

IGAD Climate Prediction and Applications Centre Monthly Bulletin, October 2014

1. HIGHLIGHTS/ ACTUALITES

- Rainfall activities were mainly observed over central and south-western parts of the northern sector and western parts of the equatorial sector of the Greater Horn of Africa (GHA) during the month of September 2014;
- During November to December 2014 the western parts of both the equatorial and the southern sector are likely to receive near normal above normal rainfall;
- The socio-economic impacts associated with the observed rainfall over much of the Greater Horn of Africa during the month of September 2014 resulted in improved crop, pasture and foliage conditions as well as improvement in water resources over central parts of northern sector as well as western parts of equatorial sector. Localised flooding and landslides were also observed over the western parts of the equatorial and south western parts of the northern sector.

2. INTRODUCTION

This bulletin reviews the climatic conditions observed over the GHA during the month of September 2014 and provides the climate outlook for November to December 2014. The socio-economic impacts associated with both the observed climatic conditions and the climate outlook is finally highlighted.

There are seven sections that make up this bulletin. In the first section, the major highlights from both the observed and expected climate conditions are outlined. In section 3, an overall summary is provided. The climate patterns that prevailed during the month of September 2014 are discussed under section 4, while the dominant weather systems are discussed in the next section. The climate outlook over the GHA for November to December 2014 period is presented in section 6. In the final section, the socio-economic impacts associated with the observed climatic conditions and those expected from the climate outlook are outlined.

3. SUMMARY

The three main components of the bulletin are summarised in this section. These components are: the climatic conditions observed in the month of September 2014 over GHA, the climate outlook for November to December 2014, and the impacts associated with both the observed climate conditions and the climate outlook.

In the month of September 2014, rainfall activities were mainly observed over the central and south-western parts of the northern sector as well as western equatorial sector of the GHA region. The observed rainfall conditions over parts of the Greater Horn of Africa during September 2014 resulted in improved crop, pasture and foliage conditions, replenishment of water resources, and localised flooding.

The regional climate outlook for November to December 2014 indicates increased likelihood of near normal to above normal rainfall over the western parts of equatorial and southern sectors.(Figure 8).

4. CLIMATE PATTERNS IN SEPTEMBER 2014

The climatological summary for the rainfall amounts and rainfall severity indices over the GHA in the month of September 2014 are provided in this section. The rainfall severity indices are derived only for those areas in the GHA region where September is not a dry month.

4.1 Rainfall amounts and performance during September 2014

The extreme southern parts of Sudan; parts of western Ethiopia; much of South Sudan and Uganda; western Kenya; northern tip of Tanzania; and northern half of Rwanda received between 100mm and 200mm of rainfall in the month of September 2014 (Figure 1). Isolated parcels over western Ethiopia and western Kenya received more than 200mm of rainfall during the same period. Most parts of Tanzania and Kenya; much of Somalia and Djibouti; southern and eastern Ethiopia; and northern half of Sudan received less than 50mm of rainfall. Other areas such as southern part of Sudan; northern and central Ethiopia; north-western Kenya; southern half of Rwanda; most parts of Burundi; and coastal strip of southern Kenya and northern coast of Tanzania received between 50mm and 100mm of rainfall (Figure 1).

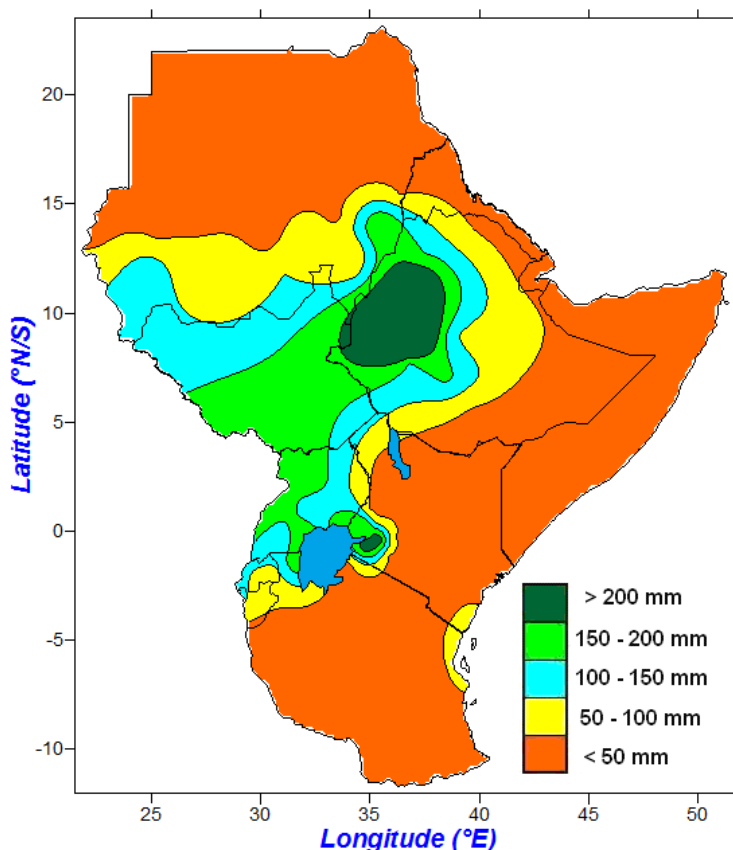


Figure 1: Spatial distribution of rainfall during the month of September 2014

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.

In the month of September 2014, north-western and central Ethiopia; south-eastern and south-western parts of Sudan; western half of South Sudan; most parts of Uganda; western Kenya; most parts of Rwanda; western Burundi; and northern tip of Tanzania; and the coastal strip on the Kenya-Tanzania border recorded near normal to wet conditions (Figure 2). Dry conditions were recorded over western parts of Sudan; eastern half of South Sudan; south-western and southern Ethiopia; north-eastern Uganda; most parts of Burundi; parts of northern tip of Tanzania; and coastal strip of Kenya extending to southern tip of Somali and northern coast of Tanzania. Over most parts of Tanzania, Kenya and Somali; eastern and north-eastern Ethiopia; most parts of Djibouti; and northern Sudan; generally dry conditions were recorded.

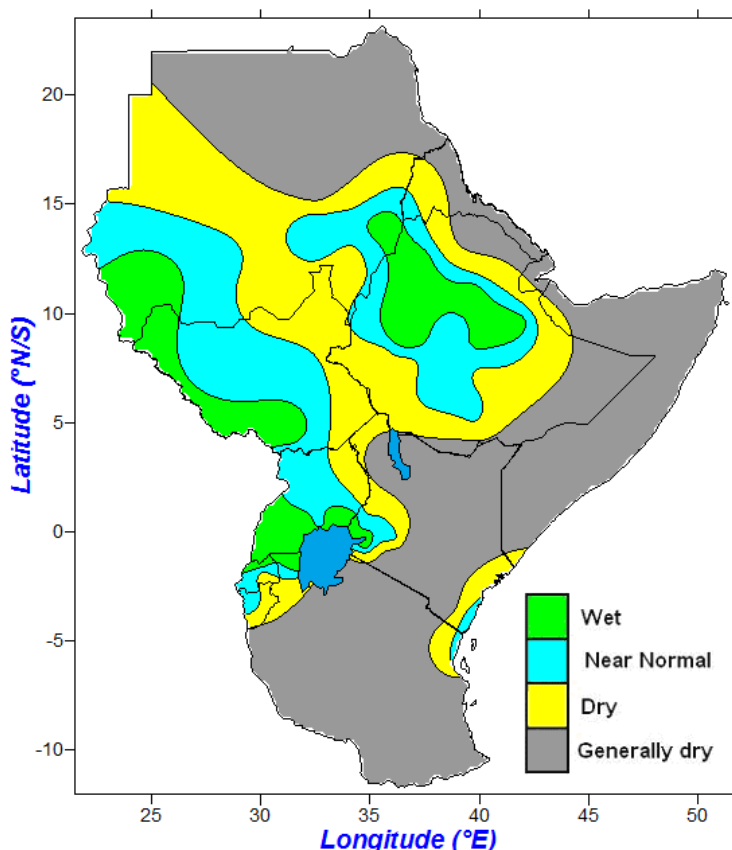


Figure 2: Rainfall severity index for the month of September 2014

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 June 2014 to September 2014

The cumulative dekadal rainfall was used to evaluate the rain water stress over GHA region. Figure 3 shows the cumulative dekadal rainfall performance since June 2014. Near normal to above normal rainfall was observed over the western and central parts of the northern sector

as well as the western parts of equatorial sector of the GHA (Figure 3a, 3b, and 3c) respectively.

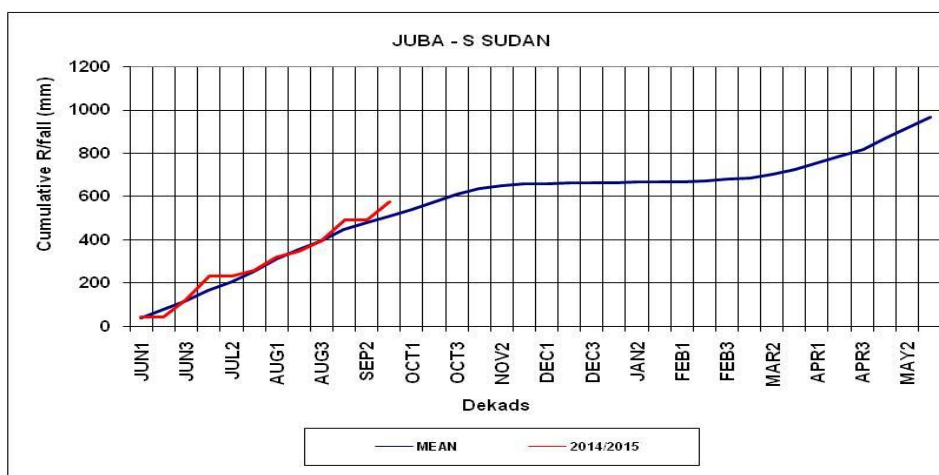


Figure 3a: Cumulative rainfall series for Juba

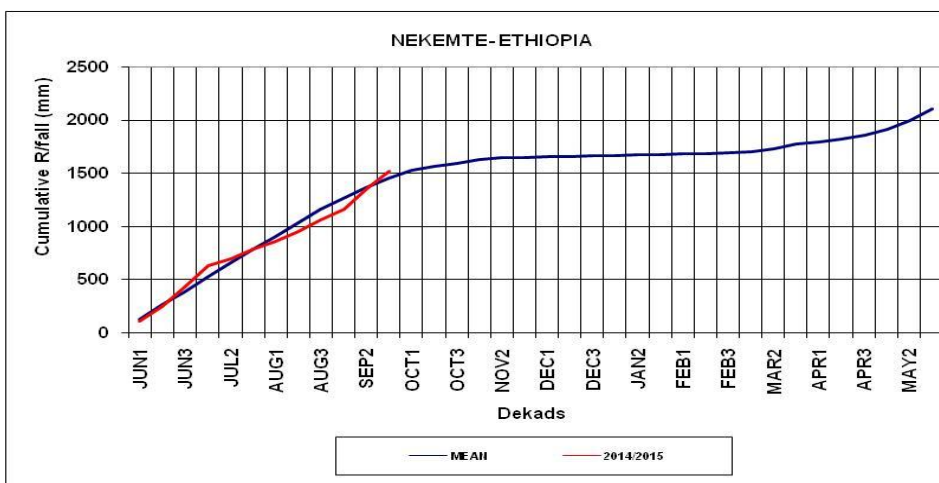


Figure 3b: Cumulative rainfall series for Nekemte

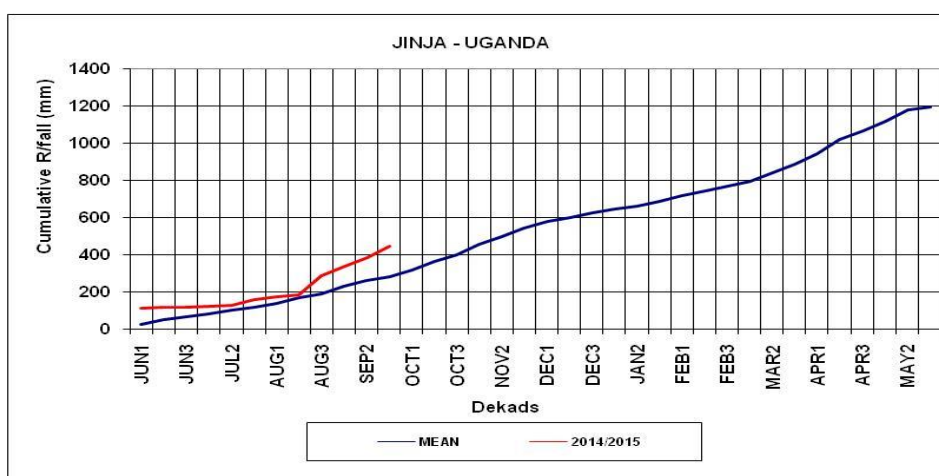


Figure 3c: Cumulative rainfall series for Jinja

4.3 Rainfall anomalies

4.3.1 Rainfall anomalies during July to September 2014

During July-August-September 2014 period, south-eastern and central Sudan; part of southern Ethiopia; north-western, central and south-western Kenya; southern half of Uganda; northern Tanzania; and northern half of Rwanda; received between 125% and 175% of the long-term rainfall. An isolated parcel over central Kenya received more than 175% of the long-term rainfall. Less than 75% of the long-term average rainfall for the July-August-September period was received over north-eastern Sudan; eastern Ethiopia; most parts of Somalia; north-eastern Kenya; and central and southern Tanzania (Figure 4). Parts of northern half of Tanzania; much of Burundi; southern half of Rwanda; coastal and western Kenya; northern half of Uganda; much of South Sudan; most parts of Sudan; and northern, central, southern and western Ethiopia received between 75% and 125% of the three-month long-term mean rainfall during the July to September 2014 period (Figure 4).

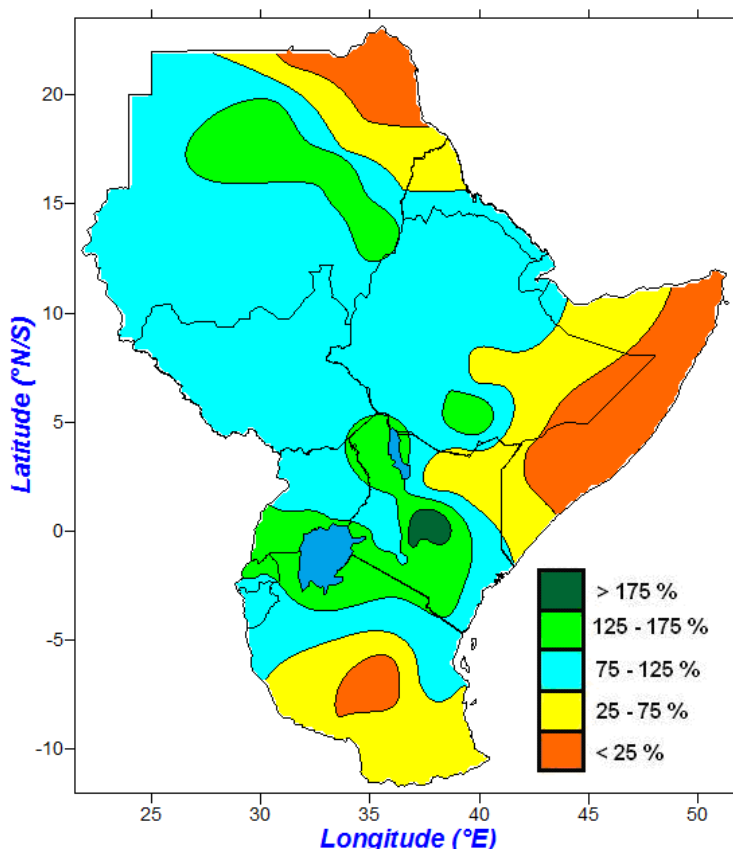


Figure 4: Spatial pattern of rainfall anomalies for July to September 2014 period

4.4 Temperature anomalies

4.4.1 Maximum temperature anomalies

In the month of September 2014, warmer than average maximum temperature conditions dominated over much of the GHA region (Figure 5a) with positive maximum temperature anomalies exceeding 2°C being recorded over northern part of Somalia and coastal strip on Kenya-Somalia border. Negative anomalies of maximum temperature were recorded over eastern, central and southern parts of Sudan; northern tip of South Sudan; north-western,

central and southern Kenya; north-eastern and central Tanzania; most parts of Rwanda and Burundi (Figure 5a).

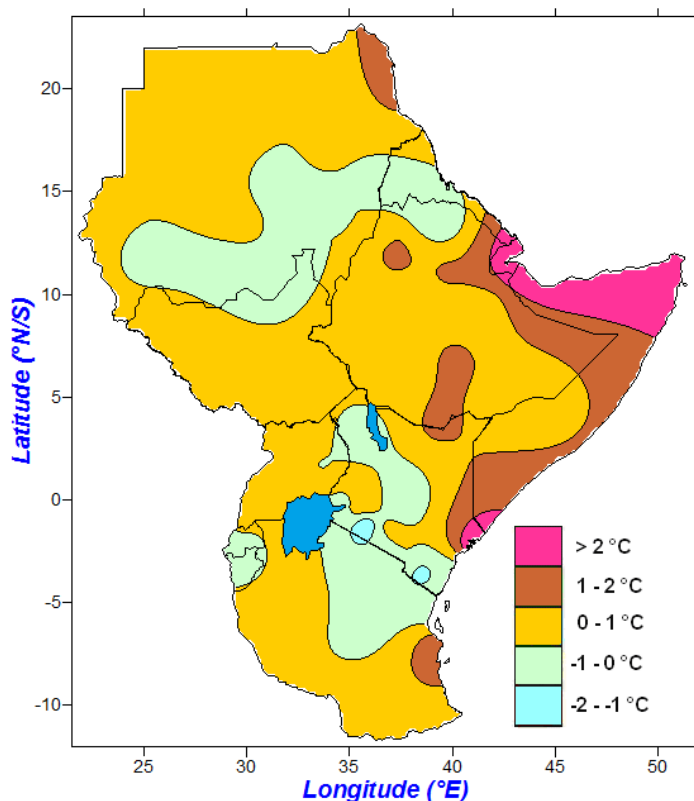


Figure 5a: Maximum temperature anomalies for September 2014

4.4.2 Minimum temperature anomalies

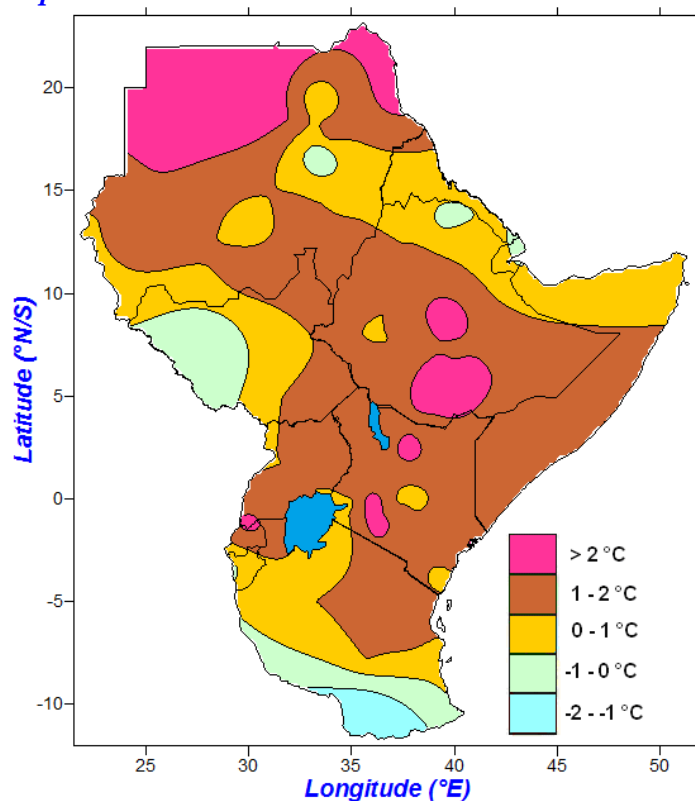


Figure 5b: Minimum temperature anomalies for the month of September 2014

Over southern and south-western Tanzania; and western parts of South Sudan; negative anomalies of minimum temperature were recorded during the month of September 2014 (Figure 5b). Warmer than average minimum temperature anomalies dominated over the rest of the GHA region with positive minimum temperature anomalies greater than 2°C being recorded over northern part of Sudan; isolated pockets over Kenya; and southern Ethiopia (Figure 5b).

5. STATUS OF THE CLIMATE SYSTEMS

During the months of September to October 2014 above average sea surface temperatures (SSTs) were observed over much of the eastern and southern parts of the Indian Ocean while near average SSTs were observed over the central parts of Indian Ocean (Fig.6) resulting in below normal Indian Ocean dipole index (Figure.7). Warmer than average SSTs were observed across equatorial Pacific Ocean (Figure. 6).

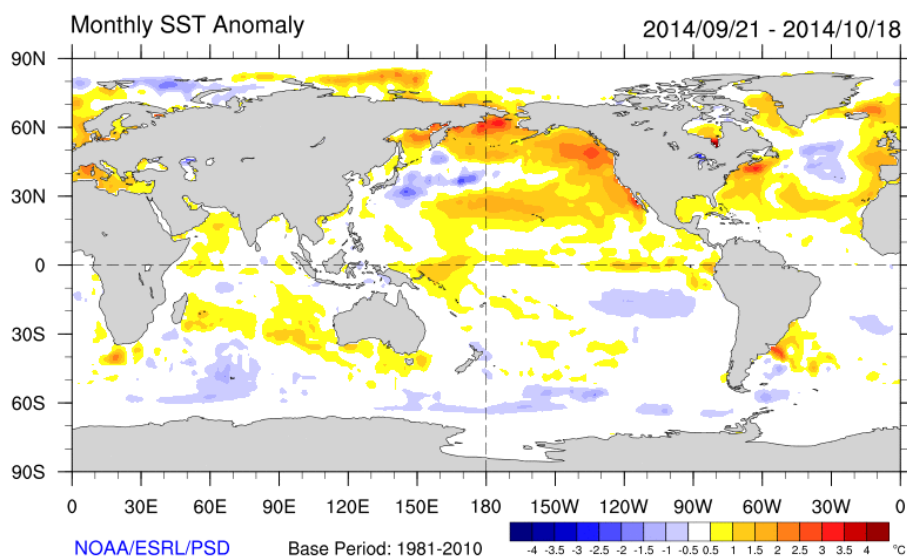


Figure 6: Sea Surface Temperature anomalies for the period 24 August to 20 September 2014 (Courtesy of NOAA)

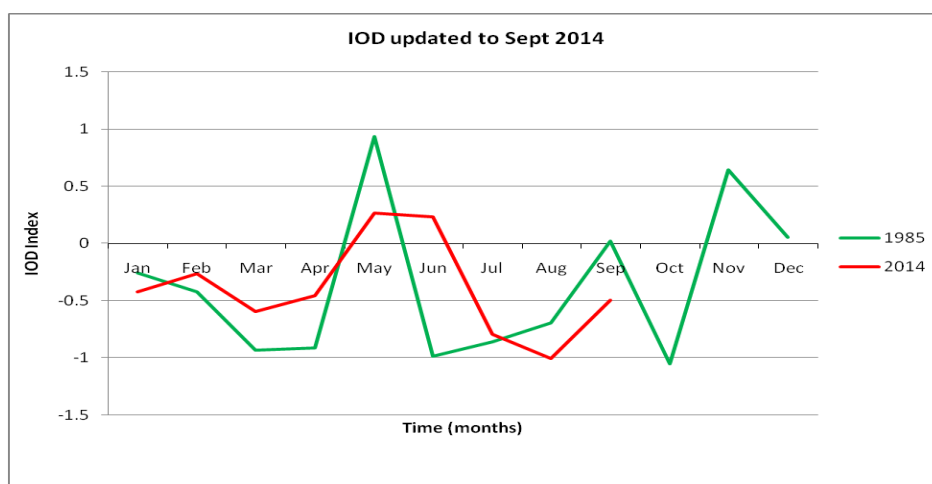


Figure 7: Indian Ocean Dipole (IOD) for 2014 and Analogue Years

6. CLIMATE OUTLOOK FOR NOVEMBER TO DECEMBER 2014

The outlook for November to December 2014 indicates that south-western parts of South Sudan; western Kenya; most parts of Uganda; Burundi; Rwanda; northern and western parts of Tanzania as well as western parts of Ethiopia are likely to receive normal to above normal rainfall. Much of eastern and northern parts of Kenya; most parts of Somalia; eastern Tanzania; southern parts of Sudan; eastern and southern Ethiopia; northern part of South Sudan; and north eastern Uganda are likely to receive normal to below normal rainfall (Figure 8). The rest of the GHA are expected to remain generally dry during November to December 2014 (Figure 8).

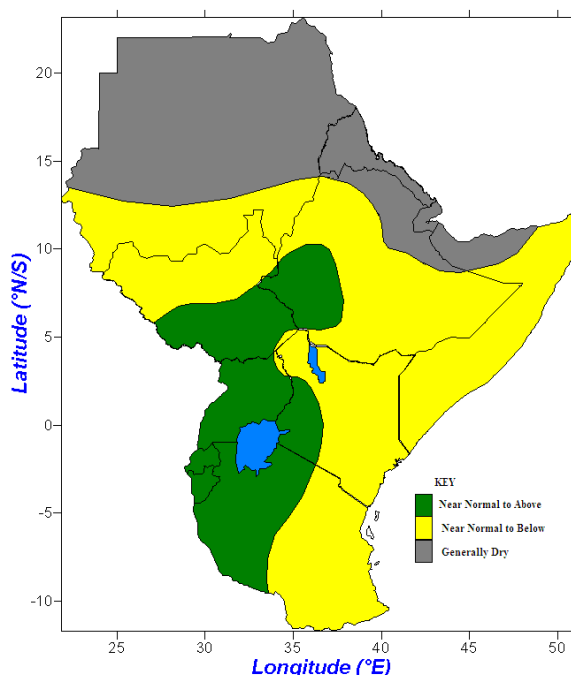


Figure 8: Climate Outlook for November to December 2014

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 September

The socio-economic impacts associated with the observed rainfall over much of the Greater Horn of Africa during the month of September 2014 were as follows:

- Improved crop, pasture and foliage conditions;
- Replenishment of water reservoirs;
- Localised flooding and leading to disruption of livelihoods and displacement of people;
- Outbreaks of water related diseases;

In regions that experienced dry conditions the impacts were:

- Poor livestock productivity
- Poor crop performance in some parts of the equatorial sector.

7.2 Potential impacts for November - December 2014 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;
- Flooding that may lead to displacement 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;
- Reduction in water reservoirs.
- If the dry conditions persist within the agricultural areas, this could lead to water stress conditions and may cause significant water and pasture scarcity, crop and livestock losses.