

5B.7 Assimilation of trace gas retrieval profiles in WRF-Chem/DART

Mizzi, Arthur P., *National Center for Atmospheric Research*

This presentation will provide an introduction to the use of WRF-Chem and DART for the assimilation of trace gas retrieval profiles from MOPITT and/or IASI (CO). This is on-going research but currently WRF-Chem/DART assimilates the "quasi-optimal" partial column retrievals. For a ten-day experiment with six-hour cycling comparing the assimilation of meteorology only (CNTL Exp) with the assimilation of meteorology and chemistry (CHEM Exp) over the CONUS, the results show that the CHEM Exp: (i) improves the observation space fit of the posterior analysis throughout the troposphere, (ii) improves the observation space fit of the prior analysis in the middle and upper troposphere, and (iii) requires adjustment of the emissions and/or vertical localization to address issues in the lower troposphere.