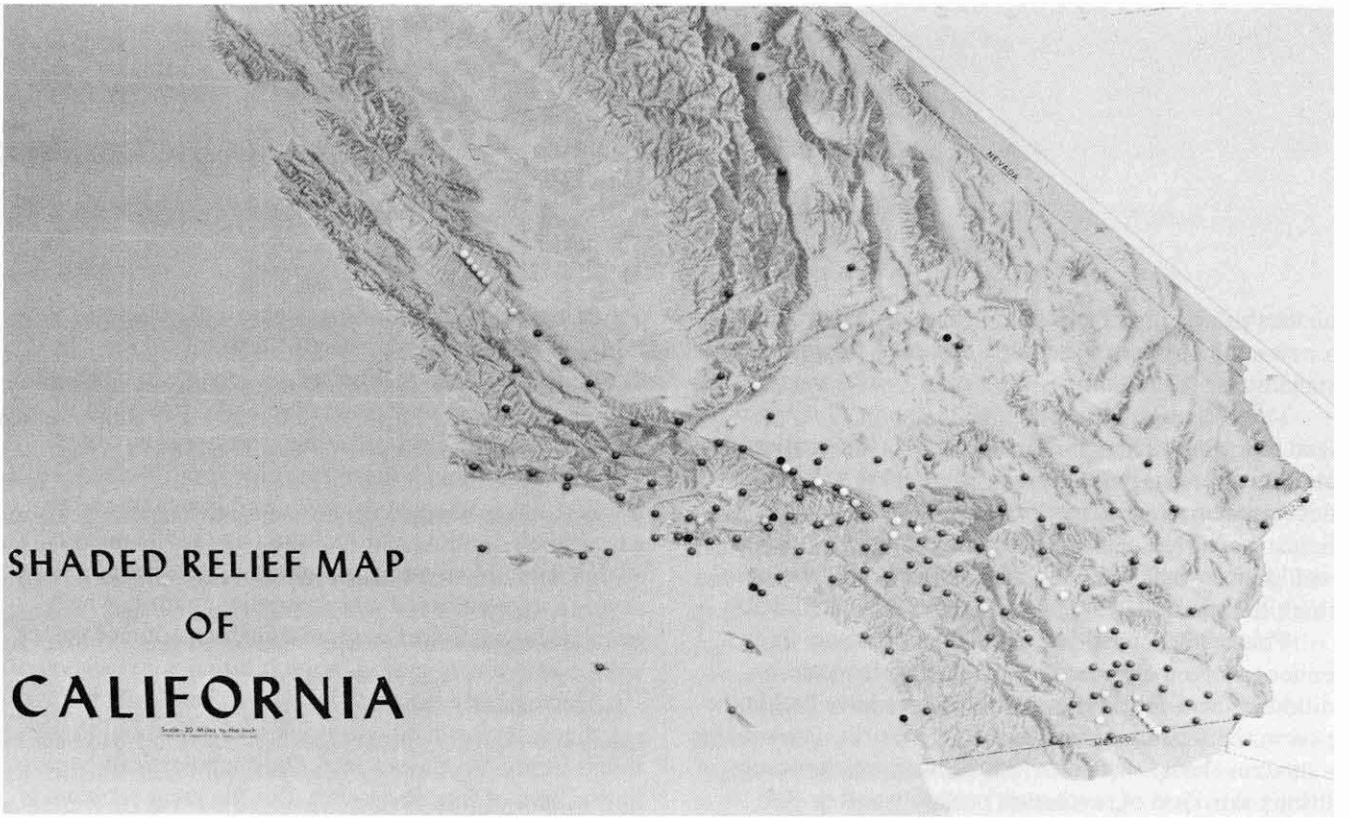
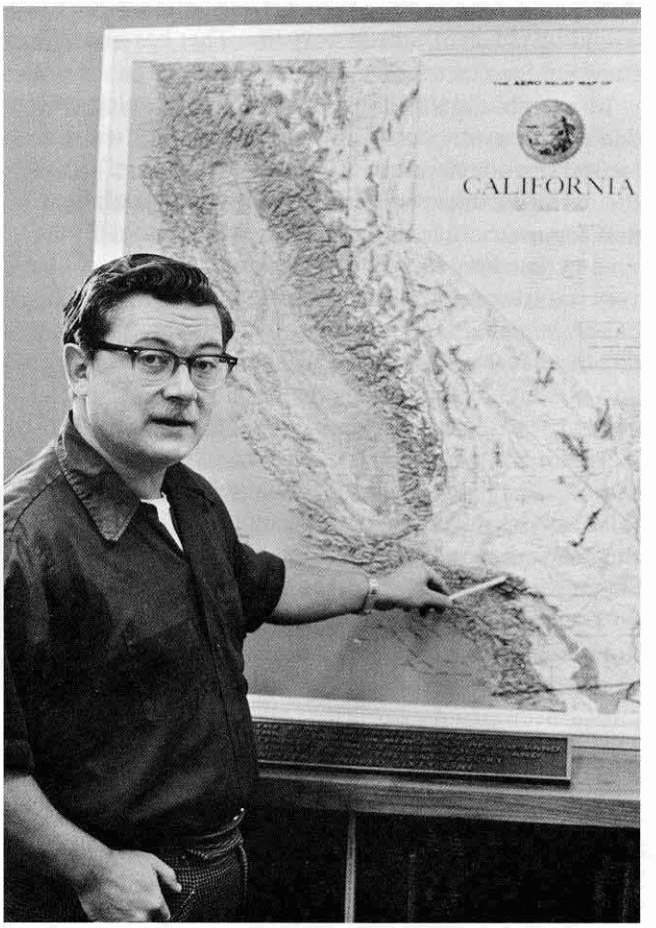


Southern California network of seismographic stations is the world's largest seismic array.

50 Years At The Seismo Lab

Don L. Anderson, director of Caltech's Seismo Lab since 1967.



The world's largest seismic array got its first public exposure in December when Caltech's Seismo Lab celebrated its 50th anniversary. The first seismometers were put into operation in southern California by the Seismological Laboratory in 1926. For the next 50 years the number of seismometers slowly increased with step-function increases after the earthquakes of 1933 (Long Beach), 1952 (Kern County), and 1971 (San Fernando). Recording initially was on photographic paper; the records were mailed to the Seismological Laboratory and read individually. Locations of events were not precise for days or weeks after the event, and complete catalogs were often not available for years. There are now more than 160 stations in southern California; these are telemetered directly to a computer at the Seismological Laboratory which digitizes, detects, and stores the seismograms on magnetic tape. These are read by an analyst interacting with the computer, and complete earthquake catalogs are available the next day. Important events are located within minutes. The southern California network is now the world's largest seismic array, being about twice the size of the Large Aperture Seismic Array (LASA) in Montana. It is being used not only for the precise location of local events, but also of earthquakes occurring anywhere in the world and for precision studies of the structure of the earth's interior. Over 200,000 seismograms are now stored on digital tape for further analysis, primarily in conjunction with the new national program in earthquake prediction.

The original Seismological Laboratory in the San Rafael hills was occupied in 1927. This is the Kresge Laboratory, which is now the base for off-campus operations. The Seismological Laboratory was officially named in 1928. It was then a part of the Carnegie Institution of Washington, but people from Caltech such as Millikan and Hale were instrumental in its creation. The laboratory was run by a joint committee from Carnegie and Caltech from 1931 to 1937, at which time Beno Gutenberg was placed in charge. It gradually became an entirely Caltech operation, with Gutenberg being named Director by President Lee DuBridge in 1947. He was succeeded by Frank Press, now the President's Science Advisor, in 1957. Don Anderson became Director in 1967.

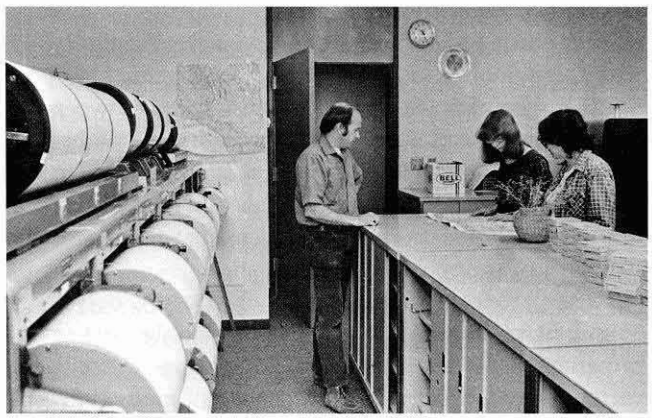
The 50th anniversary of the Lab was celebrated on December 2 and 3, 1977, when faculty, students, staff, alumni, friends, and associates gathered at Caltech for a two-day open-house-seminar. Honored guests included

A technician measures the amplitude and arrival time of an earthquake on a microfilm display of a seismograph record.

Imra Buwalda, the wife of the first Chairman of the Division of Geological and Planetary Sciences; Hertha Gutenberg, the wife of the first Director of the Seismological Laboratory; Professors Emeriti Charles Richter and Hewitt Dix; and Francis Lehner, retiring Group Supervisor, whose service with the Seismological Laboratory started in 1929.

For the occasion the laboratory was turned into a self-guided science museum with displays showing research projects on earthquakes, earth structure, earthquake prediction, field projects, Mars seismology, ultra-high pressure geophysics, and plate tectonics.

An all-day symposium covered the full range of activities at the laboratory, including real-time tectonics, ultra-high pressures, plate tectonics, the Seismic Array, and southern California crust and mantle and attenuation and creep in the mantle. Caltech is at the forefront of research in all of these areas. □



Reading one of the records from the imposing array of seismograph recording drums in the Seismological Laboratory.