

Campaign GPS for detection of the volcanic deformation on and around Mt.Meakan and Mt.Tokachi

WADA, Sayaka^{1*} ; MORI, Hitoshi, Y.¹ ; OKUYAMA, Satoshi¹

¹Hokkaido University, Institute of Seismology and Volcanology

Mt. Meakan is an active volcano located in the eastern Hokkaido, Japan. It made phreatic eruptions in 1996, 1998, 2006 and 2008. Mt. Tokachi is one of the famous active volcanoes sits in the central Hokkaido. In the recent 100 years, three major magmatic eruptions took place in 1926, 1962 and 1988-1989.

In this presentation, we will discuss the results of the campaign GPS on and around Mt. Meakan and Mt. Tokachi. Each broad area GPS observation had begun at Mt. Meakan in 2006 and at Mt. Tokachi in 2007, respectively. The campaign GPS observations have made for several days to weeks in each year for Mt. Meakan at 8 sites, and that for Mt. Tokachi at 12 sites.

We used the data of our campaign observations after the 2008 eruption for Mt. Meakan and since 2007 for Mt. Tokachi. We also used the data of several sites operated by JMA (Japan Meteorological Agency) at the same time. Analyzing these data, annual movements at those points were estimated. These movements included deformations of the regional tectonic moving, and of the coseismic step of Tohoku-oki earthquake on March 11, 2011. For making corrections of these non-volcanic deformations, we used the continuous data of GEONET sites by Geospatial Information Authority of Japan (GSI) around the volcanoes. Using the GEONET data from 2007 to 2013, the regional tectonic and the seismic deformations were estimated by linear approximation in space. To elucidate the volcanic deformation, seasonal variations should be taken into consideration. The discussion about estimated volcanic deformation will be made, with the corrections about the regional deformation, the coseismic step and the after slip of 2011 Tohoku-oki earthquake, and the seasonal change.

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Keywords: campaign GPS observation, volcanic crustal deformation, Mt. Tokachi, Mt. Meakan