

## ***Interactive comment on “Gaseous nitrogen losses and mineral nitrogen transformation along a water table gradient in a black alder (*Alnus glutinosa* (L.) Gaertn.) forest on organic soils” by T. Eickenscheidt et al.***

**Anonymous Referee #2**

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General comments: Eickenscheidt et al presenting a study of gaseous nitrogen losses and mineral nitrogen transformation at different water level in black alder forest on peat soils. The subject of study is very important, because forest on drained nutrient-rich peat soil have been reported to be hotspot of N<sub>2</sub>O losses, but there are not many studies where are studied relationship between nitrogen turnover processes and N<sub>2</sub>O and also N<sub>2</sub> emissions from organic soil.

Specific comments: This is a well-designed, properly executed study, where is used the relevant methods. The results are clearly presented and interpreted. The paper

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is easy to read. Manuscript offers valuable data about gaseous nitrogen losses and mineral nitrogen transformation in forest on organic soil.

There are a few questions and comments for clarification of details below.

Chapter 2.3 Laboratory incubation experiment P19079 line 26. Is it correct “He/O<sub>2</sub> 6.0”? P19080 line 8. Please explain, why was adjusted 83% WFPS for site U instead of 70%?

Chapter 3.3 Field N<sub>2</sub>O fluxes P19083 line 16. There is referred to figure 5c. I assume that authors meant figure 5. P19083 line 20. There is referred to figure 1d, 2d. I assume that authors meant figure 1. P19083 line 20. There is said, that undrained site the highest emission of N<sub>2</sub>O occurred during the dry period in May. In figure 5 is shown that the highest emission of N<sub>2</sub>O in site U occurred on 11th of June. And in figure 1 is shown, that water level started to rise at the same time. I suggest to change “...during the dry period in May” to “..at the end of dry period at the beginning of June”.

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