Geosci. Model Dev. Discuss., 7, C43–C44, 2014
www.geosci-model-dev-discuss.net/7/C43/2014/

Geoscientific Model Development
Discussions
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Interactive comment on "Estimation of uncertainties due to data scarcity in model upscaling: a case study of methane emissions from rice paddies in China" *by* W. Zhang et al.

Anonymous Referee #2

Received and published: 1 March 2014

General comments: This study presents the methodology to evaluate the impact of data scarcity on model upscaling. They developed a data sharing matrix to aggregate the modeled uncertainties in divisions of a subject region. The study is a valuable contribution to the literature on estimation of uncertainties due to data scarcity in model upscaling. There are a number of issues that the authors will need to address.

Specific comments: 1. As far as I can see, besides data sharing, there are other reasons causing correlation among different cells (e.g. similar geographical condition), which means that the uncertainties calculated in this paper may be underestimated in aggregation. It is better to mention the other sources that cause additional correlation and their effects on estimating the uncertainties in aggregation.

2. P187 L4-L12. The most valuable contribution of this paper is that they developed a data sharing matrix. More details should be provided about how to calculate Cij.

Technical corrections: 3. P187 L21. What is DS matrix? Should "Eq.(2)" be changed to "Eq.(1)".

4. Fig. 2. GR II contains "Fujian" according to the legend which disagrees with the figure. How did the authors divide China into five GRs? The criteria should be provided more clearly.

Interactive comment on Geosci. Model Dev. Discuss., 7, 181, 2014.