Supporting Information for "The contribution of drifting snow to cloud properties and the atmospheric radiative budget over Antarctica"

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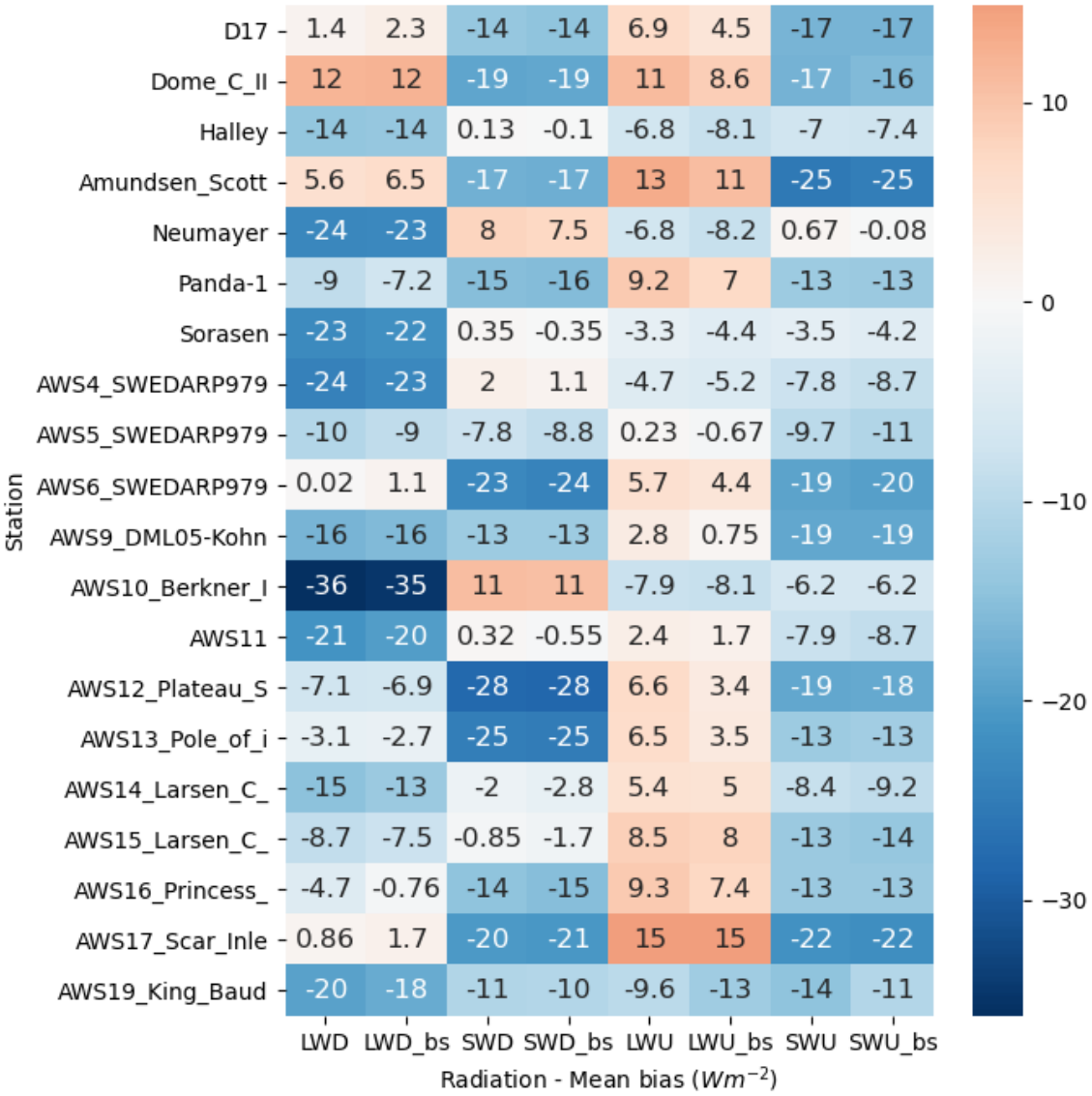

Figure S1. Complete statistical comparison of MAR to 20 in-situ weather stations over Antarctica. Mean bias (Wm^{-2}) of the MAR simulations without drifting snow (e.g. "LWD") and MAR with drifting snow (e.g. "LWD_bs") compared to 20 Antarctic-wide in-situ weather observations.

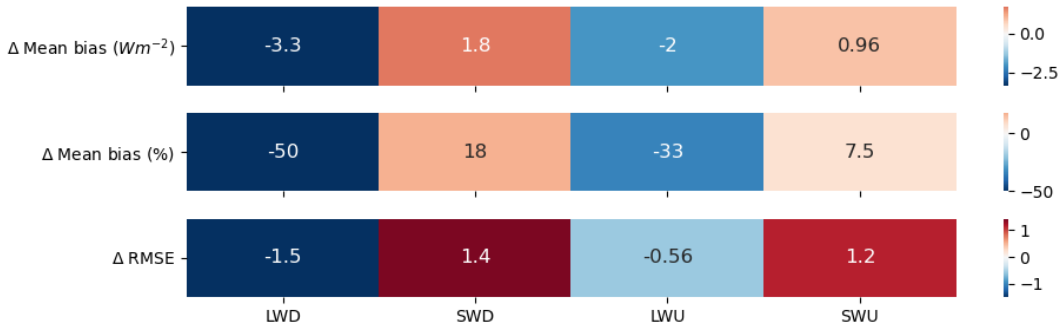

Figure S2. Statistical comparison of MAR to 20 in-situ weather stations over Antarctica during drifting snow days. Mean bias (Wm^{-2}) of the MAR simulations without drifting snow (e.g. "LWD") and MAR with drifting snow (e.g. "LWD_bs") compared to 20 Antarctic-wide in-situ weather observations during drifting snow days only. We defined drifting snow days as these days where the daily mean drifting snow exceeds a snow transport of $3.2 \cdot 10^{-3}$ $kg \cdot m^{-2}$, based on observations made at the two stations of Antarctica that observe blowing snow directly (D17 and D47, (Amory et al., 2021; Le Toumelin et al., 2020)).

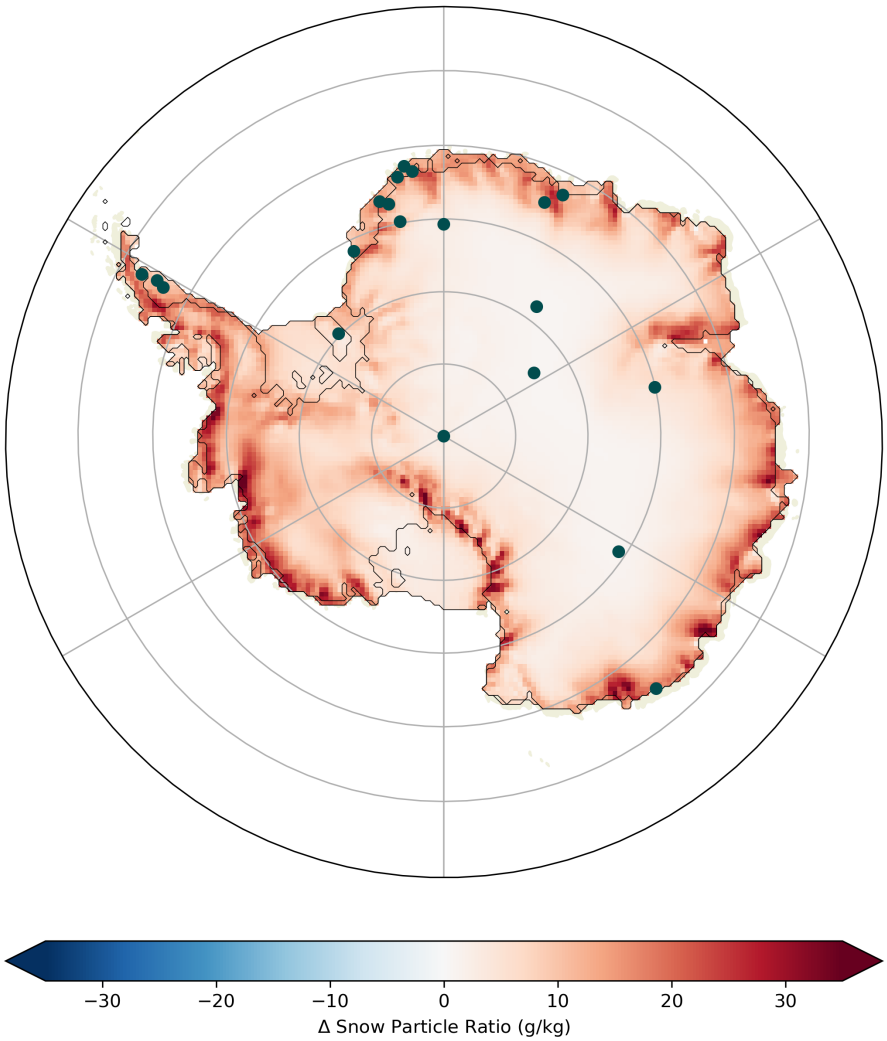

Figure S3. Location of the 20 automatic weather stations used in this study. Overview of the geographic distribution of the 20 AWS station used in this study for the model validation. The background colors show the 2000-2019 average of the snow particle ratio (g/kg) from the MAR model.

References

Amory, C., Kittel, C., Le Toumelin, L., Agosta, C., Delhasse, A., Favier, V., & Fettweis, X. (2021). Performance of mar (v3.11) in simulating the drifting-snow climate and surface mass balance of adélie land, east antarctica. *Geoscientific Model Development*, *14*(6), 3487–3510. Retrieved from https://gmd.copernicus.org/articles/14/3487/2021/ doi: 10.5194/gmd-14-3487-2021

Le Toumelin, L., Amory, C., Favier, V., Kittel, C., Hofer, S., Fettweis, X., ... Kayetha, V. (2020). Sensitivity of the surface energy budget to drifting snow as simulated by mar in coastal adelie land, antarctica. *The Cryosphere Discussions*, *2020*, 1–27. Retrieved from https://tc.copernicus.org/preprints/tc-2020-329/ doi: 10.5194/tc-2020-329