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## ***Interactive comment on “Stable carbon isotope fractionation during methanogenesis in three boreal peatland ecosystems” by P. E. Galand et al.***

**Anonymous Referee #2**

Received and published: 14 October 2010

I thought this was a well written and interesting paper. The results are very clear and demonstrate that peatland trophic status has a definite affect of methane production mechanisms. This was demonstrated with both isotopic evidence and in incubation experiments. The only puzzling thing was why mesotrophic site has the highest acetate, if acetate was being consumed there and not at the other two sites. Hines et al., 2008 (referenced in this paper) have found acetate accumulation along with non-utilization at ombrotrophic sites, so perhaps the authors could comment a bit more on that.

I was also interested that the poor fen was called oligotrophic while the bog was called ombrotrophic. I think these terms mean pretty much the same thing, so why is one reserved for fens and the other for bogs? I would also hope that the authors would put in a bit more description about the sites, characteristic vegetation and so on. I am

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curious as to their distinction between an oligotrophic fen and an obrotrophic bog. Clearly the pH was different between these two sites. What else was?

A nice complete job on this paper.

**BGD**

7, C3330–C3331, 2010

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Interactive comment on Biogeosciences Discuss., 7, 5497, 2010.

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