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10 DAY CLIMATOLOGICAL SUMMARY AND IMPACTS FOR THE THIRD DEKAD (21-31) OF OCTOBER 2017 TOGETHER WITH FORECAST FOR THE SECOND DEKAD (11-20) OF NOVEMBER 2017

1.0 Introduction

In this bulletin, the climatic conditions observed during the third dekad (21-31) of October 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 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 third dekad (21-31) of October 2017 rainfall activity concentrated over much of the equatorial sector, in the southern parts of the northern sector, and over the northwestern and eastern parts of the southern sector of the of the Greater Horn of Africa (GHA).

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

Warmer than the average (2008-2016) maximum temperatures was recorded in southwestern and southeastern parts of the northern sector as well as in the northwestern and northeastern parts of the equatorial sector of the GHA during the third dekad of October 2017. Much of the rest of the GHA recording near the average maximum temperature, except for the northern part of Sudan, in parts of western Ethiopia, in northwestern Kenya and in western and northeastern Tanzania that recorded cooler than the average for maximum temperature. Warmer than the average (2008-2016) conditions for the minimum temperature was observed mainly in areas in the southern part of the northern sector, in the central part of the equatorials sector, and in southern parts of the southern sector of the GHA. Much of the rest of the GHA recorded near the average for the minimum temperature conditions during the third dekad of October 2017, except for the northwestern part of Sudan that recorded cooler than the average for minimum temperature.

Rainfall forecast for the second dekad (11-20) of November 2017 shows that rainfall is likely to be concentrated in much of the equatorial sector, the southern sector of the GHA. Much of the northern 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 second dekad (11-20) November 2017.

3.0 Observed rainfall situation during the third dekad (21-31) 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 third dekad of October 2017. These are generated from the blending of (Climate Hazard Infra-Red Precipitation) CHIRP data and observed data.

Rainfall Distribution and Severity

During the third dekad (21-31) of October 2017 the total rainfall less than 5mm was recorded in much of Sudan, western and southern Eritrea, Djibouti, in northeastern Ethiopia; in parts of northeastern Somalia, in northwestern and southeastern parts of Kenya; and in central to southwestern Tanzania (Figure 1a). The maximum range of rainfall which exceeded 100mm was recorded in southwestern Ethiopia, and in northern coast of Tanzania. Parts of western South Sudan, south western and eastern Ethiopia; in northwestern and southwestern Uganda in parts of western, central and southern coast of Kenya, northeastern Rwanda; and in northwestern and northern coast of Tanzania recorded rainfall amounts exceeding 50mm. Much of the rest of the GHA recorded between 6mm and 50mm of rainfall (Figure 1a).

Rainfall of less than 75% of the long term average (1981-2010) was mainly recorded over much of the southern and eastern parts of Sudan; over much of South Sudan except for northwestern and southeastern parts; in parts of central Eritrea, northeastern Ethiopia; over several areas of Somalia; over much of Uganda except for the eastern part; and in several areas of eastern Kenya, southwestern Rwanda, and in southwestern Tanzania. Rainfall conditions that exceed 126% of average amount was observed mainly in western and southern parts of Eritrea, eastern parts of Djibouti, in western and southern parts of Ethiopia; in southeastern South Sudan; in much of western Kenya and parts of northeastern and southern coast of Kenya; and in much of eastern Rwanda and Tanzania. The rest of the GHA region majorly recorded between 75% and 125% of the long term average rainfall (Figure 1b) during the third dekad of October 2017. A few areas in southeastern Sudan, northeastern and southeastern Ethiopia, in central part of Kenya, eastern Burundi, and southwestern Tanzania showed improvement in rainfall performance as compared with the previous dekad.

Standardized Precipitation Index (SPI) during the third dekad of October 2017 shows that over much of Eritrea, Djibouti; in several parts of western, central and eastern Ethiopia, extending to northwestern Somalia; in southeastern parts of South Sudan extending to northeastern Uganda and northwestern and north-central Kenya; in parts of western and southern coast of Kenya, eastern Rwanda; and over much of Tanzania experienced near average to extremely wet rainfall conditions. A few areas in south-central Sudan, extending to northeastern and southwestern South Sudan; in parts of north and south of Uganda; and in some parts of north and south of Somalia, southwestern Rwanda, northwestern Burundi, and in southwestern part of Tanzania moderately dry to

severely dry rainfall condition was recorded. While the rest of the GHA experienced near normal conditions

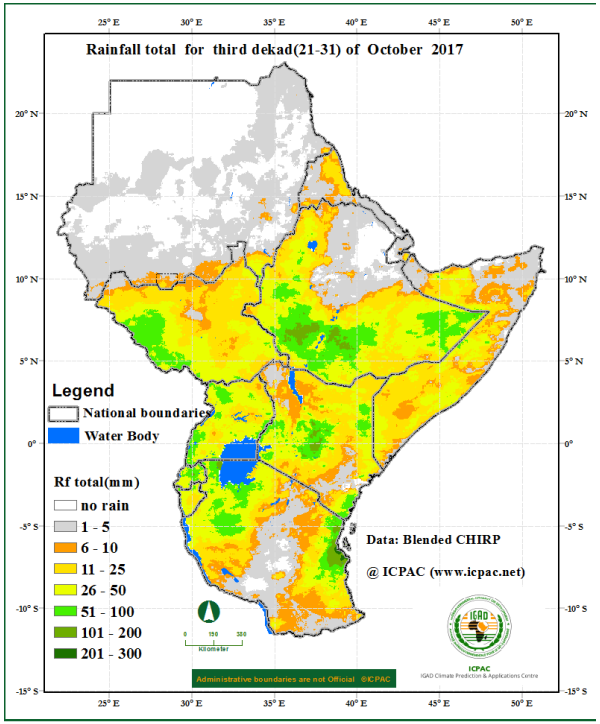

Figure 1a: Rainfall distribution during the third dekad (21-31) of October 2017. *(Data: Blended CHIRP)*

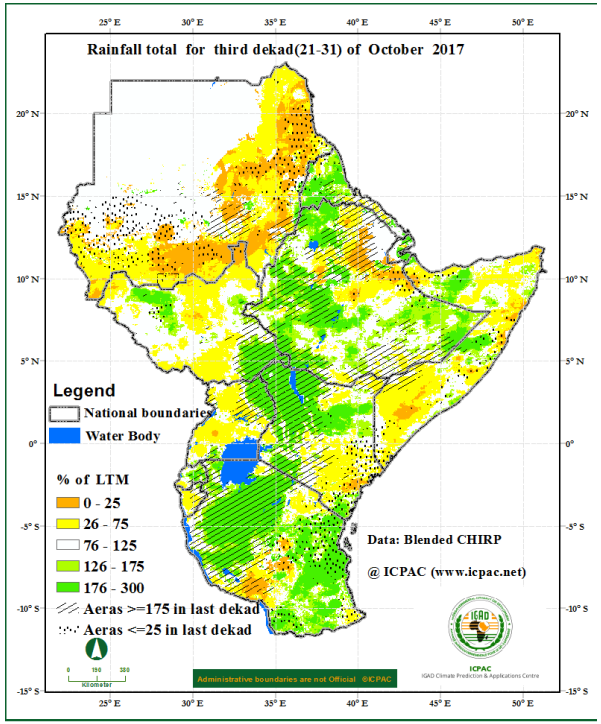

Figure 1b: Percent of long term average rainfall for the third dekad (21-31) of October 2017 *(Data: Blended CHIRP)*

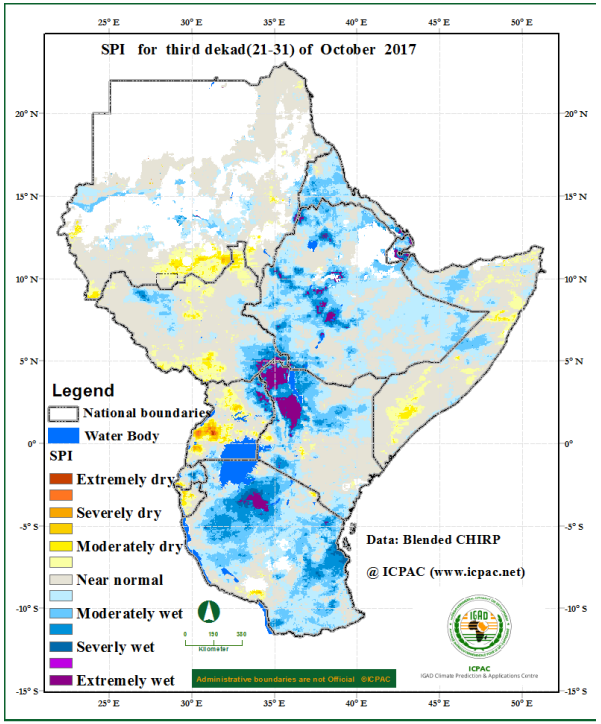

Figure 1c: Standardized Precipitation Index (SPI) for third dekad (21-31) of October 2017 *(Data: Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

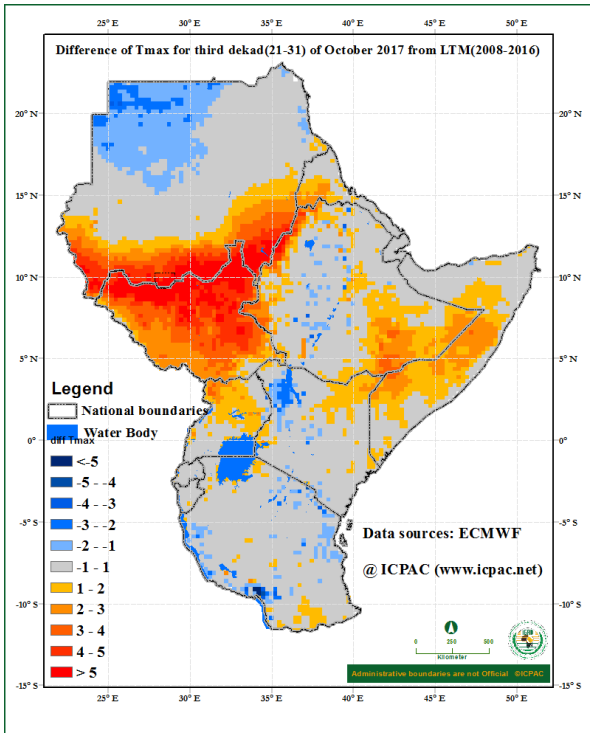

Figure 2: Maximum temperature difference from the average (2008-2016) for the third dekad (21-31) of October 2017*(Data Source: ECMWF)*

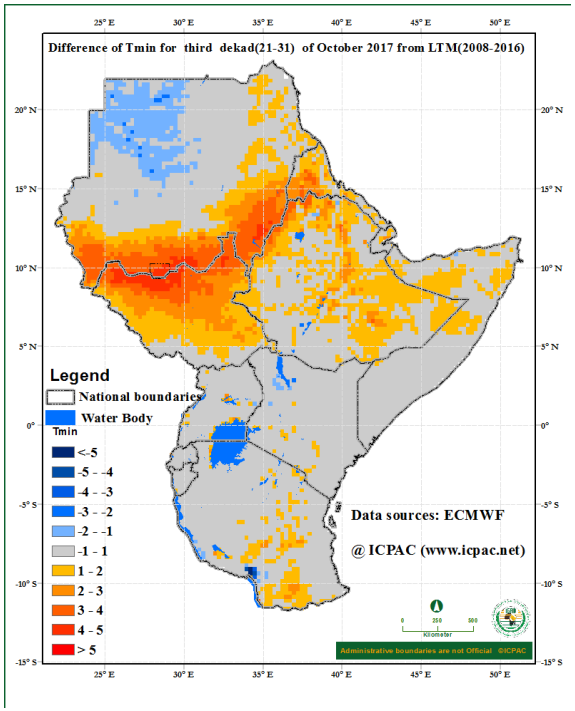

Figure 3:Minimum temperature difference from the average (2008-2016) for the third dekad (21-31) of October 2017*((Data Source: ECMWF)*

Conditions warmer than the average for maximum temperature was mainly observed over southern parts of Sudan; in much of South Sudan, and southwestern part of Eritrea; in southeastern part of Ethiopia extending to central and southwestern Somalia, and north eastern Kenya; and in northwestern to southeastern parts of Uganda during the third dekad (21-31) of October 2017. The northern part of Sudan, and in a few areas in western Ethiopia, northwestern Kenya, and in western and northern parts of 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)

The southern and western parts of Sudan, much of South Sudan except for the southern part; in several parts of Eritrea, north and eastern Ethiopia; and in parts of northern Somalia, central Kenya, and eastern and southern Tanzania conditions warmer than the average for minimum temperature was recorded during third 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 23rd and 30th 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, southeastern Ethiopia, in southern part of Somalia, in parts of eastern and coastal Kenya, and northwestern Tanzania. Southwestern part of Sudan, north, central and southwest of Ethiopia; over much of South Sudan, northern and western Uganda; western and central Kenya, and in western and eastern parts of Tanzania 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.

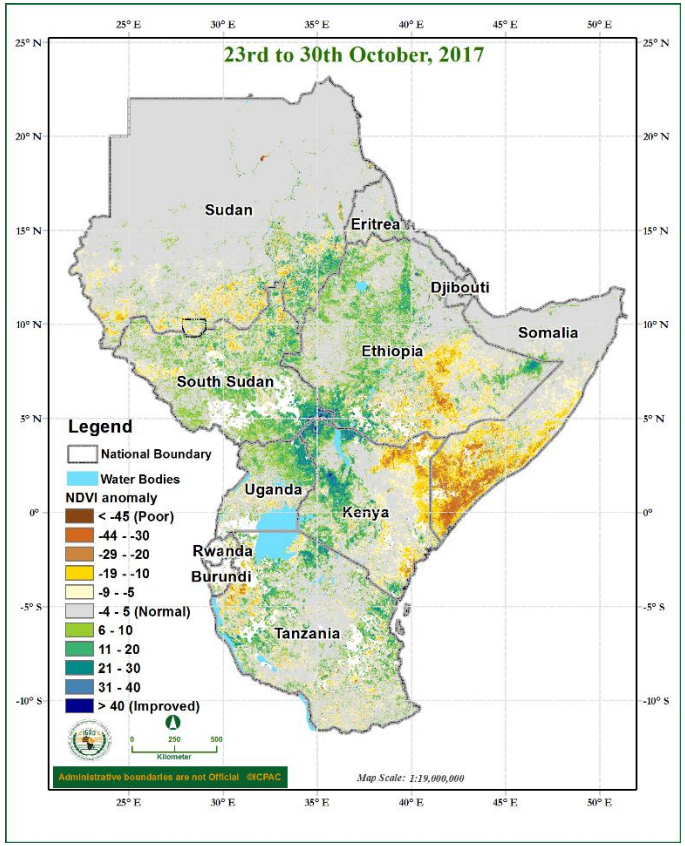

Figure 4: NDVI anomaly for the period between 23rd and 30th October 2017 (Data Source: USGS NASA)

5.0 Climate Forecast

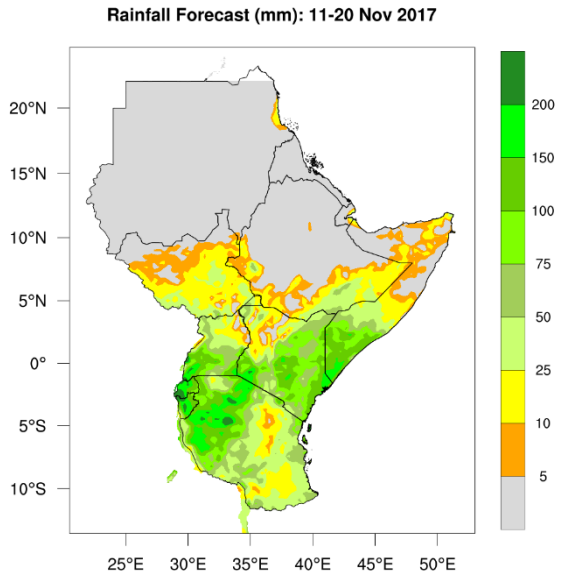

Figure 5: Precipitation forecast for the second dekad (11-20) of November 2017 (Source: WRF-ICPAC**)**

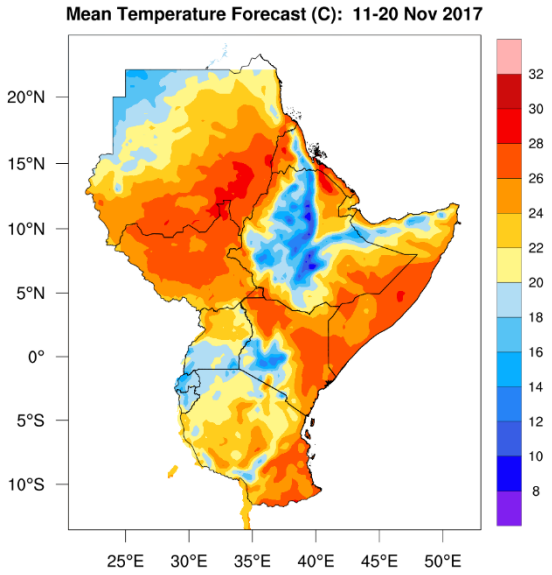

Figure 6: Forecast for average temperature for the second dekad (11-20) of November 2017 (Source: WRF-ICPAC)

Rainfall Forecast

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

Temperature Forecast

The average temperature forecast for second dekad (11-20) of November 2017 (Figure 6) indicates the likelihood of recording cool average temperature lower than 20°C in northern parts of Sudan, central and western Ethiopia, northern part of 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 third dekad (21-31) 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-central parts of the northern sector and northwestern parts of the southern sector of the GHA. A few areas in Rwanda and Sudan, Ethiopia, Kenya reported instances of flooding that led to disruption of livelihood, and reported cases of climate related diseases. Some areas continue to report effects of the dry conditions especially in the eastern and western parts of the equatorial sector, as well as parts of the northern sector of the GHA, and these continued to extend the water stress level, and reduced pasture performance, and increase in climate related diseases.

From the climate forecast for the second dekad of November 2017 much of the equatorial sector and 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 water resources, crop and livestock productivity. Areas in southern Uganda, much of western, central and eastern Kenya, southern Somalia, western Rwanda, central Burundi, 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).*