IGAD
CLIMATE
PREDICTION AND
APPLICATIONS
CENTRE

ICPAC

Bulletin for Dekad 15 of 2019
Issue Number: ICPAC/02/987

10 DAYS CLIMATOLOGICAL SUMMARY AND IMPACTS FOR THE SECOND DEKAD (11-20) OF MAY 2019 AND FORECAST FOR THE FIRST DEKAD (01-11) OF JUNE 2019

1. Introduction

This bulletin reviews the climatic conditions observed during the second dekad (11-20) of May 2019 and gives the climate forecast for the first dekad (01-10) of June 2019 with the associated climate impacts over the Greater Horn of Africa (GHA) region. The observed conditions are compared to the average of the climatological period of 1981-2010 for rainfall and mean surface temperature.

For referencing within this bulletin, the Greater Horn of Africa (GHA) region is generally subdivided into three sub-sectors: The equatorial sector lying approximately between 5^o S and 5^o N, with the northern and southern sectors occupying the rest of the northern and southern parts of the region respectively while average is computed based on the period 1981 - 2010.

2. Highlights

During the second dekad of May 2019, several places in the southern part of the northern sector, western equatorial sub-sector, and eastern part of the southern sector of the GHA recorded above normal rainfall. Some places in the western Ethiopia, and central South Sudan recorded below normal rainfall. Much of the rest of the GHA recorded near normal rainfall.

Flooding and related impacts were reported in some parts of Tanzania, Uganda during the second dekad of May 2019. Impacts such as water scarcity, and poor pastures continued to be experienced in some parts of eastern equatorial sector of the GHA.

Several parts of the GHA recorded maximum and minimum temperature that was warmer than or near the climatological mean. Southeast part of the northern sector of the GHA recorded maximum temperature cooler than the climatological mean and northern and south eastern part of the northern sector recorded minimum temperature that was cooler than the climatological mean.

Moderate rainfall is forecasted over several regions in western and central equatorial sector, and southeast part of the northern sector of the GHA. Southwest and central part of the northern sector is forecasted to record heavy to very heavy rainfall, while the average temperature is expected to remain generally warm over much of the GHA region during the first dekad of June 2019.

3. Observed rainfall during the second dekad (11-20) of May 2019

Figure 1a, 1b and 1c shows the distribution of total rainfall, percentage of the long-term average rainfall, and the standardized precipitation index (SPI), respectively.

Rainfall Distribution and Severity

Distribution of rainfall total for the second dekad (11-20) of May 2019 over Greater Horn of Africa, revealed that western part of South Sudan, southern Ethiopia, central and southeastern parts of Somalia, western and central Kenya, several parts of Rwanda, north and central Burundi, and northeastern part of Tanzania recorded rainfall exceeding 50mm but less than 200mm. Much of Sudan, Djibouti, northeastern Somalia, north, and eastern Kenya, and west and southern Tanzania is usually dry during this dekad, and recorded rainfall amounts less than 5 mm. Much of the rest of the GHA recorded rainfall of between 5mm and 50mm.

Comparison of the observed rainfall with the baseline climatology (1981-2010) for the second dekad of May indicates that most of the GHA recorded near normal or wetter than normal rainfall condition with a few places in southeast and south west Ethiopia, northwest, and southwest South Sudan, and eastern Tanzania recording severely to extremely wet rainfall conditions. Drier than normal rainfall was recorded in a few places in western Ethiopia and central South Sudan (Figure 1b and Figure 1c).

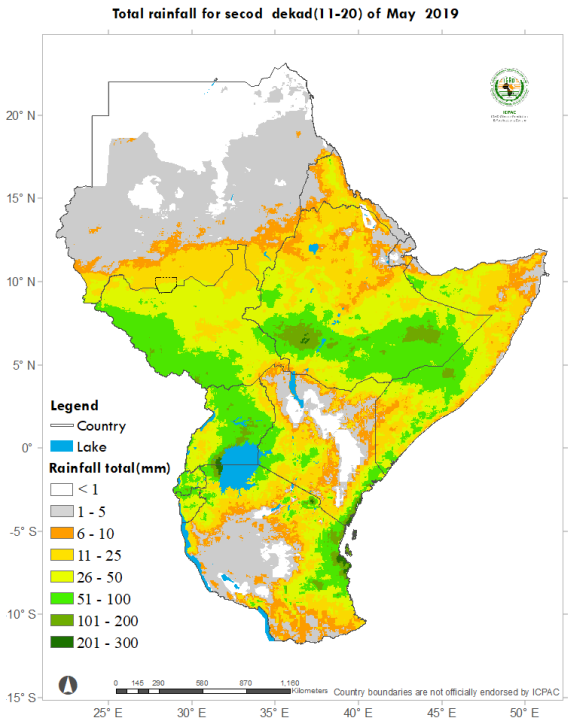

Figure 1a: Total rainfall distribution during the second dekad (11-20) of May 2019. *(Data: ICPAC Blended CHIRP)*

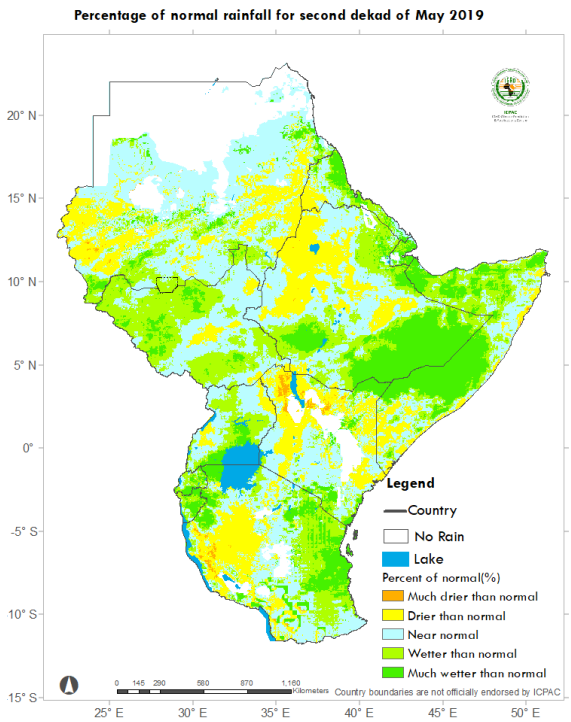

Figure 1b: Percent of long-term average rainfall for the second dekad (11-20) of May 2019*(Data: ICPAC Blended CHIRP)*

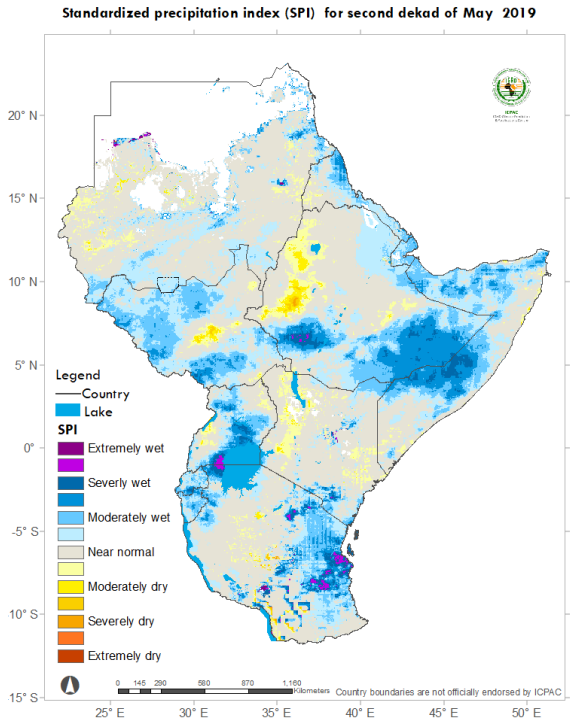

Figure 1c: Standardized Precipitation Index (SPI) for second dekad (11-20) of May 2019 *(Data: ICPAC Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

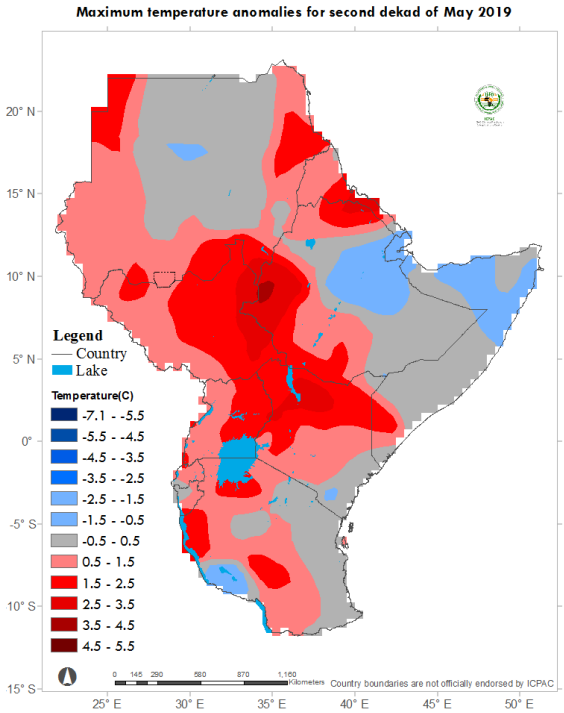

Figure 2: Maximum temperature difference from the average (1981-2010) for the second dekad (11-20) of May 2019*(Data Source: provided by the* NOAA-*NCEP CPC. GTS gridded data)*

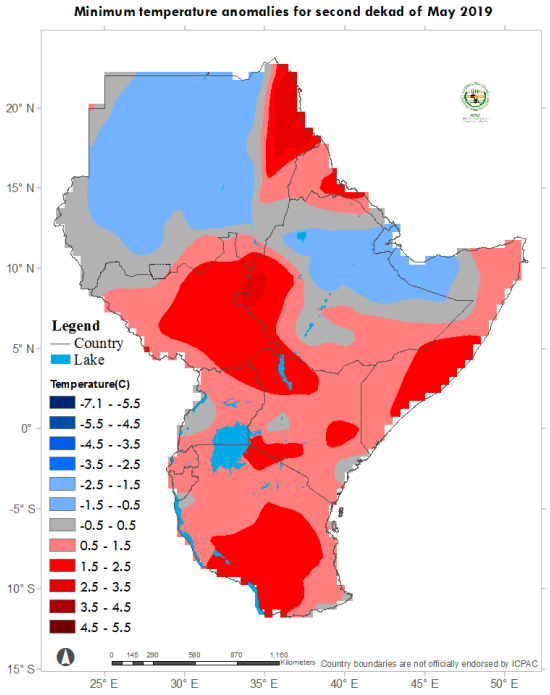

Figure 3: Minimum temperature difference from the average (1981-2010) for the second dekad (11-20) of May 2019 *(Data Source: Data Source: provided by the NOAA-NCEP CPC. GTS gridded data)*

Normalized Difference Vegetation Index Anomaly

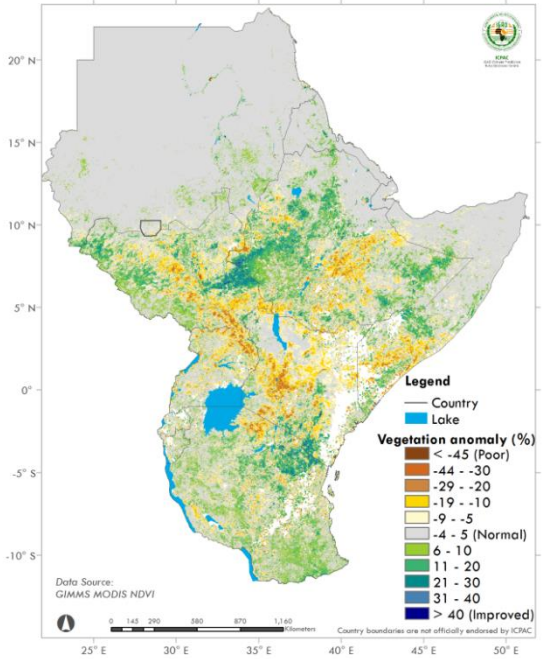

Figure 4: NDVI anomaly for the period between 16th to 29th May 2019 (Data Source: USGS NASA**)**

Maximum and Minimum Temperature

During the second dekad of May 2019, much of Djibouti, parts of northeast Ethiopia, and northwestern parts of Somalia recorded maximum and minimum temperature that was cooler than the climatological mean. Much of Sudan also recorded minimum temperature that was cooler than the climatological mean. A large percentage of the rest of the GHA recorded maximum and minimum temperature that exceeded or was near the climatological mean.

4. Vegetation condition indicators

The Normalized Difference Vegetation Index (NDVI) anomaly for the period 16th to 29th May 2019 (Figure 4) indicates that:

Ethiopia, South Sudan, and Somalia: Central and southern parts of South Sudan, and eastern parts of Ethiopia, and southern parts of Somalia showed indications of deterioration in vegetation conditions as compared to the mean for the same period. Northwest and southeast part of South Sudan, and western and central Ethiopia showed indications of improvement in vegetation conditions as compared to the mean.

Uganda, and Kenya: Most of north and eastern Uganda, and western and central parts of Kenya showed indication of deterioration in vegetative conditions as compared to the long term average.

Tanzania: northeast Tanzania showed indication of improvement in vegetative conditions as compared to the average for the period.

Much of the rest of the GHA showed indication of little or no change in vegetative conditions as compared to the average.

5. Climate Forecast

Rainfall Forecast

Forecast for the last dekad (01-10 June) of the June - September rainfall season indicates that wet conditions are expected in the southern parts of Sudan, over several parts of South Sudan, western, central and eastern Ethiopia extending into northern Somalia, over north, east and west of Uganda, western and central Kenya, Rwanda, and in few parts of Burundi. Rainfall above

150 mm is forecasted in southwest Sudan, northern and eastern parts of South Sudan, western parts of Ethiopia and in a few areas in central Much Kenya.

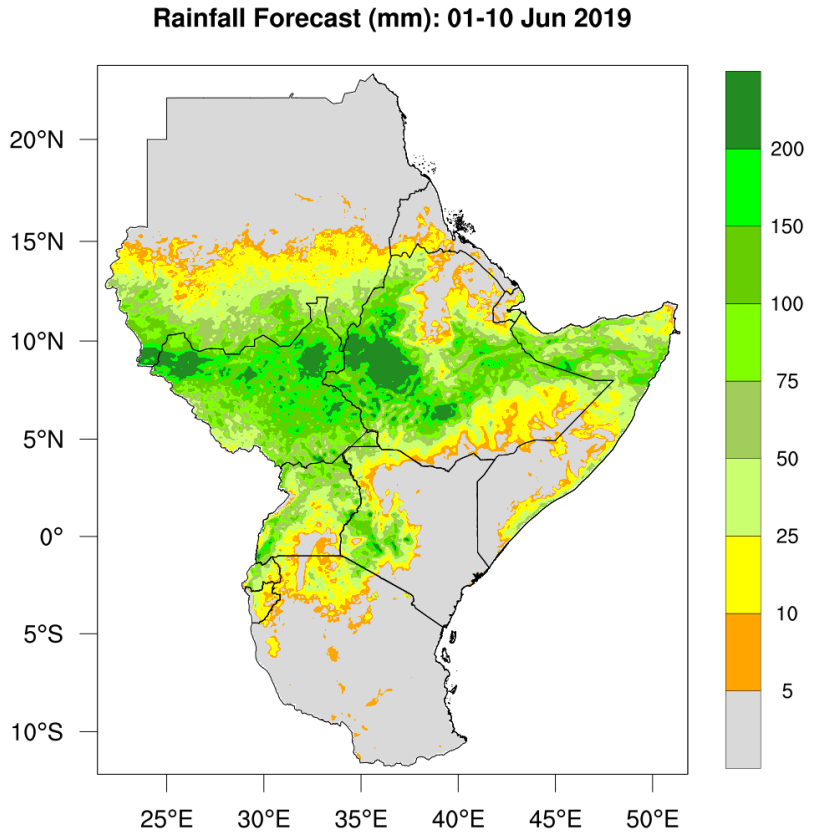

Figure 5: Rainfall forecast for the first dekad (01-10) of June 2019 (Source: WRF-ICPAC**)**

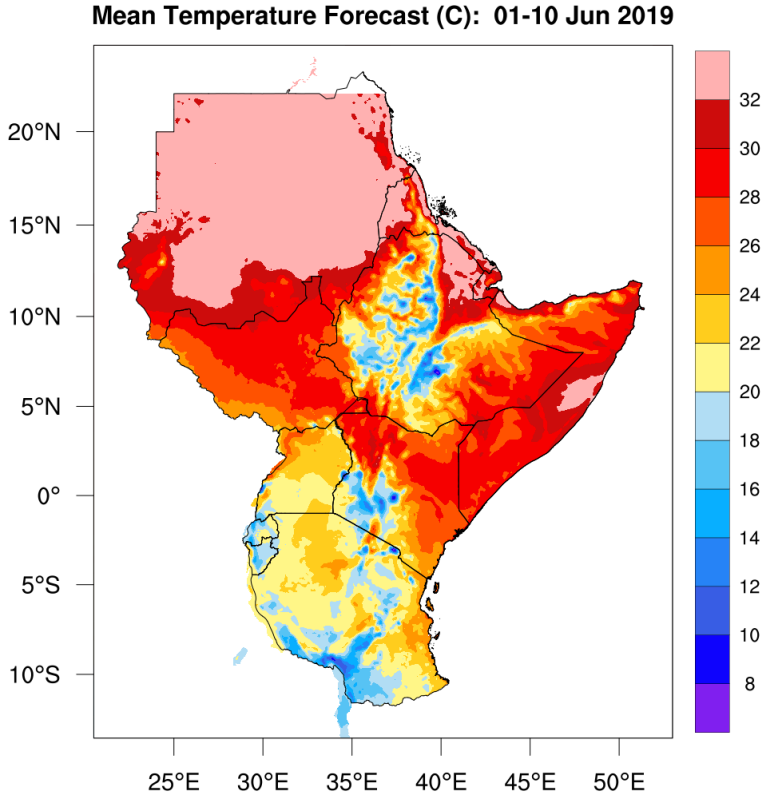

Figure 6: Average temperature forecast for the first dekad (01-10) of June 2019 (Source: WRF-ICPAC)

Temperature Forecast

The mean temperature forecast for first dekad of June 2019 (Figure 6) indicates that there is a likelihood of experiencing temperatures above 32 ^{o}C in much of Sudan, Eritrea, northeast Ethiopia, and central Somalia, with adverse thermal discomfort

conditions likely. Cold conditions, with temperatures less than 20 ^{o}C are forecasted over central Ethiopia, western Kenya, southwest Tanzania, Rwanda, and Burundi. The rest of the region is expected to be warm, in the range of 20-30 ^{o}C.

6. Impacts on socio-economic sectors

The socio-economic impacts associated with the observed rainfall and temperature conditions are highlighted below:

Impacts of the climate conditions

The rainfall conditions during the second dekad of May 2019 resulted in extended conditions of water scarcity, poor pasture and delay in cropping season which might have impacted on crop and livestock production and exacerbated food insecurity in many parts of the arid, semi-arid regions of Kenya, Ethiopia and Somalia, as well as central and northern parts of Uganda. Flooding and related impact was reported in some places such as central and coastal Kenya, and eastern and southern Tanzania.

The forecast for the first dekad of June is likely to extend the negative impact of the dry conditions in some areas in eastern equatorial sector of the GHA and is expected to affect water condition, deterioration in crop performance and pasture conditions. Areas in central and western equatorial sector as well as southern parts of the northern sector are likely to experience improvement in water resources. There is a high chance of recording rainfall exceeding the 99th percentile over northern and eastern part of South Sudan, central Somalia, western and central Ethiopia, eastern and southwestern Uganda and central and western Kenya. The probability of flooding within these areas is high and appropriate mitigation measures should be put in place.

Reference terminology

Rainfall categories	
Range	Category
<5 mm	Light
5 - 20mm	Moderate
20 - 50mm	Heavy
>50mm	Very heavy

Rainfall coverage	
Coverage	Range
Most Places	Between 66% and 100%
Several Places	Between 33% and 66%
Few Places	Below 33%

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