UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

CENTRAL CALIFORNIA EARTHQUAKE ANIMATION JANUARY-JUNE 1989

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Open File Report 89-308

This report is a video tape illustrating seismicity in a time-lapse animation. The time period covered is the first half of 1989 and the area covered is all of central California from the Pacific Ocean to Nevada (see map). Other time periods and geographic areas may be the subject of future reports. The authors would appreciate comments from viewers on the content and presentation of the animation. This is an unusual medium in which to publish earthquake data and we are still learning about how to best present seismicity in this format.

The animation and title screens were produced on an Amiga 2000 computer using the Digiview, Deluxe Paint-II, Pageflipper Plus and Atalk-III programs.

Each frame of animation plots 48 hours of earthquakes but successive frames are spaced 8 hours apart. The frame rates shown are 15 (5 days) per second, 4 (1.3 days) per second and 60 (20 days) per second. An earthquake appears as a filled circle for two frames and an open circle for the next four frames before disappearing.

The shaded relief map was derived from a digital elevation model at a latitude and longitude spacing of 15 seconds. The coastline, faults and earthquakes were plotted on a VAX computer using the QPLOT program and captured on the Amiga with Atalk-III in Tektronix mode. The earthquake data is partly automatic and partly hand processed. Many but not all quarry blasts were removed.

The animation shows all earthquakes detected by the network of seismograph stations and processed for location and magnitude. The size of the plotted circle scales with earthquake magnitude.

Some areas experience a steady background of earthquakes, such as the Geysers steam field (where steam extracted for power generation triggers many small earthquakes), or the San Andreas and Calaveras fault segments within 40 miles of Hollister. Other areas produce intermittent activity, such as the San Francisco Peninsula and north Bay Area. Nearly all of the Coast Ranges and Eastern Sierra are subject to earthquakes.

A copy of this video tape is available for viewing in the libraries of the U.S. Geological Survey in Menlo Park California, Denver Colorado and Reston Virginia. Video copies in all standard formats may be purchased from:

Video Transform
2450 Embarcadero Way
Palo Alto CA 94303
415-494-1529

U.S. Geological Survey

Central California Earthquakes, January–June 1989