

IGAD Climate Prediction and Applications Centre Monthly Bulletin, November 2014

1. HIGHLIGHTS/ ACTUALITES

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

2. INTRODUCTION

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

This bulletin is made up of seven sections. The major highlights from both the observed and expected climate conditions are outlined in section 1. An overall summary is provided in the third section. The climate patterns that prevailed during the month of October 2014 are discussed under section 4, while the dominant weather systems are discussed in the next section. The climate outlook over the GHA for the month of December 2014 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

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

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

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

4. CLIMATE PATTERNS IN OCTOBER 2014

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

4.1 Rainfall amounts and performance during October 2014

In the month of October 2014, eastern and southern tip of South Sudan; western and southern Ethiopia; central Somalia; northern, central and western Kenya; much of Uganda, Rwanda and Burundi; and northern Tanzania received between 100mm and 200mm of rainfall (Figure 1). Over western Ethiopia; north-western and south-eastern Uganda; and part of western Kenya, more than 200mm of rainfall was received during the same period. Southern, south-western, central and north-eastern Tanzania; southern and eastern Kenya; much of Sudan, Eritrea and Djibouti; and northern tip of Somalia received less than 50mm of rainfall. Over most parts of South Sudan; north-western Kenya; central Ethiopia and northern Somalia; and northern coast of Tanzania received between 50mm and 100mm of rainfall (Figure 1).

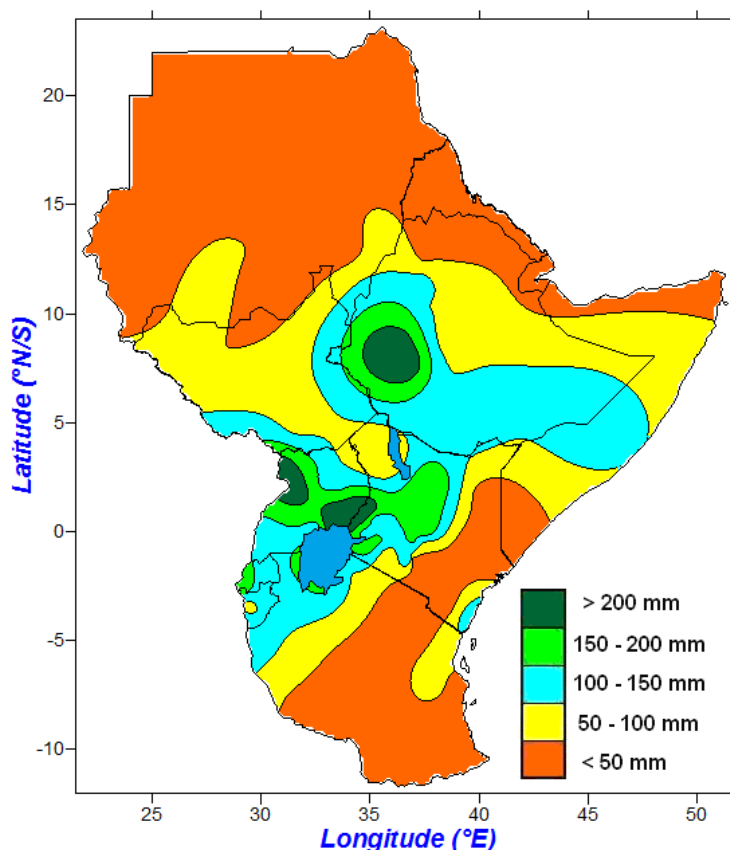


Figure 1: Spatial distribution of rainfall during the month of October 2014

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.

During the month of October 2014, near-normal to wet conditions were recorded over western and southern Ethiopia; north-eastern, central and south-western parts of South Sudan; central Somali; western, central and northern Kenya; most of Uganda apart from north-eastern part; much of Rwanda and Burundi; and northern Tanzania (Figure 2). Dry conditions were recorded over southern parts of Sudan; north-western parts of South Sudan; eastern Kenya; northern Tanzania; and on the Uganda-Kenya-Ethiopia-South Sudan border. Over most parts of Tanzania; north-western and eastern Kenya; north-eastern Ethiopia; much of Djibouti and Eritrea; and most parts of Sudan; generally dry conditions were recorded.

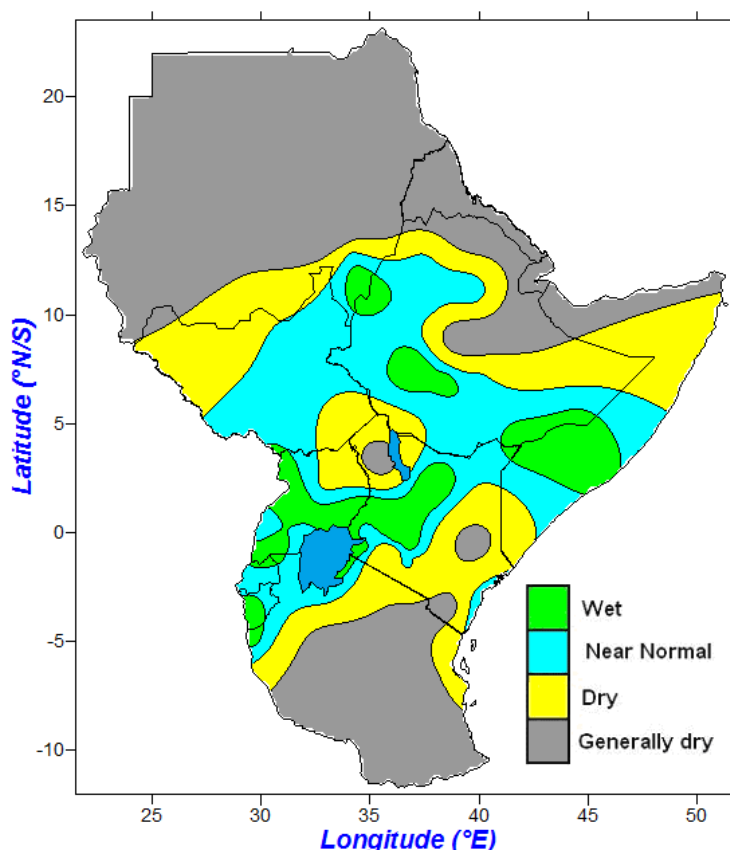


Figure 2: Rainfall severity index for the month of October 2014

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 January 2014 to October 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 January 2014. Near normal to above normal rainfall was observed over the central and western parts of the equatorial sector of the GHA (Figure 3a and 3b), while eastern parts of the northern sector experienced near to below rainfall (Figure 3c)

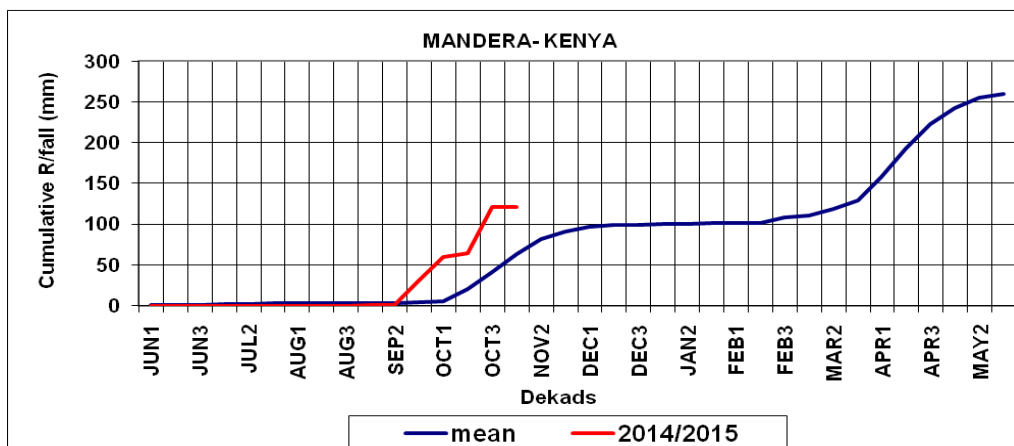


Figure 3a: Cumulative rainfall series for Mandera

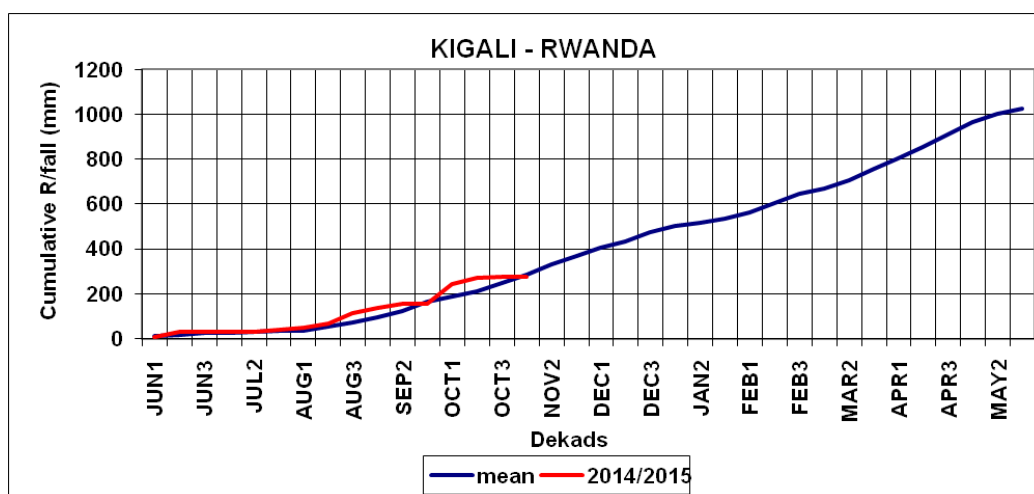


Figure 3b: Cumulative rainfall series for Kigali

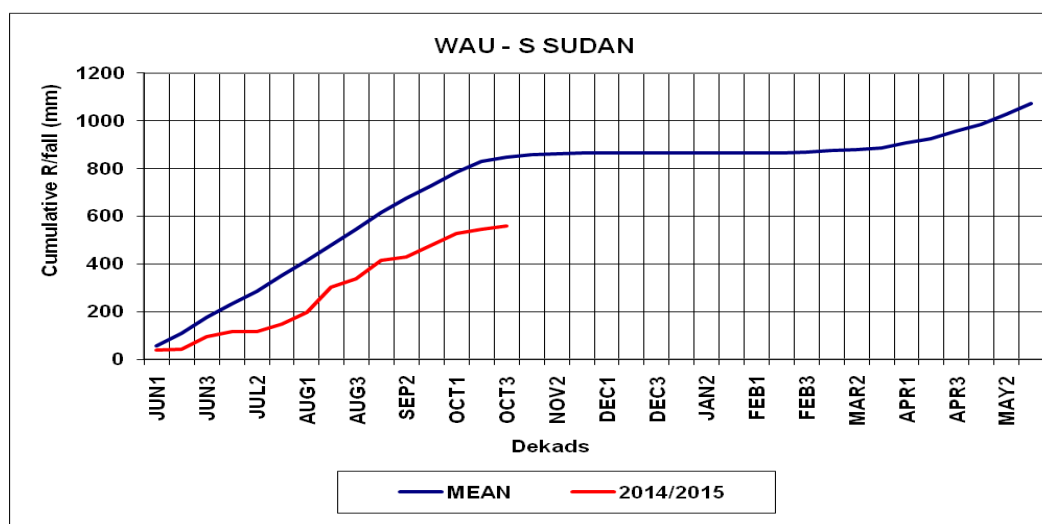


Figure 3c: Cumulative rainfall series for Wau

4.3 Rainfall anomalies

4.3.1 Rainfall anomalies during August to October 2014

During August-September-October 2014 period, western and eastern Sudan; north-western, south-western and south-eastern Ethiopia; central Somalia; western half of Kenya; southern half of Uganda; much of Rwanda, Burundi and Tanzania; received between 125% and more than 175% of the long-term rainfall. Less than 75% of the long-term average rainfall for the August-September-October period was received over north-eastern Sudan; eastern Kenya; and on the Kenya-Somalia border (Figure 4). Most parts of Sudan, South Sudan and Ethiopia; parts of eastern Kenya; north-western Uganda; and coastal strip of Tanzania received between 75% and 125% of the three-month long-term mean rainfall during the August – October 2014 period (Figure 4).

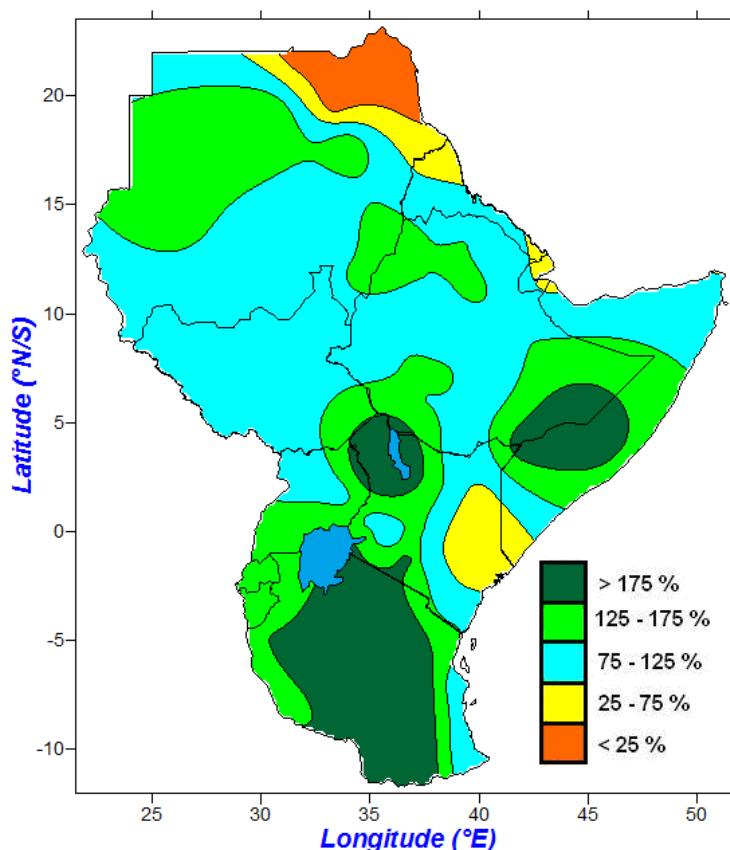


Figure 4: Spatial pattern of rainfall anomalies for August to October 2014 period

4.4 Temperature anomalies

4.4.1 Maximum temperature anomalies

Warmer than average maximum temperature conditions dominated much of the southern and equatorial sectors as well as the southern parts of the northern sector of the GHA region during October 2014 (Figure 5a). Positive maximum temperature anomalies exceeding 2°C were recorded over the Kenya/Somalia border. Negative anomalies of maximum temperature were recorded over much of Sudan; northern and western parts of South Sudan; northern and eastern Ethiopia; central Somalia; western Kenya; eastern Uganda; and northern and western parts of Tanzania (Figure 5a).

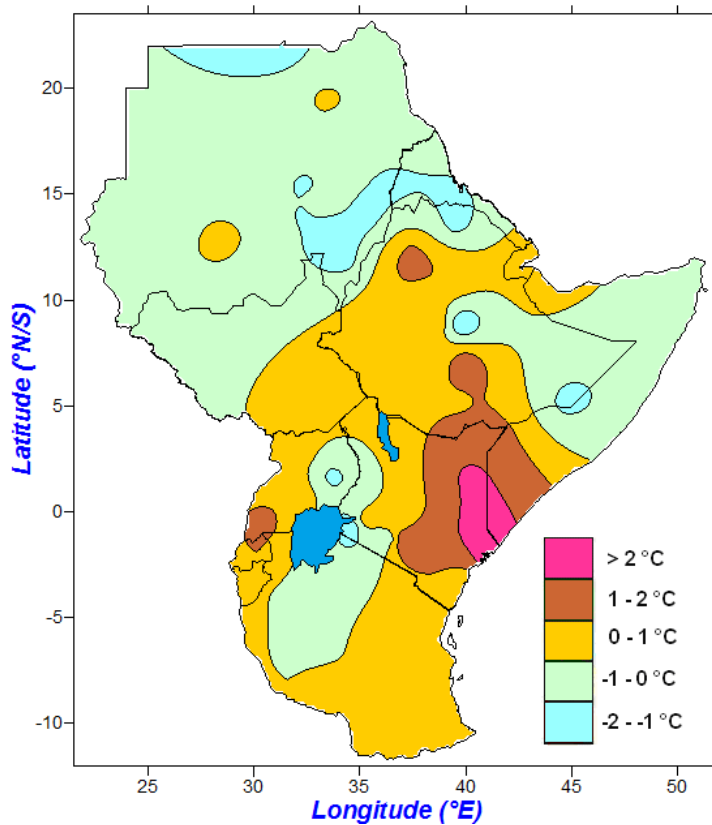


Figure 5a: Maximum temperature anomalies for October 2014

4.4.2 Minimum temperature anomalies

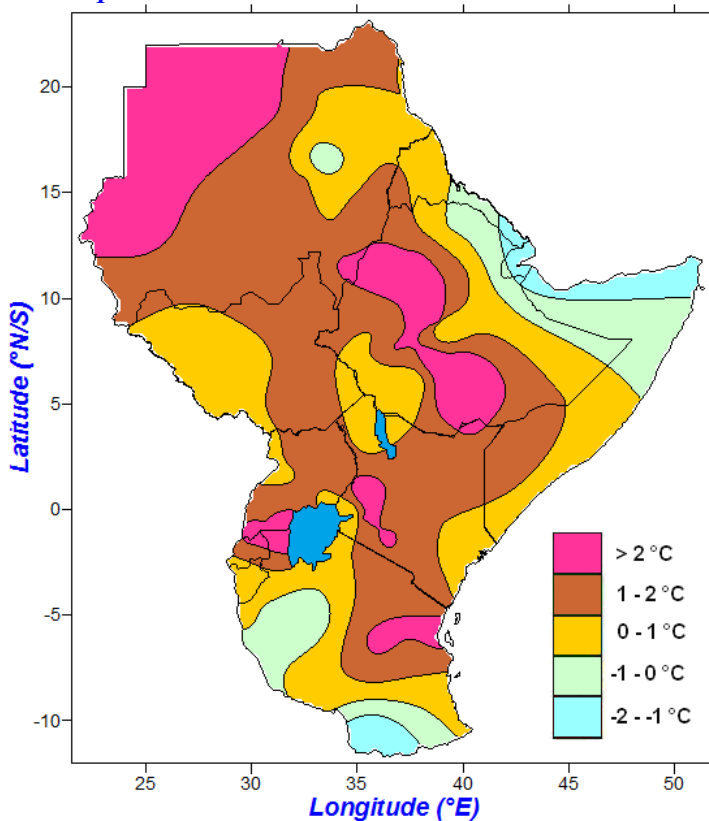


Figure 5b: Minimum temperature anomalies for the month of October 2014

During the month of October 2014, negative anomalies of minimum temperature were recorded over southern and south-western Tanzania; eastern Ethiopia; northern Somalia and much of Djibouti (Figure 5b). Warmer than average minimum temperature anomalies dominated over the rest of the GHA region. Positive minimum temperature anomalies greater than 2°C were recorded over northern coast and northern tip of Tanzania; southern tip of Uganda; western part of Kenya; southern, central and north-western Ethiopia; and north-western part of Sudan (Figure 5b).

5. STATUS OF THE CLIMATE SYSTEMS

During the months of October to November 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 slightly above normal Indian Ocean dipole index (Figure.7). Warmer than above average SSTs were observed across equatorial Pacific Ocean (Figure. 6).

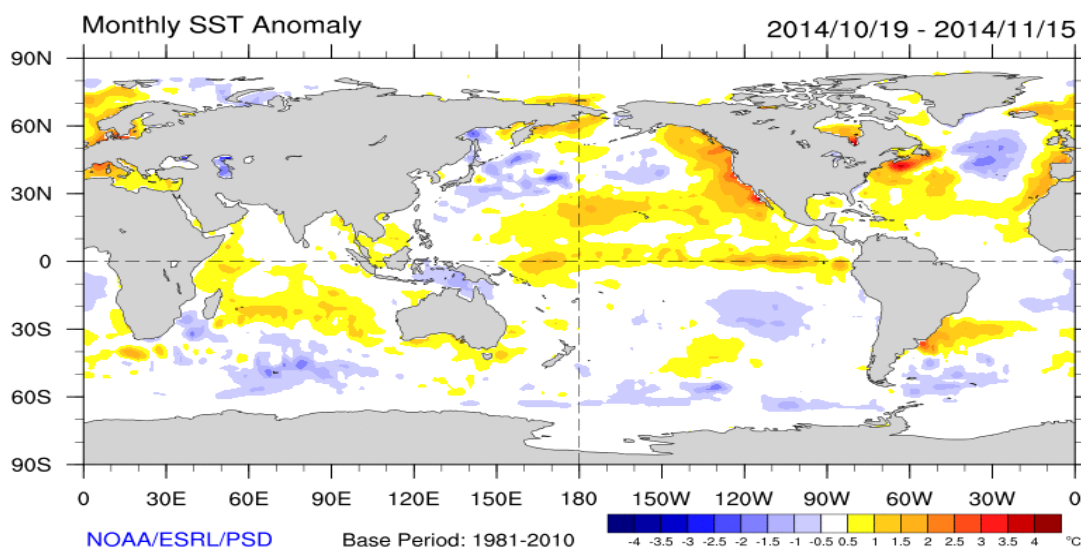


Figure 6: Sea Surface Temperature anomalies for the period 19th October to 15th November 2014 (Courtesy of NOAA)

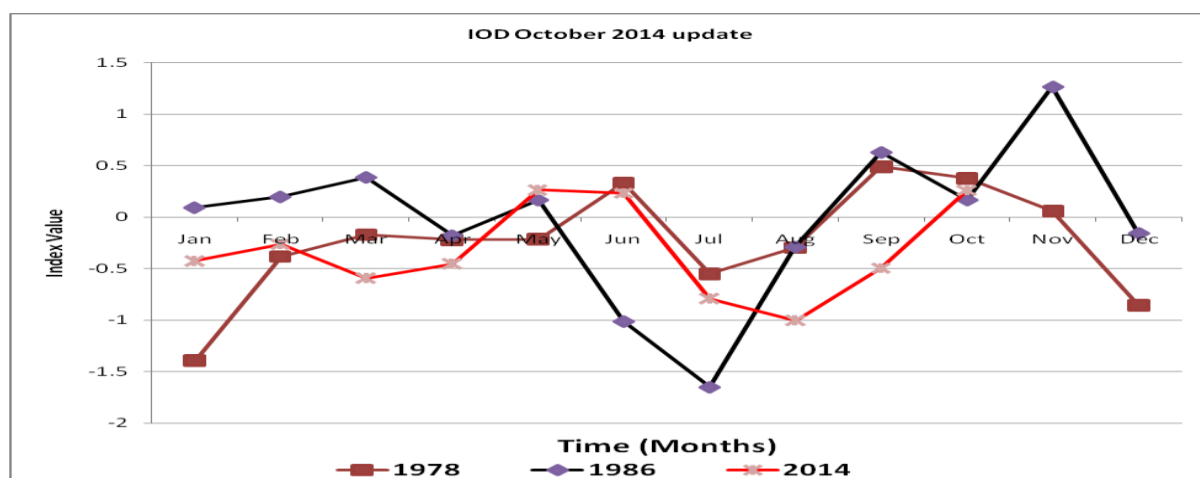


Figure 7: Indian Ocean Dipole (IOD) for 2014 and Analogue Years

6. CLIMATE OUTLOOK FOR DECEMBER 2014

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

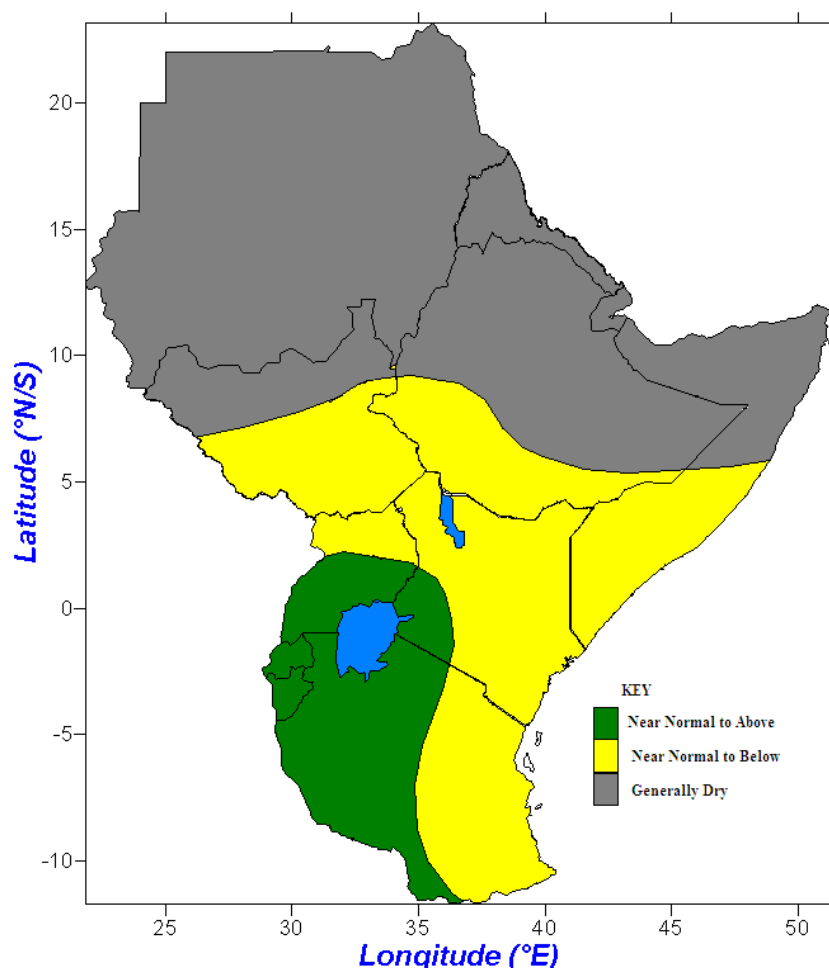


Figure 8: Climate Outlook for December 2014 rainfall season

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 October

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

- Improved crop, pasture and foliage conditions;
- Replenishment of water reservoirs;
- Localised flooding;

- Outbreaks of water related diseases;

In regions that experienced dry conditions the impacts were:

- Poor livestock productivity and deterioration of vegetative forage;
- Poor crop performance in some parts of the equatorial sector.

7.2 Potential impacts for 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 levels in 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.