

DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

SIGNIFICANT EARTHQUAKES OF THE WORLD

1980 - 1984

Open-File Report 93-204

compiled by Waverly J. Person
edited by Jan M. Jacobs

U.S. Geological Survey
NATIONAL EARTHQUAKE INFORMATION CENTER
Denver, Colorado

This report is preliminary and has not been edited or reviewed for conformity with U.S. Geological Survey editorial standards.

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INTRODUCTION

This publication is a final listing of all the significant earthquakes for the five-year period of 1980 through 1984. Significant earthquakes are defined for this publication as those of magnitude 6.5 or greater or ones that caused fatalities, injuries or substantial damage. The locations, comments and other data were taken from the Preliminary Determination of Epicenters Monthly Listing, U.S. Geological Survey. This listing of significant earthquakes was compiled to provide an accurate and readily available summary of the world's most important earthquakes for a given period of time.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO STA USED	REGION. CONTRIBUTED MAGNITUDES AND COMMENTS
1980							
Jan 1	16 42 40.0	38.82 N 27.78 W	10 G	6.0 6.7	1.1	249	AZORES ISLANDS. Ms 7.2 (BRK), 6.8 (PAS). At least 56 people killed, 400 or more injured and extensive damage (VIII) on Terceira. At least four people killed, same injured and extensive damage on Sao Jorge. Damage also reported on Graciosa.
Jan 2	20 58 44.2	5.98 N 126.19 E	63	6.0	1.1	178	MINDANAO, PHILIPPINE ISLANDS. Ms 6.9 (BRK), 6.5 (PAS). mb 6.9 (PAS). Felt (V RF) in southern Mindanao.
Jan 24	19 00 09.5	37.85 N 121.82 W	11	5.3 5.9		173	CENTRAL CALIFORNIA. <BRK>. ML 5.5 (BRK). Fifty people were reported treated for minor injuries. Considerable damage (VII) in the Livermore area; some damage was also reported at Antioch, Concord, Danville, Dublin, Modesto, Pittsburg, Pleasanton, Stockton, Tracy and Walnut Creek. Felt throughout the San Francisco-San Jose area and in the San Joaquin Valley from Sacramento to Fresno.
Feb 7	10 49 16.0	54.16 S 158.89 E	10 G	6.1 6.5	1.0	37	MACQUARIE ISLANDS REGION. Ms 6.4 (BRK), 6.3 (PAS). Minor damage on Macquarie Island.
Feb 20	02 34 02.9	39.30 N 16.21 E	12	4.6	1.0	59	SOUTHERN ITALY. ML 4.8 (ATH), 4.2 (ROM). One person died from a heart attack. Minor damage in the Calabria region.
Feb 23	05 51 03.2	43.53 N 146.75 E	44 D	6.3 7.0	0.9	316	KURIL ISLANDS. Ms 6.9 (BRK), 7.0 (PAS). Felt (VII) on Shikotan, (IV) at Kurilsk and (III) at Yuzhno-Kurilsk. Also felt (IV JMA) at Nemuro and Kushiro, Hokkaido and (III JMA) in the Obihiro-Urakawa area, Hokkaido. Ten-centimeter tsunami reported at Nemuro.
Feb 27	21 17 20.2	6.02 S 150.19 E	53	5.8 6.6	1.1	180	NEW BRITAIN REGION. Ms 6.8 (BRK), 6.7 (PAS). Felt strongly in the Kimbe area. Also felt at Rabaul.
Feb 27	21 35 21.3	6.19 S 150.23 E	66	5.6	1.0	113	NEW BRITAIN REGION. Ms 6.8 (BRK), 6.6 (PAS).
Mar 8	22 12 10.3	22.67 S 171.36 E	38	6.1 6.7	0.9	99	LOYALTY ISLANDS REGION. Ms 7.1 (BRK), 6.7 (PAS).
Mar 24	03 59 51.3	52.97 N 167.67 W	33 N	6.2 6.9	1.1	350	FOX ISLANDS, ALEUTIAN ISLANDS. Ms 7.1 (BRK), 6.9 (PAS). Slight damage (V) at Nikolski. Felt (IV) at Unalaska. Also felt at Dutch Harbor.
Mar 26	20 43 37.9	23.87 N 45.56 W	10 G	5.9 6.3	1.0	261	NORTH ATLANTIC RIDGE. Ms 6.8 (BRK), 6.3 (PAS).
Mar 31	07 32 31.8	35.45 N 135.47 E	359	5.8	0.9	259	SOUTHERN HONSHU. mb 6.6 (PAS). Felt (II JMA) at Osaka and in the Tateyama-Onohama area. Felt (I JMA) at Toyooka and Fukui.
Apr 13	18 04 31.9	23.47 S 177.30 W	79	6.7	1.1	170	SOUTH OF FIJI ISLANDS. mb 6.5 (BRK), 7.2 (PAS).
Apr 16	12 18 20.6	8.08 S 108.79 E	84	5.8	1.1	151	JAVA. Extensive damage at Tasikmalaja.
May 14	11 26 00.6	6.01 S 154.51 E	57	6.1	1.1	129	SOLOMON ISLANDS. Ms 6.5 (BRK), 6.3 (PAS), mb 6.9 (PAS).
May 18	15 32 11.4	46.21 N 122.19 W	4	4.7 5.2		57	WASHINGTON. <SEA-P>. ML 5.0 (GS). Felt (V) at Yakima and (IV) in many parts of Washington and Oregon. This earthquake occurred only seconds before the explosion which began the eruption of Mount St. Helens volcano. This eruption and blast took 396 meters off the top of Mount St. Helens, killed 31 people, left 33 other missing and caused damage of between \$500 million and \$2 billion U.S. dollars.
May 18	20 02 57.5	43.29 N 20.84 E	9	5.7 5.8	1.0	164	YUGOSLAVIA. Thirty people injured and many buildings destroyed (VIII) or damaged at Aleksandrovac, Brus, Kursumlija and Raska. Landslides were also reported in the area. Felt in southern Austria, Bulgaria, Hungary and Romania.
May 25	16 33 44.7&	37.60 N 118.84 W	5	6.1 6.1		246	CALIFORNIA-NEVADA BORDER REGION. <BRK>. ML 6.1 (BRK), 6.5 (PAS). Seven people injured, damage (VII) and rockslides in the Mammoth Lakes-Crowley Lake area. Rockslides also occurred in Yosemite National Park. Felt throughout most of California and in parts of Nevada.
May 25	19 44 51.4	37.57 N 118.82 W	15	5.5 5.8		198	CALIFORNIA-NEVADA BORDER REGION. <BRK>. ML 6.1 (BRK), 6.7 (PAS). One person injured, additional damage (VII) and rockslides in the Mammoth Lakes-Crowley area. Two people were seriously injured by a rockslide in Yosemite National Park. Felt throughout much of California and parts of Nevada.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SC	NO STA USED	REGION CONTRIBUTED MAGNITUDES AND COMMENTS
1980							
May 27	14 50 57.1	37.48 N 118 81 W	13	5.7 6.0		233	CALIFORNIA-NEVADA BORDER REGION. <BRK>. ML 6.2 (BRK) 6.3 (PAS). Seven people injured and minor damage (VI) in the Mammoth Lakes-Crowley Lake area. Felt throughout much of California and part of Nevada.
June 9	03 28 18.9	32.22 N 114.99 W	5	5.6 6.4	1 3	141	CALIFORNIA-MEXICO BORDER REGION. ML 6.1 (PAS). One person killed, 100 injured and considerable damage in the area southeast of Mexicali, Mexico. Felt (V) in Yuma County, Arizona and Imperial and San Diego Counties, California.
June 18	10 49 10.0	15.27 S 173.57 W	43 D	5.9 6.5	1.0	156	TONGA ISLANDS. Ms 6.8 (BRK), 6.7 (PAS). Felt (V) at Apia, Samoa Islands.
June 18	17 14 54.5	9.48 N 126.66 E	54	5.8 6.8	1.2	124	MINDANAO, PHILIPPINE ISLANDS. Ms 7.2 (BRK). mb 6.8 (PAS). Felt (V RF) at Surigao.
June 25	23 18 20.4	5.23 S 151.69 E	49 D	6.2 6.5	1.0	242	NEW BRITAIN REGION. Ms 6.5 (BRK).
June 29	07 20 05.5	34.81 N 139.18 E	15	5.8 6.2	1.0	222	NEAR SOUTH COAST OF HONSHU, JAPAN. Ms 5.7 (BRK), 6.3 (PAS). Seven people injured at Ito. Considerable damage (V JMA) and landslides on the Izu Peninsula and on Oshima. Felt (IV JMA) in the Tateyama-Takyo area. Also felt (II JMA) throughout southeastern Honshu and on Hachijojima. Nine-centimeter tsunami reported at Mera.
July 8	23 19 19.8	12.41 S 166.38 E	33 N	5.9 7.5	1.2	170	SANTA CRUZ ISLANDS. Ms 7.8 (BRK), 7.2 (PAS). Felt in the Banks and Santa Cruz Islands. Same landslides reported.
July 9	02 11 52.8	39.27 N 23.04 E	14	5.8 6.4	1.0	156	AEGEAN SEA. One person killed, many injured and extensive damage in Magnisia Province, Greece. Felt in southern Yugoslavia.
July 9	20 56 53.2	12.69 S 166.00 E	33 N	5.2 6.7	1.2	41	SANTA CRUZ ISLANDS. Ms 6.9 (BRK), 6.4 (PAS). Felt in the Santa Cruz Islands.
July 14	16 15 01.7	29.27 S 177.15 W	49	5.8 6.6	1.3	84	KERMADEC ISLANDS. Ms 6.5 (BRK), 6.4 (PAS). Felt on Raoul Island.
July 16	19 56 46.7	4.46 S 143.52 E	84	6.5	1.0	151	NEW GUINEA, PAPUA NEW GUINEA. Ms 6.8 (BRK), 6.9 (PAS). Felt in Papua New Guinea and Irian Jaya, Indonesia.
July 17	19 42 23.2	12.53 S 165.92 E	33 N	5.8 7.9	1.3	95	SANTA CRUZ ISLANDS. Ms 8.0 (BRK), 7.5 (PAS). Felt in the Banks Islands group and Torres Islands. Tsunami of 26.8 cm (peak-to-peak) at Kona, Hawaii, 6.7 cm (peak-to-peak) at Honolulu, Oahu and 8.0 cm (peak-to-peak) at Apia, Western Samoa.
July 20	21 20 03.9	17.87 S 178.63 W	591 D	6.0	0.9	180	FIJI ISLANDS REGION. mb 6.5 (BRK), 6.3 (PAS).
July 22	05 17 10.1	37.19 N 50.20 E	62	5.4	1.1	122	CASPIAN SEA. One person killed, several injured and damage in the Lohijan-Rasht area, Iran.
July 22	07 06 23.0	20.30 S 169.61 E	122 D	6.1	0.9	147	VANUATU ISLANDS. mb 6.8 (BRK), 6.7 (PAS).
July 27	18 52 21.8	38.17 N 83.91 W	8	5.1 4.7		194	KENTUCKY. <SPEC>. mbig 5.0 (PAL), 5.2 (TUL). Two people injured and considerable damage reported. Maximum intensity VII at Maysville, Kentucky. Felt in 15 states and in parts of southern Ontario, Canada.
July 29	03 11 56.3	13.10 S 166.34 E	48	5.9 6.7	1.3	178	VANUATU ISLANDS. Ms 7.2 (BRK), 6.7 (PAS).
July 29	14 58 40.8	29.60 N 81.09 E	18 D	6.1 6.5	1.0	257	NEPAL. Ms 6.6 (BRK), 6.6 (PAS). One hundred fifty to 200 people killed, many injured and extensive damage in western Nepal. At least 13 killed, 40 injured and damage in the Pithoragarh area, India. Felt strongly at Kathmandu, Nepal and in the New Delhi area, India.
Aug 9	05 45 09.5	15.89 N 88.52 W	22	6.1 6.4	1.0	185	HONDURAS. Ms 6.7 (BRK), 6.4 (PAS). Two people killed, many injured and damage in Izabal Province, Guatemala. Damage reported in northern Honduras.
Aug 18	15 07 52.6	1.95 S 80.02 W	55 D	5.6	0.9	156	NEAR COAST OF ECUADOR. Ms 5.6 (BRK). mb 6.1 (PAS). Eight people killed, 100 injured and extensive damage in the Guayaquil area.

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1980							
Aug 21	12 07 20.1	41.32 S 80.51 E	10 G	5.6 6.3	0.9	72	MID-INDIAN RISE. Ms 6.8 (BRK), 6.2 (PAS).
Aug 23	21 36 51.6	32.91 N 75.63 E	25	5.2 4.9	1.0	116	KASHMIR-INDIA BORDER REGION. Fifteen people killed, at least 40 injured and many houses damaged in the Bhaddu area, Kashmir. Felt in northern India and in the Lahore-Peshawar area, Pakistan.
Aug 23	21 50 03.0	32.83 N 75.63 E	33 N	5.2 4.8	1.0	116	KASHMIR-INDIA BORDER REGION. Casualties and damage in the Bhaddu area, Kashmir. Felt in northern India and in the Lahore-Peshawar area, Pakistan.
Sep 3	22 12 39.1	3.24 N 78.19 W	33 N	5.7 5.8	0.9	185	SOUTH OF PANAMA. Two people injured in southwestern Colombia.
Sep 23	19 10 22.7	35.95 N 139.63 E	89	5.4	0.8	166	HONSHU, JAPAN. One person killed and five injured. Felt (IV JMA) at Utsunamiya and (III JMA) in the Maebashi-Chashi-Ajira area.
Sep 24	17 54 24.1	35.45 N 139.96 E	73 D	6.0	1.0	256	NEAR EAST COAST OF HONSHU, JAPAN. mb 5.9 (BRK). Two people killed, at least 73 injured and damage (IV JMA) in the Tokyo-Tateyama-Utsunamiya area.
Sep 26	15 20 37.1	3.23 S 142.23 E	33 N	5.9 6.5	1.2	184	NEAR NORTH COAST OF NEW GUINEA, PAPUA NEW GUINEA. Ms 6.6 (BRK).
Oct 10	12 25 23.5	36.20 N 1.35 E	10 G	6.5 7.3	1.1	203	ALGERIA. Ms 7.7 (BRK), 7.2 (PAS). At least 5,000 people killed, 9,000 injured and extensive damage in the El Asnam area. Felt throughout northwestern Algeria and in southeastern Spain. Approximately 42 kilometers of surface rupture observed.
Oct 10	15 39 09.8	36.22 N 1.61 E	10 G	6.0 6.1	1.0	187	ALGERIA. Ms 5.8 (PAS). Additional deaths and damage in Algeria. Felt in southeastern Spain.
Oct 24	03 25 34.4	21.99 S 170.17 E	33 N	5.8 6.7	1.2	192	LOYALTY ISLANDS REGION. Ms 6.6 (BRK), 6.8 (PAS). Felt in the Vanuatu Islands and on New Caledonia.
Oct 24	14 53 35.1	18.21 N 98.24 W	72	6.4	1.1	326	CENTRAL MEXICO. Ms 7.0 (BRK). mb 6.6 (BRK), 7.0 (PAS). At least 300 people killed, many injured, approximately 150,000 homeless and extensive damage in central Mexico, mainly in the Huajuapam de Leon area. Felt throughout central and southern Mexico and in Guatemala.
Oct 25	07 00 07.9	21.98 S 170.03 E	33 N	5.7 6.7	1.3	118	LOYALTY ISLANDS REGION. Ms 6.4 (BRK), 6.6 (PAS). Felt in the Vanuatu Islands and on New Caledonia.
Oct 25	11 00 05.1	21.89 S 169.85 E	33 N	5.8 7.2	1.4	124	LOYALTY ISLANDS REGION. Ms 7.1 (BRK), 7.0 (PAS). Felt in the Vanuatu Islands and on New Caledonia.
Nov 8	07 54 18.2	36.11 N 1.36 E	10 G	5.3 5.1	1.0	143	ALGERIA. Thirty-six people injured and damage in the El Asnam area.
Nov 8	10 27 34.0	41.12 N 124.25 W	19 D	6.2 7.2	1.1	314	NEAR COAST OF NORTHERN CALIFORNIA. ML 7.0 (BRK). Six people injured. Damage (VII) in the Fields Landing area. Slight damage (VI) at Crescent City and in many communities along the coast of Humboldt County. Felt from southern Oregon to the San Francisco Bay area.
Nov 11	10 36 58.2	51.42 S 28.80 E	10 G	6.2 6.7	0.9	110	SOUTH OF AFRICA. Ms 6.8 (BRK), 6.5 (PAS).
Nov 12	06 58 11.6	13.35 S 74.55 W	71	4.9	0.8	19	PERU. Seven people killed and many homeless in the Ayacucho area.
Nov 19	19 00 46.9	27.39 N 88.75 E	17	6.0 6.1	1.0	232	SIKKIM. Ms 6.1 (PAS). Eight people injured and minor damage in the Gangtok area. Felt in Bangladesh, Bhutan, eastern India and Nepal.
Nov 23	18 34 53.8	40.91 N 15.37 E	10 G	6.0 6.9	1.3	265	SOUTHERN ITALY. Ms 7.2 (BRK), 6.9 (PAS), ML 6.5 (TRI). Over 3,000 people killed, about 1,900 missing, 7,750 injured, 250,000 homeless and extensive damage in a 25,000 square kilometer area of Campania and Basilicata.
Nov 26	17 35 39.1	8.05 N 72.44 W	40	5.0 3.8	0.9	57	VENEZUELA. Thirty-six people injured and 30 buildings damaged in Cucuta area, Colombia. Felt in the Bucaramanga-Medellin-Bagota area, Colombia and in the San Cristobal area, Venezuela.

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	UTC	HR	MN	SEC	LAT		LONG	GS	MB			
1980												
Nov 30	7	41	58.0		40.85 N	15.33 E	10 G	5.1			1 5 40	SOUTHERN ITALY. ML 4.9 (TRI). One person died of a heart attack at Madonna dei Arco near Naples.
Dec 7	17	37	09.7		36.03 N	1.23 E	10 G	5.5	5.7		1.2 122	ALGERIA. Twenty people injured in the El Asnam area.
Dec 11	18	15	3.5		21.27 S	68.15 W	80	6.1			0.8 195	CHILE-BOLIVIA BORDER REGION. mb 6.2 (BRK), 6.5 (PAS). Felt in northern Argentina.
Dec 17	16	21	58.8		49.48 N	129.50 W	10 G	5.9	6.8		1.2 152	VANCOUVER ISLAND REGION.
Dec 19	01	16	56.0		34.59 N	50.65 E	33 N	5.6	5.8		1.2 165	IRAN. Twenty-six people killed in the Qom-Saveh area. Felt at Tehran.
Dec 22	12	51	21.0		34.50 N	50.59 E	41	5.5	5.2		1.1 132	IRAN. Three people killed and 139 injured in the Qom area. Felt at Tehran.
Dec 31	10	32	11.0		46.06 N	151.45 E	33	6.1	6.5		1.0 220	KURIL ISLANDS. Ms 6.4 (BRK), 6.4 (PAS). Felt (III JMA) at Urakawa and (II JMA) at Nemuro, Hokkaido Japan. Also felt in the southern Kuril Islands.

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	UTC	HR	MN	SEC	LAT		LONG	GS	MB			
1981												
Jan 18	18	17	24.4		38.64 N	142.75 E	33 N	6.1	6.9	1.1	220	NEAR EAST COAST OF HONSHU, JAPAN. Ms 6.6 (BRK), 6.6 (PAS). Felt (IV JMA) in the Miyako-Morioka-Sendai area. Ten-centimeter tsunami reported at Ofunato. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Jan 19	15	11	01.0		4.58 S	139.23 E	33 N	6.0	6.7	1.1	128	IRIAN JAYA, INDONESIA. Ms 6.7 (BRK), 6.8 (PAS). Three hundred five people killed, some injured and about 1,000 missing in the Jayawijaya Mountains. Landslides buried many villages. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Jan 23	21	13	51.7		30.93 N	101.10 E	33 N	5.7	6.8	1.1	188	SICHUAN PROVINCE, CHINA. Ms 6.6 (PAS). One hundred fifty people killed, 300 injured and extensive damage in the Dawu area. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Jan 23	21	54	41.6		29.68 S	60.84 E	10 G	6.1	6.8	1.0	229	ATLANTIC-INDIAN RISE. Ms 7.0 (PAS). The focal mechanism is well controlled and corresponds to strike-slip faulting.
Jan 30	08	52	44.1		51.74 N	176.27 E	33	6.3	7.0	1.0	309	RAT ISLANDS, ALEUTIAN ISLANDS. Ms 7.1 (BRK). ML 7.1 (PMR). Felt (IV) on Shemya. The focal mechanism is moderately well controlled and corresponds to reverse faulting with a moderate strike-slip component.
Feb 14	17	27	44.3		41.05 N	14.60 E	10 G	4.6		1.0	75	SOUTHERN ITALY. ML 4.9 (TRI), 4.7 (ROM). Eight people died from heart attacks, four others were killed, and damage (VII) in the Campania and Basilicata regions.
Feb 17	15	18	33.7		21.74 S	169.38 E	30	5.6	6.7	1.0	95	LOYALTY ISLANDS REGION. Ms 6.4 (BRK), 6.2 (PAS). The focal mechanism is poorly controlled and corresponds to reverse faulting.
Feb 18	08	28	20.0		26.63 S	26.61 E	33 N	4.7		1.3	9	REPUBLIC OF SOUTH AFRICA. Four miners killed in a mine near Orkney. Felt in the Klerksdorp area.
Feb 22	21	45	45.1		22.20 S	174.83 E	33 N	5.9	6.2	1.2	100	LOYALTY ISLANDS REGION. Ms 6.5 (BRK), 6.2 (PAS).
Feb 24	20	53	38.4		38.22 N	22.93 E	33 N	5.9	6.7	1.2	248	GREECE. Ms 6.7 (BRK), 6.8 (PAS). Sixteen people killed, more than 400 injured, and considerable damage in the Athens-Carinth area. The focal mechanism is moderately well controlled and corresponds to normal faulting with a large strike-slip component.

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1981	HR MN SEC	LAT	LONG		GS MB	Ms	Ms			
Feb 25	02 35 53.3	38.13 N	23.14 E	33 N	5.6	6.4	1.2		258	GREECE. Ms 6.4 (PAS). Additional casualties and damage.
Mar 4	21 58 05.9	38.21 N	23.29 E	29	6.0	6.4	1.1		210	GREECE. Ms 6.6 (PAS), ML 6.2 (ATH). One person died from a heart attack, 9 people injured, and additional damage in the Athens-Corinth-Khalkis area. The focal mechanism is moderately well controlled and corresponds to normal faulting with a small strike-slip component.
Mar 7	11 34 43.9	38.19 N	23.32 E	33	5.5	4.8	0.9		176	GREECE. ML 5.7 (ATH). One person killed and additional damage in the Athens area.
Mar 10	15 16 19.8	39.48 N	20.70 E	31	5.6		1.2		165	GREECE-ALBANIA BORDER REGION. ML 5.2 (ATH). Two people killed in a rockslide and about 150 houses damaged in western Greece.
Apr 18	00 32 39.8	13.14 S	74.38 W	38	5.3	4.8	0.9		98	PERU. Eight people killed, 15 injured, and damage in the Ayacucho area.
Apr 24	21 50 06.0	13.43 S	166.42 E	33 N	6.1	6.9	1.3		192	VANUATU ISLANDS. Ms 7.3 (BRK), 6.5 (PAS). The focal mechanism is poorly controlled and corresponds to reverse faulting with a moderate strike-slip component.
Apr 27	18 17 33.7	57.59 S	148.08 E	10 G	5.7	6.5	1.4		122	WEST OF MACQUARIE ISLAND. Ms 6.3 (PAS). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
May 25	05 25 14.4	48.79 S	164.36 E	33	6.1	7.6	1.2		199	OFF WEST COAST OF SOUTH ISLAND, NEW ZEALAND. Ms 7.6 (BRK), 7.6 (PAS). Felt throughout southern South Island. The focal mechanism is poorly controlled and corresponds to reverse faulting.
June 7	13 00 56.6	37.67 N	12.47 E	19	4.9		1.1		106	SICILY. Six people injured and 100 houses damaged (VI) in the Mazara del Valla area.
June 11	07 24 25.2	29.91 N	57.72 E	33 N	6.1	6.7	1.1		241	SOUTHERN IRAN. Ms 6.9 (BRK), 6.7 (PAS). Three thousand people killed, many injured, and extensive damage in Kerman Province. The focal mechanism is poorly controlled and corresponds to strike-slip faulting with a large reverse component.
June 13	07 29 10.8	36.18 N	67.83 E	24 D	5.5	5.4	0.9		161	HINDU KUSH REGION. One person killed, 2 injured in the Jozjan Province, Afghanistan. Felt (IV) in the Ayvazh-Termez area, USSR.
June 22	17 53 21.3	13.17 S	74.52 W	24	5.1	5.2	1.0		82	PERU. At least 6 people killed, some injured and damage in the Ayacucho area.
July 6	03 08 24.1	22.29 S	171.74 E	33 N	6.9	7.0	0.9		235	LOYALTY ISLANDS REGION. Ms 7.0 (BRK), 6.6 (PAS). Mo=2.6*10**20 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
July 15	07 59 08.4	17.26 S	167.60 E	30 D	5.6	7.0	1.0		87	VANUATU ISLANDS. Ms 7.1 (BRK), 6.9 (PAS). Mo=5.8*10**19 Nm (HRV). Minor damage in the Shepherd Islands area. Felt at Port Vila. The focal mechanism is poorly controlled and corresponds to reverse faulting.
July 28	17 22 24.6	30.01 N	57.79 E	33 N	5.7	7.1	1.2		205	IRAN. Ms 7.3 (BRK), 7.3 (PAS). Mo=6.7*10**19 Nm (HRV). Fifteen hundred people killed, 1,000 injured, 50,000 homeless and extensive damage in the Kerman region. The focal mechanism is poorly controlled and corresponds to reverse faulting with a moderate strike-slip component.
Aug 13	02 58 11.9	44.85 N	17.31 E	16	5.4	5.5	1.2		143	YUGOSLAVIA. ML 5.8 (TRI), 5.4 (ROM). Mo=3.9*10**17 Nm (HRV). Forty-four people injured and damage (VIII) in the Banja Luka area. Felt in western Hungary and at Trieste, Italy.
Sep 1	09 29 31.5	14.96 S	173.09 W	25 G	7.0	7.7	1.2		248	SAMOA ISLANDS REGION. Ms 7.9 (BRK), 7.7 (PAS). Mo=1.9*10**20 Nm (HRV). Felt (VI) at Apia. Local tsunami (24 cm peak-to-peak) recorded at Pago Pago. The focal mechanism is poorly controlled and corresponds to normal faulting.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
1981							
Sep 3	05 35 44.8	43.62 N 147.03 E	46 D	6.6 6.6 0.8		324	KURIL ISLANDS. Ms 6.3 (BRK), 6.3 (PAS). Mo=7.5*10**18 Nm (HRV). Damage (VIII) on Shikotan. Felt (V) on Kunashir and (IV JMA) in northeastern Hokkaido. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Sep 12	07 15 54.1	35.69 N 73.59 E	33 N	6.2 5.9 1.1		307	NORTHWESTERN KASHMIR. Ms 6.0 (PAS). Mo=1.9*10**18 Nm (HRV). At least 220 people killed, 2,500 injured, and extensive damage and landslides in the Gilgit area. Unconfirmed reports of surface faulting. Felt in the Srinagar area. Also felt at Peshawar and Rawalpindi, Pakistan.
Sep 17	08 23 24.6	22.52 S 170.51 E	30 D	5.7 6.6 1.0		118	LOYALTY ISLANDS REGION. Ms 6.4 (BRK), 6.1 (PAS). Mo=1.6*10**19 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
Oct 9	12 19 40.2	9.98 S 162.05 E	50	6.0 6.4 1.0		213	SOLOMON ISLANDS. Ms 6.3 (BRK), 6.5 (PAS). Mo=3.5*10**18 Nm (HRV).
Oct 16	03 25 42.2	33.13 S 73.07 W	33 N	6.2 7.2 0.8		161	OFF COAST OF CENTRAL CHILE. MS 7.5 (BRK), 7.2 (PAS). Mo=5.1*10**19 Nm (HRV). One person killed in an auto accident caused by a panicked driver. Felt throughout central Chile. Maximum intensity (VI) at Las Cruces and Vina del Mar. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Oct 18	04 31 02.7	8.12 N 72.53 W	54	5.4 0.8		196	VENEZUELA. Fifteen people killed, many injured, and extensive damage in the Cucuta, Colombia-San Cristobal, Venezuela area. Landslides also reported in the area.
Oct 25	03 22 15.5	18.05 N 102.08 W	33 N	6.2 7.3 1.2		191	MICHOACAN, MEXICO. Ms 7.4 (BRK), 7.2 (PAS). Mo=7.0*10**19 Nm (HRV). One person killed, 11 injured, and damage at Mexico City. Two people killed, 17 injured and extensive damage in Michoacan. Felt throughout southern Mexico. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Oct 28	04 34 17.7	31.27 S 110.65 W	10 G	6.2 6.2 1.2		100	EASTER ISLAND REGION. Ms 6.6 (BRK), 6.4 (PAS). Mo=4.1*10**18 Nm (HRV).
Nov 6	16 47 49.1	3.56 S 143.79 E	33 N	6.2 6.9 1.2		187	NEAR COAST OF PAPUA NEW GUINEA. Ms 6.9 (BRK), 6.5 (PAS). Mo=9.1*10**18 Nm (HRV). Minor damage (VI) in the Wewak area. The focal mechanism is poorly controlled and corresponds to reverse faulting with a large strike-slip component.
Nov 7	03 29 51.0	32.20 S 71.37 W	65	6.2 6.8 1.0		238	NEAR COAST OF CENTRAL CHILE. Ms 6.5 (BRK), 6.5 (PAS). Mo=3.3*10**19 Nm (HRV). Minor damage (VII) in the La Ligua-Valparaiso area. Also felt in the San Juan-Mendoza, Argentina area. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Nov 14	09 05 29.0	23.69 N 32.60 E	10 G	5.1 5.3 1.2		143	ARAB REPUBLIC OF EGYPT. Eleven buildings damaged in the Aswan area. Maximum intensity VIII. Surface faulting reported.
Nov 22	15 05 20.5	18.75 N 120.84 E	24 D	6.2 6.5 1.0		298	LUZON, PHILIPPINE ISLANDS. Ms 6.7 (BRK), 6.4 (PAS). Mo=5.3*10**18 Nm (HRV). Damage in the Bocarra-Laoag area. Felt throughout western Luzon. The focal mechanism is moderately well controlled and corresponds to normal faulting.
Nov 24	23 30 32.6	22.50 S 170.64 E	30	5.6 6.7 1.1		215	LOYALTY ISLANDS REGION. Ms 6.9 (BRK), 6.6 (PAS). Mo=1.3*10**19 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
Dec 12	20 26 46.9	29.86 N 66.96 E	33 N	4.6 4.0 0.9		38	PAKISTAN. Six people killed, 12 injured, and all 45 houses damaged at Koshkak. Felt in the Quetta-Mastung area.
Dec 19	14 10 50.7	39.24 N 25.23 E	10 G	6.2 7.2 1.2		218	AEGEAN SEA. Ms 7.5 (BRK), 7.6 (PAS). Mo=2.4*10**19 Nm (HRV). Damage on Lesbos and Skiros and in western Turkey. Felt strongly in many parts of Greece. Also felt in southern Bulgaria. The focal mechanism is well controlled and corresponds to strike-slip faulting with a moderate reverse component.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
1981							
Dec 24	05 33 20.7	29.97 S 177.61 W	28 D	6.0 6.8 1.2		264	KERMADEC ISLANDS. Ms 7.0 (BRK), 6.6 (PAS). Mo=2.1*10**19 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
Dec 26	17 05 32.5	29.93 S 177.74 W	33 N	6.1 7.1 1.2		248	KERMADEC ISLANDS. Ms 6.6 (PAS). Mo=4.6*10**19 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
Dec 27	17 39 13.6	38.94 N 24.91 E	13	5.5 6.5 1.3		212	AEGEAN SEA. Ms 6.3 (PAS). Mo=3.3*10**18 Nm (HRV). Ten houses damaged slightly on Evvoia. Felt strongly in eastern Greece. Also felt in the Izmir, Turkey area. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.

1982

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
Jan 1	18 51 01.5	26.82 N 142.56 E	22	6.4 6.7 0.9		290	BONIN ISLANDS REGION. Ms 6.5 (BRK), 6.5 (PAS). Mo=9.0*10**18 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Jan 3	14 09 50.4	0.97 S 21.87 W	10 G	5.8 6.5 1.0		219	CENTRAL MID-ATLANTIC RIDGE. Ms 6.3 (PAS). Mo=4.8*10**19 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Jan 11	06 10 06.4	13.75 N 124.36 E	46	6.0 7.1 1.1		205	LUZON, PHILIPPINE ISLANDS. Ms 7.2 (BRK), 7.4 (PAS). Mo=5.0*10**19 Nm (HRV). Several people injured and some damage (VII RF) at Virac, Catanduanes. Felt (V RF) at Manila and Legospi, Luzon and Catbalagan, Samar. Felt from Baguio, Luzon to Hinotuan, Mindanao. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Jan 12	05 48 17.6	13.16 N 87.59 W	6	5.8 6.0 1.2		173	HONDURAS. Ms 6.2 (PAS). Mo=1.8*10**18 Nm (HRV). Two people injured and moderate damage at Amopala. Slight damage at Masaya, Nicaragua. Felt in southern Honduras and western Nicaragua.
Jan 18	19 27 24.4	40.00 N 24.32 E	10 G	5.8 6.8 1.3		188	AEGEAN SEA. Ms 6.8 (BRK), 7.0 (PAS). Mo=9.4*10**18 Nm (HRV). Felt strongly throughout Greece. Felt in Bulgaria, southeastern Italy, southeastern Yugoslavia and western Turkey. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Jan 20	04 25 11.6	6.95 N 94.00 E	19	5.6 6.3 1.1		157	NICOBAR ISLANDS REGION. Ms 6.0 (PAS). Mo=2.9*10**18 Nm (HRV). Some injuries and considerable damage in the Nicobar Islands.
Jan 20	07 09 17.4	7.12 N 93.94 E	27 D	5.7 6.2 1.1		147	NICOBAR ISLANDS REGION. Mo=1.9*10**18 Nm (HRV). Additional injuries and damage in the Nicobar Islands.
Jan 20	15 15 47.7	13.70 N 60.40 W	69 D	5.2	0.9	110	WINDWARD ISLANDS. Six people injured on St. Lucia when jumping from a building. Felt (V) on St. Vincent and Martinique.
Jan 23	17 37 30.2	31.70 N 82.25 E	33 N	6.0 6.5 1.1		217	TIBET. Ms 6.2 (PAS). Mo=3.8*10**18 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to normal faulting.
Jan 24	06 08 56.6	14.09 N 124.35 E	37	5.6 6.4 1.2		117	LUZON, PHILIPPINE ISLANDS. Ms 6.6 (PAS). Mo=1.0*10**19 Nm (HRV). Felt (IV RF) at Legaspi. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Jan 25	05 29 33.5	53.22 N 165.72 W	60 D	6.1	1.0	300	FOX ISLANDS, ALEUTIAN ISLANDS. mb 6.5 (BRK), 6.4 (PAS). Mo=9.4*10**17 Nm (HRV). Felt (IV) at Cold Bay. Also felt at Dutch Harbor and Unalaska.

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1982							
Feb 10	16 17 51.5	6.86 S 106.94 E	40	5.5	1 2	50	JAVA. Seventeen people injured and considerable damage in the Sukabumi area.
Feb 20	13 26 50.3	10.86 S 166.02 E	36 D	6.0 6.8	1.1	180	SANTA CRUZ ISLANDS. Ms 6.8 (BRK), 6.6 (PAS). Mo=1.9*10**19 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Feb 20	19 18 20.2	33.58 N 141.00 E	18 D	6.2 6.5	0.9	306	SOUTH OF HONSHU, JAPAN. Ms 6.5 (BRK), 6.6 (PAS). Mo=6.1*10**18 Nm (HRV). Felt (III JMA) in the Tokyo-Yokomama area, (II JMA) at Choshi, Kofu and Fukushima and (I JMA) on Hokkaido. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Mar 11	10 32 27.1	9.27 S 118.48 E	33 N	6.1 6.4	1.3	186	SUMBAWA ISLAND REGION. Ms 6.5 (BRK), 6.2 (PAS). Mo=7.4*10**18 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Mar 21	02 32 07.7	42.16 N 142.36 E	44 D	6.4 6.7	1.1	353	HOKKAIDO, JAPAN REGION. Ms 6.5 (BRK), 6.4 (PAS). Mo=2.6*10**19 Nm (HRV). One hundred ten people injured and extensive damage (VI JMA) in southern Hokkaido. Also felt in northern and central Hanshu. Tsunami of 80 cm (peak-to-trough) recorded at Urukawa and 24 cm at Hachinohe. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Mar 23	05 10 07.3	12.41 S 77.67 W	57 D	5.1	1.0	35	NEAR COAST OF PERU. Two people killed and damage (V) in the Lima area.
Mar 28	23 24 51.1	12.69 S 76.07 W	95 D	6.1	1.0	270	NEAR COAST OF PERU. Mo=3.7*10**18 Nm (HRV). Three people killed and extensive damage (VI) at Lunahuana. Felt (V) at Lima. Also felt at Huancaya.
Mar 29	12 20 26.7	15.47 S 179.61 W	33 N	5.8 6.3	1.3	136	FIJI ISLANDS REGION. Ms 6.6 (BRK), 6.0 (PAS). Mo=5.0*10**18 Nm (HRV). Felt on Vanua Levu.
Apr 6	19 56 53.4	14.32 N 92.08 W	65	6.0 6.5	1.0	281	NEAR COAST OF CHIAPAS, MEXICO. Ms 6.8 (BRK), mb 6.3 (PAS). Mo=1.4*10**19 Nm (HRV). Felt (IV) in Chiapas, Guatemala and El Salvador. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Apr 13	11 26 47.2	27.93 S 26.78 E	5 G	5.0	1.1	44	REPUBLIC OF SOUTH AFRICA. One person killed and 20 injured in rockslides in a gold mine near Welkom.
Apr 27	00 14 03.1	14.53 N 87.72 W	33	5.0 4.6	1.1	91	HONDURAS. About 100 houses and a cathedral damaged in the Comayagua area. Felt in Honduras and Guatemala.
May 2	11 19 38.0	29.32 S 177.15 W	25	6.0 6.5	1.3	155	KERMADEC ISLANDS. Ms 6.6 (BRK), 6.3 (PAS). Mo=4.5*10**18 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
May 7	05 38 34.8	60.60 S 20.88 W	10 G	6.3 6.7	1.4	90	SOUTHWESTERN ATLANTIC OCEAN. Ms 6.5 (PAS). Mo=3.6*10**19 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
June 4	10 44 33.5	50.54 N 19.06 E	10 G		1.1	19	POLAND. ML 4.6 (GRF). Several people injured and 350 buildings damaged at Bytom.
June 7	06 52 37.3	16.61 N 98.15 W	41	6.0 6.9	1.1	272	NEAR COAST OF GUERRERO, MEXICO. Ms 7.2 (BRK), 6.7 (PAS). Mo=2.9*10**19 Nm (HRV). Damage in southern Mexico. Felt strongly throughout southern Mexico. The focal mechanism is poorly controlled and corresponds to reverse faulting.
June 7	10 59 40.1	16.56 N 98.36 W	34	6.3 7.0	1.1	307	NEAR COAST OF GUERRERO, MEXICO. Ms 6.9 (BRK), 6.3 (PAS). Mo=2.7*10**19 Nm (HRV). Two people killed at Orizaba, 3 at Oaxaca, 3 at Pinatapa Nacional, and 1 at Guadalupe, Guerrero. Many people injured. Felt strongly throughout southern Mexico. The focal mechanism is poorly controlled and corresponds to reverse faulting.
June 11	00 38 09.8	17.62 S 174.41 W	123 D	6.3 6.9	1.1	339	TONGA ISLANDS. mb 6.9 (PAS). Mo=2.0*10**19 Nm (HRV). Felt (IV) at Apia, Samoa Islands.

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1982							
June 15	23 24 28.6	31.91 N 99.93 E	10 G	5.6 5.5	1.1	207	SICHUAN PROVINCE, CHINA. $M_0=3.7 \times 10^{17}$ Nm (HRV). Ten people killed, 5 injured and damage in the Garze area.
June 19	06 21 58.0	13.31 N 89.34 W	82	6.2	1.2	367	EL SALVADOR. mb 7.0 (PAS). $M_0=1.0 \times 10^{20}$ Nm (HRV). At least 40 people killed, many injured and thousands of people left homeless in El Salvador. Extensive damage (VII) and landslides south of San Salvador including same damage in San Salvador. Three people killed, 40 injured and considerable damage in southeastern Guatemala. Felt in Costa Rica, Honduras and Nicaragua. The focal mechanism is moderately well controlled and corresponds to normal faulting.
June 22	04 18 40.5	7.34 S 126.04 E	450 G	6.3	1.1	312	BANDA SEA. mb 6.8 (PAS). $M_0=1.8 \times 10^{20}$ Nm (HRV). Felt on Timor and Bali. Also felt in the Moluccas. The focal mechanism is moderately well controlled and corresponds to normal faulting.
June 30	01 57 34.1	44.68 N 151.14 E	33 N	6.6 6.9	0.8	336	KURIL ISLANDS REGION. Ms 6.9 (BRK), 7.1 (PAS). $M_0=4.4 \times 10^{19}$ Nm (HRV). Felt (V) on Shikatan and at Kurilsk, and (III) on Iturup. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
July 4	01 20 06.8	27.93 N 136.97 E	536 D	6.3	1.0	314	EAST OF RYUKYU ISLANDS. mb 6.3 (BRK), 6.5 (PAS). $M_0=5.7 \times 10^{19}$ Nm (GS). $M_0=1.3 \times 10^{19}$ Nm (HRV). The focal mechanism is poorly controlled and corresponds to normal faulting.
July 7	10 43 03.7	51.23 S 160.51 E	10 G	6.3 7.0	1.3	286	NORTH OF MACQUARIE ISLAND. Ms 7.3 (BRK), 7.1 (PAS). $M_0=4.6 \times 10^{19}$ Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
July 17	22 02 07.9	21.74 S 173.13 E	37	5.6 6.2	1.2	137	VANUATU ISLANDS REGION. Ms 6.7 (BRK), 6.1 (PAS). $M_0=2.4 \times 10^{18}$ Nm (HRV).
July 23	14 23 53.5	36.19 N 141.70 E	37	6.2 6.8	1.0	271	NEAR COAST OF HONSHU, JAPAN. Ms 6.3 (PAS). $M_0=5.3 \times 10^{19}$ Nm (GS). $M_0=3.9 \times 10^{19}$ Nm (HRV). Felt (IV JMA) at Mito. Felt (III JMA) at Tokyo, Yokohama and Sendai. Also felt at Misawa. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Aug 5	20 32 52.9	12.60 S 165.93 E	31	6.2 7.1	1.4	165	SANTA CRUZ ISLANDS. Ms 7.5 (BRK), 7.3 (PAL). $M_0=3.8 \times 10^{19}$ Nm (GS). $M_0=3.2 \times 10^{19}$ Nm (HRV). The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Aug 17	22 22 24.4	33.77 N 22.96 E	31 D	6.0 6.4	1.1	299	MEDITERRANEAN SEA. Ms 6.7 (BRK), 6.3 (PAS). $M_0=3.8 \times 10^{18}$ Nm (GS). $M_0=4.0 \times 10^{18}$ Nm (HRV). Felt in southern Italy. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Aug 19	15 59 01.5	6.72 N 82.68 W	10 G	6.2 6.5	1.2	199	SOUTH OF PANAMA. Ms 7.0 (BRK), 6.2 (PAS), 6.6 (PAL). $M_0=1.7 \times 10^{19}$ Nm (GS). $M_0=1.9 \times 10^{19}$ Nm (HRV). Three people injured in Costa Rica and Panama. Felt throughout Costa Rica and along the southern coast of Panama from David to Panama City. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Sep 6	01 47 02.7	29.33 N 140.36 E	176	6.5	1.1	413	SOUTH OF HONSHU, JAPAN. mb 6.7 (PAS). $M_0=1.5 \times 10^{19}$ Nm (GS). $M_0=2.0 \times 10^{19}$ Nm (HRV). Felt (III JMA) on Honshu. The focal mechanism is moderately well controlled and corresponds to normal faulting.
Sep 14	18 17 02.8	7.23 S 147.99 E	37	5.2 6.4	1.3	26	EASTERN NEW GUINEA REGION, PAPUA NEW GUINEA. Ms 6.6 (BRK), 6.1 (PAS). $M_0=5.4 \times 10^{18}$ Nm (HRV).
Sep 29	05 50 32.2	14.49 N 89.12 W	12 D	5.5 5.1	0.9	181	GUATEMALA. $M_0=3.1 \times 10^{17}$ Nm (HRV). Three people killed, two injured, many homes damaged and some landslides in the Dolores Merendon-Ocotepeque area, Honduras. Five hundred fifty-four houses damaged in southeastern Guatemala. Nine-kilometer fault scarp with 10-centimeter displacement observed about 15 km east of Esquipulas, Guatemala. Also felt at Tegucigalpa, Honduras and (IV) at San Salvador, El Salvador.
Oct 7	07 15 56.6	7.16 S 125.88 E	515	6.2	1.0	309	BANDA SEA. mb 6.6 (PAS). $M_0=1.3 \times 10^{19}$ Nm (HRV). The focal mechanism is moderately well controlled and corresponds to normal faulting.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
1982							
Oct 17	10 56 47.6	43.16 N 12.59 E	16	4.4	1 2	70	CENTRAL ITALY. ML 4.7 (TRI). Damage (VII) in the Perugia area.
Oct 18	02 45 10.2	43.20 N 12.60 E	10 G	4.3	1.1	51	CENTRAL ITALY. ML 4.2 (TRI). Damage (VIII) in the Perugia area.
Oct 18	15 29 23.8	43.13 N 12.63 E	20	4.0	1.1	56	CENTRAL ITALY. ML 4.6 (TRI). Damage (VIII) in Perugia area.
Oct 25	16 54 51.3	35.21 N 52.36 E	33 N	4.6 5.4	1.0	42	IRAN. Some people injured and several buildings damaged in the Garmsar area.
Nov 15	20 07 47.3	35.63 N 1.32 E	10 G	5.0 5.0	1.2	160	ALGERIA. Three people killed, 14 injured and 10 houses collapsed in the Tissemsilt area.
Nov 16	23 41 21.0	40.88 N 19.59 E	21	5.6 5.5	1.3	241	ALBANIA. ML 5.5 (TTG), 5.3 (ATH). Mo=3.2*10**17 Nm (HRV). One person killed, 12 injured and extensive damage (VIII) in the Fier, Berat and Lushjine districts. Felt (IV) at Titograd, Yugoslavia. Also felt in northwestern Greece and in southern Italy.
Nov 19	04 27 13.8	10.60 S 74.70 W	14 D	6.3 6.3	1.1	274	PERU. Ms 6.6 (BRK), 6.3 (PAS). Mo=1.1*10**19 Nm (GS). Mo=1.1*10**19 Nm (HRV). Felt strongly at Satipa. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Dec 13	09 12 48.0	14.70 N 44.38 E	5 G	6.0 6.0		303	WESTERN ARABIAN PENINSULA. <SPEC> Ms 6.0 (PAS). Mo=3.2*10**18 Nm (GS). Mo=2.5*10**18 Nm (HRV). Unconfirmed reports of more than 2,800 people killed, 1,500 injured, 700,000 homeless and about 300 villages destroyed or badly damaged in Yemen. Maximum intensity VIII in the Dawran-Risabah area. Felt throughout Yemen and in the Najran area, Saudi Arabia. Landslides occurred in the epicentral area, as well as extensional ground cracks trending north-northwest in zones up to 15 km in length. This is the first instrumentally located hypocenter in the Dhamar region. The focal mechanism is poorly controlled and corresponds to normal faulting.
Dec 16	00 40 48.7	36.15 N 69.01 E	36 D	6.2 6.6	1.1	296	HINDU KUSH REGION. Ms 6.9 (BRK), 6.8 (PAS). Mo=6.1*10**18 Nm (HRV). Four hundred fifty people killed, many injured and considerable damage in Baghlan Province, Afghanistan. Felt (VI) at Dusti and Parkhar, (V) at Kulyab and (IV) at Dushanbe, Tadzhikistan, USSR. Felt (III) at Tashkent, Uzbekistan, USSR. Also felt in the Peshawar-Rawalpindi area, Pakistan. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Dec 16	20 20 26.0	22.28 N 81.41 W	33 N	4.5	1.2	20	CUBA REGION. Six people injured in the Havana-Matanzas-Cienfuegos area. Felt widely in western Cuba.
Dec 19	17 43 54.8	24.13 S 175.86 W	33 N	5.9 7.2	1.5	104	SOUTH OF TONGA ISLANDS. Ms 7.4 (BRK), 7.3 (PAS). Mo=8.1*10**19 Nm (GS). Mo=2.0*10**20 Nm (HRV). This event is a complex rupture. Aftershocks indicate a shallow depth. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Dec 25	12 28 02.8	8.41 S 123.08 E	33 N	5.5 5.9	1.3	125	FLORES ISLAND REGION. Mo=9.7*10**17 Nm (HRV). Thirteen people killed, 390 injured, 1,875 homes destroyed and other buildings damaged. Landslides and unconfirmed local tsunami in eastern Flores.
Dec 29	23 53 15.4&	14.65 N 44.46 E	5 G	5.3 5.0		141	WESTERN ARABIAN PENINSULA. <SPEC>. Six people injured in Yemen. Additional damage, landslides and ground cracks reported in the epicentral area.
1983							
DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
Jan 8	11 21 29.5	15.39 S 173.33 W	33 N	6.1 6.3	1.1	267	TONGA ISLANDS. Ms 6.5 (BRK), 6.3 (PAS). Mo=4.8*10**18 Nm (GS). Mo=3.0*10**18 Nm (HRV). Felt (IV) at Apia, Samoa Islands. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Jan 17	12 41 29.7	38.03 N 20.23 E	14	6.1 7.0	1.3	329	GREECE. Ms 7.2 (BRK), 7.1 (PAS). Mo=3.0*10**19 Nm (GS). Mo=2.4*10**19 Nm (HRV). Minor damage on Kefallinia, Levkas and Zakynthos. Also minor damage at Preveza and Killini. Felt in Albania, Italy and southern Yugoslavia. The focal mechanism is moderately well controlled and corresponds to reverse faulting.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
1983							
Jan 18	15 23 36.8	57.97 S 24.31 W	56 D	5.9 6.5	1.2	108	SOUTH SANDWICH ISLANDS REGION. Ms 6.4 (BRK). Ma=5.1*10**18 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
Jan 24	08 17 39.6	16.15 N 95.23 W	57	6.3 6.7	1.2	351	OAXACA, MEXICO. Ms 7.0 (BRK). 6.5 (PAS). Ma=2.1*10**19 Nm (HRV). Damage in the Juchitan area and slight damage in the Mexico City area. Felt strongly in southeastern Mexico. The fault mechanism is moderately well controlled and corresponds to normal faulting.
Feb 13	01 40 10.9	39.95 N 75.14 E	16	5.6 6.2	1.3	194	SOUTHERN XINJIANG, CHINA. Ma=2.6*10**18 Nm (HRV). Several people injured and moderate damage in the Wuqia area, China. Felt (IV) in the Andizhan-Naryn area, USSR. Also felt (III) at Frunze and (II) at Tashkent, USSR.
Feb 13	06 35 30.0	13.84 N 144.94 E	105 D	5.7	1.2	205	MARIANA ISLANDS. mb 6.3 (BRK). Ma=1.8*10**18 Nm (HRV). One person slightly injured at Tamuning, Guam. Slight damage (VI) in northern Guam. Felt throughout Guam and (V) on Saipan.
Feb 14	03 20 04.4	54.93 N 159.19 W	47 D	5.9 6.3	1.3	318	SOUTH OF ALASKA. Ms 6.5 (BRK). Ma=6.7*10**18 Nm (GS). Ma=7.1*10**18 Nm (HRV). Felt (V) at Sand Point and Chignik. Felt (IV) at Chignik Lake, Chignik Lagoon, Cold Bay and Ivanof Bay. Also felt at False Pass, King Cove, Perryville and Port Heiden. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Feb 25	18 22 12.9	41.96 N 21.54 E	24	4.7	0.9	58	YUGOSLAVIA. Twelve people died from heart attacks in the Skopje area. Felt (VI) at Skopje. Slight damage near Daina Kalicani.
Feb 27	12 14 20.7	35.87 N 139.92 E	78	5.9	0.9	297	NEAR SOUTH COAST OF HONSHU, JAPAN. Ma=8.1*10**17 Nm (GS). Ma=7.8*10**17 Nm (HRV). Eleven people injured in the Tokyo area. Felt (IV JMA) in the Mito, Tokyo, Utsunomiya and Yakahama areas. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Mar 8	17 06 36.5	11.01 N 62.36 W	82	5.9	0.9	307	WINDWARD ISLANDS. Ma=8.4*10**17 Nm (HRV). Ten people injured while jumping from buildings on Trinidad. Felt (VI) on Trinidad. Also felt on Tobago, St. Vincent and in northeastern Venezuela. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Mar 12	01 36 35.8	4.06 S 127.92 E	17	6.0 6.5	1.1	257	BANDA SEA. Ms 6.9 (PAS). Ma=1.3*10**19 Nm (GS). Ma=9.3*10**18 Nm (HRV). Slight damage at Ambon, Ceram. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Mar 15	17 27 26.3	34.78 N 137.57 E	43	5.3 4.8	1.0	183	NEAR SOUTH COAST OF HONSHU, JAPAN. Ma=1.4*10**17 Nm (GS). Ma=1.1*10**19 Nm (HRV). One person killed, two injured and slight damage (IV JMA) in the Nagaya area. Felt (III JMA) in the Kyoto-Shizuoka area. Also felt (I JMA) in the Tokyo-Toyooka-Owase area.
Mar 15	19 58 30.4	5.35 N 126.57 E	41 D	5.7 6.6	1.3	170	MINDANAO, PHILIPPINE ISLANDS. Ms 6.7 (PAS). Ma=1.1*10**19 Nm (GS). Ma=6.6*10**18 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
Mar 18	09 05 50.0	4.88 S 153.58 E	89	6.5 7.6	1.3	334	NEW IRELAND REGION. Ms 7.9 (BRK). Ma=4.6*10**20 Nm (HRV). Damage (VII) along the southeast coast of New Ireland. Landslides and ground cracks occurred, trees were uprooted and steam was ejected from fumaroles in the Feni Islands. Slight damage (VI) and minor landslides in the Rabaul area, New Britain. Felt on Bougainville and (III) at Port Moresby, New Guinea. Felt strongly by two ships at sea in the epicentral area. Twentyfive-centimeter tsunami recorded at Rabaul. Minor tsunami observed in the Feni Islands and along the southeast coast of New Ireland. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Mar 23	23 51 06.5	38.29 N 20.26 E	19	5.8 6.2	1.3	258	GREECE. ML 6.0 (ATH). Ma=4.3*10**18 Nm (GS). Ma=2.2*10**18 Nm (HRV). Seven people injured and 160 homes damaged the Vanitsa area. Felt strongly along the west coast of Greece and on Levkas, Kefallinia and Zakynthos. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.

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1983							
Mar 25	11 57 49.3	35.95 N 52.26 E	33 N	5.2 4.9 1.0		146	IRAN. Thirty people killed, 61 injured, many homes damaged and landslides in the Damavond-Amal area. Felt at Tehran.
Mar 31	13 12 52.6	2.46 N 76.69 W	22	5.5 4.9 1.2		167	COLOMBIA. Mo=3.5*10**17 Nm (HRV). Between 250 and 350 people killed, many injured and extensive damage (VIII) in the Papayan area. Felt from Bogota to Pasto.
Apr 3	02 50 01.1	8.72 N 83.12 W	37 D	6.5 7.3 1.0		318	COSTA RICA. Ms 7.2 (BRK). Mo=4.8*10**19 Nm (GS). Mo=1.8*10**20 Nm (HRV). Five people died from heart attacks, one person killed by a collapsing house, and several people injured in southeastern Costa Rica. Also felt strongly in southwestern Panama. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Apr 4	02 51 34.3	5.72 N 94.72 E	79	6.6	1.0	426	NORTHERN SUMATERA. mb 6.8 (PAS). Mo=2.7*10**19 Nm (GS). Mo=3.4*10**19 Nm (HRV). Casualties and damage reported in the Banda Aceh area. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Apr 4	23 12 47.1	49.41 N 155.60 E	51 D	6.1 6.5 0.9		335	KURIL ISLANDS. Ms 6.2 (BRK), 6.0 (PAS). Mo=6.4*10**18 Nm (GS). Mo=6.4*10**18 Nm (HRV). Felt (V) in the northern Kuril Islands and in southern Kamchatka. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Apr 5	06 50 33.4	40.03 N 75.26 E	33 N	5.5 5.6 1.0		215	KIRGHIZ-XINJIANG BORDER REGION. Mo=5.7*10**17 Nm (HRV). Casualties and damage reported in western China.
Apr 12	12 07 54.5	4.84 S 78.10 W	104	6.5	1.2	382	PERU-ECUADOR BORDER REGION. mb 6.7 (BRK), 6.6 (PAS). Mo=3.5*10**19 Nm (GS). Mo=3.5*10**19 Nm (HRV). Felt strongly in northern Peru. Also felt in central and southern Ecuador. The focal mechanism is poorly controlled and corresponds to normal faulting.
Apr 18	10 58 51.2	27.79 N 62.05 E	64	6.5	1.2	369	SOUTHERN IRAN. Ms 6.5 (BRK), 6.1 (PAS). Mo=3.4*10**19 Nm (GS). Mo=1.4*10**19 Nm (HRV). Felt strongly in southeastern Iran. Also felt at Karachi, Pakistan. The focal mechanism is well controlled and corresponds to strike-slip faulting.
Apr 22	00 37 37.0	14.93 N 99.02 E	10 G	5.9 5.9 1.0		273	SOUTHEAST ASIA. Ms 5.8 (BRK). Mo=3.7*10**17 Nm (GS). Mo=6.4*10**17 Nm (HRV). Damage in Thailand. Felt strongly throughout most of the country. Also felt at Mergui, Pegu, and Tavoy, Burma. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Apr 30	14 03 49.2	41.47 N 143.76 E	30	6.5 6.3 1.0		465	HOKKAIDO, JAPAN REGION. Ms 5.8 (BRK), 6.2 (PAS). Mo=3.4*10**18 Nm (HRV). Felt (III JMA) at Urakawa and (II JMA) in southern Hokkaido and at Aomori, Honshu. The focal mechanism is moderately well controlled and corresponds to normal faulting.
May 2	23 42 37.7	36.22 N 120.32 W	10 G	6.2 6.5		471	CENTRAL CALIFORNIA. <GS>. ML 6.7 (BRK), 6.3 (PAS). Mo=2.8*10**18 Nm (BRK). Mo=7.4*10**18 Nm (GS). Mo=5.7*10**18 Nm (HRV). Forty-five people injured, 13 of them seriously, in the Coalinga area. Damage from the earthquake estimated at 31 million dollars with the worst damage occurring in the downtown area of Coalinga. Maximum intensity VIII. More than 500 homes were severely damaged in the Coalinga area; damage also occurred at Avenal and other surrounding communities. The earthquake was felt from Los Angeles to Sacramento and from San Francisco to Reno. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
May 10	18 27 31.8	4.81 S 152.51 E	72	6.0 6.5 1.0		293	NEW BRITAIN REGION. Ms 6.9 (BRK), 6.8 (PAS). Mo=1.1*10**19 Nm (GS). Mo=1.2*10**19 Nm (HRV). Felt (IV) in the Rabaul area. The focal mechanism is poorly controlled and corresponds to reverse faulting.
May 15	00 24 00.6	18.91 S 175.64 W	33 N	5.7 6.5 1.2		203	TONGA ISLANDS. Ms 6.4 (BRK), 6.5 (PAS). Mo=1.1*10**19 Nm (HRV).

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1983							
May 26	02 59 59.6	40.46 N 139.10 E	24	6.8 7.7	1.1	481	NEAR WEST COAST OF HONSHU, JAPAN. Ms 7.7 (BRK), 7.7 (PAS), 7.8 (PAL). Mo=1.2*10**20 Nm (GS). Mo=4.6*10**20 Nm (HRV). At least 104 people killed, some injured, and extensive damage to dwellings, roads, and vessels caused by earthquake and a tsunami along the Japan Sea coast from southern Hokkaido to the Niigata area, Honshu. Many of the casualties and much of the damage occurred on the Ogo Peninsula. Tsunami damage occurred as far away as Yamaguchi Prefecture in southwestern Honshu, along the Japan Sea coast of USSR, and along the eastern and southern coasts of South Korea, where three additional people were killed. Felt (V JMA) at Akita. Felt on Hokkaido and throughout northern and central Honshu. Estimated tsunami heights were 14 meters at Minehama, Honshu, 2-6 meters along southern Hokkaido and northern Honshu, up to 8 meters along the coast of USSR, and 4 meters along the coast of South Korea. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
June 1	01 59 54.6	17.04 S 174.61 W	180 D	6.2	1.0	343	TONGA ISLANDS. mb 6.6 (PAS), 6.3 (BRK). Mo=8.3*10**18 Nm (GS). Mo=7.2*10**18 Nm (HRV). Felt (II) at Apia, Samoa Islands. The focal mechanism is poorly controlled and corresponds to normal faulting.
June 1	10 58 44.8	15.69 S 172.81 W	33 N	5.6 6.1	1.4	118	SAMOA ISLANDS REGION. Ms 6.5 (BRK). Mo=2.2*10**18 Nm (HRV).
June 21	06 25 27.3	41.35 N 139.10 E	10	6.7 6.9	1.1	468	HOKKAIDO, JAPAN REGION. Ms 6.5 (BRK), 6.9 (PAS). Mo=1.2*10**19 Nm (GS). Mo=1.9*10**19 Nm (HRV). Some damage in northern Honshu. Felt (IV JMA) at Esashi, (III JMA) at Hokodate and (I JMA) at Sapporo, Hokkaido. Felt (IV JMA) at Aomori and (III JMA) at Akita, Honshu. Felt widely in southern Hokkaido and northern Honshu. One meter tsunami occurred at Akita, Noshiro, and Wakami; 40-centimeter tsunami at Aomori and Fukaura, Honshu. Fifty-centimeter tsunami reported in many areas along the west coast of northern Honshu. The focal mechanism is poorly controlled and corresponds to reverse faulting.
June 24	07 18 22.1	21.72 N 103.28 E	18 D	6.1 6.6	1.2	308	SOUTHEAST ASIA. Ms 6.4 (PAS). Mo=3.7*10**18 Nm (GS). Mo=3.5*10**18 Nm (HRV). Felt (VI) at Haiphong, Hanoi and Hoa Binh; (V) at Thai Nguyen, Thanh Hoa and Tuyen Quang; (IV) at Ha Bac, Vietnam. Also felt at Hong Kong. The focal mechanism is well controlled and corresponds to strike-slip faulting.
June 24	09 06 45.8	24.18 N 122.40 E	44	6.1 6.7	1.0	311	TAIWAN REGION. Ms 6.4 (BRK), 6.4 (PAS). Mo=1.1*10**19 Nm (GS). Mo=9.4*10**18 Nm (HRV). Felt on Taiwan. Felt (III JMA) on Iriomote-jima, and (II JMA) on Ishigaki-shima and Yonaguni-jima, Ryukyu Islands. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
July 3	17 14 23.1	9.65 N 83.69 W	33 N	5.9 6.2	1.0	180	COSTA RICA. Ms 6.7 (BRK), 6.1 (PAS). Mo=6.1*10**18 Nm (GS). Mo=3.8*10**18 Nm (HRV). Two people killed and approximately 60 injured. Considerable damage to buildings. Landslides blocked and damaged some roads. The focal mechanism is moderately well controlled and corresponds to normal faulting.
July 5	12 01 27.3	40.32 N 27.22 E	10 G	5.7 6.1	1.2	234	TURKEY. ML 5.9 (ATH). Mo=1.8*10**18 Nm (HRV). Five people killed and 25 injured in the Biga area. One person injured at Erdek and minor damage in the Istanbul area. Felt also in eastern Greece.
July 7	16 05 39.7	22.61 S 170.73 E	34	5.7 6.2	1.2	154	LOYALTY ISLANDS REGION. Ms 6.5 (BRK). Mo=4.6*10**18 Nm (HRV).
July 11	12 56 28.3	60.89 S 53.02 W	10 G	6.1 6.9	1.2	202	SOUTH SHETLAND ISLANDS. Ms 7.0 (BRK), 6.7 (PAS). Mo=2.6*10**19 Nm (GS). Mo=3.3*10**19 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
July 20	22 03 29.2	37.50 N 15.15 E	33 N	4.4	1.5	21	SICILY. One person died from a heart attack and 20 people slightly injured in the Catania area.
July 22	02 39 53.7&	36.23 N 120.42 W	9 G	6.0 5.7		238	CENTRAL CALIFORNIA. <GS>. ML 5.9 (BRK), 5.8 (PAS). Mo=8.5*10**17 Nm (BRK). Mo=5.3*10**17 Nm (HRV). Two people injured and slight damage (VI) at Coalinga. Felt (V) in parts of Fresno, Kern, Kings, Monterey, San Luis Obispo, and Tulare Counties. Felt throughout central California from Sacramento to Bakersfield. The focal mechanism is poorly controlled and corresponds to reverse faulting.
July 22	02 41 00.8	36.95 N 49.18 E	41	5.6 5.0	1.1	185	WESTERN IRAN. Three people killed, 41 injured and 75 homes destroyed in the Zanzan area.

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1983							
Aug 2	02 17 41.0	20.44 N 122.10 E	158 D	6.1	1.1	391	PHILIPPINE ISLAND REGION. mb 6.5 (PAS). Mo=3.4*10**18 Nm (GS). Mo=2.9*10**18 Nm (HRV). Felt in southern Taiwan. The focal mechanism is moderately well controlled and corresponds to normal faulting.
Aug 2	09 01 05.5	49.15 N 6.70 E	0 G		0.9	23	GERMANY. ML 3.5 (GRF), 3.4 (DOU), 3.4 (LDG). One person killed and one person injured in a mine collapse.
Aug 6	15 43 51.2	40.14 N 24.77 E	2	6.2 7.0	1.2	301	AEGEAN SEA. Ms 7.3 (BRK), 7.2 (PAS). Mo=1.5*10**19 Nm (GS). Mo=1.2*10**19 Nm (HRV). Slight damage on Limnos and to four monasteries in the Mount Athos area. Felt strongly in northern Greece, southern Bulgaria and northwestern Turkey. The focal mechanism is well controlled and corresponds to strike-slip faulting.
Aug 8	03 47 57.1	35.50 N 139.07 E	25 D	5.9 5.3	1.2	337	NEAR SOUTH COAST OF HONSHU, JAPAN. Mo=4.0*10**17 Nm (GS). Mo=3.7*10**17 Nm (HRV). One person killed, 28 injured, several houses damaged and landslides in Konagawa, Tokyo, Saitama, Shizuoka, and Yamanashi Prefectures. A highway was cracked near Ogawa. Felt (IV JMA) at Kofu, Mishima, Tokyo and Yokohama. Felt (I JMA) from Osaka to Morioka and on Hachijo-jima. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Aug 17	10 55 54.1	55.87 N 161.29 E	63	6.6	1.2	413	NEAR EAST COAST OF KAMCHATKA. Ms 6.5 (BRK), mb 7.0 (PAS). Mo=4.3*10**19 Nm (GS). Mo=4.1*10**19 Nm (HRV). The focal mechanism is poorly controlled and corresponds to reverse faulting.
Aug 17	12 17 56.0	18.23 N 120.86 E	29 D	6.2 6.5	1.1	330	LUZON, PHILIPPINE ISLANDS. Mo=8.8*10**18 Nm (HRV). Sixteen people killed, 47 injured and extensive damage in the Pasuquin-Laoag-Batoc and Serrat areas. Sandblows, liquefaction, cracks on some highways, and many landslides occurred in the area. Felt (III RF) at Manila. Unconfirmed reports of a small tsunami along the coast of Ilocos Norte Province.
Aug 25	20 23 33.3	33.51 N 131.48 E	126	6.1	1.1	478	KYUSHU, JAPAN. Mo=6.6*10**18 Nm (GS). Mo=6.5*10**18 Nm (HRV). One person slightly injured and a landslide occurred at Hiroshima. Felt (IV JMA) at Hiroshima, Kochi, Matsuyama, Nabeoka and Uwajima. Felt (III JMA) in southwestern Honshu and on Shikoku and Kyushu. Also felt (V) at Iwakuni and (I JMA) as far east as Nagano and Mishima. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Sep 17	12 11 42.7	16.64 S 177.48 W	33 N	6.1 6.5	1.2	211	FIJI ISLANDS REGION. Ms 6.4 (BRK). Mo=1.1*10**19 Nm (GS). Mo=7.8*10**18 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Oct 4	18 52 13.3	26.54 S 70.56 W	15	6.4 7.3	1.2	285	NEAR COAST OF NORTHERN CHILE. Ms 7.4 (BRK), 7.4 (PAL). Mo=1.6*10**20 Nm (GS). Mo=3.4*10**20 Nm (HRV). At least 5 people killed, 24 injured and extensive damage in the Copiapo-Chanorai area. A 1.5-meter uplift near Chanorai was reported and some roads were blacked by landslides. A minor tsunami was recorded at Valparaiso. Felt strongly (VII) in northern Chile. Felt also in Argentina, Bolivia and Brazil. This appears to be a multiple event. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Oct 7	10 18 46.1&	43.94 N 74.26 W	13 G	5.1		127	NEW YORK. <PAL-P>. mbLg 5.3 (BLA), ML 5.1 (PAL). Mo=3.0*10**16 Nm (HRV). One person injured at New Baltimore. Slight damage (VI) at Blue Mountain Lake, Indian Lake, Minerva and North River. Felt (V) at Adirondack, Childwold, Moriah Center, Newcomb, North Creek, Old Forge, Olmstedville, Piercefield, Severeance, Wanakena and many other areas of upstate New York. Felt throughout the northeastern United States and in parts of Canada.
Oct 15	10 56 50.8	8.10 S 156.31 E	7	5.9 6.7	1.0	187	SOLOMON ISLANDS. Ms 6.7 (BRK). Mo=5.9*10**18 Nm (GS). Mo=1.0*10**19 Nm (HRV). Felt on Simbo Island. Also felt (VI) at Raboul, New Britain. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Oct 17	19 36 21.4	37.59 N 17.52 W	10 G	6.0 6.3	1.1	279	NORTH ATLANTIC OCEAN. Ms 6.6 (BRK). Mo=4.2*10**18 Nm (GS). Mo=4.5*10**18 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.

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1983							
Oct 21	20 34 49.1	40.13 N 29.38 E	14	5.1 5.0	1.1	196	TURKEY. Four people injured and slight damage at Burso.
Oct 22	04 21 35.0	60.67 S 25.45 W	24 D	6.5 6.8	1.3	132	SOUTH SANDWICH ISLANDS REGION. Ms 6.7 (BRK). Mo=6.4*10**19 Nm (GS). Mo=1.3*10**17 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Oct 28	14 06 06.6	44.06 N 113.86 W	10 G	6.2 7.3	1.1	377	EASTERN IDAHO. Mo=2.5*10**19 Nm (GS). Mo=3.1*10**19 Nm (HRV). Two people killed, two injured, and considerable damage at Challis. One person injured and extensive damage at Mackay. Maximum intensity VII in the Challis-Mackay area. Total damage from the earthquake estimated at 15 million dollars. System of fault scarps extending for more than 35 kilometers with vertical displacement up to 2.7 meters observed between Mackay and Challis. Landslides, rockfalls and groundwater changes occurred throughout the region, including changes to geyser activity in Yellowstone National Park. The earthquake was felt in Idaho, Washington, Montana, Oregon, Nevada, Wyoming, Utah, and parts of Canada. The focal mechanism is moderately well controlled and corresponds to normal faulting.
Oct 30	04 12 27.1	40.33 N 42.19 E	12	6.1 6.9	1.1	357	TURKEY. Ms 6.9 (BRK), 6.7 (PAL). Mo=2.0*10**19 Nm (GS). Mo=8.7*10**18 Nm (HRV). At least 1,342 people killed, many injured, 534 seriously injured, more than 25,000 people homeless, and 50 villages completely destroyed in the provinces of Erzurum and Kars. The focal mechanism is well controlled and corresponds to strike-slip faulting.
Nov 6	21 09 45.2	35.21 N 115.21 E	19	5.7 5.3	0.9	253	EASTERN CHINA. Mo=2.0*10**17 Nm (HRV). Thirty-four people killed, about 2,200 injured and about 3,300 houses destroyed in the Heze-Dongming area of Shandong Province. Also felt in parts of Hebei and Henan Provinces.
Nov 8	00 49 32.1	50.70 N 5.35 E	10 G	5.0	1.0	103	BELGIUM. ML 4.9 (UCC). One person killed, one additional person died of a heart attack, 30 injured, and hundreds of buildings damaged in the Liege area. Felt (V) in the southern Netherlands. Also felt in Luxembourg and West Germany.
Nov 9	16 29 51.6	44.69 N 10.32 E	37	5.1 5.0	1.3	209	NORTHERN ITALY. ML 5.2 (ROM). About 10 people injured and damage (VIII) in the Parma area. Felt throughout northern Italy and parts of Switzerland.
Nov 16	16 13 00.0&	19.43 N 155.45 W	12 G	6.4 6.7		394	HAWAII. <HVO-P>. Mo=1.2*10**19 Nm (GS). Mo=1.1*10**19 Nm (HRV). Six people injured and considerable damage (VIII) in parts of Kapapala, Hawaii Volcanoes National Park, Volcano, Kona and Puna Districts and Hilo. Landslides and rockfalls occurred, telephone and electrical service was disrupted and water mains were broken in several areas of the island. Total damage from the earthquake estimated at 6 to 6.5 million dollars. Also felt on the islands of Maui, Oahu and Kauai. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Nov 18	01 15 35.6	39.78 N 39.46 E	27	5.0 4.8	1.1	171	TURKEY. Mo=1.6*10**17 Nm (HRV). Five people injured and buildings damaged in 30 villages in the Erzincon area.
Nov 24	05 30 34.2	7.48 S 128.17 E	179	6.4	1.2	364	BANDA SEA. mb 7.1 (BRK). Mo=9.1*10**19 Nm (GS). Mo=1.6*10**20 Nm (HRV). Felt on Alor, Flores, Sumba, and Timor. Also felt in Australia from Darwin to Perth. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Nov 30	17 46 00.6	6.85 S 72.11 E	10 G	6.6 7.6	1.2	402	CHAGOS ARCHIPELAGO REGION. Ms 7.7 (BRK). Mo=1.1*10**20 Nm (GS). Mo=4.1*10**20 Nm (HRV). Some damage (VI) to buildings and piers on Diego Garcia. About a 1.5 meter rise in wave height in the lagoon and significant wave damage near the southeastern tip of the island. Forty-centimeter tsunami at Victoria, Seychelles. Large zone of discolored sea water observed 60 to 70 kilometers north-northwest of Diego Garcia.
Dec 2	03 09 05.6	14.07 N 91.92 W	67	5.9	1.1	312	GUATEMALA. Ms 7.1 (BRK), 6.7 (PAS), 6.7 (PAL). Mo=3.2*10**19 Nm (GS). Mo=3.7*10**19 Nm (HRV). Felt (VI) in southwestern Guatemala and (V) at Guatemala City. Also felt in El Salvador and Chiapas, Mexico. The focal mechanism is well controlled and corresponds to reverse faulting.
Dec 15	14 11 24.7	3.16 S 145.39 E	24	5.9 6.2	1.0	208	NEAR NORTH COAST OF NEW GUINEA, PAPUA NEW GUINEA. Ms 6.6 (BRK). Mo=4.8*10**18 Nm (GS). Mo=3.0*10**18 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
1983							
Dec 21	12 05 06.3	28.19 S 63.17 W	602 D	6.2	1.0	346	SANTIAGO DEL ESTERO PROVINCE, ARGENTINA. mb 6.9 (BRK). Mo=2.6*10**19 Nm (GS). Mo=2.7*10**19 Nm (HRV). Felt (II) at Mendoza, Argentina and Antofagasta, Chile. Felt in many parts of northern Argentina, Paraguay, and southern Brazil. Also felt in the Buenos Aires area, Argentina and at Brasilia, Brazil. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Dec 21	23 32 11.6	5.54 S 151.86 E	33 N	6.0 6.2	1.1	256	NEW BRITAIN REGION. Ms 6.5 (BRK), 6.2 (PAS). Mo=2.4*10**18 Nm (GS). Mo=2.9*10**18 Nm (HRV). Felt (V) at Ulawun Volcano and (IV) at Rabaul. Also felt on New Ireland. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Dec 22	01 02 02.4	5.39 S 151.87 E	26	5.7 6.4	1.2	189	NEW BRITAIN REGION. Ms 6.7 (BRK), 6.4 (PAS). Mo=4.5*10**18 Nm (GS). Mo=6.2*10**18 Nm (HRV). Felt (V) at Ulawun Volcano and (IV) at Rabaul. Also felt on New Ireland. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Dec 22	04 11 29.2	11.87 N 13.53 W	11	6.4 6.2	1.0	343	NORTHWEST AFRICA. Ms 6.2 (BRK), 6.1 (PAS). Mo=3.4*10**18 Nm (GS). Mo=3.4*10**18 Nm (HRV). At least 443 people killed, 200 missing, 150 seriously injured and extensive damage in the Gaooul-Koumbia area, Guinea. Felt in Guinea Bissau, Senegal, The Gambia and Sierra Leone. The focal mechanism is poorly controlled and corresponds to strike-slip faulting.
Dec 30	23 52 39.9	36.37 N 70.74 E	215 D	6.6	1.0	485	HINDU KUSH REGION. mb 7.2 (BRK). Mo=1.5*10**20 Nm (GS). Mo=1.5*10**20 Nm (HRV). Twelve people killed, 483 injured and extensive damage in the Kabul-Samangan, Afghanistan area. Fourteen people killed, hundreds injured, and moderate damage in the Peshawar, Pakistan area. Some damage (VII) in Tajikistan, USSR. Felt in much of northwestern Afghanistan, northern Pakistan, northern India, and in Tajikistan, Uzbekistan, and Kirghizia, USSR. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
1984							
DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
Jan 1	09 03 38.8	33.68 N 136.89 E	368	6.5	1.2	412	NEAR SOUTH COAST OF SOUTHERN HONSHU, JAPAN. mb 6.6 (BRK), 6.6 (PAL). Mo=6.7*10**19 Nm (GS). Mo=6.0*10**19 Nm (HRV). Felt from Hokkaido to Kyushu. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Jan 8	15 24 13.5	2.82 S 118.81 E	33 N	6.0 6.6	1.3	240	SULAWESI. Ms 6.7 (BRK). Mo=3.8*10**19 Nm (GS). Mo=1.5*10**19 Nm (HRV). Two people killed, 23 injured, and damage to buildings in the Mamuju area. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Jan 25	19 36 12.0&	47.50 N 116.00 W	1 G			4	WESTERN IDAHO. <SPEC>. ML 2.3 (NEIS). One person killed and one injured. Rockburst in the Lucky Friday mine near Wallace, Idaho.
Feb 1	14 22 07.9	34.62 N 70.48 E	33 N	5.9 5.8	1.2	298	AFGHANISTAN. Mo=1.1*10**18 Nm (GS). Mo=1.4*10**18 Nm (HRV). One person killed, 35 injured, and damage in the Jalalabad area. Felt (IV) in the Ishkoshim-Khorog area, USSR. Felt also in northwestern Pakistan.
Feb 7	21 33 21.4	10.01 S 160.47 E	18 D	6.6 7.5	1.4	318	SOLOMON ISLANDS. Ms 7.5 (BRK), 7.7 (PAL), 7.3 (PAS). Mo=5.1*10**19 Nm (GS). Mo=2.5*10**20 Nm (HRV). Damage in southern Guadalcanal and some landslides reported. Felt throughout the Solomon Islands, (VI) at Honiara, and (III) at Rabaul, New Britain. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Feb 13	16 53 00.7	35.50 N 139.10 E	47	5.3 4.8	1.0	199	NEAR SOUTH COAST OF HONSHU, JAPAN. Two people injured and slight damage in the Tokyo area. Felt (III JMA) in the Tokyo-Yokohama area and at Kofu, and (II JMA) in the Kumagaya-Mishima area and on Oshima.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
1984							
Mar 3	08 32 15.5	43.31 N 20.98 E	10 G	4.6	1.1	98	YUGOSLAVIA. ML 4.2 (TIR), 4.0 (TTG). Three people injured slightly and damage in southeastern Yugoslavia.
Mar 5	03 33 50.9	8.15 N 123.76 E	649 D	6.5	0.9	489	MINDANAO, PHILIPPINE ISLANDS. mb 6.6 (BRK). $M_0=9.4 \times 10^{19}$ Nm (GS). $M_0=9.3 \times 10^{19}$ Nm (HRV). Felt (II RF) on Mindanao, Leyte, and Panay. The focal mechanism is well controlled and corresponds to normal faulting.
Mar 6	02 17 21.2	29.38 N 138.94 E	457 D	6.2	1.0	477	SOUTH OF HONSHU, JAPAN. mb 6.6 (BRK). $M_0=1.3 \times 10^{20}$ Nm (GS). $M_0=1.4 \times 10^{20}$ Nm (HRV). One person died from a heart attack in Yokohama and one person injured in the Tokyo area. Felt (IV JMA) on Honshu. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
Mar 19	20 28 38.2	40.32 N 63.35 E	15 D	6.5 7.0	0.9	427	UZBEK SSR. Ms 7.1 (BRK). $M_0=4.0 \times 10^{19}$ Nm (GS). $M_0=3.1 \times 10^{19}$ Nm (HRV). At least 100 people injured and extensive damage (IX) in the Gazli area. Damage (VIII) at Dzhangeldy and (VII) in the Bukhara area. Felt (VI) at Samarkand, (V) at Dzhizak, and (IV) at Tashkent. Felt (VI) at Mary and (V) at Ashkhabad, Turkmeniya. Felt (III) at Leninabad and (II) at Kharog, Tajikistan. Felt (III) at Chimkent, Kazakhstan. Felt (II) at Frunze, Kirghiziya. Also felt at Mashhad, Iran. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Mar 24	09 44 02.6	44.12 N 148.19 E	44 D	6.1 7.0	1.2	400	KURIL ISLANDS. Ms 6.7 (BRK). $M_0=6.4 \times 10^{19}$ Nm (HRV). Possible multiple event. Felt (V) at Yuzhna-Kurilsk and (IV) on Shikotan. Felt (II JMA) at Nemuro, Obihiro and Urakawa, Hokkaido, and at Hachinohe and Miyako, Honshu. Fourteen-centimeter tsunami recorded at Nemuro, Hokkaido. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Mar 27	20 06 33.2	4.65 S 145.81 E	28	5.8 6.6	1.2	194	NEAR NORTH COAST OF NEW GUINEA, PAPUA NEW GUINEA. Ms 6.8 (BRK). $M_0=4.9 \times 10^{18}$ Nm (GS). $M_0=5.6 \times 10^{18}$ Nm (HRV). Eleven people injured and many buildings destroyed (VIII) on Karkar. Minor ground fissures and two holes 3-7 meters in diameter and 2 meters deep occurred. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Apr 22	17 39 23.1	43.62 N 10.19 E	15	4.3	1.1	83	CENTRAL ITALY. ML 4.7 (KBA), 4.3 (TRI), 4.2 (LDG). Three people died of heart attacks. Damage (VI) in the Livorno-Pisa area.
Apr 24	21 15 19.0&	37.32 N 121.70 W	8 G	5.7 6.1		273	CENTRAL CALIFORNIA. ML 6.2 (BRK). $M_0=6.9 \times 10^{18}$ Nm (GS). $M_0=2.1 \times 10^{18}$ Nm (HRV). Twenty-one people sustained minor injuries in the Morgan Hill-San Jose area. Maximum intensity VII in the Morgan Hill area. Damage from the earthquake estimated at 7.5 million dollars with the most damage occurring in the Jackson Oaks subdivision east of Morgan Hill. The earthquake was felt from Bakersfield to Sacramento and from San Francisco to Reno. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Apr 29	05 03 00.0	43.26 N 12.56 E	12	5.2 5.3	1.3	202	CENTRAL ITALY. ML 6.1 (FUR), 5.6 (TRI). $M_0=3.4 \times 10^{17}$ Nm (HRV). Thirty-six people injured and extensive damage (VIII) in the Assisi-Gubbio-Perugia area. About 7,500 people homeless. Felt strongly in central Italy.
May 7	17 49 41.6	41.77 N 13.90 E	10 G	5.5 5.8	1.2	302	SOUTHERN ITALY. Ms 5.8 (BRK), ML 6.0 (TRI). $M_0=7.8 \times 10^{17}$ Nm (HRV). Three people killed, at least 100 injured, and extensive damage (VIII) in the Abruzzo area. Felt throughout southern Italy.
May 11	10 41 49.9	41.83 N 13.96 E	14	5.2 5.2	1.2	259	SOUTHERN ITALY. ML 5.4 (TRI). $M_0=2.0 \times 10^{17}$ Nm (HRV). Three people died from heart attacks, at least 63 injured, and damage (VIII) in the Abruzzo region. Felt at Rome and Naples.
May 13	12 45 55.8	42.97 N 17.73 E	30	5.1 5.1	1.2	190	ADRIATIC SEA. $M_0=1.7 \times 10^{17}$ Nm (HRV). One person killed from rockfalls in the Hercegovina region of Yugoslavia. Felt (VII) at Dubrovnik and (IV) at Titograd, Yugoslavia and (III) at Trieste, Italy.
May 21	15 38 58.7	32.69 N 121.51 E	18	5.7 6.0	1.3	187	EASTERN CHINA. Ms 5.8 (BRK). $M_0=1.3 \times 10^{18}$ Nm (GS). $M_0=1.2 \times 10^{18}$ Nm (HRV). Several people injured jumping from buildings and slight damage in the southern Shanghai-Rudang area. Felt throughout southern Jiangsu Province and at Hefei. Felt on about 200 fishing boats in the Yellow Sea. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.

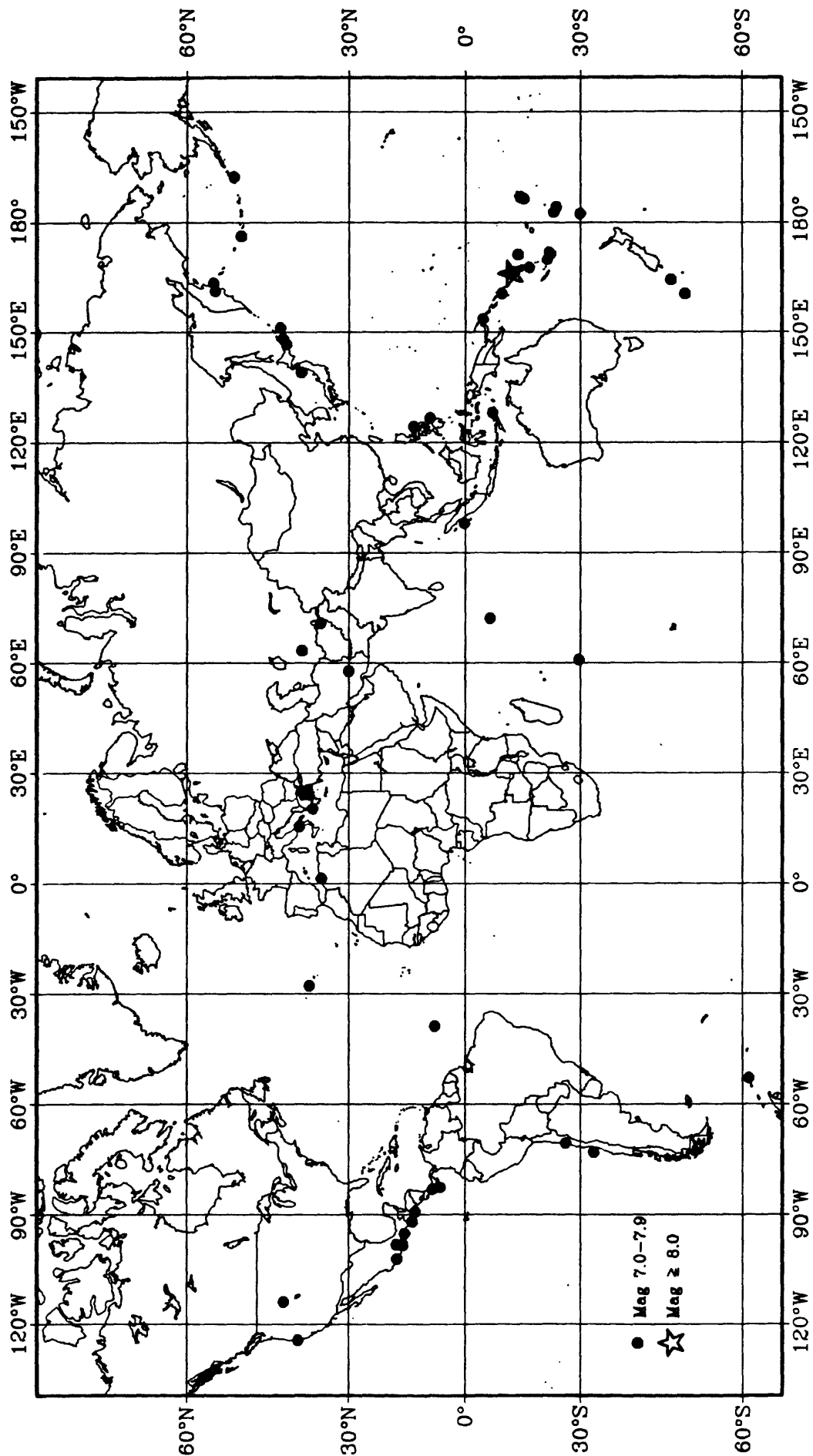
DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
1984							
May 26	03 58 56.9	43.55 S 38.94 E	10 G	5.7 6.4	1.3	135	PRINCE EDWARD ISLAND REGION. Ms 6.5 (PAS). Mo=1.3*10**19 Nm (HRV). Possibly felt on Marion Island.
May 30	00 39 45.2	34.89 N 134.60 E	26	5.0 4.5	1.3	122	NEAR SOUTH COAST OF SOUTHERN HONSHU. One person injured in Hyogo Prefecture. Felt (IV JMA) at Himeji and (III JMA) in the Tottori-Kobe area, Honshu and Takamatsu-Kochi area, Shikoku. Felt throughout southwestern Honshu, northern Shikoku and on Dago.
June 20	14 12 27.0&	46.58 N 80.80 W	1 G			5	ONTARIO. <OTT-P>. mbLg 3.4 (OTT). Four miners killed. Rockburst in the Falconbridge Mine.
June 24	11 17 11.9	17.98 N 69.34 W	24	6.0 6.7	1.0	331	DOMINICAN REPUBLIC REGION. Ms 6.6 (BRK). 6.3 (PAS), 6.5 (PAL). Mo=2.7*10**19 (GS). Mo=1.4*10**19 Nm (HRV). Felt strongly (V) in the Dominican Republic. Also felt on Puerto Rico and at Caracas, Venezuela. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
June 24	18 18 51.0	18.01 N 69.20 W	32	5.1 4.7	1.0	150	DOMINICAN REPUBLIC REGION. Mo=7.4*10**16 Nm (HRV). Five people killed in the Bayaguano area. Felt throughout eastern Dominican Republic.
July 2	04 50 44.1	16.80 N 98.44 W	47	5.9 6.0	1.0	231	NEAR COAST OF GUERRERO, MEXICO. Ms 6.5 (BRK), 5.8 (PAS). Mo=4.7*10**18 Nm (GS). Mo=2.0*10**18 Nm (HRV). Minor damage at Mexico City. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
July 5	05 21 48.9	6.06 S 154.42 E	33 N	6.0 6.5	1.1	238	SOLOMON ISLANDS. Ms 6.8 (BRK), 6.7 (PAS). Mo=9.2*10**18 Nm (GS). Mo=9.0*10**18 Nm (HRV). Felt (IV) on Bougainville. Sand blows reported along the Jobo River. The focal mechanism is moderately well controlled and corresponds to reverse faulting.
July 19	06 56 10.4	52.88 N 4.20 W	13	5.0 4.7	1.1	158	UNITED KINGDOM. ML 5.4 (BGS). Minor injuries and damage (VI) in northern Wales. Rockslides occurred at Tremadoc, Gwynedd County, Wales. Felt (V) in eastern Ireland. Felt throughout Wales, in western England and in parts of Scotland.
Aug 6	19 06 38.3	32.39 N 131.95 E	46	6.3 6.7	1.2	475	KYUSHU, JAPAN. Ms 6.9 (BRK). Mo=1.7*10**19 Nm (GS). Mo=2.9*10**19 Nm (HRV). Nine people injured slightly and damage (IV JMA) on Kyushu. An 18-centimeter tsunami was reported at Nobeoka. Felt also (IV JMA) in southwestern Shikoku. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Aug 27	06 41 26.2	1.76 N 99.08 E	33	5.1 5.2	1.4	99	NORTHERN SUMATERA. Mo=3.0*10**17 Nm (HRV). One hundred twenty-three people injured and 405 buildings damaged in the Torutung area. Felt at Kuala Lumpur and Pinang, Malaysia.
Sep 7	00 44 41.7	43.31 N 20.96 E	13	5.1 4.7	1.2	192	YUGOSLAVIA. ML 5.1 (SKO), 5.3 (TRI). Mo=5.3*10**16 Nm (HRV). Two people injured and damage (VIII) in the Brus-Kopaonik area. Felt widely in eastern Yugoslavia.
Sep 10	03 14 10.1	40.50 N 126.83 W	10 G	6.1 6.7	1.0	267	OFF COAST OF NORTHERN CALIFORNIA. ML 6.6 (BRK). Mo=1.2*10**19 Nm (GS). Mo=1.0*10**19 Nm (HRV). Felt (V) at Mirondo, California and (IV) at Alderpoint, Bronscomb, Comptche, Ferndale, Findley, Solyer, Samaa, San Francisco, and Willits, California. Felt from the San Francisco Bay area to Roseburg, Oregon. The focal mechanism is well controlled and corresponds to strike-slip faulting.
Sep 13	23 48 49.9	35.79 N 137.49 E	10 G	6.0 6.1	1.2	456	HONSHU, JAPAN. Ms 6.3 (BRK). Mo=2.5*10**18 (GS). Mo=2.6*10**18 Nm (HRV). At least 24 people killed and severe damage and landslides (IV JMA) in the Otaki area. Felt (IV JMA) at Iida and Kofu; (III JMA) in the Tokyo-Yokohama, Kyoto-Nagoya and Nagano-Toyama areas; (II JMA) at Tateyama, Utsunomiya and on Oshima; (I JMA) at Ajiro, Mito, Aikawa and on Dago. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Sep 18	13 26 01.8	40.89 N 42.22 E	10 G	5.3 6.4	1.2	195	TURKEY. Mo=2.2*10**17 Nm (HRV). Three people killed, 38 injured, and 75,000 houses destroyed or damaged in the Olur-Senkoyo area.

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT LONG	DEPTH	MAGNITUDES GS MB Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
1984							
Sep 18	17 02 44.3	34.01 N 141.50 E	48	6.6 6.9	1.0	524	OFF EAST COAST OF HONSHU, JAPAN. Ms 6.9 (BRK). Mo=2.0*10**19 Nm (GS). Mo=2.1*10**19 Nm (HRV). Felt (IV JMA) at Tateyama and (III JMA) at Tokyo. Felt along the east coast of central and northern Honshu. Also felt in southern Hokkaido. Local tsunami reported: 11 cm on Hachijo-jima, 10 cm at Ishinomaki, 5 cm at Onahama, and 3 cm at Tateyama. The focal mechanism is moderately well controlled and corresponds to normal faulting.
Sep 28	00 03 34.54	25.85 S 175.91 W	21	6.4 6.8	1.1	387	SOUTH OF TONGA ISLANDS. Ms 6.7 (BRK). Mo=8.3*10**18 Nm (GS). Mo=7.8*10**18 Nm (HRV). Felt on Raoul Island, Kermadec Islands. The focal mechanism is poorly controlled and corresponds to normal faulting.
Oct 9	04 30 42.4	37.01 N 21.76 E	27	5.0 4.5	1.3	192	SOUTHERN GREECE. ML 4.7 (ATH). One person injured and many homes damaged in the Messina area.
Oct 12	18 21 47.3	16.68 S 177.11 E	13	5.6 6.1	1.1	158	FIJI ISLANDS. Ms 6.5 (BRK), 6.1 (PAS). Mo=2.9*10**18 Nm (HRV). Felt (V) on Yasawa and (IV) on Vanua Levu.
Oct 15	10 21 07.5	15.86 S 173.64 W	128 D	6.5	1.2	397	TONGA ISLANDS. mb 6.9 (BRK), 7.1 (PAS). Mo=8.1*10**19 (GS). Mo=5.0*10**19 Nm (HRV). Felt (V) at Apia, Samoa Islands. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Oct 18	09 46 24.6	40.55 N 42.40 E	60	5.3	1.1	181	TURKEY. Mo=1.5*10**17 Nm (HRV). Three people killed, 35 injured, and 75,000 homes damaged in the Erzurum-Senkaya area.
Oct 25	01 11 54.2	37.74 N 15.41 E	33 N	4.4	0.9	25	SICILY. Twelve people injured and many homes damaged.
Nov 1	04 48 50.2	8.19 N 38.79 W	10 G	6.5 7.1	1.0	373	CENTRAL MID-ATLANTIC RIDGE. Ms 7.4 (BRK), 6.9 (PAS). Mo=5.0*10**19 Nm (GS). Mo=4.0*10**19 Nm (HRV). Felt in northeastern Brazil. The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Nov 14	11 58 18.3	17.13 N 73.82 E	10 G	4.6	0.8	28	INDIA. Two people injured slightly at Bombay. Felt in the Bombay-Belgoum area.
Nov 17	06 49 30.0	0.20 N 98.03 E	33 N	6.3 7.2	1.1	440	NORTHERN SUMATERA. Ms 7.4 (BRK), 7.2 (PAS). Mo=3.3*10**19 Nm (GS). Mo=5.8*10**19 Nm (HRV). One person injured and two buildings damaged on Nios. Felt strongly in many parts of northern Sumatera from Padang to Medan. The focal mechanism is poorly controlled and corresponds to reverse faulting.
Nov 17	22 43 39.7	18.40 S 175.70 W	33 N	5.4 6.1	1.4	104	TONGA ISLANDS. Ms 6.6 (BRK), 6.2 (PAS). Mo=2.6*10**18 Nm (HRV).
Nov 23	04 45 53.2	7.99 S 102.26 E	33 N	6.0 6.7	1.2	213	SOUTHWEST OF SUMATERA. Mo=4.4*10**18 Nm (HRV). Felt at Jakarta, Java. The focal mechanism is poorly controlled and corresponds to strike-slip faulting.
Nov 23	04 46 06.3	14.31 S 171.28 E	33 N	6.0 6.7	1.2	130	VANATU ISLANDS REGION. Ms 7.1 (BRK), 6.8 (PAS). Mo=1.9*10**19 Nm (HRV).
Nov 26	16 21 47.0&	37.47 N 118.70 W	10 G	5.1 4.7		128	CALIFORNIA-NEVADA BORDER REGION. <BRK>. ML 5.6 (BRK), 5.5 (PAS). Mo=2.4*10**23 (BRK). Mo=6.0*10**16 Nm (HRV). One man injured in an avalanche triggered by the earthquake. Felt (V) at Bishop. Felt throughout much of central California and in parts of western Nevada.
Dec 28	10 37 53.7	56.19 N 163.46 E	33 N	6.2 7.0	1.1	401	NEAR EAST COAST OF KAMCHATKA. Ms 6.7 (BRK), 6.4 (PAS). Mo=1.4*10**19 Nm (GS). Mo=1.4*10**19 Nm (HRV). The focal mechanism is moderately well controlled and corresponds to strike-slip faulting.
Dec 30	21 36 56.4	36.66 S 177.51 E	39	6.2 6.8	1.4	123	OFF EAST COAST OF NORTH ISLAND, NEW ZEALAND. Ms 6.8 (BRK), 6.6 (PAS). Mo=1.8*10**19 Nm (HRV). Felt at Auckland and in western Bay of Plenty.
Dec 30	23 33 37.7	24.64 N 92.89 E	23	5.6	1.1	193	INDIA-BANGLADESH BORDER REGION. Mo=1.3*10**18 Nm (HRV). Twenty people killed, about 100 injured, 10,000 homeless and extensive damage in southern Assam, India.

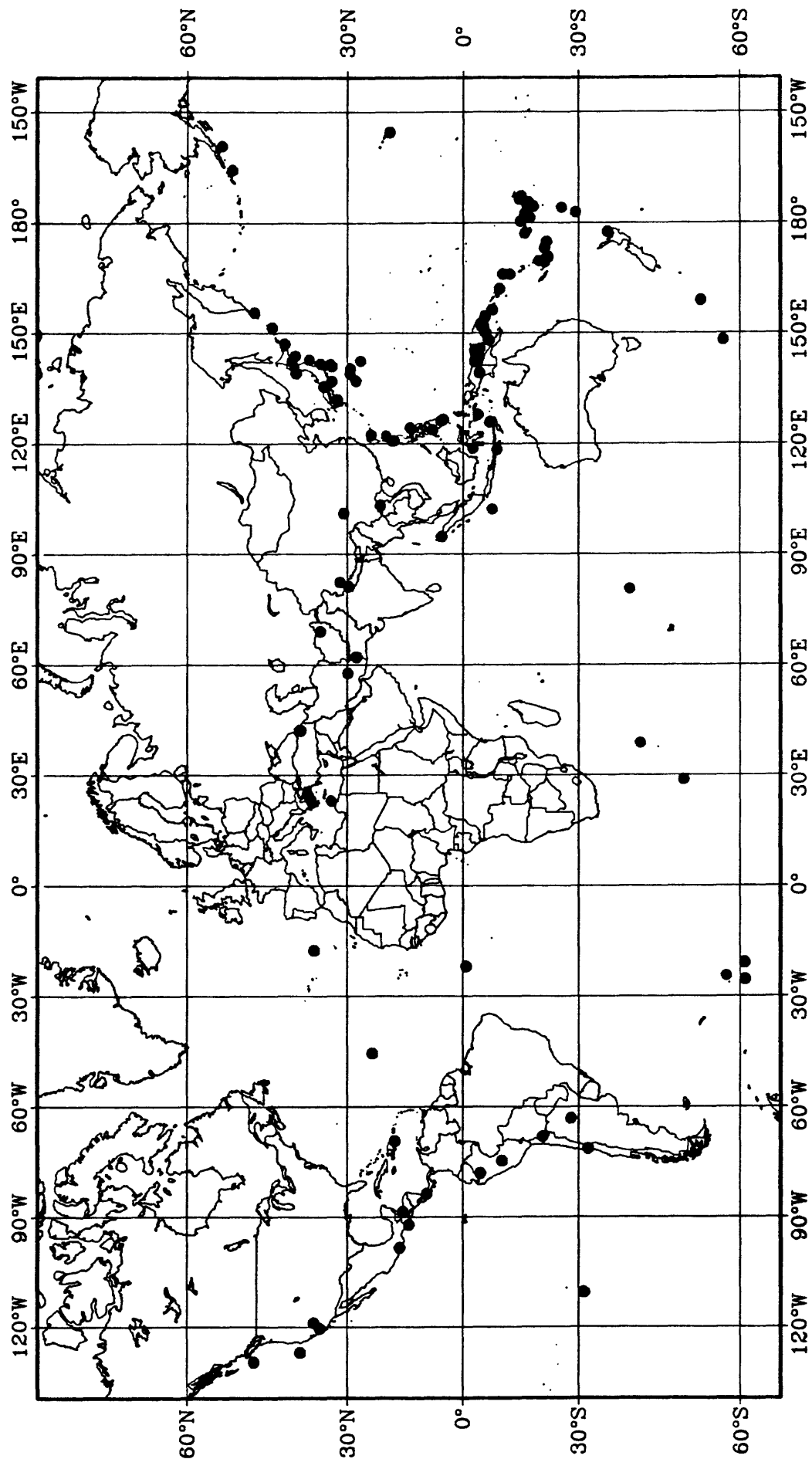
OTHER NOTABLE NORTH AMERICAN EARTHQUAKES

DATE	ORIGIN TIME			GEOGRAPHIC COORDINATES		DEPTH	MAGNITUDES			SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
	UTC	HR	MN	SEC	LAT		LONG	GS	MB			
1981												
Apr 26	12	09	28.4		33.13 N	115.65 W	6 G	5.5	6.0		157	SOUTHERN CALIFORNIA. ML 6.3 (BRK). 5.6 (PAS). Considerable damage (VII) in the Westmorland area. Felt throughout southern California from San Diego to Yuma, Arizona.
1984												
Oct 18	15	30	23.0		42.38 N	105.72 W	33 N	5.4	5.1	0.8	146	WYOMING. ML 5.5 (GS). Mo=1.1*10**17 Nm (HRV). Slight damage (VI) at Douglas, Medicine Bow, Casper, Shirley Basin, McFadden, Rock River and Guernsey. Some damage was reported at a condominium complex in Golden, Colorado. Felt throughout much of Wyoming and northern Colorado. Also felt in western Nebraska, parts of South Dakota and Montana, and by some people in high-rise buildings in Omaha, Nebraska and Salt Lake City, Utah.

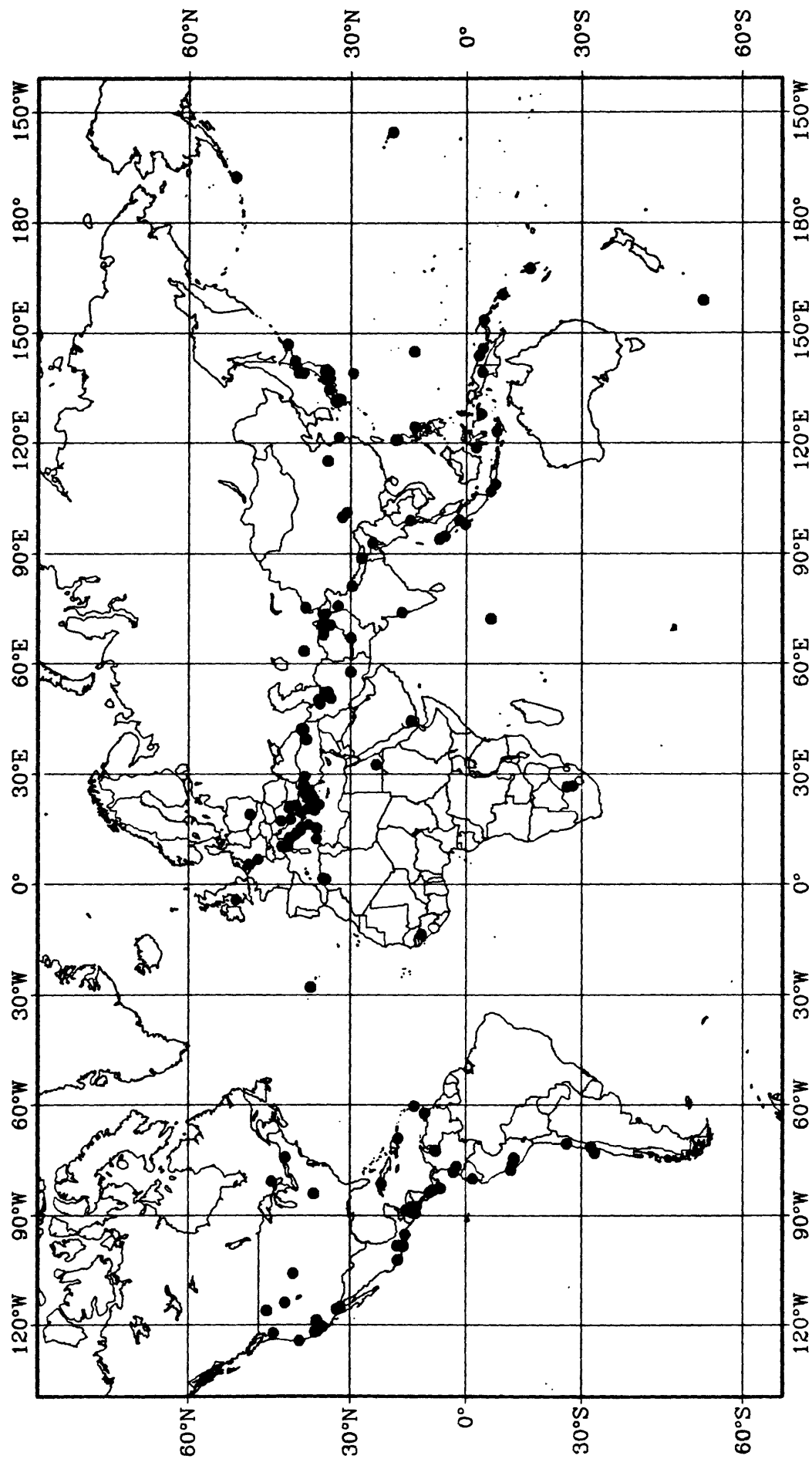
Earthquakes with Magnitude 7.0 or Greater (1980–1984)



Earthquakes with Magnitude 6.5 to 6.9 (1980–1984)



Significant Earthquakes (1980–1984) Causing Damage and/or Casualties



EXPLANATION OF ABBREVIATIONS AND SYMBOLS APPEARING IN THIS PUBLICATION

Abbreviations in Heading

MB - Body wave magnitudes.
 Msz - Vertical surface wave magnitudes.
 UTC - Coordinated Universal Time. HR MN SEC - Hour, minute, second.
 SD - Standard Deviation from the arithmetic mean of residuals.
 No. Sta. - Number of stations reporting P or PKP phases used in computation.

Symbols and Abbreviations Used in Comments

BRK--University of California, Berkeley, CA. PAS--California Institute of Technology, Pasadena, CA.
 ATH--Athens Observatory, Greece. BLA--Virginia Polytechnic Institute, Blacksburg, Virginia.
 BGS--British Geological Survey, Edinburgh, Scotland, United Kingdom.
 FUR--Geophysikalisches Observatorium, Fuerstenfeldbruck, Germany. GRF--Graefenberg Array, Erlangen, Germany.
 KBA--Barrage Kaelnbrein, Austria. LDG--Laboratoire de Detection et de Geophysique, France.
 OTT--Geological Survey of Canada, Ottawa, Canada. PAL--Lamont Daherty Geophysical Observatory, Palisades, New York.
 PMR--Alaska Tsunami Warning Center, Palmer, Alaska. ROM--Istituto Nazionale di Geofisica, Rome, Italy.
 SEA--University of Washington, Seattle, Washington. SKO--University Seismological Observatory, Skopje, Yugoslavia.
 TIR--Seismological Center, Tirano, Albania. TRI--Osservatorio Geofisico Sperimentale, Trieste, Italy.
 TTG--Seismological Institute of Montenegro, Titograd, Yugoslavia. TUL--Oklahoma Geophysical Observatory, Tulsa, Oklahoma.
 UCC--Observatoire Royal de Belgique, Uccle, Bruxelles, Belgium.

GM U.S. Geological Survey, Menlo Park, California.
 GS U.S. Geological Survey, National Earthquake Information Service (NEIS), Golden, Colorado.
 HRV Harvard University, Cambridge, Massachusetts
 PPT Laboratoire de Geophysique, Papeete, French Polynesia
 JMA Japan Meteorological Agency, Tokyo (also used to indicate 7-point Japanese Intensity Scale).
 MD Duration Magnitude.
 RF Rossi-Farel Intensity Scale.
 SPEC An NEIS solution based on use of dense local networks, a local crustal model, or other methods not routinely applied in calculating the hypocenter parameters.
 Raman Used to indicate intensity (when not followed by RF or JMA they refer to the Modified Mercalli Scale or any
 Numerals 12-point intensity scale closely related to it).

Symbols Following Depth

N Indicates the depth was restrained at 33 km for earthquakes whose character on seismograms indicates a shallow focus but whose depth is not satisfactorily determined by the data.
 D Indicates the depth was restrained by the computer program based on 2 or more compatible pP phases and/or unidentified secondary arrivals used as pP.
 G Indicates the depth was restrained by a geophysicist. Same depths are from broadband displacement seismograms.
 * Indicates a less well-constrained free depth. The 90% marginal confidence interval on depth is greater than 8.5 km and less than or equal to 16.0 km.

The lack of any symbol indicates that the 90% marginal confidence interval on depth is less than or equal to 8.5 km, or that a contributed hypocenter was computed with a free depth, regardless of the size of the confidence interval.

Symbols Following Origin Time

& Indicates that parameters of the hypocenter were supplied or determined by a computational procedure not normally used by the National Earthquake Information Service (NEIS). The source or nature of the determination is indicated by a 2 to 5 letter code enclosed by angle brackets and appearing in the first line of comments. These codes are included with the list of abbreviations above.
 * Indicates a less reliable solution. In general, the geometric mean of the semi-major and semi-minor axes of the horizontal 90% confidence ellipse is greater than 8.5 km and less than or equal to 16.0 km.
 ? Indicates a poor solution, published for completeness of the catalog. In general, the geometric mean of the semi-major and semi-minor axes of the horizontal 90% confidence ellipse is greater than 16.0 km. This includes a poor solution computed using data reported by a single network.

The lack of any symbol indicates that the geometric mean of the semi-major and semi-minor axes of the horizontal 90% confidence ellipse is less than or equal to 8.5 km.

APPROXIMATE CORRELATION OF GRADES FOR INTENSITY SCALES REPORTED IN THIS PUBLICATION

Modified Mercalli 1931	Japanese, 1950 (JMA)	Rossi-Farel, 1873 (RF)
I	0	I
II	I	I-II
III	II	III
IV	II-III	IV-V
V	III	V-VI
VI	IV	VI-VII
VII	IV-V	VIII-
VIII	V	VIII+-IX
IX	V-VI	IX+
X	VI	X
XI	VII	X
XII	VII	X

TRAVEL-TIME TABLES

In general, all hypocenters have been computed based on the 1940 Jeffreys-Bullen P and 196B Bolt PKP travel-time tables. Some other earth model or computational procedure may have been used for those hypocenters which have been indicated by an ampersand (&) following the origin time.

MACROSEISMIC INFORMATION

Macroseismic information is compiled from various sources, including newspaper articles, Foreign Broadcast Information Service messages, U.S. Geological Survey Earthquake Reports and seismological station reports. Sources of information for particular events can be supplied on request from: U.S. Geological Survey, National Earthquake Information Center, Stop 967, Box 25046, Denver Federal Center, Denver, CO 80225, U.S.A.

GEOGRAPHIC REGIONS

The regions shown in the comments column are from the seismic and geographical regionalization of Flinn, Engdahl and Hill (1974), with occasional name changes which have been given in various issues of the Preliminary Determination of Epicenters Monthly Listing. The boundaries of these regions are defined at one degree intervals and differ slightly from irregular political boundaries.

NEIS MAGNITUDES

All magnitudes are NEIS magnitudes unless otherwise indicated. Average magnitudes are computed by a 25% trimmed mean as described by Rosenberger, J. L. and Gaska, M., 1983, "Comparing location estimators: trimmed means, medians, and trimean" in Understanding Robust and Exploratory Data Analysis, ed. Haaglin, D.C., Mosteller, F., and Tukey, J. W., John Wiley, New York.

Ms These surface wave magnitudes are computed from the I.A.S.P.E.I. formula:

$$M_s = \text{Log } (A/T) + 1.66 \text{ Log } D + 3.3$$

where:

A is the maximum ground amplitude in micrometers (microns) of the vertical component of the surface wave within the period range $18 \leq T \leq 22$.

T is the period in seconds.

D is the distance in geocentric degrees (station to epicenter) and $20' \leq D \leq 160'$.

No depth corrections are applied, and M_s magnitudes are not generally computed for depths greater than 50 km. The M_s value published is the average of the individual station magnitudes from reported T and A data.

If the uncertainty of the computed depth is considered great enough that the depth could be less than 50 km, an M_s value may still be published, computed by the I.A.S.P.E.I. formula and not corrected for depth.

In general, the M_s magnitude is more reliable than the MB magnitude as a means of yielding the relative "size" of a shallow-focus earthquake.

MB These compressional body wave (P-wave) magnitudes are computed according to the formula:

$$M_B = \text{Log } (A/T) + Q(D,h)$$

defined by Gutenberg and Richter (1956) except that T, the period in seconds, is restricted to $0.1 \leq T \leq 3.0$ and A, the ground amplitude in micrometers, is not necessarily the maximum in the P group. Q is a function of distance (D) and depth (h) where $D \geq 5'$.

mbLg These Lg body wave magnitudes are computed according to the formula:

$$mbLg = 3.75 + 0.90 \text{ Log } D + \text{Log } (A/T) \text{ for } 0.5' \leq D \leq 4'$$

$$mbLg = 3.30 + 1.66 \text{ Log } D + \text{Log } (A/T) \text{ for } 4' \leq D \leq 30'$$

as proposed by Nuttli (1973) where A is the ground amplitude in micrometers and T is the period in seconds calculated from the vertical component 1-second Lg waves. D is the distance in geocentric degrees.

ML These local magnitudes are computed according to the formula:

$$M_L = \text{Log } A - \text{Log } A_0$$

defined by Richter (1935) where A is the maximum trace amplitude in micrometers recorded on a standard short-period torsion seismometer and $\text{Log } A_0$ is a standard value as a function of distance where distance ≤ 600 km.

CONTRIBUTED MAGNITUDES

Magnitudes appearing in the comments which have been contributed by organizations operating a network of stations may have been calculated from any one station in the network or may be an average magnitude from a number of stations from the network.

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