ORAL PRESENTATION

O-03. Allan Gross: Developments and tests of a new heterogeneous chemical mechanism Chem-NWP implemented in Enviro-HIRLAM

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The chemical mechanism is the central part in Regional Air Quality Models (RAQMs) since these are used to understand the effects anthropogenic and biogenic sources have on the complex chemical composition of the troposphere, which includes thousands of different chemical species and reactions. A large variety of lumped gas-phase chemical mechanisms have therefore been developed during the last couple of decades, examples of such mechanisms are EMEP, RACM, CB-IV), CB05 and SAPRC-99. For an online coupled model such as Enviro-HIRLAM the complexity of these lumped mechanisms is too high if it shall be used for chemical weather forecasts. Based on the newest atmospheric chemical knowledge a high condense heterogeneous chemical mechanism (Chem-NWP) has been developed and implemented in Enviro-HIRLAM (which also includes aerosol dynamics).

The purpose of this talk is to present the usability of Chem-NWP as atmospheric chemical mechanism. This will be done through 0D scenario studies and 3D model tests Enviro-HIRLAM over an area covering Northern-France, Belgium, Luxemburg and Southern-Germany. The area includes the metropolitan areas of both Paris and Rhine-Ruhr.