

## ***Interactive comment on “Sources and transport of dust to East Antarctica: new insights from high-resolution terrestrial and marine aerosol records from the Talos Dome ice core” by S. Schüpbach et al.***

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There are various processes which contribute to changes in the strength of the South American dust source. Such changes could result from changes in temperature, humidity, soil texture, and vegetation cover, changes in uplift of source material due to changes in wind strength, and/or an increased Patagonian source of fine glacial material due to varying glacier coverage and chemical and physical weathering (Bigler et al., 2010 QSR, Wolff et al., 2006 Nature). Sugden et al. (2009) for instance found, that Antarctic dust peaks can be related to periods with glacial melt water deposition

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onto outwash plains in Patagonia, whereas dust availability may be reduced when the glaciers end in pro-glacial lakes.

We have mentioned most of them in the discussion paper (p 3341, lines 4-9). The description of these processes has been extended in the revised paper and references have been added, the text now reads:

"Fast source strength changes seem to be mainly responsible for the rapid changes in the dust input to the East Antarctic plateau. This is also in line with processes as described e.g. by Sugden et al. (2009), where potential dust mobilization is coupled to glacial melt water deposition onto outwash plains in Patagonia. Other important parameters which govern continental aerosol source strength are surface wind speed, aridity, temperature, vegetation cover, soil texture, and weathering (Bigler et al., 2010; Wolff et al., 2006)."

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