Geophysical Research Abstracts,
Vol. 11, EGU2009-12961, 2009
EGU General Assembly 2009


# Lagrangian perspective on the impact of surface emissions on the stratosphere

I. Pisso (1), P. Haynes (1), S. Fueglistaler (1), F. Jegou (2), G. Esler (3), G. Berthet (4), and K. Law (2)

(1) DAMTP, University of Cambridge, Cambridge, United Kingdom (i.pisso@damtp.cam.ac.uk), (2) LATMOS, UPMC-CNRS, Paris, France, (3) UCL, London, United Kingdom, (4) LPC2E, CNRS, Orléans, France

Lagrangian trajectories driven by large scale analysed winds are calculated to study the influence of the surface emissions on the UTLS region. This allows to represent the large scale structure of tracer gradients decoupling advective transport, transformations represented as a e-folding time and sources. The description of the tropopause region provided by a nudged Eulerian CCM can be compared with the Lagrangian perspective and the ventilation of the stratosphere. This technique consisting essentially of the estimation of the Green's function for transport with Lagrangian trajectories provides an additional tool for sensitivity studies complementary to full or artificial tracer CCM runs. The implications for the estimation of the entry point tracer concentrations as a function of boundary layer emissions are discussed with emphasis on the representation of very short lived species.