

Learning from Earthquakes

Update on the M 7.4 Mexico Earthquake

A reconnaissance team with members from the Universidad Autónoma Metropolitana and the Sociedad Mexicana de Ingeniería Sísmica traveled to the epicentral area of the magnitude 7.4 March 20, 2012, Ometepec, Guerrero, earthquake in Mexico and prepared a report on their findings. It will be available online in the near future. Below is a summary of their report.

On Tuesday, March 20th, 2012, at 12:02 p.m. local time (18:02 GMT), an earthquake of magnitude M_w 7.4 (USGS and Servicio Sismológico Nacional - SSN) struck the area near the towns of San Juan Cacachuatepec in the state of Oaxaca and Ometepec in the southeastern region of Guerrero state in Mexico. This earthquake was also strongly felt in the cities of Chilpancingo and Mexico City.

The earthquake provoked a “preventive warning” code by the Earthquake Warning System (Sistema de Alerta Sísmica—SAS), as seven out of 12 stations detected seismic activity and estimated moderate effects. Begun in 1986, the SAS project was fully operational in 1991. Its objective is to issue early earthquake warning reports to Mexico City. The system announces an earthquake 60 seconds before the arrival of the first seismic waves. The warning gave the Metro system 60 seconds to stop operations and also gave operators

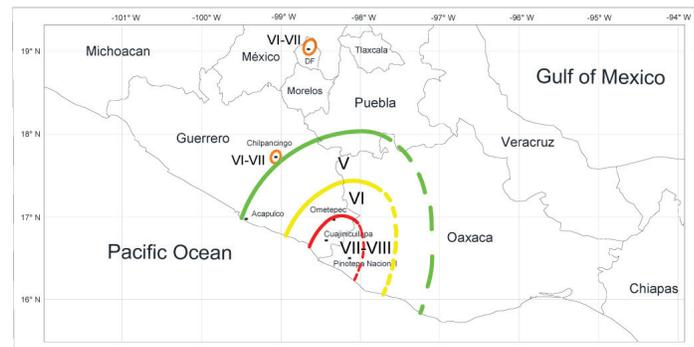
and people time to evacuate and prepare for the earthquake. Line A of the Metro system sustained damage to the rails which could have caused a train derailment and casualties, but due to the early warning, no injuries were reported in the Metro system.

According to state and federal government agencies, 19 municipalities in Guerrero and 28 in Oaxaca suffered heavy damage. In Oaxaca, almost 2,000 houses collapsed or were considered destroyed. Over 3,000 houses sustained heavy damage and 3,000 more sustained minor damage. Some sort of damage was reported in 22 schools, 42 government offices, and 24 historical buildings. Despite the damage levels, only two people were killed and few were injured. This is attributed to the fact that the quake occurred mid-day when most local residents were out of their houses and working outdoors on farms.

The city of Ometepec has two new hospitals; they sustained light non-structural damage, remained operational and could attend to all casualties related to the earthquake. From the 3,000 houses with reported heavy damage, about 10,000 people were affected. Many of them still live in the damaged houses or in temporary shelter in their backyards. The media has not focused much

attention on the epicentral area or the damage to rural communities, instead concentrating on the SAS system and other political interests. Despite the progress in more urban areas, there are rural communities near the epicentral area in Guerrero and Oaxaca whose living conditions have not improved for decades. Therefore, the effects on housing were similar to the damage caused by the 1995 Ometepec earthquake. However, the team did observe construction practices improving, and it appears that some of the affected population is starting to build confined masonry structures instead of unreinforced adobe.

Basic services in this area are also a problem. Two weeks after the earthquake, most of the villages were still waiting for effective government aid. The communities are not far (approximately 30 km) from cities like Ometepec, but the people were living without basic conveniences such as potable water, electricity, and communication systems. Federal funding has been deployed to support the affected communities.



Isoseismal map of March 20, 2012, Ometepec earthquake.

Publication

Regional Disaster Resilience Guide

An updated edition of *The Regional Disaster Resilience Guide for Developing an Action Plan* was recently published by The Infrastructure Security Partnership (TISP). The RDR Guide is a roadmap that

describes a step-by-step process to develop a strategy to improve capabilities to deal with any major incident or disaster. The new edition provides an updated vision for resilience and a more comprehensive strategy to develop the necessary level of preparedness for communities to manage major disasters. Similar to the original version published in 2006, the updated guide contains

background on infrastructure interdependencies and potential impacts, a comprehensive list of focus areas and priority issues to consider, and a checklist of typical preparedness gaps with recommended activities to address them. The *RDR Guide* is available at no charge online from www.tisp.org. Hard copies can be ordered for \$25.00 each.