

3rd review of 'Perspectives on future sea ice and navigability in the Arctic' by Chen et al.

I would like to thank the authors for addressing my concerns. There is just one answer from the authors that does not convince me.

The percentage of the navigable area makes a lot more sense than the percentage of navigable grid cells (navigable grid cells sounds a bit weird...). Moreover, the later metric (percentage of grid cells) is not ideal because the area of the grid cells is not constant in space as you use a lat-lon grid. I also do not understand why the authors claim that "the area percentage is hard to obtain for the different and unknown area values under 1 degree by 1 degree". You can calculate the area of a grid cell on a lat-lon grid by doing

$$\text{Area} = R^2 \cdot (\Delta \text{lon}) \cdot [\sin(\phi_2) - \sin(\phi_1)]$$

where R = Earth radius and Δlon = delta longitude in rad = $1 \text{ degree} \cdot \pi / 180$. ϕ is the latitude.

I strongly suggest that you redo the calculation and Figures 7 and 8 as a percentage of the area rather than a percentage of grid cells.

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