Merged datasets from the Global Ozone Chemistry and Related Trace gas Data Records for the Stratosphere (GOZCARDS) project

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The GOZCARDS project is part of the NASA Making Earth Science Data Records for Use in Research (MEaSUREs) program, aimed at improving the quality and availability of long-term Earth System Data Records (ESDRs). We are providing a publicly available commonly-formatted ESDR for stratospheric composition, of high relevance to the issues of stratospheric chemistry, variability, and trends, including ozone depletion and recovery. The data records are drawn primarily from satellite-derived global stratospheric composition measurements from 1979 to the present, including on-going measurements from the Aura Microwave Limb Sounder (MLS) and the Atmospheric Chemistry Experiment Fourier Transform Spectrometer (ACE-FTS). The primary long-term data records consist of monthly zonal average volume mixing ratios versus pressure, for stratospheric ozone (O3), hydrogen chloride (HCl), chlorine monoxide (ClO), hydrogen fluoride (HF), nitric acid (HNO3), water vapor (H2O), methane (CH4), nitrous oxide (N2O), nitrogen dioxide (NO2), and nitrogen oxide (NO). Through the use of a constrained photochemical model, two additional "derived" data records are planned: active chlorine (ClOx) and odd nitrogen (NOx, based here on measured NO2 estimated NO, if NO is not simultaneously measured). We provide individual instrument-specific (source) data records as well as merged data records, in the form of netCDF files. In addition to average abundance values, the files include information on standard deviations, as well as average biases between the source datasets. In this overview, we present sample results from our merged data analyses for some of the products, and information about GOZCARDS data schedule and access.