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

1.0 Introduction

This bulletin reviews the climatic conditions observed during the first dekad (1-10) of January 2018, and highlights the climate forecast for the third dekad (21-31) 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 -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 2018 rainfall activity concentrated over much of Tanzania, Burundi and southern Rwanda. Much of the equatorial sector of the Greater Horn of Africa (GHA) experienced depressed rainfall conditions. Much of the southern sector of the GHA including Tanzania, Rwanda, and Burundi recorded enhanced rainfall conditions.

South-central part of the northern sector as well as parts of western and eastern equatorials sector of the GHA recorded warmer than the average (2008-2017) maximum temperatures. Cooler than the average for maximum temperature was recorded over much of Southern parts of Sudan, eastern part of northern sector of the GHA, as well as in south-central parts of the equatorial sector of the GHA during the first dekad of January 2018. Much of the rest of the GHA recording near the average maximum temperature

The western, northeastern, and southeastern part of the northern sector of the GHA recorded cooler than the average (2008-2017) conditions for the minimum temperature. Much of the rest of the GHA recorded near the average for the minimum temperature conditions, except for some areas in western and central Ethiopia, western and central Kenya, and in eastern and southwestern parts of Uganda which experienced warmer than the average for minimum temperature.

Rainfall forecast for the third dekad of January 2018 shows that rainfall is likely to be concentrated in the southern sector as well as in the southern parts of the equatorial sector. The rest of the GHA is likely to remain generally dry or record little rainfall.

Northern, eastern and southeastern parts of the northern sector, southwestern and central parts of the equatorial sector as well as western part of the southern are likely to record average temperatures cooler than 20^{o}C during the first dekad of January. The rest of the sector warm average temperature exceeding 20^{o}C except for northern part of Sudan, western and central highlands of Ethiopia, western and central Kenya, southern Uganda, Rwanda, and in southwestern part of Tanzania which

3.0 Observed rainfall situation during the first dekad (1-10) of January 2018

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 first dekad of January 2018. These are generated from the blending of (Climate Hazard Infra-Red Precipitation) CHIRP data and observed data.

Rainfall Distribution and Severity

The first dekad of January 2018 experienced maximum range of total rainfall of between 200-300mm which was recorded in eastern Tanzania. Southern Rwanda, much of Burundi, and Tanzania recorded rainfall exceeding 50mm. A few areas in south of Uganda, north of Rwanda, south and west of Kenya, and northwest of Tanzania between 5mm and 50mm of rainfall, much of the rest of the GHA recorded less than 5mm of rainfall (Figure 1a).

Much of Rwanda, Burundi, eastern and central Tanzania, and in few parts of western and south-central Kenya, central Somalia, and western Eritrea, recorded rainfall exceeding 125% of the long term average. Areas covering much of Sudan, northern part of South Sudan, northwest and southeast of Ethiopia, parts of western Eritrea, over much of northern and central Somalia, as well as western parts of Tanzania rainfall conditions of between 75% and 125% of the long term average was recorded. Much of the rest of the GHA region mainly covering Uganda, Kenya, southern South Sudan, Djibouti, southern Eritrea, and several parts of Ethiopia experienced rainfall conditions less than 75% of the long term average for the first dekad of January (Figure 1b).

Standardized Precipitation Index (SPI) during the first dekad of January 2018 shows that Rwanda, Burundi, and eastern and central Tanzania experienced moderately wet to server wet conditions. A few areas in northeast and southwest of Ethiopia, southern Uganda, southeastern Kenya, in western and southwestern Tanzania, and in areas bordering Lake Victoria moderately dry to severely dry conditions was experienced. Much of the rest of the GHA experienced near normal or generally dry rainfall conditions (Figure 1c).

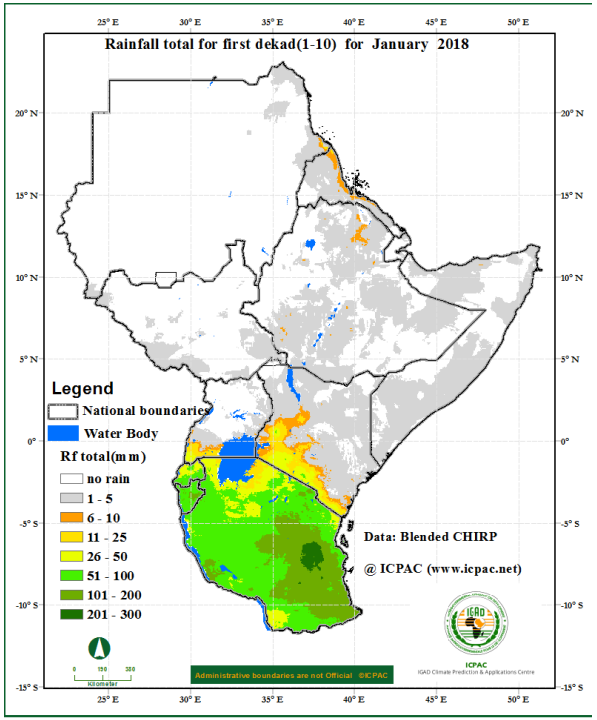

Figure 1a: Rainfall distribution during the first dekad (1-10) of January 2018. *(Data: Blended CHIRP)*

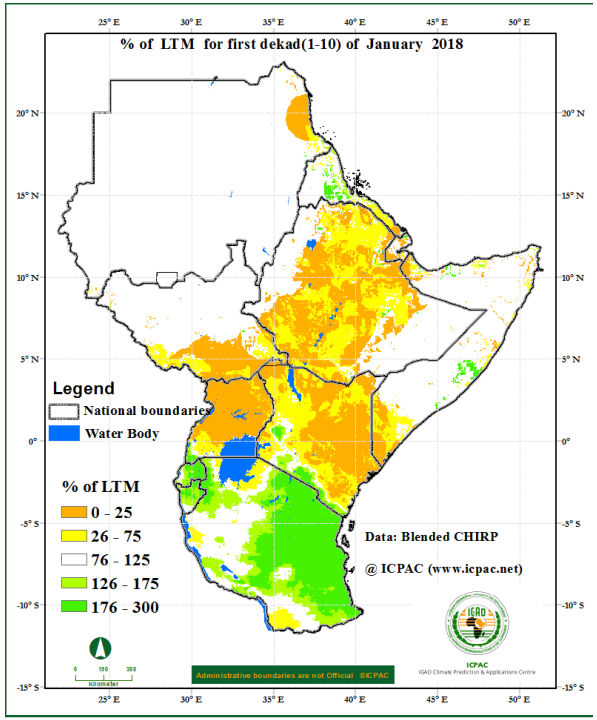

Figure 1b: Percent of long term average rainfall for the first dekad (1-10) of January 2018 *(Data: Blended CHIRP)*

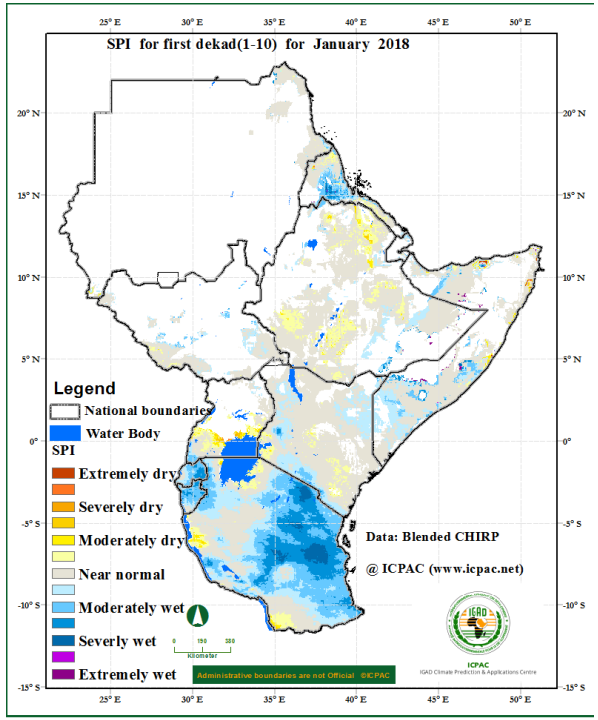

Figure 1c: Standardized Precipitation Index (SPI) for first dekad (1-10) of January 2018 *(Data: Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

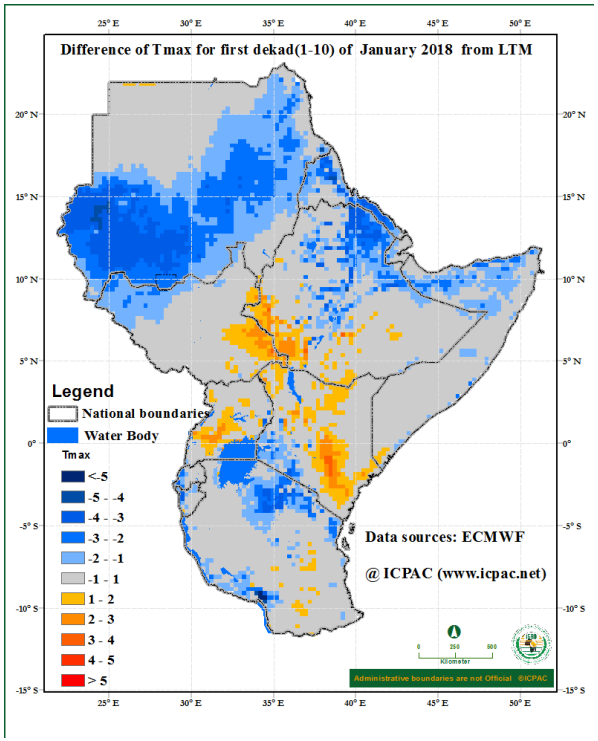

Figure 2: Maximum temperature difference from the average (2008-2017) for the first dekad (1-10) of January 2018*(Data Source: ECMWF)*

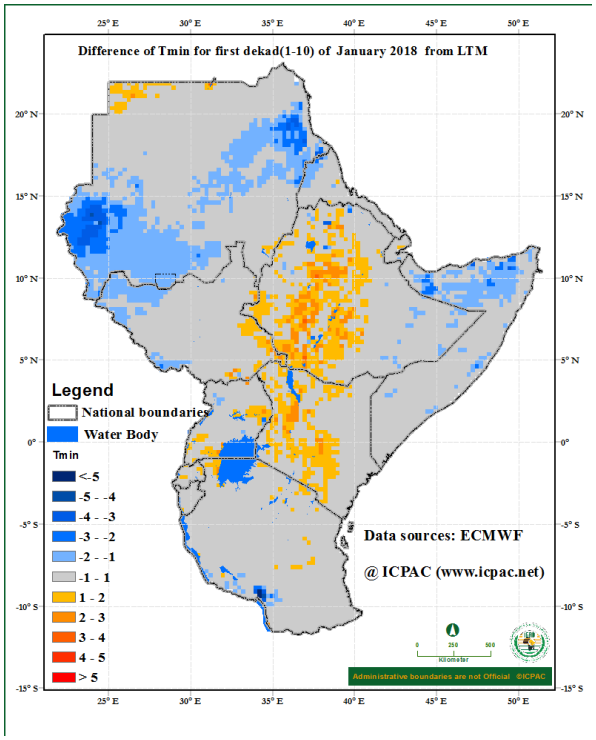

Figure 3:Minimum temperature difference from the average (2008-2017) for the first dekad (1-10) of January 2018*((Data Source: ECMWF)*

Much of the southern part of Sudan, several parts of Eritrea, northeastern Ethiopia, northern Somalia, western Kenya and northern Tanzania experienced cooler than the average conditions for maximum temperature. Conditions warmer than the average for maximum temperature was observed in a few areas in southeastern South Sudan extending to parts of southwestern Ethiopia, over parts of north, coast and east of Kenya, and in southwestern and southern Uganda. Much of the rest of the GHA experienced near average conditions for maximum temperature during the first dekad of 2017 (Figure 2).

Southwest and eastern parts of Sudan, northern Somalia, and northwestern South Sudan experienced cooler than the average for minimum temperature during the first dekad of 2017. Areas in western and central Ethiopia, southwestern and southeastern Uganda, and in western, central and northwestern Kenya experienced warmer than the average condition for maximum temperature. The rest of the region recorded near the average conditions for the minimum temperature (Figure 3)

4.0 Vegetation condition indicators

Normalized Difference Vegetation Index Anomaly

The Normalized Difference Vegetation Index (NDVI) anomaly for the period 31st December 2017 to 7th January 2018 (Figure 4) indicates that central and southern parts of Ethiopia, southwest and southern parts of South Sudan, and over much of Uganda, Kenya, southern Somalia and northern and northwest of Tanzania experienced deterioration in vegetative conditions as compared to the long term average vegetative conditions. A few areas in western South Sudan, eastern Ethiopia, as well as eastern and southern 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 for the same period.

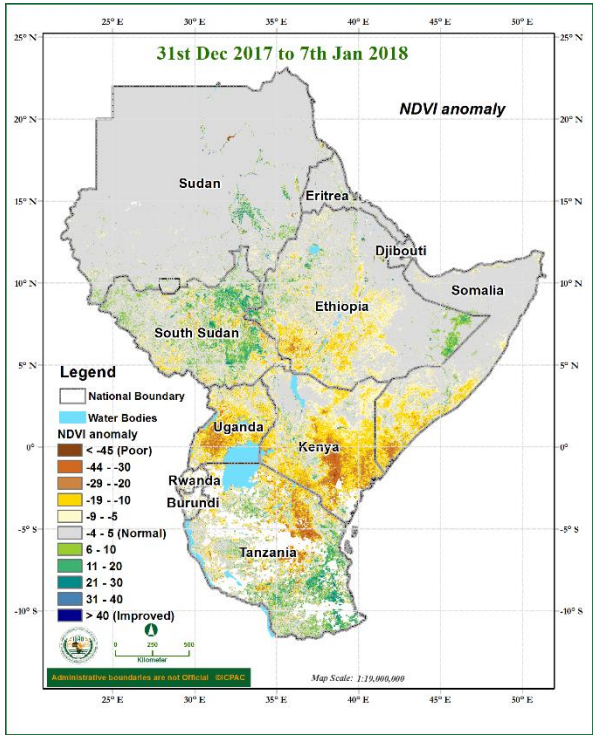

Figure 4: NDVI anomaly for the period between 31st December 2017 and 7th January 2018 (Data Source: USGS NASA)

5.0 Climate Forecast

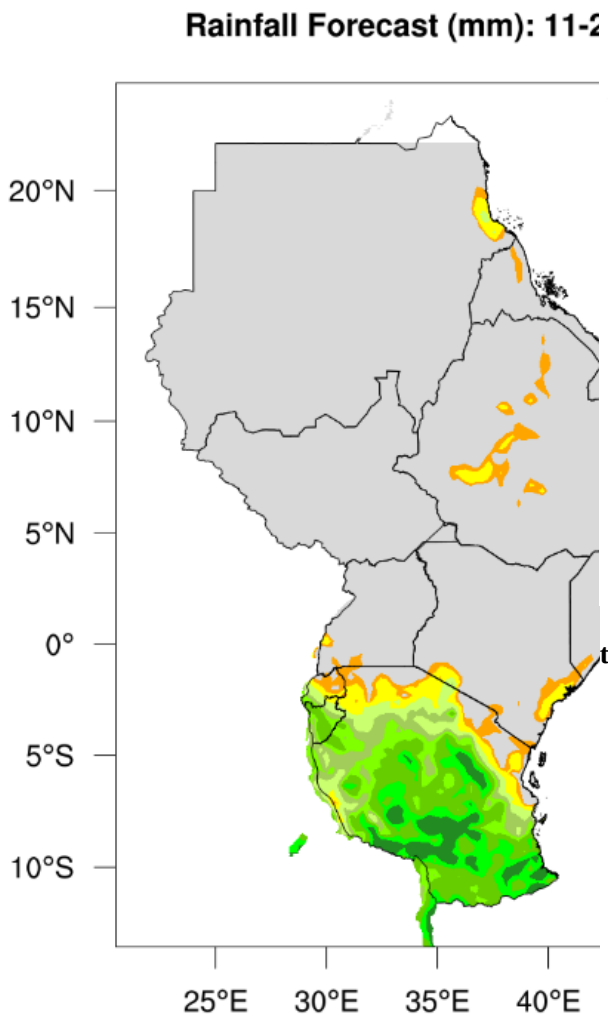

Figure 5: Precipitation forecast for the third dekad (21-31) of January 2018 (Source: WRF-ICPAC**)**

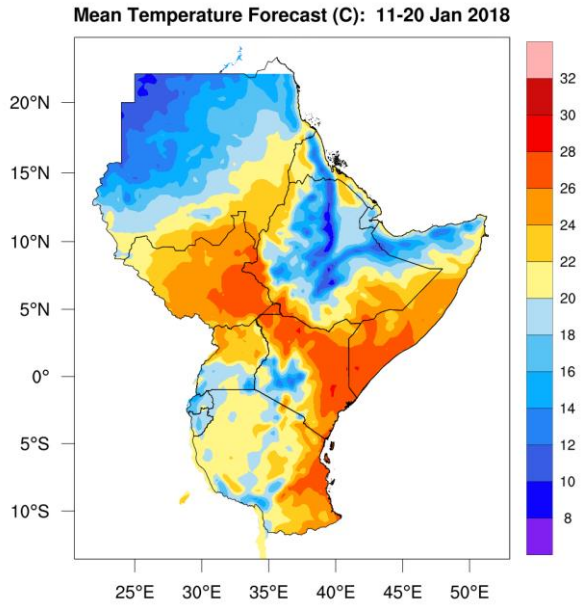

Figure 6: Forecast for average temperature for the third dekad (21-31) of January 2018 (Source: WRF-ICPAC)

Rainfall Forecast

The rainfall forecast for the third dekad of January 2018 in Figure 5 indicates that rainfall is likely to be concentrated over much of Tanzania, 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 third dekad of January 2018.

Temperature Forecast

The average temperature forecast for third dekad of January 2018 (Figure 6) indicates much of Sudan, central, western and northeastern Ethiopia, much of Djibouti, northern Somalia, western and central parts of Kenya, southern of Uganda, over much of Rwanda, Burundi, and in parts of central and southwestern Tanzania is likely to record cool average temperature lower than 20°C. 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 performances has led to deterioration in the water and pasture condition especially in the equatorial sector leading to increased water stress and reduced livestock productivity. Some areas in the southern sector of the GHA reported cases of flooding which led to disruption of livelihood and loss of property. There also cases of water related diseases reported. From the climate forecast for the third dekad of January 2018 much southern sector of the GHA is likely to have sufficient rainfall, which may lead to improved water and pasture conditions and result to improved condition for crop and livestock productivity. Some areas in central, southwestern and southeastern parts of Tanzania are likely to experience high rainfall amounts which may result localised flooding.

NB: *This ten day bulletin contributes towards the update of the January 2018 climate outlook (*http://www.icpac.net/index.php/climate-monitoring/monthly-bulletins.html*).*

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