

In this paper, authors defined the Antarctic coastal wind boundary (ACWB) as the latitude of minimum offshore directional constancy to distinguish coastal wind (easterly winds) from westerly winds. The index also is suitable for the region with strong meridional winds. The paper was written well. The novelty of the manuscript is great. The manuscript only examined the impacts of the westerly jet (SAM index) on the ACWB index. How the factors over the continent (katabatic winds) influence the ACWB index needs to be assessed. Some specific concerns should be addressed before the consideration of the accepting the manuscript.

1. Across the entire manuscript, authors compared the new index (ACWB) with the previous index (MZWB). A summary (table) is encouraged to show the difference of them.
2. Authors may consider show the variation of the new index, from seasonal to trend.
3. More emissions scenarios may be considered to show the change with greenhouse increase.
4. What percentage different factors (jet or continent warming) can explain the trend in the ACWB index in the future?
5. Maybe authors may discuss the relationship between the ACWB index and sea ice variation.