

Interactive comment on “Open access to regional geoid models: the International Service for the Geoid” by Mirko Reguzzoni et al.

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Dear Reviewers #1 and #2, many thanks for your valuable comments and suggestions. We really appreciated your positive general assessment of the presented paper. Since some of your remarks are similar, in the following we will jointly reply to them to better clarify the mods applied to the manuscript. As for the height conversion tool, it is currently under monitoring to check how often it is used and which setups are the most requested by the users. We totally agree with the reviewers that this kind of processing can be performed externally by any arbitrary interpolation, especially by the scientific community. However, this service was mainly thought for technicians and commercial users, often requiring a quick height conversion. Of course, other interpolation methods can be included into the service. Note that the input geoid models are gridded,

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therefore the bilinear interpolation is actually a spline interpolation. Regarding the use of on-demand and private geoid models as input for the conversion tool, at the moment we do not have the rights to use them for policy reasons. As for the software and Newton's Bulletin sections, the motivation why they are only mentioned in the paper is twofold: firstly, these services are quite poor, as the reviewer #1 correctly noticed, secondly, the focus of the paper is on the geoid repository and its exploitation. As for the format description of the geoid files stored in the ISG repository, we understood the point of Reviewer #2 but we believe that this description is an important piece of information of the paper, also considering the target of the ESSD journal. Moreover, the choice of the unique format for all the models is a crucial step forward a better interoperability and exchange of data. This is something that we would like to emphasize in this work. As for section 4, the fact that it is quite lengthy has been highlighted by both the Reviewers, therefore it has been reduced by removing the comparison of overlapping geoids. In particular, we removed the paragraph concerning the South American area. Moreover, Reviewer #2 asked for clarifications regarding the way in which we managed different reference frames and epochs. As stated in the paper, geoid models were preprocessed by removing a linear trend on the residuals of their differences, thus considering possible systematic differences like the ones due to different reference frames and height datums. As for the difference between geoid and quasi-geoid, as pointed out by the Reviewer #1, we added a sentence in the introduction to clarify their definition and how we used the two terms in the paper. As for the fact that Figure 3 is quite busy, as again pointed out by the Reviewer #1, this is true, but we believe that this is due to the complexity of the data flow between ISG and GFZ Data Services. In order to clarify we added an explanation of the meaning of the arrows in the caption. Finally, as for the corrections suggested by Reviewer #2 in the annotated manuscript they have been seriously considered by modifying the text accordingly.

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