

***Interactive comment on “Greenland ice sheet
surface mass balance: evaluating simulations and
making projections with regional climate models”
by J. G. L. Rae et al.***

Anonymous Referee #3

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General Comments:

There clearly have been a lot of simulations run especially with HadRM3P and MAR dealing with the important climate change problem of the surface mass balance of the Greenland ice sheet. It is a pity that not more participation of the well regarded RAMCO2 model is included. The paper has the feel of reinventing the wheel when it concludes that it is important to use “ a detailed snow physics, especially regarding the representations of albedo and meltwater refreezing.” Does anyone seriously doubt this conclusion? I would look forward to this comparison if it focused on comparing the detailed performance of the advanced MAR and RACMO2 models for both retrospec-

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tive conditions and future climate projections, and am not aware such an analysis has appeared. HadRM3P (especially) and HIRHAM5 are not state-of-the-art models for simulation of Greenland surface mass balance – see Table 7. I am in a quandary about this manuscript that is competently done but lean in the direction of rejection with the hope that the MAR-RACMO2 comparison will appear elsewhere.

Interactive comment on The Cryosphere Discuss., 6, 2059, 2012.

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