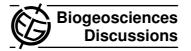
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Interactive Comment

Interactive comment on "Nitrous oxide emission from highland winter wheat field after long-term fertilization" by X. R. Wei et al.

Anonymous Referee #2

Received and published: 21 July 2010

The manuscript addresses the seasonal pattern of N2O fluxes and annual N2O emissions from a rain-fed winter wheat field with the different fertilization treatments in the Loess Plateau of China. It seems that the results have been carefully obtained. Since a large number of studies concerning the influence of variation fertilization on N2O emission from the field crops exist in literature, the MS does not show the novelty which is crucial for a publication in high-ranked journals. However, the results may be important to develop the strategies of fertilization management in wheat crop in the Chinese Loess Plateau for reducing N2O emission. For this reason, the authors should include the treatment of N2O emission from the fertilization management of farmer's practice. From the fertilizer treatments (i.e. CK, manure, nitrogen, nitrogen + phosphorus and nitrogen + phosphorus + manure) for a long-term field experiments presented in the MS, I could not see a treatment of farmer's practice. Furthermore, Figure 4 shows that

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there was a great difference in above-ground biomass between 2006/07 and 2007/08. This indicates that the great difference in uptake of nitrogen by plants in both years may also cause the greatly different soil Nmin in 2006/07 from that in 2007/08 (assuming that there was only one harvest per year). Therefore, data of the soil Nmin should be presented in the MS as well, which shows total available N in soils. In addition, since it is the quantity of readily available soil organic carbon that is of particular importance for denitrification, the higher total soil organic C may not always show a positive effect of N2O emission. Thus, the authors should pay attention to the interpretation about effect of the C/N ratios on N2O emission in this study. For such aspect, the authors should look at the studies on the sources and rates of nitrous oxide emission from grazed grassland after application of 15N-labelled mineral fertilizer and slurry by Dr. Dittert and his colleagues have been published in the Soil Biology and Biochemistry 38, 2602-2613 (2006) and 37, 1665-1674 (2005). In summary, I suggest that the major revision will be required before the paper could be considered for a publication in the Biogeosciences. Since the necessary data should be added. I am not going to give the specific comments for the current version yet.

Interactive comment on Biogeosciences Discuss., 7, 4539, 2010.

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