Improvement of real-time seismic waveform display system for "Nankai Trough Region Earthquake Disaster Prevention Research Project"

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Japan Agency for Marine-Earth Science and Technology (JAMSTEC) have operated DONET, which have been entrusted by NIED (National Research Institute for Earth Science and Disaster Resilience). DONET is a large-scale and dense seafloor seismic network including strong-motion seismometers and quartz pressure gauges, around the Kumano Nada which assumed focal region of the Nankai Trough earthquake. DONET realizes the observation of physical phenomena such as earthquakes, crustal deformations, and tsunamis in real-time. In order to actively disseminate research information using DONET, we have developed web application system, REIS (Real-time Earthquake Information System) that displays seismic waveform and pressure waveform on web browser in real-time, as a service for disaster managers.

With the influence of extreme hazards as the Kumamoto Earthquake and the Middle Tottori Earthquake in 2016, Local Public Entities, in coastal areas due to large tsunamis, have been following the wide-area anti-disaster measures indicated by the Japanese Government. In addition, they are required to construct anti-disaster measures according to the area as soon as possible. By the use of REIS, disaster managers may make decisions for disaster prevention before the tsunami arrival, based on the observed waveform displayed from the observation data immediately above or near the earthquake occurrence zone in real-time.

Since 2013, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has started the "Nankai Trough Region Earthquake Disaster Prevention Research Project" which conducts research on anti-disaster measures of the Nankai Trough Earthquake. Their workshop has been divided into four areas of the Tokai region workshop, the Kansai region workshop, the Shikoku region workshop, and the Kyushu region workshop, and they have been discussing anti-disaster issues specialized in each region. In 2016, we have started to provide our waveform display function for this workshop's page, and have promoted regional disaster prevention using REIS to more disaster managers.

We have been requested from NIED to expand the scope of user to more actual workers in the next fiscal year. Now, we are adding a feature to generate an image cache for waveforms to reduce load and a feature to hold and view past waveforms about weeks. It makes REIS possible to drastically expand the number of users. Also, it is possible to check the waveform of an earthquake and tsunami, even if user access REIS after a large earthquake.

In this presentation, we hope to discuss our system feature enhancement on future.

Keywords: Real-time Seismic Waveform Display, DONET, Nankai Trough Region Earthquake Disaster Prevention Research Project, Regional Disaster Prevention, Web Application