

REPUBLIC OF RWANDA



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## Climatological Bulletin of September 2019

### 1. INTRODUCTION

This bulletin has three main components which are: (i) the review of climate conditions observed over Rwanda in September 2019, (ii) the prediction of the rainfall in October 2019 and (iii) the highlights on the socio-economic impact associated with the both observed and predicted climate conditions.

### 2. HIGHLIGHTS

- Rainfall performance in September: the accumulation of rainfall observed was below the LTM (Long-Term-Mean) in the most stations of the country, except in Kigali, Nyagatare, Rubavu, Ngoma, Gicumbi and Bugarama.
- Rainfall during the October: it is expected to receive rainfall in all districts of the country and the amount ranging between 150 mm and 300mm.
- The impact associated with both observed and predicted climate conditions: the soil moisture is increasing and will continue to increase, which improve the pasture and crop conditions leading to good prospects for crop and livestock performance.

### 3. CLIMATE PATTERNS

This section provides the climatological summary for the rainfall and temperature in terms of amount for September 2019 Rainfall performance as compared to the Long Term Mean over Rwanda.

### 3.1 Rainfall amounts in September 2019

During the month of September, rainfall amount recorded over Rwanda was ranging between 63.2mm and 143.8mm. The Northern Province and Western Province and Northeast region have received much rainfall compared to other provinces, Rubavu and Rusizi weather stations of Western Province recorded 143.8mm and 105.5mm respectively. Gicumbi, Busogo and Musanze weather station of the Northern Province have received 120.8mm, 136mm and 116.6mm respectively.

The Eastern Province received the rainfall ranging between 63.2mm(over Kawangire) and 123mm(over Nyagatare). The central region represented by Kigali and Gitega, the rainfall amount received was 77.9mm and 64.9mm respectively. Nyamagabe and Byimana station of the Southern Province received 126.5mm and 73.4mm respectively.

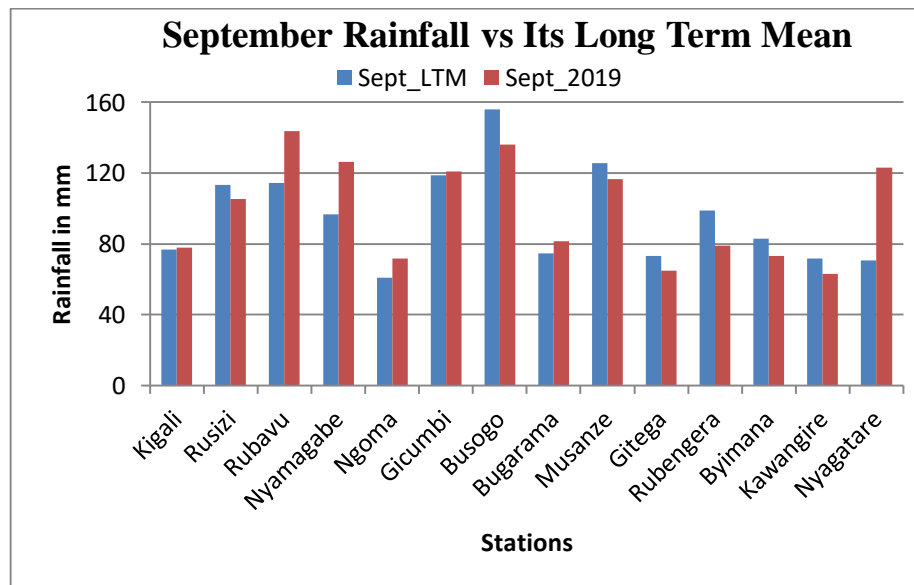
### 3.2 Rainfall performance as compared to the Long Term Mean

The the performance of the rainfall in the month of September 2019 shows that the cumulative rainfall over Rwanda was below as compared to the LTM (Long-Term Mean) in most part of the country, but for some part including Kigali, Rubavu, Nyamagabe, Ngoma, Gicumbi and Bugarama stations, the observed rainfall was above the long term mean.

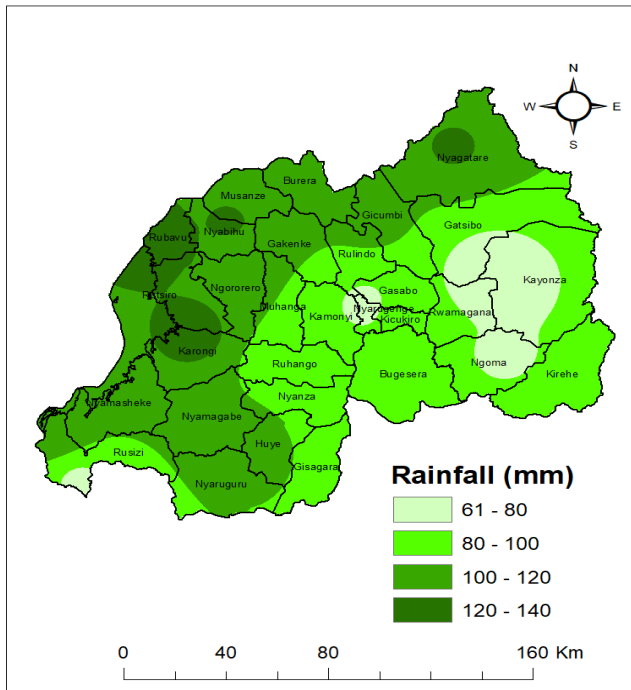
The Table and histogram below indicate the rainfall performance as compared to the (Long Term Mean).

Stations	Sept_2019	Sep_ - LTM
Kigali	77.9	76.8
Rusizi	105.5	113.2
Rubavu	143.8	114.6
Nyamagabe	126.5	96.6
Ngoma	71.8	61.1
Gicumbi	120.8	118.7
Busogo	136	156.1
Bugarama	81.6	74.8
Musanze	116.6	125.6
Gitega	64.9	73.2
Rubengera	79.2	99
Byimana	73.4	83.1
Kawangire	63.2	71.9
Nyagatare	123	70.7

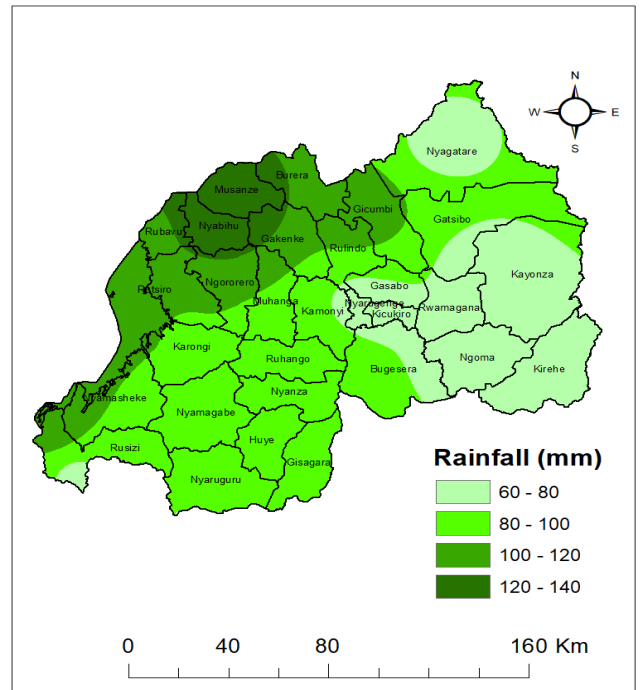
**Table1:** Cumulative rainfall recorded as compared to the LTM



**Figure1:** Rainfall performance as Compared to the LTM



**Figure2:** Rainfall distribution of September 2019



**Figure3:** Long Term Mean rainfall distribution

Figure 2& 3 above show rainfall distribution during September and the rainfall distribution for the same period in the long term.

### 3.3 Temperature analysis

The highest average maximum temperature of 32.9<sup>0</sup>C was observed in the Southwest region at Bugarama station. The lowest average maximum temperature was observed in the Northern Province at Gicumbi station with 22.0<sup>0</sup>C.

The average of minimum temperature was ranging between 11.2 and 19.4<sup>0</sup>C. The Northern and Southern provinces are cooler compared to the Eastern and Central regions and western provinces of the country (Figure 4 and 5).

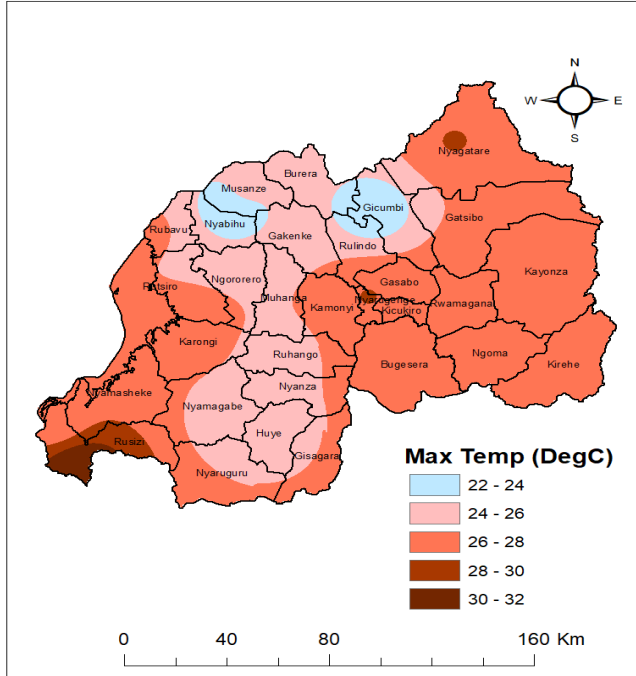


Figure4:September Maximum Temperature

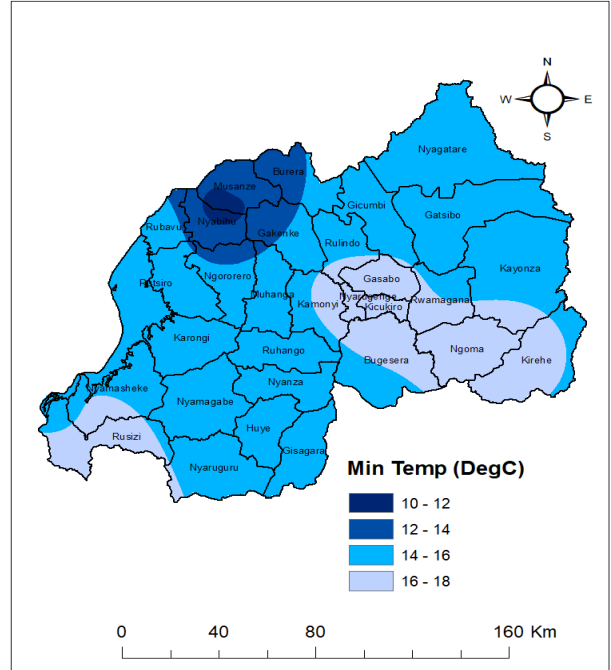
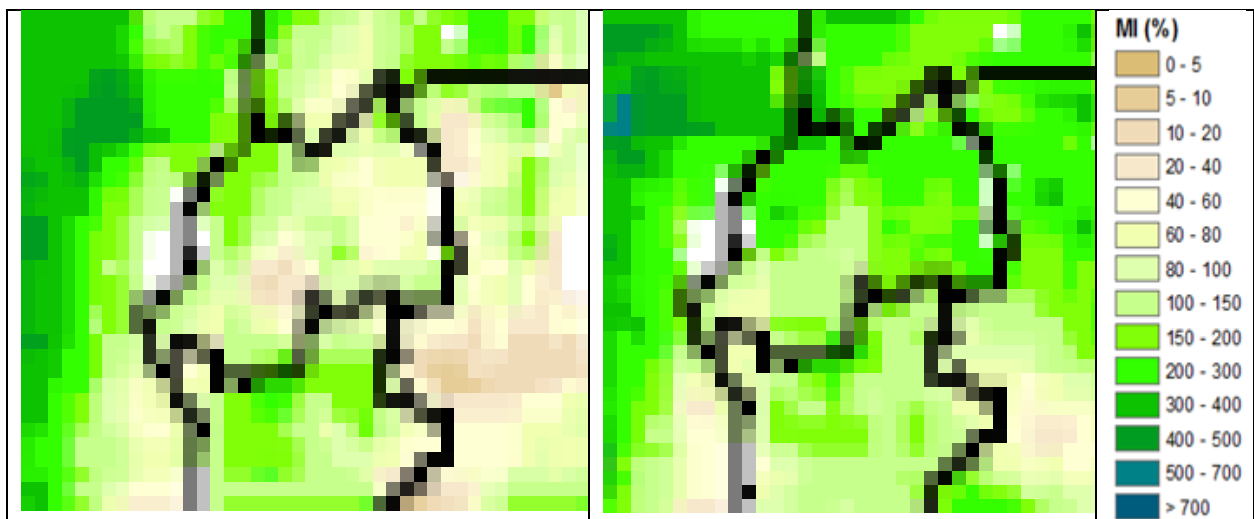


Figure5:September Minimum Temperature

#### 4. Agricultural impact

##### Satellite images: Soil Moisture Index (MI)

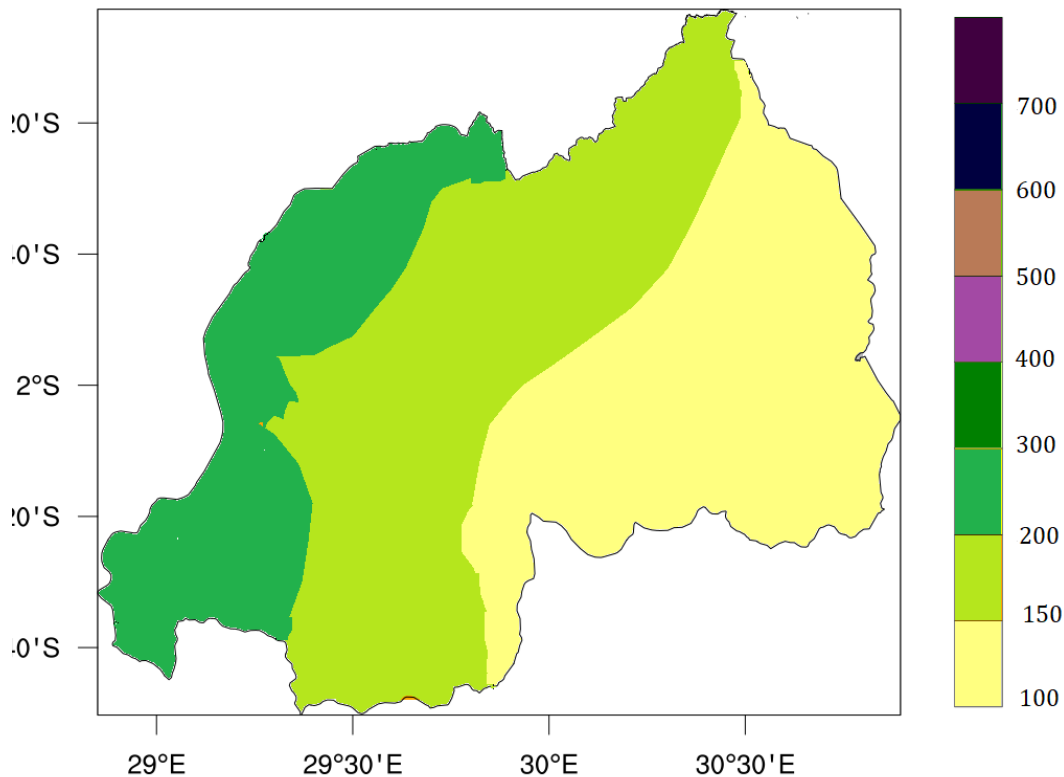
Comparing the 3<sup>rd</sup> dekad of to the 2<sup>nd</sup> dekad of September 2019, the satellite derived moisture is showing that the soil moisture is increased and continues to increase as a result of the wet weather condition observed over the country. (see Map6&7).



Map6: September.2019 dekad2

Map7: September .2019 dekad3

## 5. Rainfall forecast for October



**Figure 8: rainfall prediction for October**

The rainfall during October 2019; in this period of thirty days, the rainfall is expected to be received in all districts of Rwanda, and different regions will receive the rainfall in the following ranges:

- Central region, Southeast, Eastern, Southern provinces: expected to receive rainfall amount ranging between 100mm and 150mm.
- Western, Northern and Southwest provinces: expected to receive rainfall amount ranging between 150mm and 200mm.
- Northwest region: expected to receive rainfall amount ranging 200mm to 300mm.

## 6. IMPACTS ON SOCIO-ECONOMIC SECTORS

The socio-economic impacts associated with observed long term climatic conditions during the month of September are illustrated below:

### 6.1 Impacts of observed climate condition.

During this period of September, the rainfall accumulation was above the long term mean (LTM) in some parts like in the Western and North parts of the country, and impacts associated with:

- Improved crop, pasture and foliage conditions;
- Replenishment of water reservoirs;
- Inundation in wetland areas.

## **6.2 Potential likely impacts for the October 2019.**

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

- Improvement in pasture and good crop performance that leading to good prospects for crop and livestock performance;
- The expected enhanced rainfall in western parts may still lead to cases of flooding especially in flood-prone areas and also lightning strikes within the western side of Congo Nil.
- Improvement in water resources and replenishment of reservoirs;

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