

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Moderate to heavy rainfall reported from most parts of the country however light to moderate rainfall reported from few parts of G.B, upper KP & western Balochistan, during the last decade.
- ❖ Highest amount of rainfall recorded as 165.0 mm at Islamabad during the last decade.
- ❖ Highest maximum temperature recorded as 45.0°C at Sibbi 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.
- ❖ 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.
- ❖ Farmers of rainfed areas may take measures to preserve rain water for crops and livestock.

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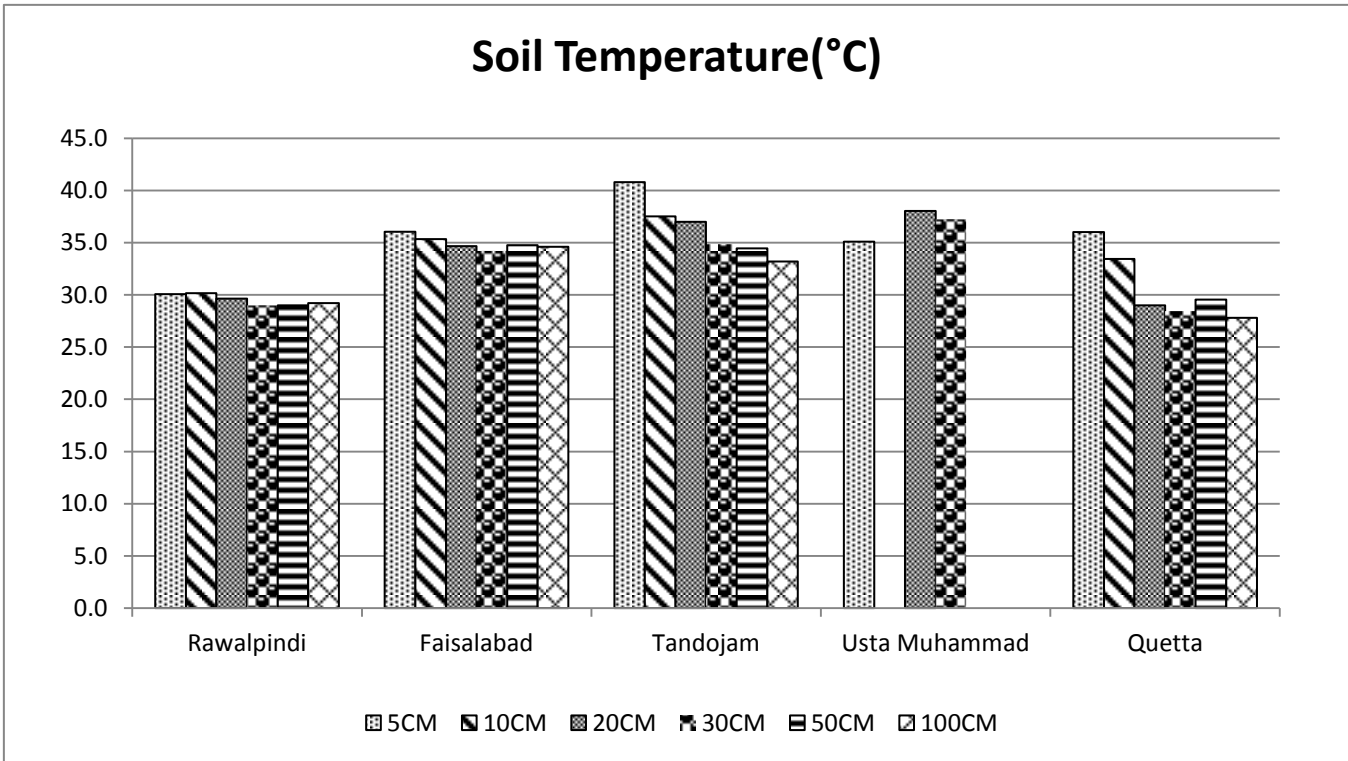
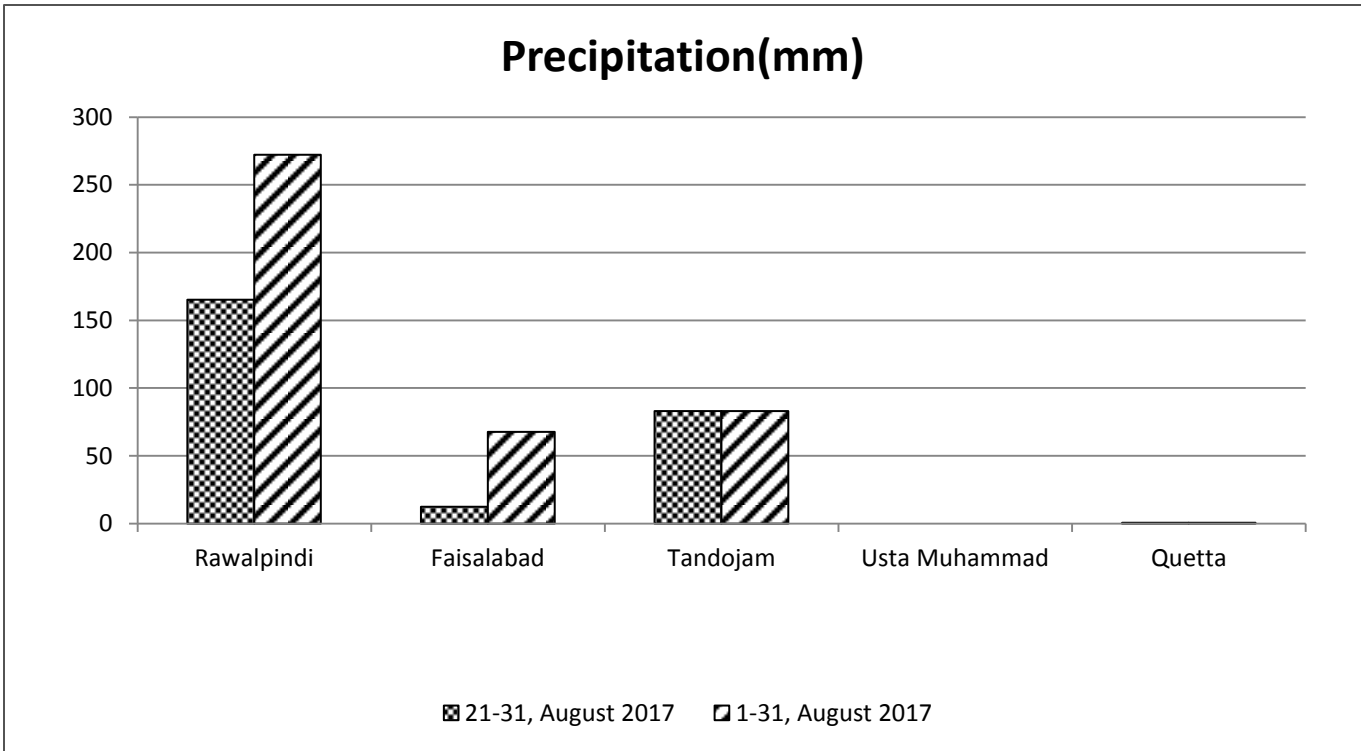
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Meteorological Conditions during 3rd Decade of August, 2017

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	5.9	165.3	159.4	1.3	-0.1	28.4	30.1	30.2	29.7	29.0	29.0	29.2	70	84.2	4.2	4.8
2	Faisalabad	2.9	12.4	9.5	-0.2	-0.4	31.0	36.1	35.4	34.7	34.2	34.8	34.6	64	75.2	3.0	4.7
3	Jhelum	4.4	136.0	131.6	-1.1	-1.1	29.3	32.7	31.8	30.8	30.1	30.6	***	75	73.3	2.6	4.3
4	Lahore	3.7	48.9	45.2	-0.7	-1.7	29.8	33.2	33.0	31.8	31.1	***	30.8	74	46.9	1.6	3.6
5	Sargodha	2.3	99.6	97.3	-2.2	-0.6	30.2	34.8	33.7	32.2	31.9	***	31.3	71	65.9	5.4	4.6
6	Multan	0.7	68.4	67.7	-0.3	1.1	32.7	***	***	***	***	***	***	62	70.0	7.2	5.6
7	Khanpur	0.0	5.4	5.4	1.2	0.2	32.8	***	37.4	37.4	37.5	37.6	35.9	66	93.1	5.1	5.8
8	Tandojam	1.5	83.1	81.6	1.5	-0.5	30.6	40.8	37.5	37.0	34.9	34.5	33.2	67	86.6	7.8	5.9
9	Sakrand ☆	0.7	57.0	56.3	1.4	1.2	32.1	42.5	***	***	***	***	36.1	67	105.0	9.6	6.8
11	Rohri	0.7	9.0	8.3	0.7	2.1	34.6	***	***	***	***	***	***	56	90.0	2.6	5.4
12	D.I Khan	1.8	77.0	75.2	0.4	0.2	31.6	34.1	33.3	33.6	33.5	23.3	32.4	68	83.4	12.5	6.4
13	Peshawar	0.8	7.0	6.2	0.2	1.1	31.3	33.2	32.4	31.5	30.5	30.4	30.3	63	79.4	3.5	4.9
14	Usta .M	0.1	0.0	-0.1	-1.7	1.8	32.9	35.1	***	38.0	37.2	***	***	63	***	2.2	4.3
15	Quetta	0.4	0.6	0.2	-1.2	-0.9	25.2	36.0	33.5	29.0	28.5	29.6	27.8	27	108.1	4.9	5.8
16	Skardu	0.4	3.0	2.6	2.4	-1.9	21.4	***	***	***	***	***	***	47	56.0	1.2	4.5
17	Gilgit	0.4	1.9	1.5	-1.3	0.8	24.5	***	***	***	***	***	***	46	88.0	2.9	3.3

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 (21st to 31st August, 2017)

Moderate to heavy rainfall reported from most parts of the country however light to moderate rainfall reported from few parts of G.B, upper KP & western Balochistan, during the last decade.

1.1 Punjab

Moderate to heavy rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Islamabad, Sialkot & Jhelum. Decadal maximum & minimum temperature both dropped below 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 69%, 72.7hrs, 4.2km/hr and 4.8mm/day respectively.

1.1 Sindh

Moderate to heavy rainfall reported from agricultural plains of Sindh. Chief amount of rainfall received at Thatta, Karachi & Badin. Decadal maximum & minimum temperature both raised above normal by 1.2°C & 0.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 93.9hrs, 6.7km/hr and 6.0mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

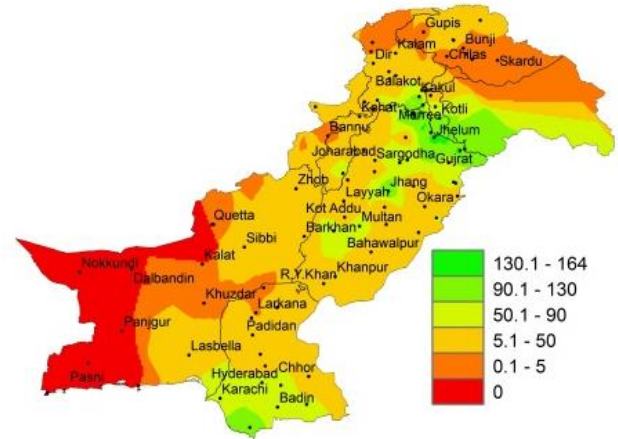
Moderate to heavy rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Kakul, D.I Khan & Risalpur. Decadal maximum & minimum temperature both raised above normal by 0.3°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 66%, 81.4hrs, 8.0km/hr and 5.7mm/day respectively.

1.3 Balochistan

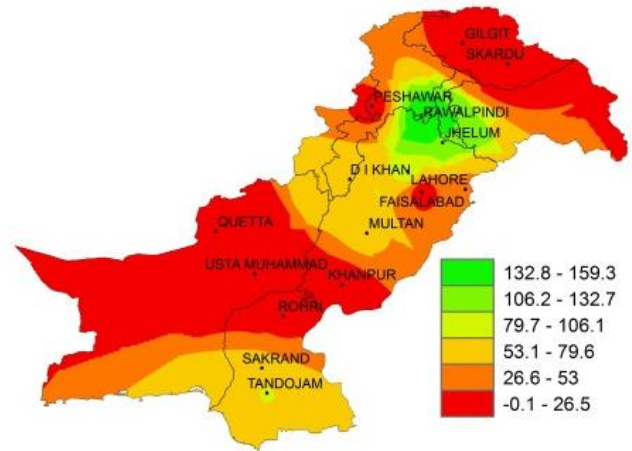
Light to moderate rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Barkhan, Sibbi & Lasbella. Decadal maximum dropped below normal by 1.5°C & minimum temperature raised above normal by 0.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 108.1hrs, 3.6km/hr and 5.1mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

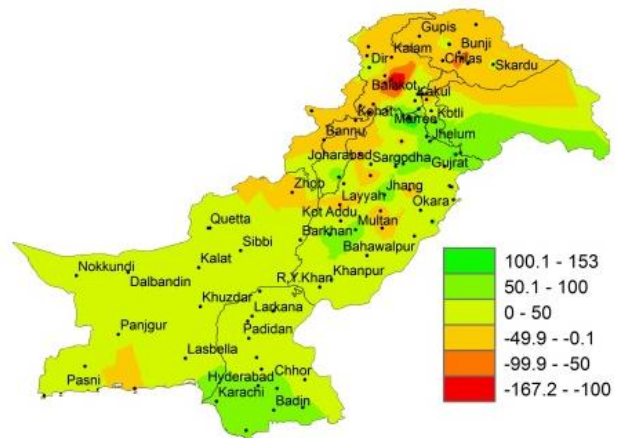
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Kotli, Rawalakot & Muzaffarabad. Decadal maximum dropped below normal by 0.6°C & minimum temperature raised above normal by 0.6°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 72.0hrs, 2.1km/hr and 3.9mm/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**
(21st to 31st August, 2017)

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

Rainfall reported as 165.3mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 70%. Mean day temperature was 33.9°C while night temperature recorded as 22.9°C with 84.2hours bright sunshine duration. Wind speed recorded as 4.2km/hr with mean wind direction *south westerly*.

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

Rainfall reported as 12.4mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 64%. Mean day temperature was 36.1°C while night temperature recorded as 25.9°C with 75.2hours bright sunshine duration. Wind speed recorded as 3.0km/hr with mean wind direction *south easterly*.
Cotton: *Very good condition, boll opening stage.*

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

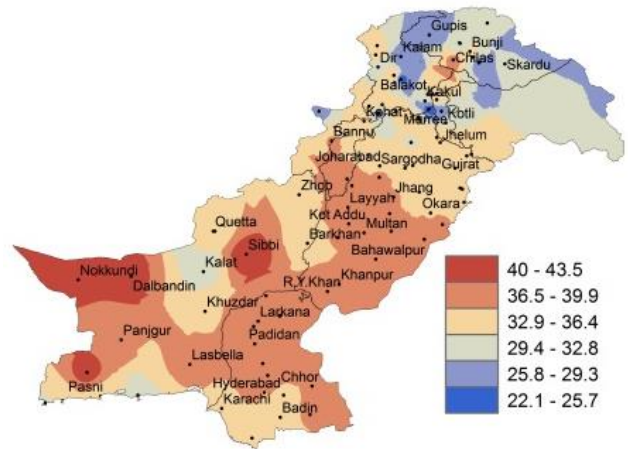
Rainfall reported as 83.1mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 67%. Mean day temperature was 36.6°C while night temperature recorded as 24.6°C with 86.6hours bright sunshine duration. Wind speed recorded as 7.8km/h with mean wind direction *south westerly*.
Cotton HH-906: *Good condition, boll opening stage.*

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

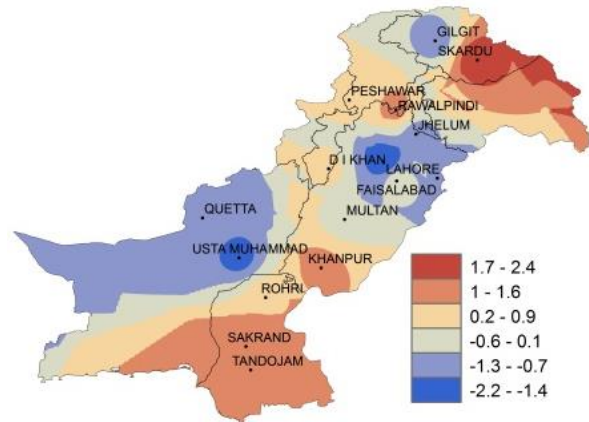
Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 63%. Mean day temperature was 37.4°C while night temperature recorded as 28.4°C. Wind speed recorded as 2.18km/h with mean wind direction *south easterly*.
Rice: *Good condition, tillering stage.*

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

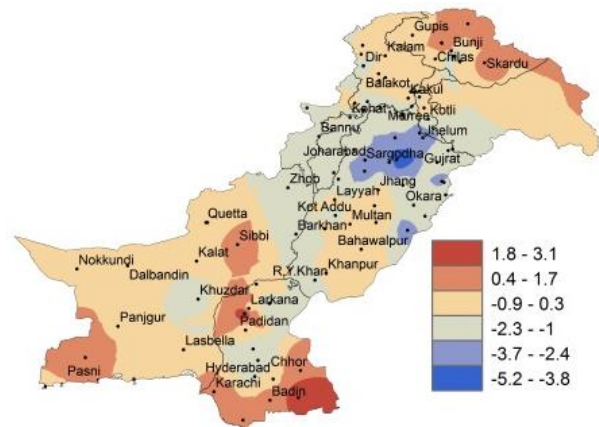
Rainfall reported as 0.6mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 27%. Mean day temperature was 33.2°C while night temperature recorded as 17.2°C with 108.1hours bright sunshine duration. Wind speed recorded as 4.9km/hr with mean wind direction *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 (21st to 31st August, 2017)

2.6 Jhelum

Rainfall reported as 136.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 75%. Mean day temperature was 34.0°C while night temperature recorded as 24.5°C with 73.3hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *variable*.

2.7 Lahore

Rainfall reported as 48.9mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 74%. Mean day temperature was 34.2°C while night temperature recorded as 25.4°C with 46.9hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *south easterly*.

2.8 Sargodha

Rainfall reported as 99.6mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 71%. Mean day temperature was 34.3°C while night temperature recorded as 26.1°C with 65.9hours bright sunshine duration. Wind speed recorded 5.4km/hr with mean wind direction *north easterly*.

2.9 Multan

Rainfall reported as 68.4mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 62%. Mean day temperature was 36.6°C while night temperature recorded as 28.7°C with 70.0hours bright sunshine duration. Wind speed recorded 7.2km/hr with mean wind direction *north easterly*.

2.10 Khanpur

Rainfall reported as 5.4mm during the decade; however weather remained cloudy for 10day. Average relative humidity recorded as 66%. Mean day temperature was 38.3°C while night temperature recorded as 27.3°C with 93.1hours bright sunshine duration. Wind speed recorded 5.1km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Rainfall reported as 57.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 67%. Mean day temperature was 37.8°C while night temperature recorded as 26.3°C with 105.0hours bright sunshine duration. Wind speed recorded 9.6km/hr with wind direction *southerly*.

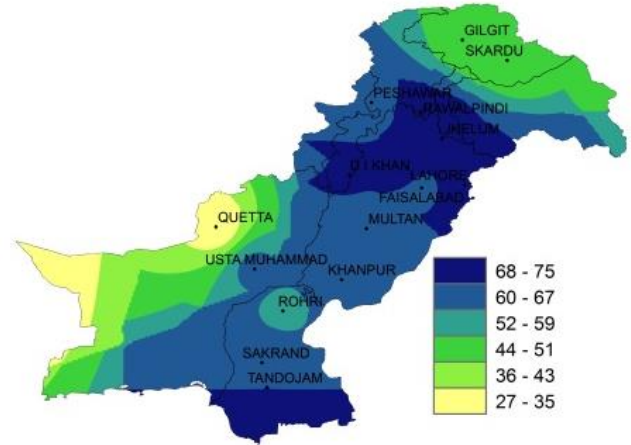


Figure.3: Relative Humidity in Percentage (%)

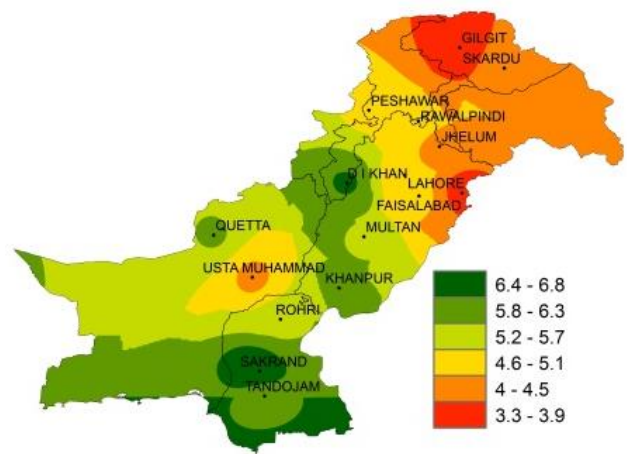


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

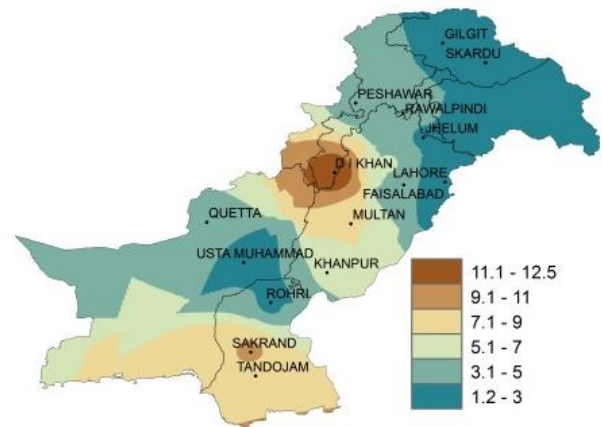


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 9.0mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 56%. Mean day temperature was 39.0°C while night temperature recorded as 30.1°C with 90.0hours bright sunshine duration. Wind speed recorded 2.6km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 77.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 68%. Mean day temperature was 37.4°C while night temperature recorded as 25.7°C with 83.4hours bright sunshine duration. Wind speed recorded as 12.5km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 7.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 63%. Mean day temperature was 35.7°C while night temperature recorded as 26.9°C with 79.4hours bright sunshine duration. Wind speed recorded as 3.5km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 3.0mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 47%. Mean day temperature was 30.1°C while night temperature recorded as 12.6°C with 56.0hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Rainfall reported as 1.9mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 46%. Mean day temperature was 33.1°C while night temperature recorded as 15.9°C with 88.0hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *south easterly*.

Ten Days Weather Advisory for Farmers
(5th to 10th September, 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 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

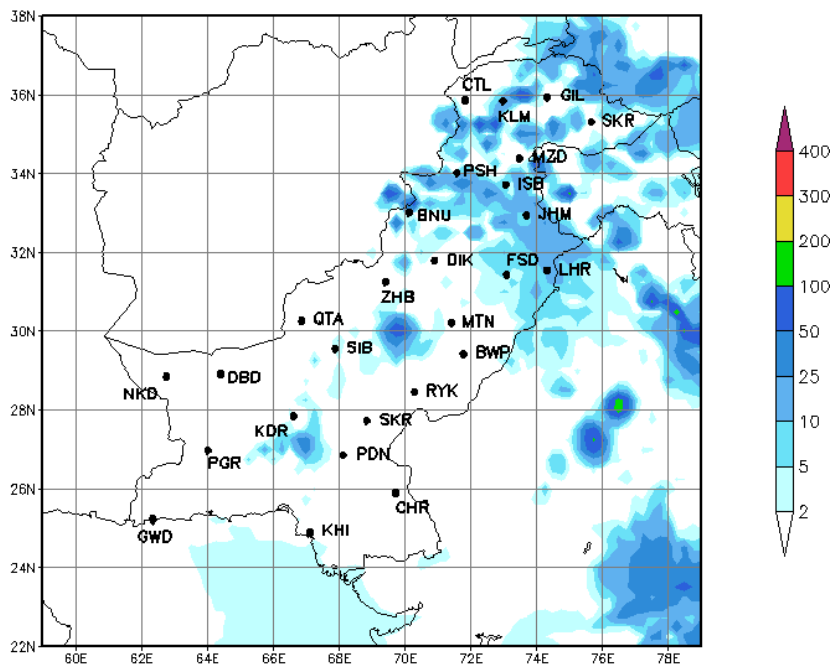
- ❖ **Punjab:** Light to moderate rainfall is expected at scattered places of the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at most parts of the province during the decade.
- ❖ **Sindh:** Light rainfall is expected at isolated places of Sindh during the current decade.
- ❖ **Balochistan:** Light to moderate rainfall is expected in isolated places of Balochistan 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.

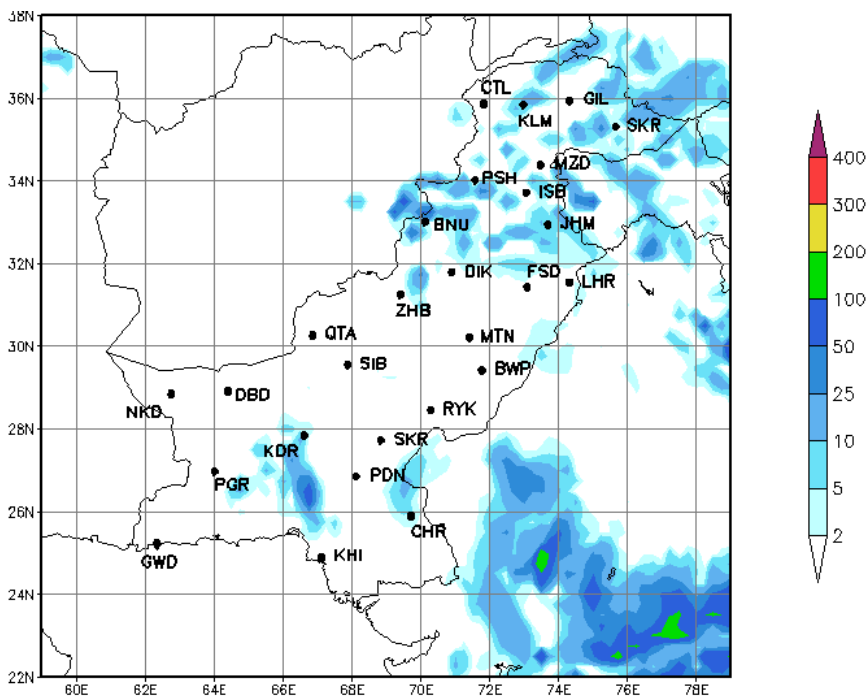
4.1 Precipitation Outlook (5th to 7th September, 2017)

The forecast for the next three days (5th to 7th) of the first decade of September 2017 shows that mainly cloudy weather with light to moderate rainfall is expected at isolated places in KP, G.B, Kashmir, Upper Punjab, Eastern Baluchistan and Lower Sindh. However, dry weather may prevail in rest parts of the country.



4.2 Precipitation Outlook (8th to 10th September, 2017)

The outlook for the last three days (8th to 10th) of the first decade of September 2017 shows that light to moderate rainfall is expected at scattered places in most of the upper and isolated places in southern half of the country. However, dry weather may prevail in western parts of Baluchistan.



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)