

REDUCING VULNERABILITY FROM LATIN AMERICAN VOLCANOES THROUGH ENHANCED MONITORING EFFORTS

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THEME: We have been invited to submit to the special session ‘Int. Initiatives for EO-based Disaster and Risk Management’ under the theme ‘Disasters’.

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ABSTRACT:

Satellite observations are a cost effective tool for monitoring large numbers of volcanoes in areas with scarce instrumentation or difficult access. In the context of the 2012 Santorini Report on satellite Earth Observation and Geohazards, CEOS (Committee on Earth Observation Satellites) has developed a pilot project to showcase remote sensing for volcano hazard mitigation and response. Specifically, the regional study of the pilot aims to demonstrate the feasibility of global volcano monitoring of Holocene volcanoes by undertaking regional monitoring of volcanic arcs in Latin America, using satellite earth observations data to track deformation as well as gas, ash, and thermal emissions. Latin America was chosen because the volcanoes are situated in a diversity of environments, from the deserts of the high Andes, to tropical rainforests of central America and volcanic islands of the Caribbean, providing a good test of the capabilities of different types of satellite data under different conditions; volcanic activity is abundant and monitoring agencies in Latin American countries would directly benefit from the resources that this pilot will make available. In other words, the scope of the regional study is to demonstrate how Earth observation data can help to identify volcanoes that may become active in the future as well as track eruptive activity that may impact populations and infrastructure on the ground and in the air, ultimately leading to improved targeting for permanent satellite-based observations and in-situ volcanic monitoring efforts. The pilot project is possible thanks to data provided for free by the various space agencies (ASI, CNES, CSA, DLR, ESA, JAXA, NASA). In this paper, we focus on preliminary ground deformation results using SAR satellites for volcanoes with recent unrest in the Northern and Southern Andes as well as the Caribbean. We will present results from Cordon Caulle, Chile; Tungurahua, Ecuador; Cotopaxi, Ecuador; Masaya, Nicaragua and Soufriere Hills, Montserrat and from the recent activity at Chiles-Cerro Negro on the Ecuador-Colombia border.

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