Decadal Agromet Bulletin of Pakistan

Highlights…

- Light rainfall reported from Khyber Pakhtunkhwa, Punjab & Gilgit-Baltistan and Azad Jammu & Kashmir, whereas light rainfall reported from rest of the agricultural plains of country during the last decade.
- Highest amount of rainfall recorded as 34.0 mm at Mirkhani during the last decade.
- Highest maximum temperature recorded as 46.5°C at Shaheed Beinzerabad during the last decade.
- Rain/thunderstorm is expected at scattered places in Punjab, Khyber Pakhtunkhwa, Balochistan, Gilgit-Baltistan, Kashmir and some areas of Sindh during the current decade.
- Farmers are advised to schedule the irrigation plans for the Rabi crop in the context of ongoing rains.
- Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme cold conditions.
- 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.

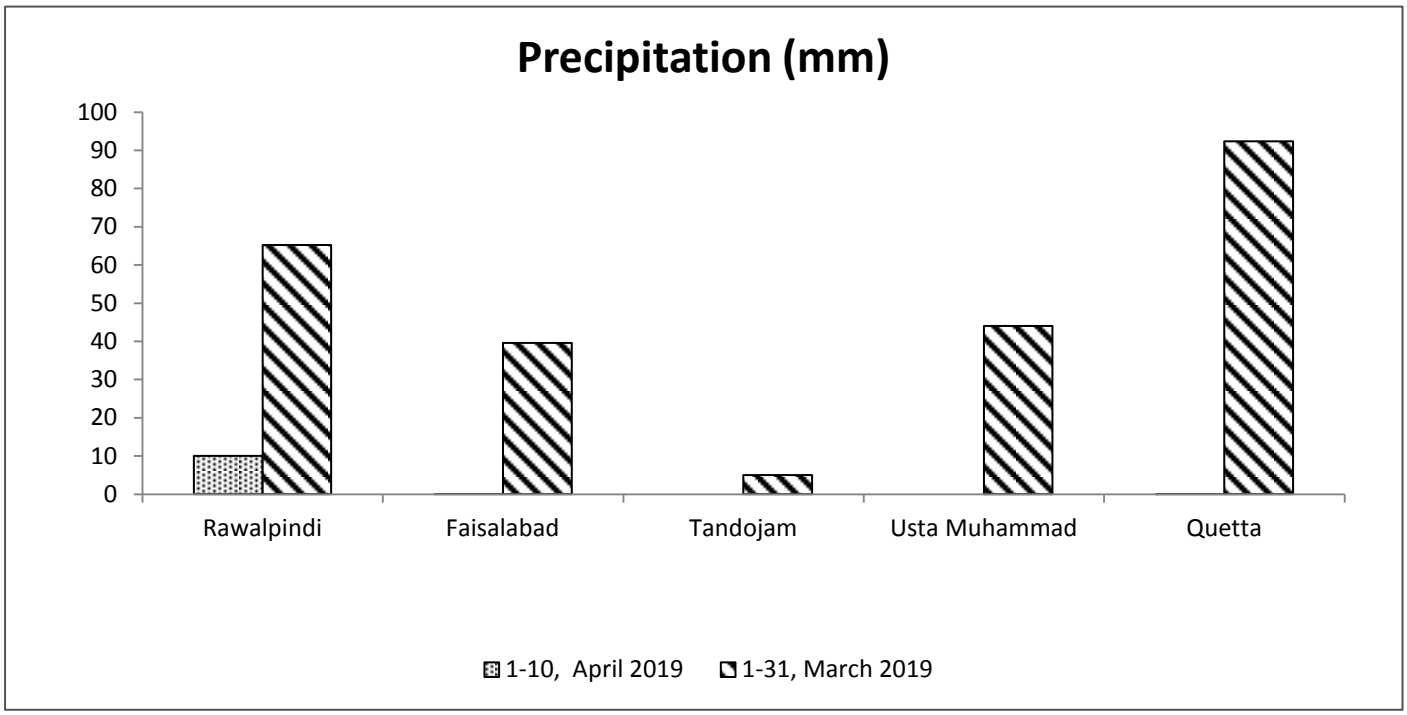
NATIONAL AGROMET CENTRE (NAMC)
PAKISTAN METEOROLOGICAL DEPARTMENT
SECTOR H-8/2, ISLAMABAD
Patron-in-Chief: *Mr. Muhammad Riaz, Director General*
Editor-in-Chief: *Dr. Muhammad Afzaal, Director*
Editor: *Ms. Khalida Noureen, Meteorologist*
Phone: +92-51-9250592 Email: dirnamc@yahoo.com

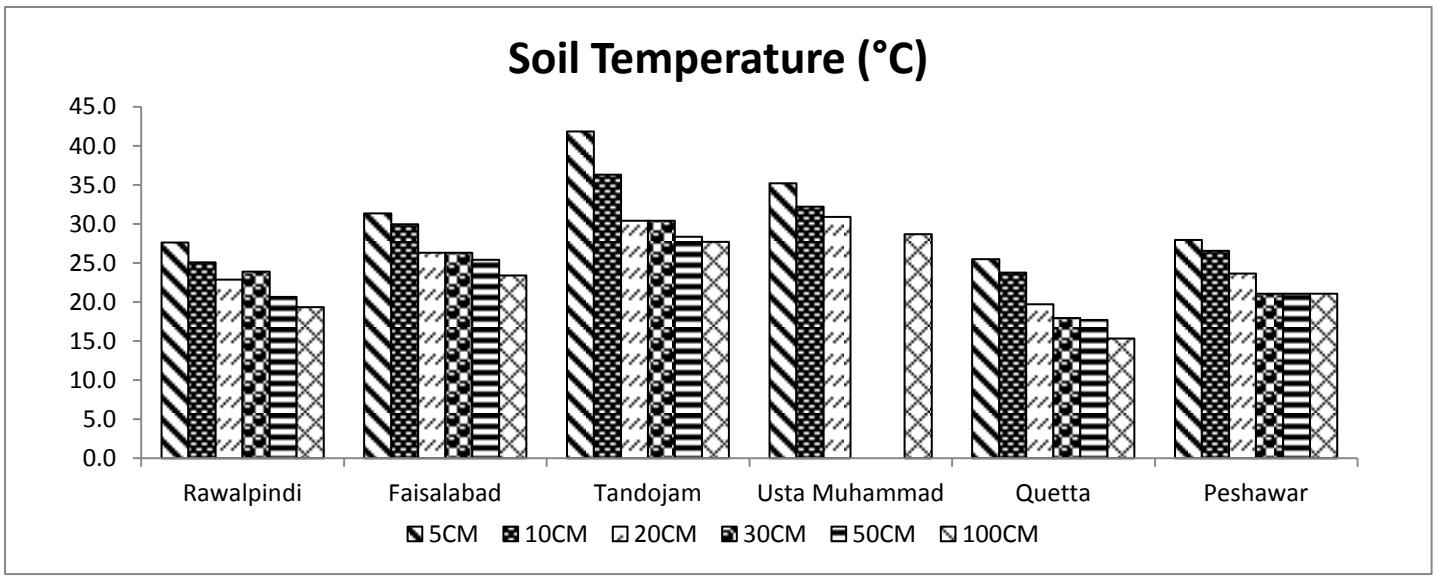
Meteorological Conditions during 1st Decade of April, 2019

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	2.6	10.0	7.4	3.7	0.0	24.0	27.6	25.1	22.9	23.9	20.7	19.4	48	92.2	2.4	2.1
2	Faisalabad	0.4	0.0	-0.4	2.3	1.8	27.5	31.4	30.0	26.3	26.3	25.4	23.4	44	91.8	2.2	2.4
3	Jhelum	1.7	3.2	1.5	3.1	-0.2	26.2	30.6	28.5	25.1	23.3	20.2	***	45	95.0	2.8	2.5
4	Lahore	0.5	0.7	0.2	2.3	0.9	28.3	30.3	28.6	26.0	24.4	***	22.5	44	89.6	2.1	2.3
5	Sargodha	1.3	4.4	3.1	3.1	2.0	28.4	34.4	31.4	27.1	25.8	***	22.5	57	87.4	1.3	2.2
6	Multan	0.3	0.0	-0.3	2.0	2.8	29.2	***	***	***	***	***	***	38	86.1	5.1	3.7
7	Khanpur	0.6	0.0	-0.6	2.1	1.8	29.3	***	31.1	30.6	30.3	29.8	27.1	39	94.3	4.5	3.7
8	Tandojam	0.1	0.0	-0.1	3.9	1.1	31.3	41.9	36.3	30.4	30.4	28.4	27.7	43	97.7	7.1	5.6
9	Sakrand ☆	0.1	0.0	-0.1	4.8	3.1	32.0	51.2	***	***	***	***	28.2	35	113.1	2.8	3.6
11	Rohri ☆	0.6	0.0	-0.6	4.5	-2.4	30.4	***	***	***	***	***	***	30	105.0	2.1	2.9
12	D.I Khan	0.7	3.0	2.3	3.4	1.8	27.8	29.2	26.8	24.9	24.6	13.3	***	49	93.5	9.1	4.6
13	Peshawar	2.9	6.0	3.1	4.5	0.3	25.2	28.0	26.6	23.7	21.1	21.1	21.1	45	72.1	1.5	1.6
14	Usta M.	0.0	0.0	0.0	5.0	2.0	31.7	35.2	32.2	30.9	***	***	28.7	50	***	1.5	2.7
15	Quetta	0.2	0.0	-0.2	2.0	4.5	19.7	25.5	23.8	19.7	18.0	17.7	15.4	26	90.1	5.7	3.2
16	Skardu	2.7	0.0	-2.7	2.4	15.3	20.2	***	***	***	***	***	***	26	77.6	3.7	1.7
17	Gilgit	1.4	8.00	6.6	3.2	0.5	17.5	***	***	***	***	***	***	25	79.8	2.5	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 April, 2019





Past Weather (1st to 10th April, 2019)

Light to moderate rainfall reported from Khyber Pakhtunkhwa, Punjab, Gilgit-Baltistan and Azad Jammu & Kashmir, whereas light rainfall reported from rest of the agricultural plains of country during the last decade.

1.1 Punjab

Light rainfall reported from most of the agricultural plains of the Punjab. Highest rainfall reported from Joharabad, Noorpur Thal & Islamabad. Decadal maximum and minimum both raised above normal by 2.7°C & 1.3°C respectively, in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 90.9 hrs, 2.9km/hr and 2.7 mm/day respectively.

1.2 Sindh

Light rainfall reported as Trace (Not measureable) at single station (Jacobabad) of Sindh. Decadal maximum and minimum both raised above normal by 4.4°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 36%, 105.3hrs, 4.0km/hr and 4.0 mm/day respectively.

1.3 Khyber Pakhtunkhwa

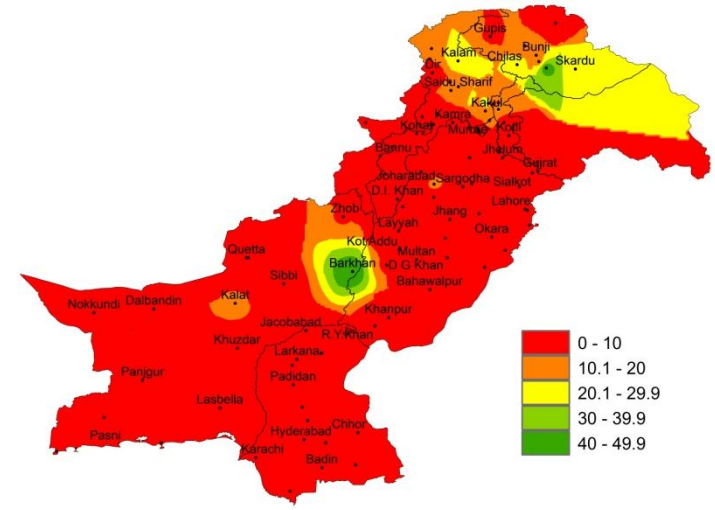
Light to moderate rainfall reported from most of the agricultural plains of Khyber Pakhtunkhwa. Highest rainfall reported from Mirkhani, Kalam & Balakot. Decadal maximum and minimum both raised above normal by 4.0°C & 1.1°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 82.8hrs, 5.3km/hr and 3.1mm/day respectively.

1.4 Balochistan

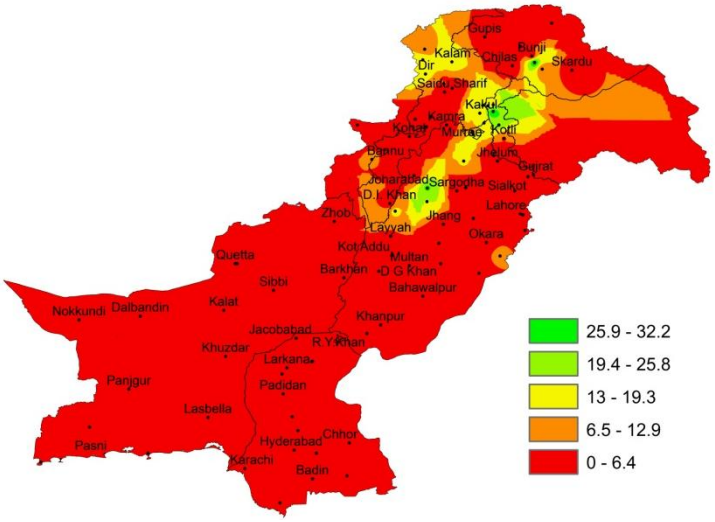
Light reported from few of the agricultural plains of Balochistan. Highest rainfall reported from Quetta & Zhob. Decadal maximum and minimum both raised above normal by 3.5°C & 4.5°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 38%, 90.1hrs, 3.6km/hr and 3.0mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

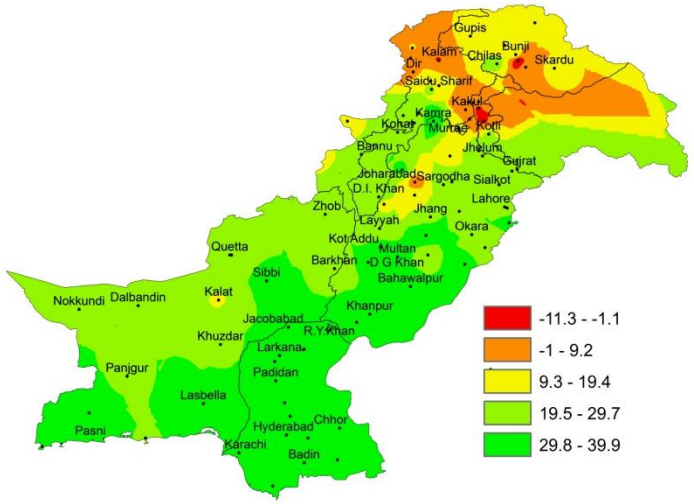
Light to moderate rainfall reported from most of the agricultural plains G.B & Kashmir. Highest rainfall reported from, Garhi dupatta, Rawalakot & Muzaffarabad. Decadal maximum and minimum both raised above normal by 2.8°C & 7.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 26%, 78.7hrs, 3.1km/hr and 1.7 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 (1st to 10th April, 2019)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 10.0 mm during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 48.2%. Mean day temperature was 33.6°C while night temperature recorded as 14.4°C with 92.2hours bright sunshine duration. Wind speed recorded as 2.4 km/hr with mean wind direction *North-Westerly.*

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 44%. Mean day temperature was 35.8°C while night temperature recorded as 19.2°C with 91.83hours bright sunshine duration. Wind speed recorded as 2.2 km/hr with mean wind direction *West South Westerly*.
Wheat: *Very good condition, Wax Maturity.*

2.3 RAMC, Tandojam (Lower Sindh)

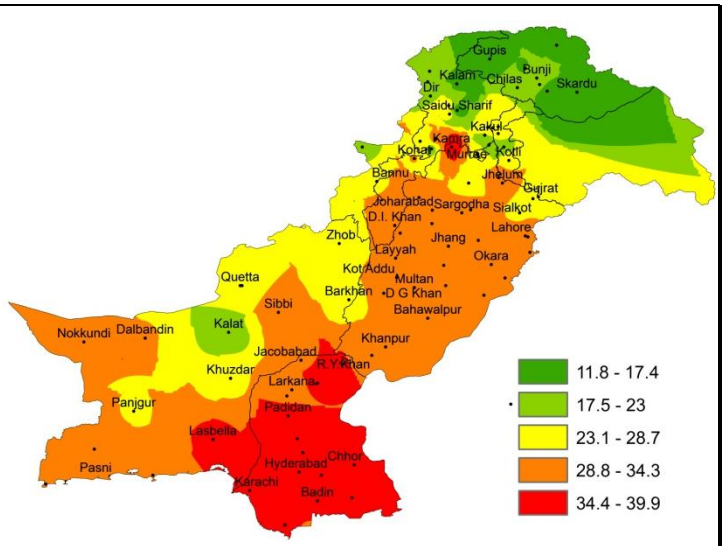
Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 43%. Mean day temperature was 42.2°C while night temperature recorded as 20.4°C with 97.7 hours bright sunshine duration. Wind speed recorded as 7.1 km/h with mean wind direction *South Westerly.*

2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

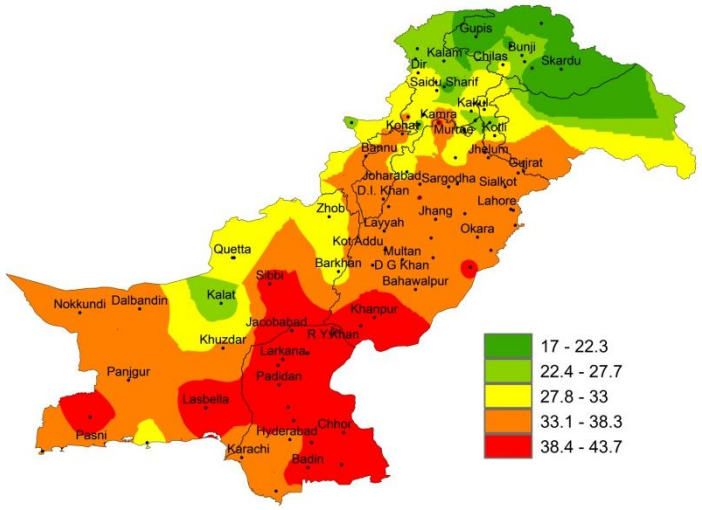
Dry weather reported during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 41.5°C while night temperature recorded as 21.8°C. Wind speed recorded as 1.5 km/h with mean wind direction *Variable.*
Wheat: *Good condition, Milk maturity.*

2.5 RAMC, Quetta (Northern Baluchistan)

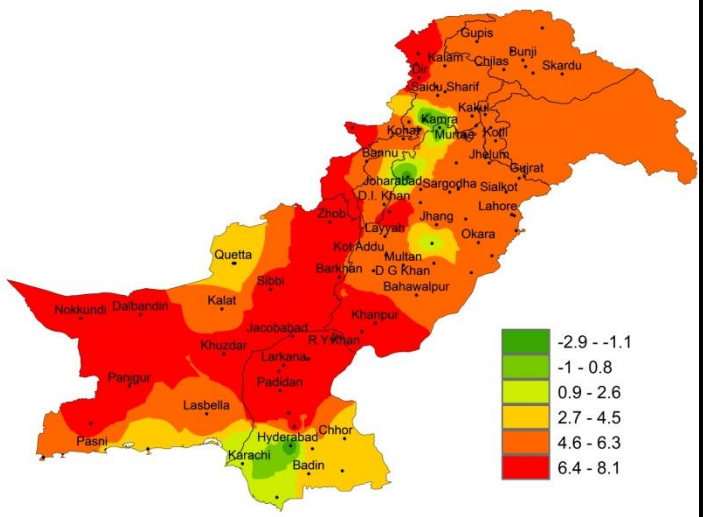
Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 26%. Mean day temperature was 26.2°C while night temperature recorded as 13.1°C with 90.1hours bright sunshine duration. Wind speed recorded as 5.7km/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 April, 2019)

2.6 Jhelum

Rainfall reported as 3.2 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 45%. Mean day temperature was 35.4°C while night temperature recorded as 17.0°C with 95.0 hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *southerly.*

2.7 Lahore

Rainfall reported as 0.7mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 44%. Mean day temperature was 35.1°C while night temperature recorded as 21.4°C with 89.6 hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *Westerly.*

2.8 Sargodha

Rainfall reported as 4.4 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 36.5°C while night temperature recorded as 16.5°C with 87.4 hours bright sunshine duration. Wind speed recorded 1.3 km/hr with mean wind direction *Variable.*

2.9 Multan

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 38%. Mean day temperature was 36.8°C while night temperature recorded as 21.5°C with 86.1 hours bright sunshine duration. Wind speed recorded 5.1km/hr with mean wind direction *North-easterly.*

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 39%. Mean day temperature was 37.9°C while night temperature recorded as 20.6°C with 94.3hours bright sunshine duration. Wind speed recorded 4.5km/hr with mean wind direction *North easterly.*

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 03 days during the decade Average humidity recorded as 35%. Mean day temperature was 41.9°C while night temperature recorded as 22.1°C with 113.1hours bright sunshine duration. Wind speed recorded 2.8km/hr with wind direction *southerly.*

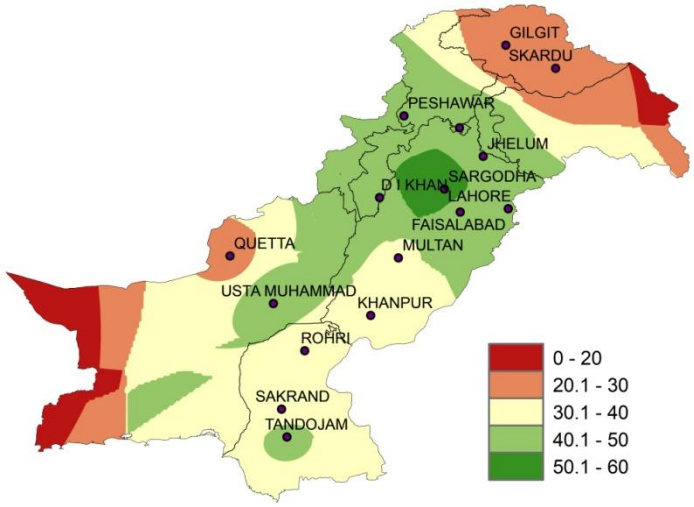


Figure.3: Relative Humidity in Percentage (%)

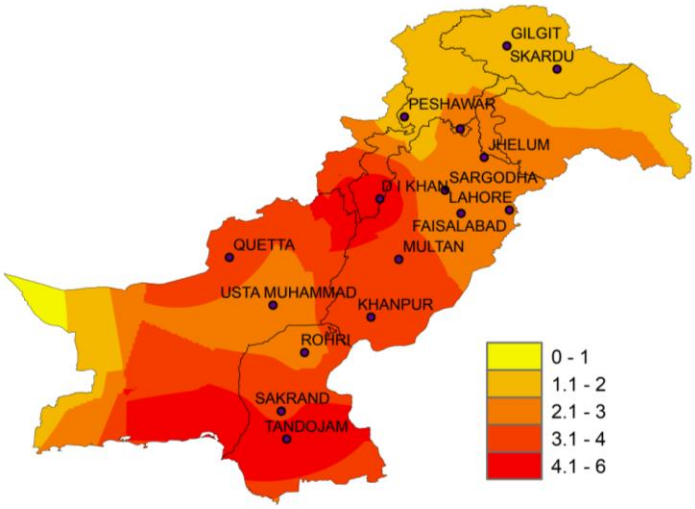


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

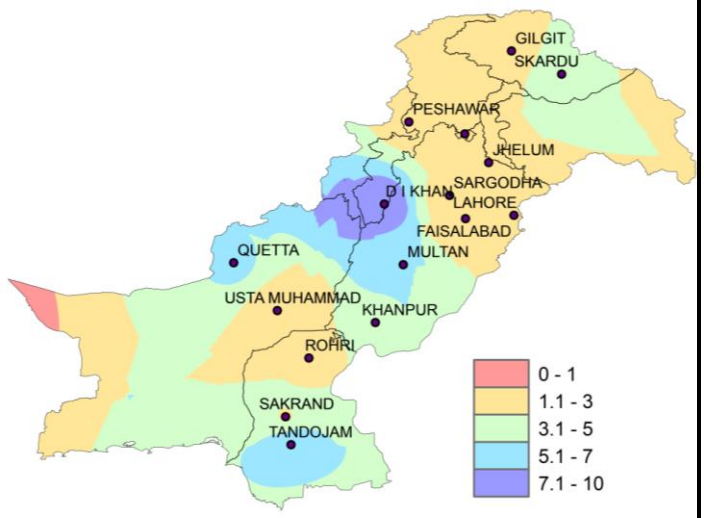


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 30%. Mean day temperature was 41.0°C while night temperature recorded as 19.7°C with 105.0hours bright sunshine duration. Wind speed recorded 2.1km/hr with wind direction *North easterly*.

2.13 D.I. Khan

Rainfall reported as 3.0 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 36.4°C while night temperature recorded as 19.1°C with 93.5 hours bright sunshine duration. Wind speed recorded as 9.1km/hr with mean wind direction. *South-easterly*.

2.14 Peshawar

Rainfall reported as 6.0mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 45%. Mean day temperature was 33.7°C while night temperature recorded as 16.7°C with 72.1 hours bright sunshine duration. Wind speed recorded as 1.5 km/hr with mean wind direction *North westerly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 41%. Mean day temperature was 20.2ºC while night temperature recorded as 5.5ºC with 77.6hours bright sunshine duration. Wind speed recorded as 3.7 km/hr with mean wind direction *southerly south westerly*.

2.16 Gilgit

Rainfall reported as 08 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 27%. Mean day temperature was 26.2°C while night temperature recorded as 8.6 °C with 79.8 hours bright sunshine duration. Wind speed recorded as 2.5 km/hr with mean wind direction *Westerly*.

Ten Days Weather Advisory for Farmers (11th to 20th April, 2019)

3.1 Temperature Forecast

Both day and night temperatures are likely to be above normal 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, however strong winds is expected in Baluchistan, Sindh and southern Punjab during the start of the decade.

3.3 Rain Forecast

Punjab: Mainly dry weather is expected. However, rain/thunderstorm is expected at isolated places in Multan, Bahawalpur, Gujranwala, Sargodha, Faisalabad, Lahore, Rawalpindi divisions and Islamabad during the current decade.

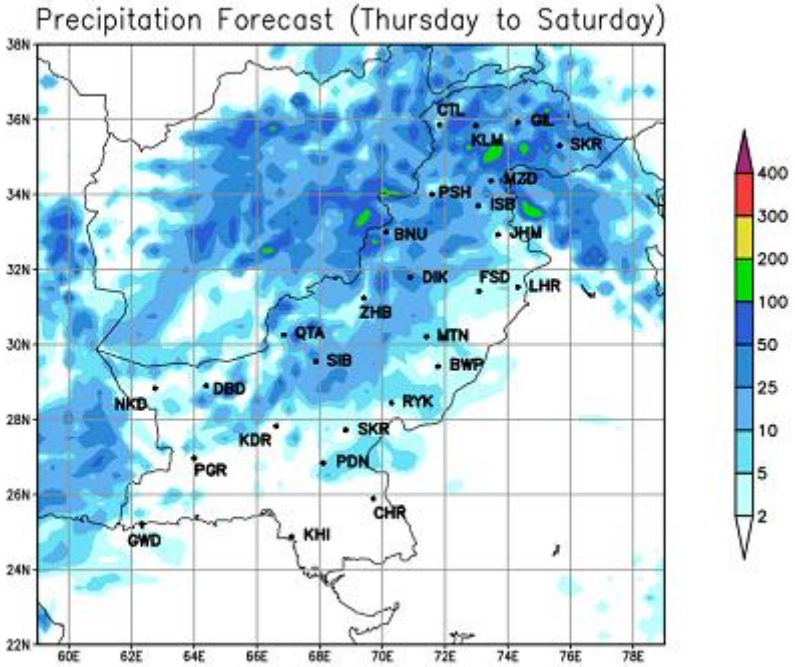
- **Khyber Pakhtunkhwa:** Mainly dry weather is expected. However, rain/thunderstorm is expected in Malakand, Hazara, Peshawar, Kohat, Mardan, Bannu and D.I.Khan divisions during the current decade.
- **Sindh:** Rain-thunderstorm with gusty winds expected at scattered places (Sukkur, Larkana division) in the province during the current decade.
- **Baluchistan:** Mainly dry weather is expected. However, rain/thunderstorm is expected at isolated places (Quetta, Zhob, Kalat divisions) in the province during the current decade.
- **Gilgit-Baltistan:** Rain/thunderstorm is expected at scattered places in the province during the current decade.
- **Kashmir:** Mainly cloudy/dry weather is expected. However, rain/thunderstorm is expected during the 2nd half of the current decade.

3.4 Advisory for Farmers

- Farmers are advised to schedule the irrigation plans for the Rabi crop in context of ongoing rains.
- 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.
- Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme cold conditions.

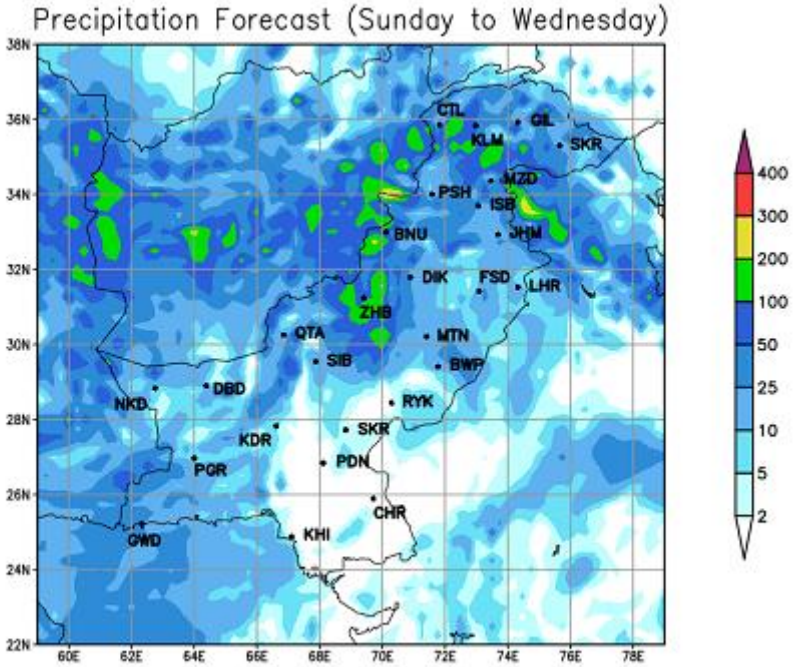
4.1 Precipitation Outlook (11th to 13th April, 2019)

The forecast for the first three days (11th to 13th) of the 2nd decade of April, 2019 shows that light to moderate rainfall is expected in GB, KP, FATA, Punjab and Balochistan. However, light rainfall is expected in northern Sindh.



4.2 Precipitation Outlook (14th to 20th April, 2019)

The forecast for the last seven days (14th to 20th) of the 2nd decade of April, 2019 shows that light to moderate rainfall with isolated areas of heavy rainfall is expected in GB, KP, FATA, Punjab and Balochistan. However, light rainfall is expected at isolated places of Sindh.



Findings of AgMIP Pakistan, 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)