Monthly Agromet Bulletin

National Agromet Centre

Pakistan Meteorological Department Islamabad

Vol: 09-2013 **SEPTEMBER 2013**

Highlights…

- Rainfall was observed mostly below normal in the agricultural plains the country except Potohar region and Sargodha division in Punjab and Gilgit in GB region; where above normal rain was reported during the month.
- Thermal regime in this month remained normal to slightly above normal in most of the agricultural plains of the country.
- ETo and R.H mostly remained below normal in the agricultural plains of the country.
- Agricultural soils showed mostly normal to cooler trend in Potohar region and Quetta valley. Whereas soils of Faisalabad and Tandojam remained slightly above normal.
- Spraying of chemicals on cotton and sugarcane, picking of early grown cotton verities were the major field operations in most of the agricultural areas of the country. Some farmers have started land preparation for Rabi sowing specially on fallow lands and sowing of winter vegetables was in progress during the month.
- Farmers are advised to cultivate Rabi crops well in time so that soil moisture stored due to monsoon rains up to September may be fully utilized especially in northern rainfed areas of the country.

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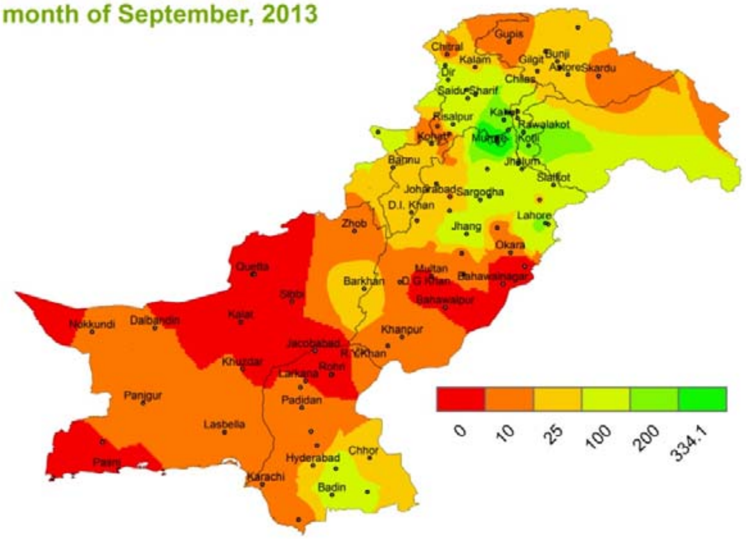
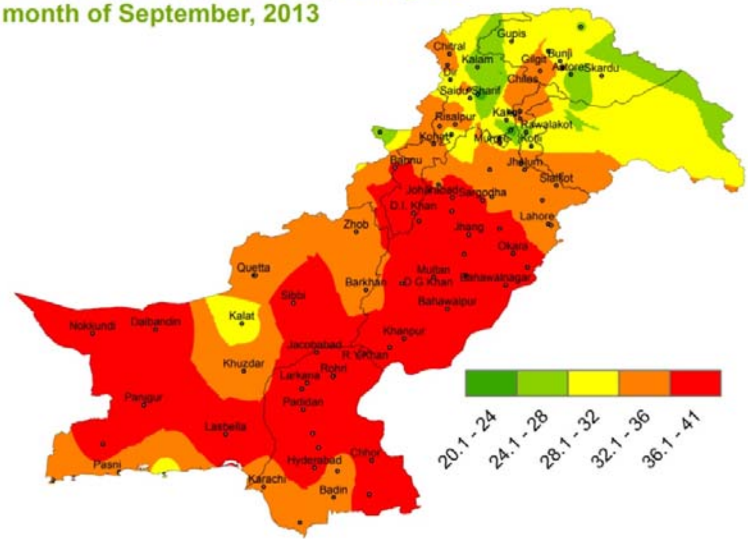
EXPLANATORY NOTE

1. This Agrometeorological bulletin is prepared on the basis of data from 15 stations of Pakistan Meteorological Department (PMD). These stations, selected in consultation with the agricultural authorities, represent major agricultural areas of the country. There are still important agricultural areas which are not represented by the stations included in the bulletin. This may be (a) because there are no PMD stations in these areas and /or (b) the fact that we had to limit the number of stations due to the requirement of speedy data communication and processing (both of which are important for producing and dispatching timely Agrometeorological bulletins).
2. Due to the above, all inferences and conclusions hold true primarily for the above areas and not for Pakistan territory which include areas that may not be very important from the agricultural point of view and the climate of which may not bear directly on agriculture in the major producing areas.
3. The normally expected weather of next month is prepared on the basis of premise of normal or near normal weather prevailing during the coming month. As such it should not be confused with synoptic weather of the next month.
4. Summer Season/ Kharif remains from April/May to October/November and Rabi season from November to April. Mean Daily Maximum Temperature images are included in summer and Daily Mean Minimum Temperature images are included in winter in the Bulletin.
5. In the tables, the values in the parentheses are based on 1981 to 2010 normal. Normal values (in parenthesis) of Soil Temperatures are based upon 10 years data. Dotted line **(---)** means missing data. Solar radiation intensities are computed from sunshine duration using co-efficients developed by **Dr. Qamar-uz-Zaman Chaudhry** of Pakistan Meteorological Department.

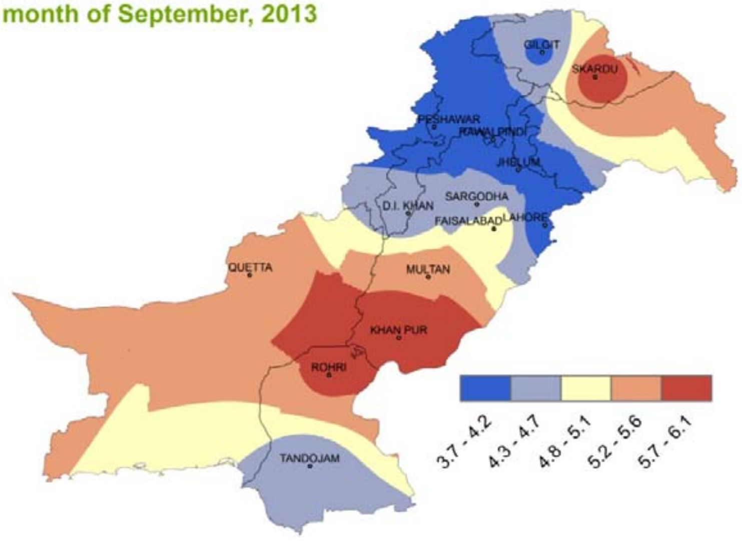
Rainfall (mm) during the month of September, 2013



Maximum Temperature (°C) during the month of September, 2013



ETo (mm/day) during the month of September, 2013



Crop Report during September, 2013

Spraying of chemicals on cotton and sugarcane, picking of early grown cotton verities were the major field operations in most of the agricultural areas of the country. Some farmers have started land preparation for sowing rabi crops specially on fallow lands and sowing of winter vegetables was also in progress during the month.

In **Punjab:** Major crops in Punjab are cotton, rice and sugarcane. The growth and development of cotton crop has been observed/reported satisfactory. Mild attacks of White fly; boll worm and thrips have been reported in different parts of the province. The spray operations are in progress to control these pest attacks. Opening and picking of cotton crop has been started in the province. Condition of rice crop is reported satisfactory and harvesting of early grown verities has been started. Sowing of maize (autumn) has been completed. Germination and growth of the crop is reported satisfactory. Condition of sugarcane crop is reported satisfactory. However mild attacks of borer reported in some areas of central Punjab. Sowing of pulses and winter vegetables has been started.

In **Sindh:** Growth of cotton crop is reported in normal condition**.** Picking of the crop is in progress in different areas. Condition of rice crop is reported satisfactory and harvesting of early grown varieties of rice crop has been started in some areas. Sowing and early growth of sunflower is reported satisfactory. Growth of sugarcane is also reported satisfactory. Some pest's attacks have also been reported on sugarcane but overall condition of the crop is reported satisfactory in different areas. Sowing of winter vegetables has been started in the province.

In **Khyber Pakhtunkhwa:** Growth and development of all standing crops reported above normal due to satisfactory rains in the province during monsoon upto September. Major standing crops during the month were sugarcane and maize. The growth of both crops was reported above normal due to satisfactory atmospheric conditions. Condition of Sugarcane crop is reported well. Maize is at grain formation stage in most parts and harvesting of early grown verities has been started in the lower and central plain areas. Rice crop is also reported satisfactory and is growing at grain filling stage and is in healthy condition. Overall condition of orchards is reported satisfactory in the province. Sowing of winter vegetables is in progress.

In **Balochistan:** Condition of standing crops like cotton, sunflower, maize and orchards is reported satisfactory. Marketing of local fruits and vegetables is in progress.

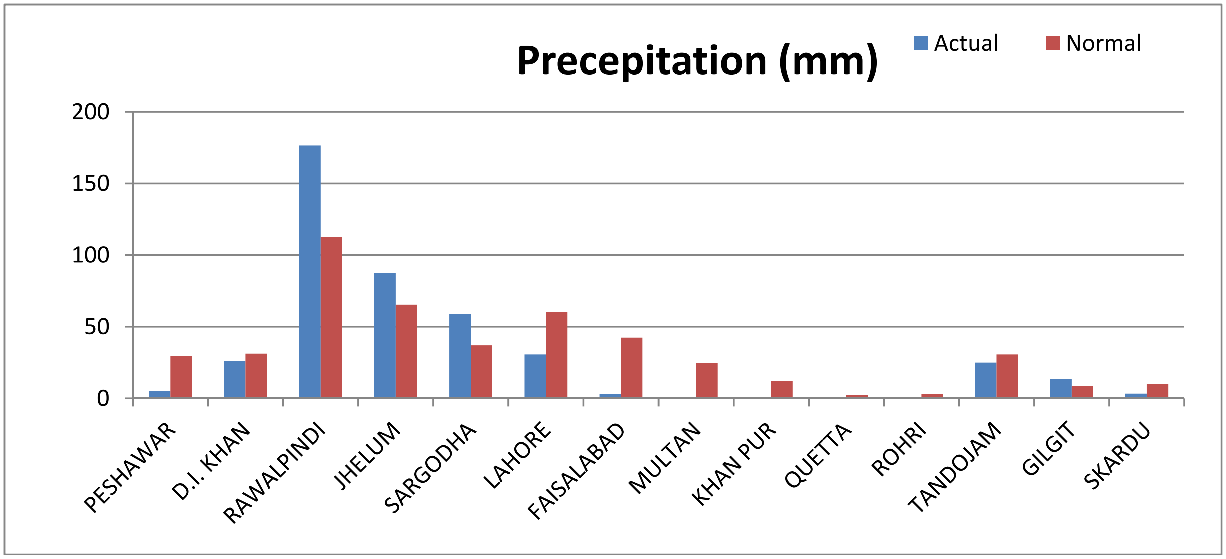
In **Gilgit Baltistan:** The main crops in the area are maize and lobiya. Both these two crops are growing normally. Condition and yield of orchards and summer vegetables are also reported satisfactory.

Moisture Regime during September, 2013

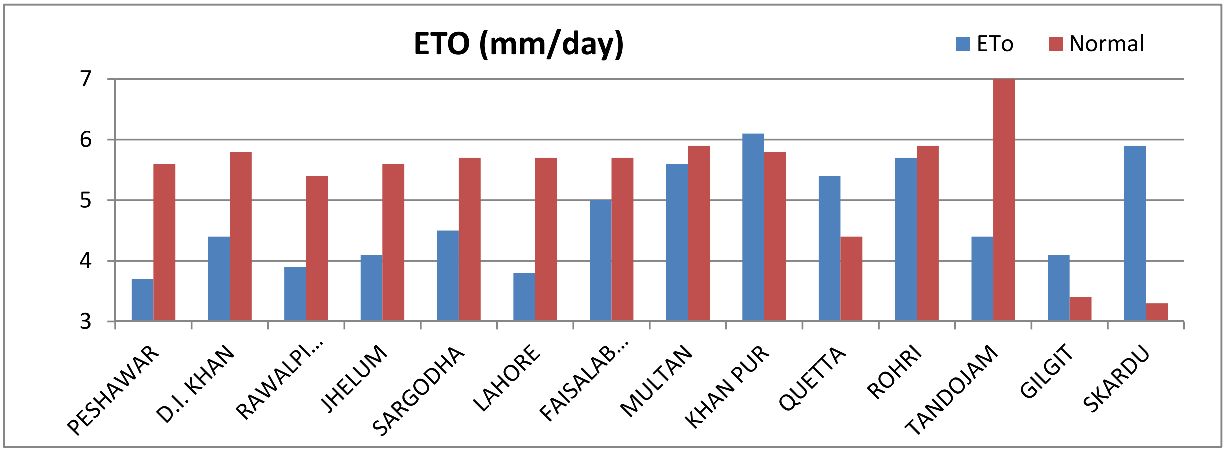
September is the last month of monsoon rains in Pakistan. Shallow monsoon weather systems remain active till the mid of this month. These monsoon weather systems along with westerly waves penetrate mostly in the upper half of the country and cause rainfall of light to moderate intensity in this month. However, in this September, mostly below normal rains were recorded in most of the agricultural plains of the country. However above normal rain was reported in Potohar region and Sargodha in central Punjab and Gilgit in GB region.

The highest amount of rainfall reported in the month was 336mm in Islamabad followed by203mm in Murree,180mm in Kakul, 319mm in Balakot, 294mm in Khanpur and 282mm in Murree. Number of rainy days recorded in agricultural plains of the country reached up to 14.

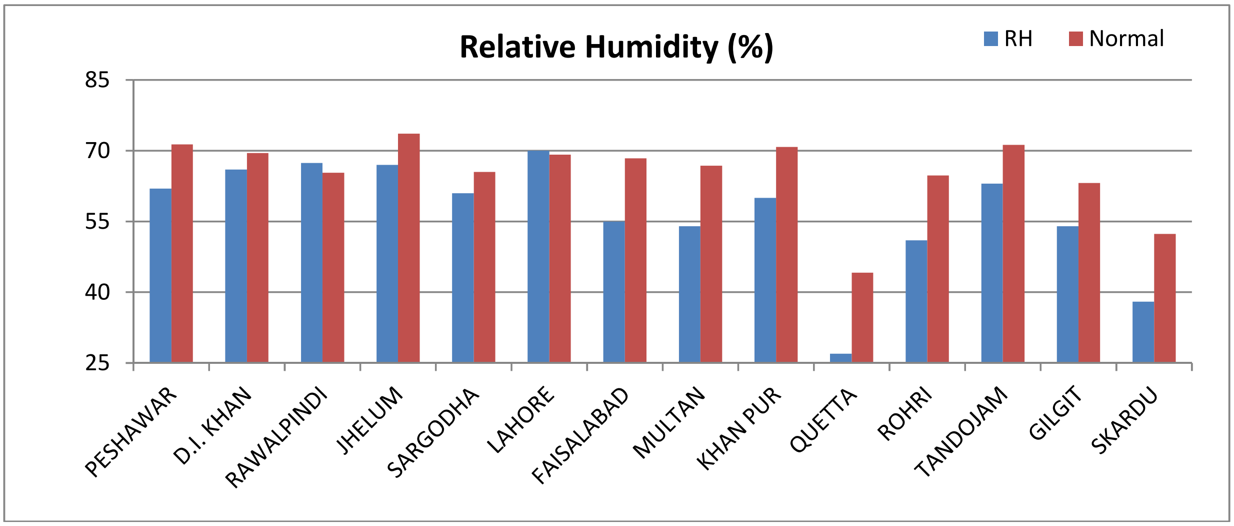
Maximum number of rainy days was recorded (14 days) in Murree followed by 12 days in Islamabad, 11 days in Bunji, Muzaffarabad, Balakot each and 10 days at Lahore.



The evaporative demand of the atmosphere represented by reference crop evapotranspiration (ETo) remained normal to below normal in most of the agricultural plains of the country. However ETo was observed above normal in Khanpur of southern Punjab, Quetta valley in Balochistan and Gilgit Baltistan region. The highest value of ETo was estimated in Khanpur.



The mean daily Relative Humidity (R.H) remained normal to below normal in all agricultural plains of the country. Maximum value of mean Relative humidity was observed 70% at Lahore followed by 67% at Rawalpindi and Jhelum each while the minimum value was observed at Quetta due to its dry climate in this month.

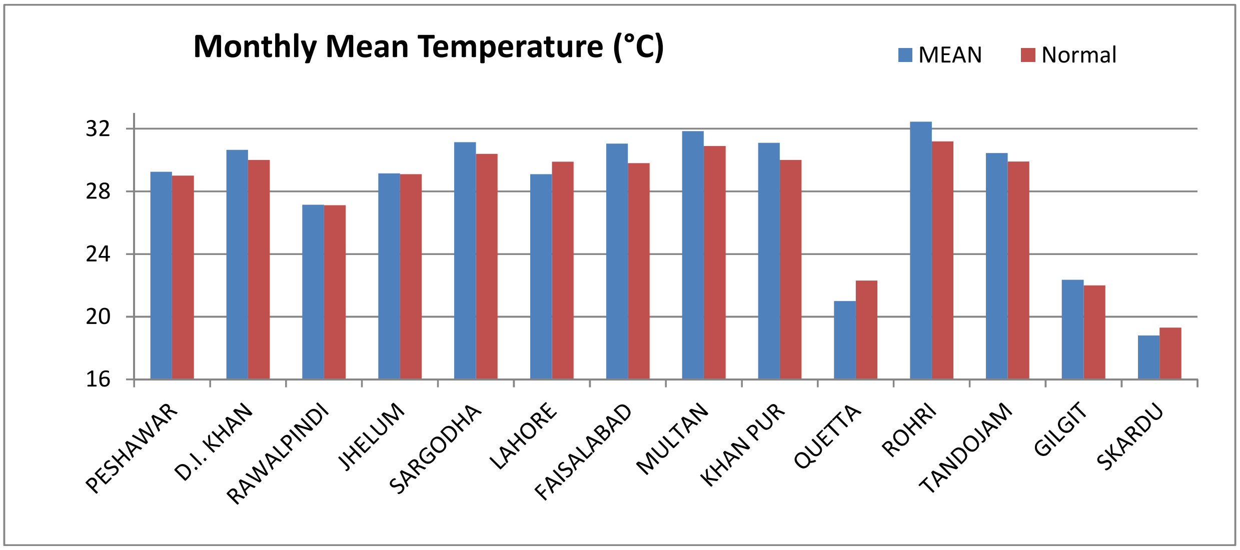


From overall analysis of the whole monsoon season of this year it is evident that satisfactory rains were reported in all agricultural plains of the country during this season. These rains have produced floods/flash flooding causing loss of Crops, life and property at some areas of Punjab, Sindh and Baluchistan. However the moisture stress has almost finished and sufficient moisture is available in the atmosphere producing favorable conditions for the coming Rabi crops especially at sowing time. Farmers of follow lands should utilize the present soil moisture for sowing wheat especially in upper half of the country.

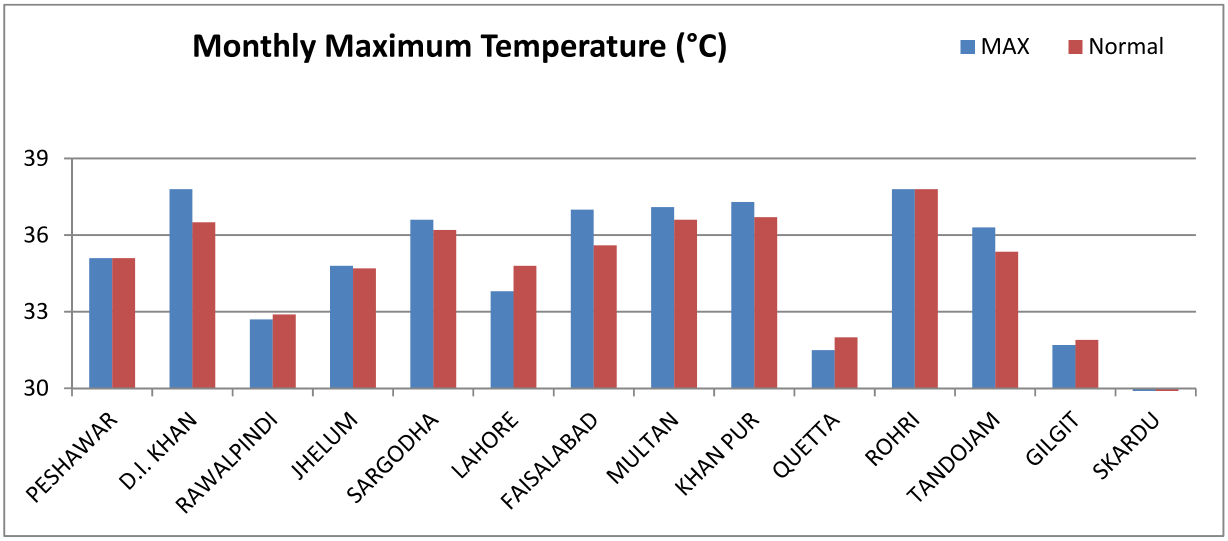
Temperature Regime during September, 2013

Temperature plays vital role in the growth and development of crops. Thermal regime in this month remained normal to slightly above normal (by 1°C) in most of the agricultural plains of the country.

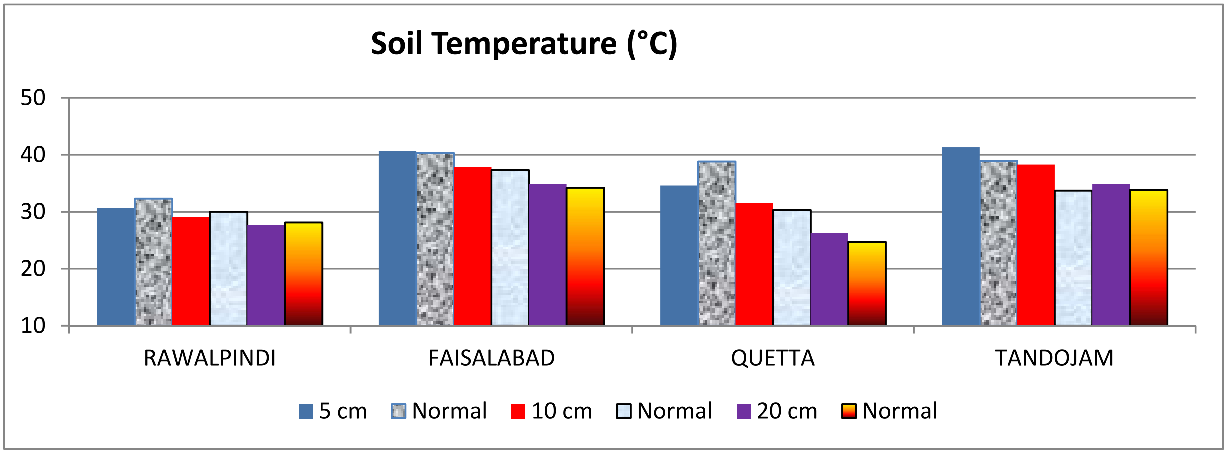
Mean daily temperature remained normal to above normal by 1°C in all agricultural plains of the country except Lahore in central Punjab, Quetta valley in Baluchistan and Skardu in GB region where it was observed 1 to 2°C below normal. Mean daily temperature ranged 29 to 31°C in Khyber Pakhtunkhwa, 27 to 29°C in Potohar plateau, 29 to 32°C in remaining parts of Punjab, 30 to 32°C in agricultural plains of Sindh, 19 to 22°C in Gilgit Baltistan region and it was observed 21°C in the high elevated agricultural plains of Baluchistan represented by Quetta valley.



The day time temperature represented by mean maximum also remained above normal by 1-2°C in most of the agricultural plains of the country. The highest maximum temperature in the agricultural plains of the country was recorded 43.5°C at Nawabshah. Number of stress days with maximum temperature greater or equal to 40°C and R.H. less than or equal to 30% was nil in all agricultural plains of the country.



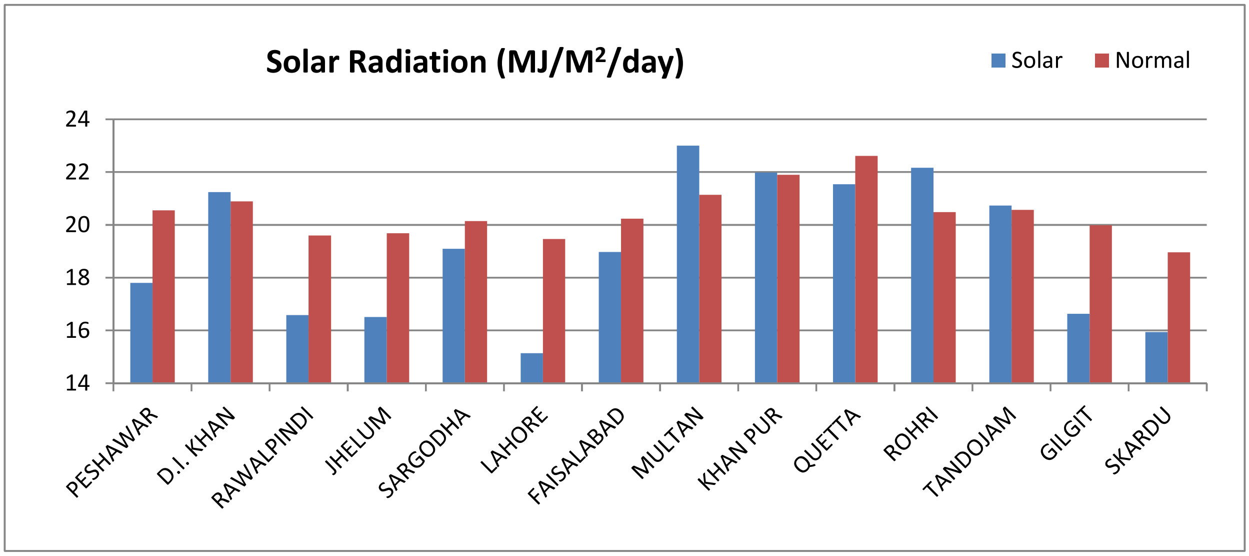
Agricultural soils showed mostly normal to cooler trend in Potohar region and Quetta valley. Whereas soils of Faisalabad and Tandojam remained slightly above normal.

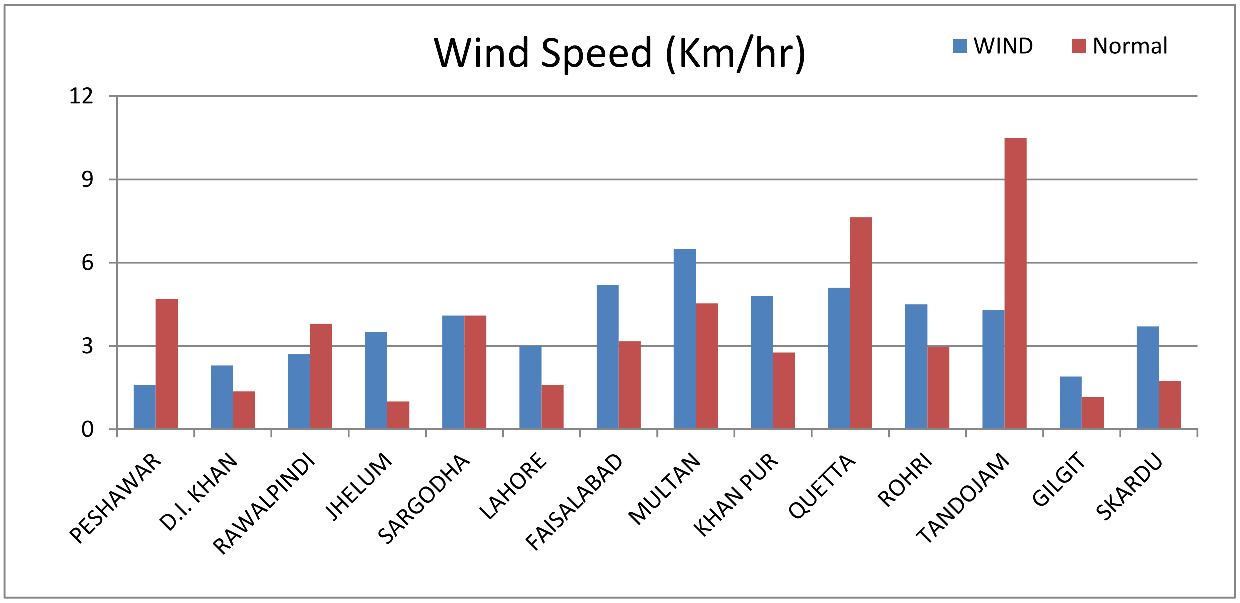


From the general analysis of soil behavior in this month, it is concluded that moisture has penetrated more in deep layers at Potohar region and central Punjab as compared to lower parts of the country due to comparatively less rainfall reported during the month. However overall condition of moisture content is satisfactory for sowing of coming wheat and other seasonal crops and vegetables especially in rainfed areas of the country. Therefore farmers are advised to cultivate Rabi crops well in time so that soil moisture stored due to monsoon rains in September may be fully utilized especially in northern rainfed areas of the country.

Solar Radiation and Wind Regime during September, 2013

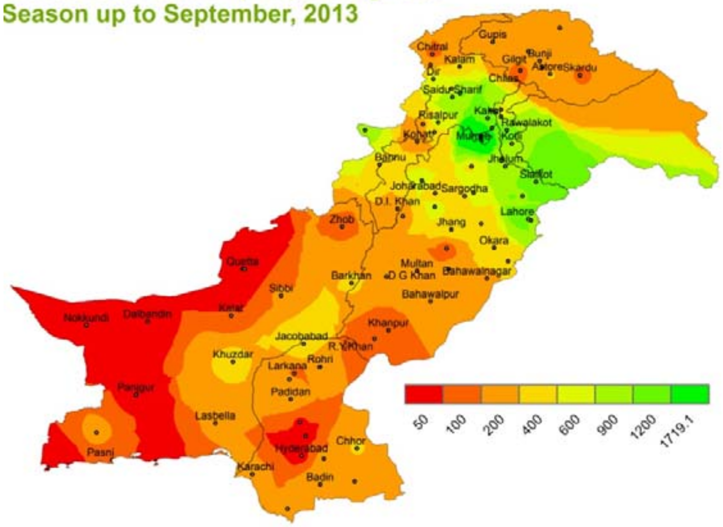
Total bright sunshine hours and solar radiation intensity remained normal to below normal in most of the agricultural plains of the country. However these values were observed above normal at D.I. Khan in lower KP, Multan in southern Punjab and Rohri in upper Sindh. Mean wind speed throughout agricultural plains of the country ranged between 2 to 6km/h with North-east to North-west and South trend. Maximum wind speed was rounded to 6 km/h observed at Multan in southern Punjab.



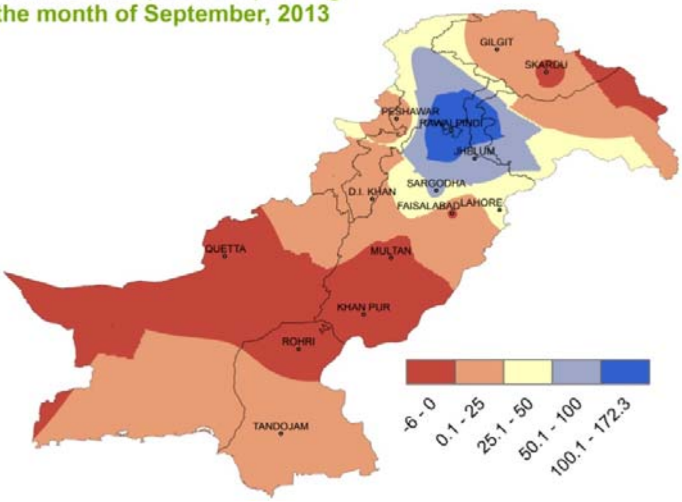


Cumulative Rainfall, ETo and water stress for Kharif Season (May to September)

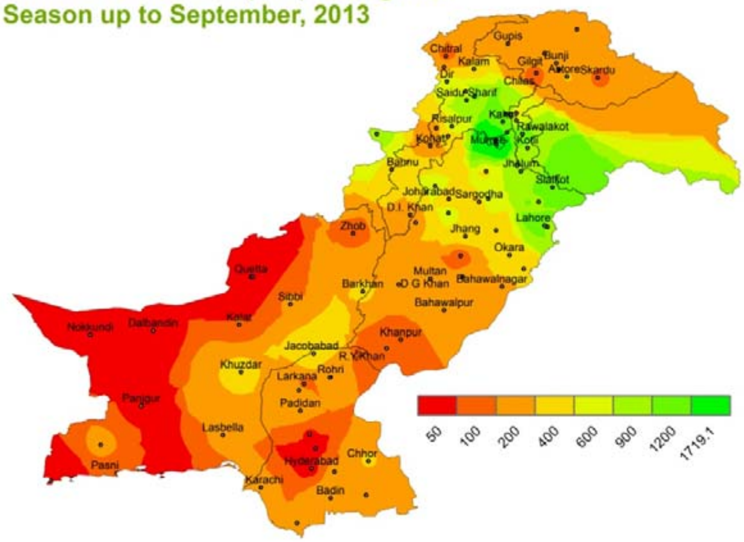
Cumulative Rainfall (mm) during Rabi Season up to September, 2013



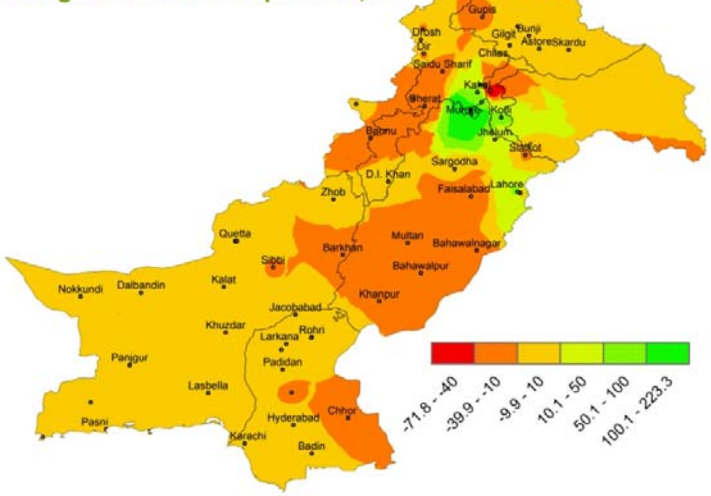
Water Stress (Rain-ETo) during the month of September, 2013



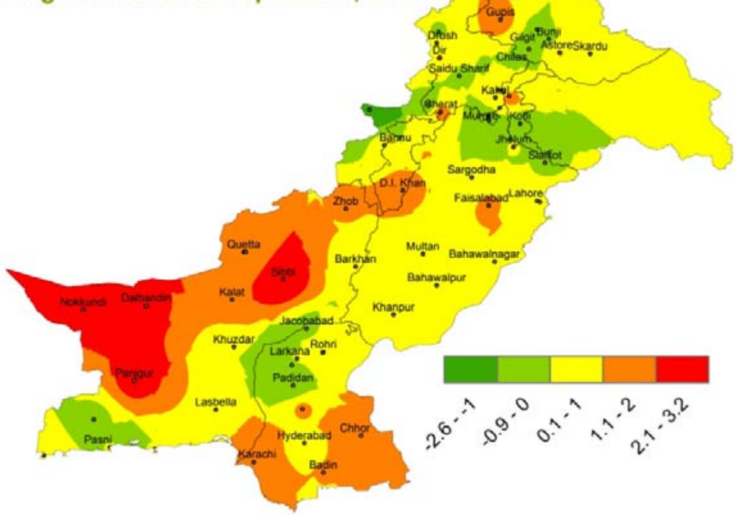
Cumulative Rainfall (mm) during Rabi Season up to September, 2013



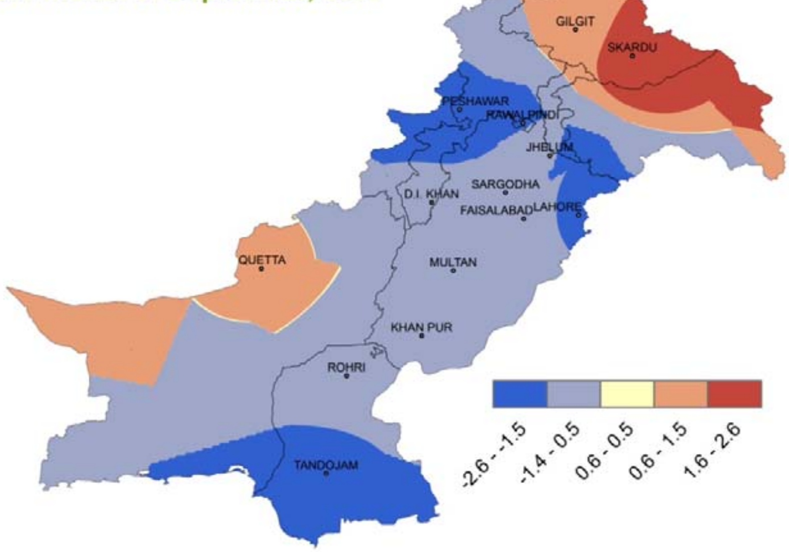
Rainfall Departure from Normal (mm) during the month of September, 2013



Maximum Temperature Departure from Normal (mm) during the month of September, 2013



ETo Departure from Normal (mm/day) during the month of September, 2013



Normally Expected Weather during October, 2013

October is the transition month between the summer and winter weather systems. In general, October is considered as the driest month of the Rabi season. However, a few falls of light and moderate rain are expected over northern Balochistan, upper divisions of Khyber Pakhtunkhwa, submountaineous areas of Punjab and Kashmir due to incursion of moisture from the westerly troughs. Quantitatively, northern Punjab and Khyber Pakhtunkhwa is expected to receive 30 to 100 mm of rainfall. Rest of the country would remain practically dry as amount of rainfall is not likely to exceed 10 mm.

The probability of occurrence of rainfall is given below:

Amount / Dates	PERCENTAGE PROBABILITY OF OCCURRENCE OF DIFFERENT AMOUNTS OF RAINFALL IN OCTOBER					
	1-5	**6-10**	**11-16**	**17-20**	**21-25**	**26-30**
10mm	16	16	18	18	9	9
15mm	12	9	14	10	1	5
25mm	6	6	5	4	0	3

The mean daily relative humidity may range between 45% and 55% during the month. Over high agricultural plains of Balochistan, it may be around 35%. In general, the mean relative humidity all over the country would be 10% less than September except high agricultural plains of Balochistan, where it is expected to be slightly higher.

Despite the shorter days, cooler atmosphere and less intense solar radiation, evaporative demand of the atmosphere is expected to maintain the level of September values. The reasons are the clearer skies and drier atmosphere during October, relative to September. The ETo values are expected to range between 4.0 and 5.5 mm/day over most parts of Khyber Pakhtunkhwa, Punjab and Southern Balochistan. It would be close to 3.5 mm/day over high agricultural plains of Balochistan. It may exceed 6 mm/day over Sindh.

The mean daily temperatures are expected to drop about 3 to 5°C relative to September. They may range 22 to 26°C over most of Punjab and Khyber Pakhtunkhwa. However, it may exceed 30°C in Sindh whereas in high agricultural plains of Balochistan, it would be close to 15°C. The mean maximum temperatures are expected to range between 31 and 37°C. They are expected to be around 25°C in Quetta. Maxima may exceed 40°C at few places mainly in southern Punjab, upper Sindh and adjoining Balochistan. Mean daily minimum temperatures are expected to range between 14°C and 22°C except in high agricultural plains of the country. High agricultural plains of Balochistan are expected to experience few freezing nights towards the end of the month.

The numbers of bright sunshine hours are expected to range between 9 hours a day in north to 10 hours a day in south. Besides lower solar angle, there will be slight increase in bright sunshine duration relative to last September due to clearer skies during October. The intensities of solar radiation are expected to range between 17 and 20 MJ/M^2/day throughout the country.

During October, mean wind speeds are expected to remain below 10 Km/hour over most of agricultural areas of the country. It is expected that prevailing southerly wind flow may shift to northwesterly direction. Following is the water requirement of full canopied healthy crops in different regions of the country during October:

S. No	Region	Water Requirement	
		(mm)	**Cubic Meter/Hectare**
1	Northern Punjab, Northern Khyber Pakhtunkhwa and high agricultural plains of Balochistan	110-120	1100-1200
2	Southern Khyber Pakhtunkhwa, and Southern Punjab	140-160	1400-1600
3	Sindh and Southern Balochistan	180-190	1800-1900

Seasonal Weather Update

Introduction

A variety of methods including dynamical models, statistical methods, regional expert judgments *and combination of them have been used to generate long-range weather forecast by the different climate prediction centers around the world. National Agromet Center (NAMC), Pakistan Meteorological Department adopts an ensemble approach to formulate its seasonal weather outlook for Pakistan (on experimental basis), taking into consideration available products from major climate prediction centres and different Global Climate Models (GCMs).*

Regional weather (precipitation and temperature) outlook is predicted from different global climate models by using persisted sea surface temperature on 0000 Oct 01, 2013. Model's output then tuned by applying Regional Correction Factor (RCF). RCF has computed by comparison of Long Range Averages (LRA) with model's simulation for the period (2004-2012) on monthly basis. That might be somewhat different from actual weather because of time to time variation in Sea Surface Temperature (SST) during the season. Accuracy of Outlook seasonal weather mainly depend upon SST used in global climate models. Even with use of accurate SST, still is uncertainty in the climate forecast due to chaotic internal variability of the atmosphere.

Acknowledgement: *NAMC is gratefully acknowledges the International Research Institute (IRI) for climate and Society for providing access of dynamical prediction of Global Climate Model ECHAM4P5, developed and operated by European Center for Medium-Range Weather Forecasts model's simulations and hindcast data to support the formulation of seasonal weather outlook of Pakistan. Output maps have been prepared by using IRI climate software.*

Synoptic situation

- Location of jet stream (U wind at 200 hPa) is approximately same as normal but with steep narrow band with slightly below normal strength. Decreasing trend in the intensity of jet stream crossing over the region will continue with higher during November, moderate in December and slight in October.

Probability outlook: less strength in intensity leads to less than normal rain in the region.

- A ridge at 500 hPa will dominate over the western parts of the region. A narrow trough over Afghanistan and surrounding will be boosted up by western disturbances during early season.

Probability outlook: Presence of trough over Afghanistan plays its role and causes rain over northern parts of the country during early and late predicted season.

- Area of high surface temperature will expand during October from normal (1982-2010) over central parts of the country. Day temperature will be on higher side during October over central parts of the country

- North Atlantic Oscillation (NAO) is in slightly positive phase (0.24) and may cause to shift western disturbances towards north during coming months. Data source: http://www.cpc.ncep.noaa.gov/products/precip/CWlink/pna/nao.shtml

Probability outlook: Normal to below normal rainfall over the country. The focus of weather tracks may be towards northern side.

- Most of the set of dynamical and statistical model predictions issued during late August and early September 2013 predict neutral ENSO conditions, although a few (mainly statistical) models indicate borderline or weak La Nina conditions for northern autumn and later, and a few dynamical models call for borderline El Nino conditions developing during the same period. In the most recent week, the SST anomaly in the Nino3.4 region was 0.0C. The average forecast of all models hints at a gradual warming tendency over the coming seasons. Data source: http://iri.columbia.edu/climate/ENSO/currentinfo/SST_table.html

Probability outlook: La Nina (9%), Neutral (89%) and El Nino (2 %) during Oct-Nov-Dec season

- Arabian Sea Surface Temperatures are expected to be normal near the coast of Pakistan and slightly below normal over far from coast.
- Caspian Sea surface temperatures expected to be normal.
- Mediterranean Sea surface temperatures are normal to slightly above normal.
- Bay of Bengal Sea Surface Temperatures are normal.

Probability outlook: Sea Surface Temperature trend going towards normal leads to normal/below normal rainfall over the region.

Seasonal Weather Outlook Summary (Oct- Dec-2013)

Synthesis of the latest model forecasts for Oct-Dec, 2013 (OND), current synoptic situation and regional weather expert's judgment indicates that slightly normal rainfall is expected all over the country with normal during October, slightly above normal during November and above normal during December. The slightly above normal temperature is likely to occur in central parts of the country during October and upper parts of the country during November. However, below normal temperature will be likely over southern and central parts of the country. Neutral-ENSO condition is expected to persist throughout the predicted period.

Weather outlook

"Normal during September, slightly above Normal during November and above normal during December"

I. Slightly above average (+ 15 %) rainfall is expected during predicted season 2013.

II. In October, less intensity rainy spells are likely during first and last week. Whereas, normal rain will be expected over central and south parts of the country.

III. Dry weather will be expected over upper Punjab, upper KP and Kashmir during October.

IV. Dry weather will persist in early and mid November, however some rainy spells on isolated places over the country are expected during last decade of the month.

V. Western weather currents will mostly be effective from December.

II. First winter rain will be expected during 1st week of December, however about 3-4 rainy spells are expected during December.

III. Above normal rain is expected over GB region during predicted period.

IV. Below normal rains are expected over KP province during predicted period.

V. The focus of monsoonal weather systems during late November and December will be towards central and Upper Punjab, KP and Kashmir.

VI. Well intense snow fall spells over northern glaciers are expected during December.

VII. Expected Minimum temperature will be slightly above normal all over the country during October and November whereas December will be expected colder month than normal over the country except northern region.

VIII. Minimum temperature will be on higher side during October over central parts and November over northern parts of the country from the normal.

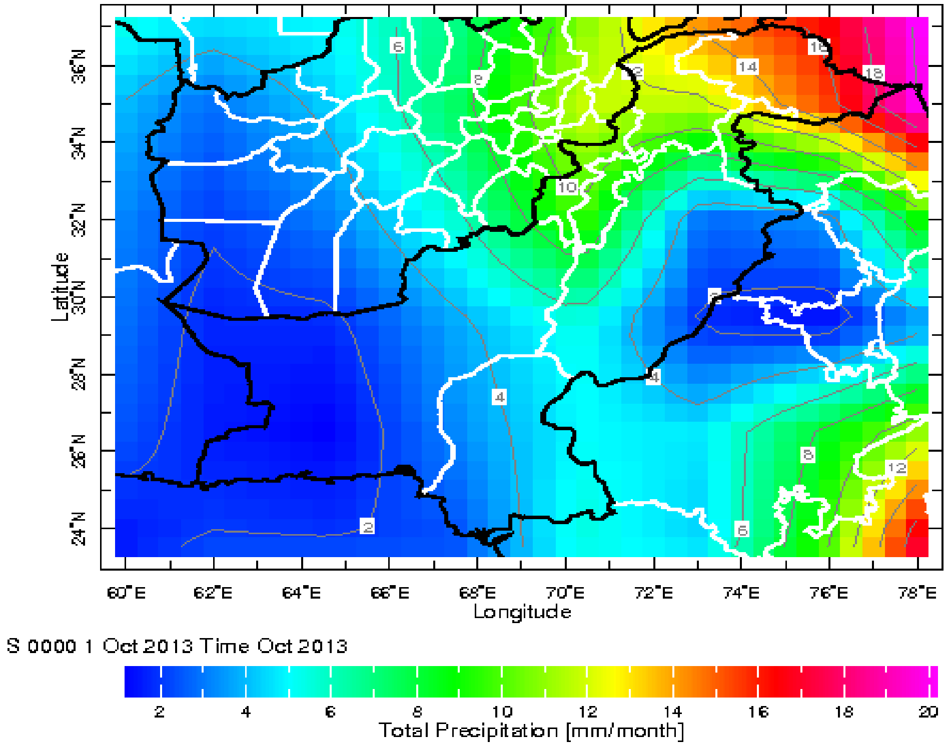
Monthly Quantitative Weather Forecast

	Oct, 2013		Nov, 2013		Dec, 2013		Oct-Dec, 2013	
	Ave	**Exp**	**Ave**	**Exp**	**Ave**	**Exp**	**Ave**	**Exp**
GB	9.6	Abv. Ave	10.0	Abv. Ave	16.3	Abv. Ave	35.8	Abv. Ave
KP	23.9	Blw. Ave	20.0	Blw. Ave	32.9	Abv. Ave	76.8	Ave
AJK	31.7	Blw. Ave	23.6	Blw. Ave	50.9	Blw. Ave	106.2	Blw. Ave
FATA	13.2	Blw. Ave	10.9	Abv. Ave	20.6	Abv. Ave	44.7	Abv. Ave
PUNJAB	8.4	Blw. Ave	4.2	Abv. Ave	12.0	Abv. Ave	24.6	Abv. Ave
BALUCHISTAN	3.7	Blw. Ave	3.2	Abv. Ave	14.8	Abv. Ave	21.6	Abv. Ave
SIND	4.5	Ave	1.6	Abv. Ave	5.0	Abv. Ave	11.2	Ave
Pakistan	**7.8**	**Ave**	**5.7**	**Abv. Ave**	**14.9**	**Abv. Ave**	**28.3**	**Abv. Ave**

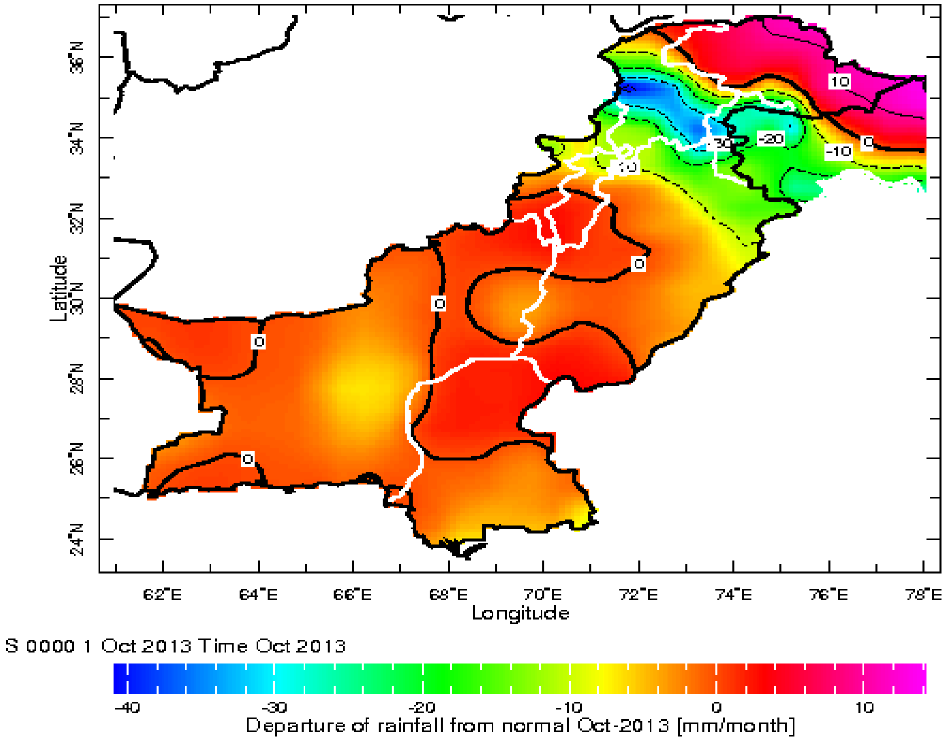
- ***Below Average (Blw. Ave) < -10 %,***
- ***Average precipitation range (Ave) = -10 to +10 %,***
- ***Above Average (Abv. Ave) > +10 %***

Note: Average precipitation is computed by using Global Precipitation Climatology Centre (GPCC) gridded data by resolution (0.5x0.5^o) latitude by longitude. Ensembles of different climate models are used for computation of expected precipitation over the region.

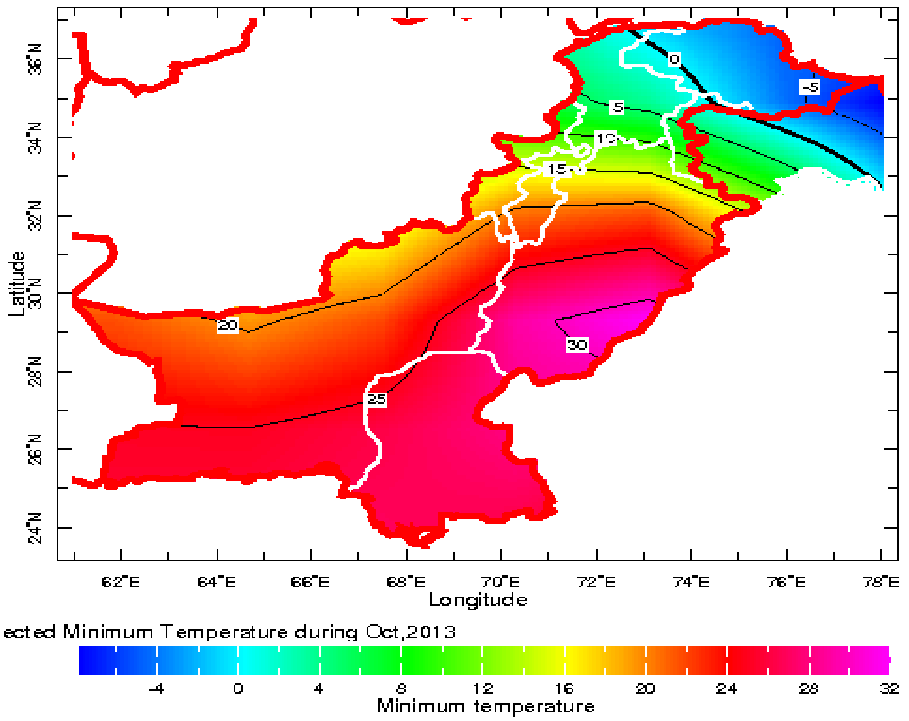
Spatial distribution of expected Rainfall during Oct, 2013 (GCM-ECHAM)



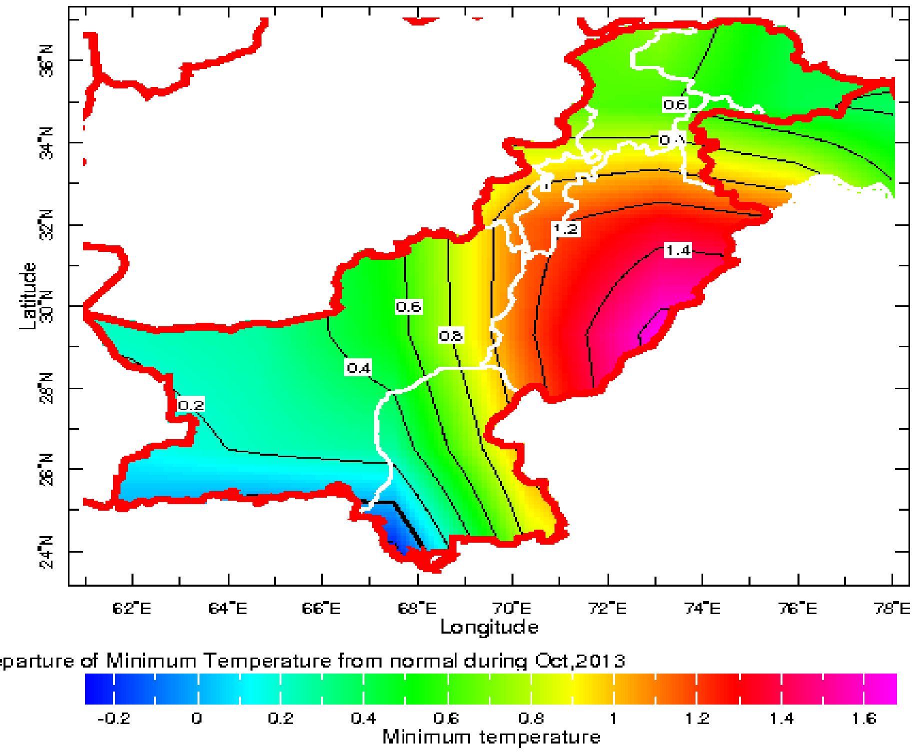
Monthly departure from normal (Rainfall) during Oct, 2013



Spatial distribution of expected Minimum Temperature during Oct, 2013



Monthly departure from normal (Minimum Temperature) during Oct, 2013



اکتوبر 2013ء میں کاشتکاروں کیلئے زرعی موسمیاتی مشورے

اس سال ماہ ستمبر میں مون سون کی اچھی بارشیں ہوئیں جس کی وجہ سے ربیع کی فصل کیلئے زمین میں پانی مناسب مقدار میں مہیا ہوگا۔ یہ بارشیں بارانی علاقوں کے کاشتکاروں کیلئے بہت زیادہ مفید ثابت ہونگی کیونکہ ربیع کی کاشت کا آغاز وسط اکتوبر سے ہو جائے گا۔ ستمبر کے آخر تک ہونے والی بارش کی نمی اگر زمین میں مناسب طریقے سے محفوظ کر لی گئی ہو تو یہ فصل ربیع کی کاشت اور اسکی ابتدائی نشوونما کیلئے انتہائی سازگار حالات پیدا کرے گی۔ اکتوبر اور نومبر کے موسمی حالات کو مدنظر رکھتے ہوئے ربیـــع کی فصل سے اچھی پیداوار کیلئے موزوں منصوبہ بندی کرنا وقت کی اہم ضرورت ہے۔ اس ضمن میں کسانوں کیلئے مندرجہ ذیل زرعی موسمیاتی مشورے بہت اہم ثابت ہو سکتے ہیں۔

۱۔ ربیع کی فصلوں کی بوائی کا آغاز اکتوبر کے وسط سے شروع ہوگا۔ گندم اس موسم کی اہم ترین فصل ہے۔ بہترین پیداوار حاصل کرنے کیلئے ضروری ہے کہ گندم کی کاشت نومبر کے وسط تک بہر صورت مکمل کر لی جائے تاکہ مطلوبہ پیداوار حاصل کرنے کیلئے فصل کو پورا وقت مل سکے۔

۲۔ بارانی علاقوں کے کسان موجودہ وتر کو استعمال کرتے ہوئے بہترین پیداوار حاصل کر سکتے ہیں۔ اس وقت زمینوں میں کم سے کم ہل چلایا جائے اور ہل چلانے کے بعد سہاگہ ضرور دے دیا جائے تاکہ زمین سے نمی کا ضیاع کم سے کم ہو۔ اگر گندم کی کاشت کیلئے محکمہ زراعت کے تجویز کردہ دورانیے میں کسی روز ۱۰ ملی میٹر یا اس سے زیادہ بارش ہو جائے تو اس وتر پر کاشت کی گئی فصل کی اگائی بہترین ہوتی ہے۔ مگر بارش کے انتظار میں فصل کاشت کرنے میں ہرگز دیر نہ کریں۔ کیونکہ ابھی زمین میں نمی موجود ہے جو کہ اچھی اگائی کا موجب بن سکتی ہے۔ ایسے بارانی علاقوں میں جہاں زمین میں مناسب حد تک نمی نہیں اور بارش کا بھی امکان نہ ہو ضروری ہے کہ گندم کے بیج کو رات پہلے پانی میں بھگو دیا جائے۔ اور صبح سویرے کاشت کر دیا جائے۔ گندم کے بیج کو بوائی سے پہلے دوائی لگانا ہرگز نہ بھولیں۔

۳۔ محکمہ زراعت مختلف فصلوں کے ساتھ گندم کی مخلوط کاشت کا مشورہ دیتا ہے۔ بیک وقت کھیت میں ایک سے زیادہ فصلوں کا ہونا مخلوط کہلاتا ہے۔ نہری یا زیادہ بارش کے علاقوں میں یہ طریقہ مفید ہے کیونکہ پودوں کیلئے پانی وافر مقدار میں موجود ہوتا ہے۔ کسان اگر بر وقت جڑی بوٹیوں کا تدارک پانی اور کھاد کا تناسب مناسب رکھیں تو بانات کے ساتھ گندم اور ربیع کی دوسری فصل زیادہ پیداوار کے ساتھ اگائے جا سکتے ہیں۔

۴۔ دھان کی فصل اس وقت پیداوار کے آخری مراحل میں ہے یہ وہ وقت ہے جب چاول کی فصل کو پانی کی اشد ضرورت ہوتی ہے۔ کسان عام طور پر کھیت کو پانی سے لبالب بھر دیتے ہیں یہ ہرگز درست نہیں ہے بلکہ پانی کا ضیاع ہے۔ مناسب مقدار میں کھیت کو پانی دیا جائے تاکہ کئی دنوں تک وہ کھڑا نہ رہے اس کفایت سے حاصل شدہ پانی کو کسی دوسری فصل کو مہیا کر کے اس سے بھی بہتر پیداوار حاصل کی جا سکتی ہے۔

۵۔ موسم برسات میں جاری کردہ مشوروں میں کہا گیا تھا کہ کھیتوں کی وٹ بندی سے گھاس پھوس کو تلف نہ کیا جائے کیونکہ یہ پانی کے بہاؤ کے ساتھ مٹی کے کٹاؤ کو کافی حد تک روکتا ہے۔ اب کھیتوں میں ربیع کی کاشت کرنا ہے اور ان گھاس پھوس کے پودوں کو فوری طور پر تلف کر دیا جائے تاکہ زمین میں محفوظ نمی فصل کی کاشت کے کام آ سکے۔

۶۔ زراعت کی کامیابی میں موسمی حالات کا بہت عمل دخل ہے اور بہتر حکمت عملی سے غیر موزوں موسمی حالات سے بھی استفادہ کیا جا سکتا ہے۔ محکمہ موسمیات کی پیشگوئی کو ملحوظ خاطر رکھ کر محکمہ زراعت کے ماہرین کی مشاورت سے اپنے معمولات طے کریں تو پیداوار میں خاطر خواہ اضافہ ممکن ہے۔ موسمی حالات سے متعلق مزید معلومات کیلئے محکمہ موسمیات کے قریبی دفتر سے رابطہ کیا جا سکتا ہے۔ جن کا پتہ درج ذیل ہے۔

۱۔ محکمہ موسمیات، نیشنل ایگرومیٹ سینٹر، پی۔ او۔ بکس نمبر 1214، سیکٹر ایچ ایٹ ٹو، اسلام آباد۔ فون نمبر:-051-9250299

۲۔ محکمہ موسمیات، نیشنل فورکاسٹنگ سینٹر برائے زراعت، پی۔ او۔ بکس، 1214، سیکٹر ایچ ایٹ ٹو، اسلام آباد۔ فون نمبر:051-9250364

۳۔ محکمہ موسمیات، ریجنل ایگرومیٹ سینٹر، نزد بارانی یونیورسٹی، مری روڈ، راولپنڈی۔ فون نمبر:- 051-9290635

۴۔ محکمہ موسمیات، ریجنل ایگرومیٹ سینٹر، ایوب ریسرچ انسٹیٹیوٹ، جھنگ روڈ، فیصل آباد۔ فون نمبر:- 041-2657047

۵۔ محکمہ موسمیات، ریجنل ایگرومیٹ سینٹر، ایگریکلچر ریسرچ انسٹیٹیوٹ ٹنڈو جام۔ فون نمبر:-0222-766583

۶۔ محکمہ موسمیات، ریجنل ایگرومیٹ سینٹر، ایگریکلچر ریسرچ انسٹیٹیوٹ، سریاب روڈ، کوئٹہ۔ فون نمبر:- 081-9211211

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کماد (گنے) کی فصل پر موسم سے متعلق اثر انداز ہونیوالے اہم عوامل

کماد پاکستان کی اہم ترین فصل ہے۔پاکستان زیر کاشت رقبہ کے لحاظ سے دُنیا میں پانچویں نمبر پر کُل پیداوار کے لحاظ سے گیارویں نمبر پر اور فی ایکڑ پیداوار کے لحاظ سے 60ویں نمبر پر ہے۔کماد سفید چینی اور گُڑ بنانے کا اہم ذریعہ ہے۔اس کے علاوہ تقریباً 100 کے قریب دوسری کارآمد اشیاء بھی اس سے بنتے ہیں۔پاکستان میں کماد پنجاب، سندھ اور خیبر پختونخواہ میں خریف کے فصل کے طور پر کاشت ہوتا ہے۔کماد کی فی ایکڑ پیداوار ملک میں 480 من کے لگ بھگ ہے۔جبکہ ہمارے ملک کے ترقی پسند کاشتکار گنے کی فی ایکڑ 1000 من سے زیادہ حاصل کر رہے ہیں۔گنے کی پیداوار میں کمی بیشی کے بنیادی وجوہات میں مناسب زمین کا انتخاب اور تیاری، مناسب بیج اور شرح بیج، مناسب اور بروقت طریقہ کاشت، بروقت اور مناسب کھاد کا استعمال، مناسب مقدار اور گنے کے اوپر حملہ آور ہونے والے کیڑوں اور دوسرے بیماریوں کا بروقت تدارک، نئی فصل اور مونڈی فصل (ratoun crop) کے مختلف ضروریات کیمطابق نگہداشت بروقت کٹائی اور مل تک ترسیل، نہری پانی کیساتھ مناسب وقفوں کیساتھ بارشیں، طوفانی ہوائیں، خشک سالی وغیرہ شامل ہیں۔گنے کی بہترین نشونما کیلئے سب سے موزوں آب وہوا گرم مرطوب ہے اسلئے یہ دُنیا کے اُن علاقوں میں کاشت ہوتا ہے جہاں بیشتر نشونما کے دوران آب ہوا گرم مرطوب ہو اور زمین میں نمی کی اچھی مقدار موجود ہو۔جبکہ کٹائی کے دوران خشک اور نسبتاً کم درجہ حرارت درکار ہوتی ہے تاکہ گنے میں مٹھاس (Sugar) زیادہ سے زیادہ موجود ہو۔

1۔ کماد کے پودے میں 73-75 فیصد پانی ہوتا ہے۔اس لئے پودے کو پانی کی ضرورت بہت زیادہ ہے۔کماد کو کاشت کرنے کے لئے ایسے زمین کا انتخاب کرنا چاہئے جس میں پانی جذب کرنے کی صلاحیت زیادہ ہو۔کلر اور تھور زدہ زمین پر گنے کی کاشت نہ کرے۔اسلئے پنجاب، سندھ اور خیبر پختونخواہ کے وہ زرعی علاقے جہاں آبپاشی کیلئے پانی دستیاب ہے وہ کماد کی کاشت کیلئے موزوں ہیں۔

2۔ پاکستان میں گنے کی کاشت زیادہ تر ستمبر-اکتوبر (موسم خزاں) اور فروری-مارچ (موسم بہار) میں ہوتی ہے۔پیداوار کے لحاظ سے موسم خزاں کی کاشت موسم بہار کے مقابلے میں بہتر ہے۔جبکہ خیبر پختونخواہ میں کاشت اکتوبر-تک مکمل کرنی چاہیئے اس لئے کہ ستمبر اور اکتوبر کے کاشت والی فصل کو موزوں آب ہوا میسر آجاتی ہیں۔دیر سے کاشت کرنے پر کُل پیداوار 30 فیصد تک کم ہو سکتی ہے۔اسلئے کہ دیر سے کاشت کرنے والی فصل کو مناسب آب وہوا دستیاب نہیں ہوتی۔

3۔ دوسرے فصلوں کیطرح کماد کے پیداوار میں بھی 25 فیصد تک کی زائد جڑی بوٹیوں کیوجہ سے واقع ہوتی ہے۔ اس لئے کیمائی یا غیر کیمائی طریقوں سے جڑی بوٹیوں کو بروقت تلف کیا جائے تاکہ فصل سے پانی اور دوسرے غذائی اجزاء کا زیاں ختم ہو۔مون سون کے بارشوں کے دوران خصوصا کماد کے کھیتوں میں جڑی بوٹیوں کی بہتات ہوجاتی ہے جس کی بروقت روک تھام ضروری ہے تاکہ فصل کی نشونما متاثر نہ ہو۔ مون سون سے پہلے ہی فصل کو Lodging سے بچانے کیلئے بروقت روایتی مواد محکمہ زراعت کے مشوروں کیمطابق احتیاطی تدابیر کرنی چاہیئے۔اسلئے کہ Lodgng کماد کی پیداوار کم کرنے میں سب سے زیادہ کردار ادا کرتا ہے خصوصا وہ علاقہ جہاں مون سون کی بارشیں زیادہ ہوں

4۔ کماد کے فصل کو 1500 سے 2000 mm پانی کی ضرورت ہوتی ہے۔جو کہ 15 سے 20 دفعہ پانی دینے سے پورا ہوتا ہے۔فصل کو پانی کی سب سے زیادہ ضرورت مون سون سے پہلے مئی اور جون کے مہینے میں ہوتی ہے۔پانی کے کمی کیوجہ سے کماد کے پودے کا سائز کم رہ جاتا ہے اور پودا وقت سے پہلے پختگی (mature stage) کے مراحل طے کرلیتا ہے تاہم زائد پانی کیساتھ ساتھ اگر مون سون کی بارشیں ہوجائیں تو فصل میں زائد جڑی بوٹیوں کی بہتات ہوجاتی ہے اور نقصان دہ کیڑوں کے حملوں کا خدشہ بھی رہتا ہے۔عام طور پر مارچ/اپریل میں 10-12 دن کے بعد، مئی/جون میں 8/9 دن کے بعد جولائی/اگست میں (اگر بارشیں ہوں) 12-14 دن کے بعد، ستمبر/اکتوبر میں 13-20 دن کے بعد اور نومبر/دسمبر میں 25-30 دن کے بعد پانی دینا چاہیئے، فصل کے کٹائی سے تقریباً ایک مہینہ پہلے پانی دینا بند کرنا چاہیئے لیکن فصل کے جس حصے کو آئندہ بیج کیلئے رکھنا ہو انھیں پانی دینا چاہیئے تاکہ دسمبر میں (Frost) کھورے سے نقصان نہ پہنچے۔مون سون کے درمیان بہت صحت مند فصل کو پانی دینے میں احتیاط سے کام لیں تاکہ فصل (Lodging) گرجانے سے محفوظ رہے۔مون سون سے پہلے ہی فصل کی Lodgng سے بچانے کیلئے بروقت روایتی اور محکمہ زراعت کے مشوروں کیمطابق احتیاطی تدابیر کرنی چاہیئے۔اسلئے کہ Lodging کماد کی پیداوار کم کرنے میں سب سے زیادہ کردار ادا کرتا ہے خصوصا وہ علاقہ جہاں مون سون کی بارشیں زیادہ ہوں۔

5۔ فصل کی کٹائی کاشت کے حساب سے ہونی چاہیئے۔اگیتی فصل (Early Sown) اور مونڈی فصل کی کٹائی نومبر، درمیانی فصل کی کٹائی دسمبر اور پچھیتی فصل کی کٹائی جنوری میں شروع کردیں۔فروری/مارچ میں کاٹی گئی فصل مونڈی فصل (Ratoon Crop) کیلئے سب سے زیادہ موزوں ہے۔