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A joint NASA JPL/NCAR ozone retrieval for IASI radiances

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Ozone acts as a toxic pollutant in the lower troposphere, a greenhouse gas in the upper troposphere and as a protective shield against harmful ultra-visible radiation in the stratosphere. Satellite-borne instruments provide the means for global and continuous monitoring of this important trace gas. High spectral resolution infrared radiance measurements, such as those from the Tropospheric Emission Spectrometer (TES) on the NASA Aura satellite (launched in 2004), and the Infrared Atmospheric Sounding Instruments (IASI), on the MetOp-A and MetOp-B satellites (launched in 2006 and 2012, respectively) can provide vertical information on tropospheric ozone. Together, these instruments now provide a record spanning more than eight years. As part of efforts to assess consistency between the TES and IASI data records, a retrieval for ozone from IASI radiances, building on the data processor for TES, is under development as a collaboration between NASA JPL and NCAR. Using a priori information consistent with TES retrievals, the optimal estimation approach is applied to IASI radiances in order to obtain vertical distributions of ozone. This presentation shows comparisons of these retrievals with coincident ozonesonde profiles. The emphasis of this study is on the characterisation of the vertical distribution of the retrieval uncertainties and sensitivity.