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Operational Ozone Forecasts for Austria

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The operational regional weather forecast model ALADIN of the central Institute for Meteorology and Geodynamics (ZAMG) is used to force a forecast system for tropospheric ozone over Europe. The operational ozone forecasts have been run for the summers 2005 and 2006 in cooperation with at the University of Natural Resources and Applied Life Sciences in Vienna (BOKU). The model calculations are compared to the observations of air quality stations in Austria.

ALADIN provides weather forecasts for 48 hours two times a day. The meteorological fields are combined with the results from an emission model and are used as input data for the simulation. The chemistry mechanism SAPRC99 is used.

A two grid nesting is used with a coarse grid over Europe and a finer grid for the core area covering Austria where the best possible spatial resolution of 9.6 km is achieved. The meteorological fields have a temporal resolution of 1 hour.

Based on the outcomes of the evaluation of the summer 2005 some modules have been developed. Some of the weak spots of the model were the boundary conditions as well as the total ozone column, which were set to constant values. Since the summer 2006 operational ozone column data from the ECMWF are integrated into the modelling system.

For the summer 2006 dynamical boundary conditions have been used instead of constant values. The method uses a mirroring of the boundary values from the forecast of the previous day. To show the performance of this approach additionally forecasts with constant boundary conditions were done.

The results of the two different model runs are compared with ozone observations and

forecasts of the previous summer and evaluated statistically.