

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Heavy rainfall reported from most parts of the Punjab, KP however light to moderate rainfall reported from Sindh, Balochistan, G.B & Kashmir during the last decade.
- ❖ Highest amount of rainfall recorded as 231.0 mm at Kamra during the last decade.
- ❖ Highest maximum temperature recorded as 45.5°C at Chilas 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.
- ❖ 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.

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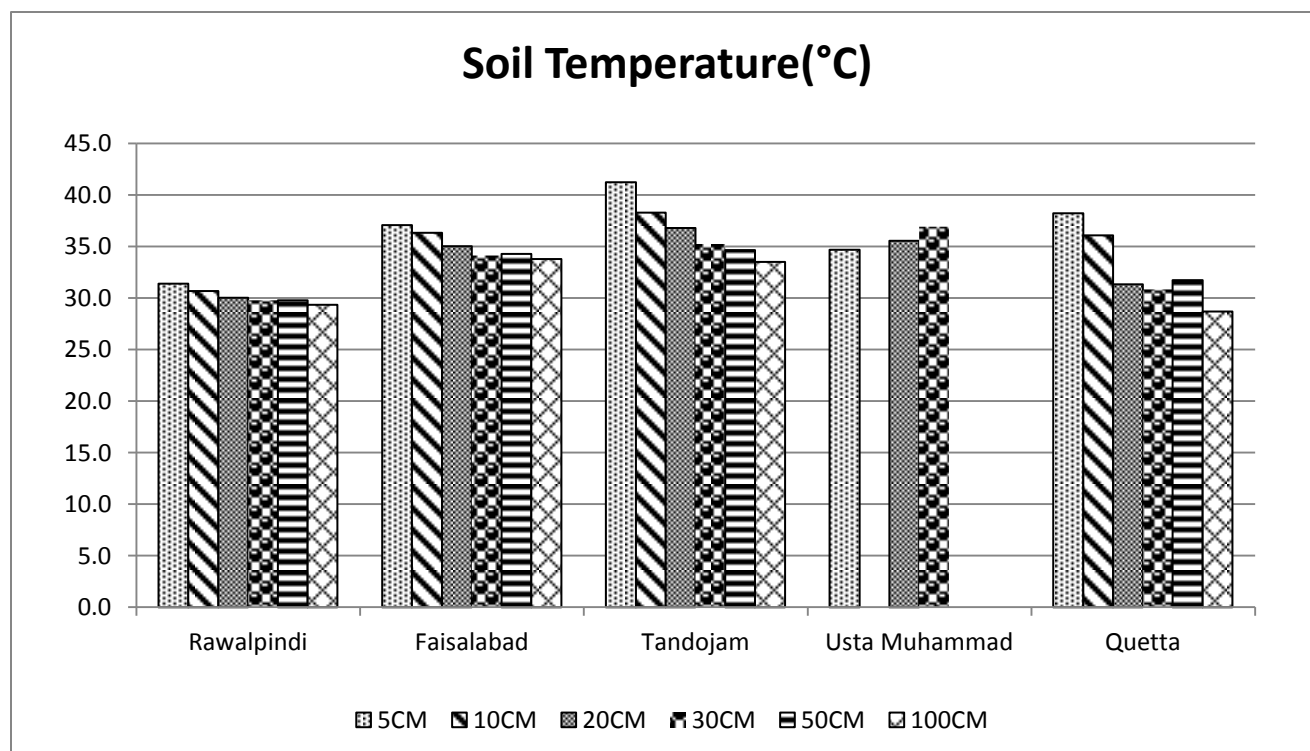
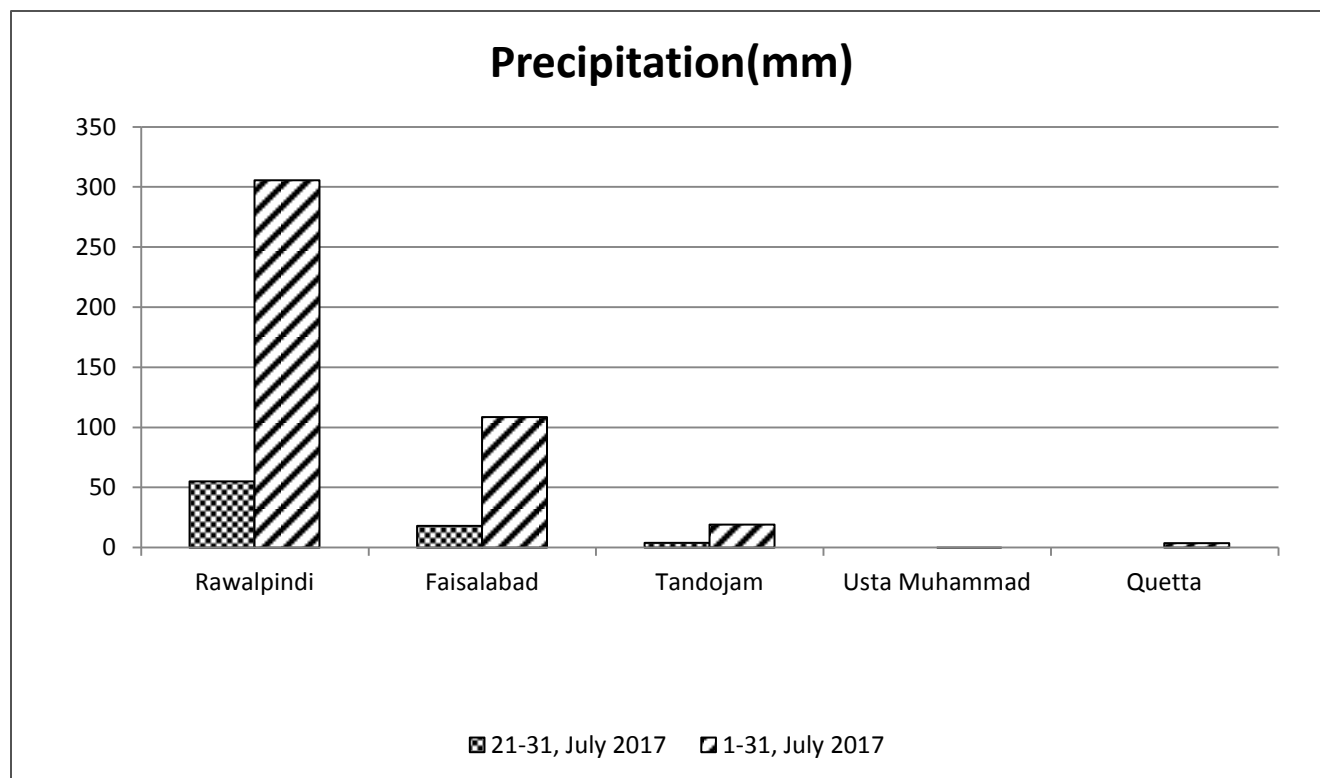
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Meteorological Conditions during 3rd decade of July, 2017

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	13.1	55.0	41.9	-0.8	1.2	29.1	31.4	30.7	30.1	29.8	29.8	29.4	77	47.9	2.4	4.3
2	Faisalabad	2.7	18.0	15.3	0.3	0.7	32.4	37.1	36.4	35.1	34.2	34.3	33.8	67	72.9	2.0	4.9
3	Jhelum	8.3	90.8	82.5	-0.9	0.6	30.5	33.5	32.7	31.8	31.2	31.5	***	76	43.8	3.3	4.0
4	Lahore	6.5	47.9	41.4	-0.1	0.0	31.1	35.6	35.0	33.0	31.6	***	30.5	73	61.2	1.8	4.4
5	Sargodha	5.4	35.9	30.5	-1.4	1.0	32.0	36.5	35.2	33.5	32.9	***	31.2	73	55.9	6.3	4.9
6	Multan	1.4	9.0	7.6	0.6	1.6	34.5	***	***	***	***	***	***	58	103.3	6.2	6.9
7	Khanpur	2.0	0.1	-1.9	0.4	0.2	33.8	***	37.0	37.0	37.1	37.3	36.0	62	89.0	5.2	6.2
8	Tandojam	1.8	4.0	2.2	0.4	-0.8	30.6	41.3	38.3	36.8	35.3	34.7	33.5	70	38.9	12.3	5.3
9	Sakrand ☆	4.2	0.0	-4.2	0.1	1.1	32.8	42.4	***	***	***	***	36.0	64	73.5	10.5	6.6
11	Rohri	0.3	12.0	11.7	0.9	1.3	35.8	***	***	***	***	***	***	51	93.5	2.2	5.9
12	D.I Khan	3.0	19.0	16.0	0.3	0.6	32.5	44.6	35.0	34.4	34.2	24.0	32.6	67	52.5	13.0	6.2
13	Peshawar	4.4	15.0	10.6	-1.0	-0.7	30.5	34.5	33.1	32.8	31.6	29.6	30.7	70	45.3	3.4	4.1
14	Usta .M	3.5	0.0	-3.5	-3.3	1.5	32.4	34.7	***	35.6	36.9	***	***	66	***	3.2	4.9
15	Quetta	0.0	0.0	0.0	-0.2	-0.9	27.9	38.3	36.1	31.4	30.9	31.8	28.7	26	112.8	5.7	6.8
16	Skardu	0.2	0.2	0.0	1.5	-0.4	24.5	***	***	***	***	***	***	42	80.7	4.1	5.2
17	Gilgit	0.6	2.0	1.4	-0.2	1.9	27.3	***	***	***	***	***	***	51	81.1	1.8	4.7

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; **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



Past Weather (21st to 31st July, 2017)

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

1.1 Punjab

Heavy rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Kamra, Sialkot & Mangla. Decadal maximum dropped below normal by 0.3°C & minimum temperature raised above normal by 0.8°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 69%, 67.7hrs, 3.9km/hr and 5.1mm/day respectively.

1.1 Sindh

Light to moderate rainfall reported from agricultural plains of Sindh. Chief amount of rainfall received at Mithi, Chorr & MirpurKhas. Decadal maximum and minimum both raised above normal by 0.5°C & 0.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 62%, 68.6hrs, 8.3km/hr and 5.9mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

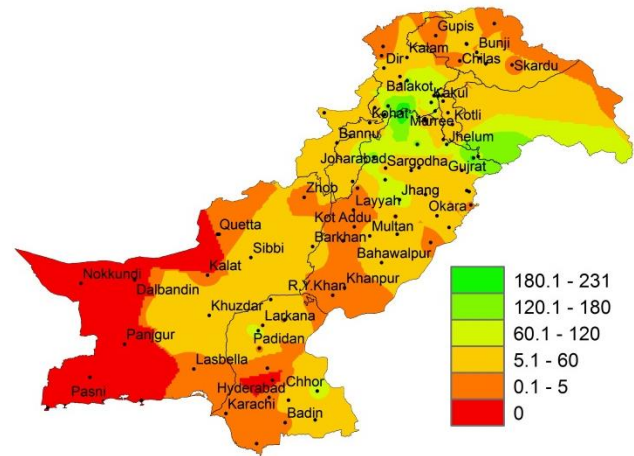
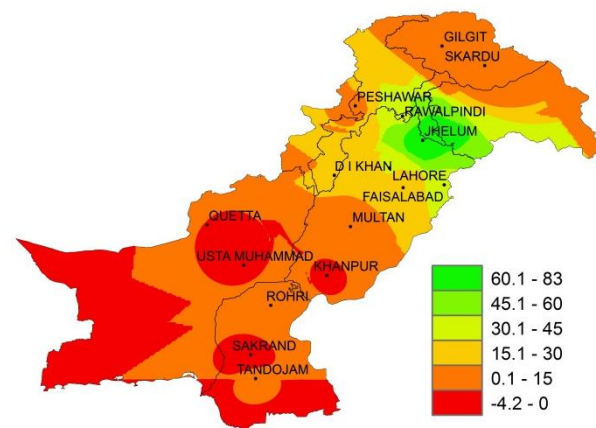
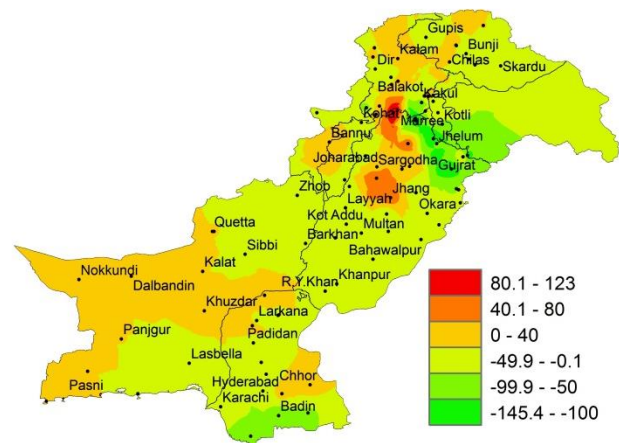
Heavy rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Risalpur, Malam Jabba & Kakul. Decadal maximum dropped below normal by 0.4°C & minimum temperature remained normal, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 69%, 48.9hrs, 8.2km/hr and 5.2mm/day respectively.

1.3 Balochistan

Light to moderate rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Khuzdar, Sibbi & Barkhan. Decadal maximum dropped below normal by 1.8°C & minimum raised above normal by 0.3°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 112.8hrs, 4.5km/hr and 5.9mm/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 Muzzaffarabad, Garhi Dopatta & Rawalakot. Decadal maximum & minimum both raised above normal by 0.6°C & 0.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 80.9hrs, 3.0km/hr and 5.0mm/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 July, 2017)**

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 55.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 77%. Mean day temperature was 33.6°C while night temperature recorded as 24.5°C with 47.9hours bright sunshine duration. Wind speed recorded as 2.4km/hr with mean wind direction *south easterly*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 18.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 67%. Mean day temperature was 37.1°C while night temperature recorded as 27.6°C with 72.9hours bright sunshine duration. Wind speed recorded as 2.0km/hr with mean wind direction *south easterly*.

Cotton: *Very good condition, flowering stage.*

2.3 RAMC, Tandojam (Lower Sindh)

Rainfall reported as 4.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 70%. Mean day temperature was 35.8°C while night temperature recorded as 25.4°C with 38.9hours bright sunshine duration. Wind speed recorded as 12.3km/h with mean wind direction *south westerly*.

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

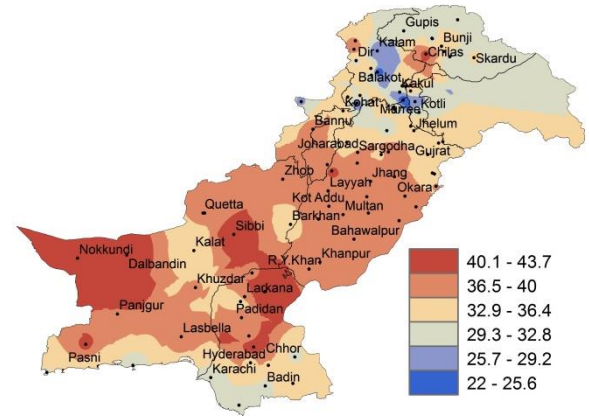
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade; however weather remained cloudy for 11day. Average relative humidity recorded as 66%. Mean day temperature was 37.0°C while night temperature recorded as 29.8°C. Wind speed recorded as 3.2km/h with mean wind direction *south easterly*.

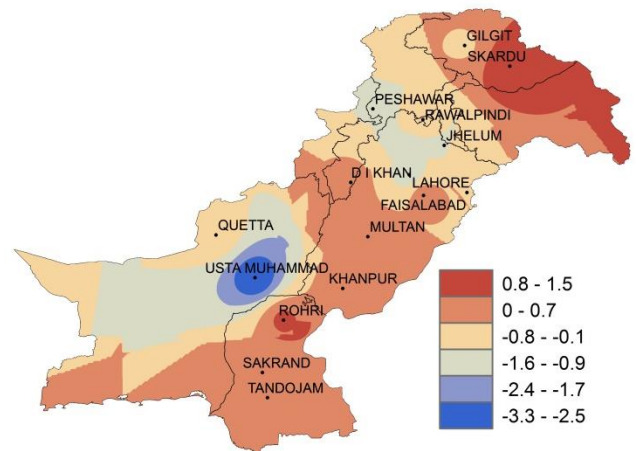
Rice: *Good condition, Rice PANEERI has been transferred in the field.*

2.5 RAMC, Quetta (Northern Balochistan)

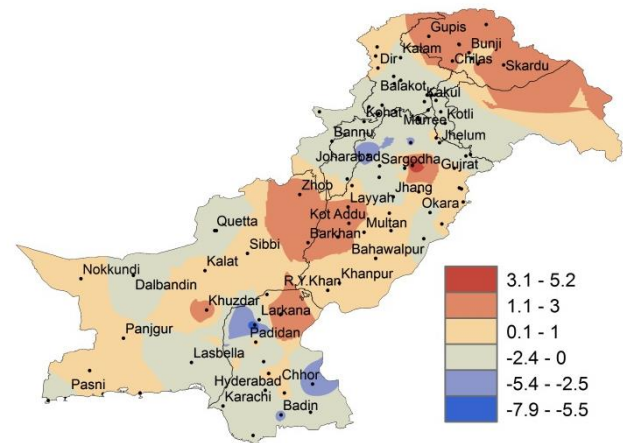
Dry weather reported during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 26%. Mean day temperature was 35.4°C while night temperature recorded as 20.4°C with 112.8hours bright sunshine duration. Wind speed recorded as 5.7km/hr with mean wind direction *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 July, 2017)

2.6 Jhelum

Rainfall reported as 90.8mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 76%. Mean day temperature was 34.3°C while night temperature recorded as 26.7°C with 43.8hours bright sunshine duration. Wind speed recorded as 3.3km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 47.9mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 73%. Mean day temperature was 34.9°C while night temperature recorded as 27.2°C with 61.2hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *south easterly*.

2.8 Sargodha

Rainfall reported as 35.9mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 73%. Mean day temperature was 35.6°C while night temperature recorded as 28.3°C with 55.9hours bright sunshine duration. Wind speed recorded 6.3km/hr with mean wind direction *easterly*.

2.9 Multan

Rainfall reported as 9.0mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 58%. Mean day temperature was 38.7°C while night temperature recorded as 30.3°C with 103.3hours bright sunshine duration. Wind speed recorded 6.2km/hr with mean wind direction *variable*.

2.10 Khanpur

Rainfall reported as 0.1mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 62%. Mean day temperature was 38.8°C while night temperature recorded as 28.7°C with 89.0hours bright sunshine duration. Wind speed recorded 5.2km/hr with mean wind direction *variable*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 64%. Mean day temperature was 38.0°C while night temperature recorded as 27.5°C with 73.5hours bright sunshine duration. Wind speed recorded 10.5km/hr with wind direction *south easterly*.

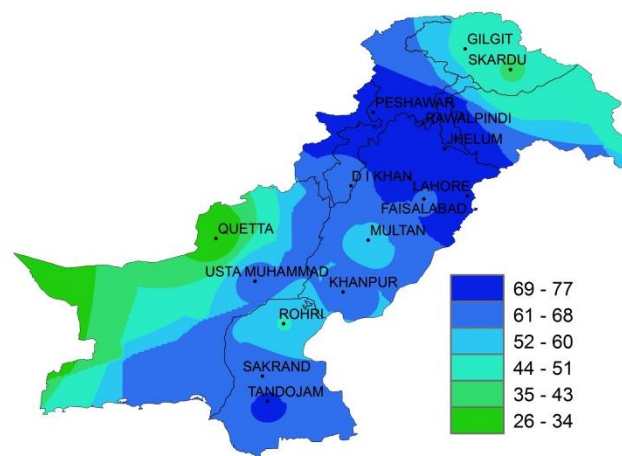


Figure.3: Relative Humidity in Percentage (%)

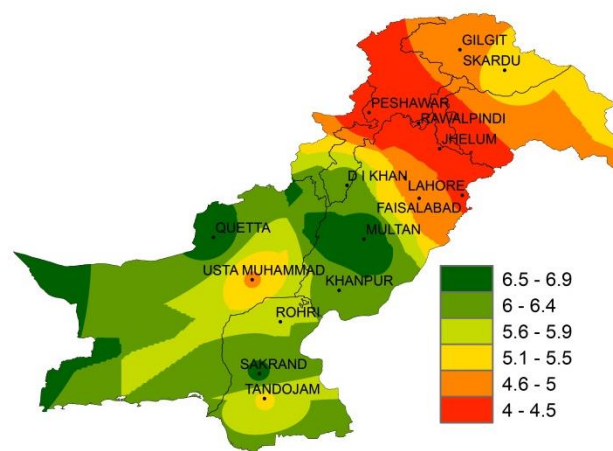


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

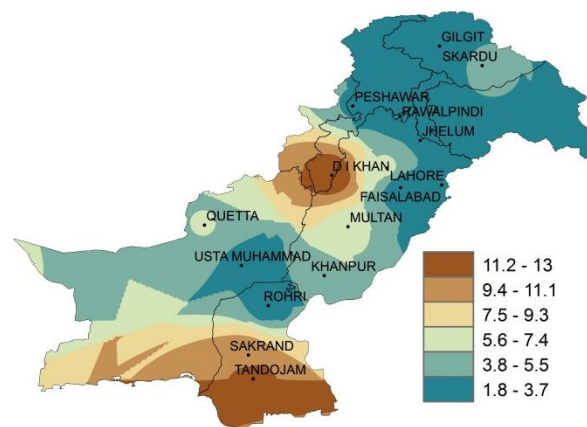


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 12.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 51%. Mean day temperature was 41.0°C while night temperature recorded as 30.6°C with 93.5hours bright sunshine duration. Wind speed recorded 2.2km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 19.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 67%. Mean day temperature was 38.0°C while night temperature recorded as 27.0°C with 52.5hours bright sunshine duration. Wind speed recorded as 13.0km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 15.0mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 70%. Mean day temperature was 35.1°C while night temperature recorded as 25.8°C with 45.3hours bright sunshine duration. Wind speed recorded as 3.4km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 0.2mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 42%. Mean day temperature was 32.8°C while night temperature recorded as 16.1°C. Wind speed recorded as 4.1km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 51%. Mean day temperature was 35.5°C while night temperature recorded as 19.1°C with 81.1hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *westerly*.

Ten Days Weather Advisory for Farmers
(1st to 10th 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

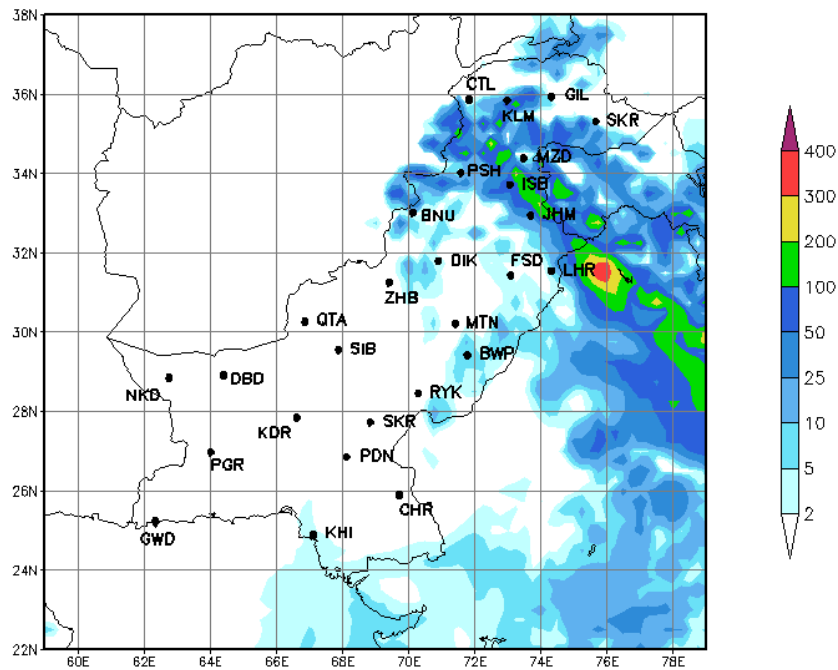
- ❖ **Punjab:** Light to moderate rainfall is expected in most parts of the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at most parts of the province during the decade.
- ❖ **Sindh:** Light rainfall is expected at isolated places of Sindh during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

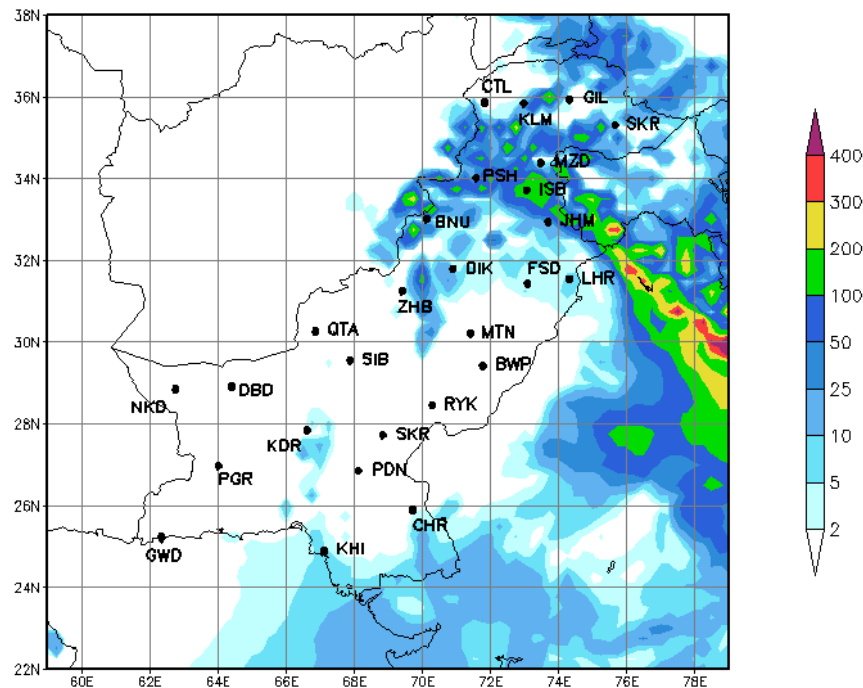
4.1 Precipitation Outlook (1st to 3rd August, 2017)

The forecast for the first three days (1st to 3rd) of the first 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, G.B, Kashmir and coastal belts of Sindh. However, dry weather may prevail in rest parts of the country.



4.2 Precipitation Outlook (4th to 10th August, 2017)

The outlook for the last seven days (4th to 10th) of the first decade of August 2017 shows that moderate to heavy rainfall is expected at scattered places in coastal areas of Sindh and upper half of the country. However, dry weather may prevail in most parts of Baluchistan and Sindh.



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)