Low Flow Discharges Regional Analysis using Wakeby Distribution in an ungauged basin in Colombia.

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Abstract. In order to estimate low flow return periods for an ungaged watershed in Colombia, a regional analysis of low flow discharges was performed using the Wakeby probability distribution function. This distribution is more flexible than other distributions and separates the distribution's extreme tails; these are advantages for modeling flow discharges. A procedure for estimating the parameters of the distribution is also presented. The frequency analysis results of 18 to 36 long time series is shown. The goodness of fit test was evaluated with the Graphic Correlation Coefficient (GCC), the Standard Error of Fitting (SEF) and the Graphic Test; they were useful tools for testing the best fit with Wakeby distribution, which was better than LogNormal II and Gumbel distribution. The Index Flood Method for Regional Frequency Analysis was applied with Wakeby distribution and the discharge was standardized with the area. Discussions and conclusions are presented.

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