

Geosci. Model Dev. Discuss., referee comment RC1
<https://doi.org/10.5194/gmd-2022-248-RC1>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on gmd-2022-248

Colin Cotter (Referee)

Referee comment on "Strategies for Conservative and Non-Conservative Monotone Remapping on the Sphere" by David H. Marsico and Paul A. Ullrich, Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2022-248-RC1>, 2022

This paper provides a useful evaluation of remapping schemes between grids on the sphere, which is important for model intercomparison.

A few questions and comments:

1. The largest errors occur when interpolating to the lat-long grid. Do we see particularly large errors at any point on the grid (e.g. poles or equator).
2. I think that it might also be relevant to mention conservative mass fixers developed for semi-Lagrangian schemes, such as the variants of Zerroukat, which make local corrections to fix both conservation and bounds.
3. Please provide some more information about how R is constructed for each combination of grids.
4. I'm confused by the reference of supermeshing in the nonconservative section - this technique is introduced usually to ensure conservation.