54 12.9 C					ipPKP	03 48 59.8
		Burma-India border region (h = 50 km).				South of Fiji Islands (h = 60 km).			
"	12	Ki	iP 17 12 44.6			"	14	Up	
		Um	iP 17 12 21.5						06 36
"	13	Up	iP 02 28 42.3					Mx	Z 1.0 20
		Ki	iP 02 27 48.8			Ki			06 34
		Um	iP 02 28 16.7						micr sec
		Unimak Island region (h = N).						Mx	Z 1.3 19
						Eastern Island Cardillera (h = 10 km).			
						M = 5.8 (Up,Ki).			
"	13	Up	ipPKP1 04 38 56.5			"	14	Ki	iP 10 01 45.0
		Ki	ipPKP 04 38 48.9					Um	iP 10 01 25.3
		Um	ipPKP 04 38 50.5			Carlsberg Ridge (h = 10 km).			
		Fiji Islands region (h = 660 km).				"	14	Up	
"	13	Ki	ipPKP 10 56 56.9					iP	21 19 00.1
		Santa Cruz Islands (h = N).						i	21 19 03.4
								i	21 19 11.3
"	13	Ki	iP 11 43 38.8			Ki	iP	21 18 23.4	
						Um	iP	21 18 39.5 D	
						Near s. coast of Honshu, Japan (h = 100 km).			
"	13	Up	iP 11 45 29.5			"	14	Up	
		Ki	iP 11 44 38.0					iP	21 54 15.4
		Kuril Islands (h = 120 km).				Ki	iP	21 54 08.4	
						Um	iP	21 54 06.4	
"	13	Up	iP 20 57 12.4					iS	22 01 28
			ipP 20 57 22.0			Tibet (h = N).			
			iS 21 06 03			"	15	Up	
			micr sec					iP	17 41 45.3
		Mx	Z 1.2 20			Pakistan (h = N).			
		Ki	iP 20 57 41.0			"	15	Up	
			ipP 20 57 50.6					iP	20 56 20.8
		Um	iP 20 57 30.4			Ki	iP	20 56 48.1	
			ipP 20 57 40.2			Um	iP	20 56 31.5	
			iS 21 06 37			Southern Iran (h = N).			
		Central Mid-Atlantic Ridge.							
		h = 35 km (Up,Ki,Um).							

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

1980					1980			
Aug.	15	Up	iP	21 43 01.4	Aug.	18	(cont.)	
		Ki	iP	21 43 04.8			Ki	iP 15 21 13.3
		Um	iP	21 43 06.7				ipP 15 21 28.7
				Northern Colombia				micr sec
				(h = 160 km).			Mx	Z 0.2 20
"	16	Up	iP	13 01 22.0			Um	iP 15 21 15.1
				Greece (h = 10 km).				ipP 15 21 30.5
							iSKS	15 31 44
							iS	15 32 28
"	16	Up	iPKP1	17 20 56.1			Near coast of Ecuador.	
		Um	iPKP	17 20 56.9			h = 55 km (Up,Ki,Um).	
				South of Fiji Islands			M = 5.1 (Up,Ki).	
				(h = 590 km).				
"	16	Up	iP	18 52 56.3	"	18	Up	iPKP1 17 57 54.0
		Ki	iP	18 52 24.0				micr sec
		Um	iP	18 52 37.8				PKP1 Z' 0.1 0.9
				South of Honshu, Japan			Ki	ePKP1 17 57 33
				(h = 500 km).			Um	iPKP1 17 57 41.9
							Kermadec Islands (h = N).	
"	16	Up	iP	21 43 50.8	"	18	Up	iP 18 08 56.2 C
		Ki	iP	21 42 56.7				micr sec
		Um	iP	21 43 24.7 C				P Z' 0.1 0.6
				Unimak Island region			Ki	iP 18 09 04.7 C
				(h = N).				micr sec
								P Z' 0.1 0.6
"	17	Ki	iP	09 15 39.4			Um	iP 18 08 54.3 C
		Um	iP	09 15 42.2			Hindu Kush region	
				Ceram (h = 25 km).			(h = 190 km).	
							m = 5.5 (Up,Ki).	
"	17	Ki	eP	16 16 36	"	18	Ki	iP 22 59 09.6
		Um	eP	16 16 30			Um	iP 22 59 38.9
				Southern Sinkiang Prov.,			Central Alaska (h = 40 km).	
				China (h = N).				
"	17	Ki	iPKP	20 55 36.6	"	19	Up	iSgl 01 14 09.5
		Um	iPKP	20 55 42.9			Ki	eSgl 01 16 39
				Vanuadu Islands			Sk	eSgl 01 14 37
				(h = 130 km).			Um	iSgl 01 14 44.3
							Ud	iPgl 01 13 48.5
"	17	Up	iP	23 02 18.1				iSgl 01 14 11.8
		Um	iP	23 02 55.5			Hälsingland, Sweden,	
				Greece (h = 10 km).			61.5°N, 16.2°E.	
							Origin time = 01 13 17.	
"	17	Um	iPKP	23 15 02.8			M <sub>L</sub> = 2.1 (Up,Um).	
				Southern Pacific Ocean			Felt.	
				(h = 10 km).				
"	18	Ki	i	03 51 18.3	"	19	Up	iP 15 40 04.9
				North Atlantic Ocean			Ki	iP 15 39 48.7 C
				(h = 10 km).			Um	iP 15 39 51.5
							Tibet (h = N).	
"	18	Up	iP	15 21 11.4	"	19	Up	iPKP1 16 34 48.7
			ipP	15 21 27.6			Ki	iPKP1 16 34 47.2
			iSKS	15 31 37			Um	iPKP1 16 34 42.0
			iS	15 32 21			West of Macquarie Island	
				micr sec			(h = 10 km).	
		Mx	Z	0.5 23				
				(cont.)				



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

1980					1980				
Aug.	22	Up	iP	17 05 20.7 D	Aug.	23	Up	iP	21 58 26.1
		Ki	iP	17 05 02.5				ipP	21 58 30.9
		Um	iP	17 05 08.3 D					micr sec
				Luzon, Philippine Islands				pP	Z' 0.2 1.1
				(h = 70 km).			Ki	iP	21 58 32.6
"	23	Up	iP	00 56 34.4				ipP	21 58 37.9
			ipP	00 56 50.4					micr sec
				micr sec				P	Z' 0.1 0.6
			p	Z' 0.1 0.8				pP	Z' 0.2 0.8
		Ki	iP	00 55 40.0 C				Mx	Z 3.7 14
			ipP	00 55 56.3			Um	iP	21 58 23.6
				micr sec				ipP	21 58 28.7
			P	Z' 0.2 0.9					Kashmir-India border region.
		Um	iP	00 56 08.1 C					h = 20 km (Up,Ki,Um).
			ipP	00 56 24.0					m = 6.1 (Up,Ki).
				Alaska Peninsula.	"	24	Up	iP	01 05 24.3
				h = 55 km (Up,Ki,Um).			Ki	iP	01 05 25.6
				m = 6.0 (Up,Ki).					micr sec
"	23	Ki	eP	01 47 19				P	Z' 0.1 1.0
		Um	iP	01 47 24.1			Um	iP	01 05 28.8
				Panama-Colombia border					Panama-Colombia border
				region (h = N).					region (h = N).
"	23	Ki	iP	04 40 32.7	"	24	Up	iP	13 55 32.7
				Northern Colombia			Ki	iP	13 54 58.9
				(h = 160 km).			Um	iP	13 55 13.9
"	23	Ki	iP	11 20 54.2					South of Honshu, Japan
		Um	iP	11 21 36.8					(h = 50 km).
				North of Svalbard	"	24	Um	ipKP	15 04 36.6
				(h = 10 km).					South of Fiji Islands
"	23	Ki	iP	13 34 58.6					(h = 500 km).
				Tibet (h = 45 km).	"	24	Up	ipKP	20 29 18.7
"	23	Up	iP	19 51 42.0 C				iSKP1	20 33 00.6
		Ki	iP	19 51 21.4			Ki	ipKP	20 29 05.3
		Um	iP	19 51 28.8 C				ipPKP	20 29 16.9
				Luzon, Philippine Islands			Um	ipKP	20 29 12.1
				(h = 30 km).				ipPKP	20 29 24.7
"	23	Up	iP	21 45 15.2 C				iSKP1	20 32 46.1
			i	21 45 19.7					Tonga Islands (h = 40 km).
			eS	21 51 57					M = 5.9 (Up,Ki).
				micr sec	"	25	Up	iP	01 53 00.4
			P	Z' 0.1 0.7				i	01 53 09.9
		Ki	iP	21 45 22.1 C			Ki	iP	01 52 54.8
			i	21 45 28.3			Um	i	01 53 08.7
				micr sec					Southern Sumatera
			P	Z' 0.2 0.8					(h = 70 km).
			Mx	Z 8.4 14	"	25	Ki	iP	03 56 36.7
		Um	iP	21 45 13.3 C			Um	iP	03 56 37.6
			i	21 45 18.7					Tibet (h = N).
			iS	21 51 55	"	25	Up	iP	08 05 05.0 D
				Kashmir-India border region					Ryukyu Islands (h = 100 km).
				(h = 25 km).					
				m = 6.0 (Up,Ki).					



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1980				1980			
Aug.	25	Up eP	08 41 44	Aug.	27	(cont.)	
		Southern Greece (h = N).				Um iP	04 41 21.4 C
"	25	Up iSgl	16 48 07.6			South Burma (h = 30 km).	
		Ki iSgl	16 48 13.6			m = 6.1 (Up,Ki).	
		Sk eSgl	16 47 48	"	27	Um iP	08 29 20.5
		Ud iSgl	16 47 06.4	"	27	Up iP	09 22 18.5
		De iSgl	16 47 56.6	"	27	Ki iP	10 18 23.7
		Southern Norway, near				Um iP	10 18 51.0
		59 1/2°N, 7°E.		"	27	Up iP	20 31 44.3
		Origin time = 16 45 20.				Ki iP	20 31 29.4
		M <sub>L</sub> = 2.7 (Ud,De).				Um iP	20 31 30.4
"	25	Up i(P)	22 39 21.5			Northern Sinkiang Prov.,	
"	26	Up iSgl	03 16 58.9			China (h = N).	
		Sk eSgl	03 18 54	"	27	Um iP	21 14 00.4
		Um iSgl	03 19 07.2	"	28	Up iP	03 44 03.4
		Ud iSgl	03 16 58.5			Ki iP	03 43 57.7
		De iPgl	03 16 13.4			Um iP	03 43 56.4
		iSgl	03 16 33.6			Burma (h = 120 km).	
		Östergötland-Småland,		"	28	Up iP	08 06 32.9
		Sweden, 57.8°N, 15.2°E.				Ki iP	08 06 30.6
		Origin time = 03 15 46.				Um iP	08 06 28.1
		M <sub>L</sub> = 2.1 (Up,Ud,De).				South Burma (h = 40 km).	
		Felt.		"	29	Ki iP	00 07 42.4
"	26	Up iP	05 18 01.3			Luzon, Philippine Islands	
		Um iP	05 17 50.1			(h = N).	
		Tibet (h = N).		"	29	Ki iP	04 05 17.4
"	26	Ki iPgl	08 22 15.4			Southern Iran (h = N).	
		iSgl	08 22 46.4	"	29	Up iP	09 10 13.7
		Sk iSgl	08 24 03.0			Gulf of California	
		Um iSgl	08 22 39.2			(h = 15 km).	
		Norrbotten, Sweden, 65.6°N,		"	29	Up iP	15 59 32.7
		22.5°E.				micr sec	
		Origin time = 08 21 34.				P Z'	0.1 1.1
		M <sub>L</sub> = 2.3 (Um).				Ki eP	15 59 21
		Checked with Finnish				Tibet (h = 40 km).	
		station readings.		"	30	Up iP	03 37 33.2
"	26	Up iPKP2	17 24 57.1			Tibet (h = N).	
		Um iPKP1	17 24 40.8	"	30	Up eS	04 40 05
		South of Kermadec Islands				micr sec	
		(h = N).				Mx Z	1.1 14
"	26	Um iP	20 21 00.5			Ki eP	04 29 17
"	26	Um iP	23 11 35.8			micr sec	
"	27	Up iP	04 41 26.2 C			Mx Z	1.2 14
			micr sec			Um iP	04 29 33.0
		P Z'	0.2 1.0			Gulf of California (h = 15 km).	
		Ki iP	04 41 24.0 C			M = 5.4 (Up,Ki).	
			micr sec				
		P Z'	0.2 1.2				
		(cont.)					

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

1980

Aug. 30 Up iP 08 43 45.0  
Ki iP 08 42 57.4  
Um iP 08 43 19.3  
Kuril Islands (h = N).

" 30 Ki iPKP 18 02 31.7  
New Britain region  
(h = 35 km).

" 31 Up iPKP 14 31 41.3  
Ki iPKP 14 31 25.8  
Um iPKP 14 31 32.3  
Santa Cruz Islands  
(h = 40 km).

" 31 Up iP 16 40 41.2  
iS 16 48 31  
micr sec  
Mx Z 2.8 21  
Ki iP 16 41 13.6  
micr sec  
P Z' 0.1 0.9  
Mx Z 0.8 15  
Um iP 16 40 53.7  
iS 16 48 57  
Arabian Sea (h = 10 km).  
M = 5.2 (Up,Ki).

" 31 Up iPKP2 17 57 16.9  
Ki iPKP1 17 56 43.7  
Um iPKP1 17 56 51.8  
Off W. coast of N.  
Island, N.Z. (h = 160 km).

" 31 Ki eP 22 15 30  
Western Gulf of Aden  
(h = 10 km).

" 31 Ki iP 23 46 15.3  
Kirghiz-Sinkiang border  
region (h = 40 km).

April 27, 1982  
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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, UMEÅ,

UDDEHOLM and DELARY

Uppsala	(Up):	59 <sup>0</sup> 51.5'N,	17 <sup>0</sup> 37.6'E;	h = 14 m
Kiruna	(Ki):	67 <sup>0</sup> 50.4'N,	20 <sup>0</sup> 25.0'E;	h = 390 m
Skalstugan	(Sk):	63 <sup>0</sup> 34.8'N,	12 <sup>0</sup> 16.8'E;	h = 580 m
Umeå	(Um):	63 <sup>0</sup> 48.9'N,	20 <sup>0</sup> 14.2'E;	h = 16 m
Uddeholm	(Ud):	60 <sup>0</sup> 05.4'N,	13 <sup>0</sup> 36.4'E;	h = 240 m
Delary	(De):	56 <sup>0</sup> 28.2'N,	13 <sup>0</sup> 52.2'E;	h = 150 m

SEPTEMBER 1 - 30, 1980

1980					1980				
Sep.	1	Up	iP	03 13 59.2	Sep.	2	Up	iP	15 31 57.5
		Um	iP	03 13 33.3			Ki	eP	15 31 46
		Northwest of Kuril Islands (h = 380 km).					Um	iP	15 31 47.2
							Tibet (h = N).		
"	2	Ud	iPg1	09 01 25.8	"	2	Up	iS	16 49 47
			iSg1	09 01 46.6			Ki	eP	16 39 11
		De	eSg1	09 02 56				iS	16 49 41
		Southeastern Norway, near 60°N, 10 1/2°E. Origin time = 09 00 58. M <sub>L</sub> = 2.2 (Ud).					Um	iP	16 39 19.7
								iS	16 49 47
							Near coast of Guatemala (h = 60 km).		
"	2	Up	iP	10 40 38.9 D	"	2	Up		micr sec
				micr sec			Mx	Z	1.6 17
		P	Z'	0.1 0.8			Ki	iP	16 49 23.7
		Ki	iP	10 40 29.1					micr sec
		i		10 40 38.0			Mx	Z	1.2 14
				micr sec			Um	iP	16 49 11.4
		P	Z'	0.1 1.2			India (h = N).		
		Um	iP	10 40 37.8 D			M = 5.2 (Up,Ki).		
		Honduras (h = 25 km). m = 6.0 (Up,Ki).			"	2	Um	iP	17 58 38.8
"	2	Up	iP	13 32 35.9	"	3	Up	iP	22 25 36.9
			ipP	13 33 02.9				iSKS	22 36 03
		Ki	iP	13 32 44.0				iS	22 36 25
		Um	iP	13 32 34.1					micr sec
		Afghanistan-USSR border region. h = 110 km (Up).					P	Z'	0.5 2.1
							Mx	Z	4.1 20
						Ki	iP	22 25 37.5 C	
							i	22 25 50.2	
"	2	Up	iP	13 47 15.8				iSKS	22 36 06
		Ki	iP	13 47 59.0				iS	22 36 33
		Um	iP	13 47 34.9					micr sec
		i		13 47 48.8			P	Z'	0.7 2.1
		Western Gulf of Aden (h = 10 km).					Mx	Z	3.3 20

(cont.)

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

1980								1980	
Sep.								Sep.	
3	(cont.)							6	Up iP 08 35 46.0
	Um iP	22 25	39.8 C						Ki iP 08 35 14.5
	i	22 25	46.9						Um iP 08 35 27.9
	iSKS	22 36	09						Bonin Islands region
	iS	22 36	33						(h = 480 km).
	South of Panama (h = N).							"	6 Up iRg 15 58 08.5
	m = 6.5, M = 5.9 (Up,Ki).								Dannemora rockburst.
"	4	Up iP	11 04 09.6					"	6 Up i 16 23 14.3
		iS	11 12 37						i 16 23 16.6
			micr sec						i 16 23 27.6
		Mx Z	1.8 19						i 16 23 32.2
		Ki eP	11 03 13						iRg 16 23 34.3
		iS	11 10 59						Ud iSgl 16 24 27.6
			micr sec						iRg 16 24 38.6
		Mx Z	1.4 17						Dannemora, Uppland, Sweden,
		Um iP	11 03 42.5						60.2°N, 17.8°E.
		i	11 03 48.5						Origin time = 16 23 03.
		iS	11 11 49						Rockburst.
	Gulf of Alaska (h = N).							"	6 Up iRg 16 52 11.0
	M = 5.2 (Up,Ki).								Dannemora rockburst.
"	4	Ki iP	13 09 54.8					"	6 Up iP 19 39 41.4
		Um iP	13 10 00.4						Ki eP 19 38 47
	North of Halmahera								Andreanof Islands, Aleutian
	(h = 220 km).								Islands (h = 55 km).
"	5	Up eP	11 56 52					"	6 Up iP 21 37 16.9
		Ki iP	11 57 04.7						micr sec
		Um iP	11 57 01.6						Mx Z 1.5 13
	Windward Islands (h = N).								Ki iP 21 37 36.7
"	5	Up eP	20 05 49						micr sec
		Ki eP	20 05 20						P Z' 0.1 0.9
		Um eP	20 05 31						Mx Z 0.9 11
	Gulf of California								Um iP 21 37 21.3
	(h = 15 km).								Pakistan (h = 20 km).
"	5	Up iP	21 15 04.6						M = 5.1 (Up,Ki).
		i	21 15 10.8						"
			micr sec						7 Up iP 04 48 25.8
		Mx Z	0.4 11						Ki eP 04 47 50
		Ki iP	21 15 45.6						Um iP 04 48 10.9
		i	21 15 49.8						i 04 48 13.9
			micr sec						California-Nevada border
		Mx Z	0.7 13						region (h = 15 km).
		Um iP	21 15 19.1 C					"	7 Up iPKP 22 59 19.1
		i	21 15 35.3						Ki iPKP 22 59 34.8
	Western Caucasus (h = N).								Um iPKP 22 59 27.1
	M = 4.4 (Up,Ki).								South Sandwich Islands
"	5	Um iP	23 58 52.0						region (h = N).
"	6	Up iP	04 45 43.6					"	8 Up iP 05 38 19.7
		Um iP	04 45 15.9						Ki iP 05 37 50.5
	Andreanof Islands, Aleutian								Um iP 05 38 02.5
	Islands (h = 55 km).								Ryukyu Islands (h = N)

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

1980				1980					
Sep.	8	Ki	ePKP	15 08 47	Sep.	11	Up	iP	23 28 02.7
								iS	23 20 46.3
									micr sec
								P	Z' 0.1 0.7
"	8	Up	iPKP1	16 55 03.6 D			Ki	iP	23 29 27.6
			i	16 55 12.8			Um	iP	23 28 43.3
			Um	iPKP1	16 54 52.1			iS	23 32 01.1
				South of Fiji Islands					Southwestern Russia
				(h = 600 km).					(h = 20 km).
"	9	Ki	ePgl	08 08 07	"	12	Sk	iPgl	10 57 29.6
			iSgl	08 08 20.4				iSgl	10 57 34.4
				Norrbotten, Sweden, 67.7°N,				iRg	10 57 36.2
				22.6°E.					Local near-surface event.
				Origin time = 08 07 49.					Origin time = 10 57 23.
				M <sub>L</sub> = 1.9 (Ki).					
				By combination with Finnish	"	12	Up	i(P)	14 16 27.0
				station readings.	"	12	Ki	iP	14 28 15.4
"	9	Um	i(P)	14 04 33.8					Ceram (h = N).
"	9	Up	eP	22 32 20	"	12	Up	iPKP	20 20 10.9
				micr sec				iPKP2	20 20 22.5
				Mx Z 1.4 21			Ki	iPKP	20 19 58.1
		Ki	iP	22 31 43.4			Um	iPKP	20 20 04.3
				micr sec				i	20 20 12.3
				P Z' 0.2 1.8					South of Kermadec Islands
				Mx Z 1.3 19					(h = 15 km).
		Um	iP	22 31 59.0	"	12	Up	ePKP1	20 36 42
			i	22 32 19.5			Um	iPKP1	20 36 28.6
				Near s. coast of Honshu,					South of Kermadec Islands
				Japan (h = N).					(h = 35 km).
				M = 5.3 (Up, Ki).	"	13	Up	iP	00 47 02.6
"	10	Ki	iP	09 00 35.6					micr sec
				Banda Sea (h = 510 km).				P	Z' 0.1 1.2
"	10	Ki	eP	14 46 32			Ki	eP	00 46 50
				Southern Iran (h = N).			Um	iP	00 46 52.3
"	10	Up	iP	21 19 49.5					Tibet (h = N).
		Ki	iP	21 18 55.9	"	13	Up	iSgl	08 02 32.1
		Um	iP	21 19 21.3			Ki	iSgl	08 01 33.5
				Near east coast of			Sk	iSgl	08 01 53.9
				Kamchatka (h = N).			Um	iPgl	08 00 09.8
								iSgl	08 00 21.0
							Ud	iSgl	08 02 48.5
"	11	Ki	eP	04 21 45					Västerbotten, Sweden,
		Um	iP	04 21 50.9					64,6°N, 20.7°E.
				Ceram (h = 70 km).					Origin time = 07 59 57.
									M <sub>L</sub> = 2.6 (Ki, Ud).
"	11	Up	iPKP1	10 48 40.8 C					Felt.
		Um	ePKP1	10 48 29	"	14	Up	iP	02 49 36.7 C
			i	10 48 37.4				iPn	02 50 38.8
				South of Fiji Islands				iPP	02 50 52.7
				(h = 500 km).					(cont.)

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

1980				1980			
Sep.	14	(cont.)		Sep.	16	Up eP	21 12 08
		Up	micr sec			Um iP	21 11 53.8
		P	Z' 1.6 1.0			Philippine Islands region	
		Mx	Z 1.7 10			(h = 80 km).	
		Ki iP	02 49 20.9 C		"	16	Up iPKP1 23 51 53.6
		i	02 50 19.4				iSKP1 23 54 40.4
			micr sec			Ki iPKP	23 51 44.1
		P	Z' 3.0 1.0			iSKP1	23 54 16.8
		Mx	Z 0.9 8			Um i(PKP)	23 51 45.9
		Um iP	02 49 21.4 C			iPKP	23 51 52.6
		i	02 50 16.0			iSKP1	23 54 28.5
		Eastern Kazakh SSR.				Fiji Islands region	
		m = 7.0, M = 5.0 (Up,Ki).				(h = 600 km).	
		Underground explosion.					
"	14	Um iP	06 45 32.0	"	19	Up iP	08 58 03.0 C
		i	06 45 45.8			ipP	08 58 40.1
"	14	Up iP	16 13 52.5			i	08 58 49.1
		Ki iP	16 13 45.7			iS	09 08 12.6
		Um iP	16 13 45.0				micr sec
		Burma (h = 110 km).				P	Z' 0.2 0.8
"	15	Ki eP	04 04 58			Ki iP	08 57 45.6 C
		Um iP	04 04 36.2			ipP	08 58 20.4
		Western Iran (h = N).					micr sec
"	15	Up iPKP	04 47 24.8			Um iP	P Z' 0.5 1.5
		iSKP1	04 50 50.1				08 57 50.9 C
		Ki iPKP	04 47 31.2			Mindoro, Philippine Islands.	
		Um iPKP	04 47 32.0			h = 150 km (Up,Ki).	
		iSKP1	04 51 01.7			m = 6.0 (Up,Ki).	
		South Shetland Islands		"	19	Up iP	09 37 53.6 C
		(h = N).				ipP	09 39 28.5
"	15	Um iP	11 34 28.6				micr sec
"	15	Up iPKP1	21 40 03.5			P	Z' 0.2 0.7
		South of Fiji Islands				Ki iP	09 38 02.5
		(h = 530 km).				ipP	09 39 50.0
"	16	Up iP	13 41 07.5				micr sec
		Ki iP	13 40 23.7			P	Z' 0.6 1.0
		Um iP	13 40 43.1			Um iP	09 37 51.8 C
		Eastern Sea of Japan				ipP	09 38 36.9
		(h = 260 km).				Hindu Kush region.	
"	16	Up iP	15 35 54.6			h = 220 km (Um).	
		Ki iP	15 35 55.9			m = 5.8 (Up,Ki).	
		ipP	15 36 07.2	"	19	Up iRg	10 18 15.6
		Um iP	15 35 51.7			Ud iSg1	10 18 49.9
		ipP	15 36 03.1			Regional near-surface event.	
		Off w. coast of northern		"	19	Up iP	11 12 40.5
		Sumatera.				Um iP	11 12 29.7
		h = 40 km (Ki,Um).				Tibet (h = 35 km).	
				"	19	Up iRg	15 34 46.0
						Ud iSg1	15 55 00.9
						Regional near-surface event.	







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

1980				1980			
Sep.				Sep.			
26	(cont.)			28	(cont.)		
	Um	iPKP	17 47 04.1		Um	iPKP	18 44 31.2
		ipPKP	17 47 39.6			iPKKP	18 55 19.6
	Vanuatu Islands. h = 130 km (Um).				Solomon Islands (h = 70 km).		
"	26	Um	iPKP 20 45 58.3	"	28	Up	iP 21 48 12.1
			Southern Pacific Ocean (h = 10 km).			Ki	iP 21 47 30.9
						Um	iP 21 47 48.8
						Near east coast of Honshu, Japan (h = 80 km).	
"	26	Um	iPKP1 23 55 17.1	"	29	Up	iP 00 29 53.7
			Kermadec Islands (h = 270 km).			i	00 30 01.9
						Ki	eP 00 29 50
"	27	Up	iPKP1 02 04 16.3			Andaman Islands region (h = N).	
		Um	iPKP1 02 04 00.2	"	29	Ki	iPg1 02 02 55.0
			Kermadec Islands (h = 90 km).			iSg1	02 03 18.0
"	27	Ki	iPKP 03 12 56.3			Sk	iSg1 02 04 47.5
		Um	iPKP 03 12 49.7			Um	iSg1 02 03 39.0
			South Sandwich Islands region (h = N).			Norrbotten, Sweden, <del>66.10°N, 21.6°E.</del> <sup>15</sup> <i>66.2 23.7</i>	
"	27	Up	iP 06 36 47.1			Origin time = 02 02 <sup>15</sup> 25.	
			ipP 06 37 23.9			$M_L = 2.4$ (Ki,Um).	
		Ki	iP 06 36 49.5	"	29	Up	iP 09 51 01.7
			ipP 06 37 27.0			Southern Greece (h = N).	
		Um	iP 06 36 51.5	"	29	Up	iP 12 35 08.1
			ipP 06 37 29.3			Mediterranean Sea (h = N).	
		Mona Passage. h = 160 km (Up,Ki,Um).		"	29	Up	iP 18 44 58.8 C
"	28	Up	iP 00 31 10.7			ipP	18 45 26.4
		Ki	iP 00 30 44.0			Ki	iP 18 44 12.1 C
		Um	iP 00 30 53.8			Um	iP 18 44 33.2 C
		Southwestern Ryukyu Islands (h = 100 km).				Kuril Islands. h = 120 km (Up).	
"	28	Up	iPKP1 02 58 22.7	"	30	Up	iPn 01 05 25.5
		Um	iPKP1 02 58 11.0			iSg1	01 08 07.7
"	28	Up	ePKP 14 48 25			Ki	iLg1 01 12 22.3
		Ki	iPKP 14 48 36.4			Um	iP 01 06 07.3
		South Sandwich Islands region (h = 100 km).				Poland (h = 10 km).	
"	28	Up	iPKP 18 44 37.4		30	Up	i(P) 23 55 26.3
			ipKKP 18 55 01.0			June 22, 1982	
			i 18 55 05.0			Ingrid Båth	
		Ki	ePKP 18 44 27			Conny Holmqvist	
			ipKKP 18 55 19.1			Ota Kulhānek	
			i 18 55 31.8			Klaus Meyer	
		(cont.)					

SEISMOLOGICAL DEPARTMENT  
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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, UMEÅ,

UDDEHOLM and DELARY

Uppsala	(Up):	59 <sup>0</sup> 51.5'N,	17 <sup>0</sup> 37.6'E;	h = 14 m
Kiruna	(Ki):	67 <sup>0</sup> 50.4'N,	20 <sup>0</sup> 25.0'E;	h = 390 m
Skalstugan	(Sk):	63 <sup>0</sup> 34.8'N,	12 <sup>0</sup> 16.8'E;	h = 580 m
Umeå	(Um):	63 <sup>0</sup> 48.9'N,	20 <sup>0</sup> 14.2'E;	h = 16 m
Uddeholm	(Ud):	60 <sup>0</sup> 05.4'N,	13 <sup>0</sup> 36.4'E;	h = 240 m
Delary	(De):	56 <sup>0</sup> 28.2'N,	12 <sup>0</sup> 52.2'E;	h = 150 m

OCTOBER 1 - 31, 1980

1980					1980				
Oct.	1	Um	iPKP	05 50 32.5	Oct.	2	Up	iP	17 59 05.5
"	1	Um	iPKP	07 09 26.9			Um	iP	17 58 43.3
"	1	Um	iP	07 30 53.2			Near east coast of Honshu, Japan (h = 65 km).		
"	1	Um	iP	12 13 34.9	"	2	Up	iP	19 19 02.6
"	1	Um	iPKP	19 03 38.5				ipP	19 19 12.4
"	1	Up	iPKP1	21 47 00.4					micr sec
"	1	Um	iPKP1	21 46 48.5				pP	Z' 0.3 1.0
"	1	Um	i	21 46 56.1			Ki	iP	19 18 41.1
				Kermadec Islands (h = 160 km).				ipP	19 18 50.2
"	2	Up	iP	01 21 20.6					micr sec
"	2	Ki	iP	01 20 42.0				P	Z' 0.1 0.6
"	2	Um	iP	01 20 56.7				pP	Z' 0.4 1.1
				Lake Baikal region (h = N).	"	2	Um	iP	19 18 48.5
"	2	Up	iP	03 53 42.7				ipP	19 18 59.3
"	2	Ki	iP	03 53 01.8					Philippine Islands region.
				Vancouver Island region (h = 10 km).	"	2	Ki	iP	22 09 34.0
"	2	Up	iPKP1	04 10 54.0			Um	iP	22 09 52.2
"	2	Ki	iPKP1	04 10 34.5					Near east coast of Eastern USSR (h = 360 km).
"	2	Um	iPKP1	04 10 44.6	"	2	Up	iP	23 13 21.6
"	2	i		04 10 57.5			Ki	iP	23 14 24.5
				Off east coast of N. Island, N.Z. (h = N).					Turkey (h = 10 km).
"	2	Um	iP	14 40 03.8	"	3	Up	i	02 11 32.8
"	2	Up	iPKP1	16 07 48.8				iPKP	02 11 38.7
"	2	Ki	iPKP	16 07 41.3			Ki	iPKP	02 11 25.7
"	2	Um	iPKP	16 07 43.1				iSKP1	02 14 02.0
				Fiji Islands region (h = 600 km).			Um	i	02 11 26.1
"	3	Ki	iSg1	13 38 21.1				iPKP	02 11 31.6
"	4	Up	iP	03 37 37.8					Fiji Islands region (h = 550 km).
"	4	Ki	iP	03 37 18.6					

(cont.)

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

1980				1980			
Oct.	4	(cont.) Um iP	03 37 25.5	Oct.	5	Ki iP	17 32 37.8
		Philippine Islands region (h = N).				P Z'	0.1 0.9
"	4	Up iPKP	03 49 30.6	"	6	Up iPKP	01 24 01.0
		Um iPKP	03 49 15.9			Ki iPKP	01 23 50.7
"	4	Ki Mx	05 51	"	6	Up iP	05 33 55.6
			micr sec			Ki eP	05 33 17
		Mx Z	2.1 17			Um iP	05 33 33.6
		Fiji Islands region (h = N).				Near east coast of Honshu, Japan (h = 80 km).	
"	4	Um iPKP	13 15 35.1	"	6	Ki iP	15 05 53.0
		Vanuadu Islands (h = 210 km).				Alaska (h = N).	
"	4	Ud iSgl	13 29 35.1	"	6	Ki iP	15 24 33.0
						Gulf of Alaska (h = N).	
"	4	Up iP	15 17 19.1	"	7	Ki iP	01 10 21.7
		ipP	15 17 23.7			Kirghiz SSR (h = N).	
		iS	15 21 38	"	7	Up iP	09 40 41.8 D
			micr sec			iS	09 47 40
		P Z'	0.1 0.9				micr sec
		Ki iP	15 18 25.3			P Z'	0.3 1.4
		ipP	15 18 28.9			Ki iP	09 40 38.1
			micr sec				micr sec
		P Z'	0.2 0.9			P Z'	0.3 1.5
		Um iP	15 17 51.0			Um eP	09 40 33
		i	15 18 01.9			iS	09 47 25
		iS	15 22 31			Tibet (h = N).	
		Dodecanese Islands. h = 15 km (Up, Ki). m = 5.7 (Up, Ki).				m = 6.1 (Up, Ki).	
"	4	Up iP	23 46 18.4	"	7	Ki iP	22 57 20.3
		Ki iP	23 45 41.7			Kirghiz-Sinkiang border region (h = N).	
		Um iP	23 45 57.0	"	8	Up iP	05 36 09.4
		Sea of Japan (h = 370 km).					micr sec
"	5	Up iP	11 41 38.8			P Z'	0.1 1.2
		Mid Indian Rise (h = 10 km).				Ki iP	05 37 38.0
"	5	Up iPKP2	15 53 05.2			Um iP	05 36 53.1
		i	15 53 17.6			i	05 36 56.9
		Ki iPKP1	15 52 32.4			Yugoslavia (h = 10 km).	
		i	15 52 46.6	"	8	Up iP	06 04 56.0 C
		Um iPKP1	15 52 40.0				micr sec
		iPKP2	15 52 48.7			P Z'	0.4 0.5
		North Island, New Zealand (h = 30 km).				Ki iP	06 05 28.1 C
"	5	Up iRg	17 13 03.7			i	06 05 37.8
		Local near-surface event.					micr sec
"	5	Up iRg	17 14 14.6			P Z'	0.4 0.4
		Local near-surface event.				Um iP	06 05 04.3 C
						i	06 05 05.6
						Southwestern USSR (h = 0).	
						m = 6.3 (Up, Ki).	

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

1980				1980				
Oct.	8	Up	iP	07 05 17.4	Oct.	9	Ki eP	02 18 22
				micr sec			Um iP	02 18 39.4
			P	Z' 0.1 1.1			Near east coast of Honshu, Japan (h = 50 km).	
		Ki	iP	07 05 19.4				
				micr sec				
			P	Z' 0.1 0.9		"	9	Ki iP
		Um	iP	07 05 13.2				06 09 24.3
		Eastern Kashmir (h = N).						West Caroline Islands (h = N).
		m = 5.6 (Up,Ki).						
"	8	Up	iP	07 22 59.2	"	9	Sk	iSgl 08 56 40.0
		Ki	iP	07 22 59.0				iRg 08 56 42.3
		Um	iP	07 23 51.9			Local near-surface event.	
		Eastern Kashmir (h = N).			"	9	Ki	iPKP 11 51 59.0
"	8	Um	iP	09 30 45.2 D			Vanuadu Islands (h = N).	
		Minihassa Peninsula (h = 150 km).			"	9	Up	iPKP 16 38 56.9
"	8	Up	iP	16 17 53.4				micr sec
			iPP	16 21 30.1			Mx	Z 4.0 24
			iSKS	16 28 50			Ki	iPKP 16 38 40.9
			iS	16 28 56				i 16 38 42.4
				micr sec				micr sec
			Mx	Z 5.7 17				Mx Z 2.1 21
		Ki	iP	16 17 53.4			Um	iPKP 16 38 48.9
			iPP	16 21 23.1				i 16 38 50.8
				micr sec			Tonga Islands (h = N).	
			P	Z' 0.2 1.0			M = 6.0 (Up,Ki).	
			Mx	Z 11 19		"	9	Up iP
		Um	iP	16 17 52.4				18 23 17.3
			iPP	16 21 32.2				Um iP
			iS	16 28 46				18 22 57.3
		Southern Sumatera (h = N).					Near s. coast of southern Honshu (h = 390 km).	
		M = 6.1 (Up,Ki).			"	10	Up	iP
"	8	Up	iP	16 29 16.8				02 45 45.0
		Ki	iP	16 29 12.2				i 02 45 49.4
		Tibet (h = N).						i 02 46 05.0
"	8	Ki	iP	17 18 27.2			Ki	eP 02 45 38
		Um	iP	17 19 21.7			Um	iP 02 45 41.2
		Svalbard region (h = 10 km).						i 02 45 50.4
"	8	Up	iP	22 14 31.5			Burma-India border region (h = N).	
				micr sec		"	10	Up
			P	Z' 0.1 1.0				iPKP1 09 32 08.9
		Ki	iP	22 14 33.6				iPKP2 09 32 19.6
				micr sec				Ki iPKP1 09 32 49.7
			P	Z' 0.1 1.0				Um iPKP1 09 32 58.9
		Um	iP	22 14 35.8				iPKP2 09 33 03.5
		Ecuador (h = 190 km).					East of North Island, N.Z. (h = N).	
		m = 6.0 (Up,Ki).			"	10	Ki	iP
"	9	Up	iP	00 17 18.1				11 16 22.2
		Ki	iP	00 16 30.7			Um	ipP 11 16 03.1
		Kuril Islands (h = 95 km).					N.W. Iran-USSR border region (h = N).	
"	10	Up	iP	12 30 55.0				iS 12 35 28.5
			ipP	12 30 58.2			(cont.)	
			iS	12 35 28.5				

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

1980				1980				
Oct.	10	(cont.)		Oct.	10	Up	iP	15 42 25.1
		Up				Algeria (h = 10 km).		
		P	Z'			Up	iP	15 44 41.2 C
		Ki	iP				iS	15 49 07.0
		ipP						micr sec
							P	Z'
		Um	iP				Mx	Z
		ipP				Ki	iP	15 45 49.3 C
							iS	15 51 11
		Algeria.						micr sec
		h = 10 km (Up,Ki,Um).					P	Z'
		m = 7.1 (Up,Ki).					Mx	Z
"	10	Up	iP			Um	iP	15 45 17.7 C
						Algeria (h = 10 km).		
		P	Z'			m = 6.6, M = 6.2 (Up,Ki).		
		Ki	iP			"	10	Up
		ipP						iP
								17 20 49.9
		Um	iP					Algeria (h = 10 km).
		ipP				"	10	Ki
								iP
		Algeria (h = 10 km).						17 35 15.5
		m = 6.0 (Up,Ki).				"	10	Up
"	10	Up	iP					iP
								17 38 31.7 C
"	10	Up	iP					micr sec
								P
"	10	Up	iP					Z'
						Ki	iP	17 39 39.7 C
								micr sec
"	10	Up	eP					P
		Ki	iP					Z'
		Um	iP			Um	iP	17 39 08.9 C
						Algeria (h = 10 km).		
		Nepal (h = N).				m = 5.7 (Up,Ki).		
"	10	Up	iP			"	10	Up
								iP
								19 13 30.8
								micr sec
		P	Z'					P
		Ki	iP					Z'
		ipP				Ki	iP	19 14 39.2
								micr sec
		Um	iP					P
		ipP						Z'
						Um	iP	19 14 08.3
						Algeria (h = 10 km).		
		Algeria (h = 10 km).				m = 5.9 (Up,Ki).		
		m = 5.6 (Up,Ki).		"	11	Up	iP	01 34 47.5
"	10	Up	eP			Algeria (h = 10 km).		
		Um	iP			"	11	Up
								iP
								05 46 25.4
"	10	Up	iP					iP
								05 47 34.7
						Algeria (h = 10 km).		
						"	11	Up
								iP
								07 14 25.2
								iS
								07 18 01
								micr sec
								P
								Z'
						Ki	iP	07 12 54.6 C
								eS
								07 15 09
								micr sec
								P
								Z'
								1.1 1.1
						Novaya Zemlaya.		
						Underground explosion.		

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

1980				1980			
Oct.	11	Ki iP	10 29 38.5	Oct.	13	Up iP	03 48 47.1
"	11	Up iP	19 09 06.9			Um iP	03 49 29.4
"	11	Up iP	21 31 48.3			Tyrrhenian Sea (h = 500 km).	
"	11	Ki iP	22 23 12.3	"	13	Up iP	04 22 40.1
		i	22 23 14.9			Um iP	04 22 20.4
		ipP	22 23 34.7			South of Honshu, Japan (h = 410 km).	
			micr sec	"	13	Up iP	06 43 09.6
		i Z'	0.1 1.1			eS	06 47 50
		Mindanao, Philippine Islands (h = 80 km).					micr sec
"	12	Up iP	00 42 21.3			P Z'	0.1 0.7
		Algeria (h = 10 km).				Mx Z	2.6 9
"	12	Ki iP	00 49 34.6			Ki iP	06 44 18.7
		Fox Islands, Aleutian Islands (h = N).					micr sec
"	12	Up iP	03 41 12.5			P Z'	0.1 1.0
		iPn	03 42 18.3			Mx Z	2.1 10
		iPP	03 42 30.9			Um iP	06 43 46.5
			micr sec			Algeria (h = 10 km). m = 5.5 (Up,Ki).	
		P Z'	1.8 1.0	"	13	Up iP	09 06 16.7
		Ki iP	03 40 56.1 C			Ki iP	09 06 24.4
		iPn	03 41 56.2			Um iP	09 06 14.1
			micr sec			i	09 06 20.4
		P Z'	1.0 0.9			Afghanistan-USSR border region (h = 120 km).	
		Eastern Kazakh SSR. Underground explosion. m = 6.8 (Up,Ki).		"	13	Um iP	11 06 40.7
"	12	Up iP	04 07 49.1			Near east coast of Honshu, Japan (h = 80 km).	
		Algeria (h = 10 km).		"	13	Um iP	11 38 36.9
"	12	Ki iPKP2	11 42 36.8	"	13	Um iP	11 50 13.1
		Balleny Islands region (h = 10 km).		"	13	Up iP	14 39 12.0
"	12	Up iP	16 11 11.3			i	14 39 19.5
		Ki iP	16 11 01.6				micr sec
		i	16 11 12.3			i Z'	0.1 1.0
		Northern Sinkiang Prov., China (h = 45 km).				Ki iP	14 40 23
"	12	Ki iP	20 09 31.3			Um iP	14 39 50.2
		Um iP	20 09 54.2			Algeria (h = 10 km).	
		Kuril Islands (h = N).		"	14	Up Mx	06 28
"	12	Ki iP	22 34 18.4				micr sec
		Um iP	22 34 22.1			Mx Z	2.7 20
		Minihassa Peninsula (h = 180 km).				Ki Mx	06 20
							micr sec
						Mx Z	2.3 22
						New Britain region (h = 60 km). M = 5.8 (Up,Ki).	

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

1980				1980			
Oct.	14	Ki Mx	11 11	Oct.	16	Up iSg1	14 46 31.5
			micr sec			Ud iPg1	14 45 07.9
		Mx Z	0.9 19			iSg1	14 45 33.7
		New Britain region				De iSg1	14 46 21.1
		(h = 40 km).				Southeastern Norway, near	
"	14	Up iP	17 40 28.7			59 1/4°N, 10°E.	
		iS	17 44 59			Origin time = 14 44 33.	
			micr sec			M <sub>L</sub> = 2.0 (Ud).	
		P Z'	0.1 1.0	"	16	Ki iP	22 13 23.9
		Ki iP	17 41 37.0				
			micr sec	"	17	Ki i	14 31 35.5
		P Z'	0.1 1.3			i(Sg1)	14 31 43.7
		Mx Z	0.6 12			Sk i(Sg1)	14 31 58.2
		Um iP	17 41 05.9				
		Algeria (h = 10 km).		"	17	Up iSg1	19 00 57.9
		m = 5.5 (Up,Ki).				Sk iSg1	18 59 22.3
"	15	Up iP	09 30 50.6 C			Um eSg1	19 01 15
		Ki iP	09 29 56.4 C			Ud iSg1	18 59 59.6
		Um iP	09 30 24.6 C			Off western coast of Norway,	
		Alaska Peninsula (h = 25 km).				near 62 1/4°N, 5°E.	
"	15	Up iP	13 34 35.8			Origin time = 18 57 30.	
		iS	13 40 26.4			M <sub>L</sub> = 2.7 (Sk,Um,Ud).	
		Ki iP	13 35 14.5			By combination with Bergen	
		ipP	13 35 24.8			readings.	
		Southern Iran (h = 35 km).		"	18	Up eP	00 20 12
"	15	Ki iP	23 46 46.1				micr sec
"	16	Up iP	01 43 52.9			P Z'	0.1 1.1
		ipP	01 43 59.0			Mx Z	5.1 19
			micr sec			Ki eP	00 19 46
		pP Z'	0.1 1.0			i	00 19 57.3
		Mx Z	2.5 17				micr sec
		Ki iP	01 44 36.9			i Z'	0.1 1.2
		ipP	01 44 42.9			Um i	00 20 05.4
			micr sec			Taiwan (h = 25 km).	
		pP Z'	0.1 1.1	"	18	Up iP	03 19 27.5
		Mx Z	1.4 17			i	03 19 43.9
		Um iP	01 44 16.1			iS	03 23 50
		ipP	01 44 22.1				micr sec
		Ascension Island region.				P Z'	0.3 1.4
		h = 20 km (Up,Ki,Um).				Ki iP	03 20 17.2 D
		m = 5.8, M = 5.5 (Up,Ki).				i	03 20 54.8
"	16	Up iSg1	13 47 24.3				micr sec
		Ud iPg1	13 46 08.2			P Z'	0.2 1.4
		iSg1	13 46 28.4			Um iP	03 19 47.2 D
		iRg	13 46 38.7			i	03 20 06.3
		De iSn	13 47 08.4			Turkey (h = 35 km).	
		iSg1	13 47 19.7			m = 5.7 (Up,Ki).	
		Southeastern Norway,		"	18	Up iPKP1	10 14 59.6
		59 1/4°N, 11°E.					micr sec
		Origin time = 13 45 41.				PKP1 Z'	0.1 1.0
		Near-surface event, probably				Ki iPKP1	10 14 40.3
		explosion.				Um iPKP1	10 14 49.9
						South of Kermadec Islands	
						(h = 280 km).	

Up = Uppsala, Ki = Kiruna, Sk = Skalstugan, Um = Umeå, Ud = Uddeholm, De = Delary			
1980			1980
Oct. 18	Ki	iP	13 26 57.5
		i	13 27 52.6
	Caspian Sea (h = N).		
" 18	Ki	iP	13 33 33.5
" 18	Up	iP	18 30 07.0
	Ki	iP	18 30 16.4
	Um	iP	18 30 05.4
	Hindu Kush region (h = 110 km).		
" 19	Up	iP	02 51 33.7
			micr sec
	P	Z'	0.1 1.0
" 19	Up	iP	11 00 14.7
	Ki	iP	11 00 07.7
		i	11 00 16.8
	Eastern Kazakh SSR (h = 25 km).		
" 19	Up	iP	14 26 31.5
			micr sec
	P	Z'	0.1 1.0
	Ki	iP	14 26 18.6
	Qinghai province, China, (h = N).		
" 19	Up	iP	15 22 13.1
	Ki	iP	15 22 34.8
" 19	Up	iP	17 30 50.0 C
		iS	17 36 13
			micr sec
	P	Z'	0.1 0.8
	Mx	Z	8.3 14
	Ki	iP	17 31 31.4
		ipP	17 31 39.8
		i	17 31 50.4
			micr sec
	P	Z'	0.1 1.0
	pP	Z'	0.2 1.1
	Mx	Z	5.1 14
	Um	iP	17 31 06.3
		ipP	17 31 14.2
		iS	17 35 49
	Western Iran. h = 30 km (Ki,Um). m = 5.6, M = 5.6 (Up,Ki).		
" 19	Up	iP	19 38 46.6
			micr sec
	P	Z'	0.1 0.9
	Ki	iP	19 39 28.1
			micr sec
	P	Z'	0.1 1.0
	Western Iran (h = 45 km). m = 5.7 (Up,Ki).		
Oct. 19	Up	iP	21 52 57.0
	Algeria (h = 10 km).		
" 20	Up	iP	03 41 01.0 D
			micr sec
	P	Z'	0.3 1.2
	Ki	iP	03 40 24.3 D
			micr sec
	P	Z'	0.1 0.5
	Um	iP	03 40 40.4 D
	South of Honshu, Japan (h = 80 km). m = 6.0 (Up,Ki).		
" 20	Ki	i(PKP)	11 13 03.1
	Um	iPKP	11 13 13.4
	Solomon Islands (h = 70 km).		
" 20	Ki	iP	16 01 50.1
	Fox Islands, Aleutian Islands (h = 15 km).		
" 20	Up	iPKP	20 01 21.6 C
	Ki	iPKP	20 01 07.1 C
			micr sec
	PKP	Z'	0.1 0.5
	Um	iPKP	20 01 13.8
	Vanuatu Islands (h = 190 km).		
" 21	Up	iP	02 40 28.0
	Um	iP	02 41 05.4
	Aegean Sea (h = 10 km).		
" 21	Up	iP	04 12 01.1
	Ki	iP	04 13 15.5
	Um	iP	04 12 39.3
	Aegean Sea (h = 10 km).		
" 21	Up	iP	04 45 17.8
			micr sec
	P	Z'	0.2 1.5
	Ki	iP	04 45 03.0
" 21	Ki	iP	06 36 11.4
	Um	iP	06 37 05.7
		i	06 37 11.8
	Greenland Sea (h = 10 km).		
" 21	Up	iPg1	15 20 07.5
		iSg1	15 20 27.2
	Ud	iPg1	15 20 03.4
		iSg1	15 20 20.9
		iRg	15 20 26.9
	De	iSg1	15 20 59.9
	Närke, Sweden, 59.0°N, 15.2°E. Origin time = 15 19 40. Near-surface event, probably explosion.		



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

1980				1980			
Oct.	21	Up iP	16 56 21.3	Oct.	23	(cont.)	
		Algeria (h = 10 km).				Um iP	10 04 02.5
						Algeria (h = 10 km).	
"	22	Up iPKP1	00 17 00.3	"	23	Up e(P)	10 51 12
		iPKP2	00 17 06.8	"	23	Ki iSg1	10 56 30.0
			micr sec			eSg1	10 57 01
		PKP1 Z'	0.1 1.0			Sk iSg1	10 58 18.0
		PKP2 Z'	0.1 0.9			Um iSg1	10 56 54.7
		Ki ePKP1	00 16 38			Norrbotten, Sweden,	
		Um iPKP1	00 16 49.8			<del>65.6°N, 22.5°E.</del> <i>65.8, 21.7</i>	
		Kermadec Islands region				Origin time = 10 55 <sup>48</sup> .	
		(h = 400 km).				<sub>50</sub>	
"	22	Up iP	04 59 55.0			M <sub>L</sub> = 2.2 (Um).	
		Iran (h = N):				By combination with Finnish	
"	22	Ki iP	08 55 34.1			station readings.	
		West Irian (h = N).		"	23	Up iP	13 02 18.4
"	22	Up iP	16 23 15.1			Ki iP	13 02 12.2
						Burma (h = 140 km).	
"	22	Up iP	16 28 44.0	"	23	Ki iP	14 13 01.7
		i	16 28 45.4			Kalimantan (h = 50 km).	
			micr sec	"	23	Up iP	14 57 02.6
		i Z'	0.1 1.0			Ki eP	14 57 43
		Ki iP	16 29 52.6			Western Iran (h = N).	
			micr sec	"	23	Up i(P)	15 00 09.7
		P Z'	0.1 1.4	"	23	Up iP	23 24 36.9
		Um iP	16 29 20.9			Ki iP	23 24 22.4
		Algeria (h = 10 km).				Um eP	23 24 27
		m = 5.5 (Up,Ki).				Banda Sea (h = 160 km).	
"	22	Up iP	17 32 36.7	"	24	Up i(PKP)	03 44 47.9
		Um iP	17 32 15.3			iSKP1	03 48 32.1
		Honshu, Japan (h = 150 km).					micr sec
"	22	Up i	18 02 17.3			(PKP) Z'	0.3 1.8
		Ki iP	18 01 11.6 C			Mx Z	15 27
		Kuril Islands region				Ki i(PKP)	03 44 37.4
		(h = 20 km).				iPKP	03 44 41.5
"	22	Up i(P)	20 34 19.4			iSKP1	03 48 07.3
"	22	Up iP	21 40 56.2				micr sec
		Ionian Sea (h = N).				PKP Z'	0.2 1.6
"	23	Up iP	08 21 53.6			Mx Z	7.3 21
		Western Iran (h = 50 km).				Um i(PKP)	03 44 42.0
"	23	Up iP	08 52 47.0			iPKP	03 44 46.5
		i	08 52 52.1			i	03 47 20.1
		Aratian Sea (h = N).				iSKP1	03 48 15.5
"	23	Up i(P)	09 42 50.9			Loyalty Islands region	
"	23	Up iP	10 03 25.4			(h = N).	
		Ki eP	10 04 33			M = 6.5 (Up,Ki).	
		(cont.)		"	24	Um i(PKP)	05 01 01.2
						Loyalty Islands region	
						(h = N).	



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

1980				1980			
Oct.	25	Ki	iP	17 26 24.5 C	Oct.	27	(cont.)
				South of Alaska (h = N).			Up
							micr sec
"	25	Up	iP	19 00 46.7			P Z' 0.2 1.4
				Greece (h = 10 km).			Ki iP 08 58 22.1 C
							ipP 08 58 28.7
"	25	Ki	iP	20 18 01.1			micr sec
		Um	iP	20 18 11.6			P Z' 0.3 1.7
				Mariana Islands (h = 45 km).			Um iP 08 58 05.8
							ipP 08 58 12.2
"	25	Up	iP	20 49 03.7			iS 09 07 30
		Ki	iP	20 48 55.3			Central Mid-Atlantic ridge.
				Bali Sea (h = 610 km).			h = 20 km (Up,Ki,Um).
							m = 6.1 (Up,Ki).
"	26	Up	iP	02 33 37.7	"	27	Up Mx 14 25
				micr sec			micr sec
				P Z' 0.1 1.1			Mx Z 12 20
				Algeria (h = 10 km).			Ki ePKP 13 23 48
"	26	Up	iP	05 27 07.5 C			micr sec
			iPP	05 30 38			Mx Z 3.8 20
			iSKS	05 37 28			Um iPKP 13 23 52.8
			iS	05 37 50			Vanuatu Islands (h = N).
				micr sec			M = 6.4 (Up,Ki).
				P Z' 0.5 1.1	"	27	Um iPKP 13 43 36.7
				Mx Z 13 23			Loyalty Islands region
		Ki	iP	05 26 48.9 C			(h = N).
			iPP	05 30 07.3			Late arrival when compared
			iS	05 37 13.7			with the NEIS solution.
				micr sec	"	27	Up eP 16 19 05
				P Z' 1.1 1.6			i 16 19 24.5
				Mx Z 7.5 17			Ki eP 16 18 50
		Um	iP	05 26 55.1 C			Mindanao, Philippine
			iPP	05 30 18.9			Islands (h = 90 km).
			iS	05 37 21	"	27	Ki iP 23 20 20.0
				Samar, Philippine Islands			Um iP 23 20 39.4
				(h = 50 km).			Kuril Islands (h = 80 km).
				m = 6.7, M = 6.3 (Up,Ki).	"	28	Up iPKP1 02 57 53.9
"	26	Ki	iP	13 53 55.3			iPKP2 02 57 57.4
				Samar, Philippine Islands			micr sec
				(h = 55 km).			PKP1 Z' 0.3 1.0
"	26	Ki	Mx	20 44			PKP2 Z' 0.4 1.0
				micr sec			Mx Z 1.6 23
				Mx Z 0.8 18			Ki iPKP1 02 57 31.2
				Loyalty Islands region			iPKP 02 57 36.6
				(h = N).			micr sec
"	26	Ki	iP	22 43 50.9 C			PKP Z' 0.2 1.2
		Um	iP	22 44 18.9			Mx Z 1.7 26
				Fox Islands, Aleutian			Um iPKP1 02 57 41.7 C
				Islands (h = 45 km).			Kermadec Islands (h = N).
							M = 5.8 (Up,Ki).
"	27	Up	iP	08 57 43.0	"	28	Ki iPn 11 11 32.6
			ipP	08 57 49.8			Svalbard region (h = 10 km).
			i	08 58 02.4			
				(cont.)			

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

1980					1980				
Oct.	28	Up	iP	22 50 18.0	Oct.	30	(cont.)		
			i	22 50 27.2			Ki	Mx	18 57
		Ki	iP	22 49 59.8					micr sec
		Samar, Philippine Islands						Mx	Z 0.6 16
		(h = 50 km).					Loyalty Islands region		
"	28	Up	iP	23 32 28.4			(h = N).		
			ipP	23 32 45.0			M = 5.6 (Up,Ki).		
		Ki	iP	23 32 30.6 D	"	30	Ki	iP	19 22 41.3
			ipP	23 32 47.2			Iran (h = N).		
				micr sec			"	30	Up
			P	Z' 0.2 1.3					eP
		Um	iP	23 32 32.3					iP
		Northern Colombia.							iP
		h = 60 km (Up,Ki).							21 02 57.0
"	29	Up	iP	01 35 42.4			Alaska Peninsula		
		Algeria (h = 10 km).					(h = 130 km).		
"	29	Up	ePKP	18 03 29	"	30	Ki	eP	22 19 30
				micr sec			Northern Colombia		
			Mx	Z 9.2 21			(h = 170 km).		
		Ki	iPKP	18 03 21.5	"	30	Up	iP	23 43 42.5
			i	18 03 44.4					micr sec
				micr sec				P	Z' 0.1 1.1
			Mx	Z 3.8 20				Mx	Z 0.9 12
		Loyalty Islands region					Ki	iP	23 44 51.4
		(h = N).							micr sec
		M = 6.3 (Up,Ki).						P	Z' 0.1 0.7
"	29	Up	iP	18 56 55.1				Mx	Z 0.9 11
		Ki	iP	18 56 57.3			Um	iP	23 44 19.9
				micr sec				iS	23 49 18
			P	Z' 0.1 0.7			Algeria (h = 10 km).		
		Um	iP	18 56 52.4			m = 5.7, M = 4.7 (Up,Ki).		
		Nicobar Islands region			"	31	Up	iP	04 13 46.7
		(h = N).					Ki	Mx	04 32
"	30	Ki	iP	05 39 42.8					micr sec
		India-Bangladesh border						Mx	Z 0.7 14
		region (h = N).					Iran (h = N).		
"	30	Up	Mx	11 17	"	31	Up	iP	18 11 48.3
				micr sec			Southern Nevada.		
			Mx	Z 1.9 20			Underground explosion.		
		Ki	iPKP	10 12 14.6			July 5, 1982		
				micr sec			Ingrid Båth		
			Mx	Z 1.1 18			Conny Holmqvist		
		Um	iPKP	10 12 22.4			Ota Kulhánek		
		Loyalty Islands region					Rutger Wahlström		
		(h = N).							
		M = 5.8 (Up,Ki).							
"	30	Up	iP	16 34 50.9					
"	30	Up	Mx	18 59					
				micr sec					
			Mx	Z 1.4 20					
		(cont.)							

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, SKALSTUGAN, UMEÅ,  
 UDDEHOLM and DELARY

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°41.2'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

NOVEMBER 1 - 30, 1980  
 .....

1980					1980				
Nov.	1	Up	iP	04 53 47.9	Nov.	1	(cont.)		
			i	04 57 38.0			Ki		micr sec
				micr sec			Mx	Z	8.1 15
			P	Z' 0.1 1.0			Um	iS	23 15 56
		Ki	iP	04 53 21.1			Off coast of Jalisco,		
				micr sec			Mexico (h = N).		
			P	Z' 0.1 1.1			M = 6.3 (Up,Ki).		
		Um	iP	04 53 32.1					
		Mariana Islands (h = 100 km).							
		m = 5.9 (Up,Ki).			"	2	Ki	iSn	09 10 13.6
"	1	Up	iP	10 59 09.9				iSg1	09 10 23.6
			iS	11 08 00			Sk	iSg1	09 10 55.3
				micr sec			Um	iPg1	09 09 04.1 D
			Mx	Z 3.2 17				iSg1	09 09 17.7
		Ki		micr sec			Ud	eSg1	09 11 51
			Mx	Z 1.1 13			Gulf of Bothnia, off coast		
		Central Mid-Atlantic Ridge					of Västerbotten, 64.6°N,		
		(h = 10 km).					21.5°E.		
		M = 5.5 (Up,Ki).					Origin time = 09 08 46.		
							M <sub>L</sub> = 2.3 (Um).		
"	1	Up	iP	13 07 12.9	"	2	Up	iP	20 42 19.3
		Ki	iP	13 06 27.2			Ki	iP	20 41 52.7
		Um	iP	13 06 44.5			Um	iP	20 41 59.5
		Central Siberia.					USSR-Mongolia border		
		Underground explosion.					region (h = N).		
"	1	Up	iP	16 11 41.2	"	3	Up	iP	01 17 19.9
		Ki	iP	16 12 26.3					micr sec
		Um	iP	16 12 06.6				P	Z' 0.1 1.0
		North of Ascension Island					Ki	iP	01 16 39.9 D
		(h = 10 km).					Um	iP	01 16 57.5 D
							Honshu, Japan (h = 140 km).		
"	1	Up	iP	23 05 26.7	"	3	Um	iP	11 29 08.3
			iPP	23 08 55.3					
			iS	23 16 06					
				micr sec			Up	eP	21 52 30
			Mx	Z 10.2 16			Ki	iP	21 52 44.3
		(cont.)					Um	iP	21 52 31.3
							Pakistan (h = N).		





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

1980				1980					
Nov.	15	Up	iP	05 08 21.6	Nov.	18	Ki	iP	13 55 40.3
				micr sec					Tibet (h = N).
			P	Z' 0.1 1.0					
		Ki	iP	05 08 04.0	"	18	Up	iPgl	15 43 13.9
				micr sec				iSgl	15 43 57.0
			P	Z' 0.1 0.8			Ki	iSgl	15 46 24.2
		Um	iP	05 08 09.8			Sk	iPgl	15 43 03.4
				Philippine Islands region				iSn	15 43 34.3
				(h = 70 km).				iSgl	15 43 40.3
				m = 6.1 (Up,Ki).			Um	iSgl	15 44 53.4
							Ud	iPgl	15 42 38.4 D
"	15	Um	iP	05 40 00.2				i	15 42 46.5
								iSgl	15 42 56.1
"	15	Up	iP	22 18 49.1			De	iSgl	15 44 35.4
				Taloud Islands (h = 45 km).					Southeastern Norway,
"	16	Up	iP	20 58 43.7					60.8°N, 11.2°E.
									Origin time = 15 42 14.
"	17	Up	iP	09 58 20.5					M <sub>L</sub> = 2.9 (Up,Sk,Um,Ud,De).
				Southern Greece					Felt.
				(h = 45 km).					Checked with Bergen readings.
"	17	Um	iP	13 59 49.2	"	19	Up	iRg	14 57 39.5
							Ud	iSgl	14 58 22.9
"	17	Up	iP	18 34 17.2					East-central Sweden.
				micr sec					Near-surface event.
			P	Z' 0.1 1.0	"	19	Up	iP	19 10 35.1
		Ki	iP	18 34 51.3 C				i	19 10 36.1
				micr sec				iS	19 18 26
			P	Z' 0.2 0.9					micr sec
				Southern Iran (h = N).				i	Z' 0.7 1.0
				m = 5.8 (Up,Ki).				Mx	Z 20.0 21
"	17	Up	iPKP1	19 26 43.7			Ki	iP	19 10 31.2 D
			i	19 26 58.1				i	19 10 32.0
		Ki	iPKP	19 26 25.3					micr sec
		Um	iPKP1	19 26 32.0 C				i	Z' 0.6 1.4
				Kermadec Islands region				Mx	Z 11.0 14
				(h = 45 km).			Um	iP	19 10 27.4 D
								i	19 10 28.9
"	17	Up	iPKP1	19 31 21.5				iS	19 18 10
		Um	iPKP1	19 31 11.0					Sikkim (h = 15 km).
				Probably from the same					m = 6.5, M = 6.2 (Up,Ki).
				focal area as the preceding	"	19	Um	iP	20 47 14.0
				event.					Tanimbar Islands region
"	17	Up	iP	22 40 09.3					(h = N).
		Ki	iP	22 39 28.8	"	19	Up	eP	23 18 29
		Um	iP	22 39 45.8			Ki	iP	23 19 35.3
				Sea of Japan (h = 25 km).					Crete (h = 100 km).
"	18	Um	iPKP	07 21 18.3	"	20	Ki	iP	11 05 10.3
				Tonga Islands (h = N).					Crete (h = N).
"	18	Um	iP	10 41 38.3	"	20	Up	iP	16 29 53.8
"	18	Um	iP	12 59 42.5					





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

1980				1980					
Nov.	24	Up Ki	i iP	03 08 26.2 03 09 40.0	Nov.	26	Up Ki Um	iP iP iP	08 04 17.0 08 03 32.6 08 03 52.8
				micr sec					Hokkaido, Japan region (h = 310 km).
			Mx	Z 1.6 9					
		Um	iP	03 09 02.1					
		Southern Italy (h = 10 km).							
"	24	Ki Um	iPKP1 iPKP1	04 41 54.4 04 42 00.0	"	26	Up Um	eP iP	15 00 03 15 00 47.9
		North Island, New Zealand (h = N).					Southern Italy (h = 10 km).		
"	25	Up i Sk	iSg1 i iSn	02 41 06.1 02 41 09.0 02 42 08.5	"	26	Up Ki Um	iP iP iP	17 48 09.3 17 48 06.1 17 48 13.3
			eSg1	02 42 35			Venezuela (h = 40 km).		
		Ud	iPgl	02 40 21.3	"	26	Ki	eP	23 46 11
			i	02 40 23.4			Iceland region (h = 10 km).		
			i	02 40 42.3	"	26	Up	iP	24 00 03.1 D
			iSg1	02 40 42.9			i	24 00 24.8	
		De	iSg1	02 40 51.4			iS	24 09 00	
		Västergötland, Sweden, 58.4°N, 13.8°E.							micr sec
		Origin time = 02 39 52.						P	Z' 0.5 1.3
		M <sub>L</sub> = 2.4 (Up,Ud,De).					Ki	iP	23 59 21.5 D
		Felt.							micr sec
"	25	Up Ki	iPKP1 ePKP1	05 17 04.4 05 16 45				P	Z' 0.4 1.3
			i	05 16 50.5			Um	iP	23 59 39.9 D
		Um	iPKP1	05 16 57.9			iS	24 08 18	
		Off e. coast of N. Island, N.Z. (h = N).					Near east coast of Honshu, Japan (h = 100 km).		
"	25	Up Ki Um	iP eP iP	17 11 12.7 17 12 31 17 11 53.9	"	27	Up	iP	02 01 39.7
		Southern Italy (h = 10 km).							micr sec
"	25	Up i i iS	iP i i iS	18 32 49.9 18 32 52.3 18 32 59.5 18 36 22				P	Z' 0.1 1.2
				micr sec			Ki	iP	02 00 57.8
			i	Z' 0.2 1.2			Um	iP	02 01 15.6
			Mx	Z 9.2 12			Near east coast of Honshu, Japan (h = 90 km).		
		Ki	iP	18 34 08.2	"	27	Ki	eP	16 34 18
				micr sec			Western Iran (h = N).		
			Mx	Z 5.7 13	"	28	Um	iSg1	00 03 35.2
		Um	iP	18 33 31.6			East-central Finland, 64.8°N, 29.2°E.		
			iS	18 37 54			Origin time = 00 01 33.		
		Southern Italy (h = 10 km).					Solution from Finnish stations readings.		
"	25	Up	iPKP1	22 17 58.9			Felt.		
			iPKP2	22 18 03.1	"	28	Ki	iP	00 35 17.8
		Um	iPKP1	22 17 47.3			Um	iP	00 35 36.7
		Kermadec Islands (h = 130 km).					Hokkaido, Japan region (h = 70 km).		
"	28	Ki	iP	06 31 55.7	"	28	Ki	iP	06 31 55.7
							(cont.)		

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

1980									1980										
Nov.	28	(cont.)							Nov.	30	Up	iP	01	13	58.4				
		Um	iP	06	32	12.3					Ki	iP	01	15	01.7				
		Off east coast of Honshu, Japan (h = 45 km).										Um	iP	01	14	27.7			
		Turkey (h = 70 km).																	
"	28	Up	iP	18	32	55.6			"	30	Up	eP	01	56	15				
			i	18	33	01.9					Ki	eP	01	57	35				
		Um	iP	18	32	38.9					Um	iP	01	56	58.5				
		Northern California (h = 5 km).										Southern Italy (h = 10 km).							
"	28	Up	iP	21	23	17.0			"	30	Up	iP	02	58	00.5				
			i	21	23	18.9					Ki	iP	02	58	00.0				
			iS	21	29	30					Um	iP	02	57	57.6				
				micr sec							Southern Sumatera (h = 60 km).								
			P	Z'	0.2	1.1													
			i	Z'	0.4	1.1				"	30	Up	iP	04	16	40.6			
		Ki	iP	21	23	49.8					Ki	iP	04	16	15.0				
			i	21	23	51.2					Um	iP	04	16	24.5				
				micr sec							Southwestern Ryukyu Islands (h = N).								
			P	Z'	0.2	1.3													
			i	Z'	0.3	1.1				"	30	Up	iP	04	48	25.8			
			Mx	Z	3.7	13													
		Um	iP	21	23	28.2				"	30	Up	iP	06	22	21.9			
			i	21	23	30.2							i	06	22	32.1			
		Southern Iran (h = N). m = 6.1 (Up,Ki).										Ki	i	06	22	01.9			
											Um	iP	06	22	07.6				
"	29	Ki	iP	04	48	20.1						i	06	22	12.0				
		Um	iP	04	48	27.3					Southwestern Ryukyu Islands (h = N).								
"	29	Up	iPKP1	07	08	40.3			"	30	Up	eP	07	46	27				
		Ki	iPKP1	07	08	20.3					Ki	iP	07	47	44.3				
		Um	iPKP	07	08	26.6					Um	iP	07	47	07.2				
			iPKP1	07	08	31.2					Southern Italy (h = 10 km).								
		Off e. coast of N. Island, N.Z. (h = N).																	
"	29	Ki	iP	07	20	03.5			"	30	Up	iP	07	46	47.1				
		Um	iP	07	20	10.2					Ki	iP	07	48	07.8				
											Um	iP	07	47	29.4				
											Southern Italy (h = 10 km).								
"	29	Up	i(P)	08	12	27.9			"	30	Up	i(PKP)	12	43	30.6				
				micr sec								iSKP1	12	46	19.5				
			(P)	Z'	0.1	1.1					i	12	46	30.0					
"	29	Up	iP	20	08	04.5					Ki	i(PKP)	12	43	17.0				
		Ki	iP	20	09	16.7					iPKP	12	43	27.2					
		Um	iP	20	08	39.6					iSKP1	12	46	30.3					
		Aegean Sea (h = 10 km).										micr sec							
				PKP	Z'	0.3	1.5				Um	i(PKP)	12	43	19.9				
"	29	Up	iPn	20	44	23.9					iPKP	12	43	32.9					
			iSn	20	45	55.5					Tonga Islands (h = 200 km).								
			iSg1	20	46	49.7													
		Ki	eP	20	46	07				"	30	Um	iP	12	55	08.5			
		Um	iP	20	45	14.9													
		Poland (h = 10 km).																	
										"	30	Up	iPKP	20	38	18.3			
												i	20	38	30.0				
											(cont.)								

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

1980

Nov. 30 (cont.)  
Ki iPKP 20 38 02.4  
Um iPKP 20 38 11.0

" 30 Up iPKP1 20 50 51.9  
iPKP2 20 51 01.0  
Ki iPKP1 20 50 32.7  
Um iPKP1 20 50 41.8  
South of Kermadec  
Islands (h = 80 km).

" 30 Up eP 21 41 52  
Ki eP 21 40 55  
ipP 21 41 17.4  
Um iP 21 41 24.0  
Southern Alaska.  
h = 90 km (Ki).

August 26, 1982

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SEISMOLOGICAL BULLETIN

U P P S A L A, K I R U N A, S K A L S T U G A N, U M E Å,

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

Uppsala	(Up):	59 <sup>0</sup> 51.5'N,	17 <sup>0</sup> 37.6'E;	h = 14 m
Kiruna	(Ki):	67 <sup>0</sup> 50.4'N,	20 <sup>0</sup> 25.0'E;	h = 390 m
Skalstugan	(Sk):	63 <sup>0</sup> 34.8'N,	12 <sup>0</sup> 16.8'E;	h = 580 m
Umeå	(Um):	63 <sup>0</sup> 48.9'N,	20 <sup>0</sup> 14.2'E;	h = 16 m
Uddeholm	(Ud):	60 <sup>0</sup> 05.4'N,	13 <sup>0</sup> 36.4'E;	h = 240 m
Delary	(De):	56 <sup>0</sup> 28.2'N,	13 <sup>0</sup> 52.2'E;	h = 150 m

D E C E M B E R 1 - 31, 1980

1980					1980				
Dec.	1	Um	iP	04 13 18.1	Dec.	3	(cont.)		
			ipP	04 13 20.5			Ki	i	04 33 11.3
		Southern Italy (h = 10 km).					Um	iP	04 32 40.4
							Caspian Sea (h = 45 km).		
"	1	Um	iP	16 26 11.8	"	3	Up	iP	06 56 38.1
		Near east coast of Honshu,					Ki	iP	06 57 19.9
		Japan (h = 60 km).					Western Iran (h = N).		
"	1	Um	iP	19 09 35.1	"	3	Up	iP	06 59 02.6
		Southern Italy (h = 10 km).					Crete (h = N).		
"	1	Um	iPKP1	22 08 44.1	"	3	Up	iP	10 36 46.8
		West of Macquarie Island					Um	iP	10 37 22.8
		(h = 10 km).						i	10 37 28.0
"	2	Up	iPKP	01 24 41.8			Algeria (h = 10 km).		
		Um	iPKP	01 24 31.7 C	"	3	Ki	iP	13 29 46.5
			i	01 24 45.7			Um	iP	13 30 13.3
"	2	Ki	iP	02 46 54.8			Fox Islands, Aleutian Islands		
		Mindanao, Philippine Islands					(h = 50 km).		
		(h = 90 km).			"	3	Up	iPKP1	13 43 32.1
"	2	Up	iPKP1	13 36 40.6			Kermadec Islands region		
			i	13 36 47.0			(h = N).		
			i	13 36 58.6	"	3	Ki	iP	20 32 04.6
		Um	ePKP1	13 36 28			Um	iP	20 32 29.4
		Kermadec Islands region					Near east coast of Kamchatka		
		(h = 25 km).					(h = N).		
"	3	Up	iP	01 31 18.6	"	3	Um	iPKP	20 55 50.5
		Ki	eP	01 29 43			Vanuatu Islands (h = N).		
		Um	iP	01 30 31.7	"	3	Up	iPKP1	21 42 51.0
		Greenland Sea (h = 10 km).					Ki	ePKP1	21 42 28
"	3	Up	iP	04 32 29.1			Um	iPKP1	21 42 39.2
		Ki	iP	04 33 05.3			Kermadec Islands (h = N).		
		(cont.)							

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

1980				1980				
Dec.	3	Up	i(P)	23 09 20.0	Dec.	5	Ki iPKP	17 58 30.0
"	3	Up	iP	23 58 53.6			Um iPKP	17 58 37.2
		Um	iP	23 59 33.3			Vanuatu Islands (h = 35 km).	
				Southern Italy (h = 10 km).	"	6	Up iP	02 53 19.1
"	4	Up	iP	00 09 24.1			Ki iP	02 53 15.3
		Um	iP	00 10 04.9 C				micr sec
		i		00 10 13.0			Mx Z	1.5 18
				Southern Italy (h = 10 km).			Um iP	02 53 12.4
"	4	Up	iP	02 44 09.5			Southern Sinkiang Prov., China (h = N).	
		Ki	eP	02 43 21	"	6	Up iP	06 00 32.5
		Um	iP	02 43 43.3			Um iP	06 00 42.5
				Kuril Islands (h = N).			Carlsberg Ridge (h = 10 km).	
"	4	Up	iP	10 56 59.3 C	"	6	Um iP	19 43 22.1
				micr sec			Andreanof Islands, Aleutian Is. (h = 70 km).	
		P	Z'	1.3 1.4	"	7	Up iP	01 12 31.4
		Ki iP		10 56 06.2 C			Ki eP	01 11 55
		i		10 56 16.7			Um iP	01 12 11.0
				micr sec			Near s. coast of Honshu, Japan (h = 260 km).	
		P	Z'	0.4 1.0	"	7	Ki iP	02 44 31.4
		Um iP		10 56 31.3 C			Near e. coast of eastern USSR (h = 100 km).	
				Off east coast of Kamchatka (h = N). m = 6.6 (Up,Ki).	"	7	Up iP	08 08 07.0
"	4	Um	iPKP	19 16 56.8	"	7	Up iP	09 44 58.3 C
				Fiji Islands reg. (h = 640 km).			Ki iP	09 44 22.7
"	4	Up	eP	21 26 38			Um iP	09 44 38.0 C
		Ki	eP	21 26 09			South of Honshu, Japan (h = 140 km).	
		Um	iP	21 26 21.3	"	7	Ki iP	15 07 12.2
				Kyushu, Japan (h = 45 km).			Um iP	15 07 25.7
"	5	Up	iPKP1	07 32 46.3			Volcano Islands region (h = 90 km).	
		Ki	iPKP	07 32 35.4	"	7	Up iP	17 42 43.8
		Um	iPKP	07 32 40.3			iS	17 47 11
			iSKP1	07 35 23.5				micr sec
				South of Fiji Islands (h = 550 km).			P Z'	0.1 1.1
"	5	Up	iP	13 37 39.2			Mx Z	5.0 13
		i		13 37 41.2	"	7	Ki iP	17 43 51.1
				micr sec			i	17 43 52.6
		i	Z'	0.1 0.9			iPP	17 45 10.8
		Ki iP		13 38 47.7				micr sec
		i		13 39 08.7			i Z'	0.1 1.1
				micr sec			Mx Z	4.1 12
		P	Z'	0.1 1.4			Um iP	17 43 21.2
		Mx	Z	3.7 14			(cont.)	
		Um iP		13 38 18.2				
		i		13 38 26.5				
				Algeria (h = 10 km). m = 5.5 (Up,Ki).				

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

1980		1980	
Dec.		Dec.	
7	(cont.) Um i 17 43 26.2 iS 16 48 17 Algeria (h = 10 km). m = 5.6, M = 5.4 (Up,Ki).	8	Up ePKP 19 32 53 i 19 33 01.2 Mx Z 6.3 22 Ki ePKP 19 32 38 i 19 32 40.2 Mx Z 1.4 20 Um iPKP 19 32 46.1 i 19 32 46.6 Vanuatu Islands (h = N). M = 6.0 (Up,Ki).
"	7 Ki iP 19 19 55.4	"	8 Ki iPKP 21 47 25.5 i 21 47 28.0 Um iPKP 21 47 31.5 Vanuatu Islands (h = N).
"	7 Ki iP 19 31 09.7 Volcano Islands region (h = 70 km).	"	9 Up iPKP 01 31 16.4 Ki ePKP 01 30 44 Um iPKP 01 31 00.6
"	7 Ki iP 20 45 03.3 Um iP 20 45 18.9 Sea of Japan (h = 360 km).	"	9 Up iP 05 54 52.6 Ki iP 05 56 06.7 Um iP 05 55 33.2 i 05 55 44.8 Southern Italy (h = 80 km).
"	7 Up iP 22 10 01.6 Ki iP 22 09 14.4 Um iP 22 09 36.6 Kuril Islands (h = 150 km).	"	9 Ki iP 06 48 15.9 C Southern Sumatera (h = 50 km).
"	8 Ki iP 01 33 07.7 Um iP 01 33 27.6 Hokkaido, Japan region (h = 300 km).	"	9 Up iP 11 02 49.2 Um iP 11 02 31.4
"	8 Um iP 02 54 47.7 Southern Italy (h = 10 km).	"	10 Ki iP 02 20 58.8 Um iP 02 21 40.2
"	8 Ki eP 04 15 06 Um iP 04 14 32.3 Southern Italy (h = 10 km).	"	10 Ki iP 05 10 32.9 Um iP 05 10 13.3 ipP 05 10 20.8 Hindu Kush region (h = 40 km).
"	8 Um iP 04 39 38.8	"	10 Up iP 07 05 11.4 Ki iP 07 04 35.7 P Z' 0.1 0.7 Um iP 07 04 44.1 i 07 04 47.6 Western Siberia. Underground explosion.
"	8 Ki eSg1 07 39 00 Sk iPg1 07 36 03.7 iSg1 07 36 17.1 Um iSg1 07 38 05.6 Ud iSg1 07 37 38.2 Central Norway, 63.3°N, 10.1°E. Origin time = 07 35 45. M <sub>L</sub> = 2.4 (Sk,Um,Ud). Felt.	"	11 Up iP 00 20 12.2 i 00 20 31.3 (cont.)
"	8 Up iP 15 22 54.6 Ki iP 15 22 35.2 Um iP 15 22 42.7 Philippine Islands region (h = N).		
"	8 Up iP 19 15 28.3		

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

1980				1980			
Dec.	Day	Station	Time	Station	Time	Station	Time
1980	Dec. 11	(cont.)		1980	Dec. 11	(cont.)	
		Up				Chile-Bolivia border	
		P	Z' 0.1 1.3			region (h = 80 km).	
		Ki	eP 00 20 53				
		Um	iP 00 20 27.4	"	11	Up	iP 23 03 18.2
			i 00 20 48.3			i	23 03 47.7
		Eastern Caucasus (h = 60 km).					micr sec
"	11	Up	iP 02 09 15.2 D			P	Z' 0.1 0.6
		i	02 11 02.9			Ki	iP 23 02 31.8
			micr sec				micr sec
		P	Z' 0.2 0.7			Um	iP 23 02 52.8
		Ki	iP 02 08 44.2 D			ipP	23 04 28.0
			micr sec			Northwest of Kuril Islands	
		P	Z' 0.3 0.9			(h = 420 km).	
		Um	iP 02 08 57.8 D			m = 5.6 (Up,Ki).	
		i	02 10 50.2	"	11	Up	iP 23 21 28.4
		Bonin Islands region				i	23 21 40.1
		(h = 470 km).					micr sec
		m = 5.9 (Up,Ki).				P	Z' 0.1 1.0
"	11	Up	iP 04 55 16.3			Ki	iP 23 20 55.2
			micr sec			ipP	23 21 04.0
		P	Z' 0.1 1.0				micr sec
		Ki	eP 04 55 40			Um	iP 23 21 08.6
		Um	iP 04 55 25.0			ipP	23 21 18.6
		Carlsberg Ridge (h = 10 km).				Kyushu, Japan.	
"	11	Um	iP 06 41 38.2			h = 30 km (Ki,Um).	
		Kuril Islands (h = N).				m = 5.9 (Up,Ki).	
"	11	Up	iP 12 00 31.0	"	12	Um	eP 09 14 20
		Ki	i 12 01 43.1			i	09 14 31.5
		Crete (h = N).				Southern Italy (h = 10 km).	
"	11	Up	iP 14 34 21.7	"	12	Ki	iPKP 17 22 41.5
		Um	iP 14 34 28.0			Um	iPKP 17 22 48.0
		Carlsberg Ridge (h = 10 km).				Fiji Islands region	
"	11	Up	iP 14 42 37.6			(h = 650 km).	
		Ki	iP 14 42 39.5	"	12	Up	iP 21 20 28.9
			micr sec			Ki	micr sec
		P	Z' 0.1 1.0			Mx	Z 3.1 17
		Um	iP 14 42 29.6			Um	iP 21 20 17.3
		Kirgiz SSR (h = N).				iS	21 31 10
"	11	Up	iP 17 58 58.2			Mindanao, Philippine Islands	
						(h = 45 km).	
"	11	Up	iPP 18 33 32.0	"	13	Up	i(Sgl) 10 36 14.2
			iSKS 18 39 37			Ud	i(Sgl) 10 35 05.6
			ePKKP 18 45 06			De	i(Sgl) 10 34 59.9
		Ki	iPP 18 33 52.9			Probably off coast of	
			ePKKP 18 44 31			southern Norway.	
		Um	i(PP) 18 33 48.4	"	13	Up	iP 16 43 47.7
			iSKS 18 39 46			(cont.)	
			iPKKP 18 44 33.6				
		(cont.)					



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

1980		1980	
Dec. 13	(cont.)	Dec. 14	Up iP 12 46 45.4
	Up ipP 16 44 00.3		Ki iP 12 47 25.0
			Um iP 12 46 59.7
	micr sec	" 14	Ki iP 12 53 08.6
	pP Z' 0.1 1.1		Um iP 12 53 14.4
	Ki iP 16 43 16.1		Philippine Islands region
	ipP 16 43 28.9		(h = 55 km).
	i 16 43 35.1		
		" 15	Up ePKP 08 32 06
	micr sec		
	i Z' 0.1 1.0		Mx Z 3.7 21
	Um iP 16 43 28.2		Ki iPKP 08 31 50.8
	ipP 16 43 42.2		
	i 16 44 45.2		PKP Z' 0.2 1.5
	Ryukyu Islands region.		Mx Z 3.8 20
	h = 45 km (Up,Ki,Um).		Um iPKP 08 31 58.0
	m = 5.7 (Up,Ki).		Tonga Islands region (h = N).
" 14	Up iP 03 54 05.0 C		M = 6.1 (Up,Ki).
	iPn 03 55 10.6	" 15	Ki iP 20 05 43.0
	iPP 03 55 23.2		Um iP 20 05 48.9
			Mindanao, Philippine Islands
	micr sec		(h = 55 km).
	P Z' 1.6 0.9	" 15	Up iP 22 19 52.0
	Ki iP 03 53 48.4 C		i 22 19 54.3
	iPn 03 54 51.8		iS 22 26 11
			micr sec
	P Z' 1.9 1.2		i Z' 0.2 0.8
	Um iP 03 53 49.3 C		Mx Z 2.8 7
	Eastern Kazakh SSR.		Ki iP 22 19 31.5
	m = 6.9 (Up,Ki).		i 22 19 34.5
	Underground explosion.		micr sec
" 14	Um iP 06 08 40.9		i Z' 0.1 0.7
	Southern Italy (h = 10 km).		Mx Z 3.1 13
" 14	Um eP 06 25 25		Um iP 22 19 35.2
" 14	Up iP 06 38 11.2 C		i 22 19 37.1
	ipP 06 38 17.9		iS 22 25 38
			Northern Sinkiang Prov.,
	micr sec		China (h = N).
	P Z' 0.2 1.0		m = 5.8 (Up,Ki).
	Ki iP 06 37 17.3 C	" 15	Up iP 22 38 51.5
	ipP 06 37 23.9		Ki iP 22 38 30.0
	i 06 37 45.1		Um iP 22 38 35.4
			Northern Sinkiang Prov.,
	micr sec		China (h = N).
	P Z' 0.4 1.0	" 15	Up iP 22 54 19.2
	Um iP 06 37 43.4 C		micr sec
	ipP 06 37 48.9		Mx Z 1.0 4
	Near Islands, Aleutian		Ki iP 22 55 02.6
	Islands.		(cont.)
	h = 20 km (Up,Ki,Um).		
	m = 6.4 (Up,Ki).		
" 14	Um iPKP1 07 10 23.9		
	Kermadec Islands (h = N).		





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

1980						1980					
Dec.	22	Up	iP	12 57 55.1 C		Dec.	23	Up	iP	00 53 35.4	
			ipP	12 58 00.6				Ki	eP	00 52 48	
			iS	13 03 20				Um	iP	00 53 10.6	
				micr sec				Kuril Islands (h = N).			
			P	Z' 0.2 1.0			"	23	Up	micr sec	
			pP	Z' 0.2 1.1					Mx	Z 4.2 25	
			Mx	Z 4.4 18				Ki	ePKP	10 12 48	
		Ki	iP	12 58 33.1 C						micr sec	
			ipP	12 58 38.7					Mx	Z 1.1 18	
				micr sec				Um	iPKP	10 12 52.3	
			P	Z' 0.1 0.8				Fiji Islands (h = N).			
			pP	Z' 0.4 1.2				M = 5.9 (Up,Ki).			
			Mx	Z 2.8 13							
		Um	iP	12 58 08.7 C			"	23	Up	iP	12 04 48.6
			ipP	12 58 14.1					i	12 04 56.7	
			iS	13 03 39				Ki	eP	12 06 19	
		Iran.						Um	eP	12 05 32	
		h = 20 km (Up,Ki,Um).						Northern Italy (h = 10 km).			
		m = 6.0, M = 5.3 (Up,Ki).									
"	22	Up	eP	16 26 20		"	23	Up	iPKP1	13 08 18.9	
		Um	eP	16 26 59				Ki	ePKP	13 08 08	
		Greece (h = N).						Um	iPKP	13 08 17.2	
"	22	Up	iPKP2	20 30 57.0				South of Fiji Islands			
		Ki	iPKP1	20 30 25.7				(h = 90 km).			
		Um	ePKP2	20 30 33		"	23	Up	iSg1	14 02 07.9	
			i	20 30 38.0				Ud	iPg1	14 00 44.0	
		North Island, New Zealand (h = 320 km).							iSg1	14 01 09.1	
								De	eSg1	14 01 57	
"	22	Up	iP	20 41 33.4 C				Southeastern Norway,			
			iPcP	20 42 02.7				59.3°N, 10.3°E.			
			ipP	20 43 14.9				Origin time = 14 00 10.			
			iS	20 49 32.1				M <sub>L</sub> = 2.1 (Up,Ud,De).			
			iScS	20 50 36.0				Explosion?			
				micr sec		"	23	Ki	ePKP	18 20 24	
			P	Z' 0.1 0.6				Um	ePKP2	18 20 37	
		Ki	iP	20 40 47.2 C				West of Maequarie Island			
			ipP	20 42 25.1				(h = 10 km).			
				micr sec		"	23	Up	eP	22 38 48	
			P	Z' 0.2 1.0				Um	iP	22 38 28.7	
		Um	eP	20 41 08 C					i	22 38 35.4	
			i	20 41 47.1				Off coast of Oregon			
			ipP	20 42 48.5				(h = 15 km).			
			iS	20 48 46.0							
		Sea of Okhotsk (h = 480 km).				"	23	Up	iP	23 02 56.2	
		m = 5.6 (Up,Ki).							ipP	23 03 01.8	
"	22	Ud	eSg1	23 04 07				Ki	iP	23 02 16.1	
		Dalsland, Sweden, 59.1°N, 12.3°E.						Um	iP	23 02 38.2	
		Origin time = 23 03 30.							ipP	23 02 44.2	
		Solution from SKI station readings.						Off coast of northern California.			
								h = 20 km (Up,Um).			

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

1980				1980			
Dec.	23	Um eP	23 21 32	Dec.	25	Ki ePKP	06 51 18
			Off coast of northern California (h = 15 km).			Um iPKP	06 51 15.5
							San Juan Province, Argentina (h = 120 km).
"	24	Um iP	00 02 28.8	"	25	Up iP	11 41 26.1
			Off coast of Oregon (h = 15 km).				micr sec
"	24	Up iP	12 16 27.3			P Z'	0.1 1.0
"	24	Up iP	12 21 57.2	Ki iP			11 40 56.1
		Ki iP	12 21 04.2 C	i			11 41 04.3
			micr sec				micr sec
		P Z'	0.1 0.7	i Z'			0.1 1.1
		Um iP	12 21 30.9	Mx Z			3.1 18
			Fox Islands, Aleutian Islands (h = N).	Um iP			11 41 14.7
							Iceland region (h = 10 km). m = 4.9 (Up,Ki).
"	24	Up iP	12 53 05.4	"	25	Um iP	11 47 31.9
			Algeria (h = 10 km).			i	11 47 39.2
"	24	Up iP	13 40 49.6				Iceland region (h = 10 km).
		Ki iP	13 40 09.4	"	25	Ki eP	17 50 59
		Um iP	13 40 31.3			i	17 51 08.3
			Off coast of Oregon (h = 15 km).			Um eP	17 51 18
"	24	Up iP	15 05 09.0			i	17 51 22.5
			South of Fiji Islands (h = 530 km).				Iceland region (h = 10 km).
"	24	Up iP	16 51 58.8	"	26	Ki i	00 48 56.3
		Ki iP	16 51 36.9			Um eP	00 49 09
		Um iP	16 51 44.4				Iceland region (h = 10 km).
			Taiwan (h = N).	"	26	Ki iP	01 16 52.2
"	25	Up iP	00 08 45.5			Um iP	01 17 13.7
		Ki iP	00 08 39.8				Iceland region.
		Um iP	00 08 39.8 D	"	26	Ki e	01 50 14
			South of Java (h = 60 km).			Um iP	01 50 27.5
"	25	Up iP	00 54 04.6				Iceland region (h = 10 km).
		i	00 54 16.4	"	26	Ki eP	04 13 46 C
		Um iP	00 54 06.2			Um eP	04 13 47 C
"	25	Ki ePKP	03 55 44				Eastern Kazakh SSR.
		Um iPKP	03 55 50.1				Underground explosion.
			Fiji Islands region (h = 480 km).	"	26	Ki iP	05 04 26.6
"	25	Up iP	05 54 04.0			Um iP	05 04 42.8
		i	05 54 18.7				Iceland region (h = 10 km).
		i	05 54 28.2	"	26	Ki eP	05 06 25
		Ki iP	05 55 16.3			Um iP	05 06 41.1
		Um iP	05 54 41.0			i	05 06 45.9
			Southern Greece (h = N).				Iceland region (h = 10 km).
"	26	Ki iP	05 09 05.9	"	26	Ki iP	05 29 10.1
		Um eP	05 09 34			Um iP	05 29 11.1

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

1980				1980					
Dec.	26	Um	eP i	06 06 11 06 06 17.1	Dec.	27	Ki	iP	06 07 53.4
				Iceland region (h = 10 km).					Andaman Islands region (h = N).
"	26	Up	iPKP1 iSKP1	06 10 01.8 06 12 46.3	"	27	Um	iP	20 40 14.3
		Ki	iPKP iSKP1 i	06 09 54.0 C 06 12 28.1 06 12 31.2					Samar Philippine Islands (h = N).
		Um	i(PKP) iPKP iSKP1 i	06 09 54.6 06 10 01.6 06 12 39.9 06 12 46.5	"	27	Um	iP	22 14 26.2
				South of Fiji Islands (h = 590 km).					Iran (h = N).
"	26	Up	eP	07 17 43 C	"	27	Up	iP	23 12 27.0 C
		Ki	iP	07 17 25.4 C			Ki	iP	23 12 27.4 C
				Luzon, Philippine Islands (h = 100 km).			Um	iP	23 12 24.0 C
"	26	Up	iP	07 20 52.9					Southern Sumatera (h = 55 km).
				micr sec	"	28	Ud	eSg1	03 31 15
				P Z' 0.2 1.2					Coast of southwestern Norway. By combination with Bergen readings.
		Ki	iP i	07 20 00.6 07 20 10.8	"	28	Um	iP	07 17 46.2
				micr sec					Hokkaido, Japan region (h = 60 km).
				P Z' 0.1 1.0	"	28	Up	iP	12 27 02.9
		Um	iP	07 20 26.3			Ki	iP	12 26 28.7
				Komandorsky Islands region (h = N). m = 6.0 (Up,Ki).					South of Honshu, Japan (h = 310 km).
"	27	Up	iP	01 42 28.2	"	28	Up	iPKP1 iPKP2	15 37 55.9 15 37 59.7
		Ki	eP i	01 41 42 01 41 55.0			Ki	ePKP1	15 37 33
		Um	iP i	01 42 03.2 01 42 15.8			Um	iPKP1 i	15 37 43.8 15 37 47.2
				Kuril Islands (h = N).					Kermadec Islands (h = 60 km).
"	27	Um	eP	03 43 31 C	"	29	Up	e	21 59 03
				Off east coast of Honshu, Japan (h = N).			Ki	eP	21 59 30
"	27	Up	iP iPn iPP	04 16 05.7 C 04 17 08.6 04 17 23.9	"	30	Up	eP	00 46 12
				micr sec			Ki	eP	00 47 05
				P Z' 1.1 0.9					Dodecanese Islands (h = N).
		Ki	iP iPP	04 15 48.9 C 04 16 56.0	"	30	Ki	iP	01 36 55.8
				micr sec					Kirgiz SSR (h = N).
				P Z' 1.7 1.0	"	30	Up	iP	16 01 07.5
		Um	iP	04 15 50.1 C					i 16 01 41.3
				Eastern Kazakh SSR. m = 6.9 (Up,Ki). Underground explosion.			Ki	iP	16 01 12.3
									Northern Sumatera (h = N).
					"	30	Up	iP	17 04 04.9
									Sea of Okhotsk (h = 430 km).

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

1980

Dec.	31	Up	iP	02 30	40.2
		Um	iP	02 31	20.8
Algeria (h = 10 km).					
"	31	Up	i	02 43	45.5
		Ki	iP	02 43	27.1
			i	02 43	40.1
		Um	iP	02 43	27.5
			i	02 43	39.1 D
Burma (h = 45 km).					
"	31	Up	iP	10 43	06.7
			iS	10 51	57
				micr	sec
		P	Z'	0.6	1.1
		Mx	Z	103	27
		Ki	iP	10 42	19.0
			iS	10 50	30
				micr	sec
		P	Z'	0.9	0.9
		Mx	Z	56	19
		Um	iP	10 42	40.6
			iS	10 51	14.2
			i	10 52	06.6
Kuril Islands (h = N).					
m = 6.8, M = 6.9 (Up,Ki).					
"	31	Up	ePKP	14 19	00
		Ki	iPKP	14 18	47.1
		Um	iPKP	14 18	54.5
Fiji Islands region					
(h = 560 km).					
"	31	Ki	iPn	14 55	26.8
			iSn	14 56	20.1
		Sk	iPn	14 55	04.8
			iSn	14 55	44.2
		Um	iSn	14 56	38.4
			iSgl	14 57	01.0
			i	14 57	22.6
		Ud	iSn	14 57	08.3
Norwegian Sea, near					
66 1/2°N, 9 1/2°E.					
Origin time = 14 54 15.					
M <sub>L</sub> = 3.1 (Um).					

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