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Agrometeorological Bulletin

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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 ክረምት2021

የክረምት ወቅት ዝናብ በኤፕሪልና ሜይ ወሮች ለሚዘሩት የመኸር 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 በኤፕሪልና ሜይ ወሮች የሚኖረው የዝናብ በመጠንም ሆነ በስርጭት ረገድ ለረዥም ጊዜ ለሚደርሱ እንደ በቆሎና ማሽላ ላሉት አዝርዕቶች የዕድገት ሁኔታ አስተዋፅያ የጎላ ነው።፡

እ.ኤ.አ በጁን ወር 2021 ለክረምት ዝናብ መኖር አመቺ ሁኔታን የሚፈጥሩ የአየር ሁኔታ ክስተቶች መደበኛውን ፈር ተከትለው የጀመሩ ከመሆናቸው ጋር በተያያዘ የዝናቡ ስርጭትና መጠን አብዛኛው የክረምት ዝናብ ተጠቃሚ አካባቢዎችን ያደረሰ ነበር።፡ ይህም የተገኘው ዝናብ የአፈርን እርጥበት ያሻሻለ ሲሆን ከጁን ጀምሮ የዘርጊዜናየማሳዝግጅት በሚካሄድባቸው አካባቢዎች በወቅቱ ለመዝራት አመቺ ሁኔታ ፈጥሯል፤አስቀድምው ተዘርተው በተለያየ የእድገት ደረጃ ላይ ለሚገኙ የመኸር ሰብሎች የውኃ ፍላጎታቸውን ከማሟላት አንፃር በተለይም ከኤፕሪል ጀምሮ ቀደም ብለው ለተዘሩ እንደ በቆሎና ማሽላ ለመሳሰሉ የረጅም ጊዜ የመኸር ሰብሎች በተሟላ ሁኔታ እንዲያድጉ የጎላ አስተዋፅያ ነበረው።፡ በሌላ በኩል በአርብቶ አደርና በከፊል የአርብቶ አደር አካባቢዎች የነበረው አነስተኛ እርጥበት ለግጦሽ ሳርና ለመጠጥ ውኃ አቅርቦት አዎንታዊ አስተዋጽዎ ነበረው።፡ በአንዳንድ አካባቢዎች ላይ የነበረው ከባድ ዝናብ እንዲሁም በተከታታይ ቀናት ዝናብ በማግኘት በተለያዩ ቦታዎች ላይ የአፈር ውስጥ እርጥበት መብዛት እና በአንዳንድቦታዎችላይለወንዝመሙላትናለጎርፍ ተጋላጭ በሆኑ አካባቢዎች ላይ ለጎርፍ መከሰት ምክንያት ሆኖ ነበር።፡እንድሁም በበልግ አብቃይ አከባቢዎች ላይ የነበረው ደረቅ ሁኔታ የደረሱ የበልግ ሰብሎችን ለመሰብሰብ ጥሩ አስተዋጽኦ ነበረዉ።፡

እ.ኤ.አ በጁላይወር2021 ለክረምት ዝናብ መኖር አመቺ ሁኔታ የሚፈጥሩ የአየር ሁኔታ ክስተቶች የነበሩ በመሆኑ በአብዛኛው የክረምት ዝናብ ተጠቃሚ አካባቢዎች ከቦታ ቦታ በመጠን ይለያይ እንጂ በስርጭት ረገድ ብዙ ቦታዎችን ያደረሰ የእርጥበት ሁኔታ ነበራቸው።፡ ይህም የተገኘው ዝናብ የአፈርን እርጥበት ከማሻሻልም አልፎ ከጁላይ ጀምሮ ለሚዘሩ የተለያዩ የመካከለኛ ጊዜ ሰብሎች ለመዝራትና በታቀደው መሰረት የግብርና እንቅስቃሴን ለማከናወን አመቺ ሁኔታ የነበረው ሲሆን፤አስቀድምው ተዘርተው በተለያየ የዕድገት ደረጃ ላይ ለሚገኙ የመኸር ሰብሎች የውኃ ፍላጎታቸውን ከሚሟላት አንፃር የጎላ ሚና ከመኖሩም በላይ ከኤፕሪል ጀምሮ ቀደም ብለው ለተዘሩ እንደ በቆሎና ማሽላ ለመሳሰሉ የረጅም ጊዜ የመኸር ሰብሎች እንዲሁም ለተለያዩ ቋሚ ተክሎች በተሟላ ሁኔታ እንዲያድጉ የጎላ አስተዋፅያ ነበረው።፡ከዚህ

በተጨማሪ በአርብቶ አደርና በከፊል የአርብቶ አደር አካባቢዎች የነበረው የእርጥበት ሁኔታ ለግጦሽ ሣርና ለመጠጥ ውኃ አቅርቦት አዎንታዊ አስተዋፅዖ ከማበርከቱም በላይ ሰው ሰራሽም ሆነ የተፈጥሮ ምንጮችን ከማጎልበት አንፃር አዎንታዊ ሚና ነበረው።።በሌላ በኩል በአንዳንድ አካባቢዎች ላይ የነበረው ከባድ ዝናብ ለጎርፍ መከሰትና በመደበኛ ባህሪያቸው በእርጥበት መብዛት በሚታወቁ ሰፍራዎች ላይ ተከታታይነት የነበረው እርጥበታማ ሁኔታ በሰብል ማሳዎች ላይ የውሃ መተኛት ያስከተለ ሲሆን፣ይህም ሁኔታ እየተከናወነ በሚገኘው የእርሻ ስራ እንቅስቃሴ ላይ አሉታዊ ጎን ነበረው።።በተጨማሪም የነበረው ከፍተኛ እርጥበት ለአረም መስፋፋትም ሆነ የሰብል በሽታዎች መከሰት ምቹ ሁኔታ ነበረው።።

እ.ኤ.አ በኦገስት ወር 2021ለወቅቱ ዝናብ መኖር አመቺ የሆኑት የአየር ሁኔታ ክስተቶች ከመጠናከራቸው ጋር ተያይዞ የክረምት ዝናብ ተጠቃሚና የመኸር ሰብል አብቃይ በሆኑ የሀገሪቱ አካባቢዎች ላይ በመጠንም ሆነ በሥርጭት ረገድ ጥሩ የእርጥበት ሁኔታ ነበራቸው።። ይህም ሁኔታ የአፈርን እርጥበት ከማሻሻል ባሻገር ተክሎች ውኃ አቅርቦት አንጻር አዎንታዊ ሚና ነበረው።። በተጨማሪም ከሰብል ልማት አንጻርም ቀደም ሲል በኤፕሪልና ሜይ ተዘርተው በተለያየ የዕድገት ደረጃ ላይ ለሚኙት የረጅም ጊዜ ሰብሎች እንደ ማሽላና በቆሎ ለመሳሰሉት እንዲሁም በክረምት ወቅት ተዘርተው በቡቃያና በተለያየ የእድገት ደረጃ ላሉት እንደ ስንዴ፣ ገብስ፣ አጃ እና ጤፍ ለመሳሰሉት የብርዕ ሰብሎች፣ የጥራጥሬ እህሎችና የቅባት እህሎች እንዲሁም ለቋሚ ተክሎች የዉሃ ፍላጎት መሟላት ምቹ ሁኔታን ከመፍጠሩም በተጨማሪም ለአርብቶ አደሩና ከፊል አርብቶ አደሩ አካባቢዎች ለመጠጥ ውሃና ለግጦሽ ሳር አቅርቦት መሟላት በጎ ጎን ነበረው።። በተጨማሪም በተከታታይ ዝናብ በማግኘት ላይ በነበሩ በአንዳንድ የአገሪቱ አካባቢዎች ላይ በተለይም በአማራ፣ በምዕራብና መካከለኛዉ ኦሮሚያ፣ በቤንሻንጉል ጉሙዝ፣ በጋምቤላ፣ በደቡብ ብሄር ብሄረሰቦችና ህዝቦች ክልል፣ በሲዳማ፣ በደቡብ ደጋማ ስፍራዎች፣ በአፋር፣ በሰሜን ሱማሌ፣ በሐረሪና ድሬዳዋ አካባቢዎች ላይ ከቀላል እስከ ከባድ መጠን ያለው ዝናብ የነበረ ሲሆን፣ በዚህም ምክንያት የመሬት መንሸራተት፣ በተለያየ የእድገት ደረጃ ላይ ባሉ ሰብሎች የአፈር ውስጥ እርጥበት መብዛትና ቅጽበታዊ ጎርፍ በተወሰኑ ቦታዎች በመከሰቱ በተለያየ የእድገት ደረጃዎች ላይ ባሉ ሰብሎች፣በአፈር ጥበቃ ሥራ እንዲሁም በሰው እና በንብረት ላይ መጠነኛ ጉዳት ነበረው።። በአንጻሩ የተሰበሰቡ መረጃዎች እንደሚያመለክቱት የነበረው ከባድ ዝናብ በአንዳንድ የሰሜን ምዕራብ፣ በመካከለኛዉና በምስራቅ የሀገሪቱ አካባቢዎች ላይ ማሳ ላይ ዉሃ መተኛት፣ የመሬት መንሸራተትና ወንዞች መሙላት በመከሰቱ በሰብሎች፣ በሰዎች እና በእንስሳት እንዲሁም በንብረት ላይ መጠነኛ ጉዳት አድርሷል።። በአጠቃላይ በዚህ ወር የተገኘው እርጥበት ቀደም ባሉት ጊዜ የእርጥበት እጥረት ለነበረባቸው ቆላማ የአገሪቱ አካባቢዎች ላይ ለሚኖሩት አርብቶ አደርና ከፊል አርብቶ አደሩ አካባቢዎች ለግጦሽ ሳርና ለመጠጥ ውሃ አቅርቦት ጥሩ አስተዋፅኦ ነበረው።።

እ.ኤ.አ በሴፕቴምበርወር 2021 ለክረምት ዝናብ መኖር አመቺ ሁኔታ የሚፈጥሩ የአየር ሁኔታ ክስተቶች ተጠናክረው የቀጠሉ በመሆኑ በተለይም በመጀመሪያውና በሁለተኛው አስር ቀናት በአብዛኛው የክረምት ዝናብ ተጠቃሚ አካባቢዎች ከቦታ ቦታ በመጠን ይለያይ እንጂ በስርጭት ረገድ ብዙ ቦታዎችን ያደረሰ የእርጥበት ሁኔታ ነበራቸው፡፡ የተተነተኑ ወርኃዊ የአፈር ውስጥ እርጥበት ጠቋሚ መለኪያ (Moisture Index) እንደሚያመለክተው በተለይም በምዕራብኢጋማሽ፣በሰሜን፣ በመካከለኛዉ፣በምስራቅናበደቡብየሀገሪቱ አካባቢዎችላይ ብዙ ቦታዎችን የሸፈነ የእርጥበት ሁኔታ ነበራቸው፡፡ይህምሁኔታየአፈር ውስጥ እርጥበትንከማሻሻል ጋር ተያይዞ ዕድገታቸውን ላልጨረሱና በተለያየ እድገት ደረጃ ላይ ለሚገኙ የመኸር ሰብሎችም ሆነ ለቋሚ ተክሎች የሚያስፈልጋቸውንውኃከማቅረብ አንጻርገንቢሚናነበረው፡፡ በተጨማሪ በአርብቶ አደርና በከፊል የአርብቶ አደር አካባቢዎች የነበረው የእርጥበት ሁኔታ ለግጦሽ ሳርና ለመጠጥ ውኃ አቅርቦት አዎንታዊ አስተዋፅየ ከማበርከቱም በላይ ሰው ሰራሽም ሆነ የተፈጥሮ ምንጮችን ከማጎልበት አንፃር አዎንታዊ ሚና ነበረው፡፡ እንዲሁምቀስበቀስምወደ ደቡብ አካባቢዎችላይ የተስፋፋዉየእርጥበትሁኔታበደጋማው አካባቢየማሳዝግጅትለማከናወንና የግጦሽ ሳርናየመጠጥውኃአቅርቦትንከማሻሻልአንጻርበጎ ሚናነበረው፡፡ በአንፃሩም በሶስተኛው አስር ቀናት እርጥበታማው ሁኔታ በመጠንም ሆን በስርጭት ረገድ ከአብዛኛዎቹ የሀገሪቱ አካባቢዎች ላይ ቀንሶ የነበረ በመሆኑ አስቀድመው ለተዘሩና እድገታቸውን ጨርሰው ለነበሩ ሰብሎችም ሆነ በአንዳንድ ቆላማ አካባቢዎች ላይ እየተከናወነ ለነበረው የሰብል ስብሰባና የድህረ ሰብል ስብሰባ ላይ አዎንታዊ ጎን ነበረው፡፡ በሌላም በኩል ከነበረዉ ጠንካራ የደመና ክምችት በአማራ፣ በምዕራብና መካከለኛዉ ኦሮሚያ፣ በቤኒሻንጉል ጉሙዝ፣ በደቡብ ብሄር ብሄረሰቦችና ህዝቦች ክልል እና በጋምቤላ አንዳንድ ቦታዎች ላይ ከባድ መጠን ያለዉ ዝናብ ተመዝግቧል፡፡ ከዚህም ጋር ተያይዞ በመደበኛ ባህሪያቸው በእርጥበት መብዛት በሚዘወተርባቸው ስፍራዎች ላይ ተከታታይነት የነበረው እርጥበታማ ሁኔታ በሰብል ማሳዎች ላይ የውሃ መተኛት ያስከተለ ሲሆን፤ ይህም ሁኔታ እየተከናወነ በሚገኘው የእርሻ ሥራ እንቅስቃሴ በተወሰኑ ቦታዎች ላይ አሉታዊ ጎን ነበረው፡፡

በአጠቃላይ እ.ኤ.አ ክረምት 2021 በግብርና እንቅስቃሴ ላይ የነበረውን ሁኔታ ስንመለከት ከኤፕሪልና ሜይ ወራት ጀምሮ ባለፉት የክረምት ወራት ዝናብ ሰጪ ክስተቶች በአብዛኛዎቹ ክረምት ተጠቃሚ የአገሪቱ ክፍሎች ላይ ወቅቱን ጠብቆ የጀመረና በአወጣጥ ረገድም በመካከለኛዉ፣ በምሥራቅና በሰሜን ምሥራቅ የሀገሪቱ ክፍሎች ላይ ለተወሰኑ ቀናት መዘግየት አሳይቷል። ከዚህም ጋር ተያይዞ በተለየዩ አካባቢዎች ላይ በመጠንና በስርጭት የተስተካከለ የእርጥበት ሁኔታ ነበር፡፡ ይህም የተገኘው እርጥበት የረጅም ጊዜ ሰብሎችን (በቆሎና ማሽላ) ጨምሮ በመኸር ሰብሎች ላይ አዎንታዊ ሚና ነበረው፡፡ በተጨማሪም የወቅቱ ዝናብ ተጠቃሚ በሆኑት በምስራቅና በሰሜን ምስራቅ አርብቶ አደርና ከፊል አርብቶ አደር አካባቢዎች ላይ የነበረው የእርጥበት ሁኔታ ለግጦሽ ሣርና ለመጠጥ ውሀ አቅርቦት ጥሩ አስተዋፅየ ነበረው፡፡ በተጨማሪም በክረምት ወቅት የነበረው የእርጥበት ሁኔታ በመጠንና በስርጭት የክረምት ዝናብ ተጠቃሚ በሆኑ አካባቢዎች የእርጥበት መብዛት ከታየባቸውና

በተወሰኑ አካባቢዎች በየጣልቃው መቆራረጥ ከመኖሩ በስተቀር የአዝርእትን የውሀ መጠን ፍላጎት በማሟላት በኩል ምቹ ሁኔታ የፈጠረ ነበር። በሌላ በኩል አልፎ አልፎ በአንዳንድ መኸር አብቃይ አካባቢዎች ከባድ ዝናብ ከመስተዋለ ጋር ተያይዞ በአንዳንድ ስፍራዎች በሰብሎች ማሣ ላይ የውሃ መተኛት ችግር አስከትሏል፡፡ በአጠቃላይ የክረምት 2021 ወቅት የዝናብ መጠንና ስርጭት በግብርናዉ ላይ የነበረዉን ሁኔታ ስንመለከት ለአብዛኛው የመኸር ሰብሎችና አጠቃላይ የእርሻ ሥራ እንቅስቃሴ በቂና አመቺ ሁኔታ ነበረው።

SUMMARY

Kiremt 2021

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 2021, meteorological events that have been favorable for summer rains have intensified over the past June. It is particularly strong in the west and central parts of the country, with occasional heavy rainfall over the area. In addition, the southern highlands and eastern parts of the country received light rainfall due to cloud cover. In general, all the Wellega zones, Gambela and Benishangul-Gumuz zones, all the Shewa zones, including Addis Ababa; West Arsi, Bale, Guji, West and East Harergie, South and North Gondar, West and East Gojam, Agew-Awi, North Shewa (03), North and South Wollo Oromia Special Zone, SNNPR and Sidama zone Afar Rainfall ranged from light to heavy in some areas of Zone 03 and 05 received heavy rainfall among them were Assosa 48.6, 41.5 and 32.0, Gambela 33.5 and 55.6, Masha 35.0, Emdiber 62.5, 44.6 and 46.0, Gut 57.5, Nejo 30.0 and 30.9, Nekemet 104.2, 41.7 and 38.7, Divorce 35.5, B.C., In Ejaji 66.6, Ayira 33.4, Gatra 52.2, Gimbi 54.6, Bure 30.2, Limugenet 31.5 and 68.1, Bulehora 38.8, Alge 35.0, 30.0 and 30.0, Bedele 37.0 and 55.4, Bedesa 71.5, Arko 38.4, 41. 46.0, Jimma 38.5, Addis Ababa 41.8, Bore 67.2, 43.2 and 70.3, Masha 35.0, 65.0, 35.0, 59.0, 49.0, 45.8, 36.4 and Jinka 30.5, Tercha 35.3, Funo 43.2, Dangla 30.2 and 35.5, Chagni 59, Sherkole 63.5, Debrework 30.5 and Ayekel 33.7mm respectively . The obtained rains not only improved the soil moisture but also facilitated the seasonal sowing activities in areas where seeding and field preparation were took place. It played an important role in meeting the demand for water for late-season spring crops at various stages of development, as well as for the full growth of long cycle Meher crops such as maize and sorghum, which were planted earlier in April and May. In addition, low moisture over in pastoral and semi-pastoral areas contributed positively to grazing and drinking water supply. On the other hand, heavy rains in some areas, especially in the western part of the country, as well as in areas that had received heavy rainfall for some consecutive days, resulted in increased water logging and flooding in some areas. over the past few days, have resulted in increased soil moisture and flooding in some areas.

During the month of July 2021, the prevailing weather conditions was conducive or Meher crops. Most Meher areas, even though vary from place to place to place, it had contributed a wide range of Meher crops. Under review, extreme heavy fall were reported in many places from different weather stations particularly over north-western, central, and eastern parts of the country in the range of 50 to 103.5 mm in one rainy day. The observed continuous and high humid moisture condition might have cause soil erosion and water logging particularly where land is sloppy and in areas where normally affected by excess moisture.

During the month of August 2021, meteorological phenomena strengthened in amount and coverage over most part of Meher growing and Kiremt rain benefiting areas of the country. This situation might have a significant and positive impact with respect to satisfying the water need of early sown long cycle crops (Maize, sorghum) which were at different phenological stages, late sown cereal crops like (Teff, wheat and barley), pulses (beans, peas and haricot beans) and oil crops perennial plant as well as it improved pasture and drinking water availability over pastoral and agro pastoral areas of the country. On the other hand, during the month of August extreme heavy fall were reported in many places particularly over north-western, central, and eastern parts of the country that range 50 to 103.5 mm in one rainy day. The observed continuous and high humid moisture condition might have caused soil erosion and water logging particularly where the land is sloppy and over areas where normally flood prone to excess moisture.

During the month of September 2021, rain bearing meteorological systems showed relative strength over most of Meher growing and Kiremt rain benefiting areas of the country particularly western half, northern, central, eastern and southern parts particularly the first and the second dekad of the month. Moreover, during the month enhanced moisture was extended over the southern section of the country. This condition might be favorable to satisfy daily crop water requirement for various early planted Meher season crops as well as perennial plants. The received enhanced moisture over the pastoral and agro pastoral areas might have played crucial role toward improving the availability of pasture and drinking water. On the other hand, during the month of September, heavy fall were reported from Amhara, western and central Oromia, Benshagul-Gumuze, SNNP, Gambela. The excessive moisture due to continuity of rainfall over areas which are characterized normally as prone to excess moisture might have led to water logging and which caused slightly damage on crops found at various stages.

During Kiremt 2021, the observed good moisture condition throughout the season months benefited Meher agricultural activities, availability of pasture and drinking water over pastoral and agro-pastoral areas, with slightly water logging and moisture stress over pocket areas of the country. The computed WRSI for Meher Maize, Barley, Teff and Wheat indicates that Meher rain performed well. It indicates a good prospect for good Meher crop production. The range land index based on WRSI and NDVI computed for Meher 2021 month to month shows good improvement. The situation was highly favorable for availability of pasture and water over eastern and north-eastern pastoral and agro-pastoral areas. Generally with the exception of the observed light Moisture stressed at the beginning of the season over pocket areas of central and eastern part, slightly water logging and crops affected due to heavy fall in some areas the overall situation was favorable for Kiremt season's agricultural activities. Generally the overall agricultural condition was good over most parts of Meher growing area with the exception of the observed adverse weather situations over some places.

Kiremt 2021 Moisture Status Map

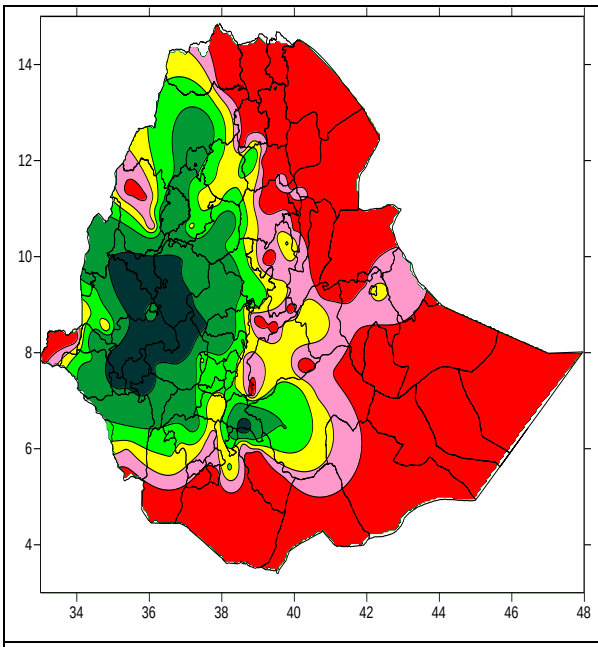


Figure 1. Moisture status for the month of June 2021

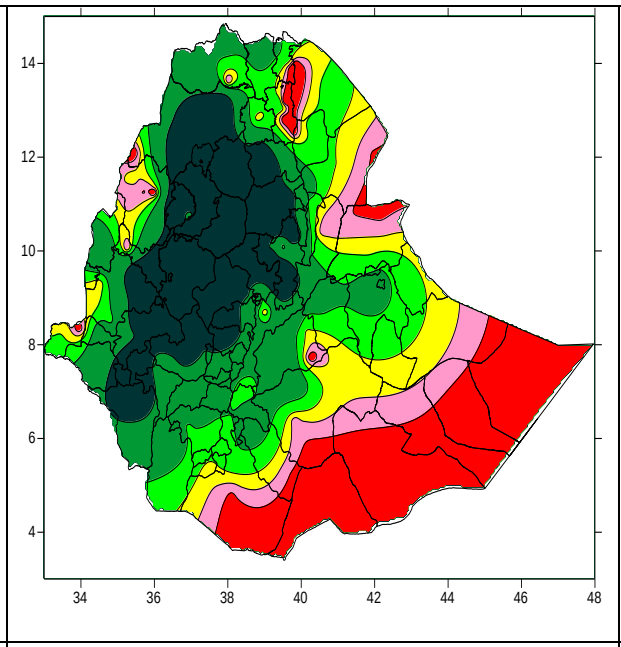


Figure 2. Moisture status for the month of July 2021

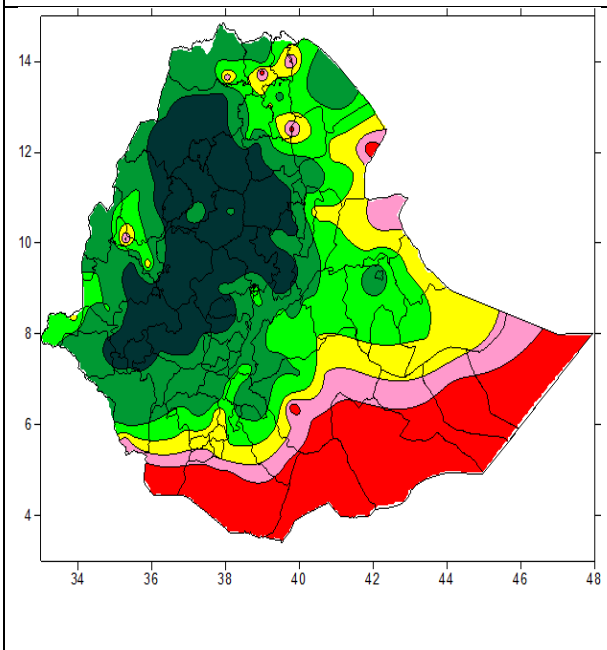


Figure 3. Moisture status for the month of August 2021

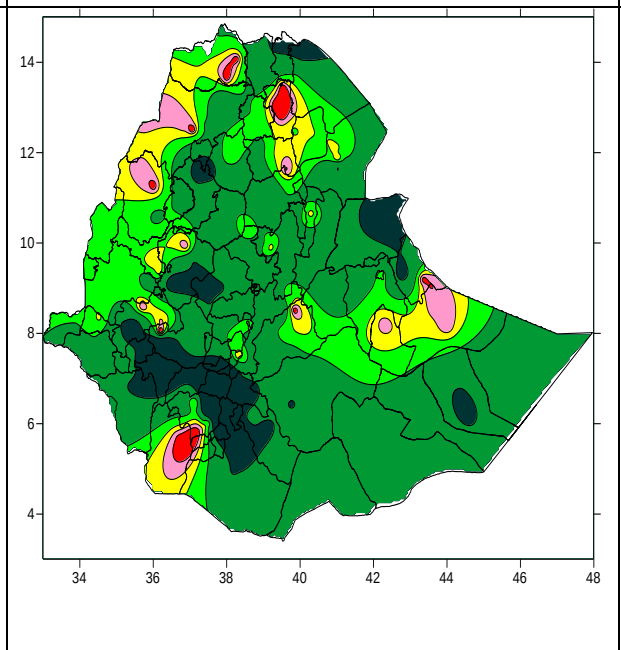
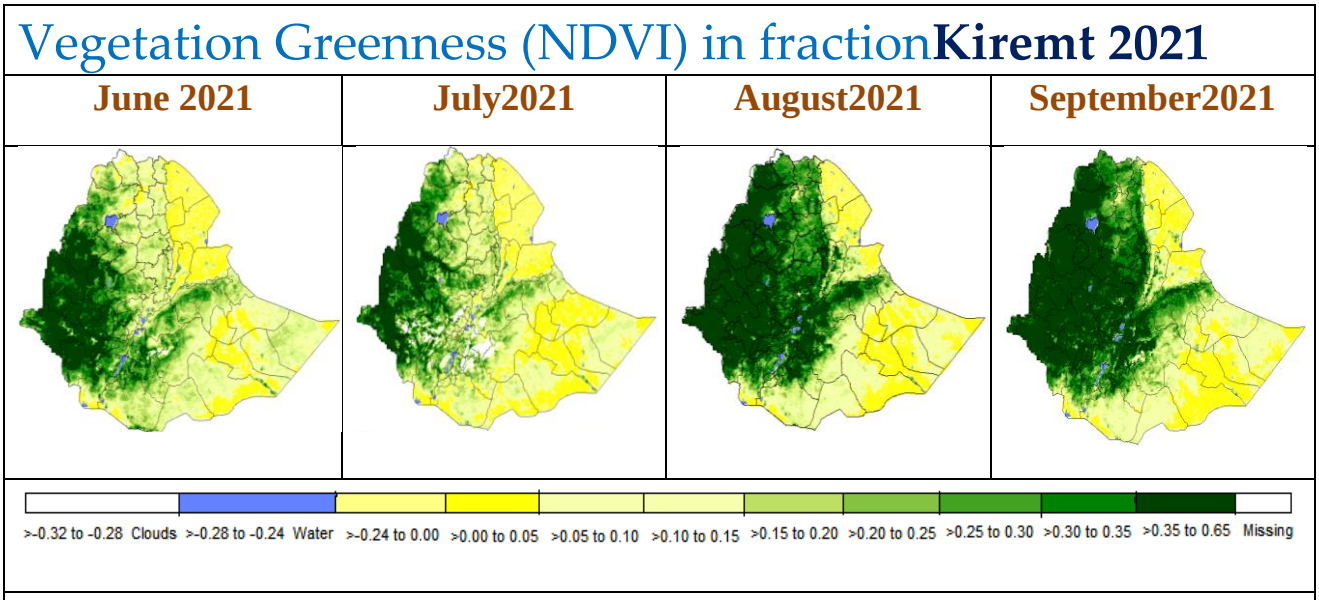


Figure 4. Moisture status for the month of September 2021



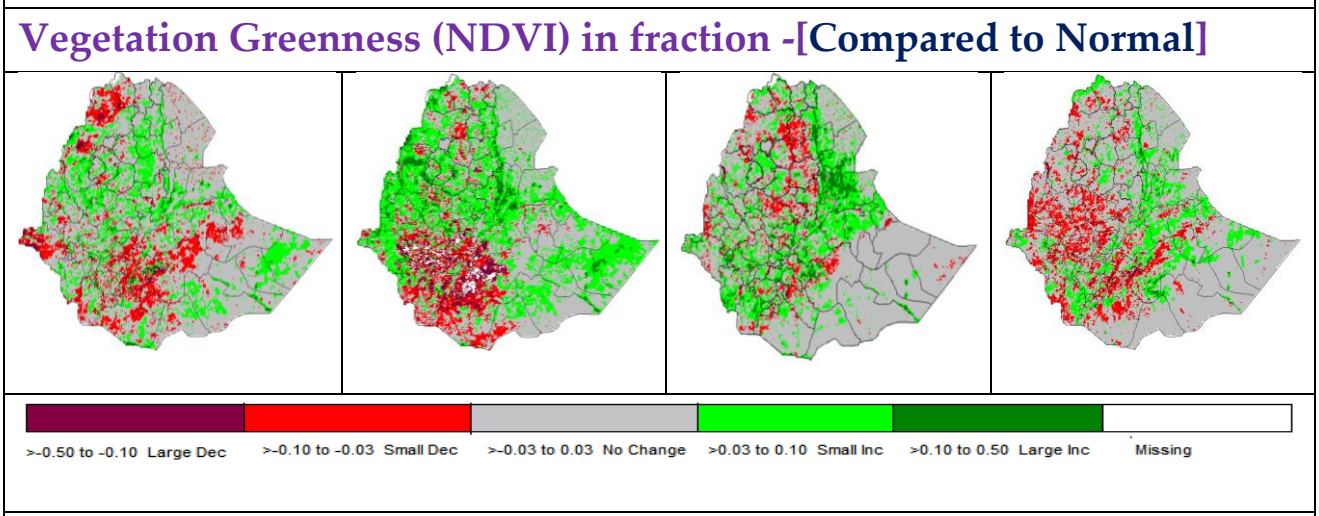


Fig. 5. Vegetation Greenness (NDVI) in fraction and Compared to Normal Kiremt (June-September) 2019

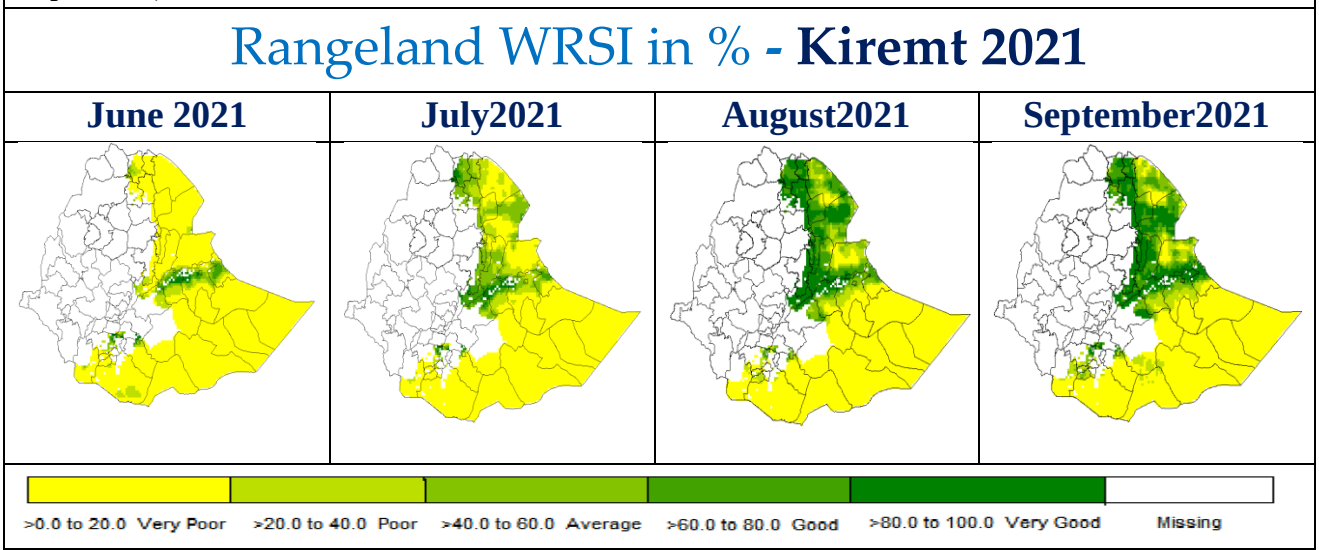


Fig.6. Rangeland WRSI in % Kiremt (June- September) 2021

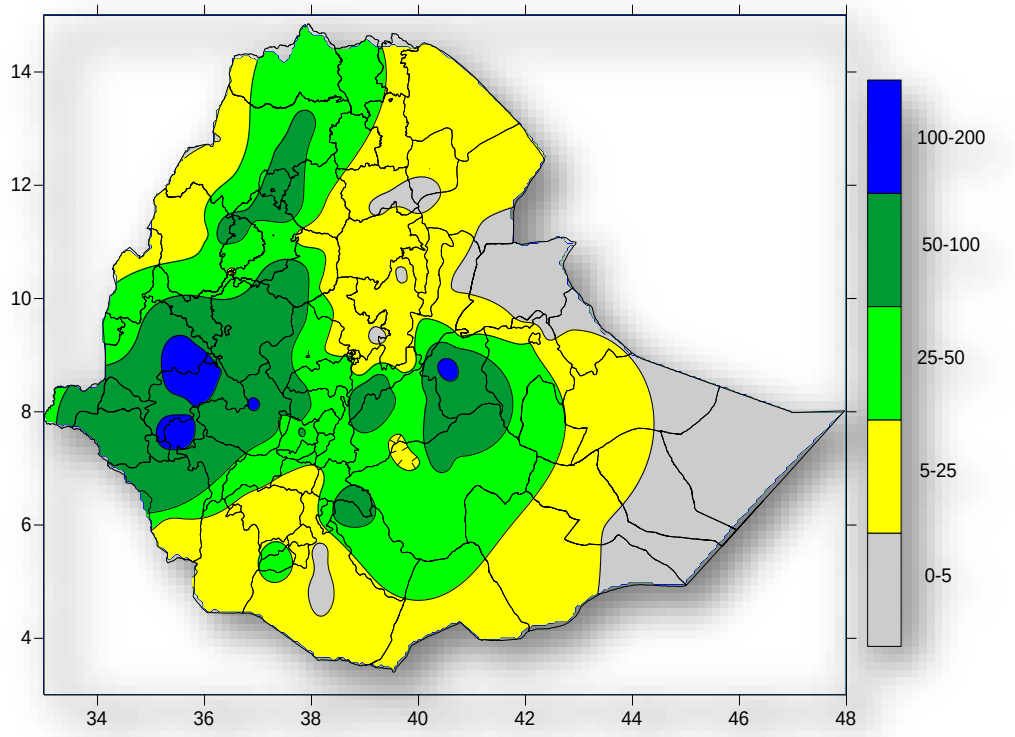


Fig 7. Rainfall distribution in mm (21 – 30) September 2021

1. WEATHER ASSESSMENT

1.1. Rainfall amount (21 – 30) September 2021

During the third dekad of September 2021pocket area of west Wellega, Illubabur, Jimma, Yem, Godere, Sheka and west Harergie received 100-200mm Rain fall. north and south Gonder, Agew-Awi, Bahir Dar, Kamashi, west and Wellega, north, west and south west Shewa, Gurage, Jimma, YEM, Arsi, Gambela zone 1, 2 & 3, Godere, Keffa, Bench Maji, Gedeo, Sidama, Guji, west and east Harergie and Bale received 50-100mm Rain fall. West, south, east and central Tigray, Wag Himra, north and south Gonder, east and west Gojam, Metekel, Assosa, Tongo, Kamashi, north, west and south west Shewa, Gurage, Selti, Alaba, KT, Hadiya, Dawero, Basketo, Konso, Dirashe, Gedeo, Guji, Arsi, Bale, west and east Harergie, Liben, Afder, Gode and Fik received 25-50mm Rain fall. west, south and east Tigray, north Gonder, Metekel, Assosa, Wag Himra, north and south Wollo, east Gojam, Afar zone 1, 2, 3, 4 & 5, Oromia especial zone, Harer, Welayita, Sidama, Gamo gofa, Gedeo, South Omo, Dirashe, Amaro, Borena, Liben, Afder, Gode, Degehabur and Korahe received 5-25mm Rain fall. The rest parts of the countries received 0-5mm Rain fall.

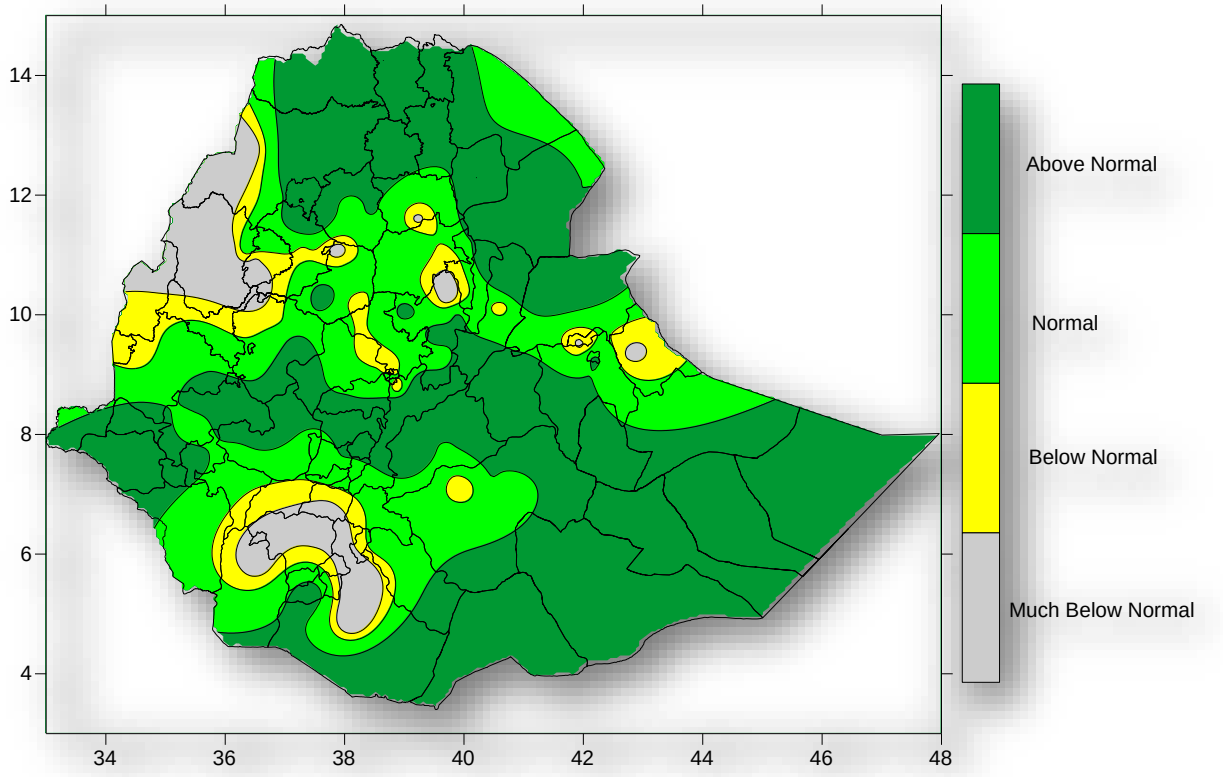


Fig. 8. Percent of normal rainfall distribution (21 – 30September 2021)

Explanatory notes for the Legend

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

1.2. Rainfall Anomaly (21 – 30)September 2021

Pocket area of Metekel, Agew-Awi, west and east Gojam, Tongo, Kamashi, west and east Wellega, north and west Shewa, Addis Ababa zone, north and south Wollo, Harer, Jigjiga, Dawero, Welayita, Sidama, Basketo, Gamo gofa, Gedeo, South Omo, Dirashe, Amaro and Guji exhibited Below Normal too Much Below Normal. The rest parts of the countries exhibited Normal to Above Normal.

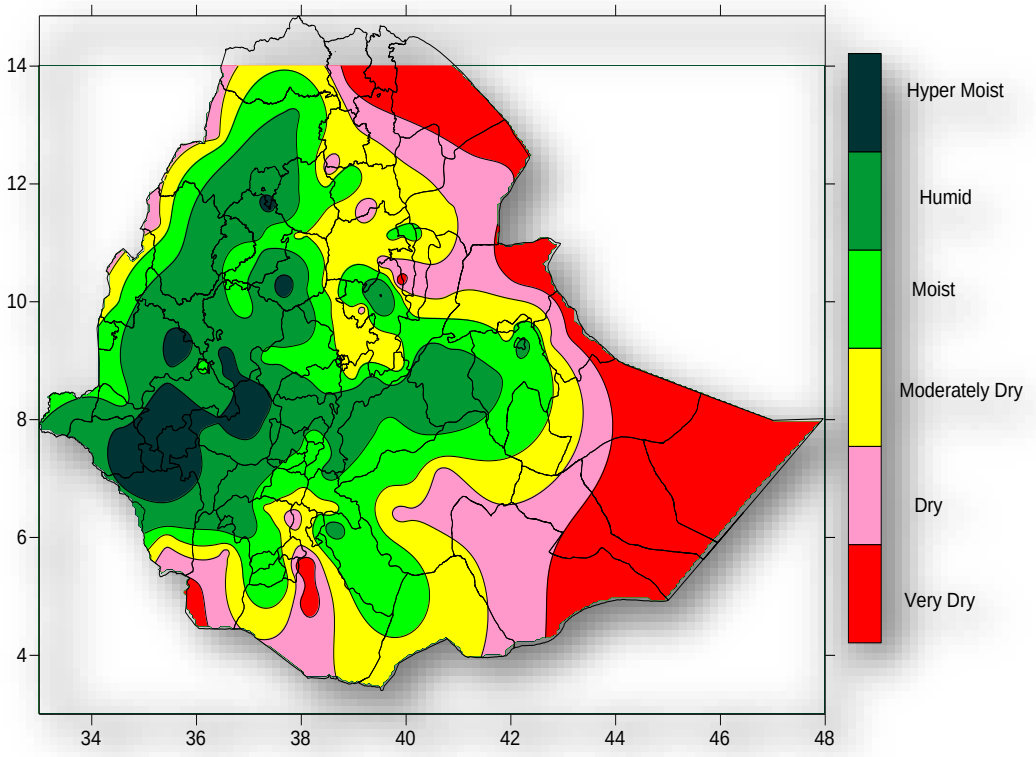


Fig.9. Moisture Status (21-31 August 2021)

1.3. Moisture status (21 – 30) September2021

During the third dekad of September 2021,Pocket Area of west Tigray, Wag Himra, north and south Gonder, Bahir Dar, west and east Gojam, Metekel, Agew-Awi, north Wollo, Oromia especial zone, Assosa, Kamashi, Tongo, west and east Wellega, north, west, south west and east Shewa, Addis Ababa zone, Gambela zone 1, 2 & 3, Godere, Sheka, Illubabur, Keffa, Bench Maji, Jimma, YEM, Dawero, Basketo, Gamo gofa, Gedeo, Guji, KT, Alaba, Welayita, Sidama, Arsi, west and east Harergie, Harer, Liben, Bale and Fik exhibited Hyper Moist too moist. The rest parts of the countries exhibited Moderately Dry to Very Dry.

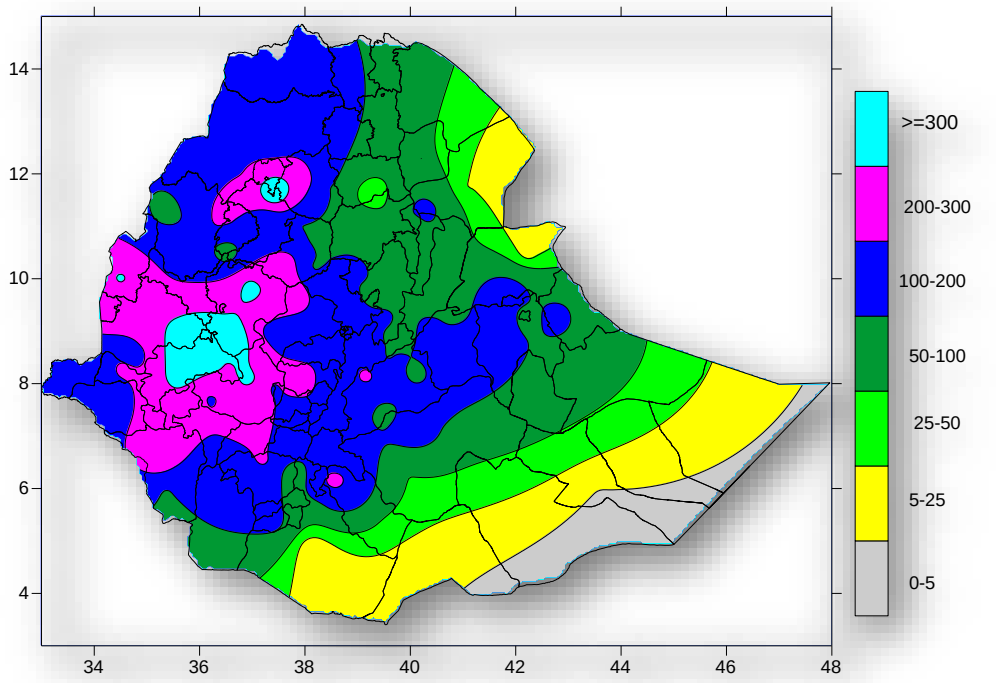


Fig. 10. Rainfall amount in mm for the month of September 2021

1.4. Rainfall amount on the month of September 2021

During September 2021pocket area of south Gonder, Bahir Dar, west and east Wellega, Illubabur and Jimma received >300 mm Rain fall. Bahir Dar, south Goner, Assosa, Kamashi, Tongo, west and east Wellega, north and west Shewa, Gambela zone 1 & 2, Sheka, Godere, Bench Maji, Keffa, Dawero, Jimma, YEM, KT, Selti and Gedeo received 200-300mm Rain fall. East, west and central Tigray, north and south Gonder, Wag Himra, Metekel, Agew-Awi, west and east Gojam, Oromia especial zone, Gambela zone 1, 2 & 3, Basketo, Gamo gofa, South Omo, Dirashe, Konso, Burji, Gedeo, Guji, Welayita, KT, Sidama, Alaba, Selti, Gurage, Bale, Addis Ababa zone, west, south west, east and north Shewa, Arsi, west and east Harergie, Harer and Jigjiga received 100-200mm Rain fall. East and south Tigray, north and south Wollo, east Gojam, Afar zone 1, 2, 3, 4 & 5, Shinile, Jigjiga, Harer, east Harergie, Fik, Degehabur, Bale, South Omo, Amaro and Guji received 50-100mm Rain fall. North Wollo, Afar zone 1, 2 & 4, Shinile, Borena, Amaro, Guji, Bale, Liben, Afder, Gode, Korahe, Degehabur and Warder received 25-50mm Rain fall. Afar zone 1, Shinile, Borena, Liben, Afder, Gode, Korahe and Warder received 5-25mm Rain fall. The rest parts of the countries received 0-5mm Rain fall.

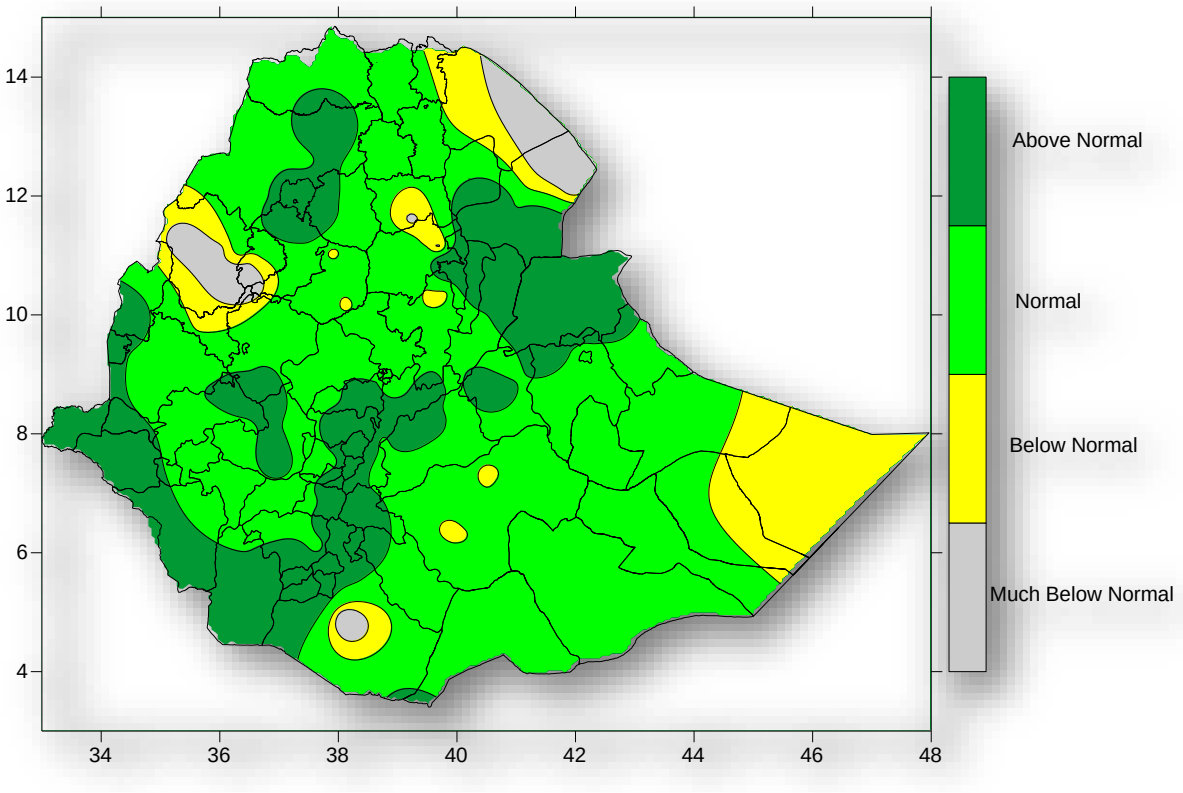


Fig. 11.Percent of Normal Rainfall for the month of September 2021

Explanatory notes for the Legend

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

1.5. Rainfall Anomaly on the month of September 2021

Pocket area of Bale, Agew-Awi, Kamashi, north and south Wollo, Afar zone 2, Borena, Bale, Korahe and Warder exhibited Below Normal too Much Below Normal. The rest parts of the countries exhibited Normal to Above Normal.

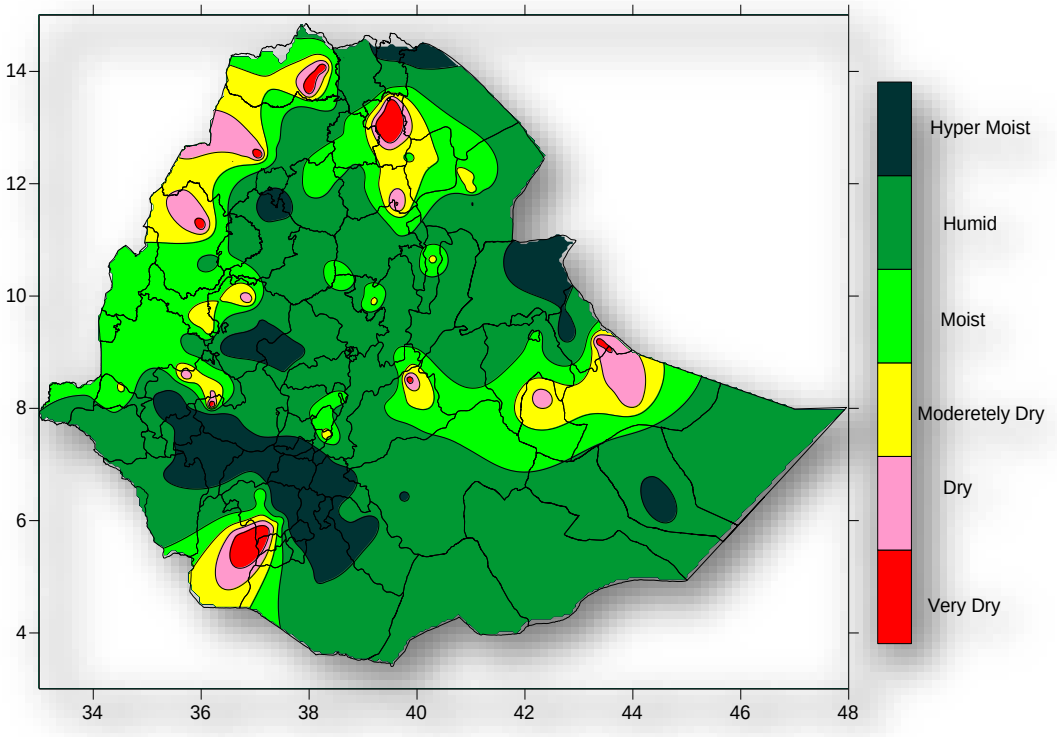


Fig. 12. Moisture status for the month ofSeptember 2021

1.6. Moisture status on the month of September2021

During the month of September 2021 Pocket Area of south and west Tigray, north Wollo, north Gonder, Metekel, Kamashi, Afar zone 4, Illubabur, South Omo, Dirashe, Konso, Arsi, Fik and Degehabur exhibited Moderately Dry to Very Dry. The rest parts of the countries exhibited Hyper Moist too moist.

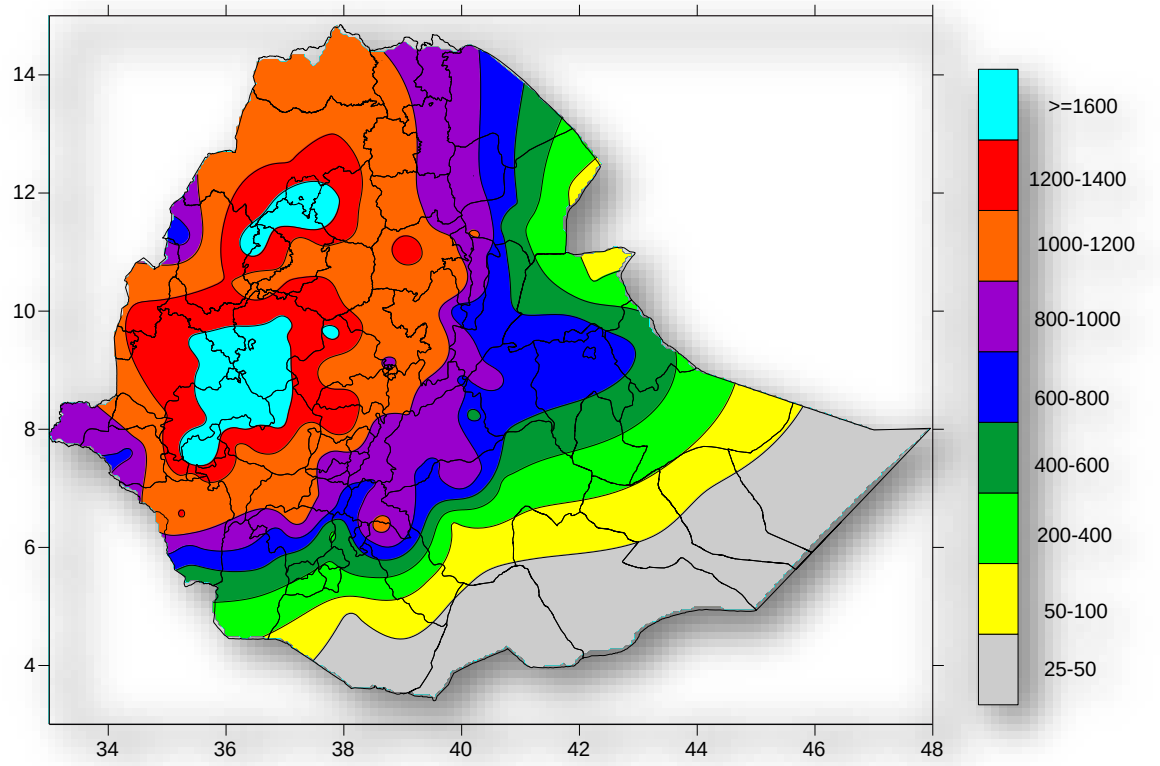


Fig.13. Rainfall amount in mm for Kiremt 2021

1.7. Rainfall Amount on Kiremt season 2021

During the last Kiremt season tip area of south Gonder, Bahir Dar, Agew-Awi, east and west Wellega, Illubabur, Godere, Jimma and Sheka received greater than 1600mm of rain fall. north and south Gonder, north Wollo, Agew-Awi, Bahir Dar, west Gojam, Metekel, Assosa, Tongo, Kamashi, west and east Wellega, north, west and south Shewa, Godere, Sheka, Jimma, YEM and Gurage received 1200-1400mm of rain fall. West, central and south Tigray, Wag Himra, north and south Gonder, north and south Wollo, Metekel, west east Gojam, Oromia especial zone, Assosa, Tongo, Gambela zone 1 & 2, Godere, Bench Maji, Keffa, Dawero, Welayita, YEM, Selti, Gurage, Addis Ababa zone, south west, east and west Shewa and Gedeo received 1000-1200mm of rain fall. South and east Tigray, Metekel, north Wollo, Oromia especial zone, Afar zone 1, 2, 4 & 5, Addis Ababa zone, west Harergie, east Shewa, Arsi, Gambela zone 2 & 3, Alba, KT, Hadiya, Welayita, Sidama, Basketo, Gamo gofa and Gedeo received 800-1000mm of rain fall .Afar zone 1, 2, 3, 4 & 5, Oromia especial zone, Harer, west and east Harergie, Arsi, Gambela zone 2, South Omo, Dirashe, Welayita, Sidama, Gedeo, Guji and Bale received 600-800mm of rain fall. Afar zone 1 & 2, Shinile, Jigjiga, Fik, Degehabur, Bale, Guji, Gedeo, South Omo, Dirashe and Konso received 400-

600mm of rain fall. Afar zone 1, Shinile, Burji, Degehabur, Bale, Gode, Guji, Konso and Amaro received 200-400mm of rain fall. Shinile, Amaro, Borena, Guji, Bale, Liben, Afder, Gode, Korahe, Degehabur and Warder received 50-100mm of rain fall.

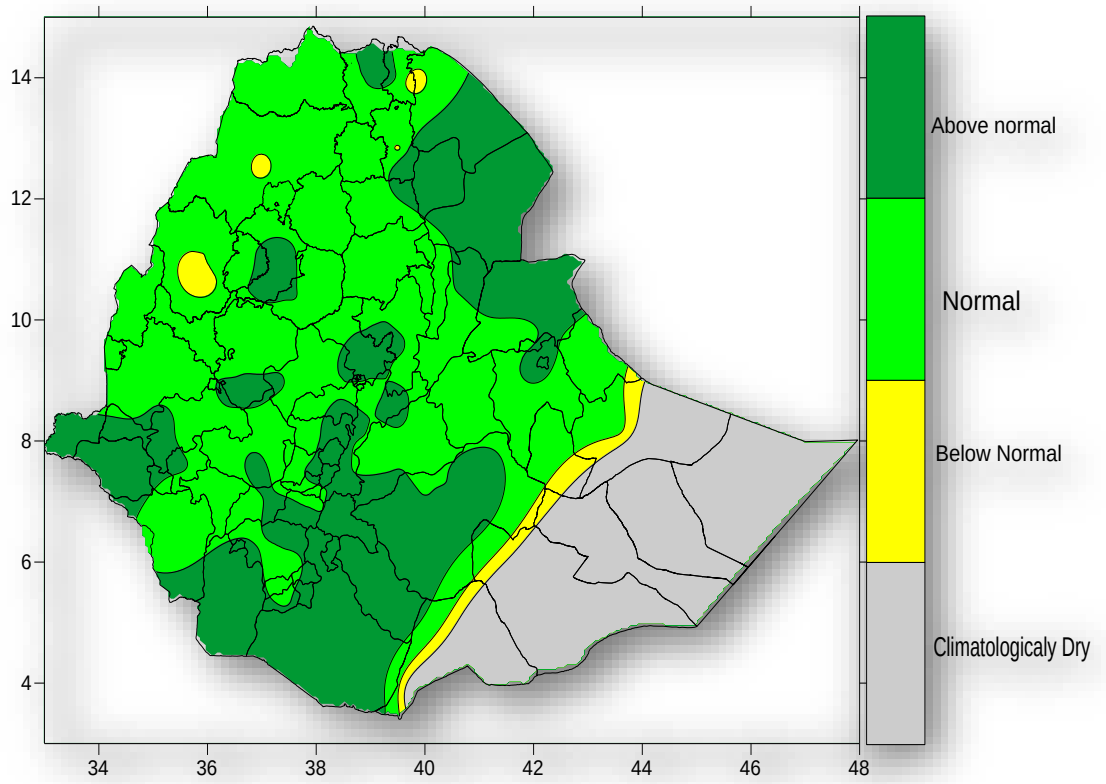


Fig.14. Percent of Normal Rainfall for Kiremt 2021

Explanatory notes for the Legend

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

1.8. Rainfall Anomaly on Kiremt Season 2021

Except few pocket areas of east Tigray, north Gonder, Metekel and some section of south-eastern, most parts of Meher crop growing and Kiremt rain benefiting areas of the country exhibited normal to above normal rainfall. However, much parts of Southeastern had been under climatologically dry condition

2. AGROMETEOROLOGICAL CONDITIONS AND IMPACT ON AGRICULTURE

2.1. VEGETATION CONDITION AND IMPACT ON AGRICULTURE DURINGKIREMT 2021

During Kiremt 2021, the observed good moisture condition throughout the months benefited Meher agricultural activities, availability of pasture and drinking water over pastoral and agro-pastoral areas, without considerable slightly water logging and slight moisture stress observed parts of the country. The computed WRSI for Meher Maize, Barley, Teff and Wheat indicates that Meher rain performed well. It indicates a good prospect for good Meher crop production. The range land index based on WRSI and NDVI computed for Meher 2021 month to month shows good improvement. The situation was highly favourable for availability of pasture and water over eastern and north-eastern pastoral and agro-pastoral areas. Generally with the exception of the observed slight Moisture stressed at the beginning of the season over pocket areas ofcentral and eastern part, slightly water logging and crops affected due to heavy fall in some areas the overall situation was favorable for kiremt season's agricultural activities. Finally the overall agricultural condition was good over most parts of Meher growing area with the exception of the observed adverse weather situations over some places.

2.2. EXPECTED WEATHER IMPACT ON AGRICULTURE DURING THE COMING BEGA, 2021/22 SEASON

Normally during Bega season, harvest and post-harvest activities are the major practices over most parts of Meher growing areas. It is time to perform water-harvesting activities for pastoral and agro pastoral areas of southern and south-eastern lowlands. The weather situation would favor the outbreak of pests if there were favorable environment, susceptible host and the pest itself. Under normal circumstance, there is a possibility of frost hazard during the season, mainly over north-eastern, central, eastern and southern highland.

The indicated good moisture status and increased in vegetation cover and rangeland index based on WRSI on the selected analogue years particularly on the month of October 2021 expected to favor not fully matured Meher crops, late sown pulses crops, perennial plants and availability of pasture and water. However, the scarce moisture after October might have negative impact on general agricultural activities. The situation confirmed by

seasonal probabilistic forecast in view of the forecasted climate scenarios, promising rainfall distribution is expected during October over most parts of the country. Relatively dry Bega season is anticipated to dominate much of the south and southeastern parts of the country in Bega 2021/22.

The expected Normal to below normal rainfall over most parts of the southern and southeastern Ethiopia where Bega is their second rainy season would have negative impact on the availability of pasture and drinking water and crop performance of agro pastoral areas as well. Hence we advise farmers wisely utilize the water obtained from the rain as well as use water harvesting techniques.

The expected dry and hot weather condition will dominate the northern half of the country which is conducive for Meher harvest and post-harvest activities.

The expected dominantly normal rainfall across northern half, Western, Central, Southwestern and Northeastern areas of the country would favor the existing crops which are at different crop phenological stages. Besides, it would have significant contribution for the production of pulses crops with residual moisture.

The anticipated occurrence of frost over frost prone areas would create negative impact on the normal growth and development of late planted Meher crops, perennial plants and livestock conditions. Therefore, farmers are advised properly and regularly visit their farm fields for monitoring frost and proper precaution measures ahead of time to minimize the risk.

In general, the expected dry Bega season likely to occur after October will have a positive impact for Meher harvest and post-harvest activities. However, it might have a negative impact on the general agricultural activities, perennial plants and pasture and drinking water availabilities. Therefor proper moisture conservation and rain water harvesting and cultivation of moisture stress resistance crops can help alleviate of the impact of the expected dry situation in the season. Thus, users should interpret the weather forecast in terms of their area of interest and the existing condition of their specific areas.

3. DEFNITION OF TERMS

ABOVE NORMAL RAINFALL: - Rainfall in excess of 125% of the long termmean

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 south eastern 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 north-eastern 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.

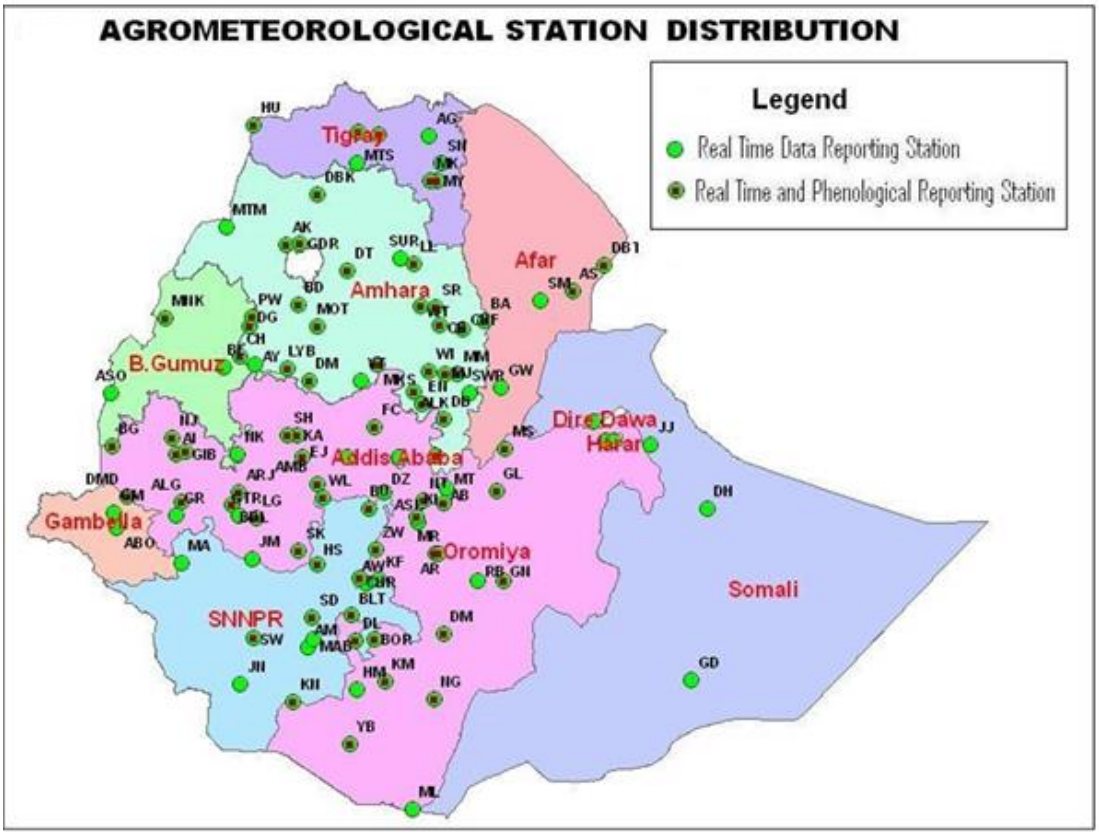
DEKAD: - First or second ten days or the remaining days of a month.

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

ITCZ:- 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 south-eastern lowlands of the country.

RAINY DAY: - A day with 1 or more mm of rainfall amount



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