

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate rainfall reported from Gilgit-Baltistan and Azad Jammu & Kashmir, whereas light rainfall reported from Punjab, Khyber Pakhtunkhwa and Balochistan except one station in Baluchistan where moderate rainfall was observed. However, dry weather observed in Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 25.0 mm at Lasbela during the last decade.
- ❖ Highest maximum temperature recorded as 48.0°C at Jacobabad during the last decade.
- ❖ Widespread dust-thunderstorm/rain accompanied by strong gusty winds (with few moderate to isolated heavy falls) is expected in Khyber Pakhtunkhwa, Kashmir and Gilgit-Baltistan, while at scattered places in Northeast Balochistan, Punjab and Islamabad, while at isolated places in Sukkur division. Hailstorm is also expected at isolated places in upper Punjab, upper Khyber Pakhtunkhwa and Kashmir of the current decade.
- ❖ Wheat crop is at heading-maturity stages in northern half of the country. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- ❖ Measures may be taken to preserve the standing crops/orchids from the damaging impacts of extreme weather conditions like thunder/dust storm, gusty winds, hails etc.
- ❖ 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

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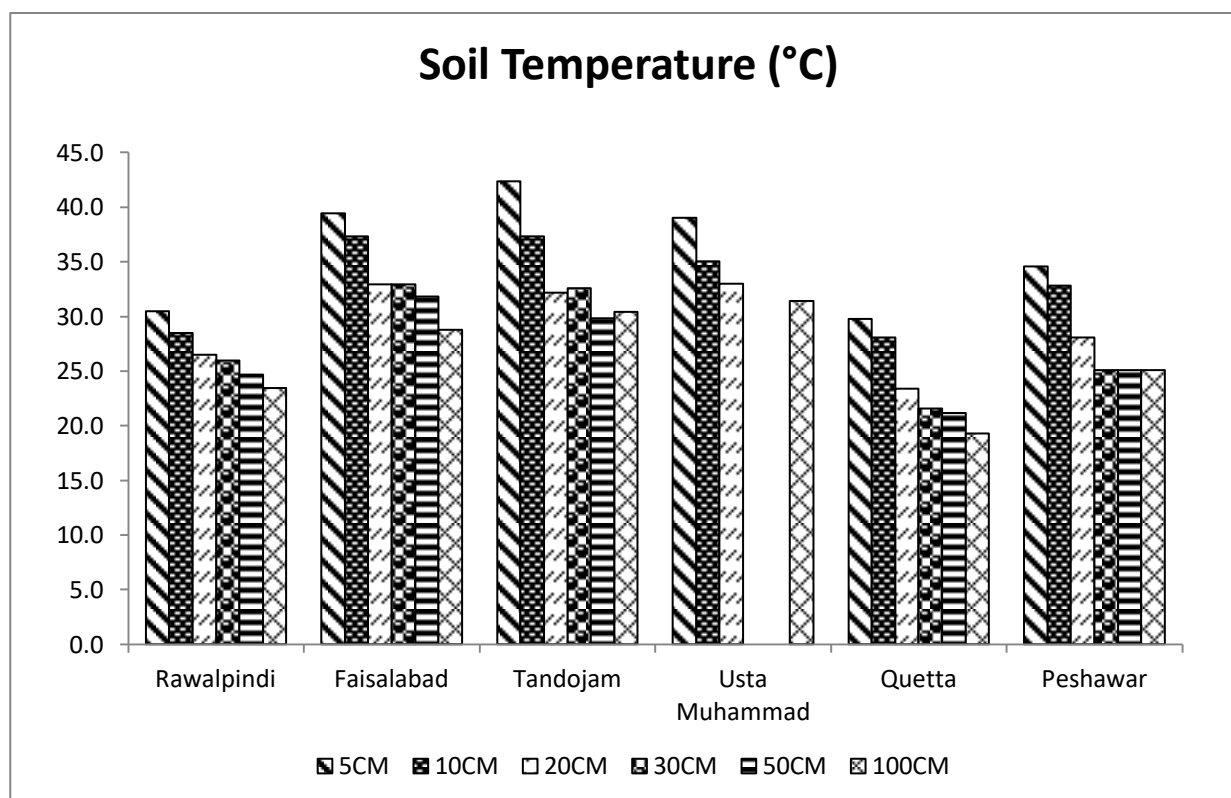
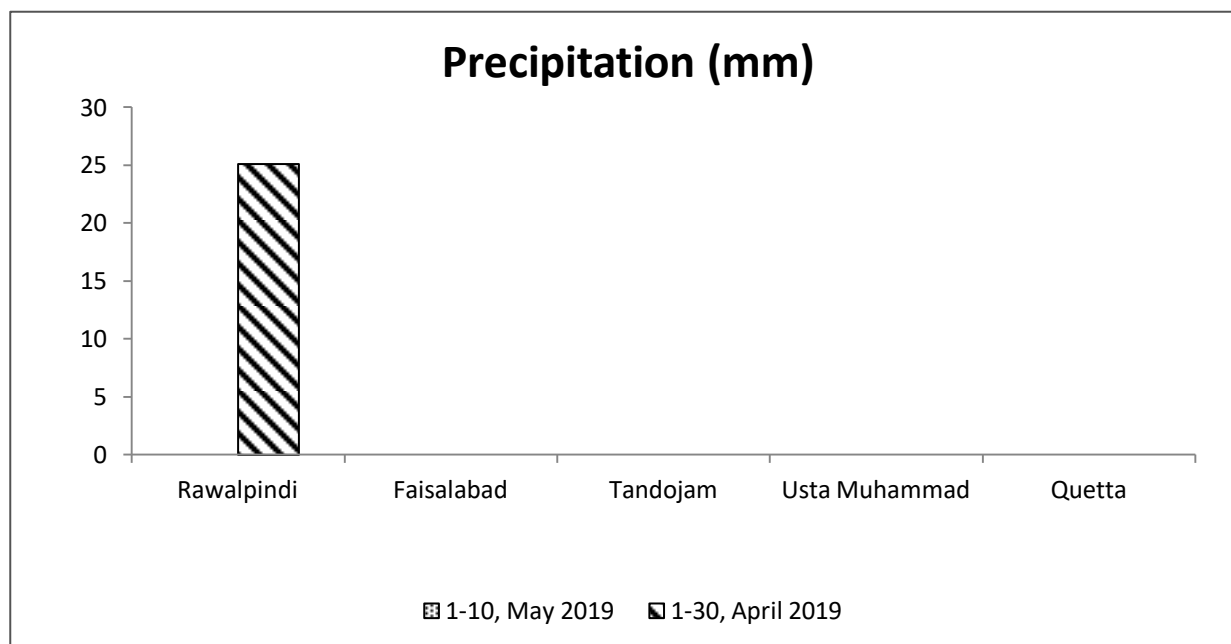
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Meteorological Conditions during 1st Decade of May, 2019

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	1.0	0.0	-1.0	0.5	-2.0	26.7	30.5	28.5	26.5	26.0	24.7	23.5	38	95.0	2.1	2.1
2	Faisalabad	0.7	0.0	-0.7	1.6	-0.1	31.7	39.5	37.4	33.0	33.0	31.9	28.8	27	107.8	3.0	2.8
3	Jhelum	1.5	1.8	0.3	1.3	-2.2	29.9	35.5	32.9	29.4	27.5	27.3	***	31	105.8	2.8	2.6
4	Lahore	0.7	0.0	-0.7	1.2	-1.1	31.7	33.7	32.1	29.6	28.4	***	26.5	30	91.5	1.6	2.0
5	Sargodha	0.5	0.0	-0.5	0.5	-0.1	31.6	38.3	35.3	30.8	29.4	***	25.7	44	93.7	1.1	2.1
6	Multan	0.4	0.0	-0.4	0.3	-0.7	32.4	***	***	***	***	***	***	29	100.7	5.2	4.1
7	Khanpur	0.2	0.0	-0.2	1.5	-0.2	33.2	***	35.5	35.1	35.0	34.5	32.0	30	102.6	5.5	4.6
8	Tandojam	0.0	0.0	0.0	-1.3	-1.2	31.2	42.4	37.3	32.2	32.6	29.9	30.4	48	105.6	10.9	6.4
9	Sakrand ☆	0.0	0.0	0.0	0.0	-0.4	33.3	52.1	***	***	***	***	31.6	34	113.0	4.5	4.4
11	Rohri ☆	0.0	0.0	0.0	-0.9	-2.4	33.7	***	***	***	***	***	***	27	111.2	2.4	3.2
12	D.I Khan	0.1	5.0	4.9	1.7	-0.6	31.0	32.0	29.5	27.6	27.4	16.4	***	41	109.8	11.3	6.2
13	Peshawar	0.9	0.0	-0.9	1.3	-3.0	27.3	34.6	32.8	28.1	25.1	25.1	25.1	38	74.6	2.5	2.2
14	Usta M.	0.1	0.0	-0.1	-0.7	-1.3	33.9	39.0	35.1	33.0	***	***	31.4	22	***	0.0	5.7
15	Quetta	0.3	0.0	-0.3	-2.5	-1.5	19.6	29.8	28.1	23.4	21.6	21.2	19.3	21	109.5	5.1	3.0
16	Skardu	1.1	0.0	-1.1	-2.1	13.2	21.9	***	***	***	***	***	***	21	68.1	8.2	3.0
17	Gilgit	0.8	0.01	-0.8	-1.3	-1.6	19.0	***	***	***	***	***	***	22	78.6	2.7	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 May, 2019



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

1.1 Light to moderate rainfall reported from Khyber Pakhtunkhwa, Gilgit-Baltistan and Azad Jammu & Kashmir, whereas light rainfall reported from Punjab and Balochistan except one station in Baluchistan where moderate rainfall was observed during the last decade. Dry weather observed in Sindh during the last decade

1.2 Punjab

Light rainfall reported from most of the agricultural plains of the Punjab. Highest rainfall reported from Layyah, Muree & Mangala. Decadal maximum raised above the normal by 1.0°C & minimum dropped below the normal by 0.9°C respectively in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 33%, 99.6 hrs, 3.0km/hr and 2.9mm/day respectively.

1.3 Sindh

Dry weather reported as most of the agricultural plains of the Sindh. Decadal maximum and minimum both dropped below the normal by 0.7°C & 1.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 36%, 109.6hrs, 5.9km/hr and 4.7mm/day respectively.

1.4 Khyber Pakhtunkhwa

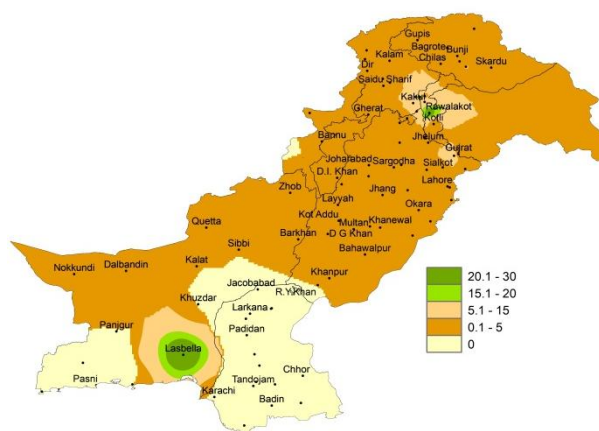
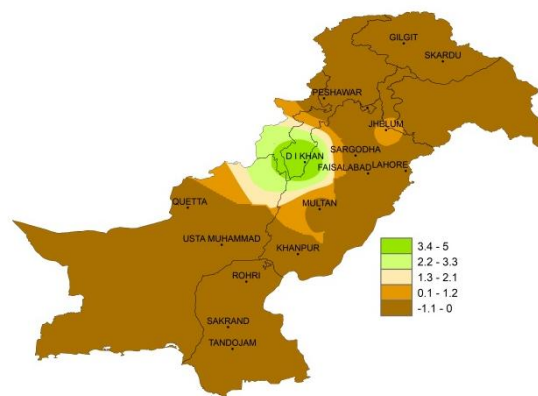
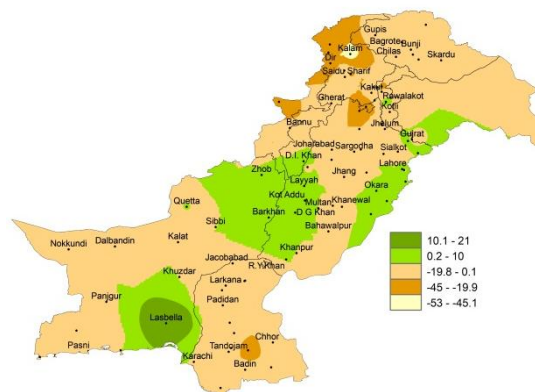
Light rainfall reported from most of the agricultural plains of Khyber Pakhtunkhwa. Highest rainfall reported from Kakul D.I. Khan & Balakot. Decadal maximum raised above the normal by 1.5°C & minimum dropped below the normal by 1.8°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 40%, 92.2hrs, 6.9km/hr and 4.2mm/day respectively.

1.5 Balochistan

Light moderate rainfall reported from most of the agricultural plains of Balochistan. Highest rainfall reported from Lasbela & Barkhan. Decadal maximum dropped below the normal by 1.6°C & minimum raised above the normal by 1.4°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 22%, 109.2hrs, 2.6km/hr and 4.4mm/day respectively.

1.6 Gilgit-Baltistan and Azad Jammu & Kashmir

Light to moderate rainfall reported from most of the agricultural plains G.B & Kashmir. Highest rainfall reported from muzaffarabad, Rawalakot & Garhi Dupatta. Decadal maximum dropped below the normal by 1.7°C & minimum raised above the normal by 5.8°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 22%, 73.4hrs, 5.5km/hr and 2.3 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 May, 2019)**

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

Dry weather reported during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 38%. Mean day temperature was 35.8°C while night temperature recorded as 17.6°C with 95.0 hours bright sunshine duration. Wind speed recorded as 2.1 km/hr with mean wind direction *Westerly*.

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

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 27%. Mean day temperature was 40.5°C while night temperature recorded as 22.8°C with 107.8 hours bright sunshine duration. Wind speed recorded as 3.0 km/hr with mean wind direction *Variable*.

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 48%. Mean day temperature was 39.8°C while night temperature recorded as 22.6°C with 105.6 hours bright sunshine duration. Wind speed recorded as 10.9 km/h with mean wind direction *South Westerly*.

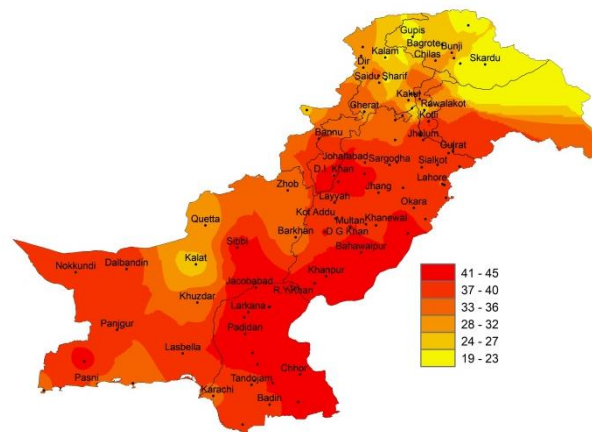
2.4 **RAMC, Usta Muhammad (Eastern Baluchistan)**

Dry weather reported during the decade; however weather remained cleared throughout the decade. Average relative humidity recorded as 22%. Mean day temperature was 43.4°C while night temperature recorded as 24.3°C & wind direction *North easterly*.

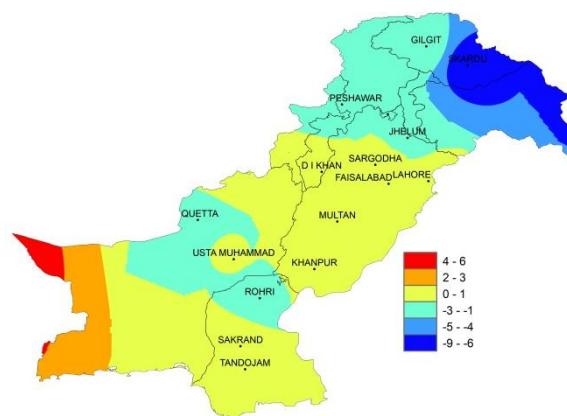
Wheat: *Good condition, Harvesting.*

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

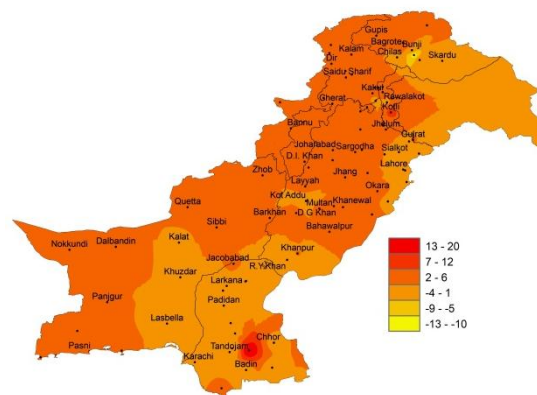
Dry weather reported during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 21%. Mean day temperature was 27.3°C while night temperature recorded as 11.9°C with 109.5 hours bright sunshine duration. Wind speed recorded as 5.1 km/hr with mean wind direction *North easterly*.



I. **Actual mix-temp**



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



III. **Departure of mix-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 May, 2019)

2.6 Jhelum

Rainfall reported as 1.8 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 31%. Mean day temperature was 39.2°C while night temperature recorded as 20.5°C with 105.8 hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *Variable*.

2.7 Lahore

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 30%. Mean day temperature was 39.2°C while night temperature recorded as 24.1°C with 91.5 hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *Westerly*.

2.8 Sargodha

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 44%. Mean day temperature was 39.6°C while night temperature recorded as 23.6°C with 93.7 hours bright sunshine duration. Wind speed recorded 1.1 km/hr with mean wind direction *easterly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 29%. Mean day temperature was 40.6°C while night temperature recorded as 24.2°C with 100.7 hours bright sunshine duration. Wind speed recorded 5.2 km/hr with mean wind direction *Variable*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 30%. Mean day temperature was 42.0°C while night temperature recorded as 24.4°C with 102.6 hours bright sunshine duration. Wind speed recorded 5.6km/hr with mean wind direction *South Westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cleared throughout the decade. Average humidity recorded as 34%. Mean day temperature was 42.5°C while night temperature recorded as 24.0°C with 113.0 hours bright sunshine duration. Wind speed recorded 4.5km/hr with wind direction *southerly*.

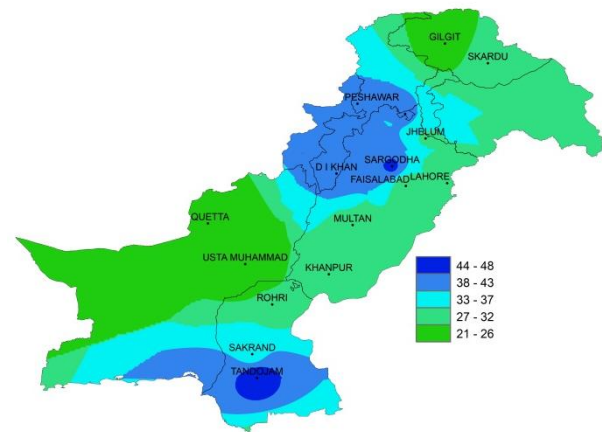


Figure.3: Relative Humidity in Percentage (%)

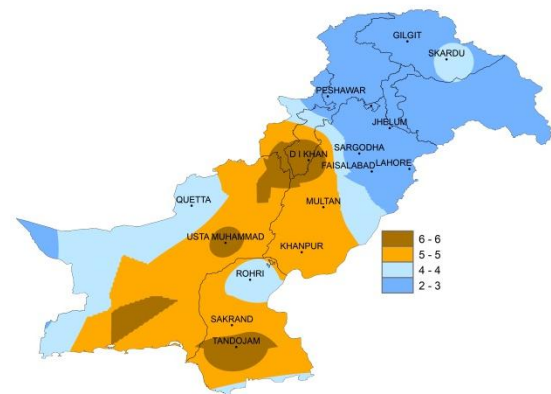


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

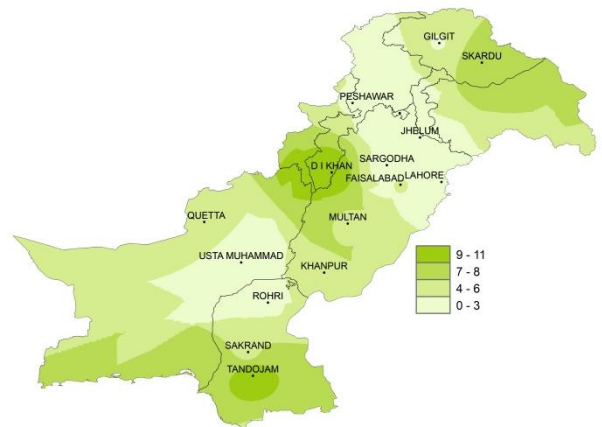


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cleared throughout the decade. Average relative humidity recorded as 27%. Mean day temperature was 42.2°C while night temperature recorded as 25.3°C with 111.2 hours bright sunshine duration. Wind speed recorded 2.4km/hr with wind direction *North easterly*.

2.13 D.I. Khan

Rainfall reported as 5.0mm during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 41%. Mean day temperature was 40.1°C while night temperature recorded as 21.9°C with 109.8 hours bright sunshine duration. Wind speed recorded as 11.3 km/hr with mean wind direction. *North easterly*.

2.14 Peshawar

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 38%. Mean day temperature was 36.1°C while night temperature recorded as 18.4°C with 74.6 hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *North westerly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 30%. Mean day temperature was 21.9°C while night temperature recorded as 7.3°C with 68.1 hours bright sunshine duration. Wind speed recorded as 8.2km/hr with mean wind direction *southerly*.

2.16 Gilgit

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 33%. Mean day temperature was 28.5°C while night temperature recorded as 9.4°C with 78.6hours bright sunshine duration. Wind speed recorded as 2.7km/hr with mean wind direction *Westerly*.

Eight Days Weather Advisory for Farmers (13th to 20th May, 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 are expected in Baluchistan, Sindh and southern Punjab during the start of the decade.

3.3 Rain Forecast

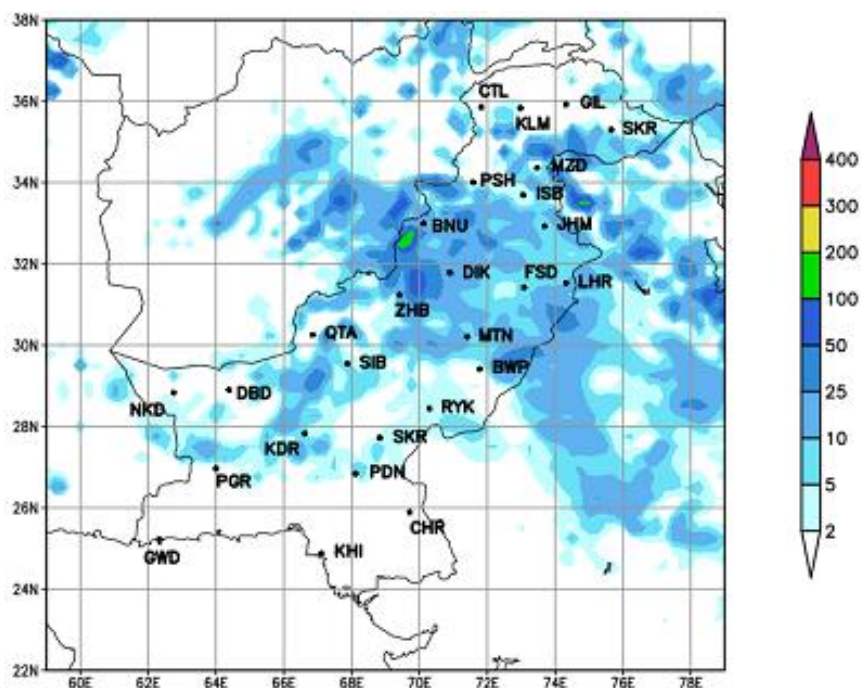
- ❖ **Punjab:** Light to moderate is expected in most parts of the province. However, rain/thunderstorm is expected at isolated places in Rawalpindi, Gujranwala, Sargodha, Faisalabad, Lahore, Multan, D.G.Khan, Sahiwal, Bahawalpur divisions and Islamabad during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Rain/thunderstorm is expected at scattered places during the current decade. Hailstorm is also expected at isolated places in upper Punjab, upper Khyber Pakhtunkhwa and Kashmir during the period.
- ❖ **Sindh:** Mainly hot and dry weather is expected during the current decade.
- ❖ **Baluchistan:** Mainly dry weather is expected. However, rain/thunderstorm is expected at isolated places of Quetta, Kalat, Zhob, Nasirabad & Sibbi divisions during the current decade
- ❖ **Gilgit-Baltistan:** Rain/thunderstorm is expected at scattered places in the province during the current decade.
- ❖ **Kashmir:** Rain/thunderstorm is expected at scattered places in the province during the current decade.

3.4 Advisory for Farmers

- ❖ Wheat crop is at heading-maturity stages in northern half of the country. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- ❖ Measures may be taken to preserve the standing crops/orchids from the damaging impacts of extreme weather conditions like thunder/dust storm, gusty winds, hails etc.
- ❖ 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.

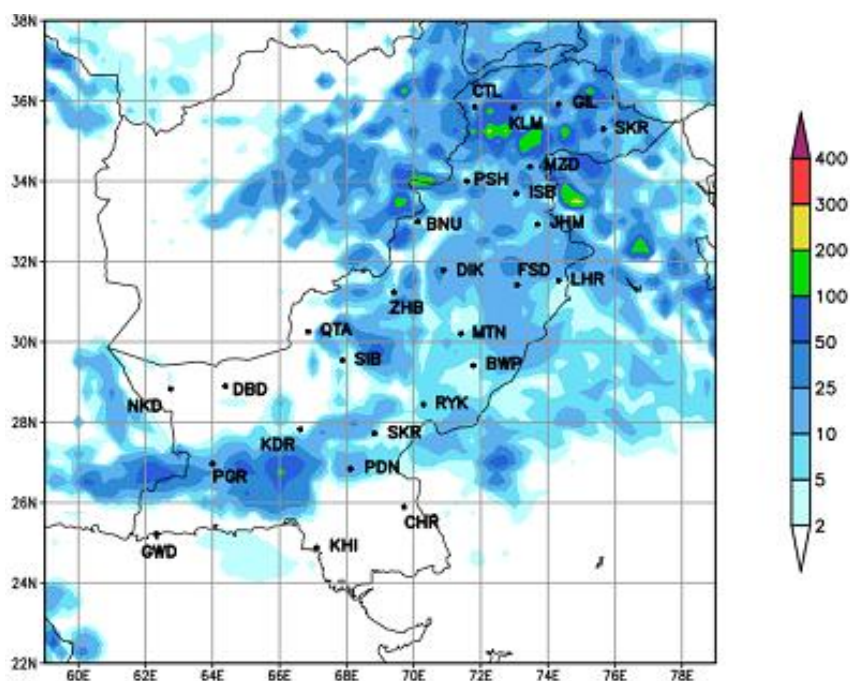
4.1 Precipitation Outlook (13th to 15th May, 2019)

The forecast for the first three days (13th to 15th) of the 2nd decade of May, 2019 shows that light to moderate rainfall is expected in GB, KP, Kashmir and scattered places of Balochistan. However, light rainfall is expected in northern Sindh and its adjoining areas.



4.2 Precipitation Outlook (16th to 20th May, 2019)

The forecast for the last Five days (16th to 20th) of the 2nd decade of May, 2019 shows that light to moderate rainfall with isolated areas of GB, KP, Kashmir, Potohar region and some areas of north eastern Balochistan and Punjab. However, hot and dry weather is expected in elsewhere in the country.



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 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)