



Cities on Volcanoes 9
November 20-25, 2016
Puerto Varas, Chile

'Understanding volcanoes and society: the key for risk mitigation'



Monitoring volcanic unrest in Kyushu, Japan with time series InSAR

Zhang Yunjun, Falk Amelung, Yosuke Aoki

¹. Rosenstiel School of Marine and Atmospheric Science, University of Miami;

². Earthquake Research Institute, University of Tokyo

Keywords: Kyushu, InSAR, time series, deformation

Volcanoes deform in various ways: pre-eruptive uplift due to pressurization caused by magma accumulation, co-eruptive subsidence and/or followed by post-eruptive deflation due to the cooling of magma reservoir. A key challenge for volcanological science and hazard reduction and management is that only a fraction of the world's volcanoes are effectively monitored. Kyushu island in SW Japan has the potential of a catastrophic eruption that would severely disrupt daily life of more than 110 million people. We conduct an InSAR survey over Kyushu covering 40,000 km² with a decade of L-band SAR observation (1992-1998 from JERS, 2006-2011 from ALOS) using over 800 images. Ground deformation signals are found on/near most volcanoes with several styles of deforming behavior. With the dense spatial measurement from InSAR and times series analysis, these newly found signals provide insight on the volcanic deformation behavior individually and their interactions in between.