

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to Moderate rainfall reported from most of the agricultural plains of Punjab, Khyber Pakhtunkhwa, Baluchistan, G.B & Kashmir while dry from Sindh during the last decade.
- ❖ Lowest minimum temperature recorded as -10.6°C at Skardu during the last decade.
- ❖ Light to moderate rainfall with snow over the mountains is expected at scattered places in Punjab, Khyber Pakhtunkhwa, FATA, Gilgit-Baltistan & Kashmir and some area of western & northern Baluchistan during the first half of the decade; dry weather is expected in Sindh during the current decade.
- ❖ Farmers are advised to schedule the irrigation plans for the Rabi crop in context of ongoing rains.
- ❖ Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme cold conditions.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.

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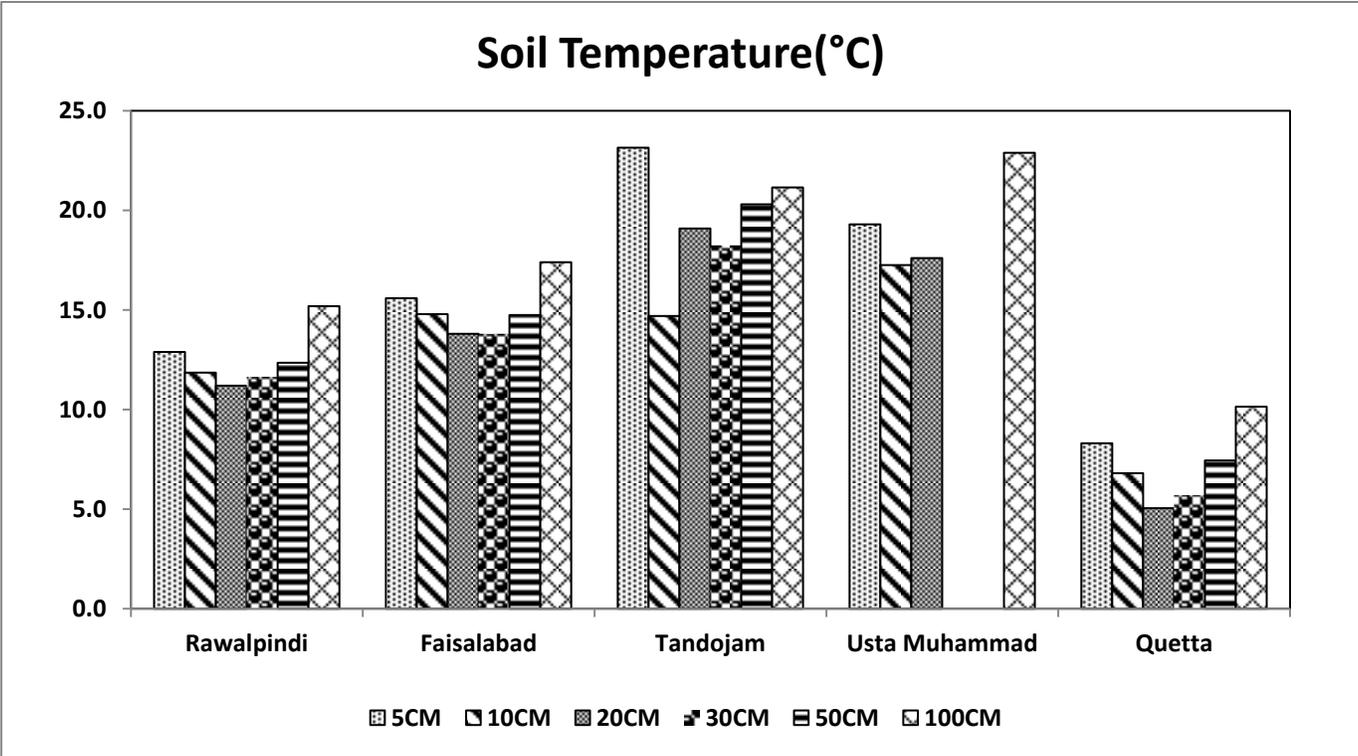
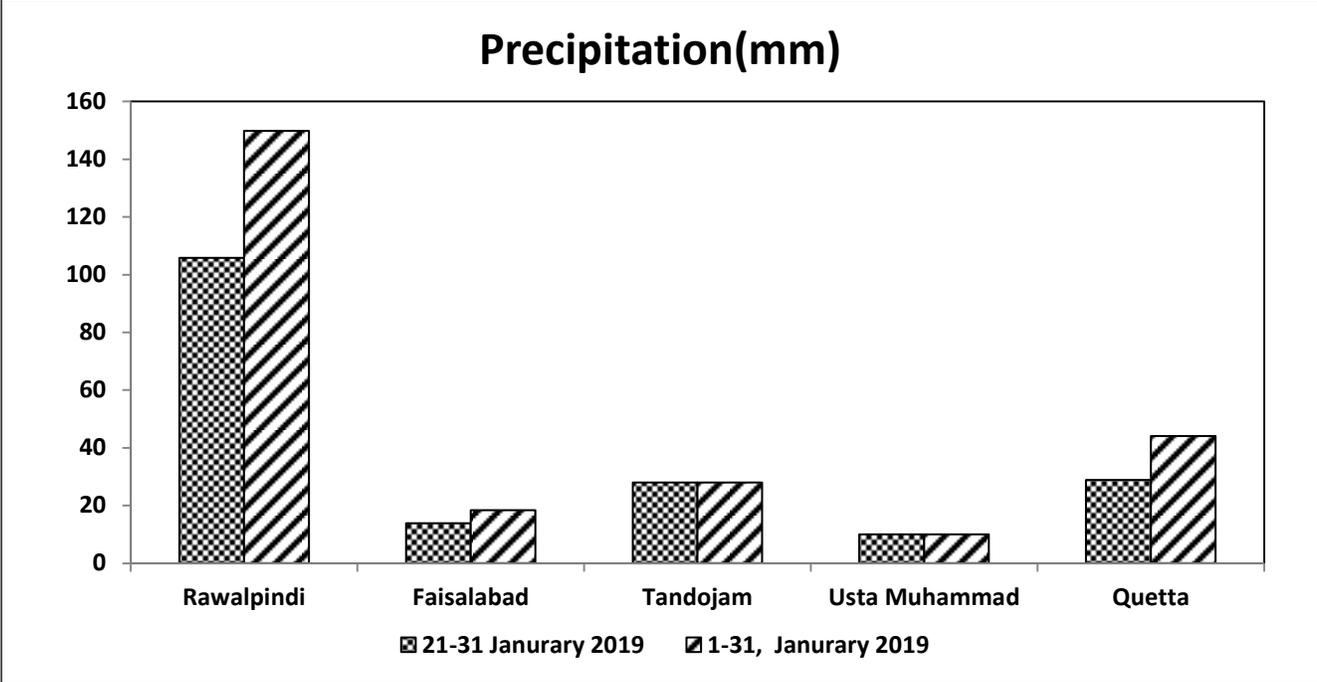
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Meteorological Conditions during 1st Decade of February, 2019

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	3.2	30.8	27.6	-0.5	-1.5	10.8	13.2	12.2	11.2	11.4	11.9	13.7	67	70.3	2.0	1.2
2	Faisalabad	0.7	7.6	6.9	-0.9	1.0	13.7	15.8	14.4	14.4	14.1	14.7	17.1	62	60.6	2.2	1.4
3	Jhelum	1.8	50.9	49.1	-1.2	0.8	13.7	14.1	13.8	13.1	13.1	12.2	***	66	61.6	2.9	1.4
4	Lahore	0.9	15.1	14.2	-1.0	-0.7	14.6	15.1	14.7	13.9	13.8	***	16.9	68	61.7	2.3	1.4
5	Sargodha	1.0	3.0	2.0	-0.6	1.5	14.5	17.0	15.7	14.5	14.4	***	17.0	74	57.3	1.2	1.2
6	Multan	0.7	0.0	-0.7	-2.1	-0.2	13.4	***	***	***	***	***	***	60	65.5	3.9	1.8
7	Khanpur	0.9	0.0	-0.9	-2.0	-2.4	13.6	***	15.7	16.0	16.3	16.6	18.8	47	82.2	3.7	2.1
8	Tandojam	0.0	0.0	0.0	-2.5	-1.5	10.8	13.2	12.2	11.2	11.4	11.9	13.7	67	70.3	2.0	2.6
9	Sakrand ☆	0.1	0.0	-0.1	-2.4	1.2	17.0	25.8	21.4	19.1	20.6	20.0	21.0	55	89.3	4.3	2.2
11	Rohri ☆	0.4	0.0	-0.4	-2.5	0.0	14.8	25.6	***	***	***	***	22.6	52	96.2	4.4	1.9
12	D.I Khan	1.3	0.0	-1.3	0.0	-2.4	15.8	***	***	***	***	***	***	50	91.7	2.1	2.6
13	Peshawar	2.5	8.8	6.3	0.3	0.4	14.0	15.6	14.4	14.6	15.1	0.4	***	60	75.8	9.4	1.2
14	Usta .M	0.2	0.0	-0.2	-3.9	-1.8	13.8	19.0	17.0	16.3	***	***	21.6	62	***	3.1	2.1
15	Quetta	1.8	3.4	1.6	-2.2	1.5	5.6	9.5	8.5	6.0	6.2	3.0	9.4	51	75.4	5.4	1.6
16	Skardu	0.8	16.1	15.3	-10.0	-2.4	-6.0	***	***	***	***	***	***	79	25.2	0.7	0.5
17	Gilgit	0.1	9.6	9.5	-3.7	1.6	4.7	***	***	***	***	***	***	66	32.5	1.8	0.8

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 February, 2019



Past Weather (1st to 10th February, 2019)

Light to Moderate rainfall reported from most of the agricultural plains of Punjab, Khyber Pakhtunkhwa, Baluchistan, G.B & Kashmir while dry from Sindh during the last decade.

1.1 Punjab

Light to moderate rainfall reported from most of the agricultural plains of the Punjab. Highest rainfall reported from Jhelum, Murree & Mangla. Decadal maximum dropped below normal by 1.2°C & decadal minimum raised above normal by 3.6°C respectively, in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 65.6hrs, 2.6km/hr and 1.5mm/day respectively.

1.2 Sindh

Dry weather reported from most of the agricultural plains of the Sindh except Trace (Non measurable) reported from Jacobabad. Decadal maximum and minimum both dropped below normal by 2.5°C & 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 35%, 92.4hrs, 3.6km/hr and 2.2mm/day respectively.

1.3 Khyber Pakhtunkhwa

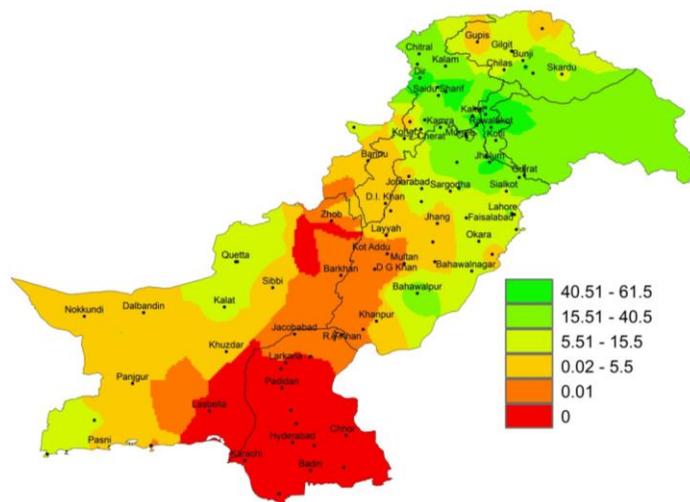
Light to moderate rainfall reported from most of the agricultural plains of Khyber Pakhtunkhwa. Highest rainfall reported from Malamjabba, Dir & Mirkhani. Decadal maximum and minimum both raised above normal by 0.2°C & 0.1°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 63.3hrs, 5.6km/hr and 1.9mm/day respectively.

1.4 Balochistan

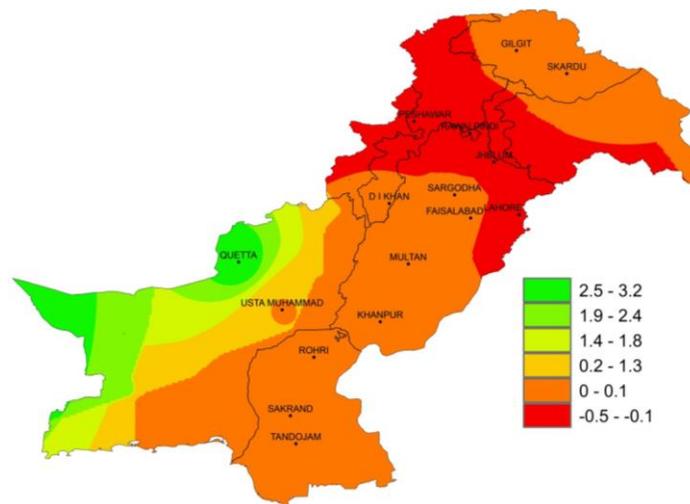
Light to moderate rainfall reported from most of the place from agricultural plains of the Balochistan. Highest rainfall reported from Quetta, Gawadar & Dalbandin. Decadal maximum and minimum both dropped below normal by 3.1°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 75.4hrs, 4.3km/hr and 1.9mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

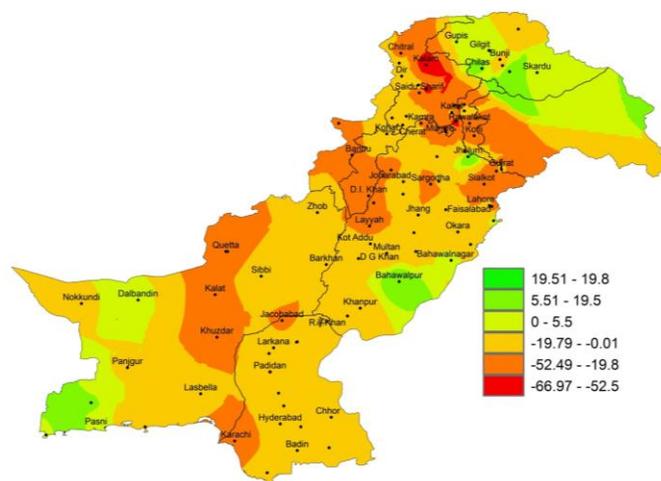
Light to moderate rainfall reported from most of the agricultural plains G.B & Kashmir. Highest rainfall reported from Garhi dopatta, Rawalkot & Astore. Decadal maximum and minimum both dropped below normal by 11.2°C & 0.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 40%, 12.6hrs, 0.4km/hr and 0.7 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)

2(a) Past Weather for Major Agricultural Plains (1st to 10th February, 2019)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 30.8 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 76%. Mean day temperature was 18.4 °C while night temperature recorded as 3.1°C with 70.3 hours bright sunshine duration. Wind speed recorded as 2.0 km/hr with mean wind direction *Westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 7.6 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 20.2°C while night temperature recorded as 7.2°C with 6.6 hours bright sunshine duration. Wind speed recorded as 2.2 km/hr with mean wind direction *westerly*.

Wheat: Very good condition, Shooting.

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 55%. Mean day temperature was 23.9 °C while night temperature recorded as 10.0°C with 89.3hours bright sunshine duration. Wind speed recorded as 4.3km/h with mean wind direction *North easterly*.

Wheat (TJ-83): Good condition, Milk maturity.

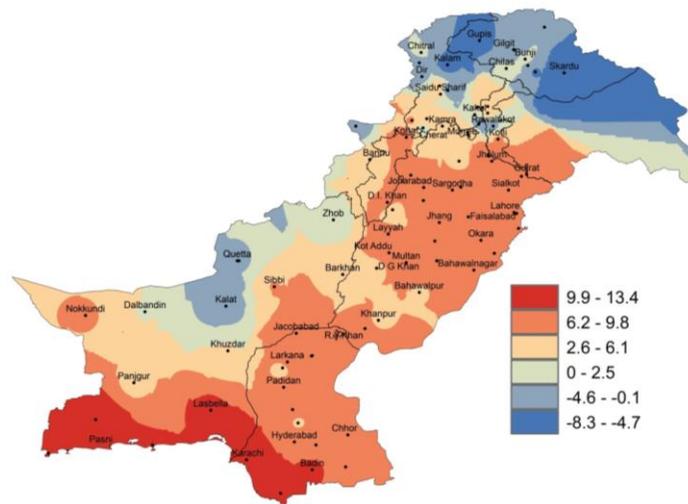
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 20.9°C while night temperature recorded as 6.7°C. Wind speed recorded as 3.1 km/h with mean wind direction *South easterly*.

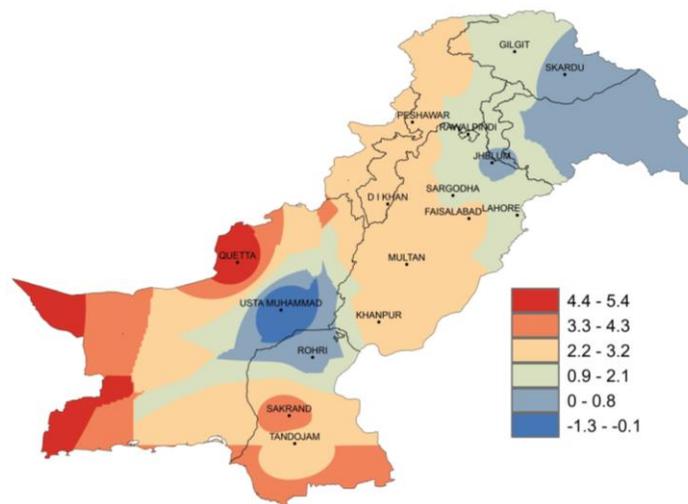
Wheat: Good condition, Tillering stage.

2.5 RAMC, Quetta (Northern Balochistan)

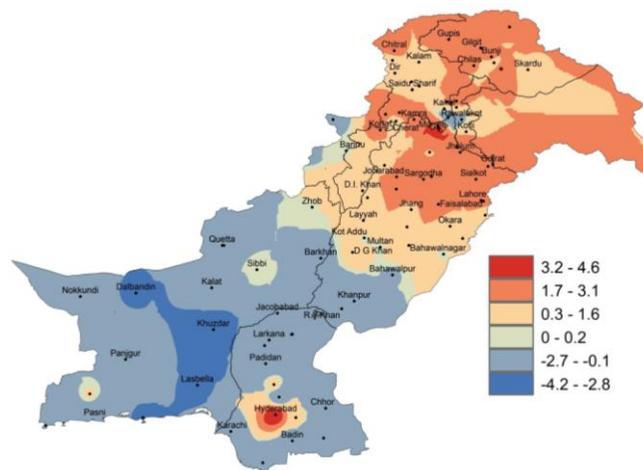
Rainfall reported as 3.4 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 10.1°C while night temperature recorded as 1.0°C with 75.4 hours bright sunshine duration. Wind speed recorded as 5.4km/hr with mean wind direction *southerly*.



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 (1st to 10th February, 2019)

2.6 Jhelum

Rainfall reported as 50.9 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 19.5°C while night temperature recorded as 7.9°C with 61.6 hours bright sunshine duration. Wind speed recorded as 2.9 km/hr with mean wind direction *North westerly*.

2.7 Lahore

Rainfall reported as 15.1 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 68%. Mean day temperature was 19.9 °C while night temperature recorded as 9.2°C with 61.7 hours bright sunshine duration. Wind speed recorded as 2.3 km/hr with mean wind direction *Westerly*.

2.8 Sargodha

Rainfall reported as 3.0 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 20.6°C while night temperature recorded as 8.4°C with 57.3 hours bright sunshine duration. Wind speed recorded 1.2 km/hr with mean wind direction *Easterly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 19.9°C while night temperature recorded as 6.9°C with 65.5 hours bright sunshine duration. Wind speed recorded 3.9 km/hr with mean wind direction *North easterly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 21.4 °C while night temperature recorded as 5.8°C with 82.2 hours bright sunshine duration. Wind speed recorded 3.7 km/hr with mean wind direction *North easterly*.

2.11 Sakrand

Dry weather reported during the decade; however sky remained clear throughout the decade. Average relative humidity recorded as 52%. Mean day temperature was 22.3°C while night temperature recorded as 7.2°C with 96.2 hours bright sunshine duration. Wind speed recorded 4.4km/hr with wind direction *Northerly*.

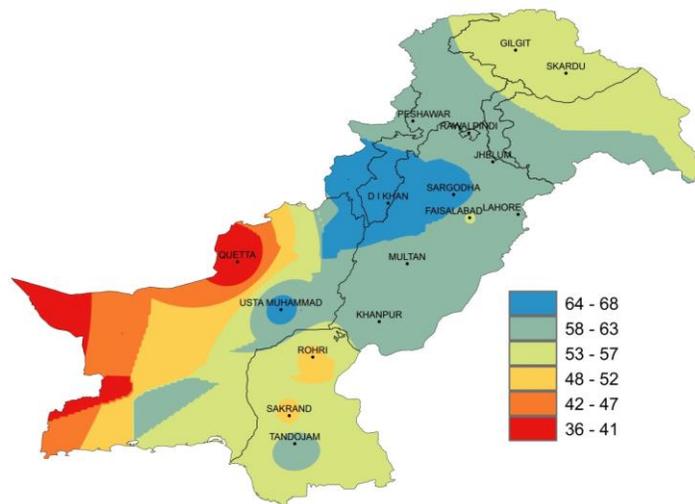


Figure.3: Relative Humidity in Percentage (%)

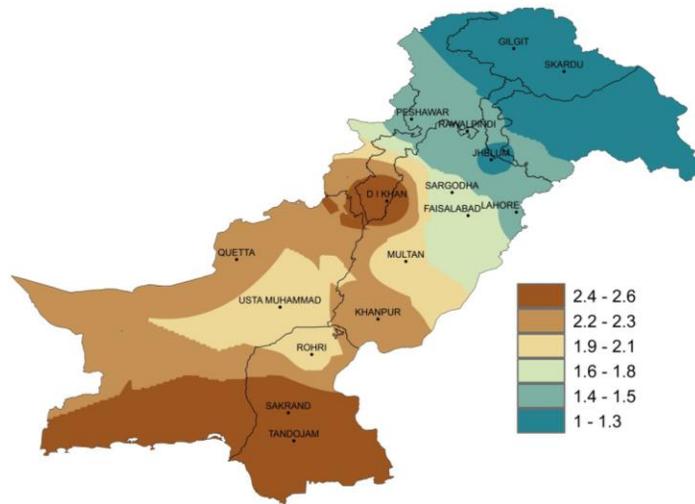


Figure.4: Reference Crop Evapotranspiration ET0 (mm/day)

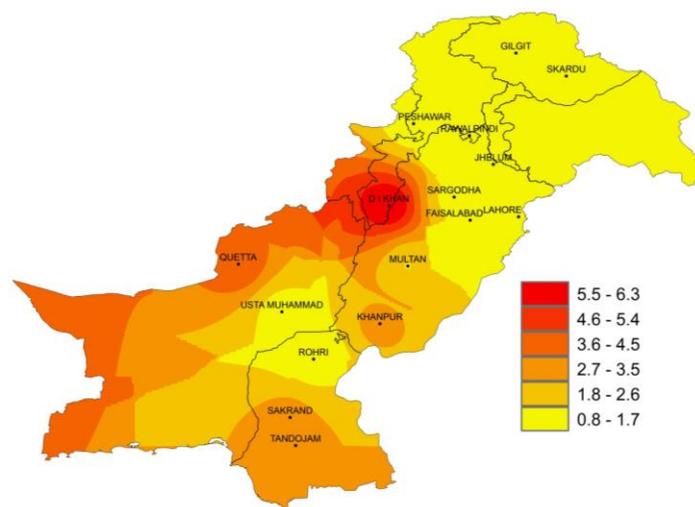


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 22.3°C while night temperature recorded as 9.2°C with 91.7 hours bright sunshine duration. Wind speed recorded 2.1 km/hr with wind direction *North easterly*.

2.13 D.I. Khan

Rainfall reported as Trace (Non measureable) during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 21.3°C while night temperature recorded as 6.7°C with 75.8 hours bright sunshine duration. Wind speed recorded as 9.4 km/hr with mean wind direction *North westerly*.

2.14 Peshawar

Rainfall reported as 8.8 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 19.2°C while night temperature recorded as 6.3°C with 50.7 hours bright sunshine duration. Wind speed recorded as 1.7 km/hr with mean wind direction *North westerly*.

2.15 Skardu

Precipitation reported as 6.1 cm (snowfall) during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 79%. Mean day temperature was -3.6°C while night temperature recorded as -8.3°C with 25.2 hours bright sunshine duration. Wind speed recorded as 0.7 km/hr with mean wind direction *Easterly*.

2.16 Gilgit

Rainfall reported as 9.6 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 8.7°C while night temperature recorded as 0.7 °C with 32.5 hours bright sunshine duration. Wind speed recorded as 1.8 km/hr with mean wind direction *Westerly*.

Ten Days Weather Advisory for Farmers (11th to 20th February, 2019)**3.1 Temperature Forecast**

Both day and night temperatures are likely to be 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 during the decade.

3.3 Rain Forecast

- ❖ **Punjab:** Rain thunderstorm with snowfall over the hills is expected at isolated places of Lahore, Sargodha, Gujranwala, Rawalpindi division and Islamabad during the first half of the current decade.
- ❖ **Khyber Pakhtunkhwa:** Rain thunderstorm with snowfall over the hills is expected in Peshawar, Malakand, Mardan, Hazara and Bannu divisions during the first half of the current decade.
- ❖ **Sindh:** Mainly cold and dry weather is expected during the current decade.
- ❖ **Baluchistan:** Rainfall is expected at scattered places in Quetta, Zhob and Kalat divisions during the first half of the current decade.
- ❖ **Gilgit-Baltistan:** Rain thunderstorm with snowfall over the hills is expected during the first half of the current decade.
- ❖ **Kashmir:** Rain-thunder storm is expected during the first half of the current decade.

3.4 Advisory for Farmers

- ❖ Farmers are advised to schedule the irrigation plans for the Rabi crop in context of ongoing rains.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.
- ❖ Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme cold conditions.

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)