

Stack of studies investigates possible seismic signposts to 1989 earthquake

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Clusters of small earthquakes and changes in stream flows may have been harbingers of the 1989 Loma Prieta earthquake, government geologists said this week.

A series of 10 papers published by the U.S. Geological Survey make up a report on "preseismic observations" published by the federal agency.

But USGS scientist Dr. Malcolm Johnston, who edited the report, said much of what it documents is subject to interpretation and may not be fully explained for years.

One paper says several magnitude-5 earthquakes and their aftershocks may have been foreshocks to the 7.1-magnitude quake on Oct. 17, 1989.

Another paper documents increases in ultra-low-frequency magnetic sounds near the quake's epicenter in the month before the quake.

Part of the report recounts the claims of a Los Osos man who was hiking near Berry Creek Falls in Big Basin Redwoods State Park on the afternoon of the quake.

The unidentified man reported "an

abrupt increase in the sound of the falls and the amount of water flowing over them" about an hour before the quake, said Dr. Evelyn Roeloffs, a USGS scientist who specializes in the relationship between earthquakes and groundwater.

Still another paper documents fluctuation in the eruptions of the "Old Faithful" geyser near Calistoga.