



REPUBLIC OF KENYA

MINISTRY OF ENVIRONMENT, CLIMATE CHANGE AND FORESTRY

KENYA METEOROLOGICAL DEPARTMENT

County Meteorological services, Embu

P.O. Box 171-60100 Embu, Kenya

Tel: 0705252469

E-mail: cdmembu@meteo.go.ke, cdmembu@gmail.com

Website: <http://www.meteo.go.ke>

When replying please quote

Ref: MET/EBU/2/MONTHLY/17TH-NOVEMBER-2023

Issue Date: 17th NOVEMBER 2023

WEATHER FORECAST FOR NOVEMBER 2023 AND WEATHER REVIEW FOR OCTOBER 2023

1.0 HIGHLIGHTS

1.1. The Weather Forecast for November 2023

The October-November-December (OND) "short-rains" season typically peaks in November. According to the November forecast, it is likely that rainfall will be above average over most parts of the county. This will be driven by the present El Nino conditions and the positive Indian Ocean Dipole (IOD), typically associated with above-average rainfall over Kenya during the month. Isolated episodes of storms are likely to be experienced in several parts of the county during the month

1.2. Review of October 2023 Monthly Rainfall Performance

The month of October 2023 rainfall performance indicated that all stations reported rainfall, unlike the case in September when there were some nil reports. This is an indicator that the onset of the "Short Rains" was achieved during the month as the forecast had indicated. Thicingi Girls Sec. Sch. reported a monthly total rainfall of 359.0mm and it was the highest amount reported during the month of October 2023 in Embu County. It was followed by Runyenjes Agri. Office Station which reported 339.1mm, Mungania Tea Factory 297.4, Kigari PPTC 273.0, Kathangariri Tea Factory 247.8, Gitii-Ngura 229.9, Gachoka Agri. Office 227.7, Kasafari 226.3, Embu Met. Station 225.5, Kianamu Nthawa 225.4, Kininthe Sec. Sch. 187.7, Muthanthara Dispensary 181.9, Mayori 88.3, Kirathe Dispensary 86.2, Ndune 49.0, Karaba Chief's Camp 44.7 and Makima ACC Ground 43.7mm of rainfall. The above information is as shown in Table 1, Figure 1 and Figure 2 below.

Table 1: Monthly Rainfall Performance in October 2023 over Embu County

	Station	October 2023 Total Rainfall
1	Thicingi Girls Sec School	359.0
2	Runyenjes Agri. Office	339.1
3	Mungania Tea Factory	297.4
4	Kigari PTTC	273.0
5	Kathangariri Tea Factory	247.8
6	Gitii - Ngura	229.9
7	Gachoka Agriculture Office	227.7
8	Kasafari	226.3
9	Embu Met. Station	225.5
10	Kianamu-Nthawa	225.4
11	Kininthe Secondary School	187.7
12	Muthanthara Dispensary	181.9
13	Managia	174.9
14	Kirie	113.2
15	Mayori	88.3
16	Kirathe Dispensary	86.2
17	Ndune	49.0
18	Karaba Chief's Office	44.7
19	Makima ACC Grounds	43.7

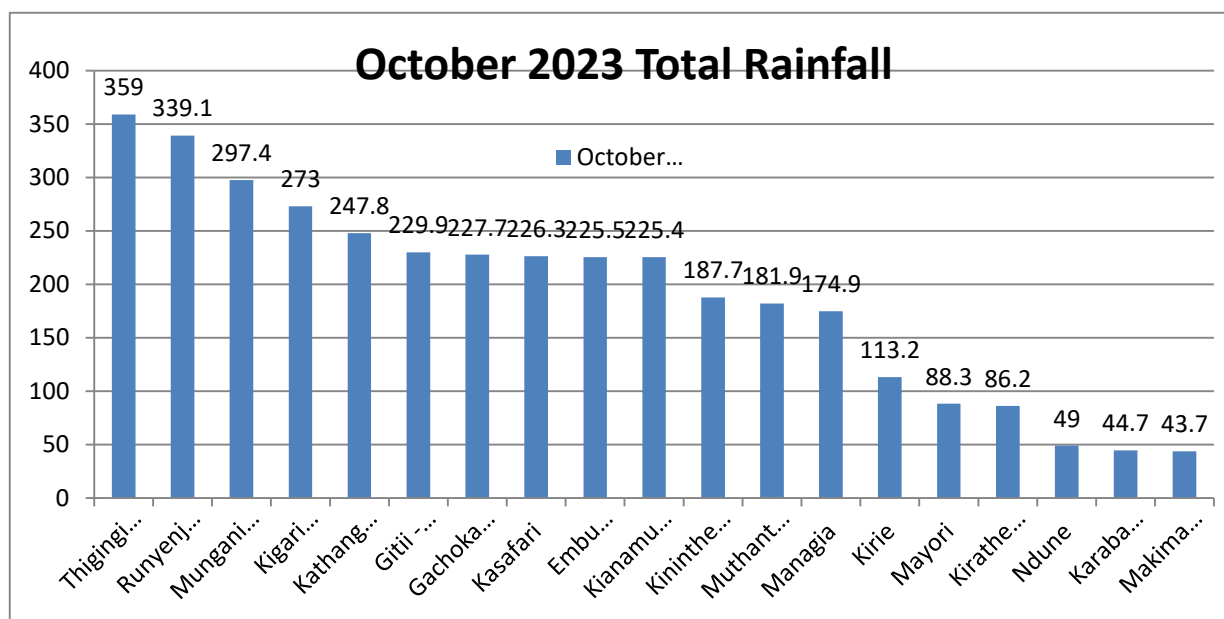


Fig. 1: October 2023 Monthly rainfall performance over Embu County

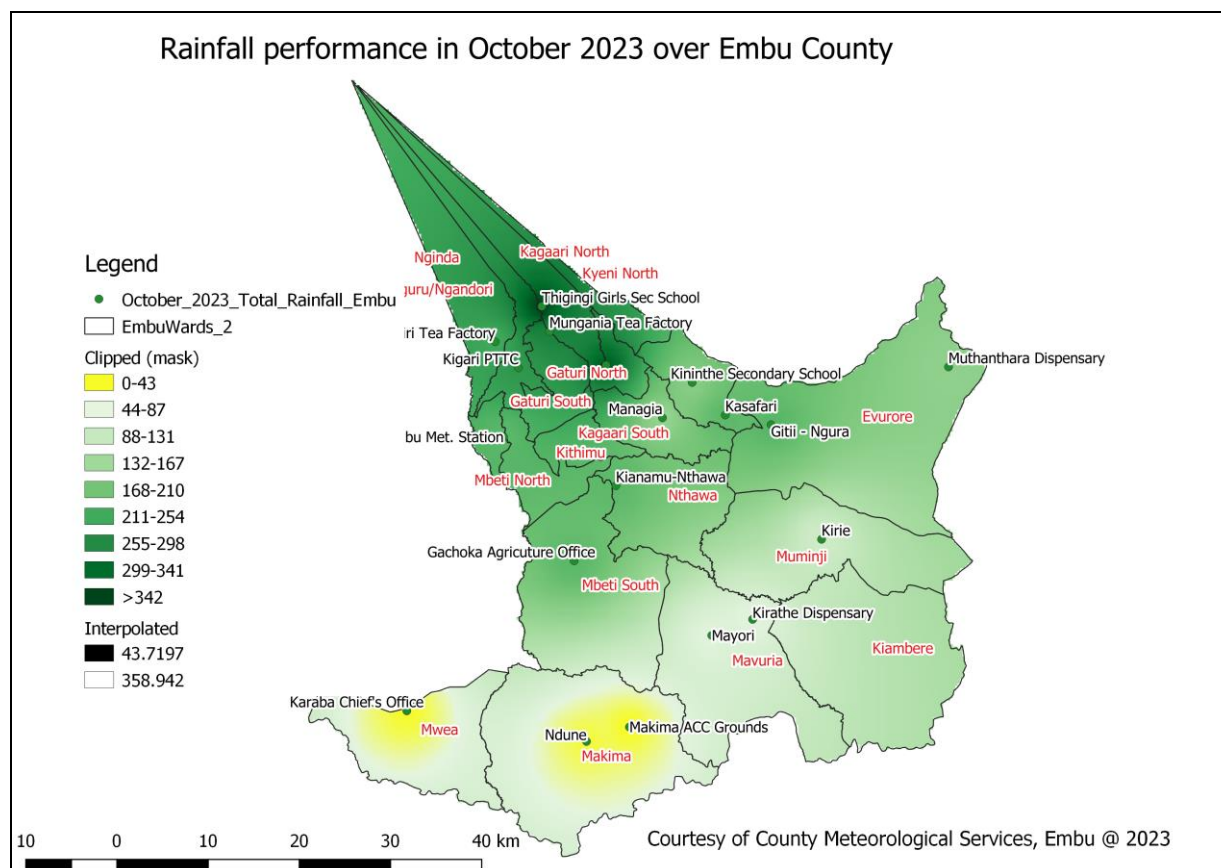


Fig. 2 September 2023 Monthly rainfall spatial distribution over Embu County

1.3 Comparison between October 2023 and September 2023 Rainfall Performance in Embu County

Unlike in the month of September, generally very high amounts of rainfall were reported during the month of October in most parts of Embu County. Majority of the stations reported higher amounts of rainfall in the month of October as compared to September 2023. However, Ndune in Makima Ward and Karaba in Mwea Ward and both in Mbeere South sub-county reported less rains in October than in September 2023. Table 2 and Figure 3 below show comparison of rainfall performance over Embu County in October 2023 and September 2023.

Table 2: Monthly Rainfall Performance comparison between October and September 2023 in Embu County

No.	Station	October 2023 Total Rainfall	September 2023 Total Rainfall
1	Thigingi Girls Sec School	359.0	61.9
2	Runyenjes Agri. Office	339.1	36.4
3	Mungania Tea Factory	297.4	50.1
4	Kigari PTTC	273.0	37.0
5	Kathangariri Tea Factory	247.8	25.2
6	Gitii - Ngura	229.9	5.1
7	Gachoka Agriculture Office	227.7	19.0
8	Kasafari	226.3	0.0
9	Embu Met. Station	225.5	23.4
10	Kianamu-Nthawa	225.4	13.7
11	Kininthe Secondary School	187.7	8.9
12	Muthanthara Dispensary	181.9	0.0
13	Managia	174.9	12.5
14	Kirie	113.2	0.0
15	Mayori	88.3	1.3
16	Kirathe Dispensary	86.2	0.0
17	Ndune	49.0	57.1
18	Karaba Chief's Office	44.7	57.0
19	Makima ACC Grounds	43.7	6.5

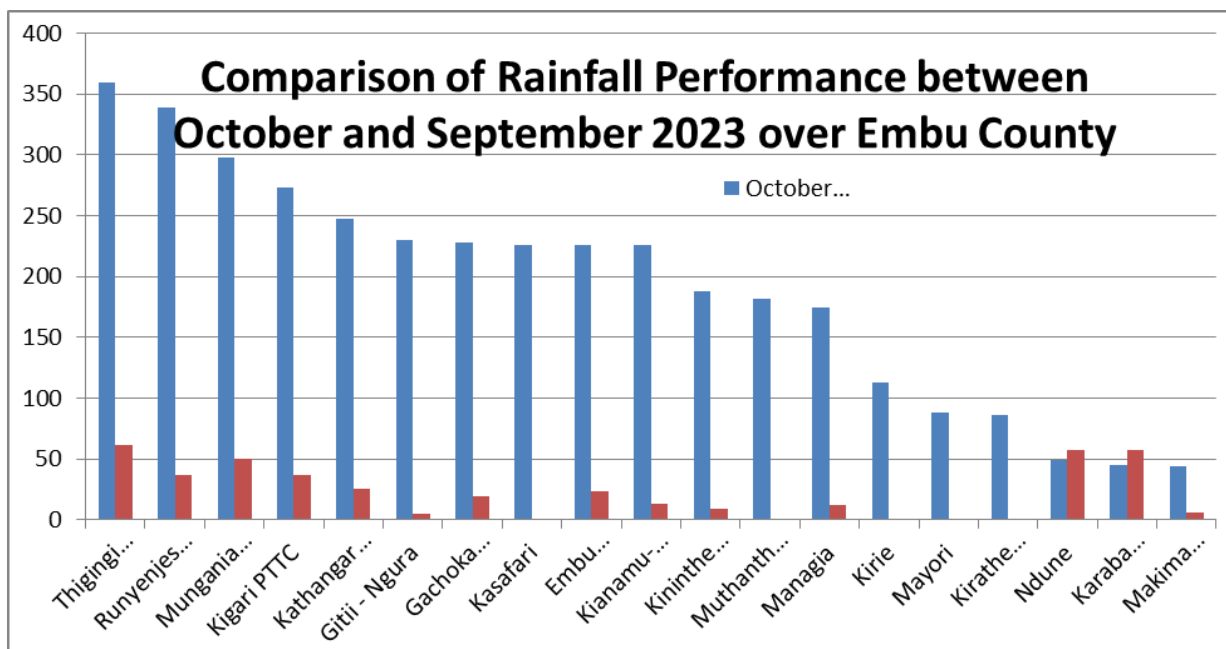


Fig. 3: Comparison between October and September 2023 monthly rainfall performance over Embu

2.0 The Weather Outlook for November-December 2023-January 2024

The outlook for the next three months indicates that most parts of the county will experience above-average rainfall. This will be driven by the current El Nino conditions and the positive Indian Ocean Dipole (IOD), which are typically associated with above-average rainfall over Kenya during the short rains season. In some parts of the county, the rains will continue into January 2024. Rainfall cessation is likely to occur in some parts of the county in January as well. Temperature is expected to be warmer than average in several parts of the county.

2.1 The Weather Outlook for the Month of November 2023

This climate outlook is based on models that have been developed based on the expected evolution of global Sea Surface Temperatures (SSTs). The forecast indicates that the whole country is likely to experience above average (enhanced rainfall) with elevated probabilities in parts of the Northeast and the Central Highlands. This enhanced rainfall will be as a result of El Nino conditions and a positive Indian Ocean Dipole (IOD). El Nino conditions are currently present in the Pacific Ocean while the IOD is positive in Indian ocean, hence the expected enhanced rainfall in November. Whenever both of these phenomena are simultaneously active, the East African region typically

experiences a period of above-average rainfall during the October to December rainy season. However, it's important to note that the actual rainfall amounts can vary from year to year, depending on the strength of the El Nino event.

2.2 Rainfall Forecast for November 2023

Embu County is expected to receive above-average rainfall, according to the forecast. Nonetheless, it's important to note that isolated episodes of heavy rainfall may still occur in various parts of the county during the month of November 2023. Specifically, morning rains and afternoon/evening showers are expected over several places in the month of November 2023. The expected total amounts are likely to be above the long-term average for November. Occasional episodes of heavy rainfall accompanied by strong winds may occur during the period.

3.0 Potential Impacts

The following are the likely impacts due to the performance of the rainfall during the month of November 2023:

3.1 Agriculture and Food Security

The anticipated rainfall in Kenya is expected to have diverse impacts on agriculture. For farmers in the high-potential regions, like the upper and middle parts of Embu County, this rainfall provides favorable conditions for crop cultivation. It is an opportunity to expand their agricultural endeavors, increase crop yields, and ensure food security.

Conversely, in the arid and semi-arid (ASAL) areas like some parts of Mbeere North and Mbeere South sub-counties, the same rainfall is anticipated to rejuvenate pasturelands. This is particularly beneficial for livestock farmers, as it ensures the availability of nutritious forage for their animals.

For those in the midst of harvesting, the impact of increased rainfall can be mixed. It can extend the growing period and enhance yields for certain crops but may also pose challenges during the harvest, potentially leading to crop damage.

3.2 Disaster Risk Management

There is a significant risk of isolated storms developing, and this weather pattern may lead to various forms of flooding. Areas prone to flooding include flood plains and locations with inadequate drainage systems, especially in urban settings. Riverbanks are also susceptible to overflow, and flash floods can occur, primarily in regions with low-lying terrain

To safeguard lives and property, it is of utmost importance that the general public exercises caution during these weather conditions. It is strongly advised to refrain from venturing on foot or by vehicle through flooded areas. Additionally, attempting to cross swollen rivers should be avoided at all costs to prevent any loss of life.

The public is cautioned against seeking shelter under trees or near metallic structures, particularly during rainy conditions to avoid lightning strikes.

Landslides and mudslides are likely steep areas of the County.

3.3. Water Resource Management and Energy

The rains expected in November will boost water availability. The public is encouraged to adopt rainwater harvesting and storage practices.

The increased inflow into hydropower reservoirs is expected to boost hydropower generation and contribute to groundwater recharge for geothermal power production. However, it's important to note that this heightened rainfall, along with accompanying winds, may lead to disruptions in power supply, potentially resulting in social and economic losses and damage to transmission infrastructure.

3.4. Environment

The expected enhanced rainfall can significantly support widespread afforestation and reforestation initiatives. It remains imperative for relevant authorities to proactively raise awareness about the value of tree cultivation, and the public is strongly encouraged to actively participate in tree planting campaigns to expand the nation's forest cover.

However, it's essential to remain vigilant regarding the potential consequences of enhanced rainfall. While this increased precipitation is a valuable resource for sustainable forestry practices, it may also introduce the risk of land degradation, particularly in the form of soil erosion and landslides. To effectively address these challenges and ensure the long-term success of afforestation and reforestation efforts, the implementation of restoration measures becomes increasingly critical.

3.5. Health

The increased rainfall is expected to have a positive impact on food availability, which, in turn, should help decrease nutrition-related diseases. However, there is a potential risk of higher instances of waterborne and vector-borne diseases due to water source contamination resulting from flooding and the presence of stagnant water, which can serve as breeding grounds for disease-carrying insects like mosquitoes.

NB: Please use this monthly forecast in conjunction with the weekly weather forecasts issued by the Embu County Office.

KEY OF SCIENTIFIC WORDS USED

<i>Rainfall categories</i>	
<i>Range</i>	<i>Category</i>
<5 mm	Light
5 - 20mm	Moderate
20 - 50mm	Heavy
>50mm	Very heavy

<i>Rainfall coverage</i>	
<i>Term</i>	<i>Meaning</i>
Most Places	Between 66% and 100%
Several Places	Between 33% and 66%
Few Places	Between 0 and 33%

Synoptic patterns/features: Are the global and continental weather causing systems that play a major role in determining the weather in a Country/area. The synoptic patterns are modified by the local conditions such as water bodies (lakes) and topography (Mountains).

County Director of Meteorological Services, Embu