

EARTHQUAKE HISTORY OF SAN DIEGO

by

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The San Diego area is sometimes taken to be relatively safe seismically, at least compared with other major population centers in California. Instrumental records since 1931 show the San Diego area to be relatively free from earthquakes, but this is a very short time on which to base a seismicity estimate. Our purpose here is to give a more complete picture of the local seismicity, by presenting a partial listing of earthquakes felt in the San Diego area in the last 180 years.

Though we have made no explicit division, different classes of earthquake are included for different periods. Before 1900, we have included every earthquake reported as felt within the present boundaries of San Diego County. Most of these were small and unimportant, and have been included only for completeness. Although 1900 is a somewhat arbitrary cutoff, after this date the existing lists are much more complete. Between 1900 and 1931 we have included only those earthquakes for which shaking of intensity VI or above (on the Modified Mercalli scale) was reported within the county. More extensive lists for this period are those of Topozada, *et al* (1978) and Townley and Allen (1939); the latter has been ably indexed by Clark (1944). After 1931 instrumental locations are available in Hileman, *et al* (1973) and additions to it issued by the California Institute of Technology. For the immediate San

Diego area Simons (1977 and this volume) should be consulted instead. Intensity data from 1928 to the present are available in the annual publication United States Earthquakes, published by the U. S. Department of Commerce. There seems little point in republishing this information, and we have therefore limited our list to earthquakes that caused shaking of intensity VI in the metropolitan San Diego area.

Because of the imperfect nature of the historical record this catalog is also incomplete before 1900, but for earthquakes of damaging intensity at San Diego it is probably complete from 1850 on. The record from the Spanish and Mexican periods is very scanty, though from about 1780 to 1830 some mission records are available. In 1850 a U. S. Army post was established at San Diego. Daily weather records kept there sometimes report earthquakes. In 1851 a weekly newspaper, the San Diego Herald, began publication, which continued until 1859 (Dawson, 1950): Though the files of this newspaper are not complete, they still provide a valuable record. The San Diego Union began publication in 1869 and is still in existence. There is a good index to both of these newspapers in the San Diego Public Library. The lack of a local newspaper in the 1860's is to some extent remedied by the notes compiled by Judge Benjamin Hayes in about 1870, and now in the Bancroft Library. For the years from 1870 to 1900 our most important sources have been the San Diego Union and the catalog of Townley and Allen (1939), which for this period is mostly based on that of Holden (1898). This in turn drew on a variety of sources; an important one was the reports of weather station observers at such places as Campo.

Few of the earthquakes listed here caused any damage. Usually the only description of them is as being "light", "heavy", "severe", or some similar adjective. Because the use of these terms does not seem to correlate very well with intensity, we have not given an intensity unless other information was available. A mention of a place means that the earthquake was felt at that place. If no location is given, the earthquake was reported from San Diego only. The times given are taken from the reports, and so are either local or Pacific Standard (and in any case not very accurate). The times for earthquakes for which epicentral coordinates are given are the origin times, again Pacific Standard. These coordinates and times, and the local magnitudes, are from

Richter (1958) and Hileman, et al (1973). The times are to the nearest minute, and coordinates to the nearest tenth of a degree.

During the time covered by this catalog, San Diego has suffered from several damaging earthquakes, but none have been very destructive. The earthquakes that have caused the strongest shaking before 1900 were those in 1800, April 1852, September 1856, May 1862, February 1892, and October 1894. The first two are inadequately documented. Of all the earthquakes in this list, the one in 1862 seems to have produced the strongest shaking, of about intensity VI-VII in San Diego (Legg and Agnew, this volume). The pre-1900 part of this list also includes at least three large earthquakes that clearly were located in the Salton Trough: November 1852, November 1875, and July 1891. In the last 50 years the strongest shaking in San Diego has come from earthquakes along the San Jacinto fault zone or in northern Baja California.

CATALOG OF SAN DIEGO EARTHQUAKES

Abbreviations used for references cited often in the catalog are given here. All newspapers are cited according to month, day, and year, followed by page and column number.

CMS - MS recollections of Herbert L. Crouch, Serra Museum Library, San Diego.

CR - Climatological Records of the Weather Bureau, Record Group 27, U. S. National Archives. (Microfilm number T907. If no name is given, the records are those for San Diego or New San Diego).

H - Holden (1898).

HEN - Benjamin Hayes, "Emigrant Notes", Bancroft Library CE 62, Berkeley. (The pagination used in the references is that added after the MS was written).

McD - Extracts from the diaries of Dr. George McKinstry, Serra Museum Library, San Diego.

PD - Extracts from the diaries of Theron Parsons, Serra Museum Library, San Diego.

R78 - Rockwood (1878).

SD - Extracts from the diaries of Mrs. Theodore Steinmeyer, Serra Museum Library, San Diego.

SDH - San Diego Herald.

SDU - San Diego Union.

SFAC - San Francisco Alta California.

TA - Townley and Allen (1939).

USEQ - United States Earthquakes (Annual publication of the Coast and Geodetic Survey).

- 1800 November 22. 1:30 P.M. At San Juan Capistrano, threw down walls of mission church (then under construction). At San Diego, several buildings considerably cracked (VI?). - Bancroft (1888), v. 1, p. 654, 659; Engelhardt (1920), p. 154.
- 1803 May 25. San Diego, mission church slightly damaged. - Bancroft (1888), v. 2, p. 106.
- 1812 December 8. Mission church at San Juan Capistrano destroyed. No evidence of damage at San Diego, or even that the earthquake was felt. - Bancroft (1888), v. 2, pp. 200-201.
- 1843 June 23. Coast of California - H.
- 1849 August 16. At night, at Palm Spring oasis, 11 km SE of Vallecito. - Bloom (1945).
- 1849 September 16. Santa Ysabel, felt by few. - Whipple (1850).
- 1849 September 22. South of Carrizo Creek, felt by few. - Whipple (1849), Couts (1932).
- 1850 August 4. San Diego and the Gila River.- H.
- 1850 August 15. San Diego and the Gila River. - H.
- 1852 April 12. Midnight. "Very severe", duration 30 seconds, an adobe house "destroyed". - SDH, 4/17/52, 2:1. (Intensity possibly VII, but it is odd that no other damage is mentioned.)
- 1852 November 29. About noon. A large earthquake, probably in the region of the Colorado River delta. Intensity about V at San Diego. - Balderman, et al (1978); Agnew (1978).
- 1852 November 30. 8 A.M. Aftershock of the above, felt in San Diego. - CR.
- 1853 June 26. 8:30 A.M. - CR.
- 1856 September 20. 11:25 P.M. At San Diego windows rattled, small objects upset (V). At Santa Ysabel and San Felipe trees shaken severely, some cracking of adobe walls (VI-VII). Felt at El Cajon, Vallecito. Not felt at Yuma. - CR; SDH 9/27/56, 2:3; HEN, pp. 889-900.
- 1857 January 9. 8:30 A.M. The great Fort Tejon earthquake, felt in San Diego with intensity V. - Agnew and Sieh (1978).
- 1859 January 26. 11 P.M. - McD 1/27/59.
- 1859 March 21. 6 A.M. Buildings creaked (IV-V?). Several more felt that day. - McD 1/21/59; SDH 3/26/59, 2:4.
- 1859 March 25. Severe, with ground cracking near Ballena. - McD 3/25/59. (Possibly the same as the next shock).

- 1859 March 26. 2 P.M., sensibly felt. - SDH 4/2/59, 2:4. Possibly also at Mesa Grande. - McD 3/26/59.
- 1859 March 30. 10 A. M., slight. - McD 3/30/59.
- 1859 August 2. 10 A.M. - McD 8/2/59.
- 1860 January 14. 7:23 P.M., "violent", lasted about 10 sec. - CR; Meteorological Journal of Andrew Cassidy (Cassidy Papers, Serra Museum Library).
- 1860 August 2. 5 A.M., Mesa Grande. - McD 8/2/60.
- 1860 August 15. 1:30 & 4:30. - McD 8/15/60. (Mesa Grande?).
- 1862 April 15. Carrizo Creek stage station, all frightened. - Los Angeles Semi-Weekly Southern News 4/23/62.
- 1862 May 27. About noon. In San Diego, objects upset, buildings cracked, cracks formed in wet ground (VI-VII). At Temecula and Aguanga plates rattled and objects upset (V). Generally felt throughout San Diego County, from the ocean to the desert. Felt at Anaheim and Los Angeles. Not felt at Yuma. - Legg and Agnew (this volume).
- 1862 May 28. Several, "slight". - CR.
- 1862 May 29. 10 A.M. "Violent" at San Diego. Felt San Ysidro and Anaheim. - CR; HEN, p. 691.
- 1862 May 30. 3 A.M. - HEN, p. 691. 3 P.M. - CR
- 1862 May 31. 1-2 P.M. Temecula and San Diego. - CR; HEN, p.691.
- 1862 June 1. 11 A.M. - CR.
- 1862 June 2. In the night. - CR.
- 1862 June 3. 4 A.M. - CR.
- 1862 June 4 & 5. "Light shocks at San Diego". - HEN, p. 691.
- 1862 June 6. Midnight. - HEN, p. 691.
- 1862 June 7. 5 P.M. - CR; HEN, p. 691.
- 1862 June 8. 5 A.M. - CR.
- 1862 June 13. 10:30 A.M. "Violent" at San Diego. Another about 2 P.M. - CR; HEN p. 697.
- 1862 June 14. 2 P.M., 10 P.M. - CR; HEN, p. 697.
- 1862 June 15. 9:50 P.M. - CR.

- 1862 June 19. Noon. - CR.
- 1862 June 27. 10 P.M. "Violent". - CR.
- 1862 July 11. 9:27 P.M. - CR.
- 1862 August 18. 2 A.M. - CR.
- 1862 October 21. 6 A.M. Many frightened and ran outdoors, no "serious damage" (V?) - Clipping from SFAC, pasted on p. 562 of HEN.
- 1863 January 25. 2:20 P.M. No damage, many frightened (IV?) - SFAC, 2/11/62, 1:8.
- 1863 about June 25. 1:11. Lasted 30-40 seconds, buildings creaked, no damage (IV). - SFAC 7/7/63, 1:5.
- 1865 April 15. 12:39 A.M. Many awakened, liquids splashed. - CR; SFAC 4/26/65, 1:6.
- 1867 February 1. 6:45 A.M. - SFAC 2/18/67, 1:6.
- 1869 October 21. At New River stage station (near Mexicali), many alarmed. - San Diego Weekly Bulletin 11/6/69, 2:2.
- 1869 October 30. "Severe" in the desert, 100 km east of San Diego. - SDU 11/4/69, 2:1.
- 1871 October 27. 10 P.M., Temecula and San Juan Rancho. - McD; SDU 11/14/71, 2:2.
- 1872 March 26. 2:46 A.M. The Owens Valley earthquake, marginally felt in San Diego (intensity II-III). - SDU 4/2/72, 3:3.
- 1873 March 23. 3 A.M. Cholla Valley (now southeast San Diego). - SDU 3/25/73, 3:1.
- 1873 October 12. 1:15 A.M. - H.
- 1875 November 15. 2:30 P.M. Earthquake probably centered in the Imperial Valley or Colorado River delta. Destroyed adobe buildings at Indian Wells and Gardner's Wells, near Mexicali (VIII), at Campo upset furniture and threw dishes off the shelves (VI), at San Diego frightened some and stopped clocks whose pendulums swung EW (IV). Also felt at Yuma and Maricopa Wells, Arizona. Six more shocks were felt at Campo in the next 2 days. - SDU 11/16/75, 3:2; 11/19/75, 3:2 & 3:1.
- 1877 January 13. Noon, 70 km southeast of San Diego. - R78.
- 1877 August 17. 7:30 P.M., Campo and Agua Caliente. - CMS, R78.
- 1877 September 4. Agua Caliente. - CMS.

1877 September 29. 2:30 P.M. Campo and Agua Caliente. - CMS, R78.

1877 October 23. Agua Caliente? - CMS.

1877 November 30. San Luis Rey? - CMS.

1878 July 2. About 6 P.M. Two shocks felt in the mountains east of San Diego, in some places strong enough to break crockery and upset things (V). - SDU 7/9/78, 1:3.

1878 December 17. 4 P.M. Campo and Yuma. - H.; Fort Yuma CR.

1880 August 29. 1:10 P.M. - SDU 8/31/80.

1880 December 19. 3:40 P.M. Felt by some in San Diego, and noticed along the coast to Los Angeles. - SDU 12/23/80, 4:4; 12/24/80, 4:3.

1880 December 21. 11 P.M. San Diego and Campo. - SDU 12/23/80, 4:4; 12/25/80, 4:3.

1880 December 22. 3:22 A.M. Campo, all awakened (V?). - SDU 12/25/80, 4:3.

1881 January 7. 6:15 A.M. Campo, slight. - H.

1881 June 30. 8 A.M. Campo, sharp. - H.

1881 October 2. 9 A.M. Campo, sharp. - H.

1882 February 1. 3 o'clock. Warner's ranch. - SDU 2/11/82, 3:1.

1882 March 11. 4 P.M. Poway, slight at San Diego. - H.; SDU 3/12/82, 3:1.

1882 September 30. 11 A.M. Campo and Warner's ranch. - H.; SDU 10/11/82, 3:1.

1882 October 8. 2 A.M. "Very heavy" at Warner's ranch. In San Diego, windows and crockery rattled (IV). Felt at Spring Valley, National City. - SDU 10/11/82, 3:1, 3:2; diary of F. A. Kimball, National City Public Library.

1883 February 6. 4:30 P.M., slight. - H.

1883 March 11. 11 A.M. Campo and Tijuana. - SDU 3/13/83, 3:1.

1883 April 4. 1:30 A.M. Warner's ranch. - SDU 4/7/83, 3:1.

1883 November 11. 6:15 P.M. Poway, slight. - H.

1883 December 16. 3 P.M. Poway, slight. - H.

1884 July 24. 4:20 P.M. Pala. - SDU 7/27/84, 3:1.

1884 August 26. 11 P.M. "Severe" at Jacumba, still stronger south of the border. - SDU 9/3/84, 3:2.

1885 April 1. 3 A.M. Agua Caliente. - SDU 4/3/85, 3:2.

1885 August 19. 1 P.M., not felt by all. - SDU 8/20/85, 3:1.

1885 September 5. 1 P.M. - CR.

1885 September 13. 4:30 A.M. Many awakened (V). Felt in Los Angeles and San Bernardino. - SDU 9/15/85, 3:1; H.

1885 December 1. 1:40 A.M., light. - SDU 12/2/85, 3:1.

1886 September 29. 11:05 A.M., felt by few. - SDU 9/30/86, 3:2.

1886 October 8. 4 A.M. Many awakened (V). - SDU 10/9/86, 3:1.

1886 December 4. 2:40 A.M. Rattled windows and doors (IV). - SDU 12/4/86, 3:1.

1887 April 29? 3:30 A.M. Campo, rattled dishes (IV). 4 A.M. National City. - SDU 5/4/87, 4:2; PD. (The date of the Campo shock is uncertain; we have assumed that it coincided with that reported from National City).

1887 June 28. 11 P.M., some frightened. - SDU 6/30/87, 5:1.

1887 August 24. 6 A.M., light. - SDU 8/25/87, 3:3.

1888 August 19. Morning, National City. - PD.

1888 October 4. 11 P.M. - H.

1889 February 6. 9 A.M., National City. - PD. (Possibly an error for the shock of 9:20 P.M., felt strongly in San Bernardino.)

1889 June 25. Midnight. - H.

1890 February 5. 10:15 P.M. In San Diego and National City, many awakened, crockery rattled, no damage (V). - SDU 2/6/90, 4:1 & 5:1; PD.

1890 February 8. At night, National City. - PD.

1890 February 10. 4:10 A.M. Many awakened, small objects upset (V). Felt at Lawson Valley. - SDU 2/18/90, 4:3; SD.

1890 February 21. Lawson Valley. - SD.

1890 April 3. Evening. Several light shocks at Tijuana. - SDU 4/4/90, 6:2.

1890 June 10. 3 P.M. Buildings creaked, felt by many, lamps swayed. Also Coronado, National City. - SDU 6/11/90, 6:2 & 8:4; PD.

- 1890 September 22. 8:05 P.M. Chandeliers swung, rattled glass (IV?). Also El Cajon, National City. -- SDU 9/23/90, 8:2; PD.
- 1890 late November. Two shocks felt "last week" at Campo. - SDU 12/8/90, 5:2.
- 1891 January 5. 8:25 P.M. Some awakened in National City. Also San Diego, Linda Vista. - PD; SDU 1/8/91, 5:2.
- 1891 January 6. 4:55 P.M. - SDU 1/8/91, 5:2.
- 1891 January 13. 3 A.M., few awakened. - SDU 1/14/91, 5:1.
- 1891 March 17. 7:45. At Campo, strong, no damage. Slight at National City. - SDU 3/23/91, 8:1; PD.
- 1891 July 30. 6:10 A.M. Earthquake probably centered in the Colorado River delta. In San Diego, clocks stopped, china rattled, furniture moved, many awakened (V). - SDU 7/31/91, 5:3. Also National City. - PD. In Ensenada, many awakened, no damage. - Ensenada Lower Californian 7/31/91, 1:2. In Yuma, all frightened and ran outdoors, clocks stopped, windows and crockery rattled, houses creaked, some adobe cracked (VI). - Yuma Arizona Sentinel 8/1/91, 3:4. At Colonia Lerdo, men thrown down, buildings collapsed, ground cracked (VIII). - Yuma Arizona Sentinel 8/8/91, 3:3; San Francisco Examiner 8/13/91, 3:5. (This earthquake seems to have inspired a great many sensationalized newspaper accounts, and it is difficult to make out just what did happen.)
- 1892 February 20. Morning. "Sharp" at Julian. - Coronado Mercury 2/27/92, 7:2.
- 1892 February 23. 11:20 P.M. One of the largest earthquakes to have produced strong shaking in the San Diego area. It was felt from San Quintin (Baja California) to Visalia, and as far east as Needles and Yuma. In San Diego, many were awakened and ran outdoors, clocks stopped, crockery was upset, and much plaster was cracked though little fell (VI). In Paradise Valley, two buildings on stilts collapsed; at Jamul, a stone kiln was cracked; at Julian, some light objects were upset; at Campo, some adobe walls were cracked but goods were not thrown off shelves; at the Carrizo, stage station adobe buildings were damaged. There are reports of landslides or falling rocks from Campo, Dulzura, Inkopah, and other places in the mountains east of San Diego. In Escondido, some objects were overturned and goods thrown off shelves (V). The shock was "severe" but apparently caused no damage in Ensenada. The intensity seems to have been IV-V throughout the Los Angeles area; reports from Anaheim, Santa Ana, Los Angeles, Pasadena, San Bernardino, Ontario, Redlands, and Riverside all say that many were awakened and ran outside, that some clocks were stopped, but that there was little or no damage. Many accounts from San Diego and places nearby mention a very large number of aftershocks, over 100 in the first day; shocks were still being felt in the mountains east of San Diego as late as May. We have listed only the more important of these. [This earthquake and its aftershocks are the

subject of a forthcoming Master's thesis by Carl Strand, which will contain full references.]

- 1892 February 24. 5 A.M. At Campo caused an adobe wall to collapse and goods to fall off shelves. Also felt at Rancho Bernardo, and possibly Julian, though the time there is given as 6:30. - SDU 2/25/92, 5:2; 2/29/92, 5:2; San Diego Sun 2/25/92, 5:3.
- 1892 February 24. 9:30 P.M. Julian, Rancho Bernardo, Ontario, Santa Ana, Los Angeles.
- 1892 February 25. 2 A.M. San Diego, Beaumont, Ontario, Santa Ana, Los Angeles.
- 1892 March 1. 3:20 P.M. Ensenada, San Diego, Jacumba.
- 1892 March 22. 9:10 A.M. "Light" at San Diego, National City. - SDU 3/23/92, 5:1; PD.
- 1892 March 28. 3:20 A.M. Campo and Spring Valley.
- 1892 April 5. 4:45 A.M. Campo, strong.
- 1892 April 19. Morning. Ensenada.
- 1892 April 25. San Diego.
- 1892 June 14. 5:25 A.M. Felt in San Diego, strongest in San Bernardino and Riverside. - H.
- 1893 May 18. 4:35 P.M. Earthquake centered near Ventura, felt as far south as San Diego. - TA.
- 1893 August 9. 11:02 A.M., 4:07 P.M. - H.
- 1894 July 29. 9:12 A.M. Earthquake centered near Mojave, felt in Escondido. - TA; SDU 7/30/94, 5:4.
- 1894 October 23. 3:03 P.M. In San Diego, people frightened and ran outside, buildings creaked, some cracks and fallen plaster (VI). At Otay and Buckman Springs, rocks fell off hillsides (VI+?). - SDU 10/24/94, 5:4; San Diego Sun 10/23/94, 5:4. In National City, all frightened and ran out, no damage reported. - National City Record 10/25/94, 3:1. In San Juan Capistrano, clocks stopped, windows broken, crockery overturned (VI). No damage at Oceanside. In Santa Ana, people frightened and ran outside. - SDU 10/24/94, 1:5. Felt strongly at Escondido and Valley Center. - Escondido Times, 10/25/94, 3:2; 11/1/94, 3:4. Also felt at Coronado, Campo, Los Angeles, Riverside, San Bernardino, Needles. - SDU 10/24/94, 5:4; 10/28/94 5:2; Riverside Daily Press 10/23/94, 3:2; Needles Eye, 10/23/94, 2:1; TA. Most aftershocks felt in the mountains east of San Diego. - SDU 10/30/94, 5:4. The exact location of the epicenter of this earthquake is unclear; it seems to have been in the Peninsular Ranges, probably near the Mexican border.

1894 October 27. 11 P.M. In San Diego, windows rattled and lamps swung (IV). Felt in Los Angeles, and strongly to the east of San Diego. - SDU 10/28/94, 5:4; 10/30/94, 5:4.

1894 November 17 5 P.M. Campo. - H.

1894 November 19. 10 A.M. Felt on upper stories in San Diego (II). Also Julian, Rancho Bernardo. - SDU 11/20/94, 5:4; H.; Escondido Times, 11/22/94, 3:2.

1895 September 18. 8:25 P.M. Campo, sharp. - SDU 9/23/95, 5:1.

1896 April 12. Jamul, light. - SDU 5/1/96, 2:2.

1896 July 3. 9:27 P.M. - H.

1896 September 30. Descanso. - H.

1897 February 16. Descanso. - TA.

1897 February 25. Descanso. - TA.

1897 May 15. About 4 A.M. - TA.

1897 May 22. 6:55 A.M. "Very distinct". - SDU 5/23/97, 5:1.

1897 September 6. Descanso. - TA.

1897 October 27. 9:07 A.M. "Slight" in San Diego. Also Morena Dam, Campo. - SDU 10/28/97, 5:1.

1897 November 12. Descanso. - TA.

1897 November 22. Descanso, Escondido, Fallbrook. - TA.

1898 March 3. 2:30 A.M. Descanso, light. - TA.

1898 April 21. Descanso. - TA.

1898 June 23. 1:44 P.M. Descanso. - TA.

1898 June 24. 2:45 P.M. Descanso. - TA.

1899 April 14. Cuyamaca. - TA.

1899 June 1. Morena Dam. - TA.

1899 July 21. 4:45 P.M., no damage. - SDU 7/22/99, 6:2.

1899 July 22. 12:32 P.M. Cajon Pass earthquake, "quite strong" in San Diego, but no damage (IV). - TA; SDU 7/23/99, 7:4.

1899 July 27. Campo, heavy. - SDU 8/3/99, 7:1.

1899 August 21. - SDU 8/22/99, 6:2.

- 1899 October 28. Morena Dam. - TA.
- 1899 December 25. 4:25 A.M. San Jacinto earthquake. In San Diego, many awakened and ran outdoors, clocks stopped, some glass broken (V). - SDU 12/26/99.
- 1915 November 20. 4:15 P.M. Near Cerro Prieto, Baja California (32° N, 115° W, $M_L = 7.1$) Intensity V-VI in the San Diego area. - TA.
- 1918 April 21. 2:32 P.M. Near San Jacinto (33.75° N, 117° W, $M_L = 6.8$). In San Diego, many frightened, some clocks stopped, a few small objects upset (V). Intensities V-VI in San Diego County, largest in the northeast. - SDU 4/22/18, 2:5-6; Townley (1918).
- 1919 December 31. 6:35 P.M. At Warner Springs, adobe walls cracked (VI). Felt strongly (intensity about IV) in San Diego, El Cajon, Julian, Elsinore, Hemet, Corona. - TA.
- 1920 October 5. 9:48 A.M. At Warner Springs, trees shaken, all frightened and ran outdoors (VI). Also Aguanga, Hemet, San Diego. - TA.
- 1927 August 14. 6:48 A.M. Epicenter near Barrett reservoir. Intensity V+ at Alpine and Jacumba. Felt San Diego, Oceanside. - Carnegie Institution of Washington Yearbook, 27, 419; TA.
- 1929 December 2. 3:24 A.M. Epicenter near Ensenada. Intensity V+ in San Diego. Also felt Jamul, Escondido. - USEQ.
- 1934 December 31. 10:45 A.M. Colorado Delta (32° N, 114.8° W, $M_L = 7.1$). Intensity V-VI throughout San Diego County. In San Diego, some cracks in buildings, fallen plaster, broken windows. Slight damage also reported from Alpine, Coronado, Lemon Grove (V). Intensity IV reported along the coast from Solana Beach north, also Ramona and Escondido. - USEQ.
- 1942 October 21. 8:22 A.M. Borrego Valley (33° N, 116° W, $M_L = 6.5$). Maximum acceleration .026 g at San Diego. Intensity VII in Carrizo Gorge. Intensity VI (cracked plaster and broken glass) in Campo, Lakeside, Miramar, San Diego, Santa Ysabel, Warner Springs. Intensity V reported from Aguanga, Anza, Escondido, Mesa Grande, Mount Laguna, Oceanside. Intensity IV reported generally along the coast. - USEQ.
- 1949 November 4. 12:42 P.M. Northern Baja California (32.2° N, 116.5° W, $M_L = 5.7$). Maximum acceleration .017 g at San Diego. Intensity V-VI in San Diego, La Jolla, Campo (some plaster cracking, trees and bushes shaken, dishes rattled). - USEQ.
- 1951 December 25. 4:47 P.M. Near San Clemente Island (32.8° N, 116.3° W, $M_L = 5.9$). Maximum acceleration .014 g at San Diego. In Del Mar and San Diego, goods fell off shelves, some plaster cracked, trees and bushes shaken (VI). Intensity V reported from Barrett Dam, Mount Laguna, Pala. Intensity IV at Alpine, Campo, El Cajon, Escondido, Jamul, Julian, Leucadia, Oceanside, Santa Ysabel. - USEQ.

- 1954 March 19. 1:54 A.M. Santa Rosa Mountains (33.3° N, 116.2° W, $M_L = 6.2$). Maximum acceleration .016 g at San Diego. Intensity ^LVI (some broken glass and cracked plaster) in Boulevard, Jamul, La Jolla, La Mesa, Warner Springs. Intensity V in Aguanga, Campo, Chula Vista, Del Mar, Descanso, El Cajon, Escondido, Julian, Leucadia, Oceanside, Pala, Ramona, San Diego, San Ysidro. - USEQ.
- 1956 February 9. 6:32 A.M. El Alamo, Baja California (31.7° N, 115.9° W, $M_L = 6.8$). Maximum acceleration .013 g at San Diego. Intensity VI (cracked plaster reported) in Campo, Chula Vista, El Cajon, Imperial Beach, La Jolla, La Meas, National City, San Diego, Santee. (In many of these places the damage, though present, was described as "slight"). Intensity V reported from Cardiff, Carlsbad, Del Mar, Escondido, Lake Hodges, Leucadia, Pala, Poway, San Marcos, San Ysidro. - USEQ.
- 1964 December 22. 12:54 P.M. Northwest of Ensenada (31.8° N, 117.1° W, $M_L = 5.6$). Maximum acceleration .034 g at San Diego. Intensity VI at Imperial Beach, La Mesa, National City, San Diego. Intensity V at Campo, Chula Vista, El Cajon, La Jolla, San Ysidro. - USEQ.
- 1968 April 8. 6:29 P.M. Borrego Valley (33.2° N, 116.1° W, $M_L = 6.4$). Maximum acceleration .029 g at San Diego. Intensity VII in the Borrego Mountain - Ocotillo Wells area. Intensity VI at Alpine, Borrego Springs, Campo, Chula Vista, Del Mar, El Cajon, Encinitas, Escondido, Julian, Lakeside, Leucadia, Ramona, San Diego, San Ysidro. Intensity V in La Jolla. - USEQ.

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