



Assimilation of satellite data for the analysis of processes governing the composition of the troposphere

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We present an analysis of the potential of information retrieved from satellite data to constrain tropospheric trace gas distributions in a chemical transport model (CTM). Retrieved profiles of ozone and CO from the Tropospheric Emission Spectrometer (TES) on the NASA EOS Aura platform, and the Atmospheric Chemistry Experiment (ACE) FTS instrument, on the Canadian SciSat mission, are assimilated into the GEOS-Chem CTM using a sub-optimal Kalman filter. The TES ozone retrievals provide useful information throughout the middle troposphere while the ACE-FTS data provide profiles with higher vertical resolution in the UT/LS, improving the modelled ozone vertical distribution relative to ozonesondes. Our results show that current satellite data have potential for further studying the chemical and physical processes governing tropospheric composition.