

Study of the variability of annual rainfall series in the Isser Wadi (East of Algiers)

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Any development program in hydraulic planning uses a study of the variability of annual rainfall as this parameter conditions the completion of the project.

Our study is based on the application of statistical methods to analyze rainfall time series in order to characterize the spatiotemporal variability of the rainfall regime within the O. Isser watershed.

Located in the northern part of Algeria, this watershed is equipped with twenty (20) rainfall stations managed by the National Hydric Resources Agency of Algiers which was kind enough to make available to us the measurements of these stations which spread from 1975 to 2014 for all series.

The period considered was arbitrarily divided into four decades (or episodes) namely (1975-1984), (1985-1994), (1995-2004) and (2005-2014) in order to illustrate the chronological evolution of annual rainfall totals. It shows that the general trend has been declining since the 1970s. It worsened in the following decade (1980 or even 1990).

The database is used under the ArcGIS10.2 software where kriging interpolation was used to generate the thematic maps. The analyzed series all show breaks, the majority of which are localized during the 1970s and 1980s.

Isohyets mapping of annual rainfall calculated per decade over the period 1975-2014 shows that the 1970s and 1980s appear to be in deficit throughout the watershed.

However, we notice a trend towards a return of precipitation during the period (2005-2014).

Keywords: Watershed, Isser wadi, rainfall regime, failure, mapping.

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