

Virtual ACOM Seminar

Impacts of Winter Stratospheric Variability on the Global Middle Atmosphere

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Links: <https://operations.ucar.edu/live-acom>

ABSTRACT

Observations and global models have shown that the summer stratosphere and mesosphere vary in response to dynamical activity in the winter stratosphere. Previous analysis with WACCM found that the response is associated with a short-lived perturbation to the global wave-driven circulation that arises to maintain balance in the presence of impulsive dynamical forcing by wintertime planetary waves. In this talk, I will present results showing the response in near-global observations from SABER for 2002-2020. The results show the sign, magnitude, distribution, and persistence of the perturbations in temperature, ozone, and water. In combination, these perturbations give a consistent picture of the induced circulation and its impacts. The SABER results agree with those simulated by WACCM in the stratosphere and lower mesosphere but show differences in the upper mesosphere.