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Monthly rainfall variability simulated by MED-Cordex regional climate models on Algiers coastal basin in past and future climate conditions

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ABSTRACT: : This work aims to evaluate the ability of two high-resolution (12km) regional climate models (RCMs) from the MED-CORDEX initiative to reproduce monthly rainfall in Northern Algeria, which is located in the southern part of the Mediterranean basin. To do this study, 10 rainfall stations over the basin have been selected. Simulations of two models (RegCM4 - ICTP and Aladin5.2 - CNRM) have been evaluated against observed data over the period 1981-2010. Generally, the two models underestimate rainfall from October to February and overestimate rainfall from March to September. The average bias (absolute value) calculated between simulated data from the ICTP model and observations, oscillates between 13% and 24% over the period October-May. From the same period, the average bias calculated between simulated data of the CNRM model and observed data is between 21% and 39%. During the dry season (June, July, August) the model bias reach up to 100%. This is due to the very low rainfall amounts during this season. Climate change scenarios simulated by the two RCMs have been analyzed for the period 2070-2099 under the RCP4.5 and RCP8.5 emission scenarios. Generally, the result indicates that a large drying is expected in future projections by comparison with the historical period during wet season

Keywords: climate change, Algeria, rainfall, Med-Cordex, Regional Climate Models

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