

IGAD Climate Prediction and Applications Centre Monthly Bulletin, June 2015

For referencing within this bulletin, the Greater Horn of Africa (GHA) is generally subdivided into three sub-regions: The equatorial sector lying approximately between -5° and 5° latitude, with the northern and southern sectors occupying the rest of the north and southern parts of the region respectively

1. HIGHLIGHTS/ ACTUALITES

- Rainfall activities were mainly observed over western, central and coastal parts of equatorial sector; coastal parts of the southern sector; as well as central parts of the northern sector of the Greater Horn of Africa (GHA) during the month of May 2015;
- During July to August 2015 rainfall period western and central parts of the northern sector, and western parts of the equatorial sector are likely to receive near normal to above normal rainfall;
- The socio-economic impacts associated with the observed rainfall over the GHA during the month of May 2015 resulted in improved crop, pasture and foliage conditions, increase in water related diseases; improvement in water resources and localised flooding over some parts of equatorial sectors.

2. INTRODUCTION

In this bulletin, the climatic conditions observed over the GHA region in the month of May 2015 is reviewed and the climate outlook for July to August 2015 rainfall season is also provided. Highlights on the socio-economic impacts associated with both the observed conditions and the outlook is also provided.

There are seven sections in this bulletin. In section 1, the major highlights from both the observed and expected climate conditions are outlined. Section 3 provides an overall summary. The climate patterns that prevailed in the month of April 2015 are discussed under section 4, while the dominant weather systems are discussed in the section that follows. The climate outlook over the GHA for the season of July to August 2015 is presented in section 6 followed by the socio-economic impacts associated with the observed climatic conditions in May 2015 and those expected from the climate outlook in the final section.

3. SUMMARY

This bulletin has three main components, these are: the climatic conditions observed during the month of May 2015 over GHA, the climate outlook for July to August 2015 rainfall season, and the impacts associated with both the observed climate conditions and the climate outlook.

Rainfall activities were mainly observed over western, central and coastal parts of the equatorial sector; coastal parts of the southern sector; as well as central parts of the northern sector of the GHA region during the month of May 2015. The observed rainfall conditions over parts of the Greater Horn of Africa during May resulted in improved crop, pasture and foliage conditions, replenishment of water resources and cases of flooding leading to disruption of livelihood.

The climate outlook for the July to August 2015 rainfall season indicates an increased

likelihood of near normal to above normal rainfall over parts of South Sudan, parts of western and coastal Kenya, northern and central Uganda; western and central Ethiopia; parts of southern Sudan; and southern Somalia. The rest of the region is likely to experience near normal to below normal conditions and generally dry conditions during July to August 2015 rainfall season. (Figure 8)

4. CLIMATE PATTERNS IN MAY 2015

The climatological summary for the rainfall amounts and rainfall severity indices over the GHA in the month of May 2015 are provided in this section. The rainfall severity indices are derived only for those areas in the GHA region where May is not a generally dry month.

4.1 Rainfall amounts and performance during May 2015

During the month of May 2015, most parts western, central and coastal Kenya; coastal Tanzania; Eastern and Southern parts of Uganda; South-eastern South Sudan; southern Somalia; and western Ethiopia received between 100mm to above 200mm of rainfall. Eastern and central parts of South Sudan; eastern and central Ethiopia central and north western Kenya; and northern and eastern Tanzania recorded rainfall amounts of between 50mm to 100 mm (Figure 1). While the rest of the GHA indicated less than 50 mm of rainfall.

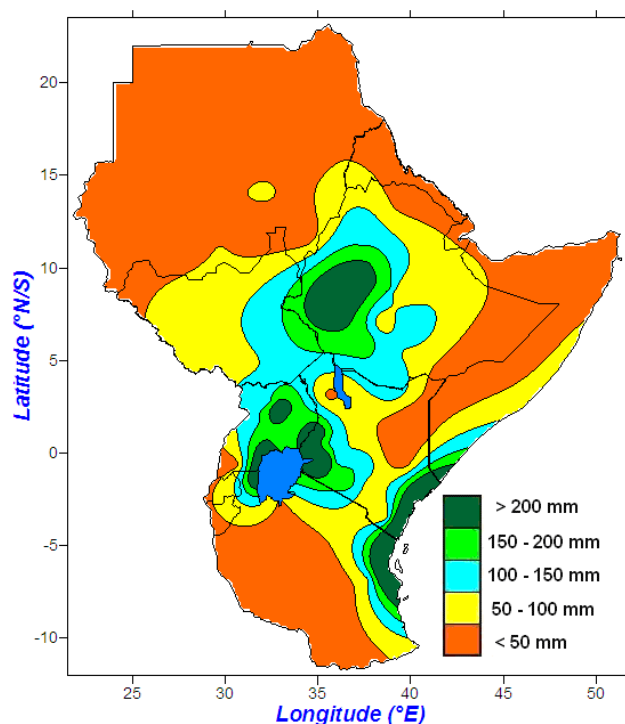


Figure 1: Spatial distribution of rainfall during the month of May 2015

4.2 Climate severity

Rainfall severity indices are derived by considering all observations which are less than 25% (first quartile) of the ranked historical records to be dry while those which are more than 75% (third quartile) are considered wet.

During April 2015, near-normal to wet conditions were observed over coastal and northern parts of Tanzania; western and central parts of Kenya; western and northern parts of Tanzania; central and western Ethiopia; southern parts of Burundi; and central and southern Uganda (Figure 2). Most parts of South Sudan; eastern Ethiopia; southern Sudan; north eastern and south western Uganda; parts of Rwanda and Burundi; Central Somalia; and northern and eastern parts of Tanzania indicate near normal to dry rainfall conditions, while the rest of the GHA indicates generally dry conditions.

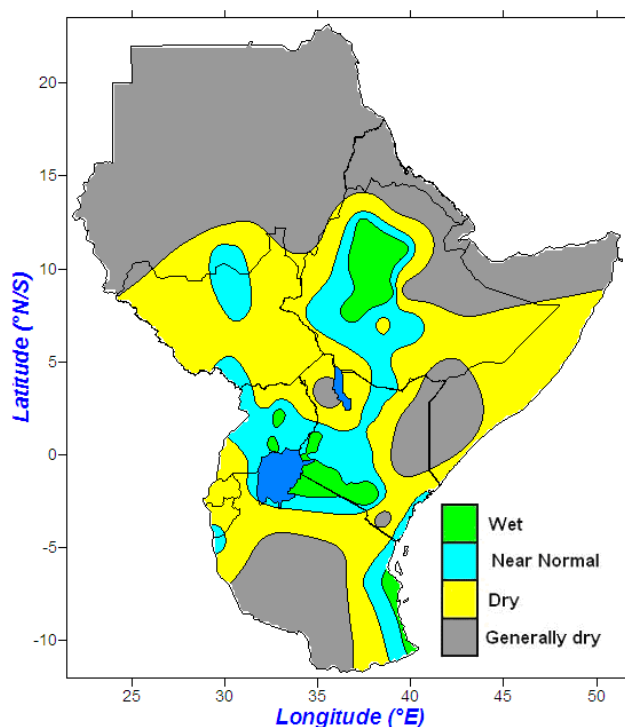


Figure 2: Rainfall severity index for the month of May 2015

4.2.1 Cumulative climate stress severity monitoring

The extent of climate-related impacts on any particular system depends on the severity and duration of the climate stress. Direct and indirect severe impacts on health and food security, water resources and livestock, among other socio-economic sectors emanates from cumulative climate stress severity. The indices used to monitor cumulative rainfall severity over GHA are presented in the next section.

4.2.2 Cumulative rainfall performance from January 2015

The cumulative dekadal rainfall was used to evaluate the rain water stress over GHA region. Figure 3 shows the cumulative dekadal rainfall performance since January 2015. Near normal to above normal rainfall was observed over western, central and coastal parts of equatorial sector (Figure 3b, 3a and 3c).

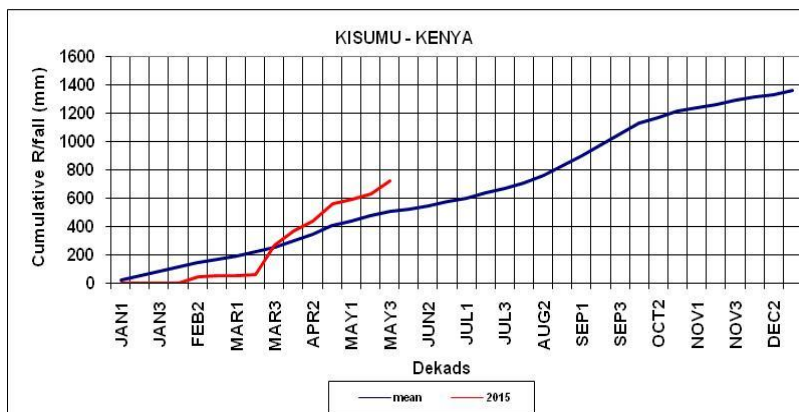


Figure 3a: Cumulative rainfall series for Kisumu

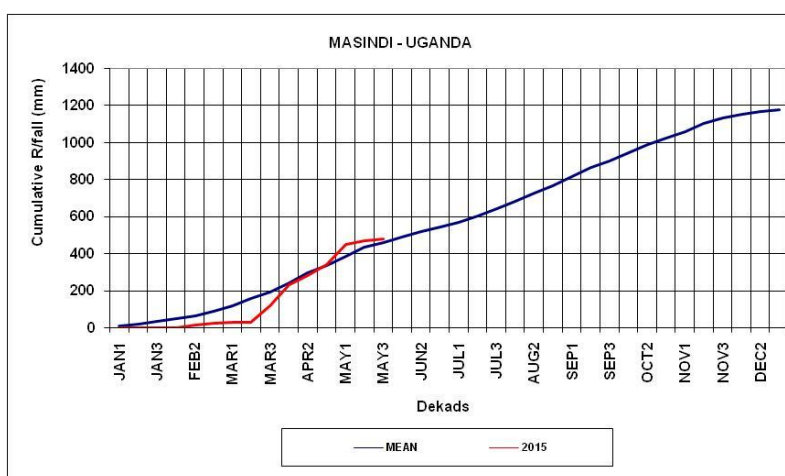


Figure 3b: Cumulative rainfall series Masindi

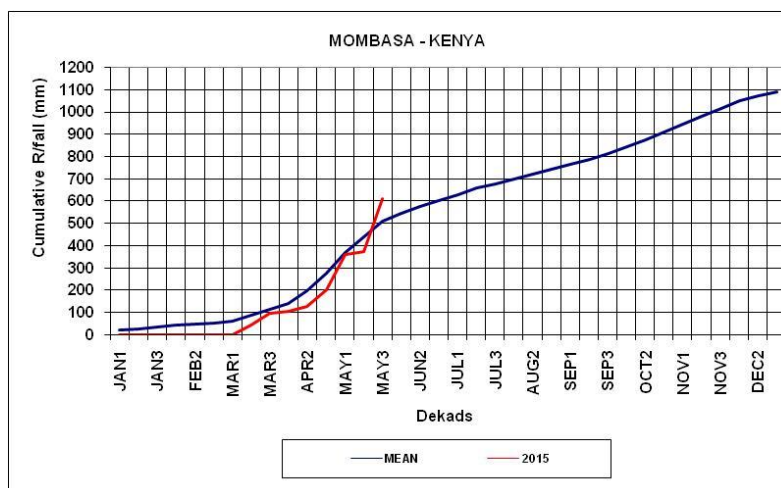


Figure 3c: Cumulative rainfall series for Mombasa

4.3 Rainfall anomalies

4.3.1 Rainfall anomalies during March to May 2015 period

During March to May 2015 period Rwanda; Burundi; most parts of Uganda; northern and coastal parts of Tanzania; southern parts of South Sudan; western parts of Ethiopia; and central, western and eastern Kenya received between 75-125% of long term rainfall of the period with western parts of Sudan receiving between 125% to more than 175% of long-term average rainfall. Most parts Somalia; eastern Ethiopia; most parts of South Sudan; southern parts of Sudan; Djibouti; Eritrea; and western and southern parts of Tanzania received between 25% to 75% of long term mean rainfall. The rest of the region received less than 25% of the long-term rainfall (Figure 4) for the three-month long-term mean rainfall during the March-May 2015 period (Figure 4).

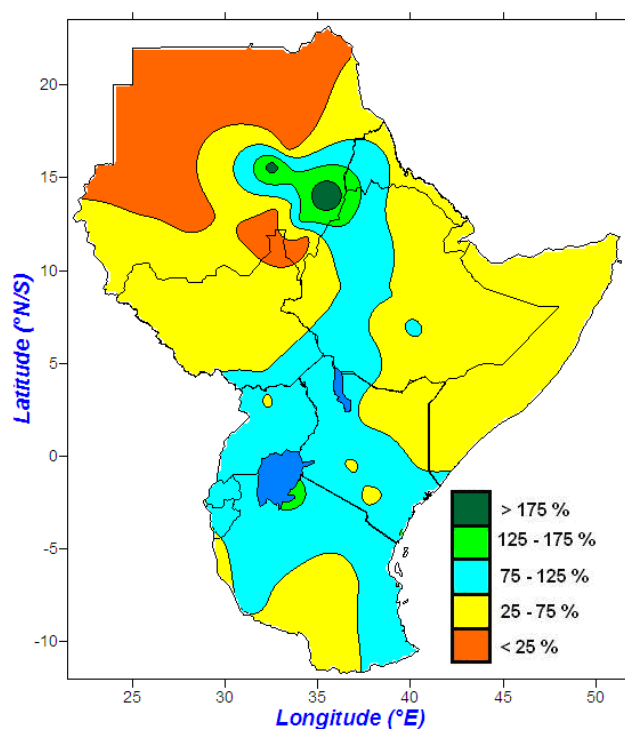


Figure 4: Spatial pattern of rainfall anomalies for March to May 2015 period

4.4 Temperature anomalies

4.4.1 Maximum temperature anomalies

During the month of May 2015, warmer than average maximum temperatures prevailed over most parts of the Greater Horn of Africa (GHA) region (Figure 5a) except for northern Somalia; northern and south eastern Sudan; and isolated area of southern and western Kenya which recorded less than average maximum temperatures. Positive maximum temperature anomalies exceeding 2°C were recorded over southern parts of Ethiopia, eastern and north-eastern Kenya; southern Somalia; and parts of eastern Sudan (Figure 5a).

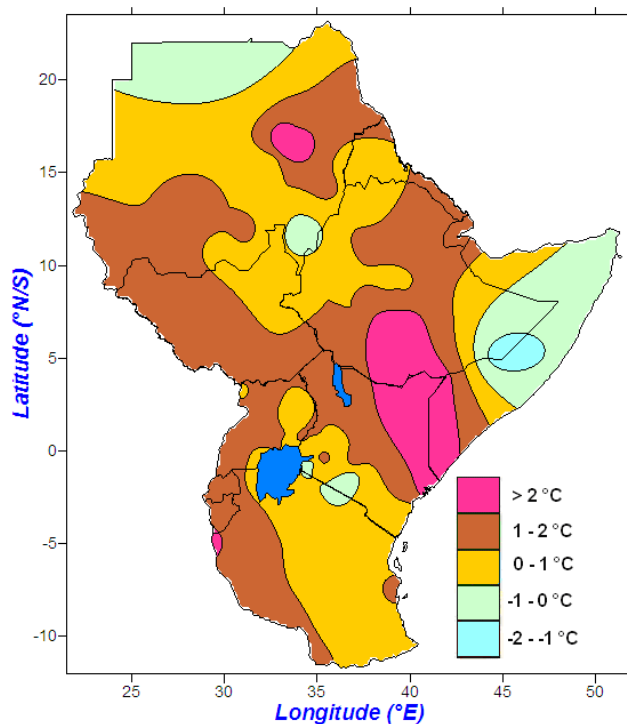


Figure 5a: Maximum temperature anomalies for May 2015

4.4.2 Minimum temperature anomalies

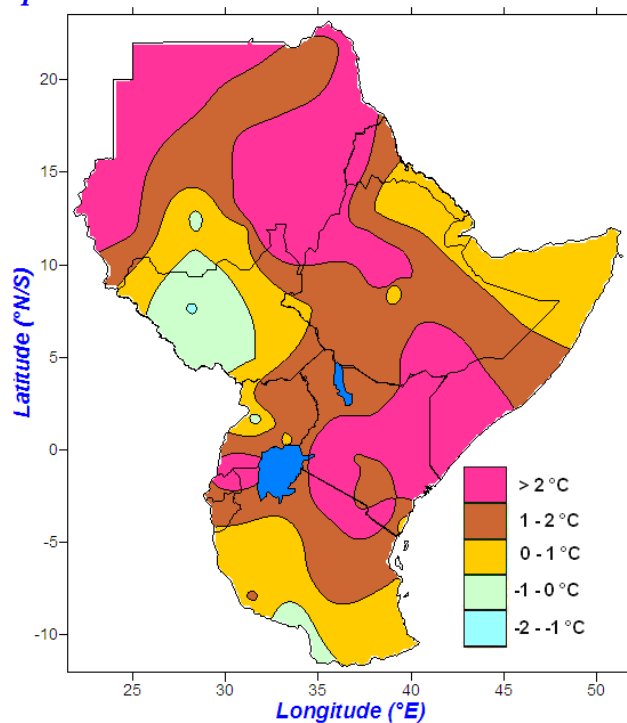


Figure 5b: Minimum temperature anomalies for the month of May 2015

During April 2015, most parts of the GHA received warmer than average minimum temperature anomaly except for western South Sudan, north western Uganda, and south western Uganda (Figure 5b). Positive minimum temperature anomalies exceeding 2°C were

observed over south-western Uganda; western, central and north-eastern Kenya; and northern Tanzania; southern Somalia; south eastern and north western Ethiopia; eastern and western Sudan (Figure 5b) during the month of May 2015.

5. STATUS OF THE CLIMATE SYSTEMS

During the period of mid May to mid June 2015 above average sea surface temperatures (SSTs) were observed over central equatorial Indian Ocean. The eastern equatorial Indian Ocean indicated near normal to warmer than average SSTs, while western equatorial Indian Ocean indicated normal to cooler than average SSTs (Fig.6) resulting in weak negative Indian Ocean dipole index (Figure.7a). Warmer than average SSTs were observed over eastern equatorial Pacific Ocean (Figure. 6) an indication of positive ONI Index (Figure 7b).

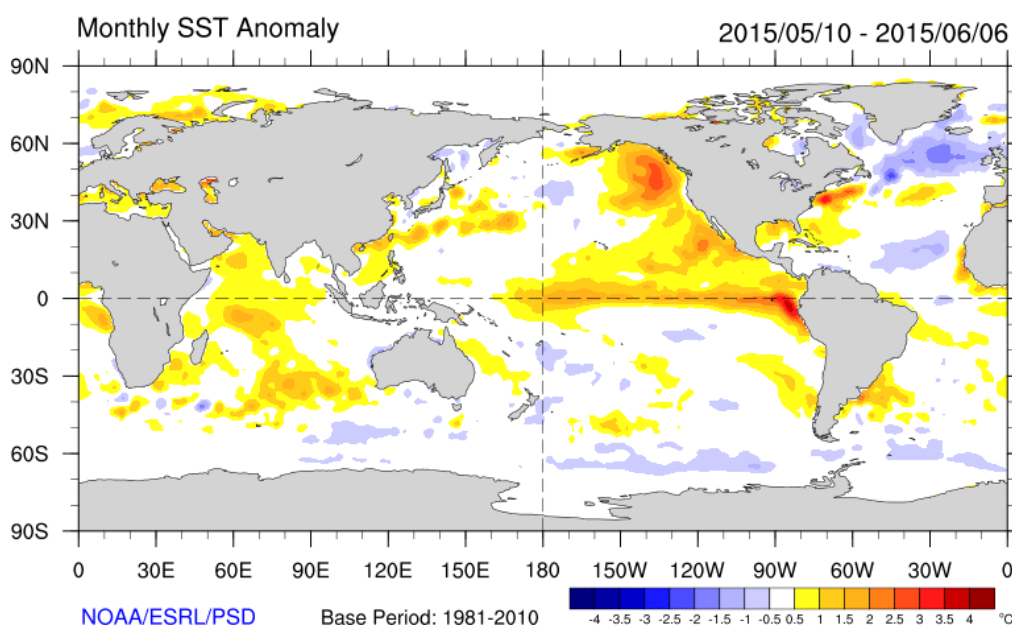


Figure 6: Sea Surface Temperature anomalies for the period 4 April to 23 May 2015 (Courtesy of NOAA)

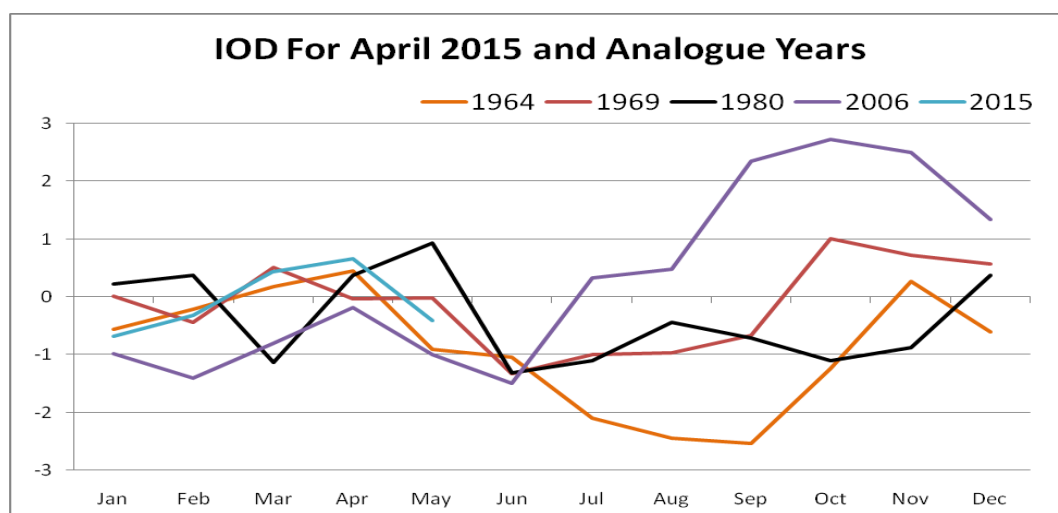


Figure 7a: Indian Ocean Dipole (IOD) for 2015 and Analogue Years

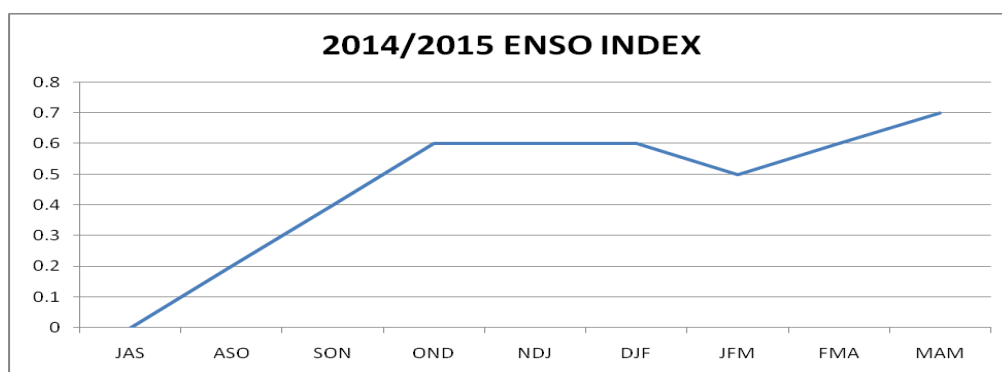


Figure 7b: ENSO index for 2014/2015

6.0 CLIMATE OUTLOOK FOR JULY TO AUGUST 2015

The rainfall outlook for July to August 2015 period indicates a likelihood of near to above normal rainfall over most parts of South Sudan; southern parts of Sudan; western and central Ethiopia; northern Uganda; western and coastal Kenya; and southern Somalia. (Figure 8). Near normal to below normal rainfall is likely to be experienced over most parts of Eritrea; Djibouti; central parts of Sudan; northern and central Somalia; northern Tanzania; parts of Rwanda; parts of western; eastern and north western Kenya; and eastern parts of Ethiopia. The rest of the region is likely to remain generally dry (Figure 8)

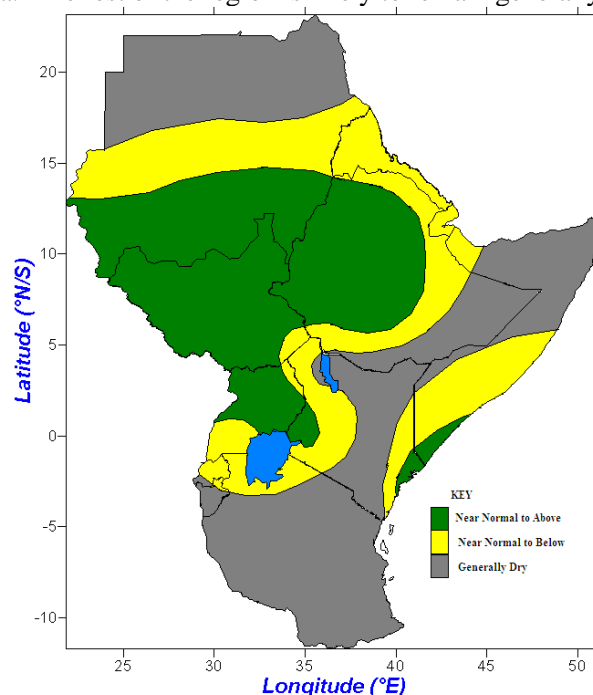


Figure 8: Climate Outlook for the July to August 2015 rainfall

7.0 IMPACTS ON SOCIO-ECONOMIC SECTORS

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

7.1 Impacts of observed climate conditions during May 2015

The socio-economic impacts associated with the observed rainfall over much of the Greater Horn of Africa during the month of May 2015 were as follows:

- Improved crop, pasture and foliage conditions;
- Replenishment of water reservoirs;
- Localised flooding leading to destruction of property, displacement of people, and disruption of livelihood;
- Increase of water related diseases;

In regions that experienced dry conditions the impacts were:

- Poor pasture and water availability leading to reduced livestock productivity;
- The water and food scarcity.
- Increased water related diseases;
- Poor crop performance.

7.2 Potential impacts for July to August 2015 climate outlook

The areas expected to receive normal to above normal rainfall are likely to have the following impacts:

- Good prospects for crop and livestock performance;
- Improvement in water resources and replenishment of reservoirs;
- Flooding that may lead to disruption of livelihood of people, and destruction of property;
- Outbreaks of water related diseases.

The areas expected to receive near normal to below normal rainfall are likely to have the following impacts:

- Poor prospects for crop and pasture performance;
- Risk of water scarcity;
- Outbreaks of water related diseases.
- If the dry conditions occur within the agricultural areas, this could lead to water stress conditions and may cause significant water and pasture scarcity, crop and livestock losses.