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-time monitoring data for early tsunami detection and prediction studies for disaster mitigation from earthquakes and tsunamis

DONET 1 and DONET 2 are ocean floor observatories designed for real time earthquake and tsunami warning. They include 51 observation points to cover the Nankai trough seismogenic zone SW in Japan. Their observation capability is based on a variety of sensors, such as accelerometer, broadband seismometer, pressure gauges, thermometers and ocean floor hydrophones. Although their construction is expected to be fully completed by March 2016, they already provide real time monitoring capabilities. In 2011, during the Tohoku earthquake 10 observation points from
DONET 1 was operational and provided useful data. These data identify the tsunami process in a more definite manner than those obtained from nearly tide gauges. Pertinent databases are created to facilitate quick initial response and appropriate tsunami evacuation processes.

Further studies focus on the identification of tsunami precursors in hydro-acoustic data from DONET. This approach could be used of the detection of non-seismogenic tsunamis and other disasters which cannot be cannot be detected by the seismic network. Recently, a Nature article provided real data evidence on ambient seafloor noise excited by earthquakes in the Nankai subduction zone. In conclusion, real-time monitoring data from ocean observatories are indispensable both for ocean sciences and for disaster mitigation.

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