

# Decadal Agromet Bulletin of Pakistan



## Highlights...

- ❖ Light to moderate rainfall reported from a few of the agricultural plains of Punjab, K.P, Kashmir & G.B while light rainfall reported from few isolated places of the Sindh and Balochistan during the last decade.
- ❖ Highest amount of rainfall recorded as 48.4mm at Jhang during the last decade.
- ❖ Highest maximum temperature recorded as 51.0°C at Moen Jo Daro during the last decade.
- ❖ Generally dry and hot weather is expected in most parts of the country during the current decade; however light to moderate rainfall is expected in most parts of Punjab, KP, GB and Kashmir during second half of the decade.
- ❖ 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.
- ❖ Due to higher temperature Pinkboll worm attack is observed on April sowing Cotton crop, so farmer are advised to take adoptive measures especially use of PB ropes in consultancy with plant protection department.
- ❖ Rice growers are advised to complete sowing of the crop in accordance with the recommendation by the agricultural experts.

## NATIONAL AGROMET CENTRE (NAMC) PAKISTAN METEOROLOGICAL DEPARTMENT SECTOR H-8/2, ISLAMABAD

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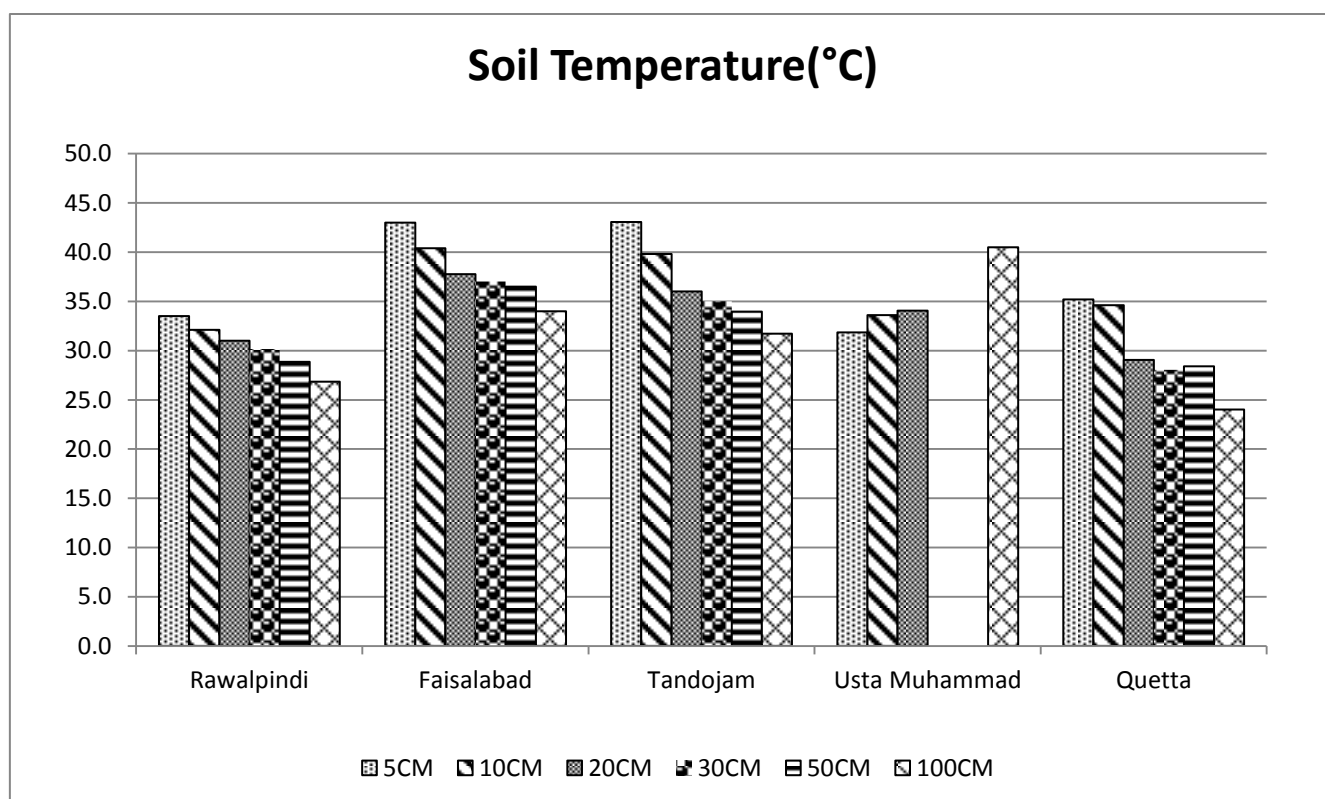
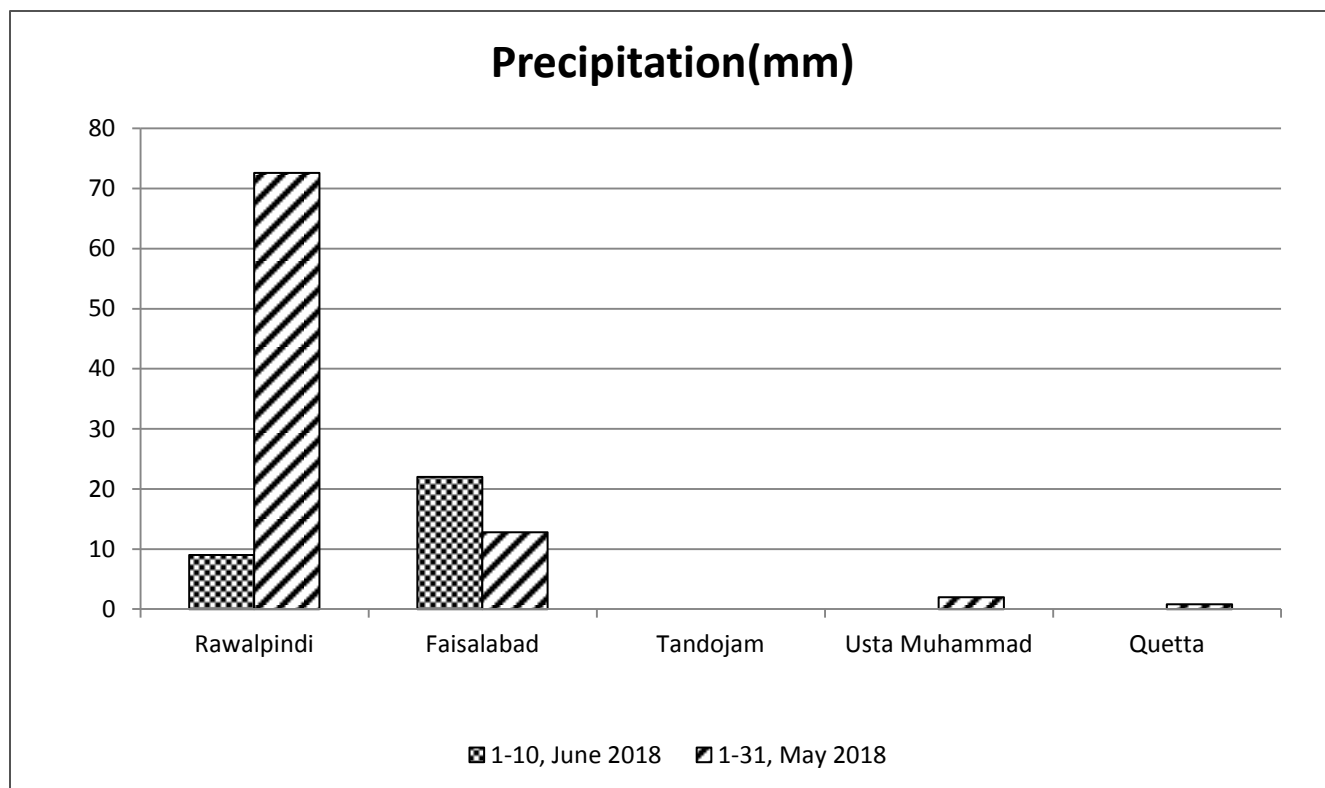
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**Meteorological Conditions during 1<sup>st</sup> Decade of June, 2018**

Sr. No.	Station	Precipitation (mm)			Air Temperature (°C)			Soil Temperatures (°C)						R.H (%)	Sunshine Duration(hours)	Wind Speed (km/hr)	ETo (mm/day)
		Normal	Actual	Dep	Tmax Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	1.6	9.0	7.4	0.6	1.7	31.8	33.5	32.1	31.0	30.2	28.9	26.9	48	98.9	5.4	6.7
2	Faisalabad	1.1	22.0	20.9	0.7	1.9	34.8	43.0	40.4	37.8	37.0	36.5	34.0	44	82.2	5.0	6.6
3	Jhelum	2.1	14.0	11.9	0.4	2.1	34.4	41.6	39.0	36.0	34.8	34.4	***	42	71.8	7.6	7.2
4	Lahore	1.2	21.9	20.7	0.7	-0.8	33.4	36.8	35.7	33.2	32.8	***	29.8	50	82.1	0.7	4.9
5	Sargodha	0.3	16.0	15.7	-1.0	1.6	34.8	40.4	38.1	35.0	34.2	***	30.3	47	78.3	5.2	6.4
6	Multan	0.1	11.8	11.7	1.0	2.1	36.8	***	***	***	***	***	***	35	69.5	6.2	7.1
7	Khanpur	0.6	1.0	0.4	4.0	2.1	37.0	***	39.3	39.0	38.8	38.3	35.1	41	69.9	6.2	7.1
8	Tandojam	0.9	0.0	-0.9	1.1	-0.7	33.1	43.1	39.8	36.0	35.0	34.0	31.7	54	89.1	15.8	9.0
9	Sakrand☆	0.9	0.0	-0.9	3.4	2.8	36.9	40.0	***	***	***	***	35.0	35	110.7	17.0	12.3
11	Rohri	0.0	0.0	0.0	3.2	-1.4	36.8	***	***	***	***	***	***	37	108.0	2.4	4.1
12	D.I Khan	0.3	0.0	-0.3	2.1	3.8	36.1	39.3	36.7	34.8	34.2	22.5	***	45	62.0	12.1	8.7
13	Peshawar	0.6	0.0	-0.6	1.3	0.5	33.2	38.9	36.0	32.4	30.7	29.0	27.4	50	78.8	2.8	5.6
14	Usta .M	0.5	0.0	-0.5	0.8	1.5	37.7	31.9	33.6	34.1	***	***	40.5	33	***	2.3	6.5
15	Quetta	0.5	0.0	-0.5	2.1	3.9	28.7	35.2	34.6	29.1	28.1	28.4	24.0	17	111.2	6.2	7.1
16	Skardu	0.3	0.0	-0.3	4.9	1.6	23.2	***	***	***	***	***	***	26	102.5	1.8	5.0
17	Gilgit	0.6	0.0	-0.6	4.7	3.2	27.2	***	***	***	***	***	***	30	100.2	2.3	5.4

**Table-1:** Meteorological parameters for selected station of Pakistan. “Dep” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “% Dep” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures respectively. ETo stands for reference crop evapotranspiration. \*\*\* stands for no data and ☆ ) indicates the station with five year’s climatic (normal) data for computing departures.

## Graph at RAMCs during June, 2018



**Past Weather (1<sup>st</sup> to 10<sup>th</sup> June, 2018)**

Light to moderate rainfall reported from few of the agricultural plains of Punjab, K.P, Kashmir & G.B while light rainfall reported from few parts of the Sindh and Balochistan during the last decade.

**1.1 Punjab**

Light to moderate rainfall reported few of the agricultural plains of the Punjab. Chief amount of rainfall is received at Jhang, Bahawalnagar & T.T Singh. Decadal maximum & minimum both raised above normal by 0.9°C & 1.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 44%, 79.0hrs, 5.2km/hr and 6.6mm/day respectively.

**1.2 Sindh**

Light rainfall reported from few of the agricultural plains of Sindh. Chief amount of rainfall is received at Jacobabad & Sukkur. Decadal maximum & minimum both raised above normal by 2.6°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 42%, 70.2hrs, 11.7km/hr and 8.5mm/day respectively.

**1.3 Khyber Pakhtunkhwa (KP)**

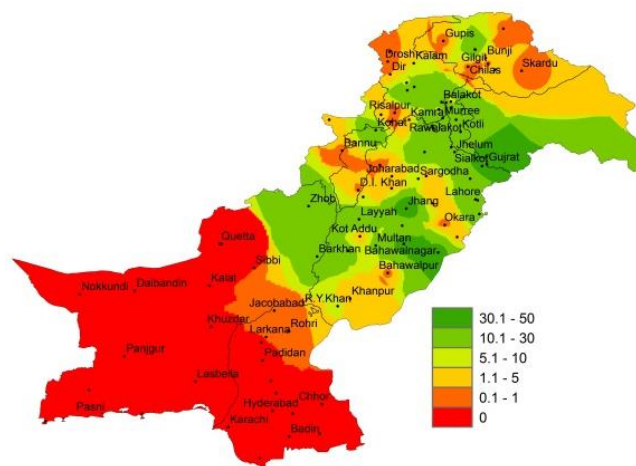
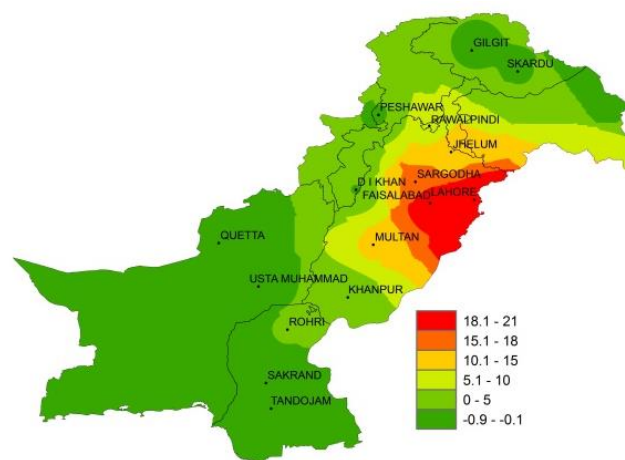
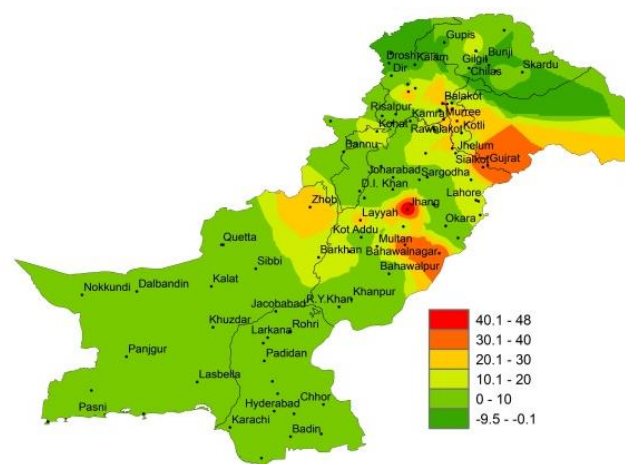
Light to moderate rainfall reported from few of the agricultural plains of KP. Chief amount of rainfall is received at Balakot, Saidu Sharif & Kohat. Decadal maximum & minimum both raised above normal by 1.7°C & 2.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 70.4hrs, 7.5km/hr and 7.2mm/day respectively.

**1.4 Balochistan**

Light rainfall reported from one place of Balochistan i.e. Barkhan. Decadal maximum & minimum both raised above normal by 1.5°C & 2.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 25%, 111.2hrs, 4.3km/hr and 6.8 mm/day respectively.

**1.5 Gilgit-Baltistan and Azad Jammu & Kashmir**

Light to moderate rainfall reported from few of the agricultural plains of G.B and Kashmir. Chief amount of rainfall is received at Garhi Dopatta, Muzaffarabad & Bagrote. Decadal maximum & minimum both raised above normal by 4.8°C & 2.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 28%, 101.4hrs, 2.1km/hr and 5.2mm/day respectively.

**I. Actual rainfall****II. Departure of rainfall from Normal****III. Departure of rainfall from Previous Decade****Figure.1: Rainfall distribution during previous decade (mm)**



## 2(a) **Past Weather for Major Agricultural Plains** **(1<sup>st</sup> to 10<sup>th</sup> June, 2018)**

### 2.1 **RAMC, Rawalpindi (Potohar region)**

Rainfall reported as 9.0mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 39.2°C while night temperature recorded as 24.3°C with 98.9hours bright sunshine duration. Wind speed recorded as 5.4km/hr with mean wind direction *westerly*.

### 2.2 **RAMC, Faisalabad (Central Punjab)**

Rainfall reported as 22.0mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 44%. Mean day temperature was 41.5°C while night temperature recorded as 28.0°C with 82.2hours bright sunshine duration. Wind speed recorded as 5.0km/hr with mean wind direction *westerly*.

*Cotton: Good condition, third leaf stage*

### 2.3 **RAMC, Tandojam (Lower Sindh)**

Dry weather reported during the decade; Average relative humidity recorded as 54%. Mean day temperature was 40.5°C while night temperature recorded as 25.7°C with 89.1hours bright sunshine duration. Wind speed recorded as 15.8km/h with mean wind direction *south westerly*.

*Cotton SIM602: Good condition, third true leaf stage*

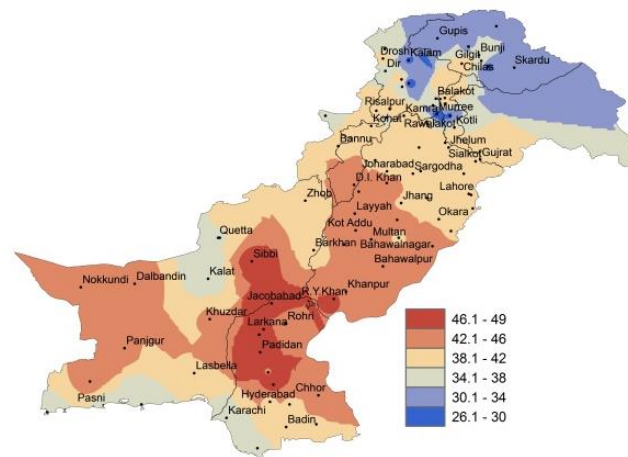
### 2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 33%. Mean day temperature was 46.1°C while night temperature recorded as 29.2°C. Wind speed recorded as 2.3km/h with mean wind direction *south westerly*.

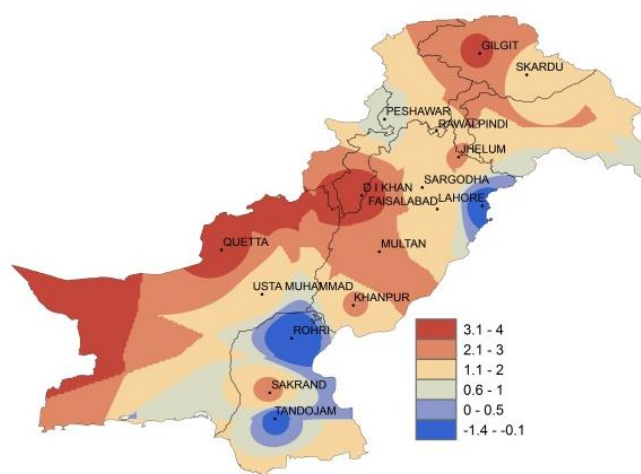
*Rice: Good condition, Paneri in process*

### 2.5 **RAMC, Quetta (Northern Balochistan)**

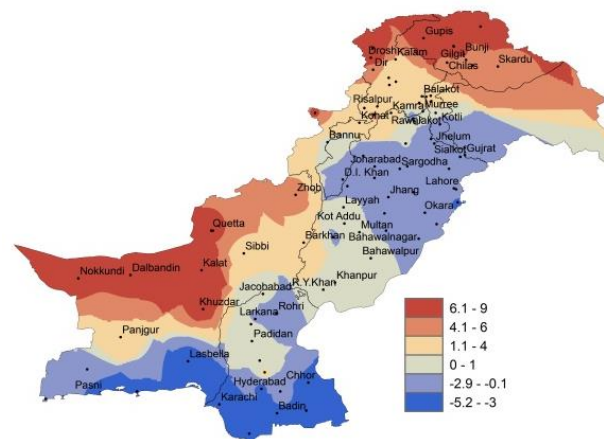
Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 17%. Mean day temperature was 35.9°C while night temperature recorded as 21.5°C with 111.2hours bright sunshine duration. Wind speed recorded as 6.2km/hr with mean wind direction *north westerly*.



I. **Actual max-temp**



II. **Departure of max-temp from Normal**



III. **Departure of max-temp from Previous Decade**

**Figure.2: Minimum Temperature distribution during previous decade (°C)**

## 2(b) Past Weather for Sub-Regional Agricultural Plains (1<sup>st</sup> to 10<sup>th</sup> June, 2018)

### 2.6 Jhelum

Rainfall reported as 14.0mm during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 42%. Mean day temperature was 41.0°C while night temperature recorded as 27.7°C with 71.8hours bright sunshine duration. Wind speed recorded as 7.6km/hr with mean wind direction *south easterly*.

### 2.7 Lahore

Rainfall reported as 21.9mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 36.9°C while night temperature recorded as 26.9°C with 82.1hours bright sunshine duration. Wind speed recorded as 0.7km/hr with mean wind direction *south easterly*.

### 2.8 Sargodha

Rainfall reported as 16.0mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 40.7°C while night temperature recorded as 28.9°C with 78.3hours bright sunshine duration. Wind speed recorded 5.2km/hr with mean wind direction *easterly*.

### 2.9 Multan

Rainfall reported as 11.8mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 35%. Mean day temperature was 43.1°C while night temperature recorded as 30.5°C with 69.5hours bright sunshine duration. Wind speed recorded 6.2km/hr with mean wind direction *variable*.

### 2.10 Khanpur

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 41%. Mean day temperature was 44.8°C while night temperature recorded as 29.2°C with 69.9hours bright sunshine duration. Wind speed recorded 6.2km/hr with mean wind direction *south westerly*.

### 2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 35%. Mean day temperature was 45.0°C while night temperature recorded as 28.8°C with 110.7hours bright sunshine duration. Wind speed recorded 17.02km/hr with wind direction *southerly*.

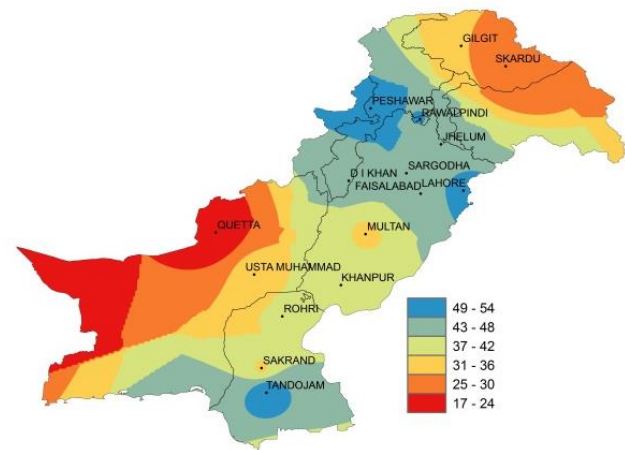


Figure.3: Relative Humidity in Percentage (%)

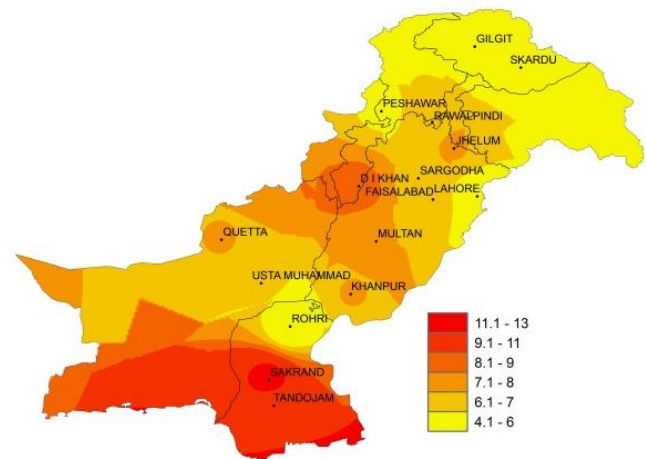


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

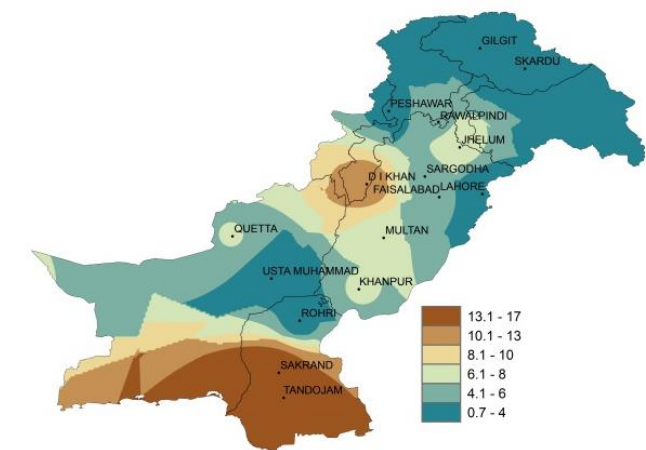


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Rainfall reported as Trcae (not measureable) during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 37%. Mean day temperature was 45.8°C while night temperature recorded as 27.7°C with 108.0hours bright sunshine duration. Wind speed recorded 2.4km/hr with wind direction *north easterly*.

**2.13 D.I. Khan**

Rainfall reported as Trcae (not measureable) during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 45%. Mean day temperature was 43.2°C while night temperature recorded as 29.0°C with 62.0hours bright sunshine duration. Wind speed recorded as 12.1km/hr with mean wind direction *north easterly*.

**2.14 Peshawar**

Rainfall reported as Trcae (not measureable) during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 40.7°C while night temperature recorded as 25.7°C with 78.8hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *north westerly*.

**2.15 Skardu**

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 26%. Mean day temperature was 32.6°C while night temperature recorded as 13.7°C with 102.5hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *south easterly*.

**2.16 Gilgit**

Rainfall reported as Trcae (not measureable) during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 30%. Mean day temperature was 37.9°C while night temperature recorded as 16.4°C with 100.24hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *south easterly*.

**Ten Days Weather Advisory for Farmers**  
**(11<sup>th</sup> to 20<sup>th</sup> June, 2018)**

**3.1 Temperature Forecast**

Both day and night temperatures are likely to be slightly above normal in most parts of the country during the decade.

**3.2 Wind Forecast**

Normal wind pattern may prevail in most of the agricultural plains of the country during the decade; however dust/sand storms may occur in southern Punjab and upper Sindh.

**3.3 Rain Forecast**

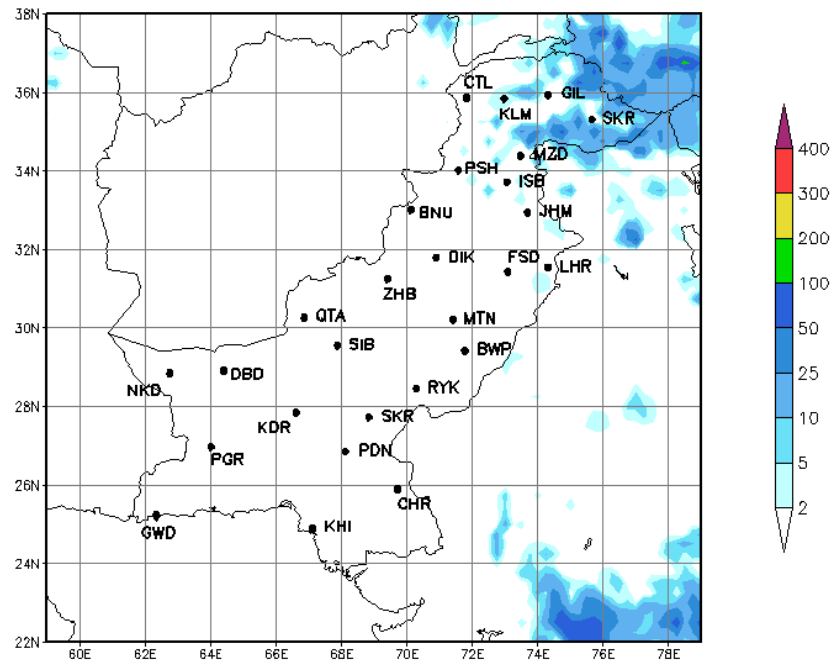
- ❖ **Punjab:** Hot and dry weather is expected in most parts of the province however light to moderate rainfall is expected in 2<sup>nd</sup> half of the decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rain-thunderstorm is expected at few places of the province during the decade.
- ❖ **Sindh:** Hot and dry weather is expected in most parts of the province during the decade.
- ❖ **Balochistan:** Hot and dry weather is expected in most parts of the province during the decade.
- ❖ **Gilgit-Baltistan:** Light to moderate rain-thunderstorm with gusty winds is expected at most of places during the decade.
- ❖ **Kashmir:** Light to moderate rain-thunderstorm is expected at most of the places in Kashmir and its adjoining areas during the decade.

**3.4 Advisory for Farmers**

- ❖ 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.
- ❖ Due to higher temperature Pinkboll worm attack is observed on April sowing Cotton crop, so farmer are advised to take adoptive measures especially use of PB ropes in consultancy with plant protection department.
- ❖ Rice growers are advised to complete sowing of the crop in accordance with the recommendation by the agricultural experts.
- ❖ The growers of Peanut crop are advised to complete the sowing on availability of optimum soil moisture.

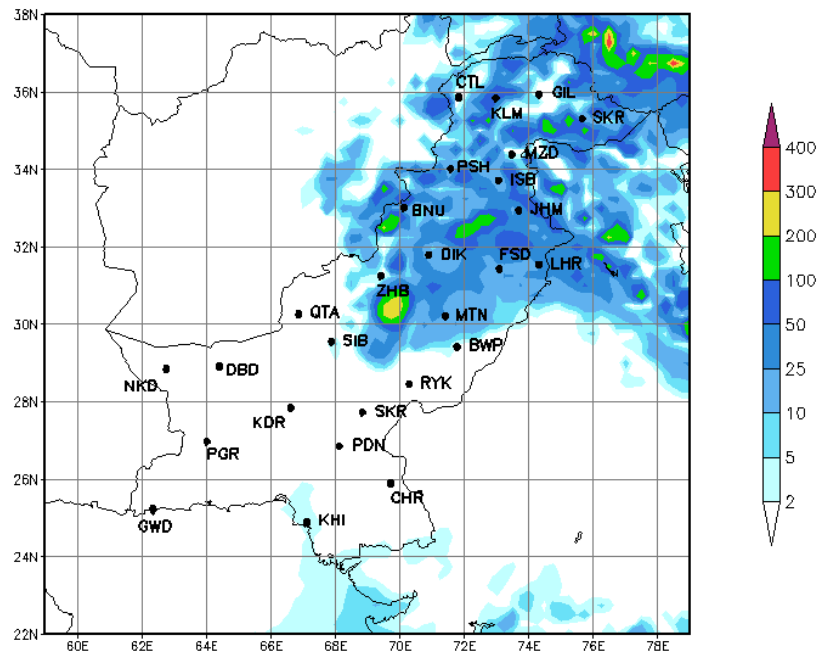
#### 4.1 Precipitation Outlook (11<sup>th</sup> to 13<sup>th</sup> June, 2018)

The forecast for the first three days (11<sup>th</sup> to 13<sup>th</sup>) of the second decade of June, 2018 shows that mostly hot and dry weather is expected in most parts of the country. However, light rainfall is expected at scattered places in Upper Punjab, upper KP, G.B and Kashmir.



#### 4.2 Precipitation Outlook (14<sup>th</sup> to 20<sup>th</sup> June, 2018)

The outlook for the last seven days (14<sup>th</sup> to 20<sup>th</sup>) of the second decade of June, 2018 shows that mostly hot and dry weather is expected in most of southern parts of the country. While light to moderate rainfall is expected in upper Punjab, upper KP, northern Balochistan, coastal belt of Sindh, G.B and Kashmir.





## Findings of AgMIP Paksitan, University of Agriculture, Faisalabad

- ❖ 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)
- ❖ There would be significant variability in rainfall patterns (about 25% increase in summer & 12% decrease in winter during 2040-2069)
- ❖ Climate Change will affect the crop yields negatively (about 17% for rice and 14 % for wheat)
- ❖ 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 سدباب (بذریعہ نئی 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)