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Contribution of CTBTO Infrasound Data to Volcano Monitoring

ARISE (Atmospheric dynamics Research Infrastructure in Europe) project seeks to improve the understanding of the dynamics of the atmosphere using complementary sounding methods (infrasound, LIDAR and airglow measurements). The project involves more than 40 institutes, including the CTBTO which is the main provider of infrasound data and Toulouse Volcanic Ash Advisory Centre (VAAC) which is part of the ARISE Advisory Committee. One of the components of ARISE project comprises the monitoring of extreme natural events. Powerful volcanic eruptions in Europe and African regions may cause disturbances in the different layers of the atmosphere. These fluctuations are measured by ground stations and analyzed in order to find out parametric data that best characterize the atmospheric models and the volcanic source. ARISE provides continuity with the collaborative work that was originally undertaken by CTBTO and Toulouse VAAC in 2008 to assess the usefulness of infrasonic data to International Airways Volcano Watch. As a new asset, ARISE introduces the parameterization of the atmosphere dynamics that drives the infrasound wave propagation. It is expected that the proposed modeling approach helps implement near real-time "significant" eruption notification system for the VAACs to prevent eruption disasters and mitigate the impact of ash clouds on aviation.

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