



## **Modelling trends and interannual variability of rainfall in West Bank**

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The trend and interannual variability of rainfall is known to play a significant role in the fluctuation of groundwater water level in West Bank aquifers which in turn has a sever impact on the yield of wells and springs, the only sources of water supply in the region. The main purpose of this study is to mimic the interannual variability of rainfall for the future climate. In particular, the occurrence of below-average rainfall is one of the important issues in this application. The analysis is carried out by means of a Neyman-Scott stochastic model in order to generate a long time series of rainfall at multisites simultaneously. The approach takes into account the cross correlation between the sites. In addition, the preservation of the annual rainfall skewness is one of the main issues to be considered in modeling the interannual variability. The model can reproduce the behaviour of the moving-average rainfall over a several year period. The output of the HadRM3 model is also used for the analysis of the future scenarios over 31-year periods for three scenarios: control, high emissions and medium emissions scenarios. The approach is followed where ensembles of annual rainfall series are generated, and then sampled to provide example inputs representing the likely range of hydrological characteristics. Pronounced fluctuations are found in annual rainfall for both historic and future climates which can have a crucial impact on water supply and local agriculture.