



Extreme hydro-meteorological events under low-frequency climate variability

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Low-frequency climate variability represents an important challenge to statistical estimation in hydro-meteorology, given that it doesn't allow for the usual stationarity assumptions at temporal scales of the order of length of existing time series. The estimation of extreme events is particularly sensitive to this problem, given their potentially destructive effects, as well as their large confidence intervals. This work presents a framework for the parameterization of a state-space representation of climatic processes, where low-frequency variability would be resolved by computing conditional probabilities of visitation for the different states. The extrapolation of these conditional probability distributions for the purpose of obtaining the probabilities of extreme events would then have comparable confidence levels with the extrapolation under conditions of stationarity. An example using Mexican hydro-meteorological data is presented.