

Past and Projected changes in Rainfall and Temperature over East Africa

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PAUWES

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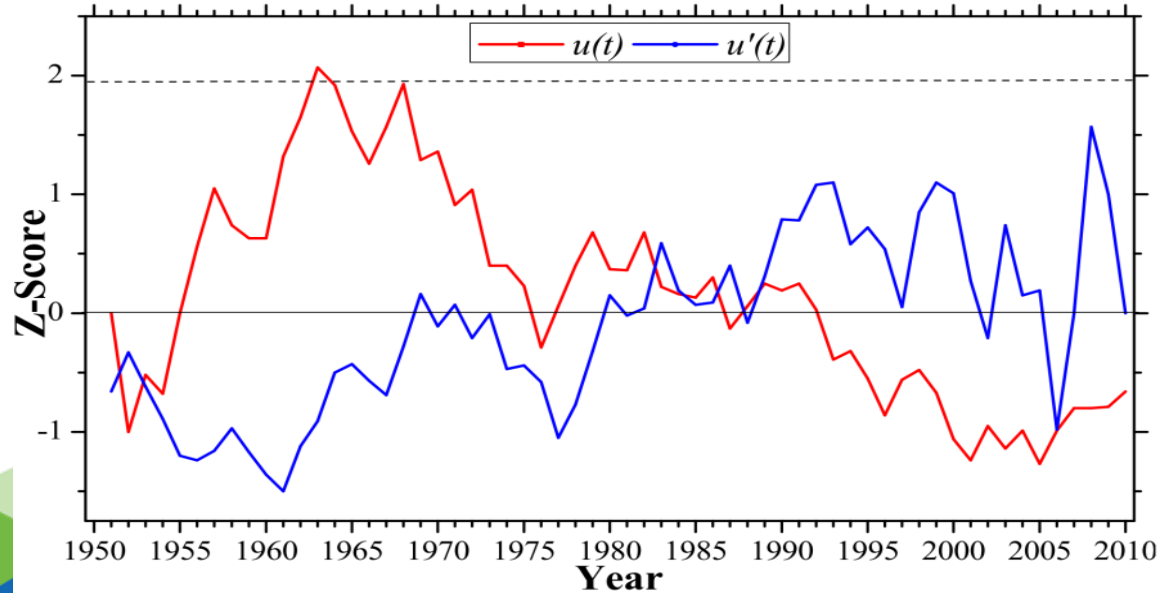
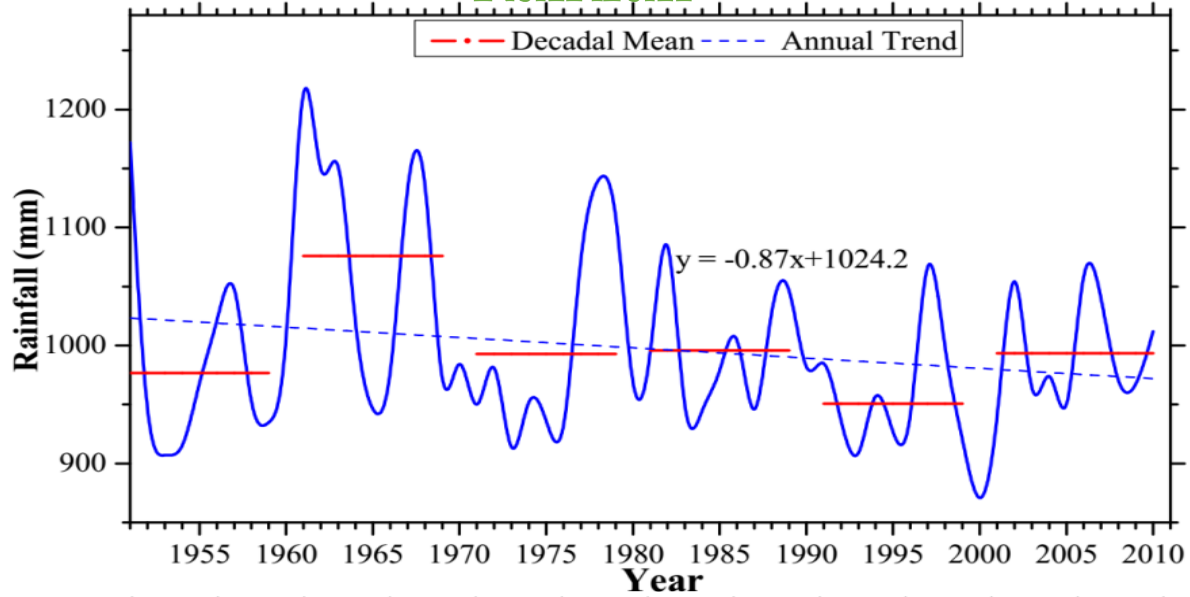
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Introduction

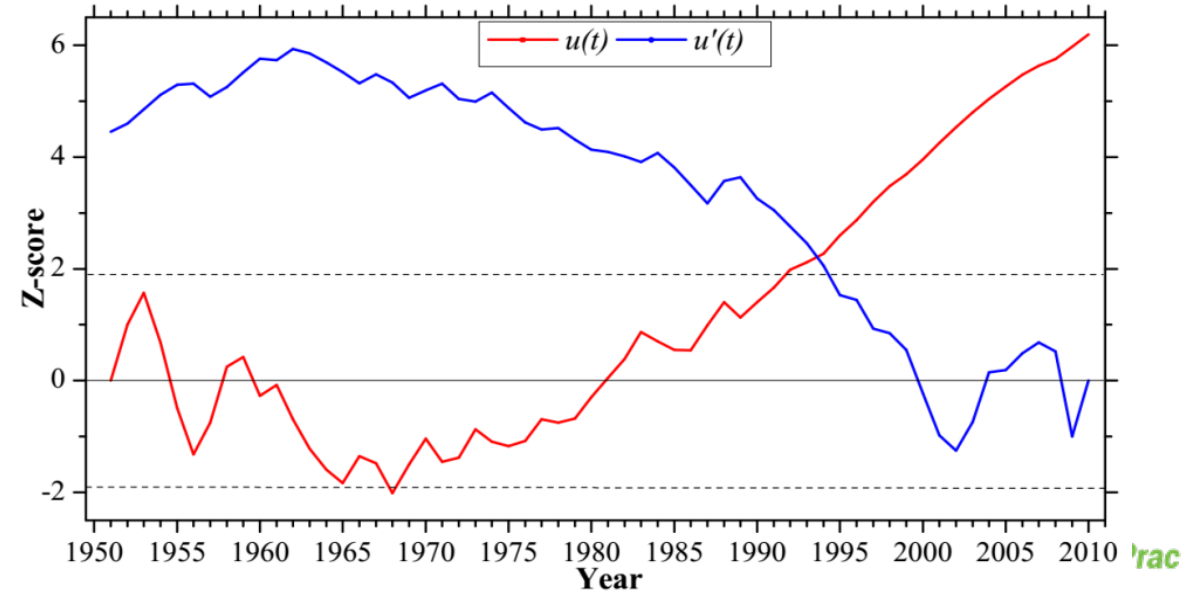
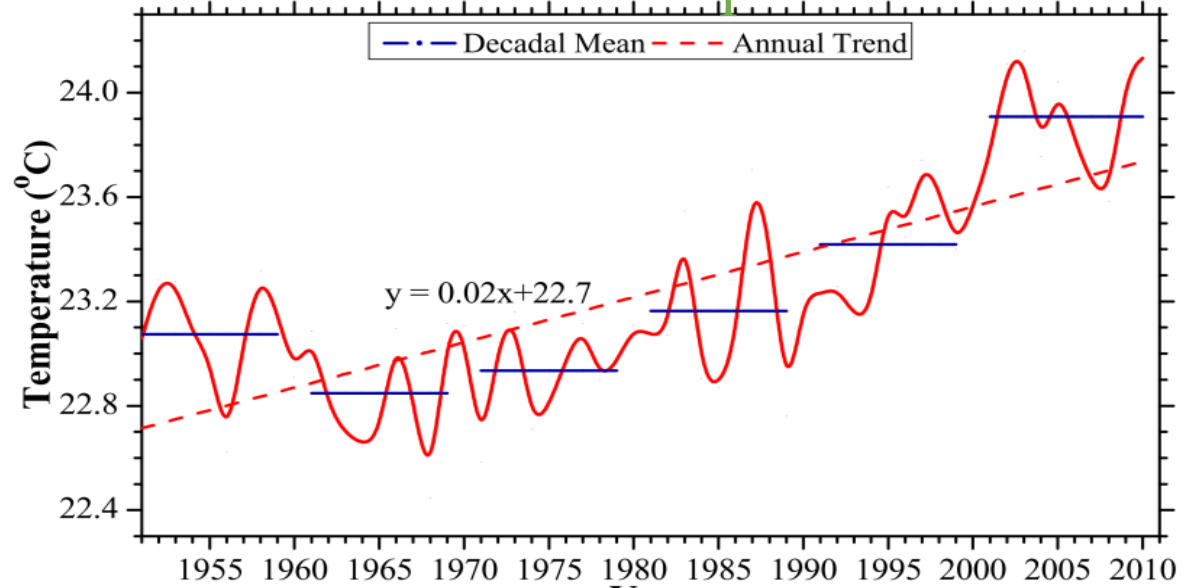
- ▶ Why rainfall and temperature?
- ▶ Rainfall and temperature seasonality and trends.
- ▶ Climate change indicators in EA
- ▶ The problem statement and relevance of the study

Observed Rainfall and Temperature variability over East Africa based on CRU data, 2051-2010

Rainfall

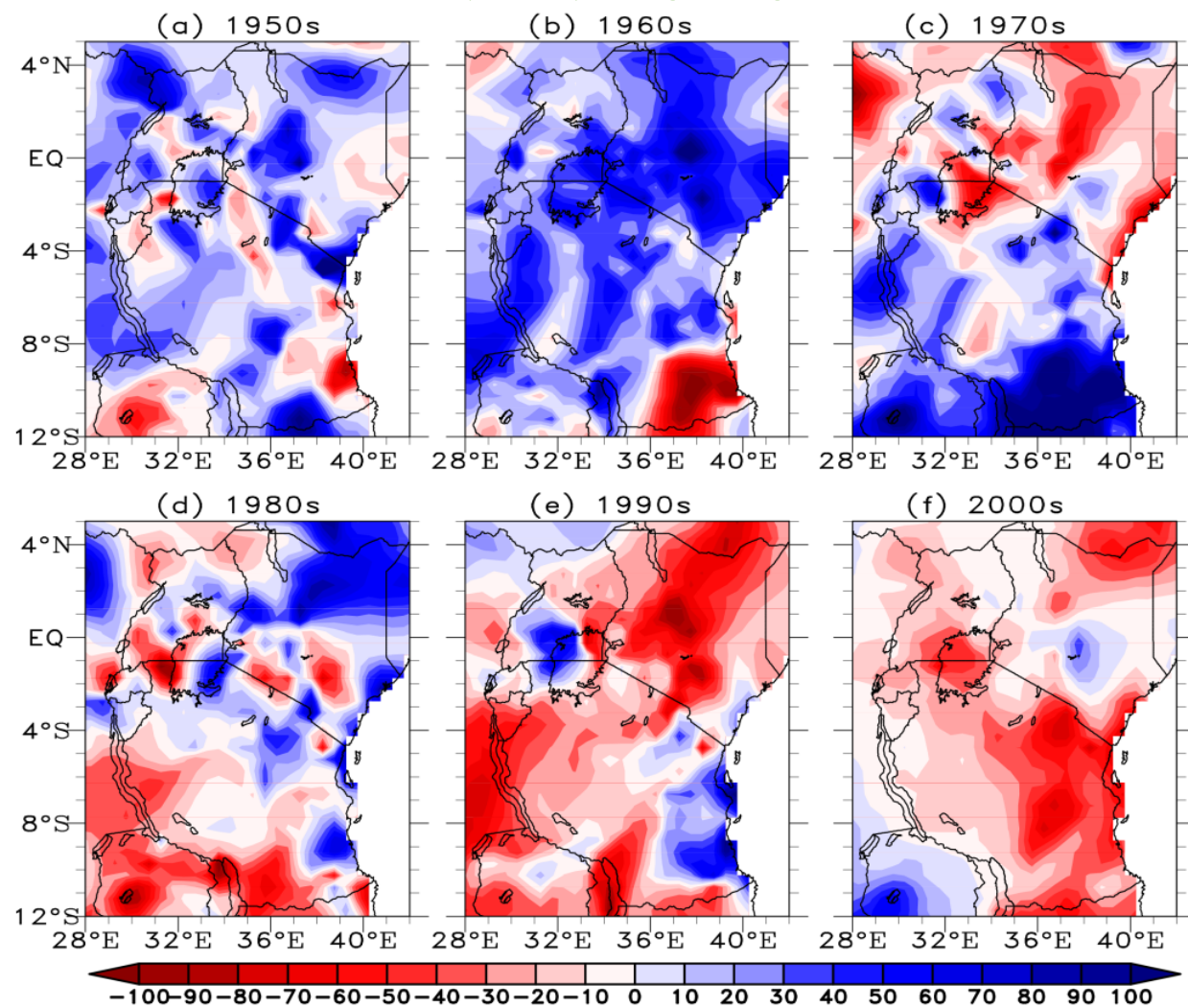


Temperature

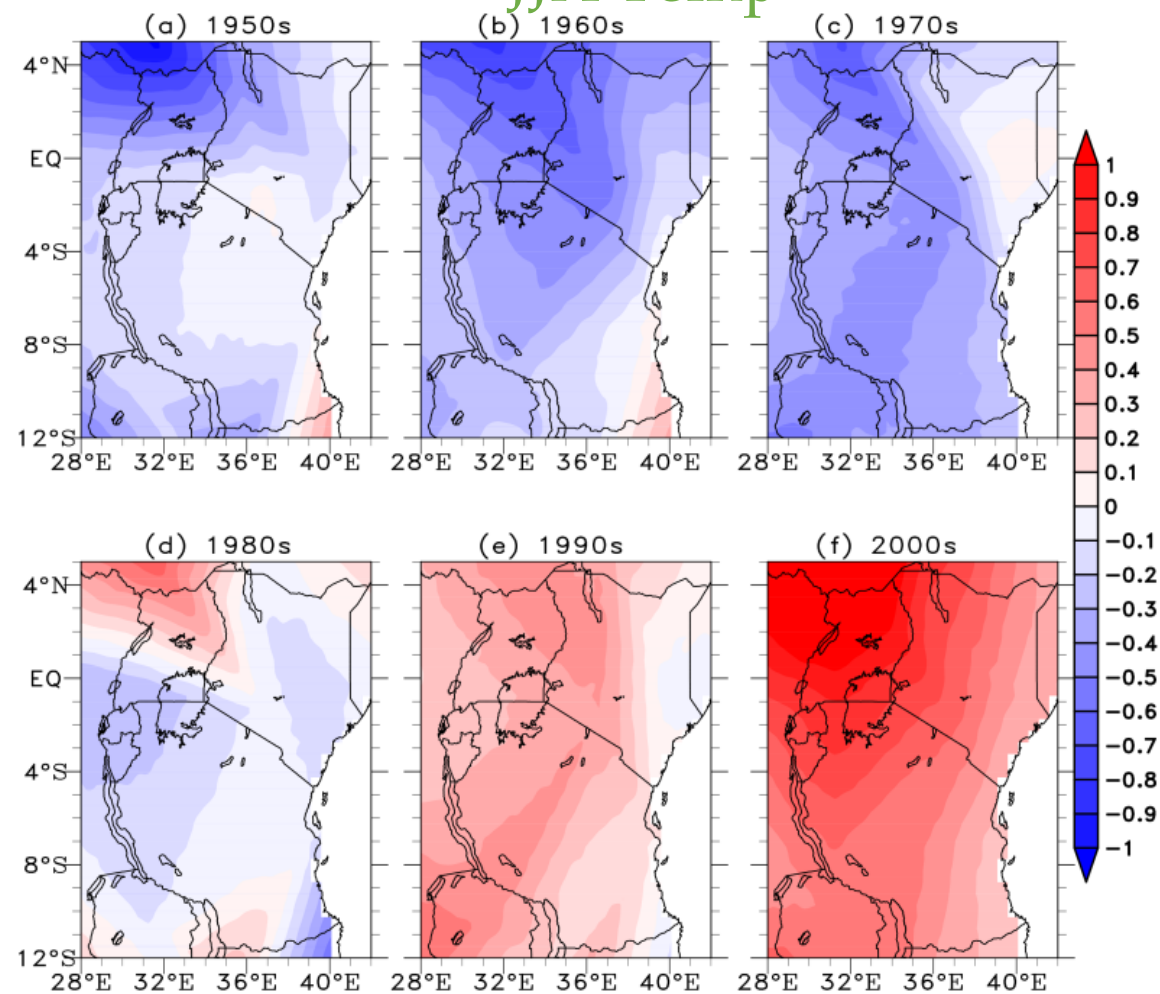


Decadal Anomalies

MAM Rainfall

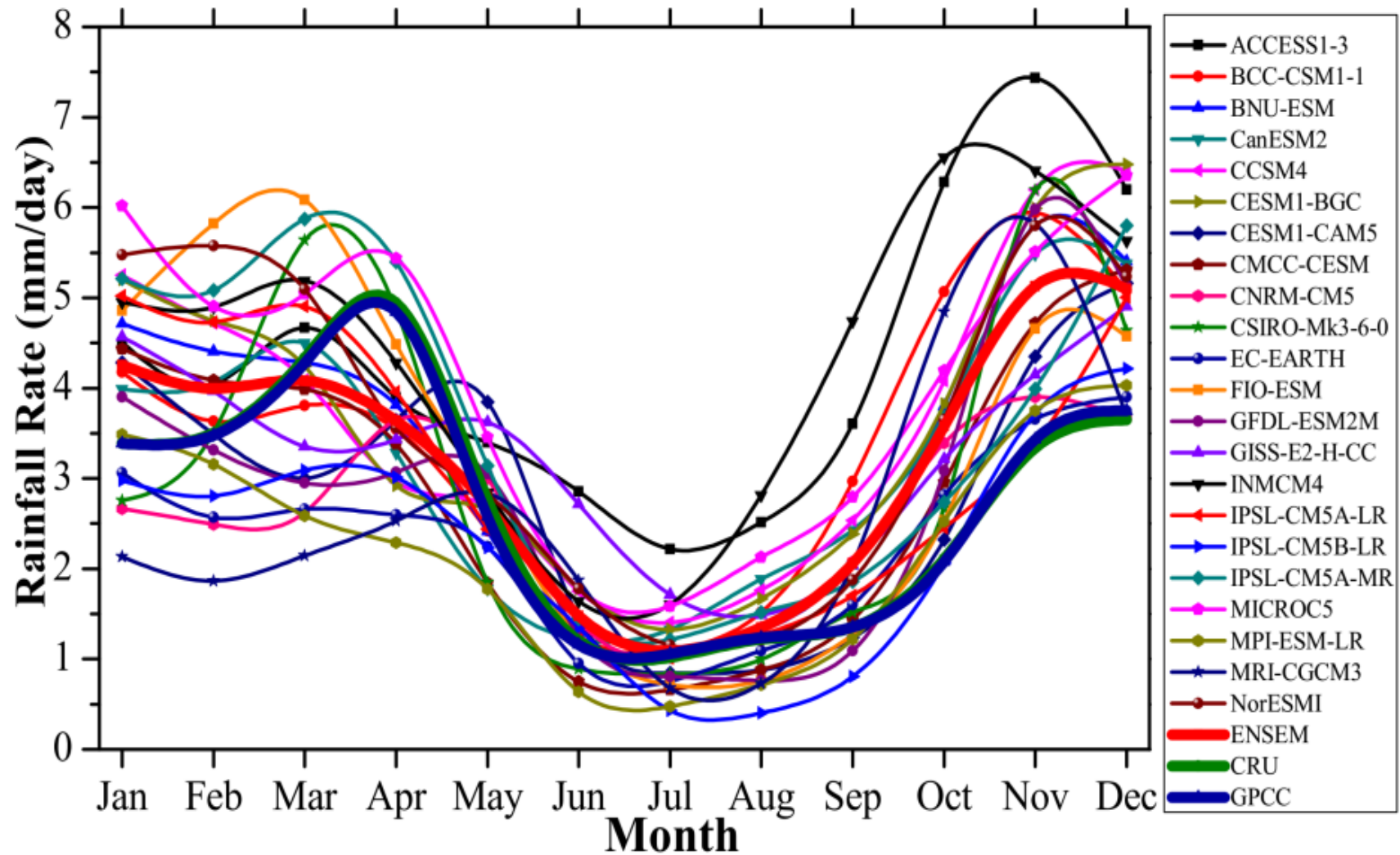


JJA Temp



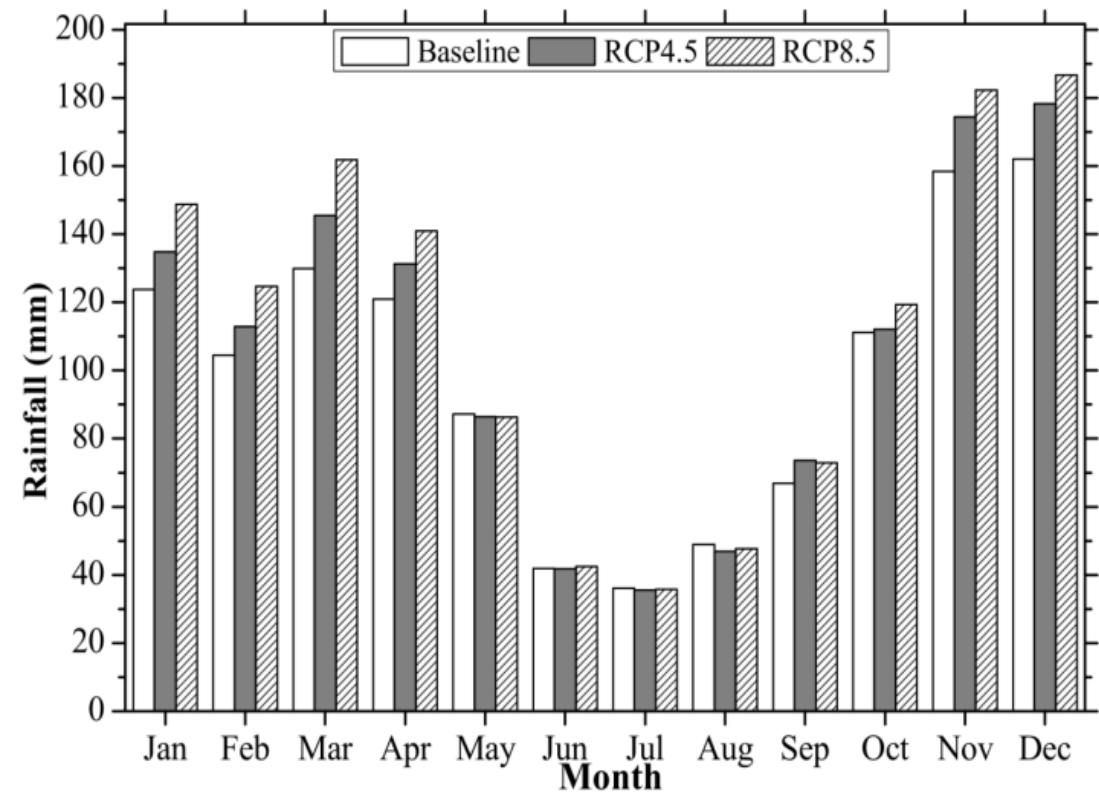
Decadal anomalies, relative to LTM, based on CRU data,
1951-2010

Performance of CMIP5 Models

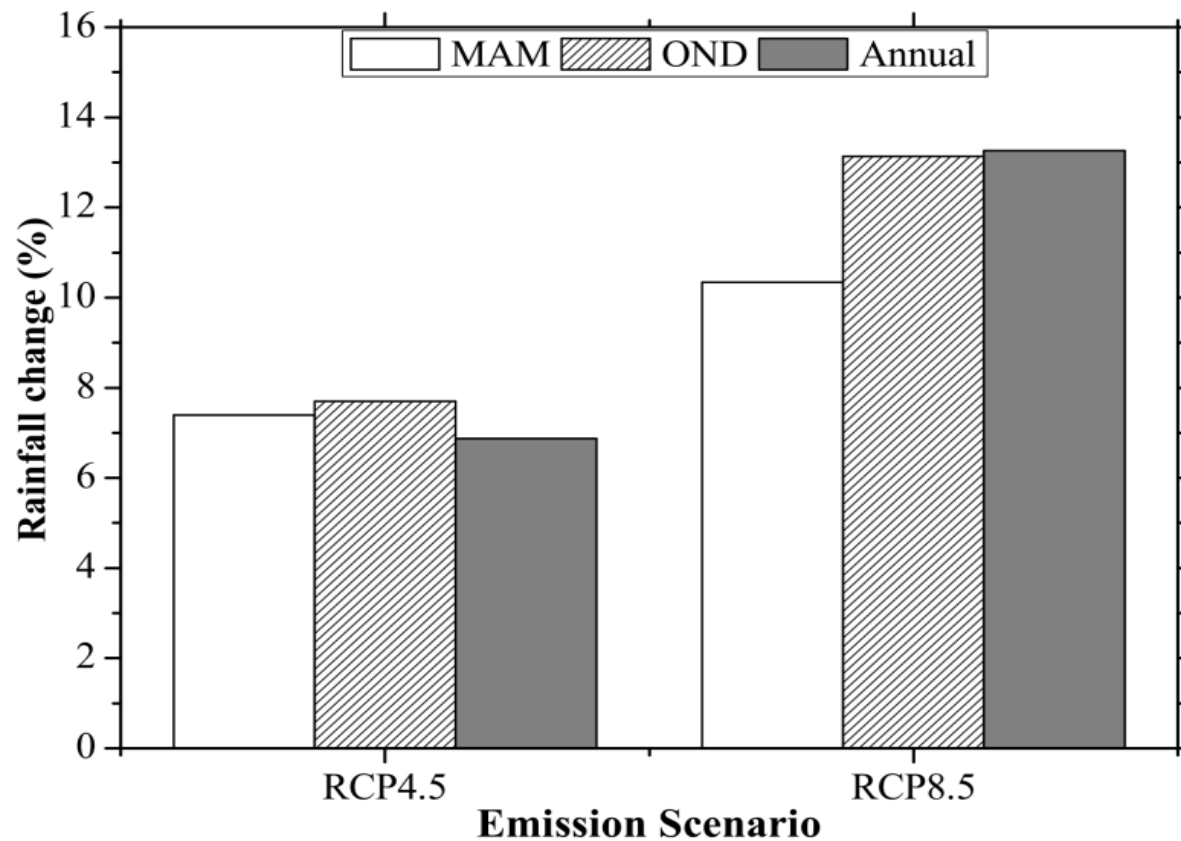


- Most CMIP5 models overestimate (underestimate) OND (MAM) rainfall
- Similar results, CMIP3 - Anyah and Qiu (2012), CMIP5 - Yang et al. (2015)

Monthly & Seasonal Rainfall Projection

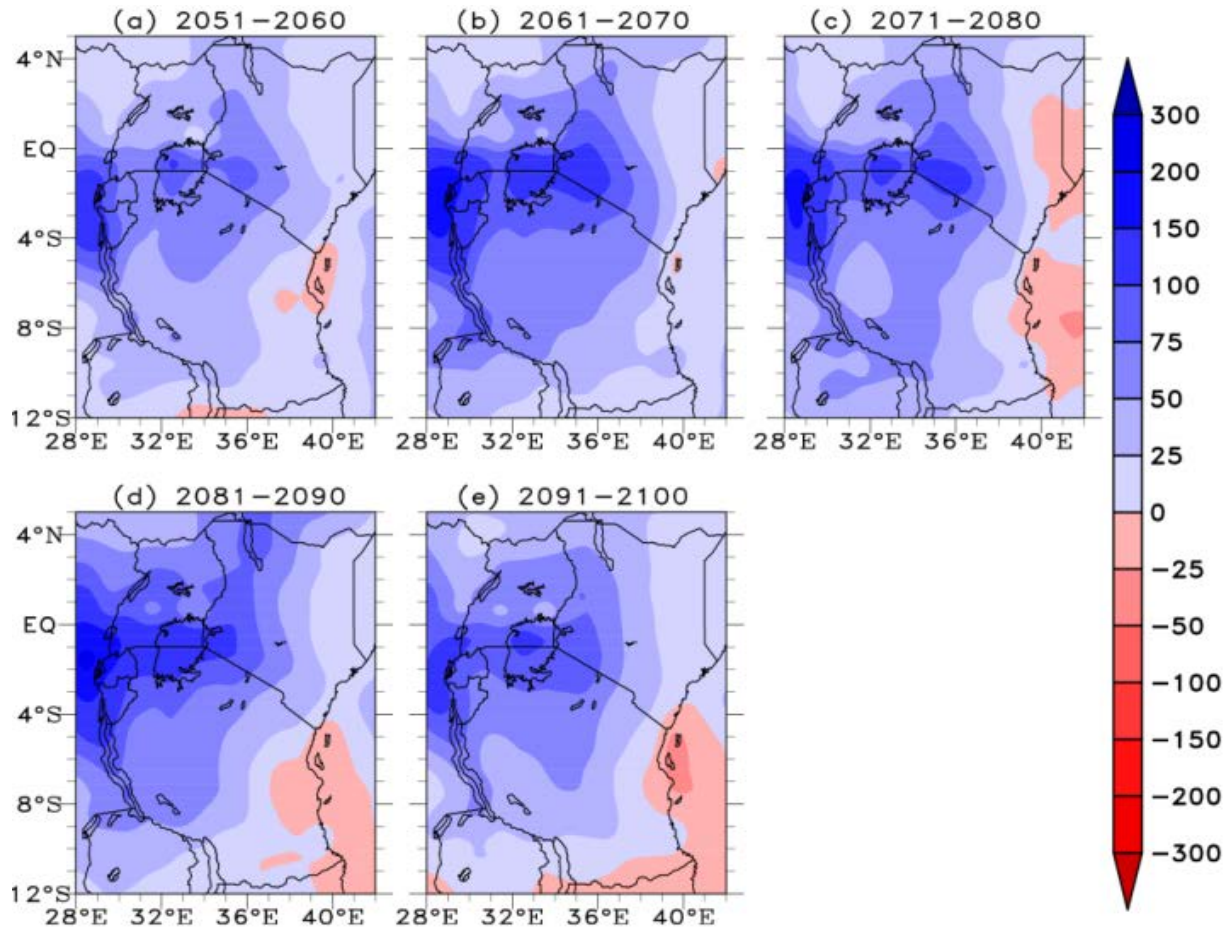


Monthly modeled rainfall climatology (1961-1990) & projection (2071-2100)

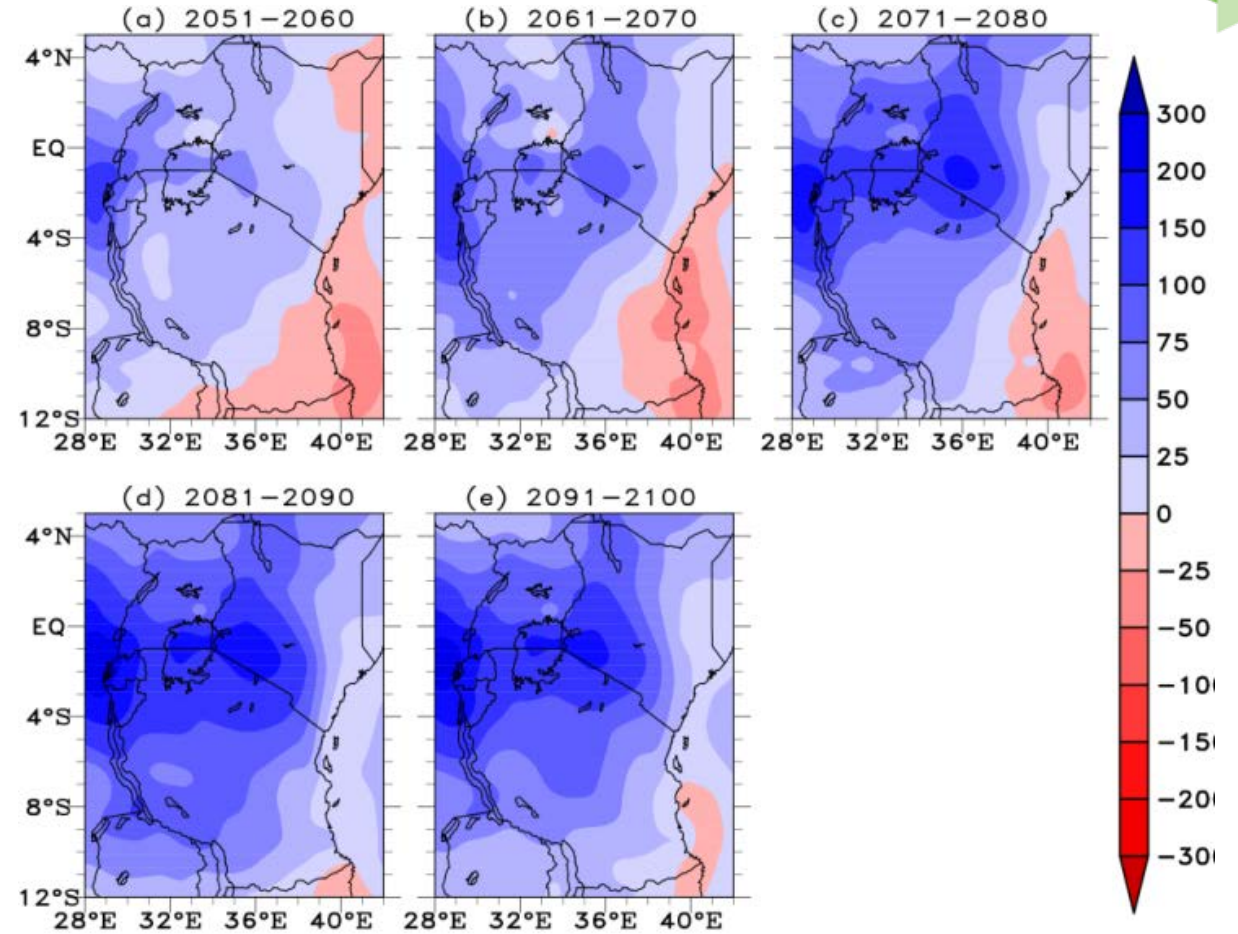


Seasonal & annual change (2071-2100 minus 1961-1990) in rainfall

MAM Rainfall, RCP4.5



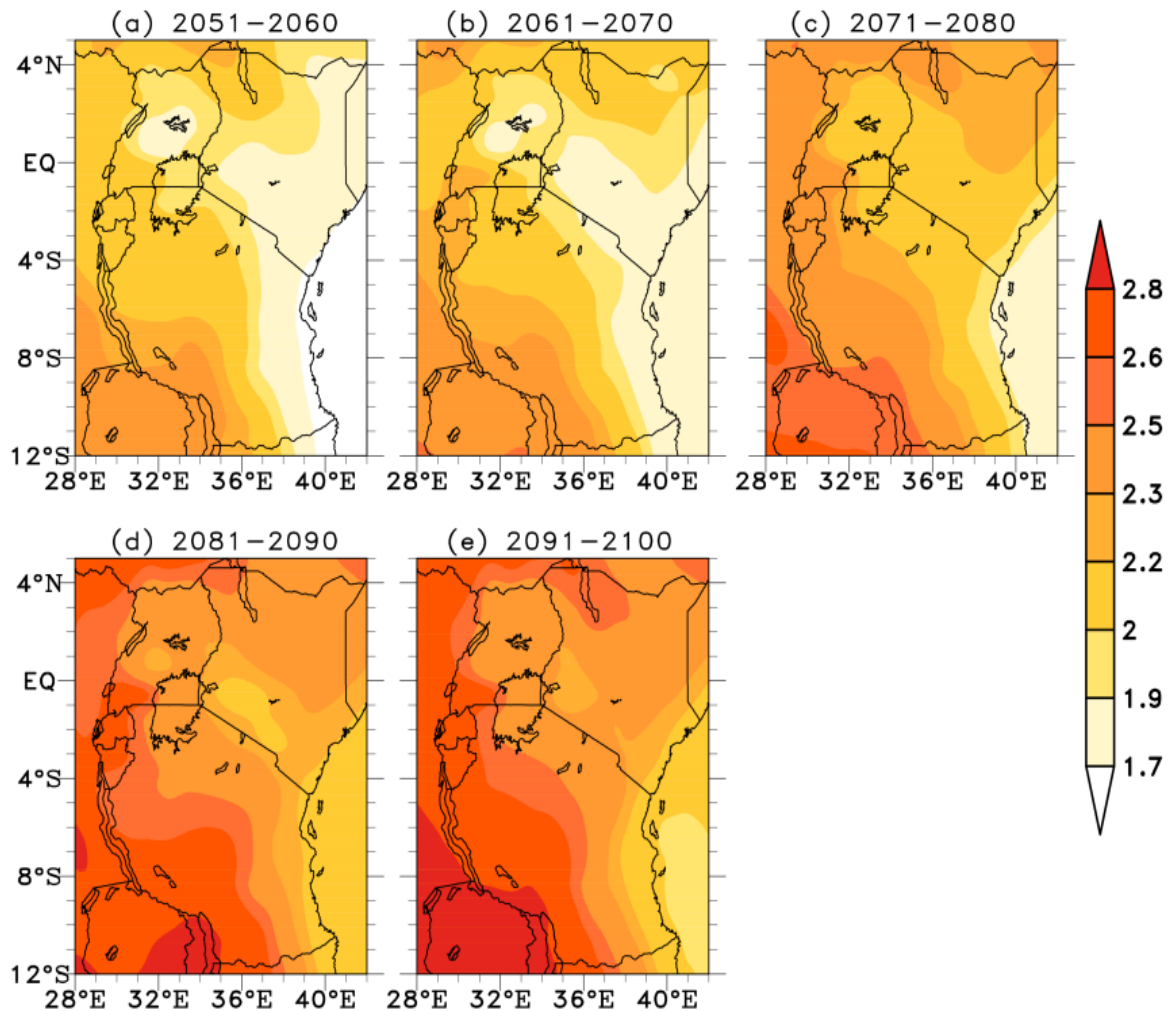
MAM Rainfall, RCP4.5



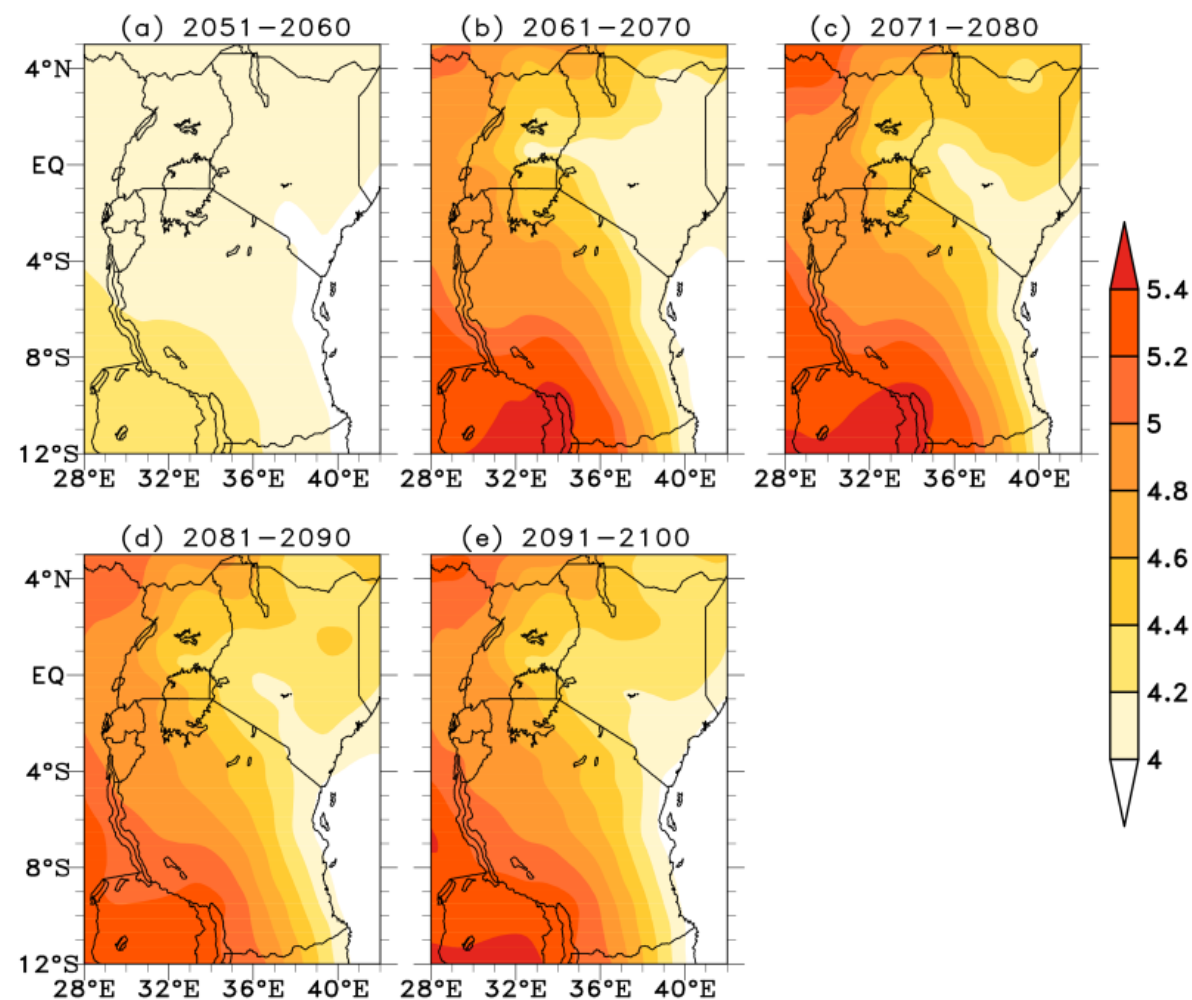
- Rainfall change relative to the baseline period 1961-1990
- Analysis is based on ensemble mean for CanESM2, CESM1-CAM5, CNRM-CM5, CSIRO-Mk3.6.0, MIROC5

Projected temperature anomalies

RCP4.5



RCP8.5



• UNFCCC's target to limit temp. increase within 1.5 - 2 °C above pre-industrial levels, ...is it possible?

As researchers or practitioners what are the possible interactions/collaboration with practitioners resp. researchers to improve/upscale your activities

- ▶ Diagnostic studies on GCM performance.
- ▶ Regional Climate Modelling.
- ▶ Multi-disciplinary collaborations; risk, vulnerability and impact assessment calls for multi-disciplinary approach.

What are the potential aspects of the research that can be transformed into practice?

- ▶ Devising effective adaptation measures to effects of climate change.
- ▶ RCM - Increased time resolution of climate products _ Extreme climate events.