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### **Modelling riverflow in the Volta Basin of West Africa: A data-driven framework**

Analysis of the available catchment rainfall, runoff and potential evapotranspiration series in the 400,000 km<sup>2</sup> Volta Basin of West Africa shows that the monthly catchment rainfall-runoff process is better characterized by non-linear models. Two non-linear data-driven modelling frameworks - a Non-Linear Autoregressive and Moving Average with eXogenous input (NARMAX) polynomial and a data-based mechanistic (DBM) modelling framework - were applied to monthly rainfall-runoff series in the basin for runoff prediction. Both methods predicted monthly runoff adequately, with the DBM framework also providing physically interpretable results. This indicates that data-driven approaches are appropriate for riverflow modelling in the data-poor Volta Basin.