

## ***Interactive comment on “Quantity and distribution of methane entrapped in sediments of calcareous, Alpine glacier forefields” by Biqing Zhu et al.***

**David Archer (Referee)**

d-archer@uchicago.edu

Received and published: 27 March 2020

This is an interesting, thorough characterization of the distribution of methane trapped within CaCO<sub>3</sub> in glacial fore field deposits. The methane is released when the CaCO<sub>3</sub> is dissolved in acid, a somewhat aggressive analog for chemical weathering. The authors are very careful not to overstate the implications of their data to the global methane cycle or climate, even though as they point out, the actual quantity of methane is rather high relative to other regional metrics. The primary motivation for investigating this is curiosity, which is a perfectly fine motivation for publication. I would be curious whether the methane has a measurable impact on the microbiology within the sediments; whether there is metabolic energy to be gained by reacting the methane with anything available, and whether RNA or proteomics of some other type of biotech char-

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acterization could detect this activity. Probably any methane-driven metabolic activity would be at low level, given the apparently conservative behavior of the methane that the paper documents. This is not a suggestion for idea for the current paper, obviously, which I would recommend for publication as is, with only one editorial suggestion, from line 73, “virtually omnipresent” could be changed to “found virtually everywhere” or something like that. The former phrase makes the methane itself seem virtual.

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Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2019-490>, 2020.

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