

Simple particle dispersion model visualized in 3D at KNMI

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At KNMI the volcanic eruption in Iceland in 2010 has triggered a study to predict and visualize the transport of ash particles. One of the promising methods was the combination of the Numerical Weather Prediction models (NWP) and a simple particle dispersion model. In this dispersion model particles are assigned with a specific mass. The ash density is affected by dry and wet deposition (gravitation/precipitation). We have studying this adapted particle advection method on HIRLAM and ECMWF models, which are used operationally at the KNMI. The large number of ash particles is traced in time in a forecast for 2 days in case of Hirlam and up to several days with ECMWF.

We use the advanced 3D visualization techniques to explore time development of the rather complicated spatial structures of the ash plume.

With our 3D application we can interactively compare the particle locations with the special volcanic ash RGB-images of the Meteosat 9 satellite. Although this work is still in progress the first results are promising and this rather straightforward approach gives a realistic visual impression about model prediction and the volcanic ash plume behavior.

We have prepared a 3D-demonstration for this conference.