

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate rainfall reported from most of the agricultural plains of the country during the last decade.
- ❖ Lowest minimum temperature recorded as -14.4°C at Skardu during the last decade.
- ❖ Widespread rainfall with snow over the mountains is expected during the first few days in Punjab, Khyber Pakhtunkhwa, Gilgit-Baltistan & Kashmir; light rainfall is expected at isolated places in Sindh of 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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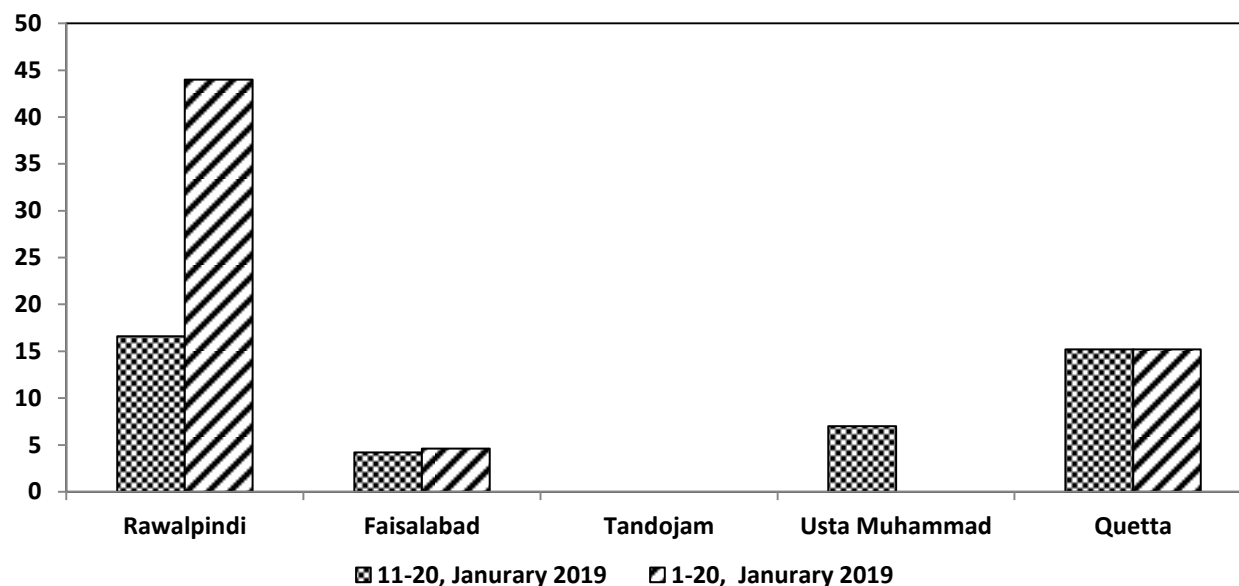
Meteorological Conditions during 2nd Decade of January, 2019

Sr. No.	Station	Precipitation (mm)			Air Temperature (°C)			Soil Temperatures (°C)						R.H (%)	Sunshine Duration (hours)	Wind Speed (km/hr)	ET _o (mm/day)
		Normal	Actual	Dep	Tmax Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	1.1	16.6	15.5	0.1	-0.7	9.7	11.7	10.5	9.9	6.9	11.3	14.1	72	38.3	1.4	0.9
2	Faisalabad	0.3	4.2	3.9	2.9	0.5	12.6	16.6	15.4	14.0	13.9	14.9	18.0	62	37.5	1.6	1.2
3	Jhelum	1.4	11.6	10.2	1.0	-0.4	12.3	13.6	12.7	12.1	12.5	13.8	***	59	45.7	1.1	1.0
4	Lahore	0.3	0.9	0.6	2.4	7.2	13.8	14.2	14.1	13.8	13.8	***	17.3	65	51.0	1.8	1.3
5	Sargodha	0.2	5.7	5.5	2.4	1.0	13.0	16.4	15.2	14.6	15.1	***	18.2	73	44.5	0.8	1.0
6	Multan	0.2	0.2	0.0	1.6	1.0	13.2	***	***	***	***	***	***	61	46.7	2.4	1.4
7	Khanpur	1.0	5.5	4.5	1.6	1.3	14.4	***	14.4	15.1	15.5	16.5	19.2	61	46.0	4.2	1.9
8	Tandojam	0.0	0.0	0.0	5.7	-0.2	16.4	22.4	20.1	19.1	19.0	20.1	21.5	59	77.1	4.8	2.6
9	Sakrand ☆	0.4	15.0	14.6	4.3	0.6	15.1	21.4	***	***	***	***	23.3	59	78.4	4.9	2.4
11	Rohri ☆	0.6	1.0	0.4	0.4	0.1	15.8	***	***	***	***	***	***	55	71.7	4.1	2.2
12	D.I Khan	0.1	0.4	0.3	1.9	0.6	12.8	15.7	14.7	14.9	15.5	0.4	***	70	49.0	6.5	1.8
13	Peshawar	1.6	7.0	5.4	-1.0	-0.8	10.9	12.1	11.6	10.6	11.7	13.0	14.2	63	23.5	1.3	1.0
14	Usta .M	0.1	7.0	6.9	1.4	-2.0	14.8	19.5	17.3	17.8	***	***	23.1	58	***	1.9	1.6
15	Quetta	0.9	15.2	14.3	2.6	3.0	8.2	11.7	10.3	8.2	8.2	9.3	11.0	40	17.4	4.7	1.8
16	Skardu	1.5	15.7	14.2	-4.7	-2.1	-5.1	***	***	***	***	***	***	82	16.7	0.4	0.5
17	Gilgit	0.3	2.8	2.5	-2.7	0.7	3.2	***	***	***	***	***	***	65	16.8	1.3	0.7

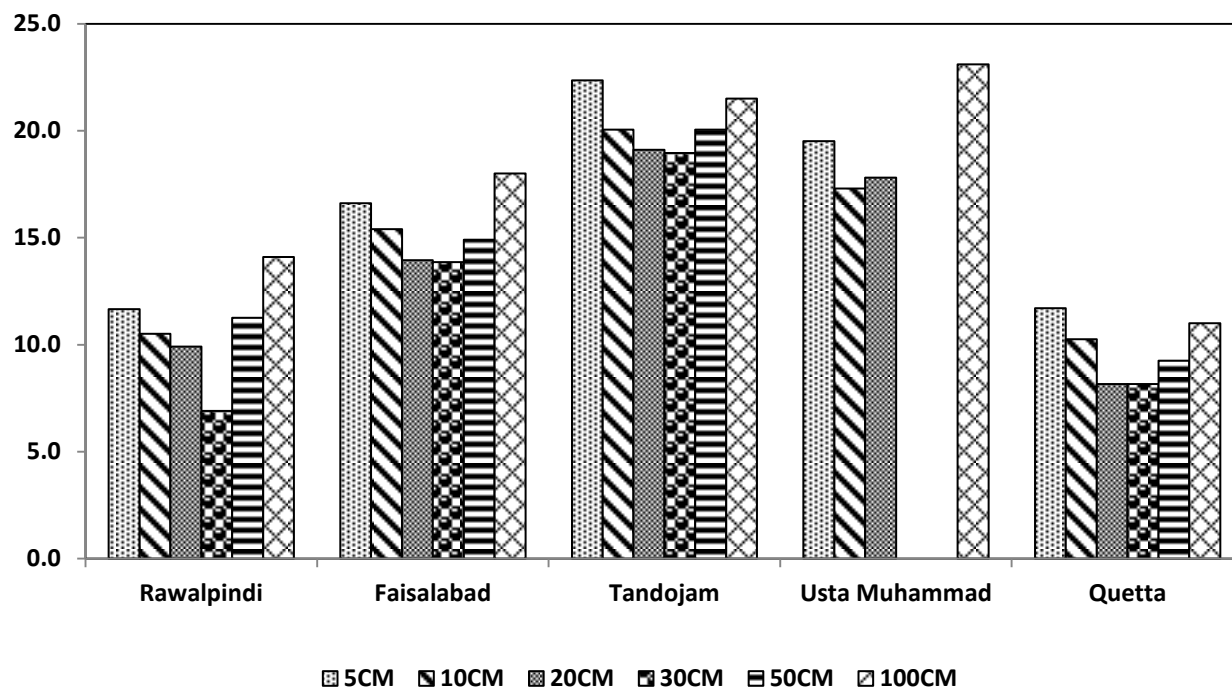
Table-1: Meteorological parameters for selected station of Pakistan. “**Dep**” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “**% Dep**” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures respectively. **ET_o** 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 January, 2019

Precipitation(mm)



Soil Temperature(°C)



Past Weather (11th to 20th January, 2019)

Light to moderate rainfall reported from most of the agricultural plains of country 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 Murree, Islamabad & Gujrat. Decadal maximum dropped below normal by 0.3°C and minimum raised above normal by 1.4°C, in the province values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 44.2hrs, 1.9km/hr and 1.2mm/day respectively.

1.2 Sindh

Light to moderate rainfall reported from most of the agricultural plains of the Sindh. Highest rainfall reported from Karachi airport, Padidan & Rohri. Decadal maximum Decadal maximum and minimum both raised above normal by 3.5°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 75.7hrs, 4.6km/hr and 2.4mm/day respectively.

1.3 Khyber Pakhtunkhwa

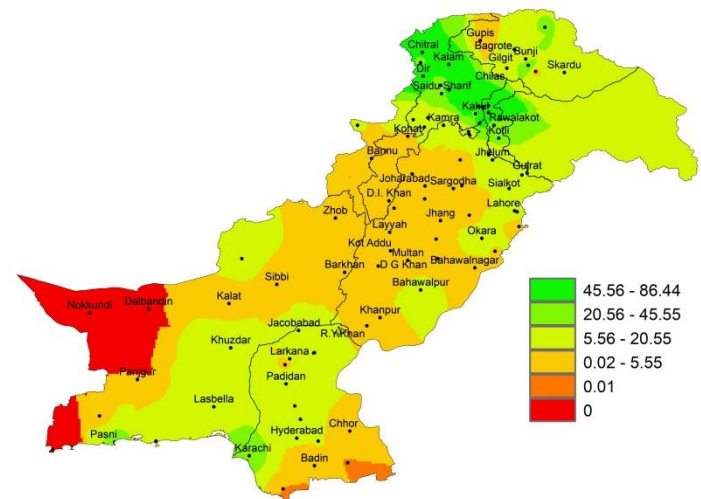
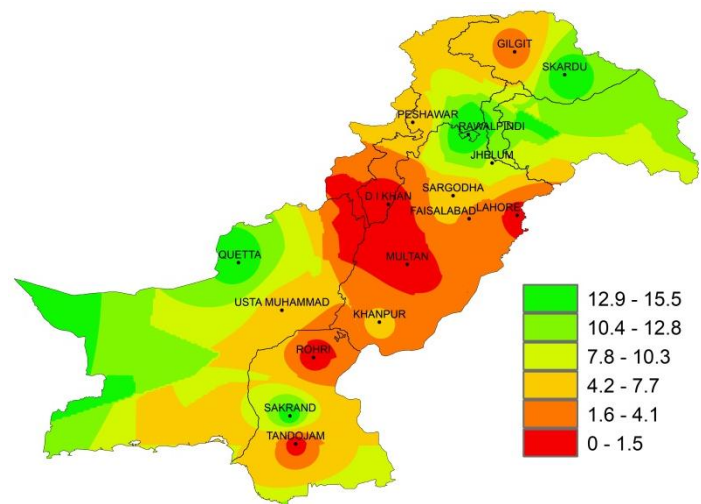
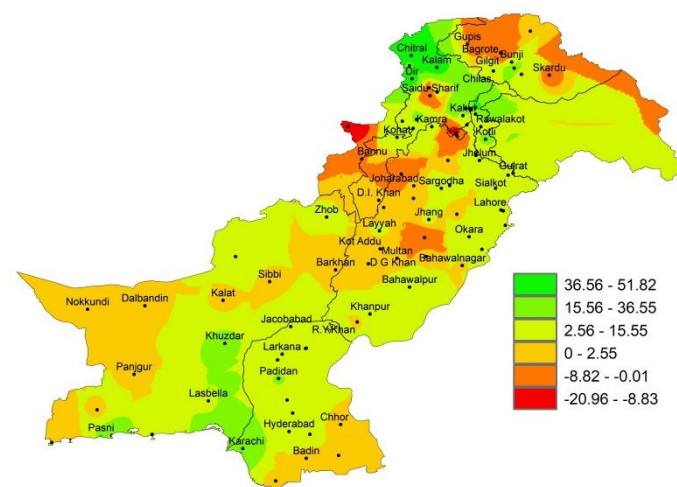
Light to moderate rainfall reported from most of the agricultural plains of Khyber Pakhtunkhwa. Highest rainfall reported from Balakot, Pattan & Malamjabba. Decadal maximum Decadal maximum raised above normal by 0.4°C and minimum dropped below normal by 0.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 36.3hrs, 3.9km/hr and 1.4mm/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 Pasni, Khuzdar & Lasbella. Decadal maximum Decadal maximum and minimum both raised above normal by 2.0°C & 0.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 17.4hrs, 3.3km/hr and 1.7mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

Light to moderate rainfall reported from most of the agricultural plains G.B and Kashmir. Highest rainfall reported from Muzaffarabad, Rawalakot & Garhidoppata. Decadal maximum and minimum both dropped below normal by 3.7°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 74%, 16.8hrs, 0.9km/hr and 0.6mm/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 (11st to 20th January, 2019)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 16.6 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 72%. Mean day temperature was 17.1°C while night temperature recorded as 2.3°C with 38.3hours bright sunshine duration. Wind speed recorded as 1.4km/hr with mean wind direction *Variable*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 4.2 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 19.9°C while night temperature recorded as 5.2°C with 31.5hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *Variable*.

Wheat: *Very good condition, tillering stag completed.*

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 24.5°C while night temperature recorded as 8.3°C with 77.1hours bright sunshine duration. Wind speed recorded as 4.8km/h with mean wind direction *North westerly*.

Wheat (TJ-83): *Good condition, Flowering*

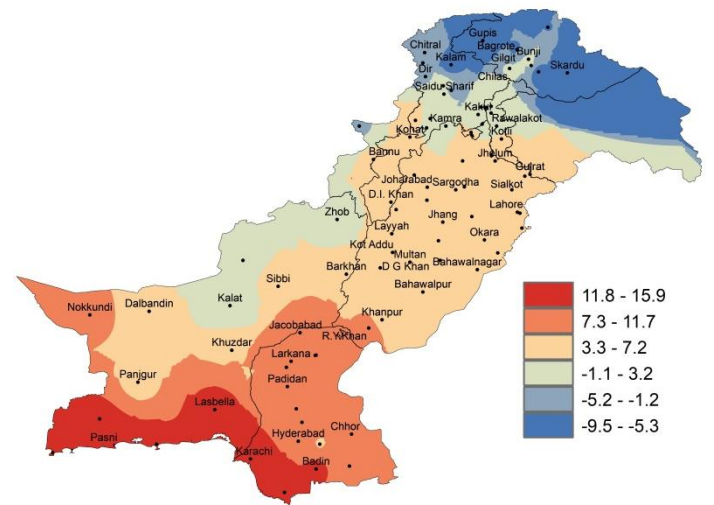
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Rainfall reported as 7.0 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 22.8°C while night temperature recorded as 6.7°C. Wind speed recorded as 1.9km/h with mean wind direction *North westerly*.

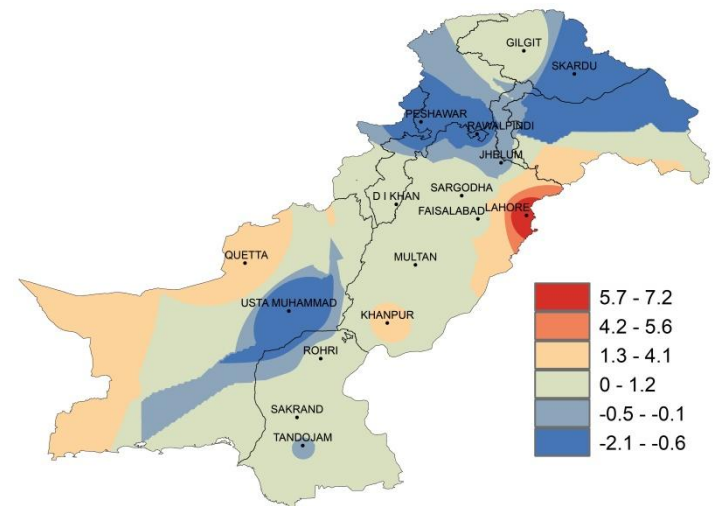
Wheat: *Good condition, Tillering stage.*

2.5 RAMC, Quetta (Northern Balochistan)

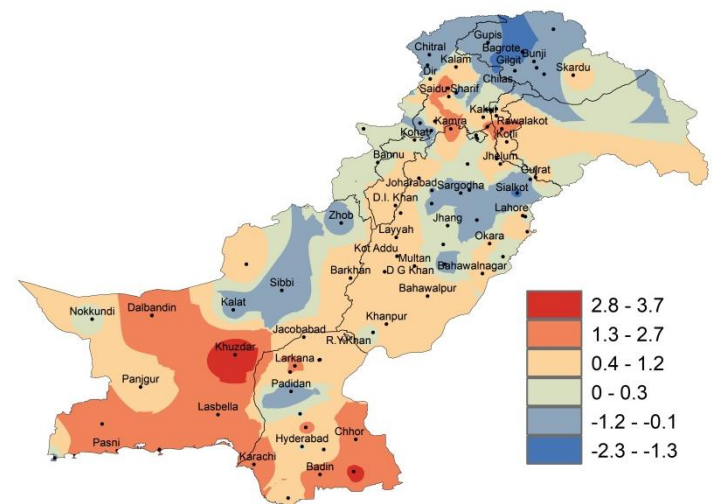
Rainfall reported as 7.0 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 40%. Mean day temperature was 14.4°C while night temperature recorded as 1.8°C with 17.4 hours bright sunshine duration. Wind speed recorded as 4.7km/hr with mean wind direction *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 (11st to 20th January, 2019)

2.6 Jhelum

Rainfall reported as 11.6 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 19.0°C while night temperature recorded as 5.5°C with 45.7 hours bright sunshine duration. Wind speed recorded as 1.1km/hr with mean wind direction *North westerly*.

2.7 Lahore

Rainfall reported as 0.9 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 20.0°C while night temperature recorded as 7.5°C with 51.0hours bright sunshine duration. Wind speed recorded as 1.8 km/hr with mean wind direction *Westerly*.

2.8 Sargodha

Rainfall reported as 5.7 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 73%. Mean day temperature was 19.4°C while night temperature recorded as 6.5°C with 44.5hours bright sunshine duration. Wind speed recorded 0.8km/hr with mean wind direction *North easterly*.

2.9 Multan

Rainfall reported as 0.2 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 19.6°C while night temperature recorded as 6.7°C with 46.7 hours bright sunshine duration. Wind speed recorded 2.4km/hr with mean wind direction *North easterly*.

2.10 Khanpur

Rainfall reported as 5.5 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 22.0°C while night temperature recorded as 6.8°C with 46.0 hours bright sunshine duration. Wind speed recorded 4.2km/hr with mean wind direction *northerly*.

2.11 Sakrand

Rainfall reported as 15.0 mm during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 22.7°C while night temperature recorded as 7.5°C with 78.4 hours bright sunshine duration. Wind speed recorded 4.9km/hr with wind direction *northerly*.

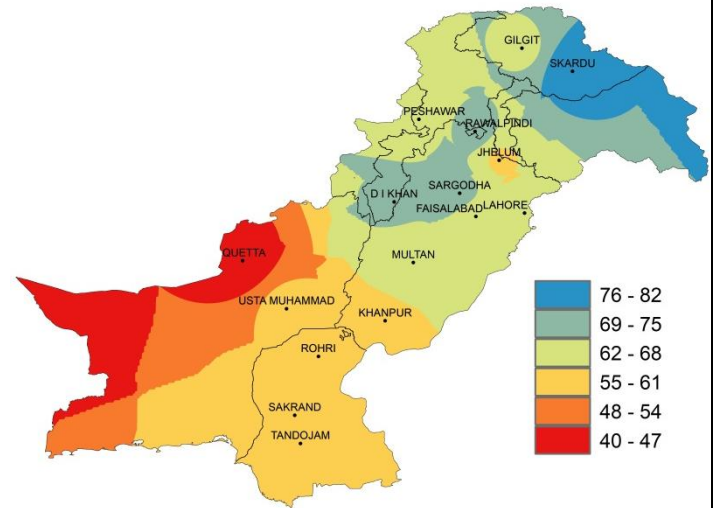


Figure.3: Relative Humidity in Percentage (%)

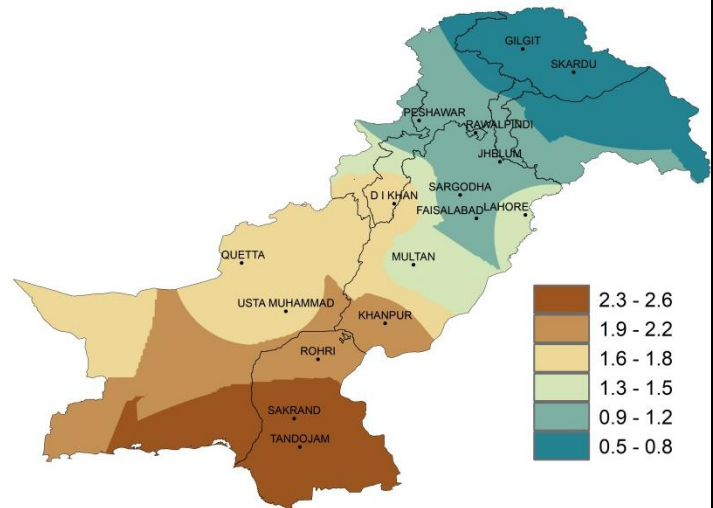


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

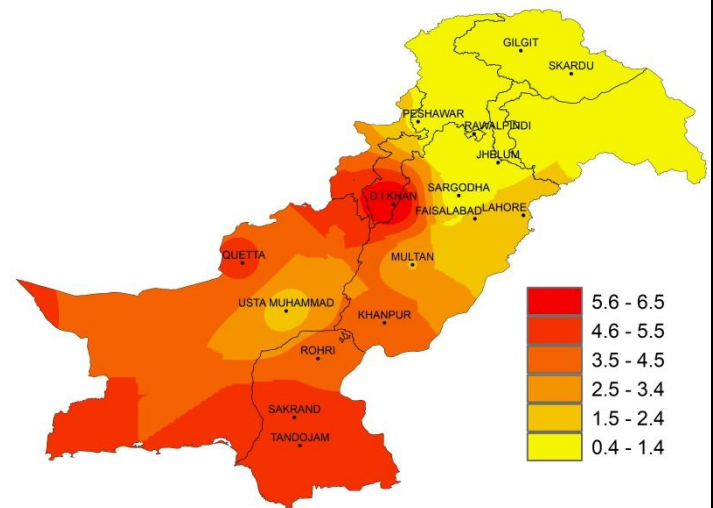


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 1.0 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 22.1°C while night temperature recorded as 9.4°C with 71.7 hours bright sunshine duration. Wind speed recorded 4.1 km/hr with wind direction *North easterly*.

2.13 D.I. Khan

Rainfall reported as 0.4 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 20.4°C while night temperature recorded as 5.2°C with 49.0 hours bright sunshine duration. Wind speed recorded as 6.5 km/hr with mean wind direction *North easterly*.

2.14 Peshawar

Rainfall reported as 0.4 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 17.7°C while night temperature recorded as 4.0°C with 23.5 hours bright sunshine duration. Wind speed recorded as 2.3 km/hr with mean wind direction *South westerly*.

2.15 Skardu

Precipitation reported as 15.7 cm (snowfall) during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 82%. Mean day temperature was -0.6°C while night temperature recorded as -9.5°C with 16.7 hours bright sunshine duration. Wind speed recorded as 0.4 km/hr with mean wind direction *North easterly*.

2.16 Gilgit

Rainfall reported as 2.8 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 7.9°C while night temperature recorded as -1.5°C with 16.8 hours bright sunshine duration. Wind speed recorded as 1.3 km/hr with mean wind direction *variable*.

Ten Days Weather Advisory for Farmers (21st to 31st January, 2019)

3.1 Temperature Forecast

Both day and night temperatures are likely to be below normal in most of the 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

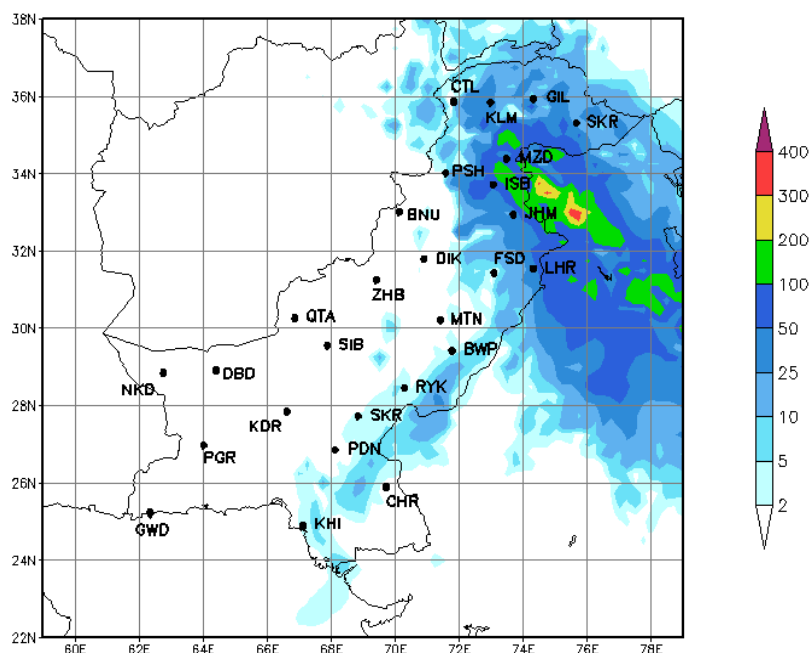
- ❖ **Punjab:** More wide spread rainfall is expected from 21st to 23rd January in Islamabad, Rawalpindi, Gujranwala, Lahore, Sargodha and Faisalabad divisions, while light to moderate at scattered places in Bahawalpur, Multan and Sahiwal division. Foggy conditions are expected at a few places in plain areas as well during evening/night.
- ❖ **Khyber Pakhtunkhwa:** More wide spread rainfall is expected from 21st to 23rd January in Malakand, Hazara, Peshawar, Kohat divisions while light to moderate rainfall at scattered places in D.I. Khan, Bannu division, rain with snow over hill is also expected at isolated places in Malakand, Hazara, Kohat and Peshawar divisions.
- ❖ **Sindh:** Partly cloudy weather with light rain/drizzle at few places is also expected in Sukkur division during first two days of the decade, while the weather will remain dry and cold during the rest of the decade.
- ❖ **Baluchistan:** Rainfall is expected at scattered places in Zhob division; however, cold and dry weather is expected in most parts of the province.
- ❖ **Gilgit-Baltistan:** More wide spread rainfall (with snowfall) is expected during the first half of the current decade.
- ❖ **Kashmir:** More wide spread rainfall (with snowfall) 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.

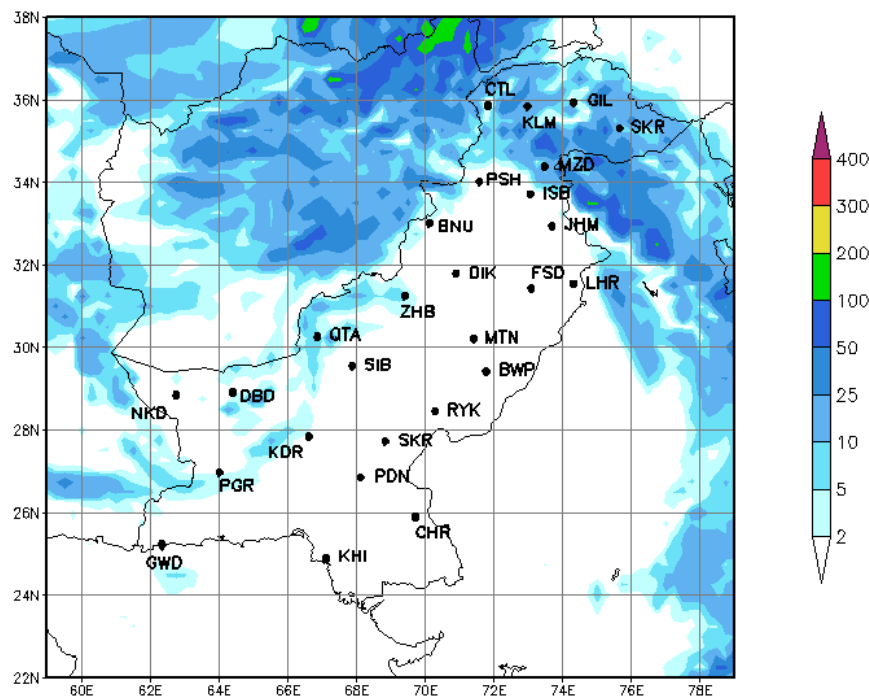
4.1 Precipitation Outlook (21st to 23rd January, 2019)

The forecast for the first three days (21st to 23rd) of the 3rd decade of January, 2019 shows that light to moderate rainfall is expected in upper KP, G.B, central Sindh and Punjab, while moderate to heavy light rainfall is expected in Potohar region and Kashmir.



4.2 Precipitation Outlook 24th to 31st January, 2019)

The outlook for the last seven days (24th to 31st) of the 3rd decade of January, 2019 shows that mostly cold and dry weather is expected in most parts of the country. While light to moderate rainfall is expected in upper KP, GB, FATA, Kashmir, and some areas of north eastern and central Baluchistan.



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 (بذریعہ نئی 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)