

REPUBLIC OF RWANDA



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Climatological Bulletin of December 2019

1. INTRODUCTION

This bulletin has three main components which are: (i) the review of climate conditions observed over Rwanda in December 2019, (ii) the prediction of the rainfall in January 2020 and (iii) the highlights on the socio-economic impact associated with the both observed and predicted climate conditions.

2. HIGHLIGHTS

- Rainfall performance in December : the accumulation of rainfall observed during this month was above the LTM (Long-Term-Mean) in all stations across the country.
- Rainfall during the January 2020: it is expected to receive rainfall in all districts of the country and the amount ranging between 75 mm and 150 mm.
- The impact associated with both observed and predicted climate conditions: Some areas were flooded and landslides occurred in some parts of the country; the soil moisture increased which improved the pasture and foliage for livestock, while high rainfall caused the loss of life, infrastructure and crop yield.

3. CLIMATE PATTERNS

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

3.1 Rainfall amounts in December 2019

During the month of December, rainfall amount recorded over Rwanda was ranging between 91.1mm and 412.8mm. High rainfall of 412.8mm was received at Nyamagabe station. The Southern Province, Western Province and Kigali city have received much rainfall compared to Northern and Eastern Province. The central region represented by Gitega and Kigali Airport weather stations of Kigali city recorded 228.8mm and 262.8mm respectively. Nyamagabe and Byimana station of the Southern Province received 412.8mm and 357.1mm respectively. The Western Province also received 260.1mm over Rusizi, Rubavu (160.4mm), Rubengera (214.8mm) and Bugarama recorded 286.9mm. Gicumbi, Busogo and Musanze weather stations of the Northern Province have received 91.1mm, 146mm and 134.7mm respectively.

The Eastern Province received the rainfall ranging between 91.1mm (over Nyagatare), 110mm (over Kawangire) and 286.5mm over Ngoma. The enhanced rainfall activities during this month of December was a result of the convergent winds that led to the increase in air moisture over Rwanda.

3.2 Rainfall performance as compared to the Long Term Mean

The performance of the rainfall in the month of December 2019 shows that the cumulative rainfall over Rwanda was above as compared to the LTM (Long-Term Mean) in most part of the country.

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

Stations	Dec_2019	Dec_LTM
Kigali	262.8	90.6
Rusizi	260.1	133.5
Rubavu	160.4	95.4
Nyamagabe	412.8	154.9
Ngoma	286.5	97.8
Gicumbi	96.1	83.1
Busogo	134.7	97.2
Bugarama	286.9	136.6
Musanze	146	92.7
Gitega	228.8	113.1
Rubengera	214.8	150.5
Byimana	357.1	112.5
Kawangire	110	96.8
Nyagatare	91.1	75.9

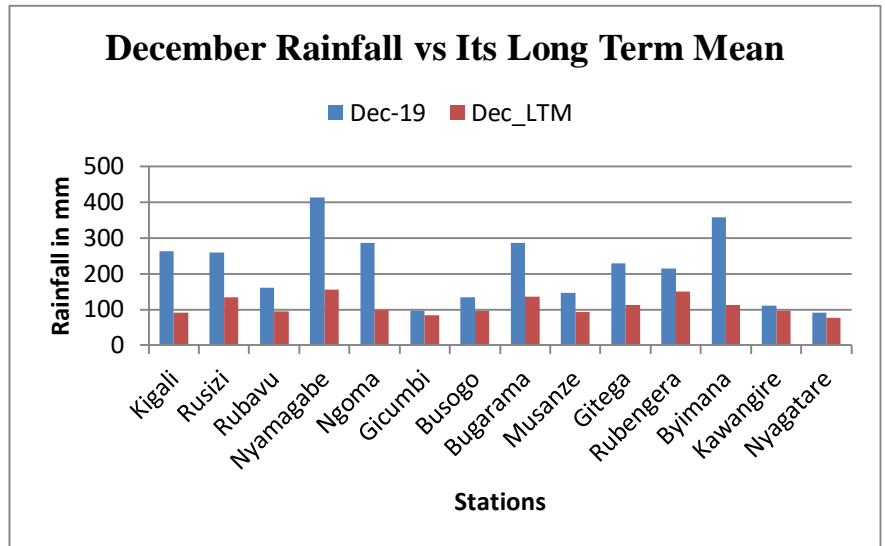


Table1: Cumulative rainfall recorded as compared to the LTM

Figure1: Rainfall performance as Compared to the LTM

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

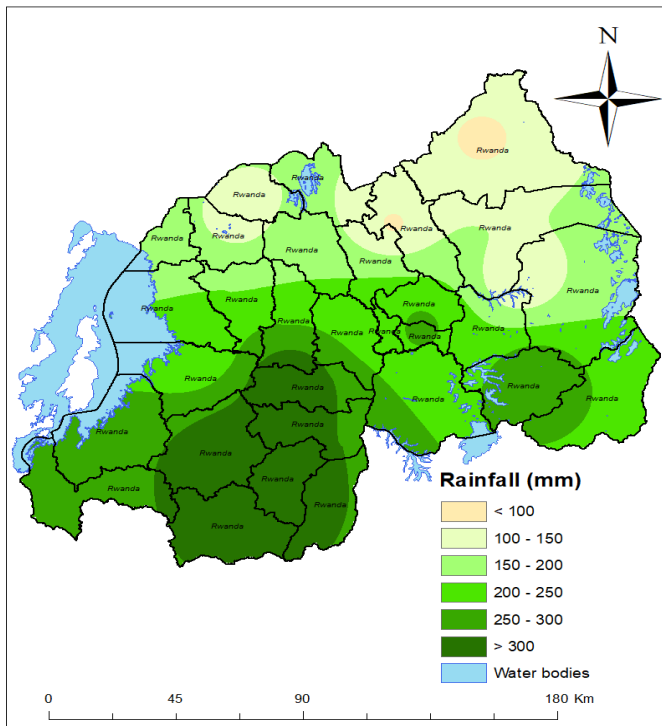


Figure2: Rainfall distribution of December 2019

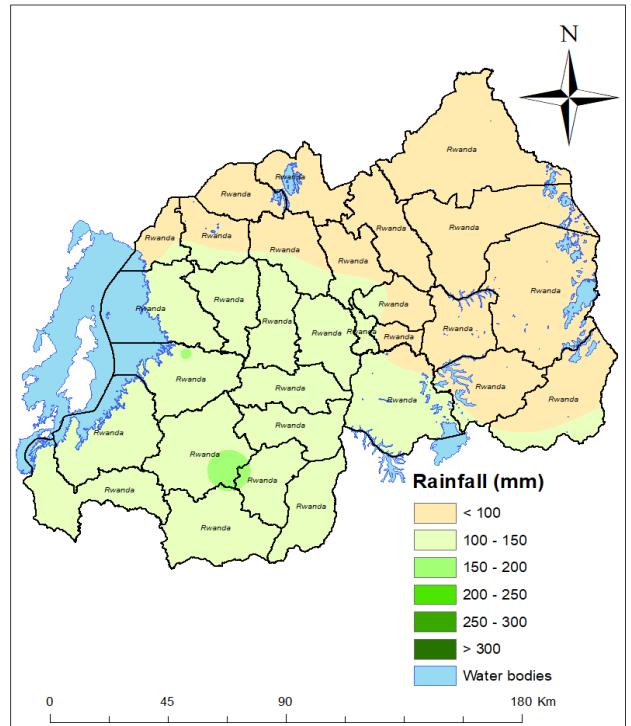


Figure3: Long Term Mean rainfall distribution

3.3 Temperature analysis

The highest average maximum temperature of 29.7°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 21.4°C.

The average of minimum temperature was ranging between 12.6 and 18.9°C. The Northern and Southern provinces are cooler compared to the Eastern, Central regions and Western Provinces of the country (Figure 4 and 5).

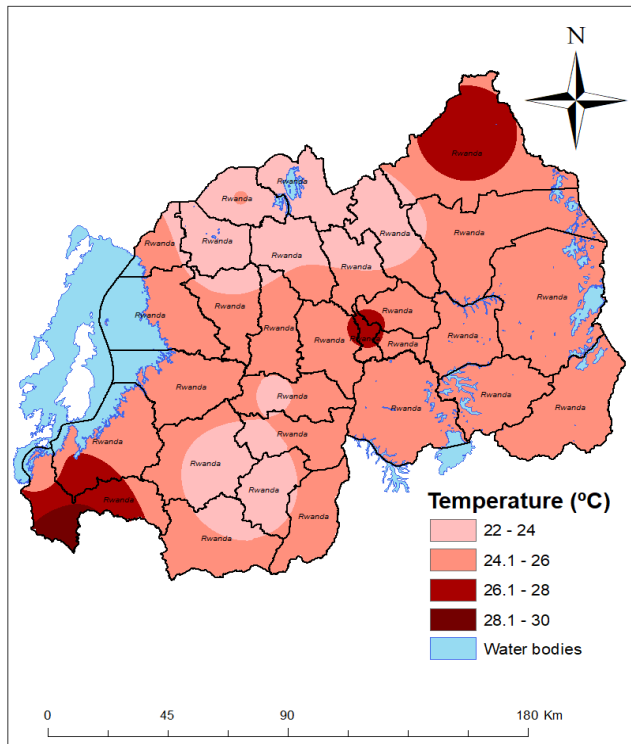


Figure4:December Maximum Temperature

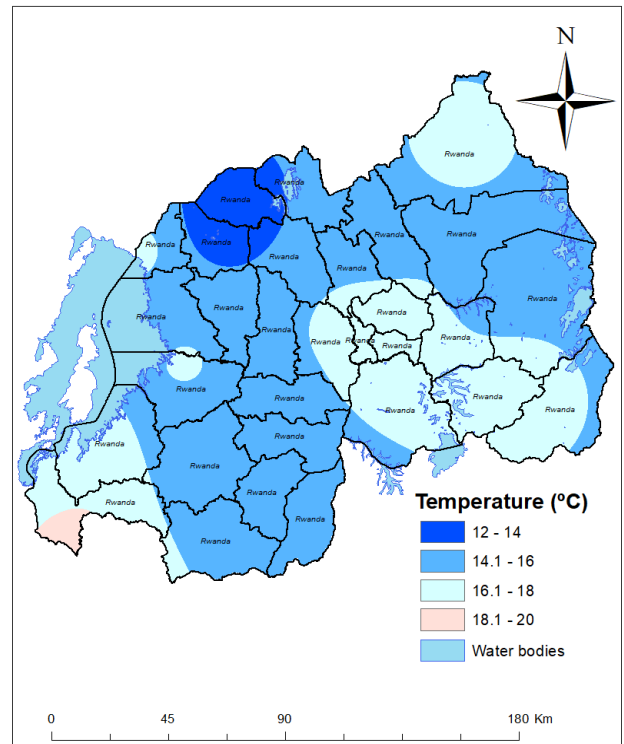
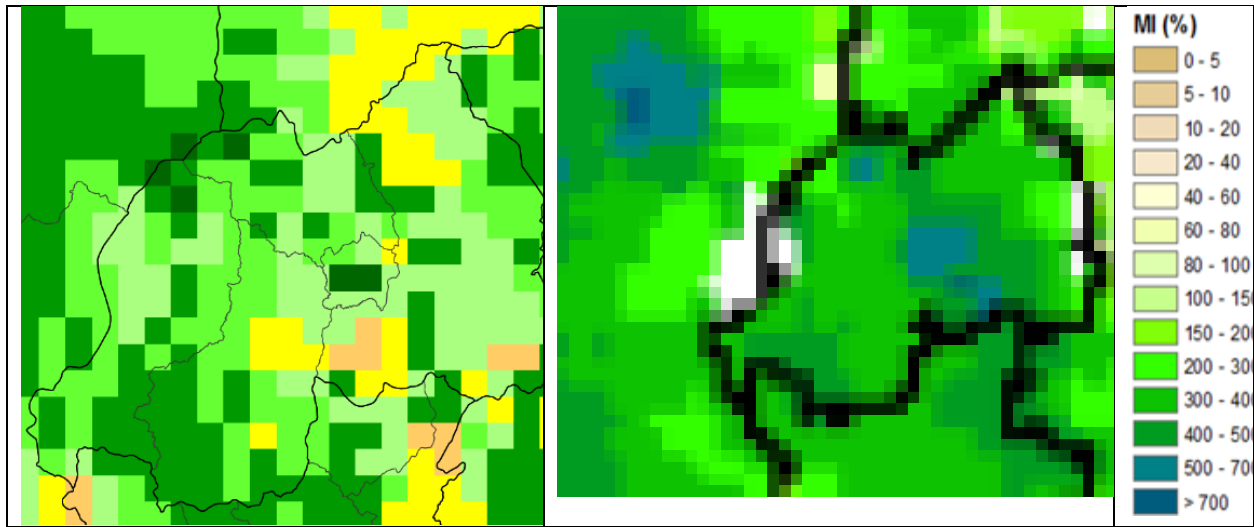


Figure5:December Minimum Temperature

4. Soil Moisture Index (MI)

Comparing the November soil moisture, the satellite derived moisture is showing that the soil moisture increased as a result of wet weather condition observed over the country during December. (see **Map6&7**).



Map6: November_2019

Map7: December_2019

5. Rainfall forecast for January

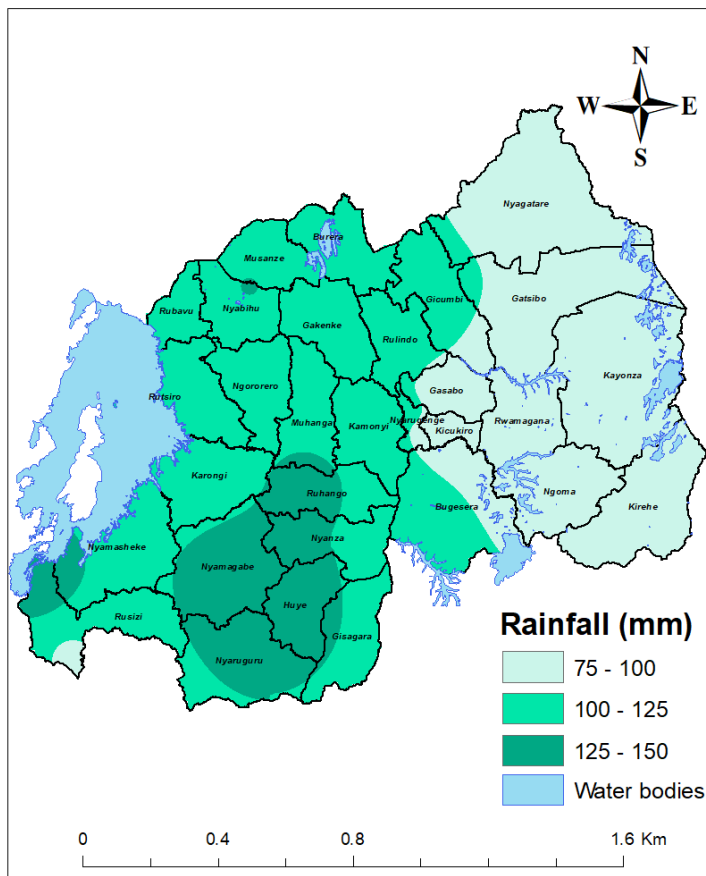


Figure 8: Rainfall prediction for January

The rainfall during January 2020; in this period of thirty days, the rainfall is expected in all districts of Rwanda, the expected range will be between 75mm to 150mm. Southern province is expected to receive high amount of rainfall than the rest of the country.

6. IMPACTS ON SOCIO-ECONOMIC SECTORS

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

6.1 Impacts of observed climate condition.

During this period of December, the rainfall accumulation was above the Long Term Mean (LTM) in most parts of the country, and impacts associated with:

- Improved, pasture and foliage conditions;
- Floods and landslides in some areas that led to loss of life, properties and infrastructure.
- Crop failure due to heavy rain and floods.

6.2 Potential likely impacts for the January 2020.

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

- Improvement in pasture and foliage for livestock;
- Possible losses of final crop yield;
- Due to the expected enhanced rainfall in western and southern parts, the areas should be closely monitored for floods;
- Lightning strikes especially in the Western side of Congo Nil;
- Transmission of water related diseases.

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)