Short-term forecast of air pollutants' concentrations over the central European part of Russia on the basis of COSMO-ART

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A state-of-the-art chemical-transport model COSMO-ART including a mesoscale nonhydrostatic meteorological model COSMO and a model of atmospheric chemistry ART is used to predict concentration of ozone and nitrogen dioxide over the centre of the European part of Russia under different synoptic conditions and with effect of biomass burning. Data on emissions prepared by TNO and concentrations calculated by MOZART are used as boundary and initial conditions in ART. To specify emissions in Moscow megapolis additionally, we started to develop a technology of assimilation of observed concentration. The results of the numerical experiments show that the model is able to simulate adequately the spatial-temporal features of concentration fields. It gives the perspectives to predict pollution of the Moscow megalopolis, taking into account natural and anthropogenic sources under real weather conditions, to carry out case study on assessing the impact of special pollution sources. We would like to thank Bernhard Vogel, Hieke Vogel and their colleagues as well as Christoph Knot for their kind assistance and regular consultations.