



Bulletin N°10/2020

Issued on 05 November 2020

Climatological Bulletin of October 2020

1. INTRODUCTION

The bulletin has three main components, which include: (i) the review of climate conditions observed over Rwanda in October 2020, (ii) the prediction of the November 2020 rainfall and (iii) the highlights on the socio-economic impacts associated with both observed and predicted climate conditions.

2. HIGHLIGHTS

- **Rainfall performance in October 2020:** The accumulation of observed rainfall during this month was above the Long Term Mean (LTM) in most parts of the country except in Bugarama Karongi and Rubavu stations in the Western Province, Busogo station in the Northern Province and Kawangire station in the Eastern Province.
- **Rainfall expected during November 2020:** During the month of November 2020, accumulated rainfall ranging between 100mm and 300mm is expected over the country depending on the region, the expected rainfall is slightly above the Long Term Mean of November.
- **The impact associated with both observed and predicted climate conditions:** in October 2020, normal to above normal rainfall was observed in most parts of the country, and this led to good performance of rain-fed agriculture and water availability. Due to the wet and cloudy weather conditions expected in November 2020, it is expected to have increased soil moisture and water availability among others.

3. CLIMATE PATTERNS

This section provides the climatological summary of rainfall and temperature for October 2020 in comparison to the Long Term Mean over Rwanda.

3.1 Rainfall amounts in October 2020

During the month of October, rainfall amount recorded over Rwanda was ranging between 57.0mm and 209.7mm. High rainfall of 209.7mm was recorded at Nyamagabe station in the Southern Province. Kigali City, Southern, and Northern Provinces were wet comparatively to Western and Eastern Provinces, even though the whole month rainfall was well distributed.

The central region represented by Gitega and Kigali International Airport weather stations of Kigali City recorded 153.7mm and 159mm respectively. Weather stations of the Southern Province recorded rainfall as follows: 209.7mm at Nyamagabe and Byimana station recorded 123.1mm. Weather stations of the Western Province also recorded rainfall as follow: Rusizi 178.4mm, Rubavu 101.2mm, Rubengera 110.4mm and 57.0mm recorded at Bugarama. Weather stations of the Northern Province recorded: Gicumbi 138mm, Busogo 157.2mm and Musanze Airport recorded 203.1mm respectively. Eastern Province recorded rainfall ranging between 73.0mm over Kawangire, 153.9mm over Nyagatare and 157.8mm over Kawangire stations.



3.2 Rainfall performance in comparison to the Long Term Mean

Comparing the performance of the rainfall during the month of October 2020 with the Long Term Mean for the same period, it was observed that the cumulative rainfall of October 2020 was above the normal range of Long Term Mean (LTM) in most parts of the country.

The Table and histogram below indicate the rainfall performance of October 2020 compared to the Long Term Mean for the same period over many years.

Stations	Oct. 2020	Oct LTM
Kigali Aero	159	103.0
Gitega	153.7	99.2
Nyamagabe	209.7	127.6
Byimana	123.1	100.7
Gicumbi	138	135.9
Busogo	157.2	169.5
Musanze Aero	203.1	155.7
Kamembe Aero	178.4	156.4
Rubavu Aero	101.2	137.2
Bugarama	57	121.6
Rubengera	110.4	155.7
Ngoma-Kazo	157.8	86.0
Kawangire	73	124.2
Nyagatare	153.9	94.9

Figure1: Rainfall performance as Compared to the Long Term Mean

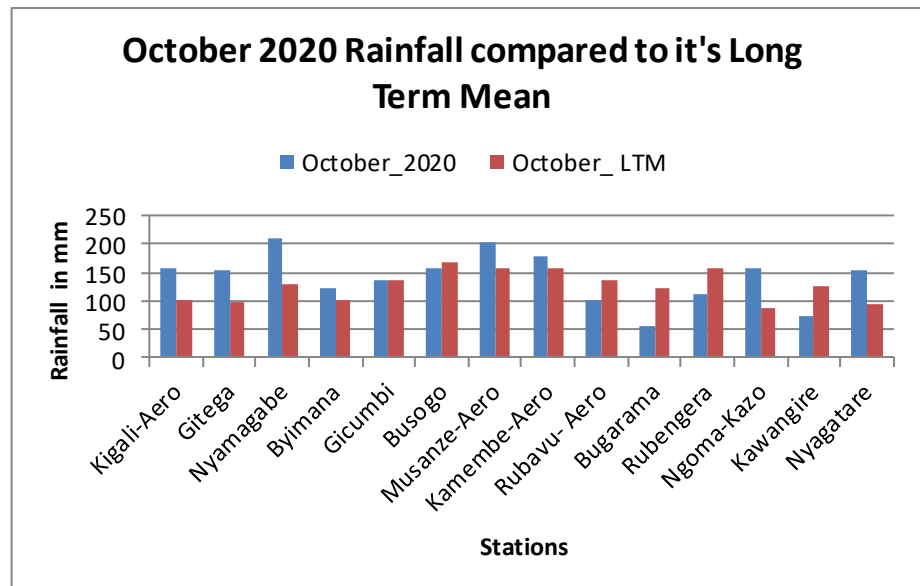
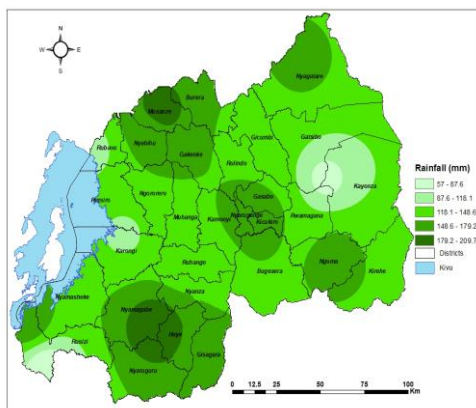
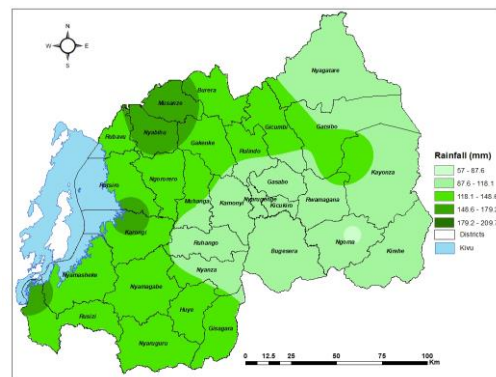


Table1: Cumulative rainfall recorded as compared to the LTM

Map 1 & 2 below show rainfall distribution during October 2020 and the Long Term Mean for the same period.



Map1: Rainfall distribution of October 2020



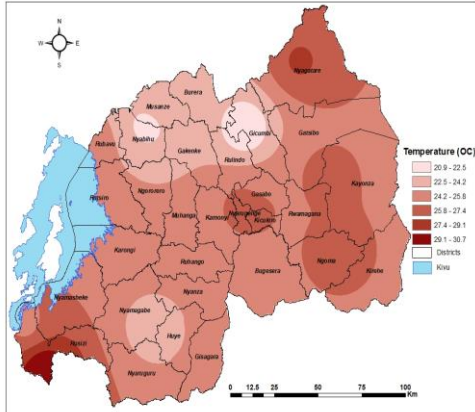
Map2: October Long term mean rainfall distribution

3.3 Temperature analysis

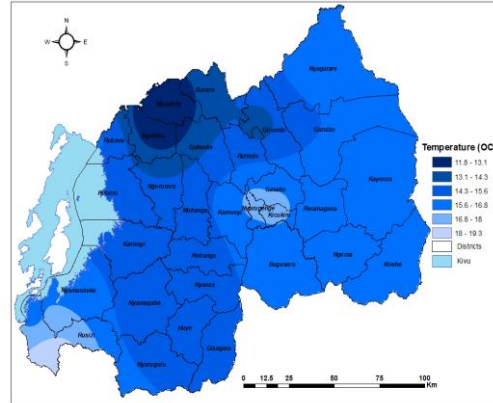
The lowest value of maximum temperature was 20.9°C, which was observed in the Northern Province at Gicumbi weather station. The highest value of maximum temperature was observed in the south western region at Bugarama station with 30.7°C.



The mean minimum temperature was ranged between 11.8⁰C at Busogo station which is the lowest and 19.3⁰C observed at Bugarama station. The Northern and Southern Provinces were cooler compared to the Eastern, Western Provinces and Central regions of the country (Map 3 and 4).



Map3: October Maximum Temperature

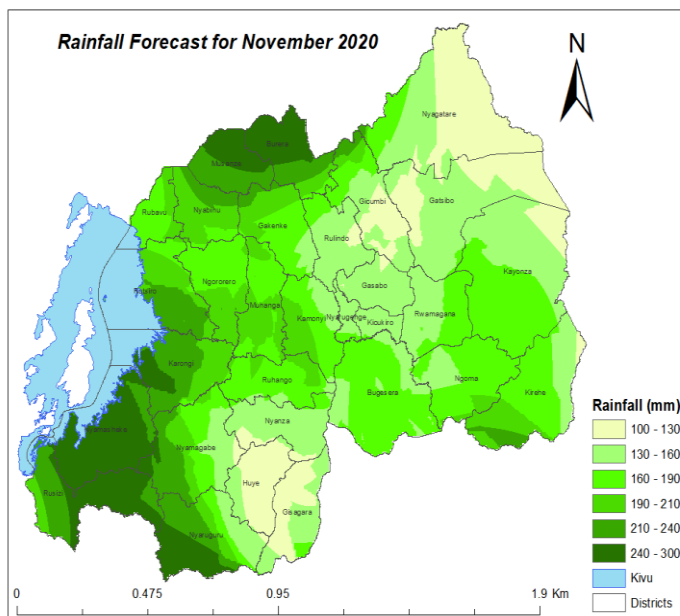


Map4: Minimum Temperature

4. Soil Moisture Index (MI)

Comparing the soil moisture of September and October 2020, it was observed that the soil moisture increased during the month of October as a result of the wet weather conditions experienced during the observation period over most parts the country. The increased soil moisture is expected in November 2020, as results of enhanced rainfall and cloudy conditions that are expected within the forecasted period.

5. Rainfall forecast for November 2020



Map 5: Rainfall prediction for November 2020

Rainfall ranging between 100 and 300 millimeters is expected in most parts of the country during November 2020. The expected rainfall is slightly above the long term mean of November. Enhanced rainfall is due to the Inter Tropical Convergence Zone (ITCZ) which well localized over the region combining with mesoscale systems which increased moisture.

Rainfall ranging between 100 and 130 mm is expected in the eastern parts of Nyagatare, Gatsibo and Kayonza Districts. The same amount is expected in western parts of Gatsibo, southern parts of Gicumbi, and in most parts of Huye and Gisagara Districts.

Rainfall ranging between 130 and 160mm is expected in City of Kigali, the remaining parts of Gatsibo, big part of Eastern Kayonza and Kirehe, western part of Rwamagana,



small part of Ngoma closer to Bugesera, the eastern parts of Nyamagabe, Nyaruguru and Gisagara and in most parts of Nyanza District.

Rainfall ranging between 160 and 190 mm is expected in most parts of Kirehe, Ngoma, Bugesera, Ruhango, Ngororero, Rubavu and Gakenke. Northern of Rulindo, Gicumbi, Nyamagabe and central parts of Kamonyi District.

Rainfall ranging between 190 and 210 is expected in southern parts of Kirehe, Ngororero, Muhanga, the western part of Kamonyi, northern of Rutsiro and Gakenke Districts

Rainfall ranging between 210 and 240 is expected in southern parts of Musanze, Burera and Rutsiro Districts, most of Karongi District and parts of Nyamagabe and Nyaruguru Districts near Nyungwe Forest.

Rainfall ranging between 240 and 300 is expected in Nyamasheke District, the big part of Rusizi District near Nyungwe Forest, southern part of Nyaruguru District also Near Nyungwe Forest, and big part of northern Burera and Musanze.

6. IMPACTS ON SOCIO-ECONOMIC SECTORS

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

6.1 Impacts of observed climate condition.

During the month of October 2020, the rainfall accumulation was above the Long Term Mean (LTM) in most parts of the country. Good rainfall observed over Kigali City, Southern, and Northern Provinces, led to improved crop, pasture and foliage conditions and water availability. On the other hand the poor performance of rainfall over the localized areas of the Western and Eastern Provinces led to late sowing of staple food crops and affected other activities that depend on rainfall availability.

6.2 Potential likely impacts for the November 2020.

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

- Improvement in pasture and crop conditions leading to good prospects for crop and livestock performance;
- Improvement in water resources and replenishment of reservoirs;
- Flooding and diseases transmission.
- Water borne diseases.

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).