

Response to SC2

We thank A. F. Tuck for his comments. Our response are itemized here.

1. The authors might like to consider the conclusions reached in the attached .pdf, which examined factors like cloud cover, surface nature and temperature, and the important influence of actual local observations of ozone and water vapour. The use of matching observed outgoing long wave radiation to underlying cloud was a useful innovation.

Response: We thank Dr. Tuck for his comments. We recognize the importance of PSC and its interactions with ozone, as well as other atmospheric and surface variables, which jointly defines polar climate and potentially affects climate of greater region through modifying heating rate and atmospheric temperature structure, as discussed by Hicke and Tuck (2001). Such interactions are accounted for in our simulations to the extent that PSCs are simulated in the CAM3.

Reference:

Hicke, J., and Tuck, A.: Polar stratospheric cloud impacts on Antarctic stratospheric heating rates, Q J Roy Meteor Soc, 127, 1645-1658, 10.1002/qj.49712757510, 2001.