

## **Forward**

This agricultural-meteorological bulletin is prepared and disseminated by the National Meteorological Agency (NMA) Awassa Meteorological branch Office. The aim is to provide those sectors of the community involved in Agricultural and related disciplines with the current weather situation in relation to known agriculture practices.

The information contain in this bulletin, it is judiciously utilize, are believed to assist planners, decision maker and the farmers at large, though an appropriate media in minimized risks, increasing efficiency, maximized 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 branch office disseminates monthly and seasonal weather reports in which all the necessary current information's relevant to agriculture are completed.

We hope 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 to reach its ultimate goal.

**Awassa Meteorological Branch Office**

**P.O.BOX 161**

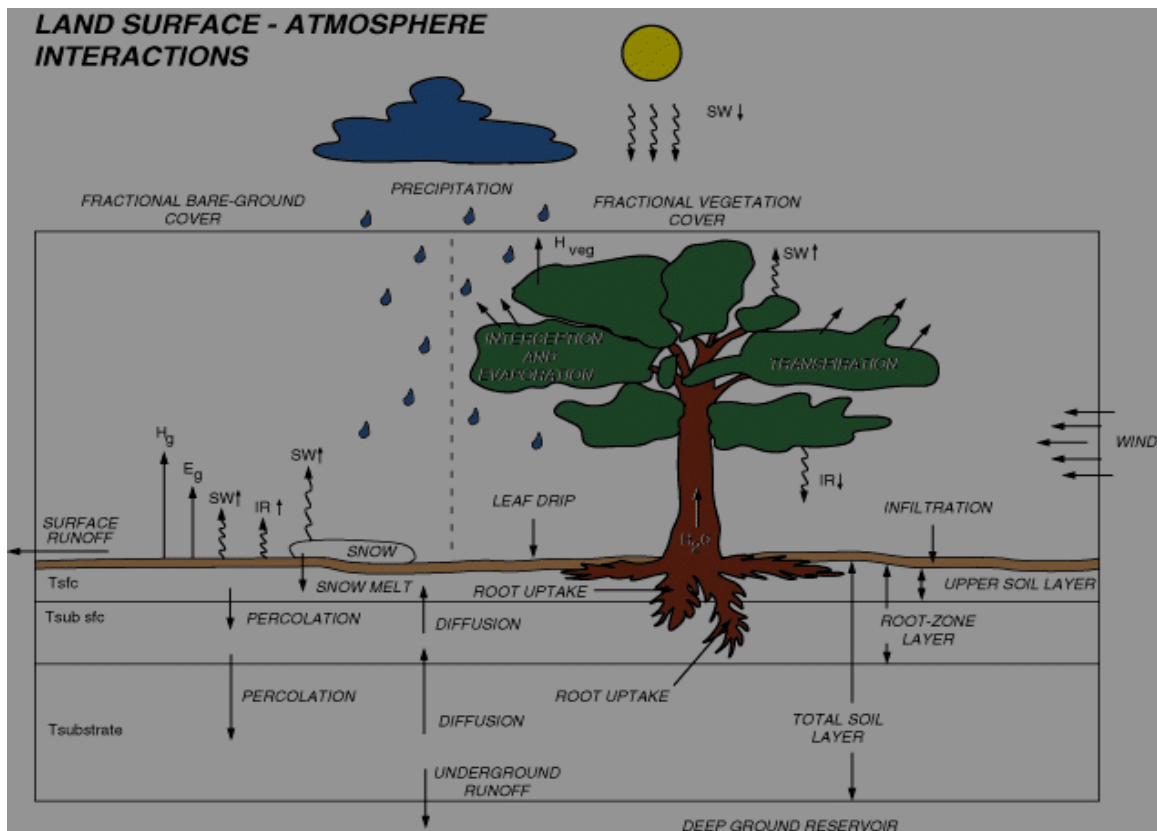
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# METEOROLOGICAL IMPACT ON AGRICULTURE

## SOIL-PLANT-ATMOSPHERE CONTINUUM



## **1.INTRODUCTION**

The SNNPR is located between  $4.43^{\circ}$ -  $8.58^{\circ}$  North latitude and  $34.88^{\circ}$  –  $39.14^{\circ}$  East longitude. It is bordered to Kenya in south, Sudan in south west, Gambela region in North West and Oromiya region in north and east. Its total amount of land is about 11, 093, 19 hectares. According to regional statistical data more than 90% of populations lives in rural areas and engaged in rain-fed agricultural activities. The rainfall variability significantly affects crop growth from planting to harvesting stage, this influences the economic activities of the region and the country since cash crops like coffee is highly cultivated over aforementioned areas. Also crops like Maize, Teff, Wheat, Sorghum, Fruits and also false banana are highly cultivated over the region. Therefore the information contained in this bulletin can benefit to raise ones agro-climate consciousness for improving agriculture-oriented practices and impacts of weather on agricultural activities over our region (SNNPR).

### ***1.1 GENERAL***

#### ***WHAT IS THE ROLE OF AGRO-METEOROLOGY?***

Agro-meteorology is the science that deals with the combination of the plant science and meteorology. This science studies about the connection of the soil, plant and our atmosphere. The primary aim and scope of agricultural meteorology is to provide and fully utilize our knowledge for atmosphere in order to optimize agricultural product, and to increase the capability of the farmer to face drought phenomena and also to minimize crop yield reduction due to extreme weather hazards (strong wind, heavy rainfall, hail) or deficiencies in rainfall amount and distributions.

The ultimate goal of Agro-meteorology is to understand the current weather condition that directly and indirectly affect the crop life cycle and provide net information to the user (farmer) and any agricultural sector.

***What is the job of agro-meteorologist?***

By using continues analysis of existing data, field data, weather forecast and satellite information, an Agro-meteorologist may provide:-

- ✓ An appropriate time of land preparation, sowing and harvesting date for the farmer.
- ✓ Suggest the possible positive or negative impact of the forecasted weather on existing agricultural activities.
- ✓ An early warning activities on extreme weather events like strong wind, heavy rainfall, dry spell, and forest fires
- ✓ Information about spread of pest and locust and plant disease etc.....

## **2. SUMMARY**

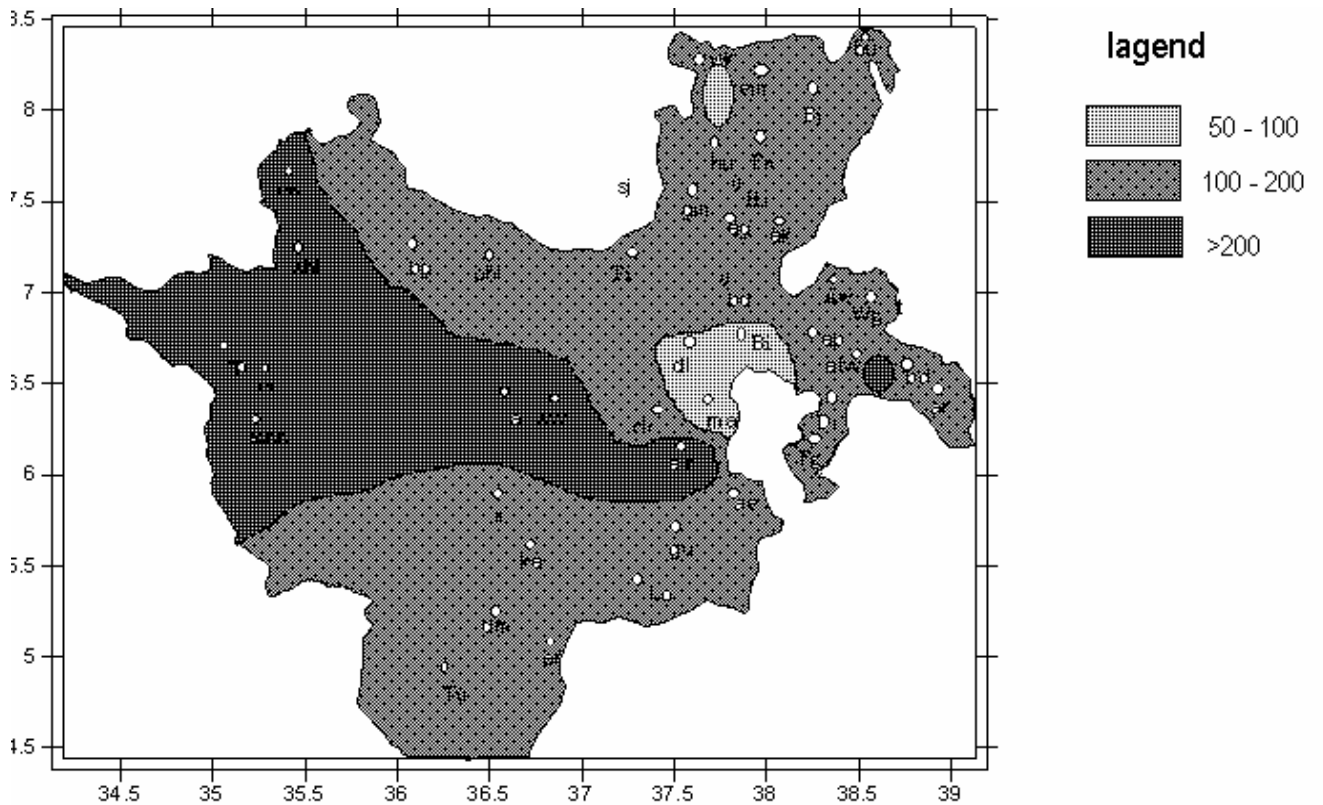
### **SEPTEMBER 2008**

Normally, September is the last month of kiremt season, which is characterized by sufficient amount of rainfall over the region during first and second dekade of the month. This has positive contribution for the cereal crops (maize, sorghum, and wheat), perennial crops (Enset, banana) and cash crops (coffee, chat) which exist in different phonological stage. Agro-pastoral and pastoral areas also get sufficient amount of moisture which have good contribution for growth of pasture and availability of drinking water.

During the first and second dekade of September the rainfall amount and distribution covered almost all kiremt rainfall benefiting parts of the region with an amount ranging from 40mm to 200mm. This can have positive contribution on availability of drinking water and pasture for pastoral and agro pastoral areas.

At the third dekade of September the sunny and windy weather conditions dominated over most part of the regions due to ending of kiremt and beginning of bega season. From agro-meteorological point of view such conditions may have a positive effect for the crops that have been on harvesting stage.

Generally during the month of September sufficient amount of rainfall prevailed over the region in distribution as well as in amount. These could contribute well for the crops that were found at the last stage of leaf to held efficient amount of yield. Besides the above conditions may have positive contribution on the availability of pasture and drinking water.



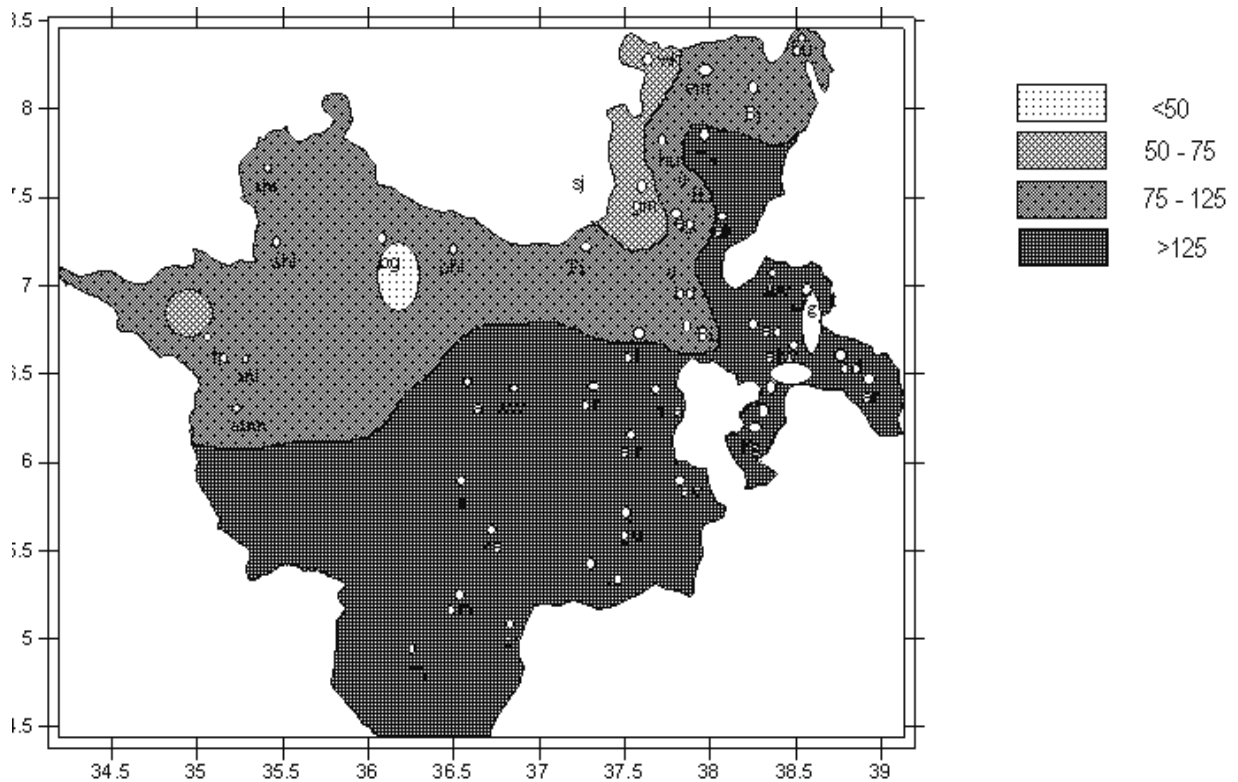
**Fig.1. Rainfall distribution in mm (September 2008)**

### **3. WEATHER ASSESSMENT**

#### **3.1 FOR THE MONTH OF SEPTEMBER**

##### **3.1.1 RAINFALL AMOUNT**

As per the above monthly rainfall graph, the most western and central parts of the region experienced large amount of rainfall that exceeds 200mm/month. On the other hand, on some pocket areas of Gamogoffa, sidama and Guraghe zones the rainfall was more or less in a low amount as compared to the other parts of the region.



**Fig 2 percent of normal (September 2008)**

Explanatory notes for the legend:

<50 % – much below normal

50-70 %– below normal

75-125% – normal

>125 %– above normal

### **3.1.2 RAINFALL ANOMALY**

Most parts of Southern and central SNNPR (Jinka Konso and Sawala ),large portion of sidama zone and some parts of hadiya zone (fonko)have exhibited above normal rainfall. Pocket areas of sidama ,some parts Gurage, dawro Kambata zones and most parts of western SNNPR have received normal rainfall. Pocket area of west SNNPR (Teppi) some parts of Gurage and hadiya zones have experienced below normal and pocket area of northern SNNPR (Bonga ) has received much below normal rainfall.

### **3.1.3 TEMPERATURE ANOMALY**

Some station recorded extreme maximum temperature above 30<sup>0</sup>c like M/abay 33<sup>0</sup>c, A/Minch 32.2<sup>0</sup>c, Bilate 31<sup>0</sup>c and Gato 31.4<sup>0</sup>c. However there were some station which recorded extreme minimum temperature of less than 5<sup>0</sup>c like Weterarese and M/teferie with 3.1<sup>0</sup>c and 5<sup>0</sup>c respectively.

## **4 WEATHER OUTLOOK**

### **4.1 WEATHER OUTLOOK OF THE COMING MONTH OCTOBER**

Under the normal condition, during the first decade of October the Kiremt rainfall bearing system becomes weaken and substituted by dry and sunny weather condition. But, as it would be expected that on the second and third dekad of October rainfall may occur over post harvesting areas, care should be taken over the northern and central part of SNNPR like zones of Guraghe, Siltie, Hadiya, Kambata, Wolaita and Yem Sp.W. On the other hand, this rainy condition may have good contribution for pastoral and agro-pastoral areas for availability of drinking water and pasture.

Besides some zones like Kaffa, sheka, Bench-Maji, and dawro are characterized by an extended wet condition. The rain can appear on the second and third decade of October; therefore we advise for the farmer to take care on crop that are found on post harvesting and harvesting stage like maize, wheat, teff and sorghum.

## **5 AGRO-METEOROLOGICAL CONDITIONS AND IMPACT ON AGRICULTURE**

### **5.1 VEGETATION CONDITION AND IMPACT ON AGRICULTURE IN THE MONTH OF SEPTEMBER**

Generally during the month of September, it was observed that there was better rainfall distribution over most parts of our region. As we got from the crop phonological report of different stations, the crop condition was good in holding yield; whereas there was some areas in Gedeo zone specifically Dilla areas where coffee failed in flowering stage due to extreme heat from the sun which caused high amount of evapotranspiration that lead to shortage of soil moisture.

Generally the availability of rainfall distribution can provide humid condition almost in all parts of the region which have a good contribution for the crops that exist in different phonological stage. In addition to this, for agro-pastoral and pastoral areas it contributes well on the availability of drinking water and sufficient moisture for the growth of pasture.

Table1. *climatic and agro- climatic elements in different station for the month of September 2008.*

N o	Station name	Monthly rainfall	Mean rainfall	%of normal	ETo mm/day	Monthly ETo	Moisture status
1	Awassa	160	120.6	132.7	3.30	99	H
2	Arbaminch	200.8	74.8	268.4	3.37	101.1	H
3	Dilla	161.7	135.0	119.8	2.83	84.9	H
4	Emdibir	117.9	115.5	102.1	2.09	87	H
5	Hossana	138.6	151.4	91.5	3.02	90.6	H
6	Aman	252.5	223.0	113.2	2.50	75	H
7	Konso	144.9	48.4	299.4	4.04	121.2	H
8	M/Abaya	74.4	58.8	126.5	4.37	131	H
9	Sawala	214.1	135.6	157.9	3.22	96.6	H
10	Tercha	181.4	189.5	95.7	3.43	102.9	H
11	Bilate	69.9	66.9	104.5	3.17	111.3	H

### Legend

VD-----very dry	<0.1 mm
D-----dry	0.1-0.25 mm
MD-----moderate dry	0.25-0.5 mm
M-----moist	0.5-1.0 mm
H-----humid	>1.0 mm
NA-----no data	

### Expletory note

ETo-----Reference Evapo-transpiration

Average rainfall----the mean rainfall of 30days

% of normal-----actual rainfall over normal

Monthly ETo= ETo\* days of the month

## **DEFNITION OF TERMS**

**ABOVE NORMAL RAINFALL:**-Rainfall in excess of 125% of the long term mean

**BELOW NORMAL RAIN FALL:**-Rainfall below 75% of the long term mean.

**NORMAL RAINFALL:**-Rainfall amount between 75% and 125% of the long term mean.

**KIREMT:** main rainy season that extend from June to September for most parts of the country with the exception of the north eastern lowlands to the country

**BELG:**-Rainy season extend from February to May.

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

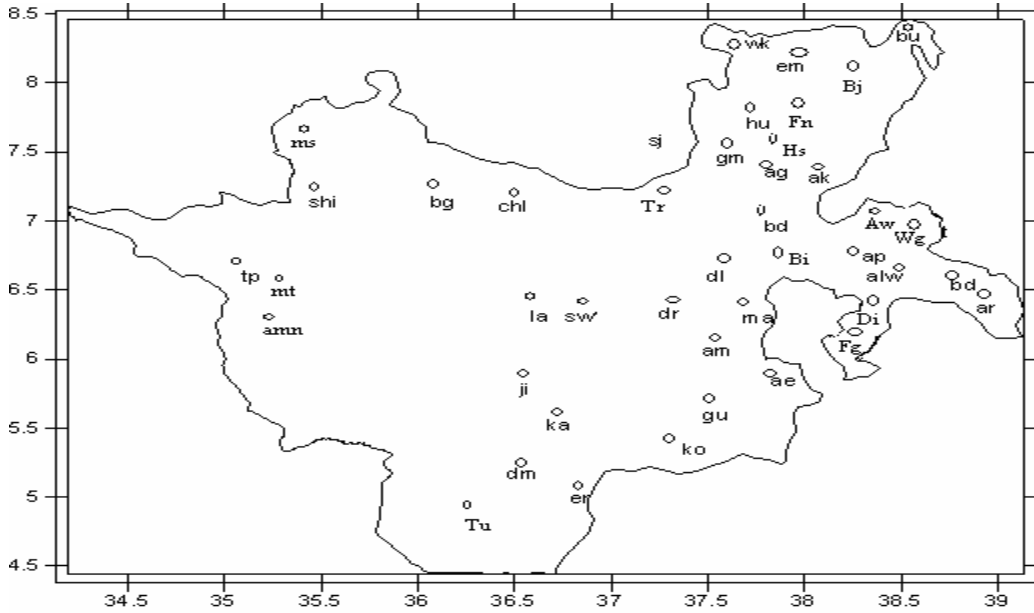
**CROP WATER REQUIREMENTS:**-The amount of water needed to meet the water loss through evapotranspiration of a disease free crop.

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

**ITCZ:**-Inter Tropical Convergence Zone(SE and NE trade wind of the two hemispheric wind meet.)

**Phonological observation:** - agro-metrological observation

## AGRO-METEOROLOGICAL STATION DISTRIBUTION



STATION	CODE	STATION	CODE
Awassa	Aw	Jinka	jn
Teppi	Tp	Tercha	tr
Amen	amn	Dilla	dl
Arbaminch	am	Konso	ko
Sawala	sw	Areka	ar
Emdibir	em	Bonga	bg
Hossana	hsn	chencia	ch
Bilate	bl	Aleta-wando	alt
M/teferie	ma	Buie	bu
Aposto	ap		

