

Name: Wassila Thiaw  
wassila.thiaw@noaa.gov  
National Oceanic and Atmospheric Administration  
5830 University Research Court College Park, MD 20740  
Country: USA

Title: Subseasonal forecasting for Africa and tropical climate sensitive regions

Additional authors:

Additional Affiliations:

Abstract:

Drought is one of the leading causes of death in Africa due to its impact on access to sanitary water and food. This challenge has led humanitarian organizations to develop famine early warning systems (FEWS) to bring safe food and water to populations in need. In fact, food security early warning systems have focused much attention over the past several decades on advance risk planning in the primary sectors of agriculture and water. This requires frequent updates of weather and climate outlooks from 2 weeks ahead to 3 months. In addition to food security, the subseasonal time scale is extremely important to many other socio-economic sectors as a growing number of users of climate information are seeking to gain advance knowledge of the onset of the seasonal rains, the dry and wet spell frequencies, and the probability for extreme events to occur. Recent research has indicated important potential sources of predictability for this time range, which can be realized through better representation of coupled ocean-atmosphere phenomena such as the Madden Julian Oscillation (MJO) in numerical weather and climate models, and the development of tools to monitor and predict the MJO and its impacts on the global climate. This paper examines the opportunity to develop operational subseasonal forecasting for Africa and other climate sensitive regions in support of FEWS. The emphasis is on the impact of the MJO on tropical precipitation and how this information is used in week-2 probability of exceedance forecasts. The use of the National Multimodel Ensemble (NMME) in monthly forecasts from the start of the monsoon rains to the end, and their verifications are also presented. Finally, the factoring of extended range, monthly, and seasonal forecasts in food security outlooks is discussed.

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