

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from most parts of K.P, Punjab, Balochistan, G.B and Kashmir, while dry weather reported from Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 91.0 mm at Kalam during the last decade.
- ❖ Highest maximum temperature recorded as 44.0°C at Larkana during the last decade.
- ❖ Light to moderate rain (with snowfall over the mountains in northern areas) 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 heading-maturity stages in some areas of upper half while being harvested in Sindh. 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.

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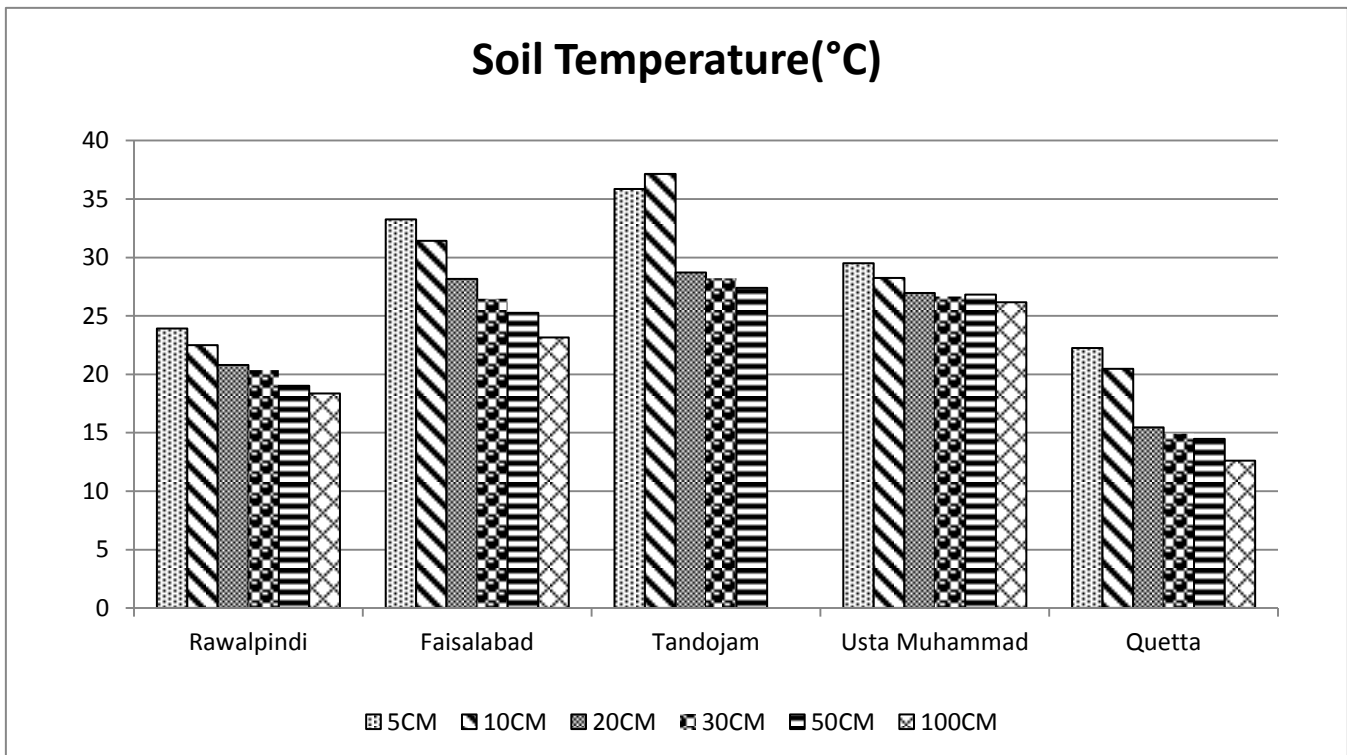
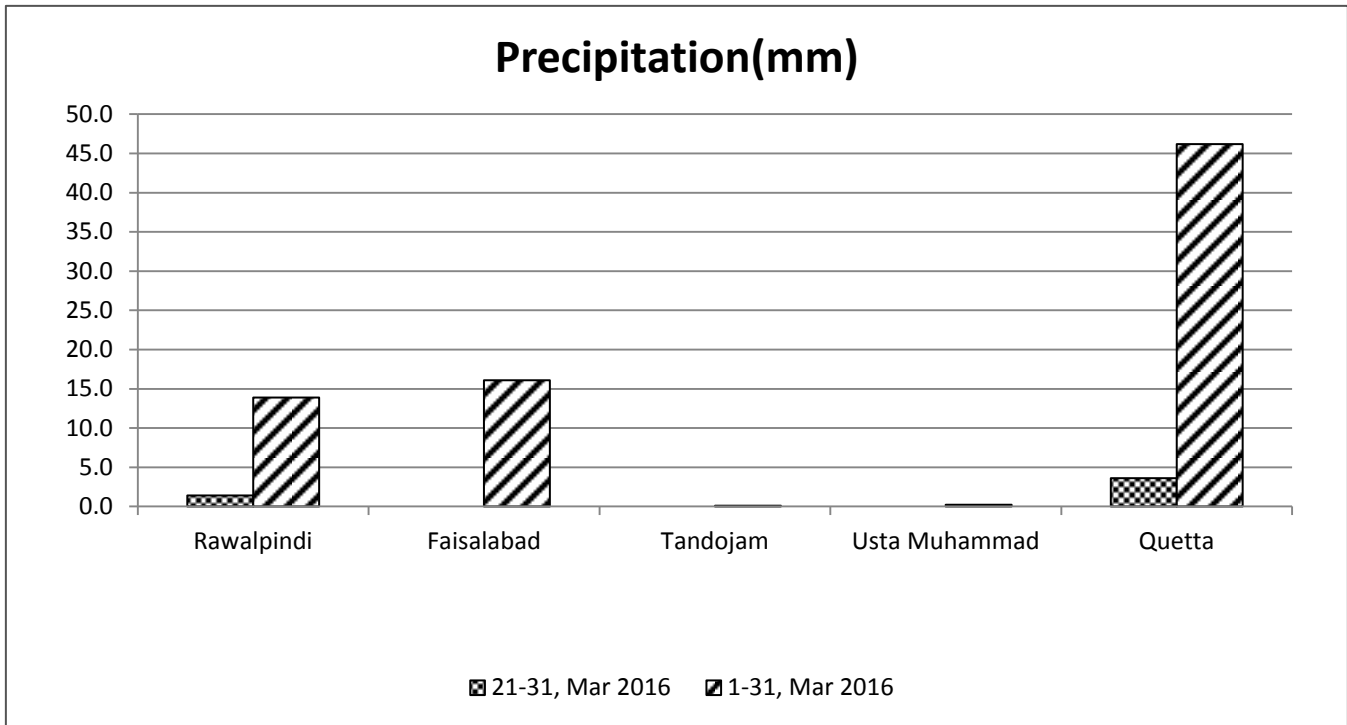
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Meteorological Conditions during 3rd decade of March, 2017

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	2.7	1.4	-1.3	2.7	2.6	23.0	23.9	22.5	20.8	20.4	19.0	18.4	52	73.1	4.3	4.0
2	Faisalabad	0.6	0.0	-0.6	4.1	3.5	27.0	33.3	31.4	28.2	26.5	25.3	23.2	43	85.8	2.6	4.2
3	Jhelum	1.6	0.2	-1.4	3.9	1.9	25.6	28.2	26.2	23.7	22.1	21.8	***	43	79.1	3.1	4.2
4	Lahore	1.7	0.1	-1.6	4.2	2.3	27.6	30.5	29.0	26.5	23.7	***	21.5	46	83.5	3.0	4.3
5	Sargodha	1.0	0.1	-0.9	4.0	2.7	27.1	32.0	29.5	25.9	24.8	***	22.1	51	73.9	3.5	4.3
6	Multan	1.2	0.0	-1.2	2.8	3.5	27.6	***	***	***	***	***	***	44	94.2	4.7	5.1
7	Khanpur	0.5	0.0	-0.5	3.7	2.3	28.3	***	28.3	26.7	28.0	27.7	26.0	45	94.5	4.4	5.3
8	Tandojam	0.0	0.0	0.0	2.2	0.8	28.7	35.9	37.2	28.7	28.2	27.4	***	47	109.0	7.4	6.9
9	Sakrand ☆	0.1	0.0	-0.1	3.6	0.5	28.3	46.6	***	***	***	***	26.7	38	121.8	2.8	5.4
11	Rohri	0.6	0.0	-0.6	3.4	2.5	30.5	***	***	***	***	***	***	35	101.0	1.5	4.4
12	D.I Khan	0.8	0.0	-0.8	4.0	2.8	26.2	***	***	***	***	***	***	62	63.6	2.8	3.7
13	Peshawar	2.4	21.5	19.1	2.3	1.7	23.1	27.5	23.6	22.2	***	***	***	59	58.3	2.5	3.2
14	Usta .M	0.5	0.0	-0.5	0.0	-1.6	25.0	29.5	28.3	27.0	26.7	26.8	26.2	45	***	2.8	4.7
15	Quetta	0.9	3.6	2.7	1.3	4.7	17.8	22.3	20.5	15.5	14.9	14.5	12.6	41	90.7	5.4	4.2
16	Skardu	0.5	26.3	25.8	-1.5	1.1	10.1	***	***	***	***	***	***	56	45.6	1.6	2.2
17	Gilgit	0.2	1.1	0.9	-0.4	2.2	15.4	***	***	***	***	***	***	46	34.8	3.4	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 March, 2017



1. Past Weather (21st to 31st March, 2017)

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

1.1 Punjab

Light rainfall reported from few agricultural plains of Punjab. Chief amount of rainfall received at Murree, Kamra & Mangla. Decadal maximum & minimum both raised above normal by 3.6°C & 2.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 83.4hrs, 3.7km/hr and 4.5mm/day respectively.

1.1 Sindh

Dry weather reported from agricultural plains of Sindh. Decadal maximum & minimum both raised above normal by 3.1°C & 1.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 40%, 110.6hrs, 3.9km/hr and 5.6mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

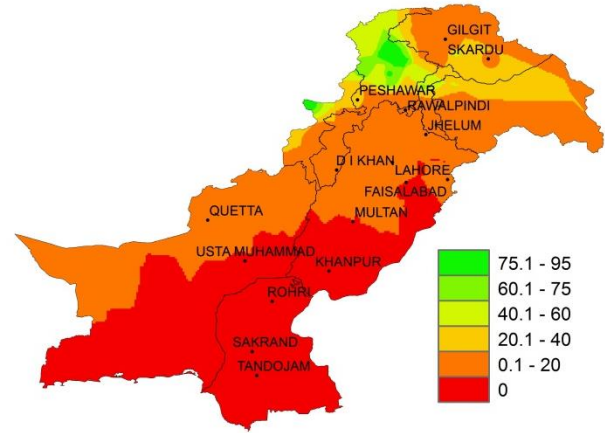
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Kalam, Parachinar & Malam Jabba. Decadal maximum & minimum both raised above normal by 3.2°C & 2.3°C respectively, in the province, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 61.0hrs, 2.7km/hr and 3.5mm/day respectively.

1.3 Balochistan

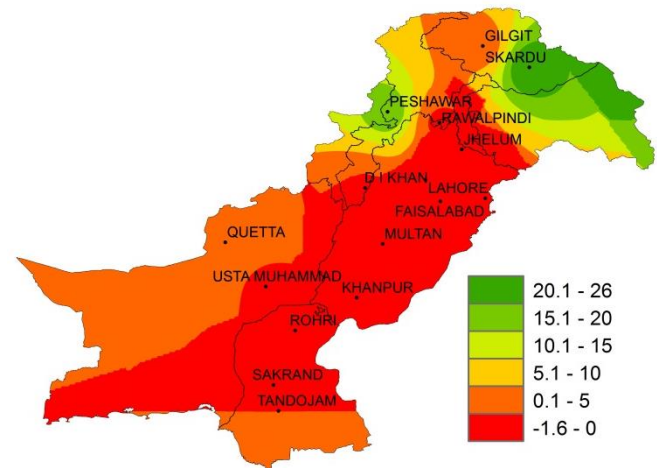
Light to moderate rainfall reported from agricultural plains of Balochistan. Chief amount of rainfall received at Quetta, Zhob & Nokkundi. Decadal maximum & minimum both raised above normal by 0.7°C & 1.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 90.7hrs, 4.1km/hr and 4.5mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

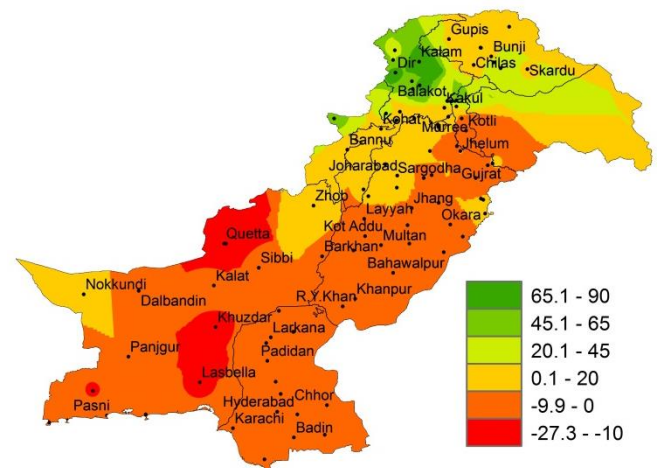
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Muzzaffarabad, Astore & Gupis. Decadal maximum dropped below normal by 1.0°C & minimum temperature raised above normal by 1.7°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 40.2hrs, 2.5km/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**
(21st to 31st March, 2017)

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

Rainfall reported as 1.4mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 52%. Mean day temperature was 30.7°C while night temperature recorded as 15.3°C with 73.1hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *westerly*.

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

Dry weather reported during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 43%. Mean day temperature was 34.9°C while night temperature recorded as 19.1°C with 85.83hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *north north-westerly*.

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

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

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 47%. Mean day temperature was 38.8°C while night temperature recorded as 18.5°C with 109.0hours bright sunshine duration. Wind speed recorded as 7.4km/h with mean wind direction *south westerly*.

Wheat: *Harvested on 19.03.2017*

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

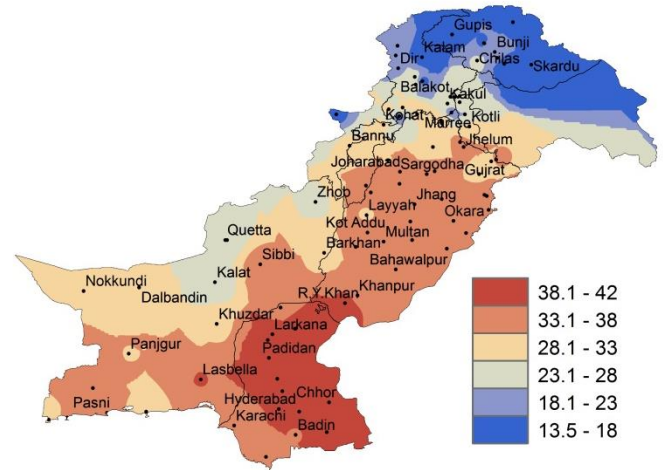
Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 45%. Mean day temperature was 34.6°C while night temperature recorded as 15.4°C. Wind speed recorded as 2.8km/h with mean wind direction *south easterly*.

Wheat: *Harvested on 27.03.2017.*

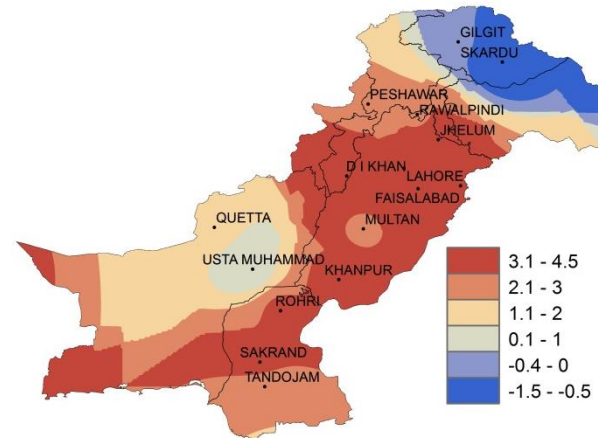
2.5 **RAMC, Quetta (Northern Balochistan)**

Rainfall reported as 3.6mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 41%. Mean day temperature was 23.6°C while night temperature recorded as 11.9°C with 90.7hours bright sunshine duration. Wind speed recorded as 5.4km/hr with mean wind direction *southerly*.

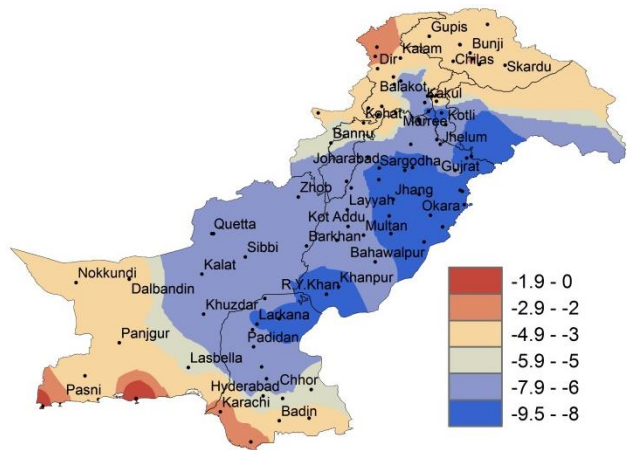
Wheat (Local White): *Good condition, heading stage*



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 (21st to 31st March, 2017)

2.6 Jhelum

Rainfall reported as 0.2mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 43%. Mean day temperature was 33.8°C while night temperature recorded as 17.4°C with 79.1hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *north westerly*.

2.7 Lahore

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 46%. Mean day temperature was 34.2°C while night temperature recorded as 21.0°C with 83.5hours bright sunshine duration. Wind speed recorded as 3.0km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 51%. Mean day temperature was 35.0°C while night temperature recorded as 19.2°C with 73.9hours bright sunshine duration. Wind speed recorded 3.5km/hr with mean wind direction *variable*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 44%. Mean day temperature was 34.8°C while night temperature recorded as 20.4°C with 94.2hours bright sunshine duration. Wind speed recorded 4.7km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 45%. Mean day temperature was 37.5°C while night temperature recorded as 19.1°C with 94.5hours bright sunshine duration. Wind speed recorded 4.4km/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 38%. Mean day temperature was 39.0°C while night temperature recorded as 17.5°C with 121.8hours bright sunshine duration. Wind speed recorded 2.8km/hr with wind direction *northerly*.

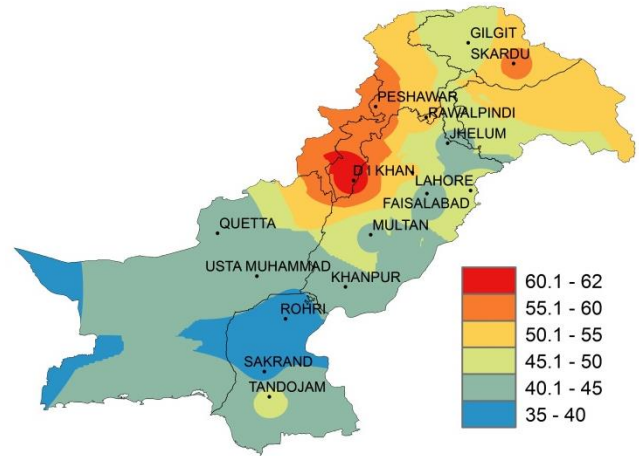


Figure.3: Relative Humidity in Percentage (%)

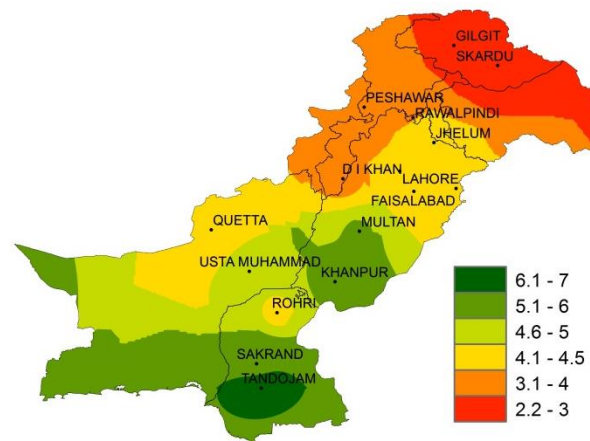


Figure.4: Reference Crop Evapotranspiration ET0(mm/day)

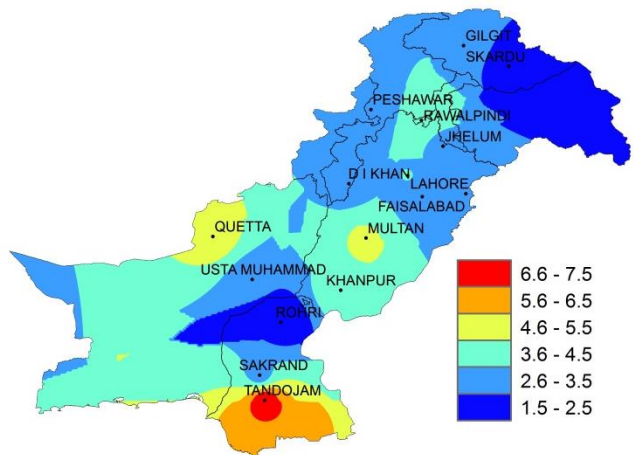


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 35%. Mean day temperature was 38.5°C while night temperature recorded as 22.5°C with 101.0hours bright sunshine duration. Wind speed recorded 1.5km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 62%. Mean day temperature was 34.0°C while night temperature recorded as 18.3°C with 63.6hours bright sunshine duration. Wind speed recorded 2.8km/hr with wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 21.5mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 59%. Mean day temperature was 29.8°C while night temperature recorded as 16.3°C with 58.3hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported 26.3mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 56%. Mean day temperature was 15.4°C while night temperature recorded as 4.8°C with 45.6hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Rainfall reported as 1.1mm during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 46%. Mean day temperature was 21.7°C while night temperature recorded as 9.1°C with 34.8hours bright sunshine duration. Wind speed recorded as 3.4km/hr with mean wind direction *westerly*.

3 Ten Days Weather Advisory for Farmers (3rd to 10th 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. However light to moderate rainfall is expected at isolated places of province from 3rd to 5th & 8th to 10th of the decade.

❖ **Khyber Pakhtunkhwa:** Mainly cloudy weather is expected in most parts of the province however light to moderate rainfall (with light snowfall over hills) is expected in most parts of the province from 3rd to 6th & 8th to 10th of the decade.

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

❖ **Balochistan:** Mainly dry weather is expected in most parts of the province however light rainfall is expected in north western parts of Balochistan from 3rd to 5th 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 is expected at Muzaffarabad and Rawalakot regions during the current decade.

❖ **3.4 Advisory for Farmers**

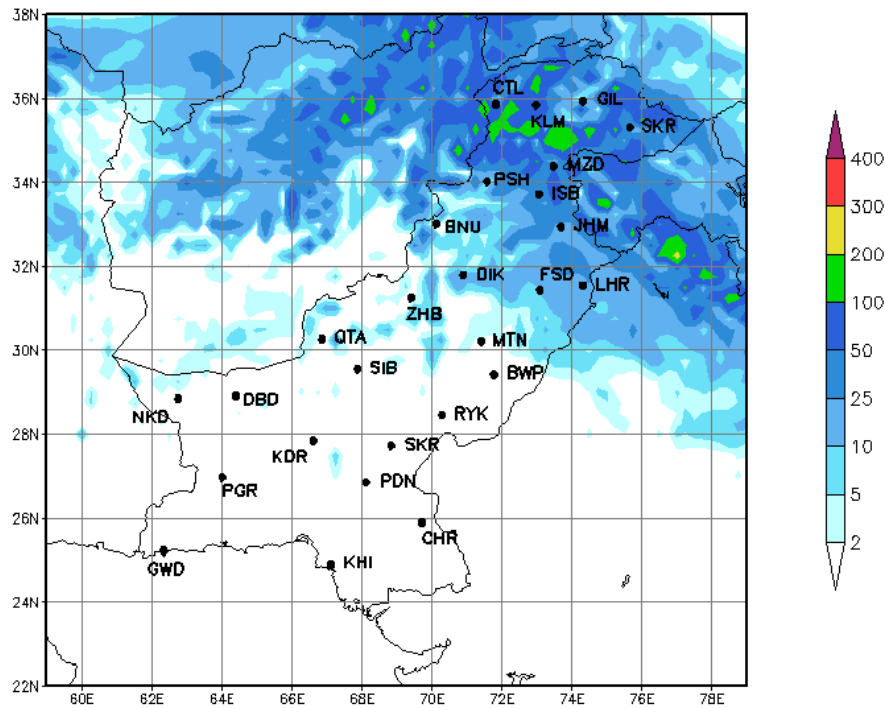
❖ Wheat crop is at heading-maturity stages in different areas. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.

❖ 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.

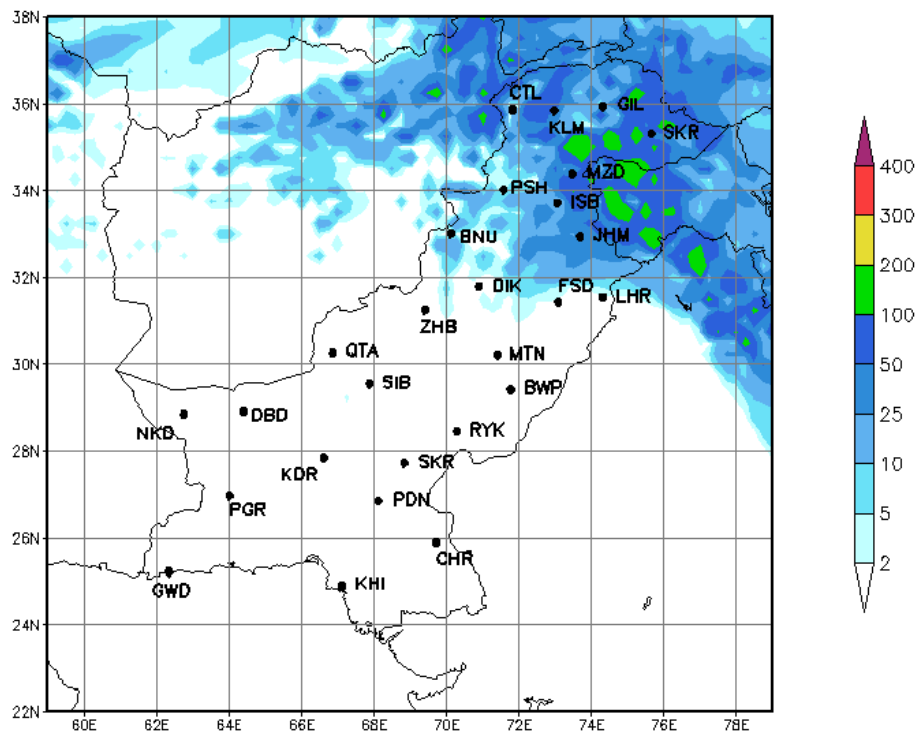
4.1 Precipitation Outlook (3rd to 5th April, 2017)

The forecast for the next three days (3rd to 5th) of the first decade of April 2017 shows that light to moderate rainfall (with snowfall over the mountainous regions) is expected at isolated places of Punjab, KP, northern Balochistan, GB and Kashmir. However dry weather is expected in rest parts of the country.



4.2 Precipitation Outlook (6th to 10th April, 2017)

The outlook for the last five days (6th to 10th) of the first decade of April 2017 shows that light to moderate rainfall is expected at isolated places of Upper Punjab, 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)