

Weather

POST MONSOON SEASON (OCTOBER-DECEMBER 1982)*

1. Chief features

(i) Two severe cyclonic storms and two depressions developed over Bay of Bengal and one severe cyclonic storm and three depressions over Arabian Sea, during this season. One severe cyclonic storm that hit Saurashtra coast and the other that hit south coastal Andhra Pradesh caused considerable loss of life and damage to properties. Tracks are given in Fig. 1.

(ii) Southwest monsoon withdrew from the country outside Tamil Nadu and Kerala by 11 October.

(iii) Season's rainfall (Fig. 2) was large excess in Jammu & Kashmir, east Rajasthan and Gujarat State, moderate excess in west Rajasthan and west Madhya Pradesh, slight excess in Arunachal Pradesh, Punjab and Himachal Pradesh, normal in east Madhya Pradesh, Andhra Pradesh and north interior Karnataka, slight defect in Assam and Meghalaya, Bihar plains, Konkan and Goa, Madhya Maharashtra, Vidarbha, Tamil Nadu and Lakshadweep. Moderate defect in Andaman and Nicobar Islands, Sub-Himalayan West Bengal and Sikkim, Bihar Plateau, plains of Uttar Pradesh, Marathwada, coastal and south interior Karnataka and Kerala and in large defect over the rest of the country.

(iv) Moderate cold wave conditions prevailed in Himachal Pradesh on 30 December.

2. October

In this month two severe cyclonic storms and a depression developed over Bay of Bengal and east central Arabian Sea.

2.1. Storms and depressions

(i) A low pressure area lay over east central Arabian Sea off south Maharashtra-Goa-Karnataka coasts on 30 September. It concentrated into a deep depression on 1st, moved westwards and weakened by 3rd. This system caused isolated heavy rain in north interior Karnataka on 1st. Belgaum AP reported 7 cm of rainfall on 1st.

(ii) A low pressure area formed over southeast Bay and adjoining north Andaman Sea on 11th. Moving northwestwards it concentrated into a deep depression centred near 15 deg. N, 87.5 deg. E on 15th morning. It further intensified rapidly into a severe cyclonic

storm and lay near 16.5 deg. N, 83.0 deg. E in the morning of 16th and moved northwestwards. Before crossing Andhra coast near Kakinada on 16th night it rapidly weakened into a depression. It further weakened into a low on 17th morning over coastal Andhra Pradesh and adjoining Telengana. Under the influence of this system very heavy rainfall occurred over coastal Andhra Pradesh on 17th, e.g., Waltair 37 cm, Kalingapatnam 34 cm, Nidadavole 28 cm, Yellamanchili 22 cm. The heavy rainfall caused damages to roads, minor irrigation canals in Visakhapatnam district. According to press reports there were four deaths and partial or complete damage to 3000 huts in the above district due to heavy rain.

(iii) A low pressure area which lay over southwest Bay off south Tamil Nadu-Sri Lanka coasts from 14th, concentrated into a deep depression centred near 11.0 deg. N, 82.5 deg. E in the evening of 17th. By 18th morning it rapidly intensified into a severe cyclonic storm. Moving northwestwards it crossed south Andhra coast near Sriharikota around midnight of 18th and weakened into a depression over Rayalaseema by 19th. Subsequently it moved north and then northeastwards and weakened into a low over northeast Madhya Pradesh on 22nd. Moving further northeastwards across Bihar plains and Sub-Himalayan West Bengal & Sikkim it became unimportant on 25th evening over Assam and adjoining Arunachal Pradesh. This system caused generally widespread rain/thundershowers with isolated heavy to very heavy falls in Tamil Nadu, Andhra Pradesh, east Madhya Pradesh, Bihar State and Gangetic West Bengal on 1 to 2 days.

Incessant rain at Madras flooded many of the city roads. Due to gale winds and heavy rain the death toll in Andhra Pradesh is reported to be 51, out of which 24 in Nellore district alone. In southern parts of Nellore district damages to lemon orchards and plantain gardens were considerable. It also damaged 50,000 huts, some buildings, electricity transmission line, poles etc. Significant amounts of very heavy rainfall (cm) associated with this system were:

18th : Nagapattinam 19

19th : Raipur 31, Sulerpet 28, Tondi 26, Baduel 16, Nellore 15, Cuddapah 14, Madras & Pondicherry 12 each

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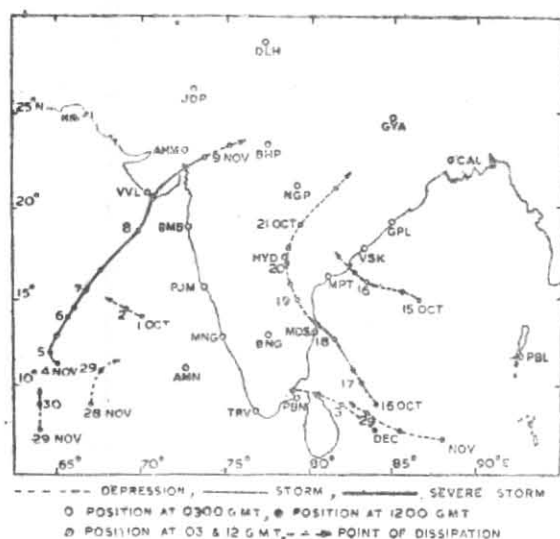


Fig. 1. Tracks of storms/depressions (Oct-Dec 1982)

20th : Narasaraopet 17, Bhimadole 14

21st : Jagtiyal 22, Sriramsagar 18, Sirpur 16

23rd : Chakradharpur 14

2.2. Other systems

The following other systems affected the weather during this month:

(i) A cyclonic circulation between 1.5 and 4.5 km a.s.l. which lay over west central Bay off Andhra coast on 3rd, moved across south Peninsula and lay over east central and adjoining southeast Arabian Sea off Kerala-Karnataka coasts on 5th. It persisted there till 7th, subsequently moved away westwards. A wind discontinuity/trough at 0.9 km a.s.l. lay over the Peninsula between 8th and 12th. A trough of low lay off Kerala-Karnataka coasts from 14th to 18th. Three cyclonic circulations in the lower troposphere affected the Peninsula between 22nd and 30th. A well marked trough of low lay over Kerala-Lakshadweep from 25th to 27th. These systems caused fairly widespread to scattered rain/thundershowers in Kerala on many days and on 8-12 days in the rest south Peninsula and Lakshadweep.

(ii) Nine western disturbances and two induced cyclonic circulations affected northwest India and adjoining west Madhya Pradesh and Uttar Pradesh during this month causing excess or normal rainfall in Jammu & Kashmir, west Rajasthan and west Madhya Pradesh.

(iii) Three troughs in mid-tropospheric westerlies affected north India.

(iv) A low level trough in westerlies over West Bengal and Sikkim between 1st and 2nd and a low level cyclonic circulation over Bangla Desh and adjoining northeast Bay and neighbourhood between 2nd and 5th caused scattered or isolated rain/thundershowers on a few days in Assam and adjacent States and Sub-Himalayan West Bengal & Sikkim during the 1st week of the month.

Southwest monsoon withdrew from south Konkan and Goa, south Madhya Maharashtra, north interior Karnataka, north Andhra Pradesh and coastal Orissa by 5th, Assam and adjacent States by 9th and from coastal Karnataka, south interior Karnataka and south Andhra Pradesh by 11th.

2.3. Rainfall for the month

Rainfall was excess or normal in Jammu & Kashmir, west Rajasthan, Madhya Pradesh, Andhra Pradesh, and north interior Karnataka. It was deficient or scanty over the rest of the country.

The significant amounts of heavy to very heavy rainfall (cm) were:

2nd : Manapara 10.

5th : Trichur 12

24th : Aluru 15, Kozhikode 11

26th : Coonoor 13

27th : Shahpur 11

28th : Chamoli 10, Quazigund 10

2.4. Temperatures

Day temperatures were appreciably above normal on many days in Konkan & Goa, east Rajasthan and south interior Karnataka and on a few days in Orissa, Bihar Plateau, west Rajasthan, Gujarat State, Madhya Maharashtra, Marathwada and coastal Karnataka upto 20 October. Appreciably to markedly below normal day temperatures prevailed over hills of west Uttar Pradesh, Haryana and Jammu & Kashmir on last 2 to 3 days of the month.

Night temperatures were appreciably below normal in Bihar plains from 4th to 6th.

3. November

In this month a severe cyclonic storm developed over east central Arabian Sea which hit Saurashtra coast on 8th evening. Apart from this two depressions developed over south Arabian Sea and one over southeast Bay which weakened over the sea areas.

3.1. Storms and depressions

(i) A depression formed over southeast Arabian Sea on 4th centred at 11.0 deg. N, 65.0 deg. E. Moving northwestwards it intensified into a cyclonic storm on 5th morning near 12.0 deg. N, 64.5 deg. E. Then it recurved and moved in a northnortheasterly direction and further intensified into a severe cyclonic storm with core of hurricane winds on 7th morning near 15.5 deg. N, 66.5 deg. E. Then moving north-easterly to northnortheasterly direction it crossed Saurashtra coast about 45 km east of Veraval on 8th evening and lay as a cyclonic storm 50 km northeast of Baroda on 9th morning. Thereafter it rapidly weakened and lay as a low pressure area over southwest Madhya Pradesh on 10th and became unimportant over Sub-Himalayan West Bengal and neighbourhood by 13th.

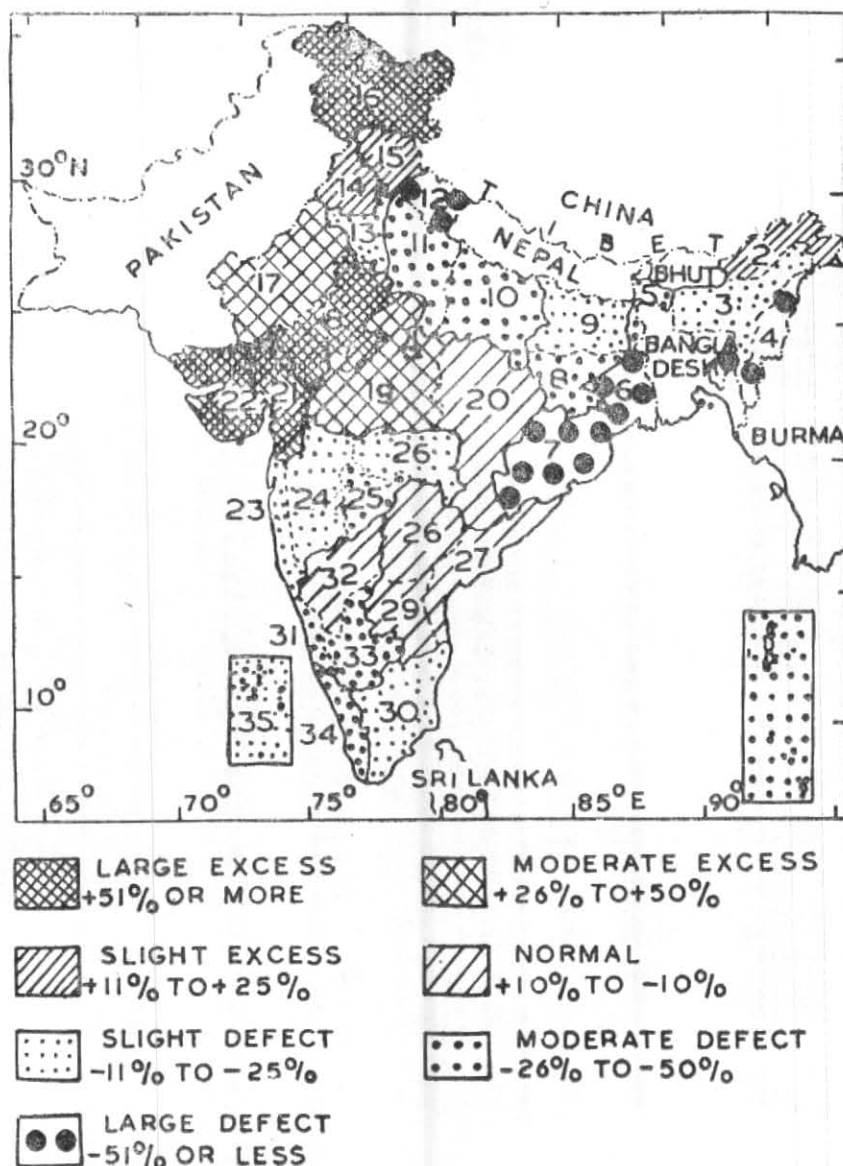


Fig. 2. Percentage departure of rainfall from normal for the period 1 October to 31 December 1982

According to reports 507 people were killed, 1.5 lakh livestock perished and thousands of houses had collapsed in Gujarat State due to the impact of this storm. 6 deaths were also reported due to gale force winds from north Konkan. The significant amounts of rainfall (cm) associated with the system were :

8th : Veraval 15

9th : V. V. Nagar 43, Veraval 22, Baroda 17, Bhavnagar 15.

(ii) A depression developed over southeast Arabian Sea near 9.0 deg. N, 67 deg. E on 28th evening. Moving northnortheastwards it became deep depression on 29th morning and then rapidly weakened over southeast and adjoining east central Arabian Sea by evening. Another depression developed near 7.5 deg. N, 64.0 deg. E on 29th evening. It moved northwards and weakened over southeast and adjoining southwest Arabian Sea by 30th evening. These two systems did not affect the weather of the sub-continent.

(iii) A depression developed over southeast Bay on 28th near 7.0 deg. N, 88.0 deg. E. It moved west-northwestwards and became a deep depression by evening near 7.5 deg. N, 85.5 deg. E. Continuing to move northnorthwestwards it dissipated over southwest Bay off Sri Lanka coast by 29th evening causing no weather over the sub-continent.

3.2. Other systems

(i) The following systems caused generally widespread to scattered thundershowers in south Peninsula during the 1st fortnight. A low pressure area moved from southwest Bay to Comorin area and adjoining south Peninsula between 1st and 3rd and a low pressure area persisted off Kerala coast till 3rd. A cyclonic circulation/trough in lower troposphere lay over Tamil Nadu and neighbourhood between 5th and 10th.

Northeast monsoon was active over Tamil Nadu on 4th and 5th.

(ii) A low pressure area persisted over southeast Bay from 11th to 15th causing generally widespread rain/thundershowers in Andaman and Nicobar Islands.

(iii) An east-west trough extending from southwest Arabian Sea to Andaman Sea was well marked during the last week of the month causing excess rainfall in Tamil Nadu and Lakshadweep during the week.

(iv) Five western disturbances and one induced low/cyclonic circulation affected northwest India and adjoining Madhya Pradesh and Uttar Pradesh, during the month. The western disturbance which moved across Western Himalayas between 15 & 17th was active causing generally widespread rainfall there on 16th and 17th.

3.3. Rainfall during the month

Rainfall was excess or normal in Arunachal Pradesh, Nagaland, Manipur, Mizoram and Tripura, Sub-Himalayan, West Bengal & Sikkim, Bihar, plains of Uttar Pradesh, northwest India, west Madhya Pradesh, Gujarat & Maharashtra States, Andhra Pradesh, Tamil Nadu, coastal & north interior Karnataka and Lakshadweep. It was deficient or scanty over the rest of the country.

The significant amounts of rainfall (cm) were :

- 3rd : Tambaram 16, Parangipettai 15, Nagapattinam, Thanjavur & Pondicherry 12 each
- 4th : Ongole 7
- 5th : Pondicherry 17
- 8th : Port Blair 7
- 24th : Vedaranniyam 9
- 25th : Vedaranniyam 10

3.4. Temperatures

Night temperatures were appreciably below normal in Assam and Meghalaya and Gangetic West Bengal on 30th. They were appreciably to markedly above normal on many days in Rajasthan, Madhya Pradesh, Gujarat, interior Maharashtra during the month. They were so on many days in plains of Uttar Pradesh, Haryana and Punjab between 8th and 20th.

4. December

(i) The low pressure area over southwest Bay off Sri Lanka coast concentrated into a depression on 2nd evening near 7.5 deg. N, 84.0 deg. E. Moving west-northwestwards it crossed south Tamil Nadu coast near Tondi by 3rd night/early morning of 4th and weakened into a low pressure area. It emerged into Arabian Sea across Kerala and dissipated over Lakshadweep by 7th. This system caused fairly widespread to scattered rainfall over Tamil Nadu, Kerala and Lakshadweep on 1 to 3 days.

(ii) A trough of low moved from south Bay to southwest Bay off Tamil Nadu-Sri Lanka coasts and persisted there from 12th to 19th causing fairly widespread rainfall on 12th and scattered or isolated on most of the other days till 19th in Tamil Nadu.

(iii) Seven western disturbances affected Western Himalayas and neighbourhood during the month out

of which active ones were those from 7th to 11th, from 22nd to 25th and from 27th to 31st causing generally widespread to scattered rain or snow over the area on a couple of days. Six induced systems formed over south Pakistan and neighbourhood but they produced no weather except the one which moved from Gujarat and adjoining southwest Rajasthan to west Uttar Pradesh, Haryana and plains of Uttar Pradesh between 27th and 29th. It caused fairly widespread to scattered rainfall on 1 to 2 days over Rajasthan, Haryana and plains of Uttar Pradesh.

(iv) Two low level cyclonic circulations moved eastwards across the plains of northeast India between 5th and 8th. Another trough in low level westerlies lay over Sub-Himalayan West Bengal and Sikkim from 16th to 18th. A low level cyclonic circulation/trough persisted over Sub-Himalayan West Bengal and Sikkim from 23rd to 25th. It was seen over Assam & Meghalaya and adjoining Nagaland, Manipur, Mizoram and Tripura between 1.5 and 3.1 km a.s.l. on 27th which became less marked by next day. These systems caused fairly widespread to scattered rainfall on a couple of days in Arunachal Pradesh, Assam & Meghalaya and Sub-Himalayan West Bengal & Sikkim. Mainly dry weather prevailed over north Peninsula, Gujarat, Madhya Pradesh and rest of northeast India during the month.

4.1. Rainfall during the month

Rainfall was excess in Arunachal Pradesh, Assam and Meghalaya, Sub-Himalayan West Bengal & Sikkim, east Uttar Pradesh, Haryana, Punjab, Himachal Pradesh, Jammu & Kashmir and east Rajasthan; normal in plains of west Uttar Pradesh; deficient or scanty in Andaman & Nicobar Islands, Nagaland, Manipur, Mizoram & Tripura, Gangetic West Bengal, Bihar, hills of west Uttar Pradesh, west Rajasthan, Madhya Pradesh, coastal Andhra Pradesh, Rayalaseema, Tamil Nadu, south interior Karnataka, Kerala and Lakshadweep. Dry weather prevailed over the rest of the country during the month.

The significant amounts of rainfall (cm) were :

- 2nd : Banihal 6, Quazigund, Reasi, Kupwara 4 each
- 4th : Pondicherry 13, Pamban 10, Chidambaram 8.
- 5th : Pondicherry 9
- 9th : Gulmarg, Manali 4 each
- 10th : Kondul 7, Manali 4
- 25th : Pasighat 6
- 29th : Chandigarh AP, Dharamsala 6 each, Pathankot 5, Ambala AP, Mandi, Udhampur AP 4 each
- 31st : Mandi 4

4.2. Temperatures

Night temperatures were appreciably to markedly below normal on the last three days of the month in Himachal Pradesh and Madhya Maharashtra. Moderate cold wave conditions prevailed in Himachal Pradesh on 30th. They were appreciably above normal on most days in Vidarbha and on a few days in west Madhya Pradesh, Gujarat State, Madhya Maharashtra and Marathwada, between 9th and 25th of this month.