

Name: Michael Vellinga  
michael.vellinga@metoffice.gov.uk  
Met Office Hadley Centre  
Fitzroy Road^M  
Exeter^M  
EX1 3PB

Country: United Kingdom

Title: Extended-range forecasts for onset of the African rainy seasons

Additional authors: Alberto Arribas, Richard Graham

Additional Affiliations:

Abstract:

Consultation of African stakeholders at NMHs and Regional Centres (AGHRYMET, ACMAD, ICPAC etc) has highlighted strong interest in extended range forecasts of sub-seasonal evolution of the rainy season. While longrange forecasts for season-total rainfall are provided operationally by most Global Producing Centres, forecasts for sub-seasonal, temporal characteristics of the rainy season are not currently made.^M

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We have evaluated forecast skill for timing of onset of the rainy season in the Met Office's Glosea4 seasonal forecasting system as well as other seasonal forecasting systems. We have found regions in Africa where models have moderate to good longrange skill (ROC scores of 0.6-0.8, depending on region, season, lead time, onset definition, forecasting system). For West Africa, we have analysed the source of skill in detail and identified the physical mechanism through which tropical SST can influence timing of the onset both in models and observations. The credible response of the models to tropical SST has motivated us to develop probabilistic trial forecasts for onset since 2011 in West, East and southern Africa (phrased in terms of tercile probabilities for onset being before/around/after than average). We have presented this new type of forecast at Regional Climate Outlook Forums across Africa, to introduce them to users and stakeholders and to seek their feedback.

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