

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light rainfall reported from few of the agricultural plains of K.P, Punjab, and Baluchistan; however dry weather was reported from rest parts of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 18.0mm at Mirkhani during the last decade.
- ❖ Lowest minimum temperature recorded as -6.3°C at Chitral 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 northern and western parts of the country during the current decade.
- ❖ Use proper precautions during picking of cotton because the cost of good and clean quality cotton is high than that of the filthy one.
- ❖ Harvesting of Peanut may be completed and the fields may be well ploughed afterwards.
- ❖ Farmers are advised to schedule the irrigation plans in context of upcoming 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.

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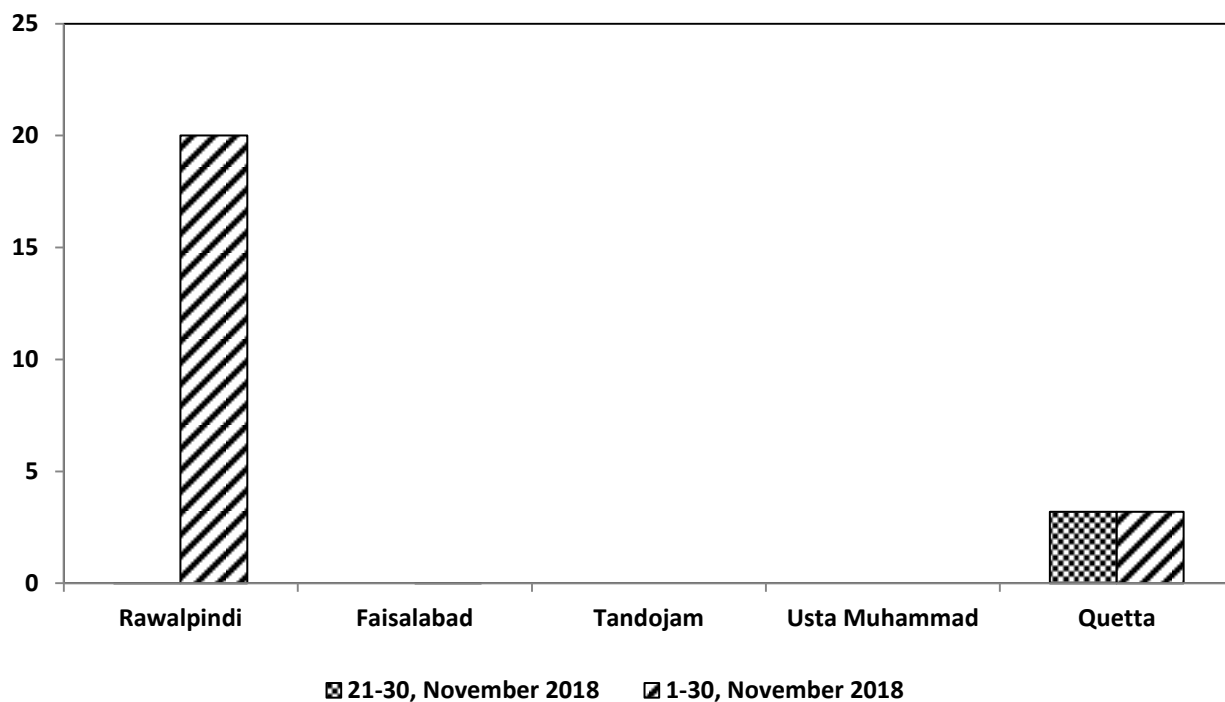
Meteorological Conditions during 3rd Decade of November, 2018

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	0.4	0.0	-0.4	1.1	1.8	16.1	17.8	16.7	15.8	16.2	17.2	19.9	60	73.4	1.6	1.4
2	Faisalabad	0.1	0.0	-0.1	2.2	2.4	19.4	22.5	21.5	19.9	19.7	20.6	23.7	57	62.3	1.4	1.6
3	Jhelum	0.2	0.0	-0.2	0.8	0.5	17.9	18.6	17.8	17.1	17.6	19.0	***	59	1.6	1.6	1.2
4	Lahore	0.2	0.0	-0.2	2.1	1.2	20.4	19.8	19.4	19.2	19.1	***	22.8	58	78.2	0.8	1.5
5	Sargodha	0.0	0.0	0.0	2.1	1.9	19.7	23.2	21.8	20.7	21.0	***	23.5	67	61.0	1.3	1.6
6	Multan	0.0	0.0	0.0	0.2	2.7	19.5	***	***	***	***	***	***	59	65.3	1.7	1.8
7	Khanpur	0.0	0.0	0.0	2.1	2.4	20.7	***	21.3	21.8	22.4	23.3	25.5	60	73.7	2.9	2.3
8	Tandojam	0.0	0.0	0.0	0.7	2.7	22.6	26.4	24.1	24.1	23.8	24.9	26.7	60	69.6	2.9	2.6
9	Sakrand☆	0.0	0.0	0.0	2.3	3.8	22.2	27.3	***	***	***	***	28.9	51	76.6	2.9	2.6
11	Rohri	0.0	0.0	0.0	2.2	0.5	22.1	***	***	***	***	***	***	51	84.7	1.0	2.0
12	D.I Khan	0.0	0.0	0.0	2.3	3.0	19.7	21.8	20.9	20.9	21.8	12.5	***	68	75.4	6.3	2.6
13	Peshawar	0.5	0.0	-0.5	1.0	2.6	17.7	18.9	19.8	17.2	18.3	19.4	20.1	60	47.4	1.0	1.4
14	Usta .M	0.0	0.0	0.0	1.4	-1.3	21.4	26.7	25.0	25.7	***	***	29.3	65	***	1.3	1.9
15	Quetta	0.2	3.2	3.0	1.2	5.4	12.2	17.4	15.5	13.1	13.4	14.6	16.6	36	87.1	4.4	2.2
16	Skardu	0.0	0.0	0.0	1.2	0.0	4.2	***	***	***	***	***	***	57	58.8	1.3	1.0
17	Gilgit	0.0	0.0	0.0	0.6	2.0	9.1	***	***	***	***	***	***	55	57.3	1.6	1.0

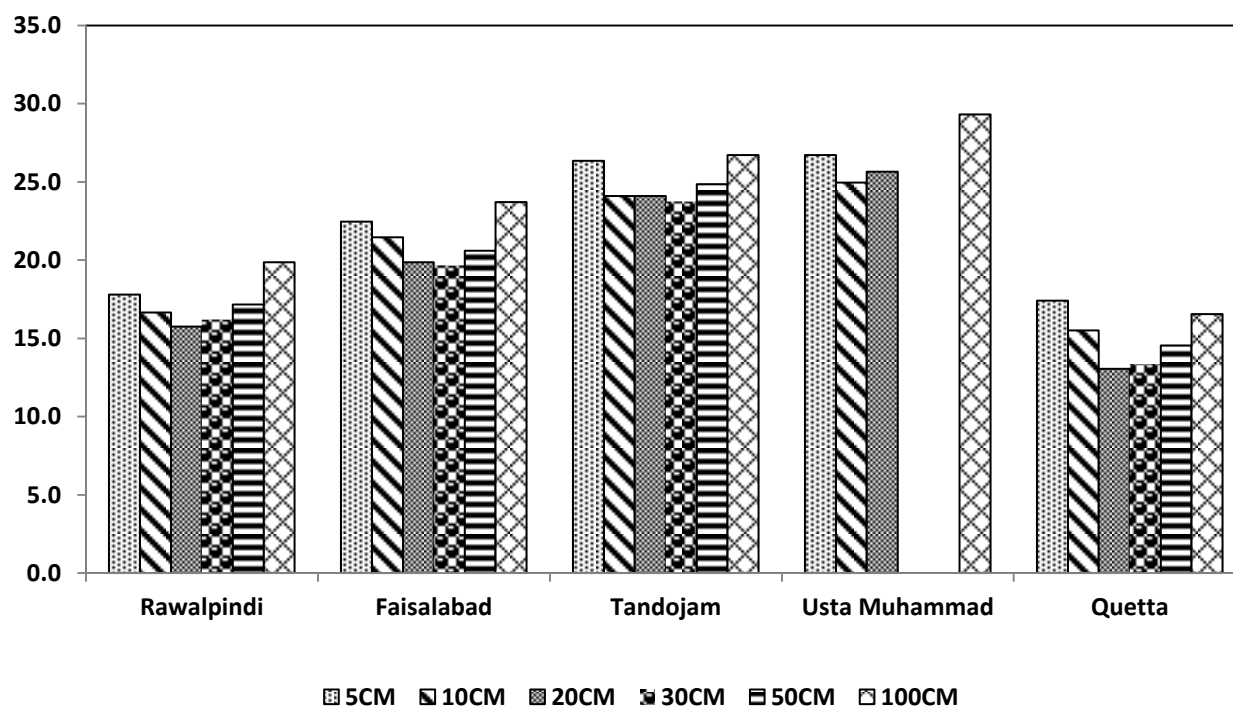
Table-1: Meteorological parameters for selected station of Pakistan. “Dep” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “% Dep” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures 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 November, 2018

Precipitation(mm)



Soil Temperature(°C)



Past Weather (21st to 30th November, 2018)

Light rainfall reported from few of the agricultural plains of K.P, Punjab, and Baluchistan; however dry weather was reported from rest parts of the country during the last decade.

1.1 Punjab

Rainfall reported as Trace (not measureable) from few of the agricultural plains of the Punjab. Chief amount of rainfall is received at Islamabad, Kot Addu, Layyah & Mianwali. Decadal maximum & minimum both raised above normal by 1.5°C & 1.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 60%, 59.4hrs, 1.6km/hr and 1.6mm/day respectively.

1.2 Sindh

Dry weather reported from the agricultural plains of the Sindh. Decadal maximum & minimum both raised above normal by 1.7°C & 2.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 77.0hrs, 2.3km/hr and 2.4mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

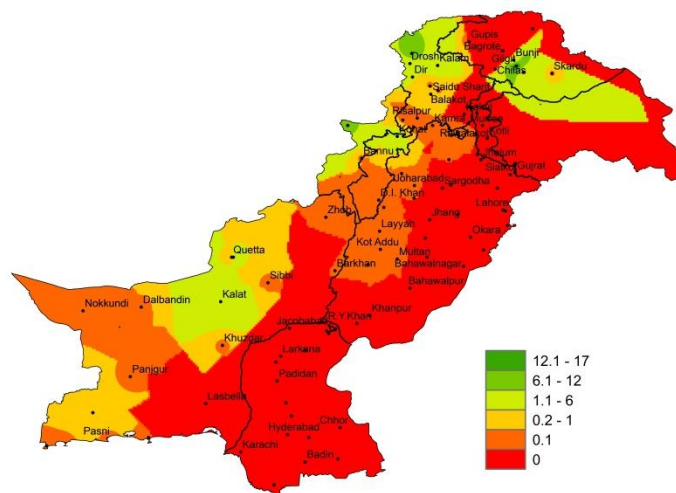
Light rainfall reported from most of the agricultural plains of KP. Chief amount of rainfall is received at Mirkhani, Chitral & Parachinar. Decadal maximum & minimum both raised above normal by 1.7°C & 2.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 64%, 61.4hrs, 3.7km/hr and 2.0mm/day respectively.

1.4 Balochistan

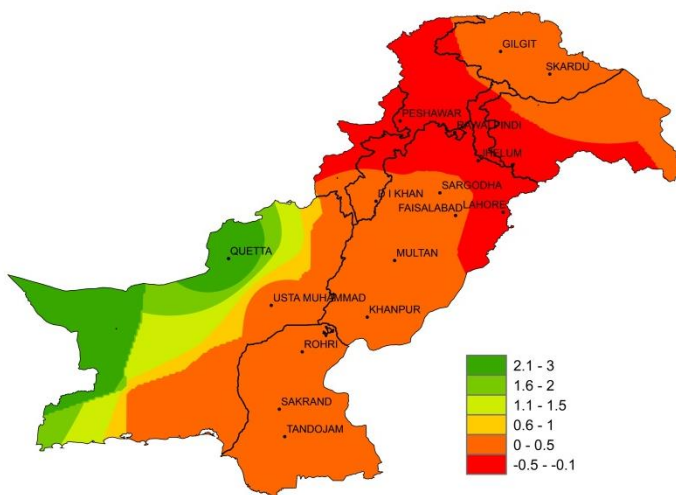
Light rainfall reported from few places of Balochistan. Chief amount of rainfall is received at Kalat, Quetta & Turbat. Decadal maximum & minimum both raised above normal by 1.3°C & 2.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 87.1hrs, 2.9km/hr and 2.1mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

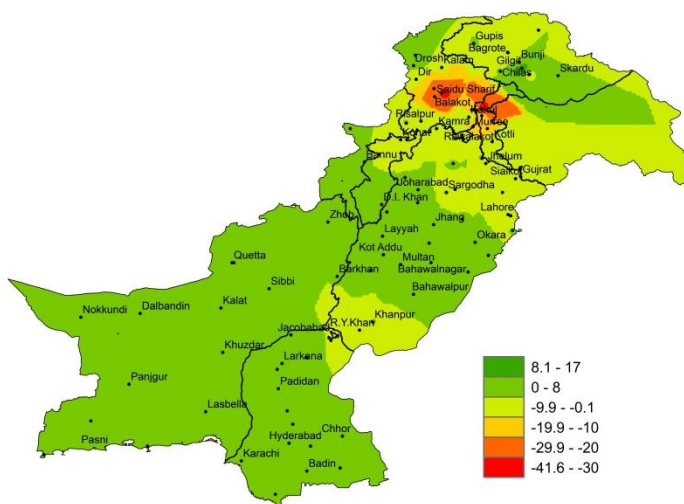
Dry weather reported from most of the agricultural plains of G.B and Kashmir. Decadal maximum & minimum both raised above normal by 0.9°C & 1.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 58.1hrs, 1.5km/hr and 1.0mm/day 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 30th November, 2018)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 24.7°C while night temperature recorded as 7.5°C with 73.4hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction westerly.

Maize: Harvested on 01-12-2018

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 57%. Mean day temperature was 27.9°C while night temperature recorded as 10.8°C with 62.33hours bright sunshine duration. Wind speed recorded as 1.4km/hr with mean wind direction south westerly.

Cotton: Very Good condition, first picking started on 30-11-2018

Wheat: Emergence stage

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 60%. Mean day temperature was 30.2°C while night temperature recorded as 14.9°C with 69.6hours bright sunshine duration. Wind speed recorded as 2.9km/h with mean wind direction northerly.

Wheat (TJ-83): Good condition, third leaf stage

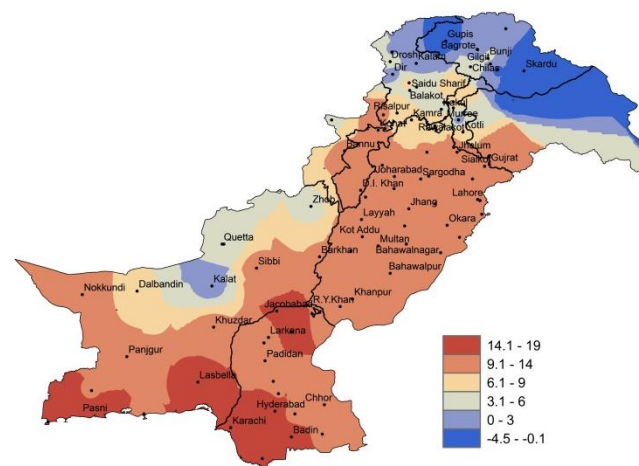
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 65%. Mean day temperature was 28.4°C while night temperature recorded as 14.4°C. Wind speed recorded as 1.3km/h with mean wind direction variable.

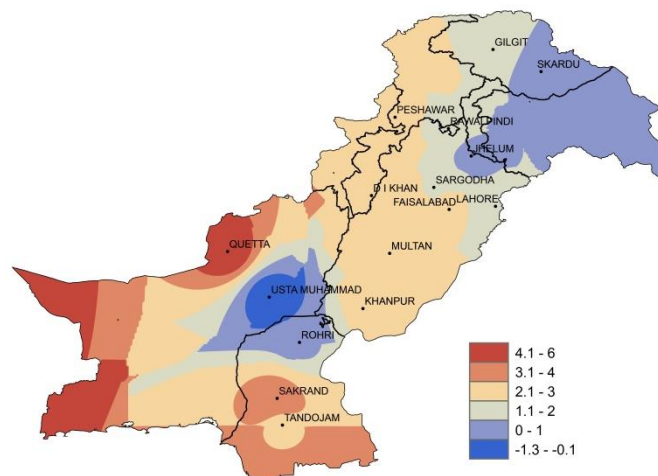
Wheat: Good condition, sown on 27-11-2018

2.5 RAMC, Quetta (Northern Balochistan)

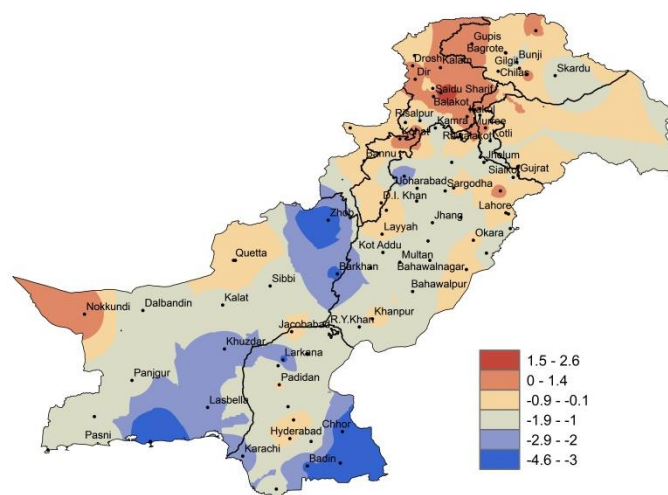
Rainfall reported as 3.2mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 36%. Mean day temperature was 18.8°C while night temperature recorded as 5.5°C with 87.1hours bright sunshine duration. Wind speed recorded as 4.4km/hr with 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 (21st to 30th November, 2018)

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 26.5°C while night temperature recorded as 9.2°C with 78.4hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *north westerly*.

2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 27.3°C while night temperature recorded as 13.5°C with 78.2hours bright sunshine duration. Wind speed recorded as 0.8km/hr with mean wind direction *westerly*.

2.8 Sargodha

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 27.6°C while night temperature recorded as 11.7°C with 61.0hours bright sunshine duration. Wind speed recorded 1.2km/hr with mean wind direction *variable*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 26.8°C while night temperature recorded as 12.2°C with 65.3hours bright sunshine duration. Wind speed recorded 1.7km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 29.2°C while night temperature recorded as 12.1°C with 73.7hours bright sunshine duration. Wind speed recorded 2.9km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 29.8°C while night temperature recorded as 14.5°C with 76.6hours bright sunshine duration. Wind speed recorded 2.9km/hr with wind direction *northerly*.

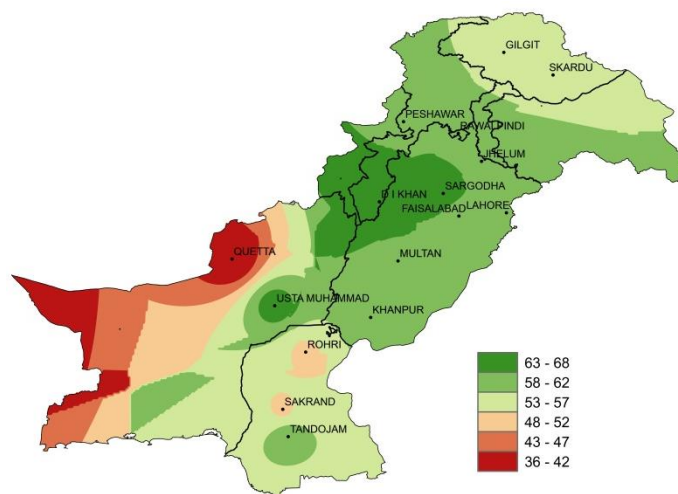


Figure.3: Relative Humidity in Percentage (%)

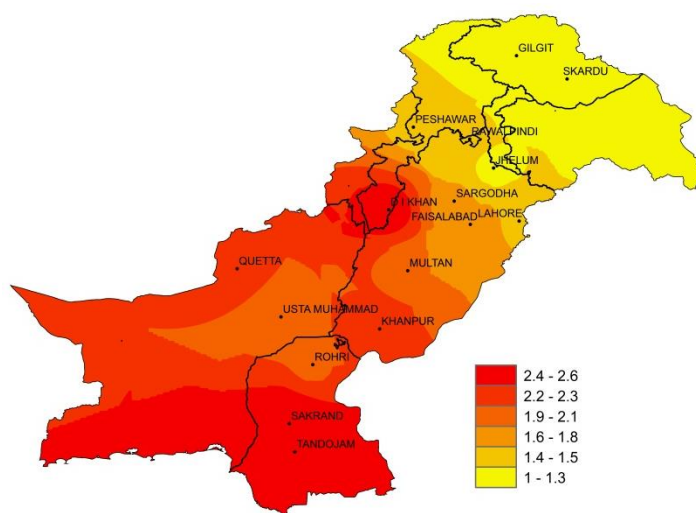


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

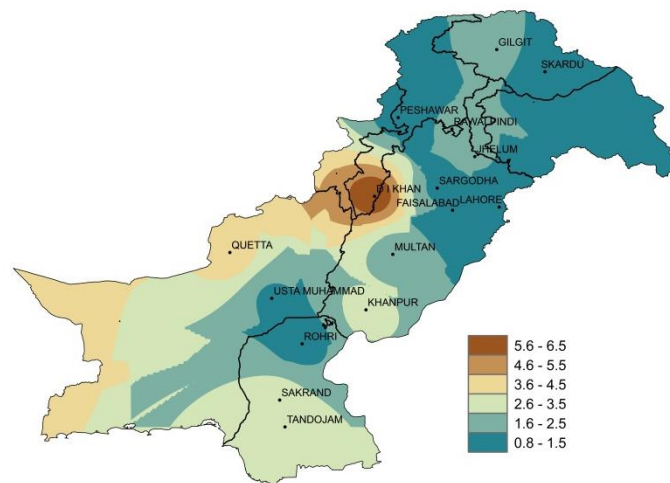


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 30.0°C while night temperature recorded as 14.2°C with 84.7hours bright sunshine duration. Wind speed recorded 1.0km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 68%. Mean day temperature was 28.1°C while night temperature recorded as 11.3°C with 75.4hours bright sunshine duration. Wind speed recorded as 6.3km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 24.7°C while night temperature recorded as 10.6°C with 47.4hours bright sunshine duration. Wind speed recorded as 1.0km/hr with mean wind direction *north westerly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 12.9°C while night temperature recorded as -4.5°C with 58.8hours bright sunshine duration. Wind speed recorded as 1.3km/hr with mean wind direction *south-easterly*.

2.16 Gilgit

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 19.0°C while night temperature recorded as -1.0°C with 57.3hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *southerly*.

Ten Days Weather Advisory for Farmers **(3rd to 10th December, 2018)**

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

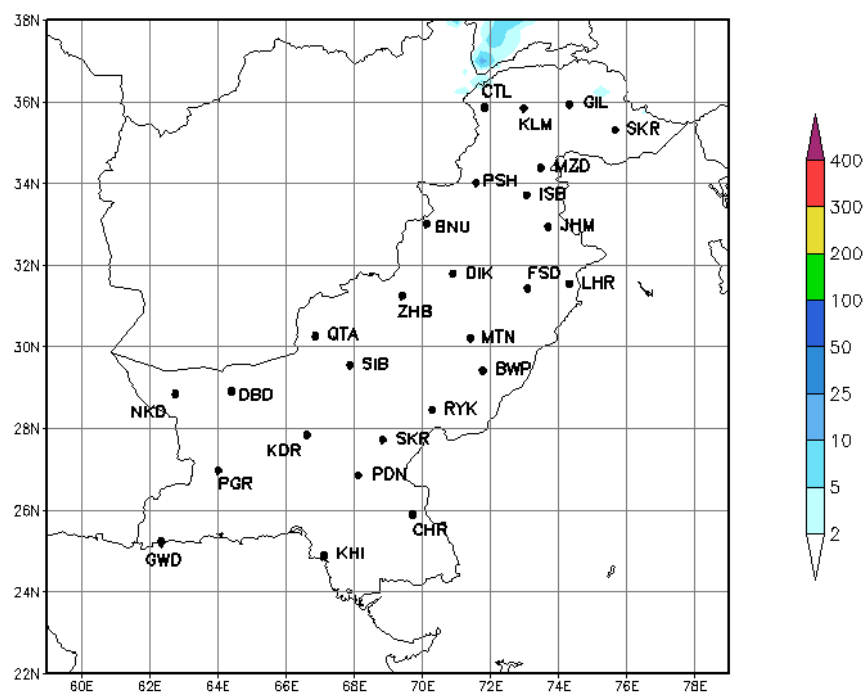
- ❖ **Punjab:** Cold and dry weather is expected in most of parts of the province however light rainfall is expected in northern half of the province during the end of current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rain (with snowfall) is expected at most places of the province during the end of the current decade.
- ❖ **Sindh:** Dry weather is expected in most parts of the province during the decade.
- ❖ **Balochistan:** Cold and dry weather is expected in most parts of the province however light to moderate rainfall is expected at isolated places in northern parts and coastal belt of the province during end of the decade.
- ❖ **Gilgit-Baltistan:** Light rain-thunderstorm with snowfall is expected at most of places during the decade.
- ❖ **Kashmir:** Light to moderate rain-thunderstorm is expected in most of the places in Kashmir and its adjoining areas during the decade.

3.4 Advisory for Farmers

- ❖ Use proper precautions during picking of cotton because the cost of good and clean quality cotton is high than that of the filthy one.
- ❖ Harvesting of Peanut may be completed and the fields may be well ploughed afterwards.
- ❖ Farmers are advised to schedule the irrigation plans in context of upcoming 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.

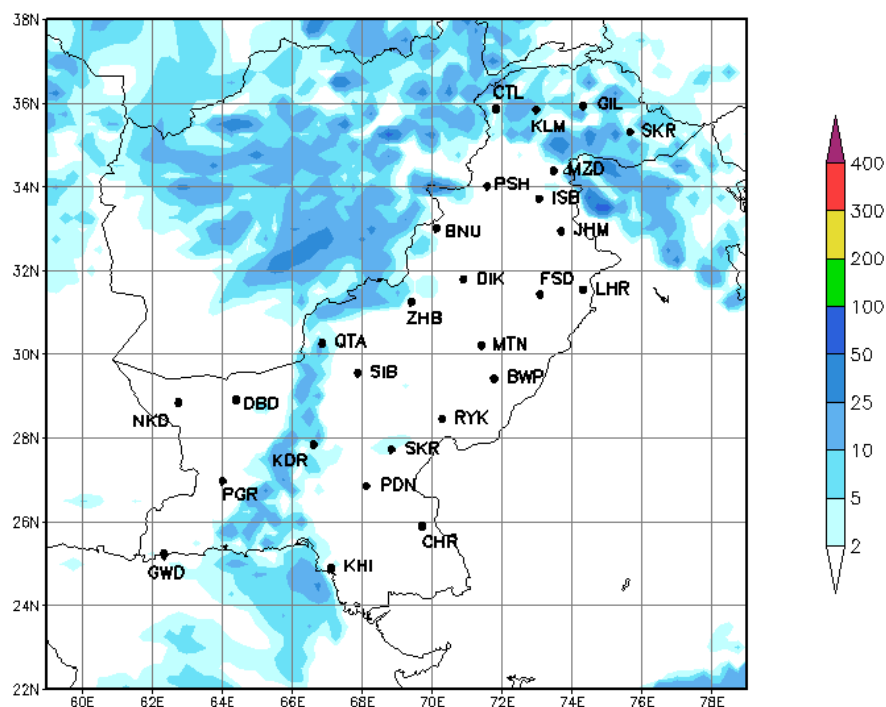
4.1 Precipitation Outlook (3rd to 5th December, 2018)

The forecast for the next three days (3rd to 5th) of the first decade of December, 2018 shows that mostly cold and dry weather is expected in most parts of the country.



4.2 Precipitation Outlook (6th to 10th December, 2018)

The outlook for the last five days (6th to 10th) of the first decade of December, 2018 shows that mostly cold and dry weather is expected in most parts of the country. While light to moderate rainfall is expected in particular areas of northern Punjab, KP, G.B, Kashmir coastal Sindh and coastal/northwestern Baluchistan.



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)