

Seminar Abstract

Title: Quantification of slow earthquake activities & Frictionally heterogeneous fault model applied to the regular seismicity

Speaker: Suguru Yabe (JAMSTEC)

Abstract

Slow earthquakes have been documented in various tectonic settings including subduction zones and transform faults. Commonalities and differences in slow earthquake activities at various locations would be a clue to understand the physical mechanism of slow earthquakes and effects of tectonic environments on the seismicity. In order to compare slow earthquake activities in various locations, I have quantified slow earthquake activities in several subduction zones. In this seminar, I review my previous studies quantifying the scaled energy of slow earthquake (Yabe & Ide, 2014, JGR; Ide & Yabe, 2014, GRL; Yabe et al., submitted) and the tidal sensitivity of tectonic tremors (Yabe et al., 2015, JGR).

The frictionally heterogeneous fault model has been proposed as the source model of slow earthquake. I have applied this model to regular seismicity to explain the nature of foreshocks and aftershocks. Foreshocks are sometimes reported before large earthquakes, though not always. This model can simulate both active and inactive foreshock sequences according to the frictional heterogeneity (Yabe & Ide, 2018, PEPS). This model is also capable of explaining aftershocks occurring near the edge of, but within the mainshock rupture area by considering the along-fault variations of the frictional heterogeneity (Yabe & Ide, 2018, GRL).