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كل الحقوق محفوظة للمدرسة الوطنية العليا للري.

**Abstract :** In this study, a statistical analysis of historical and projected values of the annual, seasonal, and supra-seasonal precipitation concentration index (PCI) was conducted for different stations in the Cheliff watershed. Statistical methods such as breakpoint and trend analysis using Pettitt and Mann–Kendall tests were used for the PCI values of annual, monthly, and supra-seasonal precipitation data between 1950 and 2014. The PCI values varied between 14.24% and 24.86% annually, between 10.75% and 18.74% seasonally, and between 11.23% and 26.98% supra-seasonally. According to the Pettitt and Mann–Kendall tests, there was an insignificant change in precipitation distribution during the study period. Spatial analysis using the inverse distance weighting (IDW) method confirmed the minor variability in precipitation distribution in the study area. The Pearson correlation coefficient between oscillation indices and PCI values at different scales showed significant values with the Mediterranean Oscillation index (MOi), North Atlantic Oscillation (NAO), and Western Mediterranean Oscillation index (WeMOi), highlighting their potential influence on annual PCI values. For the climate projection scenarios, projected PCI values align with historical PCI values. Application of Pettitt and Mann-Kendall tests to the projected PCI series shows that there will not be a significant change in future precipitation distribution

**Key words :** PCI ; Cheliff ; Trend analysis ; Breakpoint ; IDW ; Climate projection scenarios

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