FY:2024/2025

Bulletin N°10/2024 **Month: October 2024**

Issued on 05th November 2024

Climatological Bulletin of October 2024

1. INTRODUCTION

The bulletin has three main components, which include: (i) the review of climate conditions observed over Rwanda during October 2024, (ii) rainfall prediction for November 2024 and (iii) the highlights on the socio-economic impacts associated with both observed and predicted climate conditions.

2. HIGHLIGHTS

- **Rainfall performance in October 2024:** The accumulation of observed rainfall during the month of October 2024 was above the range of the Long-Term Mean (LTM) in many parts of the country where 24 stations out of 43 recorded rainfall surpluses. However, areas of Northern and few parts of Western Eastern and southern Provinces, recorded rainfall below the range of Long-Term Mean (LTM).
- **Rainfall expected during November 2024:** The amount of rainfall ranging between 50 and 350 mm is expected across the country. The expected rainfall is Above the range of LTM rainfall of November, though the first dekad is expected to be in normal range. In this month, the minimum and maximum temperature are expected to be in the range of LTM
- **The impact associated with both observed and predicted climate conditions:** Due to observed rainfall in October 2024, soil moisture increased in areas which received rainfall surplus, thus impacted agriculture activities positively. In November 2024, increased rainfall compared to October is expected; this will also continue have a good impact to the soil moisture as well as to agriculture across the country.

3. CLIMATE PATTERNS

This section provides the climatological summary of rainfall and temperature of October 2024 in comparison with its anomaly over Rwanda.

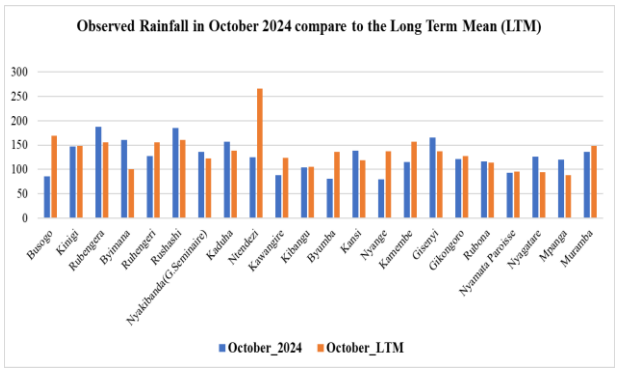
3.1 Rainfall amount in October 2024

During the month of October 2024, rainfall amount recorded over Rwanda ranged between 33.3 and 245mm. High rainfall amount of 245 mm was recorded at Kirimbi weather station in Nyamasheke District while less rainfall amount of 33.3 recorded at Mwiri station in Kayonza District.

- **Weather stations of the Central region including Kigali city:** rainfall amount of 110.2 mm was recorded at Kigali International Airport weather station located in Kicukiro District while Gitega weather station located in Nyarugenge District recorded 96.1 mm.
- **Weather stations of the Southern Province**: Byimana weather stations recorded 160.3 mm, Kaduha 156.4 mm, Kibeho 147.6 mm, Kansi 138.1 mm, Nyakibanda recorded 136.1 mm, Gikongoro station recorded 121 mm, Rubona Station recorded 116.4 mm, Nyamiyaga 112.3 mm, Kibangu 103.8 mm, Cyahinda 80.7 mm and Gihinga_Gacurabwenge 61.3 mm
- **Weather stations of the Western Province** recorded amount of rainfall as follow: Kirimbi 245 mm, Murunda 215.8 mm, Rubengera 188 mm, Gisenyi Airport 165.6 mm, Bugarama 160.6 mm, Muramba 136.5 mm, Ntendezi 125.2 mm, Mibirizi 124.7 mm, Kamembe-aero 115.3 mm, Rwankeri 110.5 mm and Nyange 79.4 mm.
- **Weather stations of the Northern Province** recorded rainfall as follows: Butaro recorded 217.3 mm, Rushashi recorded 185.1 mm, Kinigi 147.3 mm, Ruhengeri recorded 127.4 mm, Rutongo 112.8 mm, Cyabingo 111.9 mm, Busogo recorded 86.4 mm and Byumba 80.8 mm.
- **Weather stations of the Eastern Province**: Nyagahanga recorded 243.3 mm, Kagitumba 149 mm, Nyagatare station 126.8 mm, Kibungo-Kazo 123.5 mm, Mpanga 119.9 mm, Nyamata Paroisse 92.7 mm, Kawangire recorded 88.9 mm, Ruhuha 88.1 mm, Kirehe 77 mm, Zaza 58.3 mm and Mwiri station recorded 33.3 mm.

3.2 Rainfall performance in comparison to the Long-Term Mean

Comparing the performance of the rainfall during the month of October 2024 with the Long-Term Mean (LTM) for the same period, it was observed that the rainfall of October 2024 was above normal range of Long-Term Mean (LTM) except many parts of Northern Province and in some areas of Western,Eastern and Southern Province which recorded below normal range of Long-Term Mean (LTM). The Figure 1 shows that over 43 weather stations, thirty-two (24) stations recorded rainfall surplus, while Eighteen (19) stations recorded rainfall deficit.



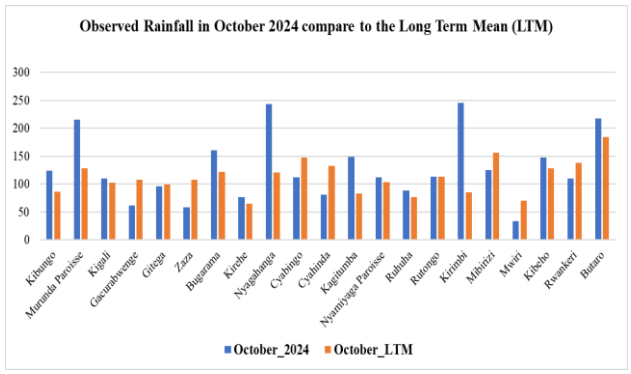
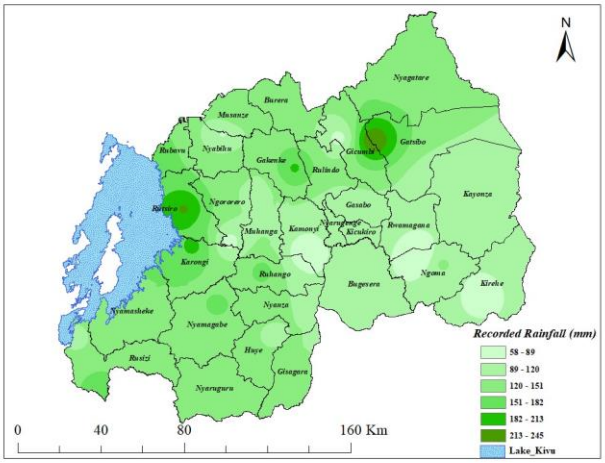
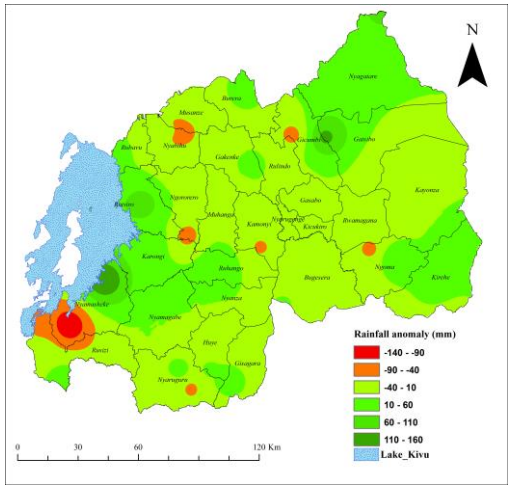


Figure 1 &2 above show rainfall performance during October 2024 and the deviation from the Long-Term Mean (LTM) for the same period.





Map1: Rainfall distribution of October 2024 ***Map2: October 2024 rainfall anomaly***

3.3 Temperature analysis

Maximum and minimum temperatures were higher in most parts of the country compared to the Long-Term Mean (LTM). The lowest maximum temperature recorded was 20.8 °C at Kinigi weather station in the Northern Province, while the highest maximum temperature recorded was 31.2 ºC at Bugarama station in Western Province. The minimum temperature ranged between 11.8 ºC at Busogo station in the Northern Province and 21.1 ºC at Bugarama station in the Western Province. It was observed that most parts of the country observed increased temperature with exception of the small parts in Southern and Eastern Provinces. Generally, some parts of Southwestern, Southern andEastern

Provinces as well as in Kigali City, were warmer compared to other parts of the country, while some areas of Northern Province, Nyabihu and Rubavu Districts were cooler compared to the remaining parts of the country (Map 3 and 4).

Figure 3 and 4 below show temperature deviation (anomalies) from the Long-Term Mean (LTM) in October 2024

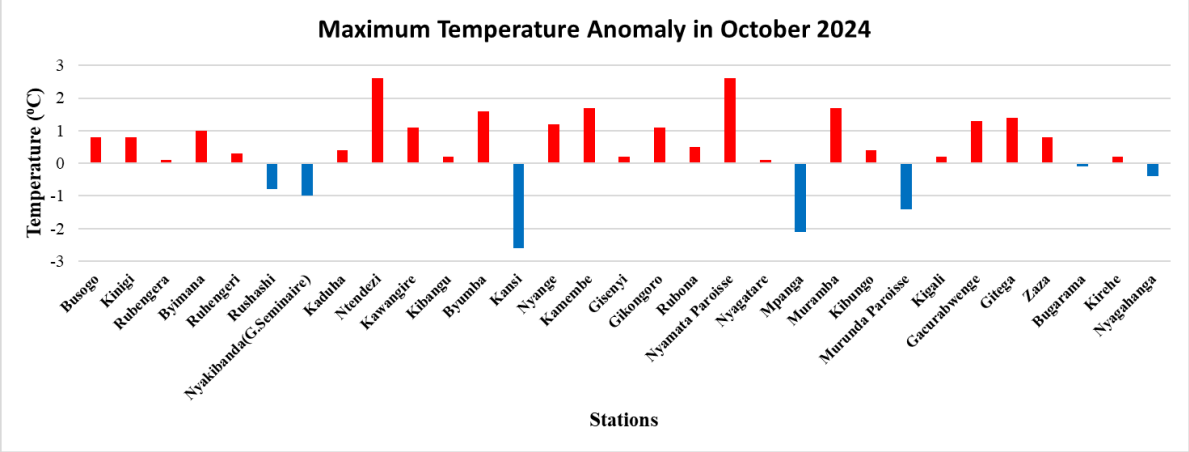


Figure 3 shows that the maximum temperature increased over many parts of the country during October 2024 compared to the Long Term Mean.

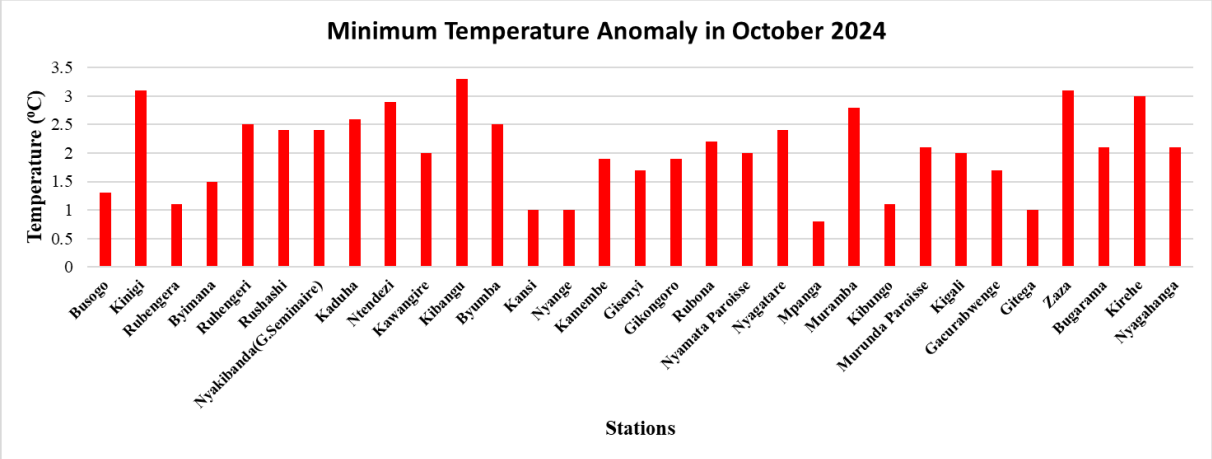
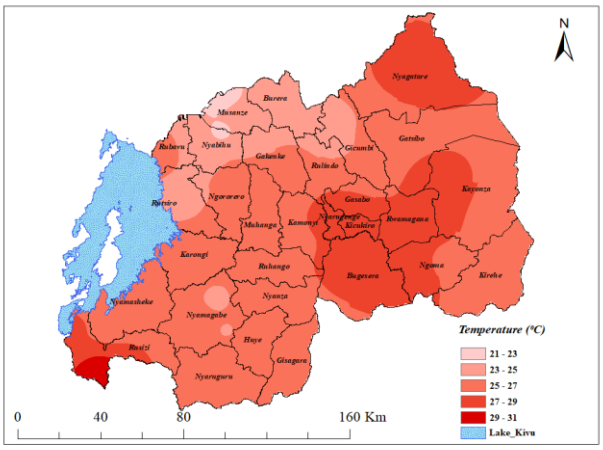
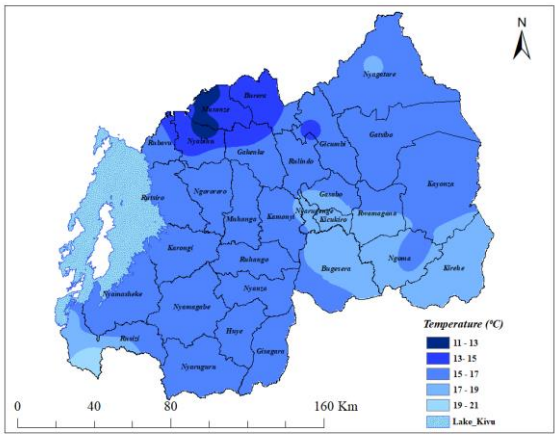


Figure 4 shows that the minimum temperature increased in most parts of the country during October 2024 compared to its Long Term Mean.



Map3: October 2024 Maximum Temperature



Map4: October 2024 Minimum Temperature

4. Soil Moisture Index (SMI)

The soil moisture content increased over many parts during the month of October 2024 due to the rainfall accumulation across the country. The soil moisture is expected to continue increased in November 2024, as a result of enhanced rainfall expected.

5. Climate outlook for November 2024

For more information on November 2024 climate outlook click here

6. IMPACTS ON SOCIO-ECONOMIC SECTORS

The socio-economic impacts associated with observed climatic conditions and the likely impacts in the forecasting period are illustrated below:

6.1 Impacts of observed climate condition.

- A rainfall surplus was observed in many parts of the country in October 2024 and this impacted agriculture sector positively, particularly in Eastern and southern Provinces where start of season is delayed.

6.2 Potential likely impacts for November 2024

Expected rainfall in November 2024 will be above the range of the Long-Term Mean (LTM). The enhanced expected rainfall is expected toincrease soil moisture content in many parts of the country,

this may have good impacts, particularly for the agriculture and water sectors. However, heavy rains may led to some negative consequences especially in high mountains..

N.B: This forecast should be used in conjunction with the Six hours, daily (24-hour), Three (3), Five (5) Seven (7) and 10 days' forecasts issued by the Rwanda Meteorology Agency (METEO RWANDA).