

Editor:

Comments to the author:

Dear authors,

many thanks for submitting the thorough revisions of your article, which has now been seen by two referees. Both referees support publication of the article subject to minor revisions. In particular I would like to encourage you to consider the suggestion of referee #1 to also distribute the data for sub-basins.

In addition I noted that the data repository does not yet fully comply with the journal requirements (see: https://www.earth-system-science-data.net/policies/repository_criteria.html). In particular, the data are not linked using a persistent identifier (doi) and there is no license information attached to the data.

Best regards, Lukas Gudmundsson

Dear Dr. Gudmundsson,

We very much appreciate your valuable comments. Regarding the repository, we have specified in the manuscript the following DOI <https://doi.org/10.18728/igb-fred-762.1>. The license was indeed hidden in the README file, and we have now included a separate license document in the README folder in the repository. Additionally, we inserted the data license paragraph under the Data availability section.

Moreover we added the Video Supplement & Code Data Availability to increase the outreach for both the non-scientific community and the programming community.

Regarding the suggestion made by referee #1: We fully agree that this would be a very useful feature, and we are currently in the process of developing the processing pipeline. However, this goes beyond a minor revision and essentially results in another dataset. The sub-basins would be scale-dependent, and there would be multiple scales from which users can obtain the desired data. We therefore foresee offering in the near future a download option with the basins.

Anonymous Referee #1:

Suggestions for revision or reasons for rejection (will be published if the paper is accepted for final publication)

My only suggestion would be to change all the HTTP to HTTPS for the downloads. That is the protocol actually used, and while the request will generally be automatically redirected, some IT policies might not accept the request.

Thank you for the comment. We have now opted for the HTTPS download for all files.

Anonymous Referee #2:

Suggestions for revision or reasons for rejection (will be published if the paper is accepted for final publication)

I think authors have provided nicely constructed responses. However, these nice responses may not have been well incorporated in the revised ms. Therefore I am suggesting further revisions by the authors.

For example, in the Abstract, I may want to insist on revising the statement of "no such hydrographic study has been published to date". Authors should step back in claiming this. For example, to approach smaller headwater streams, RiverATLAS has used 0.1m³/s threshold and MERIT-Hydro-Vector has used up to 1km² threshold. Although not as small as 0.05 km² threshold in this study, I think there are physical reasons behind these choices. 0.05 km² can be a really bad choice for dry regions. Authors should carefully state the contribution of your work and the linkages with previous studies.

For the data supplying format, I agree some basins may be too big. But if you divide the global basins into smaller ones (for example, level-02 in HydroBASINS classification is big, but level-6 onwards can be really small), the supplying format can be resolved. However, I also recognize the significant amount of work associate with this. Also, authors have provided better hydroinformatic ways for their data supplying. Therefore, I think this way is okay. But authors should add a discussion section to make users be aware of this.

We thank the referee for his or her comments. We agree that the term "high-resolution" may be subjective, and we've tried to address the referee's concern and now write "Currently, available global hydrographies do not feature small headwater streams in great detail. However, these headwaters are vital because they are estimated to contribute to more than 70% of overall stream length."

We are in the process of creating the sub-basins, however, and as the referee correctly points out, this requires more time and would go beyond a minor revision. We plan to provide the sub-basins at multiple spatial scales (i.e., levels) which would also require their own data repository. We hope that we will be able to provide the data very soon.