

Dynamical effects of EEP induced mesospheric ozone loss in SC-WACCM

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Recent studies using satellite observations have shown that energetic electron precipitation (EEP) strongly affects ozone at altitudes below 80 km, leading to ozone losses of tens of percents in polar winter mesosphere.

In this presentation we describe the results of model simulations using the Specified Chemistry Whole Atmosphere Community Climate Model (SC-WACCM), the atmospheric component of the Community Earth System Model (CESM). In our simulations we apply a polar ozone reduction of 30% in the upper mesosphere between 70-80 km during polar winter which correspond to the ozone loss due to energetic electron (EEP) precipitation seen by satellites measurements. Simulations are used to study chemistry-dynamics connections and wave-mean flow interactions potentially resulting from the observed EEP induced ozone losses.