

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF WATER AND ENERGY
Ethiopian Meteorological Institute
DATA AND CLIMATOLOGY LEAD EXECUTIVE

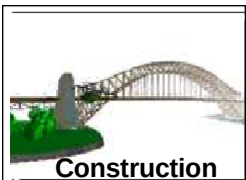
**Some Applications of
Climate Information**



Disaster Management



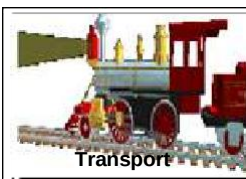
**Water Resources
Management**



Construction



Environment & Health



Transport



Recreation & Tourism

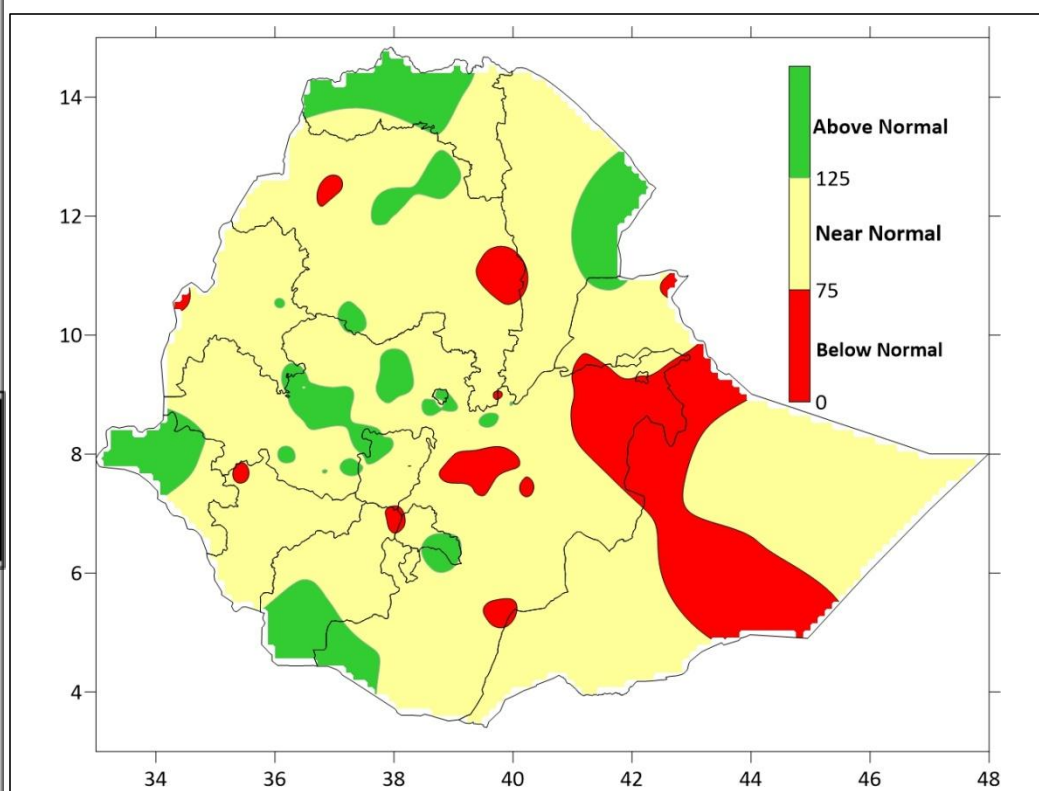
**ANNUAL CLIMATE BULLETIN
For the year 2025**

HIGHLIGHTS

Apart from some small area in Somali, the rainfall activity was normal to above normal over the other areas for the year 2025. Most of Tigray, small portion of Afar, some central parts of Oromia, pocket areas of Amhara, much of South Ethiopia and Gambela, had recorded above normal rainfall. The rest of the country experienced near normal rainfall.

The Belg and Kiremt seasons of the year 2025 were the season with higher values of extreme maximum temperature. Days remained hot at some low land places and the extreme maximum temperature values had exceeded 42°C. some stations reported extreme maximum temperature in excess of 42°C.

On the other hand, nights and early mornings were cold over the highlands of Ethiopia. Mostly, during the dry season (Bega) and in Belg and Kiremt at some places. In connection with this, minimum temperature values, below 2°C were recorded over Debrezeit, Jimma, Alemaya, Bui, D/brehan, Jijiga, Mehalmeda, Shola Gebeya and Wegeltena .



Percent of Normal Rainfall of the year 2025

Foreword

This climate bulletin is prepared and disseminated by Ethiopian Meteorological Institute (EMI). It is aimed at providing climatological information to different services of the community involved in various socio-economic activities and giving some highlights about major synoptic situations.

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 Institute, 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 Institute 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

In this bulletin the annual climate summary of the country for the year 2025 is presented. For convenience the climate summary of the year is done on seasonal basis.

From meteorological point of view, there are three seasons in Ethiopia; **Belg**, **Kiremt** and **Bega**.

Belg is a short rainy period from **February to May** over much of the Belg-growing areas, whereas over the southwestern parts of the country it denotes the start of the long rainy season. Over the western parts of the country as well the rainy season starts during March/April. However over the northwestern parts of the country, this season is predominantly dry except for the month of May. Southern and southeastern parts of the country are expected to get their long rainy season during this time starting in March and peaking in April. The climate of the season is mostly hot and moist.

Kiremt is the period from **June to September**. It is the main rainy season in which the major food crops of the country are produced. The magnitude of rainfall is higher as compared to the other seasons for many parts of the country. Normally, the southern and the southeastern lowlands of the country receive little or no rain during this season, except for little amount of rainfall that occurs towards the end of the season.

Bega is the period from **October to January**. It is a harvesting season for various parts of Ethiopia. **Bega** is normally a dry season characterized by cool nights and early mornings over the highlands of northern, northeastern, central and eastern Ethiopia and by hot days over various parts of the country. It is also a short rainy season for places over southern, southeastern and southwestern parts of the country. Depending on the influences from mid-latitude rain-bearing systems, some places over central, northern and northeastern Ethiopia also receive occasional showers.

1.2 Summary

Apart from some small area in Somali, the rainfall activity was normal to above normal over the other areas for the year 2025. Most of Tigray, small portion of Afar, some central parts of Oromia, pocket areas of Amhara, much of South Ethiopia and Gambela, had recorded above normal rainfall. The rest of the country experienced near normal rainfall.

The Belg and Kiremt seasons of the year 2025 were the season with higher values of extreme maximum temperature. Days remained hot at some low land places and the extreme maximum temperature values had exceeded 42°C. some stations under Table 3.1.1 reported extreme maximum temperature in excess of 42°C.

On the other hand, nights and early mornings were cold over the highlands of Ethiopia. Mostly, during the dry season (Bega) and in Belg and Kiremt at some places. In connection with this, minimum temperature values, below 20°C were recorded over Debrezeit, Jimma, Alemaya, Bui, D/brehan, Jijiga, Mehalmeda, Shola Gebeya and Wegeltena (Table 3.1.2).

2. Synoptic Situation

2.1 Surface

- The mean central pressure value of the Mascarene High was approximately 1024 hPa and it was centered between 25°S to 35°S latitudes and 45°E to 105°E longitudes.
- The mean central pressure value of the Azores High was approximately 1020 hPa to 1024 hPa and it was centered between 25°N to 40°N latitudes and 15°W to 45°W longitudes.
- The mean central pressure value of the St. Helena High was approximately 1020 hPa to 1024 hPa and it was centered between 25°S to 38°S latitudes and 10°W to 30°W longitudes.

2.2 Lower Troposphere (850 hPa Vector Wind)

In the year 2025, the wind at 850 hPa shifts its direction from southwesterly in January to northeasterly & southeasterly during *Kiremt* and finally to northwesterly in December. In terms of speed the lowest observed speed is less than 4 m/s and the highest is 20 m/s. The lowest occurred in June, July, October and November and the highest in January and December.

2.3 Middle Troposphere (500 hPa Geopotential Height)

The geopotential heights were above normal to near normal over Mediterranean and red Sea, Indian Ocean in January to December. Below-average heights over southern latitudes and above-average heights over the middle latitudes recorded in Northern Pacific Ocean . Anomalous above-average heights over Greenland, extending across Russia and Canada, and below-average heights over the North Atlantic Ocean in northern Canada and northern Antarctic .

2.4 Upper Troposphere (200 hPa wind vector)

The upper-level westerly flow associated with the tropical westerly jet weakened and strong equatorial easterly wind 10 - 12.5 m/s were dominate in most part of the east Africa. On the other hand, the southwesterly and westerly wind associated with the subtropical northwesterly jet, had dominated over the year, in December and the *Belg* season; while the upper level easterly flow associated with the tropical easterly jet weakened. Westerly wind with a speed of 15m/s -30m/s observed along the 15°N parallel in Belg season.

2.5 ENSO conditions

Weak El Niño prevailed and the oceanic and sub-surface oceanic conditions across the central and eastern equatorial Pacific were above-average in January, February and March. Near average sea surface temperature began to appear in April and continued for the rest of the month. In April, May, June, July, August, September, October, November and December the SST anomalies over Niño 3.4 region were 0.2, 0.0, 0.0, -0.1, -0.3, 0.4, -0.5, 0.7, and -0.6°C respectively.

Reference: January to December 2025 Climate Diagnostics Bulletins.

(https://www.cpc.ncep.noaa.gov/products/CDB/CDB_Archive_pdf/pdf_CDB_archive.shtml)

3. Weather

3.1 Temperature

The *Belg* and *Kiremt* seasons of the year 2025 were the season with higher values of extreme maximum temperature. Days remained hot at some low land places and the extreme maximum temperature values had exceeded 42°C. In particular, listed station under Table 3.1.1 reported extreme maximum temperature in excess of 42°C.

On the other hand, nights and early mornings were cold over the highlands of Ethiopia mostly during the dry season (*Bega*) and in *Belg* and *Kiremt* at some places. In connection with this, minimum temperature values below 2°C were recorded over Debrezeit, Alemaya, Bui, D/brehan, Jijiga, Mehalmeda, Shola Gebeya and Wegeltena (Table 3.1.2).

Table 3.1.1 Annual Extreme Maximum Temperature Values in excess of 42°C in the year 2025

Station Name	Maximum Temperature	Month	Date
Semera	46.2	May	27
Elidar	45.8	Aug	10
Gewane	44.8	May	27
Fugnuido	44.0	Apr	23
Lare	44.0	Feb	19
Gambella	43.8	Apr	1
Metema	43.0	May	2
Awash Arba	42.5	Jul	1
Aysha	42.5	May	20
Gode	42.4	Feb	22
Metehara (NMSA)	42.2	Apr	12

Table 3.1.2 Annual Extreme Minimum Temperature Values less than 2°C during the year 2025

Stations	Extreme minimum temperature	Month	Date
D/Brehan	-2.0	Jan	1
Wegeltena	-1.0	Jan	1
Alemaya	-0.4	Jan	20/21
Sholagebaya	0.0	Nov	20
Jijiga	0.1	Feb	5
Bui	0.2	Nov	23/24
Mehalmeda	0.5	Jan	20
Debrezeit	0.5	Feb	6

3.2. Rainfall

Apart from some small area in Somali, the rainfall activity was normal to above normal over the other areas for the year 2025. Most of Tigray, small portion of Afar, some central parts of Oromia, pocket areas of Amhara, much of South Ethiopia and Gambela had recorded above normal rainfall. The rest of the country experienced near normal rainfall (Fig. 3.2.2).

The annual total rainfall amount of the year 2025 exceeded 1600 mm over western and northwestern,; and was more than 2000 mm over western and southwestern parts of the country. In association with this, the annual total rainfall amount reported over Gatira was as high as 3058 mm.

On the other hand, the annual total rainfall amount was below 500 mm over most of Somali and the northeastern portions of Afar. Refer to Figure 3.2.1 and Table 3.2.2. The annual rainfall amount of 2025 is higher than the one for 2024 over parts of Gambela, Somali. West, Central, and South Oromia and pocket areas of Amhara, Tigray and Afar (Fig. 3.2.3).

Table 3.2.1 Heavy fall in excess of 70 mm within 24 hours in the year 2025

Station Name	Rainfall in mm	Month	Date
MEHALMEDA	173.0	Jul	31
Nekemte	167.6	Aug	6
GAMBELLA	127.0	Jul	24
KACHISE	105.2	Aug	3
LIMUGENET	101.0	Jul	7
YABELO	100.0	Apr	16
Pawe	95.9	Sep	9

Station Name	Rainfall in mm	Month	Date
DILLA	92.0	Aug	7
MOYALE	91.5	Apr	13
MASHA	90.2	Oct	16
Abomsa	88.7	May	6
Ejaji	85.7	Aug	27
Nazreth	84.9	Jul	31
FUGNUIDO	82.5	Sep	11
ARISEROBE	81.3	Sep	1
Jinka	81.3	May	21
DTABOR	81.0	Oct	20
MOTTA	81.0	Aug	12
DEBARK	80.6	Aug	11
Bui	80.0	Jul	28
NURAERA	79.4	Aug	18
SEKORU	79.2	Apr	29
AWASHARBA	78.0	Jul	31
Fiche	77.0	Jul	28
METEMA	74.3	Aug	7
AAObs	74.0	Aug	30
AMDEWORK	73.4	Sep	12
MANKUSH	72.4	Sep	20
GondarAP	71.0	Sep	1
BURE	70.7	Oct	22
SHIRE	70.5	Aug	12
DOLOMENA	70.3	Apr	29
SIRINKA	70.2	May	5
MEHALMEDA	173.0	Jul	31
Nekemte	167.6	Aug	6
GAMBELLA	127.0	Jul	24

Table 3.2.2 Annual total rainfall amount in excess of 1500 mm during the year 2025

Station Name	Annual rainfall amount in mm
Gatira	3058.0
AREJO	2939.3
Nekemte	2599.2
AMAN	2395.2
Angerguten	2326.1
BULLEN	2116.9
BORE	2067.2
GIDAAYANA	2020.7
CHIRA	2016.9
JIMMA	1924.9
Gimbi	1908.1
LIMUGENET	1901.1
AIRA	1882.4
TEPI	1875.2
Gore	1869.6
DTABOR	1809.9
KACHISE	1804.5
GAMBELLA	1730.5
Ejaji	1696.0
BahirDarMet	1689.6
Imdiber	1686.5
Bedelle	1655.3
Jinka	1651.5
SEKORU	1624.3
NEJO	1605.6
DANGLA	1593.7
CHAGINI	1590.5
MAJJI	1566.2
DILLA	1559.7
MASHA	1542.8
TERCHA	1505.0
DEMBIDOLO	1504.5

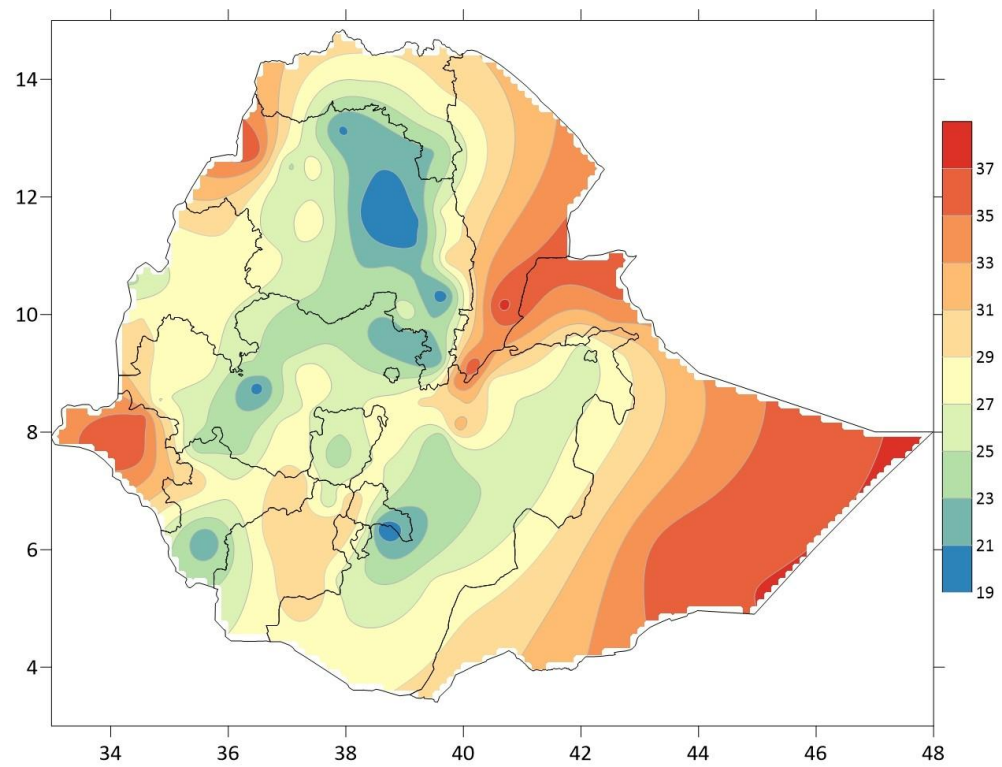


Figure 3.1.1 Mean Maximum temperature in °C for the year 2025

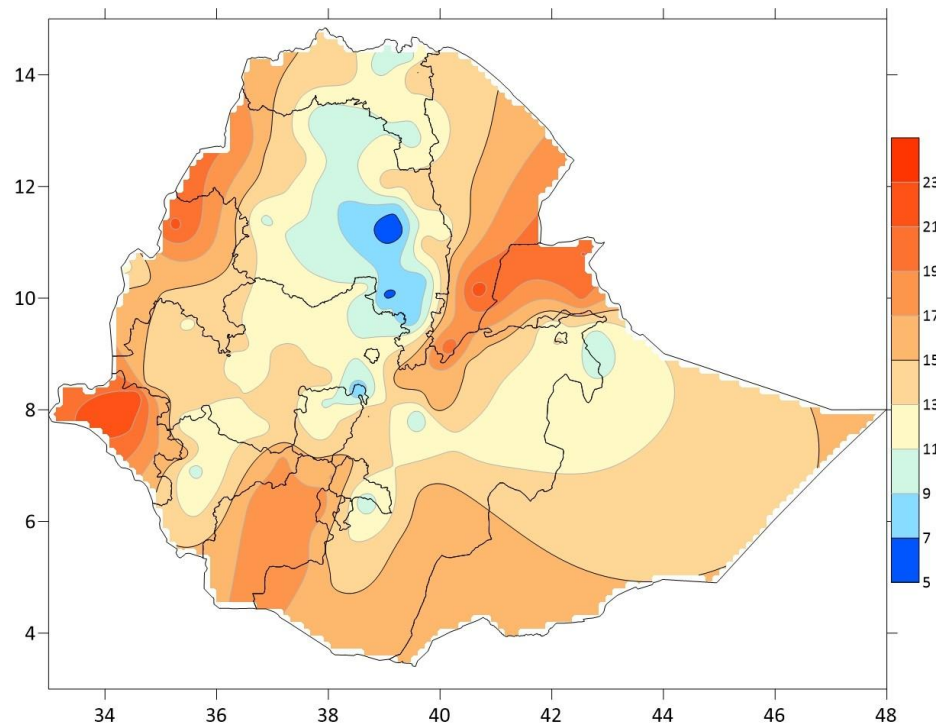


Figure 3.1.2 Mean minimum temperature in °C for the year 2025

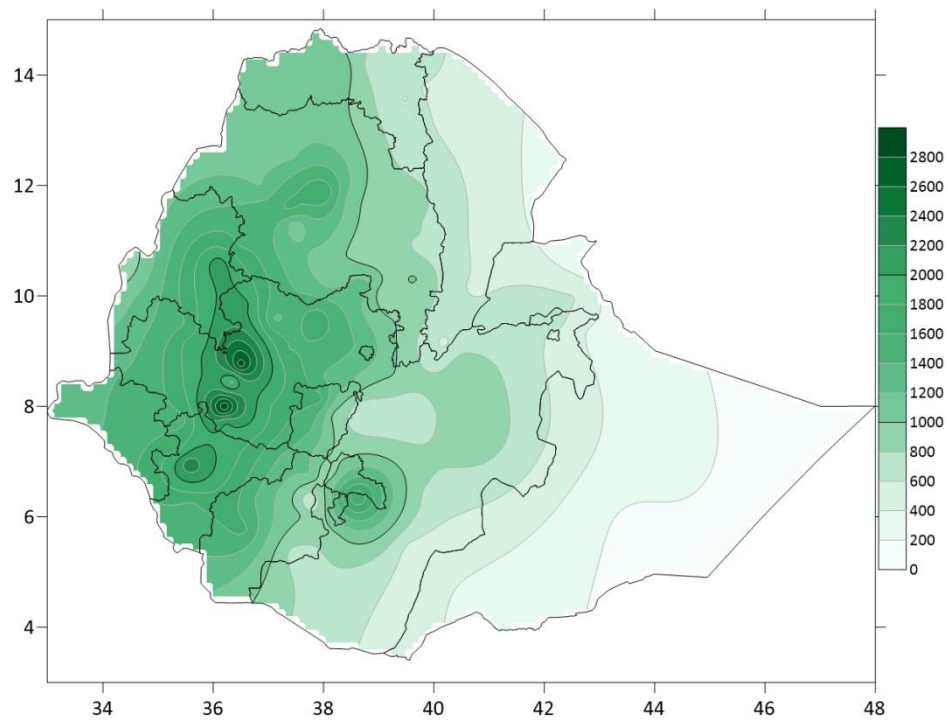


Figure 3.2.1 Annual total Rainfall amount in mm of the year 2025

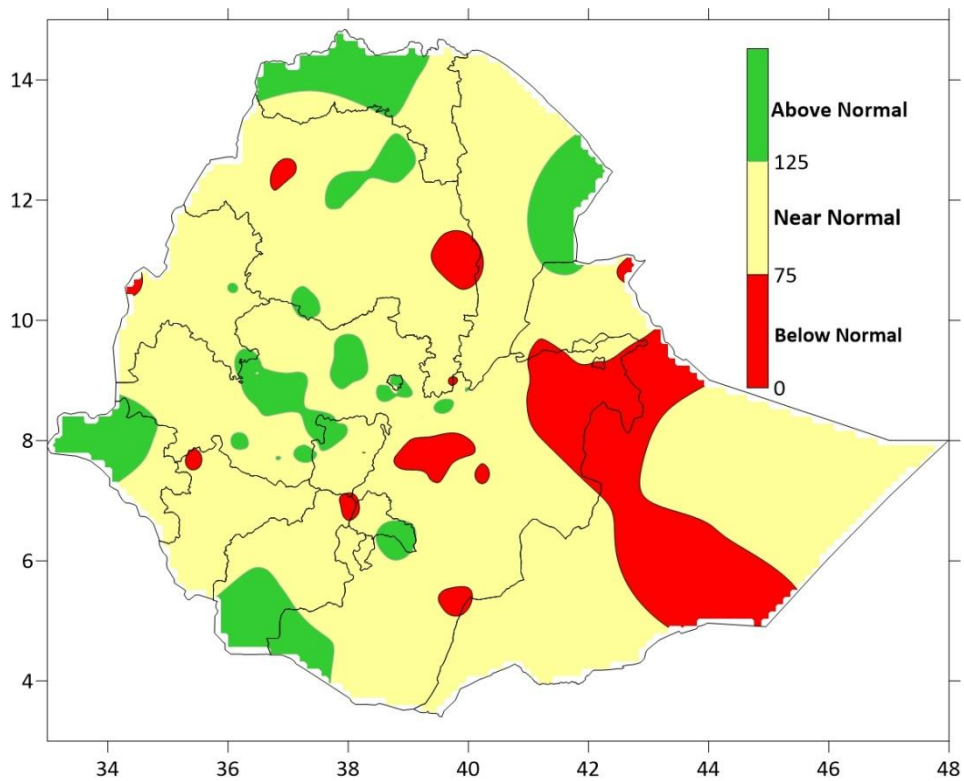


Figure3.2.2. Percent of normal rainfall for the year 2025

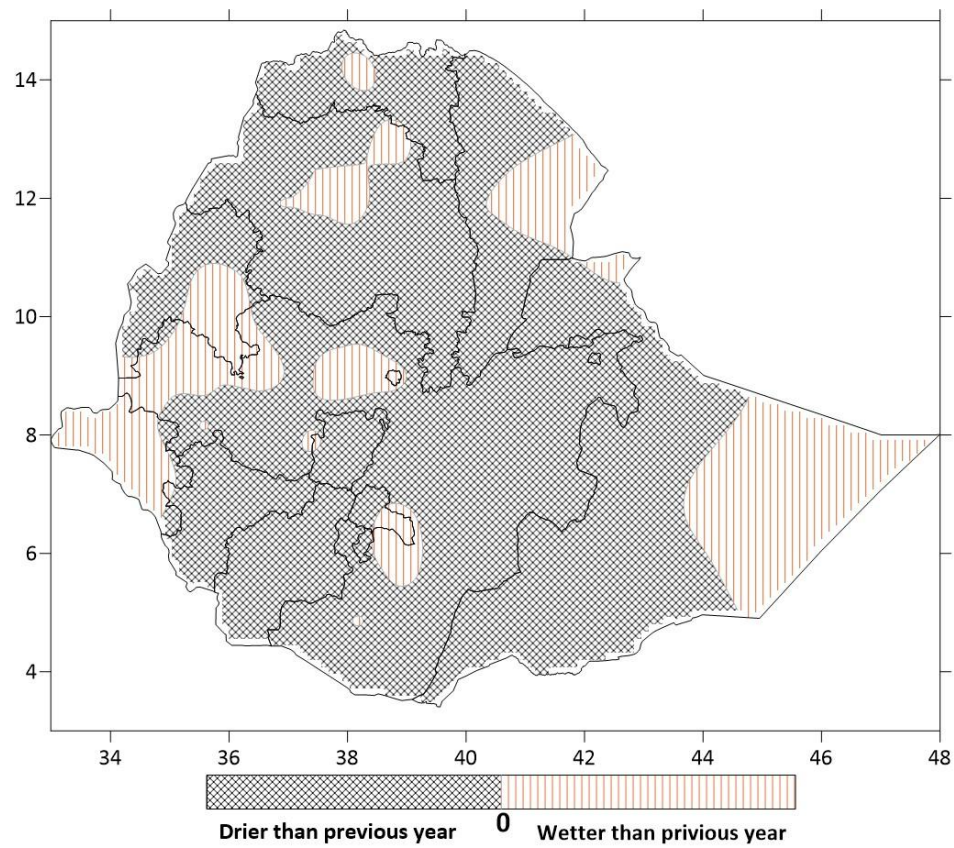


Figure 3.2.3 Annual Total Rainfall Amount of 2025 minus Annual Total Rainfall Amount of 2024

3.3 Wind

The **WIND ROSE** diagrams presented in table 3.3.1a to 3.3.1d show the wind conditions that prevailed during the three seasons for Awassa, Bahir Dar, Mekele and Addis Ababa Bole.

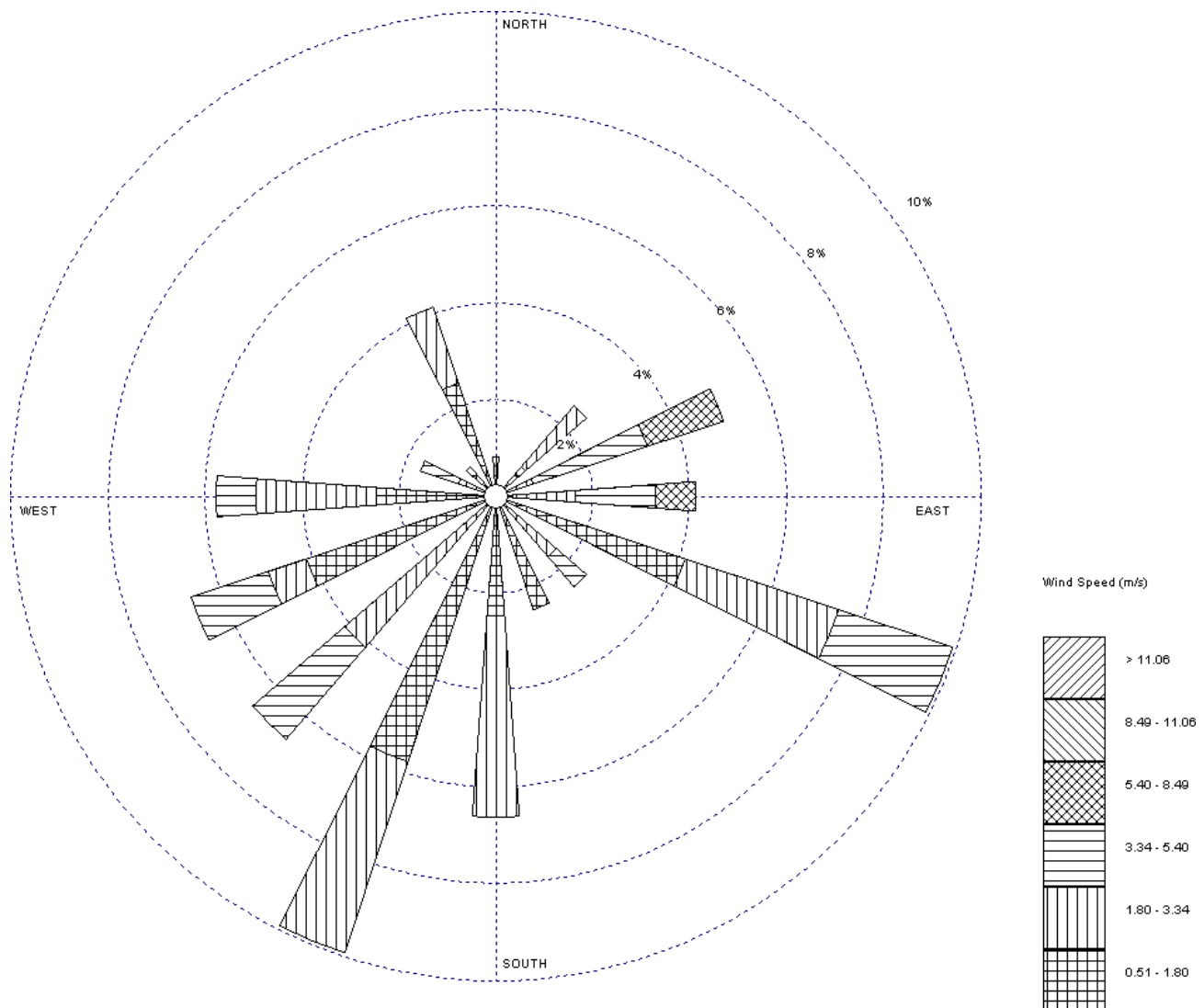
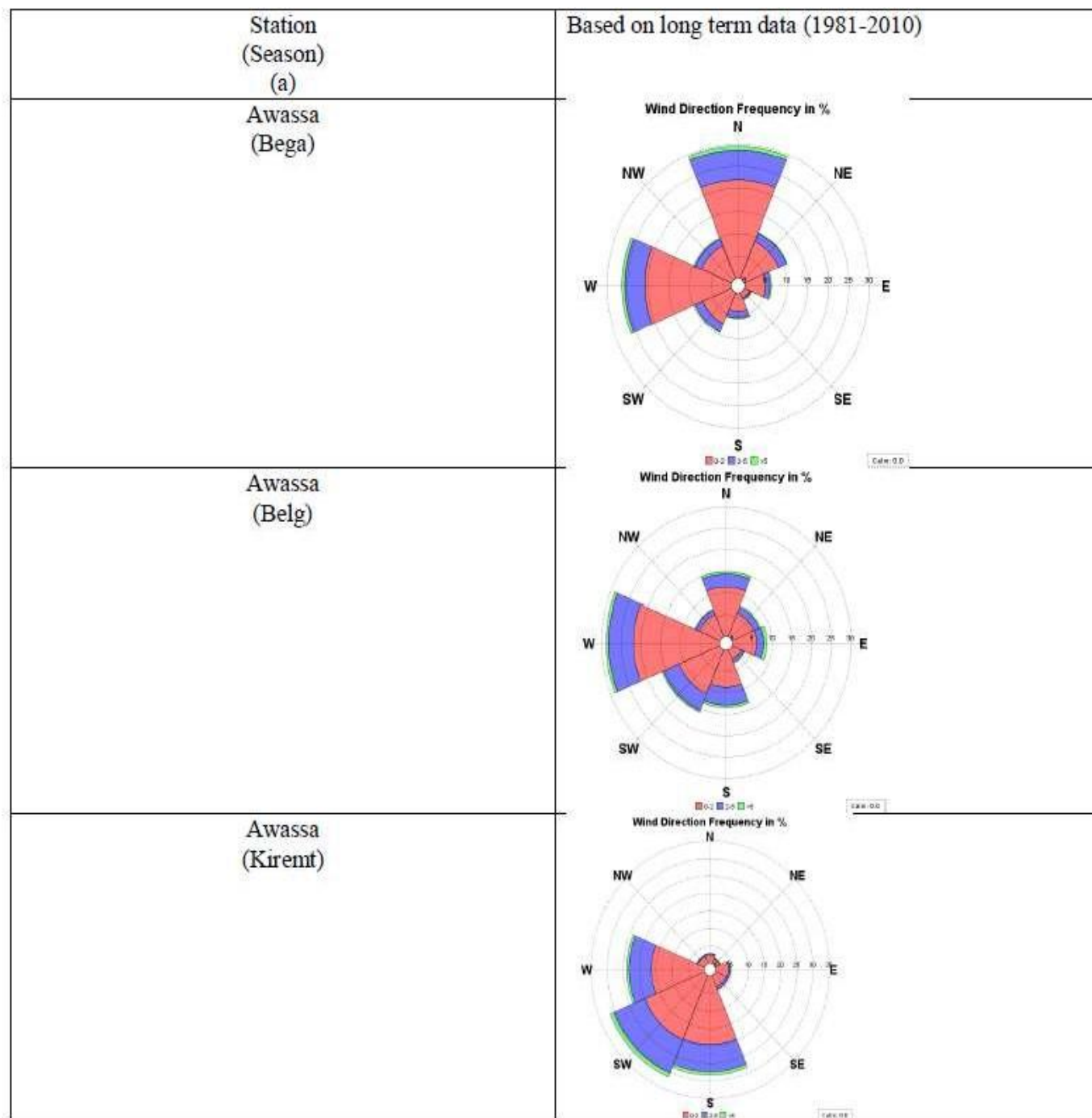
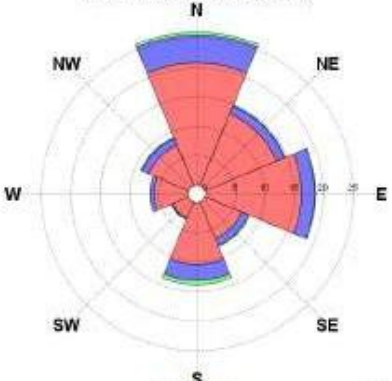
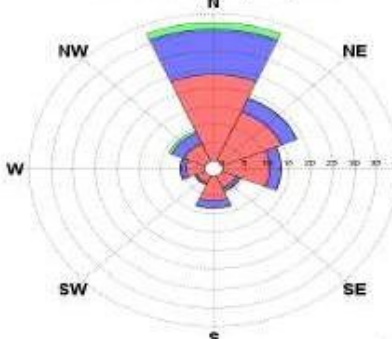
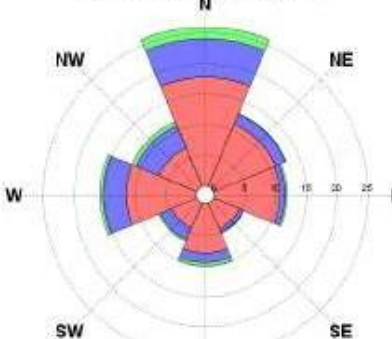


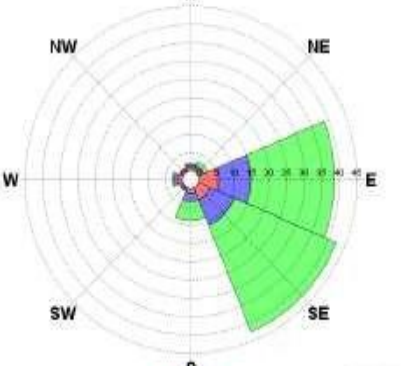
Figure 3.3.1 Sample wind rose diagram. The center on the diagram (where the head of each bar ends) represents a meteorological station into which the wind blows, while its tail shows where the wind comes from. The length of the bar is proportional to the frequency of the wind having a specific direction and speed range. The percentage points on the concentric circles can be used to make comparisons among the lengths of the bars and so as to easily identify the more prevalent direction. The shadings on the bar represent a specific speed range in meters per second as shown on the key.

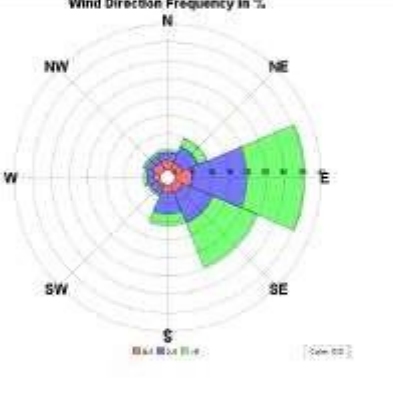
Table 3.3.1 WIND ROSE diagrams over selected stations showing the prevalent wind in the three seasons:

a. Awassa, b. Bahir Dar, c. Mekele and d. Addis Ababa Bole



Station (Season) (b)	Based on long term data (1981-2010)
Bahir Dar (Bega)	Wind Direction Frequency in %  0-2 2-4 4-6 6-8 Calm: 0.0
Bahir Dar (Belg)	Wind Direction Frequency in %  0-2 2-4 4-6 6-8 Calm: 0.0
Bahir Dar (Kiremt)	Wind Direction Frequency in %  0-2 2-4 4-6 6-8 Calm: 0.0

Station (Season) (c)	Based on long term data (1981-2010)
Mekele (Bega)	Wind Direction Frequency in %  Wind rose for Mekele (Bega) showing wind direction frequency in percentage. The chart is a polar plot with cardinal and ordinal directions (N, NE, E, SE, S, SW, W, NW). Concentric circles represent frequency percentages from 0 to 40. The dominant wind direction is from the East (E), with a frequency of approximately 40%. Other significant frequencies are from the Southeast (SE) at about 35% and the South (S) at about 10%. A legend at the bottom indicates color-coded frequency ranges: 0-10% (red), 10-20% (blue), 20-30% (green), and 30-40% (dark green). A scale bar at the bottom right shows 'Scale: 0.0'.
Mekele (Belg)	Wind Direction Frequency in %  Wind rose for Mekele (Belg) showing wind direction frequency in percentage. The chart is a polar plot with cardinal and ordinal directions (N, NE, E, SE, S, SW, W, NW). Concentric circles represent frequency percentages from 0 to 40. The dominant wind direction is from the East (E), with a frequency of approximately 40%. Other significant frequencies are from the Southeast (SE) at about 35% and the South (S) at about 10%. A legend at the bottom indicates color-coded frequency ranges: 0-10% (red), 10-20% (blue), 20-30% (green), and 30-40% (dark green). A scale bar at the bottom right shows 'Scale: 0.0'.
Mekele (Kiremt)	Wind Direction Frequency in %  Wind rose for Mekele (Kiremt) showing wind direction frequency in percentage. The chart is a polar plot with cardinal and ordinal directions (N, NE, E, SE, S, SW, W, NW). Concentric circles represent frequency percentages from 0 to 40. The dominant wind direction is from the West (W), with a frequency of approximately 35%. Other significant frequencies are from the Northwest (NW) at about 25% and the South (S) at about 10%. A legend at the bottom indicates color-coded frequency ranges: 0-10% (red), 10-20% (blue), 20-30% (green), and 30-40% (dark green). A scale bar at the bottom right shows 'Scale: 0.0'.

Station (Season) (d)	Based on long term data (1981-2010)
Addis Ababa Bole (Bega)	
Addis Ababa Bole (Belg)	
Addis Ababa Bole (Kiremt)	