

# Public asked to help collect quake data

David Perlman, San Francisco Chronicle, 12-15-09

Scientists in Earthquake Country are seeking volunteers in Northern California to join a groundbreaking seismic detection network with automated instruments to record and transmit earthquake information as the temblors strike.

They are also asking thousands of Twitter users to send their own observations about quakes as they happen.

The pioneering system, called NetQuakes, has recently been developed by the U. S. Geological Survey, and its ultimate goal is to install thousands more of the automated earthquake sensors in garages of homes throughout Northern California.

When even a modest quake hits the region, Twitter users would post quick messages to the USGS describing what they felt. An automated system, with servers in Menlo Park, Seattle and Pasadena, would record the messages and, if needed, tweet back to collect more information.

The NetQuakes instruments, installed free by the USGS, would supplement the agency's badly limited network of highly sophisticated devices called accelerometers that now measure ground shaking whenever quakes strike the San Andreas Fault Zone that includes all the Bay Area's many fault strands, including the most dangerous: the Hayward, the Rodgers Creek and the Calaveras, where probabilities of a truly disastrous quake grow larger every year.

"All this will allow us to do a much better and faster job creating maps online to show where ground shaking can cause real damage," USGS seismologist James Leutgert told reporters in San Francisco on Monday.

## Conference of scientists

Leutgert and Paul Earle of the agency's National Earthquake Office in Golden, Colo., described the NetQuakes and Twitter systems at the annual meeting of the American Geophysical Union in Moscone Center, where thousands of scientists are gathering to report on new research in fields as varied as the atmosphere, the planets, Earth, the sun and outer space.

Organizers expect more than 10,000 scientists to register for the Moscone sessions, which continue through Friday but are not open to the public.

Enlisting an army of citizens for NetQuakes is necessary because scientists need help in pinning down where ground motion is strong and dangerous, Leutgert said. Congress authorized more than \$180 million in 2001 to expand the USGS's network of sophisticated high-speed seismic monitoring devices, but the agency has received only 15 percent of that money to buy and deploy the instruments.

The homes of NetQuakes volunteers must have a concrete slab - typically in a ground-floor garage - because the box encasing the small automated seismographs and automatic data transmitters USGS plans to install will be bolted down.

Less than a foot long, 6 inches high and 5 inches wide, the box holding the digital seismographs will contain equipment that will send data to the USGS via the Internet and also connect to a local seismic network station using Wi-Fi and existing broadband connections, Leutgert said.

## Optimistic about results

Leutgert said the USGS has high hopes for the information it will glean from NetQuakes volunteers.

"Seismic engineers would kill for this kind of data," he said. "It will be gold for them - and extremely important for anyone building or remodeling homes or businesses - plus gold for seeking to understand earthquake behavior more completely."

In the USGS's efforts to engage more "citizen science," the agency has created a separate project, the Twitter Earthquake Detection Project, known as USGSted and is seeking earthquake messages from everyone using the social networking site Twitter when they feel a quake at any time. A tweet could describe how strong the quake felt, whether the motion seemed to roll or shake, and if it caused damage.

So highly automated is the Twitter project, Earle said, that USGS's own Twitter account is capable of analyzing incoming tweets, and when a message sparks interest by the system, it can automatically reply to an incoming tweet asking for more details with still another tweet.