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10 DAY CLIMATOLOGICAL SUMMARY AND IMPACTS FOR THE SECOND DEKAD (11-20) OF DECEMBER 2017 TOGETHER WITH FORECAST FOR THE FIRST DEKAD (1- 10) OF JANUARY 2018

1.0 Introduction

This bulletin reviews the climatic conditions observed during the second dekad (11-20) of December 2017, and highlights the climate forecast for the first dekad (1-10) of January 2018 and the associated climate impacts over the Greater Horn of Africa (GHA).

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 second dekad of December 2017 rainfall activity concentrated over western and southern parts of Tanzania, as well as in southern Burundi. A few areas in the southern parts of the equatorial sector and the northern part of the southern sector of the Greater Horn of Africa (GHA) also experienced some rainfall.

The rainfall performance was in the below average to near average (1981-2010) in most places in the GHA especially in much of the equatorial and southern sector of the GHA, except for southwestern part of Tanzania and parts of Djibouti that recorded above the average rainfall.

Much of the western and central parts of the northern sector, much of the equatorial sector, as well as northern and central parts of the equatorial sector of the GHA recorded warmer than the average (2008-2016) maximum temperatures during the second dekad of December 2017. Much of the rest of the GHA recording near the average maximum temperature, except for some areas in Djibouti, northern Somalia, and southern Tanzania that recorded cooler than the average for maximum temperature.

Much of the western parts of the northern sector as well as in few parts in western and central equatorial sector and north and central of the southern sector of the GHA Warmer than the average (2008-2016) conditions for the minimum temperature was observed. Much of the rest of the GHA recorded near the average for the minimum temperature conditions except for eastern and southeastern parts of the northern sector of the GHA that recorded cooler than the average for minimum temperature during the second dekad of December 2017.

Rainfall forecast for the first dekad of January 2018 shows that rainfall is likely to be concentrated in several areas in Tanzania, Burundi and Rwanda, the GHA are likely to record little or no rainfall.

Much of the areas in Sudan, western and central highlands of Ethiopia, northern Somalia, western and central Kenya, southern Uganda, Rwanda, and in southwestern part of Tanzania are likely to record average temperatures cooler than 20°C. The rest of the GHA is likely to record warm average temperature exceeding 20oC, during the second dekad of December.

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

Figure 1a shows the total rainfall distribution, Figure 1b shows the percent of the long-term average (1981-2010) 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 December 2017. These are generated from the blending of (Climate Hazard Infra-Red Precipitation) CHIRP data and observed data.

Rainfall Distribution and Severity

During the second dekad of December 2017 the total maximum range of rainfall of between 100-200mm was recorded in few places in western Tanzania. Rainfall exceeding 50mm was recorded in southern Burundi and in western and southern Tanzania. Much Rwanda, southern Uganda, northern Burundi, central and southern Kenya, and in parts of north and eastern Tanzania rainfall of between 5mm and 50mm was recorded. The rest of the GHA recorded less than 5mm of rainfall (Figure 1a).

Much of the area covering Ethiopia, Uganda, Kenya, southern and central Somalia, Rwanda, and in northern and eastern Burundi recorded below 75% of the long term average (Figure 1b) during the second dekad of December 2017. Western and southeastern parts of Ethiopia, some parts of western and eastern Kenya, in southern parts of Somalia over much of Uganda, and in northeastern Tanzania rainfall conditions less than 25% of the long term average rainfall conditions was recorded. Much of Djibouti, in parts of northwest Somalia and in southwest of Tanzania experienced rainfall conditions exceeding 125% of the long term average. Parts of north, west and southeast Tanzania showed reduced performance in rainfall as compared with the previous dekad.

Standardized Precipitation Index (SPI) during the second dekad of December 2017 shows that much of the GHA experienced near normal dryness conditions, except for area in southern and central Uganda, western Rwanda, southern Kenya and northern Tanzania which recorded moderately dry to severely dry conditions. A few areas in central Eritrea, Djibouti, central and eastern Ethiopia, northwestern Somalia, and in southwestern Tanzania moderately wet to severely wet rainfall conditions. Moderately dry to severely dry conditions was recorded (Figure 1c).

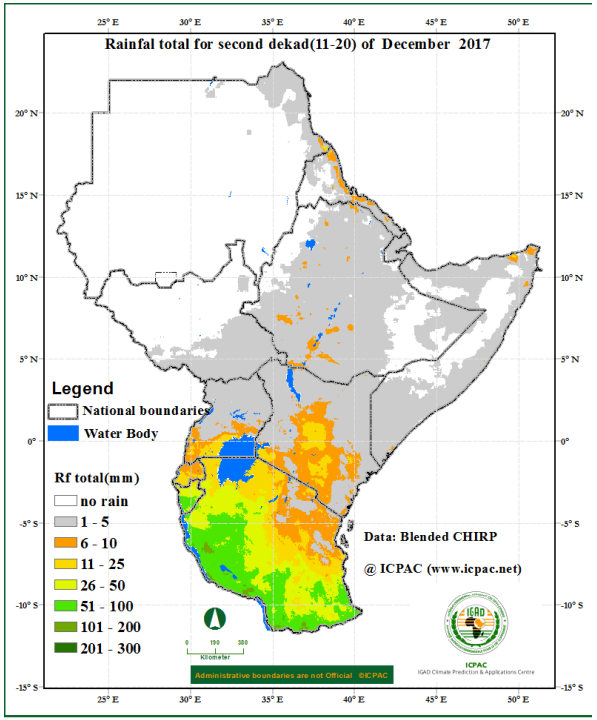

Figure 1a: Rainfall distribution during the second dekad (11-20) of December 2017. *(Data: Blended CHIRP)*

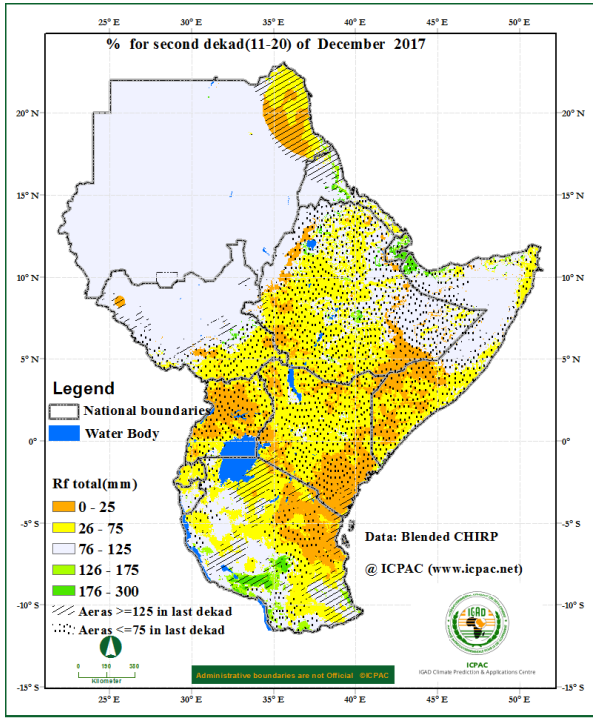

Figure 1b: Percent of long term average rainfall for the second dekad (11-20) of December 2017 *(Data: Blended CHIRP)*

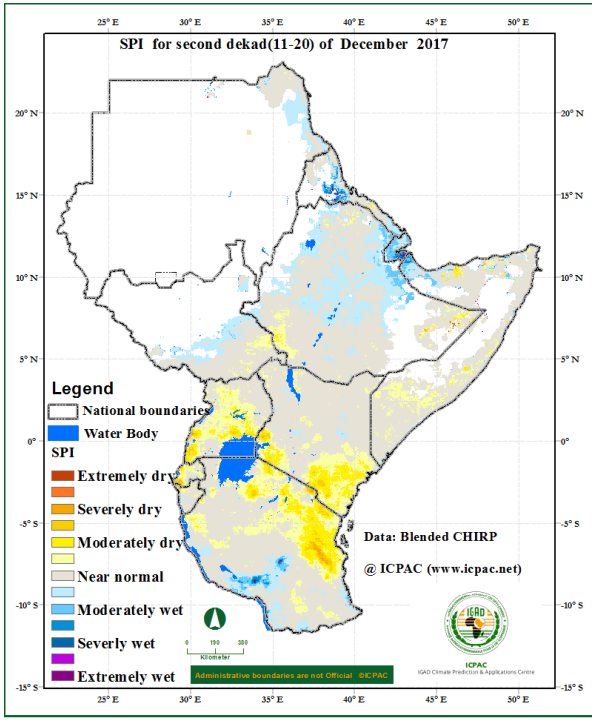

Figure 1c: Standardized Precipitation Index (SPI) for second dekad (11-20) of December 2017 *(Data: Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

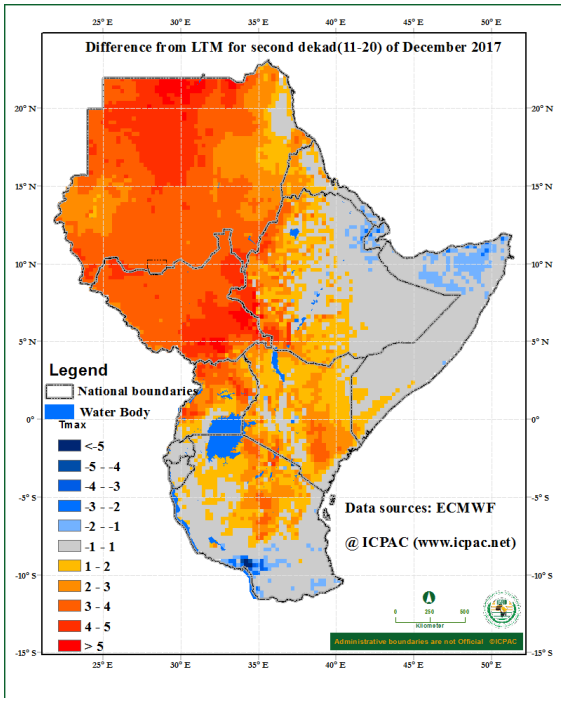

Figure 2: Maximum temperature difference from the average (2008-2016) for the second dekad (11-20) of December 2017*(Data Source: ECMWF)*

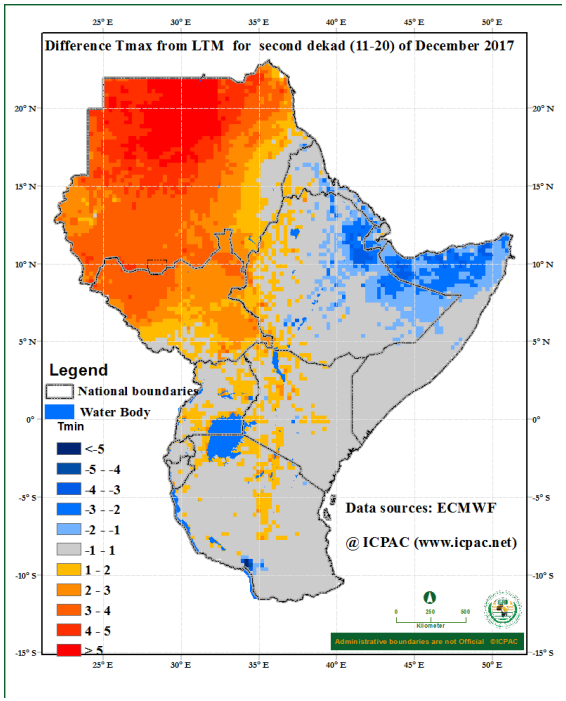

Figure 3:Minimum temperature difference from the average (2008-2016) for the second dekad (11-20) of December 2017*((Data Source: ECMWF)*

Much of Sudan, South Sudan; in parts of western Eritrea, western Ethiopia, ; over much of Uganda, Kenya; and in southern part of Somalia and in northern and central Tanzania conditions warmer than the average for maximum temperature was observed during the second dekad of December 2017. Some parts of southern Eritrea, Djibouti, northern Somalia, and southern Tanzania experienced cooler than the average condition for maximum temperature. The rest of the region recorded near the average conditions for the maximum temperature (Figure 2)

In the same period much of Sudan, South Sudan; and in parts of western Eritrea, western and central Kenya, southern and eastern Uganda, and in northern and central Tanzania warmer than the average for minimum temperature. Much of the rest of the GHA region recorded minimum temperature near the average conditions, except for parts in eastern parts of Ethiopia, central and southern parts of Eritrea, in several parts of Djibouti, and in northern Somalia which recorded cooler than the average or minimum temperature (Figure 3).

4.0 Vegetation condition indicators

Normalized Difference Vegetation Index Anomaly

The Normalized Difference Vegetation Index (NDVI) anomaly for the period between 10th and 17th December 2017 (Figure 4) indicates that eastern and southern Ethiopia, over much of Uganda, southern Somalia, eastern and south-central Kenya, and in northeastern Tanzania experienced deterioration in vegetative conditions as compared to the long term average vegetative conditions. Several parts of South Sudan, southeastern parts of Sudan, in western and eastern parts of Ethiopia, in parts of northwestern Kenya, and western, southern 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.

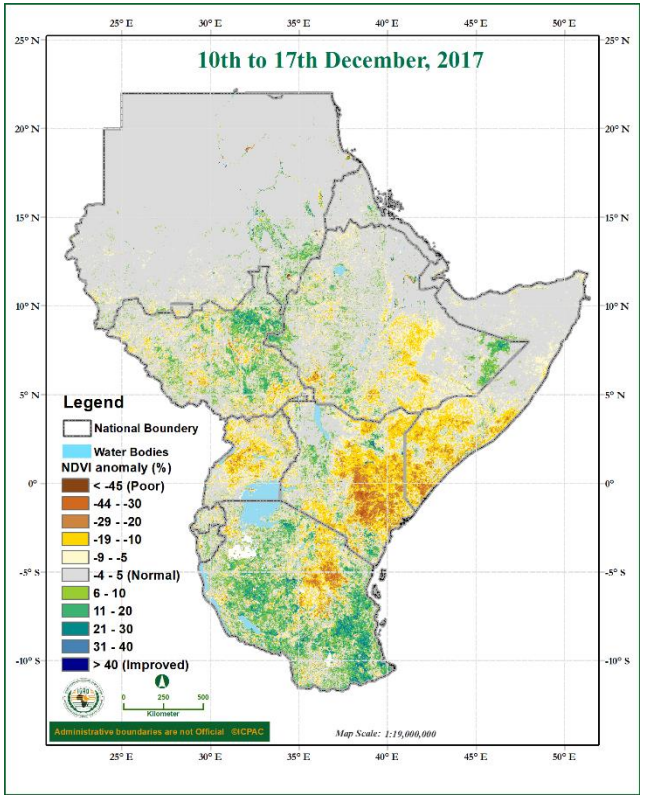

Figure 4: NDVI anomaly for the period between 10th and 17th December 2017 (Data Source: USGS NASA)

5.0 Climate Forecast

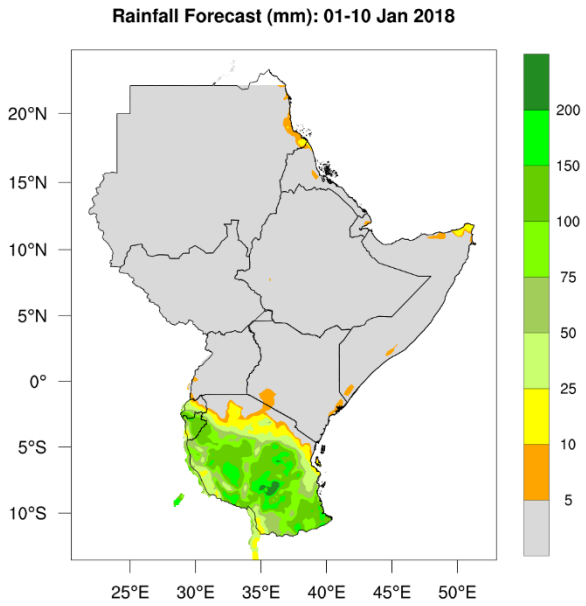

Figure 5: Precipitation forecast for the first dekad (1-10) of January 2018 (Source: WRF-ICPAC**)**

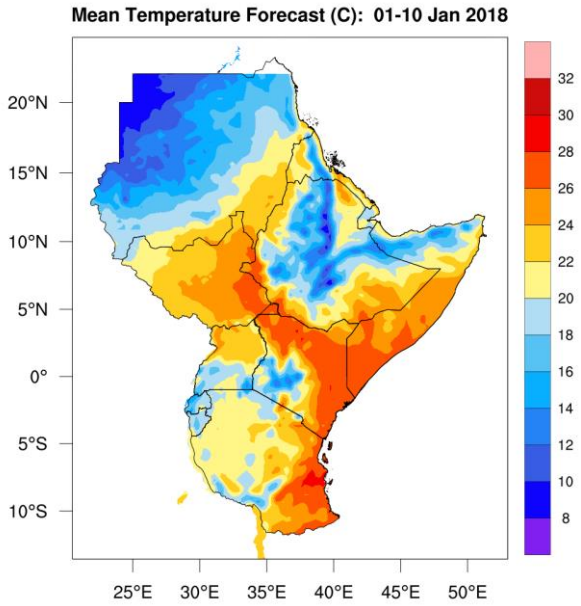

Figure 6: Forecast for average temperature for the first dekad (1-10) of January 2018 (Source: WRF-ICPAC)

Rainfall Forecast

The rainfall forecast for the first dekad of January 2018 in Figure 5 indicates that rainfall is likely to be concentrated over much of Tanzania and Burundi, and in some parts of Rwanda. The rest of the GHA region is likely to experience little amount of rainfall or remain generally dry during the first dekad of January 2018.

Temperature Forecast

The average temperature forecast for first dekad of January 2018 (Figure 6) indicates that cool average temperature lower than 20°C is likely to be recorded 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, Burundi, and in parts of southwest 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

The rainfall performance in the southern sector continue to create favourable conditions for crop, pasture, and water resource availability. This leads to continued prospects for good crop and livestock productivity. However some parts of the equatorial sector have experienced deterioration in water and pasture resources, leading to reduced productivity in livestock productivity and increase in water related diseases. From the climate forecast for the first dekad of January 2018 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 water resources, crop and livestock productivity. Some areas in southern and eastern 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 December-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).*

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