

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from most parts of KP, G.B, Kashmir, Punjab and Balochistan while dry weather reported from rest parts of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 113.0 mm at Dir during the last decade
- ❖ Lowest Minimum temperature recorded as -14.2°C at Skardu during the last decade.
- ❖ Mostly dry weather is expected throughout the country in this decade; however light to moderate rain (with snowfall over the mountains) is expected at most parts of the country from 24th to 28th of the decade.
- ❖ Wheat crop is at Tillering-Wax Maturity stages in different agriculture plains. Farmers are advised to schedule their irrigation plans by keeping in view the expected rain in the particular areas of the country
- ❖ Farmers in the lower half of the country especially those in central regions are advised to take up poultry rearing houses to maintain optimum room temperature and take care against the rapid changes in air temperature and relative humidity.
- ❖ 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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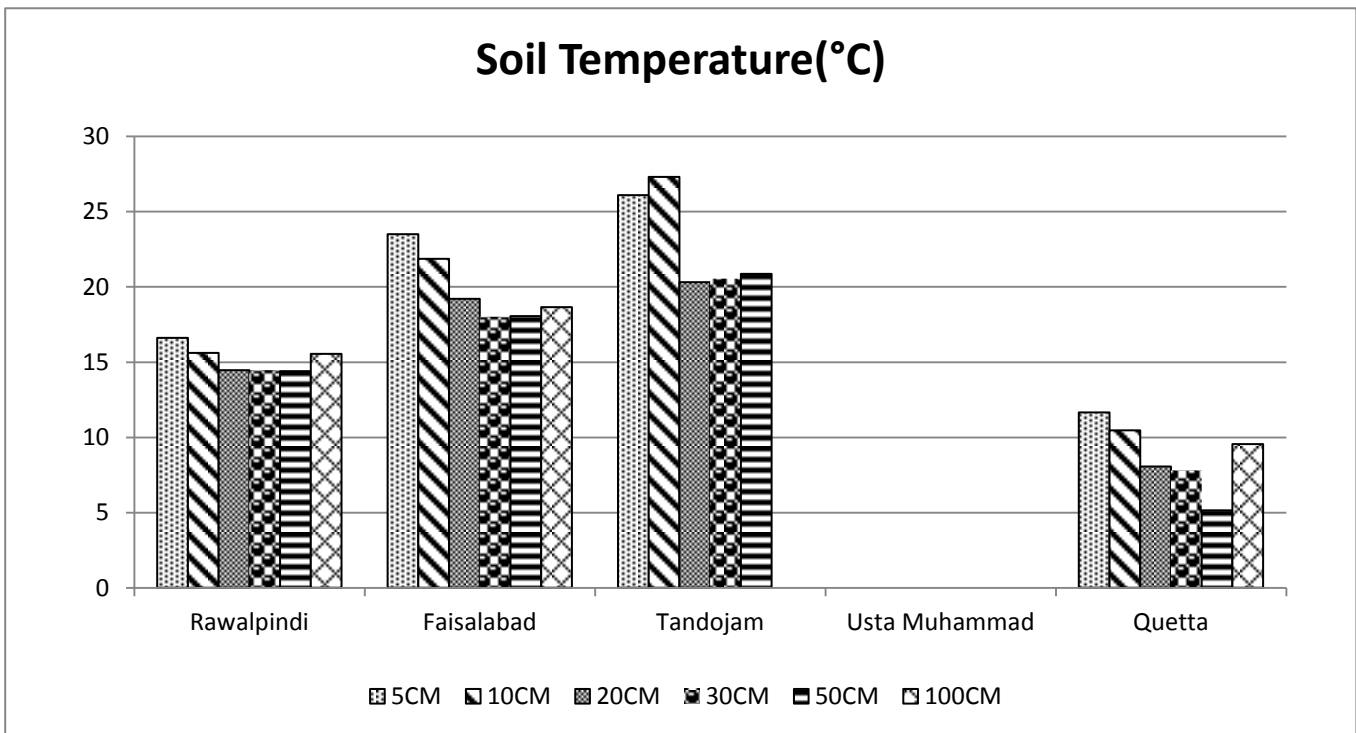
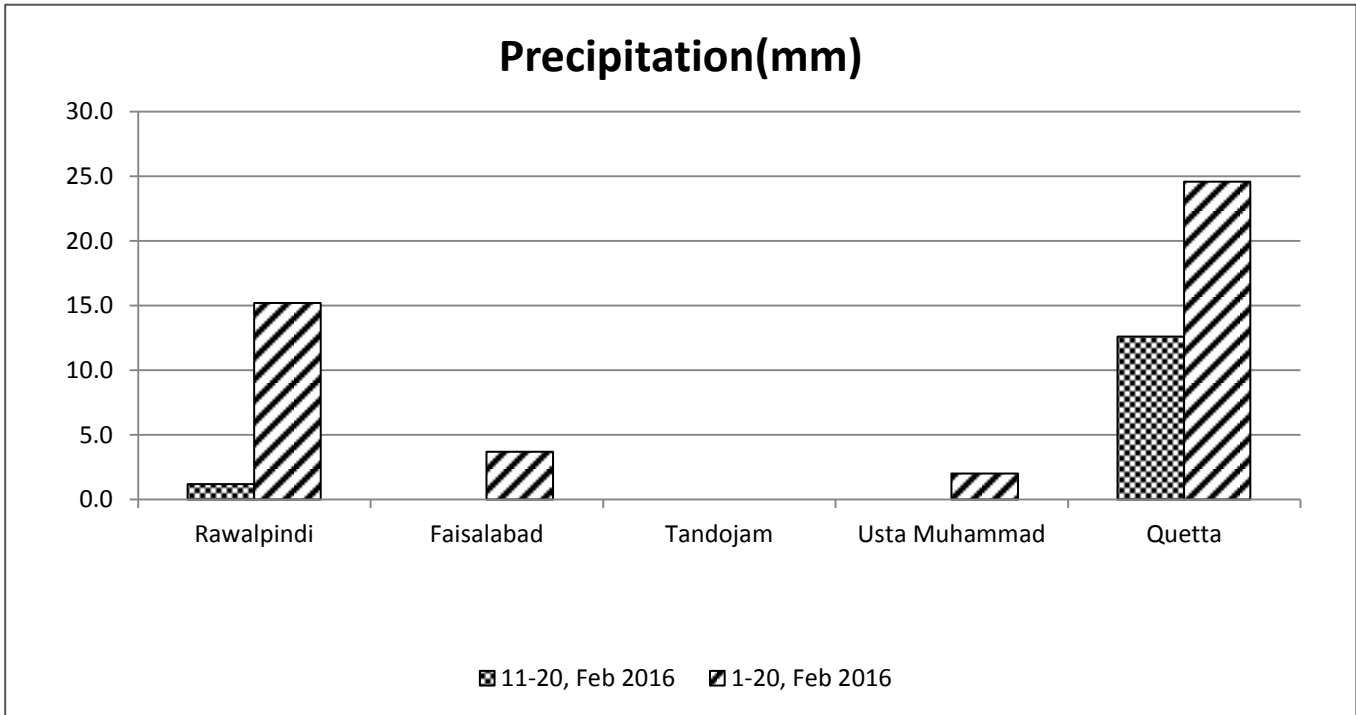
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Meteorological Conditions during 2nd decade of February, 2017

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	3.4	1.2	-2.2	3.2	2.3	16.3	16.6	15.6	14.5	14.5	14.4	15.6	60	52.3	2.3	1.9
2	Faisalabad	1.3	0.0	-1.3	3.4	1.4	18.4	23.5	21.9	19.2	18.0	18.1	18.7	52	60.3	2.3	2.3
3	Jhelum	3.3	0.4	-2.9	2.4	0.8	17.5	17.7	16.5	15.5	15.9	15.9	***	54	57.2	2.2	2.1
4	Lahore	2.3	0.1	-2.2	3.4	1.0	19.5	19.8	18.8	17.0	16.5	***	18.1	57	73.3	1.9	2.3
5	Sargodha	1.6	0.1	-1.5	3.3	2.7	19.1	21.4	19.6	17.7	17.5	***	18.6	56	57.7	0.7	1.9
6	Multan	1.1	0.1	-1.0	2.7	2.3	18.9	***	***	***	***	***	***	48	63.3	3.3	2.7
7	Khanpur	0.1	0.0	-0.1	2.4	1.1	19.0	***	10.1	19.5	20.7	20.2	21.0	50	74.4	3.6	3.0
8	Tandojam	0.6	0.0	-0.6	0.5	0.2	20.0	26.1	27.3	20.3	20.6	20.9	***	48	87.1	3.7	3.4
9	Sakrand ☆	0.0	0.0	0.0	1.0	3.0	20.2	30.1	***	***	***	***	23.5	51	87.6	2.8	3.1
11	Rohri	0.0	0.0	0.0	1.4	1.1	20.9	***	***	***	***	***	***	44	90.1	2.7	3.0
12	D.I Khan	1.5	0.1	-1.4	4.0	3.2	18.7	***	***	***	***	***	***	49	54.5	8.8	3.7
13	Peshawar	4.1	2.0	-2.1	3.4	1.1	16.4	19.5	16.6	15.1	***	***	***	62	46.1	3.4	2.0
14	Usta .M	0.0	0.0	0.0	-0.1	-0.8	18.0	***	***	***	***	***	***	49	***	1.4	2.5
15	Quetta	1.7	12.6	10.9	0.0	4.9	10.5	11.7	10.5	8.1	7.8	5.2	9.6	46	55.3	5.7	2.5
16	Skardu	1.0	9.8	8.8	-2.7	-4.1	-1.2	***	***	***	***	***	***	77	24.8	0.3	0.9
17	Gilgit	0.6	1.2	0.6	-0.8	2.0	8.3	***	***	***	***	***	***	56	27.2	3.8	1.6

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 February, 2017



1. Past Weather (11th to 20th January, 2017)

Light to moderate rainfall reported from most parts of KP, G.B, Kashmir, Punjab and Balochistan while dry weather reported from rest parts of the country during the last decade.

1.1 Punjab

Light rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Murree, Mandi Bahudin & Sialkot. Decadal maximum & minimum both raised above normal by 3.0°C & 1.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 62.6hrs, 2.3km/hr and 2.3mm/day respectively.

1.1 Sindh

Dry weather reported from agricultural plains of Sindh. Decadal maximum & minimum both rose above normal by 1.0°C & 1.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 88.3hrs, 3.1km/hr and 3.2mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

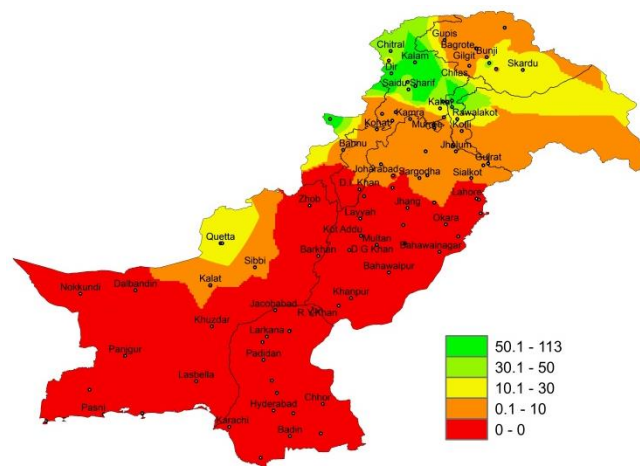
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Dir, Malam Jabba & Kalam. Decadal maximum & minimum both rose above normal by 3.7°C & 2.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 50.3hrs, 6.1km/hr and 2.9mm/day respectively.

1.3 Balochistan

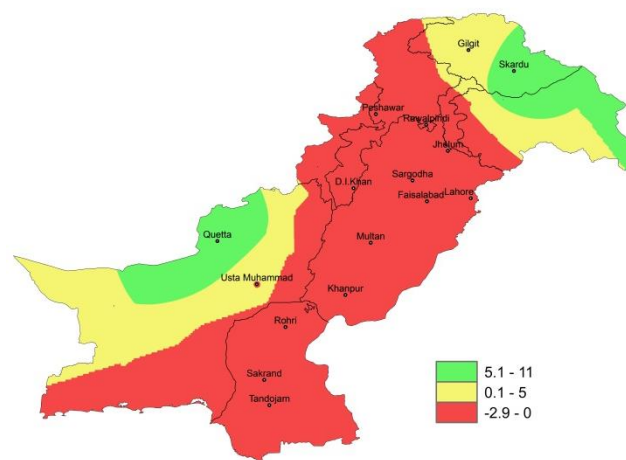
Light to moderate rainfall reported from agricultural plains of Balochistan. Chief amount of rainfall received at Quetta, Barkhan & Dalbandin. Decadal maximum dropped below normal by 0.1°C & minimum raised above normal by 2.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 55.3hrs, 3.6km/hr and 2.5mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

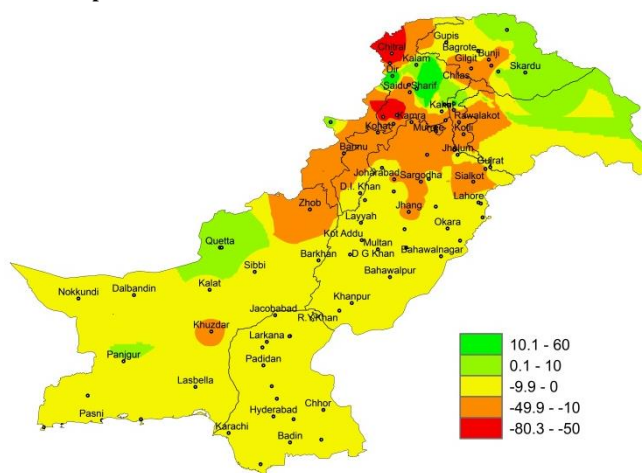
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Garhi Dopatta, Muzaffarabad & Rawalakot. Decadal maximum & minimum both dropped below normal by 1.8°C & 1.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 26.0hrs, 2.1km/hr and 1.3mm/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**
(11th to 20th February, 2017)

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

Rainfall reported as 1.2mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 60%. Mean day temperature was 23.4°C while night temperature recorded as 9.1°C with 52.3hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *variable*.

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

Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 52%. Mean day temperature was 26.3°C while night temperature recorded as 10.4°C with 60.33hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *westerly noth-westerly*.

Wheat: *Very Good condition, shooting stag completed.*

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

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 48%. Mean day temperature was 29.0°C while night temperature recorded as 11.0°C with 87.1hours bright sunshine duration. Wind speed recorded as 3.7km/h with mean wind direction *northerly*.

Wheat (Imdad): *Good condition, wax maturity stage.*

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

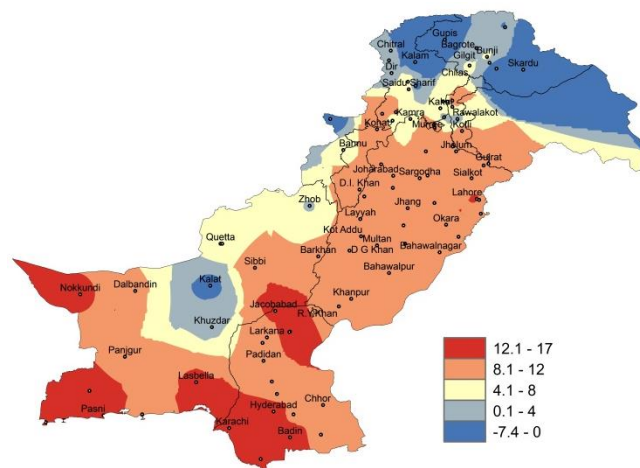
Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 49%. Mean day temperature was 26.5°C while night temperature recorded as 9.5°C. Wind speed recorded as 1.4km/h with mean wind direction *northerly*.

Wheat: *Very Good condition, shooting stage.*

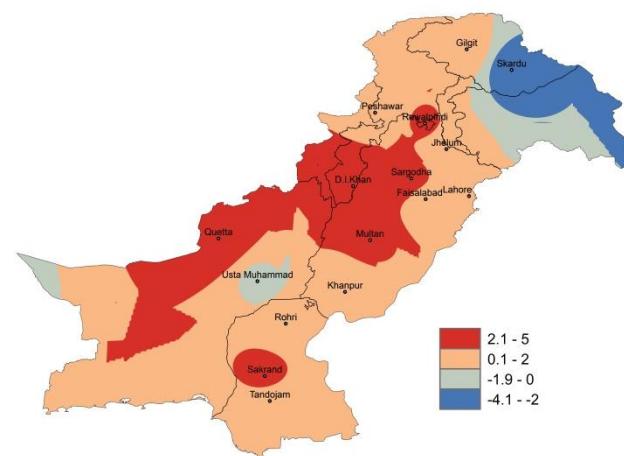
2.5 **RAMC, Quetta (Northern Balochistan)**

Rainfall reported as 12.6mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 46%. Mean day temperature was 15.2°C while night temperature recorded as 5.8°C with 55.3hours bright sunshine duration. Wind speed recorded as 5.7km/hr with mean wind direction *north westerly*.

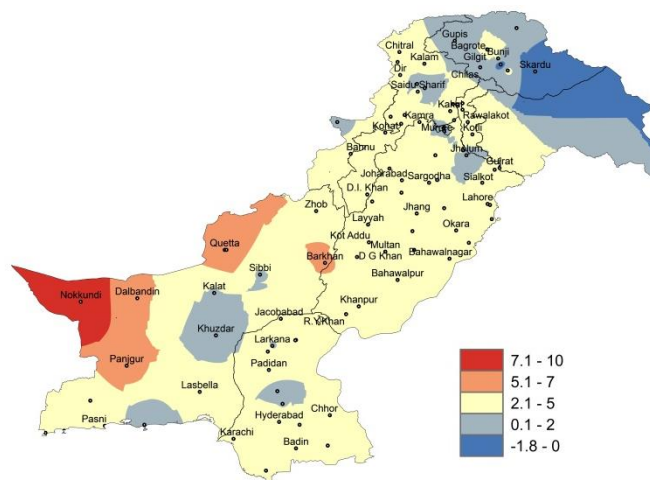
Wheat (Local White): *Very Good condition, tillering stage*



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 (11th to 20th January, 2017)

2.6 Jhelum

Rainfall reported as 0.4mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 54%. Mean day temperature was 25.1°C while night temperature recorded as 9.9°C with 57.2hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *north westerly*.

2.7 Lahore

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 57%. Mean day temperature was 26.1°C while night temperature recorded as 12.8°C with 73.3hours bright sunshine duration. Wind speed recorded as 1.9km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 56%. Mean day temperature was 26.3°C while night temperature recorded as 11.9°C with 57.7hours bright sunshine duration. Wind speed recorded 0.7km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 48%. Mean day temperature was 26.2°C while night temperature recorded as 11.5°C with 63.3hours bright sunshine duration. Wind speed recorded 3.3km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade however weather remained cloudy for 07days. Average relative humidity recorded as 50%. Mean day temperature was 28.0°C while night temperature recorded as 10.0°C with 74.4hours bright sunshine duration. Wind speed recorded 3.6km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 51%. Mean day temperature was 28.1°C while night temperature recorded as 12.2°C with 87.6hours bright sunshine duration. Wind speed recorded 2.8km/hr with wind direction *north westerly*.

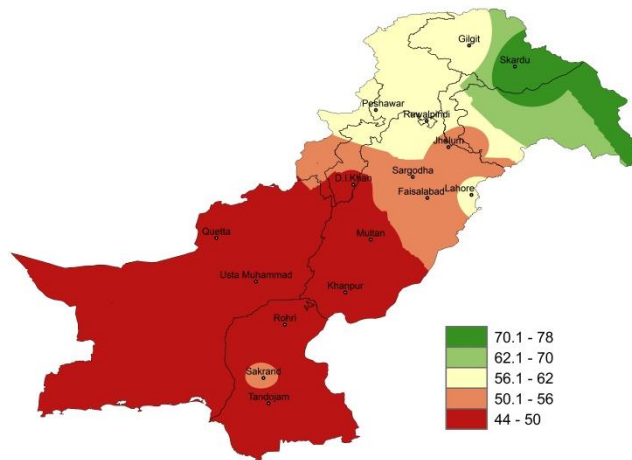


Figure.3: Relative Humidity in Percentage (%)

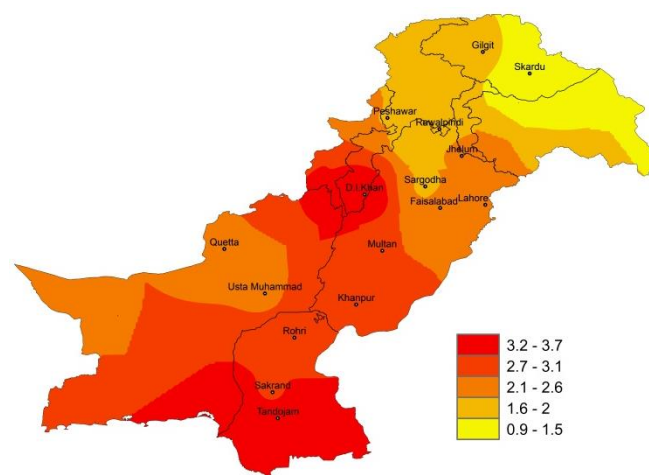


Figure.4: Reference Crop Evapotranspiration "ETo" in mm/day

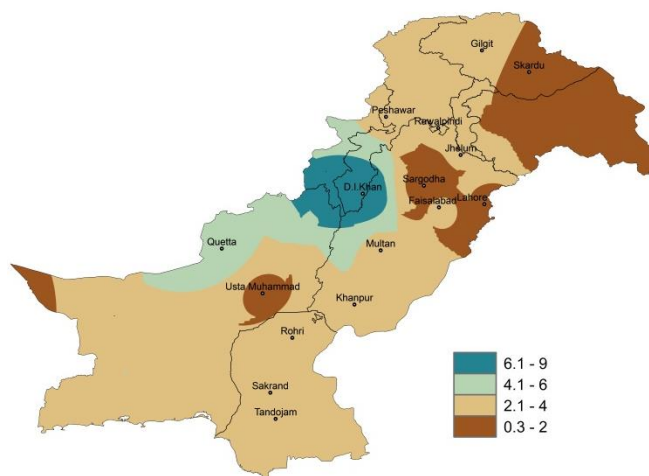


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 44%. Mean day temperature was 28.3°C while night temperature recorded as 13.5°C with 90.1hours bright sunshine duration. Wind speed recorded 2.7km/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 05days. Average relative humidity recorded as 49%. Mean day temperature was 26.1°C while night temperature recorded as 11.3°C with 54.5hours bright sunshine duration. Wind speed recorded 8.8km/hr with wind direction *north westerly*.

2.14 Peshawar

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 62%. Mean day temperature was 23.4°C while night temperature recorded as 9.4°C with 46.1hours bright sunshine duration. Wind speed recorded as 3.4km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 9.8mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 77%. Mean day temperature was 5.1°C while night temperature recorded as -7.5°C with 24.8hours bright sunshine duration. Wind speed recorded as 0.3km/hr with mean wind direction *north easterly*.

2.16 Gilgit

Rainfall reported as 1.2mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 56%. Mean day temperature was 13.7°C while night temperature recorded as 2.9°C with 27.2hours bright sunshine duration. Wind speed recorded as 3.8km/hr with mean wind direction *westerly*.

3 Ten Days Weather Advisory for Farmers **(21st to 28th February, 2017)**

3.1 Temperature Forecast

Night temperatures are expected to drop slightly (1-2°C) in most of the agricultural 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.

3.3 Rain Forecast

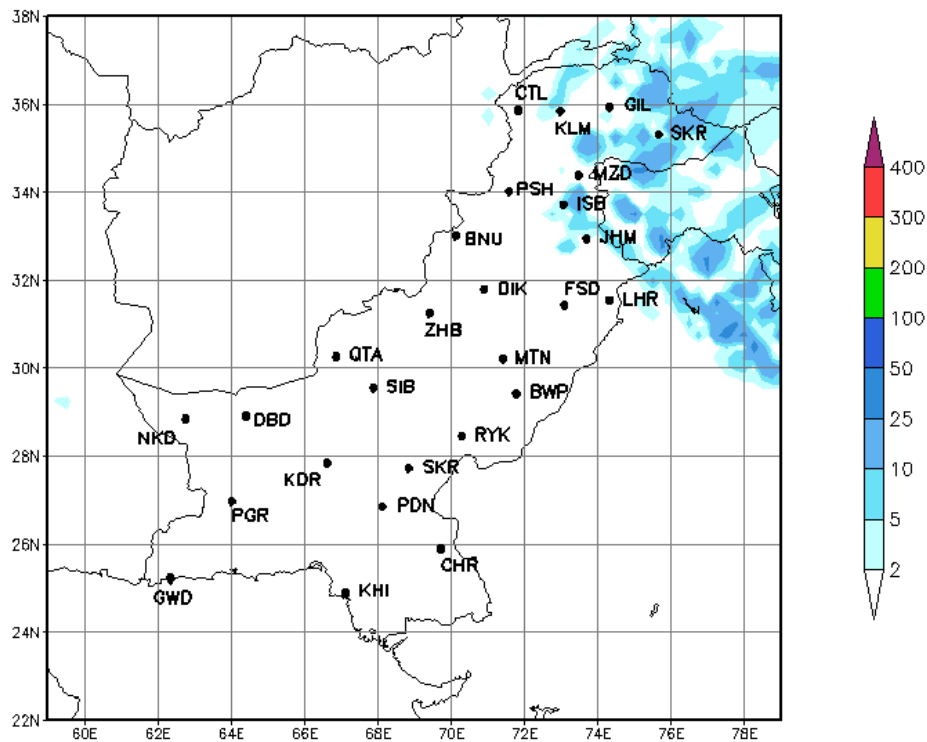
- ❖ **Punjab:** Mainly dry weather is expected in most parts of the province. However light to moderate rainfall is expected from 26th to 28th of the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly cold and cloudy weather is expected in most parts of the province during the decade.
- ❖ **Sindh:** Dry weather is expected in the agricultural plains of province during the decade.
- ❖ **Balochistan:** Mainly cold and cloudy weather is expected in most parts of the province however light to moderate rainfall is expected at scattered places of North Western Balochistan from 24th to 27th of the decade.
- ❖ **Gilgit Baltistan:** Mainly cold and cloudy weather is expected in most parts of G.B however light to moderate rain with snowfall is expected at scattered places during the current decade.
- ❖ **Kashmir:** Mainly cold and cloudy weather is expected in most parts of the Kashmir however light to moderate rain with snowfall is expected at Muzaffarabad and Rawalakot regions during the current decade.

❖ **3.4 Advisory for Farmers**

- ❖ Wheat crop is at tillering-wax maturity stages in different areas. Farmers are advised to stop irrigating the crops by keeping in view the expected rain in the agricultural plains of the country
- ❖ Farmers are advised to remove weeds from the fields, so that the present soil moisture may fully be utilized.
- ❖ Farmers in the lower half of the country especially those in central regions are advised to take up poultry rearing houses to maintain optimum room temperature and take care against the rapid changes in air temperature and relative humidity.
- ❖ 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.
- ❖ Due to low temperatures, farmers of particular areas in the northern areas of the country are advised to take precautionary measures for protection of their crops and livestock from the expected frost.

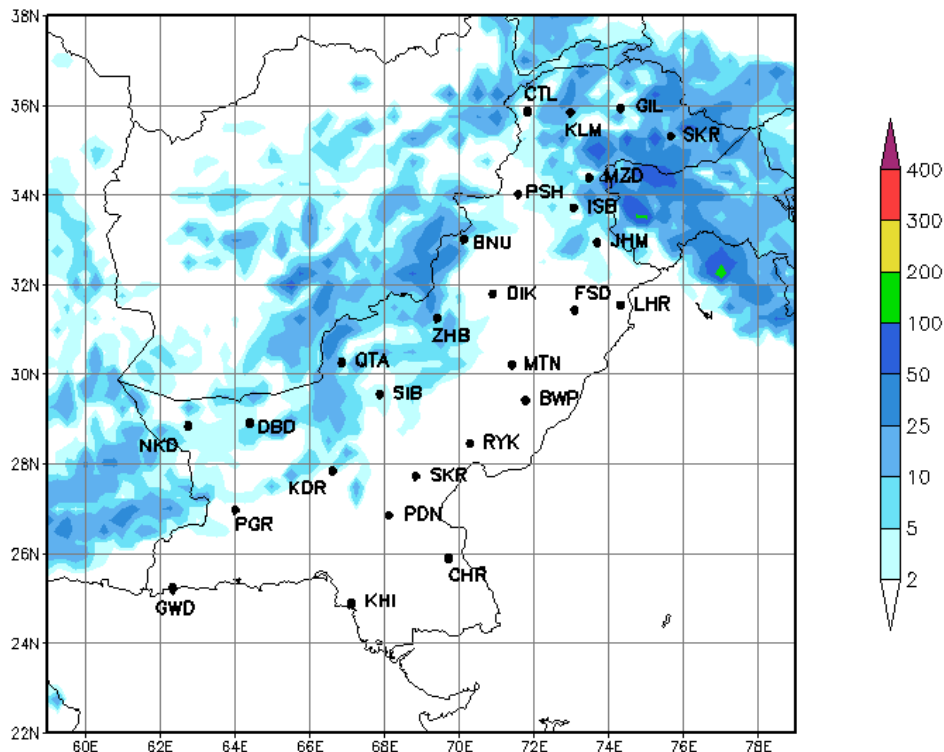
4.1 Precipitation Outlook (21st to 23rd February, 2017)

The forecast for the first three days (21st to 23rd) of the third decade of February 2017 shows that light rainfall (with snowfall over the mountainous regions) is expected at isolated places of northeastern Punjab, Upper KP, GB and Kashmir. However dry weather is expected in rest parts of the country.



4.2 Precipitation Outlook (24th to 28th February, 2017)

The outlook for the last five days (24th to 28th) of the third decade of February 2017 shows that light to moderate rainfall is expected in northern Punjab, KP, northeastern Balochistan, G.B and Kashmir while dry weather may prevail in rest 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)