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Ocean bottom seismic and tsunami network along the Japan Trench

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Huge tsunami, which was generated by the 2011 off the Pacific Coast of Tohoku Earthquake of M9 subduction zone earthquake, attacked the coastal areas in the north-eastern Japan and gave severe causalities and property damages in the areas. The present tsunami warning system, based on land seismic observation data, did not work effectively in the case of the M9 earthquake. It is strongly acknowledged that marine observation data is necessary to make tsunami height estimation more accurately. Therefore, new ocean bottom observation project has started in 2011 that advances the countermeasures against earthquake and tsunami disaster related to subduction zone earthquake and outer rise earthquake around Japan Trench and Chishima Trench. A large scale ocean bottom cabled observation network is scheduled to be deployed around Japan Trench and Chishima Trench by 2015. The network is consisted of 154 ocean bottom observation stations. Ocean bottom fiber optic cables, about 5100 km in total length, connect the stations to land. Observation stations with tsunami meters and seismometers will be placed on the seafloor off Hokkaido, off Tohoku and off Kanto, in a spacing of about 30 km almost in the direction of East-West (perpendicular to the trench axis) and in a spacing of about 50 - 60 km almost in the direction of North-South (parallel to the trench axis).

Keywords: Ocean bottom cable, Realtime observation, the Japan Trench, Tsunami monitoring, Ocean bottom seismic observation, Warnimg