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Category: Natural Hazards

Paper ID: 57-ONH-A1676

Title: Monitoring of Earthquake, Tsunami and Volcano in Japan

Abstract:

Japan Meteorological Agency (JMA) has been in charge of issuing earthquake information and tsunami forecasts in Japan. JMA issues the following kinds of information successively when a large earthquake occurs. (1) Prompt report of occurrence of a large earthquake and outline of seismic intensities caused by the earthquake within about two minutes after the earthquake occurrence. (2) Tsunami forecast in around three minutes. (3) Information on expected arrival times and maximum heights of tsunami waves in around five minutes. (4) Information on hypocenter and magnitude of the earthquake, the seismic intensity at each observation station, the times of high tides in addition to the expected tsunami arrival times in 5-7 minutes. JMA started to offer earthquake early warning that notifies limited users of large earthquake occurrence just before the arrival of strong ground motion caused by the earthquake on a trial basis since February 2004. JMA plans to start offering information on distant tsunami to countries in the northwest Pacific region in 2005. JMA has also conducted processing and analysis of almost all the seismic data of operational seismic stations of national universities and institutes in Japan since 1997, and determines about 100,000 hypocenters a year. These analyzed data are open to researchers on the day following the occurrence of earthquakes for the promotion of seismological studies in Japan. JMA issues information on about 100 active volcanoes in Japan and also issues volcano ash advisories for airplanes on volcanoes in the western Pacific region, namely Kamchatka to the north and the Philippines to the south. For the above information issuance, JMA has established; (1) An advanced nationwide seismic network with about 180 stations for seismic wave observation and about 3,400 stations for instrumental seismic intensity observation including about 2,800 seismic intensity stations installed by local authorities, and volcano observations for 25 active volcanoes, (2) Data telemetry networks via landlines and partly via a satellite, (3) Real-time data processing techniques, for example: the automatic calculation of earthquake location and magnitude, a database driven method for quantitative tsunami estimation, and (4) Dissemination networks, via computer-to-computer communications through dedicated telephone lines, partly via a satellite, etc.

Presentation Mode: Oral

Keywords: earthquake, tsunami, volcano, monitoring, information, forecast, seismic intensity

Status: Pending.

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