

22 March, 11:44:21\*. Intensity V. (cont.)

- El Cerrito.** Motion rapid. Felt by all (active) on first floor of strongly built brick building; by others outdoors. Windows rattled; building creaked.
- El Cerrito (1724 Arlington).** Small continuation of crack in chimney. "Child in house (reading) complained the small children in the playroom had been jumping and shook the entire house. No other noises." Ground: Rocky.
- El Cerrito (5447 Poinsett Ave.).** IV. Motion slow, rolling, lasted about 30 seconds. Direction toward N. Loud rumbling, deep, earth noises heard. Furnishings and walls shook.
- El Cerrito (High School).** IV. Motion slow, lasted 15 or more seconds. Direction NE. Loud earth noises heard. "Felt like a twist from the floor, as if the floor or earth were being pushed upward. Concrete and steel structure." Ground: Soil, level.
- El Cerrito (2645 Arlington Blvd.).** IV. Motion rapid, lasted 15-20 seconds. House made loud noises. Ground: Rocky soil, sloping; crest of hill.
- El Cerrito (1226 King Dr.).** III. Motion slow. Loud earth noises heard. "My first impression was that a very large truck must be going past the house on an uphill grade." Ground: Rocky soil, sloping.
- El Granada.** Motion slow, lasted 1-2 minutes. Loud earth noises heard by few. Felt by several in home and community, some outdoors (active); frightened few. Windows, doors, and dishes rattled; house creaked. Small objects shifted and overturned. Ground: Soil, level.
- El Verano.** Motion rapid. Direction N. Moderate earth noises heard by many. Felt by and frightened many in community, some outdoors (quiet). Windows, doors, and dishes rattled. Hanging objects swung. Ground: Compact, level.
- Emeryville.** Motion rapid. Loud earth noises from W heard by many. Felt by all (active) on first floor of strongly built brick building; outdoors by some (active); frightened few. Hanging objects swung. Ground: Soil, compact, level.
- Emeryville (5837 San Jose Ave.).** III. Motion rapid, lasted 3-4 seconds. Direction NE. Loud earth noises heard. Ground: Rocky, compact, level, filled in; covered with blacktop.
- Fairfield.** Motion slow, lasted 10 seconds. Moderate earth noises heard. Felt by many and frightened few in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Small objects and furnishings shifted. "Shock was apparently felt by only those indoors." Ground: Compact, level.
- Fairfield (1312 Cleveland St.).** Motion slow, lasted about 10 seconds. Furnishings shifted. Ground: Rocky, level, filled in.

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Fairfield (307 East Bell). IV. Motion rapid, lasted 6-7 seconds. Faint earth noises heard. Furnishings shook. Ground: Soil, compact, level.

Fallon. Motion rapid. Direction W-E. Moderate earth noises from E-W heard by many. Felt by and frightened many in community (some outdoors; active). Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken slightly. Small objects shifted. Ground: Rocky, level.

Felton. Motion moderate, lasted 30 seconds. Direction N. Felt by many in community. Windows, doors, and dishes rattled; house creaked. Trees, bushes shaken moderately. Small objects shifted. Ground: Soil, level.

Forest Knolls. Motion rapid, lasted 10 seconds. Direction E-W. Felt by many on first floor of strongly built wooden post office building; by others outdoors (quiet); frightened many. Earth noises heard 1 second before shock. Doors rattled; walls creaked. Small objects and furnishings shifted. "First shock felt by this observer in the last five years." Ground: Compact.

Forestville. Motion slow, lasted 30 seconds. Moderate earth noises from S heard by many 1 second before shock. Felt by all (sitting) in strongly built stucco building with cement floor; frightened few. Windows, doors, and dishes rattled; house creaked some. Hanging objects swung. Trees, bushes shaken slightly. Small objects shifted and overturned. Ground: Compact soil, sloping.

Gilroy. Motion slow. Direction N. Moderate earth noises from N heard. Felt by many in community (some outdoors; quiet); frightened few. Windows rattled; frame creaked. Hanging objects swung. Small objects shifted. Ground: Compact soil.

Guerneville. Motion rapid. Direction W. Faint earth noises heard by many. Felt by many (some outdoors; active); house creaked. Trees, bushes shaken moderately. "Strong enough to shake cans off the store shelves."

Guerneville. Motion slow, twisting, rocking, lasted about 15-20 seconds. Some cans fell from shelf in Safeway store. "I have found no damage nor have I heard of any in this area." Faint earth noises heard. Ground: Soil, rocky, compact, level.

Hamilton Air Force Base. Motion rapid, lasted 35 seconds. Direction W-E. Loud earth noises heard by many 5-10 seconds before shock. Felt by all in post office; frightened few. Windows and doors rattled; frame creaked. Hanging objects swung W-E. Pendulum clock facing W stopped. Ground: Marshy, filled in, level.

Hamilton Air Force Base. Motion rapid, lasted 5 seconds or more. Chair, bed, table, and clock shifted. Ground: Sloping; hill.

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Hamilton Air Force Base. Motion rapid, lasted 12 seconds. Direction E-W. Loud crackling earth noises heard. Small objects shifted E-W. Ground: Level, filled in.

Hamilton Air Force Base. II. Motion rapid, lasted about 30 seconds. Loud earth noises heard. Ground: Level.

Hayward. Motion slow, lasted 40 seconds. Felt by many in post office building; frightened many. Ground: Soil, compact.

Hayward Airport. Motion rapid, lasted about 12-15 seconds. Moderate earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Hayward (Palma Circa Village). Motion rapid, lasted 2 minutes. Moderate earth noises heard. Small objects and furnishings shifted. Ground: Soil.

Hayward (402 Dale St.). Motion slow, lasted about 1 minute. Moderate earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Hayward (near Hayward Airport). Motion rapid, lasted about 2 minutes. Direction NW. Loud thunderous earth noises heard. Wall pictures shifted. Dog barked during shock. Ground: Soil, compact, level.

Hayward (opposite airport). Two sharp jolts, then swirling roll, lasted 20 seconds. Direction NW-SE. Moderate earth noises heard. Small objects shifted; bottle fell when cupboard doors opened. Visible twisting of ground. Ground: Soil, level.

Hayward. Motion rapid, lasted 30 seconds. Moderate earth noises heard. Small objects shifted. Ground: Soil.

Hayward (3 miles east of). Motion moderate, lasted 30 seconds. Faint earth noises heard. Small objects shifted. Ground: Rocky.

Hayward (3 miles south of, on Niles Road). III. Motion rapid, lasted 30 seconds. Loud earth noises heard. Ground: Soil, adobe, compact, level.

Hayward (26460 Regal). III. Motion slow, lasted 1 minute. Ground: Soil, compact, level.

Healdsburg (419 Fitch St.). Motion moderate, lasted few seconds. Direction E-W. Four-foot-long plaster crack in hallway. "I was in the house (sitting) when I felt the shock. House shook quite plainly. I went to the door and asked my daughter if she had felt it outside. She said she didn't feel it." Ground: Compact, gentle slope.

Healdsburg. IV. Motion slow, lasted 10 seconds. Felt by many in community. Hanging objects swung. Ground: Level.

Healdsburg (511 Prince St.). III. Motion moderate, lasted about 1 minute. Moderate earth noises heard. Ground: Soil, level.

Hercules. Motion rapid. Moderate earth noises heard by many. Felt by many in post office; frightened many in community. House creaked. Trees, bushes shaken moderately. Small objects shifted; knickknacks fell. Ground: Soil, compact.

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Holy City. Motion slow. Direction E-W. Faint earth noises heard by few about 5 seconds before shock. Felt by all in home, by others outdoors (quiet); frightened few in community. Small objects shifted.

Holy City. IV. Motion trembling, gradual onset. Felt by many. Creaking of buildings and rattling of loose objects heard by many. Noticed by nearly everyone at school. Ground: Filled in.

Imola. Motion slow, lasted 1 minute. Faint roaring earth noises heard by some. Felt by several (standing) on first floor of strongly built brick building; frightened few in community. Dishes rattled. Hanging objects swung E. "Was in post office doing routine work. Platform of scale moved; blinds swayed N-S. Did not feel any vertical movement."

Inverness. Motion rapid, lasted 10 seconds. Direction N. Felt by many in home, by others outdoors (quiet); frightened few. Windows rattled. Small objects shifted and overturned. Ground: Compact.

Isleton. Strong jolt, lasted 1 minute. Direction NE. Felt by many in post office, by others outdoors (active); frightened many. Post office equipment swayed. Walls creaked. Ground: Soil, loose, level.

Jenner. "Shock reported quite severe at Jenner, near mouth of Russian River. Apparently felt by everyone, even those moving about. Seems to have been felt stronger on the northeasterly side of the San Andreas Fault. Lines swayed at Jenner and it was reported a tractor on blocks was almost dislodged."

Kenwood (Post Office). Motion rapid, lasted 1 second. Direction SE. Felt by and frightened many. Hanging objects swung. Small objects and furnishings shifted and overturned; knick-knacks fell. Ground: Soil, level.

Lafayette. Motion rapid. Moderate earth noises heard by many. Felt by and frightened many in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Ground: Soil, level.

Lafayette (1107 Orchard Rd.). Motion rapid, lasted 30 seconds. "Could not distinguish house noises from earth noises." Plaster cracked slightly. Damage none to slight. Ground: Soil, compact, steep.

Lafayette (3309 Betty Lane). II. Motion rapid, lasted about 3 seconds. Moderate earth noises heard. Ground: Rocky soil, level.

Lafayette (3350 O'Connor Dr.). II. Motion slow, lasted 10 seconds. Ground: Compact, level.

Lagunitas. Motion rapid, lasted 1 minute. Direction E-W. Felt by and frightened all in community. Doors rattled; house creaked. Hanging objects swung. "It was a good hard shake,

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but I have heard of no reports of damage here. I found nothing even slightly displaced." Ground: Rocky soil, compact, level.

Lagunitas. Motion rapid, up and down, lasted 1-2 minutes. Direction NE to E. Damage slight. Ground: Rocky, adobe, sloping and steep.

Larkspur (33 Myrtle Ave.). Motion rapid, increasing in intensity, lasted 10-12 seconds. Direction indoors NE-SW. Small objects and furnishings shifted. Ground: Clay; concrete slab and rock fill.

Larkspur (11 Midway). Motion rapid, lasted 20-30 seconds. Loud earth noises heard. Small objects shifted. Ground: Level, marshy, filled in.

Larkspur (Greenbrae). Motion rapid, severe shaking for a matter of seconds. Loud rumbling earth noises heard. "Seemed to be a twisting motion indoors. Did not go outdoors until severe part was over." Small objects shifted. Paint may have flaked slightly from old stucco cracks. Ground: Rocky soil, compact, sloping; some fill in one corner?

Larkspur. Motion rapid, lasted 10-12 seconds. "Shock felt or noticed in rear of 70-foot clear-span building. Concrete slab. Direction came from NW-SE. Motion increased then faded. Walls seemed to tip up. No damage to slab or walls." Ground: Clay.

Larkspur (130 Acacia Ave.). IV. Motion rapid, increasing in intensity, lasted a few seconds. Direction SW. Loud earth noises heard. Ground: Rocky, sloping, steep.

Larkspur (5 Cedar Ave.). "Was outdoors and felt no earth movement, but felt or sensed unusual air movement after loud noise, -thought it was a jet plane. Felt impelled to look NW. Small plaster crack noticed but may not be due to shock." Ground: Rocky soil, compact, sloping to steep.

Livermore (Arroyo Sanitarium). Moderate earth noises heard by many. Felt by and frightened many in community. Windows, doors, and dishes rattled; house creaked slightly. "Probably the sharpest I have felt here in over 38 years. However, it did not knock anything off the shelves as did some of those we had several years ago."

Livermore. Motion slow, lasted about 50 seconds. Faint earth noises heard. Damage slight. Ground: Rocky, level.

Livermore (Veterans Hospital). IV. Motion rapid, lasted 5 seconds. Felt by several on second floor of brick building. Doors and hanging objects swung.

Livermore. IV. Motion slow, rolling, lasted about 30 seconds. Direction easterly. Ceiling lights swung. Ground: Soil, compact, level.

Livermore (Post Office). III. Motion rapid, lasted 2 seconds. Felt by several (sitting) in strongly built concrete building. Hanging objects swung. Ground: Gravelly soil.

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Livermore (2 miles east of, 235 Jensen St.). III. Motion slow, undulating, lasted about 20 seconds. Direction E-W.

Ground: Alternate sand-gravel-clay to at least 700 feet.

Lodi (central section). Motion swaying, abrupt onset. Felt by many. Four-tube fluorescent light fixture, 4 feet long, mounted N-S, and hung from ceiling with two 30-inch semirigid rods, swung E-W through 2-inch arc. Pendulum clock, 18-inch pendulum, facing N-S stopped. Pendulum clock on E wall of S.P.R.R. depot, 18-inch pendulum swinging N-S, did not stop. Weight-activated clock at same location and mounted on N-S wall had its weight (on 20-inch chain) swung in a NE-SW direction through a 4-inch arc. Many noted nothing unusual; no alarm.

Lodi (west section). Motion swaying, rolling, abrupt onset. Felt by many. Light fixtures moved or swayed slightly for several minutes. Pendulum clock on N-S wall stopped. "A check of the area showed there was no damage. However, many persons felt the shock." Ground: Mokelumne River delta.

Lodi (Terminus Elementary School, on Highway 12). Motion rapid. Building swayed S. "The student body was inside at the time and seated. The cook reported she was standing and almost fell. Noise sounded like two or three loud explosive-like sounds moving southward and becoming a rumble. Shock was not felt in my home at Stockton." Ground: Reclaimed peat land, level.

Los Altos (81 Hawthorne Ave.). Motion rapid, lasted about 3 minutes. Loud earth noises heard. Small objects shifted. Ground: Loose; orchard.

Los Altos Hills (Hilltop Dr.). Motion slow, lasted 30 seconds to 1 minute. Direction NNE. Moderate to loud earth noises heard. Small objects shifted. Ground: Soil, compact, sloping.

Los Altos (143 W. Portola Ave., near Camino). Motion jerking, with slower aftershocks, brief. Direction N-S. Possible slight buckling of tar and gravel roof. Ground: Compact soil, sloping.

Los Altos (409 La Renda Rd.). Motion rapid. Chandelier swayed and fern boxes hanging from porch roof swayed. Ground: Soil, compact, level; stones throughout soil but water puddles before seeping into ground.

Los Altos. IV. "District Superintendent of Los Altos Elementary School District was seated on a concrete step in the basement of the school building and barely felt the shock. Distinctly felt in upper stories but barely felt if sitting on a good solid ground floor."

Los Altos (116 Osage, near downtown area). IV. Motion slow, lasted few seconds. Television picture quite disturbed. Draperies moved slightly. Trees moved E-W. "I live in a flat-top,

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beamed-ceiling house, with concrete floors, and I did not feel the shock. A neighbor, 75 feet away, living in a conventional-type house, said the motion shook furniture." Ground: Soil, loose, level.

Los Altos. IV. Motion fairly rapid, lasted 10 seconds. Direction NW. Felt by several in community. Hanging objects swung NW-SE. Ground: Soil, level.

Los Altos (barber shop on Main Street). III. Motion slow, rolling, lasted 25 seconds. Direction NW. Ground: Adobe soil, level.

Los Altos (217 Van Buren St.). III. Motion slow, lasted 15 seconds. Direction indoors W-E. Very moderate earth noises heard. "My husband was sitting and felt it; I was standing and did not feel it." Ground: Loose, level.

Los Altos (668 Arboleda Dr.). II. Motion slow, lasted 10 seconds. Faint earth noises heard. Ground: Adobe soil.

Los Altos (479 La Prenda Rd.). II. Motion slow, lasted 10 seconds. Ground: Level; former orchard.

Mare Island. Motion rapid. Loud earth noises from NE heard by many. Felt by many (some outdoors; active); frightened many in community. Windows and doors rattled; building creaked. Hanging objects swung NE. Ground: Rocky soil, level.

Mare Island (Design Building, 3rd floor). Motion rapid, strong for 3-4 seconds, then some small vibrations. Direction N (the long axis of Mare Island). Moderate earth noises heard. Small objects shifted. "This is a modern building. People to the north ran from wood structures." Ground: Soil, compact, sloping.

Marshall. Motion rapid, lasted about 1 minute. Moderate earth noises heard. Felt by many in community (some outdoors; active); frightened few. Windows and doors rattled. Hanging objects swung. Trees, bushes shaken moderately. Ground: Filled in.

Martinez (Route 1, Box 250-B). Motion rapid, lasted few seconds. Moderate earth noises heard. Small objects shifted. Ground: Soil, level.

Martinez (Contra Costa County Hospital). Motion rapid, lasted about 4 minutes? Moderate earth noises heard. Damage slight. Ground: Soil, level.

Martinez (1 mile south of Courthouse). III. Motion rapid, lasted about 1 minute. Ground: Soil, gentle slope; orchard.

Milpitas. Motion rapid, lasted 5 seconds. Direction N. Faint earth noises heard. Felt by all in community; frightened many. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Soil, compact.

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Moffett Field (Naval Air Station). Motion slow, jerky, lasted 10-15 seconds. Direction from NW. Faint rumbling earth noises heard. Small objects shifted. Ground: Soil, compact, level; tideland.

Moffett Field (west of Moffett Field hangar, across highway). IV. Motion slow. Two shakes, first mild, lasted 30 seconds; second, big shake, lasted possibly 1 minute. Direction E-W. "A power mower running on lawn at the time and I thought the vibration (sitting in car with brakes on) was due to the mower until I saw a car move near me. Car I was in seemed to roll." Ground: Compact.

Moffett Field. IV. Motion rapid, lasted 10 seconds. Felt by all (active) on first floor of strongly built wooden post office building; frightened few. Windows and doors rattled; frame creaked. Ground: Marshy.

Montara. Motion rapid, seemed long duration. Moderate earth noises heard. Small objects shifted. "Felt nine small shocks." Ground: Soil, compact, sloping.

Moraga. Motion rapid. Felt by all on second floor of strongly built brick office building; frightened many in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Small objects and furnishings shifted.

Moss Beach. Motion rapid, lasted about 20 seconds. Direction NW-SE. Earth noises from NW like a jet plane breaking sound barrier heard by many 2 seconds before shock. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house creaked. "More of a grinding vibration or crunching effect. Too short and rapid a vibration to swing things in this building, but where there was a swing of hanging objects the direction was NW-SE." Ground: Rocky, compact, level, sloping.

Mountain View. Motion slow. Direction NE. Faint earth noises from NE heard by few. Felt by all in community; frightened few. Hanging objects swung NE. Ground: Compact, level.

Mountain View (1056 Joaquin Rd.). Motion rapid, lasted 5 seconds. Direction N. Faint earth noises heard. Small objects shifted. Ground: Filled in.

Mountain View (1157-A Villa St.). IV. Motion slow, lasted about 2 minutes. Direction N-S. Faint earth noises heard. Objects and windows rattled. Ground: Soil.

Mountain View (926 Tulane Dr.). IV. Motion rapid, lasted few seconds. Entire house seemed to shake. Ground: Soil, compact, level.

Mountain View (172 Hamilton Ave.). III. Motion rapid, jarring, lasted 30-45 seconds. Direction W-E. Loud earth noises heard. Ground: Soil, compact, level.

Mountain View (1591 Dennis Lane). II. Motion rapid, jerking, very brief. Moderate earth noises heard. Ground: Soil, compact.



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**Newark.** Motion rapid. Moderate earth noises heard by many.

Felt by and frightened many in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Soil.

**Nicasio.** Motion rapid, lasted 3 seconds. Direction W-E. Loud earth noises from W heard by many before shock. Felt by and frightened many in community (some outdoors); awakened few. Dishes rattled; frame creaked. Hanging objects swung. Small objects shifted. Ground: Rocky, level.

**Oakley.** Lasted about 30 seconds. Felt by several in community. Small objects shifted.

**Occidental.** Motion slow, lasted 6 seconds. Direction N. Small objects shifted. Dishes broke. Damage none to slight.

**Occidental.** IV. Motion rapid, rocking, lasted 2 seconds. Felt by many in community (some outdoors; active). Windows rattled. "On the sidewalk people called to one another about the shock. I was moving around in the post office and did not feel it." Ground: Soil, compact, level.

**Occidental** (about 2 miles west of). IV. Motion slow but heavy, lasted about 30 seconds. Direction N. Faint earth noises heard. Disturbed 3,500 chickens at ranch.

**Olema.** Loud earth noises heard. Felt by all. House creaked.

**Orinda** (88 Loma Vista Dr.). Motion rapid, jolting, lasted 5 seconds. Loud earth noises heard. Small objects shifted. Ground: Compact, sloping.

**Orinda** (70 La Cresta Rd.). Motion rapid, lasted about 3 seconds. Direction mostly NE. Pictures shifted. Ground: Compact soil, level.

**Orinda** (11 Cascade Lane). IV. Motion slow and slight, lasted 1/2 second. Direction indoors N. Bird cage swung N-S. Ground: Soil, adobe, sloping.

**Orinda** (120 Brookside Rd.). IV. Motion rapid, lasted 30 seconds. Direction N. Faint earth noises heard. Cups on hooks swung. Ground: Level; along creek bed.

**Orinda.** IV. Motion rapid, lasted 2 minutes. Direction E. Moderate earth noises from E heard by observer 2 seconds before shock. Windows, doors, and dishes rattled. Ground: Soil.

**Orinda** (333 Glorietta Blvd.). IV. Motion rapid, lasted 30 seconds. Vibration like that from passing truck. Dishes rattled. Ground: Soil, compact, sloping.

**Orinda** (61 Van Ripper Lane). Motion slow, lasted several seconds. Ground: Compact, sloping.

**Parks Air Force Base** (Oakland Branch Post Office). Motion rapid, lasted 30 seconds. Moderate earth noises heard by many 2 seconds before shock. Felt by many at Base; frightened few. Windows and doors rattled; house creaked. Walls cracked (plaster?). "Personnel in this office were at lunch when the shock hit. Everyone was calm. The table and chairs seemed to rock and vibrate for a good 20-30

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seconds after the shock. The building creaked and stretched. No apparent real damage to building." Ground: Soil, level.

Penngrove. Motion rapid, lasted 10 seconds. Direction NE. Moderate earth noises from NE heard by many 2 seconds before shock. Felt by many (some outdoors; quiet) and frightened many in community. Windows and dishes rattled; frame creaked. Hanging objects swung NE. Trees, bushes shaken slightly. Some small objects shifted. "Felt by all in buildings; many outdoors did not feel it." Ground: Level, compact.

Petaluma. Press described the shock as the heaviest felt in many years. Children were evacuated from schools and hundreds of people left homes and office buildings. Large window-pane in front of the Chamber of Commerce office "quivered like jelly."

Petaluma. Motion rapid, lasted 15 seconds. Direction N. Moderate earth noises heard. Felt by many in community (some outdoors); frightened few. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Small objects shifted. Ground: Compact.

Petaluma (821 Madison St.). Motion rapid, lasted 30 seconds to 1 minute. Direction W-E. Loud earth noises heard. Small objects and furnishings shifted. Ground: Soil, adobe, level, compact.

Petaluma (101 Burlington Dr.). Motion very rapid, lasted less than 1 minute. Moderate earth noises heard. Small objects shifted and broke. Ground: Adobe soil, level.

Petaluma (east section). Motion rapid, lasted about 2-3 seconds. Direction NE. Loud earth noises heard. "Our old house rocked like a cradle. My husband and I ran outdoors, as did all our neighbors." Ground: Level; farmland.

Petaluma (51 Rayman St.). III. Motion rapid, lasted 1 minute. Direction NW-SE. Moderate earth noises heard. Ground: Steep; on hill.

Petaluma (520 Cleveland). Motion rapid, lasted less than a minute. Loud earth noises heard. Ground: Compact, level.

Pleasant Hill. Motion slow, lasted 3-5 seconds. Direction N. Felt by all in community; frightened few. Windows rattled. Hanging objects swung N. Ground: Soil, compact, level.

Pleasant Hill (112 Hubbard Ave.). Motion moderate, lasted 30-60 seconds. Direction N-S. Loud earth noises heard. Mirrors, etc., shifted. Ground: Soil, compact.

Pleasant Hill (125 Byron Dr.). Motion rolling, rocking, E-W, as if house on wheels. Lightweight small objects shifted. "House creaks more." Ground: Soil, adobe, sloping.

Pleasant Hill (47 Arelda Dr.). III. Motion rapid, lasted about 3 seconds. Direction E-W. Faint earth noises heard. Ground: Soil, compact, level.

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**Pleasant Hill (1012 Pleasant Valley Dr.). III.** Motion rapid, lasted 10 seconds. Direction SW. "I was standing outside on cement driveway. Heard loud noise, but felt no motion." Ground: Soil, compact, level.

**Redwood Estates.** Motion rapid. Direction NE. Faint earth noises heard by few. Felt by all in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung NE. Trees, bushes shaken slightly. Small objects shifted. "Just quick shake. No damage in this area to the best of my knowledge." Ground: Rocky soil, compact, level, steep.

**Rio Nido and Guerneville.** Motion rapid, momentary duration. Felt by (some outdoors) and frightened many in community. Windows rattled; everything shook. Glass chimes rocked. "As if giant hands took the house and shook it. My husband was in the basement washing the car and he didn't feel a thing. I felt it upstairs." Ground: Compact, sloping.

**Rio Vista.** Motion rapid. Direction E. Moderate earth noises from E heard by many before shock. Felt by many (some outdoors); awakened and frightened one. Windows rattled; walls creaked. Trees, bushes shaken moderately. Hanging objects swung. Plaster cracked. Ground: Soil, sloping.

**Rio Vista. IV.** Motion rapid, lasted several seconds. Felt by many; frightened few. "One person reported she thought trailer house was being rocked by jet planes until she heard occupants of other trailers calling excitedly. Only shock of series felt by persons questioned."

**Saint Helena.** Press reported students were evacuated from the stone Saint Helena High School. Students on the fire escape noticed it swung considerably. Light fixtures swung crazily, and at the Star newspaper office the large front windows moved in and out but did not break. Door chimes swung back and forth, causing some to ring. Pendulum clock stopped. Buildings creaked. Shock accompanied by sounds resembling a high wind.

**Saint Helena.** Motion rapid, momentary duration. Direction N. Faint earth noises from S heard by few. Felt by practically everyone in community (some outdoors; active); frightened few in community. Windows rattled; walls creaked. Trees, bushes shaken slightly. "This shock was felt quite strongly here. In the post office, a solidly built concrete building (built 1940), the windows rattled, typewriter shook visibly, and most everyone complained of experiencing a sinking feeling. Perhaps strongest shock felt since 1906." Ground: Soil, level.

**Saint Helena (1604 Madrona Ave.).** Motion rapid, momentary duration. Faint earth noises heard. "I stood at the stove starting lunch. Suddenly I was shaken back and forth E-W, then thrown forward against the stove. Frying pan and coffee

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pot on stove jumped up and down. Not felt by neighbors working in gardens."

Saint Helena (east section). IV. Motion trembling, N-S, gradual onset. Felt by many. Creaking of building and rattling of loose objects heard by several. "I was just observing the thermometers in the shelter when the shock started. The shelter shook and trembled for several seconds."  
Ground: Sandy.

Saint Helena (1417 Kearny St.). IV. Motion rapid, lasted less than 15 seconds. Definite south to north push. Everything loose rattled. Moderate earth noises heard. Ground: Level, compact, filled in.

San Martin. Motion rapid, lasted few seconds. Direction N-S. Loud earth noises from NE-SW heard by many before shock. Felt by many in community. Windows and doors rattled; walls creaked. Hanging objects swung. Small objects shifted. Ground: Soil.

Santa Clara (622 Enright). Motion rapid, lasted 20 seconds. Faint earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Santa Cruz. Motion rapid. Felt by all; frightened many. Windows, doors, and dishes rattled; house creaked.

Santa Cruz (168 Plateau). Motion slow, lasted 20 seconds. Direction NE. Faint earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Santa Cruz (Scotts Valley). Motion rapid, lasted few seconds. Faint earth noises heard. Small objects shifted. "A vase of flowers (trillium) on a bookcase vibrated strongly, and the flowers wilted." Ground: Soil, loose, sloping.

Santa Cruz (1 block from ocean). IV. Two shocks, lasted about 15 seconds each. Sharp, bobbing motion, similar to driving over cobblestones, felt by observer in car. Direction N-S. Objects rattled. Ground: Rocky soil, compact, level.

Santa Cruz. IV. Motion rapid, lasted 30 seconds. Felt by many on second floor of strongly built wooden post office building; frightened few in community. Windows, doors, and dishes rattled. Ground: Rocky, level.

Santa Cruz (central section). III. Motion trembling, rapid onset. Felt by several; by observer (standing) on first floor of well-constructed reinforced-concrete building. One shock felt.

Santa Cruz (downtown). III. Motion rapid, then slow, lasted more than a minute. Ground: Soil, level.

Santa Cruz. II. Motion slow, lasted 5 seconds. Felt by observer (sitting) in home. Ground: Compact, sloping.

Santa Cruz (west side). II. Motion rapid, lasted 2-3 seconds. Ground: Rocky, level.

Santa Cruz. "Very mild shock."

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San Quentin. Motion slow, lasted 1 minute. Direction SE. Loud earth noises from SE heard. Felt by and frightened many. Windows rattled. Ground: Compact, level.

Saratoga. Motion jerking, lasted 4 seconds. Direction W. Loud earth noises heard. Damage very slight to brick and masonry.

Saratoga. Motion rapid. Felt by several (active) on first floor of strongly built brick building; frightened few. Hanging objects swung.

Sebastopol. Motion rapid. Moderate earth noises heard. Felt by many (some outdoors; quiet); frightened few. Windows and doors rattled; frame creaked. Hanging objects swung E-W. Trees, bushes shaken strongly. "Steel columns appeared to move E-W." Ground: Compact, level.

Sebastopol. Press reported the shock was severe, but no damage was reported.

Sebastopol (151 Bodega Ave.). II. Motion moderate, lasted about 30 seconds. Faint earth noises heard. Ground: Soil, level.

Sebastopol (253 Florence Ave.). II. Motion slow, lasted 45 seconds. Moderate earth noises heard. Ground: Soil, level.

Selby. Faint earth noises heard by many. Felt by all in community; frightened few. Windows rattled; building creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Compact, level.

Stewarts Point (4 miles east of). Motion rapid. Faint earth noises heard. Felt by many (some outdoors); frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken strongly. Small objects shifted. "Knocked down a high pole and logging equipment rigging." Damage slight. Ground: Compact.

Stinson Beach. Motion rapid. Direction SE. Felt by all in community; frightened many (all in home). Windows, doors, and dishes rattled strongly; house creaked very strongly. Hanging objects swung for 15 minutes or more after the heavy shaking. Ground: Rocky soil, loose, compact, level, sloping end steep.

Suisun City. Lasted 15 seconds. Felt by all and frightened few in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung E. Pendulum clock facing E stopped. "Shock severe, but no damage in this community." Ground: Soil, marshy, filled in.

Suisun (Grizzly Island). Motion slow, lasted 30 seconds. Direction N. Pictures shifted. Ground: Level, filled in.

Tomales. Motion slow, slight, lasted 3-4 seconds. Direction N. Faint earth noises heard by few. Felt by many. Windows rattled; house creaked. Hanging objects swung N. Few small objects overturned.

Tracy (1400 East St.). Motion slow, lasted over 1 minute. Direction indoors W-E. Very slight rattling of piled dishes.

22 March, 11:44:21\*. Intensity V. (cont.)

"Finished cracking (cracked about 5 years ago) concrete aggregate wall surrounding garden. Small vertical cracks have appeared in central section of house walls on east and west sides of house. No inside plaster cracks. One-story house of concrete aggregate bricks, with heavy foundation and steel rod reinforcing. I have had difficulty with settlement in long central portion of house due to drying of adobe beneath house."

Tracy, IV. Motion slow. Felt by many in community (some outdoors); frightened few. House creaked. Hanging objects swung. Ground: Soil, compact, level.

Tracy (242 W. Lowell). III. Motion moderate, lasted about 5 seconds. Direction indoors N-S. Felt by observer on second floor of 2-story cinder-block building.

Valley Ford. Motion rapid, lasted 30 seconds. Moderate earth noises heard by many. Felt by many in store; frightened many. Windows and doors rattled. Hanging objects swung. Ground: Compact.

Veterans Home. Motion rapid, lasted 30 seconds. Felt by all. Walls creaked. Hanging objects swung. Small objects shifted. Ground: Compact.

Walnut Creek. Motion slow, lasted 3 minutes. Direction N. Felt by many (some outdoors; active); frightened many. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Rocky soil, compact, level, sloping and steep.

Walnut Creek (20 Carmella Rd.). Motion rolling, lasted 30 seconds. Direction E-W. Moderate earth noises heard. Two or three unstable figurines tipped over. Ground: Soil, compact, sloping.

Walnut Creek (31 Supreme Court). IV. Motion slow, rolling, lasted about 15 seconds. Direction indoors N-S. Hanging lights swung back and forth. "What impressed me most was the quietness of the shock here. Nothing rattled; no creaking of house. I was standing in a closet reaching for something on the shelf when I started to rock gently back and forth. At first I thought I was just dizzy, then I noticed hanging lights were swinging back and forth in a N-S direction and realized it must be an earthquake. But it was just a fairly slow rolling motion like waves." Ground: Soil, compact, level.

Woodacre. Motion rapid. Moderate earth noises from W heard by many. Felt by several on first floor of wooden post office building; by others outdoors; frightened few in community. Windows, doors, and dishes rattled; building creaked. Pendulum clock stopped. Ground: Soil, compact, level.

Woodacre. III. Motion slow, lasted about 15 seconds. Direction N. Ground: Rocky.

22 March, 11:44:21\*. Intensity V. (cont.)

Woodside (20007 Skyline Blvd.). Motion rapid, jerking, lasted about 1 minute. Small objects and furnishings shifted. Old concrete floor cracks enlarged. Ground: Rocky, sloping.

Woodside (127 Glenwood Ave.). Motion rapid, lasted 30 seconds. Direction NE. Moderate earth noises heard. Small objects shifted. "Aftershocks ranged from sharp jolts to gentle shaking motions." Ground: Soil, compact, sloping.

Woodside. IV. Motion slow, lasted 5 seconds. Faint earth noises heard. Felt by many (active) at place of business on first and second floors of strongly built wooden building; frightened few. Windows rattled. Trees, bushes shaken slightly.

Woodside (435 Whiskey Hill Rd.). III. Motion rapid, lasted about 10 seconds. Direction SE-NW. Moderate earth noises heard. Ground: Rocky, level.

Intensity IV:

Angwin. Motion rapid, lasted 10 seconds. Moderate earth noises heard. Felt by many in community; frightened few. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung.

Annapolis. Motion slow, lasted 10 seconds. Direction SE. Faint earth noises from SE heard by few. Felt by many (some outdoors; quiet); frightened few. Windows, doors, and dishes rattled; frame creaked. Trees, bushes shaken moderately. Ground: Rocky soil, sloping.

Aptos. Motion slow, lasted 10 seconds. Direction E-W. Felt by many in home. Windows and doors rattled. Ground: Soil.

Ben Lomond. Motion jarring, rapid shaking, lasted 30 seconds. Direction N-S. Felt by many; by observer and others (sitting) on first floor of strongly built building. Hanging objects swung. Ground: Compact soil.

Ben Lomond. Motion slow, long duration. Felt by many (sitting) on first floor of strongly built wooden house. Windows, doors, and dishes rattled; house creaked. Ground: Soil, compact, level.

Ben Lomond. III. Motion rapid, lasted 10-12 seconds. Direction NE. Faint earth noises heard. Light fixtures swayed. Ground: Adobe, compact, sloping.

Brooks. Motion slow, momentary duration. Direction NE. Felt by many in community (some outdoors; quiet). Trees, bushes shaken slightly. Ground: Soil, compact, level.

Byron. Moderate earth noises heard. Felt by several; frightened few.

Calistoga. Felt by many in community (some outdoors); frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. "I did not feel it. Those sitting or quiet felt it." Ground: Compact.

22 March, 11:44:21\*. Intensity IV. (cont.)

Capitola. Motion slow, lasted 20 seconds. Felt by many in community; frightened few. "Was sitting at desk during shock. Gentle but very distinct. Seemed to come from N-S. Clerk in dressing room did not feel it and wife at home in garden did not feel it." Ground: Level; beach.

Casadero. Motion slow, lasted 3 seconds. Felt by many in home and at post office; frightened few. Doors rattled. Chair in which observer was sitting rocked. Ground: Rocky.

Casadero. III. Motion slight, lasted 2 seconds. Felt by several (active) in strongly built wooden building. "Very slight." Ground: Rocky.

Clarksburg. Motion slow, rolling, lasted 2 seconds. Direction E-W. Moderate shock felt by several in strongly built 2-story wooden store building. Moderate earth noises from W-E heard. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Compact.

Clarksburg (American Crystal Sugar Co.). III. Motion swaying, E-W, abrupt onset. Felt by three on second floor of well-built brick building (sitting).

Courtland. Motion rapid. Direction NE. Felt by several in home (sitting); outdoors by observer. Windows rattled. Ground: Loose.

Coyote. Motion rapid, brief. Direction NNE. Faint earth noises from NE heard. Felt by several in community; by others outdoors (quiet); frightened few. Windows rattled. Hanging objects swung NE. Trees, bushes shaken slightly. Ground: Soil, level.

Cupertino. Motion rapid, lasted about 30 seconds. Direction from W. Loud whistling sounds heard. "I thought it was a tornado. Seemed to hear sounds first. My husband outside felt nothing."

Davenport. Motion slow. Faint earth noises heard. Felt by few in community. Windows rattled. Ground: Soil, level.

Diablo. Motion slow, lasted about 2 minutes. Faint earth noises heard by many. Felt by many in community (some outdoors; quiet). Windows rattled; house creaked some. Hanging objects swung. Trees, bushes shaken slightly. Ground: Adobe, compact.

Dixon. Motion slow. Felt by many in community. Hanging objects swung. "Many complained of a rather sick feeling during the shock, although they said it was only slightly felt." Ground: Soil.

Eldridge. Motion slow, lasted 20 seconds. Loud earth noises heard. Direction E. Felt by all in post office; frightened few. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Ground: Soil.

Elmira. Felt by several in community; awakened few. Windows rattled.



22 March, 11:44:21\*. Intensity IV. (cont.)

Fort Ross and 2 miles northeast of. Motion jolting, rapid onset. Felt by one at Fort Ross (sitting); by one 2 miles NE of Fort Ross. Buildings creaked at both places. Hanging objects swung. Rumbling earth noises heard and disturbed objects observed 2 miles NE of Fort Ross. Ground: Rocky.

Fulton. Motion rapid. Loud earth noises from W-E heard by many. Felt by several in community; frightened few. Windows and lights rattled; mailboxes rocked very strongly; house creaked. Trees, bushes shaken moderately. "Thought an automobile had bumped into the building." Ground: Level, compact.

Graton. Motion rapid, lasted 8 seconds. Felt by many (some outdoors; quiet); frightened few in community. Building creaked. Hanging objects swung E-W. Trees, bushes shaken moderately. Ground: Soil, compact, level.

Guinda. Motion rapid, lasted about 30 seconds. Felt by many in home; frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Ground: Soil.

Hobergs. Motion rapid, lasted 8-10 seconds. Direction E-W. Felt by many in community; frightened few. House creaked moderately. Ground: Soil, compact, level, sloping.

Hollister. Motion slow, brief. Direction N. Felt by several on first floor of strongly built concrete building (sitting); by others outdoors (quiet). Trees, bushes shaken slightly. "Slight shock." Ground: Soil, level.

Hollister (1 mile south of). Lasted about 10 seconds. Cups on hooks and window shade pulls swayed. Ground: Compact, level.

Hollister. II. Felt by few. "Barely felt."

Holt. Motion slow, lasted 5 seconds. Direction N-S. Felt on second floor of weakly built wooden post office and store building (active). Frame creaked. Ground: Soil, level.

Hood. Motion slow, momentary duration. Felt on first floor of wooden post office building (sitting); by others outdoors. "Felt very slightly. First noticed desk sort of rocking. No damage in this vicinity."

Irvington. Motion rapid, lasted 1 second. Moderate earth noises heard. Felt by several at work on first floor of strongly built building. Windows and doors rattled. "It was a 'good' shock."

Knighten. Motion rapid. Moderate earth noises heard. Felt by many in community. Windows creaked. Hanging objects swung. Trees, bushes shaken moderately.

Lathrop. Motion rapid, lasted 1 second. Faint earth noises heard. Felt by many and frightened few in community. Hanging objects swung. Ground: Soil, compact.

Los Gatos. Motion slow. Direction N-S. Felt by several in community (some outdoors; quiet). Trees, bushes shaken slightly. Ground: Compact, level.

22 March, 11:44:21\*. Intensity IV. (cont.)

Los Gatos (20531 Bear Creek Rd., 3 miles WNW of Holy City).

"Started with house creaking and cracking. Sharp rumble. Rising and falling roll, ending with fainter W-E jerks. Donkey thrown off balance during roll. Dogs worried but not barking. No damage to buildings."

Lower Lake. Motion slow. Faint earth noises heard. Felt by many in community. Walls creaked. Trees, bushes shaken slightly.

Lytton. Motion slow, lasted 10 seconds. Felt by many in community. Hanging objects swung. Ground: Level.

Madrone. Motion slow. Felt by many in home; frightened few. Ground: Compact, level.

Manteca. Motion slow, lasted 5 seconds. Faint earth noises heard 5 seconds before shock. Felt by many in community (some outdoors; quiet). Trees, bushes shaken slightly. Ground: Compact.

Middletown. Motion rapid, strong, rolling, lasted 30 seconds. Direction NW. Felt by many (some outdoors; active). Windows rattled; walls creaked. Hanging objects swung. Trees, bushes shaken slightly. "Strong rolling motion felt in strongly built concrete-block post office building." Ground: Rocky soil, level.

Mission San Jose. Motion slow, lasted 30 seconds. Direction E-W. Loud earth noises from W heard by few 10 seconds before shock. Felt by many (observer outdoors; active); frightened few. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Ground: Compact, level.

Morgan Hill. Motion slow, lasted 5 seconds. Direction N. Faint earth noises from N heard by few. Felt by several on first floor of strongly built wooden house (sitting). Windows, doors, and dishes rattled. Hanging objects swung N. Ground: Soil, sloping.

Morgan Hill. Felt by many in community; by observer on first floor of strongly built wooden building; frightened few.

Morgan Hill. Felt by many. Not felt by four persons in old one-story, well-built building. Wooden building with concrete slab floor.

Mount Hamilton. Motion slow, lasted about 5 seconds. Felt by several (sitting) on first and second floors of brick and reinforced-concrete building. Doors rattled slightly; walls creaked. "Generally speaking this was a light shock. Felt only by those sitting or standing quietly. Some who were standing and doing light work or walking did not feel the shock." Ground: Rocky.

Mount Hermon. Motion slow, lasted 5 seconds. Felt by several; by observer (active) on first floor of strongly built wooden building; frightened few. Windows and doors rattled; frame creaked. Ground: Loose, sloping.

22 March, 11:44:21\*. Intensity IV. (cont.)

New Almaden. Motion slow. Faint earth noises heard by few.

Felt by several (sitting) on first floor of weakly built wooden post office building. Building creaked. Trees, bushes shaken slightly. "Very slight, rapid jerk. Many people did not feel it at all. Those outdoors were not aware of it." Ground: Rocky soil.

Permanente (near Cupertino). Motion slow, lasted 10 seconds.

Felt by many (some outdoors; quiet); frightened few.

Blinds rattled. Ground: Compact, level.

Pleasanton. Felt by many. Windows, doors, and dishes rattled.

Hanging objects swung. Ground: Rocky soil.

Prunedale (10 miles N of Salinas). Felt by several in community (some outdoors; quiet). Windows and dishes rattled.

"Slightly felt. However, several persons not moving around did feel it and saw light fixtures swaying."

Ground: Soil.

Ripon. Motion slow, lasted 10 seconds. Faint earth noises

heard. Felt by several in community; frightened few.

Windows and dishes rattled. Hanging objects swung. Ground: Soil.

Ryde. Felt by many; by observer (active) on first floor of wooden post office building; frightened few in community. "First shock was sudden and severe, as though building shifted on foundation back and forth. Followed by slight tremors that made me feel dizzy. People on second floor of Ryde Hotel felt rocking motion more severely and longer than was felt in post office building. Post office is built on the Sacramento River levee."

Soquel (1/2 mile of, between Soquel and Capitola). Motion rapid, lasted 1 minute. Moderate earth noises from N heard by observer 3 seconds before shock. Felt by several (active) on first floor of strongly built house; awakened one in home. Windows, doors, and dishes rattled. Hanging objects swung N. "Clerk alone in post office building at Soquel did not feel shock at all." Ground: Soil, level.

Stockton. Motion slow, lasted 1 minute. Felt by observer in strongly built wooden house. Doors rattled. Ground: Soil.

Stockton. Motion slow. Felt by several (active) on second floor of concrete post office building. Windows, doors, and dishes rattled slightly; building creaked slightly. "Felt in post office building by only a few and very slightly. Felt in community and more so by those in the taller buildings."

Stockton (near Port of Stockton). Motion slow, horizontal. Faint earth noises heard. Building rocked; lights moved. Ground: Possibly filled in.

Stockton (Rough and Ready Island). III. Motion slow, lasted about 1 second. Direction E-W. Light fixtures swayed. Ground: Level, filled in.

22 March, 11:44:21\*. Intensity IV. (cont.)

Stockton (944 E. Scotts Ave.). III. Motion rapid. "Just two, short, rapid, sharp shakes." Ground: Compact, soil.

Stockton (1045 N. Van Buren St.). III. Motion rapid, lasted 5 seconds. Direction E-W. Ground: Hardpan, level.

Stockton (3622 San Mateo). II. Motion slow, lasted 1 minute. Ground: Level.

Sunol. Motion rapid, lasted 30 seconds. Felt by several (standing) on first floor of strongly built stucco post office building. Windows and doors rattled; walls creaked. Hanging objects swung. Ground: Rocky soil, level.

Thornton. Motion rapid, lasted 2 seconds. Direction N-S. Felt by several in community (some outdoors; quiet); frightened few. Windows rattled. Hanging objects swung. Trees, bushes shaken slightly. Ground: Soil, level.

Vacaville. Motion rapid, lasted about 4 seconds. Direction S. Felt by many in community; by some on first floor of concrete building (active); by others outdoors (quiet). Windows, doors, and dishes rattled very slightly. "Rather sharp, but no damage." Ground: Soil, level.

Vacaville (2 miles NW of). Motion rapid, rocking. Dishes rattled. Ground: Compact, level.

Vernalis. Motion slow, lasted 45 seconds. Felt by several in community; by observer in strongly built wooden building (sitting). Windows rattled; building creaked. Hanging objects swung. Ground: Soil, compact.

Villa Grande. Motion rapid, lasted 30 seconds. Earth noises from N heard by few. Felt by many; by observer outdoors (active); frightened few in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken slightly. Ground: Loose, level.

Walnut Grove. Motion rapid, slow. Direction E-W. Faint earth noises from E-W heard by few. Felt by many (some outdoors; active); frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken slightly. Ground: Soil. "My first awareness was being slightly jerked, then swaying E-W motion. Man sitting in parked carsaid it was suddenly jerked east then back again."

Watsonville. Motion slow, lasted 15 seconds. Faint earth noises heard. Felt by many in strongly built building. Windows rattled.

Watsonville (La Selva Beach Post Office). II. Felt by one (lying down) on second floor of stucco building.

Windsor. Motion rapid and slow, lasted 40 seconds. Felt by many in community and in concrete-block post office building (sitting). Trees, bushes shaken moderately. "A dizzy sensation was felt by many when shock started. Ground rolled E-W." Ground: Compact.

Winters. Motion slow, brief. Felt by several and frightened few in community. Faint earth noises heard. "Not very strong nor long." Ground: Level.

22 March, 11:44:21\*. (cont.)

Intensity I to III:

- Albion.** Felt by few on first floor of wooden building. Dishes rattled.
- Banta.** Motion rapid, lasted 2 seconds. Felt by several in community; some on first floor of strongly built brick building (active). Ground: Compact, level.
- Brentwood.** Motion slow, lasted 5 seconds. Felt by observer in strongly built brick building (active). Trees, bushes shaken slightly. "This shock was so light that it was barely noticeable. Motion seemed to be from W-E. No damage of any kind." Ground: Soil, loose, level.
- Brookdale** (along the San Lorenzo River, San Lorenzo Valley). Motion slow, lasted 5 seconds. Direction NE-SW. Faint earth noises from NE-SW heard by observer. Felt by several; some on second floor of wooden building (active). Ground: Rocky, level.
- Camanche.** Motion slow. Direction N-S. Felt by several in community; some in strongly built wooden building (sitting). Hanging objects swung a little. Ground: Sandy, sloping, soil.
- Capay.** "Several persons said their houses trembled slightly. Most thought nothing of it until news came over radio."
- Chualar.** "Very light shock." Felt by observer (sitting) on first floor of weakly built post office building. Doors rattled.
- Cloverdale.** Felt by several in community (some outdoors; quiet).
- Cobb.** "Very light." Motion slow. Felt by several; some on first floor of strongly built wooden building (sitting). Ground: Compact, level.
- Esparto.** Felt by several; some on first floor of strongly built wooden building (sitting); by others outdoors; quiet. Hanging objects swung. Ground: Compact.
- Gustine.** Felt by several; some on first floor of strongly built wooden building.
- Knights Landing.** Felt by several in community; some in wooden building (sitting). Ground: Marshy.
- Marina.** Motion slow. Felt by several in community; some in weakly built wooden building (sitting); by others outdoors. Ground: Sandy, sloping.
- Moss Landing.** Motion slow. Felt by several; some on first floor of weakly built wooden post office building (sitting).
- Newman.** Felt by several in home and community; some on second floor of strongly built building (sitting). Faint earth noises heard. Hanging objects swung. "Shock seemed to be a sort of gentle swaying back and forth, causing hanging fixtures to swing, but doing no damage."
- Pacific Grove.** Felt by several in community. "Reports of feeling shock were scattered and uncertain. No definite information."

22 March, 11:44:21\*. Intensity I to III. (cont.)

Patterson. Motion slow, lasted 8-10 seconds. Direction E.  
Ground: Compact.

Point Arena. "A loosely constructed window fell out of the post office building about the time of the shock. This could or could not have been due to the shock. A forest ranger in Point Arena told me that he was resting his head on a table at the time and that he had a glass of water in front of him. The water level in the glass began to shake. The two incidents are the only ones I have heard of in this area."

Princeton Beach (on Half Moon Bay). Motion rapid, lasted 30 seconds. Direction NW-SE. Moderate earth noises heard.  
Ground: Sandy; bench.

Sacramento (Capitol Building). "Observer with school group on first floor of Capitol Building. Upon entering room all noticed large chandelier swinging E-W. No one felt shock. When questioned, guide was unable to give any explanation for the swinging, but he did move out from under it. No one thought of a shock, as no motion was felt."

Sacramento (1507-21st St.). Motion rapid, lasted about 20 seconds. Direction NE. Loud earth noises heard. Felt by observer on third floor of three-story concrete office building.  
Ground: Soil, level.

Sacramento (721 Capitol Ave.). Motion moderate, lasted about 30 seconds. Venetian blinds and cords swayed. Felt by observer on fourth floor of concrete building.

Salinas. Motion rapid. Felt by several in community. Hanging objects swung N. Ground: Compact.

Sonora. Motion slow, lasted few seconds. Felt by observer on first floor of strongly built wood and cement building.  
Ground: Compact.

Travis Air Force Base (Fairfield). Motion rapid. Faint earth noises heard by observer. Felt by observer on first floor of strongly built concrete building (sitting). Hanging objects swung. Ground: Soil.

West Sacramento. "Some residents said they felt the shock."

Wilton. Motion slow. Felt by observer on first floor of weakly built wooden building (lying down). Light on drop cord swung. "Only one person reported feeling it."

Reported heard in Nevada:

Reno. "I heard very low, distant rumbling sounds, rather continuous, then pauses, then repetition. My husband did not hear the sounds at all. I was standing in living room. I ran to our kitchen clock and it was 11:45 A.M. I said to my husband, 'You're going to hear or read something of this.'"

22 March, 11:44:21\*. (cont.)

Reported not felt: Acampo, Adelaida (west of Paso Robles), Altaville, Antelope, Arbuckle, Aromas, Asti, Atwater, Auburn, Aukum, Avenal, Big Sur, Biola, Boonville, Broderick, Bryte, Burrel, Butte City, Camp McCallum (Monterey), Cantua Creek, Carmel, Carmel Valley, Carmichael, Caruthers, Caspar, Castroville, Cayucos, Ceres, Chinese Camp, Cholame, Citrus Heights, Clearlake Oaks, Clements, Coalinga, College City, Colusa, Comptche, Copperopolis, Corcoran, Coulterville, Creston, Crows Landing, Davis, Denair, Dos Palos, Dunnigan, East Nicolaus, East Santa Cruz, Elk Creek, Elk Grove, El Nido, Elverta, Empire, Escalon, Fair Oaks, Farmington, Finley, Firebaugh, Five Points, Florin, Folsom, Fort Bragg, Fort Crd, Freedom, French Camp, Fresno, Friant, Galt, Gonzales, Greenfield, Gridley, Grimes, Groveland, Gualala, Hanford, Harmony, Helm, Herald, Herndon, Hopland, Hornitos, Hughson, Huron, Idria, Ione, Jackson, Jolon, Kelseyville, Kettleman City, Keyes, King City, Lakeport, Le Grand, Lincoln, Linden, Live Oak, Lockeford, Loftus, Longvale, Loomis, Los Banos, Lucerne, McClellan Air Force Base (Sacramento), Madera, Madison, Manchester, Mariposa, Mather Air Force Base (Sacramento), Marysville, Maxwell, Mendocino, Mendota, Merced, Merced Falls, Meridian, Modesto, Monterey, Natoma, Navarro, North Highlands, Oakdale, Orangeville, Paicines, Paso Robles, Pebble Beach, Perkins, Pinnacles National Monument, Placerville, Pleasant Grove, Plymouth, Potter Valley, Princeton, Raymond, Repressa, Richvale, Rio Linda, Rio Oso, Riverbank, Riverdale, Robbins, Rumsey, Salida, San Andreas, San Ardo, San Benito, San Joaquin, San Juan Bautista, San Lucas, San Miguel, Santa Rita Park, Seaside, Shandon, Sheridan, Shingle Springs, Slough-house, Soledad, Snelling, Stevinson, Stonyford, Tranquillity, Tres Pinos, Trowbridge, Turlock, Tuttletown (rural area of Sonora), Upper Lake, Valley Home, Valley Springs, Victor, Volta, Wallace, Waterford, Weimar, Westhaven, Westley, Westpoint, Williams, Willits, Willows, Woodbridge, Woodland, Yolo, Yorkville, Yountville, Yuba City, and Zamora.

22 March, 11:50:16\*, 11:52:30\*. B. Aftershocks of 22 March.  
San Francisco (Federal Office Building, Civic Center). Slight.

22 March, 11:57:36\*. B. Aftershock of 22 March.  
San Francisco (Federal Office Building). Slight.  
San Francisco (425 Mason St., 4th floor). Light. "Seven men in conference and all arose from their chairs."

22 March, 12:00:26\*. B. Aftershock of 22 March.  
San Francisco (70 Ravenwood Dr.). Motion slow. "Many aftershocks felt."

22 March, 12:27.1\*, 12:29:01\*. B. Aftershocks of 22 March.  
San Francisco (1750-48th Ave.). Two light shocks felt.

- 22 March, 12:32:16\*, 12:35:35\*. B. Aftershocks of 22 March. San Francisco (Federal Office Building). Slight shocks. Sonoma (583-3rd E.). (12:32:16) Felt.
- 22 March, 13:07:47\*. Aftershock of 22 March. Magnitude 3.6. Epicenter 37°41' north, 122°29' west, southwest of Daly City, B. San Francisco (465 California St.). III. Motion seemed to be vertical. Lasted 2 seconds. Felt on 10th floor of re-inforced-concrete building. San Francisco (Federal Office Building). Moderate circular motion.
- 22 March, 13:18:29\*. Aftershock of 22 March. Magnitude 3.8. Epicenter 37°40' north, 122°29' west, east of Mussel Rock, B. Martinez (Contra Costa County Hospital). Felt. Oakland (1625 Clay St., PG&E). II. Motion slow, lasted 5 seconds. San Anselmo (224 Drake Blvd.). Felt. San Francisco (Federal Office Building). "Light shock but could hear shock wave approach from south." San Francisco (Franklin Hospital, 14th and Noe Sts.). Felt. San Francisco (465 California St.). Felt on 10th floor of re-inforced-concrete office building.
- 22 March, 15:14:35\*. Aftershock of 22 March. Magnitude 4.4. Epicenter 37°39' north, 122°27' west, south of Colma, B. Alameda (Naval Air Station Cafeteria). Felt. Benicia. Felt. Burlingame (1511 Drake Ave.). IV. Windows rattled; walls shook. Ground: Compact. Canyon. Felt at store on floor of canyon. Castro Valley (9114 Edwards Lane). II. Motion slow, lasted about 10 seconds. Los Gatos. III. Faint jolts felt. Lasted only a few seconds. House creaked. Millbrae. V. Press reported the City Hall was closed when file cabinets rolled 6 inches from walls. Oakland (Chabot Observatory). IV. Motion rapid, lasted 4 seconds. Direction E. Felt by several (lying down and sitting) on second floor of wooden house at Observatory; frightened few. Windows, doors, and dishes rattled; house creaked. Ground: Rocky, hilly. Oakland (near Lake Merritt in Lakeshore Highlands). "Not as heavy as first shock." Oakland (1625 Clay St., PG&E). II. Motion rapid, lasted 20 seconds. San Anselmo (224 Drake Blvd.). Felt. San Carlos (49 Ensenada Rd.). Felt. San Carlos (122 Hillcrest Rd.). Felt.



22 March, 15:14:35\*. (cont.)

San Francisco (Mills Building). IV. Motion circular, lasted 20 seconds. Felt by all (active) on 6th floor of strongly built masonry building; frightened few in community. Windows rattled. Hanging objects swung E-W. "I was having coffee and the table and chair rocked. Overhead lights swung back and forth." Ground: Compact, level.

San Francisco (465 California St.). IV. Lasted 10 seconds. Direction NW. Felt by all on 10th floor of reinforced-concrete building; frightened few. Windows rattled. "Four or five rolls to NW."

San Francisco (No. 1 Montgomery St., 12th floor). IV. Motion rapid. Direction N-S. Small objects may have shifted. Ground: Compact, clay and sand.

San Francisco (Howard and Third Sts.). IV. Lasted 15 seconds. Car full of tools shook.

San Francisco (Rm. 14 Old Mint Building, 5th and Mission Sts.). IV. Strongly felt. Doors rattled.

San Francisco (Shell Building, 16th floor). Sharp shock. Ground: Filled in.

San Francisco (347 Clay St., 3rd floor). Definite N-S motion. "Not as strong as 11:44:21 shock."

San Francisco (50 Church St.). "Was at 50 Church Street when the second strong shock was felt. No damage that anyone could find."

San Francisco (245 Leavenworth St., 6th floor). "As I lit the stove, I thought it had blown up. I quickly turned it off. That shock was enough for one day."

San Francisco (Federal Office Building). Moderate N-S rocking.

San Francisco (Naval Shipyard, Bldg. 35-A). Felt.

San Francisco (Langley Porter Clinic). Lasted less than 30 seconds.

San Francisco (Franklin Hospital, 14th and Noe Sts.). Felt.

San Francisco (Presidio). Felt.

San Francisco (1750-18th Ave.). Moderate shock felt.

San Francisco (315 Montgomery St.). Felt.

San Leandro. II. "Minor shock noticed by light bulb rattling in chandelier." Ground: Rocky soil, sloping.

San Mateo (329 E. 39th St.). Felt.

Vallejo (351 Los Altos). Felt.

22 March, 16:26:55\*. Aftershock of 22 March. Magnitude 4.0.

Epicenter  $37^{\circ}39'$  north,  $122^{\circ}29'$  west, southeast of Edgemar, B. Benicia. Felt.

Canyon. Felt at store on floor of canyon.

Oakland (near Lake Merritt in Lakeshore Highlands). "Just a bump."

San Bruno (909-3rd Ave.). "Seemed to come from NE."

San Francisco (Federal Office Building). V. Moderate rolling motion. Picture swung.

22 March, 16:26:55\*. (cont.)

San Francisco (19 Presidio Terrace). V. Motion fairly rapid.  
Direction N-S. Small objects shifted. Frame house;  
ground floor. Ground: Sandy clay.

San Francisco (465 California St.). Felt on 10th floor of re-  
inforced-concrete building.

San Jose (86 So. Third St.). III. Motion rapid, lasted 3  
seconds. Felt by several (sitting and active) on third  
floor of strongly built concrete building. Ground: Soil.

San Mateo (4102 Beresford St.). IV. Heavy, shaking jolt.

San Mateo (329 E. 39th St.). Felt.

22 March, 17:45:30\*. Aftershock of 22 March.

Epicenter  $37^{\circ}39'$  north,  $122^{\circ}30'$  west, off California coast, west  
of Edgemar, B.

San Francisco (3120 Gough St.). Felt.

22 March, 18:15. Aftershock of 22 March.

San Francisco (106 Sanchez St.). IV. "Shook everything in the  
room."

22 March, 18:48:08\*.

Epicenter  $37^{\circ}42'$  north,  $122^{\circ}30'$  west, off California coast, west  
of Daly City, B.

Oakland (1625 Clay St., PG&E). II. Motion rapid, lasted 5  
seconds. Felt on 7th floor of brick building (sitting).  
Ground: Soil, level.

San Francisco (19 Presidio Terrace). V. Motion fairly rapid.  
Direction vertical. Observer on ground floor of frame  
house. Small objects shifted. Ground: Sandy, clay.

San Francisco (1750-48th Ave.). Moderate shock.

San Leandro. II. "Minor shock noticed by light bulb rattling  
in chandelier." Ground: Rocky soil, sloping.

22 March, 19:00:15\*. B. Aftershock of 22 March.

Daly City (1087 Mayfair Ave.). "Very loud cracking sound preceded  
loud rumble of short duration."

22 March, 19:28:53\*. Aftershock of 22 March.

Epicenter  $37^{\circ}40'$  north,  $122^{\circ}27'$  west, southeast of Colma, B.

San Francisco (9th Ave. and Ortega). IV. Lasted about 1 second.  
Felt by all (active) on first floor of strongly built  
frame house. Direction NE. Windows rattled; walls  
creaked. "The house started to rattle and shake. It felt  
like an extremely strong gust of wind swept through the  
building." Ground: Compact.

22 March, 21:42:13\*. Aftershock of 22 March.

Epicenter  $37^{\circ}42'$  north,  $122^{\circ}30'$  west, off California coast, west  
of Daly City, B.

**22 March, 21:42:13\*. (cont.)**

San Francisco (19 Presidio Terrace). V. Motion fairly rapid. Direction vertical. Small objects shifted. Observer on ground floor of frame house. "Lighter than shock at 18:48:08." Ground: Sandy clay.

San Francisco (25th St., between Diamond and Douglass). Felt rather strongly.

San Francisco (1750-48th Ave.). Moderate shock.

San Francisco (2400 Pacific Ave.). Felt. "Several small shocks felt during the day."

**22 March, 22:14:23\*. Aftershock of 22 March.**

Epicenter  $37^{\circ}41'$  north,  $122^{\circ}31'$  west, off California coast, northwest of Mussel Rock, B.

San Francisco (1870-9th Ave.). III. Motion rapid, jerking, lasted 2 seconds. Direction E-W. Felt by observer and several others (sitting) on first floor of strongly built wood-frame house.

**22 March, 23:54:00\*, B. Aftershock of 22 March.**

Canyon. Felt in store on floor of canyon.

**23 March, 00:13:48\*. Aftershock of 22 March. Magnitude 4.2.**

Epicenter  $37^{\circ}42'$  north,  $122^{\circ}31'$  west, off California coast, west of Daly City, B.

Alameda (2528 Washington Way). Felt.

Alamo. Felt.

Benicia (822 W. 2nd St.). V. Motion rapid, lasted 1 second.

Direction N. Felt by several (active) on first floor of wooden house. Windows, doors, and dishes rattled. Small objects shifted and overturned; knickknacks fell. Ground: Soil, compact, level.

Benicia. IV. House rocked.

Boyes Hot Springs. IV. Windows, doors, and dishes rattled.

Burlingame (212 Bancroft Rd.). IV. Awakened observer.

Canyon. IV. Motion rapid, lasted 10 seconds. Felt by two of four (lying down) on second floor of strongly built wooden house; awakened few in community. Windows rattled. "I was home by 5 P.M., March 22. Only shock felt was at 00:13:43." Ground: Adobe, shale, compact, sloping and steep.

Centerville (455 Eggers Dr.). Motion rapid.

Fallon. Felt.

Hamilton Air Force Base. "Similar to 11:44:21 but shorter."

Menlo Park (851-14th Ave.). VI. Motion rapid, lasted 30 seconds.

Loud earth noises heard. Small objects shifted and fell to floor. Plaster, walls, and ceiling cracked. Damage slight.

Millbrae. Press reported a house fire was started at 411 Paramount Drive, apparently the result of the earthquake.

23 March, 00:13:48\*. (cont.)

Mill Valley (52 Bigelow Ave.). Felt.

Oakland. V. Press reported people in Oakland and the surrounding areas were awakened, but no damage was reported.

Oakland (3916 Huntington St.). Felt.

Orinda (71 Ardilla Rd.). II. Motion rapid, lasted few seconds. Ground: Soil, compact, sloping and steep.

Palo Alto (523 Webster St.). IV. "Some persons awakened in two-story apartment building. Others on same floor did not feel it at all."

Port Costa. V. Awakened all in home and community. "Many small aftershocks."

Ryde. IV. "Felt tremor which awakened me late at night."

Saint Helena. III. Felt by few.

Saint Mary's College (Morega). IV. Awakened observer and frightened caged birds.

San Bruno (909-3rd Ave.). "Seemed to come from south."

San Francisco. VI. Press reported a large crack was opened in the concrete retaining wall of O'Shaughnessy Boulevard (opposite Glen Park) and that a half-mile section between Portola and Congo Streets was roped off. Firemen theorized that a fire, which started 9 minutes after the shock at the Twin Peaks Hotel, 2160 Market Street, and adjacent buildings, was caused by a leaking gas main in the basement of an apartment building at 2156 Market Street. The gas main was believed to have been broken by the shock.

San Francisco (179-15th Ave.). VI. Motion slow, lasted about 12 seconds. Felt by, awakened, and frightened all in strongly built stucco house. Faint earth noises heard. Windows, doors, and dishes rattled; house creaked. Plaster cracked. Ground: Soil, level.

San Francisco (Moffitt Hospital, Arguello Blvd. and Parnassus Ave.). V. Motion rapid, lasted 45 seconds. Felt by all; frightened many. Loud earth noises from N-S heard. Windows and dishes rattled; building creaked. Hanging objects swung. Small objects and furnishings shifted and overturned. Ground: Sandy, rocky.

San Francisco (106 Sanchez St.). V. "Felt like I would be thrown out of bed. Direction E-W. Got up and dressed on account of the fire at Market and Sanchez."

San Francisco (2 Valdez Ave., south of Mt. Davidson and north of Ocean Avenue, in Westwood Park). V. "So quick and violent and there was such a cracking noise outside I thought surely the sidewalk in back had been split open. The noise was a terrific crack. Otherwise I haven't noticed much noise as far as loud rumblings go. The bigger shocks have been too sudden and violent to notice the noise."

San Francisco (2400 Pacific Ave.). V. Bronze lamp and pictures swayed.

23 March, 00:13:48\*. (cont.)

San Francisco (780 Junipero Serra Blvd.). V. "Heavy jolt.

Activated mercury switches again. Minor tremors felt until Sunday night."

San Francisco (25th St., between Diamond and Douglass). V.

"Felt like our bedroom walls were coming together. The paper on the ceiling and sides just kind of opened, and I 'flew' down to the front steps. Loud crackling noise. My son said they did not feel it at the University of California Hospital."

San Francisco (341 Foerester St.). IV. Very sharp. Entire house shook.

San Francisco (133 Beulah St., off Stanyan, near Kezar Stadium).

IV. "We felt about six of the big ones. The one at midnight shook the bedroom like a dog shakes a rat, but no damage."

San Francisco (650 Stanyan, corner Page). IV. "Night shocks

heavy, particularly around 19:00 and 00:13:48. Both accompanied by heavy jar and twisting motion."

San Francisco (19 Presidio Terrace). IV. Observer awakened from sound sleep. "Impression that shock was moderately severe."

San Francisco (1750-48th Ave.). IV. House moved NE in jerking motion. Brief duration. Observer awakened by rumble.

"Seemed as strong as the one at 11:44:21."

San Francisco (639 Bush St.). "Shock felt, but nothing disturbed.

No damage to this building from any of the shocks. My little figurines, perfume bottles, etc., are as usual."

San Francisco (Downtown Center Garage). "Felt another good shake."

San Francisco (1167 Bush St.). Sharp shock.

San Francisco (250 Moncada Way). Lasted about 1 minute. "Many other brief shocks felt."

San Francisco (Federal Office Building). Moderate shock.

San Francisco (1951-11th Ave.). Felt.

San Francisco (470-19th Ave.). Six shocks felt. First at 00:13:48, last at 22:26:51.

San Francisco (350 Grove St.). Moderate shock. Ground: Sandy, level.

San Leandro. Felt.

San Mateo (329 E. 39th St.). Motion rolling. "Stronger than the shocks on the 22nd at 15:44:35 and 16:26:55."

San Mateo (4102 Beresford St.). "Shocks felt through night of 23rd."

Santa Rosa (410 Carrillo St.). Light shock.

Stinson Beach. IV. Awakened few.

Sunol. IV. Motion rapid, lasted 20 seconds. Felt by many (lying down) on first floor of strongly built wooden house; awakened few. Windows rattled. Ground: Soil, level.

Vallejo (351 Los Altos St.). Minor vibrations.

Walnut Creek (1233 Boulevard Way). Felt.

- 23 March, 00:48:07\*, B. Aftershock of 22 March.  
Burlingame (212 Bancroft Rd.). IV. Awakened observer.
- 23 March, 02:57.3\*, B. Aftershock of 22 March.  
San Francisco (133 Beulah St.). Felt.
- 23 March, 04:54:33\*. Aftershock of 22 March. Magnitude 3.8.  
Epicenter  $37^{\circ}40'$  north,  $122^{\circ}29'$  west, north of Edgemar, B.  
Fallon. Felt.  
San Francisco (133 Beulah St.). Felt.  
San Francisco (2611 San Jose Ave.). Hard shock.
- 23 March, 05:56:11\*, B. Aftershock of 22 March.  
San Francisco (2611 San Jose Ave.). Very brief shock.
- 23 March, between 6 and 7 (a.m. or p.m. not given). Aftershock of  
22 March.  
San Francisco (Downtown Center Garage). "Felt rumblings sometime  
between 6 and 7."
- 23 March, 08:56:32\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}41'$  north,  $122^{\circ}30'$  west, coastline north of Mussel  
Rock, B.  
San Francisco (2611 San Jose Ave.). Very brief shock.
- 23 March, 14:48:00\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}39'$  north,  $122^{\circ}28'$  west, east of Edgemar, B.  
San Francisco (19 Presidio Terrace). IV. Sharp jolt. Felt by  
observer on first floor. "Small objects may have shifted."  
Ground: Sandy clay.
- 23 March, 14:55:16\*, B. Aftershock of 22 March.  
San Francisco (2611 San Jose Ave.). Very brief shock. "Sunday  
was quiet and peaceful."
- 23 March, 16:35:28\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}40'$  north,  $122^{\circ}30'$  west, east of Mussel Rock, B.  
San Francisco (19 Presidio Terrace). IV. Felt by observer on  
first floor of frame house. "Small objects may have  
shifted." Ground: Sandy clay.
- 23 March, 16:47.  
San Diego. III. Motion rapid. Direction N. Hanging objects  
swung. Ground: Rocky. Felt at Suncrest as a rolling  
motion.
- 23 March, 19:36:00\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}41'$  north,  $122^{\circ}30'$  west, coastline southwest of  
Daly City, B.  
San Francisco (19 Presidio Terrace). IV. Felt by observer on

- 23 March, 19:36:00\*. (cont.)  
second floor of frame house. Sharp jolt. "Small objects may have shifted." Many very minor shocks felt in two-day period. Ground: Sandy clay.  
San Francisco (1750-48th Ave.). IV. Light shock. Floor shook. Plants in pot rocked.
- 23 March, 22:26:51\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}41'$  north,  $122^{\circ}29'$  west, near coast, southwest of Daly City, B.  
San Francisco (1750-48th Ave.). IV. Slight shock. Dishes in china closet rattled.  
San Francisco (470-19th Ave.). Felt.
- 24 March, 07:34:12\*, 09:43:13\*, 11:11:16\*, 11:52:33\*, B. Aftershocks of 22 March.  
San Francisco (470-19th Ave.). Four shocks felt.  
San Francisco (380 Chester St., Junipero Serra and Alemany Blvds.). (11:52:33). Felt.
- 25 March, 04:36:09\*, B. Aftershock of 22 March.  
San Francisco (2 Valdez Ave., south of Mt. Davidson and north of Ocean Ave., Westwood Park). Decided lurch of the earth from east to west. "One big lurch and nothing else."
- 25 March, 06:45 (about). Nothing recorded on seismograph, B.  
San Bruno (1723 Hickory Ave.). Felt.
- 25 March, 07:28. Nothing recorded on seismograph, B.  
San Francisco (470-19th Ave.). "Shock felt at 07:28 only."
- 25 March, 08:58. Nothing recorded on seismograph, B.  
San Francisco (2 Valdez Ave.) "Seemed to shake from S-N. There's been a lot of constant shaking and it is still going on now, three minutes later."
- 25 March, night and morning, and 15:00. Nothing recorded on seismograph at 15:00, B.  
San Francisco (604 Irving St.). IV. "We did not feel the night and morning shocks very much but they did awaken us. I felt a prolonged shock at 15:00 on March 25."
- 25 March, 23:13:32\*, B. Aftershock of 22 March.  
San Francisco (975 Holloway Ave.). "Noise last heard about 23:12 on March 25."
- 26 March, 06:51:29\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}40'$  north,  $122^{\circ}31'$  west, off coast, northwest of Mussel Rock, B.  
San Francisco-Daly City areas. V. Press reported aftershocks

26 March, 06:51:29\*. (cont.)

jolted the northern peninsula and parts of San Francisco. Many persons, particularly in the Daly City and Westlake areas and elsewhere in the northern peninsula, said they were awakened by the 06:51 jolt. Dishes and headboard of bed rattled at 8 Crestview Drive. Four shocks in the early morning were reported felt at 83 Crestview Drive.

26 March, 07:20:53\*. Aftershock of 22 March.

Epicenter  $37^{\circ}41'$  north,  $122^{\circ}31'$  west, off coast, west-southwest of Daly City, B.

Daly City (92 Crestview Drive). Felt.

San Francisco (470-19th Ave.). Felt.

26 March, 15:45, 15:50. Nothing recorded on seismograph, B.

San Francisco (604 Irving St.). Felt.

26 March, 18:13:25\*. Aftershock of 22 March.

Epicenter  $37^{\circ}40'$  north,  $122^{\circ}30'$  west, off coast, west of Mussel Rock, B.

San Francisco (470-19th Ave.). Felt.

26 March, 23:04:49\*, B. Aftershock of 22 March.

San Francisco (470-19th Ave.). Felt.

27 March, 02:41:53\*. Aftershock of 22 March.

Epicenter  $37^{\circ}42'$  north,  $122^{\circ}31'$  west, off coast, west of Daly City, B. San Francisco area. V. Press reported many were awakened.

27 March, 05:22:12\*.

Epicenter  $39^{\circ}19'$  north,  $118^{\circ}32'$  west, southeast of Fallon, Nev., B. Salt Wells, Nev. IV. "Residents were awakened by three mild earthquakes. The University of Nevada gave the time of one of the shocks at 5:22 A.M., PST, with epicenter 12 miles east of Fallon, and magnitude 3. No damage was reported." (BSSA, July 1957.)

27 March, during night.

Suncrest (San Diego). Rumbles reported during the night.

28 March, 01:09.

San Diego. Press reported a "fairly sharp" earthquake shook the the San Diego area.

San Diego. III. Motion rapid. Direction N-S. Felt by observer in home. Hanging objects swung.

29 March, in a.m. Aftershocks of 22 March.

San Francisco (10 Homewood Court, near Wildwood and Saxon, near El Rey Theater). Several shocks reported felt in a.m. Also many shocks felt during week. Ground: New fill; hillside.



30 March, 13:34:49\*.

Epicenter  $33^{\circ}08'$  north,  $116^{\circ}28'$  west, northeast of Julian, P. San Diego. III. Motion rapid. Direction N-S. Felt by several in community. "Calls from Alpine, Mount Helix, and Spring Valley."

31 March, 08:43:26\*, B. Aftershock of 22 March.

San Francisco. Press reported the shock was felt in the Daly City-Westlake area.

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#### WASHINGTON AND OREGON

(120th Meridian or Pacific Standard Time)

25 January, 17:15:06\*. State of Washington.

Epicenter  $48^{\circ}20'$  north,  $122^{\circ}26'$  west, near mouth of Skagit River, S. Felt over an area of approximately 15,000 square miles of north-western Washington. (See map, page 193.) Maximum intensity VI was reported from Clearlake, where plaster cracked and fell on second floor of school.

##### Intensity VI:

Clearlake. Motion rapid, lasted 3 seconds. Direction NW. Felt by many; frightened few. Dishes rattled; frame creaked. Knickknack shelf shifted. Plaster cracked and fell on second floor of school. In barber shop suspended lights swayed and barber was forced to stop cutting hair until vibrations ceased. Ground: Marshy, level.

##### Intensity V:

Acme. Motion rapid, lasted 2 seconds. Felt by several. House creaked. Trees, bushes shaken slightly. "I immediately went outside to see which way power and telephone wires were swaying. East-west wires seemed to sway more than north-south wires." Ground: Soil, level.

Anacortes. Motion slow, lasted 1 minute. Moderate earth noises heard by many. Felt by several (some outdoors; quiet). Windows, doors, and dishes rattled. Hanging objects swung. Trees, bushes shaken slightly. Nothing shifted or overturned. Plaster cracked.

Anacortes. Press reported the shock as a minor earthquake. One press report stated an old wall was cracked in Anacortes, but the report was unconfirmed by any official sources in the city.

25 January, 17:16:06\*. Intensity V. (cont.)

Anacortes. III. Felt by several in community. Not felt by observer (sitting) on first floor of the old reinforced-concrete City Hall. Earth noises heard by several. No alarm.

Arlington. Motion rapid, lasted 1 minute. Felt by all; frightened few. Windows, doors, and dishes rattled. Ground: Rocky, soil, level.

Bothell. Motion rapid, lasted 1-2 seconds. Felt by all. Hanging objects swung S-N. Ground: Soil, compact, level.

Bow. Motion rapid, lasted 1-2 minutes. Felt by all. Windows and dishes rattled.

Burlington. Motion rapid, lasted 3-4 seconds. Felt by all. Windows rattled. "Just rattling of front windows for a few seconds."

Burlington (near). III. Felt by one (typing) out of three persons in home.

Chimacum. Motion rapid, lasted 2 seconds. Direction N. Felt by all. Windows and doors rattled; frame creaked. Hanging objects swung N. Ground: Compact, sloping.

Clinton. Loud earth noises heard. Lasted 2 seconds. Felt by many (some outdoors; active); frightened few. Windows, doors, and dishes rattled. Hanging objects swung. Knick-knacks fell. Ground: Compact, level.

Clipper. Motion rolling, lasted 1-2 minutes. Direction N-S. Low rumbling earth noises heard. Felt by observer on second floor of wooden house (lying down). Dishes rattled; walls creaked. Small objects shifted. Hanging objects swung.

Deming. Motion rapid, lasted 1 minute. Felt by several. Windows, doors, and dishes rattled. Cans in store shifted. Plaster cracked. Ground: Soil.

Friday Harbor. Motion rapid, lasted 4 seconds. Felt by all; frightened few. "Very rapid motion. No customary noise before shock. Hard to tell whether noise was from outside or made by the house." Ground: Soil, compact, level.

Granite Falls. Motion rapid, lasted 10-12 seconds. Felt by all; all slightly frightened. House creaked. Trees, bushes shaken slightly. "Had just sat down to dinner. Table very rigid. First three or four shocks, NNE-SSW, almost caused milk to spill over top of glasses filled to about 1/2 inch from top." Ground: Compact, sloping.

Greenbank (Sec. 8, T30N, R2E). Motion slow, lasted 30 seconds. Felt by all. Walls creaked. "While sitting, facing NW, felt two slight shocks, then a third severe shock. Motion seemed to be slightly NW-SE. Some noise with third shock but could not identify it as earth or building noise." Ground: Compact, sloping.