

This study presents new method of Eulerian advection scheme to estimate the sea ice age. The paper is well-written and the figures are of high quality. The method and derived SIA is very powerful and will make a great contribution to the studies of sea-ice dynamics, Arctic climate system, etc. I think this paper is suitable for publication in TC.

Comments:

P5 L8: As a reviewer pointed out, uncertainties in ice drift speed and ice concentration have an impact on the ice age estimation. But I understand the author's giving up on the assessment of the errors arising from the uncertainties, because the error assessment is very difficult.

P7 L9: In the case of $C_{oi} > C_{obs}$, this study assume that $C_{oi} - C_{obs}$ to be ice melting. But ice thickening by ridging or rafting also occurs in the melting season. Can you separate the decrease of C_{oi} by ice deformation from that by ice melting?