

Interactive comment on “ConvectiveFoam1.0: development and benchmarking of a infinite-Pr number solver” by Sara Lenzi et al.

Anonymous Referee #1

Received and published: 1 May 2020

There are a number of reasons why I did not feel that there was anything here that was worth publishing in peer-review literature.

1. From the point of view of computational fluid dynamics, the infinite Prandtl number limit should pose fewer problems than the finite Prandtl number case, since the highly non-linear inertial terms in equation (2a) become negligible. The overall problem is still non-linear of course, but there is nothing intrinsically difficult about the infinite-Pr limit, and it has already been considered by many others.
2. From the point of view of geoscience, the constant viscosity case is of limited interest, and the numerical challenge is rather how to deal with a temperature-dependent viscosity that varies by many orders over the temperature ranges that are of practical interest.

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Whilst I can understand that the authors are developing a numerical model on a new software platform (OpenFOAM) from scratch, and that this process needs benchmarking, it is debatable whether this needs to be documented in peer-review literature (perhaps at best a technical report, or within a Ph.D. thesis).

Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2020-28>,
2020.

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