



## **The importance of high-resolution simulations of the flow over a volcano for prediction of ash in airspace far away from the ash source**

Haraldur Ólafsson (1,2,3), Hálfdán Ágústsson (1,2,4), Ólafur Rögnvaldsson (3,4), and Dubravka Rasol (5)

(1) Háskóli Íslands (Univ. of Iceland), Reykjavík, Iceland (haraldur68@gmail.com), (2) Veðurstofa Íslands (Icelandic Meteorol. Office), (3) Bergen School of Meteorology, Geophysical Institute, University of Bergen, Norway, (4) Reiknistofa í veðurfræði (Institute for Meteorological Research), Reykjavík, Iceland, (5) Croatian Meteorol. Service, Zagreb, Croatia

In 2010 and 2011 two volcanoes in Iceland, Eyjafjallajökull and Grímsvötn, emitted large quantities of ash into the atmosphere. Numerical prediction of ash concentrations led to widespread disruption of air traffic in the neighboring islands, Ireland and the UK as well as over continental Europe. Within a few days, the ash may travel thousands of kilometers and the numerical models used for calculations of the ash dispersion have much less spatial resolution than needed to simulate flow around individual volcanoes. In this study, the importance of high-resolution simulations of flow in the vicinity of an erupting volcano is illustrated with numerical simulations of atmospheric flow over S-Iceland and particle tracing at different heights in the atmosphere. In short, poor resolution leads to trajectories that are very different from trajectories based on a high-resolution description of the flow.