

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate rainfall reported from most parts of the country however light rainfall reported from few places of Sindh, during the last decade.
- ❖ Highest amount of rainfall recorded as 130.0 mm at Parachinar during the last decade.
- ❖ Lowest minimum temperature recorded as -3.5°C at Kalam during the last decade.
- ❖ Mainly cold and cloudy weather with light to moderate rainfall is expected in most parts of the northern parts of the country during the current decade, however dry weather may prevail in rest parts of the country.
- ❖ 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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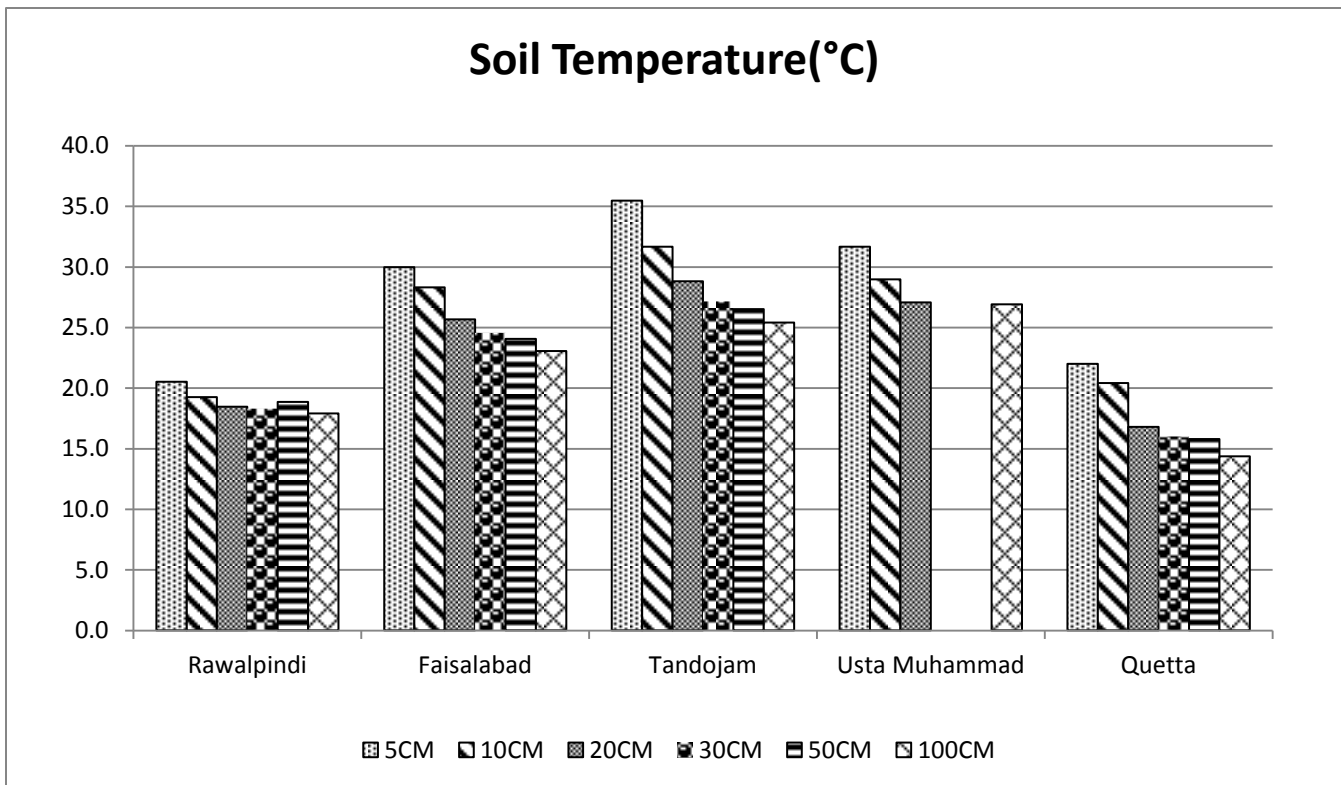
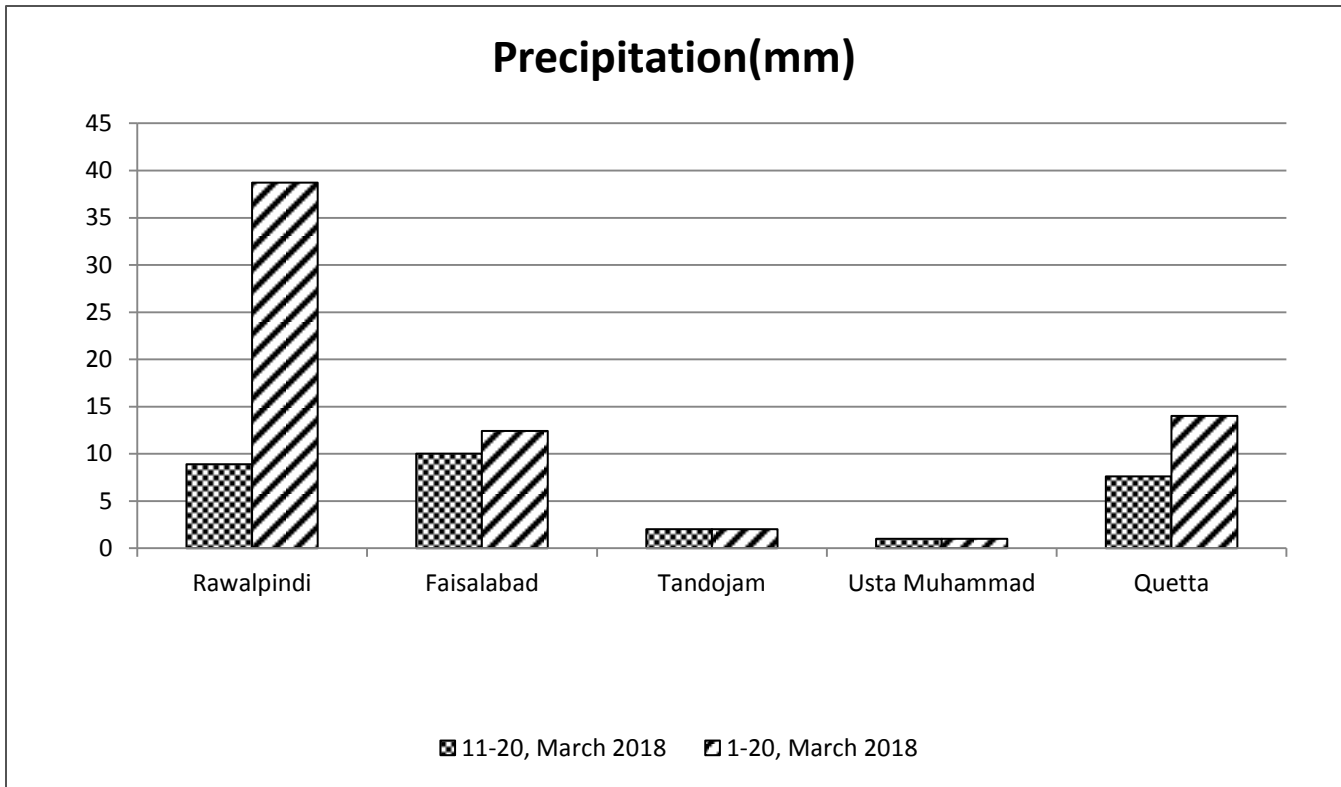
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Meteorological Conditions during 2nd Decade of March, 2018

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	2.0	8.9	6.9	0.3	0.5	19.6	20.5	19.3	18.5	18.3	18.9	17.9	57	66.0	3.5	3.2
2	Faisalabad	0.6	10.0	9.4	1.3	4.4	24.6	30.0	28.3	25.7	24.6	24.1	23.1	49	82.4	2.7	3.6
3	Jhelum	1.5	0.3	-1.2	1.9	0.9	22.9	26.9	25.0	23.0	21.9	22.0	***	42	76.4	3.8	3.9
4	Lahore	0.7	1.3	0.6	1.8	0.6	24.4	27.8	26.1	23.6	22.6	***	20.7	54	78.6	0.1	2.9
5	Sargodha	1.1	0.0	-1.1	0.9	1.7	23.9	29.4	26.9	23.8	23.2	***	22.0	52	75.8	4.4	3.9
6	Multan	0.4	1.2	0.8	0.4	1.3	24.0	***	***	***	***	***	***	47	80.8	5.1	4.4
7	Khanpur	0.4	0.0	-0.4	2.6	0.3	25.0	***	26.4	26.3	26.5	26.5	25.4	45	93.9	1.9	3.8
8	Tandojam	0.9	2.0	1.1	0.4	-0.2	25.6	35.5	31.7	28.8	27.2	26.5	25.4	48	98.5	7.0	5.8
9	Sakrand☆	0.8	0.0	-0.8	2.5	2.9	26.5	35.5	***	***	***	***	26.4	43	108.5	6.9	6.0
11	Rohri	0.0	0.0	0.0	1.5	1.0	26.9	***	***	***	***	***	***	40	107.2	2.1	4.3
12	D.I Khan	1.1	30.0	28.9	1.4	2.0	23.2	25.2	22.8	22.2	22.0	11.3	21.1	55	72.6	12.2	5.3
13	Peshawar	2.0	16.0	14.0	-0.1	-1.2	19.8	23.0	22.3	19.6	19.1	18.8	18.8	55	53.1	1.8	2.6
14	Usta .M	0.7	1.0	0.3	0.8	1.4	24.9	31.7	29.0	27.1	***	***	26.9	53	***	0.9	3.4
15	Quetta	0.6	7.6	7.0	-1.7	3.3	14.8	22.0	20.4	16.8	16.0	15.8	14.4	32	92.0	7.2	4.2
16	Skardu	0.8	5.0	4.2	1.2	-0.8	8.1	***	***	***	***	***	***	48	58.1	2.5	2.2
17	Gilgit	0.4	35.9	35.5	-1.9	-1.0	11.7	***	***	***	***	***	***	53	55.0	1.6	2.1

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 March, 2018



Past Weather (11th to 20th March, 2018)

Light to moderate rainfall reported from most parts of the country however 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 Bhakkar, Murree, & Kamra. Decadal maximum & minimum both raised above normal by 1.3°C & 1.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 79.1hrs, 3.1km/hr and 3.7mm/day respectively.

1.2 Sindh

Light rainfall reported from few agricultural plains of Sindh. Chief amount of rainfall is received at Jacobabad, Larkana, Sukkur & Rohri. Decadal maximum & minimum departure both raised above normal by 1.5°C & 1.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 44%, 104.7hrs, 5.3km/hr and 5.4mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

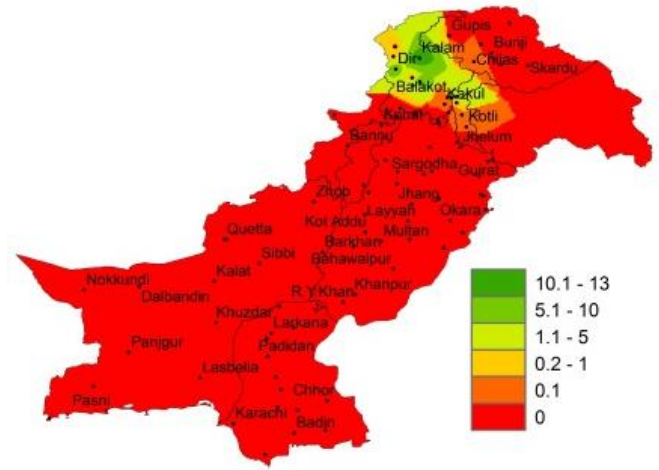
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall is received at Parachinar, Malam Jabba & Pattan. Decadal maximum & minimum departure both raised above normal by 0.7°C & 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 62.9hrs, 7.0km/hr and 4.0mm/day respectively.

1.4 Balochistan

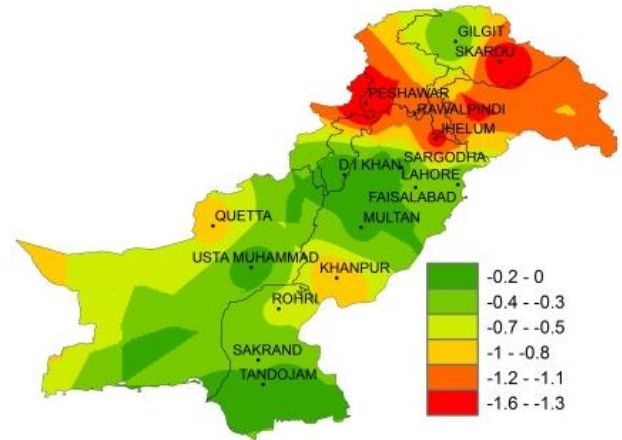
Light to moderate rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall is received at Zhob, Kalat & Quetta. Decadal maximum dropped below normal by 0.4°C & minimum departure raised above normal by 2.4°C, in the province, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 92.0hrs, 4.1km/hr and 3.8mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

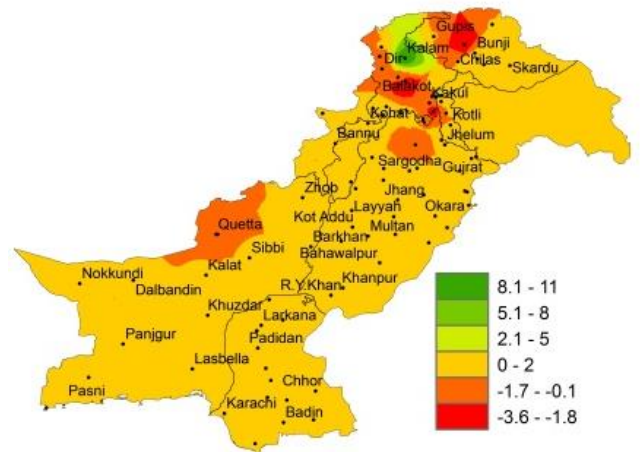
Light to moderate rainfall reported from most of the agricultural plains of G.B & Kashmir. Chief amount of rainfall is received at Astore, Bagrote & Chilas. Decadal maximum & minimum departure both dropped below normal by 0.4°C & 0.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 56.6hrs, 2.1km/hr and 2.2mm/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**
(11th to 20th March, 2018)

2.1 **RAMC, Rawalpindi (Potohar region)**

Rainfall reported as 8.9mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 27.4°C while night temperature recorded as 11.8°C with 66.0hours bright sunshine duration. Wind speed recorded as 3.5km/hr with mean wind direction *north westerly*.

2.2 **RAMC, Faisalabad (Central Punjab)**

Rainfall reported as 10.0mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 30.7°C while night temperature recorded as 15.8°C with 82.4hours bright sunshine duration. Wind speed recorded as 2.7km/hr with mean wind direction *westerly*.

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

2.3 **RAMC, Tandojam (Lower Sindh)**

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 35.3°C while night temperature recorded as 15.8°C with 98.5hours bright sunshine duration. Wind speed recorded as 7.0km/h with mean wind direction *south westerly*.

Wheat : *Harvested on 20.03.2018.*

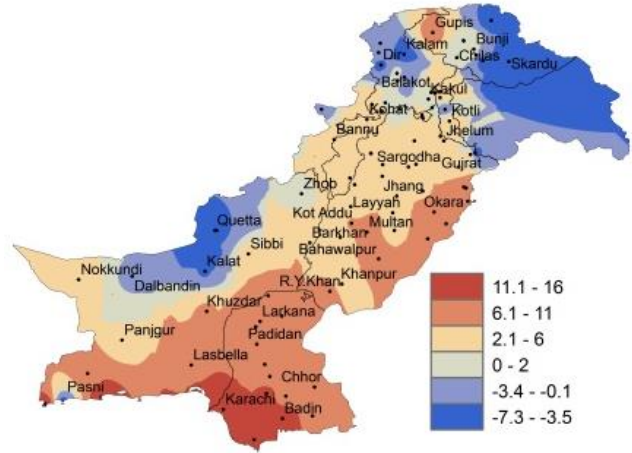
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 53%. Mean day temperature was 32.5°C while night temperature recorded as 17.2°C. Wind speed recorded as 0.9km/h with mean wind direction *north easterly*.

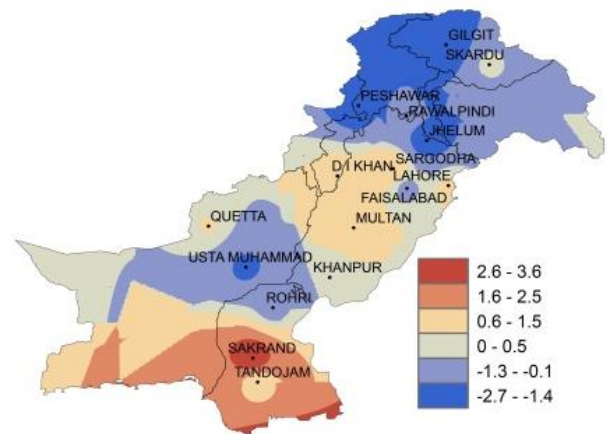
Wheat: *Good condition, milk maturity stage.*

2.5 **RAMC, Quetta (Northern Balochistan)**

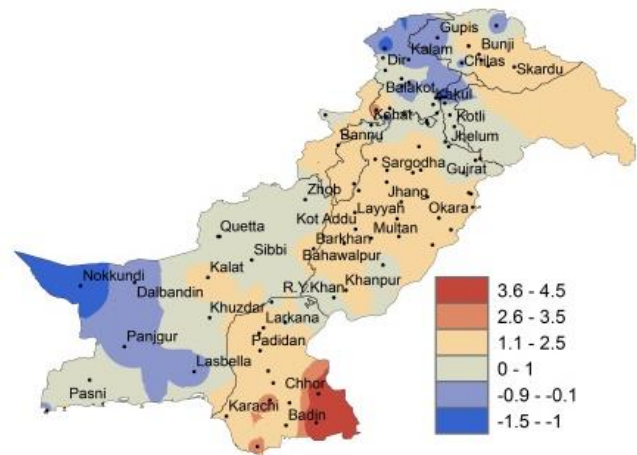
Rainfall reported as 7.6mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 32%. Mean day temperature was 20.1°C while night temperature recorded as 9.5°C with 92.0hours bright sunshine duration. Wind speed recorded as 7.2km/hr with 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 (11th to 20th March, 2018)

2.6 Jhelum

Rainfall reported as 0.3mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 42%. Mean day temperature was 30.9°C while night temperature recorded as 14.9°C with 76.4hours bright sunshine duration. Wind speed recorded as 3.8km/hr with mean wind direction *variable*.

2.7 Lahore

Rainfall reported as 1.3mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 30.6°C while night temperature recorded as 18.1°C with 78.6hours bright sunshine duration. Wind speed recorded as 0.1km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 30.9°C while night temperature recorded as 16.8°C with 75.8hours bright sunshine duration. Wind speed recorded 2.4km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as 1.2mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 31.1°C while night temperature recorded as 16.8°C with 80.8hours bright sunshine duration. Wind speed recorded 5.1km/hr with mean wind direction *variable*.

2.10 Khanpur

Rainfall reported as Trace (not measurable) during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 45%. Mean day temperature was 34.1°C while night temperature recorded as 15.8°C with 93.9hours bright sunshine duration. Wind speed recorded 1.9km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 43%. Mean day temperature was 35.1°C while night temperature recorded as 17.8°C with 108.5hours bright sunshine duration. Wind speed recorded 6.9km/hr with wind direction *northerly*.

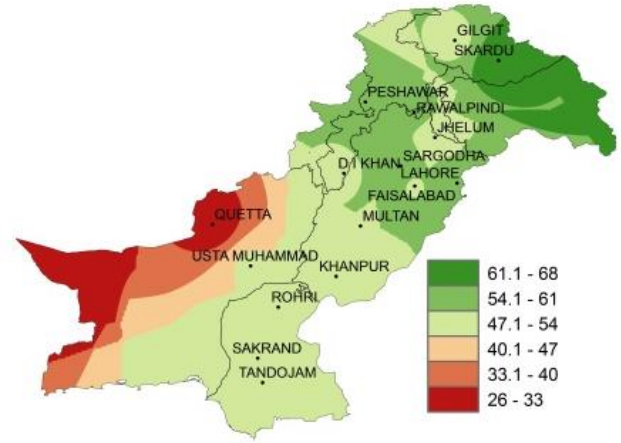


Figure.3: Relative Humidity in Percentage (%)

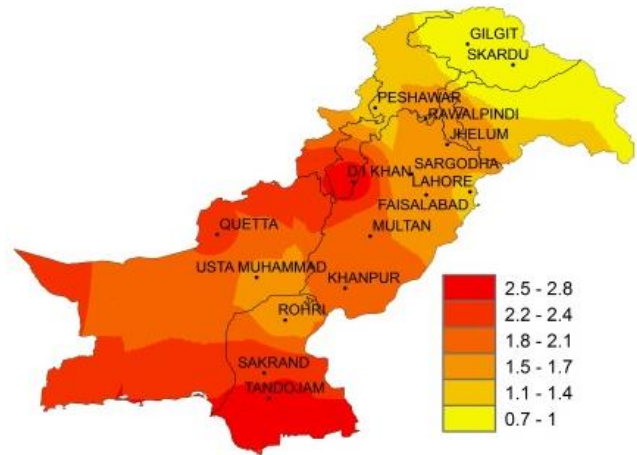


Figure.4: Reference Crop Evapotranspiration ET0 (mm/day)

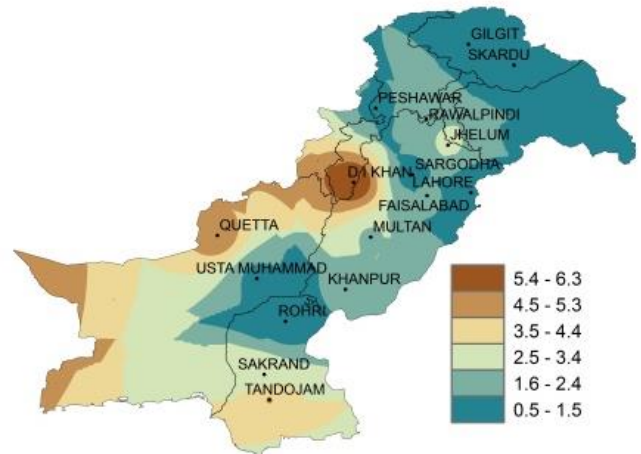


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 40%. Mean day temperature was 34.5°C while night temperature recorded as 19.3°C with 107.2hours bright sunshine duration. Wind speed recorded 2.1km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 30.0mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 30.1°C while night temperature recorded as 16.2°C with 72.6hours bright sunshine duration. Wind speed recorded as 12.2km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as 16.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 26.9°C while night temperature recorded as 12.6°C with 53.1hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 5.0mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 15.7°C while night temperature recorded as 0.4°C with 58.1hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *south south-easterly*.

2.16 Gilgit

Rainfall reported as 35.9mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 53%. Mean day temperature was 18.6°C while night temperature recorded as 4.8°C with 55.0hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *north westerly*.

Ten Days Weather Advisory for Farmers
(21st to 31st March, 2018)

3.1 Temperature Forecast

Night temperatures 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.

3.3 Rain Forecast

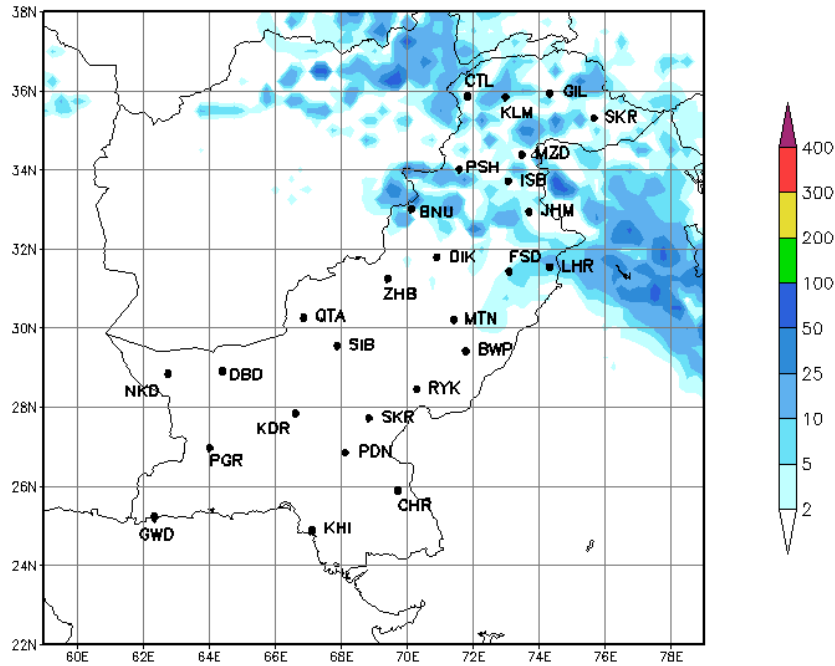
- ❖ **Punjab:** Mainly cold & cloudy weather with light to moderate rainfall is expected in most of the upper parts of the province.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected in the most parts of the province during the current decade.
- ❖ **Sindh:** Mainly dry weather is expected in the parts province.
- ❖ **Balochistan:** Mainly dry weather is expected in the parts province during the current decade.
- ❖ **Gilgit-Baltistan:** Mainly cold and cloudy weather is expected in most parts of the Province. However, light to moderate rain/thunderstorm is expected at few places in G.B.
- ❖ **Kashmir:** Mainly cold and cloudy weather is expected in few parts of the country. However, light to moderate rain/thunderstorm 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 weather extremes.

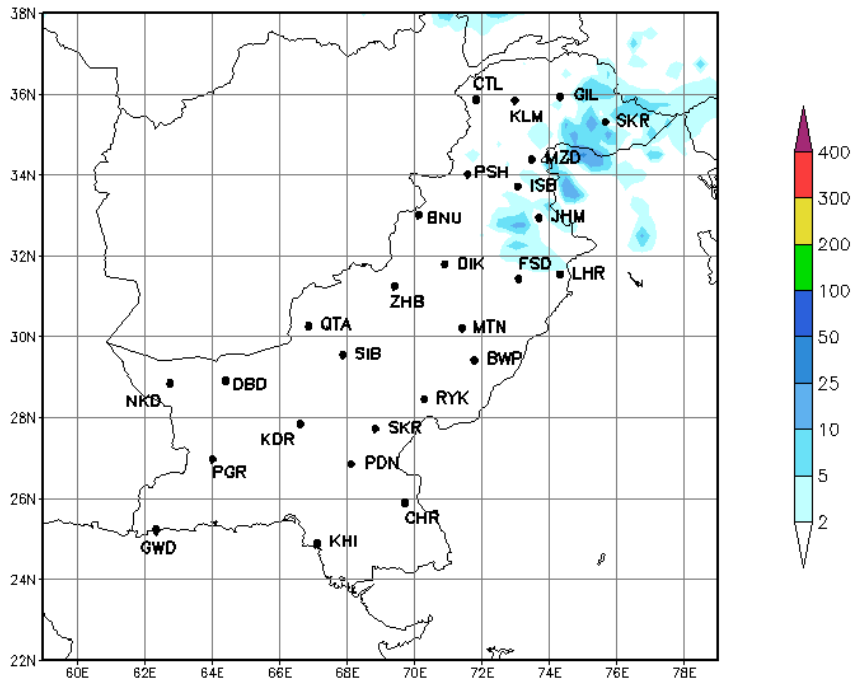
4.1 Precipitation Outlook (21st to 23rd March, 2018)

The forecast for the first three days (21st to 23rd) of the third decade of March, 2018 shows that mainly dry weather is expected in most parts of the country. However cold and cloudy weather with light to moderate rainfall is expected at scattered places in upper Punjab, KP, G.B and Kashmir.



4.2 Precipitation Outlook (14th to 31st February, 2018)

The outlook for the last eight days (14th to 31st) of the third decade of March, 2018 shows that light to moderate rainfall is expected at few places of upper Punjab, Kashmir and GB. While, dry weather may prevail in rest part 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۔

(ایگمپ پاکستان 2012-2014)