Monthly Bulletin National Agromet Centre Pakistan Meteorological Department

Vol: 05-2018

Highlights...

- Below normal rainfall was observed in most of the agricultural plains of the country except upper KP, Potohar region and Rohri in Sindh during May 2018.
- Thermal regime in this month remained normal to slightly above normal in most of the agricultural plains of the country. However in upper KP, it was observed below normal during the month.
- ETo and R.H. observed normal to below normal in most of the agricultural plains of the country except Rawalpindi in Potohar Region where it was observed above normal.
- Agricultural soils showed mostly normal or slightly cooler trend at all layers except in Sindh represented by Tandojam at shallow layer and in Northern Balochistan represented by Quetta valley, where it remained above normal.
- Harvesting/threshing of wheat and other Rabi crops and sowing of kharif crops especially cotton and maize, were the major field activities during the month.
- Measures may be taken to preserve the standing crops/orchids from the damaging impacts of extreme hot and dry weather conditions in the lower plains.
- Crop water requirement of sugarcane crop reaches its peak in June. 8-9 times irrigation with suitable gaps is suggested by experts during June. In case of water shortage the crop completes its maturity early and results significant drop in yield.
- The outlook for the month of June 2018 shows that below normal rainfall is expected in the lower half of the country with maximum negative anomaly in south eastern Punjab, whereas above normal rainfall will be observed in the upper half of the country with maximum positive anomaly in northern KP.

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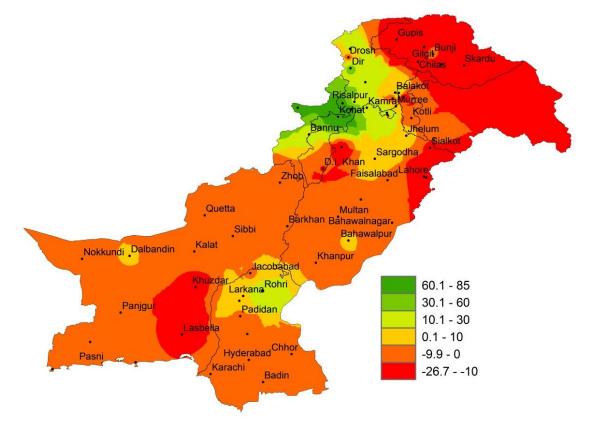


May, 2018

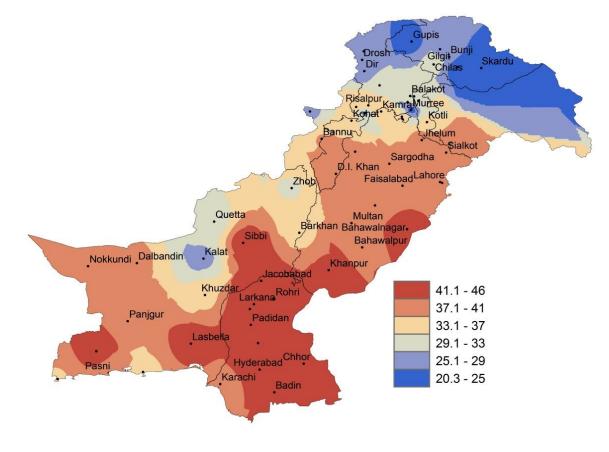
EXPLANATORY NOTE

- 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 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 coefficients developed by Pakistan Meteorological Department.

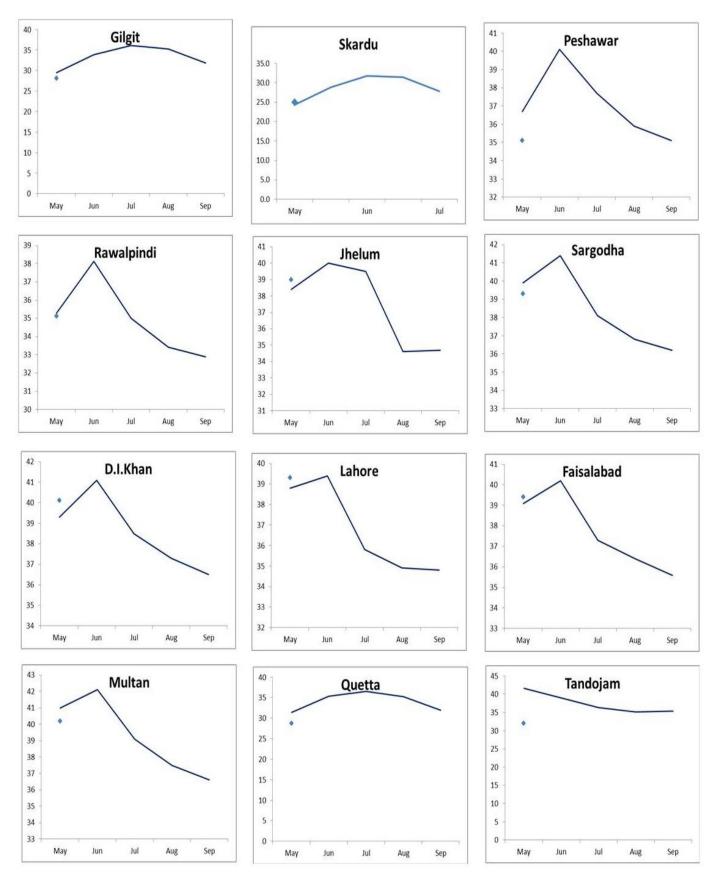
Rainfall Departure from Normal (mm) during May, 2018



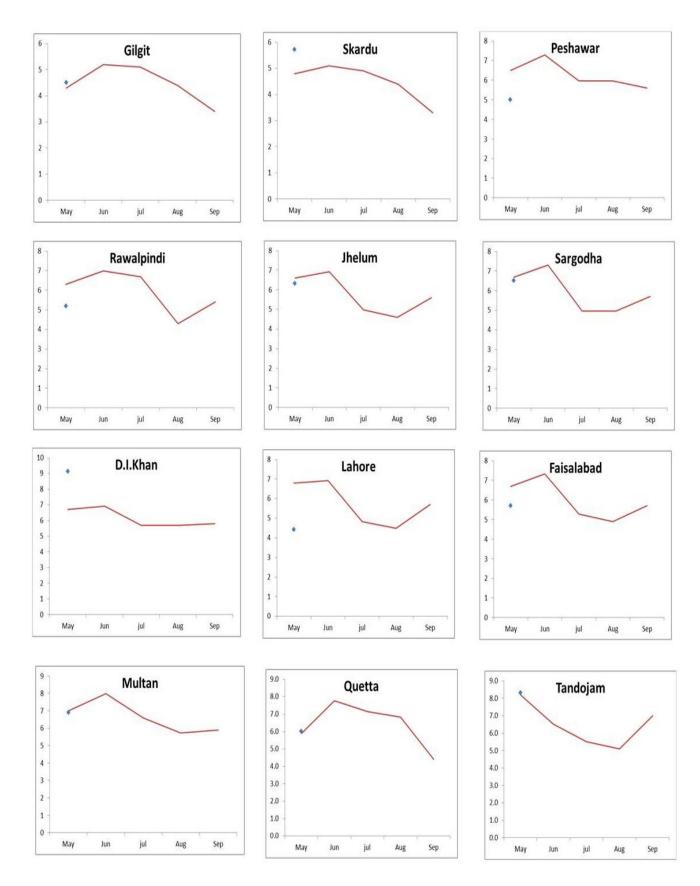
Maximum Temperature (°C) during May, 2018



Maximum Temperature (°C) during Kharif Season (May-September) Dotted Curve: Current Season (May, 2018) in °C Smooth Curve: Normal values of Kharif Season



Evapotranspiration (mm/day) during Kharif Season (May-September) Dotted Curve: Current Season (May, 2018) **Smooth Curve:** Normal values of Kharif Season



Crop Report during May, 2018

Harvesting/threshing of wheat and other Rabi crops and sowing of Kharif crops especially cotton and maize were the major field activities during the month. Operations of weeds removing and chemical spraying against pest attacks on fruit orchards and irrigation practices as per requirement were also in progress during the month. Pace of growth and development of standing crops both in irrigated and rainfed areas remained satisfactory due to favorable weather conditions. However harvesting/threshing of wheat crop was affected in some areas due to occasional rains/windstorms.

In **Punjab:** Harvesting and threshing of wheat crop was in full swing and good yield is expected this year both in rainfed and irrigated plains. Harvesting and threshing of oilseed, Gram and Lentil is also in progress and better yield is expected due to favorable weather conditions during the season. Growth of seasonal vegetables is reported satisfactory and picking of early grown verities is in progress. Growth of fruit orchards including mango is reported satisfactory. Mango orchards are reported mostly at fruit formation stage.

In **Sindh:** Threshing/picking of wheat and other Rabi crops like castor oil, linseed and safflower has been completed and good yield is expected. The sunflower is reported at maturity stage and its growth is satisfactory. Sowing of cotton crop has been completed in most of the growing area and the crop was observed at germination/third true leaf stage. Growth of summer vegetables is reported satisfactory and their picking is in full swing. Mangoes are growing at full fruit formation stage. Early matured mangos are available in market.

In **Khyber Pakhtunkhwa:** Overall growth and development of wheat crop in the province is reported satisfactory. Harvesting/threshing of the crop is reported in progress during the month in most of the plain areas of province. Good yield is expected in the irrigated areas of the province. Growth of summer vegetable has been reported satisfactory. Harvesting/marketing of winter vegetables is also in progress in upper hilly areas of the province. Growth of fruit orchards is also reported satisfactory and are at flowering stage.

In **Balochistan:** Condition of standing crops like wheat, maize and canola has been reported satisfactory. Wheat crop is at maturity/full maturity and its growth is reported satisfactory. Growth of fruit orchards and that of seasonal vegetables is satisfactory and picking/harvesting is in progress.

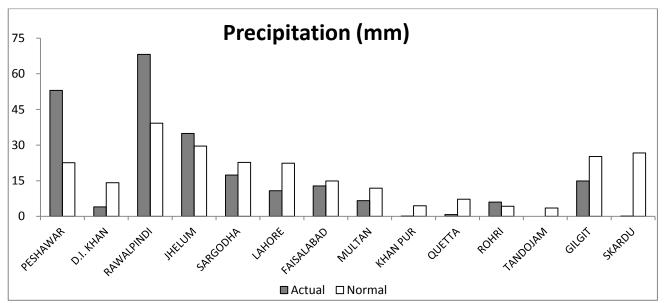
In **Gilgit Baltistan**: The growth of wheat crop is in progress and is reported satisfactory. The crop is at stem extension/shooting stage in most of the regions. The growth of seasonal orchards and vegetables is also reported satisfactory.

Moisture Regime during May, 2018

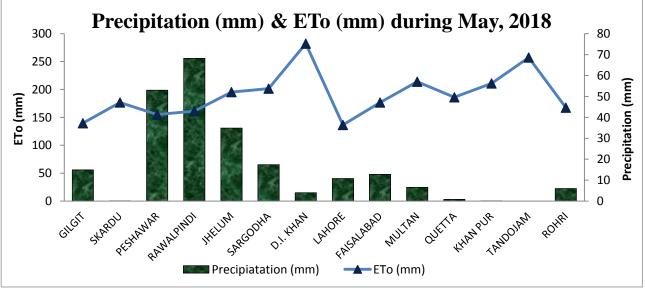
May is considered as one of hot/warm and dry month of Pakistan. During this May, below normal rainfall was observed in most of the agricultural plains of the country except upper KP, Potohar region and Rohri in Sindh.

The highest amount of rainfall reported in the month was 185.00 mm in Malam Jabba, followed by 146.00 mm in Parachinar, 125.70 mm in Dir, 124.02 mm in Kohat and 115.20 mm Mirkhani.

Numbers of rainy days recorded in the country ranged from 1 to 17 days. The maximum number of rainy days in the country was observed as 17 days at Bagrote, followed by 16 days at Astore and 15 days at Kalam, Drosh and Peshawar each.

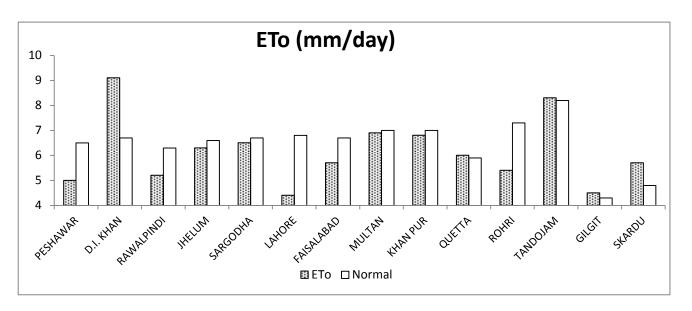


Comparison of Actual Precipitation (mm) during the month of May, 2018 with Normal values for major agricultural plains of the Country



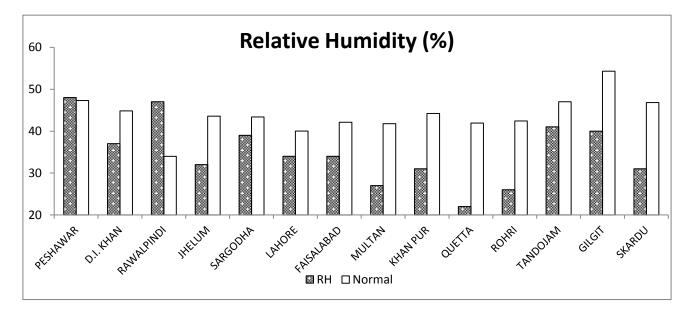
Precipitation (mm) & ETo (mm) during May, 2018 for Major Agricultural plains of the Country

The evaporative demand of the atmosphere represented by reference crop evapotranspiration (ETo) remained mostly normal to below normal in most of the agricultural plains except lower KP and GB where above normal ETo was recorded.



Mean daily Relative Humidity (R.H) was observed normal to below normal in most of the agriculture plains of the country except Rawalpindi in Potohar Region where it was observed above normal.

Maximum value of mean Relative Humidity was observed 48% at Peshawar followed by 47% at Rawalpindi, and 41% at Tandojam. Maximum numbers of days with mean R.H greater or equal to 80% was observed 01 day at Rawalpindi during the month.

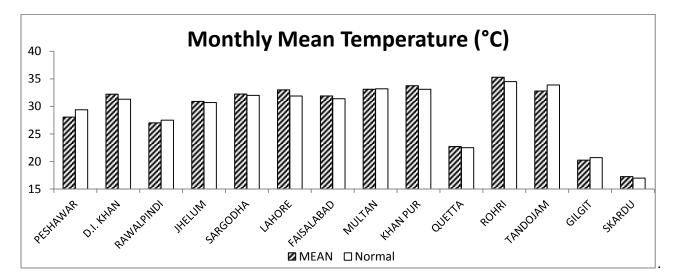


Mostly normal to below normal ETo and satisfactory rains during the month may produce favorable conditions for crops in these areas. However farmers are advised to make best use of available water resources to meet water demand of the crops especially in central/lower parts of the country in the coming hottest month of June.

Temperature Regime during May, 2018

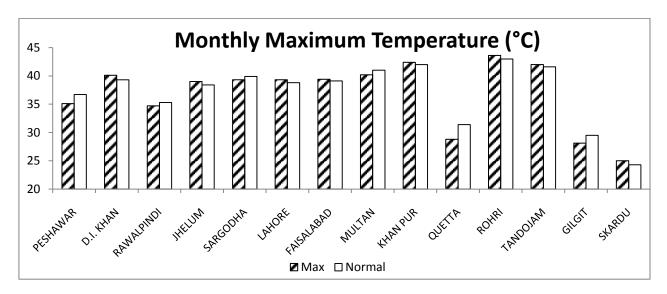
Temperature plays vital role in the growth and development of crops. Thermal regime in this month remained normal to slightly above normal in most of the agricultural plains of the country. However in upper KP, it was observed below normal during the month.

Mean daily temperature remained above normal (by 1-2°C) in most of the agricultural plains of the country. Mean daily temperature ranged between 28 to 31°C in Khyber Pakhtunkhwa, 27 to 32°C in Potohar plateau, 32-33°C in remaining parts of Punjab, 33 to 35°C in Sindh, 17 to 20°C in Gilgit-Baltistan region and it was observed 23°C in the high elevated agricultural plains of Baluchistan represented by Quetta valley.



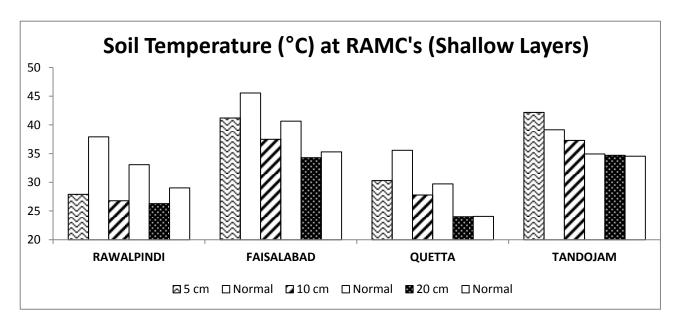
The day time temperature represented by mean maximum also remained normal to slightly above normal in lower KP, parts of Punjab, Sindh & eastern GB and slightly below normal in upper KP, parts of Potohar region, Quetta valley in Balochistan & western GB by 1-2°C in most of the agricultural plains of the country. The highest maximum temperature was recorded 51.0°C at Jocababad and the lowest minimum was recorded at 3.0°C at Kalam.

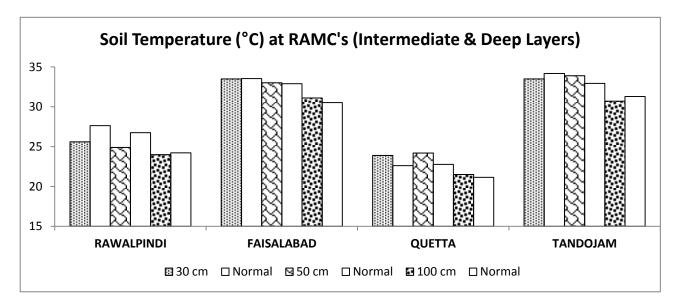
Number of stress days with maximum temperature greater or equal to 40°C and R.H less than or equal to 30% was observed for 30 days at Rohri, 29 days at Tandojam, 25 days at Khanpur, 13 days at Faisalabad and 12 days at Multan and Jhelum each.



Agricultural soils showed mostly normal or slightly cooler trend at all layers except in Sindh represented by Tandojam at shallow layer and in Northern Balochistan represented by Quetta valley, where it remained above normal.

Significant drop in soil temperature was observed in Potohar region represented by Rawalpindi at shallow layers as well as intermediate and deep layers.



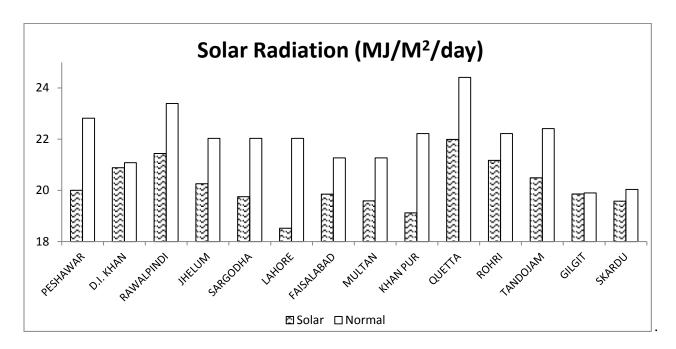


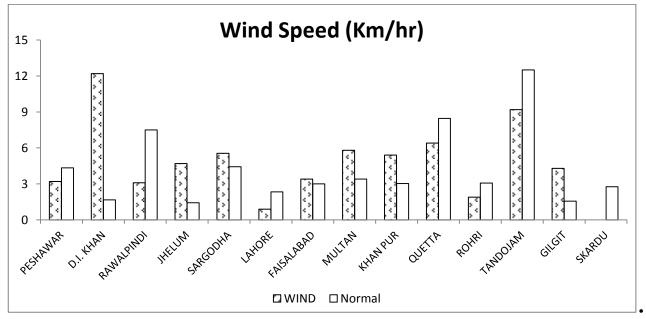
Over all soil temperature/ soil moisture condition observed satisfactory in the agricultural plains of the country. Generally the coming month of June is the hottest and dry month in Pakistan; therefore farmers of irrigated areas should be cautious about in time supply of water to the crops, so that standing crops like sugarcane and cotton may not suffer due to any heat wave or rising temperature.

Solar Radiation and Wind Regime during May, 2018

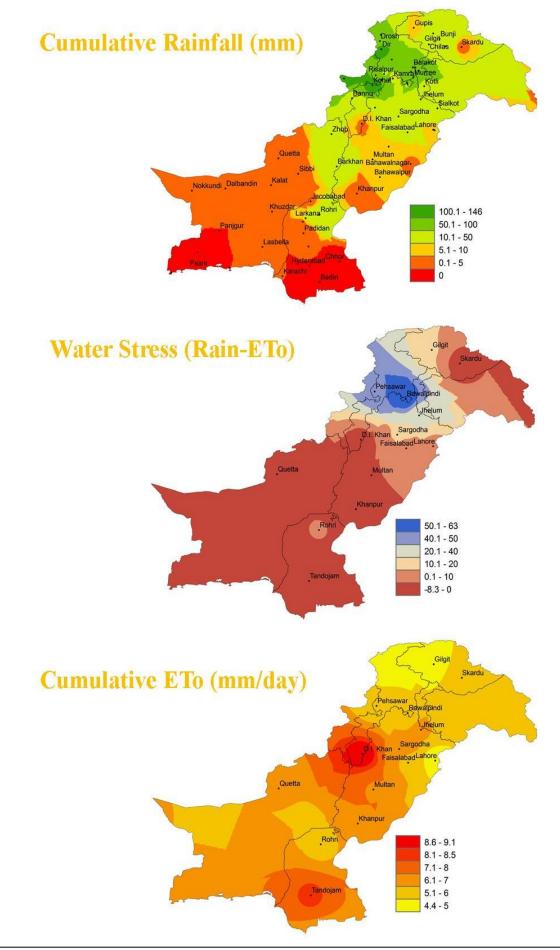
Total bright sunshine hours and solar radiation intensity remained normal to below normal in most of the agricultural plains of the country.

Mean wind speed throughout agricultural plains of the country reached up to 12.2 km/h with North to North-West trend.





Cumulative Rainfall, ETo and Water Stress for Kharif Season (May-2018)



Normally Expected Weather during June, 2018

Generally June is the hottest and driest month except some pre-monsoon showers. Towards the end of the month seasonal low will fully mature over Baluchistan and adjoining areas. Usually northern parts of the country first experience the onset of monsoon and hence the frequency of occurrence of rain over northern parts of Punjab is greater than other parts of the country.

Two to three troughs of westerly low pressure waves are expected to pass across central Asian countries and their trough may affect northern part of the country. Under the influence of these westerly troughs and premonsoon system, more than 50 mm of rainfall is expected in the north of the country and Potohar region; 25 to 30 mm of rain fall in central Punjab and about 10 mm rainfall is expected over Khyber Pakhtunkhwa, lower Sindh and southern Punjab. Upper Sindh and most of Baluchistan may remain partially dry. The probability of occurrence of rainfall during June over Potohar plains is given below:-

AMOUNT/DATES	PERCENTAGE PROBABILITY OF OCCURRENCE OF DIFFERENT AMOUNT OF RAINFALL IN JUNE					ERENT
	1-5	6-10	11-16	17-20	21-25	26-30
10 mm	6	13	30	26	36	41
15 mm	5	10	27	13	30	38
25 mm	1	4	21	8	16	25

Due to intense heating and relatively clear skies, the evaporative demand of atmosphere will increase sharply and may range from 7.5 mm/day to 8.5 mm/day over most of the agricultural areas of the country except southern Khyber Pakhtunkhwa, high agriculture plains of Baluchistan and extreme northern parts of the country where it may remain close to 7 mm/day.

Mean maximum temperature may remain above 40°C over most of the agricultural plains of the country. However, in high plains of Baluchistan, it may remain close to 35°C. Highest maximum temperature may reach to upper forties over most of agricultural plains of the country. Due to lower humidity level and high temperatures, the frequency of occurrence of stress conditions for crops may increase considerably. Irrigation will be the only remedy to decrease the effect of stress conditions to crops. The mean minimum temperature may range from 25-28°C throughout the country except high plains of Baluchistan where it may average to 16°C.

The duration of bright sunshine may remain greater than 10 hrs/day in northern Khyber Pakhtunkhwa and high agricultural plains of Baluchistan. In rest of the country it may range from 8.5 hrs/day to 9.5 hrs/day. The intensity of solar radiation may decrease over most of agricultural plains of the country due to haze, dust in suspension and increased cloudiness. Towards the end of the month it may range between 22 $MJ/M^2/day$ over most of the country. However, in northern Khyber Pakhtunkhwa and Rawalpindi region, it may average to 24.3 $MJ/M^2/day$ due to relatively clear skies. Maximum intensity of Solar Radiation may be experienced at Quetta valley amounting to 26.3 $MJ/M^2/day$.

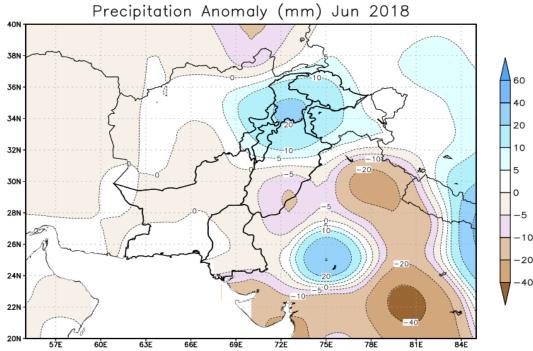
Gusty wind and dust storms will be normal phenomena during the month. However, mean wind speed may remain below 10 Km/hr over most of the agricultural plains of the country except lower Sindh, where it may average to 14 Km/hr. In high agricultural plains of Balochistan, wind speed may remain above 10 Km/hr. mostly southwesterly wind may prevail over Sindh and adjoining Balochistan. However, above 30 degree latitude, southerly and southeasterly wind may prevail during the month.

The water requirement of disease free full canopied crop growing is given as under:-

S. No.	Region	Water Requirement		
	Region	(mm)	Cubic Meter/Hectare	
1	Northern Punjab, KP and high plains of Balochistan	180-210	1800-2100	
2	Southern Punjab and Upper Sindh	220-240	2200-2400	
3	Lower Sindh and Southern Balochistan	250-260	2500-2600	

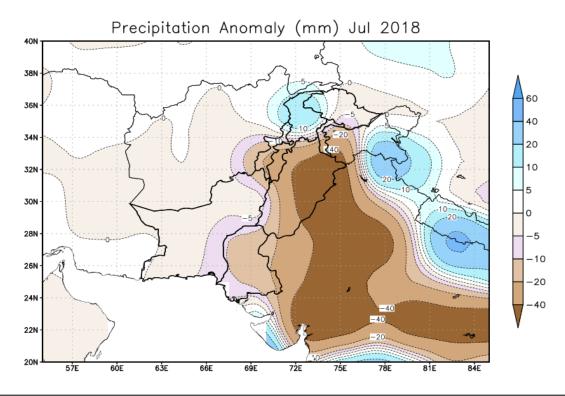
Monthly Weather Outlook for June, 2018

The outlook for the month of June 2018 shows that below normal rainfall is expected in the lower half of the country with maximum negative anomaly in south eastern Punjab, whereas above normal rainfall will be observed in the upper half of the country with maximum positive anomaly in northern KP.



Monthly Weather Outlook for July, 2018

The outlook for the month of July 2018 shows that normal to below rainfall is expected in most of the parts of the country with maximum negative anomaly in central-eastern Punjab and some part of Kashmir. Whereas northern part of upper KP/FATA and western GB may receive above normal rainfalls.



Research Findings of AgMIP Pakistan, University of Agriculture, Faisalabad

- There would be significant increase in temperature i.e., 2.8°C in day and 2.2°C in 1. 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
- 5. 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)

- 3۔ مندرجہ بالاموسی تغیرات کی وجہ ہے دھان کی پیداوار میں 17 فیصد اور گندم کی پیداوار میں 14 فیصد تک کمی ہو سکتی ہے۔
- 4۔ اگرموتی تغیرات کا مناسب بندوبست نہ کیا گیا۔تو کسانوں کی اکثریت کو معاشی نقصان کا سا منا کرنا پڑے گا۔ 5۔ موتی تغیرات کے سرّباب (بذرید نیٹ ٹیکنالوجی کا استعال اور بہتر نظم ونسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

جون 2018ء میں کاشتکارد لکے لئے زرعی موسمیاتی مشورے

عام طور پر جون سال کا گرم ترین مهیند ہوتا ہے۔ اس ماہ میں با رشیں دوسر میں مینوں کی نسبت کم ہوتی ہیں اس لحاظ سے میم میند کسان حضرات کیلئے مشکل مہیند ہوتا ہے۔ مید انی علاقوں میں او کا چلنا معمول ہوتا ہے۔ کٹی کٹی دن گرمی کی شدت سے کھڑی فصل مرجھا جاتی ہے۔ آبپا شی والے علاقوں میں نہری پانی کی قلت بھی واقع ہوجاتی ہے۔ اس ماہ کے دوران زیر زمین پانی مزید گھرا ہو سکتا ہے جس سے ٹیوب ویل اور کا ریز کی کا گردگی متاثر ہونے کے امکانات بھی بڑ ھوجاتے ہیں درجہ حرارت بٹر ھنے سے کھڑی فصلوں کی پانی کی ضر وریات میں صد درجہ اضاف ہو سکتا ہے ماہ میں ہوتی وقتا فو قتما تیز گرم ہواؤں سے ساتھ آئد ھی آنے آور چندا کی مقامات پر بارش کا امکان ہے۔

گندم کی کثائی اورگہائی میدانی علاقوں میں کمل ہو چکی ہے۔جب کہ بلندی پر واقع زرعی علاقوں میں جون کے آغاز میں بی^عمل شروع ہوگا۔اس صورت حال کومدنظر رکھتے ہوئے مند ردہہ زیل تجاویز کاشتکار بھائیوں کیلئے پیش خدمت ہیں ۔

ا۔ شدید گرمی اور ہوا میں نمی کی مقدار میں کمی کی وجہ سے زمین آور پو دوں کی سطح سے بخارات کے زریعے پانی کا ضیاع بہیت زیادہ ہوتا ہے۔اس لینے تھوڑ نے قوڑ و قفے سے بعد فصل کو پانی ملتار ہے تو پیداوا رمتا شرنہیں ہوتی ۔

۳۔ موسم کی شدت سے پیش نظر کھڑی فسلوں اور سنریوں کی آبپاشی شام یا رات کے اوقات میں کریں تا کہ قیمتی پانی عمل تبخیر سے ضائع نہ ہو۔ ۵۔ مخصوص علاقوں میں حالیہ ہارشوں کے بعد جڑی بوٹیوں کی افزائش بڑ دھ جائے گی اس لئے ان سے تد ارک کا مناسب بند وبست کریں ۔

۵۔ سطحصوص علاقوں میں حالیہ بارشوں کے بعد جڑی بوٹیوں کی افزائش بڑھ جانے کی اس لیے ان کے تد ارک کامناسب بند وبست کریں۔ ۲۔ سابٹی تمام ترکیبتی ماڑی موسی پیشگوئیوں کے مطابق کریں۔موسی پیشگوئیوں کے سلسلے میں اخبار، ریڈ یو ہٹیلیو بژن سے م بوطر ہیں اوراگر کوئی زرعی

۲- اپنی تمام ترضیق با ڑی موسی پیشگوئیوں کے مطابق کریں ۔موسی پیشگوئیوں کے سلسلے میں اخبار، ریڈیو ہٹیلیویژن سے مربوطر ہیں اوراکرکونی زرعی موسمیاتی مسئلہ در پیش ہوتو ہمارے مند رہہ ذیل دفاتر سے آپ بخوبی مد دحاصل کر سکتے ہیں ۔

کماد (گنے) کی فصل پر موسم ہے متعلق امر انداز ہونیوالے اہم عوال

کماد پاکستان کی اہم ترین فصل ہے ۔ پاکستان زیر کاشت رقبہ کے لحاظ سے دُنیا میں پانچو میں نمبر پر بُھل ہیداوار کے لحاظ سے گیا رویں نمبر پرا ورفی ایکڑ ہیداوار کے لحاظ سے 60 ویں نمبر پر ہے ۔ کماد سفید عینی اور گُلو بنانے کا اہم زرایعہ ہے ۔ اس کے علا وہ بقر یبا 100 کے قریب دوسر کی کا رآمدا شیا بھی اس سے بنتے ہیں ۔ پاکستان میں کماد پنجاب، سند دھاور خیبر پختونتو اہ میں خریف سے فصل سے طور پر کاشت ہوتا ہے ۔ کما دکی فی ایکڑ پیدا وار ملک میں 480 من کے لگ میں ۔ پاکستان میں کماد پنجاب، سند دھاور خیبر پختونتو اہ میں خریف سے فصل سے طور پر کاشت ہوتا ہے ۔ کما دکی فی ایکڑ پیدا وار ملک میں 480 من سے لگ مجلک ہے ۔ جبکہ ہمارے ملک سے ترقی پیند کا شتکار گئے کی فی ایکڑ پیدا وار میں کمی میڈی کے بنیا دی وجو ہات میں مناسب ریخ اور شرع بیح، مناسب اور پر وقت طریقہ کا شتکار گئے کی فی ایکڑ پیدا وار میں کمی میڈی کے بنیا دی وجو ہات میں منا میں اور شرع بیح، مناسب اور پر وقت طریقہ کا شتکار گئے کی فی ایکڑ پیدا وار میں کمی میڈی کے بنیا دی وجو ہات میں مناسب زمین کا انتخاب اور تیاری، مناسب دوسرے بیاریوں کا پر وقت طریقہ کا شت ، پر وقت اور مناسب کھاد کا استعمال ، مناسب مقدا را ور گئے کے اور پر وں اور نہری پانی کہ پار میں اور کر وقت اور میں میں میں منا میں ایک کھر ہی ہی ہے کے مناز میں کم کی میڈی کے بیادی ور میں کی کھر ہوں اور میں کی کا ہم

3-مون سون کے درمیان بہت صحت مندفصل کوپانی دینے میں اختیا ط سے کام لیں تا کیف گرنے (Lodging) سے محفوظ رہے۔ 4-فصل کی کٹائی کاشت سے حساب سے ہونی چائے ۔ آگھیتی فصل (Early Sown) اور موڈی فصل کی کٹائی نومبر ، درمیانی فصل کی کٹائی دسمبر اور پچھیتی فصل کی کٹائی جنوری میں شروع کردیں ۔ فروری رمارچ موڈی فصل (Ratoon Crop) کیلیے سب سے زیا دہ موزوں ہے۔ فصل کی کاشت کھا دوں ، آبپا شی اور ہوشم سے کیمیائی اسپر سے شبت نتائج حاصل کرنے کے لیئے موسی معلو مات انتہائی ضروری ہے ورز فصل کی کاشت کے مال کی کاشت کے استعمال ، آبپا شی اور اسپر وغیرہ سے فو رابعد ہارش نقصان کابا عث بنتی ہے۔ اس لیے کسان بھائیوں سے گز ارش ہے کہ ہر وقت موسم سے اخبر رہے۔ مندر دید نیل فون نمبر پر آپ کو مفت مشور میل سے بین ۔

> ا۔ محکمہ موسمیات ، نیشنل ایگرومیٹ سینٹر پی ۔او۔ بکس نمبر 1214، سیکٹرا بیچ ایٹ ٹو، اسلام آبا دیفون نمبر:۔050362-051 ۲۔ محکمہ موسمیات ، نیشنلفو رکاستنگ سینٹر برائے زراعت پی ۔او ۔ بکس نمبر 1214 ، سیکٹرا بیچ ایٹ ٹو، اسلام آباد فون نمبر:۔4-050366-150 تفصیلی موسی معلومات کیلئے محکمہ موسمیات کی ویب سائٹ ۳ http://www.pmd.gov.pk "اور " http://www.pmd.gov.pk "ملاحظہ کریں