

Interactive comment on “Archival of the water stable isotope signal in East Antarctic ice cores” by Mathieu Casado et al.

Anonymous Referee #2

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(General) This paper analyzes the interpretation of water stable isotope signals in the ice core from the seasonal variations of isotopic composition in the vapor, the precipitation, the surface snow and buried snow. It is a valuable study. These observations were carried out in the Antarctic inland region where almost none was observed. The publication of valuable data is very worthwhile. However, there are many qualitative discussions. Unfortunately, the quantitative conclusion has not reached yet. Each observation period and method are different. So the direct comparison can not be made, and it seems to have been summarized by qualitative discussion.

(comments) (1) In PRE-REC observation, snow sampling on the plate 1 m above the ground is regarded as precipitation. About the sampling of this precipitation, it is conceivable that drift is mixed in, but how do you evaluate it? It is classified as surface snow on the plate of snow surface. Since water vapor does not come in and going out

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of buried snow, can you think the same as other surface snow observation? (2) There is no mention of the thickness of GLACIO's surface snow. (3) In Figure 6, you can explain the change in isotopic composition of surface snow assuming that isotope fractionation of water vapor and surface frost grows by sublimation condensation. (4) Although it is explained in the paper, evaluation of spatial variability, spatial and temporal variations of snow sampling and vapor is insufficient. (5) There is no description of the broken line in Figure 9. (6) Table 5 shows the average value of precipitation over 4 years? Definition of summer and winter? (7) For the interpretation of isotopic fluctuations, see the paper by Hoshina et.al. Hoshina et.al., (2014): Effect of accumulation rate on water stable isotopes of near-surface snow in inland Antarctica, *J. Geophys. Res. Atmos.*, 119, doi:10.1002/2013JD020771.

[Interactive comment on The Cryosphere Discuss.](#), doi:10.5194/tc-2016-263, 2016.

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