



Tracer distribution and transport in the UTLS derived from the IAGOS-CARIBIC observatory using JETPAC

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The CARIBIC research project, the predecessor of the actual IAGOS-CARIBIC project, is divided into two distinct phases: 1997-2002 and 2005-present. This dataset is ideally suited as a testbed for the new SPARC activity OCTAV-UTLS (Observed Composition Trends And Variability in the Upper Troposphere and Lower Stratosphere). One key aspect of this activity is to develop, define and apply common metrics for the comparison of different UTLS datasets using a variety of geophysically-based coordinate systems using meteorological information from reanalysis datasets. The focus here will be on the variability of ozone (O_3) and water vapour (H_2O) on seasonal and interannual timescales in the mid- to upper-troposphere and lower stratosphere (M/UTLS) derived from IAGOS-CARIBIC measurements. For this purpose, the observed distributions of both tracers will be analysed relative to different tropopause definitions (chemical, dynamical, thermal) and in different coordinate systems (e.g. equivalent latitude, potential temperature, potential vorticity, tropopause- and/or jet-based). All these meteorological information applied here in the framework of OCTAV UTLS are produced with JETPAC - Jet and Tropopause Products for Analysis and Characterization (Manney et al., 2011).

Manney, G.L., et al. (2011), Jet characterization in the upper troposphere/lower stratosphere (UTLS): applications to climatology and transport studies, *Atmos. Chem. Phys.*, 11(12), 6115-6137, doi:10.5194/acp-11-6115-2011.