10 DAYS CLIMATOLOGICAL SUMMARY AND IMPACTS FOR THE THIRD DEKAD (21-31) OF MARCH 2019 AND FORECAST FOR THE SECOND DEKAD (11-20) OF APRIL 2019

1. Introduction

This bulletin reviews the climatic conditions observed during the third dekad (21-31) of March 2019 and highlights the climate forecast for the second dekad (11-20) of April 2019 and the associated climate impacts over the Greater Horn of Africa (GHA). The observed conditions are compared to the average of the climatological period of 1981-2010 for rainfall and temperature.

For referencing within this bulletin, the Greater Horn of Africa (GHA) is generally subdivided into three sub-sectors: The equatorial sector lying approximately between -5^{o} and 5^{o} latitude, with the northern and southern sectors occupying the rest of the northern and southern parts of the region respectively

2. Highlights

During the third dekad of March 2019 several places in the equatorial sector and a few places in the southern parts of the southern sector of the GHA recorded below normal rainfall. Much of the rest of the GHA recorded near normal rainfall, except for a few places in northeast equatorial sector, and western parts of the southern sector which recorded above normal rainfall.

Impacts such as water scarcity, poor pastor and delay in cropping season continued to be experienced in several parts of equatorial sector and a few areas in the southern parts of the northern sector of the GHA.

Several parts of the equatorial sector and southern sector of the GHA recorded maximum and minimum temperature that was warmer than the long-term mean. The northern and southeast parts of the northern sector of the GHA mainly recorded maximum and minimum temperature that was cooler than the climatological mean.

Dry conditions are expected to persist over several parts of the region except for southeast part of the northern sector, western, eastern and southern parts of the equatorial sector as well as western parts of the southern sector of the GHA where light to moderate rainfall is expected during the second dekad of April 2019.

3. Observed rainfall during the third dekad (21-31) of March 2019

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

Rainfall Distribution and Severity

Distribution of Rainfall total for the third dekad (21-31) of March 2019 over Greater Horn of Africa, revealed that: rainfall amounts exceeding 50mm was observed over southwest Ethiopia, north-central Kenya, Rwanda, Burundi as well as western and southern parts of Tanzania. Much of the rest of southern South Sudan, central and southern Ethiopia, Uganda, Kenya, southwest Somalia, and northeast Tanzania recorded rainfall between 5mm and 50mm. (Figure 1a).

Comparing the observed rainfall with the climatology baseline (1981-2010) for third dekad of March reveals that: central and southwest Uganda, western, southern and southern Kenya, as well as southern Tanzania recorded below normal rainfall. Northern and western parts of Ethiopia, north-eastern Kenya, and northwest and western parts of Tanzania recorded above normal rainfall. Much of the rest of the GHA recorded near normal rainfall or remained generally dry (Figure 1b and Figure 1c).

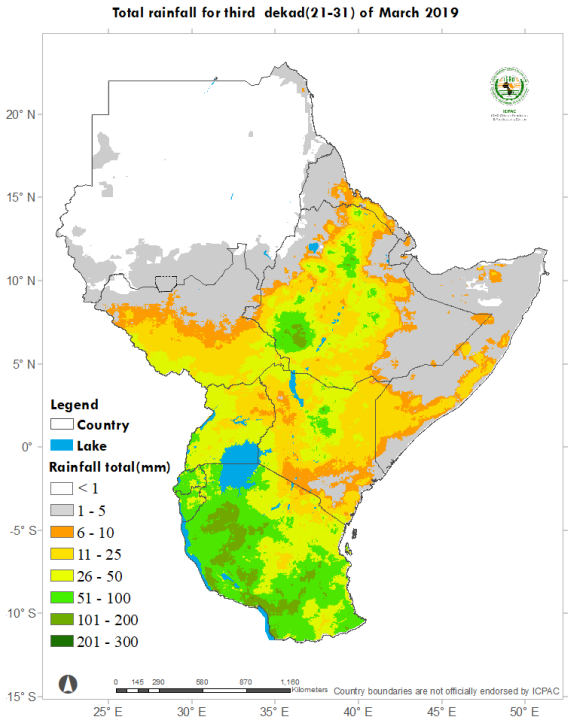


Figure 1a: Total rainfall distribution during the third dekad (21-31) of March 2019. *(Data: ICPAC Blended CHIRP)*

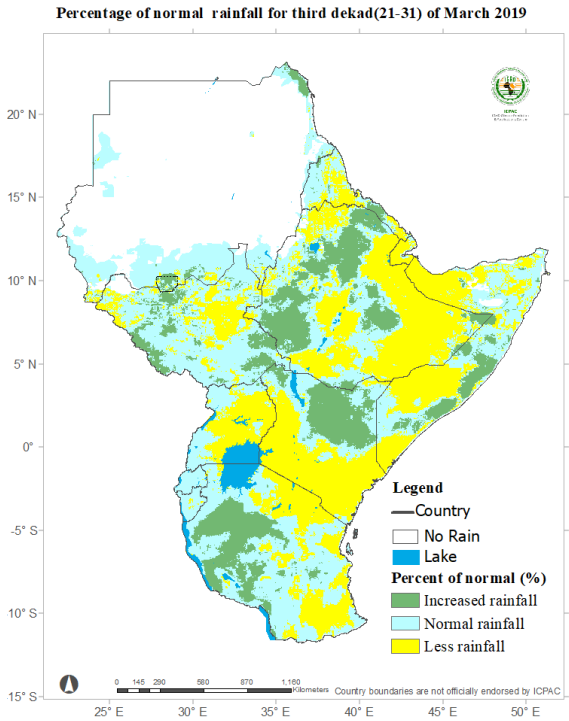


Figure 1b: Percent of long-term average rainfall for the third dekad (21-31) of March 2019*(Data: ICPAC Blended CHIRP)*

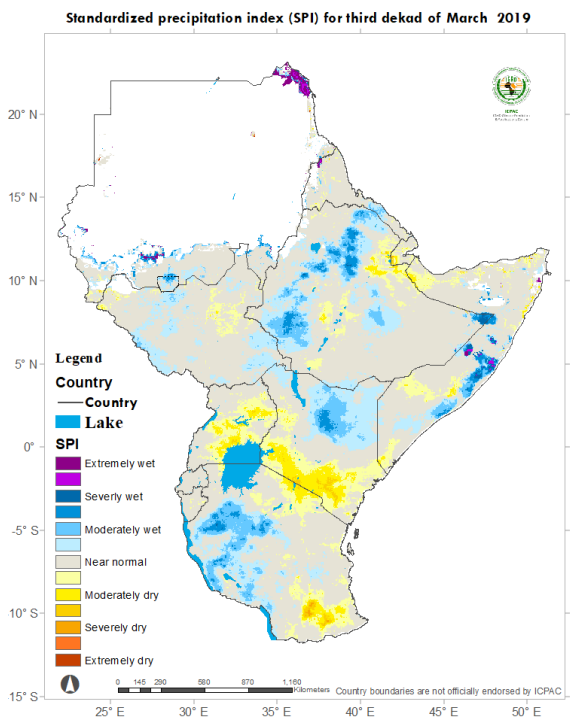
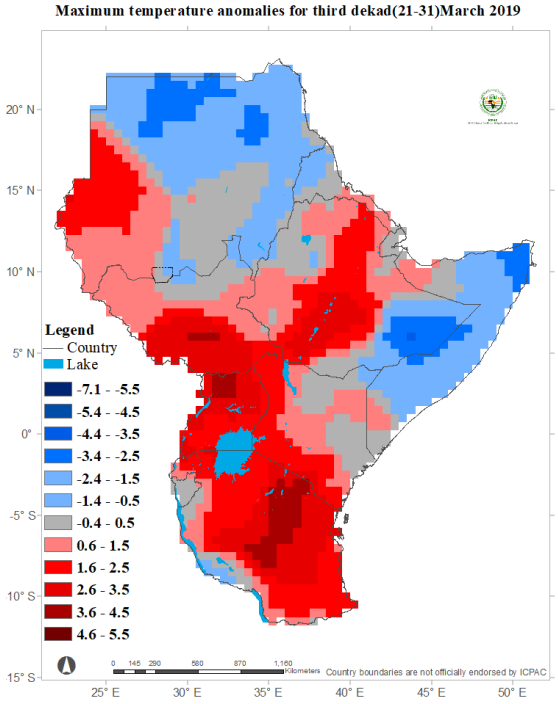
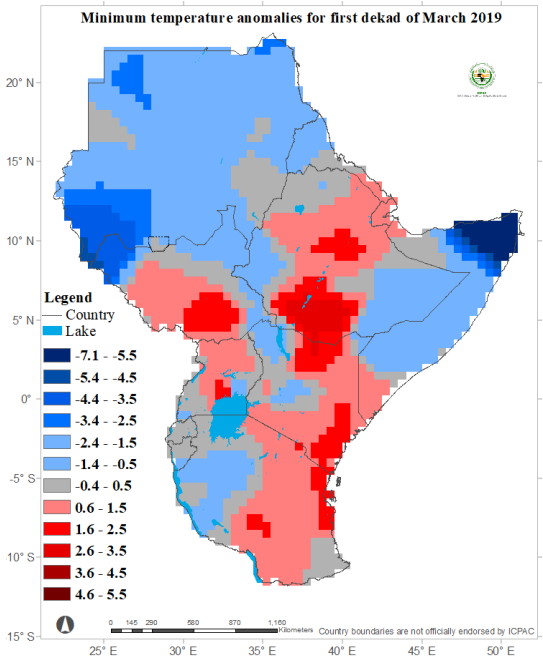


Figure 1c: Standardized Precipitation Index (SPI) for third dekad (21-31) of March 2019 *(Data: ICPAC Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

Normalized Difference Vegetation Index Anomaly





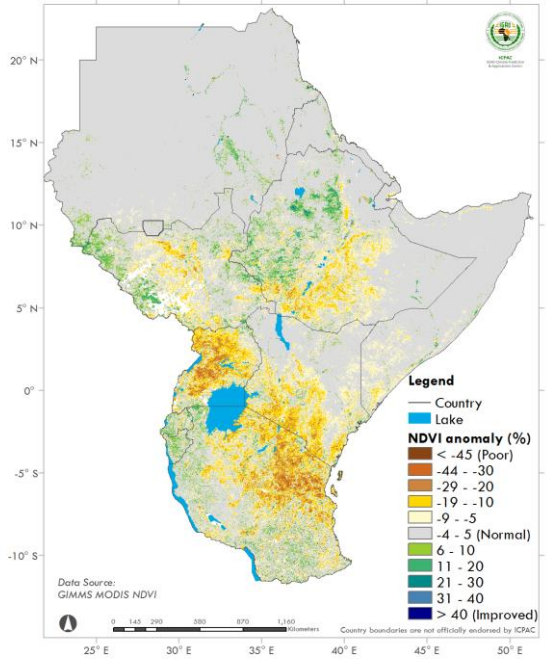


Figure 2: Maximum temperature difference from the average (1981-2010) for the third dekad (21-31) of March 2019*(Data Source: provided by the* NOAA-*NCEP CPC. GTS gridded data)*

Figure 3: Minimum temperature difference from the average (1981-2010) for the third dekad (21-31)of March 2019 *(Data Source: Data Source: provided by the NOAA-NCEP CPC. GTS gridded data)*

Figure 4: NDVI anomaly for the period between 21st to 28th March 2019 (Data Source: USGS NASA**)**

Maximum and Minimum Temperature

During the third dekad of March 2019, northern and eastern Sudan, eastern Ethiopia extending to north and central Somalia recorded maximum temperature cooler than the climatological mean. Most of Sudan, northern parts of South Sudan, western Eritrea, eastern Ethiopia extending to north and central Somalia, northwestern and central Kenya, and northwest Tanzania recorded minimum temperature that was cooler than the long term mean.

Much of the rest of the GHA recorded maximum and minimum temperature that was warmer than or near the climatological mean.

4. Vegetation condition indicators

The Normalized Difference Vegetation Index (NDVI) anomaly for the period 21stto 28th March 2019 (Figure 4) indicates that:

Uganda, Kenya and Tanzania: showed indications of deterioration in vegetative conditions as compared to the mean over most of Uganda, in several parts of southern and central Kenya, and in north and northeast Tanzania.

Ethiopia and South Sudan: western parts of South Sudan, and western and central Ethiopia showed indications of improvement invegetative conditions as compared to the mean. Central parts of South Sudan, and southern Ethiopia and eastern margin of central Ethiopia showed deterioration in vegetative condition as compared to the average.
Much of the rest of the GHA, especially over much of Sudan, Eritrea, Djibouti, , northern and eastern Ethiopia, Somalia, northern and eastern Kenya, Rwanda, Burundi, and west and southern Tanzania showed little or no change in vegetation conditions as compared to the long-term average.

5. Climate Forecast

Rainfall Forecast

Dry conditions are expected to persist over much of the GHA, especially overnorthwestern and eastern Kenya, eastern Uganda and much of central and northern Somalia. Southeastern Tanzania, much of Rwanda and Burundi, western Uganda, southern,

central and coastal Kenya, southeast Somalia, western Ethiopia, and much of South Sudan are forecast to experience light to moderate rainfall.

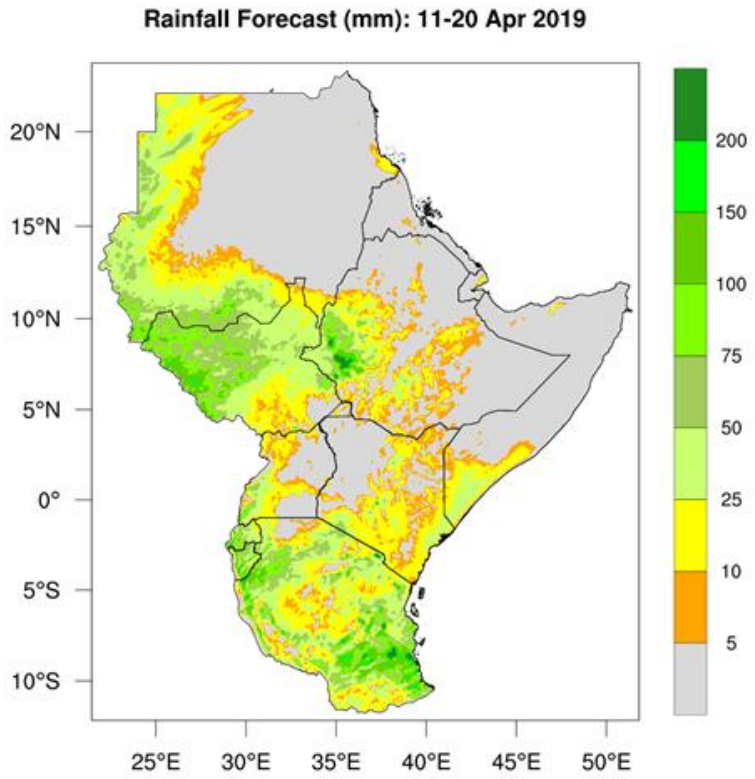


Figure 5: Rainfall forecast for the second dekad (11-20) of April 2019 (Source: WRF-ICPAC**)**

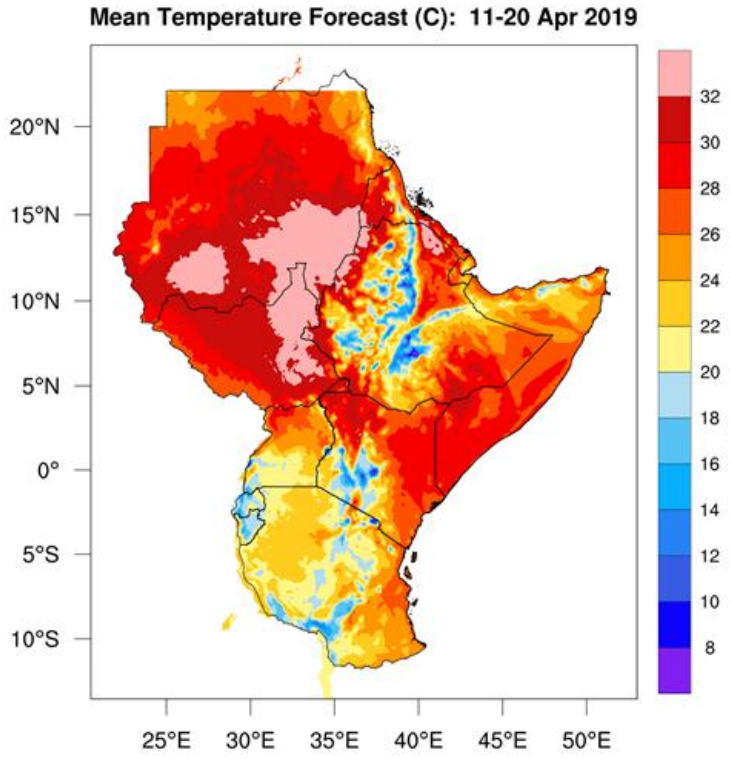


Figure 6: Average temperature forecast for the second dekad (11-20) of April 2019 (Source: WRF-ICPAC)

Temperature Forecast

The mean temperature forecast for second dekad of April 2019 (Figure 6) indicates that highest temperatures in the region, exceeding 32^{o}C will be experienced over eastern South Sudan and southern Sudan. The Great Rift Valley highlands and regions

south of the equator will remain warm on average of 14-22 ^{o}C. The rest of the region is forecasted to experience a temperature range of 22-32^{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 third dekad of March 2019 resulted in extended conditions of water scarcity, poor pasture and delay in cropping season which might have impacts on crop and livestock production and exacerbate food insecurity in many parts of the arid, semi-arid regions of Kenya, Ethiopia and Somalia, and central and northern parts of Uganda.

The hot and dry conditions forecasted in the second dekad of April is likely to extend the negative impact of the dry conditions currently occurring within parts of the equatorial sector of the GHA and is expected to affect water condition, further delay in planting dates, and deterioration in crop performance and pasture conditions, especially in central and northern Somalia, southern and eastern Ethiopia, eastern Uganda, western and northern Kenya.

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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