IGAD
CLIMATE
PREDICTION AND
APPLICATIONS
CENTRE

ICPAC

Bulletin for Dekad 30 of 2017
Issue Number: ICPAC/01/930

10 DAY CLIMATOLOGICAL SUMMARY AND IMPACTS FOR THE SECOND DEKAD (11-20) OF OCTOBER 2017 TOGETHER WITH FORECAST FOR THE FIRST DEKAD (1-10) OF NOVEMBER 2017

1.0 Introduction

In this bulletin, the climatic conditions observed during the second dekad (11-20) of October 2017 over the Greater Horn of Africa (GHA) are reviewed and the associated impacts highlighted. The climate forecast for the first dekad (1-10) of November 2017 is also presented.

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° and 5° 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 second dekad (11-20) of October 2017 rainfall activity concentrated in the southern parts of the northern sector, in western and central part of the equatorial, and over the northwestern part of the southern sector of the of the Greater Horn of Africa (GHA).

The rainfall was near average to above average (1981-2010) over several areas of the GHA. However a few areas in western, southwestern and southeastern parts of the northern sector, much of the eastern parts of the equatorial sector, as well as eastern and southern parts of the southern sector recorded near average to below the average rainfall during the second dekad of October 2017.

Much of the western, southwestern and southeastern parts of the northern sector, eastern and western equatorial sector, as well as eastern and southern parts of the southern sector of the GHA, warmer than the average (2008-2016) maximum temperatures was recorded, while much of the rest of the GHA recording near the average maximum temperature during the second dekad of October 2017, except fro the northern part of Sudan, in parts of western Ethiopia, in northwestern Kenya and in northwestern Tanzania. Warmer than the average (2008-2016) conditions for the minimum temperature was observed mainly in areas in the southern part of the northern sector, and in the eastern part of the equatorial and southern sector of the GHA. Much of the rest of the GHA recorded near the average for the minimum temperature conditions during the same period the second dekad of October 2017.

Rainfall forecast for the first dekad (1-10) of November 2017 shows that rainfall is likely to be concentrated in much of the equatorial sector, southern part of the northern sector, and in western and eastern parts of the southern sector of the GHA. Much of the rest of the GHA covering the northern part of the northern sector as well as central parts of the southern sector of the GHA is likely to record little or no rainfall.

Many areas of the GHA is likely to record warm average temperature exceeding 20°C except for northern part of Sudan, western and central highlands of Ethiopia, western and central Kenya, southern Uganda, in much of Rwanda and Burundi, and in northeastern parts of Tanzania which are likely to record average temperatures cooler than 20°C during the first dekad (1-10) November 2017.

3.0 Observed rainfall situation during the second dekad (11-20) of October 2017

Figure 1a shows the total rainfall distribution, Figure 1b shows the percent of the long-term average rainfall, and Figure 1c shows the standardized precipitation index (SPI) which is an indicator used to show the number of standard deviations that observed cumulative precipitation deviates from the climatological average, over the GHA region during the second dekad of October 2017.

Rainfall Distribution and Severity

During the second dekad (11-20) of October 2017 the blended (Climate Hazard Infra-Red Precipitation) CHIRP data shows that total rainfall less than 5mm was recorded in much of Sudan, Eritrea, Djibouti, northern and northeastern Ethiopia; in northern and eastern parts of Somalia, in eastern parts of Kenya and eastern and central Tanzania (Figure 1a). The maximum range of rainfall exceeded 100mm and this was recorded in southwestern Ethiopia, eastern Uganda and western Kenya.. Areas in western and southern part of Ethiopia, southern part of South Sudan, over much of Uganda, western Kenya, Rwanda, Burundi and northwestern Tanzania recorded greater than 50mm of rainfall. The rest of the GHA recorded rainfall ranging between 6mm and 100mm (Figure 1a).

Rainfall less than 75% of the long term average was recorded over much of the southern and eastern parts of Sudan, western Eritrea, northern parts of South Sudan, in eastern and central parts of Ethiopia, over much of Somalia; much of eastern part Kenya; and in southwestern Uganda and eastern and southern Tanzania. Rainfall conditions that exceed 126% of average amount was observed mainly in southeastern part of Sudan, southeastern South Sudan, southern part of Eritrea, northern, western and southern part of Ethiopia, in northern and eastern Uganda; in much of western, central and northern Kenya, western Somalia; and in much of Rwanda, Burundi, and northwestern and western Tanzania. Much of the rest of the GHA region recorded between 75% and 125% of the long term average rainfall (Figure 1b) during the second dekad of October 2017. A few areas in southeastern Ethiopia, central and northeastern Kenya, northeastern Uganda, and southwestern Somalia showed an improvement in rainfall performance as compared with the previous dekad.

Standardized Precipitation Index (SPI) during the second dekad of October 2017 shows that several areas of the GHA experienced near average to extremely wet rainfall conditions. Moderately wet to extremely wet rainfall conditions was experienced in southwestern part of Sudan; over much of Djibouti, central and southern Eritrea, north west and south of Ethiopia, southeastern South Sudan; over much of western and central Kenya, northwestern Uganda, Rwanda, Burundi and in northwestern and western Tanzania. However, some places in the southern part of Sudan, eastern Ethiopia, northern and western parts of South Sudan, southwestern Uganda, coastal Kenya; and in northern and central part of Somalia, and eastern Tanzania moderately dry to severely dry rainfall condition was recorded.

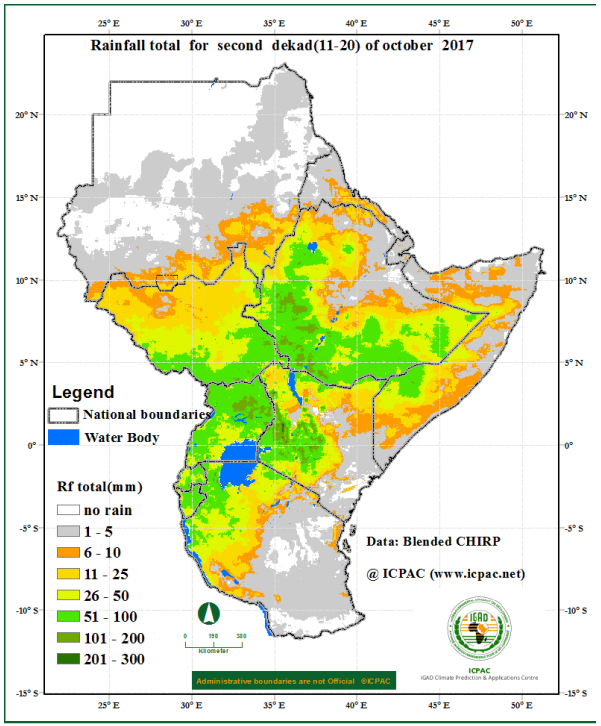

Figure 1a: Rainfall distribution during the second dekad (11-20) of October 2017. *(Data: Blended CHIRP)*

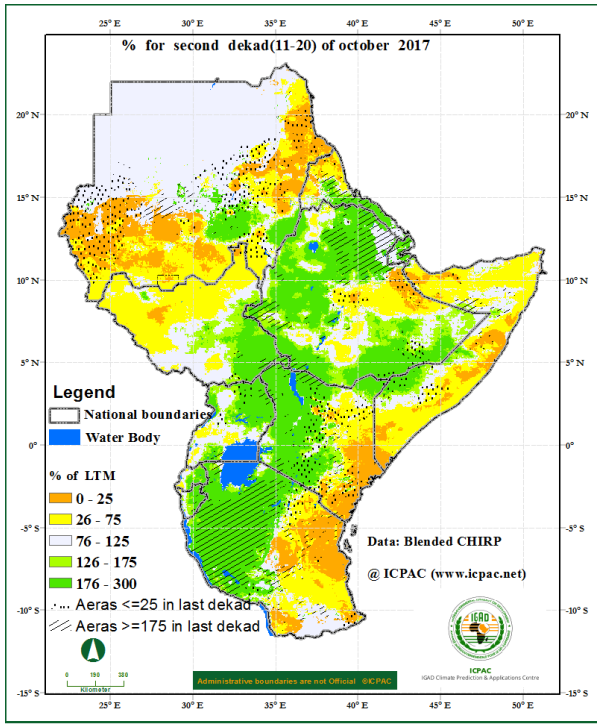

Figure 1b: Percent of long term average rainfall for the second dekad (11-20) of October 2017 *(Data: Blended CHIRP)*

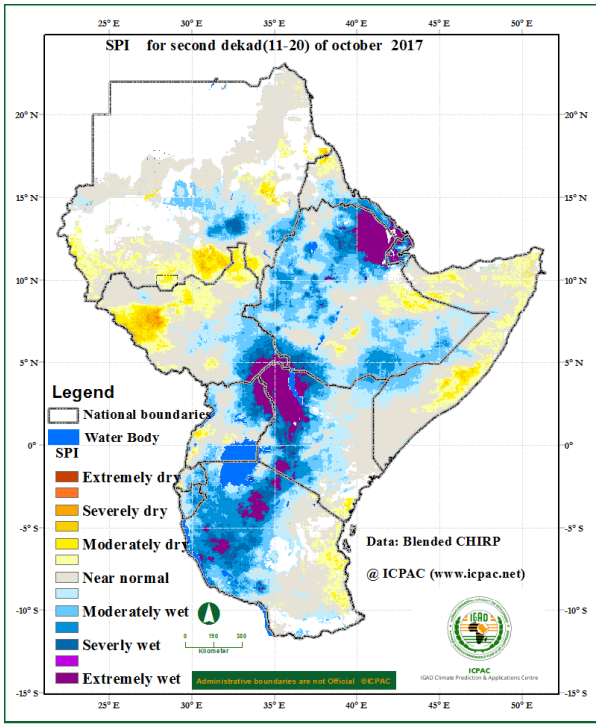

Figure 1c: Standardized Precipitation Index (SPI) for second dekad (11-20) of October 2017 *(Data: Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

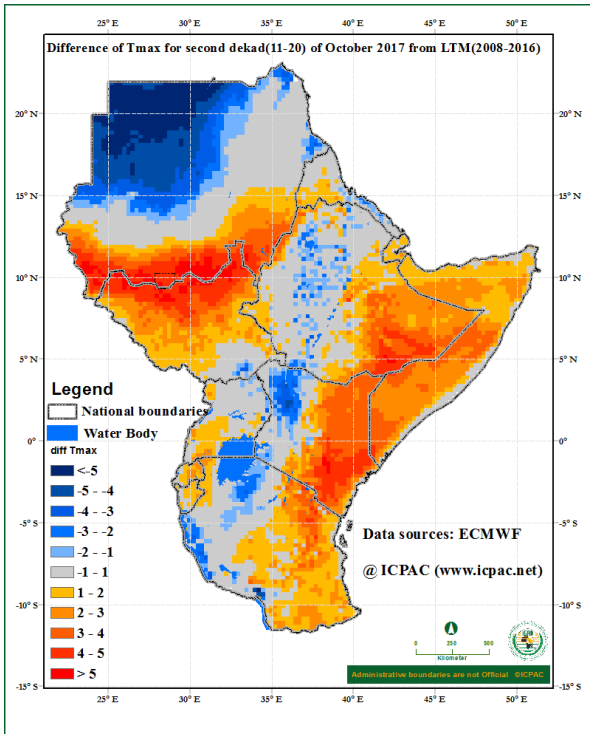

Figure 2: Maximum temperature difference from the average (2008-2016) for the second dekad (11-20) of October 2017*(Data Source: ECMWF)*

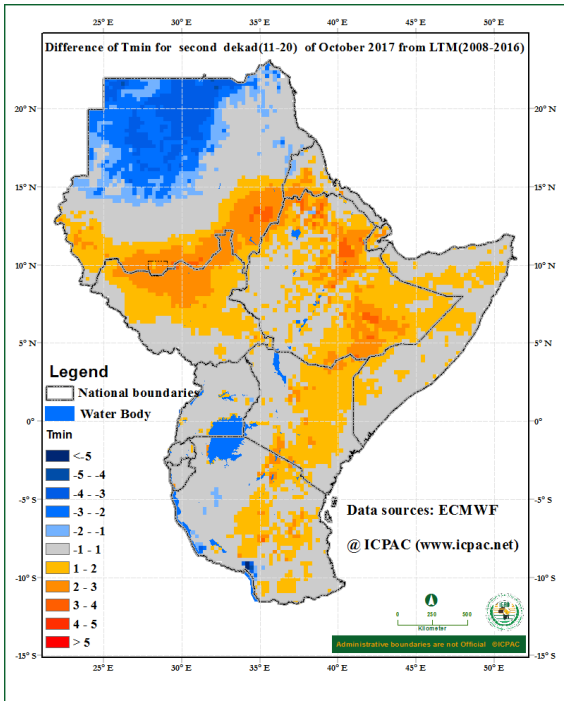

Figure 3:Minimum temperature difference from the average (2008-2016) for the second dekad (11-20) of October 2017*((Data Source: ECMWF)*

Conditions warmer than the average for maximum temperature was mainly observed over southern parts of Sudan; in much of South Sudan, and southwestern Eritrea; in eastern part of Ethiopia; in much of Somalia, eastern Kenya, Rwanda, eastern Burundi, and eastern Tanzania; and in parts of western Uganda. second dekad of October 2017. Much of the northern part of Sudan, and in parts of western Ethiopia, northwestern and Kenya and in northwestern and western Tanzania cooler than the average condition for maximum temperature was recorded. The rest of the region recorded near the average conditions for the maximum temperature (Figure 2)

Much of southern part of Sudan, much of South Sudan except for the western and southern part; in southwestern Eritrea, northern Djibouti, in north and eastern parts of Ethiopia, in northwest part of Somalia; in much of eastern Kenya; and in eastern parts of Tanzania conditions warmer than the average for minimum temperature was recorded for second dekad of October 2017. Much of the rest of the GHA region recorded minimum temperature near the average conditions except for the northern parts of Sudan (Figure 3).

4.0 Vegetation condition indicators

Normalized Difference Vegetation Index Anomaly

The Normalized Difference Vegetation Index (NDVI) anomaly for the period between 15th and 22nd October 2017 (Figure 4) indicates that a few areas experienced deterioration in vegetative conditions as compared to the long term average vegetative conditions especially in isolated areas in southern parts of Sudan, northeastern South Sudan, eastern Ethiopia, in southern part of Somalia, in parts of eastern and coastal Kenya, and northwestern Tanzania. Several areas of southwestern part of Sudan; over much of South Sudan, northeastern Uganda; in parts of central and southern Ethiopia, western and central Kenya, and in western and eastern parts of Tanzania mainly showed improvement in vegetative conditions as compared to the long term average vegetative conditions. The rest of the GHA showed little or no change in vegetation conditions compared to the long-term average of the same period.

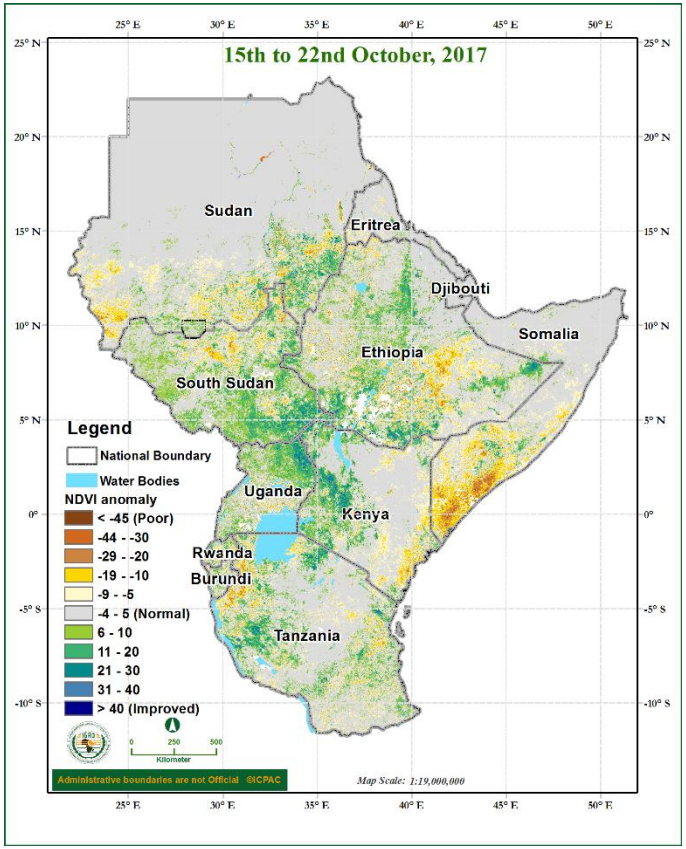

Figure 4: NDVI anomaly for the period between 15th and 22nd October 2017 (Data Source: USGS NASA)

5.0 Climate Forecast

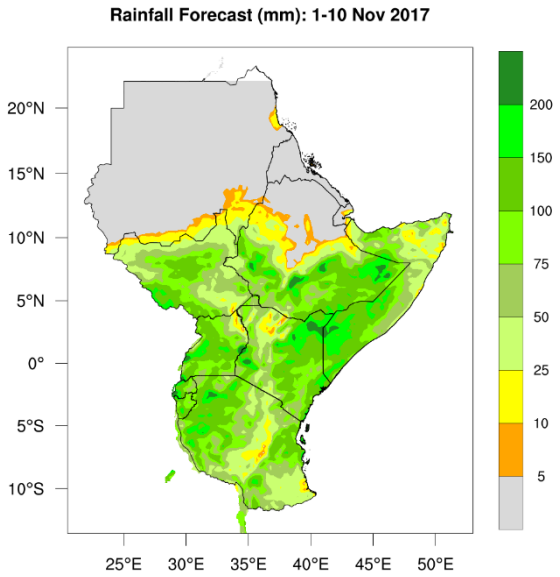

Figure 5: Precipitation forecast for the first dekad (1-10) of November 2017 (Source: WRF-ICPAC**)**

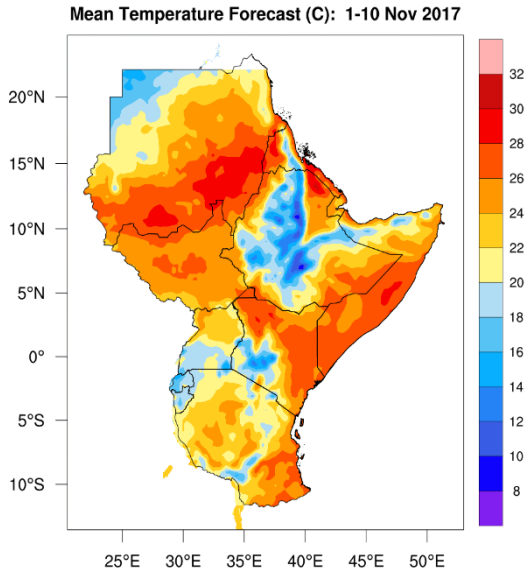

Figure 6: Forecast for average temperature for the first dekad (1-10) of November 2017 (Source: WRF-ICPAC)

Rainfall Forecast

The rainfall forecast for the first dekad (1-10) of November 2017 in Figure 5 indicates that rainfall is likely to be concentrated over much of South Sudan, Uganda, Rwanda, Burundi, in southern Ethiopia; in parts of northwestern, central and southern Somalia; over several parts of Kenya, and in northwestern, western and eastern parts of Tanzania. The rest of the GHA region is likely to experience little amount of rainfall or remain generally dry during the first dekad (1-10) of November2017.

Temperature Forecast

The average temperature forecast for first dekad (1-10) of November 2017 (Figure 6) indicates the likelihood of cool average temperature lower than 20°C is likely to be recorded in northern parts of Sudan, central and western Ethiopia, northern Somalia, southern Uganda, western and central parts of Kenya, in much of Rwanda and Burundi, and in parts of southwestern an north eastern Tanzania. The rest of the GHA is likely to record average temperature higher than 20°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 associated with observed climate conditions

During the second dekad (11-20) of October 2017 the prevailing climate conditions have shown good rainfall performance which continue to improve the water and vegetative conditions, resulting into improved pasture availability, and prospects of good crop and livestock productivity especially in the equatorial sector, southern parts of the northern sector and northwestern parts of the southern sector of the GHA. A few areas in Rwanda and Sudan, and Ethiopia reported instances of flooding that led to disruption of livelihood. Some areas continue to report effects of the dry conditions especially in the eastern parts of the equatorial sector, eastern parts of the southern sector and southeastern parts of the northern sector of the GHA, and these continued to extend the water stress level, and reduced pasture and livestock productivity, and increase in climate related diseases.

From the climate forecast for the first dekad of October 2017 much of the equatorial sector, southern parts of the northern sector and northern parts of the southern sector of the GHA are likely to have sufficient rainfall performance, which may lead to improved water resources and pasture resources leading to improved condition of crop and livestock productivity. A few areas especially in southeastern Ethiopia, southern Somalia, northeastern and parts of western Kenya, southeastern and western parts of Uganda, western Rwanda and northwestern parts of Tanzania are likely to experience high rainfall amounts which may result into localised flooding.

NB: *This ten day bulletin contributes towards the update of the October-December- (SOND) seasonal outlook provided during the 47th Greater Horn of Africa Climate Outlook Forum (GHACOF47) in Zanzibar, Tanzania (http://www.icpac.net/index.php/climate-monitoring/seasonal-forecasts.html).*