

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate amount of rainfall reported from Khyber Pakhtunkhwa, Sindh, Baluchistan, Gilgit-Baltistan and Azad Jammu & Kashmir, whereas moderate to heavy amount of rainfall reported from Punjab during the last decade.
- ❖ Highest amount of rainfall recorded as 185.0 mm at Saidpur during the last decade.
- ❖ Highest maximum temperature recorded as 43.0°C at Sibbi during the last decade.
- ❖ Mainly hot and humid weather is expected in most parts of the country. However, rain/wind-thunderstorm is expected at isolated places in Malakand, Hazara, Mardan, Rawalpindi, Gujranwala, Lahore divisions, Islamabad, Gilgit Baltistan and Kashmir for few days during the 2nd half of the current decade.
- ❖ Farmers of Potohar region are advised to remove the weeds from the Peanut fields.
- ❖ 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 worm attack is expected 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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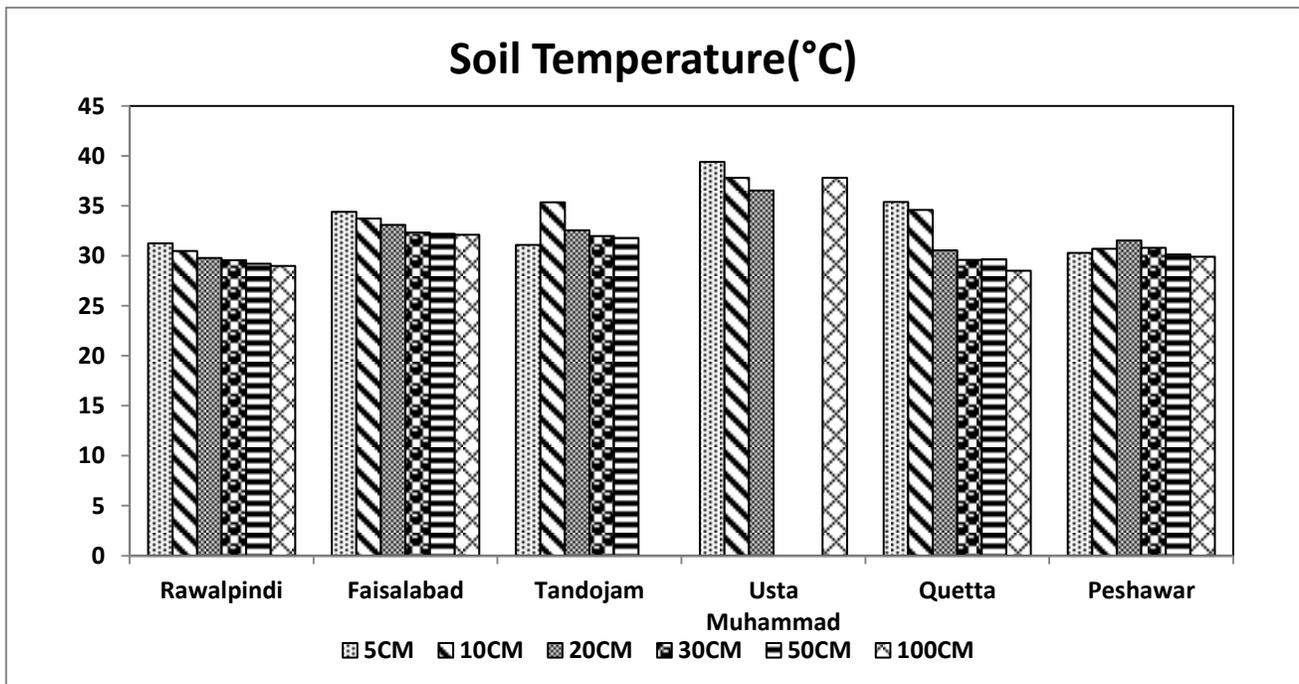
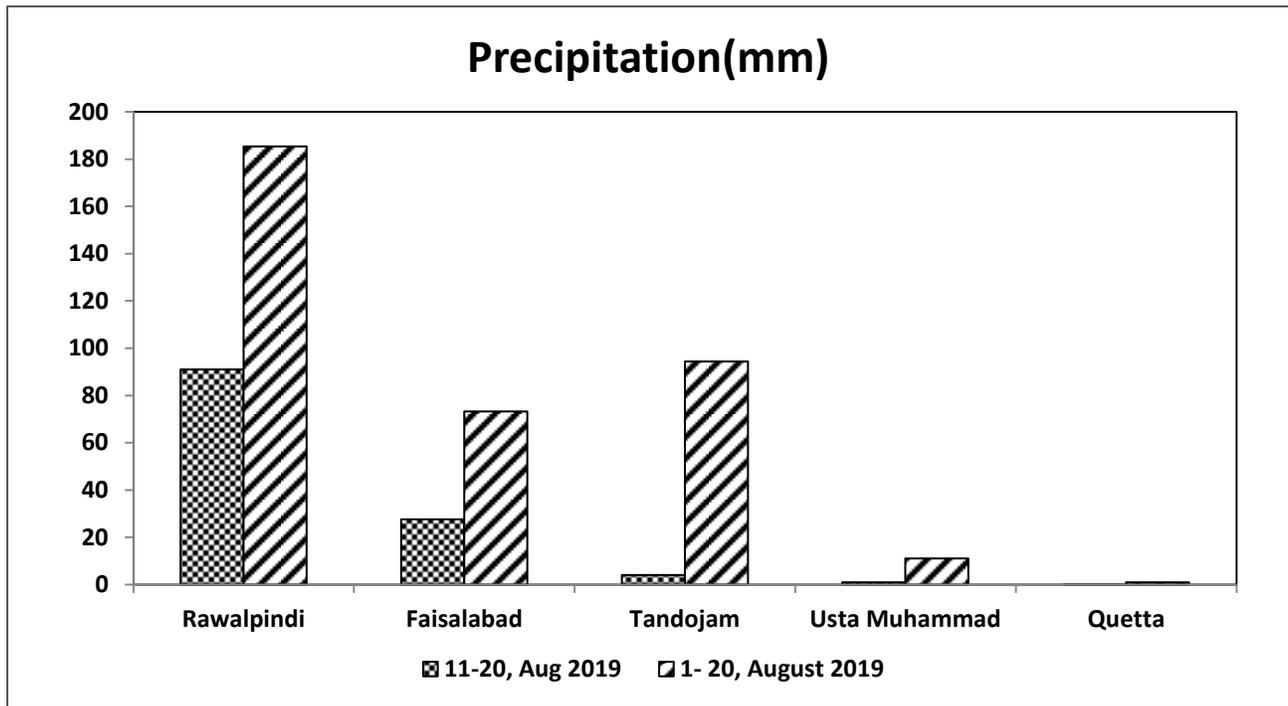
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Meteorological Conditions during 2nd Decade of August, 2019

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	Tmx Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	10.5	91.0	80.5	2.0	1.5	29.8	31.3	30.5	29.8	29.6	29.2	29.0	73	82.7	1.3	4.6
2	Faisalabad	4.1	27.6	23.5	0.0	0.3	31.6	34.4	33.8	33.1	32.4	32.2	32.1	64	84.5	3.3	5.2
3	Jhelum	7.3	8.8	1.5	-0.3	0.0	30.5	33.8	32.8	31.7	31.1	31.4	***	70	83.6	3.6	5.1
4	Lahore	4.0	22.8	18.8	0.1	-0.8	31.2	33.8	33.5	32.2	31.5	***	30.4	73	62.4	2.6	4.3
5	Sargodha	4.0	18.5	14.5	-1.2	0.5	31.8	36.5	34.8	32.5	31.9	***	30.4	68	75.5	4.2	5.2
6	Multan	0.8	4.3	3.5	-0.2	-0.4	32.6	***	***	***	***	***	***	59	80.6	8.1	6.2
7	Khanpur	1.0	0.0	-1.0	-0.1	-0.4	32.5	***	36.8	36.6	36.7	37.0	36.3	63	93.2	4.4	5.5
8	Tandojam	1.5	4.0	2.5	-1.0	-0.1	29.7	31.1	35.4	32.6	32.0	31.8	****	76	66.5	10.7	5.1
9	Sakrand ☆	2.0	0.0	-2.0	-1.2	0.2	30.4	42.9	***	***	***	***	35.9	62	73.4	12.8	6.6
11	Rohri ☆	0.4	2.0	1.6	-0.1	***	38.7	***	***	***	***	***	***	56	***	3.3	5.1
12	D.I Khan	1.9	28.0	26.1	-0.1	-0.7	31.4	***	32.3	***	27.0	27.2	***	70	76.0	10.7	6.0
13	Peshawar	0.5	35.3	34.8	-0.5	-1.5	30.0	30.3	30.7	31.6	30.8	30.2	29.9	66	66.6	2.9	4.5
14	Usta M.	1.2	1.0	-0.2	-0.8	-0.5	32.0	39.4	37.8	36.6	***	***	37.8	60	***	4.4	5.6
15	Quetta	0.0	0.0	0.0	-1.6	0.6	26.5	35.4	34.6	30.6	29.6	29.7	28.5	38	99.0	6.2	6.1
16	Skardu	0.5	32.5	32.0	-4.4	-1.3	20.2	***	***	***	***	***	***	61	32.1	1.7	3.0
17	Gilgit	0.5	17.0	16.5	-1.1	2.5	25.5	***	***	***	***	***	***	54	64.7	3.5	4.4

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, 2019



Past Weather (11th to 20th August, 2019)

Light to moderate amount of rainfall reported from Khyber Pakhtunkhwa, Sindh, Baluchistan, Gilgit-Baltistan and Azad Jammu & Kashmir, whereas moderate to heavy amount of rainfall reported from Punjab province.

1.1 Punjab

Moderate to heavy amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Islamabad (Zero-point), Sialkot & Saidpur. Decadal maximum remained the same while minimum raised above normal by 0.1°C respectively in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 80.4 hrs, 3.9 km/hr and 5.2 mm/day respectively.

1.2 Sindh

Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Karachi Airport, Masroor & Faisal base. Decadal maximum dropped below the normal by 0.8°C while minimum raised above normal by 1.2°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 70.01hrs, 8.9 km/hr and 5.6 mm/day respectively.

1.3 Khyber Pakhtunkhwa

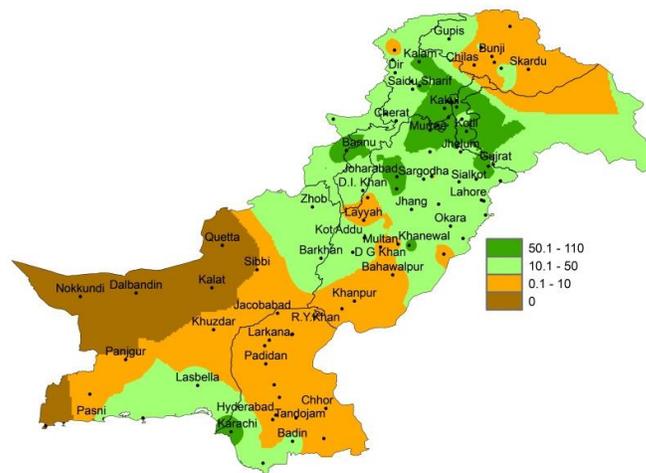
Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Malam Jabba, Balakot & Kakul. Decadal maximum & minimum both dropped below the normal by 0.3°C & 1.1°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 68%, 71.3hrs, 6.8km/hr and 5.3 mm/day respectively.

1.4 Baluchistan

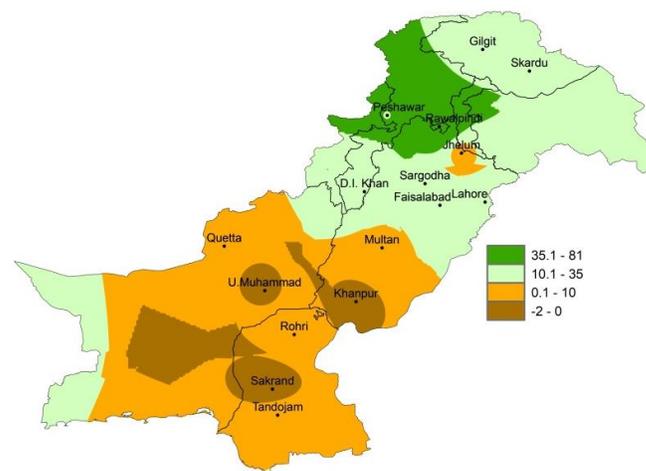
Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Barkhan, Zhob & Ormara. Decadal maximum dropped below the normal by 1.2°C while minimum raised above normal by 0.1°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 99.0hrs, 5.3km/hr and 5.9 mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

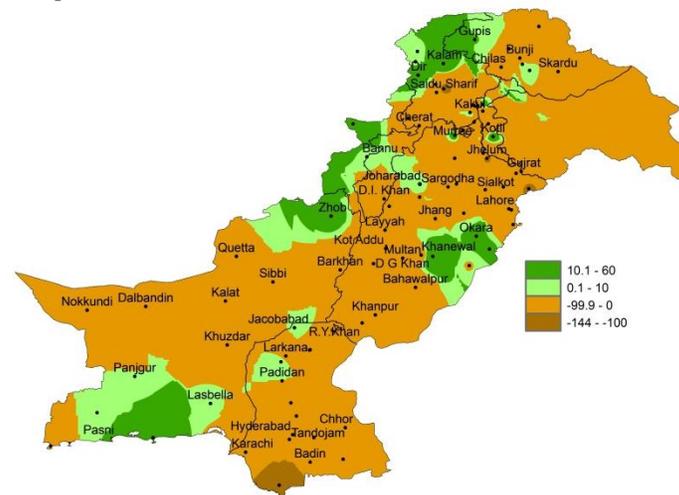
Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Kotli, Muzaffarabad & Garhi Dupatta. Decadal maximum dropped below the normal by 2.8°C while minimum raised above normal by 0.6°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 48.4hrs, 2.6km/hr and 3.7mm/day respective.



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, 2019)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 91.0 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 73%. Mean day temperature was 34.5°C while night temperature recorded as 25.0°C with 82.7 hours bright sunshine duration. Wind speed recorded as 1.3 km/hr with mean wind direction *southerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 27.6 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 64%. Mean day temperature was 36.9°C while night temperature recorded as 26.6°C with 84.5 hours bright sunshine duration. Wind speed recorded as 3.3 km/hr with mean wind direction *south south-westerly*.

Cotton: *V.Good, Flowering stage completed.*

2.3 RAMC, Tandojam (Lower Sindh)

Rainfall reported as 4.0 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 76%. Mean day temperature was 34.0°C while night temperature recorded as 25.3°C with 66.5 hours bright sunshine duration. Wind speed recorded as 10.7 km/h with mean wind direction *south westerly*.

Cotton (Shahbaz-95): *Good, Boll Opening.*

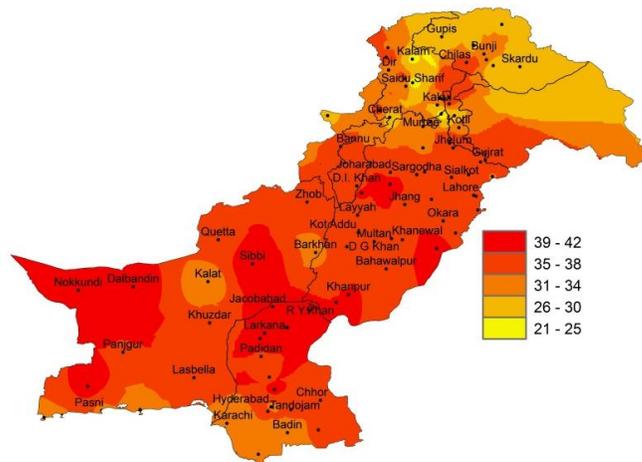
2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

Rainfall reported as 1.0 mm during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 38.4°C while night temperature recorded as 25.6°C & Wind speed recorded as 4.4 km/h with mean wind direction *south easterly*.

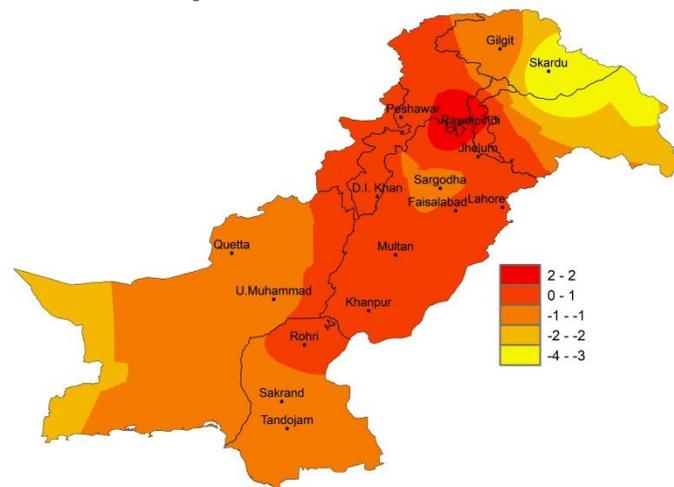
Rice: *Good, Third Leaf.*

2.5 RAMC, Quetta (Northern Baluchistan)

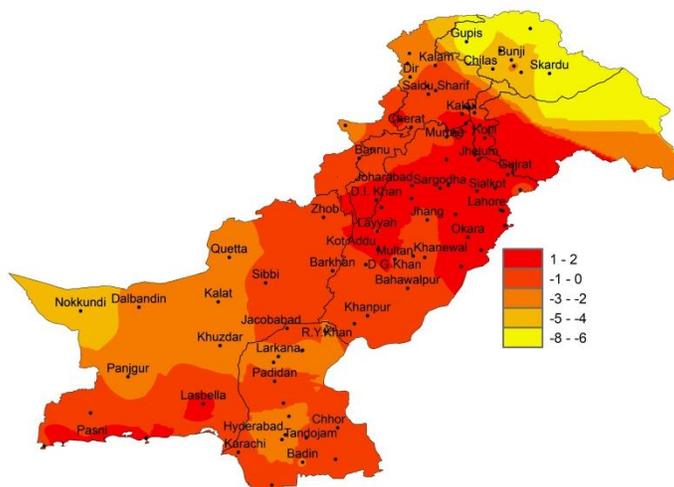
Rainfall reported as Trace (Non measureable) during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 38%. Mean day temperature was 33.3°C while night temperature recorded as 19.7°C with 99.0 hours bright sunshine duration. Wind speed recorded as 6.2 km/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 (11th to 20th August, 2019)

2.6 Jhelum

Rainfall reported as 8.8 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 34.9°C while night temperature recorded as 26.1°C with 83.6 hours bright sunshine duration. Wind speed recorded as 3.6 km/hr with mean wind direction *South easterly*.

2.7 Lahore

Rainfall reported as 22.8 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 73%. Mean day temperature was 35.1°C while night temperature recorded as 27.2°C with 62.4 hours bright sunshine duration. Wind speed recorded as 2.6 km/hr with mean wind direction *South Easterly*.

2.8 Sargodha

Rainfall reported as 18.5 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 68%. Mean day temperature was 35.9°C while night temperature recorded as 27.6°C with 75.5 hours bright sunshine duration. Wind speed recorded 2.3 km/hr with mean wind direction *Easterly*.

2.9 Multan

Rainfall reported as 4.3 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 37.2°C while night temperature recorded as 28.0°C with 80.6 hours bright sunshine duration. Wind speed recorded 8.1 km/hr with mean wind direction *South Easterly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 37.6°C while night temperature recorded as 27.3°C with 93.2 hours bright sunshine duration. Wind speed recorded 4.4 km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Rainfall reported as Trace (Non measureable) during the decade; however weather remained cloudy for 06 days during the decade. Average humidity recorded as 62%. Mean day temperature was 35.6°C while night temperature recorded as 25.2°C with 73.4 hours bright sunshine duration. Wind speed recorded 6.9 km/hr with wind direction *southerly*.

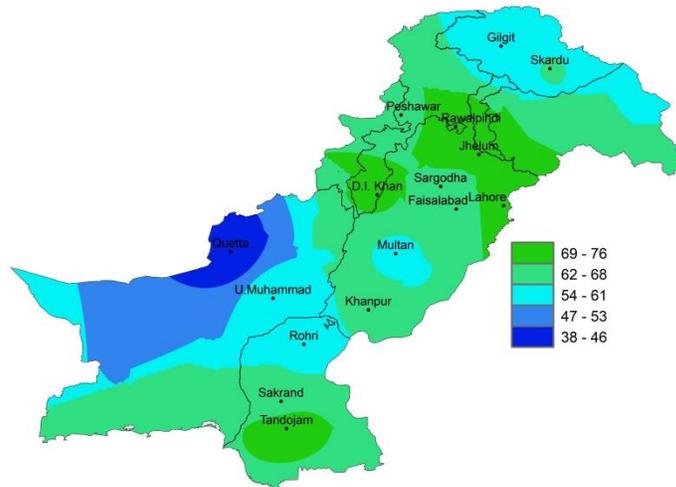


Figure.3: Relative Humidity in Percentage (%)

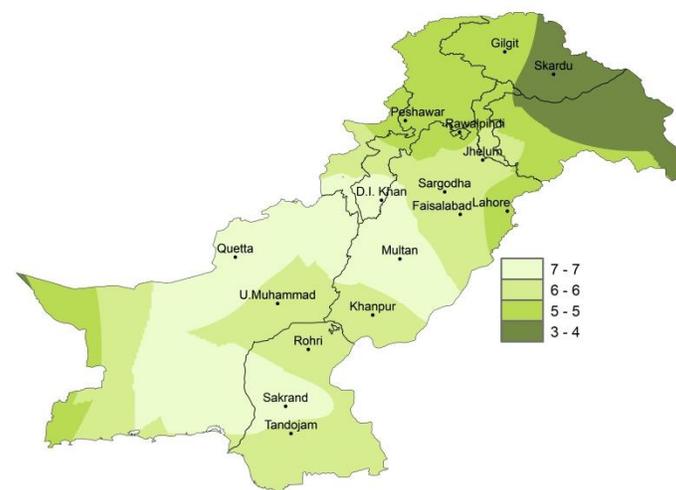


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

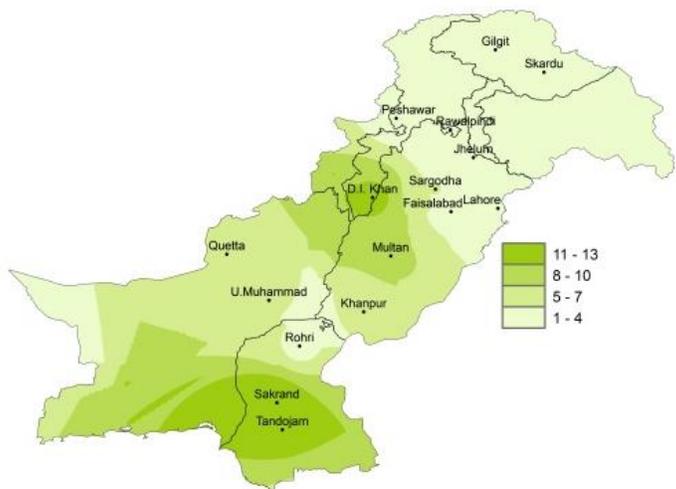


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 2.0 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 38.7°C. Wind speed recorded 3.3 km/hr with wind direction *south westerly*.

2.13 D.I. Khan

Rainfall reported as 28.0 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 37.5°C while night temperature recorded as 25.3°C with 76.0 hours bright sunshine duration. Wind speed recorded as 10.7 km/hr with mean wind direction *North easterly*.

2.14 Peshawar

Rainfall reported as 35.3 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 35.2°C while night temperature recorded as 24.8°C with 66.6 hours bright sunshine duration. Wind speed recorded as 2.9 km/hr with mean wind direction *North easterly*.

2.15 Skardu

Rainfall reported as 32.5 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 26.2 °C while night temperature recorded as 14.2 °C with 32.1 hours bright sunshine duration. Wind speed recorded as 1.7 km/hr with mean wind direction *East north-easterly*.

2.16 Gilgit

Rainfall reported as 17.0 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 32.2°C while night temperature recorded as 18.8°C with 64.7 hours bright sunshine duration. Wind speed recorded as 3.5 km/hr with mean wind direction *Westerly*.

Eleven Days Weather Advisory for Farmers (21st to 31st August, 2019)**3.1 Temperature Forecast**

Day time temperatures are likely to be below normal whereas night time temperatures are likely to be slightly above normal in most of the agricultural plains of the country during the decade.

3.2 Wind Forecast

Generally, normal wind pattern may prevail in most of the agricultural plains of the country.

3.3 Rain Forecast

- ❖ **Punjab:** Mainly hot and humid weather is expected. However, rain/wind-thunderstorm is expected at isolated places in Rawalpindi, Gujranwala and Lahore divisions for few days during the 2nd half of the current decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly hot and humid weather is expected. However, rain/wind-thunderstorm is expected at isolated places in Malakand, Hazara and Mardan divisions for few days during the 2nd half of the current decade.
- ❖ **Sindh:** Mainly hot and humid weather is expected in most of the province during the decade.
- ❖ **Baluchistan:** Mainly hot and humid weather is expected in most of the province during the decade.
- ❖ **Gilgit-Baltistan:** Rain/wind-thunderstorm is expected at isolated places in the province in the evening/night during the current decade.
- ❖ **Kashmir:** Rain/wind-thunderstorm is expected at isolated places in the province in the evening/night during the current decade.

3.4 Advisory for Farmers

- ❖ Farmers of Potohar region are advised to remove the weeds from the Peanut fields.
- ❖ 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 worm attack is expected 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

Findings of AgMIP Pakistan, 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)