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> Interactive Comment

Interactive comment on "Verification of a non-hydrostatic dynamical core using horizontally spectral element vertically finite difference method: 2-D aspects" by S.-J. Choi et al.

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1. Referee 2 previously asked:

"it would be interesting to evaluate the maximum vertical velocities generated by the model in a long-time simulation of a resting atmosphere above orography."

It appears that you misunderstood this comment. The referee was asking for results of a test case such as those described by:

Klemp, 2011, MWR 139:2163-2169 or those presented in fig 5 of: Botta, Klein, Lan-C1434



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genberg and Lutzenkirchen, 2004, JCP 196:539-565

These are certainly something that you should consider however you may not have time at this late stage in the review process.

2. There was also a point that I failed to pick up on before but your convergence with resolution results drew my attention to it. Despite using 8th-order discretisation in the horizontal, your numerical results converge with 2nd-order accuracy due to the lower order finite differences that you use in the vertical. This should be pointed out in the abstract. However I would imagine that your scheme is formally 1st-order accurate on a grid with non-uniform spacing in the z direction since you use centred finite differences in the vertical. You should point this out. You may also wish to consider doing your convergence with resolution test case with non-uniform spacing in the vertical. However, again, there may not be time for this at this late stage in the review process.

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