

CORDEX AFRICA Sahel Working Group - Overview of Climate Change Information Needs for Food Security in the Sahel: Preliminary RCMs Assessment

Sarr A., A. Favre

O. Ndiaye, A. Ali, A. Deme, J. A. Ndione, A. Tall, M. Sylla

ABSTRACT

In the framework of CORDEX, many modeling centers will carry out regional climate model (RCM) simulations in a domain covering the African continent. The lateral boundary and initial conditions (LBI/ICs) are from ERA-Interim and GCMs of CMIP5. Therefore the African continent will benefit, for the first time, from high resolution ensemble RCM simulations of the recent past and projections for the future. The Sahel Group, in this poster cluster presents an overview of climate information needed in support to food security planning and decision making in the West Africa Sahel, from the national to community levels. The key sectors of vulnerability identified are agriculture, pastoralism and water resources, which represent a holistic package essential for food security in this vulnerable region which experienced the world's longest and most severe climate shift, the drought of the 70s and the 80s. In this poster key climate parameters impacting on these sectors are identified and will be assessed from GCM and RCM output. Appropriate thresholds and metrics for the region are defined for IAV in the context of climate change.

A first step presented here is the assessment of the RCMs providing identified climate information when forced by era-interim data considered as perfect boundary conditions.

Preliminary results (RCMs forced by ERA-INT): Assessment

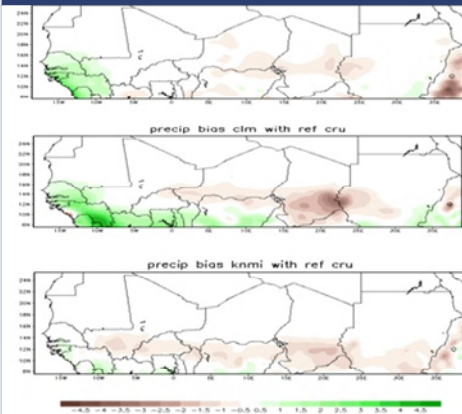


Fig. 1: Sample models precipitation bias from CRU considered as observation

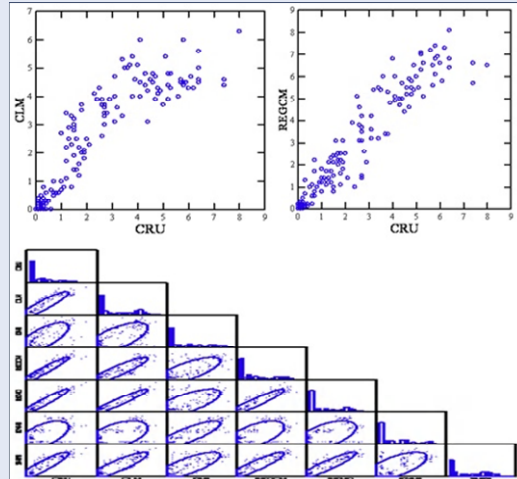
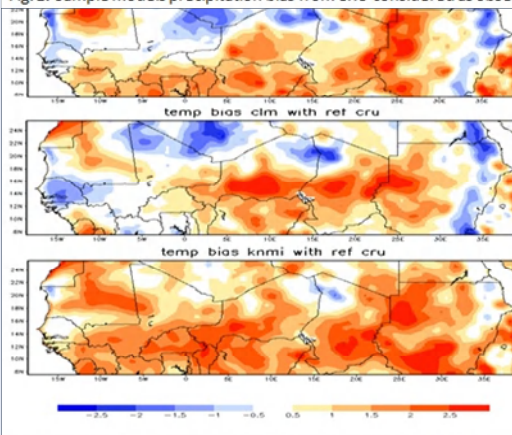
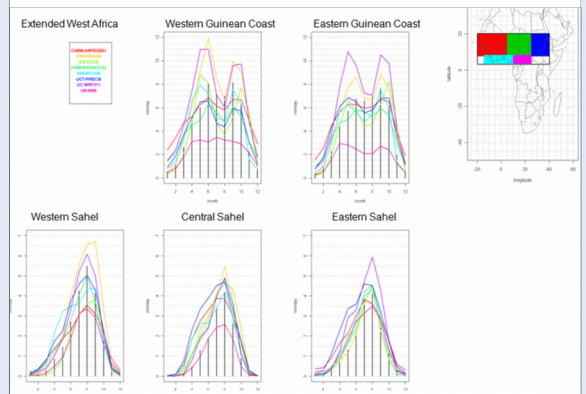


Fig.3: Scatterplot correlation RCMs and CRU data for precipitation averaged in a Sahel area (1991-2006). Two individual models are shown above and the matrix for all models below.

Seasonal cycle of precipitation as simulated by model in 5 sub region of extended West Africa



Future work and acknowledgement

Use of wind field at critical levels in West Africa climate to investigate models ability in simulation key features like African Easterly Waves and mode of variability at different time frequency.

The outcome of this research will be the identification of the climate information needs of end-users in the West Africa Sahel and surrounding small Islands, in support of decision-making and better informed planning to food security in the region's most climate dependent communities.

Acknowledgement:

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