

Recent trend on earthquake disaster mitigation information of JMA

Osamu Kamigaichi[1]

[1] JMA

Earthquake disaster mitigation information disseminated from JMA before and after the earthquake occurrence is reviewed and its recent trend is introduced.

1 Before the earthquake

It is possible only for anticipated Tokai-earthquake to disseminate information concerning the imminence, when the certain condition is satisfied. JMA, in cooperation with the relevant organizations, has intensified observation network to monitor crustal activities 24 hours a day in and around Tokai region. In case abnormal phenomena is detected, JMA quickly summon the Earthquake Assessment Committee for Areas under Intensified Measures against Earthquake Disaster(EAC), to judge whether it is a precursor or not to forward it to the Prime Minister as Earthquake Prediction Information. JMA will also announce to the public the explanations and judgements on the abnormal phenomena in relation with the Tokai-earthquake occurrence.

Recent relevant trends are,

1)JMA deployed new strainmeters in mid-to-western area in Shizuoka Pref. taking into account the up-to-date research results that hypocentral region of Tokai-earthquake should be shifted westward than assumed before.

2)Reduction of strain change criteria to summon EAC to 1/10 of before, based on the precursor appearance simulations by the numerical model, and the actual strain data fluctuation level study.

3)JMA settled new information framework to announce to the public of the abnormal phenomena appearance even when its level is low, if necessary.

4)More prompt notification of JMA's determination to summon EAC.

JMA will continuously improve the numerical simulation model so that it can explain as many observations as possible to better estimate after the detection of abnormal phenomena.

2 After the earthquake

To mitigate the earthquake disaster, and to aid disaster prevention organizations to quickly build up the emergent countermeasures against a)Tsunami, and b)Strong motion, JMA disseminates following forecasts and information.

a) Tsunami forecast & information

JMA started new Tsunami forecast in 1999, disseminated to 66 coastal sections, by retrieving Tsunami height and travel time database pre-calculated using numerical simulations for hypothetical fault plane at the grid in the oceanic area, assigned by the quickly determined focal parameters. JMA also disseminates actual Tsunami observations continually.

b) Seismic Intensity(Strong motion) information

JMA disseminates regional seismic intensities(maximum intensity within a prefectural sub-division) in 2 minutes, and continually, estimated focal parameters and seismic intensities at each station from 5 minutes after the earthquake occurrence. Seismic intensity-meter data deployed by municipalities after 1995 South of Hyogo Pref. earthquake are also merged into JMA information, in total about 3,000 stations are available at present. Integrating spatial resolution of the seismic intensity distribution, enabling the intensity estimation where no station exists, is in progress.

In case the disaster brought by the large earthquake is anticipated to grow worse by the aftershock occurrence, JMA announces aftershock occurrence probability, calculated by using Gutenberg-Richter's relation and modified Ohmori formula.

Further, JMA is now developing practical system to inform of the predicted seismic intensity and its arrival time before the strong motion starts by detecting seismic waves in the vicinity to the epicenter and processing signal rapidly, called nowcast seismic information (Kato et.al.(2002), Otake et.al.(2002), Kamigaichi et.al.(2002)). This technique can be applied to quicken the Tsunami forecast.