

# Decadal Agromet Bulletin of Pakistan



## Highlights...

- ❖ Light to moderate rainfall reported from most of the agricultural plains of the country; however light rainfall is reported from a single location of Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 244.5 mm at Lahore during the last decade.
- ❖ Highest maximum temperature recorded as 48.0°C at Sibbi during the last decade.
- ❖ Heavy to moderate rainfall is expected in most parts of Punjab, KP, GB and Kashmir while, light to moderate rainfall is expected at scattered places of Baluchistan, Sindh during the current decade.
- ❖ Measures may be taken to preserve the standing crops/orchids/fodder from the damaging impacts of extreme hot and dry weather conditions in the lower plains as well as strong winds/hails storms/ flooding in the upper half of the country.
- ❖ Due to higher temperature Pinkboll worm attack is observed on April sowing Cotton crop, so farmers are advised to take adoptive measures especially the use of PB ropes in consultancy with plant protection department.
- ❖ Growers of Rice are advised to complete transplantation of the nurseries in accordance with the recommendation by the agricultural experts.

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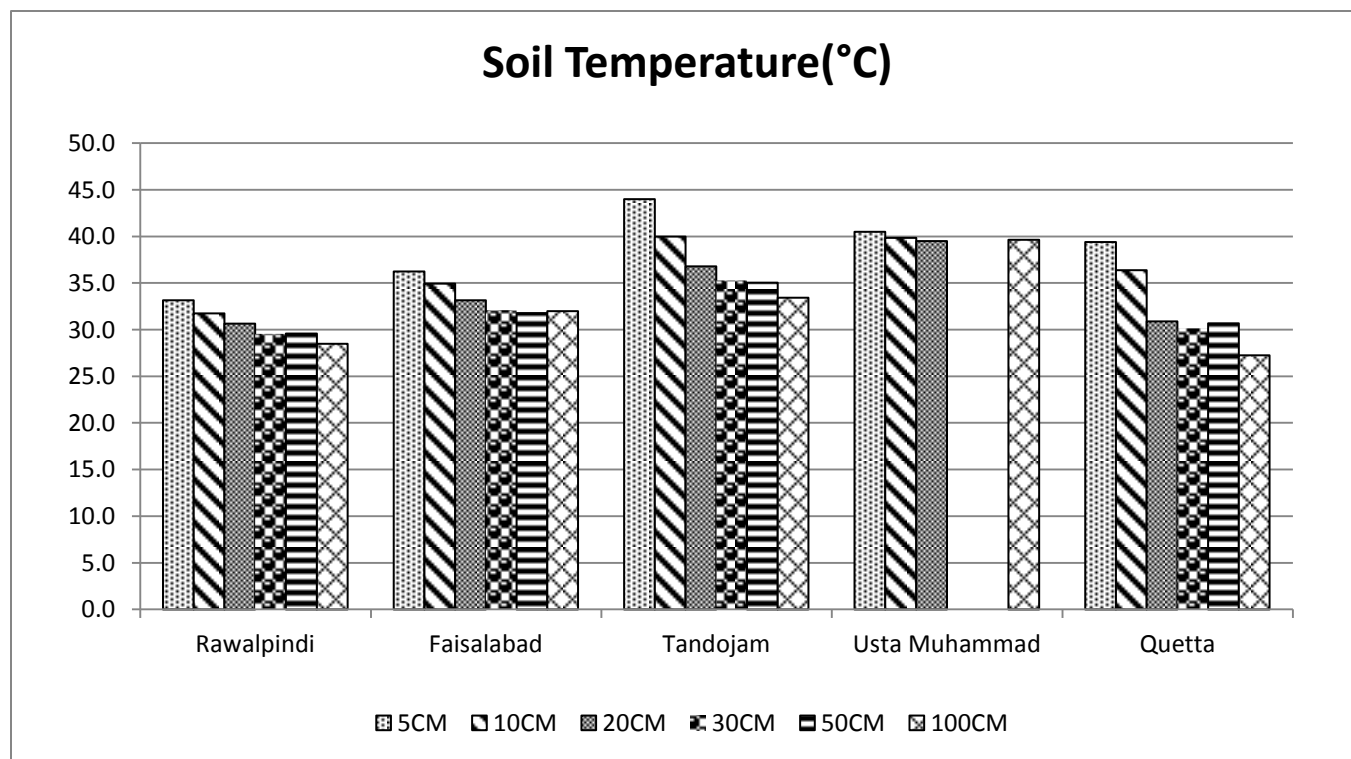
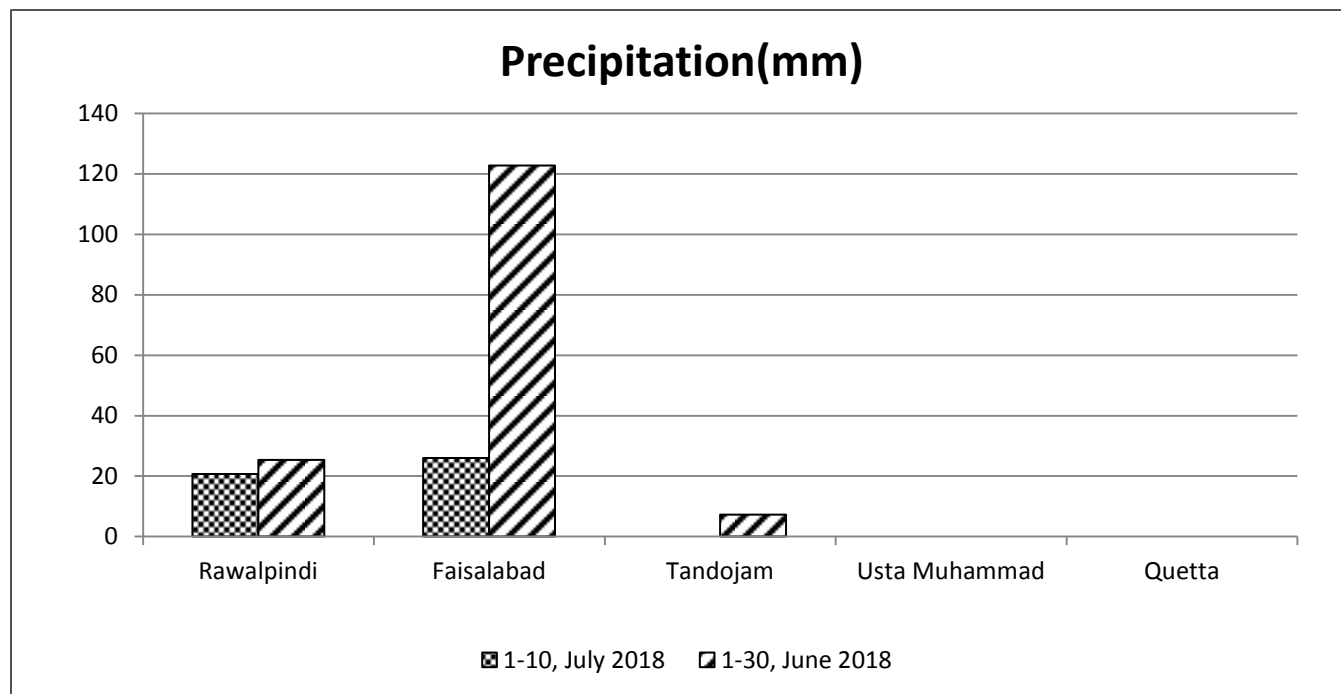
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**Meteorological Conditions during 1<sup>st</sup> Decade of July, 2018**

| 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 | 7.9                | 20.7   | 12.8  | 0.8                  | 0.8      | 30.8 | 33.2                   | 31.8 | 30.7 | 29.6 | 29.6 | 28.5  | 56      | 99.7                     | 4.3                | 6.1          |
| 2       | Faisalabad | 2.9                | 26.0   | 23.1  | -1.0                 | -0.8     | 31.5 | 36.3                   | 35.0 | 33.2 | 32.1 | 31.8 | 32.0  | 61      | 77.0                     | 4.2                | 5.5          |
| 3       | Jhelum     | 4.1                | 59.0   | 54.9  | 0.1                  | 0.2      | 32.1 | 36.9                   | 35.3 | 33.3 | 32.2 | 32.4 | ***   | 59      | 98.1                     | 5.6                | 6.5          |
| 4       | Lahore     | 4.4                | 241.6  | 237.2 | 1.2                  | -1.3     | 30.5 | 32.5                   | 31.8 | 30.2 | 29.0 | ***  | 28.6  | 70      | 68.9                     | 1.1                | 4.5          |
| 5       | Sargodha   | 3.0                | 65.5   | 62.5  | -1.9                 | -1.0     | 31.8 | 36.1                   | 34.6 | 31.9 | 31.1 | ***  | 29.9  | 67      | 85.7                     | 3.5                | 5.6          |
| 6       | Multan     | 1.5                | 0.7    | -0.8  | -1.4                 | -0.8     | 33.6 | ***                    | ***  | ***  | ***  | ***  | ***   | 49      | 57.9                     | 9.4                | 6.9          |
| 7       | Khanpur    | 0.4                | 22.6   | 22.2  | -1.0                 | -1.4     | 34.0 | ***                    | 36.9 | 36.7 | 36.8 | 37.2 | 35.8  | 55      | 82.8                     | 7.1                | 6.8          |
| 8       | Tandojam   | 2.0                | 0.0    | -2.0  | 0.3                  | -1.5     | 31.8 | 44.0                   | 40.0 | 36.8 | 35.3 | 35.1 | 33.5  | 60      | 85.0                     | 15.9               | 8.0          |
| 9       | Sakrand☆   | 0.4                | 0.0    | -0.4  | 0.5                  | 1.2      | 34.9 | 45.6                   | ***  | ***  | ***  | ***  | 36.1  | 46      | 101.5                    | 8.8                | 8.1          |
| 11      | Rohri      | 0.0                | 0.0    | 0.0   | 0.1                  | -1.3     | 35.8 | ***                    | ***  | ***  | ***  | ***  | ***   | 48      | 89.0                     | 3.3                | 6.2          |
| 12      | D.I Khan   | 2.7                | 10.0   | 7.3   | 1.8                  | 0.8      | 34.1 | 38.4                   | 36.5 | 34.7 | 34.6 | 23.1 | ***   | 54      | 88.7                     | 12.8               | 8.5          |
| 13      | Peshawar   | 1.4                | 9.0    | 7.6   | 1.3                  | -2.1     | 32.3 | 41.2                   | 38.8 | 34.3 | 32.7 | 31.2 | 29.7  | 56      | 94.2                     | 2.6                | 5.7          |
| 14      | Usta .M    | 0.3                | 0.0    | -0.3  | -1.5                 | 0.0      | 35.1 | 40.5                   | 39.9 | 39.5 | ***  | ***  | 39.7  | 51      | ***                      | 3.5                | 6.1          |
| 15      | Quetta     | 0.3                | 0.0    | -0.3  | -0.7                 | -0.6     | 28.3 | 39.4                   | 36.4 | 30.9 | 30.2 | 30.7 | 27.3  | 27      | 99.7                     | 5.2                | 6.4          |
| 16      | Skardu     | 0.4                | 0.0    | -0.4  | 0.3                  | -0.4     | 22.6 | ***                    | ***  | ***  | ***  | ***  | ***   | 45      | 71.0                     | 0.5                | 4.0          |
| 17      | Gilgit     | 0.1                | 9.0    | 8.9   | -0.1                 | -0.2     | 26.2 | ***                    | ***  | ***  | ***  | ***  | ***   | 47      | 83.9                     | 1.5                | 4.7          |

**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 July, 2018



### Past Weather (1<sup>st</sup> to 10<sup>th</sup> July, 2018)

Light to moderate rainfall reported from most of the agricultural plains of the country; however light rainfall is reported from one place of Sindh during the last decade.

#### 1.1 Punjab

Light to moderate rainfall reported most of the agricultural plains of the Punjab. Chief amount of rainfall is received at Lahore, Murree & Joharabad. Decadal maximum & minimum both dropped below normal by 0.5°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 60%, 81.4hrs, 5.0km/hr and 6.0mm/day respectively.

#### 1.2 Sindh

Light rainfall reported from one place of Sindh i.e. Karachi. Decadal maximum raised above normal by 0.3°C & minimum dropped below normal by 0.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 91.8hrs, 9.3km/hr and 7.4mm/day respectively.

#### 1.3 Khyber Pakhtunkhwa (KP)

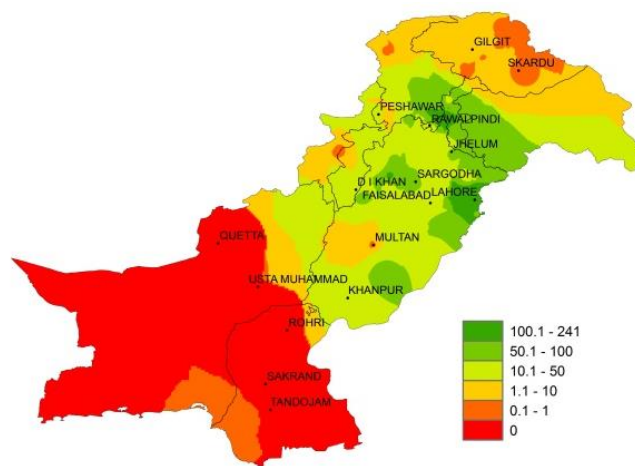
Light to moderate rainfall reported from most of the agricultural plains of KP. Chief amount of rainfall is received at Kakul, Malam Jabba & Balakot. Decadal maximum raised above normal by 1.6°C & minimum dropped below normal by 0.7°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 91.5hrs, 7.7km/hr and 7.1mm/day respectively.

#### 1.4 Balochistan

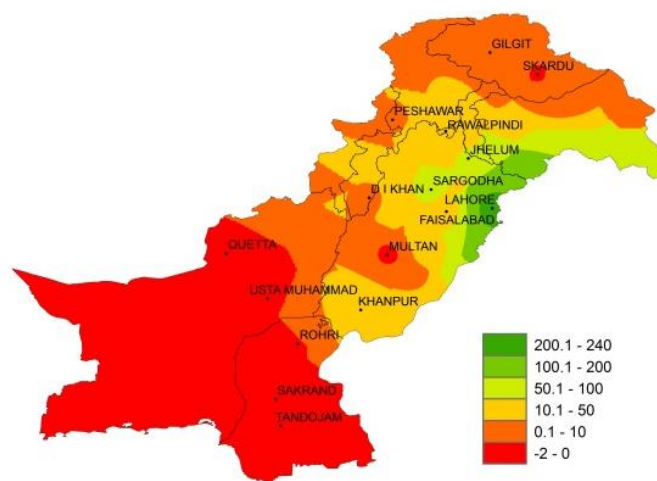
Light to moderate rainfall reported from few place of Balochistan. Chief amount of rainfall is received at Zhob & Barkhan. Decadal maximum & minimum both dropped below normal by 1.1°C & 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 39%, 99.7hrs, 4.4km/hr and 6.3mm/day respectively.

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

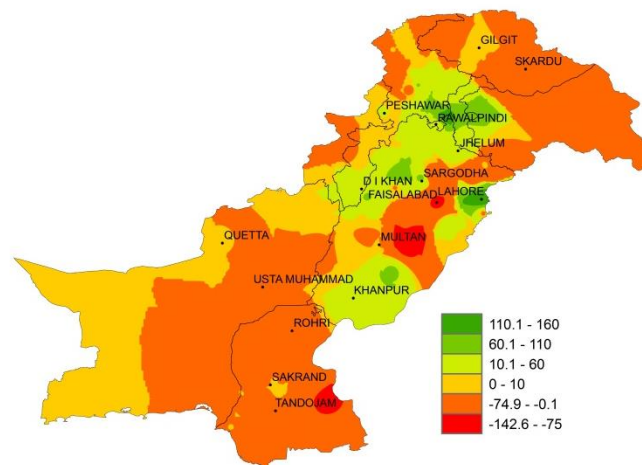
Light to moderate rainfall reported from most of the agricultural plains of G.B and Kashmir. Chief amount of rainfall is received at Rawalakot, Garhi Dopatta & Muzaffarabad. . Decadal maximum raised above normal by 0.1°C & minimum dropped below normal by 0.3°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 77.5hrs, 1.0km/hr and 4.4mm/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> July, 2018)

### 2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 20.7mm during the decade; however weather remained cloudy for 07day during the decade. Average relative humidity recorded as 56%. Mean day temperature was 37.2°C while night temperature recorded as 24.4°C with 99.7hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *westerly*.

### 2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 26.0mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 36.8°C while night temperature recorded as 26.2°C with 77.0hours bright sunshine duration. Wind speed recorded as 4.2km/hr with mean wind direction *southerly*.

**Cotton:** *Very Good condition, budding stage completed*

### 2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; Average relative humidity recorded as 60%. Mean day temperature was 38.1°C while night temperature recorded as 25.5°C with 85.0hours bright sunshine duration. Wind speed recorded as 15.9km/h with mean wind direction *south westerly*.

**Cotton (CIM-602):** *Good condition, flowering stage*

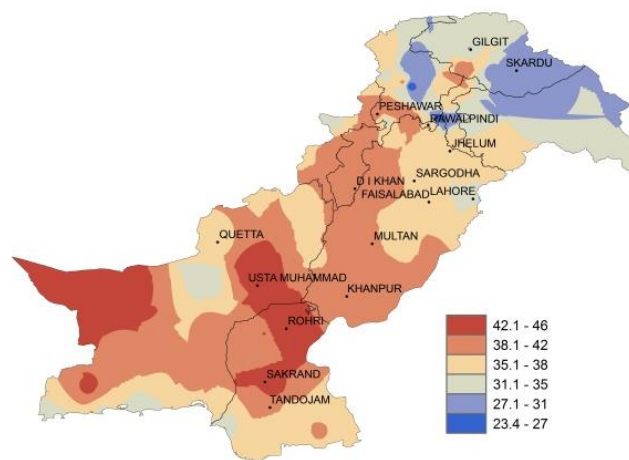
### 2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 41.2°C while night temperature recorded as 29.0°C. Wind speed recorded as 3.5km/h with mean wind direction *south easterly*.

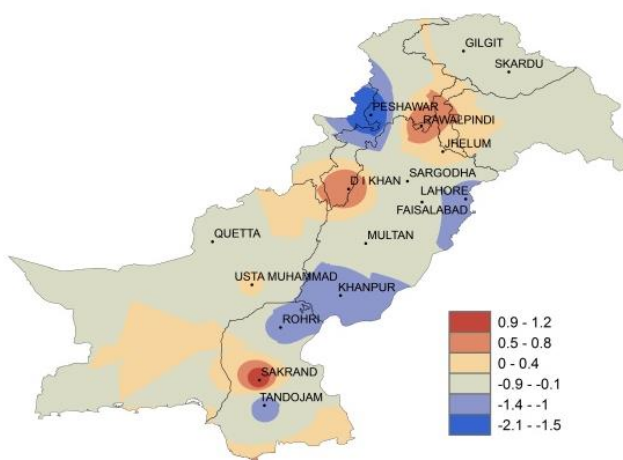
**Rice:** *Good condition, Paneri transplantation in process*

### 2.5 RAMC, Quetta (Northern Balochistan)

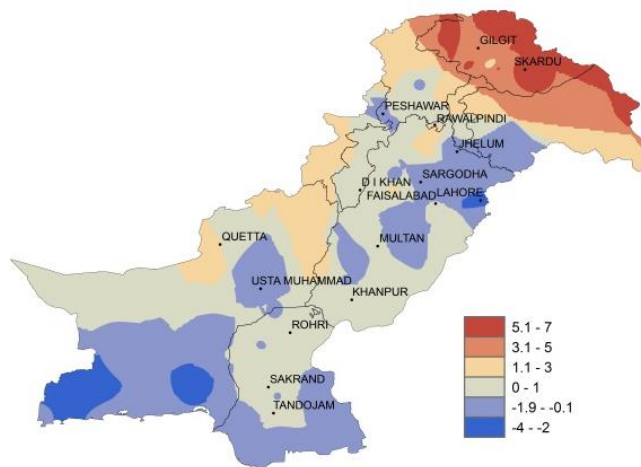
Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 27%. Mean day temperature was 35.6°C while night temperature recorded as 20.9°C with 99.7hours bright sunshine duration. Wind speed recorded as 5.2km/hr with mean wind direction *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> July, 2018)

### 2.6 Jhelum

Rainfall reported as 59.0mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 37.3°C while night temperature recorded as 26.9°C with 98.1hours bright sunshine duration. Wind speed recorded as 5.6km/hr with mean wind direction *south easterly*.

### 2.7 Lahore

Rainfall reported as 241.6mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 34.5°C while night temperature recorded as 26.4°C with 68.9hours bright sunshine duration. Wind speed recorded as 1.1km/hr with mean wind direction *south easterly*.

### 2.8 Sargodha

Rainfall reported as 65.5mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 36.6°C while night temperature recorded as 26.9°C with 85.7hours bright sunshine duration. Wind speed recorded 3.5km/hr with mean wind direction *variable*.

### 2.9 Multan

Rainfall reported as 0.7mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 38.5°C while night temperature recorded as 28.6°C with 57.9hours bright sunshine duration. Wind speed recorded 9.4km/hr with mean wind direction *south westerly*.

### 2.10 Khanpur

Rainfall reported as 22.6mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 39.8°C while night temperature recorded as 28.2°C with 82.8hours bright sunshine duration. Wind speed recorded 7.1km/hr with mean wind direction *south westerly*.

### 2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 46%. Mean day temperature was 41.0°C while night temperature recorded as 28.8°C with 101.5hours bright sunshine duration. Wind speed recorded 8.8km/hr with wind direction *south westerly*.

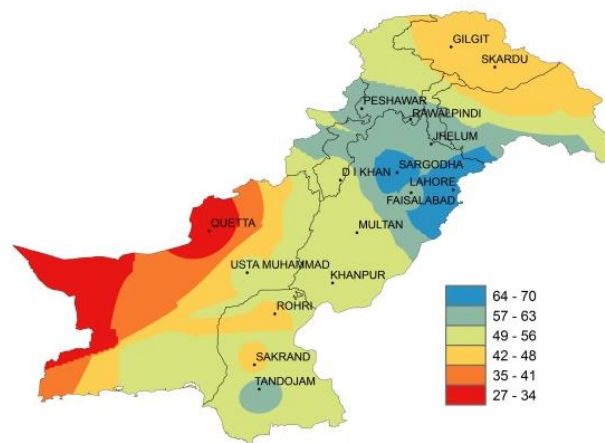


Figure.3: Relative Humidity in Percentage (%)

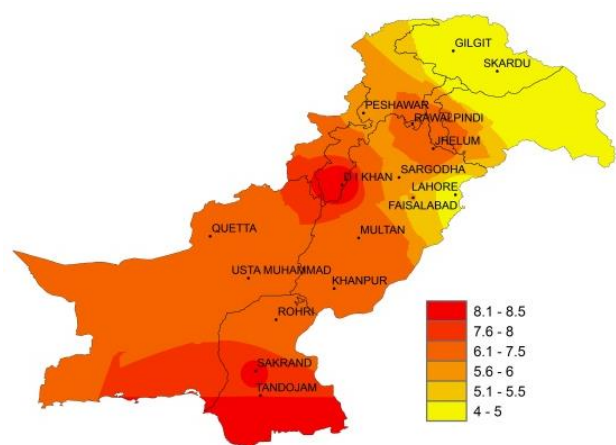


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

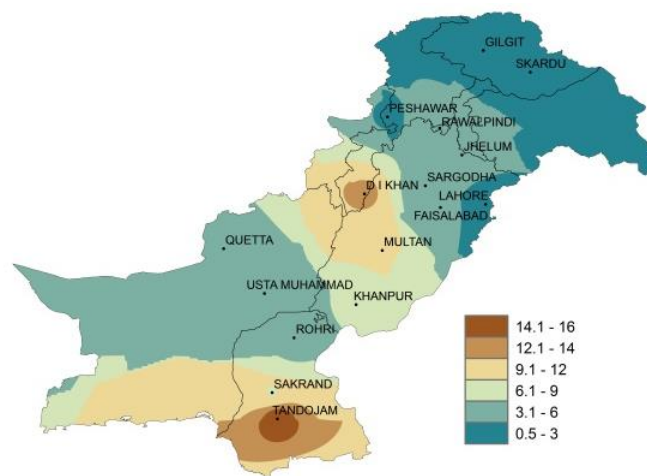


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 42.6°C while night temperature recorded as 29.0°C with 89.0hours bright sunshine duration. Wind speed recorded 3.3km/hr with wind direction *variable*.

**2.13 D.I. Khan**

Rainfall reported as 10.0mm during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 40.9°C while night temperature recorded as 27.3°C with 88.7hours bright sunshine duration. Wind speed recorded as 12.8km/hr with mean wind direction *easterly*.

**2.14 Peshawar**

Rainfall reported as 9.0mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 39.5°C while night temperature recorded as 25.0°C with 94.2hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *north easterly*.

**2.15 Skardu**

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 45%. Mean day temperature was 30.2°C while night temperature recorded as 14.9°C with 71.0hours bright sunshine duration. Wind speed recorded as 0.5km/hr with mean wind direction *east north-easterly*.

**2.16 Gilgit**

Rainfall reported as 9.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 35.9°C while night temperature recorded as 16.4°C with 83.9hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *south easterly*.

### **Ten Days Weather Advisory for Farmers** **(11<sup>th</sup> to 20<sup>th</sup> July, 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**

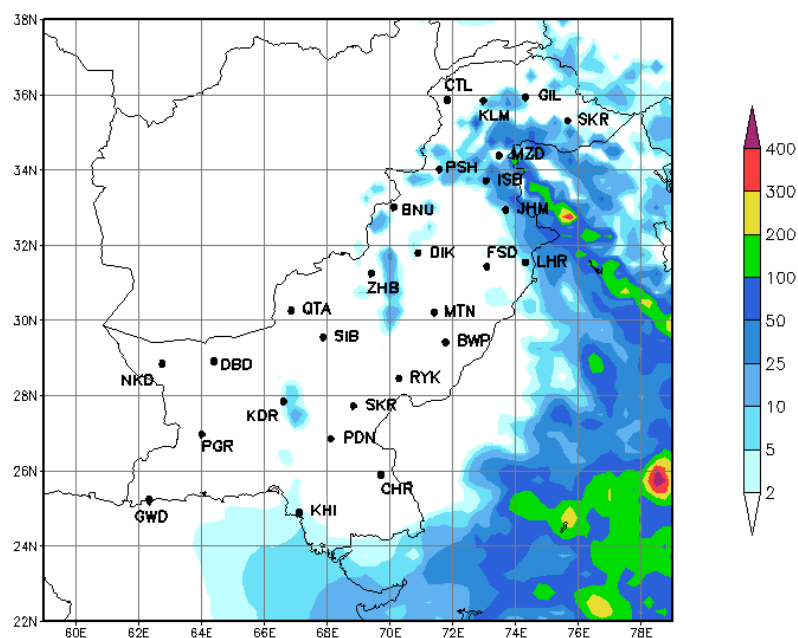
- ❖ **Punjab:** Hot and dry weather is expected in most of southern parts of the province however heavy to moderate rainfall is expected upper and central parts of the province during the decade.
- ❖ **Khyber Pakhtunkhwa:** Heavy to moderate rain-thunderstorm is expected at most places of the province during the decade.
- ❖ **Sindh:** Hot and dry weather is expected in most parts of the province however light to moderate rainfall is expected at coastal belt and central parts during the decade.
- ❖ **Balochistan:** Hot and dry weather is expected in most parts of the province however light to moderate rainfall is expected at scattered places in eastern parts during the decade.
- ❖ **Gilgit-Baltistan:** Heavy to moderate rain-thunderstorm with gusty winds is expected at most of places during the decade.
- ❖ **Kashmir:** Heavy 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/fodder from the damaging impacts of extreme hot and dry weather conditions in the lower plains as well as strong winds/hails storms/ flooding in the upper half of the country.
- ❖ Due to higher temperature Pinkboll worm attack is observed on April sowing Cotton crop, so farmers are advised to take adoptive measures especially the use of PB ropes in consultancy with plant protection department.
- ❖ Growers of Rice are advised to complete transplantation of the nurseries in accordance with the recommendation by the agricultural experts.

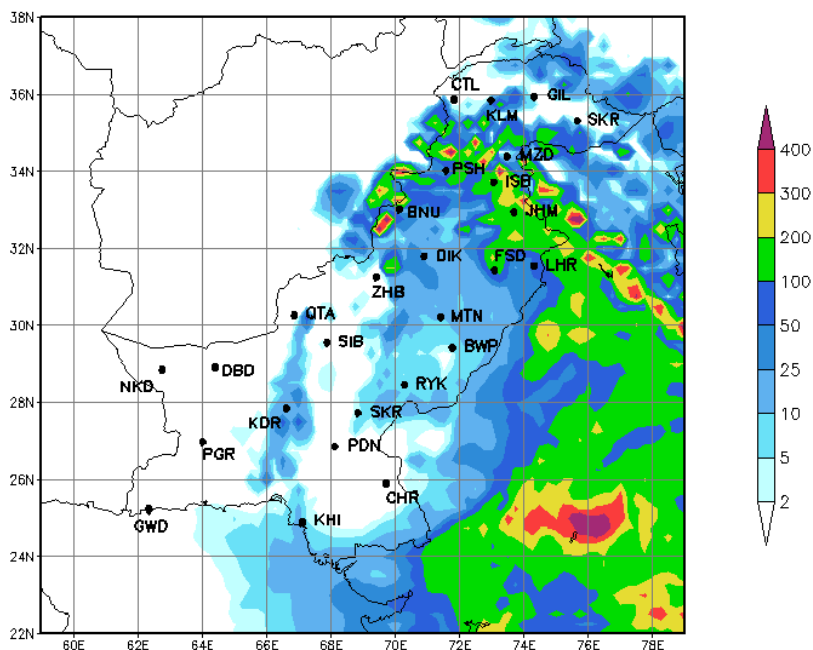
#### 4.1 Precipitation Outlook (11<sup>th</sup> to 13<sup>th</sup> July, 2018)

The forecast for the first three days (11<sup>th</sup> to 13<sup>th</sup>) of the second decade of July, 2018 shows that mostly hot and dry weather is expected in most parts of the country in the lower half. However, light to moderate rainfall is expected at particular places of upper Punjab, KP, eastern Baluchistan, 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 July, 2018 shows that mostly hot and dry weather is expected in most of south-western parts of the country. While heavy to moderate rainfall is expected in Punjab, KP, G.B and Kashmir. Besides, light to moderate rainfall is expected in coastal belt of Sindh and eastern Baluchistan.





## 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)