

## ***Interactive comment on “Fracture-controlled fluid transport supports microbial methane oxidizing communities at the Vestnesa Ridge” by Haoyi Yao et al.***

### **Anonymous Referee #2**

Received and published: 27 November 2018

The manuscript entitled “Fracture-controlled fluid transport supports microbial methane-oxidizing communities at the Vestnesa Ridge” by Yao et al deals with the geochemical and geomicrobiological aspects with respect to methane, of the cores from different sites at the Vestnesa Ridge. Also comparative studies have been made between the present study sites and that of non-seeping reference site and a high flux Hydrate ridge. The main emphasis was laid on the mini -fracture observed in the near surface sediments. However, the following points need to be relooked at

1. Clarity needs to be brought into the naming of the cores, their depth, site distance from each other. It is unclear when the non-seeping reference site and a high flux

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Hydrate ridge site is used in the manuscript for comparison. It is unclear whether only the Lomvi pockmark core has a mini fracture or the other cores also had and to what extent. Also when a comparison is done between cores with respect to the fracture zone it is important to know how intense was the fracture in all the cores compared and then that can be discussed with respect to the microbial community therein.

2. Please explain the precaution taken during coring so that the reliability of the extent and presence of a mini-fracture is confirmed.

3. Also there are contradictory findings in this manuscript which needs to be justified appropriately rather than just be assumed.

3. Pg 3 Line 31 & Line 40 Replace the word ‘home’ with the name of the laboratory

4. Pg 3 In 36 In the methodology the statement ‘Details of the titration protocol can be found in Latour et al. (in review)’ is not reader friendly as the paper is under review so it would be better to specify the method used.

5. Pg 4 Ln 13-14 there are three references cited which part of the protocol has been taken from which reference is not clear to the reader, either it should be given clearly or details should be elaborated in the methodology section.

5. Pg 5 Line 5-7 Needs reframing to bring out clarity to the reader

6. Pg 4 Line 5 What does the word ‘highest’ mean, it can range from any number, please specify quantitatively

7. Pg 4 In 37. It is not clear how methane concentrations were determined from the fracture zone.

8. Pg 5 In 5-7 Though the contradictory observations are attributed to the recent development of the fracture, it is not clear as to what could be the time period for the word ‘recent’.

9. Pg 5 In 28 The authors are assuming a process. It would be better if the authors only

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explain the possible conditions or mention the factor that could lead to such a function.

10. pg 6 ln 20 pls specify the location

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