



Project TriNet Opens a New Era in Earthquake Monitoring

Full Mitigation Best Practice Story

State-wide, California



The State of California - Following the Northridge earthquake in 1994, FEMA provided funding to the California Institute of Technology, the California Division of Mines and Geology, and the USGS to upgrade earthquake monitoring in southern California. The result was project TriNet, a cooperative effort to expand and modernize earthquake monitoring in the region and to provide timely and accurate information on earthquake occurrences.

The development of TriNet, which began in 1997, included:

- * Installation of 150 broad-band seismometers by 2002
- * Installation of 450 strong-motion sensors by 2002
- * Development of a data center to manage and process the information
- * Development of new products, especially "ShakeMap"

Earthquake shaking is strongly affected by the local geology and soil conditions, and the pattern of the intensity of shaking does not fall in concentric circles about the epicenter. With data from new seismometers available in "real-time," TriNet seismologists realized they could produce realistic contour maps showing the severity and distribution of ground shaking within minutes of an earthquake. This product, called "ShakeMap," was made available at TriNet web sites and has proven immensely useful to emergency management officials and managers of infrastructure and lifeline systems. Now, whenever an earthquake occurs in southern California, there is a regional map available on the web that shows the shaking pattern.

Project TriNet proved so successful that the USGS used it as the pilot model for the Advanced National Seismic System (ANSS). ANSS is an initiative to expand TriNet capabilities to other urban centers in areas of high to moderate seismic risk. Through ANSS, the USGS and regional partners have begun to develop TriNet-like capabilities in the San Francisco Bay region, the Puget Sound region, Salt Lake City, Reno, Anchorage, and the Memphis and St. Louis areas. In addition to providing ground shaking information for emergency response, the engineering community can apply ANSS data in the design and construction of earthquake resistant buildings and critical facilities.

Activity/Project Location

Geographical Area: **State-wide**

FEMA Region: **Region IX**

State: **California**

Key Activity/Project Information

Sector: **Public**
Hazard Type: **Earthquake**
Activity/Project Type: **Warning Systems**
Activity/Project Start Date: **01/1994**
Activity/Project End Date: **Ongoing**
Funding Source: **National Earthquake Hazards Reduction Program (NEHRP)**

Activity/Project Economic Analysis

Cost: **Amount Not Available**
Non FEMA Cost: **0**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **Unknown**
Value Tested By Disaster? **Unknown**
Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: http://www.fema.gov/plan/prevent/earthquake/sty_trinet.shtm
Reference URL 2: http://www.fema.gov/plan/prevent/bestpractices/NEHRP_BP_page.shtm

Main Points

- Following the Northridge earthquake in 1994, FEMA provided funding to the California Institute of Technology, the California Division of Mines and Geology, and the USGS to upgrade earthquake monitoring in southern California which resulted in project TriNet.
- The development of TriNet, which began in 1997, included:
 - * Installation of 150 broad-band seismometers by 2002
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 - * Development of a data center to manage and process the information
 - * Development of new products, especially "ShakeMap"
- TriNet seismologists as a result could produce realistic contour maps showing the severity and distribution of ground shaking within minutes of an earthquake and has proven immensely useful to emergency management officials and managers of infrastructure and lifeline systems.
- The engineering community can apply ANSS data in the design and construction of earthquake resistant buildings and critical facilities.

