ATom Modeling Data Stream (aka MDS)

The MDS provides a data stream (every 10s along ATom flight path) that has all the key species needed to model the reactivity of the air parcels. The purpose is to calculate the reactivity of each parcel (P-O3, L-O3, L-CH4) with the global 3D models as set up in the pre-ATom paper #1 (Prather et al., 2017 ACP, doi: 10.5194/acp-17-9081-2017). This data stream includes fill-data and uncertainty streams to test the sensitivity of reactivities to the key species. It should NOT be used in place of the original instrument data files or the merged files like MER10 when doing data analysis or for direct comparison with hindcast models. For those studies the missing data should be treated as NANs and the long-

In terms of a 10s data stream, there are often missing observational data due to instrument dropout, calibration cycles, or the natural cycling of some instruments. In that case we have chosen a simple method of interpolation and fill to provide the primary data stream (designated with '_X'), and where this is important we propose one or more alternative MDS ('_Y', '_Z') to provide an evaluation of how such measurement uncertatinty affects reactivities. In many cases the alternative data stream just adds 2-sigma to the data, or adopts a multiple LLOD. The alternative MDS are grouped into alternative

The model development for the 6 major US global chemistry models is now complete (2017 ACP and pre-ATom paper #2) and with this we are able to rapidly and simply run through the ATom MDS and

Clare Flynn & Michael Prather & ATom team.