

## Volcanic deformations around Mt. Meakan detected by GPS observations after the 2008 eruption

WADA, Sayaka<sup>1\*</sup> ; MORI, Hitoshi, Y.<sup>1</sup>

<sup>1</sup>Institute of Seismology and Volcanology, Graduate School of science, Hokkaido university

Mt. Meakan sits the eastern Hokkaido, Japan. The newest magmatic eruption occurred about 1000 years ago. After that eruption, phreatic eruptions happened sporadically. Recently, small phreatic eruptions occurred in 2006 and 2008. From the GPS data observed by JMA and Geological research department of Hokkaido, they didn't find the volcanic deformation near the central crater. In this study, we used the GPS data to discuss the process of magma movement beneath Mt. Meakan.

The GPS observations around Mt. Meakan were started in 2006, there are 8 stations. The 2 of them are continuous stations. Each observation period was a few days to several weeks. These data are analysed with the continuous GPS data of JMA and GSI. For data analysis, we use the program "RTKPOST". The GEONET station RKB(020873) is chosen for the reference station. RKB station is far enough from the volcano to be unaffected by the volcanic deformation of Mt. Meakan. Using the data at four GEONET stations surrounding our network, we removed the tectonic movements and the coseismic deformations. The results show the expansive movement after 2008 eruption around Mt. Meakan. Similar expansive deformation were confirmed from continuous data at GEONET station, AKN2. The deformation started on October 2008, and continued to June 2009 at AKN2. The deformation at AKN2 came up to about 2cm. We tried to estimate the pressure source of this deformation with an inversion method. We used the models of a point pressure source (Mogi, 1958) and an open crack source (Okada, 1985). The best fit model is a point pressure source located in about 4km to the south-east and 6km in depth, and its volume change is  $5 \times 10^6 \text{m}^3$ . This model corresponds with the data of InSAR. In our presentation, we discuss these results in detail.

Acknowledgements: We want to thank Mr. Okuyama. His support were invaluable. We wish to thank JMA to give the GPS data. We used the GNSS data observed by GSI. We also used the program RTKPOST developed by Mr. Takasu, the MATLAB program okada85.m constructed by Mr. Francois Beauducel, invmogi.sa.m by Mr. Nico Fournier. We would like to express my gratitude to them.

Keywords: volcanic deformation, GPS, Mt. Meakan