IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE

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10 DAYS CLIMATOLOGICAL SUMMARY AND IMPACTS FOR THE FIRST DEKAD(1-10) OFMARCH2019TOGETHER WITH FORECASTFOR THE THIRD DEKAD(21-31) OFMARCH 2019

1.0 Introduction

This bulletin reviews the climatic conditions observed during the first dekad (1-10) of March 2019 and highlights the climate forecast for the third dekad (21-31) of March 2019 and the associated climate impacts over the Greater Horn of Africa (GHA). The observed conditions are compared to the average of the climatological period of 1981-2010 for rainfall and temperature.

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 March 2019 rainfall was mainly distributed over several parts of the southern sector, parts of southwest equatorial sector and south-central parts of the northern sector of the GHA. Much of the southern sector, central parts of the equatorial sector, and south-central part of the northern sector recorded above normal or near normal. Much of the rest of the GHA recorded near normal rainfall or remained generally dry.

Southern part of the northern sector, several parts of the equatorial sector, and eastern part of the southern sector of the GHA recorded maximum and minimum temperature that was warmer than the long-term mean. Several areas in the the northern sector and western part of the southern sector of the GHA recorded maximum and minimum temperatures cooler than the normal.

Rainfall forecast for the third dekad of March 2019 shows that southern part of the equatorial sector are expected to receive rainfall, rainfall is also expected to continue over the several places in the southern sector of the GHA. Much of the northern sector, northern parts of the equatorial sector, and southern part of the southern sector of the GHA are expected to record little rainfall or remain generally dry.

Regions covering, northern Sudan, Ethiopia highlands, western central highlands of Kenya, western Rwanda, and much of Burundi are forecasted to experience mean temperatures below 20^{o}C. Much of the rest of the GHA are likely to experience average temperatures exceeding 20^{o}C during the third dekad of March 2019.

3.0 Observed rainfall during the first dekad (1-10) of March 2019

Figure 1a, 1b and 1c shows the distribution of total rainfall, percent of the long-term average rainfall, and the standardized precipitation index (SPI), respectively.

Rainfall Distribution and Severity

Rainfall was concentrated over much of the southern sector, southwestern part of the equatorial sector, and south-central part of the northern sector of the GHA especially central and southwestern Ethiopia, Tanzania, Rwanda, Burundi, southern Uganda, and western Kenya during the first dekad of March 2019.

Distribution of Rainfall total for the first dekad (1-10) of March 2019 over Greater Horn of Africa, revealed that: significant rainfall which exceeded 50mm was observed mainly in central Ethiopia, western Kenya, and southern Tanzania. Central and south-western Ethiopia, southern Uganda, much of western Kenya, much of Rwanda, Burundi, and northern Tanzania recorded rainfall of between 5mm and 50mm. (Figure 1a).

When we compared the observed rainfall total in first dekad of March2019 with climatology baseline (1981-2010) in term of percentage of average (% of LTM) and Standardized Precipitation Index (SPI), the southern and northern parts of Tanzania, eastern Rwanda, southwest and eastern Uganda, western Kenya and central Ethiopia recorded above normal rainfall. Western part of South Sudan, southwest Ethiopia, western Uganda, western Rwanda, eastern and western Burundi, central and southeast Kenya, and few areas in northwest, northeast and southwest Tanzania recorded below normal rainfall. Much of the rest of the GHA recorded near normal rainfall or remained generally dry in first dekad of March 2019 (Figure 1b and Figure 1c).

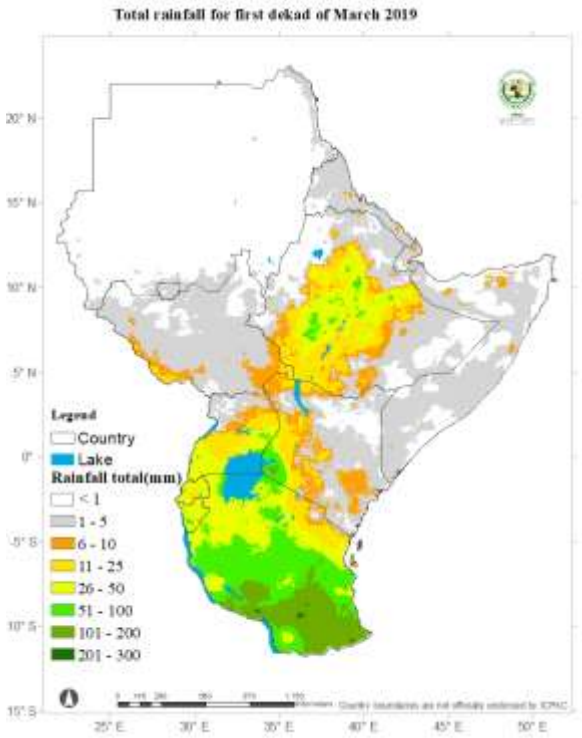

Figure 1a: Total rainfall distribution during the first dekad (1-10) of March 2019. *(Data: ICPAC Blended CHIRP)*

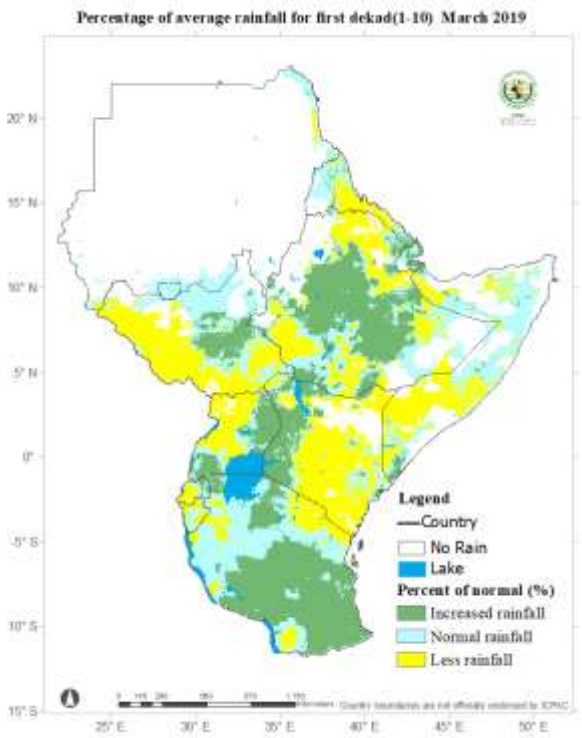

Figure 1b: Percent of long-term average rainfall for the first dekad (1-10) of March 2019*(Data: ICPAC Blended CHIRP)*

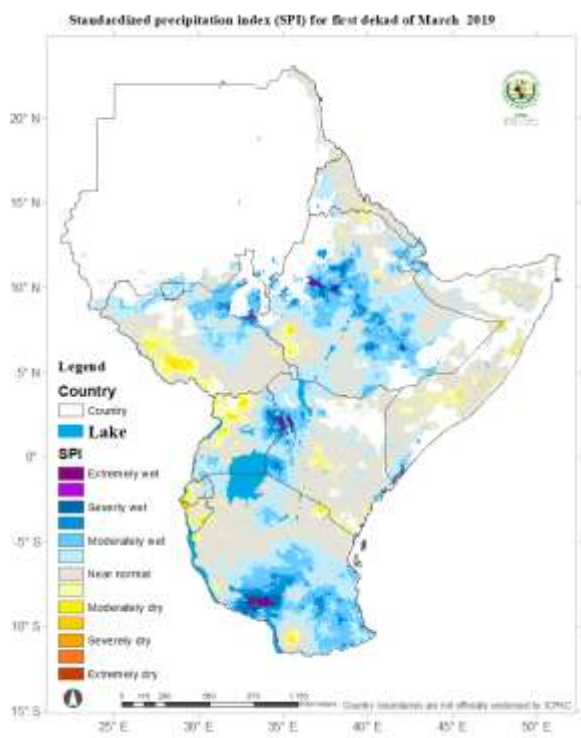

Figure 1c: Standardized Precipitation Index (SPI) for first dekad (1-10) of March 2019 *(Data: ICPAC Blended CHIRP)*

Maximum and Minimum Temperature Anomaly

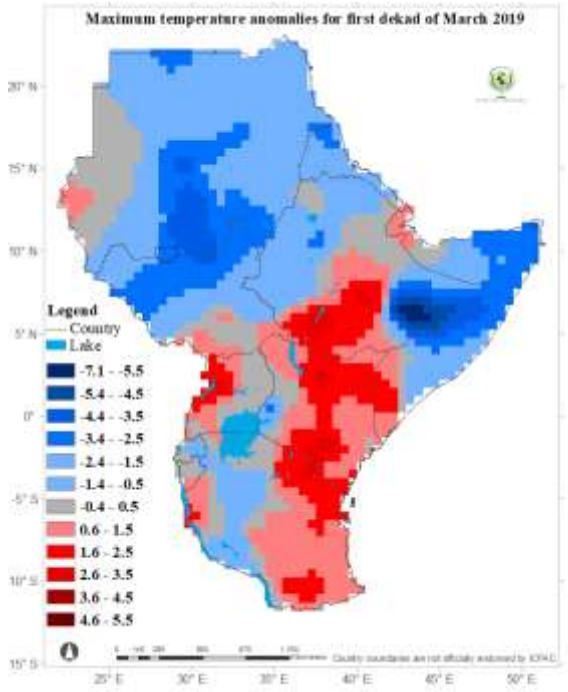

Figure 2: Maximum temperature difference from the average (1981-2010) for the first dekad (1-10) of March 2019*(Data Source: provided by the* NOAA-*NCEP CPC. GTSgirded data)*

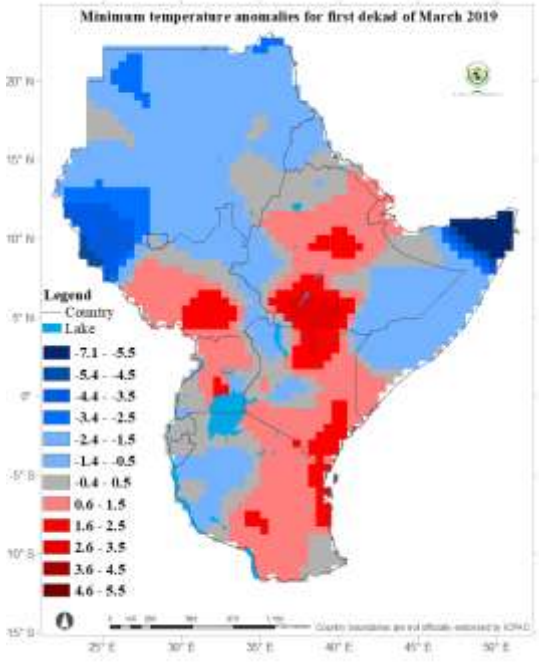

Figure 3: Minimum temperature difference from the average (1981-2010) for the first dekad (1-10)of March 2019 *(Data Source: Data Source: provided by the NOAA-NCEP CPC. GTSgirded data)*

During the first dekad of March 2019 Much of Djibouti, southern part of South Sudan, central and southern Ethipia, western Uganda, over much of Kenya, southern Somalia and eastern Tanzania, mainly recorded maximum and minimum temperature that was warmer than the climatological mean.

Much of the rest of the GHA especially in the northern sector recorded maximum and minimum temperature that was cooler than the climatological mean.

4.0 Vegetation condition indicators

Normalized Difference Vegetation Index Anomaly

The Normalized Difference Vegetation Index (NDVI) anomaly for the period 25thFebruary to 4th March 2019 (Figure 4) indicates that:

Uganda, Kenya, Rwanda, and Tanzania : Indications of deterioration in vegetative conditions was observed over several parts of Uganda, central to southern parts of Kenya, southern Rwanda , and in northeast Tanzania. Some areas in northern Tanzania showed indications of improvement in vegetative condition as compared with the mean.

Ethiopia and South Sudan: several parts of South Sudan and western and central Ethiopia showed indications of improvement in vegetative conditions as compared to the long-term average. e.

Much of the restof the GHA, especially in much of Sudan, Eritrea, Djibouti, , northern and eastern Ethiopia, Somalia, north and eastern Kenya, and Burundi showed little or no change in vegetation conditions as compared with the long-term average.

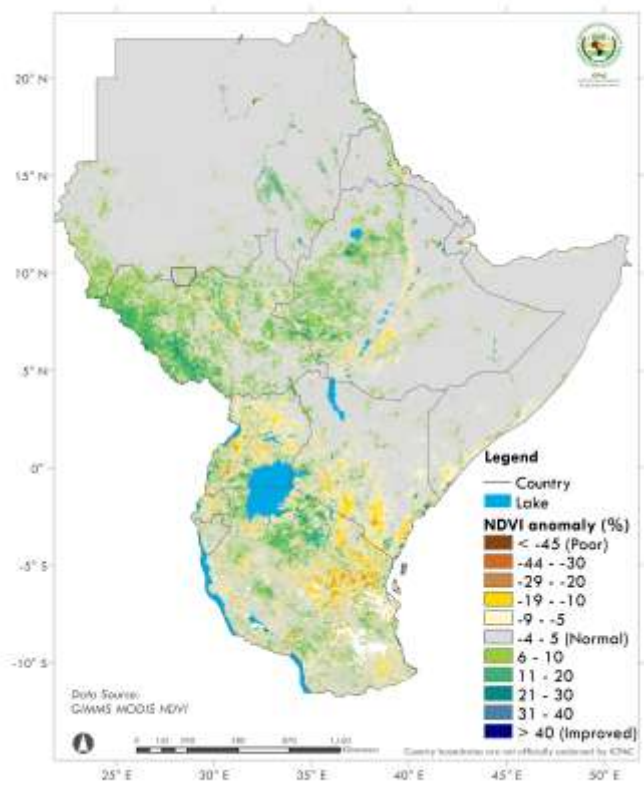

Figure 4: NDVI anomaly for the period between 25th February to 4th March 2019 (Data Source: USGS NASA**)**

5.0 Climate Forecast

Rainfall Forecast

The rainfall forecast for the third dekad of March 2019 in Figure 5 indicates that rainfall is expected in western and southern Uganda, central and southeastern Kenya, southeastern Somalia, over much of Rwanda, Burundi and Tanzania. Much of Sudan, South Sudan, Ethiopia, Eritrea, Djibouti, north and central Somalia, eastern Uganda, western and northern Kenya, and southern Tanzania are expected to receive little amounts of rainfall or remain generally dry.

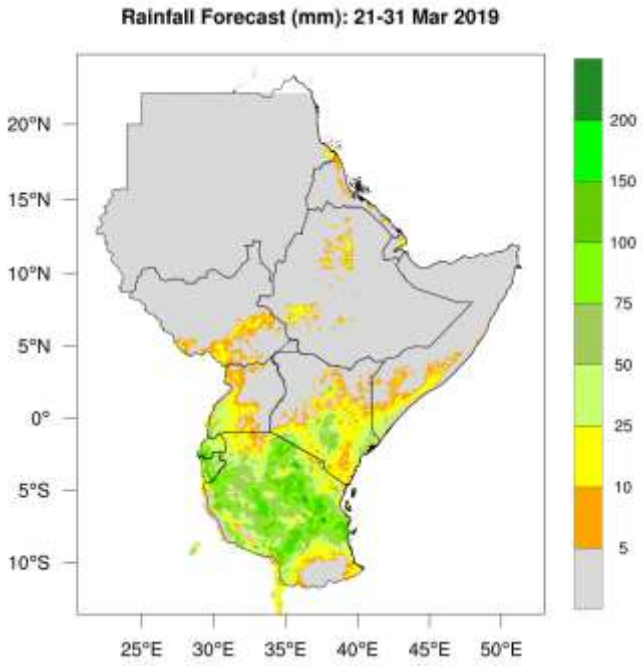

Figure 5: Precipitation forecast for the third dekad (21-31) of March 2019 (Source: WRF-ICPAC**)**

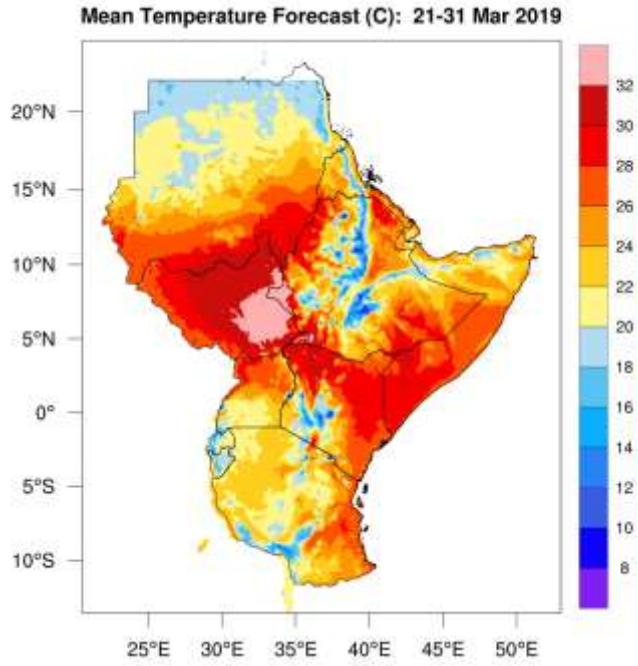

Figure 6: Forecast for average temperature for the third dekad (21-31) of March 2019 (Source: WRF-ICPAC)

Temperature Forecast

The forecast for the mean temperature for third dekad of March 2019 (Figure 6) indicates that cooler mean temperature, not exceeding 20^{o}C is expected in northern part of Sudan,over the highlands of Ethiopia, western and central highlands of Kenya, western Rwanda, and Burundi. The rest of the GHA is expected to experience mean temperaturegreater than 20^{o}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 of the climate conditions

The eastern part of the equatorial sector continues to have an extended water stress related impact due to the under performance of the September to December short rains due to continued dry condition during the first dekad of March 2019.

For more information contact
ICPAC P.O. Box 10304, 00100 Nairobi, KENYA;
Tel: +254-020-3514426
E-mail:director@icpac.net

Website: www.icpac.net