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KENYA METEOROLOGICAL DEPARTMENT

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Ref. No. KMD/FCST/4-2024/MO/11

Date: 31 October 2024

CLIMATE OUTLOOK FOR NOVEMBER 2024 AND REVIEW FOR OCTOBER 2024

1. HIGHLIGHTS

1.1. The Rainfall Outlook for November 2024

November is typically the peak month for the October-November-December (OND) "short rains" season. The outlook for November 2024 indicates that the Lake Victoria Basin, the Highlands west of the Rift Valley, the Central and South Rift Valley, most of the Northwest, and isolated areas in the Northeast (particularly the western parts of Marsabit) are likely to experience near to above-average rainfall. In contrast, the Highlands east of the Rift Valley, including Nairobi, the southeastern lowlands, and some areas in the Northeast are expected to receive near to below-average rainfall. Most of the Northeast and the coastal regions are likely to experience below-average rainfall. Rainfall distribution is expected to be poor, with isolated storms and dry spells over several parts of the country.

Temperature is expected to be warmer than usual over the whole country with highest probabilities for warmer temperatures over the Central and Eastern parts of the country.

1.2. Outlook for November 2024 to January 2025

The outlook for the next three months indicates that most parts of the country will receive rainfall in November and part of December, while January is expected to be generally hot and dry. However, a few areas in the Highlands west of the Rift Valley, the Lake Basin, the Central and South Rift, Highlands East of the Rift Valley and Southeastern lowlands may experience occasional rainfall in January.

Rainfall is anticipated to be below the November-to-January long-term mean (LTM) across most areas, except for the northern parts of Turkana County, where near-average rainfall is expected.

Temperatures are likely to be warmer than average throughout the country.

2. The Climate Outlook for November 2024

The November 2024 outlook is primarily based on empirical statistical models that incorporate the expected evolution of global sea surface temperature (SST) anomalies and the Southern Oscillation Index (SOI). ENSO remains neutral, with SSTs in the central equatorial Pacific being near to below average. Atmospheric indicators, including surface pressure, cloud cover, and trade winds, are also consistent with neutral conditions; however, some La Niña-like signals have appeared in recent months without a sustained shift. Forecasts suggest that weak La Niña conditions may develop from November and persist into early 2025.

The Indian Ocean Dipole (IOD) has shown sustained negative values, remaining near or below its negative threshold (-0.40°C) for five weeks, with the latest index at -0.94°C as of 27 October. Projections indicate that negative IOD conditions will likely continue through November.

Both La Niña and a negative IOD typically result in below-average rainfall over Kenya. These patterns are being closely monitored by the Kenya Meteorological Department, with the requisite and regular updates.

2.1 Rainfall Forecast for November 2024

The outlook for November 2024 indicates that the Lake Victoria Basin, the Highlands west of the Rift Valley, the Central and South Rift Valley, as well as the Northwest and isolated areas over northeast are likely to experience near-average to above-average rainfall. In contrast, the Highlands East of the Rift Valley, including Nairobi, the southeastern lowlands, and a few areas in the Northeast, are expected to receive near to below-average rainfall. Most of the Northeast and the coastal region are likely to experience below-average rainfall, as shown in **Figure 1**. Episodes of isolated cases of heavy rains and flooding are likely to occur across the country despite the poor distribution of rainfall expected during the month.

The onset of the rains over the Highlands East of the Rift Valley the Coastal region, Southeastern lowlands and Northeast is likely to be realized during the first to second week of November. The delayed onset is as a result of the negative Indian Ocean Dipole that has been developing over the past few weeks.

November 2024 Rainfall Forecast

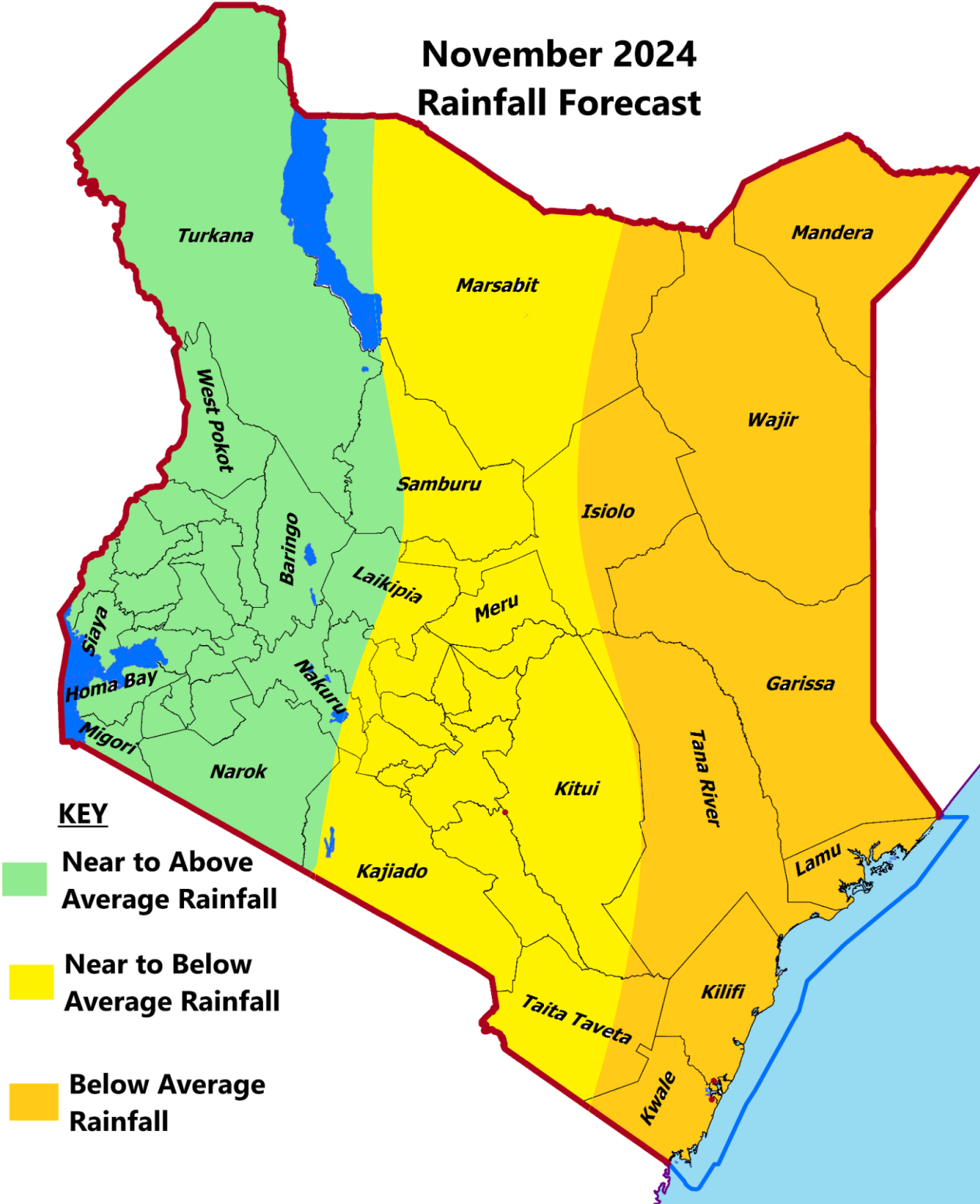


Figure 1: November 2024 Rainfall Forecast

2.2 Outlook for specific areas

2.2.1 The Highlands West of the Rift Valley (Trans Nzoia, West Pokot, Kericho, Bomet, Nandi, Uasin Gishu, Elgeyo Marakwet, Kakamega, Vihiga, Bungoma, Kisii, Nyamira); **the Lake Victoria Basin** (Kisumu, Homa Bay, Migori, Siaya, Busia); **the Southern and Central Rift Valley** (Nakuru, Narok, Baringo, western Laikipia): Rainfall with occasional breaks is expected during the month which is likely to be near to above the long-term average received during the same period.

2.2.2 North-western (Turkana and parts of Samburu): Occasional rainfall is expected during the month. The expected amounts of rainfall are likely to be near to above the long-term average amounts received in November.

2.2.3 Highlands East of the Rift Valley and Nairobi County (Nyandarua, Nyeri, Kirinyaga, Murang'a, Kiambu, Embu, Tharaka Nithi, Meru, and eastern Laikipia): Rainfall with occasional breaks is expected during the month. The expected total amounts are likely to be near to below the long-term average amounts for November.

2.2.4 North-eastern (Parts of Marsabit and Isiolo): Occasional rainfall is expected during the month. The expected amount of rainfall is likely to be near to below the long-term average for November. **Garissa, Mandera, Wajir** and parts of **Isiolo** are however likely to receive occasional rainfall that is likely to be below the long-term average amounts for November.

2.2.5 South-eastern Lowlands (Kajiado, Kitui, Makueni, Machakos, parts of Taita Taveta): Rainfall with some breaks is expected during the month of November 2024. The expected amount of rainfall is likely to be near to below the long-term average amounts received in November. **Tana River** is expected to receive occasional rainfall that is likely to be below the November LTM.

2.2.6 The Coastal Strip (Mombasa, Kilifi, Lamu, Kwale, Coastal Tana River and parts of Taita Taveta): Rainfall with some breaks is expected during the month of November 2024. The expected amount of rainfall is likely to be below the long-term average amounts received in November.

2.3 Potential Impacts

The following are the likely impacts during the month of October 2024:

2.3.1 Agriculture and Food Security

The near to below normal rainfall coupled with poor distribution may negatively affect crop production especially over parts of the Central and eastern sectors of the country, including the Coastal region. Over the ASAL areas of Northeast and Northwest, the depressed rainfall may affect pasture regeneration, which may in turn lead to reduced livestock production.

2.3.2 Disaster Management

Cases of isolated flooding may occur especially in poorly drained urban centers and along rivers. The public is advised not to drive or walk through flooded areas to avoid loss of lives.

There may be cases of lightning strikes in the Highlands West of the Rift Valley especially in Kisii, Kisumu, Nandi, Kakamega and Narok Counties as well as on Mt. Elgon and its environs.

2.3.3 Water Resources Management and Energy

The major river catchment areas for the country's hydroelectric power generating dams over the Highlands East of the Rift Valley are expected to receive near to below average rainfall. The water levels in these dams may drop gradually owing to the dry conditions experienced in October. Close monitoring is necessary to ensure stable power supply. The water needs of communities and livestock over the eastern half of the country may not be sufficiently met due to the depressed rainfall expected. The public is therefore encouraged to practise rainwater harvesting to boost their water needs.

2.3.4 Environment

There may be cases of human and wildlife conflicts, especially over the eastern sector of the country where depressed rainfall is expected as animals migrate in search of pasture and water.

2.3.5 Health

There may be an increase in vector-borne diseases in areas where floods may lead to stagnant water which become conducive grounds for disease causing pathogens. In areas expected to receive depressed rainfall, there may be an increase in respiratory diseases due to extended periods of dry spells which may lead to dust storms particularly over the northern parts of the country. Dry conditions may lead to compromised hygiene standards that are conducive for diarrheal diseases.

2.3.6 Transport and Public Safety Sector

The expected rainfall may cause slippery roads in some parts of the country, increasing the risk of accidents. Flash floods may cause transport challenges especially during rush hours and more so in areas where the roads become impassable when it rains.

3 OUTLOOK FOR NOVEMBER 2024 TO JANUARY 2025

The outlook for the next three months indicates that the Highlands West of the Rift Valley, the Lake Victoria Basin, Central and South Rift Valley are likely to receive rainfall in November and part of December and remain generally dry in January, though a few areas particularly over the Southwestern and Lake Victoria Basin may experience occasional rainfall in January. The Highlands East of the Rift Valley, including Nairobi and Southeastern lowlands, is likely to experience rainfall in November and part of December and remain generally sunny and dry in January.

However, a few areas may experience a few rainy days in January. The Coastal region is likely to experience rain in November and part of December and remain generally dry in January. The Northeastern and Northwestern regions are likely to experience occasional rainfall in November and early December and remain generally dry in January. The rainfall is likely to be below the November to January LTM over most parts of the country except over the northern parts of Turkana County where near average rainfall is expected.

Temperature is expected to be warmer than average over the entire country with higher probabilities for warmer temperatures expected over the central and eastern parts of the country.

4 WEATHER REVIEW FOR OCTOBER 2024

4.1 Rainfall Review for October 2024

The month of October marks the onset of the October-November-December (OND) short-rains season in Kenya. The start of the seasonal rains (onset) has been delayed over the Highlands east of the Rift Valley, including Nairobi County, where onset was expected during the third to fourth week of October. However, a few areas in some counties over Central Kenya and isolated areas over Southeastern lowlands (Machakos) received rainfall amounts that met the onset criteria, but this was followed by a dry spell making it a false onset. Rainfall over the Highlands west of the Rift Valley, Lake Victoria Basin, and Central Rift Valley occurred from September, as had been predicted. The rest of the country has not had an onset yet.

The rainfall over western Kenya was near the October Long-Term Mean (LTM) at most stations, except for Eldoret, which recorded above-average rainfall, and Kisumu, which recorded below-average rainfall. A few areas over the Northwest, Northeast, Coast, Southeastern lowlands, and Highlands east of the Rift Valley, including Nairobi, also experienced occasional rainfall that was near to below the October LTM (**Figures 2a and 2b**).

An analysis of rainfall up to 29th October shows that the highest monthly rainfall total of 235 mm was recorded at Ulanda Girls School in Migori County, followed by Busia Ministry of Water with 221.3 mm. The other stations that recorded high amounts of rainfall include Kisii Meteorological Station (217.2 mm), Migori Environment (193.8 mm), Kericho Meteorological Station (174.1 mm), Miyare (171.8 mm), Nabkoi Forest Station (157.1 mm), Kakamega Meteorological Station (156.2 mm), Annex B Wareng (150.7 mm), and ADC Olng’atongo (150.2 mm). The rest of the stations recorded less than 150 mm, with most stations over Northeast and Southeast recording no rainfall at all throughout the month. A few stations recorded 50mm and above in 24 hours, as shown in **Table 1**.

Table 1: Stations that recorded heavy rainfall in 24 hours.

STATION	COUNTY	AMOUNT IN MM	DATE
Trans Mara Sugar Rainfall Station	Narok	63.5	6-10-2024
Matungu Meteorological Station	Kakamega	63.2	21-10-2024
Kanyangwa Rainfall Station	Kilifi	57.3	12-10-2024
Laikipia Meteorological Station	Laikipia	54.7	15-10-2024
Ulanda Girls Rainfall Station	Migori	53.8	19-10-2024
WRA Rumuruti Rainfall Station	Laikipia	52.0	17-10-2024
Koromangucha Rainfall Station	Migori	50.2	19-10-2024
Castle Forest Rainfall Station	Kirinyaga	50.0	20-10-2024

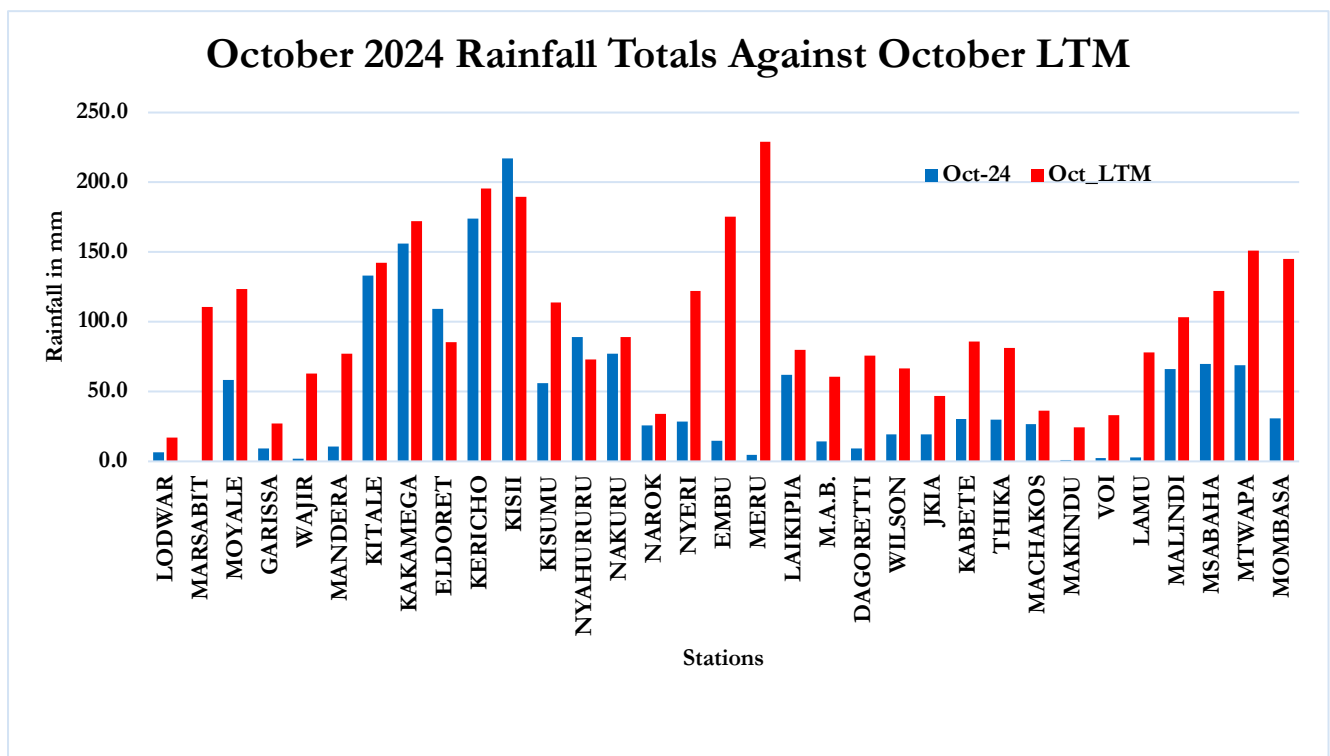


Figure 2a: October 2024 Rainfall Totals Against October LTMs

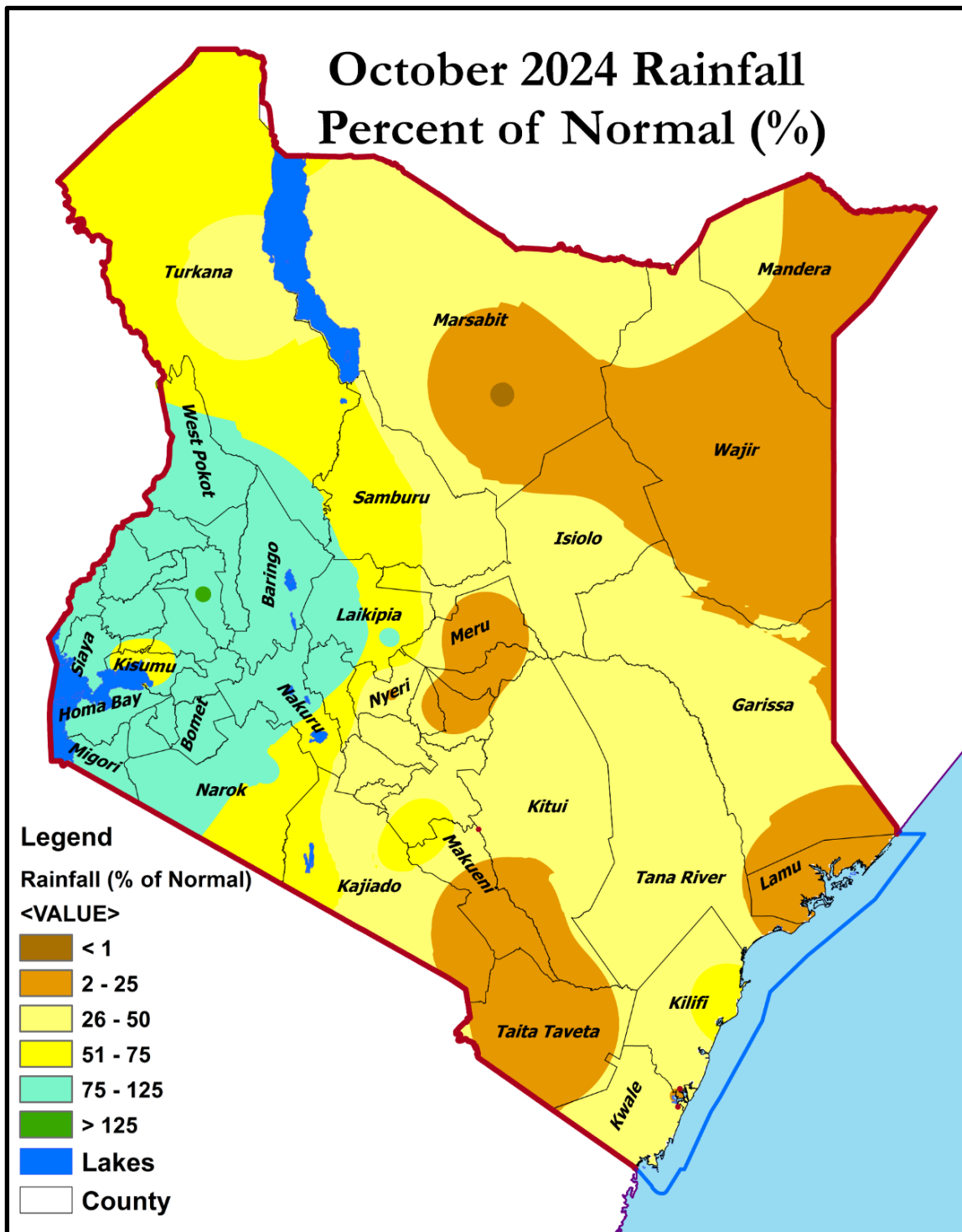


Figure 2b: October 2024 Rainfall Totals as a percentage of October LTMs

4.2 Temperature Review

Both maximum and minimum temperatures were warmer than the LTM over most parts of the country (Figures 3a and 3b), except over Jomo Kenyatta International Airport, where the maximum temperature was slightly cooler than normal, and the minimum temperature was near the October LTM. The highest monthly maximum temperature of 37.6 °C was recorded at Mandera Station, while the lowest monthly minimum temperature of 7.9 °C was recorded at Nyahururu Station.

The maximum temperature in Mandera occasionally rose above 39°C. For instance, 40.6 °C was recorded on 16th October, while 39.5 °C was recorded on 18th and 26th October. Additionally, 39.2 °C and 39.1 °C were recorded on 14th and 19th October, respectively. In Nyahururu, most days recorded minimum temperatures of less than 10 °C, with the lowest temperature of 4.7 °C being recorded on 4th October.

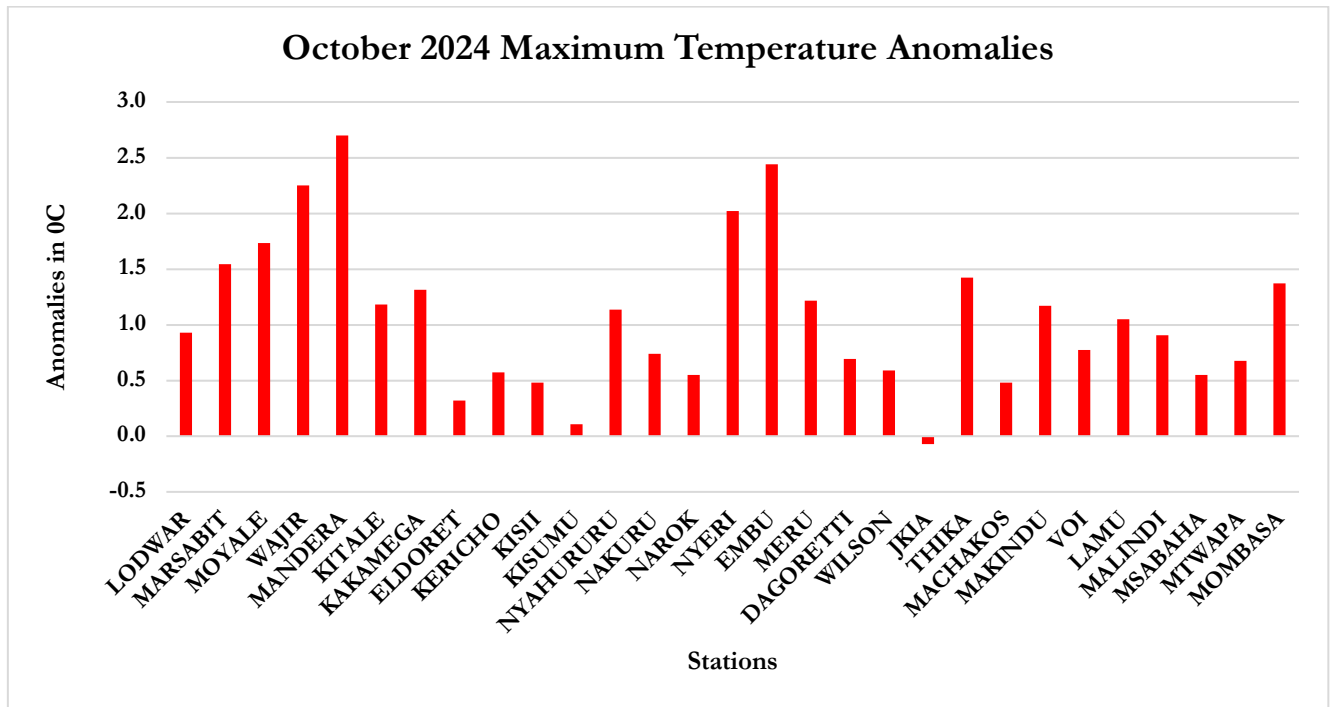


Figure 3a: October 2024 Maximum Temperature Anomalies

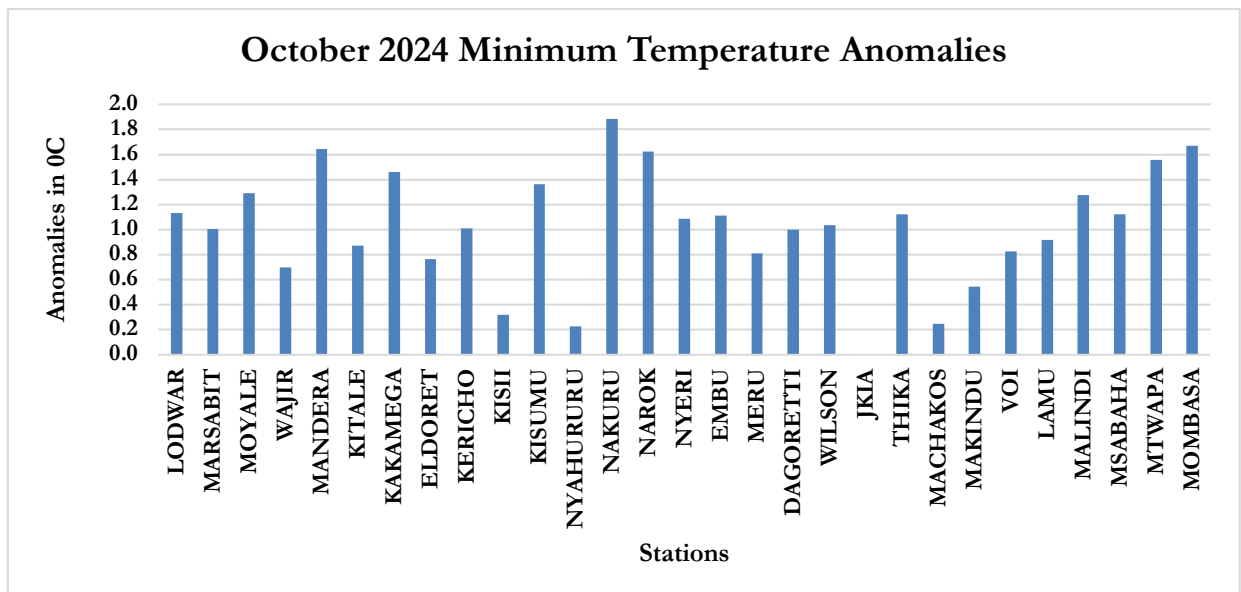


Figure 3b: October 2024 Minimum Temperature Anomalies

4.3 Experienced Impacts in October 2024

4.3.1 Agriculture and Food Security

Crops were destroyed by hailstones in Siteti village of Narok county on 8th October and in Somotwet village, Kericho county on 19th October.

4.3.2 Weather related hazards and disastrous events

A boat capsized in Watamu area of Kilifi County after strong winds were experienced in the Indian Ocean, but no fatalities were reported.

A few houses were destroyed in Siteti village of Narok county after trees fell on them following heavy rain that was experienced in the area on 8th October.

A few houses were destroyed in Lodwar and Lokichogio towns of Turkana County after heavy rains accompanied by strong winds was experienced in these areas on 18th October.

A Kenya Defense lorry was swept by flash floods in Loima sub county of Turkana on 18th October following heavy rains experienced in the South hills region of Uganda.

4.3.3 Environment

Cases of human and wildlife conflicts were reported in Wakala village of Kilifi County where camels invaded farms and destroyed pineapples and mangoes on 6th October.

NB: This outlook should be used together with the 24-hour, 5-day, 7-day, monthly, special forecasts, and regular updates/advisories issued by this Department as well as Weekly and Monthly County forecasts developed and availed by County Meteorological Offices.



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