

Interactive comment on “Refreezing on the Greenland ice sheet: a comparison of parameterizations” by C. H. Reijmer et al.

Anonymous Referee #2

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The paper entitled: “Refreezing on the Greenland ice sheet: a comparison of parameterizations” by Reijmer et al treats an important processes for the mass budget of polar glaciers and ice sheets namely melt water refreezing. In this study six refreezing parameterizations are tested against output of the Regional Atmospheric Climate Model (RACMO2). Results show that all parameterizations give similar results, especially after some tuning, although spatial differences are evident. The paper is well written in a fluent and precise language. It is well structured in a clear and concise way. The scientific approach and applied methods are sound and results are discussed well. The weakness of the paper is the lack of scientific significance. What is the contribution to scientific progress here? Janssens and Huybrechts (2000) made the same study and reached the same types of conclusions more than a decade ago. Sensitivity experiments have been performed and differences are evaluated. Are there some

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clear results which should be conveyed to the scientific community or are the tested parameterizations oversimplified?

Interactive comment on The Cryosphere Discuss., 5, 2723, 2011.