



Interactive comment on “Nitric oxide and nitrous oxide emission from Hungarian forest soils; link with atmospheric N-deposition” by L. Horváth et al.

Anonymous Referee #1

Received and published: 4 August 2005

General comments:

The paper presents one year measurements of emissions of NO and N₂O from Hungarian oak and spruce forests. The presented data gives a valuable contribution to the knowledge on NO and N₂O emission from a region where information previously was very scarce. The paper compares the emission of nitrogen oxides with atmospheric deposition. The subject is clearly within the scope of BIOGEOSCIENCES.

The paper gives a clear account of the emission data and in addition gives very detailed information on the deposition. I have some questions about the chamber methodologies applied (see specific comments). The estimation of NO emission from the oak site relies on very few measurements and is supposedly subject to a high uncertainty. It is

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not clear from the paper exactly how many flux measurements were made during each visit. Also the spatial distribution of the measurements is not mentioned, unless it was the same arrangement as for N_2O .

The paper should be expanded with a more detailed discussion of the results in relation to the soil parameters. One suggestion is to investigate the relationships between emission and soil moisture and soil temperature in more detail than just correlation coefficients (Table 3). Maybe this would reveal more interesting features such as an optimum WFPS.

Specific comments:

p. 706, l. 1: Why use " λ " and " ϕ " instead of the more readily understandable "E" and "N"?

p. 706, l. 10: What is the meaning of "8-8" parallel chambers. Were the chambers placed "permanently" on the soil during a full year. If so, this certainly has some implications on the soil moisture etc. immediately below the chamber.

p. 707, l. 6. Was the presumed underestimated of flux by 24% corrected for in the presented results?

p. 707, l. 23: It is not clear when the concentration of NO was recorded. The calculation procedure assumes that the concentration is determined at steady-state. When was steady-state reached?

p. 708, l. 19: Since O_3 was not measured in the chamber, I presume that is from an ambient air measurement (part of a profile system?). At what height over the ground was O_3 measured?

p. 709, l. 10. It is stated that NO emission were determined 4 times at the oak site. However, only 3 monthly values are given in table 2. Is this because two of the measurements were in the same month?

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p. 709, l. 17. I miss a table/figure showing soil temperature and soil moisture data.

Technical corrections:

p. 704, l. 1: "inputs to the atmosphere"? Should it be "inputs to the ecosystem"?

p. 705, l. 18: "form" should be "from"

p. 709, l. 18: Change "has" to "have"

Interactive comment on Biogeosciences Discussions, 2, 703, 2005.

BGD

2, S393–S395, 2005

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