

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Moderate to heavy rainfall reported from most of the agricultural plains of Punjab, K.P, G.B and Kashmir; however light rainfall reported from few places of Balochistan and Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 135.31mm at Gujranwala during the last decade.
- ❖ Highest maximum temperature recorded as 44.5°C at Chilas during the last decade.
- ❖ Light to moderate rainfall is expected mainly in upper half of the country during the current decade.
- ❖ Farmers of rainfed areas of upper half may complete sowing of Millet/Sorghum etc.
- ❖ After the recent rainfall spell in the particular areas, measures may be taken to flush out the extra water from the fields of Cotton crops and vegetables.
- ❖ Due to higher temperature Pinkboll worm attack is observed on Cotton crop, so farmers are advised to take adoptive measures especially the use of PB ropes in consultancy with plant protection department.

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

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

Editor-in-Chief: *Mrs. Asma Jawad Hashmi, Acting Director*

Editor: *Ms. Khalida Noureen, Meteorologist*

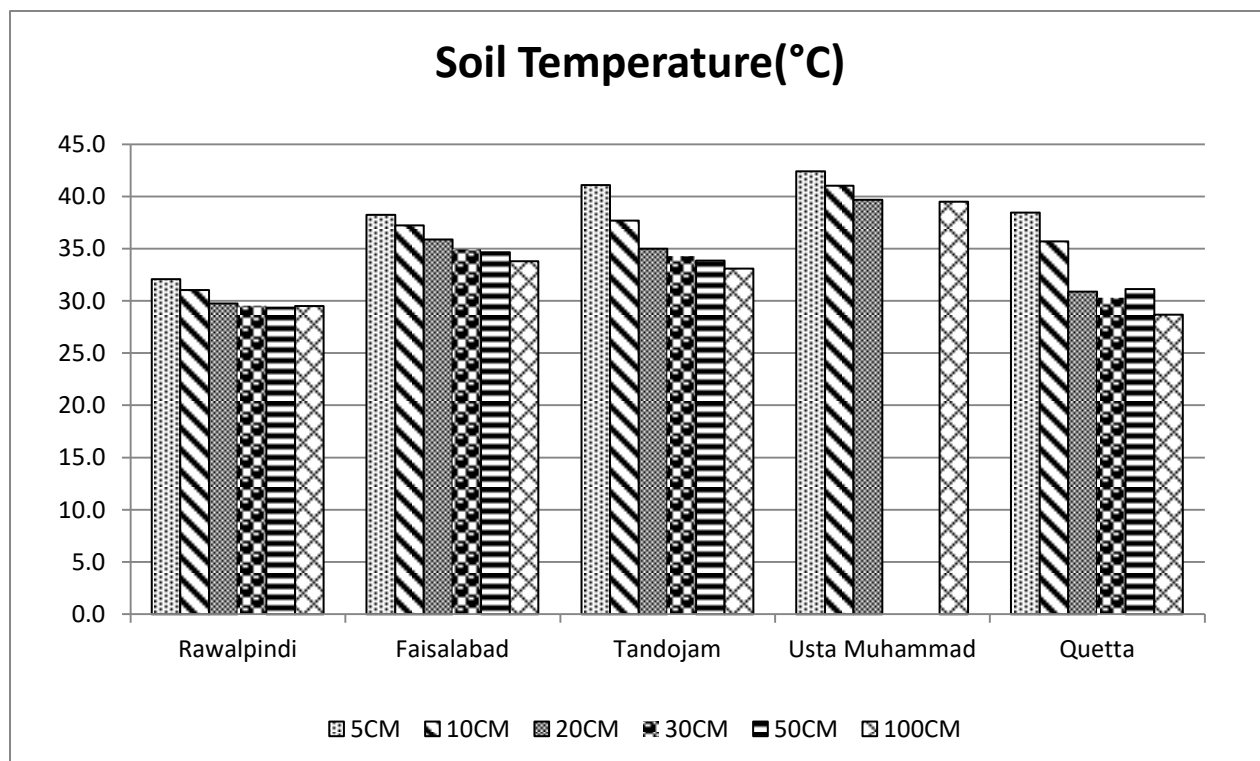
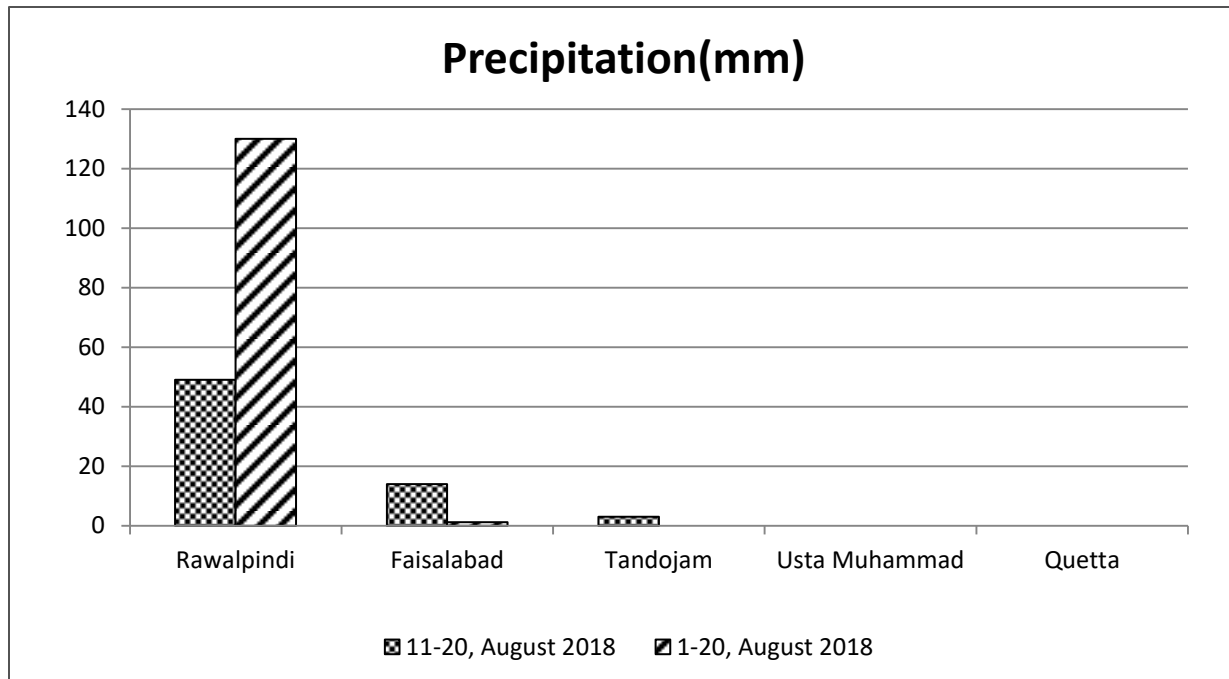
Phone: [+92-51-9250592](tel:+92-51-9250592) Email: info@namc.pmd.gov.pk

Meteorological Conditions during 2nd Decade of August, 2018

Sr. No.	Station	Precipitation (mm)			Air Temperature (°C)			Soil Temperatures (°C)						R.H (%)	Sunshine Duration(hours)	Wind Speed (km/hr)	ET _o (mm/day)
		Normal	Actual	Dep	Tmax Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	10.5	49.0	38.5	1.4	0.7	29.1	32.1	31.1	29.8	29.6	29.4	29.5	75	62.8	1.9	2.0
2	Faisalabad	4.1	14.0	9.9	1.3	1.9	33.1	38.3	37.3	35.9	35.0	34.7	33.8	63	73.0	4.6	3.3
3	Jhelum	7.3	96.0	88.7	2.1	0.9	31.2	34.6	33.3	32.2	31.3	31.6	***	73	2.8	2.8	1.6
4	Lahore	4.0	18.8	14.8	0.8	-0.6	31.6	32.8	32.8	31.9	31.2	***	29.1	71	56.5	1.7	2.2
5	Sargodha	4.0	0.0	-4.0	-0.6	1.5	32.6	39.0	37.1	33.7	33.4	***	31.1	74	60.8	6.1	3.0
6	Multan	0.8	25.0	24.2	-0.1	0.6	33.2	***	***	***	***	***	***	60	65.6	7.5	4.0
7	Khanpur	1.0	22.6	21.6	1.4	0.6	33.6	***	37.2	37.2	37.6	38.0	36.6	63	63.6	4.9	3.5
8	Tandojam	1.5	3.0	1.5	0.9	-0.9	30.2	41.1	37.7	35.0	34.3	33.9	33.1	68	42.7	13.3	4.5
9	Sakrand☆	2.0	2.0	0.0	1.9	2.2	33.0	41.0	***	***	***	***	36.3	50	76.1	6.9	4.6
11	Rohri	0.4	0.0	-0.4	1.3	-1.1	33.6	***	***	***	***	***	***	55	78.2	2.8	3.3
12	D.I Khan	1.9	0.0	-1.9	2.4	2.4	34.2	39.2	37.7	36.3	36.0	25.1	***	62	69.6	11.2	4.9
13	Peshawar	1.4	7.6	6.2	-0.2	-0.4	30.7	32.8	33.0	31.5	31.0	30.7	30.7	73	47.3	2.7	2.0
14	Usta .M	1.2	0.0	-1.2	0.6	1.7	33.8	42.4	41.1	39.7	***	***	39.5	58	***	2.1	2.8
15	Quetta	0.0	0.0	0.0	0.5	2.5	28.5	38.5	35.7	30.9	30.3	31.2	28.7	23	82.0	5.8	4.1
16	Skardu	0.5	8.8	8.3	1.3	-0.2	23.6	***	***	***	***	***	***	51	54.4	1.4	1.4
17	Gilgit	0.5	0.5	0.0	3.5	2.5	27.8	***	***	***	***	***	***	45	87.0	1.8	1.8

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. **ET_o** 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 August, 2018



Past Weather (11th to 20th August, 2018)

Moderate to heavy rainfall reported from most of the agricultural plains of Punjab, K.P, G.B and Kashmir; however light rainfall reported from few places of Balochistan and Sindh during the last decade.

1.1 Punjab

Moderate to heavy rainfall reported most of the agricultural plains of the Punjab. Chief amount of rainfall is received at Islamabad, Gujranwala & Sialkot. Decadal maximum & minimum both raised above normal by 0.9°C & 0.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 68%, 55.0hrs, 4.2km/hr and 2.8mm/day respectively.

1.2 Sindh

Light to moderate rainfall reported few of the agricultural plains of the Sindh. Chief amount of rainfall is received at Mirpurkhas, Hyderabad & Mithi. Decadal maximum & minimum both raised above normal by 1.4°C & 1.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 65.7hrs, 7.7km/hr and 4.1mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

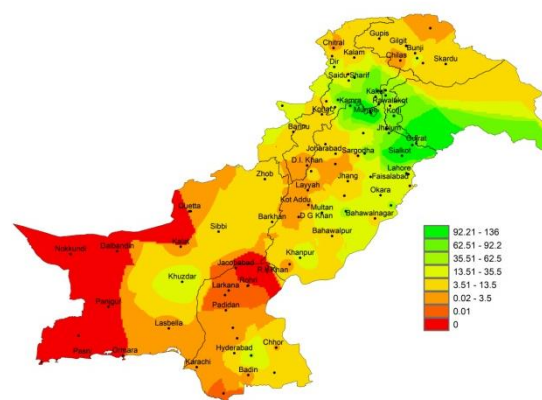
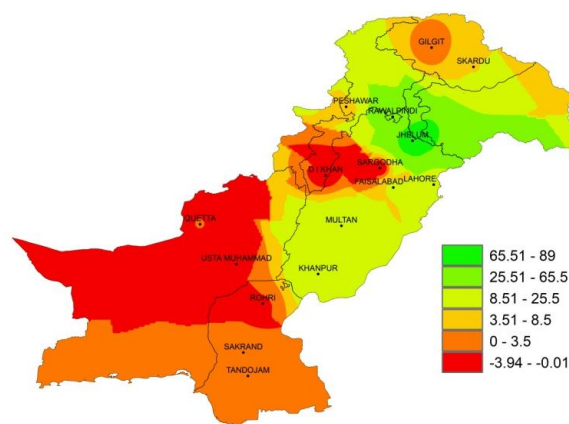
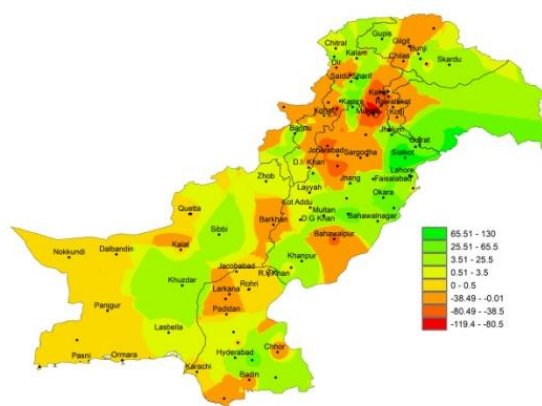
Moderate to heavy rainfall reported from most of the agricultural plains of KP. Chief amount of rainfall is received at Balakot, Risalpur & Malam Jabba. Decadal maximum & minimum both raised above normal by 1.1°C & 1.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 68%, 58.5hrs, 7.0km/hr and 3.5mm/day respectively.

1.4 Balochistan

Light rainfall reported from few place of Balochistan. Chief amount of rainfall is received at Khuzdar, Sibbi & Zhob. Decadal maximum & minimum both raised above normal by 0.5°C & 2.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 41%, 82.0hrs, 4.0km/hr and 3.5mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

Moderate to heavy rainfall reported from most of the agricultural plains of G.B and Kashmir. Chief amount of rainfall is received at Kotli, Garhi Dopatta & Muzaffarabad. Decadal maximum & minimum both raised above normal by 2.4°C & 1.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 70.7hrs, 1.6km/hr and 1.6mm/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 August, 2018)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 49.0mm during the decade; however weather remained cloudy for 9days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 33.9°C while night temperature recorded as 24.2°C with 62.8hours bright sunshine duration. Wind speed recorded as 1.9km/hr with mean wind direction *westerly*.

Maize: *Very good condition, emergence stage*

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 14.0mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 37.8°C while night temperature recorded as 26.5°C with 73.9hours bright sunshine duration. Wind speed recorded as 4.6km/hr with mean wind direction *south westerly*.

Cotton: *Very Good condition, flowering stage completed*

2.3 RAMC, Tandojam (Lower Sindh)

Rainfall reported as 3.0mm during the decade; Average relative humidity recorded as 68%. Mean day temperature was 35.9.0°C while night temperature recorded as 24.5°C with 62.4hours bright sunshine duration. Wind speed recorded as 13.3km/h with mean wind direction *south westerly*.

Cotton (CIM-602): *Good condition, boll opening stage*

2.4 RAMC, Usta Muhammad (Eastern Balochistan)

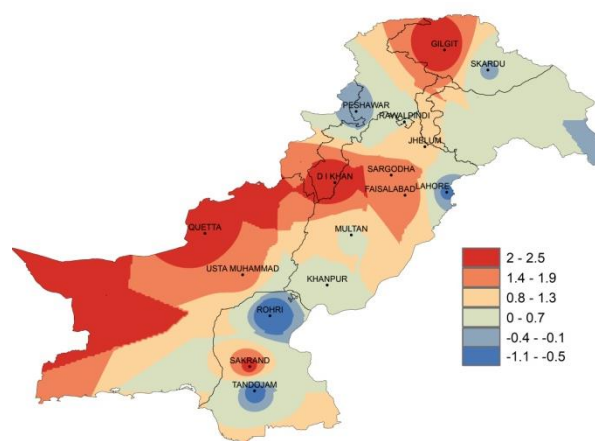
Dry weather reported during the decade during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 39.8°C while night temperature recorded as 27.8°C. Wind speed recorded as 2.1km/h with mean wind direction *south easterly*.

Rice: *Good condition, Tillering stage*

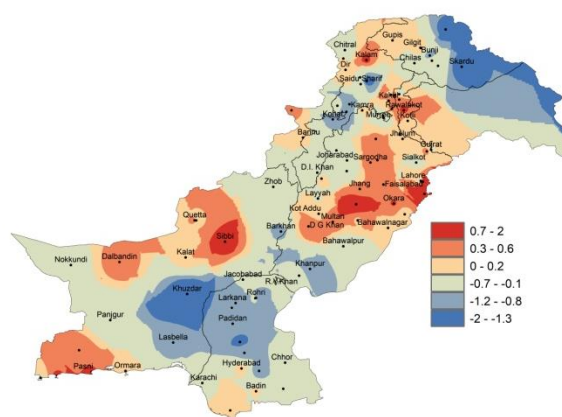
2.5 RAMC, Quetta (Northern Balochistan)

Dry weather reported during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 23%. Mean day temperature was 35.4°C while night temperature recorded as 21.6°C with 82.0hours bright sunshine duration. Wind speed recorded as 5.8km/hr with mean wind direction *North*.

I. Actual max-temp

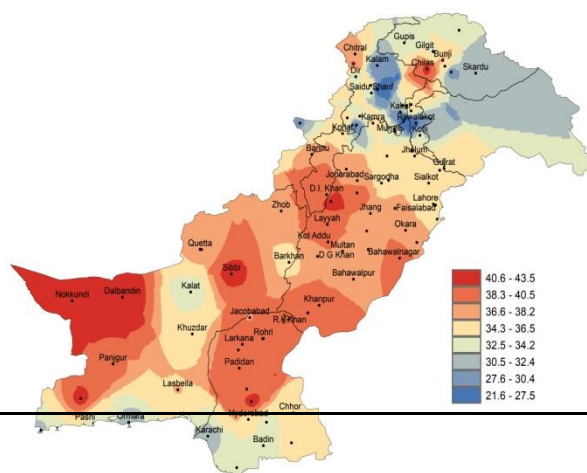


II. Departure of max-temp from Normal



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 (11th to 20th August, 2018)

2.6 Jhelum

Rainfall reported as 96.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 73%. Mean day temperature was 35.3°C while night temperature recorded as 27.0°C with 57.0hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 18.8mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 71%. Mean day temperature was 35.8°C while night temperature recorded as 27.4°C with 56.5hours bright sunshine duration. Wind speed recorded as 1.7km/hr with mean wind direction *north easterly*.

2.8 Sargodha

Rainfall reported as "Trace" (not measureable) during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 36.5°C while night temperature recorded as 28.6°C with 60.8hours bright sunshine duration. Wind speed recorded 3.3km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as 25.0mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 37.3°C while night temperature recorded as 29.0°C with 65.6hours bright sunshine duration. Wind speed recorded 7.5km/hr with mean wind direction *south westerly*.

2.10 Khanpur

Rainfall reported as 22.6mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 38.8°C while night temperature recorded as 28.3°C with 63.6hours bright sunshine duration. Wind speed recorded 4.9km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 38.7°C while night temperature recorded as 27.2°C with 76.1hours bright sunshine duration. Wind speed recorded 6.9km/hr with wind direction *southerly*.

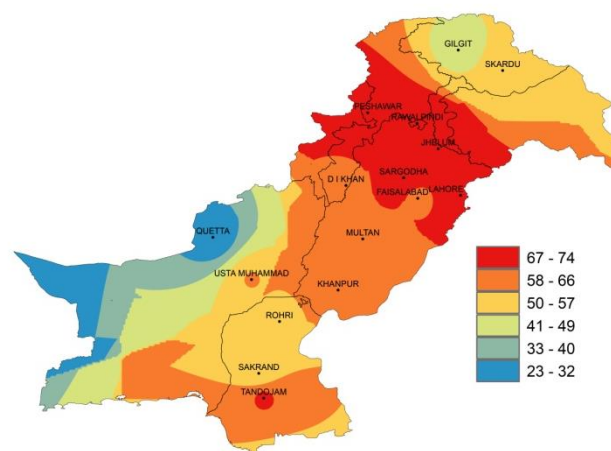


Figure.3: Relative Humidity in Percentage (%)

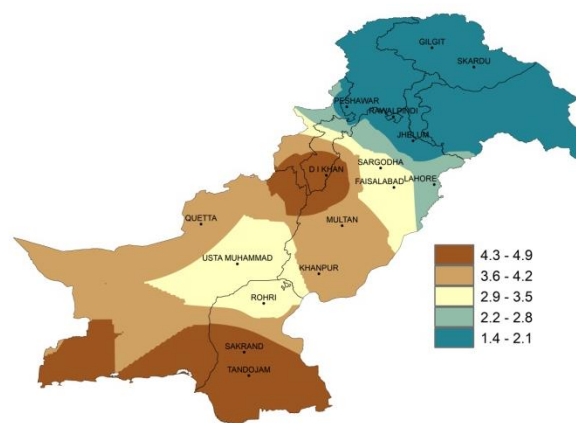


Figure.4:Reference Crop Evapotranspiration ETo (mm/day)

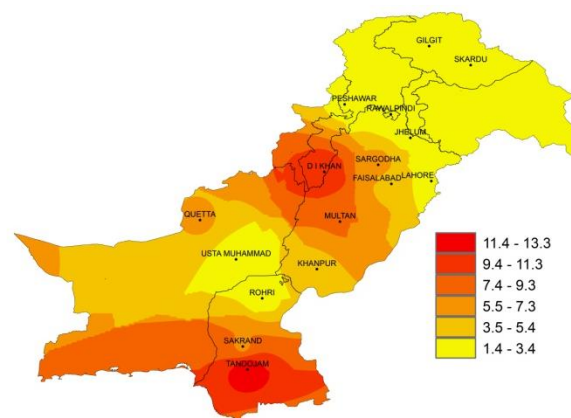


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 40.1°C while night temperature recorded as 27.1°C with 78.2hours bright sunshine duration. Wind speed recorded 2.8km/hr with wind direction *south easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 40.0°C while night temperature recorded as 28.4°C with 69.6hours bright sunshine duration. Wind speed recorded as 11.2km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as 7.6mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 73%. Mean day temperature was 35.5°C while night temperature recorded as 25.9°C with 47.3hours bright sunshine duration. Wind speed recorded as 2.7km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 8.8mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 31.9°C while night temperature recorded as 15.3°C with 54.4hours bright sunshine duration. Wind speed recorded as 1.4km/hr with mean wind direction *south-easterly*.

2.16 Gilgit

Rainfall reported as 0.5mm during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 45%. Mean day temperature was 36.8°C while night temperature recorded as 18.8°C with 87.0hours bright sunshine duration. Wind speed recorded as 1.8 km/hr with mean wind direction *north-easterly*.

Ten Days Weather Advisory for Farmers
(24th to 31st August, 2018)

3.1 Temperature Forecast

Both day and night temperatures are likely to be almost normal particularly in the lower half 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

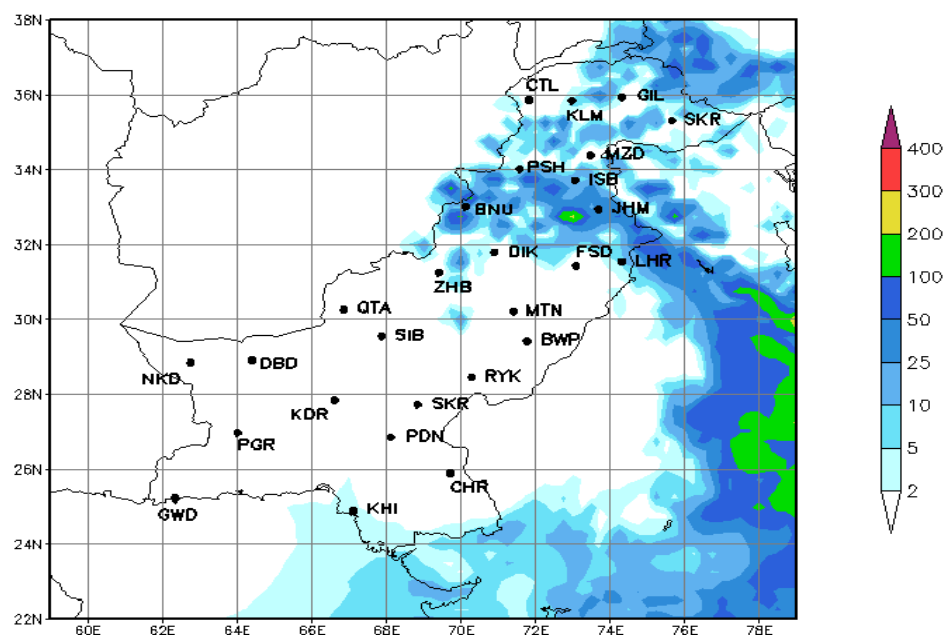
- ❖ **Punjab:** Hot and dry weather is expected in most of southern parts of the province however light to moderate rainfall is expected in northern half of the province during the decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rain-thunderstorm is expected at most places of the province during the decade.
- ❖ **Sindh:** Hot and dry weather is expected in most parts of the province however light rainfall is expected at coastal belt during the decade.
- ❖ **Balochistan:** Hot and dry weather is expected in most parts of the province however light to moderate rainfall is expected at isolated places in northern/southern parts during the decade.
- ❖ **Gilgit-Baltistan:** Light rain-thunderstorm with gusty winds 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

- ❖ Farmers of rainfed areas of upper half may complete sowing of Millet/Sorghum etc.
- ❖ After the recent rainfall spell in the particular areas, measures may be taken to flush out the extra water from the fields of Cotton crops and vegetables.
- ❖ Due to higher temperature Pinkboll worm attack is observed on Cotton crop, so farmers are advised to take adoptive measures especially the use of PB ropes in consultancy with plant protection department.

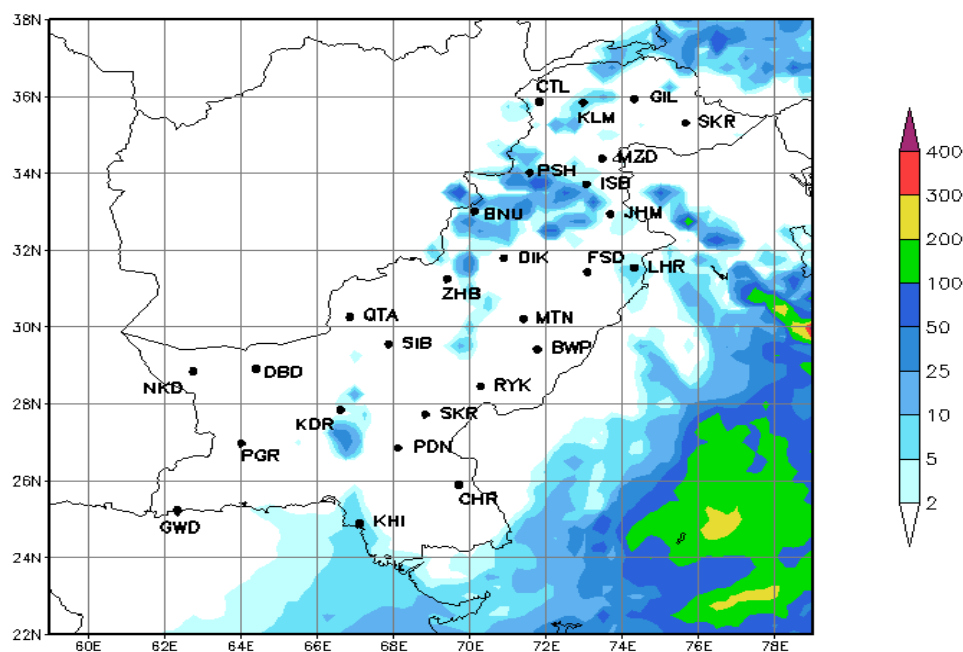
4.1 Precipitation Outlook (24th to 26th August, 2018)

The forecast for the next three days (24th to 26th) of the third decade of August, 2018 shows that mostly hot and dry weather is expected in most parts of the country. However, light to moderate rainfall is expected in upper half of the country.



4.2 Precipitation Outlook (27th to 31st August, 2018)

The outlook for the last five days (27th to 31st) of the second decade of August, 2018 shows that mostly hot and dry weather is expected in most parts of the country. While light rainfall is expected in particular areas of northern Punjab, KP, G.B, Kashmir coastal Sindh and Balochistan.



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)