

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

## General comments

This manuscript is very well written and is an interesting and comprehensive survey of the area. The reference list is very impressive, almost too impressive at 10 MS pages of references. I have only a short list of fairly minor comments.

## Minor comments

1. Lines 128-130: Taking an average over the whole region obscures days of foehn warming in the eastern Peninsula, surely? Those conditions have been shown to be associated with extreme high temperatures in the east and with ice shelf collapse (Kyle paper). Are your results sensitive to how the spatial averages are calculated?
2. Lines 141-142: Reference for Lloyd's algorithm?
3. Line 189: Fair enough I suppose, you're away from the topography and the winds are strongest in the upper troposphere. But the vertical structure of temperature may well be important, and the warmest air is near the surface. Have you tested the sensitivity of your results to the pressure level chosen, or looked at vertically integrated heat flux?
4. Lines 207-210: Figure 1(a) suggests the foehn effect is important, and perhaps you're picking it up anyway, even with a larger box-average. Interesting though that the percentage agreement with local extremes is lower in the east where the warming is largest, suggesting that local foehn influences are sometimes or often being missed.
5. Lines 256-257: Figure 3 is interesting, but the MSLP cluster patterns (3a) are hard to see in current format. Could you add contours, maybe have two rows of three to make the panels bigger? Panel (b) could be reduced in size.
6. Lines 271-277: Presumably the clusters with more members contain more of a mixture of patterns and hence the centroids are weaker on average. Is the variance of the MSLP fields related to cluster size, and does that inform the persistence and AP temperature anomaly statistics?
7. Lines 276-277: Cluster 2 has the largest number of events, just.
8. Lines 302-313: I see what you mean about evolution of the spatial patterns of MSLP, but what a confusing plot Fig 5c is. It takes some thinking about and I haven't come up with a better way of showing it, though perhaps you could plot the spatial correlations between the observed MSLP anomaly pattern and the cluster centroid through time from day -5 to day +3.
9. Lines 376-380: Indeed, this sounds very reasonable.

10. Lines 394-397: In Fig. 8, there's an impressive amount of consistency among the clusters in the heat flux patterns during days -2 to 0, suggesting that this is a dominant part of the story, as you say.

11. Lines 591-593: Repeated reference.