

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Moderate to high amount of rainfall reported from most of the parts of the provinces during the decade.
- ❖ Highest amount of rainfall recorded as 329.3 mm at Larkana during the last decade.
- ❖ Highest maximum temperature recorded as 41.0°C at Turbat during the last decade.
- ❖ Mainly humid weather is expected in most of the parts of country. However, intermittent rain-wind/thunderstorm in rest of country while isolated heavy falls is likely to occur in Sindh and South Punjab during the decade.
- ❖ Farmers of Sindh KP and Baluchistan are advised to remove extra water from the fields, to avoid fungal attack.
- ❖ Farmers are advised to view weather forecast before any field activity.

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SECTOR H-8/2, ISLAMABAD**

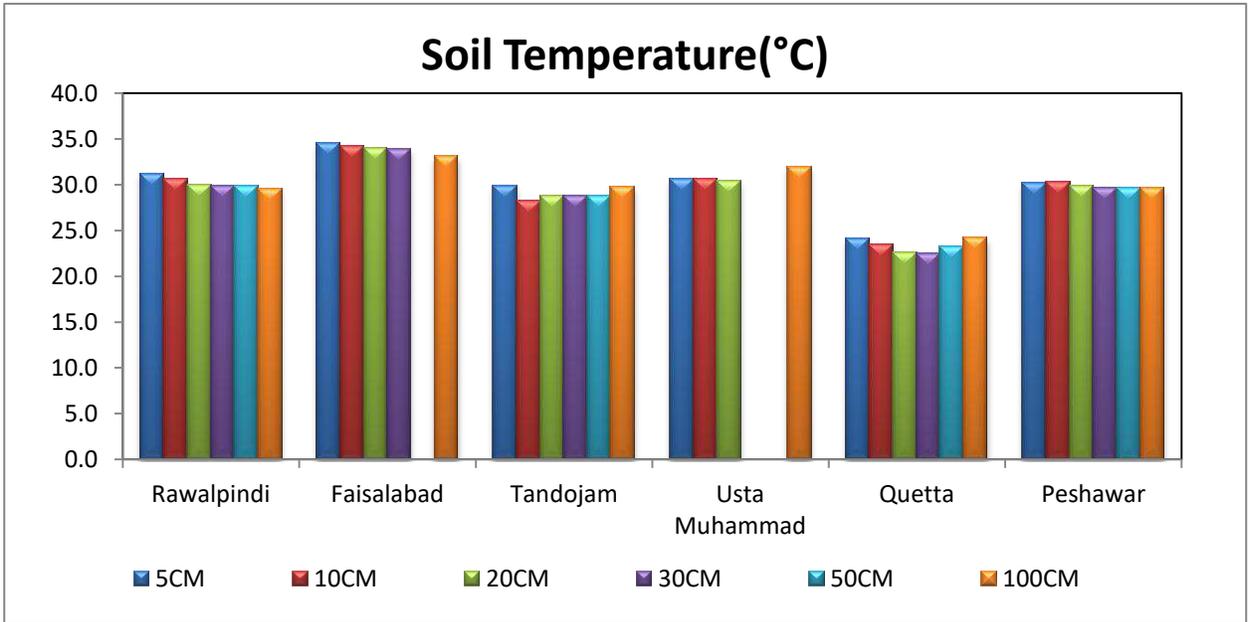
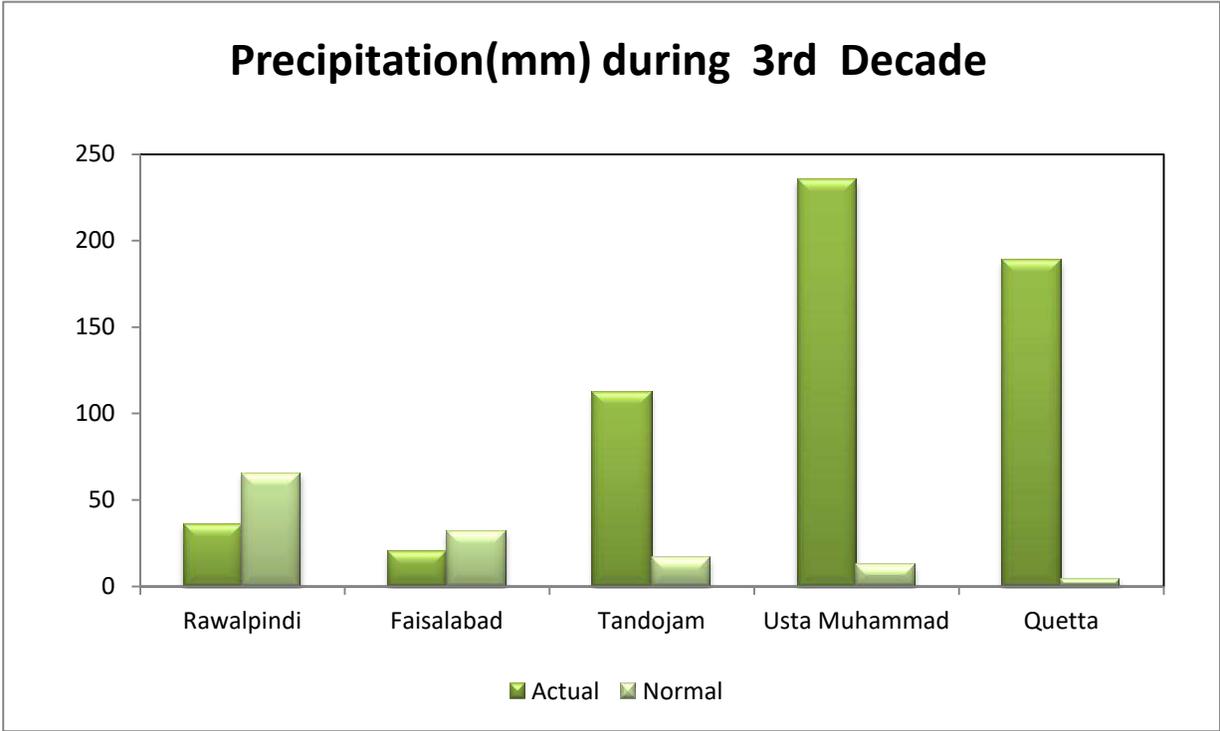
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Meteorological Conditions during 3rd Decade of August, 2022

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	5 cm	10 cm	20cm	30cm	50cm	100 cm				
1	Rawalpindi	65.2	36.0	-29.2	1.4	-0.6	28.2	31.2	30.6	30.0	29.8	29.8	29.5	67	80.9	1.7	4.5
2	Faisalabad	31.9	20.4	-11.5	0.0	0.7	31.7	34.5	34.2	34.0	33.9	***	33.1	65	93.9	3.6	5.6
3	Jhelum	48.3	49.0	0.7	-6.6	10.6	32.4	31.9	32.0	30.3	31.6	30.0	***	68	96.8	2.0	5.5
4	Lahore	40.5	147.7	107.2	0.0	-0.1	31.0	31.4	31.8	31.3	31.1	***	30.5	69	79.3	1.5	4.7
5	Sargodha	25.5	45.5	20.0	-10.0	0.6	26.9	34.2	33.5	32.8	32.5	***	31.7	68	87.6	1.9	4.5
6	Multan	7.7	37.8	30.1	-1.9	-0.5	31.1	***	***	***	***	***	***	67	80.6	6.3	5.5
7	Khanpur	0.4	50.5	50.1	-2.8	-0.9	30.3	***	30.4	30.7	30.8	31.4	31.7	74	73.5	1.0	4.5
8	Tandojam	7.6	294.0	286.4	-4.9	-0.7	28.2	32.7	***	***	***	***	***	80	58.2	1.0	3.9
9	Sakrand	16.5	112.0	95.5	-4.5	-2.3	26.7	29.8	28.2	28.8	28.8	28.8	29.7	82	56.1	1.0	2.8
11	Rohri	7.3	59.0	51.7	-6.7	-2.2	28.7	***	***	***	***	***	***	82	54.6	3.6	4.0
12	D.I Khan	20.1	129.2	109.1	-3.0	0.0	29.8	31.1	30.8	30.4	***	19.7	***	77	73.3	8.8	5.1
13	Peshawar	9.2	7.2	-2.0	-1.3	1.5	30.8	30.1	30.3	29.8	29.6	29.6	29.6	67	46.7	2.3	3.9
14	Usta M.	12.3	235.0	222.7	-9.8	0.2	28.1	30.6	30.5	30.3	***	***	31.9	88	***	0.9	2.2
15	Quetta	4.5	188.7	184.2	-8.2	-2.3	21.0	24.1	23.5	22.5	22.4	23.3	24.2	65	60.5	3.2	3.8
16	Skardu	4.5	2.2	-2.3	-1.2	0.4	20.7	***	***	***	***	***	***	51	48.6	2.9	3.6
17	Gilgit	4.1	44.5	40.4	-9.5	2.4	21.2	***	***	***	***	***	***	79	27.5	1.4	2.7

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. The climatic normal used in the Bulletin is extracted from the 2007 - 2016 observed data. 'ETo' stands for reference crop Evapotranspiration*** stands for data non availability.

Graph at RAMCs during August, 2022



Past Weather (21st to 31st August, 2022)

Moderate to high amount of rainfall reported from most of the parts of the provinces while heavy falls reported in Sindh during the decade.

1.1 Punjab

Moderate to high rainfall reported from the agricultural plains of the province. Highest rainfall reported from Kot addu, Lahore and Rahimyar khan. Decadal maximum dropped below normal by 2.8 & minimum remained above normal by 1.4 in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 68%, 84.7 hrs, 2.6 km/hr and 5.0 mm/day respectively.

1.2 Sindh

Moderate to high rain reported from the agricultural plains of the province. Highest rainfall reported from Larkana, Sakrand and Khairpur. Decadal maximum dropped below normal by 5.4 & minimum remained normal in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 81%, 56.3 hrs, 1.9 km/hr and 3.6 mm/day respectively.

1.3 Khyber Pakhtunkhwa

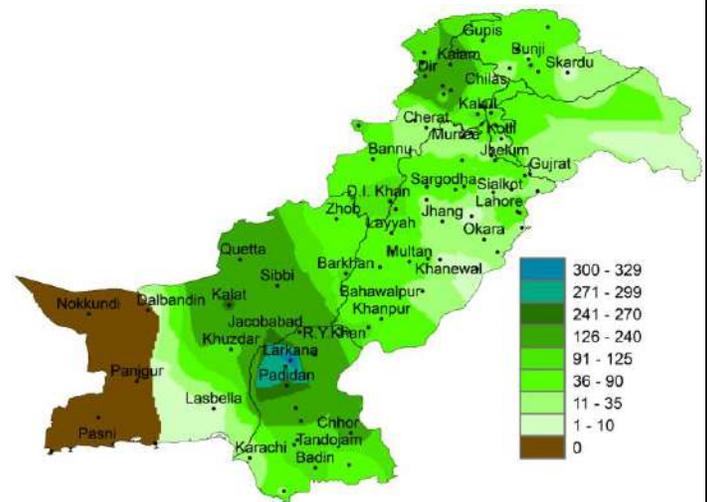
Moderate to high rainfall reported from the province. Highest rainfall reported from Kalam followed by Dir and Kohistan. Decadal maximum dropped below normal by 2.1 & minimum remained normal in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 72%, 60.0 hrs, 5.6 km/hr and 4.5 mm/day respectively.

1.4 Baluchistan

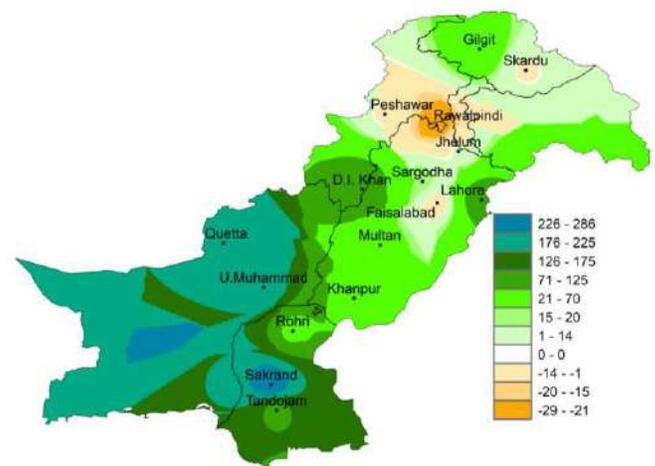
Moderate to high rainfall reported from the province. Highest rainfall reported from Kalat followed by Quetta. Decadal maximum dropped below normal by 9.0 & minimum recorded slightly above normal by 1.1 in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 77%, 60.5 hrs, 2.1 km/hr and 3.0 mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

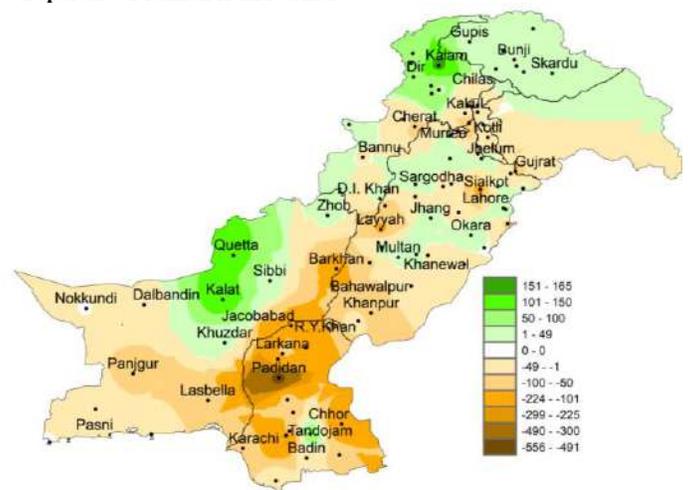
Moderate to heavy rainfall reported from most parts of the agricultural plains of the province. Highest rainfall reported from Garhi Dopatta, Bagrote and Rawalakot. Decadal maximum dropped below normal by 5.3 & minimum recorded slightly above normal by 1.4 in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 38.1 hrs, 2.2 km/hr and 3.2 mm/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)

(a) **Past Weather for Major Agricultural Plains**
(21st to 31st August, 2022)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 36.0 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 67%. Mean day temperature was 34.0°C while night temperature recorded as 22.4°C with 58.4 hours bright sunshine duration. Wind speed recorded as 1.7 km/hr with mean wind direction *North westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 20.4 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 65%. Mean day temperature was 36.3°C while night temperature recorded as 27.0°C with 93.9 hours bright sunshine duration. Wind speed recorded as 3.6 km/hr with mean wind direction *south westerly*.

Cotton: Very good, Boll opening stage.

2.3 RAMC, Tandojam (Lower Sindh)

Rainfall reported as 112.0 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 82%. Mean day temperature was 30.6°C while night temperature recorded as 22.8 °C with 56.1 hours bright sunshine duration. Wind speed recorded as 3.6 km/hr with mean wind direction *south westerly*

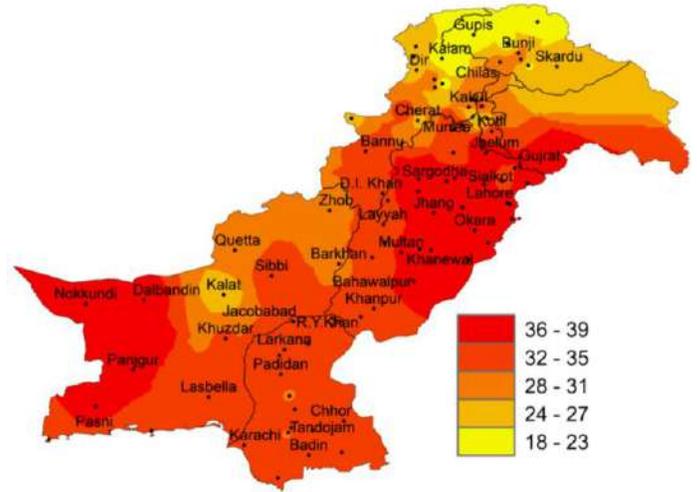
Cotton (Koon): Good, Ball opening stage, Irrigated.

2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

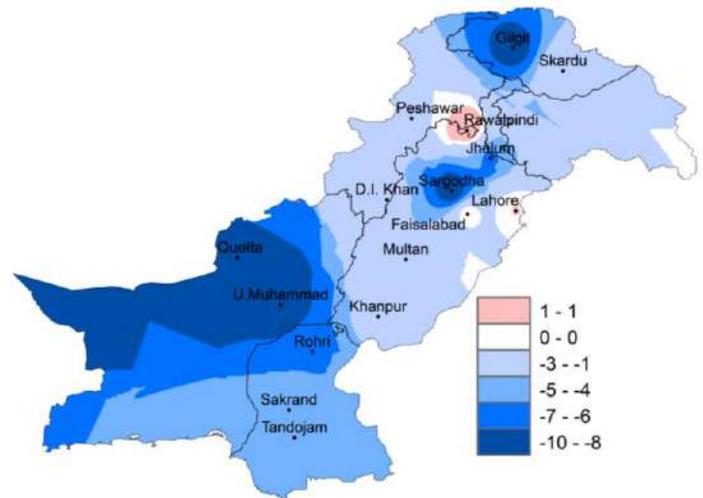
Rainfall reported as 235.0 mm during the decade; however weather remained cloudy for 6 days during the decade. Average relative humidity recorded as 88%. Mean day temperature was 29.3°C while night temperature recorded as 26.3°C with 43.7 hours bright sunshine duration. Wind speed recorded as 5.4 km/hr with mean wind direction *North easterly*.

2.5 RAMC, Quetta (Northern Baluchistan)

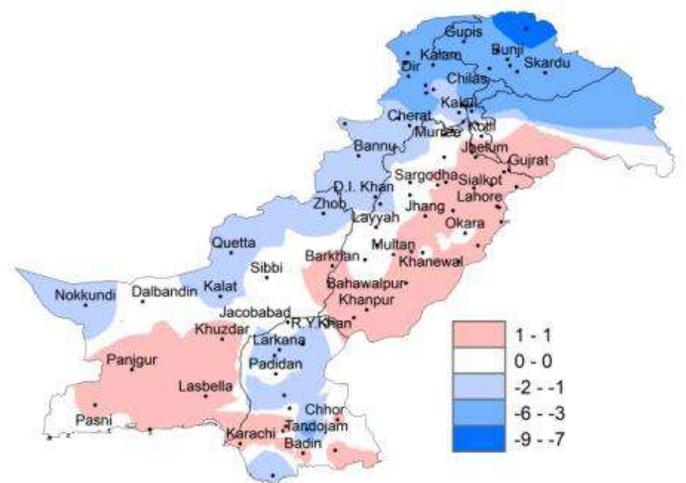
Rainfall reported as 189.0 mm during the decade; however weather remained cloudy for 11 days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 26.3°C while night temperature recorded as 15.8°C with 60.5 hours bright sunshine duration. Wind speed recorded as 3.2 km/hr with mean wind direction *North easterly*.



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 (21st to 31st August, 2022)

2.6 Jhelum

Rainfall reported as 49.0 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 68%. Mean day temperature was 28.5°C while night temperature recorded as 36.2°C with 96.8 hours bright sunshine duration. Wind speed recorded as 2.0 km/hr with mean wind direction *South Westerly*.

2.7 Lahore

Rainfall reported as 147.7 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 69%. Mean day temperature was 34.9°C while night temperature recorded as 27.0°C with 79.3 hours bright sunshine duration. Wind speed recorded as 1.5 km/hr with mean wind direction *South westerly*.

2.8 Sargodha

Rainfall reported as 45.5 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 69%. Mean day temperature was 36.5°C while night temperature recorded as 27.3°C with 87.6 hours bright sunshine duration. Wind speed recorded as 1.9 km/hr with mean wind direction *south westerly*.

2.9 Multan

Rainfall reported as 37.8 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 66%. Mean day temperature was 35.0°C while night temperature recorded as 27.1 °C with 80.6 hours bright sunshine duration. Wind speed recorded as 6.3 km/hr with mean wind direction *Southerly*.

2.10 Khanpur

Rainfall reported as 50.5 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 74%. Mean day temperature was 34.3°C while night temperature recorded as 26.2 °C with 73.5 hours bright sunshine duration. Mean wind direction recorder as *south westerly*.

2.11 Sakrand

Rainfall reported as 294.0 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 80%. Mean day temperature was 31.9°C while night temperature recorded as 24.4°C with 58.2 hours bright sunshine duration. Mean wind direction recorder as *South easterly*.

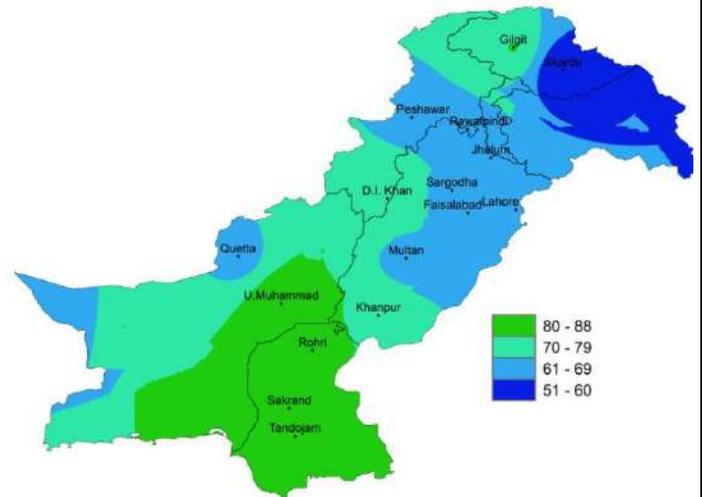


Figure.3: Relative Humidity in Percentage (%)

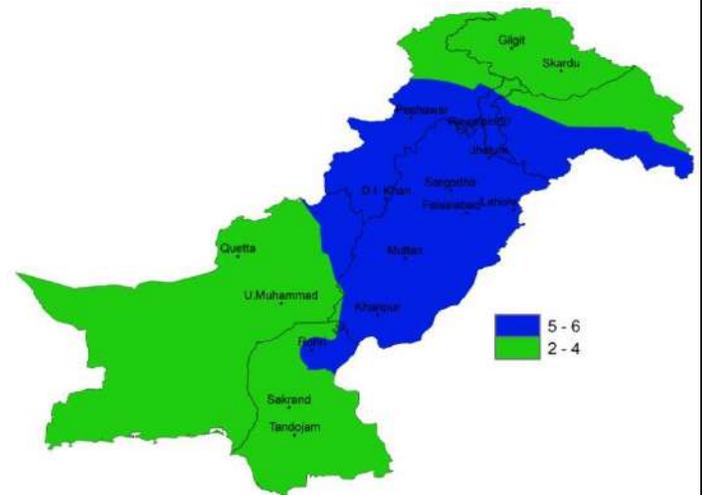


Figure.4: Reference Crop Evapotranspiration ET0 (mm/day)

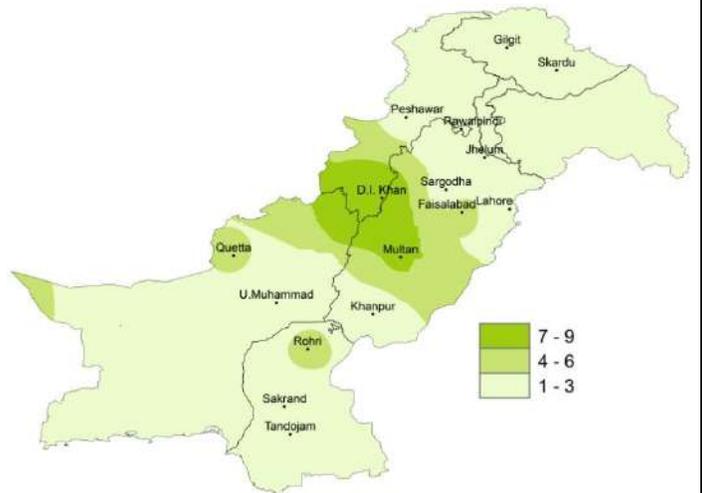


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 59.0 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 82%. Mean day temperature was 31.6°C while night temperature recorded as 25.4°C with 54.2 hours bright sunshine duration. Mean wind direction recorder 3.6 km/hr with mean wind direction as *South easterly*.

2.13 D.I. Khan

Rainfall reported as 129.2 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 77%. Mean day temperature was 34.0°C while night temperature recorded as 25.5°C with 73.3 hours bright sunshine duration. Wind speed recorded as 8.8 km/hr with mean wind direction *Northerly*

2.14 Peshawar

Rainfall reported as 7.2 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 67%. Mean day temperature was 34.2°C while night temperature recorded as 27.3°C with 46.3 hours bright sunshine duration. Wind speed recorded as 2.3 km/hr with mean wind direction *Northerly*.

2.15 Skardu

Rainfall reported as 22.0 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 51%. Mean day temperature was 26.5°C while night temperature recorded as 14.9 °C with 58.6 hours bright sunshine duration. Wind speed recorded as 2.9 km/hr with mean wind direction *South Easterly*.

2.16 Gilgit

Rainfall reported as 44.5 mm during the decade; however weather remained cloudy during the decade. Average relative humidity recorded as 79%. Mean day temperature was 24.9°C while night temperature recorded as 17.5°C with 27.5 hours bright sunshine duration. Wind speed recorded as 1.4 km/hr with mean wind direction *north Westerly*.

Ten Days Weather Advisory for Farmers **(1st to 10th September, 2022)**

3.1 Temperature Forecast

Day and night time temperatures are likely to be 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 in most of the parts of province. However, rain-wind/thunderstorm is likely to occur in the Potohar and north eastern part of the province during the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly hot and humid weather is expected in most of the parts of province. However, rain-wind/thunderstorm is likely to occur in the upper parts of the province during the decade.
- ❖ **Sindh:** hot and humid weather is expected in most parts of the province during the decade.
- ❖ **Baluchistan:** Mainly dry weather is expected in most of the parts of province.
- ❖ **Gilgit-Baltistan:** Rain-wind/thunderstorm is expected at the isolated parts during the decade.
- ❖ **Kashmir:** Rain -wind/thunderstorm is expected at isolated parts during the decade.

3.4 Advisory for Farmers

- ❖ Farmers are advised to remove extra water from the fields to avoid fungal attack.
- ❖ Farmers are advised to view weather forecast before any field activity.

Findings of AgMIPPakistan, 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)