



National Agromet Advisory Service Bulletin

*Friday 24th July 2015
(For the period 24th to 28th July 2015)*



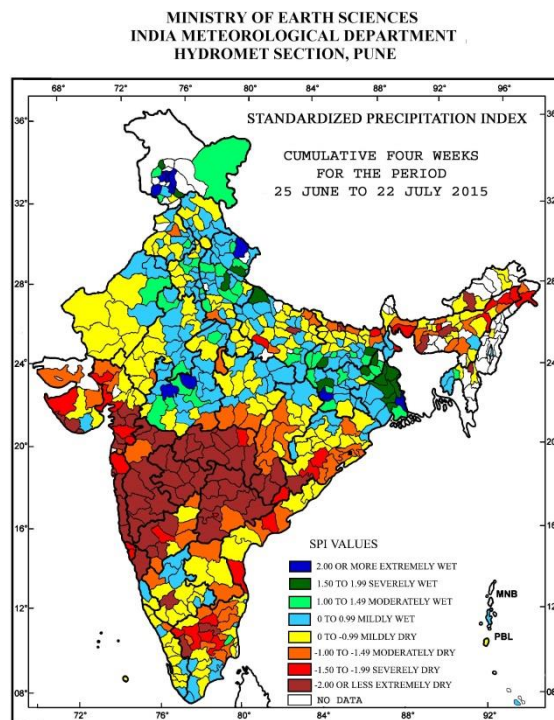
*Issued by
National Agrometeorological Advisory Service Centre,
Agricultural Meteorology Division,
India Meteorological Department, Shivajinagar, Pune.*



Monsoon Watch

- The southwest monsoon was **vigorous** over Saurashtra & Kutch and **active** over Gangetic West Bengal, Odisha, Jharkhand, Gujarat region, Chhattisgarh and Vidarbha during past 24 hours ending at 0830 hours IST of yesterday.

Standardised Precipitation Index Four Weekly for the Period 25th June to 22nd July 2015

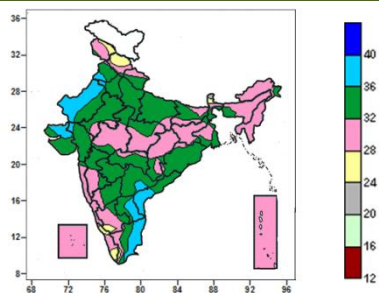


- Extremely/severely wet conditions experienced in few districts of West Bengal and Jammu & Kashmir; Deoghar, Godda, Gumla, Latehar districts of Jharkhand; Aurangabad, Bhagalpur districts of Bihar; Kheri, Moradabad districts of Uttar Pradesh; Chamoli, Nainital districts of Uttarakhand; Rajgarh, Ujjain districts of Madhya Pradesh.
- Extremely/Severely dry conditions experienced in most districts of Konkan & Goa, Maharashtra and Telangana; many districts of Gujarat; few districts of Arunachal Pradesh and Assam; West Garo Hills district of Meghalaya; Cooch Behar, South Dinajpur districts of West Bengal; Koraput, Malkangiri, Kandhamal, Rayagada districts of Odisha; Araria, Sitamarhi districts of Bihar; Ambedkar Nagar, Fatehpur districts of Uttar Pradesh; Bijapur, Bastar, Dantewada districts of Chhattisgarh; West Godavari, Nellore districts of Andhra Pradesh; Coimbatore, Dharmapuri, Erode, Namakkal, Nilgiri, Salem, Trichy districts of TamilNadu; Uttar Kannada, Bagalkote, Belgam, Bijapur, Dharwad, Gadag, Hassan districts of Karnataka.
- Moderately dry conditions experienced in many districts of Meghalaya; few districts of Assam, Saurashtra, Chhattisgarh and Tamil Nadu; Lohit district of Arunachal Pradesh; Jalpaiguri district of West Bengal; Cuttack, Gajapati, Ganjam, Jagatsinghpur, Keonjhar, Khurda, Nayagarh districts of Odisha; East Champaran, Kishanganj, Madhubani, Purnea, Sheohar districts of Bihar; Kaushambi, Kushi Nagar, Maharajganj, Agra, Lalitpur districts of Uttar Pradesh; Jalandhar district of Punjab; Pratapgarh districts of Rajasthan; Betul, Balaghat, Chhindwara, Seoni, Barwani districts of Madhya Pradesh; Banaskantha, Mehsana, Dadara & Nagar Haveli districts of Gujarat Region; Nashik, Gondia districts of Maharashtra; Krishna, Chittoor, Kurnool districts of Andhra Pradesh; Nalgonda district of Telangana; Bidar, Haveri, Raichur, Yadgir, Shivamogga districts of Karnataka; Wynad district of Kerala.

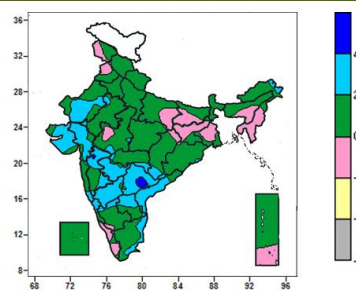
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 22.07.2015

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 22.07.2015

Mean Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 22.07.2015



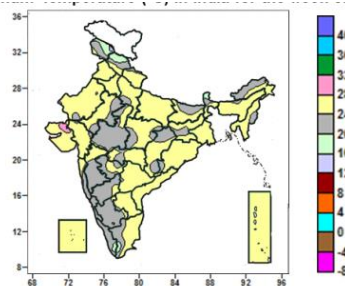
- Mean maximum temperature were between 36 to 40 $^{\circ}\text{C}$ over many parts of West Rajasthan, Coastal Andhra Pradesh, Kutch, some parts Rayalaseema, Tamil Nadu and isolated pockets of Punjab, Haryana, Gujarat Region and Telangana.
- It was below 36 $^{\circ}\text{C}$ over remaining parts of the country.



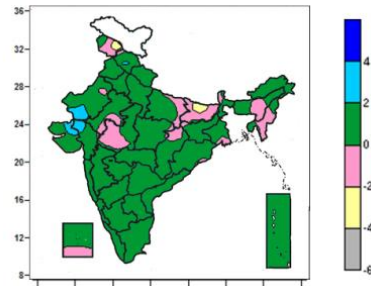
- Mean maximum temperature were above normal by more than 4 $^{\circ}\text{C}$ over isolated pockets of Telangana and Madhya Maharashtra.
- Mean maximum temperature were above normal by 2 to 4 $^{\circ}\text{C}$ over many parts of West Rajasthan, Gujarat, Telangana, Coastal Andhra Pradesh, Marathwada, Madhya Maharashtra, North Interior Karnataka, some parts of Rayalaseema, South Interior Karnataka, Tamil Nadu, isolated pockets of Arunachal Pradesh, Konkan & Goa, Vidarbha, West Madhya Pradesh, East Rajasthan, Chhattisgarh, Coastal & South Interior Karnataka.
- It was normal to near normal in remaining parts of the country.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 22.07.2015

Mean Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 22.07.2015



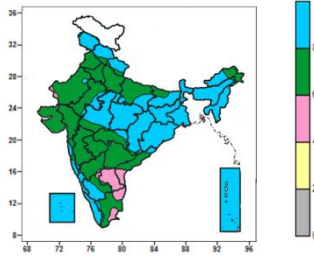
- Mean minimum temperature was 16 to 20 $^{\circ}\text{C}$ over many parts of Sikkim, some parts of Jammu & Kashmir, Himachal Pradesh and isolated pockets of Kerala and Tamil Nadu.
- Mean minimum temperature was 20 to 24 $^{\circ}\text{C}$ over many parts of Arunachal Pradesh, Manipur, West Madhya Pradesh, Konkan & Goa, Madhya Maharashtra, Marathwada, Karnataka, Kerala, some parts of Jammu & Kashmir, Himachal Pradesh, Sub-Himalayan West Bengal, Bihar, Jharkhand, East Madhya Pradesh, Vidarbha, Chhattisgarh, Tamil Nadu and isolated pockets of Rajasthan, Uttarakhand, West Uttar Pradesh, Odisha.
- It was above 24 $^{\circ}\text{C}$ over rest of the country.



- Mean minimum temperature was above normal by 2 to 4 $^{\circ}\text{C}$ over isolated pockets of Himachal Pradesh, West Rajasthan and Gujarat.
- Mean minimum temperature was below normal by 2 to 4 $^{\circ}\text{C}$ over isolated pockets of Bihar and Jammu & Kashmir.
- It was normal to near normal in remaining parts of the country.

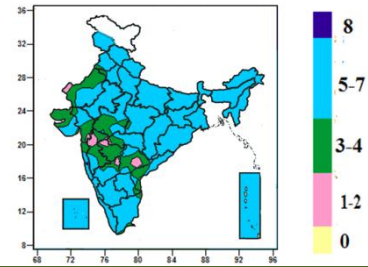
Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 22.07.2015

Relative Humidity (%) over India for the week ending 22.07.2015



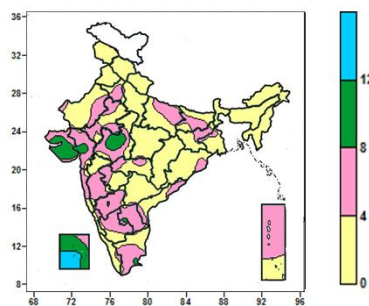
- Mean Relative humidity was above 80% over Jammu & Kashmir, West Bengal & Sikkim, Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Jharkhand, Odisha, East Madhya Pradesh, Kerala, Coastal Karnataka, Lakshadweep and Andaman & Nicobar Islands, many parts of Himachal Pradesh, Uttarakhand, Bihar, Arunachal Pradesh, Assam, West Madhya Pradesh, Chhattisgarh, Konkan & Goa, South Interior Karnataka, some parts of East Uttar Pradesh and isolated pockets of Rajasthan, Vidarbha, Coastal Andhra Pradesh.
- Mean Relative humidity was 60 to 80% over Punjab, Haryana & Delhi, Gujarat, Marathwada and Telangana, many parts of Uttar Pradesh, Rajasthan, Madhya Maharashtra, Vidarbha, North Interior Karnataka and Tamil Nadu, some parts of Bihar Arunachal Pradesh, West Madhya Pradesh and South Interior Karnataka and isolated pockets of Himachal Pradesh, Uttarakhand, Assam, Konkan and Rayalaseema.
- Mean Relative humidity was 40 to 60% over rest of the country.

Cloud amount (okta) over India for the week ending 22.07.2015



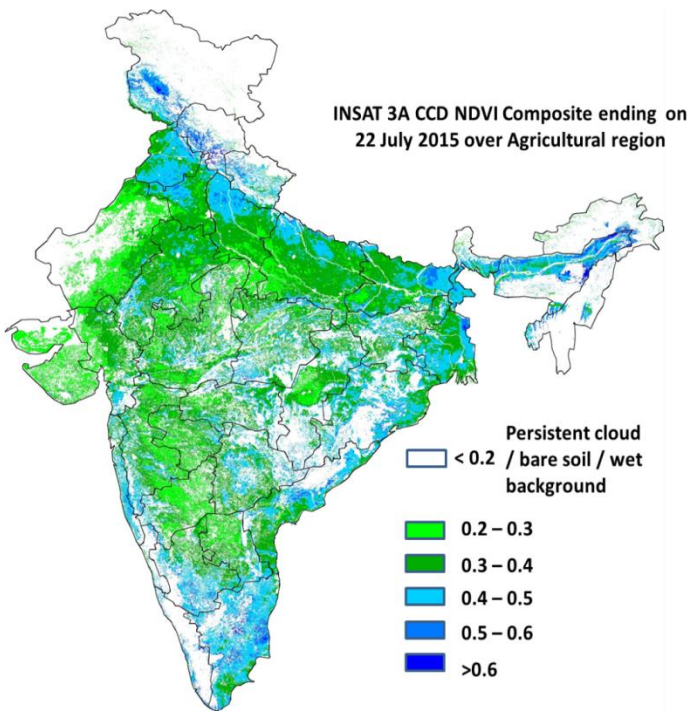
- Sky remained generally cloudy (5 to 7 okta) over entire Country except many parts of West Rajasthan, Gujarat Region, West Madhya Pradesh, Madhya Maharashtra, Marathwada, Telangana, some parts of Konkan, Vidarbha, North Interior Karnataka, Coastal Andhra Pradesh, isolated pockets of Punjab, Haryana, East Madhya Pradesh Rayalaseema and Tamil Nadu where it was partly cloudy/mainly clear (3 to 4 / 1 to 2 okta).

Wind speed (knots) over India for the week ending 22.07.2015



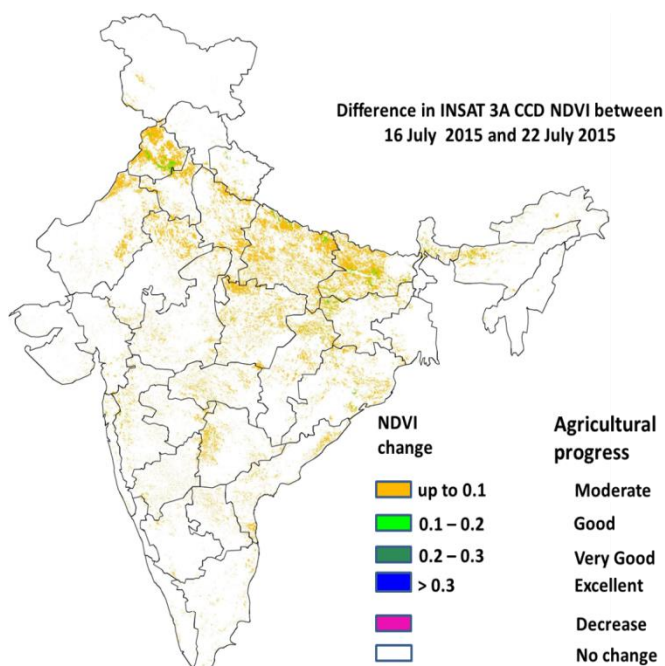
- Mean wind speed was more than 12 knots over some parts of Lakshadweep.
- Mean wind speed was 8 to 12 knots over many parts of Saurashtra & Kutch, Lakshadweep, some parts West Madhya Pradesh and isolated parts of Gujarat Region.
- It was less than 8 knots over rest of the country.

INSAT 3A CCD NDVI COMPOSITE ENDING ON 22nd July 2015 OVER AGRICULTURAL REGION OF INDIA



- Agricultural vigour is very good in most parts of West Bengal, Punjab, some pockets of East Bihar, Haryana and South Interior Karnataka, Coastal Kerala, Northern parts of West Uttar Pradesh, isolated pockets in East Uttar Pradesh, East Rajasthan, Gujarat, Telangana, Coastal Andhra Pradesh and Jharkhand where NDVI varies from 0.4 to 0.6. Agricultural growth was good over most parts of Uttar Pradesh and Bihar and some parts of Gujarat, Punjab, Haryana, Central Maharashtra and Coastal Odisha (NDVI: 0.3-0.4). NDVI remains within the range of 0.2 to 0.3 over most parts of rest of India.

Difference in INSAT 3A CCD NDVI between 16th and 22nd July 2015



- Good change in NDVI (0.1 - 0.2) was observed in some pockets of Punjab. Moderate progress (up to 0.1) in NDVI was observed over some patches in Haryana, East Madhya Pradesh, Coastal Odisha, Rajasthan Punjab, West Uttar Pradesh, Maharashtra, Telangana, Coastal Andhra Pradesh, Bihar and North East.

- INSAT 3A CCD NDVI composite maps for the week ending on 22nd July 2015 for different States are given below in Annexure II.

Weather Forecast for next 5 days valid upto 0830 hours of 29th July 2015

5 Day Rainfall Forecast (MORNING) 24th July 2015

Met Sub-divisions	24 July	25 July	26 July	27 July	28 July
1. Andaman & Nicobar Islands	SCT	SCT	ISOL	ISOL	ISOL
2. Arunachal Pradesh	FWS	FWS	SCT	SCT	SCT
3. Assam & Meghalaya	FWS	FWS	SCT	SCT	SCT
4. N. M. M. & T.	FWS	WS	WS	WS	WS
5. S.H. West Bengal & Sikkim	FWS	FWS	SCT	SCT	SCT
6. Gangetic West Bengal	WS	WS	WS	WS	WS
7. Orissa	WS	WS	SCT	SCT	SCT
8. Jharkhand	FWS	FWS	SCT	SCT	SCT
9. Bihar	SCT	SCT	ISOL	ISOL	ISOL
10. East Uttar Pradesh	FWS	FWS	SCT	SCT	SCT
11. West Uttar Pradesh	FWS	FWS	WS	WS	FWS
12. Uttarakhand	WS	WS	WS	WS	WS
13. Haryana, Chd & Delhi	FWS	FWS	WS	WS	FWS
14. Punjab	ISOL	SCT	FWS	SCT	SCT
15. Himachal Pradesh	FWS	WS	WS	WS	WS
16. Jammu & Kashmir	FWS	WS	WS	WS	WS
17. West Rajasthan	SCT	SCT	FWS	SCT	SCT
18. East Rajasthan	FWS	WS	WS	FWS	FWS
19. West Madhya Pradesh	WS	WS	WS	WS	WS
20. East Madhya Pradesh	WS	WS	WS	WS	WS
21. Gujrat Region	FWS	SCT	FWS	FWS	FWS
22. Saurashtra & Kutch	FWS	SCT	FWS	WS	FWS
23. Konkan & Goa	WS	WS	WS	WS	WS
24. Madhya Maharashtra	SCT	SCT	FWS	FWS	FWS
25. Marathwada	SCT	SCT	FWS	FWS	FWS
26. Vidharbha	SCT	SCT	FWS	FWS	FWS
27. Chhattisgarh	WS	WS	WS	WS	WS
28. Coastal Andhra Pradesh	SCT	SCT	SCT	SCT	SCT
29. Telangana	SCT	ISOL	ISOL	SCT	SCT
30. Rayalaseema	ISOL	ISOL	ISOL	ISOL	ISOL
31. Tamilnadu & Puducherry	ISOL	ISOL	ISOL	ISOL	ISOL
32. Coastal Karnataka	WS	WS	WS	WS	WS
33. North Interior Karnataka	ISOL	ISOL	SCT	ISOL	ISOL
34. South Interior Karnataka	FWS	SCT	SCT	SCT	SCT
35. Kerala	WS	WS	FWS	FWS	FWS
36. Lakshadweep	WS	FWS	FWS	SCT	SCT

% Station Reporting Rainfall

% Stations	Category	% Stations	Category
76-100	Widespread (WS/ Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespread (FWS/ Many Places)	1-25	Isolated (ISOL)
No Rain	Dry		

Weather Warning during next 5 days

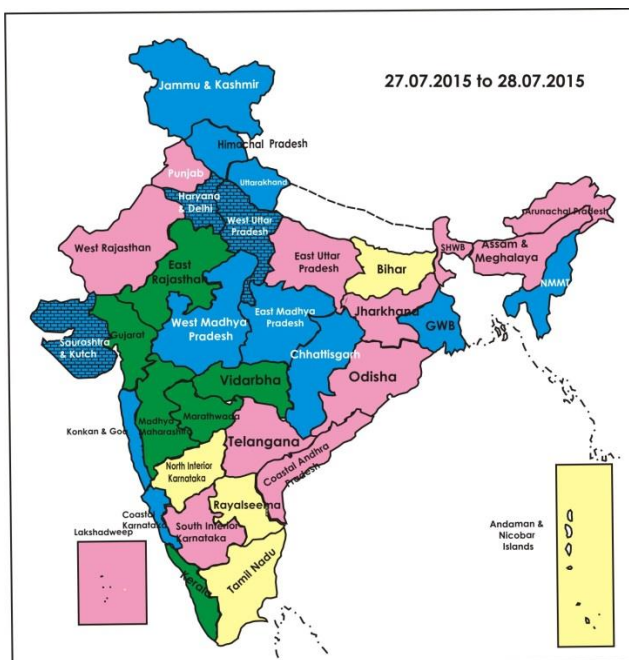
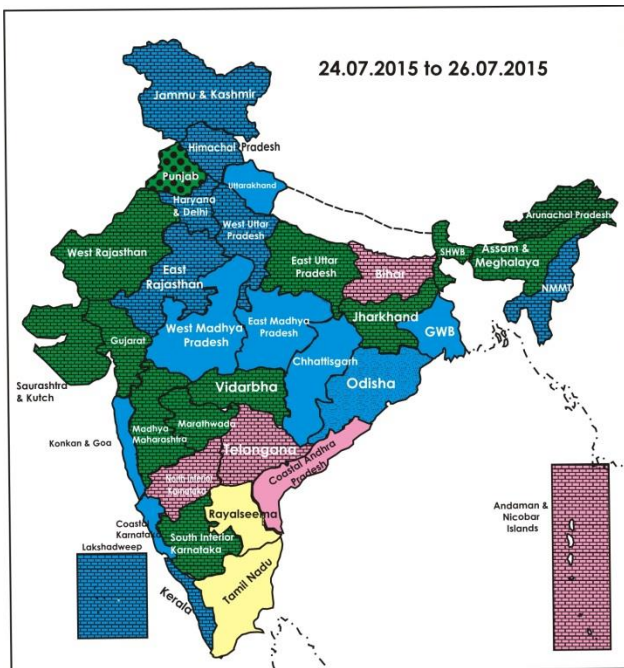
- **24 July (Day 1):** Heavy to very heavy rainfall would occur at isolated places over Gangetic West Bengal, East Madhya Pradesh and Chhattisgarh. Heavy rainfall would occur at isolated places over Jammu & Kashmir, Uttarakhand, East Rajasthan, West Madhya Pradesh, Konkan & Goa, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Coastal Karnataka, Lakshadweep and Kerala.
- **25 July (Day 2):** Heavy to very heavy rainfall would occur at isolated places over Uttarakhand, East Rajasthan, Madhya Pradesh and Chhattisgarh. Heavy rainfall would occur at isolated places over Jammu & Kashmir, Himachal Pradesh, Konkan & Goa, Haryana, Chandigarh & Delhi, West Uttar Pradesh, Odisha, Gangetic West Bengal, Nagaland, Manipur, Mizoram & Tripura, Coastal Karnataka, Lakshadweep and Kerala.
- **26 July (Day 3):** Heavy to very heavy rainfall would occur at isolated places over Jammu & Kashmir, Uttarakhand and West Madhya Pradesh. Heavy rainfall would occur at isolated places over Himachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Gangetic West Bengal, West Uttar Pradesh, Haryana, Chandigarh & Delhi, East Rajasthan, East Madhya Pradesh, Gujarat State, Konkan & Goa, Chhattisgarh, Coastal Karnataka & Kerala.

- **27 July (Day 4):** Heavy to very heavy rainfall would occur at a few places over West Madhya Pradesh and at isolated places over Jammu & Kashmir. Heavy rainfall would occur at isolated places over Uttarakhand, Himachal Pradesh, East Rajasthan, West Uttar Pradesh, Nagaland, Manipur, Mizoram & Tripura, East Madhya Pradesh, Gujarat state, Chhattisgarh, Coastal Karnataka and Kerala.
- **28 July (Day 5):** Heavy to very heavy rainfall would occur at isolated places over Konkan & Goa . Heavy rainfall would occur at isolated places over Jammu & Kashmir, Uttarakhand, Himachal Pradesh, West Uttar Pradesh, West Madhya Pradesh and Odisha.

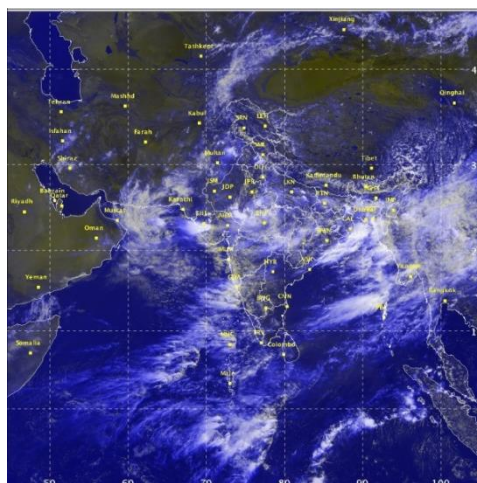
Weather Outlook for subsequent 2 days from 29th to 31st July 2015

- Rain/thundershowers would occur at most places along west coast.
- Rain/thundershowers would occur at many places over western Himalayan region, central, east and northeast India.
- Rain/thundershowers would occur at a few places northern plains, west and peninsular India.

Weather Forecast Map (Valid upto 0830 hours of 29th July, 2015)



Satellite image dated, 24.07.2015 0600 UTC



Salient Advisories

- In **North Interior Karnataka**, as there was no sufficient rain during last few weeks and no significant rain is expected during next 5 days, undertake the following contingency measures
 - In early sown crops, thin out excess and weak seedlings by removing alternate rows where moisture stress is severe.
 - Keep the crops free from weeds.
 - Take up spraying of Potassium Nitrate 1% to already sown crops where soil moisture is available so as to induce drought resistance in the crops.
 - In areas where sowing is yet to be done, fodder crops should be given preference and select short duration, drought resistant crops and variety.
 - Take up sowing of crops in wider rows to overcome moisture stress.
- In the North East Dry Zone, following contingency measures may be undertaken:
 - Select medium duration red gram varieties for sowing.
 - Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart.
 - Use 25% higher seed rate in redgram with 90 x 20 cm spacing.
 - Transplant the 25-30 days old red gram seedlings of BMSR-736 variety.
 - Sow sunflower and castor at 90 x 20 cm.
- In **Rayalaseema**, continue sowing of rice, groundnut, red gram, castor and kora where irrigation is available. To avoid moisture stress in groundnut, provide supplementary irrigation from farm pond with sprinklers @ 20 mm (2 hrs) and undertake spraying of 2 % urea solution.
- In the Southern Zone of **Andhra Pradesh**, in view of the prevailing dry spell, apply protective irrigation to groundnut (vegetative/flowering stage) wherever possible and spray 2% urea solution on the crop to prevent wilting of the crop in Chittoor district. Also protect banana orchards by spraying Potassium Nitrate @ 5g/litre of water twice a week at fruit formation stage and provide frequent irrigation.
- In **Telangana**, in view of the subdued rainfall activity during last week, the following remedial measures are suggested:
 - Intercultural operation and mulching in already sown crops for conservation of soil moisture.
 - Light hoeing and weeding in early sown jowar, soybean, green gram and black gram.
 - Instead of cotton, keep inputs ready for sowing of sole red gram with varieties like Maruti, Lakshmi, PRG 158 etc., sunflower, castor with revival of rains.
 - Application of irrigation in sugarcane at frequent intervals.
 - Foliar spray of 2% KNO₃ during dry spells.
 - Provide supplementary irrigation by using micro-irrigation (sprinkler).
- In **Konkan**, continue transplanting of *kharif* rice seedlings in main field utilizing realized and expected rainfall. Maintain 2-3 cm water level in transplanted rice fields after draining out excess water.
- In **Madhya Maharashtra**, utilizing realized and expected rainfall, undertake sowing of contingent crops like bajra, sunflower, red gram, moth bean and maize by selecting short duration or medium duration variety in Pune, Kolhapur, Ahmednagar, Nandurbar, Nashik and Satara districts.
- In **Marathwada**, undertake intercropping of soybean + red gram (4:2), jowar + red gram (4:2), bajra + tur after

receipt of sufficient rainfall. Farmers are advised for foliar spray of 8% Kaolin in orchard crops and also spray 1 to 1.5 % Potassium Nitrate on *kharif* jowar and soybean during dry spells.

- In **Vidarbha**, undertake light hoeing and mulching with crop residue to conserve soil moisture. Continue transplanting of rice in East Vidarbha utilizing the realized rainfall. Due to subdued rain in parts of East Vidarbha, if the nursery seedling of rice are turning yellowish, spray mixture of 200g urea in 10 litres of water. Farmers are advised sowing of contingency crops like sunflower (TAS 82, PKV SF-9, PKVSH-27, KBSH 1, castor (AKC-1, GCH-4, 5, 6, DCH-117, 32) and KBSH 44), pearl millet (PKV Raj, Shradha and Saburi), sesame (AKT-64 and JLT-7) and pearl millet + pigeon pea (2:1 or 4:2), sunflower + pigeon pea (2:1), sesame + pigeon pea (4:1) adopting intercropping systems in west Vidarbha after receipt of sufficient rainfall. As normal sowing window of cotton is over, under delayed sowing conditions, farmers are advised to sow early varieties of American (AKH-8828, PKV Rajat, AKH-081) and Deshi (AKA-5, AKA-7 and AKA-8) cotton after receipt of sufficient rainfall.
- In **Gujarat region**, utilising the realised and expected rainfall, continue sowing of moderate duration variety of bajra (GHB-744) and short duration varieties (GHB-558, GHB-538, GHB-719), maize (Guj. Maize-2 and Guj. Maize-4 and 6), green gram (K-581 and Gujarat Mung-4), black gram (Guj. Black Gram-1 and T-9), sesame (G.til-1 and G.til-2) and cow pea (G.til-1 and G.til-2).
- In **North Saurashtra**, continue sowing of alternate crops like groundnut bunch type (GG-2, GG-5, GG-9, TAG-24), sesamum (G.Til-3, G.Til-4), castor (GAUCH-1, GCH-4, GCH-6, GCH-7), hybrid bajra (GHB-538, GHB-558, GHB-719, GHB-732, GHB-744), green gram (K-851, G.Mong-4), black gram (T-9, G.U.-1), pigeon pea (BDN-2, G.Tur-100), cowpea (GCH-4), cotton (short duration Bt. cotton varieties, GCH-8) in Surendranagar, Jamnagar districts.
- In **Madhya Pradesh**, as rain/thundershowers would occur at most places during the period along with heavy to very heavy rainfall at isolated places, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crops to avoid stagnation. In Malwa Plateau Zone, drain out excess water from early sown crop fields and vegetable nurseries.

Detailed Zonewise Agromet Advisories

SOUTH INDIA [TAMIL NADU, TELANGANA, ANDHRA PRADESH, KARNATAKA, KERALA]



Sowing



Sugarcane



Chilli



Rice transplanting

- **Realised Rainfall:** Rainfall occurred in all districts of Coastal Karnataka and Kerala; Haveri district of North Interior Karnataka; Bangalore Urban, Chikkamagaluru, Davangere, Kodagu, Kolar and Shivamogga districts of South Interior Karnataka; all the districts of Coastal Andhra Pradesh except Nellore and Prakasam; Adilabad, Karimnagar and Khammam districts of Telangana; Ariyalur, Chennai, Coimbatore, Kancheepuram, Nilgiris, Sivaganga and Thiruvapur districts of Tamil Nadu. Weather remained mainly dry over rest of the region.

- **Advisories:**

- **Andhra Pradesh:**

- In North Coastal Zone, continue nursery sowing of rice (late variety) and sowing of groundnut.
 - Continue sowing of irrigated dry rice (MTU-1006) with gorru, maize, pulses (black gram, red gram and green gram), chilli and cotton in the Krishna Godavari Zone. Already sown crops which is under moisture stress can be protected by spraying 2% urea in the evening.
 - In High Altitude Tribal Zone, complete sowing of rice and finger millet.
 - In Scarce Rainfall Zone, continue sowing of rice, groundnut, red gram, castor and kora where irrigation is available. To avoid moisture stress in groundnut, provide supplementary irrigation from farm pond with sprinklers @ 20 mm (2 hrs) and undertake spraying of 2% urea solution.
 - In the Southern Zone, in view of the prevailing dry spell, apply protective irrigation to groundnut (vegetative/flowering stage) wherever possible and spray 2% urea solution on the crops to prevent wilting of the crop in Chittoor district. Also protect banana orchards by spraying Potassium Nitrate @ 5g /litre of water twice a week at fruit formation stage and provide frequent irrigation.
 - Partially cloudy weather is congenial for the attack of viral diseases in banana and papaya in the Southern Zone. To control, spray Dimethioate @ 2 ml or Metacystox @ 2 ml or Imidachloprid @ 0.3 ml./litre of water.

▪ **Telangana**

- In view of the subdued rainfall activity during past weeks, the following remedial measures are suggested:
 - Intercultural operation and mulching in already sown crops for conservation of soil moisture.
 - Light hoeing and weeding in early sown jowar, soybean and green gram and black gram.
 - Instead of cotton, keep inputs ready for sowing of sole red gram with varieties like Maruti, Lakshmi, PRG 158 etc., sunflower, castor with revival of rains.
 - Application of irrigation in sugarcane at frequent intervals.
 - Foliar spray of 2% KNO₃ during dry spells.
 - Provide supplementary irrigation by using micro-irrigation (sprinkler).
- Complete raising of rice nurseries of medium and long duration varieties and continue sowing of sunnhemp and dhaincha as in-situ green manure crop preceding to rice in regions under command areas and tanks.
- Continue land preparation for transplanting of rice under irrigation in the Northern Telangana Zone.
- Prevailing weather conditions are congenial for incidence of Rhizoctonia root rot disease in cotton in the Southern Telangana Zone. To control, soil drench with Carbendazim @ 1g/litre of water around the root zone of young seedlings 2-3 times at 7-10 days interval to avoid further spread of the root rot.

▪ **Karnataka:**

- Complete transplanting of rice in Coastal Karnataka utilising the realised and expected rainfall.
- In the Eastern Dry Zone, continue sowing of groundnut after seed treatment and red gram in areas which have received sufficient rainfall. Undertake intercultural operation and thinning in long duration red gram and castor to conserve soil moisture and overcome dry spell.
- In the North East Transition Zone, continue the following contingency measures in laterite red soil and shallow to medium black soils:
 - Undertake sowing of red gram/sesamum/horse gram/foxtail millet/Bajra
 - Use 25% higher seed rate in dry sowing of redgram or
 - Transplant 25-30 days old redgram seedlings of BSMR-736 and Asha varieties
 - Go for sowing of short duration red gram varieties (Pragathi).
 - Adopt intercropping of redgram + foxtail millet (1:5)/ redgram + bajra (1:5)
- Continue nursery sowing for planting of low land rice using medium duration varieties and upland paddy using amrut or prasanna variety in the Hill Zone.
- In North Interior Karnataka, undertake the following contingency measures to mitigate the deficient rainfall conditions:
 - In early sown crops, thin out excess and weak seedlings by removing alternate rows where moisture stress is severe.
 - Take up repeated inter-cultivation and earth up the rows.
 - Keep the crops free from weeds
 - Take up spraying of Potassium Nitrate 1 % to already sown crops where slight soil moisture is available so as to induce drought resistance in the crops.
 - In areas where sowing is yet to be done, fodder crops should be given preference and select short duration, drought resistant crops and variety.
 - Take up sowing of crops in wider rows to overcome moisture stress.
- In the North East Dry Zone, following contingency measures may be undertaken:
 - Select medium duration red gram varieties for sowing.
 - Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart
 - Use 25% higher seed rate in redgram with 90 x 20 cm spacing
 - Transplant the 25-30 days old red gram seedlings of BMSR-736 variety
 - Sow sunflower and castor at 90 x 20 cm
- Incidences of aphid and thrips were noticed in blackgram and green gram in the North East Transition Zone. To control, spray Methyl parathion 50 EC @ 1 ml or Dimethoate 30 EC @ 1.7 ml per liter of water on a non rainy day.
- Incidences of aphids is noticed in short duration pulse crops (cow pea and green gram) in the Eastern Dry Zone. To control, spray Dimethoate-30 EC @ 1.7 ml or Phosphomidon 100 EC @ 0.5 ml/litre of water on a non rainy day.

▪ **Kerala:**

- Continue planting of rooted cuttings of pepper in the Problem Area Zone after current spells of heavy rain. Provide adequate drainage in vegetable crop fields.
- Prevailing high humid weather is congenial for rhizome rot in ginger in the Central Zone. Remove the affected plants and drench the beds with 1% Bordeaux mixture or *Trichoderma/Pseudomonas* cultures after current spells of rain.
- Prevailing weather is congenial for incidence of bud rot in coconut in the Problem Area Zone. To control bud rot, apply Accamin @ 1.5ml in 300ml water on the leaf base after current spells of rain.

▪ **Tamil Nadu:**

- Continue cultivation of dry crops like ragi, thenai, samai, panivaragu and sesame in areas where additional irrigation facilities are available in Karaikal. Undertake summer ploughing to control weeds, pest and diseases
- Continue basin preparation for planting of pepper, clove, nutmeg and cinnamon in the High Rainfall Zone.

- In the Western Zone, since rain is anticipated along with wind speed more than 18kmph, protect the banana crop of more than 5 months from lodging.
- In the Cauvery Delta Zone, leaf mite incidence is noticed in *Kuruvai* rice fields and likely to spread in the prevailing weather condition. To manage, spray Dicofol @ 500 ml/acre or Wettable Sulphur @ 400 g/acre with 200 litres of water.
- Partly cloudy weather is congenial for incidence of downy mildew disease in gourds in the South Zone. To control, spray Mancozeb 0.2 % or Chlorothalonil 0.2% or Difolaton 0.2%.
- Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
- Prevailing weather conditions are congenial for Enterotoxaemia in livestock in Northern Telangana and sheep pox in sheep in Southern Telangana. To prevent the diseases, vaccinate the animals.

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



Sowing

Banana

Okra

Rice transplanting

- **Realised Rainfall:** Rainfall occurred in Papumpara, Tawang, Tirap, Upper Siang, Upper Subansari, West Kameng and West Siang districts of Arunachal Pradesh; all districts of Assam except Darrang and Kokrajhar; all districts of Meghalaya; Aizwal, Kolasib, Saiha and Serchhip districts of Mizoram; Imphal East, Imphal West and Thoubal districts of Manipur; Dimapur, Kohima and Mokokchung districts of Nagaland and all districts of Tripura.
- **Advisories:**
 - **Assam & Meghalaya, Arunachal Pradesh:**
 - In Assam, continue transplanting of 21days seedling for short duration varieties, 30-35 days seedling for medium duration varieties and 35-40 days seedling for long duration varieties of *Sali* rice in the main fields.
 - In Hill Zone of Assam, replanting of dead hills or gap filling with seedlings of similar age of *Sali* rice should be done within 7-10 days of transplanting. Continue sowing of sesame.
 - In Upper Bramhaputra Valley Zone of Assam, continue transplanting 25 days old seedlings of dwarf and semi-dwarf cultivars of *Sali* rice. For tall cultivars, 30-35 days aged seedlings are suitable for transplanting. Transplanting of 2-3 seedlings per hill at 4 to 5 cm depth. Undertake nursery raising for early cauliflower.
 - In Lower Bramhaputra Valley Zone of Assam, continue sowing of sesame in uplands.
 - In Central Bramhaputra Valley Zone of Assam, continue sowing of jute (for seed purpose), arhar and sesame.
 - In Arunachal Pradesh, continue transplanting of *kharif* rice.
 - In Meghalaya, continue transplanting of *kharif* rice. Replanting of dead hills or gap filling with seedlings of similar age should be done within 7-10 days of transplanting. Continue sowing of red gram.
 - In Hill Zone of Assam, there is chance of attack of sap sucking insects (aphids/mealy bug/scales) in khasi mandarin due to cloudy weather. Spray Malathion (0.1%) after current spells of rain.
 - In Lower Bramhaputra Valley Zone of Assam, due to cloudy and humid weather, there is chance of attack of hispa and whorl maggot in transplanted *Sali* rice. For control, spray Chlorpyriphose 20 EC @ 0.02% and Quinalphos 25EC@ 0.025% after current spells of rain.
 - In Barak Valley Zone of Assam, due to high relative humidity, there is chance of attack of fungal disease like brown spot and blast in the nursery bed of *sali* rice. Maintain proper sanitation in the rice nursery and remove stagnant water. Also spray Carbendazim + Mancozeb @ 2.5 g per litre of water after current spells of rain.
 - In Arunachal Pradesh, due to humid and cloudy weather, there is chance of attack of stem borer and blast in *Jhum* and WRC rice. Spray foliar spray of Tricyclazole 75WP @ 0.6g/litre or Propiconazole 25 EC @ 1ml/litre after current spells of rain.
 - **Manipur, Mizoram, Nagaland and Tripura:**
 - In Manipur, maintain water level of 5-8 cm in the field of *kharif* rice and maintain proper drainage system to avoid water logging in *kharif* maize, soybean and groundnut.
 - In Nagaland, continue transplanting of rice. If transplanting is delayed, higher number of seedling per hill should be done.
 - In Mizoram, continue transplanting of rice and sowing of *kharif* pulses like green gram, black gram, rice bean and rajma.
 - In Tripura, continue transplanting of *Aman* rice and sowing of *kharif* vegetables like ladies finger, cucurbits etc.
 - In Tripura, cloudy and humid weather is favourable for attack of sheath blight in *Jhum* rice. Spray Surf @ 1gm per

litre of water after current spells of rain.

➤ Suitable varieties are given in Annexure III.

• **Animal Husbandry**

➤ In Assam, keep animal sheds dry and avoid dampness during rainy days. Also undertake regular immunization of cattle & buffaloes against Foot & Mouth disease, Haemorrhagic Septicaemia & Black Quarter. Vaccinate pigs against swine fever, poultry against RD and IBD.

➤ In Tripura, monsoon weather could lead to gastrointestinal parasites infection. It is advised to maintain good sanitary conditions in piggery and poultry sheds.

➤ In Assam and Mizoram, present weather is congenial for development of diseases like Coccidiosis in poultry, so as a preventive measure gives Amprolium @ 25-65 mg/kg feed once a day.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



Banana



Sugarcane



Rice transplanting



Sowing

- **Realised Rainfall:** Rainfall occurred in all districts of Konkan & Goa; Kolhapur, Nashik and Pune districts of Madhya Maharashtra; Amroti, Bhandara, Chandrapur, Gadchiroli, Gondia and Nagpur districts of Vidarbha; Dahod, Daman, Dangs, Kheda, Navsari, Panch Mahals, Tapi and Valsad districts of Gujarat Region and Surendranagar district of Saurashtra & Kutch. Weather remained mainly dry over rest of the region.

• **Advisories:**

▪ **Maharashtra:**

➤ In Konkan, continue transplanting of *kharif* rice seedlings in main field utilizing realized and expected rainfall. Maintain 2-3 cm water level in transplanted rice fields after draining out excess water. Continue transplanting of ragi by dibbling method. Complete the sowing of *kharif* groundnut in uplands after current spell of heavy rain. Continue sowing of vegetable crops like okra, cucumber, snake gourd and ridge gourd with improved varieties on raised beds after current spell of heavy rain. Provide mechanical support to cucurbitaceous crops. Undertake plantation of horticultural crops like mango and sapota. Drain out excess water from mango, cashew and sapota garden, vegetable crops and rice nursery.

➤ In Madhya Maharashtra, utilizing realized and expected rainfall, undertake sowing of contingent crops like bajra, sunflower, red gram, moth bean and maize by selecting short duration or medium duration variety in Pune, Kolhapur, Ahmednagar, Nandurbar, Nashik and Satara districts. Maintain 2-3 cm water level in rice nurseries in Western ghat, Kolhapur region and Pune (western parts). Undertake sowing of fodder crops like jowar (Ruchira, Phule Amruta, Phule Godhan), maize (African Tall, Karveer, Rajshree) and bajra (Nutrifeed). Undertake planting of *adsali* sugarcane in South Madhya Maharashtra. In view of water stress condition, spray mixture of 2% Potassium nitrate in 10 litres of water in already sown crops like bajra, groundnut, soybean, cotton, red gram and jowar in North Madhya Maharashtra. Due to subdued rain in Western Maharashtra Scarcity Zone, early sown cotton might be affected leading to wilting. Prepare the mixture of 1.5 kg Urea + 1.5 kg P₂O₅ / 100 litres of water and apply 150 to 200 ml of this mixture for the affected plants. Farmers are advised to prepare seedlings of contingent rice (Phule Radha, Indrayani, Bhogavati, Jaya Karjat 184, Karjat 4) by sprouting method wherever transplanting is not yet done due to non availability of sufficient water.

➤ In Marathwada, undertake intercropping of soybean + red gram (4:2), jowar + red gram (4:2), bajra + tur after receipt of sufficient rainfall. Farmers are advised for foliar spray of 8% Kaolin in orchard crops and also spray 1 to 1.5 % Potassium Nitrate on *kharif* jowar and soybean during dry spells. Considering the water stress condition, avoid planting of sugarcane.

➤ In Vidarbha, undertake light hoeing and mulching with crop residue to conserve soil moisture. In view of water stress condition, apply protective irrigation and also spray mixture of 2% Potassium nitrate in 10 litres to earlier sown crops like soybean, cotton, red gram and green gram in West Vidarbha. Continue the transplanting of rice in East Vidarbha utilizing the realized rainfall. Due to subdued rain in parts of East Vidarbha, if the nursery seedling of rice are turning yellowish, spray mixture of 200g urea in 10 litres of water. Farmers are advised sowing of contingency crops like sunflower (TAS 82, PKV SF-9, PKVSH-27, KBSH 1, castor (AKC-1, GCH-4, 5, 6, DCH-117, 32) and KBSH 44), pearl millet (PKV Raj, Shradha and Saburi), sesame (AKT-64 and JLT-7) and pearl millet + pigeon pea (2:1 or 4:2), sunflower + pigeon pea (2:1), sesame + pigeon pea (4:1) adopting intercropping systems in west Vidarbha after receipt of sufficient rainfall. As normal sowing window of cotton is over, under delayed sowing conditions, farmers are advised to sow early varieties of American (AKH-8828, PKV Rajat, AKH-081) and Deshi (AKA-5, AKA-7 and AKA-8) cotton after receipt of sufficient rainfall.

- Due to cloudy weather conditions in Pune and Kolhapur region, there may be incidence of downy mildew in cucurbitaceous crops; spray Mancozeb @ 25 g per 10 litres of water or a mixture of 8% Metalaxyl + 64 % Mancozeb @ 25 g per 10 litres of water after current spells of rain.
- **Gujarat:**
- As rain/thundershowers would occur at most/many places over Gujarat during the period along with heavy rainfall at isolated places over Gujarat on 26th and 27th July, postpone irrigation, intercultural operations and application of fertilisers and pesticides in standing crops. Undertake rain water harvesting for future use.
- In South Gujarat Heavy Rainfall Zone, continue transplanting of *kharif* rice at 20 x 15 cm spacing and place 2-3 seedlings per hill. If seedlings are over aged, use more seedlings at closer spacing or use SRI technique for transplanted paddy in case of nursery failure. Postpone hand weeding and intercultural operations in earlier sown pulse crops. Provide drainage facility and remove excess water from already sown crop fields. Undertake sowing of maize, bajra, tur, ornamental and horticultural crops in South Gujarat Zone.
- In North Saurashtra Zone, continue sowing of short duration crops like groundnut bunch type (GG-2, GG-5, GG-9, TAG-24, TG-37 A), green gram (K-851, G.Mong-4), black gram (T-9, G.U.-1), sesame (G.Til-2, G.Til-3) and cotton (BG-II (Guj Hy. Cotton-8). Undertake mulching with wheat straw, groundnut shells and available farm residues to conserve soil moisture.
- In North Gujarat Zone, utilising the realised and expected rain, continue sowing of moderate duration variety of bajra (GHB-744) and short duration varieties (GHB-558, GHB-538, GHB-719), maize (Guj. Maize-2 and Guj.Maize-4 and 6), green gram (K-581 and Gujarat Mung-4), black gram (Guj. Black Gram-1 and T-9), sesame (G.til-1 and G.til-2) and cow pea (Guj.cowpea-3 & 4 and Pusha Falguni). Take green gram, pigeon pea, guar as an intercrop with bajra and short duration pulse crop as intercrop with orchards.
- In North West Zone, continue sowing of moderate duration variety of Bajra (GHB-744) and short duration varieties (GHB-558, GHB-538, GHB-719), green gram (K-581 and Gujarat Mung-4), black gram (Guj. Black Gram-1 and T-9), sesame (G.til-1 and G.til-2) and cow pea (Guj.cowpea-3 & 4 and Pusha Falguni). Take green gram, pigeon pea, guar as an intercrop with bajra and short duration pulse crop as intercrop with orchards. Adopt intercropping cotton with green gram or cowpea to increase crop yield.
- In Middle Gujarat Zone, continue transplanting of rice; in case of nursery failure or nursery is not raised adopt SRI technique for transplanting of rice. Continue sowing of alternate crops like bajra (short duration: GHB 538, GHB 732, GHB 719, GHB-577), maize (GM-4, 6, Narmada Moti) and cotton (G.Cot-13, 21 and ADC-1). Undertake green gram, pigeon pea and guar as intercrop in bajra. Continue sowing of other alternate crops like green gram, forage sorghum, guar (cluster bean), sesame (semi *kharif*), vegetable crops (chilli, brinjal, okra, cluster bean).
- In Bhal and Coastal Zone, continue sowing of short duration crops like bajra (moderate duration variety GHB-744), short duration varieties GHB-558, GHB-538, GHB-719), green gram (Guj. Mungbean-4, K-851); sesame (Purva-1), sorghum (GFS-4 & GFS-5), castor (GAU-CH-1, GCH-6), pigeon pea (BDN-2), cotton (G-cot 13, G-cot 15, G-cot 21).
- Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
- In Gujarat, in view of heavy rain, keep fodder in safe place to avoid spoilage due to rain; keep animals under sheds and keep sheds hygienic and clean to avoid flies and mosquitoes. In South Gujarat Heavy Rainfall Zone, in view of cloudy weather forecast, make arrangement for artificial light in poultry house to maintain egg production.

EAST INDIA [JHARKHAND, BIHAR, ODISHA, WEST BENGAL & SIKKIM, ANDAMAN & NICOBAR ISLANDS]



Groundnut

Cotton

Sowing

Onion

- **Realised Rainfall:** Rainfall occurred in all districts of Andaman & Nicobar Islands; all districts of Gangetic West Bengal; all districts of Sub-Himalayan West Bengal & Sikkim except Cooch Behar, North Dinajpur and South Dinajpur; all districts of Bihar except Araria, Bhojpur, Darbhanga, Kishanganj, Madhepura, Madhubani, Nalanda, Purnea, Saharsa, Samastipur, Sheohar, Sitamarhi and Supaul; all districts of Jharkhand except Sahibganj; all districts of Odisha except Sundargarh.
- **Advisories:**
 - **West Bengal:**
 - In Coastal Saline Zone, undertake transplanting of wet seeded *Aman* rice after current spells of heavy rain. Apply 7 quintal organic manure per bigha in the main field before transplanting .

- In New Alluvial Zone and Laterite and Red soil Zone, continue transplanting of rice. Use 21-25 days old seedlings for transplanting. Incorporate FYM or compost manure at the time of first ploughing. At the time of final puddling, apply 8.5 kg Urea, 25kg SSP and 6.7 kg MOP/bigha as basal application.
- In Old Alluvial Zone and Terai Zone, continue field preparation and transplanting of *kharif* rice. Undertake harvesting of jute and start retting.
- In Hill Zone, undertake transplanting of *Aman* rice and continue sowing of soybean. Soybean seed rate should be 70-75 kg/ha and sowing should be done in line 45 to 60 cm apart. Plant to plant distance should be 4-5 cm.
- In New Alluvial Zone, due to cloudy weather condition, fungal and bacterial diseases are prevalent in Maize. For fungal attack spray Mancozeb @ 2.5 gm/litre of water and in case of bacterial rot, spray Streptocycline @ 0.1 gm/litre of water after current spells of rain.
- **Andaman and Nicobar Islands:**
 - In North and Middle and South Andaman, continue transplanting the rice seedlings treated with recommended chemicals/Bio-pesticides to prevent seed borne diseases. Keep the rice field bunds open at 15 cm height.
- **Odisha:**
 - In East and South Eastern Coastal Plain Zone, continue direct seeding of rice in medium and deep low lands. Continue dry bed and wet bed nurseries of rice in low lands. In uplands, complete sowing of cotton, groundnut, castor, arhar and tuber crops. Also continue sowing of sesame and planting of mango and cashewnut.
 - In Western Undulating Zone, continue sowing of maize, cotton and arhar and sowing of *kharif* pulses in upland areas. Also continue line sowing of rice followed by early beushaning and weeding.
 - In North Eastern Plateau Zone, continue nursery sowing of rice, direct sowing of rice in medium and uplands and continue sowing of groundnut, maize and arhar in uplands.
 - In Eastern Ghat High Land Zone, the weather is optimum for sowing of maize and ragi.
 - In Eastern Ghat High Land Zone, make a protective spray of Mancozeb 0.2%/Carbandezime 0.2% to control Rhizome rot in Ginger.
 - In Mid Central Table Land Zone, continue line sowing of direct seeded rice in lowlands and nursery raising of rice.
 - In North Eastern Coastal Plain Zone, current weather favours attack of swarming caterpillar in rice nurseries. In case of attack, spray Chloropyriphos or Choloropyriphos + Cypermethrin @ 2ml/litre of water after current spells of rain.
 - In North Eastern Coastal Plain Zone and Mid Central Table Land Zone, due to irregular sporadic rain, weed problems are aggravated in nursery areas. To control weeds, spray Bispyribac Sodium @ 80ml/acre at 2 to 3 leaf stage of the weeds after current spells of rain.
- **Bihar:**
 - In North East and North West Alluvial Plain Zone, complete transplanting of 20-25 days old rice seedling in the prepared fields for medium & low land. Continue sowing of *kharif* maize and plantation of horticulture crops like mango, lichi, guava & papaya and undertake transplanting of chilli, tomato and cauliflower in raised bed.
 - In North West Alluvial Plain Zone, continue sowing of til, sunflower, pigeon pea & kulthi in the upland areas.
 - In South Bihar Alluvial Zone, continue transplanting of *kharif* onion and long/medium duration rice varieties which is 21-25 days old. Complete nursery sowing of early brinjal, chilli, cauliflower. Undertake planting of mango, litchi, guava and papaya plants in already made pits and sowing of para grass in low land and hybrid napier grass in upper land.
 - In North East Alluvial Plain Zone, present weather condition is favourable for attack of fruit & shoot borer in brinjal and fruit borer in tomato, for control, apply Emamectin Benzoate @ 1g/3 litres of water on a non rainy day.
 - South Bihar Alluvial Zone, present weather condition is favourable for leaf curl in chilli. Uproot the infected plants and bury in the soil.
- **Jharkhand:**
 - In South Eastern Plateau Zone, undertake transplanting of long (140-150 days) and medium (120-125) duration of rice varieties, continue transplanting of finger millet, complete sowing of maize, arhar green gram, black gram, urad, groundnut, soybean, sesame and rainy season vegetables. Continue cultivation of turmeric, ginger and yam and continue raising of saplings of mango (grafting), guava and litchi (air layering).
 - In North Eastern Plateau Zone, continue transplanting of medium and low land rice, continue sowing of high yielding variety of maize, urad and til and inter cropping of short duration variety of arhar & continue cultivation of sweet potato.
 - In Western Plateau Zone, continue nursery raising of upland rice, continue transplanting of rice of medium duration. Complete sowing of urad, groundnut, arhar, maize and *kharif* vegetables and continue transplanting of finger millet.
 - In South Eastern Plateau Zone, present weather is conducive for the attack of fruit and shoot borer in brinjal and okra and fruit fly in cucurbitaceous vegetables. For control, spray Malathion @ 2 ml per litre of water after current spells of rain.
 - In Western Plateau Zone, prevailing weather is conducive for the attack of leaf spot or Tikka disease in the groundnut crops, to control, spray Endofil M-45 (5 gm) + Bavistin (1 gm) in 4 litre of water after current spells of rain.
 - Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
 - In Sub-Himalayan West Bengal, keep cattle/goats indoor during heavy rainfall period.

CENTRAL INDIA [M.P., CHHATTISGARH]



Rice transplanting

Sowing

Okra

Soybean

- **Realised Rainfall:** Rainfall occurred in all districts of East Madhya Pradesh except Sidhi; all districts of West Madhya Pradesh except Morena; all districts of Chhattisgarh except Bilaspur, Koriya, Kowarda and Raipur.
- **Advisories:**
 - Continue transplanting of rice and complete sowing of soybean, sorghum, maize, sesame and red gram in Kymore Plateau and Satpura Hill Zone after current spells of heavy rain. Provide adequate drainage in rice and vegetable nurseries to avoid water stagnation in view of likely occurrence of heavy/very heavy rain.
 - In Malwa Plateau Zone, drain out excess water from early sown crop fields and vegetable nurseries.
 - Continue sowing of *kharif* crops like soybean, maize, green gram and red gram and planting of sugarcane in Vindhya Plateau Zone after current spells of heavy rain.
 - Continue sowing of vegetables like okra, bottle gourd, cucurbits, sponge gourd, bitter gourd and beans utilising the realised rainfall in Bundelkhand Zone. Also continue sowing of black gram, red gram, maize and soybean and nursery sowing of rice after current spells of heavy rain.
 - Continue transplanting of vegetables and sowing of early varieties of guar and bajra in Grid Zone after current spells of heavy rain.
 - As rain/thundershowers would occur at most places during the period along with heavy to very heavy rainfall at isolated places, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crops to avoid stagnation.
 - Due to cloudy weather there are chances of attack of semi lopper and tobacco caterpillar in soybean crop in Bundelkhand Zone, spray Trizophos 40 E.C. 2.0 ml per litre of water after current spells of heavy rain.
- **Chhattisgarh:**
 - In Chhattisgarh, undertake transplanting of vegetables and continue line sowing of rice and complete sowing of soybean, maize, urad, moong and red gram in Plain Zone after current spells of heavy rain. Postpone intercultural operations and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in rice and vegetable nurseries to avoid water stagnation in view of likely occurrence of heavy/very heavy rain.
 - Continue sowing of soybean, groundnut and sesame in Bastar Plateau Zone and continue transplanting of vegetables and line sowing of rice in North Hill Zone after current spells heavy of rain.
 - Suitable varieties are given in Annexure III.
- **Animal Husbandry**
 - Provide balanced food and fresh water two times in a day to milch animals in Madhya Pradesh. Keep animals indoor during heavy rainfall period in Madhya Pradesh and Chhattisgarh.

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



Cotton

Rice transplanting

Sowing

Cabbage

- **Realised Rainfall:** Realised rainfall: Rainfall occurred in all districts of Uttarakhand except Garhwal Tehri and Haridwar; all districts of Himachal Pradesh except Kinnaur and Lahul & Spiti; all districts of Jammu & Kashmir except Anantnag, Kulgam, Kupwara, Ladakh(Leh) and Ramban; Amritsar, Fatehgarh Sahib, Gurdaspur, Hoshiarpur, Kapurthala, Ludhiana, Nawanshahar, Patiala, Ropar and Mohali districts of Punjab; Ambala, Chandigarh, Faridabad, Gurgaon, Karnal, Mewat, Palwal, Panchkula, Panipat and Yamunanagar districts of Haryana; all districts of East Rajasthan except Alwar, Dausa, Dholpur, Jhunjhunu, Karauli and Sawai Madhopur; Churu, Nagaur and Pali districts of West Rajasthan; all districts

of East Uttar Pradesh except Allahabad, Ambedkar Nagar, Balrampur, Barabanki, Faizabad, Farrukhabad, Fatehpur, Hardoi, Kannauj, Kanpur city, Kanpur dehat, Kaushambi, Lucknow, Sitapur and Unnao; Bijnor, Firozabad Ghaziabad, Hamirpur, Jalaun, Jhansi, Jyotiba Phule Nagar, Lalitpur, Mahoba, Mainpuri, Muzaffarnagar, Rampur and Saharanpur districts of West Uttar Pradesh; South West Delhi and East Delhi districts of Delhi. Weather remained mainly dry over rest of the region.

• **Advisories:**

▪ **Jammu & Kashmir:**

- In Sub-humid Sub-tropic Zone, undertake sowing of maize crop at optimum soil moisture conditions.
- In Intermediate Zone and Valley temperate Zone, undertake weed control at 30-35 days after transplanting of rice. Apply Bispyrebac @ 1.5gm/kanal in 25 litre of water as post emergence herbicide.
- In Cold Arid Zone of Jammu & Kashmir, undertake sowing of fodder crops viz. legumes, pea intercropping with maize and millets, this will enrich the soil and the fodder will be more nutritive & palatable. Also undertake hoeing and weeding in vegetables crops.
- In Intermediate Zone, due to cloudy weather condition, there may be chances of early & late blight in tomato & potato crops. To control, spray Ridomil MZ followed by Mancozeb @ 2.5 gm/litre of water after current spells of rain.

▪ **Uttarakhand:**

- In Sub-humid Sub-tropic Zone, continue transplanting of rice. Complete sowing of cotton and bajra in Bhabar and Tarai Zone after current spells of heavy rain. Provide adequate drainage in rice and vegetable nurseries and already sown crop fields in view of likely occurrence of heavy rainfall.
- In Hill Zone, undertake transplanting of rice, continue sowing of maize crops var. maize-9, Kanchan, Navin, Bhavetha, V.L. maize 16 and V.L maize 88 after current spells of heavy rain.
- In Hill Zone of Uttarakhand, due to high humidity, there may be attack of fruit borer in brinjal and tomato crops. To control, spray Neem oil @ 20 -25ml in 5 litres of water after current spells of rain.

▪ **Himachal Pradesh:**

- In Sub-Montane and Low Hills Sub-Tropical Zone, continue nursery sowing of mid season cauliflower and cabbage in poly house in mid hill and lower region and transplanting of ageti cauliflower and cabbage in fields. Continue transplanting of rice, tomato, brinjal, capsicum, chilli and direct sowing of okra and sowing of radish and turnip in lower rainfed areas after current spells of heavy rain. Complete direct sowing of rice, sowing of maize, mash and kulthi in rainfed areas and planting of ginger, turmeric, colocasia and elephant foot (at a spacing of 30-45cm between rows and 20 cm within rows) and hybrid chari in lower region after current spells of heavy rain. Provide adequate drainage in maize and maize + pulses fields in view of likely occurrence of heavy rainfall.
- In Mild Hills sub-Humid Zone, make arrangements for effective drainage of water in apple orchards to avoid water stagnation in view of likely occurrence of heavy to very heavy rainfall.
- Under humid weather condition, there are chances of incidence of blast in rice in mid hills region of Sub-Montane and Low Hills Sub-Tropical Zone. For control, spray Bavistin @ 0.01 or Beam 75 WP @ 0.06% after current spells of rain and repeat at 10-15 days interval.
- Under humid weather condition, there are chances of incidence of leaf spot and fruit rot diseases in tomato, brinjal, capsicum and chilli in Sub-Montane and Low Hills Sub-Tropical Zone. Spray Ridomil MZ or Indofil M-45 @ 2.5 g per litre of water after current spells of rain.
- Under cloudy and humid weather condition, there are chances of attack of white flies in vegetables like capsicum, brinjal and tomato in Mid Hills Sub Humid Zone. Spray Metasystox @ 15ml in 15 litres of water after current spells of rain.

▪ **Rajasthan:**

- Continue sowing of guar, pearl millet, sesamum, moong, moth, castor and continue transplanting of rice in Irrigated Northwestern Plain Zone. Continue thinning in cotton. Maintain plant to plant distance 25 to 30 cm. Continue hoeing and weeding and also Continue plantation in new kinnow orchards.
- In Arid Western Plain Zone, undertake sowing of short duration and drought tolerant varieties of pulses, pearl millet, moth bean and cluster bean utilising the realised and expected rainfall. Use improved short duration varieties of bajra, moong, moth, til and guar for sowing and pearl millet and sorghum for fodder purpose.
- In Semi Arid Eastern Plain Zone, continue nursery raising of mid season cauliflower, continue sowing of cucurbits like khira, bottle gourd, ridge gourd and cucumber; complete sowing of *kharif* crops like pearl millet, sorghum, maize, green gram, uradbean, moth bean, cowpea & cluster bean utilising the realised and expected rainfall.
- Complete sowing of bajra, jowar, sesame and moong in Flood Prone Eastern Plain Zone. Also dig pit for new planting of ber, aonla and pomegranate.
- In Southeastern Humid Plain Zone, continue transplanting of nursery rice of three weeks old and continue sowing of soybean, maize, sorghum, moong and black gram.
- In Southern Humid Plain Zone, in the prevailing cloudy and humid weather, there is chance of attack of stem borer in maize. Apply Forate grannuels 10 G @ 5-7.5 kg/ha in the soil after current spells of rain.
- In Arid Western Plain Zone, due to partly cloudy and humid weather, there is chance of incidence of leaf spot in groundnut, spray Diatane M-45 @ 2kg /1000 litres of water on a non rainy day.

▪ **Punjab, Haryana and Delhi:**

- In Punjab, continue transplanting of rice in Undulating Plain Zone, Central Plain Zones and Western Zone of Punjab. Also continue sowing of maize and planting of papaya in Central Plain Zone.
- In Western Zone of Punjab, continue sowing of okra, sponge gourd, bottle gourd, cluster bean and also sowing of brinjal in raised nursery beds.
- In Western Plain Zone of Punjab, complete transplanting of rice and undertake transplanting of early varieties of cauliflower.
- In Central Plain Zone of Punjab, complete the sowing of moong.
- In Central Plain, Western Plain and Undulating Plain Zone of Punjab, undertake planting of fruit plants viz citrus, mango, litchi, guava, loquat, ber, amla and papaya.
- In Western Zone of Haryana, drain out excess water from the field and continue sowing of desi cotton, bajra and pigeon pea and continue transplanting of tomato and chilli and transplanting of rice utilising the realised and expected rainfall.
- In Western Semi-Arid Zone of Delhi, continue transplanting of rice and continue nursery preparation for sowing early cauliflower. Continue sowing of ladies finger, pigeon-pea and cotton and nursery sowing of vegetables like chilli, tomato and brinjal. Continue sowing of maize, bajra, soybean, guar, radish, cluster bean, beans, spinach and amaranths.
- In Western Plain Zone of Punjab, due to warm and humid conditions, bacterial blight may occur in cotton, spray Blitox 50 (WP) @ 500 g along with 3.0 g Streptomycin per acre after current spells of rain.

▪ **Uttar Pradesh:**

- In Central Plain Zone, continue transplanting of 20 to 25 days old rice. Continue sowing of jowar, moong, urad, bajra, sesame, soybean, arhar, barley, maize, okra, brinjal, chill, ridge gourd, bitter gourd, torai, tinda, direct sowing of rice and planting of banana.
- In Bundelkhand Zone, undertake direct sowing of short duration varieties of rice, transplanting of long duration rice and planting of mango, papaya, neem, ber, guava, lemon and horticultural crops. Continue nursery sowing of rice, cauliflower, tomato, chilli and brinjal and sowing of urad, soybean, moong, arhar, jowar, bajra, sesame, groundnut, pigeonpea, maize and fodder crops like sorghum, bajra, maize, chari and guar.
- In Eastern Plain Zone, continue transplanting of scented Basmati rice, sowing of short duration varieties of urad and moong where normal sowing was not done earlier. Also continue sowing of long duration varieties of pigeon pea and planting of banana, mango, amla, guava, ber and papaya. Complete sowing of fodder crops like sorghum, bajra, maize, MP chari and lobia.
- In North Eastern Plain Zone, undertake transplanting of rice and continue sowing of maize, pigeon pea, groundnut, urad and moong.
- In Western Plain Zone, continue transplanting of rice and undertake planting of mango, amla, guava, ber, litchi and papaya.
- In Central Plain Zone, due to cloudy and humid weather condition, there are chances of incidence of sooty mould in mango and litchi. For control, spray Blightox @ 0.3% after current spells of rain.
- Due to cloudy and humid weather condition, there is chance of incidence of blight in rice in Northeastern Plain Zone. Spray Carbendazim @ 2 g per litre of water after current spells of rain.
- Due to cloudy and humid weather condition, there is chance of attack of top borer in sugarcane in Northeastern Plain Zone. Spray of Corazine @ 150 g in 200 litres of water per acre after current spells of rain.
- Suitable varieties for sowing are given in Annexure III.

• **Horticulture**

- In Sub-Montane and Low Hills Sub-Tropical zone of Himachal Pradesh, continue planting of like citrus, mango, guava, amla and papaya. Litchi and guava can multiplied through air layering also.
- In Mid Hills Sub-Humid Zone and Mild Hills Sub-Humid Zone of Himachal Pradesh, due to humid weather condition, there is chance of incidence of scab in apple orchards. Spray Myclobutanil @ 80g per 200 litres of water after current spells of rain.
- In Sub-Montane and Low Hills Sub-Tropical zone of Himachal Pradesh, due to humid weather condition there is chance of occurrence of blight in gladiolus. Spray Dithane M45 (Mancozeb) @ 25 g per 10 liters of water after current spells of heavy rain. For control of Mite in carnation, spray Omite or Pyromite @1ml per litre of water or Dicofol @ 2ml per litre of water after current spells of rain.

• **Animal Husbandry**

- In Sub-Montane and Low Hills Sub Humid Zone of Himachal Pradesh, undertake deworming livestock for ecto- and endo-parasites and vaccination against H.S. and BQ disease.
- Keep the cattle under shed during heavy rainfall periods in Himachal Pradesh, Jammu & Kashmir, Uttar Pradesh and Uttarakhand.

Districtwise realised rainfall and % departure for past three weeks is given below in Annexure I

Annexure I

Week by week Rainfall Distribution

Sub-Divisions	08.07.15		15.07.15		22.07.15	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
Arunachal Pradesh						
Anjaw	**	**	**	**	**	**
Changlang	37.8	-64	71.2	-33	8.0	-92
Dibang Valley	**	**	**	**	**	**
East Kameng	15.0	-82	11.6	-87	20.0	-75
East Siang	235.6	13	202.2	-18	24.6	-88
Kurung Kumey	**	**	**	**	**	**
Lohit	47.5	-64	86.3	-37	20.2	-88
Lower Dibang Valley	156.4	84	184.1	483	28.6	-53
Lower Subansari	**	**	**	**	**	**
Papumpara	127.8	-28	228.7	65	45.4	-69
Tawang	45.0	-73	92.0	-56	84.0	-47
Tirap	44.0	-75	84.2	-56	94.6	-50
Upper Siang	150.8	-14	97.6	-30	76.2	-45
Upper Subansari	**	**	38.2	-32	53.2	11
West Kameng	171.4	3	145.0	-30	46.0	-71
West Siang	33.0	-73	131.0	-14	48.0	-63
Assam&Meghalaya						
Assam						
Baksa	94.3	-62	19.7	-86	32.4	-80
Barpeta	103.0	-58	87.0	-39	93.4	-41
Bongaigaon	131.0	-46	85.2	-47	126.0	-28
Cachar	31.3	-73	153.5	29	159.5	23
Chirang	106.8	-56	82.6	-48	102.8	-41
Darrang	**	**	**	**	**	**
Dhemaji	74.0	-52	68.0	-56	50.0	-57
Dhubri	45.7	-58	68.3	-51	48.8	-58
Dibrugarh	61.8	-45	63.7	-51	63.5	-45
Goalpara	72.9	-45	79.8	-30	56.5	-42
Golghat	12.9	-82	23.3	-70	76.5	-1
Hailakandi	49.2	-43	63.3	-36	164.5	67
Jorhat	24.0	-74	63.6	-32	70.5	-20
Kamrup(Rural)	55.5	-40	5.0	-94	51.9	-35
Kamrup(Metro)	42.3	-54	73.8	-15	65.7	-18
Karbi Anglong	21.2	-61	39.2	-28	52.4	21
Karimganj	37.4	-75	88.6	-48	123.2	0
Kokrajhar	288.9	6	182.8	13	23.1	-87
Lakhimpur	113.9	-26	100.6	-34	55.0	-53
Morigaon	104.8	12	76.2	-19	80.0	17
N.C.Hills	17.6	-64	60.8	-4	157.3	199
Nowgong	43.7	-30	30.5	-66	31.0	-60
Nalbari	80.3	-40	46.4	-59	34.9	-61
Sonitpur	80.1	-18	111.1	20	83.6	2
Sibsagar	43.7	-59	52.6	-39	83.3	34
Tinsukia	50.2	-53	96.8	-27	54.2	-49

Udalgiri	58.7	-31	83.7	-6	59.4	-21
Meghalaya						
East Garo Hills	20.4	-78	56.6	-41	106.4	-9
East Khasi Hills	258.5	-29	159.4	-61	132.9	-58
Jaintia Hills	166.0	-63	99.0	-77	64.0	-75
Ribhoi	35.0	-62	21.7	-77	34.5	-66
South Garo Hills	213.0	96	200.0	86	95.0	-8
West Garo Hills	18.6	-83	26.0	-76	63.1	-39
West Khasi Hills	51.0	-86	41.0	-79	106.0	-37
NMMT						
Mizoram						
Aizwal	33.0	-63	33.7	-70	242.7	142
Champhai	**	**	**	**	**	**
Kolasib	15.0	-80	8.0	-91	53.0	-53
Lawngtlai	**	**	**	**	**	**
Lunglei	**	**	**	**	**	**
Mamit	**	**	**	**	**	**
Saiha	62.0	-34	117.0	17	96.0	3
Serchhip	85.2	-22	72.2	-29	84.0	-18
Manipur						
Bishnupur	**	**	**	**	**	**
Chandel	**	**	**	**	**	**
Churachandpur	**	**	**	**	**	**
Imphal east	45.5	-42	36.7	-56	153.2	129
Imphal west	51.5	-5	230.8	308	194.9	295
Senapati	**	**	**	**	**	**
Tamenglong	**	**	**	**	**	**
Thoubal	5.0	-85	73.0	45	85.0	119
Ukhrul	**	**	**	**	**	**
Nagaland						
Dimapur	29.7	-23	51.4	-19	100.5	339
Kephire	**	**	**	**	**	**
Kohima	48.6	-33	31.4	-63	140.0	77
Longleng	**	**	**	**	**	**
Mokokchung	**	**	**	**	115.0	14
Mon	**	**	**	**	**	**
Paren	**	**	**	**	**	**
Phek	**	**	**	**	**	**
Tuensang	**	**	**	**	**	**
Wokha	**	**	**	**	**	**
Zunheboto	**	**	**	**	**	**
Tripura						
Dhalai	186.5	105	70.3	-12	252.3	212
North Tripura	55.8	-31	72.0	-31	123.4	37
South Tripura	135.4	3	102.3	-13	170.5	50
West Tripura	103.5	16	82.5	-13	247.2	175
Himachal Pradesh						
Bilaspur	48.5	-15	58.4	-14	134.4	78
Chamba	48.7	-35	77.4	-39	92.3	-42
Hamirpur	41.5	-36	89.5	16	127.3	26
Kangra	70.0	-21	116.4	-15	179.0	24

Kinnaur	0.5	-97	15.1	-1	10.8	-49
Kullu	21.3	-27	80.0	97	56.3	5
Lahaul and Spiti	1.0	-97	16.8	-52	6.9	-83
Mandi	54.7	-11	95.7	10	100.8	-2
Shimla	37.1	1	96.6	83	81.4	30
Sirmaur	24.4	-73	106.8	-10	111.3	-11
Solan	35.2	-47	102.0	10	211.7	120
Una	81.7	11	76.5	-8	137.1	67
Punjab						
Amritsar	0.0	-100	38.5	-16	94.8	83
Barnala	10.0	-60	37.1	21	0.0	-100
Bhatinda	27.0	49	31.0	36	12.7	-56
Faridkot	45.0	125	14.0	-42	17.0	-50
Fatehgarh Sahib	13.0	-69	177.8	166	81.3	105
Ferozpur	24.2	32	8.2	-76	9.1	-73
Gurdaspur	24.2	-53	75.5	-3	91.0	14
Hoshiarpur	22.3	-61	56.1	-8	54.3	-19
Jalandhar	3.8	-90	24.2	-56	26.8	-37
Kapurthala	9.5	-71	79.0	117	46.3	1
Ludhiana	35.8	-8	135.1	125	48.7	11
Mansa	13.1	-27	23.5	-15	15.8	-47
Moga	1.5	-94	29.0	-12	0.0	-100
Muktesar	35.5	88	6.5	-78	1.0	-97
Nawashahar	31.3	-55	178.3	95	151.6	169
Patiala	6.7	-85	99.4	46	37.6	-26
Ropar	33.7	-26	77.4	-5	105.1	67
Sangrur	15.4	-48	87.3	99	4.6	-86
Mohali	42.5	-1	129.3	73	64.5	37
TarnTaran	0.0	-100	8.0	-67	16.5	-51
Haryana,Chd,Delhi						
Haryana						
Ambala	45.4	-15	92.7	7	48.8	-27
Bhiwani	14.9	-23	31.8	1	0.3	-99
Chandigarh	65.2	11	80.6	6	78.0	37
Faridabad	63.8	115	133.6	139	54.0	14
Fatehabad	11.0	-38	32.6	24	9.8	-60
Gurgaon	22.0	-16	122.2	146	33.5	-21
Hissar	24.1	22	13.1	-54	10.0	-68
Jhajar	13.1	-44	95.8	123	22.8	-42
Jind	10.3	-59	68.9	50	7.7	-76
Katihah	18.0	17	53.2	30	17.9	-45
Karnal	18.1	-51	166.7	138	70.0	88
Kurukshetra	1.6	-95	100.6	65	7.4	-85
Mahendragarh	32.0	52	25.2	-39	18.8	-51
Mewat	7.2	-67	138.2	193	36.0	-13
Palwal	21.5	-8	113.3	167	49.0	17
Panchkkula	24.8	-55	74.3	-8	56.1	-28
Panipat	10.0	-61	120.0	90	54.2	33
Rewari	9.4	-40	75.8	87	15.6	-67
Rohtak	10.2	-66	59.5	16	6.4	-88
Sirsa	36.0	96	11.9	-41	20.2	-29

Sonepat	6.7	-73	145.2	154	26.9	-43
Yamunanagar	48.7	-15	127.6	93	41.8	-41
Delhi						
Central Delhi	17.0	-50	174.0	187	8.0	-85
East Delhi	40.0	17	33.0	-46	31.0	-42
New Delhi	44.5	30	175.3	189	9.6	-82
North Delhi	26.6	-22	164.8	172	21.3	-60
North East Delhi	56.0	63	126.0	108	6.0	-89
North West Delhi	37.3	9	184.0	204	23.0	-57
South Delhi	66.0	92	185.0	205	11.0	-79
South West Delhi	59.1	72	173.3	186	62.4	17
West Delhi	40.1	17	235.0	288	23.0	-57
Jammu & Kashmir						
Anantnag	3.8	-77	82.0	429	24.8	10
Badgam	0.1	-98	37.2	195	46.6	230
Bandipore	**	**	**	**	**	**
Baramula	4.6	-74	43.1	124	38.7	88
Doda	18.8	-2	81.6	194	58.8	56
Ganderbal	1.0	-91	29.7	150	31.1	109
Jammu	51.0	0	172.1	131	102.3	35
Kargil	**	**	**	**	**	**
Kathua	44.6	-26	83.4	-1	101.3	8
Kistwar	**	**	**	**	**	**
Kulgam	7.5	-54	50.3	225	2.5	-89
Kupwara	2.3	-85	97.9	850	14.3	-12
Ladakh(Leh)	0.3	-86	9.5	172	10.7	198
Poonch	**	**	**	**	**	**
Pulwama	0.0	-100	65.7	417	42.1	106
Rajouri	15.0	-68	164.5	218	36.4	-48
Ramban	29.7	55	147.0	429	20.8	-45
Reasi	45.1	-40	165.6	66	61.7	-51
Samba	52.0	2	119.4	60	48.5	-36
Shopian	**	**	**	**	**	**
Srinagar	13.5	27	53.9	353	72.5	386
Udhampur	55.8	-26	100.7	1	35.2	-72
East Madhya Pradesh						
Anuppur	59.7	-35	84.6	-6	39.0	-58
Balaghat	28.2	-70	96.1	-15	38.6	-67
Chhatarpur	56.4	-16	65.3	4	64.5	-18
Chindwara	4.3	-94	80.5	26	62.6	-5
Damoh	44.0	-39	90.5	20	61.5	-31
Dindori	81.2	-10	71.4	-33	44.7	-55
Jabalpur	33.3	-59	203.0	164	40.2	-48
Katni	39.7	-45	61.4	-32	53.1	-32
Mandla	38.3	-59	142.3	39	78.1	-18
Narsingpur	38.4	-53	219.4	177	40.0	-50
Panna	37.1	-52	85.6	17	87.8	-8
Rewa	82.9	45	95.1	49	85.5	11
Sagar	22.6	-72	79.6	0	93.1	12
Satna	41.8	-34	161.1	179	46.6	-39
Seoni	35.5	-55	106.0	27	54.5	-33

Shahdol	45.2	-42	152.0	107	49.0	-37
Sidhi	55.2	-26	95.0	31	16.3	-77
Singrauli	30.5	-43	116.5	101	61.2	17
Tikamgarh	44.0	-23	61.0	1	87.0	18
Umaria	56.5	-23	83.3	14	132.8	44
West Madhya Pradesh						
Agar	0.0	-100	18.4	-84	239.9	107
Alirajpur	0.1	-99	0.0	-100	93.8	38
Asoknagar	8.8	-86	105.0	79	180.0	99
Badwani	0.0	-100	0.0	-100	75.1	51
Betul	0.0	-100	3.4	-95	126.4	91
Bhind	31.8	-22	85.0	58	64.6	16
Bhopal	0.0	-100	72.7	16	207.4	192
Burhanpur	9.4	-80	3.7	-92	89.3	86
Datia	32.5	-31	103.9	91	92.8	41
Dewas	0.0	-100	0.0	-100	267.7	294
Dhar	0.1	-99	0.0	-100	271.7	323
Guna	0.0	-100	118.6	82	206.6	146
Gwalior	4.7	-90	203.7	247	111.1	67
Harda	0.0	-100	0.0	-100	127.0	58
Hosangabad	0.5	-99	87.0	-9	224.7	153
Indore	0.0	-100	0.0	-100	377.2	555
Jhabua	0.0	-100	0.0	-100	117.0	89
Khandwa	0.0	-100	0.0	-100	243.6	316
Khargone	0.0	-100	0.0	-100	97.9	92
Mandsaur	0.0	-100	31.9	-42	152.1	144
Morena	26.8	-20	100.0	92	19.5	-69
Neemuch	0.0	-100	5.9	-89	154.5	166
Raisen	6.6	-92	154.7	103	147.8	72
Rajgarh	0.0	-100	176.8	160	354.4	468
Ratlam	0.0	-100	0.0	-100	176.2	169
Sehore	0.0	-100	14.8	-81	388.0	404
Shajapur	0.0	-100	12.0	-80	328.5	427
Sheopur Kalani	4.5	-90	31.8	-56	46.0	-28
Shivpuri	23.5	-53	80.9	43	72.1	-1
Ujjain	0.0	-100	0.0	-100	454.5	756
Vidisha	6.8	-91	61.1	-15	152.2	83
Chhattisgarh						
Bastar	1.1	-99	94.1	30	33.5	-61
Bijapur	0.5	-99	20.2	-77	43.8	-59
Bilaspur	48.5	-39	84.7	6	29.6	-65
Dantewara	8.1	-90	19.2	-79	80.5	-27
Dhamtari	4.8	-94	98.9	36	33.2	-60
Durg	33.4	-61	77.8	24	30.7	-57
Janjgir	15.5	-83	114.9	27	54.9	-39
Jashpurnagar	121.5	17	84.1	-1	46.3	-55
Kanker	10.2	-88	86.3	10	32.9	-64
Korba	85.5	-9	102.5	12	63.9	-35
Koriya	42.2	-52	154.3	63	26.0	-71
Kawardha	20.8	-69	121.3	97	20.8	-66
Mahasumund	9.6	-88	102.2	53	47.7	-34

Narayanpur	4.4	-94	32.8	-61	49.3	-54
Raigarh	47.0	-48	146.8	83	45.3	-50
Raipur	21.0	-76	75.3	-5	27.8	-66
Rajandgaon	7.5	-90	73.5	-8	42.4	-44
Surguja	136.3	64	133.7	42	72.1	-25
East Uttar Pradesh						
Allahabad	34.4	-30	61.8	-11	24.2	-62
Ambedkar Nagar	35.0	-35	18.0	-76	2.0	-98
Azamgarh	16.2	-75	74.6	-9	112.1	20
Bahraich	73.4	35	53.4	-36	35.6	-64
Ballia	47.5	-11	24.6	-70	60.3	-22
Balrampur	99.6	80	15.4	-84	24.0	-79
Banda	71.7	38	40.1	-36	66.4	12
Barabanki	34.0	-32	85.3	-2	11.7	-86
Basti	73.3	24	45.9	-34	31.4	-68
Chandauli	15.2	-73	25.4	-68	159.2	103
Deoria	9.0	-84	25.5	-69	113.3	52
Faizabad	81.8	41	36.9	-61	25.7	-74
Farrukhabad	82.4	86	60.1	-16	3.3	-94
Fatehpur	24.2	-50	30.3	-60	12.1	-78
Gazipur	30.9	-40	64.1	-6	85.7	30
Gonda	71.4	37	41.3	-52	33.0	-67
Gorakhpur	40.5	-34	31.8	-67	45.1	-51
Hardoi	76.6	67	134.8	87	26.2	-58
Jaunpur	18.1	-69	72.4	-14	64.4	-18
Kannauj	48.7	9	118.0	70	0.5	-99
Kanpur City	37.0	4	27.4	-48	18.9	-66
Kanpur Dehat	19.1	-45	52.0	-3	3.2	-95
Kaushambi	6.6	-87	32.5	-58	8.4	-84
Kheri	110.9	69	65.6	-13	59.6	-12
Kushi nagar	23.5	-66	8.5	-92	58.0	-26
Lucknow	23.8	-38	95.9	29	12.9	-78
Maharajganj	55.2	-28	12.8	-88	58.3	-43
Mau	39.0	-32	91.2	7	44.9	-54
Mirzapur	36.8	-37	49.0	-34	133.5	84
Pratapgarh	33.3	-44	66.0	-1	71.3	-3
RaiBareilly	22.1	-57	50.6	-29	32.3	-45
Sahuji Maharajnagar	22.0	-64	44.0	-24	62.8	-7
Sant Kabirnnagar	105.0	91	31.0	-68	39.0	-61
Sant Ravidas Nagar	3.0	-95	103.0	28	82.0	5
Shrawasti	60.8	12	21.2	-75	79.0	-20
Sidharthnagar	52.0	-6	23.3	-76	41.7	-54
Sitapur	82.4	62	101.9	48	18.6	-72
Sonbhadra	34.9	-44	84.3	20	47.4	-33
Sultanpur	21.2	-62	96.9	12	67.5	-8
Unnao	46.8	18	101.3	53	12.7	-80
Varanasi	34.2	-44	99.3	22	113.9	29
West Uttar Pradesh						
Agra	12.3	-68	37.8	-28	4.4	-93
Aligarh	41.8	9	44.9	-14	29.9	-41
Auraiya	14.7	-62	58.2	-4	28.1	-45

Badaun	71.6	50	164.0	161	20.2	-59
Baghpat	19.4	-40	96.5	63	11.0	-75
Bareilly	65.4	34	163.2	116	10.3	-83
Bijnor	87.7	61	120.9	45	42.9	-43
Bulandsahar	24.3	-38	131.6	141	23.5	-55
Etah	31.3	-13	59.0	12	9.5	-79
Etawah	4.0	-89	97.4	87	19.6	-62
Firozabad	15.1	-59	80.1	44	82.6	36
GBNagar	48.0	39	85.0	77	11.0	-77
Ghaziabad	39.2	2	123.7	117	32.5	-33
Hamirpur	27.5	-33	76.5	41	46.5	-25
Jalaun	19.4	-59	90.7	70	59.9	-1
Jhansi	42.1	-25	88.4	39	66.9	16
Jotiba Phule Nagar	67.0	29	142.0	84	46.6	-12
Kanshiramnagar	80.0	98	116.0	104	5.0	-91
Lalitpur	9.0	-87	41.3	-34	30.0	-62
Mahamaya Nagar	10.5	-68	48.0	-21	5.0	-90
Mahoba	11.4	-75	81.8	72	35.4	-46
Mainpuri	17.8	-54	71.1	24	31.7	-34
Mathura	5.5	-85	132.1	196	9.3	-82
Meerut	67.9	30	83.4	18	9.2	-83
Moradabad	103.9	75	151.1	120	22.6	-62
Muzaffarnagar	100.0	98	85.9	6	44.3	-6
Pilibhit	47.6	-25	80.9	4	6.7	-90
Rampur	30.3	-50	89.1	11	38.4	-44
Saharanpur	25.3	-47	164.3	89	44.2	-14
Shahjahanpur	99.8	66	144.5	110	1.7	-97
Uttarakhand						
Almora	83.8	36	91.1	32	48.2	-23
Bageshwar	82.8	34	74.3	8	55.8	-11
Chamoli	62.2	13	81.1	30	115.2	54
Champawat	135.0	50	56.5	-52	47.0	-58
Dehradun	136.8	13	154.8	1	98.7	-44
Garhwal Pauri	54.3	-31	88.4	-25	46.5	-52
Garhwal Tehri	39.2	-36	105.7	21	18.0	-80
Haridwar	71.5	20	89.6	2	29.2	-52
Nainital	193.3	93	135.7	5	56.7	-52
Pithorgarh	65.9	-44	86.5	-23	50.3	-60
Rudraprayag	16.2	-84	130.3	14	105.2	-27
Udham Sing Nagar	80.5	3	73.4	-35	47.6	-41
Uttarkashi	30.9	-56	108.3	25	115.7	19
Bihar						
Araria	61.4	-28	77.5	-27	25.7	-78
Arwal	92.4	84	32.5	-53	81.5	64
Aurangabad	209.6	268	15.5	-80	102.0	43
Banka	73.6	31	93.6	22	59.9	2
Begusarai	38.9	-40	75.7	-12	45.2	-18
Bhabua	77.4	26	79.6	-4	175.2	121
Bhagalpur	153.4	128	73.0	-6	95.8	60
Bhojpur	32.3	-51	23.9	-74	29.3	-61
Buxar	33.0	-40	57.8	-34	107.2	58

Darbhanga	95.1	58	33.5	-54	18.2	-71
East Champaran	60.2	-11	38.7	-47	44.7	-50
Gaya	102.7	77	29.5	-63	69.3	1
Gopalganj	99.4	46	48.3	-42	87.8	29
Jahanabad	87.2	69	20.9	-75	32.6	-38
Jamui	118.7	79	49.2	-41	69.6	10
Kathihar	146.1	97	49.7	-47	66.9	-14
Khagadia	54.7	-26	55.2	-39	52.6	-15
Kishanganj	161.2	32	115.1	-22	27.8	-81
Lakhisarai	114.9	65	34.1	-58	107.5	86
Madhepura	115.2	36	33.2	-68	14.2	-83
Madhubani	45.6	-48	28.9	-63	16.6	-81
Monghyar	62.7	-10	68.2	-15	44.8	-23
Muzaffarpur	92.2	41	44.9	-42	60.7	-23
Nalanda	125.5	125	24.7	-68	26.5	-57
Nawada	85.3	16	15.6	-80	75.6	9
Patna	108.2	54	33.9	-62	35.4	-55
Purnea	85.4	-2	25.9	-80	9.0	-91
Rohtas	157.1	212	59.1	-23	90.1	52
Saharsha	92.8	-37	34.6	-70	27.2	-72
Samstipur	45.6	-21	47.3	-46	22.2	-70
Saran	62.6	-16	62.0	-31	76.4	10
Sheikpura	124.6	106	15.3	-83	98.4	70
Sheohar	32.0	-64	27.6	-58	27.0	-70
Sitamarhi	41.6	-54	32.6	-50	8.7	-90
Siwan	21.0	-74	48.5	-42	55.2	-23
Supaul	75.1	-8	69.3	-25	20.0	-78
Vaishali	116.0	58	49.0	-48	71.0	-22
West Champaran	66.6	-18	37.1	66	92.3	-3
Jharkhand						
Bokaro	140.6	123	72.4	10	69.2	-15
Chatra	94.1	32	6.7	-92	150.9	79
Deoghar	69.0	14	132.0	84	104.5	46
Dhanbad	65.8	-17	27.1	-60	69.7	-13
Dumka	127.9	83	132.2	60	74.4	-3
East Singbhum	126.4	103	33.7	-52	76.4	5
Garhwa	50.6	-9	82.2	45	159.0	104
Giridih	68.6	-3	61.2	-22	111.5	30
Godda	90.7	51	76.8	-7	120.1	87
Gumla	168.8	84	165.5	101	145.1	82
Hazaribagh	109.2	77	68.3	-8	152.7	90
Jamtara	84.3	2	134.7	65	120.6	58
Khunti	85.4	-2	125.0	54	114.4	33
Koderrna	28.1	-54	47.0	-27	150.9	101
Latehar	185.9	194	33.6	-55	231.3	174
Lohardagga	88.7	83	52.8	-23	224.3	182
Pakur	135.8	77	150.2	40	67.4	-17
Palamau	63.0	7	60.6	-20	206.6	165
Ramgarh	85.8	37	48.0	-33	157.0	82
Ranchi	48.5	-39	108.6	26	98.3	10
Sahebganj	110.0	17	63.2	-40	**	**

Saraikele	154.5	117	62.1	-9	62.8	-23
Simdega	154.1	61	249.1	141	85.3	-24
West Singhbhum	90.1	14	45.6	-33	66.6	-10
East Rajasthan						
Ajmer	1.3	-95	15.4	-61	73.4	42
Alwar	30.6	7	60.0	27	9.8	-82
Banswara	0.3	-99	0.0	-100	78.6	35
Baran	1.5	-97	83.9	37	104.8	27
Bharatpur	47.4	67	76.2	63	30.6	-39
Bhilwara	0.3	-99	25.1	-49	41.1	-24
Bundi	10.2	-76	68.2	22	67.3	4
Chittorgarh	0.0	-100	32.1	-42	105.0	82
Dausa	17.6	-45	29.8	-52	28.8	-60
Dholpur	19.5	-47	67.2	30	16.5	-69
Dungarpur	0.0	-100	0.0	-100	62.2	33
Jaipur	13.8	-43	69.2	38	46.7	-30
Jhalawar	0.0	-100	136.3	151	118.5	72
Jhunjhunu	37.1	88	50.6	35	20.0	-61
Karauli	6.7	-73	39.0	-25	22.8	-66
Kota	1.1	-97	84.4	57	80.5	7
Pratapgarh	0.8	-99	0.0	-100	55.4	-1
Rajsamand	0.1	-99	35.7	-12	38.3	-11
Sawai Madhopur	23.5	-36	18.5	-66	26.7	-64
Sikar	29.3	22	142.6	295	38.3	-30
Sirohi	3.0	-96	4.0	-94	38.5	-52
Tonk	4.5	-86	63.2	24	52.0	-21
Udaipur	0.2	-99	1.6	-97	55.3	13
West Rajasthan						
Barmer	0.0	-100	13.1	-25	11.5	-51
Bikaner	2.0	-85	19.9	7	15.7	-39
Churu	54.9	177	65.8	106	37.4	-1
Hanumangarh	44.3	132	15.1	-38	15.0	-44
Jaisalmer	1.2	-89	12.7	-16	16.1	7
Jalore	0.0	-100	0.9	-97	18.9	-53
Jodhpur	0.0	-100	29.3	26	21.7	-31
Nagaur	29.1	35	55.6	81	51.7	-2
Pali	0.0	-100	24.1	-27	43.0	-12
Sri Ganganagar	26.2	80	26.5	54	12.6	-44
Gujarat Region						
Ahmedabad	0.1	-99	0.6	-99	4.1	-92
Anand	0.3	-99	0.0	-100	1.0	-99
Banaskantha	0.0	-100	0.5	-99	15.1	-69
Baroda	0.3	-99	0.7	-99	20.8	-75
Broach	0.6	-99	2.7	-95	4.5	-93
DNH	3.1	-98	9.5	-95	325.1	48
Dahod	0.0	-100	0.0	-100	60.2	-2
Daman	0.0	-100	6.6	-96	36.8	-83
Dangs	0.0	-100	3.7	-98	117.0	-23
Gandhinagar	0.2	-99	0.7	-99	12.0	-83
Kheda	0.0	-100	0.0	-100	32.2	-50
Mehsana	0.3	-99	0.0	-100	16.4	-71

Narmada	0.3	-99	2.1	-98	28.0	-68
Navsari	0.7	-99	2.5	-98	68.1	-59
Panchmahal	0.0	-100	0.0	-100	50.3	-27
Patan	0.0	-100	0.0	-100	16.6	-65
Sabarkantha	0.3	-99	0.0	-100	21.3	-67
Surat	1.8	-99	6.2	-94	21.6	-81
Tapi	2.0	-99	8.2	-93	50.2	-57
Valsad	1.6	-99	4.7	-97	190.4	3
S K & Diu region						
Amreli	0.3	-99	0.0	-100	2.6	-95
Bhavnagar	0.0	-100	1.9	-95	5.4	-87
Diu	0.0	-100	0.1	-99	23.1	-67
Jamnagar	0.1	-99	0.4	-99	3.0	-95
Junagarh	0.0	-100	0.2	-99	11.9	-87
Kutch	0.0	-100	0.0	-100	16.2	-60
Porbandar	0.0	-100	0.6	-99	2.5	-97
Rajkot	0.0	-100	0.0	-100	8.2	-86
Surendranagar	0.1	-99	0.0	-100	30.5	-36
Maharashtra & Goa						
Konkan & Goa						
Mumbai City	6.6	-97	5.8	-96	67.6	-65
Mumbai Suburban	4.2	-98	11.1	-93	123.6	-36
North Goa	93.2	-63	165.2	-34	219.6	-22
Raigad	11.2	-96	42.1	-83	175.7	-37
Ratnagiri	15.8	-94	45.0	-82	84.2	-69
Sindhudurg	46.2	-81	77.1	-65	94.9	-63
South Goa	75.2	-65	158.3	-28	171.4	-31
Thane	4.0	-98	12.1	-95	322.2	43
Madhya Maharashtra						
Ahmednagar	0.0	-100	0.0	-99	16.4	-30
Dhule	0.0	-100	0.0	-100	3.8	-90
Jalgaon	0.0	-100	0.2	-99	12.5	-70
Kolhapur	6.3	-96	21.7	-86	57.0	-67
Nandurbar	1.2	-98	4.6	-94	22.0	-69
Nasik	0.7	-99	4.1	-95	86.8	20
Pune	1.3	-98	7.5	-90	49.9	-27
Sangli	0.7	-98	3.7	-89	7.6	-80
Satara	1.6	-97	4.9	-91	26.1	-58
Solapur	1.7	-90	0.1	-99	1.3	-94
Marathwada						
Aurangabad	0.0	-100	0.0	-100	13.9	-61
Beed	4.8	-82	0.7	-98	2.8	-91
Hingoli	5.1	-90	0.5	-99	19.8	-62
Jalna	0.3	-99	0.0	-100	5.8	-84
Latur	9.5	-79	7.7	-78	10.4	-78
Nanded	2.3	-95	1.3	-97	14.6	-73
Usmanabad	9.2	-72	2.5	-90	6.3	-81
Parbhani	2.6	-94	1.7	-96	7.4	-83
Vidarbha						
Akola	2.9	-93	0.0	-100	14.8	-76
Amraoti	2.0	-96	1.6	-97	33.9	-43

Bhandara	9.7	-89	56.9	-35	42.1	-50
Buldhana	0.2	-99	0.0	-100	21.4	-53
Chandrapur	6.5	-92	15.3	-83	33.9	-56
Gadchiroli	6.7	-93	36.6	-66	49.3	-52
Gondia	17.9	-81	81.3	-16	48.6	-49
Nagpur	11.2	-84	24.6	-68	34.0	-52
Wardha	8.0	-86	8.6	-88	21.6	-63
Washim	0.0	-100	0.0	-100	22.7	-63
Yeotmal	11.8	-79	0.4	-99	23.5	-64
Odisha						
Angul	30.7	-53	77.3	-1	53.1	-40
Balasore	40.6	-26	99.8	90	129.2	51
Bargarh	8.5	-89	126.4	71	75.1	-15
Bhadrak	48.9	-18	106.4	83	82.9	12
Bolangir	4.0	-95	107.9	22	76.7	-19
Boudh	17.9	-74	106.6	56	51.5	-39
Cuttack	28.9	-60	50.1	-25	70.7	-13
Deogarh	70.6	-30	114.0	30	51.6	-51
Dhenkanal	40.1	-35	68.1	6	55.8	-41
Gajapati	27.8	-18	10.3	-80	52.1	-26
Ganjam	14.7	-58	27.2	-42	63.8	13
Jagatsingpur	31.1	-34	65.4	10	45.8	-43
Jajpur	50.5	-12	59.3	-1	54.8	-28
Jharsuguda	90.6	-6	194.4	122	61.2	-42
Kalahandi	19.0	-78	99.1	28	95.9	3
Kandhamal	24.6	-65	58.2	-15	36.9	-57
Kendrapara	33.0	-46	26.7	-52	79.0	16
Keonjhar	40.8	-27	64.7	17	32.5	-58
Khurda	20.0	-65	68.1	3	52.0	-40
Koraput	14.9	-82	36.1	-55	31.6	-66
Malkangiri	19.2	-77	41.4	-53	64.6	-50
Mayurbhanj	42.4	-27	63.4	-19	117.5	29
Nawapara	19.8	-77	128.8	64	82.4	5
Nawarangpur	24.2	-78	60.1	-15	61.0	-49
Nayagarh	22.1	-67	28.5	-49	49.5	-48
Puri	31.9	-47	38.1	-28	46.7	-22
Rayagada	35.9	-32	35.1	-44	46.1	-50
Sambalpur	60.0	-41	170.0	94	75.6	-28
Sonepur	33.8	-58	98.4	41	38.8	-58
Sundargarh	102.9	28	197.7	125	25.9	-71
West Bengal & Andaman Nicobar Islands						
A & N ISLAND						
Nicobar	14.8	-73	38.9	-38	134.7	86
North & Middle Andaman	48.0	-53	236.2	126	74.8	-26
South Andaman	48.6	-42	97.9	7	112.8	9
GWB						
Bankura	56.1	-22	124.4	90	98.1	44
Birbhum	73.2	9	185.8	119	128.8	92
Burdwan	76.5	27	180.6	149	104.6	41
East Midnapore	34.3	-52	146.9	193	161.8	133

Hooghly	62.3	-11	214.4	216	86.3	7
Howrah	48.0	-43	155.8	130	172.8	108
Kolkata	115.0	43	185.9	132	181.3	116
Murshidabad	113.2	46	152.6	98	101.3	42
Nadia	61.7	5	135.7	98	117.3	78
24 Pargana (N)	111.0	62	276.1	262	135.6	85
Purulia	147.9	89	98.8	39	76.9	9
24 Pargana (S)	85.7	-25	154.6	51	265.1	146
West Midnapore	54.5	-27	129.7	90	131.3	69
SHWB & Sikkim						
Cooch Behar	139.2	-35	54.1	-76	22.8	-87
Darjeeling	126.7	-14	157.5	-9	110.2	-43
East Sikkim	107.6	6	154.5	32	94.0	-14
Jalpaiguri	170.7	-31	141.1	-34	47.8	-77
Malda	75.2	-6	132.3	69	96.1	47
North Dinajpur	146.5	86	130.4	22	25.9	-65
North Sikkim	119.3	2	133.6	44	48.6	-56
South Dinajpur	15.2	-84	43.0	-50	28.8	-63
South Sikkim	180.4	78	176.6	51	121.6	12
West Sikkim	86.5	-26	106.0	14	50.5	-54
Karnataka						
Coastal Karnataka						
Dakshina Kannada	78.7	-71	366.9	35	371.1	33
Udupi	80.3	-74	473.6	58	465.5	45
Uttara Kannada	47.3	-80	117.4	-49	149.1	-44
N I Karnataka						
Bagalkote	0.0	-100	10.6	-34	3.0	-82
Belagavi	6.4	-87	9.7	-80	17.3	-64
Bidar	8.3	-79	32.6	-7	19.3	-59
Dharwad	11.8	-65	18.5	-50	3.9	-89
Gadag	3.1	-76	1.5	-91	2.6	-83
Haveri	6.0	-85	8.3	-80	40.8	-1
Kalaburgi	3.9	-87	48.8	69	12.8	-66
Koppal	0.5	-96	8.1	-46	5.2	-72
Raichur	9.9	-50	16.6	-25	3.3	-86
Vijayapura	1.0	-93	2.9	-84	4.2	-79
Yadgir	8.1	-69	30.5	10	1.5	-96
S I Karnataka						
Ballari	1.2	-91	33.8	106	10.5	-38
Bangalore Rural	2.2	-83	6.1	-68	28.4	12
Bangalore Urban	1.2	-93	10.6	-43	47.2	93
Chamarajanagar	0.0	-100	2.0	-85	9.7	-32
Chikaballapur	1.0	-95	4.4	-75	29.0	29
Chikkamagaluru	26.5	-85	54.0	-64	155.5	9
Chitradurga	6.4	-41	6.0	-49	26.7	99
Davangere	8.0	-60	11.8	-46	54.2	105
Hassan	2.2	-96	8.8	-80	18.2	-59
Kodagu	42.3	-82	98.2	-49	207.8	14
Kolar	0.0	-100	4.5	-73	50.6	184

Mandya	2.0	-82	0.8	-92	5.2	-54
Mysuru	3.5	-87	3.4	-83	16.4	-8
Ramanagara	0.7	-96	3.8	-75	14.2	-38
Shivamogga	56.4	-63	111.3	-21	222.9	53
Tumakuru	0.5	-96	2.4	-83	23.0	32
Kerala						
Alappuzha	45.1	-69	73.2	-39	90.6	-23
Kannur	61.5	-78	211.1	-13	330.1	49
Ernakulam	54.7	-68	96.9	-37	163.4	14
Idukki	48.4	-77	89.4	-46	227.1	45
Kasaragod	49.0	-81	225.2	-16	335.0	35
Kollam	16.4	-84	49.0	-45	74.3	-10
Kottayam	50.3	-68	86.8	-38	122.7	-2
Kozhikode	61.9	-74	140.0	-37	377.1	92
Malappuram	37.6	-82	96.6	-47	194.2	20
Palakkad	17.2	-89	68.1	-48	143.5	18
Pathanamthitta	14.8	-90	43.7	-65	106.4	-7
Thiruvananthapuram	5.4	-91	13.4	-73	33.0	-33
Thrissur	56.0	-73	103.2	-41	221.8	37
Wynad	27.0	-91	60.4	-74	143.5	-35
Tamil Nadu						
Ariyalur	4.8	-62	10.8	-20	90.5	357
Chennai	2.0	-90	22.0	-20	52.8	140
Coimbatore	1.4	-89	8.2	-19	31.9	294
Cuddalore	5.8	-59	3.2	-79	15.7	-8
Dharmapuri	0.0	-100	0.7	-96	4.1	-78
Dindigul	0.5	-96	0.1	-99	5.6	-56
Erode	0.0	-100	0.3	-97	0.6	-93
Kanchipuram	1.2	-93	18.0	-29	34.6	26
Kanyakumari	1.0	-97	9.5	-57	21.7	-13
Karikal	0.0	-100	0.7	-93	20.7	31
Karur	0.0	-100	0.0	-100	0.0	-100
Krishnagiri	0.0	-100	0.0	-100	7.1	-60
Madurai	0.0	-100	0.0	-100	5.0	-69
Nagapattinam	5.4	-51	3.1	-75	8.5	-40
Namakkal	0.0	-100	0.7	-96	10.8	-29
Nilgiris	5.5	-92	13.4	-74	44.8	-17
Perambalur	0.0	-100	0.0	-100	3.7	-67
Puducherry	0.0	-100	22.8	80	10.2	-39
Pudukottai	1.1	-93	0.0	-100	10.1	-35
Ramanathapuram	0.0	-100	2.2	-58	11.8	34
Salem	0.7	-97	0.1	-99	12.3	-43
Sivaganga	4.6	-64	2.0	-87	30.9	86
Thanjavur	0.1	-99	0.3	-98	8.5	-46
Theni	0.8	-90	2.4	-60	15.0	85
Tirunelveli	0.1	-99	3.8	-47	6.7	-22
Tirupur	0.7	-90	0.0	-100	1.8	-64
Tiruvallur	2.9	-88	18.0	-23	24.8	-5
Tiruvannamalai	0.0	-100	5.6	-73	20.4	-21

Tiruvarur	0.0	-100	0.8	-94	36.1	135
Toothukudi	0.0	-100	0.0	-100	0.3	-93
Trichy	0.0	-100	0.1	-99	0.4	-97
Vellore	0.9	-96	7.2	-66	10.7	-61
Villupuram	0.0	-100	3.2	-76	17.9	-18
Virudhunagar	0.0	-100	0.0	-100	5.3	-46
Andhra Pradesh						
Coastal Andhra Pradesh						
East Godavari	1.6	-96	12.6	-71	94.3	119
Guntur	5.3	-84	30.6	20	50.6	41
Krishna	7.4	-85	26.4	-35	42.3	-12
Nellore	0.2	-99	12.0	-27	8.2	-63
Prakasam	1.5	-93	32.4	112	10.4	-61
Sirkakulam	28.4	-24	19.9	-52	53.2	14
Visakhapatnam	5.2	-86	27.4	-23	44.5	0
Vizianagram	18.5	-56	21.1	-40	43.3	2
West Godavari	8.8	-83	6.5	-87	82.7	58
Rayalaseema						
Anantapur	1.0	-91	5.2	-61	9.8	-41
Chittoor	2.9	-85	9.9	-53	16.0	-39
Cuddapah	0.3	-99	21.6	16	8.9	-66
Kurnool	1.6	-93	24.1	2	6.7	-74
Telangana						
Adilabad	11.0	-83	9.0	-87	57.5	-22
Hyderabad	0.2	-99	28.6	-14	7.4	-83
Karimnagar	10.6	-82	4.0	-93	34.2	-36
Khammam	12.9	-78	10.8	-81	33.4	-46
Mehabubnagar	0.9	-97	20.0	-33	4.8	-88
Medak	2.6	-94	17.3	-62	14.3	-73
Nalgonda	12.9	-57	21.6	-20	21.7	-48
Nizamabad	6.8	-89	9.0	-84	27.6	-57
Rangareddy	4.9	-87	24.6	-36	13.2	-70
Warangal	13.3	-77	12.9	-77	17.1	-73

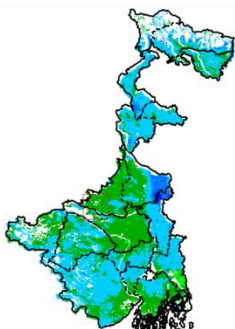
Legends

	(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

Annexure II

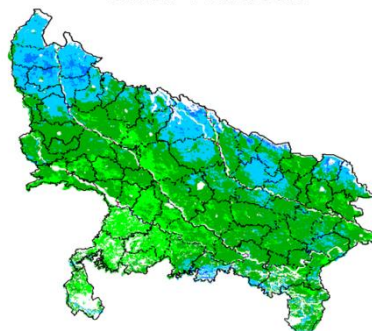
INSAT 3A CCD NDVI COMPOSITE MAPS FOR THE WEEK ENDING ON 22nd July 2015 FOR DIFFERENT STATES

West Bengal



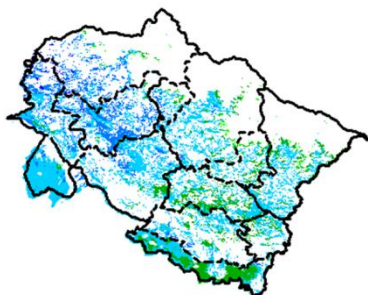
Agricultural vigour is very good over the parts of West Bengal, whereas eastern parts of West Bengal show dominantly higher values of NDVI varying from 0.4-0.6. NDVI values are normal over remaining part of state.

Uttar Pradesh



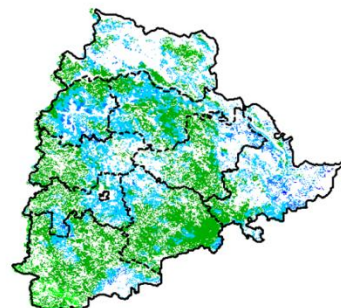
Agricultural vigour is normal over the entire state of Uttar Pradesh where NDVI value varies from 0.2 -0.4. Except for Northern and north western part were slightly higher values (0.4-0.5) of NDVI are observed.

Uttarakhand



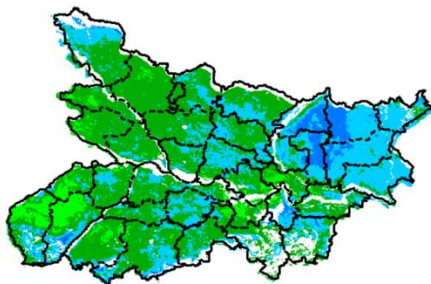
Agriculture vigour is very good over central parts of Uttarakhand with NDVI value varying between 0.4-0.5, whereas isolated patches with normal value of NDVI are observed over remaining parts of the state.

Telangana



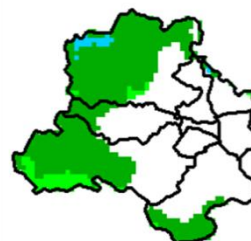
NDVI values vary from 0.2 - 0.4 over Telangana. Higher (> 0.4) values are seen in some patches over eastern and central parts of Telangana.

Bihar



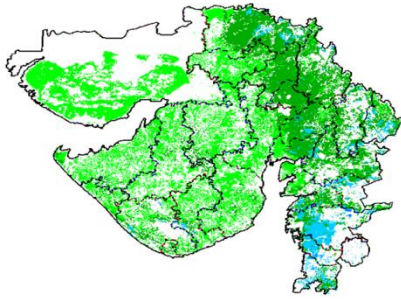
Eastern part of Bihar shows comparatively a high value (0.4 -0.5) of NDVI, whereas normal value of NDVI is observed over the remaining parts of the state.

Delhi



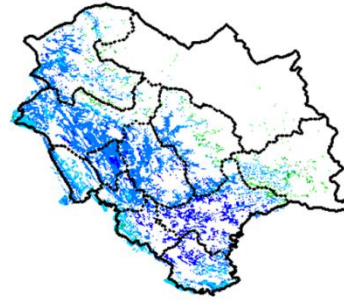
Agriculture vigour is normal all over Delhi where NDVI value lies between 0.2-0.3.

Gujarat



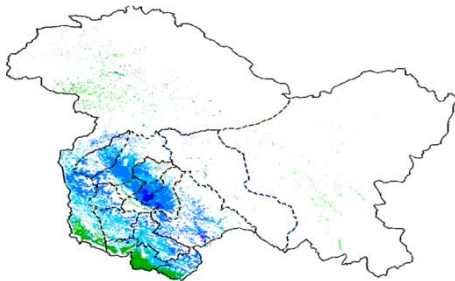
Agriculture vigour is normal (NDVI 0.2-0.4) over entire Gujarat, except few patches in south Gujarat which show higher NDVI values.

Himachal Pradesh



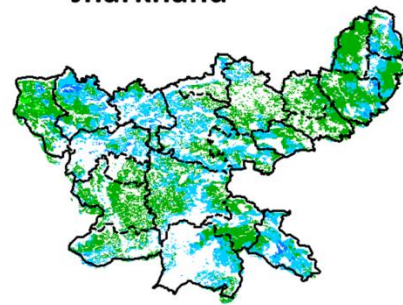
Agriculture vigour is very good over south and south western parts of Himachal Pradesh with NDVI value varying between 0.5-0.6, whereas isolated patches of normal NDVI are observed over remaining parts of the state.

Jammu & Kashmir



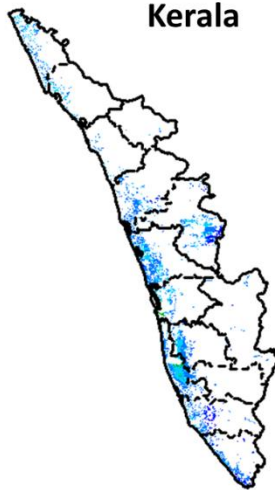
Agriculture vigour is good all over Jammu and Kashmir. NDVI value varies in between 0.4-0.6 in south western parts.

Jharkhand



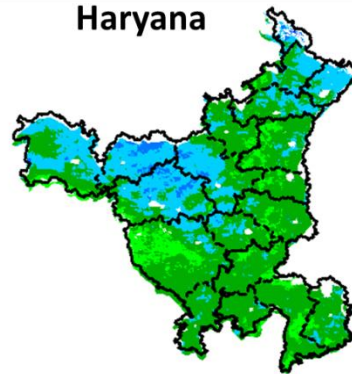
NDVI values vary from 0.3 - 0.4 over Jharkhand. Higher (> 0.4) values are seen in some patches over eastern and central parts of Jharkhand.

Kerala



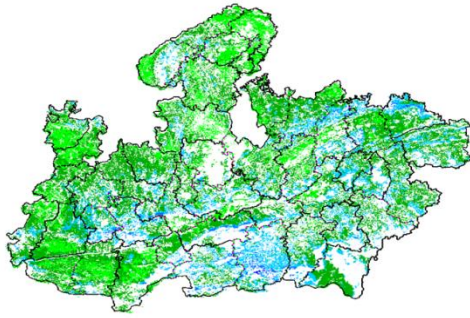
Central and coastal regions of Kerala shows increased NDVI values varying from 0.4 to 0.5, whereas rest of agricultural vigour of Kerala shows good values of NDVI.

Haryana



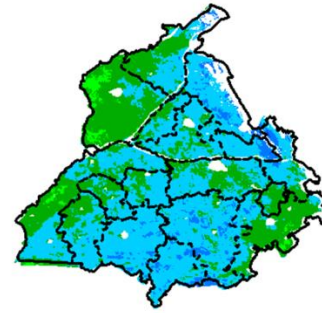
Agriculture vigour is normal over the state of Haryana. NDVI values varies between 0.2- 0.3 over the state. Except few patches in northern and western region where NDVI values in between 0.4-0.5.

Madhya Pradesh



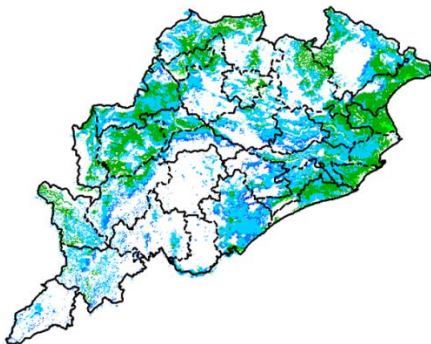
Agriculture vigour is normal (0.2-0.3) over entire state Madhya Pradesh. Higher (> 0.4) values are seen in some patches over southern part of Madhya Pradesh.

Punjab



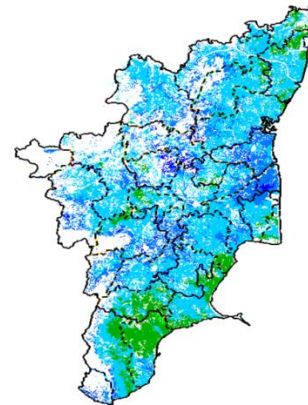
Agricultural vigour is good over entire state of Punjab, showing NDVI value ranges from 0.4-0.6. Western and Eastern part shows normal values between 0.2-0.4.

Odisha



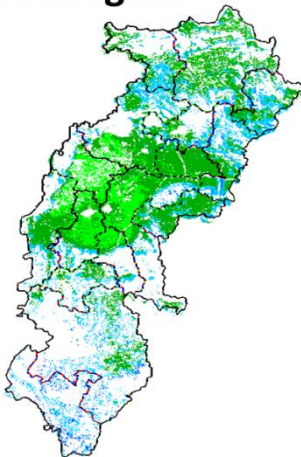
Agricultural vigour is good in eastern coastal and few pockets in western and central parts of Odisha with NDVI value ranging between 0.4 - 0.6. The remaining parts show normal NDVI values.

Tamil Nadu



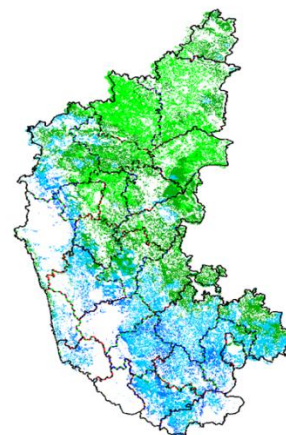
Agricultural vigour is good over Tamil Nadu with NDVI values varying from 0.4 - 0.6. Except South Eastern part, showing normal NDVI value ranges from 0.3-0.4.

Chhattisgarh



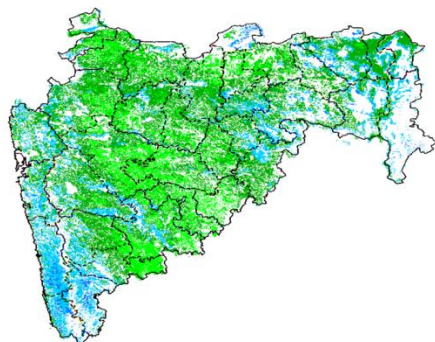
Agriculture vigour is Normal in central part of Chhattisgarh where NDVI value lies in between 0.2-0.3. South and north-eastern part of state shows increased NDVI values in some pockets.

Karnataka



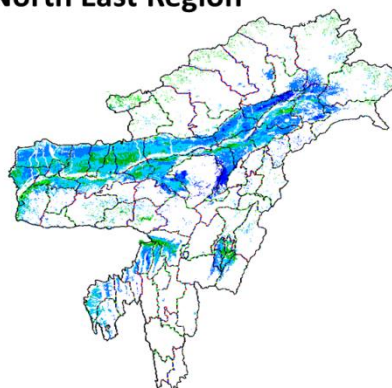
Agricultural vigour is good over south interior part of Karnataka between 0.4-0.6. Rest of the parts shows normal NDVI values from 0.2-0.3

Maharashtra



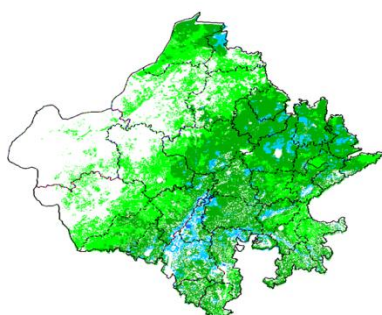
Agricultural vigour is good over south west part and few patches from Vidarbha with NDVI values from 0.4 - 0.5, whereas NDVI is normal over parts of Marathwada, Vidarbha and Madhya Maharashtra region.

North East Region



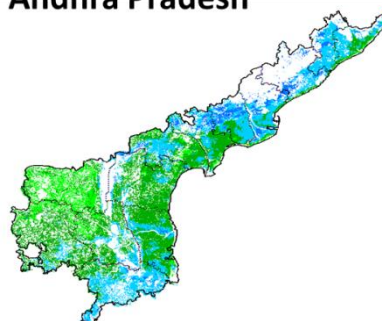
Agriculture vigour is good in valleys of North-East states which cover parts of Assam. NDVI values vary from 0.4-0.6. Normal NDVI conditions are observed all over NE region.

Rajasthan



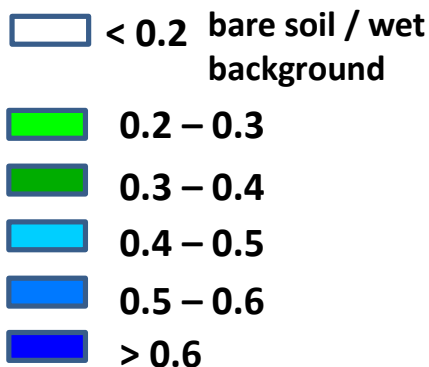
Agriculture vigour is normal (0.2-0.3) over entire state Rajasthan, except for few patches in eastern Rajasthan where NDVI shows slightly higher values (0.3-0.4).

Andhra Pradesh



Agriculture vigour vary from 0.3 - 0.5 over coastal and southern parts of Andhra Pradesh. The NDVI is normal over remaining parts of the state.

Persistent cloud /



Annexure III

List of varieties

North Inerior Karnataka

Groundnut: Bunch type of varieties, JL-24 and TMV-2, S-230, Mardur local

Paddy: short duration varieties Amrut, MGD-101, MTU-1001 in low lands, BR-2655, Tunga.

Sesame: E8,DS1, DSH9.

Maize: Arjun, 900 M.

Pearl millet: ICTP 8203 and ICMV 221

Pigeon pea: Maruti, TS 3 R.

Red gram: BRG-1, BRG2, TTB-7

Tamil Nadu

Banana:poovan, rasthali, monthan, karpooravalli and neypoovan.

Kuruvai rice:ADT 36, ADT 43, ADT 45 and CO 51.

Andhra Pradesh

Rice: MTU-1010, Nellore masuri, Dharani, Shwetha.Sannalu, Swarna, Vasundhara, Suraksha, Vijetha.

Varieties for Early Kharif Rice Plantings - Pushkala, Rasi, IR64.

Groundnut: Kadiri-6, Kadiri-9, Narayani and dharani.

Castor: PCH-111, PCH-222, Kranti, GCH-4, Haritha.

Assam

Sali/ kharif rice: Long duration high yielding varieties: Ranjit, Bahadur, Peoli, Moniram, Pankaj, Kushal , Swarna sub-1, Gitesh, Pankaj, Mashuri (for growing in typical lowland paddy area).

Medium duration paddy varieties : Satya and Basundhara (in medium lowland area).

Bau rice: Maguri, Panikekua, Amona, Negheri, Kekua, Pani Kekua, Padmapani.

Capsularis Jute: JRC 212, JRC 321(Sonali), JRC 7447 (Shyamali) and UPC 94(Reshma).

Olitorius Jute: JRO 524 (Navin), JRO 785 (Basudev), JRO 632(Baisakhtissa), Set-2 (Bahagi) and Tarun.

Papaya : Ranchi, Washington, Halflong, Coorg Honeydew.

Mesta : HC 583 and AMC 108.

Summer bottle gourd : Pusa Summer Prolofie long, Pusa Summer Profile round, Pusa Meghdoot and Pusa Manjiri.

Cowpea: Yard long bean & Pusa Barsati.

Manipur

Soybean: JS-335.

Groundnut: ICGS-76.

Meghalaya

Sali/Kharif/Rice: High Yielding Varieties : Shahsarang -1, Lampnah, IR 64, Ranjit, RCPL 1-412, RCPL 1-410, RCPL 1-411.

Local varieties: Mendri, Manipuri.

Groundnut: ICGS 76, JL 24.

Soybean: JS 335, Bragg, Ankur, Pusa Soubean-1, Local JS 2.

Nagaland

Lowland rice:Short to medium duration HYV rice : CAU R1, CAU R3, RCM-9 and RCM-11.

Maize : DA 61A, RCM-75, RCM-76 and HQPM-1.

Tripura

Groundnut: TAG 24, TG 37A, ICGS 76.

Maize: DMH- 849, 117, HQPM 1, BQPM 9.

West Bengal

Dry Seeded rice: Sabita Foundation, Swarna sub-1 certified, IR-64, Hira T.L.

Mango: Himsagar, Mallicka, Langra.

Guava: Safeda, L-49.

Coconut: Eastcoastal, Hazari

Banana: Mortoman, Chapa, Kathali, Singapuri,.

Odisha

Sunflower: Morden, Sunrise, Surya and Hybrid varieties like KBSH-1, KBSH-3 and MSFH.

Onion: Nasik Red, Patna Red, Pune Red, Bellary Red, Pusa Ratnar, Pusa Madhavi, Arka Niketan ,Arka Pragati.

Ragi:HYVs. like Subhra, Vairabi, Dibyasingh, Nilachala, Subhra, Godavari and Chilka.

Sesame: Uma, Kalika, Kanak, Nirmala, Prachi, Usha.T.

Turmeric: Roma, Surama, Rang, Rashmi.

Jute: JRO-524(Naveen).

Maize: Navjot, Shakti, Decan-107, Decan-109.

Rice: Early: Jogesh, Siddant, Hazaridhan, Mandakini, Jyotirmayee, Virendra.

Medium: Pratikshya, Manaswini, Tapaswini MAS, Konark, Surendra, Kharavela, Naveen, Abhisek

Late: Barsadhan, Ranidhan, Pooja, Mrinalini, RGL-2837, Moti, Ketakijoha, Padmini, Kanchana, Mahanadi, Jagabandhu.

Hybrid varieties: CR Dhan 701, NK 5251, JKRH 401, Ajay, Rajalaxmi, Arize 6444G.

Bihar

Moong: Pusa Vishal, Samrat, SML-668, Sona varieties are recommended for moong.

Urad: Pant U-19 and Pant U-31, Uttra and Type-9 for Urad.

Maize: Suwan, Deevki, Ganga-11, Shaktiman-1 and Shaktiman-2.

Turmeric: Improved Varieties- Rajendran, Sonia, Rajender Sonali.

Ginger: Improved varieties - Maran, Nadia

Rice: Low land: Rajshree, Satyam, Rajendra, Mehsooril MTU 7029(Swarna), Swarna sub-1

Medium land: Sita, Kanak, IR 36, Rajendra, Shweta, Santosh, Shahbhagi.

Medium duration (Hybrid): P.H.B.71, Pusa R.H.10, K.R.H.2, P.A.644, Pant Sankardhan.

Til: Krishna., Kaakee safed, Kalika, Kalika, Pragati

Jharkhand

Green gram: mung S.M.L. 668.

Sugarcane: BO 147.

Rice: Upland Rice: Birsa Dhan 108, Birsa Vikash Dhan 109, 110, 111 & Vandana.

Medium land: Anjali, Sahbhagi, Naveen, Birsamati, Sugandha, BR-10, IR-36.

Low land: Swarna (MTU-7029), Rajshree, Sambha Mahsuri (BPT-5204), Birsa Dhan-202, Birsamati.

Finger Millet: Birsa marua 2, A-404, GPU 45, 47.

Urd Bean: T9, Pant U19, 30, 35 & Birsa Urd 1.

Arhar: Brisa Arhar-1, Narendra Arhar-1, Bahar, ICPH-2671.

Groundnut: A.K-12-24, Birsa Bold.

Sweet Potato: Birsa Sakarkandi & Shreebhadra.

Jammu & Kashmir

Onion: Agrifound Parvati, Pusa red, N-53.

Rice: IET-1410, K-39, Ratna, PC-19, Jaya, China-1039 and Giza-14.

Maize: Vijay, Mansar, Him - 123, C 6 & C 8.

Uttarakhand

Tomato: VL Tomato-3, Pant T-3, Him Sona, Him Shikhar.

Capsicum: California Vander, Pus Dipti, Anupam. Heera, Indira, Supriya & Bharat.

Potato: Kufri- Jyoti, Ashok, Anand.

Moong: Pant Moong-2, Pant Moong-4, Pant Moong-5, Pant Moong-6, Narendra Moong-1.

Rice: long duration varieties like Pusa-44, Jaya, NDR-359, Sarju-52, PR-113, PR-114, Pant Dhan-18 or Pant Dhan-19.

late varieties VL-Dhan-154, Vivek Dhan-62, Vivek Dhan-65, VL Dhan-81, Vivek Dhan-82 or VL-Dhan-85.

Finger millets: VL-Mandua-124 and VL-149. However, its short duration (i.e. 95 to 100 days) varieties like VL- Mandua-204, Pant Mandua-3, PES-176, PES-110, VL- Mandua-146.

Bajra: PBN-83, YESHWANT (PBN-9), Pusa Composite 443, MP443.

Maize: Naveen, Sweta, Kanchan, Surya, Amar, Gaurav.

Lobia: Pant Lobia-1 or Pant Lobia-2, UPC-5286, UPC-622, UPC-625 etc.

Cotton: ANKUR-651, JAWAHAR TAPTI, SRUTHI, ANKUR-09 (WHH-09).

Himachal Pradesh

Cauliflower: Patna snowball and joint snowball.

Radish: Japanese white, Chinese pink and mino early white.

Capsicum: solan hyb-1, california wonder, yolo wonder, vl shimla mirch-2.

Brinjal: plr-1, azad (hybrid), Arka Nidhi, Arka Keshav, Hisar Shaymal, PPC, F1 Chhaya, F1 Sandhya.

Tomato: solan gola, Palam Pink, Palam Pride, F1 Avtar, F1 Rakshita.

Chilli: Surajmukhi.

Sunflower: EC-68415.

Moong: Pusa Baishakhi.

Mash: UG-218.

Garden pea: PalamPriya, Azad P-1, PB-89, PalamSamool and Lincoln.

Carrot: Nantes and Chantenay.

Palak: PusaHarit, Pusa Bharti.

East Uttar Pradesh

Rice: sarayu-52, narendra-359, pant dhan-4, indrasan, NDR-9, pant dhan-12, narendra-80, ratna or pusa-35, mahsuri, swarna, mahsuri, jal lahri, type-9, type-100, narendra-359, malviy dhan-36, narendra dhan-2026, narendra dhan-2064, narendra dhan-3112, sarju-52, pant dhan-4, Swarna, Pant-10, T-3, Poosa Basmati and Haryana Basmati.

Hybrid rice varieties: eraes-6444,6201,J.K.R.H.-401,PHB-71,narendra sankar dhan-2,3, KRH-2,PRH-10,US-312, RH-312,VSR-202,RH-1531.

Scented rice: Type-3,pusa basmati-1,basmati-370,malviya sugandh-105, malviya sugandh-4-3, narendra sugandh,Narendra usar dhan-1,3,CLR-10, or narendra usardhan-2008.

Moong: samrat,hum-2, hum-12, malviyajanchetana, malviyajoyti, neredra moong-1.

Urad:T-9, azad urd-1, azadurd-2, shekher-2.

Sugarcane: coj-64, cos-96268, cos-98231, cos-767, cos-84, cos-32, copant-84212 ,etc.

Maize: pusa, agatishanker, makka-2, azad, uttam, sweta, Prakash,G-1, 5(hybrid varieties) and Tarun, Navin, Kanchan, Sweta and Jaunpuri (varieties for early sowing).

Tomato: pusa early, pusa ruby, HS 101.

Cauliflower: pusa dipali.

West Uttar Pradesh

Ladies finger:VRO-6, VRO-5.

Rice:PRH 10, PB1, Pusa 1509, Sugandha5.

Pigeon pea:T-21, UPAS 120.

Cotton: H777, Dhanalakshami, HD107.

For fodder Jowar: JS 120, Lobia 88.

Punjab

Sugarcane: CoJ-85, CoJ-83, CoJ-64 (early maturing), COH-119, CoJ-88, CoS-8436 for and CoJ-89.

Rice: Pusa-44, T.R-112 and T.R-113.

Delhi

Cotton: H-777, H-974, H-1098.

Pigeonpea: Pusa 2001, Pusa991, Pusa992, Paras manak, UPAS 120.

Bajra: Hybrid Bajra Pusa-605, Hybrid Bajra Pusa-415, Composite Bajra Pusa-383, HSV-67.

Maize:AH-421, AH-58 or Composites: Pusa composite-3, Pusa composite-4.

Guar: PusaNavbahar, DurgaBahar.

Radish:PusaChetki.

Cluster bean:PusaKomal.

Beans: PusaSem 2, PusaSem 3.

Spinach: PusaBharti.

Amaranths: PusalalChaulai, PusaKiran.

Ladyfinger: Pusa A-4.

East Rajasthan

Sugarcane: (late sown): COL8001.

Groundnut: RG 425, RG382, HNG10, GG20, TG37, TG39, M-13.

Kharif Onion N-53 , Agrifound Dark Red.

Okra: Ark abhay, Parbhani kranti, Pusa makhmali.

Guar: RGC-936,986,1002,1017,HG -365,563,Hg2-20.

Green gram RMG-62, RMG-268, K-851, G.M-4, RMG-492 & RMG-344 (improved varieties).

Cowpea:FS-68, RC-19 and RC-101 (improved varieties).

Moth bean-R.M.O-40, R.M.O-257, R.M.O-225 and CAZRI moth-2.

Sorghum: CSH-6 (90-100 days), CSV-10 (100-110 days), CSV-15 (105-140 days).

West Rajasthan

Pearl millet: HHB 67, RHB 121.

Cluster bean: RGC 936, RGC 1002, RGC 1017 and RGC 1066

Cowpea: RC-101, RC19 and RCp 27

Moong: RMG 62, RMG 268, SML 668 and GM-4

Moth bean: RMO-40, RMO 435, RMO 257and CZM-2

Madhya Pradesh:

Soybean: JS 95-60 (early), JS 93 -05 (Medium), JS 335 (Late).

Redgram: TJT 501, ICPL 87 (early) and JKM 189 (Medium).

Groundnut: TG 22, TG 26, JGN 3.

Rice: JR 345, JR-201, Poornima (short duration).

IR-64, IR-54, Madhuri, Kanti, Mahamaya, Pusa basmatai (medium duration).

Black gram: JU 86, JU 3, T 9.

Maize: JVM 421, JM 12, JM 216.

Green gram:TJM 3, JM 721, HUM 1.
Sugarcane: KO Jawahar-86141, 86572.
Guar: HG 365, HG 565.

Chhattisgarh:

Rice:Purnima, Danteswari, Shabagi, MTU 1010,MTU 1001, Suwarna.

Brinjal: Punjab Shadabahar, KS 331, PH 5, PH 6, KS 224, ARBH 543.

Tomato: Pusa early dwarf, Sweet 72, Pusa rubi, Pusa Gurab, Mangala, Naveen, Laxmi 5005 & NS 815.

Soybean: J.S. 335, Indira Soya-9, J.S. 80-21, J.S. 93-05.

Groundnut: SB -11 (J 11), ICGS-37, ICGS-44, T.A.G- 24, T.A.G-28.

Sesame: T.K.G-21, T.K.G-22, T.K.G-55, T.K.G-8.