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## Time-Predictability of episodic deformations of Asama Volcano

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Asama volcano nested in the central part of Japan is a highly active volcano repeating eruptions since prehistoric period. The recent activity started in 2004 after 20 year long dormancy followed by further eruptions in 2008 and 2009. Distance change of a baseline spanning over the volcano edifice derived from GPS continuous measurements operated by the Geospatial Information Authority of Japan (GEONET) shows a series of repeating episodes of inflation and deflation. During the inflation period volcanic activities near the surface (seismicity, fumarole and SO<sub>2</sub> emission, etc. ) become culminating (Murakami, 2006). All the eruptions after 2004 are confirmed to have happened during inflation period. A suggested magmatic model is that episodic intrusions of magma from the depth to a shallow reservoir are driving volcanic activity near the surface. To the present no apparent periodicity is confirmed in the temporal evolution of the ground deformation. In this presentation, we discuss the possibility of prediction of the beginning of a new episode, based on a certain regularity of the deformation's temporal evolution.

It is noteworthy that the temporal change of the baseline length is a chain of successive similar episodes. Each episode shares the similarity in shape but not in magnitude. More importantly the starting point of each episode drops on a single line suggesting a time-predictability following the same discussion in case of earthquake predictability.

In this presentation we scrutinize the hypothesis of the predictability by careful comparison between deformation and other volcanological data sets. We also discuss possible models for the mechanism.

Keywords: Volcanism, Ground Deformation, GPS, Predictability, Asama Volcano