

***Interactive comment on “Performance of
McRAS-AC in the GEOS-5 AGCM:
aerosol-cloud-microphysics, precipitation, cloud
radiative effects, and circulation” by Y. C. Sud
et al.***

Anonymous Referee #2

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General Comments: This paper describes the performance of Relaxed-Arakawa Schubert scheme with aerosol microphysics (McRAS-AC) in simulating global cloud cover, radiation budget and precipitation in the GEOS GCM. The work is very relevant to current modeling studies and the authors have vast experience in this field. The manuscript is well written, describes the methodology and results clearly. Therefore I recommend publishing this paper. However, I have a few relatively minor comments which the authors might like to address during revision.

Specific comments: 1. It is not clear, from the Experimental details section, for what

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period the model was run. Although it is mentioned that run length is 10 years, but was it with climatological SST or interannually varying SST? In case the later is true, what were the start and end years. These are required for further comparison with observations/analysis. FOr example, climatology of the model with climatological SST could be very different that the climatology of the model with interannually varying SST.

2. In case SST was interannually varying, it will be nice to see if interannual variation of precipitation over the Indian region has got improved using this new model of cloud.

Interactive comment on Geosci. Model Dev. Discuss., 5, 1381, 2012.