[EE] Evening Poster | S (Solid Earth Sciences) | S-IT Science of the Earth's Interior & Tectonophysics

[S-IT24]Probing the Earth's interior with geophysical observation on seafloor

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Most important sites for plate tectonics and mantle dynamics studies (e.g., subduction zones, spreading ridges, and hot spots) are located in oceanic regions. The coverage of seismic stations is concentrated in land areas, which cover only one-third of Earth's surface. Since 1990s, technology for seafloor geophysical instruments to explore deep earth structure have been advanced, such as broadband ocean bottom seismographs (BBOBSs), ocean bottom electro-magnetometers (OBEMs), and pressure gauge, because observation network in oceanic regions is essential for major breakthroughs in Earth sciences. Technical advance in the instruments including cabled realtime seafloor networks have made the seafloor observation more common and reliable, which promotes a number of seafloor observations, both temporary and permanent networks, in the last decade. We call for papers on recent scientific results from such observation projects, including those on crust and mantle structure beneath subduction zones, hot spots, Large Igneous Provinces, and spreading ridges. Technical advances for observation in oceanic regions, including seafloor instruments and drifting float, proposals and plans for innovative observations are also welcome.

[SIT24-P01]The OJP array: seismological and electromagnetic observation on seafloor and islands in the Ontong Java Plateau

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We conducted geophysical observations on the Ontong Java Plateau (OJP) and its vicinity from late 2014 to early 2017 to determine the underlying crust and upper mantle structure beneath the OJP. The OJP was emplaced in the present South Pacific region at 120 and 90 Ma by massive volcanism, but the causes of this volcanism are still debated. Previous studies have suggested that seismic velocity beneath the OJP is anomalously slow, thus could represent thermal or chemical remnants of the volcanism. However, the seismic resolution of the slow anomalies is poor due to lack of seafloor observations. The observation network named “the OJP array” is composed of seafloor and island stations. The seafloor stations have broadband ocean bottom seismographs and ocean bottom electromagnetometers. The island stations have broadband seismographs. The OJP array is designed to obtain seismic and electrical conductivity structures of the mantle beneath the OJP with better

resolution than that of previous studies. Joint analysis and interpretation of seismological and electromagnetic data should provide tight constraints to thermal and chemical structures and clarify the cause of OJP emplacement.