

Interactive comment on “The darkening of the Greenland ice sheet: trends, drivers and projections (1981–2100)” by M. Tedesco et al.

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Hello, I provided the MAR model simulations for the sensitivity of grain-size evolution to changes in the visible albedo in this study. I am honored to be part of this study and to contribute to this important work. I am happy to see this work live and online for discussion, and adding to the science.

I do have a question about section 3.1. The last paragraph in section 3.1 states that MAR shows significant strong negative summer snowfall anomalies and that reduced summer snowfall plays a role in accelerated albedo. Is this suggesting a reduced summer snowfall for all of Greenland or a particular region?

When I conduct my analysis of the same model output submitted to this study, I find

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reduced snowfall amounts for some areas and increased snowfall amounts for others. For example I find that accumulations are greater on the southeast Greenland area versus the southwest during 1996–2012 when compared to the mean, and also stronger in the northwest, and not the northeast. I am compiling more MAR model results (in addition to WRF model results) about snowfall trends and the relation to strong moisture flux events to publish in a separate report. But I want to help the discussion here, and clarify whether the statement includes reduced summer snowfall for all of the regions of Greenland.

Also, line 4 on page 5604 (3.2) has a typo: For the, instead of Fort. Thank you. Good work!

-Erik Noble, Ph.D.

Interactive comment on The Cryosphere Discuss., 9, 5595, 2015.