

## **IGAD Climate Prediction and Applications Centre Monthly Bulletin, July 2014**

### **1. HIGHLIGHTS/ ACTUALITES**

- During the month of June 2014, rainfall activities were mainly observed over the central parts of the northern sector and parts of western equatorial sector of the Greater Horn of Africa (GHA);
- During July to August 2014 much of the northern sector is 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 June 2014 resulted to improved crop, pasture and foliage conditions as well as improvement in water resources over central parts of northern sector as well as western and coastal 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**

In this bulletin, the climatic conditions observed over the GHA in the month of June 2014 are reviewed, the climate outlook for August 2014 is provided, and the socio-economic impacts associated with both the observed climatic conditions and the climate outlook are finally highlighted.

This bulletin is made of seven major sections. Section 1 outlines the major highlights from both the observed and expected climate conditions, while an overall summary is provided in section 3. Under section 4, the climate patterns that prevailed during the month of June 2014 are discussed, while the dominant weather systems are discussed in section 5. In section 6, the climate outlook over the GHA for August 2014 is presented. The socio-economic impacts associated with the observed climatic conditions and those expected from the climate outlook are outlined in the final section.

### **3. SUMMARY**

The three main components of the bulletin are summarised in this section. The three components are: the climatic conditions observed over GHA in the month of June 2014, the climate outlook for August 2014, as well as the impacts associated with both the observed climate conditions and the climate outlook.

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

The regional climate outlook for August 2014 rainfall season indicates increased likelihood of near normal to above normal rainfall over most parts of the northern and western equatorial sectors including parts of north western Ethiopia; south-eastern Sudan and north-eastern South Sudan.(Figure 8).

#### 4. CLIMATE PATTERNS IN JUNE 2014

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

##### 4.1 Rainfall amounts and performance during June 2014

In the month of June 2014, western Kenya, eastern and north-eastern parts of the South Sudan; and western Ethiopia received more than 150mm of rainfall (Figure 1). Rainfall amounts ranging between 50mm and 150mm was received over north-western and south-western Ethiopia; most parts of South Sudan excluding eastern and north-eastern parts; much of Uganda excluding the south-western tip; coastal and part of western Kenya; and northern tip of Tanzania. Most parts of Tanzania; much of Rwanda and Burundi; most parts of Kenya excluding western and coastal parts; most parts of Somalia; much of Djibouti and Eritrea; northern, central, eastern and southern Ethiopia; most parts of Sudan excluding the southern part; and north-western tip of South Sudan received less than 50mm of rainfall (Figure 1).

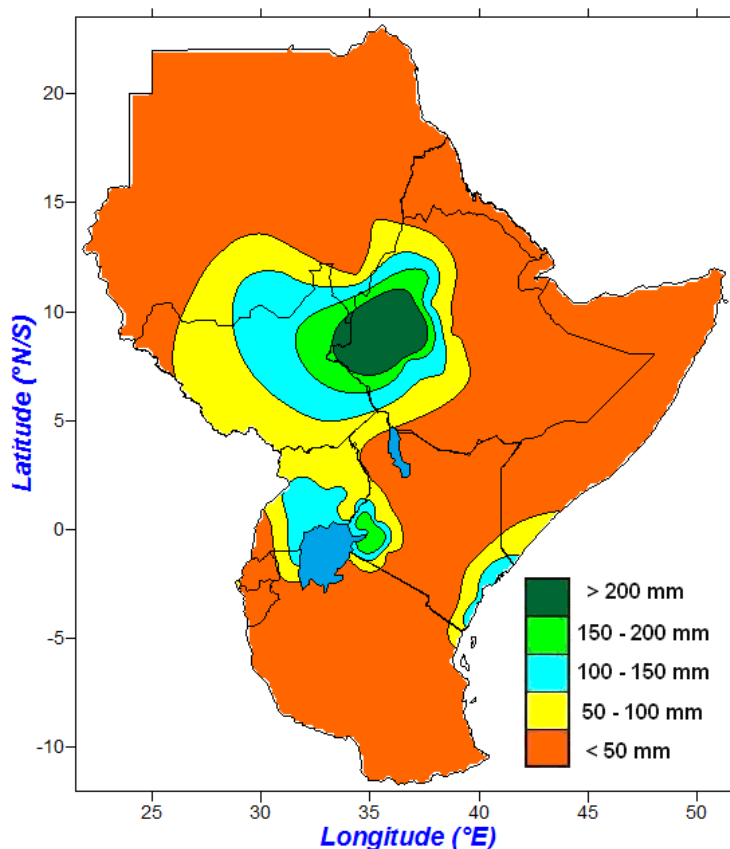
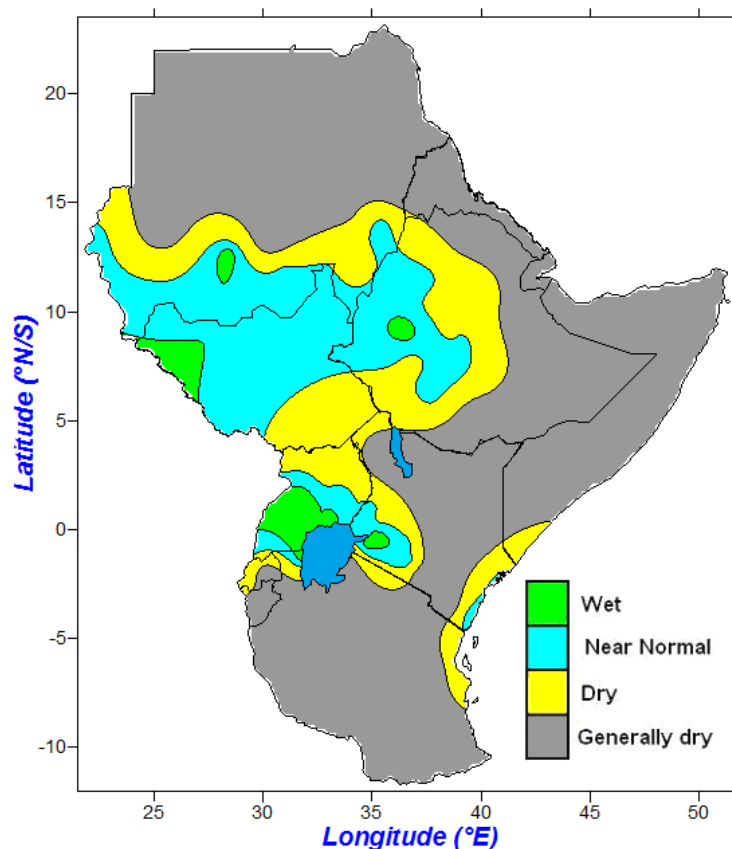


Figure 1: Spatial distribution of rainfall during the month of June 2014

##### 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 June 2014, near normal to wet conditions were recorded over western Ethiopia; southern part of Sudan; most parts of South Sudan excluding the southern and south-eastern parts; most parts of Uganda excluding the northern parts; and western Kenya (Figure 2). Over central Sudan; central and south-western Ethiopia; southern and south-eastern parts of South Sudan; northern Uganda; coastal and parts of western Kenya; north coast and north-western tip of Tanzania; and most parts of Rwanda excluding the southern parts recorded dry conditions in June 2014. Generally dry conditions were recorded over northern Sudan; much of Eritrea, Djibouti and Somalia; north-eastern, eastern and southern Ethiopia; most parts of Kenya excluding the western and central parts; most parts of Tanzania excluding northern tip and north coast parts; much of Burundi; and southern Rwanda.



**Figure 2: Rainfall severity index for the month of June 2014**

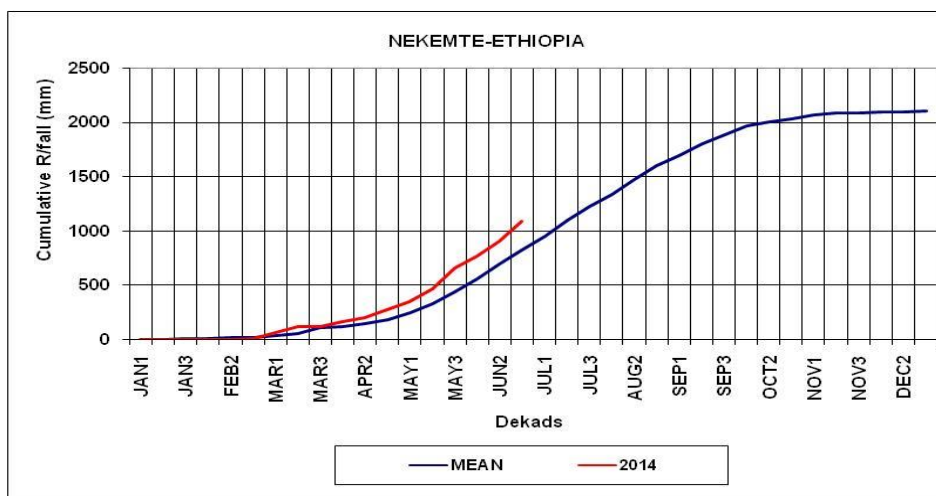
#### *4.2.1 Cumulative climate stress severity monitoring*

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.

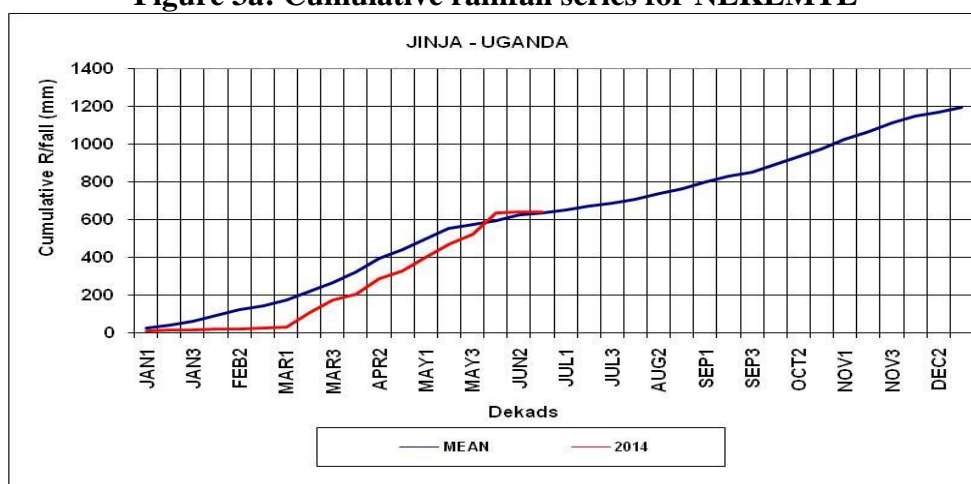
#### *4.2.2 Cumulative rainfall performance from January to June 2014*

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 south-western and central parts of the

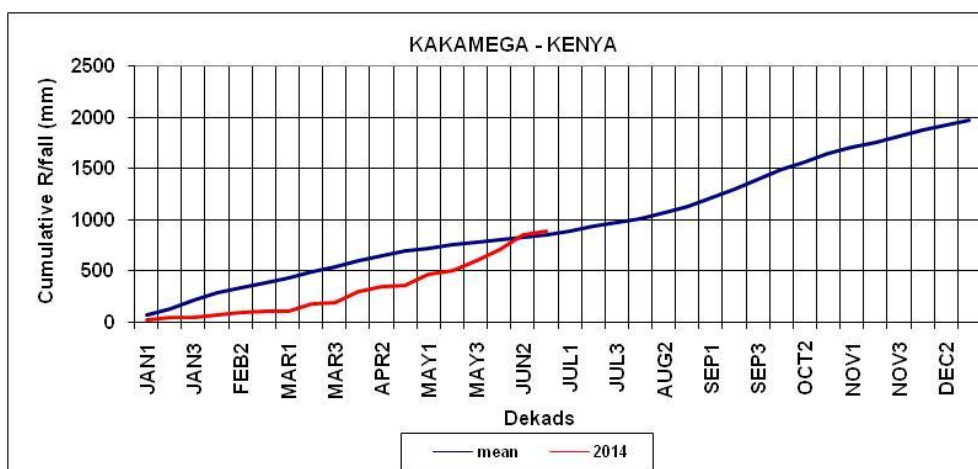
northern sector of the GHA (Figure 3a), while western parts of the equatorial sector experienced near normal to below rainfall (Figure 3b and Figure 3c) respectively.



**Figure 3a: Cumulative rainfall series for NEKEMTE**



**Figure 3b: Cumulative rainfall series for JINJA**



**Figure 3c: Cumulative rainfall series for Kakamega**

### 4.3 Rainfall anomalies

#### 4.3.1 Rainfall anomalies during April to June 2014

During the period April-May-June 2014, less than 75% of the long-term average rainfall for the April-May-June season was received over much of Rwanda and Burundi; northern, central and western Tanzania; northern and south-western Kenya; north-eastern Uganda; north-eastern, eastern and southern Ethiopia; northern and central Somalia; much of Djibouti; north-western and southern Eritrea; north-western tip and south-western tip of South Sudan; and northern, eastern and south-western tip of Sudan (Figure 4). North-eastern, western and southern parts of Sudan; northern and central Eritrea; northern, central and western Ethiopia; most parts of South Sudan; much of Uganda excluding the north-eastern part; western, central, eastern and coastal Kenya; and northern tip, coastal and southern Tanzania received between 75% and 125% of the three-month long-term mean rainfall during the April – June 2014 period (Figure 4). An isolated parcel over southern part of Sudan received between 125% and 175% of the long-term rainfall.

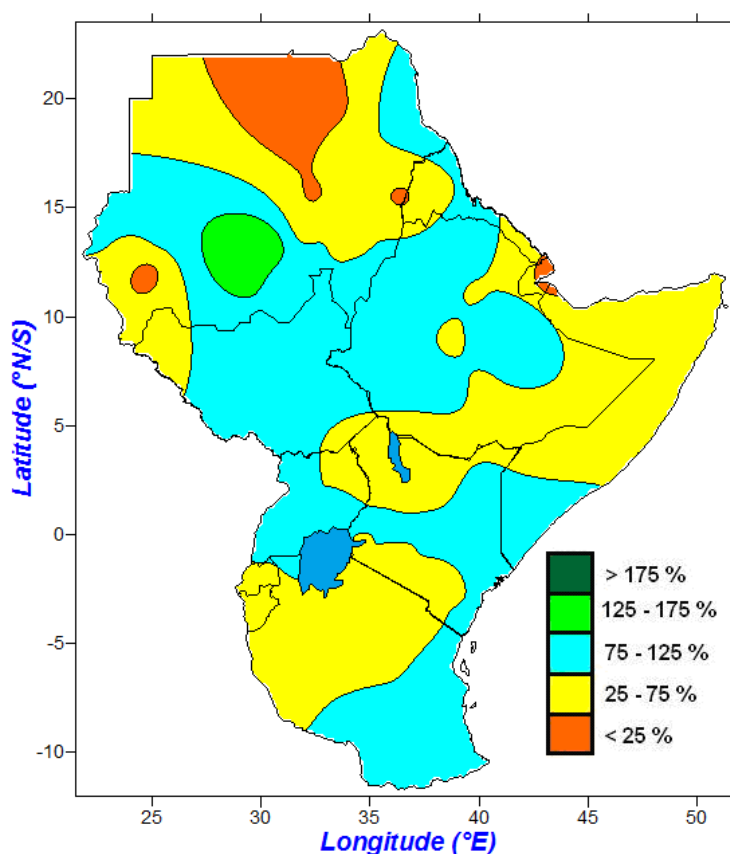


Figure 4: Spatial pattern of rainfall anomalies for April to June 2014 period

### 4.4 Temperature anomalies

#### 4.4.1 Maximum temperature anomalies

In June 2014, negative anomalies of maximum temperature were recorded over northern tip of Ethiopia and north coast tip of Tanzania only (Figure 5a). During the same period, warmer than average maximum temperature conditions dominated over much of the GHA region.

Positive maximum temperature anomalies exceeding 2°C were recorded over eastern Sudan; central Ethiopia; northern Somalia and southern Djibouti; and western Tanzania (Figure 5a).

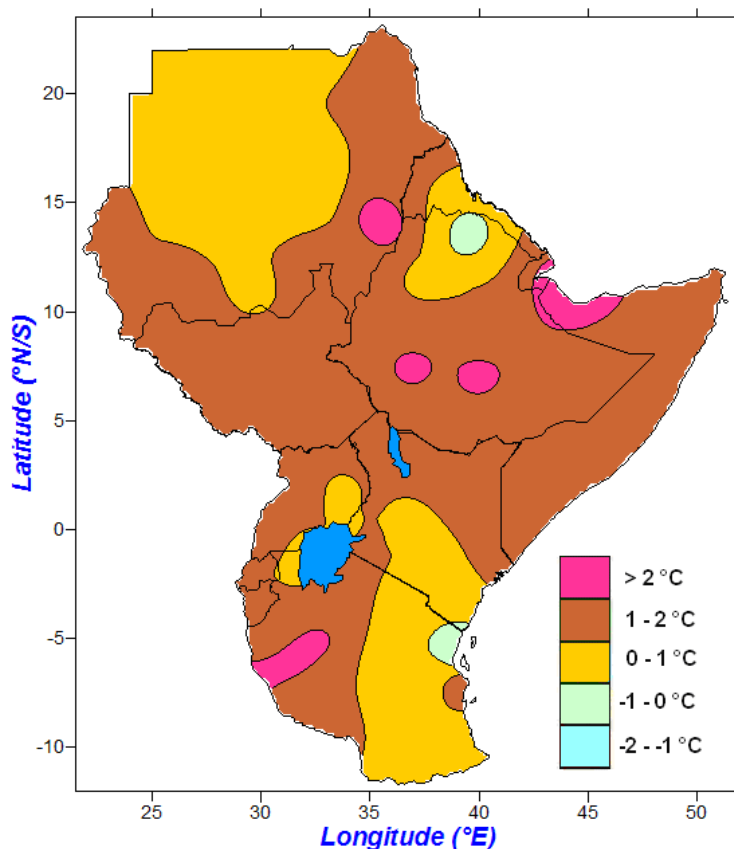


Figure 5a: Maximum temperature anomalies for June 2014

#### 4.4.2 Minimum temperature anomalies

Warmer than average minimum temperature anomalies dominated over much of the GHA region in June 2014 (Figure 5b). Positive minimum temperature anomalies greater than 2°C were recorded over western half of Sudan; central Ethiopia; western, south-western and northern coast of Kenya; northern and central Tanzania; southern Uganda; much of Rwanda; and northern Burundi. Negative anomalies of minimum temperature were recorded over northern Sudan; northern tip of Ethiopia; central Eritrea; southern tip of South Sudan; and northern tip of Uganda; and southern Tanzania during the month of June 2014 (Figure 5b).

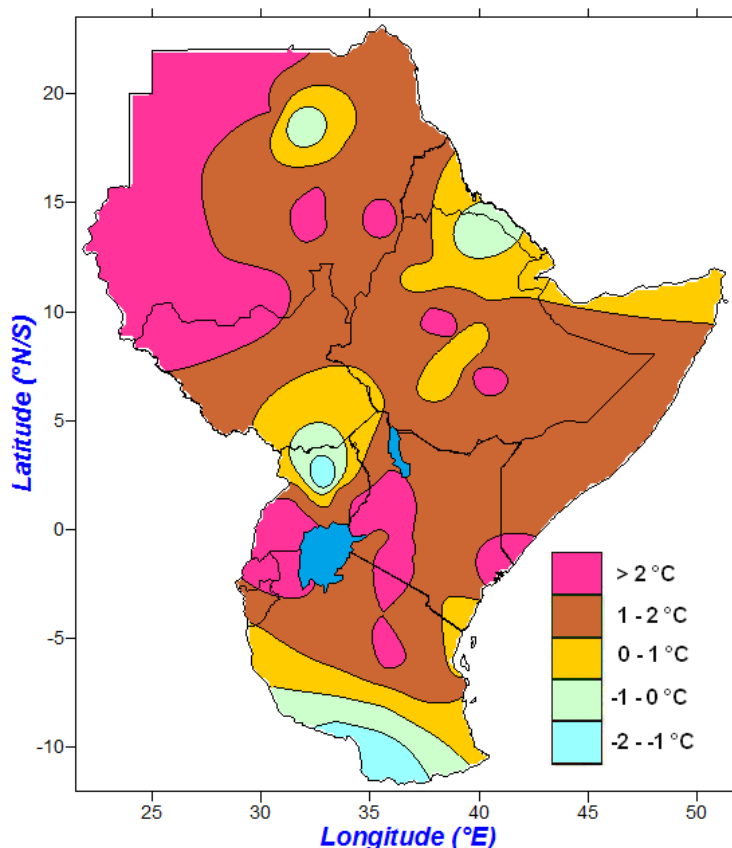


Figure 5b: Minimum temperature anomalies for the month of June 2014

### 5. STATUS OF THE CLIMATE SYSTEMS

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

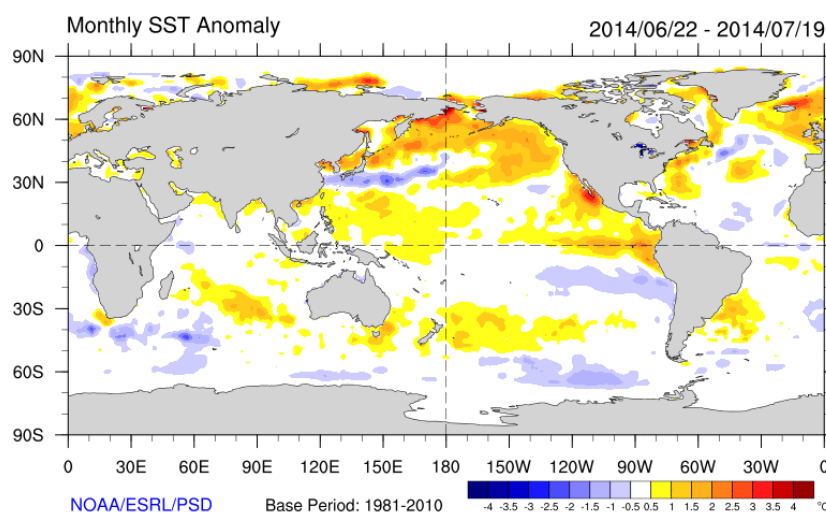


Figure 6: Sea Surface Temperature anomalies for the period 22 June 2014 to 19 July 2014 (Courtesy of NOAA)

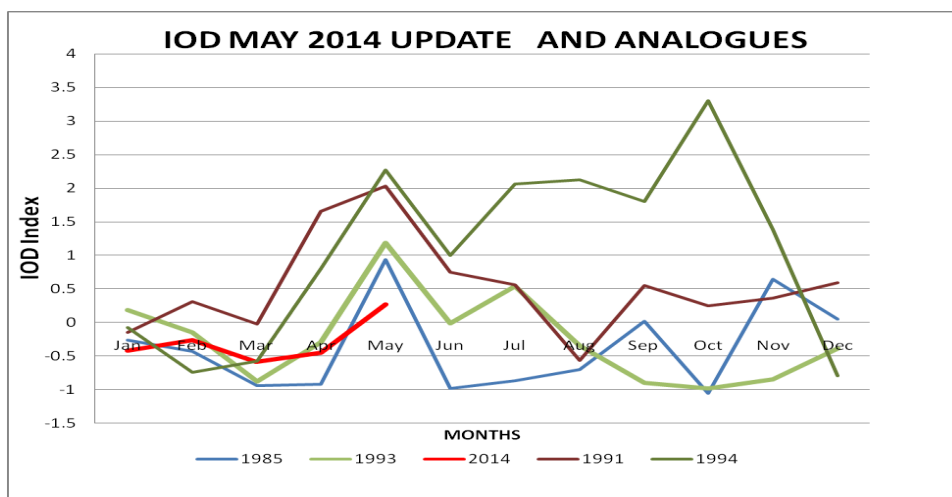


Figure 7: Indian Ocean Dipole (IOD) for 2014 and Analogue Years

### 6. CLIMATE OUTLOOK FOR AUGUST 2014

The outlook for August 2014 indicates that western Ethiopia; south eastern Sudan; north western Uganda; western Kenya; and South Sudan are likely to receive normal to above normal rainfall. Much of eastern and southern Ethiopia, Djibouti, Eritrea, South Sudan, Uganda and western Kenya are likely to receive normal to below normal rainfall (Figure 7). The rest of the GHA including Tanzania, Burundi, Rwanda, and eastern Kenya are expected to remain generally dry during July to August 2014 (Figure 7).

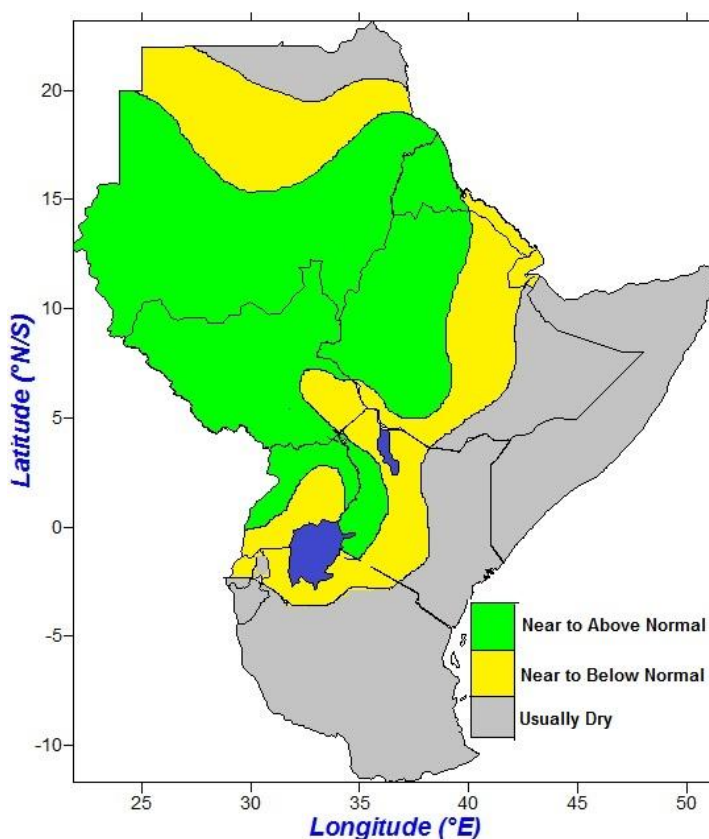


Figure 7: Climate Outlook for the August 2014

### 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 June**

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

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