

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Light to moderate rainfall reported from few parts of Punjab however light rainfall reported from few parts of K.P, G.B & Kashmir. While dry weather reported from rest of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 13.0mm at Murree during the last decade.
- ❖ Lowest minimum temperature recorded as -2.2°C at Skardu during the last decade.
- ❖ Mainly dry weather is expected in most parts of the country during the current decade.
- ❖ 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.

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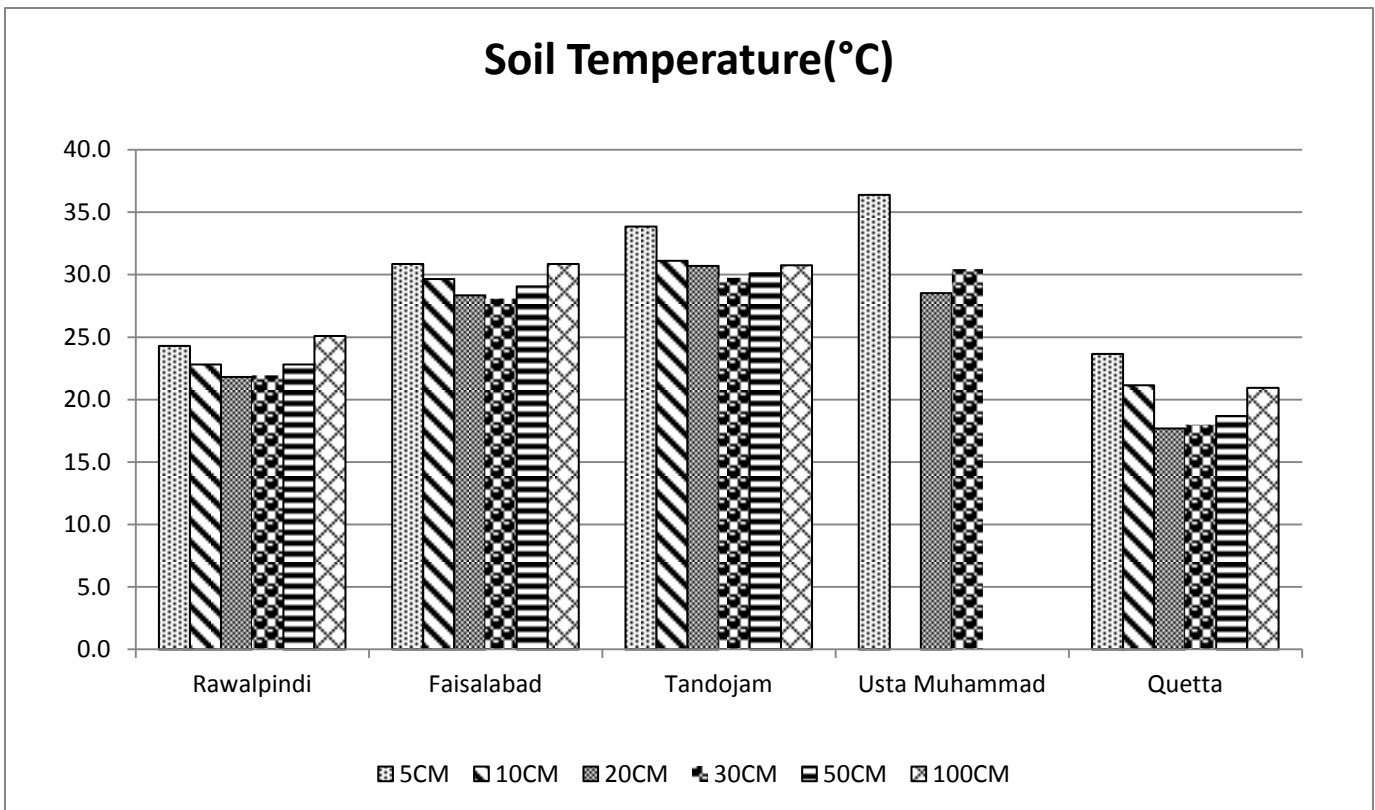
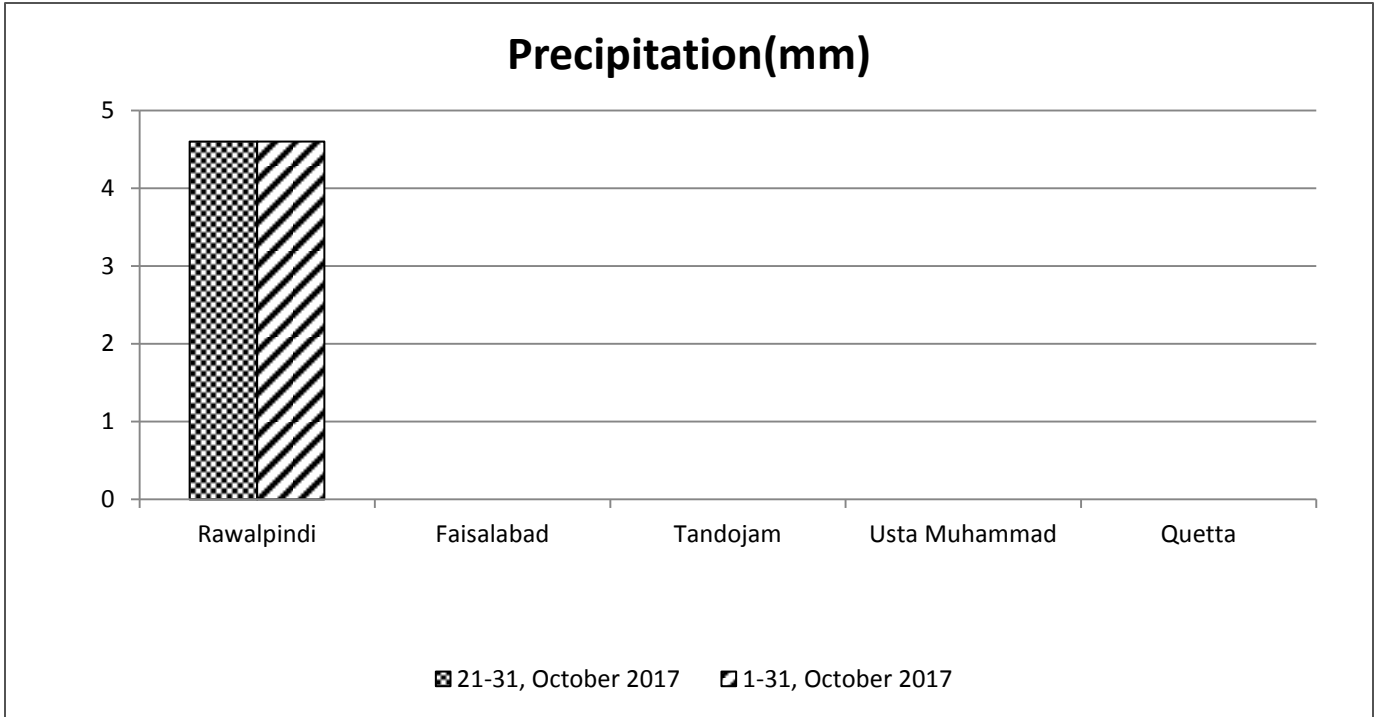
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**Meteorological Conditions during 3<sup>rd</sup> Decade of October, 2017**

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	4.6	4.3	0.5	0.4	21.2	24.3	22.8	21.8	22.0	22.8	25.1	60	87.7	2.1	2.5
2	Faisalabad	0.0	0.0	0.0	1.1	1.1	24.5	30.9	29.7	28.4	28.1	29.1	30.9	55	38.3	1.3	2.2
3	Jhelum	0.3	0.0	-0.3	-0.6	-0.4	23.1	24.5	23.7	23.3	23.5	25.7	***	60	79.8	1.4	2.4
4	Lahore	0.1	0.0	-0.1	0.7	-0.4	24.6	26.1	25.8	24.9	24.6	***	27.3	61	46.7	0.4	1.9
5	Sargodha	0.2	0.0	-0.2	6.8	4.6	29.9	35.1	32.6	28.8	27.4	26.0	24.8	52	92.1	2.2	3.4
6	Multan	0.0	0.0	0.0	0.3	0.8	25.3	***	***	***	***	***	***	51	91.1	2.3	3.1
7	Khanpur	0.0	0.0	0.0	1.8	-1.5	25.0	***	27.0	27.6	28.4	29.8	30.2	55	102.0	1.7	3.3
8	Tandojam	0.0	0.0	0.0	2.2	0.4	28.0	33.9	31.1	30.7	29.8	30.1	30.8	53	100.5	4.3	4.6
9	Sakrand ☆	0.0	0.0	0.0	2.9	0.5	27.4	35.1	***	***	***	***	33.2	43	113.7	5.0	4.9
11	Rohri	0.0	0.0	0.0	2.2	-0.3	28.3	***	***	***	***	***	***	41	100.2	0.1	2.6
12	D.I Khan	0.1	0.0	-0.1	0.1	1.1	24.5	27.6	26.9	26.5	27.2	17.4	29.8	57	74.0	8.6	4.2
13	Peshawar	0.1	0.0	-0.1	0.4	-2.1	21.3	25.3	32.7	22.9	23.7	24.9	26.0	59	64.4	0.9	1.9
14	Usta .M	0.0	0.0	0.0	2.7	-1.8	27.0	36.4	***	28.5	30.4	***	***	52	***	1.7	3.2
15	Quetta	0.0	0.0	0.0	-0.1	-1.0	15.2	23.7	21.2	17.7	18.0	18.7	21.0	19	120.2	4.3	3.4
16	Skardu	0.0	0.0	0.0	-0.7	-1.4	9.1	***	***	***	***	***	***	55	79.8	2.0	1.9
17	Gilgit	0.1	0.0	-0.1	0.0	-0.2	14.1	***	***	***	***	***	***	47	90.4	0.9	1.7

**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;  $\text{Dep} \div \text{Normal} \times 100$ . 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 October, 2017



**Past Weather (21<sup>st</sup> to 31<sup>st</sup> October, 2017)**

Light to moderate rainfall reported from few parts of Punjab however light rainfall reported from few parts of K.P, G.B & Kashmir. While dry weather reported from rest of the country during the last decade.

**1.1 Punjab**

Light rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Murree, Islamabad & Chakwal. Decadal maximum & minimum departure both raised above normal by 1.5°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 76.8hrs, 1.6km/hr and 2.7 mm/day respectively.

**1.1 Sindh**

Dry weather reported from the agricultural plains of Sindh. Decadal maximum & minimum departure both raised above normal by 2.4°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 104.8hrs, 3.1km/hr and 4.0mm/day respectively.

**1.2 Khyber Pakhtunkhwa (KP)**

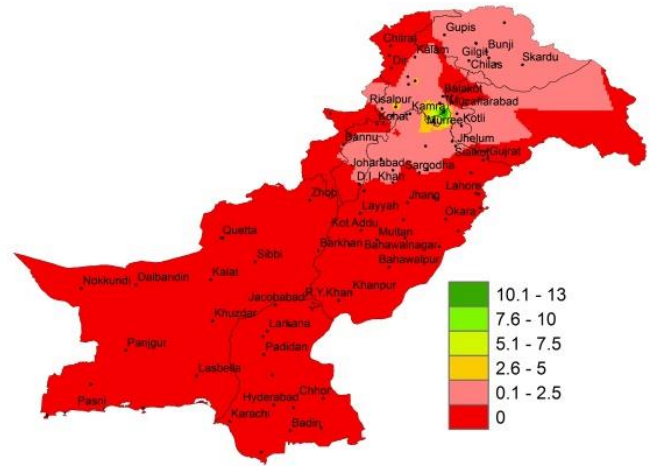
Light rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Malam Jabba, Mirkhani & Kakul. Decadal maximum raised above normal by 0.3°C & minimum departure dropped below normal by 0.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 104.8hrs, 4.8km/hr and 3.1mm/day respectively.

**1.3 Balochistan**

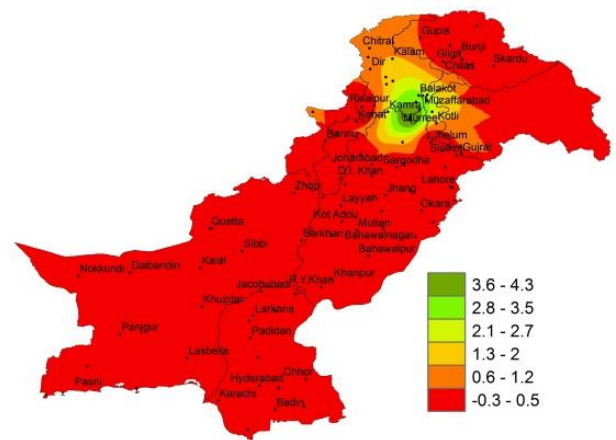
Dry weather reported from the agricultural plains of Balochistan. Decadal maximum raised above normal by 1.3°C & minimum temperature dropped below normal by 1.4°C, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 36%, 120.2 hrs, 3.0km/hr and 3.3 mm/day respectively.

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

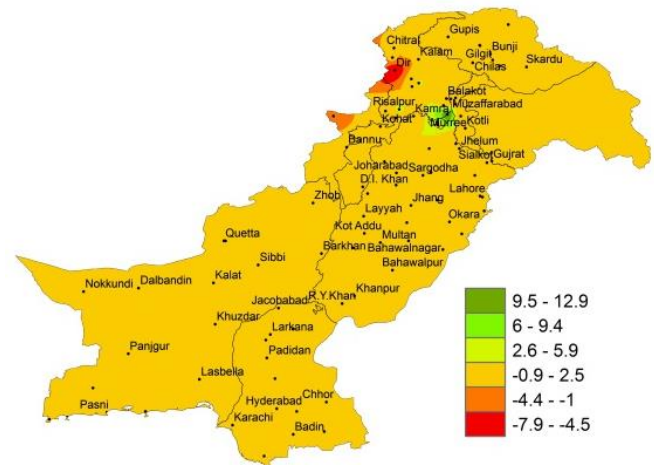
Light rainfall reported from few places of G.B & Kashmir. Chief amount of rainfall received at Rawalakot, Kotli & Hunza. Decadal maximum & minimum temperature both dropped below normal by 0.4°C & 0.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 85.1hrs, 1.5km/hr and 1.8mm/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**  
**(21<sup>st</sup> to 31<sup>st</sup> October, 2017)**

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

Rainfall reported as 4.6mm during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 60%. Mean day temperature was 29.7°C while night temperature recorded as 12.7°C with 87.7hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *variable*.

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

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 55%. Mean day temperature was 32.7°C while night temperature recorded as 16.3°C with 38.3hours bright sunshine duration. Wind speed recorded as 1.3km/hr with mean wind direction *south easterly*.  
**Cotton:** *Very good condition, maturity completed.*

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

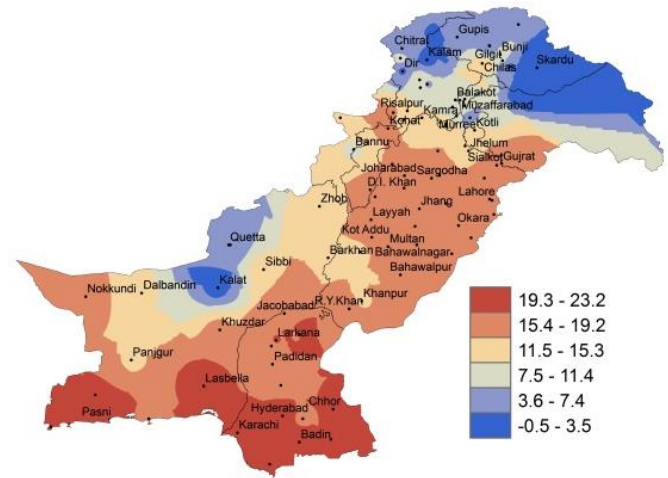
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 53%. Mean day temperature was 37.7°C while night temperature recorded as 18.2°C with 100.5hours bright sunshine duration. Wind speed recorded as 4.3km/h with mean wind direction *south westerly*.

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

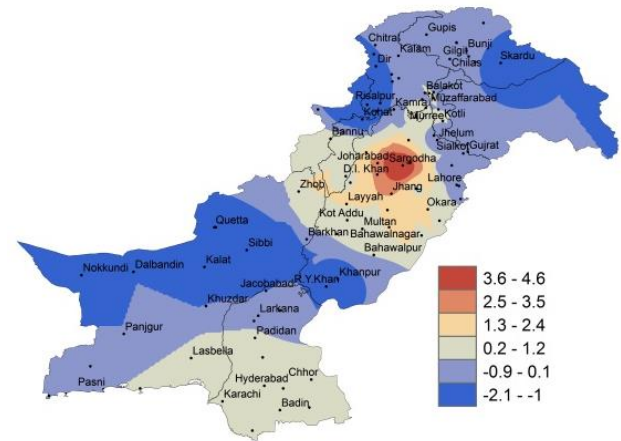
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 52%. Mean day temperature was 35.7°C while night temperature recorded as 18.3°C. Wind speed recorded as 1.7km/h with mean wind direction *south easterly*.  
**Rice:** *Good condition, Maturity stage.*

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

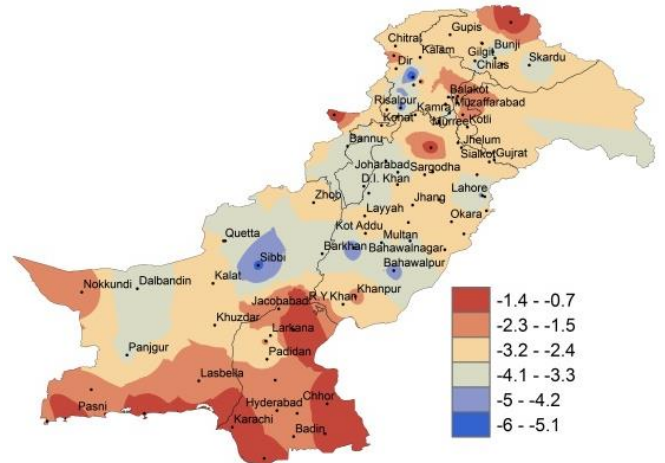
Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 19%. Mean day temperature was 24.6°C while night temperature recorded as 5.7°C with 120.2hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *north westerly*.



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 (21<sup>st</sup> to 31<sup>st</sup> October, 2017)**

**2.6 Jhelum**

Dry weather reported during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 31.1°C while night temperature recorded as 16.6°C with 79.8 hours bright sunshine duration. Wind speed recorded as 1.4 km/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 61%. Mean day temperature was 31.1°C while night temperature recorded as 18.1°C with 46.7 hours bright sunshine duration. Wind speed recorded as 0.4 km/hr with mean wind direction *north westerly*.

**2.8 Sargodha**

Dry weather reported during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 38.3°C while night temperature recorded as 21.4°C with 92.1 hours bright sunshine duration. Wind speed recorded 2.22 km/hr with mean wind direction *variable*.

**2.9 Multan**

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 51%. Mean day temperature was 32.9°C while night temperature recorded as 17.6°C with 91.1 hours bright sunshine duration. Wind speed recorded 2.3 km/hr with mean wind direction *northerly*.

**2.10 Khanpur**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 55%. Mean day temperature was 34.8°C while night temperature recorded as 15.2°C with 102.0 hours bright sunshine duration. Wind speed recorded 1.7 km/hr with mean wind direction *variable*.

**2.11 Sakrand**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 43%. Mean day temperature was 37.0°C while night temperature recorded as 17.8°C with 113.7 hours bright sunshine duration. Wind speed recorded 5.0 km/hr with wind direction *southerly*.

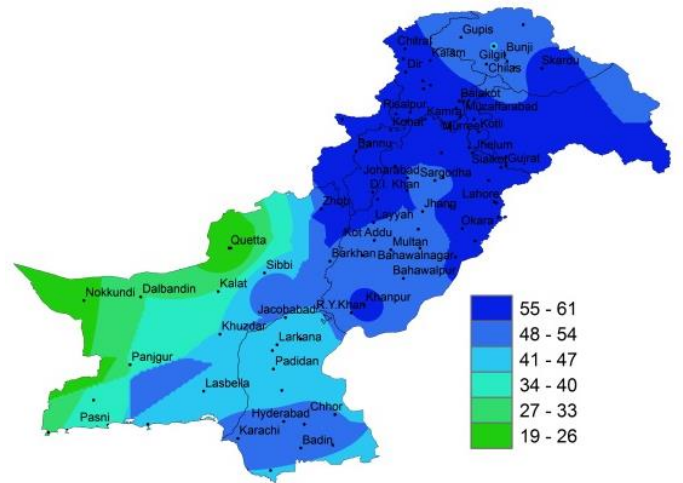


Figure.3: Relative Humidity in Percentage (%)

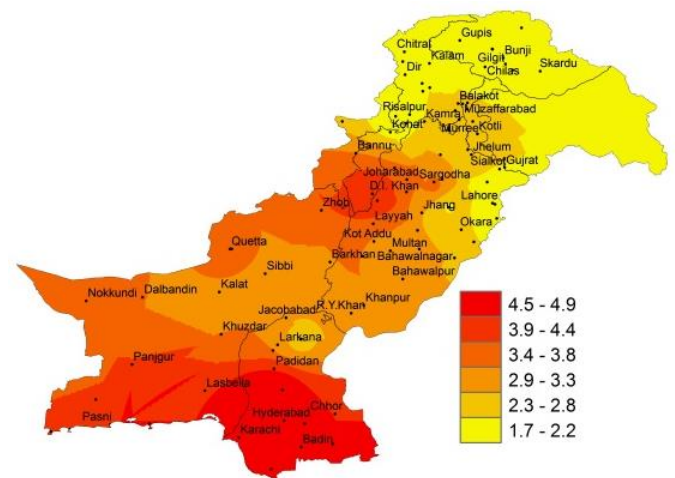


Figure.4: Reference Crop Evapotranspiration ET<sub>c</sub> (mm/day)

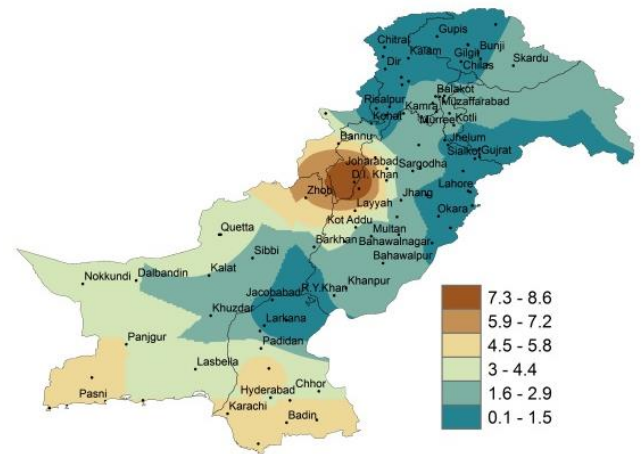


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 41%. Mean day temperature was 36.3°C while night temperature recorded as 20.2°C with 100.2hours bright sunshine duration. Wind speed recorded 0.1km/hr with wind direction *south westerly*.

**2.13 D.I. Khan**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 57%. Mean day temperature was 32.1°C while night temperature recorded as 16.9°C with 74.0hours bright sunshine duration. Wind speed recorded as 8.6km/hr with mean wind direction *north easterly*.

**2.14 Peshawar**

Dry weather reported during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 29.5°C while night temperature recorded as 13.0°C with 64.4hours bright sunshine duration. Wind speed recorded as 0.9km/hr with mean wind direction *north easterly*.

**2.15 Skardu**

Dry weather reported during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 18.6°C while night temperature recorded as -0.5°C with 79.8hours bright sunshine duration. Wind speed recorded as 2.0km/hr with mean wind direction *east north easterly*.

**2.16 Gilgit**

Dry weather reported during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 25.0°C while night temperature recorded as 3.2°C with 90.4hours bright sunshine duration. Wind speed recorded as 0.9km/hr with mean wind direction *westerly*.

**Ten Days Weather Advisory for Farmers**  
**(1<sup>st</sup> to 10<sup>th</sup> November, 2017)**

**3.1 Temperature Forecast**

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

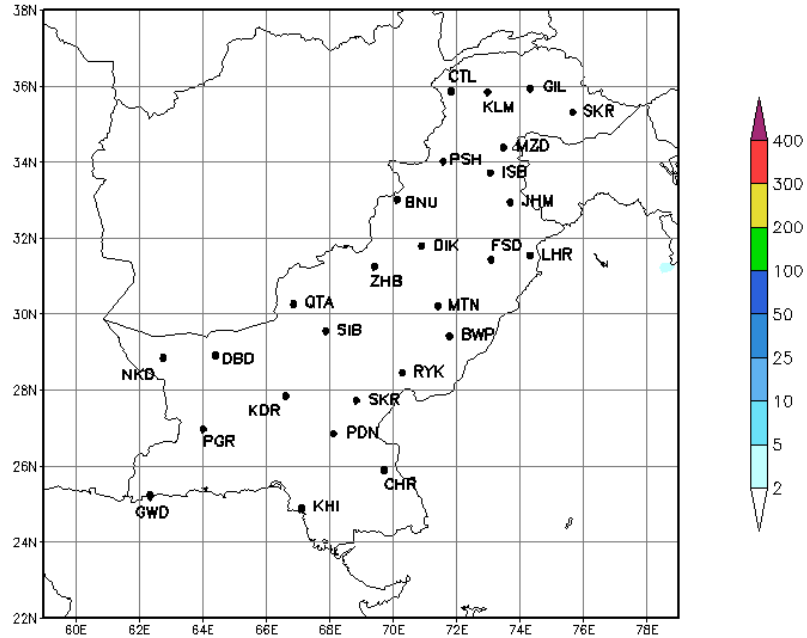
- ❖ **Punjab:** Dry weather is expected in the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Dry weather is expected in the province during the current decade.
- ❖ **Sindh:** Dry weather is expected in the province during the current decade.
- ❖ **Balochistan:** Dry weather is expected in the province during the current decade.
- ❖ **Gilgit Baltistan:** Dry weather is expected in the province during the current decade.
- ❖ **Kashmir:** Dry weather 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.

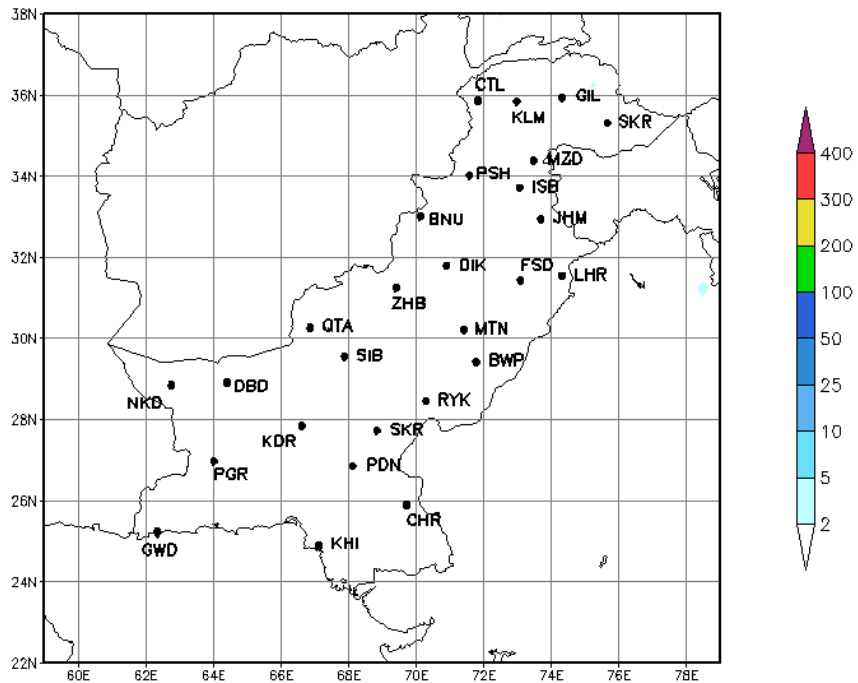
**4.1 Precipitation Outlook (1<sup>st</sup> to 3<sup>rd</sup> November, 2017)**

The forecast for the first three days (1<sup>st</sup> to 3<sup>rd</sup>) of the first decade of November 2017 shows that mainly dry weather may prevail in most parts of the country.



**4.2 Precipitation Outlook (4<sup>th</sup> to 10<sup>th</sup> November, 2017)**

The outlook for the last seven days (4<sup>th</sup> to 10<sup>th</sup>) of the first decade of November 2017 shows that mainly dry weather may prevail in most 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)