

Biogeosciences Discuss., referee comment RC2  
<https://doi.org/10.5194/bg-2021-167-RC2>, 2021  
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## **Comment on bg-2021-167**

Anonymous Referee #2

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Referee comment on "Hydrogen and carbon isotope fractionation factors of aerobic methane oxidation in deep-sea water" by Shinsuke Kawagucci et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2021-167-RC2>, 2021

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I wrote a review already but posted it to the general comments section. I'll try to remember what I typed in here, but the authors may want to look at my previous comments.

I was concerned that the temperature of the water was not clearly given where the isotopic measurements were made and where the fractionation factor were determined. The temperatures of the plumes were given and in the figure 2 i think the temperature differentials were given but i wasn't sure what the temperature differentials were reported relative to. Its important to know the temperature where the fractionation took place becuase isotopic fractionation is decreases with increasing temp. see....

Chanton, J. P., D. K. Powelson, T. Abichou, D. Fields, & R. B. Green. 2008. Effect of Temperature and Oxidation Rate on Carbon-isotope Fractionation during Methane Oxidation by Landfill Cover Materials, Environmental Science and Technology No 42, pp 7818-7823. DOI 10.1021/es80122y.

In addition i think the authors should replace the term altitude with height above the seafloor.

that's it.

