Integrating ALOS-2 and Sentinel-1 InSAR data for systematic volcano deformation monitoring

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The recent launches of the Sentinel-1 and ALOS-2 satellites provide a wealth of new Interferometric Synthetic Aperture Radar (InSAR) data for Earth observation purposes. We exploit these data for volcano deformation monitoring with a particular focus on Latin America, which is nominated as a priority target area under the Committee on Earth Observation Satellites volcano pilot program. By conducting an integrated survey that employs both Sentinel-1 and ALOS-2 we are able to achieve previously unprecedented levels of spatial and temporal resolution and combat decorrelation arising from vegetation cover. Latin America is an ideal target region as it has a diversity of geographic volcano locations (e.g., dense rainforest to high-altitude deserts), as well as abundant and varied volcanic activity. The numerous local volcano observatories can also directly benefit from this additional InSAR data when integrating it alongside ground-based observations. To further facilitate this impact we are directing our data outputs to a global volcano deformation database in near-real-time to provide a first-order access point for observatory staff and research scientists in need of satellite-derived ground-deformation results. We will draw upon a selection of case studies within Latin America to demonstrate our approach and how it can enhance volcano monitoring and eruption forecasting efforts.