



Ground- and space-based observations of volcanic degassing during the 2010 Eyjafjalla eruption.

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The ash-rich Eyjafjalla volcano eruption that occurred during April-May 2010 has been recorded by several ground- and space-based instruments and the wealth of data collected is now under analysis.

We focus here on comparing ground-based DOAS measurements of SO₂ flux with data from the Spin Enhanced Visible and Infrared Imager (SEVIRI) Thermal InfraRed (TIR) instrument, which offers the possibility of simultaneous ash and SO₂ retrievals. The reconstruction of ash and SO₂ fluxes emitted during the eruption from satellite data can be carried out with the study of the volcanic clouds injected into the atmosphere, collected by the multispectral imager and quantified as retrieval maps. The frequency of the flux estimated from satellite data is in the order of minutes, depending on the wind speed and on the given sensor resolution at ground.

The combination of volcanic SO₂ and ash fluxes reconstructed from satellite data and ground-based measurements gathered during the eruption offers new tools for a better understanding of the volcanic eruption processes. The interference of ash on SO₂ measurements from both ground and space is also investigated.