Government of India

Earth System Science Organization

Ministry of Earth Sciences

India Meteorological Department

Dated: 05 Nov, 2020

Subject: Monthly Weather Review for the month of Oct, 2020

1. Withdrawal of Southwest Monsoon and commencement of northeast monsoon rainfall

Southwest Monsoon withdrew from the entire country and Northeast Monsoon rains simultaneously commenced over extreme south peninsular India on 28th October 2020. Fig. 1 shows dates of withdrawal in the southwest monsoon 2020. Past dates of withdrawal of southwest monsoon from entire India since 1975 shows that withdrawal from entire India was most delayed during 2010(29th Oct, 2010) followed by 2016 and 2020 (**28th Oct).**

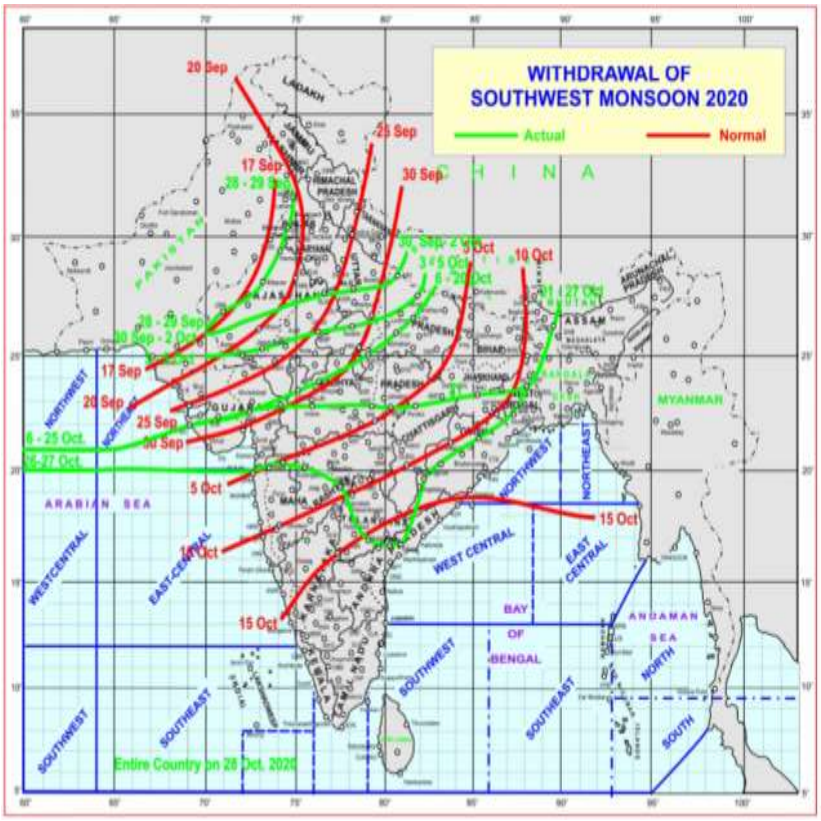


Fig. 1 Dates of withdrawal in the southwest monsoon 2020

2. Cyclogenesis over North Indian Ocean

Among all the months, both Oct and Nov are the most vulnerable months Cyclonic disturbances (Depressions +Cyclones) formation over the north India Ocean(NIO). The average frequencies Cyclonic disturbances as depressions and cyclones are 2.0 and 1.8 during October and 1.8 and 1.2 during November respectively based on data of 1961-2019. However, in Oct 2020, a total of 3 Depressions formed over NIO with non intensified into Cyclones. Out of these 3 systems (1 Deep Depression & 2 Depressions) formed over NIO, 1 formed over the Arabian Sea and 2 (one Deep Depression & one Depression) formed over the Bay of Bengal**. Date since 1980 shows that there were no cyclones in October during 14 years out of last 41-years.**

2.1. Deep Depression over Bay of Bengal (11-14 Oct 2020)

It originated from a low pressure area which developed over north Andaman Sea & neighbourhood in the early morning (0530 hrs IST) of 9th October 2020. It lay as a well marked low pressure area over east-central Bay of Bengal (BoB) and adjoining north Andaman Sea in the early morning of 10th October. It concentrated into a **Depression** over west-central BoB in the early morning of 11th October. It intensified into **Deep Depression** in the forenoon (1130 hrs IST) of 12th October and lay at a distance of about 250 km to the south-southeast of Vishakhapatnam. Moving west-northwestwards, it crossed north Andhra Pradesh coast close to Kakinada near latitude 17.0°N & longitude 82.4° E between 0630 & 0730 hrs IST of 13th October 2020, as a Deep Depression with a maximum sustained wind speed of 55-65 kmph gusting to 75 kmph. Continuing to move west-northwestwards, it weakened into a Depression over Telengana in the forenoon (1130 hrs IST) of 13th October. It moved west-northwestwards as a depression across Telangana and North Interior Karnataka to Maharashtra till evening of 14th October. It weakened into a well marked low pressure area and lay centred over South Madhya Maharashtra and neighbourhood in the evening (1730 hrs IST) of 14th October. It moved across Maharashtra and emerged as a well marked low pressure area over eastcentral Arabian Sea off Maharashtra coast on 16th morning. It had impacts over Odisha, Andhra Pradesh, Telangana, Karnataka and Maharashtra in terms of heavy to extremely heavy rainfall and squally wind. The observed track of the system is presented in Fig 2.

Forecast performance

Genesis:

- In the extended range outlook issued on 1st October, low probability (1-33%) of formation of depression over central BoB was indicated during 11th-15th October (about 10 days prior to formation of depression over westcentral BoB on 11th morning).
- From 4th October onwards, in the tropical weather outlook, it was indicated that an LPA would form over north Andaman Sea and adjoining eastcentral BoB around 9th October (about 5 days prior to formation of LPA on 9th). It would move northwestwards towards north Andhra Pradesh

and Odisha coast with gradual intensification into a depression around 11th (about 7 days prior to formation of depression on 11th).

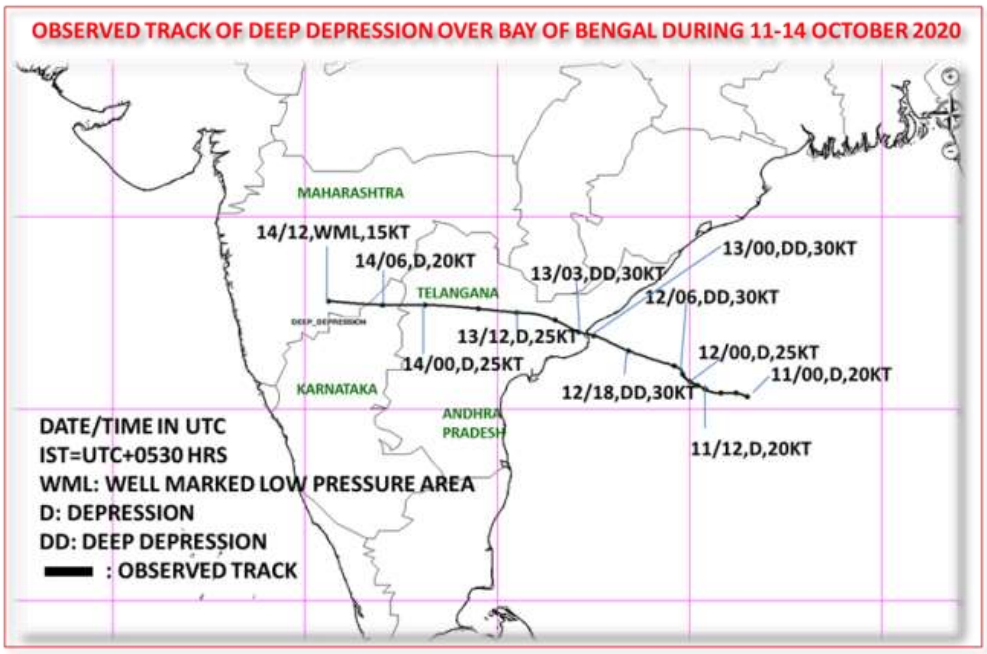


Fig. 2: Observed track of deep depression westcentral Bay of Bengal (11-14 October, 2020)

Intensification, landfall and movement:

- In the first bulletin issued at 0900 hrs IST of 11th on formation of depression over westcentral BoB, it was indicated that the system would intensify further into a deep depression around 12th, move west-northwestwards and cross north Andhra Pradesh coast between Narsapur & Vishakhapatnam during 12th October 2020 night.
- The warnings were further updated and it was informed that the system would move west-northwestwards and cross north Andhra Pradesh coast between Narsapur & Vishakhapatnam, close to Kakinada during the early morning of 13th October 2020.
- Actually, the system moved west-northwestwards, intensified into a deep depression in the forenoon of 12th and crossed north Andhra Pradesh coast close to Kakinada in the early hours (between 0630 & 0730 hrs IST) of 13th October 2020, as a deep depression with a maximum sustained wind speed of 55-65 kmph gusting to 75 kmph.
- **Action initiated with respect to early warning of the severe weather impacts associated with the system:** One video by DGM IMD about the system, 6 Nos. of Press Release along with 2 Nos. of informatory messages, 4 bulletins from DGM, IMD, 19 National Bulletins for central level disaster managers, 12 RSMC Bulletins for WMO/ESCAP panel member countries has been issued and also frequent updates on Facebook, Twitter and Whatsapp groups were issued in association with this system.
- A few Districts of coastal Andhra Pradesh & Yanam experienced very heavy rainfall during the 24 hours period ending at 0830 hrs IST on 12th October (maximum reported by Bheemunipatnam-17 cm) and very heavy to extremely heavy rainfall (maximum reported by

Yanam-25 cm) on 13th October. Similarly many districts of Telangana experienced very heavy rainfall during the 24 hours period ending at 0830 hrs IST on 13th October and very heavy to extremely heavy rainfall (maximum reported by Hayathnagar-30 cm) on 14th October. Major rainfall activity with heavy to very heavy rainfall at a few places occurred over Karnataka during the 24 hour period ending at 0830 hrs IST of 14th October and that over Maharashtra on 15th October. Along with this a few districts of south Odisha also experienced very heavy rainfall during the 24 hour period ending at 0830 hrs IST of 13th October and extremely heavy rainfall (maximum reported by Aska-21cm)on 14th October. It led to flooding in parts of South Odisha, Telengana including Hyderabad and Maharashtra and isolated landslides over South Odisha districts.

- IMD indicated the likelihood of enhanced rainfall activity over south Peninsular India comprising Andhra Pradesh, Telangana and adjoining areas of Karnataka and Maharashtra and Odisha via consistent Press releases issued since 7th October 2020, in relation to the expected development of the system. Warning for Extremely heavy rainfall (≥ 20 cm per day) at isolated places over north coastal Andhra Pradesh on 13th October was issued from the very first Bulletin issued with respect to the system on 11th October, early morning. This Bulletin also contained the respective heavy to very heavy rainfall warnings for the remaining affected states viz., Telangana, Odisha, Karnataka and Maharashtra.
- Apart from the number of bulletins, social media messages and Video clips which also contained the likely impacts and suggested actions, circulated as mentioned below, city specific impact based forecasts were also issued by the respective State meteorological Centres located at Amravati, Hyderabad, Bangaluru as well as by the Regional Meteorological Centre Mumbai and O/ o Climate Research & Services, Pune.

2.2. **Depression over Arabian Sea(17-19 Oct 2020)**

The remnant of Deep Depression over westcentral Bay of Bengal (BoB) emerged into east-central Arabian Sea as a well marked low pressure area on 16th October morning (0530 hrs IST). It intensified into a **depression** over the same region on 17th morning. It maintained its intensity of depression till 19th early morning while moving westwards, away from Indian coast. It weakened into a well marked low pressure area in the early morning of 19th October. As it moved away, it had no impact along Indian coast from 18th October 2020. The observed track of the system is presented in Fig 3.

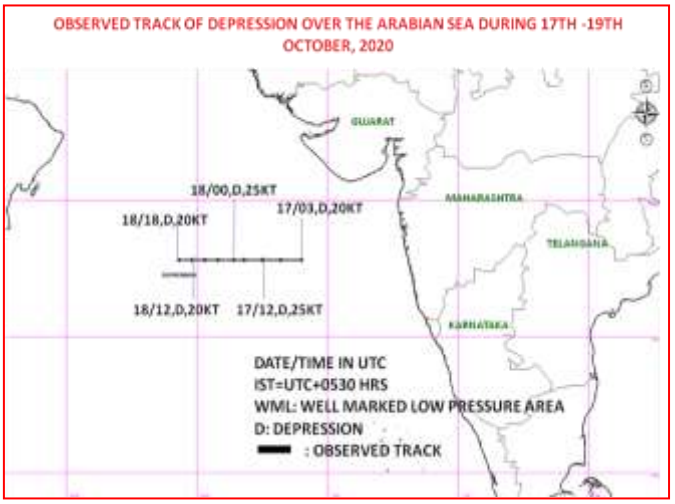


Fig.3: Observed track of depression east-central Arabian Sea (17-19 October, 2020)

Forecast performance

Genesis:

- The extended range outlook issued on 8th October indicated low probability (1-33%) of cyclogenesis over northeast Arabian Sea during 16th-20th October (about 9 days prior to formation of depression over eastcentral BoB). Actually, the remnant of deep depression over BoB moved west-northwestwards and emerged into eastcentral Arabian Sea in the morning of 16th. It further intensified into a depression on 17th morning.

Movement and intensity:

- In the tropical weather outlook issued on 14th October at 1130 hrs IST, it was indicated that the remnant of remnant of deep depression over BoB would emerge into eastcentral Arabian Sea around 16th morning with low to moderate (25-50%) probability of it's intensification into depression around 17th.
- In the press release issued on 14th, it was indicated that the remnant of deep depression over BoB would move west-northwestwards and emerge into eastcentral Arabian Sea in the morning of 16th, further intensify into a depression around 17th morning and move west-northwestwards away from Indian coast.
- Actually, the remnant of deep depression over BoB moved west-northwestwards and emerged into eastcentral Arabian Sea in the morning of 16th. It further intensified into a depression on 17th morning.
- **Action initiated with respect to early warning of the severe weather impacts associated with the system:** Three Nos. of Press Release and Bulletin from DGM during 15th-17th October along with 11 National Bulletins, 11 RSMC bulletins for WMO/ESCAP Panel Member countries and frequent updates on Facebook, Twitter and Whatsapp groups were issued in association with this system. Advisories were also issued to the member countries of WMO/ESCAP Panel including Pakistan, Oman,Yemen, Qatar, Saudi Arabia, UAE & Iran.

❖ As the system moved away from the Indian Coast, main focus on warning had been for the Fishermen & maritime community. The relevant warnings along with likely impacts and suggested actions were timely and accurate. During to its westward mavement away from Indian Coast, it did not cause any adverse impact along west coast.

2.3. Depression over Bay of Bengal (BoB) 22-24 Oct 2020

Under the influence of a cyclonic circulation over central parts of Bay of Bengal (BoB), a low pressure area formed over the same region in the early morning (0530 hrs IST) of 20th October, 2020. It lay as a well marked low pressure area over west-central BoB in the morning (0830 hrs IST) of 21st October. Under favourable environmental conditions, it concentrated into a **Depression** over **northwest & adjoining west-central BoB** in the morning (0830 hrs IST) of 22nd October, 2020. It initially moved northwards for some time and thereafter moved north-northeastwards and crossed West Bengal & adjoining Bangladesh coasts over Sundarbans near latitude 21.8°N and longitude 88.5°E around noon (between 1130 & 1230 hrs IST) of 23rd October 2020 as a Depression with maximum sustained wind speed of 45-55 kmph gusting to 65 kmph. Further moving north-northeastwards, it weakened into a well marked low pressure area over central Bangladesh & neighbourhood in the early morning (0530 hrs IST) of 24th October 2020. The system caused heavy rainfall at isolated places over Telangana, Rayalaseema & Odisha and heavy to very rainfall at few places with extremely heavy falls at isolated places over the northeastern states of India including Assam, Meghalaya, Manipur, Nagaland, Mizoram & Tripura. The observed track of the system is presented in Fig 4.

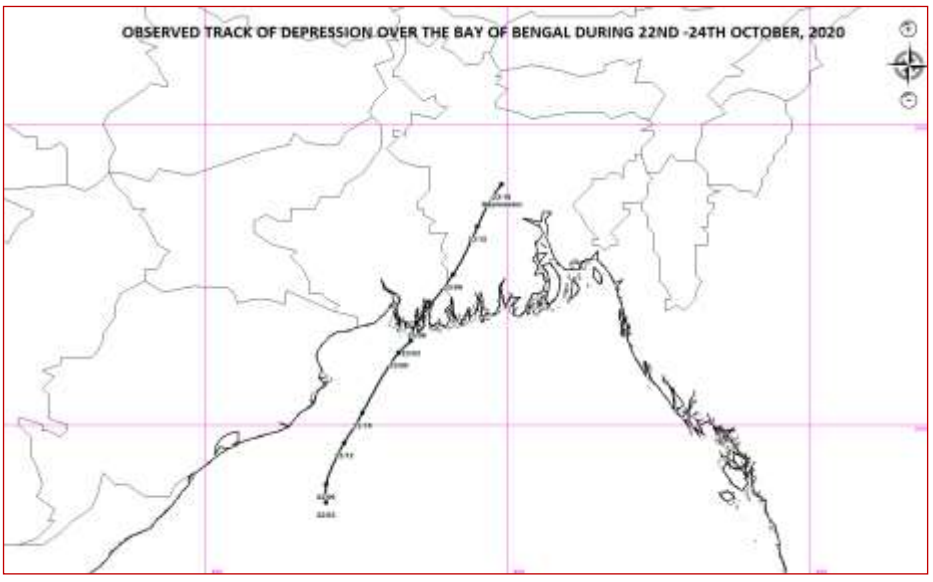


Fig.4: Observed track of depression over northwest and adjoining west-central Bay of Bengal (22-24 October, 2020)

Forecast performance

Genesis:

- The tropical weather outlook issued on 14th indicated that an LPA would form over central BoB around 19th October.
- The extended range outlook issued on 15th October indicated low probability (1-33%) of cyclogenesis over central Bay of Bengal during 20th-22nd October (about 7 days prior to formation of depression over BoB on 22nd). An LPA formed over central parts of BoB on 20th morning. It intensified into a depression over northwest BoB on 22nd morning.

Intensification, landfall and movement:

- The tropical weather outlook issued on 20th indicated that the LPA over central parts of BoB would become more marked and move initially northwestwards and then north-northeastwards. Actually, the system intensified into depression on 22nd morning and it moved initially northwestwards and then north-northeastwards.
- The tropical weather outlook issued on 21st indicated that the system would move towards West Bengal-Bangladesh coasts.
- In the first national bulletin issued at 1245 hrs IST of 22nd (about 24 hours prior to landfall) it was indicated that the system would cross West Bengal-Bangladesh coasts between Sagar Islands and Khepupara over Sundarbans in the afternoon of 23rd.
- Actually, the system moved northwestwards for some time & thereafter north-northeastwards and crossed West Bengal & adjoining Bangladesh coasts over Sundarbans near latitude 21.8°N and longitude 88.5°E around noon (between 1130 & 1230 hrs IST) of 23rd October 2020 as a depression with maximum sustained wind speed of 45-55 kmph gusting to 65 kmph.
- **Action initiated with respect to early warning of the severe weather impacts associated with the system:** One video by DGM IMD about the system, 5 Nos. of Press Release, 3 Nos. of Bulletin from DGM, IMD along with 10 National Bulletins, 10 RSMC Bulletins for WMO/ESCAP Panel member countries and frequent updates on Facebook, Twitter and Whatsapp groups were issued in association with this system.
- The system caused heavy rainfall in one or two districts of coastal Odisha during the 24 hours ending at 0830 hrs IST of 22nd October and isolated heavy to very heavy and extremely heavy rainfall over Assam, Meghalaya, (maximum reported by Mawsynram-35 cm on 24th), Nagaland, Manipur, Mizoram & Tripura on 23rd & 24th October 2020. It caused flooding and landslide at some places os Assam, Megalaya, Mizoram, Manipur & Tripura.
- Warnings incorporating the impact expected and suggested actions for this event was issued since 20th October 2020, in a Press release stating the details of the Low pressures area which had formed over the Bay of Bengal, its likely intensification and movement towards west Bengal – Bangladesh coasts by 22nd & 23rd October. The same had been reiterated in the regular 6 hourly Bulletins issued since 22nd, once the system intensified into a Depression until its weakening along with Video clips and Social Media Messages.

❖ Also, in view of the depression when it lay over Bangladesh, a number of special bulletins and district wise Impact Based Forecasts were issued for the States of Assam, Meghalaya, Manipur, Mizoram and Tripura in addition to regular forecast and warnings by the Regional Meteorological Centre Guwahati and State meteorological centre Agartala. These forecasts and warnings were disseminated to state Governments, state disaster management authorities, NDRF, media etc. These bulletins were also disseminated through social media platforms like Facebook, Twitter, Whatsapp and YouTube. Videos were uploaded in various languages like Hindi, English, Assamese, Bengali and local dialect of Manipur.

Thus the genesis, intensification, movement and landfall characteristics of all the three systems alongwith expected duration were well predicted with sufficient lead time.

3. Monthly Rainfall Scenario (01 to 30 Oct, 2020)

During, Oct, 2020, the rainfall over the country is 78.1 mm with 3% above Long Period Average (LPA) over the country as a whole. It was 44% & 8% above LPA over Central and Peninsular India respectively with amount as 76.9 and 167.6mm. Details are given below:

Regions	Actual Rainfall (mm)	Normal Rainfall (mm)	% Departure from LPA
Country as a whole	**78.1**	**76.0**	**3%**
Northwest India	**1.4**	**23.0**	**-94%**
Central India	**76.9**	**53.5**	**44%**
South Peninsula	**172.6**	**160.2**	**8%**
East & northeast India	**118.4**	**129.1**	**-8%**

During this month, 8 sub-divisions received large excess, 3 excess, 6 normal and 10 deficient. The rainfall has been mainly confined to central parts of Peninsular India and adjoining west coast of India and northeastern states. While majority parts of northwest and adjoining central parts of India received sub-dude rainfall during the month (**Refer Fig 5)**.

4. Heavy Rainfall events

Heavy to very heavy rain with extremely heavy rain at isolated places had been occurred over Coastal Karnataka on two days; over Assam & Meghalaya, Odisha, Coastal Andhra Pradesh & Yanam, Telengana and South Interior Karnataka on one day each during the month. Heavy to very heavy rain at isolated places had been occurred over Tamil Nadu, Puducherry & Karaikal and Odisha on five days each; over Madhya Maharashtra and Telangana on four days each; over Assam & Meghalaya, Konkan & Goa and Marathawada on three days each; over Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim, North & South Interior Karnataka on two days each; over Jharkhand, Coastal Andhra Pradesh & Yanam, Rayalseema, Coastal Karnataka and Kerala & Mahe on one day each during the month. Heavy rain had been occurred at isolated places over Assam & Meghalaya, Tamil Nadu, Puducherry & Karaikkal and South Interior Karnataka on 10 to 11 days; over Nagaland, Manipur, Mizoram & Tripura and Coastal Andhra Pradesh & Yanam on 8 to 9 days; over Konkan & Goa, Chhattisgarh, Coastal

Karnataka, North Interior Karnataka and Kerala & Mahe on 6 to 7 days; over Andaman & Nicobar islands, Sub-Himalayan West Bengal & Sikkim, Gangetic West Bengal, Odisha, Jharkhand, Bihar, East Madhya Pradesh, Saurashtra & Kutch, Madhya Maharashtra, Telangana and Rayalseema on 4 to 5 days; over Arunachal Pradesh and Vidarbha on 2 to 3 days; over East Rajasthan, West Madhya Pradesh and Gujarat Region on one day each during the month.

Station which reported heavy rainfall, very heavy rainfall and extremely heavy rainfall over the country for the month of Oct 2020 given in Fig 6.

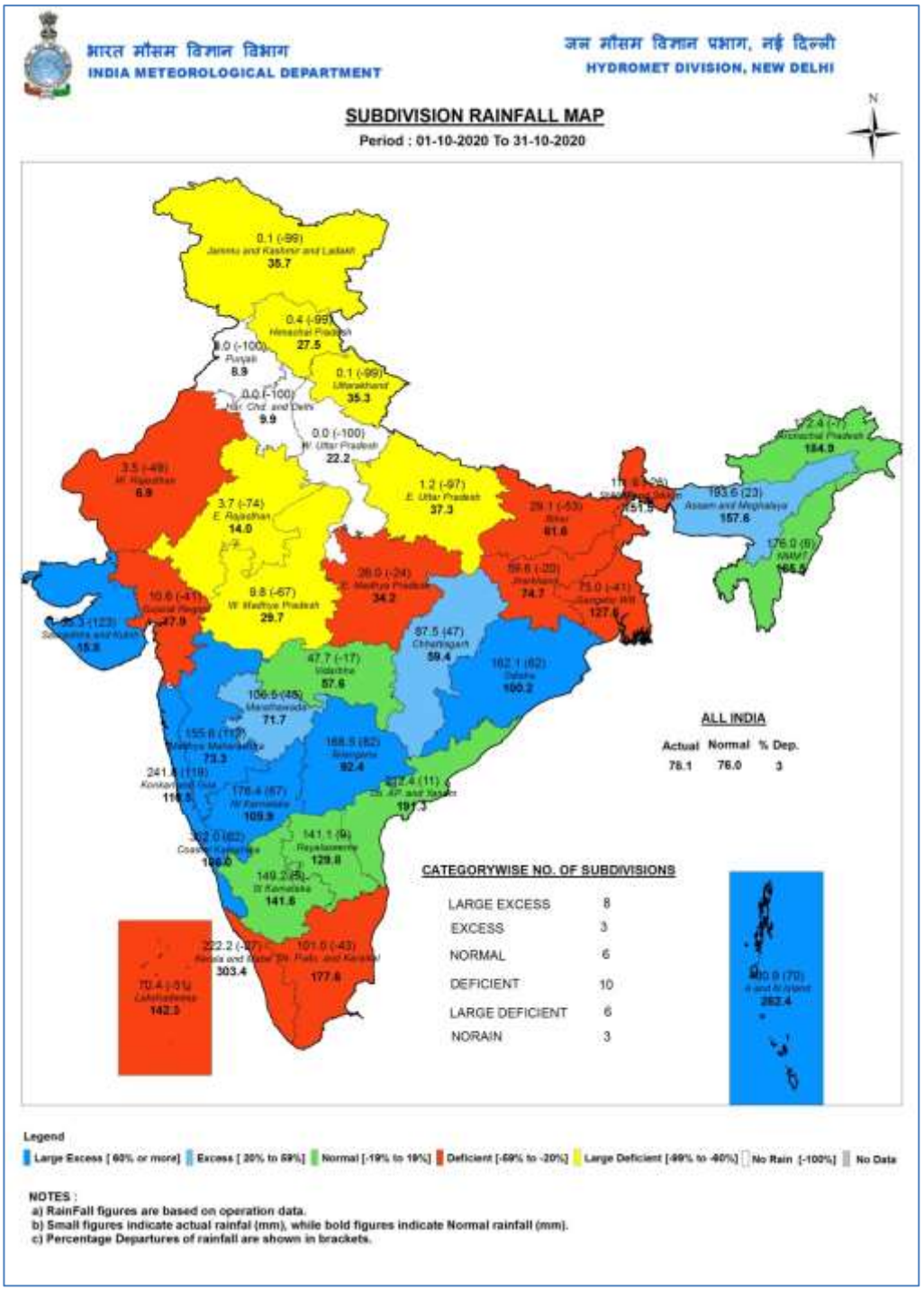


Fig 5: Meteorological subdivision-wise Monthly rainfall during Oct , 2020

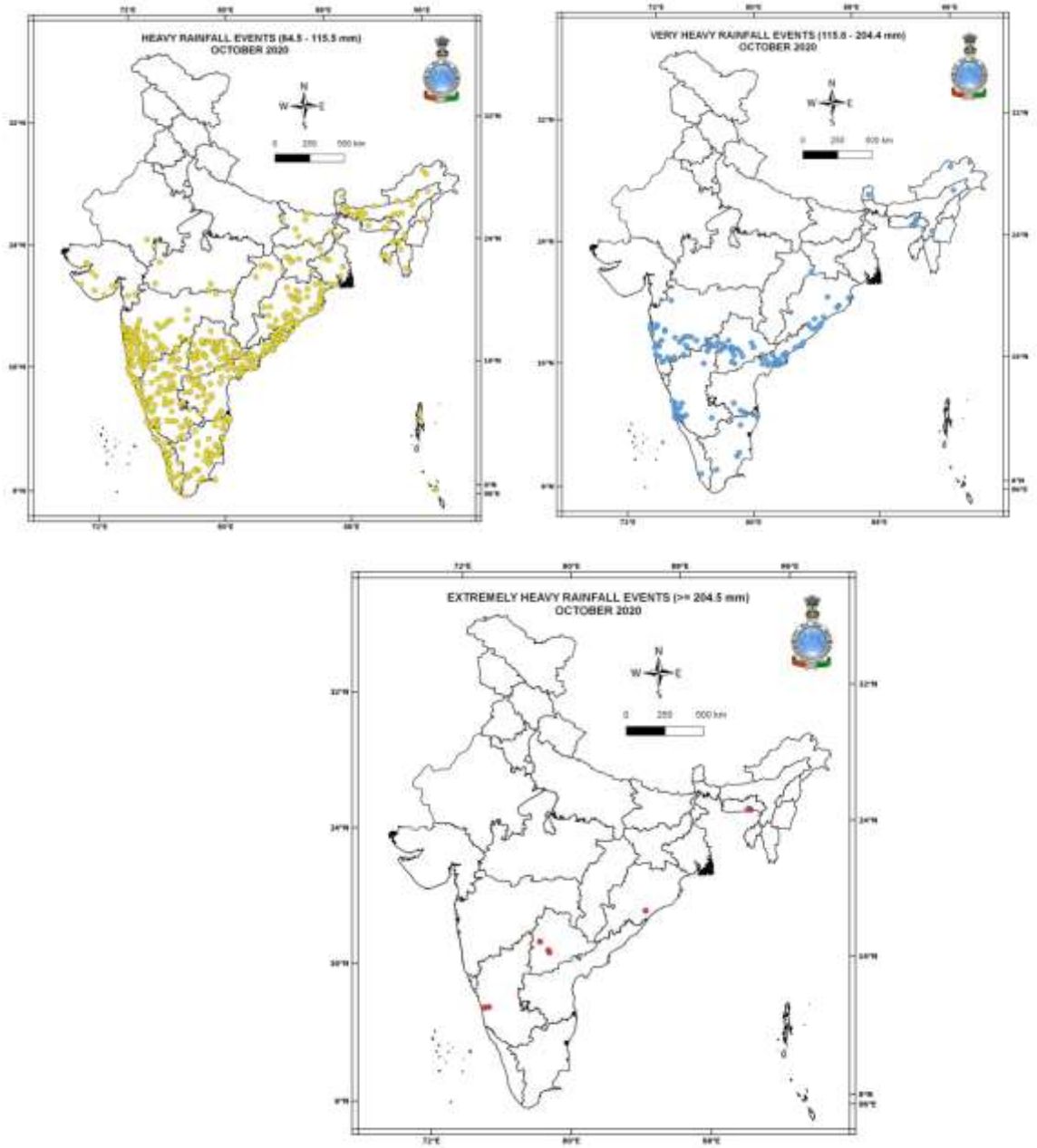


Fig 6: Stations over India reported heavy rainfall(64.5 to 115.5mm), Very Heavy rainfall(115.6 to 204.4mm and extremely Heavy Rainfall(>=204.5mm)

4.1. Heavy / Very Heavy Rainfall Warning Skill

No. of Heavy/Very Heavy Rainfall Events (>64.4 mm) and Warning Skill (correctness in %) of spatial distribution in issued warnings during the month is given below:

warning issued for	No. of Heavy/Very Heavy Rainfall Events (>64.4 mm): 186
	Percentage correct (in %) for Rainfall >64.4mm
Day1 / 24 Hours	85%
Day2 / 48 Hours	85%
Day3 / 72 Hours	84%

5. Characteristics of Temperatures of Oct 2020

October is the transitional month of temperature when variation of both maximum and minimum temperature is monitored for providing guidance to various users. **Fig 7** shows observed **spatial**

temperature pattern of monthly average minimum, average maximum and mean temperature over India and their departure from normal for Oct 2020. **Fig 8** shows time series of **All India monthly average minimum, average maximum and mean temperature** during 1971-2020. **The mean maximum, minimum and average temperature for the country as a whole during Oct 2020 was** 21.90 º C, 32.0 º C and 27.0 º C respectively. The month of Oct 2020 was the warmest night temperature in record since 1971(i.e. in last 50-years) and was 3rd warmest, in terms of average monthly **maximum and mean temperature** since 1971 for October month, with 2015 as the warmest followed by 2017 for the month. **Fig 9** shows time series of **Northwest India** monthly **average minimum, average maximum and mean temperature** during 1971-2020. **The mean maximum, minimum and average temperature over Northwest India as a whole during Oct 2020 was** 16.43 º C, 31.07 º C and 24.15 º C respectively. The month of Oct 2020 was 19th in the rank of the warmest night temperature in record since 1971 and was 3rd warmest, in terms of average monthly **maximum and mean temperature** since 1971 for October month, with 2017 as the warmest followed by 2010 for the month. The average mean monthly temperature of Oct 2020 is 6th warmest in the rank with 2017 as the warmest followed by 2016 for the month. **However the national capital region and adjoining areas of Haryana, Punjab, Uttar Pradesh & Rajasthan recorded lower temperature during Oct. 2020. Temperatures records over New Delhi(Safderjung) for the month of Oct 2020 and comparison with data since 1951 shows that it recorded lowest monthly mean minimum temperature(MMT) during Oct. 2020 (17.2** º C**) after Oct. 1962 (16.9** º C) **(Fig 10)**

Month	October
Station : Safderjung	MMT (deg C)
1954	16.7
1962	16.9
1991	17.6
1993	17.8
1994	17.9
2007	17.5
2020	17.2
Normal for October	19.1

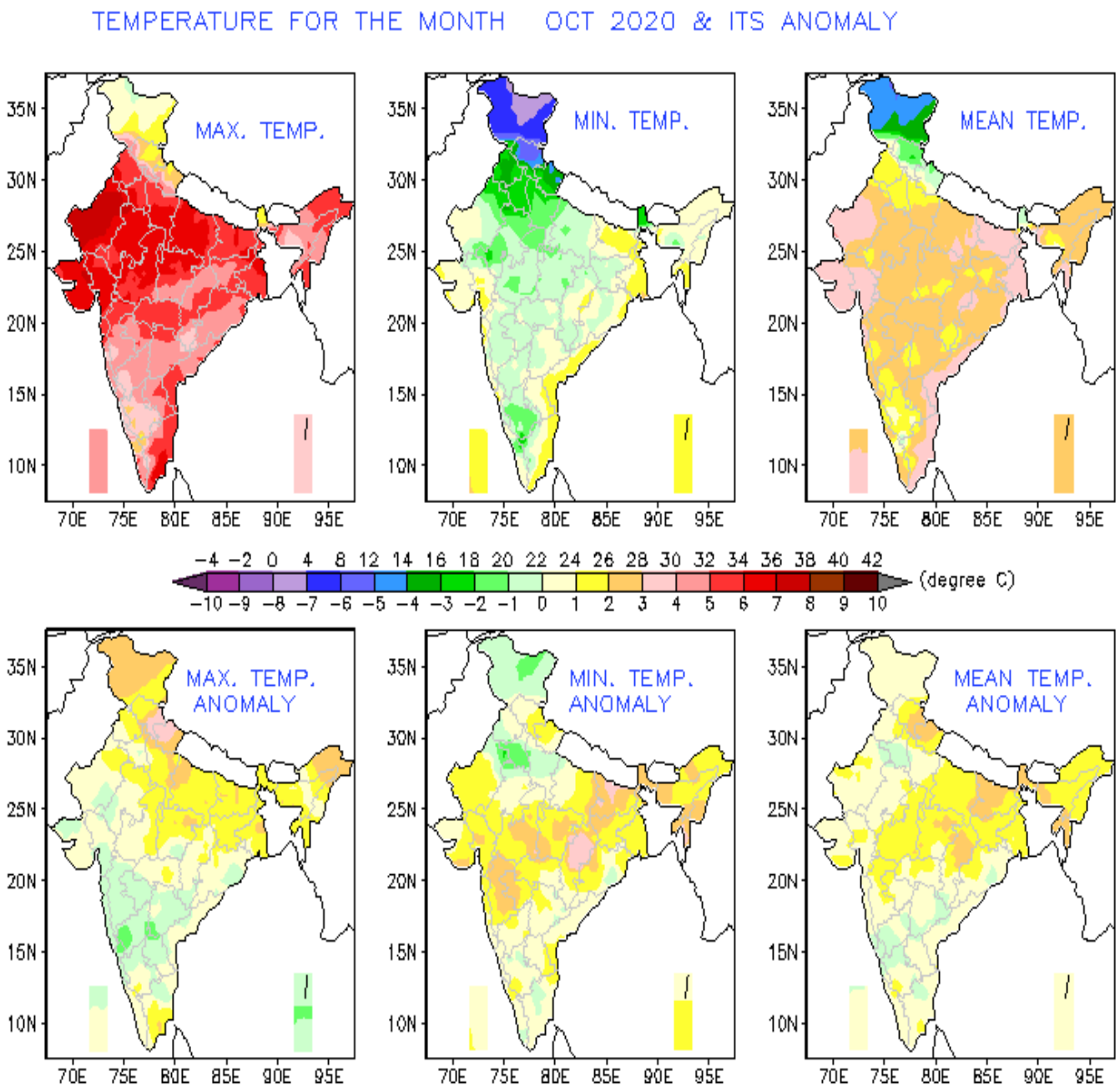
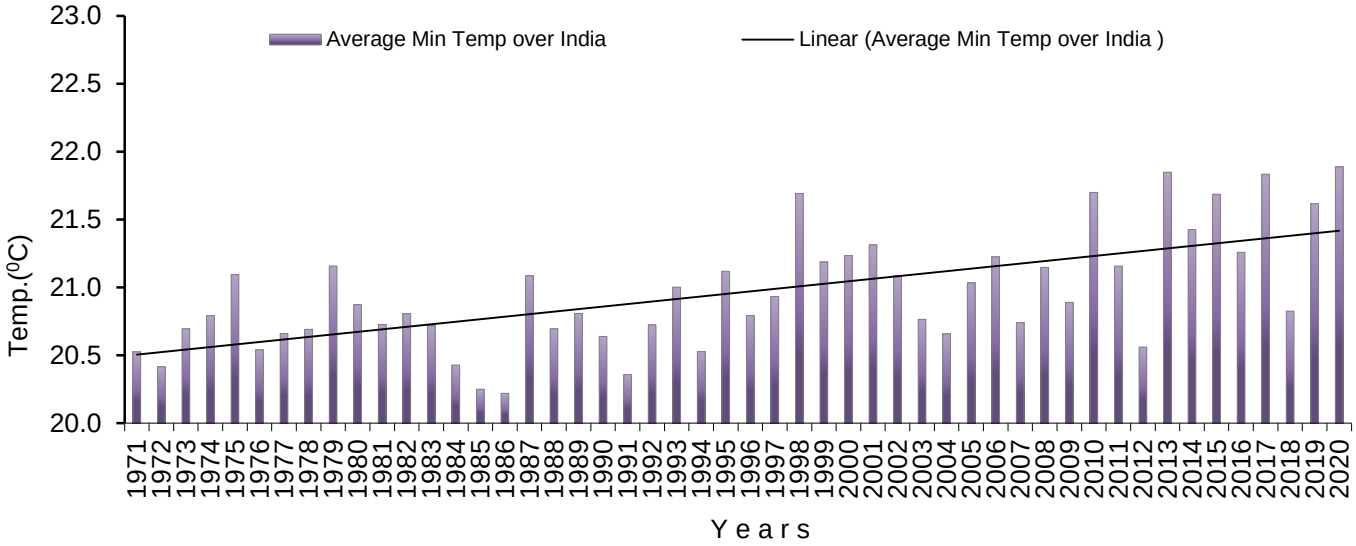
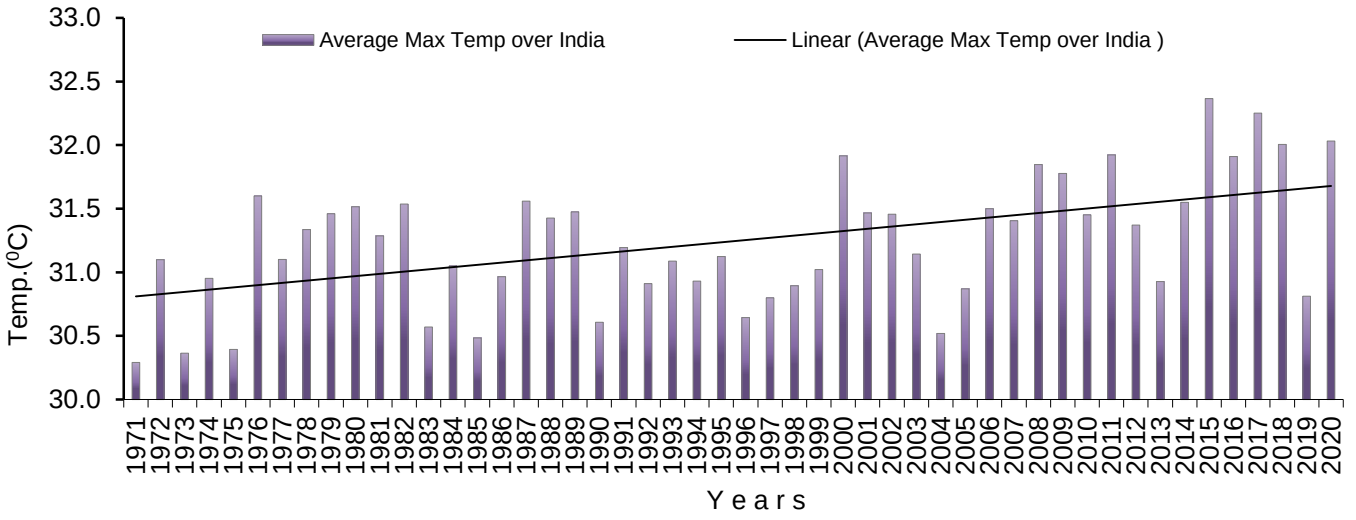


Fig 7: observed **spatial temperature pattern of monthly average minimum, average maximum and mean temperature over India(top three from left to right) and their departure from normal f**or Oct 2020(lower three from left to right).





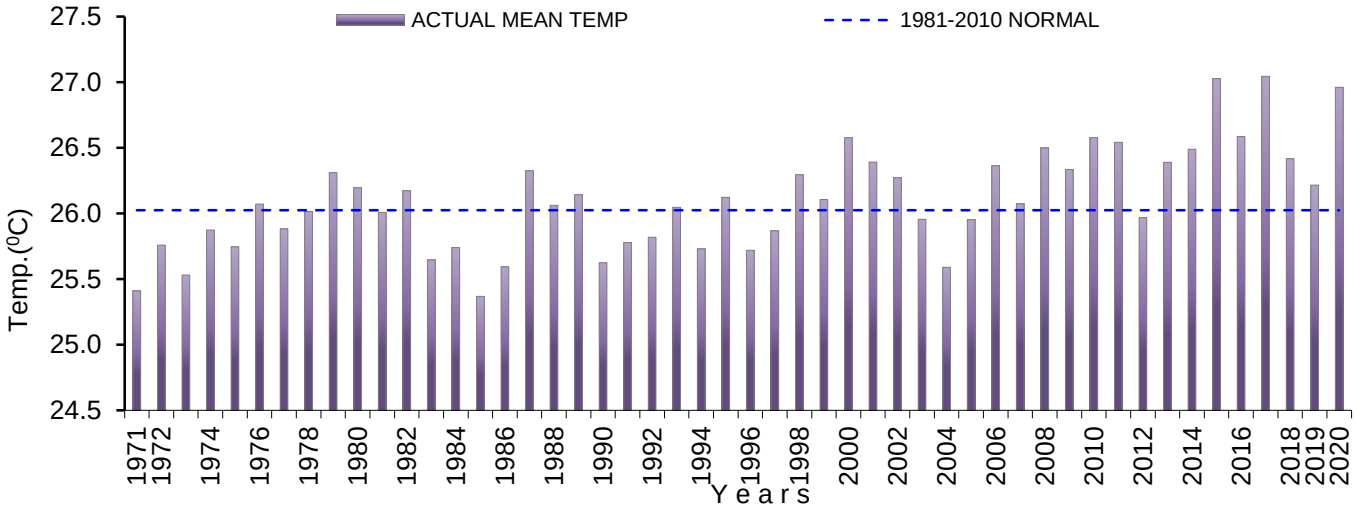


Fig 8: Time series of **All India monthly average minimum, average maximum and mean temperature** during 1971-2020

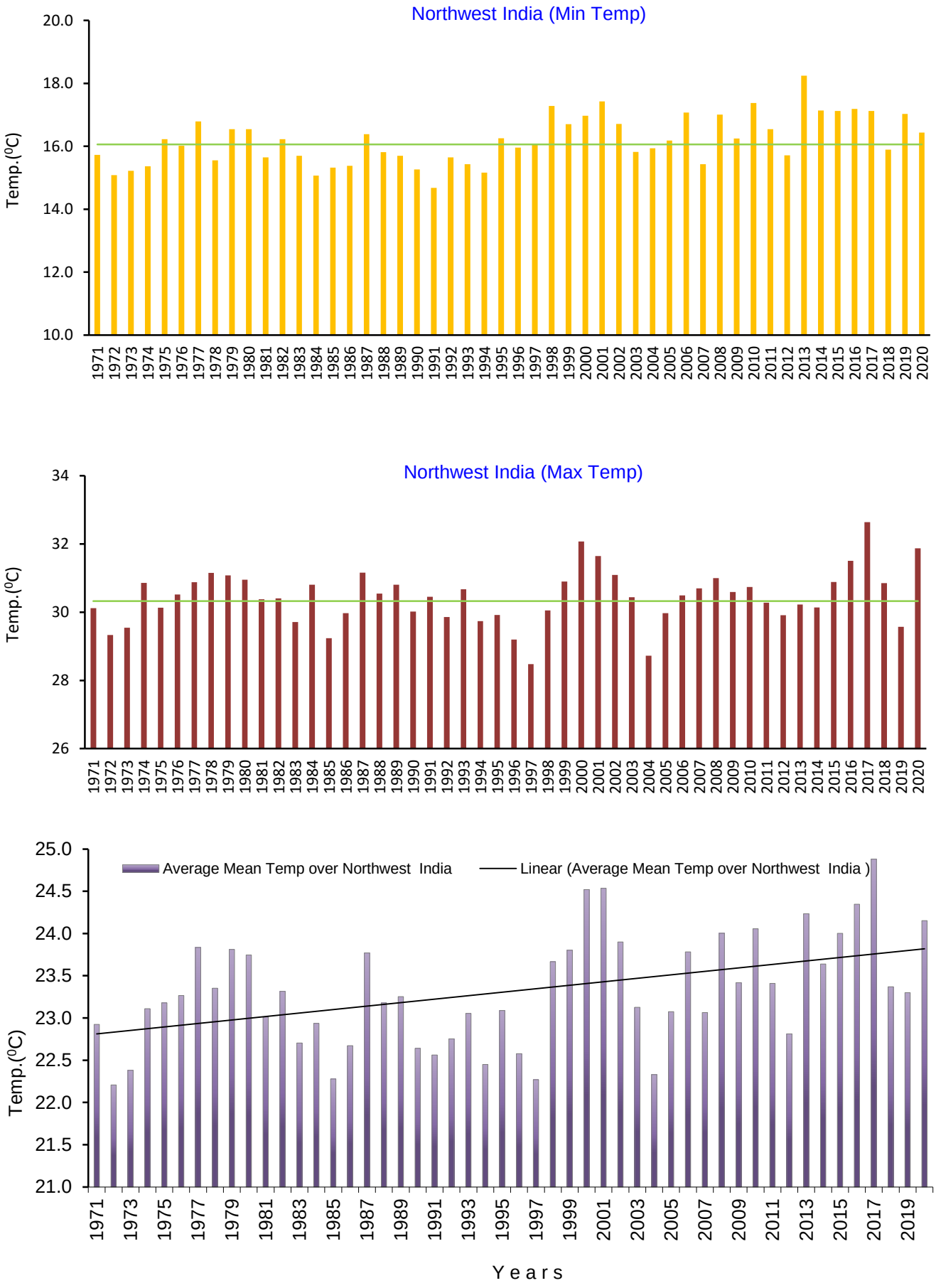


Fig 9: Time series of **Northwest India monthly average minimum, average maximum and mean temperature** during 1971-2020

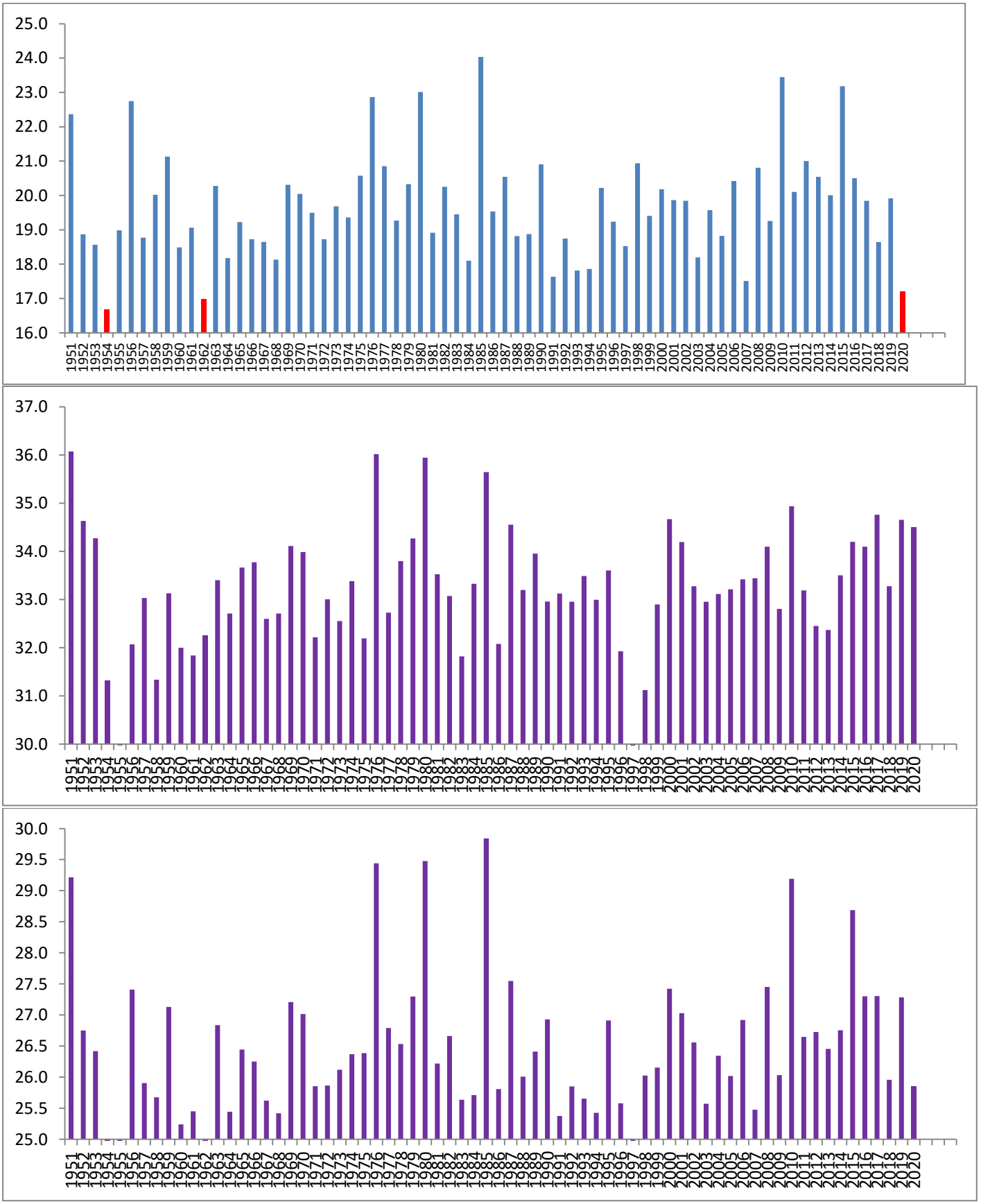


Fig 10: Time series of **New Delhi(Safedrjung) monthly average minimum, average maximum and mean temperature** during 1951-2020

6. Large scale features in Nov 2020

Madden Julian Oscillation(MJO): The Madden Julian Oscillation (MJO) index is entering into phase 8 as on 5 Nov with amplitude near to 1 and remain in phase 8 till 10 Nov. Then, it will move into phase 1 with amplitude near to 1 and remain in phase 1 till 14 Nov and then will enter phase 2 with amplitude decreasing to less than 1 and remain in phase 2 till 18 Nov. It is likely to enter into phase 3 with amplitude decreasing further to below 1 and remain in phase 3 till 26 Nov.

ENSO: Currently, sea surface temperatures (SSTs) and atmospheric conditions over equatorial Pacific Ocean indicate cool ENSO neutral conditions. MMCFS and other global models indicate SSTs over the region to cool further.

IOD: Neutral IOD conditions are prevailing over equatorial Indian Ocean. MMCFS forecast indicates development of negative IOD conditions during coming months**.**

7. Weather Outlook for Nov 2020

7.1 Temperature Outlook

Fig 11a, 11b and 11c shows the sub-divisional forecasts for averaged maximum, minimum and mean temperature anomalies (departures from the long term normal) respectively for November 2020. The season averaged maximum temperatures are likely to be near normal (Departure from normal between -0.5°C and 0.5°C) over the whole country except Jammu and Kashmir, Himachal Pradesh, Punjab, Assam, Orissa and Chhattisgarh where it is likely to be warmer than normal by 0.5°C to 1°C. The season averaged minimum temperatures are likely to be warmer than normal by 0.5°C to 1°C over the whole country except Jammu and Kashmir, Himachal Pradesh ,Punjab, HCD, Uttarakhand, Sub Himalayan West Bengal and west Rajasthan where it is likely to be near normal (Departure from normal between -0.5 °C and 0.5°C). It is likely to be > 1°C over east Uttar Pradesh, Bihar, Assam, East Madhya Pradesh, Jharkhand, Chhattisgarh, Orissa, Gangetic West Bengal, Vidharbha, Madhya Maharashtra, Marathawada, North, south and coastal Karnataka, Rayalaseema, Telangana and coastal Andhra Pradesh. The season averaged mean temperatures (are likely to be near normal (Departure from normal between -0.5◦C and 0.5◦C) over the whole country except over east Uttar Pradesh, Bihar, Assam, Arunachal Pradesh, NMMT, Chhattisgarh, Jharkhand, Gangetic West Bengal, Orissa, Rayalaseema, Telangana, coastal Andhra Pradesh, Coastal and south Karnataka and Tamil Nadu where it is likely to be between 0.5°C to 1°C.

7.2. Rainfall Forecast

Week 1 (till 12 Nov, 2020)

A cyclonic circulation lies over Gulf of Mannar & adjoining Sri Lanka in lower tropospheric levels and a trough of Low at mean sea level runs from Comorin-Maldives area to Karnataka coast. Under its influence:

- **i)** Scattered to fairly widespread rainfall very likely over Tamilnadu & Puducherry and Kerala & Mahe during next 4 days; Isolated to scattered rainfall over Coastal & South Interior Karnataka, Lakshadweep, Andhra Pradesh and Telangana during same period**.**
- **ii)** Isolated heavy to very heavy rainfall with moderate thunderstorm & lightning very likely over Tamilnadu on today, the 5th November, 2020; Isolated heavy rainfall with moderate thunderstorm & lightning also very likely over Kerala on today, the 5th November, 2020 and over Tamilnadu during 06th-8th November, 2020.

Overall, rainfall is very likely to be Normal to below normal rainfall over extreme southern peninsula, Andaman & Nicobar Islands, **north-eastern states and adjoining East India and western Himalayan region. Dry weather over rest parts of the country (Fig 12 and 13).**

Week 2 (13-19 Nov 2020)

Increase in rainfall over coastal parts of Tamil Nadu with normal to above normal rainfall likely over coastal parts of Tamil Nadu with below normal rainfall activity over remaining parts of southern Peninsular India, Andaman & Nicobar Islands and northeast and adjoining eastern parts of India. **Dry weather over rest parts of the country (Fig 12 and 13).**

Week 3 (20-26 Nov 2020)

Rainfall is very likely to be below normal over extreme south Peninsular India, Andaman & Nicobar Islands and normal to above normal rainfall over **western Himalayan region. Dry weather over rest parts of the country (Fig 12 and 13).**

7.3 Cyclogenesis over Indian region including North Indian Ocean

Week 1(6 Nov till 12 Nov 2020 and Week 2 (13 Nov till 19 Nov)

Genesis Forecast

The phase of MJO will not support convective activity over the north Bay of Bengal (BoB) during week 1 and week 2. Most of the numerical models including IMD GFS, GEFS, ECMWF, NCEP GFS, NEPS & NCUM are also not indicating any cyclogenesis during the next one week. The Genesis Potential Parameter (GPP) also does not indicate any potential zone of Cylogenesis over north Indian Ocean during week 1. The GPP based on CGEPS (MME) is indicating only a very low (20-30%) probability for cyclogenesis over north Andaman Sea during the initial half of week 1.However, a few of the models like IMD GFS & NCEP GFS are suggesting probable amplification of a trough in easterlies over the bay of Bengal during the middle f week-2 and likely formation of a Low pressure area over central BoB during the period.**Considering all the above, it may be concluded that: (1) No cyclogenesis (formation of Depression and above) likely over the north Indian Ocean during next 2 weeks (2) A Low Pressure area could form over central Bay of Bengal in an amplified easterly wave trough during the middle part of week-2.**(Weekly updates may be referred at http://www.rsmcnewdelhi.imd.gov.in /images/bulletin/eroc.pdf)

Next monthly update will be issued on first week of Dec, 2020

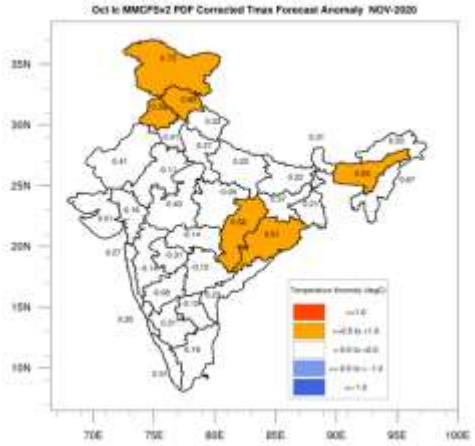


Fig.11a. Subdivision averaged Maximum Temperature Anomaly forecast for November 2020

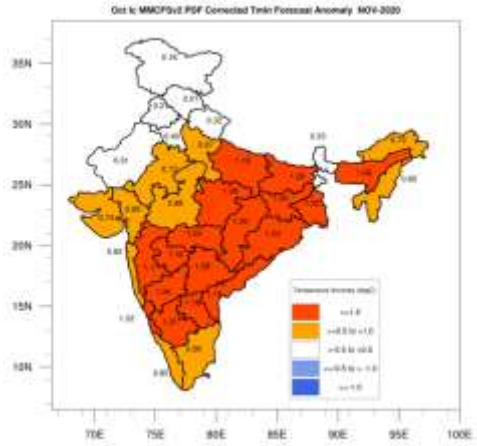


Fig 11b. Subdivision averaged Minimum Temperature Anomaly forecast for November 2020

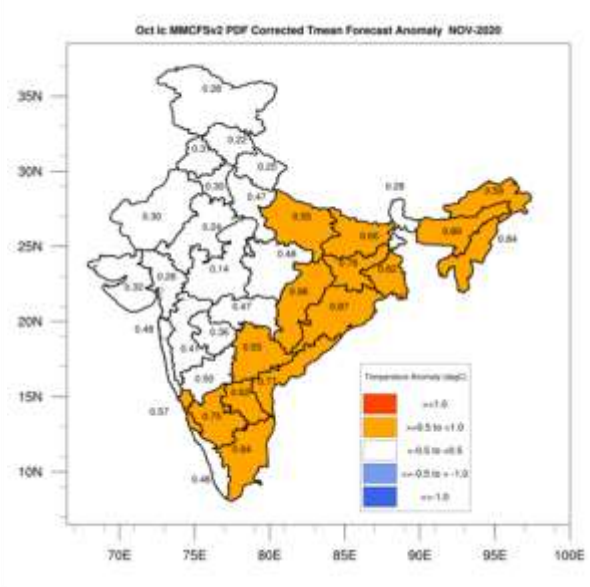


Fig.11c. Subdivision averaged Mean Temperature Anomaly forecast for November 2020

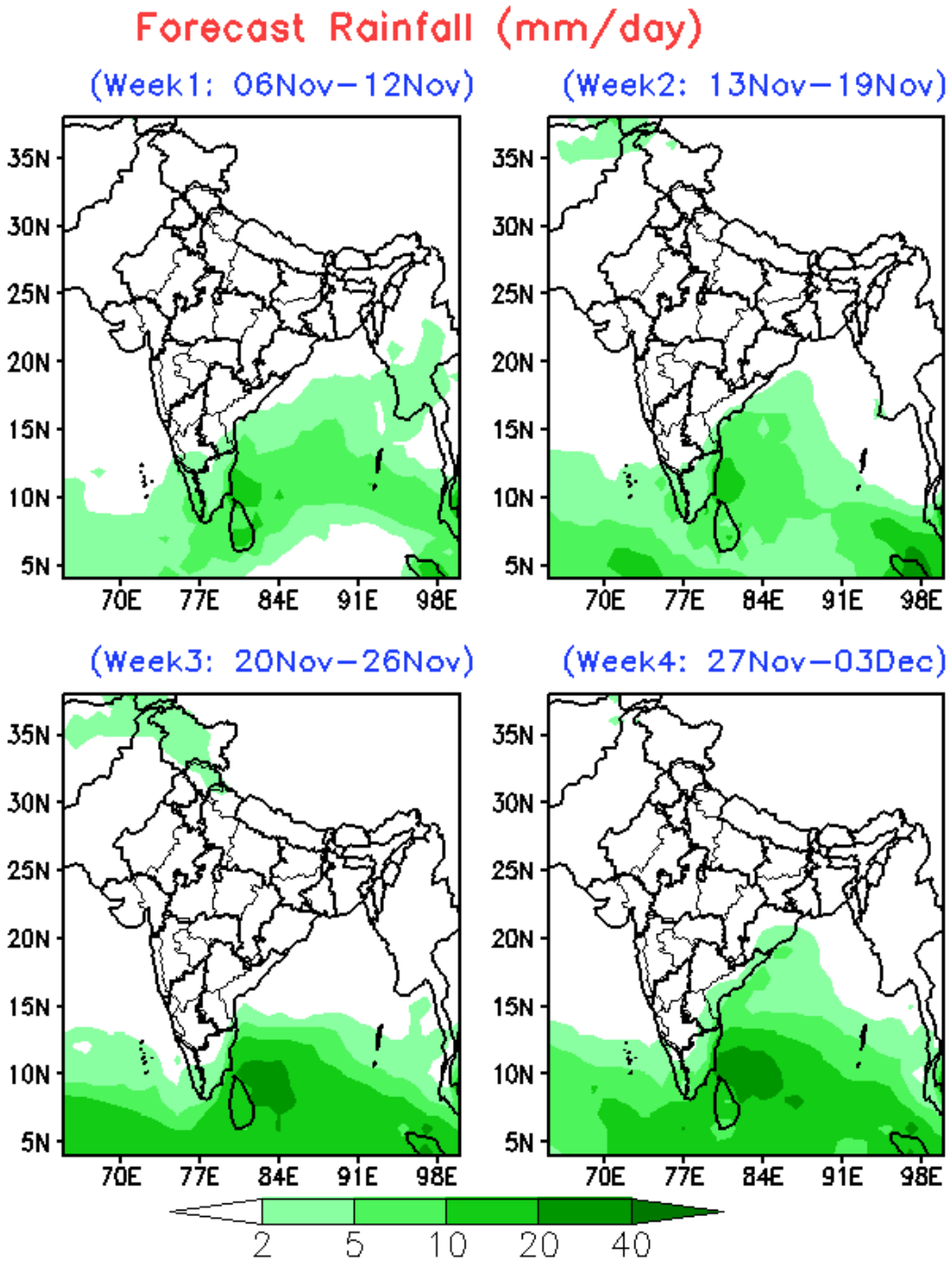


Fig 12: Rainfall forecast(Actual) in mm/day over the country for Nov(Week 1 to Week 4)

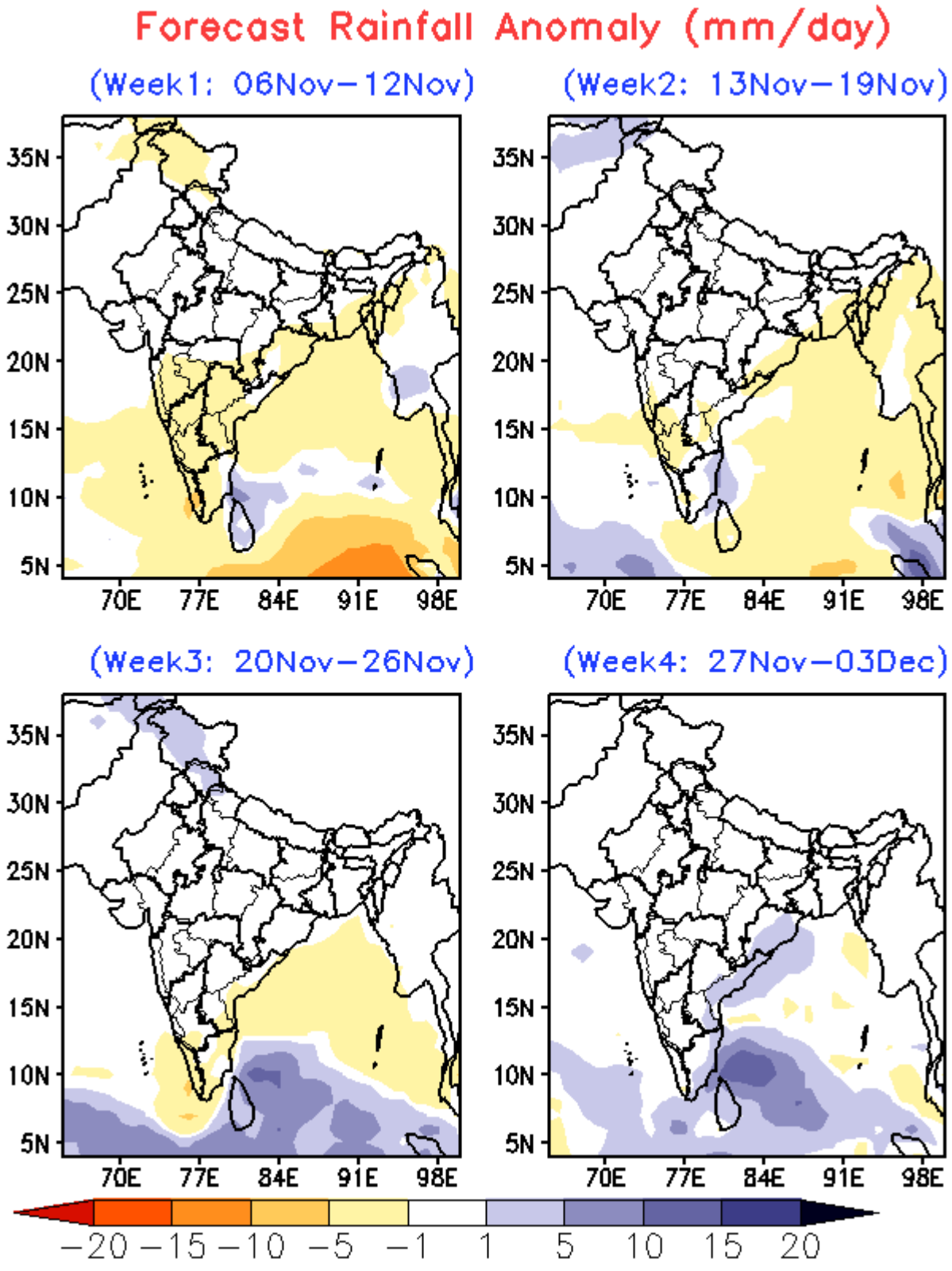


Fig 13: Rainfall forecast(in departure from normal) over the country for Nov(Week 1 to Week 4)