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Comment

## ***Interactive comment on “Does *Juncus effusus* enhance methane emissions from grazed pastures on peat?” by A. Henneberg et al.***

### **Anonymous Referee #3**

Received and published: 15 July 2015

Dear authors,

It is better to use the term ‘molar fraction’ instead of ‘concentration’ for ppm(v).

Table 2 – Low soil moist and LOI indicate less volatiles (OC?) in Morke, so methane molar fraction in air void soil and methane emission fluxes are expect to be lower in this area. Please include temperature data in Table 2 as you argument that temperature had not change in space (and neither in time)? Not clear.

Consider that temperature is a crucial factor in microbial metabolism (see, for instance, <http://www.nature.com/nature/journal/v507/n7493/full/nature13164.html>, and consider several articles and textbooks well advanced on Metabolic Scaling/Ecosystem Theory showing that it is important to all organisms.

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Did you measure (or can you include any data of) the size of the plant roots for each site? It would be great having this info e.g. in figure 3, a vertical bar representing the average root size in the right side of plots for each site.

The higher methane molar fraction above GWL may have other explanations. Please, consider measuring soil compaction by using a soil penetrometer to complement this manuscript. Moreover, if not possible to check it now, consider in future samplings to measuring continuous soil 'fluxes' (continuous open chamber deploy with any on-site TDL or photo-acoustic methane sensor for gathering gas timeseries – you may capture eventual 'bubble' as spikes – over e.g. 24h or more). Altogether, that information might help you to better understand soil gaseous production, accumulation and emission in the studied sampling sites.

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Interactive comment on Biogeosciences Discuss., 12, 8467, 2015.

**BGD**

12, C3633–C3634, 2015

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