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Statistical Seasonal Sea Surface based Prediction Model

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The interannual variability of the sea surface temperature (SST) plays a key role in the strongly seasonal rainfall regime on the West African region. The predictability of the seasonal cycle of rainfall is a field widely discussed by the scientific community, with results that fail to be satisfactory due to the difficulty of dynamical models to reproduce the behavior of the Inter Tropical Convergence Zone (ITCZ).

To tackle this problem, a statistical model based on oceanic predictors has been developed at the Universidad Complutense of Madrid (UCM) with the aim to complement and enhance the predictability of the West African Monsoon (WAM) as an alternative to the coupled models. The model, called S4CAST (SST-based Statistical Seasonal Forecast) is based on discriminant analysis techniques, specifically the Maximum Covariance Analysis (MCA) and Canonical Correlation Analysis (CCA).

Beyond the application of the model to the prediciton of rainfall in West Africa, its use extends to a range of different oceanic, atmospheric and helth related parameters influenced by the temperature of the sea surface as a defining factor of variability.