

Relationship between coupling and tremor rate in the region adjacent to the Bungo Channel SSE area

*Tadafumi Ochi¹, Naoto Takeda¹

1. Institute of Earthquake and Volcano Geology, Geological Survey of Japan, The National Institute of Advanced Industrial Science and Technology

In the Bungo Channel area, southwestern Japan, repeating long-term slow slip events (SSE) occur every several years. The recent events before 2011 occurred in 1997, 2003 and 2010 in almost the same area. Along the Nankai subduction zone, which contains the Bungo Channel area, deep low-frequency tremor activities occur on the subducting plate interface. Hirose et al. (Science, 2010) shows the relationship between the tremor and SSE that the tremor in the northern part of the SSE area was activated by the SSE.

Ochi (EPSL, 2015) analyzed daily GNSS coordinates from 1997.0 to 2011.0 and inferred temporal evolution of the interplate coupling and long-term SSE. According to the results, the interplate coupling in the region on the east of the 2010 Bungo Channel SSE area strengthened in synchronization with the SSE. On the other hand, AIST makes the tremor catalog in this area after July 2008 using envelope correlation method (Maeda and Obara, JGR, 2009). According to the tremor catalog, the tremor active rate in this region increased after 2011 when the long-term SSE terminated. The increased active rate continues around mid-2014 and decreased to the level that was almost the same as before 2011. Because the long-term SSE occurred again after mid-2014 (GSI, Report of CCEP, 2015), decrease of the tremor active rate seems to coincide with the long-term SSE in the adjacent area. We will discuss the relationship between coupling rate after 2011 and the tremor active rate in this region.

Keywords: Slow earthquake, deep low-frequency tremor, interplate coupling