

Interactive comment on “GLOFRIM v1.0 – A globally applicable computational framework for integrated hydrological-hydrodynamic modelling” by Jannis M. Hoch et al.

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We thank the anonymous reviewer for his/her evaluation of our manuscript and helpful comments.

Regarding the comment on colloquial language as well as missing references or information, we will carefully revise the manuscript. Hereafter, we address the main aspects brought up by the reviewer.

First of all, the original spatial resolution of the CRU-forcing is 30 arcmin. This agrees with the spatial resolution at which PCR-GLOBWB was applied in the study. Further in-

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formation concerning the CRU forcing data as well as its processing for PCR-GLOBWB can be found at <http://vanbeek.geo.uu.nl/suppinfo/vanbeek2008.pdf>. We will present this information and the reference more prominently in the revised version.

For model validation against discharge we did not specifically address the uncertainty of observed discharge at Obidos. We neglected this aspect as we assume that the uncertainty is insignificant compared to other possible uncertainties, for instance parameterization of PCR-GLOBWB or surface roughness of the hydrodynamic models, particularly for large-scale modelling studies. It must nevertheless be acknowledged here that the uncertainty of observation may vary between 10% and 30% due to the rating curve applied at the observation station. Clarke et al. (2000) reported an uncertainty of around 16 % of year-to-year variability. Even though an uncertainty analysis exceeds the scope of this paper, we will refer to this information in the revised manuscript. Despite their uncertainty, the available discharge observations have therefore be used as validation datasets.

With respect to the comment on the unpublished results of the sensitivity analysis, we decided to not provide an additional plot as we assumed that this may distract the reader from the core of the manuscript, that is the model framework in itself as well as the test case in the Amazon basin. Given your comment, however, we not believe that the text indeed needs to be supplemented by a figure. Therefore, an explanatory figure will be added to the revised version of the manuscript.

Last, we want to clarify which gridding approaches is referred to: flexible gridding (or “meshing” as in Delft3D Flexible Mesh) and regular gridding (as done by LISFLOOD-FP). To avoid unnecessary confusion, we will update this statement accordingly.

References

Clarke, R. T., Mendiondo, E. M. and Brusa, L. C.: Uncertainties in mean discharges from two large South American rivers due to rating curve variability, *Hydrological Science Journal*, 45(2), 221–236, doi:10.1080/02626660009492321, 2000.

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