The title (العنوان):

Impact of climate change on the flows of the Mitidja plain basins (Northern Algeria)

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Abstract : The water deficit of recent decades has negatively affected agricultural production as well as surface and underground water resources in Algeria. To assess he impact of the future climate, for (2020-2060) and (2060-2099), on the water resources in several basins, we used analysis of historical average flows and compare them to those that could result from changes in temperature and rainfall. The methodology is based on the GRM2 model with the development of prospective climate change scenarios for both horizons. To study the impact of climate change on water resources, we used the climate projections of the CORDEX Arica model with the two pessimistic (RCP 8.5) and optimistic (RCP 4.5) scenarios. The results of the simulations of the future scenarios showed that the historical seasonality of precipitation fades away for the RCP 4.5 and 8.5 scenarios, and gives way to a more irregular pattern where rainfall is abundant in late autumn and spring. Furthermore, this interannual evolution of the RCP scenarios indicates an increase in extreme events during these periods, thus increasing the risk of flooding considerably. The results of the simulations of the future scenarios showed a clear decrease of the flows. This decrease varies, for the seven sub-basins composing the plain, between 17 and 50% for the near future and the RC4.5 scenario. For scenario 8.5, the decrease varies between 37 and 55%. For the distant future (2060-2099), the reduction in flows varies between 27 and 45% for the near future and the RC4.5 scenario. For scenario 8.5, the reduction varies between 40 and 62%. We note that the basins which drain part of the Blidean Atlas present lower projected reductions for the future compared to the other basins of the plain. The two stations of the first two are located at the entrance to the plain.

KEYWORDS : Climate change ; Flows ; Mitidja ; Plain basins ;Northern Algeria

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