

Group aims to get closer to earthquake prediction

Austin Walsh, Bay Area News Group, 10-4-09

WATSONVILLE -- The focus is going to be on the past as the date creeps closer to Oct. 17, the 20th anniversary of devastation caused by the Loma Prieta earthquake.

While some relive the memories created after fateful seconds of violent shaking, others are looking toward the future to ensure that when the next quake hits, people will be ready.

Tom Bleier is one of those individuals trying to ensure advance warning will be provided to people that the next quake is coming.

The satellite technician works for QuakeFinder, a Palo Alto-based project that installs an advance earthquake monitoring system. The QuakeFinder system uses a magnetometer to gauge electromagnetic activity miles under the Earth's surface. A progressive increase in electromagnetic pulses over a two-week period can serve as an indicator of an upcoming quake, when combined with other monitoring data, Bleier said.

The system combines magnetometer readings with figures generated by an air conductivity sensor, which counts an increase in positively charged ions around the epicenter of an earthquake. Those results are used, in addition to infrared signals similar to those used for weather forecasts, to tell whether a tremor is coming. When an earthquake is near, infrared satellites show areas near the epicenter to be hot, said Bleier.

Members of the project, which has been collecting earthquake data since 2000, installed a monitoring system in Watsonville, near the epicenter of the Loma Prieta quake. There are about 60 QuakeFinder systems in use right now throughout the state, but Bleier hopes to eventually have 200 in place.

QuakeFinder technicians admit their system is not without its limitations. According to Bleier, a monitoring system must be placed within 10 miles of the epicenter to receive readings accurate enough to predict one coming. And a QuakeFinder system cannot detect any activity that would result in an earthquake that reads less than five on the Richter scale, said Bleier.

The Alum Rock quake near San Jose in 2007 gave QuakeFinder technicians the most encouraging data to believe that their alert system worked. Analyzing data after the quake hit, Bleier said electromagnetic activity indicating that an incident may have been on its way was present two weeks in advance to the day of the 5.4-magnitude temblor.

But there can be man-made electromagnetic activity that interferes with QuakeFinder technician's data. Systems must be placed 200-300 feet away from any road because car traffic can show up on a magnetometer. QuakeFinder technicians are now in the process of fingerprinting movements in magnetometer readings to distinguish what activity is artificial.

Regardless of the roadblocks QuakeFinder has to overcome before its established as a recognized earthquake alert system, Bleier remains optimistic in its capabilities. "It's getting interesting," said Bleier. "There is a light at the end of the tunnel that we might start being able to do this."