

## ***Interactive comment on “Options for mitigating global warming potential of a double-rice field in China” by Guangbin Zhang et al.***

### **Anonymous Referee #1**

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This study investigated CH<sub>4</sub> and N<sub>2</sub>O fluxes from a Chinese double-rice field and the responses to drainage and tillage in winter fallow season for 4 years, estimated the mitigation potential of drainage and tillage, and finally suggested the optimal land management strategies for reducing GWPs of CH<sub>4</sub> and N<sub>2</sub>O emissions in the double rice-cropping systems. More importantly, reasons for decreasing CH<sub>4</sub> and N<sub>2</sub>O emissions were well demonstrated by the measurements of total C and N contents and methanogens. The study provided useful agricultural strategies to mitigate global greenhouse gas emissions from Chinese double-rice fields. The experiment is well designed, and the high-quality data are well presented. The main conclusions are supported by the data. In general, this work is timely and very important with respect to our knowledge of options in winter fallow season for mitigating GWPs in the typical Chinese paddy fields. In particular, the paper made a good analysis of available data

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and discussed in detail. The manuscript is well presented, and the English is generally well written, although it has a potential to be improved. Overall, I do not have any major concerns but recommend it to be accepted by Atmospheric Chemistry and Physics.

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