S169-P002 **Room: Poster Session Hall** **Time: May 26**

Biannually Repeating Slow Slip Event in the Southern Ryukyu II

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Global Positioning System (GPS) enables us to detect fault motions too slow to radiate seismic waves, such as the repeating Slow Slip Events (SSE). They have been found in the Cascadia subduction zone, North America, and Nankai Trough, Southwest Japan, by the permanent GPS array. In the Sakishima Islands, southwestern end of the Ryukyu Arc, SSE a series of biannually repeating SSE was found by Yarai et al. (2004). Kataoka and Heki (2007) discussed the time constants, amplitudes, and recurrence intervals, of the individual SSE, using six GPS points of GPS Earth Observation Network System (GEONET) in the five islands from 1997 to 2007.

At the Ryukyu Trench, SW Japan, the Philippine Sea Plate subducts toward NW. The overriding Ryukyu Arc is composed of three nearly rigid blocks with little interseismic elastic deformation (Nishimura et al., 2004). The South Ryukyu Block, the westernmost part of Japan, is known for extremely fast plate convergence (˜12 cm/yr) by the NW-ward subduction of the Philippine Sea Plate and the SW-ward movement of the arc due to active opening of the Okinawa Trough. This segment of the plate interface is decoupled, i.e. large interplate thrust events do not occur. The largest horizontal/vertical displacements of SSEs are seen at Hateruma/Iriomote. The slow and continuous interseismic WNW-ward motion seems to be recovered by the reverse motion associated with the biannual SSE. We estimated the time series of the variance of SSE as a formulation A[1-exp(-t/T)], where A is the amplitude, t is the time, and T is the time constant, respectively. In these events, T ranged between 0.10 and 0.15 years. Similar patterns are found at Ishigaki but are not found at Tarama and Yonaguni. The time recurrence has a strong peak of about 6 months. The amounts of displacements have significant correlation with the time lengths until the next events, suggesting the time-predictable characteristics of the events. These SSEs are the first one found in an area where no large thrust events occur at seismogenic depths.

In this study, from the crustal movement data of the region investigated by Kataoka and Heki (2007), we estimate the fault parameters of the individual SSE using the model by Okada (1985). Then we will quantitatively address issues such as the correlation between recurrence intervals and fault slips, compatibility with the plate convergence rates. We will compare our case with those in Cascadia, Nankai, and so on, in various viewpoints including the occurrence times, recurrence intervals, relationships with plate convergence rates, etc.. We will also study movements of GPS points very close to trenches, e.g. the Ryukyu Trench, and the Izu-Mariana Trench, and will look for similar occurrences of repeating SSE.

References

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