

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Moderate to high amount of rainfall reported from upper half of country.
- ❖ Highest amount of rainfall recorded as 117.6 mm at Chaklala during the last decade.
- ❖ Lowest Minimum temperature recorded as 0°C at Kalat during the last decade.
- ❖ Rain-wind/thundershower is expected in the upper parts of the country during the 1st half of the decade. Mostly dry period is expected during the decade.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crops. As a result considerable loss in yield occurs every year.
- ❖ Accumulation of stagnant water in the fields due to heavy rains is fatal for standing crops like cotton. Farmers may take suitable measures to resolve the issue.

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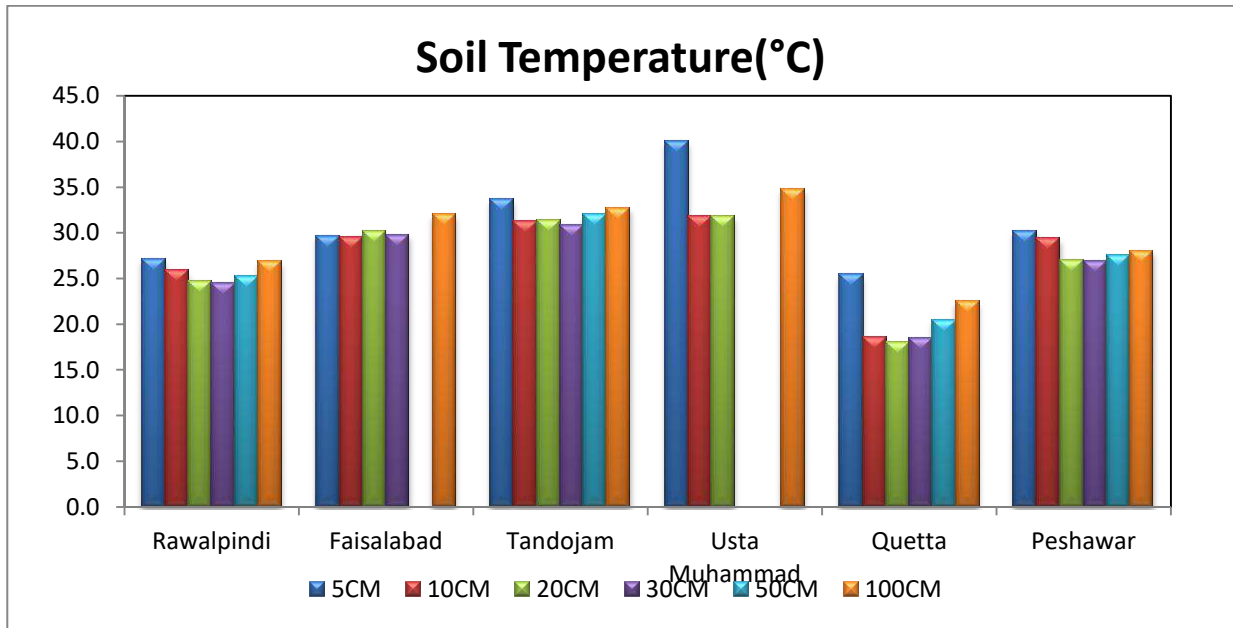
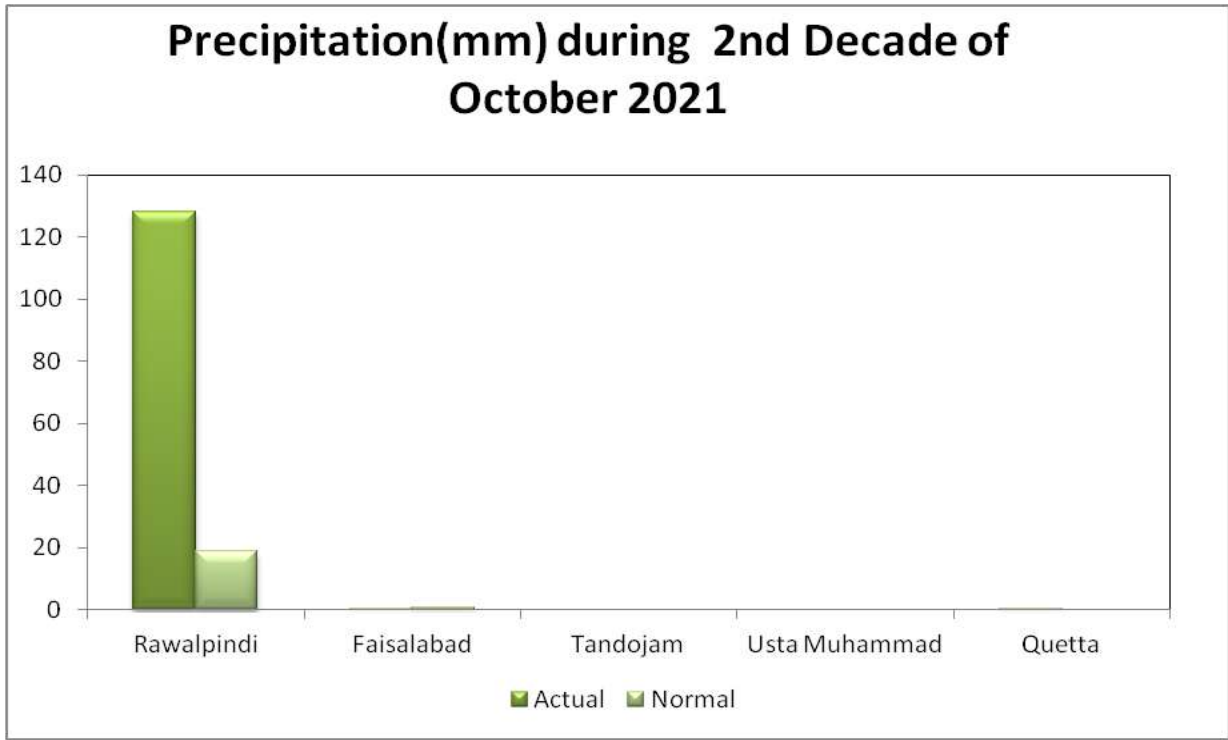
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Meteorological Conditions during 2nd Decade of October, 2021

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	Tmx Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	19.1	128.1	109.0	1.4	-0.6	23.7	27.2	25.9	24.8	24.5	25.2	26.8	59	82.8	1.6	2.7
2	Faisalabad	0.8	0.3	-0.5	1.4	0.9	26.4	29.6	29.4	30.2	29.8	**	32.0	49	85.8	1.4	3.0
3	Jhelum	10.5	4.0	-6.5	0.9	1.8	26.3	28.4	27.9	26.8	26.5	27.5	***	60	89.6	0.9	2.8
4	Lahore	5.6	0.0	-5.6	4.7	0.8	29.3	27.9	28.1	27.5	27.5	***	28.7	51	87.5	1.1	3.2
5	Sargodha	4.1	0.0	-4.1	1.3	0.5	27.1	32.8	31.5	29.8	29.7	***	30.3	52	82.9	1.5	3.0
6	Multan	0.4	0.0	-0.4	0.6	0.4	27.3	***	***	***	***	***	***	41	77.5	3.0	3.6
7	Khanpur	0.0	0.0	0.0	0.5	-1.8	26.6	***	33.1	32.5	31.5	30.9	30.5	49	90.3	1.9	3.4
8	Tandojam	0.0	0.0	0.0	0.6	-0.9	27.5	43.8	***	***	***	***	***	48	101.9	1.7	3.8
9	Sakrand	0.0	0.0	0.0	0.0	-0.8	27.8	33.7	31.3	31.4	30.9	32.0	32.7	49	83.1	2.0	3.7
11	Rohri	0.0	0.0	0.0	0.0	-1.4	28.4	***	***	***	***	***	***	42	0.0	2.8	2.8
12	D.I Khan	1.7	0.0	-1.7	2.1	1.0	27.5	28.1	28.2	***	29.1	19.3	***	43	81.3	3.0	3.5
13	Peshawar	5.1	1.0	-4.1	3.7	-1.4	25.1	30.2	29.3	27.1	27.0	27.5	28.0	51	81.1	2.5	3.1
14	Usta M.	0.0	0.0	0.0	-34.7	13.2	17.5	40.0	31.8	31.7	***	***	34.8	40	0.0	0.3	3.3
15	Quetta	0.0	0.0	0.0	-3.6	-3.6	14.2	25.4	18.5	18.0	18.5	20.5	22.5	24	102.9	3.8	3.4
16	Skardu	2.3	1.8	-0.5	-2.2	1.2	11.4	***	***	***	***	***	***	48	49.3	1.1	1.7
17	Gilgit	0.9	13.0	12.1	0.4	1.6	15.7	***	***	***	***	***	***	57	53.1	1.3	1.9

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. 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 October, 2021



Past Weather (10th to 20th October, 2021)

Moderate to high amount of rainfall reported from upper half of country while dry weather reported from most of the agriculture plains in the lower parts of the country.

1.1 Punjab

Moderate to high amount of rainfall reported from most parts of the agricultural plains of the province. Highest rainfall reported from Chaklala and Islamabad followed by Murree. Decadal Maximum remained above normal by 1.5°C and minimum remained normal in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 52%, 85 hrs, 1.6 km/hr and 3.1 mm/day respectively.

1.2 Sindh

Dry weather reported from the agricultural plains of the province. Decadal Maximum and minimum both remained normal in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & Eto were recorded as 46%, 62 hrs, 2.2 km/hr and 3.4 mm/day respectively.

1.3 Khyber Pakhtunkhwa

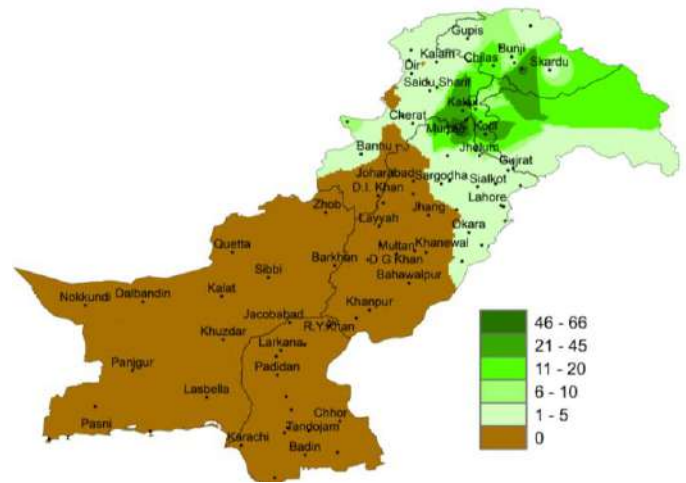
Light to moderate amount of rainfall reported from most parts of the agricultural plains of the province. Highest rainfall reported from Balakot followed by Babusar & Kakul. Decadal Maximum rose above normal by 2.9°C and minimum remained normal in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 81.2hrs, 2.8 km/hr and 3.3 mm/day respectively.

1.4 Baluchistan

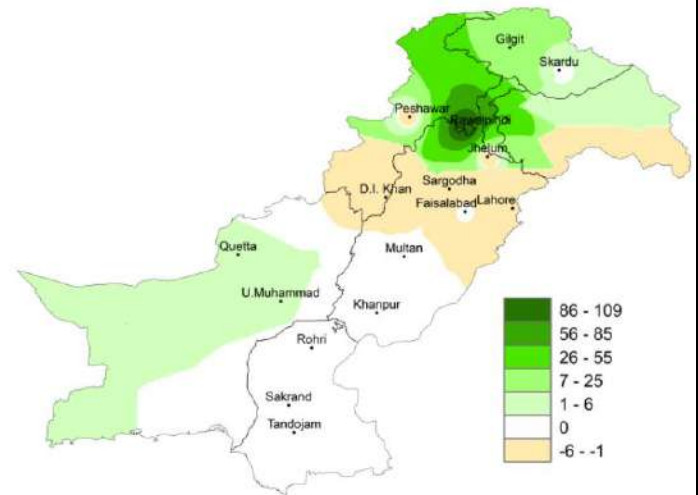
Dry weather reported from the agricultural plains of the province. Decadal Maximum and minimum both rose above normal by 1.2°C and 4.8°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 32%, 51.5hrs, 2.1km/hr and 3.4 mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

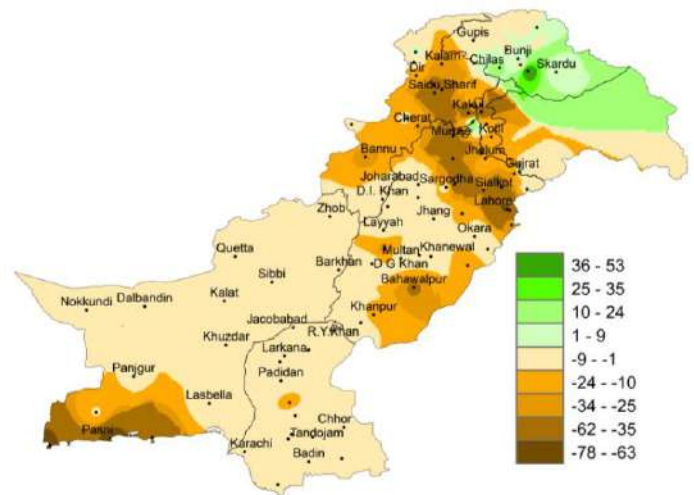
Light to moderate amount of rainfall reported from most parts of the agricultural plains of the province. Highest rainfall reported from Astore followed by Kotli & Muzaffarabad. Decadal maximum & minimum rose above normal by 1.0°C and 1.4°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 53%, 51.2hrs, 1.2 km/hr and 1.8 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)

2(a) Past Weather for Major Agricultural Plains (10th to 20th October, 2021)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 128.1 mm during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 32.0°C while night temperature recorded as 15.3°C with 82.8 hours bright sunshine duration. Wind speed recorded as 1.6 km/hr with mean wind direction as *south westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 0.3 mm during the decade; however weather remained cloudy for 2 days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 34.5°C while night temperature recorded as 18.3°C with 85.8 hours bright sunshine duration. Wind speed recorded as 1.4 km/hr with mean wind direction as *southerly*.
Cotton: Very good, picking (first).

2.3 RAMC, Tandojam (Lower Sindh)

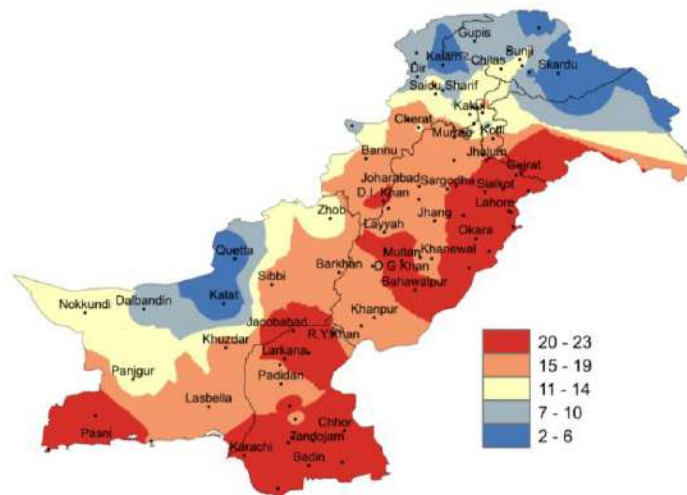
Dry weather reported during the decade; however weather remained clear during the decade. Average relative humidity recorded as 49%. Mean day temperature was 36.4°C while night temperature recorded as 19.1°C with 83.1 hours bright sunshine duration. Wind speed recorded as 2.0 km/hr with mean wind direction as *northerly*.
Cotton (Sindh-1): Harvested on 20-10-2021.

2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

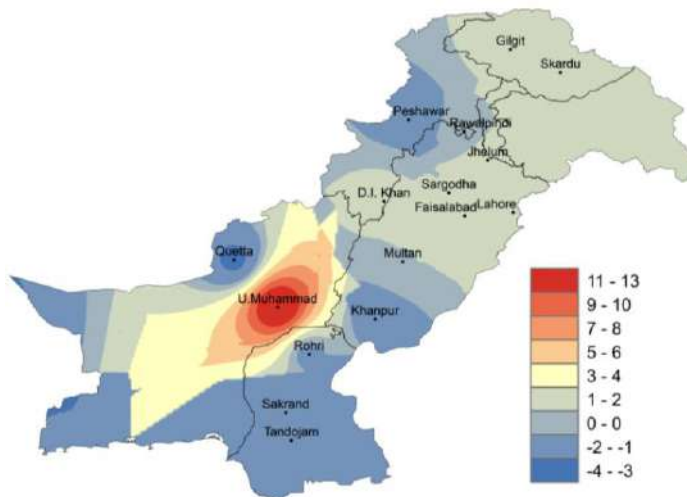
Dry weather reported during the decade; however weather remained clear during the decade. Average relative humidity recorded as 53%. Mean day temperature was 35.0°C while night temperature recorded as 19.4°C with wind speed recorded as 0.3 km/hr with mean wind direction as *north easterly*.
Rice: Good, milk maturity stage. Field irrigated.

2.5 RAMC, Quetta (Northern Baluchistan)

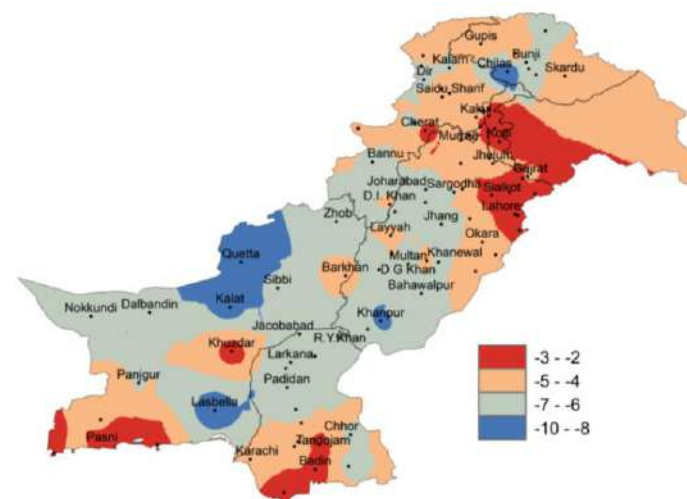
Dry weather reported during the decade; however weather remained clear during the decade. Average relative humidity recorded as 23%. Mean day temperature was 23.7°C while night temperature recorded as 4.7°C with 102 hours bright sunshine duration. Wind speed recorded as 3.8 km/hr with mean wind direction as *north westerly*.



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 (10th to 20th October, 2021)

2.6 Jhelum

Rainfall reported as 4.0 mm during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 33.5°C while night temperature recorded as 19.1°C with 89.6 hours bright sunshine duration. Wind speed recorded as 0.9 km/hr with mean wind direction as *north westerly*.

2.7 Lahore

Rainfall reported as 0.01 mm during the decade; however weather remained cloudy for 2 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 36.7°C while night temperature recorded as 21.9°C with 87.5 hours bright sunshine duration. Wind speed recorded as 1.1 km/hr with mean wind direction as *South easterly*.

2.8 Sargodha

Dry weather observed during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 34.5°C while night temperature recorded as 19.6°C with 82.9 hours bright sunshine duration. Wind speed recorded as 1.5 km/hr with mean wind direction as variable.

2.9 Multan

Dry weather observed during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 41%. Mean day temperature was 34.9°C while night temperature recorded as 19.6°C with 77.5 hours bright sunshine duration. Wind speed recorded as 3.0 km/hr with mean wind direction as *Southerly*.

2.10 Khanpur

Dry weather observed during the decade; however weather remained clear during the decade. Average relative humidity recorded as 49%. Mean day temperature was 35.7°C while night temperature recorded as 17.5°C with 90.3 hours bright sunshine duration. Wind speed recorded as 1.9 km/hr with wind direction as *southerly*.

2.11 Sakrand

Dry weather observed during the decade however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 36.6°C while night temperature recorded as 18.4°C with 101.9 hours bright sunshine duration. Wind speed recorded as 1.7 km/hr with mean wind direction as *north easterly*.

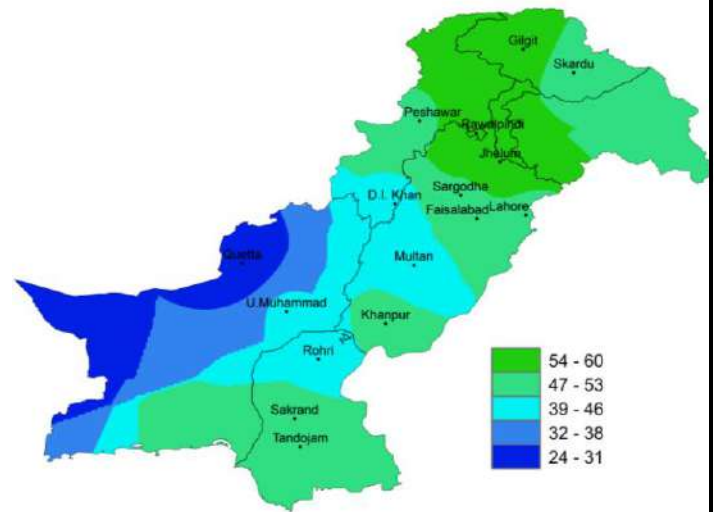


Figure.3: Relative Humidity in Percentage (%)

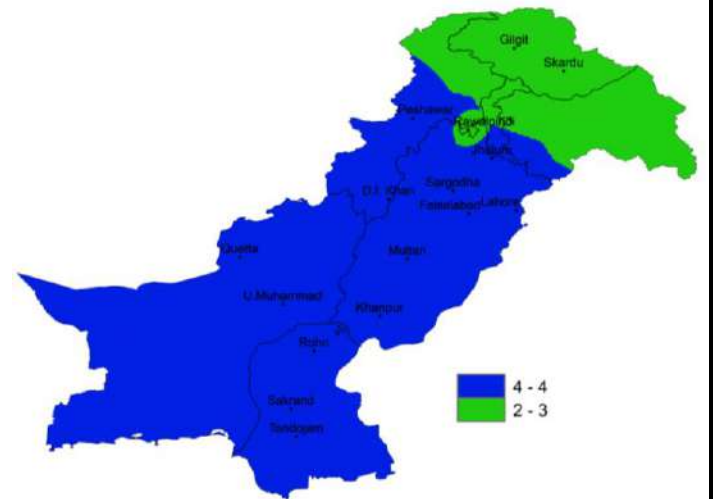


Figure.4: Reference Crop Evapotranspiration ET0 (mm/day)

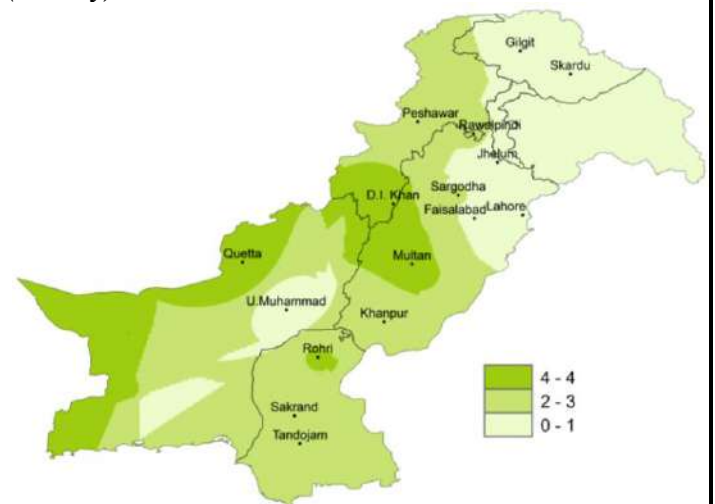


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather observed during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 42%. Mean day temperature was 36.1°C while night temperature recorded as 20.7°C. Wind speed recorded as 2.8 km/hr with mean wind direction as *north easterly*.

2.13 D.I. Khan

Dry weather observed during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 43%. Mean day temperature was 35.9°C while night temperature recorded as 19.1°C with 81.3 hours bright sunshine duration. Wind speed recorded as 3.0 km /hr with mean wind direction as *northerly*.

2.14 Peshawar

Rainfall reported as 1.0 mm during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 34.4°C while night temperature recorded as 15.8°C with 81.1 hours bright sunshine duration. Wind speed recorded as 2.5 km/hr with mean wind direction as *north westerly*.

2.15 Skardu

Rainfall reported as 1.8 mm during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 18.3°C while night temperature recorded as 4.5°C with 49.3 hours bright sunshine duration. Wind speed recorded as 1.1 km/hr with mean wind direction as *north easterly*.

2.16 Gilgit

Rainfall reported as 13.00mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 23.9°C while night temperature recorded as 7.4°C with 53 hours bright sunshine duration. Wind speed recorded as 1.3 km/hr with mean wind direction as *south easterly*.

**Ten Days Weather Advisory for Farmers
(21st to 31st October, 2021)****3.1 Temperature Forecast**

Day time temperatures are expected normal, however night temperature are expected to be normal or slightly below normal in most of the agricultural plains of the country during the decade.

3.2 Wind Forecast

Normal wind pattern may prevail in most of the agricultural plains of the country. However, strong winds are expected along with thunder/dust storm at particular places over the upper half of the country.

3.3 Rain Forecast

- ❖ **Punjab:** Overall dry weather is expected. Rain-wind/thunderstorm is expected in the upper half of province including Islamabad during the 1st half of the decade.
- ❖ **Khyber Pakhtunkhwa:** Overall dry weather is expected during the decade.
- ❖ **Sindh:** Overall dry weather is expected during the decade.
- ❖ **Baluchistan:** Overall dry weather is expected during the decade.
- ❖ **Gilgit-Baltistan:** Mainly dry weather is expected over most parts. However, rain-wind/thunderstorm is expected during the 1st half of the decade.
- ❖ **Kashmir:** Mainly dry weather is expected over most parts. However, rain-wind/thunderstorm is expected during the 1st half of the decade.

3.4 Advisory for Farmers

- ❖ Farmers are advised to schedule the picking of cotton on time.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crops. As a result considerable loss in yield occurs every year.
- ❖ Accumulation of stagnant water in the fields due to heavy rains is fatal for standing crops like cotton. Farmers may take suitable measures to resolve the issue.

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)