

Interactive comment on “Methane plume over South Asia during the monsoon season: satellite observation and model simulation” by X. Xiong et al.

X. Xiong et al.

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We thank both reviewers for their detailed and constructive comments on our paper. We have revised the paper following all the comments/suggestion given by both reviewers, and here is a summary of the major revisions:

1. A brief description of the retrieval method and its limitations has been added in Section 2 "data and method" (as suggested by reviewer #1).
2. Data from five stations of the NOAA network at the periphery of the TP are used to analyze the CH₄ seasonal cycle. The information of these stations (Table 1) and the results (Figure 5) have been added in Section 3.2 (as suggested by reviewer #1).

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3. Six references have been added. As suggested by reviewer #1, IPCC gave a big range of CH₄ emissions from rice, and the estimation from many recent studies tends to converge to the lower end of this range, and CH₄ emissions from rice are likely to have declined in recent years in China (two references added). To be more specific, we changed the words to say "a possible overestimate of CH₄ emissions from rice paddies in Southeast Asia" to "point to an overestimate of emissions from rice paddies in Southeast Asia in the scenario with the global emissions from rice of 60 Tg yr⁻¹".

4. To address the concern of reviewer #2 about the relationship between the maximum of CH₄ in the middle to upper troposphere and the maximum CH₄ emission from rice paddies in Asia, some discussion has been added. The enhancement of CH₄ in the middle to upper troposphere is associated with both the transport processes and the local surface emissions, and it is hard to identify the months of maximum emissions due to the strong impact of transport. As indicated in the discussion, the monthly total, as well as the seasonal maximum, of Asian CH₄ emissions are not well known. Moreover, the impact of CH₄ emissions from wetlands over the TP and grass meadows peaking in the summer may need to be taken into account too.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 13453, 2008.

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