

# FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

## ETHIOPIAN METEOROLOGICAL INSTITUTE

### METEOROLOGICAL DATA AND CLIMATOLOGY LEAD EXECUTIVE REMOTE SENSING AND CLIMATOLOGICAL DESK

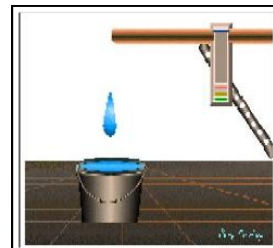
#### MONTHLY CLIMATE BULLETIN

December 2024

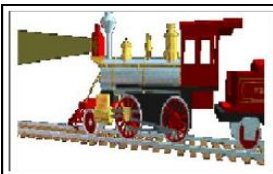
##### Some Applications of Climate Information



Constriction



Water resource management



Transportation



Sport



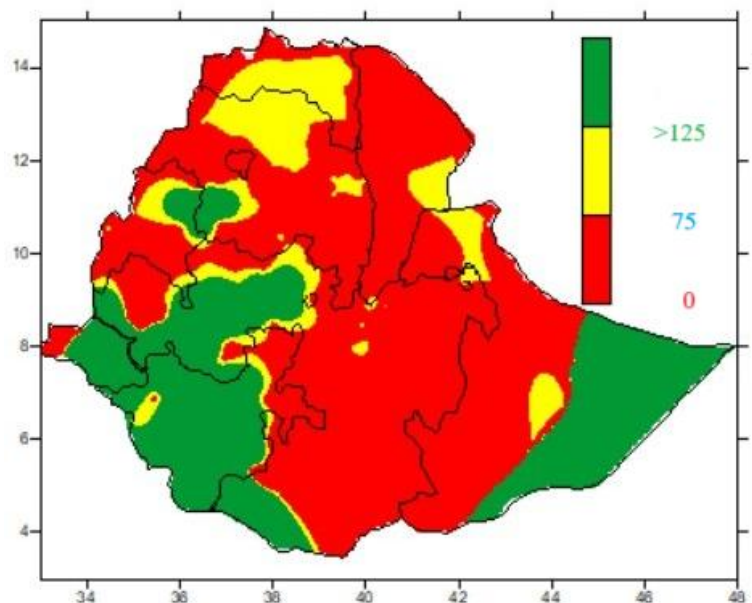
Recreation & Tourism

During December 2024, days were remained hot over several portions of the country. Over Gode, Gambella, Fugnuido, Elidar, Lare, Metehara, Metema, Aysha, Gewane, Semera, Sherkole, Adet, Kibridahar, wash, Arba, and Dalifagi, the monthly maximum temperature were as high as 41.7, 40.8, 40, 39.6, 38.2, 37.8, 37.4, 36.5, 36.4, 36.2, 36.1, 36, 36, 35.5, 35, respectively. On the other hand, the extreme minimum temperature values were below 3°C over some highland parts of Amhara and Central pocket area of Oromia. In particular, D/Brehan, Mehalmeda, Wegeltena, Jijiga, Alemaya, Bui, Debrezeit(AF), Sholagebaya, Jimma, Adigrat, Arise Robe, Dangla, Debrawrek, Enewari, D/Tabor, Alemketema, Fiche, and Maichew had extreme minimum temperature values as high as -2.8, -2, -0.4, 0, 0.2, 1, 1, 1, 1.4, 2, 2, 2, 2, 2, 2.5, 3, 3, and 3, respectively.

In General, the monthly average temperature values were partially warmer than normal over some parts of the country such as Somalia, Tigray, Oromia and SNNP, most parts of Afar, Gambella, and Benishangul Gumuz. It was colder than normal over most parts of Oromia, Somali, Amhara and southwestern and norther parts of SNNP across the country.

The monthly total rainfall in December 2024 was more than 25 mm over southwestern Ethiopia and some pocket areas of western Oromia. In particular, the monthly total rainfall values of December 2024 were more than 27mm over Jinka, Arjo, Sawula, Gatira, Gambella, and Masha. On the dates of 22, 21, 22, 2, and 26, the daily rainfall quantities above 20 mm recorded over the Semera, Sawula, Jinka, Gambella and Masha stations.

During December 2024, the rainfall amount had been below normal over parts of eastern and western Tigray, most of Amhara and major portion of Oromia region and central and western Somalia. December 2024 was generally drier than December 2023 over most parts of the country except over most of Afar, Tigray and some parts of Somalia and over some pocket areas of Oromia regions (Fig. 3.2.3).



Percent of normal rainfall of December 2024

## Forward

Ethiopia Meteorological Institute (EMI) prepares and disseminates this climate bulletin. It aims to provide climatological information to various community services involved in different socio-economic activities and some highlights about major synoptic situations. This bulletin provides details of the nation's climatic conditions over a given period, which is believed to assist planners, decision-makers, and the community at large.

This bulletin differs from the other real-time and near-real-time bulletins issued by the Institute, 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 and was 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 in this bulletin is not sector-specific and a wide range of users can benefit from it. The Institute 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 benefit 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 successful.

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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 30°S, 85°W.

The St. Helena high with a mean central pressure value of above 1018hPa was centered at about 30°S, 10°W.

The Azores high with a mean central pressure value of 1020h Pa was centered at about 38°N, 8°W.

### 1.2 Lower Troposphere (850 hPa vector wind)

The cross-equatorial and westerly flow of below 0-8 m/s was flowing from the Arabian Peninsula to the African continent.

### 1.3 Middle Troposphere (500-hPa Geopotential height)

Week cross-equatorial and southeastern flow of above 3 to 9 m/s was observed over the northern and western Indian Ocean, Arabian Sea, and the adjoining areas of the Horn of Africa.

### 1.4 Upper Troposphere (200 hPa vector wind)

The westerly wind, associated with the subtropical westerly jet, had 0- 15 m/s and strengthened further, while the upper-level easterly flow, associated with the tropical easterly jet weakened further.

## 2. Tropical Oceanic and Atmospheric Highlights

During December 2024, sea surface temperatures (SSTs) were below average across the central and east-central equatorial Pacific. The latest monthly Niño indices were -0.1°C for the Niño 1+2 region, -0.6°C for the Niño 3.4 region, and -0.4°C for the Niño

4 region. The depth of the oceanic thermocline (measured by the depth of the 20°C isotherm) was below average across the central and eastern equatorial Pacific. The corresponding sub-surface temperatures were 1-4°C below average in the eastern equatorial Pacific.

Reference: NOAA, climate diagnostic bulletin of December 2024

## 3. Weather

### 3.1 Temperature

During December 2024, days remained hot over several portions of the country. Specifically, the monthly maximum temperature values were as high as 41.7, 40.8, 40, 39.6, 38.2, 37.8, 37.4, 36.5, 36.4, 36.2, 36.1, 36, 36, 35.535, over Gode, Gambella, Fugnido, Elidar, Lare, Metehara, Metema, Aysha, Gewane, Semera, Sherkole, Adet, Kibridahar, Mash, Arba, and Dalifagi respectively (Table 3.1.1).

On the other hand, the extreme minimum temperature values were below 3°C over some highland parts of Amhara and the Central pocket area of Oromia. In particular, D/Brehan, Mehalmeda, Wegeltena, Jijiga, Alemaya, Bui, Debrezeit(Af), Sholagebaya, Jimma, Adigrat, Arise Robe, Dangla, Debrawrek, Enewari, D/Tabor, Alemketema, Fiche, and Maichew had extreme minimum temperature values as high as -2.8, -2, -0.4, 0, 0.2, 1, 1, 1, 1.4, 2, 2, 2, 2, 2, 2.5, 3, 3 and 3 respectively (Table 3.1.2).

In General, the monthly average temperature values were partially warmer than normal over some parts of the country such as Somalia, Tigray, Oromia and SNNP, most parts of Afar, Gambella, and Benishangul Gumuz. It was colder than normal over most parts of Oromia, Somali, Amhara and southwestern and norther parts of SNNP across the countr

**Table 3.1.1. Stations with extreme maximum temperature values greater than or equal to 35<sup>0</sup>c during December 2024.**

Stations	Extreme maximum temperature	Date
Gode	41.7	2
Gambella	40.8	30
Fugnuido	40	30
Elidar	39.6	30
Lare	38.2	5
Metehara	37.8	21
Metema	37.4	29
Aysha	36.5	7
Gewane	36.4	2
Semera	36.2	1
Sherkole	36.1	8
Adet	36	22
Kibridahar	36	11
Awash Arba	35.5	2
Dalifagi	35	

**Table 3.1.2 Stations with extreme minimum temperature values of below or equal to 3<sup>0</sup>c during December 2024**

Station Name	Extreme Minimum Temperature	Date
D/Brehan	-2.8	31
Mehalmeda	-2	31
Wegeltena	-0.4	31
Jijiga	0	19
Alemaya	0.2	21
Bui	1	30
Debrezeit(Af)	1	13
Sholagebaya	1	10
Jimma	1.4	31
Adigrat	2	12
Arise Robe	2	14
Dangla	2	9
Debrawrek	2	8
Enewari	2	29
D/Tabor	2.5	9
Alemketema	3	29
Fiche	3	31
Maichew	3	13

**Table 3.1.3. New records of maximum temperature during December 2024.**

Name	Previous record	New record	Date
Adet	29	33	9
Bore	22	22.4	24
Gore	28	28	21
Bure	35.5	29.5	31
Yitnora	26.6	29.7	11
Dembidolo	30	30	31
Kulumsa	31	31	7
Shewarobit	31.4	31.4	23
Dangla	29.8	34	30
Mierab Abaya	38.2	34	24
Sherkole	36	36.1	8
Bedelle	31.5	37	31
Metehara (Nmsa)	37	37.8	21
Gode	41.4	41.7	2
Abobo	32	37	23
Alemaya	29	29	12
Bahir Dar Met	29.5	30	22
Bure	30.5	32	13
Gore	27	27	22
Gundomeskel	24.6	24.6	22
Limugenet	28.8	29	12
Majete	32.5	32.6	29
Sawula	33	37.8	10
Senkata	28	28.5	5
Sholagebaya	21.6	23	28
Tercha	31.2	31.2	19
Yabelo	30.8	31	28

### 3.2 Rainfall

December is the third month of the dry season in Ethiopia. Hence, the monthly average rainfall doesn't exceed 50mm over most parts of the country, except over Southern and Southwestern Ethiopia. Additionally, the monthly total rainfall in December 2024 was more than 27 mm over southwestern Ethiopia and some pocket areas of western Oromia.

In particular, the monthly total rainfall values of December 2024 were as high as 27, 27.3, 28.2, 31.3, 42.5, 42.9, and 55.2mm over Jinka, Arjo, Sawula,

Gatira, Gambella, and Masha respectively (Tables 3.2.1). And On the dates of 22, 21, 22, 2, and 26, the recorded daily rainfall amounts were above 20 mm over, Sawula, Jinka, Gambella, and Masha stations. In order of increasing magnitude, these stations reported 20.2, 22.6, 26.2, 37.6, and 50.4 mm of rainfall respectively (Tables 3.2.2).

In general, the total rainfall in December 2024 was normal in some parts of Tigray,

**Table 3.2.1. Stations with more than 20 mm of rainfall in 24 hours during December 2024**

Stations	Amount (mm)	Date
Sawula	22.6	21
Jinka	26.2	22
Gambella	37.6	2
Masha	50.4	26

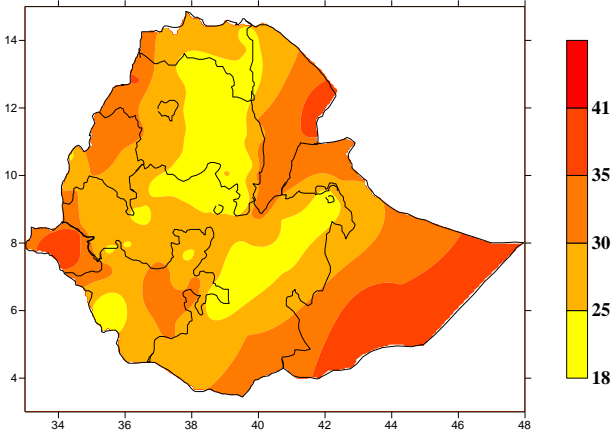
**Table 3.2.2. Stations with more than 27 mm of monthly total rainfall during December 2024.**

Station	Amount (mm)
Jinka	27.3
ARJO	28.2
SAWULA	31.3
Gatira	42.5
GAMBELLA	42.9
MASHA	55.2

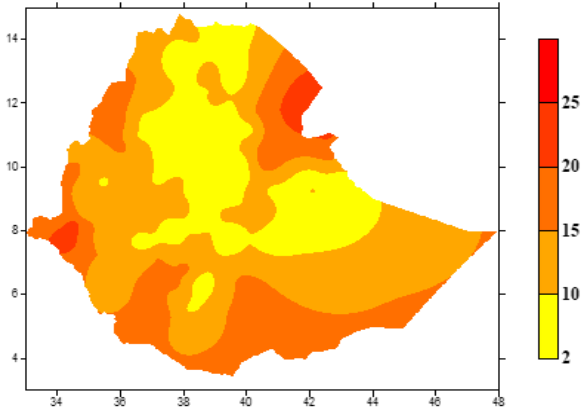
Amhara, and Benishangul Gumuz. On the other hand, the regions above normal rainfall were recorded over parts of Oromia, most parts, of Gmbella, and SNNP, and parts of eastern Somalia regions. During December 2024, the rainfall amount had been below normal over parts of east and western Tigray, most of Amhara major portion of Oromia region central and western Somalia (Fig. 3.2.2). December 2024 was generally drier than December 2023 over most parts of the country except over most, Tigray and some parts of Somalia and over some pocket areas of Oromia regions (Fig. 3.2.3).

**Table 3.2.3 New records of rainfall during December 2024**

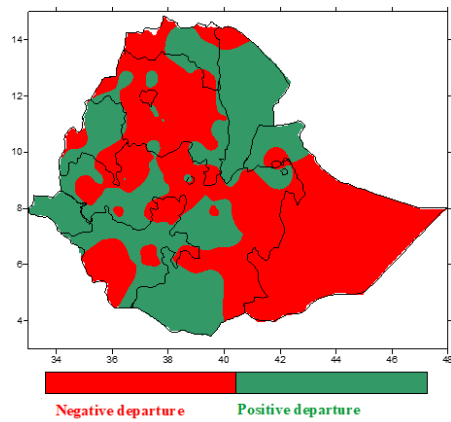
station Name	Previous record	New record	Date
Gambela	25.1	37.6	2



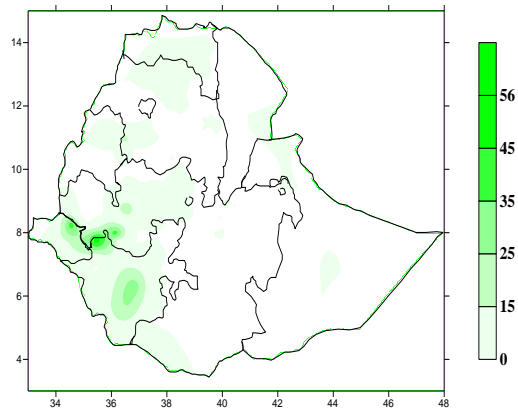
**Fig. 3.1.2. Mean maximum temperature in °C during December 2024**



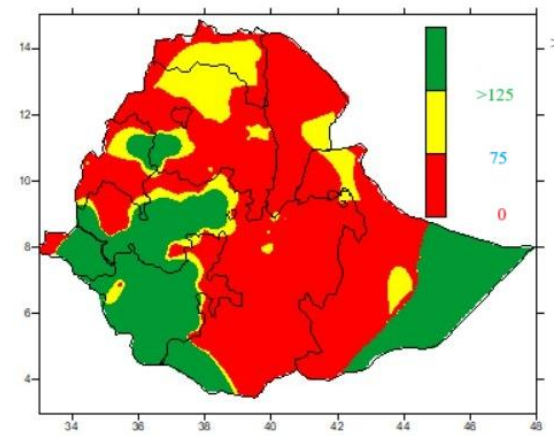
**Fig. 3.1.1. Mean minimum temperature in °C during December 2024**



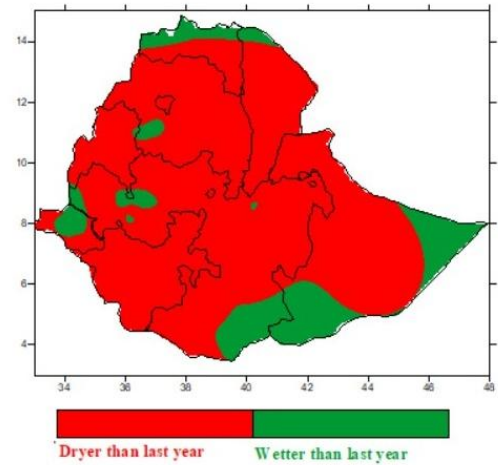
**Fig.3.1.3. Departure of monthly average temperature from normal during December 2024.**



**Fig.3.2.1. Monthly total rainfall in mm During December 2024.**



**Fig. 3.2.2. Percent of normal rainfall during December 2024.**



**Fig. 3.2.3. Monthly total rainfall of December 2024 minus December rainfall 2023.**