The title (العنوان):

# Characterization of the interannual variability of precipitation and runoff in the Cheliff and Medjerda basins (Algeria)



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**Abstract:**

An analysis of rainfall and hydrometric regimes was carried out over the period from 1968 to 2013 on the Cheliff basin situated in the west and the Medjerda basin in the east of Algeria. The Mann–Kendal and Pettitt tests have shown significant downward trends for rainfall, about 30% for the Cheliff basin, and 36% for the Medjerda basin, and about 61% and 43% for the flows at the level of the Cheliff and Medjerda basins, respectively. The continuous wavelet method, used during the study period, has shown three major discontinuities from the wavelet spectrum for the decades 1970s, 1980s and 1990s. Several modes of variability for different stations have been observed: annual (1 yr), interannual (2, 2–4 and 4–8 yrs), and multi-decadal (8–16) yrs. The different scales of precipitation and runoff variability seem to be clearly related to the NAO with different degrees of correlation. Continuous wavelet coherence indicates a strong correlation between the NAO climate index and precipitation with correlations ranging from 60 to 84%, and a strong relationship between the NAO and the runoff with correlations ranging from 67 to 74% for both watersheds.

**Key words:** Precipitation ; RunoA ; NAO ; Wavelet method ; CheliA basin ; Medjerda basin.