

## **Future climate of Nile Basin countries**

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### **Abstract**

We studied the future climate of the Nile Basin countries through twelve stations. Comparison is hold between the outputs of five GCMs models from 1979 to 2000 and the available National centers for environmental prediction (NCEP) reanalysis data of the twelve stations. The five GCM models are: Geophysical and Fluid Dynamical Laboratory (GFDL) model, NASA Goddard Institute for Space Studies (GISS) model, Max Planck Institute for Meteorology, Germany (ECHAM5) model, Commonwealth Scientific and Industrial Research Organization (CSIRO-MK3\_5) model and Canadian Center for Climate Modeling and Analysis (CCCMA) model. We choose twelve stations in the Nile Basin as a case study for the comparison; these are Alexandria - Mersa Matruh - Cairo - Aswan - Khartoum – Bujumbura - Kigali -Kinshasa- Jimma- Mandera- Zanzibar- Musoma. It is noticed that the CCCMA and ECHAM5 models have the least root mean square error (RMSE) and mean bias (MB) compared with the other models. So the CCCMA model represented the highest performance for predicting the maximum temperature and precipitation and ECHAM5 model for predicting minimum temperature. For this reason CCCMA and ECHAM5 models are used to show the future climate of the selected stations during the period 2046-2065.