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Analyzing Interpolation Approaches for Rainfall Data: A Case Study in São José dos Campos (Brazil)

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ABSTRACT

This study compares interpolation methods (IDW, Kriging, and Splines) to estimate precipitation in São José dos Campos, SP. Given the high variability and costs of rainfall stations, interpolation offers a viable solution for rainfall monitoring. Two instances of 10 and 35 locations were tested. Results indicated that IDW showed greater consistency and less variation in MAPE, while Splines showed more significant variability and outliers but results closer to the original. Kriging had a lower median but with more dispersion in some cases. Choosing the ideal method may depend on the specific instance used.

KEYWORDS. Interpolation Methods. Precipitation Interpolation. Geographic Interpolation.

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