Betting on Rainfall: Finding skill, hedging, and bias within seasonal climate forecasts from sub-Saharan Africa

Jacqz, I. B.[1], Mason, S. J.[2], Orlove, B. S.[2]

1. Columbia Engineering, Columbia University, New York City, NY, 2. International Research Institute for Climate and Society, The Earth Institute of Columbia University, Palisades, NY

Countries in sub-Saharan Africa have been producing regional, seasonal climate forecasts since 1997. The forecasts assign a three-part probability for above-normal, normal, and below-normal rainfall to areas within a region for an upcoming season. Properties of past forecasts—especially their skill and characteristic biases—can be determined using observed precipitation data and climate models. Because climatic predictability varies geographically and seasonally, skill was not measured in terms of absolute accuracy but with regard to how well forecasters' predictions performed against forecasts from a model based on the strength of the ENSO signal. There is evidence of bias (non-random error) among the forecasts, especially in over-forecasting the normal category, and under-forecasting the below-normal category. Finally, an exploration of social and economic variables that might predict countries' skill in forecasting and their tendencies to produce biased forecasts produced no significant results, indicating that skill at the national level may be distorted by the format of the regional outlook forums, and may rely on variables we weren't able to take into account.