# NATIONAL METEOROLOGICAL AGENCY

## MONTHLY AGROMETEOROLOGICAL BULLETION

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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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## እ.ኤ.አ ኖቬምበር 1-30/2007 የሚኖረው የአየር ሁኔታ አዝማሚያ በግብርናው እንቅስቃሴ ላይ ሊያሳድር የሚችለው ተፅዕኖ

በኦክቶበር ወር መጀመሪያ አከባቢ የዝናቡ ሁኔታ ከምሥራቅ ትግራይ በስተቀር በአብዛኛው የክረምት ዝናብ ተጠቃሚ በሆኑ አከባቢዎች ላይ ነበር የተስተዋለው። ይሁን እንጂ በአንዳንድ የምዕራብና የደቡብ ኢትዮጵያ አካባቢዎች ላይ መጠኑ ከባድ ነበር። ይህም የዝናብ ሁኔታ በማደግ ላይ ላሉና በቅርቡ ለተዘሩ ሰብሎች በጎ ጎን ቢኖረውም ከላይ በተጠቀሱት የዝናቡ መጠን ከበድ ባለባቸው አከባቢዎች ግን በተለይ ሰብል በተዳረሰባቸው አከባቢዎች ፍሬውን በማርገፍ እንዲሁም የሰብል ስብሰባ ሂደቱን በማደናቀፍ አስተዋፅየ ሊኖረው እንደሚችል ይታመናል። እንዲሁም በወሩ ሁለተኛው ሳምንት ለወቅቱ የዝናብ መፈጠር መንስኤ የሚሆኑት የሚቲዎሮሎጂ ክስተቶች እየተስፋፋ ከመምጣታቸው ጋር በተያያዘ የዝናቡ ሁኔታ በሀገሪቱ ደቡባዊ አጋማሽ ተስፋፍቶ ተስተውሏል። በወሩ መጨረሻም በአመዛኙ ደረቅና ፀሐያማ የአየር ሁኔታ ሰፍኖ ነበር የተስተዋለው ይህም ፀሐያማ ሁኔታ በደረሱና ፍሬ በማፍራት ላይ ላሉና ለመታጨድ በዝግጅት ላይ ላሉ ሰብሎች ጠቀሜታ እንደሚኖረው ዕሙን ነው። በሌላ በኩል  በደቡብና በደቡብ ምስራቅ አከባቢ የነበረው ዝናብ እንዲሁም በአንዳንድ አከባቢ እስከ 66 ሚ.ሜ የደረሰው ከባድ ዝናብ በዛ አከባቢ ለሚገኙ አርብቶ አደርና ከፊል አርብቶ አደር ለግጦሽ ሳርና ለመጠጥ ውሀ አቅርቦት የጎላ አስተዋፅየ እንደሚኖረው ይታመናል።

በአጠቃላይ በዚሁ ባለፍነው ወር የውርጭና የቅዝቃዜ ሁኔታ በአንዳንድ የሰሜን ምስራቅ የምሥራቅና መካከለኛው ኢትዮጵያ ደጋማ አከባቢዎች ይታይ እንጂ የጎላ ጥንካሬ አልነበረውም። በመሆኑም የውርጫ ሁኔታ በአጠቃላይ በሰብሎች ላይ የተጋነነ ጉዳት እንዳልነበረው ይታመናል። በወሩ ውስጥ በአጠቃላይ እስከ 13 የሚደርሱ ጣቢያዎች ከ30-66ሚ.ሜ የሚደርስ ዝናብ ተመዝግቦባቸዋል። ጎጂ ክስተትን በተመለከተ በአጠቃላይ  በወሩ ውስጥ ከመረጃ ክፍላችን በደረሰን ሪፖርት በባህርዳር 04/10/2007 በረዶ ቀላቅሎ የጣለው (38.7) ሚ.ሜ ዝናብ በአትክልቶች ላይ ጉዳት ያደረሰ ሲሆን እንዲሁም በበደሌ 01/10/07 የጣለው ዝናብ በደረሱ የበቆሎና የጤፍ ሰብሎች ላይ ጉዳት አድርሷል።

በመጪው ወር እ.ኤ.አ በኖቬምበር/2007 ከመደበኛው ጋር የተቀራረበ ዝናብ በሶማሌ፣ ምዕራብና ደቡብ ኦሮሚያ፣ በጋምቤላ፣ በደቡብ ብሔር ብሔረሰቦችና ሕዝቦች ክልል፣ በቤንሻንጉል ጉሙዝ አከባቢዎች ላይ መጠበቁ በተለይ በቆላማው የአርብቶ አደርና ከፊል አርብቶ አደር አከባቢ ላለው የግብርና እንቅስቃሴ የጎላ አስተዋፅየ የሚኖረው ሲሆን በአካባቢው የዕፅዋት ልምላሜ እገዛ እንደሚኖረው ይታመናል። በተጨማሪም በመካከለኛውና ምስራቅ ኦሮሚያ፣ በአማራ ምዕራባዊ ክፍል ደረቅ ሆነው ቢቆዩም በተለያዩ ቦታዎች ከመደበኛ ያነሰ ዝናብ ሊኖራቸው ይችላል። ይህም የዝናብ ሁኔታ ወቅቱን ይልጠበቀ በመሆኑ በተለይ የሰብል ስብሰባና ድህረ ሰብል ስብሰባ በሚካሄድባቸው ከመካከለኛው እንደ ሆለታ፣ ኩሉምሳ ከምስራቅ እንደ ገለምሶ ባሉት አከባቢዎች በሰብል ስብሰባውና ድረ ሰብል ስብሰባው ላይ አሉታዊ ተፅዕኖ ስለሚኖረው አርሶ አደሩ በተገኘው ብራ ሰሞን ተጠቅሞ የደረሰውን አዝመራ ከብልሽት መጠበቅ ይኖርበታል። በተጨማሪም በአብዛኛው ደረቅ የአየር ሁኔታ በትግራይ፣ በምስራቅ አማራና የማዕከላዊ ስምጥ ሸለቆ አከባቢዎች ላይ መጠበቁ ለደረሱ የመኸር ሰብሎች በጎ አስተዋፅየ እንደሚኖረው ይታመናል። በሌላ በኩል ደግሞ በአንዳንድ ደጋማ ቦታዎች የውርጭ ክስተት እንደሚኖረው መጠበቁ የእድገት ጊዜያቸውን ላልጨረሱ ሰብሎች አሉታዊ ተፅዕኖ ሊያሳድር ይችላል።

## *SUMMARY*
## *OCTOBER, 2007*

During the first dekad of October 2007, the rainfall activities decreased from northern half of the country, central and eastern Ethiopia and strengthened over pocket areas of western & southwestern parts of the country, the situation might have caused negative impact on Meher agricultural activities particularly crops at maturity stages. In the remaining days of the dekad the rainfall decreased in northern half of the country, central, eastern Ethiopia hence the rainfall was confined to pocket areas of western and southwestern parts of the country, thus this rainfall is expected to have positive impact on Meher crop which are found at different growing and grain-filling stages. More over, in the last days of the dekad the rainfall distribution was strengthened over southeastern parts of the country, hence, the situation might have favored the availability of pasture and drinking water over pastoral and Agro pastoral areas. Some stations reported heavy fall with in the range of 30-73 mm in one rainy day. In line with this crop damage was observed over Bahir Dar and Bedelle. In addition pest and disease have been reported to have caused sever crop damage over Assosa and Pawe on sorghum, moreover, wilting of Maize was reported from Bullen.

During the second dekad of October 2007,. The Bega's dry and sunny weather condition dominate much of the country. How ever, wide spread rainfall condition has been observed over southern half of the country due to the intensification of rain producing system. As a result, this rainfall situation could favor the early sown crops and it would have a negative impact for crops, which were at maturity stage. Moreover, northwestern, western, central and eastern as well as some areas of northeastern Ethiopia. Observed little rainfall. This situation would have a positive contribution for Meher crops, which are at different phenological stage as well as at maturity stage. Besides, It would create conducive condition for the availability of pasture and drinking water over lowland of pastoral and agro pastoral areas of eastern and northeastern parts of the country. According to the reporting station heavy fall observed within the range of (30-52mm). To mention some of them, Kibre Mengist, Dilla, LimuGenet, and Chagni received 35.5, 35.8, 46.0 and 52.2 mm of heavy fall in one-rain days

During the third dekad of October 2007 normal to above normal rainfall experienced over western Amhara, Benshangul-Gumuz, western Oromia, and adjoining area of Amhara, SNNPR, eastern and southern Oromia, Somali as well as eastern half of Afar. Thus this condition could have a positive impact for crops, which are found at different phenological stage and the recently sown crops. Besides the observed good rainfall over southern Oromia and Somali and eastern half of Afar could favor for the availability of pasture and drinking water over the low lands for pastoral and agro pastoral areas. Besides, below normal rainfall observed over much of Tigray and Amhara, some areas of Afar, central Ethiopia, Gambela, north Somali and pocket areas of southern Oromia.

This rainfall would favor crops, which are ready to harvest. On the other hand if would have a negative impact for the availability of pasture and drinking water for pastoral and agro pastoral areas. With regard to heavy fall, Dolo Mena reported 30.9 mm in one rainy day.

Generally during the month of October extreme minimum of temperature observed over some areas of Northeastern, Eastern and central high land of Ethiopia. However, there was no significant damage on crops due to the extreme minimum temperature. With regard to heavy falls, about 13 stations from the reporting station recorded heavy falls from 33-66 mm. For instance, Shambu, Nekemte Dolo Mena, Gelemso, Mankush Arjo, Ginir , Bahir Dar, Metema, and LimuGenet recorded 30.5, 30.8, 30.9, 32.0, 32.7, 33.7, 34.3, 38.8, 42.3, and 46.0 mm respectively in one rainy days during the month. There fore this condition could have a negative impact on crops, which are ready to harvest. Some areas records crop damage during the month under review. For instance Bahir Dar reported damage on vegetable and Bedele reported damage on maize and Teff crops which are ready to harvest to harvest.

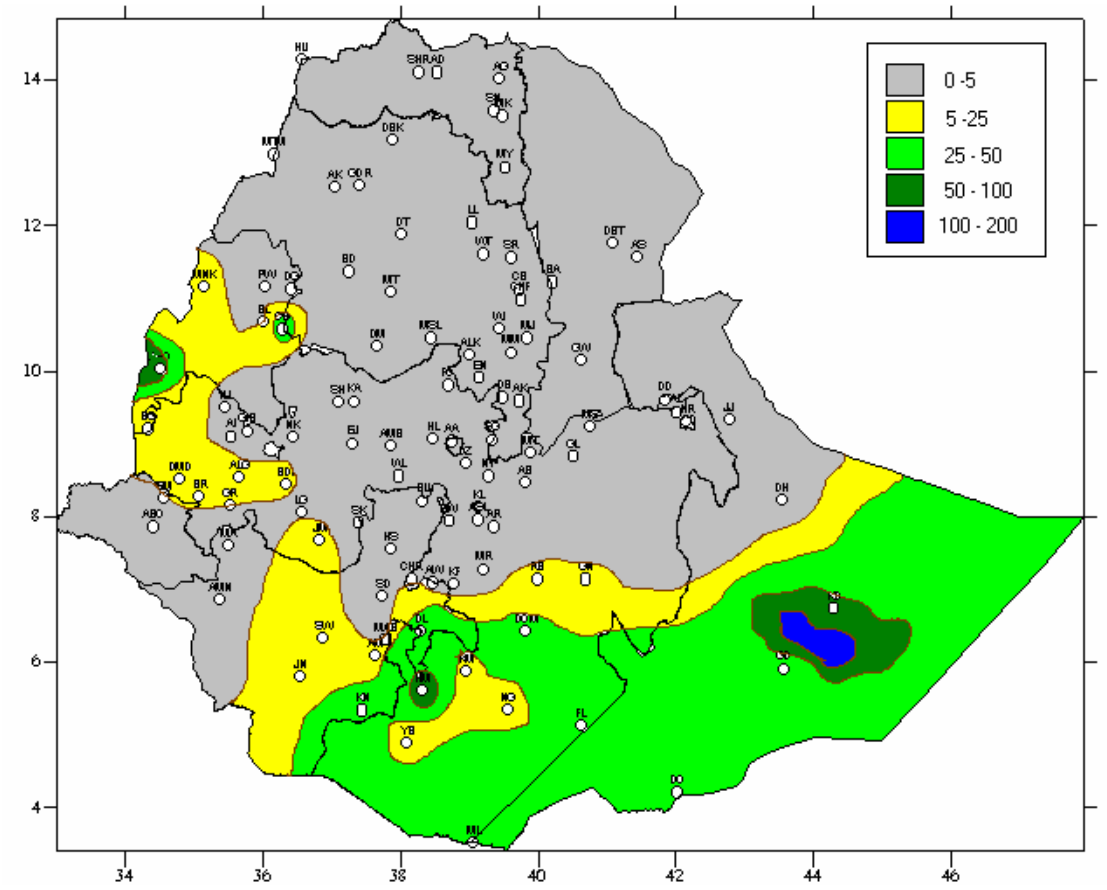



**Fig 1. Rainfall distribution in mm (21-31 October, 2007)**

## 1. WEATHER ASSESSMENT

### 1.1 (21- 31 October, 2007)

#### 1.1.1 Rainfall amount (Fig.1)

Pocket areas of southern Somali received 100-200mm of rainfall, Pocket area of Sothern Oromia and southern western Bensahngul-Gumuz and southern Somali exhibited 50-100 mm of rainfall. Southern Somali, southern Oromia, eastern margin of SNNPR and parts of eastern Benshangul-Gumuz received 25-50 mm of rainfall. Parts of eastern Somali, parts of southern and central Oromia, most parts of SNNPR, some areas of western Oromia and much of Benshangul-Gumuz experienced 5-25 mm of rainfall distribution. The rest parts of the country received below 5 mm of rainfall

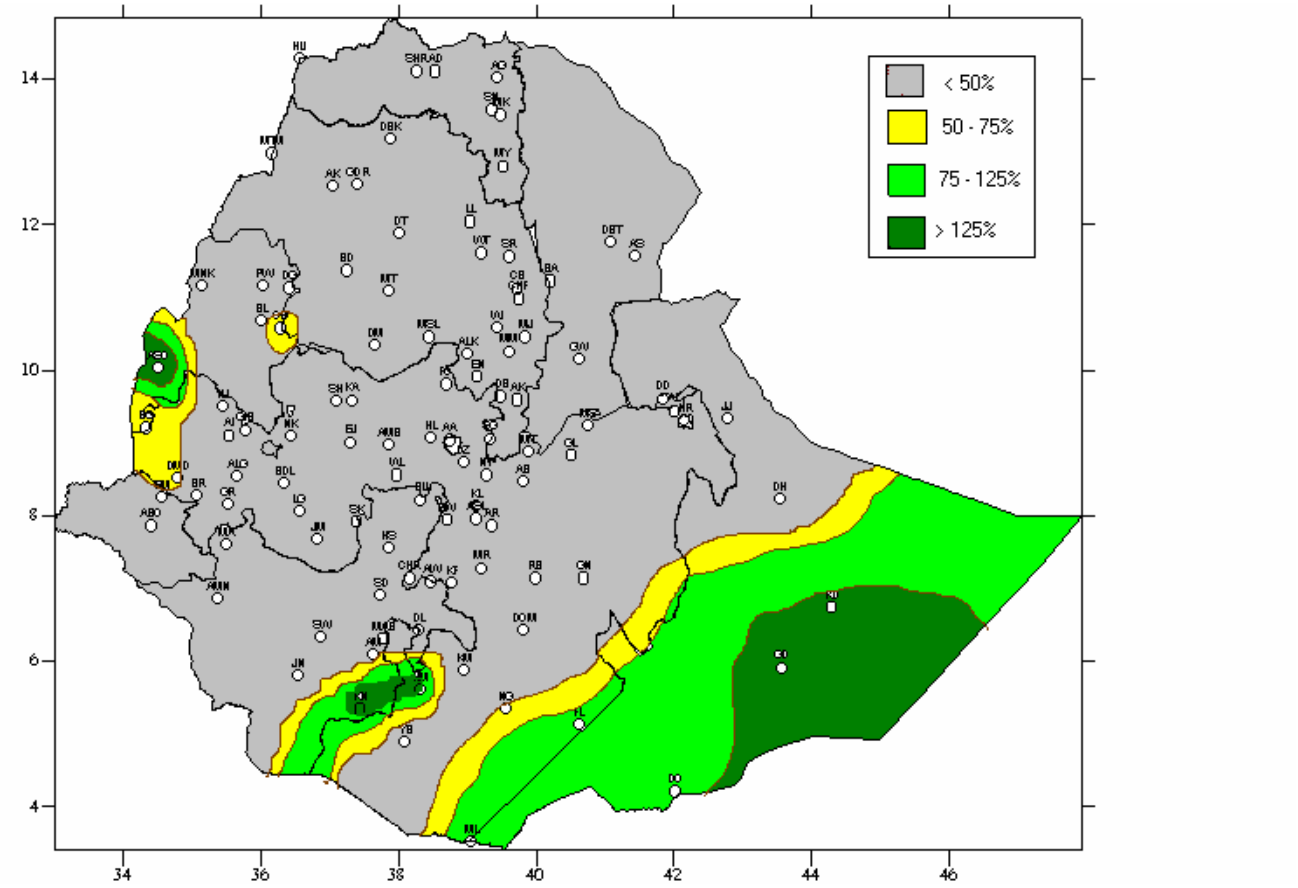



**Fig. 2 Percent of normal rainfall distribution (21-31 October, 2007)**

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

### 1.1.1 Rainfall Anomaly (Fig. 2)

With the exception of southern Somali, parts of southern Oromia, southeastern tip of SNNPR and parts of southwestern tip of Benshangul-Gumz, the rest parts of the country experienced below to much below normal rainfall

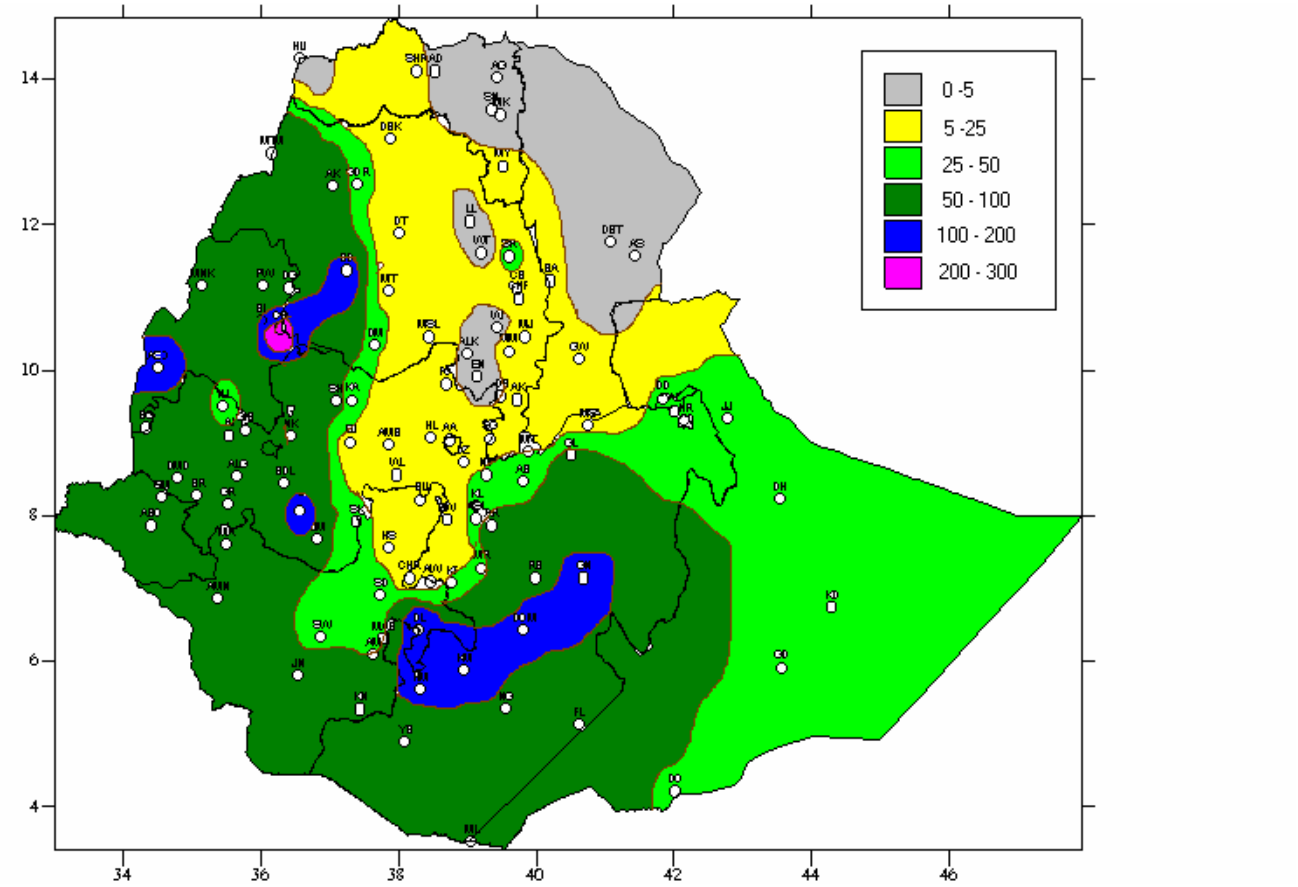



**Fig. 3 Rainfall distribution in mm for the month of October 2007**

### 1.2 October 2007

#### 1.2.1 Rainfall distribution (Fig.3)

Pocket areas of eastern tip of Benhangul-Gumuz exbited 200-300 mm of rainfall. Some areas of Bale highlands, pocket areas of southwestern Amhara and southwestern Bensangul-Gumuz received 100-200 mm of rainfall. Parts of southwestern Somali, Southern, western and central Oromia all parts of Gambella much of Bensahngul-Gumuz, much of SNNPR and much of western Amhara experienced 50-100mm of rainfall. Much of Somali, parts of eastern Oromia parts of northern SNNPR, parts of western Oromia and Amhara received 25-50mm of rainfall. Western Tigray, much of Amphora, central Oromia, western southern Tigray and western tip of Afar and northern Somali exbited 5-25 mm rainfall. There was little or no rainfall for the rest parts of the country.

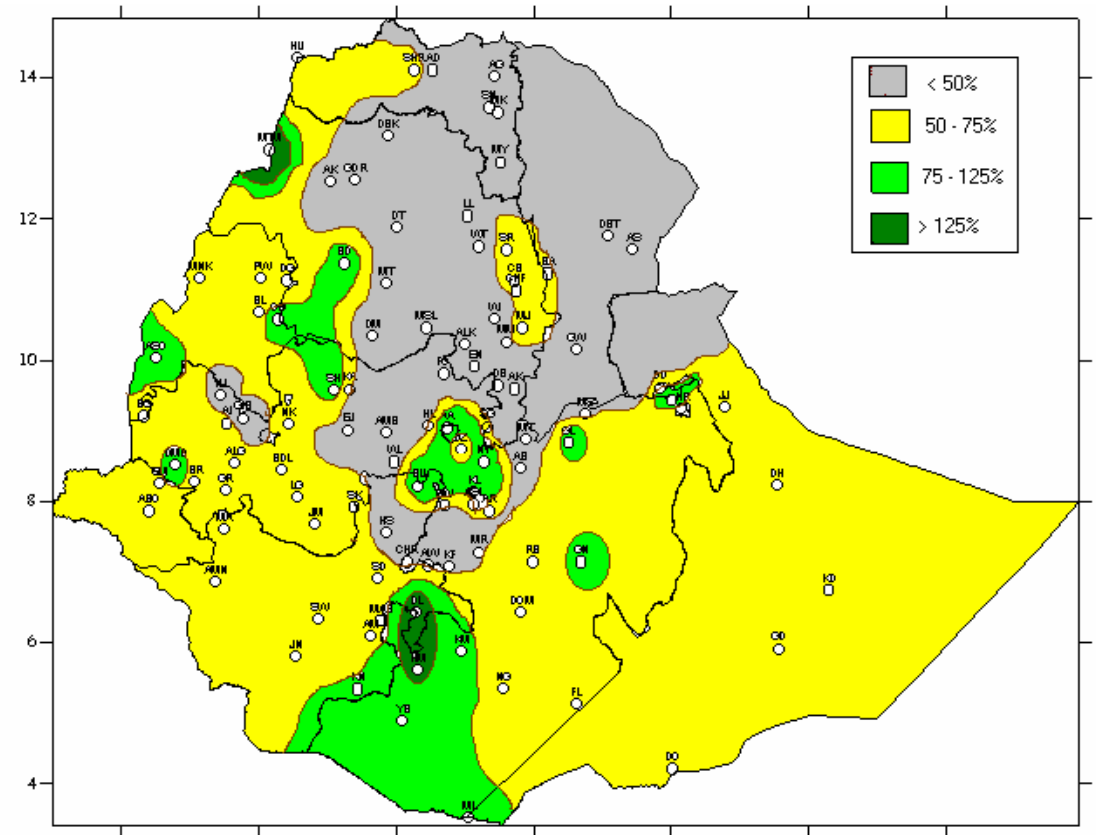



**Fig. 4 Percent of Normal Rainfall distribution for the month of October 2007**

**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)\

Much of southern Oromia, pocket areas of eastern, central and western Oromia parts of southwestern Amhara, parts of southwestern Benshangul-Gumuz and parts of northwestern Amhara and litlle parts of northern Somali receive normal to above normal rainfall while the rest parts of the country exhibited below to much below normal rainfall.

## 1.3 TEMPERATURE ANOMALY

With regard to Air temperature Mankush, Methera, Metema, Gode, Ayisha, Milla, Assayta, Gambela, Dubti, Elidar, Humera, Semera and Gewane, reported extreme maximum temperature as high as 35.4, 35.5, 36.5, 37.0, 37.5, 37.5, 38.5, 39.0, 40.2,40.2,40.1, 41.6 and 42.5, respectively.

DebreBrhan, MehalMeda, Wegel Tena, Alemya, Fitche and DebreZeit recorded extreme minimum temperature below $5^0$ C as low as 1.0, 1.2, 1.8, 2.0, 2.4 and 2. $8^0$ C respectively. During the month under review. This situation could have a negative impact form normal growth and development of plants.

## 2. WEATHER OUTLOOK

2.1 For the first dekad of November 2007

Generally the Bega's dry and windy conditions are expected to prevail across the major potions of northern half and central regions. However, northern half of the country that includes, southern and eastern Oromia, Somali SNNPR and Gambela as well as pocket places of Benshangul-Gumuz and west Amhara will have light to moderate rains for few days, In line with this, the probability of frost occurrence will be lesser as compared to the normal conditions**.**

2.1 For the month of November 2007

The presence of anomalous warming of sea surface across the Arabian and Mediterranean Sea and northern Indian Ocean will increase the likelihood occurrence of unseasonal rains for few days at some places of central eastern and northern sectors of the country. Besides, some places southern half of Ethiopia will get neat normal rains. Frost event is less likely to occur over the country as a result of occasional incursion of moist air and cloud coverage across the country.

## 3. AGROMETEOROLOGICAL CONDITIONS AND IMPACT ON AGRICULTURE

### 3.1 VEGETATION CONDITION AND IMPACT ON AGRICULTURE

Generally during the month of October extreme minimum of temperature observed over some areas of Northeastern, Eastern and central high land of Ethiopia. However, there was no significant damage on crops due to the extreme minimum temperature. With regard to heavy falls, about 13 stations from the reporting station recorded heavy falls from 33-66 mm. For instance, Shambu, Nekemte, Dolo Mena, Gelemso Mankush Arjo, Ginir, Bahir Dar, Metema, and LimuGenet recorded 30.5, 30.8, 30.9, 32.0, 32.7, 33.7, 34.3, 38.8, 42.3, and 46.0 mm respectively in one rainy days during the month. There fore this condition could have a negative impact on crops, which are ready to harvest. Some areas records crop damage during the month under review. For instance Bahir Dar reported damage on vegetable and Bedele reported damage on maize and Teff crops, which are ready to harvest. Regarding phenological report, please refer table 1next page

### 3.2 EXPECTED WEATHER IMPACTS ON AGRICULTURE DURING THE COMING MONTH

The anticipated near normal rainfall condition over Somali, western and southern Oromia, Gambela, SNNPR and Benshangul–Gumuz would have a positive contribution particularly for lowlands of pastoral and agro pastoral interms of season's agricultural activities. Besides, it would have positive impact on perennial vegetation like trees and

bushes. Moreover, some areas of central and eastern Oromia, and western Amahra could observe below normal rainfall condition. Thus, this unseasonable rainfall situation would have a negative effect on harvest and post harvest activities particularly in areas where the activities are under question like central (Holleta, Kulumsa) eastern (Gelemso) and western (Nekemte, Aira, Gimbi). Therefore farmers are advised to exploit the anticipated dry and sunny condition to harvest their crops on time in order to avoid post harvest losses. In addition, the expected dry weather condition over Tigray, eastern Amhara, central rift valley would favor meher crops, which are ready to harvest. Besides, the predictable extreme minimum temperature would have a negative impact for early sown crops and crops which are at different phonological stages.

**PHENOLOGICAL REPORT FOR THE THIRD DEKAD OF OCTOBER 2007**

Table 1

El= Elongation Yg r= yellow green ripeness

| Station name | Region | Zone | Woreda | Major Crops | | | Phases | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 1 | 2 | 3 |
| Aris Robe | Oromia | Mirab Arsi | Robe | teff | Wheat | - | Sh | Tl | - |
| Alemkema | Amahara | Semen Shoa | Alemkema | Teff | - | - | R | - | - |
| Assosa | Benishagul | Assosa | Assosa | Sorghum | - | - | Ta | - | - |
| Ayehu | Amahara | Mirab Gojam | Ankosha | Maize | Peas | Pepper | Fr | R | Cr |
| Bedelle | Oromia | Illubabor | Bedlle | Maize | - | - | Fr | - | - |
| Bullen | Benishagul | Metekel | Bullen | Millet | Nug | Maize | Ta | Bu | R |
| Bui | SNNPR | Guarage | Sodo | Teff | Wheat | Sorghum | - | - | - |
| Chagni | Amahara | Awi | Guagnua | Maize | Millet | Nug | Wr | Sh | Bu |
| Chira | Oromia | Jimma | Gera | - | Sorghum | Teff | H | Fl | Fl |
| Dangila | Benishagul | Awi | Dangila | Millet | - | - | Tl | - | - |
| Debre Tabor | Amahara | Dabub Gonder | Debre Tabor | Wheat | Barely | Teff | - | - | - |
| Dolomana | Oromia | Bale | Mena | Maize | Sea same | - | Nl | Em | - |
| Enewary | Amahara | Semen Shoa | Mortenajiru | Wheat | Teff | - | Sh | Fl | - |
| Fitche | Oromia | Semen Shoa | Girarjarso | Teff | Wheat | Beans | Ta | Fl | R |
| Gelemeso | Oromia | Mira Haraghe | Habro | - | Teff | - | - | Ta | - |
| Hossaina | SNNPR | SNNPR | Lemu | Barely | - | - | Ea | - | - |
| Kachise | Oromia | Mirab Shoa | Gindeberet | Beans | Teff | - | R | Fl | - |
| Lalibela | Amahara | Semen Wollo | Lasta | barely | - | - | - | - | - |
| Limugent | Oromia | Jimma | Limukosa | Rice | Teff | - | R | R | - |
| Majate | Amahara | Semen Shoa | Mizan antakiya | - | - | Maize | - | - | Fr |
| Mehal Meda | Amahara | Semen Shoa | Gira mider | - | Barely | Beans | - | Fl | Fl |
| Nedjo | Oromia | Mira Wollega | Nedjo | Maize | Sorghum | Millet | Fr | Fl | Fl |
| Pawe | Benishagul | Metekele | Pawe liyu | Maize | Sorghum | Sea same | R | Ta | R |
| Shaura | Amahara | SemenGonder | ALEF.T | Maize | Millet | - | Ta | Sh | - |
| Shambu | Oromia | HoroWollega | Horo | Beans | Wheat | Barely | R | Ti | Tl |
| Shire | Tigiray | Mirab Tigray | Endasilasie | Maize | Teff | - | - | - | - |
| Sirinka | Amahara | Semen Wollo | Habru | Teff | Maize | Millet | Fl | Wr | R |
| Sokoru | Oromia | Jimma | Sokoru | Maize | Teff | - | H | Ta | - |
| Shola gebeya | Amahara | Semen Shoa | Hagaramariam | Wheat | Beans | - | Ea | R | - |
| Wagel Tena | Amahara | Semen Wollo | Delanta | Wheat | Beans | Peas | Tl | Fl | Ta |
| Waliso | Oromia | D.Mirab Shoa | Waliso | Maize | Nug | Teff | H | Fl | Fl |
| Ziway | Oromia | Misrak Shoa | Jidocombolcha | Maize | Wheat | - | - | - | - |

**Key :**

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

Ta = Tassel

Fl=Flower
R = ripeness
Cr= Consumer ripeness
Gr= Green ripeness
Wr= Wax ripeness

ripeness

**-**
Data not available

| | Table 1. Climatic and Agro-Climatic elements of different stations for the month | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | of OCTOBER 2007 | | | | | | | |
| | Stations | Region | A/ rainfall | Normal | %of Normal | Eto mm/day | Monthly Eto | Moisture status |
| 1 | Adigrat | TIGRAI | 0.00 | 27.80 | 0.00 | NA | NA | NA |
| 2 | Adwa | | 2.20 | 27.30 | 8.06 | 4.22 | 130.82 | H |
| 3 | Humera | | 0.00 | 15.80 | 0.00 | NA | NA | NA |
| 4 | Maichew | | 9.70 | 49.70 | 19.52 | 3.46 | 107.26 | VD |
| 5 | Mekele | | 0.00 | 6.00 | 0.00 | 4.89 | 151.59 | VD |
| 6 | Shaura | | 42.20 | NA | NA | NA | NA | NA |
| 7 | Senkata | | 0.00 | 28.40 | 0.00 | 5.17 | 160.27 | VD |
| 8 | Shire | | 17.20 | 29.60 | 58.11 | 4.37 | 135.47 | D |
| | | | | | | | | |
| 1 | Assayta | AFAR | 0.00 | 6.30 | 0.00 | NA | NA | NA |
| 2 | Dubti | | 0.00 | 8.20 | 0.00 | 5.38 | 166.78 | VD |
| | | | | | | | | |
| 1 | A. Ketema | AMHARA | 8.00 | 26.90 | 29.74 | 4.46 | 138.26 | VD |
| 2 | Aykel | | 55.80 | 146.10 | 38.19 | NA | NA | NA |
| 3 | B.Dar | | 115.60 | 96.40 | 119.92 | 4.17 | 129.27 | M |
| 4 | Bati | | 16.40 | 30.30 | 54.13 | NA | NA | NA |
| 5 | Bullen | | 93.00 | 159.70 | 58.23 | 3.55 | 110.05 | M |
| 6 | Combolcha | | 21.60 | 36.40 | 59.34 | 3.21 | 99.51 | D |
| 7 | Chefa | | 17.80 | 41.80 | 42.58 | 2.9 | 89.9 | D |
| 8 | D.Birhan | | 2.50 | 23.90 | 10.46 | NA | NA | NA |
| 9 | D.Markos | | 35.90 | 81.60 | 44.00 | 3.69 | 114.39 | MD |
| 10 | D.Tabor | | 7.10 | 86.60 | 8.20 | NA | NA | NA |
| 11 | Dangla | | 51.30 | 81.90 | 62.64 | 3.35 | 103.85 | MD |
| 12 | Enwary | | 3.60 | 8.40 | 42.86 | 4.42 | 137.02 | VD |
| 13 | Gonder | | 30.50 | 71.60 | 42.60 | 4.2 | 130.2 | D |
| 14 | M.Meda | | 5.60 | 29.20 | 19.18 | 3.56 | 110.36 | VD |
| 15 | Majete | | 25.10 | 33.80 | 74.26 | 4.37 | 135.47 | M |
| 16 | MekaneSelam | | 14.10 | NA | NA | NA | NA | NA |
| 17 | Metema | | 67.00 | 47.80 | 140.17 | 4.11 | 127.41 | M |
| 18 | Mota | | 0.00 | 104.40 | 0.00 | NA | NA | NA |
| 19 | Lalibela | | 0.30 | 16.60 | 1.81 | 3.94 | 122.14 | VD |
| 20 | S. Gebeya | | 10.30 | 28.90 | 35.64 | 3.9 | 120.9 | VD |
| 21 | Sirinka | | 33.90 | 59.20 | 57.26 | 3.79 | 117.49 | D |
| 22 | Wegeltena | | 1.90 | 8.30 | 22.89 | 3.79 | 117.49 | VD |
| 23 | Wereilu | | 0.00 | 13.60 | 0.00 | 3.44 | 106.64 | VD |
| | | | | | | | | |
| 1 | Abomsa | OROMIYA | 25.2 | 68.70 | 36.68 | 4.27 | 132.37 | D |
| 2 | Aira | | 73.07 | 135.00 | 54.13 | 3.63 | 112.53 | M |
| 3 | Alemaya | | **27.1** | 45.10 | 60.09 | 3.62 | 112.22 | D |
| 4 | Alge | | **98.7** | 154.30 | 63.97 | NA | NA | NA |
| 5 | Ambo | | **11** | 41.50 | 26.51 | 4.73 | 146.63 | VD |
| 6 | Arjo | | **82.4** | 108.80 | 75.74 | NA | NA | NA |
| 7 | Arsi robe | | 58.8 | 68.40 | 85.96 | NA | NA | NA |
| 8 | Bedelle | | **82** | 129.30 | 63.42 | 3.49 | 108.19 | M |
| 9 | Begi | | 73.4 | 123.00 | 59.67 | NA | NA | NA |
| 10 | Bui | | **21.2** | 21.80 | 97.25 | 5.22 | 161.82 | D |
| 11 | Chira | | 75.4 | 144.80 | 52.07 | NA | NA | NA |
| 12 | D.Dollo | | **94** | 110.70 | 84.91 | 3.45 | 106.95 | M |
| 13 | D.Mena | | **136.5** | 214.50 | 63.64 | 3.8 | 117.8 | H |
| 14 | D.Zeit | | **13.4** | 21.50 | 62.33 | 4.42 | 137.02 | D |
| 15 | Ejaji | | **0** | 80.20 | 0.00 | NA | NA | NA |
| 16 | Fitche | | **8.8** | 28.60 | 30.77 | 3.41 | 105.71 | VD |
| 17 | Gelemso | | **88.4** | 90.90 | 97.25 | 3.66 | 113.46 | M |
| 18 | Gimbi | | **51.1** | 131.90 | 38.74 | NA | NA | NA |
| 19 | Ginir | | **166.1** | 190.70 | 87.10 | NA | NA | NA |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 20 | **Gore** | | **83.4** | 194.30 | 42.92 | 3.69 | 114.39 | M |
| 21 | **H. Mariam** | | **173.8** | 125.10 | 138.93 | 3.11 | 96.41 | H |
| 22 | **Jimma** | | **55.4** | 101.50 | 54.58 | 3.32 | 102.92 | M |
| 23 | **K.Mengist** | | **147.9** | 183.50 | 80.60 | 3 | 93 | H |
| 24 | **Kachise** | | **53.3** | 106.30 | 50.14 | 3.73 | 115.63 | MD |
| 25 | **Koffele** | | **45.3** | 98.10 | 46.18 | 3.21 | 99.51 | MD |
| 26 | **Lumugenet** | | **173.1** | 188.30 | 91.93 | 4.32 | 133.92 | H |
| 27 | **Meiso** | | **19.9** | 52.40 | 37.98 | 4.5 | 139.5 | D |
| 28 | **Moyale** | | **85** | 87.60 | 97.03 | 3.61 | 111.91 | M |
| 29 | **Nazreth** | | **25.4** | 31.80 | 79.87 | 6.96 | 215.76 | D |
| 30 | **Neghele** | | **98.1** | 161.90 | 60.59 | 3.92 | 121.52 | M |
| 31 | **Nedjo** | | 35.30 | 125.20 | 28.19 | 3.25 | 100.75 | MD |
| 32 | **Nekemte** | | 84.00 | 149.50 | 56.19 | 3.62 | 112.22 | M |
| 33 | **Robe(Bale)** | | 53.70 | 97.10 | 55.30 | 2.67 | 82.77 | M |
| 34 | **Sekoru** | | 46.30 | 72.10 | 64.22 | 3.48 | 107.88 | MD |
| 35 | **Shambu** | | 88.40 | 81.80 | 108.07 | 3.38 | 104.78 | M |
| 36 | **Wolliso** | | 8.40 | 39.40 | 21.32 | NA | NA | NA |
| 37 | **Yabello** | | 66.40 | 88.50 | 75.03 | 3.88 | 120.28 | M |
| 38 | **Ziway** | | 22.70 | 35.80 | 63.41 | 5.08 | 157.48 | D |
| | | | | | | | | |
| 1 | **Gode** | **SOMALI** | 40.80 | 59.40 | 68.69 | 4.9 | 151.9 | MD |
| | | | | | | | | |
| 1 | **A.Minch** | **SNNPR** | 78.60 | 119.80 | 65.61 | 4.09 | 126.79 | M |
| 2 | **Awassa** | | 29.10 | 84.30 | 34.52 | 3.65 | 113.15 | |
| 3 | **Bilate** | | 47.70 | 61.50 | 77.56 | NA | NA | NA |
| 4 | **Dilla** | | 193.30 | 153.80 | 125.68 | 3.5 | 108.5 | H |
| 5 | **Hosaina** | | 19.00 | 79.80 | 23.81 | NA | NA | NA |
| 6 | **Jinka** | | 78.00 | 136.70 | 57.06 | 3.51 | 108.81 | M |
| 7 | **Konso** | | 71.10 | 88.20 | 80.61 | 4.58 | 141.98 | MD |
| 8 | **M.Abay** | | 18.70 | 92.40 | 20.24 | 4.02 | 124.62 | D |
| 9 | **Sawla** | | 47.40 | 169.90 | 27.90 | 3.82 | 118.42 | MD |
| | | | | | | | | |
| 1 | **Assosa** | **B/GUMUZ** | 146.60 | 132.60 | 110.56 | 3.61 | 111.91 | H |
| 2 | **Chagni** | | 215.70 | 185.30 | 116.41 | 3.95 | 122.45 | H |
| 3 | **Mankush** | | 75.80 | 0.00 | NA | NA | NA | NA |
| 4 | **Pawe** | | 69.70 | 139.10 | 50.11 | 3.88 | 120.28 | M |
| | | | | | | | | |
| 1 | **Gambela** | **Gambela** | 63.50 | 104.30 | 60.88 | NA | NA | NA |
| 2 | **Abobo** | | | | | | | |
| 1 | **A.A.Obs.** | **A.A** | 24.80 | 41.10 | 60.34 | 3.83 | 118.73 | D |
| 2 | **A.A. Bole** | | 25.20 | 33.70 | 74.78 | 4.94 | 153.14 | D |
| | | | | | | | 0 | |
| | **Diredawa** | **D.D** | 29.80 | 25.50 | 116.86 | 4.66 | 144.46 | D |
| | | | | | | | | |
| 1 | **Harar** | **Harai** | 17.70 | 42.40 | 41.75 | NA | NA | NA |

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

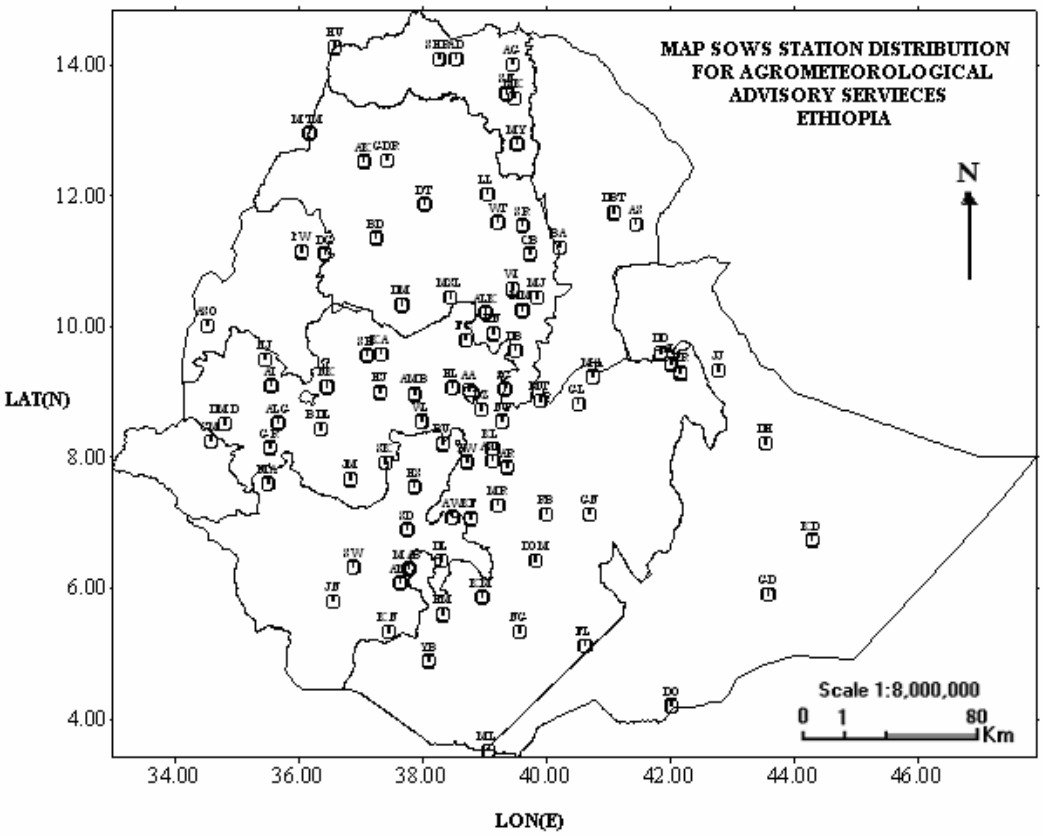
**DEKAD: - First or second ten days or the remaining days of a month.**

**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 | CODE |
|---|---|
| A. Robe | AR |
| A.A. Bole | AA |
| Adigrat | AG |
| Adwa | AD |
| Aira | AI |
| Alemaya | AL |
| Alem Ketema | ALK |
| Alge | ALG |
| Ambo | AMB |
| Arba Minch | 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 |