# Decadal Agromet Bulletin of Pakistan

## Highlights….

- ❖ Light to moderate rainfall reported from most parts of the country however light rainfall reported from few parts of Sindh during the last decade.

- ❖ Highest amount of rainfall recorded as 205.0 mm at Rawalakot during the last decade.

- ❖ Highest maximum temperature recorded as 47.0°C at Dalbandin during the last decade.

- ❖ Light to moderate rain is expected in most of the upper half and coastal belt of the country during the current decade, while dry weather is expected in western Baluchistan.

- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.

- ❖ 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 due to monsoon systems.

- ❖ Accumulation of stagnant water in the fields due to heavy rains is fatal for standing crops like cotton. Farmers may take suitable measures to resolve the issue.

## Meteorological Conditions during 1st decade of July, 2017

| 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 | 30.2 | 22.3 | 0.9 | 2.3 | 31.6 | 34.1 | 33.1 | 31.6 | 30.8 | 29.7 | 28.7 | 59 | 85.9 | 5.2 | 6.0 |
| 2 | Faisalabad | 2.9 | 22.0 | 19.1 | 0.2 | 0.3 | 32.7 | 40.2 | 38.9 | 36.9 | 35.6 | 35.1 | 34.1 | 56 | 68.3 | 4.1 | 5.4 |
| 3 | Jhelum | 4.1 | 4.6 | 0.5 | 1.9 | 0.6 | 33.2 | 39.3 | 37.3 | 35.0 | 33.3 | 32.8 | *** | 56 | 93.7 | 2.8 | 5.9 |
| 4 | Lahore | 4.4 | 24.0 | 19.6 | 4.0 | -0.4 | 32.3 | 35.4 | 34.4 | 32.7 | 31.5 | *** | 31.8 | 62 | 68.3 | 2.4 | 5.0 |
| 5 | Sargodha | 3.0 | 63.5 | 60.5 | -0.5 | 0.5 | 33.2 | 36.5 | 35.1 | 33.3 | 32.4 | *** | 30.8 | 63 | 83.4 | 5.0 | 6.0 |
| 6 | Multan | 1.5 | 2.2 | 0.7 | -1.1 | -0.2 | 34.0 | *** | *** | *** | *** | *** | *** | 53 | 89.8 | 9.9 | 7.6 |
| 7 | Khanpur | 0.4 | 0.0 | -0.4 | -0.3 | -0.6 | 34.8 | *** | 38.4 | 38.1 | 38.0 | 37.9 | 35.5 | 52 | 91.0 | 6.9 | 7.1 |
| 8 | Tandojam | 2.0 | 0.0 | -2.0 | -0.6 | -1.4 | 31.4 | 43.0 | 40.0 | 35.7 | 35.3 | 34.7 | 33.2 | 65 | 72.8 | 16.6 | 7.2 |
| 9 | Sakrand ☆ | 0.4 | 0.0 | -0.4 | 0.7 | 0.5 | 34.7 | 45.6 | *** | *** | *** | *** | 36.5 | 51 | 105.8 | 9.8 | 8.3 |
| 11 | Rohri | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | 36.3 | *** | *** | *** | *** | *** | *** | 47 | 99.0 | 3.7 | 6.6 |
| 12 | D.I Khan | 2.7 | 8.0 | 5.3 | 1.6 | -0.7 | 33.3 | 36.4 | 35.9 | 35.0 | 34.6 | 23.5 | 31.9 | 59 | 96.2 | 12.1 | 8.1 |
| 13 | Peshawar | 1.4 | 0.0 | -1.4 | 1.9 | 0.2 | 33.7 | 42.5 | 38.0 | 33.9 | 32.0 | 21.2 | 30.5 | 48 | 94.5 | 6.2 | 7.0 |
| 14 | Usta .M | 0.3 | 0.0 | -0.3 | -2.0 | 1.4 | 35.6 | 36.1 | *** | 32.1 | 34.0 | *** | *** | 52 | *** | 5.1 | 6.2 |
| 15 | Quetta | 0.3 | 3.8 | 3.5 | 1.2 | -0.8 | 29.1 | 37.7 | 35.4 | 30.9 | 30.4 | 31.1 | 28.0 | 29 | 92.7 | 5.0 | 6.4 |
| 16 | Skardu | 0.4 | 1.6 | 1.2 | 1.4 | 0.0 | 23.3 | *** | *** | *** | *** | *** | *** | 43 | 76.3 | 3.9 | 5.0 |
| 17 | Gilgit | 0.1 | 1.0 | 0.9 | -1.3 | 2.0 | 26.7 | *** | *** | *** | *** | *** | *** | 46 | 70.1 | 2.4 | 4.8 |

**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, 2017

## Precipitation(mm)



Legend: ⊠ 1-10, July 2017   ▨ 1-30, June 2017

## Soil Temperature(°C)



Legend: ⊞ 5CM   ◺ 10CM   ▨ 20CM   ⚬ 30CM   ▤ 50CM   ⊠ 100CM
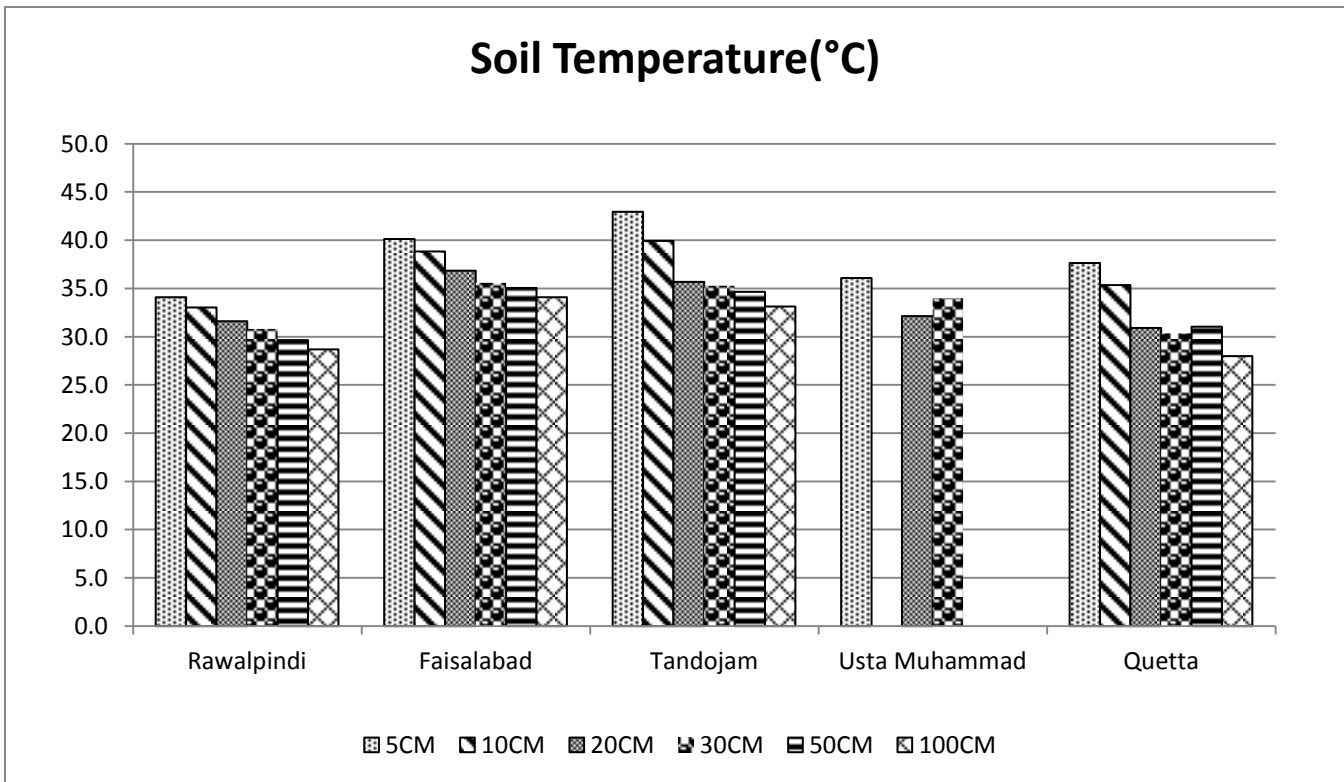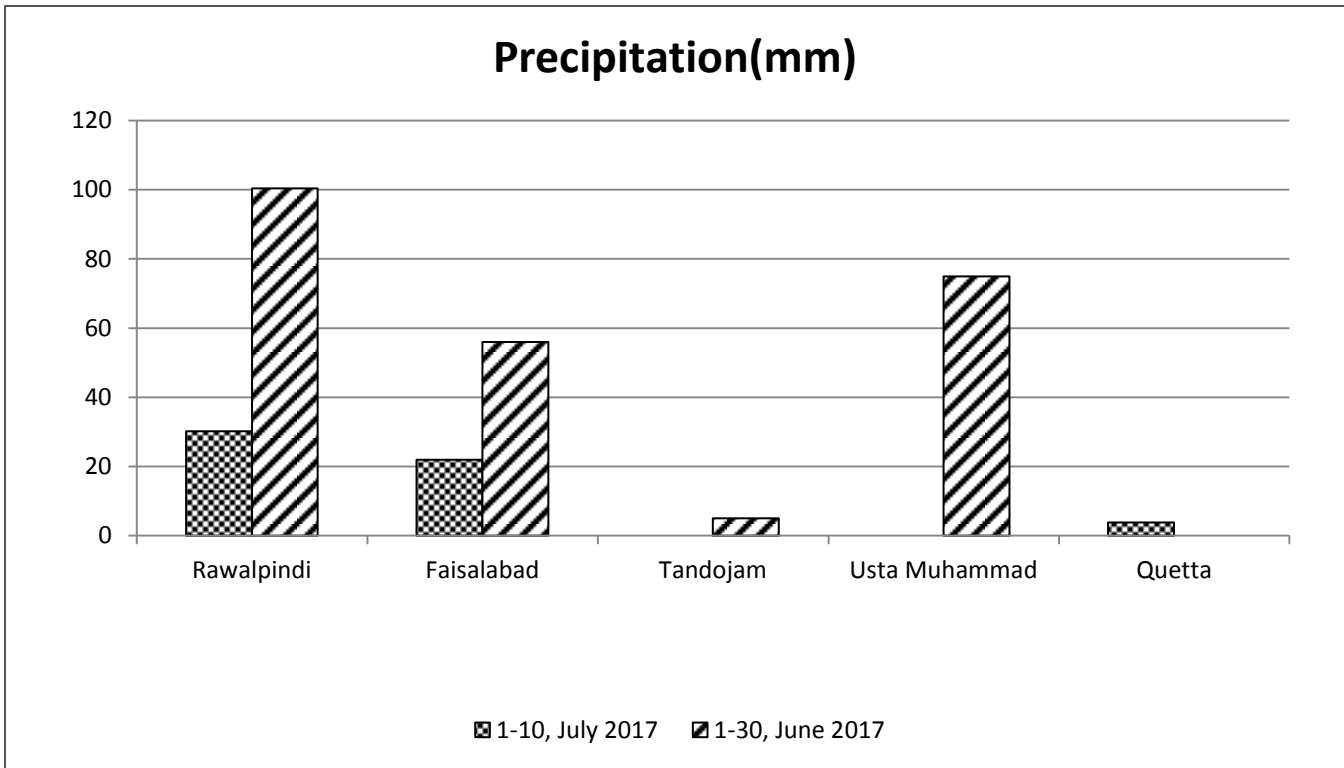
## Past Weather (1st to 10th July, 2017)

Light to moderate rainfall reported from most parts of the country however light rainfall reported from few parts 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 Gujaranwala, Lahore & Silakot. Decadal maximum and minimum both raised above normal by 0.7°C & 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 82.9hrs, 5.2km/hr and 6.1mm/day respectively.

### 1.1 Sindh

Light rainfall reported from agricultural plains of Sindh. Chief amount of rainfall received at Mithi & Karachi. Decadal maximum remained normal and 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 54%, 92.5hrs, 10.0km/hr and 7.4mm/day respectively.

### 1.2 Khyber Pakhtunkhwa (KP)

Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Kalam, Malam Jabba & Lower Dir. Decadal maximum raised above normal by 1.8°C and minimum dropped below normal by 0.3°C & 2.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 95.4hrs, 9.2km/hr and 7.6mm/day respectively.

### 1.3 Balochistan

Light to moderate rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Barkhan, Khuzdar & Zhob. Decadal maximum dropped below normal by 0.4°C & minimum raised above normal by 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 41%, 92.7hrs, 5.1km/hr and 6.3mm/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, Muzzaffarabad & Garhi Dopatta. Decadal maximum and minimum both raised above normal by 0.1°C & 1.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 73.2hrs, 3.2km/hr and 4.9mm/day respectively.
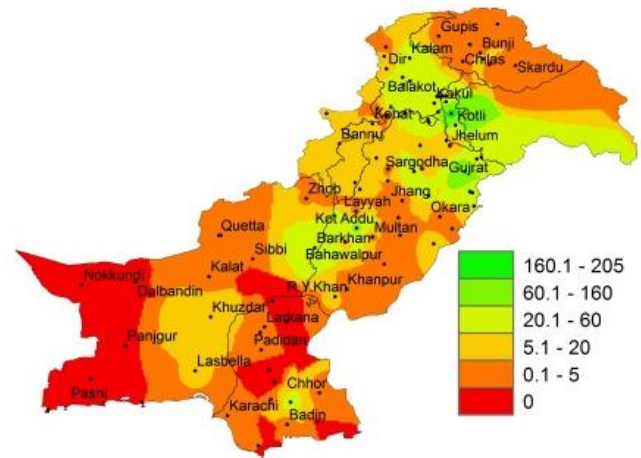


I.   Actual rainfall
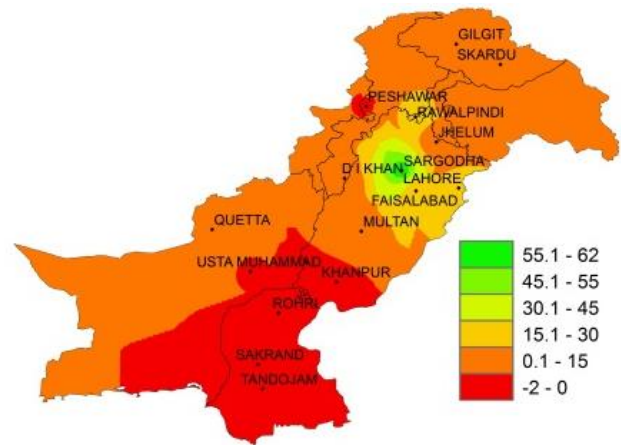


II.   Departure of rainfall from Normal
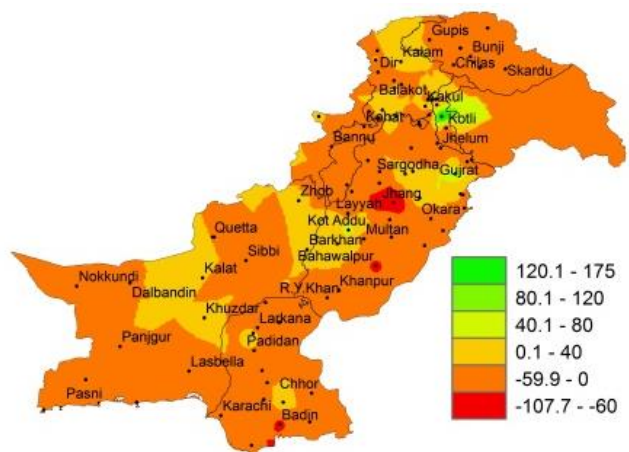


III.   Departure of rainfall from Previous Decade

*Figure.1: Rainfall distribution during previous decade (mm)*

## 2(a)   Past Weather for Major Agricultural Plains (1st to 10th July, 2017)

### 2.1   RAMC, Rawalpindi (Potohar region)

Rainfall reported as 30.2mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 59%. Mean day temperature was 37.3°C while night temperature recorded as 25.9°C with 85.1hours bright sunshine duration. Wind speed recorded as 5.2km/hr with mean wind direction *variable*.

### 2.2   RAMC, Faisalabad (Central Punjab)

Rainfall reported as 22.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 56%. Mean day temperature was 38.0°C while night temperature recorded as 27.3°C with 68.25hours bright sunshine duration. Wind speed recorded as 4.1km/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; however weather remained cloudy for 08days. Average relative humidity recorded as 65%. Mean day temperature was 37.2°C while night temperature recorded as 25.6°C with 72.8hours bright sunshine duration. Wind speed recorded as 16.6km/h with mean wind direction *south westerly*.
***Cotton HH-906:*** *Good condition, flowering stage.*

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

Dry weather reported during the decade; however weather remained cloudy for 05day. Average relative humidity recorded as 52%. Mean day temperature was 40.7°C while night temperature recorded as 30.4°C. Wind speed recorded as 5.1km/h with mean wind direction *south easterly*.
***Rice:*** *Good condition, Rice PANEERI is transferred in the fields.*

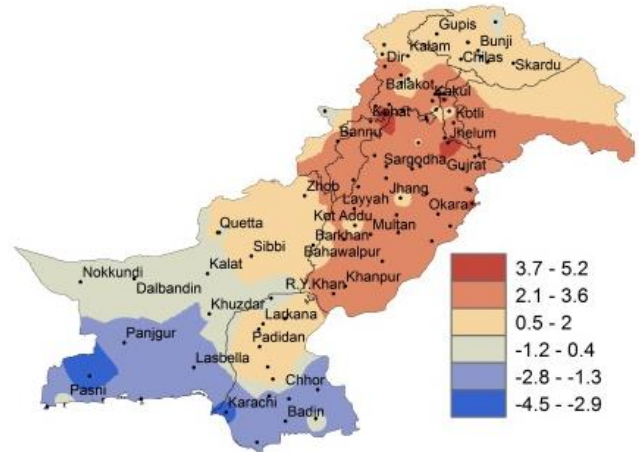### 2.5   RAMC, Quetta (Northern Balochistan)

Rainfall reported as 3.8mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 29%. Mean day temperature was 37.5°C while night temperature recorded as 20.7°C with 92.7hours bright sunshine duration. Wind speed recorded as 5.0km/hr with mean wind direction *north westerly*.
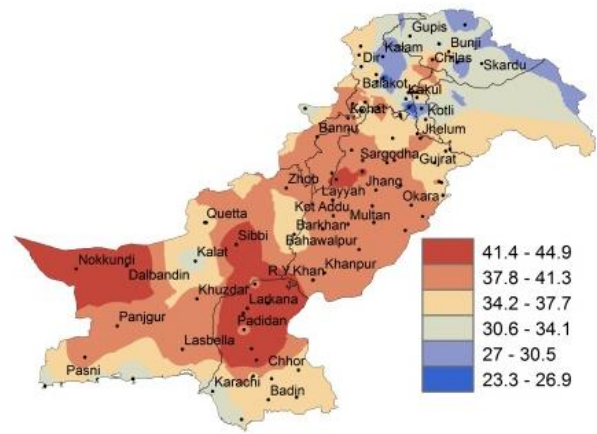


I.   **Actual max-temp**
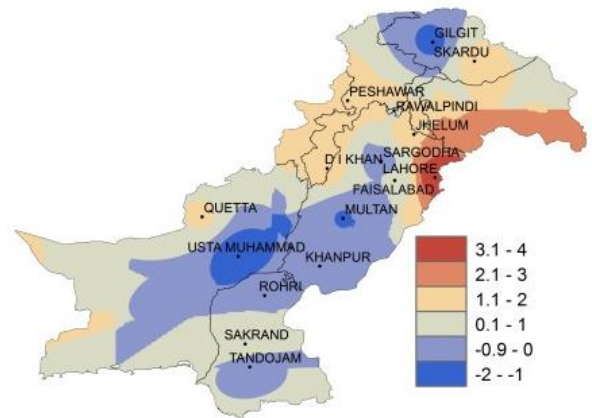


II.   **Departure of max-temp from Normal**



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 (1st to 10th July, 2017)**

**2.6       Jhelum**

Rainfall reported as 4.6mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 56%. Mean day temperature was 39.1°C while night temperature recorded as 27.3°C with 93.7hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *south easterly.*

**2.7       Lahore**

Rainfall reported as 24.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 62%. Mean day temperature was 37.3°C while night temperature recorded as 27.3°C with 68.3hours bright sunshine duration. Wind speed recorded as 2.4km/hr with mean wind direction *south westerly.*

**2.8       Sargodha**

Rainfall reported as 63.5mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 63%. Mean day temperature was 38.0°C while night temperature recorded as 28.4°C with 83.4hours bright sunshine duration. Wind speed recorded 5.0km/hr with mean wind direction *south easterly.*

**2.9       Multan**

Rainfall reported as 2.2mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 53%. Mean day temperature was 38.8°C while night temperature recorded as 29.2°C with 89.8hours bright sunshine duration. Wind speed recorded 9.9km/hr with mean wind direction *south westerly.*

**2.10      Khanpur**

Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 52%. Mean day temperature was 40.5°C while night temperature recorded as 29.0°C with 91.0hours bright sunshine duration. Wind speed recorded 6.9km/hr with mean wind direction *south westerly.*

**2.11      Sakrand**

Rainfall reported as 41.2mm during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 51%. Mean day temperature was 41.2°C while night temperature recorded as 28.1°C with 105.8hours bright sunshine duration. Wind speed recorded 9.80km/hr with wind direction *southerly.*
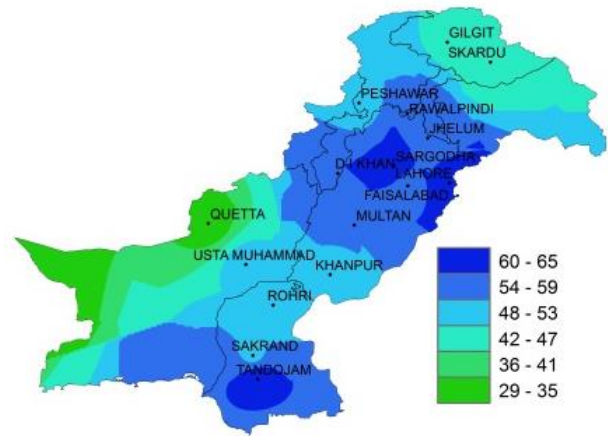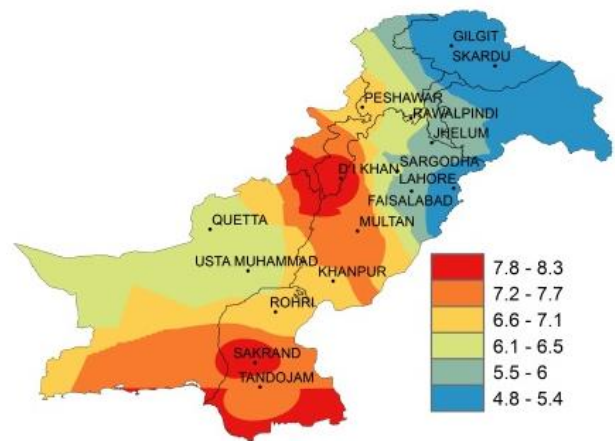


*Figure.3: Relative Humidity in Percentage (%)*



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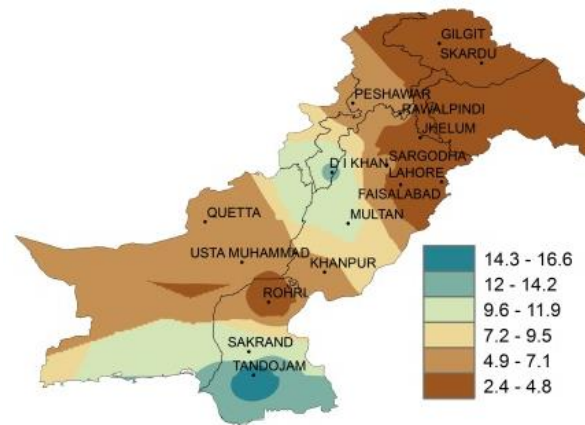


*Figure 5:  Wind Speed in kilometer per hour (km/h)*

**2.12     Rohri**

Dry weather during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 47%. Mean day temperature was 42.3°C while night temperature recorded as 30.2°C with 99.0hours bright sunshine duration. Wind speed recorded 3.7km/hr with wind direction *south easterly.*

**2.13     D.I. Khan**

Rainfall reported as 8.0mm during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 59%. Mean day temperature was 40.7°C while night temperature recorded as 25.8°C with 96.2hours bright sunshine duration. Wind speed recorded as 12.1km/hr with mean wind direction *north easterly.*

**2.14     Peshawar**

Dry weather reported during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 48%. Mean day temperature was 40.1°C while night temperature recorded as 27.3°C with 94.5hours bright sunshine duration. Wind speed recorded as 6.2km/hr with mean wind direction *north easterly.*

**2.15     Skardu**

Rainfall reported as 1.6mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 43%. Mean day temperature was 31.3°C while night temperature recorded as 15.3°C. Wind speed recorded as 3.9km/hr with mean wind direction *southerly.*

**2.16     Gilgit**

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 46%. Mean day temperature was 34.7°C while night temperature recorded as 18.6°C with 70.1hours bright sunshine duration. Wind speed recorded as 2.4km/hr with mean wind direction *easterly*

**Ten Days Weather Advisory for Farmers (11th to 20th July, 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 most parts of the province during the decade.

❖ **Sindh:** Light rainfall is expected at isolated places of Sindh during the current decade.

❖ **Balochistan:** Light to moderate rainfall is expected in isolated places of Kalat, Zhob and Quetta divisions during 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**

❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.

❖ 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 due to monsoon systems.

❖ Accumulation of stagnant water in the fields due to heavy rains is fatal for standing crops like cotton. Farmers may take suitable measures to resolve the issue.

## 4.1 Precipitation Outlook (12th to 14th July, 2017)

The forecast for the next three days (12th to 14th) of the second decade of July 2017 shows that mainly cloudy weather with light to moderate rainfall is expected in most of the places in upper half of the country. However, light rainfall is expected in coastal areas of Sindh and dry weather may prevail in rest parts of the country.
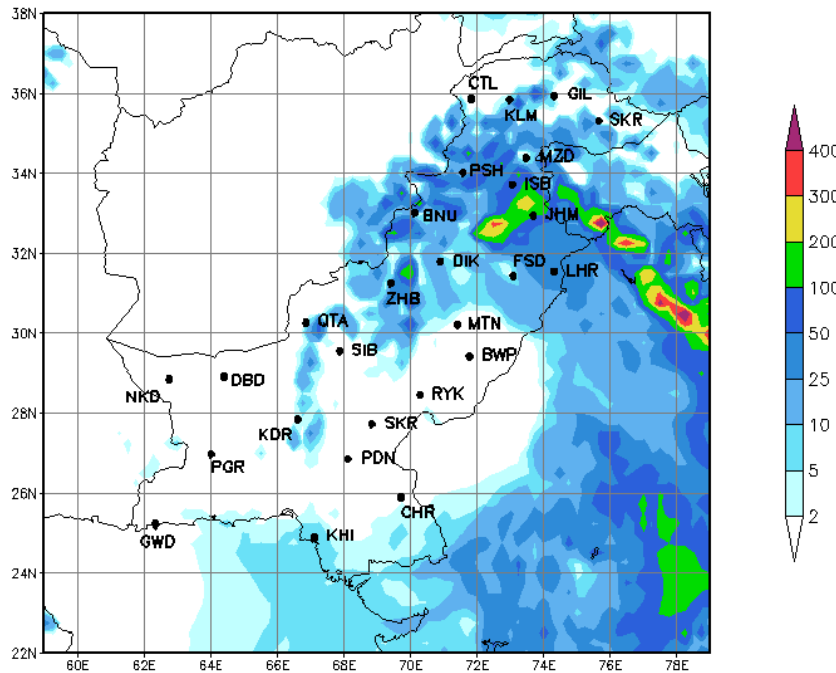


## 4.2 Precipitation Outlook (15th to 20th July, 2017)

The outlook for the last six days (15th to 20th) of the second decade of July 2017 shows that moderate to heavy rainfall is expected at scattered places in all over the country. However, dry weather may prevail in western Baluchistan and northwestern KP.
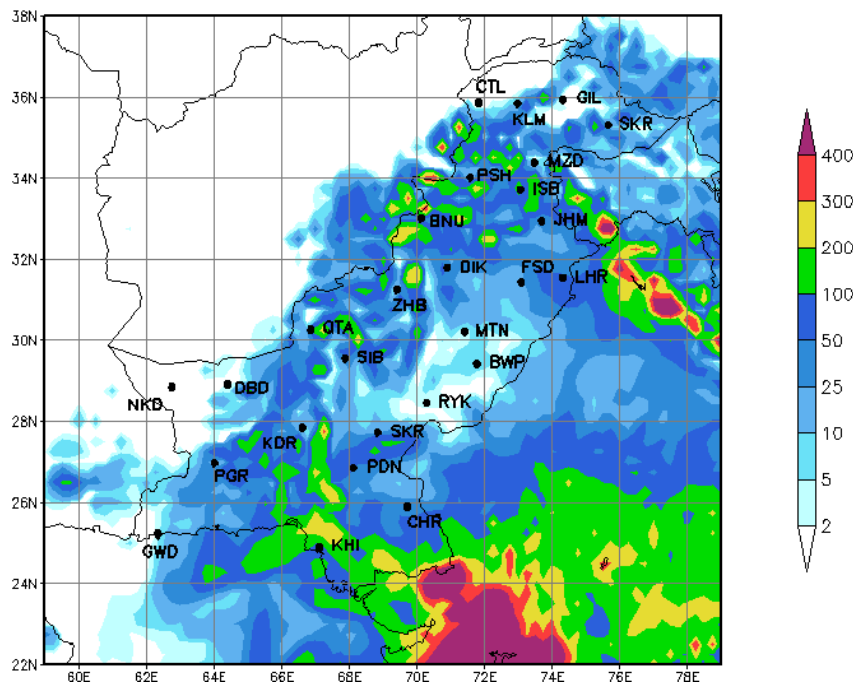
# Findings of AgMIP Paksitan, University of Agriculture, Faisalabad

❖ 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)*

١۔ سال 2040-69 کے دوران درجہ حرارت میں قابل ذکر اضافہ ہوسکتا ہے۔ جو کہ دن کے وقت c°2.8 اور رات کو c°2.2 تک ہوگا۔

٢۔ گرمیوں کی بارش میں 25 فیصد اضافہ اور سردیوں کی بارش میں 12 فیصد تک کمی کا امکان ہے۔

٣۔ 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۔

٤۔ اگر موسمی تغیرات کا مناسب بندوبست نہ کیا گیا۔ تو کسانوں کی اکثریت کو معاشی نقصان کا سامنا کرنا پڑے گا۔

٥۔ موسمی تغیرات کے سدِّ باب (بذریعہ نئی ٹیکنالوجی کا استعمال اور بہتر نظم و نسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جا سکتی ہے۔

(ایگمپ پاکستان 2012-2014)