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Comment on acp-2021-90

Jie Gong

Community comment on "Empirical evidence for deep convection being a major source of stratospheric ice clouds over North America" by Ling Zou et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-90-CC1>, 2021

I think there's a fundamental issue with identification of SCC from CALIPSO level-1 532 nm backscatter. First, from the example given in Fig. 1, this is a convection overshooting, instead of a thin cirrus cloud. Secondly, stratospheric feature could be aerosol. Why not use Level-2 cloud type from Version 4.X feature classification flag? Thirdly, I really doubt if there's many stratospheric thin cirrus, as there's no immediate mechanism there other than the reminiscence of overshooting cloud top. See Avery et al. (2017, <https://www.nature.com/articles/ngeo2961>) for the overshooting cloud. Thirdly, as tropopause height has 600-1000 m uncertainty in ERA-Interim, I think using 500m as a threshold to determine the separation between troposphere and stratosphere is dangerous. Besides, tropopause is a layer, not a thin interface. This is a minor issue compared with the first and second issue.