



AQA-PM: Extension of the Air-Quality Model For Austria with Satellite based Particulate Matter Estimates

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Air quality is a key element for the well-being and quality of life of European citizens. Air pollution measurements and modeling tools are essential for assessment of air quality according to EU legislation. The responsibilities of ZAMG as the national weather service of Austria include the support of the federal states and the public in questions connected to the protection of the environment in the frame of advisory and counseling services as well as expert opinions. The Air Quality model for Austria (AQA) is operated at ZAMG in cooperation with the University of Natural Resources and Life Sciences in Vienna (BOKU) by order of the regional governments since 2005. AQA conducts daily forecasts of gaseous and particulate (PM10) air pollutants over Austria.

In the frame of the project AQA-PM (funded by FFG), satellite measurements of the Aerosol Optical Thickness (AOT) and ground-based PM10-measurements are combined to highly-resolved initial fields using regression- and assimilation techniques. For the model simulations WRF/Chem is used with a resolution of 3 km over the alpine region. Interfaces have been developed to account for the different measurements as input data. The available local emission inventories provided by the different Austrian regional governments were harmonized and used for the model simulations.

An episode in February 2010 is chosen for the model evaluation. During that month exceedances of PM10-thresholds occurred at many measurement stations of the Austrian network. Different model runs (only model/only ground stations assimilated/satellite and ground stations assimilated) are compared to the respective measurements.

The goal of this project is to improve the PM10-forecasts for Austria with the integration of satellite based measurements and to provide a comprehensive product-platform.