

SSS026-P08

Room:Convention Hall

Time:May 27 14:00-16:30

Observation of low frequency seismic events in the Nankai Trough region by broadband ocean bottom seismometers

Kazuo Nakahigashi^{1*}, Yuya Machida¹, Takehi Isse¹, Tomoaki Yamada¹, Kimihiro Mochizuki¹, Hajime Shiobara¹, Masanao Shinohara¹, Toshihiko Kanazawa¹, Kenji Uehira²

¹ERI, ²SEVO

Recently, low-frequency earthquakes and slow slip events are recognized in deep region of the plate boundary between the landward plate and the subducting Philippine plate below the southwestern Japan [e.g., Obara, 2002; Kawasaki, 2004]. The very low frequency earthquakes (VLFs) occurring close to the Nankai Trough are also reported by using the broadband seismograph data obtained in the land area [e.g., Obara and Ito, 2005]. Such unusual seismic events might reflect coupling properties at the plate boundary. It is important to understand such events for consideration of the subduction process and estimation of generation mechanism of the interplate earthquake in the Nankai Trough. Because the VLFs in the Nankai Trough region occurred far from land seismic stations, observations using broadband Ocean Bottom Seismometers (BBOBSs) near the trough are needed to understand such VLFE activities.

In December 2008, we started an observation campaign off Kii Peninsula. For the first observation, three BBOBSs with Guralp CMG-3T sensors, and six 1Hz type Long-term OBSs were used. The spatial intervals among OBSs were about 20km. In 2009, we recovered them. The data recorded by each OBS were merged and continuous records were reproduced. VLFs with predominant frequency of 0.01-0.1 Hz were found from continuous records in March 2009. The occurrence of the VLFE has a temporal change. In addition, seismicity of ordinary micro-earthquakes became high simultaneously during the VLFE activities. In November 2009, we started the second observation off Cape Muroto, the westward of the first observation, using three BBOBSs with pressure gauge, and five Long-term OBSs. The subducting seamount was found by an OBS survey in this region [Kodaira et al., 2000]. In February 2011, all the OBS were retrieved, and we deployed five BBOBSs in the same region to continue the observation. In this presentation, we will report the new analysis results using the seismic and the pressure gauge data.