

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Dry weather reported from agricultural plains of the country during the last decade.
- ❖ Lowest minimum temperature recorded as  $-3.8^{\circ}\text{C}$  at Skardu during the last decade.
- ❖ Smoggy conditions persisted in the plain areas of Sindh and Punjab.
- ❖ Mainly dry weather is expected in most parts of the country during the current decade.
- ❖ Smog may be decreased /disappeared in the upper half of the country after the coming rains.
- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Farmers of cotton crop are advised to prepare fields for incoming Rabi crops and complete sowing in time.
- ❖ Farmers of rainfed areas are advised to sow their Rabi crops during the period 15<sup>th</sup> October to 15<sup>th</sup> November. After this time yield of wheat crop decreases gradually. Farmers of irrigated areas of Punjab, Sindh and KP are advised to complete sowing of Wheat crop in the month of November.

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

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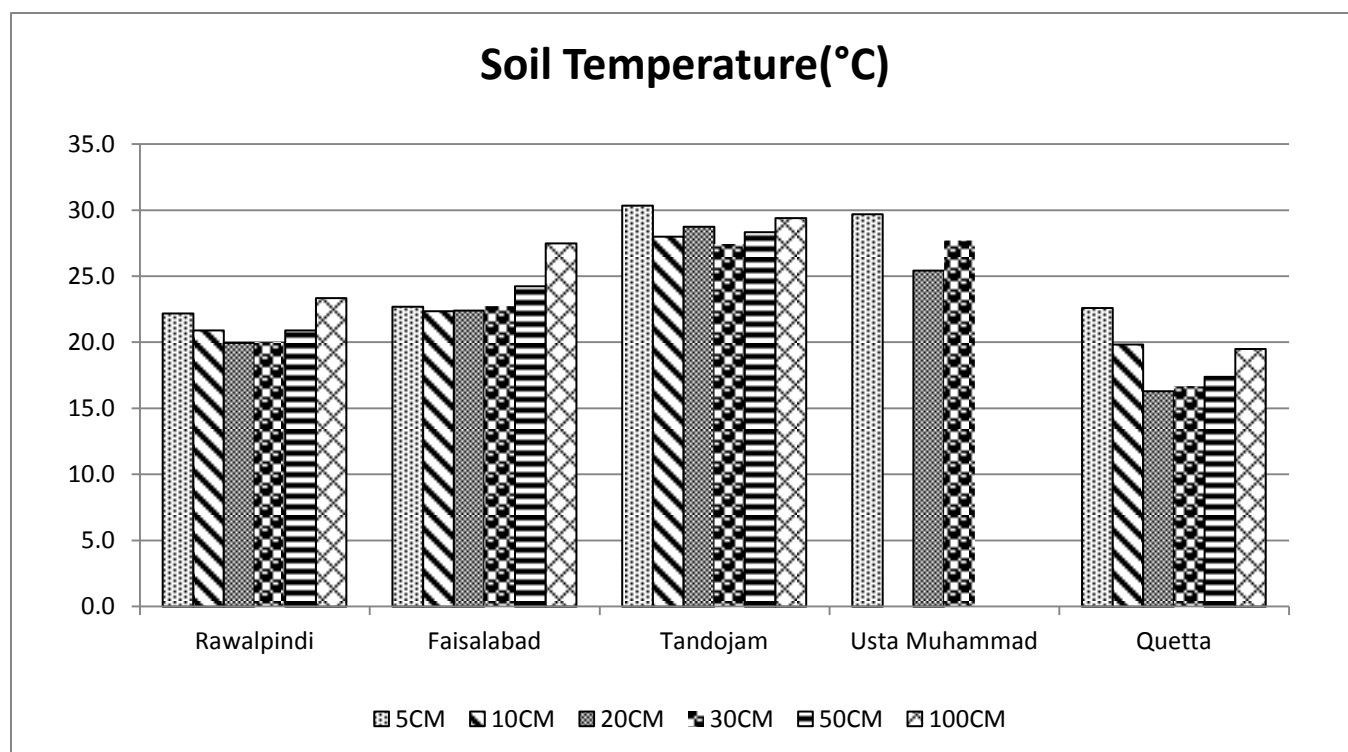
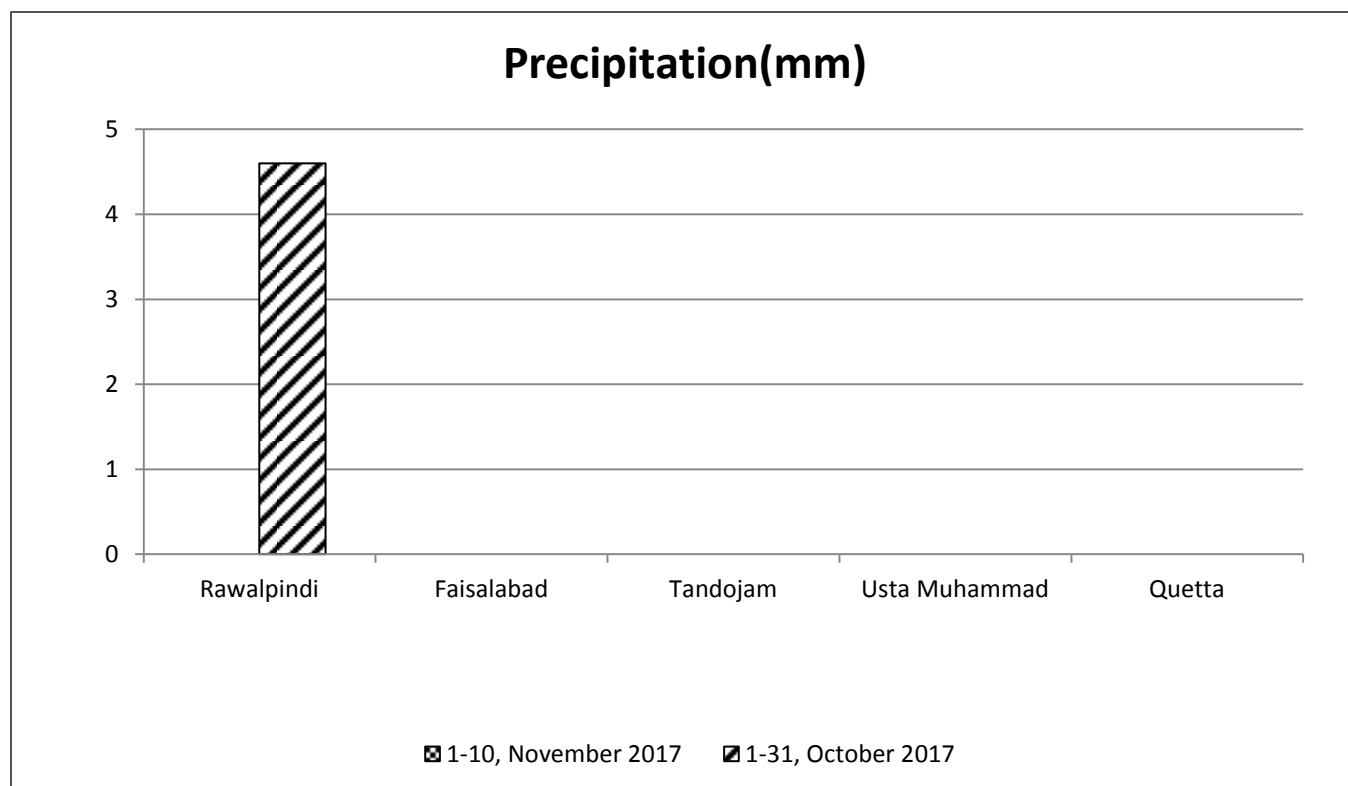
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**Meteorological Conditions during 1<sup>st</sup> Decade of November, 2017**

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	0.3	0.0	-0.3	9.2	0.0	23.7	22.2	20.9	20.0	20.0	20.9	23.4	71	51.1	1.4	2.1
2	Faisalabad	0.0	0.0	0.0	-6.7	1.8	19.2	22.7	22.4	22.4	22.8	24.3	27.5	83	0.0	0.9	1.1
3	Jhelum	0.1	0.0	-0.1	-2.6	0.5	20.6	22.1	21.4	21.3	21.7	22.8	***	73	19.0	0.4	1.3
4	Lahore	0.0	0.0	0.0	-4.4	-0.9	20.5	23.0	22.9	22.3	22.2	***	25.5	84	3.9	0.2	1.2
5	Sargodha	0.0	0.0	0.0	-6.7	0.4	19.0	23.1	22.7	22.9	23.5	***	26.2	89	0.0	1.1	1.1
6	Multan	0.0	0.0	0.0	-6.4	1.6	20.5	***	***	***	***	***	***	83	3.4	2.6	1.4
7	Khanpur	0.0	0.0	0.0	-4.4	-0.3	21.4	***	24.3	25.0	25.8	26.9	28.5	75	20.3	1.8	1.7
8	Tandojam	0.0	0.0	0.0	1.1	-0.9	25.4	30.4	28.0	28.8	27.5	28.4	29.4	53	85.8	2.3	3.2
9	Sakrand ☆	0.0	0.0	0.0	0.7	0.4	25.2	31.6	***	***	***	***	32.1	45	96.9	3.7	3.7
11	Rohri	0.0	0.0	0.0	-1.0	-0.3	25.1	***	***	***	***	***	***	56	79.6	1.7	2.7
12	D.I Khan	0.0	0.0	0.0	-5.1	2.0	20.3	22.8	22.9	23.6	24.3	14.7	27.7	84	0.0	4.0	1.4
13	Peshawar	0.4	0.0	-0.4	-1.5	0.2	19.4	22.1	32.9	20.5	21.8	23.1	24.6	77	0.0	0.9	1.1
14	Usta .M	0.0	0.0	0.0	-2.5	-1.1	23.1	29.7	***	25.4	27.7	***	***	77	***	1.1	2.3
15	Quetta	0.1	0.0	-0.1	1.0	5.5	16.7	22.6	19.9	16.3	16.7	17.4	19.5	20	104.2	3.7	2.8
16	Skardu	0.1	0.0	-0.1	0.8	-1.6	7.9	***	***	***	***	***	***	54	76.7	0.3	1.2
17	Gilgit	0.2	0.0	-0.2	1.9	-1.4	12.6	***	***	***	***	***	***	47	72.8	0.4	1.2

**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 November, 2017



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

Dry weather reported from agricultural plains of the country during the last decade.

**1.1 Punjab**

Dry weather reported from agricultural plains of Punjab. Decadal maximum dropped below normal by 3.1°C & minimum departure raised above normal by 0.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 80%, 14.0hrs, 1.2km/hr and 1.4mm/day respectively.

**1.1 Sindh**

Dry weather reported from the agricultural plains of Sindh. Decadal maximum raised above normal by 0.3°C & minimum departure dropped below normal by 0.3°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 87.4hrs, 2.6km/hr and 3.2mm/day respectively.

**1.2 Khyber Pakhtunkhwa (KP)**

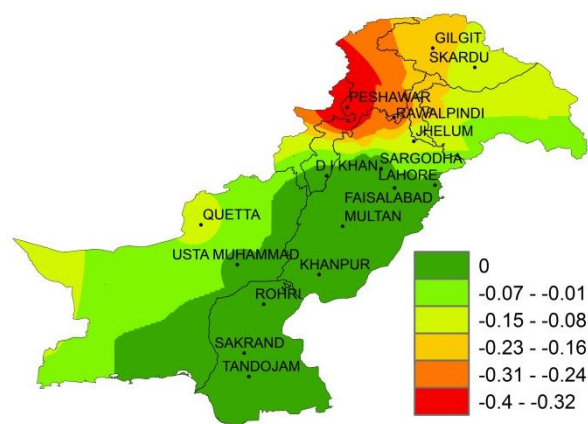
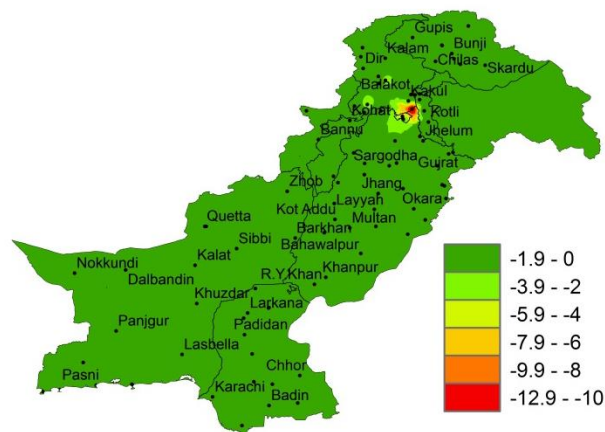
Dry weather reported from agricultural plains of KP. Decadal maximum dropped below normal by 3.3°C & minimum departure raised above normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 81%, 0.0hrs, 2.5km/hr and 1.3mm/day respectively.

**1.3 Balochistan**

Dry weather reported from the agricultural plains of Balochistan. Decadal maximum dropped below normal by 0.8°C & minimum temperature raised above normal by 2.2°C, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 104.2 hrs, 2.4km/hr and 2.6 mm/day respectively.

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

Dry weather reported from few places of G.B & Kashmir. Decadal maximum raised above normal by 1.4°C & minimum temperature dropped below normal by 1.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 74.8hrs, 0.4km/hr and 1.2mm/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> November, 2017)

### 2.1 RAMC, Rawalpindi (Potohar region)

Dry weather reported during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 71%. Mean day temperature was 36.9°C while night temperature recorded as 10.5°C with 51.1 hours bright sunshine duration. Wind speed recorded as 1.4 km/hr with mean wind direction *southerly*.

### 2.2 RAMC, Faisalabad (Central Punjab)

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 83%. Mean day temperature was 23.1°C while night temperature recorded as 15.3°C with nil bright sunshine duration. Wind speed recorded as 0.9 km/hr with mean wind direction *easterly*.

**Cotton:** Very good condition, 1<sup>st</sup> picking started on 11.11.2017.

### 2.3 RAMC, Tandojam (Lower Sindh)

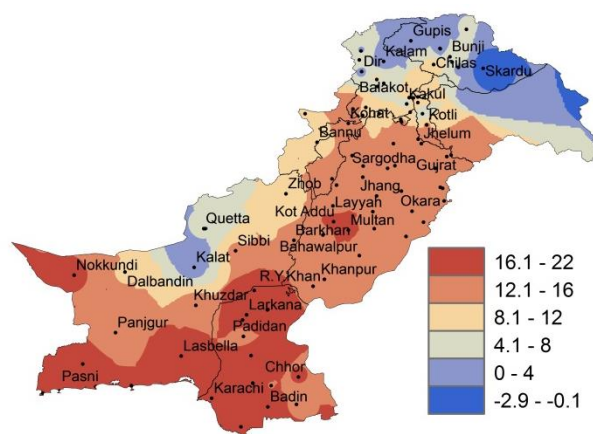
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 53%. Mean day temperature was 35.2°C while night temperature recorded as 15.5°C with 85.8 hours bright sunshine duration. Wind speed recorded as 2.3 km/h with mean wind direction *south westerly*.

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

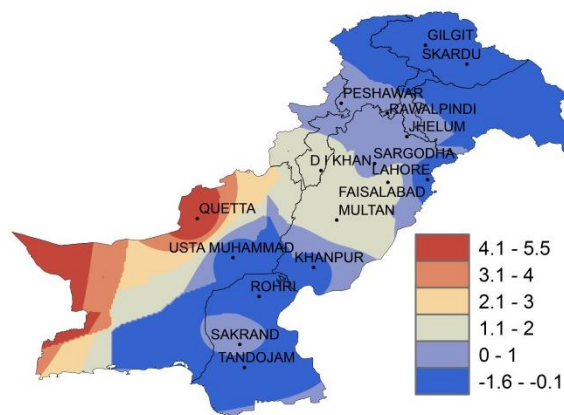
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 77%. Mean day temperature was 29.3°C while night temperature recorded as 16.8°C. Wind speed recorded as 1.1 km/h with mean wind direction *south easterly*.

### 2.5 RAMC, Quetta (Northern Balochistan)

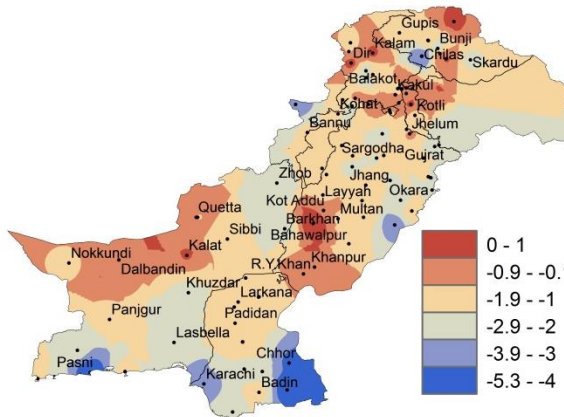
Dry weather reported during the decade; however weather remained cloudy for 01 day. Average relative humidity recorded as 20%. Mean day temperature was 23.4°C while night temperature recorded as 10.0°C with 104.2 hrs bright sunshine duration. Wind speed recorded as 3.7 km/hr with mean wind direction *north easterly*.



I. Actual min-temp



II. Departure of min-temp from Normal



III. Departure of min-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> November, 2017)

### 2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 73%. Mean day temperature was 27.0°C while night temperature recorded as 14.2°C with 19.0hours bright sunshine duration. Wind speed recorded as 0.4km/hr with mean wind direction *south westerly*.

### 2.7 Lahore

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 84%. Mean day temperature was 24.9°C while night temperature recorded as 16.0°C with 3.9hours bright sunshine duration. Wind speed recorded as 0.2km/hr with mean wind direction *north westerly*.

### 2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 89%. Mean day temperature was 22.8°C while night temperature recorded as 15.2°C. Wind speed recorded 1.11km/hr with mean wind direction *easterly*.

### 2.9 Multan

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 83%. Mean day temperature was 24.5°C while night temperature recorded as 16.5°C with 3.4hours bright sunshine duration. Wind speed recorded 2.6km/hr with mean wind direction *north easterly*.

### 2.10 Khanpur

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 75%. Mean day temperature was 27.8°C while night temperature recorded as 14.9°C with 20.3hours bright sunshine duration. Wind speed recorded 1.8km/hr with mean wind direction *north easterly*.

### 2.11 Sakrand

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 45%. Mean day temperature was 33.8°C while night temperature recorded as 16.6°C with 96.9hours bright sunshine duration. Wind speed recorded 3.7km/hr with wind direction *southerly*.

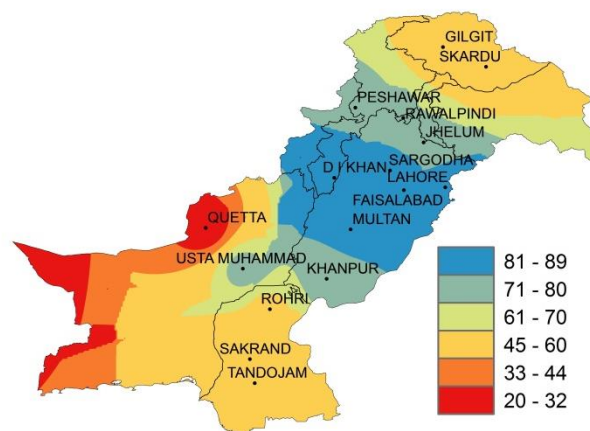


Figure.3: Relative Humidity in Percentage (%)

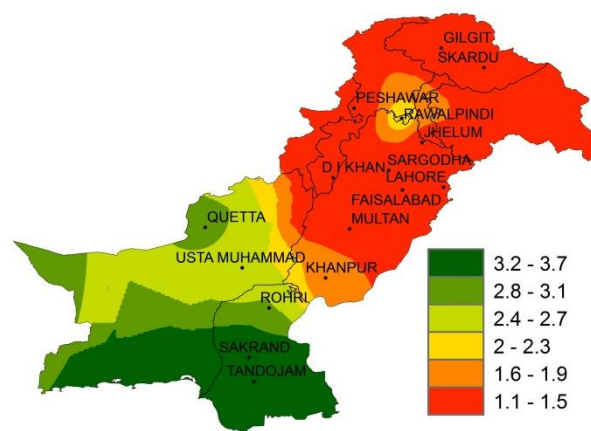


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

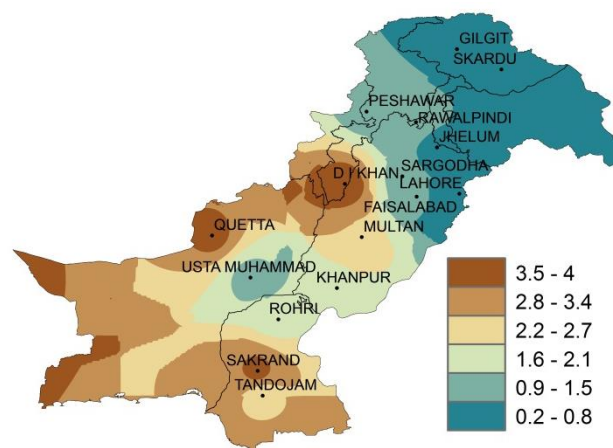


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 56%. Mean day temperature was 32.1°C while night temperature recorded as 18.1°C with 79.6 hours bright sunshine duration. Wind speed recorded 1.7 km/hr with wind direction *north easterly*.

**2.13 D.I. Khan**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 84%. Mean day temperature was 24.9°C while night temperature recorded as 15.6°C. Wind speed recorded as 4.0 km/hr with mean wind direction *easterly*.

**2.14 Peshawar**

Dry weather reported during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 77%. Mean day temperature was 25.4°C while night temperature recorded as 13.4°C. Wind speed recorded as 0.9 km/hr with mean wind direction *north easterly*.

**2.15 Skardu**

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 54%. Mean day temperature was 18.1°C while night temperature recorded as -2.3°C with 76.7 hours bright sunshine duration. Wind speed recorded as 0.3 km/hr with mean wind direction *easterly*.

**2.16 Gilgit**

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 47%. Mean day temperature was 24.5°C while night temperature recorded as 0.65°C with 72.8 hours bright sunshine duration. Wind speed recorded as 0.4 km/hr with mean wind direction *south westerly*.

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

**3.1 Temperature Forecast**

Night temperatures are expected to drop slightly (1-2°C) and day temperatures are likely to be slightly 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**

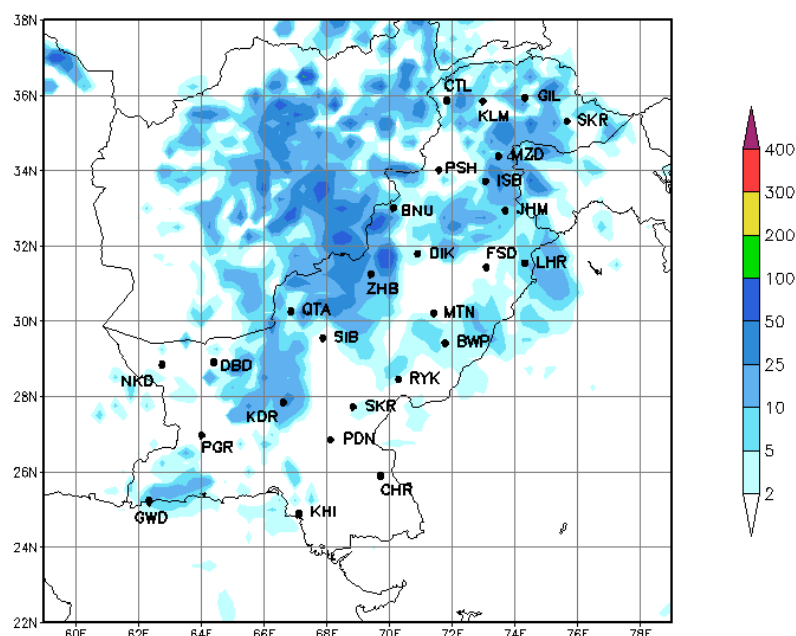
- ❖ **Punjab:** Light to moderate rainfall is expected in the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall (snowfall over hills) is expected in the province during the current decade.
- ❖ **Sindh:** Light rainfall is expected in the province during the current decade.
- ❖ **Balochistan:** Light to moderate rainfall (snowfall over hills) is expected in the province during the current decade.
- ❖ **Gilgit Baltistan:** Light to moderate rainfall (snowfall over hills) is expected in the province during the current decade.
- ❖ **Kashmir:** Light to moderate rainfall (snowfall over hills) is expected in the province 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.
- ❖ Farmers of cotton crop are advised to prepare field for incoming Rabi crops and complete sowing in time.
- ❖ Farmers of rainfed areas are advised to sow wheat crop during the period 15<sup>th</sup> October to 15<sup>th</sup> November. After this time yield of wheat crop decreases gradually. Farmers of irrigated areas of Punjab, Sindh and KP are advised to complete sowing of Wheat crop in the month of November.

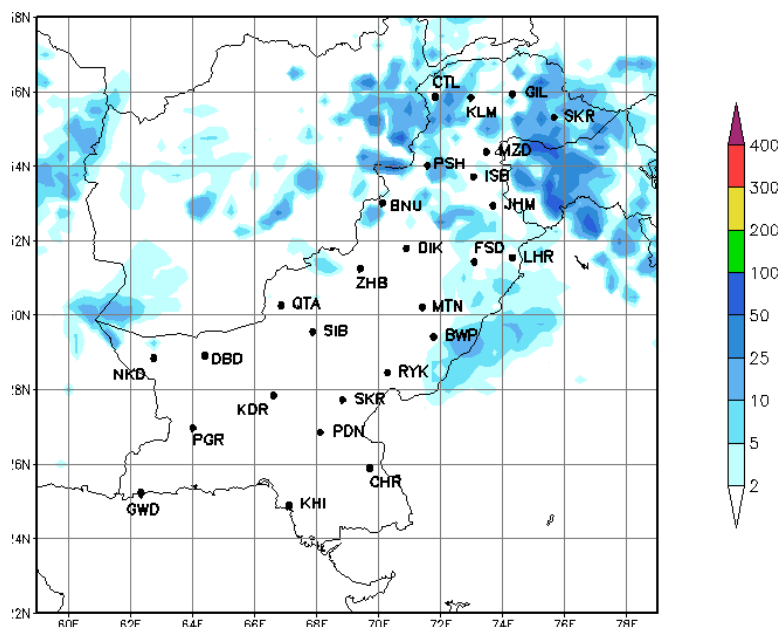
#### 4.1 Precipitation Outlook (13<sup>th</sup> to 15<sup>th</sup> November, 2017)

The forecast for the next three days (13<sup>th</sup> to 15<sup>th</sup>) of the second decade of November 2017 shows that mainly cold and cloudy weather with light to moderate rainfall is expected in most parts of the country, however light rainfall is expected in few parts of Sindh.



#### 4.2 Precipitation Outlook (16<sup>th</sup> to 20<sup>th</sup> November, 2017)

The outlook for the last five days (16<sup>th</sup> to 20<sup>th</sup>) of the second decade of November 2017 shows that mainly cold and cloudy weather with light rainfall is expected in most parts of Punjab, K.P, G.B and Kashmir 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)