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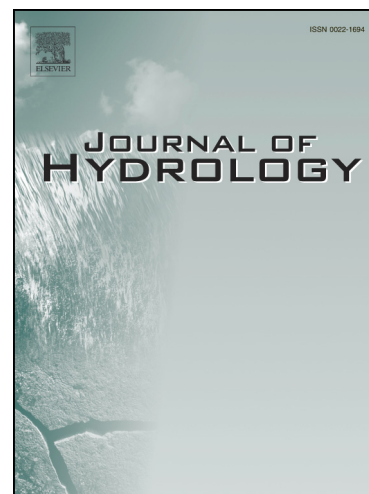
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Non-stationary rainfall and natural flows modeling at the watershed scale

M. Egüen¹, C. Aguilar¹, S. Solari² and M.A. Losada³

[1]{University of Granada, Fluvial Dynamics and Hydrology - Andalusian Institute of Earth System Research, Granada, Spain}

[2]{Universidad de la República, Instituto de Mecánica de los Fluidos e Ingeniería Ambiental, J. Herrera y Reissig 565, 11300 Montevideo, Uruguay}

[3]{University of Granada, Environmental Fluid Dynamics - Andalusian Institute of Earth System Research, Granada, Spain}

Correspondence to: M. Egüen (meguen@ugr.es)

Abstract

In areas in which natural water resources are variable over time, tools that determine the probability distribution of hydrological variables are required to evaluate various management alternatives. In this article, a stochastic simulation framework of hydrological variables through atmospheric pressure modeling is proposed. This methodology employs the mean value of the atmospheric pressure in the winter to differentiate the wet, medium and dry years in terms of rainfall and flow at different temporal scales. Monthly mean and daily maximum rainfall and flow data series are stochastically replicated. To achieve this replication, a non-stationary parametric mixture distribution model that combines a Weibull and a Normal

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