



The thermospheric NO_x intrusion in Arctic winter 2008/2009

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We present model simulations with the 3D model KASIMA for the Arctic winter 2008/2009. Despite low solar and geomagnetic activity, in this winter one of the strongest NO_x intrusions from the lower thermosphere to the mesosphere and upper stratosphere has been observed after the stratospheric warming in early 2009. It seems still to be unclear how much different processes as stratospheric warming, gravity wave interaction, diffusive transport and local ionization contribute to the NO_x enhancement. The analysis of this event is subject of an international model intercomparison project (HEPPA II). In the context of this intercomparison, we compare different realisations of the NO_x intrusion in the KASIMA model in order to test if vertical transport and NO_x production is realistically represented in the model: (1) a model run where observed values of NO_x from MIPAS on ENVISAT are used to set NO_x in the upper mesosphere, and (2) a run where ionization rates derived from the AIMOS model are used. Both realizations are compared with a reference run without mesospheric NO_x intrusion to assess its chemical impact.