

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate rainfall reported from Punjab, upper Khyber Pakhtunkhwa, Baluchisatn, Gilgit-Baltistan and Kashmir during the decade.
- ❖ Light amount of rainfall reported from Sindh and lower Khyber Pakhtunkhwa.
- ❖ Highest amount of rainfall recorded as 63.2 mm at Garhi Dupatta during the last decade.
- ❖ Lowest minimum temperature recorded as -12.0°C at Kalam during the last decade.
- ❖ Rain is expected in upper half of the country while mostly dry and cold weather may prevail over rest of county.
- ❖ Farmers are advised to schedule the cultivation of wheat in time.

**NATIONAL AGROMET CENTRE (NAMC)
PAKISTAN METEOROLOGICAL DEPARTMENT
SECTOR H-8/2, ISLAMABAD**

Patron-in-Chief: *Mr. Muhammad Riaz, Director General*

Editor-in-Chief: *Dr. Muhammad Afzaal, Director*

Editor: *Ms. Saeeda Saleh, Assistant Meteorologist*

Phone: [+92-51-9250592](tel:+92-51-9250592)

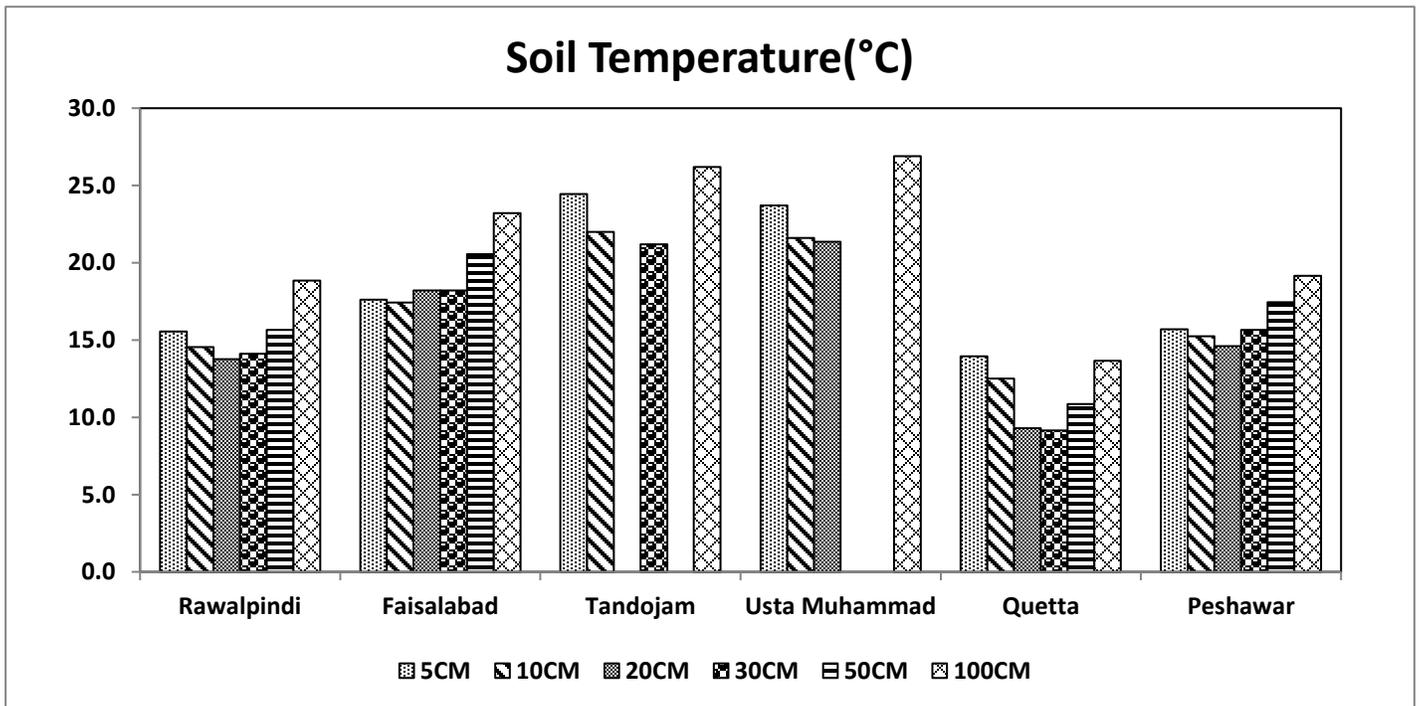
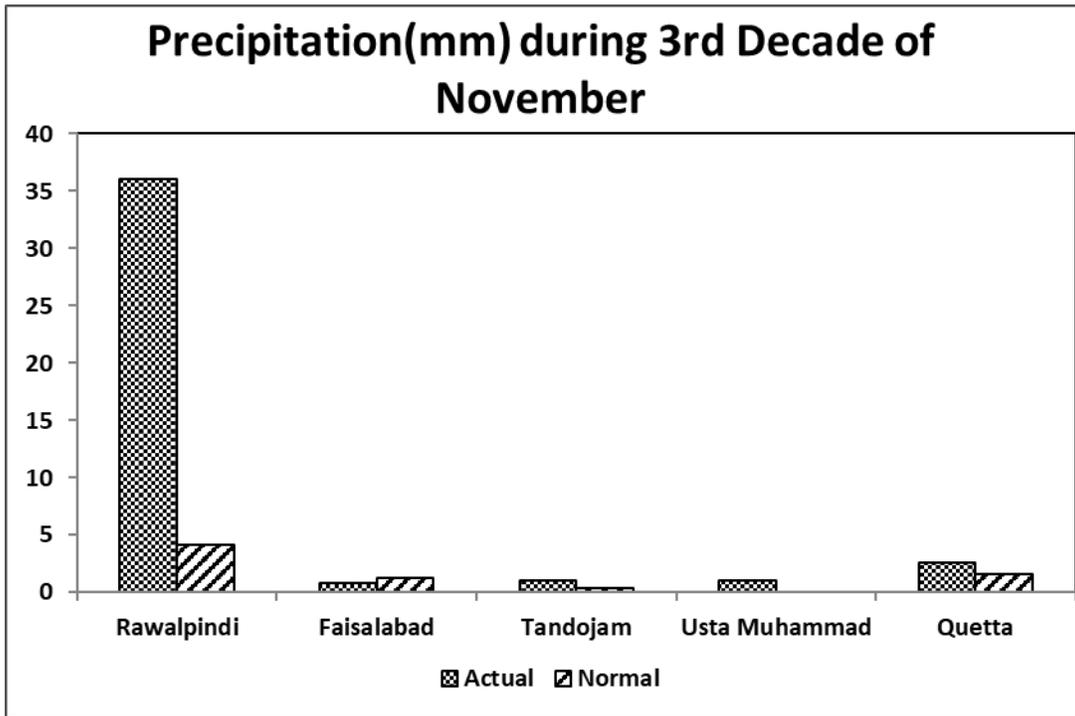
Email: dirnamc@yahoo.com

Meteorological Conditions during 3rd Decade of November, 2020

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	4.2	36.0	31.8	-4.0	0.5	12.9	15.6	14.6	13.8	14.1	15.7	18.9	72	45.2	1.5	2.4
2	Faisalabad	1.2	0.8	-0.4	-2.1	0.1	16.1	17.6	17.4	18.2	18.2	20.6	23.2	58	54.4	1.3	4.0
3	Jhelum	2.1	1.6	-0.5	-3.2	0.7	16.0	17.9	17.0	16.8	17.4	18.8	***	60	58.0	3.3	3.8
4	Lahore	1.8	0.0	-1.8	-2.6	-1.4	16.8	16.3	16.4	16.4	16.7	***	19.4	61	44.2	1.9	3.3
5	Sargodha	0.0	0.2	0.2	-2.1	0.2	16.7	20.3	19.1	18.8	19.4	***	22.8	62	44.4	1.3	3.3
6	Multan	0.2	0.6	0.4	-3.8	0.5	16.4	***	***	***	***	***	***	59	50.6	3.9	3.7
7	Khanpur	0.4	0.0	-0.4	-2.0	-0.5	17.2	***	19.1	19.8	20.4	21.6	24.3	53	78.0	***	5.5
8	Tandojam	0.4	1.0	0.6	-4.1	-3.1	17.3	24.5	22.0	***	21.2	***	26.2	54	67.8	***	5.2
9	Sakrand ☆	0.0	1.0	1.0	-2.1	0.3	18.2	27.6	***	***	***	***	28.3	52	80.8	3.4	6.1
11	Rohri ☆	0.0	0.3	0.3	-2.8	7.4	23.1	***	***	***	***	***	***	55	83.4	3.2	5.7
12	D.I Khan	0.3	0.0	-0.3	-2.5	0.5	16.1	***	16.7	***	***	9.3	***	62	47.0	1.9	3.4
13	Peshawar	4.9	11.3	6.4	-4.0	-1.4	13.2	15.7	15.3	14.6	15.7	17.5	19.2	67	40.3	1.3	2.5
14	Usta M.	0.0	1.0	1.0	-3.3	-5.6	16.9	23.7	21.6	21.4	***	***	26.9	58	***	0.5	1.4
15	Quetta	1.6	2.6	1.0	-1.9	2.7	9.3	14.0	12.5	9.3	9.2	10.9	13.7	42	74.7	4.7	4.2
16	Skardu	0.5	1.0	0.5	-4.6	-0.5	1.1	***	***	***	***	***	***	58	23.4	0.5	1.3
17	Gilgit	0.1	0.0	-0.1	-4.4	0.2	5.7	***	***	***	***	***	***	54	25.9	2.2	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. And "% Dep" is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin&Tmax stands for minimum and maximum temperatures respectively. ETo stands for reference crop evapotranspiration. *** stands for no data and (☆) indicates the station with five year's climatic (normal) data for computing departures.

Graph at RAMCs during November, 2020



Past Weather (21st to 30th November, 2020)

Light amount of rainfall reported from Sindh and lower Khyber Pakhtunkhwa, while light to moderate rainfall reported from Punjab, upper Khyber Pakhtunkhwa, Baluchisatn, Gilgit-Baltistan and Kashmir.

1.1 Punjab

Light to moderate amount of rainfall reported from the agricultural plains of the province. Highest rainfall reported from Islamabad & Murree followed by Rawalpindi. Decadal maximum dropped below normal by 2.8°C & minimum remained normal in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 53.5 hrs, 2.2 km/hr and 3.7 mm/day respectively.

1.2 Sindh

Light rainfall reported from agricultural plains of the province. Highest rainfall reported from Dadu followed by Shaheed Benazirabad & Moenjodaro. Decadal maximum & dropped below normal by 3.0 while minimum remained above normal by 0.7°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 77.3 hrs, 3.3 km/hr and 5.7 mm/day respectively.

1.3 Khyber Pakhtunkhwa

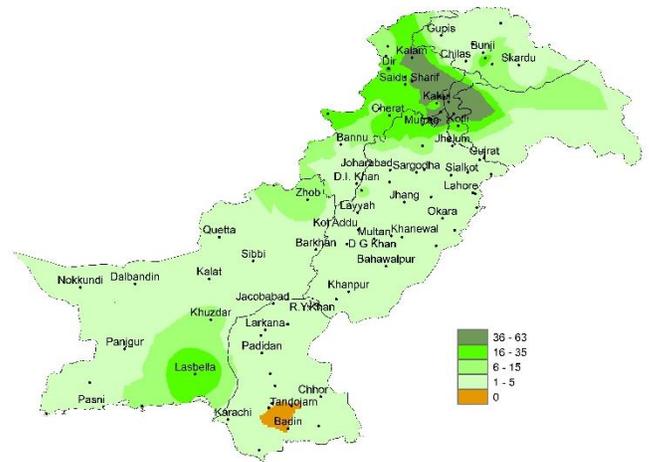
Light to moderate amount of rainfall reported from upper agriculture plains of the province. Highest rainfall reported from Balakot followed by Pattan & Malamjabbba. Decadal maximum & minimum dropped below normal by 3.3 & 0.5°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 43.7 hrs, 1.6 km/hr and 3.0 mm/day respectively.

1.4 Baluchistan

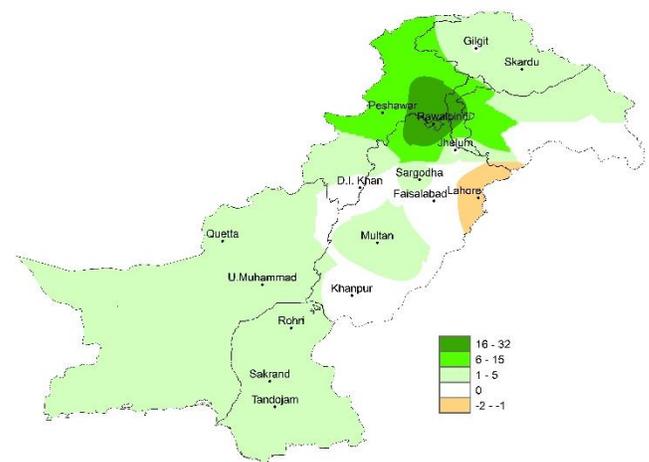
Light to moderate rainfall reported from the agricultural plains of the province. Highest rainfall reported from Lasbella followed by Ormara & Zhob. Decadal maximum & minimum dropped below normal by 2.6°C & 1.5°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 74.7 hrs, 2.6 km/hr and 2.8 mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

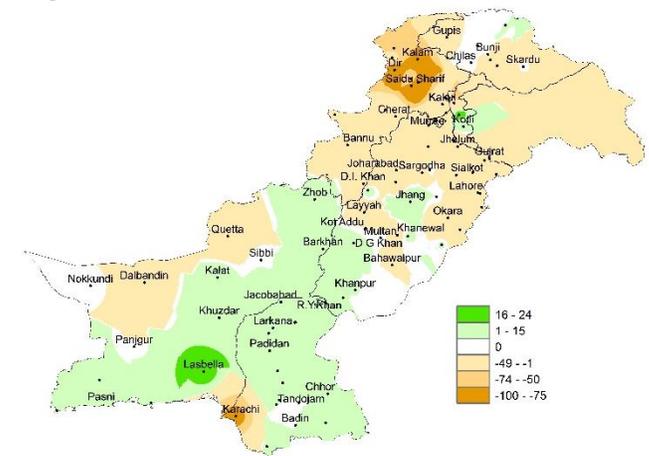
Light to moderate amount of rainfall reported from the agricultural plains of the province. Highest rainfall reported from Garhi Dupatta followed by Muzaffarabad & Rawalakot. Decadal maximum & minimum dropped below normal by 4.5°C & 0.2°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 24.7 hrs, 1.4 km/hr and 1.6 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 30th November, 2020)**

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 36.0 mm during the decade; however, weather remained cloudy for 07 day during the decade. Average relative humidity recorded as 72%. Mean day temperature was 19.6°C while night temperature recorded as 6.2°C with 45.2 hours bright sunshine duration. Wind speed recorded as 1.5 km/hr with variable wind direction

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 0.8 mm during the decade; however, weather remained cloudy for 07 day during the decade. Average relative humidity recorded as 58%. Mean day temperature was 23.6°C while night temperature recorded as 8.5°C with 54.5 hours bright sunshine duration. Wind speed recorded as 1.3 km/hr with mean wind direction north westerly. Wheat: V. Good, Germination Stage, Crop irrigated.

2.3 RAMC, Tandojam (Lower Sindh)

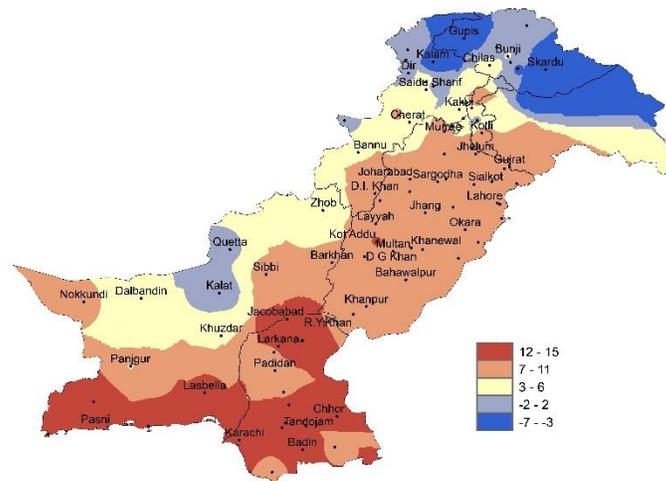
Rainfall reported as 1.0 mm during the decade; however, weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 25.4°C while night temperature recorded as 9.1°C with 67.8 hours bright sunshine duration. Wheat (wheat-TD1): Good, True Leaf, Crop irrigated.

2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

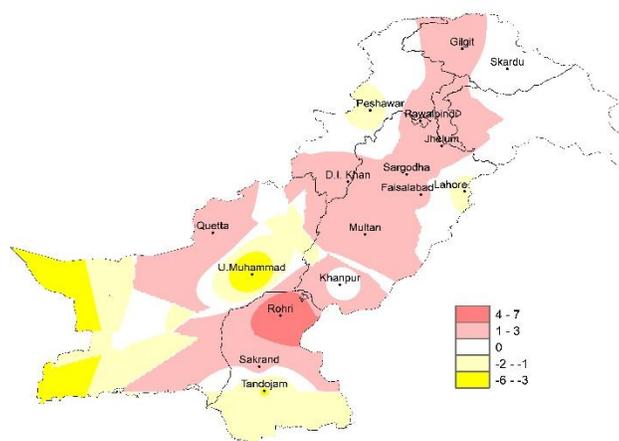
Rainfall reported as 1.0 mm during the decade; however, weather remained cloudy for 0.5 days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 23.7°C while night temperature recorded as 10.1°C & Wind speed recorded as 0.5 km/h with mean wind direction *north easterly*. **Rice: Good, Harvesting Completed.**

2.5 RAMC, Quetta (Northern Baluchistan)

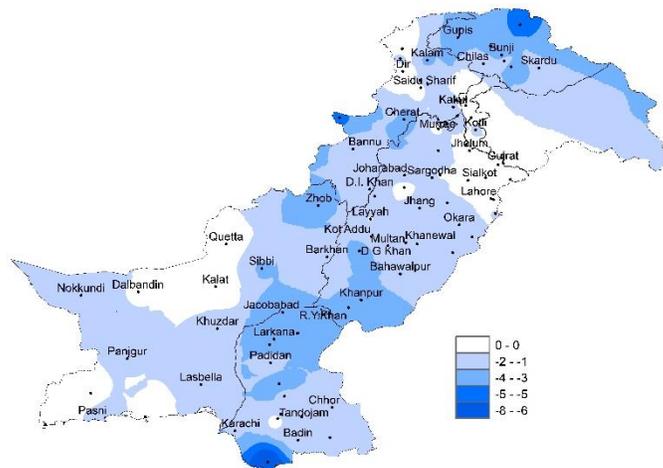
Rainfall reported as 2.6 mm during the decade; however, weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 42%. Mean day temperature was 15.7°C while night temperature recorded as 2.8°C. Wind speed recorded as 4.7 km/hr with mean wind direction *north easterly*.



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 (21st to 30th November, 2020)

2.6 Jhelum

Rainfall reported as 1.6 mm during the decade; however, weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 22.5°C while night temperature recorded as 9.4°C with 58.0 hours bright sunshine duration. Wind speed recorded as 3.3 km/hr with mean wind direction north westerly.

2.7 Lahore

Rainfall reported as 0.01 mm during the decade; however, weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 22.6°C while night temperature recorded as 10.9°C with 44.2 hours bright sunshine duration. Wind speed recorded as 1.9 km/hr with mean wind direction north westerly.

2.8 Multan

Rainfall reported as 0.6 mm during the decade; however, weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 22.8°C while night temperature recorded as 10.0 °C with 50.6 hours bright sunshine duration. Wind speed recorded 3.9 km/hr with mean wind direction *north easterly*.

2.8 Khanpur

Rainfall reported as 0.01 mm during the decade; however, weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 53%. Mean day temperature was 25.1°C while night temperature recorded as 9.2°C with 78.0 hours bright sunshine duration. Mean wind direction remained *North easterly*.

2.9 Sakrand

Rainfall reported as 1.0 mm during the decade; however, weather remained cloudy for 02 days during the decade. Average humidity recorded as 52%. Mean day temperature was 25.4°C while night temperature recorded as 11.0°C with 80.8 hours bright sunshine duration. Wind speed recorded 3.4 km/hr with mean wind direction *north westerly*.

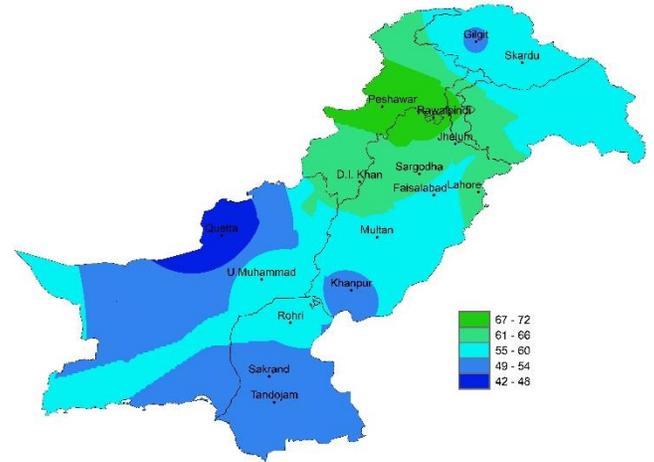


Figure.3: Relative Humidity in Percentage (%)

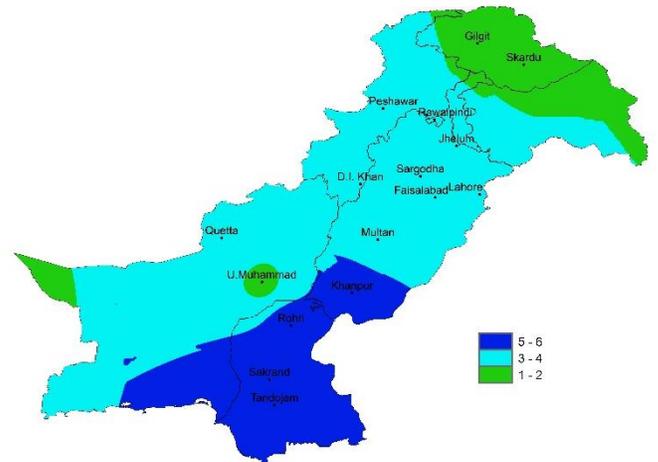


Figure.4: Reference Crop Evapotranspiration ET0 (mm/day)

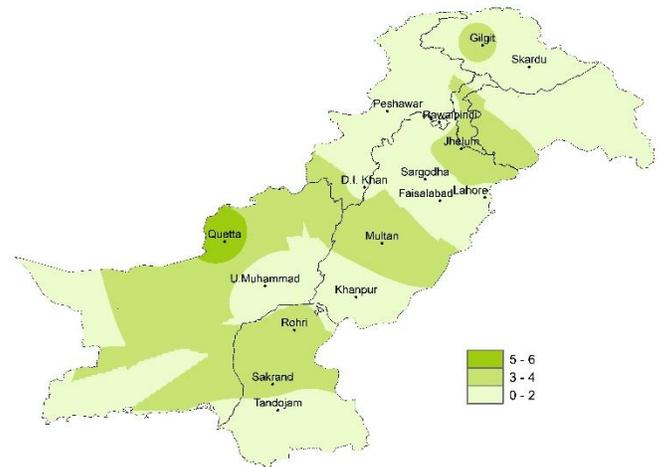


Figure 5: Wind Speed in kilometer per hour (km/h)

2.10 Rohri

Rainfall reported as 0.3 mm during the decade; however, weather remained cloudy for 0.3 day during the decade. Average relative humidity recorded as 55%. Mean day temperature was 25.0°C while night temperature recorded as 12.1°C with 83.4 hours bright sunshine duration. Wind speed recorded as 32 km/hr with mean wind direction *North easterly*.

2.11 D.I. Khan

Rainfall reported as 0.01 mm during the decade; however, weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 23.3°C while night temperature recorded as 8.8°C with 47.0 hours bright sunshine duration. Wind speed recorded as 1.9 km/hr with mean wind direction *Easterly*.

2.12 Peshawar

Rainfall reported as 11.3 mm during the decade; however, weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 19.7°C while night temperature recorded as 6.6°C with 40.3 hours bright sunshine duration. Wind speed recorded as 1.3 km/hr with mean wind direction *South Westerly*.

2.13 Gilgit

Rainfall reported as 0.01 mm during the decade; however, weather remained cloudy for 9 days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 12.6 °C while night temperature recorded as -1.2 °C with 25.9 hours bright sunshine duration. Wind speed recorded as 2.2 km/hr with mean wind direction *South Westerly*.

2.14 Skardu

Rainfall reported as 1.0 mm during the decade; however, weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 7.1°C while night temperature recorded as -5.0°C with 23.4 hours bright sunshine duration. Wind speed recorded as 0.5 km/hr with mean wind direction *north north easterly*.

Ten Days Weather Advisory for Farmers
(2nd to 10th December, 2020)

3.1 Temperature Forecast

Night time temperatures are likely to be slightly below normal while day time temperatures are likely to remain

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:** Mostly cold and dry weather is expected during the decade, while rain is expected in Potohar region during the second half of the decade.
- ❖ **Khyber Pakhtunkhwa:** Rain is expected in the upper half of the province while mostly cold and dry weather is expected during the decade.
- ❖ **Sindh:** Mostly cold and dry weather is expected during the decade.
- ❖ **Baluchistan:** Mostly cold and dry weather is expected during the decade.
- ❖ **Gilgit-Baltistan:** Rain and snow on high mountains is expected in during the decade.
- ❖ **Kashmir:** Rain and snow on high mountains is expected during second half of the decade.

3.4 Advisory for Farmers

- ❖ Farmers are advised to schedule the cultivation of wheat in time.

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)