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Ozone trends in the stratosphere derived using merged Ozone_CCI datasets

This presentation is dedicated to evaluation of global and regional trends in ozone profiles using the updated merged datasets developed in the framework of ESA Climate Change Initiative for ozone project.
For trend analyses, two long-term merged datasets of ozone profiles have been created. One is the SAGE-CCI-OMPS+ climate data record of monthly zonal mean ozone profiles. This dataset covers the stratosphere and combines measurements by nine limb and occultation satellite instruments –SAGE II, OSIRIS, MIPAS, SCIAMACHY, GOMOS, ACE-FTS, OMPS-LP, POAM III, and SAGE III/ISS, from 1984 to present. Another dataset is the MErged GRIdded Dataset of Ozone Profiles (MEGRIDOP) with a resolved longitudinal structure, which covers the period from late 2001 to the present. MEGRIDOP is derived from data by OSIRIS, MIPAS, SCIAMACHY, GOMOS, MLS, and OMPS-LP; it contains monthly mean ozone profiles in the altitude range from 10 to 50 km in bins of 10° latitude x 20° longitude. SAGE-CCI-OMPS+ and MEGRIDOP have been actively used in various assessments of ozone trends, including their regional and seasonal dependence.
In the presentation, we will show the obtained results of analyses of stratospheric ozone variability, including updated analyses of stratospheric ozone trends. In addition, we will discuss new developments: a new merged daily gap-free 1° x 1° dataset of stratospheric ozone profiles (HIRES-LIMB) and a tropopause-referenced dataset of ozone profiles.

Topic

Atmospheric composition (Earth and planets), chemistry and transport

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