

## Comment on **essd-2022-141**

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Referee comment on "A new global dataset of mountain glacier centerlines and lengths" by Dahong Zhang et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-141-RC2>, 2022

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### General Comments:

I carefully reviewed the manuscript of "A new global dataset of mountain glacier centerline and length" submitted by Zhang et al. In this paper, the European allocation is applied to the automatic extraction of global mountain glacier centerline, which proved to be a feasible and reasonable approach. The manuscript includes a detailed description of data production, processing method and accuracy evaluation. The dataset is publicly available and its overall quality is good, which includes 14 sub-datasets including all input, process and result data. Besides of the *GGCLDS* and *GGMLDS*, I think the shared DEM (*GGEDS*), which was mosaicked with each glacier regions as units, is also a reasonable choice for relevant researchers to study. Overall, the manuscript is well-written with clearly structure. I think this manuscript can be considered for publication after some minor correction and technical comments have been addressed.

### Specific comments:

- According to the automatic checking algorithm for the global glacier outlines in this study, my understanding is that the glacier polygons with defects only on the  $P_{\text{gec}}$  are a high proportion in the *FGODS*, and they are probably to be supported by the automatic extraction tool. I suggest designing algorithms for this part of the *FGODS* to identify and repair them. The repaired glacier outlines are slightly distinguished from the RGI v6.0, so my suggestion is that their centerlines should be published as a supplementary dataset to increase the global coverage of this dataset.
- In general, the accuracy of 89.68% is acceptable for the results of fully automatic algorithm, but I am more concerned about the precautions for future readers to adopt the current dataset, the limitations of the dataset, and the possibility for improvement in the future. It is suggested to add a new chapter 4.2.3, focusing on the above problems.
- If there are the qualified glacier outlines corresponding to the glaciers in the *FGODS* in

the future, I hope to supplement their centerlines to this dataset in time.

**Technical corrections:**

L74 Delete 'of'.

L108 'better' -> 'smaller'.

L120 'ASTERGDEM'-> 'ASTER GDEM'.

L208 total global mountain glaciers or total glaciers?

L362–L488 Missing the name of horizontal axis.