

Earth Syst. Sci. Data Discuss., referee comment RC2
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Comment on **essd-2022-269**

Anonymous Referee #2

Referee comment on "The pan-Arctic catchment database (ARCADE) " by Niek Jesse Speetjens et al., Earth Syst. Sci. Data Discuss.,
<https://doi.org/10.5194/essd-2022-269-RC2>, 2022

In this paper, the authors presented a unique dataset (ARCADE) of an impressive number of 47054 river catchments in the Arctic. The paper is very well-organized and the dataset presented is a very useful contribution to multiple scientific disciplines especially those dealing with Arctic change. The acquired and compiled multi-source spatial data may be used for interpreting and representing processes in broad geographical studies such as hydrology, geomorphology, glaciology, ecology, and many more. There are also limitations to using this dataset, especially while dealing with small coastal catchments, as the authors described.

The paper has a descriptive character, with multiple sources of data, and I do not have any comments regarding methodology as it could start a long discussion, especially regarding the reliability of the entire dataset. Partially this is already described in provided references.

I recommend publishing the paper after a minor revision and addressing the following corrections and comments already provided by the first reviewer.

Table 2 and others. It is not clear in the description what the "n" stands for and it is not necessary at every title of the tables. Not only climatological but also physical parameters are provided. Word amount/sum/quantity in the column could replace "n". Consider if it is necessary to have this column in every table.

Table 3. It has to be edited as line number 560 was imprinted into the table.

Provided link took me to "ARCADE: The pan-ARctic CAtchment DAtabase" – it should be

DatabasE.

Line 79. understanding **the** impacts of climate

Line 161. time series

Line 162. follows by

Line 191. the occurrence

Line 200. word converted is used twice in this sentence

Line 219. the presence and the occurrence

Line 307. Remove one of two dots.