

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate rainfall reported from most parts of the country and light rainfall reported from few places of Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 77.0 mm at Parachinar during the last decade.
- ❖ Lowest minimum temperature recorded as -4.0°C at Skardu & Kalam during the last decade.
- ❖ Foggy conditions persisted in the plain areas of upper Sindh and Punjab.
- ❖ Mainly cold and cloudy weather with light to moderate rainfall is expected in most parts of the northern and western parts of the country during the current decade, however dry weather may prevail in southern parts of the country.
- ❖ 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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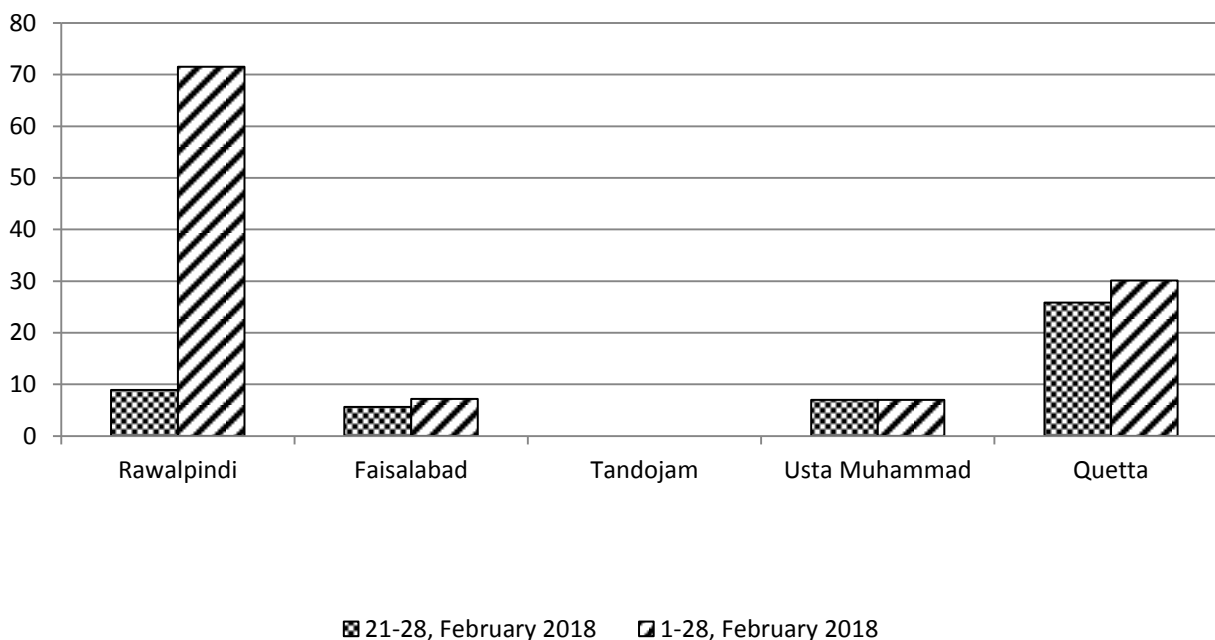
Meteorological Conditions during 3rd Decade of February, 2018

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	1.4	8.9	7.5	2.4	1.5	17.0	18.0	16.5	15.9	15.5	14.7	15.4	66	43.8	3.4	2.2
2	Faisalabad	0.3	5.6	5.3	2.2	2.3	19.9	24.8	23.4	20.9	20.0	19.6	19.9	59	48.3	1.9	2.3
3	Jhelum	1.0	7.0	6.0	2.4	1.5	19.4	20.6	19.2	17.9	17.3	17.8	***	56	47.6	3.9	2.7
4	Lahore	0.5	1.5	1.0	2.6	1.3	21.0	22.8	21.7	19.4	18.2	***	18.8	61	44.9	0.9	2.0
5	Sargodha	0.3	3.2	2.9	2.9	1.8	20.3	25.1	22.8	20.4	20.2	***	20.0	60	50.9	2.0	2.4
6	Multan	0.5	0.1	-0.4	1.3	2.4	20.6	***	***	***	***	***	***	56	50.6	4.4	3.0
7	Khanpur	0.1	2.4	2.3	2.0	1.8	21.6	***	22.0	22.0	22.1	22.2	21.8	57	58.3	2.3	2.7
8	Tandojam	0.0	0.0	0.0	1.0	1.6	23.3	31.0	27.3	24.0	24.4	24.0	23.3	57	61.8	4.2	3.6
9	Sakrand☆	0.0	0.0	0.0	0.9	2.9	22.6	29.1	***	***	***	***	24.2	57	57.7	5.6	3.7
11	Rohri	0.5	3.0	2.5	0.8	1.2	23.0	***	***	***	***	***	***	58	60.1	1.7	2.8
12	D.I Khan	0.6	1.7	1.1	2.9	3.5	20.6	22.1	20.3	18.7	18.9	7.9	18.5	57	53.6	9.0	3.8
13	Peshawar	1.9	8.0	6.1	5.2	0.8	18.8	19.4	19.0	15.9	16.5	15.9	16.5	64	37.1	2.1	2.1
14	Usta .M	0.4	7.0	6.6	-3.3	-0.1	19.4	30.4	25.6	22.6	***	***	24.2	61	***	3.1	2.9
15	Quetta	1.2	25.8	24.6	0.6	2.8	12.0	17.6	15.4	12.7	12.3	12.0	12.0	54	43.0	5.4	2.5
16	Skardu	1.1	1.0	-0.1	3.8	1.0	6.3	***	***	***	***	***	***	62	40.8	0.1	1.3
17	Gilgit	0.3	0.7	0.4	2.5	1.3	11.1	***	***	***	***	***	***	48	26.5	1.6	1.6

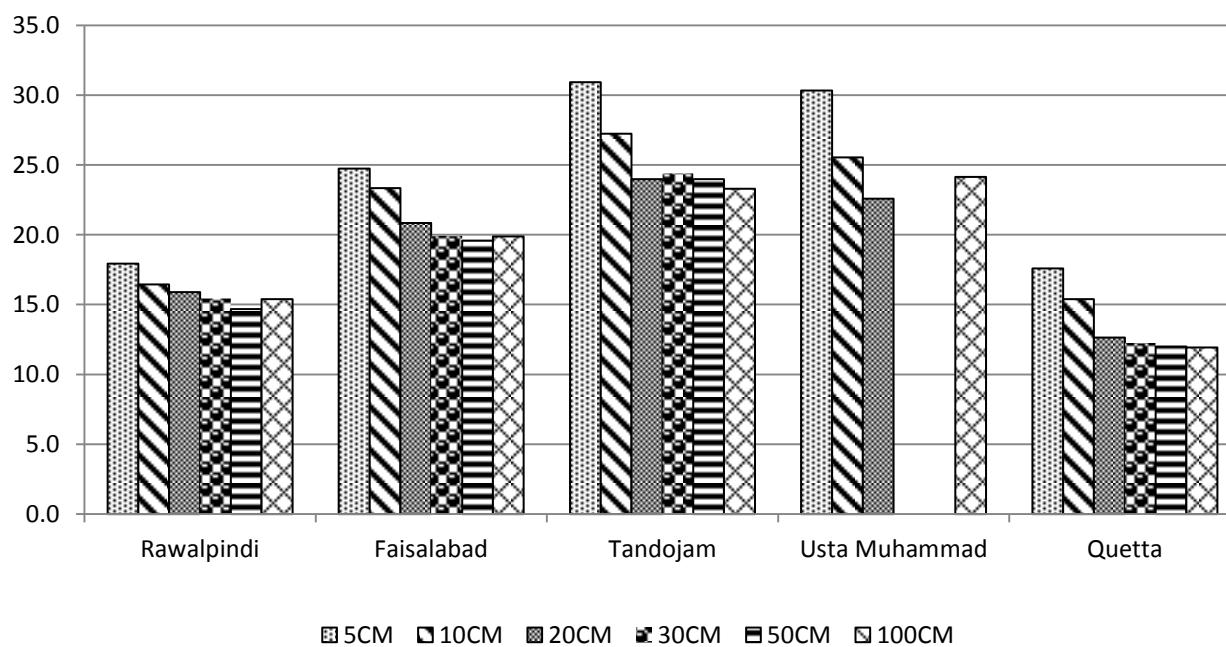
Table-1: Meteorological parameters for selected station of Pakistan. “Dep” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “% Dep” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures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

Precipitation(mm)



Soil Temperature(°C)



Past Weather (21st to 28th February, 2018)

Light to moderate rainfall reported from most parts of the country and light rainfall reported from few places of Sindh during the last decade.

1.1 Punjab

Light to moderate rainfall reported from most of the agricultural plains of Punjab. Chief amount of rainfall is received at Murree, Bhakkar. Decadal maximum & minimum both raised above normal by 2.3°C & 1.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 59%, 49.2hrs, 2.7km/hr and 2.5mm/day respectively.

1.2 Sindh

Light rainfall reported from few agricultural plains of Sindh. Chief amount of rainfall is received at Jacobabad, Sukkur & Rohri. Decadal maximum & minimum departure both raised above normal by 0.9°C & 1.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 59.9hrs, 3.8km/hr and 3.4mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

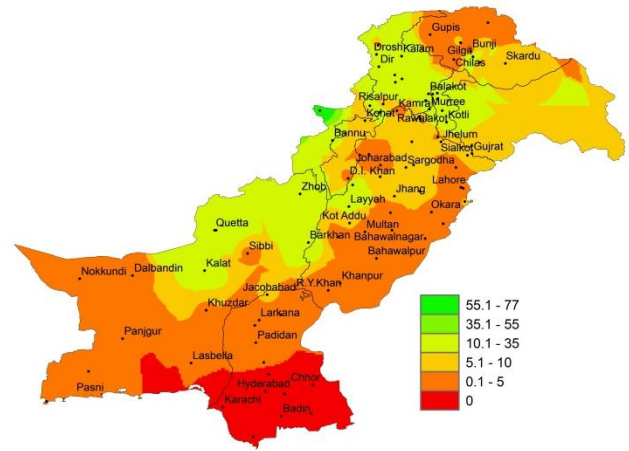
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall is received at Parachinar, Kalam & Malam Jabba. Decadal maximum & minimum departure both raised above normal by 4.1°C & 2.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 45.4hrs, 5.6km/hr and 3.0mm/day respectively.

1.4 Balochistan

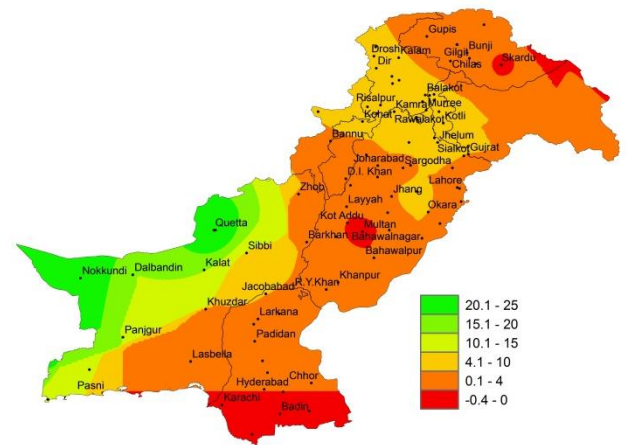
Light to moderate rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall is received at Quetta, Zhob & Barkhan. Decadal maximum dropped below normal by 1.4°C & minimum departure raised above normal by 1.4°C, in the province, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 43.0hrs, 4.3km/hr and 2.7mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

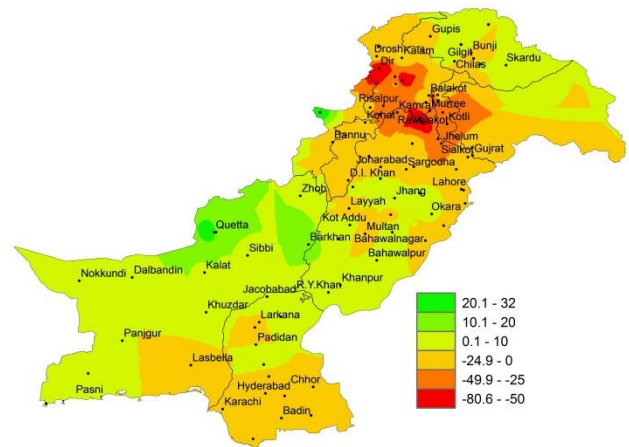
Light to moderate rainfall reported from few agricultural plains of G.B & Kashmir. Chief amount of rainfall is received at Rawalakot, Kotli & Muzaffarabad. Decadal maximum & minimum departure both raised above normal by 3.2°C & 1.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 33.2hrs, 0.9km/hr and 1.5mm/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 (21st to 28th February, 2018)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 8.9mm during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 24.5°C while night temperature recorded as 9.5°C with 43.8hours bright sunshine duration. Wind speed recorded as 3.4km/hr with mean wind direction *westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 5.6mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 27.2°C while night temperature recorded as 12.6°C with 48.33hours bright sunshine duration. Wind speed recorded as 1.9km/hr with mean wind direction *westerly*.

Wheat: *Very good condition, shooting stage completed.*

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 31.7°C while night temperature recorded as 14.9°C with 61.8hours bright sunshine duration. Wind speed recorded as 4.2km/h with mean wind direction *westerly*.

Wheat (Sindh): *Good condition, wax maturity stage.*

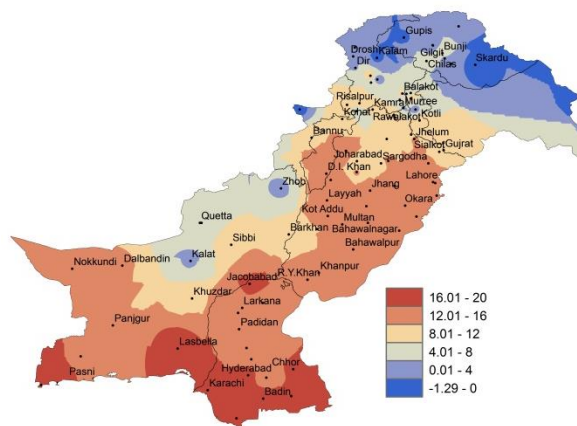
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Rainfall reported as 7.0mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 25.9°C while night temperature recorded as 12.8°C. Wind speed recorded as 3.1km/h with mean wind direction *south easterly*.

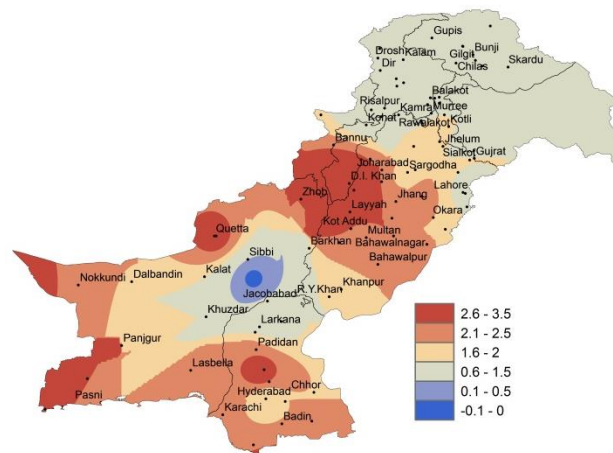
Wheat: *Good condition, flowering stage.*

2.5 RAMC, Quetta (Northern Balochistan)

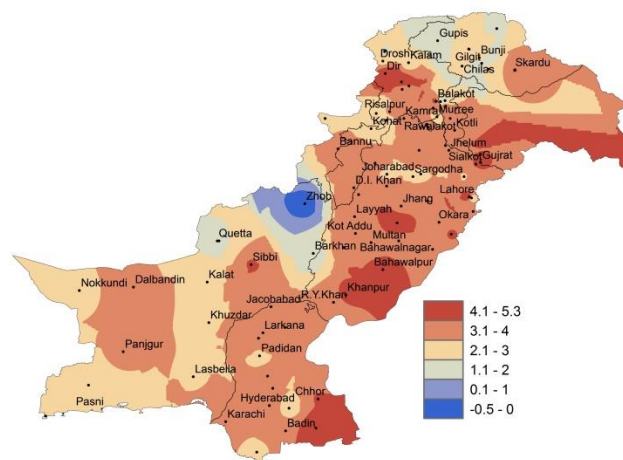
Rainfall reported as 25.8mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 17.6°C while night temperature recorded as 6.4°C with 43.0hours bright sunshine duration. Wind speed recorded as 5.4km/hr with 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 (21st to 28th February, 2018)

2.6 Jhelum

Rainfall reported as 7.0mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 26.6°C while night temperature recorded as 12.2°C with 47.6hours bright sunshine duration. Wind speed recorded as 3.9km/hr with mean wind direction *north westerly*.

2.7 Lahore

Rainfall reported as 1.5mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 27.0°C while night temperature recorded as 14.9°C with 44.9hours bright sunshine duration. Wind speed recorded as 0.9km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 3.2mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 27.9°C while night temperature recorded as 12.7°C with 50.9hours bright sunshine duration. Wind speed recorded 2.0km/hr with mean wind direction *north easterly*.

2.9 Multan

Rainfall reported as 0.1mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 27.2°C while night temperature recorded as 13.9°C with 50.6hours bright sunshine duration. Wind speed recorded 4.4km/hr with mean wind direction *variable*.

2.10 Khanpur

Rainfall reported as 2.4mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 29.5°C while night temperature recorded as 13.7°C with 58.3hours bright sunshine duration. Wind speed recorded 2.3km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 30.1°C while night temperature recorded as 15.1°C with 57.7hours bright sunshine duration. Wind speed recorded 5.6km/hr with wind direction *northerly*.

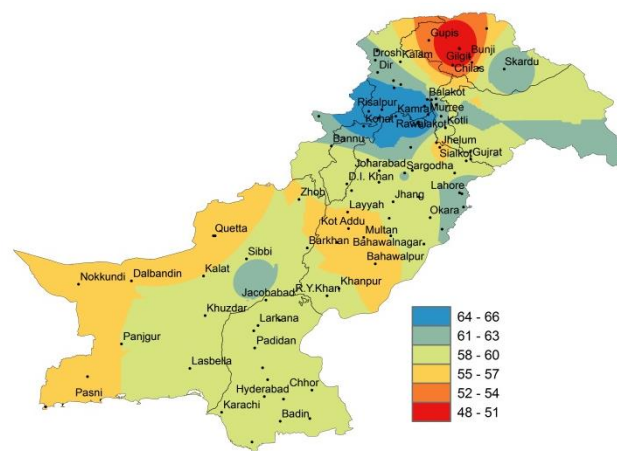


Figure.3: Relative Humidity in Percentage (%)

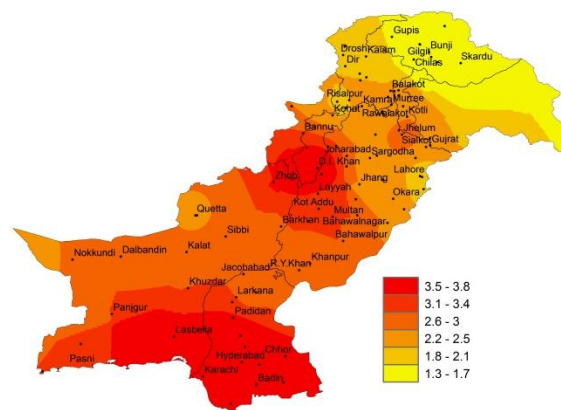


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

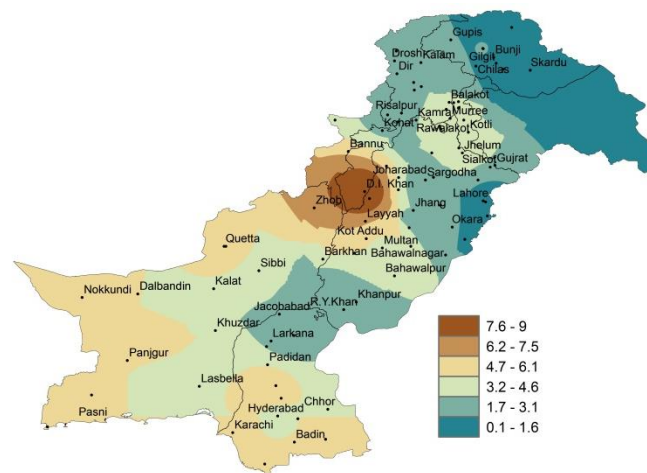


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 3.0mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 29.6°C while night temperature recorded as 16.4°C with 60.1hours bright sunshine duration. Wind speed recorded 1.7km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 1.7mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 27.3°C while night temperature recorded as 13.8°C with 53.6hours bright sunshine duration. Wind speed recorded as 9.03km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as 8.0mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 64%. Mean day temperature was 27.0°C while night temperature recorded as 10.5°C with 37.1hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *south westerly*.

2.15 Skardu

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 13.1°C while night temperature recorded as -0.6°C with 40.8hours bright sunshine duration. Wind speed recorded as 0.1km/hr with mean wind direction *north easterly*.

2.16 Gilgit

Rainfall reported as 0.7mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 18.3°C while night temperature recorded as 3.9°C with 26.5hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *south westerly*.

Ten Days Weather Advisory for Farmers **(1st to 10th March, 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

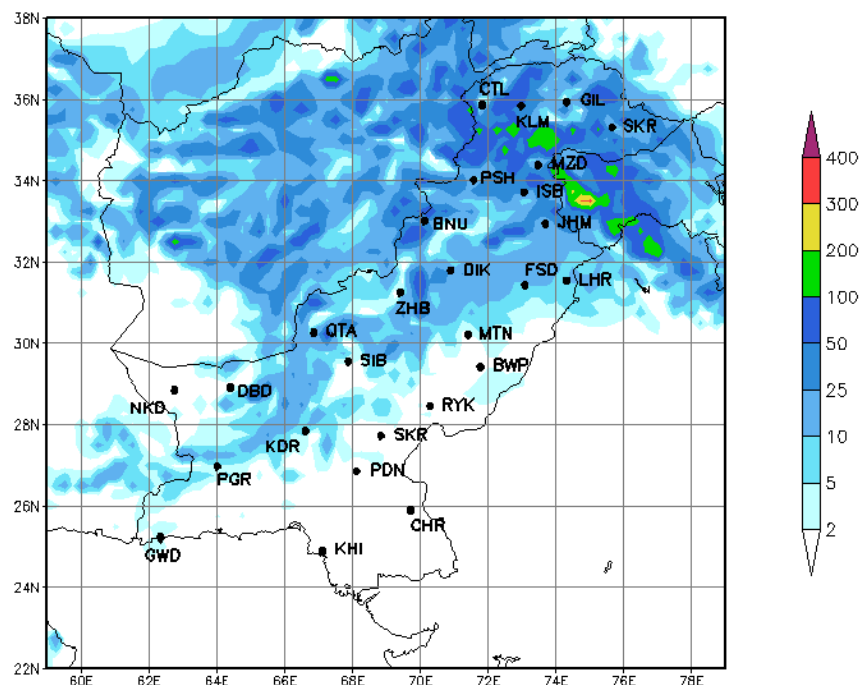
- ❖ **Punjab:** Mainly cold & cloudy weather with light to moderate rainfall is expected in most of the agricultural plains of province. Foggy conditions are likely to prevail over few plain areas of Punjab.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall (with light snowfall over the hills) is 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 & cloudy weather with light to moderate rainfall 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 cloudy weather is expected in most parts of the country. However, light to moderate rain/thunderstorm with snowfall over hills is expected at most places of 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.

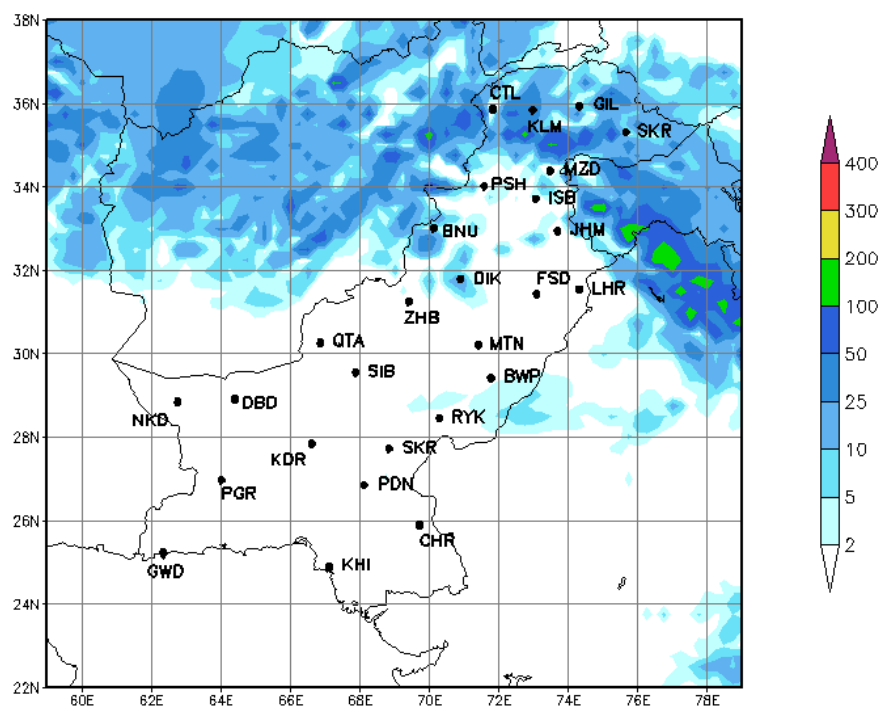
4.1 Precipitation Outlook (1st to 3rd March, 2018)

The forecast for the first three days (1st to 3rd) of the first decade of March, 2018 shows that mainly cold and cloudy weather is expected in most parts of the country. Light to moderate rainfall with snowfall over hills is expected in Punjab, northern Balochistan, KP, G.B & Kashmir. Dry weather is expected elsewhere.



4.2 Precipitation Outlook (4th to 10th February, 2018)

The outlook for the last seven days (4th to 10th) of the first decade of March, 2018 shows that light to moderate rainfall with snowfall over the hills is expected at most parts of KP, Kashmir and GB; light rainfall is expected at scattered places of northern Punjab. Dry weather may be observed in the 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 (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)