ANALYSIS OF FUTURE CLIMATE SCENARIOS OVER CENTRAL UGANDA CATTLE CORRIDOR

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Problem statement(1/2)

- Climate Change and Climate variability associated with extreme events have emerged as key natural hazards (threat) of the 21st Century
- Most studies have relied on General Circulation model (GCM) (~250km res)
- Such information may not be appropriate for Regional /national assessments
- Down scaling is therefore essential for such studies
- This study employed a Regional Climate Model Providing Regional Climates for Impact Studies (PRECIS)
- To examine future climate scenarios over the central Uganda cattle corridor districts of Nakaseke and Nakasongola

Problem statement (2/2)

The study was guided by two questions

- 1. what are the projected temperature and rainfall values for the central Uganda cattle corridor in relation to IPCC SRES A2 and A1B?
- 2. how do these projections compare with the new set of scenarios known as Representative Concentration Pathways (RCPs)?
- Two future climate periods were considered.
 - 2021-2050 (near future)
 - 2051-2080 (Mid-century/far future)



Methods

- Used PRECIS model for downscaling SERES A2 and A1B
- Model run at 0.44 by 0.44 resolution(50 by 50km)
- CMIP5 were downscaled for the study area for RCP 8.5 (high) and RCP 4.5 (medium) in the two climate periods
- Future scenarios were generated using the delta method



Seasonal rainfall (MAM and SON)



Comparing SRES and RCPs



Comparing SRES and RCPs temperature projections

Projected seasonal temperature changes for 2021-2050 climate period relative to the 1981-2010 average





Conclusion

- SRES A2 and A1B project temperature increases in average monthly, seasonal as well as annual for both near future and mid century periods
- The same trend is observed for RCP 4.5 and RCP 8.5 but the increments are lower for the RCPs compared to the SRES
- Projections for rainfall show a slight increase in annual rainfall in both SRES and RCPs
- More rainfall is projected for the second rainfall season SON compared to the usual known season of MAM
- A shift in rainfall with the usual dry season of December to February (DJF) now becoming wetter than the 1980-2010 average.

