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Discussions

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Interactive comment on "Direct numerical simulations of particle-laden density currents with adaptive, discontinuous finite elements" *by* S. D. Parkinson et al.

Anonymous Referee #1

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Reply to authors reply:

I have read the author replies to my comments and I am satisfied. After these changes I think the manuscript is ready for publication. A couple of points though. First in this new paragraph:

A single submarine particle-laden density currents can involve 100km3 of sediment (Talling et al., 2007). That is approximately ten times the sediment flux into the ocean from all of the Earth's rivers combined (Talling et al., 2007). They can travel for hundreds of kilometres over the sea bed at speeds of tens of metres per second (Heezen and Ewing, 1952).

a- Shouldn't it be "current" rather than "currents"? b- As it is now you are comparing a volume of sediment transported/deposited by a turbidity current vs a discharge/flux. Ergo you need to convert the flux into a volume. I assume you mean to say annual/yearly flux as in: "ten time the annual sediment flux". Correct?

Finally, as another reviewer has suggested: "I suggest the authors include an image depicting a snapshot of the adapted mesh near the gravity current head at an intermediate simulation time. Such an image would provide a better visualization of the effect of refinement on the mesh."

I agree with this suggestion. In fact my early comment that made the authors add the flow chart (now Fig 1) had in mind including snapshots of the adaptive mesh in all the stages described in the flowchart. Maybe you can combine the flowchart with pictures of the mesh at each instance?

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