

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from few parts of the K.P however light rainfall reported from few parts of Punjab, Balochistan & G.B. Dry weather reported from rest of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 27.0 mm at Dir during the last decade.
- ❖ Lowest minimum temperature recorded as -10.0°C at Quetta during the last decade.
- ❖ Foggy conditions persisted in the plain areas of upper Sindh and Punjab.
- ❖ Mainly cold and dry weather is expected in most parts of the country during the current decade, however light to moderate rainfall with snowfall over hills is expected in particular parts of upper Punjab, KP, G.B & Kashmir.
- ❖ Fog may increase in the central parts of the country after the rains.
- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Measures may be taken to preserve the crops/nurseries/orchids from the damaging impacts of extreme weather conditions.

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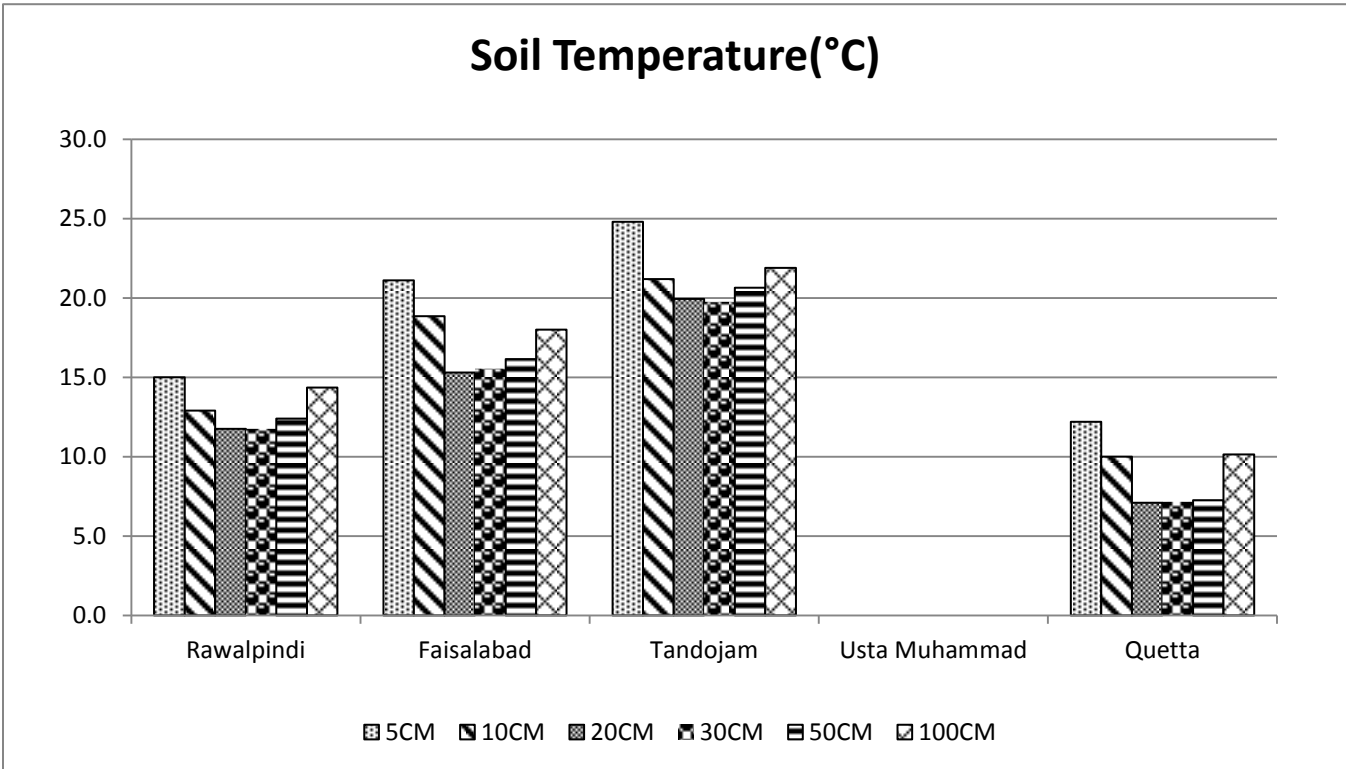
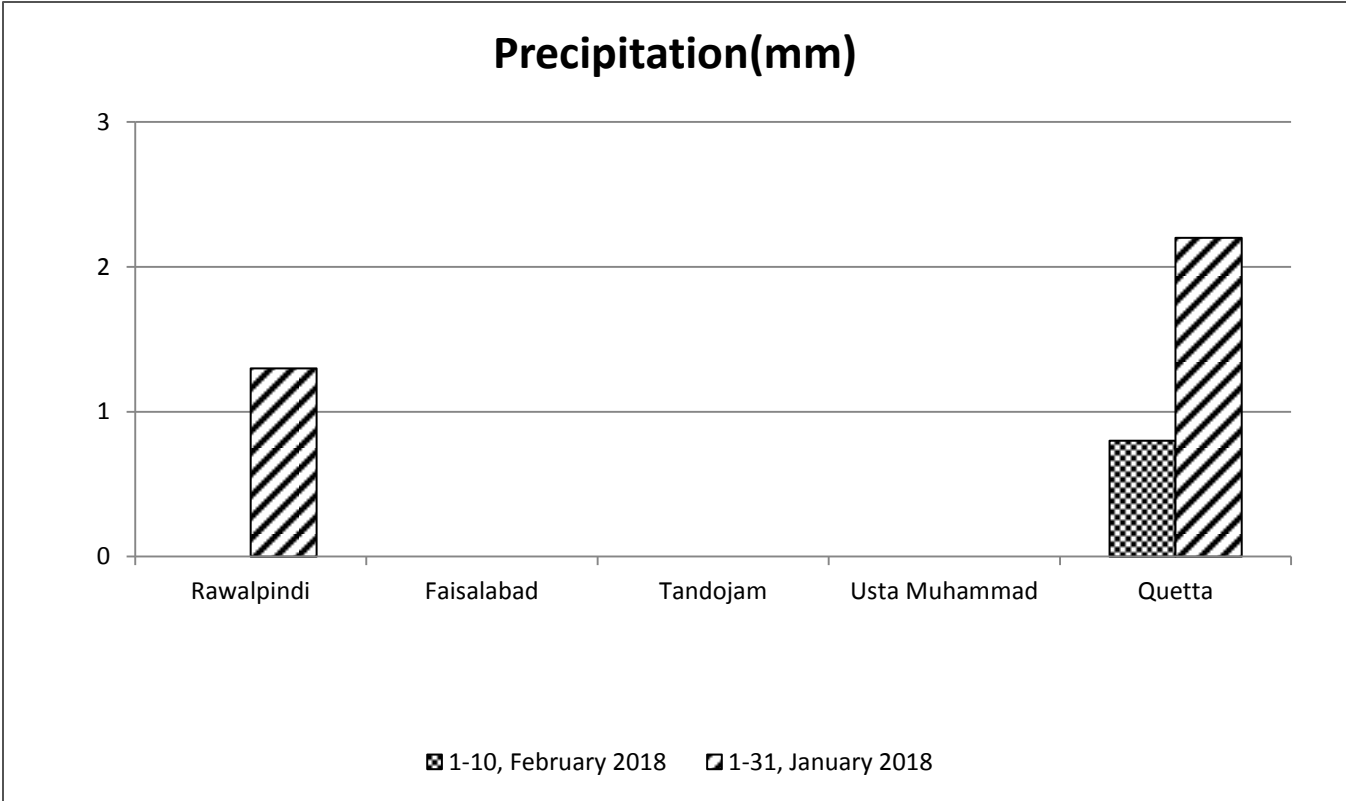
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Meteorological Conditions during 1st Decade of February, 2018

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	0.0	-3.2	3.9	-1.3	13.1	15.0	12.9	11.8	11.8	12.4	14.4	52	83.4	3.2	2.1
2	Faisalabad	0.7	0.0	-0.7	3.4	-1.0	14.9	21.1	18.9	15.3	15.6	16.2	18.0	49	73.6	1.5	1.8
3	Jhelum	1.8	0.0	-1.8	4.2	-2.9	14.6	17.4	15.9	14.6	14.8	15.9	***	43	99.5	2.2	2.1
4	Lahore	0.9	0.0	-0.9	2.6	-1.9	15.8	16.5	15.8	14.8	14.7	***	17.6	51	90.4	0.7	1.7
5	Sargodha	1.0	0.0	-1.0	3.8	0.2	16.1	20.9	18.9	16.7	16.8	***	18.5	48	77.3	2.0	2.1
6	Multan	0.7	0.0	-0.7	1.4	0.2	15.4	***	***	***	***	***	***	46	74.4	2.8	2.3
7	Khanpur	0.9	0.0	-0.9	2.1	-2.3	15.7	***	16.6	17.0	17.5	18.3	19.7	47	82.1	2.2	2.3
8	Tandojam	0.0	0.0	0.0	-0.3	1.1	18.0	24.8	21.2	20.0	19.8	20.7	21.9	48	79.9	4.5	3.2
9	Sakrand☆	0.1	0.0	-0.1	1.2	2.0	17.6	23.6	***	***	***	***	23.5	50	89.7	5.4	3.4
11	Rohri	0.4	0.0	-0.4	1.2	-0.3	18.7	***	***	***	***	***	***	46	95.1	7.4	3.9
12	D.I Khan	1.3	0.0	-1.3	3.3	-0.6	15.2	17.1	15.6	15.2	16.0	5.8	18.3	51	81.9	4.9	2.8
13	Peshawar	2.5	0.0	-2.5	4.0	-2.8	13.3	15.2	14.5	12.0	12.8	13.7	15.4	49	63.4	1.6	1.6
14	Usta .M	0.2	0.0	-0.2	-4.3	-1.3	13.9	***	***	***	***	***	***	65	***	1.8	1.9
15	Quetta	1.8	0.8	-1.0	-0.5	-1.4	5.0	12.2	10.0	7.1	7.2	7.3	10.2	34	88.0	4.8	2.2
16	Skardu	0.8	0.0	-0.8	1.9	0.4	1.4	***	***	***	***	***	***	63	45.7	0.7	1.0
17	Gilgit	0.1	0.0	-0.1	2.6	-1.6	6.3	***	***	***	***	***	***	40	54.3	1.5	1.2

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, 2018



Past Weather (1st to 10th February, 2018)

Light to moderate rainfall reported from few parts of the K.P, however light rainfall reported from few parts of Punjab, Balochistan & G.B. Dry weather reported from rest of the country during the last decade.

1.1 Punjab

Light rainfall reported from few parts agricultural plains of Punjab. Chief amount of rainfall is received at Bahawalpur, D.G Khan & Kot Addu. Decadal maximum raised above normal by 3.1°C and decadal minimum dropped below normal by 1.3°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 83.0hrs, 2.1km/hr and 2.1mm/day respectively.

1.2 Sindh

Dry weather reported from agricultural plains of Sindh. Decadal maximum & minimum departure both raised above normal by 0.7°C & 0.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 88.2hrs, 5.8km/hr and 3.5mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

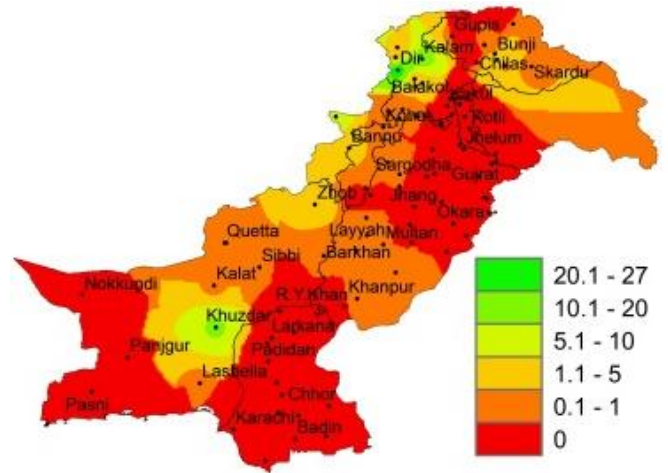
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall is received at Dir, Kalam & Parachinar. Decadal maximum raised above normal by 3.7°C & minimum departure dropped below normal by 1.7°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 72.7hrs, 3.3km/hr and 2.2mm/day respectively.

1.4 Balochistan

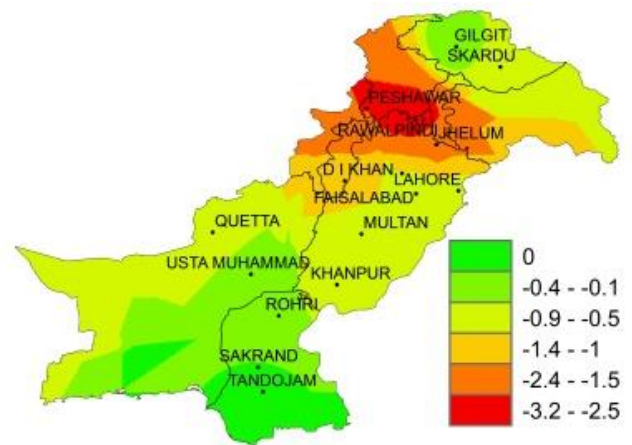
Light rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall is received at Khuzdar, Zhob & Quetta. Decadal maximum & minimum departure both dropped below normal by 2.4°C & 1.4°C respectively, in the province, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 88.0hrs, 3.3km/hr and 2.1mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

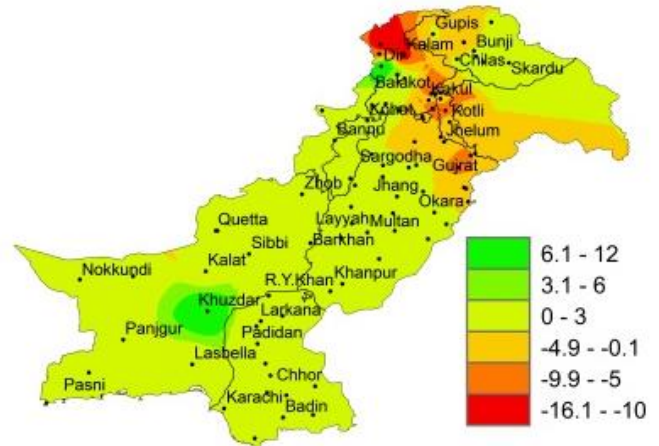
Light rainfall reported from few agricultural plains of G.B & Kashmir. Chief amount of rainfall is received at Bunji & Skardu. Decadal maximum raised above normal by 2.3°C & minimum departure dropped below normal by 0.6°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 52%, 50.0hrs, 1.1km/hr and 2.1mm/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, 2018)

2.1 RAMC, Rawalpindi (Potohar region)

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 22.8°C while night temperature recorded as 3.3°C with 83.4hours bright sunshine duration. Wind speed recorded as 3.2km/hr with mean wind direction *westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 24.5°C while night temperature recorded as 5.2°C with 73.58hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *westerly*.

Wheat: Very good condition, Tilling stage completed.

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 26.1°C while night temperature recorded as 9.9°C with 79.9hours bright sunshine duration. Wind speed recorded as 4.5km/h with mean wind direction *northerly*.

Wheat (Sindhu): Good condition, flowering stage.

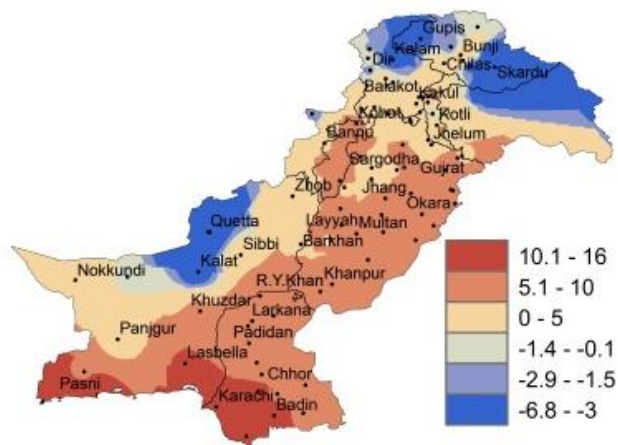
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 65%. Mean day temperature was 20.5°C while night temperature recorded as 7.2°C. Wind speed recorded as 1.8km/h with mean wind direction *variable*.

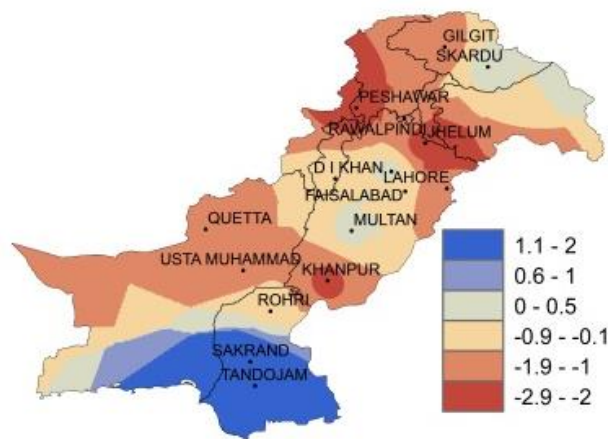
Wheat: Good condition, stem extension stage.

2.5 RAMC, Quetta (Northern Balochistan)

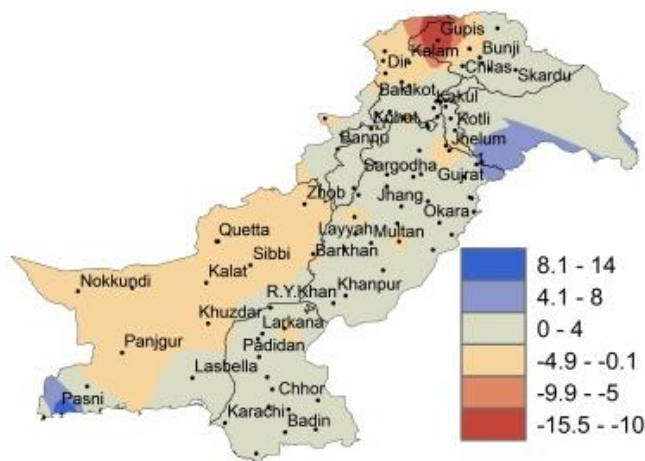
Rainfall reported as 0.8mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 34%. Mean day temperature was 11.8°C while night temperature recorded as -1.9°C with 88.0hours bright sunshine duration. Wind speed recorded as 4.8km/hr with 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 (1st to 10th February, 2018)

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 43%. Mean day temperature was 24.9°C while night temperature recorded as 4.2°C with 94.5hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *westerly*.

2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 23.5°C while night temperature recorded as 8.0°C with 90.4hours bright sunshine duration. Wind speed recorded as 0.7km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 25.0°C while night temperature recorded as 7.1°C with 77.3hours bright sunshine duration. Wind speed recorded 2.0km/hr with mean wind direction *south westerly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 46%. Mean day temperature was 23.4°C while night temperature recorded as 7.3°C with 74.4hours bright sunshine duration. Wind speed recorded 2.8km/hr with mean wind direction *north easterly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 25.5°C while night temperature recorded as 5.9°C with 82.1hours bright sunshine duration. Wind speed recorded 2.2km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 25.9°C while night temperature recorded as 9.2°C with 89.7hours bright sunshine duration. Wind speed recorded 5.4km/hr with wind direction *northerly*.

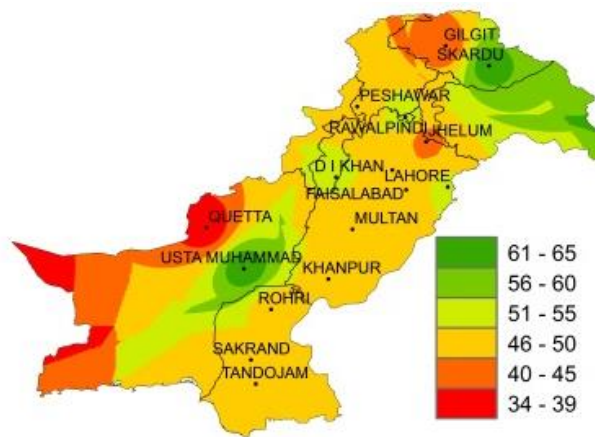


Figure.3: Relative Humidity in Percentage (%)

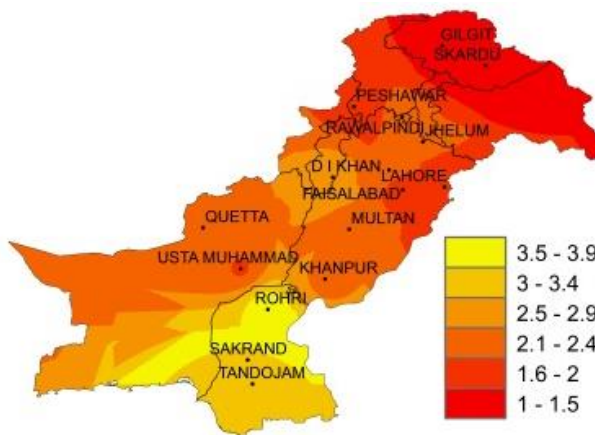


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

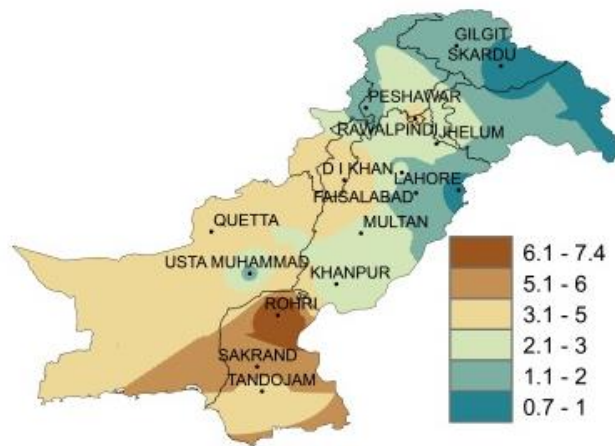


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 46%. Mean day temperature was 26.0°C while night temperature recorded as 11.3°C with 95.1hours bright sunshine duration. Wind speed recorded 7.4km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 24.6°C while night temperature recorded as 5.7°C with 81.9hours bright sunshine duration. Wind speed recorded as 4.9km/hr with mean wind direction *northerly*.

2.14 Peshawar

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 22.9°C while night temperature recorded as 3.7°C with 63.4hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *south westerly*.

2.15 Skardu

Rainfall reported as Trace (not measurable) during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 8.3°C while night temperature recorded as -5.5°C with 45.7hours bright sunshine duration. Wind speed recorded as 0.7km/hr with mean wind direction *easterly south easterly*.

2.16 Gilgit

Dry weather reported during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 40%. Mean day temperature was 15.0°C while night temperature recorded as -2.5°C with 54.3hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *variable*.

Ten Days Weather Advisory for Farmers
(12th to 20th February, 2018)

3.1 Temperature Forecast

Night temperatures are expected to drop slightly (1-2°C) and day temperatures are likely to be slightly normal in most parts 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; however dust/sand storms may occur in southern Punjab and upper Sindh.

- Fog may occur during the morning times, over some plains of Punjab and upper Sindh.

3.3 Rain Forecast

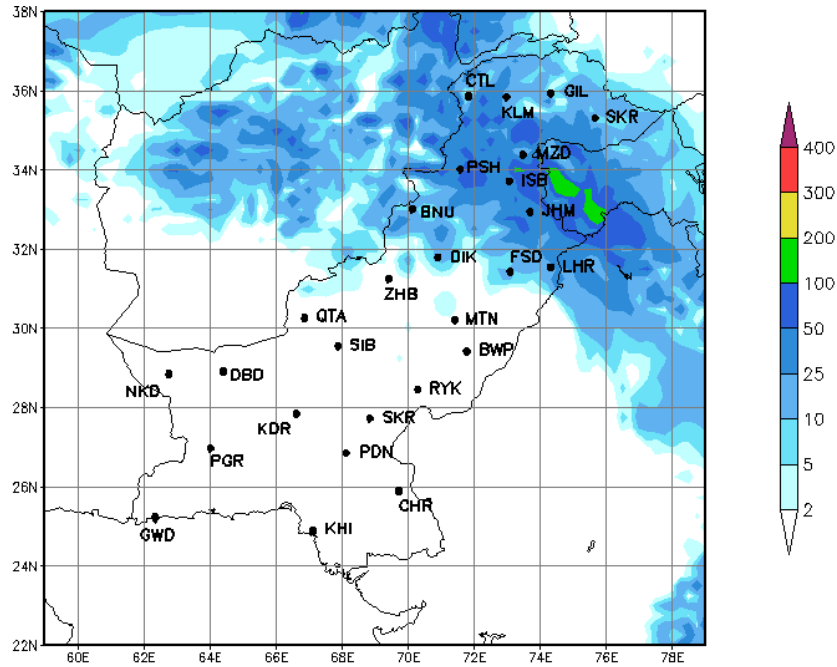
- ❖ **Punjab:** Mainly cold & cloudy weather with light to moderate rainfall is expected in most of the agricultural plains of province. Foggy conditions are likely to prevail over few plain areas of Punjab.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall (with light snowfall over the hills) is expected in the upper parts of the province during the current decade.
- ❖ **Sindh:** Dry weather is expected in the parts province. Foggy conditions are likely to prevail over few plain areas of upper in morning hours during the current decade.
- ❖ **Balochistan:** Mainly cold & dry weather is expected in most of the agricultural plains of province.
- ❖ **Gilgit-Baltistan:** Mainly cold and cloudy weather is expected in most parts of the Province. However, light to moderate rain/thunderstorm is expected at many places in G.B.
- ❖ **Kashmir:** Mainly cold and dry weather is expected in most parts of the country. However, light to moderate rain/thunderstorm with snowfall over hills is expected at few places in Kashmir during the decade.

❖ **3.4 Advisory for Farmers**

- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned 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 crop. As a result considerable loss in yield occurs every year.
- ❖ Measures may be taken to preserve the crops/nurseries/orchids from the damaging impacts of extreme weather conditions e.g. frost etc.

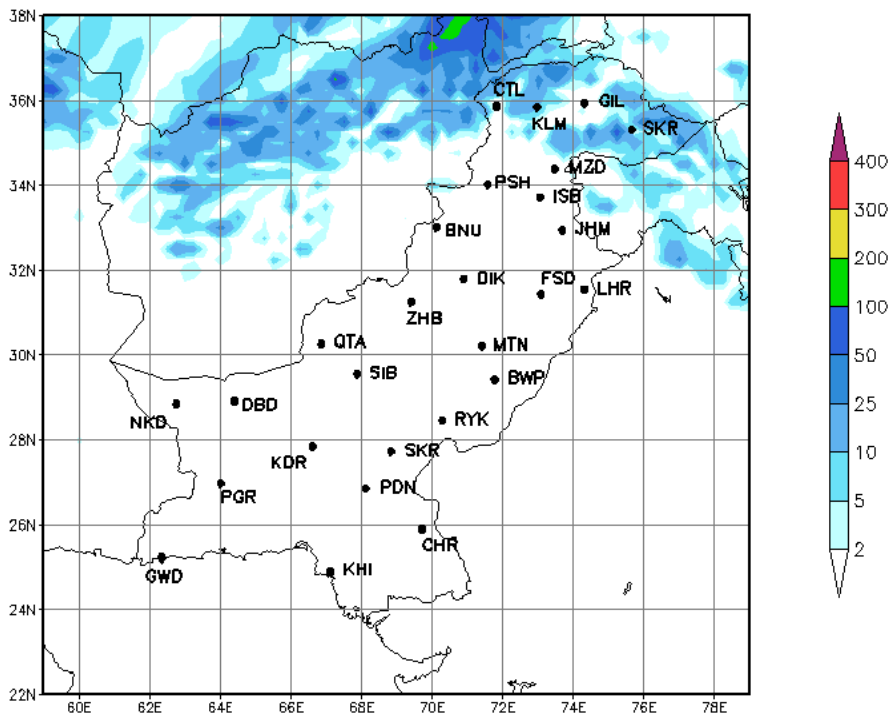
4.1 Precipitation Outlook (12th to 15th February, 2018)

The forecast for the next three days (12th to 15th) of the second decade of February 2018 shows that mainly cold and cloudy weather is expected in most of central & upper parts of the country. Light to moderate rainfall with snowfall over hills is expected in upper Punjab, KP, G.B & Kashmir. Dry weather is expected elsewhere.



4.2 Precipitation Outlook (16th to 20th February, 2018)

The outlook for the last five days (16th to 20th) of the second decade of February 2018 shows that light rainfall is expected at scattered places in upper KP and GB; however dry weather may prevail in rest of the country.



Findings of AgMIP Paksitan, 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۔

(ایگپ پاکستان 2012-2014)