



Simulations of atmospheric precipitation in the UK using MM5

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Precipitation aids the natural removal of atmospheric pollutants through the process of wet deposition. An accurate representation of atmospheric precipitation on a fine scale is therefore essential for estimating wet deposition of chemical species correctly.

In this work, simulations of atmospheric precipitation are performed using the Mesoscale Model Generation 5 (MM5) developed by the Pennsylvania State University and National Center for Atmospheric Research (PSU/NCAR).

The model domain covers the British Isles with a horizontal grid resolution of 5 x 5 km². A period covering June 1999 is selected for running the model. MM5 is initialized using the meteorological parameters from the ERA-40 re-analysis of the European Centre for Medium-Range Weather Forecasts (ECMWF).

A preliminary evaluation is conducted by comparing maps of hourly rainfall provided by MM5 versus radar images from the Met Office Nimrod database.

Modelled values in single grid cells are extracted and compared with rainfall observations from several meteorological stations across the country.

The comparison shows a good agreement between modelled values and measurements; more detailed tests will be performed in the near future to confirm or confute these preliminary results.