

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
ETHIOPIAN METEOROLOGICAL INSTITUTE
METEOROLOGICAL DATA AND CLIMATOLOGY LEAD EXECUTIVE
REMOTE SENSING AND CLIMATOLOGICAL DESK
MONTHLY CLIMATE BULLETIN
September 20024

Some Applications of Climate Information



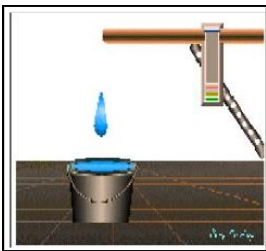
Disaster management



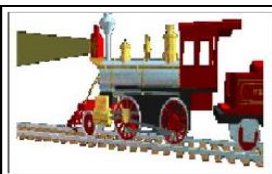
Constriction



Water resource management



Transportation



Sport



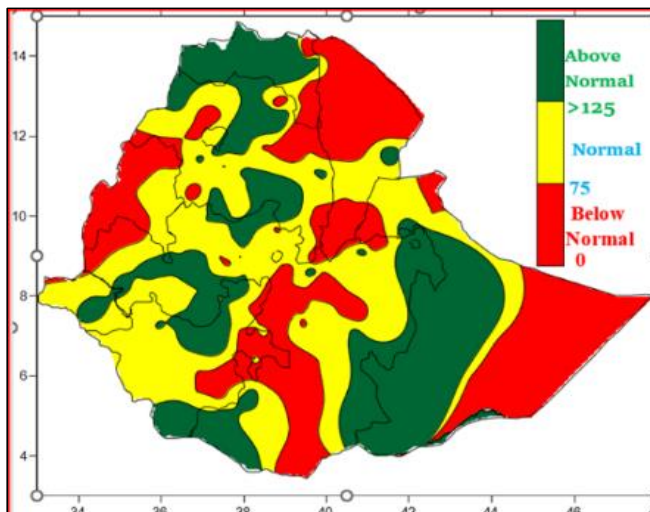
Recreation & Tourism



During September 2024, days remained warm over several portions of the lowlands of Ethiopia, particularly over most of Afar, Somalia, Gambela, and some parts of Rift Valley areas. Specifically, the extreme maximum temperature values were as high as 37, 37, 37, 37, 37, 37.8, 39, 40.5, 42.2, 43, and 43.8 °C over Metehara (NMSA), Fugnuido, Dire Dawa, Abobo, Sawula, Awash Arba, Aysha, Gode, Semera, and Elidar respectively.

During September 2024, the monthly rainfall exceeded 300 mm or heavier rainfall occurred over some parts of western Oromia and some parts of Amhara, some parts of Tigray regions. In particular, the monthly total rainfall values of September 2024 were as high as 317.2, 317.5, 318, 318.1, 324.2, 336.5, 342.4, 345.8, 349.7, 364.5, 427.8, and 542.2mm over, Limugenet, Aira, Nekemte, Bure, Bedelle, Tercha, Chagini, Gimbi, Gundomeskel, Algie, and Arejo respectively.

During September, some parts of the country's normal weather conditions were experienced such as most parts of Amhara. Some western, central Oromia, eastern parts of Benishangul, most of Gambela, south and southwestern SNNPR, and Central Afar regions. The areas with below-normal weather conditions experienced some pocket areas of Oromia Amhara north-south western Benishangul Gumuz and north and southern afar regions. Finally, above normal over most of Tigray, central Amhara, pocket areas of Afar, and Oromia, north, northwest, and south Somali, some parts of southern SNNPR, and a few areas of Gambella. On the other hand, in some parts of Amhara, most of Afar, and Somali some parts of SNNPR, Oromia, and Gambella, and most parts of Oromia, SNNPR, Gambella, Benishangul Gumuz, and some parts of Somalia, Afar and Tigray regions were Dryer than climatological normal.



Percent of normal rainfall of September 2024

Forward

Ethiopia Meteorological Institute (EMI) prepares and disseminates this climate bulletin. It aims to provide climatological information to various community services involved in socio-economic activities.

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 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 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 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 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 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 30°S, 90°E.

The St. Helena high, with a mean central pressure value above 1020hPa, was centered at about 35°S, 8°W.

The Azores high with a mean central pressure value of 1018hPa was centered at about 43°N, 19°W.

1.2 Lower Troposphere (850 hPa vector wind)

strong cross-equatorial and northeasterly flow of below 0-12 m/s was observed over the northern and western Indian Ocean and southeasterly, northeasterly, and easterly, flow was dominant over the Arabian Peninsula

1.3 Middle Troposphere (500-hPa Geopotential height)

When analyzing the geopotential height from the Climate Diagnostics Bulletin in September 2024, the fluctuation 500-hPa Geo- -potential height values over central and eastern Africa was 3 to 15 pm.

1.4 Upper Troposphere (200 hPa vector wind)

Equatorial stronger easterly westerly winds 0-5 m/s were dominating in most of the horn of Africa. The subtropical easterly jet had weakened further, while the upper-level westerly flow, associated with the tropical westerly jet weakened further.

2. Tropical Oceanic and Atmospheric Highlights

During September 2024, sea surface temperatures (SSTs) remained near average across most of the equatorial Pacific. The latest monthly Niño indices were -0.7°C for the Niño 1+2region, -0.2°C for the Niño 3.4

region and +0.3°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 equatorial Pacific. The corresponding sub-surface temperatures were 1-4°C below average in the eastern equatorial Pacific.

Reference: NOAA, climate diagnostic bulletin of September 2024

3. Weather

3.1 Temperature

During September 2024, days remained warm over several portions of the lowlands of Ethiopia, particularly over most of Afar, Somalia, Gambela, and some parts of rift valley areas (Fig. 3.1.2). Specifically, the extreme maximum temperature values were as high as 37, 37, 37, 37, 37, 37.8, 39, 40.5, 42.2, 43, and 43.8 °C over Metehara (NMSA), Fugnuido, Dire Dawa, Abobo, Sawula, Awash Arba, Aysha, Gode, Semera, and Elidar respectively (Table 3.1.1)

On the other hand, the extreme minimum temperature values were below 8°C over some highland parts of Amhara and a few parts of the Oromia region. Ambamariam, Alemketema, Mehalmeda, Bore, D/Brehan, Nefasmewucha, Robe, and Debarkhad extreme minimum temperature values of below 8 °C during September 2024 (Table 3.1.2).

In general, the monthly average temperatures were higher than usual in central, south, and south-eastern Tigray, southern central and western Afar, some northern Somalia, western central and eastern Oromia, Gambela, and northern Benishangul, and lower than average in the eastern region. Most parts of the Somalia region are in the south-eastern Oromia and southern-eastern Afar and southern-eastern Enteral regions (Fig. 3.1.3).

Table 3.1.1 Stations with extreme maximum Temperature values of greater than or equal to 35 0 c during September 2024.

Station name	Extreme maximum temperature(° c)	Date
Dalifagi	37	14
Metehara (NMSA)	37	16
Fugnuido	37	17
Dire Dawa	37	23
Abobo	37	27
Sawula	37.8	10
Awash Arba	39	28
Aysha	40.5	21
Gode	42.2	19
Semera	43	12
Elidar	43.8	25

Table 3.1.2 Stations with extreme minimum temperature values of below or equal to 7oc during September 2024.

Stations	Extreme minimum temperature (oc)	date
Ambamariam	4.4	2
Alemketema	5.8	9
Mehalmeda	6.5	15
Bore	7	5
D/Brehan	7.2	14
Nefasmewucha	7.5	3
Robe	7.6	25
Debark	8	9

3.2 Rainfall

During September 2024, the monthly rainfall exceeded 300 mm or heavier rainfall was occurring over some parts of western Oromia and some parts of Amhara, some parts of Tigray regions. In particular, the monthly total rainfall values of September 2024 were as high as 317.2, 317.5, 318, 318.1, 324.2, 336.5, 342.4, 345.8, 349.7, 364.5, 427.8, and 542.2mm over, Limugenet, Aira, Nekemte, Bure, Bedelle, Tercha, Chagini, Gimbi, Gundomeskel, Algie, and Arejo respectively. The daily rainfall values were recorded more than 40 mm within 24 hours during September 2024 over Arejo, Tercha, Limugenet, Algie, Bure, Chagini, and Gundomeskel stations were 42.6, 44.6, 54, .2, 60, 60.3, 60.4 and 86mm respectively.

During September month, some parts of the country's normal weather conditions were experienced such as most parts of Amhara. Some western, central Oromia, eastern parts of Benishangul, most parts of Gambela, and south and southwestern SNNPR, Central Afar regions. The areas with below-normal weather conditions experienced some pocket areas of Oromia Amhara north-south western Benishangul Gumuz and north and southern afar regions. Finally, above normal over most of Tigray, central Amhara, pocket areas of Afar, and Oromia, north, northwest, and southern Somali, some parts of southern SNNPR, and a few areas of Gambella. Area is wetter than climatologically normal. On the other hand, in some parts of Amhara, most of Afar, and Somali some parts of SNNPR, Oromia, and Gambella, and most parts of Oromia, SNNPR, Gambella, Benishangul Gumuz, and some parts of Somalia, Afar and Tigray regions were Dryer than climatological normal.

Table 3.2.1. Stations with more than 60mm of rainfall in 24 hours during September 2024.

Stations	Amount (Mm)	Date
Arejo	42.6	27
Tercha	44.6	2
Limugenet	54.2	24
Algie	60	60
Bure	60.3	8

Chagini	60.4	11
Gundomeskel	86	29

Table 3.2.2. Stations with more than 300 mm of monthly total rainfall during September 2024.

Station	Amount
Dangla	317.2
Limugenet	317.5
Aira	318
Nekemte	318.1
Bure	324.2
Bedelle	336.5
Tercha	342.4
Chagini	345.8
Gimbi	349.7
Gundomeskel	364.5
Algie	427.8
Arejo	542.2

4.1. Stations extrema ever recorded in 24 hours during September 2024.

Stations extremer minimum temperature, maximum temperature, and rainfall were recorded at different stations compared with ever recorded in 24 hours during September 2024 ‘In particular, the daily total rainfall values of August 2024 were higher than as ever recorded at 60, 78, and 86 in mm over Algie, Bati, and Gundomeskel respectively (Table.4.1.1.).the daily extreme maximum values of September 2024 were as high than ever recorded 37, 29, 30, 32, 27, 24.6, 29, 32.6, 37.8, 28.5, 23, 31.2, and 31 °C over Abobo, Alemaya, Bahir Dar Met, Bure, Gore, Gundomeskel, Limugenet, Majete, Sawula, Senkata, Sholagebaya, Tercha, and Yabelo respectively(Table 4.1.2). the daily extremer minimum values of September 2024 were as lower than ever recorded at 13 °C over Chifra station (Table 4.1.3).

Table 4.1.1. The extreme rainfall at the stations is Greater than and equal to ever recorded in 24 hours during September 2024.

Station Name	Previous record		New record	Date
Algie	58		60	4

Bati	72.5		78	17
Gundomeskel	71.2		86	29

Table 4.1.2. Stations with extreme maximum temperature greater than and equal to ever recorded values during September 2024.

Name	Previous Record	New Record	Date
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

Table 4.1.3. Stations extrema minimum temperature Less than and equal to ever recording 24 hours during September 2024

Station Name	Previous record	New record	Date
Chifra	15	13	9

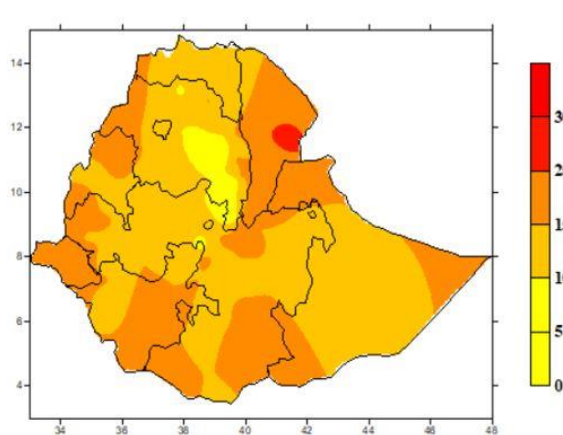


Fig. 3.1.1. Mean minimum temperature in °C during September 2024

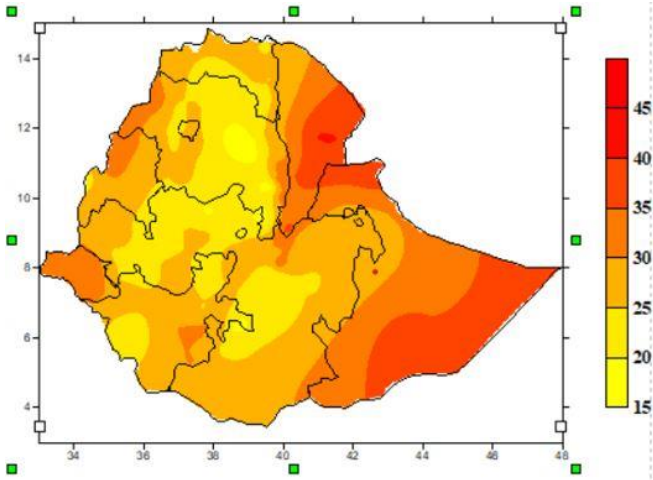


Fig. 3.1.2. Mean maximum temperature in °C during September 2024

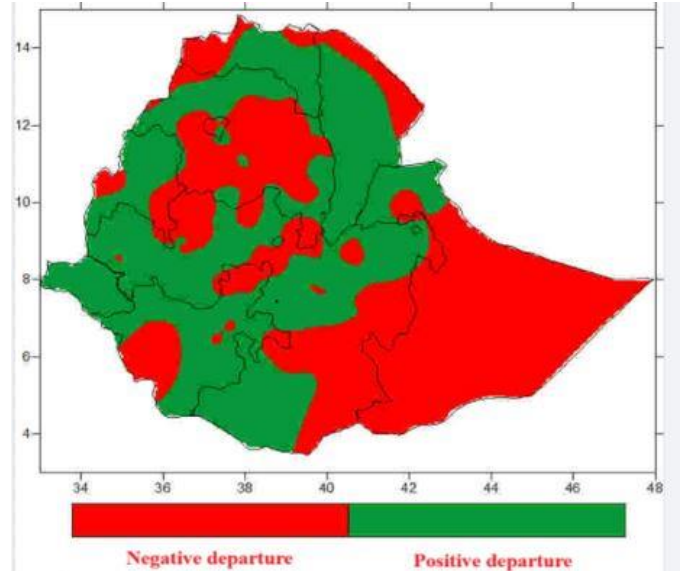


Fig.3.1.3. Departure of September 2024 Average temperature from September climatological normal temperature.

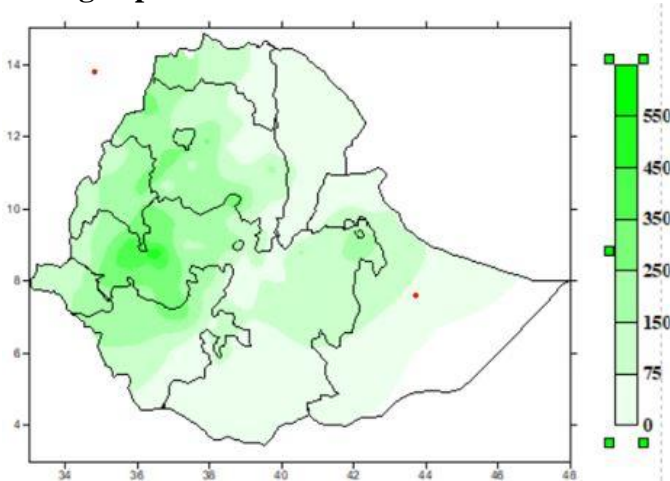


Fig.3.2.1. Monthly total rainfall in mm during. September 2024.

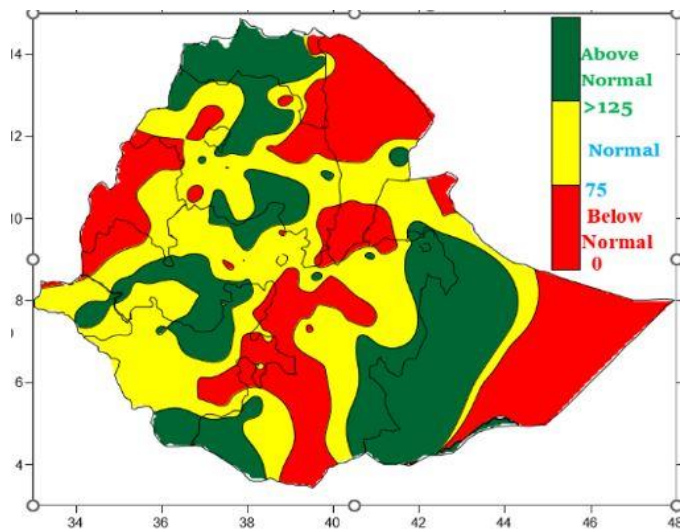


Fig. 3.2.2. Percent of normal rainfall during September 2024

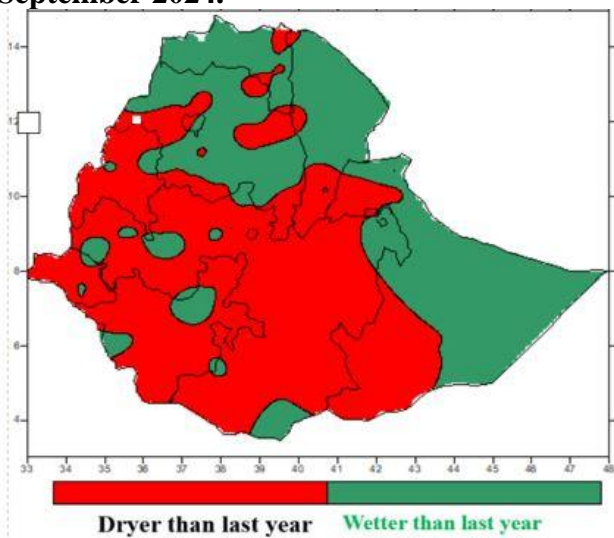


Fig. 3.2.3. Monthly total rainfall of September 2024 minus September rainfall 2023