

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from most parts of K.P, Punjab, G.B, Kashmir and northern Balochistan, while dry weather reported from of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 156.8 mm at Rawalakot during the last decade.
- ❖ Highest maximum temperature recorded as 46.0°C at Shaheed Benzairabad during the last decade.
- ❖ Light to moderate rain is expected in upper half of the country, while dry weather is expected in rest parts of the country during the current decade.
- ❖ Wheat crop is at heading-maturity stages in of upper half of the country, while has been harvested in Sindh province. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- ❖ Dust/sand storm may occur in areas of matured wheat crop, accordingly measures may be taken to preserve the grains and residue after harvesting.
- ❖ 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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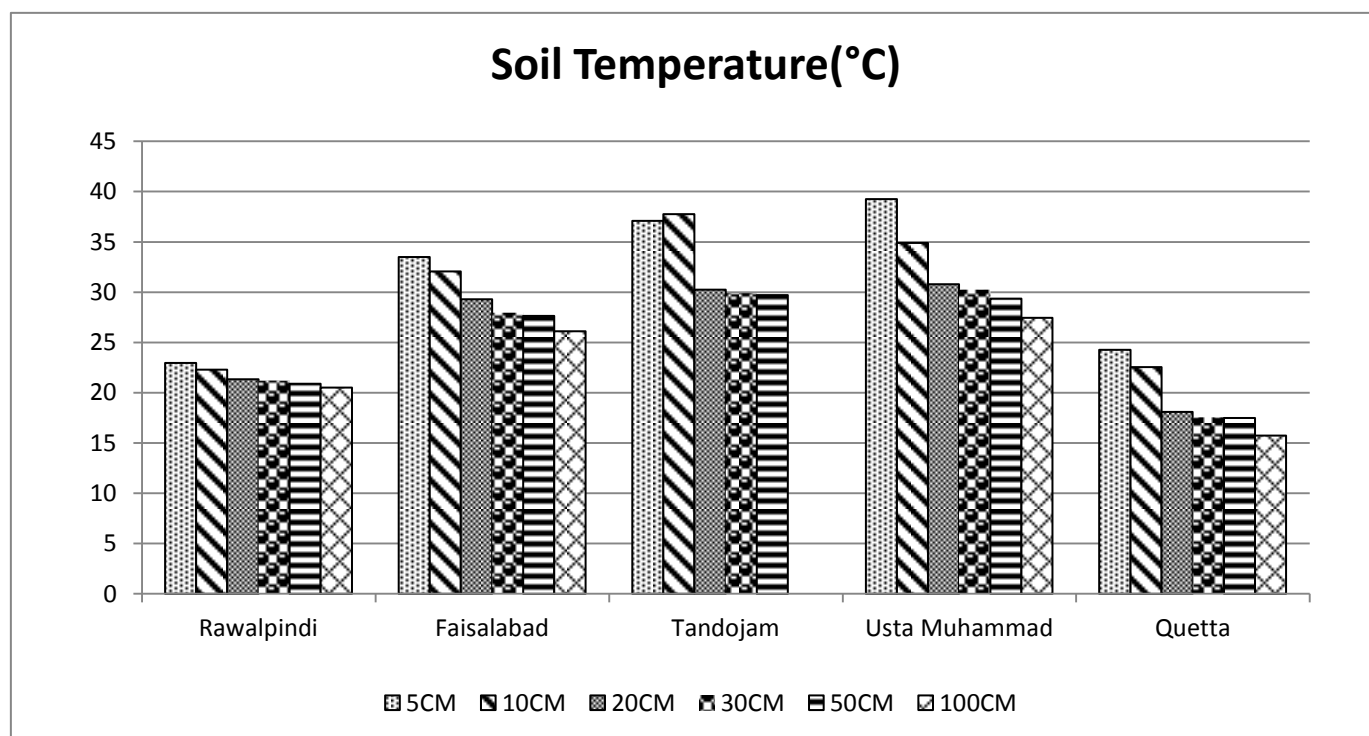
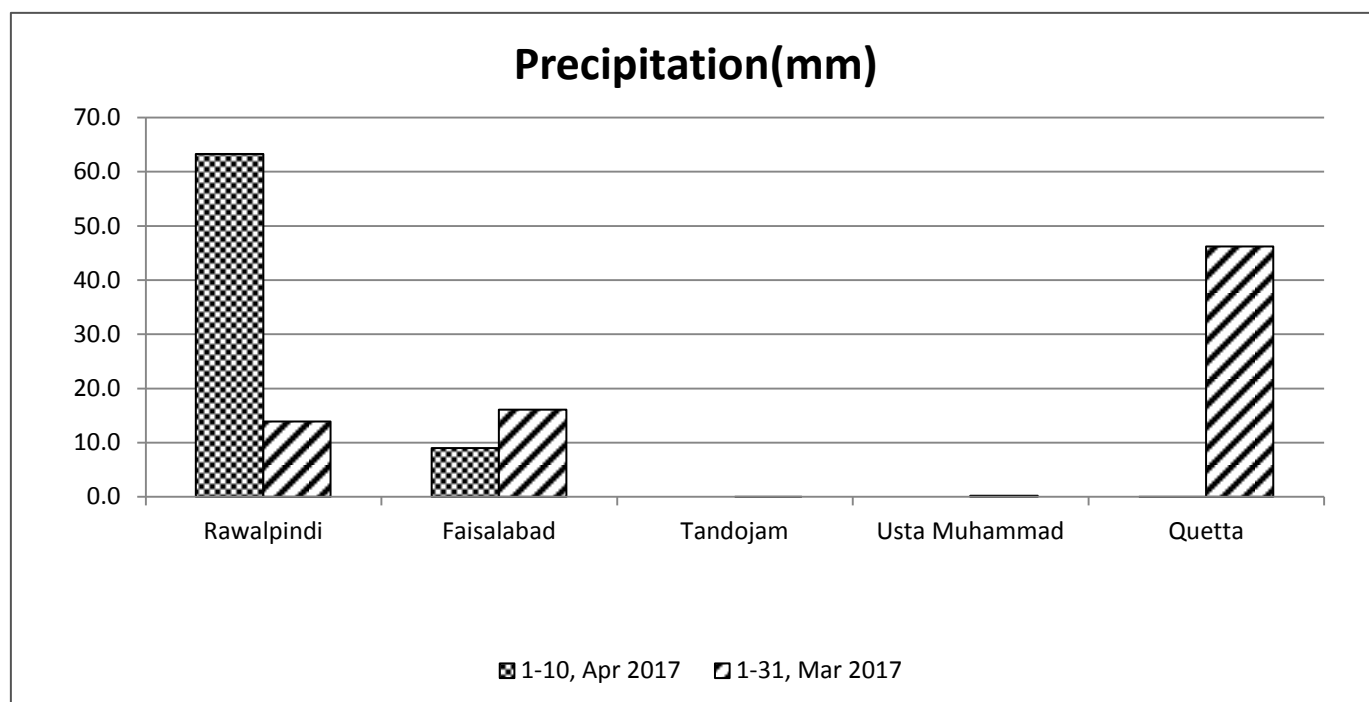
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Meteorological Conditions during 1st decade of April, 2017

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	2.6	63.3	60.7	-2.2	-0.5	20.8	23.0	22.3	21.4	21.2	20.9	20.5	60	79.2	4.9	4.1
2	Faisalabad	0.4	9.0	8.6	-0.1	0.4	25.6	33.5	32.1	29.3	28.0	27.7	26.1	39	95.5	3.8	5.0
3	Jhelum	1.7	74.2	72.5	-0.6	-0.5	24.2	28.0	27.3	24.6	23.6	23.9	***	40	89.8	6.9	5.5
4	Lahore	0.5	8.4	7.9	-0.2	-0.3	26.4	30.8	29.3	26.5	25.0	***	23.4	42	88.5	4.6	5.0
5	Sargodha	1.3	51.0	49.7	-1.2	0.2	25.4	30.5	28.6	26.1	25.7	***	24.4	52	85.8	6.1	5.1
6	Multan	0.3	4.6	4.3	-0.3	0.8	27.0	***	***	***	***	***	***	36	93.5	6.0	5.9
7	Khanpur	0.6	0.0	-0.6	1.4	0.3	28.2	***	30.6	30.4	30.5	30.5	28.5	34	97.1	4.3	5.6
8	Tandojam	0.1	0.0	-0.1	0.1	-1.1	28.3	37.1	37.8	30.3	29.9	29.7	***	40	103.7	7.1	7.0
9	Sakrand ☆	0.1	0.0	-0.1	2.2	1.2	29.8	46.8	***	***	***	***	28.4	27	111.3	6.1	7.0
11	Rohri	0.6	0.0	-0.6	2.4	0.5	30.8	***	***	***	***	***	***	25	101.0	2.3	4.9
12	D.I Khan	0.7	7.0	6.3	0.4	0.1	25.4	***	***	***	***	***	***	47	84.9	5.0	5.0
13	Peshawar	2.9	16.0	13.1	0.0	-1.4	22.1	28.2	24.9	23.8	***	***	***	56	74.3	4.5	4.0
14	Usta .M	0.0	0.0	0.0	0.8	-2.1	27.5	39.3	34.9	30.8	30.3	29.4	27.5	37	***	4.4	5.8
15	Quetta	0.2	0.1	-0.1	-1.9	1.1	16.0	24.3	22.6	18.1	17.6	17.5	15.8	27	100.7	7.1	5.0
16	Skardu	2.7	68.1	65.4	-5.3	-1.3	8.1	***	***	***	***	***	***	64	42.2	1.9	2.2
17	Gilgit	1.4	26.5	25.1	-4.2	-1.7	12.7	***	***	***	***	***	***	55	42.0	4.0	2.7

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 April, 2017



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

Light to moderate rainfall reported from most parts of K.P, Punjab, G.B, Kashmir and northern Balochistan, while dry weather reported from of the country during the last decade.

1.1 Punjab

Light to moderate rainfall reported from few agricultural plains of Punjab. Chief amount of rainfall received at Murree, Islamabad & Chakwal. Decadal maximum dropped below normal by 0.5°C & minimum raised above normal by 0.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 89.9hrs, 52km/hr and 5.2mm/day respectively.

1.1 Sindh

Dry weather reported from agricultural plains of Sindh. Decadal maximum & minimum both raised above normal by 1.6°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 31%, 105.3hrs, 5.2km/hr and 6.3mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

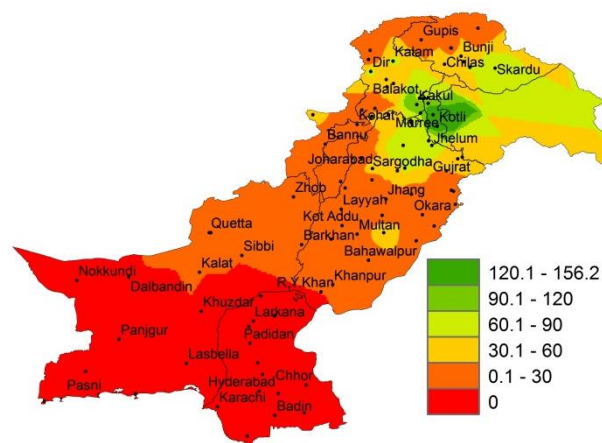
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Kakul, Balakot & Dir. Decadal maximum raised above normal by 0.2°C & minimum dropped below normal by 0.7°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 52%, 79.6hrs, 4.8km/hr and 4.5mm/day respectively.

1.3 Balochistan

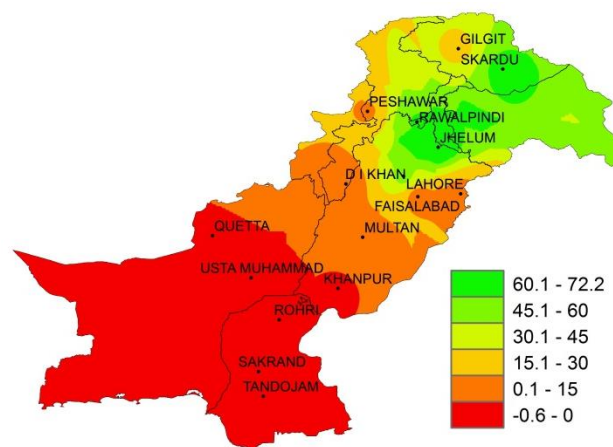
Rainfall occurred as trace (not measurable) at a single place in Balochistan i.e Quetta. Decadal maximum & minimum both dropped below normal by 0.6°C & 0.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 32%, 100.7hrs, 5.8km/hr and 5.4mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

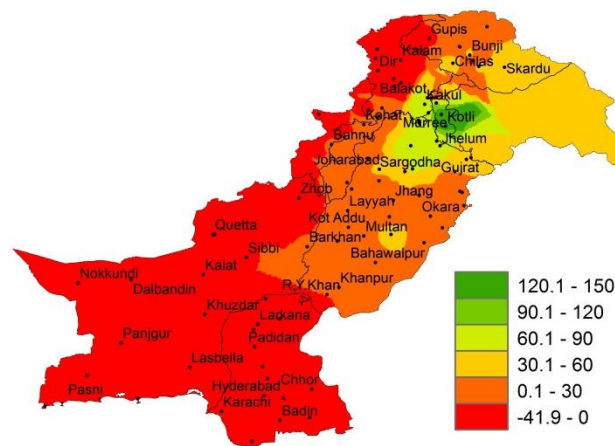
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Rawalakot, Kotli & Garhi Dopatta. Decadal maximum & minimum temperature both dropped below normal by 4.8°C & 1.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 60%, 42.1hrs, 3.0km/hr and 2.5mm/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** **(1st to 10th April, 2017)**

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

Rainfall reported as 63.3mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 60%. Mean day temperature was 27.7°C while night temperature recorded as 13.9°C with 79.2hours bright sunshine duration. Wind speed recorded as 4.9km/hr with mean wind direction *north westerly*.

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

Rainfall reported as 9.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 39%. Mean day temperature was 33.4°C while night temperature recorded as 17.8°C with 95.5hours bright sunshine duration. Wind speed recorded as 3.8km/hr with mean wind direction *north westerly*.

Wheat: *Very Good condition, wax maturity stage completed.*

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

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 40%. Mean day temperature was 38.4°C while night temperature recorded as 18.2°C with 103.7hours bright sunshine duration. Wind speed recorded as 7.1km/h with mean wind direction *south westerly*.

Crop Condition: *Fields have been prepared for Kharif crops*

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

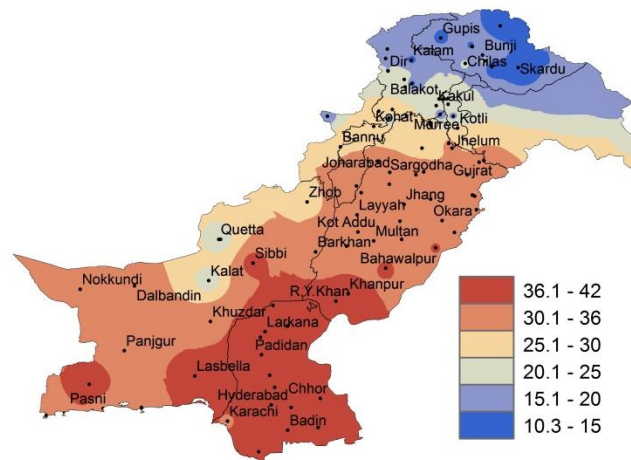
Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 37%. Mean day temperature was 37.3°C while night temperature recorded as 17.7°C. Wind speed recorded as 4.41km/h with mean wind direction *south easterly*.

Wheat: *Harvested on 27.03.2017.*

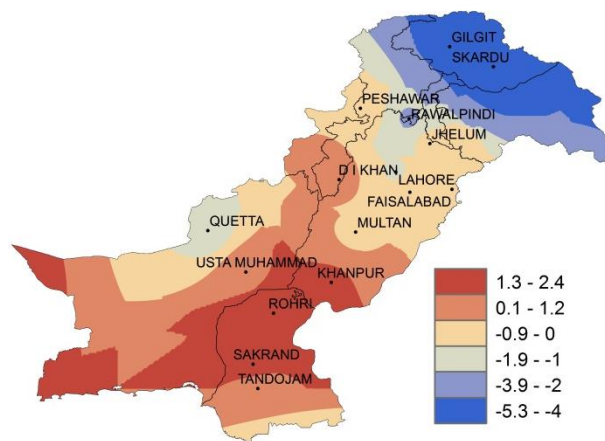
2.5 **RAMC, Quetta (Northern Balochistan)**

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 27%. Mean day temperature was 22.3°C while night temperature recorded as 9.7°C with 100.7hours bright sunshine duration. Wind speed recorded as 7.1km/hr with mean wind direction *north westerly*.

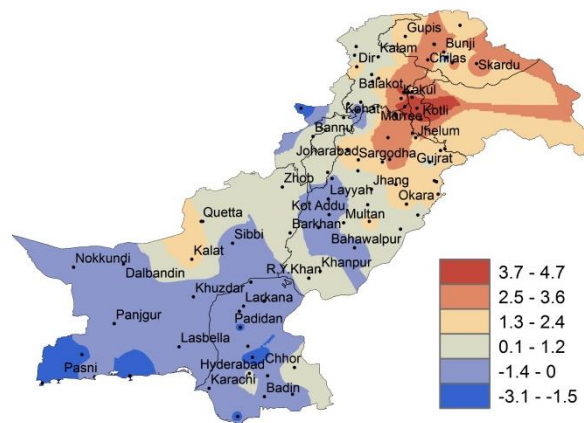
Wheat (Local White): *Good condition, heading stage*



I. **Actual max-temp**



II. **Departure of max-temp from Normal**



III. **Departure of max-temp from Previous Decade**

Figure.2: Maximum Temperature distribution during previous decade (°C)

2(b) Past Weather for Sub-Regional Agricultural Plains (1st to 10th April, 2017)

2.6 Jhelum

Rainfall reported as 74.2mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 40%. Mean day temperature was 31.7°C while night temperature recorded as 16.7°C with 89.8hours bright sunshine duration. Wind speed recorded as 6.9km/hr with mean wind direction *north westerly*.

2.7 Lahore

Rainfall reported as 8.4mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 42%. Mean day temperature was 32.6°C while night temperature recorded as 20.2°C with 88.5hours bright sunshine duration. Wind speed recorded as 4.6km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 51.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 52%. Mean day temperature was 32.2°C while night temperature recorded as 18.5°C with 85.8hours bright sunshine duration. Wind speed recorded 6.1km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as 4.6mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 36%. Mean day temperature was 34.5°C while night temperature recorded as 19.5°C with 93.5hours bright sunshine duration. Wind speed recorded 6.0km/hr with mean wind direction *northerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 34%. Mean day temperature was 37.2°C while night temperature recorded as 19.1°C with 97.1hours bright sunshine duration. Wind speed recorded 4.3km/hr with mean wind direction *variable*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 27%. Mean day temperature was 39.3°C while night temperature recorded as 20.2°C with 111.3hours bright sunshine duration. Wind speed recorded 6.1km/hr with wind direction *north westerly*.

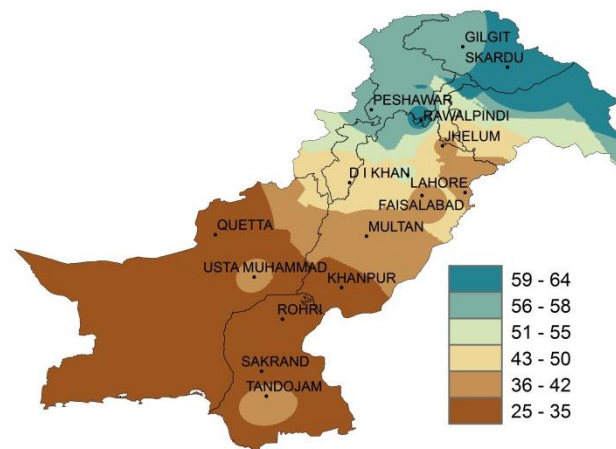


Figure.3: Relative Humidity in Percentage (%)

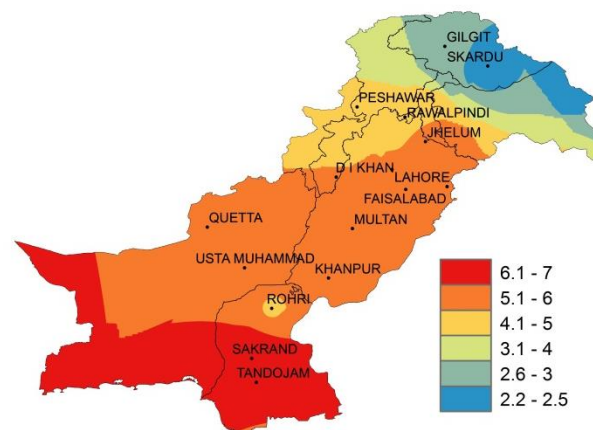


Figure.4: Reference Crop Evapotranspiration ETo(mm/day)

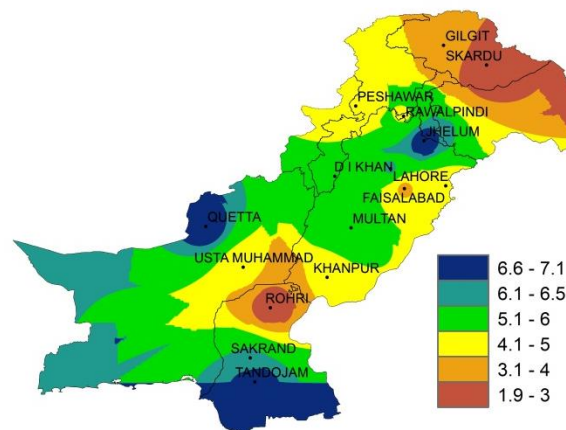


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 25%. Mean day temperature was 38.9°C while night temperature recorded as 22.6°C with 101.0 hours bright sunshine duration. Wind speed recorded 2.3 km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 7.0 mm during the decade; however weather remained cloudy for 04 days. Average relative humidity recorded as 47%. Mean day temperature was 33.4°C while night temperature recorded as 17.4°C with 84.9 hours bright sunshine duration. Wind speed recorded 5.0 km/hr with wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 16.0 mm during the decade; however weather remained cloudy for 08 days. Average relative humidity recorded as 56%. Mean day temperature was 29.2°C while night temperature recorded as 15.0°C with 74.3 hours bright sunshine duration. Wind speed recorded as 4.5 km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported 68.1 mm during the decade; however weather remained cloudy for 07 days. Average relative humidity recorded as 64%. Mean day temperature was 12.5°C while night temperature recorded as 3.6°C with 42.2 hours bright sunshine duration. Wind speed recorded as 1.9 km/hr with mean wind direction *southerly*.

2.16 Gilgit

Rainfall reported as 26.5 mm during the decade; however weather remained cloudy for 09 days. Average relative humidity recorded as 55%. Mean day temperature was 18.9°C while night temperature recorded as 6.4°C with 42.0 hours bright sunshine duration. Wind speed recorded as 4.0 km/hr with mean wind direction *south easterly*.

**3 Ten Days Weather Advisory for Farmers
(11th to 20th April, 2017)****3.1 Temperature Forecast**

Day temperature slightly above normal in southern parts however day 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.

❖ **Khyber Pakhtunkhwa:** Mainly dry weather is expected in most parts of the province however light to moderate rainfall is expected at isolated places of the province during the decade.

❖ **Sindh:** Mostly dry and hot weather is expected in the agricultural plains of province.

❖ **Balochistan:** Mostly dry weather is expected in the agricultural plains of province.

❖ **Gilgit Baltistan:** Mainly dry 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 dry weather is expected in most parts of the Kashmir however light to moderate rain is expected at Muzaffarabad and Rawalakot regions during the current decade.

❖ 3.4 Advisory for Farmers

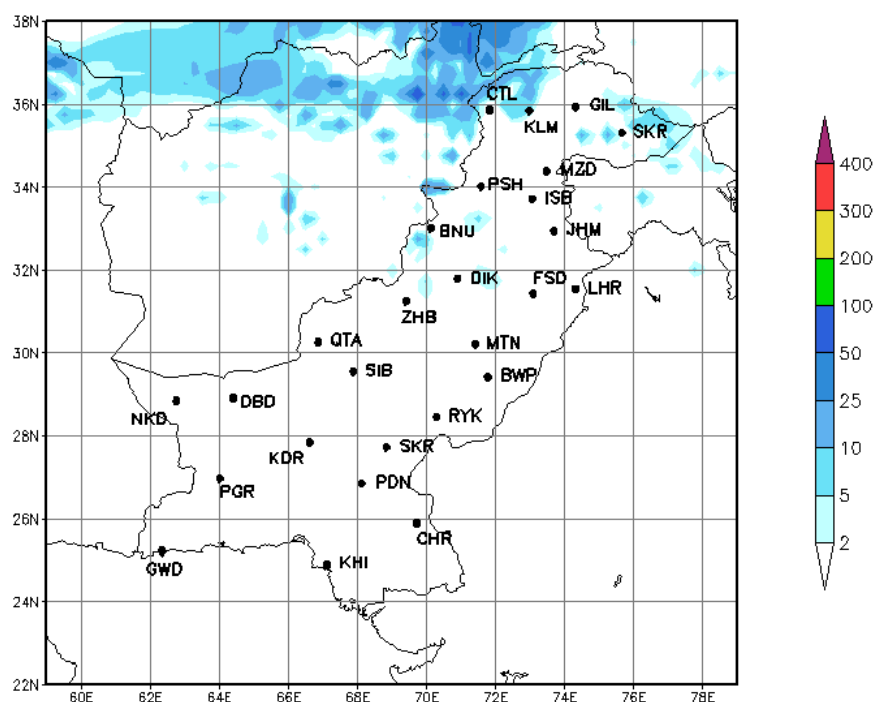
❖ Wheat crop is at heading-maturity stages in of upper half of the country, while has been harvested in Sindh province. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.

❖ Dust/sand storm may occur in areas of matured wheat crop, accordingly measures may be taken to preserve the grains and residue after harvesting.

❖ 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.

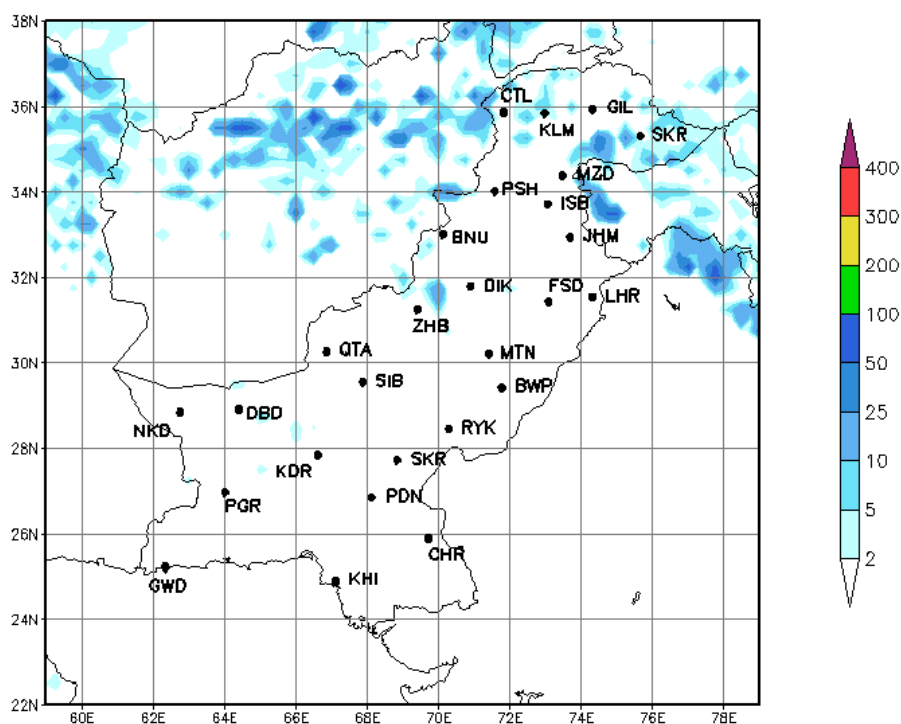
4.1 Precipitation Outlook (11th to 13th April, 2017)

The forecast for the first three days (11th to 13th) of the second decade of April 2017 shows that light to moderate rainfall (with snowfall over the mountainous regions) is expected at few places of KP, GB and Kashmir. However dry weather is expected in rest parts of the country.



4.2 Precipitation Outlook (14th to 20th April, 2017)

The outlook for the last six days (14th to 20th) of the second decade of April 2017 shows that light to moderate rainfall is expected at few places of KP, GB & Kashmir while dry weather may prevail in rest parts 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)