



drought assessment using Standard precipitation Index in semi arid conditions

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The Gamma distribution is classically fitted at monthly resolution to assess drought occurrence with respect to precipitation series. SPI estimation reports deviations from normal situations and allows the classification of months from extremely wet to extremely dry. However in case where time series contain zeros (no rainfall observed for some months) the choice of Gamma distribution is not appropriate. The objective of this study is compare Gamma distribution results to the loi des fuites distribution as alternative (Ref : Parent et al., Rev. Statistique Appliquée, 2006, LIV (4), 85-111). A network composed by 43 rainfall stations from the extreme North region of Tunisia (Mediterranean façade) using long series records (exceeding 30 years) is adopted to develop the methodology. the distributions for the 1- month, 3-months totals as well as 6 months totals and 12-months totals are adjusted station by station for both distributions and SPI-1, SPI-3, SPI-6 , SPI-12 are computed. It is found that especially for SPI-1 and SPI-3 that reflect meteorological drought, the decision status is well related to the underlined distribution which results in many operational concerns.