FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

MINISTRY OF WATER AND ENERGY

NATIONAL METEOROLOGICAL AGENCY

Meteorological Data and Climatology Directorate

SEASONAL CLIMATE BULLETIN

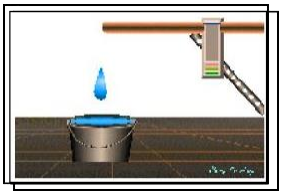
Kiremt 2021

Some Applications of Climate Information

Disaster Management

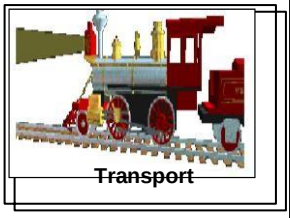
Construction

Environment & Health



Water Resources Management

Recreation & Tourism

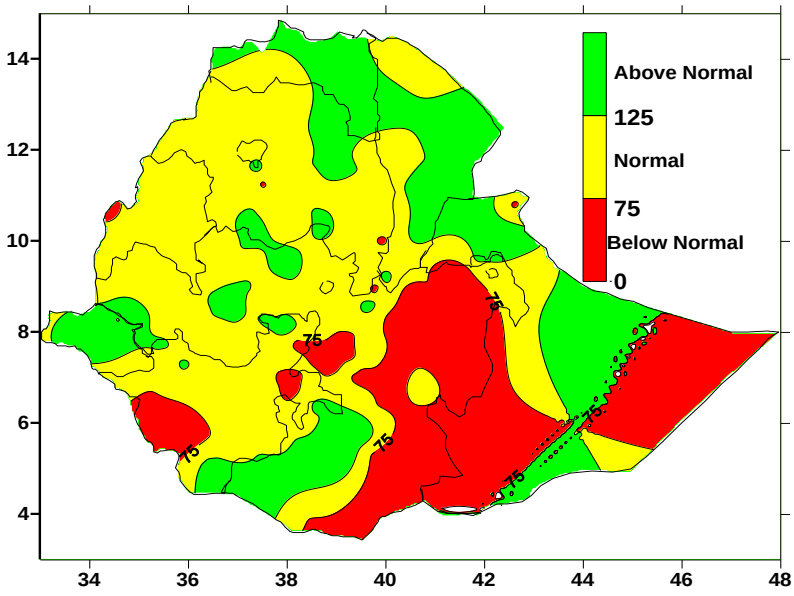


Transport

HIGHLIGHTS

The seasonal total rainfall amount of Kiremt 2021 was exceeded 600 mm over Benishangule, southern and most of Amhara region, western Tigray, western part of SNNPR as well as parts of western Oromia. In particular, the seasonal total rainfall exceeded 1300 mm over Arejo, Masha, Bahir Dar Met, Kachise, Nekemte, Dangla, Algie and Limugenet respectively. During kiremt 2021, days remained hot over South East and north eastern parts of Ethiopia (fig.4.2.3). In particular, extreme maximum temperature values exceeded 44.0oC over Extreme maximum temperature was recorded over Semera and Dalifagi 44.1 and 45oC on the 13th of June and 9th of June, respectively (table 4.1.1). Hence, the extreme minimum temperature values were as low as 1.2, 1.6, 1.8, 2.4 and 2.8°C D/tabor, Bore, D/berehan, Abobo and Arbaminch respectively.

In general, the seasonal rainfall amount of Kiremt 2021 was below normal over Eastern and southeast Oromia, some pocket area of SNNPRs, and South eastern parts of Somali regions. In the Tigray, most places of Afar, east parts Somali, most parts of Gambela, some parts of South Oromia are above normal, were as the rest of the country getting normal rainfall observed. Kiremt 2021 were drier than Kiremt 2020 over most parts of the country, except Weste Oromia, Gambela, Benishangulgumuz, Eastern and Western Amhara and Afar. The temperature anomaly was positively departed most parts of Afar, Somale, Tigray, SNNPR and Oromia, and some parts of north and southern parts of Amhara. The rest of the country had negative temperature anomaly.



Percent of Normal Rainfall of Kiremt 2021

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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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Addis Ababa

1. Introduction

1.1. General

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

Kiremt is the main rainy season that covers the period from **June** to **September**. The Kiremt rainfall covers most parts of the country with the exception of some part of south and southeast of Ethiopia. The climate of the season is mostly characterized by Cold and moist conditions. Generally, the rainfall of this season is very important for growing of Meher crops.

1.2. Summary of Kiremt 2020

The seasonal total rainfall amount of Kiremt 2021 was more than 600 mm over Benishangule, southern and western Amhara, Northern and western Tigray, western and northern SNNPR as well as parts of western and central Oromia (fig.4.2.1) and table 4.2.2. In general, the seasonal total rainfall of Kiremt 2021 was wet over much of the Kiremt rain-benefiting areas. However, most parts of the country were recorded Normal rainfall. Besides, Kiremt 2021 was drier than Kiremt 2020 over much of the country, except central and eastern Amhara, Northern Gambella, Central and eastern Oromia, northwestern SNPPR (fig.4.2.3).

2.0 Synoptic Situation

2.1 Surface

The Mascarene high with a mean central pressure value of 1020hPa. was centered at 30°S, 65°E. The central pressure value was below normal up to -1 hPa. The St. Helena high with a mean central Pressure value of 1020hPa was centered at 30°S, 20°W. The central pressure value was normal to above normal 0 to 1hPa.

The Azores high with a mean central pressure value of 1020hPa was centered at 40°N, 30°W. The central pressure value was normal to above normal 0hPa up to 2hPa.

2.2 Lower Troposphere (850hPa vector wind)

Westerly to southerly flow of wind from 4 -6 m/s was dominant over western and northern parts of the country whereas 6-12m/s wind south eastern parts of the country. The core wind TEJ exceeded 18m/s wester Indian Ocean.

2.3 *Middle Troposphere (500-hPa Geopotential Height*)

The variation of geopotential height valueswas 9 to 18gpm over Red Sea, Arabian Sea and Horn of Africa and adjoining areas.

2.4 Upper Troposphere (200 hPa vector wind)

The strong easterly flow associated with the Tropical easterly Jet had strengthened and speed of the core exceeded 20m/s along Arabian Sea

and 10 to 15m/s of wind was west to eastern parts of the country respectively.

3. Tropical Oceanic and Atmospheric Highlights

ENSO, La Nina Condition continued during June 2021, as negative sea surface temperature (SST) anomalies remained below average across the central and eastern equatorial Pacific Ocean. The latest monthly SST index was -1.0°C in the Niño-3.4 region.

La Nina conditions continued during July 2020, as negative sea surface temperature (SST) anomalies persisted the central and eastern equatorial Pacific Ocean. The monthly SST anomaly index was -1.2°C to -0.5°C in the Niño-3.4 region.

La Niña condition continued during August 2021, as negative sea surface temperature (SST) anomalies further persisted across the central and eastern equatorial Pacific Ocean. The monthly SST anomaly index was -1.0°C in the Niño-3.4 region.

During September 2021, La Niña conditions persisted across the equatorial Pacific Ocean. However, sea surface temperature (SST) anomalies in the central and eastern equatorial Pacific Ocean remained below average. The latest monthly SST index was -1.0°C in the Niño-3.4 region.

Reference: Climate Diagnostics Bulletin 2021.
NOAA/NCEP Composite analysis:
http://www.esrl.noaa.gov/psd/

4. Weather

4.1 Temperature

During kiremt 2021, days remained hot over South East and north eastern parts of Ethiopia (fig.4.2.3). In particular, extreme maximum temperature values exceeded 44.0^{o}C over Extreme maximum temperature was recorded over Semera and Dalifagi 44.1 and 45^{o}C on the 13th of June and 9th of June, respectively (table 4.1.1). Hence, the extreme minimum temperature values were as low as 1.2, 1.6, 1.8, 2.4 and 2.8°C D/tabor, Bore, D/berehan, Abobo and Arbaminch respectively. (Table 4.1.2 and fig 4.2.4.). The temperature anomaly were positively departed most parts of Afar, Somale, Tigray, SNNPR and Oromia, and some parts of north and southern parts of Amhara. The rest of the country had negative temperature anomaly (fig.4.2.5).

Table 4.1.1 Stations with extreme maximum temperature values of greater than or equal to 42.0^{o}C during Kiremt 2021.

Name	Extreme maximum temperature	Date	Month
Semera	45	9	**Jun**
Aysha	45	6	**Jul**
Dalifagi	44.1	13	**Jun**
Dubti	44	7	**Jun**
Mille	44	14	**Jun**
Elidar	44	9	**Aug**
Aysha	43.8	31	**Aug**

Table 4.1.2 Stations with extreme Minimum temperature values less than 2^{o}C during Kiremt 2021

Name	Extreme minimum temperature	Date	Month
D/tabor	1.2	22	Jun
Bore	1.6	19	Sep
D/brehan	1.8	28	Sep
Abobo	2.4	9	Aug
Ambamariam	2.8	13	Sep

4.2 Rainfall

Normally Kiremt is wet season for Kiremt- rain-benefiting areas of western, central, northwestern and southwestern Ethiopia.

The climate of this season is characterized by cold and wet days. The mean seasonal rainfall amount of this season exceeds 1000mm over much of the Kiremt-rain-benefiting areas with larger amount of rainfall occurring over western, Central and north western Ethiopia.

The seasonal total rainfall amount of Kiremt 2021 was exceeded 600 mm over Benishangule, southern and most of Amhara region, western Tigray, western part of SNNPR as well as parts of western Oromia. In particular, the seasonal total rainfall exceeded 1300 mm over Arejo, Masha, Bahir Dar Met, Kachise, Nekemte, Dangla, Algie and Limugenet respectively. (Table 4.2.1).

While heavy fall in 24 hours greater than 30mm, during Kiremt 2021 104.2, 103.5, 87.6 and 87mm over Nekemte, Ambamariam, Sholagebaya and Mekaneselam was reported on the 2nd June, 15th August, 24th July and 20th August 2021 (table 4.2.2).

In general, the seasonal rainfall amount of Kiremt 2021 was below normal over Eastern and southeast Oromia, some pocket area of SNNPRs, and South eastern parts of Somali regions. In the Tigray, most places of Afar, east parts Somali, most parts of Gambela, some parts of South Oromia are above normal, were as the rest of the country getting normal rainfall observed. Kiremt 2021 were drier than Kiremt 2020 over most parts of the country, except Weste Oromia, Gambela, Benishangulgumuz, Eastern and Western Amhara and Afar (fig.4.2.2).

Table 4.2.1. Station(s) with more than 1300 mm of seasonal total Rainfall during Kiremt 2021.

Name	***Amount(mm)***
Arejo	1783.2
Masha	1676.7
Bahir dar met	1605.1
Kachise	1577.4
Nekemte	1517.8
Dangla	1440.9
Algie	1342.3
Limugenet	1329.5

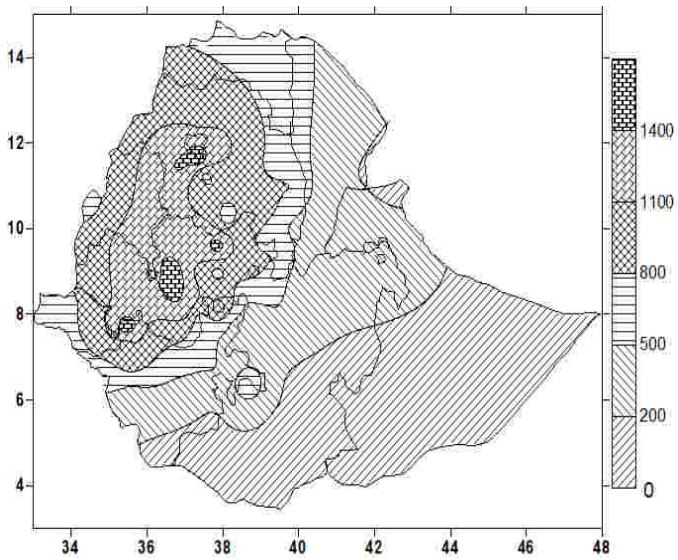

Fig .4.2.1 Seasonal total rainfall of Kiremt 2021

Table 4.2.2. Station(s) with more than or equal to 30mm of rainfall in 24 hours during kiremt 2021

Stations	***Amount***	***Date***	***Month***
Nekemte	104.2	2	Jun
Ambamariam	103.5	15	Aug
Sholagebaya	87.6	24	Jul
Mekanselam	87	20	Aug
Gambella	84.9	10	Aug
Nefasmewucha	83	31	Jul
Lalibela	82	10	Jul

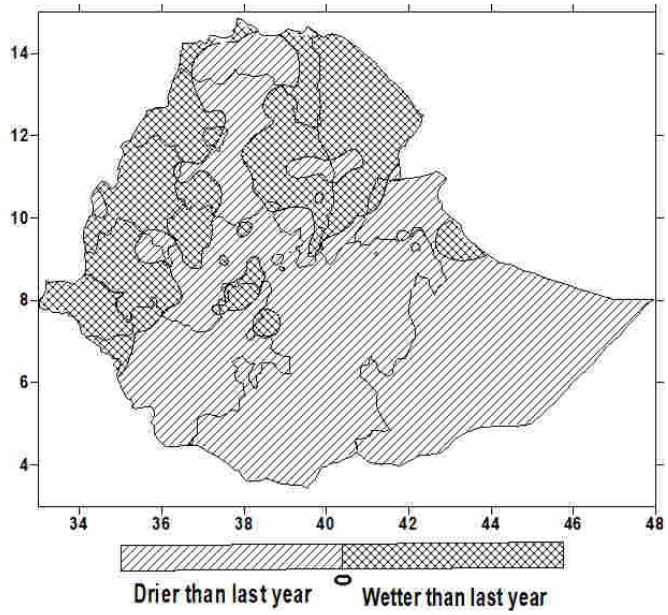

Fig .4.2.2 Seasonal total rainfall of Kiremt 2021 minus seasonal total rainfall Kiremt 2020

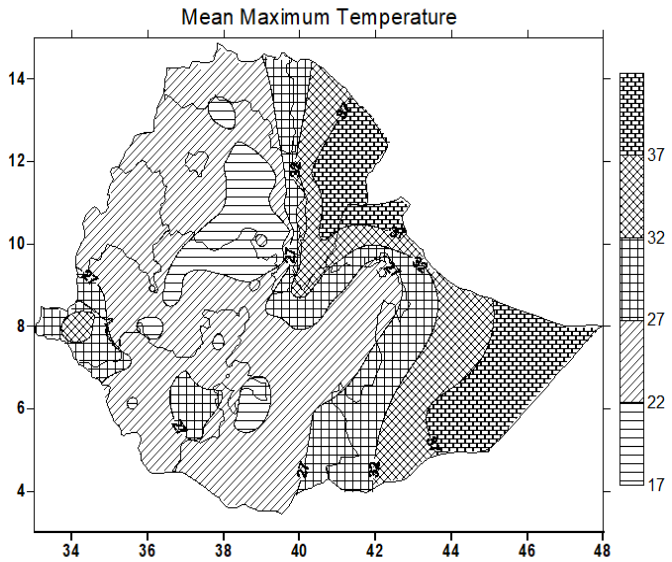

Fig. 4.2.3 Maximum Temperature in ^{o}C during kiremt 2021

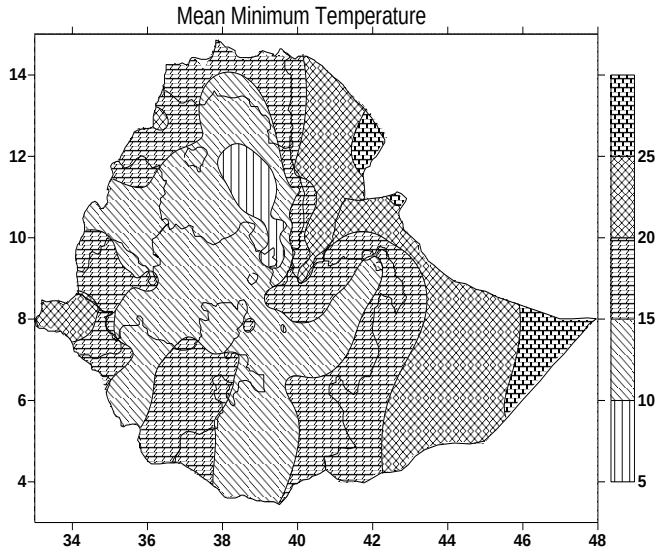

Fig. 4.2.4 Minimum Temperature in ^{o}C during Kiremt 2021

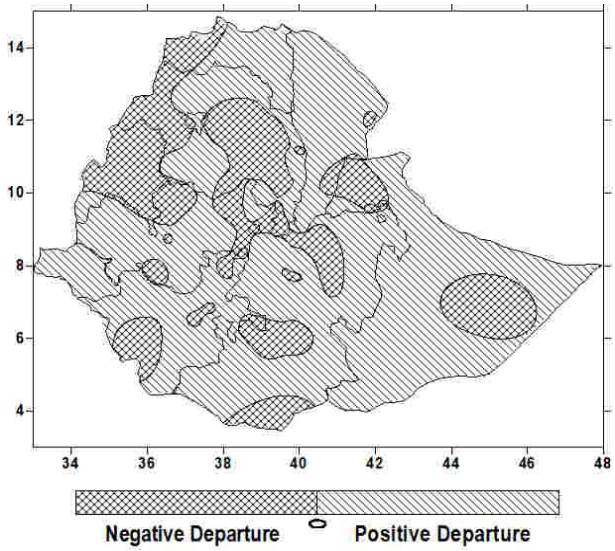

Fig. 4.2.5. Mean Temperature Anomaly current 2021 JJAS to the long-term mean

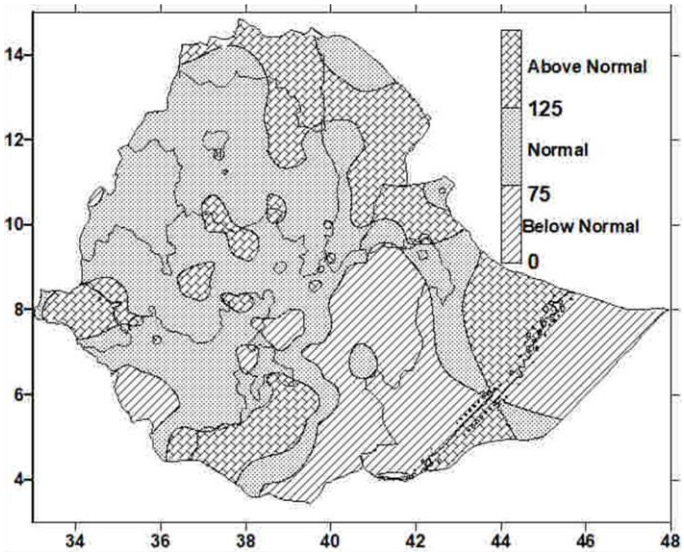

Fig. 4.2.6. Percent of Normal Rainfall of Kiremt 2021

Legend of Tercile probability

- ✓ ***0-75 shows below normal***
- ✓ ***75-125 shows normal***
- ✓ ***>125 shows above normal***