

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Light to moderate rainfall reported from most parts of the country while light rainfall reported from few places of Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 142.0 mm at Sibbi during the last decade.
- ❖ Highest maximum temperature recorded as 52.2°C at Noorpur Thal (Punjab) during the last decade.
- ❖ Light to moderate rain is expected in most of the upper parts and coastal belt of the country during the second half of the current decade, while dry weather is expected in southern parts of the country.
- ❖ Cotton growers are advised to irrigate their crops keeping in view the harsh weather conditions.
- ❖ Rice growers are advised to sow the crop in accordance with the recommendation by the agriculture experts.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.
- ❖ Measures may be taken to preserve the standing crops and vegetables from the damaging effects of varying weather pattern.

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

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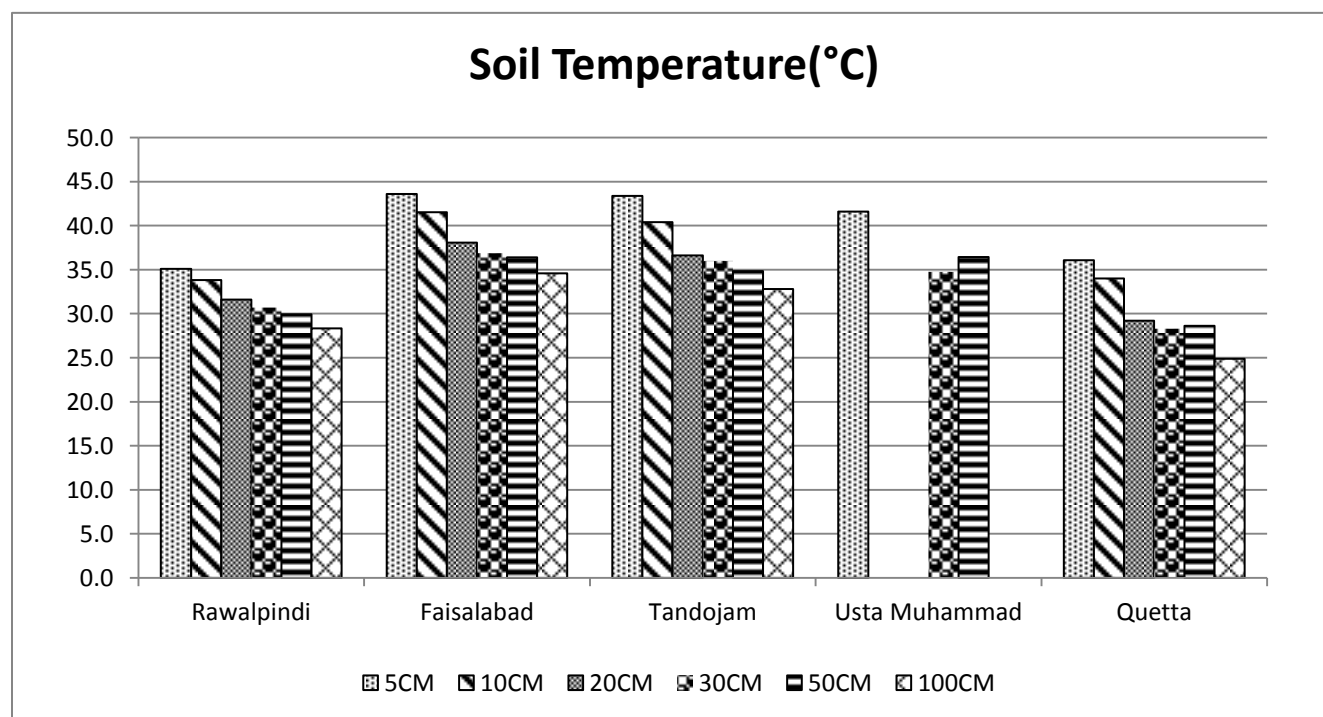
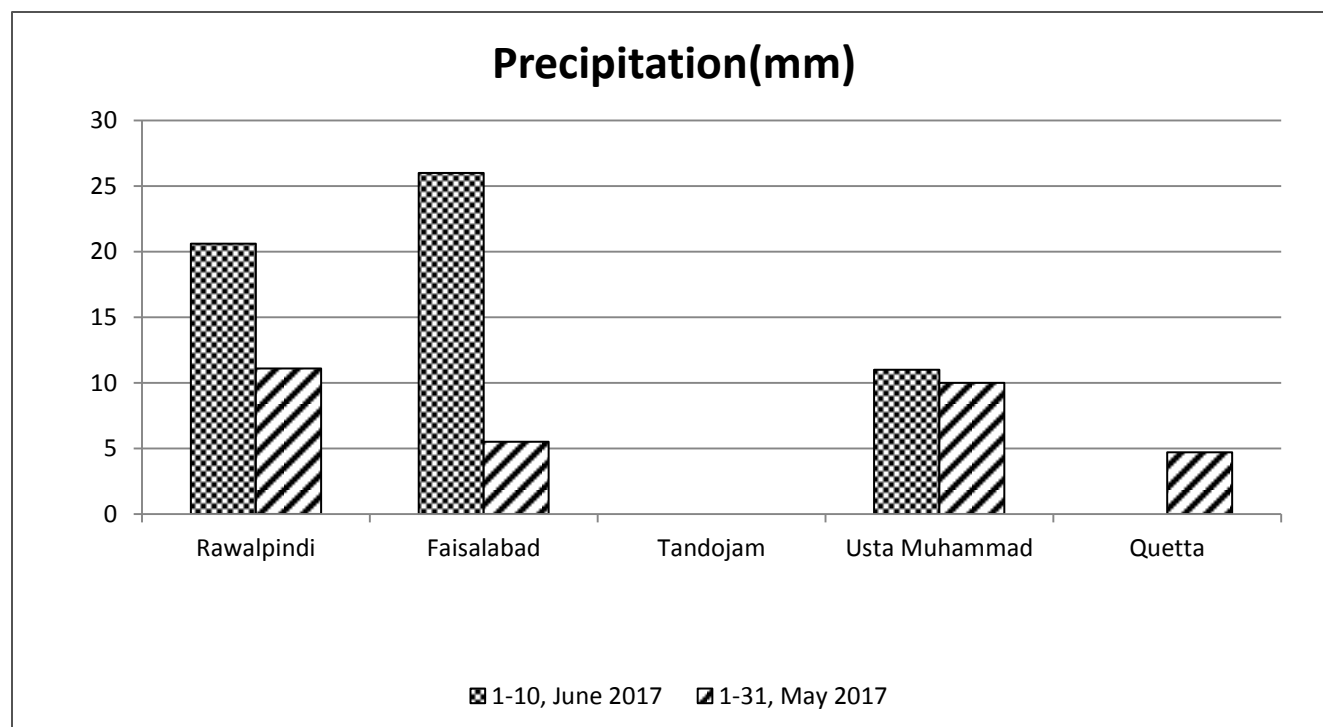
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**Meteorological Conditions during 1<sup>st</sup> decade of June, 2017**

| Sr. No. | Station    | Precipitation (mm) |        |      | Air Temperature (°C) |          |      | Soil Temperatures (°C) |      |      |      |      |       | R.H (%) | Sunshine Duration(hours) | Wind Speed (km/hr) | ET <sub>o</sub> (mm/day) |
|---------|------------|--------------------|--------|------|----------------------|----------|------|------------------------|------|------|------|------|-------|---------|--------------------------|--------------------|--------------------------|
|         |            | Normal             | Actual | Dep  | Tmax Dep             | Tmin Dep | Mean | 5cm                    | 10cm | 20cm | 30cm | 50cm | 100cm |         |                          |                    |                          |
| 1       | Rawalpindi | 1.6                | 20.6   | 19.0 | 0.9                  | 1.0      | 31.6 | 35.1                   | 33.9 | 31.6 | 30.7 | 30.0 | 28.4  | 44      | 104.4                    | 6.5                | 7.2                      |
| 2       | Faisalabad | 1.1                | 26.0   | 24.9 | -0.5                 | 0.1      | 33.3 | 43.6                   | 41.6 | 38.1 | 36.9 | 36.4 | 34.6  | 47      | 102.3                    | 4.4                | 6.6                      |
| 3       | Jhelum     | 2.1                | 15.7   | 13.6 | 0.4                  | -0.8     | 32.9 | 37.8                   | 34.6 | 33.2 | 31.9 | 31.4 | ***   | 37      | 97.7                     | 6.0                | 7.4                      |
| 4       | Lahore     | 1.2                | 61.4   | 60.2 | 0.4                  | -0.7     | 33.3 | 36.4                   | 35.7 | 33.0 | 31.6 | ***  | 29.2  | 44      | 86.6                     | 3.0                | 5.8                      |
| 5       | Sargodha   | 0.3                | 21.6   | 21.3 | 0.1                  | 0.5      | 34.8 | 41.1                   | 38.6 | 35.3 | 34.4 | ***  | 30.5  | 48      | 93.0                     | 2.7                | 6.0                      |
| 6       | Multan     | 0.1                | 27.4   | 27.3 | -0.7                 | 1.0      | 35.4 | ***                    | ***  | ***  | ***  | ***  | ***   | 37      | 54.7                     | 10.9               | 8.3                      |
| 7       | Khanpur    | 0.6                | 0.1    | -0.5 | 1.6                  | 1.5      | 35.5 | ***                    | 39.1 | 38.8 | 38.6 | 38.6 | 35.7  | 84      | 89.1                     | 8.2                | 6.4                      |
| 8       | Tandojam   | 0.9                | 0.0    | -0.9 | 0.8                  | -0.8     | 32.9 | 43.4                   | 40.4 | 36.7 | 36.0 | 34.9 | 32.8  | 57      | 103.2                    | 13.5               | 8.5                      |
| 9       | Sakrand ☆  | 0.9                | 0.0    | -0.9 | 0.4                  | 2.7      | 35.4 | 0.0                    | ***  | ***  | ***  | ***  | 0.0   | 46      | 108.8                    | 10.9               | 9.1                      |
| 11      | Rohri      | 0.0                | 0.0    | 0.0  | 1.1                  | 2.0      | 37.4 | ***                    | ***  | ***  | ***  | ***  | ***   | 32      | 104.0                    | 6.4                | 8.2                      |
| 12      | D.I Khan   | 0.3                | 2.0    | 1.7  | 1.6                  | 0.7      | 34.3 | 35.5                   | 34.5 | 33.8 | 33.5 | 22.1 | 30.3  | 46      | 80.4                     | 11.9               | 8.8                      |
| 13      | Peshawar   | 0.6                | 35.0   | 34.4 | 0.9                  | -0.8     | 32.4 | 38.9                   | 34.7 | 34.1 | 30.6 | 26.4 | 30.4  | 39      | 80.5                     | 3.2                | 5.7                      |
| 14      | Usta .M    | 0.5                | 11.0   | 10.5 | 0.1                  | 1.4      | 37.3 | 41.6                   | ***  | ***  | 34.8 | 36.4 | ***   | 40      | ***                      | 8.1                | 8.9                      |
| 15      | Quetta     | 0.5                | 0.0    | -0.5 | 0.5                  | 2.0      | 27.0 | 36.1                   | 34.0 | 29.2 | 28.3 | 28.7 | 24.9  | 21      | 112.7                    | 5.0                | 6.6                      |
| 16      | Skardu     | 0.3                | 2.0    | 1.7  | 0.0                  | -0.6     | 19.6 | ***                    | ***  | ***  | ***  | ***  | ***   | 40      | 75.6                     | 3.3                | 4.6                      |
| 17      | Gilgit     | 0.6                | 0.1    | -0.5 | -0.9                 | 1.0      | 23.3 | ***                    | ***  | ***  | ***  | ***  | ***   | 34      | 86.1                     | 4.3                | 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. ET<sub>o</sub> 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, 2017



**Past Weather (1<sup>st</sup> to 10<sup>th</sup> June, 2017)**

Light to moderate rainfall reported from most parts of the country while light rainfall reported from few places of Sindh during the last decade.

**1.1 Punjab**

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Chakwal, Murree & Lahore. Decadal maximum and minimum both rose above normal by 0.3°C & 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 89.7hrs, 6.0km/hr and 6.8mm/day respectively.

**1.1 Sindh**

Light rainfall reported from few parts of Sindh. Chief amount of rainfall received at Badin & Karachi. Decadal maximum and minimum both raised above normal by 0.8°C & 1.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 105.3hrs, 10.3km/hr and 8.6mm/day respectively.

**1.2 Khyber Pakhtunkhwa (KP)**

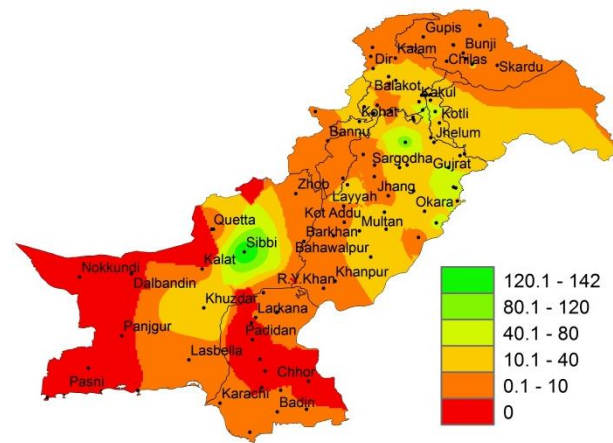
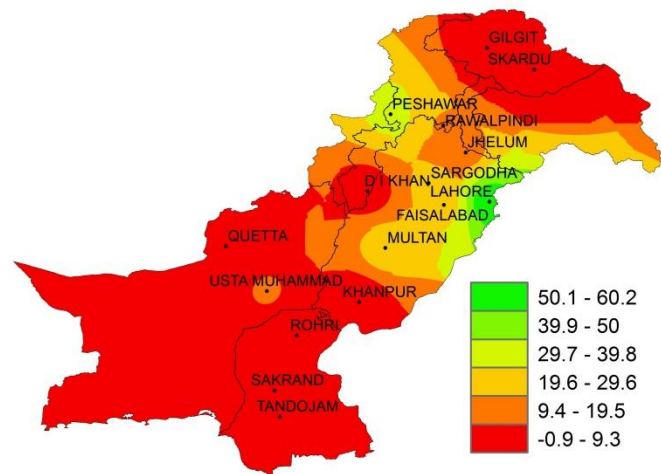
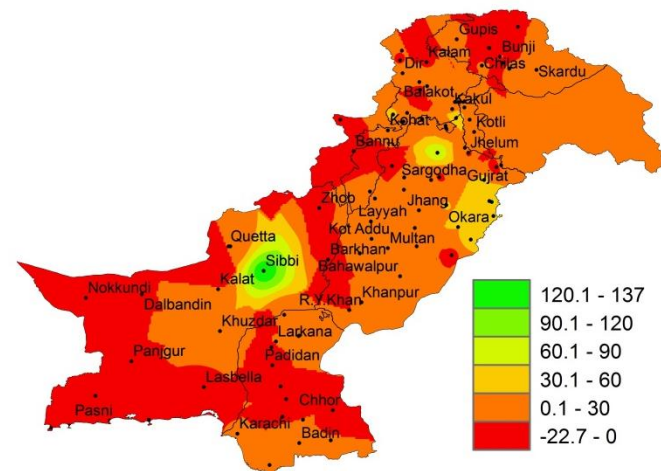
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Peshawar, Kakul & Lower Dir. Decadal maximum aised above normal by 1.3°C & minimum dropped below normal by 0.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 80.5hrs, 7.6km/hr and 7.3mm/day respectively.

**1.3 Balochistan**

Light rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Sibbi, Khuzdar & Barkhan. Decadal maximum and minimum both raised above normal by 0.3°C & 1.7°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 31%, 112.7hrs, 6.6km/hr and 7.8mm/day respectively.

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

Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Rawalakot, Garhi Dopatta & Muzzaffarabad. Decadal maximum dropped below normal by 0.5°C and minimum raised above normal by 0.2°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 37%, 80.9hrs, 3.8km/hr and 5.0mm/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, 2017)

### 2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 20.6mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 44%. Mean day temperature was 39.5°C while night temperature recorded as 23.6°C with 104.4hours bright sunshine duration. Wind speed recorded as 6.5km/hr with mean wind direction *south easterly*.

### 2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 26.0mm during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 47%. Mean day temperature was 40.3°C while night temperature recorded as 26.2°C with 102.33hours bright sunshine duration. Wind speed recorded as 4.4km/hr with mean wind direction *south easterly*.

**Cotton:** *Very Good condition, third leaf stage completed.*

### 2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 57%. Mean day temperature was 40.2°C while night temperature recorded as 25.6°C with 103.2hours bright sunshine duration. Wind speed recorded as 13.5km/h with mean wind direction *south westerly*.

**Cotton HH-906:** *Good condition, budding stage.*

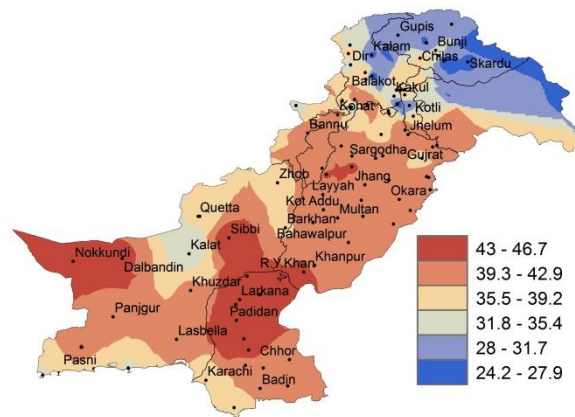
### 2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Rainfall reported as 11.0mm during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 40%. Mean day temperature was 45.4°C while night temperature recorded as 29.1°C. Wind speed recorded as 8.1km/h with mean wind direction *south easterly*.

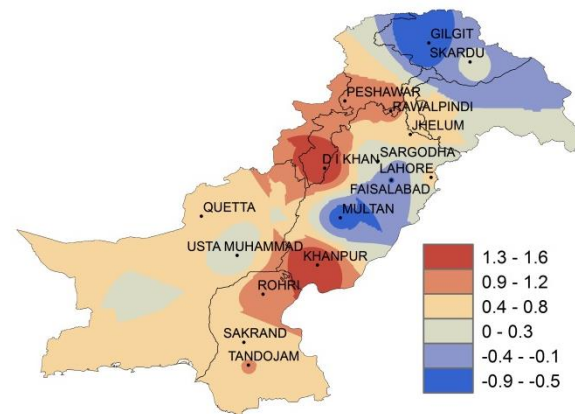
**Crop Condition:** *Field is being prepared for new crop.*

### 2.5 RAMC, Quetta (Northern Balochistan)

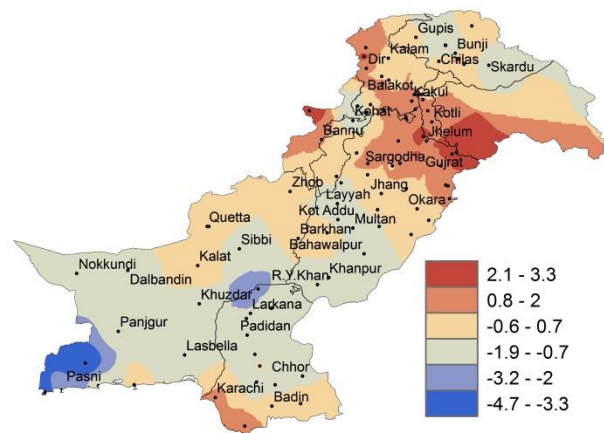
Rainfall reported as 34.3mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 21%. Mean day temperature was 34.3°C while night temperature recorded as 19.6°C with 112.7hours bright sunshine duration. Wind speed recorded as 5.0km/hr with mean wind direction *north westerly*.



I. Actual max-temp



II. Departure of max-temp from Normal



III. Departure of max-temp from Previous Decade

**Figure.2: Maximum 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, 2017)

### 2.6 Jhelum

Rainfall reported as 15.7mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 37%. Mean day temperature was 41.0°C while night temperature recorded as 24.8°C with 97.7 hours bright sunshine duration. Wind speed recorded as 6.0km/hr with mean wind direction *south easterly*.

### 2.7 Lahore

Rainfall reported as 61.4mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 44%. Mean day temperature was 39.6°C while night temperature recorded as 27.0°C with 86.6hours bright sunshine duration. Wind speed recorded as 3.0km/hr with mean wind direction *south westerly*.

### 2.8 Sargodha

Rainfall reported as 21.6mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 48%. Mean day temperature was 41.8°C while night temperature recorded as 27.8°C with 93.0hours bright sunshine duration. Wind speed recorded 2.7km/hr with mean wind direction *south easterly*.

### 2.9 Multan

Rainfall reported as 27.4mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 37%. Mean day temperature was 41.4°C while night temperature recorded as 29.4°C with 54.7hours bright sunshine duration. Wind speed recorded 10.9km/hr with mean wind direction *south westerly*.

### 2.10 Khanpur

Rainfall reported as Trace (not measureable) reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 84%. Mean day temperature was 42.4°C while night temperature recorded as 28.6°C with 89.1hours bright sunshine duration. Wind speed recorded 8.2km/hr with mean wind direction *south westerly*.

### 2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 01 day. Average relative humidity recorded as 46%. Mean day temperature was 42.0°C while night temperature recorded as 28.7°C with 108.8hours bright sunshine duration. Wind speed recorded 10.9km/hr with wind direction *southerly*.

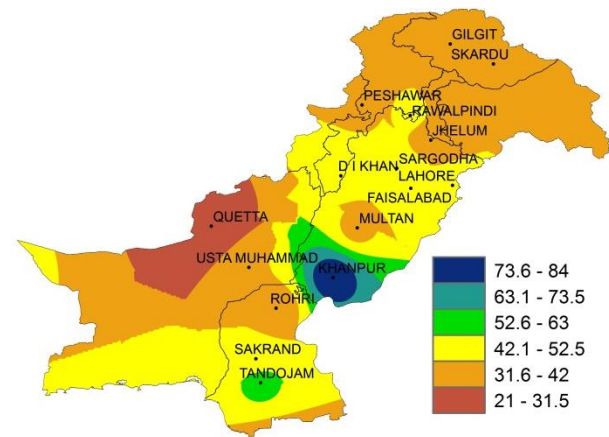


Figure.3: Relative Humidity in Percentage (%)

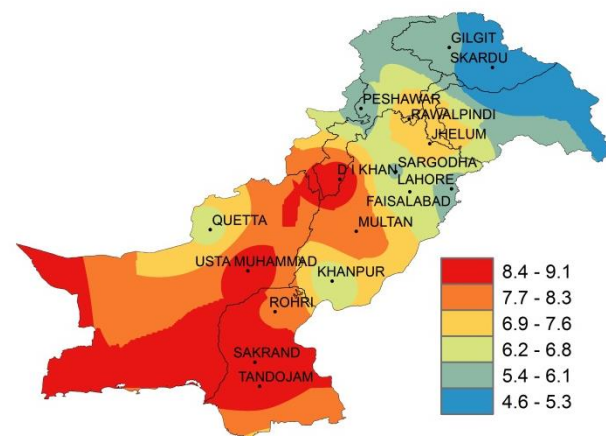


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

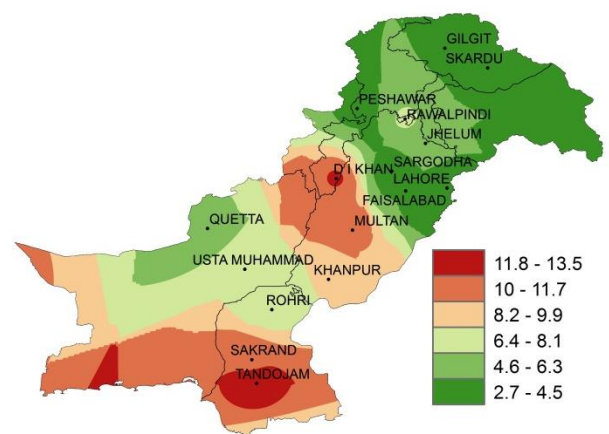


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 32%. Mean day temperature was 43.7°C while night temperature recorded as 31.1°C with 104.0hours bright sunshine duration. Wind speed recorded 6.4km/hr with wind direction *south westerly*.

**2.13 D.I. Khan**

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 46%. Mean day temperature was 42.7°C while night temperature recorded as 25.9°C with 80.4hours bright sunshine duration. Wind speed recorded as 11.9km/hr with mean wind direction *north easterly*.

**2.14 Peshawar**

Rainfall reported as 35.0mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 39%. Mean day temperature was 40.3°C while night temperature recorded as 24.4°C with 80.5hours bright sunshine duration. Wind speed recorded as 3.2km/hr with mean wind direction *north easterly*.

**2.15 Skardu**

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 40%. Mean day temperature was 27.7°C while night temperature recorded as 11.5°C with 75.6hours bright sunshine duration. Wind speed recorded as 3.3km/hr with mean wind direction *south easterly*.

**2.16 Gilgit**

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 34%. Mean day temperature was 32.3°C while night temperature recorded as 14.2°C with 86.1hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *easterly*.

**Ten Days Weather Advisory for Farmers**  
**(12<sup>th</sup> to 20<sup>th</sup> June, 2017)**

**3.1 Temperature Forecast**

Day temperatures are expected slightly above normal in most parts of the country, however night temperature are expected normal in most of the agricultural parts of the 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**

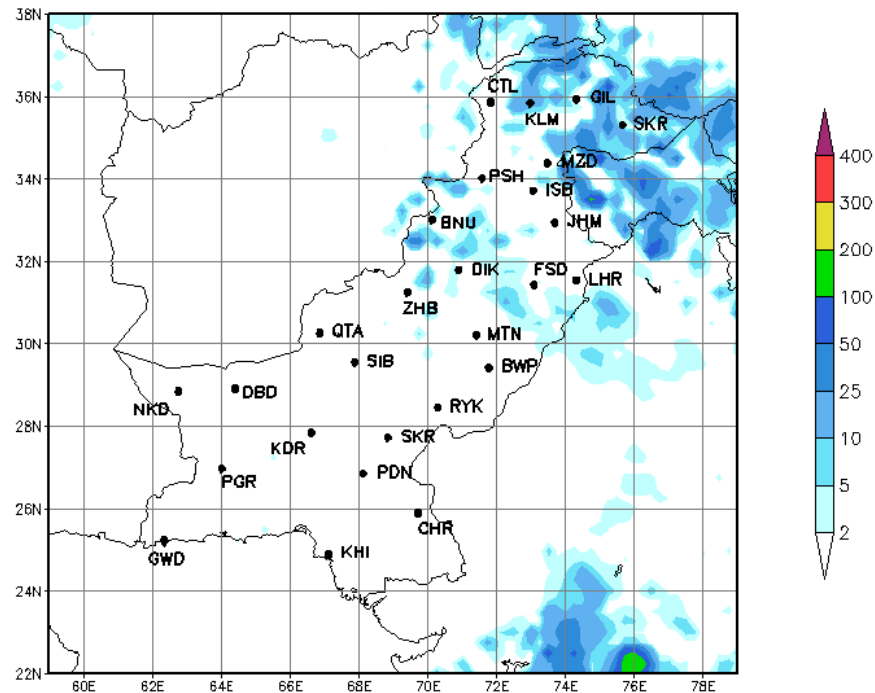
- ❖ **Punjab:** Light to moderate rainfall is expected in most parts of the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at isolated places of the province during the decade.
- ❖ **Sindh:** Light rainfall is expected at isolated places Karachi division during second half of the current decade.
- ❖ **Balochistan:** Light to moderate rainfall is expected in isolated places of Kalat, Zhob, Makran divisions during the second half of the current decade.
- ❖ **Gilgit Baltistan:** Light to moderate rainfall is expected in most parts of G.B during the current decade.
- ❖ **Kashmir:** Light to moderate rainfall is expected in most parts of the Kashmir during the current decade.

**3.4 Advisory for Farmers**

- ❖ Cotton growers are advised to irrigate their crops keeping in view the harsh weather conditions.
- ❖ Rice growers are advised to sow the crop in accordance with the recommendation by the agriculture experts.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.
- ❖ Measures may be taken to preserve the standing crops and vegetables from the damaging effects of varying weather pattern.

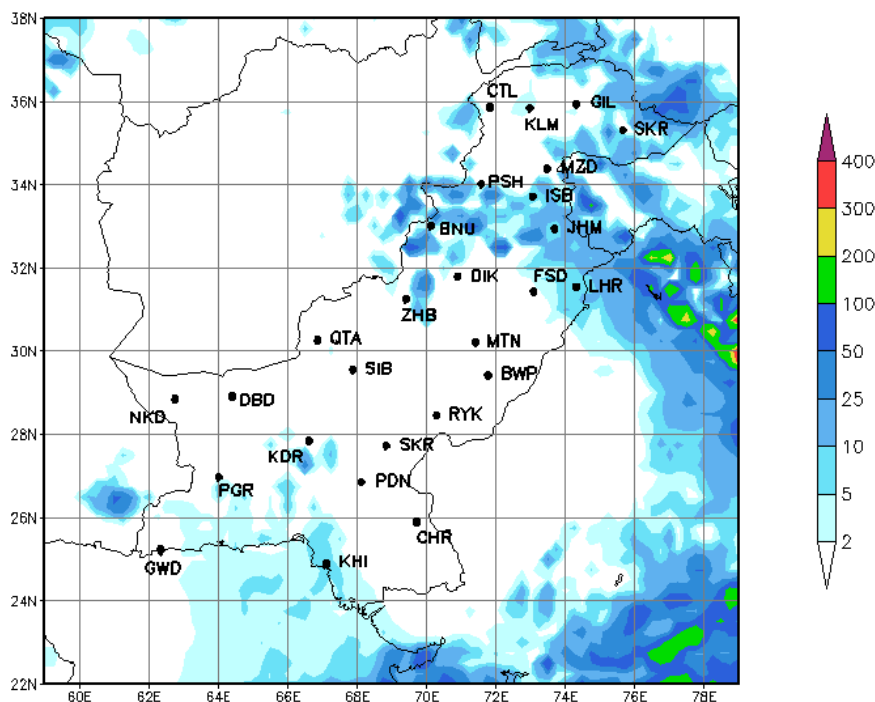
#### 4.1 Precipitation Outlook (12<sup>th</sup> to 14<sup>th</sup> June, 2017)

The forecast for the next three days (12<sup>th</sup> to 14<sup>th</sup>) of the second decade of June 2017 shows that mainly dry weather is expected in most parts of the country. However, light rainfall is expected at a few places in Punjab, GB, Kashmir, KP and northern Baluchistan.



#### 4.2 Precipitation Outlook (14<sup>th</sup> to 20<sup>th</sup> June, 2017)

The outlook for the last seven days (14<sup>th</sup> to 20<sup>th</sup>) of the second decade of June 2017 shows that light to moderate rainfall is expected in most parts Upper Punjab, KP, G.B, Kashmir and coastal belt of Baluchistan & Sindh. However, dry weather may prevail in rest parts of the country.





## 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)