



## Tracking far-range volcanogenic air pollution

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The 2014–15 Holuhraun lava-flood eruption of Bárðarbunga volcano (Iceland) emitted prodigious amounts of sulfur dioxide to the atmosphere. This eruption triggered a long-distance episode of air pollution in September 2014, the first event of this magnitude recorded in the modern era. We gathered a wealth of complementary observations from satellite sensors (OMI, IASI), ground-based remote sensing (lidar, sunphotometry, differential optical absorption spectroscopy) and ground-level air quality monitoring networks to characterize both the spatial distribution of volcanic SO<sub>2</sub> and aerosols as well as the dynamics of the planetary boundary layer. We take advantage of this exceptional panel of observations to quantitatively test our modeling ability to retrospectively simulate this event of far-range air pollution. Although the model captures the correct temporal dynamics, it fails to reproduce the intensity of the pollution. Paths worth exploring to get prepared to accurately forecast a future large-scale event of volcanogenic air pollution are discussed.