

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from the agricultural plains of the Punjab, KP, G.B & Kashmir however dry weather reported from Balochistan and Sindh during the last decade.
- ❖ Highest amount of rainfall reported as 150.0 mm at Dir during the last decade
- ❖ Lowest Minimum temperature recorded as -14.5°C at Kalam during the last decade.
- ❖ Mostly cloudy weather is expected in most of the agricultural plains of the country except Sindh; however light to moderate rain (with snowfall over the mountains) is expected at scattered places of upper Punjab, KP, Balochistan, G.B & Kashmir during the current decade.
- ❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation according to the expected weather mentioned during the decade.
- ❖ In areas like Potohar Region and adjoining areas of Khyber Pakhtunkhwa where rain water storages are available farmers are advised to irrigate crops by using available irrigation methods like sprinkler irrigation etc.
- ❖ 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.
- ❖ Due to further drop of temperature farmers of particular areas in the northern half of the country are advised to take precautionary measures for protection of their crops from the expected frost.

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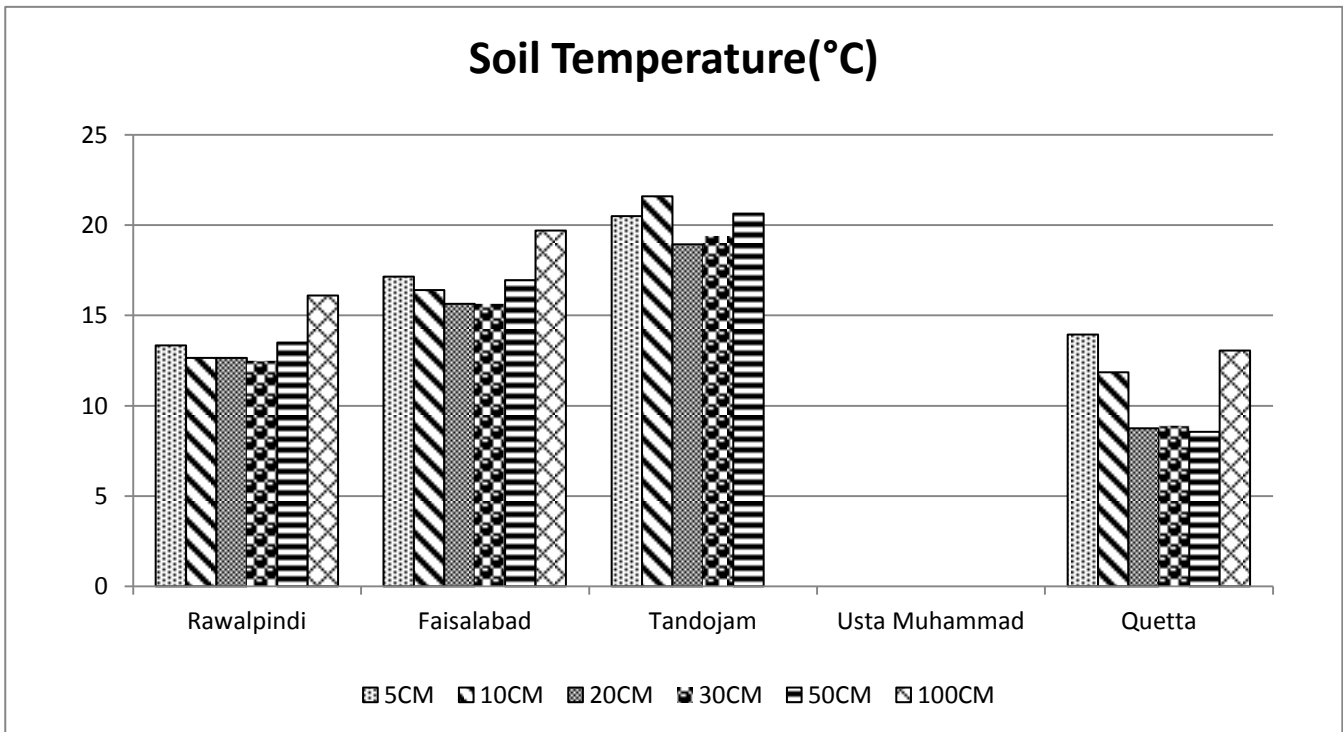
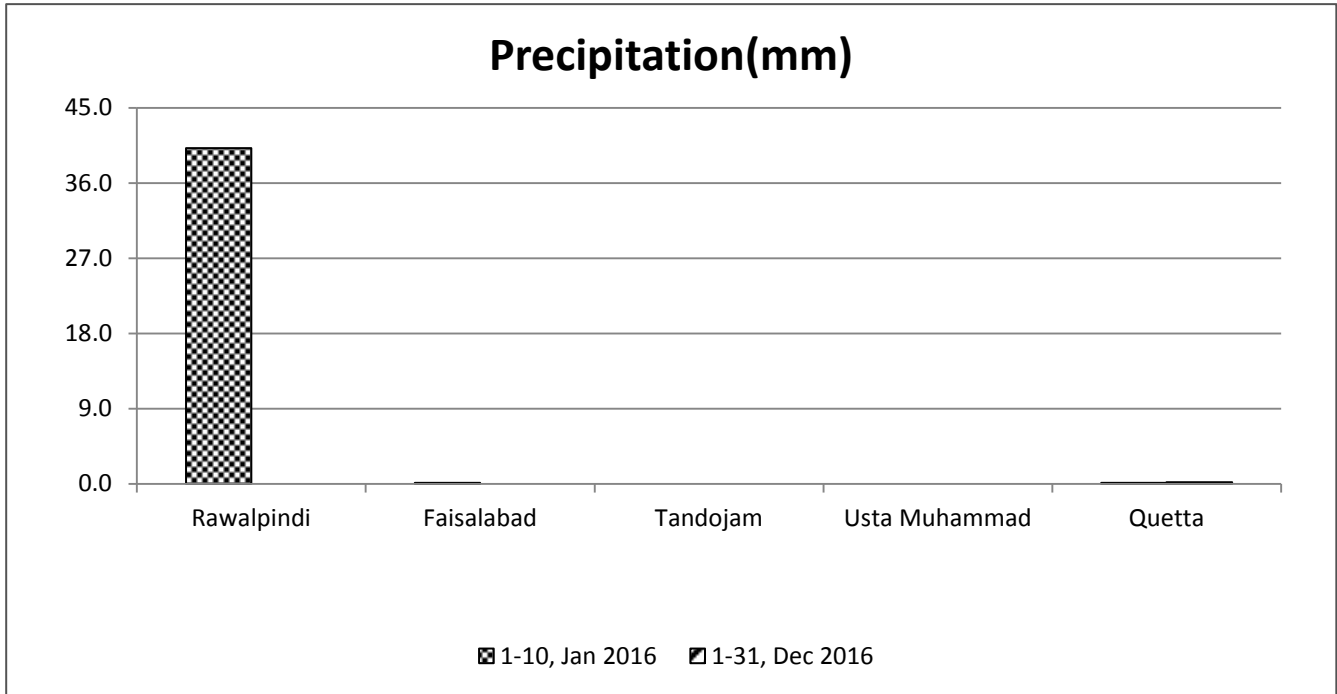
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Meteorological Conditions during 1st decade of January, 2017

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	0.5	40.2	39.7	-1.9	3.0	11.8	13.4	12.7	12.7	12.5	13.5	16.1	70	43.0	3.3	1.2
2	Faisalabad	0.2	0.1	-0.1	-2.0	3.9	13.7	17.2	16.4	15.7	15.7	17.0	19.7	74	13.6	2.0	1.1
3	Jhelum	0.4	14.9	14.5	-1.3	1.5	13.4	14.5	13.8	13.8	14.2	15.5	***	66	51.3	2.2	1.2
4	Lahore	0.3	0.1	-0.2	-0.1	1.8	14.9	16.4	16.4	15.9	16.2	***	19.2	72	27.9	1.6	1.1
5	Sargodha	0.4	0.1	-0.3	-1.9	3.3	14.0	17.2	16.5	16.3	16.9	***	20.0	74	40.6	1.7	1.2
6	Multan	0.1	0.0	-0.1	-2.8	3.8	14.1	***	***	***	***	***	***	75	38.1	0.6	1.1
7	Khanpur	0.1	0.0	-0.1	-3.1	2.0	13.7	***	16.8	17.4	18.0	19.1	21.4	77	30.3	2.9	1.3
8	Tandojam	0.4	0.0	-0.4	-3.7	-1.1	14.3	20.5	21.6	19.0	19.4	20.7	***	69	53.3	2.9	1.8
9	Sakrand ☆	0.0	0.0	0.0	-1.7	3.7	15.8	23.2	***	***	***	***	25.1	74	50.8	2.7	1.6
11	Rohri	0.0	0.0	0.0	-2.4	-1.5	14.2	***	***	***	***	***	***	68	40.4	0.3	1.2
12	D.I Khan	0.4	1.0	0.6	-1.6	0.7	13.3	***	***	***	***	***	***	70	39.8	8.1	1.8
13	Peshawar	0.6	12.4	11.8	-3.3	1.6	11.4	13.8	12.9	12.0	***	***	***	75	34.7	2.0	1.0
14	Usta .M	0.0	0.0	0.0	-2.4	0.3	13.9	***	***	***	***	***	***	79	***	4.8	1.6
15	Quetta	0.4	0.1	-0.3	1.3	0.9	6.5	14.0	11.9	8.8	8.9	8.6	13.1	35	89.0	5.6	2.1
16	Skardu	0.5	23.4	22.9	-0.1	-2.2	-1.5	***	***	***	***	***	***	71	28.8	0.8	0.6
17	Gilgit	0.4	0.1	-0.3	-0.8	1.1	4.5	***	***	***	***	***	***	57	22.0	2.1	0.9

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 January, 2017



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

Light to moderate rainfall reported from the agricultural plains of the Punjab, KP, G.B and Kashmir and dry weather 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 Murree, Islamabad & Gujrat. Decadal maximum dropped below normal by 1.9°C & minimum raised above normal by 2.8°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 73%, 35.0hrs, 2.0km/hr and 1.2mm/day respectively.

1.2 Sindh

Dry weather reported from all the agricultural plains of Sindh. Decadal maximum dropped below normal by 2.6°C & minimum raised above normal by 0.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 70%, 48.2hrs, 2.0km/hr and 1.5mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

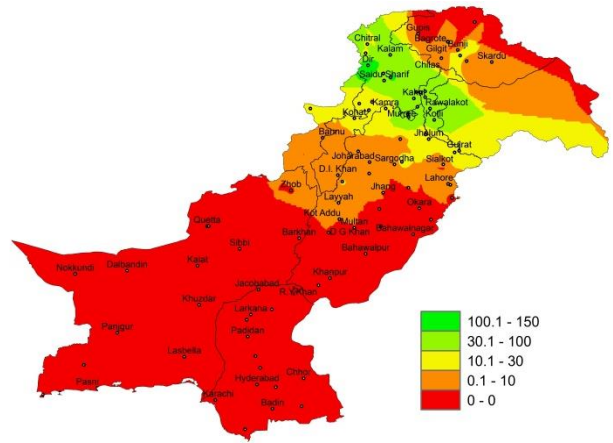
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Dir, Malam Jabba & Pattan. Decadal maximum dropped below normal by 2.5°C & minimum raised above normal by 1.2°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 73%, 37.3hrs, 5.1km/hr and 1.4mm/day respectively.

1.4 Balochistan

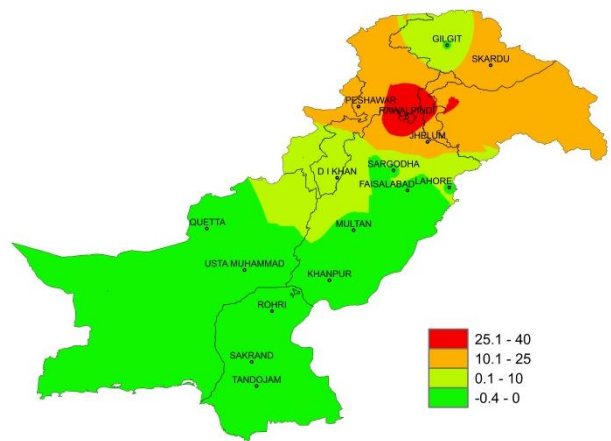
Dry weather reported from all the agricultural plains of Balochistan. Decadal maximum dropped below normal by 0.6°C & minimum raised above normal by 0.6°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 89.0hrs, 5.2km/hr and 1.9mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

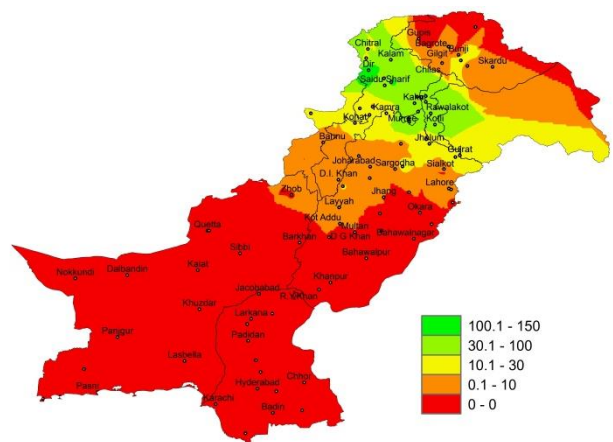
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Garhi Dopatta, Muzaffarabad & Rawalakot. Decadal maximum & minimum both dropped below normal by 0.5°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 64%, 25.4hrs, 1.5km/hr and 0.8mm/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 January, 2017)**

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

Rainfall reported as 40.2mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 70%. Mean day temperature was 17.3°C while night temperature recorded as 6.3°C with 43.0hours bright sunshine duration. Wind speed recorded as 3.3km/hr with mean wind direction *westerly*.

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

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 74%. Mean day temperature was 18.5°C while night temperature recorded as 8.8°C with 13.6hours bright sunshine duration. Wind speed recorded as 2.0km/hr with mean wind direction *north westerly*.

Wheat: *Very Good condition, Tillering completed.*

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

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 69%. Mean day temperature was 20.6°C while night temperature recorded as 8.0°C with 53.3hours bright sunshine duration. Wind speed recorded as 2.9km/h with mean wind direction *northerly*.

Wheat (Imdad): *Good condition, Heading stage.*

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

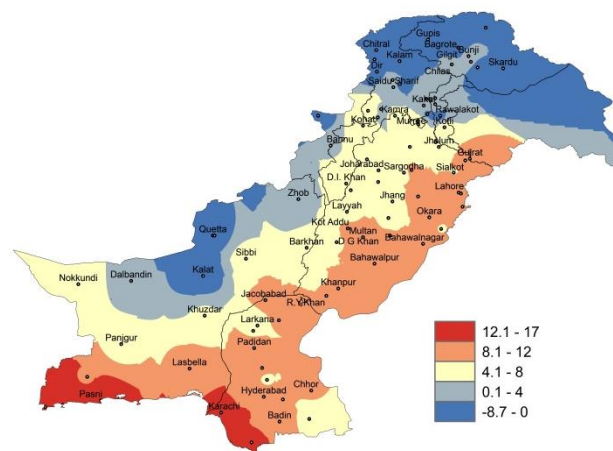
Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 79%. Mean day temperature was 19.5°C while night temperature recorded as 8.2°C. Wind speed recorded as 4.8km/h with mean wind direction *south westerly*.

Wheat: *Very Good condition, Tillering stage.*

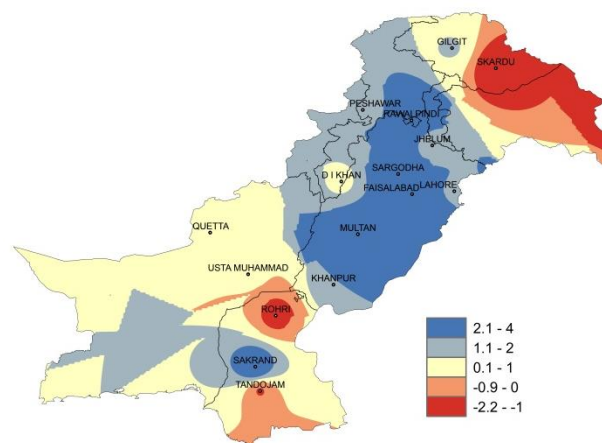
2.5 **RAMC, Quetta (Northern Balochistan)**

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 35%. Mean day temperature was 14.1°C while night temperature recorded as -1.2°C with 89.0hours bright sunshine duration. Wind speed recorded as 5.6km/hr with mean wind direction *north westerly*.

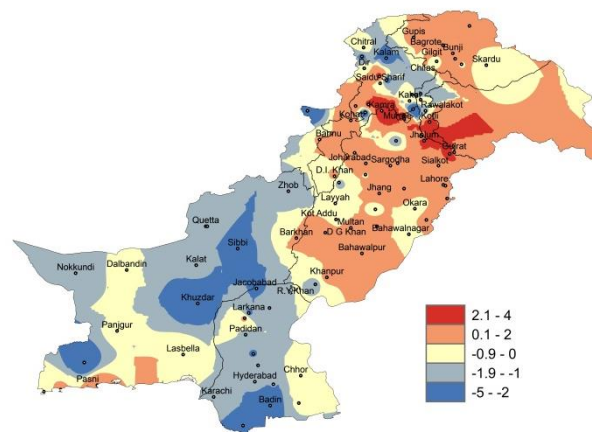
Wheat (Local White): *Very Good condition, Tillering stage*



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 January, 2017)

2.6 Jhelum

Rainfall reported as 14.9mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 66%. Mean day temperature was 19.7°C while night temperature recorded as 7.1°C with 51.3hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *variable*.

2.7 Lahore

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 72%. Mean day temperature was 19.6°C while night temperature recorded as 10.2°C with 27.9hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *north easterly*.

2.8 Sargodha

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 74%. Mean day temperature was 18.8°C while night temperature recorded as 9.2°C with 40.6hours bright sunshine duration. Wind speed recorded 1.7km/hr with mean wind direction *north easterly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 75%. Mean day temperature was 18.6°C while night temperature recorded as 9.5°C with 38.1hours bright sunshine duration. Wind speed recorded 0.6km/hr with mean wind direction *northerly*.

2.10 Khanpur

Dry weather reported during the decade however weather remained clear throughout the decade. Average relative humidity recorded as 77%. Mean day temperature was 19.0°C while night temperature recorded as 8.3°C with 30.3hours bright sunshine duration. Wind speed recorded 2.9km/hr with mean wind direction *variable*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 74%. Mean day temperature was 20.7°C while night temperature recorded as 10.9°C with 50.76hours bright sunshine duration. Wind speed recorded 2.7km/hr with wind direction *northerly*.

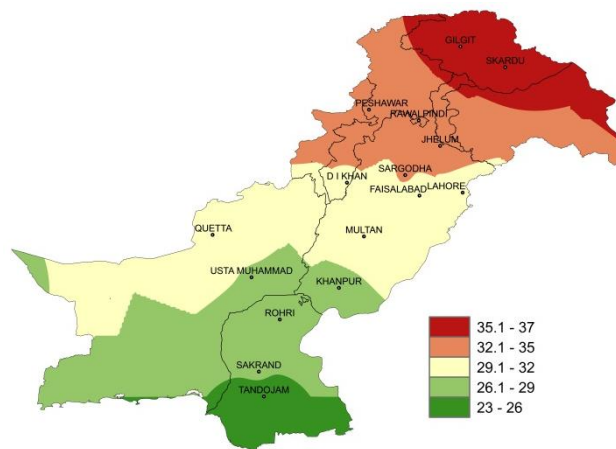


Figure.3: Relative Humidity in Percentage (%)

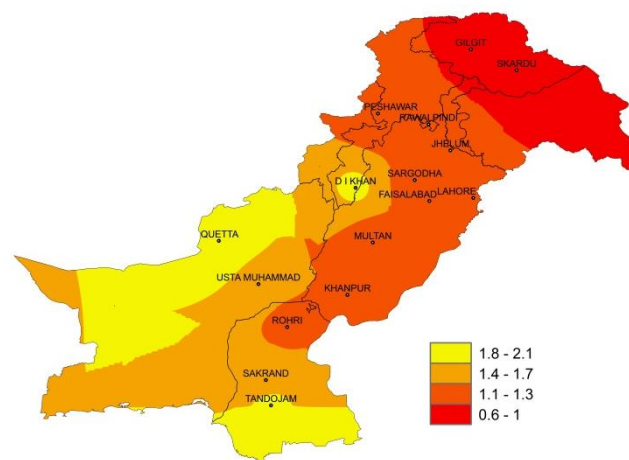


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

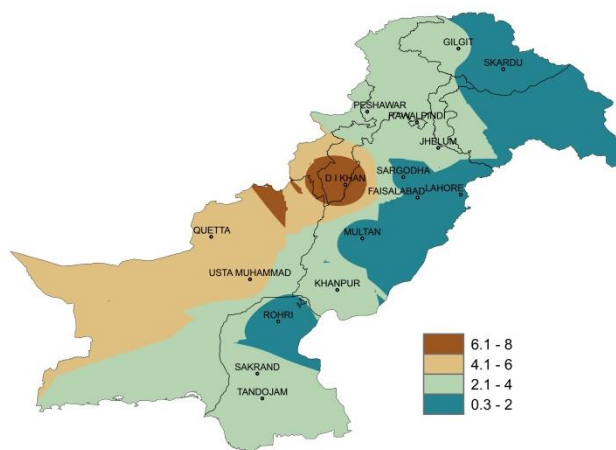


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 68%. Mean day temperature was 20.5°C while night temperature recorded as 7.9°C with 40.4hours bright sunshine duration. Wind speed recorded 0.3km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 70%. Mean day temperature was 19.7°C while night temperature recorded as 6.8°C with 39.8hours bright sunshine duration. Wind speed recorded 8.1km/hr with wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 12.4mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 75%. Mean day temperature was 16.2°C while night temperature recorded as 6.6°C with 34.7hours bright sunshine duration. Wind speed recorded as 2.0km/hr with mean wind direction *south westerly*.

2.15 Skardu

Rainfall reported as 23.41mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 71%. Mean day temperature was 5.7°C while night temperature recorded as -8.7°C with 28.8hours bright sunshine duration. Wind speed recorded as 0.8km/hr with mean wind direction *easterly*.

2.16 Gilgit

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 57%. Mean day temperature was 10.5°C while night temperature recorded as -1.5°C with 22.0hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *easterly*.

3 Ten Days Weather Advisory for Farmers **(11th to 20th January, 2017)**

3.1 Temperature Forecast

Night temperatures are expected to drop slightly (1-2°C) 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:** Cold and cloudy weather is expected in most parts of the province. However light to moderate rainfall is expected in Rawalpindi, Gujranwala, Faisalabad divisions from 14th to 19th of the decade.

❖ **Khyber Pakhtunkhwa:** Mainly cold and dry weather is expected during the decade however light to moderate rainfall is expected at scattered places in KP including Peshawar, Mardan, Malakand & Hazara divisions from 13th to 19th of the decade.

❖ **Sindh:** Dry weather is expected in most parts of the province.

❖ **Balochistan:** Mainly cold and cloudy weather is expected in most parts of the province however light to moderate rainfall is expected at scattered places of Balochistan from 13th to 19th 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**

❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation according to the expected weather mentioned during the decade.

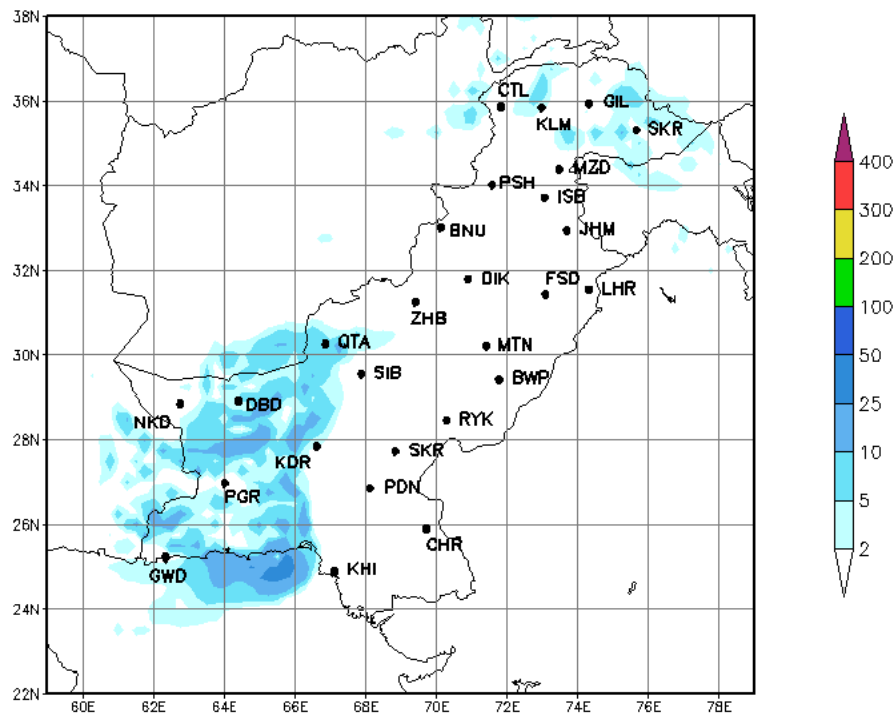
❖ In areas like Potohar Region and adjoining areas of Khyber Pakhtunkhwa where rain water storages are available farmers are advised to irrigate crops by using available irrigation methods like sprinkler irrigation etc.

❖ 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.

❖ Due to further drop of temperature farmers of particular areas in the northern half of the country are advised to take precautionary measures for protection of their crops from the expected frost.

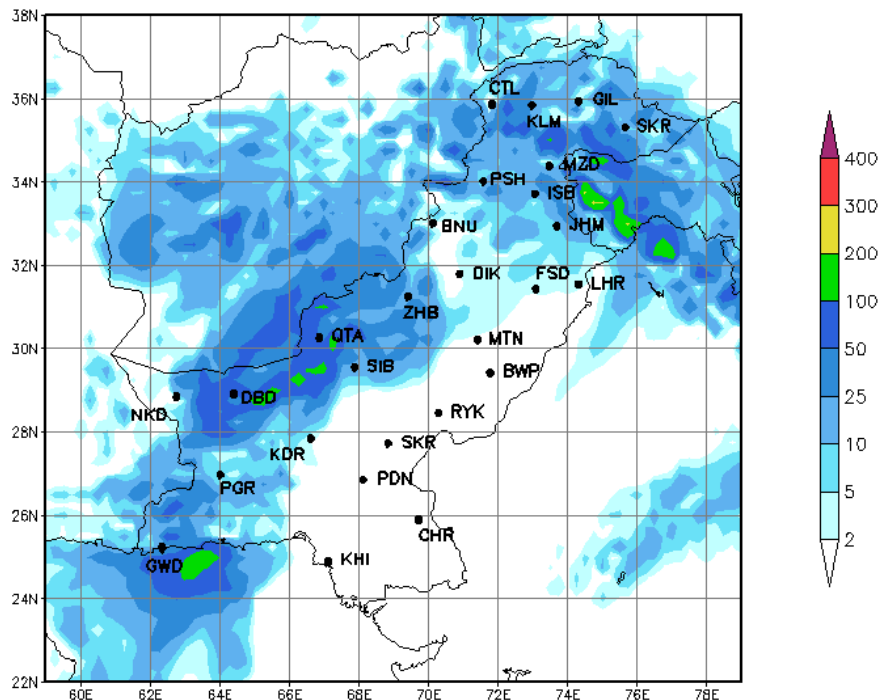
4.1 Precipitation Forecast (11th to 13th January, 2017)

The forecast for the next three days (11th to 13th) of the second decade of January 2017 shows that light to moderate rainfall (with snowfalls over mountainous regions) is expected at isolated places of Western Balochistan, Upper KP, GB & Kashmir however dry weather is expected in rest parts of the country.



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

The outlook for the last seven days (14th to 20th) of the second decade of January 2017 shows that light to moderate rainfall is expected in Upper Punjab, KP, Balochistan, G.B & Kashmir, while dry weather may prevail in rest 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)