

**Airborne measurements of surface albedo and leaf area index of snow-covered boreal forest**

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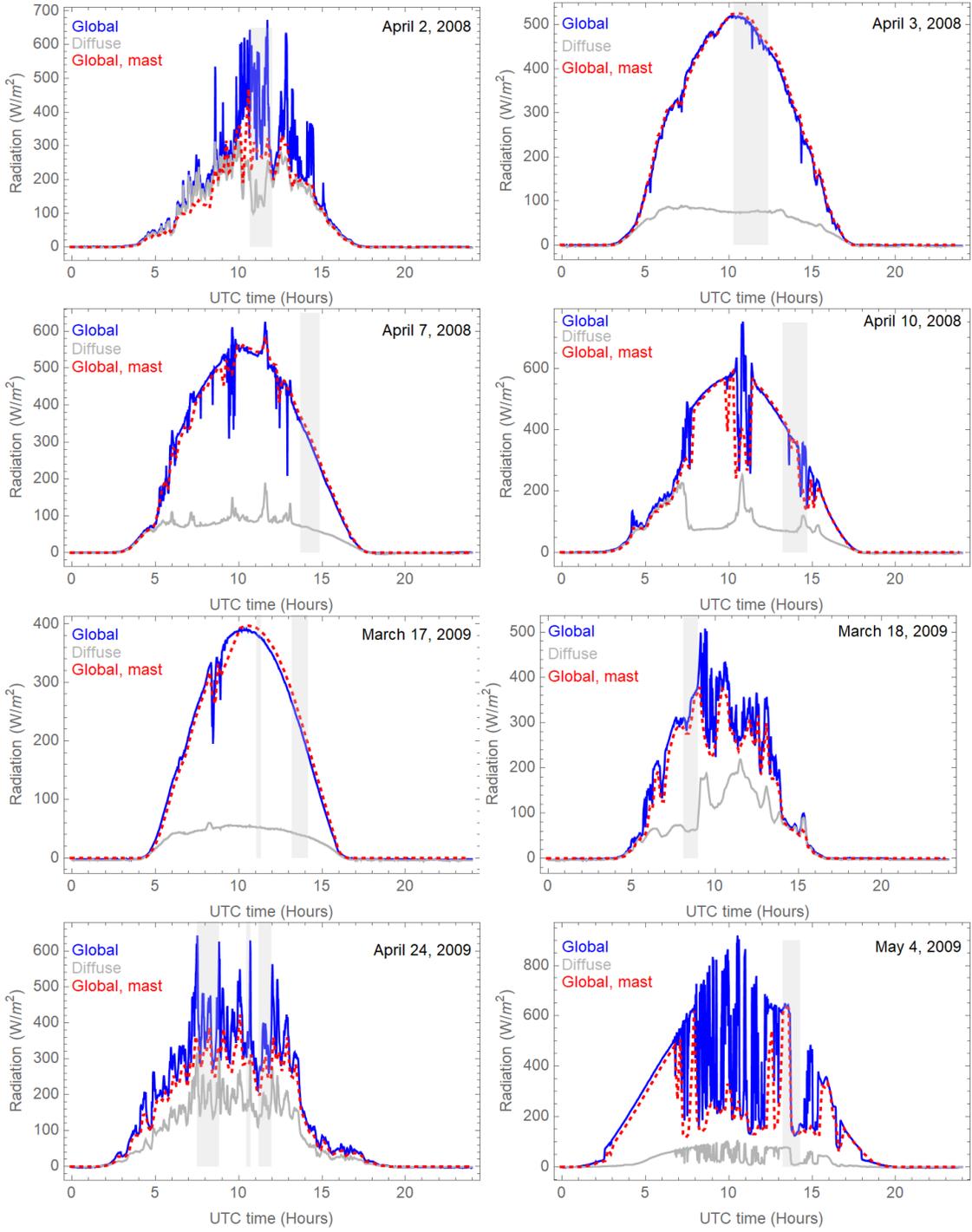
Corresponding author: Terhikki Manninen (terhikki.manninen@fmi.fi)

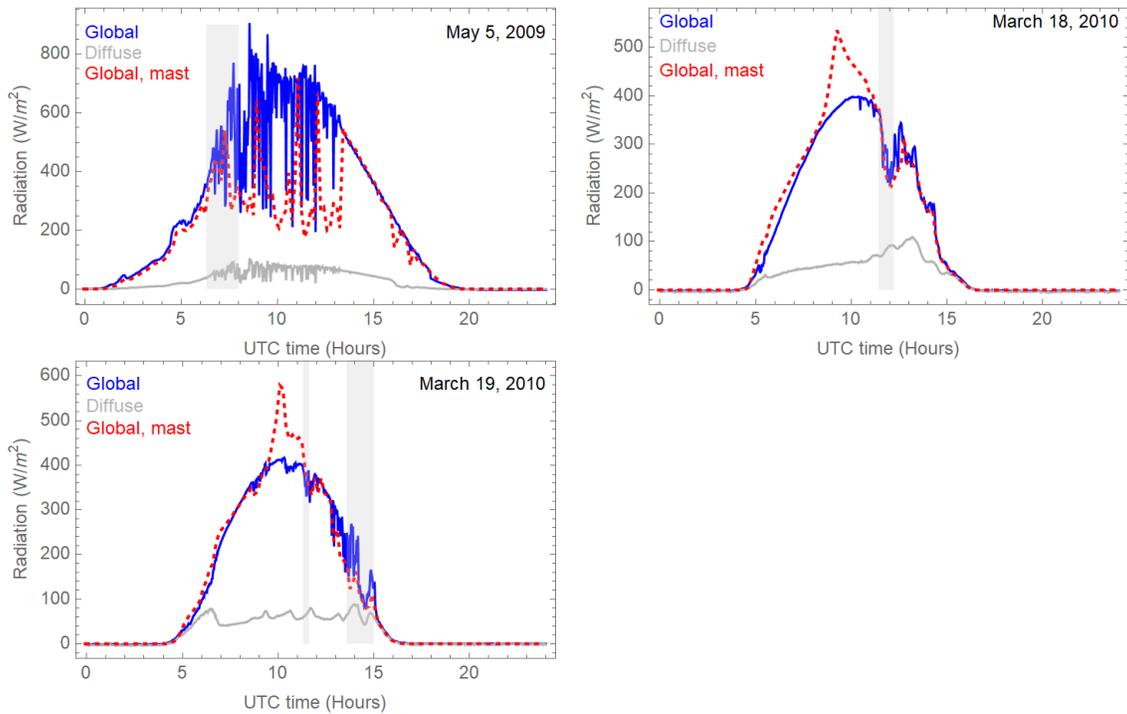
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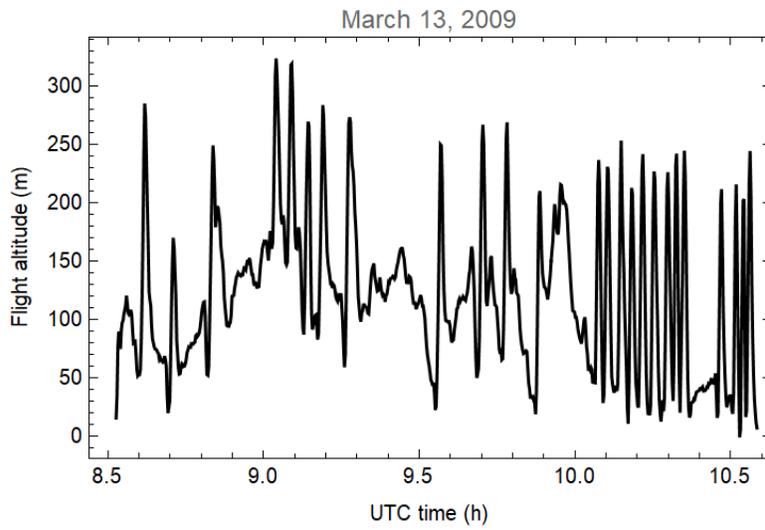
**Introduction**

This supplementary information shows Figures omitted from the actual manuscript, in which only examples were included. The Figures S1 show irradiance curves for other flight days than those shown in the manuscript. Figure 2 shows the variation of topography revealed by the starting altitudes of vertical profiles. Figure 3 shows examples of scenery related to low  $LAI_{eff}$  values. Figures S4 – S6 show comparison between the airborne albedo data and MODIS albedo product for other days than shown in the manuscript. Figures S6 – S9 show the albedo distributions of the airborne data and the MODIS product for other days/altitudes than those shown in the manuscript.





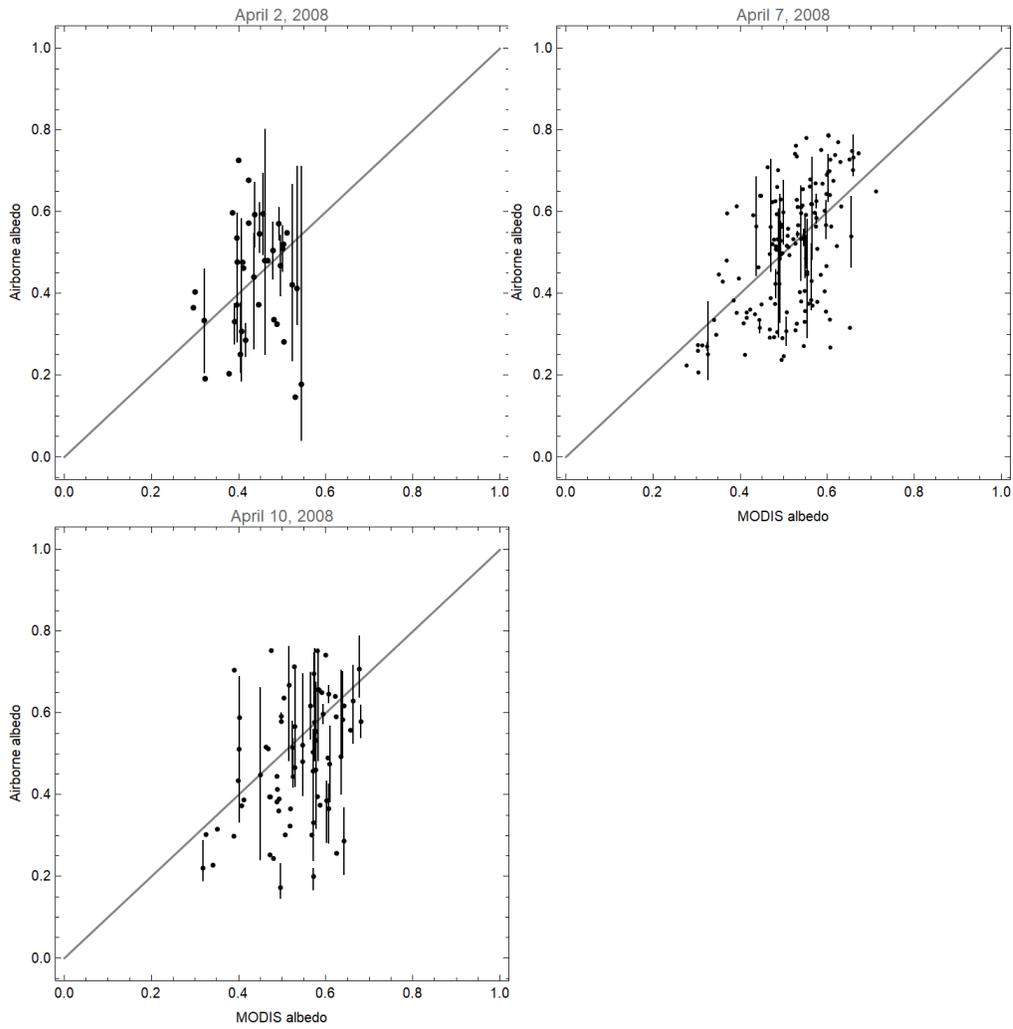
**Figure S1.** The global and diffuse radiation observed at the sounding station (solid curves) and the global radiation observed at the Sodankylä Heikinheimo mast (dashed curves) on the flight days in 2008 – 2010 not shown in the actual manuscript. The times of the flights are shown in light gray bars.



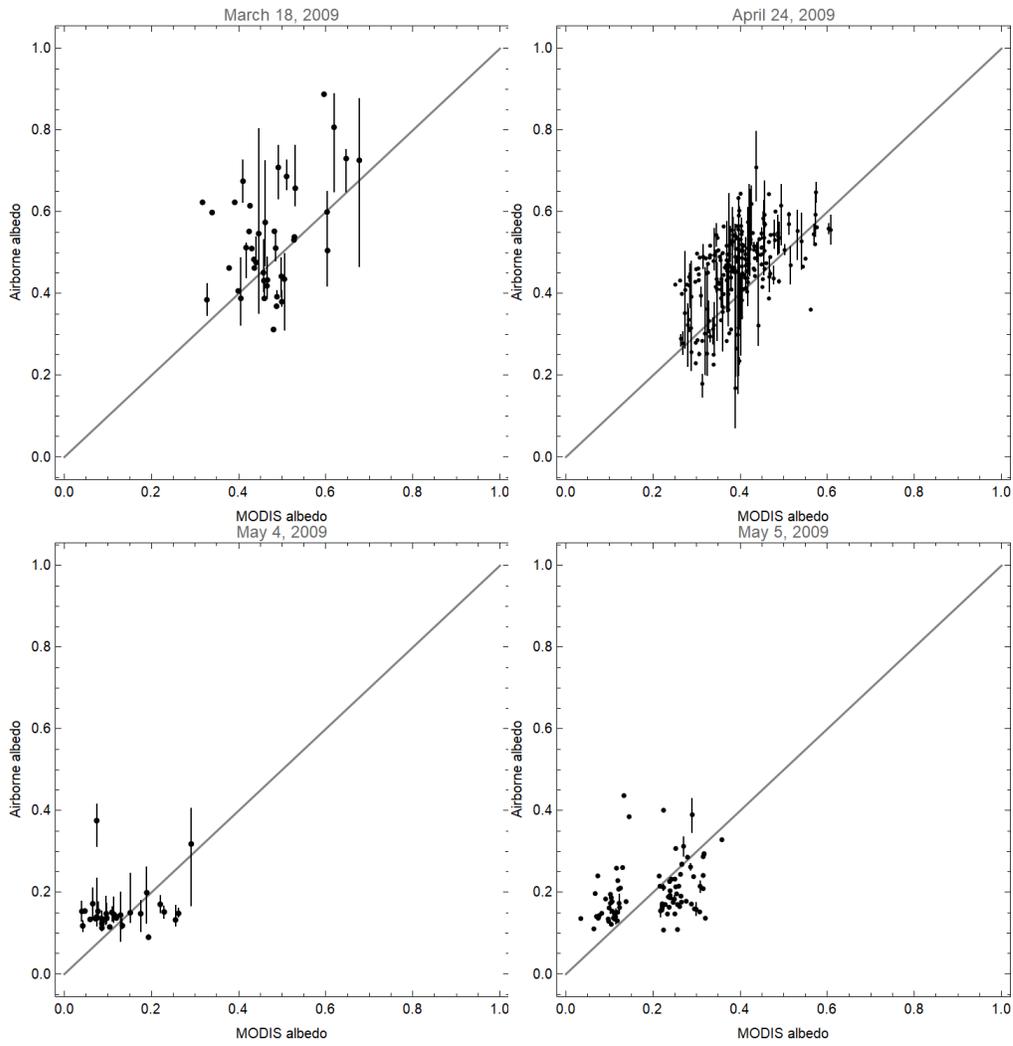
**Figure S2.** Variation of the flight altitude in March 13, 2009, when the flight plan concentrated on vertical profiles. The peaks starting from the same level above ground reveal the variation of the topography.



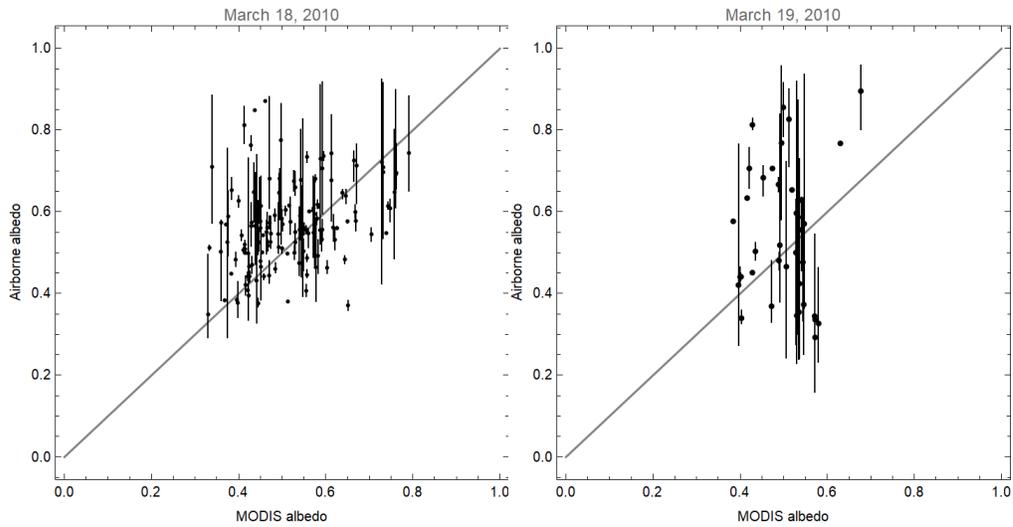
**Figure S3.** Examples of forests for which  $LA_{\text{eff}} = 0.25$  (top) and  $LA_{\text{eff}} = 0.5$  (bottom).  
March 13, 2009.



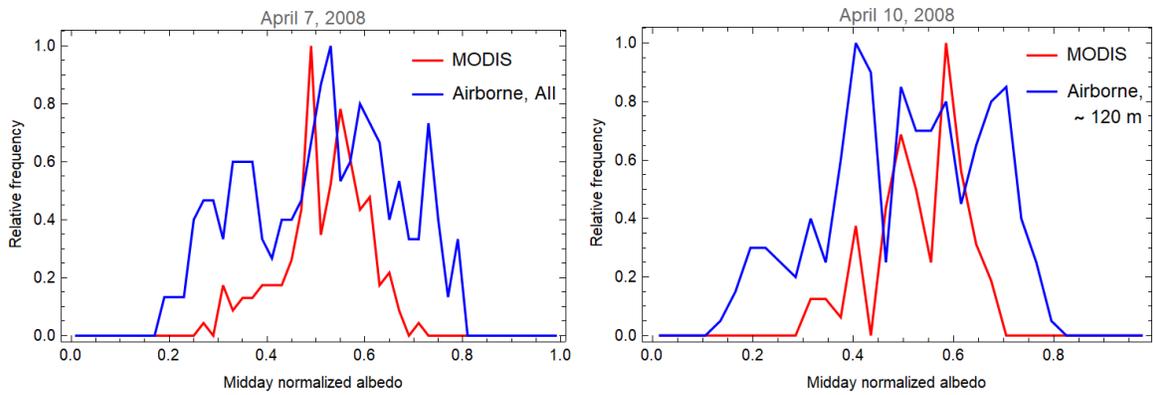
**Figure S4.** The airborne albedo values measured in April 2, April 7, and April 10 in 2008 vs. the MODIS albedo value (MCD43A3, Albedo\_BSA\_shortwave). The mean airborne value within a MODIS pixel is shown as a point and the variation range as a vertical line.



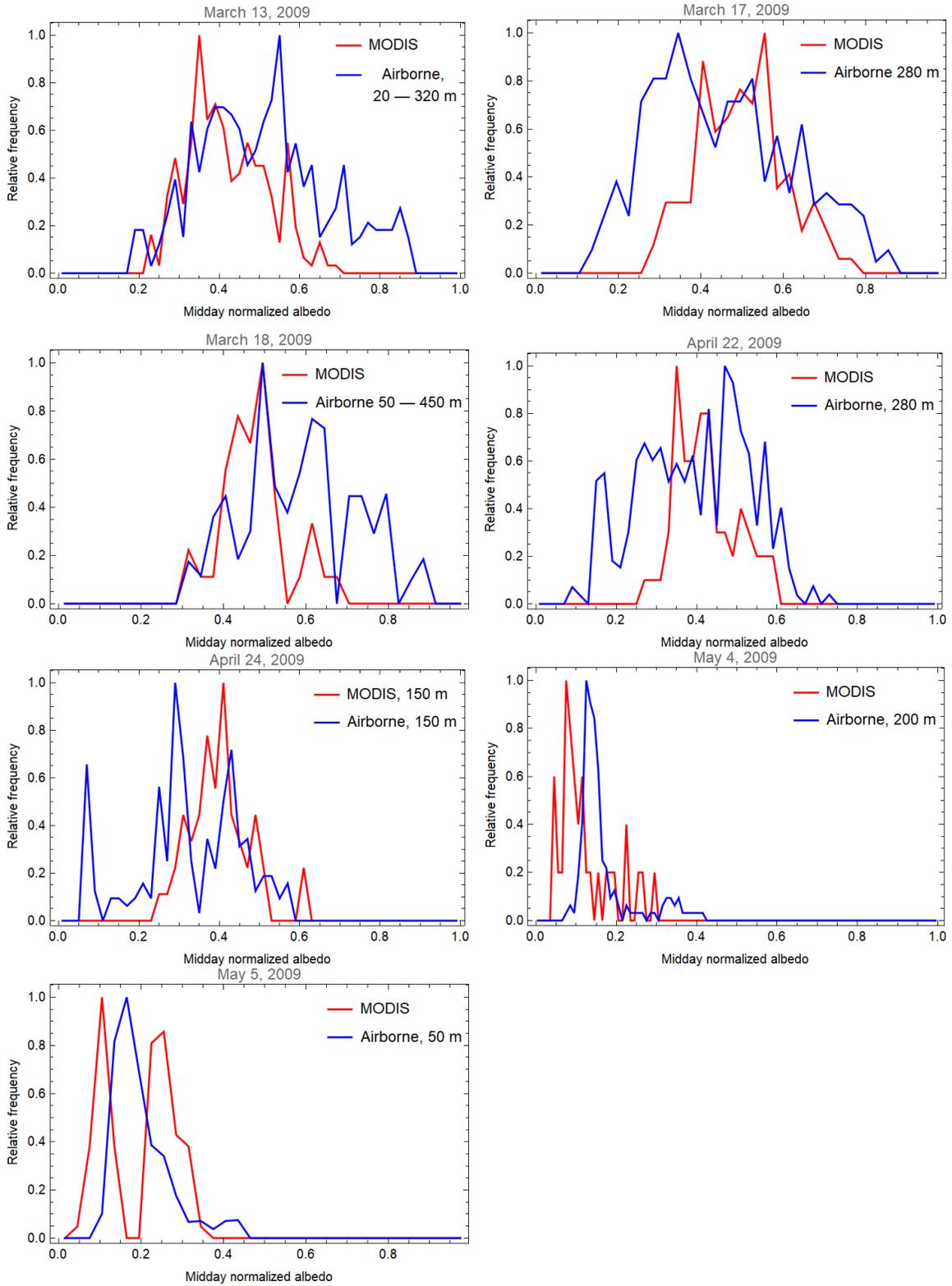
**Figure S5.** The airborne albedo values measured in March 18, April 24, May 4, and May 5 in 2009 vs. the MODIS albedo value (MCD43A3, Albedo\_WSA\_shortwave for April 24, Albedo\_BSA\_shortwave for the rest). The mean airborne value within a MODIS pixel is shown as a point and the variation range as a vertical line.



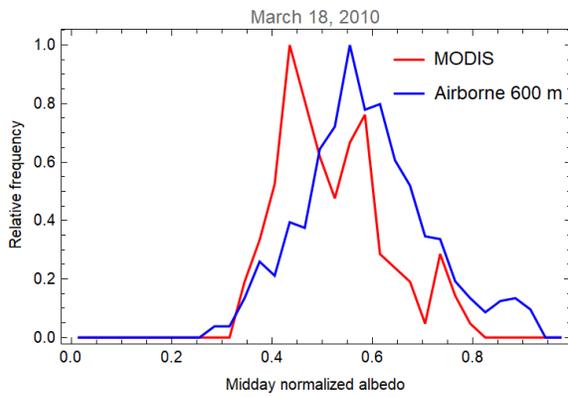
**Figure S6.** The airborne albedo values measured in March 18, and March 18, 2010 vs. the MODIS albedo value (MCD43A3, Albedo\_BSA\_shortwave). The mean airborne value within a MODIS pixel is shown as a point and the variation range as a vertical line.



**Figure S7.** The relative distributions of airborne albedo values measured in April 7, and April 10 in 2008 and the MODIS albedo values of corresponding pixels (MCD43A3, Albedo\_BSA\_shortwave).



**Figure S8.** The relative distributions of airborne albedo values measured in March 13, March 17, March 18, April 22 (low altitude data), April 24, May 4 and May 5 in 2009 and the MODIS albedo values of corresponding pixels (MCD43A3, Albedo\_WSA\_shortwave for March 13 and April 24, Albedo\_BSA\_shortwave for the rest).



**Figure S9.** The relative distributions of airborne albedo values measured in March 18, 2010 and the MODIS albedo values of corresponding pixels (MCD43A3, Albedo\_BSA\_shortwave)