

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate rainfall reported from most of the agricultural plains of K.P, Punjab, G.B and Kashmir; however dry weather was reported from rest parts of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 42.4mm at Rawalakot during the last decade.
- ❖ Lowest minimum temperature recorded as -9.6°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 northern parts of the country during the current decade.
- ❖ 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 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.

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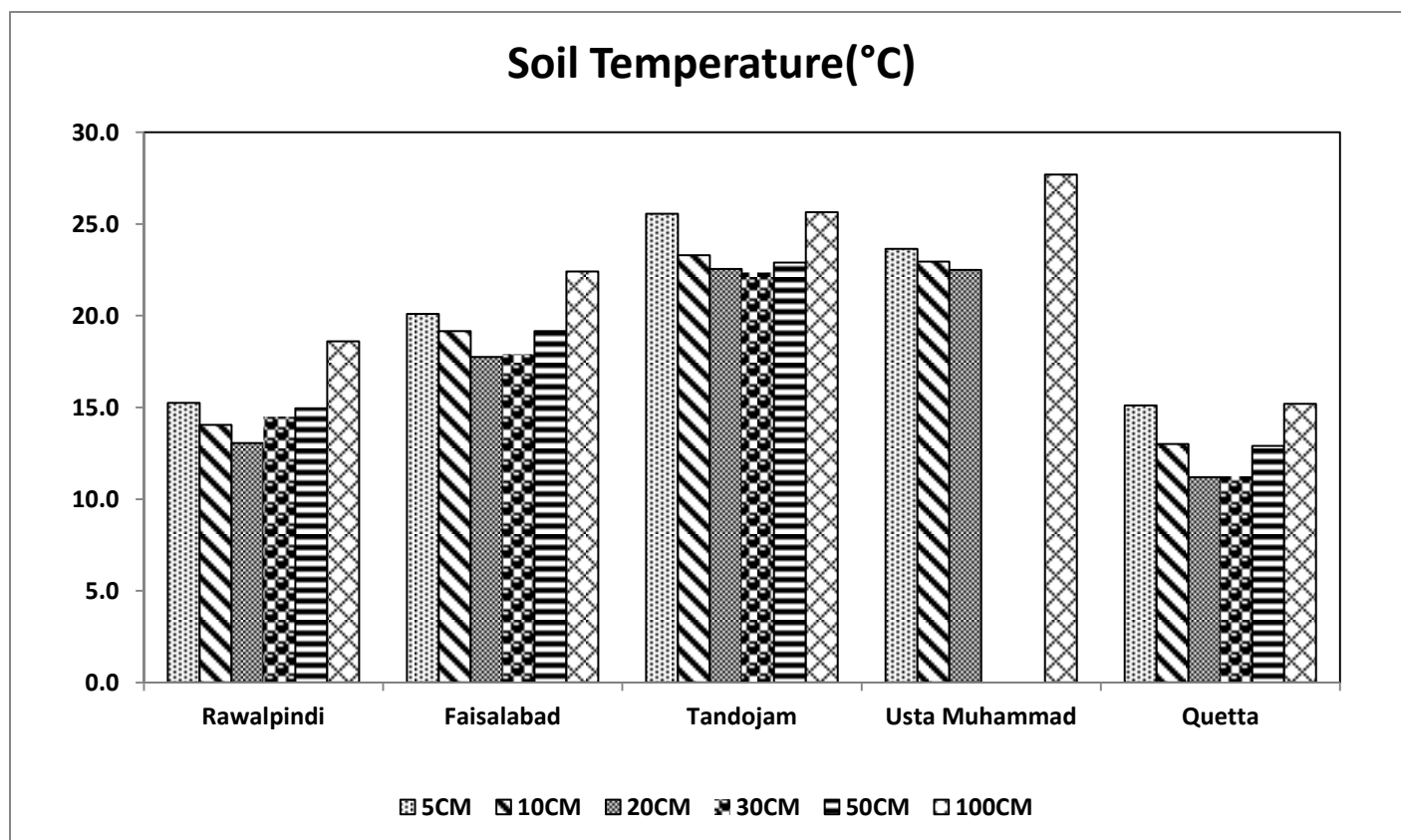
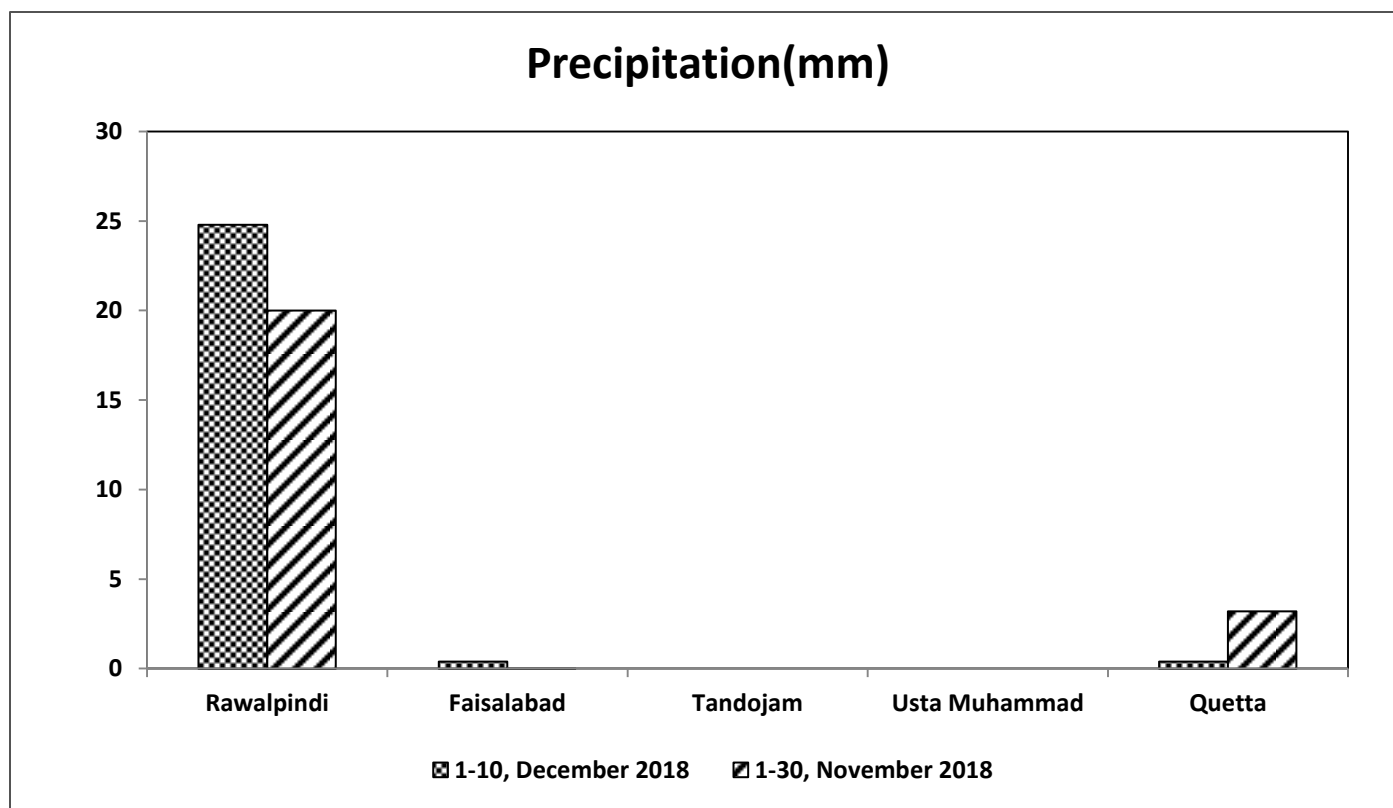
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Meteorological Conditions during 1st Decade of December, 2018

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	1.4	24.8	23.4	0.0	-0.1	13.2	15.3	14.1	13.1	14.5	15.0	18.6	61	58.4	1.2	1.1
2	Faisalabad	0.5	0.4	-0.1	0.7	1.9	16.6	20.1	19.2	17.8	17.9	19.2	22.4	65	40.8	1.3	1.3
3	Jhelum	1.1	15.6	14.5	-1.6	-0.6	14.5	16.3	15.4	15.1	16.0	17.5	***	67	1.6	1.6	1.2
4	Lahore	0.1	0.2	0.1	-0.8	0.2	16.8	17.7	17.5	17.3	17.3	***	21.8	71	43.2	0.4	1.1
5	Sargodha	0.9	6.5	5.6	-0.8	2.2	16.5	20.3	19.2	18.7	19.4	***	22.5	72	60.0	2.3	1.1
6	Multan	0.5	0.0	-0.5	-0.2	3.1	17.4	***	***	***	***	***	***	60	37.7	2.5	1.6
7	Khanpur	0.1	0.0	-0.1	3.2	1.8	18.7	***	20.6	20.9	21.9	22.8	25.0	63	48.9	2.5	1.9
8	Tandojam	0.3	0.0	-0.3	2.8	2.4	21.2	25.6	23.3	22.6	22.4	22.9	25.7	63	79.4	3.0	2.5
9	Sakrand☆	1.5	0.0	-1.5	3.3	4.2	20.1	24.9	***	***	***	***	28.2	56	91.0	4.8	2.8
11	Rohri	1.1	0.0	-1.1	3.8	0.1	19.9	***	***	***	***	***	***	56	86.8	0.5	1.6
12	D.I Khan	0.3	3.0	2.7	-0.2	2.5	16.1	19.7	19.0	19.2	20.3	11.1	***	81	54.7	6.0	1.7
13	Peshawar	0.9	18.0	17.1	-1.0	-0.7	13.4	17.0	16.1	14.8	15.9	17.9	18.9	69	28.8	1.0	1.0
14	Usta .M	1.2	0.0	-1.2	2.6	5.1	19.8	23.7	23.0	22.5	***	***	27.7	69	***	0.7	1.6
15	Quetta	0.8	0.4	-0.4	2.0	3.9	10.0	15.1	13.0	11.2	11.3	12.9	15.2	33	93.9	4.6	2.1
16	Skardu	0.6	2.9	2.3	-0.8	-3.2	0.4	***	***	***	***	***	***	64	45.4	0.9	0.7
17	Gilgit	0.3	0.0	-0.3	-0.1	-0.3	6.1	***	***	***	***	***	***	54	36.6	1.8	0.9

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, 2018



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

Light to moderate rainfall reported from most of the agricultural plains of K.P, Punjab, G.B and Kashmir; however dry weather was reported from rest parts of the country during the last decade.

1.1 Punjab

Light to moderate rainfall reported from most of the agricultural plains of the Punjab. Chief amount of rainfall is received at Islamabad, Mianwali, & Mangla. Decadal maximum & minimum both raised above normal by 0.1°C & 1.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 66%, 49.9hrs, 1.5km/hr and 1.3mm/day respectively.

1.2 Sindh

Dry weather reported from the agricultural plains of the Sindh. Decadal maximum & minimum both raised above normal by 3.3°C & 2.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 85.7hrs, 2.8km/hr and 2.3mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

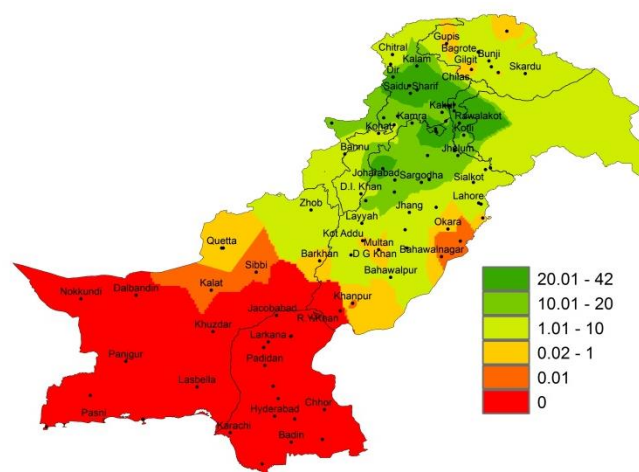
Light to moderate rainfall reported from most of the agricultural plains of KP. Chief amount of rainfall is received at Balakot, Dir & Saidu Sharif. Decadal maximum dropped below normal by 0.6°C & minimum raised above normal by 0.9°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 75%, 41.8hrs, 3.5km/hr and 1.4mm/day respectively.

1.4 Balochistan

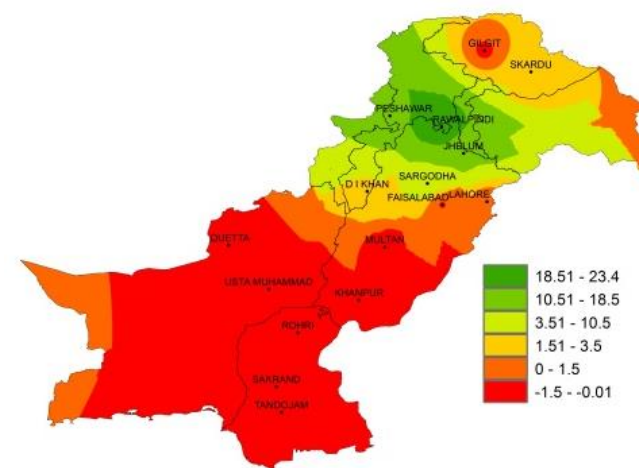
Trace (not measureable) rainfall reported from one place of Balochistan. i.e Quetta. Decadal maximum & minimum both raised above normal by 2.3°C & 4.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 93.9hrs, 2.7km/hr and 1.9mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

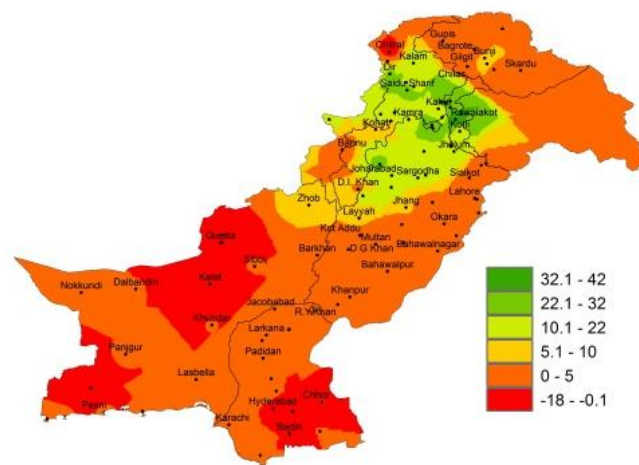
Light to moderate rainfall reported from most of the agricultural plains of G.B and Kashmir. Chief amount of rainfall is received at Rawalakot, Muzaffarabad & Garhi Dopatta. Decadal maximum & minimum both dropped below normal by 0.5°C & 1.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 59%, 41.0hrs, 1.4km/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 December, 2018)**

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

Rainfall reported as 24.8 during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 21.7°C while night temperature recorded as 4.7°C with 58.4hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *westerly*.

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

Rainfall reported as 0.4 during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 24.3°C while night temperature recorded as 8.9°C with 40.8hours bright sunshine duration. Wind speed recorded as 1.3km/hr with mean wind direction *south westerly*.

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

Wheat: *Very good condition, Emergence stage*

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

Dry weather reported during the decade; however weather remained cloudy for 01days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 29.2°C while night temperature recorded as 13.2°C with 79.4hours bright sunshine duration. Wind speed recorded as 3.0km/h with mean wind direction *northerly*.

Wheat (TJ-83): *Good condition, tillering stage*

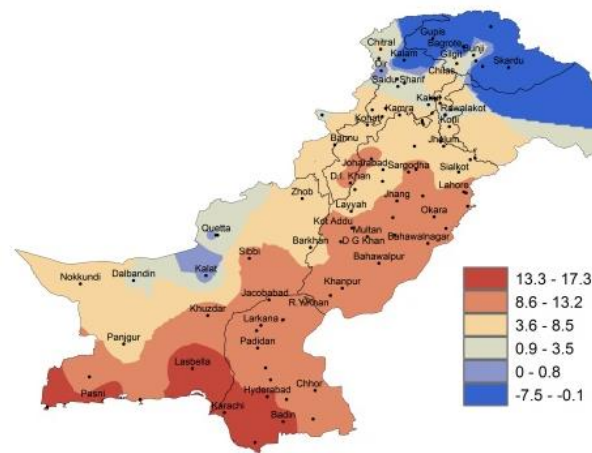
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 69%. Mean day temperature was 26.5°C while night temperature recorded as 13.1°C. Wind speed recorded as 0.7km/h with mean wind direction *variable*.

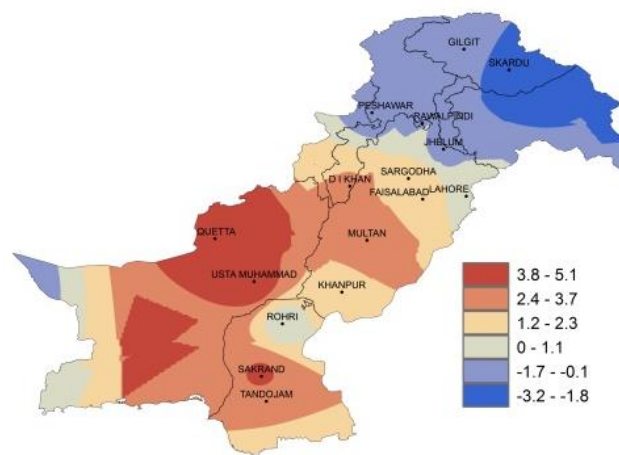
Wheat: *Good condition, germination stage*

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

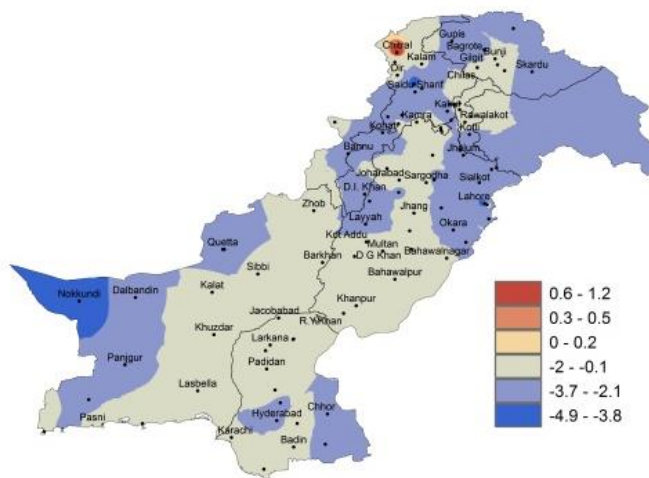
Rainfall reported as 0.4mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 33%. Mean day temperature was 16.8°C while night temperature recorded as 3.1°C with 93.9hours bright sunshine duration. Wind speed recorded as 4.6km/hr with 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 December, 2018)

2.6 Jhelum

Rainfall reported as 15.6mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 22.1°C while night temperature recorded as 6.9°C with 60.5hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *variable*.

2.7 Lahore

Rainfall reported as 0.2mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 71%. Mean day temperature was 22.7°C while night temperature recorded as 10.8°C with 43.2hours bright sunshine duration. Wind speed recorded as 0.4km/hr with mean wind direction *westerly*.

2.8 Sargodha

Rainfall reported as 6.5mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 72%. Mean day temperature was 22.8°C while night temperature recorded as 10.1°C with 60.0hours bright sunshine duration. Wind speed recorded 2.3km/hr with mean wind direction *esterly*.

2.9 Multan

Rainfall reported as trace (not measurable) during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 24.1°C while night temperature recorded as 10.6°C with 37.7hours bright sunshine duration. Wind speed recorded 2.5km/hr with mean wind direction *southerly*.

2.10 Khanpur

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 27.0°C while night temperature recorded as 10.3°C with 48.9hours bright sunshine duration. Wind speed recorded 2.5km/hr with mean wind direction *northerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 01days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 27.1°C while night temperature recorded as 13.1°C with 91.0hours bright sunshine duration. Wind speed recorded 4.81km/hr with wind direction *northerly*.

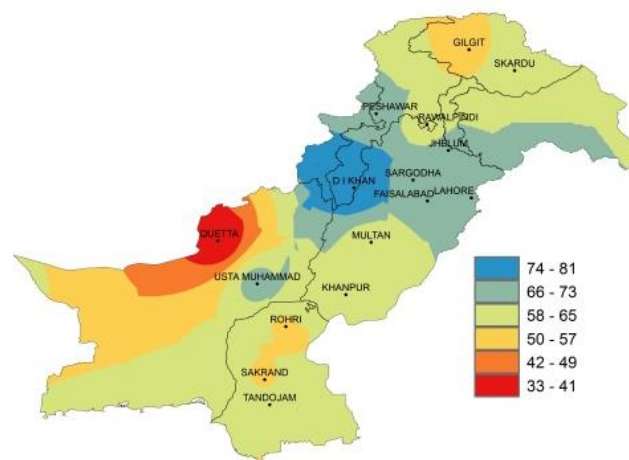


Figure.3: Relative Humidity in Percentage (%)

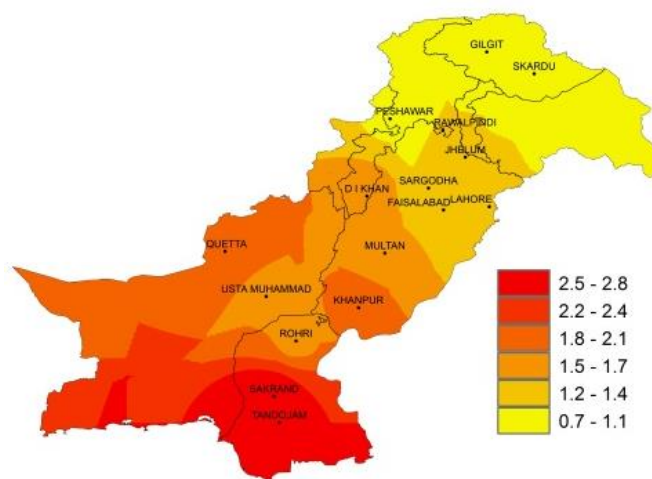


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

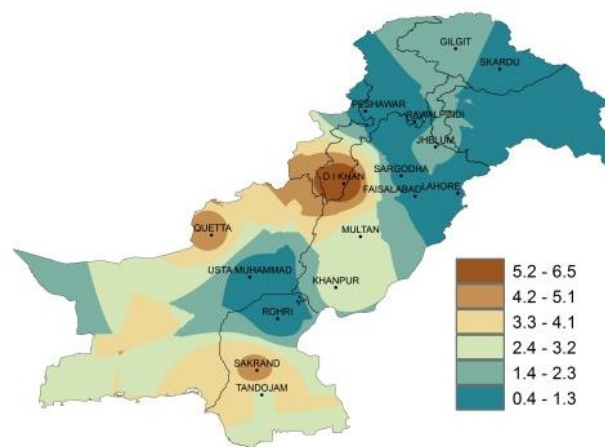


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 0days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 27.6°C while night temperature recorded as 12.2°C with 86.8hours bright sunshine duration. Wind speed recorded 0.5km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 3.0mm during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 81%. Mean day temperature was 23.0°C while night temperature recorded as 9.1°C with 54.7hours bright sunshine duration. Wind speed recorded as 6.0km/hr with mean wind direction *northerly*.

2.14 Peshawar

Rainfall reported as 18.0mm during the decade; however weather remained cloudy for 08days during the decade. Average relative humidity recorded as 69%. Mean day temperature was 20.6°C while night temperature recorded as 6.1°C with 28.8hours bright sunshine duration. Wind speed recorded as 1.0km/hr with mean wind direction *northerly*.

2.15 Skardu

Rainfall reported as 2.9mm during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 64%. Mean day temperature was 8.2°C while night temperature recorded as -7.5°C with 45.4hours bright sunshine duration. Wind speed recorded as 0.9km/hr with mean wind direction *south-easterly*.

2.16 Gilgit

Rainfall reported as trace (not measurable) during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 54%. Mean day temperature was 13.7°C while night temperature recorded as -1.6°C with 36.6hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *southerly*.

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

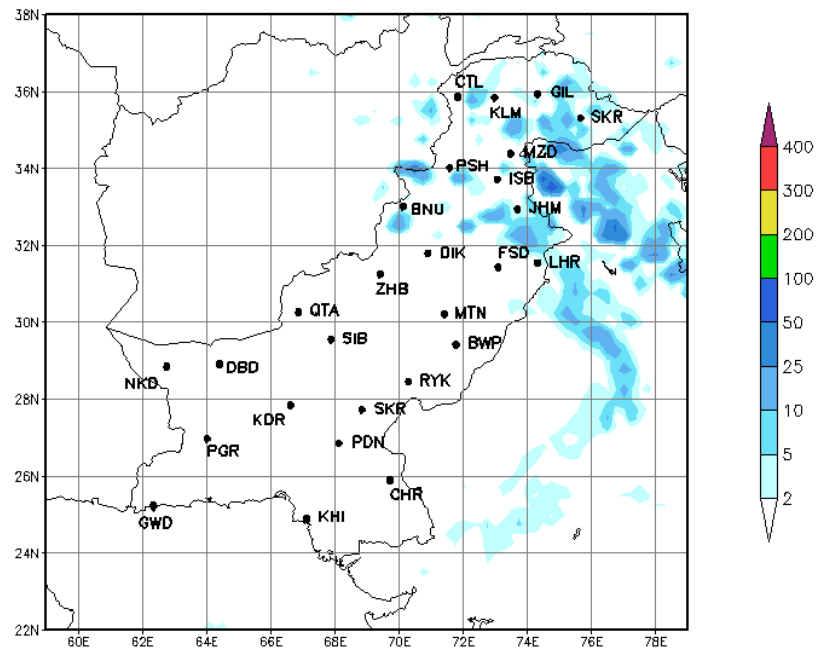
- ❖ **Punjab:** Cold and dry weather is expected in most parts of the province however light rainfall is expected in northern half of the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rain (with snowfall) is expected at particular places of the province during the 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.
- ❖ **Gilgit-Baltistan:** Light to moderate 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

- ❖ 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 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.

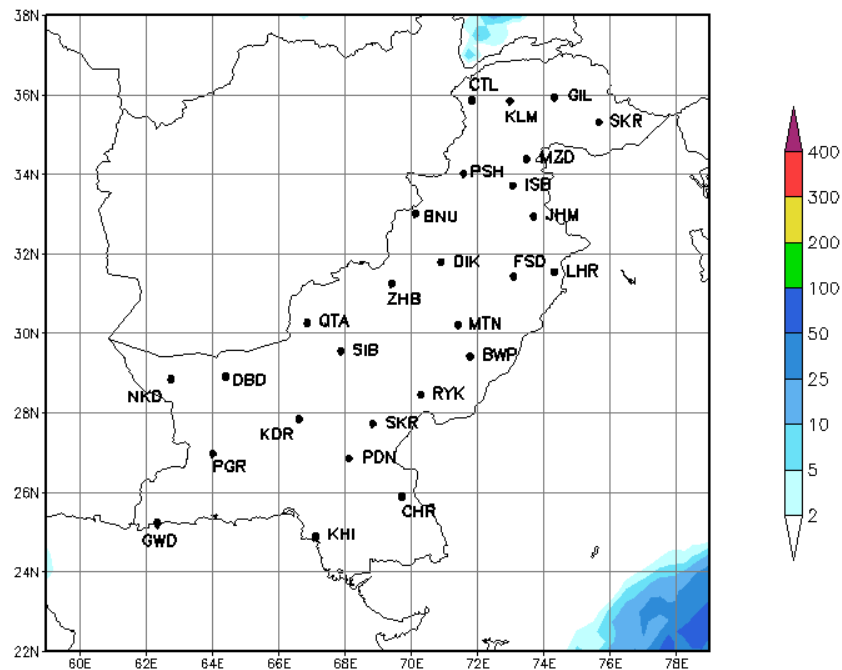
4.1 Precipitation Outlook (11th to 13th December, 2018)

The forecast for the first three days (11th to 13th) of the second decade of December, 2018 shows that mostly cold and dry weather is expected in most parts of the country while light rainfall (snowfall over mountains) is expected in particular areas of upper Punjab, K.P, G.B and Kashmir.



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

The outlook for the last seven days (14th to 20th) of the second decade of December, 2018 shows that mostly cold and dry weather is expected in most 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)