

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light rainfall reported from few parts of parts of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 11.0 mm at Malam Jabba during the last decade.
- ❖ Lowest minimum temperature recorded as -13.0°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/orchids from the damaging impacts of extreme weather conditions.

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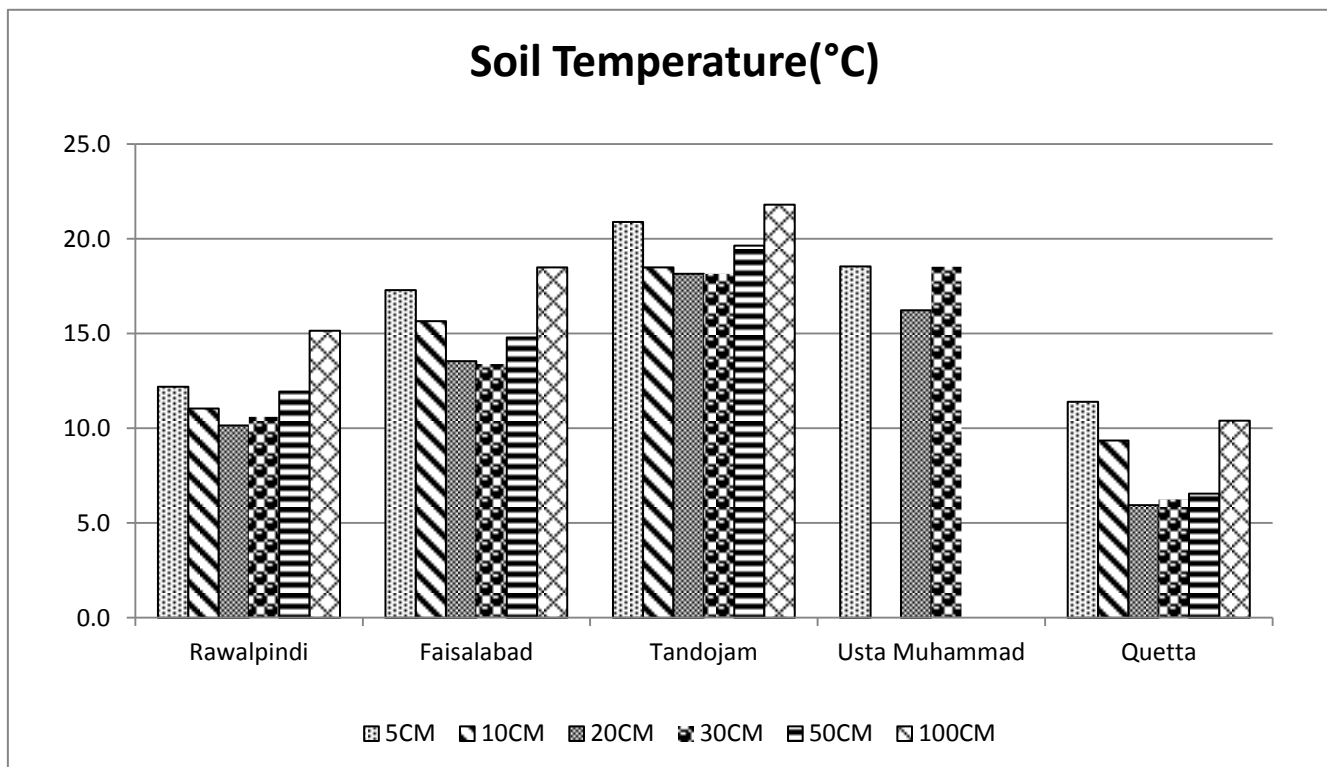
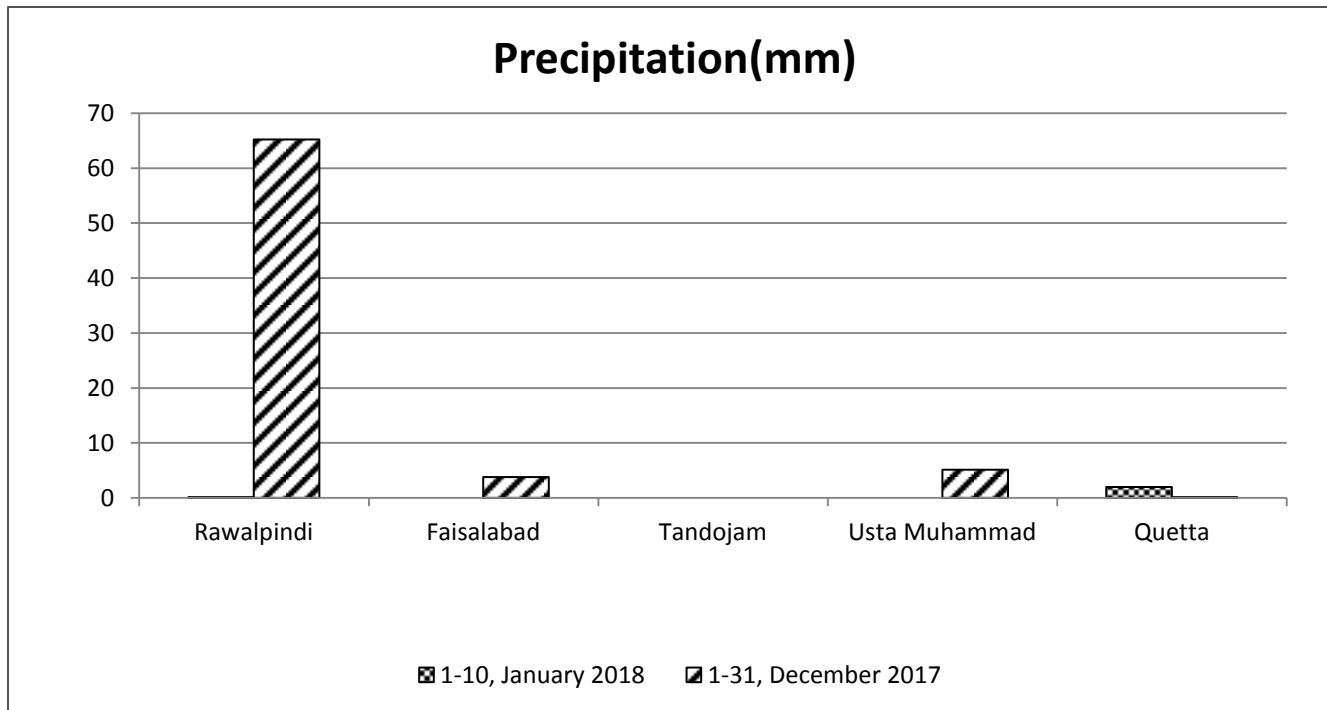
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Meteorological Conditions during 1st Decade of January, 2018

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	1.9	0.1	-1.8	2.6	-1.0	10.8	12.2	11.1	10.2	10.6	12.0	15.2	63	75.1	2.3	1.3
2	Faisalabad	0.7	0.0	-0.7	3.8	-1.0	12.0	17.3	15.7	13.6	13.4	14.8	18.5	60	67.5	1.5	1.3
3	Jhelum	1.1	0.0	-1.1	3.2	-2.1	12.0	13.5	12.4	11.8	12.5	14.2	***	57	79.8	2.5	1.5
4	Lahore	0.7	0.0	-0.7	3.0	-0.4	13.5	13.5	13.2	12.9	13.1	***	17.8	68	70.0	0.5	1.1
5	Sargodha	0.8	0.1	-0.7	3.8	0.0	13.0	16.9	15.6	14.6	15.4	***	19.0	63	68.2	1.9	1.3
6	Multan	0.4	0.0	-0.4	2.2	0.3	13.0	***	***	***	***	***	***	60	72.7	1.8	1.4
7	Khanpur	0.1	0.0	-0.1	3.2	-1.1	13.5	***	14.2	14.7	15.7	17.0	19.6	56	74.7	0.9	1.3
8	Tandojam	0.1	0.0	-0.1	2.1	-2.3	15.3	20.9	18.5	18.2	18.2	19.7	21.8	52	85.9	1.6	1.9
9	Sakrand☆	0.1	0.0	-0.1	6.4	2.1	15.8	21.7	***	***	***	***	24.2	55	83.2	4.6	2.5
11	Rohri	0.1	0.0	-0.1	2.6	-0.9	15.5	***	***	***	***	***	***	56	86.4	0.1	1.3
12	D.I Khan	0.8	0.0	-0.8	3.3	0.0	12.8	14.9	13.8	13.8	14.9	5.7	19.6	60	70.1	5.3	2.6
13	Peshawar	1.2	0.0	-1.2	2.7	-2.2	11.0	12.1	11.5	10.4	11.7	13.6	16.2	57	52.4	0.5	0.8
14	Usta .M	0.1	0.0	-0.1	1.0	0.8	13.9	18.6	***	16.2	18.5	***	***	65	***	1.8	1.5
15	Quetta	1.6	2.0	0.4	2.4	1.0	6.2	11.4	9.4	6.0	6.3	6.6	10.4	35	97.2	4.3	1.9
16	Skardu	1.0	0.0	-1.0	-0.6	-0.8	-2.9	***	***	***	***	***	***	68	56.8	0.5	0.6
17	Gilgit	0.2	0.1	-0.1	0.5	-2.2	2.5	***	***	***	***	***	***	54	52.1	1.5	0.8

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; $\text{Dep} \div \text{Normal} \times 100$. 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, 2018



Past Weather (1st to 10th January, 2018)

Light rainfall reported from few parts of the country during the last decade.

1.1 Punjab

Light rainfall reported from agricultural plains of Punjab. Chief amount of rainfall is received at Murree, Chakwal & Islamabad. Decadal maximum raised above normal by 3.1°C & minimum departure dropped below normal by 0.8°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 72.6hrs, 1.6km/hr and 1.3mm/day respectively.

1.1 Sindh

Rainfall reported as Trace at one place of Sindh i.e Karachi. Decadal maximum raised above normal by 3.7°C & minimum departure dropped below normal by 0.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 85.2hrs, 2.1km/hr and 1.9mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

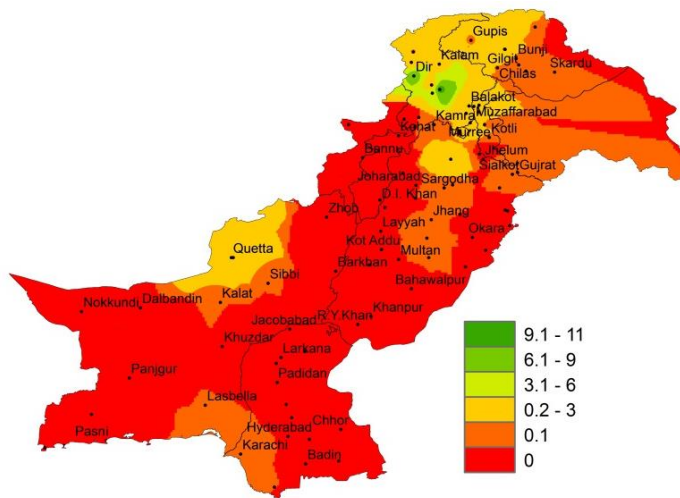
Light rainfall reported from agricultural plains of KP. Chief amount of rainfall is received at Malam Jabba, Dir & Saidu Sharif. Decadal maximum raised above normal by 3.0°C & minimum departure dropped below normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 59%, 61.3hrs, 2.9km/hr and 1.7mm/day respectively.

1.3 Balochistan

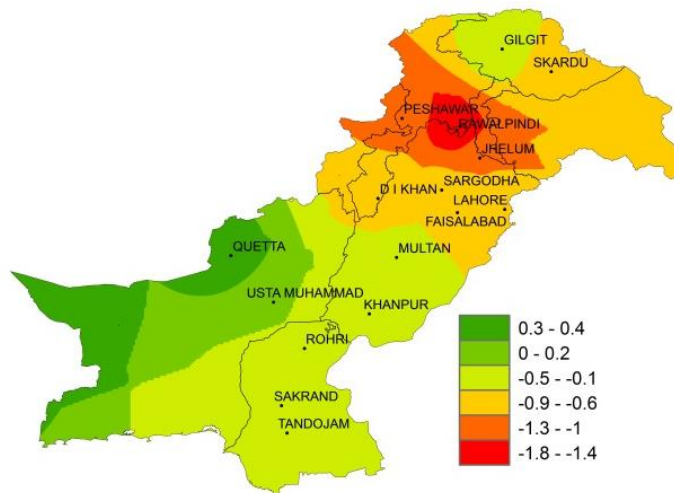
Light rainfall reported at one place of Balochistan i.e. Quetta. Decadal maximum & minimum departure both raised above normal by 1.7°C & 0.9°C respectively, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 97.2hrs, 3.1km/hr and 1.7mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

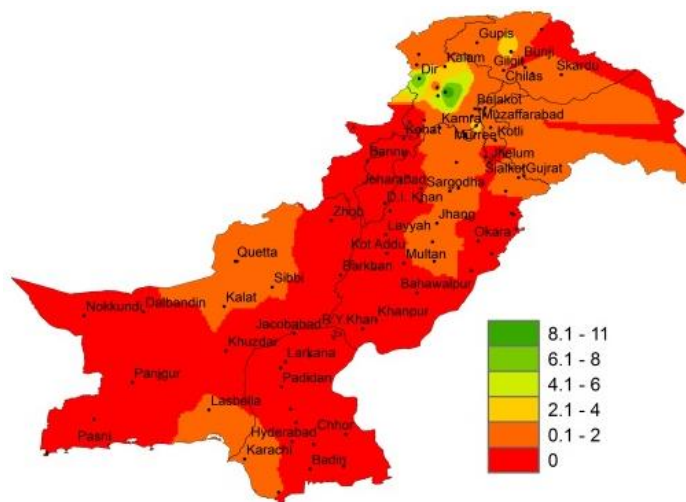
Light rainfall reported from different places of G.B & Kashmir. Chief amount of rainfall is received at Bagrote, Rawalakot & Gilgit. Decadal maximum & minimum departure both dropped below normal by 0.1°C & 1.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 54.5hrs, 1.0km/hr and 0.7mm/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, 2018)

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

Rainfall reported Trace (not measurable) during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 20.2°C while night temperature recorded as 1.3°C with 75.1hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *westerly*.

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 60%. Mean day temperature was 21.1°C while night temperature recorded as 2.9°C with 67.5hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *north westerly*.

Wheat: Very good condition, tillering 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 52%. Mean day temperature was 25.2°C while night temperature recorded as 5.4°C with 85.9hours bright sunshine duration. Wind speed recorded as 1.6km/h with mean wind direction *northerly*.

Wheat (Sindhu): Good condition, tillering stage.

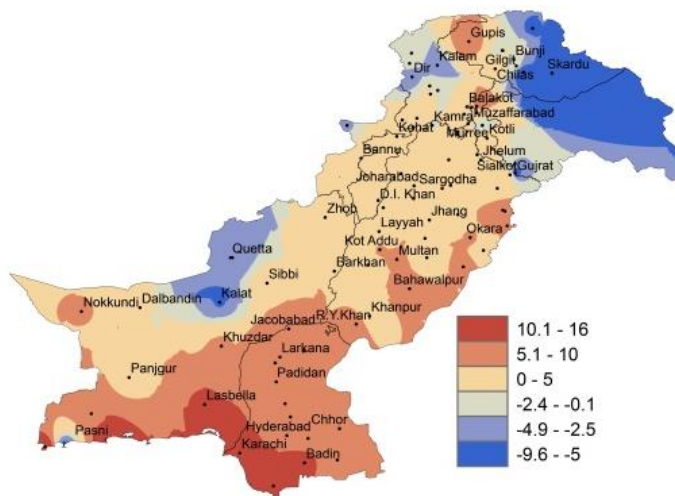
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 65%. Mean day temperature was 20.5°C while night temperature recorded as 7.2°C. Wind speed recorded as 1.8km/h with mean wind direction *variable*.

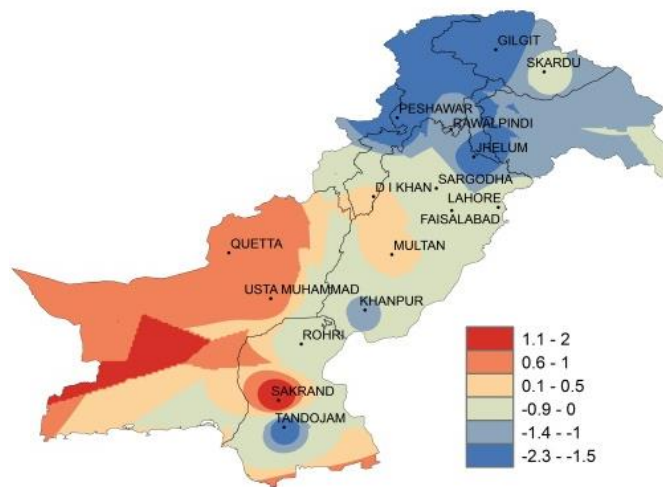
Wheat: Good condition, tillering stage.

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

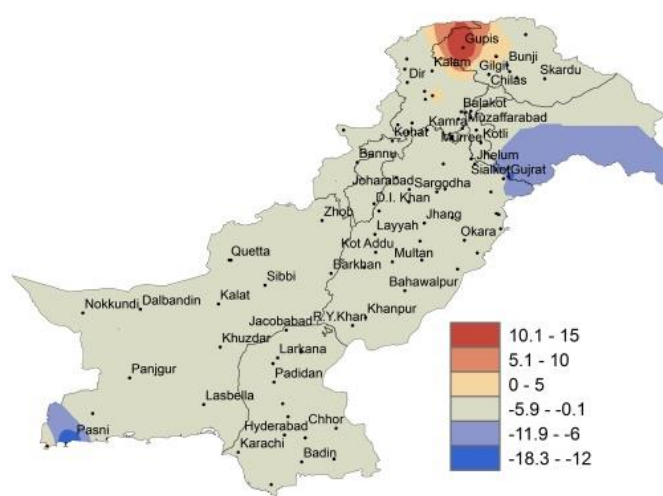
Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 35%. Mean day temperature was 13.7°C while night temperature recorded as -1.3°C with 97.2hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *north westerly*.



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, 2018)

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 21.0°C while night temperature recorded as 2.9°C with 79.8hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *variable*.

2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 68%. Mean day temperature was 20.0°C while night temperature recorded as 6.9°C with 70.0hours bright sunshine duration. Wind speed recorded as 0.5km/hr with mean wind direction *south westerly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 21.1°C while night temperature recorded as 4.9°C with 68.2hours bright sunshine duration. Wind speed recorded 1.9km/hr with mean wind direction *variable*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 20.5°C while night temperature recorded as 5.4°C with 72.7hours bright sunshine duration. Wind speed recorded 1.8km/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 56%. Mean day temperature was 22.9°C while night temperature recorded as 4.0°C with 74.7hours bright sunshine duration. Wind speed recorded 0.9km/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 55%. Mean day temperature was 23.8°C while night temperature recorded as 7.7°C with 83.2hours bright sunshine duration. Wind speed recorded 4.6km/hr with wind direction *northerly*.

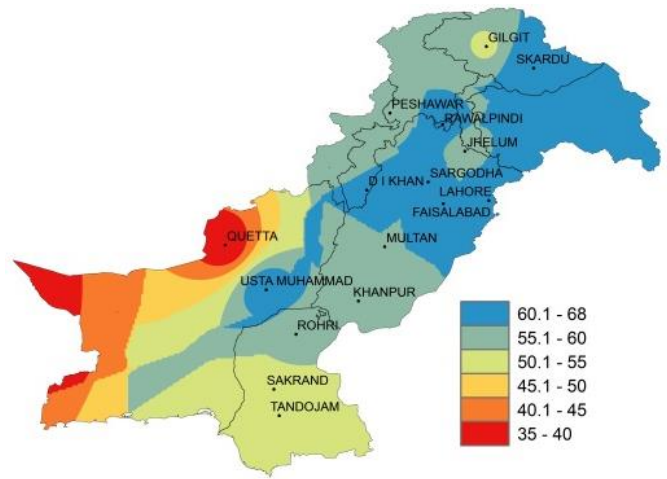


Figure.3: Relative Humidity in Percentage (%)

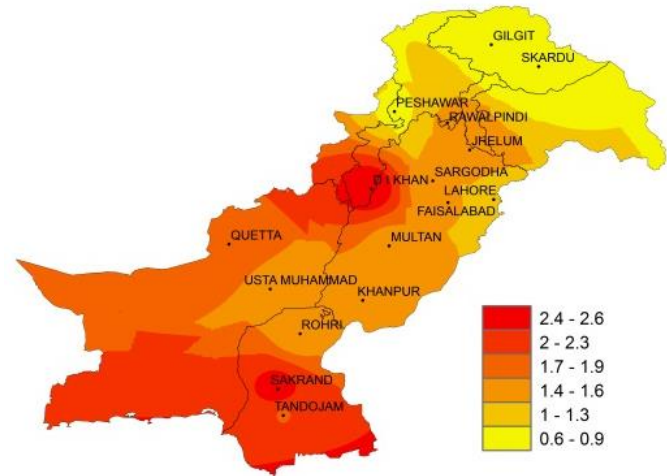


Figure.4: Reference Crop Evapotranspiration ETo(mm/day)

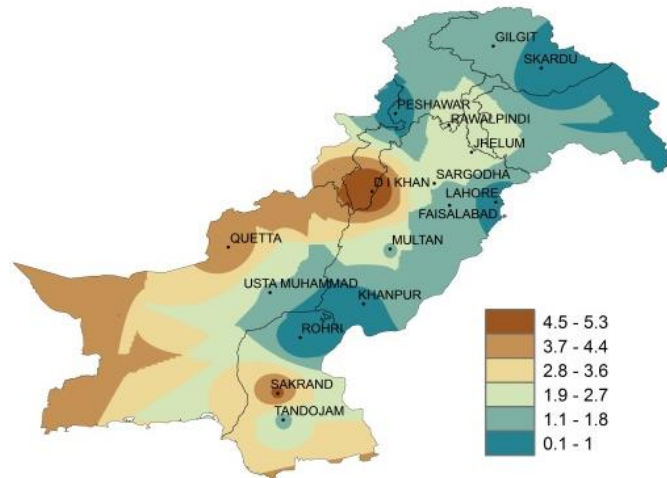


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 56%. Mean day temperature was 23.4°C while night temperature recorded as 7.6°C with 86.4hours bright sunshine duration. Wind speed recorded 0.1km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 60%. Mean day temperature was 21.4°C while night temperature recorded as 4.2°C with 70.1hours bright sunshine duration. Wind speed recorded as 5.3km/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 57%. Mean day temperature was 20.1°C while night temperature recorded as 1.8°C with 52.4hours bright sunshine duration. Wind speed recorded as 0.5km/hr with mean wind direction *south westerly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 68%. Mean day temperature was 3.9°C while night temperature recorded as -9.6°C with 56.8hours bright sunshine duration. Wind speed recorded as 0.5km/hr with mean wind direction *north easterly*.

2.16 Gilgit

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 10.9°C while night temperature recorded as -6.0°C with 52.1hours bright sunshine duration. Wind speed recorded as 1.48km/hr with mean wind direction *north westerly*.

Ten Days Weather Advisory for Farmers
(11th to 20th 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

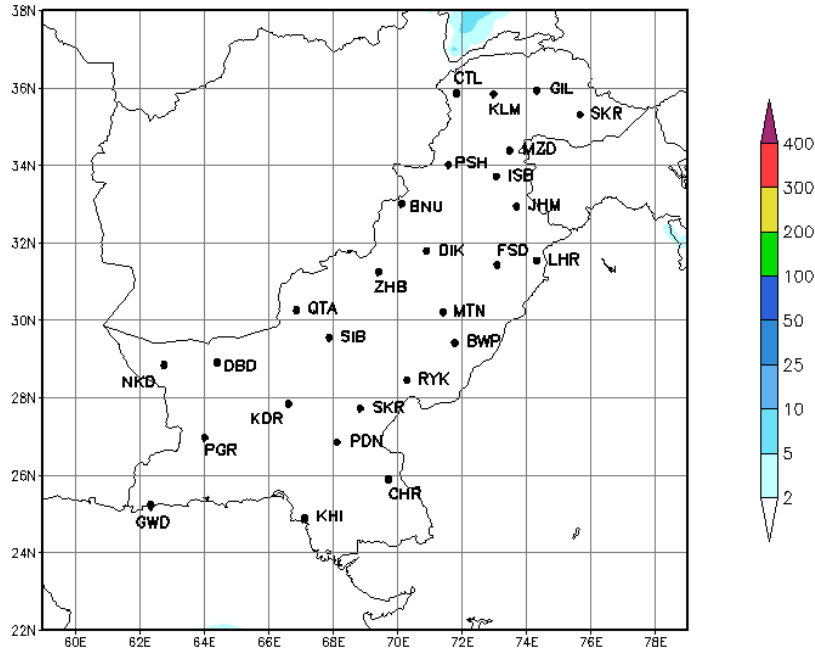
- ❖ **Punjab:** Mainly dry weather is expected in most of the agricultural plains of province.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall (snowfall over hills) is expected in the upper parts of the province during the current decade.
- ❖ **Sindh:** Dry weather is expected in the parts province during the current decade.
- ❖ **Balochistan:** Mainly dry weather is expected in most of the agricultural plains of province.
- ❖ **Gilgit Baltistan:** Light to moderate rainfall (snowfall over hills) is expected in the few parts of GB during the current decade.
- ❖ **Kashmir:** Dry weather is expected in the most of the parts of Kashmir 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/orchids from the damaging impacts of extreme weather conditions e.g. frost etc.

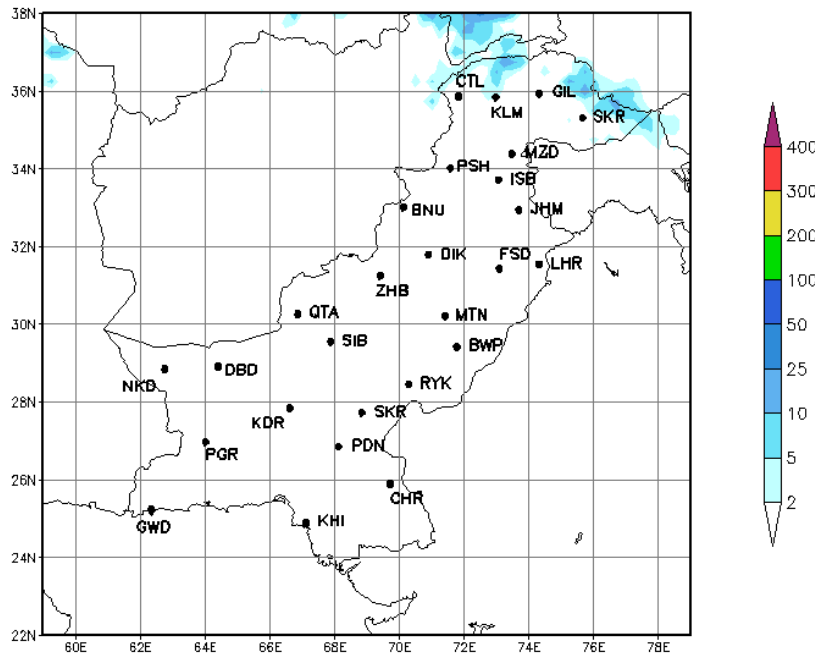
4.1 Precipitation Outlook (11th to 13th January, 2018)

The forecast for the first three days (11th to 13th) of the second decade of January 2018 shows that mainly cold and dry weather is expected in most parts of the country.



4.2 Precipitation Outlook (14th to 20th January, 2018)

The outlook for the last seven days (14th to 20th) of the second decade of January 2018 shows that mainly cold and cloudy weather is expected in most parts of the country, however light rainfall may occur in particular areas of upper K.P and G.B.



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)