Review of: "Spatio-Temporal Analysis of Precipitation Patterns in Xinjiang Using TRMM Data and Spatial Interpolation Methods: A Comparative Study"

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Potential competing interests: No potential competing interests to declare.

Journal: Qeios

Article title: Spatio-Temporal Analysis of Precipitation Patterns in Xinjiang Using TRMM Data and Spatial Interpolation Methods: A Comparative Study

Manuscript No: OTSWRU

General: The article entitled '***Spatio-Temporal Analysis of Precipitation Patterns in Xinjiang Using TRMM Data and Spatial Interpolation Methods:A Comparative Study***' combines ground observation data with TRMM data for one of the Chinese regions of Xinjiang. It looked into the temporal and spatial distribution of precipitation using four different spatial interpolation techniques: thin-plate spline, radial basis function, kriging, and inverse distance weighting. The study also assessed the interpolation methods' efficacy using a variety of methodologies, offering a fresh viewpoint for a more precise comprehension and forecast of precipitation patterns. Seeing from the full text, the idea of the paper has some innovative values. Overall, I found it very interesting. However, I have commented on my observations about the work that needs to be addressed by the author:

Comment 1: **Introduction Section.** The idea raised by this paper is innovative in the region, however, the**Introduction Section** is shallow. I think the central point of the paper is the applicability of satellite precipitation data and analysis by using different interpolation methods. Let the author/s add some related points to this part of the manuscript.

Comment 2. In the**Methodology Section**, the data gathered over time is analyzed using the nonparametric Theil-Sen Median slope estimation and Mann-Kendall trend analysis methods. The Mann-Kendall trend test can detect rising or falling (monotonic) trends in Y values. Since it is non-parametric, it can be used for any distribution (i.e., data that does not need to adhere to the normalcy assumption); nonetheless, serial correlation should not exist in the dataset. If the data is normally distributed, it should have proceeded with the basic *Linear Regression* method; however, if the dataset exhibits serial correlation, the autocorrelation function must be taken into account. Please provide some information on how the autocorrelation has been verified before using the Mann-Kendall trend test.

Warm regards,