I C P A C

IGAD Climate Prediction and Applications Centre Monthly Climate Bulletin, Climate Review for May 2018

1. INTRODUCTION

This bulletin reviews the May 2018 climate conditions over the Greater Horn of Africa (GHA) region and highlights the July 2018 rainfall and temperature forecasts together with the socio-economic impacts associated with both the observed and the forecasted climate conditions.

There are six sections in this bulletin. The major highlights from both the observed and expected climate conditions are outlined in section 2. Section 3 discussed the climate patterns that prevailed in the month of May 2018, while the dominant weather systems are discussed in the section 4. In section 5, the July 2018 climate forecasts over the GHA are presented. The socio-economic impacts associated with the observed climatic conditions and those expected from July 2018 climate forecasts are outlined in the last section.

For referencing within this bulletin, the GHA is generally divided into three sub-sectors: The equatorial sector lying approximately between -5^{o}N and 5^{o}S latitude, with the northern and southern sectors occupying the rest of the northern and southern part of the region respectively.

2. HIGHLIGHTS

Rainfall was experienced mainly in the southern part of the northern sector, equatorial sector, and eastern parts of the southern sector of the GHA. Several parts of the equatorial sector, northern part of the southern sector, and southern and south-eastern parts of the northern sector of the GHA recorded above normal rainfall during the month of May 2018 (Figure 2 and 3).

Some areas especially in central and eastern equatorial sectors experienced cooler than the average maximum temperature, while northern and southwestern parts of the northern sector was warmer than the average for maximum and minimum temperatures (Figure 4a). Much of the rest of GHA recorded near the average temperatures during the month of May 2018.

Some places in the equatorial sector and the southern sector of the GHA experienced high rainfall amounts leading to flooding and related impacts. The general rainfall condition in the equatorial , southern, and southern part of the northern sector of GHA resulted in improvement in water and pasture conditions resulting to prospects of good crop, and livestock productivity following the rainfall condition for the month of May 2018.

In May 2018, the Oceanic Nino Index (ONI), one of the primary indices used to monitor the El Nino-Southern Oscillation (ENSO) signal showed a neutral signal similar to the 1995/1997 period (Figure 7a)

and Indian Ocean Dipole (IOD), which is the signal of interaction between the ocean and the atmosphere in the Indian Ocean indicated neutral phase (Figure 7b). The ONI and the IOD are forecasted to persist in their neutral phases in the coming few months to the third quarter of 2018.

In the month of July 2018, rainfall is expected to be concentrated over much of western and central parts of the northern sector and equatorial sector of the GHA (Figure 8a).

3. CLIMATE PATTERNS IN MAY 2018

The rainfall amounts (Figure 1) and performance as compared to the Long Term Mean (1981-2010) using percentage of long term average (Figure 2) and Standardized Precipitation Index (SPI) (Figure 3) for May 2018 are provided in this section. The minimum (Figure 4b) and maximum (Figure 4b) temperature anomalies relative to Long term mean (2008-2016) are also given.

Rainfall performance

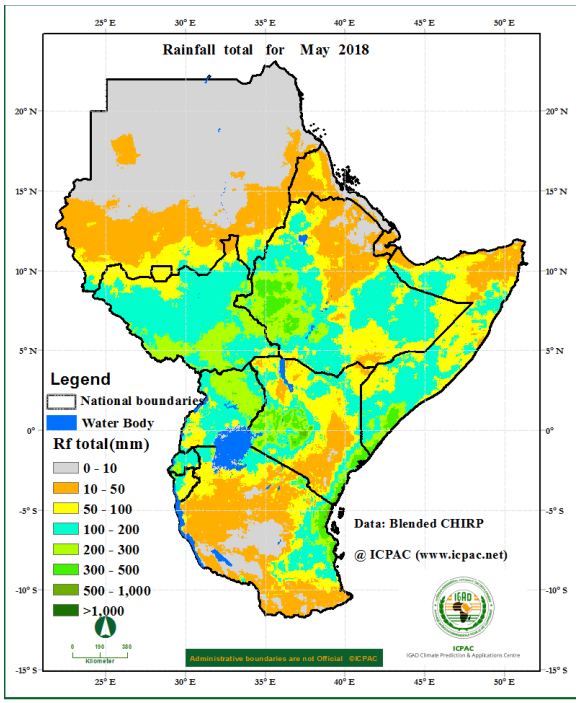

Figure 1: Spatial distribution of rainfall during the month of May 2018*(Data Source : Blended CHIRPS)*

South Sudan, Rwanda, and Uganda: several parts of these areas recorded rainfall of between 100mm and 200mm. The eastern parts of South Sudan, northern Uganda and several parts of Rwanda recoded recorded moderately wet to severely wet rainfall conditions.

Kenya and Somalia: several parts of Somalia except for northeastern part, and much of Kenya except for south eastern areas recorded rainfall of between 50mm and 300mm. Some parts moderately wet to severely wet rainfall conditions.

Sudan, Eritrea and Djibouti: Much of Djibouti and western Eritrea and southern part of Sudan recorded between 10mm and 50mm of rainfall and these areas recorded above normal rainfall conditions. The rainfall was performance was near normal to severely wet.

Ethiopia, Burundi and Tanzania: much of Ethiopia except for the northern part, much of Burundi, and in eastern and western Tanzania rainfall of between 50mm and 100mm was recorded. With the re

Much of the rest of the GHA recorded less than 10mm of rainfall, and these had generally dry or below normal rainfall conditions.

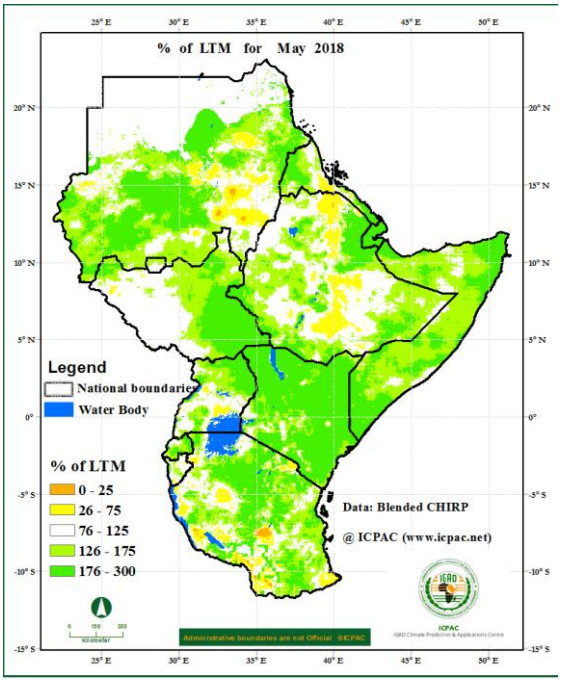

Figure 2: Percentage of average rainfall for May 2018 *(Data Source: Blended CHIRPS)*

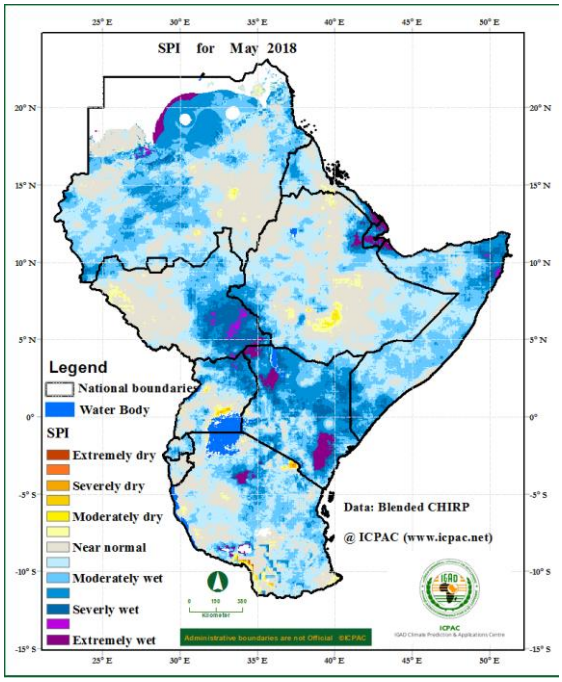

Figure 3: Standardized Precipitation Index for May 2018 *(Data Source: Blended CHIRPS)*

Temperature Conditions

The maximum temperature condition experienced during the month of May 2018 was that:

Sudan, South Sudan, Eritrea and Ethiopia: much of South Sudan, northern part of Sudan, western part of Eritrea and western Ethiopia experienced conditions warmer than the average for maximum and minimum temperature.

Kenya, Somalia and Tanzania: cooler than the average maximum temperature was recorded in several parts of Kenya, southern Somalia, and northern Tanzania.

Much of the rest of the GHA including Eritrea, Djibouti, Rwanda, and Burundi experienced near the average condition for maximum temperature.

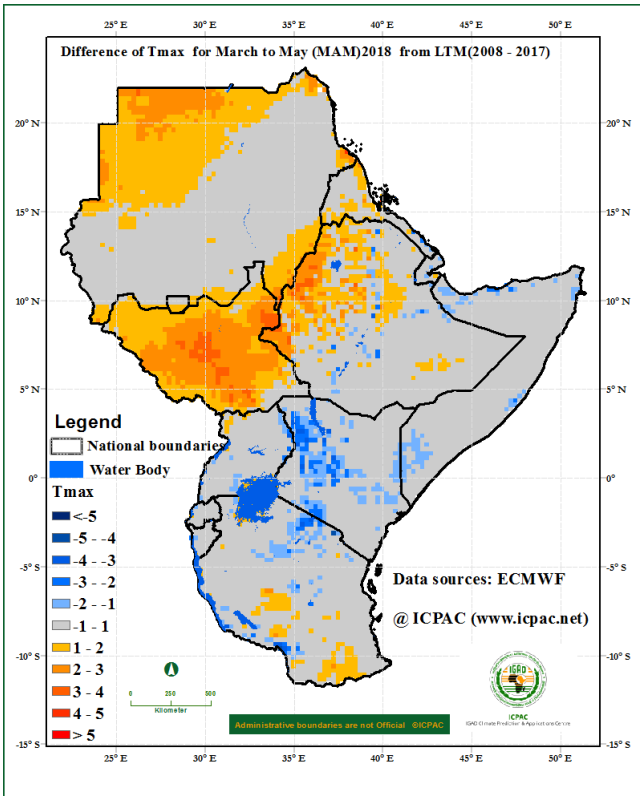

Figure 4a: Maximum temperature anomalies for May 2018 *f*rom LTM, 2008-2017 (*Data Source: ECMWF)*

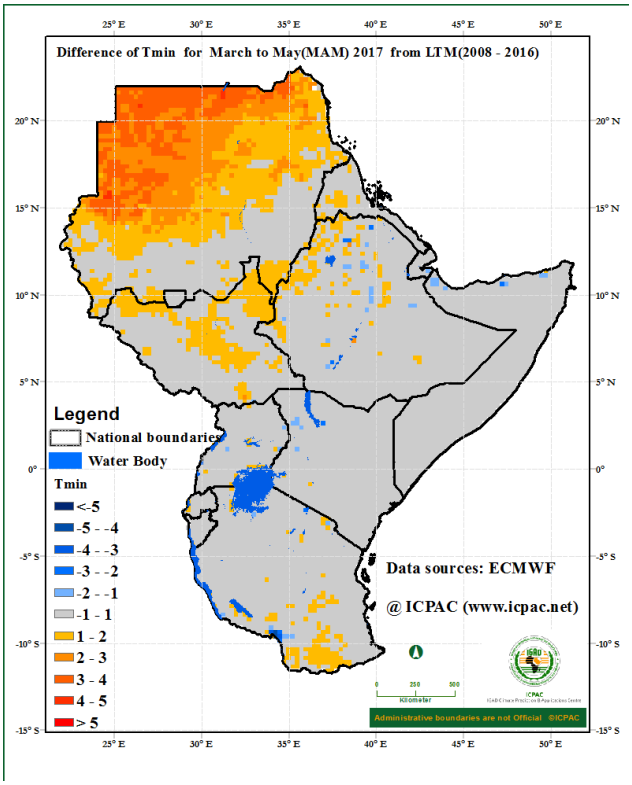

Figure 4b: Minimum temperature anomalies for May 2018 from LTM, 2008-2017 *(Data Source: ECMWF)*

Vegetation Condition Indicators

The Normalized Difference Vegetation Index (NDVI) anomaly for May 2018 (Figure 9) indicates that:

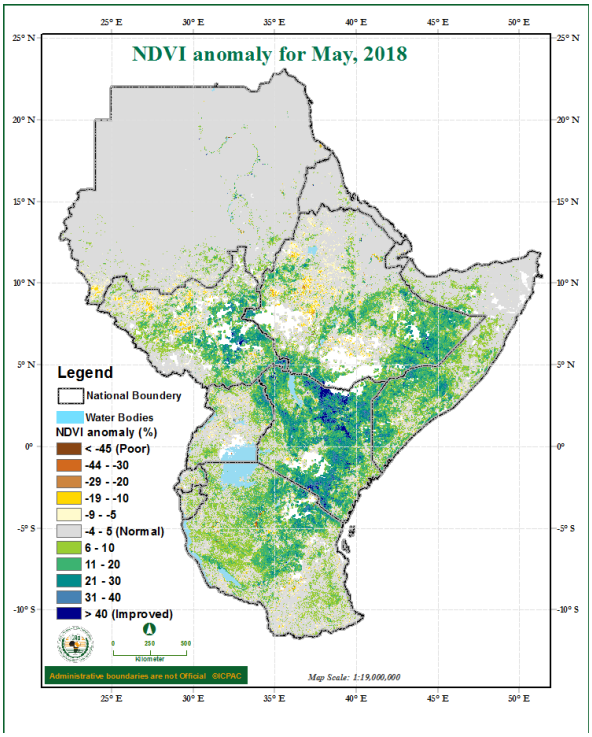

Figure 9: Normalized Difference Vegetation Index (NDVI) for May 2018 *(Data Source: USGS-NASA)*

South Sudan, Ethiopia, Somalia, Uganda and Tanzania: Several areas in South Sudan, eastern and southern Ethiopia, northeastern Uganda, central and southern Somalia, and northern parts of Tanzania experience improved vegetative conditions as compared to the long term average.

Kenya Rwanda Burundi: several parts of Kenya, Rwanda and Burundi indicated improved vegetative conditions as compared to the long term average.

Much of the rest of the GHA region indicated little or no change in vegetative conditions as compared to the long term average for the month of May 2018. (Figure 9).

4. STATUS OF THE CLIMATE SYSYEMS

The Sea Surface Temperature (SST) anomaly during the month for the period of 20th May to 16th June 2018 showed that central equatorial Pacific Ocean stretching towards the eastern equatorial Pacific region (Niño 4 to Niño 1&2 areas), was dominated by cooler to near average SST anomaly, with the area stretching from central towards western equatorial Pacific Ocean showing warmer than average SST (Figure 5), this situation currently presents a neutral Oceanic Nino Index (ONI) and neutral El Niño Southern Oscillation (ENSO) phase (Figure 7) nearly similar to the 1995/1996 period models show a likelihood of persistent neutral ENSO through to the third quarter of the year 2018. Near average to cooler than average SST conditions dominated equatorial Indian Ocean (Figure 5). This pattern has presented a neutral phase of the Indian Ocean Dipole (IOD) (Figure 7). Models show a persistence of a neutral phase of the IOD through to the mid of the third quarter of the year2018.

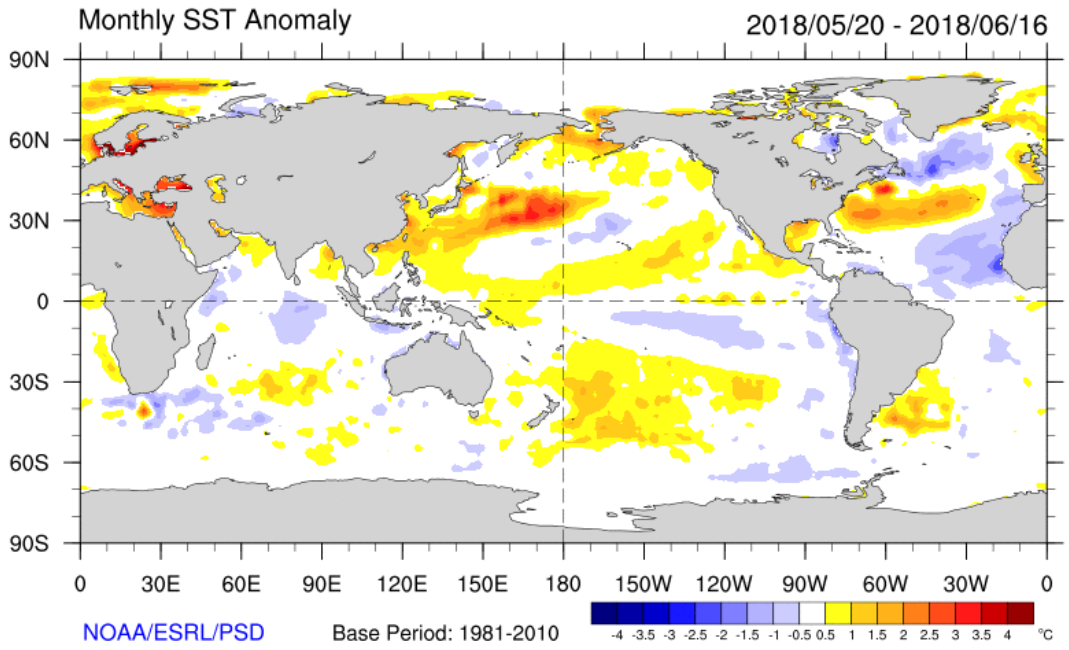

Figure 5: Sea Surface Temperature anomalies for the period 20th May 2018 to 16 June 2018 (*Source: NOAA/ESRL/PSD***)**

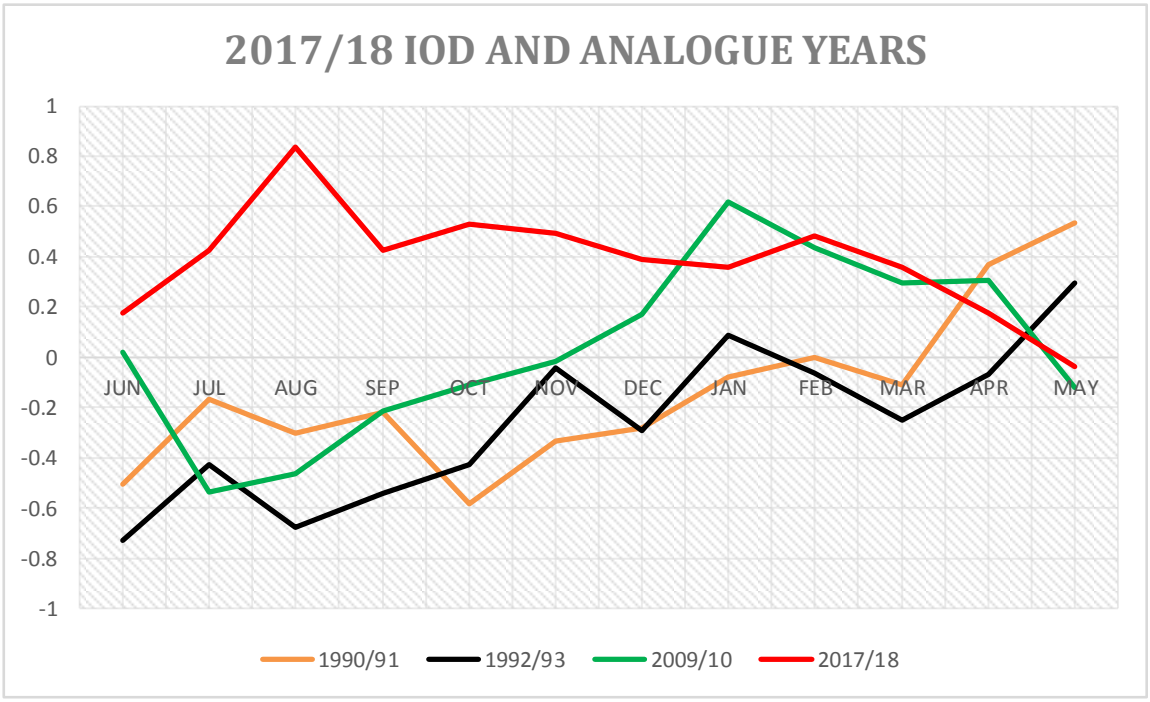

Figure 6: The Indian Ocean Dipole (IOD) during 2017/18 and analogue years.

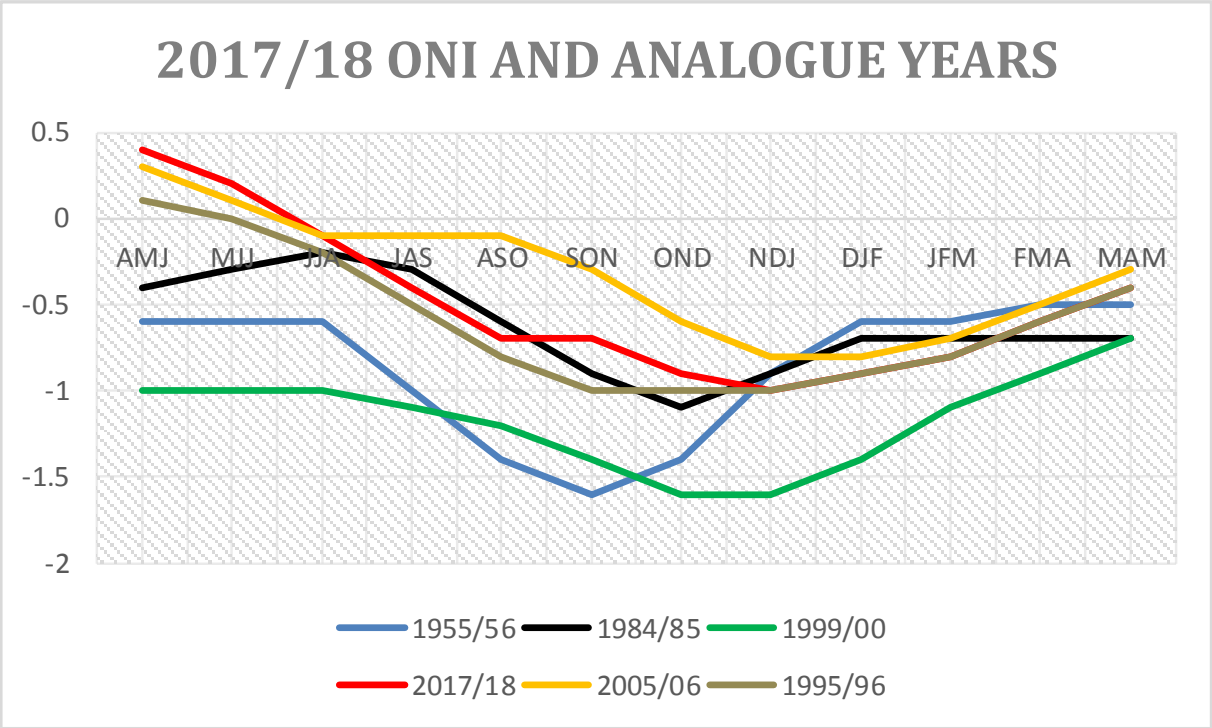

Figure 7: The Oceanic Nino Index (ONI) during 2017/18 and analogue years.

5. CLIMATE OUTLOOK FOR JULY 2018

The climate outlook for temperature and precipitation for the month of July 2018 are generated from the GHA region customized WRF model.

The July 2018 rainfall forecast

During the month of July 2018, rainfall will be concentrated over much of South Sudan, western and central Ethiopia, southern part of Sudan, over northern part of Uganda, and western and central Kenya. Some parts of Djibouti, and western Eritrea are also likely to record rainfall activities (Figure 8a). Much of the areas covering northern Sudan, western Eritrea, Djibouti, eastern Ethiopia, eastern and southern Kenya, northern and central Somalia, much of Burundi, Rwanda, and several parts of Tanzania are expected to record small amount of rainfall or remain generally dry.

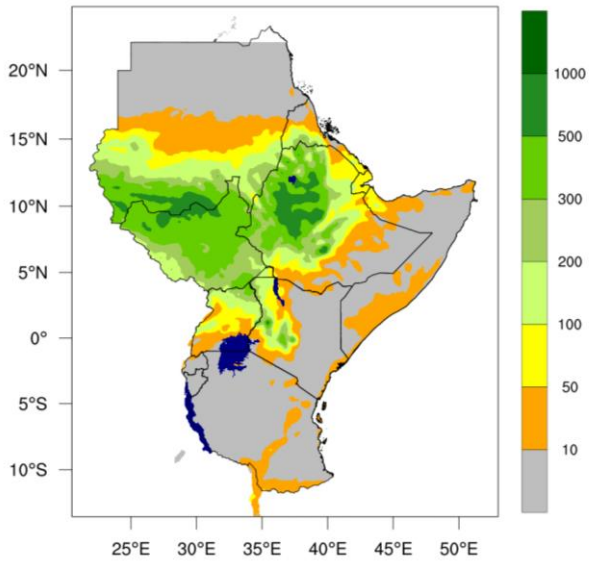

Figure 8a: Forecast of rainfall total for July 2018

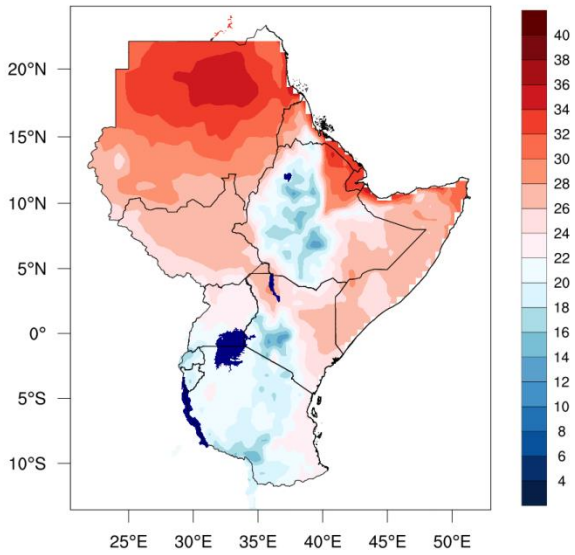

Figure 8b: Mean temperature forecast for July 2018.

July 2018 Temperature forecast

Average temperature of cooler than 22°C is likely to be observed over western and central Ethiopian highlands, southern parts of Uganda, western and central Kenya, over much of Rwanda, Burundi, and western and central Tanzania. Much of the rest of the GHA is likely to record average temperatures warmer than 22°C (Figure 8b).

6. IMPACTS ON SOCIO-ECONOMIC SECTORS

The socio-economic impacts associated with observed climate conditions are provided below.

Impacts of observed climate conditions during May 2018

During the month of May 2018, several areas especially in the equatorial sector and south-eastern parts of the northern sector of the GHA experienced good rainfall performance leading to improved pasture and water conditions during May 2018. Some areas in the equatorial sector including parts of Kenya, Uganda, and Rwanda and also Djibouti experienced flooding conditions which led to loss of lives and livelihood, destruction to infrastructure, and reported cases of water related diseases.

Potential impacts for July 2018 climate outlook

In the month of July 2018, the forecasted climate is likely to result to improved water availability, crop and pasture conditions leading to good prospects for crop and livestock performance especially in parts of the northern sector of the GHA. Parts of western Kenya, South Sudan, and western Ethiopia are expected to experienced high rainfall amounts which might lead to localised flooding and the associated impact.

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

THIS BULLETIN IS PRODUCED IN COLLABORATION WITH THE NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES (NMHSs) IN THE GREATER HORN OF AFRICA (GHA)