

Interactive comment on “An improved method for delta ¹⁵N measurements in icecores” by F. S. Mani et al.

Anonymous Referee #2

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This paper reports about a method for measuring d15N in air trapped in ice core without interferences with O₂ and CO₂. Although certainly very useful for measuring d15N with high precision in polar ice cores, the description of the method (almost identical to the one described by Mariotti (1983)) does not deserve a publication in Climate of the Past on its own. However, if the paper is modified so that he presents and discusses a record of d15N in air trapped in polar ice core over a climatic event, it will certainly present a high interest for the climate community.

More comments are given below: - In the abstract, a precision for d15N of 0.006‰; for n=9 is given. A number of 9 replicates for ice core samples of 20g each represents a large amount of ice for only d15N measurements. Kobashi et al. (in press), Landais et al. (2004) and Huber et al. (2006) use significantly less ice for a

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similar analytical precision on $\delta^{15}\text{N}$ and their methods enable measurements of either $\delta^{40}\text{Ar}$ or $\delta^{18}\text{O}$ and $\delta\text{O}_2/\text{N}_2$ on the same sample with a small analytical uncertainty. - The authors interestingly rise out the problem oxygen influences on $\delta^{15}\text{N}$ measurements that can be corrected but not explained. The authors summarize and discuss the different possibilities that have already been proposed before but unfortunately they do not come with a clear conclusion on the origin of this effect.

References not given in the manuscript:

Kobashi, T., Severinghaus, J. and J.M. Barnola, 4 \pm 1.5°C abrupt warming 11,270 years ago identified from trapped air in Greenland ice, EPSL, in press.

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