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 to moderate rainfall reported from few places of Balochistan and light rainfall occurred at a single place in Sindh during the last decade
- Highest amount of rainfall recorded as 239.0 mm at Kamra during the last decade.
- Highest maximum temperature recorded as 47.0°C at Dalbandin & Nokkundi during the last decade.
- Moderate to heavy rainfall is expected in most parts of Punjab, KP, GB and Kashmir while, light to moderate rainfall is expected at scattered places of Baluchistan and Sindh during the current decade.
- Farmers of rainfed areas of upper half may complete sowing of Millet/Sorghum etc .
- After the recent rainfall spell, 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.

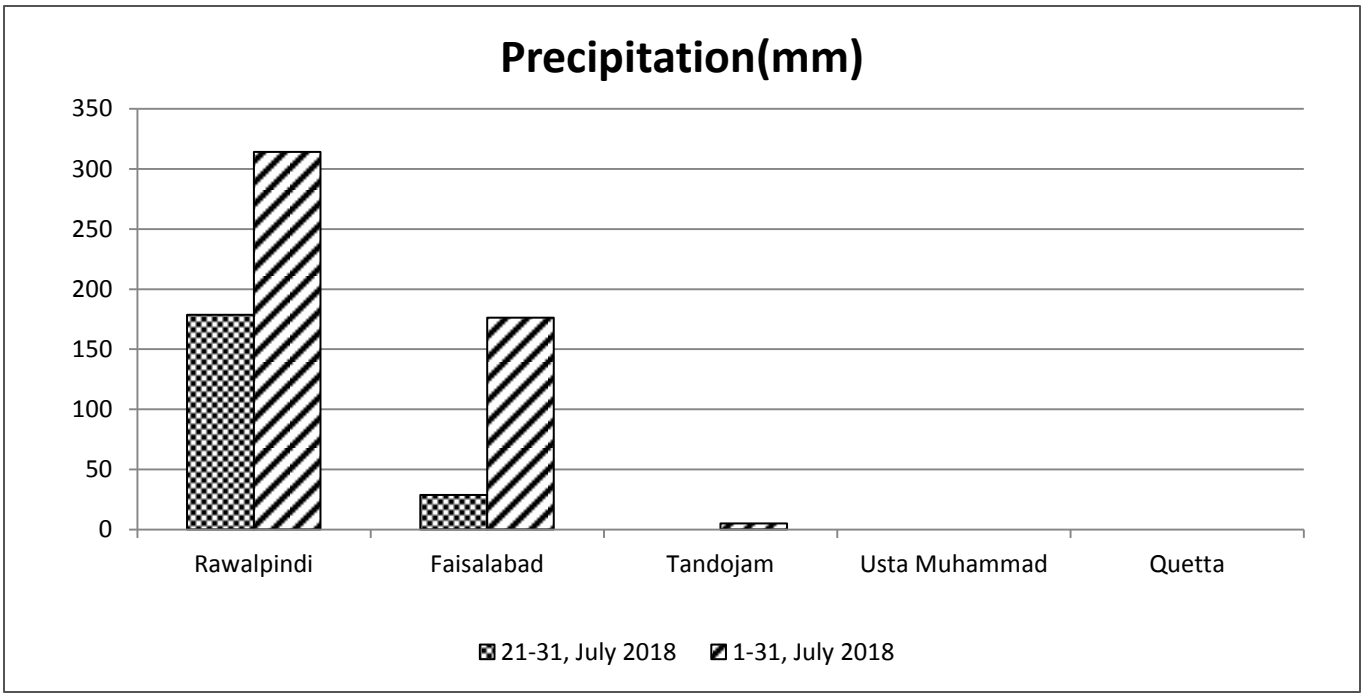
NATIONAL AGROMET CENTRE (NAMC)
PAKISTAN METEOROLOGICAL DEPARTMENT
SECTOR H-8/2, ISLAMABAD
Patron-in-Chief: *Dr. Ghulam Rasul, Director General*
Editor-in-Chief: *Mrs. Asma Jawad Hashmi, Acting Director*
Editor: *Ms. Khalida Noureen, Meteorologist*
Phone: +92-51-9250592 Email: info@namc.pmd.gov.pk

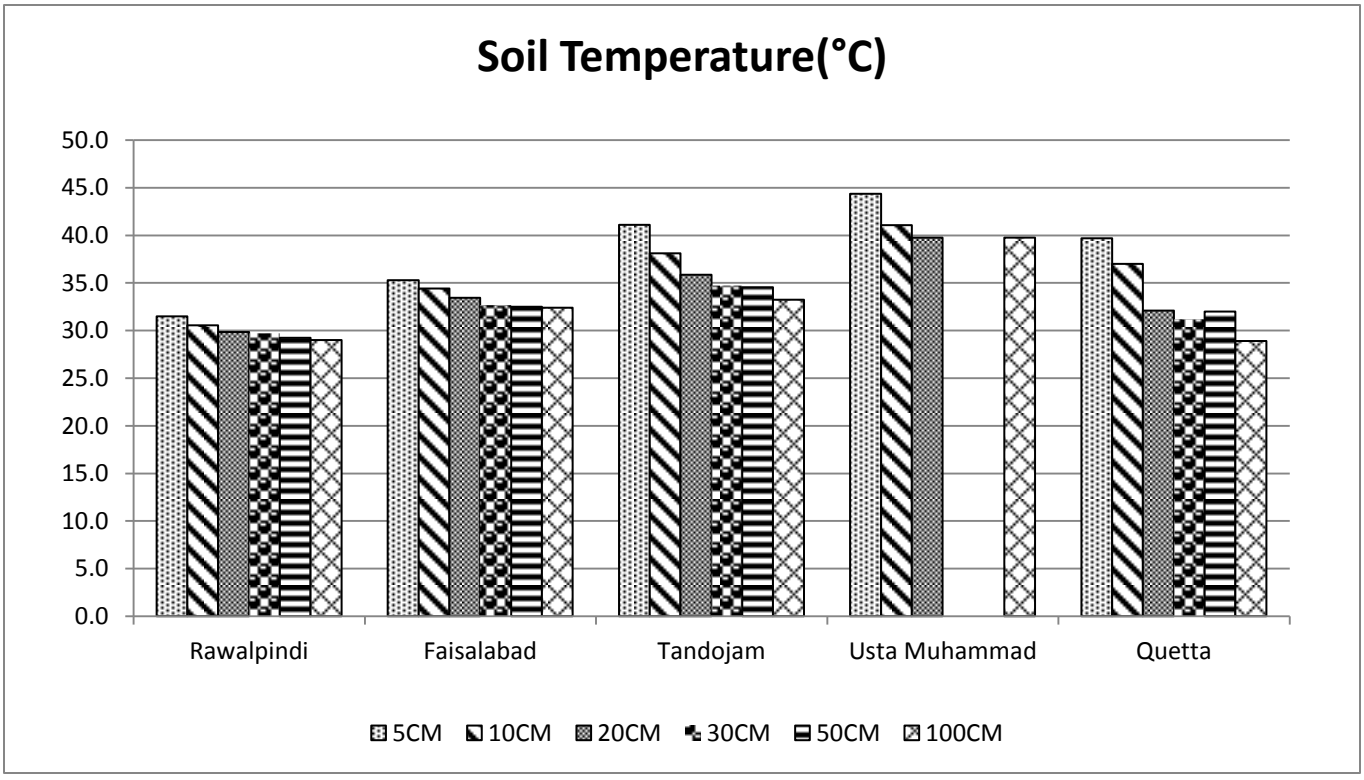
Meteorological Conditions during 3rd Decade of July, 2018

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	13.1	178.5	165.4	0.1	-0.1	28.9	31.5	30.6	29.9	29.7	29.3	29.0	72	68.1	4.5	4.8
2	Faisalabad	2.7	28.8	26.1	-0.5	-0.5	31.4	35.3	34.4	33.5	32.7	32.5	32.4	66	69.3	4.1	5.1
3	Jhelum	8.3	104.2	95.9	-0.2	0.3	30.7	34.4	33.2	32.2	31.5	31.9	***	74	65.8	4.2	4.8
4	Lahore	6.5	37.5	31.0	-0.4	-0.9	30.5	33.4	32.9	31.7	30.9	***	30.1	75	58.1	1.5	4.2
5	Sargodha	5.4	111.5	106.1	-2.2	-1.7	30.2	33.5	32.4	31.1	30.8	***	30.3	81	65.4	2.3	4.4
6	Multan	1.4	0.0	-1.4	0.1	1.5	34.2	***	***	***	***	***	***	55	38.9	8.9	6.0
7	Khanpur	2.0	0.0	-2.0	1.3	2.2	35.2	***	39.0	38.8	38.8	38.9	36.7	56	78.1	6.0	6.4
8	Tandojam	1.8	0.0	-1.8	1.1	-1.5	30.6	41.1	38.1	35.9	34.7	34.6	33.3	63	72.2	16.5	7.2
9	Sakrand☆	4.2	0.0	-4.2	2.1	1.8	34.1	44.6	***	***	***	***	36.2	50	105.1	8.3	7.8
11	Rohri	0.3	0.0	-0.3	1.5	-2.3	34.3	***	***	***	***	***	***	51	102.0	3.7	6.4
12	D.I Khan	3.0	15.0	12.0	0.2	0.4	32.4	37.8	36.3	35.1	34.7	24.2	***	66	60.2	13.0	6.4
13	Peshawar	4.4	76.0	71.6	-1.7	-2.4	29.3	33.8	33.7	31.4	30.7	30.3	30.4	73	68.1	2.0	4.5
14	Usta .M	0.5	0.0	-0.5	1.7	2.6	35.5	44.4	41.1	39.8	***	***	39.8	65	***	0.8	5.5
15	Quetta	0.0	0.0	0.0	-0.4	-0.4	28.1	39.7	37.0	32.1	31.2	32.0	28.9	31	97.0	5.7	6.4
16	Skardu	0.2	3.9	3.7	-3.0	-0.9	22.0	***	***	***	***	***	***	53	43.2	4.3	4.0
17	Gilgit	0.6	8.7	8.1	-4.6	2.3	25.3	***	***	***	***	***	***	52	51.0	4.7	4.5

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 July, 2018





Past Weather (21st to 31st July, 2018)

Moderate to heavy rainfall reported from most of the agricultural plains of Punjab, K.P, G.B and Kashmir; however light to moderate rainfall reported from few places of Balochistan and light rainfall occurred at a single place in 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 Kamra, Murree & Sialkot. Decadal maximum dropped below normal by 0.3°C & minimum raised above normal by 0.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 68%, 63.4hrs, 4.5km/hr and 5.1mm/day respectively.

1.2 Sindh

Light rainfall reported at one places of Sindh i.e. Karachi. Decadal maximum raised above normal by 1.6°C & minimum dropped below normal by 0.7°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 93.1hrs, 9.5km/hr and 7.1mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

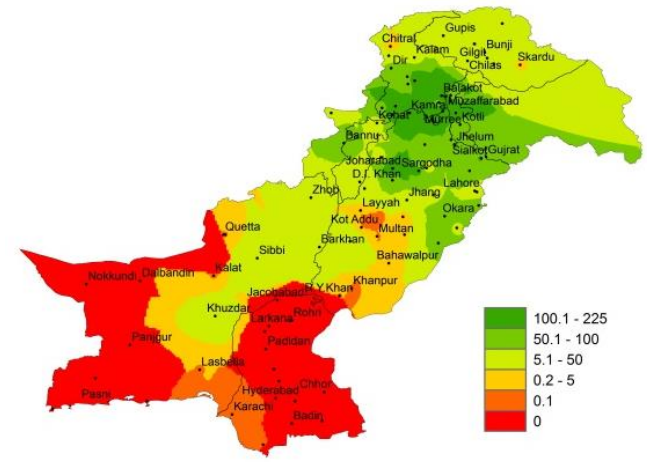
Moderate to heavy rainfall reported from most of the agricultural plains of KP. Chief amount of rainfall is received at Malam Jabba, Balakot & Cherat. Decadal maximum & minimum both dropped below normal by 0.8°C & 1.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 70%, 64.2hrs, 7.5km/hr and 5.5mm/day respectively.

1.4 Balochistan

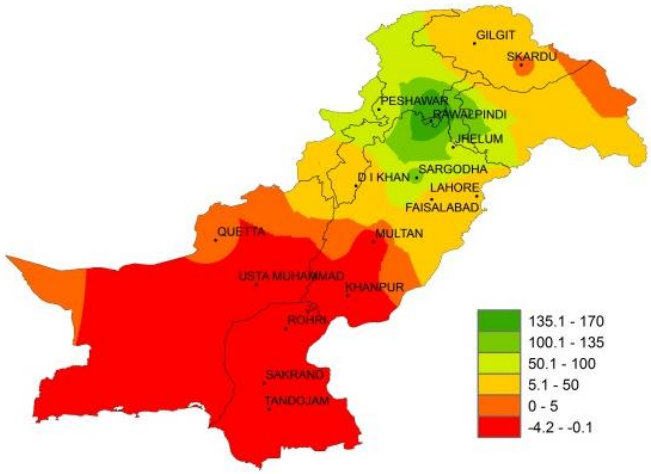
Light to moderate rainfall reported from few place of Balochistan. Chief amount of rainfall is received at Barkhan, Sibbi & Khuzdar. Decadal maximum & minimum both raised above normal by 0.7°C & 1.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 97.0hrs, 3.3km/hr and 6.0mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

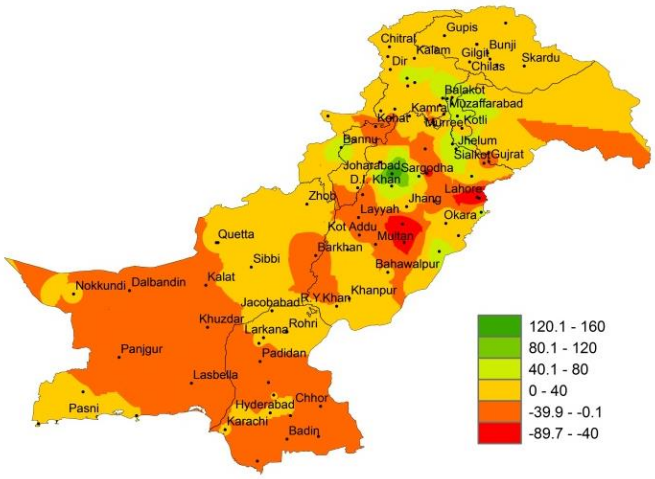
Moderate to heavy rainfall reported from most of the agricultural plains of G.B and Kashmir. Chief amount of rainfall is received at Muzaffarabad, Rawalakot & Garhi Dopatta. Decadal maximum dropped below normal by 3.8°C & minimum raised above normal by 0.7°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 53%, 47.1hrs, 4.5km/hr and 4.3mm/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 (21st to 31st July, 2018)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 178.5mm during the decade; however weather remained cloudy for 10day during the decade. Average relative humidity recorded as 72%. Mean day temperature was 34.5°C while night temperature recorded as 23.2°C with 68.1hours bright sunshine duration. Wind speed recorded as 4.5km/hr with mean wind direction *westerly.*

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 28.8mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 36.3°C while night temperature recorded as 26.4°C with 69.33hours bright sunshine duration. Wind speed recorded as 4.1km/hr with mean wind direction *south easterly*.
Cotton*: Very Good condition, flowering stage completed*

2.3 RAMC, Tandojam (Lower Sindh)

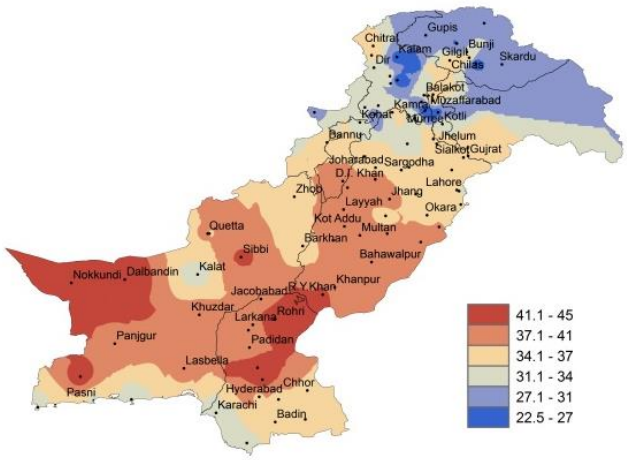
Dry weather reported during the decade; Average relative humidity recorded as 63%. Mean day temperature was 36.5°C while night temperature recorded as 24.7°C with 72.2hours bright sunshine duration. Wind speed recorded as 16.5km/h with mean wind direction *south westerly.*
Cotton (CIM-602)*: Good condition, boll opening stage*

2.4 RAMC, Usta Muhammad (Eastern Balochistan)

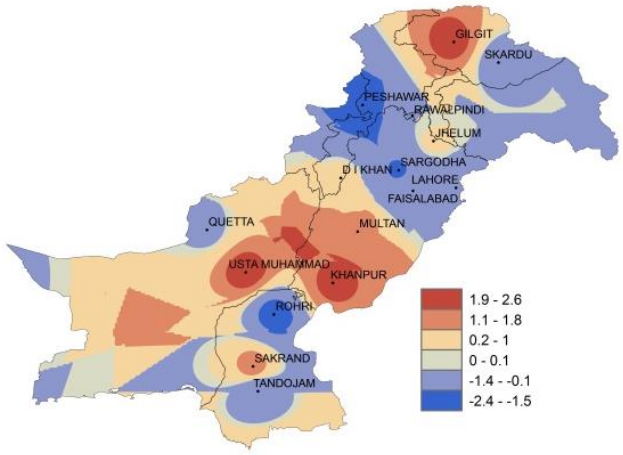
Dry weather reported during the decade during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 42.0°C while night temperature recorded as 28.9°C. Wind speed recorded as 0.8km/h with mean wind direction *south easterly.*
Rice*: Good condition, true leaf stage*

2.5 RAMC, Quetta (Northern Balochistan)

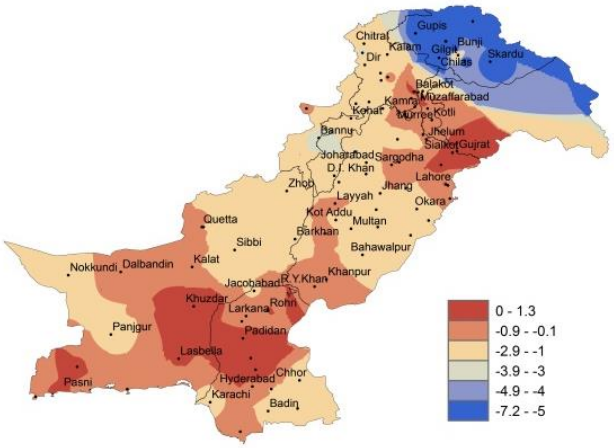
Dry weather reported during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 31%. Mean day temperature was 35.2°C while night temperature recorded as 20.9°C with 97.0hours bright sunshine duration. Wind speed recorded as 5.7km/hr with mean 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: Minimum Temperature distribution during previous decade (°C)

2(b) Past Weather for Sub-Regional Agricultural Plains (21st to 31st July, 2018)

2.6 Jhelum

Rainfall reported as 104.2mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 35.0°C while night temperature recorded as 26.4°C with 65.8hours bright sunshine duration. Wind speed recorded as 4.2km/hr with mean wind direction *variable.*

2.7 Lahore

Rainfall reported as 37.5mm during the decade; however weather remained cloudy for 11days during the decade. Average relative humidity recorded as 75%. Mean day temperature was 34.6°C while night temperature recorded as 26.3°C with 58.1hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 111.5mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 81%. Mean day temperature was 34.8°C while night temperature recorded as 25.6°C with 65.4hours bright sunshine duration. Wind speed recorded 2.3km/hr with mean wind direction *north easterly.*

2.9 Multan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 38.2°C while night temperature recorded as 30.2°C with 38.9hours bright sunshine duration. Wind speed recorded 8.9km/hr with mean wind direction *south westerly.*

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 39.7°C while night temperature recorded as 30.7°C with 78.1hours bright sunshine duration. Wind speed recorded 6.0km/hr with mean wind direction *south westerly.*

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 40.0°C while night temperature recorded as 28.2°C with 105.1hours bright sunshine duration. Wind speed recorded 8.3km/hr with wind direction *southerly.*

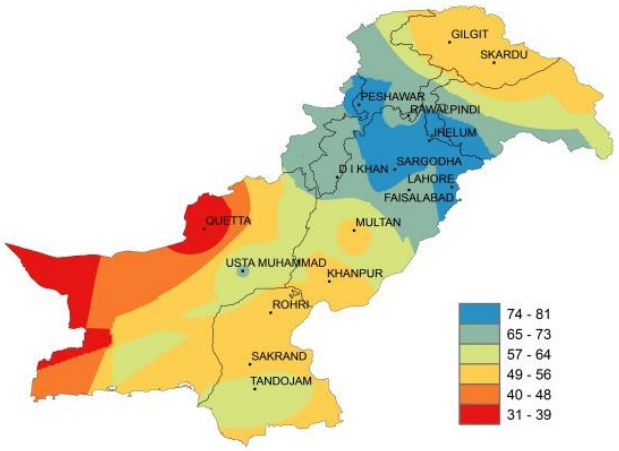


Figure.3: Relative Humidity in Percentage (%)

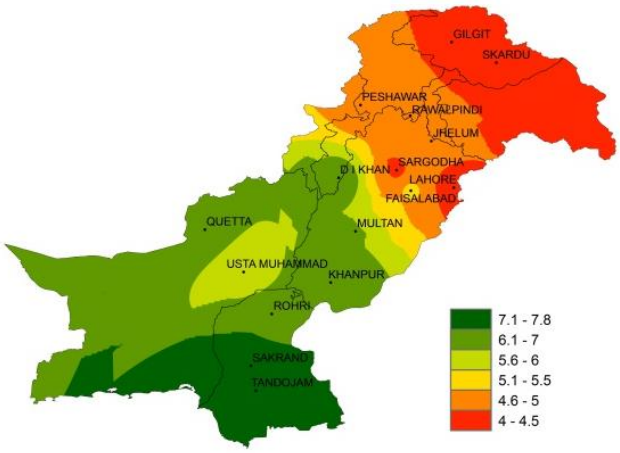


Figure.4: Reference Crop Evapotranspiration ETo(mm/day)

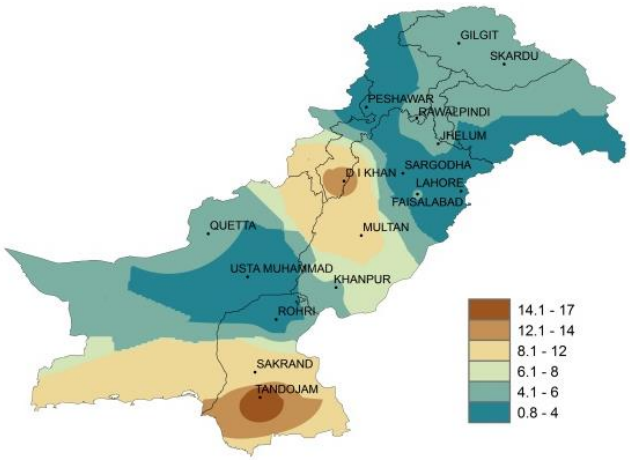


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 41.6°C while night temperature recorded as 27.0°C with 102.0hours bright sunshine duration. Wind speed recorded 3.7km/hr with wind direction *south easterly*.

2.13 D.I. Khan

Rainfall reported as 15.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 37.9°C while night temperature recorded as 26.8°C with 60.2hours bright sunshine duration. Wind speed recorded as 13.0km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 76.0mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 73%. Mean day temperature was 34.4°C while night temperature recorded as 24.1°C with 68.1hours bright sunshine duration. Wind speed recorded as 2.0km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 3.9mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 53%. Mean day temperature was 28.3°C while night temperature recorded as 15.6°C with 43.2hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *south south-easterly*.

2.16 Gilgit

Rainfall reported as 8.7mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 31.1°C while night temperature recorded as 19.5°C with 51.0hours bright sunshine duration. Wind speed recorded as 4.7km/hr with mean wind direction *easterly*.

Ten Days Weather Advisory for Farmers (1st to 10th August, 2018)

3.1 Temperature Forecast

Both day and night temperatures are likely to be slightly above normal in most 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

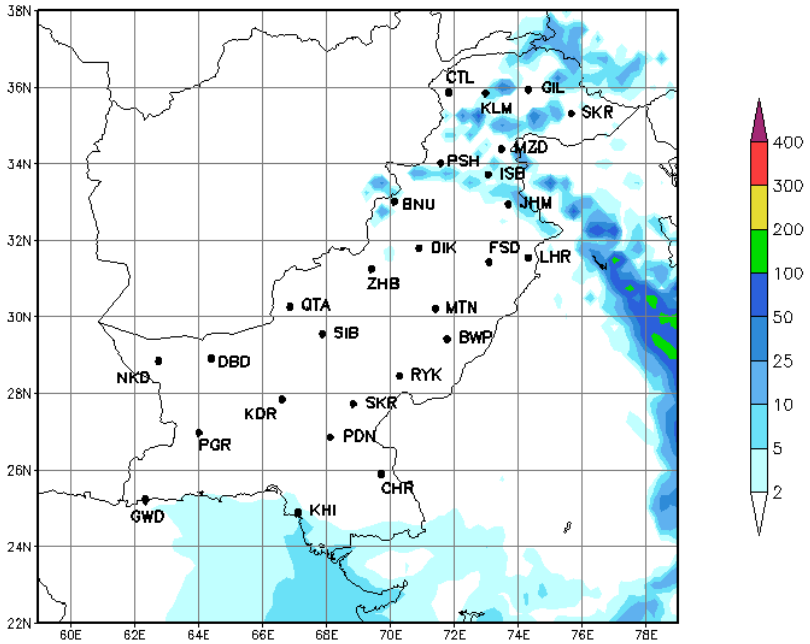
- **Punjab:** Hot and dry weather is expected in most of southern parts of the province however moderate to heavy rainfall is expected upper and central parts of the province during the decade.
- **Khyber Pakhtunkhwa:** Moderate to heavy rain-thunderstorm is expected at most places of the province during the decade.
- **Sindh:** Hot and dry weather is expected in most parts of the province however light to moderate rainfall is expected at coastal belt and central parts during the decade.
- **Balochistan:** Hot and dry weather is expected in most parts of the province however light to moderate rainfall is expected at scattered places in eastern parts during the decade.
- **Gilgit-Baltistan:** Light to moderate rain-thunderstorm with gusty winds is expected at most of places during the decade.
- **Kashmir:** Moderate to heavy rain-thunderstorm is expected at 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, 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.

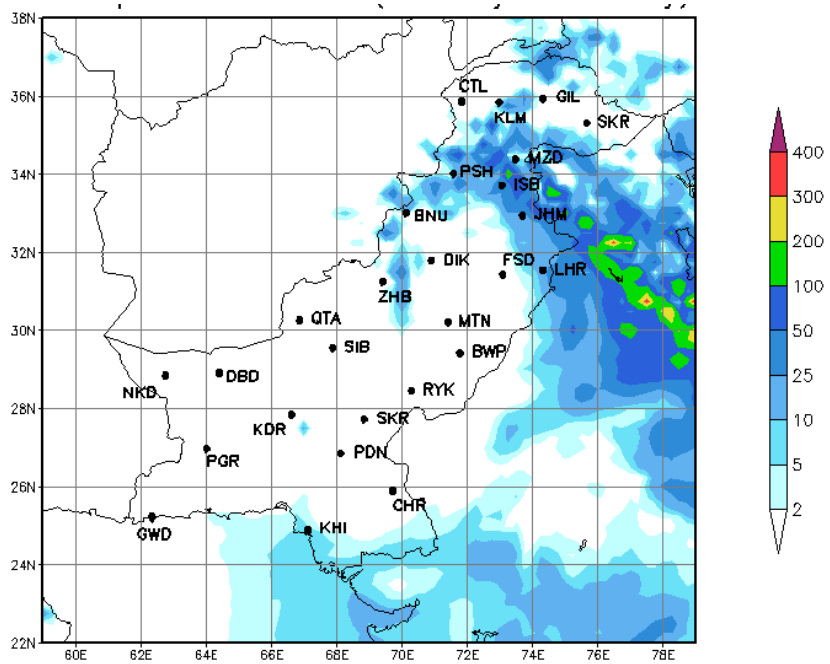
4.1 Precipitation Outlook (1st to 3rd August, 2018)

The forecast for the first three days (1st to 3rd) of the first 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 at particular places of upper Punjab, KP G.B and Kashmir. Light rainfall is expected at coastal belt of Sindh and Balochistan.



4.2 Precipitation Outlook (4th to 10th August, 2018)

The outlook for the last seven days (4th to 10th) of the first decade of August, 2018 shows that mostly hot and dry weather is expected in most of south-western parts of the country. While moderate to heavy rainfall is expected in Punjab, KP, G.B and Kashmir. Besides, light to moderate rainfall is expected in coastal belt of Sindh and Makran.



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 ہوسکتا 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 ہوسکتی 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 سدِّ باب (بذریعہ نئی ٹیکنالوجی کا استعمال اور بہتر نظم ونسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

(ایگمپ پاکستان 2012-2014)