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## Supplement of

## A multi-diagnostic approach to cloud evaluation

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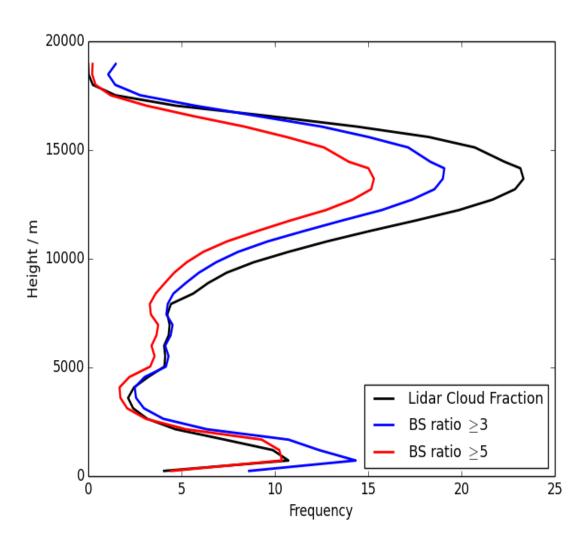


Figure S1: CALIPSO observed height—cloud frequency histograms for the tropics (20°N-20°S). Black is the lidar cloud fraction obtained from the RL-GEOPROF product (and thus is based on the lidar cloud detection algorithm). Blue and red are obtained from CALIPSO height—backscatter ratio histograms by adding together the backscatter ratio bins ≥3 and ≥5 respectively.

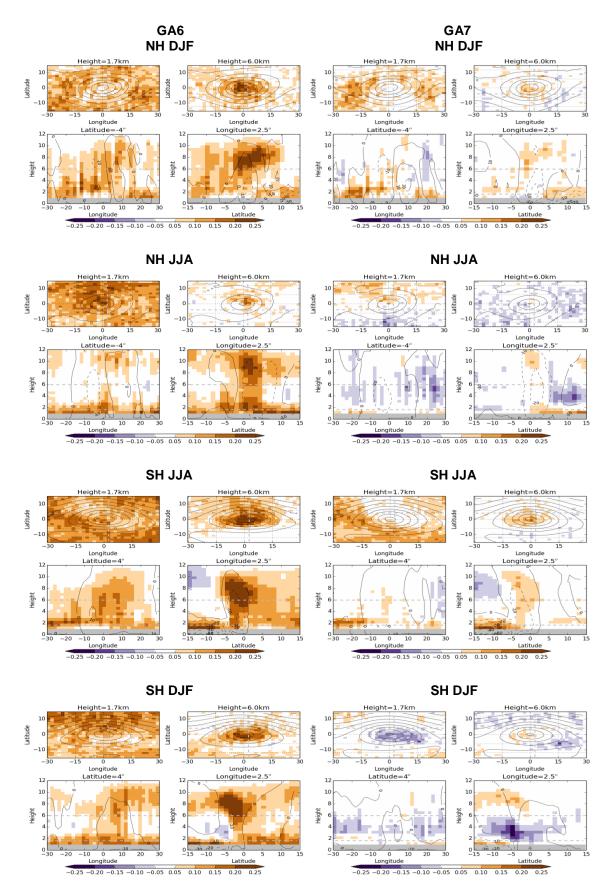


Figure S2: Cloud fraction bias for GA6 (left) and GA7 (right) composite cyclones (as per Figure 7 in main paper). From top to bottom are northern hemisphere winter, northern hemisphere summer, southern hemisphere winter and southern hemisphere summer.

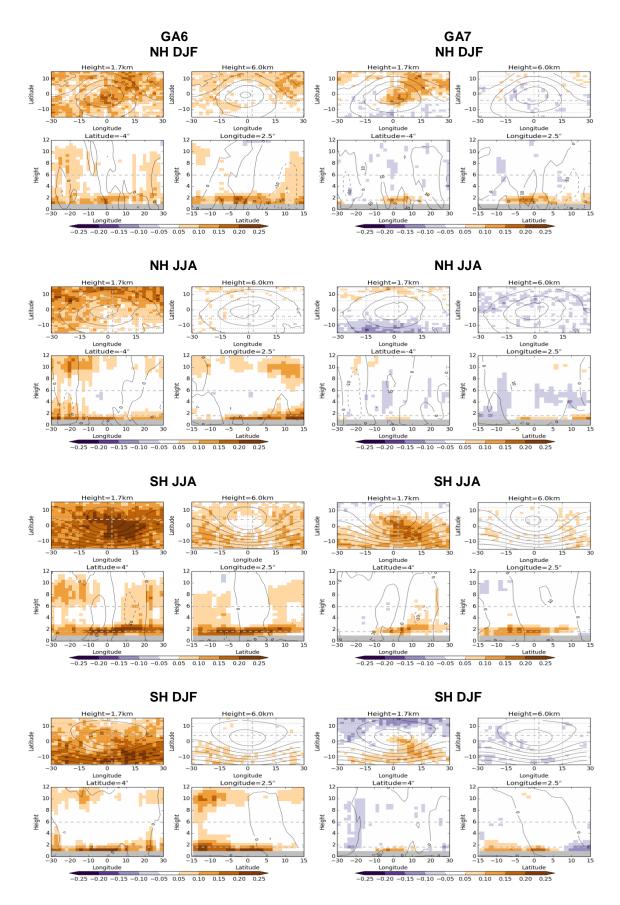


Figure S3: As Supplementary figure 2 but for anticyclones.

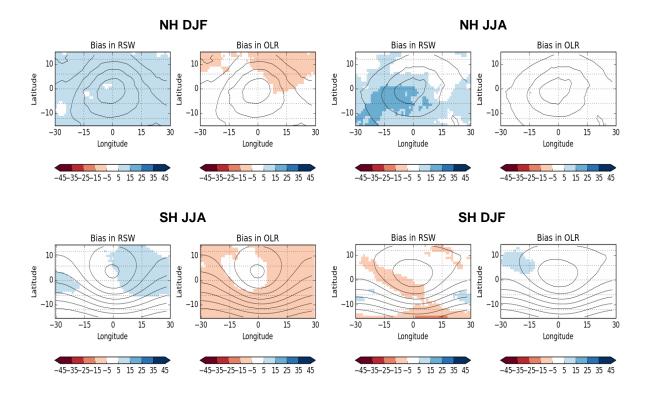


Figure S4: RSW and OLR bias for GA7 composite anticyclones (as per Figure 9 in main paper).