

Interactive comment on “Diagnosing the average spatio-temporal impact of convective systems – Part 1: A methodology for evaluating climate models” by M. S. Johnston et al.

M. S. Johnston et al.

marston@chalmers.se

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We would like to thank the anonymous reviewers for the time and effort they invested in making improving the paper. The issues highlighted have been noted and the paper have been thoroughly revamped in order to address, as much as possible, the reviewers concerns, suggestions, and grammatical errors and/or ambiguity.

General:

1.) We have updated the figures and tried to make them clearer and more legible. There was an error in figure 5 where the incorrect TMPA file was being plotted. This

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has been corrected. The text throughout the article has been edited accordingly. 2.) We have also added a section discussing the movement of the DC systems and their interaction with some equatorially trapped waves. However, this topic is complex and can go far beyond the scope of the study; therefore, we have limited the discussion.

Specific:

Referee 2:

1.) The authors agree that some more clarification regarding the goal of the article is required. To this end, we have rewritten the abstract, introduction, and summary/conclusion to underscore the objective of the paper. However, we do not believe a "full evaluation" of the GCM is necessary in order to meet this objective. Perhaps there needs to be a clarification on exactly what the reviewer meant by "full evaluation". We have stated throughout the paper the problems encountered with the model data. For example, the cloud fraction from the model output is missing contribution from the precipitation, the cloud ice water content does not contain a complete particle size range as it found in the observations, etc. We have also emphasized limitations in the observations, such as the issue with aliasing caused by under sampling, which is inherent to single, sun-synchronous satellites. It is not the intent of the authors to point out errors in individual parametrizations, but rather by examining the evolution of the deep convective process in 3-hour time steps, come closer to identifying issues such as compensating errors and at the same time show that the compositing method is a tool that can be used in model evaluation.

2.) The text have checked for grammatical errors and restructured where unclear.

We believe the paper to be significantly improved and re-submit it for continuation in the peer-review process.

Please also note the supplement to this comment:

<http://www.atmos-chem-phys-discuss.net/13/C7711/2013/acpd-13-C7711-2013->

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