ICPAC
IGAD Climate Prediction & Applications Centre

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Policy Brief

Climate Trends over Awdal & Woqooyi Galbeed, Somaliland

The main goal of the Rural Livelihood's Adaptation to Climate Change in the Horn of Africa – Phase II (RLACC II) by the IGAD Climate Prediction and Applications Centre (ICPAC) project in Somalia and Sudan is to improve the resilience of pastoral and agro-pastoral communities to climate change. The Somalia project targets Puntland (Bari and Nugaal regions), Somaliland (Awdal region and Woqooyi Galbeed region), Galmudug (Galguduud region) and Hirshabelle (Hiiraan region). A workshop was organized at the ICPAC premises to undertake baseline climate data analysis for the four RLACC sites between February 10 and 14. Analysis of the baseline climate was one of the first major activities carried out under the project as users must be able to understand and appreciate the significance of these baseline data as well as basic weather and climate concepts. The key highlights from Awdal and Woqooyi Galbeed, Somaliland climate baselines included:

Significant space-time variations were observed in rainfall characteristics in Somaliland (Awdal region and Woqooyi Galbeed region). The location to location variation in rainfall amounts as well as the observed rainfall trends is now well documented. There is clear evidence of recurrences of above and below normal rainfall extremes with indications of changes in frequency and severity of the above and below rainfall events that are often associated with droughts and floods. Some of the observed climate extremes occurred during ENSO and positive/negative Indian Ocean Dipole (IOD) years, making ENSO and IOD based prediction and early warning extremely useful in the local climate risk management.

Increase in mean, maximum and minimum temperatures were observed at all locations within Somaliland (Awdal region and Woqooyi Galbeed region). Although increasing trends were evident in all places consistent with global warming trends being observed worldwide, the short duration of data used could not enable an associate the observed warming trends to climate change and global warming signals.

The observed climate extremes such as floods and droughts that are common in the area often had far reaching socio-economic implications that include lack of water and food; migrations, human conflicts, unemployment, loss of life, etc. The climate risks seem to be increasing the vulnerability of the poor local community.

The observed climate related risks emphasized the need for reliable, accurate and timely climate information that requires investment in weather observation instruments, data management, prediction and early warning systems, as well as capacity building for all including climate scientists, policy makers, and the sector specific climate sensitive local users.

The climate data and the derived products and information including those associated with climate change provides a basis for investment in effective and well integrated strategies for mainstreaming disaster risk reduction and build climate change resilience in all development plans that are locally-driven, gender-sensitive, participatory and fully transparent, taking into consideration vulnerable groups, communities and ecosystems.

There is clear need for enhanced district level institutional framework and integrated policies, coordination and collaboration in the local use

Key Messages

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of climate information and services by all climate sensitive sectors an the relevant local systems.

Background Information and Recommendations

Climate change and variability remains a threat to sustainable development. The climate data from the National Meteorological Service is insufficient. There is therefore the need to invest more on weather observation systems including the use of remotely sensed data in Somaliland. The available data shows that there is significant variability not only the annual rainfall received, but also from one month to another. Peak rainfall months are centred around March to June (MAMJ) and September to December (SOND) period. Positive and negative rainfall trends were also observed that were not consistent from season to season in all locations. Inter-annual variability patterns further showed evidence of recurrences of rainfall extremes associated with floods and droughts, as well as increasing frequency and severity of extreme events such as drought and floods. Some of the observed recurrent positive and negative rainfall anomalies were observed during El Nino / Nina (commonly represented as ENSO) years and positive/negative Indian Ocean Dipole (IOD) years. Rainfall amounts and intensity in Somaliland (Awdal region and Woqooyi Galbeed region) differs from place to place with amounts ranging between 100mm to 600mm annually. The spatial variability in rainfall is particularly evident in Booroma and where some parts recorded the highest rainfall amounts in the region, while other parts of the district generally experience the low mounts of rainfall.

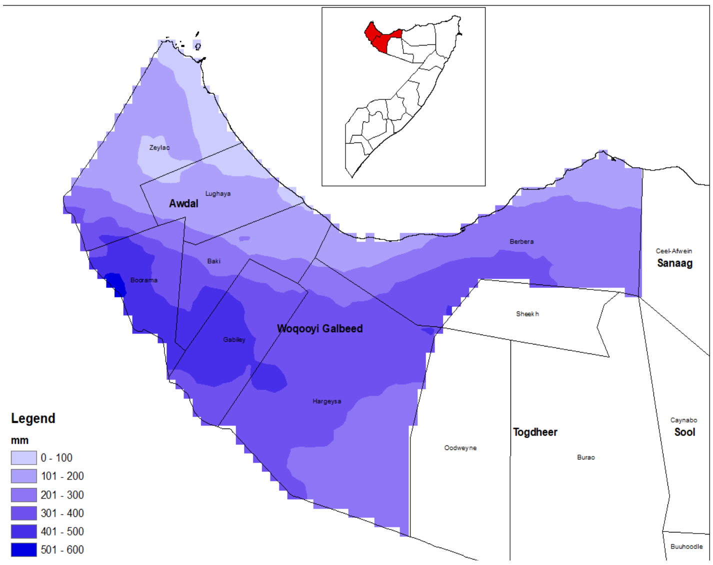

Figure 1: Long Term Annual Mean Rainfall (1981-2010)

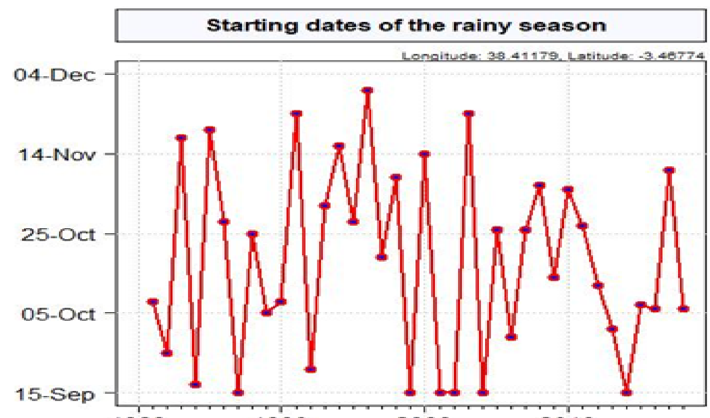

Figure 2: Seasonal Onset over a Point in Somaliland during SOND

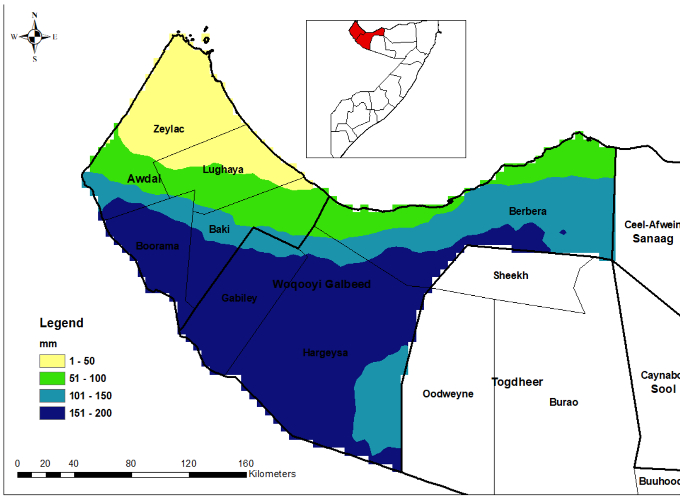

Figure 3: MAMJ Long Term Mean Rainfall (1981-2010)

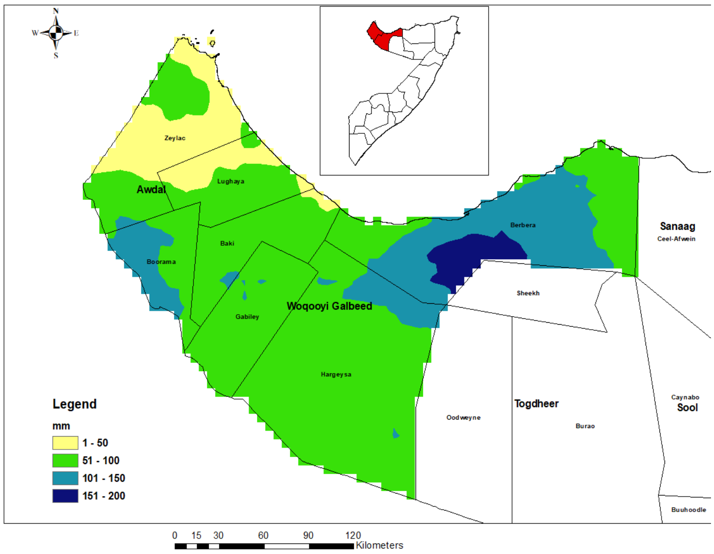

Figure 4: SOND Long Term Mean Rainfall (1981-2010)

Somaliland seems to have experienced a negative trend in the Gu season and a positive trend in the Deyr season. Reccurence in climate extremes, also observed in the region, often have far reaching socio-economic implications that include lack of water and food, hunger, migrations, human conflicts, unemployment, loss of life, etc.

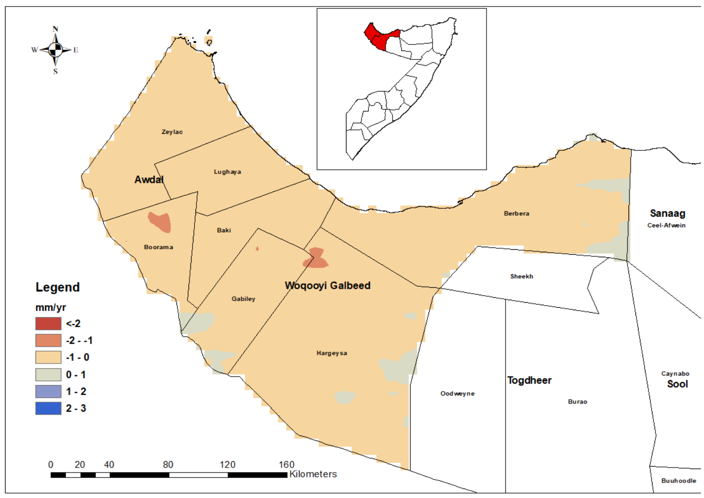

Figure 5: MAMJ Season Rainfall Trend/Yr (1981-2018)

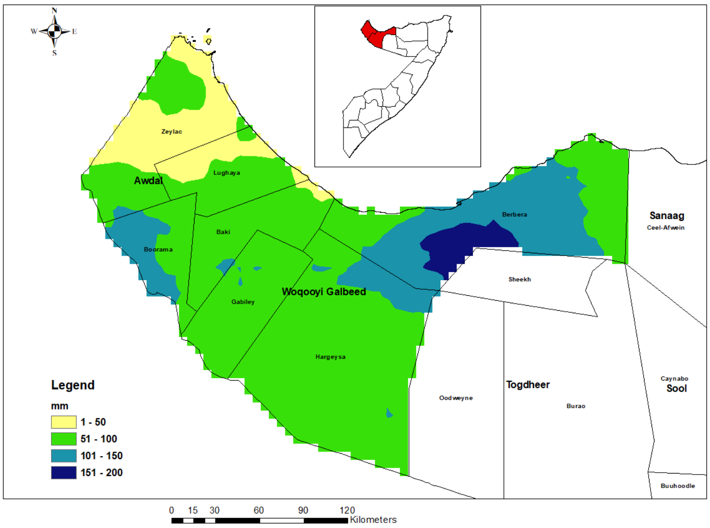

Figure 6: SOND Season Rainfall Trend/Yr (1981-2018)

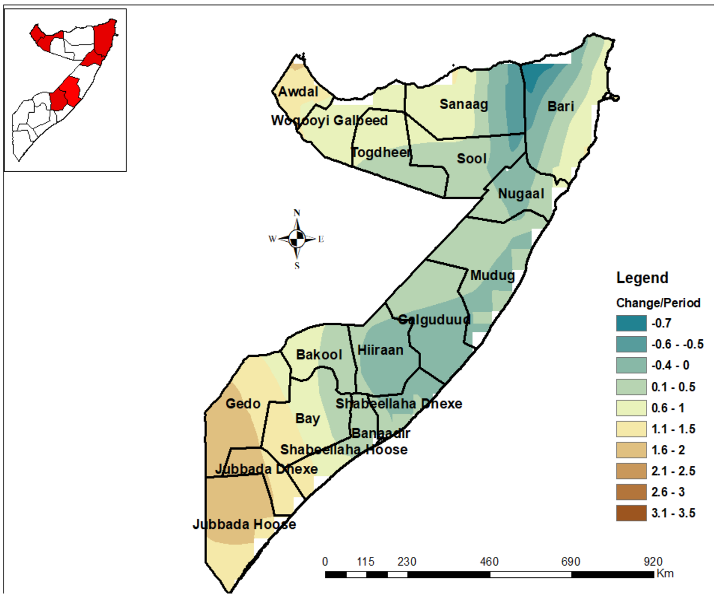

Figure 7: Mean MAM Season Surface Temperature Trends

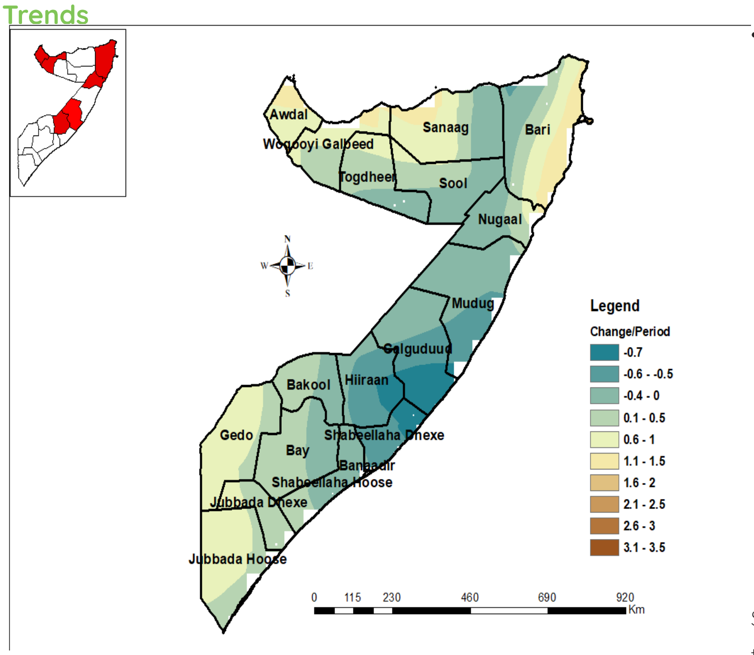

Figure 8: Mean SON Season Surface Temperature Trends

The analysis of the observed temperature data showed an increase in both minimum and maximum temperatures at all locations and all seasons. The results are consistent with regional and global data that have reported an increase in temperature, which has been linked with high confidence to global warming and climate change. The increase in temperature has been linked to an increase in the occurrence of pests and diseases (IPCC 2014).

Annual evapotranspiration in arid and semiarid lands (ASALs) usually exceeds rainfall. The data supports the need for integration of local knowledge in the planning and development of national climate change adaptation strategies. Policy makers should strengthen inter-linkages between adaptation and development strategies that enable communities to build climate resilience. Policies should be linked across different sectors of government at both the sub-national and national level. Sectoral level policy makers, planners and managers should be given information in suitable forms as they are most likely to mainstream adaptation efforts into their planned work.

Other critical baseline rainfall characteristics including rainfall intensity; probability of exceedance of specific rainfall thresholds; mean characteristics of wet/dry days; probability of occurrence of specific wet/dry spells; onset, cessation and length of crop growing seasons have been well documented.

Policy Recommendations

The significance of the observed rainfall data shows continued exposure to recurring events of drought and flooding for local communities. The following are recommendations from the research:

- There is need to integrate local knowledge in the national development strategies to cope with climate variability and adaptation to climate change;
- Need for increased investment for collection and processing climate data throughout the county as this would help improve planning and timely intervention;
- Need to invest in climate information services including prediction, multi hazards early warning systems at all-time scales ranging from daily to climate change time scales. This will also require the following among others;
    - The right infrastructure to generate accurate downscaled, location specific climate information services;
    - Capacity building for all including scientists, users and policy makers;
    - Established communication and feedback systems to disseminate this information to end users, and for feedback and evaluations of the impacts; and
    - Awareness to end users on how to use climate information provided.

Strengthen inter-linkages between adaptation and development strategies that enable communities to build resilience. This calls for all sectoral level policy makers, planners and managers to take into account climate information to mainstream adaptation efforts into their planned work.

About ICPAC

ICPAC is a specialised IGAD institution which covers IGAD members' states plus Tanzania, Rwanda and Burundi. The mission of ICPAC is to foster climate services and knowledge to enhance community resilience for prosperity in the Greater Horn of Africa. ICPAC Services cover six main sectors, that include, Climate Forecasting and Early Warning, Hydrology, Agriculture and Food Security, Climate Change, Environmental Monitoring, Disaster Risk Management and Climate Information Dissemination.

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