

Complex aftershock distribution of the 2004 Off Kii-Peninsula earthquake using ocean bottom seismometers

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The 2004 Off Kii-Peninsula earthquake occurred on September 5, 2004. Knowing the precise aftershock distribution is important for understanding the mechanism of this earthquake. However, the hypocenter was located more than 100 km offshore from the land observation network. In the three days after the main shock, we started ocean bottom seismometer (OBS) observation in order to obtain a high resolution aftershock distribution. A seismic velocity structure for the hypocenter location was obtained from results of previous refraction study, and the station corrections were adopted to determine accurate locations. The reliable hypocenters were limited within the network of five OBSs. The aftershocks have depth of about 5-25 km, and they are divided into two clusters in the depth direction. It is difficult to image the fault plane of the main shock from those results. However, it is inferred that the main shock also has a depth of 5-25 km. It is clarified that intra-plate earthquakes of the thrust type existed near the trench region.