FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

ETHIOPIAN METEOROLOGICAL INSTITUTE

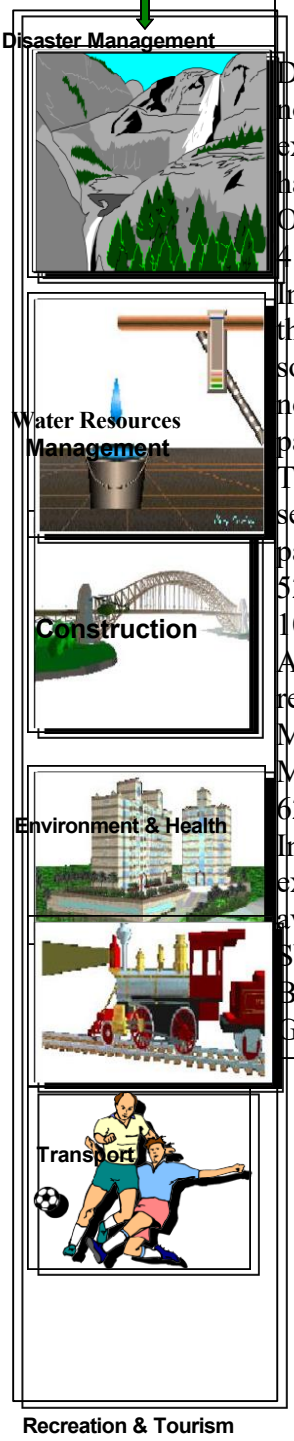
METEOROLOGICAL DATA AND CLIMATOLOGY LEAD EXECUTIVE

REMOTE SENSING AND CLIMATOLOGICAL DESK

SEASONAL CLIMATE BULLETIN

BELG 2025

Some Applications of Climate Information



HIGHLIGHTS

During Belg, on the other hand, the day remained hot over the lowlands of the northeastern, eastern, southeastern, and northwestern parts of the country, recording extreme maximum temperature values of more than 42 °C (Fig 3.1.2). On the other hand, the highlands of Eastern & central Amhara, Tigray Central, and Eastern Oromia, and some pocket areas of SNNP have days with minimum temperature below 4 °C (Fig. 3.1.1).

In General, the Belg 2025 mean monthly temperature values were partially cooler than normal in some parts of Tigray, north-east Afar, Oromia, western Amhara, southern and most parts of Benishangul, and Somalia. On the other hand, warmer than normal over most parts of Tigray, Afar, Oromia, Gambella, and SNNP, and some parts of the Somalia, Benishangul, and Tigray region (Fig. 3.1.3).

The Belg (February to May) season in Ethiopia is the second rainy season. Hence, the seasonal total rainfall exceeds 300mm over most parts of the country (Fig. 3.2.1).In particular, the seasonal total rainfall values of Belg 2025 were 509.1, 513.5, 515.5, 523.6, 538.0, 554.5, 577.5, 589.2, 611.1, 638.0, 640.9, 648.4, 781.5, 820.4, and 1043.6 mm at Sekoru, Jimma, Hageremariam, Sawula, Tercha, Majji, Dilla, Tepi, Aman, Chira, Hossaina, Jinka, Bore, Arejo, and Gatira stations are recording, respectively, (Table 3.2.2). The daily rainfall values at Masha. Dolomena, Hossaina, Moyale, Sekoru, Yabelo, Nekemte, Abomsa, Aira, Bilate Hageremariam, Jinka, Masha, and Sirinka stations were recorded as 60.4, 70.3, 63.8, 91.5, 79.2, 100, 62.5,88.7, 68.6, 67.8, 61.5, 81.3, 6, 5.9, and 70.2 mm, respectively (Table 3.2.1).

In general, some central, western, southern, and southwestern regions of the county experienced typical rainfall distribution percentages during Belg 2025. and above average throughout the southern and central regions of Oromia and the northern SNNP. Lastly, compared to the long-term average, much of the Amhara, Tigray, Bemishagul Gumuz, Somalia, and Afar, as well as certain sections of Oromia and Gambella, saw below-normal rainfall (Fig.3.2.3).

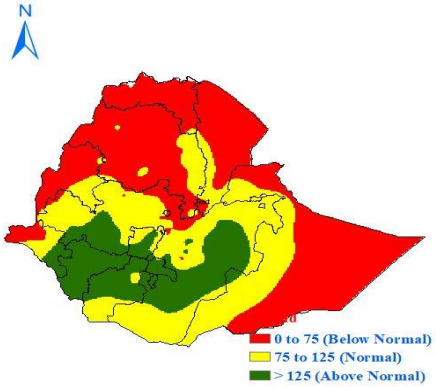


Fig. 3.2.2. Percent of normal rainfall during Belg 2025

Percent of normal rainfall of Belg 2025

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Foreword

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

The information contained in this bulletin is believed to assist planners, decision-makers, and the community at large by providing details of the climatic conditions of the nation in each 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 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 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 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 a success.

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1. Synoptic Situation

1.1 Surface

During February 2025, the Mascarene High, with a mean central pressure value above 1020 hPa, was centered at approximately 35°S, 95°E. In the next month of the season, March 2025, the mean central pressure value was above 1020hPa and was centered at about 38°S, 47°E. In the following month, the mean central pressure value was above 1020hPa. It was centered at about 35°S, 85°E, and finally the last month of Belg 2025, a mean central pressure value of above 1020hPa was centered at about 25°S, 25°E.

During February 2025, St. Helena's high with a mean central pressure value of above 1020hPa was centered at about 35°S, 95°E. In the next month of the season is March 2025, the mean central pressure was situated at about 35°S, 12°E and in the following next month' the mean central pressure value of above 1020hPa was centered at about 35°S, 5°E and finally, during the last month of the Belg 2025 the mean central pressure value of above 1020hPa was centered at about 28°S, 8°E.

During February 2025, the Azores' high with a mean central pressure value of 1010hPa was centered at about 35°N, 5°W, and in the next month of the season March 2025 the mean central pressure value of above 1020hPa was centered at about 30°N, 40° and in the next month' the mean central pressure value of above 1020hPa was centered at about 25°N, 5°E and finally in the last month of Belg 2025 the mean central pressure value of above 1020hPa was centered at about 38°N, 20°W.

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1.2 Lower Troposphere (850 hPa vector wind)

During the first month of Belg, 2025, the cross-equatorial and easterly flow of below 0 to 12m/s was observed over the western Indian Ocean, and easterly flow was dominant over the Arabian

Peninsula. In the next month, the cross-equatorial and westerly flow of below 0 to 12m/s was flowing from the Arabian Peninsula to the African continent. Then in the month of April, the northeasterly flow of below 0 – 8 m/s was observed over the western Indian Ocean, and easterly and northeasterly flows were dominant over the Arabian Peninsula. In the last month, Belg season the northeasterly flow of below 0 – 12 m/s was observed over the western Indian Ocean, and easterly flow was dominant over the Arabian Peninsula.

1.3 Middle Troposphere (500-hPa Geo-Geopotential height)

During February 2025, the variation in geopotential height values ranged from 3 to 15 gpm over central and eastern Africa. In March 2025, geopotential height values ranged from -9 to 12 gpm. In April 2025, geopotential height values ranged from -3 to -12. As the last month of the season, the variation in geopotential height values was 0 to -6 gpm over central and eastern Africa.

1.4. Upper Troposphere (200 hPa vector wind)

During February 2025, the easterly flow associated with the Subtropical Northerly flow had a core speed of 0-15 m/s along 0 to 5°N latitude. In March 2025, it remained the same as the previous month. In December 2025, the easterly flow associated with the same was measured at speeds of 0-15 m/s along 0 to 10°N. May 2025 marks the end of the season, with an easterly flow associated with the Subtropical Northerly flow having a core speed of 0-10 m/s along 0 to 10°N latitude.

2. Tropical Oceanic and Atmospheric Highlights

In February 2025, sea surface temperatures (SSTs) were below average across the central and east-central equatorial Pacific and above average in the far eastern equatorial Pacific. The latest monthly Niño indices were +0.7°C for the Niño 1+2 region, -0.4°C for the Niño 3.4 region, and -0.6°C for the Niño 4 region (Table T2). The depth of the oceanic thermocline (measured by the depth of the 20°C isotherm) was below average across the east-central and eastern equatorial Pacific. The corresponding sub-surface temperatures were 1-5°C below average in most of the eastern equatorial Pacific.

In March 2025, sea surface temperatures (SSTs) were below average in the central and east-central equatorial Pacific, while above average in the western and far eastern parts of the equatorial Pacific. The latest monthly Niño indices were +1.2°C for the Niño 1+2 region, +0.1°C for the Niño 3.4 region, and -0.4°C for the Niño 4 region. The depth of the oceanic thermocline (measured by the depth of the 20°C isotherm) was below average in the central and east-central equatorial Pacific. Corresponding sub-surface temperatures were 1-2°C below average in the central equatorial Pacific.

In April 2025, sea surface temperatures (SSTs) were near average across much of the equatorial Pacific. The most recent monthly Niño indices were +0.6°C for the Niño 1+2 region, -0.2°C for the Niño 3.4 region, and -0.2°C for the Niño 4 region. The depth of the oceanic thermocline, measured by the depth of the 20°C isotherm, was slightly below average across the central and east-central equatorial Pacific.

In May 2025, sea surface temperatures (SSTs) were near average across much of the equatorial Pacific. The latest monthly Niño indices were +0.2°C for the Niño 1+2 region and 0.0°C for both the Niño 3.4 region and the Niño 4 region. The depth of the oceanic thermocline (measured by the depth of the 20°C isotherm) was slightly below average across the east-central equatorial Pacific.

Reference: Climate Diagnostic Bulletin of Belg (February to May) 2025
(http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/index.html)

3. Weather

3.1 Temperature

During Belg, on the other hand, the day remained hot over the lowlands of the northeastern, eastern, southeastern, and northwestern parts of the country, recording extreme maximum temperature values of more than 42 °C (Fig 3.1.2). Specifically, the extreme maximum temperature values were as high as 43.5, 42, 42.4, 44, 42.2, 43.5, 42.2, 44, 42.8, 42.2, 44, 43.8, 42.6, 42.8, 42, 42.5, 44.8, 43, and 46.2 at Fugnuido, Gambella, Gode, Lare, Metema, Fugnuido, Gambella, Lare, Metema, Metehara (NMSA), Fugnuido, Gambella, Gewane, Metema, Awash Arba, Aysha, Gewane, Metema, and Semera stations in Feb, Feb, Feb, Feb, Feb, Mar, MarMar, Mar, Apr, Apr, Apr, Apr, Apr, May, May, May, May, and May at the date of 24th, 17/28th, 21st, 19th, 15th, 11th, 3rd, 21st, 31st, 12th, 23rd, 1, 27th, 23rd, 22nd, 20th, 27th, 2nd, and 27th. .

On the other hand, the highlands of Eastern & central Amhara, Tigray Central, and Eastern Oromia, and some pocket areas of SNNP have days with minimum temperature below 4 °C (Fig. 3.1.1). Specifically, days with minimum temperature values of less than 4.0 °C were reported at Alemaya, Ambamariam, Arise Robe, Bati, Bui, Debrezeit (Af), Jijiga, Jimma, Mehalmeda, Sholagebaya, Wegeltena, Wereilu, D/Brehan, D/Brehan, and Ambamariam stations' values were as high as 1.6, 3.6, 2, 3.4, 3, 0.5, 0.1, 4, 2, 1.2, 3, 3, 3.2, 3.6, and 4 °C in Feb, Feb, Feb, Feb, Feb, Feb, Feb, Feb, Feb, Feb, Feb, Mar, Apr, and May at the dates 5th,

24th, 6th, 6th, 4th, 6th, 5th, 26th, 6th, 4th. 5th, 5th, 14th, 2nd, and 17th (Table 3.1.2).

In General, the Belg 2025 mean monthly temperature values were partially cooler than normal in some parts of Tigray, north-east Afar, Oromia, western Amhara, southern and most parts of Benishangul, and Somalia. On the other hand, warmer than normal over most parts of Tigray, Afar, Oromia, Gambella, and SNNP, and some parts of the Somalia, Benishangul, and Tigray region (Fig. 3.1.3).

Table 3.1.1: Stations with extreme maximum temperatures exceeding 42°C during Belg 2025.

Name	Month	Date	Amount
Fugnuido	Feb-25	24	43.5
Gambella	Feb-25	17/28	42
Gode	Feb-25	21	42.4
Lare	Feb-25	19	44
Metema	Feb-25	15	42.2
Fugnuido	Mar-25	11	43.5
Gambella	Mar-25	3	42.2
Lare	Mar-25	21	44
Metema	Mar-25	31	42.8
Metehara (NMSA)	Apr-25	12	42.2
Fugnuido	Apr-25	23	44
Gambella	Apr-25	1	43.8
Gewane	Apr-25	27	42.6
Metema	Apr-25	23	42.8
Awash Arba	May-25	22	42
Aysha	May-25	20	42.5
Gewane	May-25	27	44.8
Metema	May-25	2	43
Semera	May-25	27	46.2

Table 3.1.2: Stations with extreme minimum temperatures of 4 °C or lower during Belg 2025.

St. Name	Month	Date	Extr. Tmin (°C)
Alemaya	Feb-25	5	1.6
Ambamariam	Feb-25	24	3.6
Arise Robe	Feb-25	6	2
Bati	Feb-25	6	3.4
Bui	Feb-25	4	3
Debrezeit(Af)	Feb-25	6	0.5
Jijiga	Feb-25	5	0.1
Jimma	Feb-25	26	4
Mehalmeda	Feb-25	6	2
Sholagebaya	Feb-25	4	1.2
Wegeltena	Feb-25	5	3
Wereilu	Feb-25	5	3
D/Brehan	Mar-25	14	3.2
D/Brehan	Apr-25	2	3.6
Ambamariam	May-25	17	4

3.2. Rainfall

The Belg (February to May) season in Ethiopia is the second rainy season. Hence, the seasonal total rainfall exceeds 300mm over most parts of the country (Fig. 3.2.1).In particular, the seasonal total rainfall values of Belg 2025 were 509.1, 513.5, 515.5, 523.6, 538.0, 554.5, 577.5, 589.2, 611.1, 638.0, 640.9, 648.4, 781.5, 820.4, and 1043.6 mm at Sekoru, Jimma, Hageremariam, Sawula, Tercha, Majji, Dilla, Tepi, Aman, Chira, Hossaina, Jinka, Bore, Arejo, and Gatira stations are recording, respectively, (Table 3.2.2). The daily rainfall values at Masha. Dolomena, Hossaina, Moyale, Sekoru, Yabelo, Nekemte, Abomsa, Aira, Bilate, Hageremariam, Jinka, Masha, and Sirinka stations were recorded as 60.4, 70.3, 63.8, 91.5, 79.2, 100, 62.5, 88.7, 68.6, 67.8, 61.5, 81.3, 65.9, and 70.2 mm, respectively (Table 3.2.1).

The rainfall distribution during Belg 2025 was drier than the previous year 2024 over most parts of Afar, and SNNP, and some parts of Oromia, Gambella, and some pocket areas of Amhara and Benishangul and Somalia region and wetter than the last Belg 2024 over most of Tigray, Amhara Gambella and Somalia region and some parts of Afar and SNNP (Fig. 3.2.2).

In general, some central, western, southern, and southwestern regions of the county experienced typical rainfall distribution percentages during Belg 2025. and above average throughout the southern and central regions of Oromia and the northern SNNP. Lastly, compared to the long-term average, much of the Amhara, Tigray, Bemishagul Gumuz, Somalia, and Afar, as well as certain sections of Oromia and Gambella, saw below-normal rainfall (Fig.3.2.3).

Table 3.2.1. Stations with at least 400 mm of total rainfall during Belg 2025.

Name	Amount
Sekoru	509.1
Jimma	513.5
Hageremariam	515.5
Sawula	523.6
Tercha	538.0
Majji	554.5
Dilla	577.5
Tepi	589.2
Aman	611.1
Chira	638.0
Hossaina	640.9
Jinka	648.4
Bore	781.5
Arejo	820.4
Gatira	1043.6

Table 3.2.2. Station(s) with 60 mm or more of rainfall in 24 hours during Belg 2025.

Name	Month	Date	Amount
Masha	Mar-25	31	60.4
Dolomena	Apr-25	29	70.3
Hossaina	Apr-25	12	63.8
Moyale	Apr-25	13	91.5
Sekoru	Apr-25	29	79.2
Yabelo	Apr-25	16	100
Nekemte	May-25	26	62.5
Abomsa	May-25	6	88.7
Aira	May-25	31	68.6
Bilate	May-25	6	67.8
Hageremariam	May-25	13	61.5
Jinka	May-25	21	81.3
Masha	May-25	31	65.9
Sirinka	May-25	5	70.2

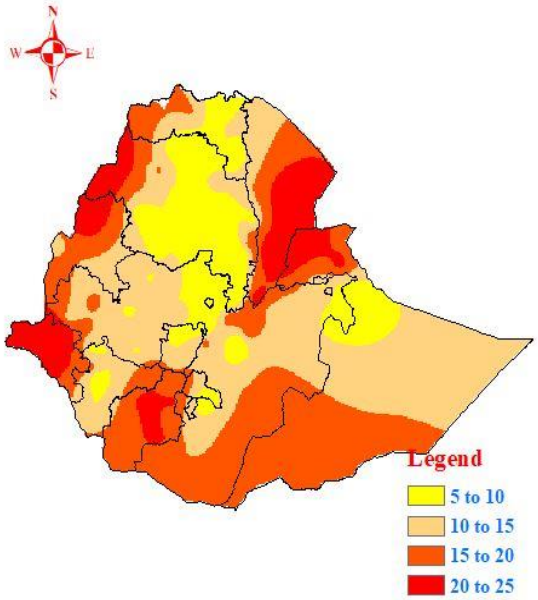
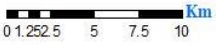


Fig. 3.1.1. Mean Minimum Temperature in oC During Belg 2025



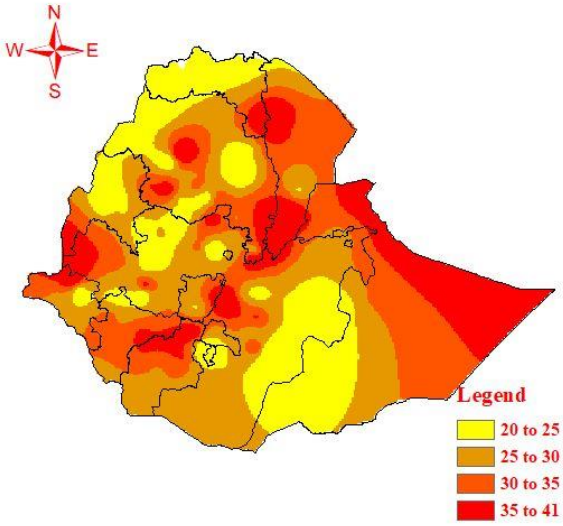


Fig. 3.1.1. Mean Maximum Temperature in oC During Belg 2025.

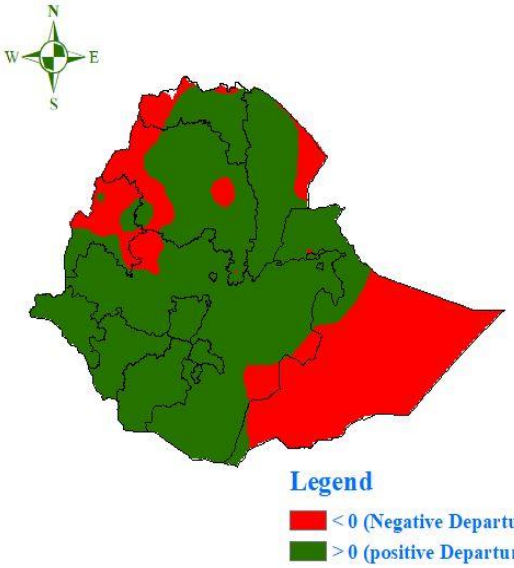


Fig.3.1.3. Departure of seasonal Average Temperature from Normal During Belg 2025

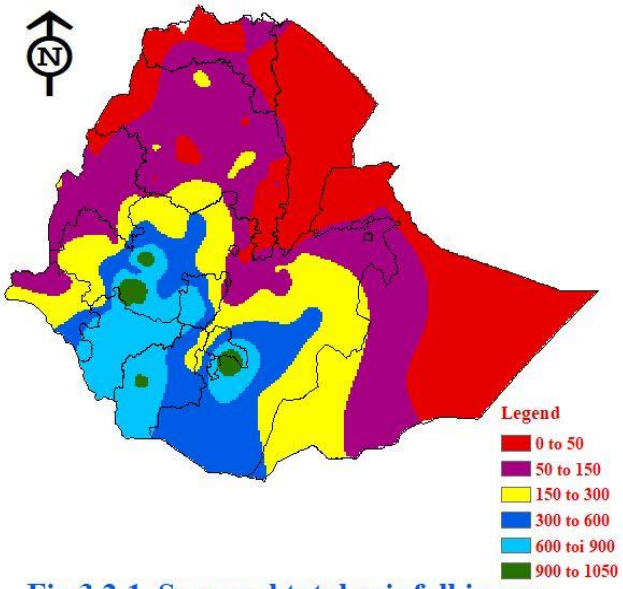
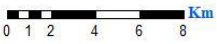


Fig.3.2.1. Seasonal total rainfall in mm during Belg 2024/2025



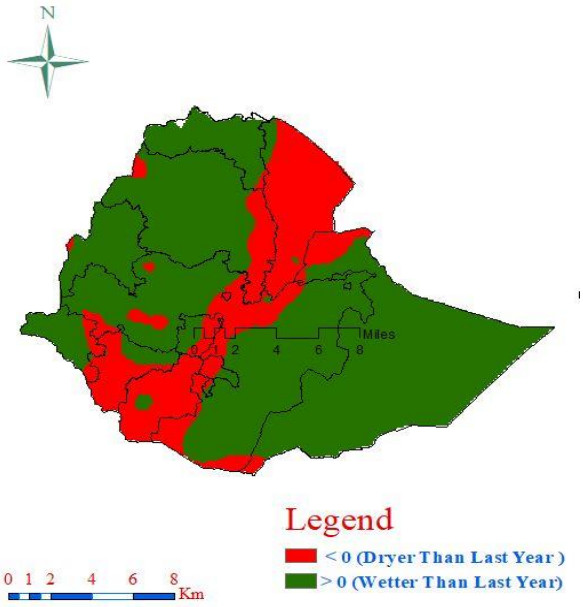


Fig. 3.2.3. Seasonal total rainfall of Belg 2025 minus Seasonal total rainfall of 2024

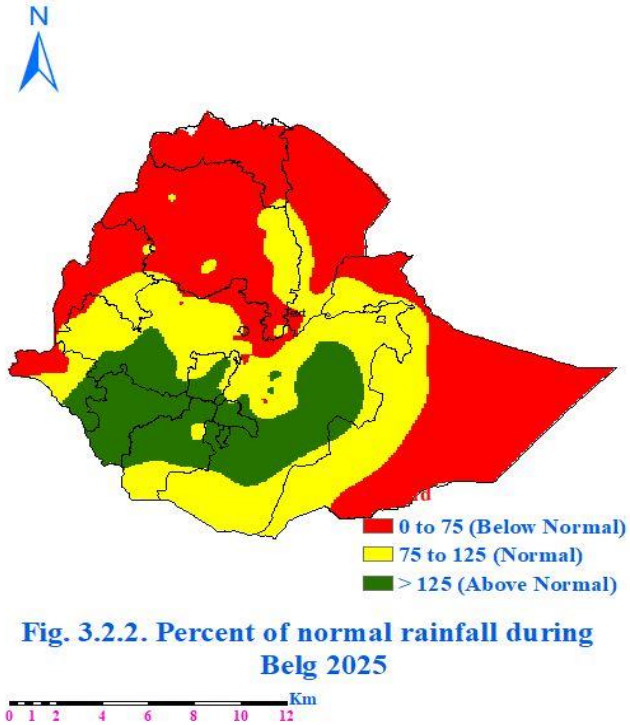


Fig. 3.2.2. Percent of normal rainfall during Belg 2025