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# Ocean Observing of Earthquakes and Tsunamis for Advanced Early Warning System and Prediction Researches

Based on lessons from 2004 Sumatra Earthquake/Tsunamis and 2011 East Japan Earthquake/Tsunami, we recognized the importance of real time monitoring on Earthquakes and Tsunamis. Especially, the real time monitoring system using multi kinds of sensors such as the accelerometer, broadband seismometer, pressure gauge, difference pressure gauge, hydrophone and thermometer is indispensable for not only Earthquakes/ Tsunamis, but also broadband crustal activities around mega thrust earthquake seismogenic zones. Therefore, we deployed DONET and are developing DONET2 which are dense ocean floor networks around the Nankai trough Southwestern Japan. At 2011 East Japan Earthquake, DONET observatories detected offshore tsunamis 15 minutes earlier than onshore stations. Furthermore, DONET/DONET2 will be expected to monitor slow events such as low frequency tremors and slow earthquakes for the estimation of seismic stage which is the inter seismic or pre seismic stage based on slow event simulation researches.
I will introduce the details of DONET/DONET2 and simulation researches.

**Primary author:** KANEDA, Yoshiyuki (Kagawa University)

**Presenter:** KANEDA, Yoshiyuki (Kagawa University)

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