

Change in seasonal rainfall variability of Northern Algeria

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Abstract :

This work aims to evaluate regional climate models of Ensemble project to reproduce the seasonal rainfall variability of Northern Algeria (coastal basins). Models are firstly validated over the **reference** period 1961-1990 and then future seasonal rainfall variability is analyzed over two projection periods: 2021-2050 and 2070-2099.

Simulated data have been extracted from 10 regional models and compared to the observed data using the "bias method". It is the difference between simulated and observed data. This method gives an overview of percentage of overestimation (underestimation) of models to the observed data. Kolmogorov-Smirnov test has been used to test the significance of the difference between simulated and observed data.

Generally, it appears that models underestimate the wet season and overestimate the dry season over the control period 1961-1990. Only four models have been validated to be used in projection **as regional models, namely:** CNRM, CHMI, GKSS and ETHZ regional models.

All models simulate a significant decrease of future rainfall in winter and spring seasons over the two **projected** periods. This reduction is about 30% to 60%, knowing that winter and spring constitute **more than** 60% of annual rainfall in Northern Algeria.

In autumn, some models simulate an increase **in** rainfall and others **simulate the reduction in rainfall in** future. This difference is linked to the spatial distribution of **rain gauge** stations. It is the same **behavior** for summer season.

Keywords: Algeria, regional climate model, rainfall