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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 2011

የክረምቱ ወቅት ዝናብ በሚያዚያና በግንቦት ወር ለሚዘሩት የረዥም ጊዜ ሰብሎች የውሃ ፍላጎት የሚኖረው አስተዋፅያ ከፍተኛ ሲሆን በበጋው ወቅት እድገታቸውን ለሚያጠናቅቁ የመኸር አዝርዕቶች ያለው ጠቀሜታ ከፍተኛ ነው። በተጨማሪ ከክረምቱ ዝናብ ባሻገር የበልግ ወቅት ዝናብ በተለይም በሚያዚያና በግንቦት ወር የሚኖረው ዝናብ በመጠንም ሆነ በስርጭት ረገድ ለረጅም ጊዜ ለሚደርሱ እንደ በቆሎና ማሽላ ላሉት አዝርዕቶች የዕድገት ሁኔታ አስተዋፅያ የጎላ ነው።

በጁን ወር የነበረው የዝናብ መጠን ከቦታ ሽፋን አንፃር ሲታይ በአብዛኛው ኦሮሚያና የደቡብ ብሔር ብሔረሰቦችና ህዝቦች ክልል ከ32.7-399.7 ሚ.ሜ እና በዝናብ ቀናት ረገድም ከ8-26 ቀናት ያገኙ ሲሆን በምሥራቅና በደቡብ ትግራይ፣ በምሥራቅ አማራ፣ በምሥራቅና በደቡብ ኦሮሚያ፣ በሰሜንና በመካከለኛው ሶማሌ፣ ሐረሪና ድሬዳዋ ዝናብ እንዳገኙ ከጣቢያዎች የተሰበሰቡት የዝናብ መረጃዎች ያሳያሉ። ቀሪዎቹ አካባቢዎች ከ8 ላነሱ ቀናት ዝናብ አግኝተዋል። በወሩ ውስጥ የነበረው ዝናብ በመደበኛ ሁኔታ ከሚኖረው የዝናብ መጠን ጋር ሲነፃፀር ምዕራብ ትግራይ፣ ሰሜን ምዕራብ አማራ፣ የቤንሻንጉል-ጉሙዝ ደቡባዊ ክፍል፣ ጋምቤላ፣ የአብዛኛው ኦሮሚያ እንዲሁም ደቡብ ብሔር ብሔረሰቦች ህዝቦች ክልል፣ መደበኛና ከመደበኛ በላይ ዝናብ ያገኙ ሲሆን፣ ቀሪዎቹ የሀገሪቱ ክፍሎች ከመደበኛው ያነሰ ዝናብ አግኝተዋል። ይህም ሁኔታ ለመኸሩ የማሳ ዝግጅትና የዘር የእርሻ እንቅስቃሴና ለአካባቢው ቋሚ ተክሎች እንዲሁም በአካባቢው ለሚኖሩ አርብቶ አደሮችና ከፊል አርብቶ አደሮች፣ ለመጠጥ ውሃ እና ለግጦሽ ሳር አቅርቦት አዎንታዊ ተፅዕኖ ነበረው።

በጁላይ ወር 2011 የነበረው የዝናብ ሁኔታ በመጠንና ስርጭት አብዛኛዎቹ የክረምት ዝናብ ተጠቃሚዎችን ያዳረሰ ነበር። በተለይም ከወሩ አጋማሽ ጀምሮ በምስራቅና በሰሜን ምስራቅ አካባቢዎች በይበልጥ በመስፋፋት የተሻለ የዝናብ ስርጭትና መጠን አግኝተዋል። ይኸም ሁኔታ እንደየአካባቢው የዝናብ አጀማመርና የዘር ጊዜ ሁኔታ ተዘርተው በተለያየ የእድገት ደረጃ ላይ ላሉ ሰብሎች እንዲሁም ዘግይቶ ዝናብ በሚጀምርባቸው አካባቢዎች በመዘራት ላይ ላሉ የመኸር ሰብሎች እንዲሁም ለቋሚ ሰብሎች ከፍተኛ አስተዋፅኦ እንደሚኖረው ይታመናል። በተጨማሪም በምስራቅና በሰሜን ምስራቅ እየተስፋፋ የነበረው የዝናብ ስርጭት በአካባቢው ለአርብቶ አደሩና ጥምር ግብርና ለሚካሄድባቸው ለግጦሽና ለውሃ አቅርቦት አመቺ ሁኔታ ነበረው። በሌላም በኩል በወቅቱ ዝናብ ተጠቃሚ አካባቢዎች ላይ በአንድ ቀን ከ50-105 በሚ.ሜ ከባድ ዝናብ ተመዝግቧል። ይህም በረዶ ቀላቅሎ የጣለው ዝናብ በቻግኒ፣ በገለምሶ፣ በሻምቡ፣ በማንኩሽ፣ በአይራ፣ በባህርዳር፣ በላሊበላ በጭራ፣ በወገል ጤናና በደብረ ብርሃን በእንሰሳትና በመዘራትና በመድረስ ላይ ባሉ ሰብሎች ላይ ጉዳት ማድረሱን ከደረሰን ሪፖርት መረዳት ተችሏል።

በአገስት ወር 2011 የነበረው ዝናብ በአብዛኛው የወቅቱ ዝናብ ተጠቃሚዎች ላይ የተጠናከረና ተከታታይነት የነበረው ሲሆን ይህም ሁኔታ በተለያዩ የዕድገት ደረጃ ላይ ለሚገኙ የመኸር ሰብሎችና ለቋሚ ተክሎች ለመደበኛ ዕድገታቸው የጎላ ጠቀሜታ ነበረው። በሌላ በኩል በአንዳንድ አካባቢዎች ነጎድጓድና በረዶ ቀላቅሎ የጣለው ከባድ ዝናብ ቅፅበታዊ ጎርፍ

በማስከተል የአፈር መሸርሸር፣ በማሣ ላይ ውሃ መተኛት፣ በቤት እንሰሳትና ሰብሎች ላይ ጉዳት እንዳደረሰ መረጃዎች ይጠቁማሉ ፡፡ በሌላ በኩል የውሃ ማቆር ሥራ ለሚተገብሩ አካባቢዎቸ ላይ ጠቀሜታም ነበረው፡፡

በመደበኛ ሁኔታ በሴፕቴምበር ወር በአብዛኛው ኦሮሚያ፣ በቤንሻንጉል-ጉሙዝ፣ በደቡብና ብሔር ብሔረሰቦችና ህዝቦች ክልል፣ በጋምቤላ፣ በአማራ እንዲሁም በትግራይ አንዳንድ ስፍራዎች፣ በምሥራቅ አማራ፣ በአፋርና ሰሜን ሶማሌን ጨምሮ ከቀላል እስከ ከባድ መጠን ያለው ዝናብ አግኝተዋል። ይህም ሁኔታ በተለያየ የእድገት ደረጃ ላይ ላሉ የመኸር ሰብሎች ለቋሚ ተክሎች እና አርብቶ አደሮች ለመጠጥ ውሃና ለግጦሽ ሳር አቅርቦት አዎንታዊ ጎን እንደነበረው እሙን ነው። ሆኖም ግን በአምቦ ፣ ሊሙገነት፣ አርጆ፣ ጂማ፣ በዳንግላ 41.0-78 ሚ.ሜ ለ2 ተከታታይ ቀናት ያገኙ ቢሆንም በሰብልና በእንሰሳት ላይ ጉጋት አልደረሰም።

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 ቤንሻንጉል 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 የእድገት ደረጃ ላሉት የክረምት ሰብሎች የውሃ ፍላጎት መሟላት አዎንታዊ ተፅዕኖ ነበረው። ቀሪዎቹ የአገሪቱ 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 የእድገት ደረጃ ላይ ላሉት የክረምት ሰብሎች የውሃ ፍላጎት መሟላት በተወሰነ ደረጃ ጠቀሜታ ነበረው።

አጠቃላይ የዘንድሮ ክርምት ዝናብ መጠንና ስርጭት በአብዛኛው መከር አብቃይ አካባቢዎች የረጅም ጊዜ የአገዳ ሰብሎች ከሆኑት ከበቆሎና ማሽላ በስተቀር ከአጠቃላይ የመኸር ሰብሎች የውሃ ፍላጎት እርካታ አኳያ ሲታይ በአጭር ጊዜ ለሚደርሱ የመኸር ሰብሎቸ 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 የአገዳ ሰብሎች ምቹ ነበር፡፡ በተጨማሪም ከጁላይ 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 2011

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 2011, wide spread rainfall activity was observed over rift valley and western half of the country. As a result most of SNNPR, western and central Oromia, Gambela, Afar and Tigray as well as parts of eastern and southern Oromia and Benshangul-Gumuze received slight to heavy rains. Besides, the widely distributed rainfall activity might have positive favored the development of Belg crops which were at different growing stages, perennial crops and improvement of pasture and availability of water over pastoral and agro pastoral areas. Moreover, it might also favored land preparation and sowing activities forMeher crops. On the contrary, the heavy falls over pocket areas negatively affected the performances of Belg crops. In line with this, water logging was reported over areas of SNNPR on crops in the field. On the other hand, sunny and dry weather condition was observed over most parts of the country during the third dekad of the month. The situation might have negatively affected the on going Meher agricultural activities. Moreover, a rise in extreme maximum temperatures ranging 35.0–42.5^{0}C observed during the month in some lowland areas that could enhance evapo transpiration thereby affecting pasture and availability of drinking water over pastoral and agro pastoral areas.

During the month of July 2011, better rainfall distribution and amount was observed over Kiremt rain benefiting areas, however, during the second half of the month the rainfall activity was extended towards northern and northeastern parts of the country. The situation might have favored Meher agricultural activities. Besides, the observed widely distributed rainfall activities might have favored availability of pasture and drinking water over pastoral and agro-pastoral areas of northern and north eastern parts of the country. On the other hand, some stations reported heavy falls ranging from 50-105 mm in one rainy day over different parts of the country. In line with heavy falls that was accompanied by thunderstorm over Chagni, Gelemso, Shambu, Mankush, Aira, Bahir Dar, Lalibela, Chira, Wegel Tena and Debre Berhan caused flood and water logging on crop fields.

During the month of August 2011, the seasonal rainfall activities were extended and intensified which was coved much of kiremt rainfall benefiting areas for several days of the month. Hence, Amhara, Tigray, Benshangul-Gumuz, western and central Oromia received normal to above normal rain over much these areas. The situation might have a positive impact on the seasonal agricultural activities. Moreover, it might have favored improvement of pasture and drinking water over pastoral and agro pastoral areas. On the other hand, the rainfall was heavy and thundery, hence, caused hail

storms over parts of the country, which caused flood and flash floods. To mention some of reporting stations: Gambella, Limugent, Nekmte, Chagni, Mota, Ejaji, Bati, Majete, Aira, Alge and Debark recorded heavy falls ranging from 49 to 79.7mm in one rainy day.

During the month of September 2011, the seasonal rainfall show a decline in amount and distribution over northern and northeastern while intense over western half of the country. In general the observed normal to above normal rainfall over central and southern Tigray, much of Amhara, Oromia, Benishangul-Gumuz, Gambella, SNNPR and northern Somalia might have favored the on going seasonal agricultural activities, water satisfaction of perennial plants and Meher crops found at different phonological stages and improvement of pasture and drinking water over pastoral and agro pastoral areas the country while below normal rainfall observed 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. Heavy fall ranging from 40-66 mm in one rainy day caused flood and flash floods over some areas of the country, but no crops and animal damage was reported.

In general the onset of Kiremt 2011 rainfall distribution was normal in most Meher growing areas of the country. The soil moisture reserved during June-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 over Meher growing areas of the country. However, moisture stress observed over some lowlands of northeastern Meher growing areas of the country on Maize and Sorghum crops.

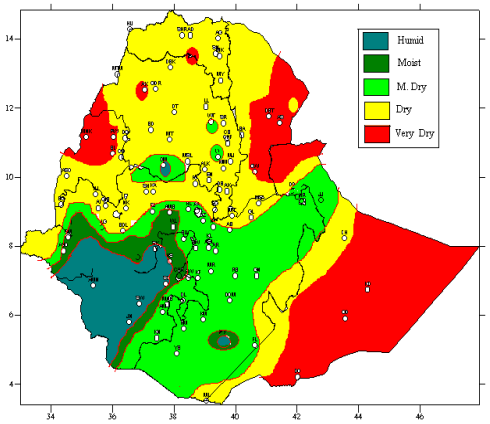


Fig 1. Moisture status for the month of April 2011

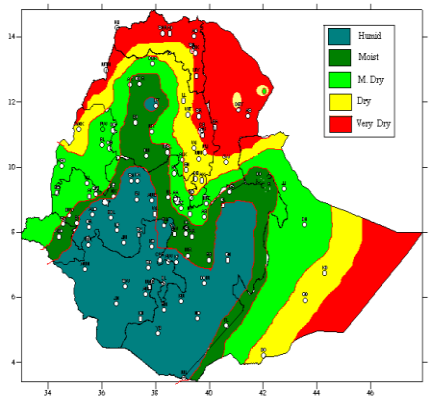


Fig 2. Moisture status for the month of May 2011

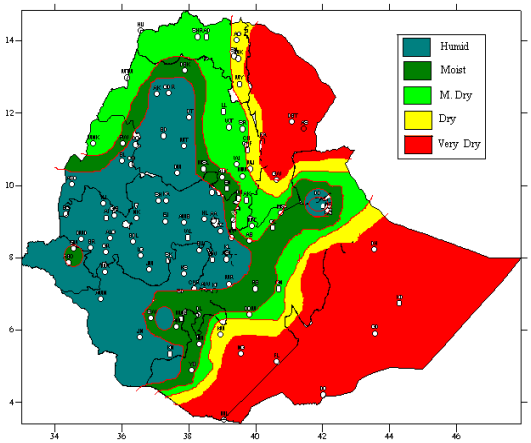


Fig 3. Moisture status for the month of June 2011

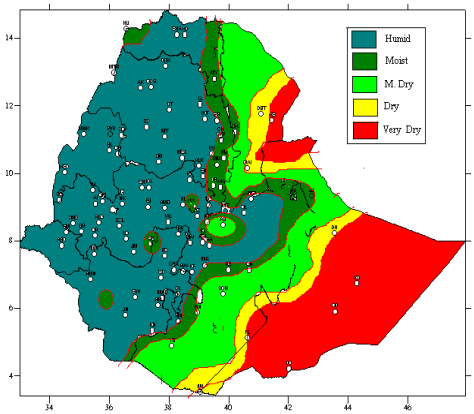


Fig 4. Moisture status for the month of July 2011

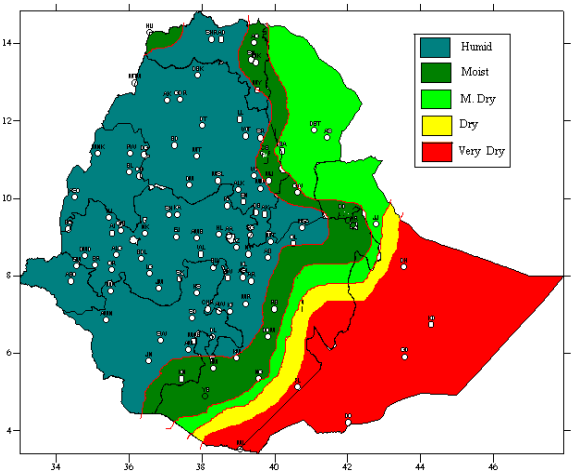


Fig 5. Moisture status for the month of August 2011

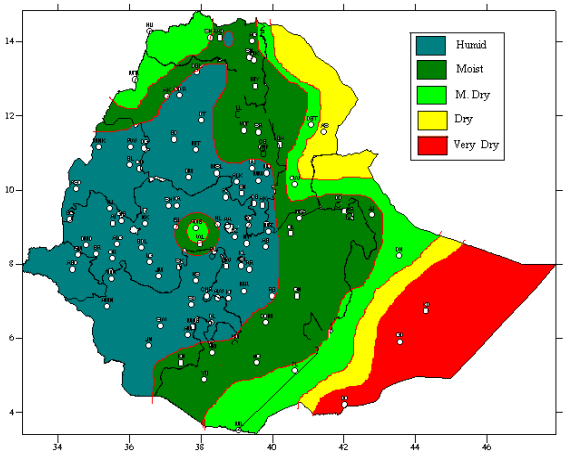


Fig 6 Moisture status for the month of September 2011

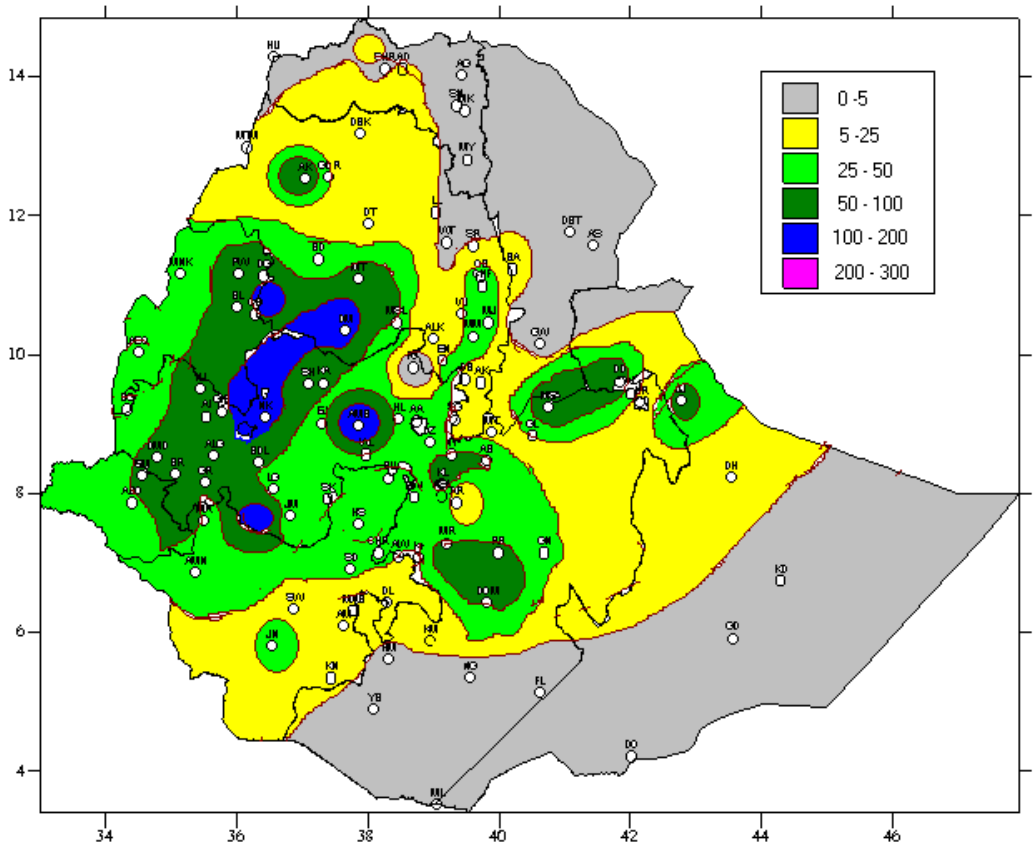


Fig. 7 Rainfall distribution in mm (21-30 September 2011)

1. WEATHER ASSESSMENT

1.1 September 21-30, 2011

1.2 Rainfall Amount (Fig 7)

Pocket areas of central and western Oromia, southern Amhara and Benishangul- Gumuz received 100-200 mm of rain fall. Much of western, central and pocket areas of southern Oromia, pocket areas western and southern parts of Amhara, eastern parts of Gambella and Benishangul- Gumuz, south western tip of SNNPR, pocket areas of northern Somali and eastern parts of the country received 50-100mm of rainfall. Much of Oromia, Benishangul- Gumuz, Gambella, SNNPR, pocket areas of western, central and eastern Amhara, Pocket areas of northern Somali and eastern parts of the country exhibited 25-50 mm of rainfall. Much of central and pocket areas of northern Tigray, much western central and eastern Amhara, much of southern SNNPR, pocket areas of central and parts of southern Oromia and much of eastern parts of the country received 5-25mm of rainfall. The rest parts of the country exhibited little or no rainfall.

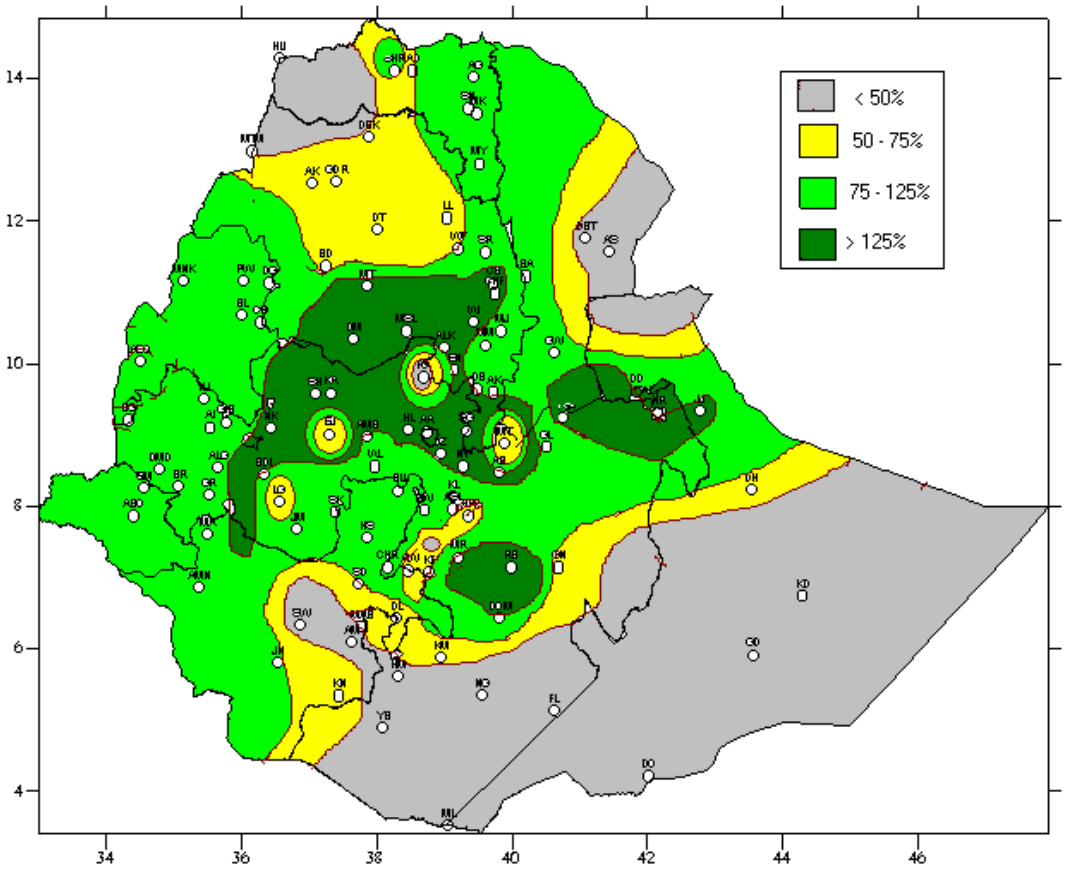


Fig. 8 Percent of normal (21-30) September 2011

Explanatory notes for the Legend:

< 50-Much below normal
50-75%-Below normal
75-125%- Normal
> 125% - Above normal

1.2.1 Rainfall Anomaly (Fig 8)

Northeastern Tigray, central, southern and eastern Amhara, most parts of Oromia, southeastern SNNPR, Benishangul-Gumuz, Gambella and eastern parts of the country received normal to above normal rainfall. The rest of the country experienced below normal to much below normal rainfall.

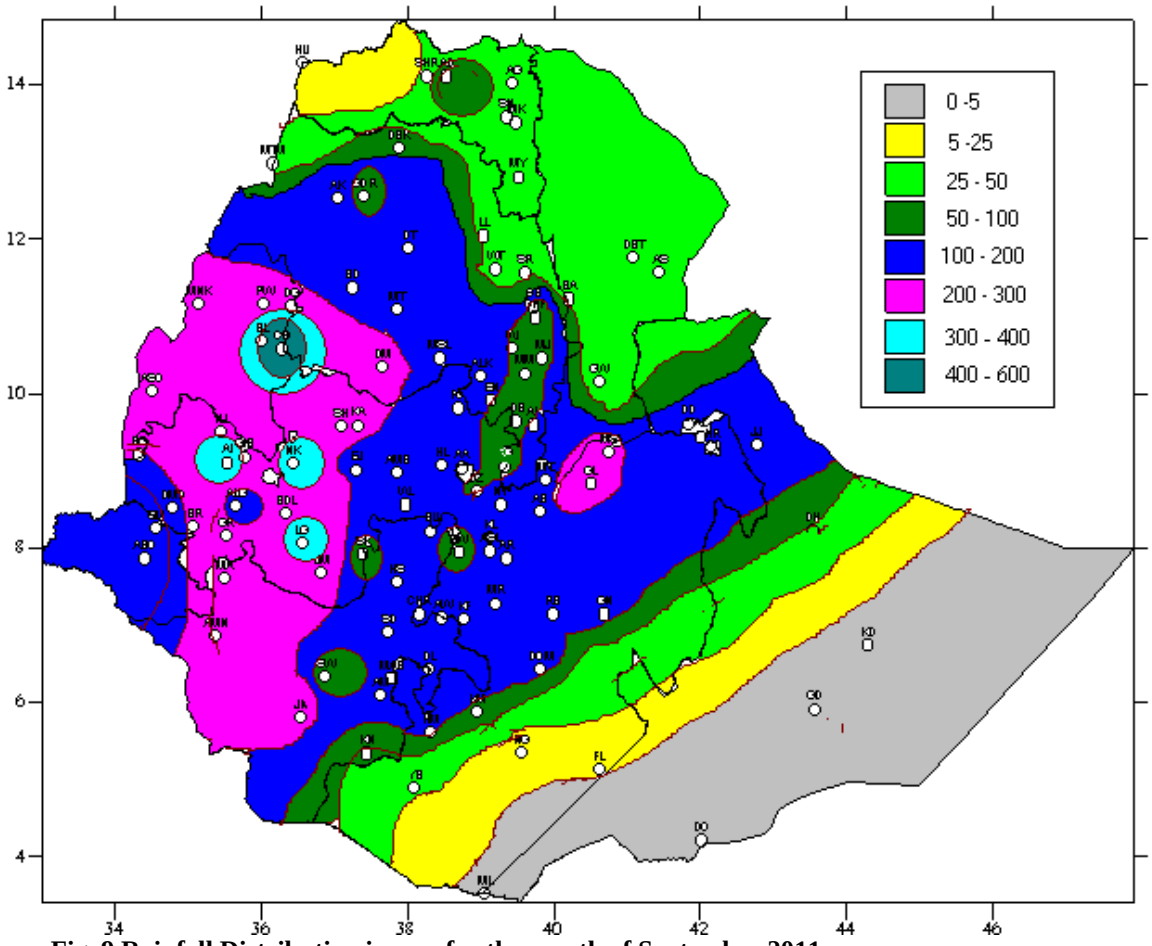


Fig. 9 Rainfall Distribution in mm for the month of September 2011

1.2 September 2011

1.2.1 Rainfall Amount (Fig. 9)

Eastern Benishangul-Gumuz and adjoining areas of southwestern Amhara received 400-600 mm of rainfall. Pocket areas of western Oromia and eastern Benishangul-Gumuz and adjoining areas of southwestern Amhara received 300-400 mm of rainfall. Much of Benishangul-Gumuz, western, central and eastern Oromia, southern Amhara and southern tip of SNNPR received 200-300 mm of rainfall. Most parts of Oromia, central and eastern Amhara, eastern SNNPR southern Tigray, Gambela and eastern parts of the country received 100-200 mm rainfall. Southeastern Tigray, central and eastern Amhara, pocket areas of western, central and southern Oromia and eastern parts of the country received 50-100 mm rainfall. Parts of eastern and central Tigray, eastern Amhara, western and southern Afar, received 25-50 mm rainfall. Northern and eastern Tigray, central Afar, pocket areas of southeastern SNNPR and southern Oromia experienced 5-25 mm of rainfall, the rest of the country exhibited little or no rainfall.

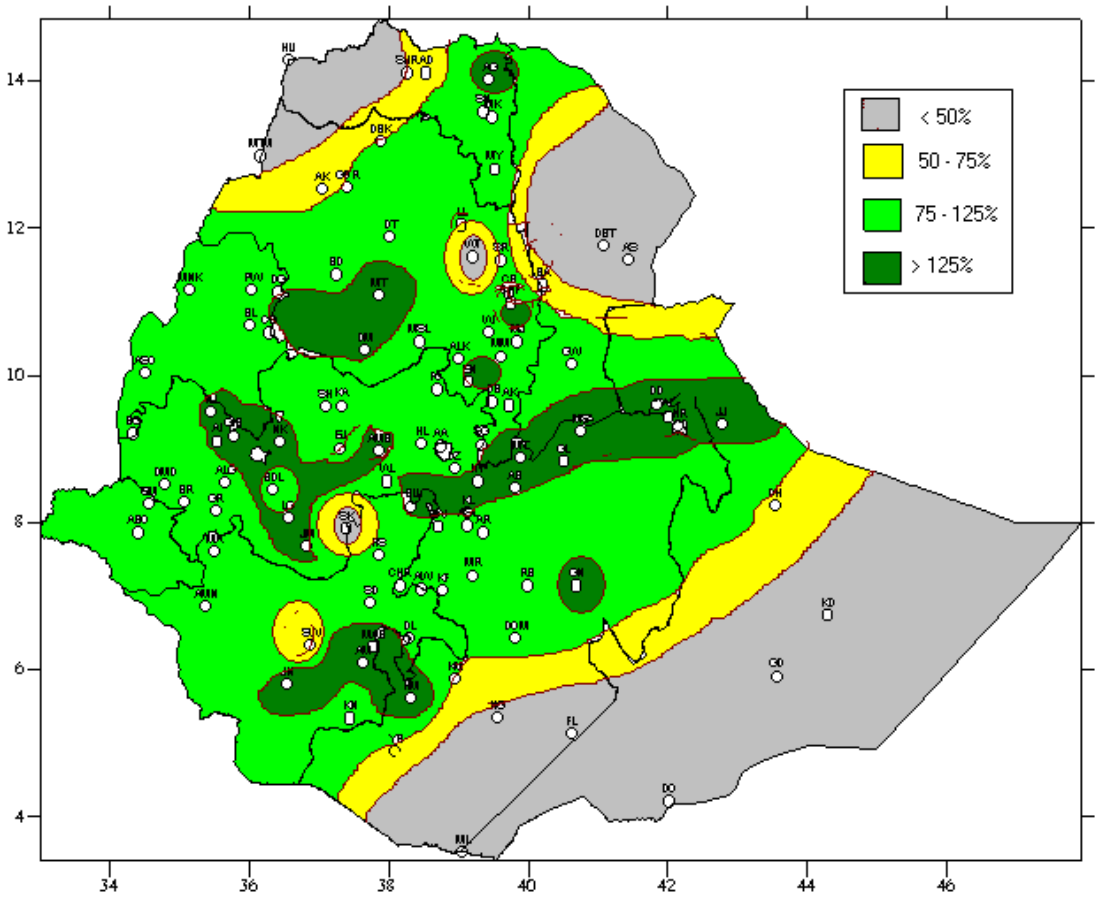


Fig. 10 Percent of Normal Rainfall for the month of September 2011

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. 10)

Northeastern Tigray, central, southern and eastern Amhara, most parts of Oromia, southern and eastern SNNPR, Benishangul-Gumuz, eastern Gambella and eastern parts of the country received normal to above normal rainfall. The rest of the country experienced below normal to much below normal rainfall.

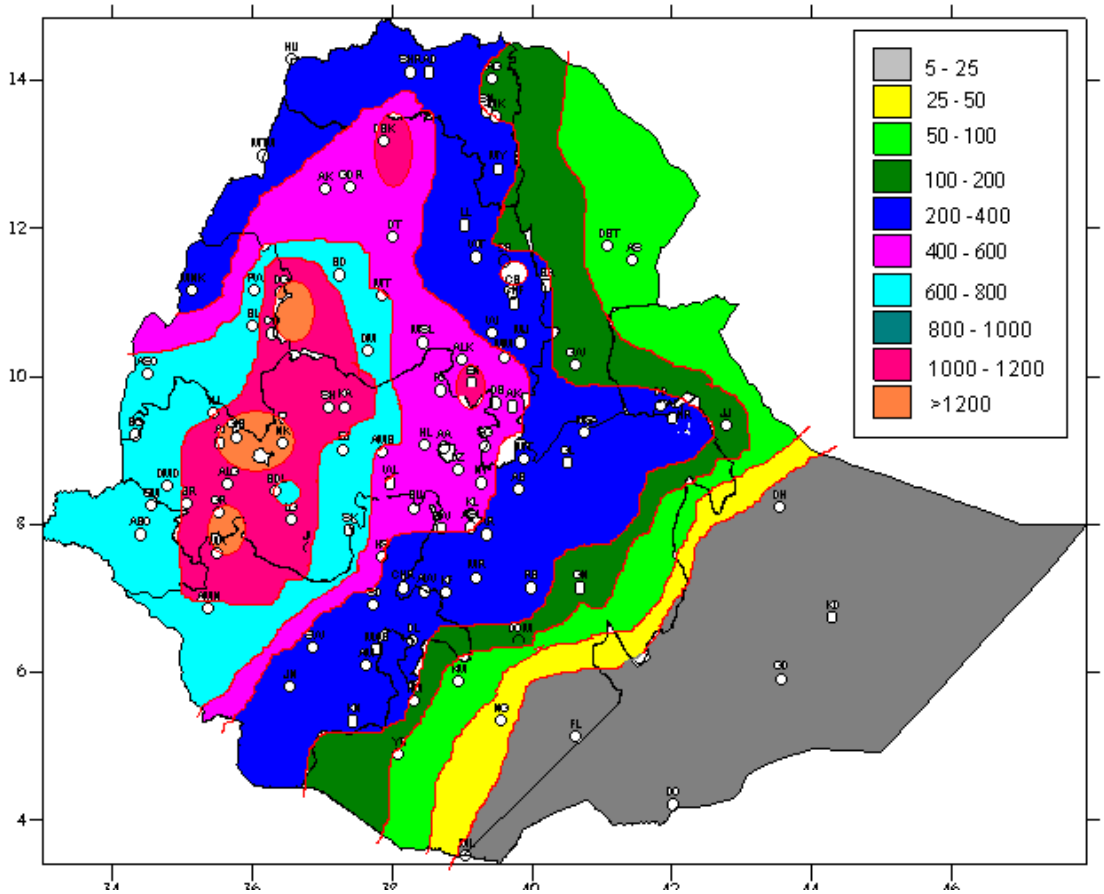


Fig. 11 Rainfall Distribution in mm for Kiremt 2011

1.3 Kiremt 2011

1.3.1 Rainfall Amount (Fig. 11)

Some parts of western and pocket area of central Oromia and pocket area of Benishangul-Gumuz received 1000-1200 mm 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 southeastern Tigray, eastern Oromia, western margin of Afar, southern Amhara, most parts of Gambella, northwestern parts of SNNPR and central parts of the country received 400-600 mm of rainfall. Parts of Afar, southern and eastern SNNPR, central and southern Oromia, northern parts of Somali received 100-200 mm of rainfall. Southern Oromia, central parts of Somali, most parts of Afar received 50-100mm of rainfall. While Much of Somali, southern tip of Oromia and parts of eastern Tigray experienced 25 to 50 mm of rainfall. Eastern margins of Afar and Somali exhibited little or no rainfall.

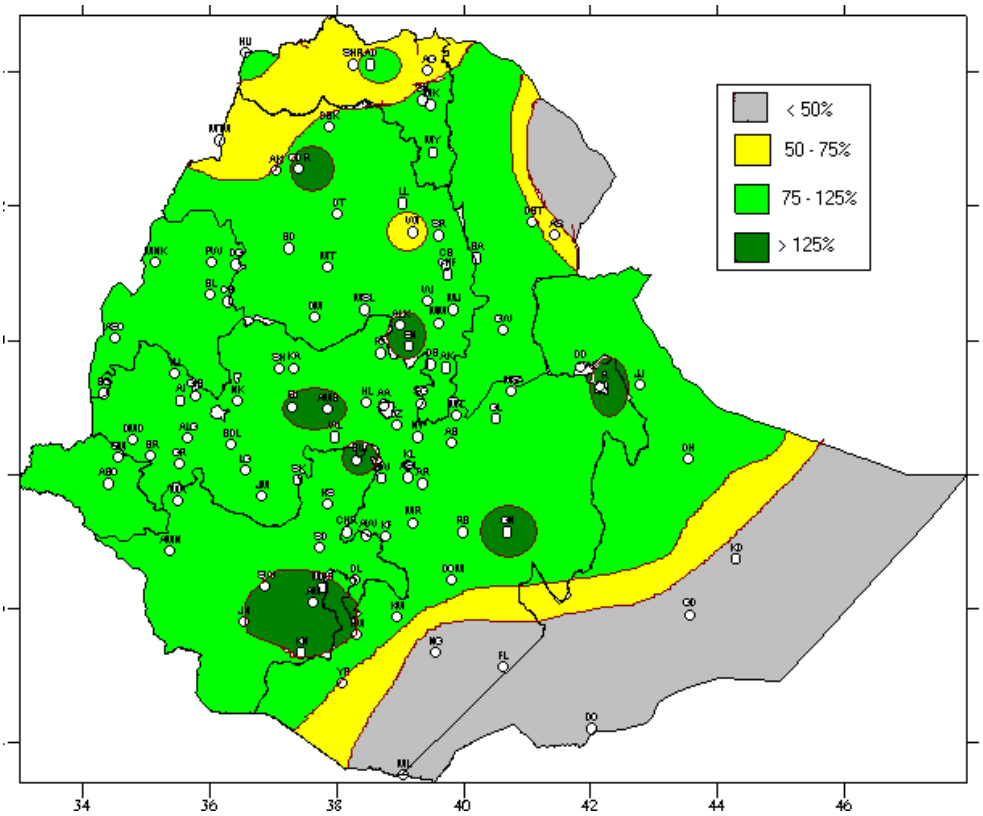


Fig. 12 Percent of Normal Rainfall for Kiremt 2011

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. 12)

Much of Amhara, Benishangul –Gumz, Gambella, Afar, Oromia, SNNPR, northern half of Somali and much southern and pocket areas of central and western Tigray received normal to above normal rainfall. The restof the country experienced below normal to much below 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, Awash, Aysha, Errore, Gambella, Gewane, Humera and Semera recorded extreme maximum temperature as high as 35.2, 38.3, 36.0, 38.5, 38.5, 36.2, 35.5, 39.5, 38.0 and 42.7^0C respectively.

2. AGROMETEOROLOGICAL CONDTIONS AND IMPACT ON AGRICULTURE

2.1 VEGETATION CONDITION AND IMPACT ON AGRICULTURE DURING KIREMT 2011

In general the onset of Kiremt 2011 rainfall distribution was normal in most Meher growing areas of the country. The soil moisture reserved during June-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 over Meher growing areas of the country. However, moisture stress observed over some lowlands of northeastern Meher growing areas of the country on Maize and Sorghum crops.

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 time to perform agricultural activities over southern half of the country. 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 analyzed moisture status of all selected analogue years particularly on the month of October expected to favor Meher crops, perennial plants and availability of pasture and water. However, the expected occasional rainfall over seasonally dry sectors of the country will have a negative impact on harvest and post harvest activities. Thus, harvest and post harvest activities should be undertaken on time in order to avoid unnecessary harvest and post harvest loses. Moreover, the indicated Moist to humid moisture condition of most analogue years of January over southwest and parts of Meher producing areas of the country were conducive for the coming Belg season land preparation, availability of pasture and water. However, the situation might have negative impact on post-harvest activities.

The anticipated probability of normal to above normal rainfall over most Meher growing areas expected to favor Meher crops where not yet fully matured. Besides the expected rainfall condition will favor recently sown pulse and oil crops using residual moisture obtained during October over highlands and midlands.

The expected probability of below normal to near normal rainfall over Southern and southeastern parts of the country will have negative impact on pasture and drinking water availabilities, especially where Bega is the second rainy season of postural and agro-postural areas.

The anticipated low probability of occurrence of frost over frost prone areas will create favorable condition for the normal growth and development of plants in the areas.

We advice, care should be taken during harvest and post-harvest activities in order to minimize harvest losses due to excessive moisture. Also we advice, properly utilize moisture obtained from rainfall to minimize pasture and dirking water availability over pastoral and agro-pastoral areas of the country.

Table1. Climatic and Agro-Climatic elements of different stations for the month of September 2011

No	Stations	Region	R/fall	Normal	% of Normal	ETo mm/day	Eto monthly	Moisture	Moisture statues
1	Adigrat	TIGRAY	24.4	16.6	147.0	3.1	96.1	0.3	MD
	Adwa		90.6	104.5	86.7	3.5	107.9	0.8	M
	Chercher		33.3	116.5	28.6	4.3	133.3	0.2	D
2	Errer		15.9	92.3	17.2	5.8	181.0	0.1	D
3	Humera		48.7	78.6	62.0	NA	NA	NA	NA
4	Maichew		24.6	25.2	97.6	3.4	104.8	0.1	D
5	Mekele		53	35.2	150.6	4.5	139.2	0.4	MD
6	Senkata		10.6	120.9	8.8	3.7	114.7	0.2	D
7	Shire		24.4	16.6	147.0	3.1	96.1	0.3	MD
1	Awash 40	Afar	16.9	NA	NA	6.2	192.8	0.1	D
2	Gewane		34.8	34	102.4	NA	NA	NA	NA
3	semera		19.8	NA	NA	NA	NA	NA	NA
1	A/Ketema	AMHARA	147.3	132.2	111.4	3.5	108.5	1.4	H
2	A/ Mariam		10.8	63.7	17.0	3.5	107.0	0.2	D
3	Ayder		59.3	NA	NA	3.2	99.5	0.6	M
4	Aykel		133.0	218.5	60.9	3.3	102.3	2.0	H
5	B. Dar		149.3	193.2	77.3	4.0	124.6	1.7	H
6	Bati		40.0	76.8	52.1	3.4	104.2	0.4	MD
7	Chagni		435.4	284.6	153.0	2.7	84.9	5.1	H
8	Cheffa		75.3	33.9	222.1	NA	NA	NA	NA
9	Combolcha		90.5	121.2	74.7	3.6	110.1	0.8	M
10	D.Berehan		77.0	76.1	101.2	3.5	107.3	0.8	M
12	D.Markos		271.2	212.4	127.7	3.1	96.1	2.8	H
13	Dangila		217.1	240.1	90.4	3.1	96.1	2.3	H
14	Debark		131.5	113.3	116.1	3.1	97.0	1.4	H
15	Enewari		165.2	99.3	166.4	NA	NA	NA	NA
16	Gondar		90.3	116.1	77.8	3.5	108.8	0.8	M
17	S.Gebeya		81.9	93.1	88.0	3.0	92.7	0.9	M
18	Sirinka		38.6	90.7	42.6	4.3	132.4	0.2	D
19	Lalibela		31.0	43.4	71.4	NA	NA	NA	NA
20	M.Meda		70.6	69.9	101.0	3.8	119.0	0.6	M
21	Majete		90.0	119.8	75.1	NA	NA	NA	NA
22	M/ Selam		114.8	NA	NA	NA	NA	NA	NA
23	Mota		197.2	151.2	130.4	4.0	122.5	1.6	H
24	W.Tena		24.7	62.2	39.7	3.6	111.6	0.2	D
25	w/lllu		78.0	76.7	101.7	3.7	114.7	0.7	M
1	A. Robe	OROMIA	130.2	116.7	111.6	3.6	112.2	1.2	H
2	Abomsa		224.1	113.8	196.9	4.1	126.5	1.8	H
3	Aira		360	271.8	132.5	2.8	86.8	4.1	H
4	Alemaya		159.2	112.7	141.3	3.8	119.0	1.3	H
5	Alge		143.5	298.9	48.0	2.9	90.5	1.6	H
6	Ambo		154.8	110.8	139.7	2.9	88.4	2.4	H
7	Arjo		359.9	249.3	144.4	2.9	90.8	4.1	H
8	Bedelle		225.4	221.7	101.7	3.2	98.0	2.3	H
9	Bui		118.3	45.5	260.0	3.7	115.9	1.0	H
10	Chria		285.9	217.2	131.6	2.7	82.5	3.4	H
11	D.Zeit		95.9	104	92.2	3.7	115.9	0.8	M
12	D/mena		91.8	75.9	120.9	3.8	116.9	0.8	M
13	Ejaji		163.4	153.8	106.2	3.1	94.9	1.7	H
14	Fiche		109.8	121.3	90.5	3.5	107.0	1.0	H
15	Gelemso					6.7	207.7	0.1	D
16	Gimbi		273.7	320.1	85.5	2.7	83.7	3.2	H

17	Ginir		128.9	102.5	125.8	3.7	113.8	1.2	H
18	Gore		276.2	318.2	86.8	2.7	84.3	3.3	H
19	Jimma		269.5	182.9	147.3	3.2	100.1	2.7	H
20	Kachise		280.9	250.2	112.3	3.2	99.5	2.8	H
21	koffele		135.3	154.1	87.8	2.7	82.8	1.6	H
22	Kulumsa		168.8	103.1	163.7	2.7	82.5	2.0	H
23	Limugent		336.9	253.4	133.0	3.1	94.9	3.5	H
24	Metehara		66.8	46.3	144.3	5.2	161.8	0.4	MD
27	Mieso		206.5	78.2	264.1	6.8	209.6	1.0	H
28	Nazereth		192.1	102	188.3	4.5	139.8	1.4	H
29	Nedjo		286.1	288.8	99.1	2.7	83.1	3.4	H
30	Negelle		19.9	40.2	49.5	4.9	151.3	0.1	D
31	Nekemte		351.6	273.4	128.6	2.6	80.6	4.4	H
32	Nuraera		110.7			4.3	132.4	0.8	M
33	Robe		140.6	120.5	116.7	3.3	102.3	1.4	H
34	Sekoru		57.3	168.8	33.9	NA	NA	NA	NA
35	Shambu		297.7	254.2	117.1	3.3	103.5	2.9	H
36	S/ robit		71.0	94.9	74.8	NA	NA	NA	NA
37	Woliso		156.2	144.6	108.0	3.1	95.8	1.6	H
38	Ziway		82	91.4	89.7	3.84	119.04	0.7	M
1	Arbaminch	SNNPR	151.6	78.8	192.4	3.8	117.5	1.3	H
2	Awassa		107.6	119.7	89.9	3.2	98.0	1.1	H
3	Bilate		28.3	55.1	51.4	3.9	120.3	0.2	D
4	H.Mariyam		107.7	52.5	205.1	3.1	96.7	1.1	H
5	Hossaina		116.8	152	76.8	2.8	85.9	1.3	H
6	Jinka		211.6	100.9	209.7	3.0	92.1	2.3	H
7	K/Mingist		63.3	89.8	70.5	3.4	106.6	0.6	M
8	Konso		50.0	49	102.0	4.1	125.6	0.4	MD
9	Mirababaya		154.3	37.3	413.7	3.9	120.3	1.3	H
10	Sawla		68.1	114.7	59.4	3.1	96.4	0.7	M
1	Asossa	B/GUMUZ	216.8	194	111.8	2.8	87.7	2.5	H
2	Mankush		129.5	NA	NA	NA	NA	NA	NA
3	Pawe		248.6	258.8	96.1	3.7	114.7	2.2	H
1	Aysha	SOMALIA	22.3	NA	NA	4.2	129.6	0.2	MD
2	Gode		0	4.2	0.0	7.3	226.3	0.0	VD
3	Jiiiga		165.2	100.1	165.0	4.5	138.3	0.9	M
1	Harar	HARAR	176.7	87.1	202.9	2.8	87.1	2.0	H
1	D/Dawa	D/DAWA	84.7	68.2	124.2	5.5	169.0	0.5	MD
1	A.A. Bole	A.A	128.9	139.3	92.5	3.4	105.4	1.3	H
1	Lare	Gambella	NA	NA	NA	3.2	98.9	1.5	H
2	Gambella		167.8	168.5	99.6	NA	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.

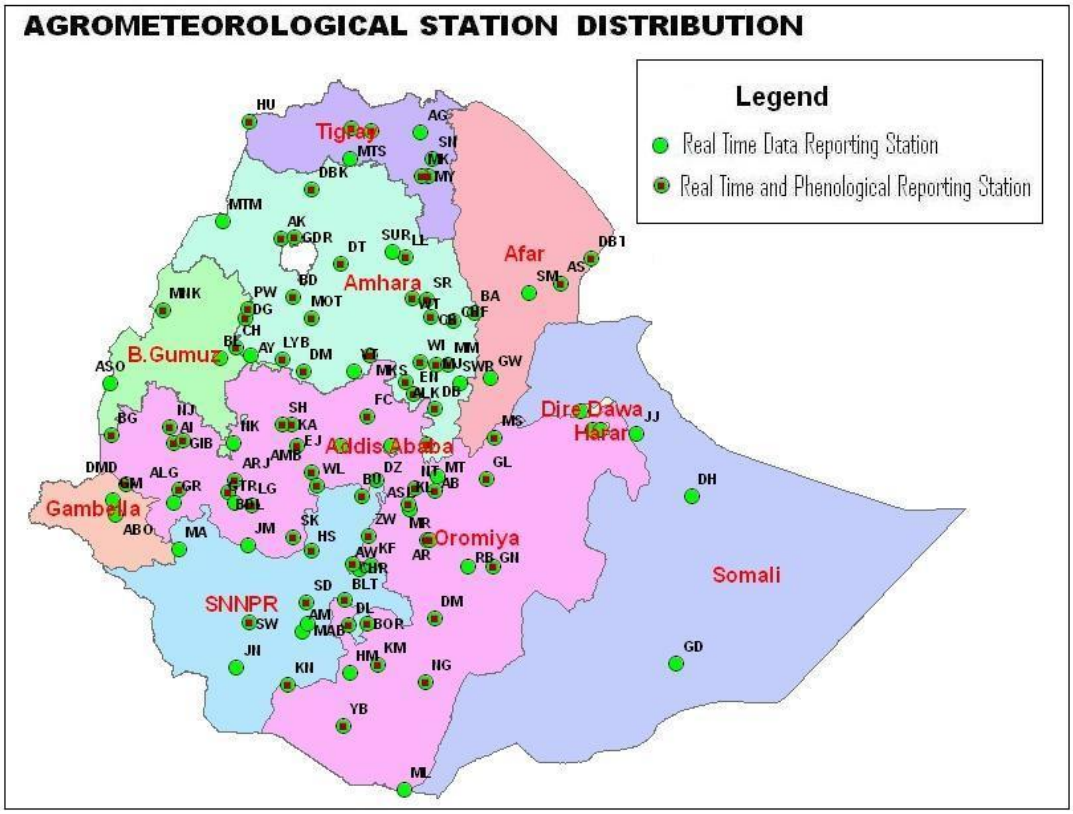
DEKAD: - First or second ten days or the remaining days of a month.

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		