

Interactive comment on “Reconstruction of the 1979–2006 Greenland ice sheet surface mass balance using the regional climate model MAR” by X. Fettweis

Anonymous Referee #3

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The paper concerns describes the results of the MAR model between 1979 and 2006 over the Greenland ice sheet. I was impressed by the technical style and clearness of the results here reported. The results here reported are also very important as they provide another element to better understand and improve the surface mass balance over GIS though modeling tools. Also, the comparative analysis with the NAO make this paper even more interesting. I suggest that the paper should be published after minor revisions. I suggest to include most recent results regarding technique from remote sensing data for melting detection over the GIS (see Tedesco, 2007, GRL and EOS). I also would suggest to check typos and spelling. The reader does not have difficulty in following the objectives and the techniques reported in the paper. What I think is

lacking is a more detailed analysis (even some hypotheses are enough at this point) of why the models can provide such different results. This topic will be fundamental in the close future to reduce our uncertainty on SMB estimation. Also, I would emphasize some of the aspects of MAR, compared to other models , such as polar-MM5, for example. A comparison with accumulation and melting derived from satellites would benefit the study. However, we understand that this might be out of the scope of this study and, therefore, we suggest this as a future work to be undertaken. I am looking forward to receive the comments from the author and a revised version of the paper for a final revision before publication.

Interactive comment on The Cryosphere Discuss., 1, 123, 2007.

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Interactive Discussion

Discussion Paper