



Airborne Investigations and WRF -Model Calculations of the Bardarbunga-Holuhraun Eruption Plume

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The eruption in Holuhraun is the largest producer of lava and gas in Iceland since 1783. The Volcanic Ash Research (VAR) group organized an airborne measurement campaign including 10 flights, where emissions of SO₂ and ash concentrations were measured at the source and at the far plume. The highest SO₂ concentration at the source was nearly up to 100 mg/m³. This is an extremely high value, compared to other airborne campaigns and a contamination considered to cause serious illness by the Icelandic Directorate of Health. Volcanic ash consisted of very fine particles, but the concentration was low when compared to other recent eruptions. Measurements of the far plume showed that scavenging is very active. The dispersion was successfully modeled with the Weather Research and Forecast (WRF-chem) model and analysis using the model showed that a large amount of the sulphur was precipitated in the Icelandic highlands.