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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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በልግ 2019

አህፅሮት

በመደበኛ ሁኔታ መካከለኛው፤ የሰሜን ከፍተኛ ቦታዎች፤ የምስራቅ ከፍተኛ ቦታዎች፤ ከፊል የመካከለኛው፤ የደቡብ ምዕራብና የደቡብ የሀገሪቱ አካባቢዎች በልግ አብቃይ በመባል ይታወቃሉ። በሰሜን፤ በሰሜን ምሥራቅና በምስራቅ ከአመታዊው ምርት የበልግ ምርት አስተዋፅየ ከ5-30%፤ በደቡብና ደቡብ ምእራብ ከ30-60% ይደርሳል። ሰሜን ሸዋ፤ ምስራቅና ምእራብ ሐረርጌ፤ አርሲ፤ ባሌ፤ ሰሜንና ደቡብ ወሎ፤ ቦረናና የደቡብ ብሔር ብሔረሰቦችና ህዝቦች ክልል (ከምባታ፤ ሀድያ፤ ወላይታ፤ ጉለኔ፤ ከፋና ቤንች) የማሣ ዝግጅትና የዘር ጊዜ የሚጀምሩት ከታህሳስ እስከ የካቲት ባለው ጊዜ ውስጥ ነው። በተጨማሪም ወቅቱ የደቡብና ደቡብ ምስራቅ አከባቢዎች ለግጦሽ ሣርና ውሃ አቅርቦት የሚሆን ውሃ የሚያከማቹበት ጊዜ ነው።

እ.ኤ.አ በፌብርዋሪ ወር 2019 በተለይም በመጀመሪያው አሥር ቀናቶች በብዙ የሀገሪቱ ክፍሎች ላይ ደረቅ፣ ፀሐያማና ነፋሻማ የአየር ሁኔታ አመዝኖ የቆየ ሲሆን፤ ይህም ሁኔታ የበልግ የእርሻ ስራ እንቅስቃሴን ቀድመው ለሚጀምሩ አካባቢዎች አሉታዊ ተፅእኖ ነበረው ከዚህ ጋር በተያያዘም የቀኑ ከፍተኛ ሙቀት በተለይም በአንዳንድ የሀገሪቱ ቆላማ ስፍራ ዎች ላይ ጨምሮ የተስተዋለ ሲሆን፤ በጥቂት ቦታዎች ላይም ከ40 ዲ.ሴ በላይ ሆኖ ተመዝግቧል፡፡ ለመጥቀስም በአቦቦ 41.8፣ በሰመራ 41.0፣ በሽረ 41.0፣ በማንኩሽ 40.0 እና በጋምቤላ 40.0 በዲ. ሴልሺየስ ይገኙበታል፡፡ በሌላ በኩል በፌብርዋሪ ወር ሁለተኛዉ እና ሶስተኛዉ አስር ቀናት ዕርጥበት አዘል አየር አልፎ አልፎ ወደ ሀገራችን በመግባቱ በአንዳንድ የሀገሪቱ አካበባዎች ላይ አንፃራዊ የሆነ የደመና ሽፋን መጨመር ተስተዉሏል፡፡ በዚሁ መሰረት በምስራቅ እና ደቡብ ትግራይ፣ ሰሜን እና ደቡብ ወሎ፣ በደቡብ ጎንደር፣ በምስራቅ እና ምዕራብ ጎጃም ሰሜን ሸዋ ዞን ጨምሮ፣ በምስራቅ፣ ቄለም እና ምዕራብ ወለጋ ዞኖች፣ በኢሉአባቦራ እና ጅማ፤ በጋምቤላ ክልል ዞኖች ላይ፣ በከፋ፣ በሸካ፣ በጉራጌ፣ በስልጤ፣ በሲዳማ፣ በጋሞጎፋ፣ በጥቂት የባሌ እና ጉጂ ዞኖች ላይ ከቀላል እስከ መካከለኛ መጠን ያለዉ እንዲሁም አልፎ አልፎ ከባድ መጠን ያለው ዝናብ ተመዝግቧል፡፡ በወሩ ውስጥ ከባድ ዝናብ ከመዘገቡ ጣቢያዎች መካከል ለመጥቀስ ያህል በኮምቦልቻ 69.3፣ በስሪንቃ 28.6፣ በአይደር 40.8፣ በመቀሌ 36.2፣ በወረኢሉ 46.7 እንዲሁም በጊኒር 48.0 ሚ.ሜ መጠን ያለው ከባድ ዝናብ ተመዝግቧል። ይህም ሁኔታ የበልግ እርሻን ለሚያከናውኑ አካባቢዎች የማሳ ዝግጅትና ለዘር ጊዜ የእርሻ ስራ እንቅስቃሴ እንዲሁም

ለአርብቶ አደሮችና ከፊል አርብቶ አደሮች ለመጠጥ ውሀ፣ ለግጦሽ ሳር አቅርቦትና ለቋሚ ሰብሎች የውሃ ፍላጎት መሟላት የጎላ ጠቀሜታ ነበረው

እ.ኤ.አ በማርች 2019 ሁኔታ የተተነተኑ የግብርና ሚቲዎሮሎጂ መረጃዎች እንደሚያመላክቱት ባሳለፍነው የማርች ወር በአብዛኛዎቹ የበልግ አብቃይ በሆኑ አካባበቢዎች የተስፋፋ የእርጥበት ሁኔታ ነበራቸው፡፡ ይህም ሁኔታ በወቅቱ እየተከናወኑ ለነበሩት የግብርና ስራ እንቅስቃሴዎች ማለትም ማሳ ለማዘጋጀት፣ ዘር ለመዝራትም ሆነ የመጠጥ ውኃና የግጦሽ ሳር አቅርቦት ላይ የጎላ ጠቀሜታ ነበረዉ፡፡ በአጠቃላይ በወሩ የተገኘው እርጥበት አስቀድመው ለተዘሩ የበልግ ሰብሎችም ሆነ ለቋሚ ተክሎች የውኃ ፍላጎት መሟላት አዎንታዊ ሚና የነበረው ሲሆን በተጨማሪም የረጅም ጊዜ ሰብሎችን ለሚዘሩ አካባቢዎች አስቀድመው የማሳ ዝግጅት እንዲያከናውኑና የተሟላ ዝግጅት ለማድርግ ጥሩ አስተዋጽኦ ነበረዉ፡፡ ከዚሁ ጋር ተያይዞ በተለይም በደቡብ የሀገሪቱ አካባቢዎች የተገኘው እርጥበት በአካባቢዎቹ ለሚኖሩት የአርብቶ አደርና ከፊል አርብቶ አደር አካባቢዎች አዎንታዊ ሚና የነበረው ሲሆን በተጨማሪም ባሳለፉት ወራት የተከሰተውን የእርጥበት እጥረት ከማሻሻል አንፃር ከፍተኛ ሚና ነበረው፡፡

እ.ኤ.አ 2019 በአፕሪል ወር ለወቅቱ ዝናብ መኖር አመቺ ሁኔታን የሚፈጥሩ የአየር ሁኔታ ክስተቶች በበልግ አብቃይ እና ተጠቃሚ በሆኑ የሀገሪቱ አካባቢዎች ላይ ተጠናክሮ ነበር፡፡ ይህም በአብዛኛው የበልግ አብቃይ እና ተጠቃሚ የሀገሪቱን ክፍሎች ያዳረሰ የእርጥበት ሁኔታ ነበረዉ፡፡ ይህም ሁኔታ ቀደም ብለው ተዘርተው በተለያየ የእድገት ደረጃ ላይ ለሚገኙ የበልግ ሰብሎች ቀጣይ እድገታቸው ላይ የጎላ ጠቀሜታ የነበረው ሲሆን እንዲሁም ለረጅም ጊዜ ሰብሎች የማሳ ዝግጅትና ለዘር እርሻ እንቅስቃሴ፣ ለቋሚ ሰብሎች የውሀ ፍላጎት መሟላት በተጨማሪም ለአርብቶ አደሮችና ከፊል አርብቶ አደሮች አመቺ ሁኔታን የፈጠረ ነበር፡፡ በተለይም በደቡብና በጥቂት ሰሜን ምስራቅ የሀገሪቱ አካባቢዎች ላይ በአንዳንድ ስፍራዎች የነበረው ከባድ መጠን ያለው ዝናብ ለአዝዕርቱ የውሃ ፍላጎት መሟላት፣ ለግጦሽ ሳርና ለመጠጥ ውሀ አቅርቦት አመቺ ሁኔታን ቢፈጥርም በአንዳንድ ከላይ በተጠቀሱ አካባቢዎች የነበረው ከባድ ዝናብና ቅጽበታዊ ጎርፍ በተለያየ የእድገት ደረጃዎች ላይ ባሉ ሰብሎች እንዲሁም በሰው እና በንብረት ላይ አሉታዊ ተፅዕኖ ነበረው፡፡ በሌላ በኩል ባለፈው የሚያዚያ ወር በማዳካስካር አካባቢ በተከታታይ በተፈጠረው ዝቅተኛ የአየር ግፊት ምክኒያት በዚህ ወቅት በዋናነት ዝናብ በሚጠበቅባቸው የቦረናና ጉጂ እንዲሁም የደቡብ ምስራቅ የሀገሪቱ ክፍሎች ላይ አልፎ አልፎ ከነበራቸው አነስተኛ መጠን ያለው እርጥበት በስተቀር በአብዛኛው የእርጥበት እጥረት የነበራቸዉ ሲሆን ይህም ሁኔታ

በእነዚህ አካባቢዎች ለአርብቶ አደሮችና ከፊል አርብቶ አደሮች በተዎሰነ መልኩ አሉታዊ ተጽእኖ ነበረዉ፡፡

እ.ኤ.አ በሜይ ወር 2019 ለወቅቱ ዝናብ መኖር አመቺ ሁኔታን የሚፈጥሩ የአየር ሁኔታ ክስተቶች በአብዘሃኛዉ የሀገሪቱ አካባቢዎች ላይ እየተስፋፉ የነበረ ሲሆን፤ ከዚህ ጋር በተያያዘ በአብዛኛዉ የአገሪቱ ክፍሎች ላይ የእርጥበት ስርጭቱ ጥሩ ሁኔታ ነበረዉ፡፡ ይህም ሁኔታ የበልግ አብቃይ እና ተጠቃሚ የሀገሪቱ ክፍሎች ተዘርተው ፍሬ በማፍራት እና በተለያየ የእድገት ደረጃ ላይ ለሚገኙ የበልግ ሰብሎች ቀጣይ እድገታቸው ላይ የጎላ ጠቀሜታ የነበረው ሲሆን፤ እንዲሁም ለረጅም ጊዜ ሰብሎች የማሳ ዝግጅትና ለዘር እርሻ እንቅስቃሴ፣ ለቋሚ ሰብሎች የውሀ ፍላጎት መሟላት በተጨማሪም ለአርብቶ አደሮችና ከፊል አርብቶ አደር አካባቢዎች ለግጦሽ ሳር እና ለመጠጥ ዉሃ አቅርቦት አመቺ ሁኔታን የፈጠረ ነበር፡፡ በአንዳንድ ቦታዎች ላይ አልፎ አልፎ የነበረው ከባድ መጠን ያለው ዝናብ ለአብዛኛው የእርሻ እንቅስቃሴ ጠቀሜታው የጎላ ነበር፡፡

በአጠቃላይ የበልግ 2019 ሁኔታ ስንመለከተው በአብዛኛው የበልግ ተጠቃሚ አካባቢዎች ላይ ጥሩ የእርጥበት ሁኔታ የነበረበት እና ለበልግ ሰብሎች የግብርና እንቅስቃሴ ጥሩ አስተዋፅኦ ነበረው፡፡ ከዚህም በተጨማሪ በኤፕሪል እና ሜይ ላይ የተገኘው እርጥበት ለአርብቶ አደሩ እና ከፊል አርብቶ አደሩ አካባቢዎች በጎ ጎን የነበረው ሲሆን ለረዥም ጊዜ የመኸር ሰብሎች የዘር ጊዜያቸውን ለማከናወን ጥሩ ጎን ነበረው፡፡ በሌላ በኩል በደቡብ ኦሮሚያ፤ ምስራቅና ምእራብ ሃረርጌ በልግ ተጠቃሚ አካባቢዎች ላይ ፌብርዋሪና በማርች ወር በነበረው የእርጥበት መቀነስ የበልጉ የግብርና እንቅስቃሴ ላይ በተወሰነ መልኩ አሉታዊ ጎን የነበረው ሲሆን፤ ጠቅለል ባለ መልኩ የእርጥበት እጥረት ከተስተዋለባቸው በልግ ተጠቃሚ አካባቢዎች በስተቀር አብዛኛው የበልግ ተጠቃሚ አካባቢዎች ጥሩ የግብርና እንቅስቃሴ ነበራቸው፡፡

BELG 2019

SUMMARY

Normally central parts of northern highlands, eastern highlands, parts of central, southwestern and southern Ethiopia are known as Belg growing areas .The contribution of Belg rainfall is ranging from 5-30% over north, northeastern, and eastern highlands, where as 30-60% over south and southwestern parts of the country from annual total crop production of the areas. North Shewa, East and West Hararge, Arsi, Bale, north and south Wello, Borena and SNNPR (Kembata, Hadiya and Welayita, Gurage, Keffa and Bench) start their land preparation and sowing activities during December to February. It is the time for water harvesting over pastoral and agro pastoral areas of southern and southeastern Ethiopia.

During the month of February 2019, particularly the first ten days of the month dry and windy weather condition prevailed over most parts of the country. This situation might have negatively affected land preparation of Belg crop whereas during the second and the third dekads of the month rain bearing meteorological phenomenon gradually strengthened from day to day over most part of Belg growing areas. In line with this eastern and southern Tigray, north and south wello, south Gonder, east and west Gojam, north Shewa, western wellega and easten Kelem zones, SNNPR zones of Keffa, Sheka, Gurage, Silte, Sidama, Gamo gofa, some parts of Bale and Guji zones have recived slight to heavy rainfall and also particularly Combolcha, Srinka, Ayder, Mekele, werillu and Ginnir station recorded heavy fall 69.3, 28.6, 40.8, 36.2, 46.7 and 48.0 mm respectively in one rainy day. This situation might have a positive implication for the area where Belg season land preparation and sowing activates started earlier over Belg producing areas and to satisfy the water need of perennial plants. Moreover, it has a significant implication for the supply of drinking water and pasture over pastoral and agro pastoral areas.

During the month of March, most Belg season rain benefiting areas enabled to receive good moisture particularly at the first and third dekads of the month. In line with this, Tigray, eastern Amhara, Central, western and southern Oromia, Gambela, SNNPR, and in some pocket areas of south Afar and eastern parts of the country experienced rainfall in the range of light to moderate in amount. The received moisture during the month might be favorable to assist all sorts of agricultural activities such as for land preparation, sowing of Belg season crops, to ensure the availability of pasture and drinking water.

During the month of April 2019 rain bearing meteorological phenomena was strengthening in amount and distribution over much of Belg rain benefiting area of the country. This situation might have positive impact on moisture requirement of different Belg and Meher long cycle crops found at various phases of growth, perennial plants, general agricultural activities, improve pasture and drinking water availability in pastoral and agro pastoral low land areas. Besides, the observed heavy rainfall particularly southern and some parts of north eastern parts of the country might have positive impact on the ongoing Belg agricultural activities normally moisture deficit areas and water harvesting where that can be used in time of deficit. Moreover the observed widespread rainfall distribution could also have indispensable contribution on the availability of pasture and drinking water for pastoral areas. On the other hand, extreme heavy fall (42.0 – 98.0) mm in one rainy day observed over south, south west, central and northeast parts of the country may cause flood and water logging on crops field in low lying areas and soil erosion on sloppy areas as well as it could affect the sowing activities by washing away the newly sown Meher seeds in areas where sowing activities are the main practices at this time of the year.

During the month of May 2019 under normal circumstance the rainfall activity decreasing over belg growing areas and expanded over western parts of the country. In current season Belg rain bearing meteorological conditions intensified over most parts of the country, in line with this most of the country had good moisture condition. The observed wide distribution of rainfall could have a positive contribution for belg crops, sowing of long cycle crops like maize and sorghum including pulse crops like haricot bean and also fevered for pasture and drinking water over the low lands pastoral and agro postural area of the country. On the other hand, occasional heavy fall ranging from 50 – 150 mm in one rainy day observed over western, southwestern,

southern, northern central and northeastern parts of the country may cause flood and water logging on crops field in low lying areas and soil erosion on sloppy areas as well as it could affect the sowing activities by washing away the newly sown seeds. However the observed widespread rainfall distribution could also have indispensable contribution on the availability of pasture and drinking water for pastoral areas.

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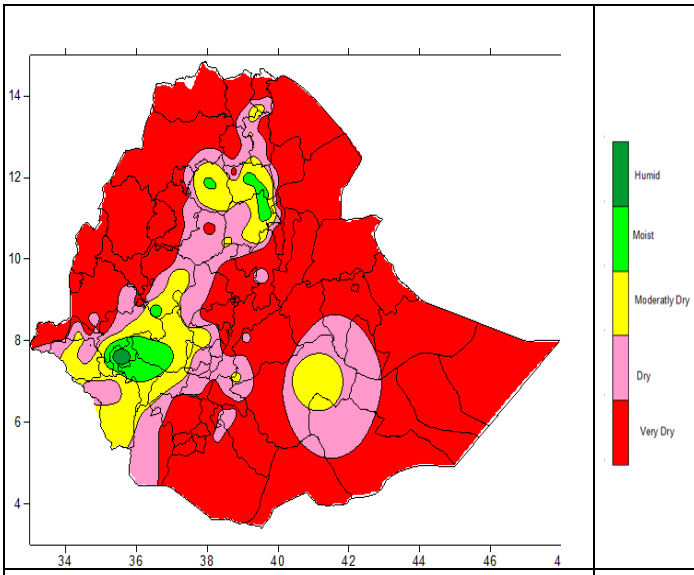


Figure1.Moisture status for the month of February 2019

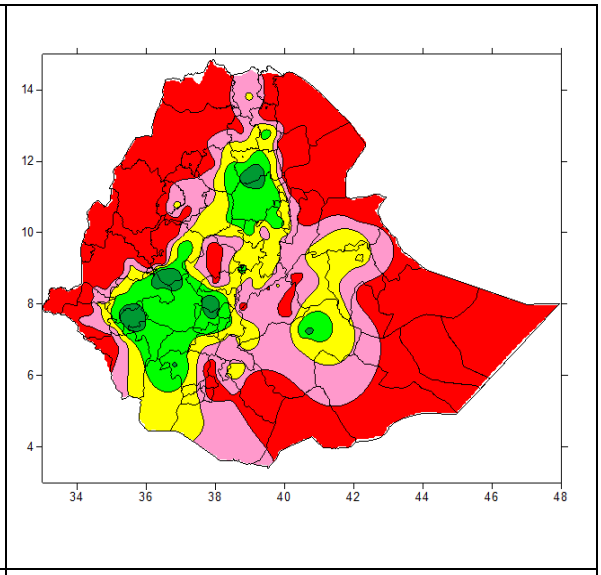


Figure2.Moisture status for the month of March 2019

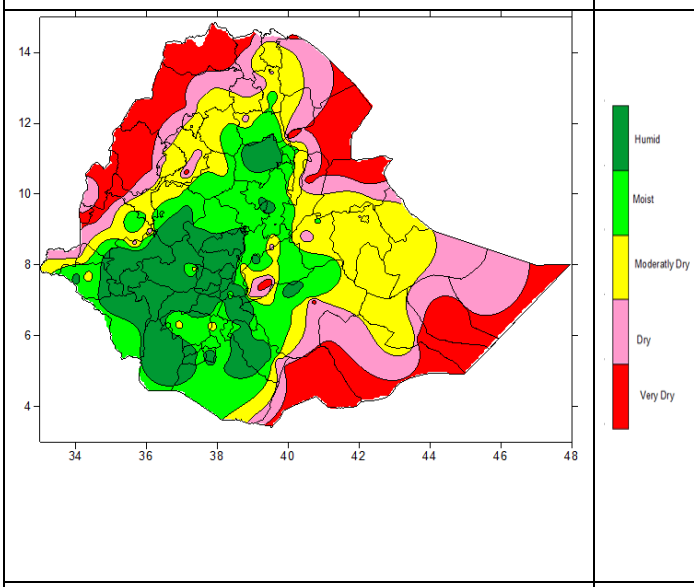


Figure 3. Moisture status for the month of April 2019

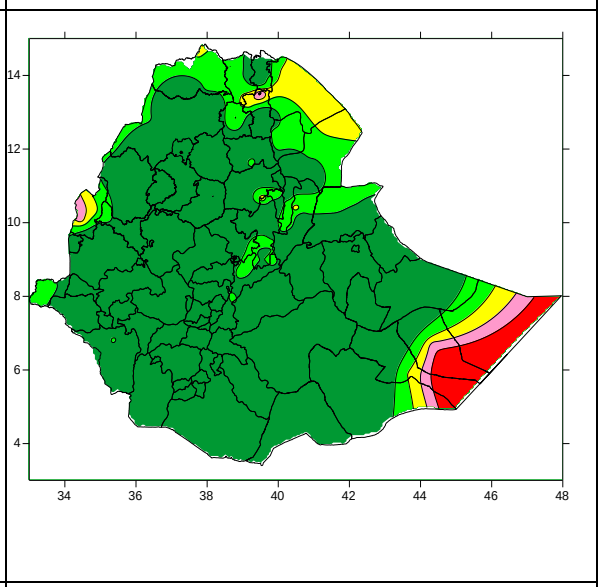
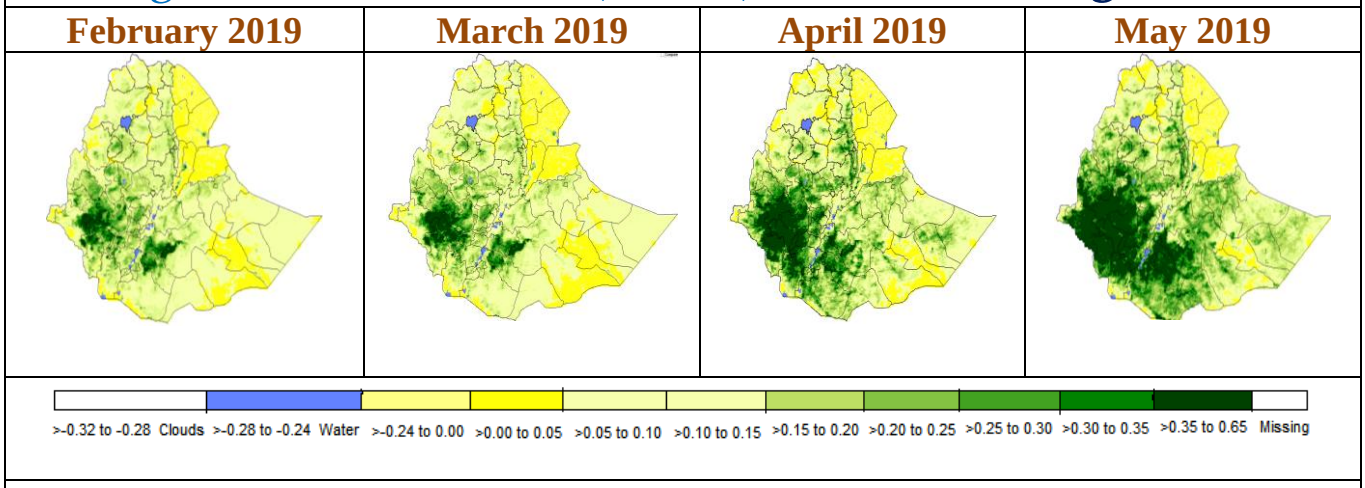


Figure 4. Moisture status for the month of May 2019

Vegetation Greenness (NDVI) in fraction **Belg 2019**



Vegetation Greenness (NDVI) in fraction -[Compared to Normal]

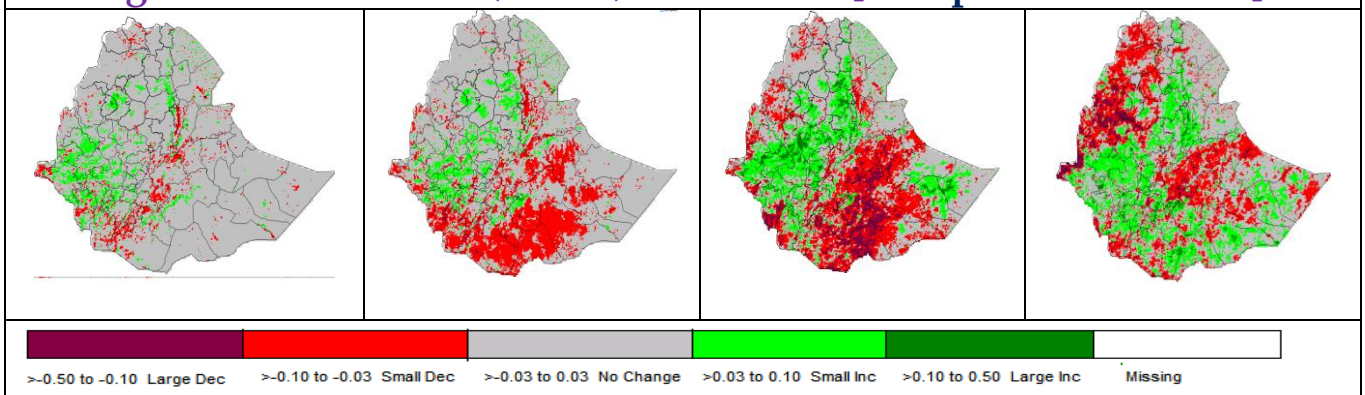


Fig. 5. Vegetation Greenness (NDVI) in fraction and Compared to Normal Belg (Febuary- May) 2019

Rangeland WRSI in % - **Belg 2019**

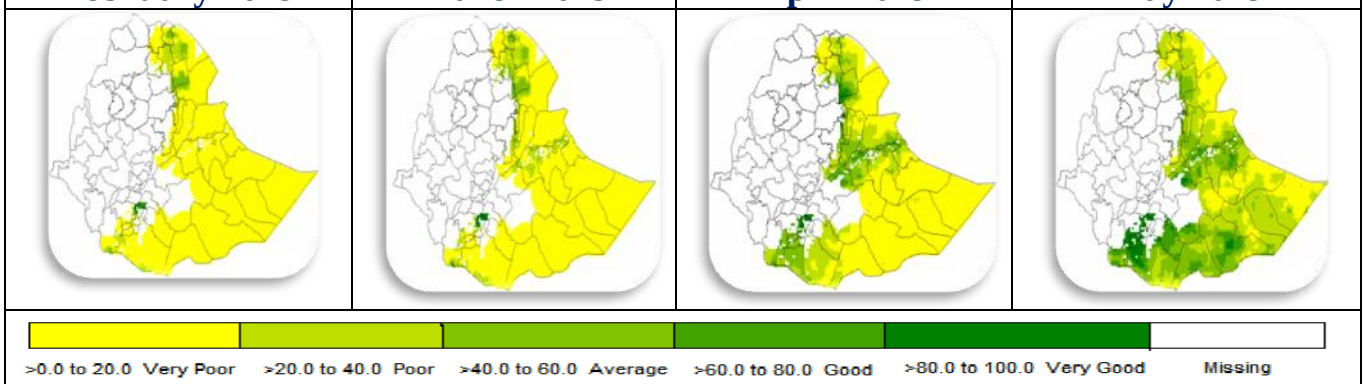


Fig.6. Rangeland WRSI in % Belg (Febuary- May) 2019

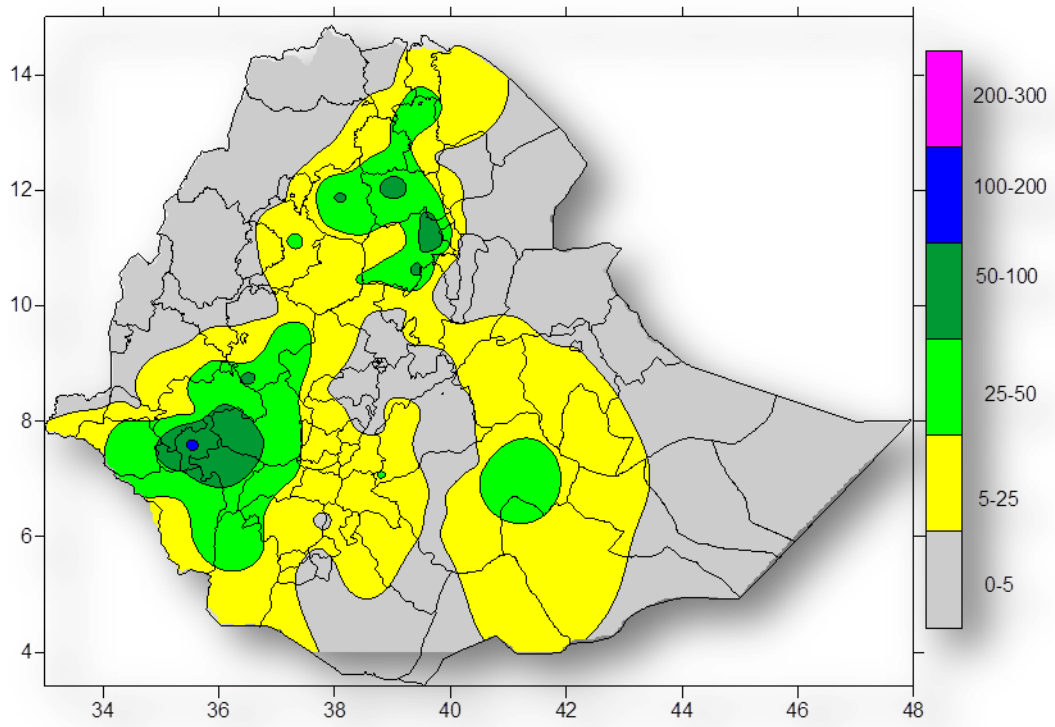


Fig. 7 Rainfall distribution in mm for the month of February, 2019

1.1. Rainfall amount on the month of February 2019

Pocket area of Sheka received 100-200 mm of rainfall. Pocket area of south Gonder, north Wollo, Oromia especial zone, Sheka, Godere, and Keffa received 50-100 mm of rainfall. Mekele, south Tigray, W.Hamra, south Gonder, north &south Wollo, west Gojam, east Wellega, west Shewa, Illubabur, Jimma, YEM, Dawuro, Gambela zone 2, Bench Maji, Basketo, South Omo, some parts of Bale and Afder exhibited 25-50 mm of rainfall. East Tigray, Afar zone 2, W.Hamra, Bahirdar, Agew-Awi, east Gojam, west Wellega, Gambella zone 1 & 3, north and west Shewa, Gurage, Selti, Alaba, Hadiya, Welayita, Sidama, Gamogofa, Gedeo, Derashe, Konso, South Omo, Guji, east and west Harergie, Fik, Bale, Afder and Liben exhibited 5-25 mm of rainfall. The rest part of the country Exhibited 0-5 mm of rainfall.

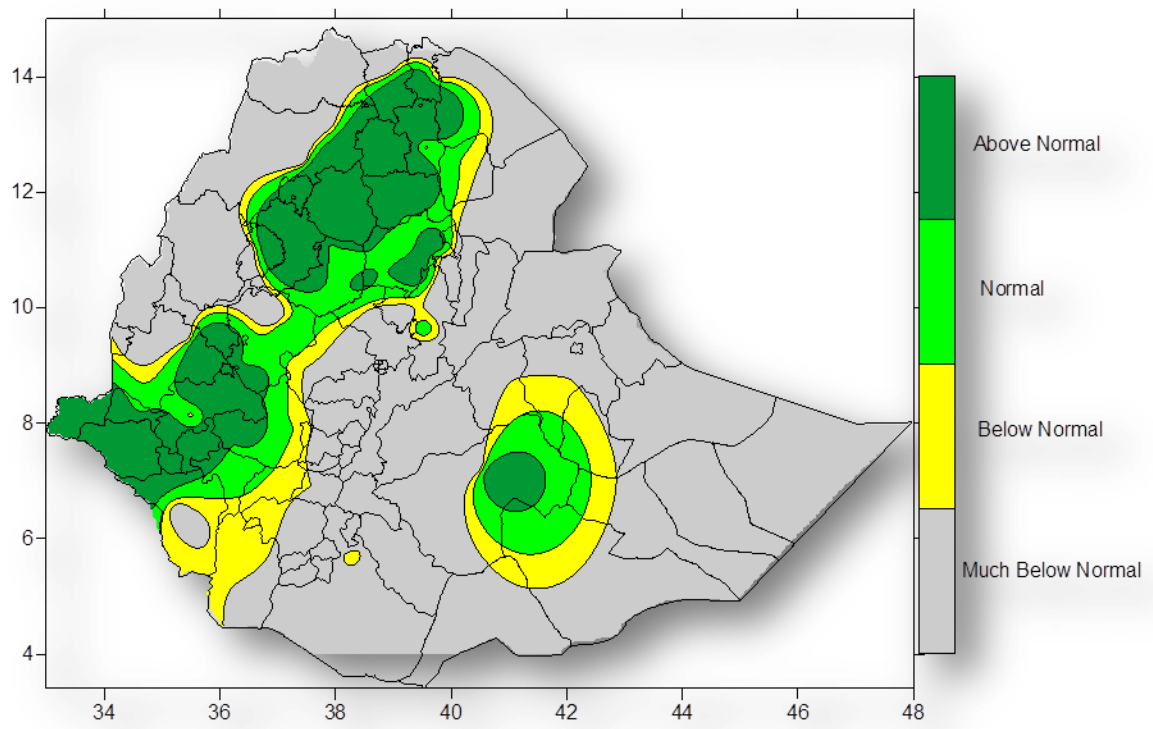


Fig. 8 Percent of Normal Rainfall distribution for the month of February, 2019

Explanatory notes for the Legend:

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

1.2 Percent of normal (Fig. 8)

1.2.1 Percent of normal on the month of February 2019

Over Bahirdar, Wag hemra, south Gonder, east and west Gojam, south & north Wollo, Kamashi, west & east Wellega, north & west Shewa, Illubabur, Gambella zone 1, 2 & 3, Godere, Sheka, Keffa, Bench Maji, Dawuro, Basketo, Gamo gofa, South Omo, Jimma, Gedeo, west and east Harergie, Harer, Fik, Afder, Gode, Liben and Bale have exhibited normal to above normal amount of rainfall. The rest parts of country exhibited below to much below normal rainfall.

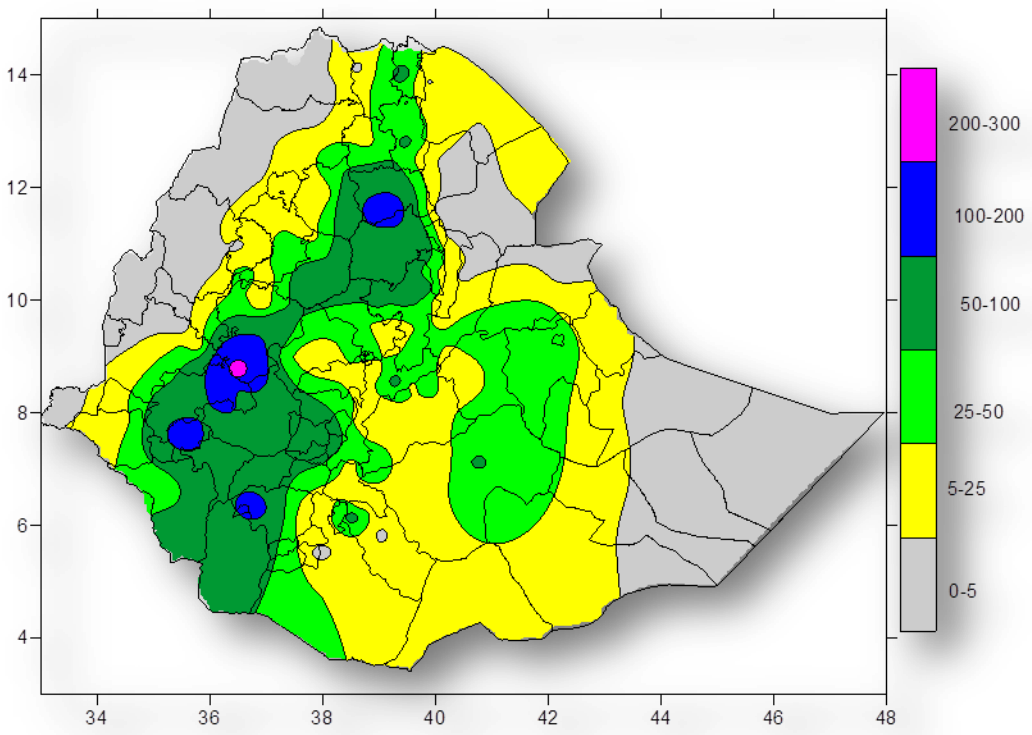


Fig. 9 Rainfall amount in mm for the month of **March** 2019

1.3 Rainfall amount (Fig.3)

1.3.1 Rainfall amount on the month of February 2019

During the month of March, north and south Wollo, east Wellega, Illubabur, Sheka, Basketo and Gamo gofa exhibited 100-200 mm of rainfall. east Tigray, north and south Wollo, Oromia especial zone, east Gojam, east Wellega, Illubabur, Jimma, KT, Hadiya, Keffa, Godere, Basketo, South Omo, Derashe, Konso, Sheltie, Alaba and Welayita 50-100 mm of rainfall. east, south and central Tigray, Mekele, W.Hamra, south Gonder, east and west Gojam, north, southwest Shewa, Gurage, Harer, east and west Harergie and Fik exhibited 25-50 mm of rainfall. Afar zone 2, north Gonder, Bahirdar, Kamashi, west Wellega, Gambela zone 1&2, Addis Ababa zone, Arsi, west Harergie, Bale, Guji, Liben, Afder, Gode, Shinille, Jijiga and Degahabour exhibited 5-25 mm of rainfall. The rest part of the country Exhibited 0-5 mm of rainfall.

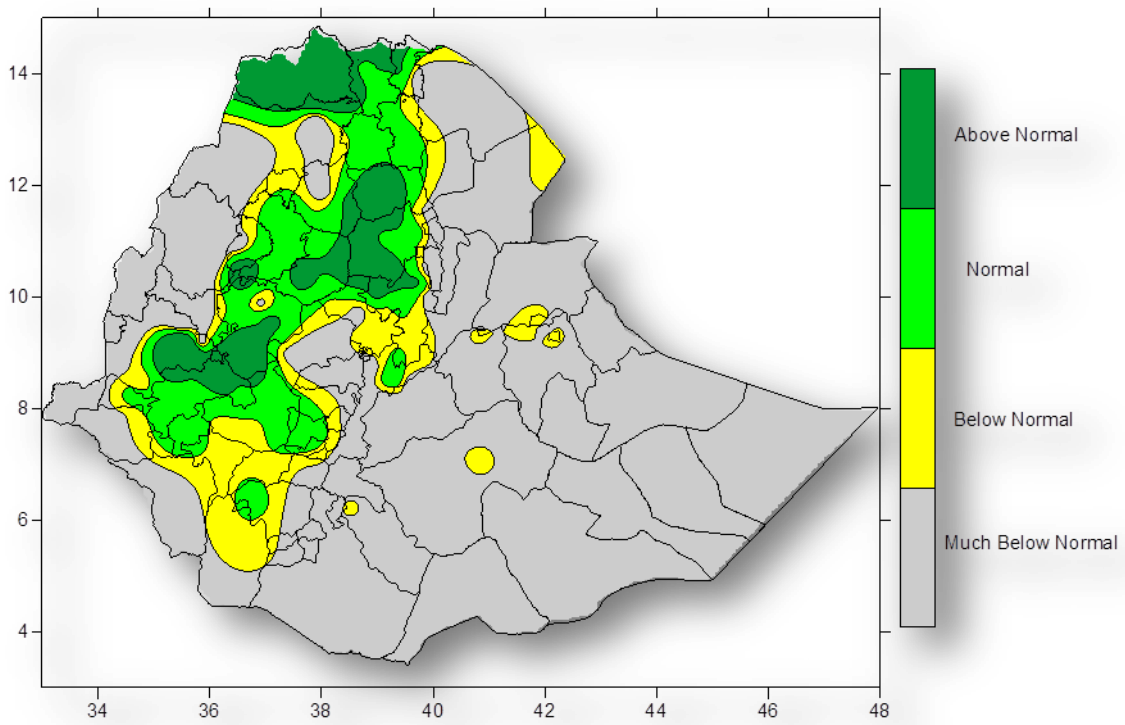


Fig. 10 Percent of Normal Rainfall for the month of **March** 2019

Explanatory notes for the Legend:

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

1.4 Percent of normal (Fig. 10)

1.4.1 **Percent of normal on the month of March 2019**

The rainfall anomaly map above indicated that west, central, east and south Tigray, W.Hamra, north and south Wollo, Bahirdar, east and west Gojam, east and west Wellega, north Shewa, Illubabur, Sheka, Jimma, KT and Alaba exhibited normal to above normal rainfall. The rest part of the country has received from below normal to much below normal rainfall.

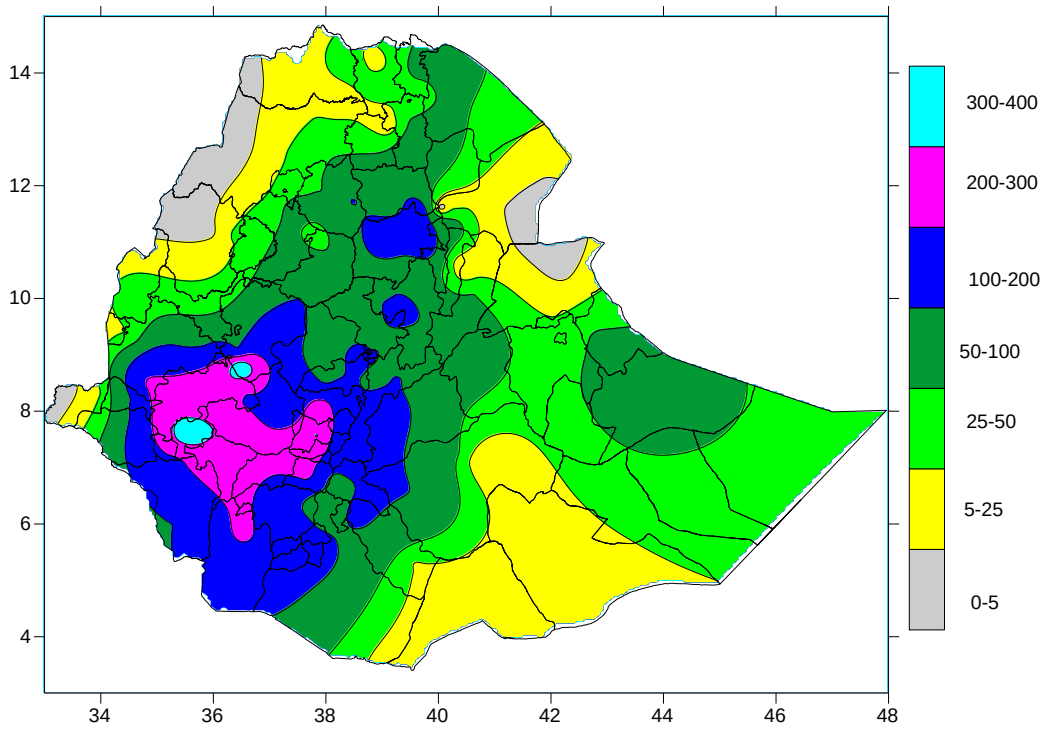


Fig. 11 Rainfall amount in mm for the month of April 2019

1.5 Rainfall amount (Fig.11)

1.5.1 Rainfall Amount on the month of March 2019

During April 2019 tip area of Sheka received 300-400mm of rainfall. Illubabur, Godere, Keffa, Dawuro, Jimma, KT, Alaba, Hadiya, Welayita and Gurage received 200-300mm of rainfall. south Wollo, Oromia especial zone, east Wellega, west Shewa, Gambela 1 & 2, Godere, Bench Maji, Basketo, Gamo gofa, Jimma, YEM, Gurage, Selti, Alaba, Hadiya, Welayita, Sidama, South Omo, Derashe, Konso and Amaro received 100-200mm of rainfall. east and south Tigray, Afar zone2, 3, 4 & 5, north Wollo, south Gonder, Bahir Dar, west and east Gojam, west & east Shewa, Gambela zone 1 & 2, Gedeo, Sidama, Borena, Guji, Bale, Arsi, west Harergie and Degahabour received 50-100mm of rainfall. Central Tigray, Bahir Dar, Agew- Awi, Mekele, W.Hamra, Afar zone 2 & 4, Assosa, Kamashi, Harar, Jijiga, east Harerge, Fik, Gode, Warder and Korahe received 25-50mm of rainfall. west Tigray, north Gonder, Metekel, Afar zone 1, Shinele, Afder and Liben received 5-25mm of rainfall. The rest parts of the country exhibited 0-5 amount of rainfall.

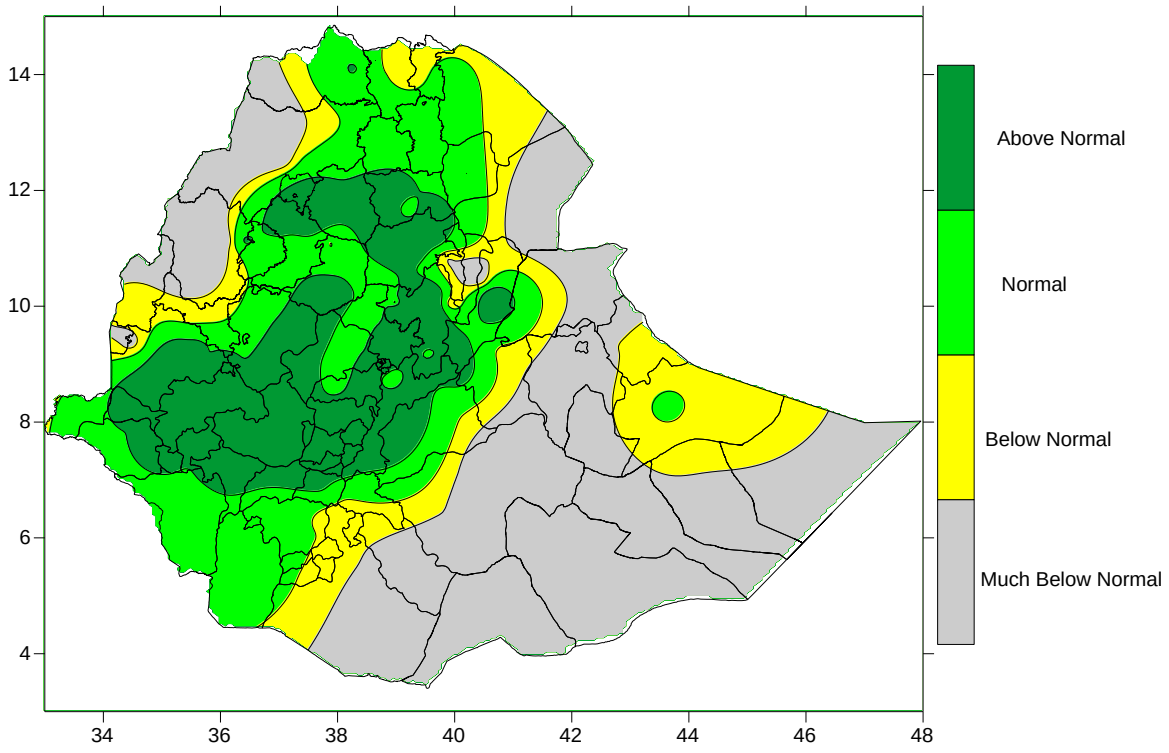


Fig. 12 Percent of Normal Rainfall for the month of April 2019

Explanatory notes for the Legend:

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

1.6. Percent of normal (Fig. 12)

1.6.1 Percent of normal on the month of March 2019

Central and south Tigray, Mekele, W.Hamra, south Gonder, north and south Wollo, Afar zone 2 & 4, east Gojam, Agew-Awi, Oromia especial zone, Kamashi, east Wellega, north, west, south west and east Shewa, Addis Ababa zone, Gurage, Illubabur, Jimma, YEM, KT, Selti, Alaba, Hadiya, Gambela zone 1, 2 & 3, Godere, Sheka, Keffa, Dawro, Bench Maji, Welayita, Sidama, east and west Harergie zones have exhibited normal to above normal amount of rainfall. The rest parts of country exhibited below to much below normal rainfall.

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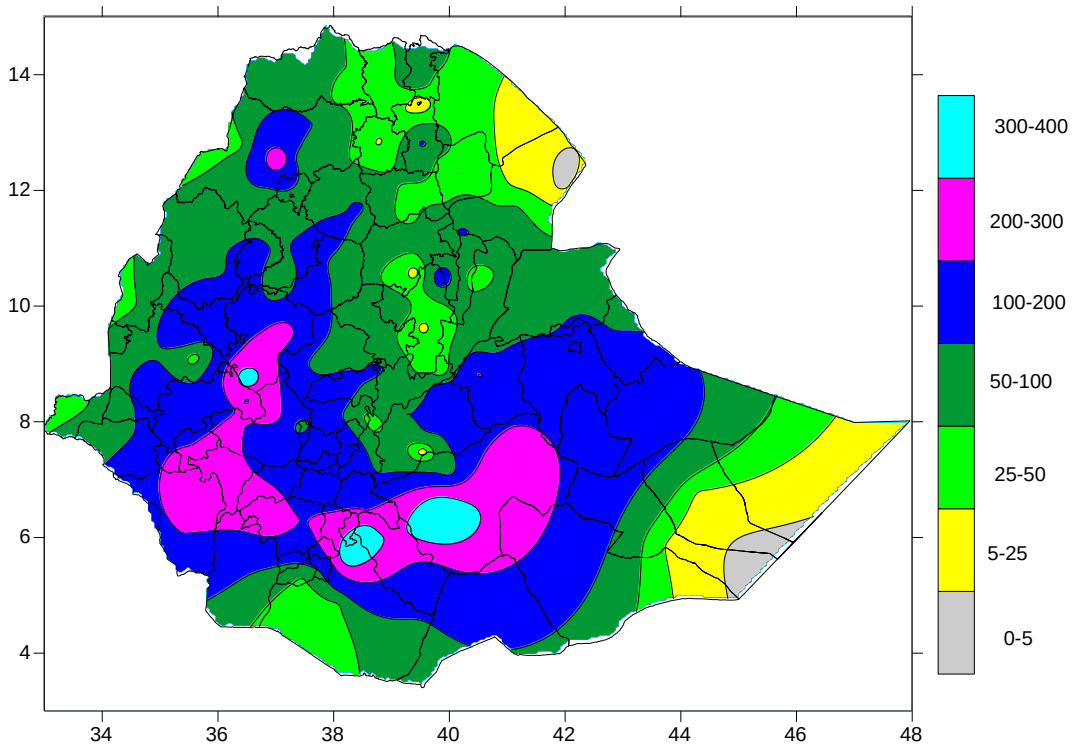


Fig. 13 Rainfall amount in mm for the month of May 2019

1.7 Rainfall amount (Fig.3)

1.7.1 Rainfall Amount on the month of March 2019

During May 2019 tip area of Bale, Gedeo and Guji received 300-400mm of rainfall. Tip area of north Gonder, east Wellega, Illubabur, Sheka, Keffa, Godere, Bench Maji, Basketo, Gamo gofa, Gedeo, Guji and Bale received 200-300mm of rainfall. tip area of north Gonder, west and east Gojam, Agew Awi, Kamashi, east Wellega, Illubabur, Sheka, Jimma, Alaba, KT, Hadiya, Dawro, Welayita, Sidama, South Omo, Derashe, west and east Harergie, Harer, Jijiga, Deghabur, Fik, Gode, Afder and Liben received 100-200mm of rainfall. west and east Tigray, south Gonder, north and south Wollo, Bahir Dar, west Gojam, Metekel, Assosa, Tongo, west Wellega, Gambela zone 1 and 2, Addis Ababa, east Shewa, Afar zone 1,3 and 5, Shinele and Konso received 50-100mm of rainfall. Central Tigray, W.Hamra, Afar zone 4, Amaro, Borena, Korahe and Warder received 25-50mm of rainfall. Mekele, Afar zone 2, Korahe and Warder received 5-25mm of rainfall. The rest parts of the country exhibited 0-5 amount of rainfall.

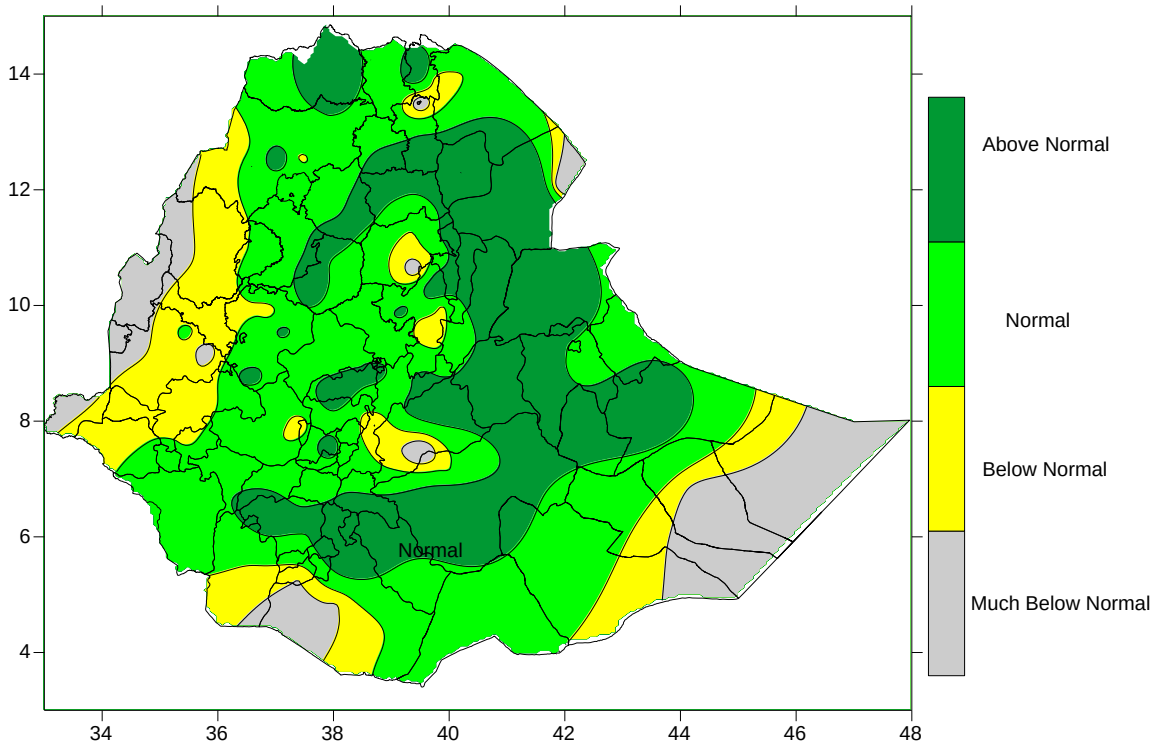


Fig. 14 Percent of Normal Rainfall for the month of May 2019

Explanatory notes for the Legend:

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

1.8. Percent of normal (Fig. 14)

1.8.1 Percent of Normal Rainfall for the month of May 2019

Over west, central, east and south Tigray, north and south Gonder, north and south Wollo, Afar zone 1, 2, 3, 4 and 5, W.Hamra, Bahir Dar, west and east Gojam, Oromia especial zone, east Wellega, south west, north, west and south Shewa, Addis Ababa zone, west and east Harergie, Harer, Jijiga, Sheka, Godere, Keffa, Bench Maji, Jimma, KT, YEM, Selti, South Omo, Gamo gofa, Dawro, Guji, Bale, Liben ,Gedeo, Afder and Gode have exhibited normal to above normal amount of rainfall. The rest parts of country exhibited below to much below normal rainfall.

2. AGROMETEOROLOGICAL CONDTIONS AND IMPACT ON AGRICULTURE

2.1 VEGETATION CONDITION AND IMPACT ON AGRICULTURE DURIN BELG 2019

During the month of February improvement of moisture condition observed over some Belg growing areas during second dekad of February, except eastern and central Ethiopia. It might have favored Belg agricultural activities like land preparation and sowing of belg crops. On the month of Feb and March No significant improvement of NDVI and rangeland were observed, which might have negatively impacted the livelihood of pastoral and agro pastoral conditions on the availability of pasture and drinking water. Improvement of moisture starting from first dekad of March 2019 might have enabled Belg agricultural activities, especially over southern half of belg growing areas. The moisture stress observed over southeastern pastoral and agro pastoral areas.

On the month of April, observed moderately improvement of NDVI and rangeland situation over southern part of the country, which might have ease the previous months stress. The situation remained unchanged over southeastern portions of pastoral and agro-pastoral areas. Relatively better moisture condition was observed over most of belg growing areas of the country, which might have favored planting of Belg crops, sowing and land preparation of long cycle crops.

During the month of May improvement of NDVI and rangeland WRSI might have lighten the stress of pasture and drinking water over southeastern and southern parts of pastoral and agro-pastoral areas. The observed humid to moist moisture conditions over most parts of the country might have favored the ongoing agricultural activities, planting of long cycle crops.

Total crops water requirement in Belg 2019 said to be Moderate to very good WRSI condition for Maize, Sorghum, Barley, wheat & Teff observed over north eastern Amhara, southern Tigray, some parts of Bale and southwestern Belg growing areas, moreover, poor to moderate WRSI condition observed over the adjoining areas (pocket areas of southern Oromia, lowland areas of Bale, East & west Harergie). On the other hand moderate WRSI conditions for maize crop observed over east & western Hararge.

2.2 EXPECTED WEATHER IMPACTS ON AGRICULTURE DURING THE COMING KIREMT 2019 SEASON

As for the seasonal outlook for Kiremt 2019, the country is likely to be under the influence of Weak El Nino episode so that most parts of Meher crop growing areas are expected to have near normal rainfall. The onset of the season is also expected to follow its normal pattern particularly toward the southwestern and western portion of the country. However, various climate models output indicated that, some zones of the country, particularly the northern, northeastern, eastern, and northern Somalia region would experience **predominantly below average rainfall**. In like manner, Eastern, Central, western Somalia, and zones of southern Oromia region would also expected to have **dominantly Normal Rainfall.** On the other hand well above average rainfall is anticipated over Gambella, Benishangul, western Amhara and western Oromia region including western highlands of SNNP region.

The forecasted normal onset across the southwestern and western portion of the country is expected to be favorable for land preparation and the timely planting of Meher crops. In line with the normal commencement of the seasonal rain, the expected moisture during June possibly will have positive implication for the existing Belg crops as well as long cycle crops which were planted during April and May.

The expected dominantly below normal rainfall over much of Northern, Northwestern, Northeastern, Eastern and in the Central rift Valley is probably lead to moisture stress which could be the challenge for attaining the water need of both early planted Meher crops as well as crops to be planted during the coming Kiremt season. The condition may have severe consequence specifically at the time when crops are reaching at the stage of requiring high moisture. Since the eastern half of the country is dominated by pastoral and agro pastoral community, the expected predominately below average rainfall may harshly affect the availability of drinking water and communal grazing of livestock's. In addition, the expected relative enhancement of atmospheric moisture (RH) in combination with high temperature may facilitate and encourage the occurrence and infestation of crop disease.

On the other hand, areas which are positioned in the category of dominantly normal rainfall may have high chance of getting average amount of moisture, and this may favor early planted long cycle Meher crops as well as preparation of land and planting of both medium and short term Meher crops. In addition, farmers who are living in the southern rift Valley and the eastern lowlands may get good opportunity to collect and store rain waters for utilizing at a time of consecutive dry spells. Since these areas are expected to experience dominantly normal condition, generally farmers can follow business as usual scenario.

The areas which are under dominantly above normal rainfall category may have high chance of experiencing wettest condition during the upcoming Kiremt season. In the positive aspect this may favor early planted long cycle crops so as to meet their daily water need as well as to plant other Meher season crop in the area. However, most places under above rainfall category are normally known as moisture excess areas, the expected above average rainfall may cause saturation of soil moisture and leading to water logging, soil erosion, weed infestation, and fungus driven crop diseases. Moreover, due to longer wet spells, application of inputs, such as fertilizers and pesticides may become difficult to apply.

The major challenge for areas under above average category is excessive moisture. To cope up this challenge, farmers are advised to select excess moisture tolerant crop varieties for planting. In addition, they should clear the existing drainage channels as well as preparing new drainage structure, if it is required, to drain out excessive moisture from crop fields. Farmers are also advised for getting themselves ready for managing the possible infestation of weed and fungus driven crop disease. To minimize the risk related to flood, early preparation of diverting the runoff to the normal path of the stream flow is recommended.

Areas laid under predominantly below average rainfall category are likely to be challenged with acute moisture stress. To minimize the risk related to moisture scarcity, farmers are advised to plant drought tolerant crop cultivars. Parallel to this, In-situ as well as Ex-situ water conservation and rain water harvesting practice are highly appreciated and this in turn enables crops to get supplemental moisture at the time of need. Since most places in this category are pastoral and agro pastoral community, works should be done for the access of fodder for animal feed and drinking water. Both Farmers and pastoralist or agro pastoralist should ensure efficient and the

most effective use of the available moisture throughout the cropping season.

For areas which are under normal rainfall category are normally moisture stress areas, thus the above given recommendation fully or partially could be practiced. However, farmer should note that they are able to conduct their agricultural practices as usual manner. Looking into the expected climatologically dry condition in combination with the recorded below average rainfall for the last two seasons, the southeastern pastoralist community need to get series attention and intervention by the concerned governmental and non-governmental body.

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.

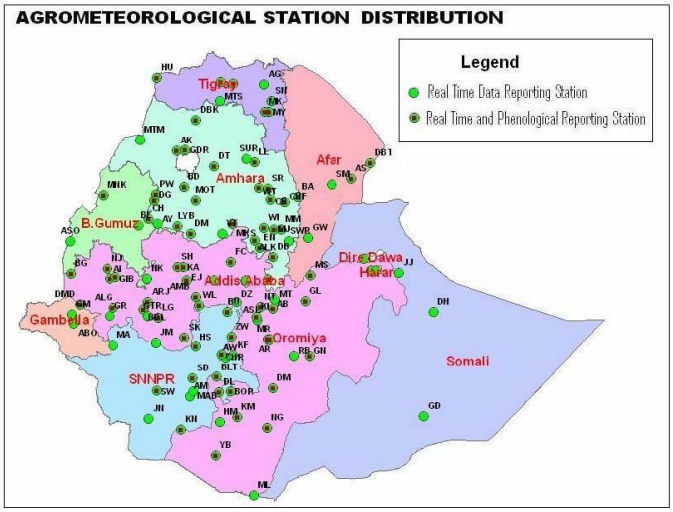
DEKAD: - First or second ten days or the remaining days of a month.

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	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		