

Global 3D mapping of tropospheric ozone and CO from TES: First results

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The TES instrument onboard the Aura satellite, launched in July 2004, is a high-resolution infrared imaging Fourier-transform spectrometer. It provides global 3D mapping of both ozone and CO among other trace gases, with 2-3 and 1-1.5 pieces of vertical information for tropospheric ozone and CO, respectively. With the simultaneous measurements of ozone and CO and the vertical information, TES provides a unique dataset for studying global air pollution and its long-range transport. Some of the first results interpreting TES data are presented here. TES CO-ozone relationship, particularly the slope, exhibits clear distributions that are indicative of ozone production over the source region and during transport, when compared with results from the GEOS-CHEM global CTM. Assimilation of TES CO mixing ratio profiles into the GEOS-CHEM model significantly improves model simulations in the middle and upper troposphere compared to observations from MOPITT and MOZAIC. Global distribution of tropospheric ozone columns are derived from TES ozone profiles and are compared with GOME- and OMI-based results as well as results from the GEOS-CHEM model.