



REPUBLIC OF KENYA
MINISTRY OF ENVIRONMENT AND FORESTRY

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Ref: MET/EBU/2/MONTHLY/9TH JANUARY-2022

Issue Date: 9th January 2022

WEATHER FORECAST FOR JANUARY 2022 AND WEATHER REVIEW FOR DECEMBER 2021 AND OND 2021

1.0 HIGHLIGHTS

1.1. The Weather Forecast for January 2022

The rainfall outlook for the month of January 2022 indicates that most parts of the county will experience dry weather conditions. However, few areas are likely to experience occasional rainfall during the first half of January 2022.

2.0 Rainfall Performance Review over Embu County

2.1 Rainfall Performance during October-November-December (OND) 2021

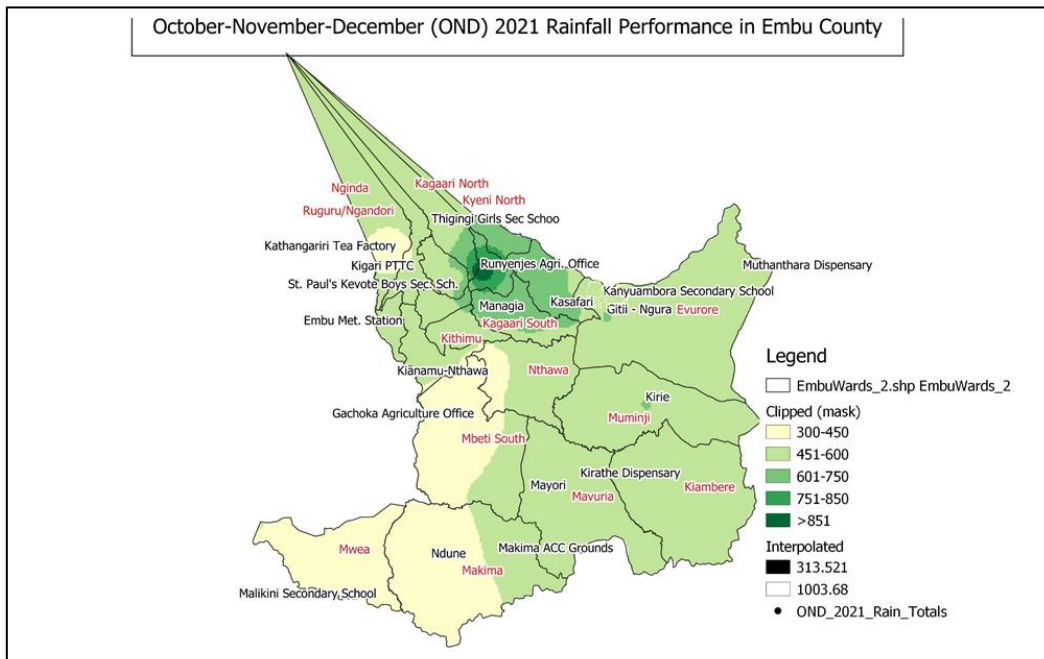


Fig. 1: OND 2021 Rainfall Performance for Embu County

2.2 Rainfall Performance in December 2021 in Embu County

Embu County received more rainfall in December 2021 than is normally expected in any month of December. In fact some stations received more rainfall in December 2021 than in November which is actually the rainfall pick month during OND seasonal period. This was due to poor distribution. The OND 2021 seasonal rains performance is as shown in Figure 1 above.

As far as rainfall performance in December 2021 is concerned, Runyenjes Agriculture office Rainfall Station reported the highest amount of rainfall in Embu County. It reported a monthly total rainfall of 448.2mm and was followed by Kanyuambora Secondary School with a total of 428.8mm, Gitii Ngura followed with 373.5mm, Kininthe Secondary School 360.0, Makima ACC Grounds 342.9, Managia 334.5, Kasafari 329.5, Muthanthara Dispensary 287.7, Mayori 245.4, St Paul's Kevote 218.6, Kianamu-Nthawa 212.1, Thigingi Girls Sec School 196.0, Embu Met. Station 192.6, Ndune 186.3, Kirie 181.0, Malikini Secondary School 172.0, Kirathe Dispensary 156.8, Gachoka Agriculture Office 140.3, Kathangariri Tea Factory 132.7 while Kigari PTTC reported 123.5mm. The above information is as shown in Table 1 and Figure 2 below. ,

Table 1: Monthly Rainfall Performance in December 2021

	Station	December 2021 Total Rainfall
1	Runyenjes Agri. Office	448.2
2	Kanyuambora Secondary School	428.8
3	Gitii - Ngura	373.5
4	Kininthe Secondary School	360
5	Makima ACC Grounds	342.9
6	Managia	334.5
7	Kasafari	329.5
8	Muthanthara Dispensary	287.7
9	Mayori	245.4
10	St. Paul's Kevote Boys Sec. Sch.	218.6
11	Kianamu-Nthawa	212.1
12	Thigingi Girls Sec School	196
13	Embu Met. Station	192.6
14	Ndune	186.3
15	Kirie	181
16	Malikini Secondary School	172
17	Kirathe Dispensary	156.8
18	Gachoka Agriculture Office	140.3
19	Kathangariri Tea Factory	132.7
20	Kigari PTTC	123.5

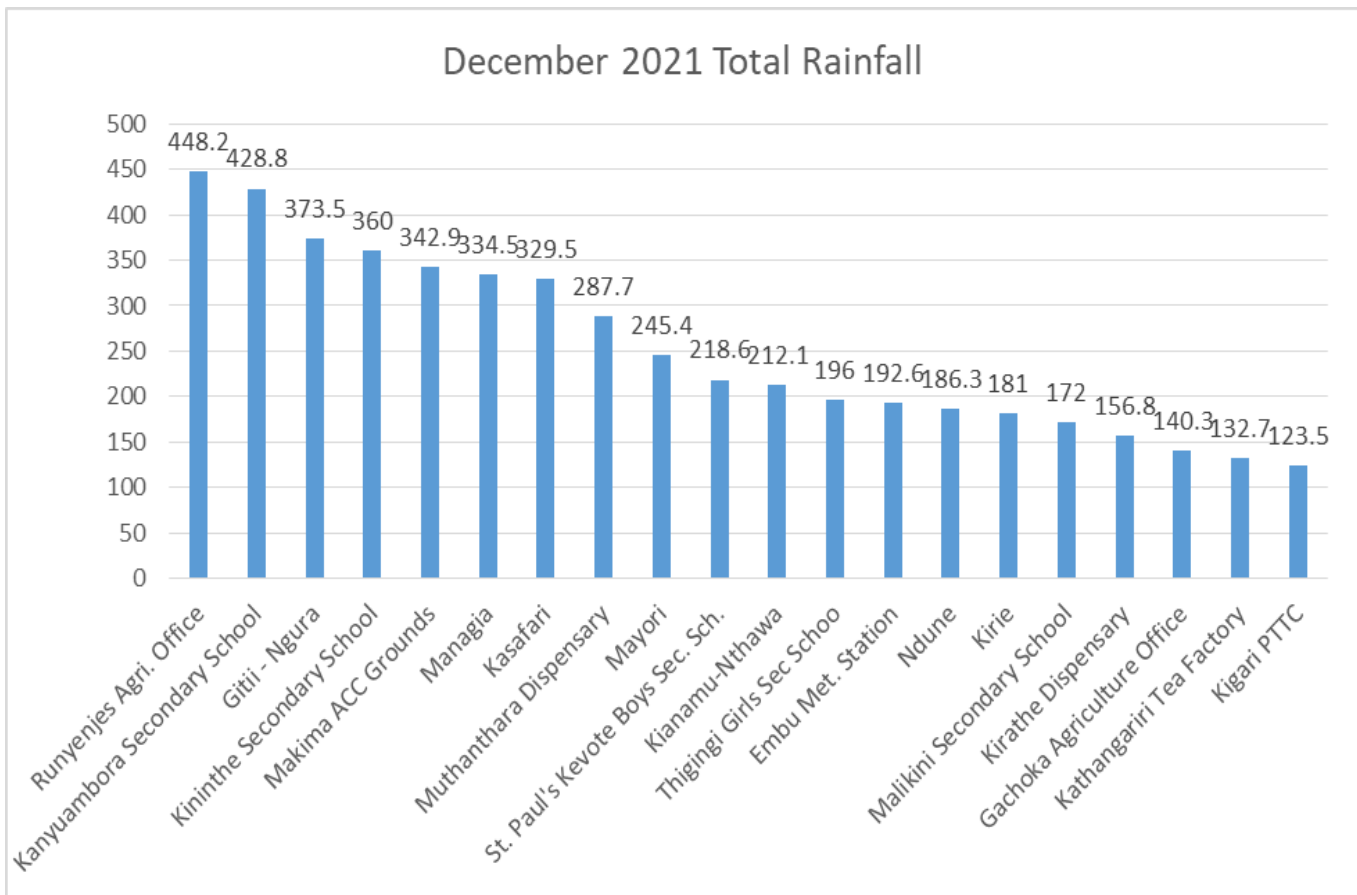


Fig. 2: December 2021 monthly rainfall performance in Embu County

2.3 Comparison between 2021 December and November 2021 rainfall performance in Embu County

Due to poor distribution of rainfall, the month of December 2021 in some areas of Embu County reported higher rainfall intensities than in November 2021. The rainfall was poorly distributed both in space and in time. It is clear that 14 out of 20 rainfall stations that reported rainfall were wetter in December than in November which is not normal. Table 2 and Figure 3 below show comparison of rainfall performance in Embu County in December 2021 and November 2021.

Table 2: Comparison between December and November 2021 Monthly Rainfall Performance in Embu County

	Station	December 2021 Total Rainfall	November 2021 Total Rainfall
1	Runyenjes Agri. Office	448.2	366.5
2	Kanyuambora Secondary School	428.8	89.2
3	Gitii - Ngura	373.5	175.8
4	Kininthe Secondary School	360	221.8
5	Makima ACC Grounds	342.9	158.1
6	Managia	334.5	233.2
7	Kasafari	329.5	217.5
8	Muthanthara Dispensary	287.7	192.5
9	Mayori	245.4	227.5
10	St. Paul's Kevote Boys Sec. Sch.	218.6	219
11	Kianamu-Nthawa	212.1	154.5
12	Thigingi Girls Sec Schoo	196	184.8
13	Embu Met. Station	192.6	195.3
14	Ndune	186.3	138.7
15	Kirie	181	231
16	Malikini Secondary School	172	137.2
17	Kirathe Dispensary	156.8	241.3
18	Gachoka Agriculture Office	140.3	173.1
19	Kathangariri Tea Factory	132.7	121.1
20	Kigari PTTC	123.5	223.8

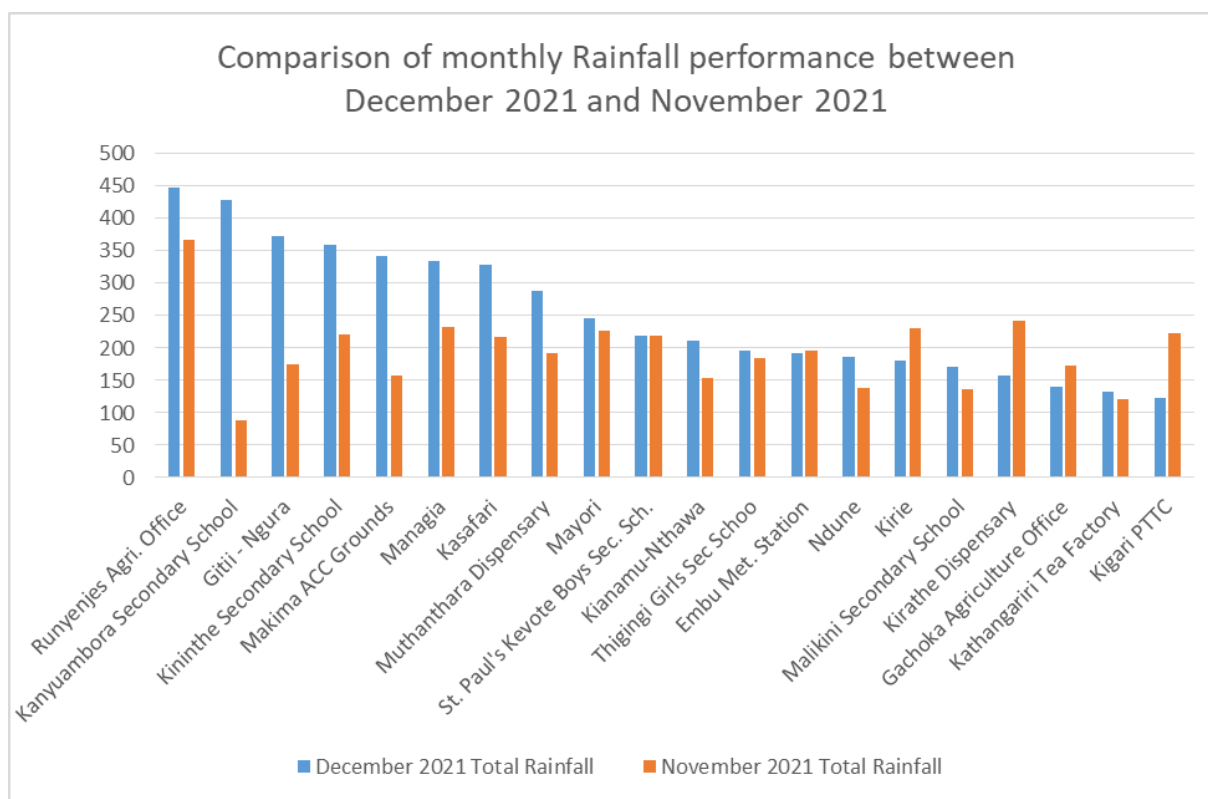


Fig. 3: Comparison between December and November 2021 monthly rainfall performance in Embu

2.4 OND Seasonal Analyses: Comparison among December 2021, November 2021 and October 2021 rainfall performance in Embu County

Most of the OND seasonal rains were received in November and December. The month of October was marked by very little rains being reported over most stations. However Kirie received significant rains in October 2021. Table 3 and Figure 4 below show comparison of rainfall performance in Embu County from October to December 2021.

Table 3: Comparison among December, November and October 2021 Monthly rainfall performance in Embu County

	Station	December 2021 Total Rainfall	November 2021 Total Rainfall	October 2021 Total Rainfall
1	Runyenjes Agri. Office	448.2	366.5	190.5
2	Kanyuambora Secondary School	428.8	89.2	59.1
3	Gitii - Ngura	373.5	175.8	54.8
4	Kininthe Secondary School	360	221.8	78.8
5	Makima ACC Grounds	342.9	158.1	30.3
6	Managia	334.5	233.2	67.3
7	Kasafari	329.5	217.5	91.3
8	Muthanthara Dispensary	287.7	192.5	15.6
9	Mayori	245.4	227.5	57.5
10	St. Paul's Kevote Boys Sec. Sch.	218.6	219	119.1
11	Kianamu-Nthawa	212.1	154.5	3.3
12	Thigingi Girls Sec Schoo	196	184.8	111.9
13	Embu Met. Station	192.6	195.3	86.3
14	Ndune	186.3	138.7	19.6
15	Kirie	181	231	179
16	Malikini Secondary School	172	137.2	15.8
17	Kirathe Dispensary	156.8	241.3	96.6
18	Gachoka Agriculture Office	140.3	173.1	0
19	Kathangariri Tea Factory	132.7	121.1	116.7
20	Kigari PTTC	123.5	223.8	131.9

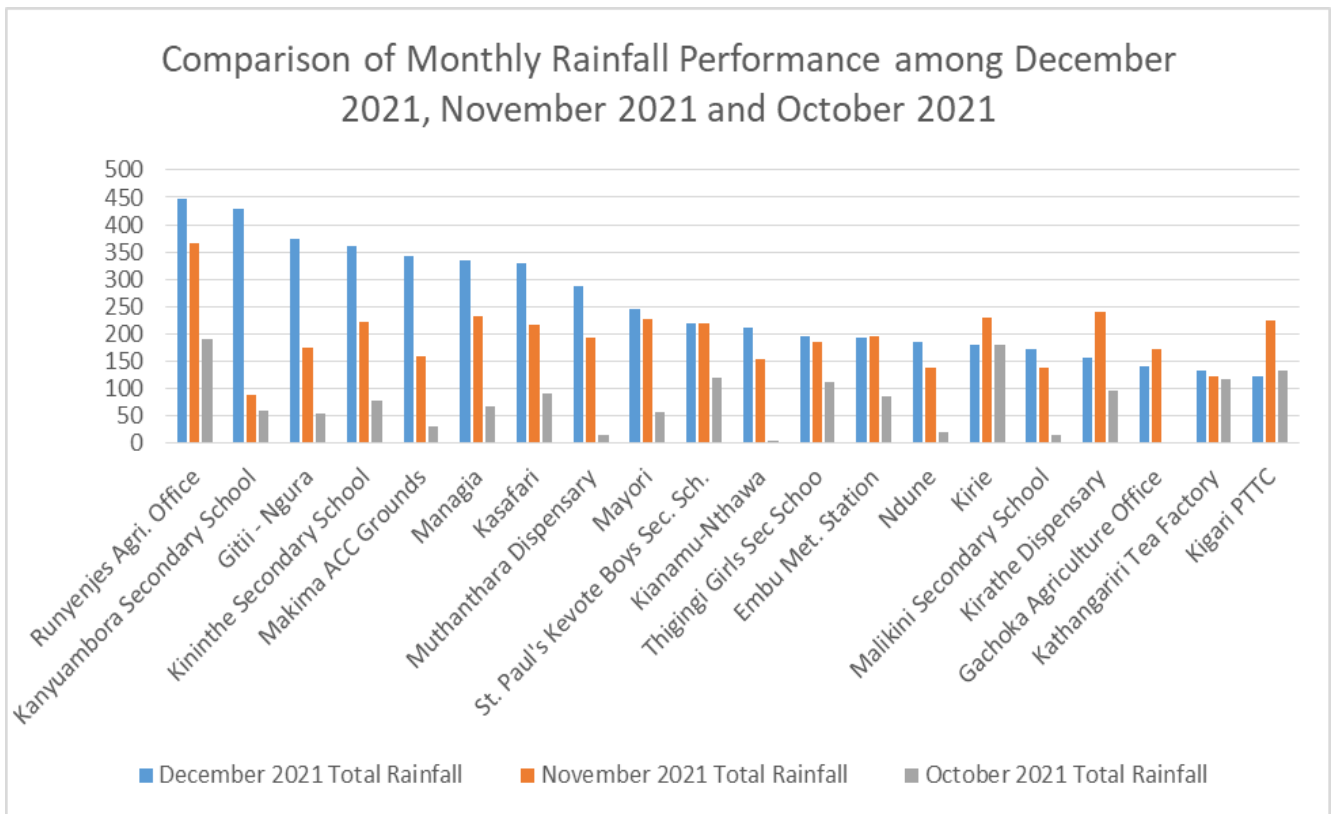


Fig. 4: Comparison among December, November and October 2021 monthly rainfall performance in Embu County

2.5 OND 2021 Seasonal rains performance in Embu County

Embu County received significant rains in OND 2021 season. The rains were poorly distribution both in space and time just as was forecasted.

As far as the OND 2021 seasonal rainfall performance is concerned, in December 2021 is concerned, Runyenjes Agriculture office Rainfall Station reported the highest amount of rainfall in Embu County. It reported a seasonal total rainfall of 1005.2mm and was followed by, Kininthe Secondary School with 660.6, Kasafari 638.3, Managia 635.0, Gitii Ngura 604.1, Kirie 591, Kanyuambora Secondary School 577.1, St Paul’s Kevote 556.7, Makima ACC Grounds 531.3, Mayori 530.4, Muthanthara Dispensary 495.8, Kirathe Dispensary 494.7, Thigingi Girls Sec School 492.7, Kigari PTTC 479.2, Embu Met. Station 474.2, Kathangariri Tea Factory 370.5, Kianamu-Nthawa 369.9, Ndune 344.6, Malikini Secondary School 325.0 while Gachoka Agriculture Office reported the least seasonal rains with a total of 313.4mm. The above information is as shown in Table 4 and Figure 5 below.

Table 4: Comparison among December, November and October 2021 Monthly rainfall performance in Embu County

	Station	Total OND 2021
1	Runyenjes Agri. Office	1005.2
2	Kininthe Secondary School	660.6
3	Kasafari	638.3
4	Managia	635
5	Gitii - Ngura	604.1
6	Kirie	591
7	Kanyuambora Secondary School	577.1
8	St. Paul's Kevote Boys Sec. Sch.	556.7
9	Makima ACC Grounds	531.3
10	Mayori	530.4
11	Muthanthara Dispensary	495.8
12	Kirathe Dispensary	494.7
13	Thicingi Girls Sec Schoo	492.7
14	Kigari PTTC	479.2
15	Embu Met. Station	474.2
16	Kathangariri Tea Factory	370.5
17	Kianamu-Nthawa	369.9
18	Ndune	344.6
19	Malikini Secondary School	325
20	Gachoka Agriculture Office	313.4

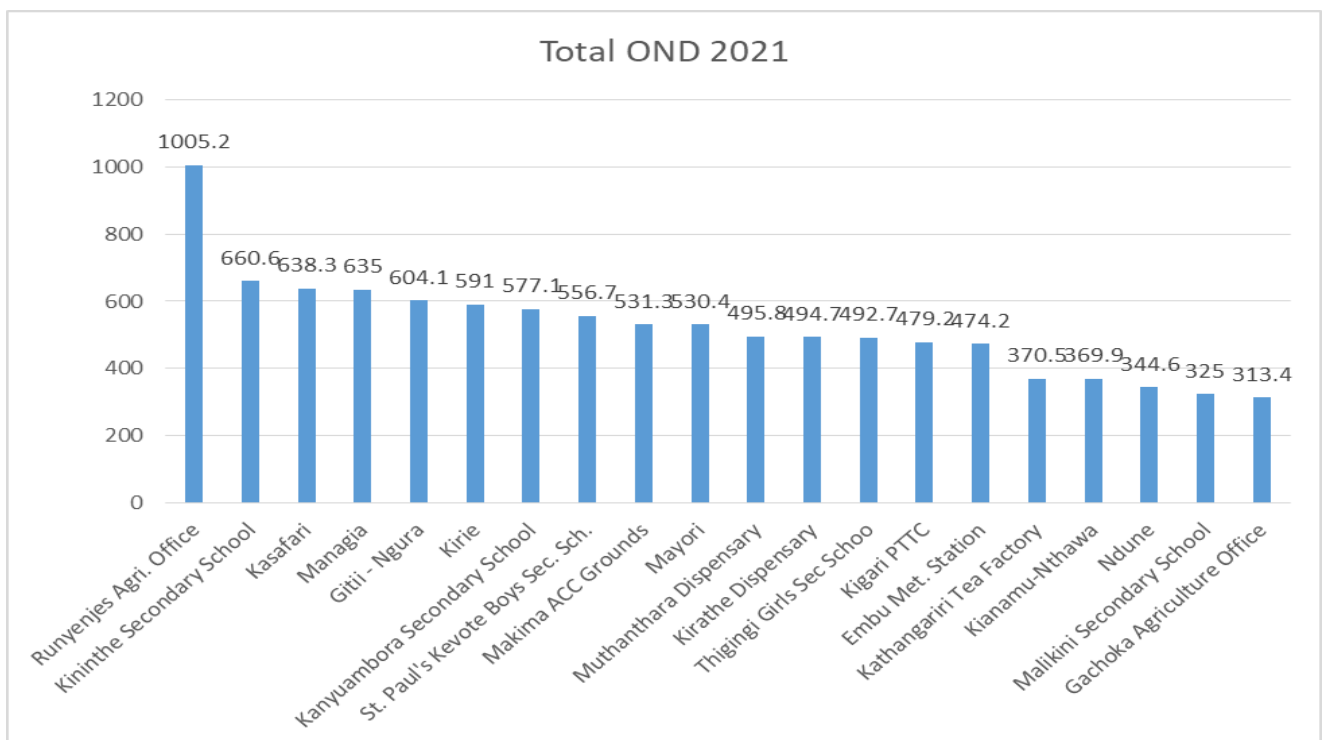


Fig. 5: OND 2021 Seasonal rains performance in Embu County

2.6 Conclusion on OND 2021 Seasonal rains performance in Embu County

Analysis of Embu Meteorological station OND 2021 seasonal rainfall data indicates that the station received near average (near normal) seasonal rains. Note that most of the other stations in Embu have inadequate historical data to calculate their Long Term Average (LTM). Figure 6, below, shows the OND 2021 analysis of Embu Meteorological Station.

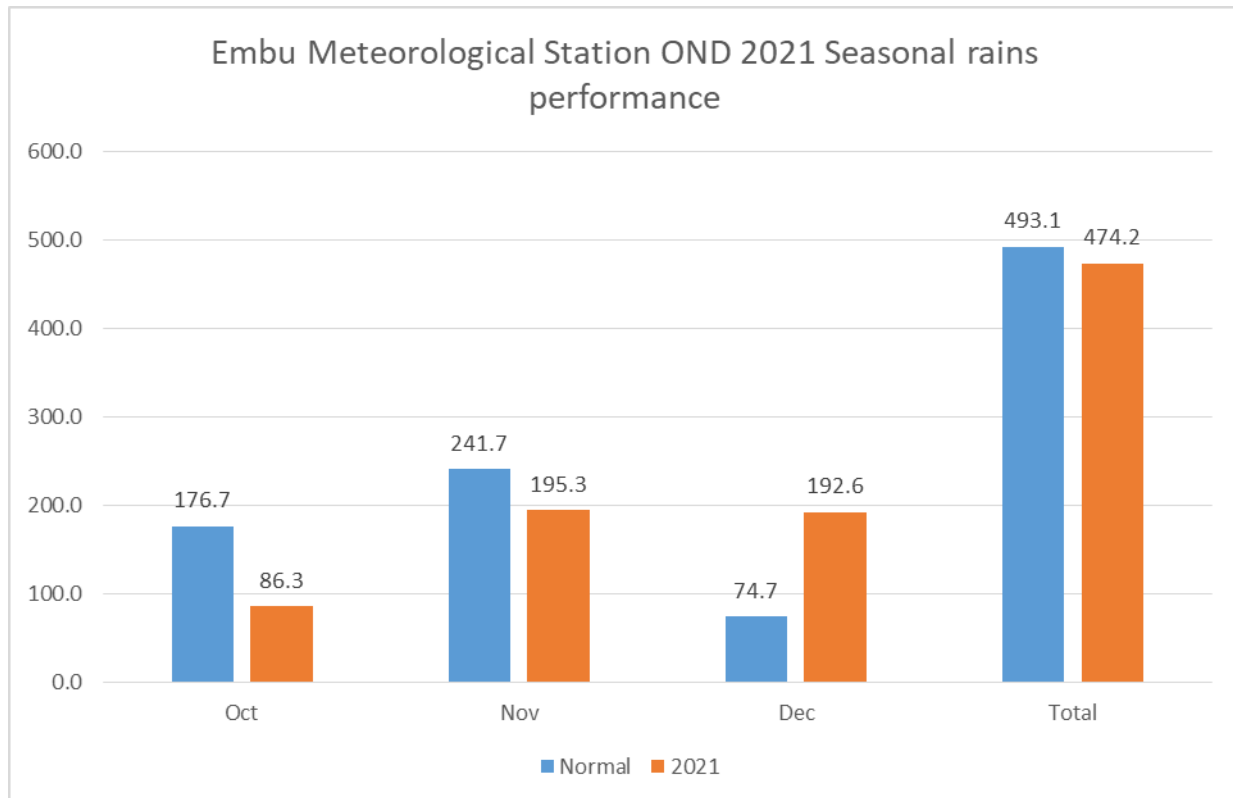


Fig. 6: OND 2021 Seasonal rains performance at Embu Meteorological Station

3.0 Synoptic Features in the Month of January 2022

The rainfall forecast for January 2022 is mainly based on the evolution of Sea Surface Temperature (SST) gradients and the SST patterns over the global oceans (Indian, Pacific, Atlantic) as well as upper air circulation patterns. The SST patterns in the Indian and Pacific Oceans were mainly considered. The outlook for January 2022 is mainly based on empirical statistical models developed from expected evolution of global Sea Surface Temperature (SST) anomalies and the Southern Oscillation Index (SOI). The SST anomaly patterns considered include the near average SSTs over the Equatorial Indian Ocean. Equatorial sea surface temperatures (SSTs) are

below average from the west - central to eastern Pacific Ocean and above average in the Western Pacific which implies that La Niña conditions are present. This usually results in below average rainfall over Kenya.

4.0 The Weather Outlook for the Month of January 2022

The forecast indicates that a few parts of the county will experience occasional rainfall during the first and second weeks of January and remain generally sunny and dry towards the end of the month. The total rainfall amounts are expected to be near to slightly above the January Long Term Mean.

5.0 EXPERIENCED IMPACTS

The following are the expected impacts during the month of January 2022:

5.1. Agriculture and Food Security

January being a typically dry month may be suitable for harvesting, drying and storage of grains in the agricultural areas of Embu County.

5.2. Disaster Risk Management

The reduction of water and pasture over the Semi-Arid areas of the county may lead to human to human and human to wildlife conflicts. The Ministry of Interior and Coordination of National Government and humanitarian institutions are therefore advised to put in place measures to avert possible negative impacts that may arise such as the loss of lives, livelihoods and property.

5.3 Water Resources Management and Energy

The expected dry conditions in January 2022 may impact negatively on the major river catchment areas for the country's hydroelectric power generating dams. The public is advised to invest in water harvesting practices/techniques to harness the occasional rain water in areas where rainfall is expected.

5.4. Health

The high temperatures expected during the month of January in most parts of the country may lead to heat stress and heat related discomforts such as headaches

and fatigue. The public is therefore advised to hydrate appropriately and avoid working in the open especially in the afternoons.

5.5 Environment

The dry conditions expected in January may result in reduced water levels in reservoirs, lakes, and ponds. It is also likely to lead to loss of wetlands and occurrence of wildfires in forests, parks and reserves. The public should therefore be alert while putting in place measures to conserve the environment.

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