Avaliação do inverse distance weighting para um baixo número de estações meteorológica na Mesorregião Agreste do Estado de Pernambuco, Brasil.

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Abstract: *Precipitation is one of the important factors in climate studies. Its importance is associated with the consequences caused by extreme precipitation or drought, affecting several sectors of society (barrier slip, mobility, agriculture, etc.). The study of this variable becomes indispensable, however the availability of historical precipitation data is limited, relatively scarce and punctual. One of the widely used alternatives to absent data fills and precipitation spatialization is the use of interpolation methods for georeferenced data. The inverse distance weigthing (idw) method is a robust tool traditionally used for this purpose when having a high network of stations. In this way, the objective of this work was to evaluate the precipitation estimates obtained from idw when having a low number of seasons. For this,* 12 *historical precipitation series (*1988−2017*) made available by ANA were used. The interpolation was used by varying the number of neighbors (*$N = 1; 2; ...; 12$*) and weighting parameter (*$p = 1,0; 1,1; ...; 5,0$*), resulting in* 451 *interpolations. The idw was supported by the cross validation technique, with the mean absolute error (*$EAM = 203.31$*), mean square error (*$EQM = 51183.27$*), root mean square error (*$REQM = 226.24$*) and determination coefficient (*$R^2 = 0.32$*) used to evaluate the interpolation. Afterwards, the annual average precipitation was carried out for the Agreste Meso-region of Pernambuco and the estimated values are close to the climatological average compared to the Climatic Bulletin of the Pernambuco State Agency for Water and Climate (APAC).*

Keywords: Precipitation; interpolation; spatialization; agreste; pernambuco.

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