

Interactive comment on “Modelling the climate and surface mass balance of polar ice sheets using RACMO2, part 2: Antarctica (1979–2016)” by J. Melchior van Wessem et al.

Anonymous Referee #2

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This is a high-quality comprehensive evaluation of the revised version of RACMO2.3 model over Antarctica in relation to its prior formulation for a wide variety of variables. The use of AWS and upper air data is limited however. Overall the improvements are modest but most notable in the surface mass balance components. There are a small number of issues.

1. Page 2, line 2: Many, many authors have discussed expected Antarctic warming is accompanied by increased snow fall estimates, so please add 1-2 more references. One recent example is Palerme et al. (2017) on CMIP5 models in Climate Dynamics.
2. Page 2, Line 26: Drop "so-called".
3. Page 2, Line 47: The atmosphere does not

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interact with topography rather its motion is impacted by topography. 4. Page 2, Line 63: airborne elevation data - do you mean from Icebridge? Otherwise contemporary amounts must be very small. 5. Section 3.4.2: Remind the reader that the 10-m firn temperature closely matches the annual mean 2-m air temperature. By the way, what is Ts? 6. Figure 4: Are these values monthly means? 7. Figure 7: Present the biases as well as the RMSEs. Discuss in the text.

Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2017-202>, 2017.

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