

Some Applications of Climate Information



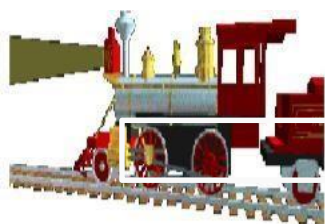
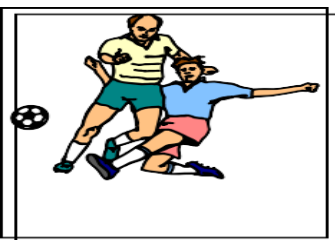
Disaster Management



Construction



Environment & Health



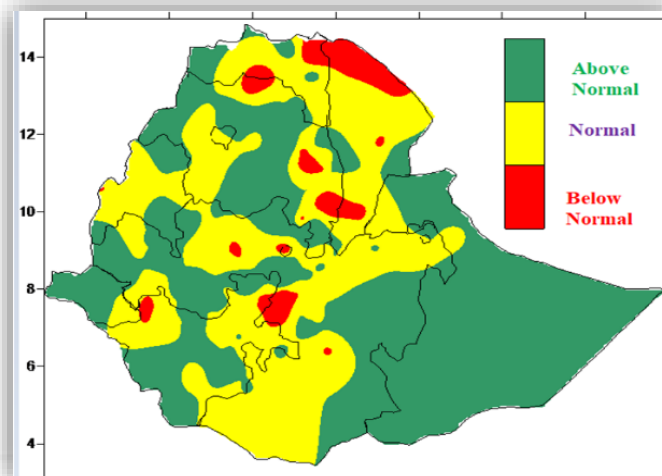
FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA MINISTRY OF WATER AND ENERGY NATIONAL METEOROLOGICAL AGENCY METEOROLOGICAL DATA AND CLIMATOLOGY DIRECTORATE SEASONAL CLIMATE BULLETIN BEGA 2023/24

HIGHLIGHTS

During Bega 2023/2024, The seasonal total rainfall amount of Bega 2024 was exceeded 350 mm over the western and eastern Oromia, central and Southwestern of SNNPRs Gambela central and southern Benishangul, and some tip areas of Somalia region. And below 350mm in most parts of Afar. Tigray, Amhara, central Oromia, and northern parts of Somalia region. In particular, the seasonal total rainfall exceeds 300mm Negele, Imdiber, Bedelle, Algie, Gidaayana, Dilla, Robe, Motta, Fugnuido, Aman, Gambella, Burji, Limugenet, Chira, Jinka, Bore, Jimma, Sawula, Arba, Minch, Gatira, Gimbi, Ginir, and Majji amounts, 350.7, 360.2, 365.5, 380.4, 384.7, 386.1, 386.7, 404.2, 412.9, 456.6, 457.9, 459.4, 464.7, 475.5, 483.4, 513.8, 563.6, 582, 654.7, 697.7, 707.6, and 745.7 respectively.

During Bega 2022/2023, Days Remained Hot Over North West, North East, West, And South East Parts of The Country (4.2.2). In particular, extreme maximum temperature values exceeded 40 0c over Semera., Gambella, Fugnuido, Elidar, Mille, and Semera. Gewane, Gode, Aysha, Elidar, Gode. And Gode with values of 40, 40, 40.5, 40.6, 41, 41.2, 41.6, 41.8 42, 42.8, 43, and 44 on table (4.1.1). On the other hand, Southern and North West Afar, Western and Southern Targets', Pocket areas of Southern and Western Amhara, and North Eastern Benishangul Gumuz Poket Are Of Oromia. Hence, the extreme minimum temperature values were as low as -1.5, -1.4, -1.2, 0.3, 0.3, 1.0, 1.0, 1.4, 1.4, 1.5, 1.6, 2.0, and 2 0oC over Mehalmeda, Alemaya. D/Brehan, Bui, Adet, Sholagebaya, Wegeltena, D/Brehan, Mehalmeda, Arise Robe, Wegeltena, Alemaya, and Adelle respectively.

In general, the seasonal rainfall amount of Bega 23/2024 was normal to Above normal over most parts of the country except over some pocket areas of Oromia, Amhara, and Tigray, and some parts of Afar. Bega 23/2024 was wetter than Bega 2022/23 over much of the country.



Percent of Normal Rainfall of Bega 2023/24

Foreword

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

The information contained in the 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 some 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 a success.

Director General
NMA
P.O.Box 1090
Tel 0115-51 22 99 / 0116-61 57 79
Fax 0115-51 70 66
E-mail nma1@ethionet.et
Addis Ababa



1. Introduction

1.1. General

This climate bulletin contains a summary of climatic conditions that prevailed over the country during Bega 2022/2023.

Bega is the small rain-benefiting season from **October to January 2024** for different parts of the country, including the highlands of northern and eastern Ethiopia. The climate of this season is mostly characterized by dry conditions and frost in the morning.

1.2. Summary of Bega 2023/2024

During Bega 2023/24, the seasonal total rainfall amount exceeds 350 mm over in most parts of Afar, Tigray, Amhara, central Oromia, and northern parts of Somalia region. In general, the seasonal total rainfall of Bega 23/2024 was relatively good over much of the Bega rain-benefiting areas. However, in most parts of Afar, Tigray, Amhara, central Oromia, and northern parts of Somalia region, had below-normal rainfall. Besides, Bega 22/2023 was wetter than Bega 2022/23 over much of the country.

2. Synoptic Situation

2.1. Surface

During October Bega 2023/2024 the Mascarene high with a mean central pressure value of above 1020hPa was centered at about 32°S, 96°E. and the next month of the season is November during this period, the mean central pressure value of above 1020hPa was centered at about 36°S, 99°E and the next month's mean central pressure value of above 1020hPa was centered at about 35°S, 60°E and finally the last month of Bega 2023/2024 a mean central pressure value of above 1020hPa was centered at about 40°S, 45°E.

During October Bega 2023/2024 St. Helena's high with a mean central pressure value of above 1020hPa was centered at about 38°S, 0°E. and the next month of the season is November during this period mean central pressure value of above 1020hPa was centered at about 27°S, 8°W and the next month's mean central pressure value of above 1020hPa was centered at about

33°S, 5°W and finally the last month of Bega 2023/2024 season a mean central pressure value of above 1020hPa was centered at about 32°S, 8°W.

During October Bega 2023/2024 The Azores' high with a mean central pressure value of 1016hPa was centered at about 22°N, 45°W, and the next month of the season is November during this period, the mean central pressure value of above 1020hPa was centered at about 35°N, 8°W and the next month's mean central pressure value of above 1020hPa was centered at about 30°N, 5°E and finally the last month of Bega 2023/2024 season a mean central pressure value of above 1020hPa was centered at about 31°N, 45°W.

2.2. Lower Troposphere (850 hPa vector wind)

during the beginning months of Bega, 23/2024 The cross-equatorial and easterly flow of below 4m/s was observed over the western Indian Ocean and easterly flow was dominant over the Arabian Peninsula, and next month Cross-equatorial and westerly flow of below 4m/s was flowing from the Arabian Peninsula to Africa continent. Then the month of December the northeasterly flow of below 4 - 12m/s was observed over the western Indian Ocean and easterly AND North easterly the flow was dominant over the Arabian Peninsula. Last month the northeasterly flow of below 4 - 8m/s was observed over the western Indian Ocean and easterly flow was dominant over the Arabian Peninsula.

3. 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.

During November 2023, sea surface temperatures (SSTs) remained well above average across the central and eastern equatorial Pacific. The latest monthly Niño indices were +2.2°C for the Niño 1+2 region, +1.9°C for the Niño 3.4

region and +2.1°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 Subsurface temperatures were 1-4°C above-average in the far eastern equatorial Pacific

During December 2023, sea surface temperatures (SSTs) remained well above average across the central and eastern equatorial Pacific. The latest monthly Niño indices were +1.4C for the Niño 1+2 region, +2.0C for the Niño 3.4 region, and +2.1°C for the Niño 3 region. The depth of the oceanic thermocline (measured by the depth of the 20C isotherm) was above average across the central and eastern equatorial Pacific. The corresponding sub-surface temperatures were 1-5C above average in the far eastern equatorial Pacific

During January 2024, sea surface temperatures (SSTs) remained well above average across the equatorial Pacific. The latest monthly Niño indices were +0.8°C for the Niño 1+2 region, +1.8°C for the Niño 3.4 region and +1.9°C for the Niño 3 region. The depth of the oceanic thermocline (measured by the depth of the 20°C isotherm) was above average in the eastern equatorial Pacific. The corresponding sub-surface temperatures were 1-5°C average in the far eastern equatorial Pacific

Reference: -NOAA, climate diagnostic bulletin

4. Weather

4.1. Temperature

During Bega 2022/2023, Days Remained Hot Over North West, North East, West, And South East Parts of The Country (4.2.2). In particular extreme maximum temperature values exceeded 40 oC over Semera., Gambella, Fugnuido, Elidar, Mille, and Semera. Gewane, Gode, Aysha, Elidar, Gode. And Gode with values of 40, 40, 40.5, 40.6, 41, 41.2, 41.6, 41.8 42, 42.8, 43, and 44 on the table (4.1.1). On the other hand, Southern and North West Afar, Western and Southern Targets', Pocket areas of Southern and Western Amhara, and North Eastern Benishangul Gumuz Poket Are of Oromia. Hence, the extreme minimum temperature values were as low as -1.5, -1.4, -1.2, 0.3, 0.3, 1.0, 1.0, 1.4, 1.4, 1.5, 1.6, 2.0, and 2.0 oC over Mehalmeda, Alemaya. D/Brehan, Bui, Adet, Sholagebaya, Wegeltena, D/Brehan, Mehalmeda,

Arise Robe, Wegeltena, Alemaya, and Adelle respectively.

Table 4.1.1 Stations with extreme maximum temperature values of greater than 40 °C. during Beg During Bega 2023/2024

Name	Month	Date	Amount
Semera	Dec	27	40
Gambella	Jan	25/30	40
Fugnuido	Jan	30	40.5
Elidar	Dec	23	40.6
Mille	Oct	7	41
Semera	Oct	1	41.2
Gewane	Oct	8	41.6
Gode	Oct	12	41.8
Aysha	Oct	1	42
Elidar	Nov	7	42.8
Gode	Jan	20	43
Gode	Dec	24	44

Table 4.1.2 Stations with extreme Minimum temperature values less than 2 °C. during Bega 2023/2024

St. Name	Extr.Tmin(°c)	Date	Month
Mehalmeda	-1.5	4	Jan
Alemaya	-1.4	21	Jan
D/Brehan	-1.2	4	Jan
Bui	0.3	5	Dec
Adet	0.3	2	Jan
Sholagebaya	1	18	Dec
Wegeltena	1	4	Jan
D/Brehan	1.4	29	Nov
Mehalmeda	1.4	27	Nov
Arise Robe	1.5	4	Jan
Wegeltena	1.6	30	Nov
Alemaya	2	5	Dec
Adelle	2	20	Jan

4.1 Rainfall

Normally Bega is a dry season for Kiremt-rain- benefiting areas of central, northwestern, and southwestern Ethiopia. The climate of this season is characterized by hot and dry days. The mean seasonal rainfall amount of this season is less than 300mm over much of the Bega-rain-benefiting areas. The seasonal total rainfall amount of Bega 23/2024 was exceeded 300mm over the western and eastern Oromia region, central and Southwestern of SNNPRs Gambela central and southern

Benishangul, and some tip areas of Somalia region. And below 300mm in most parts of Afar, Tigray, Amhara, central Oromia, and northern parts of Somalia region. In particular, the seasonal total rainfall exceeds 300mm Gondar A.P., Tercha, Masha, Wolaita Sodo, Negele, Imidiber, Bedelle, Algie, Gidaayana, Dilla, Robe, Motta, Fugnuido, Aman, Gambella, Burji, Limugenet, Chira, Jinka, Bore, Jimma, Sawula, Arba, Minch, Gatira, Gimbi, Ginir, and Majji amounts 302.9, 309.4, 315.8, 331, 333, 350.7, 360.2, 365.5, 380.4, 384.7, 386.1, 386.7, 404.2, 412.9, 456.6, 457.9, 459.4, 464.7, 475.5, 483.4, 513.8, 563.6, 582, 654.7, 697.7, 707.6, and 745.7 respectively.

In general, the seasonal rainfall amount of Bega 23/2024 was normal to Above normal over most parts of the country except over some pocket areas of Oromia, Amhara, and Tigray, and some parts of Afar. Bega 23/2024 was wetter than Bega 2022/23 over much of the country.

Table 4.2.1. Station(s) with more than or equal to 60mm of rainfall in 24 hours during Bega 2023/24

Name	Month	Date	Amount
Abobo	OCT	18	60
Fugnuido	OCT	10	60
Bure	OCT	27	62.5
Gimbi	NOV	11	63
Metehara (NMSA)	NOV	18	63.5
Alemaya	OCT	22	64
Gimbi	OCT	27	64.1
Aykel	OCT	25	65.7
Konso	NOV	7	68.8
Aleiya	OCT	31	69.5
Wolaita Sodo	OCT	24	69.7
Masha	OCT	27	70.2
Gidaayana	DEC	14	72
Limugenet	NOV	4	72
Limugenet	OCT	27	72.6
Ginir	OCT	12	75
Gambella	NOV	5	76.6
Ginir	NOV	2	80
Masha	NOV	18	80.6
Jinka	OCT	20	81.2
Bedelle	OCT	27	89

Bore	OCT	20	106
Arba Minch	OCT	19	106.7
Hageremariam	NOV	7	107.4

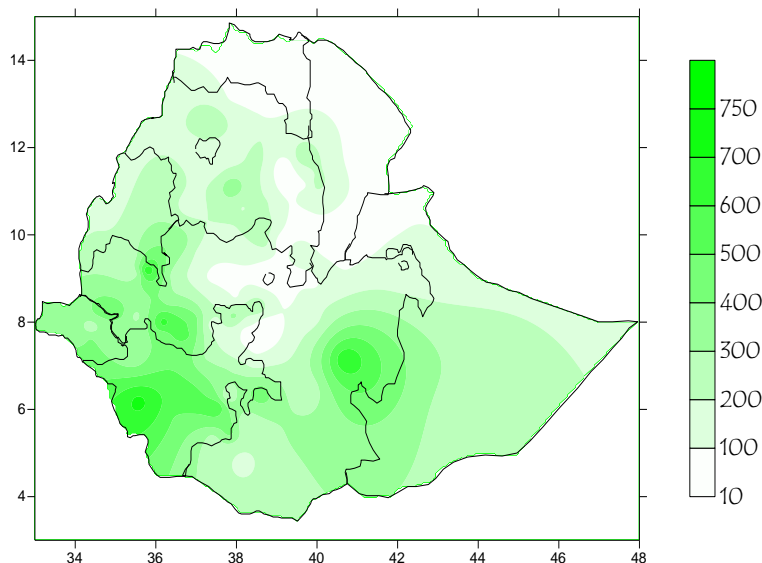


fig. 4.2.1. Seasonal Total Rainfall in mm during Bega23/2024.

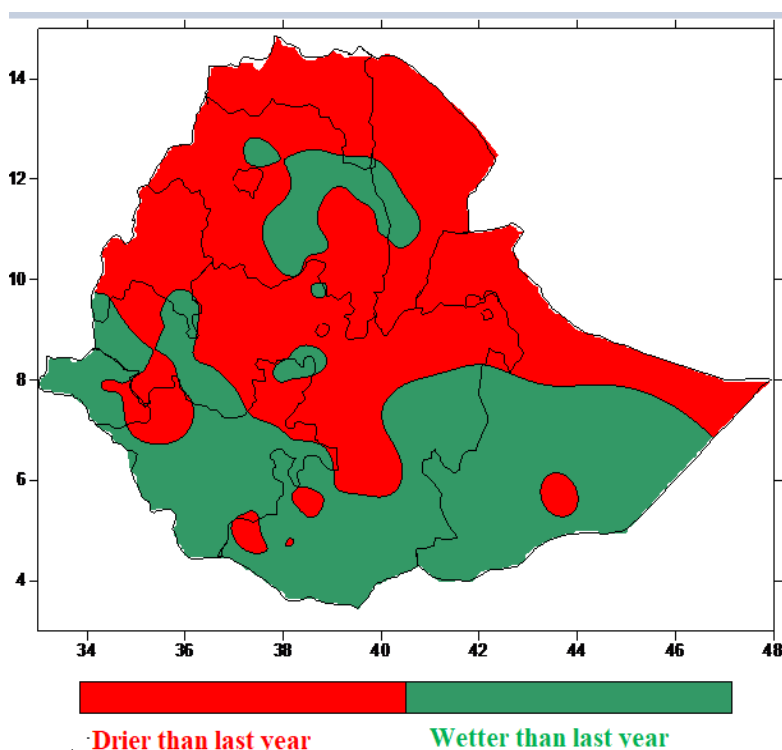


Fig 4.2.3 Seasonal total rainfall of Bega 23/2024 minus seasonal total rainfall of bega2223/2024

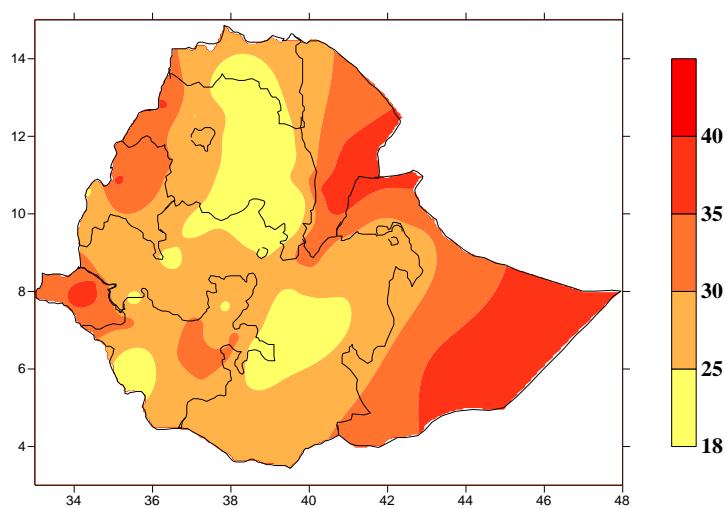
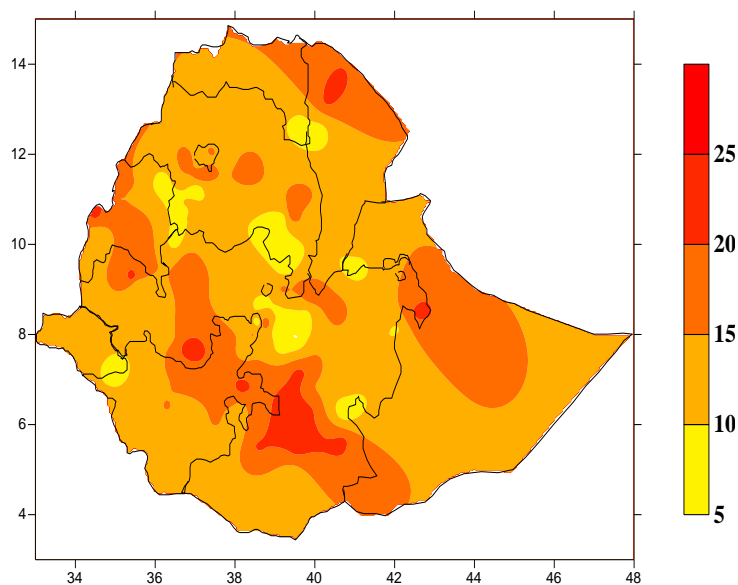


Fig. 4.2.2. Mean Maximum Temperature in °C during Bega 23/2024.



4.2.4 Minimum Temperature in °C During 23/2024

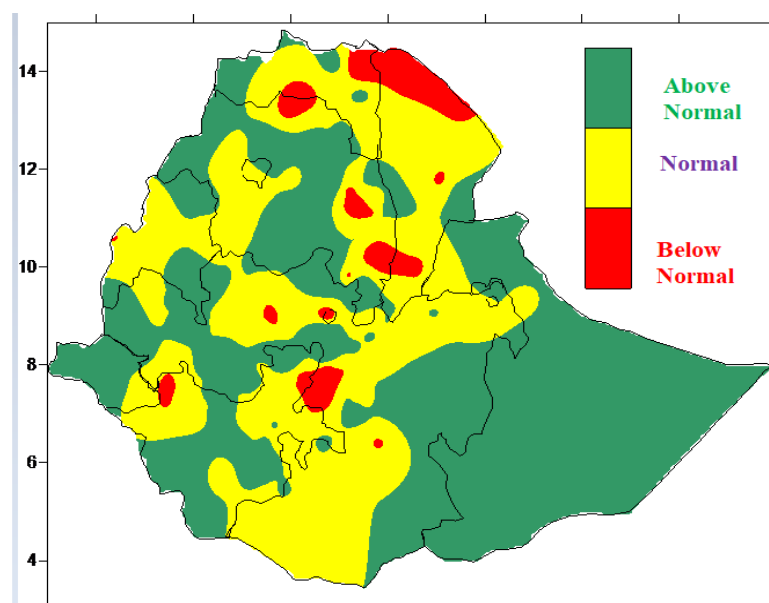


Figure. 4.2.5. Percent of Normal Rainfall of Bega 23/2024



