

EGU2020-7734

<https://doi.org/10.5194/egusphere-egu2020-7734>

EGU General Assembly 2020

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Ozone variability and trends in the UTLS derived from the IAGOS-CARIBIC observatory using JETPAC

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The CARIBIC (Civil Aircraft for the Regular Investigation of the atmosphere Based on an Instrumented Container) project is part of the a European research infrastructure IAGOS (In-Service Aircraft for a Global Observing System) making regular in-situ measurements of more than 100 atmospheric constituents, include ozone and water vapour, on-board of an in-service passenger aircraft operated by Lufthansa. The dataset of the IAGOS-CARIBIC is therefore ideally suited as a testbed for the SPARC (Stratosphere-troposphere Processes And their Role in Climate) activity OCTAV-UTLS (Observed Composition Trends And Variability in the Upper Troposphere and Lower Stratosphere). One key aspect, shown here as work in progress, is to develop, define and apply common metrics for the comparison of different UTLS datasets using a variety of meteorological coordinate systems derived from reanalysis datasets. The focus here is on the variability of ozone in the upper troposphere and lower stratosphere (UTLS) on interannual and seasonal timescales and the observed trends. The in-situ ozone measurements by IAGOS-CARIBIC are analysed relative to different tropopause definitions and coordinate systems. All these meteorological information applied here are produced with the JETPAC tool □ Jet and Tropopause Products for Analysis and Characterization (Manney et al., 2011).