

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 to moderate rainfall is reported from few places of Sindh and Balochistan during the last decade
- ❖ Highest amount of rainfall recorded as 195.5 mm at Kamra during the last decade.
- ❖ Highest maximum temperature recorded as 48.5°C at Sibbi 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 Baluchistan, Sindh during the current decade.
- ❖ 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.
- ❖ Growers of Rice are advised to complete transplantation of the nurseries in accordance with the recommendation by the agricultural experts.

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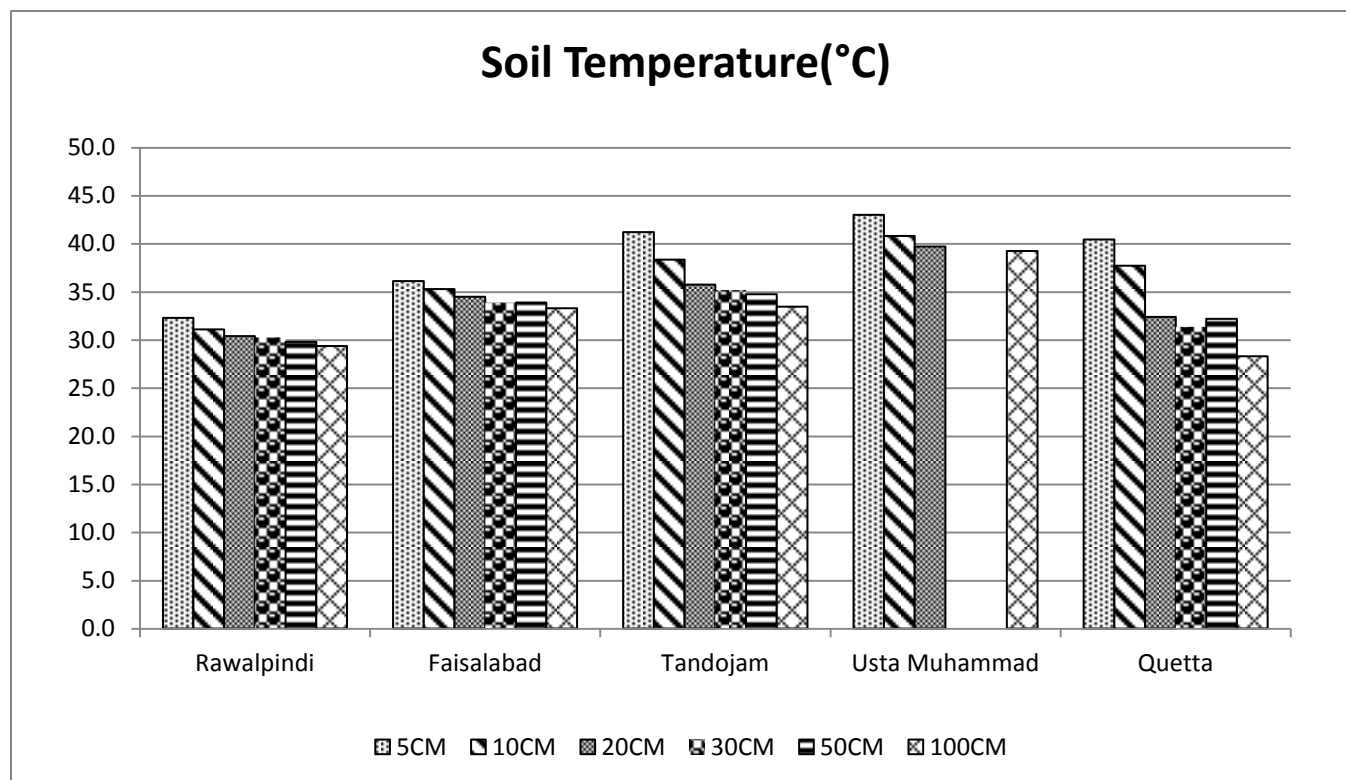
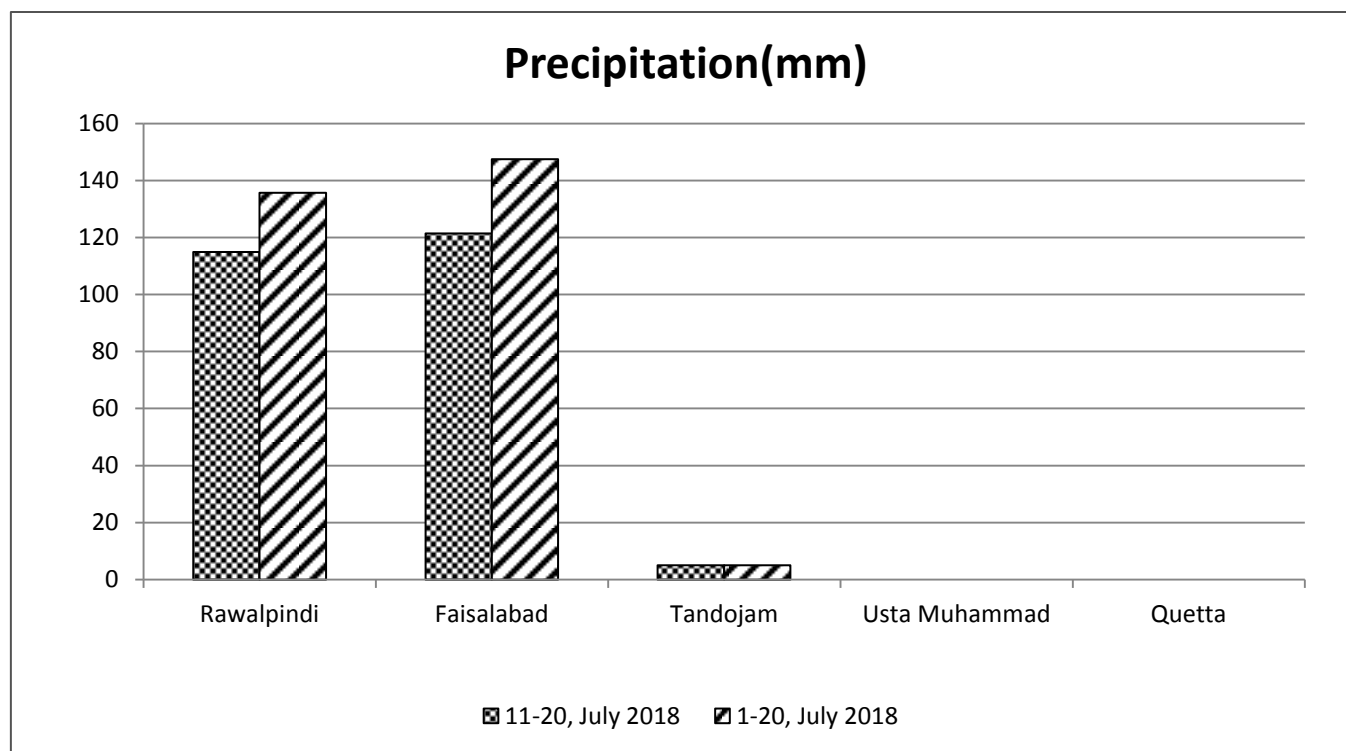
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Meteorological Conditions during 2nd Decade of July, 2018

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	10.2	115.0	104.8	-0.5	-0.2	29.5	32.3	31.1	30.4	30.3	29.8	29.4	70	56.7	3.7	4.5
2	Faisalabad	4.9	121.5	116.6	-0.6	1.7	32.5	36.1	35.3	34.5	33.9	33.9	33.3	68	60.0	5.3	5.2
3	Jhelum	7.3	39.6	32.3	-0.2	0.4	31.4	35.0	34.1	33.1	32.4	32.6	***	70	59.2	5.2	4.9
4	Lahore	7.2	62.6	55.4	-0.6	0.1	31.0	32.9	32.7	31.6	31.3	***	28.3	75	47.1	1.5	4.0
5	Sargodha	4.0	80.7	76.7	-1.8	0.6	32.3	36.5	35.1	33.5	32.8	***	30.5	75	62.9	4.0	4.9
6	Multan	1.4	0.5	-0.9	0.7	1.7	35.3	***	***	***	***	***	***	52	45.2	1.1	4.1
7	Khanpur	0.6	0.0	-0.6	0.8	-0.2	34.6	***	38.6	38.3	38.3	38.1	36.1	56	75.2	5.5	6.2
8	Tandojam	1.6	5.0	3.4	0.4	-0.9	31.0	41.2	38.4	35.8	35.2	34.8	33.5	67	56.4	12.1	6.0
9	Sakrand☆	2.0	0.0	-2.0	0.2	1.1	33.5	44.1	***	***	***	***	36.3	51	77.9	7.9	6.9
11	Rohri	0.2	0.0	-0.2	0.5	0.1	35.6	***	***	***	***	***	***	50	80.6	6.2	6.8
12	D.I Khan	1.8	0.0	-1.8	2.4	1.7	34.3	40.4	37.9	36.4	35.7	24.1	***	61	63.1	13.6	7.4
13	Peshawar	1.4	36.0	34.6	-0.9	-2.4	30.4	39.6	37.6	34.7	33.4	32.2	30.7	72	64.4	3.5	4.8
14	Usta .M	0.0	0.0	0.0	-1.0	0.6	35.3	43.0	40.8	39.7	***	***	39.3	57	***	3.3	5.9
15	Quetta	0.2	0.0	-0.2	0.5	1.1	29.4	40.5	37.7	32.4	31.4	32.2	28.3	32	91.6	5.7	6.5
16	Skardu	0.3	0.0	-0.3	2.1	0.5	25.2	***	***	***	***	***	***	37	65.2	2.5	4.6
17	Gilgit	0.3	0.0	-0.3	1.4	3.2	28.7	***	***	***	***	***	***	46	77.3	6.4	6.3

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 July, 2018



Past Weather (11th to 20th July, 2018)

Moderate to heavy rainfall reported from most of the agricultural plains of Punjab, K.P, G.B and Kashmir; however light to moderate rainfall is reported from few places of Sindh and Balochistan 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 Kamra, Sialkot & Lahore. Decadal maximum dropped below normal by 0.3°C & minimum raised above normal by 0.6°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 58.0hrs, 3.8km/hr and 4.8mm/day respectively.

1.2 Sindh

Light to moderate rainfall reported from few places of Sindh. Chief amount of rainfall is received at Badin, Chhor & Mithi. Decadal maximum & minimum both raised above normal by 0.4°C & 0.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 71.6hrs, 8.7km/hr and 6.6mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

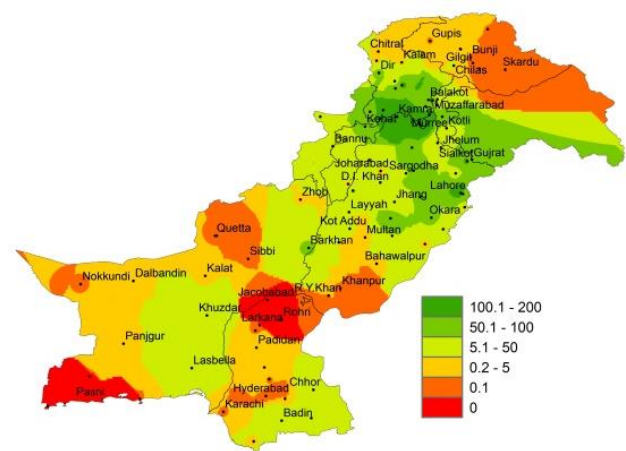
Moderate to heavy rainfall reported from most of the agricultural plains of KP. Chief amount of rainfall is received at Risalpur, Cherat & Malam Jabba. Decadal maximum raised above normal by 0.7°C & minimum dropped below normal by 0.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 63.8hrs, 8.6km/hr and 6.1mm/day respectively.

1.4 Balochistan

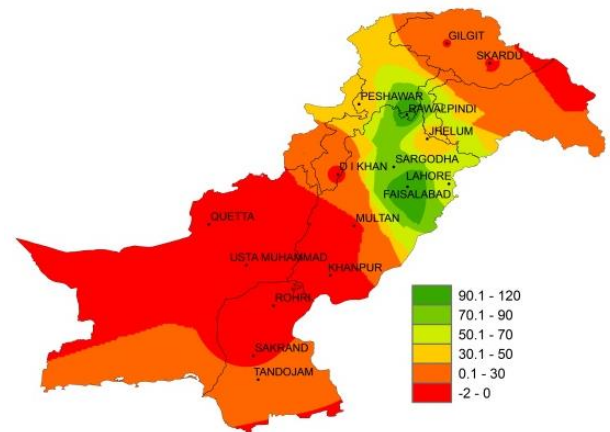
Light to moderate rainfall reported from few place of Balochistan. Chief amount of rainfall is received at Barkhan, Khuzdar & Lasbella. Decadal maximum dropped below normal by 0.3°C & minimum raised above normal by 0.8°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 91.6hrs, 4.5km/hr and 6.2mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

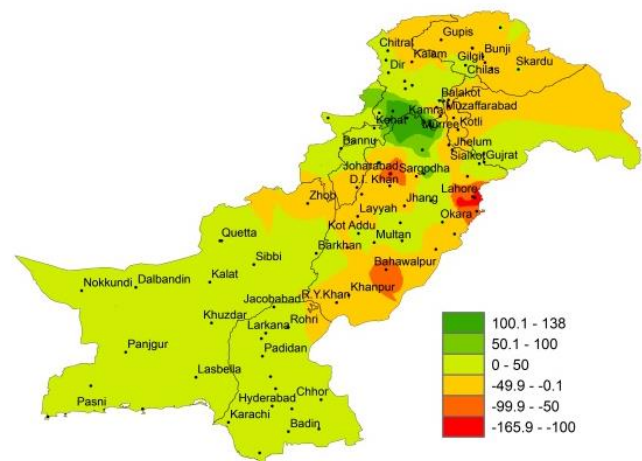
Moderate to heavy rainfall reported from most of the agricultural plains of G.B and Kashmir. Chief amount of rainfall is received at Muzaffarabad, Rawalakot & Garhi Dopatta. Decadal maximum & minimum both raised above normal by 1.8°C & 1.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 42%, 71.3hrs, 4.5km/hr and 5.5mm/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 July, 2018)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 115.0mm during the decade; however weather remained cloudy for 10day 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*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 121.5mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 68%. Mean day temperature was 36.7°C while night temperature recorded as 28.2°C with 60.0hours bright sunshine duration. Wind speed recorded as 5.3km/hr with mean wind direction *south easterly*.

Cotton: *Very Good condition, budding stage completed*

2.3 RAMC, Tandojam (Lower Sindh)

Rainfall reported as 5.0mm during the decade; Average relative humidity recorded as 67%. Mean day temperature was 36.5°C while night temperature recorded as 25.5°C with 56.4hours bright sunshine duration. Wind speed recorded as 12.1km/h with mean wind direction *south westerly*.

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

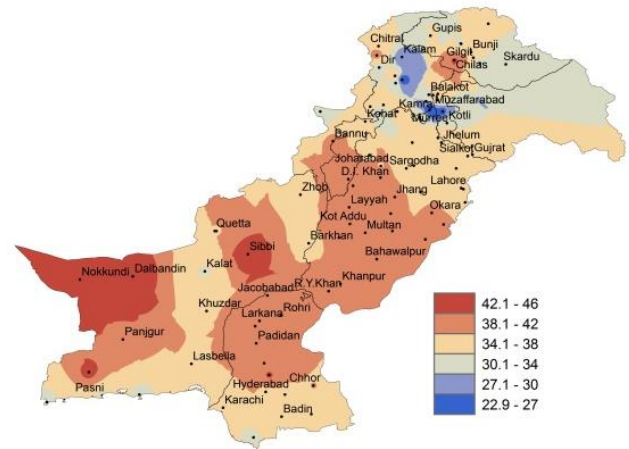
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 41.4°C while night temperature recorded as 29.2°C. Wind speed recorded as 3.3km/h with mean wind direction *south easterly*.

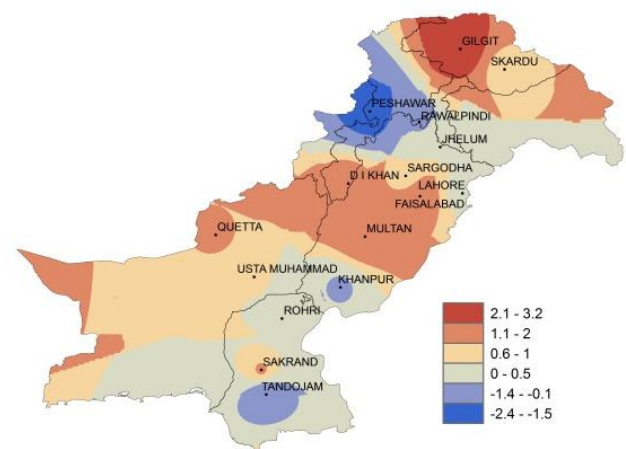
Rice: *Good condition, Paneri transplantation in process*

2.5 RAMC, Quetta (Northern Balochistan)

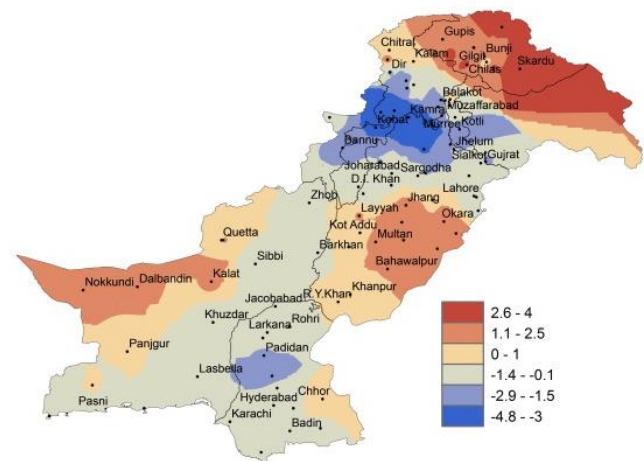
Dry weather reported during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 32%. Mean day temperature was 36.6°C while night temperature recorded as 22.2°C with 91.6hours bright sunshine duration. Wind speed recorded as 5.7km/hr with mean wind direction *southerly*.



I. Actual max-temp



II. Departure of max-temp from Normal



III. Departure of max-temp from Previous Decade

Figure.2: Minimum Temperature distribution during previous decade (°C)

2(b) Past Weather for Sub-Regional Agricultural Plains (11th to 20th July, 2018)

2.6 Jhelum

Rainfall reported as 39.6mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 36.0°C while night temperature recorded as 26.8°C with 59.2hours bright sunshine duration. Wind speed recorded as 5.2km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 62.6mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 75%. Mean day temperature was 34.9°C while night temperature recorded as 27.1°C with 47.1hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *north easterly*.

2.8 Sargodha

Rainfall reported as 80.7mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 75%. Mean day temperature was 36.1°C while night temperature recorded as 28.4°C with 62.9hours bright sunshine duration. Wind speed recorded 4.0km/hr with mean wind direction *easterly*.

2.9 Multan

Rainfall reported as 0.5mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 39.6°C while night temperature recorded as 30.9°C with 45.2hours bright sunshine duration. Wind speed recorded 1.1km/hr with mean wind direction *south westerly*.

2.10 Khanpur

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 40.4°C while night temperature recorded as 28.8°C with 75.2hours bright sunshine duration. Wind speed recorded 5.5km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 39.1°C while night temperature recorded as 27.8°C with 77.9hours bright sunshine duration. Wind speed recorded 7.9km/hr with wind direction *southerly*.

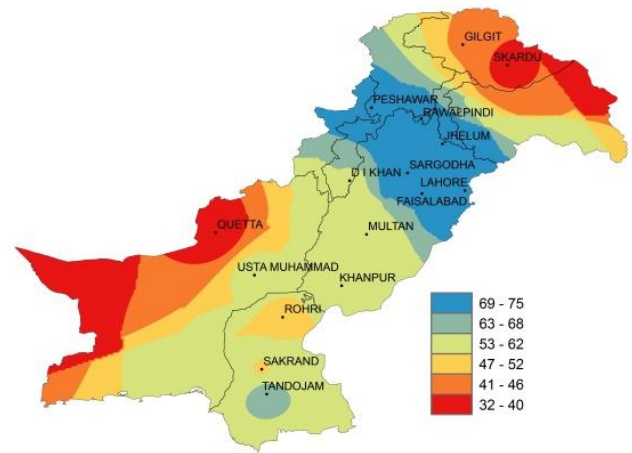


Figure.3: Relative Humidity in Percentage (%)

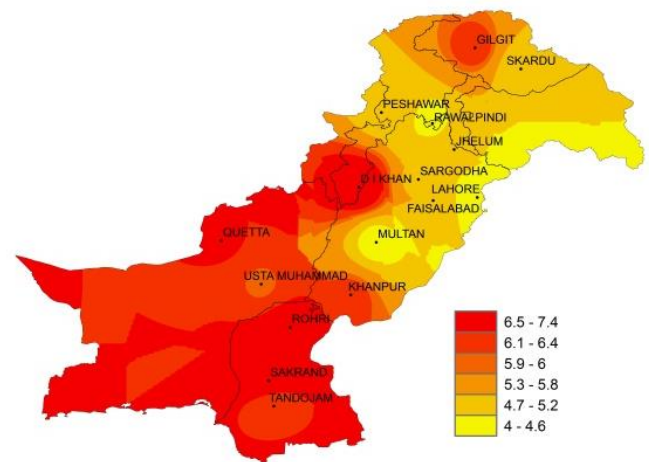


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

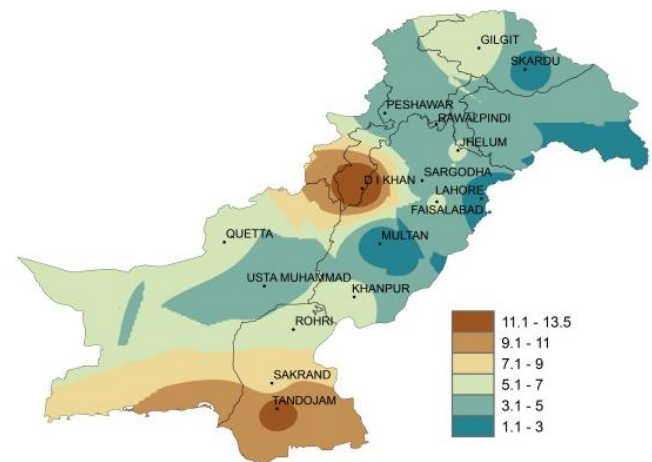


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 41.6°C while night temperature recorded as 29.6°C with 80.6hours bright sunshine duration. Wind speed recorded 6.2km/hr with wind direction *variable*.

2.13 D.I. Khan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 40.4°C while night temperature recorded as 28.2°C with 63.1hours bright sunshine duration. Wind speed recorded as 13.6km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 36.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 72%. Mean day temperature was 36.3°C while night temperature recorded as 24.5°C with 64.4hours bright sunshine duration. Wind speed recorded as 3.5km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 37%. Mean day temperature was 33.9°C while night temperature recorded as 16.5°C with 65.2hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *easterly*.

2.16 Gilgit

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 46%. Mean day temperature was 37.4°C while night temperature recorded as 19.9°C with 77.3hours bright sunshine duration. Wind speed recorded as 6.4km/hr with mean wind direction *variable*.

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

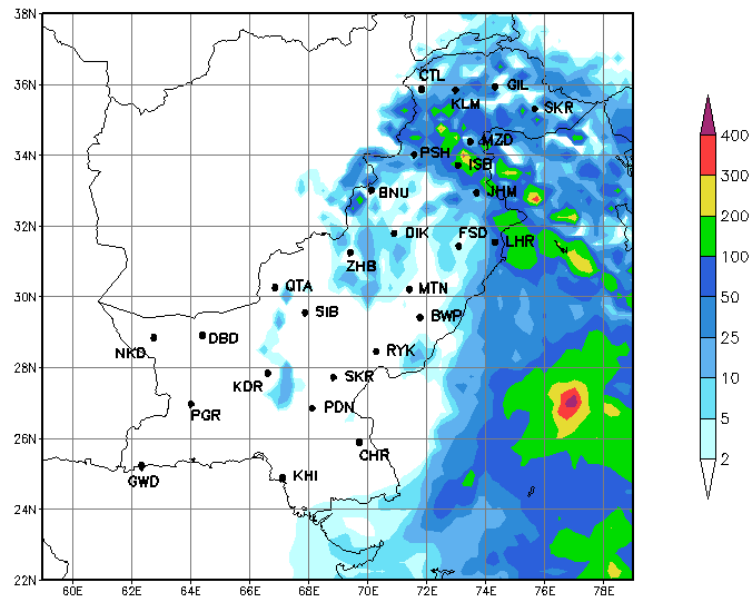
- ❖ **Punjab:** Hot and dry weather is expected in most of southern parts of the province however moderate to heavy rainfall is expected upper and central parts of the province during the decade.
- ❖ **Khyber Pakhtunkhwa:** Moderate to heavy rain-thunderstorm is expected at most places of the province 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 eastern parts during the decade.
- ❖ **Gilgit-Baltistan:** Moderate to heavy 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

- ❖ 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 April sowing Cotton crop, so farmers are advised to take adoptive measures especially the use of PB ropes in consultancy with plant protection department.
- ❖ Growers of Rice are advised to complete transplantation of the nurseries in accordance with the recommendation by the agricultural experts.

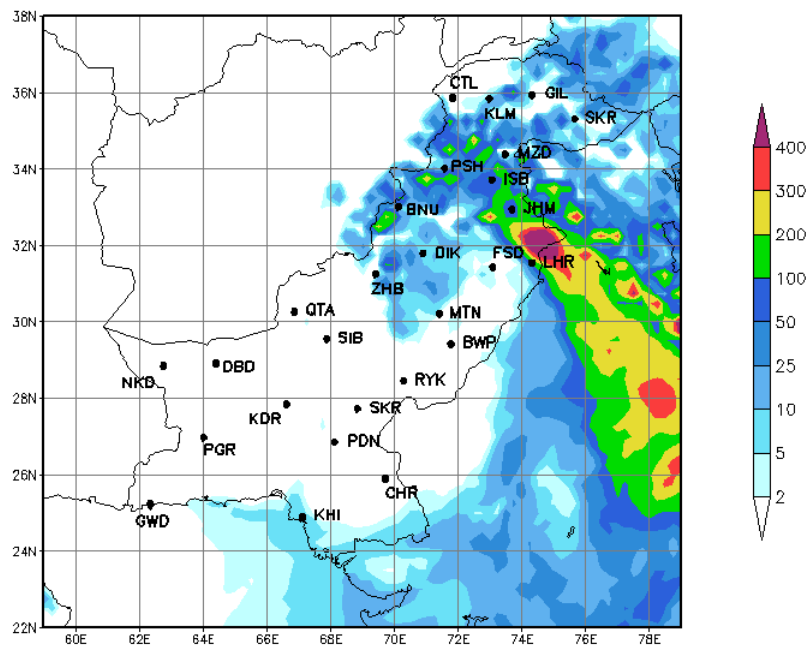
4.1 Precipitation Outlook (23rd to 25th July, 2018)

The forecast for the next three days (23rd to 25th) of the third decade of July, 2018 shows that mostly hot and dry weather is expected in most parts of the country in the lower half. However, light to moderate rainfall is expected at particular places of upper Punjab, KP, eastern Baluchistan, G.B and Kashmir.



4.2 Precipitation Outlook (26th to 31st July, 2018)

The outlook for the last six days (26th to 31st) of the third decade of July, 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 belt of Sindh and eastern 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)