

Interactive comment on “Influence of different convection parameterisations in a GCM” by H. Tost et al.

Anonymous Referee #2

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This is a well-written piece of work tackling a very important problem: the influence of different cumulus parameterisations on global precipitation patterns. I suggest the manuscript to be published with minor amendments and hopefully including a short discussion of the topics noted below.

The results are interesting in that they show clear differences between the individual approaches, but all work within the error bars of observations. Of specific interest is the overestimate of precipitation in the ITCZ since this is most relevant for the general circulation of the atmosphere (and ocean!). Unfortunately comparisons against observations were restricted to total precipitation. It is obvious that there are difficulties in distinguishing between convective and large scale, but TRMM data could be used to improve this situation at least for some regions (see Mori et al. Mon Wea Rev August

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2004). This would help interpreting the results offered in Table 4.

The overall yet unanswered question remains that about sensitivity of a model using different cumulus parameterisations to external forcing (GHG etc.). How much does tuning of the models suppress sensitivity, to what degree are there differences in the performance of the parameterisations in different areas (e.g. tropics vs. midlatitudes)?

Very few technical problems are to be noted:

P9218 L13: which average is meant - space or time?

P9231 L28 of both, spatial

P9232 L3: Which T scheme is meant - T1,2,3?

P9234 L11: significantly too low

Figs 2,4,5 are quite small and details cannot be seen, so they should be increased in the final version.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 9213, 2006.

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