



Model study of the impact of updated European biogenic emission inventory from NatAir on air quality using Chimere chemistry-transport model

G. Curci (1), M. Beekmann (1), R. Vautard (2), G. Smittek (3), R. Steinbrecher (3), H. Pfeiffer (4), J. Theilke (4), R. Friedrich (4)

(1) Laboratoire Inter-Universitaire des Systèmes Atmosphériques, Créteil France, (2) Laboratoire de Sciences du Climat et de l'Environnement, Saclay, France, (3) Institut für Meteorologie und Klimaforschung, Atmosphärische Umweltforschung (IMK-IFU), Forschungszentrum, Karlsruhe, (4) Institut für Energiewirtschaft und Rationelle Energieanwendung (IER), Universität Stuttgart, Germany (Contact Email: G. Curci, curci@lisa.univ-paris12.fr)

In the frame of the FP6 NatAir project (Natural and Biogenic Emissions and Assessment of Impacts on Air Quality, <http://natair.ier.uni-stuttgart.de/>) the latest research results on all relevant pollutant emissions from natural and biogenic sources in Europe were integrated in a new high-resolution (10 km) inventory. The emission database covers four years (1997, 2000, 2001, 2003) with hourly temporal resolution. Detailed results will be presented how the implementation of this inventory into an European scale state of the art CTM CHIMERE (<http://euler.lmd.polytechnique.fr/chimere/>) improves the quality of the simulations (i.e. the scores of a comparison with EMEP ozone and PM measurements). Then the impact of biogenic and natural emissions on the chemical composition will be addressed, with a particular focus on biogenic VOC (BVOC) emissions (isoprene and terpene) provided by FZK-IMK/IFU. We find that the impact of BVOC on summer averages of daily ozone maxima can exceed 10 ppb for particular regions. Particularly interesting is Northern Italy, where elevated anthropogenic NO_x emissions interact non-linearly with increased biogenic VOC emissions yielding to severe pollution episodes. Implications for air-quality policy and management at the continental scale will also be discussed.