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Local Deformation at Mt. Tokachi detected by PALSAR Interferometry

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Mt. Tokachi is one of the most active volcanoes in Japan, which is categorized as rank A. The major eruptive events in the last 100 years took place in 1926 (Taisho-Funka), 1962, and 1988-89. Small eruption is also observed in 2004. The observation of volcanic fume and seismicity show low activity in recent years, however, GPS repeated observation around the craters shows obvious baseline extension since 2006 (Sapporo District Meteorological Observatory, 2009). SAR Interferometric analysis using PALSAR data acquired from descending orbit also shows local upheaval pattern between 2006 and 2008 (Takahashi et al., 2008). Estimated deformation source is at the very shallow depth under the Taisho Crater. The baseline extension observed by GPS still continues with same rate in 2009, indicating that the deformation source is still active. We analyzed PALSAR data observed from 2006 to 2009 and confirmed that the deformation pattern which is reported by the previous studies can be seen in the interferometric pair which are observed after 2008. We also found the line-of-sight shortening in ascending orbit pairs. This is the direct proof of upheaval. We will also show the result of two-dimensional analysis using both ascending and descending pairs and estimated deformation source in the presentation.

Keywords: SAR, Interferometry, Volcano, Mt. Tokachi