

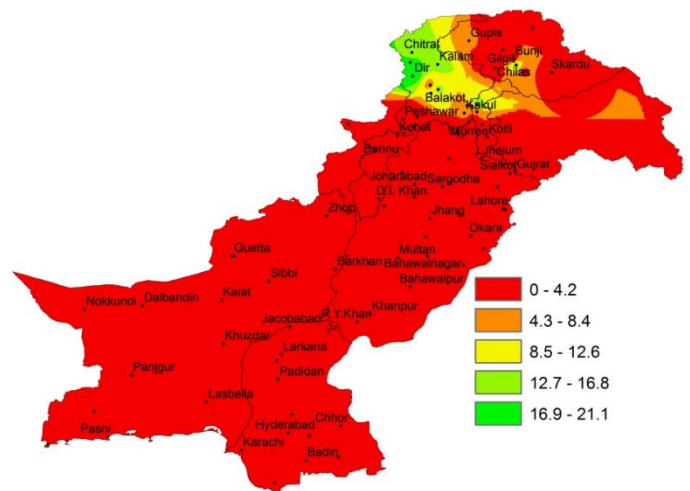
Weekly Weather and Crop Bulletin for Pakistan

**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 (from 5th to 11th December, 2016)



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Highlights of Past Weather (from 5th to 11th December, 2016)

Slightly above normal night temperatures reported from most parts of the country.

Province wise distribution of rainfall reported as follows:

- Light rainfall reported from few places of Punjab and Baluchistan.
- Light to moderate rainfall reported from several places of Khyber Pakhtunkhwa and Gilgit-Baltistan.
- Whereas, dry weather was reported from Sindh.

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

Editor-in-Chief: Dr. Azmat Hayat Khan (Director)

Editor: Khalida Noreen (Meteorologist)

Past Weather of Provinces (from 5th to 11th December, 2016)

Punjab

Light rainfall reported from few places of Punjab during the week. Weekly maximum and minimum temperatures recorded as 24.6°C & 9.4°C respectively. For the present season on average 84 growing degree days were accumulated by the end of the last week. Average relative humidity recorded as 73% and wind speed in the morning/evening recorded as 0.6/0.9 Knots. During the previous week the highest amount of rainfall was recorded as 0.1mm at Murree & lowest minimum temperature was recorded as 4.0°C at Islamabad.

Sindh

Dry weather reported from Sindh during the week. Weekly maximum and minimum temperatures recorded as 30.2°C & 13.2°C respectively. For the present season, on average 116.4 growing degree days were accumulated by the end of last week. Average relative humidity recorded as 64% and wind speed in the morning/evening recorded as 0.6/2.6 Knots. During the previous week the lowest minimum temperature recorded as 5.4°C at Mithi.

Khyber Pakhtunkhwa

Light to moderate rainfall reported from several places of Khyber Pakhtunkhwa during the week. Weekly maximum and minimum temperatures recorded as 19.6°C & 5.5°C respectively. For the present season on average 52.8 growing degree days were accumulated by the end of last week. Average relative humidity recorded as 56% and wind speed in the morning/evening recorded as 0.6/1.3 Knots. During the previous week the highest amount of rainfall was recorded as 21.0mm at Dir & lowest minimum temperature was recorded as -1.5°C at Malam Jabba.

Balochistan

Light rainfall reported from few places of Balochistan during the week. Weekly maximum and minimum temperatures recorded as 26.8°C & 10.0°C respectively. For the present season on average 93.7 growing degree days were accumulated by the end of last week. Average relative humidity recorded as 49% and wind speed in the morning/evening recorded as 1.7/4.0 Knots. During the previous week the highest amount of rainfall was recorded as 0.3mm at Quetta & lowest minimum temperature was recorded as -5.0°C at Kalat.

Gilgit-Baltistan and Azad Jammu & Kashmir

Light to moderate rainfall reported from several places of Gilgit-Baltistan & Kashmir regions during the week. Weekly maximum and minimum temperatures recorded as 16.3°C & 1.4°C respectively. For the present season on average 27.0 growing degree days were accumulated by the end of last week. Average relative humidity recorded as 54% and wind speed in the morning/evening recorded as 0.5/0.5 Knots. During the previous week the highest amount of rainfall was recorded as 5.1mm at Muzaffarabad & lowest minimum temperature was recorded as -6.2°C at Skardu.

**Past Weather for Major Agricultural Plains
(from 5th to 11th December, 2016)****Rawalpindi (Potohar region)**

Dry weather was reported during the week; cloudiness in the morning/evening recorded as 0.6/1.2 Oktas while, average relative humidity observed as 76%. Mean night time temperature recorded as 6.8°C & for the present season 73.0 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.2/0.6 Knots.

Faisalabad (Central Punjab)

Dry weather was reported during the week; however cloudiness in the morning/evening recorded as 0.0/0.6 Oktas while, average relative humidity observed as 77%. Mean night time temperature recorded as 10.6°C & for the present season 90.6 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.3/0.3 Knots.

Tandojam (Lower Sindh)

Dry weather was reported during the week; however cloudiness in the morning/evening recorded as 0.0/0.0 Oktas while, average relative humidity observed as 65%. Mean night time temperature recorded as 12.4°C & for the present season 117.3 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.3/0.9 Knots.

Quetta (Northern Baluchistan)

Rainfall reported as 0.1mm during the week; however cloudiness in the morning/evening recorded as 1.0/1.2 Oktas while, average relative humidity observed as 35%. Mean night time temperature recorded as 4.5°C & for the present season 49.1 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 1.2/2.3 Knots.

Usta Muhammad (Eastern Balochistan)

Dry weather was reported during the week; however cloudiness in the morning/evening recorded 0.0/0.0 Oktas while, average relative humidity observed as 66%. Mean night time temperature recorded as 11.1°C & for the present season 103.8 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/0.0 Knots.

**Past Weather for Sub-Regional Agricultural
Plains (from 28th November to 4th December,
2016)****Multan**

Dry weather was reported during the week; however cloudiness in the morning/evening recorded as 2.2/0.0 Oktas while, average relative humidity observed as 76%. Mean night time temperature recorded as 11.7°C & for the present season 90.9 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.9/1.1 Knots.

Lahore

Dry weather was reported during the week; however cloudiness in the morning/evening recorded as 0.0/0.3 Oktas while, average relative humidity observed as 76%. Mean night time temperature recorded as 10.5°C & for the present season 85.2 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/0.6 Knots.

Zhob

Dry weather was reported during the week; however cloudiness in the morning/evening recorded as 0.0/0.4 Oktas while, average relative humidity observed as 35%. Mean night time temperature recorded as 4.3°C & for the present season 64.0 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 3.6/4.3 Knots.

D.I. Khan

Dry weather was reported during the week; cloudiness in the morning/evening recorded as 3.8/0.7 Oktas while, average relative humidity observed as 75%. Mean night time temperature recorded as 9.9°C & for the present season 86 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.9/0.6 Knots.

Peshawar

Rainfall reported as 0.2mm during the week; cloudiness in the morning/evening recorded as 2.3/3.1 Oktas while, average relative humidity observed as 75%. Mean night time temperature recorded as 9.1°C & for the present season 74.0 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/0.3 Knots.

Murree

Rainfall reported as 0.1mm during the week; cloudiness in the morning/evening recorded as 0.7/1.3 Oktas while, average relative humidity observed as 49%. Mean night time temperature recorded as 7.3°C & for the present season 61.1 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 1.1/2.0 Knots.

Kalam

Rainfall reported as 14.0mm during the week; cloudiness in the morning/evening recorded as 3.6/4.3 Oktas while, average relative humidity observed as 56%. Mean night time temperature recorded as -0.2°C & for the present season 19.0 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/0.0 Knots.

Gilgit

Rainfall reported as 0.1mm during the week; cloudiness in the morning/evening recorded as 4.6/5.4 Oktas while, average relative humidity observed as 64%. Mean night time temperature recorded as -1.1°C & for the present season 16.5 growing degree days accumulated by the end of last week. Wind speed recorded in the morning/evening as 0.0/0.0 Knots.

Skardu

Dry weather was reported during the week; cloudiness in the morning/evening recorded as 4.7/4.3 Oktas while, average relative humidity observed as 63%. Mean night time temperature recorded as -5.4°C by the end of last week. Wind speed recorded in the morning/evening as 0.0/0.0 Knots.

Crop Situation for Major Agricultural Plains
(Based on data from Regional Agromet Centres)

Potohar Region (Rawalpindi)

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

Central Punjab (Faisalabad)

There is presently one crop (irrigated conditions) grown in the fields of RAMC Faisalabad.

Wheat: Very good condition *Emergence* stage completed.

Lower Sindh (Tandojam)

There is presently one crop (irrigated conditions) grown in the fields of RAMC Tandojam.

Wheat (Imdad): Good condition at *tillering* stage.

Northern Balochistan (Quetta)

There is presently one crop (irrigated conditions) grown in the fields of RAMC Quetta.

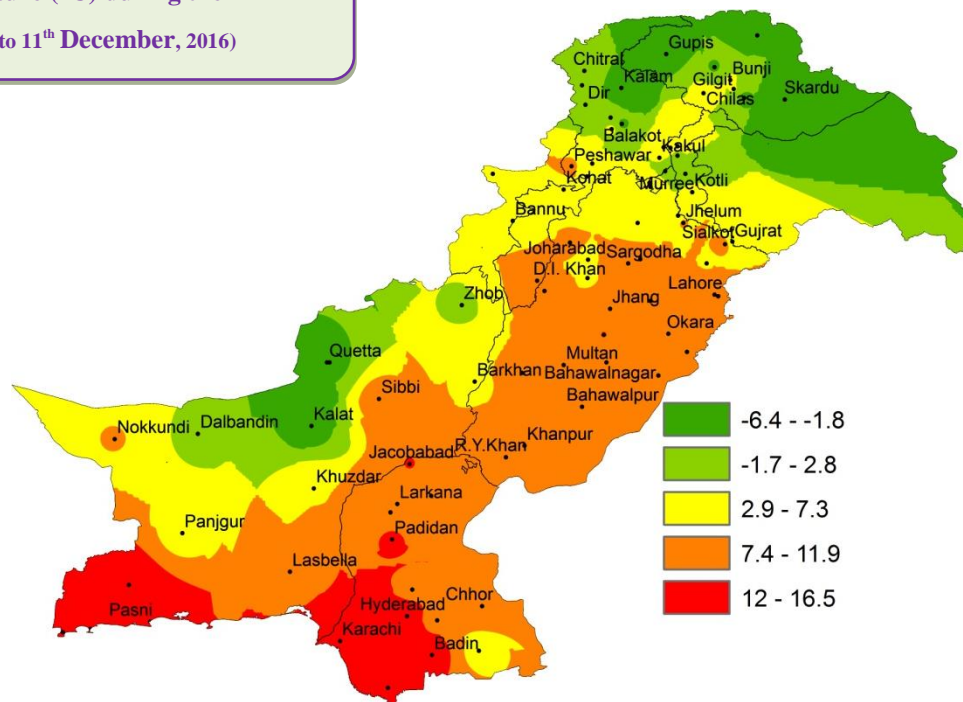
Wheat: Good condition at *3rd Leaf* stage.

Eastern Balochistan (Usta Muhammad)

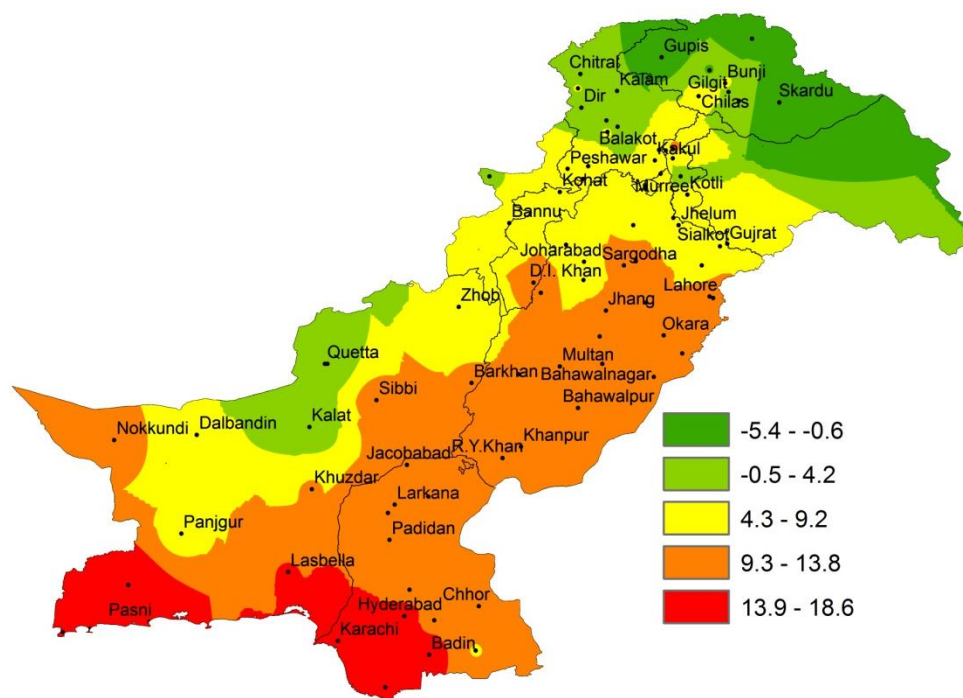
There is presently one crop (irrigated conditions) grown in the fields of RAMC Usta Muhammad.

Wheat: Good condition at *3rd Leaf* stage.

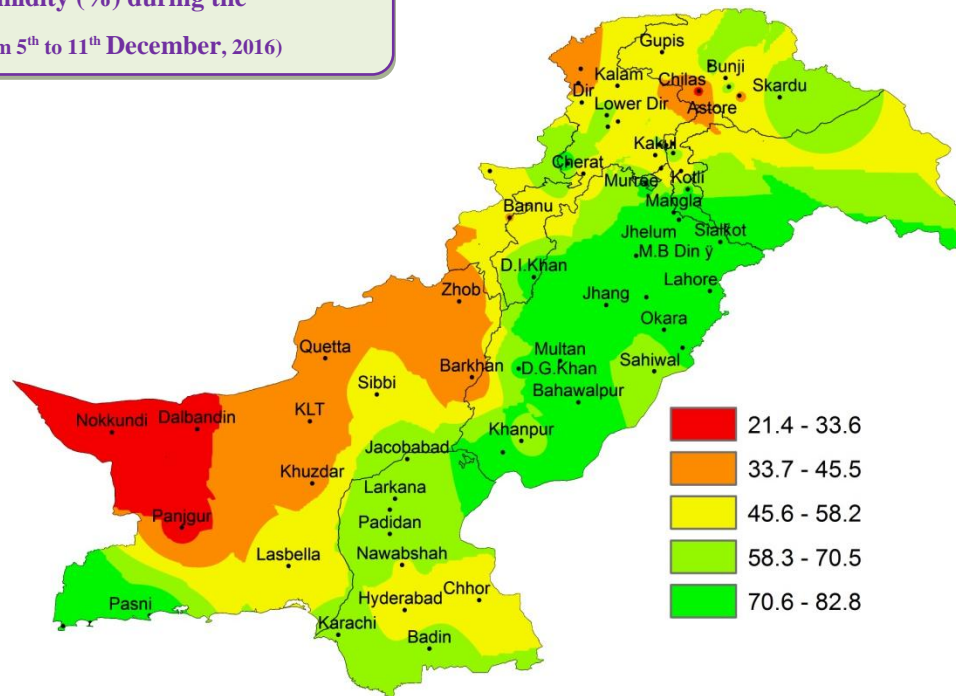
Mean lowest Temperature ($^{\circ}\text{C}$) during the
Previous week (from 5th to 11th December, 2016)



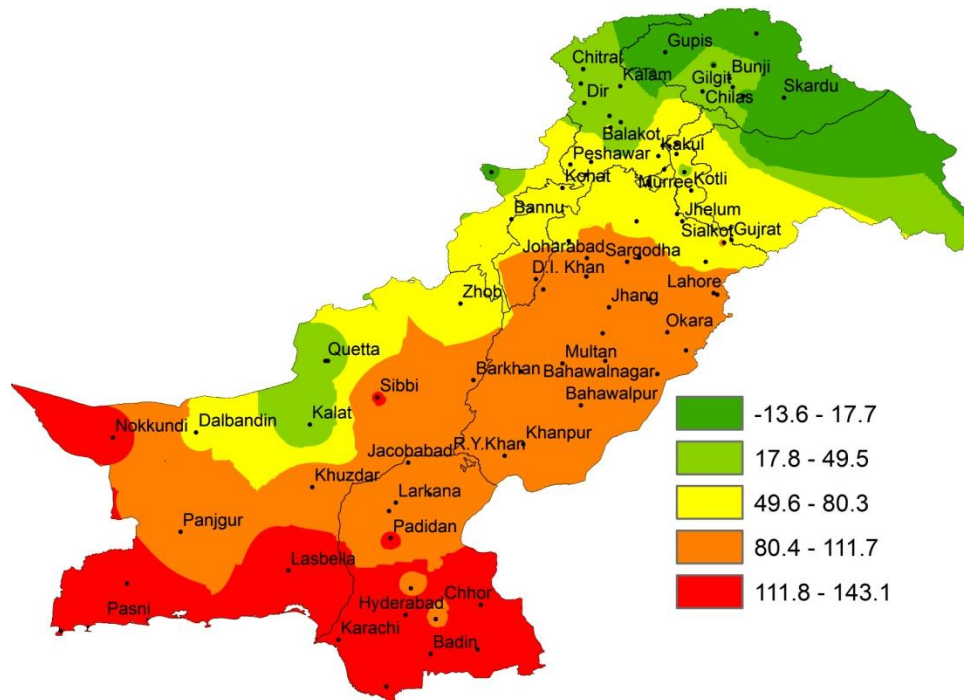
Lowest Minimum Temperature ($^{\circ}\text{C}$) during the
Previous week (from 5th to 11th December, 2016)



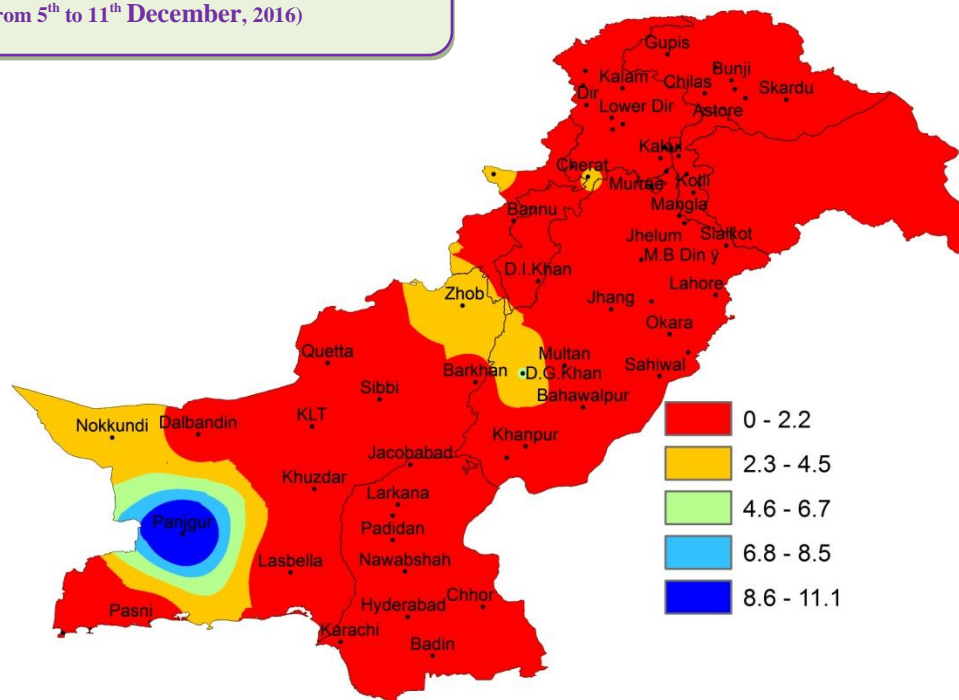
**Mean Relative Humidity (%) during the
Previous week (from 5th to 11th December, 2016)**



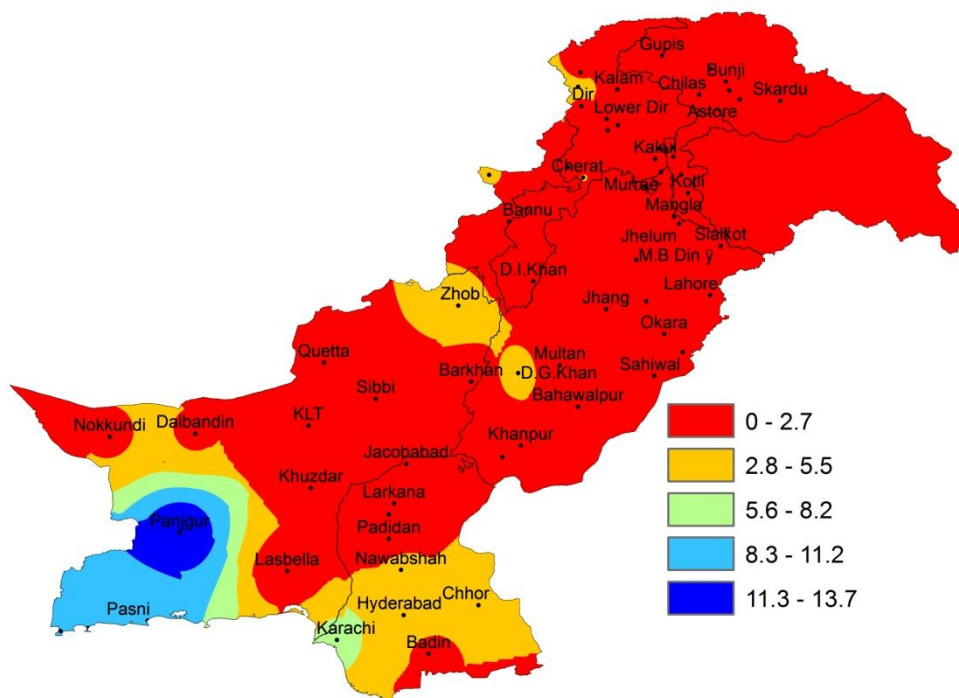
**Total Growing Degree Days accumulated during the
Previous week (from 5th to 11th December, 2016)**



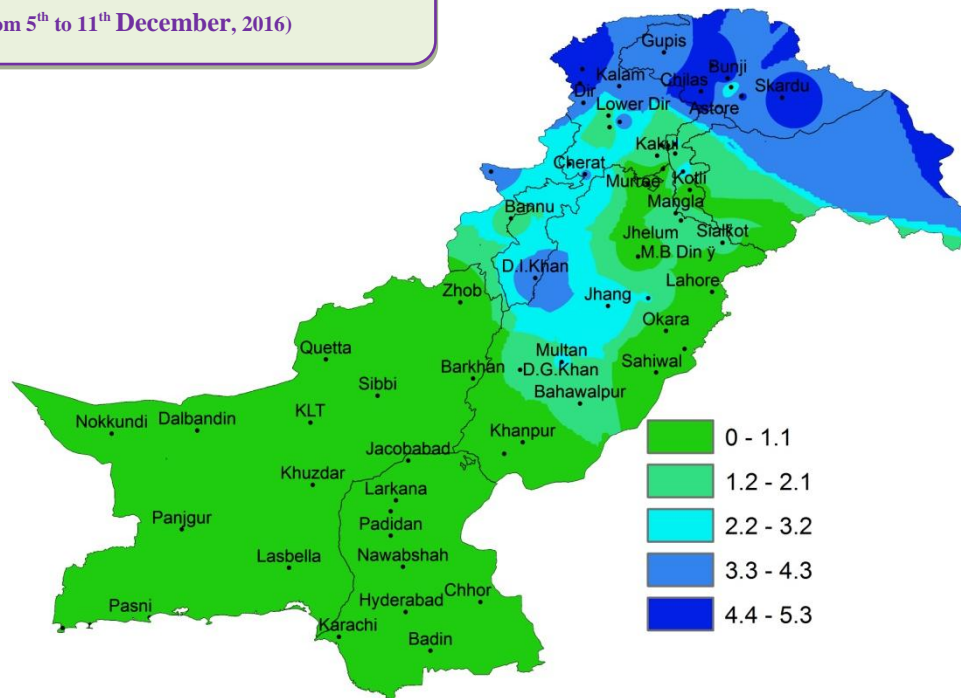
Mean Wind Speed (Knots) at 0800PST during the
Previous week (from 5th to 11th December, 2016)



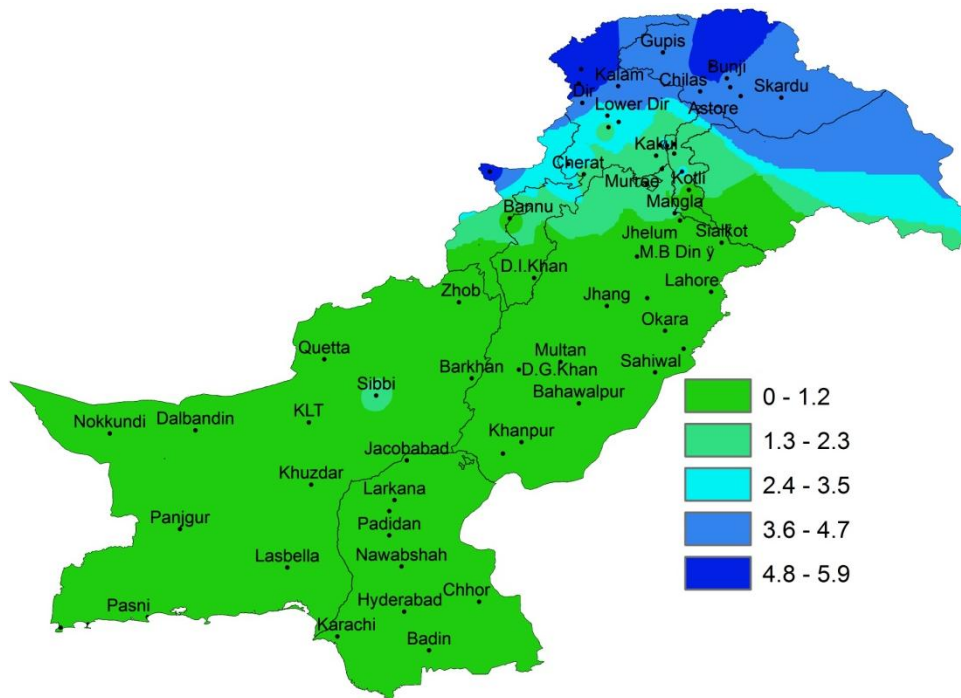
Mean Wind Speed (Knots) at 1200PST during the
Previous week (from 5th to 11th December, 2016)



Mean Cloudiness (Oktas) at 0800PST during the
Previous week (from 5th to 11th December, 2016)



Mean Cloudiness (Oktas) at 1200 PST during the
Previous week (from 5th to 11th December, 2016)



Weekly Weather Advisory for Farmers**(From 13th to 18th December, 2016)**

Continental air is prevailing over most parts of the country. A shallow westerly wave is still affecting northern parts of the country and adjoining hilly areas.

TUESDAY**13-12-2016**

Mainly cold and dry weather is expected in most parts of the country. However, light rain (snowfall over the hills) is expected at isolated places in Malakand division, upper FATA, Kashmir and Gilgit-Baltistan. Dense foggy conditions are likely to continue over plain areas of Khyber Pakhtunkhwa, Punjab and upper Sindh during night and morning hours.

WEDNESDAY**14-12-2016**

Mainly cold and dry weather is expected in most parts of the country. Dense foggy conditions are likely to continue over plain areas of Khyber Pakhtunkhwa, Punjab and upper Sindh during night and morning hours.

THURSDAY**15-12-2016**

Mainly cold and dry weather is expected in most parts of the country. Dense foggy conditions are likely to continue over plain areas of Khyber Pakhtunkhwa, Punjab and upper Sindh during night and morning hours.

FRIDAY**16-12-2016**

Mainly cold and dry weather is expected in most parts of the country. Dense foggy conditions are

likely to continue over plain areas of Khyber Pakhtunkhwa, Punjab and upper Sindh during night and morning hours.

SATURDAY**17-12-2016**

Mainly cold and dry weather is expected in most parts of the country. Dense foggy conditions are likely to continue over plain areas of Khyber Pakhtunkhwa, Punjab and upper Sindh during night and morning hours.

SUNDAY**18-12-2016**

Mainly cold and dry weather is expected in most parts of the country. Dense foggy conditions are likely to continue over plain areas of Khyber Pakhtunkhwa, Punjab and upper Sindh during night and morning hours.

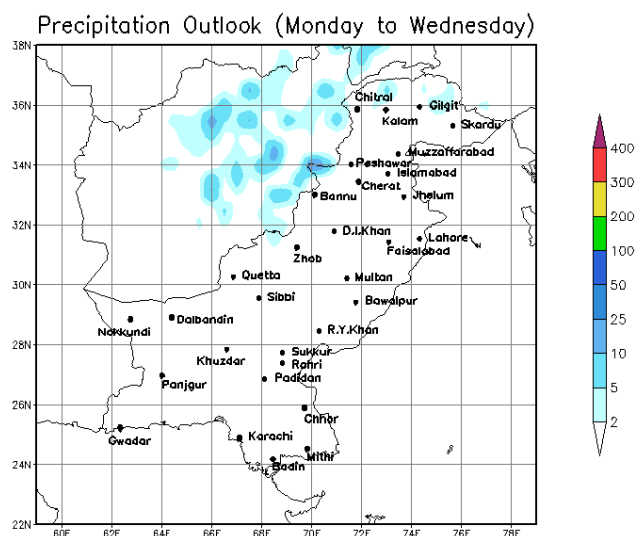
ADVISES FOR CROPS

During the last two months mainly dry weather has been reported from most of the agricultural plains of the country and is likely to prevail by the end of this week. Keeping in view the present and expected dry atmospheric/soil conditions following advises are suggested for farming community especially for rainfed areas of KP and Punjab.

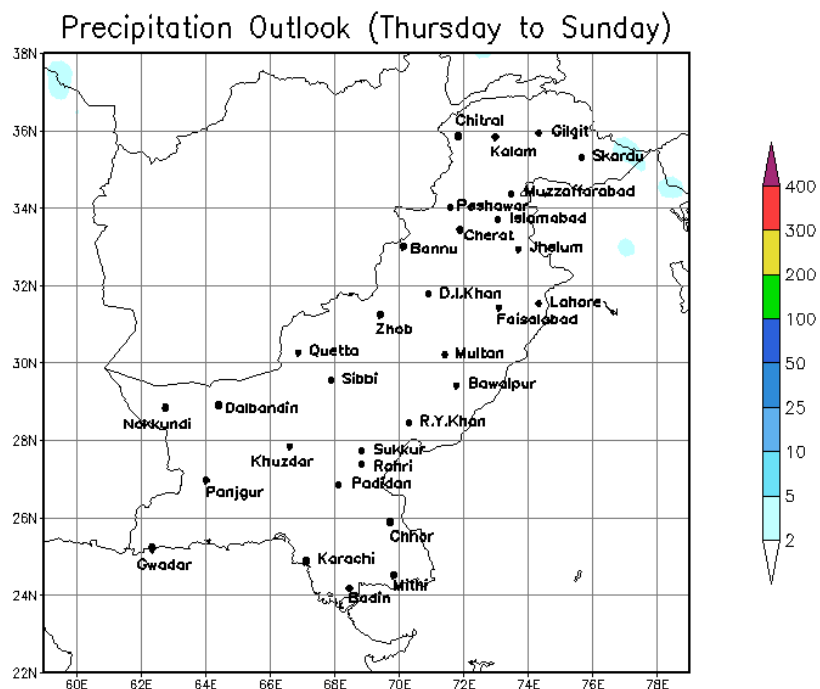
- Farmers of rainfed areas obtaining water through tube wells are advised to schedule the irrigation as per crop requirement.
- In areas like Potohar region and adjoining areas of KP where rain water storages are available, farmers are advised to irrigate crops by using available irrigation methods like sprinkler irrigation etc.
- Farmers are advised to cultivate winter vegetables in time.

Weather Outlook from 13th to 18th December, 2016

The outlook from 13th to 14th December, 2016 shows that light rainfall is expected at isolated places in upper KP and GB. However dry weather is expected in the rest of the country.



The outlook from 15th to 18th December, 2016 shows that dry weather is expected in most parts of the country.



National Weather Data of Selected Cities
(Weekly Data from 5th to 11th December, 2016)

Stations	Maximum/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	-0.1	-3.5	8.5	43	2.6	4.4	3.7	0.9	2.3
Badin	16.3	15.0	131.8	60	0.0	0.0	0.0	1.1	2.0
Bahawalnagar	10.8	10.0	100.5	63	0.0	0.0	0.4	0.0	0.6
Bahawalpur	12.0	10.5	97.9	75	0.0	1.3	0.0	0.9	0.9
Balakot	4.3	3.3	56.9	61	8.0	1.1	2.3	0.6	0.0
Bannu	6.2	5.3	71.2	45	0.0	1.7	1.0	0.6	0.0
Barkhan	9.8	6.5	92.5	35	0.0	0.0	0.0	1.1	0.9
Bunji	4.8	3.3	36.7	48	0.0	5.4	4.6	0.9	0.6
Cherat	9.4	7.0	64.3	48	0.0	3.3	2.1	2.9	2.9
Chhor	13.1	9.5	123.7	57	0.0	0.0	0.1	1.0	3.1
Chilas	5.9	4.5	48.0	32	0.1	5.1	4.1	0.0	1.1
Chitral	2.7	0.4	35.0	45	14.8	4.9	5.9	1.7	1.4
D.G.Khan	9.6	9.1	91.7	72	0.0	1.3	0.0	4.6	3.7
D.I. Khan	9.9	9.5	85.8	75	0.0	3.8	0.7	0.9	0.6
Dalbandin	4.7	1.5	78.5	34	0.0	0.0	0.0	0.9	2.3
Dir	1.0	-1.0	42.8	54	21.0	3.7	4.0	0.0	2.0
Drosh	4.5	1.0	41.8	36	18.0	4.6	5.7	0.0	5.4
Faisalabad	10.6	8.2	90.6	77	0.0	0.0	0.6	0.3	0.3
Gawader	16.6	14.5	127.5	75	0.0	0.0	0.0	0.0	9.1
Gardi Dopatta	3.9	0.6	48.1	66	3.0	1.1	1.1	0.0	0.0
Gilgit	-1.1	-2.5	16.5	64	0.1	4.6	5.4	0.0	0.0
Gupis	-3.2	-4.0	-4.5	48	5.0	3.6	4.0	1.7	0.9

Hyderabad	15.6	14.0	128.3	56	0.0	0.0	0.0	0.9	5.3
Islamabad	5.5	4.0	69.6	74	0.0	0.6	1.3	0.0	0.3
Jacobabad	13.3	12.0	107.0	67	0.0	0.0	0.0	0.0	0.9
Jhang	10.2	8.8	84.3	83	0.0	3.0	0.0	0.3	0.6
Jhelum	7.7	7.5	77.1	76	0.1	1.4	1.0	0.0	1.7
Jawani	18.6	16.5	128.5	75	0.0	0.0	0.4	2.0	8.9
Kakul	4.5	3.0	56.4	47	7.0	1.7	1.6	0.0	0.3
Kalam	-0.2	-5.0	19.0	56	14.0	3.6	4.3	0.0	0.0
Kalat	0.4	-5.0	30.6	39	0.0	0.0	0.7	0.0	0.0
Karachi	15.9	14.0	131.5	62	0.0	0.9	0.7	1.7	6.0
Khanpur	10.3	9.2	91.6	67	0.0	0.0	0.0	0.0	1.4
Khuzdar	9.4	7.0	98.8	44	0.0	0.0	0.3	0.6	2.3
Kotli	5.8	4.9	65.6	72	0.2	0.4	0.9	0.9	0.0
Larkana	12.7	9.5	111.9	65	0.0	0.0	0.4	0.6	1.1
Lasbella	13.8	10.5	128.0	51	0.0	0.7	0.0	0.0	0.9
Lahore	10.5	9.7	85.2	76	0.0	0.0	0.3	0.0	0.6
Lower Dir	2.3	1.0	41.0	61	7.0	1.7	3.1	0.0	1.7
Malam Jabba	2.6	-3.0	18.3	55	14.0	4.1	3.3	0.0	0.0
Mandibahudin	9.9	8.0	82.6	78	0.0	0.6	0.7	0.0	0.3
Mangla	7.0	6.7	74.8	71	0.0	1.3	1.3	0.0	0.0
Mir Khani	4.0	3.2	39.0	65	16.0	1.7	4.6	0.0	1.4
Moinjodaro	10.8	10.0	101.7	70	0.0	0.0	0.0	0.0	1.4
Multan	11.7	11.0	90.9	76	0.0	2.2	0.0	0.9	1.1
Murree	7.3	1.2	61.1	49	0.1	0.7	1.3	1.1	2.0
Muzaffarabad	5.2	4.4	56.1	58	5.1	1.6	2.7	1.1	0.0
Nokkundi	11.5	7.5	117.0	21	0.0	0.3	0.0	3.1	2.3

Okara	11.3	10.5	93.3	71	0.0	0.0	0.0	0.3	0.6
Padidan	12.8	12.5	112.8	65	0.0	0.0	0.0	0.0	1.4
Panjgur	7.2	5.0	81.8	31	0.0	0.0	0.4	11.1	13.7
Parachinar	3.7	3.0	15.1	53	0.0	4.1	5.0	3.0	3.0
Pasni	16.9	16.5	128.0	78	0.0	0.3	0.0	0.9	8.6
Pattan	11.8	6.0	86.0	44	19.0	2.4	1.7	0.0	0.6
Peshawar	9.1	8.0	73.9	75	0.2	2.3	3.1	0.0	0.3
Quetta	4.5	-1.8	49.1	35	0.1	1.0	1.2	1.2	1.3
R.Y.Khan	11.1	10.2	98.1	79	0.0	0.0	0.1	0.0	1.1
Rawalakot	2.2	-1.5	47.2	51	3.7	2.6	2.6	0.0	0.0
Rawalpindi	6.8	6.0	73.0	76	0.0	0.6	1.2	0.2	0.6
Sahiwal	9.3	7.5	87.9	73	0.0	0.3	0.0	1.1	0.3
Saidu Sharif	4.8	4.0	53.6	58	9.0	1.1	1.7	0.0	0.0
Sialkot	9.3	8.3	81.1	80	0.0	1.1	0.0	0.0	0.0
Sibbi	12.0	11.0	113.0	50	0.0	0.0	1.3	0.3	0.6
Skardu	-5.4	-6.4	-11.7	63	0.0	4.7	4.3	0.0	0.0
Tandojam	12.4	10.0	117.3	65	0.0	0.0	0.0	0.3	0.9
Usta Muhammad	11.1	10.5	103.8	66	0.0	0.0	0.0	0.0	0.0
Zhob	4.3	2.0	64.0	35	0.0	0.0	0.4	3.6	4.3

*** Shows that data was not available.

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)