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FORE WARD

This Agro met Bulletin is prepared and disseminated by the National Meteorological Agency (NMA). 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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አህፅሮት

እ.ኤ.አ ክረምት 2009

የክረምቱ ወቅት ዝናብ በሚያዚያና በግንቦት ወር ለሚዘሩት የረዝም ጊዜ ሰብሉች የውሃ ፍላጎት የሚኖረው አስተዋፅዎ ከፍተኛ ሲሆን በበጋው ወቅት እድገታቸውን ለሚያጠናቅቁ የመኽር አዝርዕቶች ያለው ጠቀሜታ ከፍተኛ ነው። በተጨማሪ ከክረምቱ ዝናብ ባሻገር የበልግ ወቅት ዝናብ በተለይም በሚያዚያና በግንቦት ወር የሚኖረው የዝናብ መጠንም ሆነ በስርጭት ረገድ ለረ°ም ጊዜ ለሚደርሱ እንደ በቆሎና ማሽላ ላሉት አዝርዕቶች የዕድገት ሁኔታ አስተዋፅዎ የጎላ ነው

እ.ኤ.አ ባለፈውከጁን 2009 የዝናቡ መጠንና የቦታ ሽፋን በሀገሪቱ ደቡብ ምዕራብ አካባቢ ላይ በደበልጥ የተወሰነ ነበር ማለት ይቻላል። ይሁንና አልፎ አልፎ ከተፈጠሩት የተመቻቹ የሚቲዎሮሎጂ ገፅታዎች ጋር ተያይዞ በተለይም በወሩ መጨረሻ ሳምንት ላይ ዝናቡ በሰሜን" ሰሜን ምስራቅ መካከለኛውና ምስራቅ ኢትዮጵያ ላይ ተስፋፍተው ሲዘንብ ነበር። ይህም ሁኔታ ለክረምት የእርሻ ስራ እንቅስቃሴ ለቋሚ ተክሎች ለአጠቃላይ የእርሻው ሥራ እንቅስቃሴ ለአርብቶ አደሩና ለከፊል አርብቶ አደሩ እንደየ አካባቢው የዝናቡ አጀማመር ሁኔታ ጋር ጠቀሜታ እንደነበረው እሙን ነው።

እ.ኤ.አ በጁላይ ወር በአጥጋቢ ሁኔታ አብዛኛውን የሃገሪቱ አከባቢዎች ያዳረሰ ነበር ነው። በመሆኑም በአብዛኛው የሃገሪቱ የወቅቱ ዝናብ ተጠቃሚ አካባቢዎች ላይ የክረምት ዝናብ ነበር። ከደቡብ ምዕራብ በተሻለ መልኩ በሰሜን ምስራቅ የሃገሪቱ ክፍሎቿ ላይ ታይቷል። በአጠቃላይ ትግራይ፣ አማራ፣ ቤንሻንጉል፣ጉምዝ፣ ጋምቤላ፣ ምዕራብና መካከለኛው ኦሮሚያ፣ የደቡብ ብሄረሰቦችና ሕዝቦች ክልል፣ አፋር፣ ምስራቅ ኦሮሞያ፣ ድሬዳዋ፣ ሃረርና ሰሜን ሱማሌ ዝናብ አገኝተዋል። ይኽም የዝናብ ሁኔታ ቀደም ሲል ከሰኔ በፊት ለተዘሩ የረጅም ጊዜ ሰብሎች እንደ በቀሎ ማሽላ ላሉት ምቹ ሁኔታን ከመፍጠሩም በላይ የብርዕ ሠብሎች እንደ ስንዴ፣ ገብስ፣ ጓጃ ለመሣሠሉት በዘርና በቡቃያ ደረጃ ላሉት በጎ ጎን እንደሚኖረው ይታመናል ይሁንና አንዳንድ አካባቢዎች በምዕራብ፣ በሰሜን ምዕራብ፣ በሰሜን ምስራቅ (በአልጌ፣በፖዊ፣ ሬማ፣ ሻምቡ፣ ባቲና ዱብቲ) ኪስ ቦታዎች በወሩ በመጀመሪያና በሦስተኛው አስር ቀናት የጣለው ከፍተኛ ዝናብ ጎርፍ በማስከተሉ በመዘራ ትና በመድረስ ላይ ባሉ ሰብሎች ላይ መጠነኛ ጉዳት ማድረሱን ከደረሰን ሪፖርት መረዳት ተችሏል በአጠቃላይ የነበረው የተስፋፋ ዝናብ ለመኽር ወቅት የእርሻ እንቅስቃሴ እንዲሁም በምስራቅና በሰሜን ምስራቅ ለሚገኙ አርብቶ አደሩና ጥምር ግብርና ለሚካሄድባቸው ለግጦሽና ለመጠጥ ውሃ አቅርቦት በጎ ጎን ነበር።

ባለፈው ኦገስት ወር 2009 በአብዛኛው የወቅቱ ዝናብ ተጠቃሚ አካባቢዎች ተሸፈነ ዝናብ የነበረ ቢሆንም በቦታና በጊዜ ስርጭት አንፃር የዘነበው ዝናብ ተመሳሳይ አልነበረም። በአጠቃላይ ትግራይ" አማራ" አፋር ቤንሻንጉል ጉሙዝ" አብዛኛው ኦሮሚያ" ጋምቤላ" የደቡብ ብሔር ብሔረሰቦች ህዝቦች ክልል ሰሜናዊ አጋማሽ" ድሬደዋ" ሐረርጌ" ሰሜን ሶማሌ ዝናብ አግኝተዋል። በአንዳንድ አካባቢዎቻቸው ላይ ከባድ ዝናብ ነበራቸው። ይህም ሁኔታ ለተለያዩ የእድገት ደረጃ ላይ ላሉ የመኽር ሰብሎች ለቋሚ ተክሎች እና ለአርብቶ አደሩና ከፊል አርብቶ አደሩ ለግጦሽ ሳር እና ለውሃ አቅርቦት አመቺ ሁኔታ እንደነበረው ይታመናል። ሆኖም በምስራቅ የሀገሪቱ አጋማሽ ላይ የነበረው ዝናብ ተከታታይነት ያልነበረውና በመጠንም ሆነ በስርጭት ያልተስተካከለ ቢሆንም በተወሰነ መልኩ ለአካባቢው እየተካሄደ ላለው የመኽር እርሻ እንቅስቃሴና ለአጠቃላይ የእርሻ ሥራ እንቅስቃሴ እንደ አካባቢው ሁኔታ የተወሰነ ጠቀሜታ እንደነበረው እሙን ነው።

የክረምት ዝናብ ቀስ በቀስ ከሰሜን ምስራቅና ከሰሜን የሀገሪቷ አካባቢዎች እየለቀቀ በዋናነት በምዕራብ በደቡብ ምዕራብና መካከለኛው ኢትዮጵያ ላይ ተወስኖ የቆየ ሲሆን በምስራቅ የሀገሪቷ አካባቢዎች በባሌና አርሲ ዞኖች እንዲሁም ደቡብ ኦሮሚያ በአንዳንድ ቦታዎቻቸው ላይ ከባድ ዝናብ ነበራቸው። በተለይም ምዕራብ ትግራይ ምዕራብ አማራና የምስራቅ አማራ ኪስ ቦታዎች ቤብኛንጉል ጉሙዝ ጋምቤላ በአብዛኛው ኦሮሚያ የደቡብ ብሔር ብሔረሰቦችና ህዝቦች ክልል መደበኛና ከመደበኛ በላይ ያገኙ ሲሆን ይህ ሁኔታ በአካባቢው ለሚኖሩት አርብቶ አደሮችና ከፊል አርብቶ አደሮች ለግጦሽ ሳር ልምላሜና ለመጠጥ ውሃ አቅርቦት እንዲሁም በአካባቢው ዘግይተው ለተዘሩ እና

በተለያየ የአድገት ደረጃ ላይ ላሉት የክረምት ሰብሎች የውሃ ፍላጎት መሟላት አዎንታዊ ተፅዕኖ ነበረው። ቀሪዎቹ የሸገሪቱ ክፍሎች የነበራቸው ዝናብ ከመደበኛ ያነሰ ነበር። ይህም ሁኔታ በአካባቢው ለሚኖሩት አርብቶ አደሮችና ከፊል አርብቶ አደሮች ለግጦሽ ሳር ልምላሜና ለመጠጥ ውሃ አቅርቦት እንዲሁም በአካባቢው ዘግይተው ለተዘሩ እና በተለያየ የአድገት ደረጃ ላይ ላሉት የክረምት ሰብሎች የውሃ ፍላጎት መሟላት በተወሰነ ደረጃ ጠቀሜታ ነበረው።

አጠቃላይ የዘንድሮ ክርምት ዝናብ መጠንና ስርጭት በአብዛኛው መከር አብቃይ አካባቢዎች የረጅም ጊዜ የሸገዳ ሰብሎች ከሆኑት ከበቆሎና ማሽላ በስተቀር ከአጠቃላይ የመኸር ሰብሎች የውሃ ፍላጎት እርካታ አኳያ ሲታይ በአጭር ጊዜ ለሚደርሱ የመኸር ሰብሎች እጅግ በጣም ተስማሚ እንደነበረ እሙን ነው፡፡ ሆኖም እ.ኤ.አ ከኤፕሪልና ሜይ ወራት ጀምሮ ከነበረው የተሻለ የዝናብ ስርጭት አኳያ በደቡብ ምዕራብና በምዕራብ ኢትዮጵያ አካባቢዎች ለቋሚ ሰብሎችና ለረጅም ጊዜ የሸገዳ ሰብሎች ምቹ ነበር፡፡ በተጨማሪም ከጁላየ ጀምሮ እየተሻሻለ ከመጣው የዝናብ ስርጭት አንጻር ለእርጥበት እጥረት ተጋልጠው የነበሩት አርብቶ አደሩና ከፊል አርብቶ አደሩ አካባቢዎች የውሃውንና የግጦሽ ሣር አቅርቦቱን በእጅጉ አንዳሻሻለው እሙን ነው፡፡

KIREMT 2009

SUMMARY

Kiremt is the season that fulfills the water requirement of long cycle crops which are planted in the months of April- May and Meher crops that achieve maturity during the Bega season. In addition to the Kiremt rain, the Belg seasonal rainfall, the rainfall amount and distribution during the months of April and May has significant impact on the performance of long cycle crops (maize and sorghum).

During the month of June 2009, the rainfall amount and distribution was sufficient over southwestern parts of the country, however, in the last week of the month as a result of favorable weather system over southern, southeastern, central and eastern parts of were observed rainfall. The situation might have favored Meher agricultural activities like land preparation and sowing activities, perennial crops and availability of pasture and water over pastoral and agro-pastoral areas of the country.

During the month of July 2009, season's rainfall strengthened over most parts of Kiremt benefiting areas. However, the distribution was in good shape in northeastern parts compared with southwestern parts of the country. Besides Tigray, Amhara Benishangul-Gumuz, Gambella, western, eastern and central Oromia, SNNPR, Afar, Dire Dawa, Harari and northern Somali received rain. This situation might have created positive impact on early sown long cycle crops like Maize and sorghum and crops like wheat, barely and oat found at sowing and emergency stages. On the other hand, at the first and third dekad of the month occasional heavy fall observed over pocket areas of western, northwestern and northeastern parts of the country, as a result slight crop damage was reported over Alge, Pawe, Rama, and Shambu and Bati where crops were found at vegetative and maturity stage. On the other hand the observed over all rainfall condition would favor the availability of pasture and drinking water over eastern and northeastern pastoral and agro pastoral areas of the country.

During the month of August 2009, the seasonal rainfall activity covered over most parts of Kiremt benefiting areas. However, the distribution was not in the similar manner over eastern half of country. In general Tigray, Amhara Beshangul-Gumuz, Gambella, most of Oromia, northern half of SNNPR, Afar, Dire Dawa, Harari and northern Somali received rainfall. The situation might have positive impact on Meher agricultural activities, perennial crops and for pasture and drinking water availability over pastoral and agro-pastoral areas. On the other hand, in the second dekad of the month from Fitch, Bullen and Hossaina their were report crop and trees damage due to heavy fall.

During the month of September 2009, the seasonal rainfall was intensive over western, northwestern and central Ethiopia. In addition, over eastern Ethiopia, Bale and Arsi zone and parts of southern Oromia were observed heavy fall. Moreover, the observed normal to above normal western Tigray, western Amhara and pocket area of eastern Amhara, Benishangul-Gumuz, Gambella, most of Oromia, and SNNPR was conducive for the late sown Meher crops, general agricultural activities, availabilities of pasture and water over pastoral and agro-pastoral areas. On the other hand, the observed below normal rainfall over the rest parts of the country might have a negative impact for the late sown Meher crops, availability of pasture and drinking water over pastoral and agro-pastoral areas.

In general the onset of Kiremt 2009 rains was late over most Meher growing areas of the country. The soil moisture reserves during July-September enabled crops fully sustain their growth. The

situation of rain distribution followed sunshine duration over Meher growing areas favored the growth and development of crops. The observed moisture condition throughout the months benefited the Meher agricultural activities, availability of pasture and drinking water over pastoral and agro-pastoral areas, without considerable crop damage due to heavy fall on different crops over most Meher growing areas of the country. However, moisture stress observed over some lowland Meher growing areas of the country.

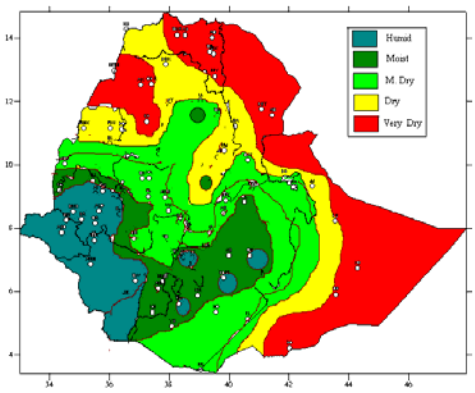


Fig1. Moisture status for the month of April 2009

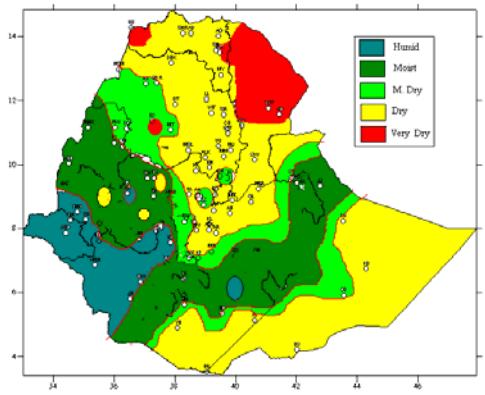


Fig2. Moisture status for the month of May 2009

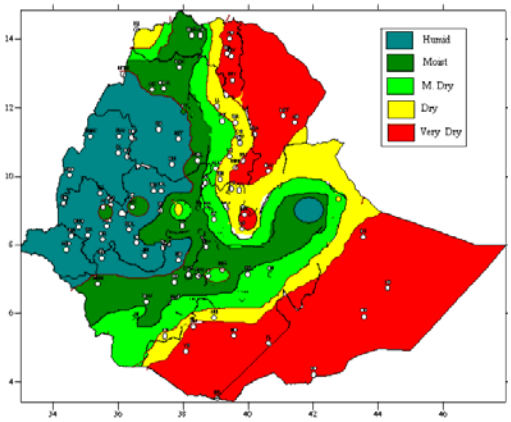


Fig3. Moisture status for the month of June 2009

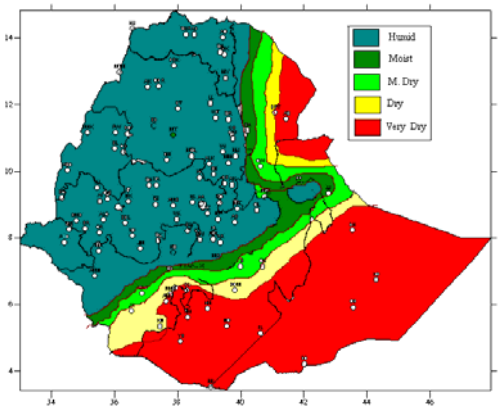


Fig4. Moisture status for the month of July 2009

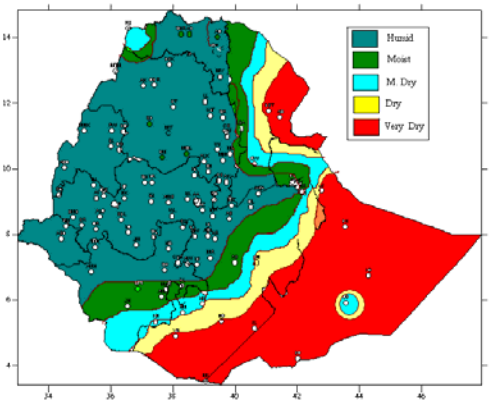


Fig5. Moisture status for the month of August 2009

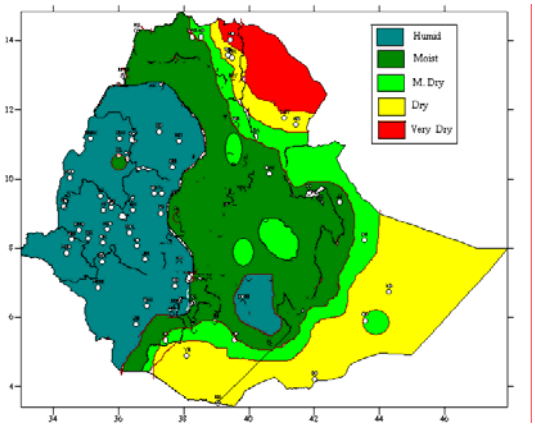


Fig6. Moisture status for the month of September 2009

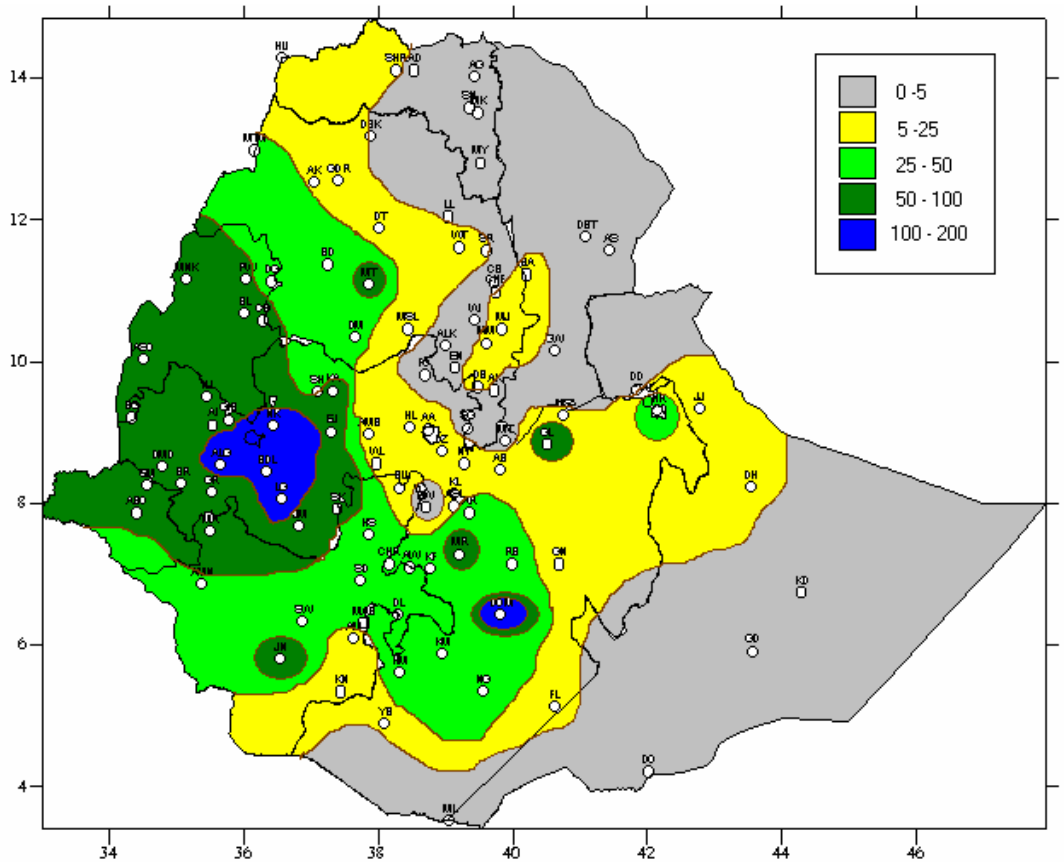


Fig. 6 Rainfall distribution in mm (21-31 September 2009)

1. WEATHER ASSESSMENT

1.1 September 21-31, 2009

1.1.1 Rainfall Amount (Fig 6)

Pocket areas western and southern Oromia received 100-200 mm rainfall. Most of Gambella, Benishangul-Gumuz, part of western and pocket areas of central and southern Oromia, part of western and pocket area of southern SNNPR and pocket area of southern Amhara experienced 50-100 mm rainfall. Parts of western and northern SNNPR, southwestern Amhara, and southern Gambella, and northern Benishangul-Gumuz, parts of western and southern and pocket area of eastern Oromia exhibited 25-50 mm rainfall. Western half of Tigray, north-south margin and parts of eastern Amhara, parts of central, eastern and southern Oromia, northern Somali and western tip of Afar received 5-25 mm rainfall. The rest parts of the country experienced little or no rainfall.

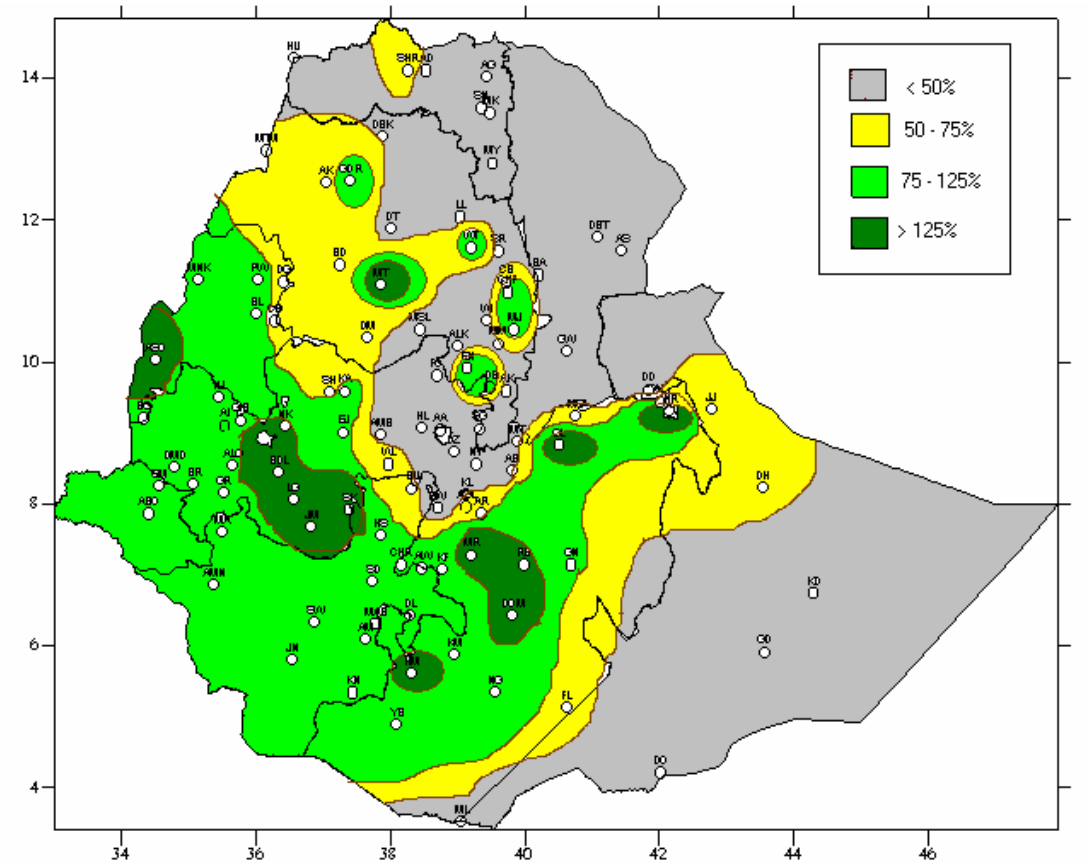


Fig. 7 Percent of normal (21-31 September 2009)

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 7)**

Gambella, much of SNNPR and Benishangul-Gumuz, parts of western, eastern and southern Oromia, pocket areas of Amhara received normal to above normal rainfall. The rest parts of the country experienced below normal to much below normal rainfall.

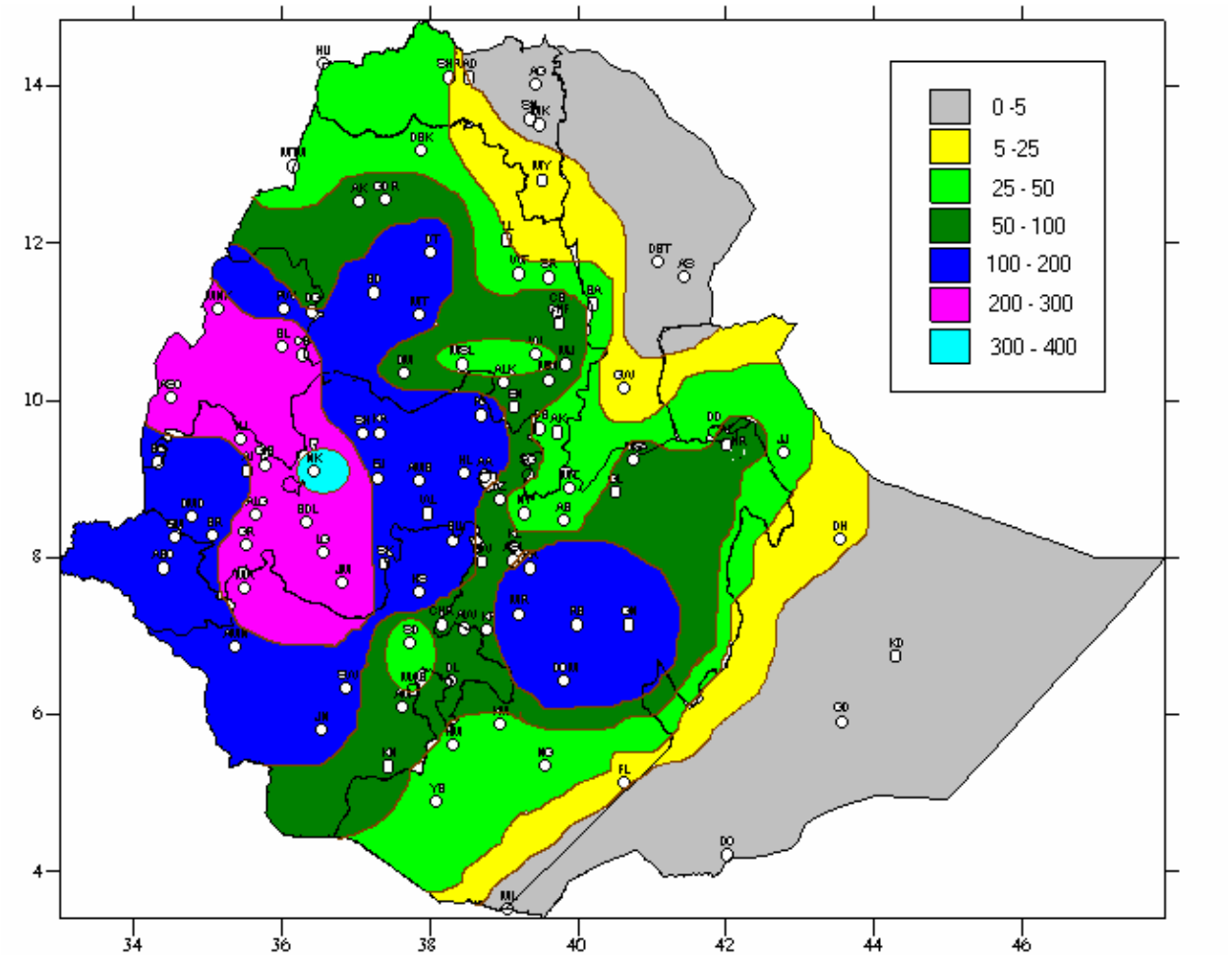


Fig. 8 Rainfall Distribution in mm for the month of September 2009

1.2 September 2009

1.2.1 Rainfall Amount (Fig. 8)

Western Amhara received 300-400 mm of rainfall. Gambella, western half of Amhara and SNNPR, pocket areas of central and eastern Amhara, northern half of Benishangul-Gumuz, parts of western and pocket areas of central Oromia received 200-300 mm of rainfall. Most of Oromia, Southern half of Benishangul-Gumuz, parts of central and eastern Amhara and pocket areas of western Tigray received 100-200 mm rainfall. Parts of eastern half of SNNPR, parts of western, central and southern Tigray, eastern half of Amhara, pocket areas of western, eastern central & southern Oromia and western margins of Somali and Afar received 50-100 mm rainfall. Parts of western and southern half of Tigray, western margins of margins of Somali and Afar received 25-50 mm rainfall. The rest parts of the country exhibited little or no rainfall.

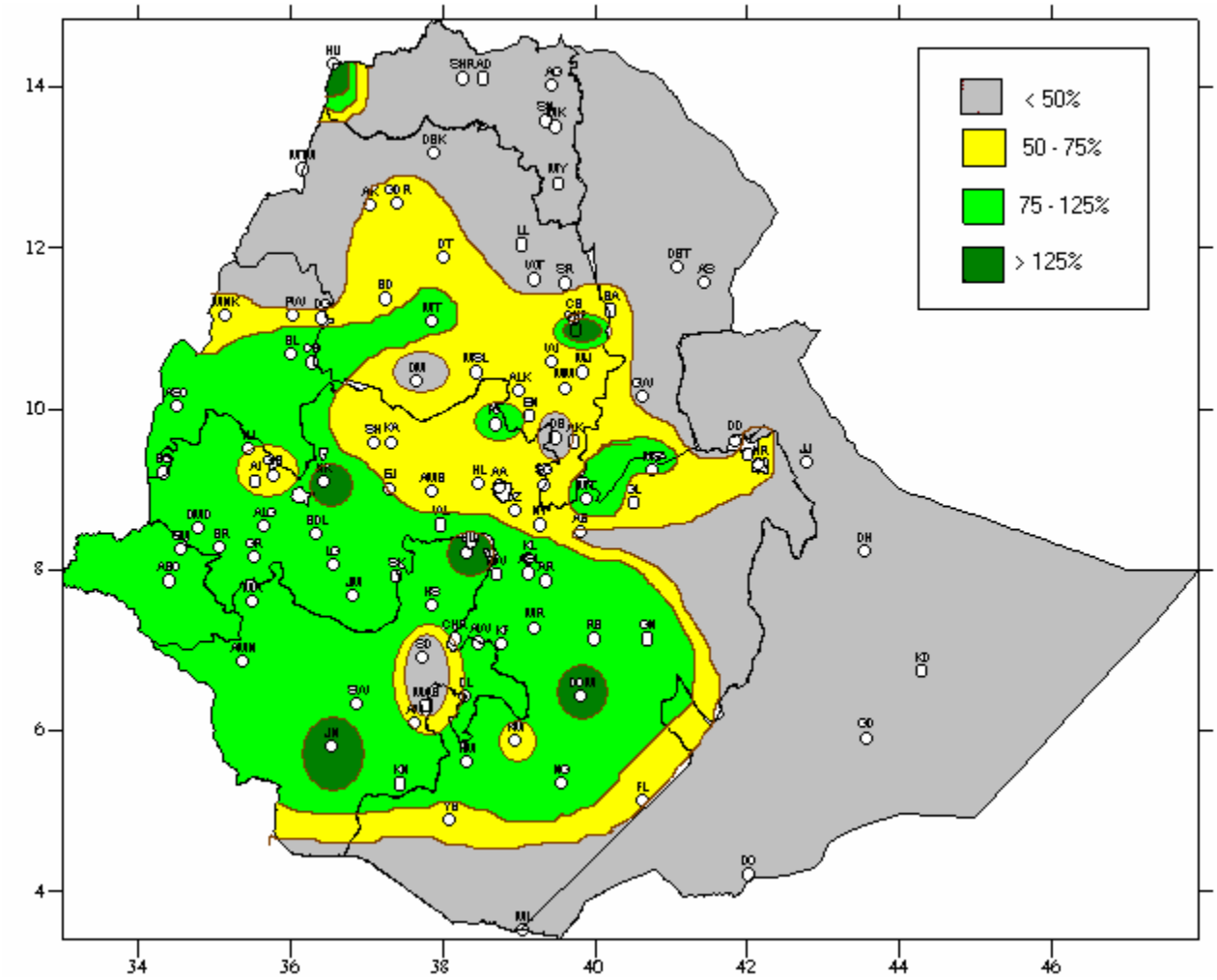


Fig. 9 Percent of Normal Rainfall for the month of September 2009

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. 9)

SNNPR, Gambella, Amhara, Benishangul-Gumuz, most of Oromia, Tigray, southwestern Somali, southern and central Afar received normal to above normal rainfall. The rest parts of the country exhibited below normal to much below normal rainfall.

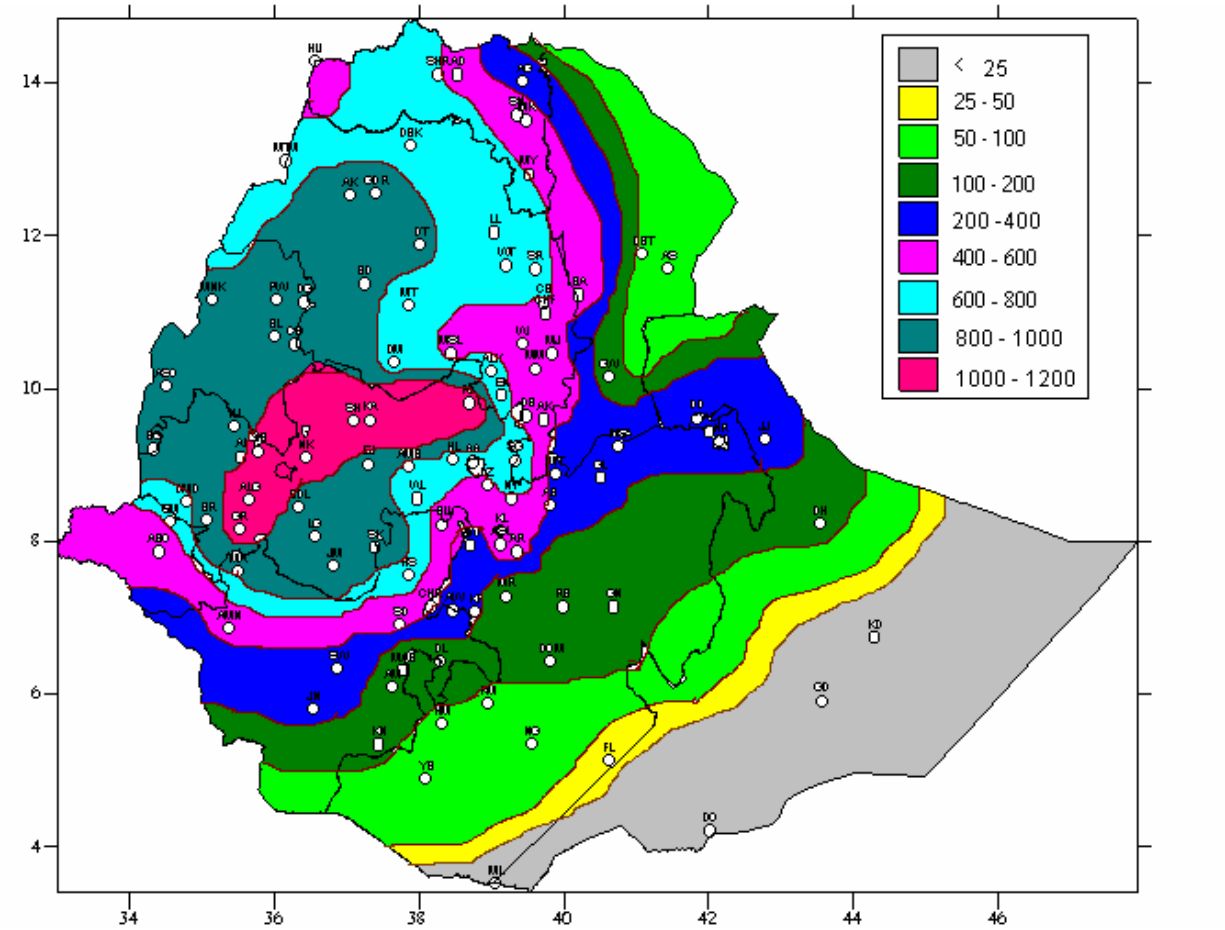


Fig. 10 Rainfall Distribution in mm for Kiremt 2009

1.3 Kiremt 2009

1.3.1 Rainfall Amount (Fig. 10)

Some parts of western and pocket area of central Oromia and pocket area of Benishangul-Gumuz received 1000-1200mm rainfall. Most parts of Benishangul-Gumuz, western parts of Amhara and most parts of western Oromia received 800-1000 mm rainfall. Most parts of Amhara, western half of Tigray and some central parts of central parts of the country received 600-800 mm of rainfall. Western tip and south eastern Tigray, Eastern Oromia, western margin of Afar, southern Amhara, most parts of Gambella, north western parts of SNNPR and central parts of the country received 400-600mm of rainfall. Parts of Afar, southern and eastern SNNPR, central and southern Oromia, northern parts of Somali received 100-200mm of rainfall. Southern Oromia, central parts of Somali, most parts of Afar received 50-100mm of rainfall. The rest parts of the country exhibited below 50mm or little rainfall.

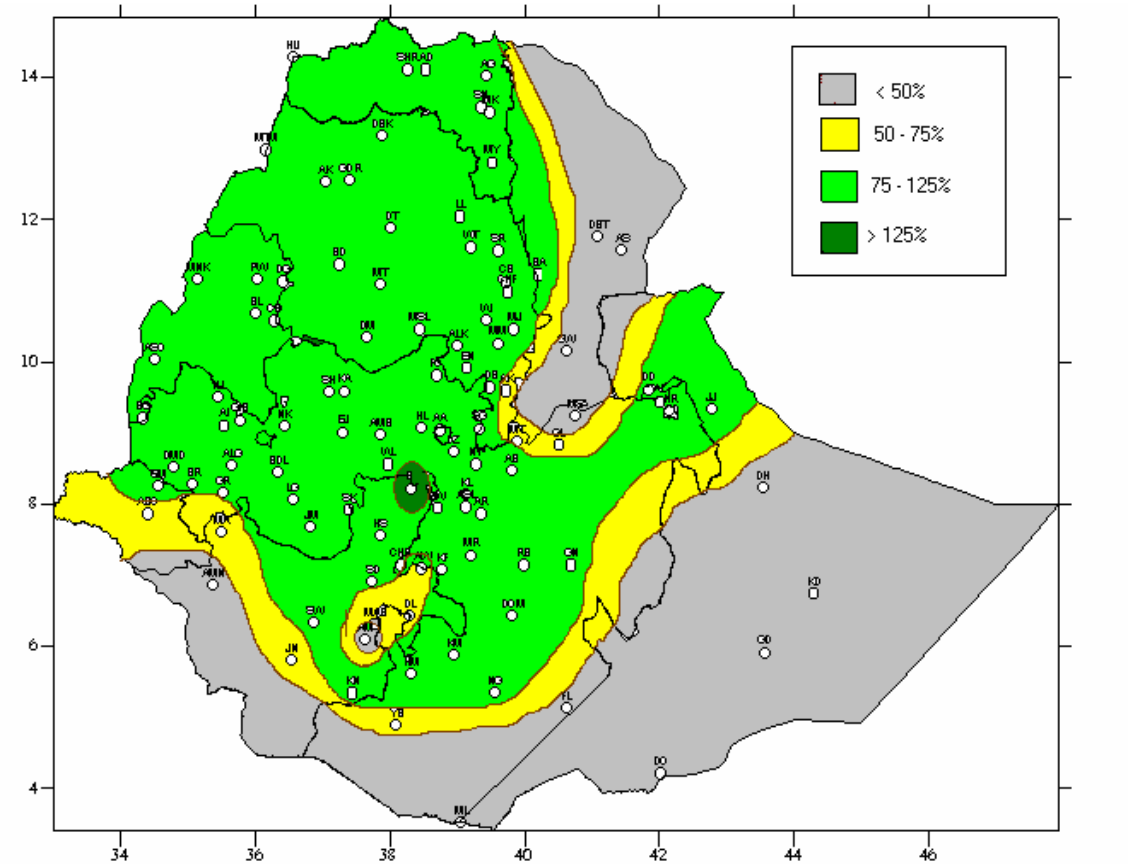


Fig. 11 Percent of Normal Rainfall for Kiremt 2009

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

1.3.2 Rainfall Anomaly (Fig. 11)

Much of Afar and Somali, parts of southern Oromia and southwestern SNNPR and southern half of Gambella received below normal to much below normal rainfall. The rest parts of the country experienced normal rainfall.

1.4 TEMPERATURE ANOMALY

During the month under review some areas exhibited extreme maximum air temperature above 35^0C. Among the recording stations Dire Dawa, Gode, Metehara, Assayta, Aysha, Dubti, Elidar, Gambella, Humera, Mille and Semera recorded extreme maximum temperature as high as 37.7, 37.5, 37.5, 43.0, 40.0, 43.4, 40.5, 37.5, 40.0, 41.0 and 42.5^0C respectively.

2. AGROMETEOROLOGICAL CONDTIONS AND IMPACT ON AGRICULTURE

2.1 VEGETATION CONDITION AND IMPACT ON AGRICULTURE DURING KIREMT 2009

The onset of Kiremt 2009 rains was late over most Meher growing areas of the country. The soil moisture reserves during July-September enabled crops fully sustain their growth. The situation of rain distribution followed sunshine duration over Meher growing areas favored the growth and development of crops. The observed moisture condition throughout the months benefited the Meher agricultural activities, availability of pasture and drinking water over pastoral and agro-pastoral areas, without considerable crop damage due to heavy fall on different crops over most Meher growing areas of the country. However, moisture stress observed over some lowland Meher growing areas of the country. Pursuant to crop phenological report, Please see table1 for detailed information. Reported no diseases on Meher crops.

Table1. Crop Phenological report for 21-30 September, 2009

Station	Region	Zone	Woreda	Major Crops			Phases		
				1	2	3	1	2	3
Adet	Amahara	M/ Gojjam	Adet	Maize	Barely	Teff	Wr	H	F
A/Ketem	Amahara	S/ Shewa	Laybet	Teff	Nug	-	Ta	Bu	-
Arsi Robe	Oromiya	E\Shewa	Robe	Teff	Wheat	-	Sh	TL	-
Bati	Amhara	Oromiya	S/wello	Teff	-	-	Ri	H	-
D/Birhan	Amahara	S/ shewa	D/Birhan	Barley	Wheat	Beans	F	Sh	Sh
Gelemeso	Oromia	M/ Haraghe	Habro	Maize	-	Teff	FR	-	Sh
Beddle	Oromiya	Illubabour	Yem	-	Teff	-	-	Ta	-
Dangla	Amahra	Agewawi	Dangla	Teff	Millet	-	Sh	TL	-
Motta	Amhara	W/Gojiam	Huletij enese	Teff	-	-	Ta	-	-
Pawe	Amhara	Agewawi	Dangla	Maize	Seaseme	-	-	-	-
Chagni	Amhara	Agewawi	Gawagawa	Maize	Millet	-	WR	-	-
Chira	Oromiya	Illbabour	kulukonta	-	Teff	-	H	Ta	-
Bullen	B/Gumuz	Metekel	Bullen	Millet	Teff	-	Ta	Ta	-
Shambu	Oromia	E/Wollega	H/gudru	Beans	Peans	Wheat	Bu	FL	Sh
Sekoru	Oromia	Jimma	Sokoru	Maize	Teff	-	WR	Sh	-
S/Gebeya	Amahara	M/ Shewa	kesem	Wheat	Beans	-	Sh	FL	-
Wolliso	Oromiya	W/Shewa	W&Goroage	Nug	Wheat	Teff	YRG	Er	-
Zeway	Oromiya	E/Shewa		Wheat	Teff	-	Er	Ta	-

Key :

P/S= Plant/Sow
Em=emerge
Tl=Third leaf
Fl=Fifth leaf
Sl=Seventh leaf
Yr=Yellow ripe
Nl= Ninth leaf
El= Elongation

Ta = Tassel
Ti=Tiller
Sh=shoot
Bs= Berry soft
Bh= Berry hard
Ph= Pin heading
Ea= Earing
He= Heading
Bu= budding
Fl=Flower
R = ripeness

Cr= Consumer ripeness
Gr= Green ripeness
Wr= Wax ripeness
Yg r= yellow green ripeness
Lgr =light green ripeness
Dr= dark ripeness
Fr= Full ripeness
H =Harvested
-Data not available

2.2 EXPECTED WEATHER IMPACTS ON AGRICULTURE DURING THE COMING BEGA SEASON

Harvest and post harvest activities are the major practices over most parts of Meher growing areas; it is a cropping time for southern and southeastern lowlands of agro-pastoral areas to perform water-harvesting activities for pastoral and agro pastoral areas of southern and southeastern lowlands. The weather situation could favor the outbreak of pests if there is untimely rain, favorable environment and the pest itself; besides, the dry and windy Bega's weather situation is favorable for the occurrence and spread of fire.

The probabilistic seasonal forecast over Western and northwestern Ethiopia will experience a probability of below normal condition which is conducive for Meher harvesting and post-harvesting activities.

The probabilistic seasonal forecast over southwestern parts of Ethiopia will experience a probability of normal to above normal condition which is conducive for general agricultural activities, perennial crops, and availability of pastor & water over pastoral and agro pastoral areas.

The probability of seasonal forecast over Eastern, southeastern, northeastern and parts of southern Ethiopia will experience a probability of normal to above normal rainfall which , will have a positive impact for the late sown Meher crops and pasture and drinking water availabilities over postural and agro-postural areas. However, will have a negative impact for harvest and post-harvest activities where Meher crops normally expected to mature over most lowlands. The expected unseasonal rainfall over eastern and north-eastern sector of the country will create favourable condition for the occurrence of crop pest and disease and harvest and post-harvest losses. Therefore proper precaution measures should be taken a head of time to minimize crop loses. The probability of less occurrence of frost is eexpected over frost prone areas.

Table1. Climatic and Agro-Climatic elements of different stations **for the month of September 2009**

Table 2. Climatic and Agro-Climatic elements of different stations for the month of September 2009									
No.	**Stations**	**Region**	**A/ rainfall**	**Normal**	**%of Normal**	**Eto mm/day**	**Eto Monthly**	**Moisture**	**Moisture Statuse**
1	**Adigrat**	**TIGRAY**	**0.4**	**16.6**	**2**	**4.51**	**135.3**	**0.0**	**VD**
2	**Adwa**		**1.8**	**104.5**	**2**	**4.68**	**140.4**	**0.0**	**VD**
3	**Atsbi**		**10**	**0**	**NA**	**NA**	**NA**	**NA**	**NA**
4	**Axum**		**11.2**	**58.5**	**19**	**4.83**	**144.9**	**0.2**	**D**
5	**Humera**		**128**	**92.3**	**139**	**6.61**	**198.3**	**0.8**	**M**
6	**Maichew**		**8.7**	**78.6**	**11**	**4.34**	**130.2**	**0.3**	**MD**
7	**Mekele**		**3.7**	**25.2**	**15**	**5.02**	**150.6**	**0.0**	**VD**
8	**Senkata**		**1.5**	**35.2**	**4**	**NA**	**NA**	**NA**	**NA**
9	**Shire**		**51.3**	**120.9**	**42**	**5.95**	**178.5**	**0.4**	**MD**
10	**Shaura**		**89.4**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
11	**Sheraro**		**4.8**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
1	**Assayta**	**AFAR**	**1.7**	**12.8**	**13**	**4.45**	**133.5**	**0.1**	**D**
2	**Dubti**		**1.2**	**16.1**	**7**	**7.05**	**211.5**	**0.0**	**VD**
3	**Mille**		**0**	**NA**	**NA**	**6.31**	**189.3**	**0.0**	**VD**
4	**semera**		**1.8**	**NA**	**NA**	**8.5**	**255**	**0.1**	**D**
1	**A/Ketema**	**AMHARA**	**71.8**	**132.2**	**54**	**4.31**	**129.3**	**0.8**	**M**
2	**Adet**		**112.6**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
3	**A. Mariam**		**35.8**	**63.7**	**56**	**NA**	**NA**	**NA**	**NA**
4	**Ayehu**		**102.7**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
5	**B. Dar**		**122.3**	**193.2**	**63**	**3.57**	**107.1**	**1.3**	**H**
6	**Bati**		**41.3**	**76.8**	**54**	**4.53**	**135.9**	**0.5**	**MD**
7	**Cheffa**		**56.6**	**33.9**	**167**	**NA**	**NA**	**NA**	**NA**
8	**Combolcha**		**58.4**	**121.2**	**48**	**3.53**	**105.9**	**0.8**	**M**
9	**D.Berehan**		**31.3**	**76.1**	**41**	**3.22**	**96.6**	**0.6**	**M**
10	**D.Markos**		**88.9**	**212.4**	**42**	**3.52**	**105.6**	**1.1**	**H**
11	**D.Tabor**		**113.2**	**186.1**	**61**	**3.59**	**107.7**	**1.2**	**H**
12	**D/work**		**37.3**	**107.7**	**35**	**NA**	**NA**	**NA**	**NA**
13	**Enewari**		**64.4**	**99.3**	**65**	**5.72**	**171.6**	**0.4**	**MD**
14	**Gondar**		**62.6**	**116.1**	**54**	**4.19**	**125.7**	**0.7**	**M**
15	**Lalibela**		**20.2**	**43.4**	**47**	**4.07**	**122.1**	**0.4**	**MD**
16	**Layber**		**72.3**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
18	**M.Meda**		**47.9**	**69.9**	**69**	**4.38**	**131.4**	**0.6**	**M**
19	**Majete**		**82.9**	**119.8**	**69**	**4.7**	**141**	**0.8**	**M**
20	**Mota**		**131.3**	**151.2**	**87**	**2.67**	**80.1**	**1.7**	**H**
21	**M. Selam**		**26.3**	**NA**	**NA**	**3.96**	**118.8**	**0.4**	**MD**
2	**S. Abaya**		**18.7**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
23	**w/Illu**		**38.7**	**76.7**	**50**	**3.97**	**119.1**	**0.5**	**MD**
24	**W.Tena**		**5.3**	**62.2**	**9**	**NA**	**NA**	**NA**	**NA**
1	**A. Robe**	**OROMIA**	**101.8**	**116.7**	**87**	**4.24**	**127.2**	**1.0**	**H**
2	**Abomsa**		**47.7**	**113.8**	**42**	**5.12**	**153.6**	**0.5**	**MD**

3	Aira		188.7	271.8	69	NA	NA	NA	NA
4	Alemaya		62.7	112.7	56	4.19	125.7	0.7	M
5	Alge		288	298.9	96	3.7	111	2.4	H
6	Ambo		65.3	110.8	59	4.37	131.1	0.7	M
7	Asossa		224.2	194	116	3.87	116.1	2.0	H
8	Addele		66.8	92.6	72	NA	NA	NA	NA
9	Bedelle		217.5	221.7	98	4.28	128.4	1.5	H
10	Bui		116.8	45.5	257	5.11	153.3	0.9	M
11	Bilate		42.4	55.1	77	5.07	152.1	0.5	MD
12	Chria		259.1	217.2	119	3.84	115.2	2.3	H
13	D.Zeit		37.3	104	36	4.02	120.6	0.5	MD
14	D/mena		149.4	75.9	197	4.66	139.8	1.3	H
15	Dm.Dolo		135	151.6	89	3.66	109.8	0.0	VD
16	Fiche		98.8	121.3	81	4.04	121.2	1.0	H
17	Gelemso		72.6	125.5	58	3.92	117.6	0.7	M
18	Gimbi		196.2	320.1	61	3.91	117.3	1.7	H
19	Ginir		120.7	102.5	118	4.25	127.5	0.6	M
20	Gore		226.4	318.2	71	2.89	86.7	3.0	H
21	Jimma		209.5	182.9	115	3.33	99.9	2.4	H
22	Kachise		137.7	250.2	55	3.36	100.8	2.1	H
23	koffele		127.2	154.1	83	3.24	97.2	1.4	H
24	Kulumsa		90.4	103.1	88	3.95	118.5	0.9	M
25	Limugent		297	253.4	117	4.09	122.7	2.4	H
26	Masha		227.9	270.2	84	2.97	89.1	2.7	H
27	Metehara		37.3	46.3	81	5.55	166.5	0.4	MD
28	Mieso		75.8	78.2	97	5.88	176.4	0.6	M
29	Nazereth		34	102	33	5.87	176.1	0.4	MD
30	Negelle		45.9	40.2	114	5.02	150.6	0.5	MD
31	Nekemte		398.1	273.4	146	3.14	94.2	4.7	H
32	Nuraera		23.1	NA	NA	NA	NA	NA	NA
33	Robe		108.5	120.5	90	3.49	104.7	1.3	H
34	S.Gebeya		67.3	93.1	72	NA	NA	NA	NA
35	Sekoru		193.5	168.8	115	4.1	123	1.6	H
36	Shambu		126.1	254.2	50	NA	NA	NA	NA
37	S.robit		17.2	94.9	18	NA	NA	NA	NA
38	Woliso		107.2	144.6	74	4.43	132.9	0.9	M
39	Ziway		60.4	91.4	66	5.31	159.3	0.5	MD
1	Arbaminch	SNNPR	41.8	78.8	53	4.46	133.8	0.5	MD
2	Awassa		81	119.7	68	3.54	106.2	1.0	H
3	Jinka		139.2	100.9	138	4.25	127.5	1.1	H
4	K/Mingist		45.5	89.8	51	3.89	116.7	0.3	MD
5	Konso		57.6	49	118	5.03	150.9	0.6	M
6	Sawla		97.4	114.7	85	3.66	109.8	1.1	H
7	Sodo		21.8	130.7	17	NA	NA	NA	NA
8	Arbaminch		41.8	78.8	53	4.46	133.8	0.5	MD
9	Awassa		81	119.7	68	3.54	106.2	1.0	H
10	Jinka		139.2	100.9	138	4.25	127.5	1.1	H
		B/GUMUZ							

1	**Bullen**		**205.6**	**258.8**	**79**	**7.3**	**219**	**0.9**	**M**
2	**Dangila**		**97.4**	**240.1**	**41**	**4.17**	**125.1**	**1.3**	**H**
3	**Chagni**		**225.4**	**284.6**	**79**	**4.07**	**122.1**	**1.8**	**H**
4	**Mankush**		**292**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
5	**Pawe**		**159.1**	**258.8**	**61**	**4.43**	**132.9**	**1.3**	**H**
1	**Aysha**		**15.4**	**0**	**NA**	**NA**	**NA**	**NA**	**NA**
2	**D.Habour**		**13.5**	**36.3**	**37**	**NA**	**NA**	**NA**	**NA**
3	**Gode**	**SOMALI**		**4.2**		**7.29**	**218.7**	**0.1**	**D**
4	**Jiiiga**		**22.6**	**100.1**	**23**	**4.75**	**142.5**	**0.3**	**MD**
1	**Harar**	**HARAR**	**60**	**87.1**	**69**	**4.34**	**130.2**	**0.7**	**M**
1	**D/Dawa**	**D/DAWA**	**25.7**	**68.2**	**38**	**6**	**180**	**0.3**	**MD**
1	**A.A. Bole**	**A.A**	**77.1**	**139.3**	**55**	**4.04**	**121.2**	**1.0**	**H**
2	**A.A. Obs**		**108.9**	**174.2**	**63**	**NA**	**NA**	**NA**	

Explanatory Note:

ETo: Reference Evapo-transpiration (mm)

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

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 evapo-transpiration of a disease free crop, growing under non-restricting soil conditions including soil water and fertility.

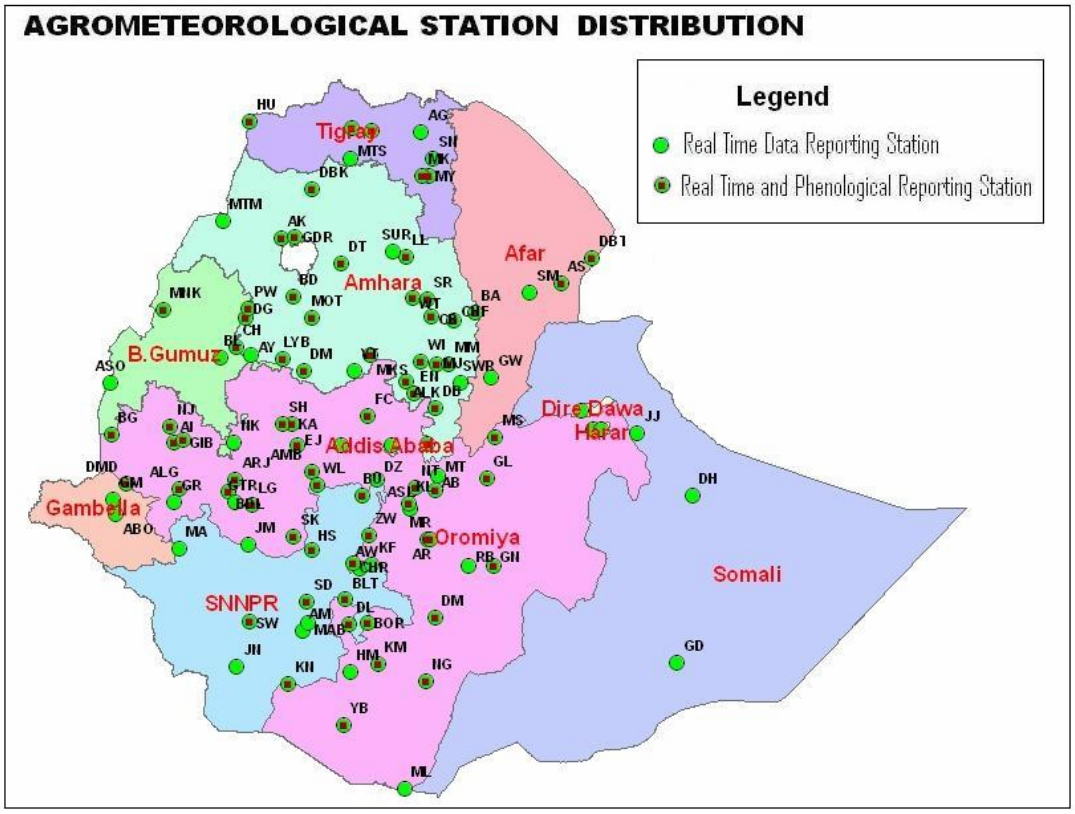
DEKAD: - First or second ten days or the remaining days of a month.

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

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