

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate rainfall reported from most of the agricultural plains of Punjab, K.P and G.B & Kashmir while dry from rest of the country during the last decade.
- ❖ Lowest minimum temperature recorded as -14.8°C at Skardu during the last decade.
- ❖ Cold and dry weather may prevail in most parts of the country; however light to moderate rainfall (snowfall over mountains) is expected mainly in GB, KP and Punjab of the country during the current decade.
- ❖ Fog may prevail in the plains of Punjab and Sindh provinces due to dry weather conditions.
- ❖ Farmers are advised to schedule the irrigation plans in context of ongoing Rabi crops.
- ❖ 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 cold conditions.

NATIONAL AGROMET CENTRE (NAMC) PAKISTAN METEOROLOGICAL DEPARTMENT SECTOR H-8/2, ISLAMABAD

Patron-in-Chief: *Muhammad Riaz, Director General*

Editor-in-Chief: *Mrs. Asma Jawad Hashmi, Deputy Director*

Editor: *Ms. Khalida Noureen, Meteorologist*

Phone: [+92-51-9250592](tel:+92-51-9250592) Email: info@namc.pmd.gov.pk

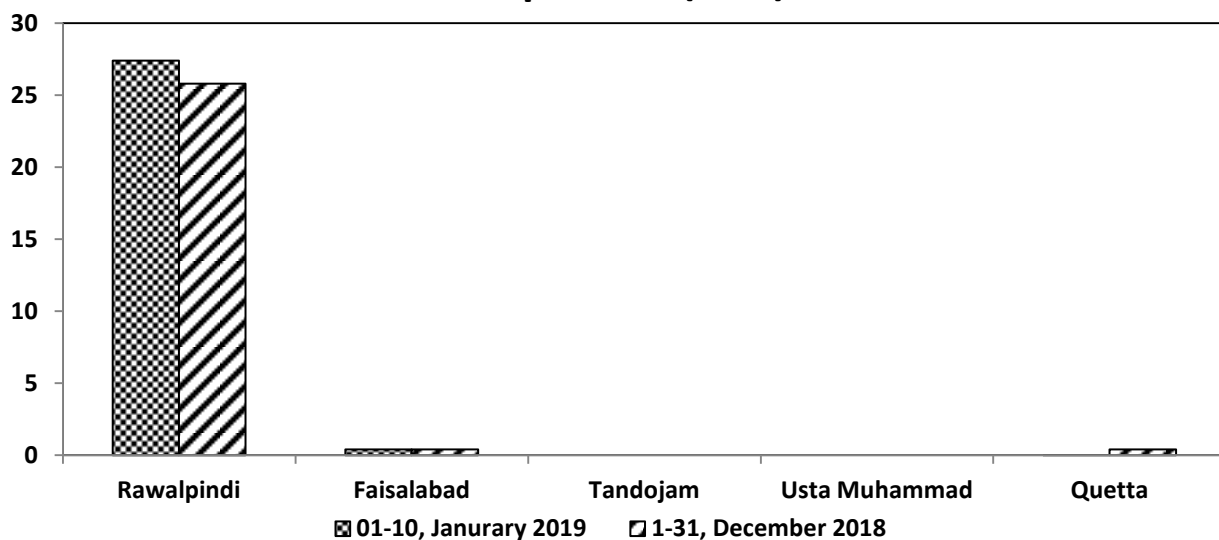
Meteorological Conditions during 1st Decade of January, 2019

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	27.4	25.5	0.1	-1.0	11.5	10.6	9.9	10.4	11.9	15.4	72	43.5	1.5	11.5	1.0
2	Faisalabad	0.7	0.4	-0.3	2.9	1.8	16.6	15.4	14.0	13.9	14.9	18.0	0	37.5	1.6	16.6	1.2
3	Jhelum	1.1	1.7	0.6	1.0	-0.2	13.5	12.6	11.9	12.3	13.7	***	62	44.9	2.6	13.5	1.3
4	Lahore	0.3	2.3	2.0	2.4	0.3	13.9	13.8	13.6	13.6	***	17.9	69	45.8	1.6	13.9	1.1
5	Sargodha	0.8	0.0	-0.8	2.4	-0.4	17.1	15.6	14.6	15.1	***	18.4	71	56.0	0.7	17.1	1.1
6	Multan	0.4	0.0	-0.4	1.6	1.2	***	***	***	***	***	***	64	11.1	2.3	***	1.2
7	Khanpur	0.1	0.0	-0.1	1.6	0.6	***	13.8	14.4	15.1	16.2	19.3	67	59.0	3.5	***	1.8
8	Tandojam	0.1	0.0	-0.1	0.9	1.5	22.1	19.7	18.2	18.6	19.7	21.9	59	73.8	4.2	22.1	2.4
9	Sakrand ☆	0.1	0.0	-0.1	5.8	2.0	16.5	***	***	***	***	23.4	56	78.7	3.0	16.5	2.1
11	Rohri	0.1	0.0	-0.1	1.6	0.6	***	***	***	***	***	***	58	76.5	0.2	***	1.4
12	D.I Khan	0.8	0.0	-0.8	2.4	0.3	15.3	14.6	14.5	15.5	6.3	***	75	56.7	6.4	15.3	2.2
13	Peshawar	1.2	0.0	-1.2	0.0	0.2	12.1	11.7	10.8	12.2	13.2	14.9	61	16.4	2.3	12.1	1.1
14	Usta .M	0.1	0.0	-0.1	2.8	-0.6	14.1	19.9	17.7	17.8	***	***	23.4	61	***	1.9	1.6
15	Quetta	1.6	0.0	-1.6	2.4	5.0	8.2	12.1	10.7	8.2	8.5	9.5	11.3	34	74.4	4.5	1.9
16	Skardu	1.0	16.7	15.7	5.7	10.1	5.8	***	***	***	***	***	***	80	22.1	0.5	0.7
17	Gilgit	0.2	3.0	2.8	-3.4	2.2	2.7	***	***	***	***	***	***	64	15.2	2.1	0.8

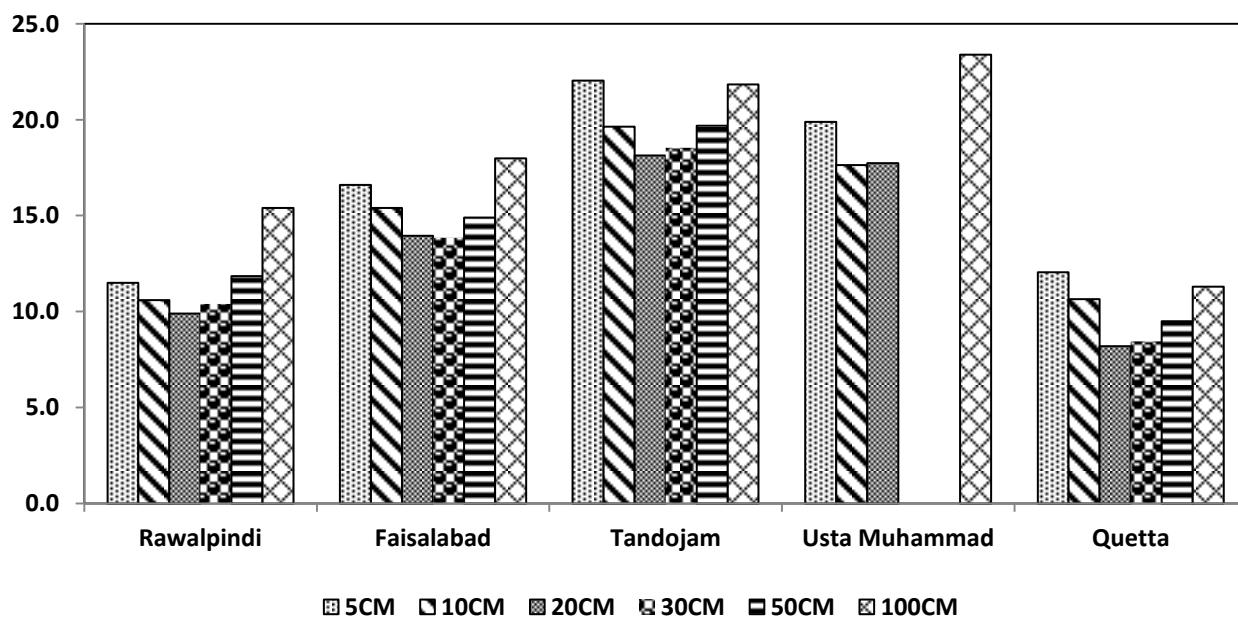
Table-1: Meteorological parameters for selected station of Pakistan. “Dep” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “% Dep” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures 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, 2019

Precipitation(mm)



Soil Temperature(°C)



Past Weather (1st to 10th January, 2019)

Light to moderate rainfall reported from most of the agricultural plains of Punjab, K.P and G.B & Kashmir while dry from rest of the country during the last decade.

1.1 Punjab

Light to moderate rainfall reported from most of the agricultural plains of the Punjab. Highest rainfall reported from Murree, Islamabad & Narowal. Decadal maximum and minimum both raised above normal by 1.7°C & 0.3°C respectively, in the province values of relative humidity, sunshine hour, wind speed & ETo were recorded as 68%, 42.5hrs, 2.0km/hr and 1.2mm/day respectively.

1.2 Sindh

Dry weather reported from most of the agricultural plains of of the Sindh. Decadal maximum and minimum both raised above normal by 2.8°C & 1.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 76.3hrs, 2.5km/hr and 2.0mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

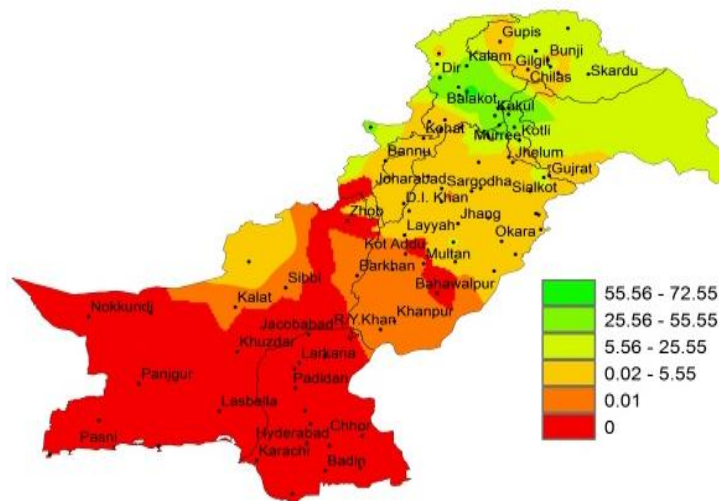
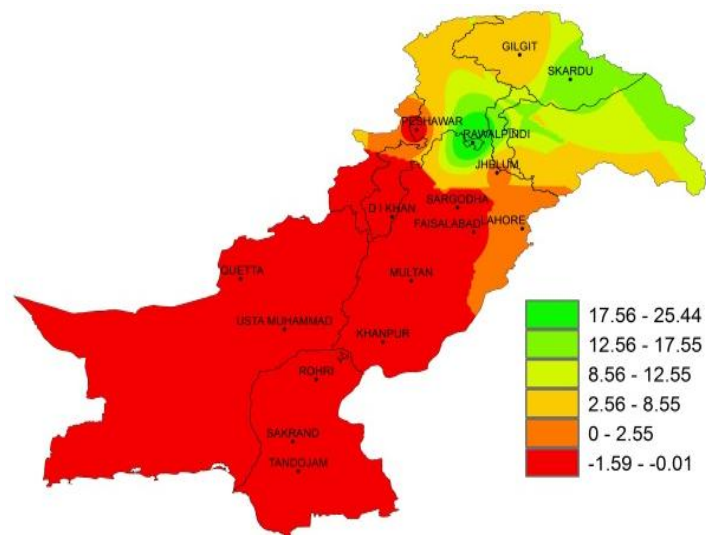
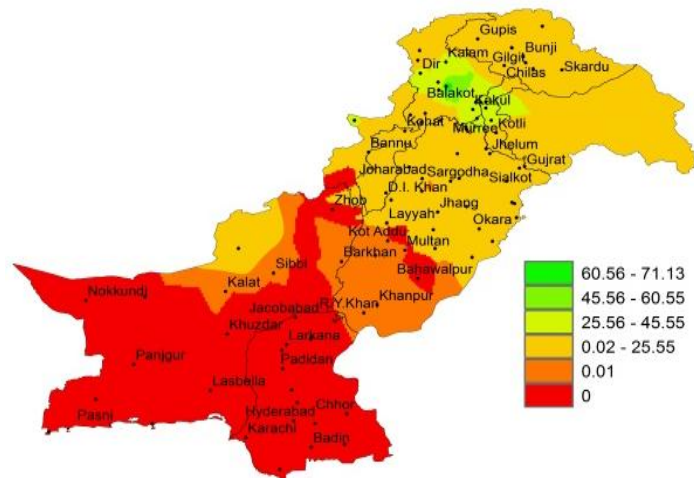
Light to moderate rainfall reported from most of the agricultural plains of KP. Decadal maximum and minimum both raised above normal by 1.2°C & 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 68%, 36.6hrs, 4.4km/hr and 1.7mm/day respectively.

1.4 Balochistan

Trace (Not measureable) rainfall reported from a single place (Quetta) from agricultural plains of the Balochistan. Decadal maximum and minimum both raised above normal by 2.6°C & 2.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 74.4hrs, 3.2km/hr and 1.8mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

Light to moderate rainfall reported from most of the agricultural plains G.B and Kashmir. Highest rainfall reported from Muzaffarabad, Garhi Doppata & Rawalakot. Decadal maximum and minimum both raised above normal by 1.2°C & 6.2°C respectively, in the province 10.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 72%, 18.7hrs, 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** **(1st to 10th January, 2019)**

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

Rainfall reported as 27.4 mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 72%. Mean day temperature was 17.7°C while night temperature recorded as 1.3°C with 43.5hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *north westerly*.

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

Rainfall reported as 0.4 mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 71%. Mean day temperature was 20.2°C while night temperature recorded as 5.7°C with 37.5hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *Westerly north westerly*.

Wheat: *Very good condition, tillering stag completed.*

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

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 24.0°C while night temperature recorded as 9.2°C with 73.8hours bright sunshine duration. Wind speed recorded as 4.2km/h with mean wind direction *north easterly*.

Wheat (TJ-83): *Good condition, Heading.*

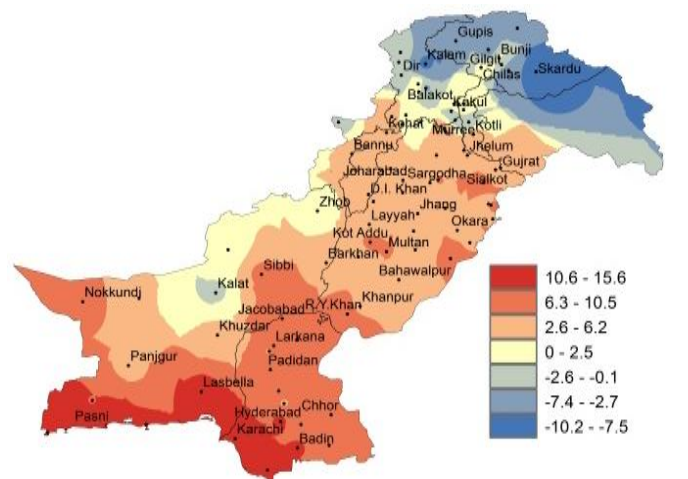
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade during the decade; however remained cloudy for 03days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 22.3°C while night temperature recorded as 5.8°C. Wind speed recorded as 1.9km/h with mean wind direction *Easterly*.

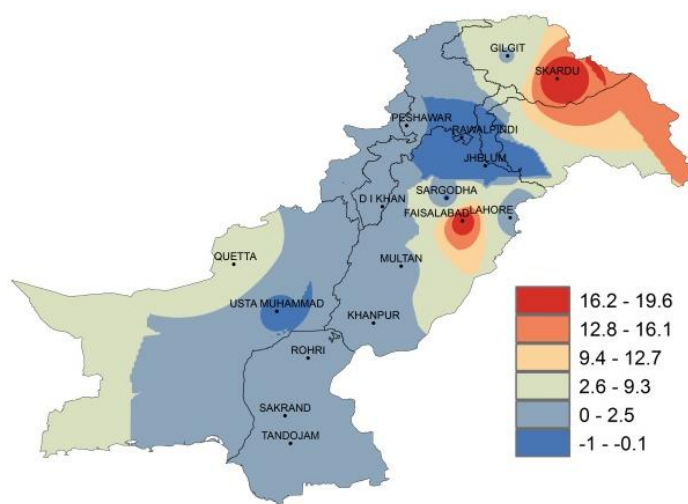
Wheat: *Good condition, third leaf stage.*

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

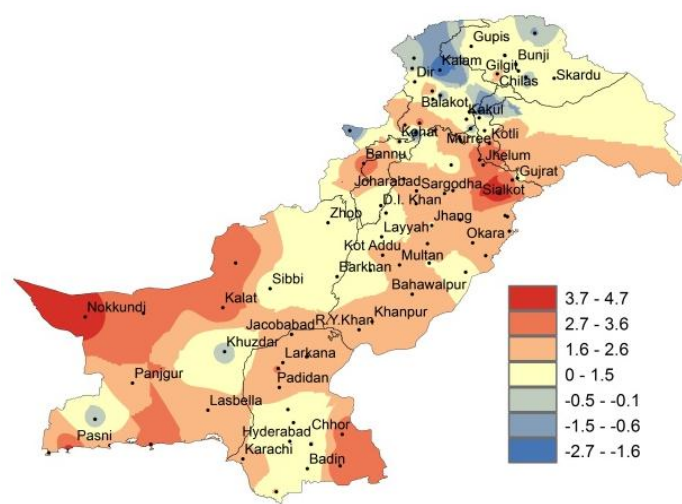
Rainfall reported as Trace (Non measureable) during the decade during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 34%. Mean day temperature was 13.7°C while night temperature recorded as 2.7°C with 74.4hours bright sunshine duration. Wind speed recorded as 4.5km/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, 2019)

2.6 Jhelum

Rainfall reported as 1.7 mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 18.8°C while night temperature recorded as 4.8°C with 44.9hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *north westerly*.

2.7 Lahore

Rainfall reported as 2.3 mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 69%. Mean day temperature was 19.4°C while night temperature recorded as 7.6°C with 64.5hours bright sunshine duration. Wind speed recorded as 1.6 km/hr with mean wind direction *North westerly*.

2.8 Sargodha

Rainfall reported as Trace (Non measureable) during the decade; however weather remained cloudy for 07day during the decade. Average relative humidity recorded as 71%. Mean day temperature was 19.7°C while night temperature recorded as 6.5°C with 56.0hours bright sunshine duration. Wind speed recorded 0.7km/hr with mean wind direction *easterly*.

2.9 Multan

Dry weather reported during the decade during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 64%. Mean day temperature was 19.9°C while night temperature recorded as 6.3°C with 11.1 hours bright sunshine duration. Wind speed recorded 2.7km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 21.3°C while night temperature recorded as 5.7°C with 59.0hours bright sunshine duration. Wind speed recorded 3.5km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 03day during the decade. Average relative humidity recorded as 64%. Mean day temperature was 23.2°C while night temperature recorded as 7.6C with 78.7hours bright sunshine duration. Wind speed recorded 3.0km/hr with wind direction *northerly*.

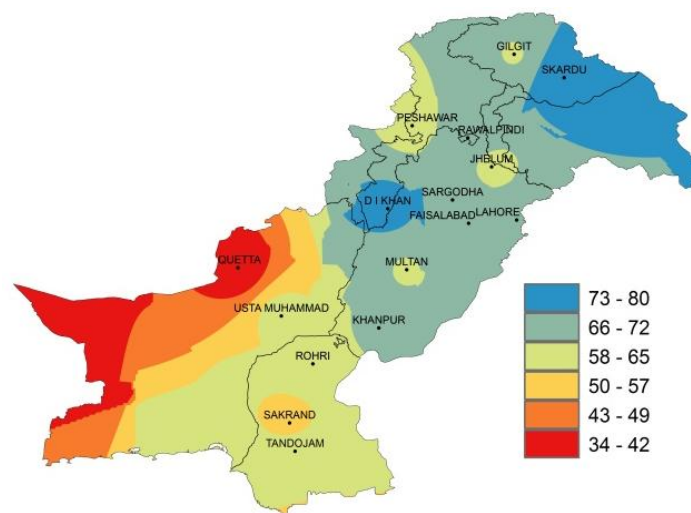


Figure.3: Relative Humidity in Percentage (%)

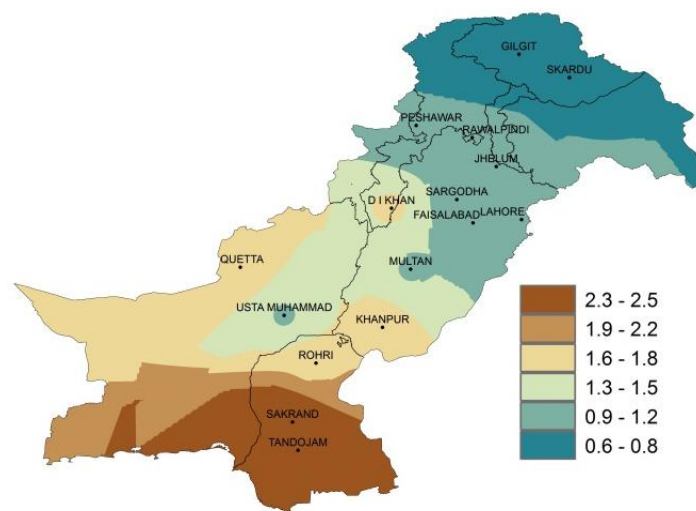


Figure.4: Reference Crop Evapotranspiration Eto (mm/day)

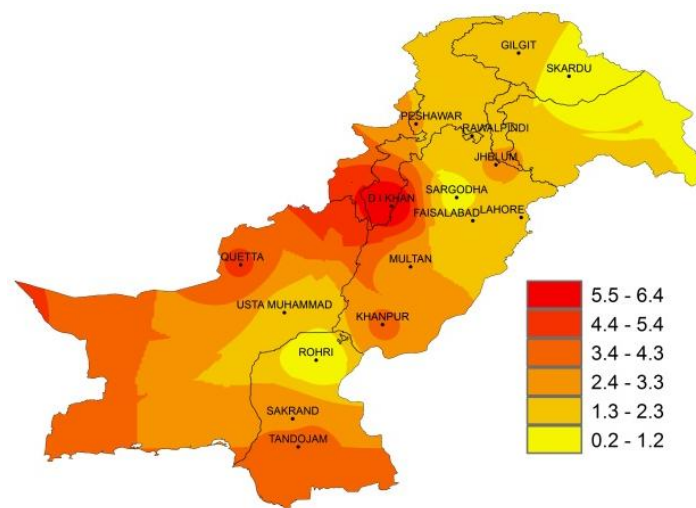


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 58%. Mean day temperature was 24.5°C while night temperature recorded as 9.1°C with 76.5hours bright sunshine duration. Wind speed recorded 0.2 km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 75%. Mean day temperature was 20.5°C while night temperature recorded as 4.5°C with 56.7hours bright sunshine duration. Wind speed recorded as 6.4km/hr with mean wind direction *northerly*.

2.14 Peshawar

Rainfall reported as Trace (Non measureable) during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 17.4°C while night temperature recorded as 4.2°C with 16.4hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *north-westerly*.

2.15 Skardu

Rainfall reported as 16.7mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 80%. Mean day temperature was 10.2°C while night temperature recorded as -1.3°C with 22.1hours bright sunshine duration. Wind speed recorded as 0.5km/hr with mean wind direction *southerly*.

2.16 Gilgit

Rainfall reported as 3.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 64%. Mean day temperature was 7.0°C while night temperature recorded as -1.6°C with 15.2hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *westerly*.

Ten Days Weather Advisory for Farmers (11th to 20th January, 2019)**3.1 Temperature Forecast**

Both day and night temperatures are likely to below normal in most of the 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; however dust/sand storms may occur in southern Punjab and Sindh.

3.3 Rain Forecast

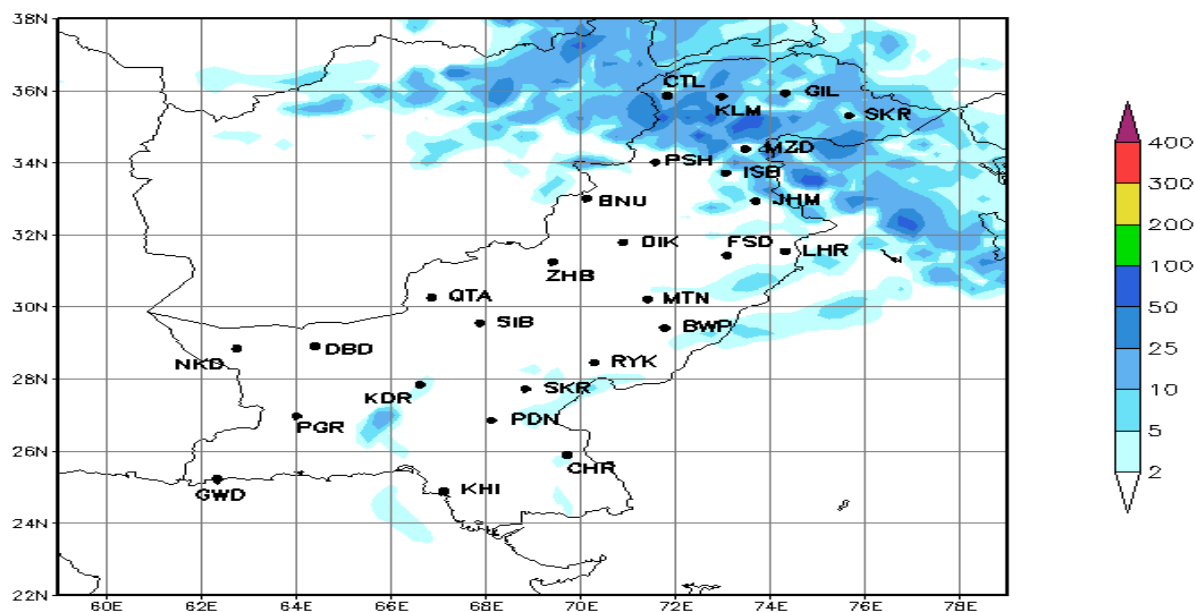
- ❖ **Punjab:** Light to moderate rainfall is expected during the 1st few days of the current decade. Foggy conditions are expected at a few places in plain areas as well during evening/night.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rain (with snowfall) is expected during the 1st few days of the current decade.
- ❖ **Sindh:** Partly cloudy weather with light rain/drizzle at few places is also expected along Sindh-Makran coast including Karachi during the start of the current decade.
- ❖ **Balochistan:** Cold and dry weather is expected in most parts of the province.
- ❖ **Gilgit-Baltistan:** Light to moderate rain (with snowfall) is expected during the 1st few days of the current decade.
- ❖ **Kashmir:** Light to moderate rain (with snowfall) is expected during the 1st few days of the current decade.

3.4 Advisory for Farmers

- ❖ Fog may prevail in the plains of Punjab and Sindh provinces due to dry weather conditions.
- ❖ Farmers are advised to schedule the irrigation plans in context of ongoing Rabi crops.
- ❖ 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 cold conditions.

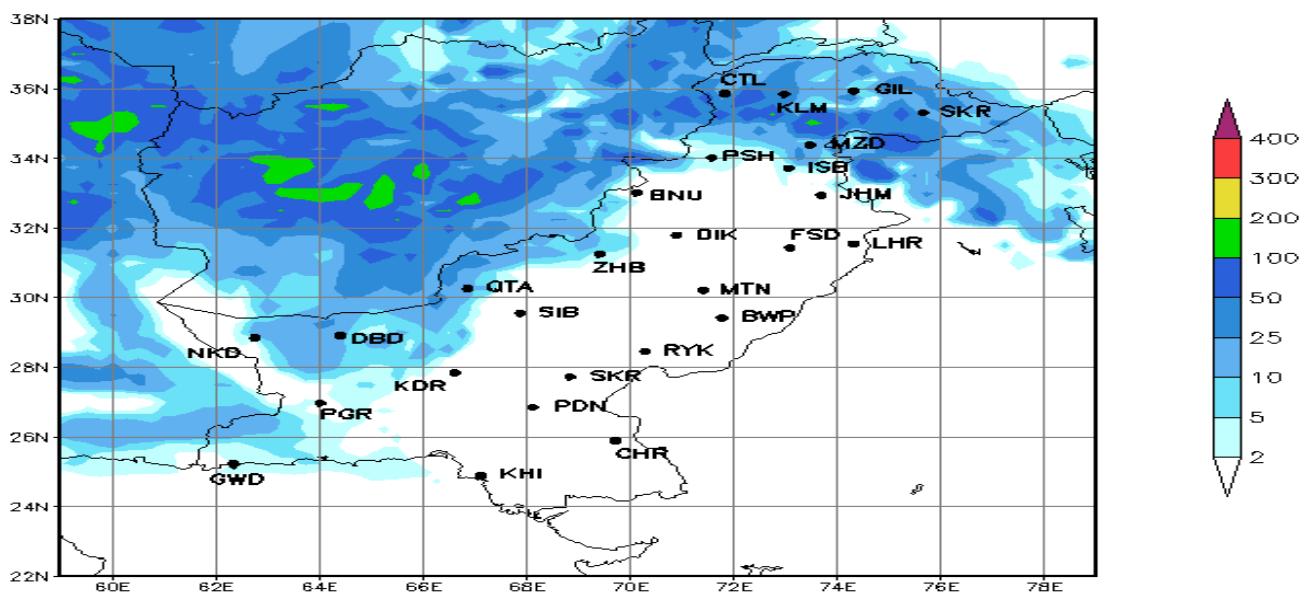
4.1 Precipitation Outlook (11th to 13th January, 2019)

The forecast for the first three days (11th to 13th) of the 2nd decade of January, 2019 shows that light to moderate rainfall is expected in the upper KP, G.B & Kashmir, Islamabad and adjoining areas, while light rainfall is expected in scattered areas of lower Punjab and western Baluchistan. However, cold and dry weather may prevail over rest of the country.



4.2 Precipitation Outlook (14th to 20th January, 2019)

The outlook for the last seven days (14th to 20th) of the 2nd decade of January, 2019 shows that mostly cold and dry weather is expected in most parts of the country. While light to moderate rainfall is expected in Islamabad, Upper K.P, FATA, G.B & Kashmir, north western and costal area of Baluchistan.



Findings of AgMIP Pakistan, 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)