Decadal Agromet Bulletin of Pakistan

Highlights…

- Light to moderate rainfall reported from most parts of the country however light rainfall reported from few places of Sindh and Balochistan during the last decade.
- Highest amount of rainfall recorded as 82.2 mm at Balakot during the last decade.
- Lowest minimum temperature recorded as -5.5°C at Kalam during the last decade.
- Foggy conditions persisted in the plain areas of upper Sindh and Punjab.
- Mainly cold and cloudy weather with light to moderate rainfall is expected in most parts of the northern and western parts of the country during the current decade, however dry weather may prevail in southern parts of the country.
- Fog may increase in the central parts of the country after the expected rains.
- Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- Measures may be taken to preserve the crops/nurseries/orchids from the damaging impacts of extreme weather conditions.

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

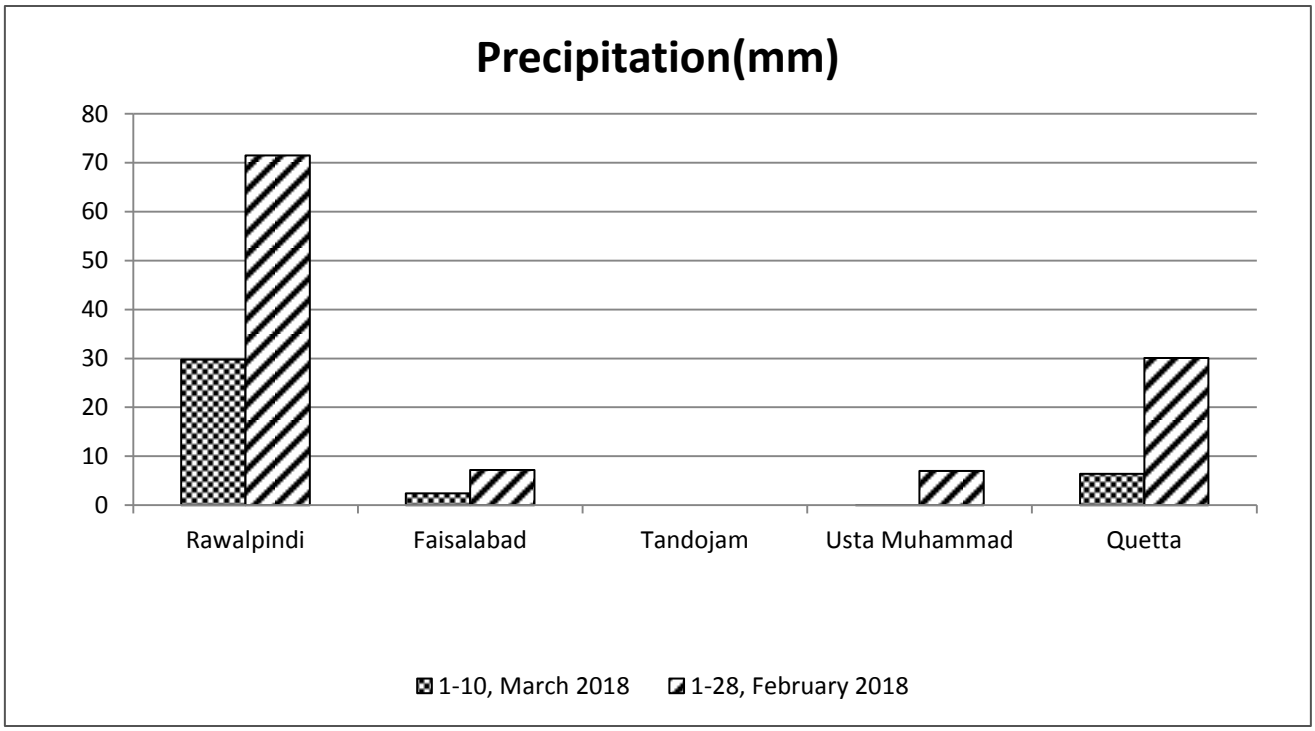
Patron-in-Chief: *Dr. Ghulam Rasul, Director General*
Editor-in-Chief: *Mrs. Asma Jawad Hashmi, Acting Director*
Editor: *Ms. Khalida Noureen, Meteorologist*
Phone: +92-51-9250592 Email: info@namc.pmd.gov.pk

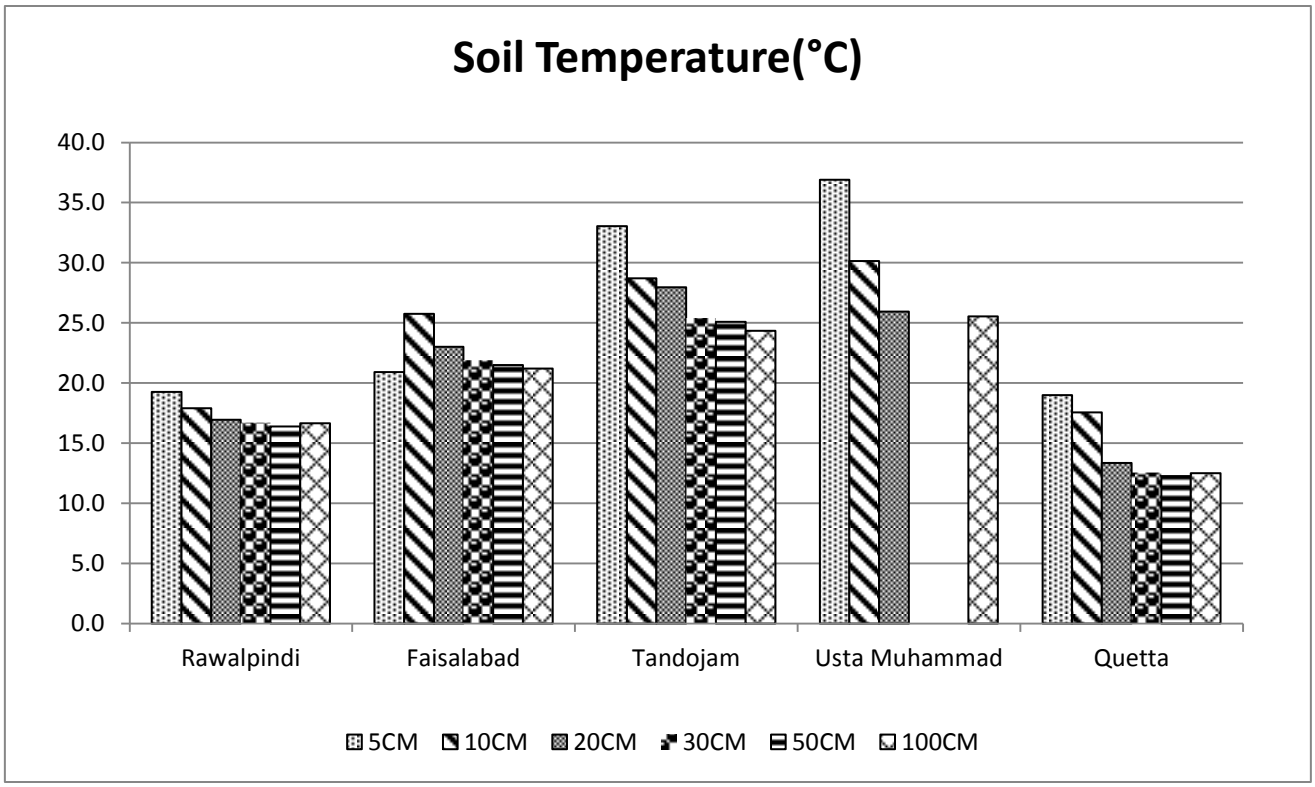
Meteorological Conditions during 1st Decade of March, 2018

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	2.0	29.8	27.8	1.2	1.7	18.1	19.3	17.9	17.0	16.7	16.4	16.7	63	77.0	3.7	2.9
2	Faisalabad	0.0	2.4	2.4	1.8	0.0	21.1	20.9	25.8	23.0	21.9	21.5	21.2	55	78.9	2.6	3.1
3	Jhelum	0.9	7.8	6.9	2.1	1.6	20.9	23.6	22.1	20.0	19.3	19.5	***	53	79.0	4.7	3.5
4	Lahore	0.9	2.1	1.2	2.0	1.0	21.9	24.6	23.3	21.0	20.2	***	20.1	59	76.2	0.8	2.7
5	Sargodha	1.0	22.6	21.6	1.0	2.2	21.6	25.4	24.3	21.6	21.3	***	20.9	64	73.5	2.2	2.9
6	Multan	0.6	0.0	-0.6	1.5	2.6	22.2	***	***	***	***	***	***	55	78.0	4.1	3.5
7	Khanpur	3.2	0.0	-3.2	1.8	2.2	23.3	***	24.6	24.7	24.9	24.8	23.9	50	83.8	2.9	3.6
8	Tandojam	0.0	0.0	0.0	2.0	1.9	24.9	33.1	28.7	28.0	25.4	25.1	24.4	52	93.2	4.2	4.5
9	Sakrand☆	0.0	0.0	0.0	1.6	2.6	24.5	33.5	***	***	***	***	25.3	48	105.6	3.0	4.2
11	Rohri	0.4	0.0	-0.4	1.9	1.8	25.4	***	***	***	***	***	***	47	10.1	3.2	2.9
12	D.I Khan	0.6	23.0	22.4	0.8	2.7	20.6	22.5	20.8	19.7	19.9	9.1	19.9	65	63.4	7.2	3.5
13	Peshawar	1.4	6.8	5.4	1.6	-0.2	18.5	20.5	20.3	18.2	17.5	17.6	17.6	63	55.5	1.8	2.3
14	Usta .M	0.0	0.0	0.0	-1.5	2.0	23.3	36.9	30.2	26.0	***	***	25.6	61	***	3.5	3.5
15	Quetta	0.6	6.4	5.8	1.1	5.0	13.7	19.0	17.6	13.4	12.6	12.3	12.5	40	89.4	5.0	3.3
16	Skardu	0.7	0.0	-0.7	3.3	2.2	8.1	***	***	***	***	***	***	47	52.0	2.3	2.0
17	Gilgit	0.3	0.4	0.1	2.1	1.4	12.6	***	***	***	***	***	***	39	59.5	2.1	2.2

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 March, 2018





Past Weather (1st to 10th March, 2018)

Light to moderate rainfall reported from most parts of the country however light rainfall reported from few places of Sindh and Balochistan during the last decade.

1.1 Punjab

Light to moderate rainfall reported from most of the agricultural plains of Punjab. Chief amount of rainfall is received at Murree, Islamabad & Sargodha. Decadal maximum & minimum both raised above normal by 1.6°C & 1.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 78.1hrs, 3.0km/hr and 3.2mm/day respectively.

1.2 Sindh

Light rainfall reported from few agricultural plains of Sindh. Chief amount of rainfall is received at Jacobabad, Sukkur & Moen Jo Daro. Decadal maximum & minimum departure both raised above normal by 1.8°C & 2.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 69.6hrs, 3.5km/hr and 3.9mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

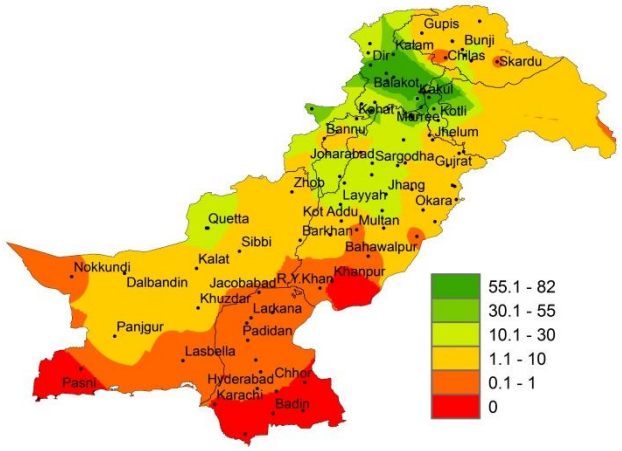
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall is received at Balakot, Malam Jabba & Dir. Decadal maximum & minimum departure both raised above normal by 1.2°C & 1.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 64%, 59.5hrs, 4.5km/hr and 2.9mm/day respectively.

1.4 Balochistan

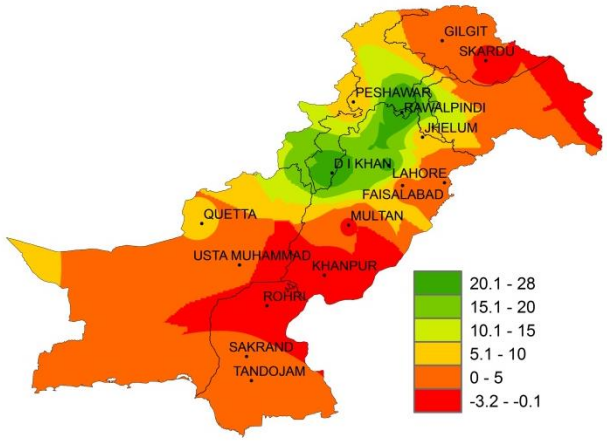
Light rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall is received at Quetta, Kalat & Dalbandin. Decadal maximum dropped below normal by 0.2°C & minimum departure raised above normal by 3.5°C, in the province, in province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 51%, 89.4hrs, 4.3km/hr and 3.4mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

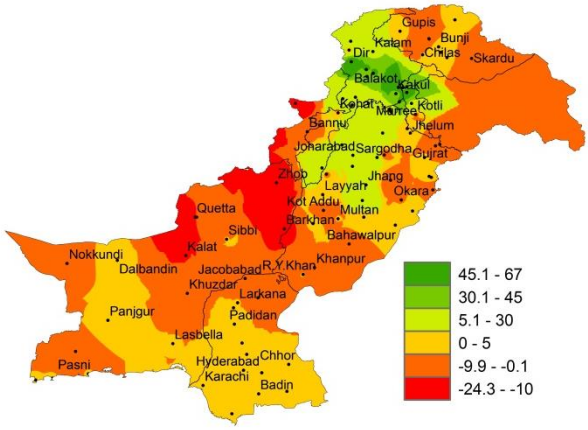
Light to moderate rainfall reported from few agricultural plains of G.B & Kashmir. Chief amount of rainfall is received at Garhi Dopatta, Muzaffarabad & Rawalakot. Decadal maximum & minimum departure both raised above normal by 2.7°C & 1.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 55.8hrs, 2.2km/hr and 2.1mm/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 March, 2018)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 29.0mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 25.6°C while night temperature recorded as 10.6°C with 77.0hours bright sunshine duration. Wind speed recorded as 3.7km/hr with mean wind direction *westerly.*

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 2.4mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 28.4°C while night temperature recorded as 13.8°C with 78.9hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *north westerly.*
Wheat: *Very good condition, flowering stage completed.*

2.3 RAMC, Tandojam (Lower Sindh)

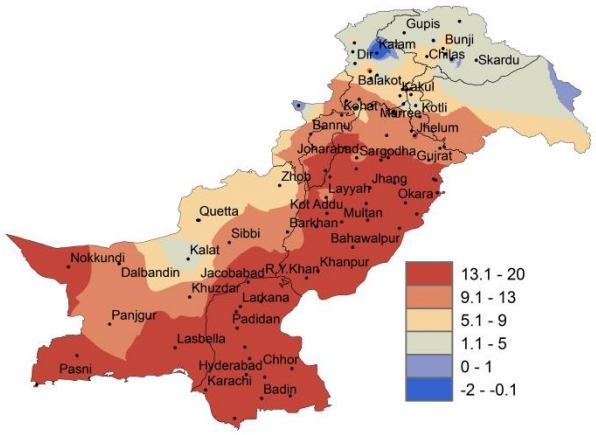
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 52%. Mean day temperature was 34.1°C while night temperature recorded as 15.7°C with 93.2hours bright sunshine duration. Wind speed recorded as 4.2km/h with mean wind direction *north westerly.*
Wheat (Sindhu)*: Good condition, wax maturity stage.*

2.4 RAMC, Usta Muhammad (Eastern Balochistan)

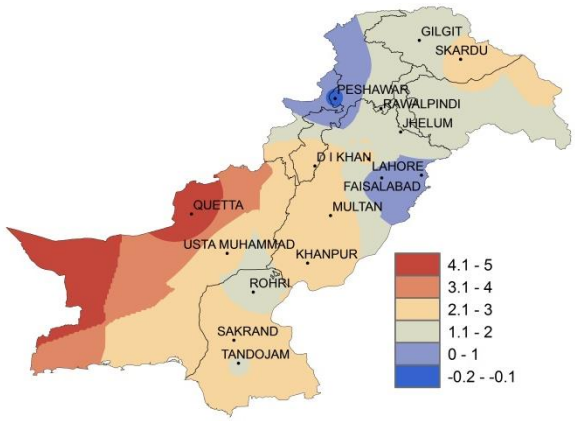
Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 29.9°C while night temperature recorded as 16.7°C. Wind speed recorded as 3.5km/h with mean wind direction *south easterly.*
Wheat*: Good condition, milk maturity stage.*

2.5 RAMC, Quetta (Northern Balochistan)

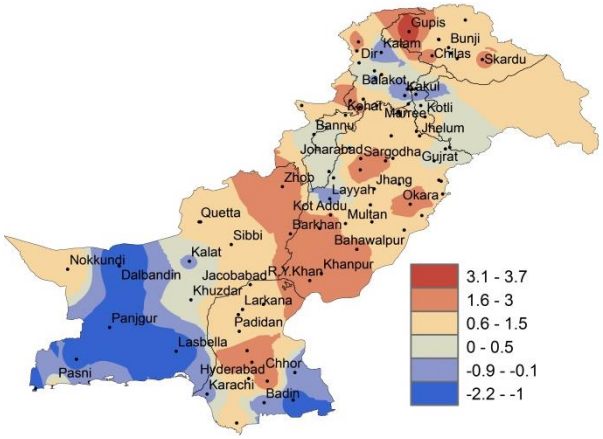
Rainfall reported as 6.4mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 40%. Mean day temperature was 19.1°C while night temperature recorded as 8.3°C with 89.4hours bright sunshine duration. Wind speed recorded as 5.0km/hr with 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 March, 2018)

2.6 Jhelum

Rainfall reported as 7.8mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 53%. Mean day temperature was 28.6°C while night temperature recorded as 13.2°C with 79.0hours bright sunshine duration. Wind speed recorded as 4.7km/hr with mean wind direction *variable.*

2.7 Lahore

Rainfall reported as 2.1mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 27.9°C while night temperature recorded as 15.9°C with 76.2hours bright sunshine duration. Wind speed recorded as 0.8km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 22.6mm during the decade; however weather remained cloudy for 10days during the decade. Average relative humidity recorded as 64%. Mean day temperature was 28.2°C while night temperature recorded as 14.9°C with 73.5hours bright sunshine duration. Wind speed recorded 2.22km/hr with mean wind direction *north easterly*.

2.9 Multan

Rainfall reported as 0.03mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 29.1°C while night temperature recorded as 15.3°C with 78.0hours bright sunshine duration. Wind speed recorded 4.1km/hr with mean wind direction *variable.*

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 31.0°C while night temperature recorded as 15.6°C with 83.8hours bright sunshine duration. Wind speed recorded 2.9km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 48%. Mean day temperature was 32.9°C while night temperature recorded as 16.0°C with 105.6hours bright sunshine duration. Wind speed recorded 3.0km/hr with wind direction *northerly*.

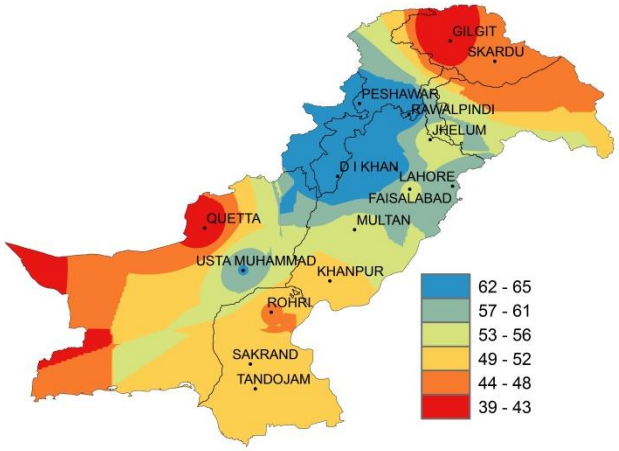


Figure.3: Relative Humidity in Percentage (%)

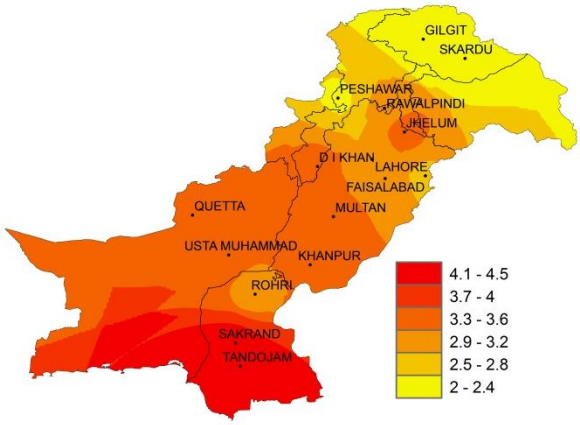


Figure.4: Reference Crop Evapotranspiration ETo(mm/day)

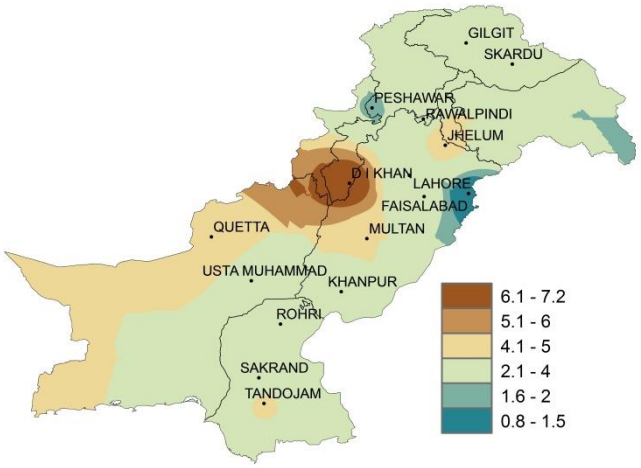


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 32.6°C while night temperature recorded as 18.2°C with 101.0hours bright sunshine duration. Wind speed recorded 3.2km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 23.0mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 27.3°C while night temperature recorded as 13.9°C with 63.4hours bright sunshine duration. Wind speed recorded as 7.2km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 6.8mm during the decade; however weather remained cloudy for 09days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 25.7°C while night temperature recorded as 11.6°C with 55.5hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *north westerly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 52.0%. Mean day temperature was 15.1°C while night temperature recorded as 1.1°C with 52.0hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *east north easterly*.

2.16 Gilgit

Rainfall reported as 0.4mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 39%. Mean day temperature was 20.3°C while night temperature recorded as 4.8°C with 59.5hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *easterly*.

Ten Days Weather Advisory for Farmers (12th to 20th March, 2018)

3.1 Temperature Forecast

Night temperatures are expected to drop slightly (1-2°C) and day temperatures are likely to be slightly 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.
- Fog may occur during the morning times, over some plains of Punjab and upper Sindh.

3.3 Rain Forecast

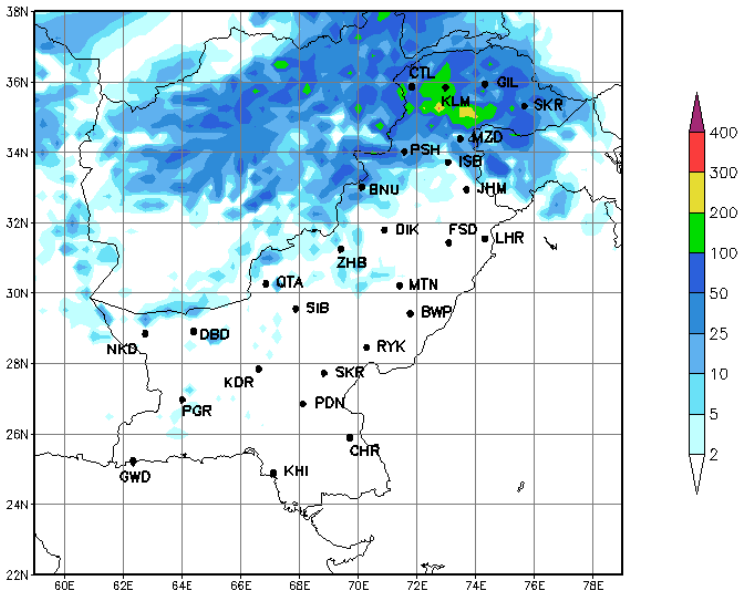
- **Punjab:** Mainly cold & cloudy weather with light to moderate rainfall is expected in most of the agricultural plains of province.
- **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected in the most parts of the province during the current decade.
- **Sindh:** Mostly dry weather is expected in the parts province. However light rainfall is expected at scattered places of Sindh.
- **Balochistan:** Mainly cold & dry weather is expected in most of the agricultural plains of province. Light rainfall is expected in few parts of the province during the current decade.
- **Gilgit-Baltistan:** Mainly cold and cloudy weather is expected in most parts of the Province. However, light to moderate rain/thunderstorm is expected at many places in G.B.
- **Kashmir:** Mainly cold and cloudy weather is expected in most parts of the country. However, light to moderate rain/thunderstorm with snowfall over hills is expected at most places of Kashmir during the 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.
- Measures may be taken to preserve the crops/nurseries/orchids from the damaging impacts of extreme weather conditions.

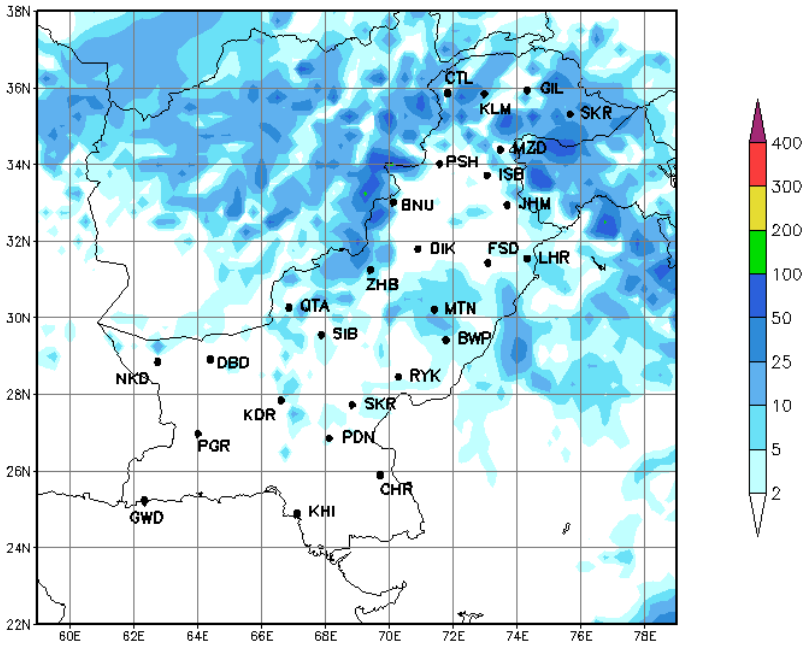
4.1 Precipitation Outlook (12th to 14th March, 2018)

The forecast for the next three days (12th to 13th) of the second decade of March, 2018 shows that mainly dry weather is expected in most parts of the country. However cold and cloudy weather with light to moderate rainfall with is expected at scattered places in northern Punjab, northern Balochistan, KP, G.B & Kashmir.



4.2 Precipitation Outlook (15th to 20th February, 2018)

The outlook for the last six days (15th to 20th) of the second decade of March, 2018 shows that light to moderate rainfall is expected at few places of Punjab, KP, Kashmir and GB, however light rainfall is expected at scattered places of Balochistan and Sindh.



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)