

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Moderate to heavy precipitation was reported from Northeastern Punjab, Potohar region, upper parts of KP, Jammu & Azad Kashmir.
- ❖ Light to moderate rainfall is reported from Baluchistan, Sindh, Lower parts of KP, South & Central Punjab, and Gilgit- Baltistan during the last decade.
- ❖ Highest precipitation recorded as 61.5 mm at Rawlakot during the last decade.
- ❖ Highest maximum temperature recorded as 41.8°C at Shaheed Benizerabad during the last decade.
- ❖ During the decade, mainly dry weather is expected in lower parts of the country while rain-wind thunderstorm is expected in isolated places of KP, Upper parts of Punjab, northeastern parts of Baluchistan, Gilgit-Baltistan, and Kashmir.
- ❖ Farmers are advised to plan their activities in accordance with the expected weather conditions.
- ❖ In case of rain, to avoid any loss farmers may cover the harvested wheat.

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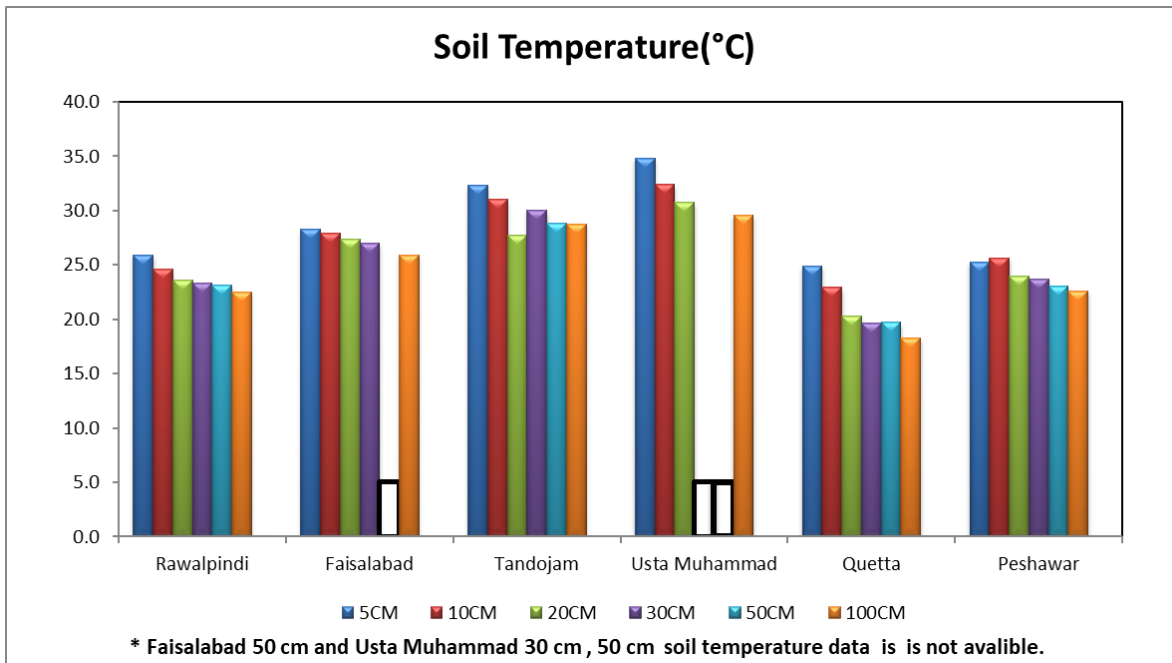
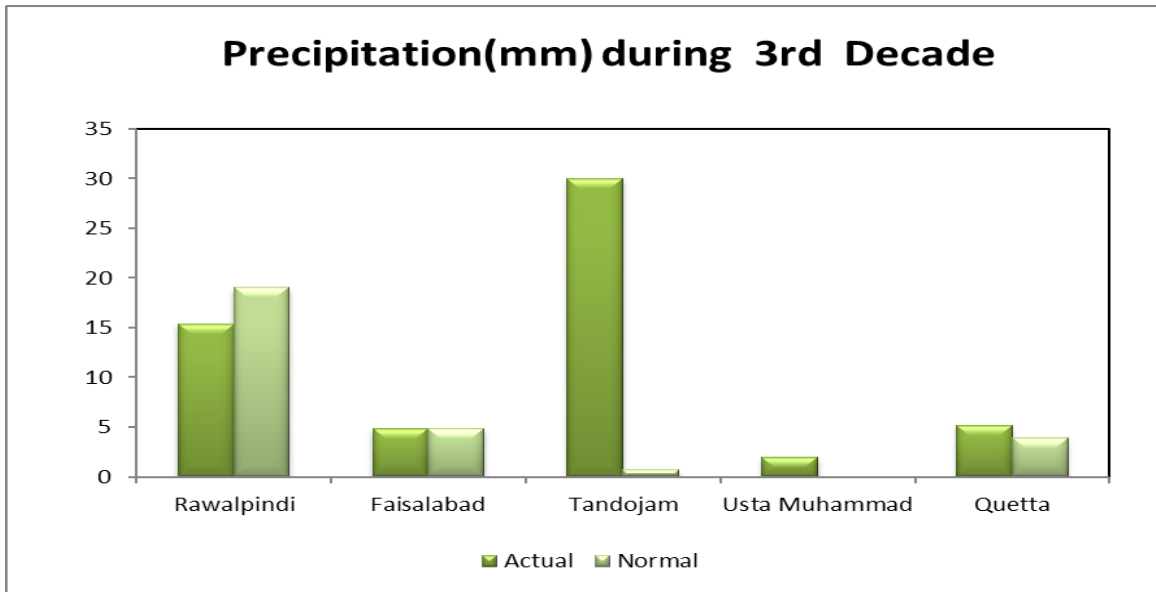
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Meteorological Conditions during 3rd Decade of April, 2023

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	Tmx Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	19.1	15.4	-3.7	-1.0	-2.7	23.8	25.9	24.6	23.6	23.4	23.1	22.5	46	95.6	2.3	4.5
2	Faisalabad	4.8	4.8	0.0	-2.8	-1.8	26.6	28.3	27.9	27.3	27.0	***	25.9	49	82.3	3.4	4.8
3	Jhelum	11.30	2.0	-9.3	-1.3	-0.8	26.4	28.4	27.9	26.5	25.5	25.6	***	46	86.1	3.0	4.8
4	Lahore	3.4	0.0	-3.4	-2.9	-2.3	27.2	28.8	28.1	27.3	26.6	***	25.4	37	44.2	***	5.6
5	Sargodha	7.1	2.2	-4.9	-2.7	-1.7	27.2	30.5	29.1	27.4	27.1	***	25.3	41	85.2	2.0	4.6
6	Multan	3.6	0.0	-3.6	-4.3	-1.1	28.0	***	***	***	***	***	***	37	63.6	1.4	4.0
7	Khanpur	0.7	9.6	8.9	-3.3	-1.5	28.3	***	31.2	31.2	31.4	31.1	29.5	39	77.1	***	6.5
8	Tandojam	0.7	30.0	29.3	-4.6	-1.5	28.3	32.3	31.0	27.7	30.0	28.8	28.8	53	71.4	5.4	5.4
9	Sakrand	0.0	4.0	4.0	-3.1	-1.1	29.1	40.9	***	***	***	***	***	40	79.9	3.1	5.2
11	Rohri	0.9	6.0	5.1	-3.9	-1.3	29.8	***	***	***	***	***	***	34	86.4	4.7	5.9
12	D.I Khan	3.9	0.0	-3.9	-1.3	-0.6	27.9	28.2	27.2	13.1	***	15.0	***	47	83.9	11.2	7.1
13	Peshawar	9.8	0.0	-9.8	-0.7	-1.0	25.2	25.3	25.7	24.0	23.7	23.1	22.6	44	71.3	3.8	4.7
14	Usta M.	0.0	2.0	2.0	0.0	0.0	28.2	34.8	32.4	30.7	***	***	29.6	59	***	3.5	5.6
15	Quetta	3.9	5.2	1.3	-3.6	-2.8	16.9	24.9	22.9	20.3	19.6	19.7	18.3	35	26.9	5.8	4.0
16	Skardu	11.3	0.0	-11.3	-1.2	-1.3	13.7	***	***	***	***	***	***	28	75.2	4.0	3.9
17	Gilgit	9.6	8.2	-1.4	-0.6	-1.0	17.7	***	***	***	***	***	***	37	83.7	3.0	4.1

Table-1: Meteorological parameters for selected stations of Pakistan. "Dep" in the table stands for the 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 (21st to 30th April, 2023)

Moderate to heavy precipitation was reported from Northeastern Punjab, Potohar region, upper parts of KP, Jammu & Azad Kashmir while light to moderate rainfall is reported from Baluchistan, Sindh, Lower parts of KP, South & central Punjab and Gilgit- Baltistan during the last decade.

1.1 Punjab

Moderate to heavy precipitation is reported from Northeastern Punjab, Potohar region while light to moderate rainfall is reported from South & central parts of Punjab during the decade. The decadal maximum & minimum temperatures dropped by 2.6 and 1.7 degree centigrade from normal respectively. Whereas, relative humidity, sunshine hour, wind speed & ETO were recorded as 42%, 76.3 hrs, 2.4 km/hr and 5.0 mm/day respectively.

1.2 Sindh

Light to moderate rainfall is reported from almost all over Sindh during the decade. Decadal maximum temperature and minimum temperatures dropped by 3.9 and 1.3 degree centigrade from normal respectively. Besides, relative humidity, sunshine hour, wind speed & ETO were recorded as 42%, 79.2 hrs, 4.4 km/hr and 5.5 mm/day respectively.

1.3 Khyber Pakhtunkhwa

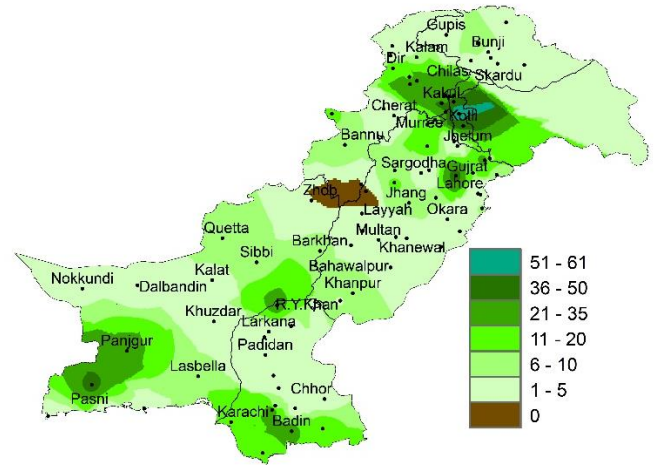
Moderate to heavy precipitation is reported from the upper parts of KP while light to moderate rainfall is reported from the lower parts of KP. Decadal maximum temperature and minimum temperatures remained nearly normal. Besides, relative humidity, sunshine hour, wind speed & ETO recorded as 46%, 77.6 hrs, 7.5 km/hr and 5.9 mm/day respectively.

1.4 Baluchistan

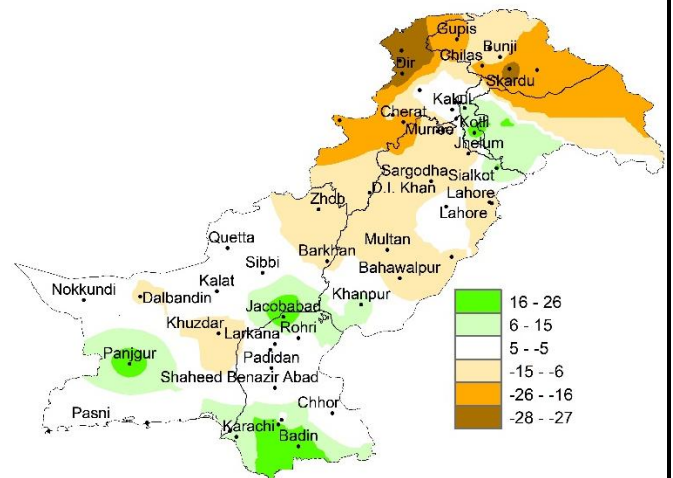
Light to moderate rainfall is reported from most of the province during the previous decade. Decadal maximum temperature and minimum temperatures dropped by 1.8 and 1.4 degree centigrade from normal respectively. Besides, relative humidity, sunshine hour, wind speed & ETO were recorded as 47 %, 26.9 hrs, 4.7 km/hr and 4.8 mm/day respectively

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

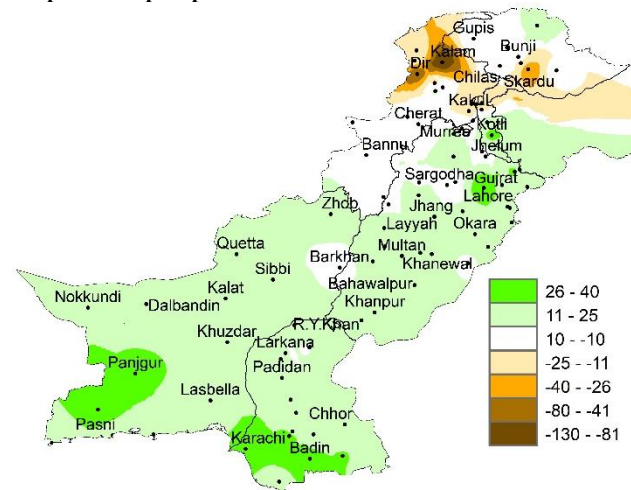
Light to moderate precipitation reported from Gilgit-Baltistan while moderate to heavy precipitation was observed in Azad Jammu & Kashmir during the decade. The decadal maximum temperature remained nearly normal while minimum temperature dropped below normal by 1.2 degree centigrade. Whereas, relative humidity, sunshine hour, wind speed & ETO recorded as 33%, 79.5 hrs, 3.5 km/hr and 4.0 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 the previous decade (mm)

(a) **Past Weather for Major Agricultural Plains**
(21st to 30th April, 2023)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 15.4 mm during the decade; however, weather remained partially cloudy for 09 days. Average relative humidity recorded as 46% mean day temperature was 32.6°C while night temperature recorded as 15.0°C with 95.6 hours bright sunshine duration. Besides, wind speed recorded as 2.3 km/hr with *south easterly* mean direction. *No crop is available in the fields at present.*

2.2 RAMC, Faisalabad (Central Punjab)

Rain reported as 4.8 mm during the decade; however, weather remained partially cloudy for 07 days. Average relative humidity recorded as 49% mean day temperature was 34.3°C while night temperature recorded as 18.9°C with 82.3 hours bright sunshine duration. Also, wind speed recorded as 3.4 km/hr with *south westerly* mean direction. *Wheat: Harvested.*

2.3 RAMC, Tandojam (Lower Sindh)

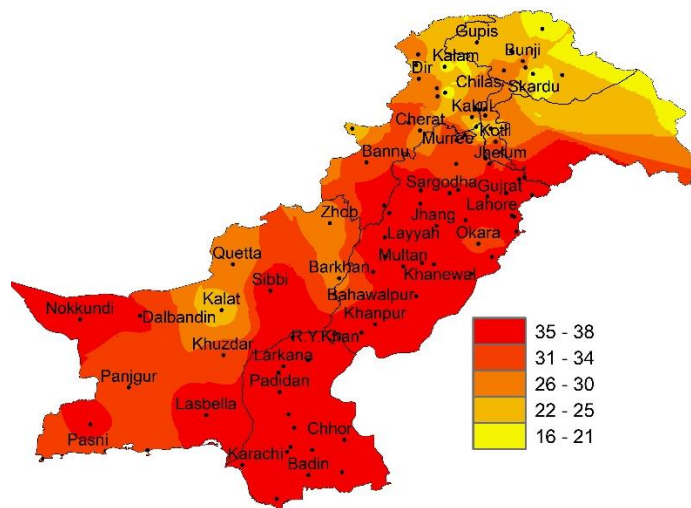
Rainfall reported as 30.0 mm during the decade; however, weather remained partially cloudy for 10 days. Average relative humidity recorded as 53%, mean day temperature was 36.0°C while night temperature recorded as 20.6°C with 71.4 hours bright sunshine duration. Also, wind speed recorded as 5.4 km/hr with *south easterly* mean direction. *Land prepared for next crop.*

2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

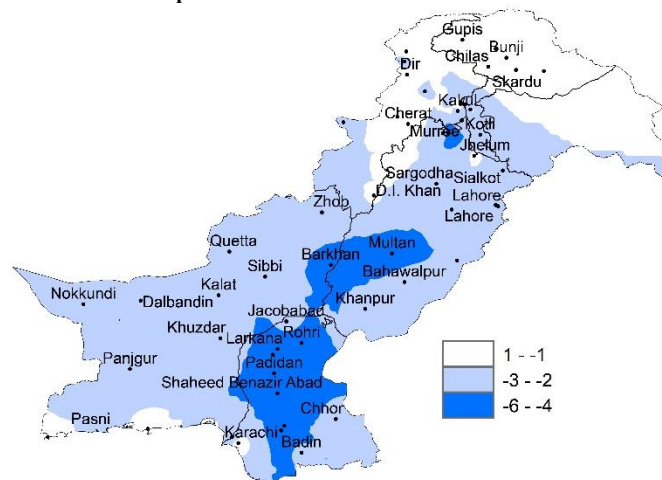
Rainfall reported as 2.0 mm during the decade; however, weather remained partially cloudy for 07 days. Average relative humidity recorded as 42%, mean day temperature was 36.7 °C while night temperature recorded as 19.6 °C. Also, wind speed recorded as 3.5 km/hr with *south easterly* mean direction. *Wheat: Good. Wax maturity stage.*

2.5 RAMC, Quetta (Northern Baluchistan)

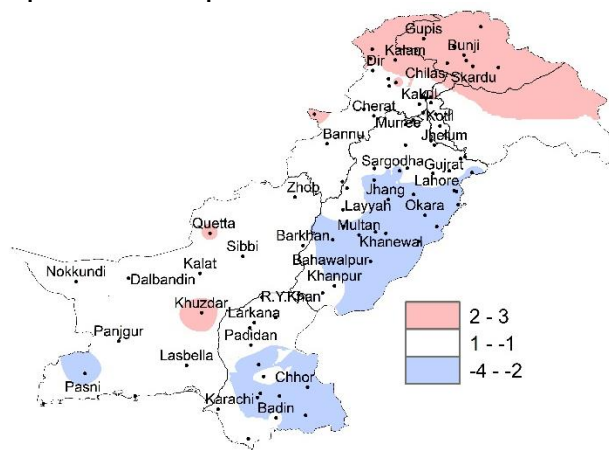
Rainfall reported as 5.2 mm during the decade; however, weather remained partially cloudy during the decade. Average relative humidity recorded as 35%, mean day temperature was 25.1°C while night temperature recorded as 8.6°C. Moreover, wind speed recorded as 5.8 km/hr with *southerly* mean direction. *Wheat: variety Zardana: Good. flowering 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 (21st to 30th April, 2023)

2.6 Jhelum

Rain reported as 2.0 mm during the decade; however, weather remained partially cloudy for 06 days. Average relative humidity recorded as 46%, mean day temperature was 34.5°C while night temperature recorded as 18.2°C with 86.1 hours bright sunshine duration. Wind speed recorded as 3.0 km/hr with *westerly mean* direction.

2.7 Lahore

Rain reported as 0.01 (trace) during the decade; however, weather remained partially cloudy for 08 days. Average relative humidity recorded as 37%, mean day temperature was 34.0°C while night temperature recorded as 20.4°C with 44.2 hours bright sunshine duration. Wind speed recorded with *westerly mean* direction.

2.8 Sargodha

Rain reported as 2.2 mm during the decade; however, weather remained partially cloudy for 08 days. Average relative humidity recorded as 41%, mean day temperature was 34.4°C while night temperature recorded as 20.0°C with 85.2 hours bright sunshine duration. Wind speed recorded as 2.0 km/hr with *northeasterly* wind direction.

2.9 Multan

Rain reported as 0.01 mm during the decade; however, weather remained partially cloudy. Average relative humidity recorded as 37%, mean day temperature was 34.5°C while night temperature recorded as 21.4°C with 80.3 hours bright sunshine duration. Wind speed recorded as 1.4 km/hr with *northeastern* mean direction.

2.10 Khanpur

Rain reported as 9.6 mm during the decade; however, weather remained partially cloudy for 06 days. Average relative humidity recorded as 39%, mean day temperature was 36.8°C while night temperature recorded as 19.8°C with 77.1 hours bright sunshine duration. Mean wind direction recorded as *in southwestern*.

2.11 Sakrand

Rain reported as 4.0 mm during the decade; however, weather remained partially cloudy for 06 days. Average relative humidity recorded as 40%, mean day temperature was 36.9 °C while night temperature recorded as 21.3°C with 79.9 hours bright sunshine duration. Wind speed recorded as 3.1 km/hr with *variable* mean direction.

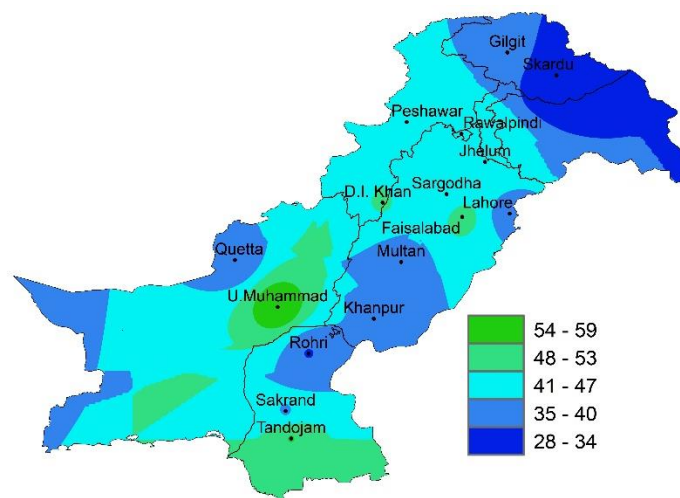


Figure.3: Relative Humidity (%)

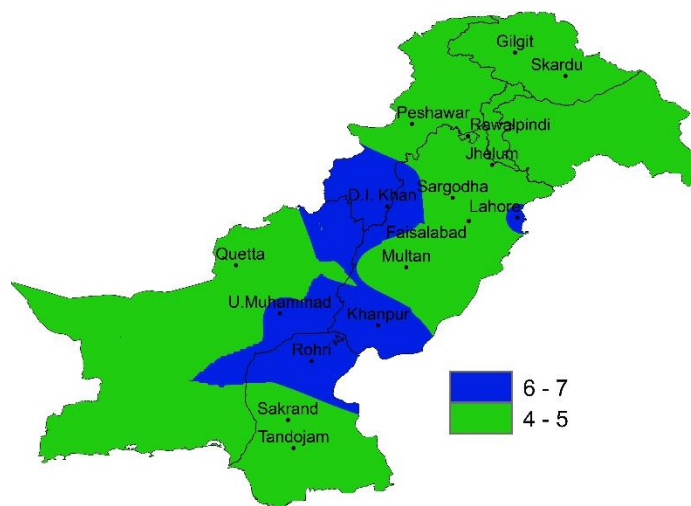


Figure.4: Reference Crop Evapotranspiration Eto (mm/day)

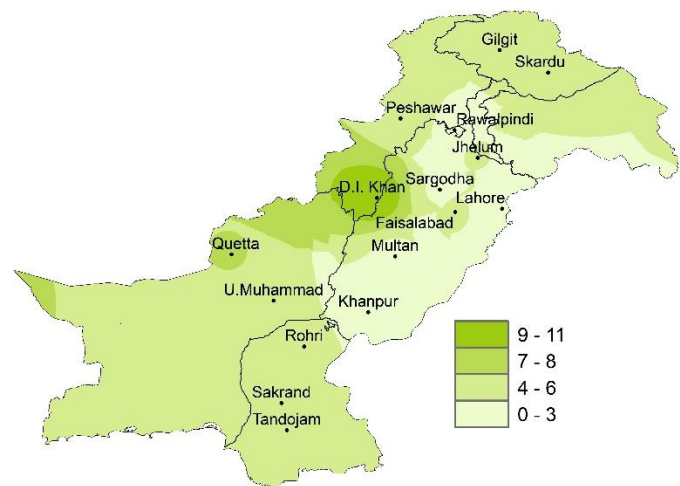


Figure 5: Wind Speed (km/h)

2.12 Rohri

Rain reported as 6.0 mm during the decade; however, weather remained partially cloudy for 07 days. Average relative humidity recorded as 34%, mean day temperature was 36.9°C while night temperature recorded as 22.6°C with 86.4 hours bright sunshine duration. Wind speed recorded as 4.7 km/hr with *variable* mean direction.

2.13 D.I. Khan

Dry weather prevailed during the decade; however, weather remained partially cloudy for 04 days. Average relative humidity recorded as 47%, mean day temperature was 35.5°C while night temperature recorded as 20.3°C with 83.9 hours bright sunshine duration. Wind speed recorded as 11.2 km/hr with *northeasterly* mean direction.

2.14 Peshawar

Rain reported as 0.01 mm (trace) during the decade; however, weather remained partially cloudy for 09 days. Average relative humidity recorded as 44%, mean day temperature was 33.0°C while night temperature recorded as 17.4°C with 71.3 hours bright sunshine duration. Wind speed recorded as 3.8 km/hr with *variable* mean wind direction.

2.15 Skardu

Rain reported as 0.01 mm (trace) during the decade; however, weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 28%. Mean day temperature was 20.8°C while night temperature recorded as 6.6°C with 75.2 hours bright sunshine duration. Wind speed recorded as 4.0 km/hr with *easterly* mean direction.

2.16 Gilgit

Precipitation reported as 8.2 mm during the decade; however, weather remained partially cloudy for 8 day. Average relative humidity recorded as 37%, mean day temperature was 26.5°C while night temperature recorded as 8.9°C with 83.7 hours bright sunshine duration. Wind speed recorded as 3.0 km/hr with *variable* mean wind direction.

Ten Days Weather Advisory for Farmers**(1st to 10th April, 2023)****3.1 Temperature Forecast**

Day and night time temperatures are expected to remain slightly above normal over northern and southern parts whereas below normal over central parts of the country.

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 in most of the Southern parts of the province during the decade. However, Rain-wind thunderstorms may occur in Potohar, northeastern and central areas of Punjab.
- ❖ **Khyber Pakhtunkhwa:** Rain-wind thunderstorms may occur in isolated parts of the province during the decade.
- ❖ **Sindh:** Mainly dry and hot weather is expected in most parts of the province during the decade.
- ❖ **Baluchistan:** Mainly dry weather is expected in most parts of the province during the decade. However, Rain-wind thunderstorms may occur in northeastern parts of Baluchistan.
- ❖ **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.
- ❖ Farmers may cover the harvested wheat in case of rain to avoid any loss.

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)