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CAMx simulations with different resolutions in flatland and complex terrain for Austria

Marcus Hirtl (1) and Bernd C. Krüger (2)

(1) ZAMG, Environmental Meteorology, Vienna, Austria (marcus.hirtl@zamg.ac.at), (2) Institute of Meteorology, University of Natural Resources and Applied Life Sciences, Vienna, Austria

The regional weather forecast model ALADIN-Austria of the Central Institute for Meteorology and Geodynamics (ZAMG) is used in combination with the chemical transport model CAMx (www.camx.com) to conduct forecasts of gaseous and particulate air pollutants over Austria. The forecasts "which are done in cooperation with the University of Natural Resources and Applied Life Sciences in Vienna (BOKU)" are supported by the regional governments since 2005.

In the operational model version, the Air Quality model for Austria (AQA), uses the operational meteorological forecasts conducted with ALADIN which has a horizontal resolution of 9.7 km. Since 2008 the higher resolved ALARO is also available at the ZAMG. It has a horizontal resolution of 4.9 km and models the PBL with more vertical layers than ALADIN. ALARO also uses more complex algorithms to calculate precipitation, radiation and TKE. Another advantage of ALARO concerning the chemical modeling with CAMx is that additionally to the higher resolved meteorological forecasts it is possible to use finer emission inventories which are available for Austria.

From 2006 to 2007 a SODAR-RASS of the ZAMG was operated in the north-eastern Austrian flat lands (Kittsee) which provides a comprehensive data set to compare vertical profiles of wind and temperature with the model predictions.

Both models are used as meteorological driver for the chemical dispersion model CAMx. The results of predicted PM10 concentrations are compared to air quality measurements in Kittsee and also to observations in complex terrain for a selected episode.