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Geoscientific Model Development Discussions

Interactive comment on "Conservative interpolation between general spherical meshes" *by* E. Kritsikis et al.

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We would like to thank the referees for their useful suggestions, which allowed us to submit a better version of the article.

Sections 2 and 3 have been illustrated with new diagrams.

Section 2 was indeed difficult to read due to the many subscripts and overlines. The colors used in Fig. 1 hopefully make it easier to visualize the different meshes, and a more explicit superscript has been used to denote the reconstructed function. It is now made clear that the interpolation weights are the supermesh cell areas, both in the text and the figure caption.

In Section 3, the construction of supermesh cells was illustrated by an example (Fig.

3). It is noted that intersections of arcs are computed exactly in 3D Cartesian space. A principal difference with the papers of Alauzet and Farrell is stressed from the introduction: mesh connectivity is not assumed available, but is reconstructed instead in quasilinear time, which comes in handy when reading from NetCDF files. Indeed, tree-based intersector search seems quite new and promising.

Another difference with optimisation approaches is noted, that our purpose is to test the conservation requirement with no need for a best function approximation in the target space. It is also pointed out that a linear reconstruction similar to ours was used in flat geometry by Alauzet.

Finally, typos were corrected and a few missing references added.

Please also note the supplement to this comment:
http://www.geosci-model-dev-discuss.net/8/C4132/2016/gmdd-8-C4132-2016-supplement.pdf

Interactive comment on Geosci. Model Dev. Discuss., 8, 4979, 2015.