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Monthly Climate Bulletin

Climate Review for September 2019 and Forecasts for November 2019

1. INTRODUCTION

This bulletin reviews the September 2019 climate conditions over the Greater Horn of Africa (GHA) region and highlights the November 2019 rainfall and temperature forecasts together with the socio-economic impacts associated with both the observed and the forecasted climate conditions.

For referencing within this bulletin, the GHA is generally divided into three sub-sectors: The equatorial sector lying approximately between 5°N and 5°S latitude, while the northern and southern sectors lie in the north and south of the equatorial region respectively.

2. HIGHLIGHTS

Rainfall was recorded mainly in the northern sector, and western and central parts of the equatorial sector of the GHA. In overall, most of the GHA recorded near normal or above normal rainfall, however a few areas in central and southern Somalia and also northern Ethiopia recorded much drier conditions during the month of September 2019 (Figure 2 and 3).

The maximum and minimum temperatures were generally warmer than the climatological mean for most places in the equatorial and southern sector of GHA. Most of the western and central parts of the northern sector of the GHA recorded maximum and minimum temperature that was cooler than or near the climatological average.

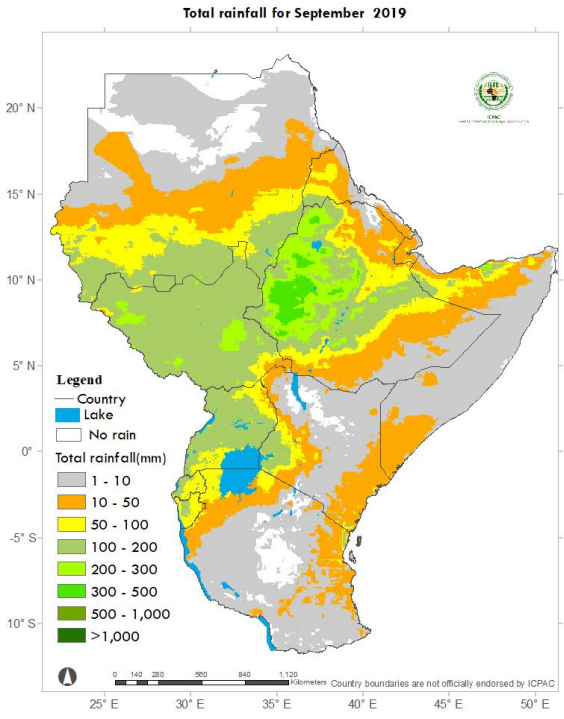

Figure 1: Rainfall was concentrated in central and southern parts of Sudan, over much of South Sudan, western and central parts of Ethiopia, northern and central Uganda and western parts of Kenya. *(Data Source: Blended CHIRPS)*

By September 2019, the Oceanic Nino Index (ONI), a primary index used to monitor the El Nino-Southern Oscillation (ENSO) maintained a slightly positive signal (Figure 7) within the neutral range. The Indian Ocean Dipole (IOD) index indicated a positive phase (Figure 6). There is a reduced chance of a positive ENSO while the IOD is forecasted to persist in positive phase to the end of 2019.

The downscaled climate models ensemble forecast for November 2019 (Figure 8) indicates that above normal rainfall expected over Kenya, Uganda, Tanzania, Ethiopia, Somalia, and Djibouti. Below normal rainfall expected over parts of Southwestern South Sudan and localized areas in Sudan.

High monthly average temperature of 30 degrees Celsius are expected over much of South Sudan, southern and eastern parts of Sudan, parts of eastern and northwestern Kenya, and south western Somalia. Low to moderate monthly average temperature of between 12 and 22 degrees Celsius is expected in central, western, and parts of eastern Ethiopia, central and parts of western Kenya, Rwanda, Burundi and localized areas of Tanzania. Moderate monthly average temperature between 23 and 29 degrees Celsius is expected in the rest of the region (Figure 9).

3. CLIMATE PATTERNS IN September 2019

The rainfall amounts (Figure 1) and performance as compared to the climatological mean (1981-2010) using percentage of long term average (Figure 2) and Standardized Precipitation Index (SPI) (Figure 3) for September 2019 are provided in this section. The minimum (Figure 4b) and maximum (Figure 4b) temperature anomalies relative to Long term mean (1981-2010) are also shown.

Rainfall performance

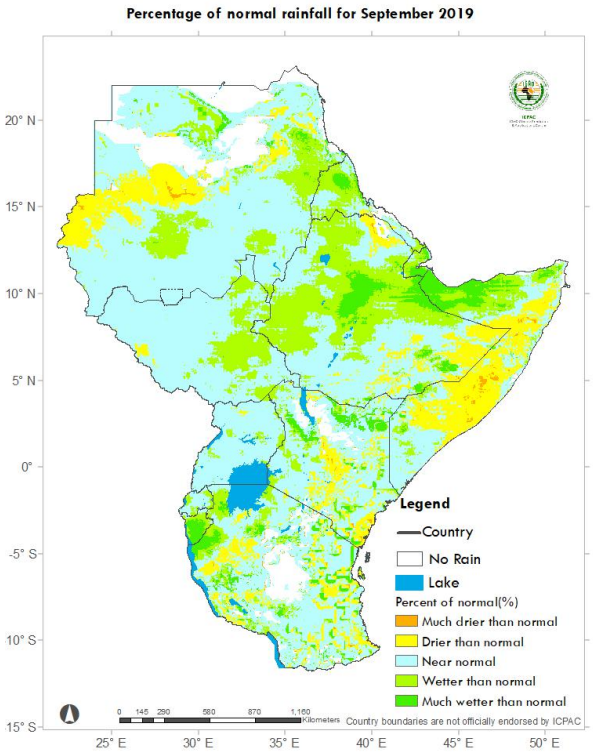

Figure 2:

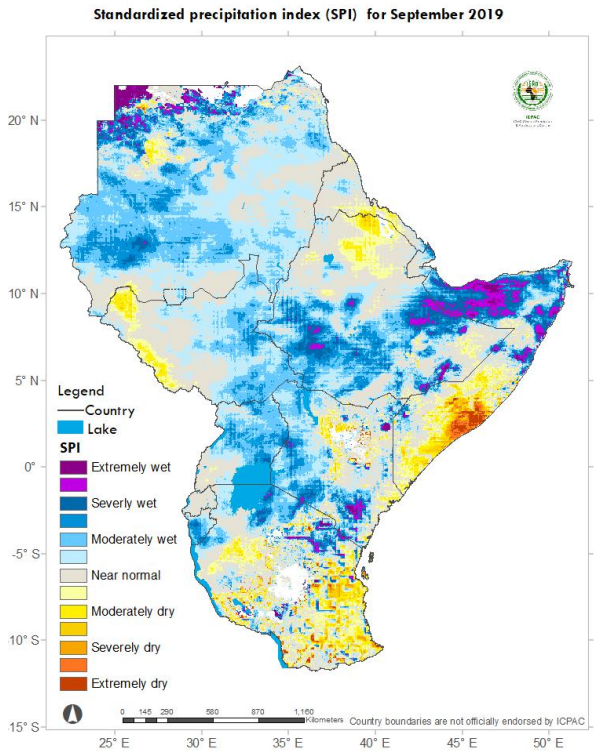

Figure 3:

The area in northern Ethiopia, and central and southern Somalia recorded rainfall lower than the climatological average. Much of the rest of the northern sector and equatorial sector recorded rainfall that was nearer to or above the climatological average, however a few areas in northern part of Sudan, northern Kenya, and western and central parts of Tanzania remained generally dry. *(Data Source: Blended CHIRPS)*

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Temperature Conditions

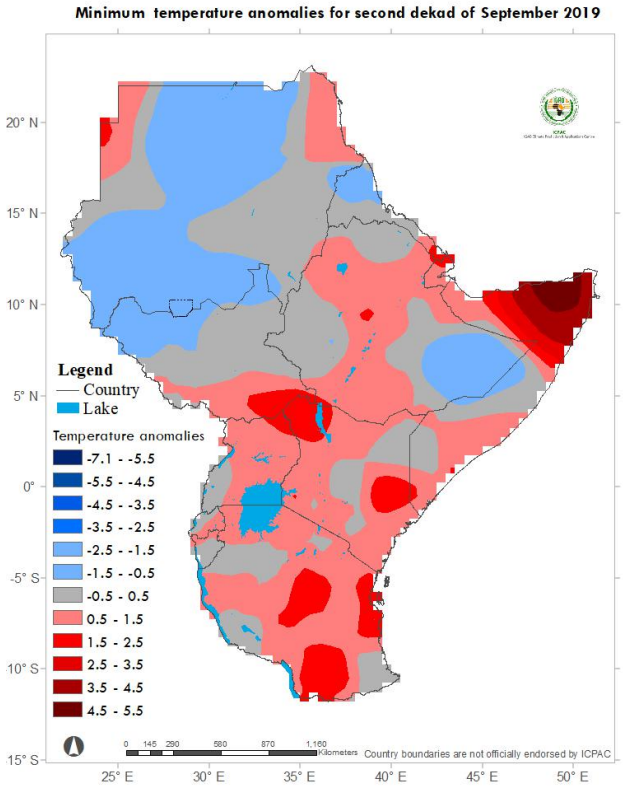

Figure 4a:

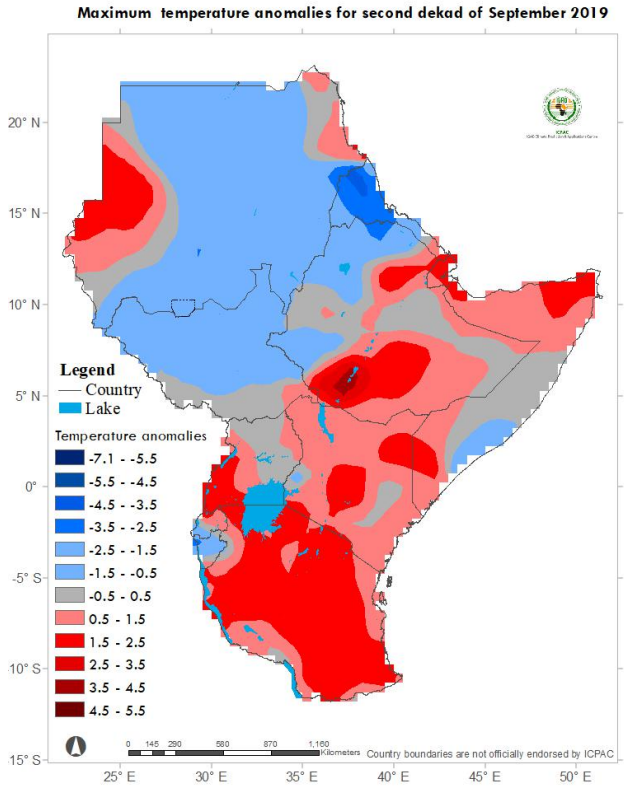

Figure 4b:

Most areas in the equatorial sector and southern sector of the GHA recorded maximum and minimum temperature warmer than the climatological mean. Several parts of Sudan, western and southeastern Ethiopia, western Eritrea, and central part of Somalia recorded maximum and minimum temperature that was nearer to or cooler than the climatological mean. Much of the rest of the norther sector of the GHA recorded maximum and minimum temperature that was warmer than or nearer to the climatological mean (*Data Source: Data Sourced from: NOAA-NCEP CPC .GTS gridded data).*

4. STATUS OF THE CLIMATE SYSTEMS

The Sea Surface Temperature (SST) anomaly during the period of September 2019 showed that western an central equatorial Pacific Ocean was dominated by warmer than average SST and the eastern equatorial pacific was dominated by cooler than average SST (Figure 5). Warmer than average SST conditions dominated the western and central equatorial Indian Ocean, while eastern equatorial Indian Ocean recorded cooler than average SST. This situation currently presents a neutral ENSO condition (Figure 6) and a positive phase Indian Ocean Dipole (IOD) (Figure 7). Positive IOD is usually associated with enhanced rainfall performance in the GHA. Model forecasts indicate an increased likelihood of persistent neutral ENSO phase and a higher possibility of a persistent positive phase of the IOD all through to the end of 2019 .

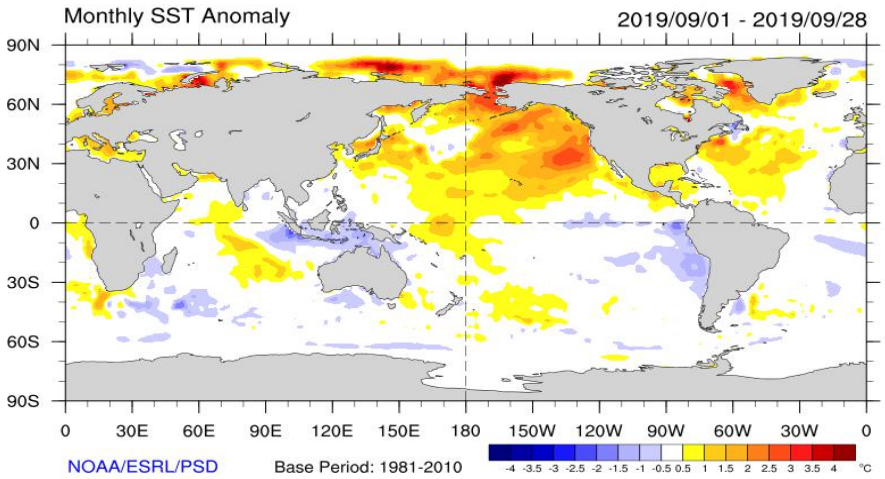

Figure 5: Sea Surface Temperature anomalies for the period of September 2019

(*Source: NOAA NCEP*)

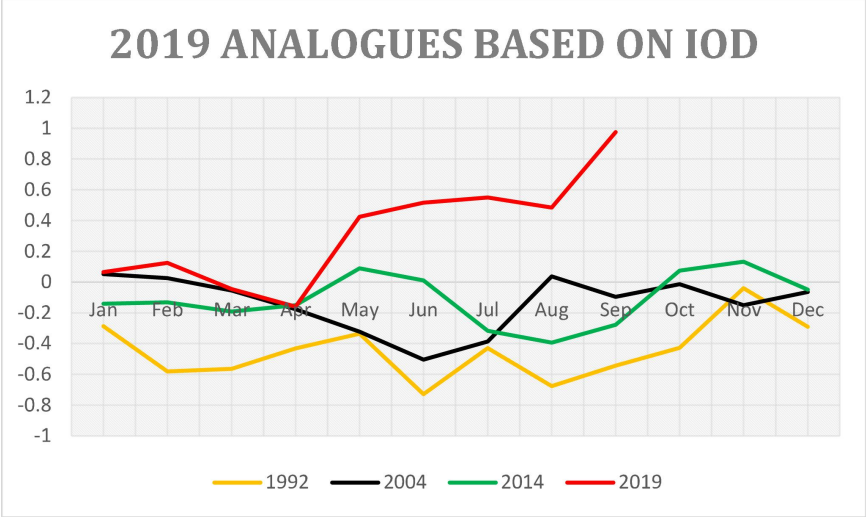

Figure 6: The Indian Ocean Dipole (IOD) during 2019 and analogue years.

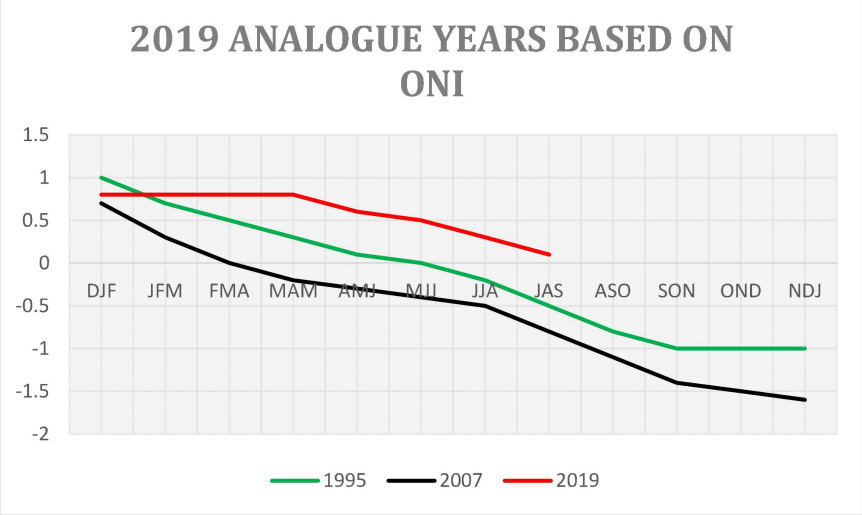

Figure 7: The Oceanic Nino Index (ONI) during 2019 and analogue years.

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5. CLIMATE OUTLOOK FOR NOVEMBER 2019

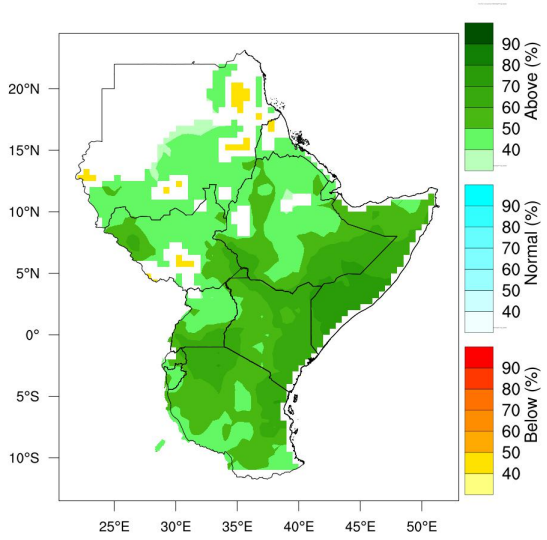

Figure 8: Probability-based rainfall forecast for November 2019.

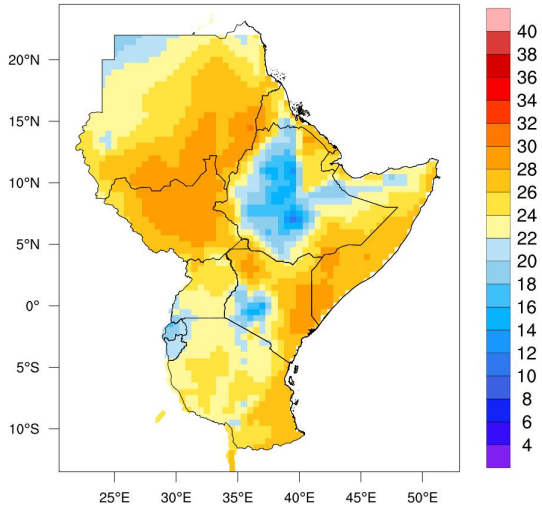

Figure 9: Temperature forecast for the month of November 2019

6. IMPACTS ON SOCIO-ECONOMIC SECTORS

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

Impacts of observed and forecasted climate conditions

During the month of September 2019, some areas in Sudan, Somalia, Kenya, Uganda, and Ethiopia reported isolated incidences of flooding, some places in eastern parts of the equatorial sector continued to experience dry conditions, which led to decline in water, and pasture resources. .

Considering that the month of November is one of the most significant months contributing to the November to December rainfall season in the GHA, the wetter than average rainfall forecast over central parts of Ethiopia should be closely monitored, for floods and an increase in water related diseases. ICPAC will continue to provide regional updates on a regular basis, and the National Meteorological and Hydrological Services (NMHSs) will provide detailed national and sub-national updates.

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