

## Off the Kii Peninsula Shallow Low Frequency Earthquake in 2004 revealed by Ocean Bottom Seismometer

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The 2004 off the Kii Peninsula earthquakes (Mj7.1, 7.4) occurred near the Nankai trough axis, southeast off the Kii Peninsula, Japan, on September 5, 2004. After the earthquakes, the Meteorological Research Institute conducted OBS observation to examine the aftershock distribution accurately. Although the analysis was limited to hypocenter relocation of "ordinary aftershocks", no analysis was done for slow events. In this study, it is shown that many low-frequency earthquakes (LFEs) occurred in "ordinary aftershocks" from the detailed inspection of our observation. During the observation period, the frequency of LFE gradually decreased. Since P- and S-arrival times are unclear, it is difficult to determine the distribution of the hypocenter accurately. However, by using the Amplitude Source Location (ASL; Battaglia and Aki, 2003), the LFEs are located between a splay fault and trench axis. The 2004 OBS stations are located east of the DONET, and many LFEs are detected in the 2004 OBS network. In addition, there are many very-low-frequency events (VLFES) in the F-net waveforms with very-low-frequency band-pass filter (0.02 - 0.05 Hz) during the observation period. We found that the identified LFEs were associated with VLFES since their amplitudes seemed to be correlated. This means that the LFEs and VLFES show the same phenomenon. Our observations might contribute to reveal the relationship between ordinary aftershocks, slow-events, and megathrust events such as Nankai trough earthquake.

Keywords: LFE, OBS, 2004 off the Kii Peninsula earthquakes