

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
ETHIOPIAN METEOROLOGICAL INSTITUTE
METEOROLOGICAL DATA AND CLIMATOLOGY LEAD EXECUTIVE
REMOTE SENSING AND CLIMATOLOGICAL DESK
MONTHLY CLIMATE BULLETIN

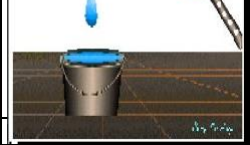
November 2024

*Some Applications of
Climate Information*

Disaster Management



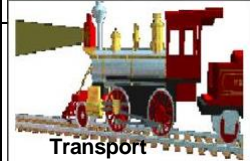
Water Resources Management



Construction



Environment & Health



Transport



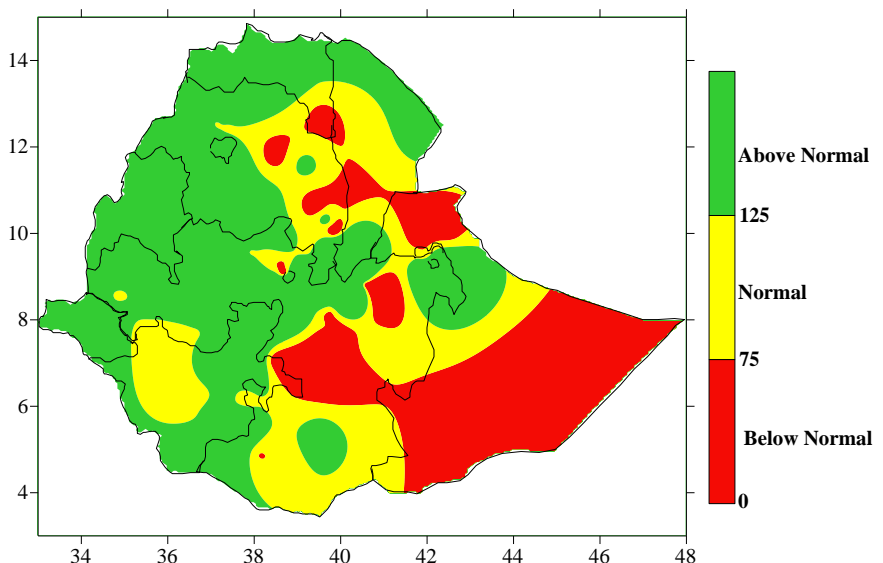
Recreation & Tourism

HIGHLIGHTS

During November 2024, days were remained warm over several portions of lowlands of Ethiopia, in particular over Afar, Somalia, Gambella, Benishangul Gumuz and some pocket areas of Amhara and Tigray regions. Specifically, the extreme maximum temperature values were as high as 38.5, 40.6, 37.5, 37.8, 38.4, 41.8, 37.2 and 37.4°C over Aysha, Elidar, Fugnido, Gambella, Gewane, Gode, Metema and Semera respectively. During November 2024, the monthly rainfall amount exceeded 130 mm or heavier rainfall was occurring over South Ethiopia, South West Ethiopia, Gambella, western and eastern Oromia regions. In particular, the monthly total rainfall values of November 2024 were as high as 177.6, 153.8, 159.0, 139.9, 138.3, 181.6 and 150.6mm over Aman, Angerguten, Arejo, Gidaayana, Gore, Konso and Metehara, respectively.

In general, the monthly total rainfall amount of November 2024 was below normal in Somali, some pocket areas of Afar, Oromia, Amhara and Tigray regions. On the other hand, it was above normal over Gambella, Benishangul Gumuz, Central Ethiopia, most part of Oromia, Amhara and Tigray regions. The rainfall was normal in some parts of Afar, Somali, Amhara, and few part of Oromia and Tigray regions

Afar, Tigray, most of Amhara, Benishangul Gumuz, and some part of Oromia and Somali regions were wetter than November 2023 rainfall. On the other hand, Gambella, Sidama, South Ethiopia, South West Ethiopia and most part of Oromia regions November 2024 was dryer than November 2023 rainfall.



Percent of normal rainfall of November 2024



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Foreword

This climate bulletin is prepared and disseminated by the Ethiopia Meteorological Institute (EMI). It is aimed at providing climatological information to different services of the community involved in various socio-economic activities.

The information contained in this bulletin is believed to assist planners, decision-makers and the community at large by providing details of the climatic conditions of the nation in a given period.

This bulletin differs from the other real time and near real time bulletins issued by the Agency, which for their input depend only on meteorological stations equipped with single side band radio for data transmission. Though this bulletin is not real time, published with a delay of at least two months, the information contained in this bulletin is based on data coming from a much larger number of meteorological stations. Moreover, the information contained in this bulletin is not sector-specific and a wide range of users can benefit from it. The Agency disseminates monthly, seasonal and annual climatological bulletins in which all-necessary climatological information and significant climatic anomalies are highlighted.

We have a strong belief that various socio-economic activities related to planning disaster mitigation, water resources management, construction, environmental protection, transportation, recreation, tourism and others will be benefited most by the careful and continuous use of this bulletin. Meanwhile, your comments and constructive suggestions are highly appreciated to make the objectives of this bulletin success.

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1. Synoptic Situation

1.1 Surface

The Mascarene high with a mean central pressure value of above 1020hPa was centered at about 34°S, 80°E.

The St. Helena high with a mean central pressure value of above 1020hPa was centered at about 35°S, 10°W.

The Azores high with a mean central pressure value of 1020hPa was centered at about 35°N, 8°E.

1.2 Lower Troposphere (850 hPa vector wind)

Cross-equatorial and westerly flow of below 4m/s was flowing from Arabian Peninsula to Africa continent.

1.3 Middle Troposphere (500-hPa Geopotential height)

The 500-hPa circulation during November featured above-average heights over the North Pacific Ocean, the western half of North America, Greenland, and most of Siberia, where a maxima in anomalies was recorded, and below-average heights over the Laptev Sea and Scandinavia. The main land-surface temperature signals include above-average temperatures across most of North America, Europe, Asia, and Russia. The main precipitation signals include below average rainfall totals for the eastern half of North America and for regions along the west coast, and above-average rainfall totals for Europe and eastern Asia

2. Tropical Oceanic and Atmospheric Highlights

During November 2024, sea surface temperatures (SSTs) remained near average across most of the equatorial

Pacific. The latest monthly Nino indices were +0.3°C for the Nino 1+2 region, -0.1°C for the Nino 3.4 region and +0.1°C for the Nino 4 region. The depth of the oceanic thermocline (measured by the depth of the 20C isotherm) was below-average across the equatorial Pacific. The corresponding sub-surface temperatures were 1-3°C below-average in the eastern equatorial Pacific.

Reference: NOAA, climate diagnostic bulletin of November 2024

3. Weather

3.1 Temperature

During November 2024, days were remained warm over several portions of lowlands of Ethiopia, in particularly over Afar, Somalia, Gambella, Benishangul Gumuz and some pocket areas of Amhara and Tigray regions (Fig.3.1.2). Specifically, the extreme maximum temperature values were as high as 38.5, 40.6, 37.5, 37.8, 38.4, 41.8, 37.2 and 37.4°C over Aysha, Elidar, Fugnuido, Gambella, Gewane, Gode, Metema and Semera, respectively (Table 3.1.1).

On the other hand, the extreme minimum temperature values of below 4°C were observed in many stations (Table 3.1.2). It cover some highland parts of Amhara, Tigray, Oromia, Central Ethiopia and Somali regions (Fig. 3.1.1).

In General, the November 2024 average temperature values were partially colder than normal and partially warmer than normal over most parts of the country (Fig. 3.1.3).

Table 3.1.1 Stations with extreme maximum temperature values of greater than or equal to 37°C during November 2024

Stations	Extreme maximum temperature (°C)	Date
Aysha	38.5	24
Elidar	40.6	24
Fugnuido	37.5	28
Gewane	38.4	5
Gambella	37.8	15
Metema	37.2	18
Semera	37.4	5
Gode	41.8	30

Table 3.1.2 Stations with extreme minimum temperature values of below or equal to 4°C during November 2024

Stations	Extreme minimum temperature (°C)	Date
Alemaya	3.6	16
Alemketema	3.4	18
Arise Robe	3.5	17
Bui	2.0	17
D/Brehan	-1.8	16
Debrezeit	2.0	17
Enewari	2.4	17
Jijiga	1.0	15
Sholagebaya	1.2	28
Wegel Tena	1.5	16

3.2 Rainfall

Normally, November is one of the months of the dryer season of Bega (ONDJ) for most part of the country except southern, south east and south western. The mean monthly rainfall amount exceeds 130 mm over much areas of Southern, southwest and southeast part of the country.

During November 2024, the monthly rainfall amount exceeded 130 mm or heavier rainfall was occurring over South Ethiopia, South West Ethiopia, Gambella, western and eastern Oromia regions.

In particular, the monthly total rainfall values of November 2024 were as high as 177.6, 153.8, 159.0, 139.9, 138.3, 181.6 and 150.6mm over Aman, Angerguten, Arjo, Gidaayana, Gore, Konso and Metehara, respectively. The daily rainfall values of more than 50mm were observed over Adigrat, Awash Arba, Bahir Dar Met, Gida Ayana, Ginir, Metehara, Nura Era and Werabe (Tables 3.2.1).

In general, the monthly total rainfall amount of November 2024 was below normal in Somali, some pocket areas of Afar, Oromia, and Amhara and Tigray regions. On the other hand, it was above normal over Gambella, Benishangul Gumuz, Central Ethiopia, most part of Oromia, Amhara and Tigray regions. The rainfall was normal in some parts of Afar, Somali, Amhara, and few part of Oromia and Tigray regions (Fig. 3.2.2).

Afar, Tigray, most of Amhara, Benishangul Gumuz, and some part of Oromia and Somali regions were wetter than November 2023 rainfall. On the other hand, Gambella, Sidama, South Ethiopia, South West Ethiopia and most part of Oromia regions November 2024 was dryer than November 2023 rainfall (Fig. 3.2.3).

3.3. Stations extrema ever recorded in 24 hours during October 2024.

Stations' extremer minimum temperature, maximum temperature, and rainfall were recorded at different stations compared with those recorded in 24 hours during November 2024. In particular, the daily total rainfall values of November 2024 were as high as ever recorded 73.4, 80.0, and 104.7 in mm over Gida Ayana, Ginir, and Werabe respectively (Table 3.3.1.). The daily extreme maximum values of November 2024 were as high as ever recorded 42.8, 40.0, 41.3, 40.6, 41.5, and 41.0°C over Elidar, Fugnuido, Gewane, Gambella, Metema, and Semera, respectively, (Table 3.3.2). The provided data reveals significant extreme minimum temperature records across various stations, with Alemaya experiencing a drastic drop from 3.6°C to -9.5°C and D/Brehan declining from -1.8°C to -6.5°C, both indicating notable cold events. Other stations like Jijiga also recorded new lows, dropping to -3.0°C from a previous record of 1.0°C, while Alemketema and Bui showed less severe changes, remaining above freezing (Table 3.3.3.).

Table 3.2.1. Stations with more than 50mm of rainfall in 24 hours during November 2024

Stations	Amount (mm)	Date
Adigrat	55.0	1
Awash Arba	60.0	2
Bahir Dar Met	54.2	24
Gida Ayana	56.1	24
Ginir	64.0	1
Metehara	75.8	22
Nura Era	51.9	22
Werabe	96.0	1

Table 3.2.2. Stations with more than 130mm of monthly total rainfall during November 2024

Station	Amount
Aman	177.6
Angerguten	153.8
Arjo	159.0
Gida Ayana	139.9
Gore	138.3
Konso	181.6
Metehara	150.6

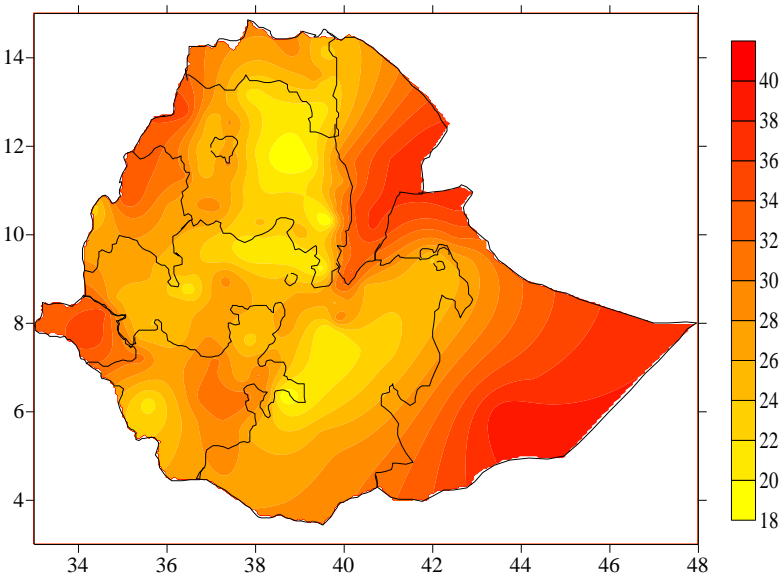


Figure 3.1.2 Mean maximum temperature in °C during November 2024

Table 3.3.1. The extreme rainfall at the stations was recorded 24 hours compared with ever-recorded values during November 2024

Stations	Previous Rainfall(mm) Record	New Rainfall(mm) Record	Date
Gida Ayana	56.1	73.4	2-Nov-59
Ginir	64.0	80.0	16-Nov-18
Werabe	96.0	104.7	5-Nov-08

Table 3.3.2. Stations with an extreme maximum temperature ever recorded values during November 2024

Stations	Previous Record (°C)	New Record(°C)	Date
Elidar	40.6	42.8	8-Nov-86
Fugnuido	37.5	40.0	24-Nov-15
Gewane	38.4	41.3	6-Nov-10
Gambella	37.8	40.6	15-Nov-16
Metema	37.2	41.5	22-Nov-11
Semera	37.4	41.0	13-Nov-11

Table 2.3.3 Stations with an extreme minimum temperature ever recorded values during November 2024

Stations	Previous Record (°C)	New Record(°C)	Date
Alemaya	3.6	-9.5	5-Nov-71
Alemketema	3.4	1.0	5-Nov-78
Bui	2.0	0.2	2-Nov-02
D/Brehan	-1.8	-6.5	9-Nov-96
Debrezeit	2.0	0.1	11-Nov-09
Enewari	2.4	1.0	26-Nov-00
Jijiga	1.0	-3.0	21-Nov-66
Sholagebaya	1.2	0.2	11-Nov-15
Wegel Tena	1.5	-5.6	13-Nov-87

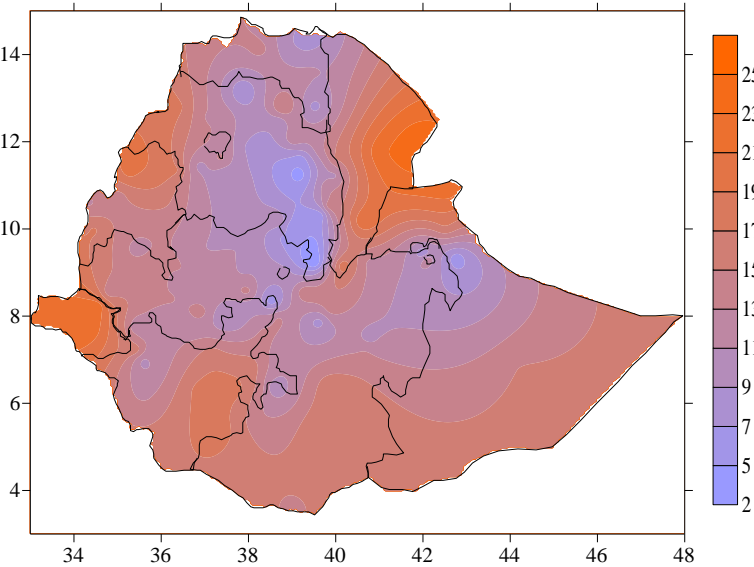


Figure 3.1.1. Mean minimum temperature in °C during November 2024

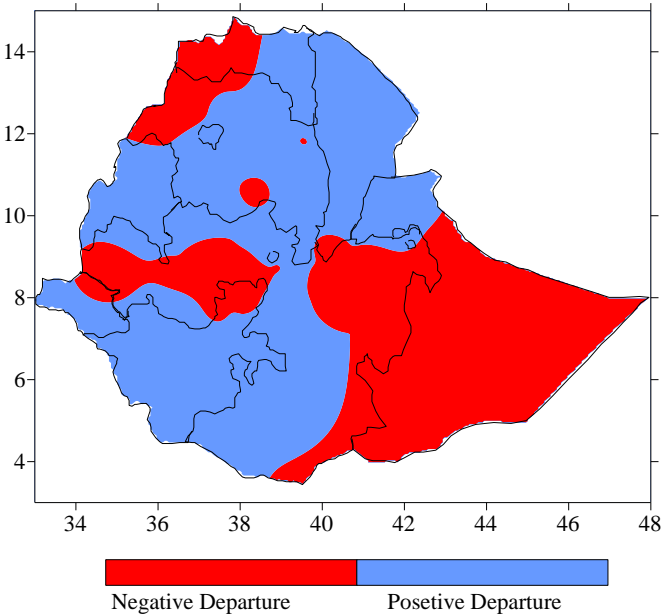


Figure 3.1.3. Departure of monthly average temperature from normal during November 2024

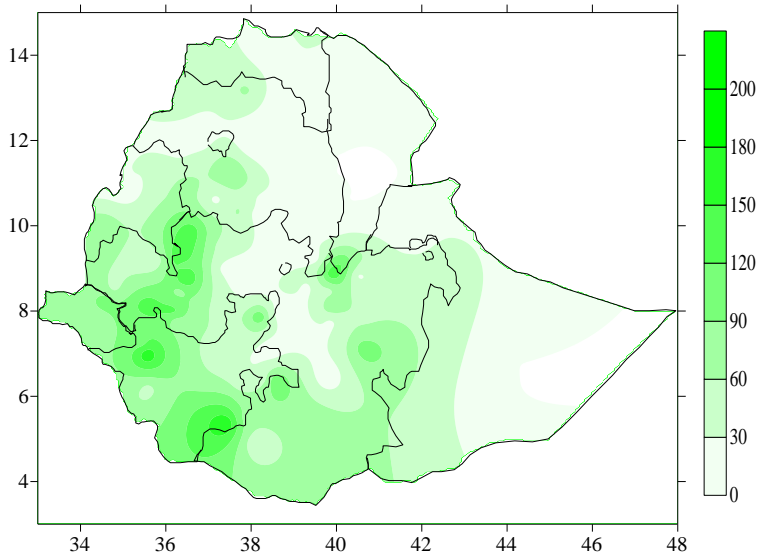


Figure 3.2.1. Monthly total rainfall in mm during November 2024

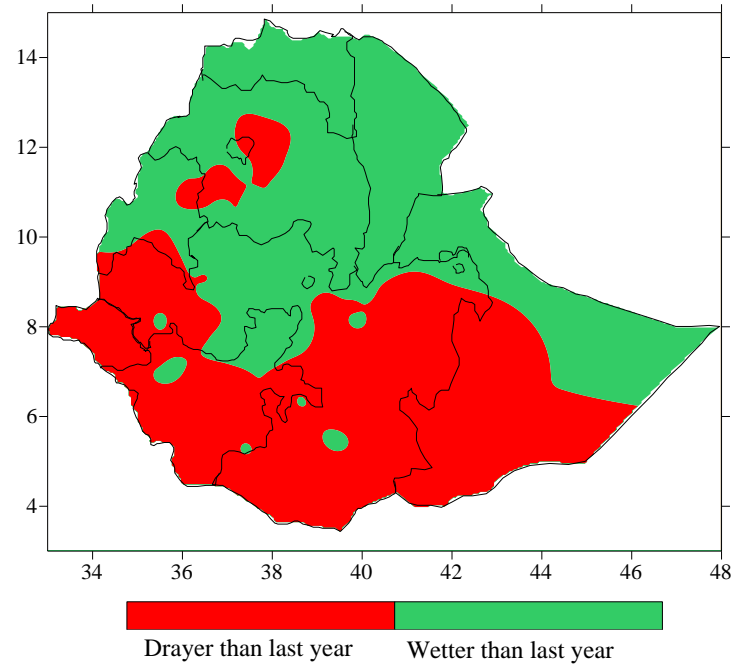


Figure 3.2.3. Monthly total rainfall of November 2024 minus monthly total rainfall of November 2023

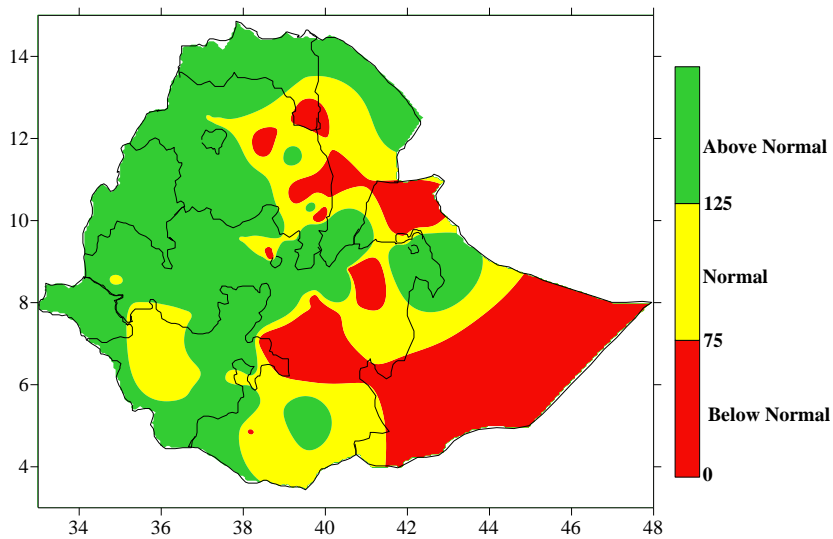


Figure 3.2.2. Percent of normal rainfall during November 2024