

Monthly Agromet Bulletin

National Agromet Centre

Pakistan Meteorological Department



Vol: 8-2021

AUGUST 2021

Highlights...

- ❖ Rainfall observed mostly below normal in the agricultural plains of the country during the month.
- ❖ Thermal regime in this month remained normal to slightly above normal in most of the agricultural plains of the country during the month.
- ❖ ETo mostly remained normal to above normal and R.H exhibits mostly below normal in the agricultural plains of the country.
- ❖ Agricultural-Soils observed normal to below normal trend in most of the agricultural plains, which indicates satisfactory soil moisture conditions.
- ❖ Spraying of chemicals on cotton and sugarcane, picking of early grown cotton varieties and removal of weeds from cotton and other crops were the major field operations in most of the agricultural areas of the country.
- ❖ The present hot and humid atmosphere is very favourable for pest and viral attack/rapid weeds growth in standing crops like cotton, sugarcane and maize. Farmers should be very careful in this regard to take in time precautionary measures for their control.

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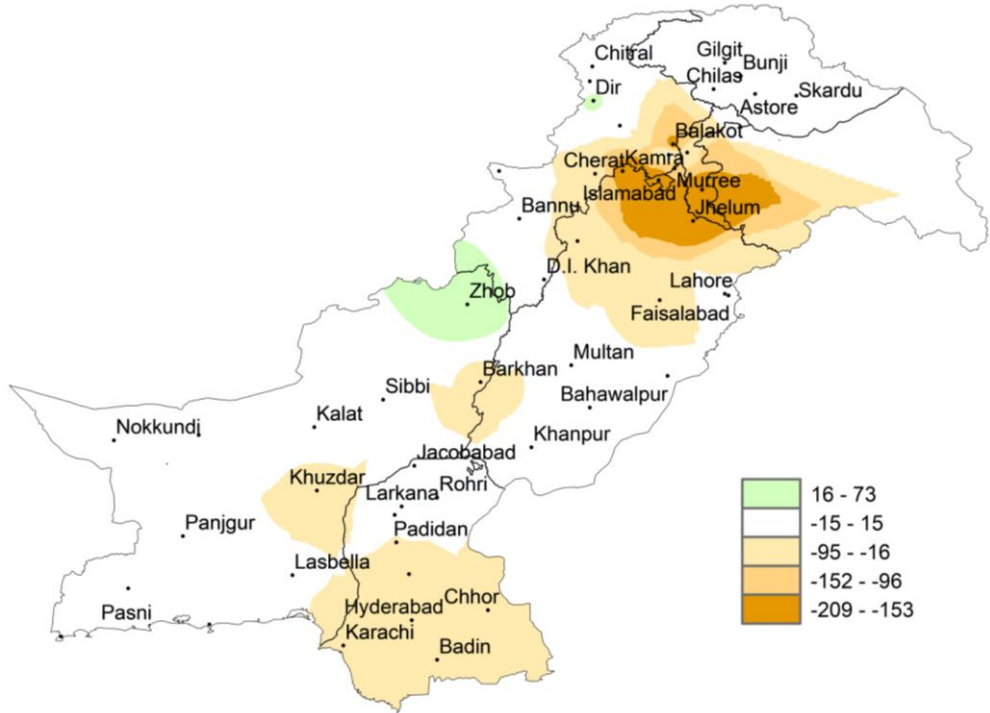
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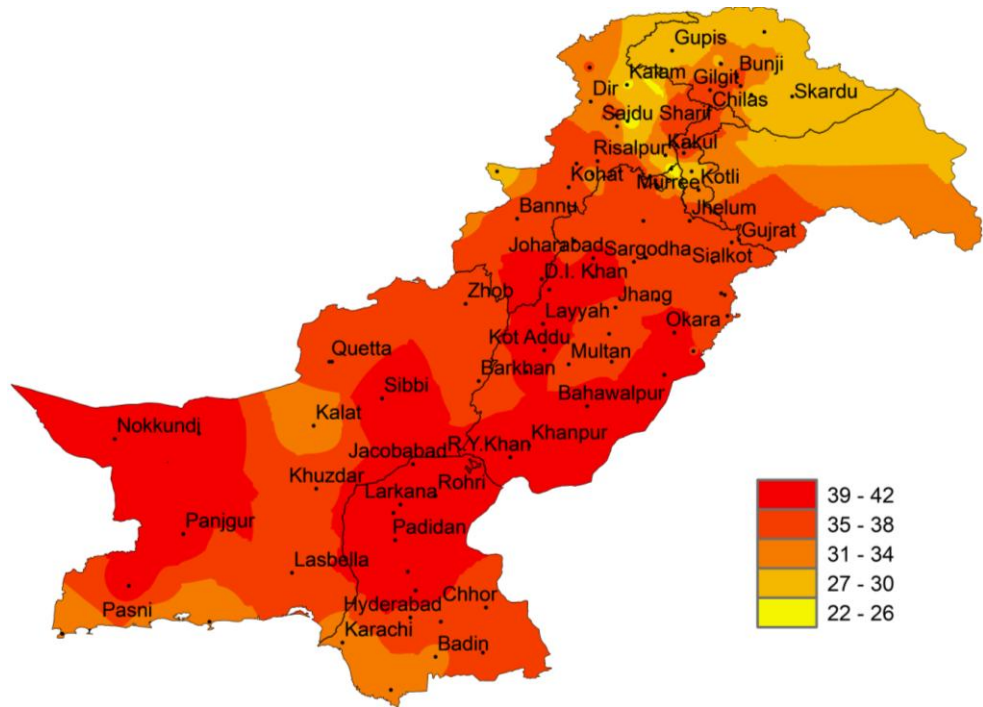
EXPLANATORY NOTE

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 season is considered from April/May to October/November and winter 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. Doted 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.

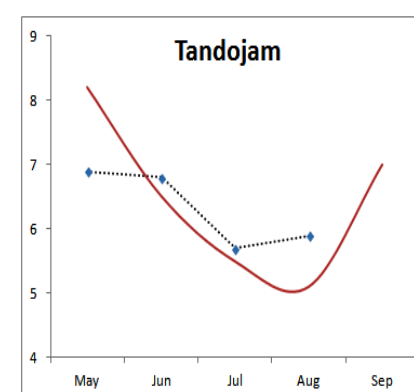
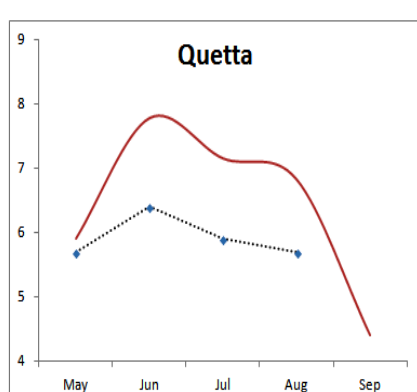
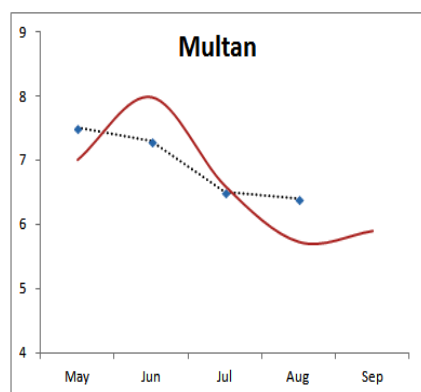
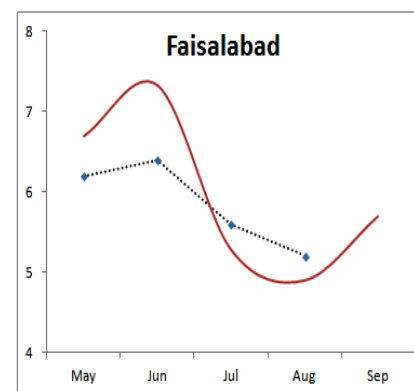
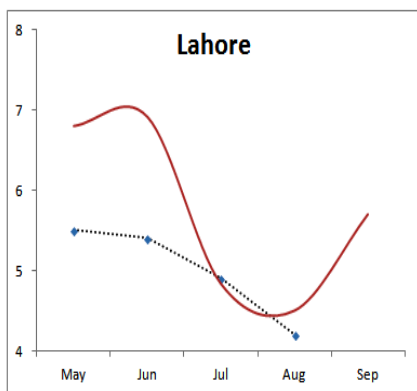
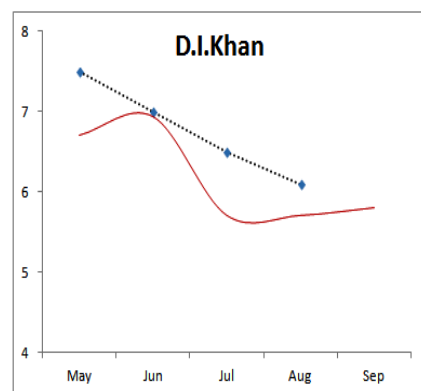
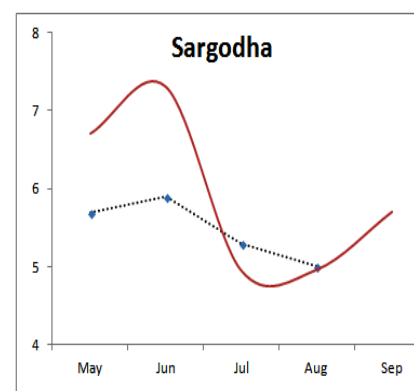
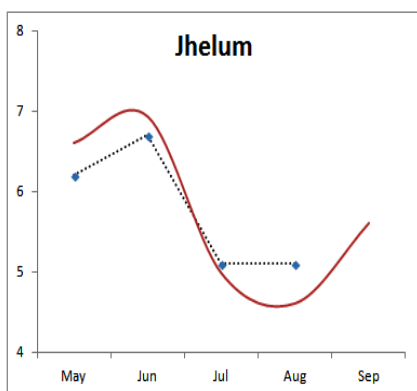
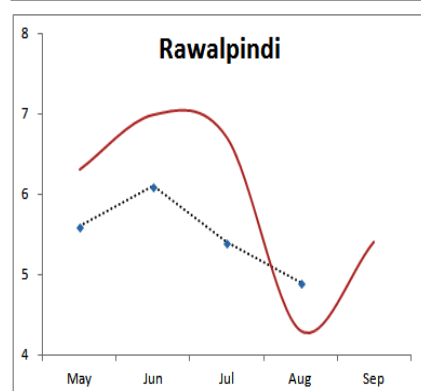
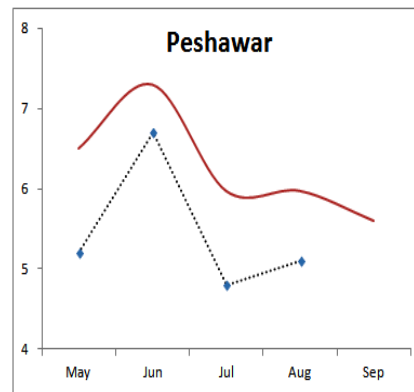
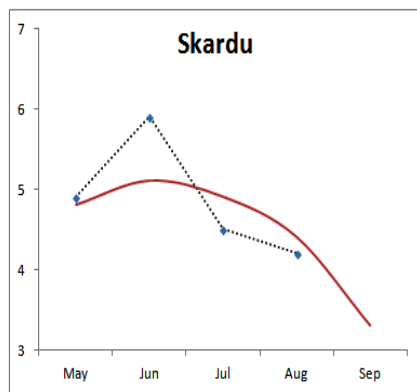
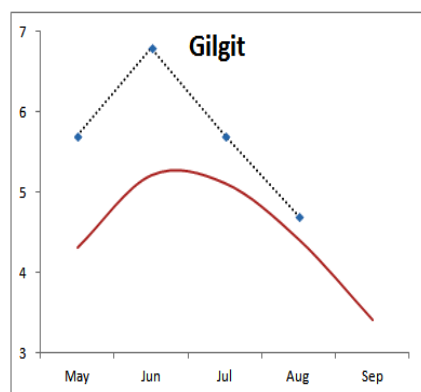
Rainfall Departure from Normal (mm) during the month of August, 2021



Maximum Temperature (°C) during August, 2021



Maximum Temperature (°C) during Kharif Season (August-2021)**Dotted Curve:** Current Season (May –August,2021) in °C**Smooth Curve:** Normal values of Kharif Season

Evapotranspiration (mm/day) during Kharif Season (August-2021)**Dotted Curve:** Current Season (May- August,2021)**Smooth Curve:** Normal values of Kharif Season

Crop Report during August, 2021

Spraying of chemicals on cotton and sugarcane, picking of early grown cotton varieties and removal of weeds from cotton and other crops were the major field operations in most of the agricultural areas of the country.

In **Punjab:** Major standing crops in Punjab are cotton, rice and sugarcane. The growth and development of cotton crop has been observed/reported satisfactory. The early growing crop is at picking stage and picking is in progress in southern parts of the province. Attacks of different sucking pests have been reported in most of the cotton growing areas. The spray operations are in progress to control these pest attacks. Condition of rice crop is reported satisfactory and transplantation of the crop is completed in some areas and is in progress in other areas of the province. Sowing of maize (autumn) has been in progress in the province. Germination and early growth of the crop is reported satisfactory in parts of the province. Condition of sugarcane crop is reported satisfactory. However mild attacks of some pests are reported in some areas of the province.

In **Sindh:** Over all crops growth and development in the province is reported satisfactory but dry weather/shortage of canal water negatively affected crop growth during the month. . Cotton is at flowering/picking stages in the province. Picking of early growing varieties is in progress. Transplantation of rice crop is completed and general condition of the crop is reported satisfactory. Oil seed crops like castor and sunflower are growing at flowering/maturity stages and threshing of sunflower is in progress, Jatropha and ground nut are growing at vegetative stage. The condition of these crops is reported satisfactory. The growth of standing vegetables is also reported satisfactory.

In **Khyber Pakhtunkhwa:** Growth and development of all standing crops is reported satisfactory. Rains reported during this monsoon season have positively affected the crops throughout the province. Major standing crops during the month were sugarcane and maize. The growth of both crops was reported satisfactory. Maize is at grain formation stage in most parts and harvesting of early grown varieties 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.

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

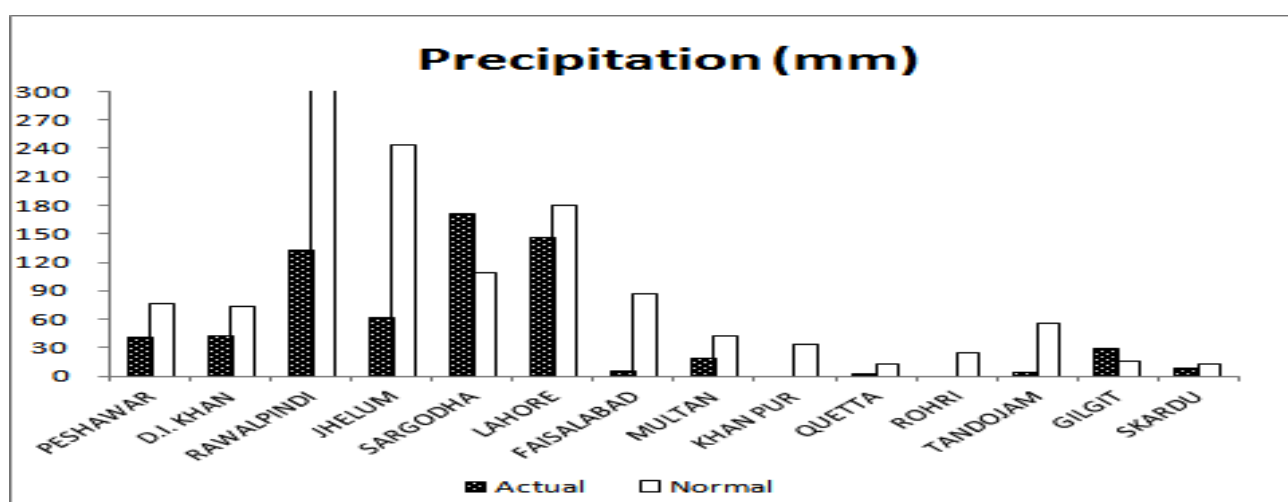
In **Gilgit Baltistan:** The main crops in the area are maize and lobiya. Both these two crops are growing normally. Condition and yield of orchards and summer vegetables are also reported satisfactory.

Moisture Regime during August, 2021

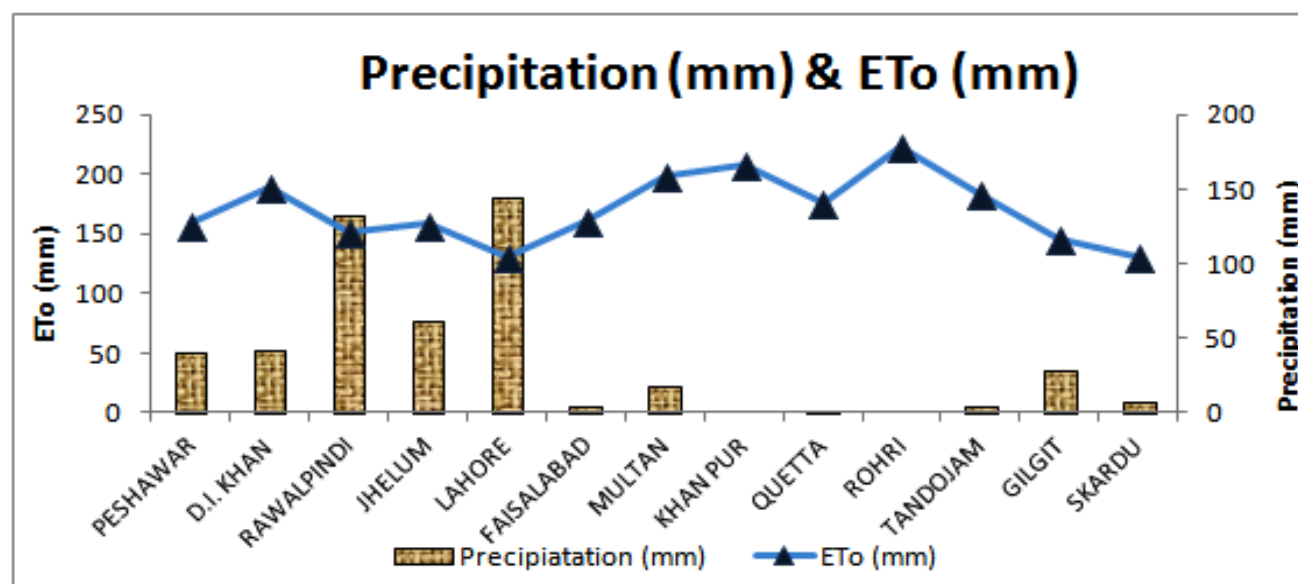
August remains generally hot and wet in Pakistan. Summer monsoon rains normally start in the first week of July and continue till the mid of September. Rainfall during this August observed was below normal in most of the agricultural plains of the country. No significant flash flooding observed in the country during the month.

The highest amount of rainfall was reported 231mm at MalamJabba followed by 217mm at Kakul, 171mm at Dir, 161mm at Murree and Rawalpindi and 121mm at Islamabad.

Number of rainy days recorded in agricultural plains of the country ranged from 1 to 21. Maximum number of rainy days was recorded 21 days at Sialkot followed by 19 days at Islamabad and Garhi Dopatta each, 17 days at Rawalpindi and 16 days at Murree.

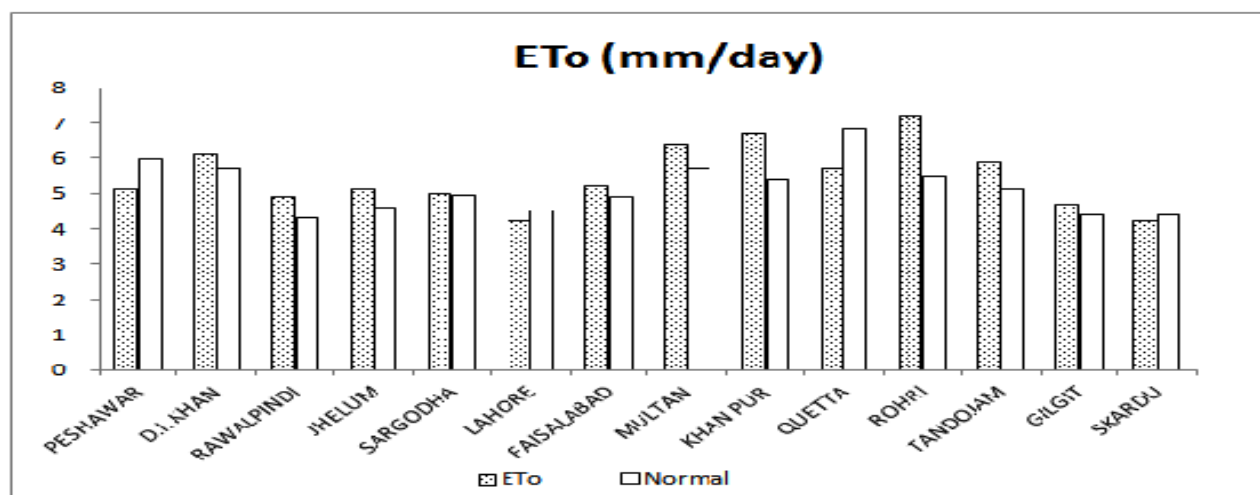


Comparison of Actual Precipitation (mm) during the month of August, 2021 with Normal values



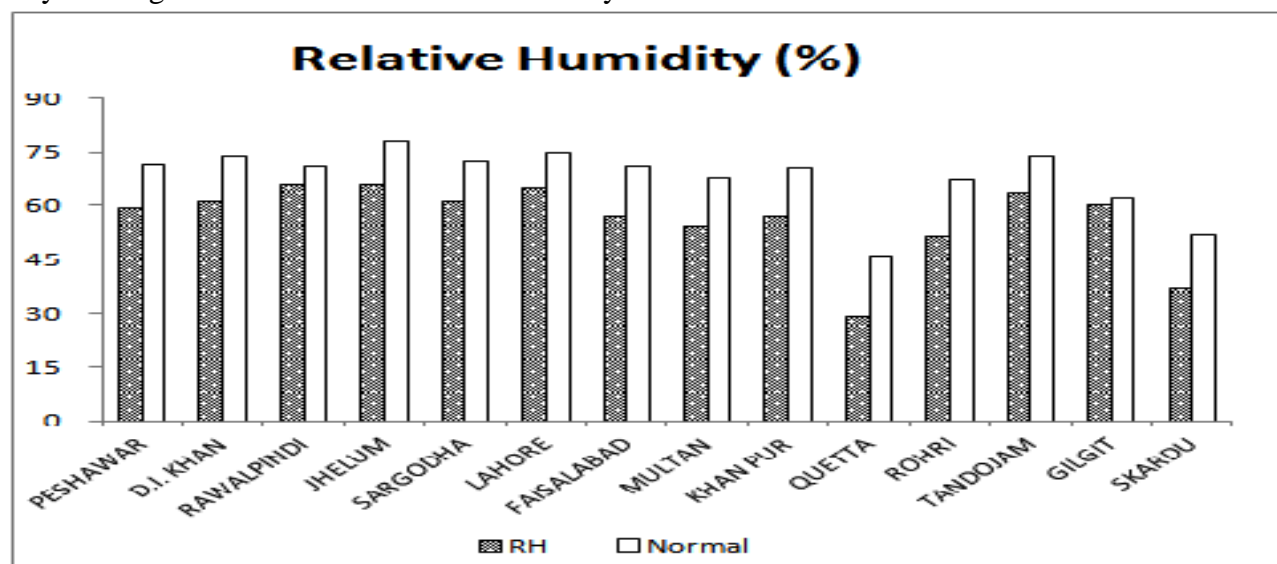
Precipitation (mm) & ETo (mm) during the month of August, 2021

The evaporative demand of the atmosphere represented by reference crop evapotranspiration (ET_o) remained normal to above normal in most of the agricultural plains of KPK, parts of central Punjab, Potohar region and southern Punjab, Sindh and observed below normal in GB and Quetta region in Baluchistan. The highest value of ET_o was estimated in Rohri in Sindh.



Comparison of Actual ET_o (mm/day) during the month of August, 2021 with Normal values

The mean daily Relative Humidity (R.H) remained normal to below normal in most of the agricultural planes of the country. Maximum value of mean Relative humidity was observed 65% at Rawalpindi, followed by 62% at Jhelum and 60 % at Sargodha and Lahore each. Maximum number of days with mean R.H greater or equal to 80% was observed for 07 days at Rawalpindi, followed by 04 days at Lahore, 03 days at Jhelum, 02 days at Sargodha and Peshawar each and 01 day at Faisalabad.



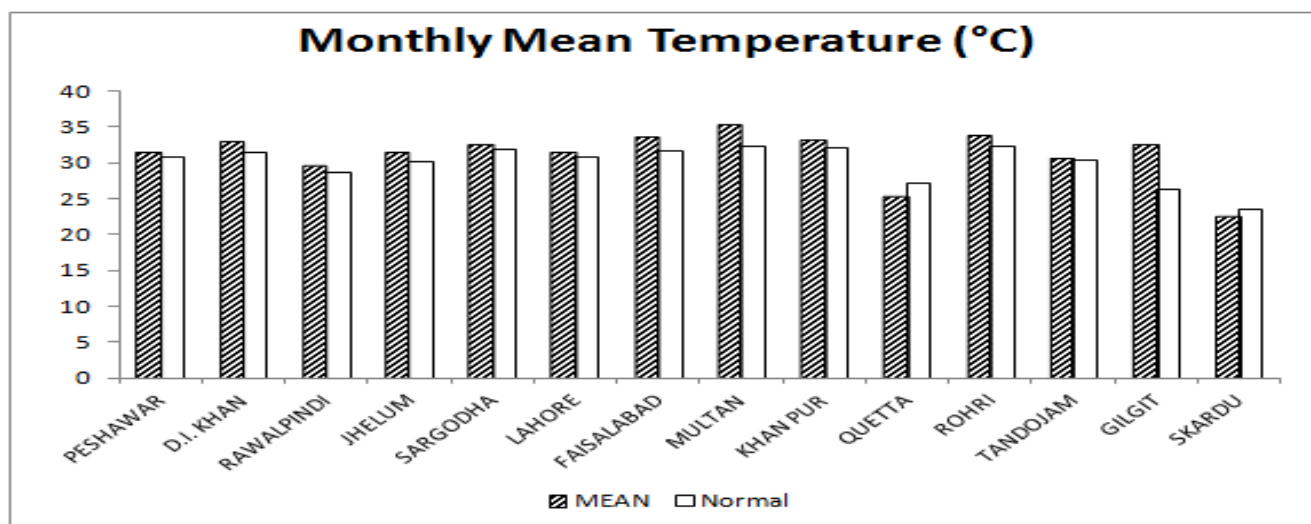
Comparison of Actual Relative Humidity (%) during the month of August, 2021 with Normal values

From overall analysis of the whole monsoon season of this year it is evident that below normal but satisfactory rains were reported in most the agricultural areas of the country during July and August. Overall crop growth and development was reported normal in most of the areas. No significant flash flooding or damage to standing crops due to heavy rains was reported during this monsoon season.

Temperature Regime during August, 2021

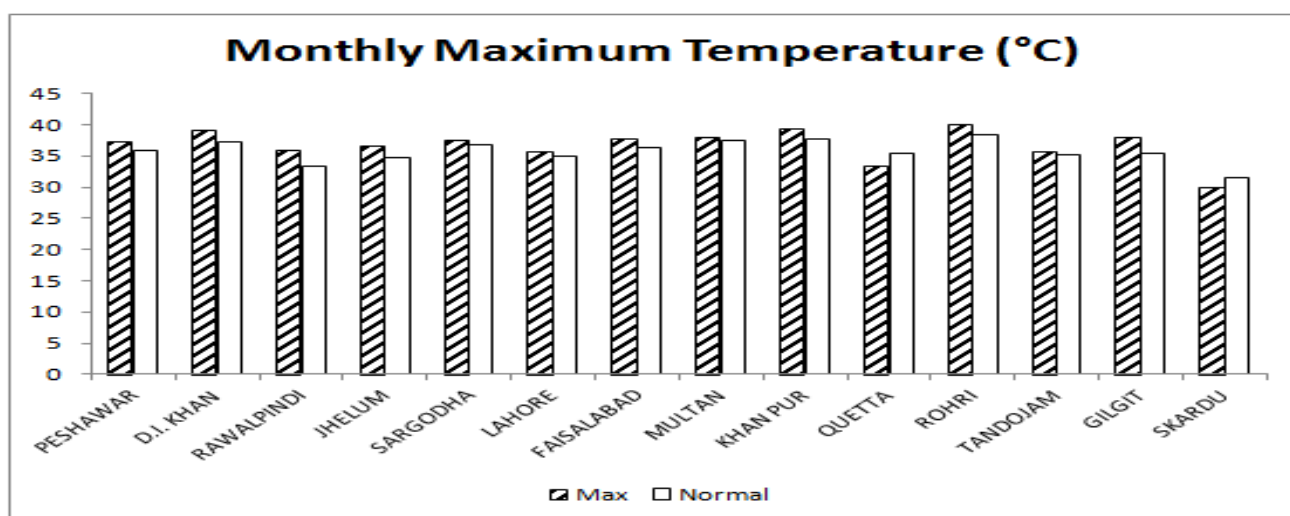
Temperature plays vital role in the growth and development of crops. Thermal regime in this month remained normal to slightly warmer than normal in most of the agricultural plains of the country. The main reason for this trend is the clear skies, which prevailed in most parts of the country for most of the days during the month.

Mean daily temperature ranged 31 to 32°C in Khyber Pakhtunkhwa, 28 to 30°C in Potohar plateau, 30 to 33°C in remaining parts of Punjab, 31 to 34°C in agricultural plains of Sindh, 22 to 25°C in Gilgit Baltistan region and it was observed 26°C in the high elevated agricultural plains of Baluchistan represented by Quetta valley.



Monthly Mean Temperature (°C) during the month of August, 2021

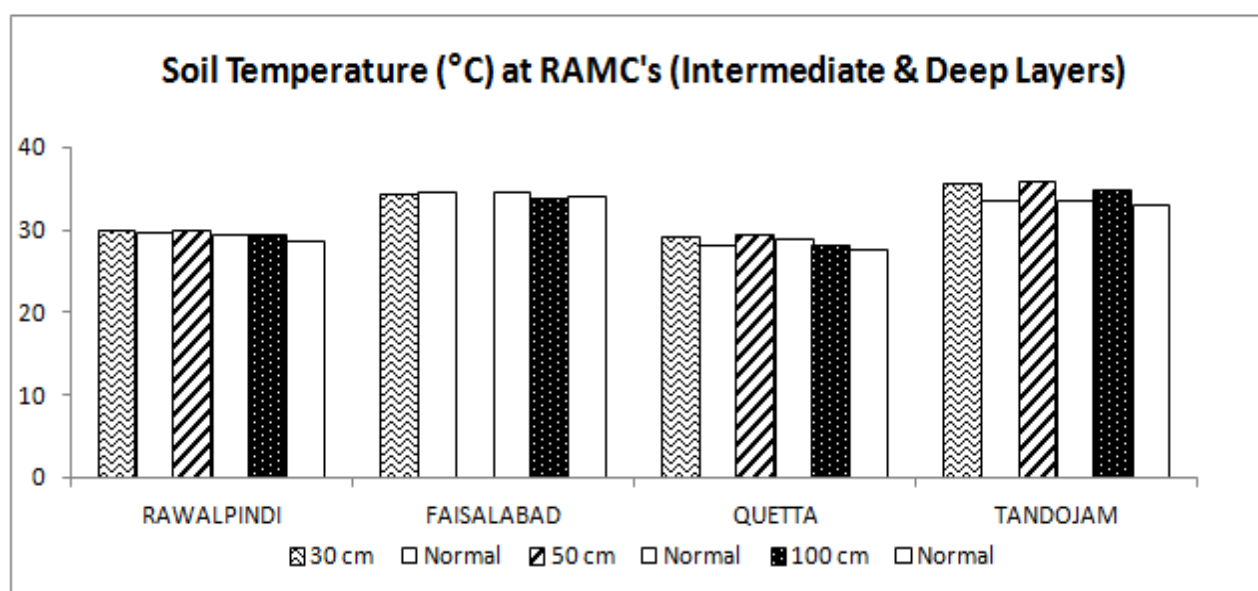
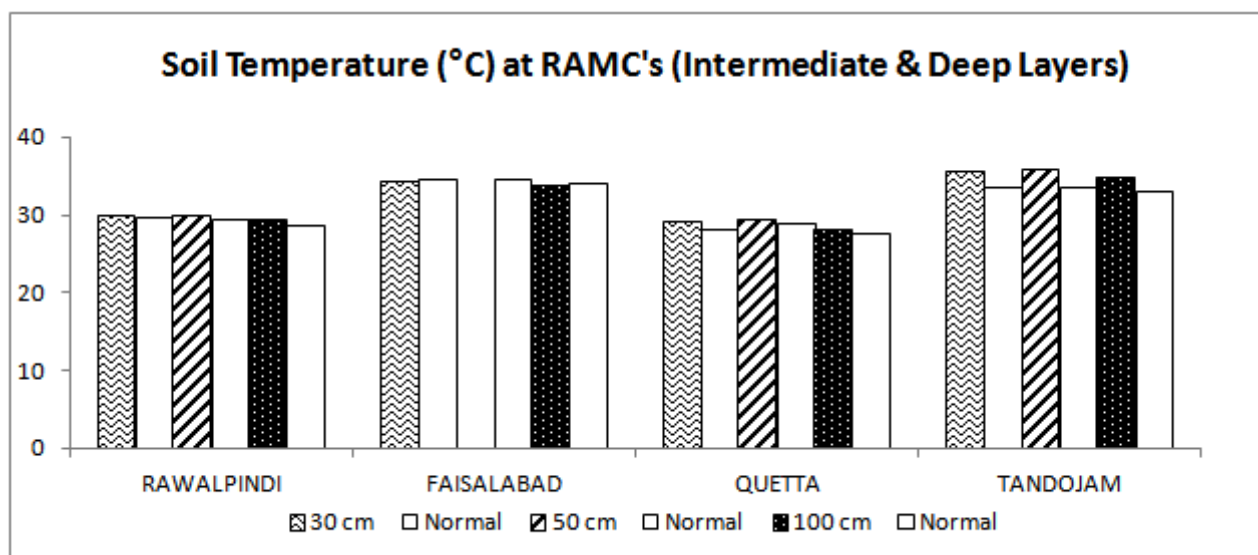
The day time temperature represented by mean maximum also remained above normal in most of the agricultural plains except Quetta valley and GB region where it was observed below normal. The highest maximum temperature in the agricultural plains of the country was recorded 42°C at Dadu. Maximum number of stress days with maximum temperature greater or equal to 40°C and R.H. less than or equal to 30% was observed 04 days at Gilgit.



Monthly Maximum Temperature (°C) during the month of August, 2021

Agricultural soils showed mostly normal to warmer trend in most of the agricultural areas of the country. However soil temperature observed normal to below normal in Potohar region. Significant rise was observed central Punjab represented by Faisalabad and lower Sindh represented by Tandojam.

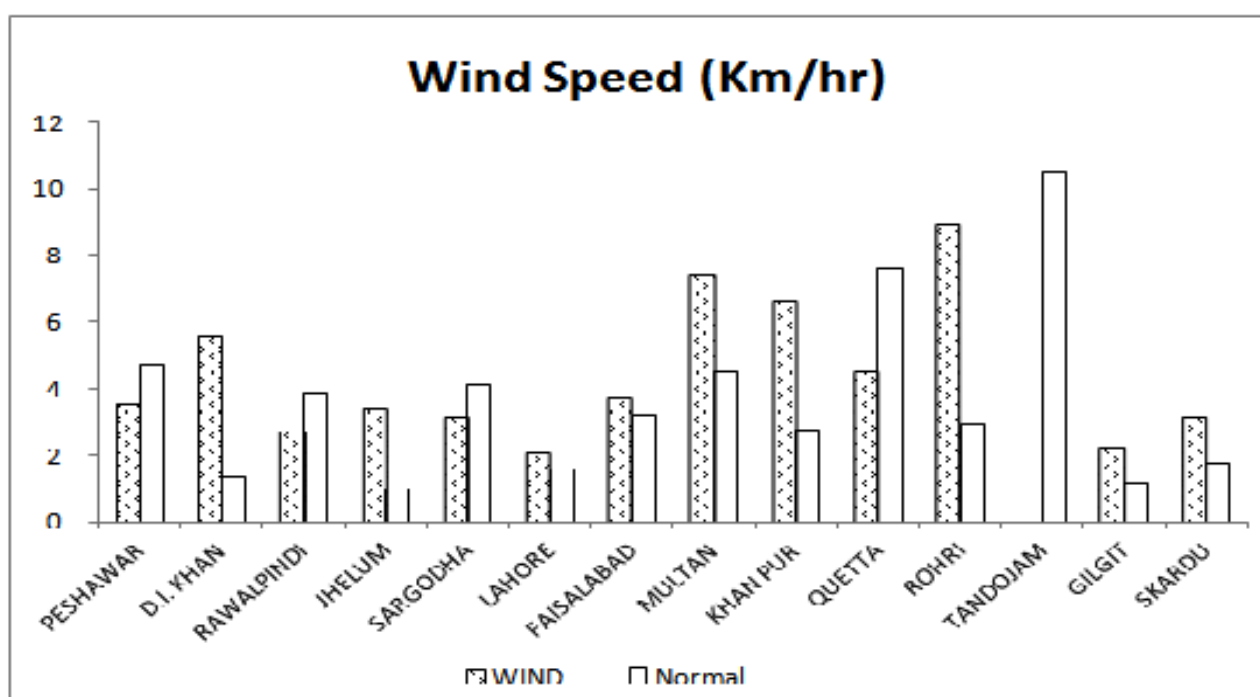
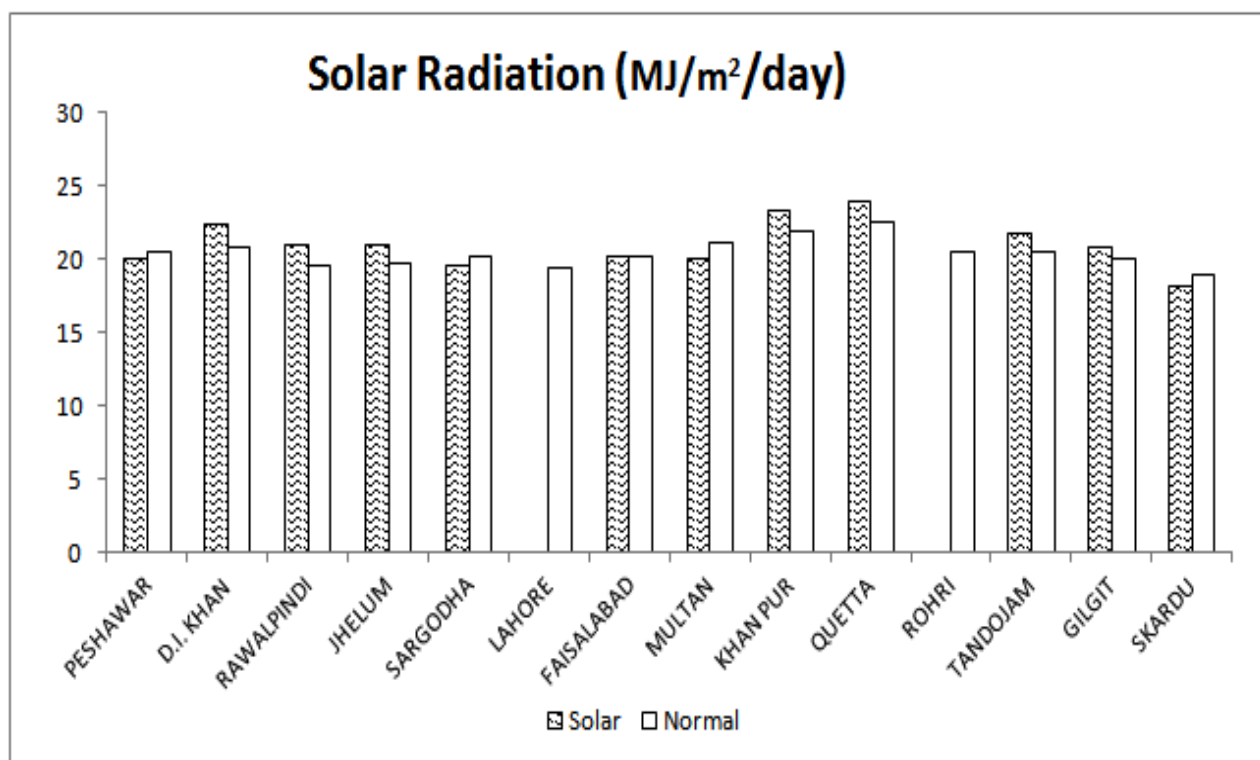
From the general analysis of soil and atmospheric behavior in this month, it is concluded that moisture deficiency was observed during the month due to warmer than normal atmosphere and soil in different parts of the country. But satisfactory rains during August and expected rains in the month of September may improve moisture content of soil and atmosphere in the coming months.



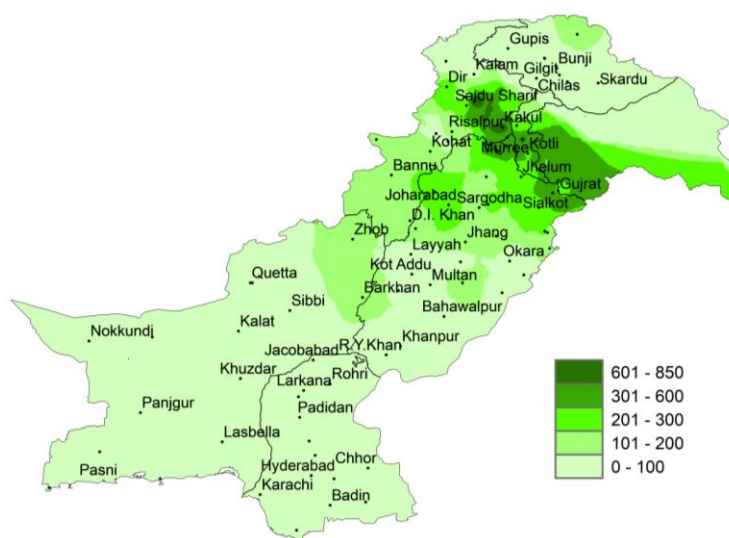
Monthly Mean of Soil Temperature (°C) at RAMCs during the month of August, 2021

Solar Radiation and Wind Regime during August, 2021

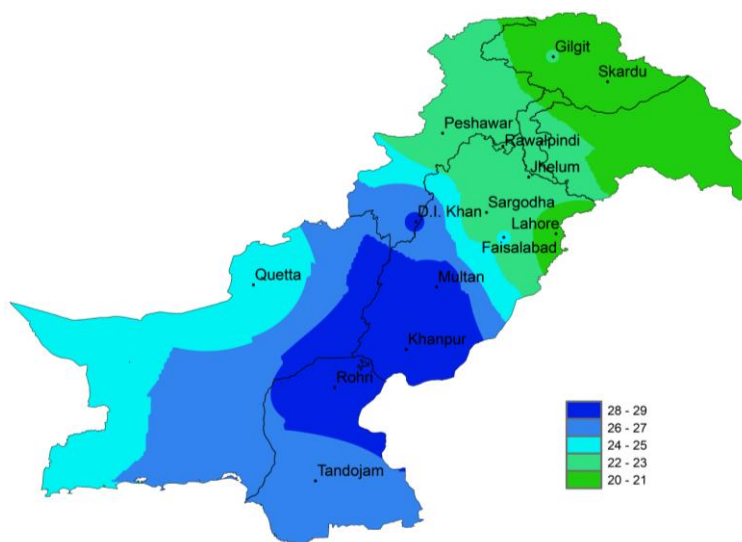
Total bright sunshine hours and solar radiation intensity remained below normal in the agricultural plains of upper KPK, Lahore in central Punjab and GB region. Whereas it was observed normal to above normal elsewhere in the country. Mean wind speed throughout agricultural plains of the country ranged between 2 to 9 km/h with North-east to North-west and South trend. Maximum wind speed was observed 8.0 km/h in Multan.



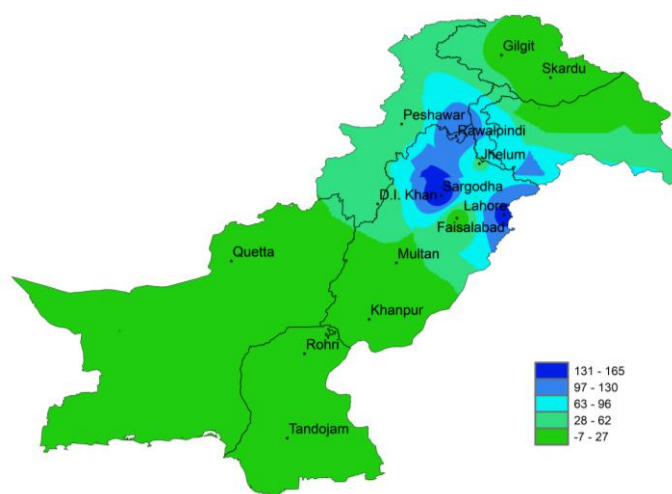
Commulative rainfall during Kharif season 2021



Commulative ETo during Kharif season 2021



Commulative Stress during Kharif season 2021



Normally Expected Weather during September, 2021

During August monsoon rain bearing systems will produce precipitation. These rains are of immense most easterly currents (monsoon) are also expected to prevail during first fortnight of the month. These systems normally influence the north eastern parts of the country. Light to moderate rain/thunderstorm are expected in Khyber Pakhtunkhwa, Northern divisions of Punjab and lower Sindh. Some post monsoon rains are also expected in the later part of the month.

The precipitation amount would be less relative to August. In Khyber Pakhtunkhwa, Sindh and Southern Punjab, it may range from few millimeters to 30mm. Over northern and north eastern Punjab, the September precipitation may range between 80 to 110 mm. High agricultural plains of Baluchistan are expected to remain practically dry during the month. **The probability of occurrence of rainfall is given below:**

Amount / Dates	PERCENTAGE PROBABILITY OF OCCURRENCE OF DIFFERENT AMOUNTS OF RAINFALL IN SEPTEMBER					
	1-5	6-10	11-16	17-20	21-25	26-30
10mm	53	44	36	39	18	25
15mm	44	34	30	32	13	19
25mm	39	30	14	21	08	12

Despite some drop in air temperature and smaller day length, the evaporative demand of the atmosphere will generally increase as compared to August. The reason for that increase in ETo values is relatively clear sky especially during the second fortnight. The ETo values may range from about 5 to 7mm/day with more or less uniformly increasing trend from north to south.

The mean daily relative humidity over the agricultural plains of the country may vary between 50 to 65% except high agricultural plains of Balochistan, where it would be around 40%.

The mean daily air temperature in crop atmosphere is expected to range between 29°C and 32°C except Quetta, where it may average to 22°C. The mean maximum temperature may vary between 33 to 38°C over most of the agricultural areas, whereas Quetta may experience it around 32°C. The mean minimum temperature is likely to remain in the range of 20 to 26°C and about 11°C at high agricultural plains of Balochistan.

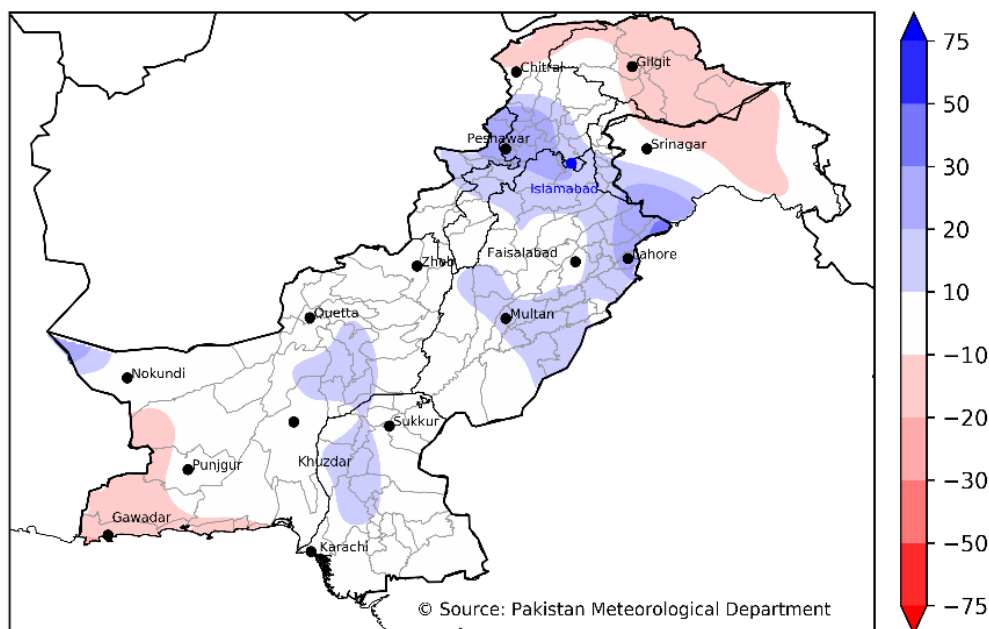
The daily duration of bright sunshine is expected to range between 8 to 10 hours with an increasing tendency towards southern latitudes of the country. The mean daily wind speeds may vary from 4 to 9 Km/hour. Southerly component of wind may prevail over most parts of the country.

Rainfall during August contributed to soil moisture reserves for standing crops. Normal rainfall is expected during the month. Keeping in view prevailing weather and crop condition, following is the water requirement of full canopied healthy crops in different regions of the country during September:

S.No	Region	Water Requirement	
		(mm)	Cubic Meter/Hectare
1	Northern Punjab, K.P.K and high plains of Balochistan.	130–150	1300–1500
2	Southern Punjab, Upper Sindh and adjoining Balochistan	155–170	1550–1700
3	Lower Sindh Southern Balochistan	175–190	1750–1900

Weather Outlook for September, 2021

MME: Rainfall Departure (%) Sep 2021



It is expected that near normal rains may occur over most parts of Pakistan in the month of September. The central parts of KP, Kashmir, Potohar, northeastern Punjab and particular parts of south Punjab, Sindh and Baluchistan may receive slightly above normal rainfalls as compare to long-term climatic record. Whereas, slightly below normal rains are expected over the Northern Areas, north Khyber Pakhtunkhwa and southwestern Baluchistan.

ستمبر 2021ء میں کاشتکاروں کے لئے زرعی موسمیاتی مشورے

ماہ اگست میں ملک کے بیشتر حصوں میں بالخصوص سندھ اور بلوچستان میں معمول سے کم بارشیں ہوں گی۔ جس کے نتیجے میں ہو سکتا ہے کہ ربیعی فصل کیلئے پانی مناسب مقدار میں مہیا نہ ہو سکے۔ ربیعی کاشت کا آغاز وسط اکتوبر سے ہو جاتا ہے۔ اس لئے ماہ رواں میں ہونیوالی متوقع بارشیں متعلقہ علاقوں میں فصل ربیعی کاشت اور اسکی ابتدائی نشوونما کیلئے سازگار حالات پیدا کریں گی۔ ستمبر کے متوقع موسمی حالات کے مطابق مندرجہ ذیل زرعی موسمیاتی نگارشات پیش خدمت ہیں۔

۱۔ بارانی علاقوں کے کسان موجودہ وٹر کو استعمال کرتے ہوئے بہتر پیداوار حاصل کر سکتے ہیں۔ اس وقت خالی 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 وٹر پر کاشت کی گئی فصل کی اگائی بہترین ہوتی ہے۔ مگر بارش کے انتظار میں فصل کاشت کرنے میں دیر کرنا مناسب نہیں۔

۲۔ اچھی پیداوار کیلئے ایک ایکڑ کے کھیت میں گندم کے پودوں کی تعداد چار لاکھ سے چھ لاکھ ہونی ضروری ہے۔ اسلئے کاشتکاروں سے گزارش ہے کہ وہ محکمہ زراعت کے سفارش کردہ بیج کی مقدار سے ہر گز کم بیج استعمال نہ کریں اور بوائی سے پہلے بیج کو دوائی بھی ضرور لگالیں۔ تاکہ فصل ممکنہ بیماریوں سے محفوظ رہ سکے۔

۳۔ دھان کی فصل اس وقت پیداوار کے اہم 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 لہالب بھر دیتے ہیں یہ ہر گز 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 جاسکتی ہے۔

۴۔ کپاس اس وقت اپنے نازک ترین دور میں داخل ہو گئی ہے۔ اس مرحلہ پر کچھ چھوٹے بڑے سائز کے ٹینڈے بن چکے ہیں۔ اس حالت میں کپاس کی فصل کو پانی کی کمی یا زیادتی دونوں صورتوں میں پھول اور ٹینڈوں کے گرنے کا اندیشہ ہے۔ چنانچہ اس دوران پانی کی ضرورت پوری کرنے کیلئے مناسب آبپاشی ضروری ہے۔

۵۔ ملک کے کچھ حصوں سے کپاس کی فصل پروائرس کی اطلاعات موصول ہوئیں ہیں۔ تاہم کسان حضرات اس پرے کرنے سے پہلے محکمہ موسمیات کی پیش گوئی کے مطابق خشک موسم میں سپرے کا عمل مکمل کریں۔

۶۔ اپنی تمام تر کھیتی باڑی موسمی پیشگوئیوں کے مطابق کریں۔ موسمی پیشگوئیوں کے سلسلے میں اخبار، ریڈیو، ٹیلی ویژن سے مربوط رہیں اور اگر کوئی زرعی موسمیاتی مسئلہ درپیش ہو تو ہمارے مندرجہ ذیل دفاتر سے آپ بخوبی مدد حاصل کر سکتے ہیں۔

☆ نیشنل ایگرومیٹ سنیٹر، محکمہ موسمیات، پی۔ او۔ بکس نمبر 1214، سیکٹر ایچ ایٹ ٹو، اسلام آباد۔ فون نمبر: 0519250299

☆ نیشنل فور کا سٹنگ سنیٹر، محکمہ موسمیات، پی۔ او۔ بکس، 1214، سیکٹر ایچ ایٹ ٹو، اسلام آباد۔ فون نمبر: 9250364-051

☆ ریجنل ایگرومیٹ سنیٹر، محکمہ موسمیات، بارانی زرعی یونیورسٹی، مری روڈ، راولپنڈی۔ فون نمبر: 9292149-051

☆ ریجنل ایگرومیٹ سنیٹر، محکمہ موسمیات، ایوب ریسرچ انسٹیٹیوٹ، جھنگ روڈ، فیصل آباد۔ فون نمبر: 9201803-041

☆ ریجنل ایگرومیٹ سنیٹر، محکمہ موسمیات، ایگر ایکچر ریسرچ انسٹیٹیوٹ، ٹنڈو جام۔ فون نمبر: 9250558-022

☆ ریجنل ایگرومیٹ سنیٹر، محکمہ موسمیات، ایگر ایکچر ریسرچ انسٹیٹیوٹ، سریاب روڈ، کوئٹہ۔ فون نمبر: 9211211-081

تفصیلی موسمی معلومات کیلئے محکمہ موسمیات کی ویب سائٹ www.pmd.gov.pk ملاحظہ فرمائیں۔

Findings of AgMIP Pakistan, University of Agriculture Faisalabad

1. There would be significant increase in temperature i.e., 2.8°C in day and 2.2°C in the night during mid-century (2040-2069)
2. There would be significant variability in rainfall patterns (about 25% increase in summer & 12% decrease in winter during 2040-2069)
3. Climate Change will affect the crop yields negatively (about 17% for rice and 14 % for wheat)
4. If there will be no adaptation to Climate Change, majority of farmers would be the economic losers

▽△ With Adaptation to Climate Change (through technology and management), there would be significant decrease in poverty and improvement in the livelihood of farming community.

*(Agricultural Model Inter-comparison and Improvement Project (AgMIP) Pakistan
2012-2014)*

- 1- سال 2040-69 کے دوران درجہ حرارت میں قابل ذکر اضافہ ہو سکتا ہے۔ جو کہ دن کے وقت 2.8°C اور رات کو 2.2°C تک ہوگا۔
- 2- گرمیوں کی بارش میں 25 فیصد اضافہ اور سردیوں کی بارش میں 12 فیصد تک کمی کا امکان ہے۔
- 3- مندرجہ بالا موسمی تغیرات کی وجہ سے دھان کی پیداوار میں 17 فیصد اور گندم کی پیداوار میں 14 فیصد تک کمی ہو سکتی ہے۔
- 4- اگر موسمی تغیرات کا مناسب بندوبست نہ کیا گیا۔ تو کسانوں کی اکثریت کو معاشی نقصان کا سامنا کرنا پڑے گا۔
- 5- موسمی تغیرات کے سدّ باب (بذر یعنی ٹیکنالوجی کا استعمال اور بہتر نظم و نسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

(ایگمپ پاکستان 2012-2014)