

## **Satellite Data Assimilation for Volcanic Ash Forecasts**

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Forecasts of volcanic ash clouds are produced by Volcanic Ash Advisory Centres (VAACs) as a service to aviation. Meteorological satellites provide information on a routine basis which can be used to deduce the vertically integrated volcanic ash content, e.g., based on the so-called band 4 minus 5 method. It would be desirable to continually assimilate such information in an atmospheric transport model used to forecast the movement of the ash cloud. While - at least under favourable circumstances - the satellite data give good information on the horizontal position and extension of the cloud, they don't give any information on the vertical ash distribution, which is crucial for the forecast. As normally wind speed and direction in the atmosphere vary with height, the movement of ash clouds should contain information on their vertical position. An inverse method has been drafted to reconstruct the vertical ash distribution from two subsequent horizontal distributions of the vertically integrated ash content. The method will be presented and preliminary results, probably from a Mount Spurr (Alaska) eruption, will be shown.