

Supplementary Material

1 Supplementary Figures

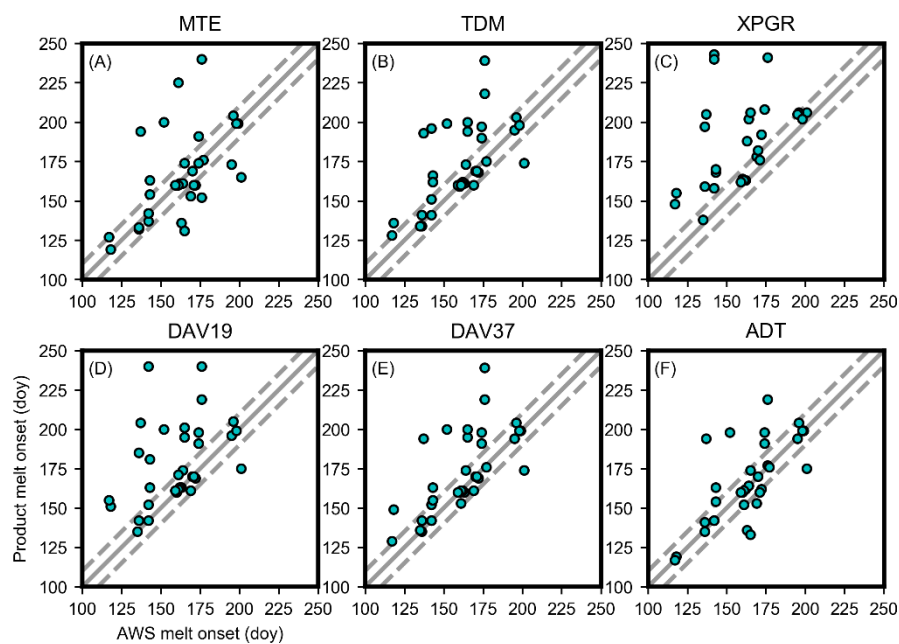


Figure S1: Timing of melt onset from observation (x-axis) and melt product (y-axis) for each tested melt product.

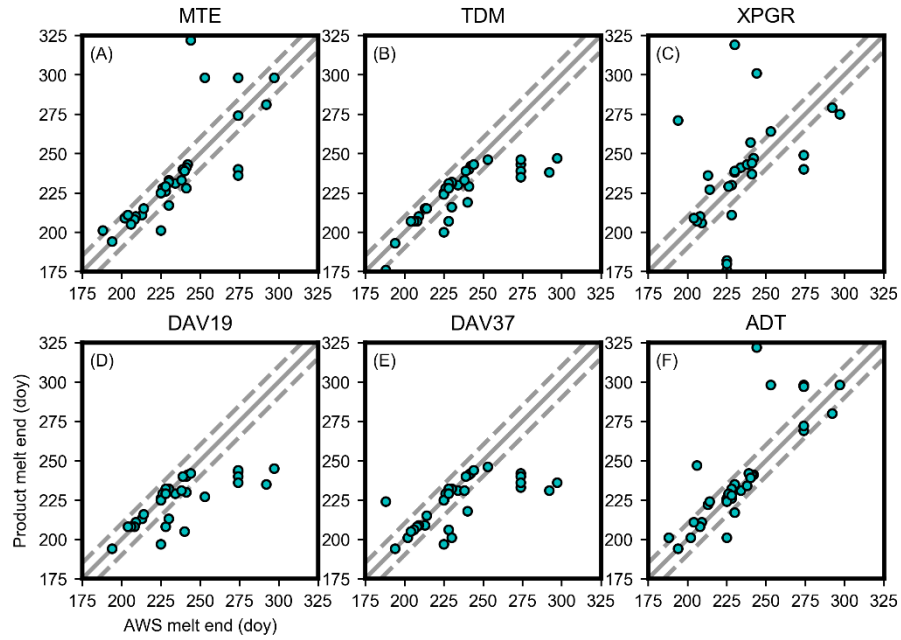


Figure S2: Timing of melt termination from observation (x-axis) and melt product (y-axis) for each tested melt product.

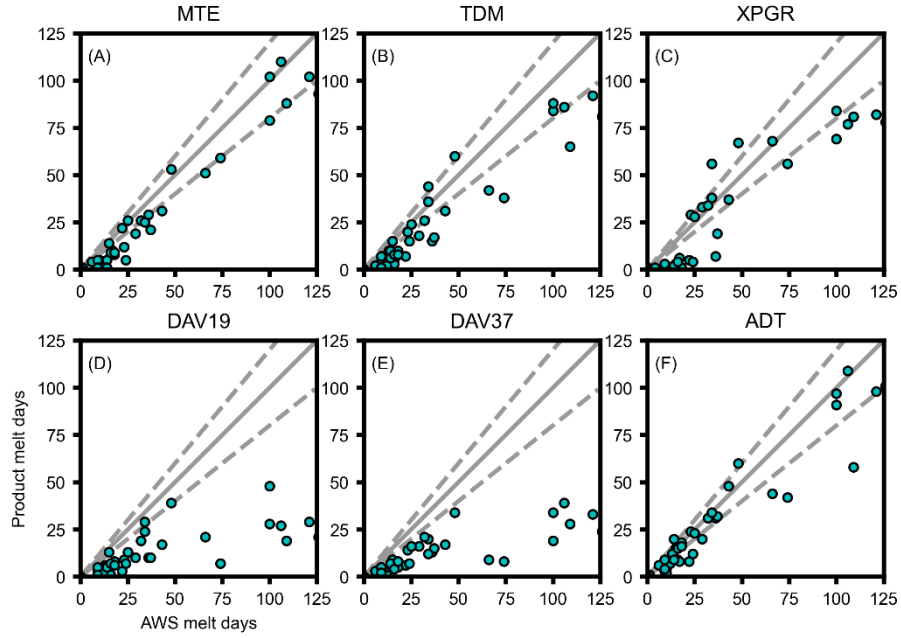
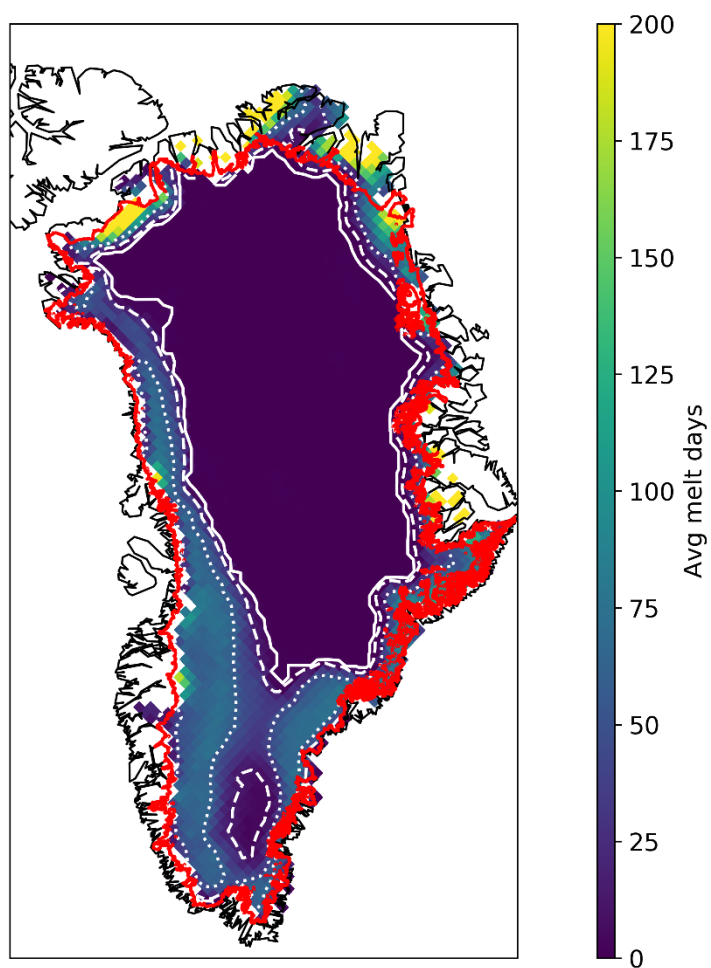


Figure S3: Annual melt days from AWS measurements (x- axis) and all six satellite microwave melt products (y- axis) for all sites and all years. Gray line indicates the 1:1 relationship, and dashed lines bound the $\pm 20\%$ envelope for reference. Here the melt threshold for AWS was determined based on the maximum daily air temperature.



Figures S4: XPGR melt results as in Figure 5, with GrIS outline from Citterio and Ahlstrom (2013) shown in red.