Anonymous Referee #3

Specific comments

P 8926 R 19. Be consistent with # of decimal places, two are good.

Yes, we will revise it according to this suggestion (i.e., changing "0.087" to "0.09").

P 8927 R 4-6. The starting sentence structure is awkward. Try to make it clear.

Yes, we change this sentence to "Atmospheric methane (CH_4), nitrous oxide (N_2O) and carbon dioxide (CO_2) are the important components in the biogeochemical carbon and nitrogen cycling, which play important roles in affecting atmospheric chemistry and climate change (IPCC, 2007)".

P 8931 R 2-4. Interestingly, the soil is sandy loam which has a very low water holding capacity. It would be useful to explain how the crop plants get furrow water that may preferably percolate in sandy loam soil instead of lateral seepage? Also how deep is the soil profile? Is it heavier in the lower depths?

Thanks! As a result of long-term conventional tillage practices, soils in the field site have developed a compact plough pan layer at approximately 20 cm depth, which may substantially inhibit water infiltration and favor lateral flow .

P 8932 R 16-17. It is unclear if there was a transplanting hole in the sheet within the frame, as well? I assume there was one.

The plastic film inside the frame contained two rows of transplanting holes with a diameter of 3 cm every 16 cm along the raise bed.

P 8932 R 17-18. Sentence "the top edge of the frames…...of the top chamber" could be clearly explained.

Yes, we will reword this sentence to make it clear, i.e., "The top edge of the frame had a water groove, which fits exactly the rim of the top chamber, and the gas-tight seal was ensured by filling the groove with water".

P 8932 R 11. Covering the soil essentially alters the spontaneous CO_2 flux by affecting the concentration gradients between soil and the air within the chamber. How was this corrected when the chamber was used for longer time intervals of up to 40 minutes? Also need to be mentioned what regression was used. Also need to explain how the type of regression used (liner or exponential) will explain constantly changing controls on CO_2, CH_4 and N_2O fluxes?

It is true that chamber techniques for gas flux measurement are related to the potential shortcomings, such as temperature and pressure perturbations. These can have a marked effect on biological activity, and also cause gas expansion or contraction which can complicate flux calculations. In order to reduce the perturbations as large extent as possible, the vented insulated chambers were used in this study, and at the same time the flux calculations were corrected by the measured temperature in the chamber enclosures. In addition, we calculated the gas fluxes in terms of the actual linear or nonlinear changes in the gas concentrations in the enclosed chamber over time (Hutchinson and Livingston,

1993).

P 8933 R 19-20. Were the fluxes corrected for chamber (gas) volume as well?

Yes, the fluxes were also corrected by the chamber volume dividing by the chamber surface area, i.e., the height of chamber in this study.

P 8936 R 10. Were separate ANOVAs performed for the response variables? Again, also mention the type of regressions analyses?

We did not perform the statistical analysis between gas fluxes and each response variable, and stepwise multiple linear regression analyses were carried out for the relationships between GHG fluxes and environmental variables.

Discussion section. It would be helpful to present and discuss the typical diurnal pattern of air temperature observed in the growing season and fallow. This will complement the fig. 4.

Thanks a lot for this suggestion. It is generally recognized that there exists the temperature-dependent diurnal variation in C- and N-trace gas flux in the rice-based cropping system (Yao et al., 2009). For our present study, we did not investigate the diurnal changes of gas flux due to the low time resolution of manual sampling chamber measurements.

Fig. 4. The fig explains the temperature-flux relationship very well. However, font size of the axis labels is too small to be legible after potential reduction in fig size that usually occurs when the fig is reduced to fit a single column.

Thanks! We will enlarge the font size of axis labels according to this suggestion. See the following Figure 4: