Geophysical Research Abstracts
Vol. 12, EGU2010-1281, 2010
EGU General Assembly 2010

Water Vapor Raman Lidar Measurements from the Ground to the Stratosphere: NDACC Implementation and the MOHAVE 2009 Validation Campaign

Thierry Leblanc and Stuart McDermid
California Institute of Technology, Jet Propulsion Laboratory, Wrightwood, CA, United States (leblanc@tmf.jpl.nasa.gov)

Water vapor plays a fundamental role in the chemistry, dynamics, and radiation budget of the Earth atmosphere. However, its distribution, climatology, and short and long-term variability of its concentration in the upper troposphere and lower stratosphere (UTLS) are not well enough known due of its rarity there and the subsequent difficulty to perform accurate measurements. To contribute to addressing these issues and to provide much needed satellite measurement and model validation, the Network for the Detection of Atmospheric Composition Change (NDACC) has included water vapor Raman lidar in its suite of high quality long-term monitoring instruments.
The current capabilities of the Raman Lidar technique applied to the long term monitoring of water vapor in the UTLS, and its NDACC implementation will be reviewed. Selected results from the recent MOHAVE 2009 intercomparison campaign will be presented, including the short-term variations of water vapor and ozone simultaneously observed by lidar from the ground to the UTLS, correlative ground-based, satellite and balloon-borne measurements from the ground to the mesosphere, and several simultaneous and co-located integrated precipitable water measurements from GPS, microwave, FTS, lidar and balloon