

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

MONTHLY CLIMATE BULLETIN

October 2023

*Some Applications of
Climate Information*



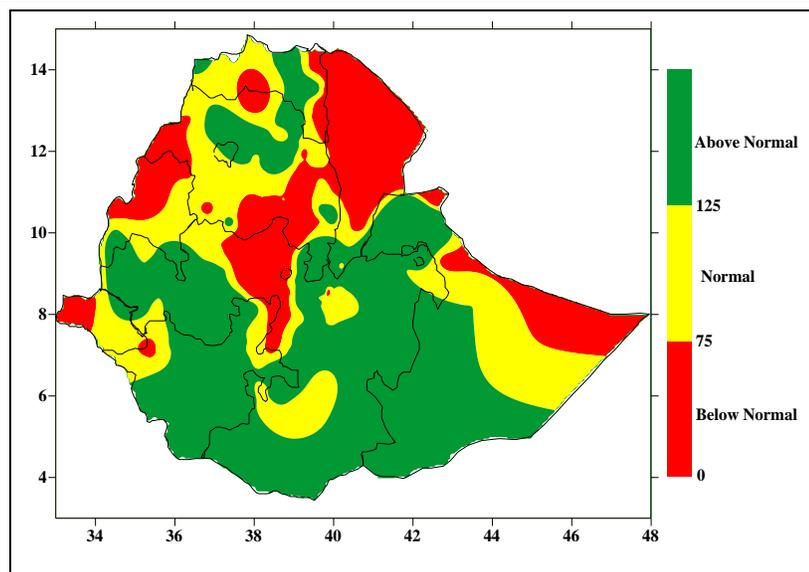
HIGHLIGHTS

During October 2023, days were remained warm over several portions of lowlands of Ethiopia, in particularly over Afar, most part of Somalia and Gambela regions. Specifically, the extreme maximum temperature values were as high as 42, 41.8, 41.6, 41.2 and 41.0 °C over Ayesha, Goda, Gewana, Semera and Mille respectively. The mean monthly rainfall amount exceeds 300 mm over much areas of South southwest and southeast part of the country.

During October 2023, the monthly rainfall amount exceeded 300 mm or heavier rainfall was occurring over Bale, Jimma, Arba Minch and Keffa areas. The monthly total rainfall values of October 2023 were as high as 525.5, 381.8, 380.3, 373.1, 331.9, 316.3 and 307.4 mm over Ginir, Sawula, Gatira, Limugenet, Bore, Bure and Arba Minch respectively. The daily rainfall more than 70mm values was observed over Arba minch, Bedelle, Bore, Ginir, Jinka, Limugenet and Masha stations was 86.7, 89, 106, 75, 81.2 72.6 and 70.2 respectively

In general, the monthly total rainfall amount of October 2023 was below normal over part of Afar, some part of Somali, Amhara, Benishangul Gumuz, few areas Oromia, and Tigray regions. On the other hand, it was above normal over Oromia, Somali, SNNPR, some part of Tigray and Amhara regions. normal in few parts of Tigray, Amhara, Oromia, Somali, Gambella and SNNPR regions.

Most part of Oromia, SNNPR, Somali, and Tigray regions were wetter than October normal rainfall. On the other hand, Afar, Somali, Gambella, and Tigray regions October 2023 was dryer than October normal rainfall.



Percent of normal rainfall of October 2023

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.

Director General

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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 32°S, 96°E.

The St. Helena high with a mean central pressure value of above 1020hPa was centered at about 38°S, 0°E.

The Azores high with a mean central pressure value of 1016hPa was centered at about 22°N, 45°W.

1.2 Lower Troposphere (850 hPa vector wind)

Cross-equatorial and easterly flow of below 4m/s was observed over western Indian Ocean and easterly flow was dominant over the Arabian Peninsula

1.3 Middle Troposphere (500-hPa Geopotential height)

The 500-hPa circulation featured a Pacific Ridge pattern with above-average heights extending across Russia and Canada, and below-average heights over the North Atlantic Ocean and Scandinavia. The main land-surface temperature signals include above-average temperatures for Europe, Asia, and Russia. The main precipitation signals include below-average totals in Southern Europe, and above-average totals in Northern Europe.

2. Tropical Oceanic and Atmospheric Highlights

During October 2023, sea surface temperatures (SSTs) remained well above-average across the central and eastern equatorial Pacific. The latest monthly Niño indices were +2.5°C for the Niño 1+2 region, +1.6°C for the Niño 3.4 region and +2.0°C for the Niño 3 region. The depth of the

oceanic thermocline (measured by the depth of the 20°C isotherm) was above-average across the central and eastern equatorial Pacific. The corresponding sub-surface temperatures were 1-5°C above-average in the far eastern equatorial Pacific.

Reference: NOAA, climate diagnostic bulletin of October 2023

3. Weather

3.1 Temperature

During October 2023, days were remained warm over several portions of lowlands of Ethiopia, in particularly over Afar, most part of Somalia and Gambela regions (Fig. 3.1.2). Specifically, the extreme maximum temperature values were as high as 42, 41.8, 41.6, 41.2 and 41.0°C over Ayesha, Goda, Gewana, Semera and Mille respectively (Table 3.1.1).

On the other hand, the extreme minimum temperature values were below 6° °C cover some highland parts of Amhara, some part of Oromia and central Ethiopia. Specifically, the extreme minimum temperature values were 5.5, 5.2, 5, 4.4, 3.8, 2.4 and 1 °C over Debark, Mehalmeda, Enewari, Alemaya, Ambamariyam, D/Berhan and Bui respectively (Table 3.1.2).

In General, the monthly average temperature values were partially color 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 40°C during October 2023

Stations	Extreme maximum temperature (°c)	Date
Gode	41.8	12
AYSHA	42	12
Gewane	41.6	8
MILLE	41	7
Semera	41.2	1

Table 3.1.2 Stations with extreme minimum temperature values of below or equal to 6°C during October 2023

Stations	Extreme minimum temperature (°c)	Date
ALEMAYA	4.4	5
Ambamariam	3.8	23
Bui	1	29
DEBARK	5.5	8
D/BREHAN	2.4	7
Enewari	5	8
MEHALMEDA	5.2	2

3.2 Rainfall

Normally, October 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 300 mm over much areas of South southwest and southeast part of the country.

During October 2023, the monthly rainfall amount exceeded 300 mm or heavier rainfall was occurring over Bale, Jimma, Arba Minch Keffa and adjoint areas of Oromia and SNNPR regions.

In particular, the monthly total rainfall values of October 2023 were as high as 525.5, 381.8, 380.3, 373.1, 331.9, 316.3 and 307.4 mm over Ginir, Sawula, Gatira, Limugenet, Bore, Bure and Arba Minch respectively. The daily rainfall more than 60mm values was observed over Arba minch, Bedelle, Bore, Ginir, Jinka, Limugenet and Masha stations was 86.7, 89, 106, 75, 81.2 72.6 and 70.2 respectively (Tables 3.2.1).

In general, the monthly total rainfall amount of October 2023 was below normal over part of Afar, some part of Somali, Amhara, Benishangul Gumuz, few areas Oromia, and Tigray regions. On the other hand, it was above normal over Oromia, Somali, SNNPR, some part of Tigray and Amhara regions. Current rainfall normal in Few parts of Tigray, Amhara, Oromia, Somali, Gambella and SNNPR regions (Fig. 3.2.2).

Most part of Oromia, SNNPR, Somali, some part of Amhara and Tigray regions were wetter than October climatological normal rainfall. On the other hand, Afar, Somali, Gambella, Benishangul Gumuz, some part of Amhar and Tigray regions October 2023 was dryer than October normal rainfall (Fig. 3.2.2).

Table 3.2.1. Stations with more than 70mm of rainfall in 24 hours during October 2023

Stations	Amount (mm)	Date
Arba Minch	86.7	19
Bedelle	89	27
Bore	106	20
Ginir	75	12
Jinka	81.2	20
Limugenet	72.6	27
MASHA	70.2	27

Table 3.2.2. Stations with more than 300mm of monthly total rainfall during October 2023

Station	Amount
Arba Minch	307.4
BORE	331.9
BURE	316.3
Gatira	380.3
GINIR	523.5
LIMUGENET	373.1
SAWULA	381.8

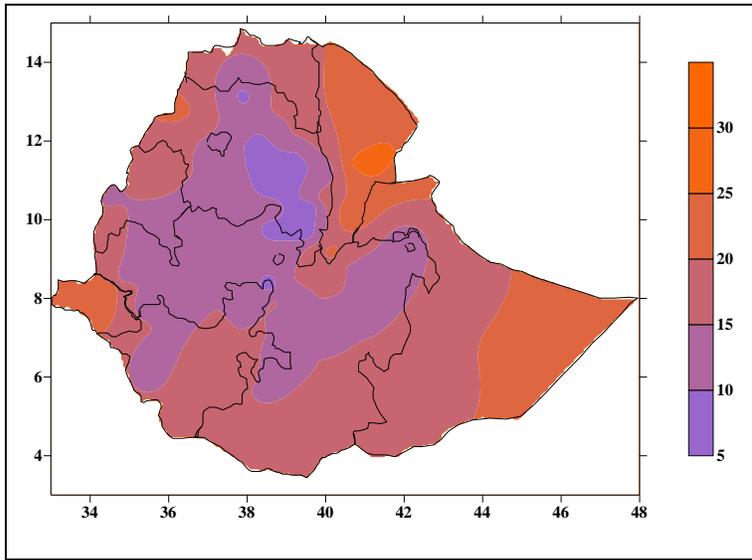


Fig. 3.1.1. Mean minimum temperature in °C during

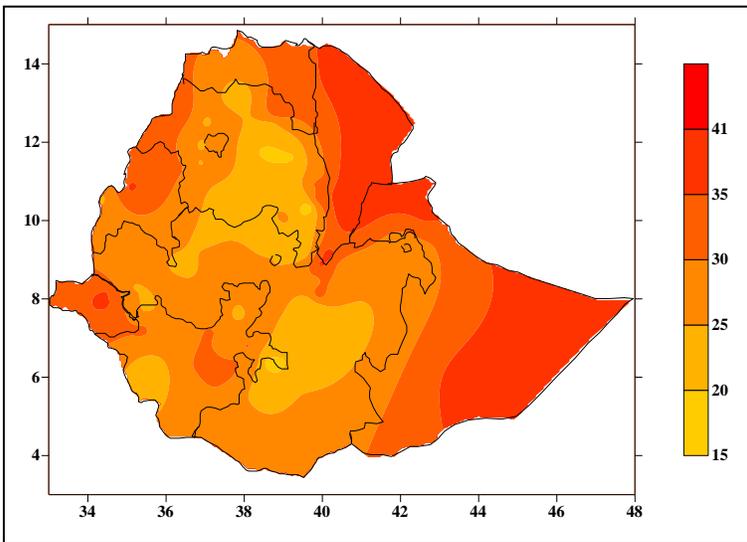


Fig. 3.1.2. Mean maximum temperature in °C during October 2023

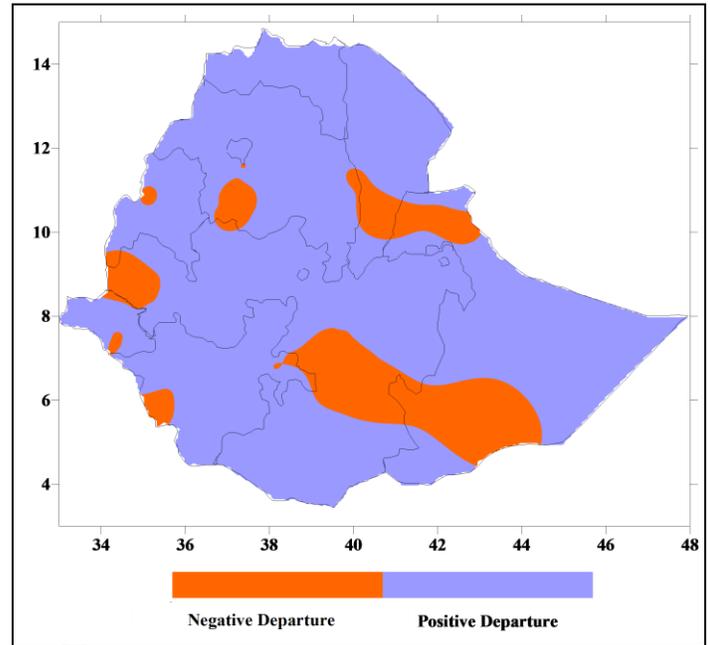


Fig.3.1.3. Departure of monthly average temperature from normal during October 2023

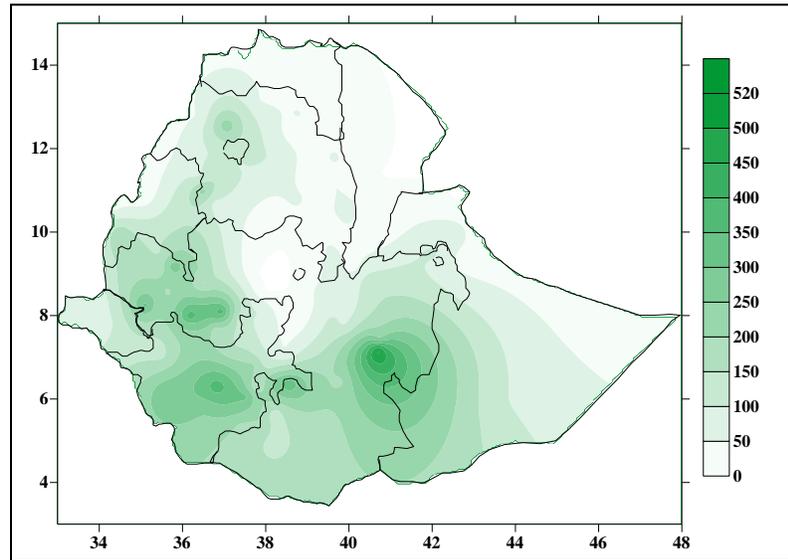


Fig.3.2.1. Monthly total rainfall in mm during October 2023

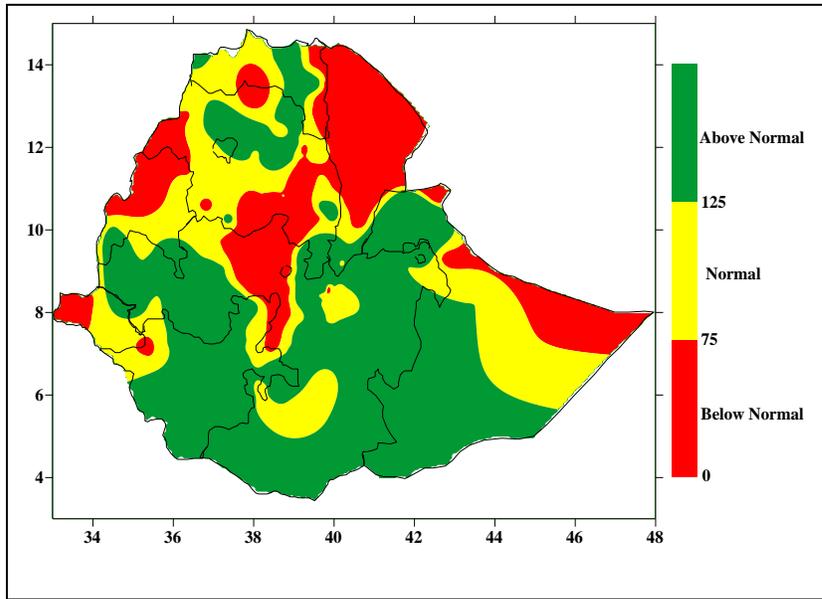


Fig. 3.2.2. Percent of normal rainfall during October 2023

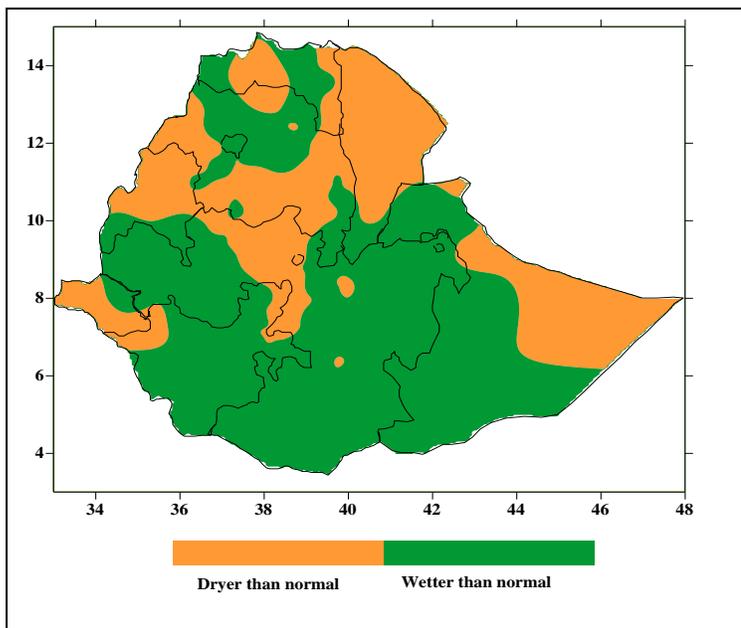


Fig. 3.2.3. Monthly total rainfall of October 2023 minus monthly Normal rainfall of October