

Recent volcanic deformations observed by campaign GPS on and around Mt.Tokachi and Mt.Meakan

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

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

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

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