

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Moderate to heavy precipitation reported with isolated heavy rainfall from Khyber Pakhtunkhwa along the adjoining areas of Gilgit Baltistan and Azad Kashmir while light to moderate rainfall is reported from most areas of Baluchistan, Punjab, northern belt of Sindh.
- ❖ Dry weather reported from the coastal areas of Baluchistan and Sindh during the last decade.
- ❖ Highest precipitation recorded as 135.7 mm at Kalam during the last decade.
- ❖ Highest maximum temperature recorded as 41.25°C at Mithi during the last decade.
- ❖ During the decade, mainly dry weather is expected along the coastal areas of the country while rain-wind thunderstorm is expected in Punjab, Sindh, Baluchistan, Khyber Pakhtunkhwa, and Gilgit-Baltistan and Kashmir.
- ❖ Farmers are advised to plan their activities in accordance with the expected weather conditions.

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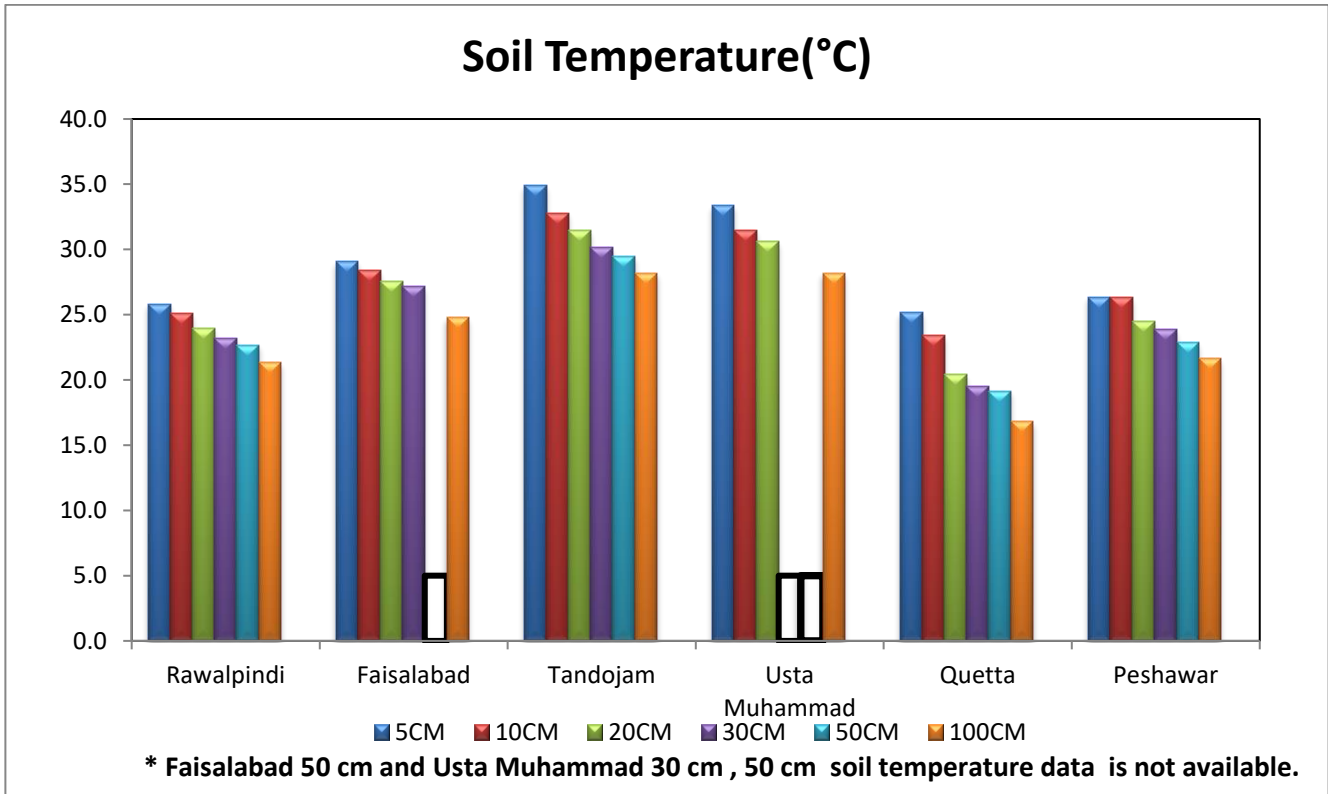
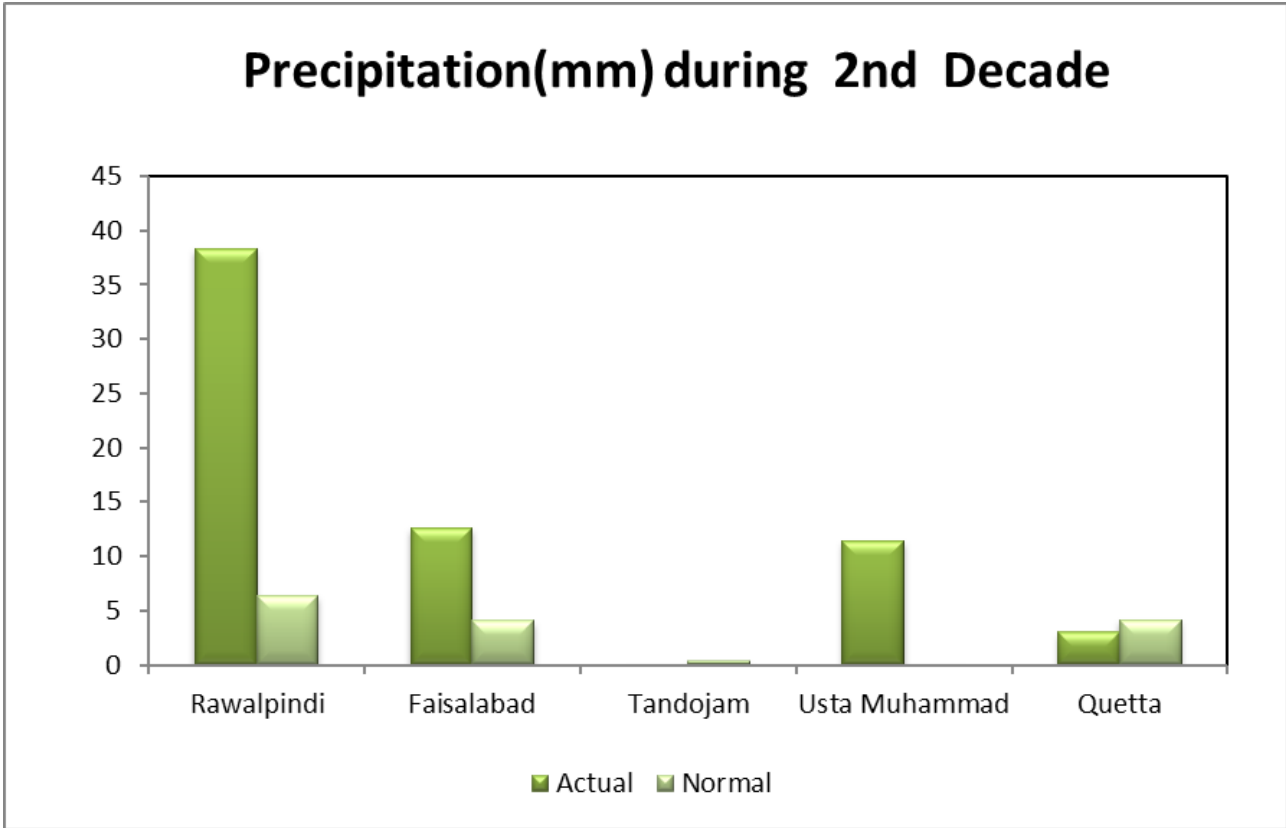
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Meteorological Conditions during 2nd Decade of April, 2023

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	6.4	38.3	31.9	1.7	0.2	25.0	25.8	25.1	24.0	23.2	22.7	21.3	46	80.7	2.2	4.2
2	Faisalabad	4.0	12.6	8.6	0.5	0.9	28.5	29.1	28.4	27.5	27.2	***	24.8	48	89.4	2.7	4.8
3	Jhelum	11.90	13.2	1.3	2.6	1.4	27.6	28.6	27.6	26.5	25.2	25.0	***	48	83.5	2.9	4.7
4	Lahore	8.5	0.0	-8.5	2.3	1.7	29.4	28.4	28.0	26.9	26.1	***	24.1	35	77.3	2.9	4.8
5	Sargodha	10.5	20.2	9.7	2.4	1.3	28.7	30.9	29.5	27.9	27.3	***	24.4	40	83.3	1.6	4.3
6	Multan	5.3	1.7	-3.6	0.7	2.9	29.7	***	***	***	***	***	***	38	73.4	1.4	4.2
7	Khanpur	1.6	1.2	-0.4	1.0	3.5	30.3	***	29.5	30.4	29.4	29.3	28.3	38	83.5	***	6.8
8	Tandojam	0.3	0.0	-0.3	-3.8	0.4	30.1	34.9	32.8	31.5	30.1	29.5	28.2	47	91.8	7.2	6.7
9	Sakrand	0.0	0.0	0.0	-1.3	2.7	31.0	41.6	***	***	***	***	***	37	94.7	***	7.1
11	Rohri	2.5	1.0	-1.5	0.4	2.7	31.4	***	***	***	***	***	***	38	89.2	3.9	5.7
12	D.I Khan	10.0	21.0	11.0	2.5	2.1	28.5	27.6	26.7	13.1	***	14.0	***	50	80.2	10.4	6.0
13	Peshawar	21.5	9.6	-11.9	2.0	2.4	25.9	26.4	26.3	24.5	23.9	22.9	21.6	52	46.9	4.0	4.0
14	Usta M.	0.0	11.4	11.4	0.0	0.0	28.2	33.4	31.5	30.6	***	***	28.2	59	***	3.8	4.4
15	Quetta	4.2	3.0	-1.1	-0.9	0.1	17.9	25.2	23.4	20.4	19.5	19.2	16.8	31	87.0	6.2	4.9
16	Skardu	9.0	18.4	9.4	0.1	0.4	13.2	***	***	***	***	***	***	45	49.9	1.9	2.8
17	Gilgit	8.1	16.8	8.7	-0.2	2.5	18.0	***	***	***	***	***	***	71	46.5	3.3	3.0

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. 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 April, 2023



Past Weather (11th to 20th April, 2023)

Moderate to heavy precipitation reported from upper and central parts of Khyber Pakhtunkhwa along the adjoining areas of Gilgit Baltistan and Kashmir while light to moderate rainfall is reported from most areas of Baluchistan, upper Punjab, northern Sindh. Dry weather reported from the coastal areas of Baluchistan and lower Sindh during the last decade.

1.1 Punjab

Moderate precipitation is reported from upper parts of the province with isolated heavy rain whereas light rain occurred in southern Punjab. Decadal maximum increased by 1.6 degree centigrade from normal while minimum temperatures remained slightly above normal. Whereas, relative humidity, sunshine hour, wind speed & ETO recorded as 42%, 81.6 hrs, 2.3 km/hr and 4.8 mm/day respectively.

1.2 Sindh

Moderate precipitation is reported from upper parts of the province while weather remained dry in southern parts of the province. Decadal maximum temperature dropped by 1.6 degree centigrade and minimum temperatures increased by 1.9 degree centigrade. Besides, relative humidity, sunshine hour, wind speed & ETO recorded as 41%, 91.9 hrs, 5.6 km/hr and 6.5 mm/day respectively.

1.3 Khyber Pakhtunkhwa

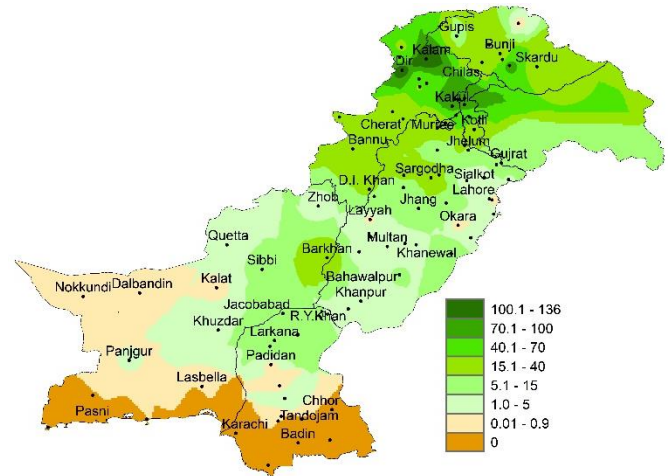
Moderate to heavy precipitation with isolated heavy rainfall reported from the province. Decadal maximum temperature and minimum temperatures remained slightly above normal. Besides, relative humidity, sunshine hour, wind speed & ETO recorded as 51%, 63.6 hrs, 7.2 km/hr and 5.0 mm/day respectively.

1.4 Baluchistan

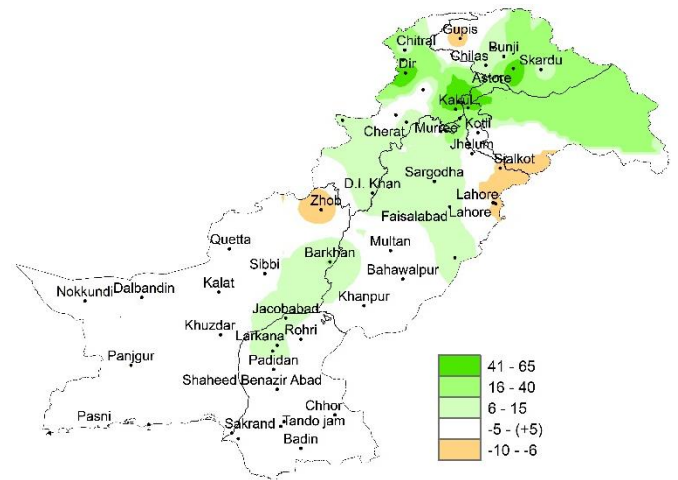
Light to moderate rainfall reported from most of the province while dry weather reported from the coastal areas during the previous decade. Decadal maximum temperature and minimum temperatures remained nearly normal. Besides, relative humidity, sunshine hour, wind speed & ETO were recorded as 45%, 87.0 hrs, 5.0 km/hr and 4.7 mm/day respectively

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

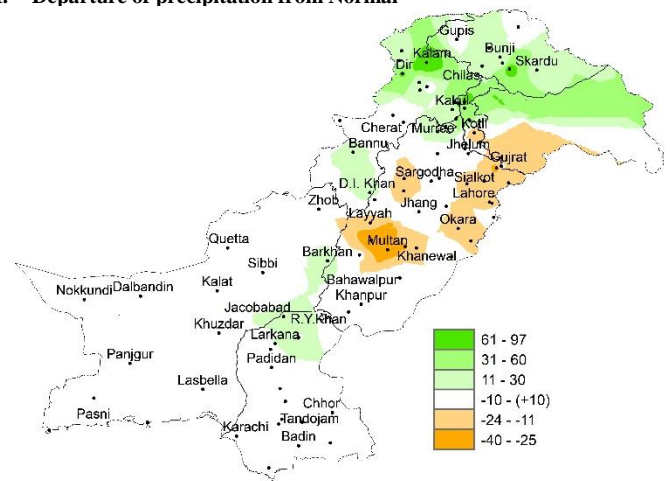
Moderate precipitation reported from Gilgit-Baltistan while moderate to high precipitation observed in Azad Jammu & Kashmir during the decade. Decadal maximum temperature remained nearly normal and minimum temperature increased by 1.5 degree centigrade from normal. Whereas, relative humidity, sunshine hour, wind speed & ETO recorded as 58%, 48.2 hrs, 2.6 km/hr and 2.9 mm/day respectively.



I. Actual precipitation



II. Departure of precipitation from Normal



III. Departure of precipitation from the previous Decade

Figure.1: precipitation distribution during previous decade (mm)

(a) **Past Weather for Major Agricultural Plains**
(11th to 20th April, 2023)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 38.3 mm during the decade; however, weather remained partially cloudy for 4 days. Average relative humidity recorded as 45.6% mean day temperature was 33.6°C while night temperature recorded as 16.4°C with 80.7 hours bright sunshine duration. Besides, wind speed recorded as 2.2 km/hr with *north westerly* mean direction. *No crop is available in the fields at present.*

2.2 RAMC, Faisalabad (Central Punjab)

Rain reported as 12.6 mm during the decade; however, weather remained partially cloudy for 05 days. Average relative humidity recorded as 48% mean day temperature was 36.6°C while night temperature recorded as 20.4°C with 89.4 hours bright sunshine duration. Also, wind speed recorded as 2.7 km/hr with *southerly* mean direction. *Wheat: Normal. Harvested on 18-04-2023.*

2.3 RAMC, Tandojam (Lower Sindh)

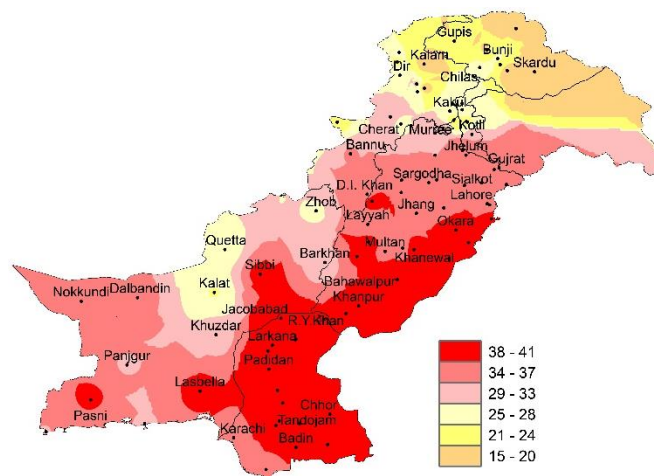
Dry weather prevailed during the decade; however, weather remained partially cloudy for 10 days. Average relative humidity recorded as 47%, mean day temperature was 38.7°C while night temperature recorded as 21.4°C with 91.8 hours bright sunshine duration. Also, wind speed recorded as 7.2 km/hr with *southwesterly* mean direction. *Land prepared for next crop.*

2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

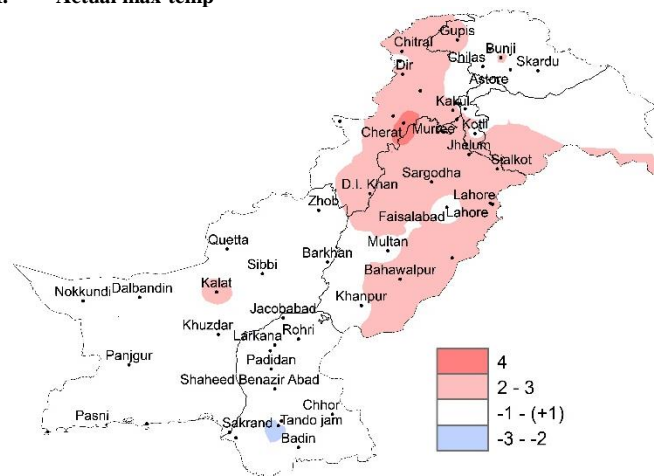
Rainfall reported as 11.4 mm during the decade; however, weather remained partially cloudy for 5 days. Average relative humidity recorded as 47%, mean day temperature was 37.2 °C while night temperature recorded as 19.2 °C. Also, wind speed recorded as 3.8 km/hr with *south easterly* mean direction. *Wheat: Good. Wax maturity stage.*

2.5 RAMC, Quetta (Northern Baluchistan)

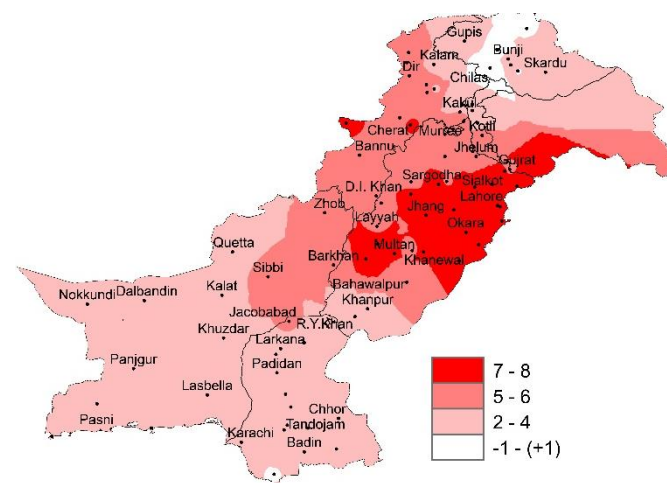
Rainfall reported as 0.01 mm during the decade; however, weather remained partially cloudy during the decade. Average relative humidity recorded as 30.9%, mean day temperature was 25.1°C while night temperature recorded as 10.6°C. Moreover, wind speed recorded as 6.2 km/hr with *north westerly* mean direction. *Wheat: variety Zardana: Good. heading stage.*



I. Actual max-temp



II. Departure of max-temp from Normal



III. Departure of max-temp from the previous Decade

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

2(b) Past Weather for Sub-Regional Agricultural Plains (11th to 20th April, 2023)

2.6 Jhelum

Rain reported as 13.2 mm during the decade; however, weather remained partially cloudy for 05 days. Average relative humidity recorded as 48%, mean day temperature was 35.9°C while night temperature recorded as 19.3°C with 83.5 hours bright sunshine duration. Wind speed recorded as 2.9 km/hr with *westerly* mean direction.

2.7 Lahore

Rain reported as 0.01 mm during the decade; however, weather remained partially cloudy for 06 days. Average relative humidity recorded as 35%, mean day temperature was 36.5°C while night temperature recorded as 22.3°C with 77.3 hours bright sunshine duration. Wind speed recorded as 2.9 km/hr with *westerly* mean direction.

2.8 Sargodha

Rain reported as 20.2 mm during the decade; however, weather remained partially cloudy for 06 days. Average relative humidity recorded as 40%, mean day temperature was 36.5°C while night temperature recorded as 20.9°C with 83.3 hours bright sunshine duration. Wind speed recorded as 1.6 km/hr with *variable* wind direction.

2.9 Multan

Rain reported as 1.7 mm during the decade; however, weather remained partially cloudy for 08 days. Average relative humidity recorded as 38%, mean day temperature was 36.6°C while night temperature recorded as 22.7°C with 73.4 hours bright sunshine duration. Wind speed recorded as 1.4 km/hr with *southwestern* mean direction.

2.10 Khanpur

Rain reported as 1.2 mm during the decade; however, weather remained partially cloudy for 06 days. Average relative humidity recorded as 38%, mean day temperature was 38.5°C while night temperature recorded as 22.1°C with 83.6 hours bright sunshine duration. Mean wind direction recorded as *in southwestern*.

2.11 Sakrand

Dry weather prevailed during the decade; however, weather remained partially cloudy for 04 days. Average relative humidity recorded as 37%, mean day temperature was 38.7 °C while night temperature recorded as 23.3°C with 94.7 hours bright sunshine duration. Mean wind direction recorded as *southeastern*.

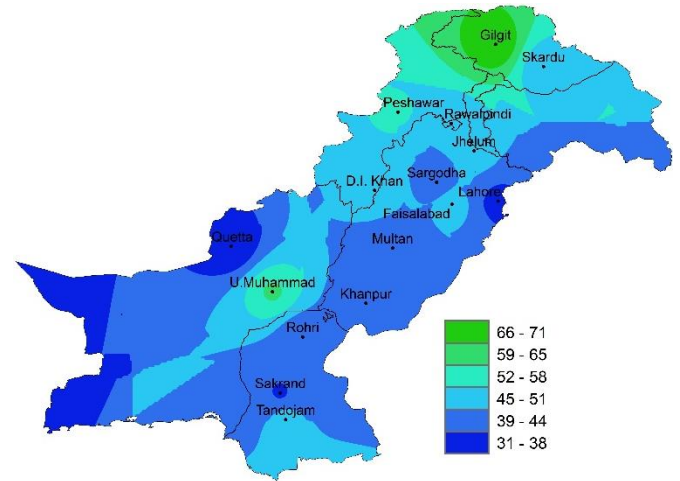


Figure.3: Relative Humidity (%)

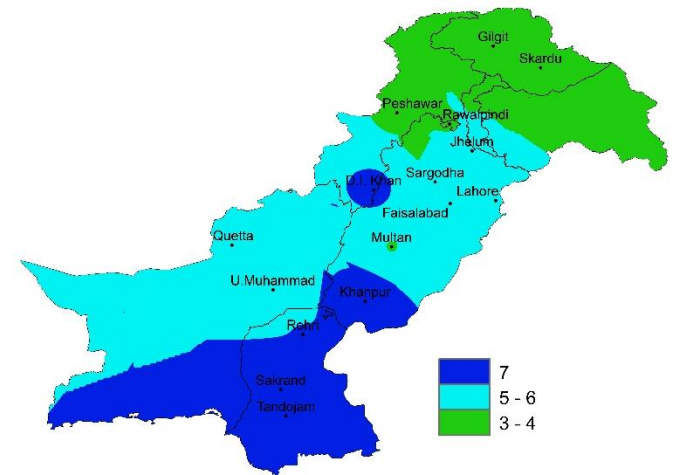


Figure.4: Reference Crop Evapotranspiration Eto (mm/day)

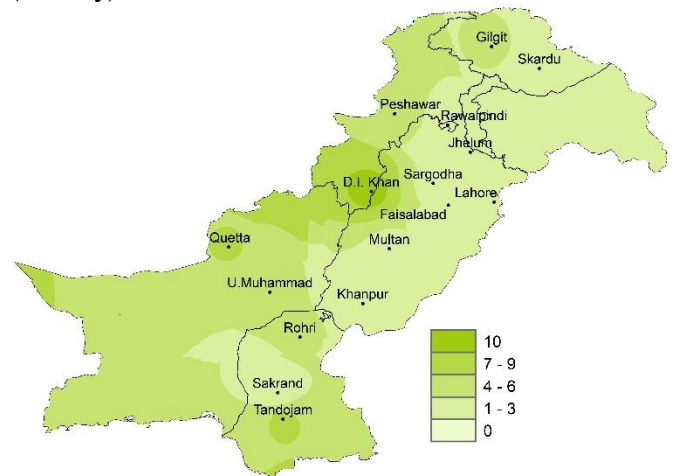


Figure 5: Wind Speed (km/h)

2.12 Rohri

Rain reported as 1.0 mm during the decade; however, weather remained partially cloudy for 04 days. Average relative humidity recorded as 38%, mean day temperature was 38.5°C while night temperature recorded as 24.3°C with 89.2 hours bright sunshine duration. Wind speed recorded as 3.9 km/hr with *variable* mean direction.

2.13 D.I. Khan

Rain reported as 21.0 mm during the decade; however, weather remained partially cloudy for 05 days. Average relative humidity recorded as 50%, mean day temperature was 36.4°C while night temperature recorded as 20.5°C with 80.2 hours bright sunshine duration. Wind speed recorded as 10.4 km/hr with *northeasterly* mean direction.

2.14 Peshawar

Rain reported as 9.6 mm during the decade; however, weather remained partially cloudy for 09 days. Average relative humidity recorded as 52%, mean day temperature was 32.6°C while night temperature recorded as 19.1°C with 46.9 hours bright sunshine duration. Wind speed recorded as 4.0 km/hr with *northerly* mean direction.

2.15 Skardu

Rain reported as 18.4 mm during the decade; however, weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 45%. Mean day temperature was 19.5°C while night temperature recorded as 6.8°C with 49.9 hours bright sunshine duration. Wind speed recorded as 1.9 km/hr with *easterly* mean direction.

2.16 Gilgit

Precipitation reported as 16.8 mm during the decade; however, weather remained partially cloudy for 10 day. Average relative humidity recorded as 71.3%, mean day temperature was 24.4°C while night temperature recorded as 11.6°C with 46.5 hours bright sunshine duration. Wind speed recorded as 3.3 km/hr with *calm* mean wind direction.

Ten Days Weather Advisory for Farmers
(21st to 30th April, 2023)

3.1 Temperature Forecast

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

3.2 Wind Forecast

Strong winds expected in agricultural plains of the country.

3.3 Rain Forecast

- ❖ **Punjab:** Rain-wind/thunderstorm is expected in the province.
- ❖ **Khyber Pakhtunkhwa:** Rain-wind/thunderstorm is expected in the province.
- ❖ **Sindh:** Rain-wind/thunderstorm is expected in the province..
- ❖ **Baluchistan:** Rain-wind/thunderstorm is expected in the province..
- ❖ **Gilgit-Baltistan:** Rain-wind thunderstorm is expected during the decade.
- ❖ **Kashmir:** Rain-wind thunderstorm is expected during the decade.

3.4 Advisory for Farmers

- ❖ Farmers are advised to view PMD website for 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)