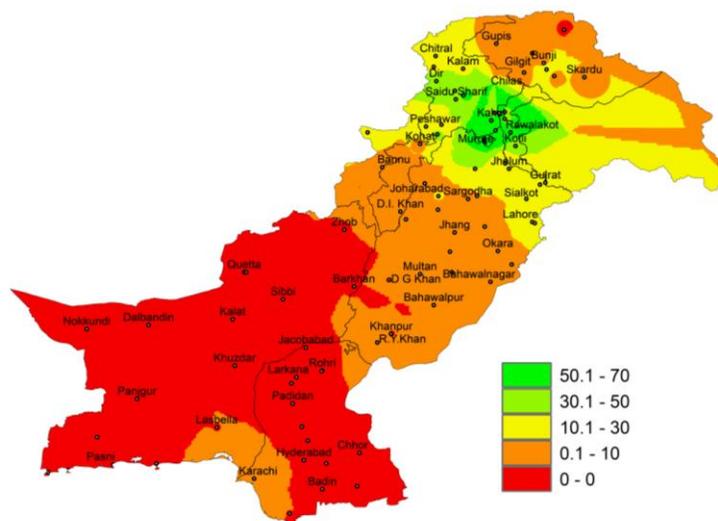


Weekly Weather and Crop Bulletin for Pakistan

NATIONAL AGROMET CENTRE
PAKISTAN METEOROLOGICAL
DEPARTMENT SECTOR H-8/2,
ISLAMABAD.

Phone: +92-51-9250299

Email: dirnamc@yahoo.com



Rainfall Distribution (mm) during the previous
Week (11th to 17th December, 2017)

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Highlights of Past Weather (11th to 17th December, 2017)

Below normal night time temperatures were observed in most parts of the country during previous week.

Province wise distribution of rainfall reported as follows:

- Light to moderate rainfall (with isolated moderate spells) reported from scattered places of Punjab, Khyber Pakhtunkhwa and Kashmir while from few places of Gilgit-Baltistan during the previous week.
- Light rainfall observed at isolated places in Sindh and Baluchistan during previous week.

Patron-in-Chief: Dr. Ghulam Rasul (Director General)

Editor-in-Chief: Dr. Khalid M. Malik (Director)

Editor: Dr. Dildar H. Kazmi (Meteorologist)

Past Weather of Provinces (11th to 17th December, 2017)

Punjab

Light to moderate rainfall (with isolated moderate spells) reported from Punjab during the week. Weekly maximum and minimum temperatures recorded as 17.1°C & 6.2°C respectively. For the recent week on average 46.5 growing degree days were accumulated by the end of the last week. Average relative humidity recorded as 79% and wind speed in the morning/evening recorded as 1.0/1.6 knots. During the previous week the highest amount of rainfall was recorded as 63.6mm at Murree & lowest minimum temperature was recorded as -3.0°C at Murree.

Balochistan

Light rainfall reported from Balochistan during the week. Weekly maximum and minimum temperatures recorded as 19.1°C & 2.4°C respectively. For the recent week on average 39.5 growing degree days were accumulated by the end of last week. Average relative humidity recorded as 42% and wind speed in the morning/evening recorded as 1.7/3.4 knots. During the previous week trace (0.01mm) rainfall was recorded at Lasbella & lowest minimum temperature was recorded as -9.5 0°C at Quetta.

Khyber Pakhtunkhwa

Light to moderate rainfall reported from Khyber Pakhtunkhwa during the week. Weekly maximum and minimum temperatures recorded as 12.9°C & 1.8°C respectively. For the recent week on average 16.4 growing degree days were accumulated by the end of last week. Average relative humidity recorded as 74% and wind speed in the morning/evening recorded as 0.8/1.3 knots. During the previous week the highest amount of rainfall was recorded as 59.0 mm at Malamjabba & lowest minimum temperature was recorded as -8.5°C at Kalam.

Gilgit-Baltistan and Azad Jammu & Kashmir

Light to moderate rainfall reported from Kashmir and Gilgit-Baltistan during the week. Weekly maximum and minimum temperatures recorded as 10.0°C & 0.5°C respectively. For the recent week on average 3.0 growing degree days were accumulated by the end of last week. Average relative humidity recorded as 72% and wind speed in the morning/evening recorded as 0.6/1.4 knots. During the previous week the highest amount of rainfall was recorded as 65.5 mm at Muzafarabad & lowest minimum temperature was recorded as -7.6°C at Skardu.

Sindh

Light rainfall reported from Sindh during the week. Weekly maximum and minimum temperatures recorded as 22.8°C & 8.1°C respectively. For the recent week, on average 73.1 growing degree days were accumulated by the end of last week. Average relative humidity recorded as 62% and wind speed in the morning/evening recorded as 2.5/4.1 knots. During the previous week the highest amount of rainfall was recorded as 6.6mm at Karachi & lowest minimum temperature was recorded as 1.0°C at Thatta.

Past Weather for Major Agricultural Plains
(11th to 17th December, 2017)

Rawalpindi (Potohar region)

Rainfall reported as 65.2 mm from Rawalpindi during the week; however, cloudiness in the morning/evening recorded as 3.1/3.5 Oktas while average relative humidity observed as 84%. Mean night time temperature recorded as 12.5°C & for the recent week 37.4 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/1.4 knots.

Faisalabad (Central Punjab)

Rainfall reported as 1.6 mm from Faisalabad during the week; however, cloudiness in the morning/evening recorded as 1.1/1.7 Oktas while average relative humidity observed as 76%. Mean night time temperature recorded as 6.0°C & for the recent week 84.2 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/1.4 knots.

Tandojam (Lower Sindh)

Dry weather reported from Tandojam during the week; however, cloudiness in the morning/evening recorded as 0.4/0.4 Oktas while average relative humidity observed as 64%. Mean night time temperature recorded as 5.0°C & for the recent week 65.0 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 1.4/4.9 knots.

Usta Muhammad (Eastern Balochistan)

Dry weather reported from Usta Muhammad during the week; however, cloudiness in the morning/evening recorded 0.1/0.3 Oktas while average relative humidity observed as 65%. Mean night time temperature recorded as 6.0°C & for the recent week 58.8 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/0.0 knots.

Quetta (Northern Baluchistan)

Dry weather reported from Quetta during the week; however, cloudiness in the morning/evening recorded as 1.0/1.4 Oktas while average relative humidity observed as 31%. Mean night time temperature recorded as -5.4°C at end of last week.

Wind speed recorded in the morning/evening as 2.1/6.1 knots.

Past Weather for Sub-Regional Agricultural Plains (11th to 17th December, 2017)

Multan

Rainfall reported as 48.0 mm from Multan during the week; however, cloudiness in the morning/evening recorded as 4.8/4.0 Oktas while average relative humidity observed as 81%. Mean night time temperature recorded as 6.9°C & for the recent week 48.5 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/2.0 knots.

Lahore

Rainfall reported as 14.1 mm reported from Lahore during the week; however, cloudiness in the morning/evening recorded as 4.2/4.8 Oktas while average relative humidity observed as 80%. Mean night time temperature recorded as 9.0°C & for the recent week 56.0 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 1.1/1.0 knots.

Zhob

Dry weather reported from Zhob during the week; however, cloudiness in the morning/evening recorded as 1.4/1.0 Oktas while average relative humidity observed as 46%. Mean night time temperature recorded as 2.3°C & for the recent week 16.8 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 1.0/2.8 knots.

Murree

Rainfall reported as 63.6 mm reported from Murree during the week; however, cloudiness in the morning/evening recorded as 3.4/4.8 Oktas while average relative humidity observed as 78%. Mean night time temperature recorded as -0.9°C. Wind speed recorded in the morning/evening as 1.9/2.8 knots.

D.I. Khan

Rainfall reported as trace (not measureable) from D.I. Khan during the week; however, cloudiness in the morning/evening recorded as 3.8/3.5 Oktas while average relative humidity observed as 70%. Mean night time temperature recorded as 7.2°C &

for the recent week 59.0 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.6/1.7 knots.

Peshawar

Rainfall reported as 19.0mm from Peshawar during the week; however, cloudiness in the morning/evening recorded as 3.7/5.8 Oktas while average relative humidity observed as 72%. Mean night time temperature recorded as 6.1°C & for the recent week 44.5 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.3/1.0 knots.

Kalam

Rainfall reported as 25.0mm from Kalam during the week; however, cloudiness in the morning/evening recorded as 5.6/6.3 Oktas while average relative humidity observed as 84%. Mean night time temperature recorded as -5.0°C. Wind speed recorded in the morning/evening as 0.0/0.0 knots.

Gilgit

Rainfall reported as 0.4mm from Gilgit during the week; However, cloudiness in the morning/evening recorded as 6.1/7.2 Oktas while average relative humidity observed as 72%. Mean night time temperature recorded as -0.9°C & for the recent week 1.3 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/0.7 knots.

Skardu

Rainfall reported as 7.3mm from Skardu during the week; However, cloudiness in the morning/evening recorded as 6.0/7.0 Oktas while average relative humidity observed as 75%. Mean night time temperature recorded as -4.9°C. Wind speed recorded in the morning/evening as 0.0/0.5 knots.

Crop Situation for Major Agricultural Plains (Based on data from Regional Agro met Centers)

Potohar Region (Rawalpindi)

There is presently no crop grown in the fields of RAMC Rawalpindi.

Central Punjab (Faisalabad)

There is presently one crop in the fields of RAMC Faisalabad.

Wheat (*Galaxy*); Emergence completed.

Lower Sindh (Tandojam)

There is presently one crop in the fields of RAMC Tandojam.

Wheat (*Sindh*); 3rd leaf stage.

Northern Baluchistan (Quetta)

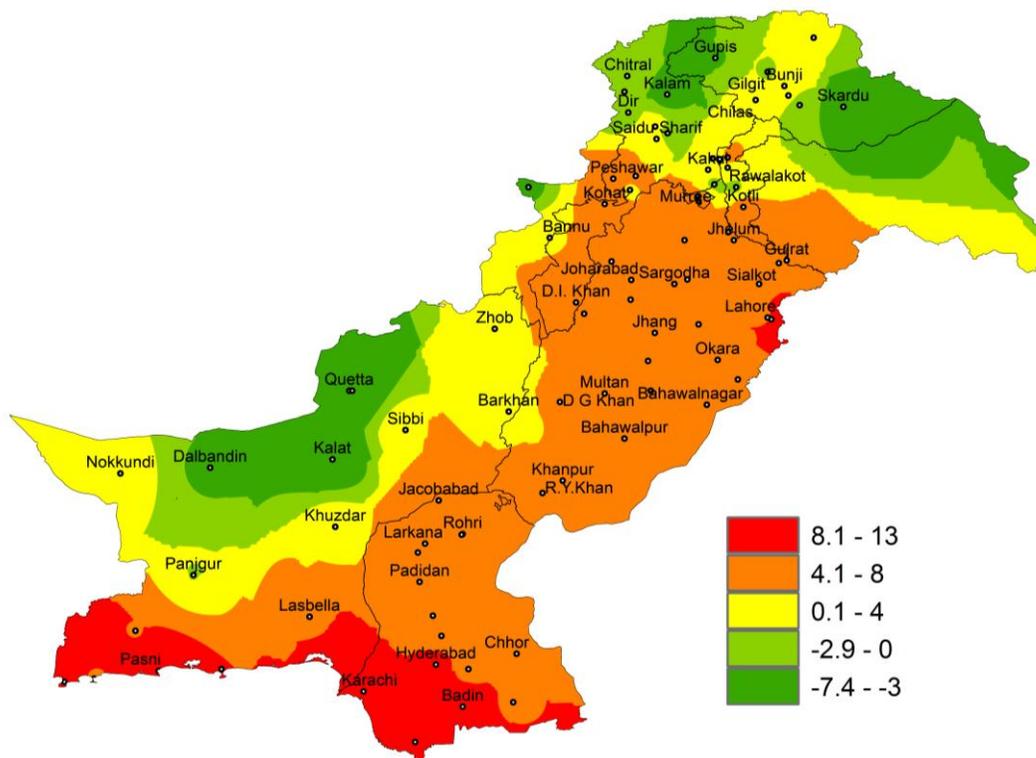
There is presently no crop grown in the fields of RAMC Quetta.

Eastern Baluchistan (Usta Muhammad)

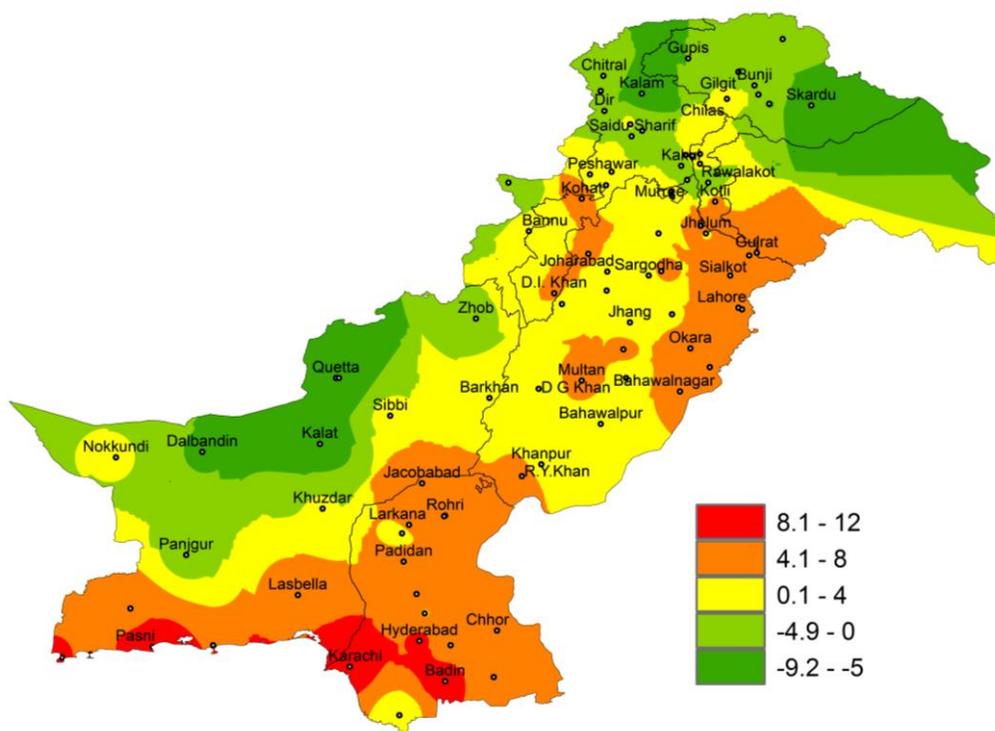
There is presently one crop grown in the fields of RAMC Usta Muhammad.

Wheat (*Galaxy*); 3rd leaf stage

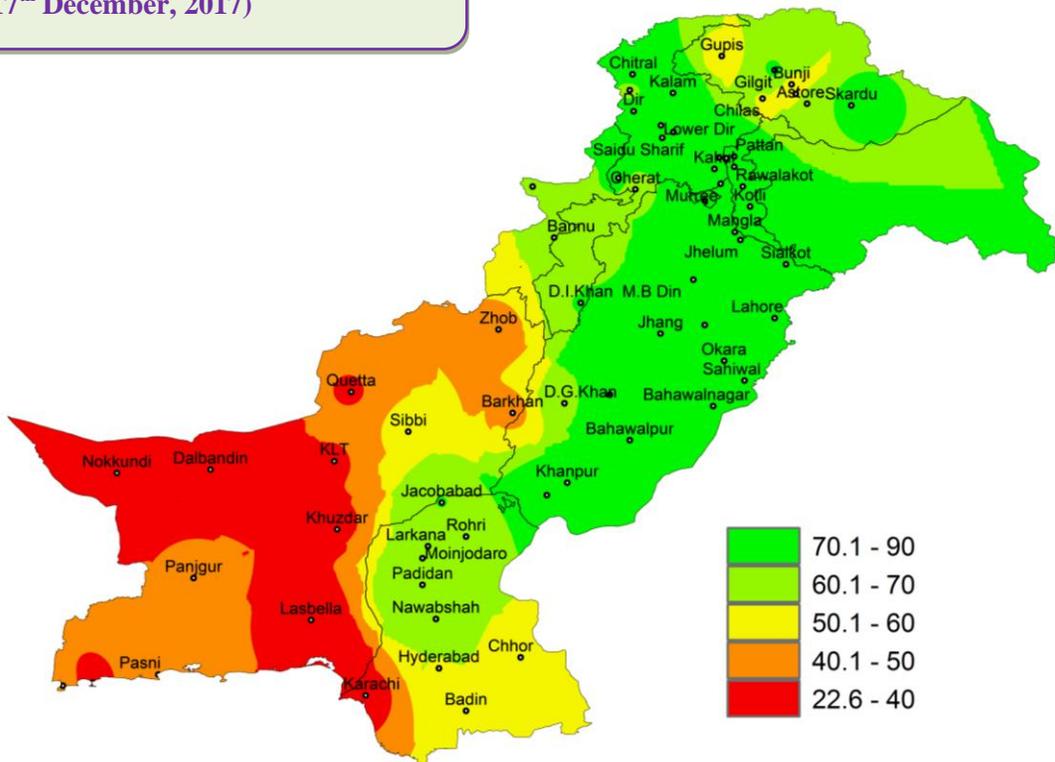
Mean Minimum Temperature (°C) during the Previous week (11th to 17th December, 2017)



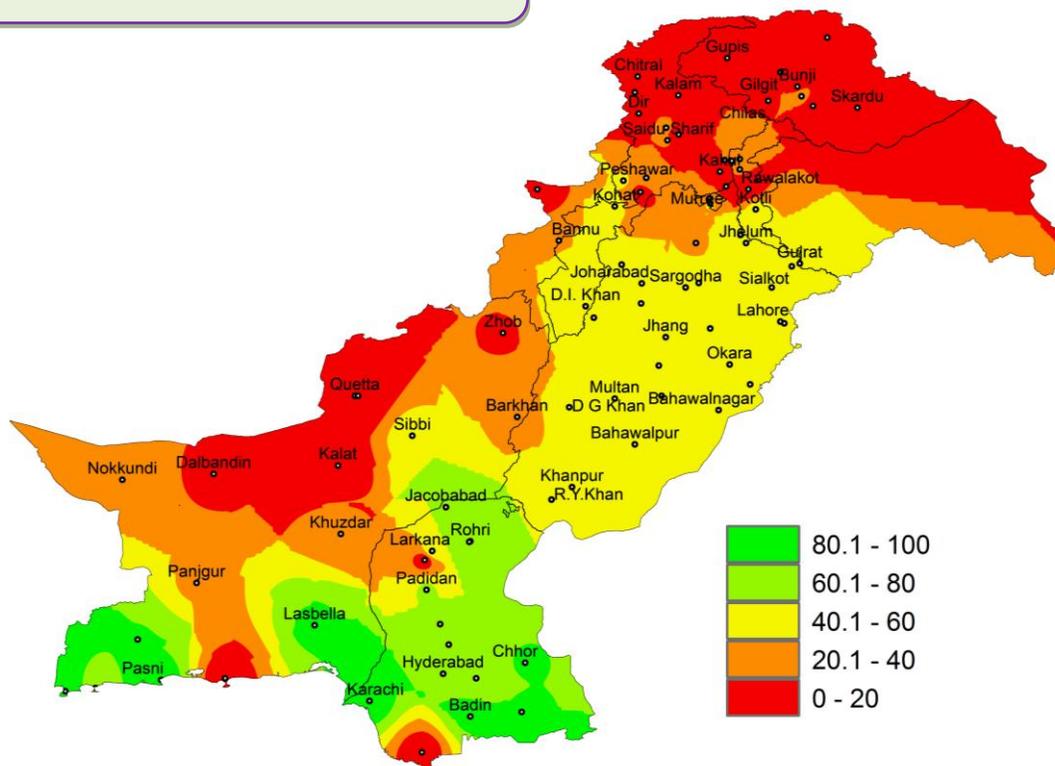
Lowest Minimum Temperature (°C) during the Previous week (11th to 17th December, 2017)



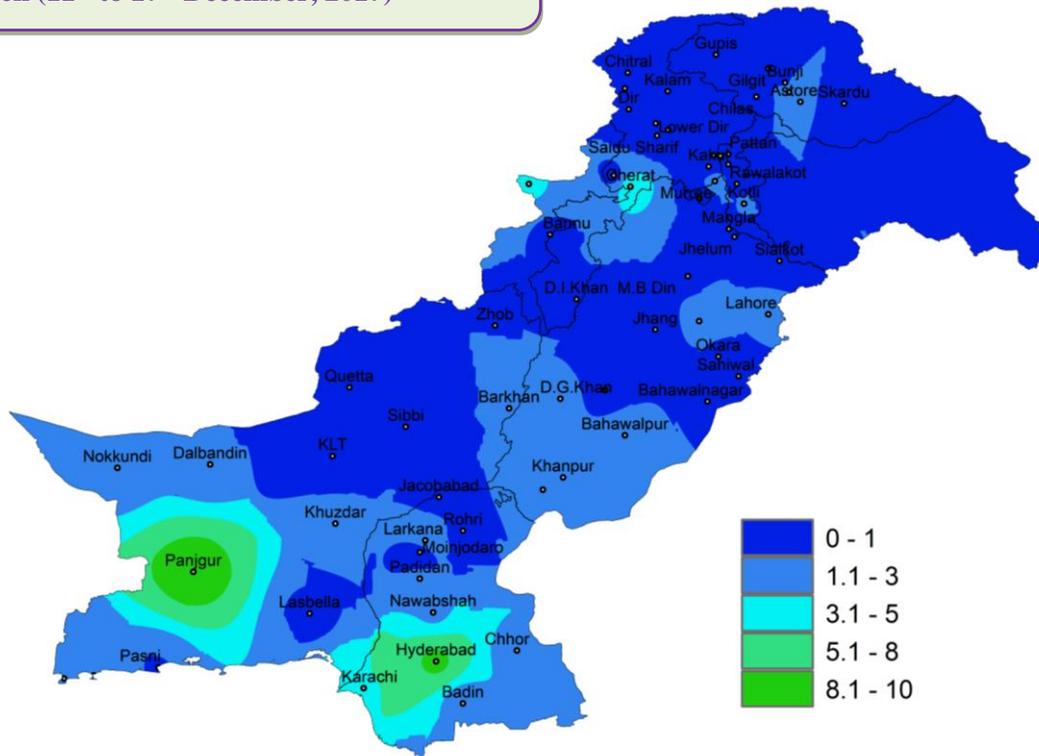
Mean Relative Humidity (%) during the previous week (11th to 17th December, 2017)



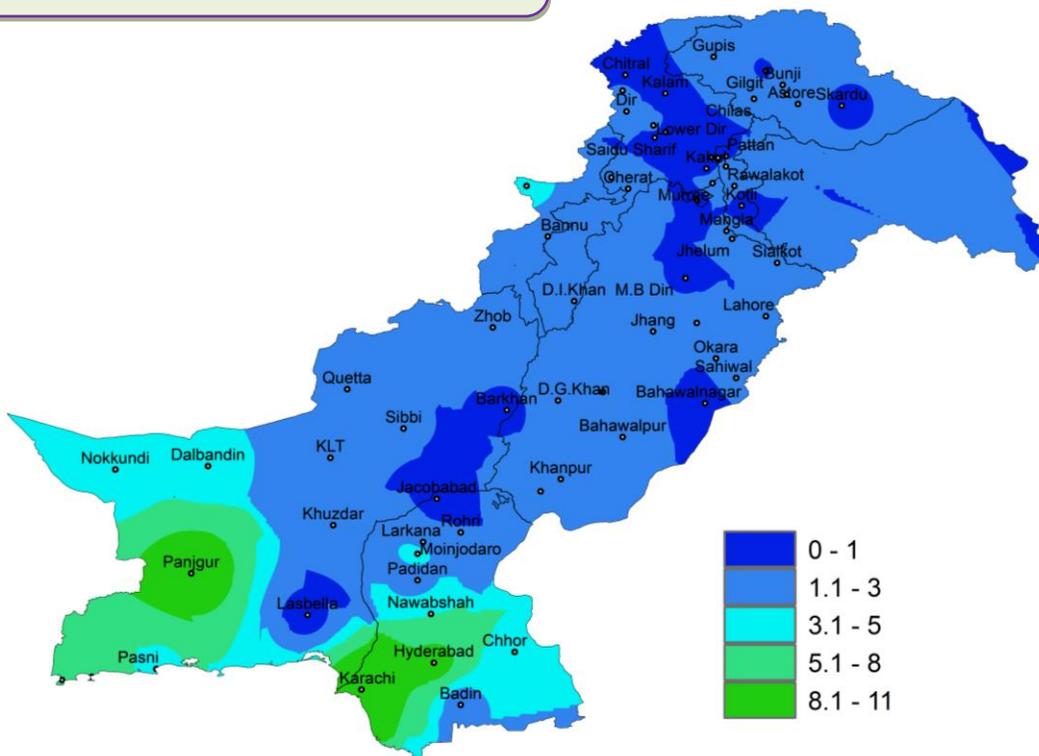
Total Growing Degree Days accumulated during the previous week (11th to 17th December, 2017)



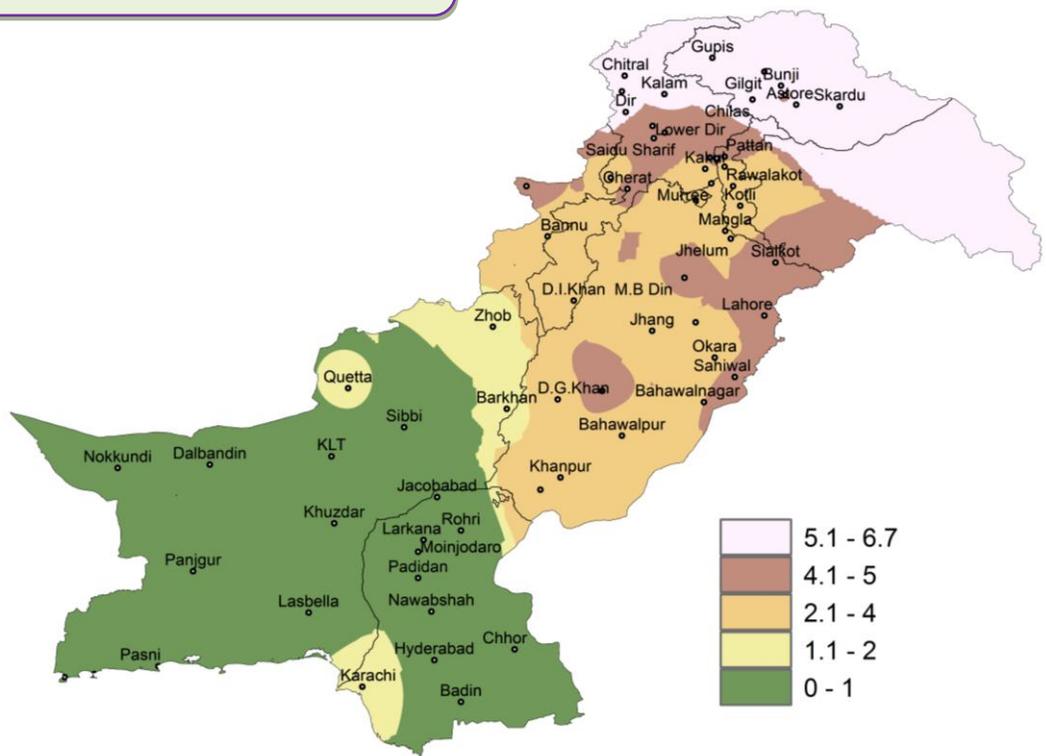
Mean Wind Speed (Knots) at 0800PST during the previous week (11th to 17th December, 2017)



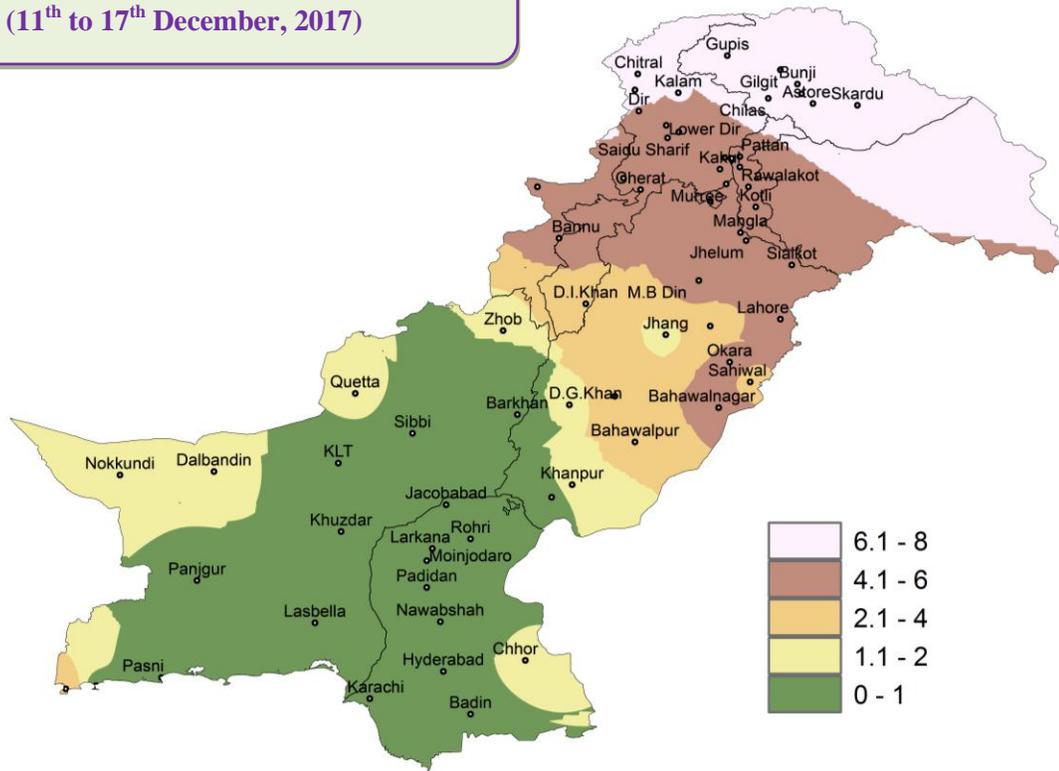
Mean Wind Speed (Knots) at 1700PST during the previous week (11th to 17th December, 2017)



Mean Cloudiness (Oktas) at 0800PST during the previous week (11th to 17th December, 2017)



Mean Cloudiness (Oktas) at 1700PST during the previous week (11th to 17th December, 2017)



Weekly Weather Advisory for Farmers
(18th to 24th December, 2017)

Continental air is prevailing over most parts of the country.

MONDAY
18-12-2017

Mainly cold and dry weather is expected in most parts of the country; however rain thunderstorm with snowfall over the hills is expected in Makran and Quetta divisions. Very cold weather conditions are likely to prevail in Balochistan and northern parts of the country. Frost is expected at a few places in upper and central Punjab during night/morning. Foggy conditions are likely over plain areas of Punjab and upper Sindh during morning hours.

TUESDAY
19-12-2017

Mainly cold and dry weather is expected in most parts of the country; however rain thunderstorm with snowfall over the hills is expected in Makran, Quetta divisions and Gilgit-Baltistan. Foggy conditions are likely over plain areas of Punjab and upper Sindh during morning hours.

WEDNESDAY
20-12-2017

Mainly cold and dry weather is expected in most parts of the country. However thunderstorm/rain is expected at few places in Gilgit Baltistan and Kalat division. Foggy conditions are likely over plain areas of Punjab and upper Sindh during night & morning hours.

THURSDAY
21-12-2017

Mainly cold and dry weather is expected in most parts of the country. However thunderstorm/rain is expected at few places in Malakand division and Gilgit-Baltistan. Dense Foggy conditions are likely

over plain areas of Punjab and upper Sindh during night & morning hours.

FRIDAY
22-12-2017

Mainly cold and dry weather is expected in most parts of the country. However rain is expected at few places in Gilgit-Baltistan. Dense Foggy conditions are likely over plain areas of Punjab and upper Sindh during night & morning hours.

SATURDAY
23-12-2017

Mainly cold and dry weather is expected in most parts of the country. However rain is expected at few places in Gilgit-Baltistan. Dense Foggy conditions are likely over plain areas of Punjab and upper Sindh during night & morning hours.

SUNDAY
24-12-2017

Mainly cold and dry weather is expected in most parts of the country. However, rain-thunderstorm is expected at isolated places in Malakand division and Gilgit-Baltistan.

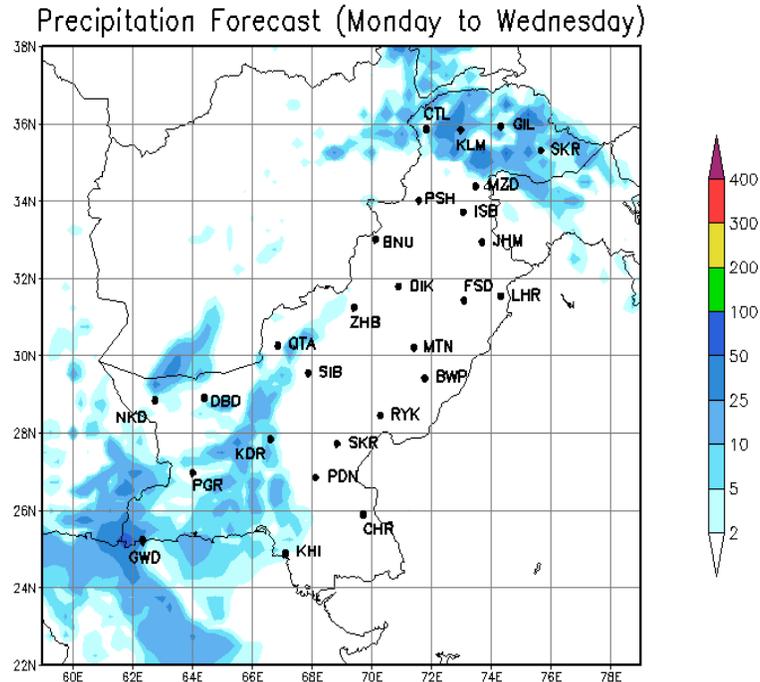
ADVISES FOR FARMERS

During the last week, rainfall occurred in most parts of the agricultural plains of the country. In next week light rainfall is expected at upper parts of the country and in lower Baluchistan. Accordingly, following advises are suggested for the farming community.

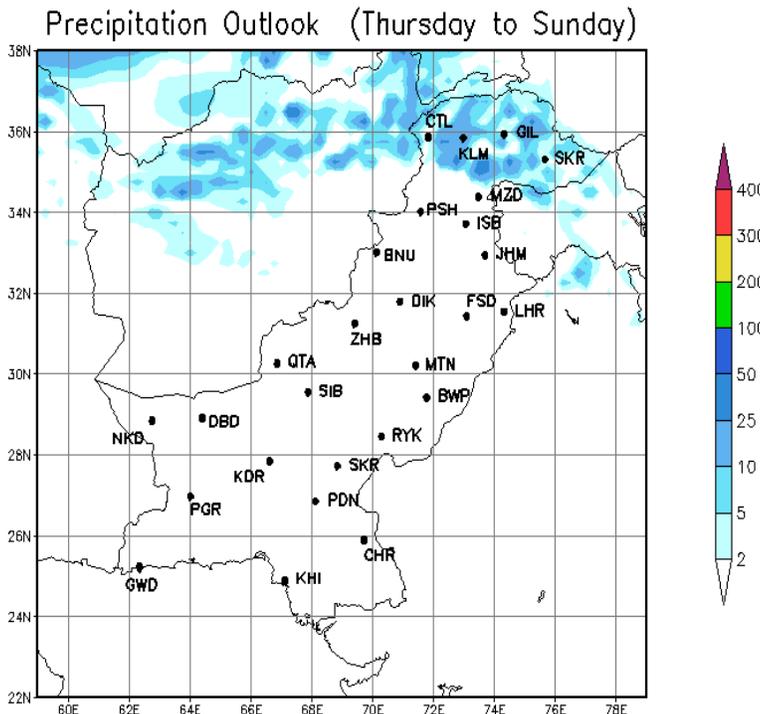
- Necessary precautionary measures may be taken to protect crops/nurseries from chilly weather conditions.

Weather Outlook from 18th to 24th December, 2017

The outlook for the period 18th to 20th December, 2017 shows that light to moderate rainfall (with isolated snowfalls over the mountains) is expected in most parts of the Upper K.P, Kashmir, Gilgit-Baltistan while light rainfall is expected at scattered places in Balochistan.



The outlook for the period 21st to 24th December, 2017 shows that dry weather is expected in most parts of the country however light rainfall with snowfall over hills is expected at scattered places in G.B and upper KP.



National Weather Data of Selected Cities (11th to 17th December, 2017)

Stations	Minimum Night time Temperature (°C)		Growing Degree Days	Relative Humidity (%)	Rainfall (mm)	Cloudiness (Oktas) 0800 PST	Cloudiness (Oktas) 1700 PST	Wind Speed (Knots) 0800 PST	Wind Speed (Knots) 1700 PST
	Mean	Lowest							
Astore	-3.1	-5.5	***	65	3.00	5.9	6.3	1.1	2.3
Badin	12.1	10.5	90.0	58	0.00	0.0	0.8	1.4	1.7
Bahawalnagar	7.6	5.0	54.8	81	0.01	4.0	4.7	0.6	0.7
Bahawalpur	5.9	2.3	45.4	85	0.00	2.8	2.2	2.0	1.0
Balakot	2.5	0.3	21.0	83	39.00	4.3	6.0	0.0	0.0
Bannu	3.4	1.0	39.1	60	2.00	2.7	4.3	0.6	1.3
Barkhan	2.3	0.5	31.3	47	0.00	1.0	0.3	1.1	0.3
Bunji	3.6	0.0	14.2	57	0.61	6.7	7.5	0.9	2.7
Cherat	3.6	3.0	9.0	67	33.00	4.1	4.8	4.6	3.0
Chhor	7.8	5.5	81.3	57	0.00	0.0	1.2	2.0	4.0
Chilas	2.9	1.5	18.0	60	3.20	5.6	6.7	0.3	1.7
Chitral	-0.8	-2.8	***	80	18.70	6.0	7.8	0.0	0.0
D.G.Khan	4.7	2.6	48.9	68	0.00	3.4	1.0	1.7	3.0
D.I.Khan	7.2	4.5	59.0	70	0.01	3.8	3.5	0.6	1.7
Dalbandin	-3.9	-5.5	14.5	33	0.00	0.3	1.5	1.1	3.7
Dir	-2.0	-5.0	0.3	80	44.00	5.0	5.8	0.0	1.3
Drosh	-1.5	-3.0	***	65	23.30	6.1	7.2	0.0	1.3
Faisalabad	6.9	6.0	84.2	76	1.60	1.1	1.7	0.0	0.8
Gari dopatta	3.0	0.5	22.3	84	48.30	3.4	5.0	0.3	2.3
Gawader	7.6	7.0	71.3	37	0.00	0.3	0.7	2.0	7.7
Gilgit	-0.9	-3.5	1.3	72	0.40	6.1	7.2	0.0	0.7
Gupis	-3.4	-5.0	***	55	1.00	5.9	7.0	0.9	3.0

Hyderabad	10.2	9.0	78.8	60	0.00	0.6	0.7	8.9	9.7
Islamabad	4.2	1.5	33.9	82	58.00	3.3	4.7	0.0	0.0
Jacobabad	7.7	6.0	63.4	70	0.00	0.0	0.0	0.6	0.0
Jhang	5.7	3.2	50.0	80	7.20	3.2	1.6	0.3	2.7
Jhelum	6.6	3.9	53.2	78	16.30	3.9	5.2	0.9	1.0
Jiwani	12.1	8.5	96.8	42	0.00	0.8	3.2	3.0	6.3
Kakul	1.2	-1.5	10.3	84	56.00	3.4	5.2	0.0	0.3
Kalam	-5.0	-8.5	***	84	25.00	5.6	6.3	0.0	0.0
Kalat	-7.4	-9.0	***	39	0.00	0.0	0.0	0.0	2.0
Karachi	11.9	10.5	96.1	33	6.61	1.9	0.7	4.9	11.0
Khanpur	5.2	2.5	47.8	72	0.00	4.0	2.0	1.1	1.7
Khuzdar	2.2	0.5	30.8	38	0.00	0.6	0.5	1.7	1.7
Kotli	6.5	5.0	51.0	77	40.60	3.4	4.3	1.1	0.7
Lahore	9.0	6.0	55.9	80	14.10	4.2	4.8	1.1	1.0
Larkana	7.1	5.5	64.4	62	0.00	0.7	0.3	2.3	2.3
Lasbella	7.9	6.3	85.9	33	0.01	0.0	0.0	0.3	0.3
Lower Dir	2.9	1.0	26.4	80	38.00	4.3	4.3	0.3	2.0
M.B Din	7.7	5.0	54.6	79	10.00	4.1	5.7	0.9	0.7
Malam Jabba	-3.7	-5.5	***	85	59.00	4.6	4.7	0.0	0.0
Mangla	7.2	4.4	54.5	73	16.50	4.0	5.0	0.6	1.3
Mir Khani	1.4	-0.2	31.9	57	35.80	4.4	7.0	1.7	3.0
Moinjodaro	4.9	2.5	***	67	0.00	0.0	0.0	0.0	3.7
Multan(PBO)	6.9	5.0	48.5	81	4.80	4.8	4.0	0.0	2.0
Murree	-0.9	-3.0	***	78	63.60	3.4	4.8	1.9	2.8
Muzaffarabad	2.3	0.0	18.1	85	65.50	4.4	5.5	1.1	0.3
Nawabshah	6.6	6.0	70.3	64	0.00	0.7	0.2	2.6	5.0

Nokkundi	1.9	0.5	34.8	23	0.00	0.3	1.7	1.4	3.3
Okara	7.1	5.0	48.5	84	5.00	3.7	4.7	0.9	1.0
Padidan	7.1	5.5	65.0	66	0.00	0.2	0.5	1.2	2.0
Panjgur	-0.1	-2.0	33.8	45	0.00	0.0	0.3	10.3	10.7
Parachinar	-4.3	-5.0	***	61	24.00	5.0	5.2	3.6	4.0
Pasni	12.6	11.5	95.3	50	0.00	0.0	0.0	0.9	4.2
Pattan	5.4	4.0	29.0	82	46.00	4.3	6.0	0.0	0.7
Peshawar	6.1	4.0	44.5	72	19.01	3.7	5.8	0.3	1.0
Quetta	-3.3	-5.4	***	31	0.00	1.0	1.4	6.1	1.3
Rahim Yar Khan	7.3	5.5	56.4	81	1.00	2.7	0.0	2.0	3.0
Rawalakot	-0.7	-3.5	***	76	60.20	3.6	4.8	0.4	1.0
Rawalpindi	16.4	12.5	37.4	84	65.20	3.1	3.5	0.0	0.8
Rohri	8.0	7.0	69.0	62	0.00	0.4	0.0	0.6	1.0
Sahiwal	7.5	4.8	50.0	82	3.00	4.3	3.6	0.9	1.3
Saidu Sharif	2.8	0.0	22.3	79	28.00	4.3	5.2	0.0	0.0
Sialkot	7.5	4.8	50.5	89	28.50	4.8	5.3	0.9	1.7
Sibbi	3.9	2.0	58.3	56	0.00	0.0	0.0	0.0	1.3
Skardu	-4.9	-7.6	***	75	7.30	6.0	7.0	0.0	0.5
Tandojam	66.0	5.0	65.0	64	0.00	0.4	0.4	0.8	2.6
Usta. M	6.8	6.0	58.8	65	0.00	0.1	0.3	0.0	0.0
Zhob	2.3	-1.0	16.8	46	0.00	1.4	1.0	1.0	2.8

*** Shows that data was not available.

*Trace shows not-measurable data

Findings of AgMIP Pakistan, University of Agriculture, Faisalabad

1. 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).
2. There would be significant variability in rainfall patterns (about 25% increase in summer & 12% decrease in winter during 2040-2069).
3. Climate Change will affect the crop yields negatively (about 17% for rice and 14 % for wheat).
4. If there will be no adaptation to Climate Change, majority of farmers would be the economic losers.
5. 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)