

The Cryosphere Discuss., referee comment RC1
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Review of MacGregor et al "GBaTSv2: A revised synthesis of the likely basal thermal state of the Greenland Ice Sheet"

Andy Aschwanden (Referee)

Referee comment on "GBaTSv2: a revised synthesis of the likely basal thermal state of the Greenland Ice Sheet" by Joseph A. MacGregor et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2022-40-RC1>, 2022

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With >100 citations on Scopus, the manuscript describing GBaTSv1 has been a huge success, demonstrating a clear community need. I applaud the authors for their (most likely tedious) effort of updating the product and making it again available to the community; I have no doubt that GBaTSv2 will become equally successful as its predecessor.

The methodology closely follows v1, and any deviations are carefully motivated. This facilitates comparison to v1 and also makes reviewing this manuscript relatively easy. The author's writing is, as usual, impeccable and shows attention to detail, making the manuscript a breeze to read.

I only have a handful of technical comments, see below.

Best,

Andy Aschwanden, University of Alaska Fairbanks

Data set

I downloaded the data set and imported it into QGIS, everything worked without a hitch.

Equations

Subscripts that are not variables should be in $\mathrm{\{}}$, e.g. $\rho_{\mathrm{\{ice\}}}$.

Fig 2: I wonder if the color map could be improved to better visualize the difference between ice at and ice below the pressure melting point (i.e. the threshold chosen in this study). Maybe only use red of at the PMP, and other colors/shades for below?

Fig 6: what is \tilde{u}_s ?

Fig 7. May I suggest to use line colors that are color-blind friendly? See <https://colorbrewer2.org> for inspiration.