IGAD Climate Prediction and Applications Centre Monthly Climate Bulletin, June 2017

1. INTRODUCTION

This bulletin reviews the climate condition over the Greater Horn of Africa (GHA) region for the month of June 2017, and highlights the rainfall and temperature outlook for the month of August 2017, together with the socio-economic impacts associated with both the observed and the predicted conditions.

In the month of June rainfall is mainly expected in the northern sector as well as western and central equatorial parts of the Greater Horn of Africa (GHA). The Oceanic Nino Index (ONI) and the Indian Ocean Dipole (IOD) are all in neutral phase as at the end of June 2017 with global models predicting a persistence of neutral state up to the end of year.

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. HIGHLIGHTS

Rainfall performance was generally poor over much of the GHA region, except in areas south of Sudan, west of Ethiopia, north and southwest of Uganda, western Kenya, and in much of South Sudan. Much of the southern and eastern part of the northern sector, the equatorial and southern sector of the GHA recorded near average to below average rainfall during the month of June 2017 (Figure 1). A few areas in the central and western part of the northern sector recorded above the average rainfall conditions (Figure 2).

The rainfall condition in the GHA region during the month of June 2017 continue to bring with it a relief in some of the areas especially in the northern sector and northwestern equatorial sector of the GHA showing indication of good performance. However several areas especially in the southwestern, central and eastern parts of the equatorial sector are still experiencing impacts of depressed rainfall conditions that has led to deterioration of water and pasture conditions, poor prospect of crop and livestock production, increase in food prices, and general water stress.

During the month of August 2017, rainfall is likely to be concentrated in over western and central parts of the northern sector, as well as over a few areas in western part of the equatorial sector of the GHA region (Figure 7a).

3. CLIMATE PATTERNS IN MAY 2017

The rainfall amounts, rainfall performance as compared to the Long Term Mean using percentage of long term average and Standardized Precipitation Index (SPI) for May 2017 are provided in this section. The minimum and maximum temperature anomalies are also given.

RAINFALL AMOUNTS AND PERFORMANCE DURING MAY 2017

Rainfall amounts in June 2017

During the month of June 2017, areas covering southern parts of Sudan, southwestern Eritrea, much of South Sudan, western and central Ethiopia, much of Uganda except for the southwestern part, in western and coastal Kenya, in southern Somalia, northwestern Rwanda and in northeastern and northern Tanzania recorded rainfall amount greater than 10mm. A few places in the western parts of Ethiopia and a small part of northwest south Sudan recorded rainfall amounts greater than 200mm.

Rainfall amounts exceeding less than 10mm was experienced over much of northern part of Sudan, northern and southern Eritrea, Djibouti, northeast, east and southern Ethiopia, much of north, central and southwest of Somalia, in southwestern Uganda, over much of Rwanda, Burundi Tanzania, and north, central and eastern Kenya during the month of June 2017(Figure 1).

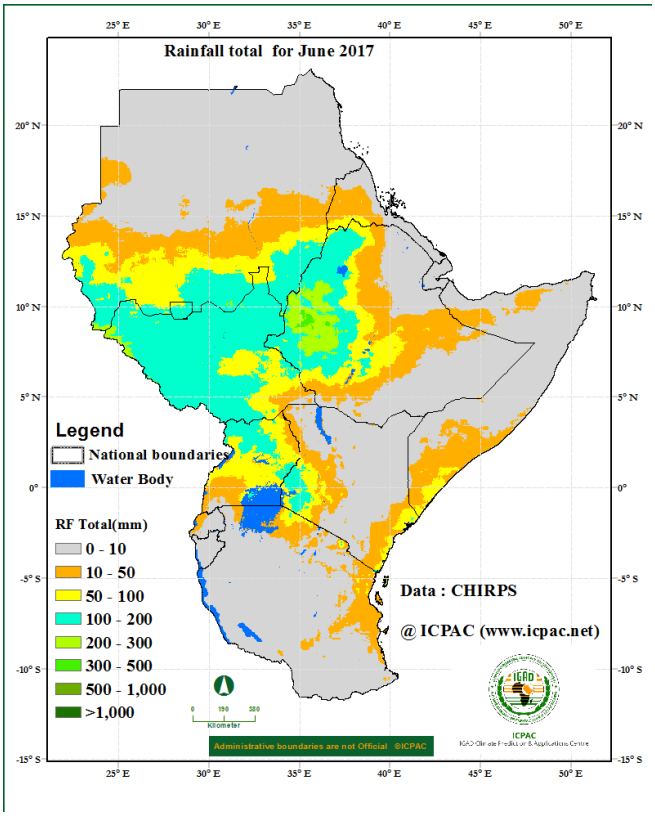

Figure 1: Spatial distribution of rainfall during the month of June 2017*(Data Source : CHIRPS)*

Rainfall severity in the month of June 2017

Figure 2 shows the amount of rainfall received expressed as percentage of long term average for June while Figure 3 shows the standardized precipitation index (SPI) for the same month.

In the month of June 2017 much of the GHA region recorded rainfall amounts less than 125% of the long term average except for areas south and east of Sudan, northeast of South Sudan, and in a few areas south of Eritrea, central and southwest Somalia and in southwestern parts of Lake Victoria (Figure 2). Most of these areas corresponded to moderately wet to severely wet rainfall conditions (Figure 3). Rainfall conditions less than 75% of the long term average rainfall was observed in in

several areas of Eritrea, Ethiopia, western and southern South Sudan, northern and southern Somalia, southwestern and northeastern Uganda, several parts of Kenya, northern and southern Somalia, in much of Rwanda Burundi and in north and eastern Tanzania (Figure 2). Areas covering much of northern and central Eritrea, northern and central Ethiopia, northern and southeast of Somalia, western and southeast South Sudan, northeast and southwest of Uganda, over much of north, central and coast of Kenya, Rwanda, Burundi, and in northwest and east of Tanzania near normal to severely dry rainfall conditions was experienced (Figure 3). Much of the rest of the Greater Horn of Africa region received between 75% and 125% of long term average rainfall for the month of May which translated to near average rainfall conditions for most of the places. Several areas covering east of Sudan, much of Eritrea, Djibouti, northwestern Somalia, northern Ethiopia, eastern Kenya and eastern Tanzania showed poor performance of rainfall as compared to the month of May 2017.

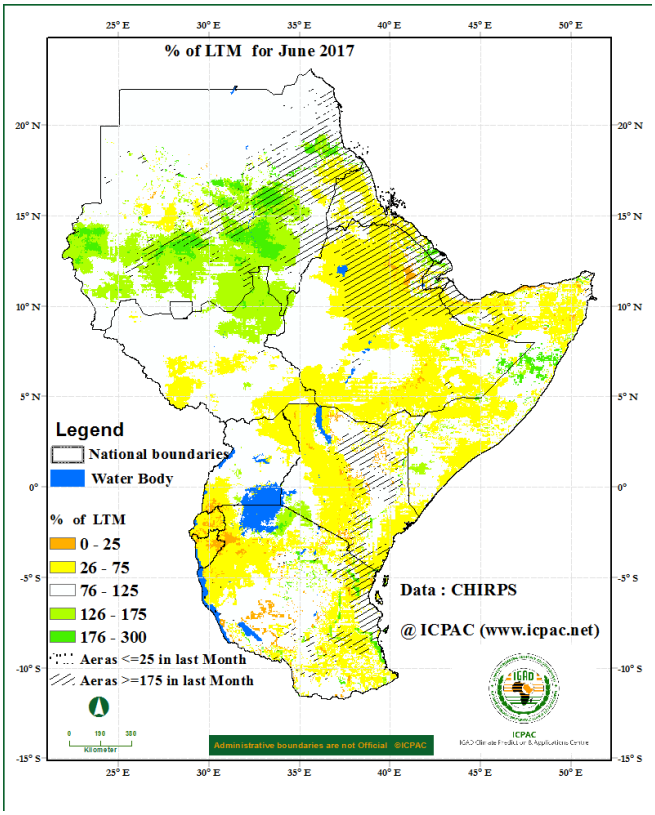

Figure 2: Percentage of average rainfall for June 2017*(Data Source: CHIRPS)*

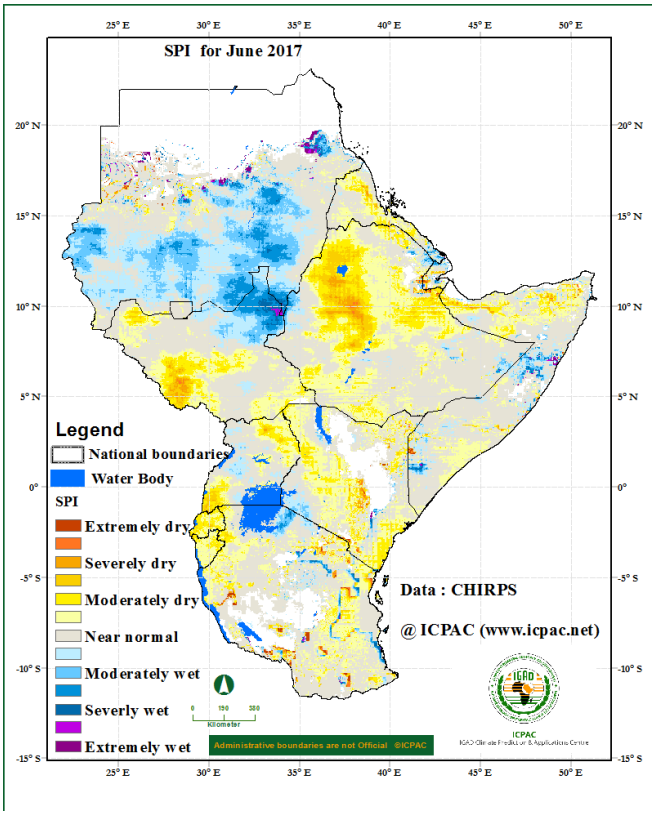

Figure 3: Standardized Precipitation Index for June 2017*(Data Source: CHIRPS)*

TEMPERATURE CONDITIONS

During the month of May 2017, warmer than the average maximum temperatures conditions was experienced over much of South Sudan, southern and southeastern Sudan, western and in eastern Ethiopia, in southeastern parts of Somalia, around northern, southwestern and eastern Uganda, western and central Kenya, southern and eastern Rwanda, eastern and central Burundi, and in parts of north, western and southern Tanzania (Figure 4a). Much of the rest of the Greater Horn of Africa (GHA) recorded near average maximum temperature.

Much of the GHA region recorded near the average minimum temperature conditions in the month of May 2017, except for areas covering much of north and southeast of Sudan, western parts of South Sudan, in several isolated areas in southwest Eritrea, western and eastern margins of central Ethiopia, north, and eastern Uganda, western and central Kenya, west and east of Rwanda, east and central Burundi, and in north and western Tanzania (Figure 4b).

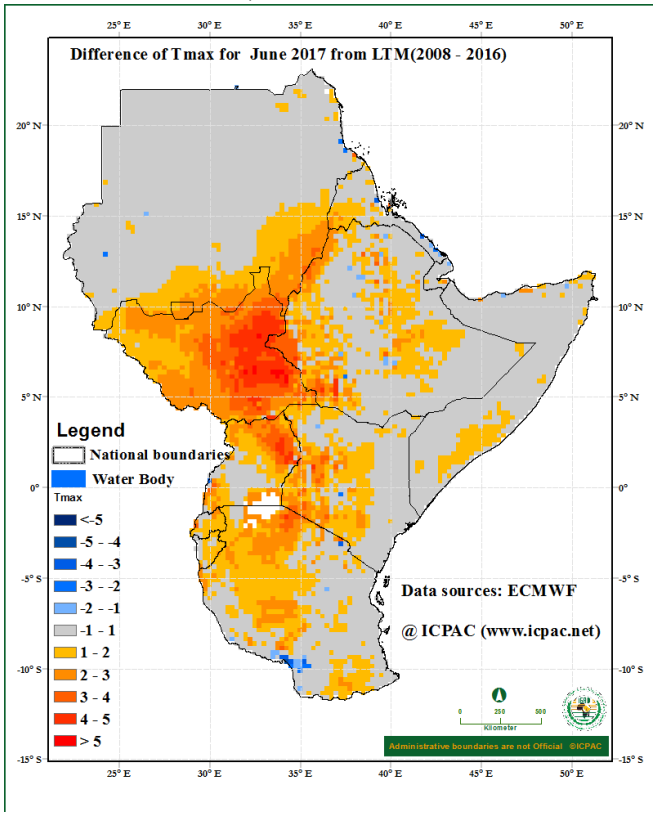

**Figure 4a: Maximum temperature anomalies for June 2017 (From LTM 2008-2016 (*Data Source: ECMWF)*

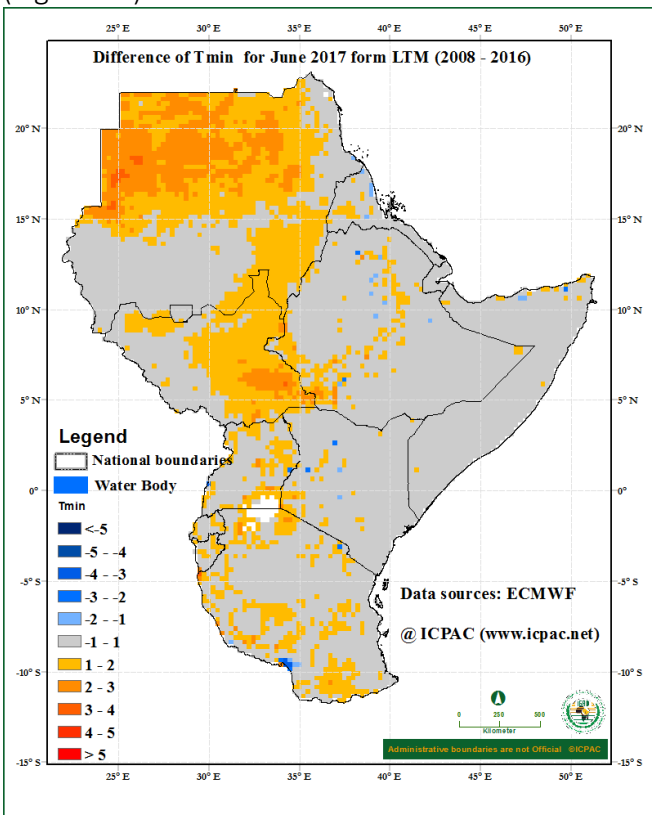

Figure 4b: Minimum temperature anomalies for June 2017 From LTM 2008-2016 *(Data Source: ECMWF)*

4. STATUS OF THE CLIMATE SYSTEMS

The Sea Surface Temperature (SST) anomaly during the period 11 June – July 8, 2017 showed that over central equatorial Pacific Ocean stretching towards the eastern equatorial Pacific region (Niño 4 to Niño 1&2 areas) near average to warmer than average SST anomaly has been dominant (Figure 5), however this situation still currently presents a neutral ENSO phase (Figure 6b). Near average to cooler than average SST conditions dominated much of central to eastern equatorial Indian Ocean (Figure 5) with near average to warmer than average sea surface temperature being experienced in the western equatorial Indian Ocean resulting to a neutral IOD (Figure 6).

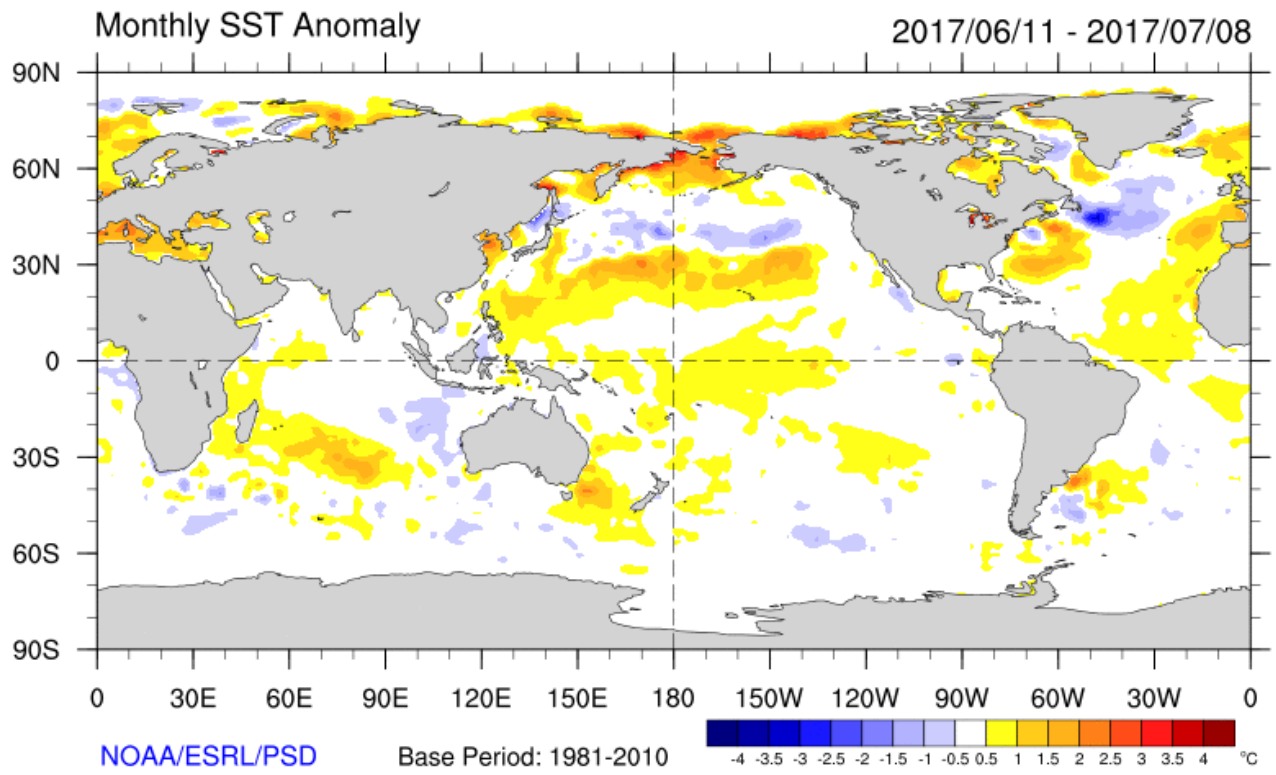

Figure 5: Sea Surface Temperature anomalies for the period 11 June to 08 July 2017 (Courtesy of NOAA/ESRL/PSD)

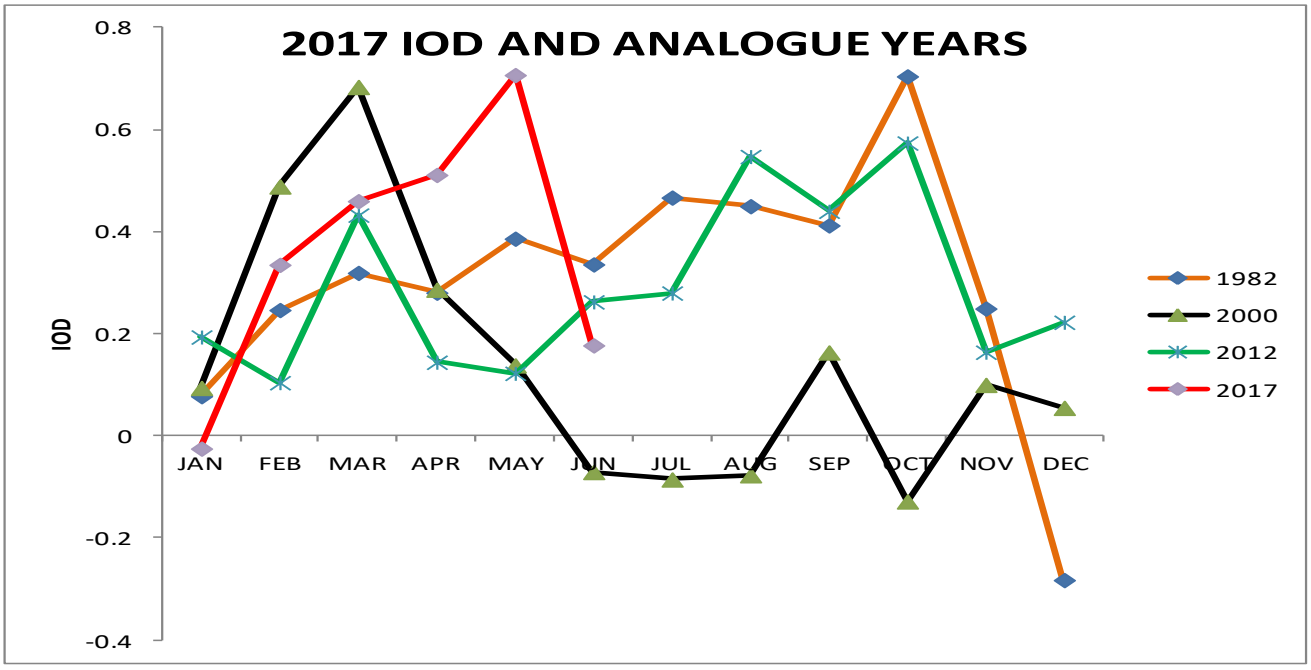

Figure 6a: The Indian Ocean Dipole (IOD) during 2016/17 and analogue years.

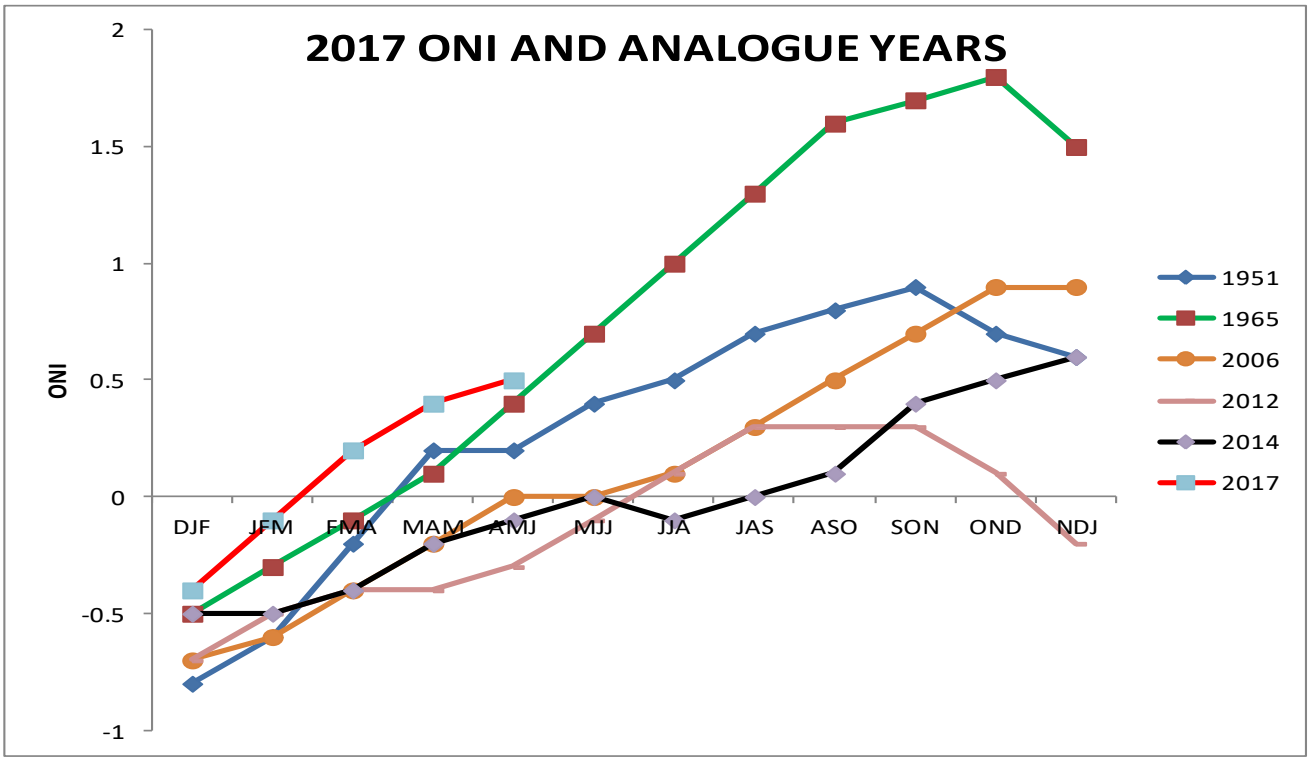

Figure 6b: The Oceanic Nino Index (ONI) during 2016/17 and analogue years.

5. CLIMATE OUTLOOK FOR AUGUST 2017

The rainfall forecast for August

In the month of August 2017, rainfall is likely to be concentrated over southern part of Sudan; over much of South Sudan; around southwestern Eritrea; in northwestern to central parts of Ethiopia; over north and southeastern parts of Uganda; and in western Kenya (Figure 7a). Areas around northern Sudan, parts of eastern and southern South Sudan, southern Ethiopia, northern to central Somalia, northwestern and eastern Kenya, northeastern Uganda, and western and southern Tanzania have higher chances of recording below the average rainfall. With the rest of the GHA region having better chances of near average to above average rainfall conditions.

Temperature Outlook for August 2017

Average temperature of more than 25°C is likely to be observed in much of Sudan, south Sudan, Somalia, Djibouti, Eritrea, northeast and east of Ethiopia, in northwest part of Uganda, and in north and eastern parts of Kenya. Average temperature less than 25 °C is likely to be observed in central and western Ethiopia, in several areas of Uganda, Rwanda, Burundi and Tanzania, and western and central Kenya. Much of the GHA region has higher chances of recording warmer than the average mean temperature for the month of August 2017, except for the southeastern and south-central parts of Sudan, southwestern Eritrea, northern and eastern parts of Ethiopia, Djibouti, and in northern part of Somalia, which are likely to record average to cooler than the average mean temperature in the month of August 2017.

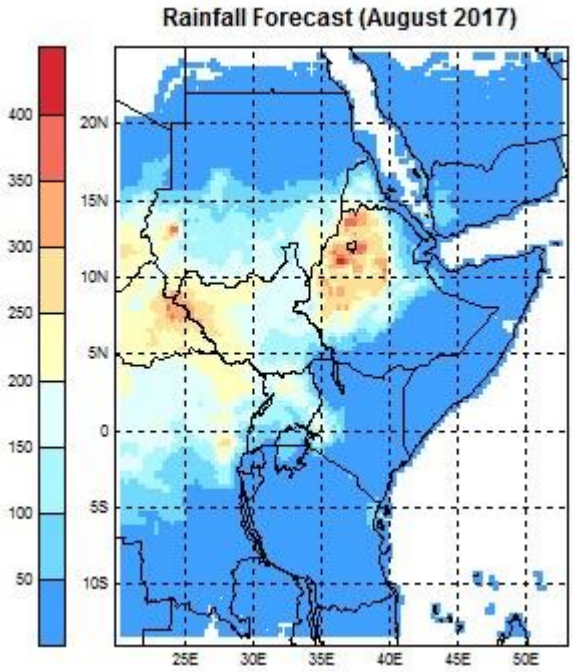

Figure 7a: Rainfall total forecast for August 2017

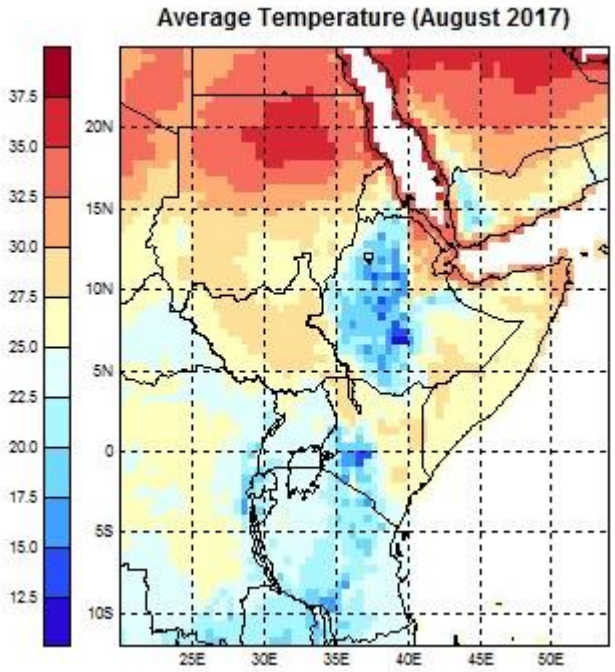

Figure 7b: Mean temperature forecast for August 2017.

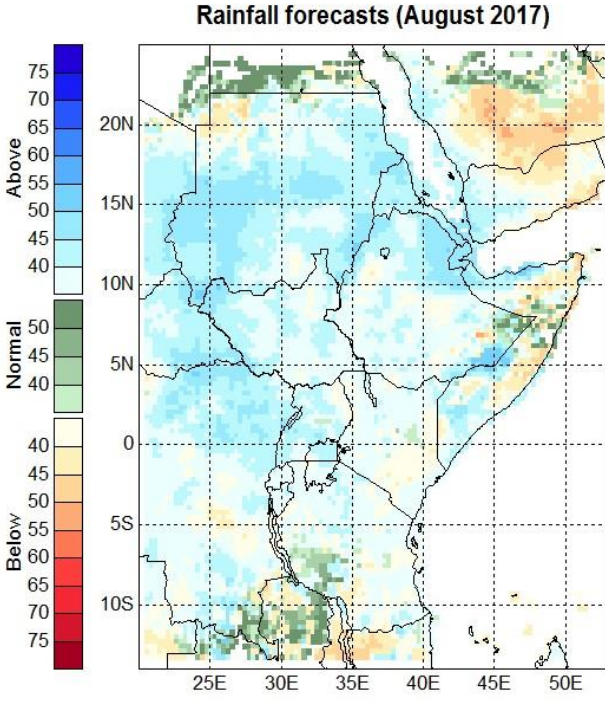

Figure 7c: Rainfall terciles probability forecast for August 2017

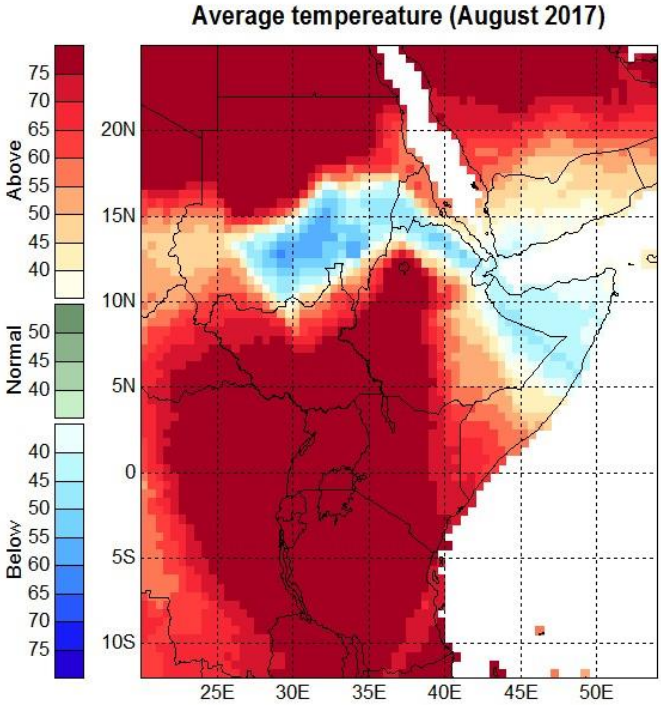

Figure 7d: Mean temperature terciles probability forecast for August 2017.

6. IMPACTS ON SOCIO-ECONOMIC SECTORS

The socio-economic impacts associated with observed rainfall conditions and those from the climate outlook are provided below.

Vegetation condition indicators and associated impacts

The Normalized Difference Vegetation Index (NDVI) anomaly for June 2017 indicated that vegetative conditions showed deterioration as compared to the long term average in southern Ethiopia, south eastern South Sudan, southern Somalia, southern and eastern Uganda, western and central parts of Kenya, southeastern Rwanda, and in northern Tanzania. Improvement in vegetative conditions as compared with the long term average was observed in southern parts of Sudan, northern and northwestern South Sudan, in southwestern Eritrea, northwestern and eastern Ethiopia, southern and eastern Tanzania, and in isolated areas in south-central Kenya and south of Somalia. The rest of the Greater Horn of Africa indicated little or no change in vegetative conditions. (Figure 8).

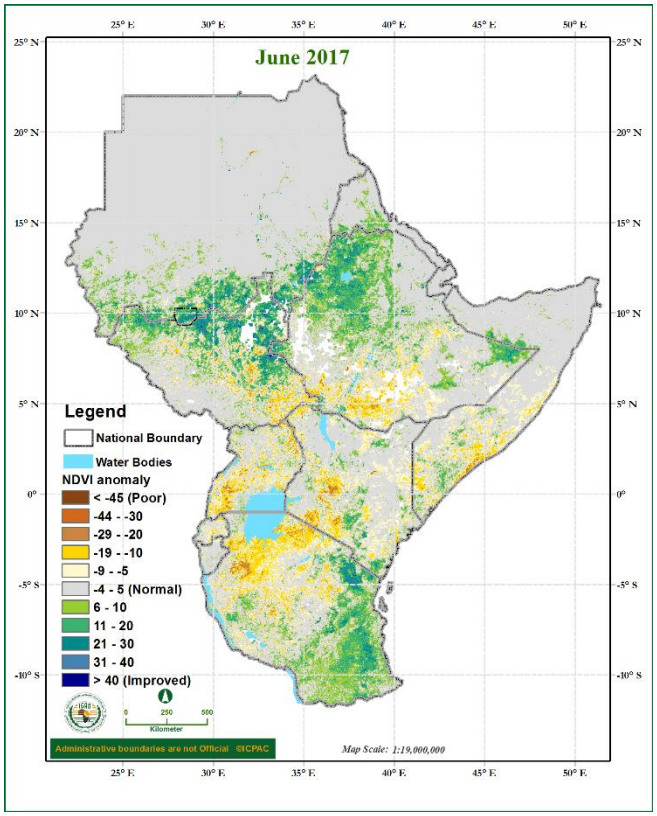

Figure 8: Normalized Difference Vegetation Index (NDVI) of June 2017 over the Greater Horn of Africa (Data Source: USGS NASA)

Impacts of observed climate conditions during June 2017

During the month of July 2017 several places in the Greater Horn of Africa still continued to experience depressed rainfall related impact that has led to continued water stress, poor pasture and crop performance, increased risk of food insecurity, and associated increase in food prices, reported in some areas round the equatorial and southern part of northern sector sector of the GHA; there is reported cases of climate related diseases.

However some areas in the northern sector have reported improved pasture and water conditions, and receiving a substantial amounts of rainfall with good and healthy crops which have acted as a relief from the previously dry conditions, some incidences of flooding were reported in few isolated areas over the northern sector of GHA during the month of June 2017.

Potential impacts for July 2017 climate outlook

The probable impacts from the June 2017 climate forecast show much of the south-western, south-central and south-eastern parts of the northern sector, as well as western and central parts of the equatorial sector of the GHA likely to have improved water, crop and pasture conditions leading to good prospects for crop and livestock performance. However some parts especially in eastern and southern parts of the equatorial sector are likely to receive little or rainfall which are likely to result into a continued deterioration of water and pasture resources leading to water related crop and livestock stress and poor prospects for crop and livestock performance.

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