A study of meridional transport in the upper troposphere-lower stratosphere (UTLS) using results from the JPL ozone lidars at Table Mountain Facility and Mauna Loa Observatory, and from the high-resolution PV advection model mimosa.

Thierry Leblanc[1], I. Stuart McDermid[1], and Alain Hauchecorne[2]

[1] Table Mountain Facility, Jet Propulsion Laboratory,
California Institute of Technology, Wrightwood, CA 92397-0367, USA.

[2] Service d'Aéronomie du CNRS,
BP 3, Verrieres-Le-Buisson Cedex, France.

Abstract

Meridional transport in the vicinity of the Northern hemisphere subtropical barrier is investigated using several years of ozone and temperature lidar measurements obtained by the Jet Propulsion Laboratory (JPL) at Mauna Loa Observatory, Hawaii (19.5°N), and Table Mountain Facility, California (34.4°N), and the high resolution PV advection model MIMOSA developed at Service d'Aéronomie, France

Deviation of ozone concentrations from the climatological average, as measured by the JPL lidars in the upper troposphere and lower stratosphere, are correlated with the geographical origin of the sampled air masses based on global temperature and wind analyses (i.e., NCEP or ECMWF). Back trajectories, and the results from the high-resolution PV advection model MIMOSA, are used for identification of the air masses. Using MIMOSA, large deviations observed in some ozone lidar profiles (laminae) are also correlated with passing filaments that have traveled out of their original location (tropics or polar vortex) into the subtropics with little mixing.

Examination of the entire datasets (8 years at Mauna Loa, 13 years at Table Mountain) will allow the reinterpretation of the seasonal variations of ozone at midlatitude in terms of horizontal transport, and may possibly connect observed long-term trends to variations in atmospheric circulation.

Abstract Online Submission for EGS 2002 - Final Information

Thank you for your abstract entitled "A study of meridional transport in the upper troposphere-lower stratosphere (UTLS) using results from the JPL ozone lidars at Table Mountain Facility and Mauna Loa Observatory, and from the high-resolution PV advection model MIMOSA" by "LEBLANC, T.; MCDERMID, S.; HAUCHECORNE, A." .
The COSIS System has received and incorporated all necessary information. For any future online update/correction or withdrawal of your abstract, here the abstract ID-Nr.:
ID-NR: EGS02-A-01953

- **Back to EGS02**
- **Personal Home**
- **New ASCII/LaTeX Submission**
- **New WORD Compatible Upload**