

STT057-P01

Room:Convention Hall

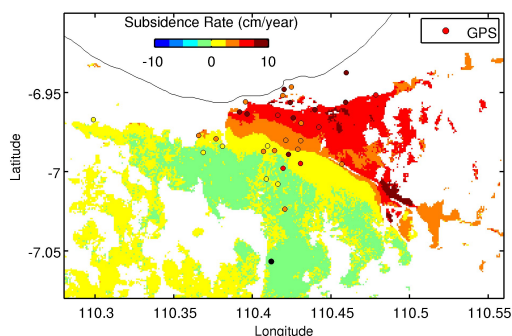
Time:May 24 16:15-18:45

Measurement of land subsidence at Semarang, Indonesia, using InSAR time-series analysis

Mika Arimoto^{1*}, Yo Fukushima¹, Youichiro Takada¹, Manabu Hashimoto¹

¹DPRI, Kyoto Univ.

It has been reported that a part of the city of Semarang, Indonesia, suffers from large ground subsidence (Abidin et al., 2010). To investigate the subsidence in detail, we performed an InSAR time-series analysis using ALOS/PALSAR data acquired from both ascending and descending orbits. We used 23 SAR data (14 ascending and 9 descending images, respectively). We produced interferograms for the pairs having a perpendicular baseline of smaller than 1200 m, and further selected the interferograms whose mean coherence was 0.4 or higher, resulting in 68 small-baseline interferograms (49 ascending and 19 descending pairs, respectively). We solved for the temporal evolution of displacements with the time steps defined by the SAR acquisition dates using unwrapped interferograms, and finally converted the mean velocities along the two line-of-sight directions into horizontal and quasi-vertical components. Our results indicate that the northern half (seaside) of Semarang is rapidly subsiding (more than 5 cm/year in most parts), whereas the southern half is stable. The maximum subsidence of 10.4 cm/year is obtained in an east part of the city, which had not been identified by the conventional surveys.



Keywords: Semarang, Land Subsidence, InSAR time series analysis