

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Light to moderate rainfall reported from most of the agricultural plains of the country however light rainfall reported from few parts of Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 75.0 mm at Cherat during the last decade.
- ❖ Lowest minimum temperature recorded as -7.0°C at Kalat during the last decade.
- ❖ Smoggy conditions persisted in the plain areas of upper Sindh and Punjab.
- ❖ Mainly cold and dry weather is expected in most parts of the country however light to moderate rainfall is expected in upper KP, G.B & Kashmir during the current decade.
- ❖ Smog 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.
- ❖ Farmers of cotton crop are advised to prepare fields for incoming Rabi crops and complete sowing in time.
- ❖ Farmers of rainfed areas are advised to complete sowing of their Rabi crops in order to utilize the available moisture due to recent rains.

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

Patron-in-Chief: *Dr. Ghulam Rasul, Director General*

Editor-in-Chief: *Dr. Khalid M. Malik, Director*

Editor: *Dr. Dildar H. Kazmi, Meteorologist*

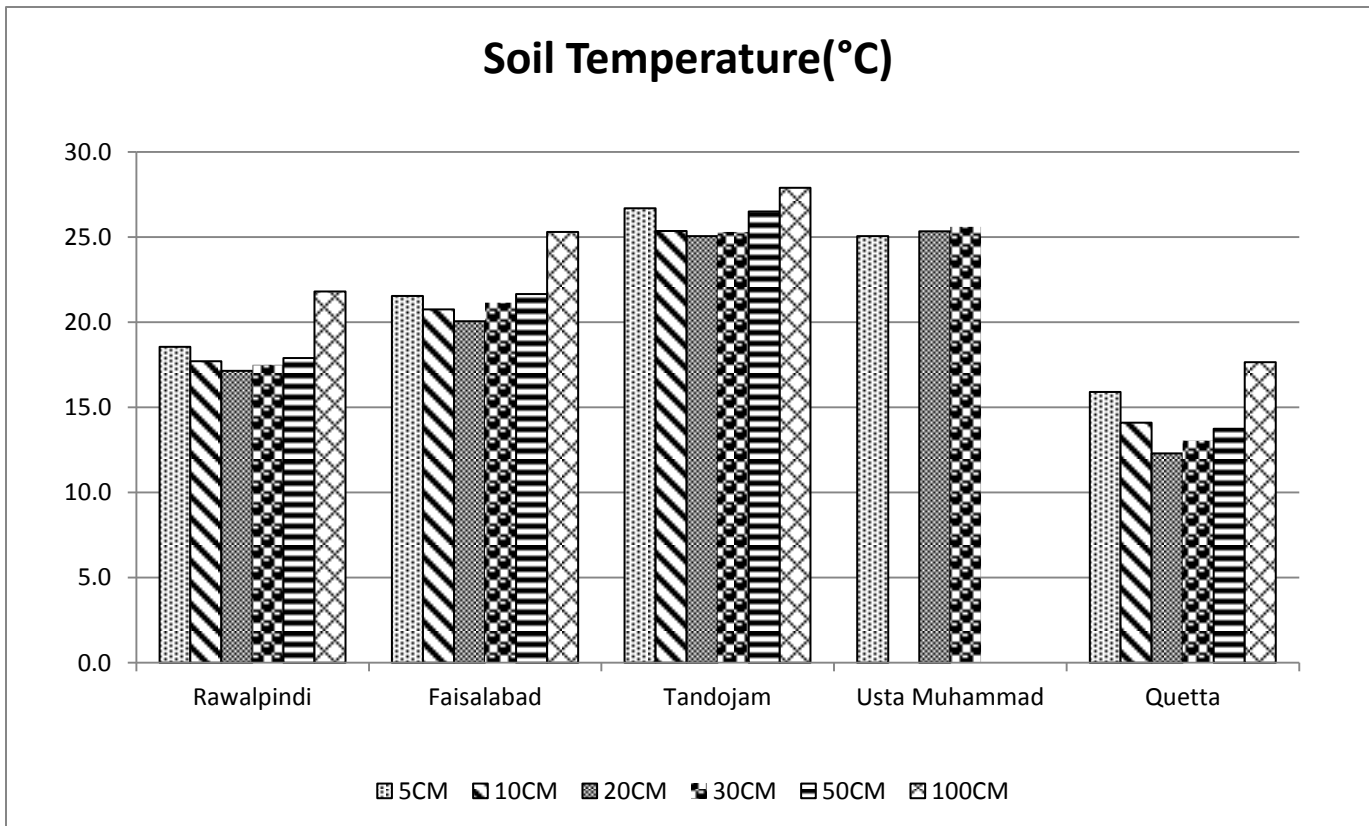
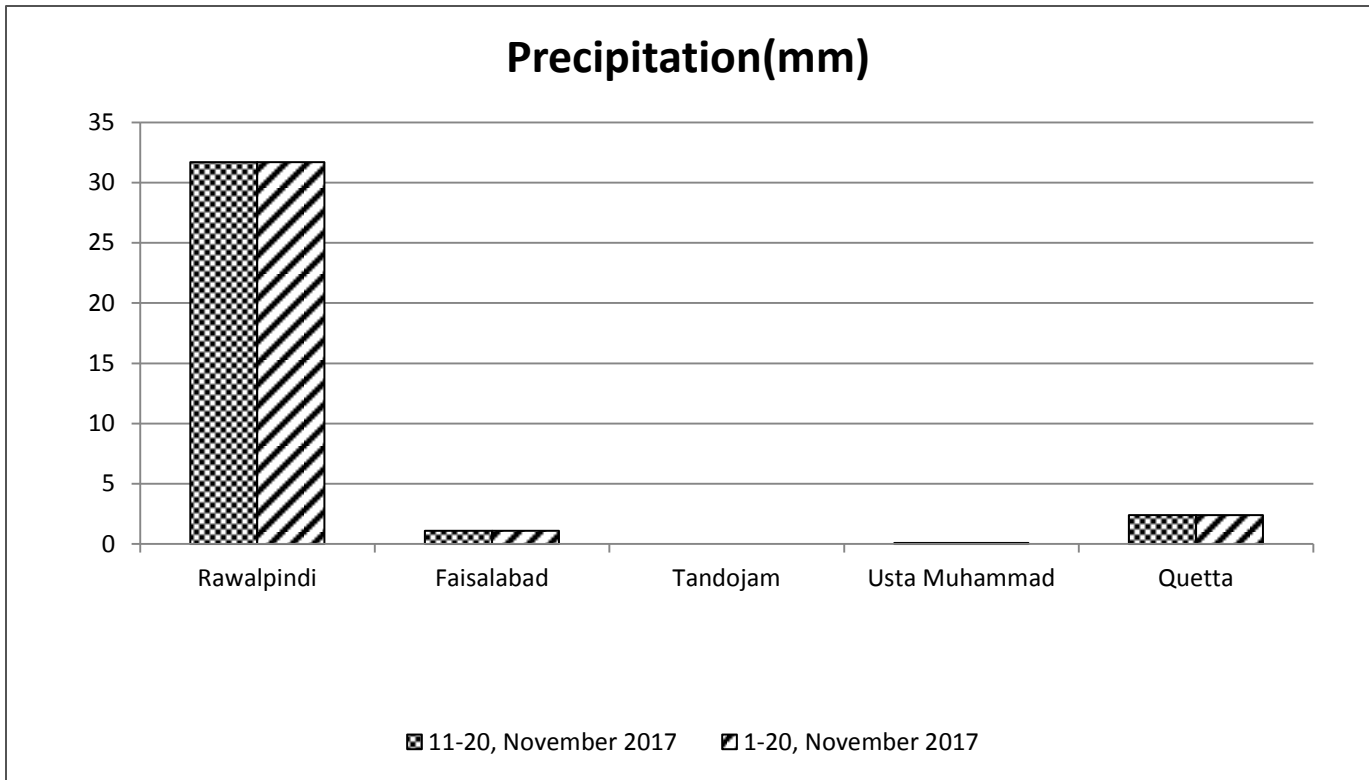
Phone: [+92-51-9250592](tel:+92-51-9250592) Email: [info@namc.pmd.gov.pk](mailto:info@namc.pmd.gov.pk)

**Meteorological Conditions during 2<sup>nd</sup> Decade of November, 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	31.7	31.2	-1.3	0.2	16.2	18.6	17.7	17.2	17.5	17.9	21.8	71	58.7	1.3	1.4
2	Faisalabad	0.1	1.1	1.0	-4.1	-0.2	16.8	21.6	20.8	20.1	21.2	21.7	25.3	70	42.6	1.2	1.4
3	Jhelum	0.5	6.7	6.2	-3.2	0.1	17.5	18.8	18.2	18.4	19.0	20.5	***	67	60.4	2.0	1.6
4	Lahore	0.2	6.6	6.4	-4.4	-2.4	17.6	19.6	19.6	19.6	19.6	***	24.0	74	34.4	0.5	1.2
5	Sargodha	0.4	2.3	1.9	-4.5	-0.3	17.0	21.5	20.7	21.1	21.1	***	24.4	77	45.4	0.7	1.3
6	Multan	0.0	5.6	5.6	-4.5	-0.3	17.6	***	***	***	***	***	***	69	50.8	3.2	1.9
7	Khanpur	0.0	9.4	9.4	-2.2	-0.6	18.9	***	21.0	21.8	22.7	24.0	26.5	66	68.9	2.7	2.1
8	Tandojam	0.0	0.0	0.0	-2.2	-2.4	20.4	26.7	25.4	25.1	25.3	26.5	27.9	54	83.4	3.6	3.0
9	Sakrand ☆	0.0	0.0	0.0	-0.4	0.8	21.0	26.9	***	***	***	***	30.8	51	94.8	4.3	3.2
11	Rohri	0.0	2.0	2.0	-0.6	-1.3	21.1	***	***	***	***	***	***	51	87.8	1.3	2.2
12	D.I Khan	0.4	14.0	13.6	-3.7	0.4	17.4	20.7	20.4	20.5	21.9	12.5	26.4	69	49.6	12.7	2.9
13	Peshawar	0.7	61.0	60.3	-3.0	-0.4	15.9	18.5	32.8	16.7	18.7	20.3	22.6	74	38.0	1.2	1.2
14	Usta .M	0.0	0.1	0.1	-3.5	-2.0	20.5	25.1	***	25.3	25.6	***	***	68	***	0.7	1.8
15	Quetta	1.8	2.4	0.6	-3.8	1.2	9.0	15.9	14.1	12.3	13.1	13.8	17.7	42	86.0	4.7	2.1
16	Skardu	0.1	0.0	-0.1	0.0	-0.5	5.4	***	***	***	***	***	***	56	49.8	0.2	0.9
17	Gilgit	0.1	0.0	-0.1	-1.0	0.3	9.3	***	***	***	***	***	***	54	29.4	3.7	1.5

**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 November, 2017



**Past Weather (11<sup>th</sup> to 20<sup>th</sup> November, 2017)**

Light to moderate rainfall reported from most of the agricultural plains of the country however light rainfall reported from few parts of 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 & Kamra. Decadal maximum & minimum departure both dropped below normal by 3.5°C & 0.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 71%, 51.6hrs, 1.7km/hr and 1.6mm/day respectively.

**1.1 Sindh**

Light rainfall reported from the agricultural plains of Sindh. Chief amount of rainfall received at Jacobabad, Thatta & Larkana. Decadal maximum & minimum departure both dropped below normal by 1.1°C & 1.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 52%, 88.7hrs, 3.1km/hr and 2.8mm/day respectively.

**1.2 Khyber Pakhtunkhwa (KP)**

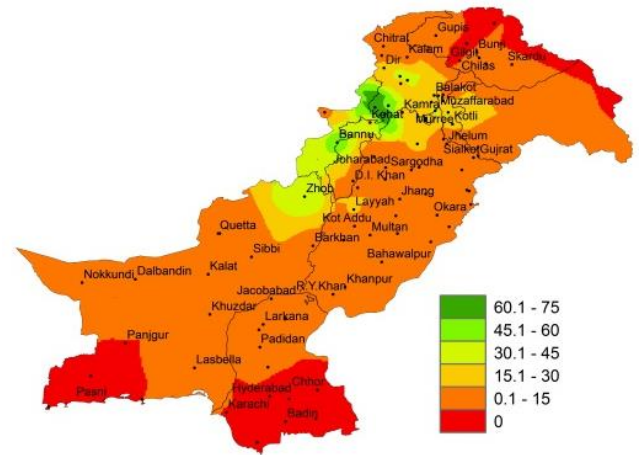
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Cherat, Peshawar, Bannu & Risalpur. Decadal maximum dropped below normal by 3.4°C & minimum departure remained normal, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 72%, 43.8hrs, 7.0km/hr and 2.1mm/day respectively.

**1.3 Balochistan**

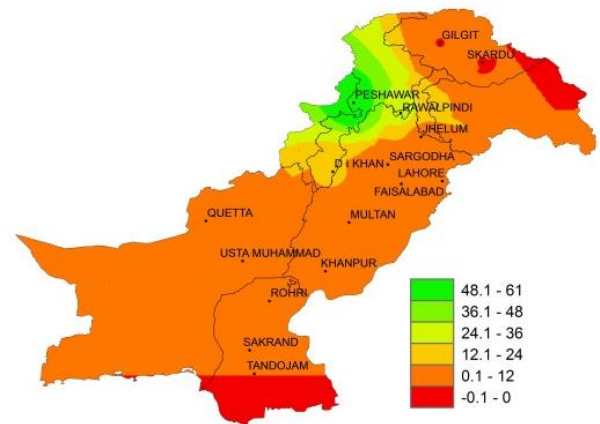
Light to moderate rainfall reported from the agricultural plains of Balochistan. Chief amount of rainfall received at Zhob, Sibbi & Barkhan. Decadal maximum & minimum departure both dropped below normal by 3.7°C & 0.4°C respectively, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 86.0 hrs, 2.7km/hr and 2.0mm/day respectively.

**1.4 Gilgit-Baltistan and Azad Jammu & Kashmir**

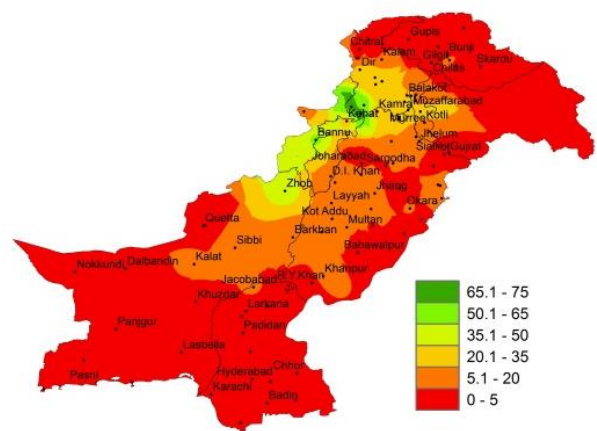
Light to moderate rainfall reported from G.B & Kashmir. Chief amount of rainfall received at Muzaffarabad, Rawalakot & Garhi Dopatta. Decadal maximum & minimum departure both dropped below normal by 0.5°C & 0.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 39.6hrs, 2.0km/hr and 1.2mm/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 (11<sup>th</sup> to 20<sup>th</sup> November, 2017)**

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

Rainfall reported as 31.7mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 71%. Mean day temperature was 23.6°C while night temperature recorded as 8.8°C with 58.7hours bright sunshine duration. Wind speed recorded as 1.3km/hr with mean wind direction *west south-westerly*.

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

Rainfall reported as 1.1mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 22.8°C while night temperature recorded as 10.7°C with 42.58hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *northerly*.

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

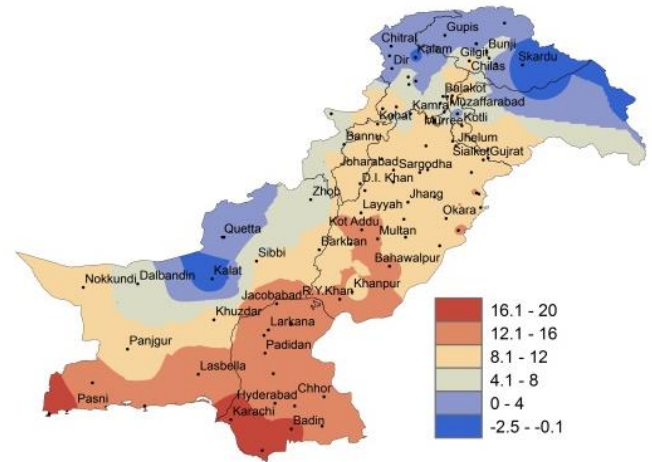
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 54%. Mean day temperature was 28.9°C while night temperature recorded as 11.9°C with 83.4hours bright sunshine duration. Wind speed recorded as 3.6km/h with mean wind direction *north easterly*.  
*Wheat: Good condition, emergence stage.*

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

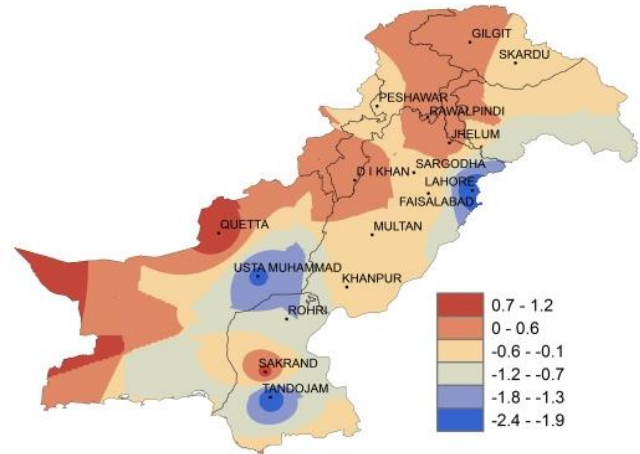
Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 68%. Mean day temperature was 26.3°C while night temperature recorded as 14.6°C. Wind speed recorded as 0.7km/h with mean wind direction *easterly*.

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

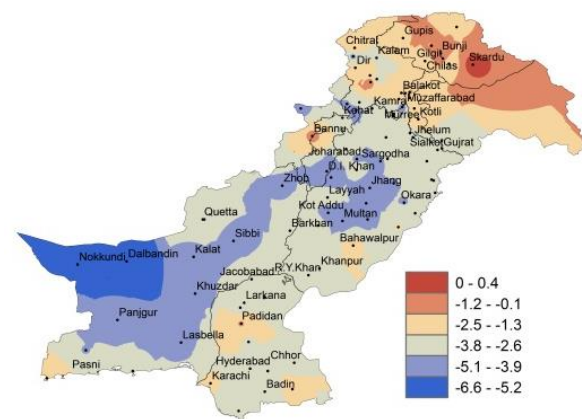
Rainfall reported as 2.4mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 42%. Mean day temperature was 14.8°C while night temperature recorded as 3.1°C with 86.0hours bright sunshine duration. Wind speed recorded as 4.7km/hr with 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 (11<sup>th</sup> to 20<sup>th</sup> November, 2017)**

**2.6 Jhelum**

Rainfall reported as 6.7mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 23.7°C while night temperature recorded as 11.2°C with 60.4hours bright sunshine duration. Wind speed recorded as 2.0km/hr with mean wind direction *north westerly*.

**2.7 Lahore**

Rainfall reported as 6.6mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 22.6°C while night temperature recorded as 12.5°C with 34.4hours bright sunshine duration. Wind speed recorded as 0.5km/hr with mean wind direction *westerly*.

**2.8 Sargodha**

Rainfall reported as 2.3mm during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 77%. Mean day temperature was 22.3°C while night temperature recorded as 11.7°C. Wind speed recorded 0.74km/hr with mean wind direction *variable*.

**2.9 Multan**

Rainfall reported as 5.6mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 69%. Mean day temperature was 23.3°C while night temperature recorded as 11.9°C with 50.8hours bright sunshine duration. Wind speed recorded 3.2km/hr with mean wind direction *northerly*.

**2.10 Khanpur**

Rainfall reported as 9.4mm during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 25.9°C while night temperature recorded as 11.8°C with 68.9hours bright sunshine duration. Wind speed recorded 2.7km/hr with mean wind direction *north easterly*.

**2.11 Sakrand**

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 51%. Mean day temperature was 28.5°C while night temperature recorded as 13.4°C with 94.8hours bright sunshine duration. Wind speed recorded 4.3km/hr with wind direction *northerly*.

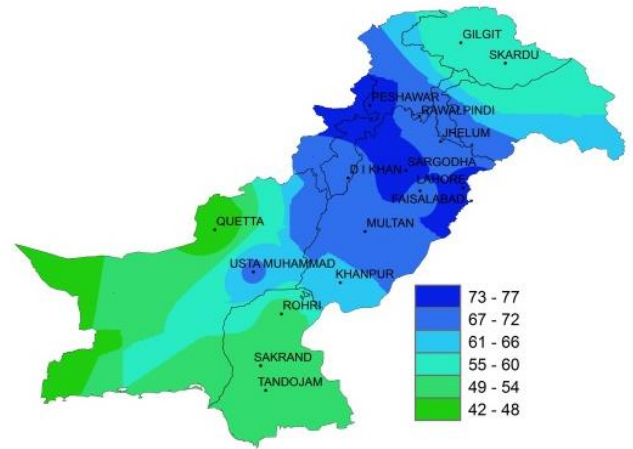


Figure.3: Relative Humidity in Percentage (%)

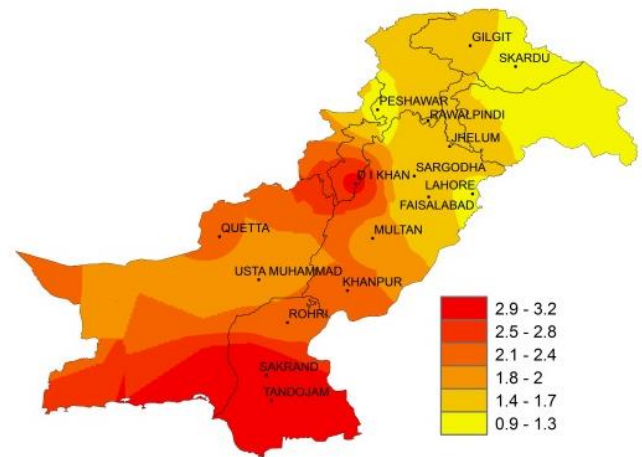


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

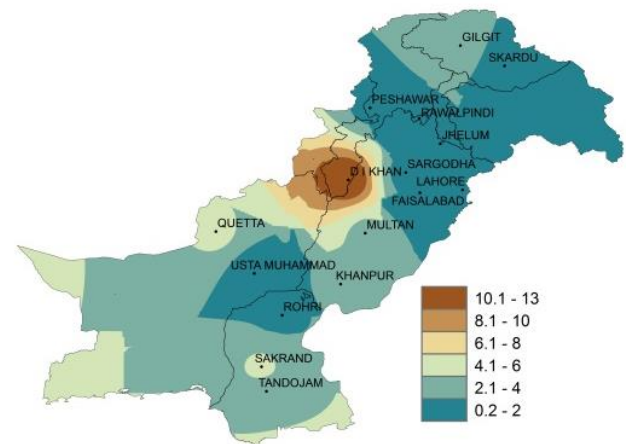


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 28.1°C while night temperature recorded as 14.1°C with 87.8hours bright sunshine duration. Wind speed recorded 1.3km/hr with wind direction *north easterly*.

**2.13 D.I. Khan**

Rainfall reported as 14.0mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 69%. Mean day temperature was 23.4°C while night temperature recorded as 11.4°C with 49.6hours bright sunshine duration. Wind speed recorded as 12.7km/hr with mean wind direction *north easterly*.

**2.14 Peshawar**

Rainfall reported as 61.0mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 21.7°C while night temperature recorded as 10.1°C with 38.0hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *north easterly*.

**2.15 Skardu**

Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 13.4°C while night temperature recorded as -2.6°C with 49.8hours bright sunshine duration. Wind speed recorded as 0.2km/hr with mean wind direction *easterly*.

**2.16 Gilgit**

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 17.7°C while night temperature recorded as 0.9°C with 29.4hours bright sunshine duration. Wind speed recorded as 3.7km/hr with mean wind direction *northerly*.

**Ten Days Weather Advisory for Farmers**  
**(21<sup>st</sup> to 30<sup>th</sup> November, 2017)**

**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.

**3.3 Rain Forecast**

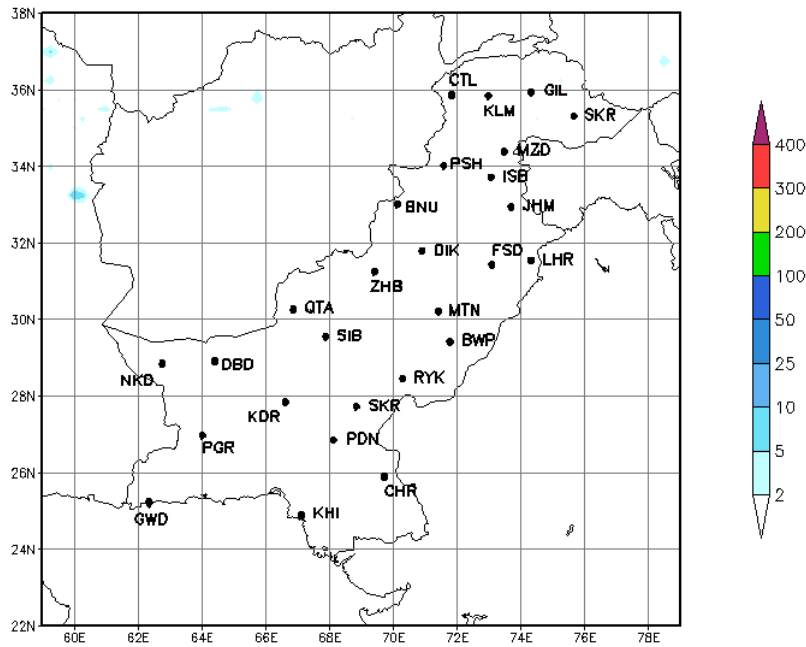
- ❖ **Punjab:** Dry weather is expected in the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall (snowfall over hills) is expected in the upper parts of the province during the current decade.
- ❖ **Sindh:** Dry weather is expected in the province during the current decade.
- ❖ **Balochistan:** Dry weather is expected in 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 of cotton crop are advised to prepare field for incoming Rabi crops and complete sowing in time.
- ❖ Farmers of rainfed areas are advised to complete sowing of their Rabi crops in order to utilize the available moisture due to recent rains.
- ❖ 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.

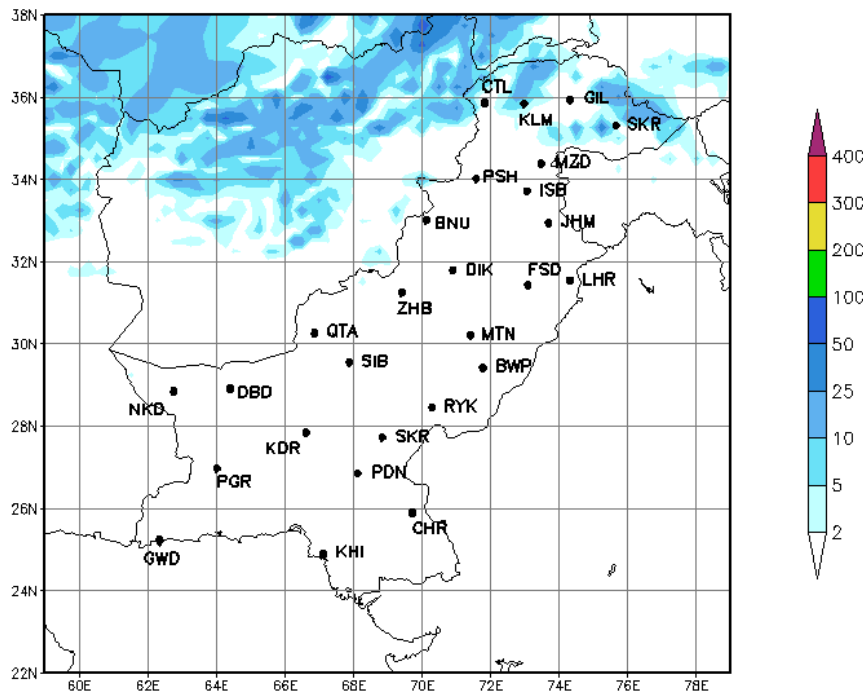
**4.1 Precipitation Outlook (21<sup>st</sup> to 23<sup>rd</sup> November, 2017)**

The forecast for the first three days (21<sup>st</sup> to 23<sup>rd</sup>) of the third decade of November 2017 shows that mainly cold and dry weather is expected in most parts of the country.



**4.2 Precipitation Outlook (24<sup>th</sup> to 30<sup>th</sup> November, 2017)**

The outlook for the last seven days (24<sup>th</sup> to 30<sup>th</sup>) of the third decade of November 2017 shows that mainly cold and cloudy weather with light rainfall is expected in most parts of upper K.P, 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 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)