Geosci. Model Dev. Discuss., 5, C798–C799, 2012
www.geosci-model-dev-discuss.net/5/C798/2012/

Geoscientific
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Discussions

Interactive comment on "Downscale cascades in tracer transport test cases: an intercomparison of the dynamical cores in the Community Atmosphere Model CAM5" *by* J. Kent et al.

J. Kent et al.

jdkent@umich.edu

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Response to reviewer 2

The author's would like to thank reviewer 2 for their review. Although we use the conventional error-norm based evaluation, we think that our work is one of the first studies that really examines under-resolved tracer transport. As noted in your review we also investigate the tracer variance, and based on comments from reviewer 1 we have now also included the entropy as a measure of mixing. This provides three measures to assess how the dynamical cores of CAM5 model tracer transport in the under-resolved

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case. Although Test 4 produces results that would be expected from the previous tests, it is used to show how the diffusion (which is essential for Tests 1-3) can produce unphysical results in certain situations.

Interactive comment on Geosci. Model Dev. Discuss., 5, 1781, 2012.

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