Atmos. Chem. Phys. Discuss., 11, C2577–C2578, 2011
www.atmos-chem-phys-discuss.net/11/C2577/2011/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "An analysis of cloud overlap at a midlatitude atmospheric observation facility" *by* L. Oreopoulos and P. M. Norris

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Received and published: 2 May 2011

We would like to modify our response to the first question by H. W. Barker as follows:

We did not mean to give the impression that cloud heterogeneity is completely off the sights of atmospheric science, and more specifically, GCM practitioners. Our intention in the introductory paragraph was to contrast full-scale 3D heterogeneity that requires two-point statistics in the horizontal with heterogeneity where horizontal spatial coherence does not need to be resolved, i.e., cloud fields described only by their vertical correlations. We attempted to argue that while the description of the first kind of heterogeneity is harder, would require more information than is currently available in GCMs, and would demand complex and CPU-intensive algorithms, treatment of the latter type of heterogeneity is feasible to a considerable extent. But in both cases, it has yet to

be demonstrated that predicting the degree of heterogeneity from the available model information is something we have confidence in at this point. We make the distinction clearer in the revised manuscript.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 597, 2011.