

# FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

## MINISTRY OF WATER AND ENERGY

### NATIONAL METEOROLOGICAL AGENCY

Meteorological Data and Climatology Directorate

## SEASONAL CLIMATE BULLETIN

Bega 2022/23

### Some Applications of Climate Information

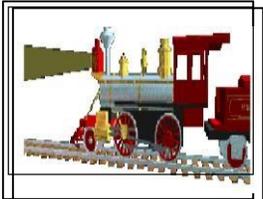
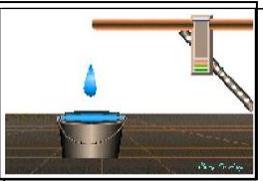
#### Disaster Management



#### Construction



#### Environment & Health

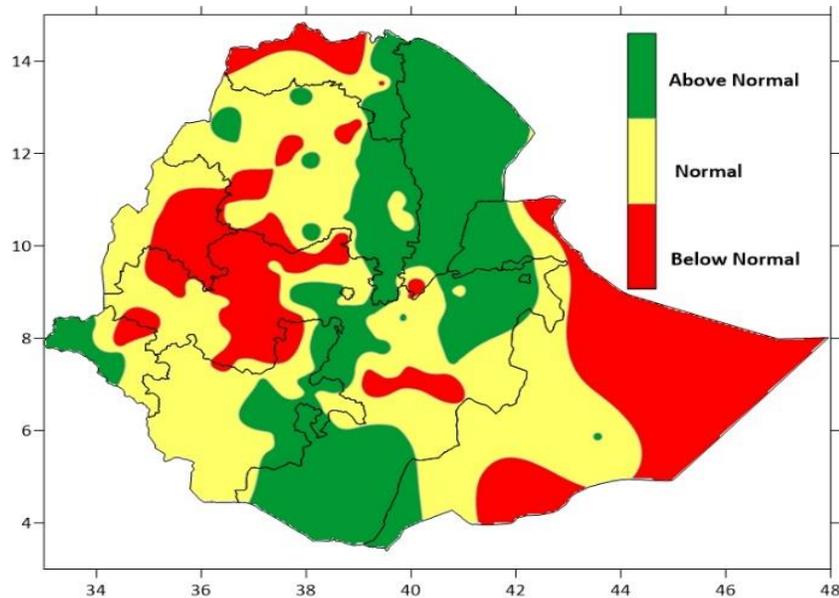


### HIGHLIGHTS

The seasonal total rainfall amount of Bega 22/2023 was exceeded 300mm over Benishangul gumuz, Southwestern of SNNPRs, Southwestern Gambela and some pocket Areas of western Oromia. In particular, the seasonal total rainfall exceeds 300mm over Abobo, Aman, Arjo, Bore, Jinka, Maji, Masha and Sawula with amount of 357.4, 487, 340.4, 435.3, 356, 325.4, 307.1, 340.7, 389.2, 483.6 and 411.6 respectively

During Bega 2022/2023, days remained hot over central and Western parts of the country (fig.4.1.1). In particular, extreme maximum temperature values exceeded 38°C Abobo, Fugnuido, Gode, Gambela, Aleiya, Metema, Elidar, Dubti and Kebridahar with values of 45, 41.8, 41, 40.8, 40.2, 40.2, 40, 39, and 38.8°C (Table 4.1.1). On the other hand, the highlands of Eastern Afar, western and central Oromia had cold nights and early mornings. Hence, the extreme minimum temperature values were as low as -4, -1.5, -1.4, -1.2, -0.8, -0.2 and 0°C over Adelle, Mehalmeda, Debre Birehan, Alemeya, Wegel Tena and Gelemso..

In general, the seasonal rainfall amount of Bega 22/2023 was normal to Above normal over most parts of the country except over some pocket areas of Oromia, Amhara, and Benishangul gumuz, most of Somale region. Bega 22/2023 was wetter than Bega 2021/22 over much of the country.



Percent of Normal Rainfall of Bega 2022/23



011 661 57 79



1090

Fax 011 551 70 66

E-mail [msa@ethionet.et](mailto:msa@ethionet.et)

Web: [www.ethiomet.gov.et](http://www.ethiomet.gov.et)

## 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](mailto:nma1@ethionet.et)  
Addis Ababa

## 1. Introduction

### 1.1. General

This climate bulletin contains summary of climatic conditions that prevailed over the country during Bega 2020/2021.

**Bega** is the small rain benefiting season from **October to January 2023** for different parts of the country, including the highlands of northern and eastern Ethiopia. The climate of the season is mostly characterized by dry conditions and frost in the morning.

### 1.2. Summary of Bega 2020/2021

During Bega 2020/21, the seasonal total rainfall amount exceeds 300mm over Eastern Afar, Southern Oromia, Southwestern Gambela and some pocket areas of Oromia. In general, the seasonal total rainfall of Bega 22/2023 was deficient over much of the Bega rain-benefiting areas. However, Afar, Northern Somali, west and some pocket areas of Amhara, Southern Oromia, Gambela, significant portion of Benishangul Gumuz and south and southwestern SNNPR had normal rainfall. Besides, Bega 22/2023 was drier than Bega 2019/19 over much of the country.

## 2.0 Synoptic Situation

### 2.1 Surface

The Mascarene high with a mean central pressure value of 1020hPa was centered at 30°S, 90°E. The central pressure value was normal. The St. Helena high with a mean central Pressure value of 1015hPa was centered at 30°S, 15°W. The central pressure value was normal.

The Azores high has a mean central pressure value of 1020hPa.

### 2.2 Lower Troposphere (850hpa vector wind)

Northwesterly flow of 1-4 m/s was dominant over Southern Arabian Sea and the adjoining areas of the Horn of Africa.

### 2.3 Middle Troposphere (500-hpa Geopotential Height)

The variation of geopotential height values were 10 to 20gpm over the central and eastern Africa.

### 2.4 Upper Troposphere (200 hpa vector wind)

The Easterly flow associated with the Sub Tropical Northerly flow had speed of the core 1-10m/s along 5° to 20°N latitude.

## 3. Tropical Oceanic and Atmospheric Highlights

During October 2020, sea surface temperatures (SSTs) remained below-average across the central and eastern equatorial Pacific. The latest monthly Niño indices were -1.2 °C for the Niño 1+2 region, -1.4°C for the Niño 3.4 region and -0.8 °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 much of the eastern equatorial Pacific.

The corresponding sub-surface temperatures were 1-6 °C below-average in the eastern equatorial Pacific.

During November 2020, sea surface temperatures (SSTs) remained below-average across the central and eastern equatorial Pacific. The latest monthly Niño indices were -0.7 °C for the Niño 1+2 region, -1.3 °C for the Niño 3.4 region and -0.7 °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 much of the eastern equatorial Pacific. The corresponding sub-surface temperatures were 1-5 °C below-average in the eastern equatorial Pacific.



During December 2020, sea surface temperatures (SSTs) remained below-average across the central and eastern equatorial Pacific. The latest monthly Niño indices were -0.7°C for the Niño 1+2 region, -1.0°C for the Niño 3.4 region and -0.8 °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 much of the eastern equatorial Pacific. The corresponding sub-surface temperatures were 1-4°C below-average in the eastern equatorial Pacific.

During January 2023 2023, sea surface temperatures (SSTs) remained below-average across the central and eastern equatorial Pacific. The latest monthly Niño indices were -0.8°C for the Niño 1+2 region, -1.1°C for the Niño 3.4 region and -1.2°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 1-3 °C below-average

**Reference:** Climate Diagnostics Bulletin 2020/2021.

## 4. Weather

### 4.1 Temperature

During Bega 2022/2023, days remained hot over central and Western parts of the country (fig. 4.1.1). In particular, extreme maximum temperature values exceeded 38°C Abobo, Fugnuido, Gode, Gambela, Aleiya, Metema, Elidar, Dubti and Kebridahar with values of 45, 41.8, 41, 40.8, 40.2, 40.2, 40, 39, and 38.8°C (Table 4.1.1). On the other hand, the highlands of Eastern Afar, western and central Oromia had cold nights and early mornings. Hence, the extreme minimum temperature values were as low as -4, -1.5, -1.4, -1.2, -0.8, -0.2 and 0°C over Adelle, Mehalmeda, Debre Birehan, Alemeya, Wegel Tena and Gelemso. (Table 4.1.2 and fig 4.1.2.).

**Table 4.1.1 Stations with extreme maximum temperature values of greater than 35°C during Bega 2020/2021**

Name	Extreme Tmax(°c)	Date	Month
ABOBO	45	31	Jan
FUGNUIDO	41.8	27	Jan
Gode	41	19	Jan
GAMBELLA	40.8	19	Jan
ALEIYA	40.2	30	Jan
METEMA	40.2	25	Jan
ELIDAR	40.04	13	Nov
DUBTI	39	9	Nov
Kibridahar	38.8	11	Jan
ELIDAR	38.6	3	Dec
METEMA	38.4	1	Dec
LARE	38.2	27	Jan
GAMBELLA	38.2	23	Dec
TSITSIKA	38	27	Dec

**Table 4.1.2 Stations with extreme Minimum temperature values less than 2°C during Bega 2020/2021**

St.Name	Extr.tmin(°c)	Date	Month
ADELLE	-4	4	December
MEHALMEDA	-1.5	4	January
ALEMAYA	-1.4	20	January
D/BREHAN	-1.2	4	January
D/BREHAN	-0.8	1	December
WEGELTENA	-0.2	5	December
Gelemso	0	3	January
ALEMAYA	0.2	2	December
ADET	0.3	2	January
Fiche	0.8	8	November
ALEMAYA	1	14	November
WEGELTENA	1	17	November
WEGELTENA	1	4	January
MEHALMEDA	1.2	3	November
ASSOSSA	1.4	29	December



## 4.2 Rainfall

Normally Bega is a dry season for Kiremt-rain-benefiting areas of central, north western and southwestern of 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 22/2023 was exceeded 300mm over Benishangul gumuz, Southwestern of SNNPRs, Southwestern Gambela and some pocket Areas of western Oromia. In particular, the seasonal total rainfall exceeds 300mm over Abobo, Aman, Arjo, Bore, Jinka, Maji, Masha and Sawula with amount of 357.4, 487, 340.4, 435.3, 356, 325.4, 307.1, 340.7, 389.2, 483.6 and 411.6 respectively

In general, the seasonal rainfall amount of Bega 22/2023 was normal to Above norma over most parts of the country except over some pocket areas of Oromia, Amhara, and Benishangul gumuz, most of Somale region. Bega 22/2023 was wetter than Bega 2021/22 over much of the country.

**Table 4.2.1. Station(s) with more than or equal to 30mm of rainfall in 24 hours during Bega 2020/21**

Name	amount	Date	Month
Gode	30.1	20	November
Ejaji	48	22	November
GIDAAAYANA	57.9	10	November
GINIR	48	9	November
KULUMSA	95.7	11	November
LIMUGENET	42	27	November
MASHA	56.7	27	November
MAJETE	45.2	10	November
Wolaita Sodo	30.2	9	November

Gore	35	8	December
JIMMA	37.1	15	December
Metehara (NMSA)	31	19	December
Abomsa	30.2	27	December
AIRA	30.6	29	December
GAMBELLA	40.9	4	December
GINIR	50	31	December
Jinka	33.5	9	December
KACHISE	46.8	27	December
MASHA	36.8	5	December
MAJETE	66.3	27	December
MAJJI	34.2	8	December
SAWULA	51.2	8	December



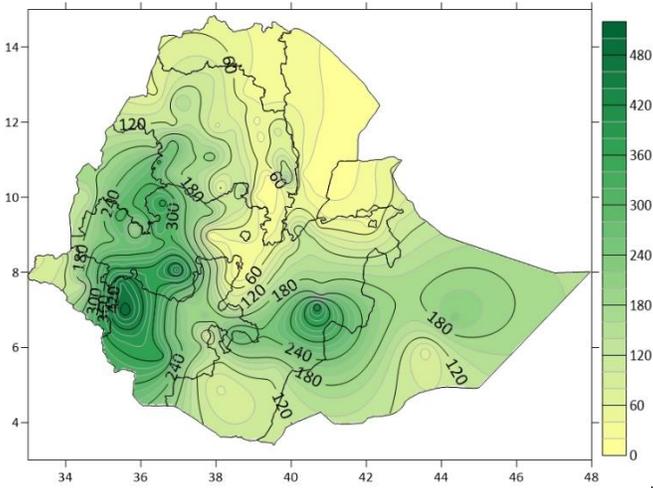


fig. 4.2.1. Seasonal Total Rainfall in mm during bega 2022/2023

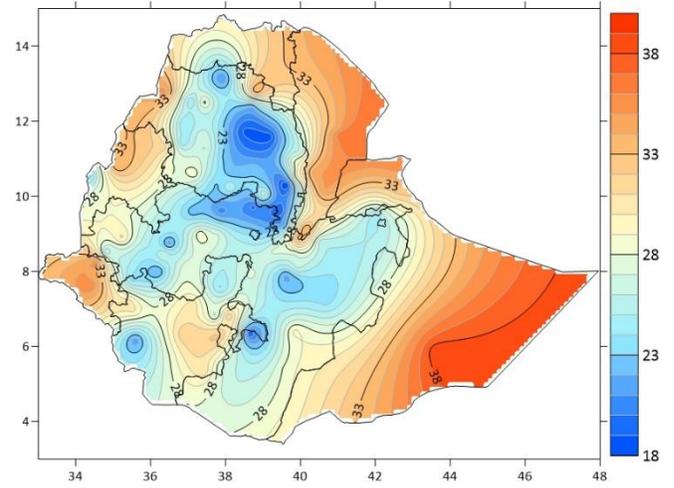


Fig. 4.2.2. Maximum Temperature in °C during bega 2022/2023

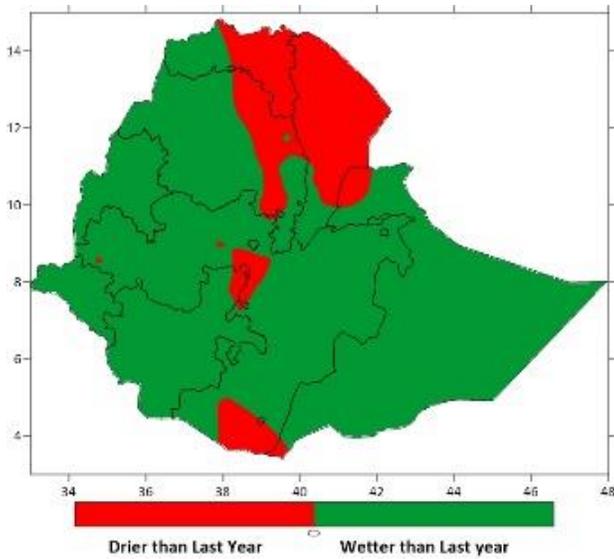
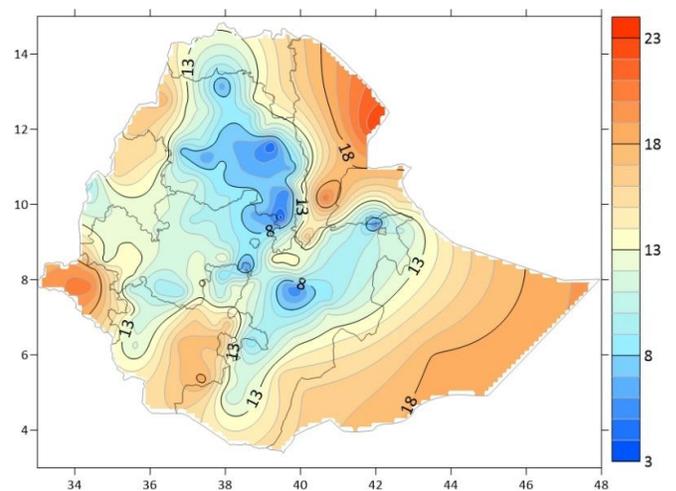


Fig 4.2.3 Seasonal total rainfall of Bega 22/2023minus seasonal total rainfall of bega



4.2.4 Minimum Temperature in 0c During 2022/2023

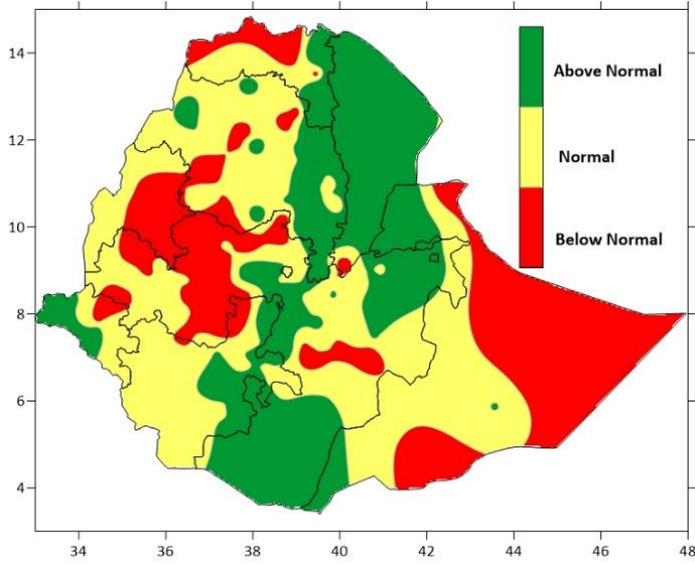


Figure. 4.2.5. Percent of Normal Rainfall of Bega 2022/23