Supplement of

# On the differences in the vertical apportionment of modeled aerosol optical depth over the southeast Atlantic

Ian Chang et al.

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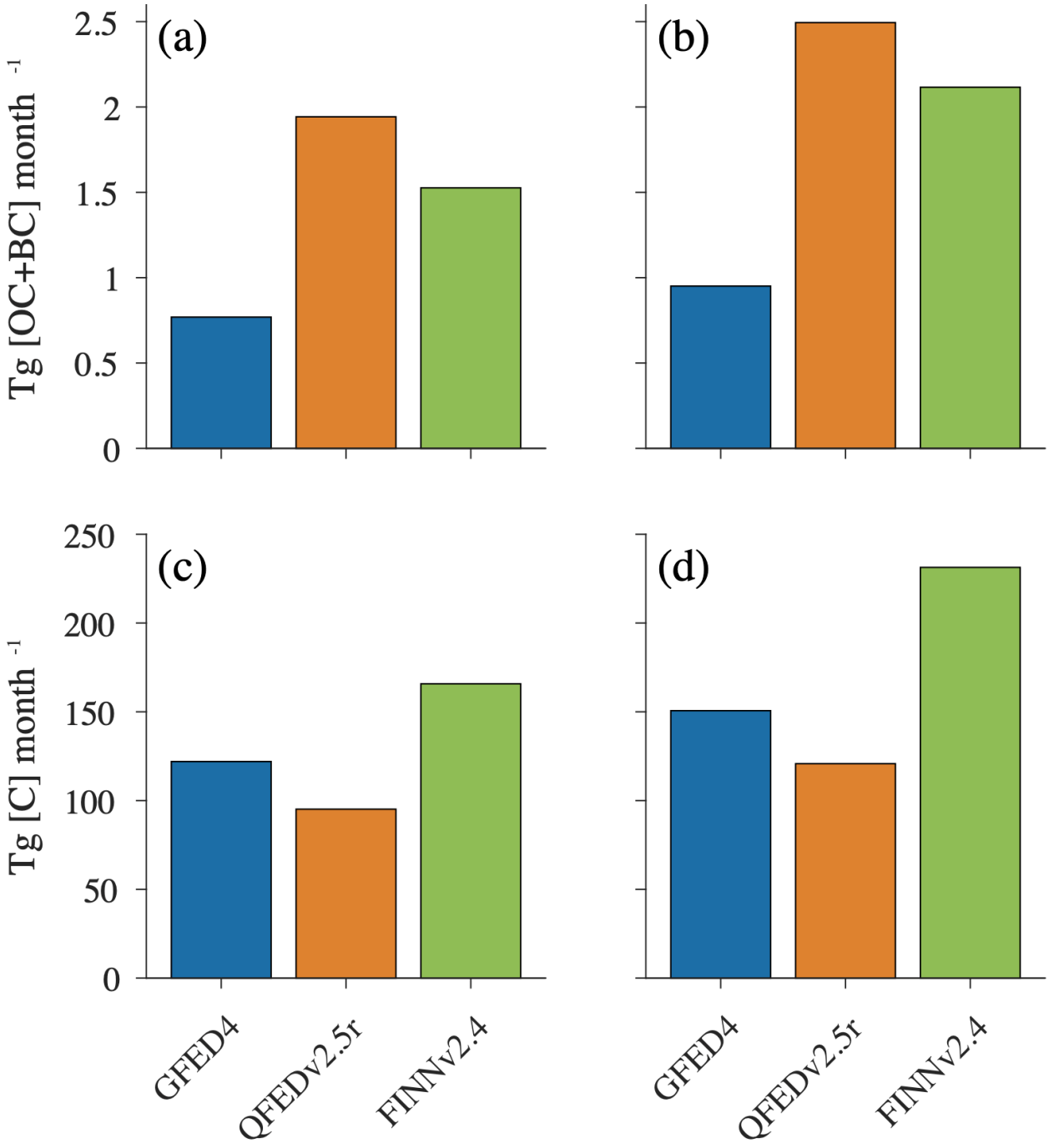


Figure S 1. Comparison of biomass burning emissions (Tg month-1) from GFED4, QFEDv2.5r1 and FINNv2.4 within the region 19° W-53° E, 36° S-22° N during (left) September 2016 and (right) August 2017. (top) Organic and black carbon (OC+BC) and (bottom) total carbon (C) emissions. Total carbon emissions were calculated by taking the carbon parts of CO, CO2, CH4, OC and BC.

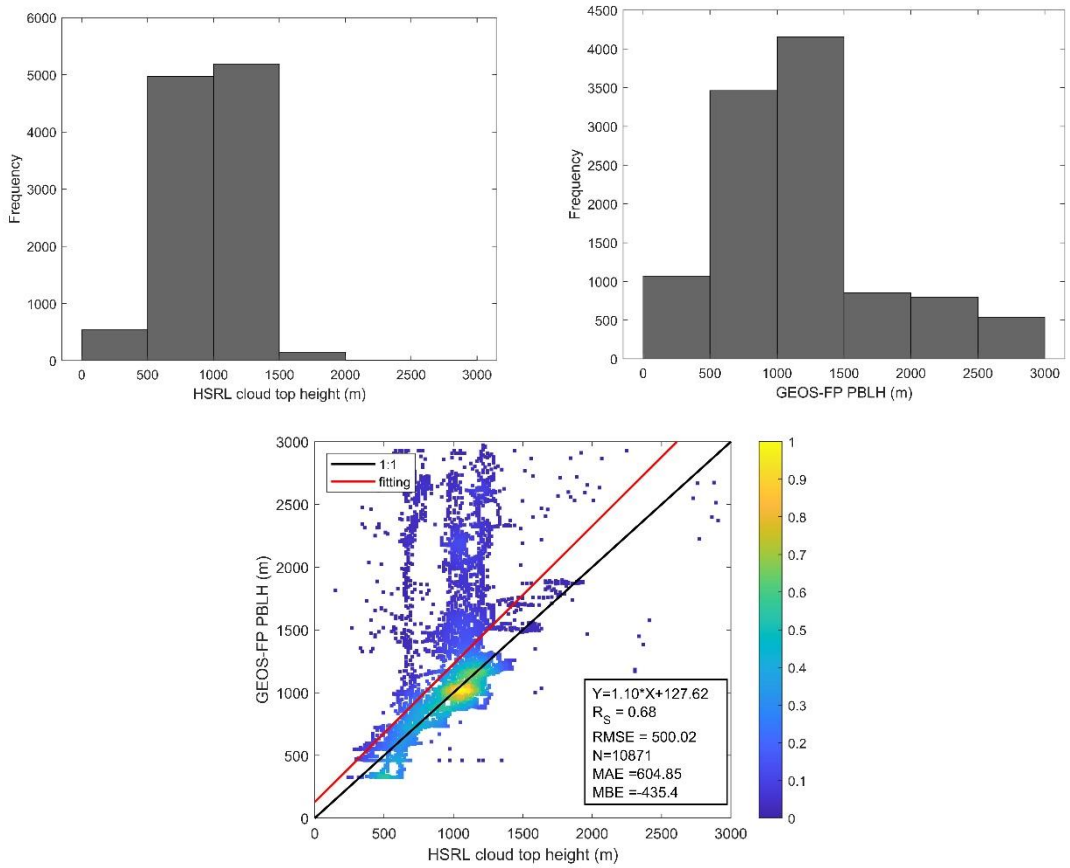


Figure S 2. Histograms and normalized density-gradient scatterplots comparing GEOS-FP PBL height against HSRL-2's cloud-top height during September 2016 of NASA ORACLES.

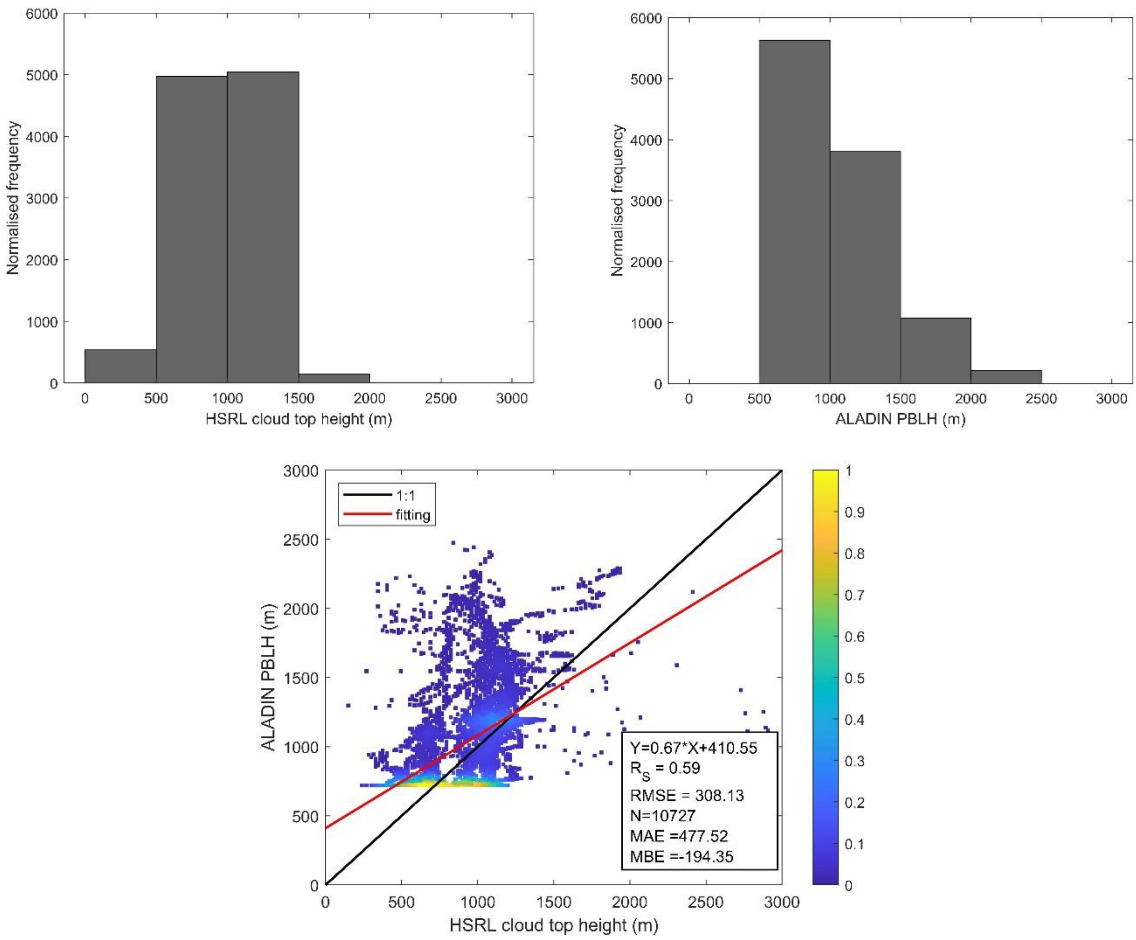


Figure S 3. As in Figure S 2, but for ALADIN PBL height.

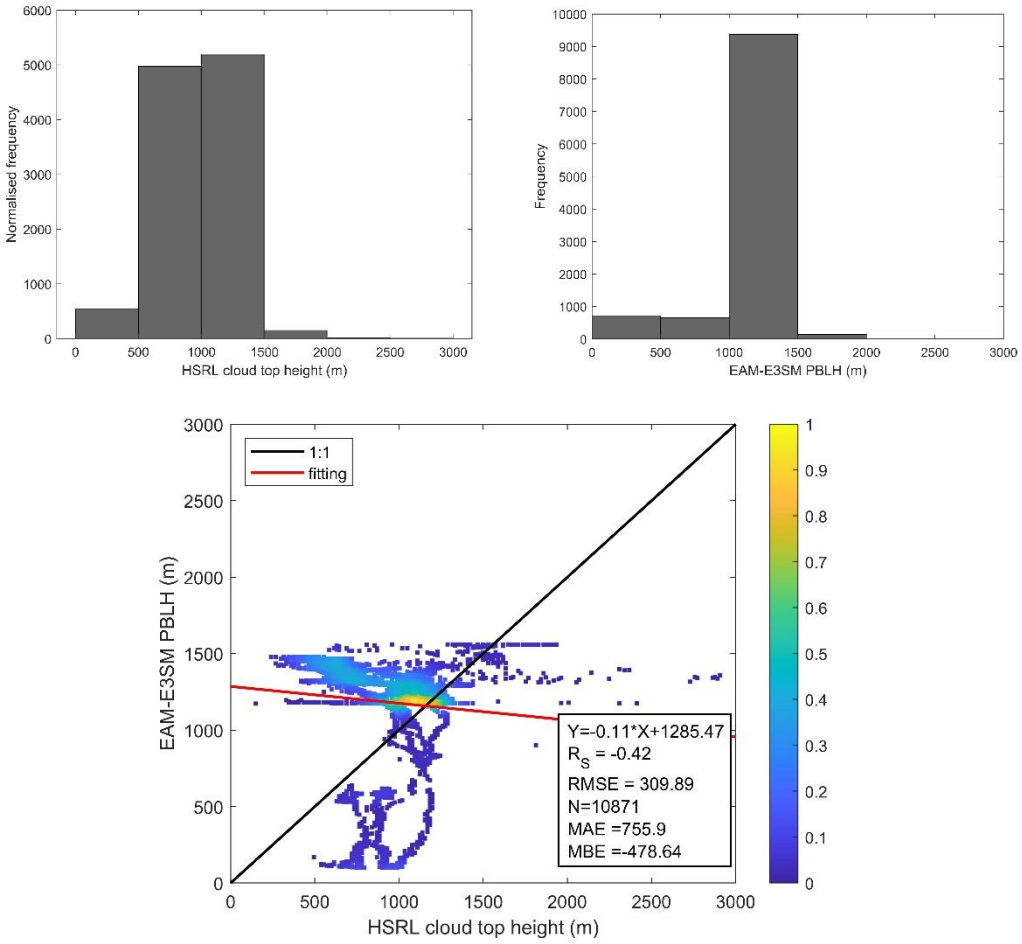


Figure S 4. As in Figure S 2, but for EAM-E3SM PBL height.

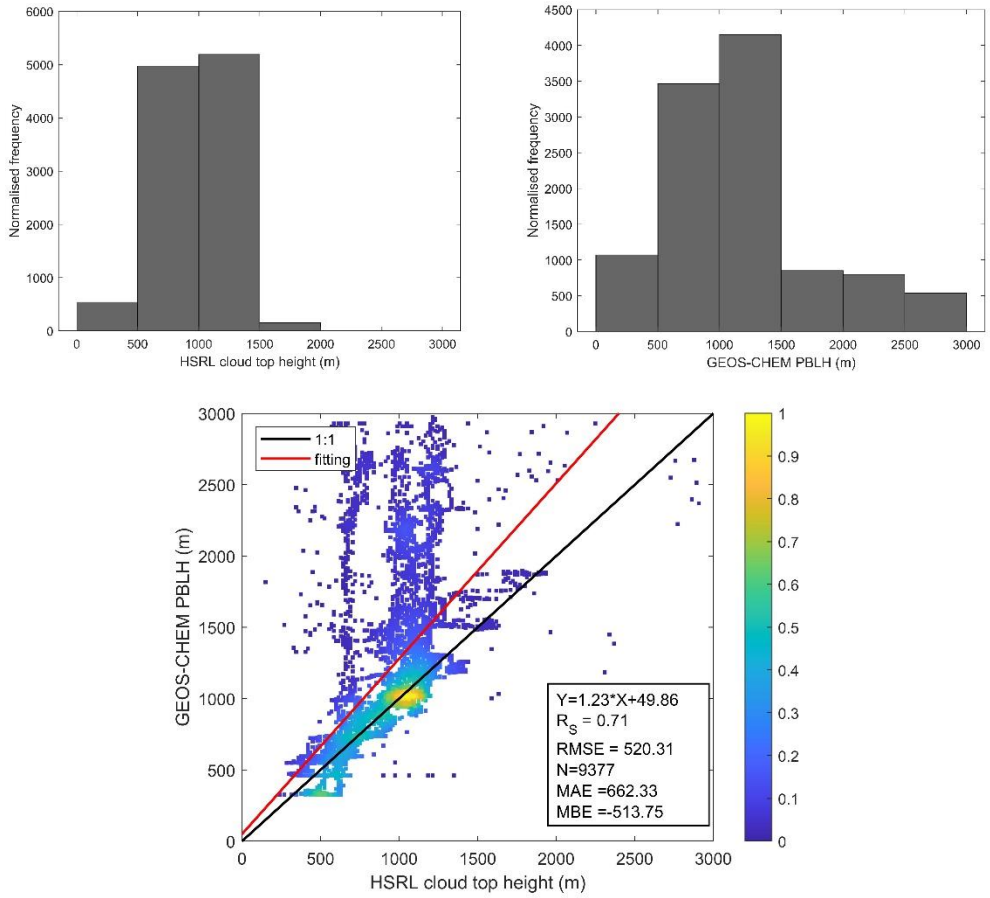


Figure S 5. As in Figure S 2, but for GEOS-CHEM PBL height.

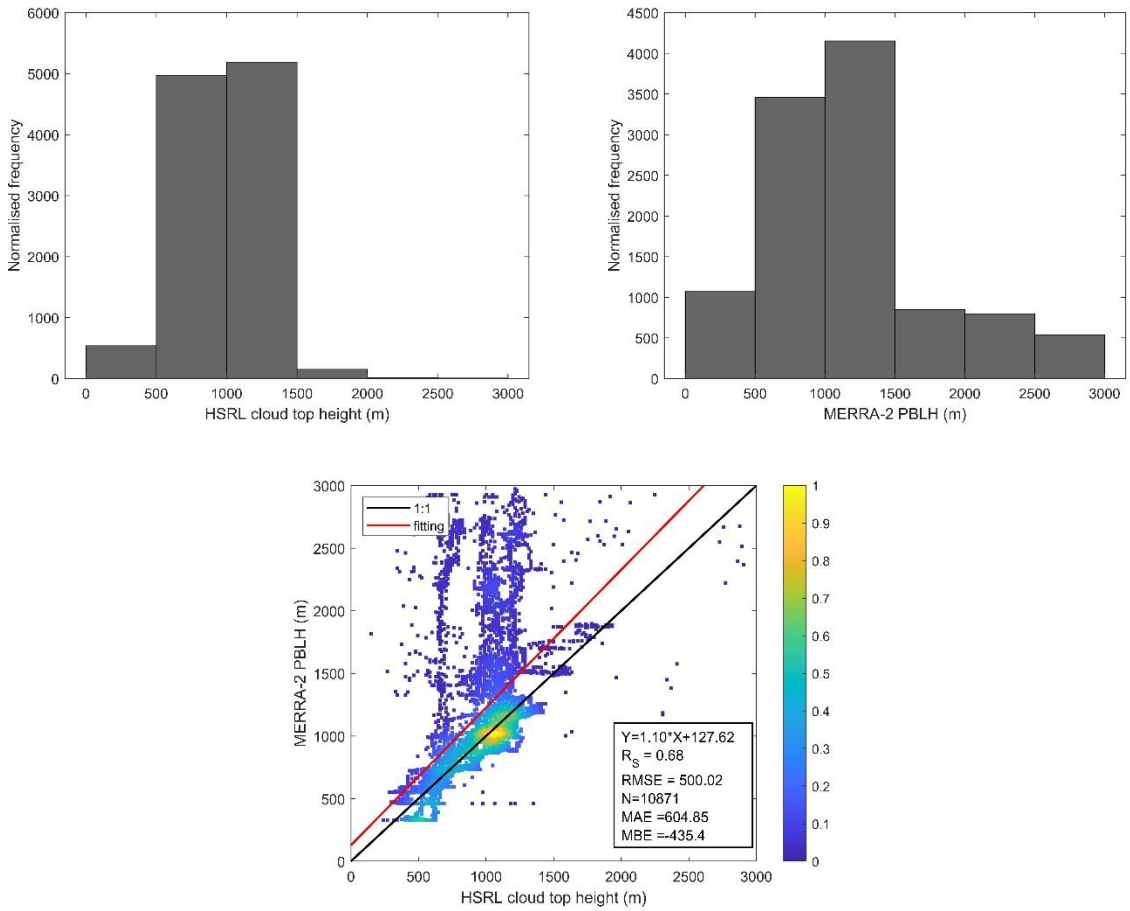


Figure S 6. As in Figure S 2, but for MERRA-2 PBL height.

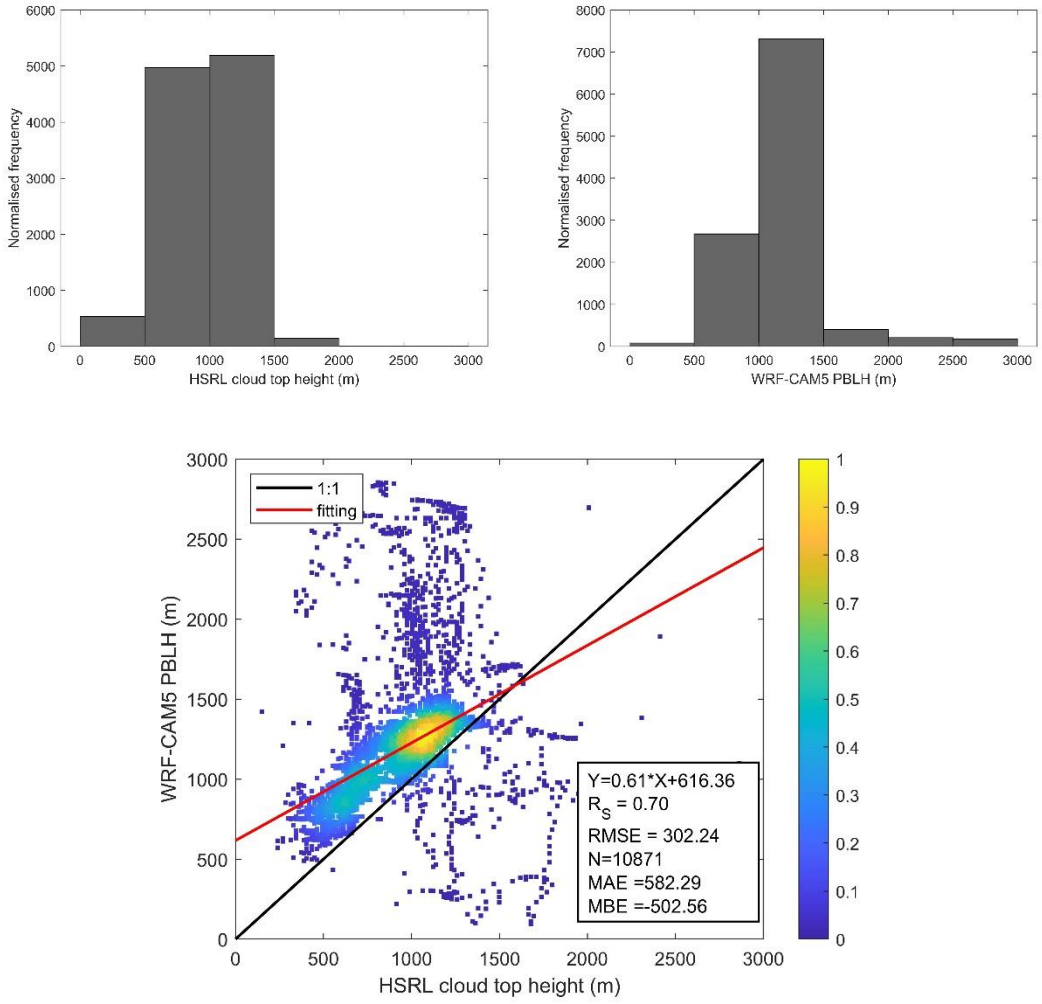


Figure S 7. As in Figure S 2, but for WRF-CAM5 PBL height.

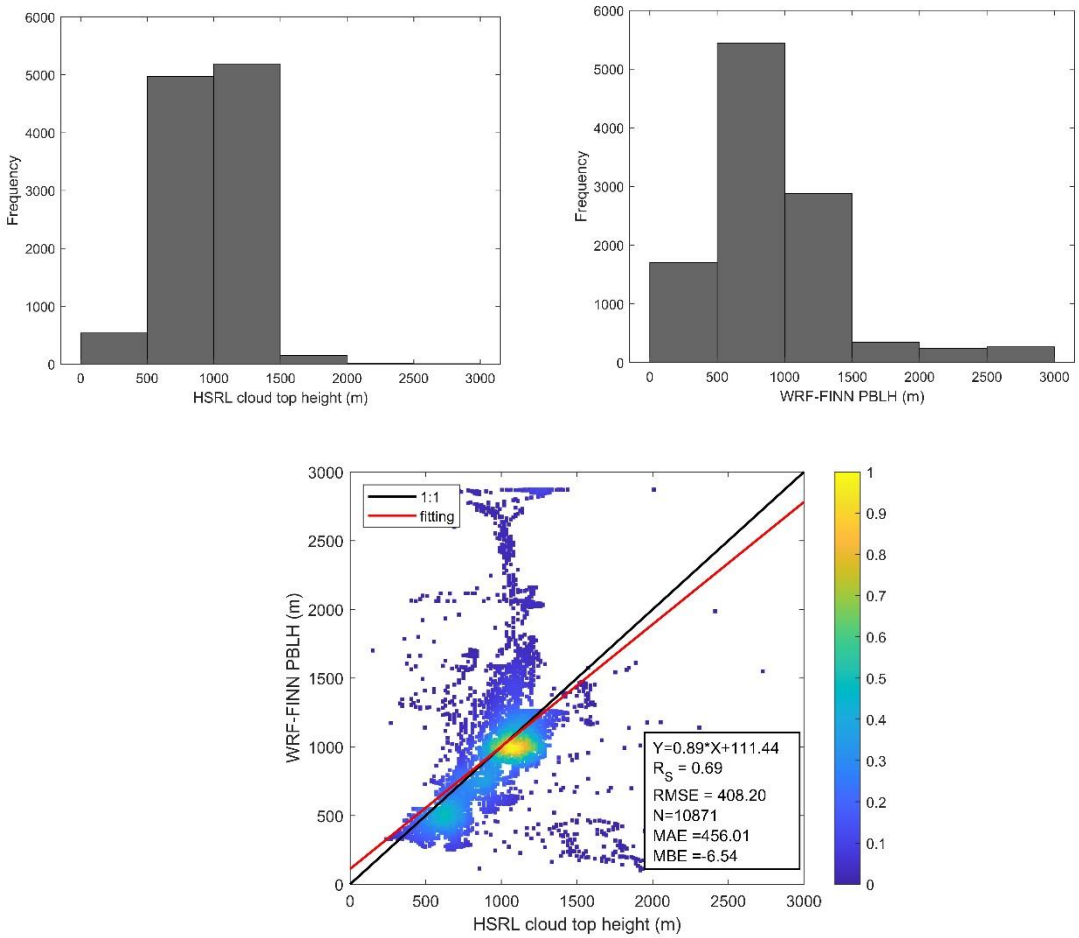


Figure S 8. As in Figure S 2, but for WRF-FINN PBL height.

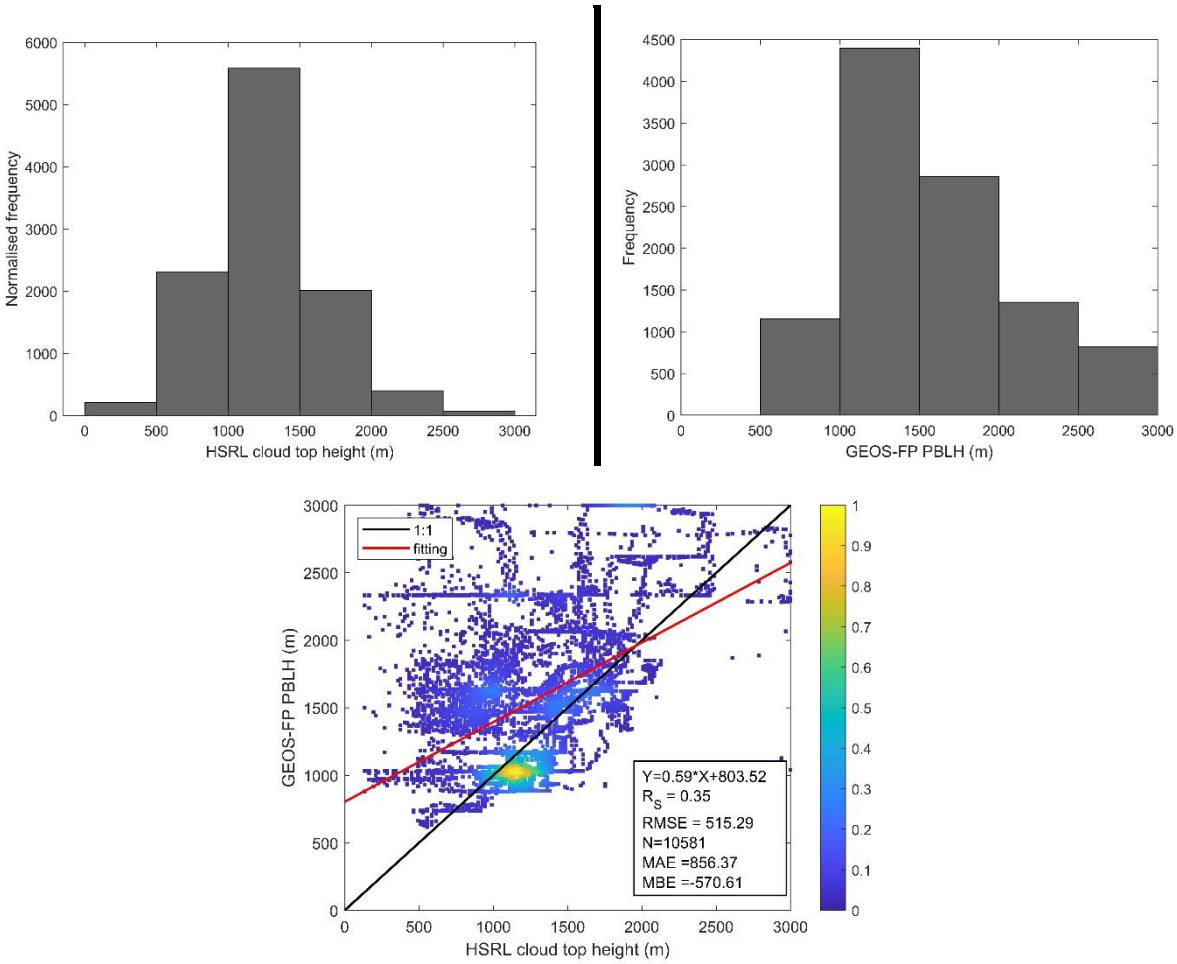


Figure S 9. As in Figure S 2, but for GEOS-FP in August 2017.

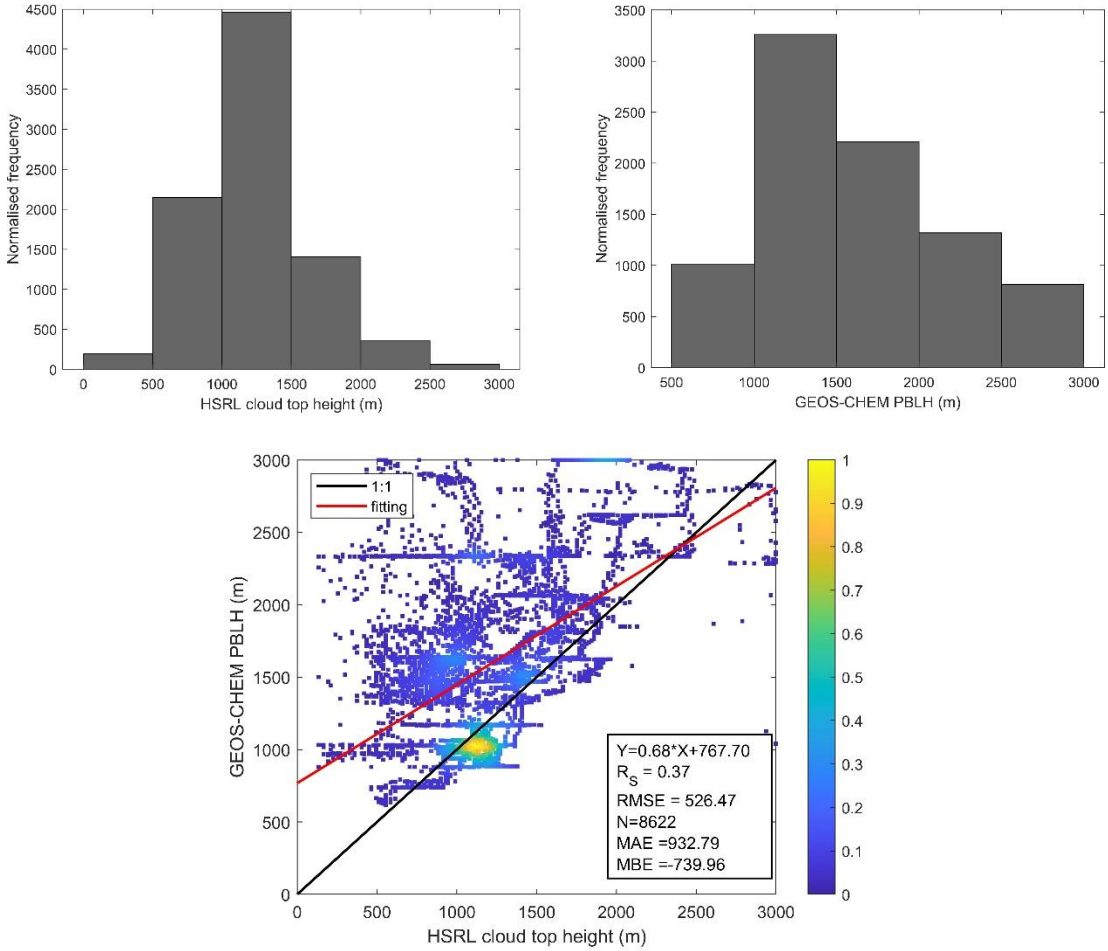


Figure S 10. As in Figure S 2, but for GEOS-Chem in August 2017.

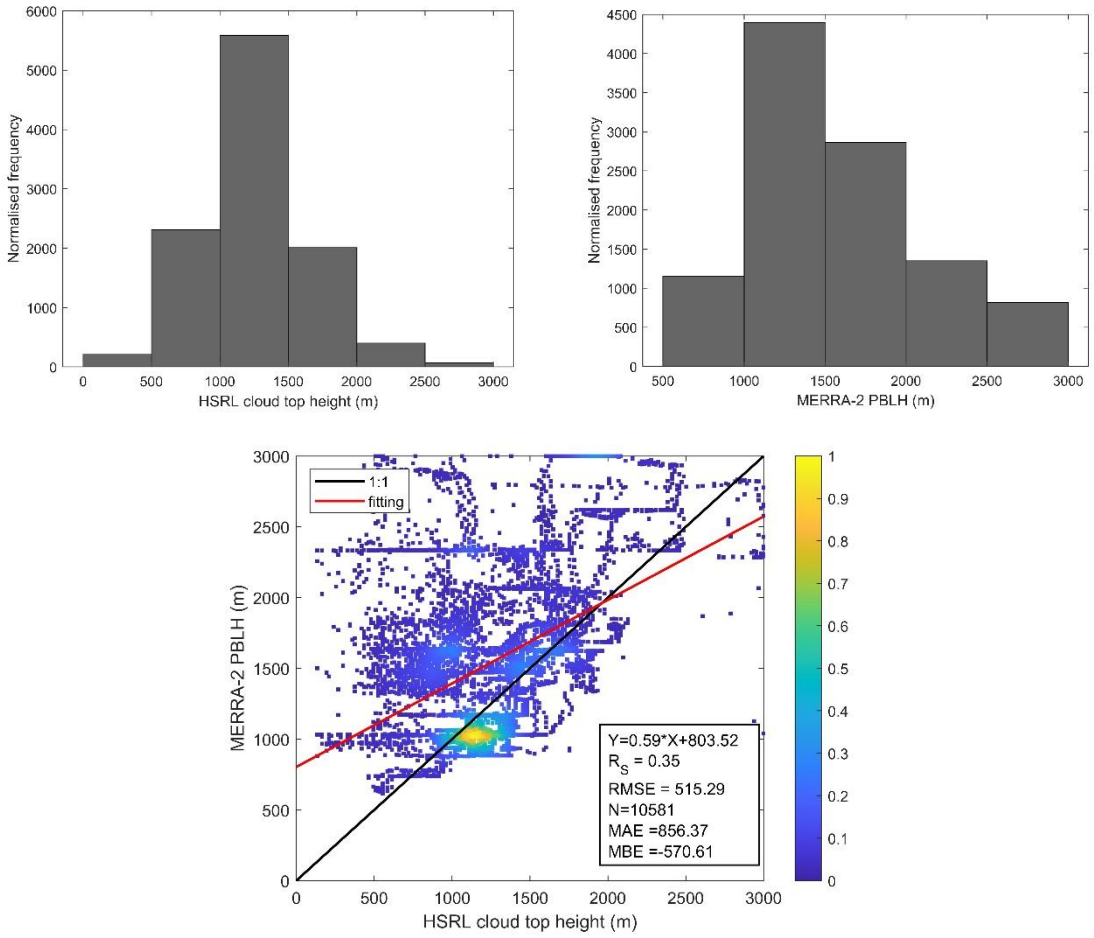


Figure S 11. As in Figure S 2, but for MERRA-2 in August 2017.

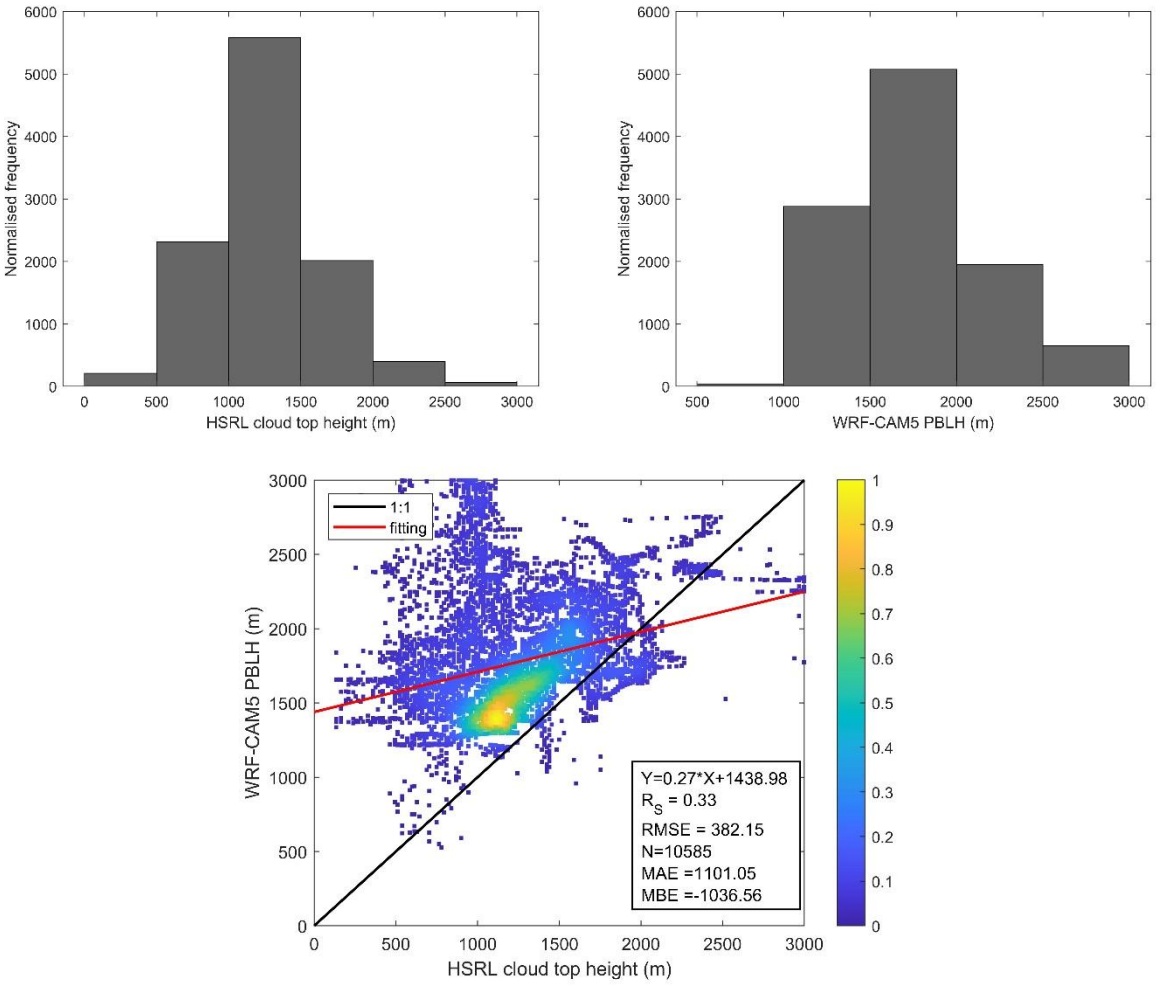


Figure S 12. As in Figure S 2, but for WRF-CAM5 in August 2017.

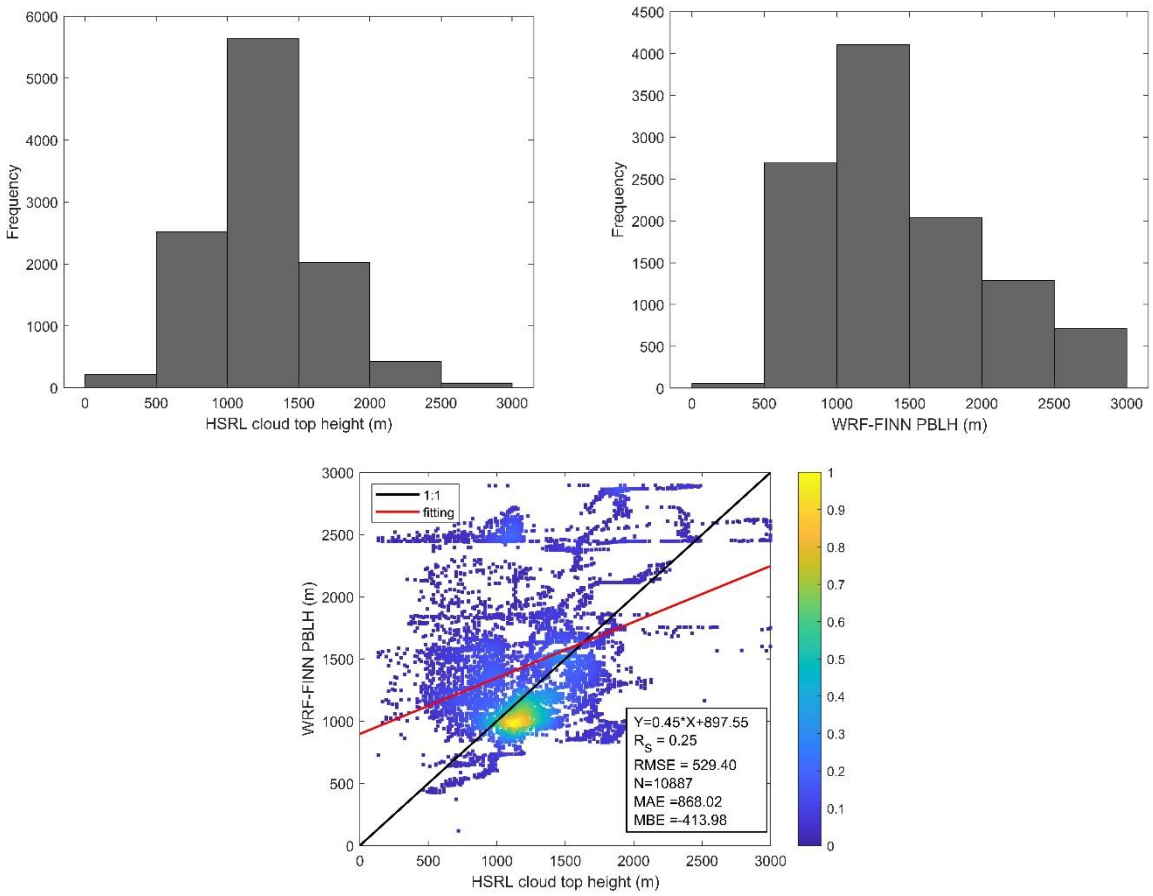


Figure S 13. As in Figure S 2, but for WRF-FINN in August 2017.

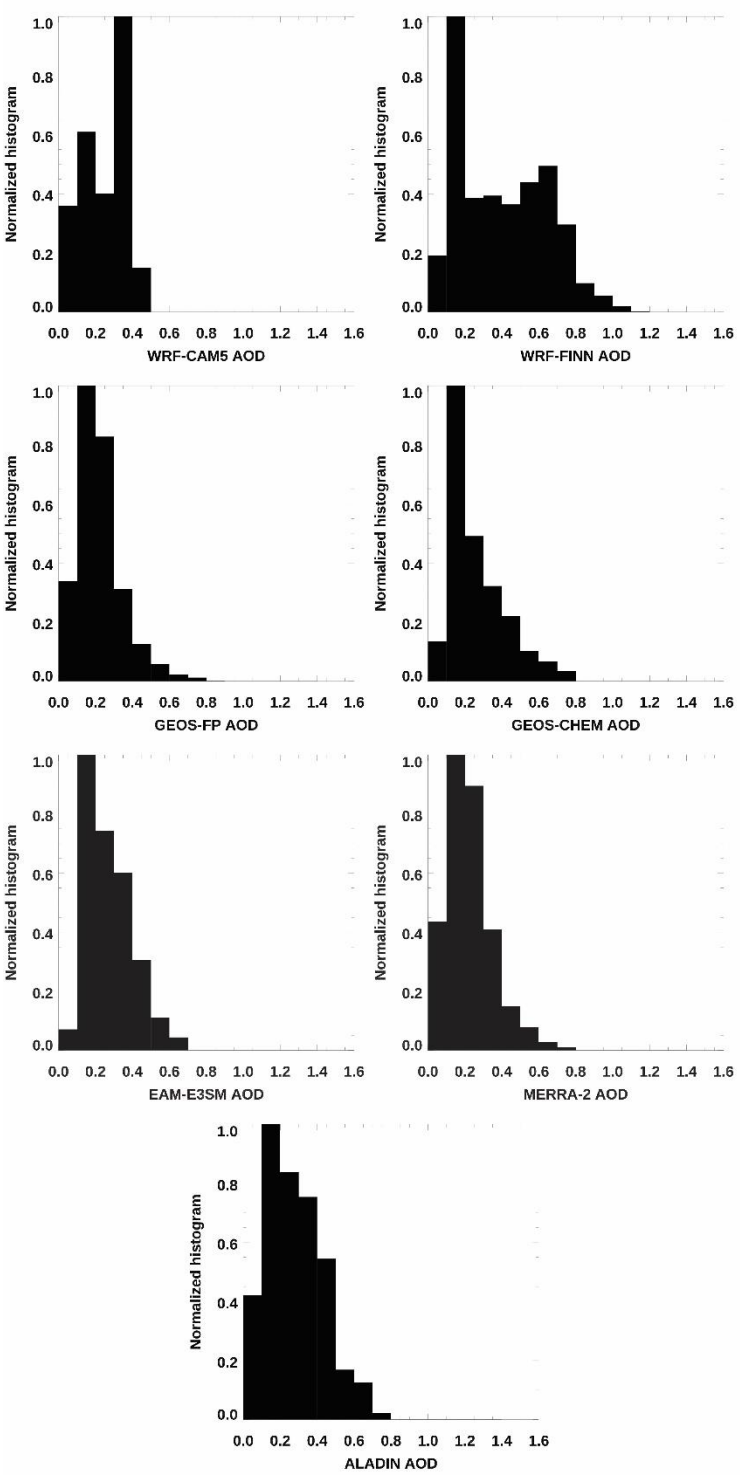


Figure S 14. Histograms of the modeled AOD in Figure 6.

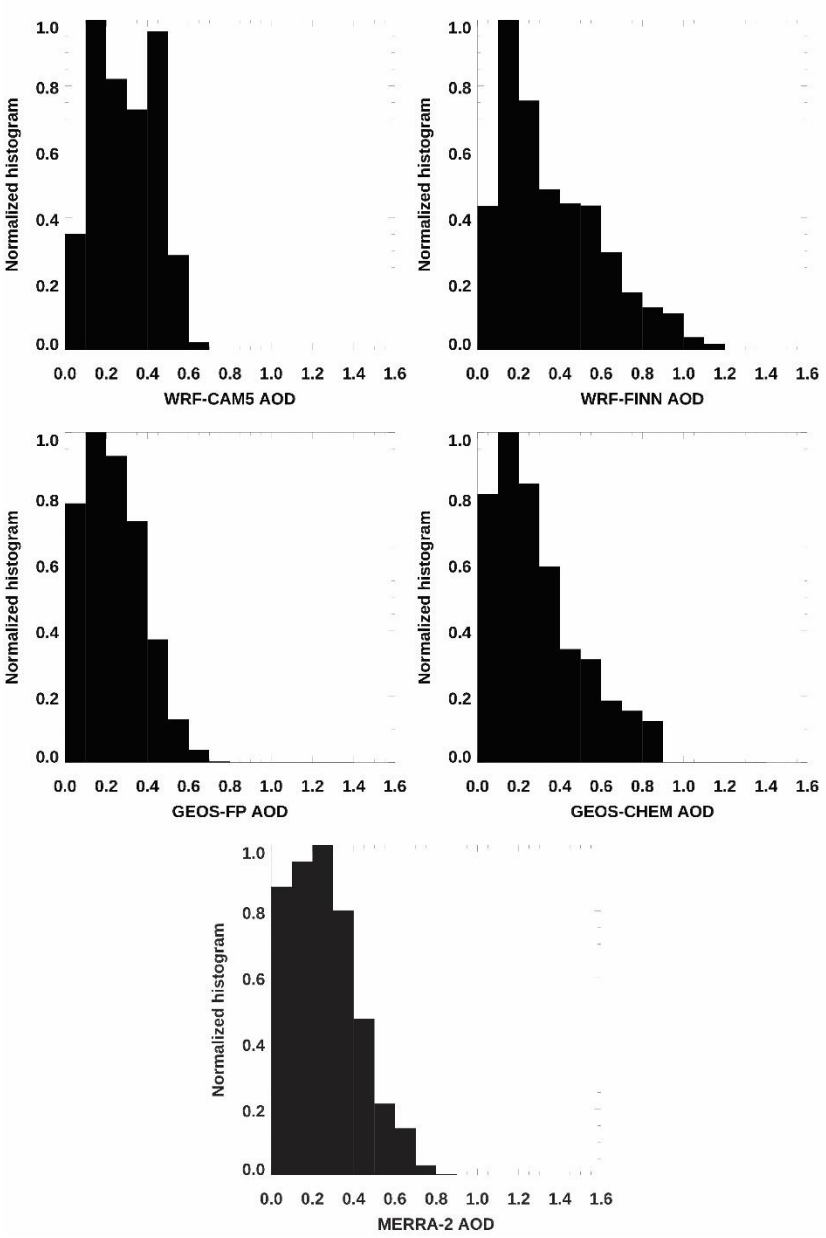


Figure S 15. Histograms of the modeled AOD in Figure 7.

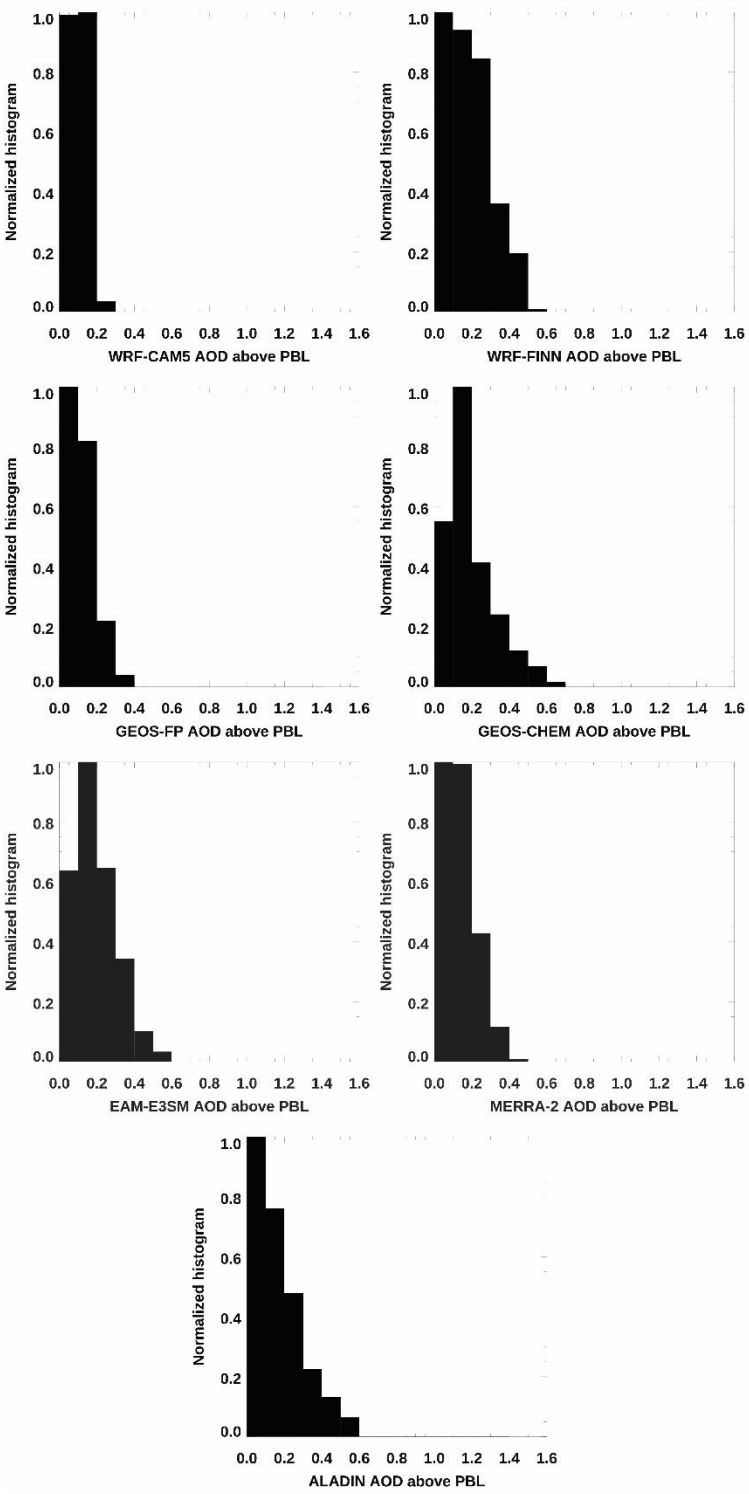


Figure S 16. Histograms of the modeled AOD above PBL (i.e., FT) in Figure 8.

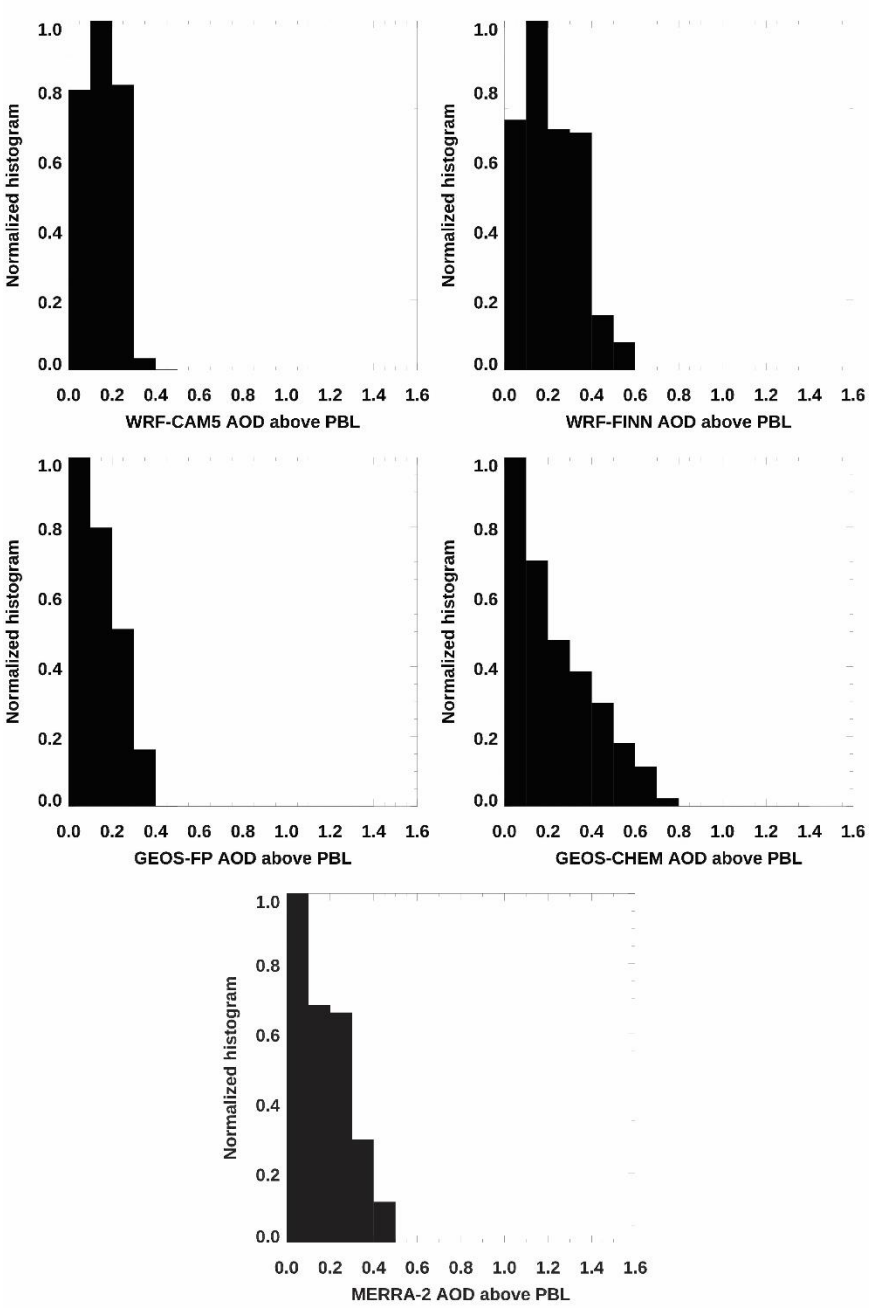


Figure S 17. Histograms of the modeled AOD above PBL (i.e., FT) in Figure 9.

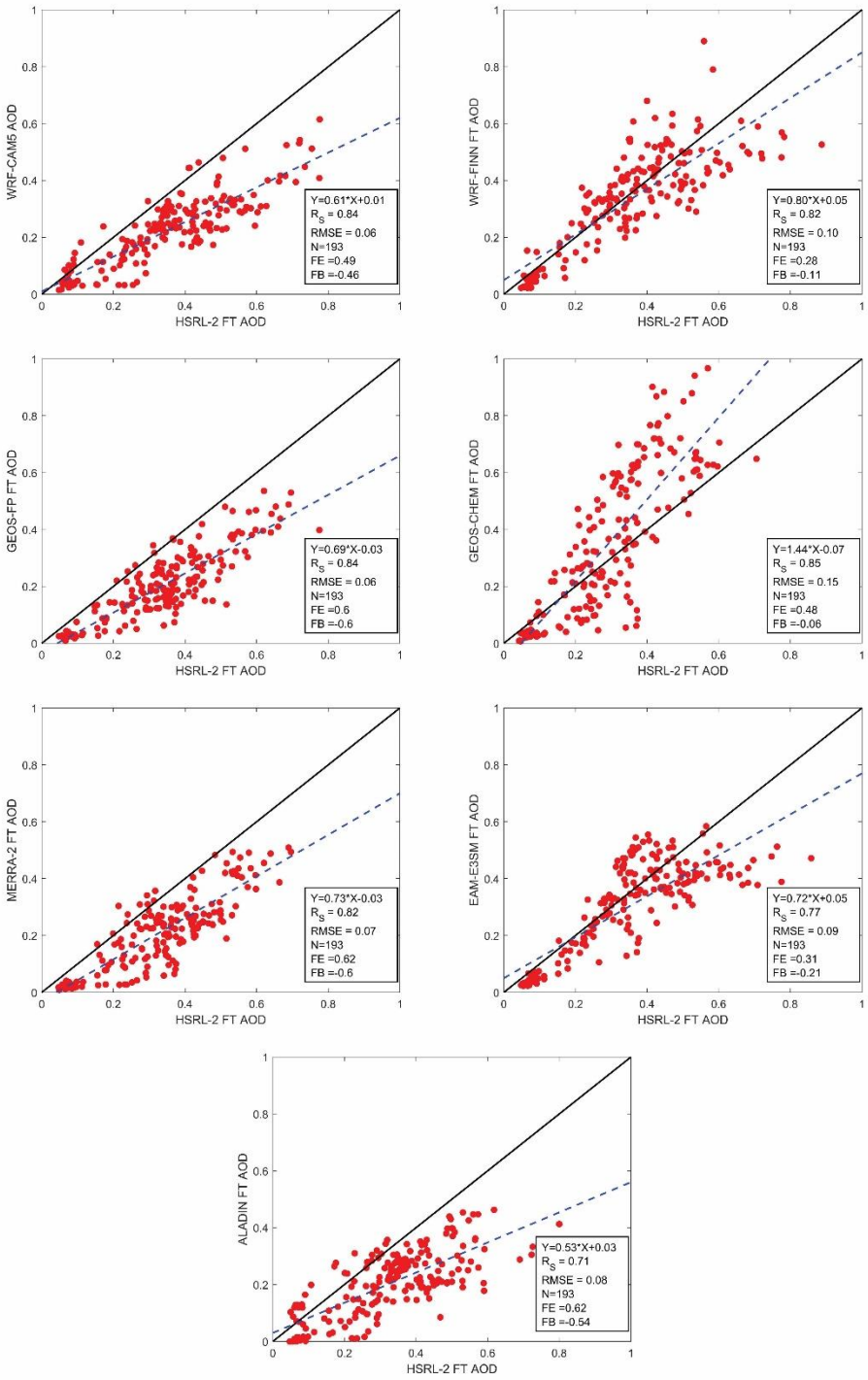


Figure S 18. Scatter plots comparing FT AOD among models and the HSRL-2 during September 2016 of the ORACLES field experiment.

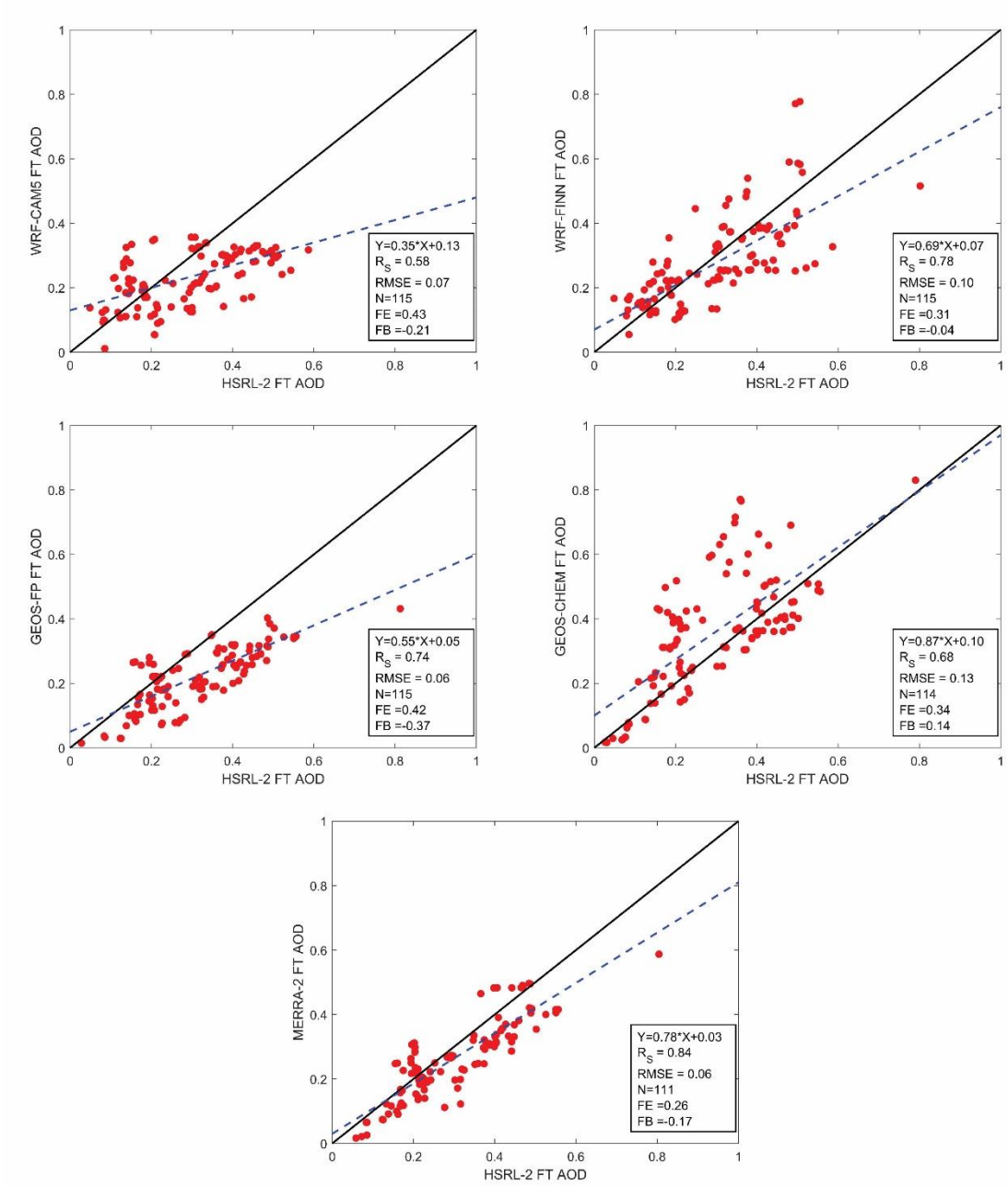


Figure S 19. Scatter plots comparing FT AOD among models and the HSRL-2 during August 2017.