

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

MINISTRY OF WATER AND ENERGY

NATIONAL METEOROLOGICAL AGENCY

Meteorological Data and Climatology Directorate

SEASONAL CLIMATE BULLETIN

Bega 2020/21

Some Applications of Climate Information

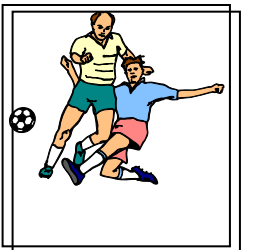
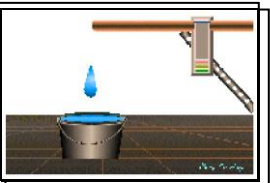
Disaster Management



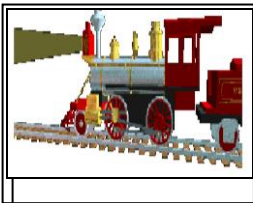
Construction



Environment & Health



Recreation & Tourism

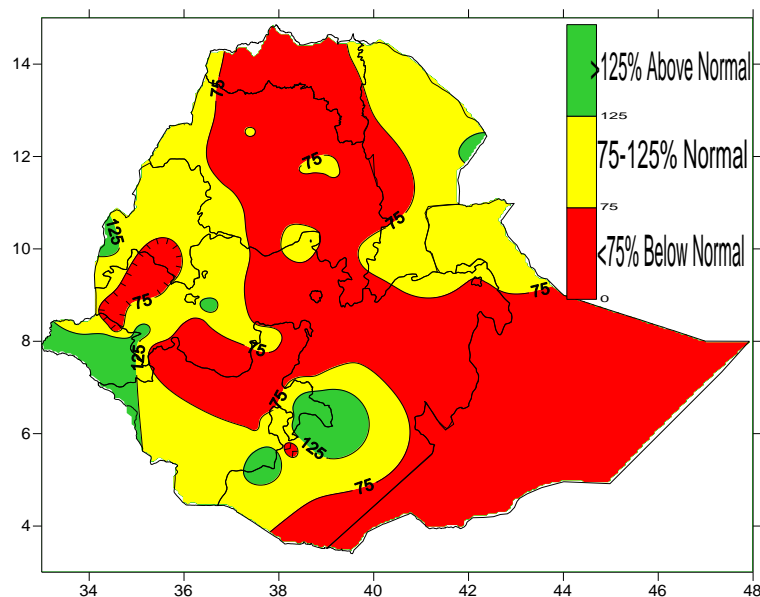


HIGHLIGHTS

The seasonal total rainfall amount of Bega 2020/2021 was exceeded 300mm over southeastern Oromia, Southern Gambela and pocket areas of Eastern Afar and Benishangul Gumuz. In particular, the seasonal total rainfall exceeds 300mm over Abobo, Aman, Arjo, Bore, Dilla, Gore, Hager Mariam, 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 this season, days remained hot almost over the Eastern, Central and Northwestern parts of the country. On the other hand, some pocket areas of Eastern Afar, Southern Oromia, Southwestern Benishangul Gumuz had cold nights and early mornings. Hence, the extreme minimum temperature values were as low as 1.4, -2, 0.8, -4.5, 1.6, 1.8, -4, 1.5, 1.7, 0, 0.2, 1, -1, 0.5, -1 and 0.5°C over Adet ,Alemeya, Amba mariyam, Bati, Burji, Chefa ,Debre birhan, Dilla, Gewane, Gidayana, Gore, Harer, Jijjiga, Majete, Mehalmeda and Sirinka respectively.

In general, the seasonal rainfall amount of Bega 2020/21 was below normal over most parts of the country, except Afar, Southern Oromia, Southwestern SNNPR, Most of Benishangul Gumuz and western Gambela had experienced normal to Above normal.



Percent of Normal Rainfall of Bega 2020/21

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.

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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** 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 2020/21 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 2020/21 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 $1-4^{\circ}\text{C}$ below-average in the eastern equatorial Pacific.

During January 2021, 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 $1-3^{\circ}\text{C}$ below-average

Reference: Climate Diagnostics Bulletin 2020/2021.

4. Weather

4.1 Temperature

During Bega 2021, days remained hot over central and Western parts of the country (fig. 4.1.1). In particular, extreme maximum temperature values exceeded 35°C Abobo, Arba minch, Awash arba, Bahir dar, Bilate, Combolcha, Dire Dawa, Gambela, Gondar, Jinka, Masha, Metema, Mile, Sawla, Semera, Sherkole and Sirba Abaya with values of $39.2, 39, 37.5, 38, 35.2, 36, 36, 40.2, 39, 37.5, 36.8, 39.2, 39, 36.4, 42, 39.3$ and 37.4°C on the 27th of December, 28th of November, 24th of October, 25th of January, 21st of January, 15th of December, 19th of December, 19th of January, 29th of November, 31st of December, 26th of January, 10th of December, 1st of October, 31st of January, 15th of October, 16th of December and 27th of January respectively (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 $-4.5, -4, -2, -1$ and 0°C over Bati, Debre Birehan, Alemeya, Jijjiga and Gidayana. (Table 4.1.2 and fig4.1.2.).

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

Name	Extreme Tmax($^{\circ}\text{C}$)	Date	Month
Abobo	39.2	27	December
Arba Minch	39	28	November
Awash Arba	37.5	24	October
Bahir Dar Met	38	25	January
Bilate	35.2	21	January
Combolcha	36	15	December
Dire Dawa	36	19	December
Gambela	40.2	19	January
Gondar A.P.	39	29	November
Jinka	37.5	31	December
Masha	36.8	26	January
Metema	39.2	10	December
Mille	39	1	October
Sawula	36.4	31	January
Semera	42	15	October
Sherkole	39.3	16	December
Sirba Abaya	37.4	27	January

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
Adet	1.4	9	November
Alemaya	-2	27	December
Ambamariam	0.8	22	November
Bati	-4.5	27	January
Burji	1.6	12	January
Chefa	1.8	27	January
D/Brehan	-4	16	December
Dilla	1.5	5	October
Gewane	1.7	27	January
Gidaayana	0	22	January
Gore	0.2	27	January
Harer	1	31	December
Jijiga	-1	15	December
Majete	1.5	10	January
Mehalmeda	-1	15	December
Sirinka	0.5	4	January

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
Algie	48	2	October
Aman	30.8	2	October
Dilla	33.7	18	October
Dollomena	45.6	10	November
Fugnido	63	7	November
Gidayana	35.7	30	November
Jinka	37.2	8	November
Jima	43.7	1	December
Masha	30.6	8	December
Gimbi	42	1	January
Tepi	30.6	3	January

Table 4.2.2. Station(s) with more than 300 mm of seasonal total Rainfall during Bega 2020/21

Name	Amount(mm)
Abobo	357.4
Aman	487
Arjo	340.4
Bore	435.3
Dilla	356
Gore	325.4
Hageremariam	307.1
Jinka	340.7
Majji	389.2
Masha	483.6
Sawula	411.6

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 2020/21 was exceeded 300mm over Eastern Afar, Southern Oromia, Southwestern Gambela and some pocket Areas of western Oromia.

In particular, the seasonal total rainfall exceeds 300mm over Abobo, Aman, Arjo, Bore, Dilla, Gore, Hageremariam, Jinka, Maji, Masha, 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 (Table 4.2.2).

In general, the seasonal rainfall amount of Bega 2020/21 was below normal over most parts of the country except over some pocket areas of Amhara, western and southwestern Oromia and South Eastern SNNPR. Bega 2020/21 was drier than Bega 2018/19 over much of the country.

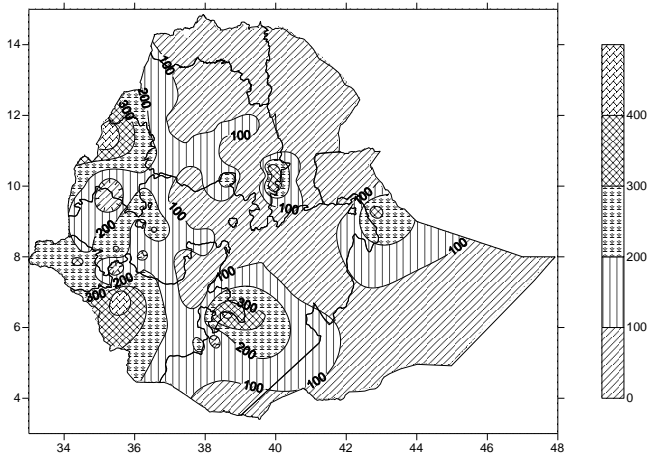


fig. 4.2.1. Seasonal Total Rainfall in mm during bega 2020/21

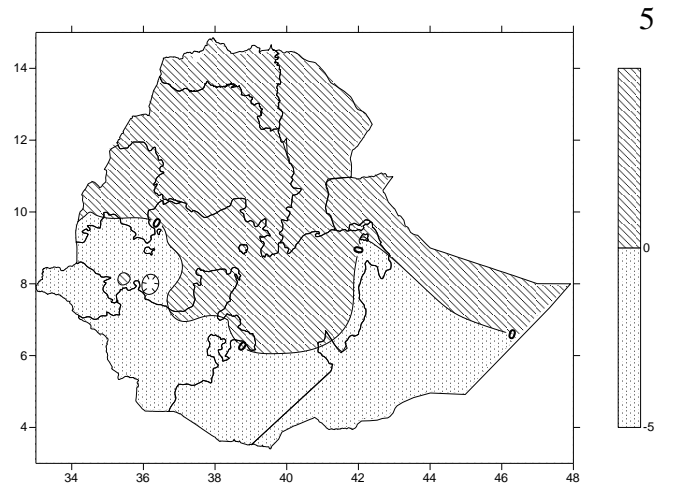


Fig 4.2.6 Seasonal temperature departure of of bega 2020/21

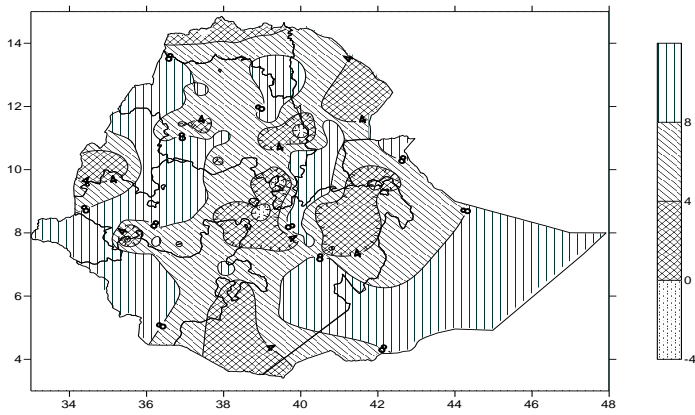


Fig. 4.2.2. Maximum Temperature in °C during bega 2020/2021

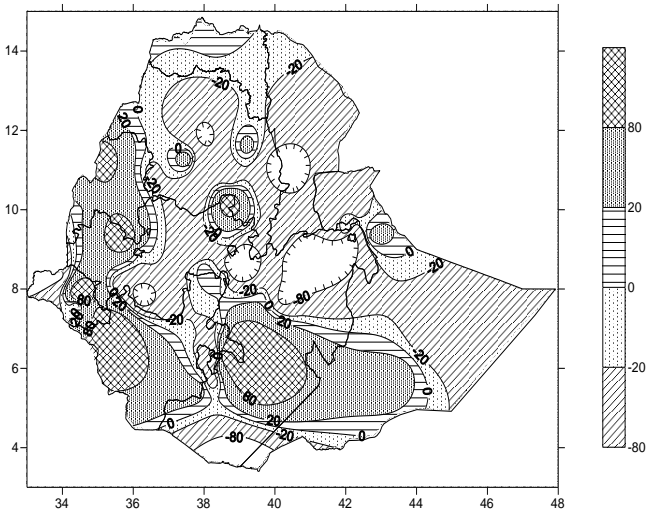


Fig 4.2.3 Seasonal total rainfall of Bega 2020/21 minus seasonal total rainfall of Bega

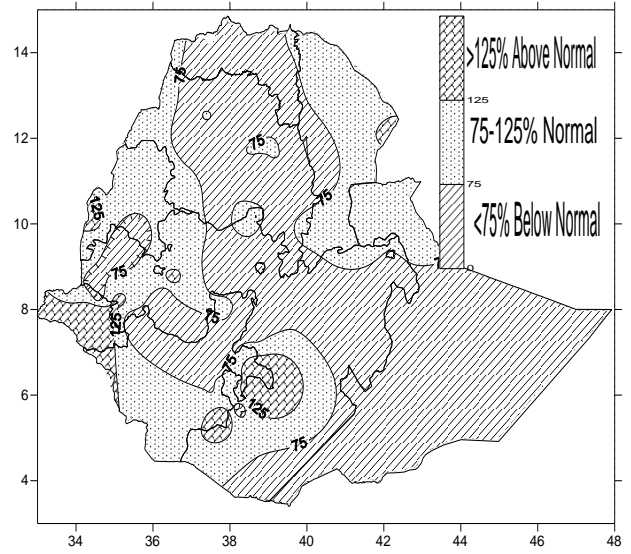
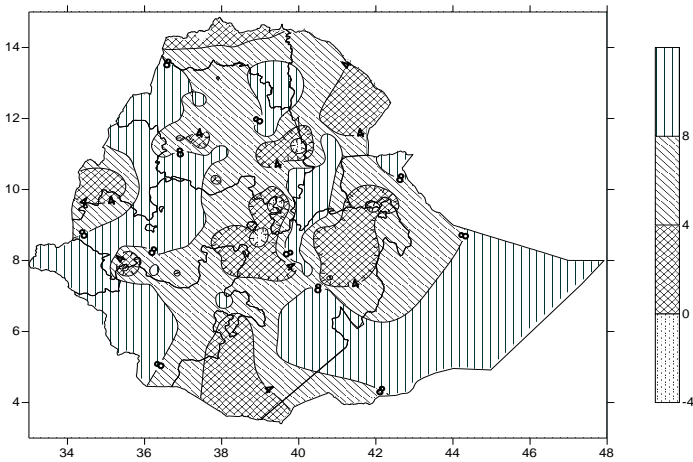


Figure. 4.2.5. Percent of Normal Rainfall of Bega 2020/21



Legend

- ✓ <75 show below normal
- ✓ 75-125 shows normal
- ✓ >125 is above normal

4.2.4 Minimum Temperature in ⁰c During 2020/2021