

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from most parts of Punjab, KP, G.B & Kashmir, however light rainfall reported from Balochistan and Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 58.4 mm at Gujranwala during the last decade
- ❖ Lowest minimum temperature recorded as -7.0°C at Kalam during the last decade.
- ❖ Light to moderate rain (with snowfall over the mountains) is expected in most parts of the country, while weather may remain cloudy in the northern and western parts of the country during the current decade.
- ❖ Wheat crop is at tillering-maturity stages in different areas. Farmers are advised to schedule their irrigation plans by keeping in view the weather forecast.
- ❖ Farmers in the lower half of the country especially those in central regions are advised to take up poultry rearing houses to maintain optimum room temperature and take care against the rapid changes in air temperature and relative humidity.
- ❖ 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 vegetable.

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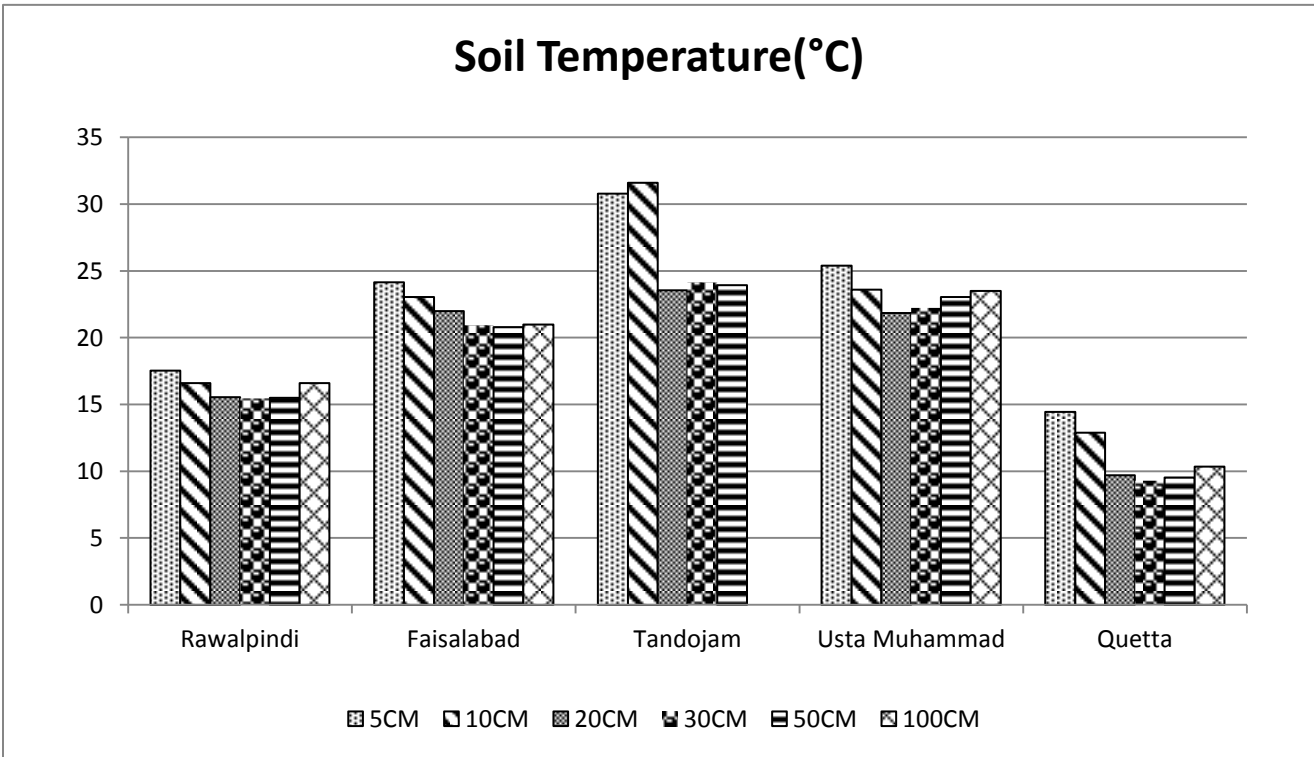
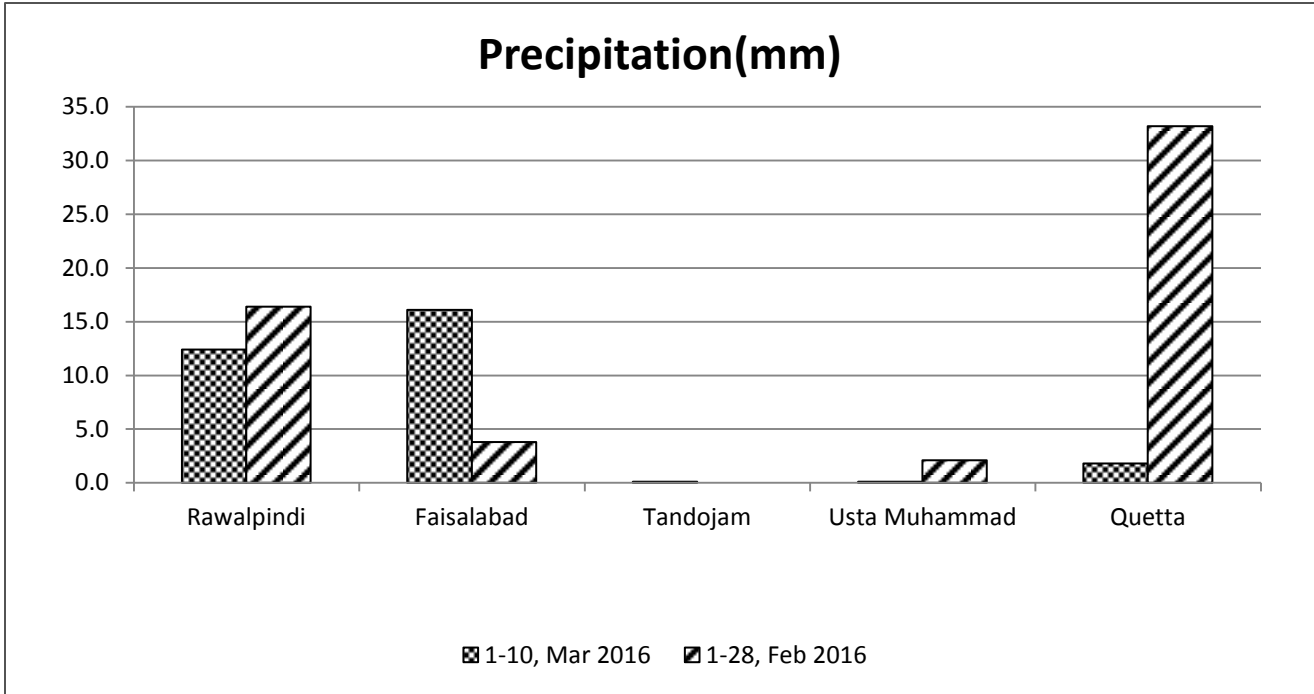
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Meteorological Conditions during 1st decade of March, 2017

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	12.4	10.4	-2.3	-0.3	15.4	17.6	16.6	15.6	15.5	15.5	16.6	59	68.1	4.5	2.7
2	Faisalabad	0.8	16.1	15.3	-1.7	-0.1	18.3	24.2	23.1	22.0	21.0	20.8	21.0	56	72.4	2.7	2.8
3	Jhelum	0.9	13.8	12.9	-1.9	-2.0	17.1	20.3	18.9	17.1	17.1	17.7	***	45	68.7	3.2	2.9
4	Lahore	0.9	28.0	27.1	-1.2	-1.9	18.9	21.6	20.6	19.0	18.6	***	19.4	59	62.5	2.8	2.7
5	Sargodha	0.5	16.0	15.5	-2.0	-0.2	18.9	24.1	22.5	20.4	20.3	***	20.5	63	63.4	2.1	2.6
6	Multan	0.6	0.9	0.3	-2.2	0.7	19.4	***	***	***	***	***	***	55	81.1	4.3	3.4
7	Khanpur	3.2	0.0	-3.2	-0.2	-1.1	20.7	***	22.4	22.7	23.0	23.4	23.2	59	81.1	3.6	3.5
8	Tandojam	0.0	0.1	0.1	-0.8	-1.5	21.8	30.8	31.6	23.6	24.2	24.0	***	46	92.8	3.5	4.1
9	Sakrand ☆	0.0	0.0	0.0	-0.6	-0.3	21.9	37.7	***	***	***	***	25.2	43	104.8	5.9	4.8
11	Rohri	0.4	0.1	-0.3	-0.7	-0.6	22.9	***	***	***	***	***	***	41	96.0	2.8	3.8
12	D.I Khan	0.6	23.0	22.4	-0.7	0.7	18.9	***	***	***	***	***	***	60	77.0	9.0	3.9
13	Peshawar	1.4	0.1	-1.3	-0.3	-2.5	16.4	21.8	19.0	16.4	***	***	***	70	55.7	6.2	2.7
14	Usta .M	0.0	0.1	0.1	-3.4	-1.6	20.6	25.4	23.6	21.9	22.3	23.1	23.5	55	3.0	4.2	3.6
15	Quetta	0.6	1.8	1.2	-3.5	1.0	9.4	14.5	12.9	9.7	9.3	9.6	10.4	37	83.5	6.2	3.1
16	Skardu	0.7	0.1	-0.6	-3.5	0.0	3.6	***	***	***	***	***	***	63	39.7	1.2	1.4
17	Gilgit	0.3	2.2	1.9	-3.2	-0.2	9.1	***	***	***	***	***	***	44	42.7	4.3	2.2

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 March, 2017



1. Past Weather (1st to 10th March, 2017)

Light to moderate rainfall reported from most parts of Punjab, KP, G.B & Kashmir, however light rainfall reported from Balochistan and Sindh during the last decade.

1.1 Punjab

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Gujranwala, Lahore & Murree. Decadal maximum & minimum both dropped below normal by 1.6°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 71.0hrs, 3.3km/hr and 2.9mm/day respectively.

1.1 Sindh

Light rainfall reported from agricultural plains of Sindh. Chief amount of rainfall received at Badin, Rohri & Larkana. Decadal maximum & minimum both dropped below normal by 0.7°C & 0.8°C respectively, in the province, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 97.9hrs, 4.1km/hr and 4.2mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

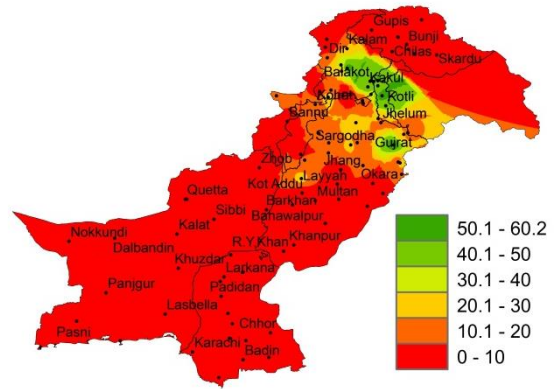
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Malam Jabba, Pattan & Kakul. Decadal maximum & minimum both dropped below normal by 0.5°C & 0.9°C respectively, in the province, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 66.4hrs, 7.6km/hr and 3.3mm/day respectively.

1.3 Balochistan

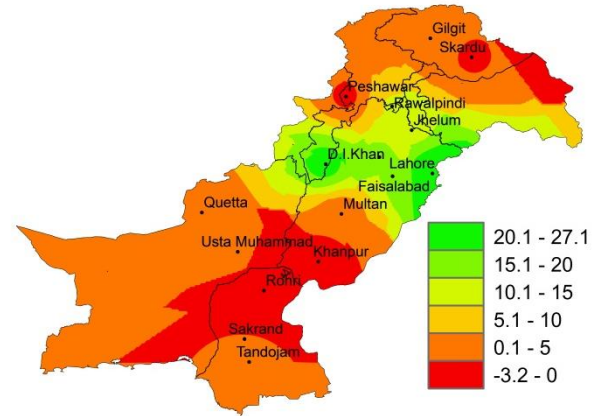
Light rainfall reported from agricultural plains of Balochistan. Chief amount of rainfall received at Barkhan, Quetta & Jiwani. Decadal maximum & minimum both dropped below normal by 3.5°C & 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 43.3hrs, 5.2km/hr and 3.4mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

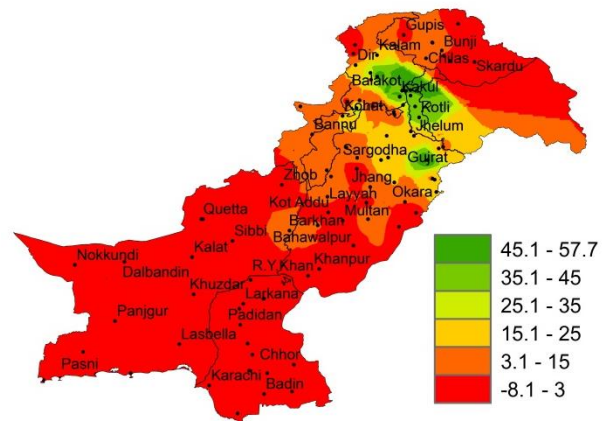
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Rawalakot, Kotli & Muzaffarabad. Decadal maximum & minimum both dropped below normal by 3.4°C & 0.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 41.2hrs, 2.8km/hr and 1.8mm/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 March, 2017)

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

Rainfall reported as 12.4mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 59%. Mean day temperature was 22.1°C while night temperature recorded as 8.6°C with 68.1hours bright sunshine duration. Wind speed recorded as 4.5km/hr with mean wind direction *westerly*.

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

Rainfall reported as 16.1mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 56%. Mean day temperature was 24.9°C while night temperature recorded as 11.6°C with 72.4hours bright sunshine duration. Wind speed recorded as 2.7km/hr with mean wind direction *north westerly*.

Wheat: *Very Good condition, flowering stage.*

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

Rainfall reported as Trace (not measurable) during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 46%. Mean day temperature was 31.3°C while night temperature recorded as 12.3°C with 92.8hours bright sunshine duration. Wind speed recorded as 3.5km/h with mean wind direction *northerly*.

Wheat (Imdad): *Very Good condition, maturity stage.*

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

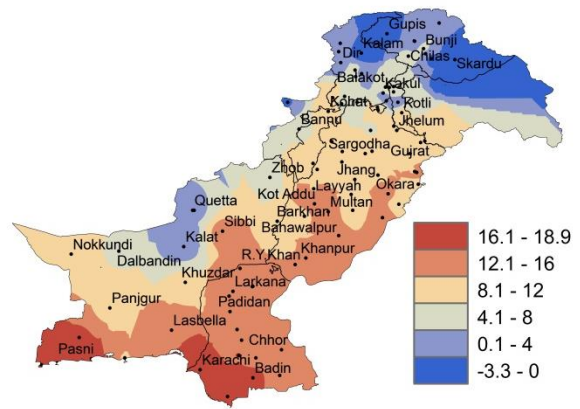
Rainfall reported as Trace (not measurable) during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 55%. Mean day temperature was 28.0°C while night temperature recorded as 13.1°C. Wind speed recorded as 4.17km/h with mean wind direction *variable*.

Wheat: *Very Good condition, milk maturity stage.*

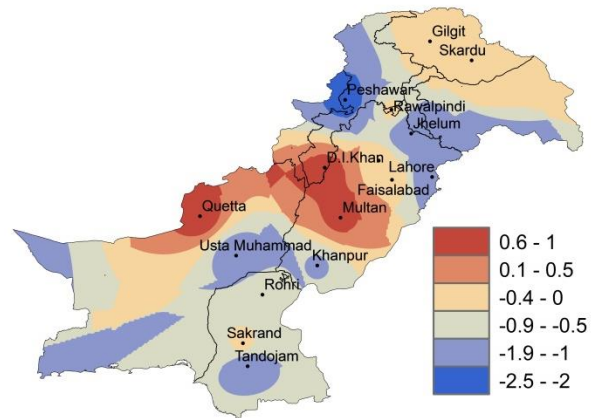
2.5 **RAMC, Quetta (Northern Balochistan)**

Rainfall reported as 1.8mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 37%. Mean day temperature was 14.5°C while night temperature recorded as 4.3°C with 83.5hours bright sunshine duration. Wind speed recorded as 6.2km/hr with mean wind direction *north westerly*.

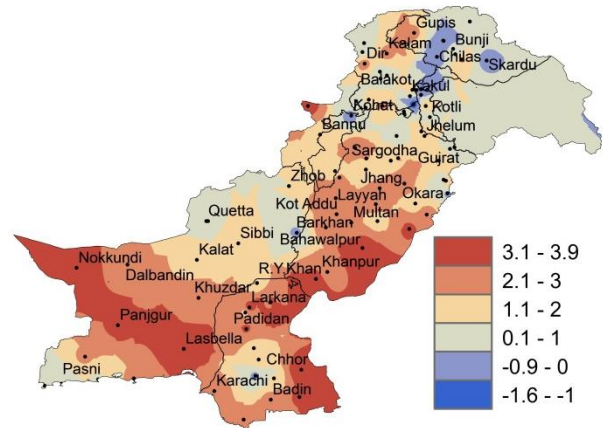
Wheat (Local White): *Good condition, tillering stage*



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 March, 2017)

2.6 Jhelum

Rainfall reported as 13.8mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 45%. Mean day temperature was 24.6°C while night temperature recorded as 9.6°C with 68.7hours bright sunshine duration. Wind speed recorded as 3.2km/hr with mean wind direction *westerly*.

2.7 Lahore

Rainfall reported as 28.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 59%. Mean day temperature was 29.7°C while night temperature recorded as 13.0°C with 62.5hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 16.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 63%. Mean day temperature was 25.2°C while night temperature recorded as 12.5°C with 63.4hours bright sunshine duration. Wind speed recorded 2.13km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as 0.9mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 55%. Mean day temperature was 25.4°C while night temperature recorded as 13.4°C with 81.1hours bright sunshine duration. Wind speed recorded 4.3km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade however weather remained cloudy for 06days. Average relative humidity recorded as 59%. Mean day temperature was 29.0°C while night temperature recorded as 12.3°C with 81.1hours bright sunshine duration. Wind speed recorded 3.6km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 43%. Mean day temperature was 30.7°C while night temperature recorded as 13.1°C with 104.8hours bright sunshine duration. Wind speed recorded 3.2km/hr with wind direction *north westerly*.

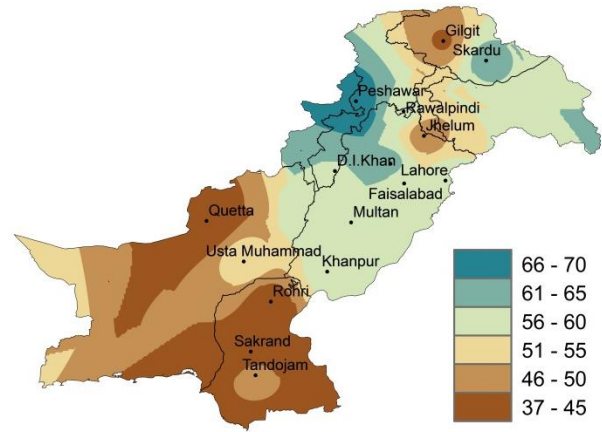


Figure.3: Relative Humidity in Percentage (%)

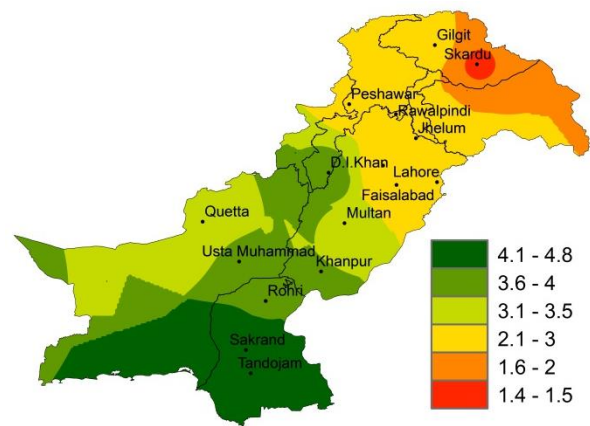


Figure.4: Reference Crop Evapotranspiration ETo(mm/day)

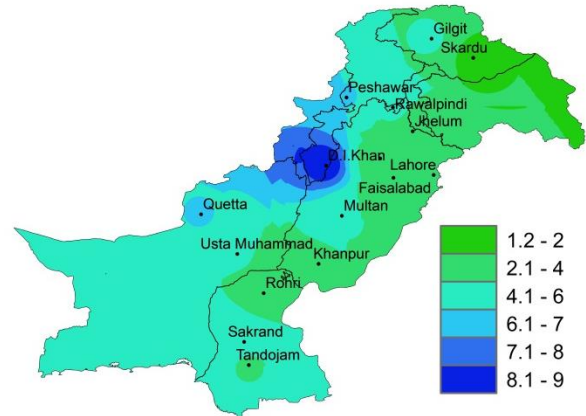


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 41%. Mean day temperature was 30.0°C while night temperature recorded as 15.8°C with 96.0hours bright sunshine duration. Wind speed recorded 2.8km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 23.0mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 60%. Mean day temperature was 25.8°C while night temperature recorded as 11.9°C with 77.0hours bright sunshine duration. Wind speed recorded 9.0km/hr with wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 70%. Mean day temperature was 23.8°C while night temperature recorded as 9.0°C with 55.7hours bright sunshine duration. Wind speed recorded as 6.2km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 63%. Mean day temperature was 8.3°C while night temperature recorded as – 1.1°C with 39.7hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *east south-easterly*.

2.16 Gilgit

Rainfall reported as 2.2mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 44%. Mean day temperature was 15.0°C while night temperature recorded as 3.2°C with 42.7hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *westerly*.

3 Ten Days Weather Advisory for Farmers **(13th to 20th March, 2017)**

3.1 Temperature Forecast

Day temperature is slightly normal or above normal and night temperatures are expected to slightly normal in most of the agricultural 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

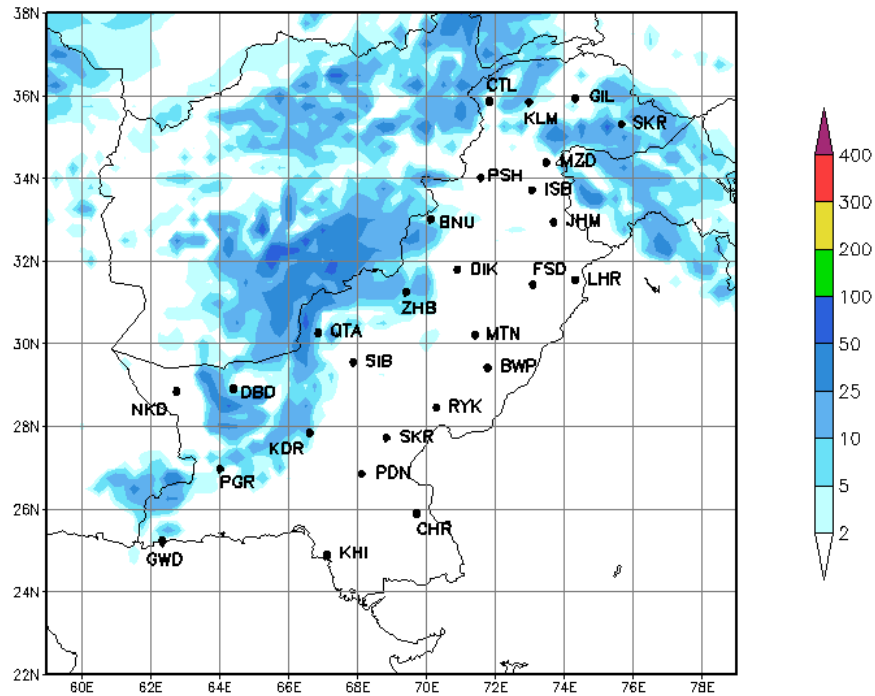
- ❖ **Punjab:** Mainly dry weather is expected in most parts of the province. However light to moderate rainfall is expected from 16th to 20th of the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly cold and cloudy weather is expected in most parts of the province 14th to 20th of the decade.
- ❖ **Sindh:** Mostly dry weather is expected in the agricultural plains of province however light rainfall is expected in central parts of the Sindh from 17th to 20th of the decade.
- ❖ **Balochistan:** Mainly cold and cloudy weather is expected in most parts of the province however light rainfall is expected at most places of Balochistan from 14th to 20th of the decade.
- ❖ **Gilgit Baltistan:** Mainly cold and cloudy weather is expected in most parts of G.B however light to moderate rain with snowfall is expected at scattered places during the current decade.
- ❖ **Kashmir:** Mainly cold and cloudy weather is expected in most parts of the Kashmir however light to moderate rain with snowfall is expected at Muzaffarabad and Rawalakot regions during the current decade.

❖ **3.4 Advisory for Farmers**

- ❖ Wheat crop is at tillering-maturity stages in different areas. Farmers are advised to schedule their irrigation plans by keeping in view the weather forecast.
- ❖ Farmers in the lower half of the country especially those in central regions are advised to take up poultry rearing houses to maintain optimum room temperature and take care against the rapid changes in air temperature and relative humidity.
- ❖ 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 vegetable.

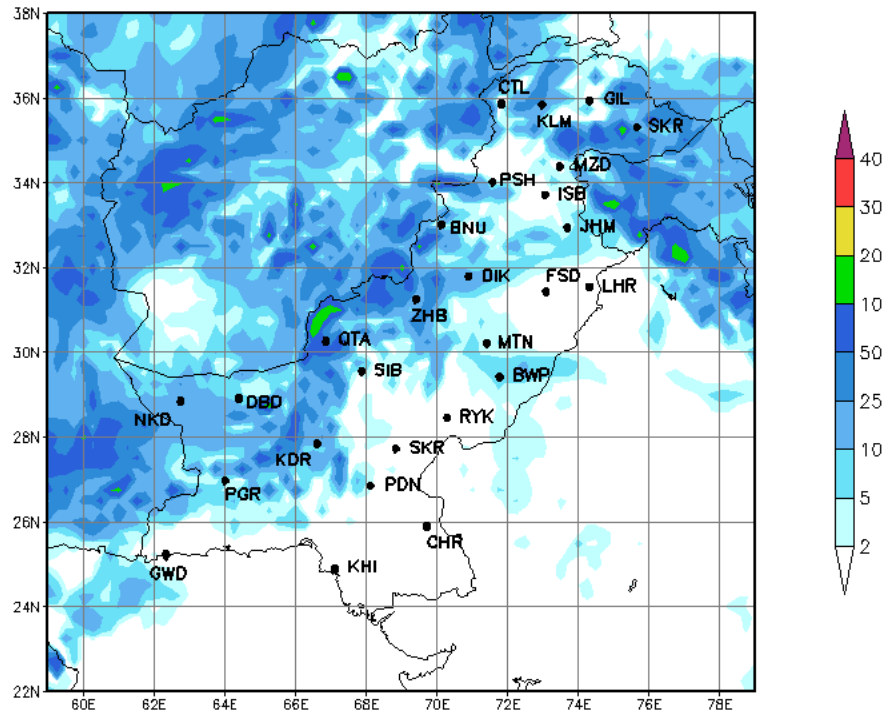
4.1 Precipitation Outlook (13th to 15th March, 2017)

The forecast for the next three days (13th to 20th) of the second decade of March 2017 shows that light rainfall (with snowfall over the mountainous regions) is expected at isolated places of northeastern Punjab, Upper KP, north & western Balochistan, GB and Kashmir. However dry weather is expected in rest parts of the country.



4.2 Precipitation Outlook (16th to 20th March, 2017)

The outlook for the last five days (16th to 20th) of the second decade of March 2017 shows that light to moderate rainfall is expected at scattered places in most parts of the country while dry weather may prevail in lower 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)