

Current situation of seismic observation network in the Philippines

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The Philippine archipelago is one of the most seismic active region in the world, and the PHIVOLCS (Philippine Institute of Volcanology and Seismology) continuously monitors seismic activity in and around the Philippines.

After the upgrade of seismic observation instrumentation in existing manned observatories (replacement to new seismometers and digital equipment), which was implemented by the first phase of 'Project for Improvement of Earthquake and Volcano Monitoring System in the republic of the Philippines' of Japanese ODA,

- * Unmanned seismic stations with satellite communication (29)
- * Broadband seismometers at manned observatories (9, 2 of them by the first phase)
- * Telemetered data receiving and processing system (PHIVOLCS head office)
- * Tagaytay mirror center for backup of head office
- * Mobile seismometers

were additionally installed on the second phase of the project on March, 2003. As a result, improvement of detection capability from Magnitude 4.7 to M 4.0, and shorter time required for issuance of earthquake information (from 30 or 45 minutes to 15 minutes after the quake) are expected. Furthermore, issuance of tsunami forecast may be available in the future with this system.

The Japan Meteorological Agency has been contributing to this project by dispatching several short/long term experts and receiving many trainees from the PHIVOLCS. We (hereto) introduce the current situation of seismic observation network in the Philippines.

Each unmanned seismic station established in project phase 2 has a shelter for storage of equipment, a parabolic antenna for wave transmission and a GPS receiver for time correction. A seismometer (short period velocity), a digitizer, a transceiver and batteries are set inside the shelter and solar panels are put on the roof. Waveforms are sent both to PHIVOLCS head office at Quezon City and to Tagaytay mirror center via VSAT on a real time basis. Data receiving, archiving and processing PCs are at both offices and received data are automatically processed and archived. They can also be manually processed.

With this system installed, total number of PHIVOLCS seismic observation point has increased to 58 and seismic observation network of the Philippines has been greatly improved to state-of-the-art. But new problems have occurred such as that the volume of task for data processing and analysis at the head office had been increased by the double of data to be handled. And half of the data (at manned observatories) are still not transmitted to the head office on a real time basis. To tackle with this situation, it is expected that PHIVOLCS itself should modify the procedure for data processing and analysis, plan of the integration of existing and new system for proper operation and develop software for further data analysis.