

SSS023-04

会場: 302

時間: 5月25日14:40-14:55

茨城・房総半島沖の地震波速度構造

Seismic Structure around the off Ibaraki and Boso Peninsula

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The Japan Trench is one of the most active seismogenic zone in the world. In the off Ibaraki region, repeating large earthquakes with a fairly constant size (M7) have occurred every 20 years. It has been reported that plate geometry may affect rupture propagation [Mochizuki et al., 2008]. Moreover, in the off Boso Peninsula region, the Philippine Sea plate subducts from Sagami Trough. A detailed deep seismic structure and geometry of Philippine Sea and Pacific plate are not still obtained due to its complicated structure. In September 2008, we conducted seismic survey using 81 Ocean Bottom Seismometers and controlled sources. In the seismic survey, we used four 25-liters airguns and explosives whose charge size was 40 kg as controlled sources. We used trial-and-error method to obtain a velocity model, which can explain observed travel times of first and later arrivals. The sedimentary section can be divided into two layers based on velocity. The upper and lower crust of the landward plate have large lateral heterogeneity. The depth to the plate boundary between the landward plate and the Pacific plate was estimated to be about 16-22 km by using travel times of reflected waves. Beneath the southern part of profile, the high velocity layer is found in the landward crust. It may corresponds to the subducting Philippine Sea Plate.

キーワード: 地殻構造, 房総半島沖, 海底地震

Keywords: crustal structure, off Boso Peninsula, marine seismology