

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Heavy rainfall reported from most parts of the Punjab, KP however light to moderate rainfall reported from Balochistan, G.B & Kashmir and light rainfall reported from Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 191.0 mm at Malam Jabba during the last decade.
- ❖ Highest maximum temperature recorded as 45.5°C at Turbat during the last decade.
- ❖ Light to moderate rain is expected in most parts of the country during the current decade, while dry weather is expected in western Baluchistan, Sindh, Southern Punjab.
- ❖ 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 etc. Farmers may take suitable measures to resolve the issue.

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

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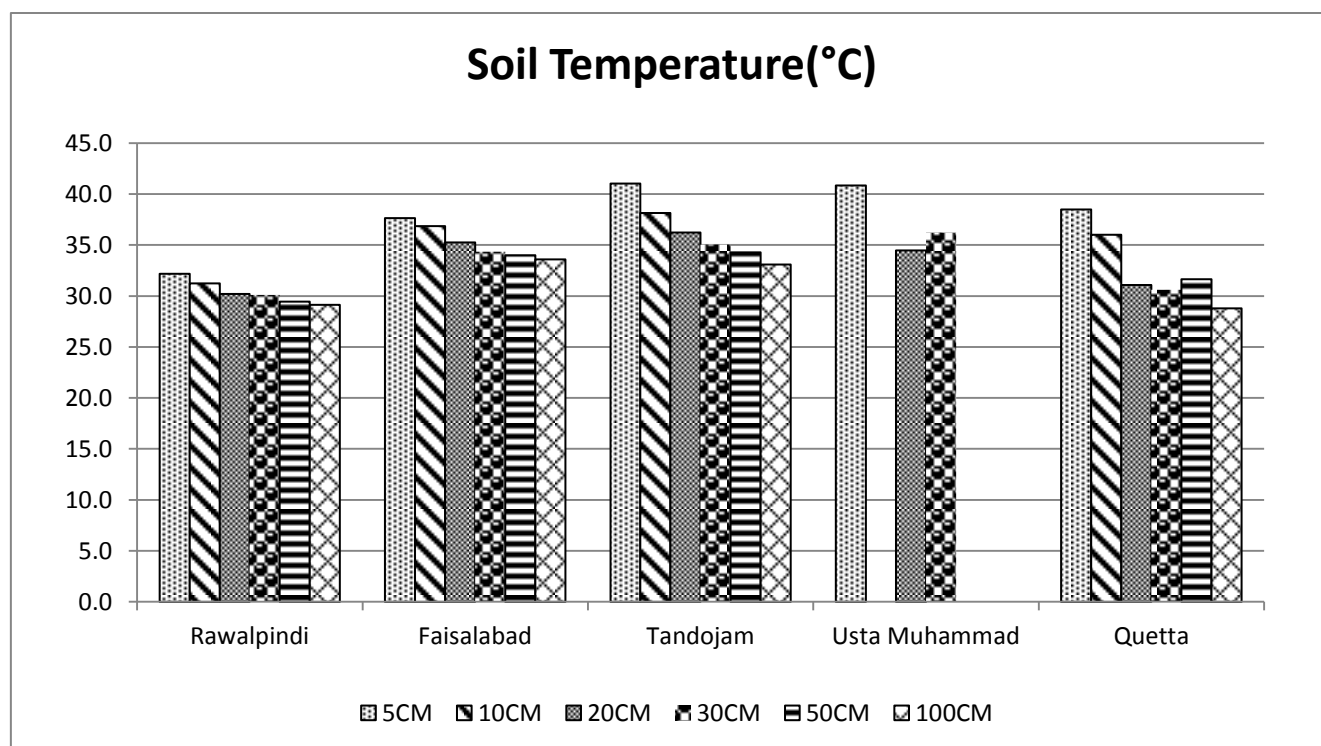
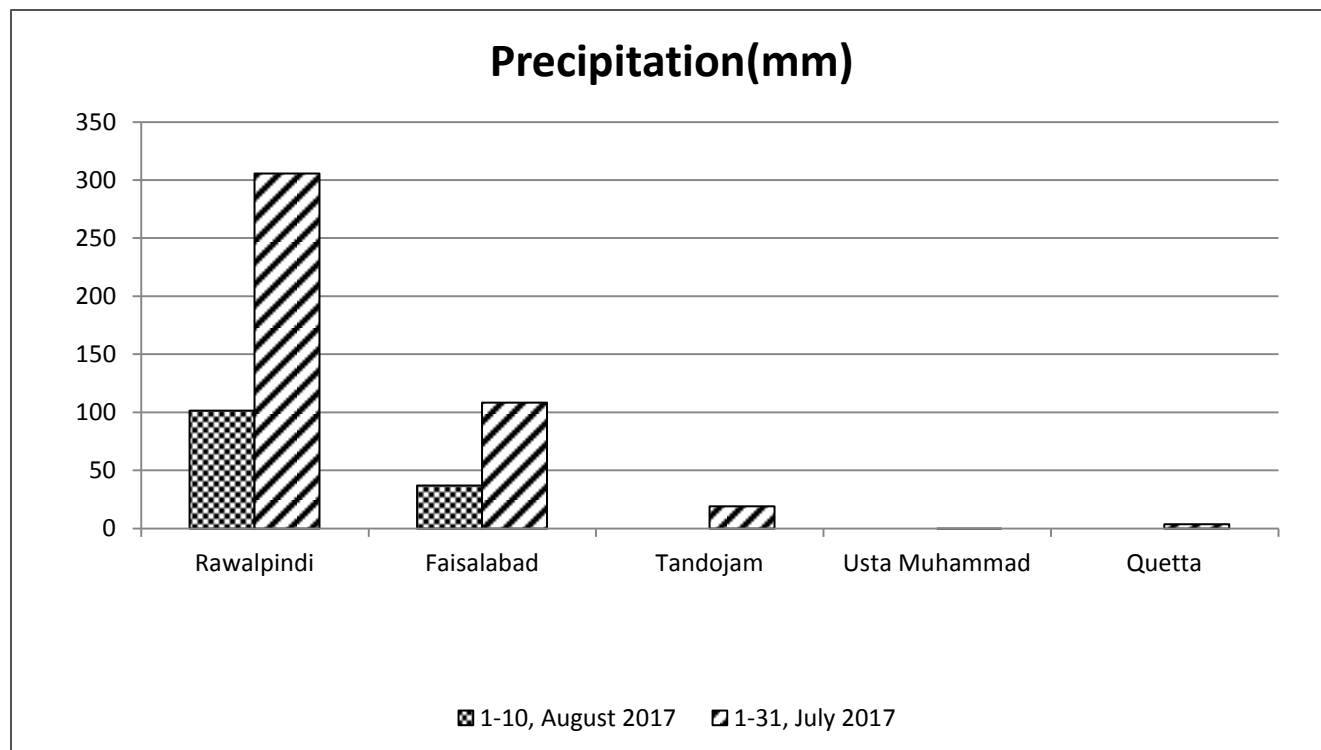
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**Meteorological Conditions during 1<sup>st</sup> decade of August, 2017**

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	13.9	101.5	87.6	2.0	1.2	29.7	32.2	31.3	30.2	30.1	29.5	29.2	75	62.5	4.0	4.5
2	Faisalabad	5.3	37.0	31.7	2.1	1.2	33.3	37.7	36.9	35.3	34.4	34.0	33.6	59	87.2	1.8	5.2
3	Jhelum	9.0	161.7	152.7	0.6	1.4	31.4	34.0	33.0	31.9	31.0	31.2	***	75	62.7	2.6	4.5
4	Lahore	5.0	15.2	10.2	1.3	0.1	31.7	34.0	33.7	32.2	31.4	***	30.5	70	49.0	1.5	4.0
5	Sargodha	1.6	2.0	0.4	2.1	2.2	34.2	39.2	37.3	34.3	33.2	***	30.9	62	74.9	5.9	5.9
6	Multan	3.8	0.0	-3.8	0.0	0.9	33.5	***	***	***	***	***	***	58	92.2	13.4	7.7
7	Khanpur	10.7	0.0	-10.7	-5.0	0.9	29.9	***	37.0	37.1	37.2	37.4	36.0	69	79.5	6.7	5.3
8	Tandojam	2.5	0.0	-2.5	0.1	-0.5	30.5	41.1	38.2	36.3	35.1	34.3	33.1	68	54.3	14.1	5.9
9	Sakrand ☆	3.9	0.0	-3.9	2.2	-4.8	31.5	44.4	***	***	***	***	36.2	59	96.1	16.3	8.2
11	Rohri	2.8	0.0	-2.8	2.7	-0.8	33.8	***	***	***	***	***	***	51	88.9	3.8	6.0
12	D.I Khan	4.6	0.0	-4.6	3.5	-0.4	33.0	37.3	36.4	35.7	35.4	24.3	32.5	65	82.0	12.0	7.1
13	Peshawar	3.3	43.0	39.7	0.1	-0.1	30.9	35.2	32.2	32.5	31.1	30.5	30.6	75	44.6	3.9	4.1
14	Usta .M	0.0	0.0	0.0	-0.8	3.4	33.4	40.9	***	34.5	36.2	***	***	61	***	6.2	5.5
15	Quetta	0.0	0.0	0.0	0.5	-0.4	27.7	38.5	36.0	31.1	30.6	31.7	28.8	23	104.2	5.3	6.4
16	Skardu	0.4	8.3	7.9	0.4	0.1	24.9	***	***	***	***	***	***	50	60.7	4.5	4.7
17	Gilgit	0.4	0.1	-0.3	1.1	3.0	28.0	***	***	***	***	***	***	51	70.7	2.6	4.6

**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 August, 2017



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

Heavy rainfall reported from most parts of the Punjab, KP however light to moderate rainfall reported from Balochistan, G.B & Kashmir and light rainfall reported from Sindh during the last decade.

**1.1 Punjab**

Heavy rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Jhelum, Sialkot & Murree. Decadal maximum & minimum temperature both raised above normal by 0.4°C & 1.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 72.6hrs, 5.1km/hr and 5.3mm/day respectively.

**1.1 Sindh**

Light rainfall reported from few parts of Sindh. Chief amount of rainfall received at Karachi & MirpurKhas. Decadal maximum dropped below normal by 1.7°C and minimum raised above normal by 2.0°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 59%, 79.8hrs, 11.4km/hr and 6.7mm/day respectively.

**1.2 Khyber Pakhtunkhwa (KP)**

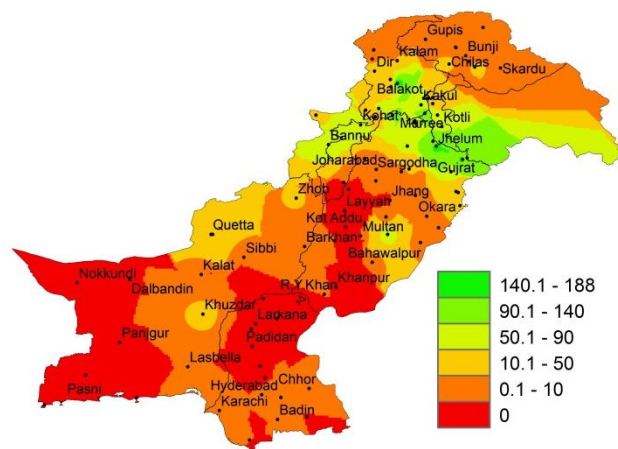
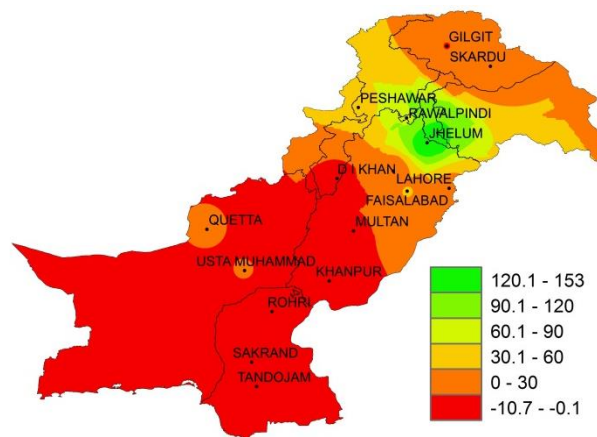
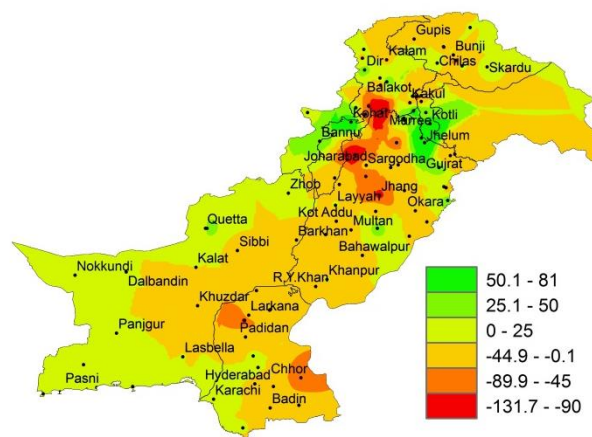
Heavy rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Malam Jabba, Kohat & Bannu. Decadal maximum raised above normal by 1.8°C & minimum temperature dropped below normal by 0.3°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 70%, 63.3hrs, 8.0km/hr and 5.6mm/day respectively.

**1.3 Balochistan**

Light to moderate rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Khuzdar, Zhob & Barkhan. Decadal maximum dropped below normal by 0.2°C & minimum raised above normal by 1.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 42%, 104.2hrs, 5.8km/hr and 6.0mm/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 Kotli, Rawalakot & Muzzaffarabad. Decadal maximum & minimum both raised above normal by 0.8°C & 1.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 65.7hrs, 3.6km/hr and 4.7mm/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> August, 2017)**

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

Rainfall reported as 101.5mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 76%. Mean day temperature was 34.5°C while night temperature recorded as 24.9°C with 62.5hours bright sunshine duration. Wind speed recorded as 4.0km/hr with mean wind direction *south easterly*.

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

Rainfall reported as 37.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 59%. Mean day temperature was 38.4°C while night temperature recorded as 28.1°C with 87.16hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *south westerly*.

**Cotton:** *Very good condition, flowering stage completed.*

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

Dry weather reported during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 68%. Mean day temperature was 35.5°C while night temperature recorded as 25.4°C with 54.3hours bright sunshine duration. Wind speed recorded as 14.1km/h with mean wind direction *south westerly*.

**Cotton HH-906:** *Good condition, boll opening stage.*

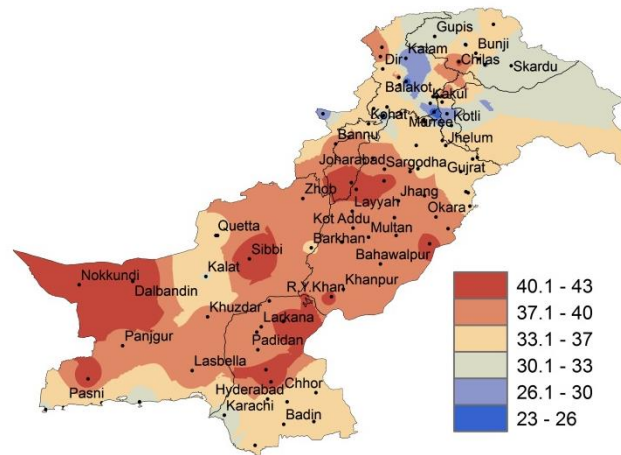
### 2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 61%. Mean day temperature was 37.9°C while night temperature recorded as 28.9°C. Wind speed recorded as 6.2km/h with mean wind direction *south easterly*.

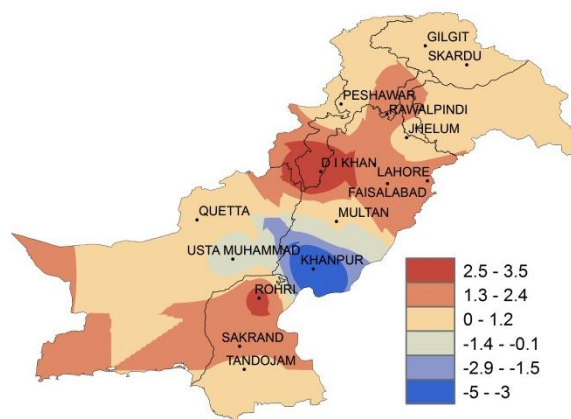
**Rice:** *Good condition, third leaf stage.*

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

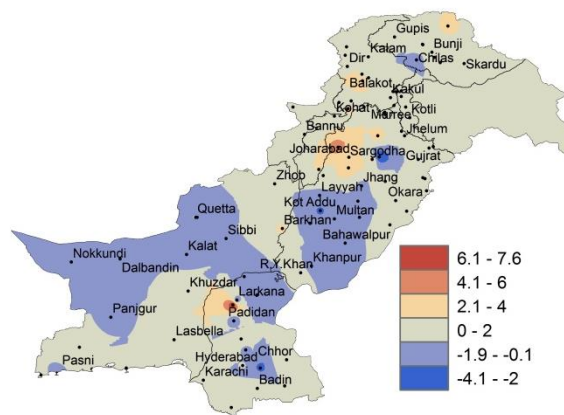
Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 23%. Mean day temperature was 35.3°C while night temperature recorded as 20.1°C with 104.2hours bright sunshine duration. Wind speed recorded as 5.3km/hr with mean wind direction *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> August, 2017)

### 2.6 Jhelum

Rainfall reported as 161.7mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 75%. Mean day temperature was 35.4°C while night temperature recorded as 27.3°C with 62.7hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *south easterly*.

### 2.7 Lahore

Rainfall reported as 15.2mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 70%. Mean day temperature was 35.9°C while night temperature recorded as 27.5°C with 49.0hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *south westerly*.

### 2.8 Sargodha

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 62%. Mean day temperature was 38.8°C while night temperature recorded as 29.5°C with 74.9hours bright sunshine duration. Wind speed recorded 5.92km/hr with mean wind direction *variable*.

### 2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 58%. Mean day temperature was 37.6°C while night temperature recorded as 29.3°C with 92.2hours bright sunshine duration. Wind speed recorded 13.4km/hr with mean wind direction *south westerly*.

### 2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 69%. Mean day temperature was 31.4°C while night temperature recorded as 28.4°C with 79.5hours bright sunshine duration. Wind speed recorded 6.7km/hr with mean wind direction *south westerly*.

### 2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 59%. Mean day temperature was 38.0°C while night temperature recorded as 25.0°C with 96.1hours bright sunshine duration. Wind speed recorded 16.3km/hr with wind direction *southerly*.

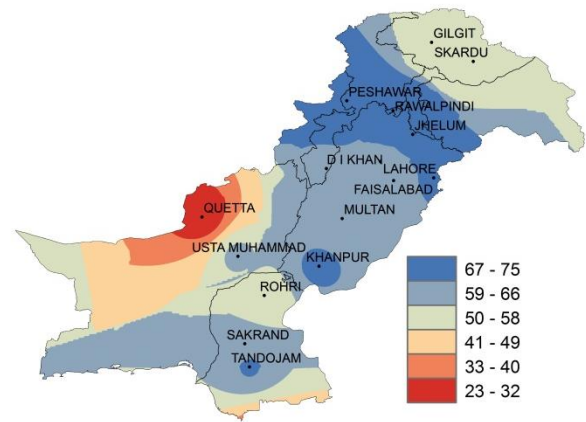


Figure.3: Relative Humidity in Percentage (%)

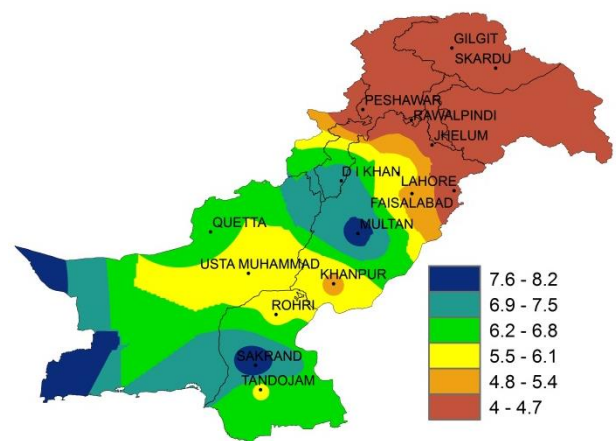


Figure.4: Reference Crop Evapotranspiration ETo( mm/day)

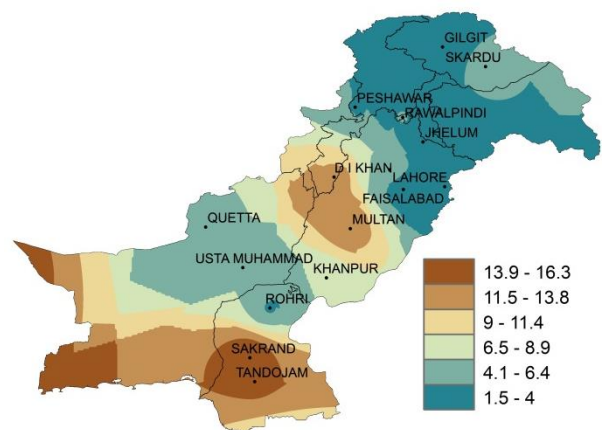


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained cloudy for 01days. Average relative humidity recorded as 51%. Mean day temperature was 40.2°C while night temperature recorded as 27.3°C with 88.9hours bright sunshine duration. Wind speed recorded 3.8km/hr with wind direction *north easterly*.

**2.13 D.I. Khan**

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 65%. Mean day temperature was 40.2°C while night temperature recorded as 25.8°C with 82.0hours bright sunshine duration. Wind speed recorded as 12.0km/hr with mean wind direction *southerly*.

**2.14 Peshawar**

Rainfall reported as 43.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 75%. Mean day temperature was 35.3°C while night temperature recorded as 26.4°C with 44.6hours bright sunshine duration. Wind speed recorded as 3.9km/hr with mean wind direction *north westerly*.

**2.15 Skardu**

Rainfall reported as 8.3mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 50%. Mean day temperature was 32.9°C while night temperature recorded as 16.8°C. Wind speed recorded as 4.1km/hr with mean wind direction *south south- easterly*.

**2.16 Gilgit**

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 51%. Mean day temperature was 35.9°C while night temperature recorded as 20.1°C with 70.7hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *westerly*.

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

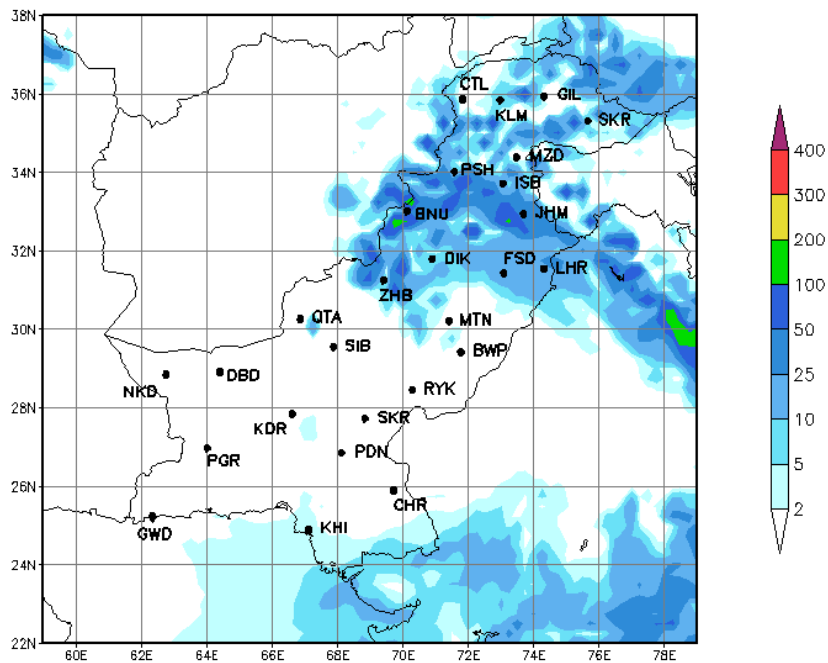
- ❖ **Punjab:** Light to moderate rainfall is expected in most parts of the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Heavy to moderate rainfall is expected at most parts of the province during the decade.
- ❖ **Sindh:** Light rainfall is expected at isolated places of Sindh during the current decade.
- ❖ **Balochistan:** Light to moderate rainfall is expected in isolated places of Zhob division 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 etc. Farmers may take suitable measures to resolve the issue.
- ❖ Farmers of rainfed areas may take measures to preserve rain water for crops and livestock.

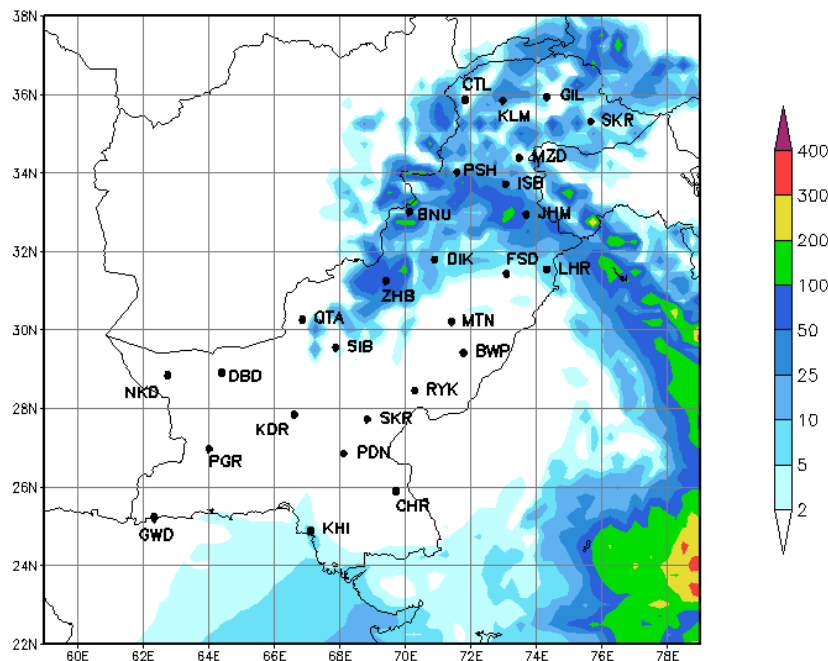
#### 4.1 Precipitation Outlook (11<sup>th</sup> to 13<sup>th</sup> August, 2017)

The forecast for the first three days (11<sup>th</sup> to 13<sup>th</sup>) of the second decade of August 2017 shows that mainly cloudy weather with light to moderate rainfall is expected in most of the places in KP, Upper Punjab, Northern Baluchistan, G.B, Kashmir and coastal belts of Sindh. However, dry weather may prevail in rest parts of the country.



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

The outlook for the next seven days (14<sup>th</sup> to 20<sup>th</sup>) of the second decade of August 2017 shows that moderate to heavy rainfall is expected at scattered places in upper half of the country. 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)