

A global trend map of seasonal total column ozone using a MIROC3.2 nudged Chemistry-Climate Model

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We created a global trend map of seasonal total column ozone using the results of two CCM experiments to examine the influence of CFC on global total column ozone. The model used is the MIROC3.2 Chemistry-Climate Model nudged toward ERA-Interim reanalysis data. We performed two experiments. One experiment (REF-C1SD) uses observed ozone depleting substance (ODS) and greenhouse gas (GHG) concentrations that changes with time. In the other experiment (SEN-fODS1979), ODS concentration is fixed to the 1979 value. The REF-C1SD experiment shows a large decreasing seasonal total column trend globally during the CFC decreasing period (1979-1996). The trends have clear longitudinal structures at winter mid-latitudes and spring polar region.

Comparing the result of the REF-C1SD experiment with that of the SEN-fODS1979 experiment, the contributions of ODS and other processes except for ODS (for example, trends in ozone transport) are analyzed globally. We also show the trend map for the ODS decreasing period (1997-2011).

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