

**Catalogue of
U.S. Geological Survey
Strong-Motion Records, 1994**

Compiled by Josephine C. Switzer,
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PREFACE

The first seismic engineering program in the United States was administered by the Seismological Field Survey (SFS) of the U.S. Coast and Geodetic Survey. This program was begun in 1931 and essentially remained the responsibility of the SFS until 1973, when the U.S. Geological Survey (USGS) assimilated the program into its Earthquake Hazards Reduction Program. Currently, the National Strong-Motion Program (NSMP) operates a cooperative network containing approximately 900 accelerographs in 39 states and Puerto Rico. This network is administered by the USGS in cooperation with both private industry and numerous Federal, State, and local agencies and organizations. Major contributors include the Army Corps of Engineers, the Department of Veterans Affairs, and the Metropolitan Water District of Southern California. Primary objectives of the program are to record strong ground motions and the response of representative engineered structures during moderate to large earthquakes, and to disseminate the resultant data and information about the records, sites, and structures to the earthquake engineering research and design community.

This catalogue continues in a revised format the yearly publication "Strong-Motion Program Report, January-December [year]"; it is a continuation of the table 1 summary of accelerograms recovered at NSMP stations that had been published in that format since 1974. This report includes all strong-motion recordings recovered during 1994. Unless otherwise referenced, earthquake data and information are taken from the "Preliminary Determination of Epicenters," published weekly by the U.S. Geological Survey.

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INTRODUCTION

During January-December 1994 more than 825 accelerograph records were recovered from permanent National Strong-Motion Program (NSMP) stations operated by the U.S. Geological Survey; approximately 780 of these recordings are related to the January 17 Northridge earthquake and aftershocks. In comparison, the NSMP national network has produced an annual average of about 300 recordings for the 20-year period 1974 through 1993.

The nearly 800 Northridge accelerograms include strong-motion data from about 150 accelerographs located at nearly 100 permanent stations throughout the greater Los Angeles region. The data were recorded at more than 30 high-rise buildings, 7 major hospitals, 12 dams, 6 fire stations, 1 bridge, 7 water/power distribution facilities, and more than 60 ground sites. The data include records from two base-isolated structures: a 3-story residence in West Los Angeles and a 165-meter-long, steel-truss bridge, which supports a major water pipeline that crosses the Santa Ana River southwest of Riverside.

Maximum ground accelerations at 11 sites within a 30-km epicentral distance exceeded 0.25 *g*; Skinner Dam, northeast of Temecula, at a distance of more than 150 km, was the most distant NSMP station triggered during the main shock. Additional records were recovered from strong-motion stations operated by the California Division of Mines and Geology, the University of Southern California, the Los Angeles Department of Water and Power, the California Department of Water Resources, Southern California Edison, Caltech, and the owners of numerous large buildings, which were instrumented in accordance with the Uniform Building Code or the Los Angeles building code.

Records were also recovered from instrumentation triggered by several non-Northridge events in California: an $M_L=4.2$ earthquake near Eureka on January 20, an $M_L=4.2$ event near Berkeley on June 26, an $M_L=6.0$ event in eastern Calif. on September 12, and an $M_L=5.0$ event near Parkfield on December 20 (see table 1). Other events recorded during 1994 include an $M_L=4.1$ event in Washington State on September 10, and an $M_B=5.3$ earthquake on the Big Island of Hawaii on February 1. The Berkeley event of June 26 triggered 5 permanent stations, including two large structure arrays; maximum ground acceleration recorded in Berkeley was 0.12 *g*. The Hawaii earthquake of February 1 triggered accelerographs at 12 permanent stations on the Big Island; maximum ground accelerations were generally in the range 0.05-0.1 *g*.

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

[Station owners: ACOE, U.S. Army Corps of Engineers; CDWR, California Department of Water Resources; DOE, Department of Energy; MWD, Metropolitan Water District of Southern California; OWNER, building owner; USGS, U.S. Geological Survey; VA, U.S. Department of Veterans Affairs. Instrument trigger time is in minutes and seconds after the hour listed in earthquake column; *P*-wave arrival time is listed in brackets. *S*-minus trigger denotes *S*-wave-arrival-minus trigger-time interval (*S*-*t*), or *S*-wave-minus-*P*-wave-arrival time interval (*S*-*P*, in brackets). Direction is of case acceleration for upward trace deflection on accelerogram; horizontal components are listed as azimuth, and vertical components as "up" or "down." Maximum amplitude is peak acceleration recorded at ground level on one vertical and two orthogonal horizontal components unless otherwise noted. Numbers in parentheses refer to footnotes at end of table.]

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	<i>S</i> -minus trigger (s)	Direction (az)	Maximum amplitude (<i>g</i>)
9 January 1994 2300:58.9 G.m.t. Southern Calif. 33.988N, 118.504W Magnitude 3.7 ML	Los Angeles Wadsworth VA Hospital (VA) North Ground Site	34.054 118.453	01:06.4	2.4	325 Up 235	0.05 0.02 0.03
10 January 1994 0612:03.8 G.m.t. Southern Calif. 33.993N, 118.492W Magnitude 3.1 ML	Los Angeles Wadsworth VA Hospital (VA) North Ground Site	34.054 118.453	12:06.4	2.3		(1)
6 July 1993- 12 January 1994 Southern Calif. Epicenters and magnitudes unknown	Los Angeles 1955 1/2 Purdue Ave. (USGS) Basement Third floor	34.040 118.445	(3)	2.2	235 Up 145 235 Up 145 235 Up 145	0.04 0.02 0.08 0.02 0.07 0.06 0.02 0.04 0.05
Note: Two each and one each additional records ¹ recovered at basement and third floor, respectively, at 1955 1/2 Purdue Ave.						
6 May 1993- 16 January 1994 Southern Calif. Epicenters and magnitudes unknown	Los Angeles 600 City Parkway West (OWNER) 11th Floor	33.783 117.896	(3)	(2)	360 Up 270 360 Up 270	0.01 0.07 0.01 0.01 0.06 0.01

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)	
17 January 1994 1230:55.3 G.m.t. Southern Calif. 34.211N, 118.538W Magnitude 6.6 Ms (Northridge Earthquake)	Los Angeles 8436 West 3rd Street (OWNR) Roof (10th level)	34.072 118.375	(1)	3.9	360 Up 270	0.65 0.23 0.56	
	Los Angeles 6301 Owensmouth Ave. (OWNR) Roof (12)	34.185 118.584	(3)	2.8	360 Up 270	0.48 0.48 0.39	
	Los Angeles Sepulveda VA Hospital [VA] Ground	34.249 118.475	(3)	1.2	360 Up 270	0.94 0.48 0.74	
	Los Angeles 5805 Sepulveda Blvd. (OWNR) Roof (9)	34.175 118.465	(3)	1.0	360 Up 270	0.76 0.50 0.64	
	Los Angeles 16000 Ventura Blvd. (OWNR) Roof (13)	34.156 118.480	(3)	3.0	120 Up 030	0.37 0.37 0.41	
	Los Angeles 15250 Ventura Blvd. (OWNR) Roof (13)	34.157 118.476	(3)	3.0	360 Up 270	0.61 0.43 0.27	
	Jensen Filter Plant [MWD] Admin. Bldg Basement	34.312 118.496	(3)	1.6	022 Up 292	0.40 0.40 0.62	
	Generator Building	34.313 118.498	(3)	0.4	022 Up 292	0.56 0.52 0.98	
	Reservoir Roof	34.309 118.499	(3)	1.1	022 Up 292	0.65 0.51 0.84	
	Sepulveda Canyon Spillway Building [MWD] Ground	34.097 118.475	(3)	2.8	166 Up 076	0.26 0.16 0.43	
	Topanga Fire Station (USGS) Ground	34.084 118.599	(3)	0.7	360 Up 270	0.34 0.19 0.21	
	Note: Eight additional records ¹ recovered at Topanga fire station.						
	Los Angeles 10660 Wilshire Blvd. (OWNR) Roof (19)	34.061 118.434	(3)	1.6	160 Up 070	0.43 0.51 1.00	

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Santa Susana Energy Tech. Eng. Ctr. [DOE]					
	Bldg. 026, Ground	34.232 118.710	(3)	(2)	325 Up 235	0.32 0.27 ---
	Bldg. 462, 1st Floor	34.230 118.712	(3)	(2)	090 Up 360	0.24 0.23 0.34
	Bldg. 462, 6th Floor	34.230 118.712	(3)	(2)	090 Up 360	0.41 0.40 0.60
	Bldg. 463, Roof	34.230 118.713	(3)	(2)	090 Up 360	0.41 0.66 0.76
	Freefield	34.231 118.713	(3)	(2)	090 Up 360	0.29 0.16 0.23
	Los Angeles Brentwood VA Hospital [VA] Ground	34.063 118.463	(3)	3.1	285 Up 195	0.16 0.14 0.18
	Note: Four additional records ¹ recovered at Brentwood VA hospital.					
	Los Angeles 10920 Wilshire Blvd. (OWNER) 19th Level	34.058 118.443	(3)	5.0	070 Up 340	0.14 0.24 0.17
	Note: Two additional records ¹ recovered at 10920 Wilshire Blvd., 19th level.					
	Los Angeles 10751 Wilshire Blvd. (OWNER) Roof (12)	34.060 118.438	(3)	3.2	252 Up 162	0.40 0.39 0.30
	Note: Thirty-one additional records ¹ recovered at 10751 Wilshire Blvd., roof.					
	Los Angeles Wadsworth VA Hospital (USGS) North Ground Site	34.054 118.453	31:00.6	3.6	325 Up 235	0.26 0.17 0.26
			[32.01.2]	[4.3]	325 Up 235	0.07 0.06 0.07
	Los Angeles 12121 Wilshire Blvd. (OWNER) Roof (15)	34.044 118.467	(3)	4.0	226 Up 136	0.27 0.37 0.32
	Note: Twelve additional records ¹ recovered at 12121 Wilshire Blvd., roof.					

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Los Angeles Wadsworth VA Hospital (USGS) South Ground Site	34.050 118.448	31:01.1	3.8	325 Up 235	0.39 0.14 0.30
			[32:02.2]	[4.0]	325 Up 235	0.09 0.02 0.03
	Los Angeles Wadsworth VA Hospital (VA) Structure Array	34.053 118.452	(3)	2.6		
	Ch. 1 - 6th Floor, North				235	0.56
	2 - 6th Floor, North-center				235	0.44
	3 - 6th Floor, Center				235	0.46
	4 - 6th Floor, Center				055	0.46
	5 - 6th Floor, South				055	0.46
	6 - 6th Floor, South				335	0.49
	7 - Basement, North-center				325	0.21
	8 - Basement, North-center				235	0.22
	9 - Basement, North-center				Down	0.09
	Los Angeles 2029 Century Park East (OWNR) 43rd Floor	34.059 118.413	(3)	4.0	320 Up 230	0.31 0.46 0.32
	Note: Eleven additional records ¹ recovered at 2029 Century Park East, 43rd floor.					
	Malibu Canyon Monte Nido Fire Station (USGS) Ground	34.078 118.693	31:00.2	3.2	360 Up 270	0.20 0.13 0.17
			[32:01.3]	[5.0]		(1)
	Los Angeles 2121 Ave. of the Stars (OWNR) Roof (36)	34.057 118.414	(3)	2.8	330 Up 240	0.43 0.63 0.37
	Los Angeles 444 S. San Vicente (OWNR) Roof (12)	34.071 118.374	(3)	4.3	335 Up 245	0.55 0.31 0.64
	Los Angeles 2005 N. Highland Ave. (OWNR) Roof (8)	34.106 118.336	(3)	2.0	360 Up 270	0.36 0.21 0.42
	Los Angeles 600 S. Commonwealth (OWNR) 19th Floor	34.063 118.284	(3)	4.8	028 Up 298	0.24 0.22 0.17
	Los Angeles 1526 N. Edgemont St. (OWNR) Roof (8)	34.098 118.294	(3)	0.8	090 Up 360	0.84 0.27 0.78

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Los Angeles 1955 1/2 Purdue Ave. (USGS) Basement	34.040 118.445	(3)	4.1	235 Up 145	0.44 0.16 0.39
	1st Level				235 Up 145	0.50 0.48 0.49
	3rd Level				235 Up 145	0.63 0.46 0.46
	Los Angeles Griffith Observatory (USGS) Ground	34.118 118.299	(3)	3.3	360 Up 270	0.18 0.15 0.29
	Note: Two additional records ¹ recovered at Griffith Observatory.					
	Los Angeles 4929 Wilshire Blvd. (OWNR) Roof (11)	34.063 118.337	(3)	4.1	180 Up 090	0.42 0.31 0.34
	Note: Thirteen additional records ¹ recovered at 4929 Wilshire Blvd., roof.					
	Los Angeles 695 S. Vermont Ave. (OWNR) 18th Floor	34.060 118.290	(3)	4.8	360 Up 270	0.12 0.19 0.11
	Note: Four additional records ¹ recovered at 695 S. Vermont Ave., 18th floor.					
	Los Angeles 1100 Wilshire Blvd. (USGS) Bsm. 3 NE	34.052 118.263	31:03.4	3.7	298 Up 208	0.13 0.09 0.15
	Los Angeles 1100 Wilshire Blvd. (USGS) Bsm. 3 SE	34.052 118.263	31:03.4	3.7	298 Up 208	0.14 0.07 0.10
	Los Angeles 333 South Hope St. (OWNR) 55th Floor	34.053 118.252	(3)	5.3	083 Up 353	0.11 0.18 0.11
	Note: Nine additional records ¹ recovered at 333 South Hope St., 55th floor.					
	Los Angeles 500 S. Grand Ave. (OWNR) 25th Level	34.049 118.252	(3)	5.0	045 Up 315	0.19 0.17 0.17
	Note: Four additional records ¹ recovered at 500 S. Grand Ave., 25th level.					
	Los Angeles 1100 Wilshire Blvd. (USGS) Bsm. 4 NW	34.052 118.263	31:03.4	3.7	298 Up 208	0.11 0.06 0.12

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Los Angeles 1100 Wilshire Blvd. (USGS) Structure Array	34.052 118.263	31:03.3	3.7		
	Ch. 1 - 12th Floor North				298	0.16
	2 - 12th Floor North				208	0.22
	3 - 12th Floor South				208	0.16
	4 - 13th Floor North				298	0.16
	5 - 13th Floor North				208	0.28
	6 - 13th Floor South				208	0.16
	7 - 32nd Floor North				298	0.14
	8 - 32nd Floor North				208	0.35
	9 - 32nd Floor South				208	0.16
	10 - Ground Floor North				298	0.18
	11 - Ground Floor North				208	0.11
	12 - Ground Floor South				208	0.19
	Los Angeles 1111 Sunset Blvd. [MWD]	34.067 118.248	(3)	3.7		
	Basement				348 Up 258	0.13 0.06 0.13
	4th Floor				348 Up 258	0.17 0.09 0.18
	Roof (8)				348 Up 258	0.23 0.16 0.23
	Note: One each additional record ¹ recovered at 1111 Sunset Blvd., basement, 4th floor, and roof.					
	Los Angeles 520 S. Grand Ave. (OWNR) 11th Level	34.050 118.252	(3)	4.2	045 Up 315	0.15 0.13 0.24
	Note: Four additional records ¹ recovered at 520 S. Grand Ave., 11th level.					
	Los Angeles 1150 South Hill Street (OWNR) 10th Floor	34.039 118.259	(3)	5.2	307 Up 217	0.13 0.15 0.08
	Note: Four additional records ¹ recovered at 1150 South Hill St., 10th floor.					
	Burbank 3601 W. Olive Ave (OWNR) Roof (9)	34.152 118.337	(3)	3.2	360 Up 270	0.56 0.81 0.52
	Lawndale 15000 Aviation Blvd. (USGS) Ground	33.895 118.377	(3)	3.7	360 Up 270	0.18 0.09 0.13

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Los Angeles 6101 Century Blvd. (OWNR) 15th Level	33.946 118.391	(3)	3.4	270 Up 180	0.14 0.10 0.18
	Note: Three additional records ¹ recovered at 6101 Century Blvd., 15th level.					
	Los Angeles 5250 Century Blvd. (OWNR) Roof (8)	33.945 118.372	(3)	5.2	090 Up 360	0.16 0.22 0.15
	Note: Three additional records ¹ recovered at 5250 Century Blvd., roof.					
	Los Angeles 255 E. Temple St. (OWNR) 21st Level	34.052 118.237	(3)	5.5	120 Up 030	0.38 0.29 0.33
	Note: Eight additional records ¹ recovered at 255 E. Temple St., 21st level.					
	Pasadena (Analog) 535 S. Wilson Ave. (USGS) Ground	34.136 118.127	(3)	5.1	360 Up 270	0.16 0.10 0.15
	Pasadena (Digital) 535 S. Wilson Ave. (USGS) Ground	34.136 118.127	(3)	(2)	360 Up 270	0.19 0.11 0.15
	Los Angeles Bulk Mail Facility (Bell) (USGS) Ground	33.996 118.162	(3)	5.1	360 Up 270	0.27 0.09 0.16
	Alhambra 900 South Fremont Ave. (USGS) Structure Array	34.085 118.149	31:04.2	4.5		
	Ch. 1 - 12th Floor Center				360	0.11
	2 - 12th Floor Center				090	0.16
	3 - 12th Floor North end				090	0.13
	4 - 6th Floor Center				090	0.24
	5 - 6th Floor Center				360	0.15
	6 - 6th Floor North end				090	0.20
	7 - 2nd Floor Center				090	0.60
	8 - 2nd Floor Center				360	0.39
	9 - 2nd Floor North end				090	0.40
	10 - Basement Center				360	0.13
	11 - Basement Center				Up	0.10
	12 - Basement Center				090	0.19
	Los Angeles 19191 S. Vermont (OWNR) Roof (11)	33.855 118.291	(3)	5.4	360 Up 270	0.14 0.10 0.22
	Chantry Flat Forest Station, Heliport (USGS) Ground	34.196 118.021	(3)	(2)	290 Up 020	0.20 0.12 0.26

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Garvey Reservoir [MWD] Crest	34.050 118.114	(3)	3.2	114 Up 024	0.16 0.08 0.18
	Abutment Building				114 Up 024	0.14 0.07 0.12
	Whittier Narrows Dam [ACOE] Crest	34.020 118.053	(3)	(2)	028 Up 118	0.19 0.07 0.21
	Upstream (Baseyard)				360 Up 090	0.22 0.08 0.15
	Leona Valley Fire Station (USGS) Ground	34.620 118.290	(3)	4.2	120 Up 030	0.05 0.06 0.07
	Note: Four additional records ¹ recovered at Leona Valley fire station.					
	Palos Verdes Reservoir [MWD] Abutment Bldg.	34.774 118.321	(3)			
				3.5	210 Up 120	0.15 0.10 0.12
	Crest			6.1	210 Up 120	0.12 0.07 0.15
	Whittier 7215 Bright Ave. [USGS] Basement	33.977 118.036	(3)	6.5		
					180 Up 090	0.15 0.07 0.12
	5th Floor				180 Up 090	0.30 0.10 0.15
	10th Floor				180 Up 090	0.18 0.12 0.24

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Morris Dam Left abutment [MWD]	34.173 117.879	(3)	2.6	246 Up 156	0.04 0.03 0.03
	Littlerock Post Office (USGS) Ground	34.526 117.995	(3)	7.2	300 Up 210	0.13 0.08 0.18
	Long Beach VA Hospital [VA] Basement	33.778 118.118	(3)	6.1	360 Up 270	0.07 0.04 0.05
	6th Floor				360 Up 270	0.15 0.06 0.11
	11th Floor				360 Up 270	0.20 0.08 0.21
	Ground Site				360 Up 270	0.07 0.03 0.07
	Valyermo Forest Station (USGS) Ground	34.439 117.900	(3)	6.5	300 Up 210	0.08 0.05 0.07
	Norwalk 12400 Imperial Highway (USGS) North Ground Site	33.917 118.067	(3)	4.5	090 Up 360	0.08 0.06 0.08
	South Ground Site		(3)	3.8	090 Up 360	0.06 0.06 0.09
	Norwalk 12440 Imperial Highway (USGS) North Ground Site	33.917 118.065	(3)	5.3	090 Up 360	0.06 0.06 0.08
	Basement				090 Up 360	0.06 0.04 0.06

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Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	12440 Imperial Highway					
	Structure Array 1		31:10.3	5.5		
	Ch. 1 - 9th Level (Roof), Center				090	0.14
	2 - 6th Level, Center				090	0.11
	3 - 3rd Level, Center				090	0.08
	4 - 2nd Level, Center				090	0.07
	5 - 1st Level (Bsmt.), East end				180	0.06
	6 - 6th Level, West Center				180	0.11
	7 - 1st Level (Bsmt.), Center				Up	0.14
	8 - 1st Level (Bsmt.), Center				090	---
	9 - 1st Level (Bsmt.), Center				180	0.07
	10 - Downhole (30 ft.), Center				Up	0.03
	11 - Downhole (30 ft.), Center				090	---
	12 - Downhole (30 ft.), Center				180	0.06
	Structure Array 2					
	Ch. 13 - 9th Level (Roof), East end				180	0.14
	14 - 6th Level, East end				180	0.09
	15 - 3rd Level, East end				180	0.05
	16 - 2nd Level, East end				180	0.06
	17 - 9th Level, (Roof) Bldg Center				180	0.18
	18 - 6th Level, Bldg Center				180	0.13
	19 - 3rd Level, Bldg Center				180	0.09
	20 - 2nd Level, Bldg Center				180	0.08
	21 - 9th Level, (Roof) West end				180	0.12
	22 - 6th Level, West end				180	0.08
	23 - 3rd Level, West end				180	0.06
	24 - 2nd Level, West end				180	0.07
	Brea Dam	33.890	(3)	5.5		
	[ACOE]	117.925				
	Crest				132	0.14
					Up	0.09
					042	0.23
	Left Abutment				132	0.08
					Up	0.08
					042	0.10
	Downstream				132	0.19
					Up	0.05
					042	0.12
	Orange County Reservoir	33.936	(3)	6.4		
	[MWD]	117.884				
	Crest				090	0.20
					Up	0.09
					360	0.19
	Abutment	33.935			090	0.11
		117.883			Up	0.05
					360	0.11

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Weymouth Filter Plant [MWD] Ground Site	34.114 117.778	(3)	5.2	017 Up 287	0.05 0.04 0.05
	Tank Top				017 Up 287	0.16 0.11 0.11
	Carbon Canyon Dam [ACOE] Crest	33.914 117.839	(3)	8.0	131 Up 041	0.11 0.08 0.19
	Left Abutment				131 Up 041	0.11 0.03 0.10
	Right Abutment				131 Up 041	0.14 0.06 0.14
	Paradise Springs Camp (USGS) Ground	34.400 117.800	(3)	7.4	120 Up 030	0.06 0.03 0.05
	Live Oak Reservoir Abutment [MWD]	34.140 117.749	(3)	(2)	180 Up 090	0.04 0.01 0.03
	Diemer Filter Plant [MWD] Admin. Bldg. Basement	33.913 117.819	(3)	4.5	281 Up 191	0.07 0.04 0.12
	Reservoir Roof				281 Up 191	0.06 0.05 0.11
	Huntington Beach 18401 Springdale (USGS) Ground	33.697 118.023	31:13.4	6.1	360 Up 270	0.12 0.02 0.11
	Orange 200 S. Manchester Ave. (OWNR) Roof (9)	33.789 117.894	(3)	9.1	360 Up 270	0.16 0.16 0.11

Note: Three additional records¹ recovered at 200 S. Manchester Ave., roof.

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Orange 333 City Blvd. West (OWNER) 22nd Level	33.787 117.894	(3)	9.8	360 Up 270	0.04 0.10 0.06
	Note: One additional record ¹ recovered at 333 City Blvd. West, 22nd level.					
	Orange 600 City Parkway West (OWNER) 11th Floor	33.783 117.896	(3)	9.5	360 Up 270	0.11 0.10 0.14
	Note: One additional record ¹ recovered at 600 City Parkway West, 11th floor.					
	Orange 505 City Parkway West (OWNER) 11th Floor	33.782 117.896	(3)	9.6	360 Up 270	0.11 0.11 0.08
	Note: Two additional records ¹ recovered at 505 City Parkway West, 11th floor.					
	San Antonio Dam Downstream [ACOE]	34.156 117.675	(3)	5.9	090 Up 360	0.05 0.03 0.09
	Santa Ana 400 Civic Center Drive (USGS) Basement	33.751 117.870	(3)	5.5	360 Up 270	0.08 0.03 0.06
	Costa Mesa Fire Station #4 2300 Placentia Ave. (USGS) Ground	33.658 117.931	(3)	7.4	360 Up 270	0.08 0.04 0.05
	Wrightwood Post Office (USGS) Ground	34.360 117.629	31:11.8	9.3	360 Up 270	0.08 0.03 0.07
	Costa Mesa John Wayne Airport (USGS) Ground	33.677 117.869	(3)	6.2	360 Up 270	0.09 0.03 0.07
	Irvine 2603 Main Street (OWNER) Ground	33.682 117.842	(3)	5.7		
					360 Up 270	0.06 0.03 0.11
	7th Level				360 Up 270	0.11 0.07 0.11
	13th Level				360 Up 270	0.10 0.08 0.09

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. μ N Long. μ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Irvine 19900 MacArthur Blvd. (USGS) Basement	33.656 117.859	(3)	6.0	060 Up 330	0.07 0.02 0.04
	Structure Array					
	Ch. 1 - Roof NE corner				060	0.18
	2 - Roof SW corner				060	0.17
	3 - 7th Floor NE				060	0.13
	4 - 7th Floor SW				060	0.13
	5 - 1st Floor South side				060	0.07
	6 - Roof, SW corner				330	0.11
	7 - 7th Floor, SW				330	0.12
	8 - 1st Floor West side				330	0.07
	9 - 1st Floor South side				330	0.06
	10 - 7th Floor SW corner				Down	0.14
	11 - 1st Floor West side				Down	0.01
	12 - 1st Floor South side				Down	0.03
	Irvine 2601 Main Street (OWNR) 13th Level	33.682 117.842	(3)	9.2	360 Up 270	0.11 0.07 0.11
	Note: One additional record ¹ recovered at 2601 Main St., 13th level.					
	Newport Beach 800 Marguerite (USGS) Ground	33.600 117.866	(3)	6.0	360 Up 270	0.03 0.02 0.05
	Newport Beach 800-840 Newport Center Dr. (USGS) Structure Array	33.618 117.878	(3)	8.2		
	Ch. 1 - Tower 2 Level 1 Center				020	0.06
	2 - Tower 2 Level 1 Center				Up	0.02
	3 - Tower 2 Level 1 Center				110	0.04
	4 - Tower 2 Level 2 West				110	0.09
	5 - Middle Building Level 2				020	0.11
	6 - Middle Building Level 2				110	0.10
	7 - Tower 2, Level 9 South				110	0.07
	8 - Tower 2, Level 10 Center				020	0.05
	9 - Tower 2, Level 10 Center				110	0.07
	10 - Tower 1, Level 9 East				110	0.06
	11 - Tower 1, Level 10 Center				020	0.06
	12 - Tower 1, Level 10 Center				110	0.04
	Lytle Creek Mt. Lakes Resort (USGS) Ground	34.251 117.490	(3)	7.2	360 Up 270	0.08 0.03 0.07
	Mills Filter Plant [MWD] Ground	33.920 117.320	(3)	(2)	360 Up 270	0.02 0.02 0.02

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Prado Dam [ACOE] Crest	33.890 117.641	(3)	6.4	090 Up 360	0.09 0.07 0.10
	Downstream				090 Up 360	0.20 0.06 0.18
	Left Abutment				090 Up 360	0.06 0.04 0.14
	San Joaquin Reservoir [MWD] Crest	33.620 117.842	(3)	6.5	087 Up 357	0.04 0.02 0.04
	Left Abutment				087 Up 357	0.12 0.07 0.14
	Riverside Santa Ana River Bridge (MWD) North Abutment	33.968 117.447	(3)	(2)	166 Up 076	0.05 0.03 0.04
	Riverside Santa Ana River Bridge (MWD) Structure Array	33.968 117.447	(3)	(2)		
	Ch. 1 - North abutment				346	0.04
	2 - North abutment				Down	0.02
	3 - North abutment				076	0.03
	4 - Pier 7-8, mid-span				346	0.16
	5 - Pier 7-8, mid-span				Down	0.12
	6 - Pier 7-8, mid-span				076	0.11
	7 - Pier 8, below bearing				346	0.09
	8 - Pier 8, below bearing				Down	0.02
	9 - Pier 8, below bearing				076	0.03
	10 - Pier 8 above bearing				346	0.11
	11 - Pier 8 above bearing				Down	0.02
	12 - Pier 8 above bearing				076	0.17
	Lake Mathews Dam Dike Toe [MWD]	33.852 117.451	(3)	3.5	252 Up 162	0.03 0.03 0.05
	San Bernardino Array Devore Water Department (USGS) Ground	34.235 117.407	(3)	6.5	360 Up 270	0.05 0.02 0.07

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. μ N Long. μ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	San Bernardino Array Rialto Fire Station (USGS) Ground	34.134 117.368	(3)	(2)	360 Up 270	0.03 0.03 0.03
	San Bernardino Array San Bernardino Valley Coll (USGS) Ground	34.086 117.309	(3)	5.4	360 Up 270	0.05 0.03 0.07
	San Bernardino Array North "F" Street (USGS) Ground	34.183 117.295	31:25.0	4.3	360 Up 270	0.05 0.02 0.06
	San Bernardino 385 N. Arrowhead Ave. (USGS) Ground Level	34.106 117.287	31:33.3	(2)	090 Up 360	0.04 0.02 0.05
	San Bernardino 385 N. Arrowhead Ave. (USGS) East Ground Site	34.106 117.287	31:34.5	(2)	360 Up 270	0.04 0.02 0.04
	San Bernardino 385 N. Arrowhead Ave. (USGS) Structure Array	34.106 117.287	31:33.3	(2)		
	Ch. 1 - 2nd Floor NW				360	0.07
	2 - 2nd Floor NE				090	0.07
	3 - 2nd Floor NE				360	0.08
	4 - 2nd Floor SW				090	0.07
	5 - 4th Floor SW				090	0.14
	6 - 4th Floor NW				360	0.11
	7 - Roof (6th) NE				090	0.15
	8 - Roof (6th) NW				360	0.25
	9 - Roof (6th) SW				090	0.21
	10 - Roof (6th) NE				360	0.21
	11 - 4th Floor NE				090	0.10
	12 - 4th Floor NE				360	0.15
	San Bernardino Array Mill Creek Ranger Station (USGS) Ground	34.080 117.114	(3)	(2)	360 Up 270	0.02 0.02 0.03
	Loma Linda University Medical Center (USGS) Ground	34.050 117.263	(3)	(2)	360 Up 270	0.04 0.02 0.04
	Loma Linda VA Hospital North Ground Site [VA]	34.051 117.248	(3)	10.8	360 Up 270	0.05 0.02 0.05
	Loma Linda VA Hospital South Ground Site [VA]	34.049 117.250	(3)	10.6	360 Up 270	0.04 0.03 0.05

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Loma Linda VA Hospital [VA] Structure Array	34.050 117.249	(3)	10.5		
	Ch. 1 - Ground Floor Center				Down	0.02
	2 - Ground Floor Center				180	0.05
	3 - Ground Floor Center				270	0.04
	4 - 4th Floor Center				270	0.16
	5 - Ground Floor North				270	0.05
	6 - 4th Floor Center				180	0.10
	7 - 4th Floor North				270	0.16
	8 - Ground Floor South				180	0.03
	9 - 4th Floor South				270	0.13
	Reche Canyon Olive Dell Ranch (USGS) Ground	34.004 117.223	(3)	(2)	330 Up 240	0.02 0.01 0.02
	Skinner Dam [MWD] Finished Water Reservoir Crest	33.575 117.081	(3)	(2)	354 Up 084	0.03 0.03 0.03
	Left Abutment				178 Up 088	0.01 0.01 0.02
	Structure Array					
	Ch. 1 - Center crest				180	0.05
	2 - Center crest				Up	0.02
	3 - Center crest				270	0.08
	4 - Left crest				180	0.05
	5 - Left crest				270	0.05
	6 - Left slope				270	0.04
	7 - Center slope				180	0.03
	8 - Center slope				Up	0.02
	9 - Center slope				270	0.04
	10 - Center toe				180	0.02
	11 - Center toe				Up	0.02
	12 - Center toe				270	0.03
	Maricopa Array #2 [CDWR] Ground	35.040 119.429	(3)	(2)	040 Up 310	0.03 0.01 0.02
	Note: One additional record ¹ recovered at Maricopa Array #2.					
	Maricopa Array #3 [CDWR] Ground	35.078 119.401	(3)	12.1	040 Up 310	0.03 0.02 0.04
	Note: One additional record ¹ recovered at Maricopa Array #3					

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Maricopa Array #4 [CDWR] Ground	35.131 119.368	(3)	12.0	040 Up 310	0.03 0.01 0.03
	Note: One additional record ¹ recovered at Maricopa Array #4.					
	Buena Vista Pumping Plant Basement level (1) [CDWR]	35.160 119.344	31:36.4	(2)	105 Up 015	0.02 0.01 0.02
	Buena Vista Pumping Plant Ground level (4) [CDWR]	35.160 119.344	31:36.4	(2)	105 Up 015	0.02 0.01 0.02
	Buena Vista Pumping Plant Freefield [CDWR]	35.158 119.351	(3)	10.8	105 Up 015	0.03 0.01 0.04
17 January 1994- 18 January 1994 Southern Calif. Epicenters and Magnitudes unknown	Jensen Filter Plant (MWD) Admin. Bldg. Basement	34.312 118.496	(3)	(2)	022 Up 292	0.07 0.03 0.06
			(3)	2.3	022 Up 292	0.06 0.05 0.05
			(3)	1.6	022 Up 292	0.04 0.03 0.07
			(3)	1.6	022 Up 292	0.07 0.09 0.09
	Note: Thirty-two additional records ¹ recovered at JFP admin. building, basement.					
	Generator Bldg.		(3)	(2)	022 Up 292	0.12 0.04 0.16
			(3)	(2)	022 Up 292	0.06 0.03 0.04
			(3)	(2)	022 Up 292	0.07 0.03 0.06
			(3)	1.2	022 Up 292	0.05 0.05 0.09

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
			(3)	1.3	022 Up 292	0.07 0.02 0.04
			(3)	1.8	022 Up 292	0.06 0.02 0.07
			(3)	1.5	022 Up 292	0.09 0.08 0.06
			(3)	1.3	022 Up 292	0.11 0.08 0.19
			(3)	1.8	022 Up 292	0.06 0.05 0.06
Note: Twenty-three additional records ¹ recovered at JFP generator building.						
	Reservoir Roof		(3)	(2)	022 Up 292	0.07 0.04 0.08
			(3)	1.7	022 Up 292	0.07 0.06 0.08
			(3)	(2)	022 Up 292	0.08 0.08 0.09
			(3)	1.9	022 Up 292	0.12 0.07 0.09
			(3)	3.2	022 Up 292	0.12 0.04 0.13
			(3)	1.7	022 Up 292	0.06 0.05 0.07
			(3)	1.2	022 Up 292	0.08 0.04 0.07
			(3)	1.9	022 Up 292	0.09 0.03 0.04

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
			(3)	2.2	022 Up 292	0.28 0.16 0.15
			(3)	1.6	022 Up 292	0.14 0.14 0.08
			(3)	2.0	022 Up 292	0.12 0.06 0.20
			(3)	1.8	022 Up 292	0.09 0.11 0.12
			(3)	1.5	022 Up 292	0.08 0.04 0.05
			(3)	1.7	022 Up 292	0.12 0.06 0.23
			(3)	1.6	022 Up 292	0.10 0.35 0.28
			(3)	2.1	022 Up 292	0.06 0.09 0.17
Note: Twenty-eight additional records ¹ recovered at JFP reservoir roof.						
17 January 1994- 20 January 1994 Southern Calif. Epicenters and magnitudes unknown	Los Angeles 6301 Owensmouth Ave. (OWNR) Roof (12)	34.185 118.584	(3)	2.8	360 Up 270	0.08 0.13 0.03
			(3)	2.8	360 Up 270	0.06 0.09 0.04
			(3)	3.0	360 Up 270	0.08 0.09 0.02
			(3)	3.0	360 Up 270	0.08 0.08 0.07
Note: 32 additional records ¹ recovered at 3601 Owensmouth Ave., roof.						

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)	
	Sepulveda VA Hospital, Bldg. #40 (VA)	34.249 118.475	(3)	1.4	360	0.15	
					Up	0.13	
					270	0.09	
			(3)	1.8	360	Up	0.10
						270	0.04
						270	0.11
			(3)	2.0	360	Up	0.08
						270	0.02
						270	0.11
			(3)	2.2	360	Up	0.09
						270	0.02
						270	0.06
			(3)	2.1	360	Up	0.07
						270	0.03
	270	0.06					
	(3)	2.3	360	Up	0.11		
				270	0.02		
				270	0.10		
	(3)	1.8	360	Up	0.07		
				270	0.05		
				270	0.07		
	(3)	0.8	360	Up	0.12		
				270	0.02		
				270	.07		
	(3)	2.5	360	Up	0.09		
				270	0.03		
				270	0.06		
Note: 25 additional records ¹ recovered at Sepulveda VA hospital, Bldg. #40.							
	Los Angeles 5805 Sepulveda Blvd. (OWNR) Roof (9)	34.175 118.465	(3)	2.3	360	0.23	
					Up	0.11	
					270	0.14	
			(3)	2.2	360	Up	0.06
						270	0.03
						270	0.03
			(3)	2.6	360	Up	0.07
						270	0.12
						270	0.05
			(3)	2.9	360	Up	0.07
						270	0.05
						270	0.04

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. ψ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
			(3)	1.1	360 Up 270	0.06 0.05 0.09
			Note: 25 additional records ¹ recovered at 5805 Sepulveda Blvd., roof.			
	Los Angeles 16000 Ventura Blvd. (OWNR) Roof (13)	34.156 118.480	(3)	(2)	120 Up 030	0.08 0.08 0.09
			(3)	2.1	120 Up 030	0.04 0.06 0.02
			(3)	0.5	120 Up 030	0.03 0.07 0.03
			Note: 27 additional records ¹ recovered at 16000 Ventura Blvd., roof.			
	Los Angeles 10920 Wilshire Blvd. (OWNR) 19th level	34.058 118.443	(3)	3.7	070 Up 340	0.05 0.08 0.04
			Note: Ten additional records ¹ recovered at 10920 Wilshire Blvd., 19th level.			
	Los Angeles 15250 Ventura Blvd. (OWNR) Roof (13)	34.157 117.476	(3)	2.5	360 Up 270	0.15 0.09 0.04
			(3)	3.0	360 Up 270	0.06 0.05 0.03
			Note: Eleven additional records ¹ recovered at 15250 Ventura Blvd., roof.			
17 January 1994 1239:39.8 G.m.t. Southern Calif. 34.261N, 116.534W Magnitude 4.5 ML	Los Angeles Wadsworth VA Hospital (VA)	34.054 118.453				
	North Ground Site		39:44.6	3.9		(1)
			Note: Five additional records ¹ recovered at Wadsworth VA north ground site.			
17 January 1994 1756:08.2 G.m.t. Southern Calif. 34.228N, 118.573W Magnitude 4.6 ML	Malibu Canyon Monte Nido Fire Station (USGS)	34.078 118.693	56:15.7	(2)		(1)
17 January 1994 2333:30.6 G.m.t. Southern Calif. 34.326N, 118.698W Magnitude 5.6 ML	Malibu Canyon Monte Nido Fire Station (USGS)	34.078 118.693	33:40.3	(2)		(1)

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)			
17 January 1994 - 18 January 1994 Southern Calif. Epicenters and magnitudes unknown	Sepulveda Canyon Spillway Roof (MWD)	34.097 118.475	(3)	2.5	166	0.07			
					Up	0.04			
					076	0.20			
			(3)	(2)	166	0.08			
					Up	0.03			
					076	0.09			
			(3)	(2)	166	0.03			
					Up	0.02			
					076	0.06			
			Note: Seven additional records ¹ recovered at Sepulveda Canyon spillway roof.						
			17 January 1994- 18 January 1994 Southern Calif. Epicenters and magnitudes unknown	Santa Susana ETEC (DOE) Building 463, Roof	34.230 118.712	(3)	2.2	090	0.04
								Up	0.10
360	0.05								
(3)	(2)	090				0.03			
		Up				0.07			
		360				0.05			
(3)	2.5	090				0.06			
		Up				0.07			
		360				0.04			
(3)	2.1	090				0.27			
		Up				0.25			
		360				0.20			
(3)	(2)	090				0.08			
		Up				0.21			
		360				0.11			
Note: Four additional records ¹ recovered at Santa Susana Building 463 roof.									
Freefield						(3)	2.0	090	0.18
								Up	0.03
			360	0.13					
Note: Eight additional records ¹ recovered at Santa Susana freefield.									
Building 462, 1st Floor			(3)	2.0	090	0.16			
					Up	0.05			
					360	0.19			
			(3)	(2)	090	0.05			
					Up	0.05			
					360	0.07			
Note: Five additional records ¹ recovered at Santa Susana building 462, first floor.									

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Building 462, 6th Floor		(3)	2.1	090 Up 360	0.16 0.12 0.14
			(3)	(2)	090 Up 360	0.14 0.08 0.08
	Note: Seven additional records ¹ recovered at Santa Susana building 462, sixth floor.					
	Building 026, Ground Level		(3)	2.0	325 Up 235	0.05 0.03 ---
			(3)	1.9	325 Up 235	0.18 0.06 ---
			(3)	0.6	325 Up 235	0.08 0.06 ---
	Note: Nine additional records ¹ recovered at Santa Susana building 026, ground level.					
17 January 1994- 4 March 1994 Southern Calif. Epicenters and magnitudes unknown	Los Angeles 8436 West 3rd Street (OWNER) Roof (10th level)	34.072 118.375	(3)	1.6	360 Up 270	0.12 0.10 0.26
			(3)	3.0	360 Up 270	0.05 0.03 0.05
	Note: Seventeen additional records ¹ recovered at 8436 West 3rd Street, 10th level.					
20 January 1994 1541:33.2 G.m.t. Northern Calif. 40.496N, 124.828W Magnitude 4.2ML	Eel River Valley Array Centerville Beach	40.563 124.348	42:41.4	6.1		(1)
1 February 1994 1001:54.5 GMT Hawaii 19.244N, 155.288W Magnitude 5.3 MB	Hilo, Hawaii Hilo Hospital (USGS) Ground	19.720 155.120	(4)	(2)	352 Up 262	0.05 0.01 0.08
	Hilo, Hawaii USDA Laboratory (USGS) Ground	19.731 155.100	(4)	(2)	090 Up 360	0.03 0.03 0.05
	Honokaa, Hawaii Honokaa Police Dept. (USGS) Ground	20.080 155.465	(4)	(2)	110 Up 020	0.04 0.05 0.05

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Honomolino, Hawaii MacFarms (USGS) Ground	19.169 155.169	(4)	0.9	360 Up 270	0.06 0.02 0.06
	Kohala, Hawaii Kohala-Kapaau Police Sta. (USGS) Ground	20.230 155.801	(4)	(2)	280 Up 190	0.03 0.02 0.02
	Kealakekua, Hawaii Kona Hospital (USGS) Ground	19.523 155.879	(4)	(2)	360 Up 270	0.03 0.02 0.02
	Laupahoehoe, Hawaii Laupahoehoe Post Office (USGS) Ground	19.987 155.236	(4)	(2)	360 Up 270	0.05 0.03 0.07
	Mauna Kea Summit UKIRT Observatory (USGS) Ground	19.826 155.473	(4)	(2)	270 Up 180	0.05 0.03 0.03
	Mauna Kea State Park Visitors Center (USGS) Ground	19.752 155.530	(4)	6.5	360 Up 270	0.09 0.04 0.04
	Mauna Loa Weather Sta. NOAA Observatory (USGS) Ground	19.539 155.580	(4)	6.1	360 Up 270	0.04 0.05 0.04
	Waimea, Hawaii Waimea Fire Station (USGS) Ground	20.026 155.664	(4)	(2)	360 Up 270	0.04 0.08 0.07
	Waiohina, Hawaii K'au Baseyard (USGS) Ground	19.070 155.615	(4)	1.5	360 Up 270	0.07 0.05 0.11
21 August 1993- 2 March 1994 Southern Calif. Epicenter and magnitude unknown	San Bernardino Array Fire Station No. 1 (USGS) Ground	34.105 117.281	(3)	(2)	360 Up 270	0.05 0.02 0.04
28 April 1993- 2 March 1994 Southern Calif. Epicenter and magnitude unknown	San Jacinto San Jacinto Tunnel, West Portal (USGS) Ground	33.821 116.967	(3)	(2)	360 Up 270	0.03 0.03 0.02

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
10 June 1993- 8 March 1994 Southern Calif. Epicenter and magnitude unknown	San Bernardino Array	34.192	(3)	(2)	360	0.03
	Sycamore Forest Station (USGS) Ground	117.427			Up 270	0.01 0.03
20 March 1994 2120:12.2 GMT Southern Calif. 34.231N,118.475W Magnitude 5.3 ML Northridge Aftershock	Alhambra 900 S. Fremont (USGS) Structure Array	34.085 118.149	(3)	(2)		
	Ch. 1 - 12th Floor, Center				360	0.03
	Ch. 2 - 12th Floor, Center				090	0.01
	Ch. 3 - 12th Floor, North end				090	0.01
	Ch. 4 - 6th Floor, Center				090	0.02
	Ch. 5 - 6th Floor, Center				360	0.03
	Ch. 6 - 6th Floor, North end				090	0.04
	Ch. 7 - 2nd Floor, Center				090	0.03
	Ch. 8 - 2nd Floor, Center				360	0.01
	Ch. 9 - 2nd Floor, North end				090	0.03
	Ch. 10 - Basement, Center				360	0.04
	Ch. 11 - Basement, Center				Up	0.02
	Ch. 12 - Basement, Center				090	0.03
	Jensen Filter Plant (MWD) Admin. Bldg. Basement	34.312 118.496				
			(3)	1.7	022 Up 292	0.22 0.08 0.28
	Generator Bldg. Ground level					
			(3)	1.1	022 Up 292	0.17 0.11 0.32
	Reservoir roof					
			(3)	1.5	022 Up 292	0.28 0.14 0.48
	Los Angeles Brentwood VA Hospital (VA) Ground	34.063 118.463				
			(3)	3.5	285 Up 195	0.07 0.04 0.05
	Los Angeles Griffith Observatory (USGS) Ground	34.118 118.299				
			(3)	1.1	360 Up 270	0.03 0.04 0.07
	Los Angeles Sepulveda VA Hospital (VA) Ground	34.249 118.453				
			(3)	3.2	360 Up 270	0.35 0.22 0.11

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Los Angeles 1955 1/2 Perdue Ave. (USGS) Basement	34.040 118.445	(3)			
				3.2	235 Up 145	0.13 0.05 0.15
	First Floor			3.5	235 Up 145	0.10 0.11 0.10
	Third Floor			3.5	235 Up 145	0.08 0.14 0.11
	Los Angeles 1111 Sunset Blvd. (MWD) Basement	34.067 118.248	(3)			
				(2)	348 Up 258	0.02 0.02 0.02
	Fourth Floor			(2)	348 Up 258	0.02 0.02 0.02
	Roof (8th)			(2)	348 Up 258	0.04 0.05 0.03
	Los Angeles Wadsworth VA Hospital (VA) Structure Array	34.053 118.452	(3)	3.7		
	Ch. 1 - 6th Floor, North				235	0.11
	Ch. 2 - 6th Floor, North-center				235	0.09
	Ch. 3 - 6th Floor, Center				235	0.09
	Ch. 4 - 6th Floor, Center				055	0.11
	Ch. 5 - 6th Floor, South				055	0.12
	Ch. 6 - 6th Floor, South				335	0.07
	Ch. 7 - Basement, North-center				325	0.06
	Ch. 8 - Basement, North-center				235	0.05
	Ch. 9 - Basement, North-center				Down	0.02
	Los Angeles Wadsworth VA Hospital (VA) North Ground Site	34.054 118.453	(3)	3.2	325 Up 235	0.07 0.04 0.11
	Los Angeles Wadsworth VA Hospital (VA) South Ground Site	34.050 118.448	(3)	(2)	325 Up 235	0.07 0.03 0.07

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. μ N Long. μ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Los Angeles 1100 Wilshire Blvd. (USGS) Structure Array	34.052 118.263	(3)	(2)		
	Ch. 1 - 12th Floor North				298	0.02
	Ch. 2 - 12th Floor North				208	0.03
	Ch. 3 - 12th Floor South				208	0.02
	Ch. 4 - 13th Floor North				298	0.02
	Ch. 5 - 13th Floor North				208	0.04
	Ch. 6 - 13th Floor South				208	0.02
	Ch. 7 - 32nd Floor North				298	0.01
	Ch. 8 - 32nd Floor North				208	0.04
	Ch. 9 - 32nd Floor South				208	0.02
	Ch. 10 - Ground Floor North				298	0.04
	Ch. 11 - Ground Floor North				208	0.03
	Ch. 12 - Ground Floor South				208	0.03
	Los Angeles 1100 Wilshire Blvd. (USGS) Basement 3 NE	34.052 118.263	(3)	(2)	298 Up 208	0.02 0.02 0.04
	Los Angeles 1100 Wilshire Blvd. (USGS) Basement 3 SE	34.052 118.263	(3)	(2)	298 Up 208	0.03 0.03 0.02
	Los Angeles 1100 Wilshire Blvd. (USGS) Basement 4 NW	34.052 118.263	(3)	(2)	298 Up 208	0.02 0.01 0.02
	Pasadena (Analog) 535 S. Wilson Ave. (USGS) Ground	34.136 118.127	(3)	1.9	360 Up 270	0.03 0.03 0.04
	Sepulveda Canyon Spillway Building (MWD) Ground	34.097 118.475	(3)	2.4	166 Up 076	0.11 0.09 0.19
18 January 1994- 24 March 1994 Southern Calif. Epicenters and magnitudes unknown	Santa Susana Energy Tech. Eng. Ctr. (DOE) Bldg. 026, Ground	 34.232 118.710	 (3)	 (2)	 325 Up 235 (2) 325 Up 235 2.7 325 Up 235	 0.01 0.01 -- 0.02 0.03 -- 0.02 0.01 --

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
				(2)	325 Up 235	0.02 0.01 --
				(2)	325 Up 235	0.09 0.05 --
				(2)	325 Up 235	0.02 0.01 --
				1.7	325 Up 235	0.05 0.04 --
				(2)	325 Up 235	0.04 0.04 --
	Bldg. 462, 1st Floor	34.230 118.712	(3)	(2)	090 Up 360	0.03 0.03 0.04
				2.5	090 Up 360	0.02 0.02 0.03
				1.4	090 Up 360	0.11 0.04 0.10
				(2)	090 Up 360	0.05 0.02 0.05
	Bldg. 462, 6th Floor	34.230 188.712	(3)	(2)	090 Up 360	0.10 0.06 0.05
				2.5	090 Up 360	0.03 0.03 0.02
				1.6	090 Up 360	0.10 0.06 0.07
				(2)	090 Up 360	0.05 0.04 0.04

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. μ N Long. μ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
6 April 1994 1901:04.0 GMT Southern Calif. 34.192N, 117.095W Magnitude 4.8 ML	Bldg. 463, Roof	34.230 118.713	(3)	(2)	090 Up 360	0.09 0.11 0.06
	Freefield	34.231 118.713	(3)	(2)	090 Up 360	0.03 0.02 0.03
				2.5	090 Up 360	0.03 0.02 0.02
				1.4	090 Up 360	0.10 0.04 0.07
				(2)	090 Up 360	0.02 0.02 0.04
	Loma Linda VA Hospital Structure Array (VA)	34.050 117.249	(3)	3.3		
	Ch. 1 - Ground Floor, Center				Down	0.02
	Ch. 2 - Ground Floor, Center				180	0.03
	Ch. 3 - Ground Floor, Center				270	0.02
	Ch. 4 - 4th Floor, Center				270	0.07
	Ch. 5 - Ground Floor, North				270	0.04
	Ch. 6 - 4th Floor, Center				180	0.05
Ch. 7 - 4th Floor, North				270	0.09	
Ch. 8 - Ground Floor, South				180	0.03	
Ch. 9 - 4th Floor, South				270	0.06	
San Bernardino 385 N. Arrowhead Ave. (USGS) Structure Array	34.106 117.287		1901:08.2	3.4		
Ch. 1 - 2nd Floor, NW				360	0.02	
Ch. 2 - 2nd Floor, NE				090	0.03	
Ch. 3 - 2nd Floor, NE				360	0.03	
Ch. 4 - 2nd Floor, SW				090	0.02	
Ch. 5 - 4th Floor, SW				090	0.03	
Ch. 6 - 4th Floor, NW				360	0.02	
Ch. 7 - Roof (6th), NE				090	0.04	
Ch. 8 - Roof (6th), NW				360	0.05	
Ch. 9 - Roof (6th), SW				090	0.04	
Ch. 10 - Roof (6th), NE				360	0.04	
Ch. 11 - 4th Floor, NE				090	0.02	
Ch. 12 - 4th Floor, NE				360	0.03	

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)																			
22 May 1992- 7 April 1994 Central Calif. Epicenters and magnitudes unknown	Coalinga Burnett Construction (USGS) Ground	36.168 120.357	(3)	2.6	360	0.04																			
					Up	0.05																			
					270	0.05																			
					360	0.04																			
					Up	0.03																			
270	0.04																								
7 April 1994- 27 May 1994 Central Calif. Epicenter and magnitude unknown	Coalinga Burnett Construction (USGS) Ground	36.168 120.357	(3)	3.5	360	0.02																			
					Up	0.02																			
					270	0.04																			
8 July 1993- 3 June 1994 Southern Calif. Epicenter and magnitude unknown	San Antonio Dam Crest (ACOE)	34.157 117.676	(3)	7.3	090	0.09																			
					Up	0.11																			
					360	0.36																			
24 February 1993 15 July 1994 Eastern Calif. Epicenter and magnitude unknown	Carson City W. Nevada Comm. College (USGS) Ground	39.185 119.790	(4)	(2)	180	0.03																			
					Up	0.02																			
					090	0.02																			
26 June 1994 0842: 50.2 GMT Central Calif. 37.917N, 122.289W Magnitude 4.2 ML	Great Western Savings 2168 Shattuck Ave. (USGS)	37.870 122.270	(4)	0.9	261	0.12																			
					Up	0.04																			
					171	0.09																			
	Basement, West	(4)	0.9	261	Up	0.09																			
							171	0.05																	
									171	0.08															
	Structure Array	(4)	1.0	171	0.13																				
						Ch. 1 - 13th Floor, East Core	261	0.09																	
						Ch. 2 - 13th Floor, East Core			171	0.13															
						Ch. 3 - 13th Floor, Center					171	0.12													
						Ch. 4 - 13th Floor, Roof West Core							171	0.10											
						Ch. 5 - 13th Floor, Roof West Core									081	0.08									
						Ch. 6 - 13th Floor, Southwest											081	0.11							
						Ch. 7 - 13th Floor, Southwest													171	0.15					
						Ch. 8 - 4th Floor, Southwest															171	0.16			
Ch. 9 - 4th Floor, Southwest						081																	0.13		
Ch. 10 - 4th Floor, West Core																								171	0.08
Ch. 11 - 4th Floor, West Core																									
Ch. 12 - 4th Floor, East Core																									

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. μ N Long. μ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Berkeley Univ. of California Haviland Hall (USGS)	37.870 122.260	(3)	1.1	135 Up 045	0.07 0.02 0.06
	Berkeley Univ. of California Strawberry Canyon (USGS)	37.870 122.240	(3)	1.3	135 Up 045	0.04 0.03 0.06
	Emeryville 6363 Christie Ave. (USGS)	37.844 122.295				
	Ground Site, South		(4)	(2)	135 Up 045	0.02 0.08 0.03
	Structure Array 1:		(3)	(2)		
	Ch. 1 - Roof (31st), West Wing				350	0.02
	Ch. 2 - Roof (31st), South Wing				050	0.02
	Ch. 3 - Roof (31st), North Wing				290	0.02
	Ch. 4 - Roof (31st), Central Core				350	0.02
	Ch. 5 - Roof (31st), Central Core				260	0.02
	Ch. 6 - 21st Floor, Central Core				350	0.02
	Ch. 7 - 21st Floor, West Wing				350	0.02
	Ch. 8 - 21st Floor, South Wing				050	0.02
	Ch. 9 - 21st Floor, North Wing				290	0.01
	Ch. 10 - 13th Floor, Central Core				350	0.02
	Ch. 11 - 13th Floor, Central Core				260	0.02
	Ch. 12 - 21st Floor, Central Core				260	0.02
	Structure Array 2:		(3)	(2)		
	Ch. 1 - 13th Floor, West Wing				350	0.03
	Ch. 2 - 13th Floor, South Wing				050	0.02
	Ch. 3 - 13th Floor, North Wing				290	0.01
	Ch. 4 - Ground Floor, West Wing				Up	0.06
	Ch. 5 - Ground Floor, South Wing				Up	0.05
	Ch. 6 - Ground Floor, Central Core				Up	0.04
	Ch. 7 - Ground Floor, North Wing				260	0.02
	Ch. 8 - Ground Floor, North Wing				Up	0.04
	Ch. 9 - Ground Floor, North Wing				350	0.02
	Ch. 10 - Ground Site, North				350	0.03
	Ch. 11 - Ground Site, North				Up	0.08
	Ch. 12 - Ground Site, North				260	0.03
	Richmond Bulk Mail 2501 Rydin Rd. (USGS)	37.884 122.302	(3)	(2)	057 Up 327	0.02 0.02 0.02

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. ϕ N Long. λ W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)	
10 September 1994 0743:11.3 GMT Washington 47.186N, 121.959W Magnitude 4.1 ML	Hanson Dam (ACOE) Crest	47.282 121.791	(3)	1.2	050	0.05	
					Up	0.05	
					320	0.07	
	Left Abutment	(3)	(2)	050	0.02		
					Up	0.04	
					320	0.04	
	Toe	(3)	2.7	050	0.02		
					Up	0.02	
					320	0.03	
Mud Mountain Dam (ACOE)	47.140 121.930	(3)	(2)	314	0.04		
				Up	0.02		
				224	0.04		
12 September 1994 1223:43.2 GMT Calif. - Nev. Border 38.819N, 119.652W Magnitude 6.0 ML	Buchanan Dam (ACOE) Center Crest	37.217 119.983	(3)	(2)	340	0.02	
					Up	0.01	
					250	0.02	
	Left Crest	(3)	(2)	360	0.02		
					Up	0.01	
					270	0.02	
	Hidden Dam (ACOE) Center Crest	37.112 119.883	(3)	(2)	100	0.02	
					Up	0.01	
					010	0.01	
20 December 1994 1027:47.1 Central Calif. 35.917N, 120.465W Magnitude 5.0 ML	Parkfield Liquefaction Array (USGS) Ground Site	35.797 120.337	(3)	1.2	315	0.05	
					Up	0.04	
					225	0.09	
	Accelerometer/Piezometer Array 1:	(3)	3.3	315	0.05		
					Ch. 1 - Downhole, 38.5 ft.	0.05	
					Ch. 2 - Downhole, 38.5 ft.	Up	0.02
					Ch. 3 - Downhole, 38.5 ft.	225	0.03
					Ch. 4 - Downhole, 9 ft.	315	0.07
					Ch. 5 - Downhole, 9 ft.	Up	0.03
					Ch. 6 - Downhole, 9 ft.	225	0.06

Note: Channels 7 - 12 are downhole piezometers.

Table 1. National Strong-Motion Program Accelerograph Records Recovered During 1994

Earthquake	Station Name (Owner)	Coordinates (Lat. °N Long. °W)	Trigger time	S-minus trigger (s)	Direction (az)	Maximum amplitude (g)
	Accelerometer/Piezometer Array 2:		(3)	3.3		
	Ch. 1 - Downhole, 98.5 ft.				315	0.05
	Ch. 2 - Downhole, 98.5 ft.				Up	0.02
	Ch. 3 - Downhole, 98.5 ft.				225	0.05
	Ch. 4 - Downhole, 14.0 ft.				315	0.06
	Ch. 5 - Downhole, 14.0 ft.				Up	0.02
	Ch. 6 - Downhole, 14.0 ft.				225	0.06
	Ch. 7 - Surface				315	0.10
	Ch. 8 - Surface				Up	0.06
	Ch. 9 - Surface				225	0.10
	Note: Channels 10 - 12 are downhole piezometers.					
	Coalinga	36.168	(3)	(2)	360	0.02
	Burnett Construction	120.357			Up	0.01
	(USGS) Ground				270	0.01

1 Less than 0.05 g at ground level or less than 0.10 g at non-ground-level stations.

2 Questionable or indeterminable.

3 WWVB time code illegible, or instrument not equipped with a radio receiver; correlation of accelerogram with event may be questionable or identity of event unknown.

4 Contains internal clock for event correlation only (accuracy is widely variable).