

Validation of TES Tropospheric Ozone Profiles with Airborne LIDAR Observations

Nigel A. D. Richards, Jet Propulsion Laboratory; Qinbin Li, Jet Propulsion Laboratory; Gregory B. Osterman, Jet Propulsion Laboratory; Edward V. Browell, NASA Langley Research Center; Kevin W. Bowman, Jet Propulsion Laboratory

Nigel Richards, Jet Propulsion Laboratory, nigel.richards@jpl.nasa.gov

The Tropospheric Emission Spectrometer (TES) is an infrared instrument which was launched onboard NASA's Aura satellite in 2004. TES is the first instrument to provide vertical information on tropospheric ozone whilst simultaneously measuring CO on a global basis. Before they may be used for scientific study TES profiles must first be validated to determine if there are any systematic biases present. In this study we present a first attempt to validate TES tropospheric Ozone using airborne differential absorption LIDAR (DIAL) profiles obtained during the Intercontinental Chemical Transport Experiment-B (INTEX-B) campaign, which took place in March-May 2006. During INTEX-B the NASA DC-8 aircraft conducted several flights which allowed the DIAL instrument to obtain Ozone profile measurements which were spatially coincident with TES special observations in three different geographical regions. Here we will present comparisons of TES and DIAL tropospheric Ozone profiles which show that on average TES exhibits a small positive bias in the middle and lower troposphere of 8% and a negative bias of up to 30% in the upper troposphere relative to DIAL.