

Supplement to "Particle settling and convective mixing in the Saharan Air Layer as seen from an integrated model, lidar, and in-situ perspective"

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In this document we provide some supplementary analysis of the CALIOP data presented in Section 5 of the manuscript.

1 Year to year variability

Analogous to Fig. 10 of manuscript, but for individual years from 2007 to 2011.

Fig. S-1: Average over 2007.

Fig. S-2: Average over 2008.

Fig. S-3: Average over 2009.

Fig. S-4: Average over 2010.

Fig. S-5: Average over 2011.

2 No aerosol in uppermost sub-bin

Analogous to Fig. 10 of manuscript, but considering only profiles where upper-most sub-bin (30m) has been classified as aerosol-free.

Fig. S-6: Considering only profiles without aerosol in uppermost sub-bin.

3 Horizontal averaging

Analogous to Fig. 10 of manuscript, but considering also profiles which were averaged over 20 and 80 km.

Fig. S-7: Considering profiles horizontally averaged over 5, 20, 80 km.

4 Linear depolarization ratio threshold

Analogous to Fig. 10 of manuscript, but modified threshold for the average depolarization ratio in upper 1 km of the SAL.

Fig. S-8: Linear depolarization ratio threshold set to 0.05.

Fig. S-9: Linear depolarization ratio threshold set to 0.15.

5 Average backscatter coefficient

Average backscatter coefficient of the profiles considered in Fig. 10 of manuscript.

Fig. S-10: Average backscatter coefficient.

6 Statistics over profiles used for averaging

Histograms over all profiles used in Fig. 10 of manuscript.

Fig. S-11: Histogram of SAL top height.

Fig. S-12: Histogram of 1-km-layer-averaged linear depolarization ratio.

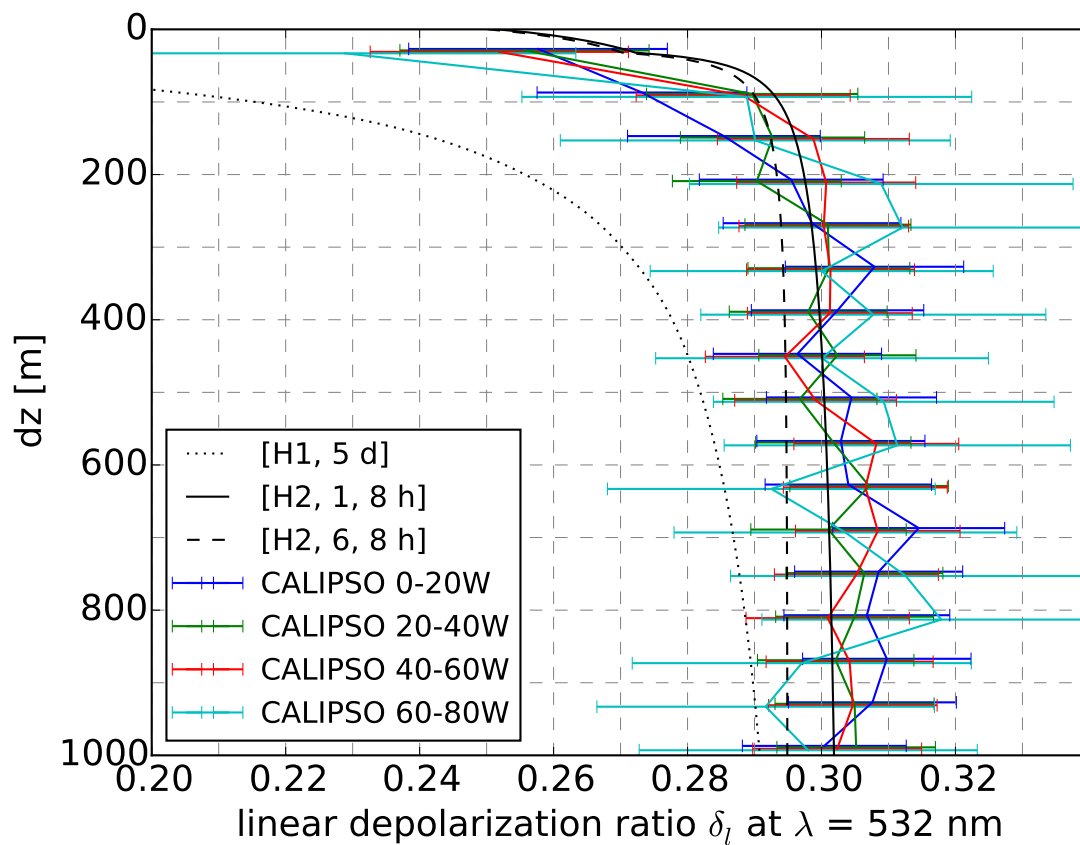


Figure S-1: Average over 2007.

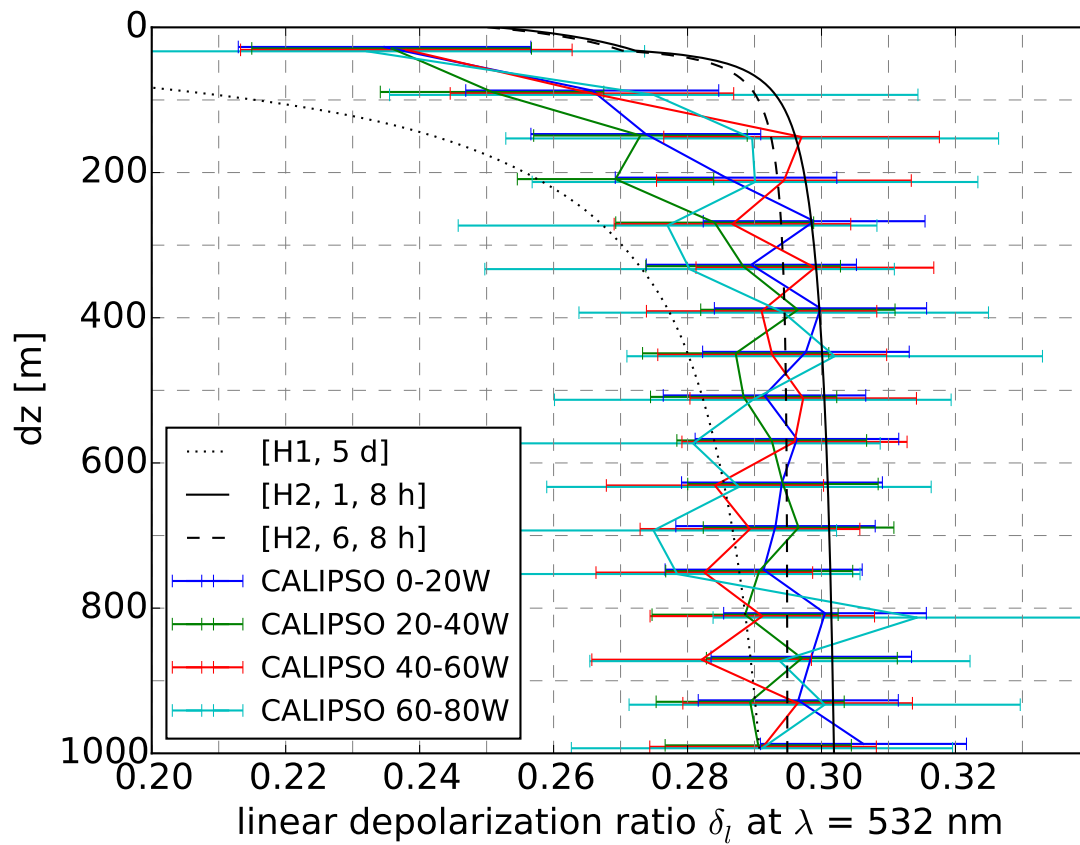


Figure S-2: Average over 2008.

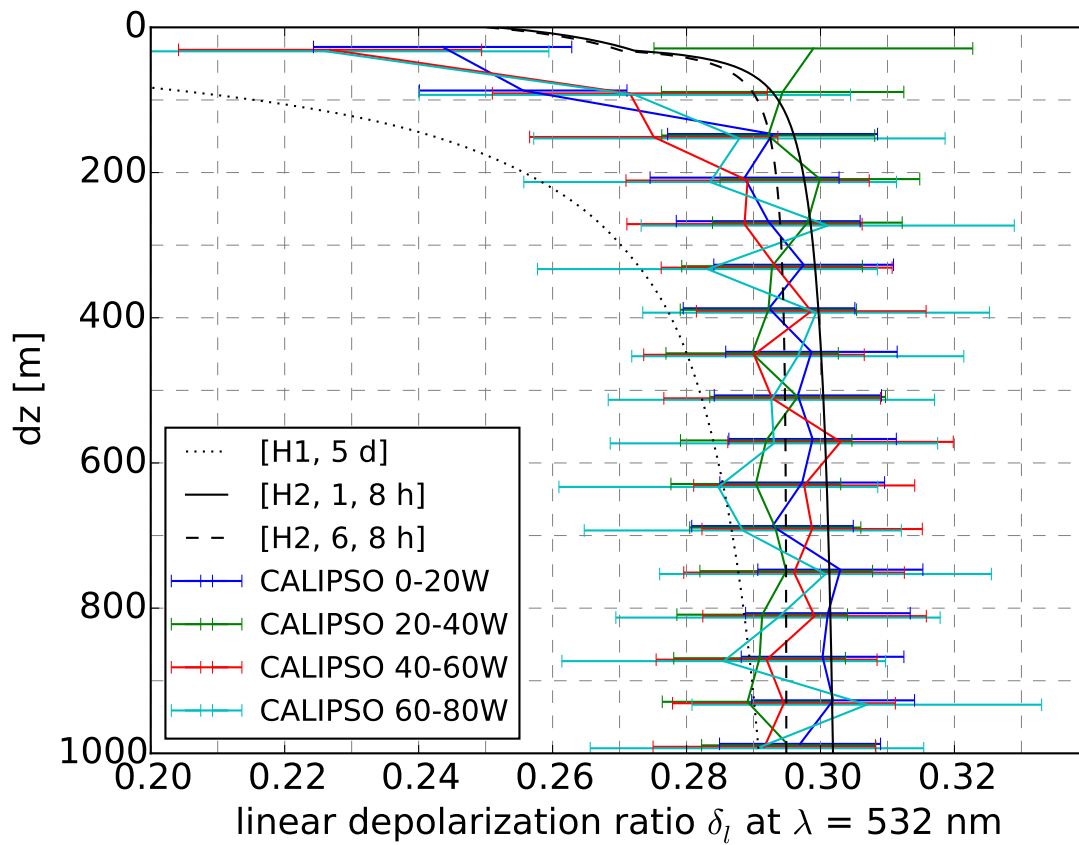


Figure S-3: Average over 2009.

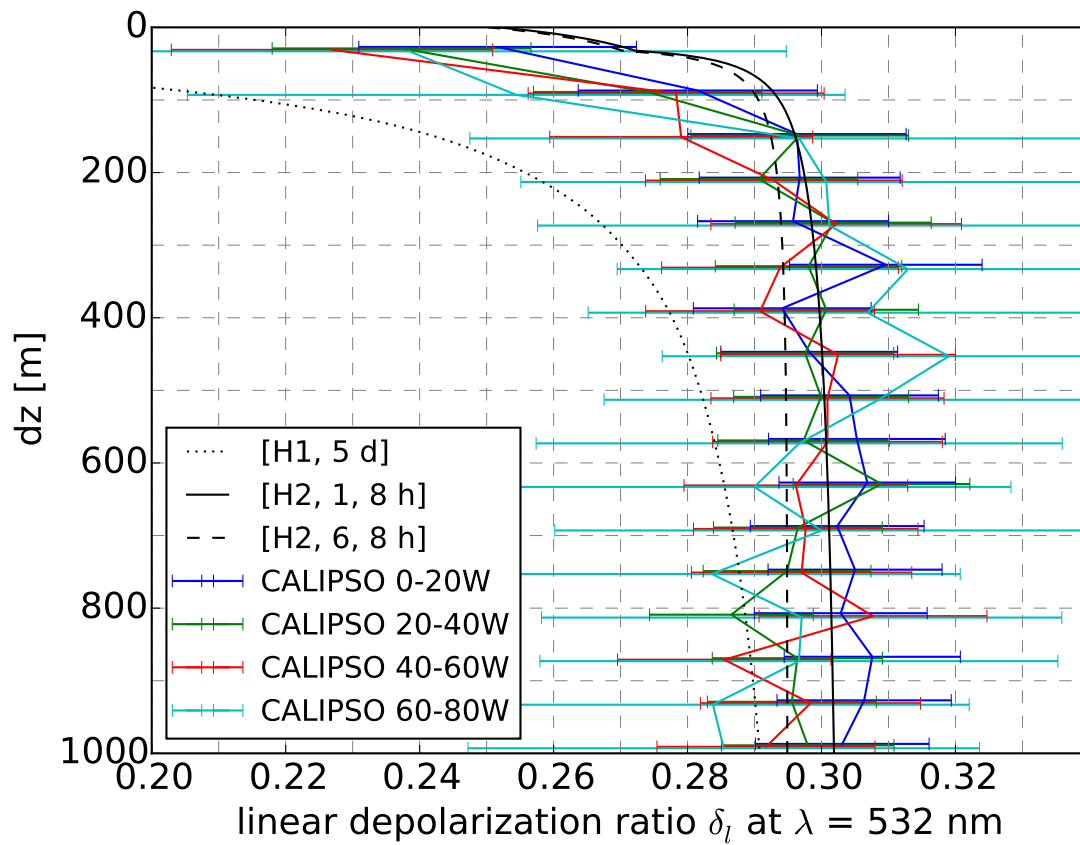


Figure S-4: Average over 2010.

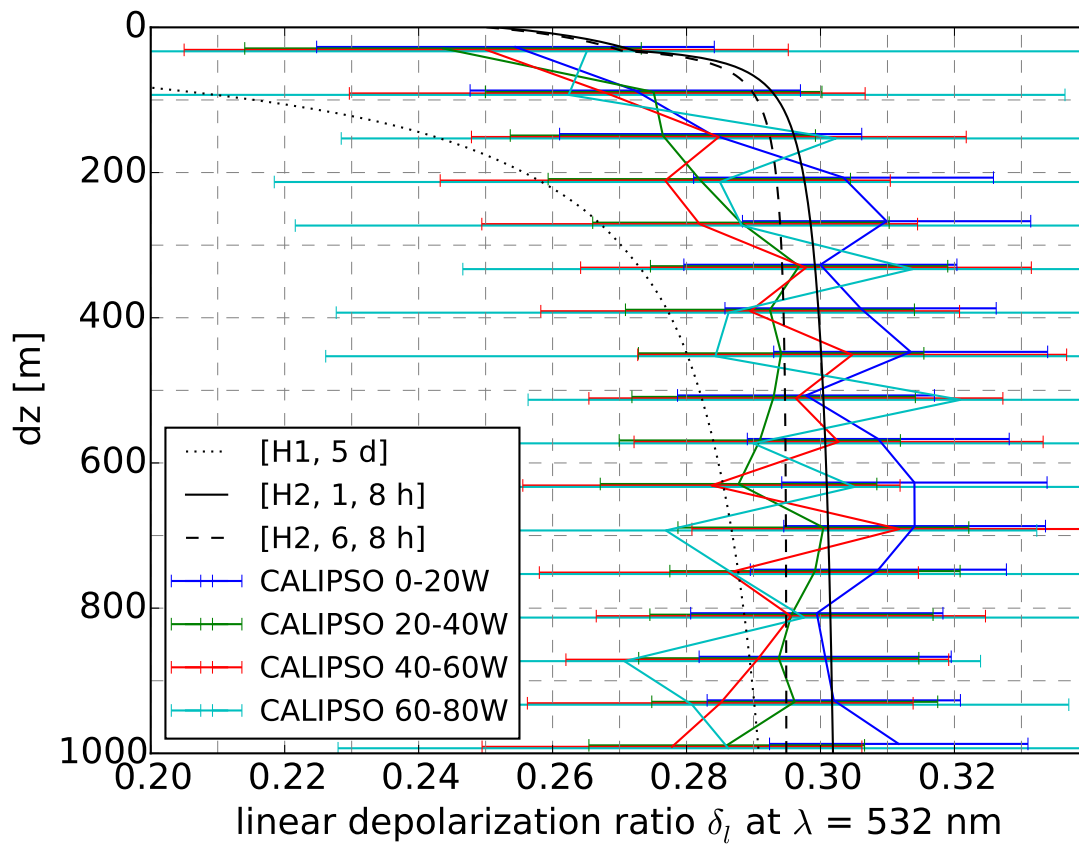


Figure S-5: Average over 2011.

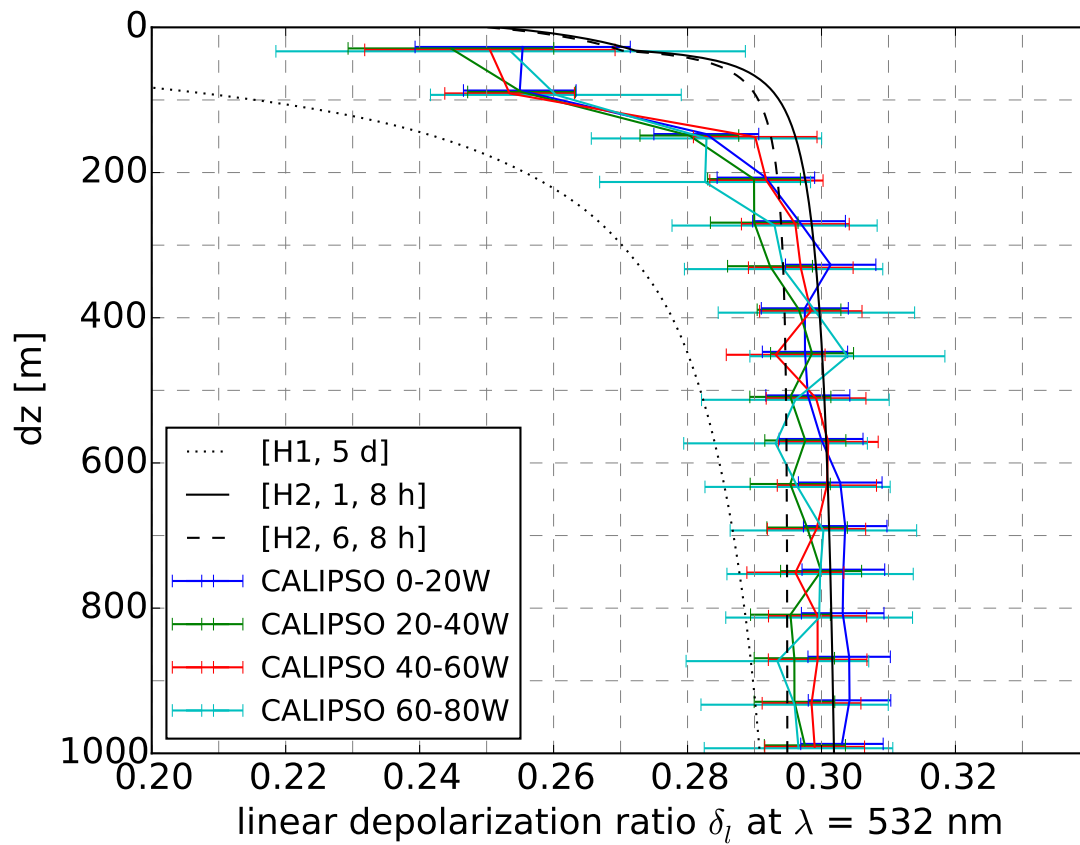


Figure S-6: Considering only profiles without aerosol in uppermost sub-bin.

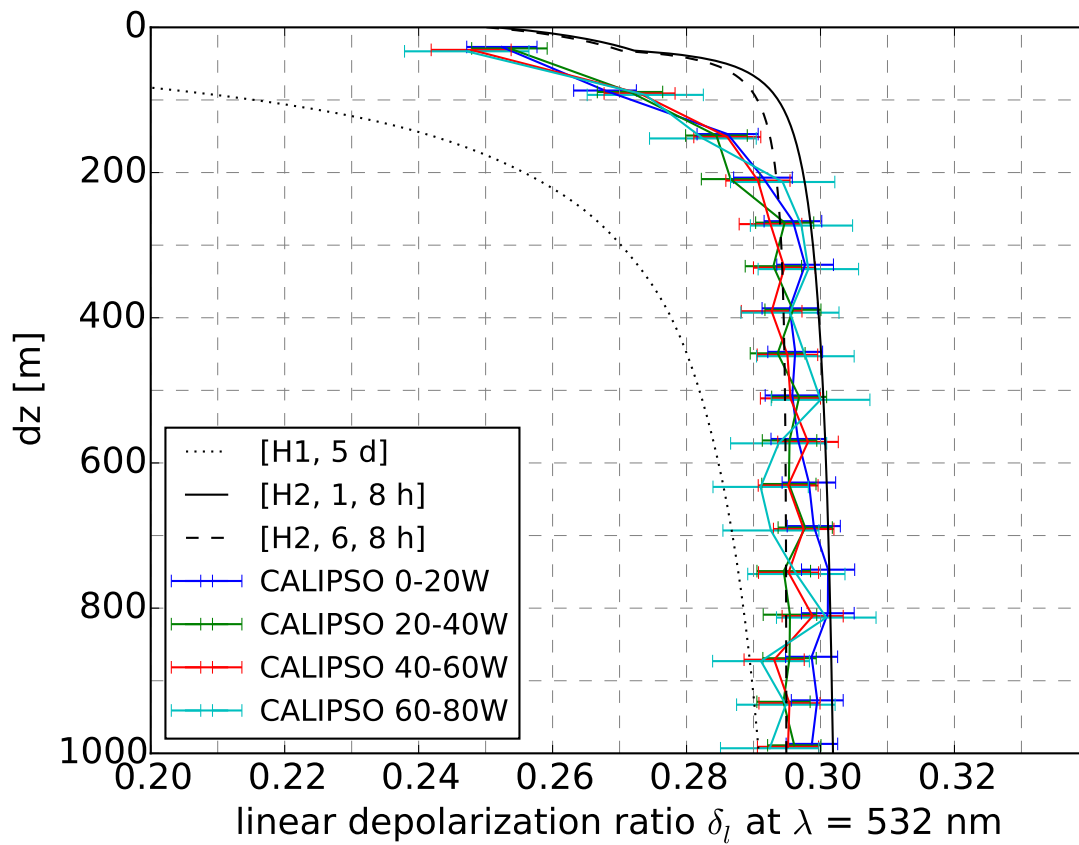


Figure S-7: Considering profiles horizontally averaged over 5, 20, 80 km.

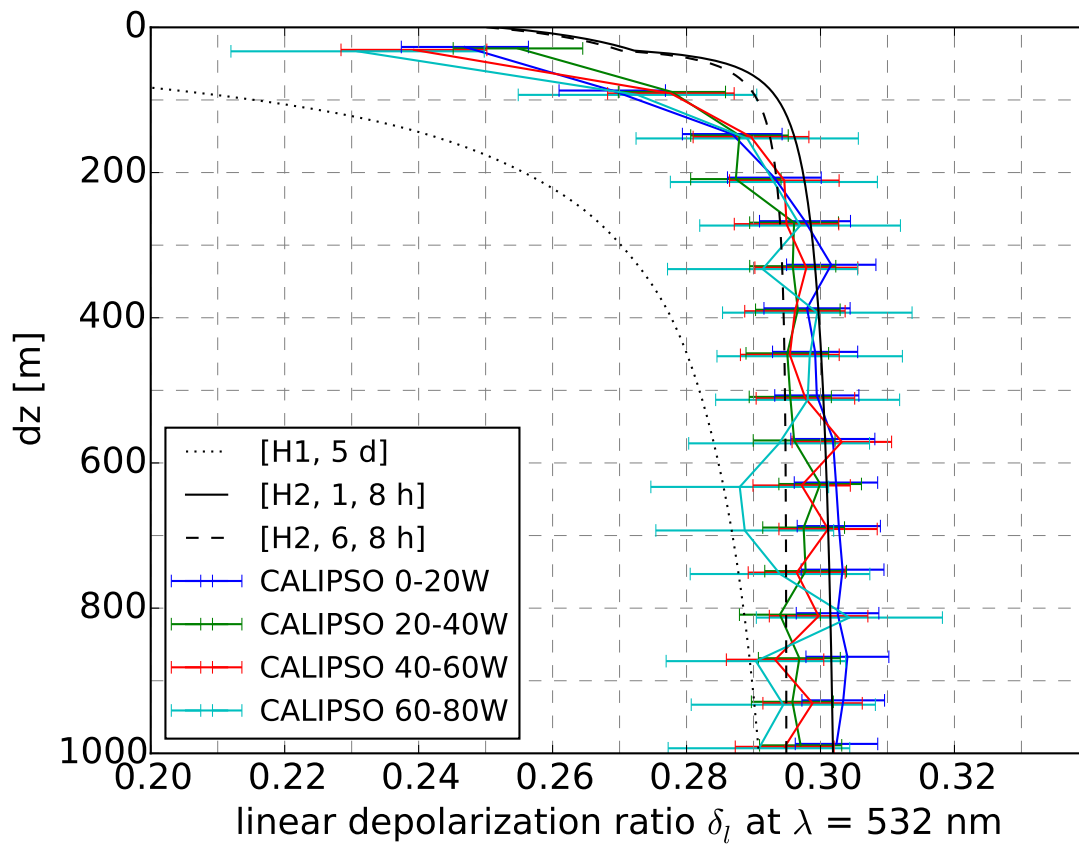


Figure S-8: Linear depolarization ratio threshold set to 0.05.

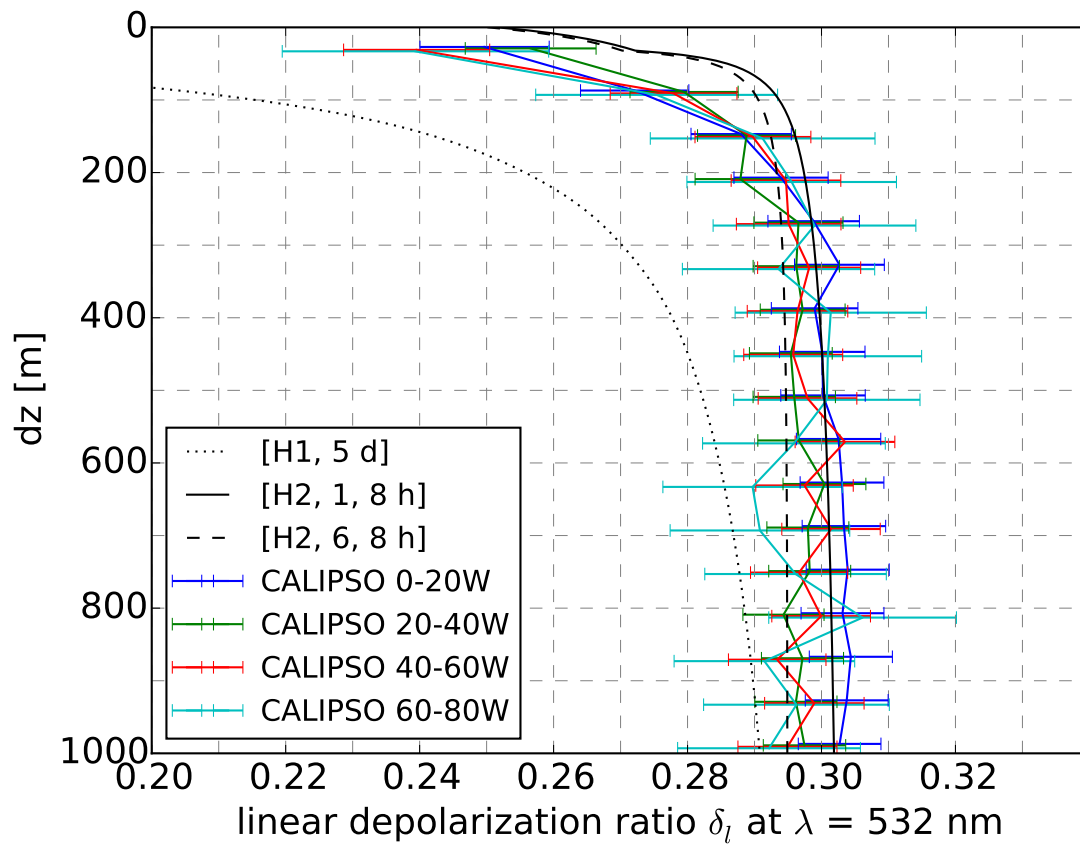


Figure S-9: Linear depolarization ratio threshold set to 0.15.

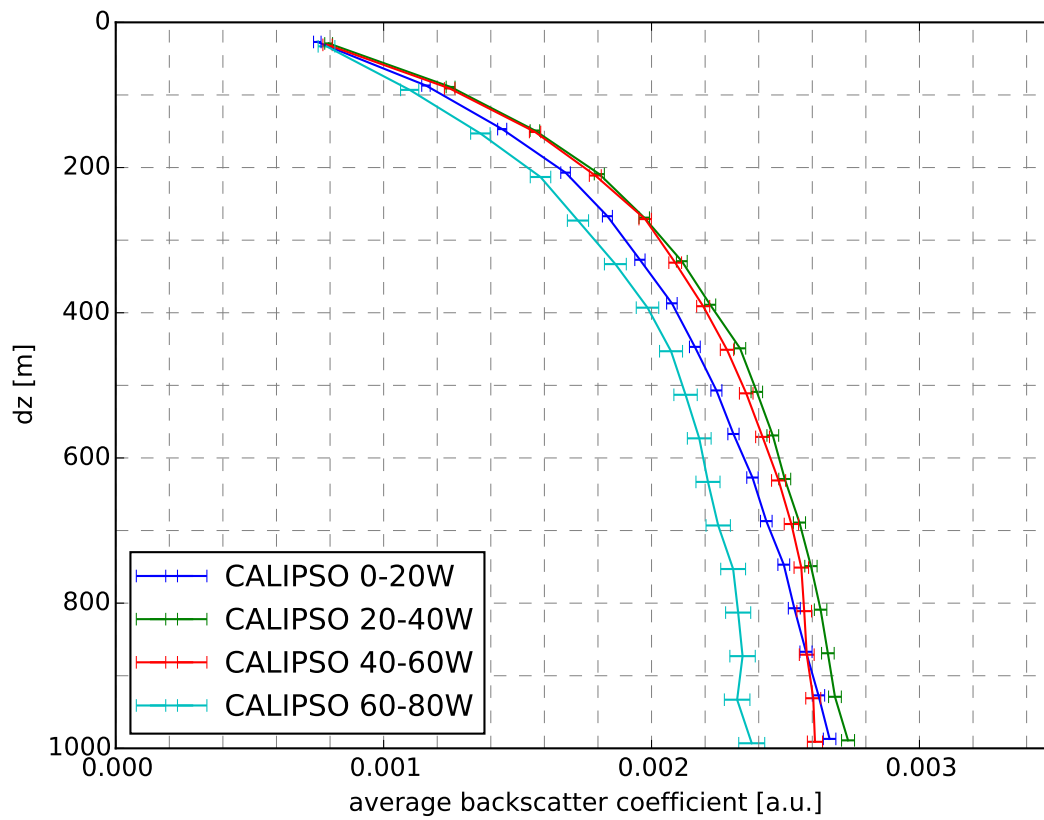


Figure S-10: Average backscatter coefficient.

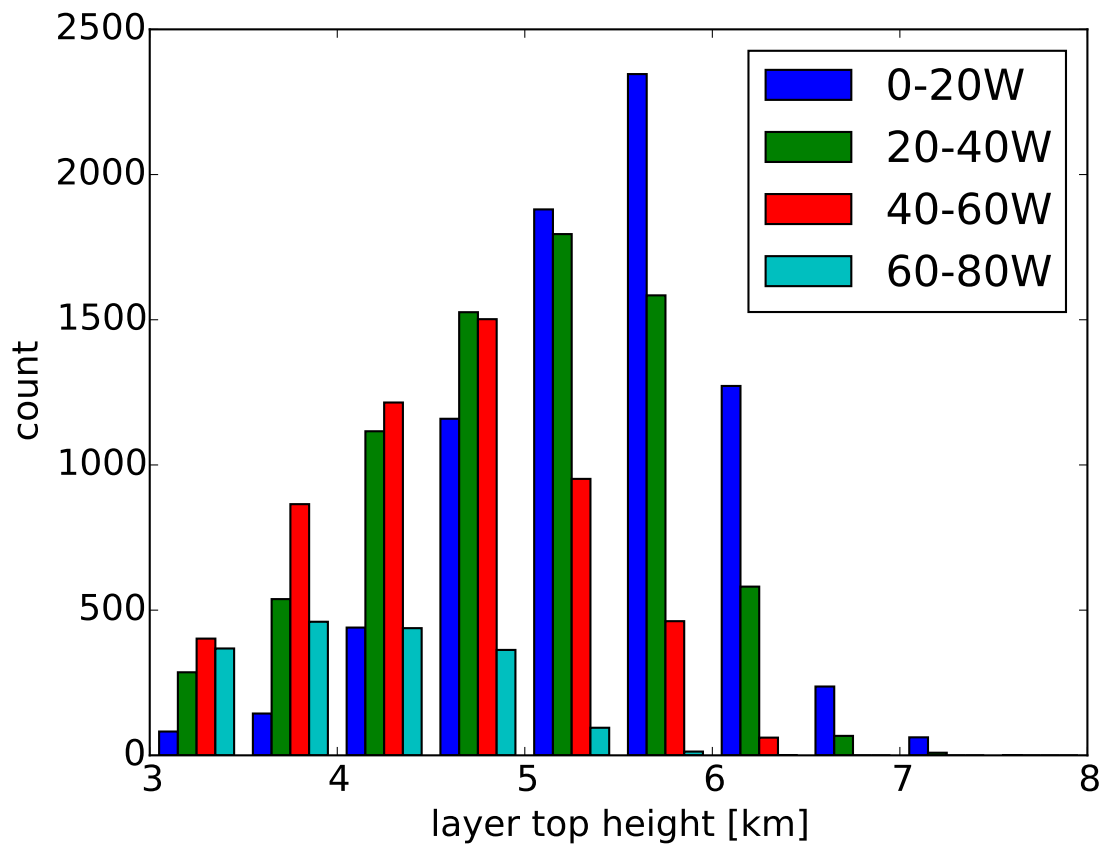


Figure S-11: Histogram of SAL top height.

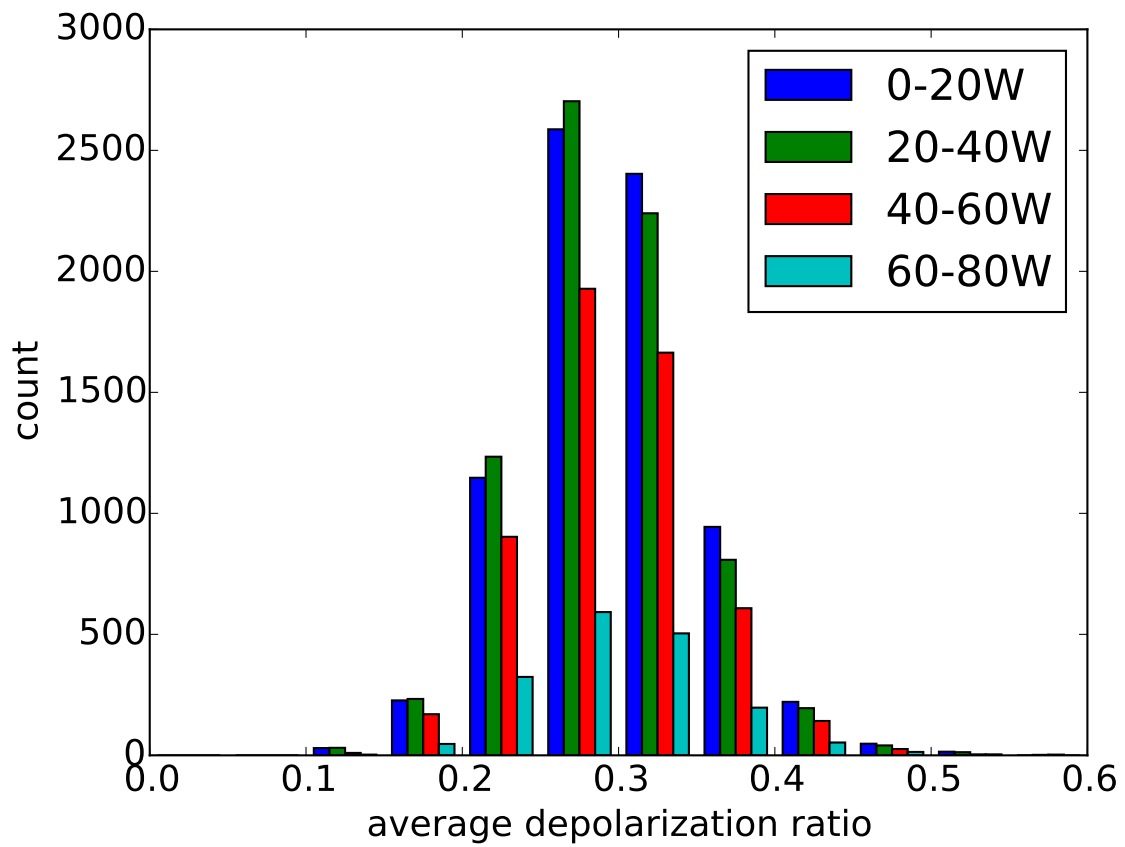


Figure S-12: Histogram of layer-averaged linear depolarization ratio.