MONTHLY AGROMETEOROLOGICAL BULLETIN
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FORE WARD

This Agro met Bulletin is prepared and disseminated by the National Meteorological Services Agency (NMSA). The aim is to provide those sectors of the community involved in Agriculture and related disciplines with the current weather situation in relation to known agricultural practices.

The information contained in the bulletin, if judiciously utilized, are believed to assist planners, decision makers and the farmers at large, through an appropriate media, in minimizing risks, increase efficiency, maximize yield. On the other hand, it is vital tool in monitoring crop/ weather conditions during the growing seasons, to be able to make more realistic assessment of the annual crop production before harvest.

The Agency disseminates ten daily, monthly and seasonal weather reports in which all the necessary current information's relevant to agriculture are compiled.

We are of the opinion that careful and continuous use of this bulletin can benefit to raise ones agro climate consciousness for improving agriculture-oriented practices. Meanwhile, your comments and constructive suggestions are highly appreciated to make the objective of this bulletin a success.

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SUMMARY
February 2004

During the first dekad of February 2004 the observed below normal rainfall over northern SNNPR and eastern half of Tigray would decrease the moisture content of the soil over the above-mentioned Belg benefiting areas; and this situation could have negative impact on season's agricultural activities. Regarding air temperature, Dangila registered extreme minimum air temperature below 5°C for eight consecutive days. On the contrary, Gambela reported extreme maximum air temperature above 35°C for ten consecutive days; this extreme maximum air temperature resulted in high evapo-transpiration over those areas and had negative impact on the physiological processes of plants and the well being of animals as well.

During the second dekad of February 2004 the deficient rainfall condition during the dekad under review could have negative impact on the early season's agricultural activities in some Belg growing areas where the season's activities normally starts during the month of December and January like southern Tigray, Eastern Amhara and Belg growing areas of SNNPR. Moreover, the persistence moisture stress over most parts of Somali could have negative impact on pastoral and agro pastoral activities over pastoral and agro pastoral areas. With regard to extreme temperatures, the observed extreme minimum temperature over some areas of central highlands and maximum temperatures over the lowlands of eastern and western Ethiopia could affect the normal growth and development of plants in the areas. Moreover, high temperature can increase evapotranspiration of the vegetated areas.

During the third dekad of February 2004, the dry situation continued over most parts of Belg growing areas. This condition resulted in water stress on the early sown crops in some areas. Thus those areas needing attention for the alternate coping mechanisms of season's agricultural activities such as replanting, using short season and drought resistance variety of crops and the likes. Besides, the prolonged dry situation which persisted over pastoral and agro pastoral areas could exacerbate the deficient moisture condition over the areas. With regard to air temperature, Assayta, Metema and Pawe exhibited maximum temperature greater than 35°C while Debre Birhan, Alemaya, Bui and Arsi Robe experienced extreme temperature less than 5°C lowering up to – 0.6°C during the dekad.

Generally, the observed rainfall situation during the month under review over most Belg growing areas was not sufficient for the on going early season's agricultural activities. As a result crops, which were sown during the month of January, were under sever water stress in some areas. Therefore, proper attention should be given for those areas where Belg agricultural activates start earlier like South Tigrai, eastern Amhar and SNNPR including areas like eastern and central Oromiya where land preparation normally is performed during the month of February. Since our agricultural activities mainly rain fed the on set, distribution and cessation of the seasonal rainfall have paramount importance in terms of crop calendar of each crop. With regard to air temperatures, some areas of central highlands like Debre Birhan, Meraro, Jima, Bui, Kulumsa, Mehal Meda, Koffele, Wegel Tena, Alemaya and Arsi Robe exhibited extreme minimum temperature below 5°C lowering up to –1.4. On the contrary, some lowlands of northeastern,

northwestern and western parts of Ethiopia such as Gambela, Metema, Pawe and Asaita exhibited extreme maximum temperature above 35°C up to 42°C for 15 – 25 consecutive days. This situation could affect the normal growth and development of plants by increasing evapotranspiration

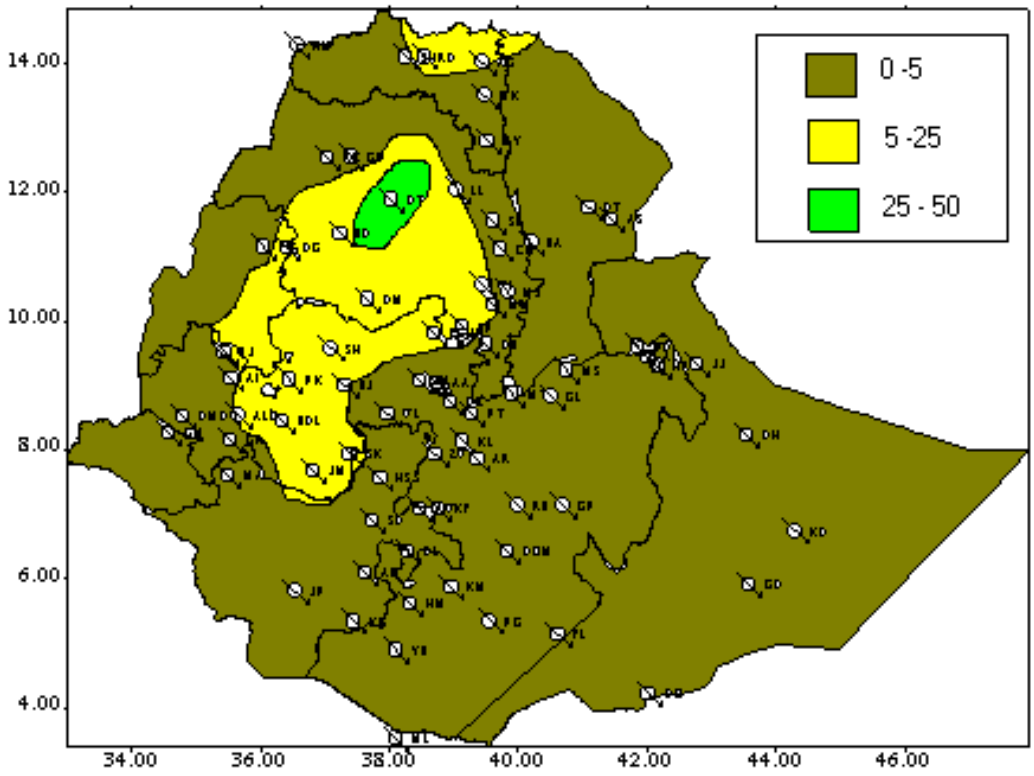


Fig 1. Rainfall distribution in mm (21- 29 February, 2004)

1. WEATHER ASSESSMENT

1.1 21-29 February 2004

1.1.1 Rainfall amount (Fig.1)

Pocket areas of central Amhara received falls above 25 mm; eastern half of Benishangul Gumz, parts of western Oromiya and most places of Southern Amhara experienced 5-25 mm. The rest parts of the country received below 5mm.

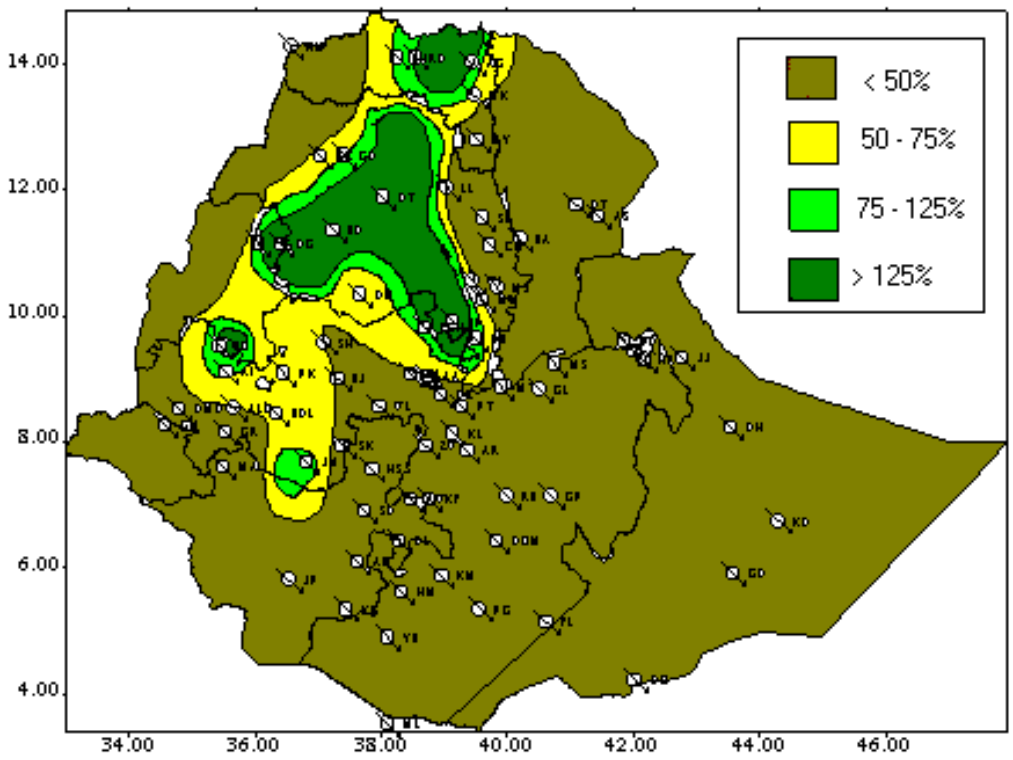


Fig. 2 Percent of normal rainfall (21- 29 February, 2004)

Explanatory notes for the Legend:
< 50-Much below normal
50-75%-Below normal
75-125%- Normal
> 125% - Above normal

1.1.2 Rainfall Anomaly (Fig. 2)

With the exception of pocket areas of western Oromiya, central and southern Amhara as well as northern Tigrai, much of the country experienced below to much below normal rainfall distribution.

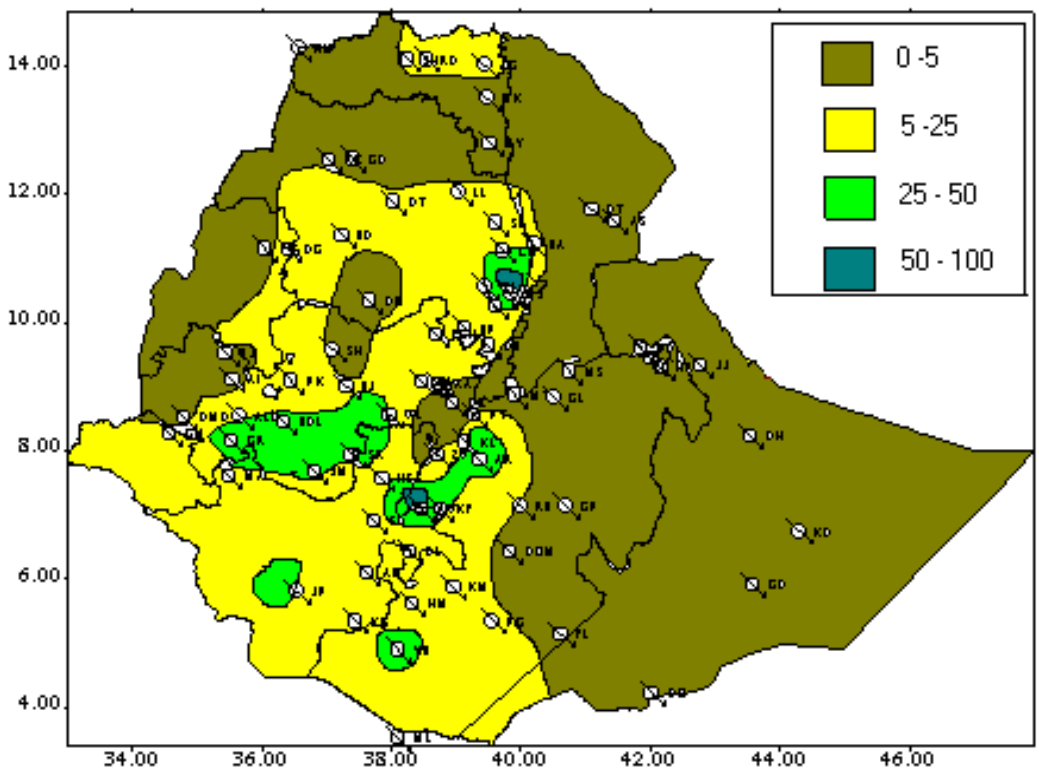


Fig. 3 Rainfall Distribution in mm for the month of February 2004

1.2 February 2004

1.2.1 Rainfall Amount (Fig.3)

Pocket areas of eastern Amhara and northeastern SNNPR received above 50 mm rainfall. Some areas of western and central Oromiya including pocket areas of central SNNPR and southern Oromiya received falls ranging from 25 – 50 mm. Northern Tigrai, most parts of Oromiya, SNNPR, Gambela, central and southern Oromiya including eastern Benishangul Gumuz experienced rainfall in the range of 5-25mm. There was little or no rainfall for the rest of the countries.

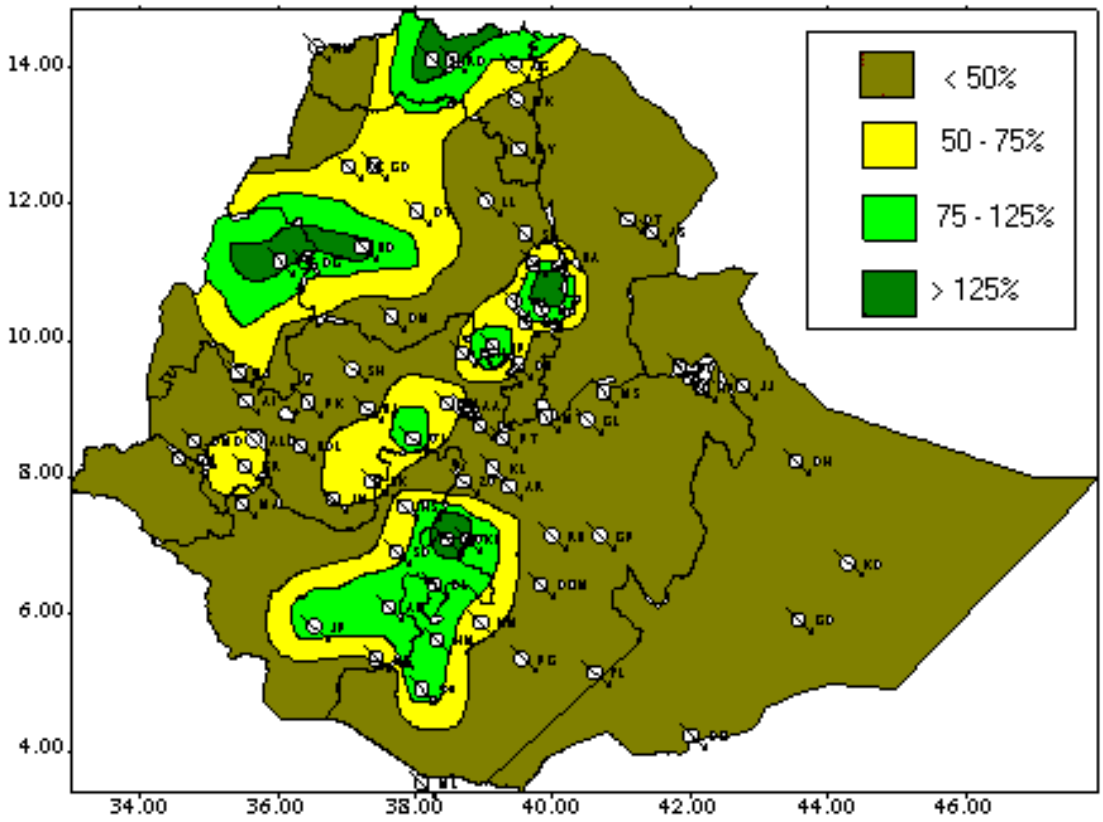


Fig. 4 Percent of Normal Rainfall for the month of February 2004

Explanatory notes for the Legend:
< 50 -Much below normal
50-75%-Below normal
75-125%- Normal
> 125% - Above normal

1.2.2 Rainfall Anomaly (Fig. 4)

With the exception of pocket areas of northern Tigray, western and eastern Amhara, northern Benishangul Gumuz, central Oromiya, eastern and central SNNPR, most parts of the country exhibited below to much below normal rainfall.

1.3 TEMPERATURE ANOMALY

Some areas of central highlands like Debre Birhan, Meraro, Jima, Bui, Kulumsa, Mehal Meda, Koffele, Wegel Tena, Alemaya and Arsi Robe exhibited extreme minimum temperature below 5°C lowering up to –1.4. On the contrary, some lowlands of northeastern, northwestern and western parts of Ethiopia such as Gambela, Metema, Pawe and Asaita exhibited extreme maximum temperature above 35°C up to 42°C for 15 – 25 consecutive days.

2. WEATHER OUTLOOK

2.1 For the first dekad of March 2004

In the coming dekad the rain, Producing systems are expected to weaken in the coming ten days. Hence, much of country will experience dry and sunny weather conditions. However, the highlands of western Oromiya and Amhara are anticipated to have light rain shower.

Generally, Tigray, Afar, much of Amhara and Ormiya, Benishangul-Gumuz, Gambella, SNNPR and Somali will have below normal rainfall. On the other hand, a few places of the highland of western Amhara and Oromiya are expected to get rainfall amount close to normal.

2.1 For the month of March 2004

In the coming month, the frequent occurrence of Tropical cyclone over southern Indian Ocean is highly likely during the forecast period. This has a negative influence in the country that leads to divert the direction of the wind which caries moisture towards our area.

In general, the Belg growing areas of Tigray, Amhara, Oromiya and SNNPR are expected to get rainfall amount close to normal. In addition to this, few places of southwestern Ethiopia are anticipated to have a rainfall amount close to normal. Eventually, the rainfall activity will show a better performance after the mid of the month.

3. AGROMETEOROLOGICAL CONDITIONS AND IMPACT ON AGRICULTURE

3.1 VEGETATION CONDITION AND IMPACT ON AGRICULTURE

The observed rainfall situation during the month under review over most Belg growing areas was not sufficient for the on going early season's agricultural activities. As a result crops, which were sown during the month of January, were under sever water stress in some areas. Therefore, proper attention should be given for those areas where Belg agricultural activates start earlier ever South Tigrai, eastern Amhara and SNNPR including areas like eastern and central Oromiya where land preparation normally is performed during the month of February. Since our agricultural activities are mainly rain fed the on set, distribution and cessation of the seasonal rainfall have paramount importance in terms of crop calendar of each crop. Thus, the concerned officials should prepare alternate strategies to mitigate the effect of adverse weather situation. With regard to air temperatures, some areas of central highlands like Debre Birhan, Meraro, Jima, Bui, Kulumsa, Mehal Meda, Koffele, Wegel Tena, Alemaya and Arsi Robe exhibited extreme minimum temperature below 5°C lowering up to –1.4. On the contrary, some lowlands of northeastern, northwestern and western parts of Ethiopia such as Gambela, Metema, awe and Asaita exhibited extreme maximum temperature above 35°C up to 42°C for 15 – 25 consecutive days. This situation could affect the normal growth and development of plants by increasing evapotranspiration.

3.2 EXPECTED WEATHER IMPACTS ON AGRICULTURE DURING THE COMING DEKAD

The anticipated close to normal rainfall over Belg growing areas of Tigray, Oromiya and SNNPR including few areas of southwestern Ethiopia during the coming month would have positive contribution for season's agricultural activities. However, proper rain water harvesting technique should be practiced in order to minimize the effect of deficient condition. Besides, the concerned personnel should give proper attention for alternate coping mechanism ahead of time to mitigate the effect of adverse weather conditions.

Table 1 Climatic and Agro-Climatic elements of different stations for the month of February 2004

	Stations	Region	A/ rainfall	Normal	%of Normal	Eto mm/day	Monthly Eto	M-status
1	Adigrat	TIGRAI	13.6	13.1	103.8	4	116	D
2	Adwa		7.6	3.7	205.4	4.2	121.8	VD
3	Mekele		3.5	8.5	41.2	5.9	171.1	VD
4	Metema		0	0.1	0.0	NA	NA	NA
5	Michew		2.5	25.7	9.7	3.7	107.3	VD
6	Senkata		12.1	27.2	44.5	5.4	156.6	VD
7	Shire		1.9	0.5	380.0	5.3	153.7	VD
1	Bahirdar	AMHARA	20.7	2.2	940.9	3.9	113.1	D
2	Bati		58.4	64.1	91.1	3.4	98.6	VD
3	Combolcha		11.7	39.1	29.9	NA	NA	NA
4	D.Birhan		9.7	18.4	52.7	4.6	133.4	VD
5	D.Markos		4.3	21.7	19.8	4.7	136.3	VD
6	Dangla		9.9	3.5	282.9	3.8	110.2	VD
7	Enwary		15.2	12.6	120.6	5.7	165.3	VD
8	Gonder		3.7	5.4	65.5	5	145	VD
9	M.Meda		22.5	34.7	64.8	NA	NA	NA
10	Majete		69.9	54.4	128.5	3.8	110.2	M
11	Sirinka		6.2	84.3	7.4	NA	NA	NA
12	Wegeltena		4.9	30.2	16.2	NA	NA	NA
1	Aira	OROMIYA	1.1	6	18.3	3.9	113.1	VD
2	Alemaya		0	30.9	0.0	4.8	139.2	VD
3	Arsi Robe		29.1	62.7	46.4	4.4	127.6	D
4	Bedelle		2.6	24	10.8	3.9	113.1	VD
5	Bui		4.7	NA	NA	5	145	VD
6	D.Dollo		2.6	17.5	14.9	NA	NA	NA
7	D.Mena		4.5	24.3	8.5	4.9	142.1	VD
8	D.Zeit		0	25.3	0.0	5.4	156.6	VD
9	Ejaji		5.1	27.1	18.8	5.1	147.9	VD
10	Fitche		11.7	40	29.3	4	116	D
11	Gelemso		0	35.1	0.0	6	174	VD
12	Gimbi		8.9	6	148.3	4.8	139.2	VD
13	Gore		27.4	39.6	69.2	4.3	124.7	D
14	Jimma		28.4	54.1	52.5	3.3	95.7	MD
15	K.Mengist		16.9	23.5	71.9	4	116	D
16	Kulumsa		1.2	51.1	2.3	5	145	VD
17	Masha		16.1	79.5	20.3	3.4	98.6	D
18	Meisso		0	48.8	0.0	5.2	150.8	VD
19	Metehara		0	32.1	0.0	5.8	168.2	VD
20	Nazreth		3.3	31.6	10.4	NA	NA	NA
21	Neghele		9.5	28.4	33.5	6.5	188.5	VD

22	Nedjo		5.4	10	54.0	4.1	118.9	VD
23	Nekemte		6.9	24.9	27.7	4	116	VD
24	Robe(Bale)		11.2	27.7	40.4	4.4	127.6	VD
25	Sekoru		26.2	49	53.5	3.8	110.2	D
26	Shambu		5.4	44.8	12.1	NA	NA	NA
27	Woliso		34.6	36.8	94.0	6.7	194.3	D
28	Yabello		39.4	42.5	92.7	NA	NA	NA
29	Zeway		0.8	41.7	1.9	NA	NA	NA
1	Gode	SOMALI	0	5.4	0.0	NA	NA	NA
2	Jijiga		0	26.8	0.0	NA	NA	NA
1	A.Minch	SNNPR	30.9	29.4	105.1	4.4	127.6	D
2	Awassa		87.7	46	190.7	NA	NA	NA
3	Hosaina		19.4	47.5	40.8	4.2	121.8	D
4	Konso		13	131	9.9	5.4	156.6	VD
1	Pawe	B/GUMUZ	0.6	0.3	200.0	4.3	124.7	VD
1	A.A.Obs.	A.A	20.3	39.5	51.4	3.7	107.3	D
1	Diredawa	D.D	0	24.2	0.0	4.6	133.4	VD
1	Harar	Harai	0	11.9	0.0	5.4	156.6	VD

Legend

VD	Very Dry	< 0.1
D	Dry	0.1 - 0.25
MD	Moderatly Dry	0.25 - 0.5
M	Moist	0.5 - 1
H	Humid	>1

Explanatory Note

ETo	Reference Evapotranspiration(mm)

DEFNITION OF TERMS

ABOVE NORMAL RAINFALL: - Rainfall in excess of 125% of the long term mean

BELOW NORMAL RAINFALL: - Rainfall below 75 % of the long term mean.

NORMAL RAINFALL: - Rainfall amount between 75 % and 125 % of the long term mean.

BEGA: - It is characterized with sunny and dry weather situation with occasional falls. It extends from October to January. On the other hand, it is a small rainy season for the southern and southeastern lowlands under normal condition. During the season, morning and night times are colder and daytime is warmer.

BELG: - Small Rainy season that extends from February to May and cover s southern, central, eastern and northeastern parts of the country.

CROP WATER REQUIREMENTS: - The amount of water needed to meet the water loss through evapotransipiration of a disease free crop, growing under non-restricting soil conditions including soil water and fertility.

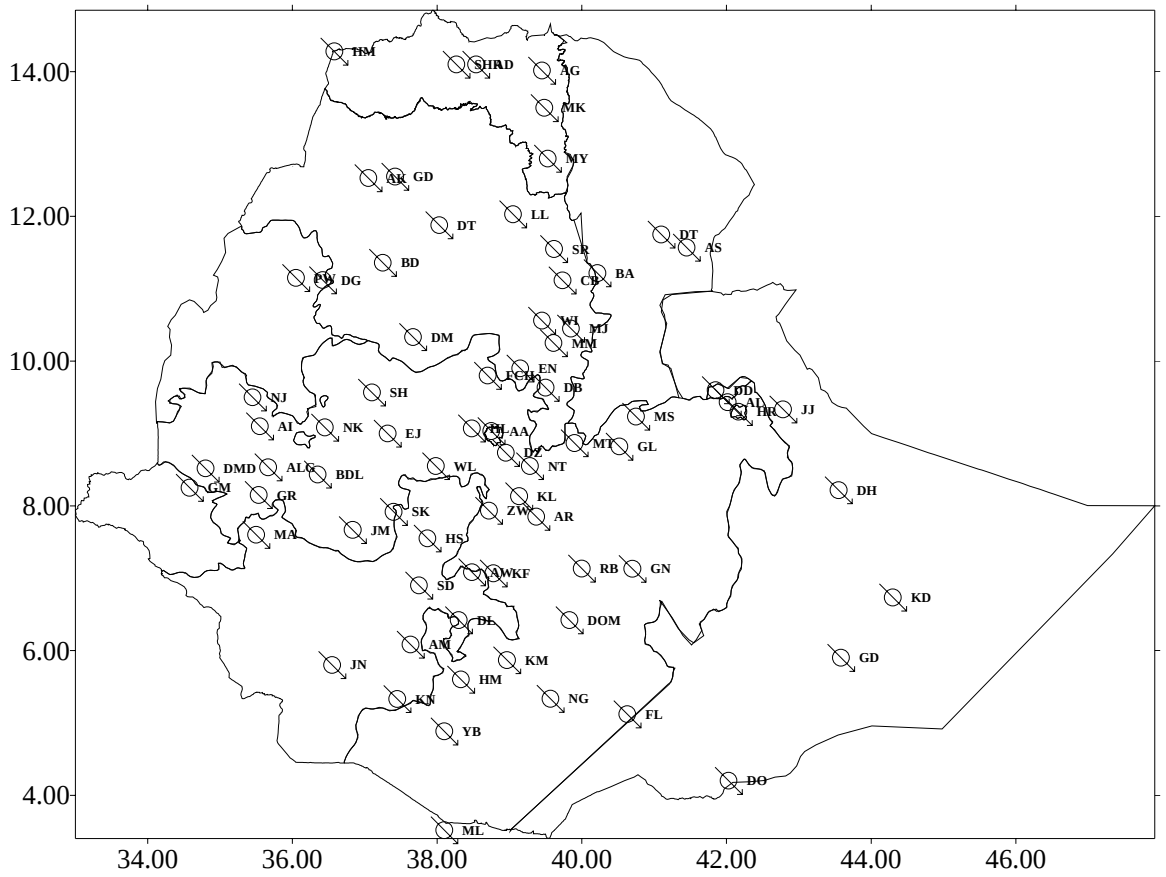
DEKAD: - First or second ten days or the remaining days of a month.

EXTREME TEMPERATURE: - The highest or the lowest temperature among the recorded maximum or minimum temperatures respectively.

ITCZ: - Intertropical convergence zone (narrow zone where trade winds of the two hemispheres meet.

KIREMT: - Main rainy season that extends from June to September for most parts of the country with the exception of the southeastern lowlands of the country.

RAINY DAY: - A day with 1 or more mm of rainfall amount.



Station	Symbol
A. Robe	AR
A.A. Bole	AAB
A.A. Obs	AAO
Adwa	AD
Adigrat	AG
Alemaya	AL
Alge	ALG
Aira	AI
Arba Minch	AM
Awassa	AW
B. Dar	BD
Bati	BA
Bedelle	BD
Combolcha	CB
D.Berehan	DB
D.Habour	DH
D.Markos	DM
D.Zeit	DZ
D/Dawa	DD
Dm.Dolo	DMD
Dubti	DB
Ejaji	EJ
Enwary	EN
Fiche	FCH
Gode	GD
Gonder	GOR
Gore	GR
Harara	HR
Holleta	HL
Hossaina	HS
Jiiiga	JI
Jimma	JM
K.Dehar	KD
K/Mingist	KM
Koffele	KOF
Kulumsa	KL
M.Meda	MM
Maichew	MY
Majete	MJ
Mekele	MK
Metehara	MT
Mieso	MS
Moyale	ML
Nazereth	NT
Nedjo	NJ
Negelle	NG
Nekemte	NK
Robe	RB
Sekoru	SK
Shambu	SH
Shire	SHR
S.Gebeya	SG
Sirinka	SR
Sodo	SD
Woreilu	WI
Woliso	WL
Yabello	YB
Ziway	ZW