
SAR Differential Interferometric Time Series analysis over the Klyuchevskoy group of volcanoes in Kamchatka

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Abstract

We present a preliminary results of SAR Differential Interferometric Time Series analysis over the area of the Klyuchevskoy group of volcanoes (KVG) and associated with recent subduction related earthquakes nearby. The KVG is located in subduction zone where the Kurile-Kamchatka and the Aleutian trench encontres at almost right angle. The cluster contains 12 volcanoes with very different compositions and eruption styles and include Tolbachik, Bezymianny, and Klyuchevskoy, all of which active in past years. Little is known about magma chambers underneath, possibly locating between 1-6 km and at > 10 km depth. The unique and very active tectonic of this region makes it of particular interest for studying volcanism in a subduction zone. An international collaboration within the framework of the Kiss project installed a temporary network of 83 seismographs between August 2015 and July 2016, recording many shocks and volcanic tremors and conducting the first geophysical survey of the entire area. In this challenging contest, we exploit the potential of multi-temporal SAR interferometry to evaluate surface deformations induced by the volcano activities. A dataset of 22 wide-swath Alos-2 ScanSAR images from a descending orbit, acquired between 8th of September 2014 and 22sd of January 2018, have been analysed and presented in this paper.

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