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Impact assessment of climate change on potential evapotranspiration of an experimental catchment

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A methodology is presented for the stochastic generation of daily potential evapotranspiration data which accounts for changes to the climatic inputs. The focus of the study is an experimental catchment in Iran situated in the northern region of the country. One stochastic model of the Fourier series type is used to model and generate daily potential evapotranspiration sequences and then validated using historic records. For present climate conditions, the model is fitted to observed potential evapotranspiration series. For future climate conditions, a Blaney-Criddle formula was chosen to transfer a selected scenario of future temperature data to obtain future potential evapotranspiration data. In this respect, having defined the future scenario of temperature data and accommodated to historic series of temperature data, the previous methodology was used to generate potential evapotranspiration data for future conditions. The results in terms of statistical behaviour of generated data for both present and future conditions were compared. The methodology proved to have the potentials to be employed for generation of present and future data for the catchments situated in this region in order to be used then as inputs to a catchment rainfall-runoff model to generate continuous daily streamflow data for both present and future conditions.