



Significant weather and realized rainfall during last week:

- Significant rainfall occurred in most of the districts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Delhi. Significant rainfall also occurred in Faridkot, Gurdaspur, Ropar districts of Punjab, Ambala, Chandigarh, Jind, Karnal, Mahendragarh, Kurukshetra, Palwal, Panchkkula, Panipat, Sonapat and Yamunanagar districts of Haryana, Nagaur district of East Rajasthan and Baghpat, Bareilly, Ghaziabad, Kanshiramnagar, Meerut, Muzzaffarnagar, Pilibhit, Saharanpur, Shahjahanpur and Kheri districts of Uttar Pradesh, Upper Siang and Dibang Valley districts of Arunachal Pradesh, Araria, Muzaffarpur and Sitamarhi districts in Bihar. No significant rainfall occurred or mainly dry weather prevailed over rest of the country.
- During the last week, cold wave conditions prevailed over some parts of Uttar Pradesh, Rajasthan, Haryana, Madhya Pradesh and at isolated places over Chhattisgarh.

Central India

- As low minimum temperature is prevailing over west Madhya Pradesh and no significant change in minimum temperatures is likely, farmers are advised to arrange for smoking during night and apply light and frequent irrigation / sprinkling in field crops to protect crops against frost / cold injury.
- As mainly dry weather is prevailing for last few weeks and there is no possibility of significant rain during the period over remaining States of the region, farmers are advised to apply irrigation to the standing crops.
- Present weather conditions are favourable for planting of onion during this week in Chhattisgarh Plain Zone; farmers are advised to complete planting of onion.
- In Satpura Plateau Zone of Madhya Pradesh weather is favourable for attack of early blight in potato; farmers are advised to apply Mancozeb @ 2.5 g / litre of water.
- As there is increased activity of late blight in potato in Bundelkhand zone of Madhya Pradesh due to cloudy sky during last week, farmers are advised to monitor the crop and spray Mancozeb @ 2.5 ml per liter of water for their effective control.

Northwest India

- As significant rainfall occurred in most of the districts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Delhi and also in Faridkot, Gurdaspur, Ropar districts of Punjab, Ambala, Chandigarh, Jind, Karnal, Mahendragarh, Kurukshetra, Palwal, Panchkkula, Panipat, Sonapat and Yamunanagar districts of Haryana, Nagaur district of East Rajasthan and Baghpat, Bareilly, Ghaziabad, Kanshiramnagar, Meerut, Muzzaffarnagar, Pilibhit, Saharanpur, Shahjahanpur and Kheri districts of Uttar Pradesh, farmers are advised to postpone irrigation to standing crops.
- Farmers in remaining districts of west Uttar Pradesh are advised to apply irrigation in wheat crop at tillering stage as there was no significant rain during last week and mainly dry weather is likely to prevail.
- In Rajasthan, due to persistent low minimum temperature and in view of no change in minimum temperatures, farmers are advised to arrange for smoking during night at northwest direction of the field; apply irrigation / sprinkling in field crops and spray 0.1 % H₂SO₄ to protect sensitive crops viz. mustard, gram, coriander, brinjal, tomato, pea and palm against frost / cold injury.
- As low minimum temperature is prevailing over parts of Haryana and Punjab and no significant change in minimum temperatures is likely, farmers in Haryana and Punjab are advised to arrange for smoking around the fields during night for protection of the crops from the frost / cold injury. To protect from chilled winds, cover young fruit plants with straw.
- In the Mid Hills Sub humid Zone of Himachal Pradesh, chances of occurrence of downy mildew in cauliflower has increased due to prevailing weather conditions; farmers are advised to apply Redomil-MZ @ 25 g per 100 litres of water.
- In Uttar Pradesh, under prevailing weather condition, there is possibility of late blight in potato and powdery mildew in pea; hence farmers are advised to apply Mancozeb (Indofil M-45) @ 2.5 g per liter of water in potato to manage late blight and wettable sulphur 2 g per litre of water or to dust Sulphur at 25 kg / ha in pea to manage powdery mildew.

West India

- As dry weather prevailed over the State during last few weeks and no significant rain is expected during next 5 days, farmers of Madhya Maharashtra, Marathwada and Vidarbha are advised to apply irrigation to *rabi* jowar, wheat, safflower, gram, sugarcane, vegetables and orchard crops.
- As prevailing day temperature is above normal and prevailing dry weather is expected to continue for next 5 days, farmers in south Konkan are advised to apply black polythene (25 μ) as mulch in between two trenches or beds of nurseries of fruit crops to control weeds and to conserve soil moisture.
- As minimum temperature is rising, farmers are advised to undertake sowing of summer bajra and groundnut in Western Ghat and Pune Region, summer groundnut in central Vidarbha zone and planting of *suru* sugarcane in different parts of Maharashtra for better germination.
- Under prevailing high temperature conditions, infestation of powdery mildew disease in fenugreek is noticed in South Gujarat Heavy Rainfall zone. To control it, spray soluble Sulphur (50%) @ 40 kg / ha or soluble Sulphur (80%) @ 25 kg / ha or Dinocap (48%) 5 ml in 10 liters of water after evaporation of dew.
- As minimum temperatures were around 14-18°C, there may be infestation of rust on wheat in Central Vidarbha zone; spray Mancozeb @ 25 g in 10 litres of water.
- Due to cold and dry weather in Pune region, infestation of rust in pea and beans is likely to increase; farmers are advised to spray Tabeconazole @ 12 ml in 10 litres of water followed by second spraying after 10-12 days.

(Continued on Page 2)



Issued by

National Agrometeorological Advisory Service Centre, Agricultural Meteorology Division,
India Meteorological Department, Shivajinagar, Pune.

The bulletin is also displayed in the website (<http://www.imdagrimet.gov.in>) of the Division

Executive Summary

(Continued from page no. 1)

Northeast India

- As there was no significant rain over most of the districts of the States of the region during last week and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.
- Due to mainly dry weather conditions in Nagaland, farmers are advised for mulching in banana to conserve soil moisture.
- Due to favourable weather conditions, there is chance of attack of aphids and saw fly on rapeseed and mustard in North Bank Plain Zone and late blight in potato in Central Brahmaputra Valley Zone and North Bank Plain Zone of Assam. Farmers are advised to apply Dimethoate 30 EC or Chloropyriphos @ 2 ml / litre of water to control aphids and saw fly and to spray Mancozeb @ 2.5 g / litre of water against late blight.
- Due to favourable weather conditions, there is chance of attack of saw fly in toria and thrips on *boro* rice in Upper Brahmaputra Valley Zone of Assam; farmers are advised to apply Endosulfan @ 2 ml per litre of water during evening hours to control saw fly in toria and spray Chloropyriphos @ 2 ml per litre of water for thrips attack in *boro* rice if infestation is noticed above ETL.
- Due to favourable weather conditions, potato is affected by late blight in Sub Tropical Hill Zone of Arunachal Pradesh; farmers are advised to apply Ridomil MZ-72 @ 2 g per litre of water. There is also report of infestation of aphids in pea; farmers are advised to apply Dimethoate @ 2 ml per litre of water. Rapeseed and mustard have also been affected by aphids and painted bug, farmers are advised to remove the affected plants or undertake gentle dusting with wood ash.

East India

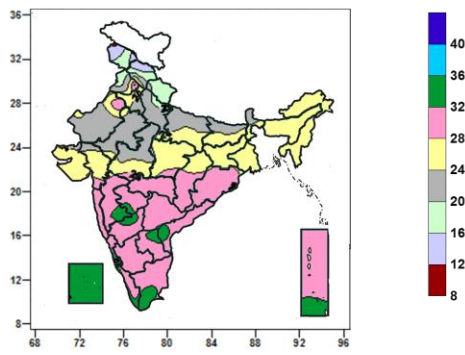
- Due to mainly dry weather in South Alluvial Zone of Bihar, farmers are advised to apply second irrigation to timely sown wheat at tillering stage and first irrigation to late sown wheat crops at CRI stage.
- As mainly dry weather is likely to prevail, farmers in North West Alluvial Plain Zone of Bihar, are advised to harvest matured tobacco crop. Farmers are also advised to harvest potato tubers from the fields of maize-potato intercropping and provide irrigation to the maize crop. As temperature condition is getting normal for planting, farmers are advised to plant spring planted sugarcane.
- As dry weather is prevailing, farmers of Western Undulating Zone of Odisha are advised to undertake harvesting of cotton. In view of prevailing dry weather condition, farmers of Western Undulating Zone of Odisha are advised to apply irrigation to vegetable crops.
- Due to present weather condition in Terai Zone of West Bengal, there is possibility of *Phytophthora* blight in betel vine. Farmers are advised to spray Dithane M 45 @ 2.5 g per litre of water or Blitox @ 4 g per litre of water at 15 days interval.
- Due to present weather conditions in Old Alluvial Zone, New Alluvial Zone and Terai Zone of West Bengal, there may be chance of late blight attack in potato; farmers are advised to spray Mancozeb @ 2 g per litre of water and Blitox @ 4 g per litre of water alternately at 10-12 days interval by completely wetting the leaves.
- In North West Alluvial Plain Zone of Bihar, early and late blight disease may intensify in potato crop due to foggy weather condition; spray Endophil M-45 or mixture of Synomaxi and Mancozeb @ 2 g per litre of water.

South India

- As no significant rainfall occurred over the region during last couple of weeks and no significant rain is expected over the region, apply irrigation to the standing crops.
- Farmers are advised to apply mulch on the soil or use soil mulch to conserve moisture in coconut gardens in the Northern and Central Zone and in pepper and arecanut plantations in the High Altitude Zone of Kerala.
- Since temperature and wind speed is likely to increase, farmers in the Problem Area Zone of Kerala are advised to increase frequency of irrigation.
- As high wind speed is expected during next five days in the Southern Zone of Tamil Nadu, farmers are advised to postpone spraying of chemicals.
- As the weather is conducive for the incidence of powdery mildew in cucurbits in the Problem Area Zone of Kerala, farmers are advised to apply wettable Sulphur 2 g per litre of water or to dust Sulphur @ 25 kg per ha to manage powdery mildew.
- Due to rise in temperature in the North Western Zone of Tamil Nadu, small onion plants are highly infested by thrips; farmers are advised to spray Methyl Dematon 25 EC @ 1 ml / litre of water to control this infestation.
- Due to high day temperature leaf miner incidence in groundnut and brown plant hopper in *rabi* rice are noticed in Scarce Rainfall Zone of Andhra Pradesh. Prevailing weather conditions are also congenial for incidence of *Spodoptera litura* in groundnut (maximum temperature of 30-32^oC, minimum temperature of 21-23^oC) and blast in rice. Farmers are advised to undertake plant protection measures.

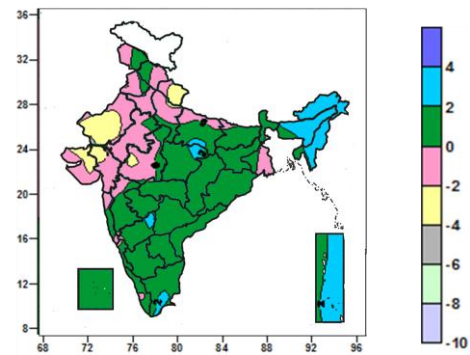
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 23.01.2013

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 23.01.2013



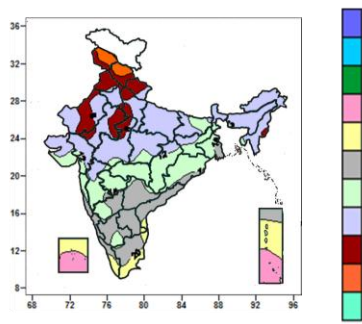
Actual Mean Maximum temperature ranged between 32 to 36 $^{\circ}\text{C}$ over many parts of Lakshadweep Islands, some parts of Madhya Maharashtra, Marathwada, Raylaseema, Coastal Andhra Pradesh, Coastal Karnataka, North Interior Karnataka, Kerala, Tamil Nadu, Andaman & Nicobar Islands, 16 to 20 $^{\circ}\text{C}$ over many parts of Uttarkhand, some parts of Jammu & Kashmir, Himachal Pradesh, Punjab, West Uttar Pradesh, 12 to 16 $^{\circ}\text{C}$ over some parts of Jammu & Kashmir, Himachal Pradesh, 8 to 12 $^{\circ}\text{C}$ over some parts of Jammu & Kashmir, 20 to 32 $^{\circ}\text{C}$ over remaining parts of the country.

Mean Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 23.01.2013



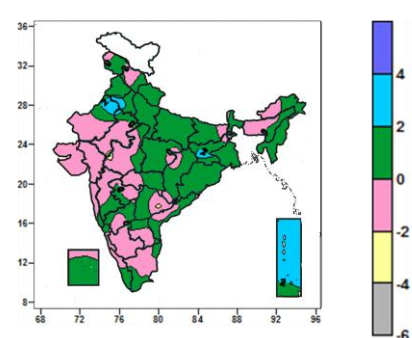
Actual Mean Maximum temperature anomaly ranged between 2 to 4 $^{\circ}\text{C}$ over many parts of North East India, Andaman & Nicobar Islands, some parts of East Uttar Pradesh, East Madhya Pradesh, North Interior Karnataka, Tamil Nadu, -4 to -2 $^{\circ}\text{C}$ over many parts of Uttarakhand, West Rajasthan, some parts of West Uttar Pradesh, Saurashtra & Kutch, Gujarat, West Madhya Pradesh, -2 to 2 $^{\circ}\text{C}$ over rest of the country.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 23.01.2013



Actual Mean Minimum Temperature ranged between 24 to 28 $^{\circ}\text{C}$ over many parts of Lakshadweep, some parts of Andaman & Nicobar Islands, 20 to 24 $^{\circ}\text{C}$ over some parts of Tamil Nadu, Kerala, Coastal Andhra Pradesh, Raylaseema, Lakshadweep, Andaman & Nicobar Islands, 4 to 8 $^{\circ}\text{C}$ over many parts of Uttarkhand, Punjab, some parts of Jammu & Kashmir, Himachal Pradesh, West Uttar Pradesh, Rajasthan, West Madhya Pradesh, 0 to 4 $^{\circ}\text{C}$ over many parts of Jammu & Kashmir, Himachal Pradesh, 8 to 20 $^{\circ}\text{C}$ over remaining parts of the country.

Mean Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 23.01.2013



Minimum Temperature anomaly ranged between 2 to 4 $^{\circ}\text{C}$ over some parts of West Rajasthan, Haryana, Jharkhand, 0 to 2 $^{\circ}\text{C}$ many parts of Jammu & Kashmir, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh, East India, Nagland, Manipur, Mizoram, Tripura, Chattisgarh, East Madhya Pradesh, Telangana, Coastal Andhra Pradesh, Lakshadweep Islands, some parts of Himachal Pradesh, Rajasthan, West Madhya Pradesh, Konkan & Goa, Madhya Maharashtra, Marathwada, Rayalaseema, Coastal & North Interior Karnataka, Kerala, Tamil Nadu, Andaman & Nicobar Islands, -4 to -2 $^{\circ}\text{C}$ over some parts of East Rajasthan, West Madhya Pradesh, Telengana, -2 to 0 $^{\circ}\text{C}$ over remaining parts of the country.

Distribution of rainfall of the country during week ending on 23.01.2013

State/Districts	Actual (mm)	% Dep.
Arunachal Pradesh		
Changlang	3.0	-71
Dibang Valley	21	8
East Kameng	0.0	-100
East Siang	3.4	-43
Lohit	4.4	-66
Papumpara	0.0	-100
Tawang	0.0	-100
Tirap	5.7	-39
Upper Siang	55.8	208
Upper Subansari	0.0	-100
West Kameng	0.0	-100
West Siang	0.0	-100
Himachal Pradesh		
Bilaspur	56.1	455
Chamba	49.4	61
Hamirpur	43.8	291
Kangra	50.7	240
Kinnaur	144.3	702
Kullu	102.6	545
Lahaul and Spiti	41.8	69
Mandi	71.7	405
Shimla	95.1	574
Sirmaur	110.8	926
Solan	91.0	652
Una	29.6	289
Punjab		
Amritsar	8.5	89
Barnala	2.0	-5
Bhatinda	8.0	471
Faridkot	21.0	556
Fatehgarh Sahib	15.0	266
Ferozpur	0.8	-72
Gurdaspur	37.7	266
Hoshiarpur	14.8	131
Jalandhar	6.4	69
Kapurthala	5.2	63
Ludhiana	5.9	65
Mansa	3.2	45
Moga	2.0	-63
Muktesar	3.5	25
Nawashahar	14.2	133
Patiala	8.2	86
Ropar	22.8	195
Sangrur	7.8	105
Mohali	3.0	-29
TarnTaran	5.7	84
Haryana		
Ambala	58.1	838
Bhiwani	14.4	555
Chandigarh	41.1	260
Faridabad	13.5	800
Fatehabad	9.2	163
Gurgaon	11.0	547
Hissar	16.4	719
Jhajar	12.0	471
Jind	31.0	1248
Katihah	5.0	79
Karnal	47.5	890

Kurukshetra	20.8	421
Mahendragarh	25.0	1090
Mewat	19.0	1088
Palwal	26.3	1779
Panchkkula	37.5	459
Panipat	34.7	1287
Rewari	19.8	1550
Rohtak	1.0	-71
Sirsa	0.0	-100
Sonepat	24.9	704
Yamunanagar	76	1088
New Delhi	25.0	481
Jammu & Kashmir		
Anantnag	64.8	268
Badgam	62.2	541
Baramula	75.8	114
Doda	69.0	139
Ganderwal	49.4	255
Jammu	45.8	218
Kargil	3.8	-43
Kathua	46.6	197
Kulgam	72.8	314
Kupwara	39.7	99
Ladakh(Leh)	2.6	46
Poonch	45	70
Pulwama	38.6	235
Rajouri	81.5	462
Ramban	85.1	194
Reasi	63.0	218
Samba	39.8	176
Shopian	45.0	291
Srinagar	59.6	329
Udhampur	53.0	168
East Uttar Pradesh		
Allahabad	0.0	-100
Ambedkar Nagar	2.6	-24
Azamgarh	0.0	-100
Bahraich	13.3	259
Ballia	0.1	-94
Balrampur	7.0	40
Banda	0.0	-100
Barabanki	8.1	145
Basti	0.6	-85
Chandauli	2.2	-53
Deoria	3.0	25
Faizabad	0.6	-88
Farrukhabad	10.9	419
Fatehpur	0.0	-100
Gazipur	5.7	91
Gonda	7.3	54
Gorakhpur	10.9	264
Hardoi	4.1	66
Jaunpur	4.6	41
Kannauj	16	700
Kanpur City	3.8	3
Kanpur Dehat	0.8	-74
Kaushambi	0.0	-100
Kheri	29.6	797
Kushi nagar	13.5	286
Lucknow	3.8	41
Maharajganj	4.1	32

Mau	0.0	-100
Mirzapur	0.0	-100
Pratapgarh	2.0	-46
Raibareilly	0.0	-100
Sahuji Maharaj Nagar	0.0	-100
Sant Kabir Nagar	0.0	-100
Sant Ravidas Nagar	0.0	-100
Shrawasti	10.0	170
Sidharthnagar	4.0	14
Sitapur	6.3	98
Sonbhadra	1.5	-74
Sultanpur	0.0	-100
Unnao	14	536
Varanasi	8.1	93
West Uttar Pradesh		
Agra	10.5	518
Aligarh	9.9	241
Auraiya	0.0	-100
Badaun	18.1	687
Baghpat	43.1	837
Bareilly	38.1	1367
Bijnor	36.4	527
Bulandshahr	19.1	665
Etah	16.0	742
Etawah	1.0	-38
Firozabad	13.6	548
GBNagar	10.0	127
Ghaziabad	30.2	842
Hamirpur	0.0	-100
Jalaun	1.7	-58
Jhansi	0.4	-91
Jotirba Phule Nagar	26.9	691
Kanshiramnagar	35.0	1246
Lalitpur	0.0	-100
Mahamaya Nagar	13.5	611
Mahoba	0.0	-100
Mainpuri	16.2	1373
Mathura	7.0	483
Meerut	38.2	680
Moradabad	13.3	241
Muzzaffarnagar	66.6	1414
Pilibhit	26.4	614
Rampur	10.7	156
Saharanpur	93.4	1662
Shahjahanpur	31.2	906
Uttarakhand		
Almora	50.6	517
Bageshwar	81.7	896
Chamoli	61.0	318
Champawat	58.0	625
Dehradun	107.1	892
Garhwal Pauri	55.0	518
Garhwal Tehri	1094.1	9938
Haridwar	86.6	1393
Nainital	64.6	707
Pithorgarh	87.4	893
Rudraprayag	75.2	392
Udham Sing Nagar	29.7	624
Uttarkashi	91.0	367

Bihar		
Araria	25.5	650
Arwal	0.0	-100
Aurangabad	0.0	-100
Begusarai	0.0	-100
Bhagalpur	0.0	-100
East Champaran	14.2	358
Gaya	0.0	-100
Gopalganj	0.0	-100
Jahanabad	0.0	-100
Khagadia	0.0	-100
Lakhisarai	0.0	-100
Madhepura	3.7	59

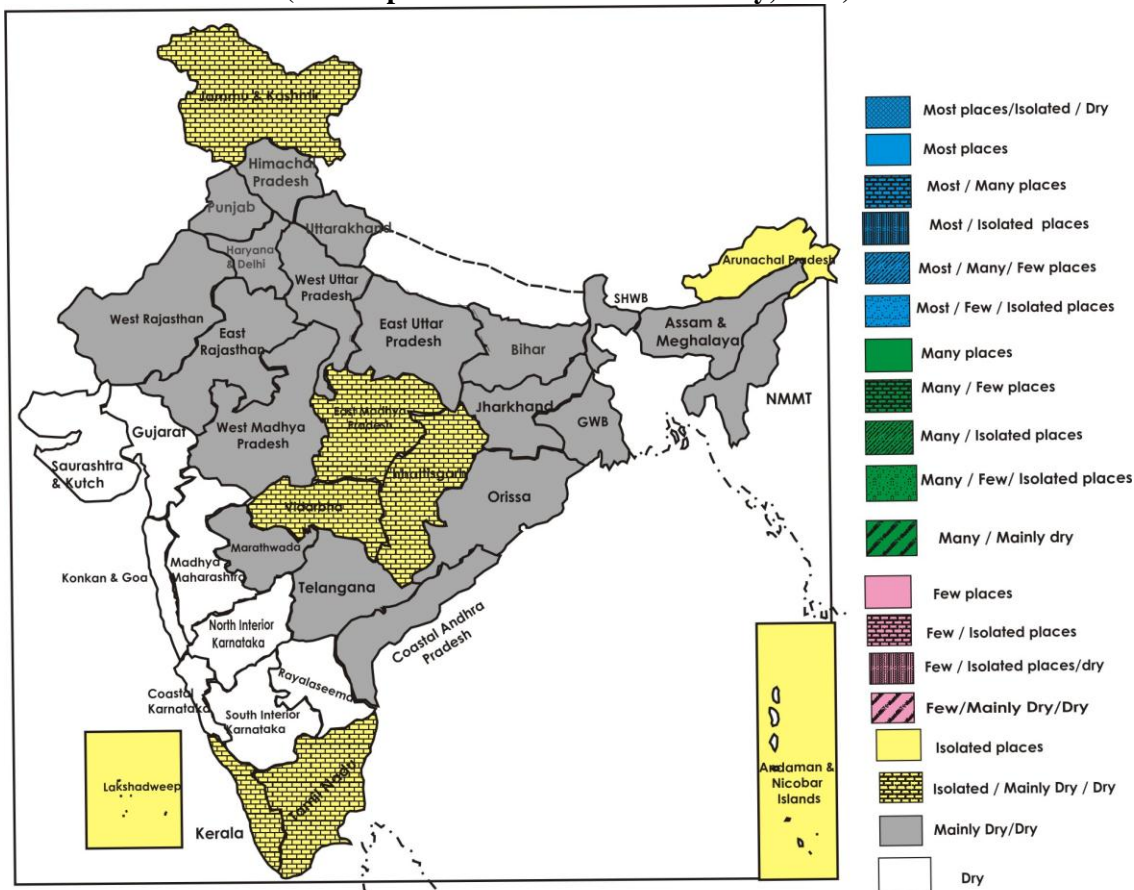
Muzaffarpur	22.2	722
Nalanda	0.0	-100
Nawada	0.0	-100
Patna	12.4	265
Purnea	1.2	-40
Rohtas	0.0	-100
Saharsha	0.0	-100
Samstipur	2	-9
Saran	1.3	-56
Sheikpura	0.0	-100
Sheohar	2	43
Sitamarhi	27	1829
Supaul	11.8	883

Vaishali	11.3	197
West Champaran	5.8	18
West Rajasthan		
Barmer	1.2	1063
Bikaner	5.7	1806
Churu	9.5	531
Hanumangarh	11.4	442
Jaisalmer	0.0	-86
Jalore	17.7	8726
Jodhpur	7.8	7745
Nagaur	22.5	7415
Pali	12.0	11900
Sri Ganganagar	1.5	67

Legends

	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

Weather Forecast (Valid upto 0830 hours of 27th January, 2013)



Major Feature of Weather Forecast up to 0830 hours IST of 27th January, 2013

- Rain/snow would occur at one or two places over Jammu & Kashmir on 24th and mainly dry weather thereafter.
- Rain/thundershower would occur at one or two places over Arunachal Pradesh, Andaman & Nicobar Islands and Lakshadweep.
- Rain/thundershowers would occur at one or two places over south Kerala, south Tamilnadu, East Madhya Pradesh, Vidarbha and Chhattisgarh during next 24 hours.
- No significant change in minimum temperature over northwest and adjoining central & east India.
- Fog/dense fog would occur over Uttar Pradesh and Bihar during next 24 hours.
- Mainly dry weather would prevail over rest parts of the country.

Weather Warning during next 3 days

- No weather warning.

Weather Outlook for subsequent 4 days from 27th to 31st January, 2013

- Rain/thundershowers would occur at one or two places over Arunachal Pradesh and extreme south peninsular India.
- Mainly dry weather would prevail over rest of the country.

Zonewise Agromet Advisories

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- **Realised Rainfall:** Significant rainfall occurred in Upper Siang and Dibang Valley districts of Arunachal Pradesh and mainly dry weather prevailed over the rest region during last week.
- **Weather Forecast:** Rain/thundershowers would occur at one or two places over Arunachal Pradesh. Mainly dry weather will prevail over remaining States of the region.

Advisories:

- As there was no significant rain over most of the districts of the States of the region during last week and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.
 - Due to mainly dry weather conditions in Nagaland, farmers are advised for mulching in banana to conserve soil moisture.
 - Attack of cut worm in wheat at CRI stage is observed in different places of Nagaon and Marigaon districts in Central Brahmaputra Valley Zone of Assam. Farmers are advised to apply Quinalphos @ 3 ml per litre of water during evening hours to control cut worm. Present weather condition is congenial for occurrence and spread of late blight disease in potato. Spray Mancozeb 75% a.i. @ 2.5 g per litre of water against late blight.
 - Due to foggy weather conditions, infestation of aphids, jassids and beetles are seen in French bean which is in early vegetative stage in Barak Valley Zone of Assam; farmers are advised to spray Malathion 50 EC @ 1.5 ml / litre of water to control the attack.
 - Due to favourable weather conditions, there is chance of attack of aphids and saw fly on rapeseed and mustard and late blight in potato in North Bank Plain Zone of Assam. Farmers are advised to apply Dimethoate 30 EC or Chloropyrifos @ 2 ml / litre of water to control aphids and saw fly and to spray Mancozeb @ 2.5 g / litre of water against late blight.
 - Due to humid and cloudy weather conditions, there is chance of attack of late blight in tomato in Hill Zone of Assam; farmers are advised to apply Ridomil MZ-72 @ 2 g per litre of water and Indofil M-45 @ 2.5g / litre of water at 15 days interval.
 - Due to favourable weather conditions, there is chance of attack of saw fly in toria and thrips on *boro* rice in Upper Brahmaputra Valley Zone of Assam; farmers are advised to apply Endosulfan @ 2 ml per litre of water during evening hours to control saw fly in toria and spray Chloropyrifos @ 2 ml per litre of water for thrips attack in *boro* rice if infestation is noticed above ETL.
 - Due to favourable weather conditions, potato is affected by late blight in Sub Tropical Hill Zone of Arunachal Pradesh; farmers are advised to apply Ridomil MZ-72 @ 2 g per litre of water. There is also report of infestation of aphids in pea; farmers are advised to apply Dimethoate @ 2 ml per litre of water. Rapeseed and mustard have also been affected by aphids and painted bug, farmers are advised to remove the affected plants or undertake gentle dusting with wood ash.
 - In Temperate Sub Alpine Zone of Meghalaya, due to congenial weather, there is chance of attack of aphids in toria, pea and lentil; farmers are advised to apply Dimethoate @ 2 ml per litre of water or Malathion 50 EC @ 1.5 ml per litre of water if incidence is noticed.
 - Due to prevailing weather conditions in Mild Tropical Plain Zone of Tripura, there is chance of attack of aphids in toria, powdery mildew in pea and beans at flowering stage and late blight in potato; farmers are advised to spray Monocrotophos @ 2 ml per litre of water for attack of aphids in toria, Mancozeb (Indofil M-45) @ 2.5 g per liter of water in potato field at least twice at an interval of 15 days and wettable sulphur 2 g per litre of water or to dust Sulphur at 25 kg / ha on pea and beans as precautionary measures.
 - Other advisories are mentioned in Annexure - I
 - Stages of major crops are mentioned in Annexure II.
 - Suitable varieties of crops are mentioned in Annexure III.
- **Animal Husbandry**
 - In Lower Brahmaputra Valley Zone and Central Brahmaputra Valley Zone of Assam, farmers are advised to protect poultry birds (Broiler) from cold by using electric bulb (300 Watt for 100 sq. feet) to prevent *Coryza* disease.

- Farmers in Arunachal Pradesh are advised to provide heat by lighting with 100 bulb @ 1 bulb per 20 newly born chicks and warm pig sheds using gunny bags, straw, enclosure.
- In Mild Tropical Hill Zone of Mizoram, farmers are advised to provide good shelter by additional bulbs in poultry, heating system to cattle shed or tie gunny bag on back to protect from cool temperature.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL & SIKKIM]

- **Realised Rainfall:** Significant rainfall occurred in Araria, Muzaffarpur and Sitamarhi districts in Bihar and mainly dry weather prevailed over rest of the region.
- **Weather Forecast:** Mainly dry weather would prevail over the States of the region. No significant change in minimum temperature during the period. Fog / dense fog would occur over Bihar during next 24 hours.
- **Advisories:**
 - As there was no significant rain over the States of the region during last week and mainly dry weather is likely during the period, farmers are advised to apply irrigation to the standing crops.
 - Due to mainly dry weather in South Alluvial Zone of Bihar, farmers are advised to apply second irrigation to timely sown wheat at tillering stage and first irrigation to late sown wheat crops at CRI stage.
 - As mainly dry weather is likely to prevail, farmers in North West Alluvial Plain Zone of Bihar, are advised to harvest matured tobacco crop. Farmers are also advised to harvest potato tubers from the fields of maize-potato intercropping. As temperature condition is getting normal for planting, farmers are advised to plant spring planted sugarcane.
 - As dry weather is prevailing, farmers of Western Undulating Zone of Odisha are advised to undertake harvesting of cotton. In view of prevailing dry weather condition, farmers of Western Undulating Zone of Odisha are advised to apply irrigation to vegetable crops.
 - As the weather will remain sunny and dry, the farmers of North Eastern Coastal Plain Zone of Odisha are advised to irrigate the wheat crop.
 - Taking the advantage of dry weather, farmers in Central and North Eastern Plateau Zone of Jharkhand are advised to undertake intercultural operation to control weed in timely sown wheat.
 - As dry weather is prevailing, farmers in Jharkhand are advised to irrigate gram and lentil at branching and flowering stage.
 - In view of dry weather condition, farmers in new Alluvial Zone and Laterite and Red Soil Zone of West Bengal are advised to apply irrigation to timely sown wheat crop.
 - Due to present weather condition in Terai Zone of West Bengal, there is possibility of *Phytophthora* blight in betel vine. Farmers are advised to spray Dithane M 45 @ 2.5 g per litre of water or Blitox @ 4 g per litre of water at 15 days interval.
 - Due to present weather conditions in Old Alluvial Zone, New Alluvial Zone and Terai Zone of West Bengal, there may be chance of late blight attack in potato; farmers are advised to spray Mancozeb @ 2 g per litre of water and Blitox @ 4 g per litre of water alternately at 10-12 days interval by completely wetting the leaves.
 - Due to cloudy weather and fog in Laterite and Red Soil Zone and Coastal Saline Zone of West Bengal, cabbage and cauliflower may be attacked by powdery mildew. Apply Sufex @ 2 g per litre of water if attack is noticed.
 - In North West Alluvial Plain Zone of Bihar, early and late blight disease may intensify in potato crop due to foggy weather condition; spray Endophil M-45 or mixture of Synomaxi and Mancozeb @ 2 g per litre of water.
 - Pod borer has occurred in gram and pea in Khurda district of East and South Eastern Coastal Plain Zone of Odisha; farmers are advised to spray 50 ml Imidacloprid or 400 ml Dimethoate or Metasystox in 200 litres of water per acre.
 - Infestation of aphids has been found in potato in North Central Plateau Zone of Odisha. Farmers are advised to spray 4 ml neem based pesticides or 2 ml Metacystox or 2 ml Rogor per litre of water.
 - Other crop advisories are mentioned in Annexure I.
 - Stages of major crops are mentioned in Annexure II.
 - List of Varieties are mentioned in Annexure III.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Mainly dry weather prevailed over the region during last week.
- **Rainfall Forecast:** Rain / thundershowers would occur at one or two places over Vidarbha during next 24 hours. Dry / mainly dry weather would prevail over rest of the region.
- **Advisories:**
 - As dry weather prevailed over the State during last few weeks and no significant rain is expected during next 5 days, farmers of Madhya Maharashtra, Marathwada and Vidarbha are advised to apply irrigation to *rabi* jowar, wheat, safflower, gram, sugarcane, vegetables and orchard crops.
 - As prevailing day temperature is above normal and prevailing dry weather is expected to continue for next 5 days, farmers in south Konkan are advised to apply black polythene (25 μ) as mulch in between two trenches or beds of nurseries of fruit crops to control weeds and to conserve soil moisture.
 - As minimum temperature is rising, farmers of Western Ghat and Pune Region are advised to undertake sowing of summer bajra and groundnut for better germination.
 - Farmers of central Vidarbha zone are advised to undertake sowing of summer groundnut as prevailing minimum temperature is favourable for germination.
 - As prevailing temperature is favourable, farmers in Maharashtra are advised to undertake planting of *suru* sugarcane.
 - Due to cold and dry weather in Pune region, infestation of rust in pea and bean is likely to increase; farmers are advised to spray Tabeconazole @ 12 ml in 10 litres of water followed by second spraying after 10-12 days.
 - Due to fluctuation in temperature and partly cloudy sky in Western Maharashtra Scarcity Zone, there may be more attack of thrips on onion; spray Cypermethrin 25 % @ 5 ml or Fipronil @ 15 ml in 10 litres of water at 10 – 15 day interval.
 - As minimum temperatures were around 14-18°C, there may be infestation of rust on wheat in Central Vidarbha zone; spray Mancozeb @ 25 g in 10 litres of water.
 - As dry weather is prevailing during last few weeks and is likely to prevail in North Gujarat Zone, Bhal and Coastal Zone and North West Zone of Gujarat, apply irrigation in cumin and vegetable crops. Apply irrigation in potato and fennel also in North Gujarat zone. Under clear weather conditions, carry out weeding and intercultural operations in the crops.
 - As dry weather is prevailing and gram is at flowering stage and wheat is at active tillering / early ear head emergence stage in Bhal and Coastal Zone, North Gujarat Zone, South Saurashtra Zone and North West Zone of Gujarat, apply light irrigation to gram and routine irrigation to wheat crop.
 - Weather conditions are favourable for incidence of blight and powdery mildew in cumin in North Saurashtra Zone of Gujarat; spray 10 ml Hexaconazole 5 EC in 10 litres of water to prevent it.
 - Under prevailing high temperature conditions, infestation of powdery mildew disease in fenugreek is noticed in South Gujarat Heavy Rainfall zone. To control it, spray soluble Sulphur (50%) @ 40 kg / ha or soluble Sulphur (80%) @ 25 kg / ha or Dinocap (48%) 5 ml in 10 liters of water after evaporation of dew. Also there is a possibility of occurrence of powdery mildew in cucurbitaceous vegetables. Farmers are advised to spray wettable Sulphur (0.2%) to control it.
 - Other advisories are mentioned in Annexure – I.
 - Stages of the crops are mentioned in Annexure II.
 - Varieties of the crops are mentioned in Annexure III.
- **Animal Husbandry**
 - Keep animals in sheds for protection against cold and take special care of young calves during morning hours. Cover poultry house by gunny bags or cloth / plastic sheets and give dry fodder to animals for protection against cold in Gujarat.

NORTHWEST INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- **Realised Rainfall:** Significant rainfall occurred in most of the districts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Delhi. Significant rainfall also occurred in Faridkot, Gurdaspur, Ropar districts of Punjab, Ambala, Chandigarh, Jind, Karnal, Mahendragarh, Kurukshetra, Palwal, Panchkula, Panipat, Sonapat and Yamunanagar districts of Haryana, Nagaur district of East Rajasthan and Baghpat, Bareilly, Ghaziabad, Kanshiramnagar, Meerut, Muzzaffarnagar, Pilibhit, Saharanpur, Shahjahanpur and

Kheri districts of Uttar Pradesh. No significant rainfall occurred or mainly dry weather prevailed over rest of the region.

- **Weather Forecast:** Rain / snow would occur at one or two places over Jammu & Kashmir during next 24 hours and mainly dry weather thereafter. Mainly dry weather would prevail over remaining States of the region. No significant change in minimum temperatures over northwest India. Fog / dense fog would occur over Uttar Pradesh during next 24 hours.
- **Advisory :**
 - As significant rainfall occurred in most of the districts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Delhi and also in Faridkot, Gurdaspur, Ropar districts of Punjab, Ambala, Chandigarh, Jind, Karnal, Mahendragarh, Kurukshetra, Palwal, Panchkula, Panipat, Sonapat and Yamunanagar districts of Haryana, Nagaur district of East Rajasthan and Baghpat, Bareilly, Ghaziabad, Kanshiramnagar, Meerut, Muzzaffarnagar, Pilibhit, Saharanpur, Shahjahanpur and Kheri districts of Uttar Pradesh, farmers are advised to postpone irrigation to standing crops.
 - Farmers in remaining districts of west Uttar Pradesh are advised to apply irrigation in wheat crop at CRI and tillering stage as there was no significant rain during last week and mainly dry weather is likely to prevail.
 - In Cold Arid Zone of Jammu & Kashmir, during these days keep the newly planted Apricot & Apple plants covered with gunny bags to prevent them from excessive cold. Cover the polythene of greenhouses with black polythene in the night for proper growth of crops or maintain 2 layers of polythene over greenhouse.
 - In Rajasthan, due to persistent low minimum temperature and in view of no change in minimum temperatures, farmers are advised to arrange for smoking during night at northwest direction of the field, apply irrigation / sprinkling in field crops and spray 0.1 % H₂SO₄ to protect sensitive crops viz. mustard, gram, coriander, brinjal, tomato, pea and palm against frost / cold injury.
 - In Bhabar and Terai Zone of Uttarakhand, there was good amount of rainfall during last week and also snowfall in hilly region, which lower down the temperature and was favourable for better growth of wheat. Taking the advantage of likely mainly dry weather during next three days, farmers are advised to top dress Urea @ one kg per Nali. Under dry weather condition, continue intercultural operation and weeding from standing crops.
 - In the Mid Hills Sub humid Zone of Himachal Pradesh, farmers are advised to protect the sub-tropical fruit plants of 4-5 years of age from cold by covering with dry and Sarkanda grass by keeping eastward side open for proper sun light and air. Soil moisture due to recent rain is optimum for enhancing growth of winter vegetables and tillering of wheat crop. Farmers are advised to apply split dose of nitrogen in cabbage, cauliflower and wheat utilizing available soil moisture.
 - Farmers in Low Hills Subtropical Zone of Himachal Pradesh are advised to arrange for smoking to protect the vegetable crops from frost / cold.
 - As low minimum temperature is prevailing over parts of Haryana and Punjab and no significant change in minimum temperatures is likely, farmers in Haryana and Punjab are advised to arrange for smoking around the fields during night for protection of the crops from the frost / cold injury. To protect from chilled winds, cover young fruit plants with straw.
 - In Sub Tropical Zone of Jammu & Kashmir, weather condition is favourable for the yellow rust in wheat; farmers are advised to spray the crop with Propiconazole @ 0.1% or Mancozeb @ 0.2% at the appearance of the disease.
 - In western zone of Haryana, due to high humidity and foggy weather, there is possibility of white rust and *Alternaria* blight in mustard crop; farmers are advised to apply appropriate plant protection measures.
 - In the Mid Hills Sub humid Zone of Himachal Pradesh, chances of occurrence of downy mildew in cauliflower has increased due to prevailing weather conditions; farmers are advised to apply Redomil-MZ @ 25 g per 100 litres of water. The occurrence of frost may cause black rot disease in cauliflower which has also been noticed in some areas of Solan. To control this disease, spray Mancozeb (25 g) with Streptocycline (1 g) /10 litres of water.
 - Due to continuous cool and humid weather, *Alternaria* blight (black spot) disease may attack mustard crop in some pockets of Flood Prone Eastern Plain Zone of Rajasthan. Farmers are advised to destroy

the infested plants and spray Iprodione or Mancozeb @ 2 kg / 800 litre solution and repeat the spray in 15 days interval.

- Due to foggy and cloudy weather, white rust is noticed in mustard at some places in Irrigated North Western Plain Zone of Rajasthan. Farmers are advised to monitor the field regularly and spray mixture of Metalaxyl (Redomil M. Z.) @ 2 g / litre water if incidence is observed above ETL.
 - In Uttar Pradesh, under prevailing weather condition, there is possibility of late blight in potato and powdery mildew in pea; hence farmers are advised to apply Mancozeb (Indofil M-45) @ 2.5 g per liter of water in potato at least twice at an interval of 15 days to manage late blight and wettable sulphur 2 g per litre of water or to dust Sulphur at 25 kg / ha in pea to manage powdery mildew.
 - Other advisories are mentioned in Annexure – I.
 - Stages of major crops are mentioned in Annexure II.
 - Suitable varieties of crops are mentioned in Annexure III.
- **Animal Husbandry**
 - In Rajasthan, it is advised to keep milch animals indoor and use curtains, supplement hay with berseem, alfa alfa or mustard leaves and cover the door of animal house and wrap jute bag around animal back to avoid cold stress.
 - In Haryana, it is advised to keep the animals at dry places to protect them from cold wind and low temperature. Use heaters as the temperature inside the shed should not be below 60°F. Keep the chicks warm by giving them artificial heat.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

- **Realised Rainfall:** Mainly dry weather prevailed over the States of the region during last week.
- **Rainfall Forecast:** Rain / thundershowers would occur at one or two places over south Kerala and south Tamilnadu during next 24 hours. Dry or mainly dry weather would prevail over the region.
- **Advisories:**
 - As no significant rainfall occurred over the region during last couple of weeks and no significant rain is expected over the region, apply irrigation to the standing crops.
 - Farmers are advised to mulch the soil or use soil mulch to conserve moisture in coconut gardens in the Northern and Central Zone and in pepper and arecanut plantations in the High Altitude Zone of Kerala.
 - In view of mainly dry weather likely during next three days, farmers in Problem Area Zone of Kerala are advised to apply 150 kg lime in rice field and drain out standing water followed by application of 2nd dose of fertilizers in rice. Newly planted coconut seedlings may be protected from scorching effect of sun and irrigated at 2 days intervals. Mulching with crop residues may be done to reduce evapotranspiration loss.
 - Since temperature and wind speed is likely to increase, farmers in the Problem Area Zone of Kerala are advised to increase frequency of irrigation.
 - Farmers in Central Zone of Kerala are advised to harvest rice utilizing dry weather.
 - Considering the dry weather, farmers in the Western Zone of Tamil Nadu are advised to harvest pulse crops.
 - As high wind speed is expected during next five days in the Southern Zone of Tamil Nadu, farmers are advised to postpone spraying of chemicals.
 - As mainly dry weather is expected, farmers in the High Altitude Hilly Zone of Tamil Nadu are advised to apply mulch to conserve moisture in tea.
 - As the weather is conducive for the incidence of powdery mildew in cucurbits in the Problem Area Zone of Kerala, farmers are advised to apply wettable Sulphur 2 g per litre of water or to dust Sulphur @ 25 kg per ha to manage powdery mildew.
 - In Eastern Dry Zone of Karnataka, low temperature in morning hours is congenial for powdery mildew and leaf hopper on mango and powdery mildew in grapes. Farmers are advised to undertake plant protection measures.
 - Due to low temperature, hoppers were noticed in mango crop throughout the North East Transition Zone of Karnataka. For effective control undertake spraying of 4 g Carbaryl 50 WP or 2 ml Malathion 50 EC or 1.5 ml Monocrotophos 36 SL or 0.5 ml Phosphamidon 40 EC in one litre water.

- In the South Zone of Tamil Nadu, weather conditions like moderate cloud cover and humidity are conducive for the incidence of mite in chillies, internode borer in sugarcane and stem borer and leaf folder in rice. Farmers are advised to undertake plant protection measures.
- Due to rise in temperature in the North Western Zone of Tamil Nadu, small onion plants are highly infested by thrips; farmers are advised to spray Methyl Dematon 25 EC @ 1 ml / litre of water to control this infestation.
- Due to high day temperature leaf miner incidence in groundnut and brown plant hopper in *rabi* rice are noticed in Scarce Rainfall Zone of Andhra Pradesh. Prevailing weather conditions are also congenial for incidence of *Spodoptera litura* in groundnut (maximum temperature of 30-32 °C, minimum temperature of 21-23 °C) and blast in rice. Farmers are advised to undertake plant protection measures.
- Prevailing weather conditions are congenial for the incidence of stem borer in 20-25 days old transplanted rice and early leaf spot and peanut stem necrosis diseases in groundnut in the Southern Telangana Zone of Andhra Pradesh. Farmers are advised to undertake plant protection measures.
- Weather is congenial for incidence of *Corynospora* leaf spot disease in rice fallow pulses in the South Coastal Zone of Andhra Pradesh. For control spray Copper oxychloride @ 3 g / liter of water.
- Weather is congenial for attack of thrips on groundnut (due to rise in day temperatures) and blast on *rabi* rice (due to fall in night temperature and high relative humidity) in the Southern Zone of Andhra Pradesh. Farmers are advised to spray Tricyclazole @ 0.6 g per litre of water as soon as blast disease symptoms are noticed in rice and Monocrotophos @ 1.6 ml or Chloropiriphos @ 2 ml per liter of water for thrips on groundnut.
- Other advisories are mentioned in Annexure – I.
- Stages of major crops are mentioned in Annexure II.
- List of Varieties are mentioned in Annexure III.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Mainly dry weather prevailed over the region.
- **Weather forecast:** Rain/thundershowers would occur at one or two places over East Madhya Pradesh and Chhattisgarh during next 24 hours. No significant change in minimum temperatures is likely.
- **Advisories:**
 - As low minimum temperature is prevailing over west Madhya Pradesh and no significant change in minimum temperatures is likely, farmers are advised to arrange for smoking during night and apply light and frequent irrigation / sprinkling in field crops to protect crops against frost / cold injury.
 - As mainly dry weather is prevailing for last few weeks and there is no possibility of significant rain during the period over remaining States of the region, farmers are advised to apply irrigation to the standing crops.
 - As dry weather is prevailing for last few weeks and is likely to persist during the period in Chhattisgarh Plain Zone; farmers are advised to apply timely irrigation in *rabi* crops.
 - Present weather conditions are favourable for planting of onion during this week in Chhattisgarh Plain Zone; farmers are advised to complete planting of onion.
 - In Satpura Plateau Zone of Madhya Pradesh weather is favourable for attack of early blight in potato; farmers are advised to apply Mancozeb @ 2.5 g / litre of water.
 - As there is increased activity of late blight in potato due to cloudy sky during last week, farmers in Bundelkhand zone of Madhya Pradesh are advised to monitor the crop and spray Mancozeb @ 2.5 ml per liter of water for their effective control.
 - Other advisories are mentioned in Annexure – I.
 - Stages of major crops are mentioned in Annexure II.
 - Suitable varieties of crops are mentioned in Annexure III.
- **Other Advisories :**
 - In Chhattisgarh Plain Zone, in summer rice farmers are advised to fix pheromone traps and light traps for the control of yellow stem borer.

Annexure I
Other Advisories

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- Farmers in Barak Valley Zone of Assam are advised to harvest the matured potato crop.
- In temperate sub alpine zone of Meghalaya, farmers are advised to continue nursery preparation of *boro* rice and undertake sowing of chilli and brinjal.
- In Mild Tropical Plain Zone of Tripura, farmers are advised to continue transplanting of *boro* rice. Complete harvesting of cole crops, tomato and brinjal. Continue nursery raising of summer tomato and brinjal and sowing of moong and black gram.
- Farmers in Lower Brahmaputra Valley Zone of Assam are advised to undertake sowing of sunflower.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL &SIKKIM]

- Farmers of Western Undulating Zone of Odisha are advised to undertake transplanting of summer rice.
- The farmers of East and South Eastern Coastal Plain Zone of Odisha are advised for sowing of summer groundnut.
- Farmers in Central and Western Plateau Zone of Jharkhand are advised to prepare the nursery bed for raising seedlings of summer rice.
- Farmers in Western Plateau Zone and Central and North Eastern Plateau Zone of Jharkhand are advised to prepare the nursery bed for raising seedlings of summer rice and prepare field for sowing of long gourd, round gourd, bitter gourd, sponge gourd, cucumber, water melon and musk melon. In Western Plateau Zone, as timely sown toria crops are at maturity stage, farmers are advised to harvest the crop and irrigate gram and lentil crops.
- Farmers in new Alluvial Zone and Laterite and Red Soil Zone of West Bengal are advised to start transplanting the seedling of *boro* rice.
- Farmers in Old Alluvial Zone of West Bengal are advised to undertake land preparation for transplanting of *boro* rice.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- Farmers of central Vidarbha zone are advised to prepare land for sowing of summer sesamum and green gram. Farmers of east Vidarbha are advised to complete preparatory tillage for sowing of summer groundnut and undertake the planting of water melon and musk melon.
- Farmers in North Saurashtra Zone are advised for sowing of summer groundnut. Undertake land preparation for sowing of summer crops like groundnut, moong, pearl millet in South Gujarat Heavy Rainfall Zone and for sowing of groundnut, moong in South Saurashtra Zone of Gujarat.
- Carry out harvesting of vegetables in Bhal and Coastal Zone, and North West Zone of Gujarat, harvesting of matured castor capsules in Bhal and Coastal Zone and South Saurashtra Zone of Gujarat. Carry out picking of cotton bolls in morning time in North Gujarat Zone.

NORTHWEST INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- Farmers in Low Hills Subtropical Zone of Himachal Pradesh are advised to continue planting of pome and stone fruits (peach, pear, plum almonds, apricot and apple).
- In the Mid Hills Sub humid Zone of Himachal Pradesh, farmers are advised to continue pruning and training operations in apple and other stone fruit plants.
- Farmers in eastern zone of Haryana are advised to start field preparation for autumn sowing of sugarcane.
- In undulating plain zone of Punjab farmers are advised to start planting of deciduous fruit plants of pear, peach and plum in these days.
- Farmers in Delhi are advised to undertake transplanting of mature seedlings or direct sowing of seeds of extra late cauliflower (Snowball) in the raised bed and sowing of spinach. It is also advised to prepare seedling of early cucurbitaceous crops in small polythene bags and nursery preparation of chilli, tomato and brinjal in poly house.

- In Arid Western Plain Zone of Rajasthan, farmers are advised to prepare field for sowing of summer cucurbits crops viz. ridge gourd, bottle gourd, cucumber, white gourd, bitter gourd, round gourd, water melon etc.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

- Farmers in the North Dry Zone and Southern Transition Zone of Karnataka are advised to undertake sowing of groundnut, green gram and cowpea under irrigated condition, continue harvesting of matured cowpea, black gram, green gram and pigeon pea crops and prepare nursery bed for sowing of summer rice.
- Farmers in the Eastern Dry Zone of Karnataka are advised to harvest red gram.
- Farmers in the Southern Dry Zone of Karnataka are advised to undertake sowing of pulses like black gram, green gram and also sun hemp after harvesting of rice.
- Tomato crop is infected with early leaf blight (ELB) in the coastal and Eastern Dry Zone of Karnataka. Farmers are advised to spray mancozeb @ 2 g/L or cuprous oxide @ 2.5 g/L to control early leaf blight.
- Farmers in the Cauvery Delta Zone of Tamil Nadu are advised to sow the rice fallow pulses, black gram and green gram in samba rice field.
- Farmers in the Southern Zone of Kerala are advised to provide shade to small rubber plants. Apply Bordeaux mixture on the bark of rubber plants which is tapped in this year. Apply lime on the stem of 2- 3 year old plants.
- Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to harvest the matured Bengal gram on bright sunny days and harvested crop should be dried and winnowed after one week of harvest.
- Farmers in the High Altitude Zone of Andhra Pradesh are advised to undertake intercultural operation in transplanted *rabi* rice after 30-45 days of sowing.

CENTRAL INDIA [M.P., CHHATTISGARH]

- In Chhattisgarh Plain Zone pheromone trap is an effective measure for the control of tobacco caterpillar and fruit borer in vegetables. In summer rice farmers are advised to fix pheromone traps and light traps for the control of yellow stem borer.

Annexure II

Major Crops

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- *Boro* rice (transplanting / tillering), cole crops (head formation / maturity / harvesting), wheat (CRI / tillering), rapeseed, mustard (flowering / capsule formation), potato (tuber formation / maturity / harvesting), tomato (flowering / fruiting / maturity), *rabi* pulses like lentil, rajmah, pea (vegetative / flowering / pod formation), okra, Fench bean (sowing / seedling), sunflower (sowing) in Assam.
- Cauliflower, cabbage (maturity / harvesting), potato (maturity / harvesting), pea (vegetative / flowering / pod formation), rapeseed, mustard (flowering / capsule formation) in Arunachal Pradesh.
- Potato (vegetative), pea (vegetative / flowering), cauliflower, cabbage (vegetative / head formation / maturity), rapeseed (vegetative / flowering), onion, garlic (vegetative), *rabi* maize (vegetative), tomato, chilli, (transplanting), beans (sowing / early vegetative), cucurbits (nursery raising) in Manipur.
- *Rabi* maize (vegetative), *boro* rice (nursery preparation), cole crops (vegetative / head formation), pea, lentil, mustard (flowering / pod formation), toria (flowering / pod formation), *Dolichos* / French bean (flowering / pod formation), tomato (vegetative), chilli, brinjal (sowing) in Meghalaya.
- Cole crop (vegetative / head formation), beans (flowering / pod formation), pea, lentil (flowering / pod formation / pod maturity / harvesting), tomato (flowering / fruiting) in Mizoram.
- Cabbage (head formation), mustard (flowering / capsule formation), tomato (flowering / fruiting), pea (pod maturity / harvesting), banana (vegetative), potato (vegetative / tuber formation) in Nagaland.
- *Boro* rice (seedling / transplanting), toria (pod formation / pod filling), summer brinjal, tomato (nursery raising), potato (vegetative / tuber formation), cole crops (maturity / harvesting), banana (harvesting), pea, bean (flowering / pod formation), summer moong, black gram (sowing) in Tripura.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL & SIKKIM]

- Gram, peas, lentil (flowering / pod formation), sunflower, maize (vegetative / flowering), sugarcane (planting), potato (tuber formation), mustard (flowering / pod formation), urad, arhar, bajra etc. (grain formation), winter vegetables (vegetative / flowering / fruiting / harvesting), wheat (tillering) and toria (pod formation), pigeon pea (flowering / pod formation) in Bihar.
- Wheat (tillering / jointing stage), potato (vegetative / tuber formation), pigeon pea (pod formation), onion (transplanting), vegetables (vegetative / flowering / fruiting / harvesting), mustard, gram, linseed, lentil, pea (vegetative / flowering / pod formation) in Jharkhand.
- Sugarcane (grand growth), banana (vegetative), mustard, sunflower, sesame, cowpea (vegetative / flowering / pod formation), *rabi* groundnut (pod formation), summer groundnut (sowing), fruit crops (planting / seedling), summer rice (land preparation / transplanting), wheat (tillering) in Odisha.
- *Boro* rice (seedling / transplanting), wheat (tillering), vegetable (flowering / fruiting), potato (tuber formation), mango (flowering), Jackfruit (fruiting), tomato (flowering / fruiting), mustard (flowering / siliqua formation stage), pointed gourd (vegetative), onion (transplanting) in West Bengal.
- Ginger (sprouting / early vegetative), large cardamom (vegetative / primary flowering / secondary flowering), vegetables (vegetative), rice (grain formation / maturity) in Sikkim.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- *Rabi* jowar (grain formation in Madhya Maharashtra and Marathwada), safflower (head formation in Madhya Maharashtra and Marathwada), maize (tasseling and silking / cob initiation in Marathwada and Madhya Maharashtra), gram (flowering / pod formation), wheat (tillering / ear head emergence), summer rice (early tillering in South Konkan, in Western Ghat region and East Vidarbha), summer groundnut (germination in South Konkan and sowing in Madhya Maharashtra, Marathwada and Vidarbha), summer bajra (sowing in Pune and Nashik region) in Maharashtra.
- Summer groundnut (sowing), Summer rice (nursery sowing / seedling), wheat (active tillering / early ear head emergence), gram (flowering / pod formation), cumin (branching / flowering / grain filling), cotton (boll maturity / picking), sugarcane (planting / early vegetative), castor (spike maturity / harvesting), winter vegetables (flowering / fruiting), chilli, brinjal (fruiting / harvesting), cauliflower (vegetative / head formation), potato (tuber formation), mustard (flowering / capsule formation), jowar (flowering), *rabi* fennel (vegetative / flowering), fenugreek (flowering / pod formation), maize (vegetative / tasseling) in Gujarat.

NORTHWEST INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- Wheat (tillering), pea (vegetative / flowering / pod formation), radish (vegetative), Pome and stone fruits (planting), vegetables (vegetative / flowering / fruiting) in Himachal Pradesh.
- Cauliflower, cabbage, broccoli (vegetative / head formation), tomato (vegetative / flowering / fruiting), carrot (vegetative), pea (vegetative / flowering / pod formation), sarson saag, bathua, radish and turnip (vegetative), mustard (vegetative / flowering), onion (vegetative), spinach, coriander, fenugreek (sowing / vegetative), wheat (tillering) in Delhi.
- *Rabi* cereal (wheat), pulses (pea and lentil), brown sarson, fodder oat (in dormant stage in Valley Temperate zone (Srinagar)), sunflower (early vegetative / vegetative), garlic, cucurbits, okra (seedling / early vegetative), potato (sowing), radish, spinach (sowing), carrot, turnip (sowing), onion, cole crops (nursery sowing / transplanting), mustard (late sown- flowering, normal / early sown- seed formation), wheat (late sown- emergence / tillering / jointing, normal / early sown- tillering / jointing / flag leaf initiation), barley (tillering / jointing stage / flag leaf initiation), pulses (pea, lentil, gram) (vegetative) in Jammu & Kashmir.
- Wheat (CRI / tillering), arhar and ginger (vegetative), autumn sugarcane (vegetative), mustard, yellow sarson, rai, brinjal, chilli, lady's finger, barley, oat, chick pea, lentil (vegetative / flowering) in Uttarakhand.
- Wheat (tillering / active tillering), barley (tillering), sugarcane (grand growth / ripening), masoor, alsi, jai (vegetative / flowering), fodder barseem (vegetative / second cutting), vegetable crops (radish, carrot) (vegetative), onion, garlic (vegetative), rapeseed, mustard, pea, lentil and gram, maize (vegetative / flowering) in Uttar Pradesh.
- Wheat (tillering / jointing), sugarcane (harvesting), mustard (flowering / capsule formation) in Punjab.
- Wheat (tillering / jointing), sugarcane (harvesting), mustard (flowering / capsule formation), barseem (sowing / vegetative) in Haryana.
- Cauliflower, cabbage, onion (transplanting / early vegetative), sugarcane (maturity), maize (maturity), *capsicum*, guar, vegetables (tinda, water melon, pumpkin, cucumber, coriander, bhindi, ridge gourd) (sowing / germination / seedling), potato (tuber formation), mustard (vegetative / flowering / capsule formation), wheat (CRI / tillering), barley (tillering) in Rajasthan.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

- Vegetables (maturity / harvest), *rabi* groundnut (pegging / pod development), *rabi* maize (flowering / tasseling and silking), sunflower (flowering), Bengal gram (harvesting), red gram (pod maturation / harvesting), cow pea and sesame (early vegetative), rice fallow pulses (early vegetative) and *rabi* rice (nursery sowing / transplanting) in Andhra Pradesh.
- Cowpea, black gram and green gram (pod maturity / harvesting), pigeon pea (harvesting), chilli (fruiting), sunflower (vegetative), chick pea (pod maturity), grapes (flowering / fruiting), October sown wheat (late jointing / flowering), jowar (grain maturity), ragi (tillering), maize (cob initiation / cob formation), horse gram (flowering / pod formation), mango (flowering), sugarcane (maturity / ripening) in Karnataka.
- Coconut (flowering / nut development), *puncha* rice (early vegetative), rubber (tapping), vegetables (harvesting), *mundakan* rice (maturity / harvesting), cardamom (new planting) in Kerala.
- Late *samba* rice (tillering / panicle initiation), *samba* rice (maturity), *thaladi* rice (flowering), sorghum (flowering), rice fallow pulses (sowing), cowpea (harvesting), black gram (maturity / harvesting), rainfed groundnut (flowering / pod formation), cotton (boll maturity), maize (cob formation), red gram (pod maturity / harvesting), irrigated groundnut (sowing), vegetables (fruiting) in Tamil Nadu.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Ladies finger, cucurbits (flowering / fruiting), pigeon pea (pod formation), potato (vegetative / tuber formation), sugarcane (planting), *rabi* vegetables (vegetative / flowering / fruiting), wheat (active tillering / booting stage), maize (vegetative), fodder crops (sowing), chickpea, lentil, mustard, linseed (pod / capsule formation) in Madhya Pradesh.
- Sugarcane (planting / vegetative), pigeon pea, groundnut (pod filling), ginger, turmeric, papaya (vegetative), onion (planting / early vegetative), vegetables (vegetative / flowering / fruiting), millet (vegetative), wheat (crown root initiation / tillering), niger, kulthi (sowing / germination) in Chhattisgarh.

Annexure III
List of Varieties

Assam

Boro rice: Mahsuri, IR-50, Bishnuprasad, Jyotiprasad, Kanaklata and Dinanath, *Boro* 1, 2, 3, Kalinga-3, Joymati, Swarnav.

Okra: Parvani Kranti, Arka Anamika.

Sunflower: Jwalamukhi.

Tripura:

Mung: PDM 139.

Black gram: T-9, Panth Urd- 35.

Tomato: Anup.

Odisha

Groundnut: Smruti and JL-24, TMV-2, Devi.

Coriander: CO-1, CO-2, CO-3, Swati, Sadhana, Ram Selction and Udi.

Rice: Lalat, MTU-1010, MTU-100, Parijat, Khandagiri, Naveen.

West Bengal:

Boro Rice: Supriya, Jamini, Bhupen, IET-2233, Satabdi (IET-4786), Kitish (I.E.T.-4094), Ratna, Bikash etc.

Jharkhand:

Onion: Pusa Red, Pusa Ratnar, N-53, Arka Niketan, Arka Kalyan, Agrifound Dark Red.

Maharashtra

Suru Sugarcane: CO-419, COM-7125, CO-860032, CO-94012 and COM-0265 for Madhya Maharashtra and CO-86032, CO-M 7125, CO-8014, CO-740, CO-7219 for Marathwada region.

Summer sesamum: AKT-101 and NT11-99.

Bajra: Shraddha, Saburi and Shanti.

Gujarat

Groundnut: TAG-24, GG-2, TG-37-A.

Delhi

Spinach: Pusa Harit, hybrid varieties.

Cauliflower: Snowball.

Karnataka

Green gram: Selection-4 and Pusa Bisaki.

Cow pea: C-152.

Tamil Nadu

Black gram: ADT 3.

Green gram: ADT 3.

Madhya Pradesh

Sugarcane: KO-J-N- 86572, KO-J-N- 86141.

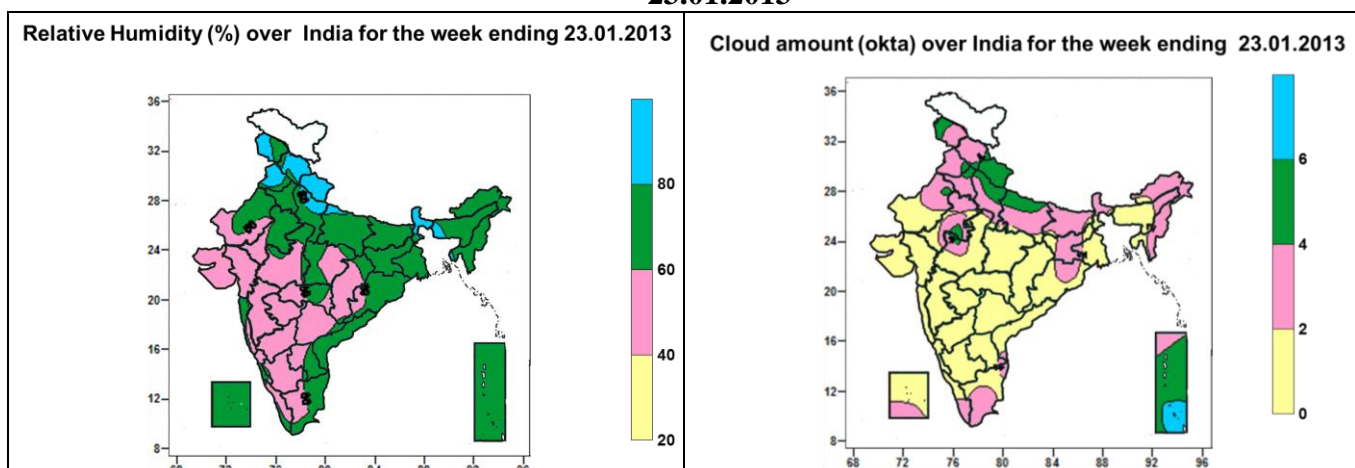
Chattisgarh

Niger: JNC-1, JNC-6, JNC-9, GA-10, Ootakmund, KGN-2.

Kulthi: AK-21, AK-42, Bastar Kulthi, Birsa Kulthi and VLG-9.

Annexure IV

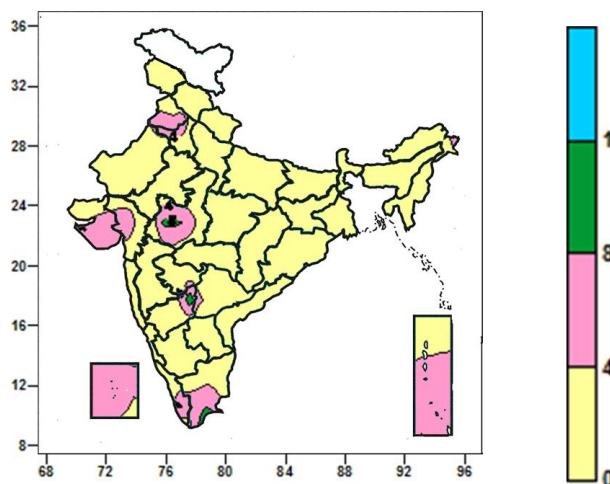
Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 23.01.2013



Relative humidity ranged between 80 to 100% over many parts of Sub-Himalayan West Bengal, Sikkim, Himachal Pradesh, Uttarakhand, Punjab, some parts of Jammu & Kashmir, Uttar Pradesh, Assam, 40 to 60% over many parts of South Rajasthan, Central India, West India, Karnataka, Telangana, Kerala, some parts of Odisha, Raylaseema, Tamil Nadu, 60 to 80 % over remaining parts of the country.

Cloud amount 6 to 8 okta over some parts of Andaman & Nicobar Islands, 4 to 6 okta over many parts of Uttarakhand, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Rajasthan, West Madhya Pradesh, Below 4 okta over remaining parts of the country.

Wind speed (knots) over India for the week ending 23.01.2013



Wind speed ranged between 8 to 12 knots over some parts of West Madhya Pradesh, North Interior Karnataka, 4 to 8 knots over many parts of Punjab, Saurashtra, West Madhya Pradesh, Lakshadweep, Andman & Nicobar Islands, some parts of Arunachal Pradesh, Haryana, Gujarat, Marathwada, Telangana, North Interior Karnataka, Tamil Nadu, Kerala, 0 to 4 knots over remaining parts of country.