IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE
ICPAC
Bulletin for Dekad 02 of 2019
Issue Number: ICPAC/02/974

10 DAYS CLIMATOLOGICAL SUMMARY AND IMPACTS FOR THE FIRST DEKAD (01-10) OF JANUARY 2019 TOGETHER WITH FORECAST FOR THE THIRD DEKAD (21-31) OFJANUARY 2019

1.0 Introduction

This bulletin reviews the climatic conditions observed during the first dekad (01-10) of January 2019, and highlights the climate forecast for the third dekad (21-31) of January2019 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

2.0 Highlights

During the first dekad of January 2019 rainfall was mainly recorded over several parts of the southern sector, and southern part of the equatorial sector of the GHA. The rainfall recorded translated into near normal or below normal condition over much of the southern sector and southern parts of the equatorial sector of the GHA. However, some areas in central and eastern parts of the equatorial sector of the GHA recorded above normal conditions.

Several parts of the equatorial and southern sector of the GHA recorded maximum and minimum temperature that was warmer than the long-term mean. Maximum and minimum temperature cooler than the long-term mean was recorded over much of the northern sector of the GHA. However western, central and south-central parts of the northern sector which recorded maximum temperatures warmer than the mean, and central southern and southeastern parts of the norther sector of the GHA also recorded minimum temperature that was warmer then the long-term mean.

Rainfall forecast for the third dekad of January 2019 shows that rainfall is expected over several parts of the southern sector, and over southwestern part of the equatorial sector of the GHA.

Regions covering northern Sudan, Rwanda, Burundi, western and central highlands of Ethiopia, northern Somalia, central and western highlands of Kenya, and southwest part of Uganda, are forecasted to experience mean temperatures below 20^{o}C. Much of the rest of the GHA are likely to experience average temperatures exceeding 20^{o}C.

3.0 Observed rainfall during the first dekad (01-10)of January2019

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

Rainfall was concentrated over much of the Tanzania, Rwanda, Burundi, southern Uganda, and central and southern Kenya during the first dekad of January 2019.

Rainfall total patterns for first dekad (01-10) of January2019 over Greater Horn of Africa, revealed that: rainfall exceeding 50mm was observed in parts of western and southwest **Tanzania**. Much of the rest of **Tanzania**, **Burundi**, **Rwanda**, southern part of **Uganda**, and central and southern parts of Kenya recorded between 10mm and 50mm of rainfall (Figure 1a).

When we compared the observed rainfall total in first dekad of January2019 with climatology baseline (1981-2010) in term of percentage of average (% of LTM) and Standardized Precipitation Index (SPI), the result revealed that western part of **Kenya,** southwest **Uganda**, southwest **Rwanda**, several parts of **Burundi**, and western and southern parts of **Tanzania** recorded below normal rainfall. A few parts of central to northeast **Kenya** recorded above normal rainfall. Northern sector of GHA (**Sudan, South Sudan, Ethiopia, Eritrea, Djibouti and Somalia**) observed no rain or usually dry in the first dekad of January 2019. Much of the rest of the GHA received near normal rainfall or remained generally dry. (Figure 1b and Figure 1c).

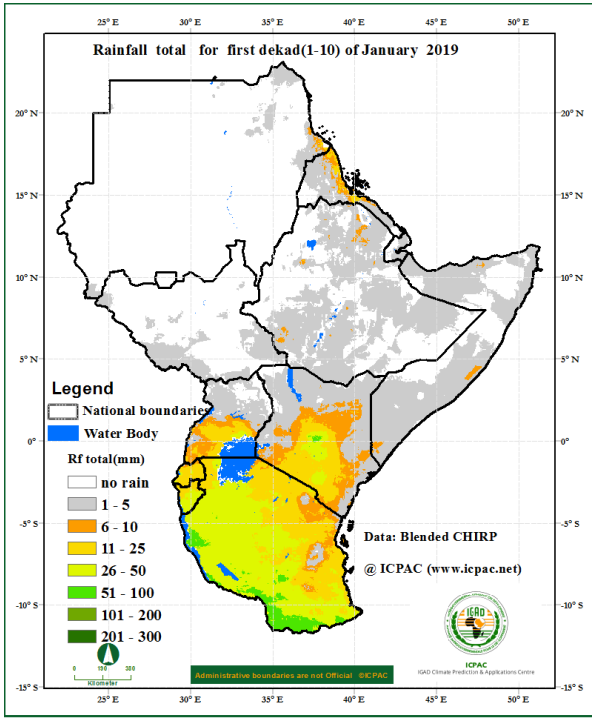

Figure 1a: Total rainfall distribution during the firstdekad(01-10) of January2019. *(Data: ICPAC Blended CHIRP)*

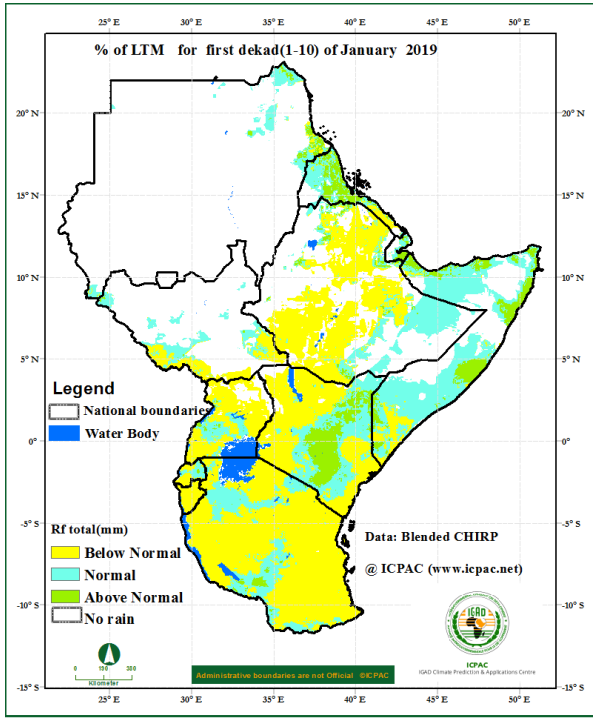

Figure 1b: Percent of long term average rainfall for the firstdekad(01-10)of January2019*(Data: ICPAC Blended CHIRP)*

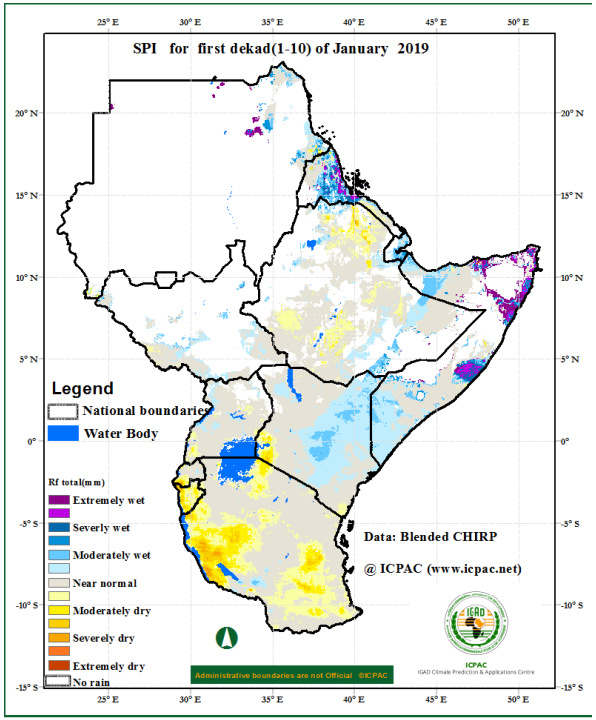

Figure 1c: Standardized Precipitation Index (SPI) for firstdekad(01-10) of January2019*(Data: ICPAC Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

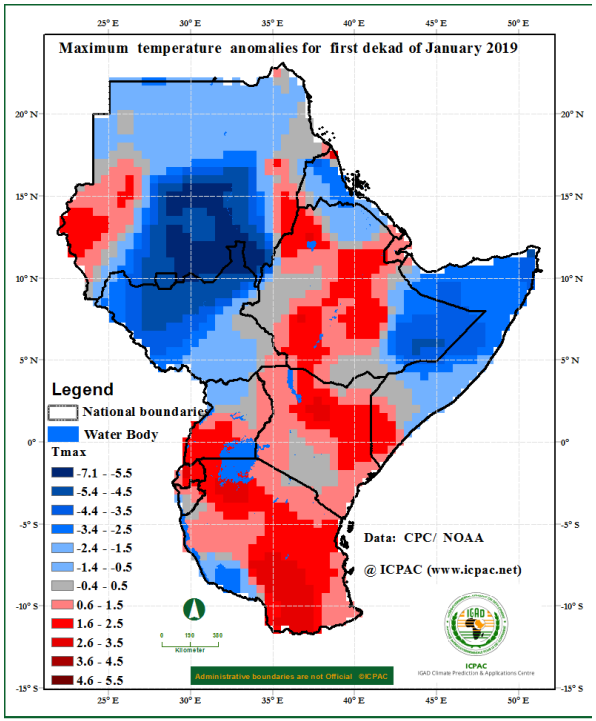

Figure 2: Maximum temperature difference from the average (1980-2010) for the first dekad first of January 2019*(Data Source: provided by the NOAA/OAR/ESRL PSD)*

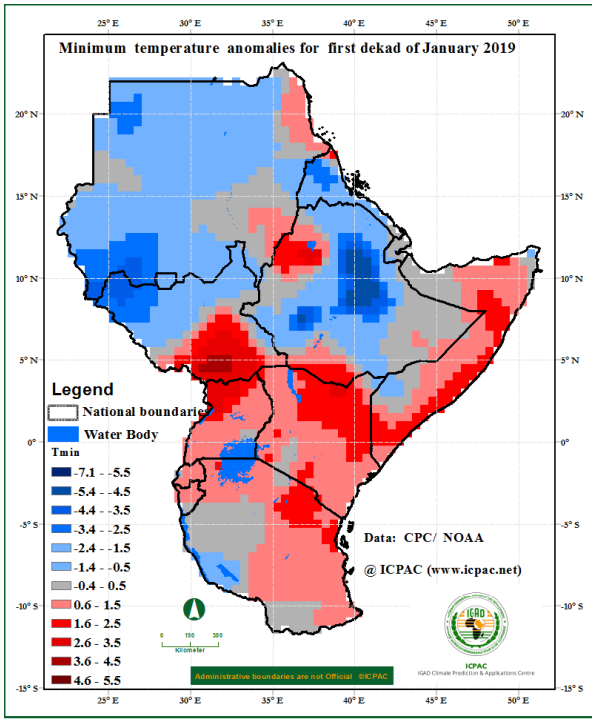

Figure 3:Minimum temperature difference from the average (1980-2010) for the first dekad first of January 2019 *(Data Source: Data Source: provided by the NOAA/OAR/ESRL PSD)*

The maximum and minimum temperature during the first dekad of January 2019 when compared with the long-term mean shows that much of the equatorial sector of the GHA recorded minimum and maximum temperatures that were warmer than the mean value. However maximum and minimum temperature cooler than the mean value in the southern and equatorial sector of the GHA was observed in western parts of Tanzania and northern Uganda.

Southwest and southeast Sudan, northeast, central and southern Ethiopia, and much of Djibouti recorded maximum temperature warmer than the long-term mean value. northeast and southeast Sudan, northwest and southern Ethiopia, southern South Sudan, northern and central Somalia, recorded minimum temperatures warmer than the long-term mean value. Much of the rest of the northern sector of the GHA recorded maximum and minimum temperatures that was cooler than the long-term mean values.

4.0 Vegetation condition indicators

Normalized Difference Vegetation Index Anomaly

The Normalized Difference Vegetation Index (NDVI) anomaly for the period 31st December 2018 and 7th January 2019 (Figure 4) indicates that:

South Sudan and Kenya: Indications for deterioration in the vegetative condition was observed over eastern South Sudan and eastern Kenya. Some areas of southwest South Sudan, and central and western Kenya showed indication for improvement in vegetation condition as compared with the long term average.

Ethiopia and Somalia: southern parts of Ethiopia, and several parts of southern Somalia showed indications of deterioration in the vegetative condition as compared to the long term average. Several parts of western and central Ethiopia showed indications of improvement in the vegetative condition as compared with the long term average.

Uganda, Rwanda, Burundi , and Tanzania: Most of these areas showed an indication of improvement in vegetative conditions especially in western Uganda, eastern and southwestern Tanzania, and over several parts of Rwanda and Burundi.

Much of the rest of the GHA, especially northern Sudan, Eritrea, Djibouti, northern and central Somalia, northern South Sudan, and northern Kenya. showed little or no change in the vegetation condition as compared with the long term average.

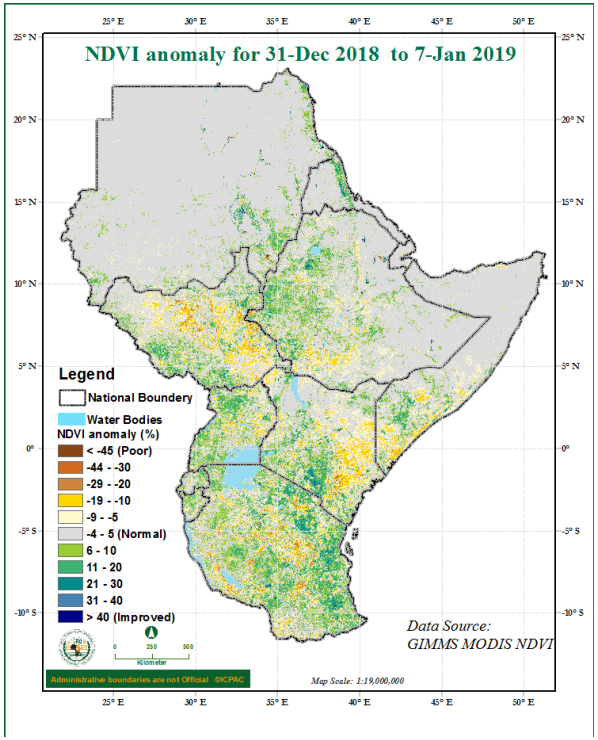

Figure 4: NDVI anomaly for the period between 31st December and 7th January 2019 (Data Source: USGS NASA**)**

5.0 Rainfall and Temperature Forecast

Rainfall Forecast

The rainfall forecast for the third dekad of January 2019 in Figure 5 indicates that rainfall exceeding 25mm is likely to be observed over, Burundi and several parts of Tanzania. Some areas in northern Tanzania are forecasted to record rainfall amounts of less than 10mm. Some areas in central and eastern Tanzania are forecasted to record rainfall exceeding 150mm.

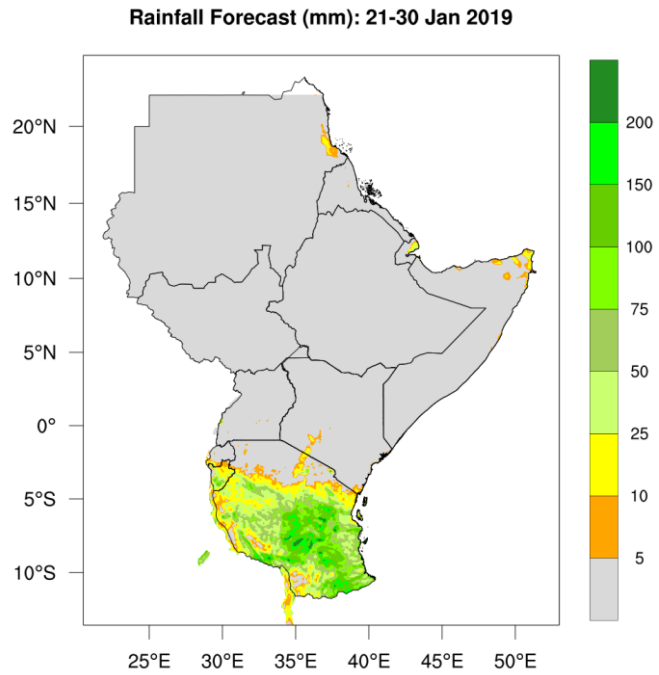

Figure 5: Precipitation forecast for the thirddekad (21-31)of January 2019 (Source: WRF-ICPAC**)**

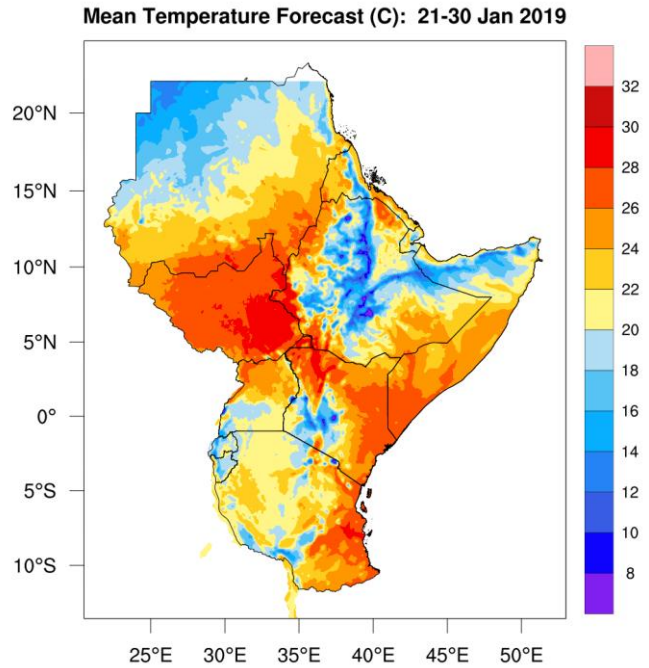

Figure 6: Forecast for average temperature for the third dekad(21-31) of January 2019(Source: WRF-ICPAC)

Temperature Forecast

The forecast for the mean temperature for third dekad of January 2019 (Figure 6) indicates that cooler mean temperature, not exceeding 20^{o}C is expected in northern Sudan, western part of Eritrea, western and central highlands of Ethiopia, southwest Uganda, western and central Kenya, and over much of Rwanda and Burundi. The rest of the GHA is expected to experience mean temperature greater than 20^{o}C.

6.0 Impacts on socio-economic sectors

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

6.0 Impacts of the climate conditions

The rainfall conditions in the southern sector, and southern part of the equatorial sector of the GHA resulted to improvement in water and pasture conditions, leading to good prospects of water, crop and livestock performance during the first dekad of January 2019. The continued low rainfall conditions especially in eastern part of the equatorial sector enhances the dry conditions from the poor performance of the short rains in October-December 2018 season, leading to water stress and poor pasture conditions. From the climate forecast for the third dekad of January2019, some areas of southern Tanzania are likely to record high rainfall amounts.