

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light rainfall reported from few parts of G.B however dry weather reported from the agricultural plains of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 0.5 mm at Bagrote during the last decade.
- ❖ Lowest minimum temperature recorded as -9.0°C at Skardu during the last decade.
- ❖ Foggy conditions persisted in the plain areas of upper Sindh and Punjab.
- ❖ Mainly cold and dry weather is expected in most parts of the country during the current decade, however light to moderate rainfall with snowfall over hills is expected in particular parts of upper KP, Balochistan, G.B & Kashmir.
- ❖ Fog may be increased in the central parts of the country due to dry weather.
- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme weather conditions.

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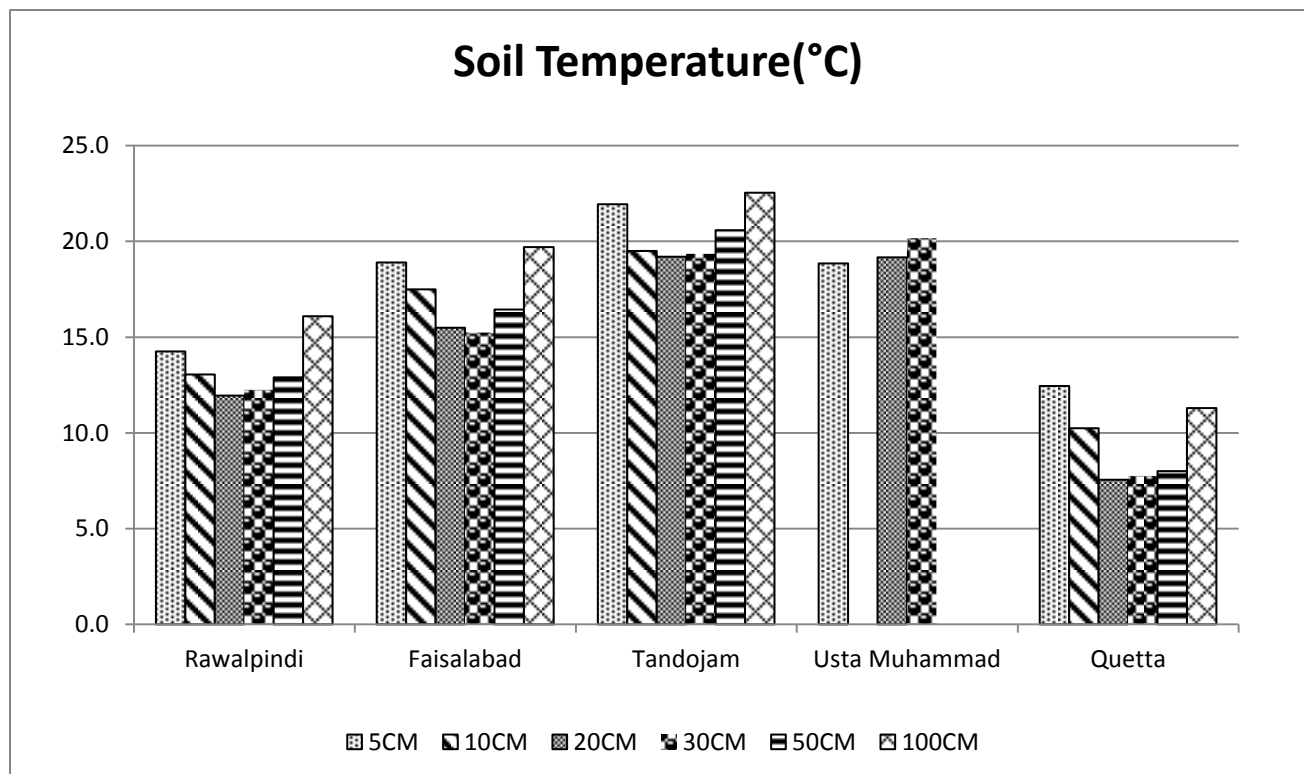
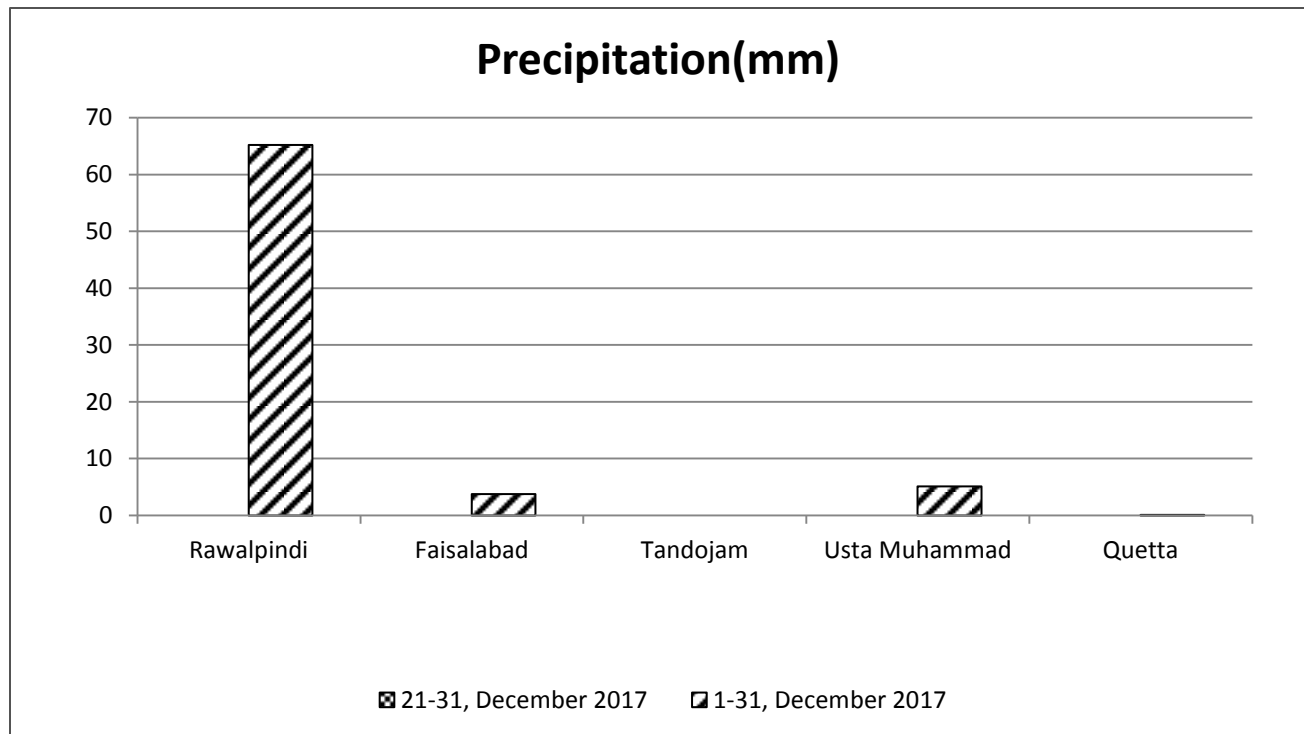
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Meteorological Conditions during 3rd Decade of December, 2017

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	0.0	-0.5	3.1	1.3	13.5	14.3	13.1	12.0	12.3	12.9	16.1	65	77.2	2.2	1.3
2	Faisalabad	0.2	0.0	-0.2	3.4	0.4	14.6	18.9	17.5	15.5	15.3	16.5	19.7	56	59.6	0.9	1.1
3	Jhelum	0.4	0.0	-0.4	2.1	0.4	14.6	15.0	14.0	13.5	14.0	15.7	***	60	73.7	0.7	1.1
4	Lahore	0.3	0.0	-0.3	5.7	1.9	17.9	16.7	16.3	15.9	15.9	***	20.5	70	64.6	0.4	1.2
5	Sargodha	0.4	0.0	-0.4	2.9	1.5	15.5	18.7	17.3	16.3	16.9	***	19.9	63	69.6	0.7	1.1
6	Multan	0.1	0.0	-0.1	1.6	2.2	15.5	***	***	***	***	***	***	61	75.5	1.6	1.4
7	Khanpur	0.1	0.0	-0.1	3.3	0.3	16.0	***	15.6	16.1	16.8	17.8	20.2	59	76.4	1.5	1.6
8	Tandojam	0.4	0.0	-0.4	2.0	-1.4	17.0	22.0	19.5	19.2	19.4	20.6	22.6	52	89.8	3.9	2.6
9	Sakrand☆	0.0	0.0	0.0	3.4	2.9	18.0	23.0	***	***	***	***	24.9	54	95.4	4.6	2.7
11	Rohri	0.0	0.0	0.0	2.6	-1.1	16.9	***	***	***	***	***	***	54	101.0	2.0	2.0
12	D.I Khan	0.4	0.0	-0.4	3.4	0.3	15.6	16.5	15.9	15.8	16.9	7.1	20.4	54	83.5	5.4	2.4
13	Peshawar	0.6	0.0	-0.6	3.7	-0.6	13.8	13.9	13.6	12.5	13.5	14.9	17.4	54	66.4	1.5	1.1
14	Usta .M	0.0	0.0	0.0	2.6	1.9	17.2	18.9	***	19.2	20.2	***	***	61	***	0.6	1.4
15	Quetta	0.4	0.0	-0.4	2.4	2.5	7.8	12.5	10.3	7.6	7.8	8.0	11.3	31	100.9	4.1	1.9
16	Skardu	0.5	0.0	-0.5	-1.3	2.8	0.4	***	***	***	***	***	***	74	26.5	0.2	0.6
17	Gilgit	0.4	0.1	-0.3	1.4	1.5	5.8	***	***	***	***	***	***	47	35.6	3.3	1.2

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 December, 2017



Past Weather (21st to 31st December, 2017)

Light rainfall reported from few parts of G.B however dry weather reported from the agricultural plains of the country during the last decade.

1.1 Punjab

Dry weather reported from agricultural plains of Punjab. Decadal maximum & minimum departure both raised above normal by 3.2°C & 1.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 62%, 70.9hrs, 1.1km/hr and 1.3mm/day respectively.

1.1 Sindh

Dry weather reported from agricultural plains of Sindh. Decadal maximum & minimum departure both raised above normal by 2.7°C & 0.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 53%, 95.4hrs, 3.5km/hr and 2.4mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

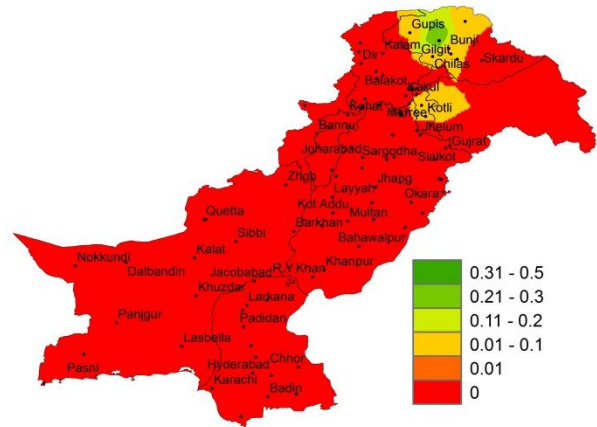
Dry weather reported from agricultural plains of KP. Decadal maximum raised above normal by 3.6°C & minimum departure dropped below normal by 0.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 75.0hrs, 3.5km/hr and 1.8mm/day respectively.

1.3 Balochistan

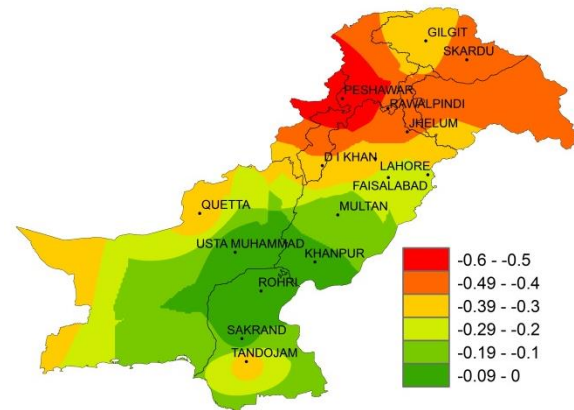
Dry weather reported from agricultural plains of Balochistan. Decadal maximum & minimum departure both raised above normal by 2.5°C & 2.2°C respectively, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 100.9 hrs, 2.4km/hr and 1.7mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

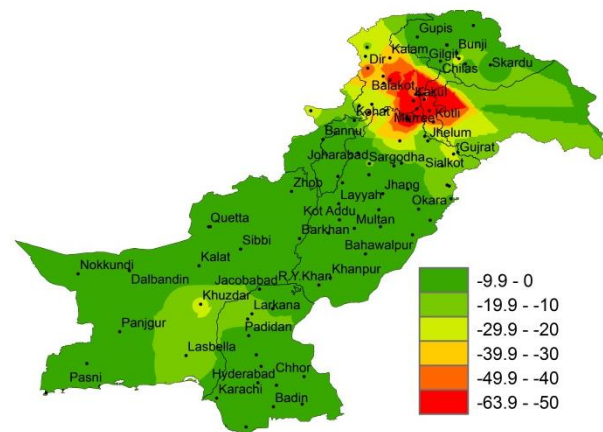
Light rainfall reported from different places of G.B & Kashmir. Chief amount of rainfall is received at Bagrote, Bunji & Gilgit. Decadal maximum remained normal & minimum departure raised above normal by 2.2°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 31.1hrs, 1.8km/hr and 0.9mm/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 December, 2017)

2.1 RAMC, Rawalpindi (Potohar region)

Dry weather reported during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 65%. Mean day temperature was 22.3°C while night temperature recorded as 4.6°C with 77.2hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *variable*.

2.2 RAMC, Faisalabad (Central Punjab)

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 23.9°C while night temperature recorded as 5.3°C with 59.58hours bright sunshine duration. Wind speed recorded as 0.9km/hr with mean wind direction *north westerly*.

Wheat: *Very good condition, third leaf stage completed.*

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 52%. Mean day temperature was 26.3°C while night temperature recorded as 7.7°C with hours bright sunshine duration. Wind speed recorded as 3.9km/h with mean wind direction *northerly*.

Wheat (Sindh): *Good condition, tillering stage.*

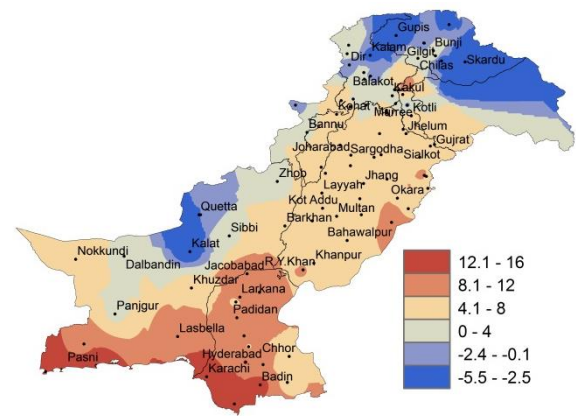
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 24.5°C while night temperature recorded as 9.8°C. Wind speed recorded as 0.6km/h with mean wind direction *variable*.

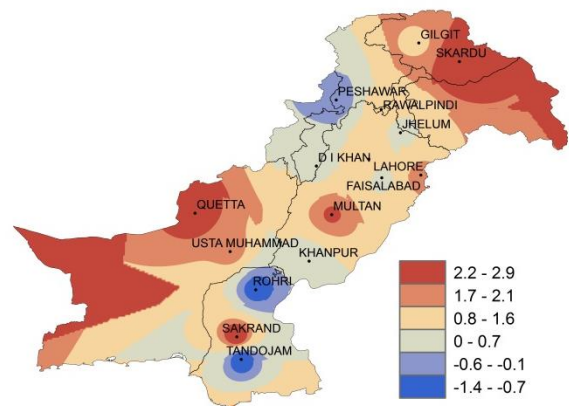
Wheat: *Good condition, third leaf stage.*

2.5 RAMC, Quetta (Northern Balochistan)

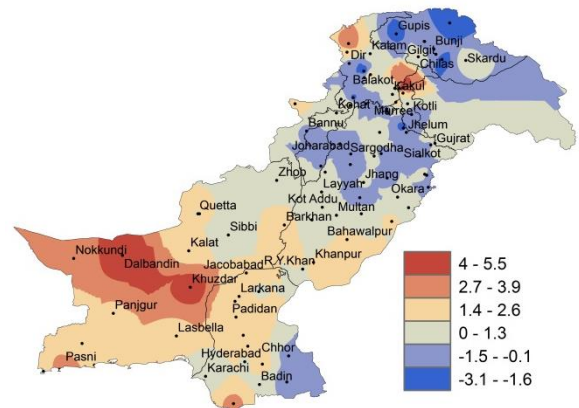
Dry weather reported during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 31%. Mean day temperature was 15.2°C while night temperature recorded as 0.4°C with 100.9hours bright sunshine duration. Wind speed recorded as 4.1km/hr with mean wind direction *north easterly*.



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 (21st to 31st December, 2017)

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 23.1°C while night temperature recorded as 6.0°C with 73.7hours bright sunshine duration. Wind speed recorded as 0.7km/hr with mean wind direction *north westerly*.

2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 25.4°C while night temperature recorded as 10.3°C with 64.6hours bright sunshine duration. Wind speed recorded as 0.4km/hr with mean wind direction *south westerly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 23.6°C while night temperature recorded as 7.4°C with 69.6hours bright sunshine duration. Wind speed recorded 0.7km/hr with mean wind direction *variable*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 23.0°C while night temperature recorded as 7.9°C with 75.5hours bright sunshine duration. Wind speed recorded 1.6km/hr with mean wind direction *northerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 25.4°C while night temperature recorded as 6.6°C with 76.4hours bright sunshine duration. Wind speed recorded 1.5km/hr with mean wind direction *variable*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 25.8°C while night temperature recorded as 10.1°C with 95.4hours bright sunshine duration. Wind speed recorded 4.6km/hr with wind direction *northerly*.

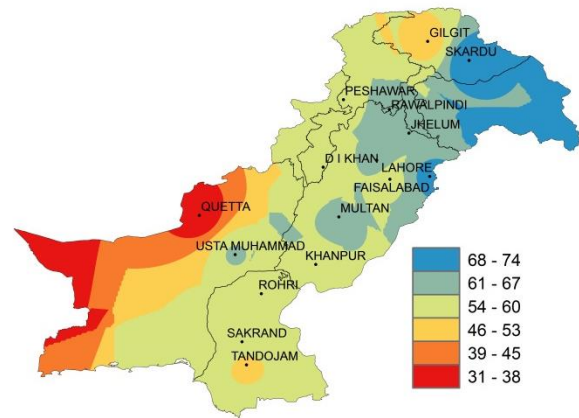


Figure.3: Relative Humidity in Percentage (%)

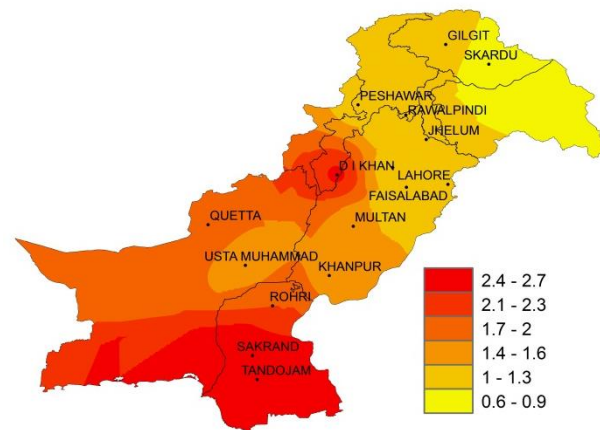


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

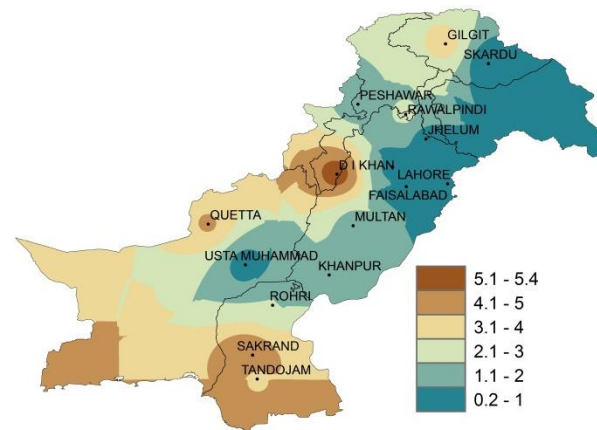


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 54%. Mean day temperature was 25.5°C while night temperature recorded as 8.3°C with 101.0hours bright sunshine duration. Wind speed recorded 2.0km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 24.7°C while night temperature recorded as 6.4°C with 83.5hours bright sunshine duration. Wind speed recorded as 5.4km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 23.2°C while night temperature recorded as 4.4°C with 66.4hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *north north-westerly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 4.5°C while night temperature recorded as -3.7°C with 26.5hours bright sunshine duration. Wind speed recorded as 0.2km/hr with mean wind direction *east north-easterly*.

2.16 Gilgit

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 12.7°C while night temperature recorded as -1.1°C with 35.6hours bright sunshine duration. Wind speed recorded as 3.33km/hr with mean wind direction *south westerly*.

Ten Days Weather Advisory for Farmers
(1st to 10th January, 2018)

3.1 Temperature Forecast

Night temperatures are expected to drop slightly (1-2°C) and day temperatures are likely to be slightly normal in most parts 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; however dust/sand storms may occur in southern Punjab and upper Sindh.

- Fog may occur during the morning times, over some plains of Punjab and upper Sindh.

3.3 Rain Forecast

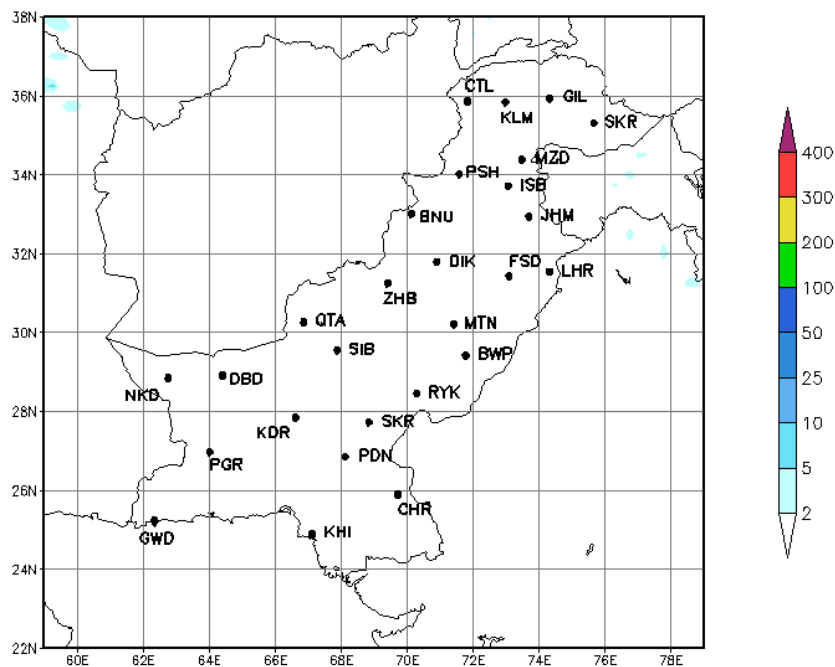
- ❖ **Punjab:** Mainly dry weather is expected in most of the agricultural plains of province.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall (snowfall over hills) is expected in the upper parts of the province during the current decade.
- ❖ **Sindh:** Dry weather is expected in the upper parts province during the current decade.
- ❖ **Balochistan:** : Light to moderate rainfall (snowfall over hills) is expected in few parts of the province during the current decade.
- ❖ **Gilgit Baltistan:** Light to moderate rainfall (snowfall over hills) is expected in the province during the current decade.
- ❖ **Kashmir:** Light to moderate rainfall (snowfall over hills) is expected in the province during the current decade

❖ **3.4 Advisory for Farmers**

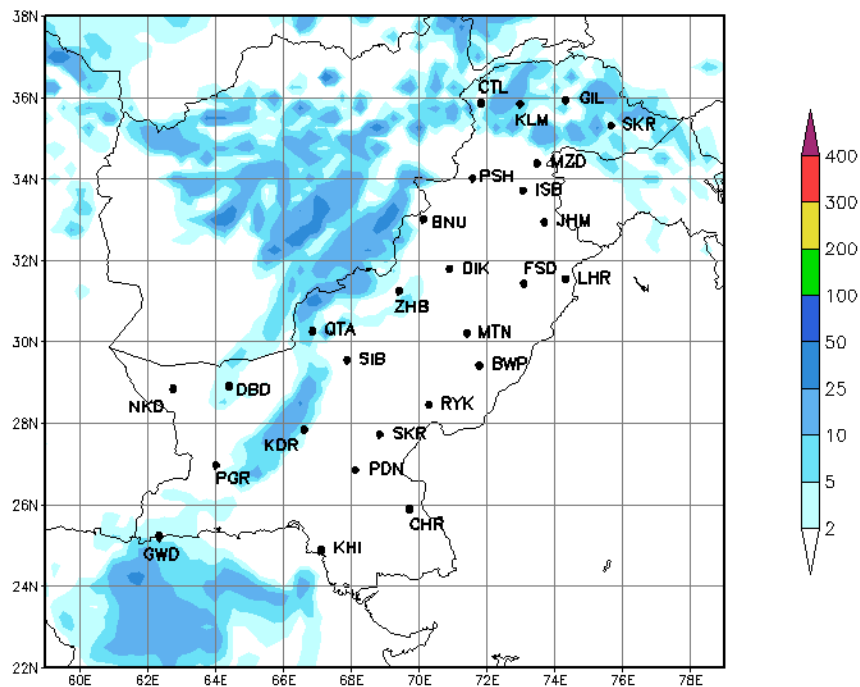
- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.
- ❖ Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme weather conditions.

4.1 Precipitation Outlook (1st to 3rd January, 2018)

The forecast for the first three days (1st to 3rd) of the first decade of January 2018 shows that mainly cold and dry weather is expected in most parts of the country.

**4.2 Precipitation Outlook (4th to 10th January, 2018)**

The outlook for the last seven days (4th to 10th) of the first decade of January 2018 shows that mainly cold and cloudy weather with light rainfall is expected in particular areas of upper K.P, Balochistan, G.B and Kashmir. However cold and 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 سدّ باب (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)