

Reply to Editor comments on

“Bias in modeled Greenland ice sheet melt revealed by ASCAT”

by Anna Puggaard, Nicolaj Hansen, Ruth Mottram, Thomas Nagler, Stefan Scheiblaue, Sebastian B. Simonsen, Louise S. Sørensen, Jan Wuite, and Anne M. Solgaard

Thank you for your feedback. We will rename the ASCAT surface melt extent maps to ASCAT wet snow maps. Here is a list of places where we have changed the name from ASCAT surface melt extent maps to ASCAT wet snow maps:

Line 6, 73, 74, 75, 82, 84, 151, 390, and Figure 5 caption.

Based on your feedback, we've taken a closer look at how Banwell et al. (2023) approached this terminology. We assume that when you write 'melt mask', you refer to the melt maps since 'melt mask' does not appear in the current MS. Anyhow, we've decided to follow the same practice they used, as it strikes a good compromise between clarity and consistency with the existing literature. Therefore, we make the following edit to the paper:

Line 183 – “When comparing ASCAT wet snow maps and the melt extent model by the RCMs, we excluded label ST-3 (increase in the refrozen layer) in order to make the most fair comparison with RCM surface melt. Throughout this paper, we use the phrase melt days when referring to days labeled ST-2A (surface melt) and ST-2B (wet snow layer) in the ASCAT wet snow maps. Similarly, melt extent will refer to pixels labeled ST-2A and ST-2 B. It should be noted that active surface melting may not necessarily be occurring on the ASCAT-derived melt days, but meltwater may simply be present without ongoing melt. However, we mitigate the potential differences by excluding days classified as refreezing and recalibrating the winter baseline to account for liquid water that persisted through the winter.”

With this added, we have also made several smaller changes to the MS, mainly in the results and discussion sections, since we can now refer to the ASCAT melt days and melt extent. We refer to the track changes document, which shows the small changes clearly.

Lastly based on your suggestion, we have changed the colormap of Figure 6, which will hopefully solve the problem:

