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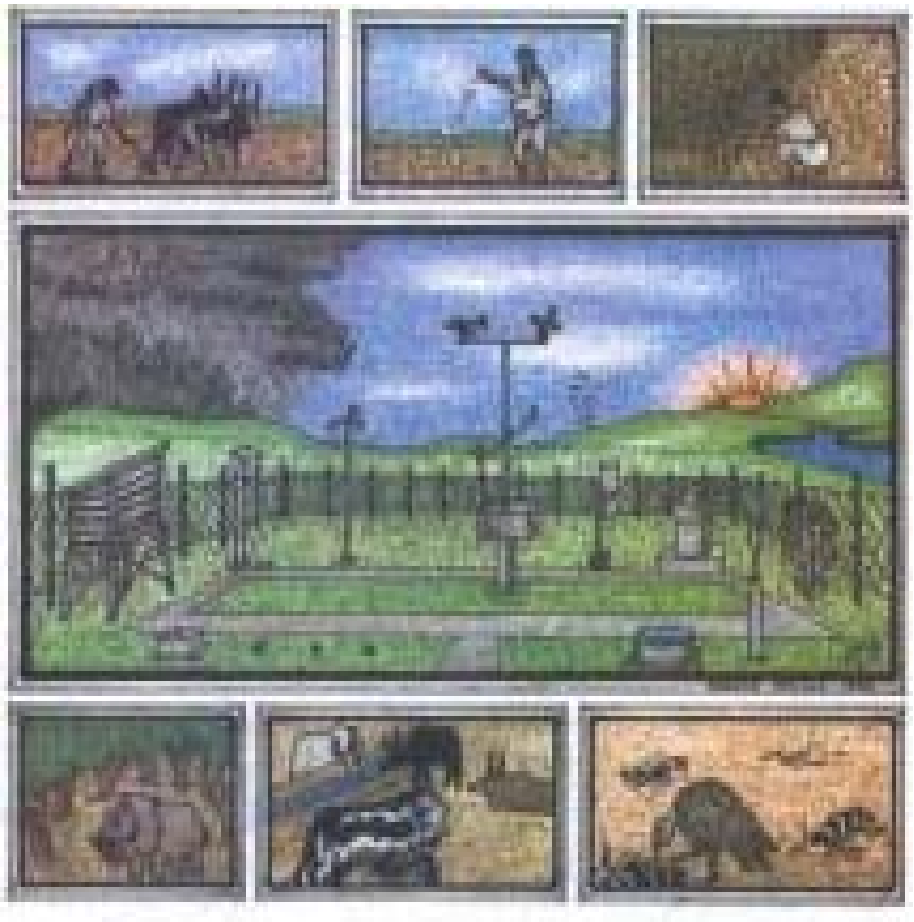

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FOREWARD

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
July 2004

During the first dekad of July 2004, the observed normal to above normal rainfall over most parts of western Tigray, Amhara, Benishangul Gumuz, parts of western Oromiya, Gambela and northwestern SNNPR favored season's agricultural activities while the reverse was true in some areas eastern Tigray, Amhara and eastern Oromiya including most parts of SNNPR. For instance, Kombolcha, Mieso and Dolo Mena reported slight wilting and partial drying on sorghum and maize fields due to water stress. On the contrary, some areas of western Amhara, western and central Oromiya including central Tigray and northern Benishangul Gumuz received heavy falls ranging from 30 – 74 mm.

During the Second dekad of July 2004, the observed normal to above normal rainfall over most parts of Kiremt benefiting areas favored season's agricultural activities. As a result, the general field condition of the crop was in a good shape in most parts of the reporting stations. Moreover, sowing of wheat, teff and pulse crops was underway in some areas of central and western Oromiya, northern SNNPR and eastern Amhara. However, some pocket areas of western and eastern lowlands were still under deficient condition. On the other hand, some areas of central, eastern and southern highlands exhibited falls greater than 30 mm. For instance Bahir Dar, Senkata, Debre Markos, Kachisie, Debre Birhan, Wegel Tena, Limu Genet and Kombolcha recorded 95.5, 68.2, 58.3, 55.7, 45.6, 44.6, 42.6 and 40.6 mm of heavy fall in one rainy day, respectively.

During the third dekad of July 2004, the observed normal to above normal rainfall distribution over Gambela, most parts of Amhara, northern, eastern and parts of western margin of SNNPR, western half of Tigray, parts of western, central and southern Oromiya, parts of northern Somali and much of Benishangul-Gumuz favored season's agricultural activities. Nevertheless some areas of western, central and northeastern highlands exhibited heavy falls ranging from 30 - 69 mm in one rainy day. Among the reporting stations Bahir Dar, Dangila, Nekmte, Mankush, Nejo, Arsi Negele, Pawe, Zeway, Bati, Gambela, Robe and Sawla received 62, 59, 57.2, 51.2, 48.2, 47.4, 46, 43.7, 43.6, 43, 40.7 and 40 mm of heavy fall in one rainy day, respectively. This situation resulted in crops damage and livestock loss in some areas of central, western and northern Oroniya (Alge, Arsi Negelle, Woliso and Fitche) during the dekad under review. Pursuant to the crop phenological report sowing pulses, oil crops and cereals was under way in some areas of western Amhara like Bullen and eastern Amhara like Kombolcha and Bati including northern and western Oromiya like Fitche and Gimbi. Sorghum was at tillering and shooting stages in some areas of eastern Amhara (Bati), western and eastern Oromiya (Alge, Gimbi, Aira and Gelemso) while at emergence stage in some areas of northern SNNPR (Bui). Maize was at teaseling and flowering stages over some areas of western and eastern Oromiya (Alge, Aira, Nejo, Sekoru, Dembi Dollo and Gelemso) including northern SNNPR (Bui) while at emergence stage in some areas of eastern Amhara (Sirinka). It was at wax ripening stage in some areas of southern Oromiya (Kebre Mengist) and northeastern SNNPR (Soddo). Teff was at emergence stage in some areas of northern Oromiya (Fitche) and western Oromiya (Kachise) as well as in some areas of northeastern SNNPR (Soddo). Millet was at third leaf stage in some areas of western Oromiya and western Amhara (Nejo and Chagni). In some areas of western and northern Oromiya (Nejo and Fitche including some areas of western Oromiya (Kachise) wheat was at early vegetative stages. Oil crop like nug was at emergence and elongation stages in some areas of western and central Oromiya (Woliso and Asosa), respectively. In addition to this, pulse crops like beans and peas were at budding stage in some areas of northern Oromiya.

Generally the observed normal to above normal rainfall distribution observed in most parts of western half of Meher growing areas favored season's agricultural activities while the reverse was true in most parts of eastern Oromiya and highlands of Northern Somali including parts of central and eastern SNNPR. The observed normal to above normal rainfall over some pocket areas of pastoral and agro pastoral areas of northern Somali (Jijiga) and midland of southern Oromiya could favor crops including the availability of pasture and drinking water as well. However, the observed heavy falls over western, eastern and northern Oromiya (Kachise, Woliso, Arsi Negelle and Alge as well as Fitche), northern Tigray (Shire and Adwa), Western Benishangul-Gumuz (Pawe and Mankush), eastern Amhara (Jama Degolo) and Harari generated flooding and water logging on crop fields, thereby resulting in crop damage and livestock losses.

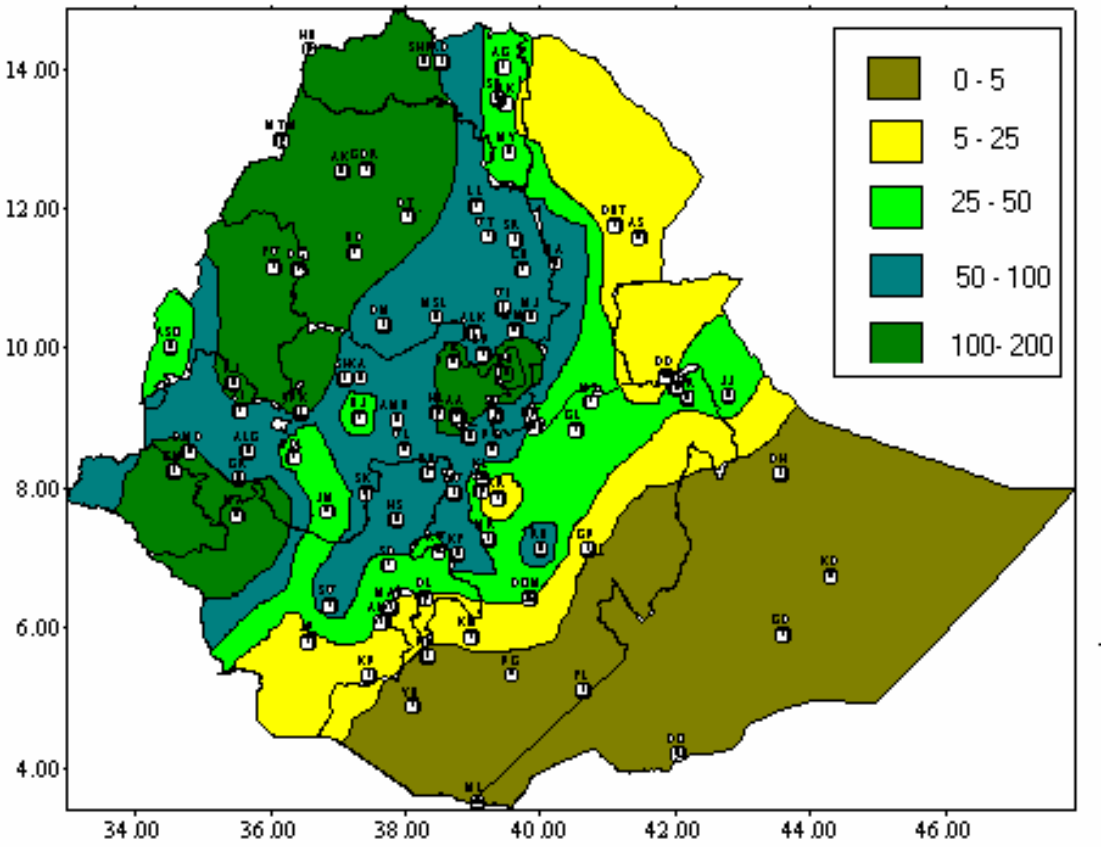


Fig 1. Rainfall distribution in mm (21-31 July, 2004)

1. WEATHER ASSESSMENT

1.1 21-31 July 2004

1.1.1 Rainfall amount (Fig.1)

During the third dekad of July, the rainfall covered much of Amhara, western, northern and central Oromiya, Gambela, southern and eastern Benishangul-Gumuz, northern SNNPR. For instance, some of the stations like Bahir Dar, Mankush, Dangila, Pawe, Chagni, Gambella, Debre Berihan, Debre Tabor, Gondar, Nekemt, Nejo, Masha, Fitch, Gore and Addis Ababa reported 176.8, 169.5, 146.4, 144.2, 140.1, 133.7, 131.9, 130.1, 128.6, 117.7, 108.6, 108.4, 105.6, 102.8 and 102.8 mm of rainfall.

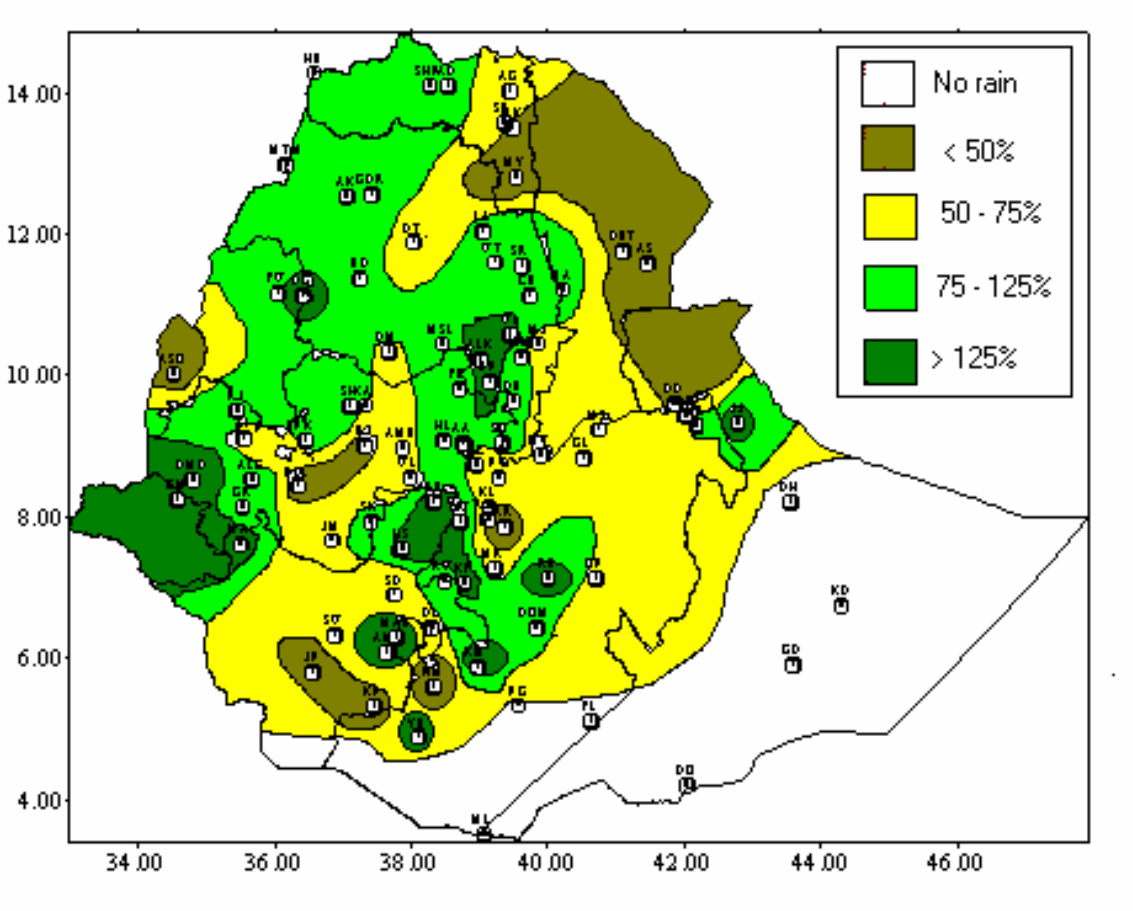


Fig. 2 Percent of normal rainfall (21-31 July, 2004)

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)

Gambela, Amhara, few areas of northern, eastern and western margin of SNNPR, western half of Tigray, parts of western, central and southern Oromiya, parts of northern Somali and much of Benishangul-Gumuz experienced normal to above normal rainfall distribution. Below to much below normal rainfall has been observed over much of eastern Oromiya and SNNPR.

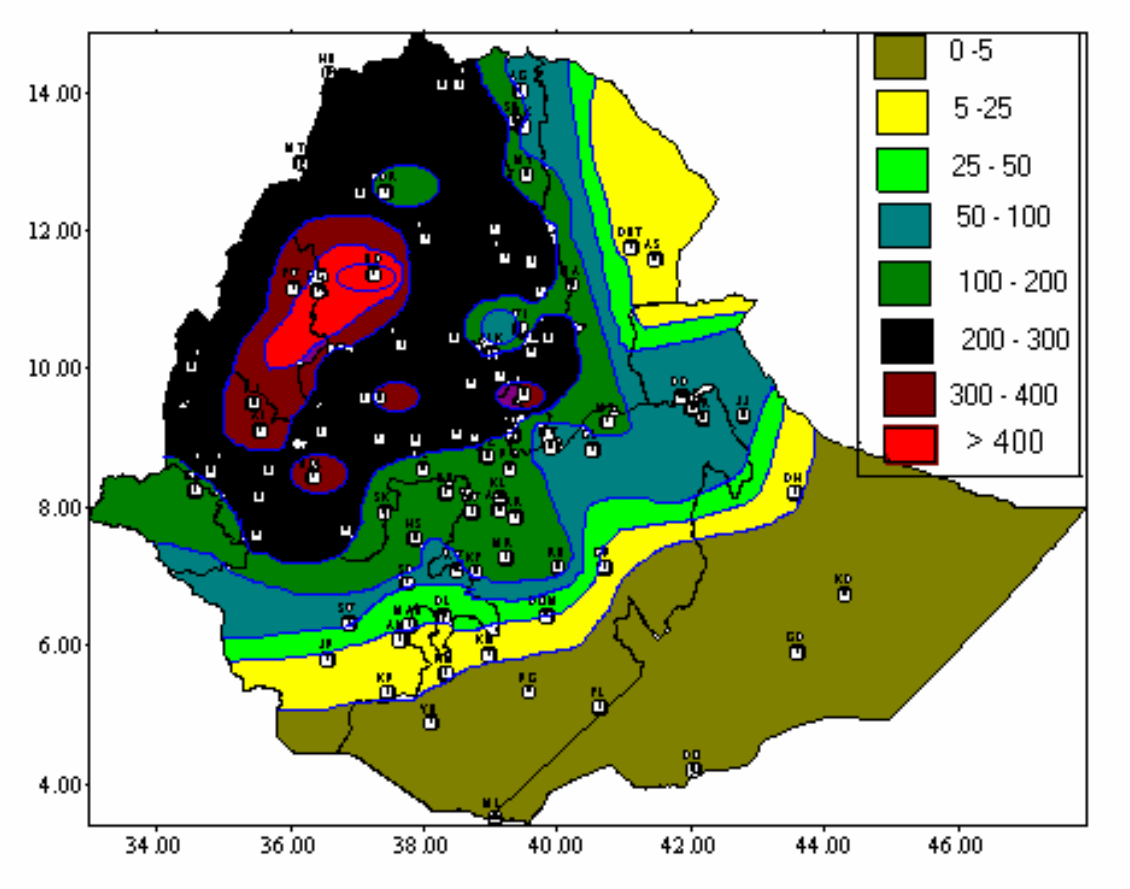


Fig. 3 Rainfall Distribution in mm for the month of July 2004

1.2 July 2004

1.2.1 Rainfall Amount (Fig.3)

Bahir Dar, Dangila, Kachise, Nejo, Aira, Debre Tabore, Debre Berihan, Bedelle, Nekemt, Shire, Enewary and Lalibela recorded 499.6, 488.2, 394.4, 346.1, 336.4, 333.7, 326.7, 300.5, 267.7, 259.1, 255.8 and 246.4 mm of monthly rainfall, respectively.

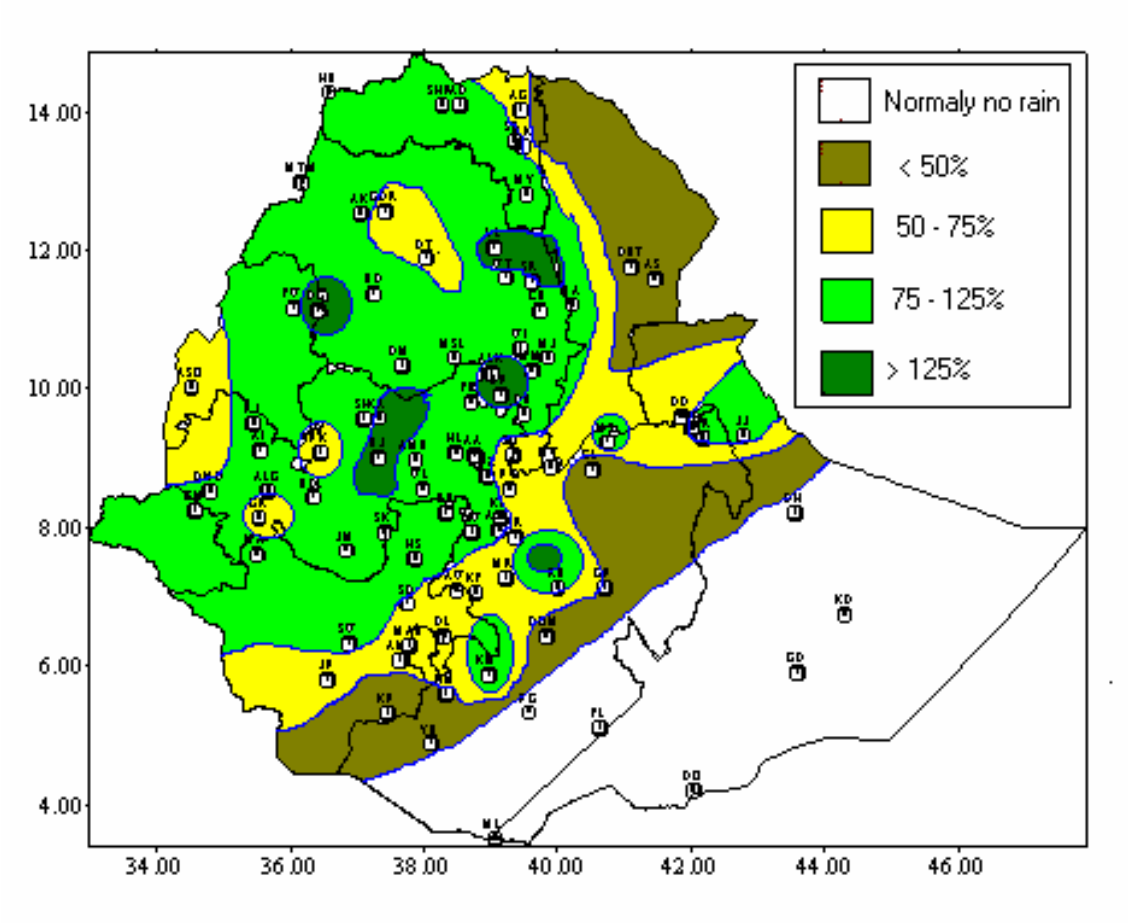


Fig. 4 Percent of Normal Rainfall for the month of July 2004

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)

Gambela, Amhara, much of Tigray, Benishangul-Gumuz, western, central, much of western and central Oromiya including pocket areas of eastern Oromiya, western margin of Afar, Gambela, parts of northern and western SNNPR experienced normal to above normal rainfall distribution while the rest of the country received below normal.

1.3 TEMPERATURE ANOMALY

There was no significant temperature anomaly over most parts of the country, as compared to that of the long-term average during the month.

2. WEATHER Outlook

2.1 For the first dekad of August 2004

In the coming dekad major rain-rain-bearing systems are anticipated to intensify across Kiremt-rain benefiting regions. Particularly, the rain will intensify over Tigray, Amhara, Central Oromiya as well as Afar regions. In addition, the seasonal rain will relatively increase over eastern Oromiya and the adjoining regions. In general, much of Tigray, Amhara, Benshangul-Gumuze, Gambela, western and central Oromiyia including Addis Ababa and northern SNNPR are expected to get normal to above normal rains. However eastern Oromiya, northern Somali and the adjoining regions will get below normal rains. Heavy rains are also anticipated to fall across central and northern sectors of Ethiopia.

2.2 For the month of August 2004

Well-organized rainfall patterns are anticipated to cover much of Tigray, Amhara, Benshangul-Gumuze, western and central Oromya and northern and western SNNPR regions. The presence of sunny interval, heavy rains accompanied with hail storms are also anticipated with bad storms are also anticipated to generate flash floods and rise water levels across the river banks, On the other hand, a further eastward expansion of wet condition will partially cease the prorogated dryness across eastern Oromya, Dire Dewa, northern Somali and parts of SNNPR regions. Where as, much of Afar is expected to get the normal rains within the north., When ever, the Kirmet rain - bearing systems such as ITCZ retreat south word, occasional rain showers over likely to occur over southern SNNPR and Oromya.

3. AGROMETEOROLOGICAL CONDITIONS AND IMPACT ON AGRICULTURE

3.1 VEGETATION CONDITION AND IMPACT ON AGRICULTURE

The rainfall condition was in a good shape over most parts of western half of Meher growing areas. As a result most reporting station reported good general crop field condition. Nevertheless, some areas of western, central and northeastern highlands exhibited heavy falls ranging from 30 - 95mm. Thus, some pocket areas of northern central and western Ethiopia reported crop damage and livestock loss. The observed normal to above normal rainfall over some pocket areas of pastoral and agro pastoral areas of northern Somali (Jijiga) and midland of southern Oromiya could favor crops including the availability of pasture and drinking water as well. Pursuant to the crop phenological report (third dekade of the month) sowing of pulses, oil crops and cereals was under way in some areas of western like Bullen and eastern Amhara like Kombolcha and Bati including northern and western Oromiya like Fitche and Gimbi. Sorghum was at tillering and shooting stages in some areas of eastern Amhara (Bati), western and eastern Oromiya (Alge, Gimbi, Aira and Gelemso) while at emergence stage in some areas of northern SNNPR (Bui). Maize was at tasseling and flowering stages in some areas of western and eastern Oromiya (Alge, Aira, Nejo, Sekoru, Dembi Dollo and Gelemso) including northern SNNPR (Bui) while at emergence stage in some areas of eastern Amhara (Sirinka). It was at wax ripening stage in some areas of southern Oromiya (Kebre Mengist) and northeastern SNNPR (Soddo). Teff was at emergence stage in some areas of northern Oromiya (Fitche) and western Oromiya as well as in some areas of northeastern SNNPR (Soddo). Millet was at third leaf stage in some areas of western Oromiya and western Amhara (Nejo and Chagni). In some areas of western and northern Oromiya (Nejo and Fitch) including some areas of western Oromiya wheat was at early vegetative stages. Oil crop like nug was at emergence and elongation stages in some areas of western and central Oromiya (Woliso and Asosa), respectively. In addition to this, pulse crops like beans and peas were at budding stage in some areas of northern Oromiya.

3.2 EXPECTED WEATHER IMPACTS ON AGRICULTURE DURING THE COMING MONTH

The anticipated better rainfall distribution over eastern Oromiya, Harrari and northern Somali would have positive impact for the remaining Meher agricultural activities. It would also ease the persistence dry conditions that prevailed over those areas during the preceding dekads. Thus, the on going water harvesting activities should continue over deficient areas of the aforementioned areas to mitigate the effect of water stress.

The expected normal to above normal rainfall distribution over Tigrai, Gamble, Amhara, Benishangul-Gumuz, western and central Oromiya and northern SNNPR and it would also have positive impact in the improvement of deficient condition which was observed over Benishangul-Gumuz during the past two consecutive ten days. However, the anticipated widespread and heavy falls over some areas of the above mentioned areas might result in crop damage. Thus, proper precaution should be undertaken to minimize the effect of excess water particularly over low-lying areas and near river banks. In addition to this, the anticipated near normal rainfall distribution over pastoral and agro-pastoral areas of eastern Oromiya, northern half Somali, much of Afar will have indispensable contribution for the availability of pasture and drinking water.

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

	Stations	Region	A/ rainfall	Normal	%of Normal	ETo mm/day	Monthly ETo	Moisture status
1	**Adigrat**	**TIGRAI**	96.8	186.9	51.8	4.5	135	M
2	**Adwa**		212.9	205.1	103.8	3.7	111	H
3	**Mekele**		64.3	202.2	31.8	4.2	126	M
4	**Michew**		140.8	154.7	91.0	4.6	138	H
5	**Senkata**		206.6	186.2	111.0	3	90	H
6	**Shire**		259.1	291.1	89.0	5.2	156	H
1	**Assayta**	**AFAR**	12.4	46.1	26.9	7.1	213	VD
2	**Dubti**		17.2	45.1	38.1	6.7	201	VD
3	**Gewane**		83.3	NA	NA	8.7	261	MD
1	**Bahirdar**	**AMHARA**	499.6	445.3	112.2	3.5	105	H
2	**Bati**		167.9	174.3	96.3	4.8	144	H
3	**Bullen**		222.4	NA	NA	3.1	93	H
4	**Combolcha**		232.5	243.9	95.3	4.50	135	H
5	**Chefa**		195.7	188.6	103.8	5.00	150	H
6	**D.Birhan**		326.7	328.1	99.6	NA	NA	NA
7	**D.Markos**		288	304.7	94.5	2.8	84	H
8	**D.Tabor**		333.7	468.2	71.3	NA	NA	NA
9	**Dangla**		488.2	250.3	195.0	3.4	102	H
10	**Enwary**		255.8	137.4	186.2	2.8	84	H
11	**Gonder**		128.6	251.9	51.1	NA	NA	NA
12	**M.Meda**		240.2	263	91.3	NA	NA	NA
13	**Majete**		199.9	189	105.8	4.3	129	H
14	**Lalibela**		246.3	186.5	132.1	3	90	H
15	**Sirinka**		230.2	167.5	137.4	4.4	132	H
16	**Woreilu**		85.4	80.7	105.8	3.5	105	M
17	**Wegeltena**		227.7	206.5	110.3	3.2	96	H
1	**Aira**	**OROMIYA**	336.4	301.9	111.4	3.1	93	H
2	**Alemaya**		71.32	103.5	68.9	4.2	126	M
3	**Ambo**		195.6	117.5	166.5	2.9	87	H
4	**Arsi Robe**		31.3	125.7	24.9	NA	NA	NA
5	**Asgory**		63.3	252.5	25.1	NA	NA	NA
6	**Bedelle**		300.5	316.6	94.9	2.9	87	H
7	**Bui**		208.7	125.2	166.7	3.6	108	H
8	**D.Mena**		22.3	52.2	42.7	NA	NA	NA
9	**D.Zeit**		167.7	218.3	76.8	3.6	108	H
10	**Ejaji**		205.9	133.9	153.8	3	90	H
11	**Fitche**		301.4	319	94.5	3.1	93	H
12	**Gelemso**		65.5	208.9	31.4	4.1	123	M
13	**Gore**		245.4	347.5	70.6	2.6	78	H
14	**Jimma**		215.9	212.2	101.7	NA	NA	NA
15	**K.Mengist**		21.1	25.6	82.4	2.7	81	MD
16	**Kachise**		394.34	256.5	153.7	NA	NA	NA
17	**Koffele**		114.5	170.8	67.0	NA	NA	NA
18	**Kulumsa**		106.2	128.7	82.5	3.3	99	H
19	**Masha**		374.6	286.2	130.9	2.3	69	H
20	**Meisso**		118.6	129	91.9	6	180	M
21	**Metehara**		63.6	107.1	59.4	5.9	177	MD
22	**Moyale**		0	7.4	0.0	4	120	VD

23	**Nazreth**		130.4	210.1	62.1	4.8	144	M
24	**Neghele**		0	7.4	0.0	4.2	126	VD
25	**Nedjo**		346.1	325.6	106.3	3.1	93	H
26	**Nekemte**		267.7	386.9	69.2	2.6	78	H
27	**Robe(Bale)**		124.8	91.1	137.0	4	120	H
28	**Sekoru**		179.9	211.5	85.1	2.9	87	H
29	**Shambu**		227.5	240.7	94.5	NA	NA	NA
30	**Woliso**		282	281.5	100.2	2.9	87	H
31	**Yabello**		3.8	13.6	27.9	3.3	99	VD
32	**Zeway**		167.2	150.5	111.1	4.3	129	H
1	**D.habur**	**SOMALI**	0	0	0.0	NA	NA	NA
2	**Gode**		0	0	0.0	8.1	243	VD
3	**Jijiga**		65.4	74.8	87.4	5.4	162	MD
1	**A.Minch**	**SNNPR**	24.2	44.6	54.3	4.1	123	D
2	**Awassa**		78.7	129.1	61.0	3.4	102	M
3	**Dilla**		77.9	119.2	65.4	3	90	M
4	**Hosaina**		135.3	151.6	89.2	3.03	90.9	H
5	**Jinka**		39.5	104.5	37.8	3	90	MD
6	**Konso**		26.6	130.3	20.4	4.3	129	D
7	**M.Abay**		41.8	31.5	132.7	NA	NA	NA
8	**Sawla**		118.7	NA	NA	3.2	96	H
9	**Sodo**		185.2	215.8	85.8	2.9	87	H
1	**Pawe**	**B/GUMUZ**	397.1	354.2	112.1	NA	NA	NA
2	**Chagni**		295.8	NA	NA	3	90	H
1	**A.A.Obs.**	**A.A**	235.9	252.6	93.4	2.7	81	H
1	**Diredawa**	**D.D**	53	71.4	74.2	7.5	225	D
1	**Harar**	**Harai**	81.3	67.9	119.7	3.5	105	M

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.

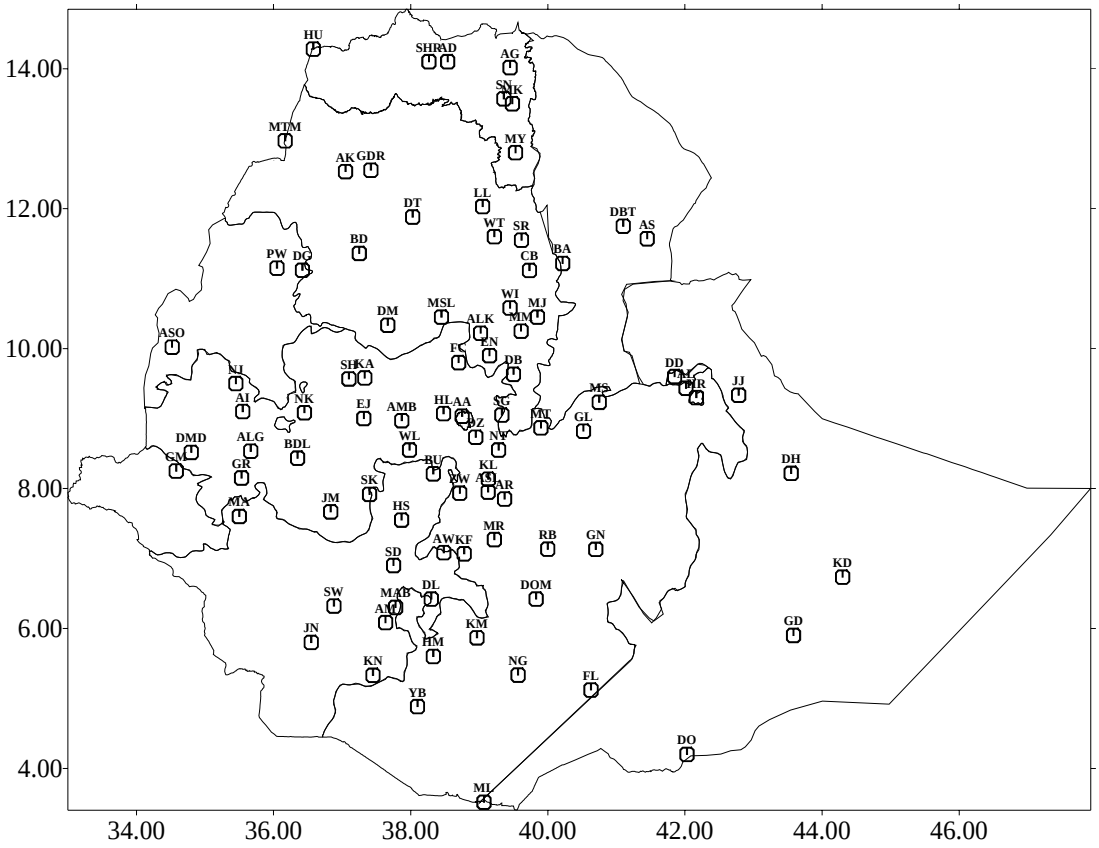
DEKAD: - First or second ten days or the remaining days of a month.

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.



STATIONS DISTRIBUTION FOR THE PREPARATION OF AGROMETEOROLGICAL BULETINS

Station	Code
A. Robe	AR
A.A. Bole	AA
Adigrat	AG
Adwa	AD
Aira	AI
Alemaya	AL
Alem Ketema	ALK
Alge	ALG
Ambo	AMB
Arbaminch	AM
Asaita	AS
Asela	ASL
Assosa	ASO
Awassa	AW
Aykel	AK
B. Dar	BD
Bati	BA
Bedelle	BDL
BUI	BU
Combolcha	CB
D.Berehan	DB
D.Habour	DH
D.Markos	DM
D.Zeit	DZ
D/Dawa	DD
D/Mena	DOM
D/Odo	DO
D/Tabor	DT
Dangla	DG
Dilla	DL
Dm.Dolo	DMD
Dubti	DBT
Ejaji	EJ
Enwary	EN
Fiche	FC
Filtu	FL
Gambela	GM
Gelemso	GL
Ginir	GN
Gode	GD
Gonder	GDR
Gore	GR
H/Mariam	HM
Harer	HR
Holleta	HL
Hossaina	HS
Humera	HU
Jijiga	JJ
Jimma	JM
Jinka	JN
K.Dehar	KD
K/Mingist	KM
Kachise	KA
Koffele	KF
Konso	KN
Kulumsa	KL
Lalibela	LL
M.Meda	MM
M/Abaya	MAB
Maichew	MY
Majete	MJ
Masha	MA
Mekele	MK
Merraro	MR
Metehara	MT
Metema	MTM
Mieso	MS
Moyale	ML
M/Selam	MSL
Nazereth	NT
Nedjo	NJ
Negelle	NG
Nekemte	NK
Pawe	PW
Robe	RB
Sawla	SW
Sekoru	SK
Senkata	SN
Shambu	SH
Shire	SHR
Shola Gebeya	SG
Sirinka	SR
Sodo	SD
Wegel Tena	WT
Woliso	WL
Woreilu	WI
Yabello	YB
Ziway	ZW