The Cryosphere Discuss.,
doi:10.5194/tc-2017-21-RC1, 2017

The Cryosphere Discussions
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Interactive comment on "The influence of the synoptic regime on stable water isotopes in precipitation at Dome C, East Antarctica" *by* Elisabeth Schlosser et al.

Anonymous Referee #1

Received and published: 3 March 2017

This manuscript presents published measurements of d18O and d-excess of precipitation at the Dome C site as well as an application of a modeling approach combining the mesoscale atmospheric model and a simple isotopic model. The authors conclude that the model underestimates the depletion of d18O in precipitation in Antarctica.

This study does not provide any new data, despite the fact that the "Precipitation and stable isotopes data" are not presented in the part "Previous work". Everything has already been published in the paper by Stenni et al. (The Cryosphere, 2016).

The results on Dome C meteorological conditions and synoptic patterns during precipitation are already largely shown and discussed in the paper by Schlosser et al. (ACP, 2016).

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Discussion paper

The results of the isotopes modelling (part 5.4) have already been discussed largely by Dittmann et al. (ACP, 2016) for the Dome F site with the same conclusion. I thus do not see the added value of this study which is basically only a second application of the Dittmann et al. (2016) study on another site with similar characteristics.

The main conclusion of this paper and of Dittmann et al. (2016), i.e. that the MCIM does simulate too high d18O in Antarctic precipitation is not new. This has already been noted for example in Uemura et al. (CP, 2016).

I also feel that the introduction part is misleading with very few references to previous studies while much has been done in the recent years on the study of precipitation patterns and water isotopic composition in sites of the Antarctic plateau. The 2 recent papers mentioned in the introduction refer to Greenland studies. Similarly, the conclusion is very poor and only rephrase conclusions from previous studies (Schlosser et al., 2016; Dittmann et al., 2016; Stenni et al., 2016) without anything more.

I thus do not recommend publication of this manuscript which does not provide any scientific added value.

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