

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate amount of rainfall reported from Punjab, KP, Baluchistan and Sindh; while light rainfall reported from Gilgit-Baltistan and Azad Jammu & Kashmir.
- ❖ Highest amount of rainfall recorded as 76.0 mm Dir during the last decade.
- ❖ Highest maximum temperature recorded as 40.5°C at Shaheed Benazirabad during the last decade.
- ❖ Mainly dry weather is expected in most parts of the country, while cold in northern areas. However, rain/thunderstorm is expected at scattered places in districts of Khyber Pakhtunkhwa (Dir, Swat, Chitral, Abbottabad, Haripur, Mansehra, Peshawar, Swabi, Mardan, Kohat), while at few districts of upper Punjab (Sargodha, Rawalpindi, Gujranwala, Lahore, Faisalabad), Islamabad, Kashmir and Gilgit Baltistan during the current decade.
- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Adopt better practices for weed management of Cotton crop as it is in critical weed period. Plant protection measures for worm may be initiated. Accordingly farmers are advised to take adoptive measures especially use of PB ropes in consultancy with plant protection department.
- ❖ Cotton picking may be initiated after 10 am in the morning as there will be dew present on cotton plants during early morning.

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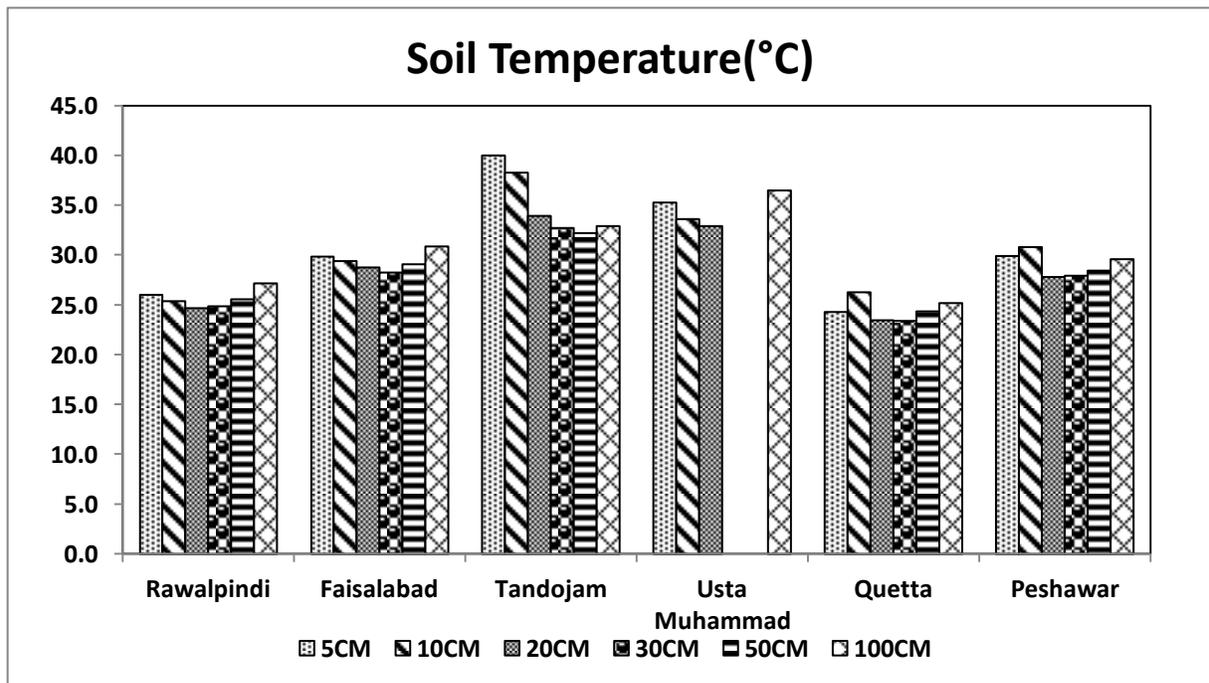
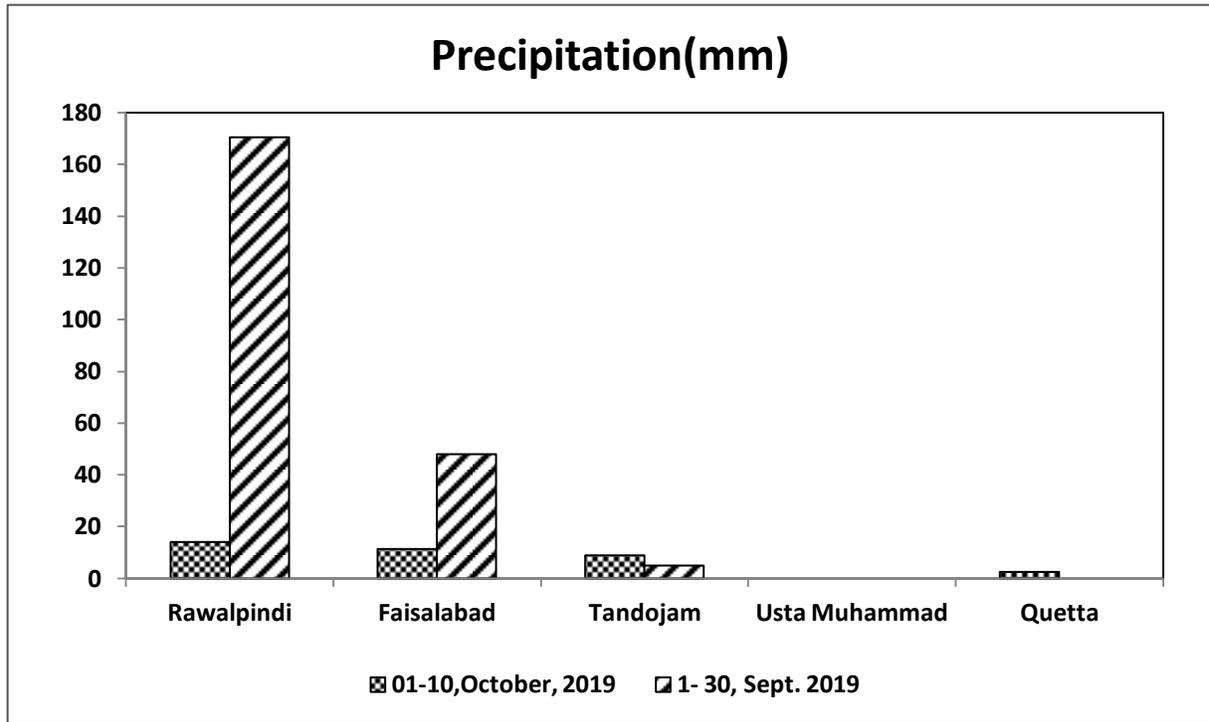
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Meteorological Conditions during 1st Decade of October, 2019

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	1.0	14.0	13.0	-3.5	0.7	23.8	26.0	25.4	24.7	24.9	25.6	27.2	70	69.9	0.6	4.5
2	Faisalabad	0.2	11.4	11.2	-2.1	0.4	26.9	29.9	29.4	28.8	28.3	29.1	30.9	59	77.4	2.0	6.7
3	Jhelum	0.0	7.8	7.8	-3.4	-1.1	25.6	28.4	27.5	26.9	26.9	27.8	***	66	72.3	2.5	5.3
4	Lahore	0.1	16.4	16.3	-3.6	-2.4	26.2	28.1	28.1	27.2	27.6	***	29.0	63	68.0	1.3	5.5
5	Sargodha	0.1	4.6	4.5	-3.5	-0.4	27.0	32.3	30.8	28.6	28.4	***	29.1	63	74.2	3.3	5.9
6	Multan	0.2	30.5	30.3	-4.3	-0.7	26.7	***	***	***	***	***	***	59	52.1	5.4	5.6
7	Khanpur	0.0	25.4	25.4	-3.5	-0.6	27.2	***	31.2	31.7	32.4	33.5	34.3	63	77.8	2.5	6.4
8	Tandojam	0.8	9.0	8.2	-1.2	1.3	29.2	40.0	38.3	34.0	32.8	32.2	33.0	67	78.0	5.6	6.5
9	Sakrand ☆	0.0	13.0	13.0	-2.4	1.1	28.6	37.6	***	***	***	***	34.9	60	88.5	3.1	7.5
11	Rohri ☆	0.0	52.0	52.0	-3.0	***	34.6	***	***	***	***	***	***	57	87.4	2.4	6.8
12	D.I Khan	0.3	1.0	0.7	-2.6	-0.4	26.8	***	24.5	***	29.7	25.3	***	60	62.8	8.6	6.2
13	Peshawar	1.1	3.0	1.9	-2.3	-2.0	24.6	30.0	30.8	27.8	28.0	28.5	29.6	56	56.2	1.9	5.6
14	Usta M.	0.0	0.0	0.0	-3.8	-0.3	27.9	35.3	33.7	33.0	***	***	36.5	70	***	2.5	3.2
15	Quetta	0.0	2.4	2.4	-3.7	3.4	19.2	24.3	26.3	23.5	23.4	24.4	25.2	33	82.6	5.6	7.5
16	Skardu	0.1	6.0	5.9	-4.6	0.8	13.2	***	***	***	***	***	***	58	37.7	3.4	3.1
17	Gilgit	0.2	0.7	0.5	-2.3	8.2	20.9	***	***	***	***	***	***	50	40.5	2.1	3.9

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 October, 2019



Past Weather (1st to 10th October, 2019)

Light to moderate amount of rainfall reported from Punjab, Khyber Pakhtunkhwa, Baluchistan and Sindh; while light rainfall reported from Gilgit-Baltistan and Azad Jammu & Kashmir.

1.1 Punjab

Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Bahawalpur City, Shorkot Airbase & Mumtazabad. Decadal maximum & minimum both dropped below the normal by 3.4°C & 0.6°C respectively in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 70.2 hrs, 2.5 km/hr and 5.7 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 Rohri, Sukkur & Larkana. Decadal maximum dropped below the normal by 2.2°C & minimum raised above the normal by 1.2°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 84.6 hrs, 3.7 km/hr 6.9 mm/day respectively.

1.3 Khyber Pakhtunkhwa

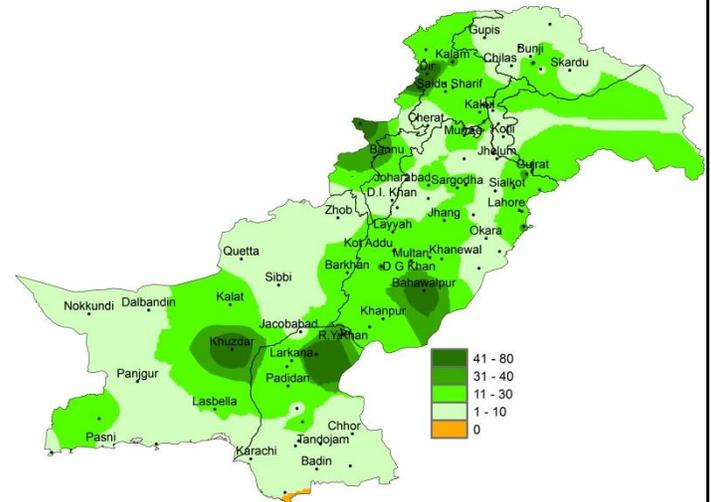
Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Dir, Parachinar & Mirkhani. Decadal maximum & minimum both dropped below the normal by 2.5°C & 1.2°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 59.5 hrs, 5.3 km/hr and 5.9 mm/day respectively.

1.4 Baluchistan

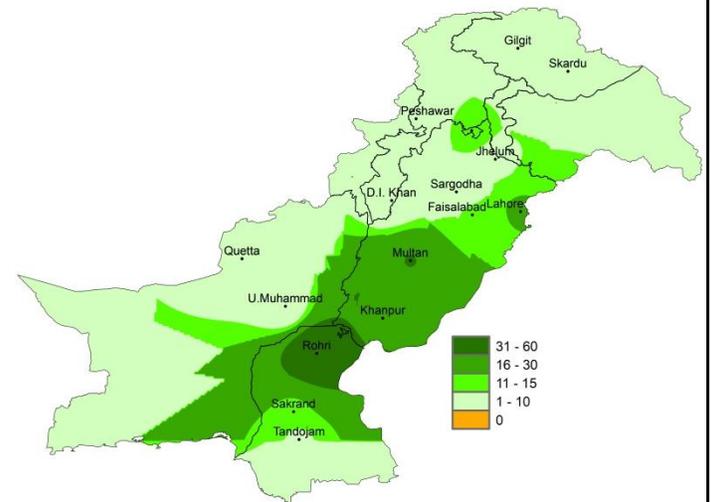
Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Khuzdar, Gawadar & Kalat. Decadal maximum dropped below the normal by 3.8°C & minimum raised above the normal by 1.6°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 52%, 82.6 hrs 4.1 km/hr and 5.4 mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

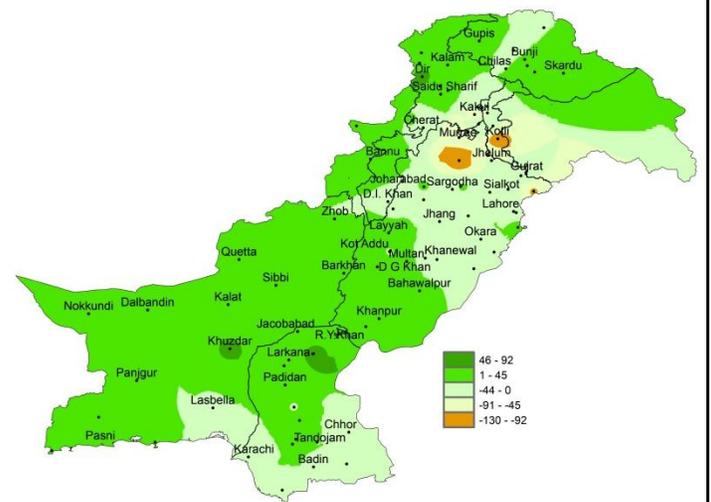
Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Bagrote, Astore & Skardu Decadal maximum dropped below the normal by 3.5°C & minimum raised above the normal by 4.5°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 39.1 hrs, 2.8km/hr and 3.5 mm/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
(1st to 10th October, 2019)**

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 14.0 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 29.4°C while night temperature recorded as 18.2°C with 69.9 hours bright sunshine duration. Wind speed recorded as 0.6 km/hr with mean wind direction *Variable*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 11.4 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 33.1°C while night temperature recorded as 20.6°C with 28.5 hours bright sunshine duration. Wind speed recorded as 2.0 km/hr with mean wind direction *South easterly*.

Cotton: V. Good, Maturity.

2.3 RAMC, Tandojam (Lower Sindh)

Rainfall reported as 9.0 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 35.8°C while night temperature recorded as 22.5°C with 78.0 hours bright sunshine duration. Wind speed recorded as 5.6 km/h with mean wind direction *south westerly*.

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

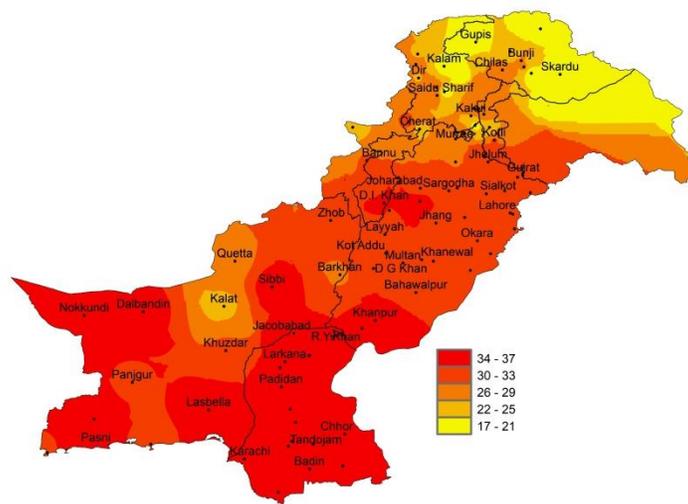
2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

Dry weather reported during the decade; however weather remained cloudy for 09 day during the decade. Average relative humidity recorded as 70%. Mean day temperature was 32.6°C while night temperature recorded as 23.2°C & Wind speed recorded as 2.5km/h with mean wind direction *south easterly*.

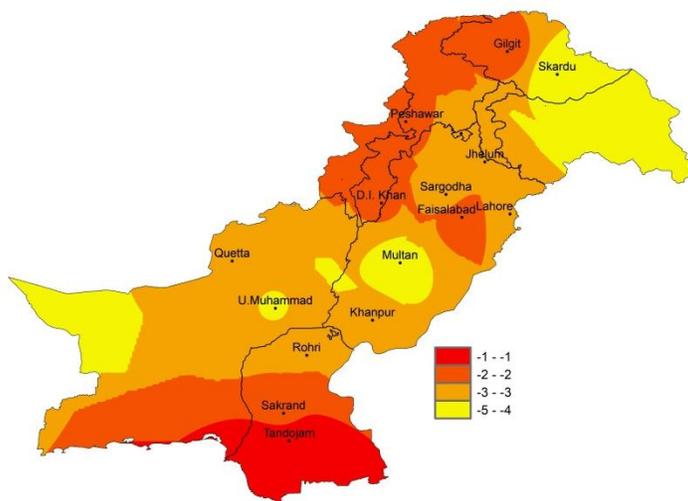
Rice: Good, Flowering Milk maturity.

2.5 RAMC, Quetta (Northern Baluchistan)

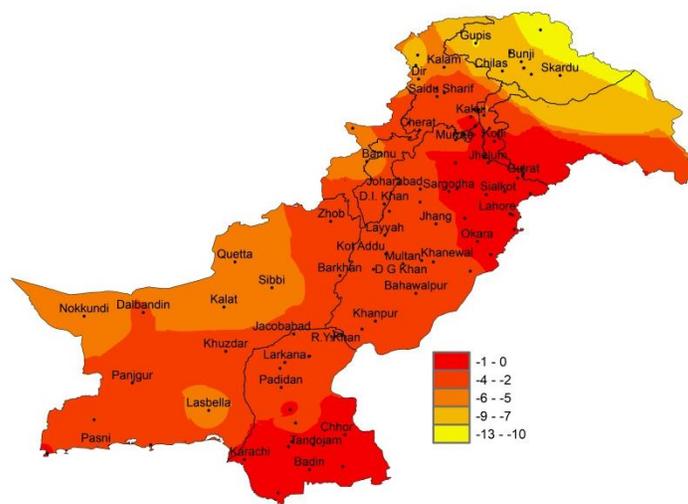
Rainfall reported as 2.4 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 33%. Mean day temperature was 25.1°C while night temperature recorded as 13.3°C with 82.6 hours bright sunshine duration. Wind speed recorded as 5.6 km/hr 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 (1st to 10th October, 2019)

2.6 Jhelum

Rainfall reported as 7.8 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 31.3°C while night temperature recorded as 19.8°C with 72.3 hours bright sunshine duration. Wind speed recorded as 2.5 km/hr with mean wind direction *south westerly*.

2.7 Lahore

Rainfall reported as 16.4 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 31.1°C while night temperature recorded as 21.2°C with 68.0 hours bright sunshine duration. Wind speed recorded as 1.3 km/hr with mean wind direction *south easterly*.

2.8 Sargodha

Rainfall reported as 4.6 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 32.7°C while night temperature recorded as 21.7°C with 74.2 hours bright sunshine duration. Wind speed recorded 1.8 km/hr with mean wind direction *easterly*.

2.9 Multan

Rainfall reported as 30.5 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 31.9°C while night temperature recorded as 21.4°C with 82.1 hours bright sunshine duration. Wind speed recorded 5.4 km/hr with mean wind direction *South easterly*.

2.10 Khanpur

Rainfall reported as 25.4 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 33.4°C while night temperature recorded as 20.9°C with 77.8 hours bright sunshine duration. Wind speed recorded 2.5 km/hr with mean wind direction *North easterly*.

2.11 Sakrand

Rainfall reported 13.0 mm during the decade; however weather remained cloudy for 05 days during the decade. Average humidity recorded as 60%. Mean day temperature was 34.8°C while night temperature recorded as 22.4°C with 88.5 hours bright sunshine duration. Wind speed recorded 3.1 km/hr with wind direction *Variable*.

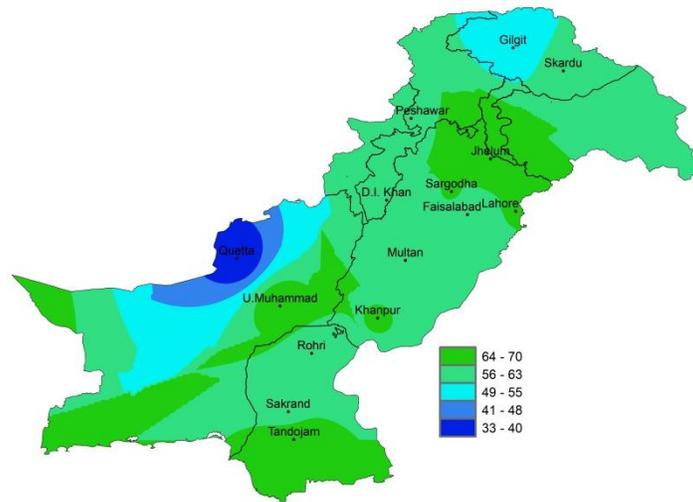


Figure.3: Relative Humidity in Percentage (%)

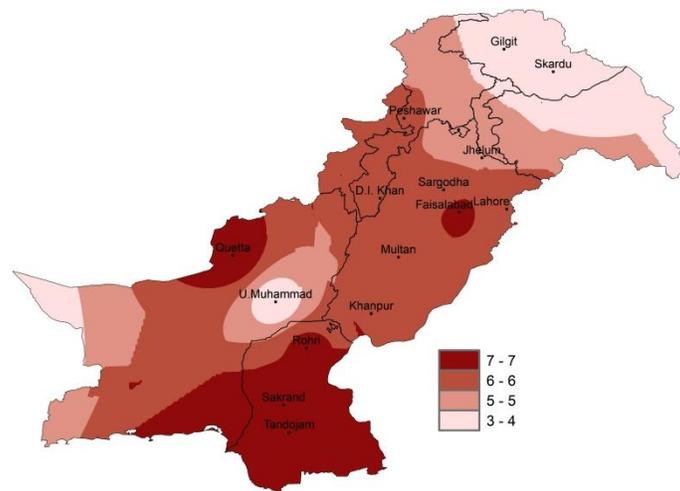


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

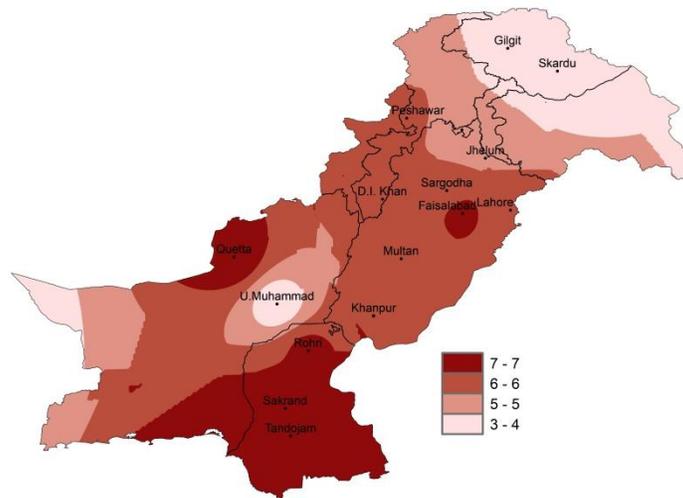


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 52.0 mm during the decade; however weather remained cloudy for 04 day during the decade. Average relative humidity recorded as 57%. Mean day temperature was 34.6°C, with 87.4 hours bright sunshine duration. Wind speed recorded 2.4 km/hr with wind direction *Variable*.

2.13 D.I. Khan

Rainfall reported as 1.0 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 33.2°C while night temperature recorded as 20.4°C with 62.8 hours bright sunshine duration. Wind speed recorded as 8.6 km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported 3.0 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 31.1 °C while night temperature recorded as 18.1 °C with 56.2 hours bright sunshine duration. Wind speed recorded as 1.9 km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 6.0 mm during the decade: however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 19.4°C while night temperature recorded as 7.0 °C with 37.7 hours bright sunshine duration. Wind speed recorded as 3.4 km/hr with mean wind direction *South south-easterly*.

2.16 Gilgit

Rainfall reported as 0.7 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 25.5°C while night temperature recorded as 16.2°C with 40.5 hours bright sunshine duration. Wind speed recorded as 2.1 km/hr with mean wind direction *westerly*.

Seven Days Weather Advisory for Farmers (14th to 20th October, 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 dry weather is expected. However, rain/thunderstorm is expected at few places in upper Punjab (Sargodha, Rawalpindi, Gujranwala, Lahore and Faisalabad) and Islamabad during the 2nd half of the current decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly dry weather is expected. However, rain/thunderstorm is expected at scattered places in Dir, Swat, Chitral, Abbottabad, Haripur, Mansehra, Peshawar, Swabi, Mardan and Kohat district during the 2nd half of the current decade.
- ❖ **Sindh:** Mainly dry weather is expected in most of the province during the decade.
- ❖ **Baluchistan:** Mainly dry weather is expected in most of the province during the decade.
- ❖ **Gilgit-Baltistan:** Rain/wind-thunderstorm is expected at isolated places in the province during the 2nd half of the current decade.
- ❖ **Kashmir:** Rain/wind-thunderstorm is expected at isolated places in the province during the 2nd half of 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.
- ❖ Adopt better practices for weed management of Cotton crop as it is in critical weed period. Plant protection measures for worm may be initiated. Accordingly farmers are advised to take adoptive measures especially use of PB ropes in consultancy with plant protection department.
- ❖ Cotton picking may be initiated after 10 am in the morning as there will be dew present on cotton plants during early morning.

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 (بذر یعنی 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)