

National Earthquake Monitoring for Tsunami Early Warning

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After the great Sumatra Earthquake on December 26, 2004, all suffered countries from Tsunami have paid more attention to upgrade their own national seismic monitoring system in order to serve more efficiency for tsunami early warning. Consequently Thai Meteorological Department set up new seismic monitoring network which can be divided into 2 phases during 2004-2009. The first phase is now ready in operation with 15 stations for weak motion and strong motion monitoring. In addition 6 individual accelerograph stations were installed in the western and central part to monitor strong ground motion nearby active fault and to study site amplification. Broadband sensors Trillium 40 and Trillium 120 were installed in first phase, when earthquake occurred, data will continuously send using internet communication via IP star (satellite link) to Thai Meteorological Department:TMD in Bangkok. At present it takes few minutes to analyze automatically to determine location, magnitude, occurring time of earthquakes outside country especially epicenter at Andaman sea, Sumatra and neighboring countries by using 2 popular software called Earlybird and Seiscomp3. This system is able to exchange data internationally via naq server, liss server and seedlink server. More than 30 stations from different countries in the Indian Ocean and from global networks (Malaysia, Indonesia, Philippines, Australia, Taiwan, Japan, Africa, IRIS, USGS, Geofon) are retrieved continuously in near real time through internet. The automatic result of position and several analyzed magnitudes (MI, Mwp, Mb, Ms, Mw) are quite reliable and convenient to help decision of tsunami warning and canceling message.

Second phase of earthquake monitoring upgrading is in the process of installing which will be completed in 2009. The system will integrate all stations in first phase, then totally the whole national seismic network of Thailand will consist of 40 seismic stations, 26 accelerograph stations, 4 GPS stations and 9 tide gauge stations (4 in Andaman sea, 5 in Gulf of Thailand). Similar to the first phase, most of stations will send data via IP Star, satellite internet link and 5 fixed IP of VSAT link. After major earthquake or local earthquake occurred, several messages and announcement will instantly disseminate to agencies concerned, mass media (TV, radio stations), people at risk area via SMS, fax, siren towers and Seismological Bureau web site.

New national seismic monitoring network of Thailand will raise capability of earthquake mitigation and tsunami warning in the region.

Moreover, during 2008-2009, earthquake and tsunami database together with information of buildings in risk area will be compiled in GIS and will apply to assess the damage causing by scenario earthquake. HAZUS software from FEMA will be utilized as a first step to support short term and long term plan for better management of natural disaster in Thailand.