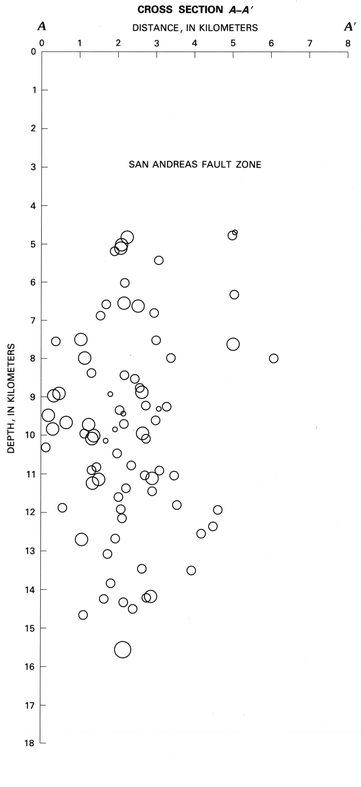

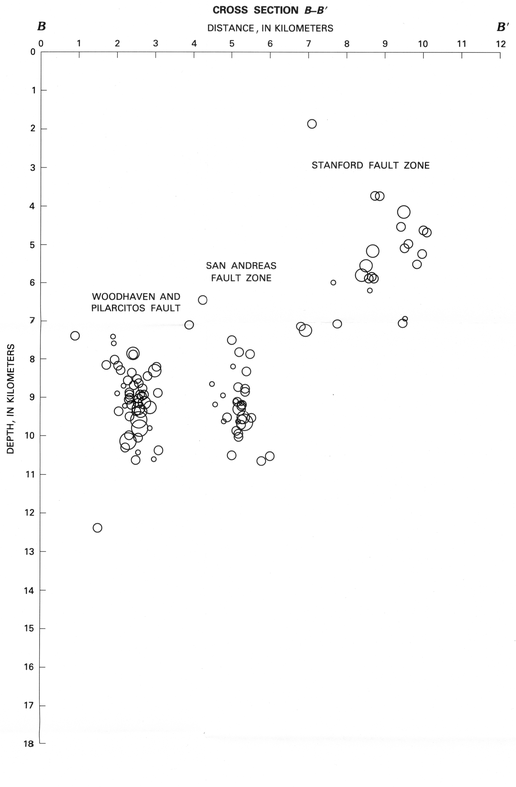

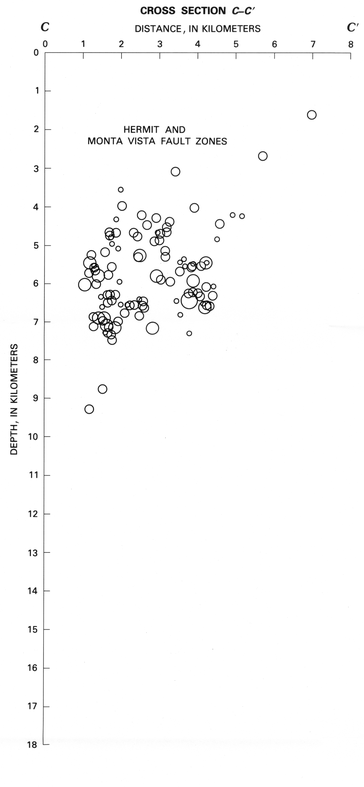

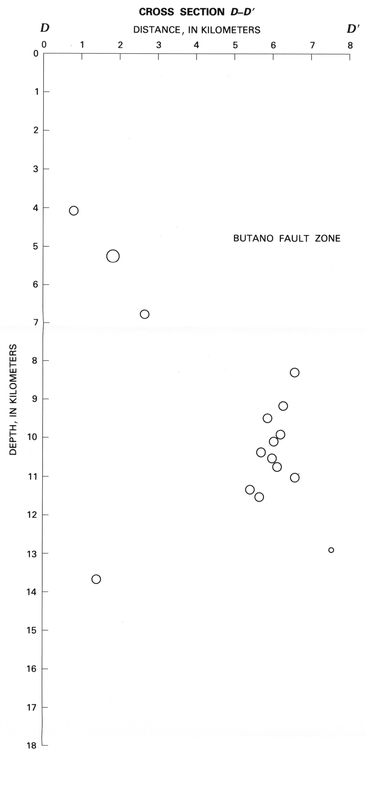

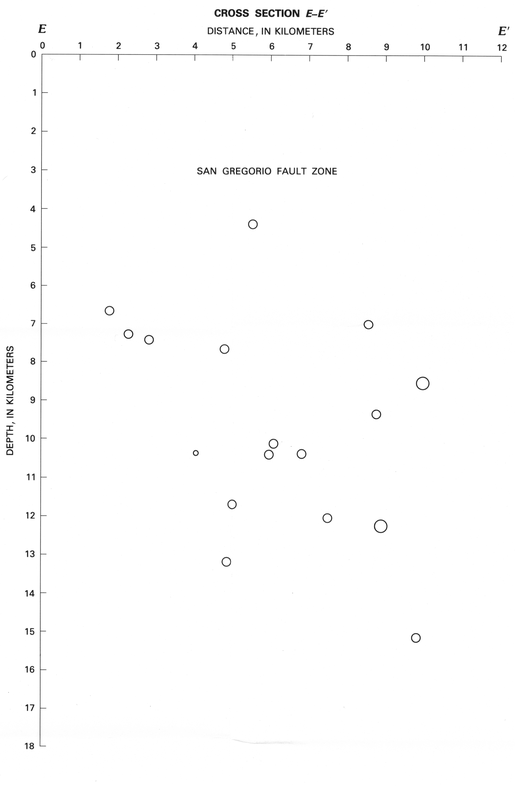

SOURCES OF INFORMATION FOR FAULT LINES AND ZONES

The mapping of fault traces is difficult in an area like San Mateo County where rocks are poorly exposed and where geomorphic features that might provide clues for the location of faults have been extensively modified or destroyed by humans. In many areas, such as from Moss Beach to Pillar Point and along most of the San Andreas fault, different geologists have mapped the same fault and have depicted it with lines that are significantly different in detail. We have selected the lines that we believe best portray the fault, but we readily admit that other interpretations are possible. References for these interpretations are provided, except for some older reports that seem to be in error or have been superseded. The area or zone along a fault that might be potentially hazardous is subjective.

San Andreas fault zone
Lines primarily from Bonilla (1971), Pampeyan (1981a, b, 1975, 1970), D. G. Herd (written commun., 1982), and Brown (1972). See also California Division of Mines and Geology (1974a, b, c, d; 1982c, d), Schlocker and others (1965), and W. R. Dickinson (written commun., 1970, 1971).

Serra fault zone
Lines from Herd (written commun., 1982), and Pampeyan (1981a). See also California Division of Mines and Geology (1982c, d), Brown (1972) and Yancey (1978).

Stanford fault zone
Lines from D. G. Herd (written commun., 1982).

Hermit fault
Lines from Herd (written commun., 1982). See also Brown (1972), Pampeyan (1970), and California Division of Mines and Geology (1974d).

Monta Vista fault
Lines from D. G. Herd (written commun., 1982). See also Dibblee (1966b), Pampeyan (1970), and McLaughlin (1974).

Woodhaven and La Honda faults
Lines from Brabb and Pampeyan (1972).

Butano fault zone
Lines from Brabb and Pampeyan (1972) and Brabb (1970).

Pilarcitos fault
Lines from Brabb and Pampeyan (1972). See also Pampeyan (1981b).

San Bruno fault
Line from Bonilla (1971) and Pampeyan (1981a).

Hillside fault zone
Lines from Bonilla (1971).

San Gregorio fault zone
Lines from Weber and Lajoie (1980), Touring (1959), and Brabb and Pampeyan (1972). See also F. Beach Leighton and Associates (1971), Brown (1972), McCulloch and others (1977), and California Division of Mines and Geology (1976; 1982a, b, c).

Other faults near Point Año Nuevo
Lines from Brabb and others (1977) and Weber and Lajoie (1980). See also California Division of Mines and Geology (1982a) and Clark (1981).

Other faults
Lines from Brabb and Pampeyan (1972), Pampeyan (1981a, b), D. G. Herd (written commun., 1982), and McLaughlin (1969).

ALQUIST-PRIOLO SPECIAL STUDIES ZONES

The Alquist-Priolo Special Studies Zones Act, according to Hart (1980), was signed in law December 22, 1972, and went into effect March 7, 1973. The Act, codified in the Public Resource Code as Division 2, Chapter 7.5, has been amended four times. The purpose of this Act is to prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture (Section 2621.5).

Under the Act, the State Geologist (Chief of the Division of Mines and Geology) is required to delineate "special studies zones" along known active faults in California. Cities and counties affected by the zones must regulate certain development "projects" within the zones. They must withhold development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting. The State Mining and Geology Board provides specific Policies and Criteria to guide cities and counties in their implementation of the law.

REFERENCES

Bolt, B. A., and Miller, R. D., 1975, Catalogue of earthquakes in northern California and adjoining areas, January 1, 1910–December 31, 1972: Berkeley, University of California, Seismographic Stations, 567 p.

Bonilla, M. G., 1959, Geologic observations in the epicentral area of the San Francisco earthquake of March 22, 1957: California Division of Mines and Geology Special Report 57, p. 25–38.

——1971, Preliminary geologic map of the San Francisco South and part of the Hunters Point quadrangles, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-311, scale 1:24,000.

Bonilla, M. G., Alt, J. N., and Hodgen, L. D., 1978, Trenches across the 1906 trace of the San Andreas fault in northern San Mateo County, California: U.S. Geological Survey Journal of Research, v. 6, no. 3, p. 347–358.

Brabb, E. E. (compiler), 1970, Preliminary geologic map of the central Santa Cruz Mountains, California: U.S. Geological Survey open-file report [70–36], scale 1:62,500, 3 sheets.

——1980, Preliminary geologic map of the La Honda and San Gregorio quadrangles, San Mateo County, California: U.S. Geological Survey Open-File Report 80–245, scale 1:24,000.

Brabb, E. E., Clark, J. C. and Throckmorton, C. K., 1977, Measured sections of Paleogene rocks from the California Coast Ranges: U.S. Geological Survey Open-File Report 77–714, 114 p.

Brabb, E. E., and Hanna, W. F., 1981, Maps showing aeromagnetic anomalies, faults, earthquake epicenters, and igneous rocks in the southern San Francisco Bay region: U.S. Geological Survey Geophysical Map GP–932, scale 1:125,000.

Brabb, E. E., and Pampeyan, E. H., compilers, 1972, Preliminary geologic map of San Mateo County, California: U.S Geological Survey Miscellaneous Field Studies Map MF–328, scale 1:62,500.

Branner, J. C., Newsome, J. F., and Arnold, Ralph, 1909, Santa Cruz [quadrangle], California, U.S. Geological Survey Folio 163 of Geologic Atlas of the United States: scale 1:125,000.

Brown, R. D., Jr., 1970, Map showing recently active breaks along the San Andreas and related faults between the northern Gabilan Range and Cholame Valley, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–575, scale 1:62,500

——1972, Active faults, probable active faults, and associated fracture zones, San Mateo County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–355, scale 1:62,500.

Brown, R. D., Jr., and Lee, W. H. K., 1971, Active faults and preliminary earthquake epicenters (1969–1970) in the southern part of the San Francisco Bay region: U.S. Geological Survey Miscellaneous Field Studies Map MF–307, scale 1:250,000.

California Department of Water Resources, 1967, Evaluation of ground water resources, South Bay—Appendix A, Geology: Bulletin 118–1, 153 p.

California Division of Mines and Geology, 1974a, State of California special studies zones, Mindego Hill quadrangle: Sacramento, Calif., scale 1:24,000.

——1974b, State of California special studies zones, Palo Alto quadrangle: Sacramento, Calif., scale 1:24,000.

——1974c, State of California special studies zones, San Mateo quadrangle: Sacramento, Calif., scale 1:24,000.

——1974d, State of California special studies zones, Woodside quadrangle: Sacramento, Calif., scale 1:24,000.

——1976, State of California special studies zones, Half Moon Bay quadrangle: Sacramento, Calif., scale 1:24,000.

——1982a, State of California special studies zones, Año Nuevo quadrangle: Sacramento, Calif., scale 1:24,000.

——1982b, State of California special studies zones, Franklin Point quadrangle: Sacramento, Calif., scale 1:24,000.

——1982c, State of California special studies zones, Montara Mountain quadrangle: Sacramento, Calif., scale 1:24,000.

——1982d, State of California special studies zones, San Francisco South quadrangle: Sacramento, Calif., scale 1:24,000.

Clark, J. C., 1981, Stratigraphy, paleontology, and geology of the central Santa Cruz Mountains, California Coast Ranges: U.S. Geological Survey Professional Paper 1168, 51 p.

Clark, J. C., and Brabb, E. E., 1978, Stratigraphic contrasts across the San Gregorio fault, Santa Cruz Mountains, west central California, in Silver, E. A., and Normark, W. R., eds., San Gregorio-Hosgri fault zone, California: California Division of Mines and Geology Special Report 137, p. 3–12.

Cooper, A. K., 1973, Structure of the continental shelf west of San Francisco, California: U.S. Geological Survey Open-File Report [73–48], 72 p.

Cummings, J. C., Touring, R. M., and Brabb, E. E., 1962, Geology of the northern Santa Cruz Mountains, California, in Bowen, O. E., Jr., ed., Geologic guide to the gas and oil fields of northern California: California Division of Mines and Geology Bulletin 181, p. 179–220.

Darrow, R. L., 1963, Age and structural relationships of the Franciscan Formation in the Montara Mountain quadrangle, California: California Division of Mines and Geology Special Report 78, 23 p.

Dibblee, T. W., Jr., 1966a, Evidence for cumulative offset on the San Andreas fault in central and northern California, in Bailey, E. H., ed., Geology of northern California: California Division of Mines and Geology Bulletin 190, p. 375–384.

——1966b, Geology of the Palo Alto quadrangle, Santa Clara, and San Mateo Counties, California: California Division of Mines and Geology Map 8, scale 1:62,500.

Dibblee, T. W., Jr., and Brabb, E. E., 1978, Preliminary geologic maps of the Chittenden, Los Gatos, and Watsonville East quadrangles, California: U.S. Geological Survey Open-File Report 78–453, scale 1:24,000.

Dickinson, W. R., 1970, Commentary and reconnaissance photogeologic map, San Andreas rift belt, Portola Valley, California: unpublished manuscript, 57 p. (Available from U.S. Geological Survey Library, Menlo Park, Calif., 94025).

——1971, Reconnaissance of active traces of San Andreas fault in Woodside: unpublished manuscript, 21 p., (Available from U.S. Geological Survey Library, Menlo Park, Calif., 94025).

Donley, H. F., Vine, J. C., and Rowland, R. E., 1975, Geotechnical study, geologic fault hazard zone, City of Burlingame, California: Engineering Geology and Soils Engineering Symposium, 13th, Sacramento, Calif. Proceedings, p. 121–132.

Ellsworth, W. L., Lindh, A. G., Prescott, W. H., and Herd, D. G., 1981, The 1906 San Francisco earthquake and the seismic cycle, in Simpson, D. W., and Richards, P. G., eds., Earthquake prediction, an international review: American Geophysical Union Symposium, 3rd, Mohonk, N. Y., 1980, Maurice Ewing Series, no. 4, p. 126–140.

Ellsworth, W. L., and Marks, S. M., 1980, Seismicity of the Livermore Valley, California region 1969–1979: U.S. Geological Survey Open-File Report 80–515, 41 p.

Galehouse, J. S., 1981, Theodolite measurements of creep rates on San Francisco Bay region faults: San Francisco State University, Frederic Burk Foundation for Education, Semi-annual Technical Report, Contract No. 14–08–0001–19767, 34 p.

Glen, William, 1959, Pliocene and Lower Pleistocene of the western part of the San Francisco peninsula: University of California Publications in Geological Sciences, v. 36, no. 2, p. 147–198.

Graham, S. A. and Dickinson, W. R., 1978a, Evidence for 115 kilometers of right slip on the San Gregorio-Hosgri fault trend: Science, v. 199, p. 179–181.

——1978b, Apparent offsets of on-land geologic features across the San Gregorio-Hosgri fault trend, in Silver, E. A., and Normark, W. R., eds., San Gregorio-Hosgri fault zone, California: California Division of Mines and Geology Special Report 137, p. 13–23.

Greene, J. G., Lee, W. H. K., McCulloch, D. S., and Brabb, E. E., 1973, Faults and earthquakes in the Monterey Bay region, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–518, 4 sheets, scale 1:250,000.

Hart, E. W., 1980, Fault-rupture hazard zones in California: California Division of Mines and Geology Special Publication 42, 25 p.

Hill, M. L., and Dibblee, T. W., Jr., 1953, San Andreas, Garlock, and Big Pine faults, California: Geological Society of America Bulletin, v. 64, no. 4, p. 443–458.

Kockelman, W. J., 1975, Use of USGS earth-science products by city planning agencies in the San Francisco Bay region, California: U.S. Geological Survey Open-File Report 75–276, 110 p.

——1976, Use of USGS earth-science products by county planning agencies in the San Francisco Bay region, California: U.S. Geological Survey Open-File Report 76–547, 186 p.

——1979, Use of U.S. Geological Survey earth-science products by selected regional agencies in the San Francisco Bay region, California: U.S. Geological Survey Open-File Report 79–221, 173 p.

——1980, Examples of the use of earth-sciences information by decision makers in the San Francisco Bay region, California: U.S. Geological Survey Open-File Report 80–124, 88 p.

Lajoie, K. R., Helley, E. J., Nichols, D. R., and Burke, D. B., 1974, Geologic map of unconsolidated and moderately consolidated deposits of San Mateo County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–575, scale 1:62,500.

Lawson, A. C., 1914, San Francisco folio—Tamalpais, San Francisco, Concord, San Mateo, and Hayward quadrangles, California, folio 193 of Geologic Atlas of the United States: scale 1:62,500.

Lawson, A. C., and others, 1908, The California earthquake of April 18, 1906: Report of the State Earthquake Investigation Commission: Carnegie Institute of Washington Publication 87, v. 1, 2 pts., 451 p., atlas.

Leighton, F. Beach, and Associates, 1971, Geologic report of Seal Cove-Moss Beach area: Irvine Calif., 78 p., (Available from U.S. Geological Survey Library, Menlo Park, Calif., 94025).

Louderback, G. D., 1937, Characteristics of active faults in the central Coast Ranges of California with application to the safety of dams: Seismological Society of America Bulletin, v. 27, no. 1, p. 1–27.

——1947, Central California earthquakes of the 1830's: Seismological Society of America Bulletin, v. 37, p. 33–74.

Mack, J. E., 1959, Reconnaissance geology of part of the Woodside quadrangle, San Mateo County: Stanford, California, Stanford University M. S. thesis, 78 p.

Marchand, G. B., 1962, 120 years of building performance under stresses imposed by right-lateral faulting: California Association of Engineering Geologists, 5th Annual Meeting, Sacramento, Calif., 1962, Proceedings, p. 27–30.

McCulloch, D. S., Clarke, S. H., Jr., Field M. E., Scott, E. W., and Utter, P. M., 1977, A summary report on the regional geology, petroleum potential, and environmental geology of the southern proposed lease sale 53, central and northern California outer shelf: U.S. Geological Survey Open-File Report 77–593, 57 p.

McLaughlin, R. J., 1974, The Sargent-Berrocal fault zone and its relation to the San Andreas fault system on the southern San Francisco Bay region and Santa Clara Valley, California: U.S. Geological Survey Journal of Research, v. 2, no. 5, p. 593–598.

——1969, The Franciscan series and Eocene(?) rocks west of San Carlos and Belmont, California: San Jose, California, San Jose State College [University] unpublished report, scale 1:12,000.

Olson, J. A., Lindh, A. G., and Ellsworth, W. L., 1980, Seismicity and crustal structure of the Santa Cruz Mountains, California (abs): American Geophysical Union, Transactions, v. 61, no. 46, p. 1042.

Olson, W. L., 1981, Microseismicity on the San Andreas fault near the 1906 epicentral region (abs): Earthquake Notes, v. 52, no. 1, p. 12.

Page, B. M., and Tabor, L. L., 1967, Chaotic structure and decollement in Cenozoic rocks near Stanford University, California: Geological Society of America Bulletin, v. 78, no. 1, p. 1–12, 5 figs. 3 pls.

Pampeyan, E. H., 1970, Geologic map of the Palo Alto 7½′ quadrangle, San Mateo and Santa Clara Counties, California: U.S. Geological Survey open-file report [70–254], scale 1:12,000, 2 sheets.

——1975, Geologic map of the San Andreas fault zone in San Andreas Lake, San Mateo County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–652, scale 1:6,000.

——1981a, Geology and former shoreline features of the San Mateo 7.5-minute quadrangle, San Mateo County, California: U.S. Geological Survey Open-File Report 81–839, scale 1:24,000.

——1981b, Geologic map of the Montara Mountain quadrangle, San Mateo County, California: U.S. Geological Survey Open-File Report 81–451, scale 1:12,000.

Prescott, W. H., Lisowski, Michael, and Savage, J. C., 1981, Geodetic measurement of crustal deformation on the San Andreas, Hayward, and Calaveras faults near San Francisco, California: Journal of Geophysical Research, v. 86B, no. 11, p. 10853–10869.

Purcell, Rhoades and Associates, 1976, Geologic investigation, lots 16 and 17, block 72, La Prenda Drive, Millbrae, California: Sunnyvale, California, 11 p., (Available from U.S. Geological Survey Library, Menlo Park, Calif. 94025).

Real, C. R., Toppozada, T. R., and Parke, D. L., 1978, Earthquake catalog of California January 1, 1900-December 31, 1974: California Division of Mines and Geology Special Publication 52, 15 p.

Reid, H. F., 1910, The mechanics of the earthquake, v. 2 of The California earthquake of April 18, 1906: Report of the State Earthquake Investigation Commission: Carnegie Institute of Washington Publication 87, 192 p.

San Mateo County, 1973, Resource management zoning district: San Mateo County Zoning Ordinance Chapters 20A and 23 adopted 12/20/73, 64 p.

Schlocker, Julius, Pampeyan, E. H., and Bonilla, M. G., 1965, Approximate trace of the main surface rupture in the San Andreas fault zone between Pacifica and [the vicinity] of Saratoga, California, formed during the earthquake of April 18, 1906: U.S. Geological Survey open-file report [65–144], scale 1:63,360.

Silver, E. A., and Normark, W. R., eds., 1978, San Gregorio-Hosgri fault zone, California: California Division of Mines and Geology Special Report 137, 56 p.

Smith, D. D., 1960, The geomorphology of part of the San Francisco Peninsula, California: Stanford, California, Stanford University, Ph. D. thesis, 356 p.

Smith, T. C., 1981, Fault evaluation report, Serra fault: San Francisco, California Division of Mines and Geology unpublished FER–119, 8 p.

Sorg, D. H., and Mclaughlin, R. J., 1975, Geologic map of the Sargent-Berrocal fault zone between Los Gatos and Los Altos Hills, Santa Clara County, California: U. S. Geological Survey Miscellaneous Field Investigations Map MF–643, scale 1:24,000.

Taber, Stephen, 1906, Some local effects of the San Francisco earthquake: Journal of Geology, v. 14, p. 303–315.

——1923, Some criteria used in recognizing active faults: Geological Society of America Bulletin, v. 34, no. 4, p. 661–668.

Tocher, Don, 1959a, Seismic history of the San Francisco region in Oakeshott, G. B., ed., San Francisco earthquakes of March 1957: California Division of Mines Special Report 57, p. 39–48.

——1959b, Seismographic results from the 1957 San Francisco earthquakes in Oakeshott, G. B., ed., San Francisco earthquakes of March 1957: California Division of Mines Special report 57, p. 59–71.

Toppozada, T. R., Real, C. R., and Parke, D. L., 1981, Preparation of isoseismal maps and summaries of reported effects for pre–1900 California earthquakes: California Division of Mines and Geology Open-File Report 81–11 SAC, 78 p.

Touring, R. M., 1959, Structure and stratigraphy of the La Honda and San Gregorio quadrangles, San Mateo County, California: Stanford, California, Stanford University, Ph. D. thesis, 228 p.

Unhammer, R. A., 1980, The Pacifica earthquake of April 28, 1979 (abs): American Geophysical Union Transactions, v. 61, no. 46, p. 1027.

Weber, G. E., and Cotton, W. R., 1981, Geologic investigation of recurrence intervals and recurrence of faulting along the San Gregorio fault zone, San Mateo County, California: U.S. Geological Survey Open-File Report 81–263, 129 p.

Weber, G. E., and Lajoie, K. R., 1980, Map of quaternary faulting along the San Gregorio fault zone, San Mateo and Santa Cruz Counties, California: U.S. Geological Survey Open-File Report 80–907, scale 1:24,000.

Willis, Bailey, 1924, Earthquake risk in California: Seismological Society of America Bulletin, v. 14, no. 2, p. 150–164.

——1938, The San Andreas rift, California: Journal of Geology, v. 46, no. 6, p. 793–827.

Yancey, T. E., 1978, Stratigraphy of the Plio–Pleistocene strata in the Twelvemile Creek area, San Francisco peninsula, California: California Academy of Sciences Proceedings, v. 41, no. 15, p. 357–370.

EXPLANATION

MAGNITUDE OF EARTHQUAKE

- <1
- 1≤2
- 2≤3
- 3≤4
- 4≤5

Hypocenters projected to cross section from defined boundary (outlined on sheet 1), along a line perpendicular to plane of cross section

HYPOCENTER—The point within the Earth which is the initial rupture site of an earthquake

EPICENTER—The point on the Earth's surface directly above the hypocenter of an earthquake

TABLE 1.—*Classification of fault activity*
[From seismicity data of Ellsworth and Marks (1980, fig. 14)]

Seismically active fault.—Earthquake hypocenters on the geologically defined or inferred fault plane with well-constrained focal-mechanism solutions in agreement with movement on the fault plane. The correlation between earthquake hypocenters and the fault-plane solutions must exclude, at a high confidence level, the association of those events with other possible faults.

Probably seismically active fault.—Earthquake hypocenters on the geologically inferred fault plane, probable compatibility of fault-plane solutions and movement on the fault, and presence of a regional stress field compatible with the geologic record of fault movement. The correlation between earthquake hypocenters and the fault plane must be the most probable association. The possible association of the events with other faults is permissible.

Possibly seismically active fault.—Earthquake hypocenters in possible association with the fault plane with presence of a regional stress field compatible with the geologic record of fault movement. Available first-motion data must agree with movement on the fault. The association between earthquake hypocenters and the fault plane permits the interpretation that they are related, but it lacks the precision to demonstrate the correlation with reasonable confidence.

Seismic information insufficient to determine fault activity.—Little or no seismological evidence in direct support of the presence of a proposed fault. Regional stress field may or may not agree with movement on the fault.

TABLE 2.—*Historic earthquakes of magnitude 5 or greater in or near San Mateo County, Calif.*

Date[1]	Time (GMT)	Epicenter location[2]: Latitude	Longitude	Richter magnitude[2]	Accuracy of epicenter location[3]
1808;6:21	?	37°48′N.	122°30′W.	6.3	E
1838;6	?	37°36′N.	122°24′W.	7.0	A
1851;5:15	16:10	37°54′N.	122°36′W.	5.0	C
1856;1:2	18:15	37°30′N.	122°30′W.	5.4	C
1856;2:15	13:25	37°36′N.	122°24′W.	5.9	B
1859;10:5	20:16	37°48′N.	122°24′W.	5.0	E
1870;2:17	20:12	37°12′N.	122°00′W.	5.5	B
1899;6:2	07:19	37°48′N.	122°36′W.	5.5	C
1906;4:18	13:12	37°42′N.	122°30′W.	8.2	—
1957;3:22	19:44	37°40′N.	122°29′W.	5.3	—

[1]Data for pre-1900 earthquakes are from Toppozada and others (1980); Data for post-1900 earthquakes from Real and others (1978). Time is Greenwich Mean Time.
[2]Locations and magnitudes are estimated from their intensity determinations; coordinates are for the reporting station in the general earthquake area.
[3]Accuracy of epicenter locations: A, within 15 km; B, within 30 km; C, within 60 km; E, insufficient data for location.

A brief descriptive summary of these events follows (from Toppozada and others, 1980, unless otherwise indicated):

1808.—From June 21 to July 17, 18 earthquakes were felt in the Presidio of San Francisco, cracking houses, destroying an antechamber, and threatening the barracks of the fort with entire ruin.

1838.—From interview with Mr. Charles Brown (Louderback 1947); describes a fissure from near San Francisco to the latitude of Santa Clara (about 60 km), redwood trees broken off, adobe walls cracked, and the earth rising and falling in solid waves. "The fault rupture may have occurred throughout all or most of the line active in 1906, but north and south of the limits indicated by Brown, it lay under water or in wild country uninhabited by whites (except at Fort Ross, from which we have no report). The evidence of greater intensity at Monterey than in 1906 may mean that the fault rupture extended farther south in 1838 than in 1906." Toppozada and others (1980) assign an intensity magnitude of 7 to this event, as suggested by a rupture length of 60 km. They indicate that because of the absence of reports north of San Francisco and south of Santa Clara, except at Monterey, this is a minimum magnitude estimate.

1851.—Goods were thrown from shelves in San Francisco. People rushed outside.

1856.—(January) Iron shutters were warped and masonry walls were damaged in San Francisco.

1856.—(February) Cornices were thrown down, brick walls were cracked, and people were thrown from their feet in San Francisco. Several aftershocks were felt at San Francisco.

1859.—In San Francisco bells rang, plaster fell walls were cracked in several brick buildings, and objects were knocked from shelves.

1870.—Several chimneys were thrown down in Los Gatos, Santa Clara County.

1899.—In San Francisco chimneys were toppled and several cornices fell.

1906.—A 430-km-long segment of the San Andreas fault ruptured from San Juan Bautista to at least as far north as Point Arena, and probably as far north as Cape Mendocino. Right-lateral surface offsets averaged 4 m (12 ft) north of San Francisco and less than 2 m (6 ft) south of San Francisco. The maximum observed offset was 5 m (15 ft) (Lawson and others, 1908).

1957.—This event was a part of a sequence of 88 earthquakes, M >2.5. The epicenter of the main event occurred near Mussel Rock and the aftershocks were within 6 km (3.7 mi). Depths of the aftershocks ranged from 7 to 11 km (4.3 to 6.8 mi). (Bolt and Miller, 1975; Tocher, 1959b; Unhammer, 1980).

CROSS SECTIONS TO ACCOMPANY

MAP SHOWING FAULTS AND EARTHQUAKE EPICENTERS IN SAN MATEO COUNTY, CALIFORNIA

By
Earl E. Brabb and Jean A. Olson

1986

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—REPRINTED 1998

USGS
science for a changing world