

Interactive comment on “Multi-tracer study of gas trapping in an East Antarctic ice core” by Kévin Fourteau et al.

Anonymous Referee #1

Received and published: 9 August 2019

This manuscript presents new detailed data on firn densification and gas occlusion for a low accumulation Antarctic site. A wealth of data is presented confirming previous findings in higher resolution and with more certainty. The most important conclusion is that the concept of a critical close off density at which pores are closed off holds. This is important information that potentially conflicts with ideas about total air content variability in the past (e.g. Eicher et al., 2016). The manuscript is well written and I suggest publication with minor corrections (see list below).

P1, Line 20 please write air-bubbles

P1, Line 21 The bubbles contain air from the time of formation. Also rather write that so far the past atmosphere has been measured back to 820kyr BP.

C1

P3, L3 there are plans to retrieve oldest ice in Antarctica based on the site selection from EU, Japan, China, Australia. . . Cite one of the site selection papers.

P3, L12 "When" should be "Where"

P3, L25 Please give the ball park of the present Vostok and DC accumulation rates.

P16, L20 Write $\alpha = 0.7$ instead of 70%

P16, L23 instead of "8%" write "corresponding to $\alpha = 0.92$ "

Figure 6 The color for 80.65m and 101.45m are not very well distinguishable. If possible please chose a different color.

P24, L9 Sentence is unclear

P25, L11 ". . .not able to properly. . ."

Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2019-89, 2019.

C2