

IGAD Climate Prediction and Applications Centre Monthly Bulletin, May 2014

1. HIGHLIGHTS/ ACTUALITES

- During April 2014, near-normal to wet conditions were recorded over much of the southern sector; western and central parts of the equatorial sector as well as south-western parts of northern sector of the Greater Horn of Africa (GHA);
- During June to August 2014 there is increased likelihood of near normal to below normal rainfall over much of northern sector and western parts of the equatorial sector;
- The observed rainfall conditions during the month of April 2014 resulted in improved soil, crop, pasture and foliage conditions as well as replenishment of water resources.

2. INTRODUCTION

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

There are seven major sections that make up this bulletin. The major highlights from both the observed and expected climate conditions are outlined in section 1, while section 3 provides an overall summary. Under section 4, the climate patterns that prevailed in April 2014 are discussed, while the dominant weather systems are discussed in section 5. In section 6, the climate outlook over the GHA for the period of June to August 2014 is presented. Finally, 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 this bulletin are summarised in this section. These are: the climatic conditions observed in the month of April 2014 over GHA, the climate outlook for the month of June to August 2014, as well as the impacts associated with both the observed climate conditions and the climate outlook.

Rainfall activities were mainly observed over coastal and southern parts of southern sector; western and central parts of equatorial sector; and south-western part of northern sector of the GHA during the month of April 2014. The observed rainfall conditions over parts of the Greater Horn of Africa during April 2014 resulted in improved crop, pasture and foliage conditions and replenishment of water resources.

The regional consensus climate outlook for the June to August 2014 rainfall season indicates increased likelihood of near normal to below normal rainfall over most parts of the northern and equatorial sectors except for parts of north western Ethiopia; south-eastern Uganda and much of South Sudan which have increased likelihood of receiving near normal to above normal rainfall. The rest of the region is expected to remain dry as usual at this time of the year (Figure 8).

4. CLIMATE PATTERNS IN APRIL 2014

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

4.1 Rainfall amounts and performance during April 2014

In the month of April 2014, western, central and eastern parts of South Sudan; western, southern and part of eastern Ethiopia; western, central and eastern Kenya; coastal, southern, and north-western Tanzania; much of Rwanda and Burundi; and most parts of Uganda excluding north-eastern and south-western parts received between 100mm and more than 200mm of rainfall (Figure 1). Rainfall amounts ranging between 50mm and 100mm was received over the northern and southern tips of South Sudan; north-western, central, eastern and south-eastern Ethiopia; central and southern Somalia; northern, north-western and southern Kenya; north-eastern and south-western Uganda; and western Tanzania. Much of Sudan, Eritrea and Djibouti; northern Somalia; northern Ethiopia; parts of north-western, south-western and coastal Kenya; and northern and central Tanzania received less than 50mm of rainfall (Figure 1).

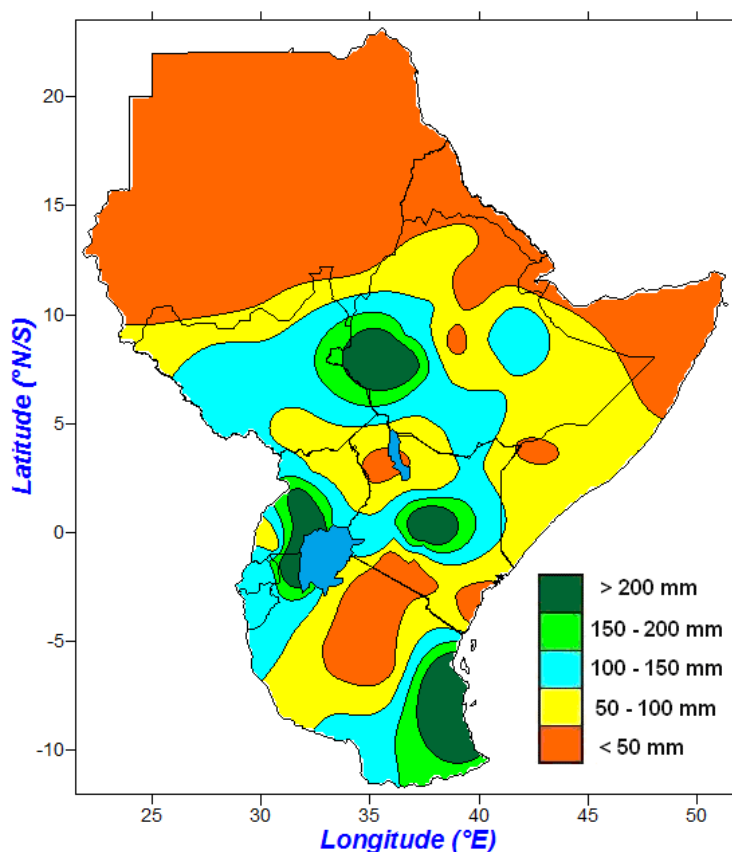


Figure 1: Spatial distribution of rainfall during the month of April 2014

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

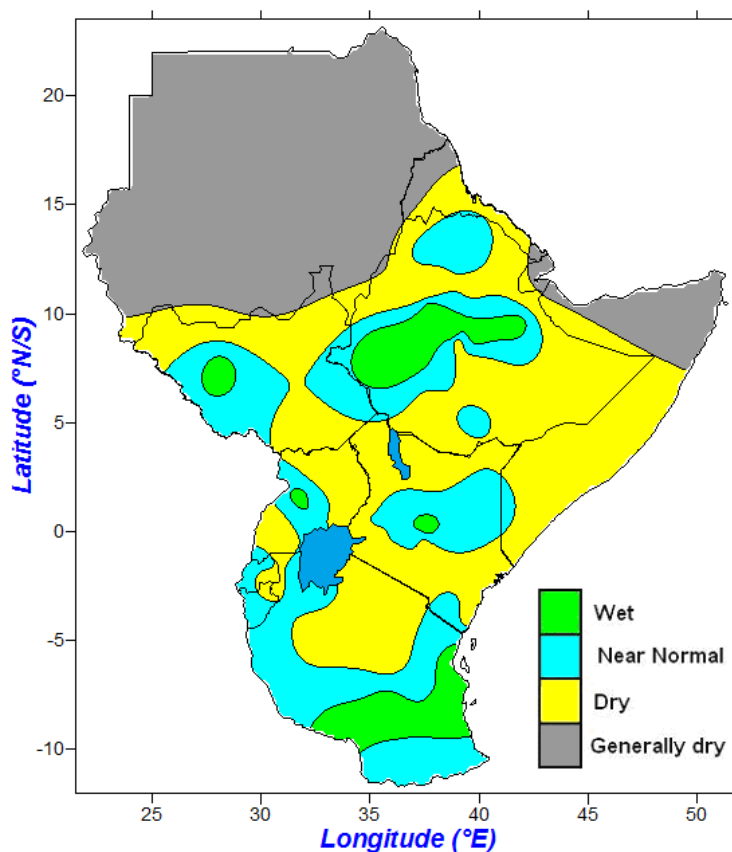


Figure 2: Rainfall severity index for the month of April 2014

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 2013 to March 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 western parts of the northern sector of the GHA (Figure 3a and Figure 3b), while parts of the equatorial sector experienced below normal rainfall (Figure 3c) respectively.

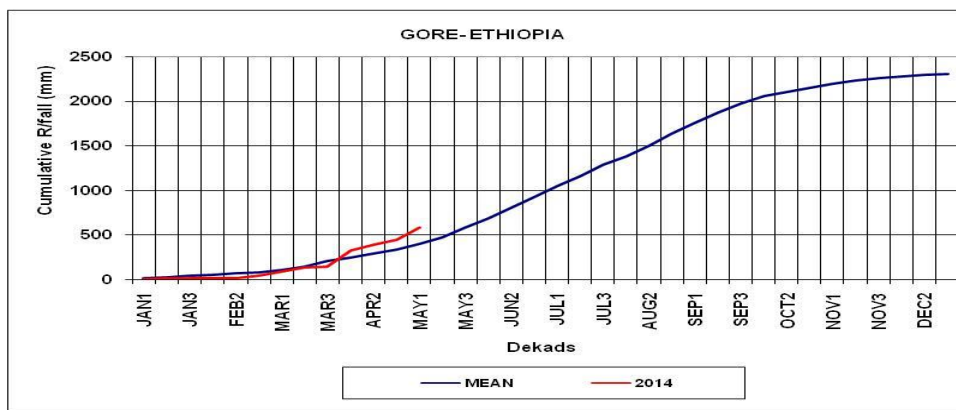


Figure 3a: Cumulative rainfall series for Gore

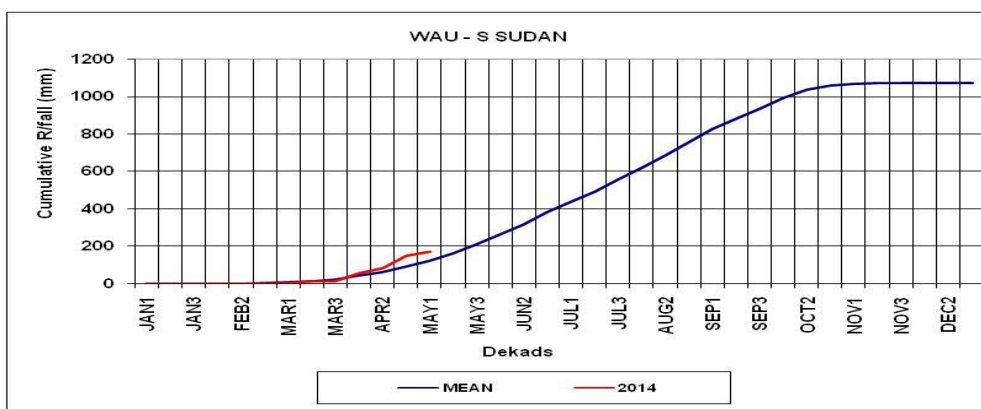


Figure 3b: Cumulative rainfall series for Wau

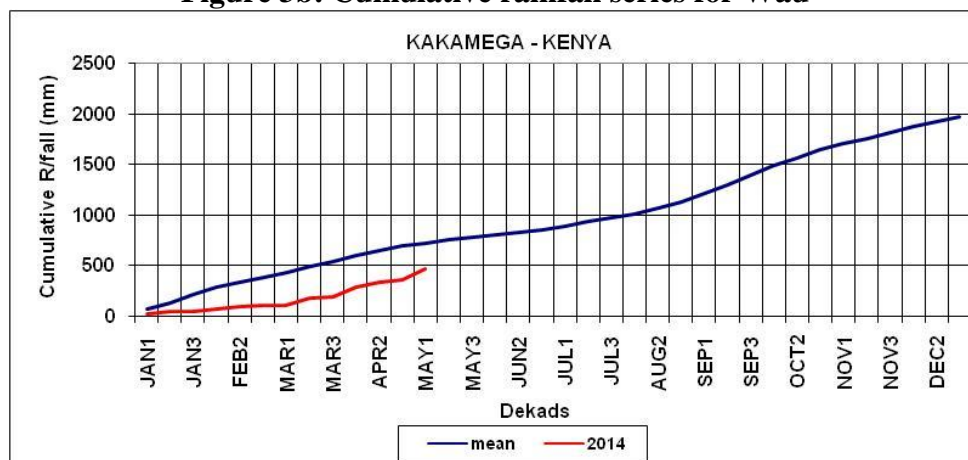


Figure 3c: Cumulative rainfall series for Kakamega

4.3 Rainfall anomalies

4.3.1 Rainfall anomalies during February to April 2014

During the February-March-April 2014 period, less than 75% of the long-term average rainfall for the February-March-April period was received over northern, central and western Sudan; eastern and southern Ethiopia; the coastal strip of southern Somalia and Kenya; north-western, and western Kenya; eastern strip of Uganda; northern, central and western Tanzania (Figure 4). South-western, north-eastern and north-western Tanzania; much of Burundi; most parts of Rwanda excluding south-eastern part; much of Uganda excluding the eastern strip and north-western part; southern, central and north-eastern Kenya; most parts of Somalia; Djibouti; eastern and north-eastern Ethiopia; most parts of Eritrea; eastern Sudan; and north-western and south-eastern tips of South Sudan received between 75% and 125% of the three-month long-term mean rainfall during the February-April 2014 period. South-western part of Sudan; north-western and western Ethiopia; most parts of South Sudan; and central and southern coast of Tanzania received between 125% and more 175% of the long-term rainfall (Figure 4).

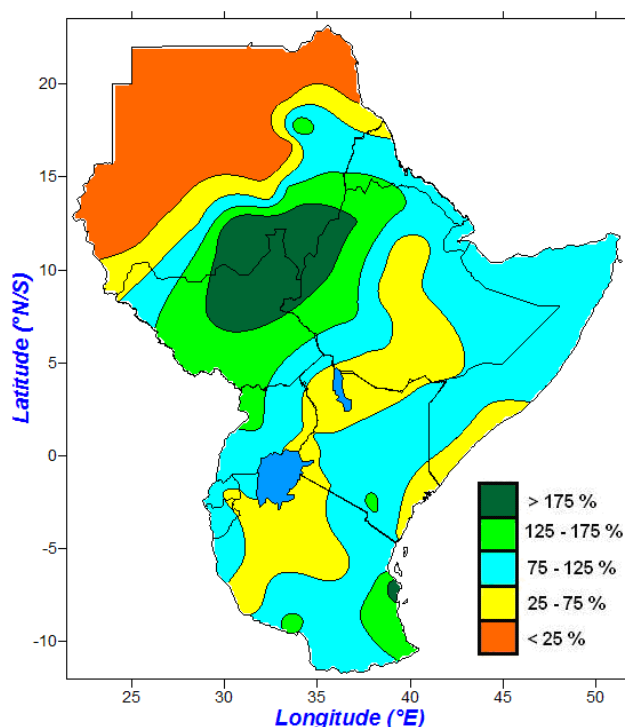


Figure 4: Spatial pattern of rainfall anomalies for February to April 2014 period

4.4 Temperature anomalies

4.4.1 Maximum temperature anomalies

In the month of April 2014, negative anomalies of maximum temperature were recorded mainly over southern tip of Sudan; the northern half of South Sudan; northern and western Ethiopia; and southern Tanzania (Figure 5a). During the same period, warmer than average maximum temperature conditions dominated over most of the remaining parts of the GHA region. Over the northern parts of Sudan; south-eastern Ethiopia; central and southern Somalia; northern coast of Kenya and isolated parcel over western Kenya; positive maximum temperature anomalies exceeding 2°C were recorded (Figure 5a).

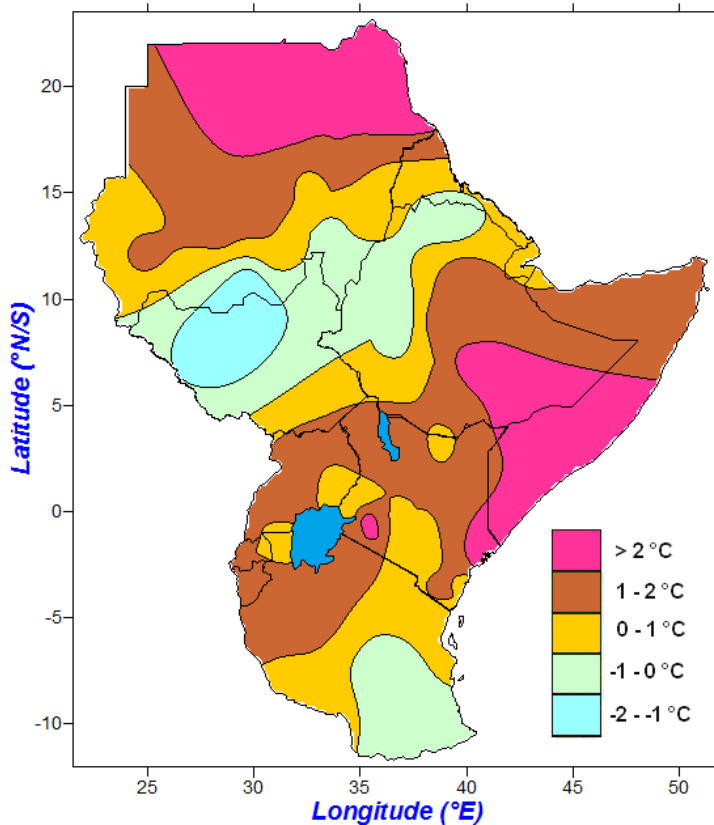


Figure 5a: Maximum temperature anomalies for April 2014

4.4.2 Minimum temperature anomalies

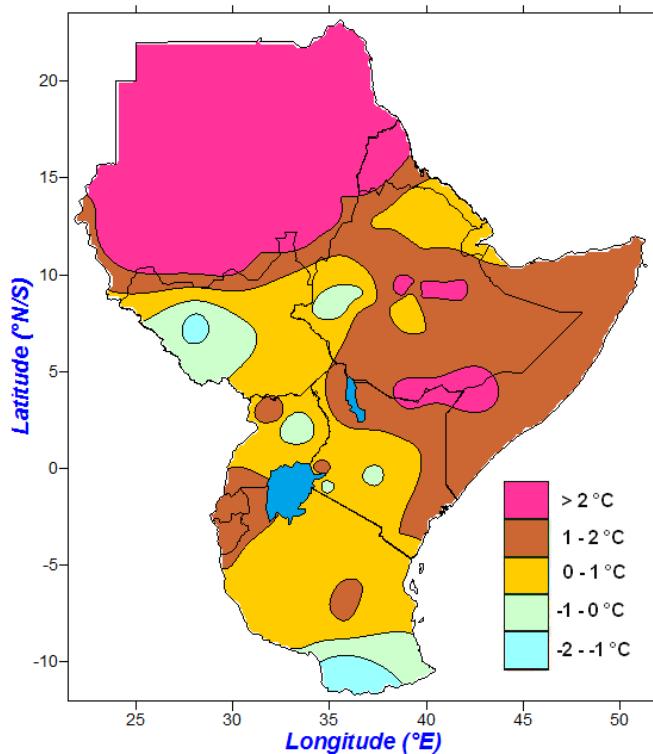


Figure 5b: Minimum temperature anomalies for the month of April 2014

Warmer than average minimum temperature conditions dominated over most parts of the GHA region during the month of April 2014 (Figure 5b). Positive minimum temperature anomalies greater than 2°C were recorded over much of Sudan; central Ethiopia; and over the Kenya–Ethiopia–Somalia border. Negative anomalies of minimum temperature were recorded over western Ethiopia; western part of South Sudan; north-eastern Uganda; isolated parcels over western and central Kenya; and southern tip of Tanzania in April 2014 (Figure 5b).

5. STATUS OF THE CLIMATE SYSTEMS

During May 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 a negative Indian Ocean dipole (Fig.7). Warmer than above average SSTs were observed across equatorial Pacific Ocean.

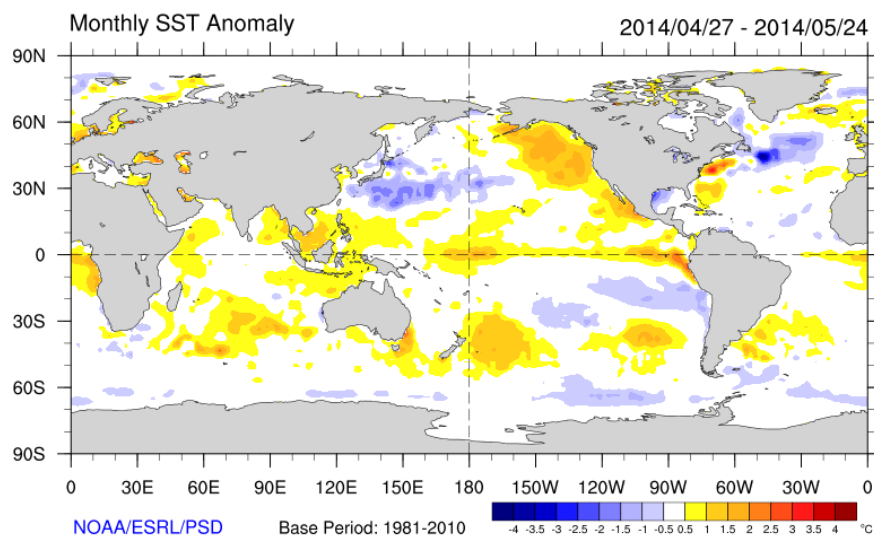


Figure 6: Sea Surface Temperature anomalies for the period 27 April 2014 to 24 May 2014 (Courtesy of NOAA)

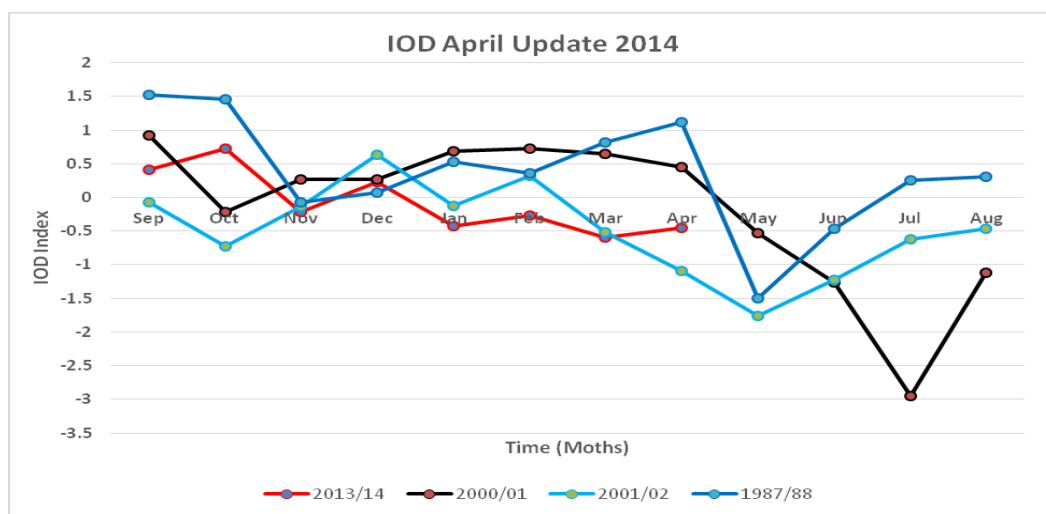


Figure 7: Indian Ocean Dipole (IOD) for 2014 and Analogue Years

6. Climate Outlook for June to August 2014

6.1 The Regional Climate Outlook Forum

The Thirty Seventh Greater Horn of Africa Climate Outlook Forum (GHACOF37) was convened on 25th and 26th May 2014 at the Grand Holiday Villa Hotel and Suites, Khartoum, Sudan by the IGAD Climate Prediction and Applications Centre (ICPAC) and partners to formulate a consensus regional climate outlook for the June to August 2014 rainfall season over the GHA region. The GHA countries are; Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania and Uganda. The theme of the forum was *“The role of regional climate outlook forums in support of disaster risk reduction and resilience building in the GHA”*. The forum reviewed the evolving status of the global and regional systems which are expected to influence regional climate during June to August 2014 rainfall season in the region.

Users of climate information participated in the forum and formulated the potential implications of the consensus climate outlook and developed mitigation strategies for their respective sectors.

6.2 Rainfall Outlook for June to August 2014

The rainfall outlook for various zones within the GHA region is given in figure 8 below.

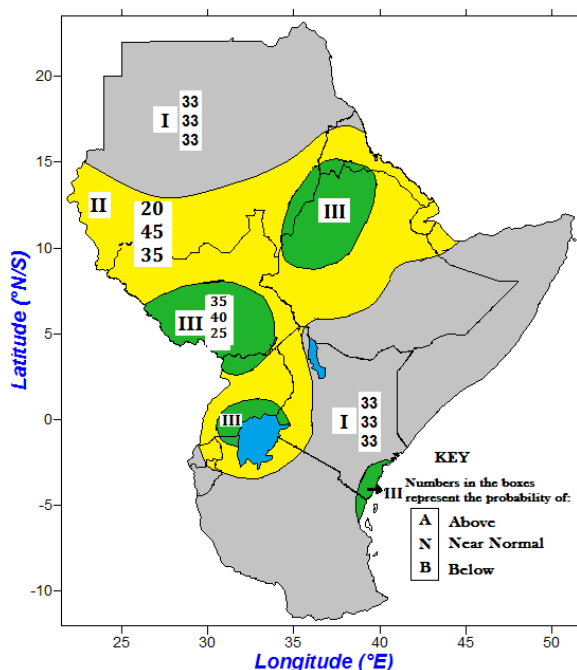


Figure 8: Regional Consensus Climate Outlook for the June to August 2014 rainfall season

Zone I: Climatology

Zone II: Increased likelihood of near normal to below normal rainfall

Zone III: Increased likelihood of near normal to above normal rainfall

Note:

The numbers for each zone indicate the probabilities of rainfall in each of the three categories, above-, near-, and below-normal. The top number indicates the probability of rainfall occurring in the above-normal category; the middle number is for near-normal and the bottom number for below-normal category. For example, in zone II there is 20% probability of rainfall occurring in the above-normal category; 45% probability of rainfall occurring in the near-normal category; and 35% probability of rainfall occurring in the below-normal category. It is emphasised that boundaries between zones should be considered as transition areas.

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 Vegetation condition indicators and associated impacts

The difference of the Normalized Difference Vegetation Index (NDVI) between March and April 2014 indicates improved vegetation conditions over much of Uganda; South Sudan; southern Somalia; western and central Ethiopia; coastal, central and western Kenya as well as parts of coastal and southern Tanzania. Parts of northeastern Kenya; eastern Tanzania; and western Rwanda indicated less improved vegetation while rest of the region indicated no change in vegetation conditions as shown in figure 9.

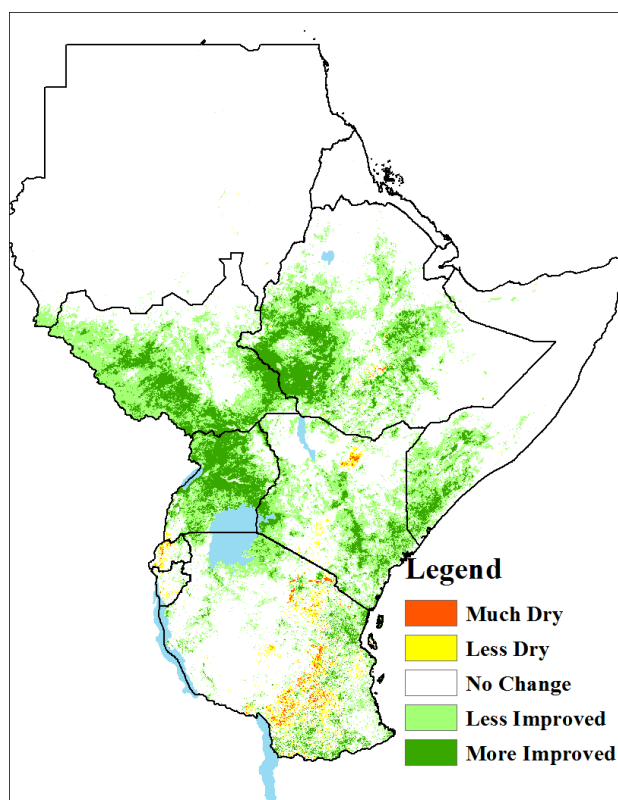


Figure 9: Vegetation difference between March and April 2014 over the GHA

7.2 Impacts of observed climate conditions during April 2014

The socio-economic impacts associated with the observed rainfall over much of the southern sector; western and central parts of equatorial sector; as well as south-western part of northern sector of the Greater Horn of Africa (GHA) during the month of April 2014 were as follows:

- Enhanced soil moisture conditions which subsequently resulted in improved crop, pasture and foliage conditions;
- Replenishment of water reservoirs;
- Localised flooding;
- Outbreaks of water related diseases.

7.3 Potential impacts for June 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, leading to loss of livelihood, displacement of people, and destruction of property;
- Outbreaks of water related diseases.

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

- Poor prospects for crop and pasture performance;
- Depletion of water reservoirs.