

Monitoring of crustal activities using oceanfloor network system for disaster resilience

Recently, there are many disasters related earthquakes and tsunamis in the world, for example, the 2011 off Tohoku and 2018 Palu Indonesia. These sources are located in the sea, therefore it is important to utilize data of seafloor observations for disaster resilience. We have considered how to use real-time data by oceanfloor network systems like the Dense Oceanfloor Network system for Earthquakes and Tsunamis (DONET) to reduce these damages. We have two strategies, which are monitoring crustal activities using statistical technique for long term evaluation of huge earthquakes with a magnitude over eight, and real-time tsunami prediction considering tsunami propagation. DONET has ability to determine focus of small earthquakes with a magnitude 0.8 and we understand in situ stress field around the subduction zone using temporal- spatial seismicity map. We consider that real-time tsunami prediction based on the propagation is effective, because it is easy to reflect the real-time amplitude of the seafloor pressure data of coming tsunami to the coast on the prediction. It is useful to use it for tsunami by seafloor landslide. Convenient forward tsunami modeling is helpful for far field tsunami. In this presentation, we introduce our attempt using the oceanfloor network system for disaster prevention.

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