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# Extreme Temperature Forecast in Mbonge, Cameroon Through Return Level Analysis of the Generalized Extreme Value (GEV) Distribution

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**Abstract :** In this paper, temperature extremes are forecast by employing the block maxima method of the generalized extreme value (GEV) distribution to analyse temperature data from the Cameroon Development Corporation (CDC). By considering two sets of data (raw data and simulated data) and two (stationary and non-stationary) models of the GEV distribution, return levels analysis is carried out and it was found that in the stationary model, the return values are constant over time with the raw data, while in the simulated data the return values show an increasing trend with an upper bound. In the non-stationary model, the return levels of both the raw data and simulated data show an increasing trend with an upper bound. This clearly shows that although temperatures in the tropics show a sign of increase in the future, there is a maximum temperature at which there is no exceedance. The results of this paper are very vital in agricultural and environmental research.

**Keywords :** forecasting, generalized extreme value (GEV), meteorology, return level
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