



**Government of India
Earth System Science Organization
Ministry of Earth Sciences
India Meteorological Department**

Dated: 14th March, 2019

Current Weather Status and Outlook for next two weeks

Highlights of the past week

Precipitation:

- A western disturbance along with its induced cyclonic circulation caused fairly widespread to widespread rainfall/snowfall over Western Himalayan Region and isolated to scattered rainfall/thundershowers over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh and Rajasthan towards the middle of the week. Isolated hailstorms also have been reported from parts of Western Himalayan Region in association with the system.
- Another Western Disturbance along with its induced cyclonic circulation and wind confluence between westerlies and easterlies in the lower levels over central India and adjoining northern plains caused widespread rainfall/snowfall along with isolated thunderstorm/hailstorms over Jammu & Kashmir and Himachal Pradesh and isolated to scattered rainfall/thunderstorm activity over parts of northwest and central India, towards the end of the week.

Temperatures:

- **Heat wave conditions** prevailed at isolated pockets over Rayalaseema and Tamil Nadu on two days each during the week.
- The highest maximum temperature of 41.0^oC had been recorded at Tirupati (Rayalaseema) on 7th March 2019 and the lowest minimum temperature of 6.5 ^oC had been recorded at Bhatinda (Punjab) on 9th March 2019, over the plains of the country during the week.

Weekly Rainfall Scenario (7th to 13th March 2019)

During the week, rainfall was below the Long Period Average (LPA) by 65% over the country as a whole. Details are given below:

Regions	Actual Rainfall (mm)	Normal Rainfall (mm)	% Departure from LPA
Country as a whole	2.3	6.5	-65
Northwest India	4.9	10.3	-53
Central India	0.1	2.1	-95
South Peninsula	1.0	2.9	-64
East & northeast India	3.5	12.9	-73

The Meteorological sub-division-wise rainfall for the week is given in **Annexure I**.

Seasonal Rainfall Scenario (1st to 13th March 2019)

For the country as a whole, cumulative rainfall during this year's Pre-monsoon season upto 13th March is below LPA by 33%. Details of the rainfall distribution over the four broad geographical regions of India are given below:

Regions	Actual Rainfall (mm)	Normal Rainfall (mm)	% Departure from LPA
Country as a whole	8.1	12.0	-33
Northwest India	14.2	19.5	-27
Central India	1.6	4.2	-63
South Peninsula	2.3	5.0	-55
East & northeast India	17.3	22.0	-21

Cumulative seasonal rainfall is given in **Annexure II**.

Chief synoptic conditions as on 14th March 2019

- A Western Disturbance as an upper air cyclonic circulation extending upto 4.5 km above mean sea level lies over north Pakistan & neighbourhood. A trough aloft is seen with its axis at 5.8 km above mean sea level roughly along Long. 70°E to the north of Lat. 18°N.
- An induced cyclonic circulation extending upto 1.5 km above mean sea level lies over southeast Rajasthan and adjoining Gujarat region and West Madhya Pradesh.
- A fresh feeble Western Disturbance is likely to affect Western Himalayan Region on 17th & 18th March.
- A cyclonic circulation extending upto 0.9 km above mean sea level lies over interior Odisha and neighbourhood.
- A cyclonic circulation at 1.5 km above mean sea level lies over Assam & Meghalaya and neighbourhood.

- Another cyclonic circulation extending upto 0.9 km above mean sea level lies over Vidarbha and adjoining Madhya Maharashtra. A trough at 0.9 km above mean sea level runs from this cyclonic circulation to North Interior Karnataka across Marathwada.

Large scale features as on 14th March 2019

- Currently, warm ENSO neutral conditions are prevailing over equatorial Pacific Ocean and the latest Monsoon Mission Coupled Forecast System (MMCFS) output indicates that the Sea Surface Temperature anomalies are likely to remain near to the El Niño threshold value during the next 2 months.
- At present, neutral Indian Ocean Dipole (IOD) conditions are observed over Indian Ocean and the latest MMCFS outputs indicate that present neutral IOD conditions are likely to persist up to April.
- The convectively active phase of the Madden–Julian Oscillation (MJO) at present lies over the western Maritime Continent (Phase -4) with weak amplitude. Many of the climate models indicate that it will remain stationary and weaken further and after a few days (probably in a week's time) might re-emerge over the Indian Ocean and then propagate eastwards.

Forecast for next two weeks

Weather systems and associated Precipitation & temperature pattern during week 1 (15th – 21st March 2019) and week 2 (22nd – 28th March 2019)

Rainfall for week 1: (15th – 21st March 2019)

- The Western Disturbance (WD) which is currently affecting northwest India is likely to further shift eastwards by tonight. Thus the ongoing rain / snowfall over Jammu & Kashmir and Himachal Pradesh are very likely to reduce from tonight and that over Uttarakhand from tomorrow. Rain / thundershowers over Punjab, Haryana, Chandigarh & Delhi, north Rajasthan and Uttar Pradesh is also likely to see a drastic reduction from 15th March. A fresh feeble WD is likely to cause isolated rain / snow over Jammu & Kashmir and Himachal Pradesh on 17th & 18th March, followed by another one on 19th & 20th, in turn providing rain / snow at many places over the Western Himalayan Region and at a few places over Punjab and Haryana, Chandigarh & Delhi.
- At the same time, moisture incursion from the Bay of Bengal and conducive upper level features are likely to cause scattered to fairly widespread rainfall with isolated thunderstorms and gusty winds or at times squally winds and lightning over east & northeast India specifically over north Chhattisgarh, Jharkhand, Odisha, south Bihar and Gangetic west Bengal during 15th March, 17th – 18th March and 20th – 21st March.
- Enhanced rainfall activity resulting in rain / thundershowers at many places is also likely over Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura on most of the days during week- 1

- Easterly wave activity is likely to remain subdued and hence isolated rain / thundershowers resulting from meso-scale convection alone are likely over south Tamil Nadu, Kerala and south interior Karnataka during week-1.
- Cumulatively, above normal rainfall is likely over east Madhya Pradesh, Chhattisgarh, Odisha, Jharkhand, west Bengal & Sikkim, Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura and higher reaches of Himachal Pradesh and Uttarakhand. It is likely to be normal elsewhere, outside Jammu & Kashmir, Kerala, Tamil Nadu, coastal and south interior Karnataka, Andaman & Nicobar and Lakshadweep Islands where the rainfall is likely to be below normal. (**Annexure III & IV** contains the rainfall forecasts pertaining to week-1).

Rainfall for week 2: (22nd – 28th March 2019)

- Influence of active WD is seen to happen only towards the end of week -2 (ie, on 27th & 28th March). Until then, the rainfall activity is likely to be confined to east & northeast India in general. It is likely that some enhanced rainfall could happen over Jammu & Kashmir and Himachal Pradesh on the last 2 days of week-2. Also southern peninsula viz., Kerala and south Tamil Nadu could receive isolated thundershowers on a few days.
- The cumulative rainfall is likely to be normal over most parts of India, outside Jammu & Kashmir, Assam & Meghalaya, Nagaland, Manipur, Mizoram Tripura and south Kerala where it is likely to be below normal. (**Annexure IV**).

Maximum Temperatures for weeks 1 & 2: (15th – 28th March 2019)

- The forecast flow patterns and temperature anomalies suggest that no major 'heat wave situation' is likely to develop over India during the next 2 week's period. Cooler than normal day temperatures are likely over major parts of northwest, central and western parts of the country. Coastal areas of Andhra Pradesh, Odisha, Tamil Nadu, north Kerala, Karnataka, Konkan, Goa and Gujarat are likely to experience above normal day temperatures (2-3°C more than the climatological average) on most of the days except during 20th – 23rd March when they could fall to the near normal range . (**Annexure V**).

Minimum Temperatures for weeks 1 & 2: (15th – 28th March 2019)

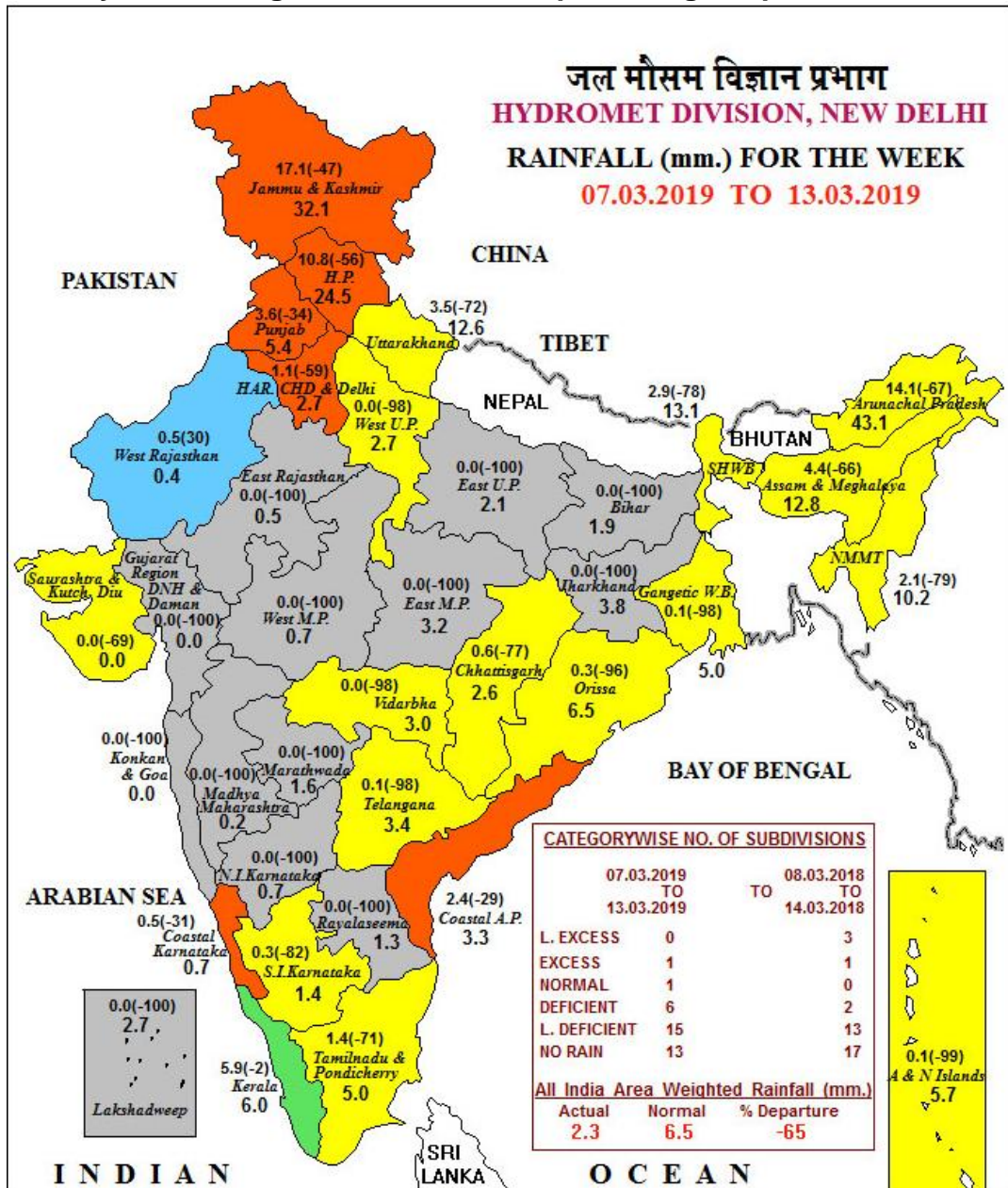
- Night minimum temperatures are also likely to remain below normal in general by 2-4°C over major parts of India during the next 2 weeks outside isolated pockets comprising coastal & south interior Karnataka, Rayalaseema and interior Maharashtra, where there could be brief periods of warmer than normal nights.

Cyclogenesis probability:

- No cyclogenesis likely as per the numerical model guidance during the forecast period.

Next weekly update will be issued on Thursday, the 21st March 2019.

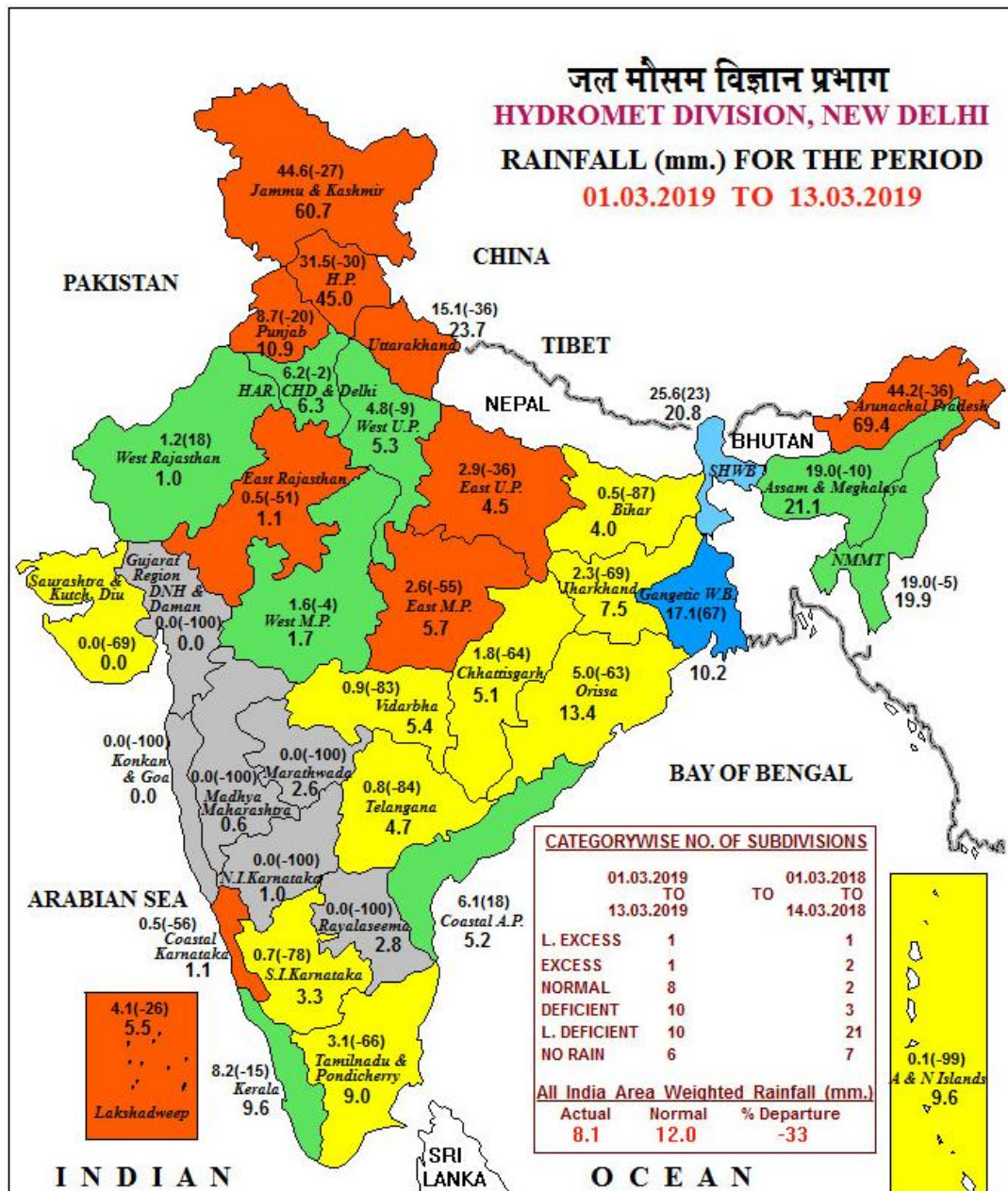
Weekly Meteorological sub-divisional percentage departure of rainfall



LEGEND: ■ L. EXCESS (+60% OR MORE) ■ EXCESS (+20% TO +59%) ■ NORMAL (+19% TO -19%)
■ DEFICIENT (-20% TO -59%) ■ L. DEFICIENT (-60% TO -99%) ■ NO RAIN (-100%) NO DATA

NOTES:

- (a) Rainfall figures are based on operational data.
- (b) Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)
 Percentage Departures of Rainfall are shown in Brackets.



LEGEND: ■ L. EXCESS (+60% OR MORE) ■ EXCESS (+20% TO +59%) ■ NORMAL (+19% TO -19%)
■ DEFICIENT (-20% TO -59%) ■ L. DEFICIENT (-60% TO -99%) ■ NO RAIN (-100%) NO DATA

NOTES:

[a] Rainfall figures are based on operational data.

[b] Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)

Percentage Departures of Rainfall are shown in Brackets.

METEOROLOGICAL SUB-DIVISIONWISE WEEKLY RAINFALL FORECAST & Wx. WARNINGS-2019

Sr. No	MET.SUB-DIVISIONS	14 MAR	15 MAR	16 MAR	17 MAR	18 MAR	19 MAR	20 MAR
1	ANDAMAN & NICO.ISLANDS	D	D	ISOL	D	D	ISOL	ISOL
2	ARUNACHAL PRADESH	ISOL	SCT ^{TS}	FWS ^{TS}	FWS	WS	WS	WS
3	ASSAM & MEGHALAYA	D	ISOL ^{TS}	ISOL ^{TS}	SCT ^{TS}	FWS	SCT	SCT
4	NAGA.MANI.MIZO.& TRIPURA	ISOL	ISOL	ISOL ^{TS}	SCT ^{TS}	FWS	FWS	SCT
5	SUB-HIM.W. BENG. & SIKKIM	ISOL ^{TS}	ISOL ^{TS}	D	ISOL	ISOL	ISOL	ISOL
6	GANGETIC WEST BENGAL	ISOL ^{TS}	FWS ^S	ISOL	SCT ^{TS}	SCT ^{TS}	ISOL	SCT ^{TS*}
7	ODISHA	SCT ^{TS}	SCT ^{TS}	ISOL	FWS ^{S*}	SCT ^{TS}	ISOL	SCT ^{TS*}
8	JHARKHAND	SCT ^{TS}	FWS ^S	ISOL ^{TS}	SCT ^{TS}	ISOL	ISOL	ISOL
9	BIHAR	SCT ^{TS}	ISOL	D	D	ISOL	D	D
10	EAST UTTAR PRADESH	SCT ^{TS}	ISOL ^{TS}	D	ISOL	D	D	D
11	WEST UTTAR PRADESH	SCT ^{TS}	D	D	D	D	ISOL	D
12	UTTARAKHAND	WS ^{TS#}	ISOL	D	D	D	ISOL	ISOL
13	HARYANA CHD. & DELHI	FWS ^{TS#}	D	D	D	D	SCT	ISOL
14	PUNJAB	SCT ^{TS#}	D	D	D	D	ISOL	ISOL
15	HIMACHAL PRADESH	WS ^{TS#}	ISOL	D	ISOL	ISOL	FWS ^{TS}	SCT ^{TS}
16	JAMMU & KASHMIR	WS ^{TS#}	ISOL	D	ISOL	ISOL	FWS ^{TS}	SCT
17	WEST RAJASTHAN	ISOL ^{TS#}	D	D	D	D	ISOL	D
18	EAST RAJASTHAN	ISOL ^{TS#}	D	D	D	D	ISOL	D
19	WEST MADHYA PRADESH	ISOL ^{TS}	D	D	D	D	D	D
20	EAST MADHYA PRADESH	SCT ^{TS}	ISOL ^{TS}	ISOL	SCT ^{TS}	D	ISOL	ISOL
21	GUJARAT REGION D.D. & N.H.	D	D	D	D	D	D	D
22	SAURASTRA KUTCH & DIU	D	D	D	D	D	D	D
23	KONKAN & GOA	D	D	D	D	D	D	D
24	MADHYA MAHARASHTRA	D	D	D	D	D	D	D
25	MARATHAWADA	D	D	D	D	D	D	D
26	VIDARBHA	ISOL	D	D	ISOL	D	D	D
27	CHHATTISGARH	ISOL ^{TS}	ISOL ^{TS}	ISOL	SCT ^{TS}	ISOL	ISOL	ISOL
28	COASTAL ANDHRA PRADESH	ISOL	D	D	ISOL	ISOL	ISOL	ISOL
29	TELANGANA	D	D	D	D	D	D	D
30	RAYALASEEMA	D	D	D	D	D	D	D
31	TAMILNADU & PUDUCHERRY	D	D	D	D	ISOL	ISOL	ISOL
32	COASTAL KARNATAKA	D	D	D	D	D	D	D
33	NORTH INT.KARNATAKA	D	D	D	D	D	D	D
34	SOUTH INT.KARNATAKA	D	D	D	D	D	D	ISOL
35	KERALA	D	D	D	D	ISOL	ISOL	ISOL
36	LAKSHADWEEP	D	D	D	D	D	D	D

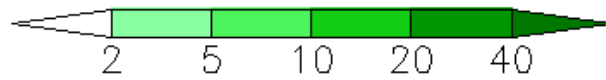
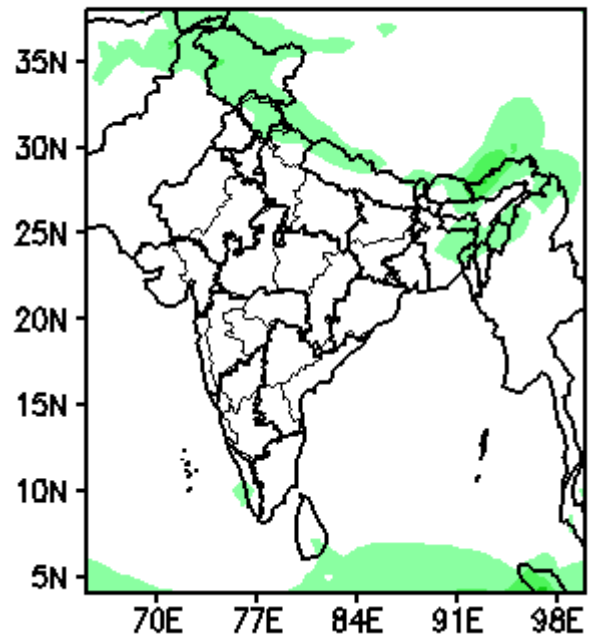
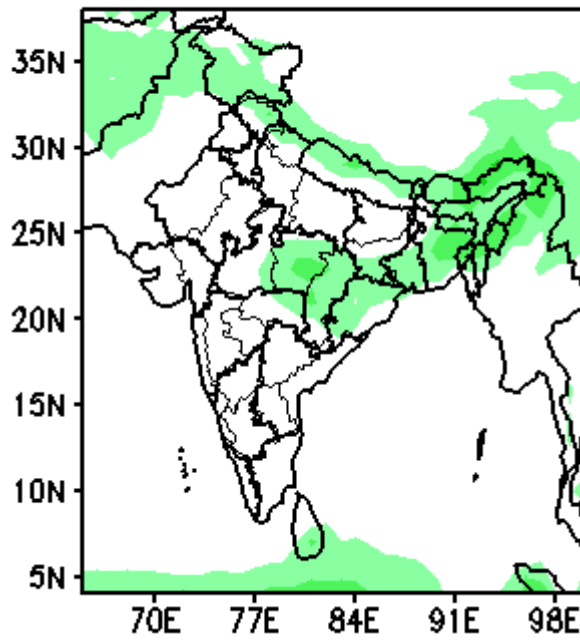
LEGENDS:

WS	WIDE SPREAD / MOST PLACES (76-100%)		FWS	FAIRLY WIDE SPREAD / MANY PLACES (51% to 75%)	
SCT	SCATTERED / FEW PLACES (26% to 50%)		ISOL	ISOLATED (up to 25%)	D/DRY NIL RAINFALL
* Heavy Rainfall (64.5-115.5 mm)		* Heavy to Very Heavy Rainfall (115.6-204.4 mm)		* Extremely Heavy Rainfall (204.5 mm or more)	
• FOG	* SNOWFALL	# HAILSTORM		↑ HEAT WAVE (+4.5 °C to +6.4 °C)	↑ SEVERE HEAT WAVE (> +6.4)
§ THUNDERSTORM WITH SQUALL/GUSTY WIND		DS/TS DUST/THUNDERSTORM		↓ COLD WAVE (-4.5 °C to -6.4 °C)	↓ SEVERE COLD WAVE (< -6.4)

Forecast rainfall (mm per day)

(Week1: 15Mar-21Mar)

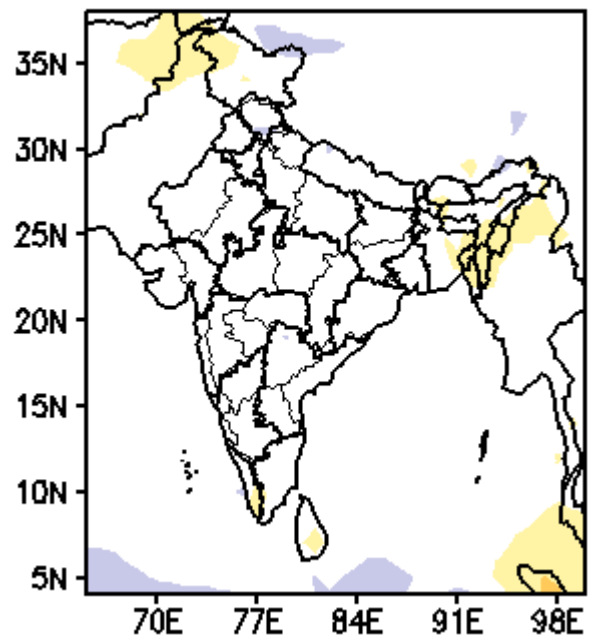
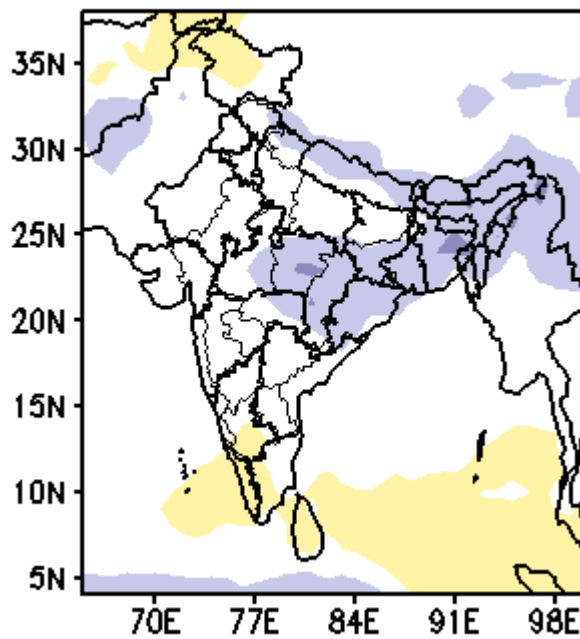
(Week2: 22Mar-28Mar)



Forecast rainfall anomaly (mm per day)

(Week1: 15Mar-21Mar)

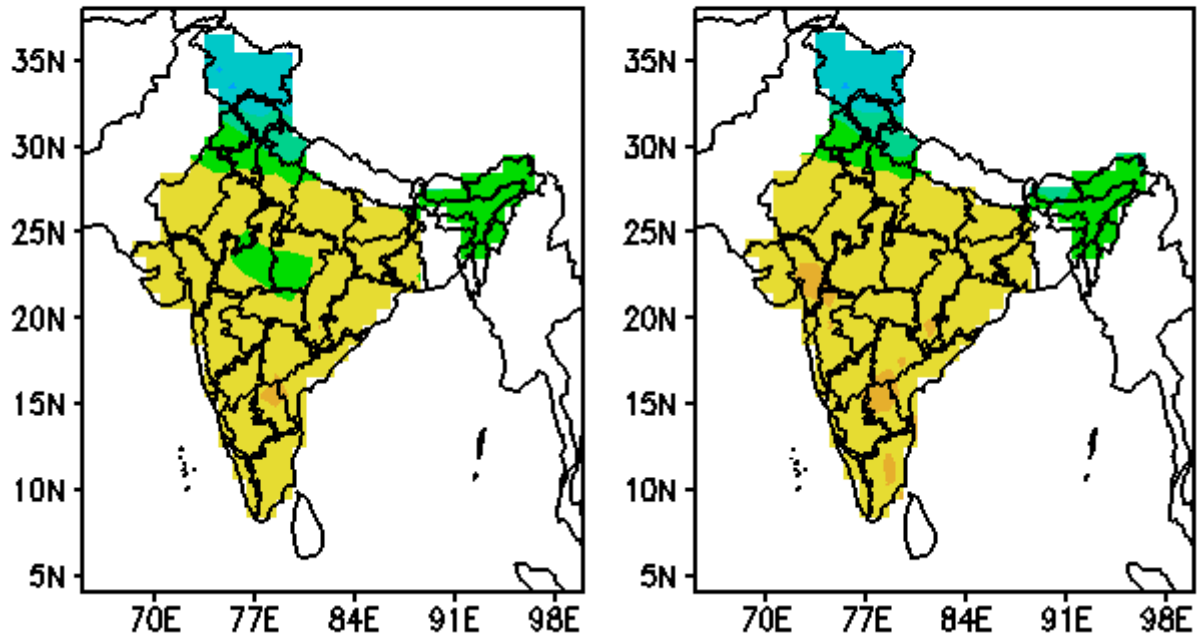
(Week2: 22Mar-28Mar)



MME Bias Corrected Actual Tmax (Deg C)

(Week1: 15Mar-21Mar)

(Week2: 22Mar-28Mar)



MME Bias Corrected Tmax Anomaly (Deg)

(Week1: 15Mar-21Mar)

(Week2: 22Mar-28Mar)

