Response to Reviewers

"Dynamical precursors to summer temperature extremes on the Antarctic Peninsula" by Dow et al, submitted to Weather and Climate Dynamics

We thank the Editor for sourcing further feedback on our manuscript and thank again the reviewers for their time in evaluating our work.

Reviewer 2

The new wind vectors plotted in Fig 3A are not physically consistent with the underlying SLP anomalies, or the wind vectors plotted in Fig. 7. For example, note how for cluster 2, there is a pressure gradient over the Drake passage that would set up N/NW flow (as correctly shown in Fig 7); note how your winds in Fig 3A cluster 2 are inconsistent (E flow plotted instead). Similar inconsistencies appear throughout different panels in Figure 3A (e.g., Cluster 4 over the Ross sea, where the SLP pattern implies easterly flow, and the wind vectors show instead southerly flow). I suspect the authors have mis-plotted the wind vectors in Fig 3A

P.S. I would add to the reviewers' list of apparent inconsistencies between SLP and near surface winds the downgradient winds (i) east of the Peninsula in panel 7g, (ii) west of the Peninsula in panels 7h and 7k, and (iii) in the South Atlantic in panel 7L.

We thank Reviewer 2 for identifying the inconsistencies between the near-surface wind vectors and MSLP anomalies in Figure 3A. We have re-examined the plotting code and identified an issue that impacted the plotting of the vectors in this figure. This has now been corrected and Figure 3 has been reproduced, and the revised vectors are now consistent with the underlying MSLP anomaly patterns and the wind vectors seen across the clusters in Figure 7.

Furthermore, we would like to clarify that the contours in Figure 7 represent 500-hPa geopotential-height anomalies, rather than MSLP anomalies. Therefore, the relationship between the plotted contours and near-surface winds is not directly equivalent to that in Figure 3A, due to the influence of boundary-layer processes and local topographic effects.

We thank the reviewer again for bringing this issue to our attention, which allowed us to identify and correct the plotting error in Figure 3A.