



Bulletin N°11/2020

Issued on 05 December 2020

Climatological Bulletin of November 2020

1. INTRODUCTION

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

2. HIGHLIGHTS

- **Rainfall performance in November 2020:** The accumulation of observed rainfall during this month was above the Long Term Mean (LTM) in most parts of the country except at Byimana station in the Southern Province, Musanze Airport in the Northern Province and Rubavu Airport stations in the Western Province.
- **Rainfall expected during December 2020:** During the month of December 2020, accumulated rainfall ranging between 60mm and 250mm expected over the country depending on the region, the expected rainfall is slightly above the Long Term Mean of December.
- **The impact associated with both observed and predicted climate conditions:** in November 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 December 2020, Soil moisture expected to increased and water availability among others.

3. CLIMATE PATTERNS

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

3.1 Rainfall amounts in November 2020

During the month of November, rainfall amount recorded over Rwanda was ranging between 92.4mm and 231.3mm. High rainfall of 231.3mm recorded at Rubengera station in the Western Province. Eastern Province and south western parts of the country were wet comparatively to Kigali city, Northern and Southern 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 159.5mm and 122.2mm respectively.
- Weather stations of the Southern Province recorded rainfall as follows: at Nyamagabe and Byimana stations recorded 148.2mm and 109.7mm respectively.
- Weather stations of the Western Province also recorded rainfall as follow: Rusizi 208.9mm, Rubavu 92.4mm, Rubengera 231.3mm and 176.1mm recorded at Bugarama.
- Weather stations of the Northern Province recorded: Gicumbi 143.2mm, Busogo 229mm and Musanze Airport recorded 92.4mm respectively.



- Eastern Province recorded rainfall ranging between 222.6mm over Ngoma-Kazo, 202.5mm over Kawangire and 197.2mm over Nyagatare stations.

3.2 Rainfall performance in comparison to the Long Term Mean

Comparing the performance of the rainfall during the month of November 2020 with the Long Term Mean for the same period, it's was observed that the cumulative rainfall of November 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 November 2020 compared to the Long Term Mean for the same period over many years.

Stations	Nov. 2020	Nov. LTM
Kigali Aero	122.2	117.5
Gitega	159.5	128.1
Nyamagabe	148.2	141.5
Byimana	109.7	133.1
Gicumbi	143.2	133.1
Busogo	229	176.7
Musanze Aero	92.4	157.1
Kamembe Aero	208.9	171.0
Rubavu Aero	92.4	133.6
Bugarama	176.1	147.0
Rubengera	231.3	139.3
Ngoma-Kazo	222.6	124.8
Kawangire	202.5	122.4
Nyagatare	197.2	90.4

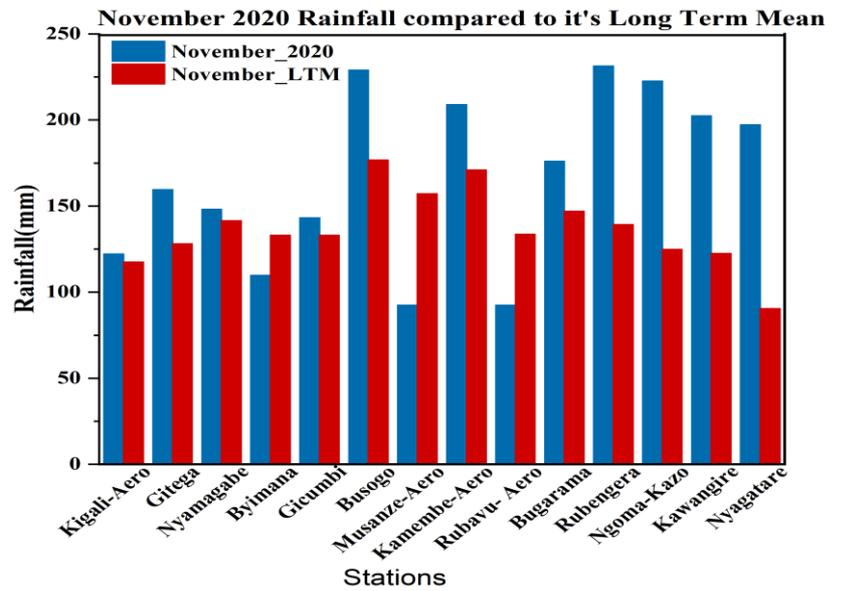
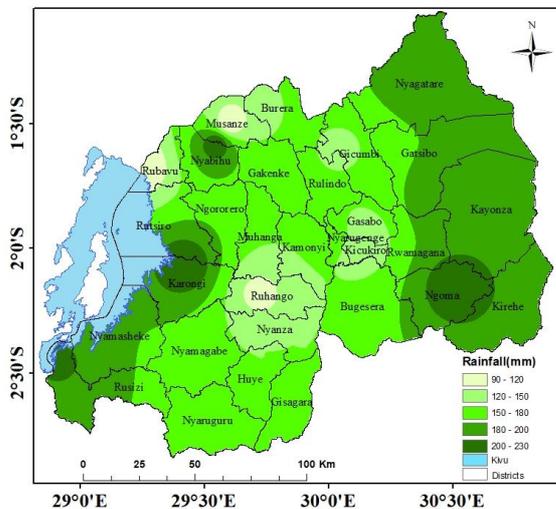


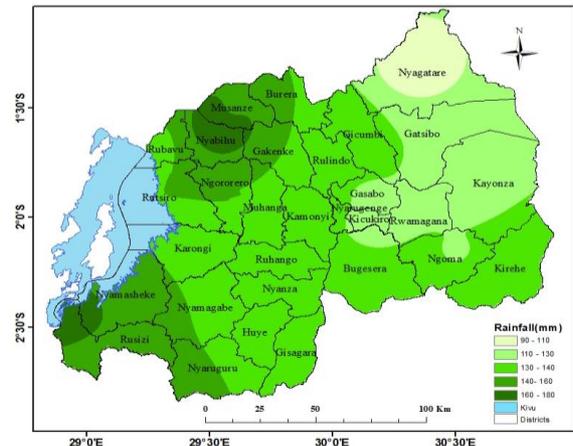
Table1: Cumulative rainfall recorded as compared to the LTM

Figure1: Rainfall performance as Compared to the Long Term Mean

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



Map1: Rainfall distribution of November 2020

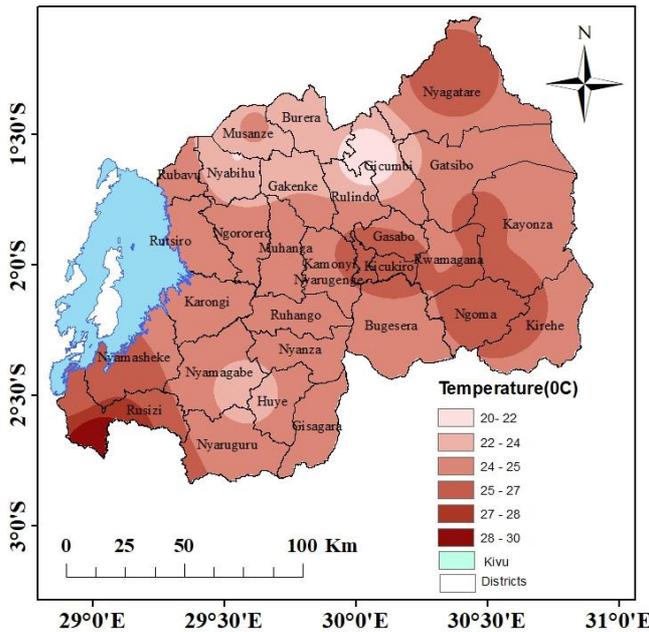


Map2: November Long term mean rainfall distribution

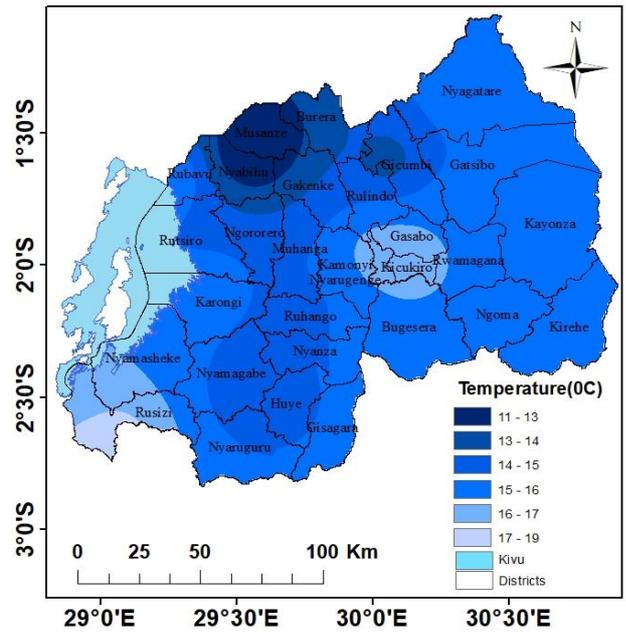


3.3 Temperature analysis

The lowest value of maximum temperature was 20.3°C, observed at Gicumbi weather station in the Northern Province, The highest value of maximum temperature observed in the southwestern region at Bugarama station with 29.9°C. The minimum temperature ranged between 11.3°C at Busogo station in the Northern Province and 18.7°C observed at Bugarama station in the Western Province. The Northern and Southern Provinces were cooler compared to the Eastern, Western Provinces and Central regions of the country (Map 3 and 4).



Map3: November Maximum Temperature



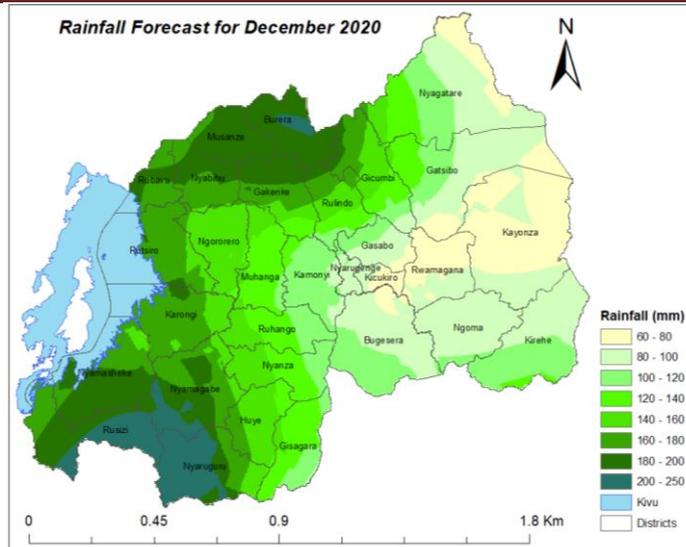
Map4: November Minimum Temperature

4. Soil Moisture Index (MI)

Comparison of soil moisture of October and November 2020, it was observed that the soil moisture increased during the month of November because of the wet weather conditions experienced during the observation period over most parts the country. The soil moisture will continue to be better in December 2020, as results of expected wet weather conditions within the forecasted period.

5. Rainfall forecast for December 2020

The rainfall expected in December 2020 is in the range of long term mean over most parts of the country, with few regions (Nyungwe forest and surroundings) expected to have increased rainfall which is slightly above the long term mean. The month of December marks the end of rainfall cessation starting from Eastern to Western parts of the country during the third week of December extending to first week of January.



Map 5: Rainfall prediction for December 2020

Western Province: Rainfall ranging between 140 and 250 mm expected in the province. Increased rainfall ranging between 200 and 250 mm expected in parts of Rusizi District located near Nyungwe forest. Rainfall ranging between 140 and 160 mm expected in Ngororero District and eastern part of Karongi and Rutsiro while remaining parts are expect to receive rainfall ranging between 160 and 200 mm.

Northern Province: Rainfall ranging between 100 and 200 mm expected in the Province. Musanze and Burera Districts, northern part of Gakenke, Rulindo and north western part of Gicumbi Districts are expected to get rainfall ranging between 180 and 200 mm. The southern parts of Rulindo Gicumbi and southern Gakenke are expected to receive rainfall between 100 and 140 mm while remaining parts of the Province are expected to experience rainfall ranging between 140 and 180 mm.

Southern Province: Rainfall ranging between 100 and 250 mm expected in Southern Province. Increased amount of rainfall ranging between 180 and 250 mm expected in parts of Nyamagabe and Nyaruguru located in Nyungwe forest and surrounding areas. Rainfall ranging between 100 and 120mm expected in Kamonyi District and eastern parts of Ruhango, Nyanza, and Gisagara Districts while remaining parts of the Province expected to receive rainfall ranging between 120 and 180 mm.

Kigali city: Rainfall expected in Kigali city is ranging between 60 and 120 mm. Eastern parts of Gasabo and Kicukiro Districts are expected to receive between 60 and 80 mm, Nyarugenge and central parts of Gasabo District will receive between 80 and 100mm while northern parts of Gasabo will receive between 100 and 120 mm.

Eastern Province: Rainfall ranging between 60 and 140 mm expected in Eastern Province. Between 100 and 140 mm of rainfall expected in Western parts of Nyagatare, Gatsibo, Southern parts of Kirehe, Ngoma and Southwestern Bugesera. Rainfall ranging between 60 and 80 mm is expected in Northern and central parts of Kayonza, Northern parts of Rwamagana and eastern parts of Nyagatare along the border. Remaining parts of the district are expected to receive between 80 and 100 mm.

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 November 2020, the rainfall accumulation was above the Long Term Mean (LTM) in most parts of the country. Good rainfall observed over Eastern and Southern Provinces, led to



improved crop, pasture and foliage conditions and water availability. On the other hand, poor or high performance of rainfall over the localized areas affected some activities that depend on rainfall availability.

6.2 Potential likely impacts for the December 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.

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).