

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light rainfall reported from few parts of the Punjab, K.P and Kashmir, however dry weather was reported from rest of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 10.0 mm at Malam Jabba during the last decade.
- ❖ Highest maximum temperature recorded as 44.0°C at Turbat during the last decade.
- ❖ Mainly dry weather is expected in most parts of the country, however light rainfall is expected at isolated places of KP and G.B during the current decade.
- ❖ 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.

**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*

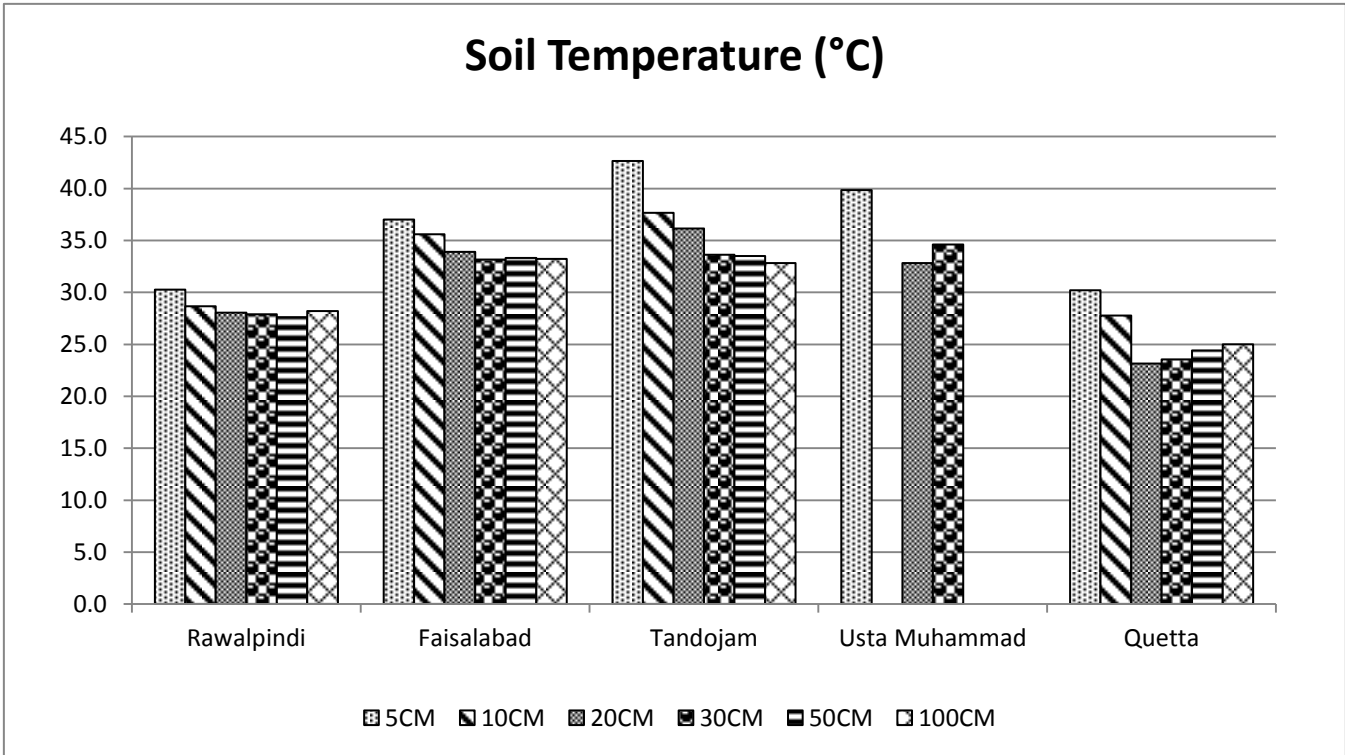
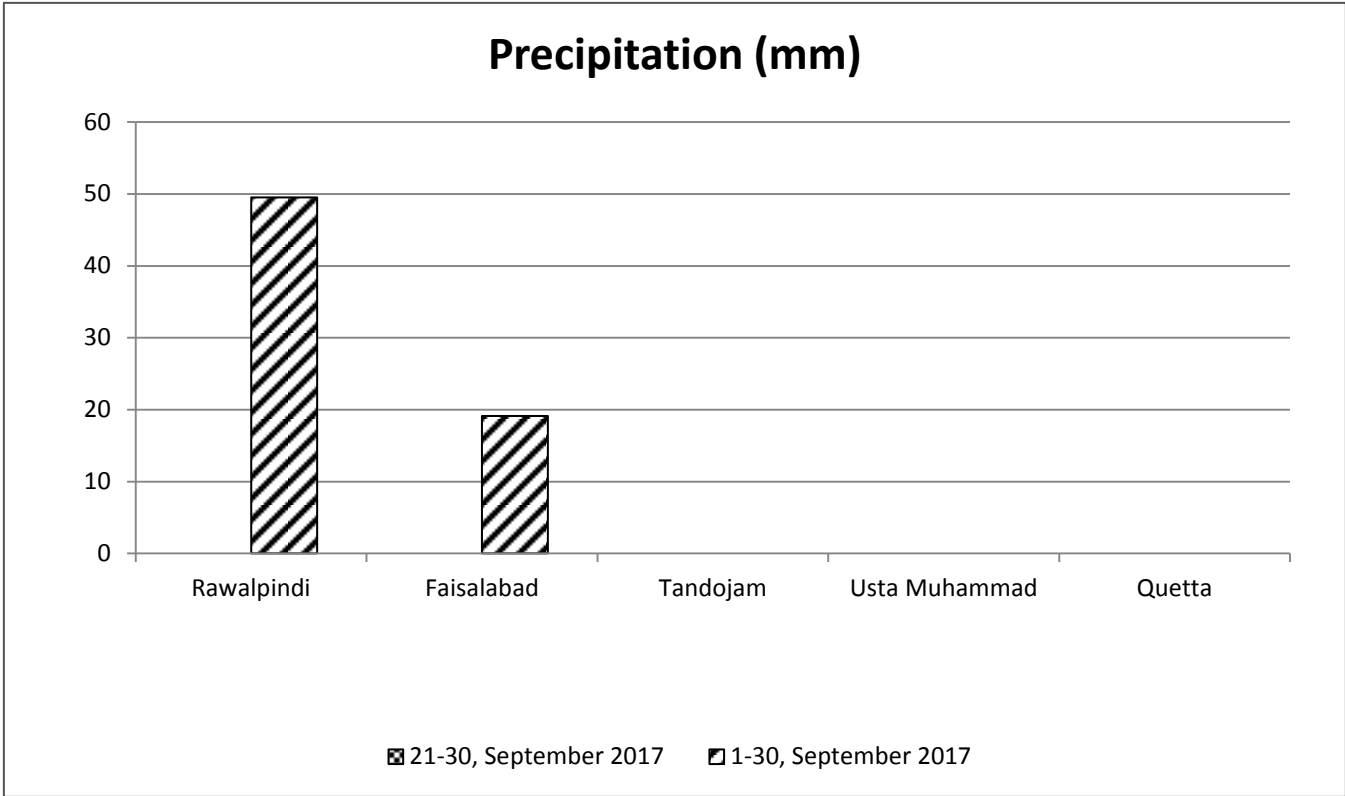
Phone: [+92-51-9250592](tel:+92-51-9250592) Email: info@namc.pmd.gov.pk

Meteorological Conditions during 3rd Decade of September, 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	1.9	0.0	-1.9	2.3	2.2	28.3	30.3	28.7	28.1	27.9	27.6	28.2	59	89.7	0.9	3.5
2	Faisalabad	2.1	0.0	-2.1	2.1	0.4	30.0	37.0	35.6	33.9	33.2	33.3	33.2	52	95.0	2.2	4.3
3	Jhelum	0.9	0.0	-0.9	-2.2	1.6	28.2	33.5	32.1	30.4	29.3	29.7	***	64	76.9	3.1	3.8
4	Lahore	1.1	8.8	7.7	0.9	-0.8	29.6	31.8	31.5	30.1	29.6	***	29.9	64	64.6	0.8	3.3
5	Sargodha	0.9	0.0	-0.9	1.1	1.1	30.7	35.8	34.0	31.1	30.5	***	29.7	58	85.6	2.4	4.2
6	Multan	0.1	0.0	-0.1	1.1	1.2	31.5	***	***	***	***	***	***	45	94.4	5.9	5.6
7	Khanpur	0.0	0.0	0.0	1.2	-0.8	30.1	***	33.5	33.7	34.1	34.7	34.2	59	93.7	3.6	4.8
8	Tandojam	0.0	0.0	0.0	0.1	-1.1	29.4	42.7	37.7	36.2	33.6	33.5	32.8	62	97.3	9.1	6.0
9	Sakrand ☆	0.0	0.0	0.0	0.4	0.2	30.1	41.0	***	***	***	***	35.7	58	115.6	10.0	6.8
11	Rohri	0.0	0.0	0.0	1.1	0.6	32.6	***	***	***	***	***	***	47	10.4	0.8	4.3
12	D.I Khan	0.7	0.0	-0.7	2.5	0.9	30.8	31.8	32.1	31.5	31.9	21.4	31.6	59	101.5	7.5	5.8
13	Peshawar	1.1	0.0	-1.1	2.0	0.2	28.6	33.6	32.8	30.0	29.4	29.3	29.3	56	69.6	1.1	3.3
14	Usta .M	0.0	0.0	0.0	-1.6	-0.9	31.2	39.9	***	32.8	34.6	***	***	56	***	2.1	4.2
15	Quetta	0.0	0.0	0.0	-0.4	-0.5	19.0	30.2	27.8	23.2	23.6	24.4	25.0	19	107.1	4.3	4.5
16	Skardu	0.1	0.0	-0.1	3.5	0.3	17.8	***	***	***	***	***	***	44	65.3	0.6	2.5
17	Gilgit	0.2	0.0	-0.2	2.3	3.5	22.0	***	***	***	***	***	***	43	78.3	1.3	3.0

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 September, 2017



Past Weather (21st to 30th September, 2017)

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

1.1 Punjab

Light rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Lahore, Gujranwala & Murree. Decadal maximum & minimum departure both raised above normal by 0.9°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 85.7 hrs, 2.7 km/hr and 4.2 mm/day respectively.

1.1 Sindh

Dry weather reported from the agricultural plains of Sindh. Decadal maximum raised above normal by 0.5°C & minimum temperature dropped below normal by 0.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 74.4 hrs, 6.6 km/hr and 5.7 mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

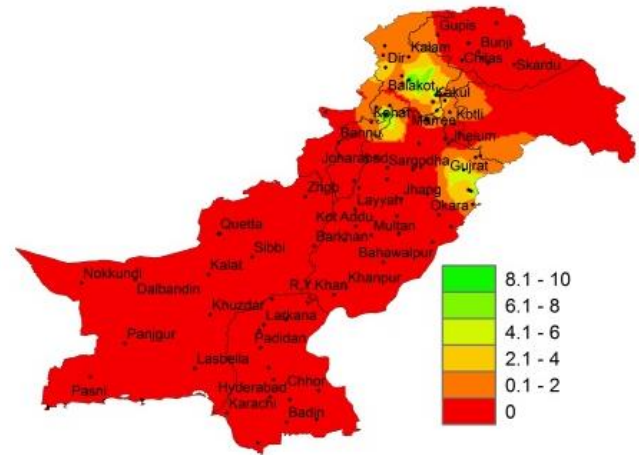
Light rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Malam Jabba, Cherat & Balakot. Decadal maximum & minimum departure both raised above normal by 2.3°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 85.6 hrs, 4.3 km/hr and 4.6 mm/day respectively.

1.3 Balochistan

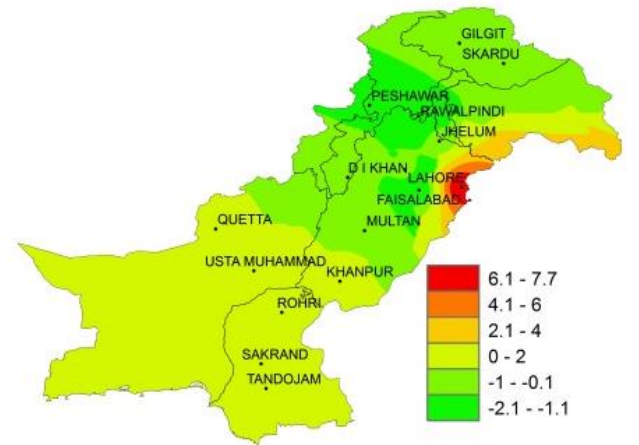
Dry weather reported from agricultural plains of Balochistan. Decadal maximum & minimum departure both dropped below normal by 1.0°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 38%, 107.1 hrs, 3.2 km/hr and 4.4 mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

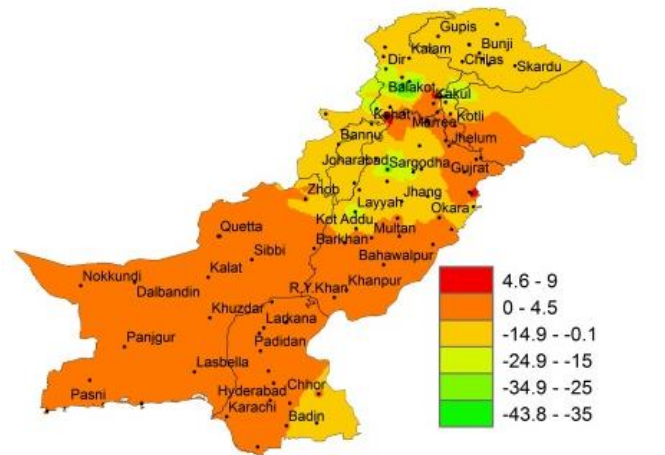
Light rainfall reported from one place of Kashmir i.e. Garhi Dopatta. Decadal maximum & minimum temperature both raised above normal by 2.9°C & 1.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 44%, 71.8 hrs, 1.0 km/hr and 2.8 mm/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 September, 2017)

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

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 59%. Mean day temperature was 35.2°C while night temperature recorded as 21.4°C with 89.7hours bright sunshine duration. Wind speed recorded as 0.9km/hr with mean wind direction *variable*.

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

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 52%. Mean day temperature was 37.5°C while night temperature recorded as 22.6°C with 95.0hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *south easterly*.

Cotton: *Very good condition, maturity stage.*

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

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 62%. Mean day temperature was 36.5°C while night temperature recorded as 22.2°C with 97.3 hours bright sunshine duration. Wind speed recorded as 9.1km/h with mean wind direction *south westerly*.

Cotton HH-906: *Good condition, boll opening stage.*

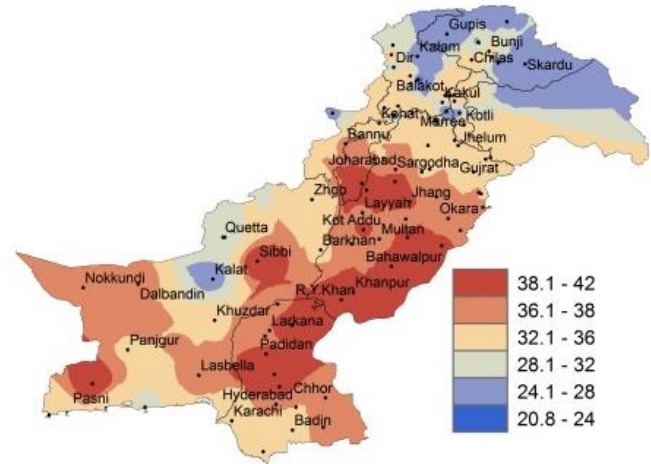
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained cloudy for 01 day. Average relative humidity recorded as 56%. Mean day temperature was 37.8°C while night temperature recorded as 24.6°C. Wind speed recorded as 2.1km/h with mean wind direction *south easterly*.

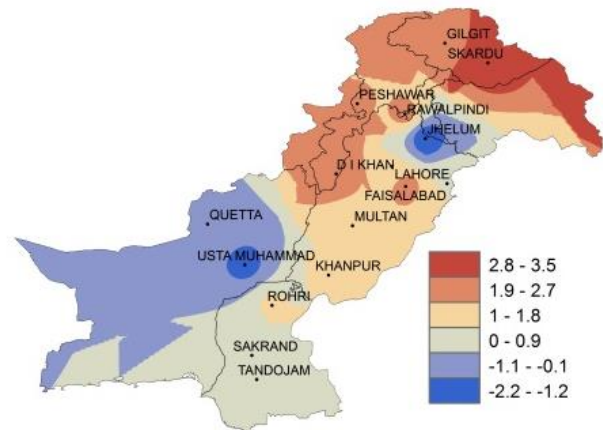
Rice: *Good condition, tillering stage.*

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

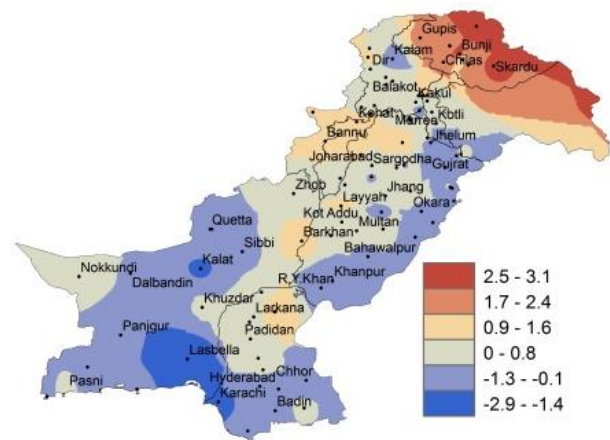
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 19%. Mean day temperature was 29.2°C while night temperature recorded as 8.8°C with 107.1hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *north westerly*.



I. **Actual max-temp**



II. **Departure of max-temp from Normal**



III. **Departure of max-temp from Previous Decade**

Figure.2: Maximum Temperature distribution during previous decade (°C)

2(b) Past Weather for Sub-Regional Agricultural Plains (21st to 30th September, 2017)

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 64%. Mean day temperature was 32.4°C while night temperature recorded as 23.9°C with 76.9hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *south westerly*.

2.7 Lahore

Rainfall reported as 8.8mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 64%. Mean day temperature was 35.3°C while night temperature recorded as 23.8°C with 64.6hours bright sunshine duration. Wind speed recorded as 0.8km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 58%. Mean day temperature was 36.6°C while night temperature recorded as 24.7°C with 85.6hours bright sunshine duration. Wind speed recorded 2.4km/hr with mean wind direction *south easterly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 45%. Mean day temperature was 37.6°C while night temperature recorded as 26.4°C with 94.4hours bright sunshine duration. Wind speed recorded 5.9km/hr with mean wind direction *south westerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 01 day. Average relative humidity recorded as 59%. Mean day temperature was 37.8°C while night temperature recorded as 22.4°C with 93.7hours bright sunshine duration. Wind speed recorded 3.6km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 58%. Mean day temperature was 37.4°C while night temperature recorded as 22.7°C with 115.6hours bright sunshine duration. Wind speed recorded 10.0km/hr with wind direction *southerly*.

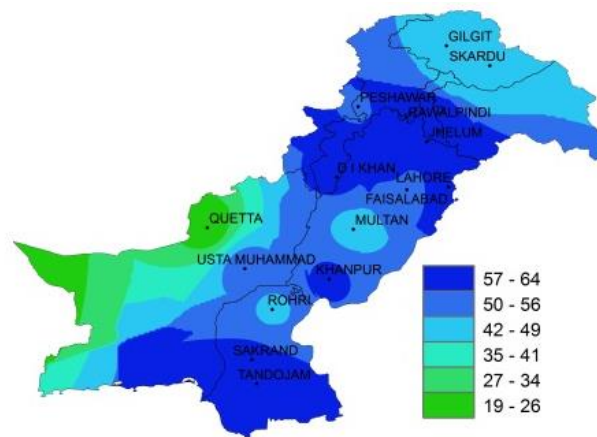


Figure.3: Relative Humidity in Percentage (%)

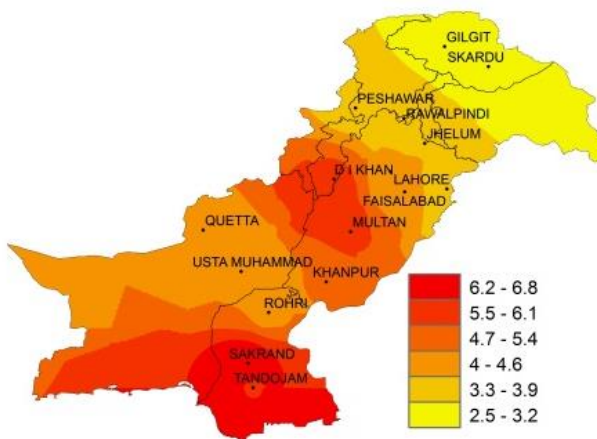


Figure.4: Reference Crop Evapotranspiration ETo(mm/day)

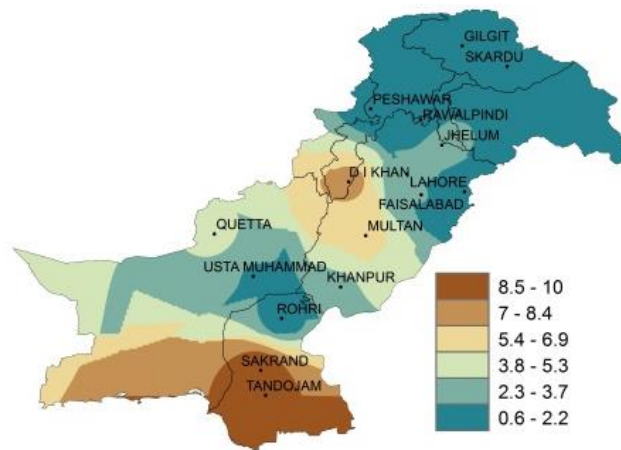


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 47%. Mean day temperature was 39.0°C while night temperature recorded as 26.1°C with 104hours bright sunshine duration. Wind speed recorded 0.8km/hr with wind direction *south easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 59%. Mean day temperature was 38.4°C while night temperature recorded as 23.1°C with 101.5hours bright unshine duration. Wind speed recorded as km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Dry weather reported during the decade; however weather remained cloudy for 0days. Average relative humidity recorded as 56%. Mean day temperature was 35.7°C while night temperature recorded as 21.5°C with 69.6hours bright sunshine duration. Wind speed recorded as 1.1km/hr with mean wind direction *north westerly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 44%. Mean day temperature was 27.2°C while night temperature recorded as 8.3°C with 65.3hours bright sunshine duration. Wind speed recorded as 0.6km/hr with mean wind direction *easterly*.

2.16 Gilgit

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 43%. Mean day temperature was 31.8°C while night temperature recorded as 12.1°C with 78.3hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *westerly*.

Ten Days Weather Advisory for Farmers
(2nd to 10th October, 2017)

3.1 Temperature Forecast

Day temperatures are expected slightly normal in most parts of the country, however night temperature are expected below normal in most of the agricultural 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

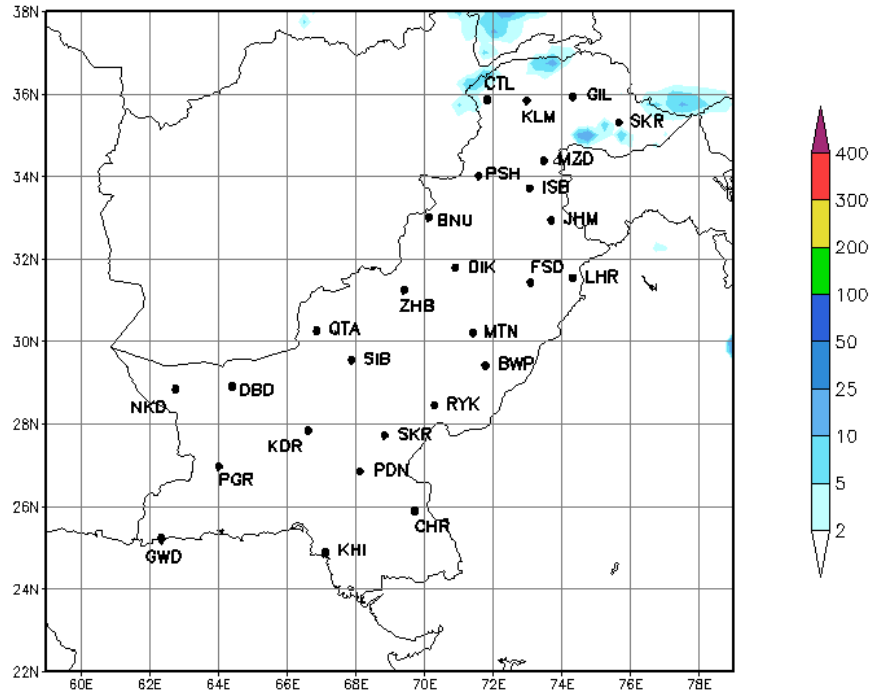
- ❖ **Punjab:** Dry weather is expected in the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light rainfall is expected at scattered places in upper parts of the province during the decade.
- ❖ **Sindh:** Dry weather is expected in the province during the current decade.
- ❖ **Balochistan:** Dry weather is expected in the province during the current decade.
- ❖ **Gilgit Baltistan:** Light rainfall is expected at scattered places of G.B during the current decade.
- ❖ **Kashmir:** Dry weather is expected in Kashmir during the current decade.

3.4 Advisory for Farmers

- ❖ 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.

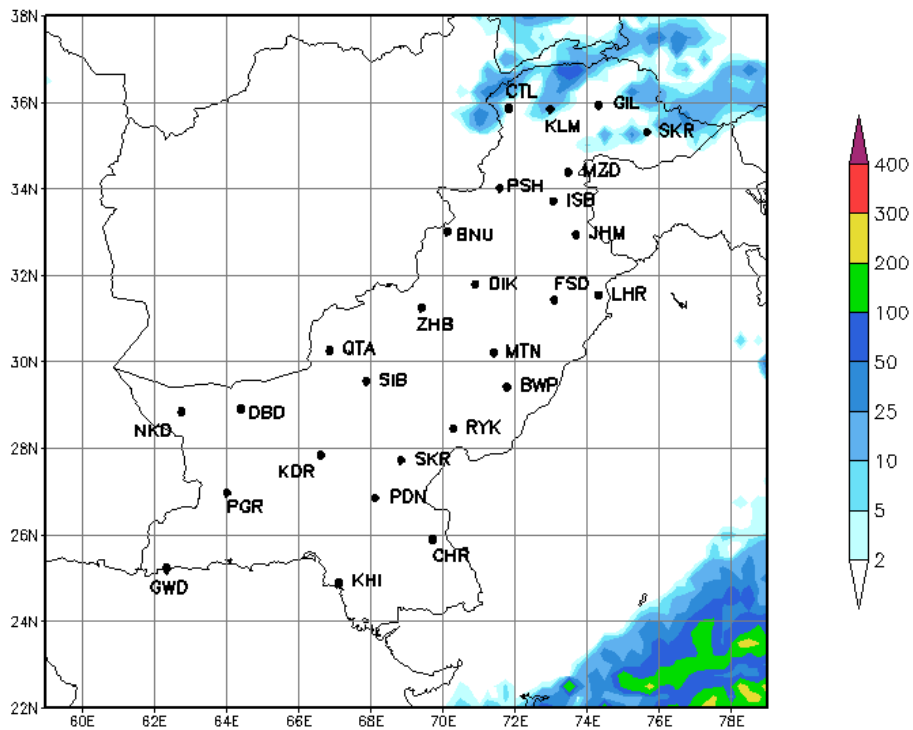
4.1 Precipitation Outlook (2nd to 4th October, 2017)

The forecast for the next three days (2nd to 4th) of the first decade of October 2017 shows that mainly dry weather may prevail in most parts of the country however light rainfall is expected at scattered places of Upper KP and G.B.



4.2 Precipitation Outlook (5th to 10th October, 2017)

The outlook for the last six days (5th to 10th) of the first decade of October 2017 shows that light rainfall is expected at particular places of the upper KP and G.B. However, 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)