



Development and evaluation of the operational Air-Quality forecast model for Austria ALARO-CAMx

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The Air-Quality model for Austria (AQA) is operated at ZAMG in cooperation with the University of Natural Resources and Life Sciences (BOKU) in Vienna by order of the regional governments since 2005. The modeling system is currently a combination of the meteorological model ALARO and the photochemical dispersion model CAMx. Two modeling domains are used with the highest resolution (5 km) in the alpine region. Various extensions with external data sources have been conducted in the past to improve the daily forecasts of the model. Since 2013 O₃- and PM10-observations from the Austrian measurement network have been assimilated daily using optimum interpolation. Dynamic chemical boundary conditions are obtained from Air-Quality forecasts provided by ECMWF in the frame of MACC-II. Additionally the latest available high resolved emission inventories for Austria are combined with TNO and EMEP data. The biogenic emissions are provided by the SMOKE model.

ZAMG provides daily forecasts of O₃, PM10 and NO₂ to the regional governments of Austria. The evaluation of these forecasts is done for the summer 2013 with the main focus on the forecasts of ozone. The measurements of the Air-Quality stations are compared with the punctual forecasts at the sites of the station and with the area forecasts for every province of Austria.

In the summer of 2013, two heat waves occurred. The first very short heat wave was in June 2013. During this period one exceedance of the alert threshold value for ozone occurred. The second heat wave took place from the end of July to the mid of August. Due to very high temperatures (new temperature record for Austria measured in Bad Deutsch-Altenburg with 40.5°C) and long dryness episodes the information threshold value has been exceeded several times in the eastern regions of Austria. The alert threshold value has been exceeded one time in this period. For the evaluation, the results for the second heat wave episode in Eastern Austria will be discussed in detail.