

Review for Tian et al., 2021: Validation of a daily satellite-derived Antarctic sea ice velocity product: impacts on ice kinematics:

Overall: This paper is well-written and presents a detailed analysis to evaluate the accuracy of the Kimura sea ice kinematics product. Furthermore, the authors go beyond just identifying issues, rather, they improve upon the product and present new results. This paper serves to assist sea ice motion/kinematic researchers, as well as users of the Kimura product. I recommend that it is published as is, while addressing a couple comments below.

Table 2 & Figure 6: These are interesting and useful for evaluating the new Kimura product performance. Perhaps I missed it, but do you summarize the actual ice velocities (buoy and Kimura-derived) anywhere? It may be worthwhile to examine how the correlation, slope and RMSD perform as a function of velocity. % differences in speed may decline as the ice moves faster, which typically should be further from the Antarctic coast.

Line 452: “probably” give more accurate sea ice motion? I’m not sure that’s an informational conclusion. Cite a couple relevant statistics for comparison, then the reader can decide.