

EMEP4HR: TOWARDS URBAN SCALE MODELLING USING WRF AND EMEP MODELS

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Abstract: The goal of the urban scale part of the EMEP4HR project is to study the air quality over Croatian cities, namely Zagreb and Rijeka, at urban scales. Zagreb and Rijeka are two main industrial cities in Croatia so the development of new capability for the assessment of urban air quality in these two cities is very important. In this study we concentrate on the city of Zagreb. Numerical simulations of meteorological conditions over the wider Croatian area are performed using the WRF-ARW model with three nested domains at horizontal resolutions of 10, 3.33 and 1.11 km. The simulations at the largest domain are performed for the entire 2006 year, while at the two smaller domains simulations are made only for two months, March and August. The WRF meteorological fields are used as input to the EMEP chemical transport model simulations over the same areas and periods. The same chemical transport model version is used for all simulations and the same basic emissions are used at all resolutions. This study then focuses on the performance of the Unified EMEP model at different resolutions and the effect that the choice of meteorological model resolution has in the chemical transport model results.