

The Cryosphere Discuss., author comment AC2  
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## Reply on RC2

Daniel Clarkson et al.

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Author comment on "Melt probabilities and surface temperature trends on the Greenland ice sheet using a Gaussian mixture model" by Daniel Clarkson et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2021-259-AC2>, 2021

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The authors would like to thank the reviewer for their consideration of the paper and for their comments and feedback. We are currently working on a revised version of the paper to address the comments and suggestions made. We aim to give a much clearer motivation for the model and the reasons to use the model compared to using solely the observations and the differences in approach to using a melt extent data set. The comments regarding potential changes in the statistical distribution of certain pixels are valid and more work will be done to provide a more detailed explanation of the model's assumptions and why they have been made. A more detailed response to the comments made will accompany the revised version of the paper with full explanations as to the changes made. Thank you for all of the comments made and for the time spent reviewing our work.