

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from the agricultural plains of the country during the last decade.
- ❖ Highest amount of rainfall reported as 62.0 mm at Malam Jabba during the last decade
- ❖ Lowest Minimum temperature recorded as -15.5°C at Kalam during the last decade.
- ❖ Mostly cold and cloudy weather is expected in most of the agricultural plains of the country; however light to moderate rain (with snowfall over the mountains) is expected at most parts of the country from 23rd to 26th of the decade.
- ❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation according to the expected weather mentioned during the decade.
- ❖ 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 and livestock from the expected frost.

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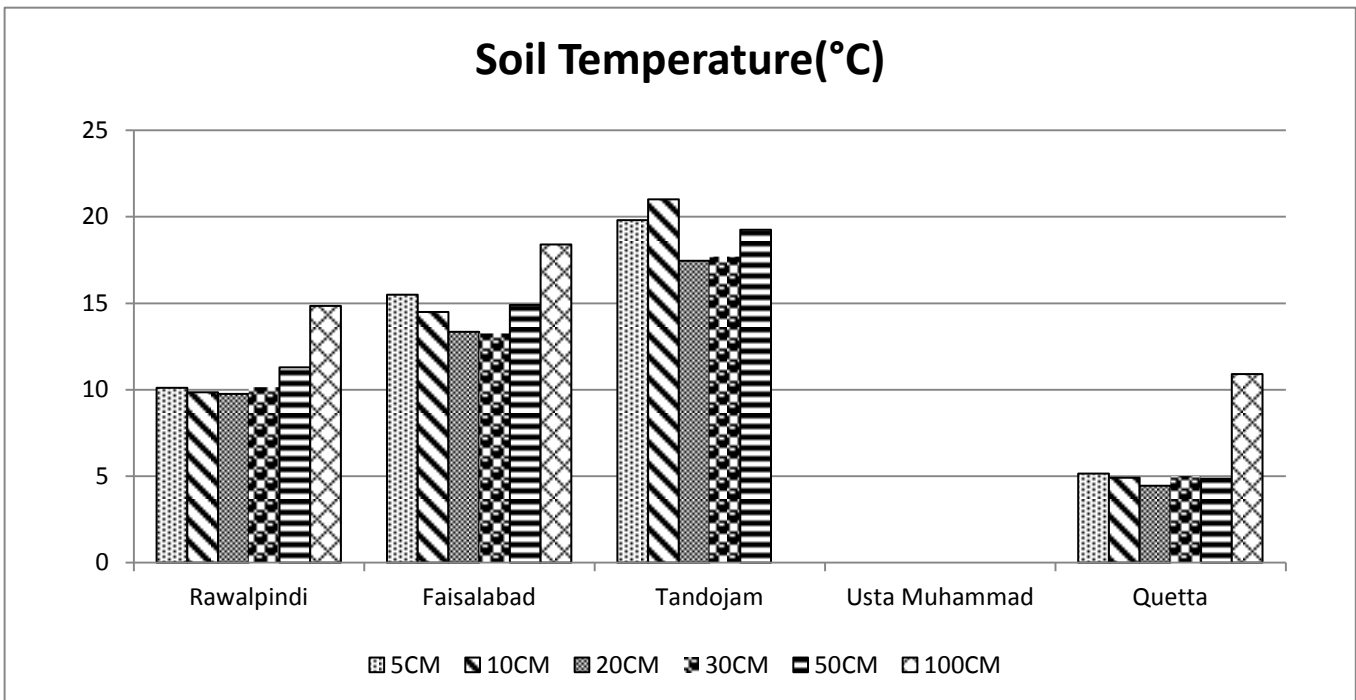
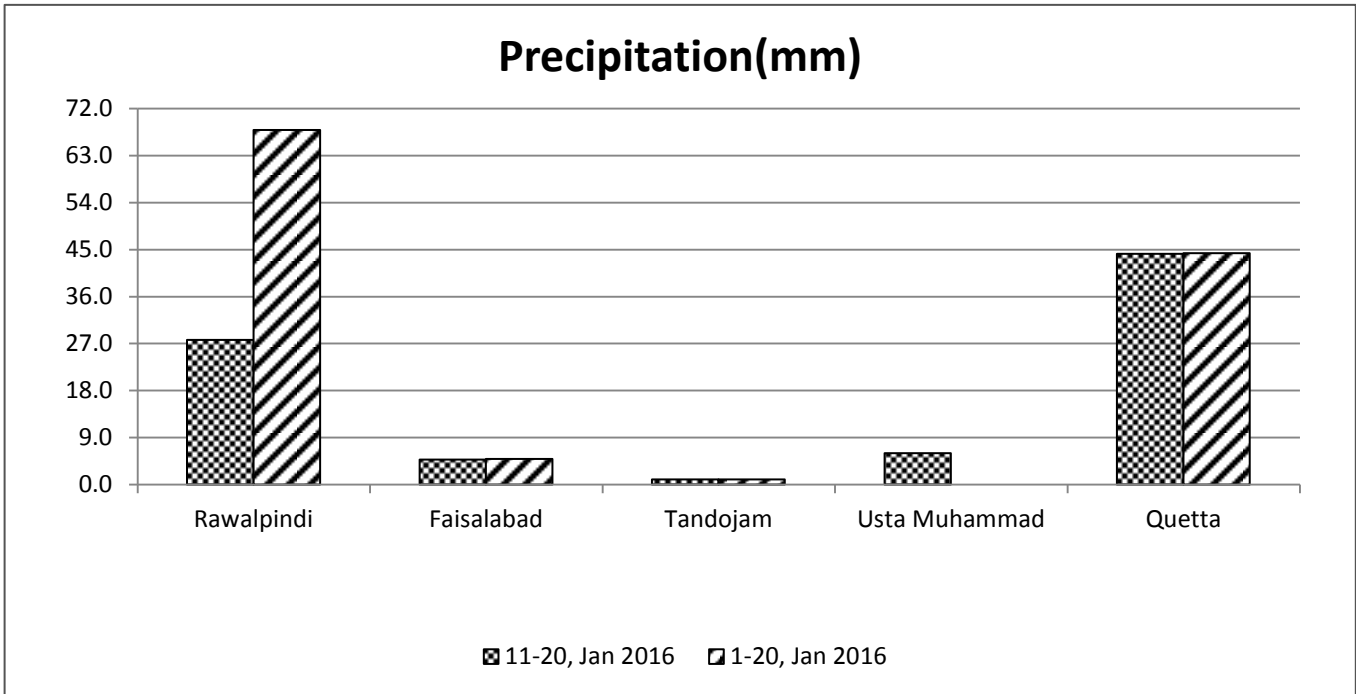
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Meteorological Conditions during 2nd decade of January, 2017

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	1.1	27.7	26.6	-3.8	-0.3	8.9	10.1	9.9	9.8	10.2	11.3	14.9	74	41.5	2.5	1.1
2	Faisalabad	0.3	4.8	4.5	-0.9	-0.6	10.8	15.5	14.5	13.4	13.3	14.9	18.4	63	43.0	2.3	1.3
3	Jhelum	1.4	15.2	13.8	-2.1	-2.2	10.2	11.5	11.0	10.9	11.6	13.3	***	66	47.1	2.3	1.2
4	Lahore	0.3	20.8	20.5	-1.1	-2.1	11.4	13.4	13.4	13.1	13.8	***	18.3	68	52.3	1.2	1.1
5	Sargodha	0.2	9.6	9.4	-1.3	0.4	11.6	15.2	14.5	14.4	15.2	***	18.9	70	44.4	2.0	1.2
6	Multan	0.2	2.4	2.2	-2.1	0.0	11.8	***	***	***	***	***	***	61	62.7	2.3	1.5
7	Khanpur	1.0	1.4	0.4	-1.7	-0.8	11.7	***	14.4	14.8	15.7	17.2	19.4	65	54.8	4.2	1.8
8	Tandojam	0.0	1.0	1.0	-3.5	-1.8	13.9	19.8	21.0	17.5	17.7	19.3	***	58	69.9	0.6	1.6
9	Sakrand ☆	0.4	2.0	1.6	1.3	1.0	13.8	22.4	***	***	***	***	24.1	64	71.2	6.5	2.4
11	Rohri	0.6	0.1	-0.5	-2.6	-0.4	14.0	***	***	***	***	***	***	65	63.1	3.0	1.8
12	D.I Khan	0.1	20.0	19.9	-1.4	-0.3	10.7	***	***	***	***	***	***	70	52.5	7.7	1.8
13	Peshawar	1.6	14.0	12.4	-3.4	-0.6	9.8	12.7	11.0	10.2	***	***	***	72	30.3	2.9	1.1
14	Usta .M	0.1	6.0	5.9	-4.3	-3.4	11.2	***	***	***	***	***	***	74	***	6.6	1.6
15	Quetta	0.9	44.2	43.3	-5.4	-3.8	0.8	5.2	4.9	4.5	5.0	4.9	10.9	59	65.4	5.1	1.3
16	Skardu	1.5	10.2	8.7	-0.3	-3.3	-3.5	***	***	***	***	***	***	72	27.0	0.2	0.6
17	Gilgit	0.3	0.0	-0.3	-1.0	-2.7	2.4	***	***	***	***	***	***	55	24.8	2.3	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 (11th to 20th January, 2017)

Light to moderate rainfall reported from the agricultural plains of the country 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 & Layyah. Decadal maximum & minimum both dropped below normal by 1.9°C & 0.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 49.4hrs, 2.4km/hr and 1.3mm/day respectively.

1.2 Sindh

Light to moderate rainfall reported from agricultural plains of Sindh. Chief amount of rainfall received at Karachi, Dadu & Jacobabad. Decadal maximum & minimum both dropped below normal by 1.6°C & 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 62%, 68.1hrs, 3.4km/hr and 1.9mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

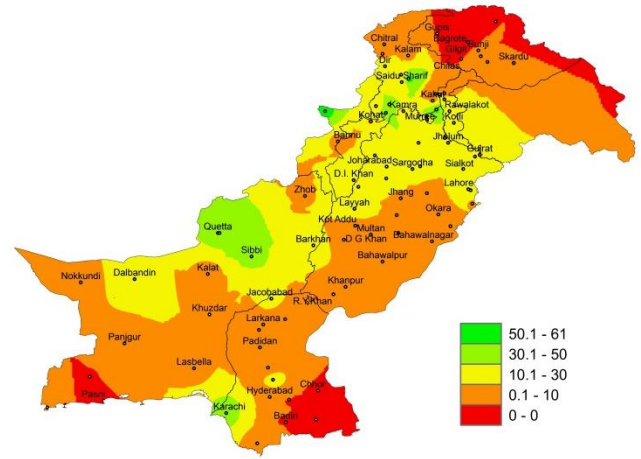
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Malam Jabba, Parachinar & Cherat. Decadal maximum & minimum both dropped below normal by 2.4°C & 0.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 71%, 41.4hrs, 5.3km/hr and 1.5mm/day respectively.

1.4 Balochistan

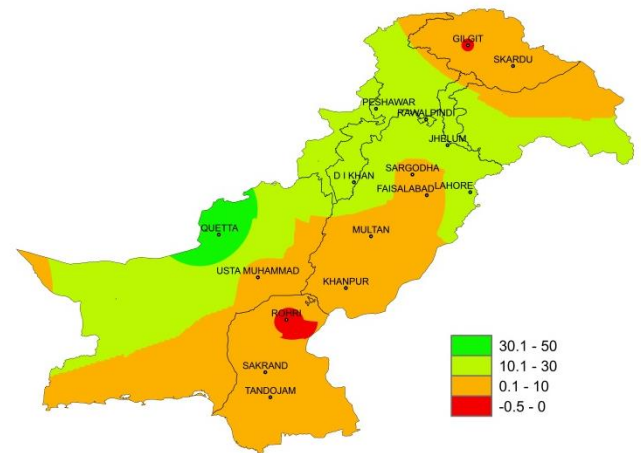
Light to moderate rainfall reported from agricultural plains of Balochistan. Chief amount of rainfall received at Quetta, Sibbi & Dalbandin. Decadal maximum & minimum both dropped below normal by 4.9°C & 3.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 65.4hrs, 5.9km/hr and 1.5mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

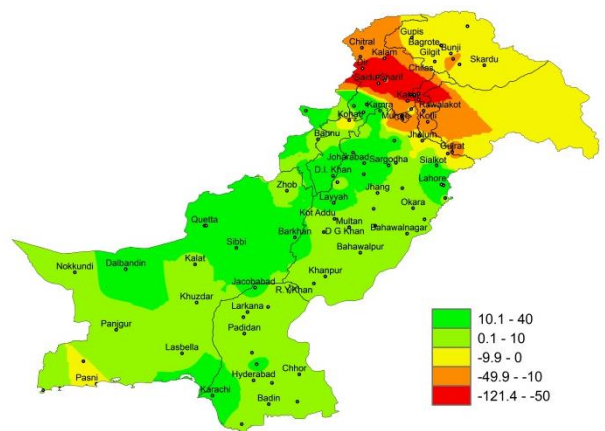
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Rawalakot, Garhi Dopatta & Kotli. Decadal maximum & minimum both dropped below normal by 0.7°C & 3.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 64%, 25.9hrs, 1.3km/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**
(11th to 20th January, 2017)

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

Rainfall reported as 27.7mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 74%. Mean day temperature was 15.0°C while night temperature recorded as 2.7°C with 41.5hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *westerly*.

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

Rainfall reported as 4.8mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 63%. Mean day temperature was 17.5°C while night temperature recorded as 4.1°C with 43.0hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *westerly*.

Wheat: *Very Good condition, Tillering stage.*

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

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 58%. Mean day temperature was 21.0°C while night temperature recorded as 6.7°C with 69.9hours bright sunshine duration. Wind speed recorded as 3.6km/h with mean wind direction *northerly*.

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

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

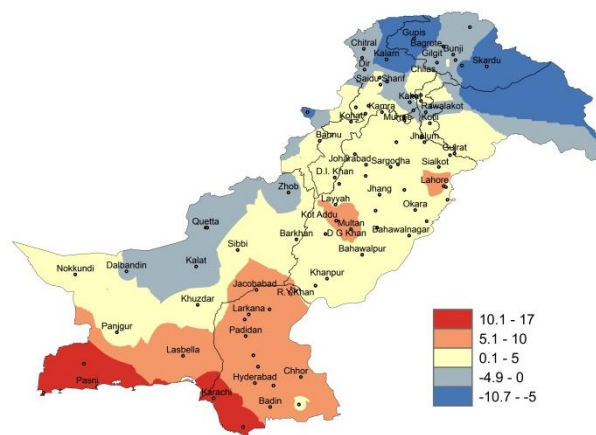
Rainfall reported as 6.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 74%. Mean day temperature was 17.1°C while night temperature recorded as 5.3°C. Wind speed recorded as 6.6km/h with mean wind direction *northerly*.

Wheat: *Very Good condition, Tillering stage.*

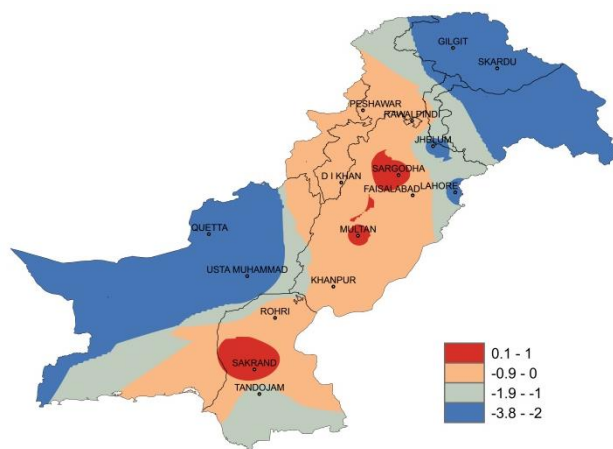
2.5 **RAMC, Quetta (Northern Balochistan)**

Rainfall reported as 44.2mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 59%. Mean day temperature was 6.5°C while night temperature recorded as -5.0°C with 65.4hours bright sunshine duration. Wind speed recorded as 5.1km/hr with mean wind direction *southerly*.

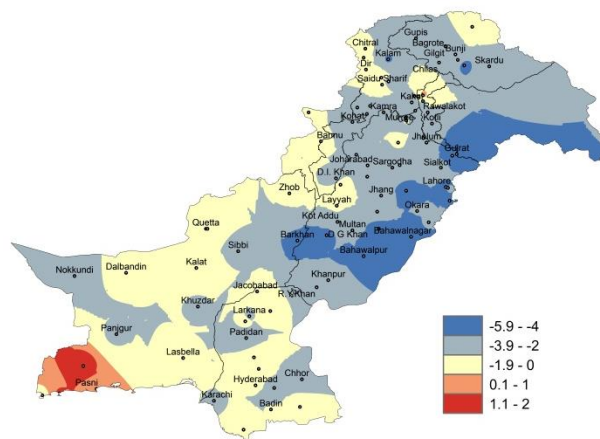
Wheat (Local White): *Very Good condition, Tillering stage*



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 (11th to 20th January, 2017)

2.6 Jhelum

Rainfall reported as 15.2mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 66%. Mean day temperature was 16.7°C while night temperature recorded as 3.7°C with 47.1hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *north westerly*.

2.7 Lahore

Rainfall reported as 20.8mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 68%. Mean day temperature was 17.1°C while night temperature recorded as 5.6°C with 52.3hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 9.6mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 70%. Mean day temperature was 17.3°C while night temperature recorded as 5.9°C with 44.4hours bright sunshine duration. Wind speed recorded 2.0km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as 2.4mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 61%. Mean day temperature was 17.8°C while night temperature recorded as 5.7°C with 62.7hours bright sunshine duration. Wind speed recorded 2.3km/hr with mean wind direction *northerly*.

2.10 Khanpur

Rainfall reported as 1.4mm during the decade however weather remained cloudy for 08days. Average relative humidity recorded as 65%. Mean day temperature was 18.6°C while night temperature recorded as 4.7°C with 54.8hours bright sunshine duration. Wind speed recorded 4.2km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 64%. Mean day temperature was 19.7°C while night temperature recorded as 7.9°C with 71.2hours bright sunshine duration. Wind speed recorded 6.5km/hr with wind direction *north westerly*.

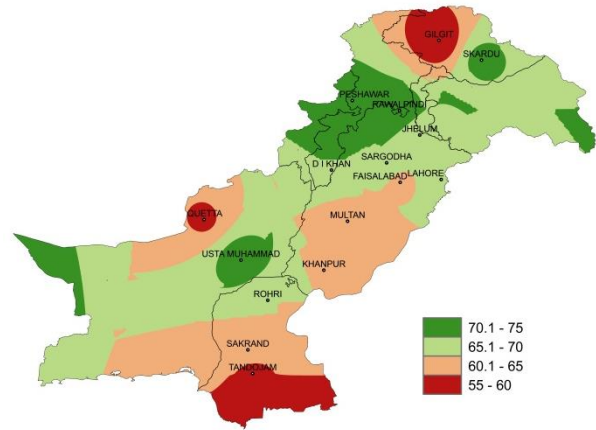


Figure.3: Relative Humidity in Percentage (%)

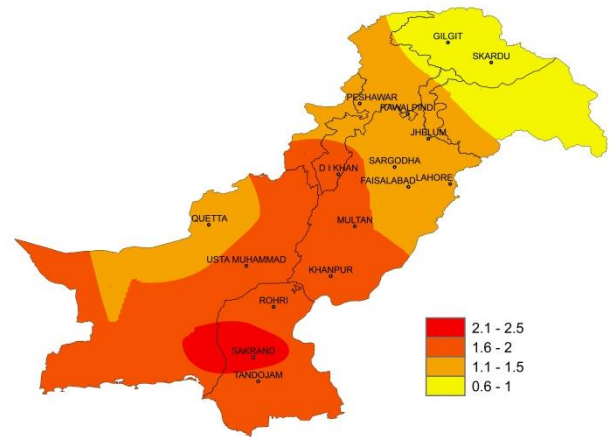


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

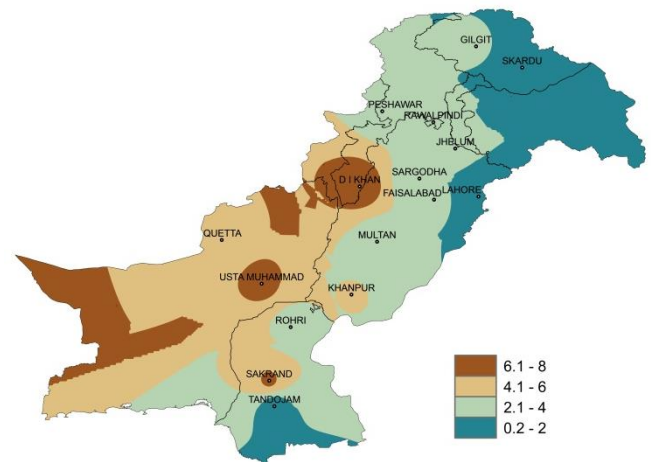


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 0.1mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 65%. Mean day temperature was 19.1°C while night temperature recorded as 8.9°C with 63.1hours bright sunshine duration. Wind speed recorded 3.0km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 20.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 70%. Mean day temperature was 17.1°C while night temperature recorded as 4.3°C with 52.5hours bright sunshine duration. Wind speed recorded 7.7km/hr with wind direction *north westerly*.

2.14 Peshawar

Rainfall reported as 14.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 72%. Mean day temperature was 15.3°C while night temperature recorded as 4.2°C with 30.3hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *south westerly*.

2.15 Skardu

Rainfall reported as 10.2mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 72%. Mean day temperature was 3.8°C while night temperature recorded as -10.7°C with 27.0hours bright sunshine duration. Wind speed recorded as 0.2km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Dry weather reported during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 55%. Mean day temperature was 9.6°C while night temperature recorded as -4.9°C with 24.8hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *westerly*.

3 Ten Days Weather Advisory for Farmers **(23rd to 31st 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

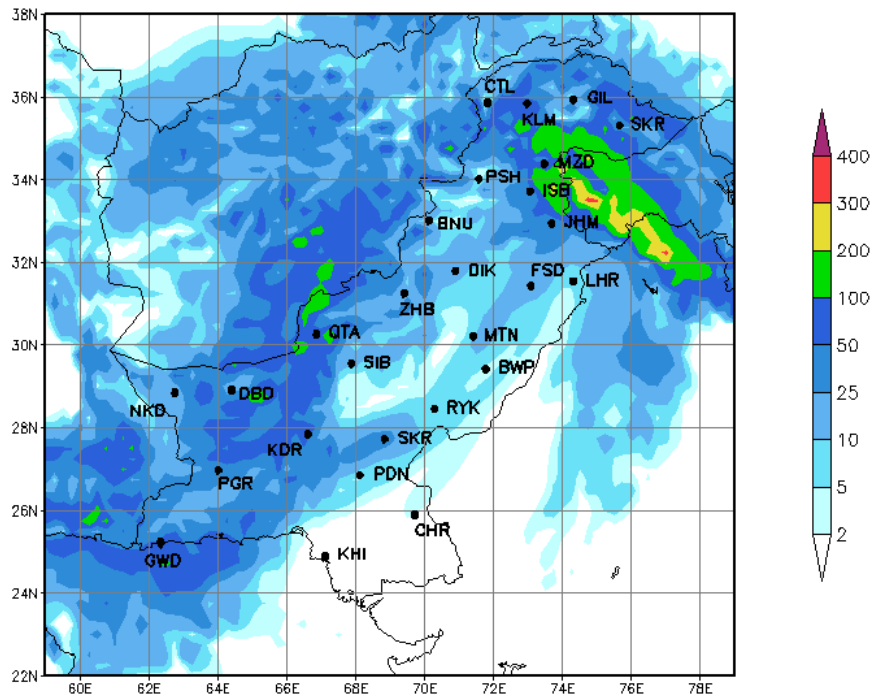
- ❖ **Punjab:** Cold and cloudy weather is expected in most parts of the province. However light to moderate rainfall is expected from 23rd to 26th of the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly cold and cloudy weather is expected in most parts of the province from 23rd to 27th of the decade.
- ❖ **Sindh:** Light to moderate rainfall is expected in most parts of the province from 23rd to 26th of the decade.
- ❖ **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 23rd to 26th 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.
- ❖ 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 and livestock from the expected frost.

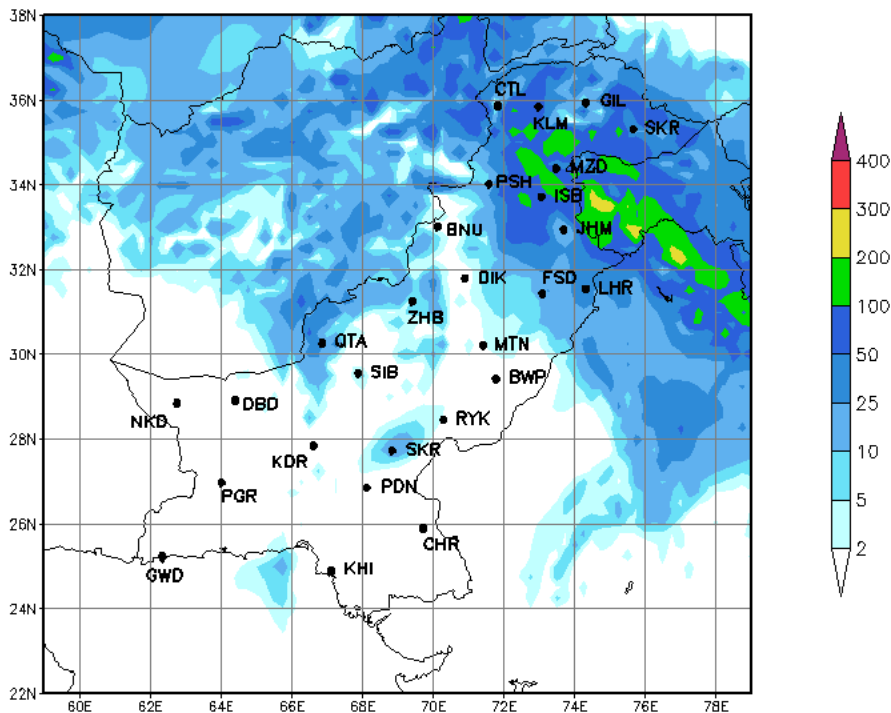
4.1 Precipitation Forecast (23rd to 25th January, 2017)

The forecast for the next three days (23rd to 25th) of the third decade of January 2017 shows that heavy rainfall (with snowfalls over mountainous regions) is expected at isolated places of Upper Punjab, Western Balochistan, Upper KP, GB & Kashmir however dry weather is expected in rest parts of the country.



4.2 Precipitation Outlook (26th to 31st January, 2017)

The outlook for the last six days (26th to 31st) of the third decade of January 2017 shows that light to moderate rainfall is expected in Punjab, KP, G.B & Kashmir however light rainfall is expected in isolated places of Balochistan & Sindh while dry weather may prevail in lower 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)