IGAD
CLIMATE
PREDICTION AND
APPLICATIONS
CENTRE

ICPAC

Bulletin for Dekad 28 of 2017
Issue Number: ICPAC/01/928

10 DAY CLIMATOLOGICAL SUMMARY AND IMPACTS FOR THE THIRD DEKAD (21-30) OF SEPTEMBER 2017 TOGETHER WITH FORECAST FOR THE SECOND DEKAD (11-20) OF OCTOBER 2017

1.0 Introduction

In this bulletin, the climatic conditions observed during the third dekad (21-30) of September 2017 over the Greater Horn of Africa (GHA) are reviewed and the associated impacts highlighted. The climate forecast for the second dekad (11-20) of October 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 -5º and 5º 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 third dekad (21-30) of September 2017 rainfall activity concentrated in the southern parts of the northern sector as well as western, central and southwestern parts of the equatorial, and eastern part of the southern sector of the of the Greater Horn of Africa (GHA).

The rainfall was above average to near average over several areas of the GHA except for a few areas in southern parts of Sudan, southeastern and southwestern parts of the northern sector, and the southwestern and eastern parts of the equatorial sector for the GHA which recorded below the average rainfall during the third dekad of September 2017.

The western and southwestern parts of the northern sector of the GHA, and few isolated areas of in central equatorial sector, and in central and northeastern part of the southern sector of the GHA recorded warmer than the average (2008-2016) maximum temperatures, while much of the rest of the GHA recording near the average maximum temperature during the third dekad of September 2017. Warmer than the average (2008-2016) conditions for the minimum temperature were observed mainly in areas in the north and west of the northern 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 third dekad of September 2017.

The forecast for the second dekad (11-20) of October 2017 shows that rainfall is likely to be concentrated in much of the southern part of the northern sector, as well as in western and eastern parts of the equatorial sector of the GHA. The rest of the GHA is likely to record little or no rainfall.

Many areas of the GHA is likely to record warm average temperature exceeding 20ºC except for western and central highlands of Ethiopia, western Kenya, southern Uganda, in parts of Rwanda and Burundi and in southwest part of Tanzania which are likely to record average temperatures cooler than 20ºC.

3.0 Observed rainfall situation during the third dekad (21-30) of September 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 third dekad of September 2017.

Rainfall Distribution and Severity

During the third dekad (21-30) of September 2017 the blended (Climate Hazard Infra-Red Precipitation) CHIRP data shows that in areas covering much of northern parts of Sudan, northern and coastal Eritrea, eastern Djibouti, northern and southeastern parts of Ethiopia; extensive part of central Somalia; much of Kenya except for the western part; and much of Tanzania except for the northwestern and coastal parts recorded less than 5mm of total rainfall (Figure 1a). Rainfall amounts greater than 50mm was recorded mainly over much of western Ethiopia, south-central part of Sudan; in western and southeastern South Sudan; over northwestern and southeastern Uganda; and in western parts of Kenya. More than 100mm of rainfall was recorded in parts of western Ethiopia, while the rest of the GHA recorded between 5mm and 50mm of rainfall (Figure 1a).

Less than 75% of the long term average rainfall condition was recorded mainly in southwestern and southeastern parts of Sudan; in northwest and eastern Ethiopia extending to northern and central parts of Somalia; in northwestern South Sudan, southwestern Uganda, southeastern Rwanda, northeastern Burundi; and in much of Kenya and northeastern Tanzania. South-central part of Sudan, central Eritrea, western Djibouti, northwest and eastern South Sudan; in northeast, southwest and southern parts of Ethiopia, southwestern Somalia, northwestern Kenya; and I northwest and southern Tanzania, more than 125% of the long-term average rainfall was recorded. The rest of the GHA region recorded between 75% and 125% of the long term average rainfall (Figure 1b)during the third dekad of September 2017. A few areas in eastern and western parts of Sudan, northeastern Kenya, and eastern Tanzania have shown improvement in rainfall performance as compared to the previous dekad. Some areas in south western and eastern Sudan, western Eritrea, in much of central and eastern Kenya, and in northwestern Tanzania have shown a reduction in rainfall performance as compared with the previous dekad. While a few areas I western and southern Tanzania have shown improved performance in rainfall as compared with the previous dekad.

Standardized Precipitation Index (SPI) during the third dekad of September 2017 shows that several areas of the GHA experienced near average to extremely wet rainfall conditions. However, a few areas in southwestern part of Sudan, western South Sudan, southwestern Uganda, and in northeastern parts of Tanzania moderately dry to severely dry rainfall conditions was experienced during the third dekad of September 2017 (Figure 1c).

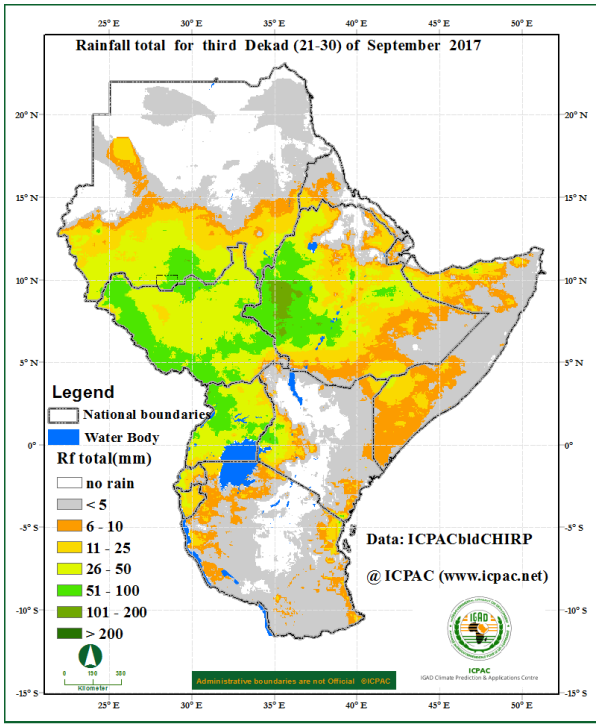

Figure 1a: Rainfall distribution during the third dekad (21-30) of September 2017. *(Data: Blended CHIRP)*

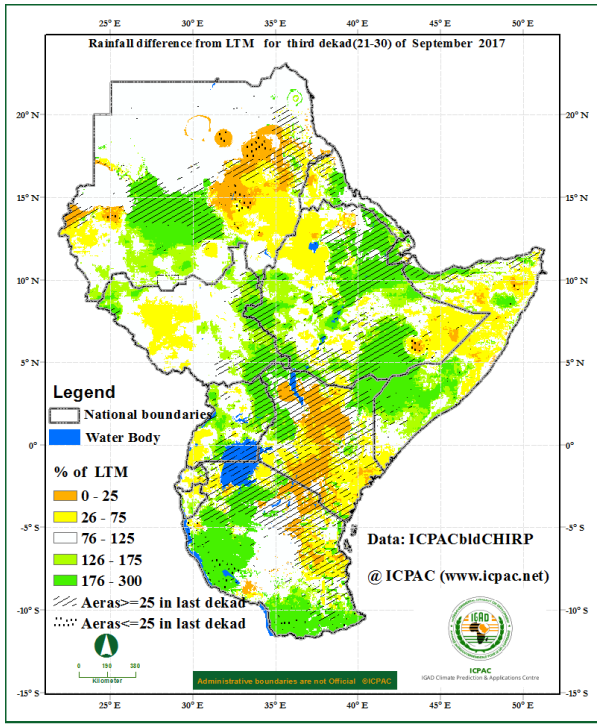

Figure 1b: Percent of long term average rainfall for the third dekad (21-30) of September 2017 *(Data: Blended CHIRP)*

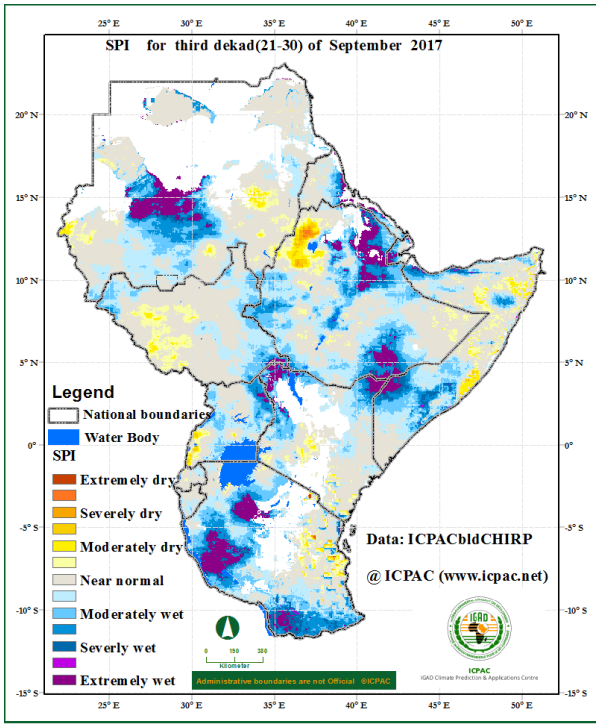

Figure 1c: Standardized Precipitation Index (SPI) for third dekad (21-30) of September 2017 *(Data: Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

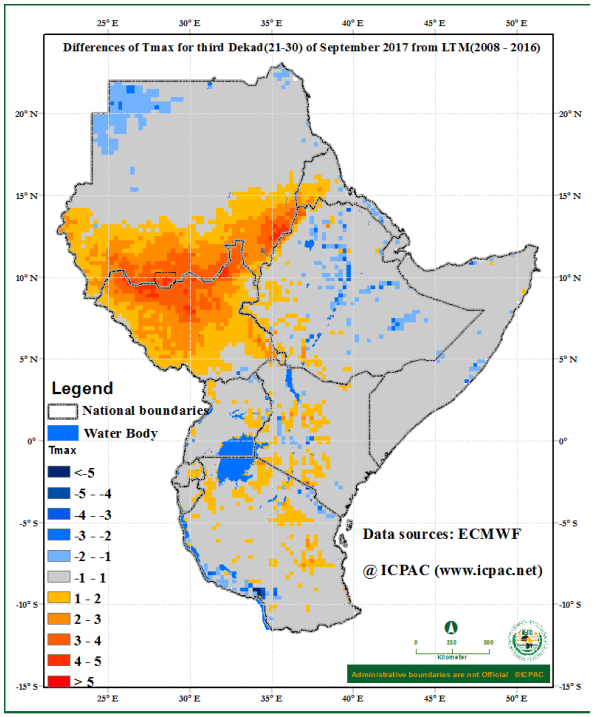

Figure 2: Maximum temperature difference from the average (2008-2016) for the third dekad (21-30) of September 2017*(Data Source: ECMWF)*

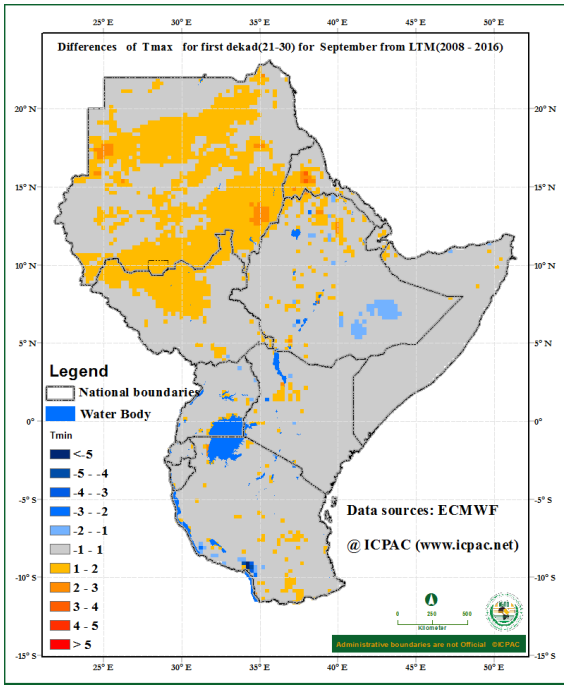

Figure 3:Minimum temperature difference from the average (2008-2016) for the third dekad (21-30) of September 2017*((Data Source: ECMWF)*

Conditions warmer than the average for maximum temperature was mainly observed over southern parts of Sudan, South Sudan, and southwestern Eritrea; and in isolated areas in western Ethiopia, central and western Kenya, southeastern Uganda, eastern Rwanda, and in northern and central parts of Tanzania. A few areas in northwest of Sudan, central Ethiopia, central Kenya, and in southwestern Tanzania experienced conditions cooler than the average maximum temperature during the third dekad of September 2017. Much of the rest of the region recorded near the average conditions for the maximum temperature (Figure 2)

Much of Sudan, in northern part of South Sudan; in a few areas southwest of Eritrea, north, and central of Ethiopia, in northwest part of Kenya, and in the eastern and southern parts of Tanzania conditions warmer than the average for minimum temperature was recorded for third dekad of September 2017. Much of the rest of the GHA region recorded minimum temperature near the average conditions (Figure 3).

4.0 Vegetation condition indicators

Normalized Difference Vegetation Index Anomaly

The Normalized Difference Vegetation Index (NDVI) anomaly for the period between 21st and 28th September 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 south of Sudan, southwest of Eritrea, southeastern Somalia, south-central Uganda, and northeastern Tanzania. Several parts of southern Sudan, much of South Sudan, in central Ethiopia, northern and eastern Uganda, western Kenya, and east and south 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.

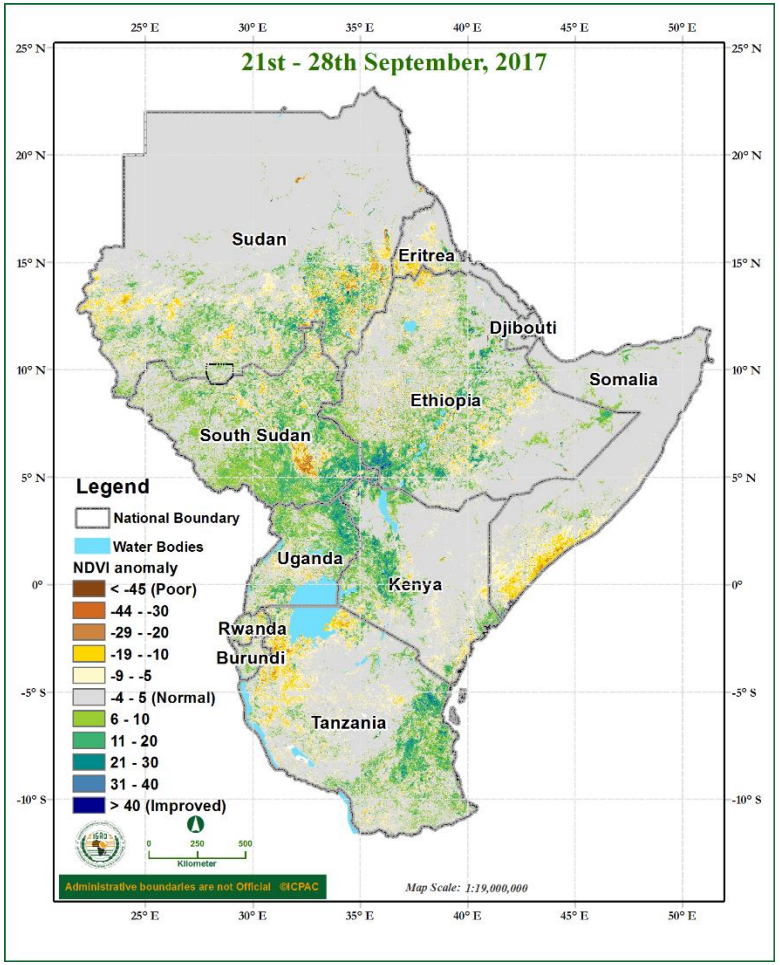

Figure 4: NDVI anomaly for the period between 21st and 28th September 2017 (Data Source: USGS NASA)

5.0 Climate Forecast

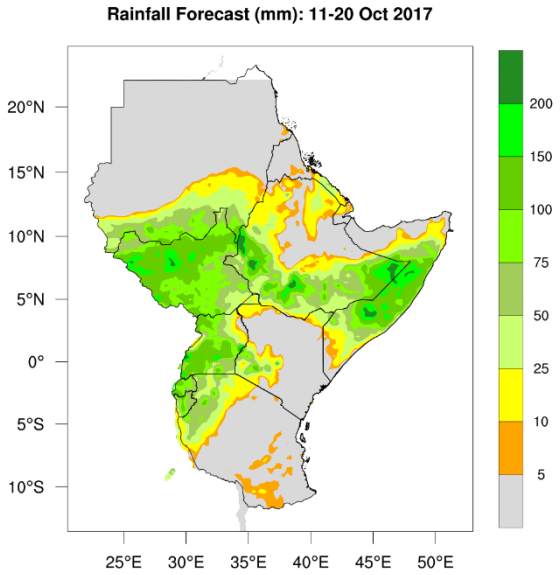

Figure 5: Precipitation forecast for the second dekad (11-20) of October 2017 (Source: WRF-ICPAC**)**

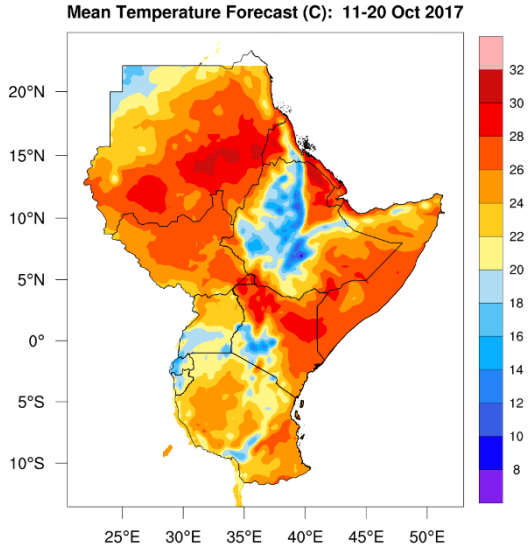

Figure 6: Forecast for average temperature for the second dekad (11-20) of October 2017 (Source: WRF-ICPAC)

Rainfall Forecast

The rainfall forecast for the second dekad (11-20) of October 2017 in Figure 5 indicates that rainfall is likely to be concentrated over much of the southern part of Sudan, southern Eritrea, northern Djibouti western and southern Ethiopia, central and southern Somalia; over much of South Sudan, Uganda, Rwanda, Burundi; and in western parts of Kenya and northwestern Tanzania. The rest of the GHA region likely to experience little rainfall or remain generally dry during the second dekad (11-20) of October 2017.

Temperature Forecast

The average temperature forecast for second dekad (11-20) of October 2017 (Figure 6) indicates the likelihood of cool average temperature less than 20°C is likely to be recorded in central and western Ethiopia, southern Uganda, western and central parts of Kenya, in much of western Rwanda and Burundi, and in southwestern 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 third dekad (21-30) of September 2017 the prevailing climate conditions in some areas in the northern sector and western equatorial sector of the GHA 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. 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, 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 second dekad of October 2017 the eastern part of the equatorial sector is likely to continue to be dry, leading to continued water stress conditions. Much of the western parts of the equatorial sector as well as the southwestern and southern parts of the northern sector of the GHA are likely to have sufficient rainfall performance, which may lead to improved water and pasture resources. A few areas in the southern part of the northern sector and western part of the equatorial sector are likely to experience high rainfall which may result into localised flooding especially in some areas in South Sudan, southern Ethiopia, Rwanda, Uganda, and central Somalia.

NB: *This ten day bulletin contributes towards the update of the September-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).*