Biogeosciences Discuss., 5, S694–S696, 2008
www.biogeosciences-discuss.net/5/S694/2008/

Biogeosciences Discussions

Interactive comment on "Spatial and temporal variation of methane emissions in drained eutrophicpeat agro-ecosystems: drainage ditches as emission hotspots" *by* A. P. Schrier-Uijl et al.

Anonymous Referee #2

Received and published: 29 May 2008

GENERAL COMMENTS

Schrier at. al. article treats about methane emission from different degraded peatland landscape elements. The subject of this paper is very important part of general picture of greenhouse exchange between terrestrial ecosystem and atmosphere. The authors present results of 3 years methane emission measurements and compare them with the other similar studies. The whole article has been properly written, however the analysis would be done deeper and measuring period could be longer. Generally speaking the article is acceptable after some corrections and consideration of comments presented below.

SPECIFIC COMMENTS

1. Volumetric soil moisture content seems to be not enough description of water conditions without knowledge about the soil porous size and distributions (soil density). The soil moisture analysis could be augmented by soil water potential analysis or porous water values consideration.

2. There is no information about air temperature measurements hight and sensor location - it should be placed in text.

3. There is no clear information about the measurements frequency and number of collected data.

4. There is no studies done in this paper on the frequency of appearance (local eddy covariance data seems to be available) and the influence of turbulent condition on the CH4 emission intensity.

5. There is lack of description (maybe figure) of soil water depth on studied landscape elements.

6. The soil water content basically determines the amount of methane production in the substrate, however fast fluctuating soil water level can ‘hide’ this process due to lag effect observed in peat.

7. The stepwise regression was made initially for the temperature and then for soil moisture. Why the direction of analysis was not reversed?

8. If the farm-based emission estimation has comparable accuracy comparing to CH4 flux estimation made in this article? I didn’t find the information about it in this paper.

TECHNICAL CORRECTIONS

Page 1238 line 11. erase ‘element’

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Interactive Comment

Page 1240 line 17 repaleace ‘level’ with ‘surface’

Figure 2 what was temperature measurements hight and where soil water content was measured (depth also)?

Figure 3 There is lack of Y axis description and dimesion, the intesively and less intesively menaged site are not indicated on chart. Y axises ranges should be the same to indicate te differnceses in measured fluxes magnitudes.

Figure 4. The X axises in four figures are not described, there is lack of ‘(a)’ and ‘(b)’ on the other four figures

Figure 5. On (b) subfigure: Unsaturated Residuals has no dimention, put ‘Soil water content’ instead of ‘moisture content’

Figure 6. What are the dates of day in winter and day in summer? There is no difference between Y1 and Y2 axises description.

Interactive comment on Biogeosciences Discuss., 5, 1237, 2008.