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Projected Changes in Extreme Precipitation Patterns across Algerian Sub-Regions

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كل الحقوق محفوظة للمدرسة الوطنية العليا للري.

**Abstract :** Extreme precipitation events play a crucial role in shaping the vulnerability of regions like Algeria to the impacts of climate change. To delve deeper into this critical aspect, this study investigates the changing patterns of extreme precipitation across five sub-regions of Algeria using data from 33 model simulations provided by the NASA Earth Exchange Global Daily Downscaled Climate Projections (NEX-GDDP-CMIP6). Our analysis reveals a projected decline in annual precipitation for four of these regions, contrasting with an expected increase in desert areas where annual precipitation levels remain low, typically not exceeding 120 mm. Furthermore, key precipitation indices such as maximum 1-day precipitation (Rx1day) and extremely wet-day precipitation (R99p) consistently show upward trends across all zones, under both SSP245 and SSP585 scenarios. However, the number of heavy precipitation days (R20mm) demonstrates varied trends among zones, exhibiting stable fluctuations. These findings provide valuable foresight into future precipitation patterns, offering essential insights for policymakers and stakeholders. By anticipating these changes, adaptive strategies can be devised to mitigate potential climate change impacts on crucial sectors such as agriculture, flooding, water resources, and drought.

**Key words :**

Extreme precipitation ; Algerian climate zones ; NEX-GDDP-CMIP6 ; scenarios ; climate change

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