

Interactive comment on “The full greenhouse gas balance of an abandoned peat meadow” by D. M. D. Hendriks et al.

Anonymous Referee #2

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In this paper, authors measured atmosphere-land surface exchange of greenhouse gases (CO₂, CH₄, and N₂O) over abandoned peat meadow on the basis of flux measurements, and scaled up from point to whole meadow scale. The research theme is appropriate in terms of global environmental study, and measurement techniques seem fair. The results, although N₂O contribution was unexpectedly negligible, are reasonable, such that the peat meadow acted as a net sink of CO₂ and a source of CH₄. Many wetland studies have suggested similar results, but this study carries implications with high quantitiveness. Therefore, I concluded that this manuscript is acceptable for publication from Biogeoscience, after minor revision. One caveat to this manuscript is that the scaling-up from point to whole meadow was done by very simple way: categorization and area-weighted multiplication. I could not be sure that such a simple

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method captured heterogeneity of the peat meadow in temperature, water, and nutrient conditions.

Specific comments: Page 279 Line 12 Add citation for the European peatland CO₂ sink. Page 281 Line 13 Table1 appears after Table2. Page 282 Line 1 "then" should be "than". Page 285 Line 14 "Evapotranspiration" may be more appropriate for E. Page 287 Line 23 Why year 2005 showed larger carbon uptake in spite of shorter growing period? Page 288 Line 8 Does the Equation2 use "Arrhenius relation"? Simply, exponential? Page 290 Line 9 Fig.5 may be Fig.7. Page 293 Line 29 Explanation for the low N₂O flux is not adequate. Discuss more. Table 4 This table for water balance may not be necessary. Fig.6 GPP occurred in mid-winter. Is this correct, or gap-filling error?

Interactive comment on Biogeosciences Discuss., 4, 277, 2007.

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