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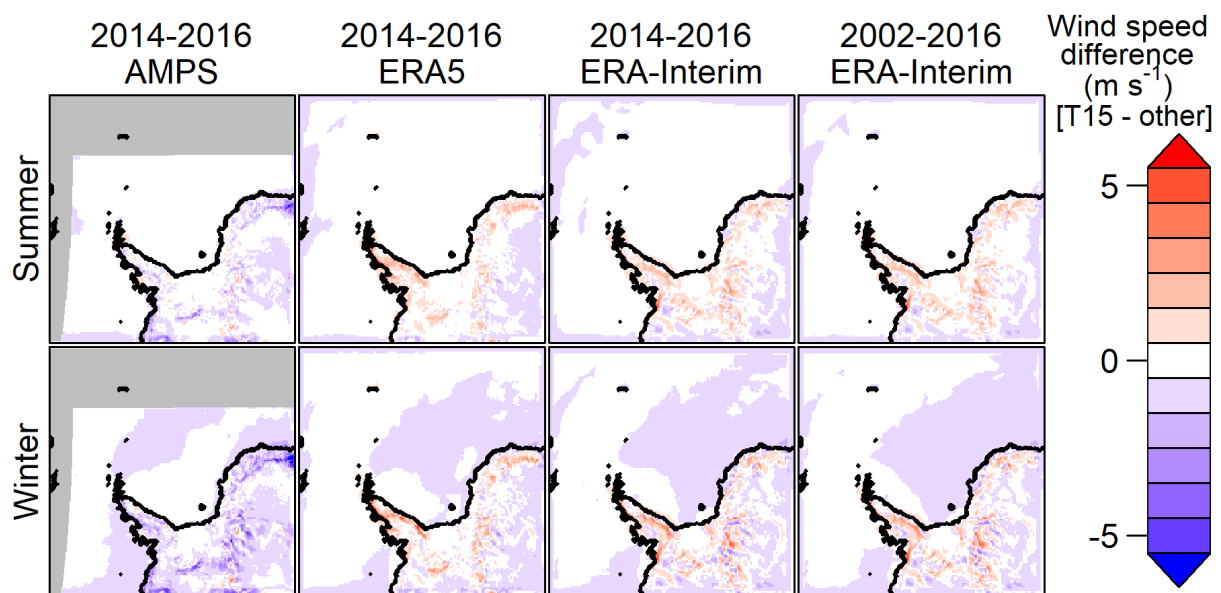
*Supplement of*

## **Verification of the regional atmospheric model CCLM v5.0 with conventional data and lidar measurements in Antarctica**

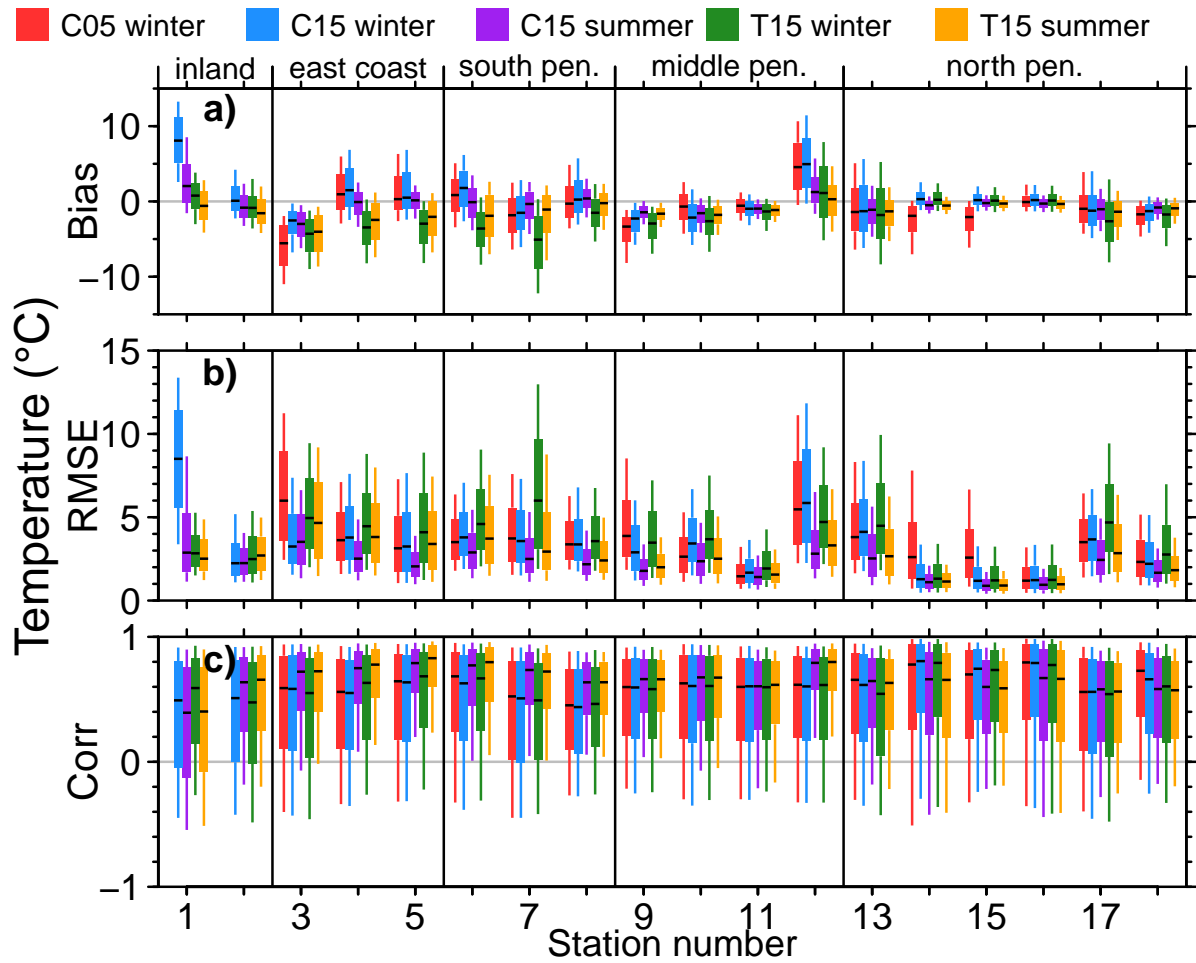
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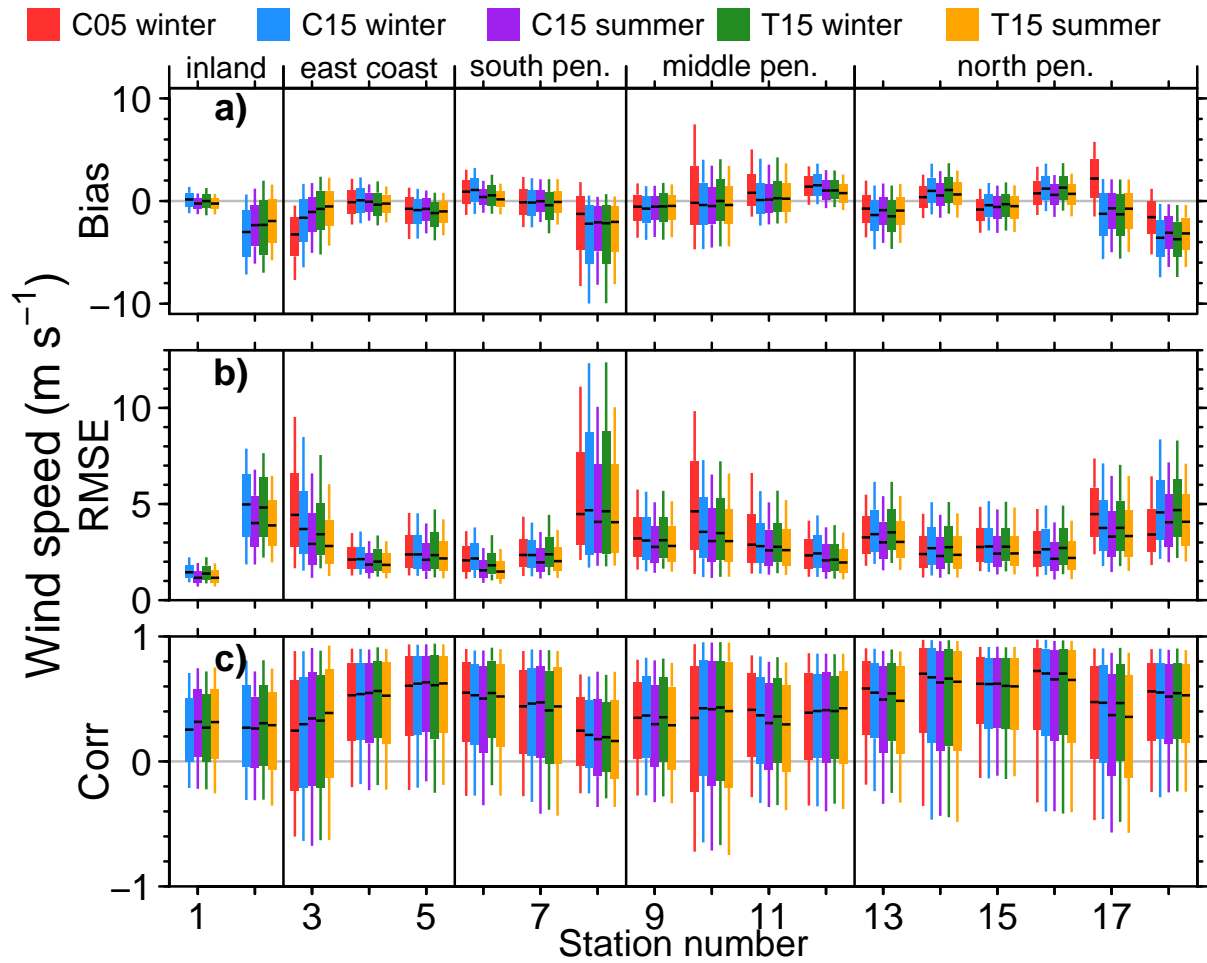
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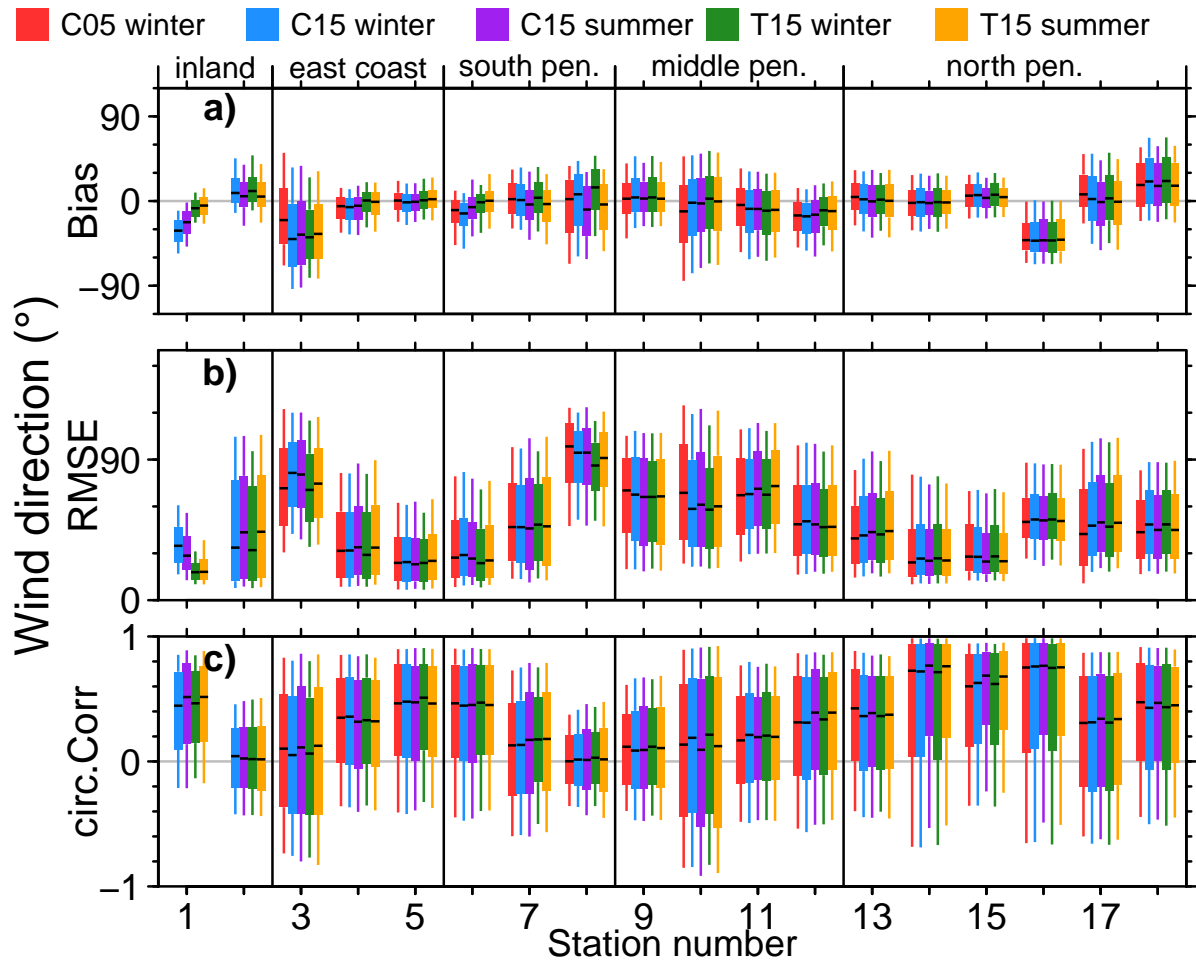
S 1: The 2 m wind speed difference (T15 minus AMPS, ERA5 and ERA-Interim) for the years 2014-2016 / 2002-2016. Summer (October-March, top) and winter (April-September, bottom) are shown separately. The gray area is outside the AMPS-domain



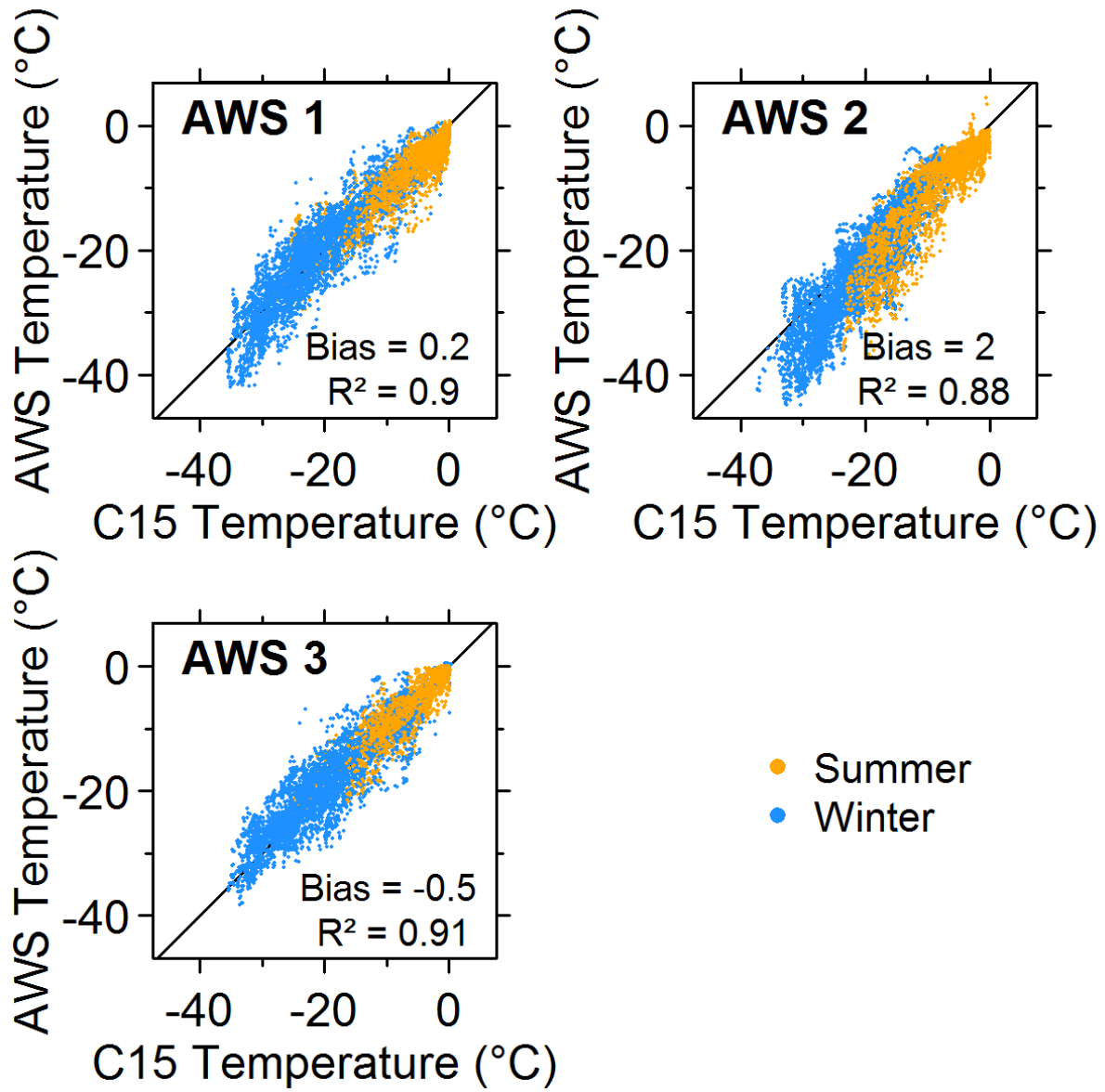
S 2: CCLM (a) 2 m temperature bias, (b) RMSE and (c) correlation for C05, C15 and T15 for different surface stations. Boxes indicate the 25/75% and whiskers the 10/90% quantile; the median is indicated by a black line inside the box. Statistics (bias, RMSE and correlation) are calculated for every day.



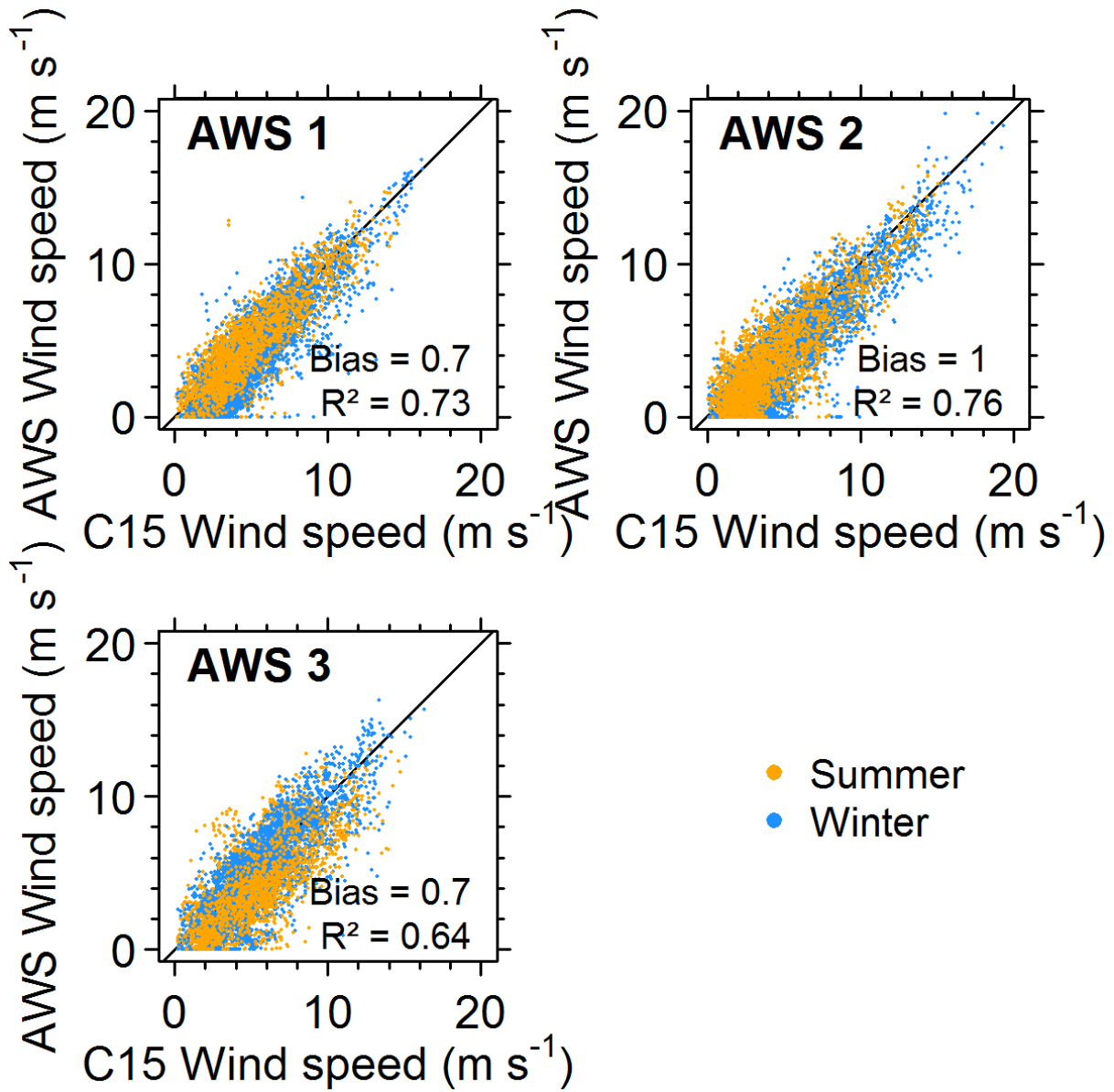
S 3: As Fig. S2 but for 10 m wind speed.



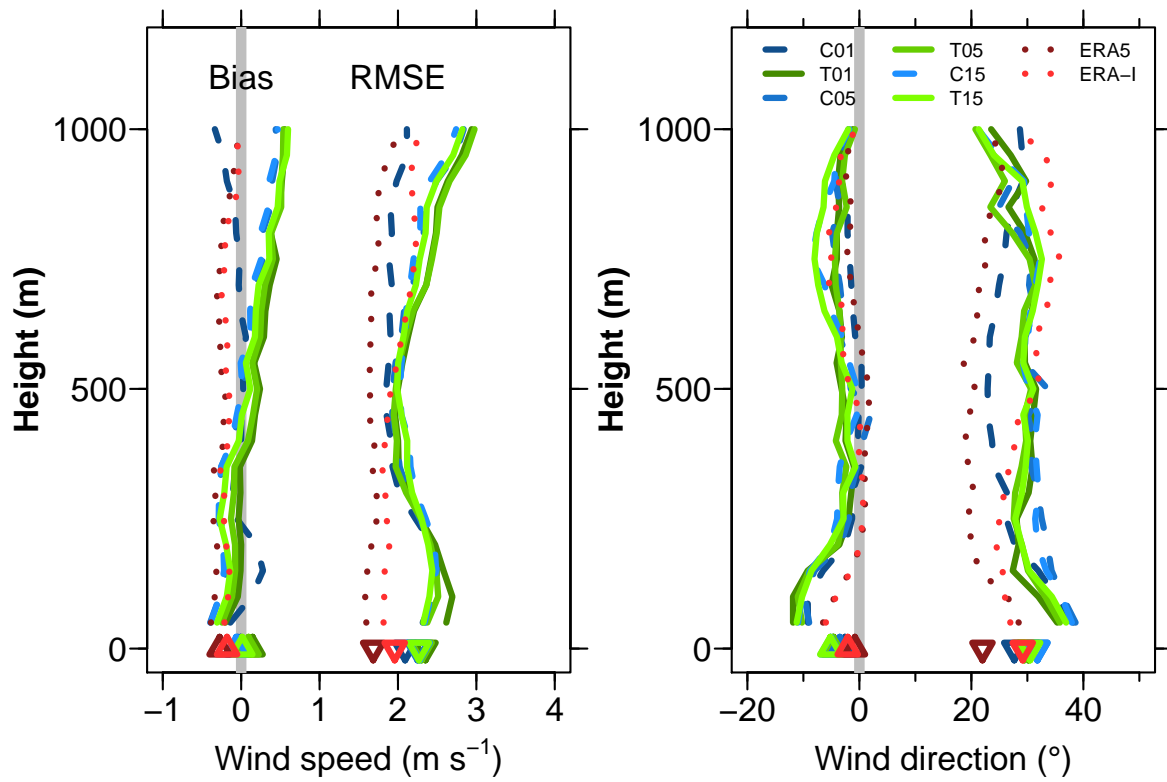
S 4: As Fig. S2 but for 10 m wind direction.



S 5: Temperature of C15 (x-axis) vs Temperature of AWS (y-axis). Values for Summer in orange and for Winter in blue.

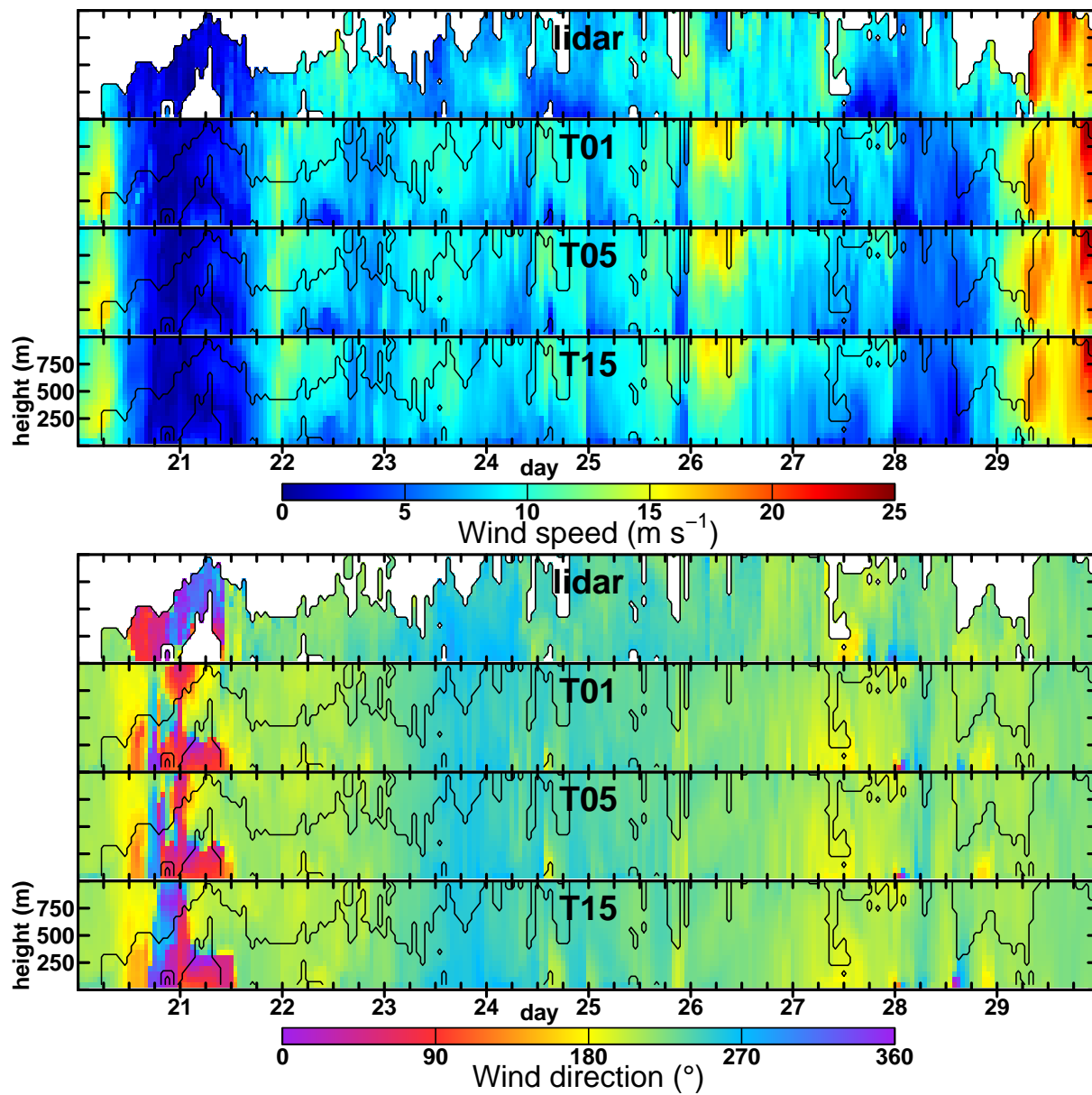


S 6: Like Fig. S5 but for wind speed.



S 7: Bias and RMSE for wind speed (left) and wind direction (right) for CCLM and ERA compared to lidar measurements. Triangles at the bottom indicate the overall bias and RMSE.





S 8: Time-height cross-sections for wind speed (top) and direction (bottom) for 20 Jan. 00:00 UTC to 30 Jan. 00:00 UTC.