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كل الحقوق محفوظة للمدرسة الوطنية العليا للري.

Abstract : The role of climate change in future streamflow is still very uncertain, especially over semi-arid regions. However, part of this uncertainty can be offset by correcting systematic climate models' bias. This paper tries to assess how the choice of a bias correction method may impact future streamflow of the Cheliff-Mactaa-Tafna (CMT) rivers. First, three correction methods (quantile mapping (QM), quantile delta mapping (QDM), and scaled distribution mapping (SDM)) were applied to an ensemble of future precipitation and temperature coming from CORDEX-Africa, which uses two Representative Concentration Pathways: RCP4.5 and RCP8.5. Then, the Zygos model was used to convert the corrected time series into streamflow. Interestingly, the findings showed an agreement between the three methods that revealed a decline in future streamflow up to [-42 to -62%] in autumn, [+31% to -11%] in winter, [-23% to -39%] in spring, and [-23% to -41%] in summer. The rate of decrease was largest when using QM-corrected model outputs, followed by the raw model, the SDM-corrected model, and finally, the QDM-corrected model outputs. As expected, the RCP presents the largest decline especially by the end of the 21st Century.

Key words : Future streamflow; Semi-arid river; Bias correction methods; RCP4.5 and RCP8.5

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