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Exupery Volcano Fast Response System - ground based deformation monitoring

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In the framework of the GEOTECHNOLOGIEN program for Natural Hazard Mitigation several German research institutes collaborate in the 'Exupéry' project. Goal of this project is the development of a Volcano Fast Response System (VFRS) which can be quickly deployed at any volcano in case of a volcanic crisis or unrest. The core of the VFRS consists of well-known volcanic monitoring techniques, both space and ground based, to observe seismicity, ground deformation, gas emissions and thermal activity. All data is processed in near real-time and stored in a central data base.
The Institute of Physical Geodesy designed within the Exupéry project a hybrid sensor system to monitor geometric deformations of the volcano surface. The system consist of the ground-based Synthetic Aperture Radar (SAR) instrument IBIS-L, three single-frequency GPS receivers and two dual-frequency GPS receivers. The data was automatically processed and evaluated in near real-time.
We will present the validation experiment at an active volcano. The monitoring system was installed for 5 months at the crater lake of Mt. Fogo on Sao Miguel Island, Azores and the proof of concept observations were made. The setup of the experiment and the results for displacements and resolution will be shown.