

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Moderate to heavy rainfall reported from most of the agricultural plains of Punjab, K.P, G.B and Kashmir; however light rainfall reported from few places of Balochistan and Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 252.5mm at Islamabad during the last decade.
- ❖ Highest maximum temperature recorded as 45.5°C at Dalbandin & Chilas during the last decade.
- ❖ Moderate to heavy rainfall is expected in most parts of Punjab, KP, GB and Kashmir while, light to moderate rainfall is expected at scattered places of Sindh during the current decade.
- ❖ Farmers of rainfed areas of upper half may complete sowing of Millet/Sorghum etc .
- ❖ After the recent rainfall spell, measures may be taken to flush out the extra water from the fields of Cotton crops and vegetables.
- ❖ Due to higher temperature Pinkboll worm attack is observed on Cotton crop, so farmers are advised to take adoptive measures especially the use of PB ropes in consultancy with plant protection department.

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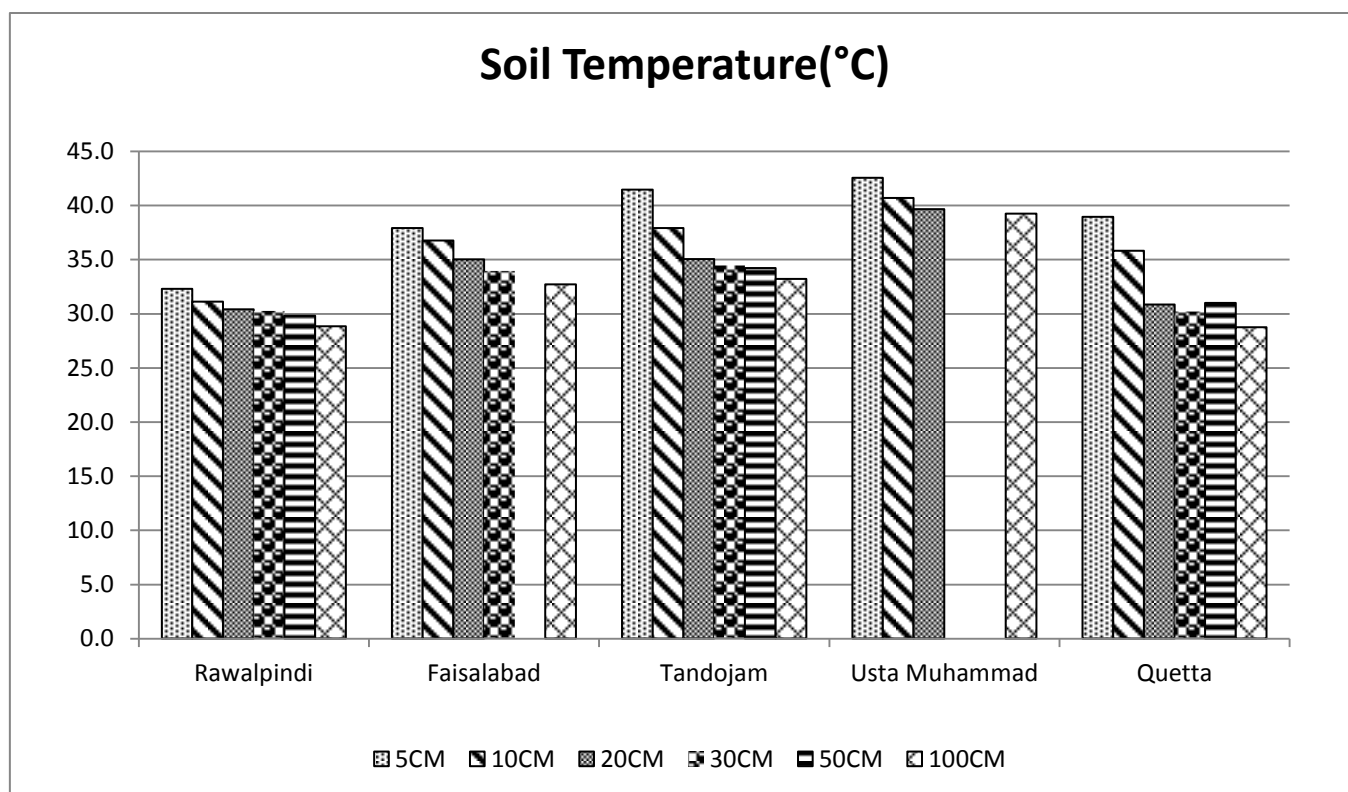
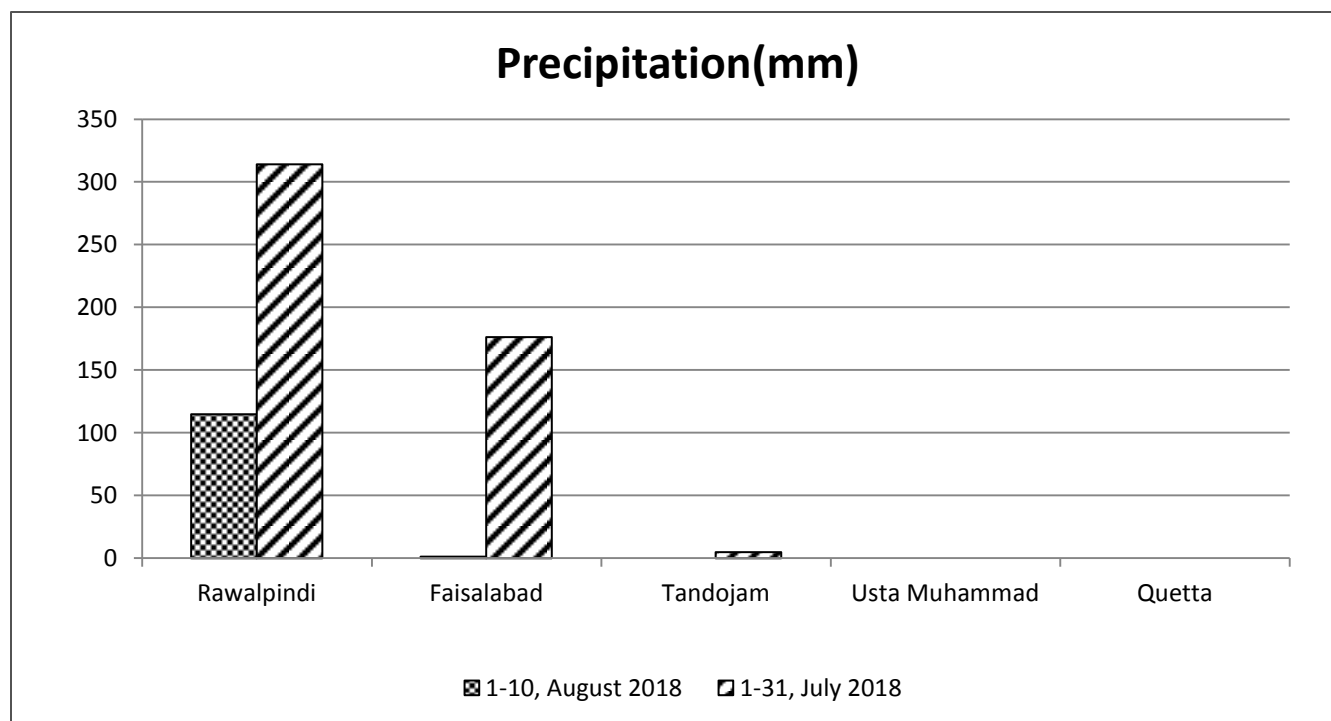
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Meteorological Conditions during 1st Decade of August, 2018

Sr. No.	Station	Precipitation (mm)			Air Temperature (°C)			Soil Temperatures (°C)						R.H (%)	Sunshine Duration(hours)	Wind Speed (km/hr)	ET _o (mm/day)
		Normal	Actual	Dep	Tmax Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	13.9	115.0	101.1	2.8	-0.1	29.5	32.3	31.1	30.4	30.3	29.8	28.9	70	56.7	3.7	4.4
2	Faisalabad	5.3	1.2	-4.1	0.6	1.0	32.4	37.9	36.8	35.0	34.0	***	32.7	63	84.1	5.0	5.7
3	Jhelum	9.0	60.9	51.9	0.4	0.8	31.0	35.4	34.1	32.7	31.9	32.0	***	71	65.0	3.1	4.6
4	Lahore	5.0	4.8	-0.2	0.8	0.8	31.8	33.6	33.5	32.2	31.6	***	30.6	67	55.3	2.1	4.3
5	Sargodha	1.6	8.9	7.3	-0.4	1.3	32.5	36.7	35.1	32.8	32.2	***	30.6	71	66.1	4.1	4.9
6	Multan	3.8	1.2	-2.6	-0.9	0.4	32.8	***	***	***	***	***	***	59	64.6	8.9	6.2
7	Khanpur	10.7	0.0	-10.7	3.5	0.0	33.7	***	38.7	38.5	38.4	38.5	36.5	56	83.6	6.9	6.6
8	Tandojam	2.5	0.0	-2.5	0.6	-1.7	30.1	41.5	37.9	35.1	34.5	34.2	33.2	63	67.2	15.9	6.9
9	Sakrand☆	3.9	0.0	-3.9	4.1	-2.1	33.8	42.0	***	***	***	***	36.3	48	93.0	7.7	7.2
11	Rohri	2.8	0.0	-2.8	3.6	-0.8	34.2	***	***	***	***	***	***	50	88.8	1.5	5.3
12	D.I Khan	4.6	0.0	-4.6	3.7	2.3	34.5	39.5	37.7	36.2	35.8	24.8	***	58	75.1	12.0	7.4
13	Peshawar	3.3	17.0	13.7	1.0	-0.9	30.9	35.3	34.3	32.1	31.7	31.0	30.5	72	62.7	2.4	4.5
14	Usta .M	0.0	0.0	0.0	1.9	2.8	34.5	42.6	40.7	39.7	***	***	39.3	59	***	3.1	5.7
15	Quetta	0.0	0.0	0.0	0.6	-1.4	27.3	39.0	35.8	30.9	30.2	31.0	28.8	27	95.7	5.5	6.2
16	Skardu	0.4	2.2	1.8	1.2	-1.3	24.6	***	***	***	***	***	***	37	57.3	2.5	4.2
17	Gilgit	0.4	7.3	6.9	2.3	10.5	32.4	***	***	***	***	***	***	47	93.9	1.2	5.0

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. ET_o 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, 2018



Past Weather (1st to 10th August, 2018)

Moderate to heavy rainfall reported from most of the agricultural plains of Punjab, K.P, G.B and Kashmir; however light rainfall reported from few places of Balochistan and Sindh during the last decade.

1.1 Punjab

Moderate to heavy rainfall reported most of the agricultural plains of the Punjab. Chief amount of rainfall is received at Islamabad, Murree & Sialkot. Decadal maximum & minimum both raised above normal by 1.0°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 67.9hrs, 4.8km/hr and 5.2mm/day respectively.

1.2 Sindh

Light rainfall reported few of the agricultural plains of the Sindh. Chief amount of rainfall is received at Chorr, Badin & Mithi. Decadal maximum raised above normal by 2.8°C & minimum dropped below normal by 1.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 83.0hrs, 8.4km/hr and 6.5mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

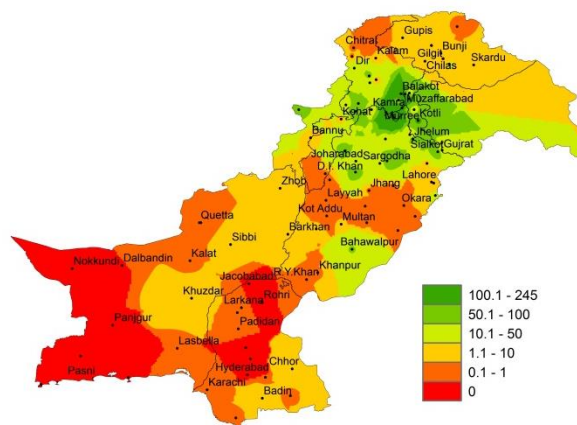
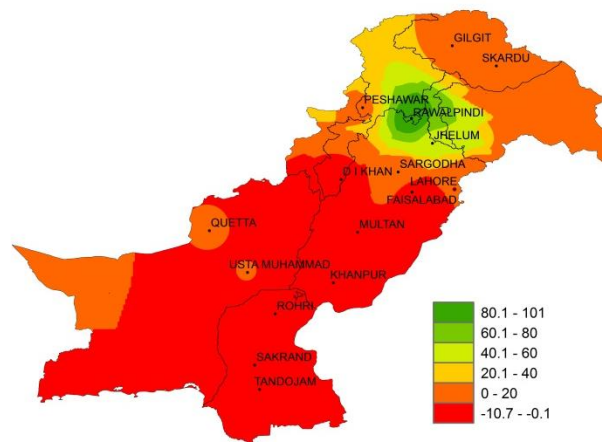
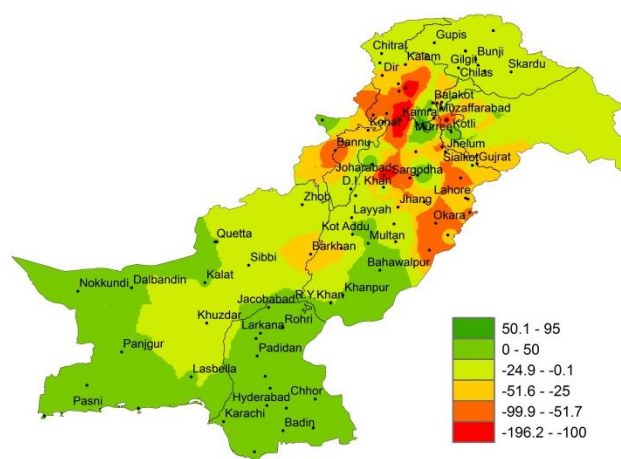
Moderate to heavy rainfall reported from most of the agricultural plains of KP. Chief amount of rainfall is received at Balakot, Malam Jabba & Cherat. Decadal maximum & minimum both raised above normal by 2.4°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 68.9hrs, 7.2km/hr and 6.0mm/day respectively.

1.4 Balochistan

Light rainfall reported from few place of Balochistan. Chief amount of rainfall is received at Barkhan, Khuzdar & Zhob. Decadal maximum & minimum both raised above normal by 1.3°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 95.7hrs, 4.3km/hr and 6.0mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

Moderate to heavy rainfall reported from most of the agricultural plains of G.B and Kashmir. Chief amount of rainfall is received at Garhi Dopatta, Muzaffarabad & Kotli. Decadal maximum & minimum both raised above normal by 1.8°C & 4.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 42%, 75.6hrs, 1.9km/hr and 4.6mm/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** **(1st to 10th August, 2018)**

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

Rainfall reported as 115.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 35.3°C while night temperature recorded as 23.6°C with 56.7hours bright sunshine duration. Wind speed recorded as 3.7km/hr with mean wind direction *variable*.

Maize: *Very good condition, emergence stage*

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

Rainfall reported as 1.2mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 36.9°C while night temperature recorded as 27.9°C with 84.1hours bright sunshine duration. Wind speed recorded as 5.0km/hr with mean wind direction *south westerly*.

Cotton: *Very Good condition, flowering stage completed*

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

Dry weather reported during the decade; Average relative humidity recorded as 63%. Mean day temperature was 36.0°C while night temperature recorded as 24.2°C with 67.2hours bright sunshine duration. Wind speed recorded as 15.9km/h with mean wind direction *south westerly*.

Cotton (CIM-602): *Good condition, boll opening stage*

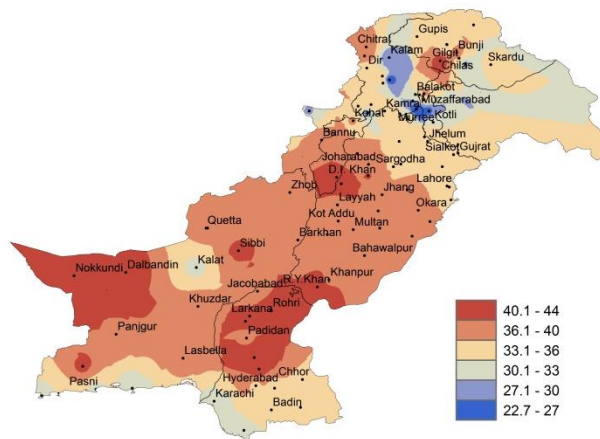
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 40.6°C while night temperature recorded as 28.3°C. Wind speed recorded as 3.1km/h with mean wind direction *south easterly*.

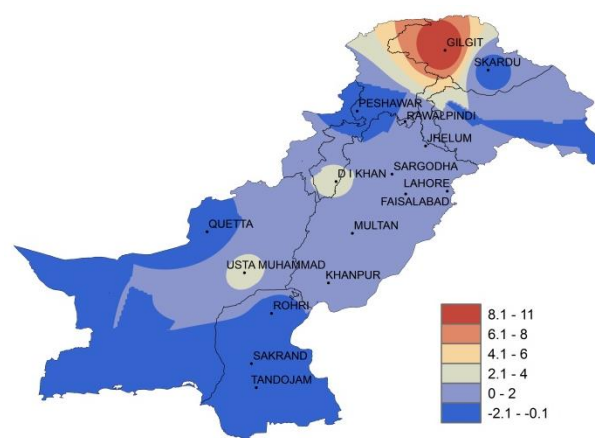
Rice: *Good condition, third leaf stage*

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

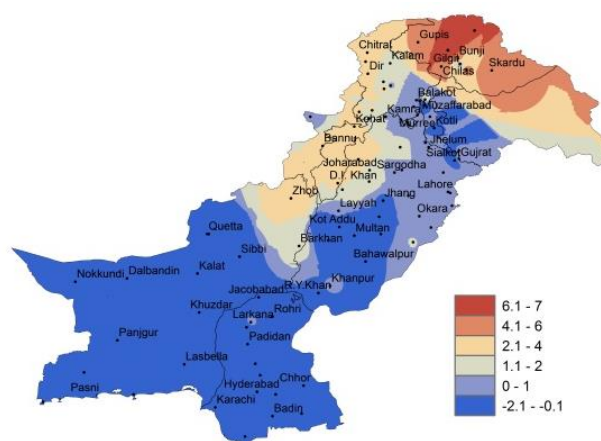
Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 27%. Mean day temperature was 35.4°C while night temperature recorded as 19.1°C with 95.7hours bright sunshine duration. Wind speed recorded as 5.5km/hr with mean wind direction *southerly*.



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 (1st to 10th August, 2018)

2.6 Jhelum

Rainfall reported as 60.9mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 71%. Mean day temperature was 35.2°C while night temperature recorded as 26.7°C with 65.0hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 4.8mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 35.4°C while night temperature recorded as 28.2°C with 55.3hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *north easterly*.

2.8 Sargodha

Rainfall reported as 8.9mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 71%. Mean day temperature was 36.3°C while night temperature recorded as 28.6°C with 66.1hours bright sunshine duration. Wind speed recorded 4.1km/hr with mean wind direction *easterly*.

2.9 Multan

Rainfall reported as 1.2mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 36.7°C while night temperature recorded as 28.8°C with 64.6hours bright sunshine duration. Wind speed recorded 8.9km/hr with mean wind direction *south westerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 39.9°C while night temperature recorded as 27.5°C with 83.6hours bright sunshine duration. Wind speed recorded 6.9km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 39.9°C while night temperature recorded as 27.7°C with 93.0hours bright sunshine duration. Wind speed recorded 7.7km/hr with wind direction *southerly*.

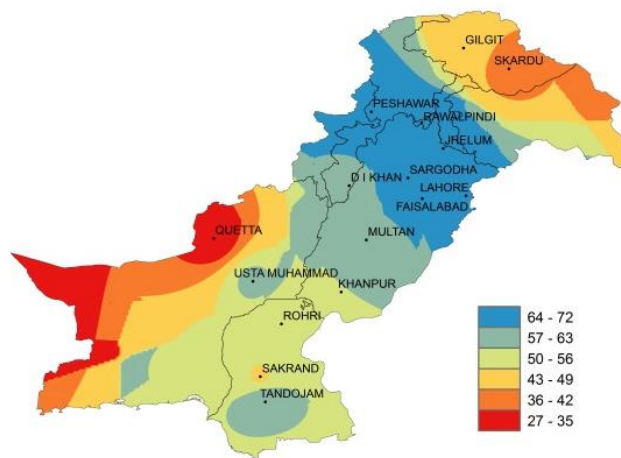


Figure.3: Relative Humidity in Percentage (%)

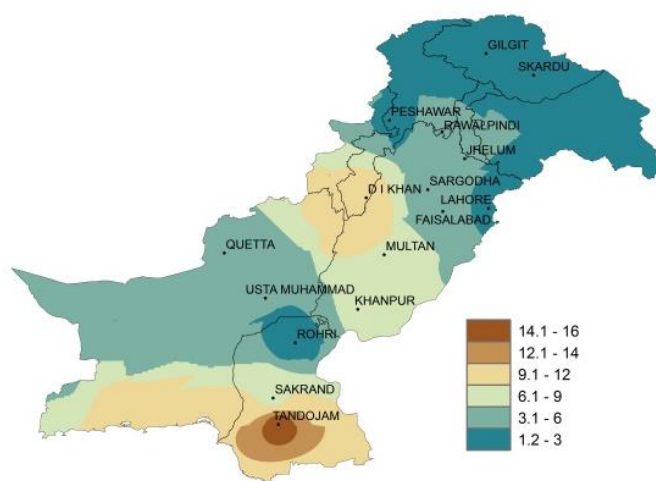


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

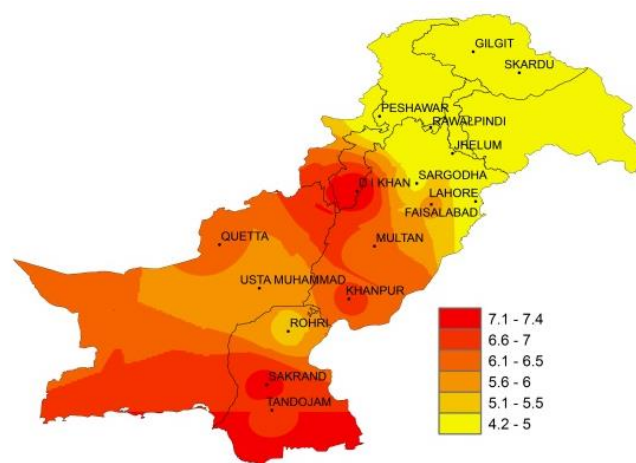


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 41.1°C while night temperature recorded as 27.3°C with 88.8hours bright sunshine duration. Wind speed recorded 1.5km/hr with wind direction *south easterly*.

2.13 D.I. Khan

Rainfall reported as Trace (not measurable) during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 40.4°C while night temperature recorded as 28.5°C with 75.1hours bright sunshine duration. Wind speed recorded as 12.0km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as 17.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 72%. Mean day temperature was 36.2°C while night temperature recorded as 25.6°C with 62.7hours bright sunshine duration. Wind speed recorded as 2.4km/hr with mean wind direction *north easterly*.

2.15 Skardu

Rainfall reported as 2.2mm during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 37%. Mean day temperature was 33.7°C while night temperature recorded as 15.4°C with 57.3hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *east south-easterly*.

2.16 Gilgit

Rainfall reported as 7.3mm during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 37.1°C while night temperature recorded as 27.6°C with 93.9hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *easterly*.

Ten Days Weather Advisory for Farmers
(13th to 20th August, 2018)

3.1 Temperature Forecast

Both day and night temperatures are likely to be slightly above 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

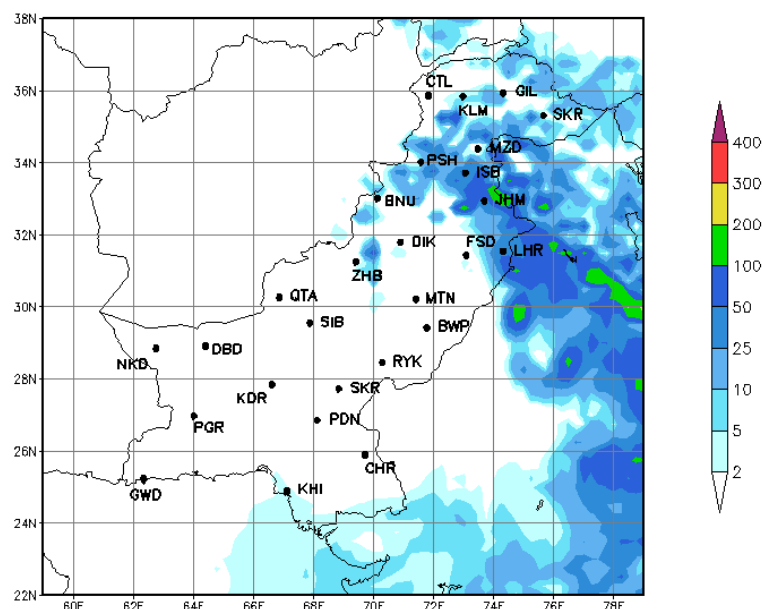
- ❖ **Punjab:** Hot and dry weather is expected in most of southern parts of the province however moderate to heavy rainfall is expected upper and central parts of the province during the decade.
- ❖ **Khyber Pakhtunkhwa:** Moderate to heavy rain-thunderstorm is expected at most places of the province during the decade.
- ❖ **Sindh:** Hot and dry weather is expected in most parts of the province however light to moderate rainfall is expected at coastal belt and central parts during the decade.
- ❖ **Balochistan:** Hot and dry weather is expected in most parts of the province however light to moderate rainfall is expected at scattered places in southern parts during the decade.
- ❖ **Gilgit-Baltistan:** Light to moderate rain-thunderstorm with gusty winds is expected at most of places during the decade.
- ❖ **Kashmir:** Moderate to heavy rain-thunderstorm is expected at most of the places in Kashmir and its adjoining areas during the decade.

3.4 Advisory for Farmers

- ❖ Farmers of rainfed areas of upper half may complete sowing of Millet/Sorghum etc.
- ❖ After the recent rainfall spell, measures may be taken to flush out the extra water from the fields of Cotton crops and vegetables.
- ❖ Due to higher temperature Pinkboll worm attack is observed on Cotton crop, so farmers are advised to take adoptive measures especially the use of PB ropes in consultancy with plant protection department.

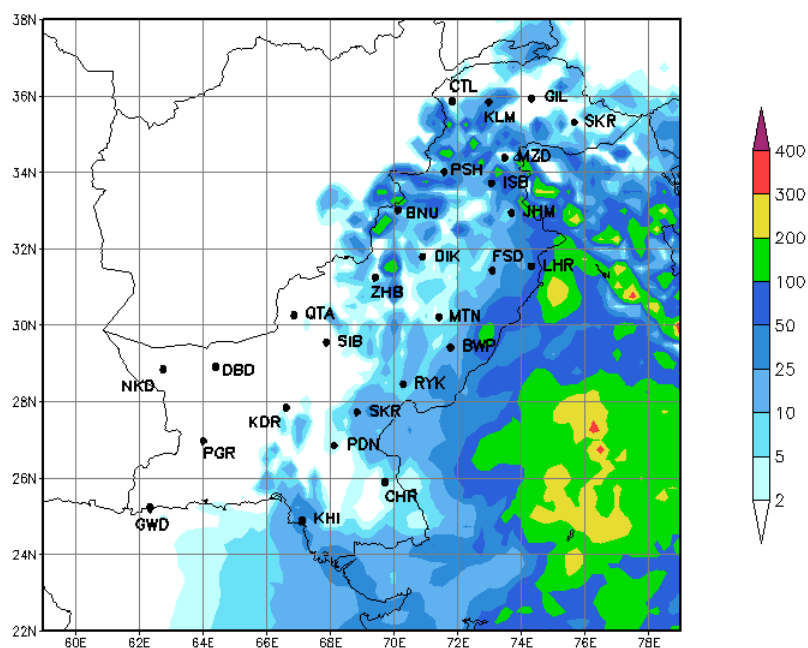
4.1 Precipitation Outlook (13th to 15th August, 2018)

The forecast for the next three days (13th to 15th) of the second decade of August, 2018 shows that mostly hot and dry weather is expected in most parts of the country. However, moderate to heavy rainfall is expected at particular places of upper Punjab, KP, G.B and Kashmir. Besides, light rainfall is expected in coastal belt of Sindh.



4.2 Precipitation Outlook (16th to 20th August, 2018)

The outlook for the last five days (16th to 20th) of the second decade of August, 2018 shows that mostly hot and dry weather is expected in most of south-western parts of the country. While moderate to heavy rainfall is expected in Punjab, KP, G.B and Kashmir. Besides, light to moderate rainfall is expected in coastal belts of Sindh and Makran.



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)