

SEISMOLOGICAL DEPARTMENT
 BOX 2101
 S-750 02 UPPSALA
 SWEDEN

SEISMOLOGICAL DEPARTMENT
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 SWEDEN

SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

JANUARY 1 - 31, 1990

1990					1990				
Jan.	1	UPP	iPKP	17 40 57.7	Jan.	3	(cont.)		
				Vanuatu Islands region (h = 10 km).			UME	iP	08 30 49.0
									Caspian Sea (h = 10 km).
"	1	UPP	iP	18 15 36.9	"	4	UPP	i(PKP)	05 51 22.9
		UME	iP	18 15 40.1				iPKP	05 51 36.2
				Northern Colombia (h = 160 km).					micr sec
"	2	UPP	iP	01 38 15.4				PKP	Z' 0.1 1.0
		KIR	iP	01 37 56.0				Mx	Z 9.0 22
		UME	iP	01 38 02.8			KIR	iPKP	05 51 19.8
				Philippine Islands region					micr sec
				(h = 40 km).				PKP	Z' 0.4 1.1
"	2	UPP	iP	20 34 42.3			UME	i(PKP)	05 51 19.9
		KIR	iP	20 34 14.3				iPKP	05 51 25.9
		UME	iP	20 34 25.1					Samoa Islands region (h = 55 km).
				Mariana Islands (h = 140 km).	"	4	UPP	iP	23 37 18.8 D
"	2	UPP	iP	20 40 32.3				P	Z' 0.1 0.6
		UME	iP	20 41 11.2			KIR	iP	23 36 43.1 D
				Aegean Sea (h = 10 km).					micr sec
"	2	UPP	iP	21 46 17.9				P	Z' 0.1 0.8
		UME	iP	21 46 07.9			UME	iP	23 36 58.5 D
				Southern Xinjiang, China					South of Honshu, Japan (h = 250 km).
				(h = 10 km).					m = 5.7 (UPP,KIR).
"	3	UPP	iP	08 30 39.5	"	5	UPP	iSKS	10 34 28
			i	08 30 43.4					micr sec
				micr sec				Mx	Z 2.7 20
			i	Z' 0.1 1.0			KIR	iP	10 23 49.6
		KIR	iP	08 31 13.5				i	10 23 57.2
		(cont.)					(cont.)		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Jan.		(cont.)		Jan.		(cont.)	
	5		micr sec Mx Z 3.8 17 South of Java (h = 30 km). M = 5.8 (UPP,KIR).		8		KIR iP 19 54 36.6 micr sec P Z' 0.3 1.0 UME iP 19 55 05.1 Fox Islands, Aleutian Islands (h = N). m = 6.2 (UPP,KIR).
"	5	UPP iS	18 50 44 micr sec Mx Z 6.8 17 KIR micr sec Mx Z 4.8 17 UME iS 18 50 31 Off coast of Jalisco, Mexico (h = N). M = 6.0 (UPP,KIR).	"	8	UPP iP 20 22 44.7 KIR iP 20 21 49.7 UME iP 20 22 16.9 Fox Islands, Aleutian Islands (h = N).	
"	6	UME iP	00 09 04.8 Mariana Islands region (h = 80 km).	"	8	KIR iP 21 49 49.8 UME iP 21 50 16.9 Fox Islands, Aleutian Islands (h = N).	
"	6	UPP i(P)	19 56 51.4	"	9	UPP iP 02 39 01.9 D micr sec P Z' 0.4 0.7 KIR iP 02 38 56.6 micr sec P Z' 0.2 0.6 UME iP 02 38 54.3 Tibet (h = 80 km). m = 6.3 (UPP,KIR).	
"	6	UPP i(P) i	20 39 20.9 20 39 22.1	"	9	UPP iP 05 09 37.7 KIR iP 05 08 43.7 micr sec P Z' 0.2 1.0 UME iP 05 09 10.6 i 05 09 16.6 Fox Islands, Aleutian Islands (h = N).	
"	6	UPP iP KIR iP UME iP	21 58 05.6 21 58 14.1 21 58 06.3 South Indian Ocean (h = 15 km).	"	9	UPP iP 15 47 22.2 i 15 47 31.1 micr sec i Z' 0.3 1.5 KIR iP 15 47 20.3 UME iP 15 47 17.6 i 15 47 25.5 Andaman Islands region (h = N).	
"	7	KIR iP UME iP	11 10 41.9 11 11 10.7 Central Alaska (h = 20 km).	"	9	UPP iP 19 01 44.0 C i 19 02 12.0 iS 19 10 03.9 micr sec P Z' 1.9 1.0 (cont.)	
"	7	UPP iP KIR iP	13 39 47.8 13 39 04.1 Hokkaido, Japan region (h = 70 km).				
"	8	UPP iP KIR iP UME iP	00 55 41.7 00 55 46.7 00 55 37.3 Tajik SSR (h = N).				
"	8	UPP iPKP1 UME iPKP1	11 24 15.8 11 24 03.6 South of Fiji Islands (h = 520 km).				
"	8	UPP iP i i	19 55 33.4 19 55 35.5 micr sec i Z' 0.2 1.0 (cont.)				

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990							
Jan.		(cont.)		Jan.		(cont.)					
	9	KIR	iP	19 01 37.5 C		UME	iP	21 23 20.1			
				micr sec				Kashmir-Tibet border region			
			P	Z' 1.0 1.0				(h = 10 km).			
		UME	iP	19 01 34.9							
				Burma (h = 120 km).		"	12	KIR	iP	06 59 41.1	
				m = 6.9 (UPP,KIR).				UME	iP	07 00 31.9	
										Greenland Sea (h = 10 km).	
"	10	UPP	iP	03 20 36.0		"	12	UPP	iP	15 41 31.7	
		KIR	iP	03 19 52.4				KIR	iP	15 41 14.3	
		UME	iP	03 20 12.7				UME	iP	15 41 20.6	
				Off east coast of Honshu, Japan						Talud Islands (h = 60 km).	
				(h = 35 km).							
"	10	UPP	iP	03 22 34.6		"	13	UPP	iSn	03 59 20.7	
				micr sec				KIR	iSg1	03 59 05.0	
			P	Z' 0.3 1.5				UME	iPn	03 57 48.7	
		KIR	iP	03 21 51.9					iSn	03 58 55.9	
		UME	iP	03 22 10.7					i	03 59 39.2	
				Off east coast of Honshu, Japan				UDD	iPn	03 57 44.0	
				(h = 35 km).					iSn	03 58 48.0	
								MYV	iPn	03 57 20.0	
"	10	UPP	iP	06 48 13.2 D					iSn	03 58 06.0	
				micr sec						Norwegian Sea, 64.6°N, 6.3°E.	
			P	Z' 0.1 0.5						Origin time = 03 56 20.	
		KIR	iP	06 48 05.1						Solution from Bergen regional	
		UME	iP	06 48 04.4						bulletin.	
				Burma-India border region		"	14	UPP	iP	03 12 20.2	
				(h = 90 km).					iS	03 19 33	
"	10	UPP	iP	12 04 55.7						micr sec	
		UME	iP	12 04 51.4					P	Z' 0.7 0.8	
				Andaman Islands region (h = N).					Mx	Z 22 12	
"	10	UPP	iP	13 21 11.0				KIR	iP	03 12 04.6	
				micr sec						micr sec	
			P	Z' 0.1 1.0						P	Z' 0.5 1.1
		KIR	iP	13 20 16.7						Mx	Z 24 12
				micr sec				UME	iP	03 12 05.8	
			P	Z' 0.2 1.0					iS	03 19 09	
		UME	iP	13 20 43.0						Qinghai Province, China (h = 10 km).	
				Fox Islands, Aleutian Islands						m = 6.5, M = 6.4 (UPP,KIR).	
				(h = N).		"	14	UPP	iP	03 44 12.8	
				m = 5.8 (UPP,KIR).				UME	iP	03 43 46.9	
										Kuril Islands (h = N).	
	11	UPP	iP	21 23 28.0							
				micr sec							
			P	Z' 0.1 1.0							
		KIR	iP	21 23 24.2							
				(cont.)							

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1990				1990					
Jan.	14	UPP	iP	03 49 02.1	Jan.	18	UPP	iP	13 05 09.7
				micr sec			KIR	iPKP1	13 04 48.1
			P	Z' 0.1 1.0			UME	iPKP1	13 04 57.1
		KIR	iP	03 48 15.3			Kermadec Islands (h = 15 km).		
		UME	iP	03 48 36.1	"	18	UME	iPKP	21 15 56.4
		Kuril Islands (h = 50 km).						iSKP1	21 18 41.3
"	14	UME	iPKP1	09 50 59.2			Fiji Islands region (h = 590 km).		
		Kermadec Islands (h = N).			"	19	UPP	iPg1	11 45 07.9
"	14	UPP	iPKP1	21 23 41.5				iRg	11 45 11.0
				micr sec			UDD	iSg1	11 46 12.8
			Mx	Z 2.8 23			Dannemora, Uppland, Sweden, 60.2°N, 17.8°E.		
		KIR	iPKP1	21 23 26.5			Rockburst at the iron ore mine.		
		UME	iPKP1	21 23 29.5					
		Kermadec Islands (h = 60 km).			"	19	UPP	iSg1	23 45 11.4
"	14	UPP	iPKP1	21 30 10.3			KIR	iSg1	23 46 32.9
		Kermadec Islands (h = N).					UME	iSn	23 44 48.5
"	16	UPP	iPKP1	07 56 20.5				iSg1	23 45 32.1
		UME	iPKP1	07 56 07.9			UDD	iPn	23 42 55.0
		Kermadec Islands region (h = 25 km).						iSg1	23 44 11.1
"	16	UPP	iPKP1	08 16 20.2			DEL	iSg1	23 45 27.4
		UME	iPKP1	08 16 08.1			MYV	iPn	23 42 56.0
		Kermadec Islands region (h = N).						i	23 43 14.0
"	16	UPP	iPKP2	11 12 01.0				iSg1	23 44 07.0
		UME	iP	11 11 43.5 C			Off coast of southwestern Norway, 61.8°N, 4.3°E.		
		Kermadec Islands region (h = N).					Origin time = 23 41 46.		
"	16	KIR	iP	20 19 29.0			$M_L(\text{UPP}) = 3.5 (0.17) 4$.		
		UME	iP	20 19 49.4			Felt.		
		Near coast of Northern Calif. (h = 2 km).					Solution from Bergen regional bulletin.		
"	17	UPP	iP	12 17 04.6	"	20	UPP	iP	01 33 45.0 C
		KIR	iP	12 16 19.3					micr sec
		UME	iP	12 16 42.2				P	Z' 0.2 1.0
		Off coast of Oregon (h = 10 km).						Mx	Z 7.0 11
"	17	UME	iPKP1	17 48 03.5			KIR	iP	01 34 18.3 C
		South of Kermadec Islands (h = N).							micr sec
"	18	UPP	iPKP1	06 02 19.9				P	Z' 0.2 0.9
		KIR	ePKP	06 02 04				Mx	Z 8.8 11
		UME	iPKP1	06 02 07.4			UME	iP	01 33 55.8 C
		Kermadec Islands (h = 25 km).					Iran (h = 25 km).		
							$m = 6.0, M = 5.7 (\text{UPP}, \text{KIR})$.		

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1990				1990			
Jan.	20	UPP iP	03 07 05.0	Jan.	23	UPP iP	15 51 19.5
		KIR iP	03 06 23.9			Burma (h = N).	
		UME iP	03 06 42.1				
		Near east coast of Honshu, Japan (h = 50 km).		"	24	KIR iPn	16 23 49.2
						i	16 23 57.4
"	20	KIR iP	09 26 27.5			UME iPn	16 24 31.0
			micr sec			UDD iPn	16 24 58.4
		P	Z' 0.2 1.2			Norwegian Sea (h = 10 km).	
		Sunda Strait (h = 60 km).		"	24	UPP iP	19 45 56.5
						iS	19 56 15
"	21	UPP iPKP1	01 28 12.6				micr sec
		iPKP2	01 28 18.1			P	Z' 0.1 1.3
			micr sec			Mx	Z 14 15
		PKP2 Z'	0.1 0.9			KIR iP	19 45 39.2
		UME iPKP1	01 28 01.4				micr sec
		Kermadec Islands region (h = 200 km).				Mx	Z 16 13
						UME iP	19 45 44.5
"	21	UPP iP	02 10 38.9			Luzon, Philippine Islands (h = 25 km). M = 6.4 (UPP,KIR).	
		KIR iP	02 09 44.7				
			micr sec	"	24	UPP iPKP1	23 45 00.5
		P	Z' 0.1 1.0			UME iPKP1	23 44 48.8
		UME iP	02 10 11.8			Kermadec Islands region (h = 30 km).	
		Fox Islands, Aleutian Islands (h = N).		"	25	UME iPKP1	02 44 52.7
"	22	UPP iPKP1	08 45 19.0			Kermadec Islands region (h = 330 km).	
		UME iPKP1	08 45 08.3				
		Kermadec Islands region (h = N).		"	25	UME iPKP1	04 32 42.7
"	22	UPP iP	17 38 21.5 C			South of Kermadec Islands (h = 240 km).	
		i	17 38 36.8				
			micr sec	"	25	KIR iPn	05 11 30.0
		P	Z' 0.1 0.9			iS	05 13 15.6
		i	Z' 0.3 0.9			Svalbard region, 78.7°N, 24.1°E. Origin time = 05 08 56. Solution from Bergen regional bulletin.	
		Mx	Z 6.3 23				
		KIR iP	17 38 22.0	"	25	UME iPKP1	06 07 32.8
		i	17 38 41.2			Kermadec Islands region (h = 260 km).	
			micr sec				
		P	Z' 0.2 1.0	"	25	UPP iPKP1	06 49 08.4
		i	Z' 0.7 1.5			UME iPKP1	06 49 54.9
		Mx	Z 5.2 22			Kermadec Islands region (h = 260 km).	
		UME iP	17 38 18.4 C				
		i	17 38 36.9				
		Northern Sumatera (h = 45 km). m = 6.4, M = 5.8 (UPP,KIR).		"	25	UPP iPKP1	06 49 08.4
"	23	UME iP	13 40 22.4			UME iPKP1	06 49 54.9
		Near east coast of Honshu, Japan (h = 55 km).				Kermadec Islands region (h = 260 km).	

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DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

FEBRUARY 1 - 28, 1990

1990					1990				
Feb.	1	KIR	iP	11 29 11.8	Feb.	4	UPP	iPdiff	08 11 58.5
							KIR	iPdiff	08 11 52.9
							UME	iPdiff	08 11 51.6
									South of Java (h = 45 km).
"	2	KIR	iP	18 46 39.7	"	4	KIR	iPn	09 04 12.2
		UME	iP	18 46 45.7					Barents Sea, 77.7°N, 22.0°E.
									Origin time = 09 01 52.
									Solution from Helsinki regional bulletin.
"	2	UME	iPKP1	18 52 56.4	"	4	UPP	iP	20 42 27.6
									Southern Iran (h = 40 km).
"	3	KIR	iPg1	09 24 32.1	"	4	UPP	iP	22 05 40.3
			iSg1	09 24 50.5					Near Islands, Aleutian Islands (h = N).
		UME	iSg1	09 26 07.9	"	5	UPP	iP	05 24 16.4 D
							i	05 24 22.7	
							iPP	05 25 52.5	
							iS	05 30 06	
									micr sec
"	3	UPP	iP	10 05 49.1			P	Z'0.1	0.5
		KIR	eP	10 03 56					0.4 0.9
							Mx	Z 8.7	12
							KIR	iP	05 24 24.4
									micr sec
"	4	UPP	iP	02 14 10.8			P	Z' 0.8	1.0
		KIR	eP	02 13 41					
		UME	iP	02 13 53.2			Mx	Z 16.1	11
									Afghanistan-USSR border region
									(h = 110 km).
"	4	UPP	iP	02 35 37.0					m = 6.3, M = 5.9 (UPP,KIR).
									Ionian Sea (h = 55 km).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Feb.	5	UPP iP	09 36 09.7	Feb.	8	UPP iP	07 59 57.7
		UME iP	09 35 07.6				micr sec
		Hindu Kush region (h = 210 km).				P	Z' 0.3 1.1
"	6	UPP iP	07 46 43.1			Mx	Z 31 17
		i	07 46 46.3			KIR eP	07 59 42
		KIR iP	07 46 45.9				micr sec
		UME iP	07 46 46.9 C			P	Z' 0.4 1.3
		Venezuela (h = 45 km).				Mx	Z 18.4 16
"	6	UPP iP	11 14 32.2			UME iP	07 59 48.6
		Afghanistan-USSR border region				Mindanao, Philippine Islands	
		(h = 120 km).				(h = 30 km).	
"	6	UME iPg1	22 33 38.7			m = 6.5, M = 6.6 (UPP,KIR).	
		Southwestern Finland, 63.1°N, 22.2°E.		"	9	UPP iP	04 15 08.0
		Origin time = 22 33 19.				KIR iP	04 14 56.5
		M _L (UPP) = 2.0 (0.18) 3.				Burma-China border region	
		Felt.				(h = 10 km).	
		Solution from Helsinki regional		"	9	UPP iP	09 37 12.3
		bulletin.				KIR iP	09 38 22.3
"	6	UME iPg1	22 56 03.5			UME iP	09 37 49.9
		iSg1	22 56 18.6			Algeria (h = 10 km).	
		Southwestern Finland, 63.2°N, 22.3°E.		"	9	UME iP	18 08 16.7
		Origin time = 22 55 44.				Eastern China (h = 10 km).	
		M _L (UPP) = 2.4 (0.16) 5.		"	10	UPP iPKP2	03 48 05.1
		Felt.				KIR iPKP1	03 47 31.0
		Solution from Helsinki regional				UME iPKP	03 47 34.2
		bulletin.				South Island, New Zealand	
"	7	KIR iP	06 15 31.9			(h = 10 km).	
		Mindanao, Philippine Islands		"	10	UME iPKP1	04 14 45.1
		(h = 60 km).				South Island, New Zealand	
"	8	UPP iP	07 28 29.3			(h = 10 km).	
			micr sec	"	10	UME iPKP1	04 17 21.8
		P	Z' 0.8 1.6			South Island, New Zealand	
		Mx	Z 22 14			(h = 10 km).	
		KIR iP	07 28 11.1	"	10	UPP iP	20 56 30.3 D
			micr sec				micr sec
		P	Z' 6.7 4.0			P	Z' 0.1 1.0
		Mx	Z 12.0 14			KIR iP	20 55 36.9 D
		UME iP	07 28 16.8				micr sec
		Mindanao, Philippine Islands				P	Z' 0.4 0.8
		(h = 25 km).				UME iP	20 56 02.4 D
		m = 7.0, M = 6.5 (UPP,KIR).				Rat Islands, Aleutian Islands	
						(h = 60 km).	
						m = 6.1 (UPP,KIR).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Feb.	11	UPP iP KIR iP UME iP	17 57 35.0 17 56 54.9 17 57 11.9	Feb.	16	UPP iP KIR iP UME iP	08 02 16.8 08 02 09.7 08 02 18.0
		Near east coast of Honshu, Japan (h = 45 km).				Costa Rica (h = N).	
"	11	UME iP	19 00 56.7	"	16	UPP iP	12 11 07.2
		Honshu, Japan (h = 130 km).				Mindanao, Philippine Islands (h = 20 km).	
"	11	UPP iPKP1 UME iPKP1	22 18 25.3 22 18 11.3	"	16	UPP iP KIR iP UME iP	13 39 41.6 13 38 57.0 13 39 20.8
		Kermadec Islands region (h = 30 km).				Vancouver Island region (h = 10 km).	
"	12	UPP iP KIR iP	20 34 29.9 20 33 37.0	"	16	UPP iP KIR iP UME iP	21 43 11.2 21 42 41.8 21 42 53.4
		Andreanof Islands, Aleutian Is. (h = N).				Mariana Islands region (h = N).	
"	13	UME iP	08 15 59.5	"	17	UPP iP UME iP	01 50 54.8 01 50 49.1
		Near east coast of Honshu, Japan (h = 40 km).				Oaxaca, Mexico (h = N).	
"	13	UPP iP KIR iP UME iP	11 37 42.3 11 36 49.3 11 37 14.6	"	17	UPP iP i iS	02 39 38.5 02 39 39.8 02 49 12
		Rat Islands, Aleutian Islands (h = 120 km).					micr sec
"	13	UPP iP UME iP	21 23 37.0 21 23 27.0			i	Z' 0.4 1.2
		Burma-China border region (h = N).				Mx	Z 13.0 24
"	14	UPP iP	06 00 20.0			KIR iP	02 39 07.4
		Burma-China border region (h = N).				i	02 39 08.8
"	14	KIR iP	18 16 47.3				micr sec
		Mindanao, Philippine Islands (h = 90 km).				i	Z' 0.4 1.5
"	15	UME eP	00 40 12			Mx	Z 18.3 19
		Molucca Sea (h = 60 km).				UME iP	02 39 19.4
"	16	UPP iP KIR iP UME iP	06 01 49.6 06 02 15.2 06 01 53.0			i	02 39 20.8
		Iran (h = 25 km).				iS	02 48 38
							Ryukyu Islands (h = 70 km). m = 6.2, M = 6.2 (UPP,KIR).
"	16	UPP iP KIR iP UME iP	06 01 49.6 06 02 15.2 06 01 53.0	"	17	UPP iP KIR iP UME iP	03 04 14.2 03 03 45.1 03 03 56.1
		Iran (h = 25 km).				Mariana Islands region (h = 30 km).	
"	17	UPP iP	03 31 29.3	"	17	UPP iP	03 31 29.3
		Near coast of Oaxaca, Mexico (h = 20 km).				Near coast of Oaxaca, Mexico (h = 20 km).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Feb.	17	UPP iP UME iP	12 42 44.5 12 42 19.7	Feb.	20	UPP iP	10 50 54.9
		Hokkaido, Japan region (h = 30 km).				Burma (h = 45 km).	
"	17	UPP iP KIR iP UME iP	19 09 04.9 19 08 12.8 19 08 39.1	"	21	UPP iP P KIR iP	18 31 17.9 C micr sec Z' 0.4 1.5 18 31 26.0 C micr sec
		Fox Islands, Aleutian Islands (h = N).				P UME iP	Z' 0.2 1.1 18 31 25.4 C
"	19	UPP iPKP Mx KIR iPKP UME iPKP iPKP1	05 54 28.0 micr sec Z 10.8 22 05 54 17.7 05 54 24.6 05 54 30.0	"	21	UPP iP KIR iP UME iP	20 50 41.2 20 49 47.3 20 50 13.4
		North Island, New Zealand (h = 25 km).				Near Islands, Aleutian Islands (h = N).	
"	19	UPP iPKP Mx UME iPKP	07 07 22.7 micr sec Z 18.2 18 07 07 15.7	"	22	UPP iP KIR iP UME iP	13 42 54.6 13 42 48.9 13 42 48.5
		Vanuatu Islands (h = 10 km).				Tibet (h = 25 km).	
"	20	UPP iP i iS i Mx KIR iP i i UME iP	07 05 17.4 07 05 24.4 07 14 49 micr sec Z' 1.3 1.5 Z 22.4 14 07 04 38.2 07 04 44.2 micr sec Z' 0.5 1.5 07 04 51.4	"	22	UPP iP P KIR iP UME iP	17 04 06.7 micr sec Z' 0.2 1.1 17 04 29.5 17 04 15.4
		Near s. coast of Honshu, Japan (h = 15 km). m = 6.6 (UPP,KIR).				Mid-Indian Rise (h = 10 km).	
"	20	UPP iP P KIR iP P UME iP	09 26 17.3 C micr sec Z' 0.3 1.0 09 25 27.5 micr sec Z' 0.3 1.5 09 25 51.3 C	"	23	KIR eSg1 UME iPg1 iSg1	06 17 42 06 16 01.7 06 16 08.5
		Kuril Islands (h = 35 km). m = 6.2 (UPP,KIR).				Västerbotten, Sweden, 64.4°N, 20.3°E. Origin time = 06 15 53. M _L (UPP) = 2.3 1. Solution from Helsinki regional bulletin.	
"	20	UPP iP P KIR iP P UME iP	09 26 17.3 C micr sec Z' 0.3 1.0 09 25 27.5 micr sec Z' 0.3 1.5 09 25 51.3 C	"	25	UPP iSg1 UME iSg1 UDD iPg1 iSg1 MYV iSg1	10 03 17.4 10 04 24.9 10 01 29.1 10 02 17.6 10 03 00.0
						Southern Norway, 59.7°N, 6.2°E. Origin time = 10 00 24. M _L (UPP) = 2.8 (0.17) 3. Felt. (cont.)	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990

Feb.	25	(cont.) Solution from Helsinki regional bulletin.			
"	25	UPP iPKP1	13 57 12.8		
		Kermadec Islands region (h = 60 km).			
"	26	UPP iP	18 29 39.9		
			micr sec		
		P	Z' 0.1	1.0	
		KIR iP	18 29 56.4		
		UME iP	18 29 42.3		C
		Pakistan (h = 15 km).			
"	26	UPP iPn	20 31 46.2		
		i	20 31 52.9		
		iSn	20 32 50.6		
		KIR iLg1	20 36 27.1		
		UME iSg1	20 34 56.4		
		UDD iPn	20 31 22.0		
		iSn	20 32 08.3		
		iSg1	20 32 22.8		
		DEL iPn	20 31 17.8		
		MYV iPn	20 31 57.2		
		iSn	20 33 00.0		
		iSg1	20 33 35.0		
		Off coast of southern Norway, 57.7°N, 7.0°E. Origin time = 20 30 20. $M_L(\text{UPP}) = 3.8 (0.19) 5$. Felt. Solution from Helsinki regional bulletin.			
"	27	UPP iP	03 33 45.8		
		KIR iP	03 33 53.1		
		UME iP	03 33 43.0		
		Afghanistan-USSR border region (h = 130 km).			
"	27	KIR iP	22 00 02.0		October 17, 1991
			micr sec		
		P	Z' 0.1	1.0	
		UME iP	22 00 28.8		
		Fox Islands, Aleutian Islands (h = N).			
"	28	UPP iP	23 55 43.6		
		KIR iP	23 55 10.2		
		UME iP	23 55 28.5		C
		Southern California (h = 5 km).			

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UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

MARCH 1 - 31, 1990

1990					1990				
Mar.	1	UPP	iP	00 33 10.2	Mar.	2	KIR	iPn	01 38 16.7
		UME	iP	00 33 08.9			UME	iPn	01 39 02.4
		Hindu Kush region (h = N).						iSn	01 40 53.4
"	1	UPP	iP	02 33 49.7			UDD	iPn	01 39 35.5
				micr sec			Norwegian Sea (h = 10 km).		
			Mx	Z 6.1 19	"	2	UME	iPKP1	08 31 11.9
		UME	iP	02 33 22.2			South of Kermadec Islands		
		Near east coast of Kamchatka					(h = 50 km).		
		(h = 25 km).			"	3	UPP	iP	05 23 10.2
"	1	UPP	eP	07 45 50					micr sec
		Andreanof Islands, Aleutian Is.						P	Z' 0.3 1.0
		(h = N).					UME	iP	05 22 50.1
"	1	UPP	iP	07 46 22.4			South of Honshu, Japan (h = 140 km).		
		UME	iP	07 45 56.8	"	3	UPP	eP	08 54 19
		Andreanof Islands, Aleutian Is.					UME	iP	08 54 15.9
		(h = N).					Oaxaca, Mexico (h = 90 km).		
"	1	UPP	iP	13 36 28.9	"	3	UPP	iPKP	12 35 52.9
		Andreanof Islands, Aleutian Is.							micr sec
		(h = 50 km).						PKP	Z' 0.3 1.5
"	1	UPP	iP	21 06 14.3			Mx	Z 135 26	
		UME	iP	21 06 22.3			KIR		micr sec
		Leeward Islands (h = 40 km).						Mx	Z 170 30
"	1	UPP	iP	21 52 32.8			UME	iPKP	12 35 44.2
		UME	iP	21 52 13.6			South of Fiji Islands (h = N).		
		Kyushu, Japan (h = 60 km).					M = 7.5 (UPP,KIR).		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990									1990									
Mar.	4	KIR	iPn	00 08 51.4					Mar.	6	UPP	iP	18 14 53.0					
			iSn	00 10 21.7							UME	iP	18 14 50.1					
		UME	iPn	00 09 40.3							Northwestern Kashmir (h = 20 km).							
			i	00 09 42.4					"	6	UPP	iP	21 47 38.4					
			iSn	00 11 32.9									micr	sec				
			i	00 16 18.6								P	Z'	0.1	1.0			
		Greenland Sea (h = 10 km).																
"	4	UPP	iP	19 54 36.6					"	6	UME	iP	21 47 35.4					
			iS	20 01 16							Northwestern Kashmir (h = 25 km).							
				micr	sec				"	7	UME	iPg1	04 32 57.9					
			P	Z'	0.4	1.0						iSg1	04 33 09.3					
			Mx	Z	15.8	12					MYV	iPg1	04 33 44.4					
		KIR		micr	sec							iSg1	04 34 30.0					
			Mx	Z	14.7	14					Västerbotten, Sweden, 64.6°N, 21.4°E.							
		UME	iP	19 54 40.4							Origin time = 04 32 40.							
		Pakistan (h = 10 km).																
		M = 6.1 (UPP,KIR).																
"	5	UPP	Mx	17 55					"	8	UME	iP	01 42 42.8					
				micr	sec						Strait of Gibraltar (h = 630 km).							
			Mx	Z	38.3	25			"	8	UME	iP	02 05 53.2					
		KIR	Mx	17 51					"	8	South of Honshu, Japan (h = 60 km).							
				micr	sec				"	8	UME	iP	02 20 28.5					
			Mx	Z	54.5	23			"	8	South of Honshu, Japan (h = N).							
		Vanuatu Islands (h = 20 km).																
		M = 7.0 (UPP,KIR).																
"	5	UPP	iP	20 54 50.2					"	8	UPP	iP	09 57 56.9					
			ipP	20 54 54.1									micr	sec				
			iPP	20 56 30.7								P	Z'	0.2	0.7			
				micr	sec						UME	iP	09 57 30.4					
			pP	Z'	0.5	0.9					Kodiak Island region (h = 70 km).							
			Mx	Z	29.0	11			"	8	UPP	iP	19 07 26.1					
		KIR		micr	sec						Burma (h = N).							
			Mx	Z	21.9	13			"	9	UME	eP	12 43 34					
		UME	iP	20 54 47.4					"	9	Southern Alaska (h = 90 km).							
			ipP	20 54 51.4					"	9	UME	eP	17 12 36					
			iPP	20 56 25.1					"	9	Central Alaska (h = 15 km).							
		Northwestern Kashmir.																
		h = 15 km (UPP,UME).																
		M = 6.3 (UPP,KIR).																
"	5	UPP	iP	20 59 05.5					"	10	UPP	iP	10 25 37.8					
		UME	iP	20 59 02.5					"	10	UME	iP	10 25 10.4					
		Northwestern Kashmir (h = 10 km).																
"	5	UPP	eP	23 12 11					"	10	UME	iP	16 11 34.6					
		UME	iP	23 12 09.1					"	10	Southern Nevada.							
		Northwestern Kashmir (h = 20 km).																
		Underground explosion.																

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Mar.	11	UME iP	14 15 15.1	Mar.	16	UPP eP	16 05 18
		Near s. coast of Honshu, Japan				iS	16 15 56
		(h = 130 km).					micr sec
"	11	UME iPKP	20 40 00.2			Mx	Z 8.5 18
		Loyalty Islands (h = 40 km).				KIR	micr sec
						Mx	Z 15.3 16
"	11	UME iP	22 57 54.7			UME iP	16 05 09.0
		South of Honshu, Japan (h = 25 km).				Gulf of California (h = 10 km).	
						M = 6.3 (UPP,KIR).	
"	12	UPP iP	14 52 21.8	"	16	UPP iP	16 45 38.1
		i	14 52 36.4				micr sec
			micr sec			P	Z' 0.1 1.0
		Mx	Z 19.0 20			UME iP	16 45 21.6
		KIR	micr sec			Southwestern Ryukyu Islands (h = N).	
		Mx	Z 7.6 19				
		UME iP	14 51 55.0	"	17	UPP iPKP	12 35 00.0
		i	14 52 28.7			UME iPKP	12 34 48.3
		Andreanof Islands, Aleutian Is.				Kermadec Islands (h = 190 km).	
		(h = 15 km).					
		M = 6.0 (UPP,KIR).		"	18	UPP iPKP	21 57 25.6
"	12	UPP iP	15 17 31.4	"	20	UPP i	01 24 35.2
			micr sec				micr sec
		P	Z' 0.1 1.0			i	Z' 0.3 0.9
		UME eP	15 17 03			UME iP	01 24 17.0
		Andreanof Islands, Aleutian Is.				Bonin Islands region (h = 50 km).	
		(h = 15 km).		"	20	UPP iP	22 16 32.5
"	12	UPP iP	15 19 50.9				micr sec
			micr sec			P	Z' 0.3 1.0
		P	Z' 0.1 1.1			UME iP	22 16 13.5
		UME eP	15 19 26			Ryukyu Islands region (h = 30 km).	
		Andreanof Islands, Aleutian Is.		"	21	UPP iPKP	17 05 32.8
		(h = 15 km).				i	17 05 35.4
"	13	UPP iP	00 40 38.6			iPKP1	17 05 37.7
			micr sec			iPKP2	17 05 42.9
		P	Z' 0.2 0.9				micr sec
		Lapter Sea (h = 20 km).				PKP1	Z' 0.6 1.0
						Mx	Z 6.3 24
"	15	UPP iPKP	05 15 30.6			KIR iPKP	17 05 14.0
			micr sec				micr sec
		PKP	Z' 0.1 0.9			PKP	Z' 0.2 0.9
		iSKP1	05 18 44.2			UME iPKP	17 05 23.5
		UME iPKP	05 15 21.6			Kermadec Islands (h = 150 km).	
		Vanuatu Islands (h = 130 km).		"	21	UME iP	18 34 36.4
						Pakistan (h = N).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Mar.	22	UPP	iPKP1	00 19 47.6	Mar.	25	UPP	iP	13 35 42.5
			iPKP2	00 20 00.2				ipP	13 35 47.8
				micr sec			UPP		micr sec
			PKP2	Z' 0.2 0.8				pP	Z' 0.4 1.3
		KIR	iPKP1	00 19 28.2			KIR	iP	13 35 38.7
				micr sec					micr sec
			PKP1	Z' 0.4 0.7				P	Z' 3.1 2.6
		UME	iPKP1	00 19 38.6			UME	iP	13 35 43.8
		Off e. coast of N. Island						ipP	13 35 48.1
		(h = 230 km).					Costa Rica.		
"	23	KIR	iP	01 49 48.5			h = 15 km (UPP,UME).		
		UME	iP	01 49 45.8			m = 6.8 (UPP,KIR).		
		Southern Sumatera (h = 60 km).			"	25	UPP	iP	14 25 04.1
"	23	UME	iP	14 19 53.3					micr sec
		Oaxaca, Mexico (h = 60 km).						P	Z' 0.6 1.1
"	23	UPP	iP	21 17 05.3			KIR	iP	14 25 11.2
		UME	iP	21 16 39.3					micr sec
"	24	KIR	ePKP	07 25 40				P	Z' 0.6 1.0
		UME	iPKP1	07 25 49.0			UME	iP	14 25 01.9
		Off. W. coast of S. Island, New Zealand.					Tajik SSR (h= N).		
"	24	KIR	iPn	15 30 38.8			m = 6.3 (UPP,KIR).		
			i	15 30 47.6	"	25	UPP	iP	15 18 26.3
			iSn	15 31 56.8					micr sec
		UME	iPn	15 31 28.0				P	Z' 0.1 1.1
		UDD	iPn	15 32 57.8			KIR	iP	15 18 31.7
		MYV	iPn	15 31 24.0					micr sec
			i	15 33 28.0				P	Z' 0.1 1.0
		Norwegian Sea (h = 10 km).					Northwestern Kashmir (h = N).		
"	25	UPP	iPKP	01 30 31.8			m = 5.5 (UPP,KIR).		
				micr sec	"	25	UPP	iP	15 54 22.2
			PKP	Z' 0.1 1.0					micr sec
		KIR	iPKP	01 30 13.3				P	Z' 0.1 1.0
		UME	iPKP	01 30 18.8			KIR	iP	15 54 28.5
		South of Kermadec Islands (h = N).							micr sec
"	25	UPP	iP	13 28 52.2				P	Z' 0.2 0.8
				micr sec			UME	iP	15 54 20.2
			P	Z' 0.1 1.3			Northwestern Kashmir (h = N).		
		KIR	iP	13 28 51.0			m = 5.7 (UPP,KIR).		
				micr sec	"	25	KIR	iP	16 33 58.7
			P	Z' 0.2 1.5			Afghanistan-USSR border region		
		UME	iP	13 28 51.5			(h = N).		
		Costa Rica (h = 30 km).			"	25	UPP	iP	17 36 12.2
		M = 6.0 (UPP,KIR).							micr sec
								P	Z' 0.1 1.0
							(cont.)		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Mar.	25	(cont.) KIR iP	17 36 17.9 micr sec	Mar.	28	UPP iP	05 52 21.5
						Sicily (h = 35 km).	
		P Z'	0.1 0.8	"	28	UPP iP	22 07 18.9
		UME iP	17 36 09.4			Southern Xinjian, China (h = N).	
		Tajik SSR (h = N). m = 5.5 (UPP,KIR).		"	29	UPP ePKP	02 01 47
"	25	UPP iP	21 48 10.2 micr sec			Tonga Islands (h = N).	
		P Z'	0.1 1.0	"	29	UPP iSn	04 13 51.9
		KIR iP	21 48 05.7 micr sec			iSg1	04 14 29.1
		P Z'	0.1 1.5			UME iSg1	04 14 48.2
		UME iP	21 48 11.3			UDD iSg1	04 13 31.0
		Costa Rica (h = 40 km). m = 5.9 (UPP,KIR).				MYV iPn	04 12 29.8
"	26	KIR iP	04 25 48.5			iSn	04 12 55.0
		UME iP	04 25 46.1			iSg1	04 13 22.0
		Southern Sumatera (h = 35 km).				Coast of southwestern Norway, 62.2°N, 5.8°E.	
"	26	UME iP	12 54 54.6			Origin time = 04 11 19. M _L (UPP) = 3.0 (0.02) 2. Felt. Solution from Bergen regional bulletin.	
		Mariana Islands (h = 55 km).		"	29	UPP iP	04 44 58.9
"	26	UPP iPg1	14 30 35.6			Kuril Islands (h = 50 km).	
		iSg1	14 30 39.3	"	29	UPP iPKP1	16 14 04.6
		iRg	14 30 41.5			UME iPKP1	06 13 53.6
		Dannemora, Uppland, Sweden, 60.2°N, 17.8°E. Rockburst at the iron ore mine.				South of Kermadec Islands (h = N).	
"	26	UPP eP	22 27 16	"	29	UPP iP	16 26 48.0 micr sec
		KIR eP	22 27 20			P Z'	0.1 1.0
		Tajik SSR (h = N).				KIR iP	16 26 50.5 micr sec
"	26	UPP iP	23 00 15.3			P Z'	0.1 0.8
		KIR iP	22 59 58.7 micr sec			UME iP	16 26 44.8
		P Z'	0.1 1.1			Tajik-Xinjiang region (h = 25 km). m = 5.5 (UPP,KIR).	
		UME iP	23 00 04.5	"	29	UPP iPKP	17 37 35.1
		Mindanao, Philippine Islands (h = 40 km).				Kermadec islands region (h = 90 km).	
"	28	UPP iPKP2	01 13 41.0	"	29	UPP iP	19 56 00.5
		KIR iPKP1	01 13 21.8	"	29	UPP iP	20 00 25.5
		UME iPKP2	01 13 31.4			i	20 01 02.9
		Off e. coast of N. Island, N.Z. (h = 200 km).					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990

Mar. 30 UPP iP 00 54 01.5
 i 00 54 25.6
 micr sec
 P Z' 0.3 1.0
 KIR iP 00 53 40.6
 micr sec
 P Z' 0.4 1.1
 Philippine Islands region
 (h = 120 km).
 m = 6.1 (UPP,KIR).

" 30 UPP iPg1 02 17 34
 iSn 02 18 06.2
 iSg1 02 18 14.4
 UME iPg1 02 17 06.9
 iSg1 02 17 26.2
 UDD iSn 02 18 14.1
 iSg1 02 18 25.8
 MYV iPg1 02 17 08.0
 iSg1 02 17 29.0
 Ångermanland, Sweden, 62.8°N,
 17.9°E.
 Origin time = 02 16 40.
 $M_L(\text{UPP}) = 2.7 (0.26) 4.$
 Felt. Maximum intensity
 $I_0 = \text{IV (MM)}.$
 By combination with Finnish station
 readings.

" 30 UPP iP 07 15 22.5
 KIR iP 07 15 31.8
 Hindu Kush region (h = 210 km).

" 31 UPP iP 19 42 49.6 C
 iS 19 51 58
 micr sec
 P Z' 0.7 1.5
 Mx Z 11.4 17
 UME iP 19 42 25.9
 Off coast of Hokkaido (h = 20 km).

" 31 UPP iP 21 20 29.5
 Off coast of Hokkaido, Japan
 (h = 35 km).

" 31 UPP iP 21 23 39.7
 UME iP 21 23 15.4
 Off coast of Hokkaido, Japan
 (h = N).

October 16, 1991

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DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

APRIL 1 - 30, 1990

1990				1990			
Apr.	1	UPP	iP	00 54 30.1	Apr.	2	UPP eP 19 14 07
		UME	iP	00 54 28.2 C			KIR iP 19 14 21.4
				Hindu Kush region (h = 80 km).			UME iP 19 14 08.0
"	1	UPP	iP	16 25 12.4	"	3	UPP iP 22 06 32.0
		KIR	iP	16 24 42.2			KIR iP 22 07 57.5
		UME	iP	16 24 54.7			UME iP 22 07 16.4
				Volcano Islands region			i 22 07 17.8
				(h = 210 km).			Yugoslavia (h = 10 km).
"	2	UPP	iPKP1	06 15 50.9	"	3	UPP eP 23 09 42
		UME	iPKP1	06 15 39.3			i 23 09 51.4
				Kermadec Islands (h = 50 km).			iPP 23 13 04.0
"	2	UME	iP	12 50 46.5			micr sec
				South of Honshu, Japan			Mx Z 25 24
				(h = N).			KIR eP 23 09 34
"	2	UPP	iP	13 49 44.4			i 23 09 45.9
			i	13 49 45.2			micr sec
			iS	13 52 09.5			i Z' 0.1 1.0
				micr sec			Mx Z 15.4 17
			i	Z' 0.1 0.7			UME iP 23 09 40.0
		KIR	iP	13 50 55.4			i 23 09 51.9
		UME	iP	13 50 24.4			Near coast of Nicaragua (h = 55 km).
			i	13 50 28.4			M = 6.5 (UPP,KIR).
				United Kingdom (h = 20 km).	"	4	KIR iP 04 31 58.7
"	2	UPP	Mx	15 04			UME iP 04 32 04.9
				micr sec			Near coast of Nicaragua (h = 60 km).
			Mx	Z 1.0 19	"	5	KIR iP 21 25 14.3
				Off coast of central Chile			
				(h = 40 km).			

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990				
Apr.	5	UPP	iP	21 25 58.3	Apr.	6	KIR eP	01 50 18
			i	21 26 00.9			Mariana Islands region (h = 25 km).	
			i	21 26 06.1				
			iS	21 36 37	"	6	KIR iP	02 52 51.9
				micr sec			i	02 53 02.6
			i	Z' 0.3 1.1			UME iP	02 53 03.8
			i	Z' 2.6 1.5			i	02 53 14.5
			Mx	Z 165 18			Mariana Islands region (h = 40 km).	
		KIR	iP	21 25 31.0	"	6	KIR eP	03 00 59
			i	21 25 37.7			i	03 01 07.1
				micr sec			Mariana Islands region (h = 40 km).	
			P	Z' 0.5 1.3	"	6	KIR iP	04 55 27.0
			i	Z' 2.7 1.2			UME iP	04 55 38.8
			Mx	Z 128 18			Mariana Islands region (h = 15 km).	
		UME	iP	21 25 41.1	"	6	KIR iP	06 01 04.6
			i	21 25 49.4			Sunda Strait (h = N).	
		Mariana Islands (h = 10 km).						
		m = 7.4, M = 7.4 (UPP,KIR).						
"	5	UPP	iP	23 06 15.8	"	6	KIR iP	06 28 03.1
		KIR	iP	23 05 48.8			Samoa Islands region (h = N).	
			ipP	23 06 01.3	"	6	KIR iP	06 43 01.4
		UME	iP	23 05 59.8			UME iP	06 43 12.8
			ipP	23 06 12.9			Mariana Islands region (h = N).	
		Mariana Islands region						
		h = 50 km (KIR,UME).						
"	5	KIR	iP	23 36 29.2	"	6	KIR iP	07 46 19.8
		Mariana Islands region (h = N).				UME iP	07 46 31.6	
"	5	KIR	iP	23 39 06.5			Mariana Islands region (h = 45 km).	
			i	23 39 18.5	"	6	UPP iP	08 10 57.9
		UME	i	23 39 30.2			KIR iP	08 11 12.1
		Mariana Islands region (h = 35 km).					South Sandwich Islands region (h = N).	
"	5	KIR	iP	23 46 28.0	"	6	UPP eP	15 10 47
		UME	iP	23 46 39.4				micr sec
			i	23 46 49.2			Mx	Z 5.1 19
		Mariana Islands region (h = 35 km).				KIR	iP	15 10 13.8
"	5	KIR	eP	23 57 43				micr sec
		Mariana Islands region (h = 35 km).					P	Z' 0.5 2.2
"	6	KIR	iP	00 11 47.0			Mx	Z 5.2 20
		UME	iP	00 11 59.6			UME iP	15 10 26.4
		Mariana Islands region (h = N).					i	15 10 30.8
							Mariana Islands region (h = 15 km).	
							M = 5.9 (UPP,KIR).	
"	6	KIR	eP	00 15 19	"	6	UPP iP	16 51 07.2
		Mariana Islands region (h = 35 km).					i	16 51 14.8
							(cont.)	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Apr.		(cont.)		Apr.		(cont.)	
	6	UME iPKP1	16 51 03.4		8	KIR iP	04 45 22.2
		South of Tonga Islands (h = 30 km).				UME iP	04 45 39.6
						i	04 45 50.6
"	6	KIR iP	22 51 36.6			Near east coast of Honshu, Japan	
		Mariana Islands region (h = 35 km).				(h = 20 km).	
"	7	UPP iPKP1	00 02 30.3	"	8	UPP iP	15 26 07.3
		South of Fiji Islands (h = N).				UME iP	15 25 25.2
"	7	UPP i(P)	01 15 32.4	"	8	UPP iP	15 26 34.7
"	7	UPP iPKP1	03 04 05.6			UME iP	15 26 00.2
		i	03 04 13.0	"	8	UPP iP	19 24 03.1 D
		South of Tonga Islands (h = 25 km).				micr sec	
"	7	KIR iP	06 13 38.7			P Z' 0.1 0.8	
		i	06 13 45.8			KIR iP	19 23 48.6
		Kodiak Island region (h = N).				UME iP	19 23 50.5
"	7	KIR iP	06 31 00.7			Sichuan Province, China (h = 10 km).	
"	7	UPP iP	20 21 33.8 C	"	8	UPP iP	21 58 50.8
		i	20 21 41.9			Mongolia (h = 15 km).	
		micr sec		"	9	UPP iP	03 01 25.1
		P Z' 0.1 1.1				Taiwan region (h = 35 km).	
		i Z' 0.1 1.0		"	9	UPP iP	05 01 25.6
		KIR iP	20 20 39.7 C			Greece (h = 40 km).	
		i	20 20 45.0	"	9	UPP iPKP1	09 50 43.8
		micr sec				i	09 50 50.9
		P Z' 0.2 1.0				UME iPKP	09 50 32.6
		i Z' 0.4 1.0				South of Fiji Islands (h = 15 km).	
		UME iP	20 21 07.5 C	"	9	UPP iPKP1	12 17 18.1
		i	20 21 14.4			South of Fiji Islands (h = 560 km).	
		Kodiak Island region (h = N).		"	9	UPP i(P)	18 05 11.7
		m = 6.2 (UPP,KIR).		"	9	UPP iP	22 45 55.3
"	7	UPP iPKP1	21 17 36.9			UME iP	22 45 31.1
		South of Fiji Islands (h = N).				Hokkaido, Japan region (h = N).	
"	7	UPP iP	22 46 50.2	"	10	UPP iP	03 24 06.2
		KIR iP	22 46 21.4			Greece (h = 10 km).	
		Ryukyu Islands (h = N).		"	10	UME iPn	06 22 25.7
"	8	UPP iP	03 58 06.6			iSn	06 23 26.2
"	8	UPP iP	04 46 01.5			MYV iSg1	06 23 46.8
		i	04 46 11.9			Norwegian Sea, 68.4°N, 11.4°E.	
		(cont.)				(cont.)	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Apr.	10	(cont.) Origin time = 06 20 58. $M_L(\text{UPP}) = 2.8$ 1. Solution from Helsinki regional bulletin.		Apr.	12	UPP iP	22 04 40.2
						UME iP	22 04 22.1
						Bonin Islands region (h = 420 km).	
"	10	KIR iP	16 37 48.3	"	12	UPP iP	22 53 18.0
		Afghanistan - USSR border region (h = 130 km).				Algeria (h = 15 km).	
"	11	UPP iP	08 04 35.4	"	13	UPP i(P)	17 25 03.0
			micr sec				
		P	Z' 0.2 1.0	"	14	UPP iP	05 42 54.2
		KIR iP	08 03 51.0			KIR iP	05 42 36.1
			micr sec			UME iP	05 42 41.1
		P	Z' 0.4 0.9			Mindanao, Philippine Islands (h = N).	
		UME iP	08 04 10.1	"	14	UME iPKP1	07 23 30.1
		Hokkaido, Japan region (h = 70 km). m = 6.3 (UPP,KIR).				Kermadec Islands region (h = N).	
"	11	UPP iPKP1	13 30 01.3	"	14	UPP iP	08 11 40.5 D
		KIR ePKP	13 29 41			i	08 14 54.4
		UME iPKP1	13 29 49.2 C				micr sec
		Kermadec Islands (h = N).				P	Z' 0.3 0.8
"	11	UPP iP	21 01 58.4 C			KIR iP	08 11 09.6 D
		ipP	21 03 23.9				micr sec
		iPP	21 04 40.9			P	Z' 0.5 1.0
		iS	21 10 48			UME iP	08 11 22.7 D
			micr sec			Bonin Islands region (h = 460 km). m = 6.0 (UPP,KIR).	
		P	Z' 0.3 1.0	"	14	UPP iP	08 18 12.5
		KIR iP	21 01 16.8 C			KIR iP	08 17 40.7
		ipP	21 02 44.3			UME iP	08 17 54.1 D
		iPP	21 03 51.6			Bonin Islands region (h = 470 km).	
			micr sec	"	14	UPP iP	09 45 57.4
		P	Z' 0.6 0.9			Dodecanese Islands (h = 40 km).	
		UME iP	21 01 37.8 C	"	14	KIR ePKP1	17 39 12
		ipP	21 02 58.8			UME iPKP1	17 39 19.5
		Southern Honshu, Japan. h = 390 km (UPP,KIR,UME). m = 6.0 (UPP,KIR).				Kermadec Islands region (h = 460 km).	
"	12	UPP iP	04 02 42.9	"	15	UPP iP	10 42 41.9
		KIR iP	04 01 24.8			KIR iP	10 42 17.6
			micr sec			Southeast of Taiwan (h = 40 km).	
		P	Z' 0.2 1.0	"	15	UPP iP	22 55 53.8
		UME iP	04 02 04.0			KIR iP	22 55 28.4
		North of Franz Josef Land (h = 10 km)				UME iP	22 55 37.2
						Taiwan region (h = 45 km).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Apr.	16	KIR	iP	09 13 00.0	Apr.	18	UPP	iP	13 52 47.4
				Halmahera (h = 30 km).				i	13 55 52.9
								iSKS	14 03 24
"	16	UPP	iPKP	22 56 07.1					micr sec
			iSKP1	22 59 20.3				Mx	Z 183 21
		UME	iPKP	22 55 59.1			KIR	iP	13 52 36.6
				Vanuatu Islands (h = 120 km).					micr sec
								Mx	Z 161 20
"	17	UPP	iP	02 07 03.1			UME	iP	13 52 36.3
		KIR	iP	02 07 06.0					Minahassa Peninsula (h = 25 km).
				Southern Xinjiang, China (h = N).					M = 7.5 (UPP,KIR).
"	17	UPP	iP	02 07 12.0	"	18	UME	iP	14 05 36.8
			iPP	02 08 47.8					Central California (h = 5 km).
			iS	02 13 25					
				micr sec	"	18	UPP	eP	14 37 25
			P	Z' 1.2 1.6			UME	iP	14 37 11.8
			Mx	Z 34.6 19					Minahassa Peninsula (h = N).
		KIR	iP	02 07 13.0	"	18	UPP	eP	17 19 42
				micr sec			KIR	iP	17 19 30.5
			P	Z' 0.9 1.0			UME	iP	17 19 34.1
			Mx	Z 15.1 12					Minahassa Peninsula (h = 35 km).
		UME	iP	02 07 06.2	"	18	UPP	iP	18 46 27.8
			iS	02 13 11				i	18 50 25.6
				Southern Xinjiang, China (h = N).					micr sec
				m = 6.4, M = 6.1 (UPP,KIR).				Mx	Z 8.5 16
"	17	UPP	iP	11 44 55.0			KIR	iP	18 46 14.0 C
			iS	11 53 38					micr sec
				micr sec				Mx	Z 21.3 20
			P	Z' 0.1 1.0			UME	iP	18 46 18.1
			Mx	Z 8.1 20					Minahassa Peninsula (h = 20 km).
		KIR	iP	11 45 26.8					M = 6.4 (UPP,KIR).
				micr sec	"	18	UME	iP	18 58 40.3
			P	Z' 0.1 1.0					Minahassa Peninsula (h = N).
			Mx	Z 2.4 20	"	18	UME	iP	19 07 56.4
		UME	iP	11 45 13.8					Minahassa Peninsula (h = 30 km).
			iS	11 54 17	"	18	UME	iP	19 32 46.9
				Central Mid - Atlantic Ridge					Minahassa Peninsula (h = N).
				(h = 10 km).	"	18	KIR	iP	19 35 53.4
				m = 5.8, M = 5.6 (UPP,KIR).			UME	iP	19 35 56.8
"	17	UPP	iP	18 07 30.8					Minahassa Peninsula (h = 35 km).
		KIR	iP	18 08 12.2	"	18			
		UME	iP	18 07 50.7					
				Eastern Gulf of Aden (h = 25 km).					
"	18	UPP	iP	07 33 15.9					
		KIR	iP	07 32 44.6					
		UME	iP	07 32 57.6 D					
				Bonin Islands region (h = 420 km).					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990				
Apr.	19	UPP	iP	01 18 33.9	Apr.	21	UME iP	01 40 01.9
			iPP	01 22 33.6			i	01 40 13.0
			iSKS	01 29 06			Mariana Islands region (h = 40 km).	
				micr sec				
			Mx	Z 3.2 16	"	21	UPP iP	02 14 03.6
		KIR	iP	01 18 20.9			UME iP	02 14 01.3
				micr sec			Hindu Kush region (h = 80 km).	
			Mx	Z 3.4 16				
		UME	iP	01 18 24.0	"	21	UME iP	05 27 20.6
		Minahassa Peninsula (h = N).					Minahassa Peninsula (h = 35 km).	
		M = 5.8 (UPP,KIR).						
"	19	UPP	iP	12 54 08.2	"	21	UPP Mx	20 05
			iPP	12 58 08.1				micr sec
			iSKS	13 04 40			Mx	Z 4.3 20
			iS	13 05 22	"	21	UPP iP	23 06 31.1
				micr sec			iPcP	23 07 03.6
			Mx	Z 8.1 20			ipP	23 08 14.6
		KIR	iP	12 53 53.2			UME iP	23 06 06.0 C
		UME	iP	12 53 57.5			iPcP	23 06 48.1
			iPP	12 57 49.9			ipP	23 07 47.7
		Minahassa Peninsula (h = 25 km).					Near e. coast of Eastern USSR. h = 530 km (UPP,UME).	
"	19	UDD	iSg1	13 16 29.8	"	22	UPP eSg1	00 12 40
		Coast of southern Norway, 58.1°N, 6.5°E.					UME iSg1	00 13 02.6
		Origin time = 13 14 26.					UDD i	00 11 45.0
		M _L (UPP) = 2.7 1.					MYV iSg1	00 11 39.0
		Solution from Bergen regional bulletin.					Coast of southwestern Norway, 61.8°N, 4.7°E. Origin time = 00 09 17. Solution from Bergen regional bulletin.	
"	19	UPP	iP	22 49 23.2	"	22	UME iP	01 01 55.3
			iPP	22 51 06.4			Mariana Islands region (h = 45 km).	
				micr sec				
			Mx	Z 1.6 11				
		UME	iP	22 49 22.2				
		Afghanistan (h = 35 km).						
"	20	UME	iP	08 29 41.7	"	22	UME iP	02 13 47.3
		Mariana Islands (h = 140 km).					Mariana Islands region (h = N).	
"	20	UPP	iP	23 35 20.2	"	22	UME iPcP1	02 30 44.2
			iS	23 39 44			Kermadec Islands (h = 450 km).	
				micr sec				
			Mx	Z 0.5 12	"	22	UME iP	10 47 52.3
		UME	iP	23 35 41.9			North of Svalbard (h = 10 km).	
			iS	23 40 33	"	22	UPP iP	17 59 25.0
		Turkey (h = 15 km).					UME iP	17 58 59.2
							Sea of Okhotsk (h = 530 km).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Apr.	22	UPP	iPKP	20 44 17.3	Apr.	25	UPP	iP	07 21 40.5
				micr sec					micr sec
			Mx	Z 1.3 19				Mx	Z 1.4 17
		UME	iPKP	20 44 22.1			KIR		micr sec
			i	20 44 30.5				Mx	Z 1.4 20
		Near coast of Central Chile (h = 25 km).					UME	iP	07 21 14.9
								i	07 21 23.8
							Kuril Islands (h = 40 km). M = 5.1 (UPP,KIR).		
"	23	UPP	iP	03 10 40.4	"	26	UPP	iP	01 25 06.5
		UME	iP	03 10 13.7			UME	iP	01 24 58.9
		Fox Islands, Aleutian Islands (h = N).					Burma - India border region (h = 100 km).		
"	24	UDD	iSg1	09 39 05.6					
		MYV	eSg1	09 39 27					
		Off coast of southwestern Norway, 60.2°N, 4.6°E. Origin time = 09 36 36. Solution from Bergen regional bulletin.			"	26	UPP	iP	09 46 51.3
								i	09 47 22.9
								iS	09 54 45
									micr sec
"	24	UDD	iSg1	09 51 36.4				P	Z' 2.6 1.2
		Off coast of southwestern Norway, 60.2°N, 4.7°E. Origin time = 09 49 05. Solution from Bergen regional bulletin.						Mx	Z 117 13
							KIR	iP	09 46 31.6
									micr sec
								P	Z' 3.2 1.5
								Mx	Z 160 13
							UME	iP	09 46 36.4 C
								iS	09 54 18
"	24	UPP	iP	14 21 31.8			Qinghai Province, China (h = 10 km). m = 7.1, M = 7.2 (UPP,KIR).		
"	24	UPP	iP	19 34 47.6	"	26	UPP	eP	11 32 03
		UME	iP	19 35 30.4 D			UME	iP	11 32 40.3
		Yugoslavia (h = 20 km).					Albania (h = 40 km).		
"	25	UPP	iP	00 01 45.1	"	26	UPP	iP	15 54 12.9
				micr sec			KIR	iP	15 53 56.9
			P	Z' 0.1 1.0			Minahassa Peninsula (h = 25 km).		
		UME	iP	00 01 27.0 C					
		Ryukyu Islands (h = 10 km).			"	26	UPP	iP	20 47 30.6
							Kuril Islands (h = N).		
"	25	UPP	iSKP1	02 34 49.1	"	27	UPP	iP	05 37 42.5
		UME	i(PKP)	02 31 38.1			UME	iP	05 37 47.2
			iPKP	02 31 50.4			Pakistan (h = 15 km).		
			iSKP1	02 34 34.6					
		Fiji Islands region (h = 440 km).							
"	25	UPP	iP	02 36 10.6	"	28	UPP	iP	01 36 00.0
		UME	iP	02 35 56.8				i	01 36 01.3
		Southwestern Ryukyu Islands (h = 40 km).						iS	01 46 25
									micr sec
								i	Z' 1.6 2.1

(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990

Apr.	28	(cont.)			
		Mx	Z	13.5	22
		KIR	iP	01 35	55.3
				micr	sec
		P	Z'	4.0	2.5
		Mx	Z	9.6	18
		UME	iP	01 35	59.6
		Costa Rica (h = 25 km).			
		m = 7.0, M = 6.2 (UPP,KIR).			
"	28	UPP	iPKP1	12 01	54.5
			i	12 01	58.1
		UPP	i	12 02	02.5
		UME	iPKP	12 01	50.4
		South of Fiji Islands (h = 15 km).			
"	29	UPP	eP	05 27	03
		Mariana Islands (h = 320 km).			
"	30	UPP	iP	02 42	09.4
		UME	iP	02 41	45.8
			i	02 41	59.3
		Near east coast of Honshu, Japan (h = 45 km).			
"	30	UPP	iP	12 38	15.4
		Qinghai Province, China (h = N).			
"	30	UPP	iP	14 39	20.4
			i	14 40	06.8
		Mindanao, Philippine Islands (h = 120 km).			
"	30	UPP	iP	18 12	09.2
			ipP	18 12	15.5
				micr	sec
		P	Z'	0.1	1.0
		pP	Z'	0.2	1.0
		KIR	iP	18 12	10.8
			ipP	18 12	16.5
				micr	sec
		P	Z'	0.1	1.0
		pP	Z'		0.21.0
		UME	iP	18 12	05.9
			ipP	18 12	12.0
		Nicobar Islands region. h = 20 km (UPP,KIR,UME). m = 6.1 (UPP,KIR).			

October 24, 1991

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SEISMOLOGICAL BULLETIN
 UPPSALA, KIRUNA, UMEÅ, UDDEHOLM
 DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

MAY 1 - 31, 1990

1990						1990					
May	1	UPP	iP	11 57 18.7		May	1	UPP	iP	16 59 16.5	
				micr sec							
			Mx	Z 2.0 21		"	2	UPP	iP	01 12 05.3	
		KIR	iP	11 57 08.2				UME	iP	01 11 35.9	
				micr sec				Kuril Islands (h = 100 km).			
			Mx	Z 1.4 17		"	2	KIR	iPg1	07 53 11.1	
		UME	iP	11 57 14.6					iSg1	07 53 22.9	
		Guatemala (h = 40 km).						Norrbotten, Sweden, 67.7°N, 22.7°E.			
		M = 5.4 (UPP,KIR).						Origin time = 07 52 55.			
"	1	UPP	iP	16 22 16.4				M _L (UPP) = 2.3 1.			
			i	16 22 17.2				Solution from Helsinki regional bulletin.			
			i	16 23 31.6		"	2	UPP	iP	10 50 35.1	
			iS	16 30 21						micr sec	
			iP'P'	16 51 23.3					P	Z' 0.1 0.7	
			i	16 52 21.9				KIR	iP	10 50 42.9	
				micr sec						micr sec	
			i	Z' 0.9 1.1					P	Z' 0.1 0.7	
			Mx	Z 4.3 16				Afghanistan-USSR border region (h = 250 km).			
		KIR	iP	16 21 21.0 D				m = 5.4 (UPP,KIR).			
			i	16 21 21.8		"	2	UPP	iP	12 13 26.1	
				micr sec					ipP	12 14 16.8	
			i	Z' 1.3 1.0				KIR	iP	12 13 34.4	
			Mx	Z 3.1 18				Afghanistan-USSR border region (h = 250 km).			
		UME	iP	16 21 49.4							
			i	16 21 50.3							
		Alaska Peninsula (h = 210 km).									
		m = 6.4, M = 5.5 (UPP,KIR).									
		M uncorrected for focal depth.									
"	1	UPP	iP	16 26 35.8		"	2	UPP	iP	20 44 58.1	
		This onset may be connected with the previous Alaska event, for instance PPP.							UME	iP	20 44 32.0 C
								Kuril Islands region (h = N).			

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
May	2	UPP	iPKP	23 09 01.5	May	5	UPP	iP	07 25 48.2
			iPP	23 09 35.2			KIR	iP	07 27 02.7
			i	23 09 48.6			UME	iP	07 26 26.7
				micr sec			Southern Italy (h = 15 km).		
			Mx	Z 6.0 22					
		KIR	iPP	23 09 03.1	"	5	UPP	iP	07 25 56.4
				micr sec			iS	07 29 30	
			Mx	Z 6.3 21					micr sec
		UME	iPKP	23 08 54.4			P	Z' 0.6 1.1	
			iPP	23 09 29.1			Mx	Z 11 8.0	
		New Britain region (h = 80 km).					KIR	iP	07 27 14.4
		M = 6.1 (UPP,KIR).							micr sec
		M uncorrected for focal depth.					P	Z' 0.3 1.4	
"	2	UPP	iP	23 19 39.1			Mx	Z 9.2 8.0	
"	3	UPP	iP	07 57 07.5 C			UME	iP	07 26 38.1
			i	07 57 23.0			iS	07 30 35	
				micr sec			Southern Italy (h = 10 km).		
			P	Z' 0.2 1.0			m = 5.8 (UPP,KIR).		
		KIR	iP	07 56 28.6	"	5	UPP	iP	07 42 36.6
				micr sec			KIR	eP	07 43 59
			P	Z' 0.1 0.9			UME	iP	07 43 21.3
		UME	iP	07 56 45.5 C			Southern Italy (h = 15 km).		
		Near east coast of Honshu, Japan			"	5	UPP	iP	13 58 24.4
		(h = 60 km).					KIR	iP	13 57 54.0
		m = 5.8 (UPP,KIR).					UME	iP	13 58 03.1
"	3	UPP	iP	10 09 48.0			Mongolia (h = N).		
		Alma-Ata region (h = N).			"	5	UPP	iPKP1	16 01 41.7
"	3	UPP	iP	21 10 32.0			South of Fiji Islands (h = 480 km).		
			i	21 10 40.4	"	5	KIR	iP	23 54 39.9
		KIR	iP	21 11 24.7			UME	iP	23 55 08.0
		UME	iP	21 10 56.9			Southeastern Alaska (h = 10 km).		
		Turkey (h = 10 km).			"	6	UPP	iP	10 26 22.7
"	4	UPP	eP	10 21 09			North Atlantic Ocean (h = 10 km).		
		Ethiopia (h = 10 km).			"	6	UPP	iP	10 39 44.5
"	5	UPP	iP	05 56 48.8			UME	iP	10 39 36.5
		UME	iP	05 56 20.9			Tibet (h = N).		
		Off east coast of Kamchatka (h = N).			"	6	UPP	iP	10 50 39.6
"	5	UPP	iP	06 02 26.2			North Atlantic Ocean (h = 10 km).		
		UME	iP	06 01 58.2	"	6	UPP	iP	18 35 11.8
		Near east coast of Kamchatka					KIR	iP	18 34 34.0
		(h = N).					UME	iP	18 34 50.0
"	5	UPP	iP	06 05 18.4			Honshu, Japan (h = 170 km).		
		UME	iP	06 04 51.0					
		Off east coast of Kamchatka (h = N).							

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990									
May	7	UPP	iP	05 27	15.2	May	9	UPP	iP	02 49	15.2		
					micr sec			KIR	iP	02 48	20.0		
			P	Z'	0.1 1.0			UME	iP	02 48	48.0		
			Mx	Z	1.2 9.0			Alaska Peninsula (h = 80 km).					
		KIR	iP	05 26	55.0		"	9	UPP	iPKP	04 39	59.0	
					micr sec			KIR	iPKP	04 40	13.7	D	
			P	Z'	0.1 1.0						micr sec		
			Mx	Z	2.5 11.0				PKP	Z'	0.2 1.0		
		UME	iP	05 26	59.9			UME	iPKP	04 40	05.2		
		Qinghai Province, China (h = N).						South Sandwich Islands region (h = N).					
		m = 5.8, M = 5.4 (UPP,KIR).											
"	7	UPP	iPKP1	13 22	46.4	"	9	UPP	iPKP	17 03	38.1		
		UME	iPKP1	13 22	34.2			KIR	iPKP	17 03	24.5		
		Kermadec Islands region (h = 50 km).						UME	iPKP	17 03	30.3		
"	7	UPP	eP	14 55	11			Vanuatu Islands (h = 200 km).					
		UME	iP	14 55	20.6		"	10	UPP	Mx	24 24		
		Iran (h = N).									micr sec		
"	7	UPP	iP	15 33	14.0				Mx	Z	1.5 19		
		Pakistan (h = 40 km).						Balleny Islands region (h = 10 km).					
"	8	UPP	iP	00 14	36.2	"	10	UPP	iPKP1	01 18	44.9		
			iPP	00 18	13.8			KIR	iPKP1	01 18	42.8		
			iS	00 25	05			UME	iPKP1	01 18	42.5		
					micr sec			West of Macquarie Island (h = 10 km).					
			P	Z'	0.2 1.0			"	10	UPP	iP	02 20	33.7
			Mx	Z	12 19			UME	iP	02 20	15.7		
		KIR	iP	00 14	33.7			Bonin Islands region (h = 350 km).					
			i	00 14	36.5			"	10	UPP	iP	09 35	08.7
					micr sec			Andreanof Islands, Aleutian Is. (h = N).					
			i	Z'	1.5 1.8			"	11	UPP	iP	05 14	07.0
			Mx	Z	6.1 18						micr sec		
		UME	iP	00 14	38.0				P	Z'	0.1 1.0		
			i	00 14	40.9			KIR	iP	05 13	14.5		
			iS	00 25	07						micr sec		
		South of Panama (h = 10 km).							P	Z'	0.1 1.0		
		m = 6.6, M = 6.1 (UPP,KIR).						Off east coast of Kamchatka (h = 10 km).					
"	8	UPP	iPKP	01 58	51.6								
			iSKP1	02 01	58.0								
		KIR	iPKP	01 58	37.0								
		UME	i(PKP)	01 58	34.6								
			iPKP	01 58	43.5								
			iSKP1	02 01	43.7								
		Vanuatu Islands (h = 230 km).						"	11	UPP	iP	05 14	38.5
"	8	UPP	iP	04 32	55.5			KIR	iP	05 13	46.1		
		UME	iP	04 32	26.5			Off east coast of Kamchatka (h = 10 km).					
		Rat Islands, Aleutian Islands (h = N).											

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1990				1990					
May	11	UPP	iP	13 20 03.4	May	13	UPP	iPKP	04 43 01.5
			i	13 20 04.5				iPKP1	04 43 12.2
			i	13 22 25.7				iPKP2	04 43 28.6
			i	13 22 36.8				iPP	04 47 04
			iS	13 27 57.7					micr sec
			i	13 28 54				Mx	Z 9.3 22
				micr sec			KIR	iPKP	04 42 51.3
		P	Z'	1.3 1.5				iPKP1	04 42 55.6
		KIR	iP	13 19 25.5 D					micr sec
				micr sec				Mx	Z 4.6 22
		P	Z'	1.0 1.5			UME	iPKP	04 42 56.1
								iPKP1	04 43 03.2
								iPKP2	04 43 11.7
				North Korea (h = 580 km).					North Island, New Zealand
				m = 6.0 (UPP,KIR).					(h = 20 km).
"	11	KIR	iP	23 56 25.0					M = 6.3 (UPP,KIR).
		UME	iP	23 56 35.1					
				Guerrero, Mexico (h = 30 km).					
"	12	UPP	iP	04 59 33.9 D	"	13	UME	iP	04 54 44.3
			i	04 59 34.6	"	13	UME	iP	05 00 14.0
			ipP	05 01 34.9	"	13	UPP	iP	08 18 16.8
			iPP	05 03 10.0					Qinghai Province, China (h = N).
			iS	05 07 13.2	"	13	UPP	eP	14 12 37
			IScS	05 08 22.5			KIR	eP	14 13 48
			iP'P'	05 27 53.4					Crete (h = 35 km).
				micr sec	"	13	UPP	iP	14 47 25.0
		P	Z'	5.7 1.0			KIR	iP	14 47 13.9
		Mx	Z	45 21					Eastern Kazakh SSR (h = 25 km).
		KIR	iP	04 58 47.9 D	"	13	KIR	i	22 09 59.1
			iP'P'	05 28 22.0				iSn	22 10 21.7
				micr sec					Off coast of northwestern Norway,
		P	Z'	3.8 1.0					69.9°N, 15.6°E.
		Mx	Z	14 13					Origin time = 22 09 03.
		UME	iP	04 59 08.7 D					Solution from Bergen regional
			iS	05 06 26					bulletin.
			iP'P'	05 28 08.7	"	14	KIR	iP	00 59 52.4
				Sakhalin Island.			UME	iP	01 00 30.4
				h = 640 km (UPP).					North of Severaya Zemlya
				m = 6.7, M = 6.4 (UPP,KIR).					(h = 10 km).
				M uncorrected for focal depth.	"	14	UPP	iPKP1	12 12 56.0
"	12	UPP	iP	05 36 27.8					South of Fiji Islands (h = 540 km).
				micr sec	"	14	UPP	i(P)	16 33 42.7
		P	Z'	0.1 1.0					
"	12	KIR	iP	17 32 07.7					
		UME	iP	17 31 59.3					
				Tajik SSR (h = 35 km).					

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1990				1990							
May	14	UPP	iP	17 08 49.0	May	15	(cont.)				
				micr sec							
			Mx	Z 0.9 12							
		KIR	eP	17 10 09							
				micr sec							
			Mx	Z 1.0 11							
		UME	iP	17 09 31.2							
			iS	17 13 40							
				Albania (h = 10 km).							
				M = 4.4 (UPP,KIR).							
"	14	UPP	iPKP	21 52 45.1	"	15	UPP	iS	18 55 42		
			iPKKP	22 02 57.0					micr sec		
		KIR	iPKP	21 52 52.5				Mx	Z 3.6 19		
				micr sec			KIR	eP	18 44 56		
			PKP	Z' 0.1 1.0					micr sec		
		UME	iPKP	21 52 50.1				Mx	Z 4.6 18		
			iPKKP	22 02 46.1			UME	iS	18 55 31		
				Central Chile (h = 80 km).					Minahassa Peninsula (h = 30 km).		
									M = 5.9 (UPP,KIR).		
"	15	UPP	iP	14 32 54.9 C	"	15	UPP	iPKP1	21 53 16.3		
			i	14 32 55.9				iPKP2	21 53 22.6		
			ipP	14 33 20.8			KIR	iPKP	21 52 53.8		
			iPP	14 34 35.3			UME	iPKP	21 53 03.3		
			iS	14 38 58				iPKP1	21 53 05.5		
				micr sec					Kermadec Islands region (h = 40 km).		
			i	Z' 0.6 1.1			"	15	UPP	iP	22 18 51.7
		KIR	iP	14 33 04.6					KIR	iP	22 18 07.7
			ipP	14 33 30.7					UME	iP	22 18 27.3
				micr sec					Hokkaido, Japan region (h = 70 km).		
			P	Z' 1.2 1.4			"	15	UPP	iP	22 39 38.5
		UME	iP	14 32 53.6 C					i	22 39 42.9	
				Hindu Kush region.					micr sec		
				h = 120 km (UPP,KIR).					P	Z' 0.1 1.0	
				m = 6.4 (UPP,KIR).					KIR	iP	22 39 19.0
"	15	UPP	iP	15 32 06.2					i	22 39 23.1	
			iS	15 40 48					micr sec		
				micr sec					P	Z' 0.1 1.3	
			P	Z' 0.3 1.6					UME	iP	22 39 23.5
		KIR	iP	15 32 51.0					i	22 39 27.5	
				micr sec							Qinghai Province, China (h = 15 km).
			P	Z' 0.3 1.4							m = 5.7 (UPP,KIR).
		UME	iP	15 32 27.5			"	15	UPP	iP	23 28 29.5
				Tanzania (h = 5 km).					KIR	iP	23 27 45.9
				m = 6.2 (UPP,KIR).					UME	iP	23 28 04.7
"	15	UPP	iP	16 34 52.7							Hokkaido, Japan region (h = 70 km).
			i	16 35 33.4							
			iS	16 43 40							
				(cont.)							

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990							
May	19	KIR	iP	13 40 23.5	May	20	UPP	iPKP	07 51 30.9		
		UME	iP	13 40 34.0			KIR	iPKP	07 51 17.3		
		South of Mariana Islands					UME	iPKP	07 51 24.1		
		(h = 140 km).					iSKP1	07 54 33.0			
							Tonga Islands (h = 230 km).				
"	19	UPP	iP	14 25 20.1	"	20	UPP	iP	09 19 22.9		
		KIR	iP	14 25 29.1			KIR	iP	09 19 23.6		
		UME	iP	14 25 18.0			UME	iP	09 19 17.8		
		Hindu Kush region (h = 190 km).					Nepal (h = N).				
"	19	UPP	iP	15 59 47.1	"	20	UPP	iP	09 21 46.3		
		KIR	iP	15 59 15.8							
		UME	iP	15 59 28.9							
		Bonin Islands region (h = 340 km).				"	20	UPP	iPKP	10 12 50.7	
								iPKP1	10 12 55.6		
"	20	UPP	iP	02 31 37.6 D			KIR	iPKP	10 12 35.5		
			i	02 31 41.7			UME	iPKP1	10 12 45.0		
			iS	02 39 18			South of Kermadec Islands				
				micr sec			(h = 350 km).				
			P	Z' 1.1 1.9			"	20	UPP	eSg1	10 31 31.0
			i	Z' 13.0 2.7				KIR	iPn	10 28 04.2	
			Mx	Z 117 16				iSg1	10 29 00.5		
		KIR	iP	02 32 28.1 D			UME	iPn	10 28 34.1		
				micr sec				i	10 28 42.5		
			P	Z' 1.7 1.0				iPg1	10 28 50.4		
			Mx	Z 60 13				iSn	10 29 45.9		
		UME	iP	02 32 02.7 D				iSg1	10 30 03.9		
			i	02 32 05.7			UDD	iPn	10 29 05.4		
		Sudan (h = 15 km).					MYV	iPn	10 28 29.4		
		m = 7.3, M = 7.0 (UPP,KIR).						iPg1	10 28 38.4		
"	20	UPP	iP	02 55 39.7				iSg1	10 29 47.0		
		East China Sea (h = N).					Norwegian Sea, near 68.1°N, 10.8°E.				
"	20	UPP	iP	05 56 44.5			Origin time = 10 27 08.				
		UME	iP	05 56 30.0			M _L (UPP) = 3.5 (0.26) 3.				
		Qinghai Province, China (h = 15 km).		"	21	UPP	iP	13 10 58.9			
								micr sec			
"	20	UPP	iP	06 02 18.8				P	Z' 0.2 1.3		
		UME	iP	06 02 58.4				Mx	Z 1.5 19		
		Ionian Sea (h = 10 km).				KIR	iP	13 10 05.0 C			
								micr sec			
"	20	UPP	iP	06 54 48.4 C				P	Z' 0.1 1.1		
				micr sec				Mx	Z 1.8 16		
			P	Z' 0.2 1.0			UME	iP	13 10 32.2		
		KIR	iP	06 54 02.8 C			Unimak Island region (h = N).				
				micr sec			m = 5.9, M = 5.2 (UPP,KIR).				
			P	Z' 0.3 1.0							
		UME	iP	06 54 23.1 C							
		Kuril Islands (h = 20 km).									
		m = 6.3 (UPP,KIR).									

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990				
May	21	UPP KIR	iP iP	13 38 09.8 13 38 05.6	May	23	UME South of Honshu, Japan (h = 300 km).	iP 17 58 20.4
				micr sec				
			P	Z' 0.1 1.0	"	23	KIR UME	iPdiff iPdiff
			UME	iP 13 38 05.4			Banda Sea (h = 130 km).	19 49 01.0 19 49 05.8
			Java (h = 30 km).					
"	21	UME	iP	21 17 51.3	"	23	UME	iPKP
							iSKP1	21 18 28.3 21 21 36.4
							Vanuatu Islands (h = 160 km).	
"	21	UPP UME	iPKP1 iPKP1	21 19 11.7 21 18 59.5	"	24	UME	iPKP
				South of Kermadec Islands (h = 65 km).			Fiji Islands region (h = 590 km).	
"	22	UPP KIR	iP iP	18 12 43.6 18 12 42.3	"	24	UPP KIR UME UDD	iSg1 iSg1 iSg1 iPn
				Southern Sumatera (h = 90 km).				09 54 12.6 09 58 03.6 09 56 13.9 09 52 58.4
"	22	UPP KIR UME	iP iP iP	20 47 19.9 20 47 16.8 20 47 21.1				iSg1 iPn iSn iSg1
				Cuba region (h = 15 km).				09 53 53.7 09 53 37.4 09 54 46.0 09 55 20.0
"	23	UPP	iP i	13 04 25.1 D 13 04 36.0				Off coast of Halland, Sweden, 56.6°N, 12.1°E. Origin time = 09 51 57. M _L (UPP) = 3.3 (0.13) 4. Felt. Maximum intensity I _o = IV (MM).
				micr sec				
			P	Z' 0.1 1.0	"	24	UPP	i(P)
			Mx	Z 1.7 16				11 22 05.6
		KIR	iP	13 04 03.8 D	"	24	UPP	iP
				micr sec				12 21 23.4
			Mx	Z 0.8 15				micr sec
		UME	iP	13 04 10.7 D				Mx Z 1.0 15
				Philippine Islands region (h = 35 km). M = 5.3 (UPP,KIR).			KIR	micr sec
"	23	UPP KIR UME	iP iP iP	16 19 44.4 16 19 46.3 16 19 41.3				Mx Z 1.1 15
				Off w. coast of northern Sumatera (h = 50 km).			UME	iP
								12 21 05.5
"	23	UPP	iPKP1 iPKP2	16 46 26.9 16 46 30.7	"	24	UPP KIR	iP iP
			UME	iPKP1 16 46 14.9				15 18 48.5 15 19 32.6 C
				Kermadec Islands region (h = 520 km).				micr sec
								P Z' 0.1 0.8
"	23	UME	iP	16 57 16.5			UME	iP
								15 19 05.7
								Iran-Iraq border region (h = 60 km).
"	23	UPP UME	iP iP	17 23 32.8 17 24 15.3	"	24	UPP UME	iP iP
				Ionian Sea (h = 50 km).				17 23 32.8 17 24 15.3

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990						
May	24	UPP	iP	18 56 47.2	May	24	UPP	iP	20 45 54.1	
				Ionian Sea (h = 20 km).						
"	24	UPP	iP	19 42 15.2	"	24	UPP	iP	22 25 38.8	
				Ionian Sea (h = 45 km).			KIR	iP	22 26 29.0	
									micr sec	
								P	Z' 0.4 1.8	
							UME	iP	22 26 02.6	
									Sudan (h = 10 km).	
"	24	UPP	iP	19 44 18.7 D	"	25	UPP	iP	00 52 06.8 D	
			iS	19 52 01				i	00 52 13.3	
				micr sec			KIR	iP	00 52 58.0 D	
				P	Z' 2.6 2.5			i	00 53 04.9	
				Mx	Z 17 24				micr sec	
		KIR	iP	19 45 09.7 D				P	Z' 0.1 1.0	
				micr sec				i	Z' 0.3 1.3	
				P	Z' 2.5 2.5		UME	iP	00 52 31.8 D	
				Mx	Z 8.0 20			i	00 52 43.9	
		UME	iP	19 44 43.8 D					Sudan (h = 10 km).	
			iS	19 52 47						
				Sudan (h = 15 km).						
				m = 6.9, M = 5.9 (UPP,KIR).						
"	24	UPP	iP	20 04 00.5	"	25	KIR	iP	01 12 30.0	
				Ionian Sea (h = 10 km).					Sudan (h = 10 km).	
"	24	UPP	iP	20 09 42.4 D	"	25	UPP	iPdiff	02 17 28.8	
			i	20 09 50.6					micr sec	
			eS	20 17 27				Mx	Z 1.4 20	
				micr sec			KIR	iPdiff	02 17 12.2	
				P	Z' 7.4 2.5				micr sec	
				i	Z' 6.7 2.3			Mx	Z 1.5 16	
				Mx	Z 97 29		UME	iPdiff	02 17 18.5	
		KIR	iP	20 10 34.1 D					Ceram (h = 15 km).	
				micr sec					M = 5.5 (UPP,KIR).	
				P	Z' 7.4 2.4	"	25	KIR	iP	02 59 28.3
				Mx	Z 50 24					Sudan (h = 10 km).
		UME	iP	20 10 07.3 D	"	25	KIR	iP	06 23 18.5	
				Sudan (h = 15 km).						Sudan (h = 10 km).
				m = 7.4, M = 6.6 (UPP,KIR).						
"	24	UPP	iPdiff	20 22 18.3	"	25	UME	iPdiff	10 13 43.6	
			ipP	20 24 28.0					Banda Sea (h = 290 km).	
				micr sec	"	25	UPP	iP	16 29 27.0	
				Pdiff	Z' 0.2 0.9		KIR	iP	16 29 32.6	
		KIR	iPdiff	20 22 08.6			UME	iP	16 29 23.3	
			ipP	20 24 17.8					Tajik SSR (h = 90 km).	
				micr sec						
				Pdiff	Z' 0.3 1.0					
		UME	iPdiff	20 22 10.6						
				Flores Sea.						
				h = 600 km (UPP,KIR).						
				m = 6.8 (UPP,KIR).						

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
May	25	UPP	micr sec	May	27	UME iP	03 16 39.2
		Mx	Z 4.2 15			South of Panama (h = 15 km).	
		KIR	iP 16 33 18.7				
			micr sec	"	27	KIR iP	03 35 39.7
		Mx	Z 1.7 14			i	03 35 43.6
		UME	iP 16 33 09.9			UME iP	03 35 51.1
		Tajik SSR (h = 70 km).				i	03 35 55.1
		M = 5.2 (UPP,KIR).				Mariana Islands region (h = 40 km).	
		M uncorrected for focal depth.					
"	25	KIR	iP 18 41 42.3	"	27	KIR iP	07 40 03.0
		UME	iP 18 41 53.8			UME iP	07 39 37.4
		Mariana Islands region (h = 35 km).				Sudan (h = 10 km).	
"	26	KIR	iP 03 00 51.4	"	27	KIR iP	12 37 36.3
		UME	iP 03 01 04.0			UME iP	12 37 49.2
		Iceland region (h = 10 km).				Mariana Islands region (h = 35 km).	
"	26	KIR	iP 03 10 52.1	"	27	UPP iP	14 13 12.3
		UME	iP 03 10 51.6			KIR eP	14 12 58
		Minahassa Peninsula (h = 35 km).				UME iP	14 13 00.6
						Mindoro, Philippine Islands (h = N).	
"	26	UPP	iSKP1 05 33 07.4	"	27	UME iP	14 17 06.1
		KIR	iPKP 05 29 46.9			Mariana Islands region (h = N).	
		UME	iPKP 05 29 53.8	"	27	UPP iP	18 33 24.7
		Vanuatu Islands (h = 220 km).				i	18 33 34.7
"	26	UPP	iP 08 08 24.5				micr sec
			micr sec			P	Z' 0.1 1.1
		P	Z' 0.1 0.5			KIR iP	18 34 06.6
		KIR	iP 08 08 09.6 C			UME iP	18 33 39.2
			micr sec			Turkey-USSR border region	
		P	Z' 0.1 1.0			(h = 10 km).	
		UME	iP 08 08 11.0 C	"	27	KIR iP	19 06 32.1
		Southern Xinjiang, China (h = 0).				UME iP	19 06 05.1
		m = 5.9 (UPP,KIR).				i	19 06 18.9
"	26	KIR	iP 13 38 18.3			Ethiopia (h = 50 km).	
		Mindoro, Philippine Islands		"	27	UPP iP	21 53 02.7
		(h = 35 km).				iS	21 55 32
"	26	KIR	iP 14 33 09.7				micr sec
		UME	iP 14 32 44.1			Mx	Z 39 21
		Sudan (h = 10 km).				KIR iP	21 51 21.2
"	26	KIR	iP 22 31 58.5			i	21 51 28.0
		UME	iP 22 32 26.7				micr sec
		Unimak Island region (h = N).				Mx	Z 14 11
						UME iP	21 52 11.6
						i	21 52 15.6
						iS	21 54 19

(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
May	27	(cont.)		May	28	UPP	iP	16 22 58.2	
		UDD	iP					micr sec	
			i				P	Z' 0.1 1.0	
			i			KIR	iP	16 22 15.8	
			i			UME	iP	16 22 34.8	
		DEL	iP			Kuril Islands (h = 35 km).			
			i						
		MYV	iP		"	29	UPP	iP	07 25 01.5
		Greenland Sea (h = 30 km).					KIR	iP	07 24 17.0
								micr sec	
"	27	KIR	iP				P	Z' 0.1 1.0	
		UME	iP				UME	iP	07 24 37.0
		Central Mid-Atlantic Ridge (h = 10 km).					Hokkaido, Japan region (h = 110 km).		
"	28	UPP	iP		"	29	UPP	iP	12 47 47.5
							KIR	iP	12 47 29.0 D
								micr sec	
			P				P	Z' 0.2 1.0	
		KIR	iP				UME	iP	12 47 35.0
		UME	iP				Luzon, Philippine Islands (h = 45 km).		
		Ural Mountains region (h = N).							
"	28	KIR	iP		"	29	UPP	iP	18 41 39.0
			i				i	18 41 51.8	
			iS				iS	18 50 11	
		UME	iP					micr sec	
		Sudan (h = 10 km).					P	Z' 0.2 1.1	
							Mx	Z 5.4 19	
"	28	UPP	iP				KIR	iP	18 40 45.2
							i	18 40 56.4	
								micr sec	
			P				P	Z' 0.4 1.1	
		KIR	iP				Mx	Z 7.3 21	
		UME	iP				UME	iP	18 41 13.2
		Ural Mountains region (h = N).					iS	18 49 20	
"	28	KIR	iP				Kodiak Island region (h = 25 km).		
			i				m = 6.3, M = 6.3 (UPP,KIR).		
			iS						
		UME	iP		"	30	UPP	iP	01 39 28.2 C
								micr sec	
							P	Z' 0.1 1.1	
							KIR	iP	01 39 37.0 C
								micr sec	
							P	Z' 0.2 1.0	
		UDD	iP				UME	iP	01 39 26.5 C
		DEL	iP				Hindu Kush region (h = 200 km).		
		Greenland Sea (h = 10 km).					m = 5.5 (UPP,KIR).		
"	28	UPP	iPKP		"	30	UPP	iP	02 47 38.8
			iSKP1				i	02 47 44.3	
		KIR	iPKP				iPP	02 51 45.8	
			iSKP1				(cont.)		
			iSKP1						
		UME	iPKP						
			iSKP1						
		Fiji Islands region (h = 490 km).							

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
May	30	(cont.)		May	31	(cont.)	
		iSKS	02 58 12			UME iP	00 21 53.0 D
		iS	02 59 00			iS	00 25 00
			micr sec				Romania (h = 90 km).
		P	Z' 0.1 1.1				
		i	Z' 0.1 1.1	"	31	UPP iPKP1	03 06 00.5
		Mx	Z 10 18			UME iPKP1	03 05 42.5
		KIR iP	02 47 42.2				South of Kermadec Islands
			micr sec				(h = 80 km).
		Mx	Z 12 21				
		UME iP	02 47 43.9		31	UPP iP	04 52 07.7
		iSKS	02 58 19			iS	04 54 45.2
			Northern Peru (h = 25 km).			UME iP	04 52 48.4
			M = 6.3 (UPP,KIR).				Romania (h = 90 km).
"	30	UPP iP	04 30 47.8	"	31	UPP iP	07 48 17.0
		UME iP	04 30 37.9			iPP	07 51 46.1
"	30	UPP iP	10 43 30.1 D			iSKS	07 58 50
		iS	10 46 06			iS	07 59 00.0
		KIR iP	10 44 56.4 D				micr sec
		UME iP	10 44 11.3 D			P	Z' 0.1 0.8
			Romania (h = 90 km).			KIR iP	07 48 01.5
"	30	UPP iP	11 19 06.6				micr sec
			micr sec			P	Z' 0.1 1.0
		P	Z' 0.1 1.0			UME iP	07 48 12.5
"	30	UPP iP	11 34 37.9			iS	07 58 49
							Guerrero (h = 25 km).
"	30	UPP iP	12 50 00.7				m = 6.0 (UPP,KIR).
		i	12 50 02.6	"	31	UPP iPKP2	23 22 52.3
		i	12 50 08.5			UME iPKP1	23 22 34.8
			Ryukyu Islands (h = N).				South of Kermadec Islands (h = N).
"	30	UPP iP	18 47 06.1				
		UME iP	18 46 47.1				
			Bonin Islands region (h = N).				
"	30	UPP iP	17 03 01.4				
			Northern Peru (h = 20 km).				
"	31	UPP iP	00 21 11.3 D				February 10, 1992
		i	00 21 12.9				Conny Holmqvist
		iS	00 23 50				Ota Kulhánek
			micr sec				Klaus Meyer
		i	Z' 2.3 0.6				
		KIR iP	00 22 38.1 D				
		i	00 22 39.2				
			(cont.)				

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

JUNE 1 - 30, 1990

1990					1990				
June	1	UPP	iP	01 33 39.9	June	1	UPP	iP	14 16 14.7
			ipP	01 33 58.4			KIR	iP	14 15 21.5
			iS	01 43 06			UME	eP	14 15 47
				micr sec			Near Islands, Aleutian Islands (h = N).		
			P	Z' 0.2 1.2					
			Mx	Z 7.3 25	"	1	UPP	iP	17 09 13.8
		KIR		micr sec			UME	iP	17 09 01.0
			Mx	Z 8.5 20					
		UME	iP	01 33 18.2	"	2	UPP	iP	00 42 09.5
		Near east coast of Honshu, Japan (h = 70 km). M = 5.9 (UPP,KIR). M uncorrected for focal depth.							micr sec
"	1	UPP	iP	11 13 38.1				P	Z' 0.1 1.1
		KIR	iP	11 13 10.4				Mx	Z 2.2 15
		UME	iP	11 13 22.1			KIR	iP	00 41 59.1
		Mariana Islands region (h = 35 km).							micr sec
			P	Z' 0.1 1.5					
			Mx	Z 2.0 14			UME	iP	00 41 59.5
		Tibet (h = 15 km). m = 5.7, M = 5.3 (UPP,KIR).							
"	1	UPP	iP	11 27 24.9	"	3	UPP	iP	11 42 47.9
		KIR	iP	11 26 57.1					micr sec
				micr sec				P	Z' 0.1 1.4
			P	Z' 0.1 1.0				Mx	Z 2.2 15
		UME	iP	11 27 08.5			KIR	eP	11 44 21
		Mariana Islands region (h = 35 km).							micr sec
"	1	UPP	iPKP	11 28 02.5 C				P	Z' 0.2 1.0
				micr sec				Mx	Z 1.1 10
			PKP	Z' 0.2 0.9			UME	iP	11 43 38.5
		KIR	iPKP	11 27 51.8			Yugoslavia (h = 10 km). m = 5.4 (UPP,KIR).		
		UME	iPKP	11 27 51.3					
		South of Fiji Islands (h = 80 km).							

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
June	3	KIR iP UME eP	16 34 04.9 16 33 38	June	7	UPP iP UME iP	19 43 20.6 19 43 00.9
		Sudan (h = 10 km).				South of Honshu, Japan (h = 45 km).	
"	4	UPP ePKP	05 04 10	"	7	UPP iP KIR eP UME eP	23 51 32.9 23 52 10 23 51 52
		South of Fiji Islands (h = 540 km).				Central Mid-Atlantic Ridge (h = 10 km).	
"	4	UPP iP	21 50 45.6				
		Burma-India border region (h = 80 km).					
"	5	UPP iP	13 54 10.6	"	8	UPP iP KIR eP UME iP	00 44 37.1 00 44 32 00 44 38.4
			micr sec			Costa Rica (h = 10 km).	
		P	Z' 0.1 1.0	"	8	UPP iP	02 34 48.3
		KIR iP	13 53 33.7			Southwestern Ryukyu Islands (h = N).	
			micr sec	"	8	UPP iP KIR iP UME iP	10 10 00.6 10 09 06.8 10 09 34.5
		P	Z' 0.1 0.9			South of Alaska (h = N).	
		UME iP	13 53 49.7				
		Near s. coast of Honshu, Japan (h = 120 km). m = 5.6 (UPP,KIR).					
"	6	UPP iPg1 iRg UDD iSg1 iRg	11 32 08.8 11 32 12.1 11 33 01.2 11 33 13.9	"	8	UPP Mx Mx KIR Mx Mx	14 49 micr sec Z 2.0 19 14 47 micr sec Z 1.9 20
		Dannemora, Uppland, Sweden 60.2°N, 17.8°E. Rockburst at the iron ore mine.				Near coast of Peru (h = 25 km). M = 5.6 (UPP,KIR).	
"	7	UPP iP i UME iP	03 03 10.1 03 03 15.8 03 02 59.5	"	8	UPP iPKP iSKP1 KIR iPKP iSKP1	15 23 27.5 15 26 24.0 15 23 20.4 15 25 56.7
						micr sec	
"	7	UPP iP	06 05 57.6			PKP Z' 0.2 2.0	
"	7	UPP ePKP	09 43 47			UME iPKP iSKP1	
			micr sec			15 23 24.6 15 26 09.8	
		Mx	Z 16.3 20			Fiji Islands region (h = 500 km).	
		KIR eP	09 39 25	"	8	UPP iP KIR iP i UME iP i	16 54 15.6 16 53 21.9 16 54 08.8 16 53 48.2 16 54 20.2
			micr sec			Fox Islands, Aleutian Islands (h = N)	
		Mx	Z 14.1 23				
		Near n coast of Papua New Guinea (h = 30 km). M = 6.5 (UPP,KIR).					
"	7	UPP iP KIR iP UME iP	11 28 46.6 11 27 50.0 11 28 19.3				
		Southern Alaska (h = 100 km).					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
June	9	UPP iP	00 47 35.4	June	10	UPP iP	05 10 23.9
		UME iP	00 47 33.5			KIR iP	05 10 31.5
		Costa Rica (h = 25 km).					micr sec
"	9	UPP iP	01 28 07.4			P	Z' 0.1 0.9
		i	01 28 16.8			Northwest Territories, Canada	
		Northern Peru (h = 25 km).				(h = 10 km).	
"	9	KIR iP	11 41 10.6	"	10	UPP eP	11 41 16
		UME iP	11 41 45.3			KIR eP	11 42 26
		Jan Mayen Island region (h = 10 km).				UME iP	11 41 50.7
						Turkey (h = 20 km).	
"	9	UPP iP	12 35 10.0	"	10	UPP iP	19 46 51.6
			micr sec			UME iP	19 46 28.0
		Mx	Z 0.5 10			Queen Charlotte Islands region	
		KIR iP	12 36 21.8			(h = 10 km).	
			micr sec	"	11	UPP iP	00 55 56.4
		Mx	Z 0.4 9			KIR iP	00 56 37.5
		Aegean Sea (h = 10 km).					micr sec
		M = 4.3 (UPP,KIR).				P	Z' 0.1 1.0
"	9	UPP iP	15 13 41.2			UME iP	00 56 11.8
			micr sec			Western Iran (h = 15 km).	
		Mx	Z 1.5 18	"	12	UPP iP	02 06 37.9
		KIR iP	15 14 09.6			KIR iP	02 06 47.1
			micr sec			UME iP	02 06 35.9
		P	Z' 0.2 2.1			Afghanistan-USSR border region	
		Mx	Z 1.1 18			(h = 200 km).	
		UME iP	15 14 00.1	"	12	UPP iPg1	03 44 19.4
		Azores Islands region (h = 10 km).				iSg1	03 44 23.0
		M = 4.7 (UPP,KIR).				iRg	03 44 25.0
"	9	UPP iP	15 30 58.5			UDD iPg1	03 44 50.9
		KIR iP	15 30 12.6			iSg1	03 45 18.4
		UME iP	15 30 33.1			iRg	03 45 29.3
		Kuril Islands region (h = 110 km).				Uppland, Sweden, 60.2°N, 17.8°E.	
"	9	UPP iP	17 31 49.9			Origin time = 03 44 15.	
			micr sec			M _L (UPP) = 1.0 (UPP).	
		Mx	Z 1.4 15			Increased rockburst activity at the	
		KIR iP	17 32 16.1			Dannemora iron ore mine, located	
			micr sec			about 30 km north of Uppsala. Within	
		Mx	Z 1.4 20			24 h this event was followed by more	
		UME iP	17 32 06.0			than 50 rockbursts from the same area,	
		Azores Islands region (h = 10 km).				with magnitudes of M _L (UPP) = 1 or	
		M = 4.8 (UPP,KIR).				less.	
"	9	UPP iP	18 31 20.7	"	12	UPP iPKP1	10 18 12.3
		KIR iP	18 30 14.1			UME iPKP	10 18 01.5
		UME iP	18 30 45.6			South of Kermadec Islands	
		Near coast of Central Siberia (h = N).				(h = 60 km).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
June	12	UPP	iPKP2	15 25 12.1	June	14	(cont.)
		UME	iPKP1	15 24 54.1			UME iP 04 05 23.9
		South of Kermadec Islands					Alaska Peninsula (h = 45 km).
		(h = 100 km).					
"	12	UPP	iPKP2	16 03 28.3	"	14	UPP iP 06 41 42.4
		UME	iPKP	16 03 09.4			KIR iP 06 41 13.5
		South of Kermadec Islands					Mariana Islands region (h = 25 km).
		(h = 110 km).					
"	13	UPP	iP	02 57 36.4	"	14	UPP iP 07 28 35.3
				micr sec			KIR iP 07 28 41.0
				Mx Z 2.1 16			UME iP 07 28 31.7
		KIR	iP	02 57 12.1			Tajik SSR (h = 55 km).
			ipP	02 57 18.4	"	14	UPP iP 07 53 40.6
				micr sec			i 07 53 51.4
				P Z' 0.1 1.1			iSKS 08 04 10
				Mx Z 2.6 19			iS 08 04 26
		UME	iP	02 57 20.3			micr sec
			ipP	02 57 27.2			i Z' 0.3 1.0
		West Caroline Islands.					Mx Z 190 23
		h = 20 km (KIR,UME).					KIR iP 07 53 21.8
		M = 5.6 (UPP,KIR).					P Z' 0.9 1.0
							Mx Z 239 17
"	13	UPP	iP	16 11 48.6			UME iP 07 53 27.9
				micr sec			iS 08 03 55
				P Z' 0.1 0.9			Panay, Philippine Islands (h = 20 km).
		KIR	iP	16 11 14.7			m = 6.7, M = 7.5 (UPP,KIR).
				micr sec	"	14	KIR iP 08 43 37.0
				P Z' 0.1 1.0			micr sec
		UME	iP	16 11 33.5			P Z' 0.2 1.6
		Southern Nevada.					UME iP 08 43 43.1
		m = 6.0 (UPP,KIR).					Panay, Philippine Islands (h = 20 km).
		Underground explosion.					
"	13	UPP	iP	16 55 02.1	"	14	KIR iP 09 34 05.2
				micr sec			Panay, Philippine Islands (h = 25 km).
				P Z' 0.1 1.0	"	14	KIR iPn 11 40 16.7
		KIR	iP	16 54 45.2			UME iP 11 41 07.7
				micr sec			UDD iP 11 41 48.5
				P Z' 0.2 0.9			DEL iP 11 42 00.2
		UME	iP	16 54 51.3			Greenland Sea (h = 10 km).
		Mindanao Philippine Islands			"	14	UPP iP 12 54 55.8 D
		(h = 80 km).					i 12 54 57.5
		m = 6.1 (UPP,KIR).					ipP 12 55 08.0
"	14	UPP	iP	04 05 50.1			iS 13 00 58
		KIR	iP	04 04 55.8			micr sec
				micr sec			i Z' 2.3 1.0
				P Z' 0.1 1.0			Mx Z 189 18
		(cont.)					(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
June	14	(cont.)		June	14	UPP	iP	22 20 22.5	
		KIR	iP	12 54 37.4 D		KIR	eP	22 21 34	
			i	12 54 38.7		UME	eP	22 20 57	
				micr sec		Southern Greece (h = 40 km).			
			Mx	Z 123 14					
		UME	iP	12 54 40.1 D	"	14	UME	iPKP	22 44 01.7
			i	12 54 41.6		New Ireland region (h = 50 km).			
			iS	13 00 27					
		Kazakh-Xinjiang border region (h = 60 km). M = 6.9 (UPP,KIR).			"	15	KIR	iP	06 43 55.7
						Panay, Philippine Islands (h = N).			
"	14	UPP	iP	14 25 41.0	"	15	UPP	Mx	09 20
			ipP	14 25 51.5					micr sec
				micr sec			Mx	Z 2.7	22
			P	Z' 0.1 0.9		KIR	Mx	09 16	
		KIR	iP	14 25 22.0					micr sec
			ipP	14 25 32.1			Mx	Z 2.3	22
				micr sec		New Britain region (h = 60 km). M = 5.7 (UPP,KIR).			
			P	Z' 0.2 0.6					
		UME	iP	14 25 24.4	"	16	UPP	iPKP	01 53 21.8
			ipP	14 25 34.8			KIR	iPKP	01 53 11.5
		Kazakh-Xinjiang border region. h = 40 km (UPP,KIR,UME). m = 5.9 (UPP,KIR).				South of Fiji Islands (h = 140 km).			
"	14	UPP	eP	15 38 37	"	16	UPP	iP	02 20 58.9 C
		KIR	eP	15 38 29			iS	02 24 46	
		UME	iP	15 38 27.8					micr sec
		Burma-India border region (h = 60 km).					P	Z' 0.3	0.7
"	14	UPP	iP	19 12 44.4			Mx	Z 13.1	11
		UME	iP	19 12 24.9		KIR	iP	02 22 15.6	
		South of Honshu, Japan (h = 450 km).							micr sec
							P	Z' 0.5	1.6
"	14	KIR	iP	20 35 06.9			Mx	Z 5.9	11
				micr sec		UME	iP	02 21 38.0 C	
			P	Z' 0.1 0.9			iS	02 25 56	
		UME	iP	20 35 12.7		Greece-Albania border region (h = 30 km). m = 5.9, M = 5.5 (UPP,KIR).			
		Mindanao Philippine Islands (h = 100 km).			"	16	UPP	iP	05 05 25.4
"	14	KIR	iP	22 09 17.0			i	05 05 30.0	
				micr sec			iPP	05 08 17	
			P	Z' 0.2 1.2			iS	05 15 44	
		UME	iP	22 09 22.6					micr sec
		Panay, Philippine Islands (h = 25 km).					Mx	Z 23.4	16
						KIR	eP	05 04 58	
									micr sec
							Mx	Z 7.4	13
						UME	iP	05 05 10.3	
							iS	05 15 08	

(cont.)

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1990				1990			
June	16	(cont.)		June	17	(cont.)	
		Ryukyu Islands (h = 25 km).				UME iP	17 26 11.9
		M = 6.3 (UPP,KIR).				iS	17 33 03
"	16	UPP iPKP1	09 06 51.5			Pakistan (h = 15 km).	
		i	09 07 01.6			m = 5.8, M = 5.3 (UPP,KIR).	
		UME iPKP1	09 06 40.5	"	17	UPP iP	21 28 33.1
		South of Kermadec Islands (h = N).				KIR iP	21 28 16.7
"	16	UPP iPn	12 46 07.9			P	Z' 0.1 1.0
		i	12 46 17.9			UME iP	21 28 21.4
		iSg1	12 49 23.4			Talaud Islands (h = 170 km).	
		KIR iPn	12 44 43.7	"	18	KIR iP	04 38 09.9
		iPg1	12 44 53.1			Talaud Islands (h = 210 km).	
		iSn	12 45 39.0	"	18	UPP iP	11 54 16.4
		UME iPn	12 45 14.6			KIR iP	11 53 53.1
		iPg1	12 45 23.6			Taiwan region (h = 25 km).	
		iSn	12 46 37.7	"	19	UPP iP	15 06 02.0
		iSg1	12 47 23.5			UME iP	15 06 02.4
		DEL iP	12 47 06.0			Hindu Kush region (h = N).	
		MYV iPn	12 45 47.6	"	19	UPP iP	17 27 43.1
		i	12 45 57.0			KIR iP	17 27 29.0
		iSn	12 47 36.0			Northern Xinjiang, China (h = N).	
		iSg1	12 48 41.0	"	19	UPP iP	19 26 00.0
		European USSR (h = 10 km).				iSKP1	19 28 47.5
		M _L (UPP) = 4.0 (0.05) 2.				KIR iP	19 25 52.1
"	17	UPP iP	05 00 09.1			iSKP1	19 28 23.4
		iS	05 06 52	"	19	UME iP	19 25 59.4
			micr sec			iSKP1	19 28 35.4
		P	Z' 0.3 1.4			Fiji Islands region (h = 610 km).	
		Mx	Z 14.7 12	"	19	KIR iP	21 45 53.1
		KIR iP	05 00 30.9			Mindanao Philippine Islands	
			micr sec			(h = 90 km).	
		P	Z' 1.5 2.4	"	19	UPP iP	23 52 23.6
		Mx	Z 22.8 14			KIR iP	23 51 29.3
		UME iP	05 00 15.3			UME iP	23 51 57.1
		iS	05 07 04			Alaska Peninsula (h = N).	
		Pakistan (h = 15 km).		"	20	UPP Mx	00 35
		m = 6.3, M = 6.2 (UPP,KIR).					micr sec
"	17	UPP iP	17 26 06.2			Mx	Z 1.0 18
		iS	17 32 54			Central Mid-Atlantic Ridge	
			micr sec			(h = 10 km).	
		P	Z' 0.1 1.0				
		Mx	Z 1.7 13				
		KIR iP	17 26 27.2				
			micr sec				
		P	Z' 0.1 1.0				
		Mx	Z 3.9 14				
		(cont.)					

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1990				1990					
June	20	UPP	micr sec	June	21	UPP	iP	02 15 08.6	
		Mx	Z 1.7 24				iS	02 21 03	
		KIR	iP					micr sec	
			15 30 58.2				P	Z' 0.1 0.9	
			micr sec			KIR	iP	02 15 47.4	
		Mx	Z 1.0 17					micr sec	
		UME	eP				P	Z' 0.1 0.7	
			15 31 03			UME	iP	02 15 22.3	
		Molucca Sea (h = 25 km).				Western Iran (h = 10 km).			
		M = 5.4 (UPP,KIR).				m = 5.8 (UPP,KIR).			
"	20	KIR	iP	18 58 24.6	"	21	KIR	iP	07 57 16.8
		Sudan (h = 15 km).					UME	iP	07 56 52.2
"	20	UPP	iP	21 06 24.0			Western Iran (h = 10 km).		
			ipP	21 06 29.1	"	21	UPP	iP	09 08 32.7
			i	21 06 32.6				ipP	09 08 38.1
			iS	21 11 37				iS	09 13 38
				micr sec					micr sec
			i	Z' 4.5 1.9				P	Z' 0.2 1.3
			Mx	Z 746 16				Mx	Z 3.8 11
		KIR	iP	21 06 02.5			KIR	iP	09 09 10.8
			ipP	21 06 07.5					micr sec
				micr sec				P	Z' 0.8 1.6
			Mx	Z 335 13				Mx	Z 2.7 12
		UME	iP	21 06 37.3			UME	iP	09 08 45.8
			ipP	21 06 42.7				ipP	09 08 51.1
		Western Iran.						iS	09 14 05
		h = 15 km (UPP,KIR,UME).				Western Iran.			
		M = 7.3 (UPP,KIR).				h = 15 km (UPP,UME).			
"	20	UPP	iP	23 05 04.1			M = 5.2 (UPP,KIR).		
		KIR	iP	23 05 45.0	"	21	UPP	iP	12 23 41.8
		UME	iP	23 05 17.4			KIR	iP	12 24 21.6
		Western Iran (h = 20 km).							micr sec
"	20	UPP	eP	23 06 52				P	Z' 0.1 1.0
		KIR	iP	23 07 30.2			UME	iP	12 23 56.7
				micr sec			Western Iran (h = 10 km).		
			P	Z' 0.1 1.0	"	21	UPP	iP	14 49 28.3
		UME	iP	23 07 05.4					micr sec
		Western Iran (h = 15 km).						P	Z' 0.1 1.0
"	20	KIR	iP	23 55 40.2				Mx	Z 2.3 19
		UME	iP	23 55 15.3			KIR	iP	14 49 08.3
		Western Iran (h = 15 km).							micr sec
"	21	KIR	iP	00 59 29.5				P	Z' 0.1 1.1
		Western Iran (h = 10 km).						Mx	Z 1.1 15
							UME	iP	14 49 15.8
						Luzon, Philippine Islands (h = N).			
						m = 5.8, M = 5.4 (UPP,KIR).			

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1990				1990			
June	21	UPP	iP	15 26 57.5	June	23	(cont.)
				micr sec			Admiralty Islands region (h = 25 km).
			P	Z' 0.1 1.0			M = 6.0 (UPP,KIR).
		KIR	iP	15 26 05.8		"	23
				micr sec			KIR iP 06 44 23.4
			P	Z' 0.1 1.0			Northern Colombia (h = 160 km).
		UME	iP	15 26 32.1		"	23
				micr sec			UPP i(PKP) 21 57 17.6
				Andreasof Islands, Aleutian Is.			i 21 57 20.3
				(h = N).			iPP 22 00 48.2
				m = 5.9 (UPP,KIR).			iS 22 06 58
"	21	KIR	iP	21 34 35.2			micr sec
				Western Iran (h = 10 km).			(PKP) Z' 0.2 0.9
"	21	KIR	iP	21 38 01.6			i Z' 0.4 0.8
				Western Iran (h = 10 km).			Mx Z 6.3 24
"	21	UPP	iP	22 31 13.0		KIR	i(PKP) 21 56 58.5
		KIR	iP	22 30 53.0			i 21 57 11.1
				Eastern Caucasus (h = 90 km).			iPP 22 00 23.2
"	21	UPP	iP	22 58 03.5			micr sec
			ipP	22 58 35.7			(PKP) Z' 1.5 2.0
		UME	iP	22 57 45.8			Mx Z 2.1 16
				Ryukyu Islands (h = 140 km).		UME	i(PKP) 21 57 06.7
"	22	KIR	eP	06 14 38			iPP 22 00 33.4
				Northwestern Iran (h = 10 km).			Fiji Islands region (h = 180 km).
"	22	KIR	iPKP	08 02 28.8			M = 6.1 (UPP,KIR).
		UME	iPKP	08 02 34.3			M uncorrected for focal depth.
				Vanuatu Islands (h = N).	"	23	UME iPKP 23 26 21.2
"	22	UME	iPKP	20 15 18.5			Vanuatu Islands (h = 80 km).
				Vanuatu Islands (h = 40 km).	"	23	UPP iP 23 42 23.5
"	22	KIR	iPKP	21 39 37.6			KIR iP 23 42 33.0
		UME	iPKP	21 39 43.9			UME iP 23 42 22.5
				Vanuatu Islands (h = 20 km).			Hindu Kush region (h = 210 km).
"	22	KIR	iPKP	22 08 02.7	"	24	UPP iP 05 15 31.5
		UME	iPKP	22 08 08.1			KIR iP 05 16 09.1
				Vanuatu Islands (h = 20 km).			UME iP 05 15 45.7
"	23	UPP		micr sec			Western Iran (h = N).
			Mx	Z 6.0 23			UPP i(PKP) 08 54 22.9
		KIR	iP	05 15 43.8			micr sec
				micr sec			(PKP) Z' 0.1 0.8
			P	Z' 0.1 1.0			KIR i(PKP) 08 54 03.0
			Mx	Z 3.4 18			UME i(PKP) 08 54 10.8
				(cont.)			Fiji Islands region (h = 190 km).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990							
June	24	UPP	iP	09 52	12.7	June	27	UPP	iP	12 27	11.1
		KIR	iP	09 52	51.3			South of Fiji Islands (h = 140 km).			
					micr sec						
			P	Z'	0.1 0.9	"	28	UPP	Mx	12 54	
		UME	iP	09 52	26.1					micr sec	
		Western Iran.						Mx	Z	3.4 21	
"	25	KIR	iP	07 28	23.2			Komandorsky Islands region (h = 30 km).			
		Komandorsky Islands region (h = 30 km).				"	28	UME	iP	18 27	35.4
"	25	KIR	iP	14 44	29.3			Western Iran (h = 10 km).			
		UME	iP	14 44	54.4	"	29	UPP	iP	02 15	58.2
		Rat Islands, Aleutian Islands (h = N).						West Pakistan (h = N).			
"	26	UPP	iP	01 47	17.3	"	29	UPP	i(PKP)	04 11	39.6
		UME	iP	01 47	15.9			iSKP1	04 14	27.0	
		Afghanistan-USSR border region (h = 190 km).						iPP	04 14	48.3	
"	26	UPP	iP	05 06	49.8			UME	i(PKP)	04 11	28.4
		Southern Iran (h = N).						iSKP1	04 14	15.6	
"	26	UPP	iP	07 26	22.6			iPP	04 14	22.1	
		UME	iP	07 26	20.1	"	29	UPP	iP	13 34	27.5
		Northern Sumatra (h = 60 km).						Greece-Albania border region (h = 60 km).			
"	26	UPP	iPKP	12 26	45.0	"	29	UPP	iP	19 02	51.5
			iSKP1	12 29	32.1			Greece-Albania border region (h = 55 km).			
			iPP	12 29	52.2	"	29	UPP	iP	23 38	52.4
					micr sec			Mariana Islands region (h = 30 km).			
		UME	PKP	Z'	0.1 1.0	"	30	UPP	Mx	10 12	
		UME	iPKP	12 26	33.9					micr sec	
			iSKP1	12 29	21.4			Mx	Z	0.6 12	
			iPP	12 29	27.8			KIR	Mx	10 11	
		South of Fuji Islands (h = 590 km).								micr sec	
"	26	UPP	iP	22 06	05.6			Mx	Z	0.9 16	
		UME	iP	22 06	44.5			North Atlantic Ridge (h = 10 km). M = 4.9 (UPP,KIR).			
		Near s. coast of Honshu, Japan (h = 150 km).				"	27	UPP	iP	02 11	44.8
		UME	iP	02 11	14.6					micr sec	
		Andreanof Islands, Aleutian Is. (h = N).				"	30	UPP	iP	15 03	57.1
"	27	UPP	iPKP	05 29	15.1			Mx	Z	1.6 17	
		Fiji Islands region (h = 190 km).						KIR		micr sec	
								Mx	Z	1.1 15	
								UME	iP	15 03	56.5
								Costa Rica (h = 10 km). M = 5.4 (UPP,KIR).			

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1990

June	30	UPP	iP	15 08 11.3
		UME	iP	15 08 12.1
		Costa Rica (h = 10 km).		
"	30	UPP	iP	19 00 23.2
				micr sec
		P	Z'	0.1 0.9
		Mx	Z	0.9 16
		KIR		micr sec
		Mx	Z	1.2 14
		UME	iP	18 59 58.2
		Kuril Islands (h = N).		
		M = 5.1 (UPP,KIR).		
"	30	UPP	iP	19 08 47.1
		UME	iP	19 08 22.4
		Kuril Islands (h = N).		
"	30	UPP	iP	21 02 45.6
		Kuril Islands (h = 50 km).		

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

JULY 1 - 31, 1990

1990					1990				
July	1	UPP	iP	10 11 45.6	July	3	(cont.)		
		UME	iP	10 11 42.6			KIR	Mx	08 53
		Southern Sumatera (h = 110 km).							micr sec
"	1	UPP	iP	12 31 12.6			Mx	Z 1.3	19
		UME	iP	12 31 25.8			New Britain region (h = 50 km).		
		Caspian Sea (h = 10 km).					M = 5.4 (UPP,KIR).		
"	2	UPP	iP	23 55 28.6 C	"	3	UPP	iP	18 29 50.7
				micr sec			KIR	iP	18 29 58.4
		Mx	Z 1.9	16			UME	iP	18 29 47.1
		KIR	Mx	24 14			Afghanistan-USSR border region		
				micr sec			(h = N).		
		Mx	Z 0.9	13	"	3	UPP	iP	18 43 38.3
		UME	iP	23 55 25.2			KIR	iP	18 43 01.4
		Tajik SSR (h = 35 km).					UME	iP	18 43 17.2
		M = 4.9 (UPP,KIR).					Near east coast of Honshu, Japan		
"	3	UPP	iP	01 11 39.8			(h = 80 km).		
			i	01 11 44.3	"	4	UPP	iP	02 36 17.2
			iS	01 15 41				i	02 37 12.5
				micr sec					micr sec
		Mx	Z 2.5	11				P	Z' 0.3 1.0
		KIR		micr sec				Mx	Z 0.7 17
		Mx	Z 1.0	11			KIR	iP	02 35 51.7 D
		UME	eP	01 12 24					micr sec
		Ionian Sea (h = 10 km).						P	Z' 0.3 1.0
		M = 4.8 (UPP,KIR).					UME	iP	02 36 00.3 D
"	3	UPP	Mx	08 57			Northeast of Taiwan (h = 130 km).		
				micr sec			m = 6.0 (UPP,KIR).		
		Mx	Z 1.3	23					
		(cont).							

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1990				1990					
July	5	UPP	eP	01 16 55	July	7	UPP	iP	15 50 02.6 D
				micr sec				ipP	15 50 10.3
			Mx	Z 1.1 17				iS	16 00 33
		KIR	eP	01 17 05					micr sec
				micr sec				P	Z' 0.2 1.3
			Mx	Z 1.1 10				pP	Z' 0.5 1.6
		UME	iP	01 16 52.8				Mx	Z 2.3 17
		Afghanistan-USSR border region (h = 30 km). M = 4.8 (UPP,KIR).					KIR	iP	15 49 46.0
"	5	UPP	iP	17 01 19.7				ipP	15 49 53.0
		Northern Italy (h = 10 km).							micr sec
"	5	UME	iP	22 54 39.7				P	Z' 0.1 1.2
"	6	UPP	i(P)	00 57 08.8				pP	Z' 0.4 1.5
"	6	UPP	iP	05 13 23.7				Mx	Z 5.1 19
				micr sec			UME	iP	15 49 48.5
			Mx	Z 2.7 20				ipP	15 49 56.5
		KIR	iP	05 12 37.5			Mindoro, Philippine Islands. h = 25 km (UPP,KIR,UME). m = 6.4, M = 5.7 (UPP,KIR).		
			ipP	05 12 49.5	"	8	KIR	iP	07 59 11.9
				micr sec			UME	iP	07 59 25.5
			Mx	Z 1.9 18			Bonin Islands region (h = 550 km).		
		UME	iP	05 12 58.0	"	8	UPP	iSKP1	16 51 01.7
			ipP	05 13 10.5			KIR	iSKP1	16 50 37.1
		Kuril Islands. h = 45 km (KIR,UME). M = 5.3 (UPP,KIR).					UME	iSKP1	16 50 50.3
"	6	UPP	i(P)	09 58 32.1			Fiji Islands region (h = 560 km).		
"	6	UPP	iP	19 41 04.5 C	"	8	KIR	iP	17 40 56.5
				micr sec			UME	iP	17 40 36.3
			P	Z' 0.1 0.9			North of Ascension Island (h = 10 km).		
		KIR	iP	19 41 42.8	"	8	UPP	iP	21 24 09.2
				micr sec			UME	iP	21 23 46.1
			P	Z' 0.1 1.0			Hokkaido, Japan region (h = 60 km).		
		Western Iran (h = 35 km). m = 5.7 (UPP,KIR).			"	9	UPP	iP	11 27 45.7
"	6	KIR	iPn	21 22 00.4				iS	11 32 10
		UME	iPn	21 22 48.3					micr sec
		UDD	iPn	21 23 25.0				Mx	Z 2.0 11
		Norwegian Sea, 73.2°N, 5.6°E. Origin time = 21 20 17. Solution from Bergen regional bulletin.					KIR	iP	11 28 49.8
							i	11 28 53.4	
								micr sec	
							i	Z' 0.1 0.6	
							Mx	Z 1.2 9	
							Crete (h = 60 km). M = 4.9 (UPP,KIR).		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
July	9	UPP	iP	15 20 53.3	July	10	UPP	iPKP1	18 43 55.5
			i	15 20 56.0				iPKP2	18 44 01.0
			iPP	15 23 00			UME	iPKP1	18 43 43.6
			iS	15 28 33			Kermadec Islands (h = N).		
				micr sec					
			i	Z' 1.0 1.9	"	10	KIR	iP	21 09 37.6
			Mx	Z 15 18			Philippine Islands region (h = 15 km).		
		KIR	iP	15 21 45.3					
			i	15 21 48.0	"	11	UPP	iP	15 24 06.6 C
				micr sec					micr sec
			i	Z' 1.6 1.9				P	Z' 0.2 1.1
			Mx	Z 11 22				Mx	Z 2.3 19
		UME	iP	15 21 18.9			KIR	iP	15 23 13.3 C
			iS	15 29 23					micr sec
		Sudan (h = 15 km).						P	Z' 0.6 1.5
		m = 6.7, M = 6.0 (UPP,KIR).						Mx	Z 1.2 16
		Aftershock of the unique earthquake					UME	iP	15 23 41.8 C
		sequence in southern Sudan. Main					Southeastern Alaska (h = 10 km).		
		shock of this series occurred on 20					m = 6.2, M = 5.1 (UPP,KIR).		
		May, 1990, m = 7.5.							
"	10	UPP	Mx	01 47	"	11	UPP	iPKP1	17 53 42.0
				micr sec			Fiji Islands region (h = 200 km).		
			Mx	Z 3.4 21	"	11	UPP	iPKP1	20 06 32.0
		KIR	Mx	01 49				i	20 06 53.6
				micr sec					micr sec
			Mx	Z 1.2 16				P	Z' 0.4 1.0
		Off coast of Mexico (h = N).					KIR	i(PKP)	20 06 12.4
		M = 5.6 (UPP,KIR).						iPKP	20 06 22.5
"	10	UPP	i	03 37 14.4	"	12	UPP	iP	23 19 41.6
			iPP	03 38 33.8				iS	23 29 00
				micr sec					micr sec
			Mx	Z 6.9 22				Mx	Z 3.4 18
		KIR	iPKP	03 36 36.6			KIR	iP	23 19 52.2
				micr sec					micr sec
			Mx	Z 5.2 20				Mx	Z 3.3 20
		UME	iPKP	03 36 41.9			UME	iP	23 19 50.2
		Solomon Islands (h = 70 km).					Windward Islands (h = 30 km).		
		M = 6.2 (UPP,KIR).					M = 5.6 (UPP,KIR).		
		M uncorrected for focal depth.							
"	10	UPP	iP	05 02 27.5	"	13	UPP	iP	14 28 05.5 C
		KIR	iP	05 01 53.9				i	14 28 06.6
		UME	iP	05 02 08.1				i	14 28 08.5
		South of Honshu, Japan						iS	14 34 02
		(h = 410 km).							micr sec
								i	Z' 0.4 0.9
								i	Z' 1.4 1.0

(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
July	13	(cont.)		July	14		
		Mx	Z 10 19			UPP	Mx 17 13
		KIR	iP 14 28 14.7				Mx Z 1.8 19
			i 14 28 16.1			KIR	Mx 17 10
			micr sec				micr sec
			i Z' 1.3 1.0				Mx Z 3.0 19
		Mx	Z 9.2 16			South of Mariana Islands (h = 25 km).	
		UME	iP 14 28 03.6 C			M = 5.6 (UPP,KIR).	
			i 14 28 04.9				
			iS 14 33 59		"	15	KIR iP 05 42 38.1
		Hindu Kush region (h = 220 km).					i 05 43 25.9
		m = 6.4, M = 5.7 (UPP,KIR).					Fox Islands, Aleutian Islands
		M uncorrected for focal depth.					(h = 60 km).
"	13	UPP	iPKP1 18 06 51.0	"	15	KIR	iP 21 56 58.2
			iPKP2 18 06 56.1			Dodecanese Islands (h = 25 km).	
		UME	iPKP1 18 06 39.9				
		Kermadec Islands region			"	16	UPP iP 07 38 59.7
		(h = 520 km).					i 07 39 15.4
							iS 07 49 14
							micr sec
							P Z' 2.3 1.3
							Mx Z 892 26
						KIR	iP 07 38 40.6
							ipP 07 38 47.7
							micr sec
							P Z' 0.9 1.3
							pP Z' 1.1 1.0
							Mx Z 1154 23
						UME	iP 07 38 46.1
							ipP 07 38 53.1
		North of Ascension Island				Luzon, Philippine Islands.	
		(h = 10 km).				h = 25 km (KIR,UME).	
		m = 6.6, M = 6.2 (UPP,KIR).				m = 7.0, M = 8.0 (UPP,KIR).	
"	14	UPP	iP 07 35 20.2	"	16	UPP	iP 07 52 54.1
			i 07 35 25.2			KIR	iP 07 52 34.6
			micr sec			Luzon, Philippine Islands (h = N).	
			i Z' 0.3 1.4				
			Mx Z 2.7 22		"	16	UPP iP 08 06 10.7
		KIR	eP 07 36 04			KIR	iP 08 05 52.6
			i 07 36 08.9			Luzon, Philippine Islands (h = N).	
			micr sec				
			i Z' 0.4 1.5		"	16	UPP iP 08 47 52.4
			Mx Z 1.4 15			KIR	iP 08 47 33.8
		UME	iP 07 35 49.9			Luzon, Philippine Islands (h = N).	
			i 07 36 00.5				
		North of Ascension Island			"	16	UPP iP 09 02 43.4
		(h = 10 km).				KIR	iP 09 02 24.1
		m = 6.2, M = 5.3 (UPP,KIR).				UME	iP 09 02 29.8
						Luzon, Philippine Islands (h = N).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
July	16	UPP	iP	09 28 27.5	July	16	UPP	iP	15 16 46.8
		KIR	iP	09 28 09.0			KIR	iP	15 16 26.8
		UME	iP	09 28 14.5			UME	iP	15 16 32.4
		Luzon, Philippine Islands (h = 25 km).					Luzon, Philippine Islands (h = N).		
"	16	UPP	iP	09 41 27.1 D	"	16	KIR	iP	15 44 20.8
				micr sec			Luzon, Philippine Islands (h = N).		
			P	Z' 0.1 1.0	"	16	UPP	iP	16 31 53.3
		KIR	iP	09 41 08.5 D			KIR	iP	16 31 34.3
				micr sec			UME	iP	16 31 39.8
			P	Z' 0.3 1.0			Luzon, Philippine Islands (h = N).		
		UME	iP	09 41 14.4 D	"	16	UPP	iP	19 26 39.1
		Luzon, Philippine Islands (h = 20 km). m = 6.1 (UPP,KIR).						iS	19 36 22
"	16	UPP	iP	09 51 44.7					micr sec
				micr sec				P	Z' 0.1 1.1
			P	Z' 0.2 1.1			Mx	Z	6.8 17
		KIR	iP	09 51 24.8			KIR	iP	19 26 14.9
				micr sec					micr sec
			P	Z' 0.1 1.0				P	Z' 0.3 1.8
		UME	iP	09 51 30.8			UME	iP	19 26 22.9
		Luzon, Philippine Islands (h = 15 km). m = 6.0 (UPP,KIR).					Taiwan (h = 20 km). m = 5.9, M = 5.9 (UPP,KIR).		
"	16	UPP	iP	13 15 05.5	"	16	UPP	iP	19 57 44.6
		KIR	iP	13 14 46.4					micr sec
		UME	iP	13 14 52.1				P	Z' 0.1 1.0
		Luzon, Philippine Islands (h = N).					KIR	iP	19 57 25.5
"	16	UPP	iP	13 43 35.8					micr sec
				micr sec				P	Z' 0.1 1.0
			P	Z' 0.3 1.5			UME	iP	19 57 31.6 C
			Mx	Z 3.9 17			Luzon, Philippine Islands (h = N). m = 5.9 (UPP,KIR).		
		KIR	iP	13 43 16.7	"	16	UPP	iP	20 28 22.9
				micr sec			KIR	iP	20 28 05.0
			P	Z' 0.2 1.3			UME	eP	20 28 10
			Mx	Z 2.9 12			Luzon, Philippine Islands (h = 15 km).		
		UME	iP	13 43 22.4	"	16	UPP	iP	20 43 40.1
		Luzon, Philippine Islands (h = 15 km). m = 6.1, M = 5.8 (UPP,KIR).					KIR	iP	20 43 20.1
"	16	KIR	iPKP	15 10 14.1					micr sec
		Mendoza Province, Argentina (h = 100 km).						P	Z' 0.1 1.0
							UME	iP	20 43 26.8
							Luzon, Philippine Islands (h = N).		
"	16	UPP	iP	21 38 40.4	"	16	UPP	iP	21 38 40.4
		KIR	iP	21 38 21.8			KIR	iP	21 38 21.8
		Luzon, Philippine Islands (h = N).					Luzon, Philippine Islands (h = N).		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
July	16	UPP KIR	iP iP	21 42 19.3 21 41 57.8	July	17	(cont.) Mx Z 15 12
		Luzon, Philippine Islands (h = 25 km).					Luzon, Philippine Islands (h = 25 km). m = 6.8, M = 6.7 (UPP,KIR).
"	17	UPP KIR	eP iP	00 19 13 00 18 50.8	"	17	UPP KIR
		Luzon, Philippine Islands (h = N).					iP iP Luzon, Philippine Islands (h = N).
"	17	UPP KIR UME	iP iP eP	06 23 38.9 06 23 16.3 06 23 22	"	17	KIR
		Luzon, Philippine Islands (h = 15 km).					iP Luzon, Philippine Islands (h = N).
"	17	KIR	iP	00 31 31.0	"	17	KIR
		Mariana Islands region (h = 25 km).					eP Luzon, Philippine Islands (h = N).
"	17	KIR UME	iP iP	13 20 35.9 13 19 55.5	"	17	UPP KIR
		Southwestern Russia (h = N).					iP iP Luzon, Philippine Islands (h = N).
"	17	UPP	iP	18 18 57.3	"	17	UPP
			iS	18 29 08			iP
				micr sec			eP
			P	Z' 0.2 1.3			Luzon, Philippine Islands (h = N).
			Mx	Z 7.5 16	"	18	UPP KIR
		KIR	iP	18 18 37.0			iP iP
			i	18 18 38.5			Luzon, Philippine Islands (h = N).
				micr sec	"	18	UPP KIR
			i	Z' 0.3 1.3			iP iP
			Mx	Z 7.4 15			Luzon, Philippine Islands (h = 20 km).
		Luzon, Philippine Islands (h = 20 km). m = 6.1, M = 6.1 (UPP,KIR).			"	18	UPP KIR
"	17	KIR	iP	19 00 47.7			iP iP
		Luzon, Philippine Islands (h = N).					Luzon, Philippine Islands (h = N).
"	17	UPP	iP	21 27 04.6	"	18	UPP
			i	21 27 07.4			iP
			iS	21 37 20			Luzon, Philippine Islands (h = N).
				micr sec	"	18	KIR
			P	Z' 0.1 1.0			eP
			i	Z' 0.6 0.9			Luzon, Philippine Islands (h = 25 km).
			Mx	Z 45 16	"	18	UPP KIR
		KIR	iP	21 26 45.5 C			iP iP
			i	21 26 47.0			Luzon, Philippine Islands (h = 30 km).
				micr sec			
			i	Z' 2.1 1.7			
		(cont.)					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
July	18	UPP KIR	iP iP	07 29 35.2 07 29 15.4	July	19	(cont.) $M_L(\text{UPP}) = 2.8$ 1. By combination with Finnish station readings.
		Luzon, Philippine Islands (h = 30 km).					
"	18	UPP	iP	08 12 35.4 C micr sec	"	19	UPP iP 04 11 27.3 KIR iP 04 12 52.3 Romania (h = 50 km).
			P	Z' 0.2 0.8			
			Mx	Z 1.8 17			
		KIR	iP	08 12 16.4 C micr sec	"	19	UPP iP 09 57 47.8 Luzon, Philippine Islands (h = N).
			P	Z' 0.5 1.3			
			Mx	Z 2.0 13	"	19	UPP iP 15 56 37.5 KIR iP 15 56 18.3 Luzon, Philippine Islands (h = 30 km).
		Luzon, Philippine Islands (h = 15 km). m = 6.4, M = 5.5 (UPP,KIR).					
"	18	UPP	iP	11 34 40.7	"	20	UPP iSg1 05 02 57.4 UDD iSg1 05 01 56.4 Norwegian Sea, 61.6°N, 3.0°E. Origin time = 04 59 07. $M_L(\text{UPP}) = 2.7$ 1. Solution from Bergen regional bulletin.
			iS	11 39 02 micr sec			
			P	Z' 0.1 1.0			
			Mx	Z 10 10			
		KIR	iP	11 35 46.1 micr sec	"	20	UPP iP 15 23 38.4 i 15 23 41.7 iS 15 33 50 micr sec
			P	Z' 0.3 1.3			
			Mx	Z 4.7 12			
		Turkey (h = 15 km). m = 5.7, M = 5.4 (UPP,KIR).					
"	18	UPP	iP	16 18 43.6			
		KIR	iP	16 18 24.5			
		Luzon, Philippine Islands (h = N).					
"	18	KIR	iP	16 51 26.3	"	20	UPP iP 23 02 06.6 Luzon, Philippine Islands (h = N).
		Halmahera (h = 50 km).					
"	18	UPP	iPdiff	17 35 52.7	"	21	UDD iPn 04 21 46.7 Norwegian Sea, 60.8°N, 3.2°E. Origin time = 04 20 24. Solution from Bergen regional bulletin.
		KIR	iPdiff	17 35 38.4 micr sec			
			Pdiff	Z' 0.1 1.0			
		Banda Sea (h = 100 km).					
"	19	UPP	iSg1	02 05 35.9	"	21	UPP iP 07 35 56.5 iS 07 46 07 micr sec
		UDD	iSg1	02 04 50.9			
		MYV	iPn	02 03 04.4			
			iPg1	02 03 13.2			
			iSn	02 03 48.2			
		Off coast of western Norway, 63.9°N, 5.7°E. Origin time = 02 02 02. (cont.)					
			Mx	Z 2.8 16			
		KIR	iP	07 35 37.8 micr sec			
			P	Z' 0.1 1.0			
			Mx	Z 2.4 13			
		Luzon, Philippine Islands (h = 25 km). M = 5.9 (UPP,KIR).					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
July	22	UPP	iP	06 15 27.4	July	23	UPP	iP	05 39 55.1
			iS	06 25 41			KIR	eP	05 39 52
				micr sec			Costa Rica (h = 30 km).		
			P	Z' 0.1 1.0					
		KIR	iP	06 15 08.4 C	"	23	UPP	iP	18 15 38.8
				micr sec				iS	18 26 14
			P	Z' 0.1 1.0					micr sec
		Luzon, Philippine Islands						P	Z' 0.1 1.0
		(h = 15 km).						Mx	Z 2.3 17
		m = 5.9 (UPP,KIR).					KIR	iP	18 15 20.3
"	22	UPP	iPKP1	07 56 50.8				i	18 15 27.9
		Kermadec Islands region							micr sec
		(h = 140 km).						i	Z' 0.4 1.2
"	22	UPP	iPKP1	09 44 41.2				Mx	Z 3.1 18
			iSKP1	09 47 32.3			Panay, Philippine Islands		
		KIR	i(PKP)	09 44 19.6			(h = 15 km).		
			iPKP	09 44 31.1			m = 6.2, M = 5.6 (UPP,KIR).		
			iSKP1	09 47 10.8	"	23	UPP	iP	22 33 02.3
				micr sec					micr sec
			PKP	Z' 0.1 1.0				Mx	Z 2.0 17
		South of Fiji Islands (h = 530 km).					KIR	iP	22 32 44.2
"	22	UPP	iP	11 32 28.8					micr sec
				micr sec				Mx	Z 2.4 16
			P	Z' 0.1 1.1			Luzon, Philippine Islands (h = 20 km).		
		KIR	iP	11 32 10.0 C	"	24	UPP	iP	18 06 30.5
			i	11 32 18.1					micr sec
				micr sec				Mx	Z 1.2 15
			P	Z' 0.2 1.3			KIR	iP	18 07 12.2 C
		Luzon, Philippine Islands (h = N).							micr sec
		m = 6.0 (UPP,KIR).						P	Z' 0.1 1.0
"	22	KIR	iP	12 40 00.2				Mx	Z 1.0 14
		South of Mariana Islands					Western Iran (h = 10 km).		
		(h = 25 km).					M = 4.7 (UPP,KIR).		
"	23	UPP	iP	01 01 19.2	"	24	KIR	iPn	21 09 48.7
			iS	01 11 32				iSn	21 11 04.3
				micr sec			UDD	iPn	21 11 27.2
			Mx	Z 1.8 15			Norwegian Sea, 73.8°N, 10.5°E.		
		KIR	iP	01 01 01.2			Origin time = 21 08 08.		
				micr sec			By combination with Finnish station		
			Mx	Z 1.5 13			readings.		
		Luzon, Philippine Islands			"	25	KIR	ePn	02 37 45
		(h = 20 km).					UDD	iPn	02 39 15.6
		M = 5.5 (UPP,KIR).					Norwegian Sea, 71.9°N, 12.1°E.		
							Origin time = 02 36 18.		
							By combination with Finnish station		
							readings.		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
July	25	UPP	iP	04 33 23.0	July	27	KIR	eP	05 37 51
		KIR	iP	04 35 09.1					Caspian Sea (h = 10 km).
				Poland (h = 10 km).					
"	25	UPP	iP	14 53 28.9 C	"	27	UPP	iPdiff	12 53 46
			i	14 53 39.2				e(PKP)	12 56 43
				micr sec				iPKP	12 56 54.7
			P	Z' 0.3 1.0				iPP	12 59 10
				South of Alaska (h = 50 km).				iSKP1	13 00 08.8
								iSKKP	13 09 21.0
"	25	UPP	iP	20 21 16.3					micr sec
				Burma (h = N).				PKP	Z' 1.1 1.5
								Mx	Z 36 23
"	26	UPP	iP	05 26 20.5			KIR	i(PKP)	12 56 30.9
				Tanzania (h = 10 km).				iPKP	12 56 42.0
									micr sec
								PKP	Z' 1.4 1.4
"	26	UPP	iP	07 02 19.4 D				Mx	Z 16 20
			iS	07 09 02					Vanuatu Islands (h = 130 km).
				micr sec					M = 6.8 (UPP,KIR).
			P	Z' 0.2 1.0					M uncorrected for focal depth.
			Mx	Z 8.4 14					(PKP) denotes a precursor to the
		KIR	iP	07 02 40.8 D					principal PKP phase. (PKP) - onsets
				micr sec					constitute generally higher frequency
			P	Z' 0.4 1.0					and smaller amplitude in comparison
			Mx	Z 15 14					to PKP.
				West Pakistan (h = 20 km).					
				m = 6.2, M = 5.9 (UPP,KIR).	"	27	UPP	iP	20 51 08.5
"	26	UPP	iPg1	14 17 25.5				i	20 51 18.5
			iRg	14 17 28.4			KIR	iP	20 51 59.4
		UDD	iSg1	14 18 29.6				i	20 52 09.5
			iRg	14 18 43.5					Sudan (h = 10 km).
				Dannemora, Uppland, Sweden,	"	28	UPP	iP	04 11 24.5
				60.2°N, 17.8°E.				i	04 11 31.6
				Rockburst at the iron ore mine.			KIR	iP	04 10 45.7
"	27	UPP	iP	00 51 18.8					Off east coast of Honshu, Japan
		KIR	iP	00 50 39.6					(h = 30 km).
				Near east coast of Honshu, Japan	"	28	UPP	iPKP	09 01 49.6
				(h = 55 km).				iSKP1	09 05 04.9
"	27	UPP	iP	01 07 22.4			KIR	iPKP	09 01 34.4
			i	01 07 26.8					Vanuatu Islands (h = 110 km).
				micr sec	"	28	UPP	iP	21 23 37.2
			i	Z' 0.1 1.0					Sichuan Province, China (h = 30 km).
		KIR	iP	01 07 14.3	"	28	UPP	iP	16 55 39.4
			i	01 07 18.6					micr sec
				micr sec				Mx	Z 1.1 17
			i	Z' 0.2 1.5					(cont.)
				Caribbean Sea (h = 15 km).					
				m = 5.9 (UPP,KIR).					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
July	28	(cont.) KIR	iP	16 56 30.4	July	31	UPP	iP	06 54 30.3
				micr sec				i	06 58 32.0
			Mx	Z 1.1 15				P	Z' 0.1 0.8
				Sudan (h = 10 km).				Mx	Z 0.5 10
				M = 5.0 (UPP,KIR).			KIR	iP	06 55 43.1
									Southern Greece (h = 60 km).
"	29	UPP	iP	22 29 55.8	"	31	UPP	iP	15 54 49.1
		KIR	iP	22 29 36.8				Mx	Z 0.9 14
				Luzon, Philippine Islands (h = N).			KIR	iP	15 59 15.7
"	29	KIR	iP	23 25 31.5				Mx	Z 1.8 13
"	30	UPP	iP	01 24 50.2					Yugoslavia (h = 10 km).
		KIR	iP	01 24 18.9					M = 4.4 (UPP,KIR).
				Ryukyu Islands (h = 80 km).					
"	30	KIR	iPn	17 02 05.1	"	31	UPP	iP	18 38 01.0
				Svalbard region (h = 10 km).			KIR	iP	18 38 02.5
"	31	UPP	iP	01 51 36.0					Off w. coast of northern Sumatera
		KIR	iPn	01 49 50.8					(h = 30 km).
				Greenland Sea (h = 10 km).	"	31	UPP	i(P)	19 36 25.2
"	31	UPP	iP	02 27 45.1	"	31	UPP	iP	23 19 16.3
			i	02 27 50.7			KIR	iP	23 20 39.6
				micr sec					Yugoslavia (h = 10 km).
			Mx	Z 0.9 16					
		KIR	iP	02 27 18.9					
				micr sec					
			Mx	Z 0.6 12					
				Ryukyu Islands (h = 20 km).					
				M = 5.1 (UPP,KIR).					
"	31	UPP	iP	03 00 22.4					
		KIR	iP	03 00 30.2					
				Afghanistan-USSR border region					
				(h = 230 km).					
"	31	UPP	iP	03 31 23.5					
				micr sec					
			P	Z' 0.4 1.7					
			Mx	Z 1.1 16					
		KIR	iP	03 30 42.2					
				micr sec					
			P	Z' 0.5 2.0					
			Mx	Z 1.2 14					
				Off coast of Oregon (h = 10 km).					
				m = 6.2, M = 5.2 (UPP,KIR).					

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SEISMOLOGICAL DEPARTMENT
 BOX 2101
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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

AUGUST 1 - 31, 1990

1990					1990				
Aug.	1	UPP	Mx	03 57	Aug.	2	UPP	iP	15 16 42.9 C
				micr sec				i	15 16 45.0
			Mx	Z 1.5 22			KIR	iP	15 16 41.5
			Santa Cruz Island (h = 30 km).					P	Z' 0.1 1.0
"	1	UPP	iP	13 11 55.6			Sunda Strait (h = 50 km).		
"	1	UPP	iP	19 34 24.4	"	2	UPP	iP	17 08 41.6
"	1	UPP	iP	20 09 45.8			Greece-Albania border region (h = 10 km).		
"	1	UPP	iP	20 37 42.2	"	2	UPP	iP	19 19 20.0
			Sicily (h = 290 km).				KIR	iP	19 19 14.6
"	1	UPP	iP	21 46 04.6			Burma (h = 120 km). Late arrivals when compared with NEIC solutions.		
			Luzon, Philippine Island (h = 10 km).		"	2	UPP	iP	20 00 46.1
"	2	UPP	iP	02 53 57.0			Luzon, Philippine Island (h = 25 km).		
"	2	UPP	Mx	06 35	"	2	KIR	iP	23 42 47.8
				micr sec			Kirgiz SSR (h = N).		
			Mx	Z 2.7 17	"	3	UPP	iP	08 29 36.3
		KIR	Mx	06 35			Luzon, Philippine Islands (h = 10 km).		
				micr sec	"	3	UPP	iP	09 22 35.6 D
			Mx	Z 2.6 21			iPP		09 24 09.8
			Near coast of central Chile (h = 35 km). M = 5.8 (UPP, KIR).				iS		09 28 35.6
"	2	UPP	iP	13 09 11.4				P	Z' 1.0 1.0
							Mx	Z 38 15	
							(cont.)		
"	2	UPP	iP	14 54 12.9					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Aug.				Aug.			
5	UPP	iP	03 28 24.0 C	5	(cont.)		
			micr sec				
		P	Z' 0.2 0.9				
	KIR	iP	03 27 51.1 C				
			micr sec				
			0.1 0.9				
"	UME	iP	03 28 05.4 C				
	Bonin Islands region (h = 50 km).						
	m = 5.9 (UPP, KIR).						
"	5	UPP	iP	5	UPP	iP	18 36 45.1
			micr sec		KIR	iP	18 37 46.6
			0.2 1.0		UME	iP	18 37 12.8
		Mx	Z 7.2 19		Turkey (h = 25 km).		
"	5	KIR	iP	5	KIR	iP	19 01 09.2
			micr sec		Mindanao, Philippine Islands		
			0.1 1.0		(h = 130 km).		
		Mx	Z 10 17	"	6	UPP	iP
		UME	iP				02 43 00.0
			03 47 31.2 C				micr sec
			03 56 35			P	Z' 0.1 0.8
		Near east coast of Honshu, Japan			KIR	iP	02 42 41.2 D
		(h = 25 km).					micr sec
		m = 6.0, M = 6.0 (UPP, KIR).				P	Z' 0.1 1.0
"	5	UPP	iP	5	UME	iP	02 42 47.0 D
		KIR	iP		Luzon, Philippine Islands (h = 40 km).		
			micr sec		m = 5.8 (UPP, KIR).		
		P	Z' 0.1 1.1	"	6	KIR	iP
		UME	iP				03 40 57.9
			07 24 11.7 C		Luzon, Philippine Islands (h = 10 km).		
		Near s. coast of Honshu, Japan		"	6	UPP	iPg1
		(h = 45 km).					13 13 39.4
"	5	UPP	iP			iRg1	13 13 42.1
		KIR	iP		UDD	iSg1	13 14 44.0
		UME	iP		Dannemora, Uppland, Sweden,		
			14 58 23.4		60.2°N, 17.8°E.		
		Andreanof Islands, Aleutian Is.			Rockburst at the iron ore mine.		
		(h = 60 km).		"	6	UPP	iPKP
"	5	KIR	iP			UME	iPKP
			15 38 11.5				20 49 23.6
		Luzon, Philippine Islands				ipPKP	20 49 31.2
		(h = 25 km).					20 49 59.3
"	5	UPP	iP		South Sandwich Islands region		
		i	17 53 16.3		(h = 110 km).		
			18 01 50	"	7	KIR	iP
			micr sec				10 47 06.5
		P	Z' 0.2 1.3		Sichuan Province, China (h = 10 km).		
		Mx	Z 19 23	"	7	UPP	iP
		KIR	iP				15 05 48.9
			17 54 03.7		Hokkaido, Japan region (h = 35 km).		
		(cont.)					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Aug.	8	UPP KIR	iP iP	00 40 09.8 00 41 23.2	Aug.	10	UPP KIR UME	iP iP iP	11 36 09.3 11 35 57.3 11 36 05.8
		Southern Greece (h = 10 km).					Near coast of Chiapas, Mexico (h = 80 km).		
"	8	KIR	iPKP	20 13 32.0	"	10	UPP UME	iP iP	13 32 04.7 13 31 44.7
		Vanuatu Islands (h = 40 km).					Southern Honshu, Japan (h = 380 km).		
"	8	UPP KIR UME	iP i iP iP	23 40 06.7 23 40 08.5 23 39 48.3 23 39 54.7	"	10	UPP UME	iP iP	15 05 35.2 15 05 34.8
		Luzon, Philippine Islands (h = 20 km).					North Atlantic Ocean (h = 10 km).		
"	9	UPP KIR	iP eP	12 36 03.4 12 36 44	"	10	UPP KIR	iP iP	15 58 05.8 micr sec Mx Z 4.3 20 15 57 50.6
		Iran-Iraq border region (h = 20 km).							micr sec P Z' 0.2 1.1 Mx Z 2.7 18
"	9	KIR UME	iP iP	19 54 00.3 19 53 48.3			UME	iP	15 57 55.6
		Azores Islands (h = 10 km).					Molucca Passage (h = 55 km). M = 5.8 (UPP,KIR).		
"	10	UPP KIR UME	iP iP iP	00 23 32.7 00 23 38.1 00 23 29.1	"	10	UPP KIR	iP iP	16 45 48.2 16 45 21.1
		Tajik SSR (h = N).							16 45 28.2
"	10	UPP KIR UME	iP iP iP i	02 04 33.9 02 04 21.1 02 04 24.4 02 06 30.0			UME	iP i	16 45 24.4 16 45 34.9
		Minahassa Peninsula (h = 170 km).					Luzon, Philippine Islands (h = 35 km).		
"	10	KIR	eP	03 02 39	"	10	UPP KIR	i(PKP) i(PKP)	18 06 06.7 18 05 56.1
		Mid-Indian rise (h = 10 km).							18 06 01.4
"	10	UPP	i(PKP) iPKP ipPKP	05 56 58.8 05 57 07.1 05 57 20.3			UME	i(PKP) iPKP	18 05 59.4 18 06 09.9
				micr sec			Fiji Islands region (h = 370 km).		
			Mx Z	2.0 21	"	10	UPP	iP	19 07 50.1
		KIR	iPKP ipPKP	05 56 54.8 C 05 57 07.4					micr sec
				micr sec			Mx Z	1.7 18	
			PKP Z'	0.2 1.0			KIR	iP	19 07 50.0
			Mx Z	1.5 18					micr sec
		UME	iPKP ipPKP	05 57 00.2 C 05 57 13.1			UME	iP iS	19 07 52.2 19 12 28
		Loyalty Islands (h = 45 km). M = 5.7 (UPP,KIR).					North Atlantic Ocean (h = 10 km). M = 4.7 (UPP,KIR).		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Aug.	10	UPP	iP	21 22 10.9	Aug.	12	KIR	iP	08 04 36.9
			i	21 22 18.5			UME	iP	08 04 47.1
				micr sec				i	08 04 59.9
			P	Z' 0.1 1.2			South of Mariana Islands		
			Mx	Z 0.9 16			(h = 140 km).		
		KIR	iP	21 22 42.1 C					
			i	21 22 48.9	"	12	UPP	ePdiff	21 41 29
				micr sec				i(PKP)	21 44 10.8
			Mx	Z 0.8 15				iPKP	21 44 23.9
		UME	iP	21 22 22.3				i	21 47 06.1
			i	21 22 30.5				iSKP1	21 47 39.8
		Carlsberg Ridge (h = 10 km).							micr sec
		M = 5.0 (UPP,KIR).						PKP	Z' 0.5 1.0
		Double shock, 7.5 s apart. The second arrival when interpreted as pP provides a focal depth of 25 km.						Mx	Z 5.4 22
							KIR	i(PKP)	21 43 55.6
								iPKP	21 44 10.8
								iSKP1	21 47 16.5
"	11	UPP	iPKP	07 39 52.6					micr sec
		UME	iPKP	07 39 41.8 C				(PKP)	Z' 1.2 1.0
		Kermadec Islands region (h = N).						Mx	Z 8.1 22
"	11	UPP	iP	21 21 59.0 D			UME	i(PKP)	21 44 00.0
				micr sec				i	21 44 07.5
			P	Z' 0.1 0.9				iPKP	21 44 16.5
		KIR	iP	21 21 39.9 D				iSKP1	21 47 26.7
				micr sec			Vanuatu Islands (h = 140 km).		
			P	Z' 0.2 1.0			M = 6.2 (UPP,KIR).		
		UME	iP	21 21 46.1 D			M uncorrected for focal depth.		
		Luzon, Philippine Islands			"	13	KIR	iP	02 57 32.0
		(h = 30 km).					Sudan (h = 10 km).		
		m = 6.0 (UPP,KIR).			"	13	KIR	iP	06 25 18.5
"	12	KIR	iP	00 23 14.2			UME	iP	06 24 53.9
		UME	iP	00 23 19.7			Western Iran (h = 35 km).		
		Banda Sea (h = 130 km).			"	13	UPP	iPKP2	20 56 58.5
"	12	UPP	iP	00 46 08.6			Kermadec Islands region (h = N).		
				micr sec					
			Mx	Z 1.8 19	"	13	UPP	iP	23 14 18.3
		KIR	iP	00 46 44.8			UME	iP	23 13 51.6
				micr sec			Southern Alaska (h = 90 km).		
			Mx	Z 1.9 20	"	14	UPP	iP	00 59 05.4
		UME	iP	00 46 29.8 C				iS	01 05 50
			iS	00 55 53					micr sec
		Central Mid-Atlantic ridge						P	Z' 0.1 1.0
		(h = 10 km).						Mx	Z 1.9 12
		M = 5.3 (UPP,KIR).					KIR		micr sec
"	12	UPP	iP	02 11 56.0				Mx	Z 2.9 12

(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Aug.	14	(cont.) UME iP	00 59 10.5	Aug.	15	UPP iPKP1	16 14 42.0
		iS	01 06 09			iPKP2	16 14 59.7
		Pakistan (h = 20 km).				UME iPKP1	16 14 34.6
		M = 5.3 (UPP,KIR).				iPKP2	16 14 42.5
"	14	UPP iP	13 51 49.7	"	15	UPP iP	18 14 30.8
		Mariana Islands region (h = 35 km).				UME i	18 14 06.5
"	14	UPP iP	15 21 20.3			Off east coast of Kamchatka	
		i	15 21 24.2			(h = 20 km).	
		i	15 21 28.2	"	15	UPP iP	23 19 35.1 C
		iS	15 27 42			micr sec	
			micr sec			P	Z' 0.1 0.8
		i	Z' 0.9 1.7			UME iP	23 19 10.4 C
		Mx	Z 20 19			Hokkaido, Japan region (h = 160 km).	
		KIR	micr sec			m = 6.0 (UPP,KIR).	
		Mx	Z 8.2 17	"	16	UPP iP	04 36 27.7
		UME iP	15 21 36.7			iS	04 39 46
		i	15 21 39.8			micr sec	
		i	15 21 37.7			Mx	Z 2.2 10
		iS	15 28 10			KIR	micr sec
		North Atlantic Ridge (h = 10 km).				Mx	Z 3.3 11
		m = 6.6, M = 5.8 (UPP,KIR).				UME iP	04 36 58.2
		Multiple shock.				i	04 37 02.4
"	14	UPP iP	16 09 33.0			Crimea region (h = 25 km).	
		micr sec				M = 4.9 (UPP,KIR).	
		P	Z' 0.1 1.2	"	16	UPP iP	05 08 25.0 C
		UME iP	16 09 04.3			i	05 08 50.0
		Near east coast of Kamchatka				micr sec	
		(h = N).				P	Z' 0.8 0.8
"	14	UPP iP	16 20 38.2			UME iP	05 08 11.6 C
		Qinghai Province, China (h = N).				Southern Xinjiang, China (h = 0).	
		Late arrival when compared with the				m = 6.8 (UPP,KIR).	
		NEIC solution.		"	16	UME iP	20 57 02.5
"	14	UPP iP	17 46 46.1			Mid-Indian Rise (h = 10 km).	
		i	17 46 51.2	"	17	UME iP	01 39 12.9
"	14	UPP iP	19 56 26.9			Fox Islands, Aleutian Islands (h = N).	
		UME iP	19 56 00.6	"	17	UPP iP	02 06 31.7
		Andreanof Islands, Aleutian Is.				UME iP	02 06 03.5
		(h = N).				Fox Islands, Aleutian Islands (h = N).	
"	15	UPP iPKP2	09 17 27.0				
		UME iPKP1	09 17 10.7				
		Kermadec Islands region					
		(h = 360 km).					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Aug.				Aug.			
17	UPP	iPKP	13 26 15.7	18	(cont.)		
			micr sec		KIR	iP	19 04 28.6
		Mx	Z 15 18				micr sec
	KIR	iPKP	13 25 59.8			P	Z' 0.5 1.5
			micr sec			Mx	Z 12 18
	UME	iPKP	13 26 08.4		UME	iP	19 04 23.4
		Mx	Z 8.2 17			iS	19 14 04
	Solomon Islands (h = 30 km).				Nicobar Islands region (h = 20 km).		
	M = 6.5 (UPP,KIR).				m = 6.4, M = 6.2 (UPP,KIR).		
"	17	UPP	iPKP 22 05 08.5	"	19	UPP	i(PKP) 08 21 59.3
		KIR	iPKP 22 04 55.2				iSKP1 08 24 59.3
		UME	iPKP 22 05 01.2			KIR	iPKP 08 21 53.2
		Solomon Islands (h = 15 km).				UME	i(PKP) 08 21 53.9
							iPKP 08 22 00.0
"	18	KIR	iP 05 43 08.6			Fiji Islands region (h = 560 km).	
		Northern Colombia (h = 160 km).		"	19	UPP	iP 11 11 32.2
"	18	UPP	iP 09 58 21.1			UME	iP 11 12 11.5
			ipP 09 58 25.0			Albania (h = 10 km).	
		KIR	iP 09 58 48.6	"	19	UPP	iP 13 53 17.9
		UME	iP 09 58 29.3			KIR	iP 13 51 50.9
			ipP 09 58 33.1				
		Iran.		"	19	UPP	iP 15 42 55.8
		h = 15 km (UPP,UME)					micr sec
"	18	UPP	iP 13 48 51.1				P Z' 0.1 0.8
		KIR	iP 13 48 36.7			KIR	iP 15 42 42.7
		UME	iP 13 48 39.7			Sichuan Province, China (h = 30 km).	
		Yunnan Province, China (h = 10 km).		"	19	UPP	iP 20 59 01.8
"	18	UPP	Mx 15 01				ipP 20 59 09.6
			micr sec			KIR	iP 20 58 43.3 C
			Mx Z 4.2 22				ipP 20 58 50.9
		KIR	Mx 15 05			UME	iP 20 58 49.0
			micr sec			Luzon, Philippine Islands.	
			Mx Z 3.4 17			h = 25 km (UPP,KIR).	
		Mid-Indian Rise (h = 10 km).		"	20	UPP	iP 00 14 00.5 C
		M = 6.0 (UPP,KIR).					iPcP 00 14 30.4
"	18	UPP	iP 14 52 21.8				iS 00 22 12
		KIR	iP 14 53 39.2				micr sec
		UME	iP 14 53 01.6				P Z' 0.5 0.8
		Albania (h = 15 km).				KIR	iP 00 13 15.9 C
"	18	UPP	iP 19 04 26.3				micr sec
			iS 19 14 08				P Z' 0.4 1.0
			micr sec			UME	iP 00 13 35.9 C
			P Z' 0.7 1.5				iPcP 00 14 15.0
			Mx Z 11 17			Sakhalin Island (h = 310 km).	
		(cont.)				m = 6.1 (UPP,KIR).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Aug.	20	KIR	iP	12 27 02.9	Aug.	21	(cont.)
				Western Iran (h = N).			Double shock, small and large, on average 10.2 s apart. The second arrival, when interpreted as pP, provides a focal depth of 35 km.
"	20	UPP	iPKP	14 30 34.7			
		KIR	iPKP	14 30 24.7			
		UME	iPKP	14 30 31.5			
			i	14 30 40.9	"	21	UPP iPKP1 18 05 14.9
				Solomon Islands (h = 45 km).			KIR i(PKP) 18 04 45.0
							UME iPKP 18 04 56.9
"	20	KIR	iP	18 42 28.9			Off e. coast of N. Island, N.Z. (h = 120 km).
		UME	iP	18 42 31.2			
				Northern Colombia (h = 40 km).	"	21	KIR iP 18 23 35.1
"	20	UPP	iP	23 12 30.2			UME iP 18 23 41.1
							Luzon, Philippine Islands (h = 35 km).
"	21	UPP	iPKP1	01 17 19.4			
		KIR	iPKP	01 16 58.0	"	21	KIR iPKP 20 30 38.4
				micr sec			UME iPKP1 20 30 48.6
			PKP	Z' 0.4 2.2			South of Kermadec Islands (h = N).
		UME	iPKP1	01 17 06.7	"	22	UME iSg1 03 45 02.9
				South of Kermadec Islands (h = N).			Ångermanland, Sweden, 63.0°N, 17.8°E.
"	21	UPP	iP	03 53 40.8			Origin time = 03 44 20.
		KIR	iP	03 54 19.3			$M_L(\text{UPP}) = 2.3$ 1.
				Caspian Sea (h = 10 km).			By combination with Finnish station readings.
"	21	KIR	iP	11 24 44.6	"	22	UPP iPg1 04 09 48.1
		UME	iP	11 24 59.6			iSg1 04 10 44.2
				Kyushu, Japan (h = N).			KIR ePg1 04 09 43
"	21	KIR	iPKP	14 32 12.3			iSg1 04 10 35.5
				micr sec			UME iPg1 04 08 36.2
			PKP	Z' 0.2 2.1			iSg1 04 08 38.5
		UME	iPKP	14 32 15.8			UDD iSg1 04 11 04.0
				Easter Island region (h = 10 km).			DEL eSg1 04 12 39
"	21	UPP	iP	16 12 53.9			MYV iPg1 04 09 24.6
			i	16 13 04.1			iSg1 04 10 03.0
				micr sec			Västerbotten, Sweden, 63.8°N, 20.5°E.
			P	Z' 0.1 1.0			Origin time = 04 08 33.
			Mx	Z 1.4 15			$M_L(\text{UPP}) = 2.8$ (0.19) 4.
		KIR	iP	16 12 30.6			Felt in the coastal area of Västerbotten with $I_{\max} = \text{IV}$.
			i	16 12 41.0			By combination with Finnish station readings.
				micr sec			
			P	Z' 0.1 1.0	"	22	KIR iP 17 31 20.3
			Mx	Z 1.5 13			Celebes Sea (h = 330 km).
		UME	iP	16 12 38.9			
			i	16 12 49.0			
				Taiwan region (h = 15 km).			
				m = 5.8, M = 5.4 (UPP,KIR).			
				(cont.)			

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Aug.	22	UPP iP	23 59 41.8	Aug.	25	UPP iP	12 31 50.3
		KIR iP	23 58 03.2			Uzbek SSR (h = N).	
		UME iP	23 58 18.8				
		Near coast of Honshu, Japan (h = 25 km).		"	25	UPP iP	14 56 55.7
						Uzbek SSR (h = N).	
"	23	UPP iP	02 56 30.2	"	25	UPP eP	15 03 17
		KIR iP	02 55 51.3			Eastern Mediterranean Sea (h = 50 km).	
		UME iP	02 56 09.4				
		Near east coast of Honshu, Japan (h = 45 km).		"	25	UPP iP	16 01 32.3
						iSKS	16 12 08
"	23	UPP iP	20 43 54.1				micr sec
						Mx	Z 9.8 23
"	24	UPP iP	03 30 23.1			KIR	micr sec
						Mx	Z 3.1 17
"	24	UPP iP	11 22 09.2			UME iP	16 01 20.9
		KIR eP	11 22 36			iSKS	11 46 52
		i	11 22 39.8			Molucca Passage (h = 10 km). M = 6.0 (UPP,KIR).	
		UME iP	11 22 17.1				
		Southern Iran (h = N).		"	26	UPP iP	08 05 30.2 D
"	24	UPP iP	12 59 28.7				micr sec
		Greece (h = 10 km).				P	Z' 0.2 1.0
						KIR	08 05
"	25	UPP iP	03 27 24.0				micr sec
		Eastern Siberia (h = 10 km).				P	Z' 0.5 1.1
"	25	UME iPKP	03 43 43.8			UME iP	08 05 30.8 D
		Solomon Islands (h = 210 km).				Cuba region (h = 10 km). m = 6.3 (UPP,KIR).	
"	25	UPP iP	06 32 58.5	"	26	UPP iPKP1	14 04 57.3
		UME iP	06 32 38.0			i	14 04 58.3
		South of Honshu (h = 80 km).				iPKP2	14 05 07.9
"	25	UPP iP	11 56 13.9			UME iPKP1	14 04 46.4
		UME iP	11 56 17.0			South of Kermadec Islands (h = 15 km).	
		Near west coast of Colombia (h = 15 km).		"	26	UME iPKP2	15 33 03.7
						South of Kermadec Islands (h = N).	
"	25	UPP iP	12 00 19.8	"	27	UPP e(PKP)	04 31 24
			micr sec			i	04 31 35.2
		P	Z' 0.1 1.0			South of Fiji Islands (h = N).	
		KIR	12 00				
			micr sec	"	27	UPP iP	07 07 34.3
		P	Z' 0.2 1.0			Mongolia (h = N).	
		UME iP	12 00 24.5	"	27	UPP iP	07 26 31.3
		Near west coast of Colombia (h = 10 km). m = 6.2 (UPP,KIR).				Leeward Islands (h = 40 km).	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Aug.	27	UPP	iP	11 05 00.4	Aug.	28	UPP	eP	20 26 38
			i	11 06 05.9					micr sec
				micr sec				Mx	Z 2.0 14
			P	Z' 0.1 1.0			KIR		micr sec
				South of Honshu, Japan (h = 35 km).				Mx	Z 0.6 9
"	27	UPP	iP	13 52 35.4					Dodecanese Islands (h = 40 km).
				Yugoslavia (h = 25 km).					M = 4.6 (UPP,KIR).
"	27	UPP	iP	15 30 23.5	"	28	UPP	iP	22 20 47.8
			iPP	15 34 38.6	"	29	UPP	iSg1	00 18 24.3
				Banda Sea (h = 510 km).			KIR	iPg1	00 16 08.2
"	28	UPP	iP	02 13 47.1				iSg1	00 16 54.1
				micr sec			UDD	iSg1	00 18 13.2
			P	Z' 0.1 1.0			DEL	eSg1	00 20 00
		KIR		02 13			MYV	iPg1	00 15 57.4
				micr sec				iSg1	00 16 34.2
			P	Z' 0.1 0.9				i	00 16 37.0
		UME	iP	02 13 20.2					Central Norway, 65.8°N, 13.4°E.
				Fox Islands, Aleutian Island (h = N).					Origin time = 00 15 09.
				m = 5.9 (UPP,KIR).					$M_L(UPP) = 2.8 (0.08) 4.$
"	28	UPP	ipP	03 09 04.1					By combination with Finnish station readings.
				micr sec	"	29	UPP	iP	02 51 36.9
			Mx	Z 1.7 18					India - China border region (h = N).
		KIR		micr sec	"	29	UPP	iP	04 01 17.5
			Mx	Z 1.2 14					Hindu Kush region (h = 100 km).
				North Atlantic Ridge (h = 30 km).	"	29	UPP	iP	13 25 30.5
				M = 4.6 (UPP,KIR).					Qinghai Province, China (h = 40 km).
"	28	UPP	iP	06 19 35.1	"	29	UPP	iP	20 55 55.1
		UME	iP	06 19 09.0				ipP	20 56 03.3
				Kuril Islands (h = N).			UME	iP	20 55 51.4
"	28	KIR	iPg1	12 11 13.3				ipP	20 55 58.9
			iSg1	12 11 43.5					Andaman Islands region.
		UME	iPg1	12 11 12.5					h = 25 km (UPP,UME).
			iSg1	12 11 42.2	"	30	UME	iP	00 12 35.4
				Off coast of Norrbotten, Sweden,					West Caroline Islands (h = N).
				65.7°N, 22.5°E.	"	30	UME	iP	02 08 59.8
				Origin time = 12 10 34.					West Caroline Islands (h = 40 km).
				$M_L(UPP) = 1.9 (0.06) 2.$	"	30	UPP	iP	02 51 58.5
				By combination with Finnish station readings.			UME	iP	02 52 23.4
"	28	UPP	iP	14 32 43.1				i	02 52 27.4
		UME	iP	14 32 15.6					North of Ascension Island
				Fox Islands, Aleutian Islands (h = N).					(h = 10 km).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990

Aug.	30	UME	iP	06 41 09.3
				Volcano Islands region (h = N).
"	30	UPP	iP	06 44 46.6
				Northeast of Taiwan (h = 150 km).
"	30	UPP	iPKP1	07 38 45.2
			i	07 38 53.5
		UME	iPKP1	07 38 35.2
				South of Kermadec Islands (h = 290 km).
"	30	UPP	iP	12 27 06.3
			i	12 27 12.8
				micr sec
		Mx	Z	0.8 12
		KIR		micr sec
			Mx	Z 0.9 9
				Kirgiz - Xinjiang border region (h = 55 km). M = 4.8 (UPP,KIR)
"	30	UPP	iP	16 05 04.7
			iS	16 13 42
				micr sec
		Mx	Z	1.4 15
		KIR		micr sec
			Mx	Z 1.7 17
				North Atlantic Ridge (h = 10 km). M = 5.2 (UPP,KIR).
"	30	UPP	iP	22 33 35.2
				Costa Rica (h = 55 km).
"	31	UPP		01 11
				micr sec
		Mx	Z	1.1 17
		KIR		01 11
				micr sec
		Mx	Z	1.0 14
				West Caroline Islands (h = 50 km). M = 5.3 (UPP,KIR).

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

SEPTEMBER 1 - 30, 1990

1990 Sep.	2	UPP	iSKS	04 50 36	1990 Sep.	3	UPP	iP	10 51 52.7
			iS	04 51 18					micr sec
				micr sec			Mx	Z 3.6	12
			Mx	Z 4.6 20			KIR		micr sec
		KIR		micr sec			Mx	Z 0.5	11
			Mx	Z 2.8 24			UME	iP	10 52 44.6
		UME	eP	04 40 09			Yugoslavia (h = 20 km).		
			iSKS	04 50 44					
			iS	04 51 21	"	4	UME	iP	01 58 37.3
		Near coast of Ecuador (h = 15 km).					Zaire Republic (h = 10 km).		
		M = 5.7 (UPP,KIR).							
"	2	UPP	iP	06 39 28.0 C	"	4	UPP	iP	08 14 39.7
				micr sec			UME	iP	08 14 44.1
			P	Z' 0.1 0.5			Cuba region (h = 35 km).		
		UME	iP	06 39 20.6 C	"	4	UPP	iP	13 38 15.8
			i	06 39 33.7			UME	iP	13 37 49.5
		Eastern India (h = 45 km).					Andreanof Islands, Aleutian Is. (h = 55 km).		
"	2	UPP	Mx	14 15	"	5	UPP	iP	03 28 55.0
				micr sec			UME	iP	03 29 29.9
			Mx	Z 2.2 20			Southern Greece (h = 110 km).		
		KIR	Mx	14 11	"	5	UPP	iP	07 24 04.8
				micr sec					micr sec
			Mx	Z 3.4 19			Mx	Z 1.0	25
		Bismarck Sea (h = 25 km).					KIR	iP	07 23 45.9
		M = 5.8 (UPP,KIR).							micr sec
"	3	UPP	iP	02 48 23.3 C				Mx	Z 0.9 20
				micr sec			UME	iP	07 23 45.9
			P	Z' 0.2 0.8			Mindanao, Philippine Islands (h = 80 km).		
		UME	iP	02 48 21.9 C			M = 5.1 (UPP,KIR).		
		Hindu Kush region (h = 200 km).							

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Sep.	5	UPP	iP	18 46 09.6	Sep.	8	UPP	Mx	21 53
		KIR	iP	18 45 26.1					micr sec
		UME	iP	18 45 45.3				Mx	Z 1.6 20
		Hokkaido, Japan (h = 120 km).					Tonga Islands (h = N).		
"	7	KIR	iP	00 22 52.0	"	9	UPP	eP	02 20 34
				micr sec					micr sec
			P	Z' 0.1 0.9				P	Z' 0.2 1.4
		UME	iP	00 22 25.8				Mx	Z 4.1 23
		Sudan (h = 10 km).					KIR	iP	02 20 32.0
"	7	UPP	iPKP1	11 54 23.1 C					micr sec
				micr sec				Mx	Z 3.1 16
			P	Z' 0.1 0.9			UME	iP	02 20 36.7
		KIR	iPKP1	11 54 01.0			North Atlantic Ocean (h = 10 km).		
			iPKP	11 54 08.1			M = 4.9 (UPP,KIR).		
		UME	iPKP1	11 54 11.8	"	9	UPP	iP	03 01 41.9
		Kermadec Islands region (h = 10 km).					KIR	iP	03 01 10.1
"	7	KIR	iP	18 18 47.7			UME	iP	03 01 24.1
		UME	iP	18 18 52.2			Bonin Islands region (h = 530 km).		
		Molucca Sea (h = 60 km).			"	9	UPP	iPKP1	03 02 29.3
"	7	KIR	iPg1	20 06 01.1			UME	iPKP1	03 02 10.2
			i	20 06 03.9			South of Kermadec Islands (h = N).		
			iSg1	20 06 29.8	"	9	UPP	iP	05 03 34.4
		UME	iSg1	20 07 43.5			UME	iP	05 03 08.2
		Near coast of northwestern Norway, 67.7°N, 15.0°E.					Kuril Islands (h = 120 km).		
		Origin time = 20 05 24.			"	9	UPP		micr sec
		$M_L(\text{UPP}) = 2.8 (0.05) 2.$						Mx	Z 3.5 23
		By combination with Finnish station readings.					KIR	iPKP	05 54 08.2
"	8	UPP	iPKP1	19 11 00.0					micr sec
		UME	iPKP	19 10 48.5				Mx	Z 1.0 14
		South of Fiji Islands (h = 130 km).					UME	iPKP	05 54 12.4
"	8	UPP	iP	19 41 41.5			New Britain region (h = 70 km).		
				micr sec			M = 5.7 (UPP,KIR).		
			P	Z' 0.1 0.9			M uncorrected for focal depth.		
			Mx	Z 3.4 18	"	9	KIR	eP	06 30 41
		KIR	iP	19 42 02.0 C			UME	iP	06 30 43.4
				micr sec			North Atlantic Ocean.		
			P	Z' 0.3 1.0	"	9	KIR	eP	06 40 04
			Mx	Z 4.4 15			UME	iP	06 41 10.3
		UME	iP	19 41 46.7 C			North Atlantic Ocean (h = 10 km).		
		Pakistan (h = 30 km).			"	9	KIR	iP	07 33 55.7
		m = 6.0, M = 5.4 (UPP,KIR).					UME	iP	07 34 07.8
							Mariana Islands (h = 50 km).		

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1990				1990					
Sep.	12	UPP	iP	15 38 01.0	Sep.	14	UPP	iPKP	09 39 13.5
				micr sec			KIR	iPKP	09 39 27.6
			P	Z' 0.2 1.3			UME	iPKP	09 39 21.5 D
		KIR	iP	15 38 33.5			South Sandwich Island region (h = N).		
			i	15 38 45.1	"	14	UPP	iP	20 49 33.2 C
				micr sec					micr sec
			P	Z' 0.3 1.5				P	Z' 0.2 1.4
		UME	iP	15 38 12.5			KIR	iP	20 50 12.5 C
		Arabian Sea (h = 10 km).							micr sec
		m = 6.0 (UPP,KIR).						P	Z' 0.4 1.5
"	13	UPP	iP	03 10 28.3			UME	iP	20 49 49.3 C
		KIR	iP	03 09 51.9 C			Eastern Gulf of Aden (h = 10 km).		
		UME	iP	03 10 08.2 C			m = 6.1 (UPP,KIR).		
		South of Honshu, Japan (h = 50 km).			"	15	UPP	iP	23 11 41.5
"	13	UPP	iP	19 15 30.1				iS	23 15 00
		KIR	iP	19 15 18.9					micr sec
		Northern Xinjiang, China (h = N).						P	Z' 0.7 2.0
"	14	UPP	iP	01 29 22.1			Mx	Z 9.6 22	
		KIR	iP	01 28 28.9 C			KIR	iP	23 11 22.1
				micr sec					micr sec
			P	Z' 0.1 1.0				P	Z' 6.1 3.8
		UME	iP	01 28 55.6 C			Mx	Z 8.5 13	
		Fox Islands, Aleutian Islands (h = N).					UME	iP	23 11 31.2
							Iceland (h = 10 km).		
"	14	UPP	iP	02 12 49.4	"	16	UPP	iP	15 38 34.0
		KIR	iP	02 11 56.3			KIR	iP	15 36 59.2
		UME	iP	02 12 23.2			UME	iP	15 37 51.5
		Fox Islands, Aleutian Islands (h = N).					North of Svalbard (h = 10 km).		
"	14	KIR	iP	02 54 33.6	"	16	UPP	iP	16 19 08.1
		UME	iP	02 55 11.9			KIR	iP	16 19 01.7
		Jan Mayen Island region (h = 10 km).					Kirghiz-Xinjiang border region (h = 15 km).		
"	14	UPP	iP	07 11 06.7	"	17	UME	iP	03 16 00.9
			i	07 11 09.8					
			i	07 11 16.2	"	17	UPP	iP	09 05 44.9
				micr sec			UME	iP	09 05 42.8
			P	Z' 0.2 1.0			Costa Rica (h = N).		
		UME	iP	07 10 40.1 C	"	17	UPP	iP	09 32 32.9
			i	07 10 44.2				i	09 32 37.7
			i	07 10 50.7			Qinghai Province, China (h = 15 km).		
		South of Alaska (h = N).							
"	14	UPP	iP	07 39 13.8					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990							
Sep.	17	UPP	iP	12 10 32.7	Sep.	21	UPP	iP	16 17 19.9		
			i	12 10 51.0			KIR	iP	16 17 23.4		
				micr sec			Northern India (h = N).				
			P	Z' 0.1 1.0			"	22	UPP	Mx	21 48
		KIR	iP	12 10 31.8						Mx	Z 6.0 15
				micr sec			KIR	Mx	21 51		
			P	Z' 0.2 1.4						Mx	Z 3.9 12
		UME	iP	12 10 30.5			Luzon, Philippine Islands (h = N).				
		Southern Sumatera (h = 60 km).					M = 6.0 (UPP,KIR).				
		m = 6.3 (UPP,KIR).									
"	17	UPP	iPKP2	14 07 57.7	"	23	UPP	iSg1	00 39 08.6		
				micr sec			UME	iSg1	00 40 16.2		
			Mx	Z 3.5 20			UDD	iSg1	00 38 11.9		
		UME	iPKP1	14 07 31.2			MYV	iSg1	00 38 49.4		
		Macquarie Islands region					Southwestern Norway, 59.4°N, 5.3°E.				
		(h = 10 km).					Origin time = 00 35 57.				
							M _L (UPP) = 2.7 1.				
							Felt.				
"	18	UPP	iP	03 29 33.8	"	23	KIR	iP	08 38 41.5		
			iS	03 38 49			Luzon, Philippine Islands (h = N).				
				micr sec			"	23	UPP	iPKP	18 13 22.1
			P	Z' 0.4 0.8						Mx	Z 3.1 19
			Mx	Z 1.9 20			KIR	iPKP	18 13 05.6		
		KIR		micr sec						Mx	Z 2.1 19
			Mx	Z 0.8 18			Vanuatu Islands (h = 10 km).				
		UME	iP	03 29 07.3			M = 5.9 (UPP,KIR).				
		Rat Islands, Aleutian Islands					"	23	UPP	iP	21 24 51.4
		(h = 40 km).								iS	21 34 25
		M = 5.0 (UPP,KIR).									micr sec
"	19	UPP	iPg1	01 50 46.9						P	Z' 0.6 1.5
			iSg1	01 51 01.5						Mx	Z 30 19
			iRg	01 51 05.5			KIR	iP	21 24 14.6		
		UDD	iPg1	01 51 32.9						P	Z' 1.0 2.0
			iSg1	01 52 00.6						Mx	Z 34 16
			iRg	01 52 11.4			UME	iP	21 24 28.6		
		Dannemora, Uppland, Sweden,					South of Honshu, Japan (h = 10 km).				
		60.2°N, 17.8°E.					m = 6.4, M = 6.6 (UPP, KIR)				
		Rockburst at the iron ore mine.					"	23	UPP	iP	22 20 48.8
"	19	UPP	iSg1	01 51 31.0							micr sec
			i	01 51 33.5						P	Z' 0.1 1.0
			iRg	01 51 35.0			(cont.)				
		UDD	iSg1	01 52 29.6							
			iRg	01 52 41.5							
		Dannemora, Uppland, Sweden,									
		60.2°N, 17.8°E.									
		Rockburst at the iron ore mine.									

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Sep.		(cont.)		Sep.		(cont.)	
23	KIR	iP	22 20 12.0 micr sec	27	UME	iP	21 18 03.6
		P	Z' 0.1 1.0				Rat Islands, Aleutian Islands (h = 35 km). m = 6.0 (UPP,KIR).
	UME	iP	22 20 28.3 C				
			South of Honshu, Japan (h = 10 km). m = 5.8 (UPP,KIR).	"	27	UPP	iP 21 20 02.4 i 21 20 11.9 micr sec
"	24	KIR	iPKP 02 17 01.5				i Z' 0.1 1.0
		UME	iPKP 02 17 08.1			KIR	iP 21 19 43.7 i 21 19 53.6 micr sec
			Vanuatu Islands (h = 25 km).				P Z' 0.2 0.8 i Z' 0.5 1.0
"	25	KIR	iP 12 19 11.5			UME	iP 21 19 46.5 i 21 19 55.8
		UME	iP 12 18 47.4				Kazakh-Xinjiang border region (h = 35 km). m = 5.9 (UPP,KIR).
			Western Iran (h = 10 km).	"	28	UPP	iPKP1 06 16 40.8
"	26	UPP	iP 13 37 16.4 micr sec				Kermedec Islands region (h = 15 km).
			P Z' 0.1 1.0	"	28	UPP	iPKP 20 03 33.4 micr sec
		KIR	iP 13 37 15.9 micr sec				PKP Z' 0.2 1.0 Mx Z 3.5 20
			P Z' 0.2 0.7			KIR	iPKP 20 03 20.1 micr sec
		UME	iP 13 37 13.5 C				PKP Z' 0.3 1.0 Mx Z 1.6 21
			Southern Sumatera (h = 60 km). m = 6.3 (UPP,KIR).			UME	iPKP 20 03 25.3
"	26	UPP	iP 15 40 32.0 micr sec				Vanuatu Islands (h = 180 km). M = 5.8 (UPP,KIR).
			P Z' 0.1 1.0	"	28	KIR	iP 20 13 21.1
		Mx	Z 4.3 17	"	28	UPP	iP 20 54 42.1
		KIR	iP 15 40 58.4 C micr sec				Andreanof Islands, Aleutian Islands (h = N).
			P Z' 0.1 1.0	"	29	UPP	iP 13 06 27.5
		Mx	Z 8.6 17			UME	iP 13 06 24.4
		UME	iP 15 40 39.8				Tajik SSR (h = 90 km).
			Southern Iran (h = N). m = 5.6, M = 5.5 (UPP, KIR).	"	29	UPP	iP 16 22 25.4
"	27	KIR	iP 12 43 11.5			UME	iP 16 21 58.8
		UME	iP 12 42 52.8				Andreanof Islands, Aleutian Is. (h = 55 km).
			Southern Iran (h = N).				
"	27	UPP	iP 21 18 31.3 C micr sec				
			P Z' 0.2 0.9				
		KIR	iP 21 17 37.7 C micr sec				
			P Z' 0.1 0.8				
		(cont.)					

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1990					1990				
Sep.	29	UME	iP	18 01 09.8	Sep.	30	UPP	iP	22 21 04.1
				Southern Iran (h = N).			UME	iP	22 20 51.5
									Luzon, Philippine Islands
"	29	UME	iP	21 52 49.6					(h = 35 km).
				Mariana Islands (h = 55 km).					
"	30	UPP		micr sec					
			Mx	Z 1.8 17					
		UME	iP	03 28 10.7					
				Mariana Islands (h = 50 km).					
"	30	UME	iP	06 26 23.7					
				Mariana Islands (h = 55 km).					
"	30	UME	iP	06 32 04.2					
				Southern Iran (h = N).					
"	30	UPP	iP	06 59 53.3					
		UME	iP	06 59 25.3					
				Off east coast of Kamchatka (h = N).					
"	30	UME	iP	10 34 40.8					
				South of Honshu, Japan					
				(h = 200 km).					
"	30	UME	iP	12 58 33.1					
				South of Mariana Islands					
				(h = 55 km).					
"	30	UPP	iP	18 57 52.6					
			iS	19 00 30.5					
		UME	iP	18 58 33.7 D					
				Romania (h = 80 km).					
"	30	UPP	iP	19 16 55.2					
			iS	19 26 43					
				micr sec					
			P	Z' 0.3 1.0					
			Mx	Z 51 19					
		KIR		micr sec					
			Mx	Z 15 17					
		UME	iP	19 16 40.3					
				Southwestern Ryukyu Islands					
				(h = 35 km).					
				M = 6.6 (UPP, KIR).					
"	30	UPP	iP	21 30 26.9					
		UME	iP	21 30 24.0					
				Afghanistan-USSR border region					
				(h = N).					

May 7, 1992

Conny Holmqvist
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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

OCTOBER 1 - 31, 1990

1990					1990				
Oct.	1	UPP	iP	07 09 39.3	Oct.	2	UPP		micr sec
				micr sec				Mx	Z 1.4 20
			P	Z' 0.1 1.0			KIR	iPKP	08 27 25.8
		UME	iP	07 09 11.5			Vanuatu Islands (h = 20 km).		
		Off east coast of Kamchatka (h = 25 km).			"	2	UPP	iP	12 48 32.8
"	1	KIR	iP	12 04 14.4				i	12 48 35.2
		UME	eP	12 04 14			KIR	iP	12 48 21.2
		Java (h = 55 km).					UME	iP	12 48 22.8
"	1	KIR	iP	13 57 11.2			Tibet (h = N).		
		UME	iP	13 57 18.3	"	2	UPP	ipP	13 39 30.2
		Luzon Philippine Islands (h = N).					KIR	iP	13 39 15.5
"	1	UME	iP	14 29 54.6			Coast of northern Sumatera (h = 60 km).		
		Mariana Islands (h = 55 km).			"	2	UPP	iP	14 53 22.0
"	1	UPP	iPKP1	15 03 57.4			KIR	iP	14 53 00.0
		KIR	iP	15 03 37.7					micr sec
		UME	iPKP1	15 03 45.2				P	Z' 0.1 1.0
		Kermadec Islands (h = N).					UME	iP	14 53 03.6
"	1	KIR	iPKP	22 04 33.2			Northern Xinjiang, China (h = N).		
		Vanuatu Islands (h = 5 km).			"	2	UPP	iPKP	15 26 16.4
"	2	UPP	iPKP	08 07 41.0			KIR	iPKP	15 26 03.7
		KIR	iPKP	08 07 22.6			UME	iPKP	15 26 11.0
				micr sec			South of Tonga Islands (h = 9 km).		
		PKP	Z' 0.1 0.9		"	3	UPP	iP	03 57 32.3
		Vanuatu Islands (h = 25 km).					UME	iP	03 58 13.1
							Rumania (h = 160 km).		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Oct.	3	KIR	iP	08 50 58.1	Oct.	10	UPP	iPKP	06 13 16.8
				Norwegian Sea (h = 10 km).					micr sec
"	3	UME	iP	23 57 33.0				PKP	Z' 0.2 0.6
"	4	UME	iP	01 02 26.4			UME	i(PKP)	06 13 04.4
"	4	KIR	iP	08 49 09.9					South of Fiji Islands (h = 550 km).
				micr sec	"	10	UME	iP	08 34 09.2
				P Z' 0.1 1.3					Bonin Islands region (h = 390 km).
				Mx Z 1.1 13	"	10	UPP	iP	08 34 28.0
				Jan Mayen Island region (h = 10 km).					micr sec
"	5	UPP	iPKP2	00 08 50.8				P	Z' 0.1 0.7
				micr sec			UME	iP	08 34 09.5
				PKP2 Z' 0.1 1.1					Bonin Islands region (h = 380 km).
		KIR	iPKP1	00 08 16.2	"	11	UPP	iP	14 03 43.0
				micr sec					micr sec
				PKP1 Z' 0.2 1.1				P	Z' 0.1 1.0
		UME	iPKP1	00 08 23.5			UME	iP	14 03 57.9
				Cook Strait, New Zealand					Western Iran (h = 45 km).
				(h = 35 km).	"	11	UPP	iP	15 26 02.4
"	6	UPP	iP	10 15 01.8			UME	iP	15 26 06.7
				Mindoro, Philippine Islands				i	15 26 12.6
				(h = 35 km).					Dominican Republic region
"	6	UPP	iP	14 44 26.0					(h = 100 km).
				Near east coast of Honshu, Japan	"	11	UPP	iP	23 26 08.2
				(h = 70 km).			UME	eP	23 26 45
"	6	UPP	iP	19 13 22.7					Ionian Sea (h = 40 km).
				19 13 36.6	"	12	UPP	iP	05 46 19.0
				micr sec					Greece (h = 10 km).
				P Z' 0.2 1.1	"	12	UPP	iP	14 31 25.8
		UME	iP	19 14 04.3					Crete (h = 30 km).
				Rumania (h = 140 km).	"	12	UPP	iP	17 41 48.6
"	6	UME	iPKP	20 07 38.8					micr sec
				South of Fiji Islands (h = 510 km).				P	Z' 0.1 1.0
"	7	UPP	iPKP	05 05 31.6			UME	iP	17 41 33.9
		UME	iPKP	05 05 22.2					Southern Nevada.
				Kermadec Islands region (h = 60 km).					Underground explosion.
"	7	UPP	ePKP	05 49 13	"	13	UPP	iP	00 33 40.5
				Kermadec Islands region (h = 55 km).				ipP	00 33 52.3
"	7	UME	iP	15 50 58.0					micr sec
				Carlsberg Ridge (h = 10 km).				pP	Z' 0.1 1.1
								Mx	Z 3.8 20

(cont.)

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990						
Oct.	13	(cont.)		Oct.	15	UPP	iP	01 48 13.8		
		UME	iP				iPP	01 51 28.5		
			ipP				iS	01 58 34		
								micr sec		
		Mariana Islands region.					P	Z' 0.2 1.2		
		h = 35 km (UPP,KIR).					Mx	Z 26 20		
"	13	UPP	iP			KIR		micr sec		
		Luzon, Philippine Islands (h = N).					Mx	Z 28 23		
"	13	UME	iPn			UME	iP	01 48 13.1		
			iSn				iS	01 58 32		
		UDD	iPn			Southwest of Sumatera (h = 30 km).				
			iSn			M = 6.5 (UPP,KIR).				
		MYV	iPn			"	15	UME	iP	09 43 44.0
			iSn			North of Severnaya Zemlya				
			i			(h = 10 km).				
		Norwegian Sea, 70.9°N, 5.9°E.				"	15	UPP	iP	19 13 56.7
		Origin time = 03 59 04.								micr sec
		By combination with Finnish station readings.						P	Z' 0.1 1.0	
"	13	UPP	iPKP			UME	iP	19 14 04.5		
		UME	iPKP			Iran (h = N).				
			iSKP1			"	16	UME	iP	01 40 36.7
		South of Fiji Islands (h = 570 km).				Off east coast of Honshu, Japan				
"	14	UPP	iP			(h = N).				
		Luzon, Philippine Islands				"	16	UPP	iP	04 23 11.7
		(h = 25 km).				UME	iP	04 22 45.7		
"	14	UME	iP			Kuril Islands (h = N).				
		West Pakistan (h = 10 km).				"	16	UPP	iP	06 23 51.3
"	14	UPP	iP					i	06 23 52.6	
			ipP					iS	06 32 26	
		UME	iP						micr sec	
		Tibet (h = 10 km).						i	Z' 0.2 0.9	
"	14	UPP	iP					Mx	Z 3.5 25	
			ipP			KIR			micr sec	
			i					Mx	Z 0.9 20	
		UME	iP			UME	iP	06 23 25.6		
		Rumania (h = 40 km).				Kuril Islands (h = N).				
"	14	UPP	iP			M = 5.1 (UPP,KIR).				
		UME	eP			"	16	UPP	iP	18 44 27.2
		Ionian Sea (h = 10 km).				UME	iP	18 44 10.7		
"	14	UPP	iPKP1			"	16	UPP	iPKP1	23 58 24.1
										micr sec
								PKP1	Z' 0.1 1.1	
		Kermadec Islands (h = N).								

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Oct.	25	UPP iP	02 59 11.2	Oct.	26	UPP Mx	06 43
		UME iP	02 59 11.8				micr sec
		North Atlantic Ocean (h = 10 km).				Mx	Z 2.5 23
"	25	UME iP	03 36 41.1			KIR Mx	06 49
		Gulf of California (h = 10 km).					micr sec
"	25	KIR iP	04 54 21.8			Mx	Z 0.9 20
		UME iP	04 55 16.4			South Atlantic Ridge (h = 10 km).	
		Svalbard region (h = 10 km).				M = 5.4 (UPP,KIR).	
"	25	UPP iP	05 01 39.6	"	26	UPP iP	18 25 52.8
		i	05 01 41.3				micr sec
		iS	05 07 46			Mx	Z 1.3 12
			micr sec			KIR	micr sec
		i	Z' 0.7 1.0			Mx	Z 1.9 15
		Mx	Z 4.3 13			UME iP	18 25 26.1
		KIR	micr sec			Lake Baikal region (h = 20 km).	
		Mx	Z 1.8 11			M = 5.0 (UPP,KIR).	
		UME iP	05 01 38.7	"	27	UPP iP	22 25 37.1
		i	05 01 40.1			UME iP	22 25 50.8
		Hindu Kush region (h = 110 km).				Southern Iran (h = 25 km).	
		M = 5.3 (UPP,KIR).		"	27	UPP iP	01 17 50.3
		M uncorrected for focal depth.				Albania (h = 15 km).	
"	25	UPP iP	11 14 42.9	"	27	UPP iP	04 10 18.2
		iS	11 25 28			UME iP	04 09 53.0
			micr sec			Kuril Islands (h = 140 km).	
		P	Z' 0.1 0.9	"	27	UME iPKP1	07 49 01.6
		Mx	Z 14 21			Kermadec Islands region	
		KIR	micr sec			(h = 500 km).	
		Mx	Z 9.6 26	"	27	UPP iP	12 58 25.5
		UME iP	11 14 31.8			UME iP	12 58 32.2
		Mindanao Philippine Islands				Leeward Islands (h = 60 km).	
		(h = 45 km).		"	27	UME iP	14 16 03.8
		M = 6.2 (UPP,KIR).				Near s. coast of Honshu, Japan	
"	25	UPP iP	14 23 02.1			(h = 10 km).	
		UME iP	14 23 14.3	"	27	UPP iP	16 43 49.0
		Southern Iran (h = 45 km).				UME iP	16 43 54.5
"	25	UPP iPKP	16 52 01.1			Northern Colombia (h = 40 km).	
		UME iPKP	16 51 55.9	"	27	UPP iP	16 43 49.0
		Solomon Islands (h = 140 km).				UME iP	16 43 54.5
"	26	UPP iP	00 23 25.6	"	28	KIR iPg1	02 26 41.6
		UME iP	00 23 56.5			iSg1	02 27 04.7
		Eastern Mediterranean Sea				UME iSg1	02 28 00.9
		(h = 30 km).				Northern Finland, 67.0°N, 24.2°E.	
						Origin time = 02 26 11.	
						(cotn.)	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990

Oct. 28 (cont.)
 $M_L(\text{UPP}) = 2.5$ 1.
 Felt.
 By combination with Finnish station
 reading.

" 28 UPP iP 07 03 39.9
 i 07 04 11.4
 micr sec
 Mx Z 0.8 20
 UME iP 07 03 13.5
 Kuril Islands (h = 50 km).

" 29 UME iP 02 34 00.0
 Michoacan, Mexico (h = 100 km).

" 30 KIR Mx 12 41
 micr sec
 Mx Z 1.6 15
 Iceland region (h = 5 km).

" 30 KIR Mx 14 13
 micr sec
 Mx Z 1.4 15
 Iceland region (h = 5 km).

" 30 KIR Mx 21 36
 micr sec
 Mx Z 0.9 13
 Iceland region (h = 5 km).

" 30 KIR iPg1 23 08 45.4
 iSg1 23 09 13.7
 UME iSn 23 10 08.4
 iSg1 23 10 26.7
 MYV iSg1 23 10 37.2
 Northwestern coast of Norway,
 67.8°N, 15.1°E.
 Origin time = 23 08 10.
 $M_L(\text{UPP}) = 3.1$ (0.27) 3.
 Felt.
 By combination with Finnish station
 readings.

May 15, 1992

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

NOVEMBER 1 - 30, 1990

1990					1990				
Nov.	2	UPP	iP	13 01 18.8	Nov.	4	UPP	iP	22 15 43.5
		KIR	iP	13 00 36.0			Rat Islands, Aleutian Islands (h = N).		
		UME	iP	13 00 55.4					
		Hokkaido, Japan region (h = 70 km).			"	4	UPP	iP	22 36 28.6
"	3	KIR	iP	11 29 33.8			KIR	iP	22 36 01.9
		UME	iP	11 29 48.0					micr sec
		Arabian Sea (h = 10 km).						P	Z' 0.2 1.2
"	3	UPP	iP	16 47 22.1	"	5	UPP	iP	00 31 09.7
			i	16 47 24.2			KIR	iP	00 30 34.0
				micr sec			UME	iP	00 30 49.0 D
			i	Z' 0.3 1.3			Near s. coast of Honshu, Japan		
			Mx	Z 3.2 11			(h = 320 km).		
		KIR	iP	16 47 27.9	"	6	UPP	iSKP1	01 01 32.4
				micr sec			Fiji Islands region (h = 610 km).		
			P	Z' 0.2 1.2	"	6	UPP	iPKP2	15 10 26.1
			Mx	Z 3.2 10			Off e. coast of N. Island, N.Z.		
		UME	iP	16 47 20.3			(h = 160 km).		
			iS	16 53 14	"	6	UPP	iP	18 53 33.8 C
		Tajik SSR h = 50 km.						i	18 53 37.3
		m = 5.9, M = 5.4 (UPP,KIR).						iPP	18 55 14.9
"	3	UPP	iP	17 33 43.4				iS	18 59 26
		KIR	iP	17 33 28.9					micr sec
		UME	iP	17 33 30.0				i	Z' 1.1 1.4
		Southern Xinjiang, China						Mx	Z 92 16
		(h = 20 km).					(cont.)		
"	4	UPP	iSKP1	16 05 10.9					
		Vanuatu Islands (h = 150 km).							

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990					1990				
Nov.	6	(cont.)			Nov.	7	KIR	iPKP	19 24 29.7
		KIR	iP	18 54 07.8 C			UME	iPKP	19 24 22.7
			i	18 54 11.1			South Sandwich Islands region (h = 50 km).		
				micr sec					
			i	Z' 2.0 1.8	"	8	UPP	iPKP1	10 35 25.6 D
			Mx	Z 118 16				i	10 35 43.5
		UME	iP	18 53 46.0 C			UME	iPKP1	10 35 11.9
			i	18 53 49.5			Kermadec Islands region (h = 50 km).		
		Southern Iran. h = 10 km (UPP,KIR,UME). m = 6.6, M = 6.8 (UPP,KIR).				8	UME	iP	13 25 18.8
"	6	UPP	iP	19 37 59.7				ipP	13 26 00.8
		KIR	iP	19 38 34.3			Nicaragua (h = 160 km).		
		UME	iP	19 38 12.2	"	8	KIR	iP	14 24 09.3
		Southern Iran (h = 20 km).					Java (h = 70 km).		
"	6	UPP	iP	20 25 06.8 C	"	9	UPP	iP	17 00 05.9
			i	20 25 15.5			Tibet (h = 10 km).		
			iS	20 33 48.5	"	9	KIR	iSg1	19 04 20.8
			iP'P'	20 53 53.0			UME	i	19 03 45.7
				micr sec				iSg1	19 04 01.8
			P	Z' 1.1 1.2			Central Finland, 65.1°N, 27.5°E. Origin time = 19 02 19. M _L (UPP) = 2.8 (0.19) 3. Felt. By combination with Finnish station readings.		
			i	Z' 1.7 1.1	"	9	UPP	iP	19 18 44.0
			Mx	Z 241 20			Tibet (h = 10 km).		
		KIR	iP	20 24 12.7 C	"	9	UPP	iP	19 23 00.5
				micr sec			Tibet (h = 10 km).		
			P	Z' 1.0 1.0	"	10	UPP	iPn	06 45 59.5
			Mx	Z 227 20				iSn	06 47 22.0
		UME	iP	20 24 39.4 C				i	06 47 37.4
		Komandorsky Islands region (h = 25 km). m = 6.8, M = 7.3 (UPP,KIR).					KIR	iPn	06 46 25.3
"	6	KIR	eP	22 36 45				i	06 48 05.8
		Komandorsky Islands region (h = 40 km).						iSn	06 48 18.7
"	7	KIR	eP	14 49 26			UME	iPn	06 46 11.2
				micr sec				iSn	06 47 34.3
			Mx	Z 3.2 23			UDD	iPn	06 45 32.4
		Mindanao, Philippine Islands (h = 80 km).						iSn	06 46 31.6
"	7	UPP	iPKP1	17 06 55.4				i	06 47 21.4
		KIR	iPKP	17 06 47.9			DEL	iPn	06 46 04.0
		UME	i(PKP)	17 06 42.9				iSn	06 47 32.2
			i(PKP)	17 06 49.8					
			iPKP	17 06 55.8					
		Fiji Islands region (h = 540 km).					(cont.)		

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990				
Nov.	10	(cont.)		Nov.	11	KIR	iPn	17 15 19.1
		MYV	iPn			UME	iP	17 16 11.4
			iSn			UDD	iP	17 16 58.9
							i	17 17 03.3
		Norwegian Sea (h = 10 km).				Norwegian Sea (h = 10 km).		
"	10	UPP	iP			KIR	iPn	23 08 25.4
		KIR	eP			UME	iPn	23 08 57.2
		UME	iP				i	23 09 04.0
		Andaman Islands region (h = N).					iSn	23 10 11.8
"	11	KIR	Mx			UDD	iPn	23 09 27.3
						MYV	iPn	23 08 59.0
							iSn	23 10 00.0
						Norwegian Sea (h = 10 km).		
"	11	UPP	iP			UPP	iP	00 10 48.7
		KIR	iP					micr sec
		UME	iP				Mx	Z 2.8 19
		Tajik SSR (h = N).				KIR	iP	00 10 24.9
"	11	UPP	iP					micr sec
							Mx	Z 0.7 13
						UME	iP	00 10 33.3
						Taiwan (h = 35 km).		
						M = 5.3 (UPP,KIR).		
"	11	UPP	iP			UPP	iP	11 27 13.3
							i	11 27 14.3
								micr sec
							P	Z' 0.2 1.2
						KIR	iP	11 27 21.6
								micr sec
							P	Z' 0.2 0.5
						UME	iP	11 27 10.8
		South of Honshu, Japan (h = 35 km).				Afghanistan-USSR border region (h = 240 km).		
"	11	UPP	iP			m = 5.6 (UPP,KIR).		
			iLg1					
		UME	iLg1					
		Romania (h = N).						
"	11	UPP	iP			UPP	iP	12 36 25.0
			iS				i	12 36 31.7
							iS	12 42 24
								micr sec
							P	Z' 0.2 0.9
							i	Z' 0.7 1.3
							Mx	Z 62 10
		KIR	eP			KIR	iP	12 36 16.3
								micr sec
							P	Z' 0.4 1.0
							Mx	Z 192 12
		UME	iP			UME	iP	12 36 14.8
		Tunisia (h = 10 km).				(cont.)		
		M = 4.6 (UPP,KIR).						

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990					
Nov.	12	(cont.) Alma Ata region (h = 20 km). m = 6.2, M = 6.9 (UPP,KIR). Extremely well developed Lg-waves.		Nov.	15	UPP	iP	02 46 46.1	
							i	02 46 49.6	
							iS	02 56 51	
								micr sec	
							i	Z' 0.3 1.1	
"	12	UPP	iP	16 06 44.9			Mx	Z 79 19	
		KIR	eP	16 07 16	KIR	iP		02 46 45.9	
		UME	iP	16 06 54.4				micr sec	
		Caspian Sea (h = 55 km).					P	Z' 0.6 1.4	
						UME	iP	02 46 41.3	
"	12	UPP	iPKP1	21 17 33.8				Northern Sumatera (h = 50 km). m = 6.3 (UPP,KIR).	
		South of Fiji Islands (h = 490 km).							
"	13	UPP	iP	02 45 40.6	"	15	UPP	iP	03 38 46.8
				micr sec			KIR	iP	03 38 41.4
			P	Z' 1.2 1.5			UME	iP	03 38 39.4
			Mx	Z 8.0 11					India-Bangladesh border region (h = 50 km).
		KIR	iP	02 44 54.9					
				micr sec					
			P	Z' 2.0 1.8	"	15	UPP	iP	05 00 27.3
			Mx	Z 25 15					micr sec
		UME	iP	02 45 15.8				P	Z' 0.1 1.0
		Near e. coast of Eastern USSR (h = 15 km). m = 6.8, M = 6.2 (UPP,KIR).					KIR	iP	05 00 26.7
									micr sec
"	13	UPP	iP	11 11 39.8				P	Z' 3.7 3.5
		UME	iP	11 11 37.2			UME	iP	05 00 23.0
		Afghanistan-USSR border region (h = 180 km).							Northern Sumatera (h = 30 km). m = 6.3 (UPP,KIR).
"	13	UME	iPKP1	21 38 06.9	"	15	UPP	iP	05 30 58.7
		Kermadec Islands region (h = 210 km).					KIR	iP	05 30 57.9
							UME	iP	05 30 53.7
									Northern Sumatera (h = 55 km).
"	14	UPP	iP	18 53 25.1	"	15	UPP	iP	05 59 35.1
				micr sec			KIR	iP	05 59 34.4
			Mx	Z 2.4 15			UME	iP	05 59 30.9
		KIR	iP	18 53 45.5					Northern Sumatera (h = 50 km).
				micr sec					
			P	Z' 0.1 1.0	"	15	UPP	iP	15 25 46.8
		UME	iP	18 53 30.4			KIR	iP	15 25 17.2
		Pakistan (h = 35 km).					UME	iP	15 25 25.7
									Central USSR (h = 30 km).
"	14	UPP	iP	19 28 48.9	"	16	UPP	iPKP1	07 39 04.1
		KIR	iP	19 28 13.9					South Sandwich Islands region (h = N).
		UME	iP	19 28 33.8					
		Southern Nevada. Underground explosion.			"	16	UME	iPKP1	15 03 20.1
									Kermadec Islands region (h = 80 km).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Nov.	16	UME iP	23 05 45.2	Nov.	21	UPP iP	01 59 26.3
		Bonin Islands region (h = 540 km).				iS	02 08 26
							micr sec
"	16	UPP i	23 49 37.0			P	Z' 0.3 1.5
		i	23 49 56.7			Mx	Z 6.5 20
		iSg1	23 50 04.5			KIR iP	01 58 33.2
		UDD iPg1	23 49 02.3 C				micr sec
		iSg1	23 49 11.8			P	Z' 0.4 1.5
		DEL iSg1	23 50 24.0			UME iP	01 58 59.2
		MYV iSg1	23 50 39.4			Fox Islands, Aleutian Islands (h = N).	
		Värmland, Sweden, 59.5°N, 12.8°E.				m = 6.2 (UPP,KIR).	
		Origin time = 23 48 48.					
		M _L (UPP) = 2.4 (0.33) 2.		"	22	UPP iP	05 24 41.0
							micr sec
"	16	UME iSg1	23 52 04.0			P	Z' 0.1 1.0
						KIR iP	05 23 47.6
"	17	UPP iP	19 52 13.7			UME iP	05 24 13.6
		Andreanof Islands, Aleutian Is.				Andreanof Islands, Aleutian Is.	
		(h = N).				(h = 60 km).	
"	18	UME iP	11 41 07.1	"	22	UPP i(P)	14 26 54.4
		Hokkaido, Japan region (h = 55 km).					
"	18	UPP iP	16 19 05.6	"	22	UPP iPKP	21 07 45.5
		KIR iP	16 19 05.2				micr sec
		UME iP	16 19 02.3			Mx	Z 3.1 25
		Northern Sumatera (h = 70 km).				KIR ePKP	21 07 35
						UME iPKP	21 07 38.6
						New Britain region (h = 30 km).	
"	18	UPP iP	16 35 16.0	"	23	UPP iP	07 55 02.5
		KIR iP	16 35 17.8			KIR iP	07 54 45.9
		UME iP	16 35 13.6				micr sec
		Northern Sumatera (h = 70 km).				P	Z' 0.2 0.9
"	18	UPP iP	20 39 19.2			UME iP	07 54 51.1
		KIR iP	20 39 24.8			Mindanao, Philippine Islands	
			micr sec			(h = 130 km).	
		P	Z' 0.1 0.8	"	23	UPP iP	22 48 07.3
		UME iP	20 39 25.8 C				micr sec
		Leeward Islands (h = 90 km).				P	Z' 0.5 1.5
"	20	UPP iP	07 35 30.9 D			KIR iP	22 48 09.1
			micr sec				micr sec
		P	Z' 0.1 0.8			P	Z' 1.3 2.0
		KIR iP	07 34 59.5 D			UME iP	22 47 21.3
		UME iP	07 35 12.7 D			ipP	22 48 49.9
		Bonin Islands region (h = 480 km).				Colombia (h = 150 km).	
						m = 6.4 (UPP,KIR).	
"	20	KIR iP	09 16 50.3	"	24	KIR iP	02 11 23.4
			micr sec			UME iP	02 11 20.9
		P	Z' 0.1 1.0			Southern Sumatera (h = 50 km).	
		Halmahera (h = 110 km).					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990									
Nov.	24	KIR	iP	17 33	57.5	Nov.	27	UPP	iP	23 01	45.0		
		UME	iP	17 34	14.2			KIR	iP	23 01	25.7		
				Sea of Japan (h = 460 km).				UME	iP	23 01	32.2		
"	25	UPP	iPKP1	04 39	38.1			Luzon, Philippine Islands (h = 70 km).					
			i	04 39	39.6			"	29	UPP	iPKP1	00 58	42.0
		KIR	iPKP1	04 39	17.1			Fiji Islands region (h = 620 km).					
		UME	iPKP1	04 39	26.8			"	29	UPP	iP	08 34	22.0
				Kermadec Islands region (h = N).						UME	iP	08 35	01.2
"	26	UPP	iP	10 05	53.6			Southern Italy (h = 280 km).					
		KIR	iP	10 05	29.5			"	29	UME	iP	09 35	13.3
				micr sec				Sea of Japan (h = 380 km).					
			P	Z'	0.1 1.0			"	29	UPP	iPKP1	21 16	59.7
		UME	iP	10 05	35.7			Kermadec Islands region (h = 420 km).					
				Mongolia (h = 10 km).				"	30	KIR	iP	13 32	44.5
"	27	UPP	iP	00 40	35.1 C			micr sec					
		KIR	iP	00 40	34.8			Mx Z 28 16					
				micr sec				Minahassa Peninsula (h = 30 km).					
			P	Z'	0.1 1.0								
		UME	iP	00 40	31.7 C								
				Northern Sumatera (h = 150 km).									
"	27	UPP	iP	04 41	43.4								
			i	04 41	48.5								
			iS	04 44	44								
				micr sec									
			i	Z'	0.8 1.5								
		KIR	iP	04 43	14.1 C								
				micr sec									
			P	Z'	0.7 1.7								
		UME	iP	04 42	32.7 C								
			iS	04 46	11								
				Yugoslavia (h = 25 km).									
				m = 5.8 (UPP,KIR).									
"	27	UPP	eP	04 55	22								
			i	04 55	26.1								
				micr sec									
			P	Z'	0.1 0.9								
		KIR	iP	04 56	53.5								
				micr sec									
			P	Z'	0.2 1.4								
		UME	iP	04 56	11.1 C								
				Yugoslavia (h = 10 km).									
				m = 5.2 (UPP,KIR).									

August 19, 1992

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SEISMOLOGICAL BULLETIN

UPPSALA, KIRUNA, UMEÅ, UDDEHOLM

DELARY and MYRVIKEN

Uppsala	(UPP)	59°51.5'N,	17°37.6'E;	h = 14 m
Kiruna	(KIR)	67°50.4'N,	20°25.0'E;	h = 390 m
Umeå	(UME)	63°48.9'N,	20°14.2'E;	h = 16 m
Uddeholm	(UDD)	60°05.4'N,	13°36.4'E;	h = 240 m
Delary	(DEL)	56°28.2'N,	12°52.2'E;	h = 150 m
Myrviken	(MYV)	62°56.5'N,	14°20.8'E;	h = 345 m

DECEMBER 1 - 31, 1990

1990					1990				
Dec.	1	UPP	iP	18 16 54.1	Dec.	10	UPP	iP	07 38 24.1 C
				micr sec					micr sec
			Mx	Z 2.9 10				P	Z' 0.2 0.9
		KIR	iP	18 16 54.8			UME	iP	07 37 58.8 C
		Kirghiz SSR (h = 30 km).					Hokkaido, Japan region (h = 40 km).		
"	2	UPP	iP	08 17 07.1	"	12	UPP	iP	03 37 19.5
		Off east coast of Honshu, Japan (h = 40 km).					UME	iP	03 37 02.2
							East China Sea (h = 160 km).		
"	3	UPP	iP	00 50 54.3	"	12	UPP	i(P)	05 25 34.9
		KIR	iP	00 50 57.5 C	"	12	UPP	iPg1	15 27 34.7 C
				micr sec				i	15 27 36.6
			P	Z' 0.1 1.0				iSg1	15 27 39.5
		Northern Colombia (h = 160 km).					KIR	iSg1	15 31 42.6
"	5	KIR	ePdiff	16 22 44			UME	iPg1	15 28 44.6
		UME	iPdiff	16 22 45.4				i	15 28 47.0
		Banda Sea (h = 80 km).						iSn	15 29 25.7
"	9	UPP	iP	15 46 46.3 C				iSg1	15 29 40.1
			iPcP	15 17 25.5			UDD	iPg1	15 27 57.0 D
				micr sec				i	15 27 59.6
			P	Z' 0.2 1.1				iSg1	15 28 17.9
		UME	iP	15 46 16.7			DEL	iPn	15 28 26.1
			iPcP	15 47 08.9				iPg1	15 28 34.9
		Near east coast of Kamchatka (h = 25 km).						iSg1	15 29 22.6
"	9	UME	iP	20 28 32.4			MYV	iPg1	15 28 24.0 D
								i	15 28 27.4
								iSn	15 28 50.0
								iSg1	15 29 06.0
								Uppland, Sweden, 59.8°N, 16.8°E. Origin time = 15 27 29.	
								(cont.)	

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Dec.				Dec.			
12	(cont.)			13	(cont.)		
	$M_L(UPP) = 3.7 (0.09) 6.$			KIR	eP	20 01 44.3	
	Felt with maximum intensity IV-V					micr sec	
	(MM). The earthquake was felt within				P	Z' 0.2 1.0	
	an area with radius of 30 km. The				Mx	Z 75 12	
	focal depth deduced from macro-			UME	iP	20 01 54.5	
	seismic data is 10 km and the macro-					Taiwan (h = 10 km).	
	seismic magnitude is 3.1.					m = 6.3, M = 7.0 (UPP,KIR).	
"	13	UPP	iP 00 29 27.8	"	13	UPP	iP 23 30 51.9
			i 00 29 38.8				micr sec
			iS 00 33 42				Mx Z 11 14
			micr sec	KIR	iP	23 30 27.5	
			i Z' 0.2 1.2			micr sec	
			Mx Z 3.6 18			Mx Z 7.8 12	
		UME	iP 00 30 05.2			UME	eP 23 30 39
			Sicily (h = 10 km).				Taiwan (h = 10 km).
							M = 6.2 (UPP,KIR).
"	13	UPP	iP 03 13 36.4	"	13	UPP	iP 23 39 51.2
			i 03 13 39.7			KIR	iP 23 39 33.6
			i 03 13 45.7			UME	eP 23 39 42
			iS 03 23 22				Taiwan (h = 10 km).
			micr sec	"	14	UPP	iP 03 25 44.9
			i Z' 0.1 1.0				iS 03 29 13.5
			i Z' 0.2 1.1				micr sec
			Mx Z 16 18				P Z' 0.2 1.0
		KIR	micr sec			KIR	iP 03 26 57.5
			Mx Z 29 12			UME	iP 03 26 22.7
		UME	iP 03 13 22.7				Southern Italy (h = 280 km).
			Taiwan (h = 10 km).				
			M = 6.5 (UPP,KIR).				
"	13	UME	iP 10 24 33.2	"	15	UPP	iP 16 04 24.8
			Near east coast of Honshu, Japan				Southern Greece (h = 60 km).
			(h = 25 km).				
"	13	UPP	iP 12 40 08.2	"	15	UPP	iP 20 42 45.5
			micr sec				i 20 42 53.2
			Mx Z 6.3 18				i 20 43 00.5
		KIR	micr sec			UME	iP 20 42 26.3
			Mx Z 5.8 17				i 20 42 41.9
		UME	iP 12 39 59.1				North Pacific Ocean (h = 50 km).
			Minahassa Peninsula (h = N).	"	16	UPP	iP 05 35 21.7
			M = 6.1 (UPP,KIR).			UME	iP 05 35 00.7
							Near east coast of Honshu, Japan
							(h = 70 km).
"	13	UPP	iP 20 02 10.0	"	16	UPP	iP 08 49 50.7
			iS 20 11 54			KIR	iP 08 48 57.7 D
			micr sec			UME	iP 08 49 22.2
			P Z' 0.5 1.4				Sea of Okhotsk (h = 520 km).
			Mx Z 41 12				
		(cont.)					

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990				
Dec.	16	UPP	iP	15 50 59.3	Dec.	18	UPP iP	02 49 44.6
			i	15 51 13.8			KIR iP	02 49 46.9
			iS	15 55 32			Tibet-India border region (h = 20 km).	
				micr sec				
			P	Z' 0.2 1.1	"	19	UPP iP	00 20 04.9
			Mx	Z 8.1 13			Taiwan (h = 10 km).	
		KIR	iP	15 51 41.7				
				micr sec				
			Mx	Z 9.4 12	"	19	UPP iP	00 32 16.2
		UME	iP	15 51 14.5			Mx	Z 3.2 11
		Turkey-USSR border region (h = N).					Taiwan (h = 10 km).	
		M = 5.5 (UPP,KIR).						
"	16	UPP	iP	22 26 10.2	"	19	UPP iP	07 53 58.0
				micr sec			i	07 54 11.4
			P	Z' 0.1 1.0				micr sec
			Mx	Z 2.1 16			P	Z' 0.1 1.0
		KIR	iP	22 26 45.8 C			Kermadec Islands region.	
				micr sec	"	19	UPP iP	12 44 20.8
			P	Z' 0.2 1.0			Crete (h = 45 km).	
		UME	iP	22 26 24.0 C	"	19	UPP iP	13 58 55.4 C
		Southern Iran (h = 15 km).					i	13 59 05.0
		m = 5.9 (UPP,KIR).					iS	14 07 36
"	16	UPP	iP	23 36 09.6				micr sec
		Southern Iran (h = N).					P	Z' 1.1 1.2
"	17	UPP	iP	02 25 55.9			Mx	Z 7.5 17
		KIR	iP	02 26 33.1			KIR	iP
		UME	iP	02 26 09.7				13 58 00.0 C
		Southern Iran (h = 30 km).						micr sec
"	17	UPP	iP	02 48 44.9			P	Z' 0.8 1.0
		Southern Iran (h = N).					UME	iP
								13 58 31.0 C
							Off east coast of Kamchatka	
							(h = 20 km).	
							m = 6.8 (UPP,KIR).	
"	17	UPP	iP	02 52 52.1	"	19	UPP iP	23 50 26.0
		UME	iP	02 53 05.7			Taiwan (h = 10 km).	
		Southern Iran (h = N).			"	20	UPP iP	07 10 34.1
"	17	UPP	iP	04 57 28.6				micr sec
		Southern Iran (h = N).					P	Z' 0.2 1.3
							Mx	Z 5.3 16
"	17	UPP	eP	11 13 26			KIR	iP
				micr sec			UME	iP
			Mx	Z 7.7 25				07 10 31.3
		KIR		micr sec			Afghanistan-USSR border region	
			Mx	Z 2.1 19			(h = 10 km).	
		UME	eP	11 13 26	"	21	UME iP	05 48 50.7
		South of Panama (h = 20 km).					Tonga Islands (h = 15 km).	
		M = 5.7 (UPP,KIR).						

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990				1990			
Dec.	21	UPP	iP	07 02 08.6	Dec.	25	(cont.)
			i	07 02 11.7			KIR
			iS	07 05 42			micr sec
				micr sec			Mx Z 13 13
			i	Z' 2.1 1.7			Taiwan (h = 20 km).
			Mx	Z 148 11			M = 6.3 (UPP,KIR).
		KIR		micr sec	"	25	UPP iPKP1 20 39 58.5
			Mx	Z 89 10			South of Fiji Islands (h = 500 km).
		UME	iP	07 02 45.5 D		26	UME iP 15 00 58.2
				Yugoslavia (h = 15 km).			Off east coast of Kamchatka
				m = 6.2, M = 6.5 (UPP,KIR).			(h = 45 km).
"	21	UME	iPKP	13 14 04.6	"	26	UPP iP 15 42 30.7
			iSKP1	13 16 54.2			UME iP 15 42 02
				Fiji Islands region (h = 460 km).			Off east coast of Kamchatka
"	22	UME	iP	16 51 07.0			(h = 35 km).
"	22	UPP	iP	17 40 41.8	"	28	UPP iP 01 53 07.2
			i	17 41 34.9			UME iP 01 52 34.7
				micr sec			Off east coast of Kamchatka (h = N).
			Mx	Z 3.9 17	"	28	UPP iP 06 45 35.4
		KIR		micr sec			UME iP 06 45 08.2
			Mx	Z 1.7 19			Central Alaska (h = 90 km).
		UME	iP	17 40 41.0	"	28	UPP iP 07 50 42.5
				Costa Rica (h = 15 km).			Off east coast of Kamchatka
				M = 5.6 (UPP,KIR).			(h = 25 km).
"	22	UME	iP	18 24 35.2	"	28	UPP iP 13 13 55.5
"	22	UPP	i(P)	22 34 22.6			Sichuan Province, China (h = N).
"	22	UME	iPKP	19 20 40.9	"	28	UPP iP 22 44 49.8
				Vanuatu Islands (h = 25 km).			i 22 44 56.4
"	24	UME	iPKP1	22 37 01.0			i 22 45 06.3
				South of Kermadec Islands (h = N).			micr sec
"	25	UPP	iP	02 10 19.6			P Z' 0.9 2.2
				Mindoro, Philippine Islands			UME iP 22 44 56.8
				(h = 60 km).			Mid-Indian Rise (h = 15 km).
"	25	UPP	iP	04 05 05.3	"	29	UPP iP 13 35 41.0
				Eastern Kashmir (h = 50 km).			UME iP 13 35 40.1
"	25	UPP	iP	14 33 45.8			Nicobar Islands region (h = 20 km).
				micr sec	"	29	UPP iP 15 40 53.0
			Mx	Z 9.3 14			UME eP 15 41 08
				(cont.)			Iran-Iraq border region (h = 55 km).

UPP = Uppsala, KIR = Kiruna, UME = Umeå, UDD = Uddeholm, DEL = Delary, MYV = Myrviken

1990

Dec.	30	UPP	iPdiff	19 28 59.2
			iPKP	19 32 38.8
			i	19 32 43.4
			iPKKP	19 43 20.4
				micr sec
		Mx	Z	42 27
		KIR		micr sec
			Mx	Z 18 17
		UME	iPdiff	19 28 37.8
			iPKP	19 32 33.1

New Britain region (h = 180 km).
M = 6.8 (UPP,KIR).
M uncorrected for focal depth.

"	30	UME	iP	23 16 18.9
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Near east coast of Honshu, Japan
(h = 55 km).

"	31	UME	iP	07 23 13.6
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"	31	UME	iPKP	22 30 47.1
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Vanuatu Islands region (h = 10 km).

August 20, 1990

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