Dear Editor Dr. Frederiek Sperna Weiland,

Here we present the authors response and article modifications after editor decision: Reconsider after major revisions on 17 Dec 2023 to egusphere-2023-1755.

We have improved the manuscript in line with the suggestions of reviewers, especially reviewer 2, according to the following:

1. The introduction was modified to describe precisely what the current research gaps are and how this study goes beyond the existing literature. We have highlighted the following advances:
   a. Understand regionalization techniques in subtropical climate.
   b. Proof-of-concept that basins without flow monitoring can have a good approximation of streamflow if other physiographic-climatic indices are provided.
   c. Machine learning algorithms perform better with physiographic-climatic indices as inputs.
2. The structure of the article was changed to Introduction -> Data for Paraná State -> Methods -> Results -> Discussion and -> Conclusions. This includes reorganizing the catchment descriptors into the Data section, put regionalization methods and GR4J model description into the Methods section and enlarge the Discussion with our novel contributions. We also improved the literature review in the introduction.
3. Equation (1) was corrected: the leading expression "1-" was missing on the right side.

All changes in the manuscript were highlighted with blue color. We have focused our improvements in revealing what of our research can be generalized to other basins.

Sincerely, the authors.