

Interactive comment on “Three-dimensional normal mode functions: Open access tools for their computation in isobaric coordinates (p-3DNMF.v1)” by Carlos A. F. Marques et al.

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Dear Sir/Madam,

Thank you very much for your comments on our paper. Please see below how we have addressed your comments.

Reviewer’s general comment: In addition, the code is easily accessible, together with a tutorial and some test data (though the data are not part of the software archive, as indicated in ‘code and data availability’ (p27L25)).

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Response: In the ‘Code and data availability’ we intended to say that the “mean vertical profiles of temperature and geopotential, computed from 32 years (1979-2010) of the ERA-Interim reanalysis data” were made available. The sentence pointed by the reviewer is followed by the following one: “These two vertical profiles along with the horizontal wind (u , v), pressure velocity (ω), temperature and geopotential fields that may be obtained from the ERA-Interim data server...”

In order to avoid misunderstandings we removed the words “data sets” from the sentence in p27L25. The sentence is now written as:

“Also included are the mean vertical profiles of temperature and geopotential, computed from 32 years (1979-2010) of the ERA-Interim reanalysis data as described in the text (see section 2.2).”

Reviewer comment # 1: Reading the abstract, the reader may assume that a new methodology is presented as the basis of the software package. However, as described in the introduction the packaged is mainly based on the original work of Kasahara and Puri (1981), and of Tanaka (1985). This may be made clearer already in the abstract. In addition, in the software manual (tutorial) no reference is made to the work of Tanaka. This, in my view, needs to be changed.

Response: The abstract does not suggest in any sentence that the package is based in a methodology originally developed by the authors. A misunderstanding as the one pointed by the reviewer is only possible for a reader that has no previous knowledge about the methodology. In such case, the introduction makes clear the previous contributions as it is recognized by the reviewer.

We agree that the software manual (tutorial) should cite the work of Tanaka. The following two references, already included in the manuscript, have been included in the

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tutorial:

Tanaka, H. L.: Global energetics analysis by expansion into three-dimensional normal-mode functions during the FGGE winter, *J. Meteor. Soc. Japan*, 63, 180–200, 1985.

Tanaka, H. L. and Kung, E. C.: Normal-mode energetics of the general circulation during the FGGE year, *J. Atmos. Sci.*, 45, 3723–3736, 1988.

Reviewer comment # 2: Technical: The authors may think of improving Figures 10 & 11 by enlarging the boxes/numbers/characters.

Response: We have followed the suggestion of the reviewer.

Interactive comment on *Geosci. Model Dev. Discuss.*, <https://doi.org/10.5194/gmd-2019-340>, 2020.