

Interactive comment on “Location controls the findings of ground-based PSC observations” by Matthias Tesche et al.

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I am satisfied with most of the answers to my original comments.

The comment in which I request for a result was not clear. I'll try to do better below.

When PSC measurements are available from a ground-based site, I would expect the first result (before PSC speciation) presented to be the PSC Fraction, which would be defined (by analogy with tropospheric clouds) as the ratio of the number of lidar profiles in which a PSC can be detected, divided by the number of lidar profiles that sample the stratosphere over that location. 100% would mean that all sampled profiles contain a PSC, 50% half of the sampled profiles contain a PSC, etc. This number would inform on the ubiquity of PSCs over the considered area.

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Using the authors' methodology, it should be possible to document, over a given location, the actual PSC Fraction (by considering all the profiles sampled by CALIPSO over that area), and the PSC Fraction that would be retrieved from a ground-based lidar (by considering only the profiles that would see the stratosphere considering the presence of opaque tropospheric clouds). From these results one could document the error in retrieved PSC Fraction over all the considered locations. That error might provide an additional data point to rank locations, as locations with smallest errors would enable the most accurate representation of PSC frequency. The numbers retrieved in this fashion would probably align with the accuracy of PSC speciation by location.

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