

# Decadal Agromet Bulletin of Pakistan



## Highlights...

- ❖ Light to moderate amount of rainfall reported from the agriculture plains of Punjab, Khyber Pakhtunkhwa, northeast Baluchistan, upper Sindh, Gilgit-Baltistan Azad Jammu & Kashmir.
- ❖ Highest amount of rainfall recorded as 171.0 mm at Malamjabba during the last decade.
- ❖ Lowest minimum temperature recorded as -3.0 °C at Kalam during the last decade.
- ❖ Rain wind-thunderstorm is expected in Punjab, Khyber Pakhtunkhwa, Gilgit-Baltistan & Kashmir during the current decade.
- ❖ Farmers of central parts and upper half may be ready to harvest the Wheat crop in the coming weeks.
- ❖ Proper arrangements should be taken to cultivate the spring season vegetables keeping in view the gradual rise in day time temperatures over the plain areas.

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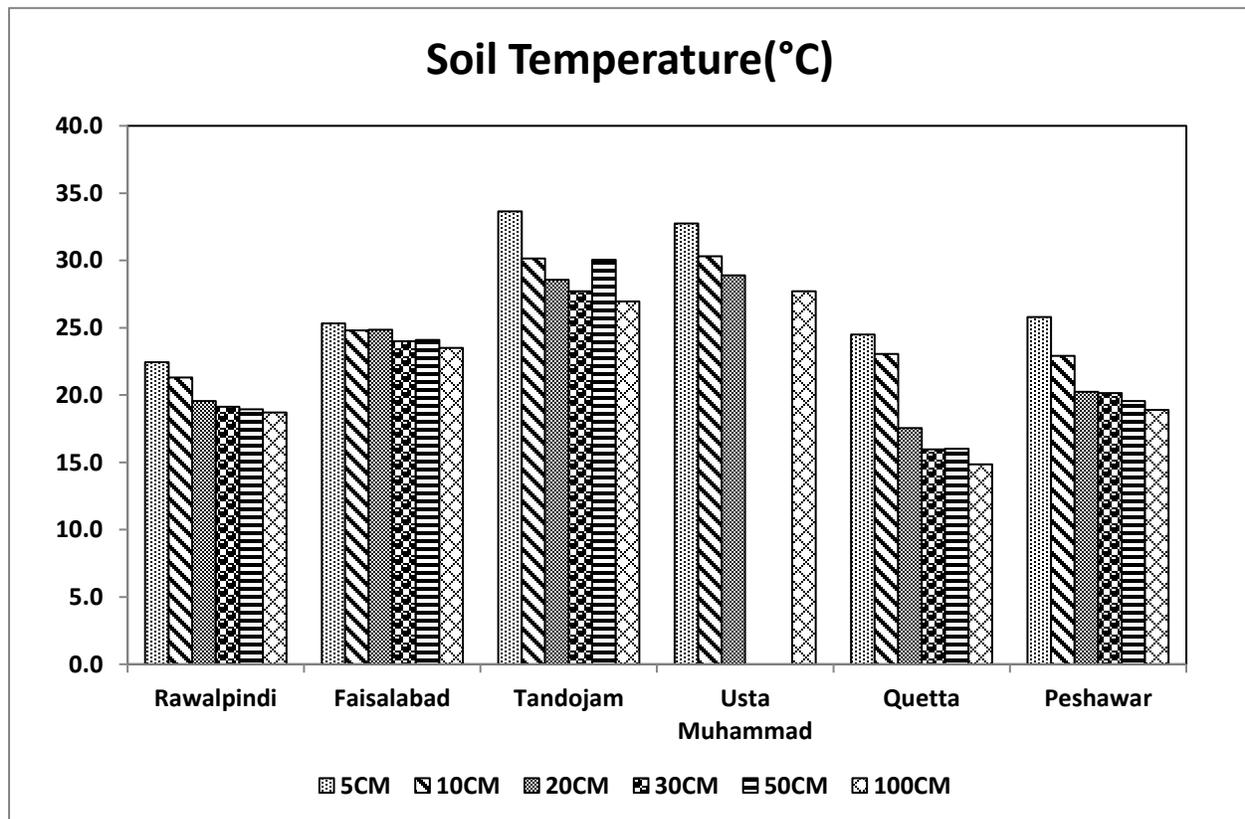
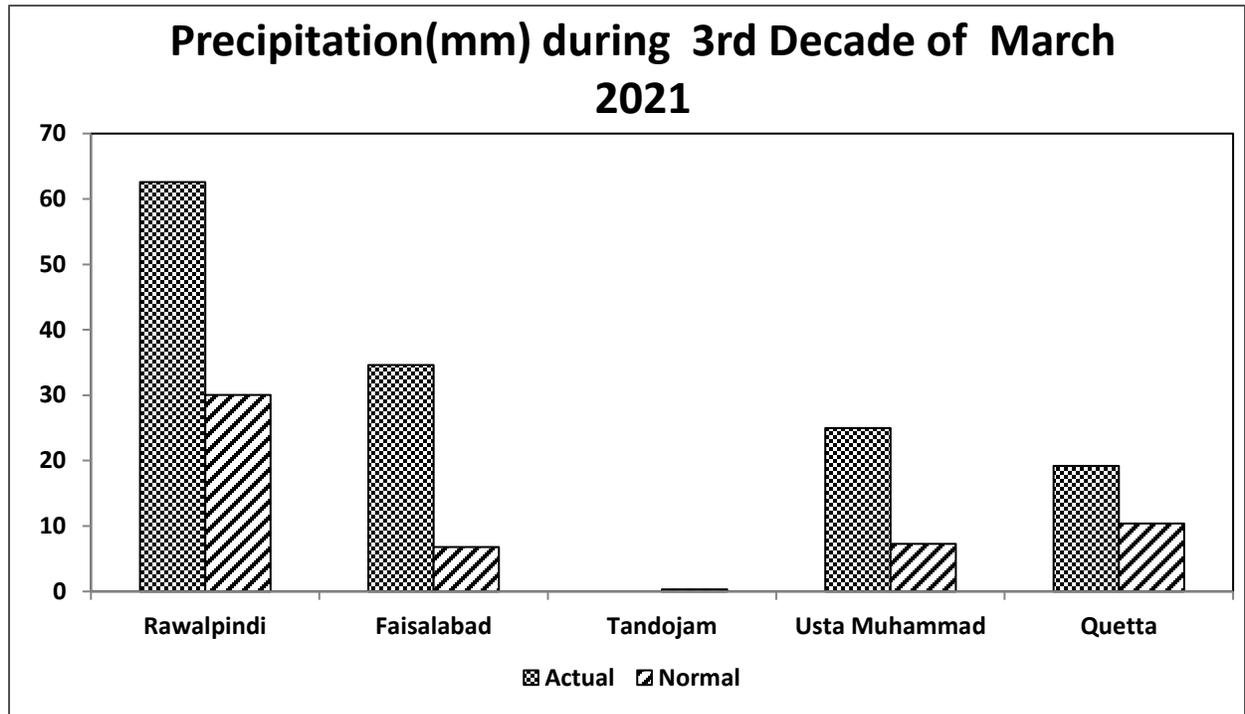
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**Meteorological Conditions during 3<sup>rd</sup> Decade of March, 2021**

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	<b>30.1</b>	62.6	32.5	-1.1	0.9	20.3	22.5	21.3	19.6	19.1	19.0	18.7	58	79.1	3.3	3.5
2	Faisalabad	<b>6.8</b>	34.6	27.8	-0.5	0.6	23.3	25.3	24.8	24.9	24.0	24.1	23.5	55	87.8	2.7	3.8
3	Jhelum	<b>18.0</b>	56.6	38.6	-0.9	0.8	22.7	25.2	23.8	22.1	21.1	21.3	***	59	80.4	5.9	4.2
4	Lahore	<b>18.6</b>	9.7	-8.9	-0.1	-0.3	24.2	25.6	25.1	23.7	23.0	***	22.3	49	83.2	4.0	4.2
5	Sargodha	***	***	_***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	Multan	<b>13.2</b>	21.8	8.6	-0.5	1.7	25.1	***	***	***	***	***	***	52	86.1	4.6	4.5
7	Khanpur	<b>5.2</b>	15.3	10.1	0.6	3.8	27.5	***	27.0	26.9	26.9	26.7	25.5	49	98.3	2.0	4.4
8	Tandojam	<b>0.3</b>	0.0	-0.3	1.2	-1.9	26.8	33.7	30.2	28.6	27.7	30.1	27.0	46	93.4	2.0	4.5
9	Sakrand	<b>1.1</b>	0.0	-1.1	4.5	3.1	28.6	47.1	***	***	***	***	27.0	42	106.7	3.7	5.3
11	Rohri	<b>6.3</b>	4.0	-2.3	1.4	0.2	28.4	***	***	***	***	***	***	39	104.5	8.0	6.7
12	D.I Khan	<b>9.2</b>	13.5	4.3	0.4	1.7	23.8	23.8	23.3	22.8	23.0	11.9	***	56	79.8	6.6	4.6
13	Peshawar	<b>26.3</b>	70.3	44.0	-0.7	1.0	21.2	25.8	22.9	20.3	20.2	19.6	18.9	60	60.1	6.0	3.7
14	Usta M.	<b>7.3</b>	25.0	17.7	1.1	1.2	27.0	32.8	30.3	28.9	***	***	27.7	45	***	0.8	3.9
15	Quetta	<b>10.4</b>	19.2	8.8	0.6	2.0	16.1	24.5	23.1	17.6	16.0	16.0	14.9	30	90.7	6.1	4.4
16	Skardu	<b>5.6</b>	34.9	29.3	-1.7	-0.3	9.3	***	***	***	***	***	***	56	46.7	1.1	2.1
17	Gilgit	<b>2.0</b>	8.3	6.3	-0.8	1.2	14.7	***	***	***	***	***	***	43	47.5	7.0	3.5

**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 no data.

## Graph at RAMCs during March, 2021



**Past Weather (11<sup>th</sup> to 20<sup>th</sup> March, 2021)**

Moderate to heavy amount of rainfall reported from the agriculture plains of Potohar region, upper Khyber Pakhtunkhwa, Gilgit-Baltistan Azad & Jammu Kashmir, and light rain from agriculture plains of Balochistan and Sindh province.

**1.1 Punjab**

Light to moderate amount of rainfall reported from most parts of the agricultural plains of the province. Highest rainfall reported from Murree followed by Islamabad Airport & T.T Singh. Decadal Maximum drop below normal by 0.4°C and minimum raised above normal by 1.3 °C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 85.8 hrs, 3.8 km/hr and 4.1 mm/day respectively.

**1.2 Sindh**

Light rainfall reported from the agricultural plains of the province. Decadal maximum and minimum remained above normal by 2.4 and 1.4 °C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 42%, 101.5 hrs, 4.6km/hr and 5.5 mm/day respectively.

**1.3 Khyber Pakhtunkhwa**

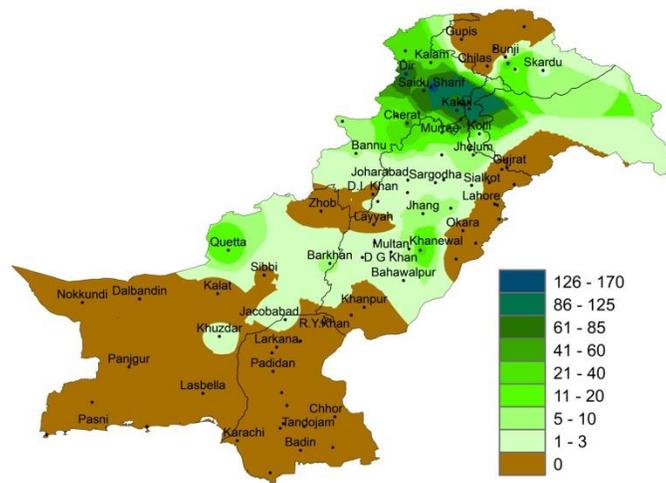
Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Malamjabba, followed by Dir & Kakul. Decadal Maximum drop below normal by 0.2°C and minimum raised above normal by 1.3 °C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 70hrs, 6.3 km/hr and 4.2 mm/day respectively.

**1.4 Baluchistan**

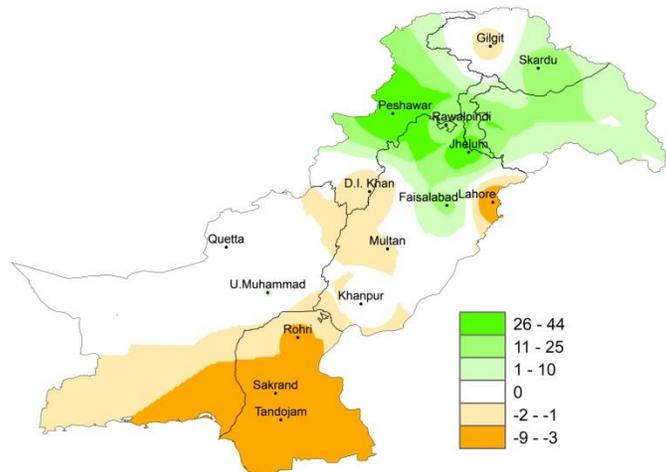
Light to moderate rainfall reported from the agricultural plains of the province. Highest rainfall reported from Quetta followed by Barkhan and Khuzdar. Decadal maximum and minimum remained above normal by 0.9 and 1.6 °C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 37%, 90.7 hrs, 3.5 km/hr and 4.2 mm/day respectively.

**1.5 Gilgit-Baltistan and Azad Jammu & Kashmir**

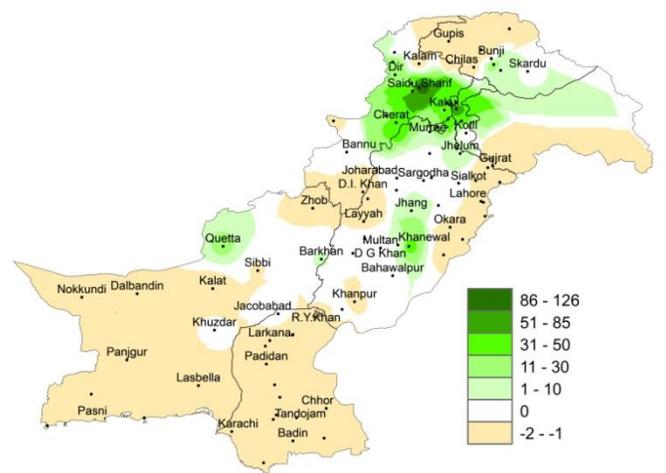
Light to moderate amount of rainfall reported from most parts of the agricultural plains of the province. Highest rainfall reported from Muzaffarabad followed by Garhi Dupatta and Rawalakot. Decadal maximum drop below normal by 1.2°C & minimum raise above normal by 0.5°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 47.1 hrs, 4.1 km/hr and 2.8 mm/day respectively.



I. Actual rainfall during the decade



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**  
**(11<sup>th</sup> to 20<sup>th</sup> March, 2021)**

**2.1 RAMC, Rawalpindi (Potohar region)**

Rainfall reported as 62.6 mm during the decade; however, weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 26.9°C while night temperature recorded as 13.6°C with 79.1 hours bright sunshine duration. Wind speed recorded as 3.3 km/hr with mean wind direction *North westerly*.

**2.2 RAMC, Faisalabad (Central Punjab)**

Rainfall reported as 34.6 mm during the decade; however, weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 30.3°C while night temperature recorded as 16.5 °C with 87.8 hours bright sunshine duration. Wind speed recorded as 2.7 km/hr with mean wind direction *North westerly*.

**Wheat:** *V.Good, Wax Maturity.*

**2.3 RAMC, Tandojam (Lower Sindh)**

Dry weather reported during the decade; however, weather remained cloudy for 03 day during the decade. Average relative humidity recorded as 46%. Mean day temperature was 37.8°C while night temperature recorded as 15.8°C with 93.4 hours bright sunshine duration with mean wind direction *South westerly*.

**Wheat TD-1:** *Harvested.*

**2.4 RAMC, Usta Muhammad (Eastern Baluchistan)**

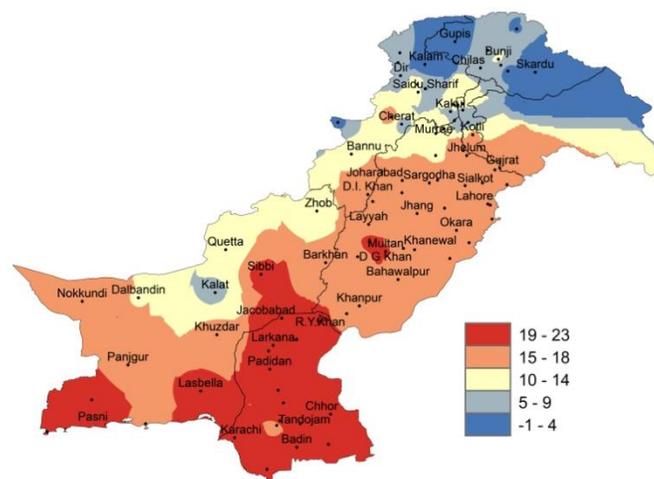
Rainfall reported as 25.0 mm during the decade; however, weather remained cloudy for 04 day during the decade. Average relative humidity recorded as 45%. Mean day temperature was 35.7°C while night temperature recorded as 18.2°C with wind speed recorded as 0.8 km/hr with variable mean wind direction *North easterly*.

**Wheat:** *Good, Wax Maturity*

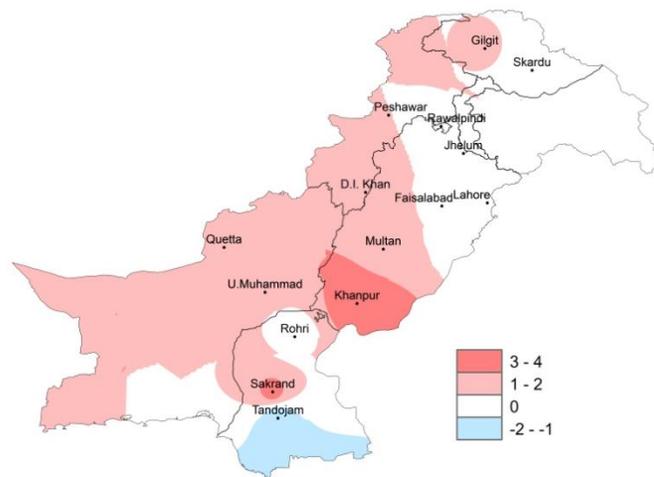
**2.5 RAMC, Quetta (Northern Baluchistan)**

Rainfall reported as 19.2 mm during the decade; however, weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 30%. Mean day temperature was 22.9°C while night temperature recorded as 9.2°C with 90.7 hours bright sunshine duration. Wind speed recorded as 6.1 km/hr with mean wind direction *North westerly*.

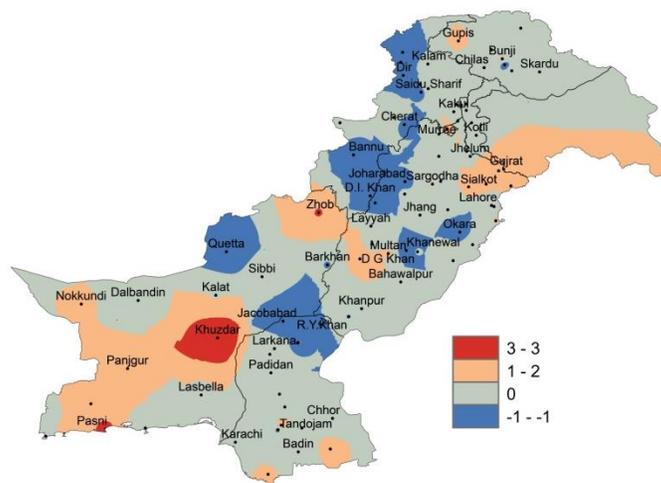
**Wheat Sirab-92:** *Good, Tillering stage.*



I. Actual min-temp



II. Departure of min-temp from Normal



III. Departure of min-temp from Previous Decade

**Figure.2: Minimum Temperature distribution during previous decade (°C)**

**2(b) Past Weather for Sub-Regional Agricultural Plains (11<sup>th</sup> to 20<sup>th</sup> March, 2021)**

**2.6 Jhelum**

Rainfall reported as 56.6 mm during the decade; however, weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 29.0°C while night temperature recorded as 16.3°C with 80.4 hours bright sunshine duration. Wind speed recorded as 5.9 km/hr with mean wind direction *South westerly*.

**2.7 Lahore**

Rainfall reported as 9.7 mm during the decade; however, weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 29.9°C while night temperature recorded as 18.4°C with 83.2 hours bright sunshine duration. Wind speed recorded as 4.0 km/hr with mean wind direction *westerly*.

**2.8 Sargodha**

Data not available.

**2.9 Multan**

Rainfall reported as 21.8 mm during the decade; however, weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 31.5°C while night temperature recorded as 18.6 °C with 86.1 hours bright sunshine duration. Wind speed recorded as 4.6 km/hr with mean wind direction *North easterly*.

**2.10 Khanpur**

Rainfall reported as 15.3 mm during the decade; however, weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 34.4°C while night temperature recorded as 20.6°C with 98.3 hours bright sunshine duration. Wind direction remained *South westerly*.

**2.11 Sakrand**

Dry weather reported during the decade however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 42%. Mean day temperature was 37.1°C while night temperature recorded as 20.1°C with 106.7 hours bright sunshine duration. Wind speed recorded as 3.7 km/hr with mean wind direction *South easterly*.

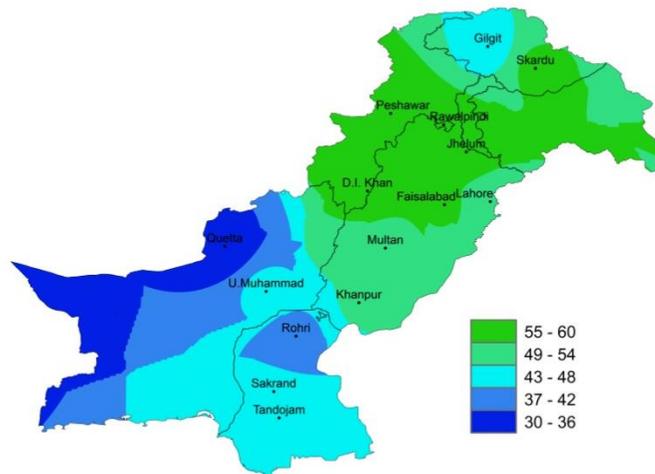


Figure.3: Relative Humidity in Percentage (%)

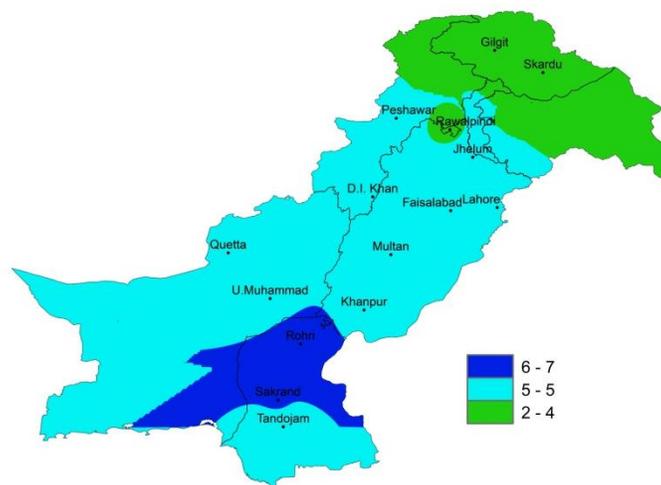


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

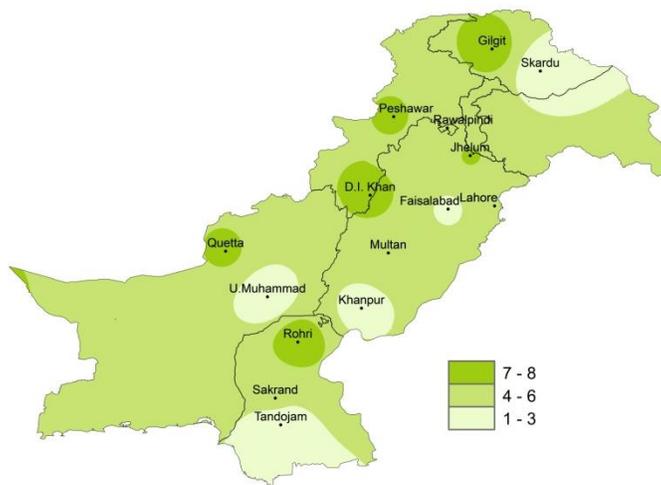


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Rainfall reported as 4.0 mm during the decade; however, weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 39%. Mean day temperature was 36.5°C while night temperature recorded as 20.2°C with 104.5 hours bright sunshine duration. Wind speed recorded as 8.0 km/hr with mean wind direction *Variable*.

**2.13 D.I. Khan**

Rainfall reported as 13.5 mm during the decade; however, weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 30.4 °C while night temperature recorded as 17.2 °C with 79.8 hours bright sunshine duration. Wind speed recorded as 6.6 km /hr with mean wind direction *North easterly*.

**2.14 Peshawar**

Rainfall reported as 70.3 mm during the decade; however, weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 26.8°C while night temperature recorded as 15.6°C with 60.1 hours bright sunshine duration. Wind speed recorded as 6.0 km/hr with mean wind direction *North Westerly*.

**2.15 Skardu**

Rainfall reported as 34.9 mm during the decade; however, weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 15.2°C while night temperature recorded as 3.4°C with 46.7 hours bright sunshine duration. Wind speed recorded as 1.1 km/hr with mean wind direction *south easterly*.

**2.16 Gilgit**

Rainfall reported as 8.3 mm during the decade; however, weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 43%. Mean day temperature was 21.3°C while night temperature recorded as 8.1°C with 47.5 hours bright sunshine duration. Wind speed recorded as 7.0 km/hr with mean wind direction *westerly*.

### **Ten Days Weather Advisory for Farmers (1<sup>st</sup> to 10<sup>th</sup> April, 2021)**

**3.1 Temperature Forecast**

Day time temperatures are likely to remain below normal all over the country except Sindh, whereas night time temperatures are likely to be normal to below normal in most parts 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:** Rain wind-thunderstorm is expected in Potohar region during the first half of the decade, while in upper/central Punjab during the second half of the decade.
- ❖ **Khyber Pakhtunkhwa:** Rain wind-thunderstorm is expected during the current decade.
- ❖ **Sindh:** Hot & dry weather is expected in most parts of the province during the current decade.
- ❖ **Baluchistan:** Dry weather is expected in most parts of the province during the current decade.
- ❖ **Gilgit-Baltistan:** Rain wind-thunderstorm is expected during the current decade.
- ❖ **Kashmir:** Rain wind-thunderstorm is expected during the current decade.

**3.4 Advisory for Farmers**

- ❖ Farmers of central parts and upper half may be ready to harvest the Wheat crop in the coming weeks.
- ❖ Farmers may schedule their irrigation activities according to the weather conditions.
- ❖ Proper arrangements should be taken to cultivate the spring season vegetables keeping in view the gradual rise in day time temperatures over the plain areas.

## 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)