

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from most parts of the country except western Baluchistan and upper Sindh where light rain occurred at isolated places, during the last decade.
- ❖ Highest amount of rainfall recorded as 190.0 mm at Malam Jabba 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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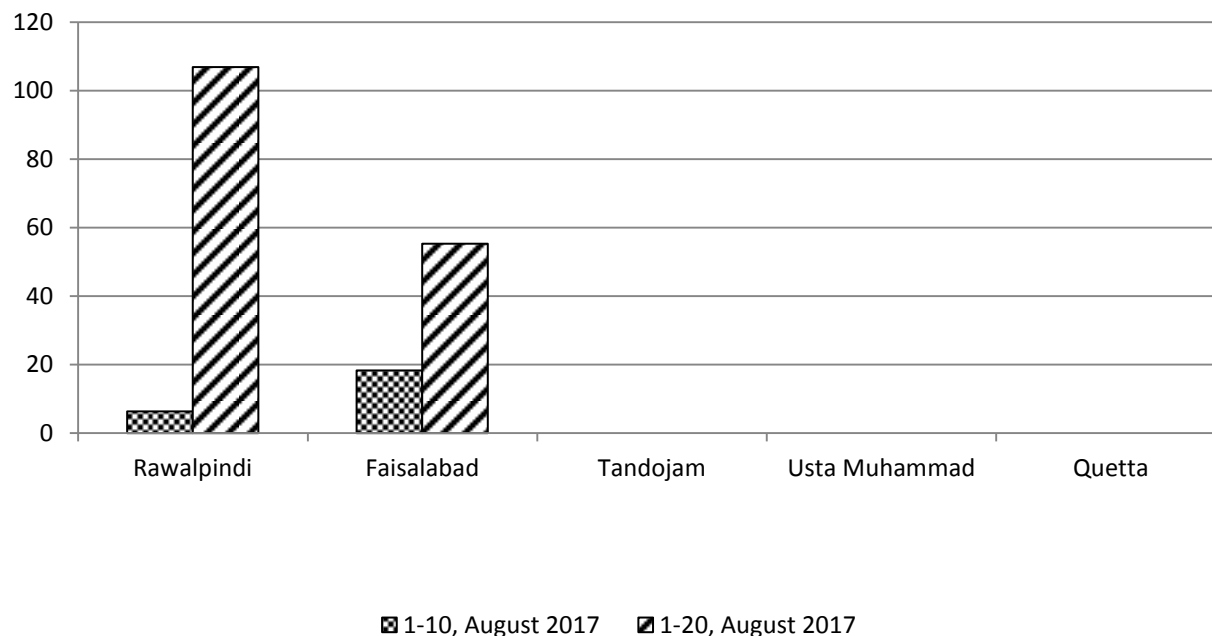
Meteorological Conditions during 2nd decade of August, 2017

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	10.5	6.4	-4.1	2.7	0.4	29.6	32.0	31.4	30.2	30.2	29.9	29.8	67	88.5	2.8	5.0
2	Faisalabad	4.1	18.3	14.2	1.2	0.3	32.2	38.2	37.2	35.8	35.1	35.1	34.5	57	94.2	2.2	5.3
3	Jhelum	7.3	54.4	47.1	1.7	-0.1	31.5	35.2	33.9	32.4	31.5	31.7	***	68	87.8	3.3	5.2
4	Lahore	4.0	6.2	2.2	1.2	-0.5	31.9	35.4	34.9	33.2	32.1	***	31.0	65	74.7	1.9	4.7
5	Sargodha	4.0	25.0	21.0	0.5	1.0	32.9	38.4	36.9	34.4	33.6	***	31.6	61	80.5	4.4	5.5
6	Multan	0.8	0.1	-0.7	-0.1	-0.3	32.7	***	***	***	***	***	***	59	92.1	9.5	6.8
7	Khanpur	1.0	0.0	-1.0	1.4	-0.2	33.2	***	37.2	37.2	37.4	37.5	36.0	61	85.5	6.5	6.2
8	Tandojam	1.5	0.0	-1.5	2.1	-0.6	31.0	40.7	37.4	37.0	34.6	34.1	33.4	62	78.8	13.7	7.0
9	Sakrand ☆	2.0	0.0	-2.0	2.4	1.1	32.7	44.1	***	***	***	***	36.2	58	104.1	10.9	7.6
11	Rohri	0.4	0.0	-0.4	1.5	0.1	34.3	***	***	***	***	***	***	51	101.3	3.8	6.3
12	D.I Khan	1.9	0.1	-1.8	2.0	1.2	33.4	37.1	37.0	35.9	35.6	24.7	32.6	67	82.1	11.1	6.7
13	Peshawar	1.4	33.0	31.6	0.7	-0.8	31.0	35.5	32.3	31.9	31.1	30.5	30.7	63	74.0	4.3	5.0
14	Usta .M	1.2	0.0	-1.2	-1.8	2.3	32.9	35.1	***	38.0	37.2	***	***	63	***	2.2	4.5
15	Quetta	0.0	0.0	0.0	-1.3	-2.6	25.1	36.6	34.3	29.8	29.5	30.5	28.6	24	108.8	5.0	6.0
16	Skardu	0.5	0.2	-0.3	-2.1	-0.9	21.6	***	***	***	***	***	***	52	51.7	2.2	3.6
17	Gilgit	0.5	8.2	7.7	-1.2	0.6	24.5	***	***	***	***	***	***	49	72.3	2.9	4.3

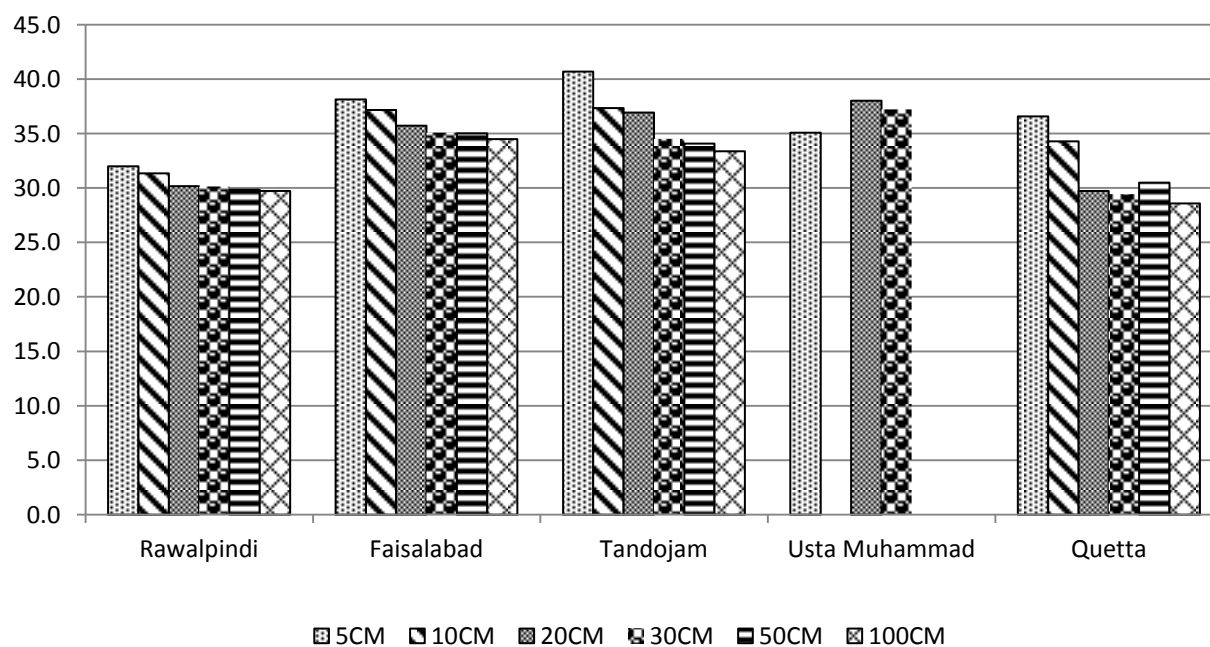
Table-1: Meteorological parameters for selected station of Pakistan. “Dep” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “% Dep” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures 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

Precipitation(mm)



Soil Temperature(°C)



Past Weather (11th to 20th August, 2017)

Light to moderate rainfall reported from most parts of the country except western Baluchistan and upper Sindh where light rain occurred at isolated places, during the last decade.

1.1 Punjab

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Mianwali, Mandi Bahu Din & Noorpur Thal. Decadal maximum & minimum temperature both raised above normal by 1.2°C & 0.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 86.2hrs, 4.4km/hr and 5.5mm/day respectively.

1.1 Sindh

Light rainfall reported from few parts of Sindh. Chief amount of rainfall received at Mithi & Karachi. Decadal maximum & minimum temperature both raised above normal by 2.0°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 947hrs, 9.5km/hr and 7.0mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

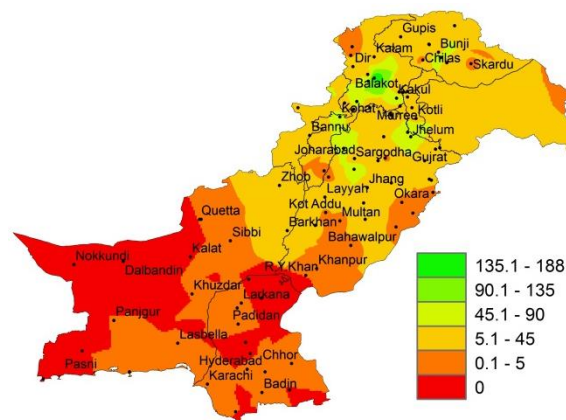
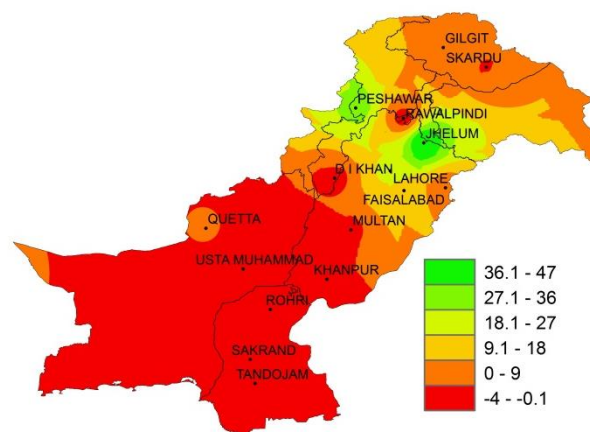
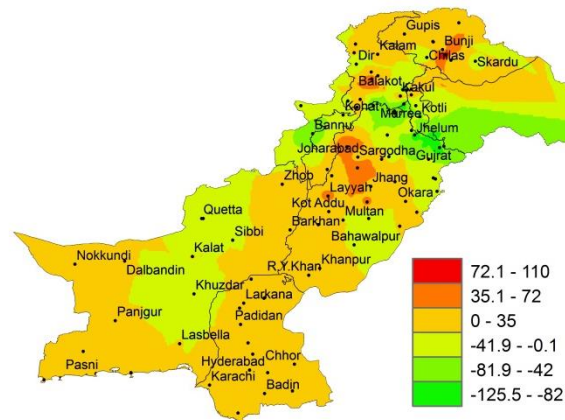
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Malam Jabba, Kakul & Saidu Sharif. Decadal maximum & minimum temperature both raised above normal by 1.4°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 78.1hrs, 7.7km/hr and 5.9mm/day respectively.

1.3 Balochistan

Light to moderate rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Barkhan, Zhob & Ormara. Decadal maximum & minimum temperature both dropped below normal by 1.6°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 44%, 108.8hrs, 3.6km/hr and 5.3mm/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 Garhi Dopatta, Kotli, & Muzzaffarabad. Decadal maximum & minimum temperature both dropped below normal by 1.7°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 62.0hrs, 2.6km/hr and 4.0mm/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** **(11th to 20th August, 2017)**

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 6.4mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 67%. Mean day temperature was 35.2°C while night temperature recorded as 23.9°C with 88.5hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *variable*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 18.3mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 57%. Mean day temperature was 37.8°C while night temperature recorded as 26.6°C with 94.2hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *south easterly*.

Cotton: Very good condition, flowering stage completed.

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 62%. Mean day temperature was 37.1°C while night temperature recorded as 24.8°C with 78.8hours bright sunshine duration. Wind speed recorded as 13.7km/h with mean wind direction *south westerly*.

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

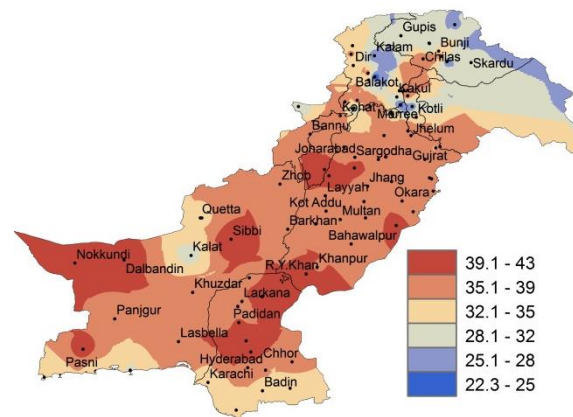
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

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*.

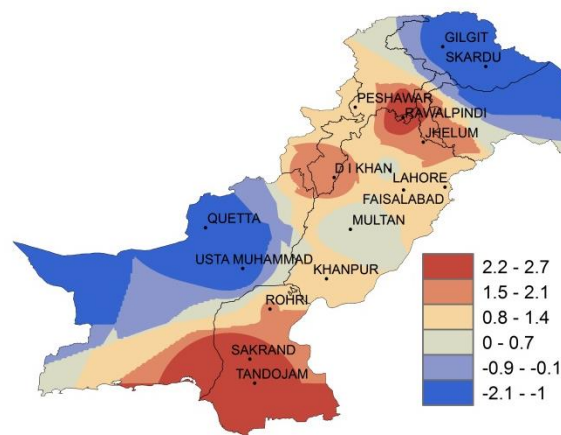
Rice: Good condition, third leaf stage.

2.5 RAMC, Quetta (Northern Balochistan)

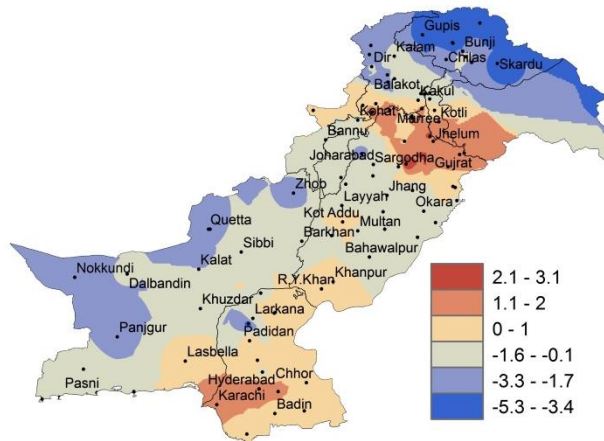
Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 24%. Mean day temperature was 33.6°C while night temperature recorded as 16.5°C with 108.8hours bright sunshine duration. Wind speed recorded as 5.0km/hr with mean wind direction *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 (11th to 20th August, 2017)

2.6 Jhelum

Rainfall reported as 54.4mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 68%. Mean day temperature was 36.9°C while night temperature recorded as 26.0°C with 87.8hours bright sunshine duration. Wind speed recorded as 3.3km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 6.2mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 65%. Mean day temperature was 36.2°C while night temperature recorded as 27.5°C with 74.7hours bright sunshine duration. Wind speed recorded as 1.9km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 25.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 61%. Mean day temperature was 37.6°C while night temperature recorded as 28.1°C with 80.5hours bright sunshine duration. Wind speed recorded 4.44km/hr with mean wind direction *easterly*.

2.9 Multan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 59%. Mean day temperature was 37.3°C while night temperature recorded as 28.1°C with 92.1hours bright sunshine duration. Wind speed recorded 9.5km/hr with mean wind direction *south westerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 61%. Mean day temperature was 38.8°C while night temperature recorded as 27.5°C with 85.5hours bright sunshine duration. Wind speed recorded 6.5km/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 58%. Mean day temperature was 39.2°C while night temperature recorded as 26.1°C with 104.1hours bright sunshine duration. Wind speed recorded 10.9km/hr with wind direction *southerly*.

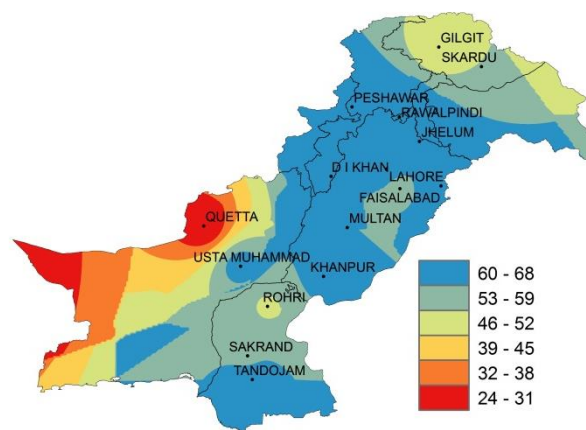


Figure.3: Relative Humidity in Percentage (%)

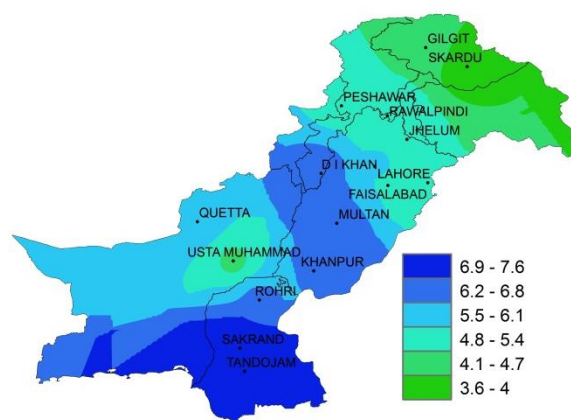


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

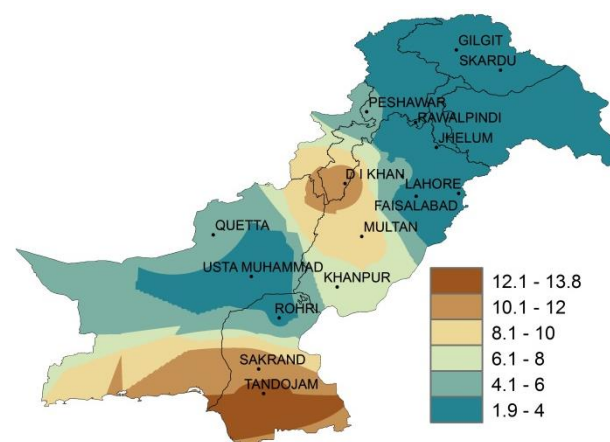


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 51%. Mean day temperature was 40.3°C while night temperature recorded as 28.3°C with 101.3hours bright sunshine duration. Wind speed recorded 3.8km/hr with wind direction *south easterly*.

2.13 D.I. Khan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 67%. Mean day temperature was 39.6°C while night temperature recorded as 27.2°C with 82.1hours bright sunshine duration. Wind speed recorded as 11.1km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as 33.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 63%. Mean day temperature was 36.4°C while night temperature recorded as 25.5°C with 74.0hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *north easterly*.

2.15 Skardu

Rainfall reported as 0.2mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 52%. Mean day temperature was 28.5°C while night temperature recorded as 14.6°C. Wind speed recorded as 2.2km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Rainfall reported as 8.2mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 49%. Mean day temperature was 32.1°C while night temperature recorded as 16.9°C with 72.3hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *south westerly*.

Ten Days Weather Advisory for Farmers
(21st to 31st 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

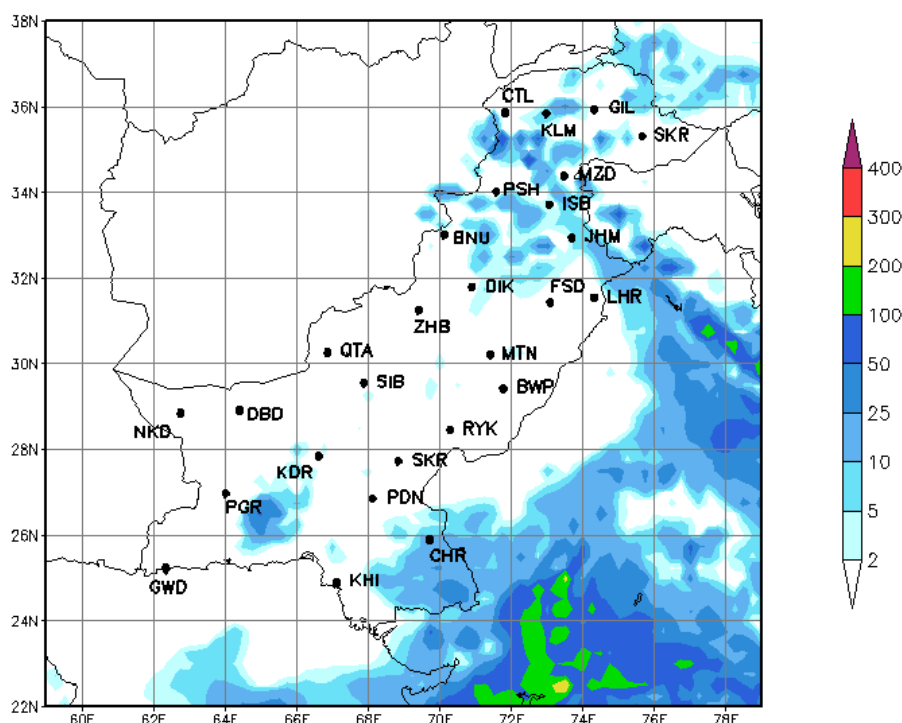
- ❖ **Punjab:** Light to moderate rainfall is expected in most parts of the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at most parts of the province during the decade.
- ❖ **Sindh:** Light rainfall is expected at isolated places of Sindh during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

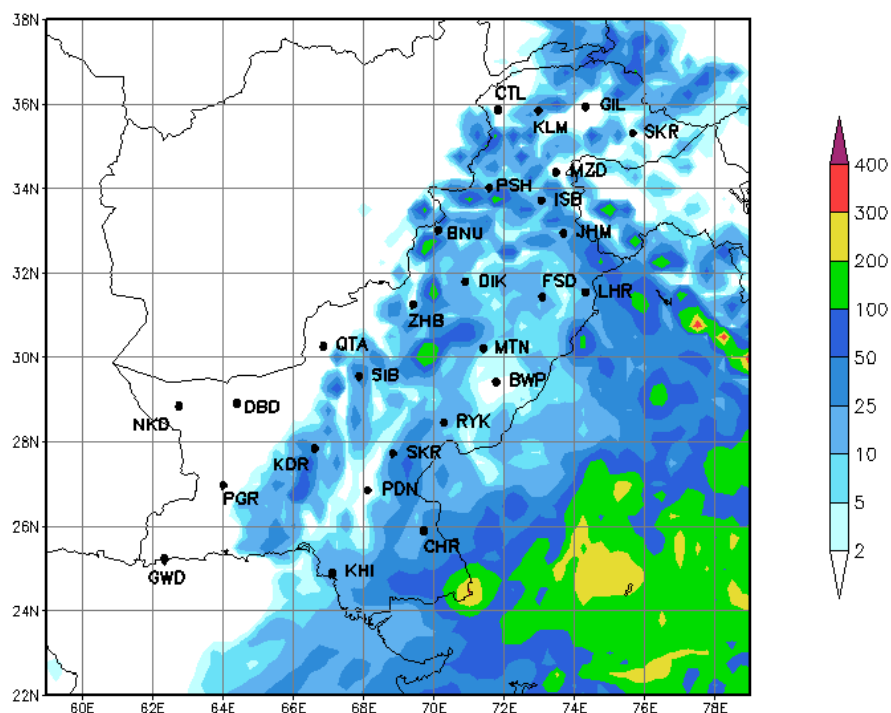
4.1 Precipitation Outlook (21st to 23rd August, 2017)

The forecast for the first three days (21st to 23rd) of the third decade of August 2017 shows that mainly cloudy weather with light to moderate rainfall is expected at isolated places in KP, G.B, Kashmir, Upper Punjab, Southern Baluchistan and Lower Sindh. However, dry weather may prevail in rest parts of the country.



4.2 Precipitation Outlook (24th to 31st August, 2017)

The outlook for the next seven days (24th to 31st) of the third decade of August 2017 shows that moderate to heavy rainfall is expected at scattered places in most parts 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)