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Climate of the Past Discussions

Interactive comment on "Dust and associated trace element fluxes in a firn core from the coastal East Antarctica and its linkages with the Southern Hemisphere climate variability over the last ~ 50 yr" *by* C. M. Laluraj et al.

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Interesting study on Antarctic dust and links with circulation. I thought I should leave a few comments on some aspects of the paper:

P1842 L11: should that be 1980s or 1985?

P1842 L11-13: If this pattern is driven by an increasing SAM index then wouldn't you expect westerlies to increase in "strength" (does strength mean speed?) rather than easterlies? Maybe this is discussed in the paper but it is hard to understand in isolation

in the abstract.

P1842 L26: Russell and McGregor (2010) have a section (5.3) on dust in their review of atmospheric circulation reconstructions from Antarctic ice cores - it might be worth citing that here.

P1843 L29: Marshall (2003) would be a good paper to cite here as it looks at the SAM trends in observations (re-analyses have had problems in this region due to a lack of input data).

L1847 L11: I think it would be worth mentioning other studies that have used back trajectories and cluster analysis in the Antarctic region here, there's a section (4.2) on this in Russell and McGregor (2010).

P1850 L23: why was 10 days chosen? Do back trajectories have any skill on this timescale (and is there a citation to back it up)?

Section 3.2: Are 4 months of back trajectories really enough to link the dust patterns to changes in the SAM?

P1851 L28-29: What is the correlation between the SAM and the dust flux? This would be a more convincing argument.

References

Marshall, G. J. (2003) "Trends in the Southern Annular Mode from Observations and Reanalyses" J. Climate, 16, 4134–4143. Russell, A. and McGregor, G.R. (2010) "Southern hemisphere atmospheric circulation: impacts on Antarctic climate and reconstructions from Antarctic ice core data" Climatic Change, 99, 155-192.

Interactive comment on Clim. Past Discuss., 9, 1841, 2013.