

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light rainfall reported from Punjab K.P, G.B & Kashmir while dry weather was reported from Sindh and Balochistan during the last decade.
- ❖ Highest amount of rainfall recorded as 28.0 mm at Lahore during the last decade.
- ❖ Highest maximum temperature recorded as 45.5°C at Padidan, Sh. Benazir Abad and Moin-jo-Daro, whereas lowest minimum temperature recorded as 0.5°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.
- ❖ Wheat crop is at heading-maturity stages in different areas. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- ❖ Measures may be taken to preserve the standing crops/nurseries/orchids from the damaging impacts of extreme weather 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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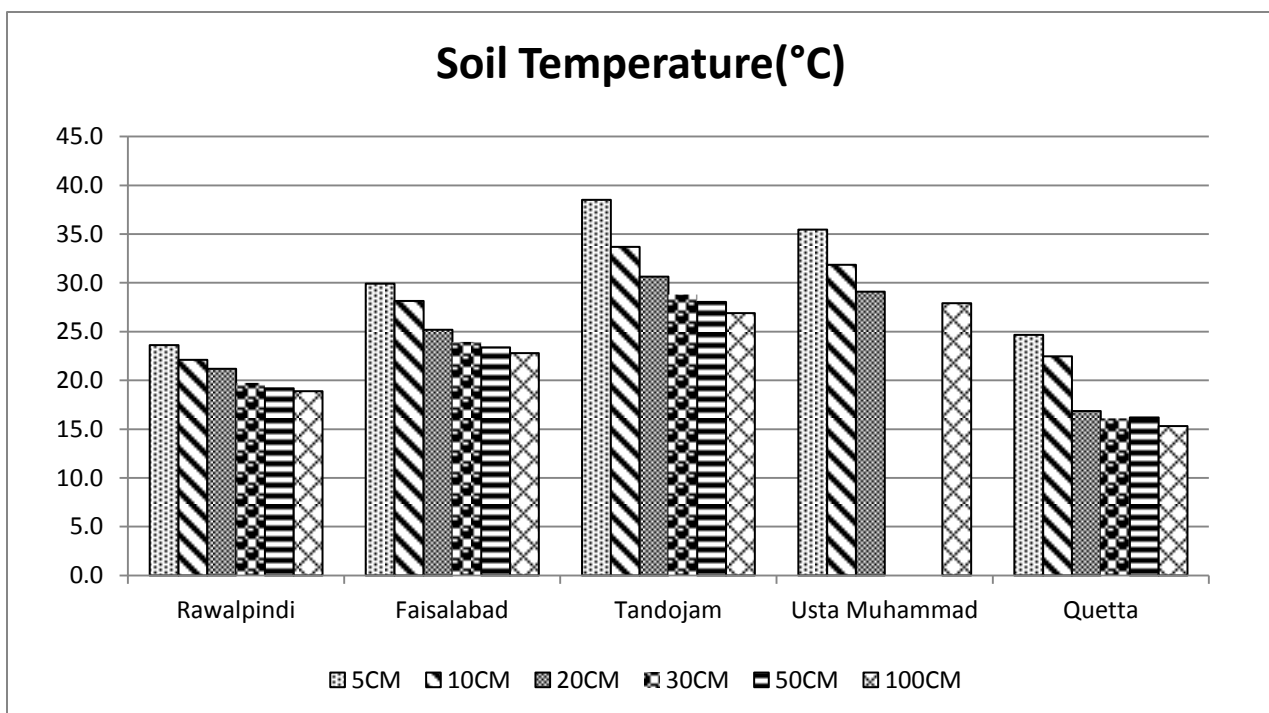
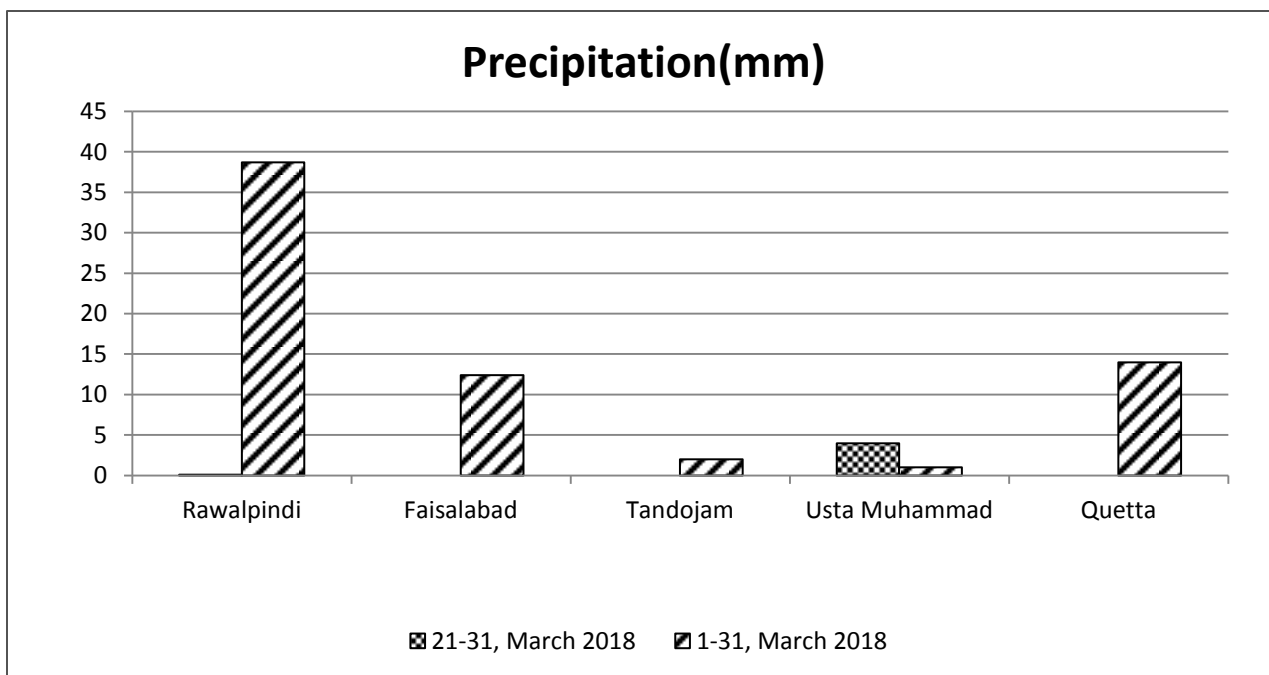
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Meteorological Conditions during 3rd Decade of March, 2018

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	2.7	0.1	-2.6	3.1	0.7	22.3	23.6	22.1	21.2	19.8	19.2	18.9	49	94.1	7.6	3.5
2	Faisalabad	0.6	0.0	-0.6	2.7	1.0	25.1	29.9	28.2	25.2	24.0	23.4	22.8	41	94.5	3.0	2.5
3	Jhelum	1.6	0.4	-1.2	4.0	0.0	24.7	29.2	27.1	24.7	23.6	23.6	***	39	93.2	4.8	3.1
4	Lahore	1.7	15.8	14.1	1.9	0.2	25.4	33.5	27.4	24.7	23.4	***	22.8	50	92.5	0.9	1.7
5	Sargodha	1.0	0.1	-0.9	3.1	1.2	25.9	32.0	29.2	25.7	24.9	***	23.2	44	87.3	4.7	3.1
6	Multan	1.2	0.1	-1.1	2.2	1.4	26.3	***	***	***	***	***	***	41	96.7	3.4	2.8
7	Khanpur	0.5	0.0	-0.5	3.7	0.0	27.2	***	28.3	28.2	28.2	28.2	26.8	40	103.3	2.7	2.9
8	Tandojam	0.0	0.0	0.0	2.4	-1.9	27.4	38.5	33.7	30.7	28.8	28.1	26.9	38	110.3	4.8	4.3
9	Sakrand☆	0.1	0.0	-0.1	4.3	1.0	28.9	39.9	***	***	***	***	27.7	30	127.5	3.0	3.3
11	Rohri	0.6	0.0	-0.6	4.4	-1.6	29.0	***	***	***	***	***	***	31	124.0	0.8	2.0
12	D.I Khan	0.8	0.0	-0.8	4.2	2.0	25.9	26.0	24.2	22.9	22.7	21.8	22.5	56	82.5	6.2	3.3
13	Peshawar	2.4	0.0	-2.4	4.3	-0.6	22.9	25.4	24.5	21.1	20.5	20.1	19.8	48	73.5	1.9	1.7
14	Usta .M	0.5	4.0	3.5	3.5	1.4	28.3	35.5	31.9	29.1	***	***	27.9	59	***	3.8	3.4
15	Quetta	0.9	0.0	-0.9	2.4	2.2	17.1	24.7	22.5	16.9	16.1	16.2	15.3	25	115.6	14.8	5.3
16	Skardu	0.5	0.0	-0.5	3.5	-0.5	11.8	***	***	***	***	***	***	35	68.2	1.1	1.0
17	Gilgit	0.2	2.0	1.8	3.4	-0.6	15.9	***	***	***	***	***	***	36	82.7	2.7	1.5

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 (21st to 31st March, 2018)

Light rainfall reported from Punjab, GB & Kashmir and K.P. however dry weather reported from Sindh and Balochistan during the last decade.

1.1 Punjab

Light rainfall reported from most of the agricultural plains of Punjab. Chief amount of rainfall is received at Lahore, Okara, & Murree. Decadal maximum & minimum both raised above normal by 3.0°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 94.5hrs, 3.9km/hr and 2.8mm/day respectively.

1.2 Sindh

Dry weather reported from agricultural plains of Sindh. Decadal maximum raised above normal by 3.7°C & minimum departure dropped below normal by 0.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 33%, 120.6hrs, 2.9km/hr and 3.2mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

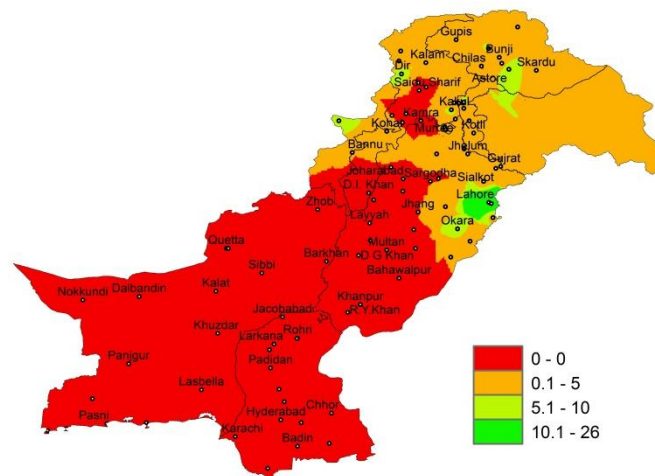
Light rainfall reported from agricultural plains of KP. Chief amount of rainfall is received at Pattan, Kakul and Dir. Decadal maximum & minimum departure both raised above normal by 4.3°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 52%, 78.0hrs, 4.1km/hr and 2.5mm/day respectively.

1.4 Balochistan

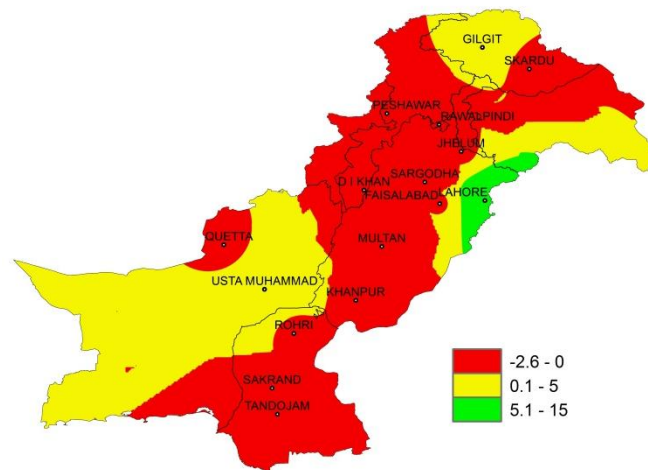
Dry weather reported from agricultural plains of Balochistan. Decadal maximum & minimum both raised above normal by 3.0°C & 1.8°C respectively, in the province, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 42%, 115.6hrs, 9.3km/hr and 4.4mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

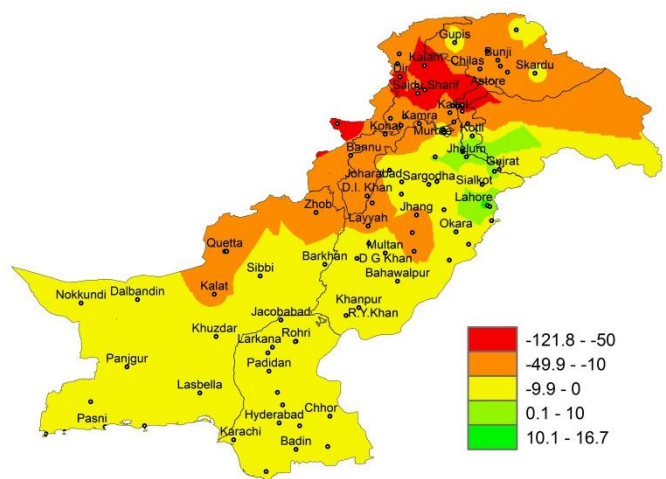
Light rainfall reported from the agricultural plains of G.B & Kashmir. Chief amount of rainfall is received at Astore, Bagrote & Gupis. Decadal maximum raised above normal by 3.5°C & minimum dropped below normal by 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 36%, 75.5hrs, 1.9km/hr and 1.3mm/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 31st March, 2018)**

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 31.1°C while night temperature recorded as 13.4°C with 94.1hours bright sunshine duration. Wind speed recorded as 7.6km/hr with mean wind direction *westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Dry weather reported during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 41%. Mean day temperature was 33.5°C while night temperature recorded as 16.6°C with 94.5hours bright sunshine duration. Wind speed recorded as 3.0km/hr with mean wind direction *South westerly*.

Wheat: *Very good condition, Wax maturity started.*

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade. Average relative humidity recorded as 38%. Mean day temperature was 39.0°C while night temperature recorded as 15.8°C with 110.3hours bright sunshine duration. Wind speed recorded as 4.8km/h with mean wind direction *south westerly*.

Wheat: *Harvested.*

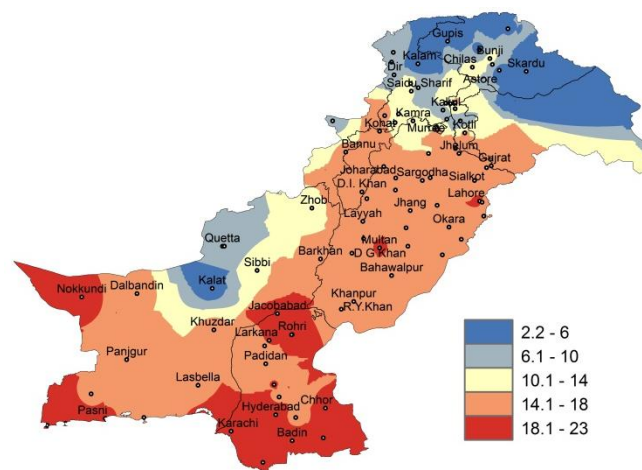
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Rainfall reported as 4.0 mm during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 59%. Mean day temperature was 38.1°C while night temperature recorded as 18.4°C. Wind speed recorded as 3.8km/h with mean wind direction *South easterly*.

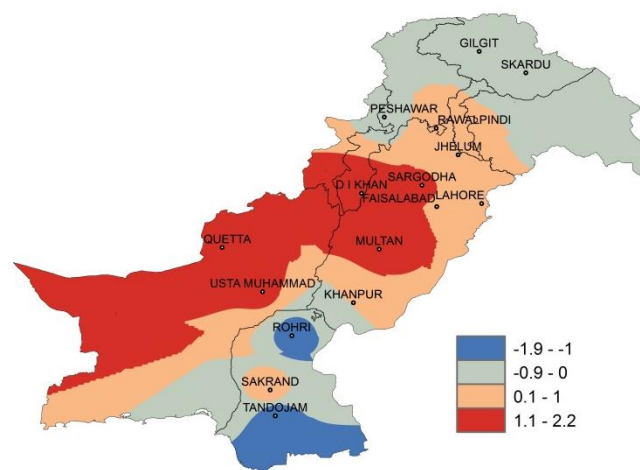
Wheat: *Harvested.*

2.5 RAMC, Quetta (Northern Balochistan)

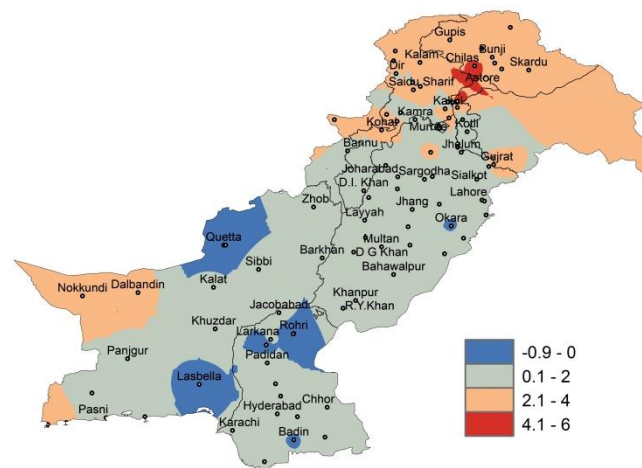
Dry weather reported during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 25%. Mean day temperature was 24.7°C while night temperature recorded as 9.4°C with 115.6 hours bright sunshine duration. Wind speed recorded as 4.8km/hr with mean 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 (21st to 31st March, 2018)

2.6 Jhelum

Rainfall reported as 0.4mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 39%. Mean day temperature was 33.9°C while night temperature recorded as 15.5°C with 93.2hours bright sunshine duration. Wind speed recorded as 4.8km/hr with mean wind direction *North westerly*

2.7 Lahore

Rainfall reported as 15.8mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 31.9°C while night temperature recorded as 14.0°C with 92.5hours 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 08days during the decade. Average relative humidity recorded as 41%. Mean day temperature was 34.2°C while night temperature recorded as 18.3°C with 96.7hours bright sunshine duration. Wind speed recorded 3.4km/hr with mean wind direction *northerly*.

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

Dry weather reported during the decade. Average relative humidity recorded as 40%. Mean day temperature was 37.5°C while night temperature recorded as 16.8°C with 103.3hours bright sunshine duration. Wind speed recorded 2.7km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Dry weather reported during the decade; Average relative humidity recorded as 30%. Mean day temperature was 39.7°C while night temperature recorded as 18.0°C with 127.5hours bright sunshine duration. Wind speed recorded 3.0km/hr with wind direction *southerly*.

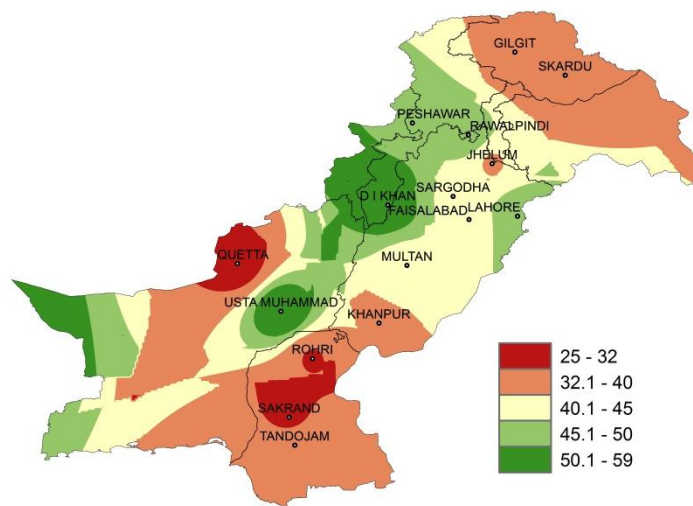


Figure.3: Relative Humidity in Percentage (%)

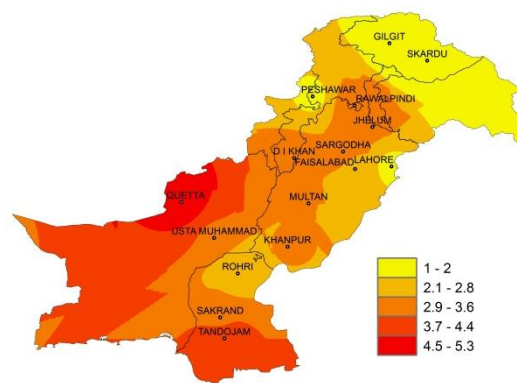


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

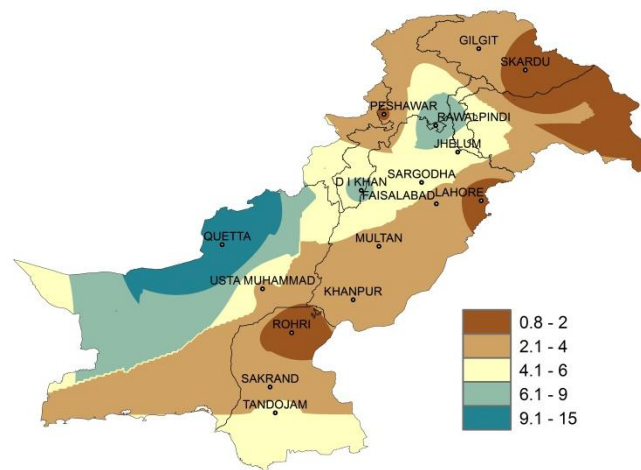


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade. Average relative humidity recorded as 31%. Mean day temperature was 39.5°C while night temperature recorded as 18.4°C with 124.0 hours bright sunshine duration. Wind speed recorded 0.8 km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 34.2°C while night temperature recorded as 17.5°C with 82.5 hours bright sunshine duration. Wind speed recorded as 6.2 km/hr with mean wind direction *westerly*.

2.14 Peshawar

Dry weather reported during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 31.8°C while night temperature recorded as 14.0°C with 73.5 hours bright sunshine duration. Wind speed recorded as 1.9 km/hr with mean wind direction *variable*.

2.15 Skardu

Dry weather reported during the decade;; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 35%. Mean day temperature was 20.4°C while night temperature recorded as 3.2°C with 68.2 hours bright sunshine duration. Wind speed recorded as 1.1 km/hr with mean wind direction *east south easterly*.

2.16 Gilgit

Rainfall reported as 2.0 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 36%. Mean day temperature was 25.5°C while night temperature recorded as 6.3°C with 82.7 hours bright sunshine duration. Wind speed recorded as 2.7 km/hr with mean wind direction *north westerly*.

Ten Days Weather Advisory for Farmers **(2nd to 10th April, 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

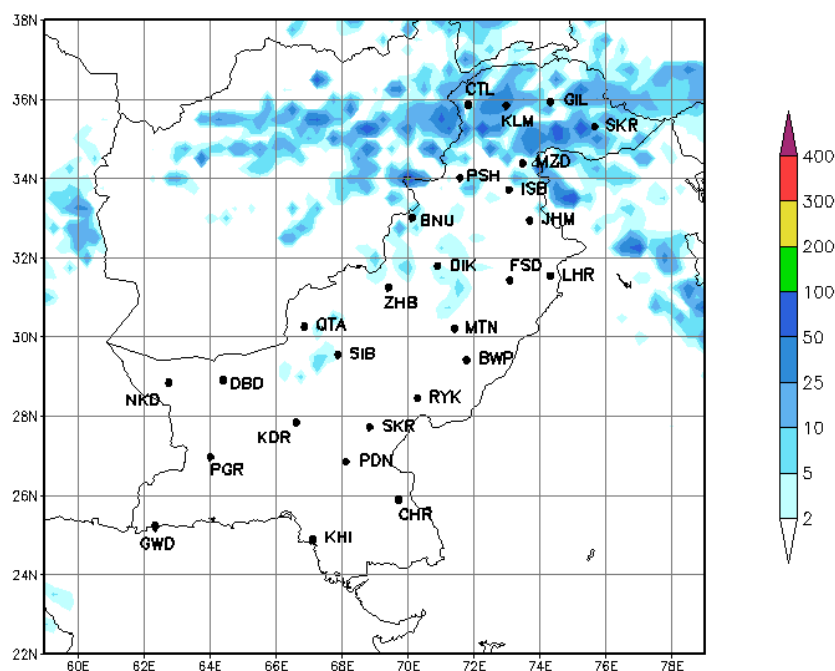
- ❖ **Punjab:** Mainly dry weather is expected in most parts while light rain-thunderstorm is expected at scattered places in Rawalpindi on 3rd and 8th of this decade. Whereas hot and partly cloudy weather is expected in central and southern parts of the province.
- ❖ **Khyber Pakhtunkhwa:** Light rain-thunderstorm is expected at few places in Malakand, Hazara division, and upper FATA during the decade.
- ❖ **Sindh:** Mainly dry weather is expected in most parts of the province.
- ❖ **Balochistan:** Light rain-thunderstorm with gusty winds is expected at few places in Quetta, Zhob and Kalat division during the decade.
- ❖ **Gilgit-Baltistan:** Light rain-thunderstorm with gusty winds is expected at isolated during the decade.
- ❖ **Kashmir:** Light rain-thunderstorm is expected at few places in Kashmir and its adjoining areas during the decade.

3.4 Advisory for Farmers

- ❖ Wheat crop is at heading-maturity stages in different areas. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- ❖ 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.
- ❖ Farmers are advised to ensure field sanitation and spray prophylactic fungicidal sprays to prevent spread of diseases on vegetables.

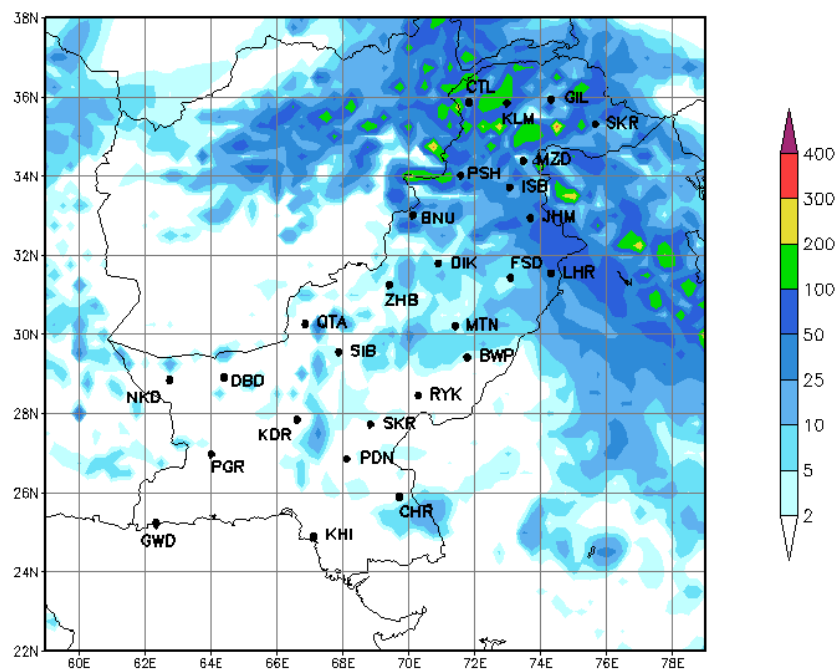
4.1 Precipitation Outlook (2nd to 4th April, 2018)

The forecast for the next three days (2nd to 4th) of the first decade of April, 2018 shows that mainly dry weather is expected in most parts of the country. However light to moderate rainfall is expected at scattered places in KP, G.B, Kashmir and light rainfall is expected at isolated places in northern Balochistan.



4.2 Precipitation Outlook (5th to 10th April, 2018)

The outlook for the last six days (5th to 10th) of the first decade of April, 2018 shows that moderate to heavy rainfall is expected in upper Punjab, KP, Kashmir, GB and light to moderate rainfall is expected at scattered places in Balochistan and Sindh.



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)