

## **Comparison of approaches to interpolating climate observations in steep terrains with low-density gauging networks**

### **General comments :**

The authors propose a comparative analysis of interpolation methods in a mountainous area with scarce availability of hydrometeorological information. As part of the methodology, it is proposed to compare the performance of a method of great complexity with respect to other less complex methods. As a result, the interpolation methods that can be used for hydrological modeling exercises in the specific context of this case study are defined.

In my opinion, the work can be accepted as long as an exhaustive presentation of the quality and variability of the data is made. This will allow contrasting the uncertainty of the data with the results obtained. Which in turn will allow to conclude on the reliability of interpolation methods, discuss their advantages and limitations. In order to be able to make the respective recommendations on the use of the most suitable interpolation methodology for this specific case.

For the aforementioned it is necessary to make a quantitative presentation of the degree of uncertainty in obtaining the data used. In addition, the seasonal variability of precipitation and temperature should be presented at the sites where the information is available to do so. This despite the series of temporary limitation in the high-altitude series. Additionally, it should be explained based on the literature review how regional / global climatic factors influence the variability of precipitation and temperature in the study area. Similarly, local factors that influence temperature and precipitation should be indicated, such as the location of the basins with respect to the Sun and the preferential direction of wind circulation.

This information would allow: 1) to know the degree of precision of the methods used to obtain the hydrometeorological data (Ochoa-Tocachi et al., 2018), 2) to know the magnitude and variability of the seasonal cycle of the variables analyzed in the years studied with respect to the climatology of the area (Francou, 2004), 3) to understand the factors of regional circulation (Garreaud, 2009) and the local geographic conditions that influence the variability of precipitation and temperature (Buytaert et al., 2006), 4) understand why ENSO indicators are used in the interpolation without considering a time lag due to the distance from the Pacific area, which in principle would be advisable (Francou, 2004).

This would correspond to the climate description section of the article, which has not been sufficiently extended in the current version despite having been requested by previous reviewers.

## References

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