日向灘における浅部超低周波地震の自動検出
The detection of shallow very low frequency earthquake in Hyuga-nada

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GPS continuous observation system of Geographical Survey Institute, Hi-net and F-net of National Research Institute for Earth Science and Disaster Prevention have been nationally developed. Thanks to these seismic network systems that “Slow earthquake” exceling normal earthquake on a long period is discovered in southwest Japan for these 10 years [e.g. Obara, 2002]. The slow earthquake is a generic name of the different multiple phenomena of the time scales. These phenomena are classified by frequency, e.g. Slow Slip Event (SSE), Non volcanic tremor (tremor), Very Low Frequency earthquake (VLF) [Ito et al, 2007]. Tremor and VLF are observed due to earthquake vibration and these signals are in 2-8Hz and 0.02-0.05Hz respectively [Ito et al, 2007]. It is shown that tremor and VLF are activated by SSE and the relationship with the giant earthquake is pointed out. In Hyuga-nada that is located in the west end of an area that is expected to have a major earthquake along Nankai trough, understanding the seismic activity including the slow earthquake and exactly sliding properties of plate are the purpose of this study.
The analysis in this study is carried out on data between September 1, 2006 and September 30, 2006 in the same area as that of Asano et al, [2014]. It is supposed that shallow VLFs are activated by SSE, so the analysis is carried out in a period when tremor are used occurred frequently, and also before and after the period. 21 points observation data of F-net in west japan are used. The data of each observation point are comprised of horizontal north and south direction east and west direction and up-and-down motion.
The result of analysis shows that shallow VLF occurred in the area where asperity of the regular earthquake did not exist. This result indicates that the frictional force at the plate boundary shows different behavior by depth. Similar to a prior study, this study shows that after the shallow VLF’s migration towards the east, the migration to the opposite direction started. Thus, the migration direction of the shallow VLF is almost same in the different period. This result suggests that destruction origin and destruction spread direction of SSE considered to activate the activity of VLF are approximately same irrespective of duration period. In addition, the result shows the possibility that in the shallower part (shallower than 15km) of study area where the regular earthquakes do not occur, the unknown slow slip event occurs and activates shallow VLFs.

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