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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 by order of the regional governments of Vienna, Lower Austria, and Burgenland since 2005. The emphasis of this modeling system is on predicting ozone peaks in the North-east Austrian flatlands. 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, e.g. data assimilation of O_3- and PM10-observations from the Austrian measurement network (with optimum interpolation method technique), MACC-II boundary conditions; combination of high resolved emission inventories for Austria with TNO and EMEP data. The biogenic emissions are provided by the SMOKE model. The model runs 2 times per day for a period of 48 hours.

ZAMG provides daily forecasts of O_3, PM10 and NO_2 to the regional governments of Austria. The evaluation of these forecasts is done for January to September 2015, with the main focus on the summer peaks of ozone. The measurements of the Air-Quality stations are compared with the punctual forecasts at the sites of the stations and the area forecasts for every province of Austria.

Several heat waves occurred between June and September 2015 (new temperature records for St. Pölten and Linz). During these periods the information threshold for ozone has been exceeded 19 times, mostly in the Eastern regions of Austria. Values above the alert threshold have been measured at some stations in Lower Austria and Vienna at the beginning of July. For the evaluation, the results for the periods with exceedances in Eastern Austria will be discussed in detail.