

TS3

Please replace Figure 1 with the revised Figure 1 supplied with the correction files. The figure caption remains unchanged.

TS4

Please replace Figure 2 with the revised Figure 2 supplied with the correction files. The figure caption remains unchanged.

TS5

Please replace Figure 3 with the revised Figure 3 supplied with the correction files. The figure caption remains unchanged.

TS6

Page 1, Abstract, lines 19–22.

Please replace:

“For PSCs, the full dataset yields optically weighted median LR values (25–75 percentiles) of 38 (31–52) sr for STS, 50 (37–73) sr for NAT, and 52 (40–65) sr for ice PSC. For cirrus, the median LR is 49 (34–52) sr.”

with:

“For PSCs, the full dataset yields optically weighted median LR values (25–75 percentiles) of 38 (31–52) sr for STS, 49 (37–67) sr for NAT, and 52 (41–66) sr for ice PSC. For cirrus, the median LR is 50 (33–52) sr.”

TS7

Page 1, Abstract, lines 25–29.

Please replace:

“The Young–optimized subset yields 41 (31–61) sr for STS, 61 (38–78) sr for NAT, 38 (32–38) sr for the few remaining ice PSC, and 41 (31–41) sr for cirrus although for this latter case the number of observations is not statistically significant.”

with:

“The Young–optimized subset yields 38 (31–59) sr for STS, 59 (38–74) sr for NAT, 38 (32–38) sr for the few remaining ice PSC, and 40 (32–40) sr for cirrus although for this latter case the number of observations is not statistically significant.”

TS8

Page 9, Sect. 5.1, lines 54–57.

Please replace:

“STS show a relatively compact distribution centred around 38 sr (31–52 sr). NAT exhibits a wider spread, with a median of 50 sr (37–73 sr) and an extended high-LR tail.”

with:

“STS show a relatively compact distribution centred around 38 sr (31–52 sr). NAT exhibits a wider spread, with a median of 49 sr (37–67 sr) and an extended high-LR tail.”

TS9

Page 9, Sect. 5.1, lines 71–72.

Please replace:

“STS retain values around 41 sr (31–61 sr), but their distribution shows a weak apparent bimodality.”

with:

“STS retain values around 38 sr (31–59 sr), but their distribution shows a weak apparent bimodality.”

TS10

Please replace Figure 4 with the revised Figure 4 supplied with the correction files. The figure caption remains unchanged.

TS11

Please replace Figure 5 with the revised Figure 5 supplied with the correction files. The figure caption remains unchanged.

TS12

Please replace Figure 6 with the revised Figure 6 supplied with the correction files. The figure caption remains unchanged.

TS13

Please replace Figure 7 with the revised Figure 7 supplied with the correction files. The figure caption remains unchanged.

TS14

Page 13, Sect. 5.2, in the paragraph describing the one-dimensional cirrus LR distribution.

Please replace:

“In the Young–optimized subset, the LR distribution is extremely compact, with a median value of ~41 sr and an interquartile range confined to ~31–42 sr.”

with:

“In the Young–optimized subset, the LR distribution is extremely compact, with a median value of ~40 sr and an interquartile range confined to ~32–40 sr.”

TS15

Page 13, Sect. 5.2, in the same paragraph.

Please replace:

“The full data set displays a much broader LR distribution, with a median of ~51 sr and an extended upper tail reaching 80 sr.”

with:

“The full data set displays a much broader LR distribution, with a median of ~50 sr and an extended upper tail reaching 80 sr.”

TS16

Please replace Figure 8 with the revised Figure 8 supplied with the correction files. The figure caption remains unchanged.

TS17

Page 14, Discussion, in the equation summarizing the PSC lidar-ratio values.

Please replace:

“ $LS_{STS} \approx 38$ sr, $LS_{NAT} \approx 50$ sr, $LS_{ice} \approx 52$ sr”

with:

“LR_STS $\approx$ 38 sr, LR_NAT $\approx$ 49 sr, LR_ice $\approx$ 52 sr”.

Please retain the existing mathematical formatting and subscripts. The symbol should be LR, not LS.

TS18

Page 15, Discussion, lines 49–57.

Please replace:

“Tropospheric cirrus above Dome C exhibit median LR values of LR_cirrus $\approx$ 51 sr in the full data set, with a tail extending to lower values.”

with:

“Tropospheric cirrus above Dome C exhibit a median LR value of LR_cirrus $\approx$ 50 sr in the full dataset, with a tail extending to lower values.”

In the following paragraph, please replace:

“Under Young–optimized conditions, the median LR decreases to LR_cirrus $\approx$ 41 sr and the distribution narrows.”

with:

“Under Young–optimized conditions, the median LR decreases to LR_cirrus $\approx$ 40 sr and the distribution narrows.”

TS19

Page 16, Conclusions, lines 17–20.

Please replace:

“The retrieved LR distributions for the full PSC population peak around $\sim$ 38 sr for STS, $\sim$ 50 sr for NAT, and $\sim$ 52 sr for ice PSC, with percentiles spanning the ranges (31–52), (37–73), and (40–65) sr, respectively.”

with:

“The retrieved LR distributions for the full PSC population peak around $\sim$ 38 sr for STS, $\sim$ 49 sr for NAT, and $\sim$ 52 sr for ice PSC, with percentiles spanning the ranges (31–52), (37–67), and (41–66) sr, respectively.”

TS20

Page 16, Conclusions, lines 30–32.

Please replace:

“Tropospheric cirrus exhibit median lidar ratios of $\sim$ 49 sr (34–52 sr), with the Young-optimized subset converging toward lower values around $\sim$ 41 sr.”

with:

“Tropospheric cirrus exhibit a median lidar ratio of ~ 50 sr (33–52 sr), while the Young-optimized subset converges toward lower values around ~ 40 sr.”