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Climatic reconstruction of maximum temperatures at 'Yabu' Valley's station from 1900 to 2008.

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The objective of this work is to determine whether the method of multivariate regression with dummy variables is advisable with only a few years of observational data. Knowing when the tendency in the studied series has begun, and what happens to the pattern when the number of cases is increased, with regard to error behavior, and correlation between real values and the general series estimates and data reconstruction until 1900, are other important issues examined.

This paper deals with monthly maximum temperature data recorded by the "Yabú" Valley´s Meteorological Station (located between 603773N and 293054E) corresponding to the years from 1977 to 2008. Firstly, the multivariate regression with dummy variables was used, with 1977 the year chosen and modeled. After modeling 1977 and 1978, years were subsequently added until 2000 and so forth. All sample cases were included and 8 years of independent samples were used in this approach. Modeling the multivariate series was carried out, and the tendency of the series for the period under study calculated and tabulated. The method used is advisable for estimating the tendency when having only 10 years of data. With two years of data in this study, they were found to be values with good accuracy with errors below 0.6352 ºC. As the number of cases increases, the pattern error diminishes and correlations between the real and predicted values increases. Errors from the climatic model do not have a specific regularity, although they remain below 0.6872 ºC. The current data trend tendency is positive with a value of 0.028 ºC per year, which would be 2.8 ºC in 100 years. Monthly data are reconstructed until 1900, mainly on the basis of the climatic pattern tendency. Correlation of the climatic pattern for the reconstruction of data up to 1900 accounts for 92.5% of the variance.