

## ***Interactive comment on “How methane emission from rice paddy is affected by management practices and region?” by Jinyang Wang et al.***

**Anonymous Referee #2**

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Still some language issues, e.g. title is awkward and could deter readers/interest in the paper, many other sentences have unclear meaning and/or awkward language. Paper would definitely benefit from a thorough editing for clarity and language in general.

Specific issues:

1. the authors already know that  $\ln[\text{SOC}]$  and  $\text{OMx} \ln[1 + \text{AOM}]$  will be modeled, but we don't know where that information is from.
2. Not sure that treating pH as categorical variable is at all justified or appropriate. Why was this done? Was pH reported from the different field sites in broad categories, or measured with crude litmus paper or similar? That might be a reason, but still... Authors state that the relationship of pH to emissions is 'not monotonic' but from Ta-

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ble 2, I don't see strong enough evidence of that, especially given the questionable shoe-horning into many categories – couldn't the slight deviations from a ranked relationship of pH with emissions simply be error? Did the authors try converting pH to concentrations of  $\text{H}^+$  ions or otherwise back-log-transforming pH values, or other logical numerical ways to treat this definitely-not-categorical variable? I don't think this statement in lines 213-215, "However, soils with a pH of 5.0-5.5 showed a much higher emission than other soils", is really true. It looks to me like soils with the lowest pH values (below 4.5) had the largest effect on  $\text{CH}_4$  emissions, and the small blips at 5-5.5 and 7 – 7.5 are not necessarily a big deal. No other literature besides the authors' 2005 paper is cited regarding a more complicated relationship between pH and  $\text{CH}_4$  emissions to support this idea.

3. How did the authors arrive at the weights for the organic matter additions (.2 and 1)? Not clear why this is needed or justified.
4. The authors state several times that because emissions estimates from different authors' inventory assessments, that this means the results are correct/reliable, e.g. line 70, and lines 173-175 where EDGAR estimates are similar to IPCC 2006. This is a truism, though, because doesn't EDGAR use IPCC 2006 defaults to calculate their emissions estimates?

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