

Manuscript “Winter sea ice edge shaped by Antarctic Circumpolar Current pathways.”

Authors: Hugues Goosse, Stephy Libera, Alberto C. Naveira Garabato, Benjamin Richaud, Alessandro Silvano, MarCn Vancoppenolle

I would like to thank the authors for taking into consideration my suggestion to extend the analysis regarding the selection of the meridional wind location. I think this addition provides a beneficial detail to the overall analysis.

The manuscript is very well written, and the corrections and modifications made have improved its clarity and comprehensiveness.

I would support its publication with just minor additional comments reported here.

Minor comments

Line 142-143. Since the definition of the SAF is given, and its contour is included in Fig.1, it should be mentioned why it is not included in the analysis

Line 176-193. The author say that the datasets considered cover different periods, but it would be good to specify if the total period of availability for each of them (for observations/reanalysis) has been used in the study or, if not, which period. It would give a more comprehensive idea of the period of overlapping among the datasets.

Line 294. “The main element that explains these changes in the distance..” I think would sound better

Line 299. The correlation for the SBdy front following the definition of Orsi et al., (1995) is almost always giving offset values with respect to the other two fronts and even to the same front following the definition of Park et al., (2019). Is there a possible explanation for that?

Figure 8/Table 3. It would be interesting to include in this analysis the other two fronts to see if the results are similar in terms of sea ice edge prediction.

Best Regards,
Martina Zapponini