



Vertical transport of pollution over East Asia

Peter Hoor (1), Sebastian Traud (1), Heini Wernli (2), Carl A.M. Brenninkmeijer (3), Angela Baker (3), Hella Riede (3), Tanja Schuck (3), Franz Slemr (3), Andreas Zahn (4), and Helmut Ziereis (5)

(1) Mainz University, Department of Atmospheric Physics, Mainz, Germany (hoor@uni-mainz.de), (2) Institute for Atmospheric and Climate Science, Swiss Federal Institute of Technology, ETH, Zurich, Switzerland, (3) Max Planck Institute for Chemistry, Department of Atmospheric Chemistry D-55020 Mainz, Germany, (4) Institute for Meteorology and Climate Research, IMK, Forschungszentrum Karlsruhe, Germany, (5) Institute for Atmospheric Physics, German Aerospace Center (DLR), Oberpfaffenhofen, Germany

In situ measurements of CO and NO_y from CARIBIC as well as satellite observations from various platforms indicate that the chemical composition of the troposphere over East Asia is strongly affected by pollution from the lower troposphere.

We will use a combination of in-situ data, satellite observations and backward trajectories to investigate the transport processes for pollutants to the upper troposphere over East Asia. Based on a case study we show that convection and subsequent long range transport from the polluted boundary layer over India strongly affects the upper troposphere over East Asia. Enhancements of short lived non-methane hydrocarbons, NO and NO_y as well as CO and their correlations to ozone indicate a strong contribution to the upper tropospheric ozone.

On the base of satellite observations we find, that the region of far east Asia plays a key role for the chemical composition of the upper troposphere on global scales.