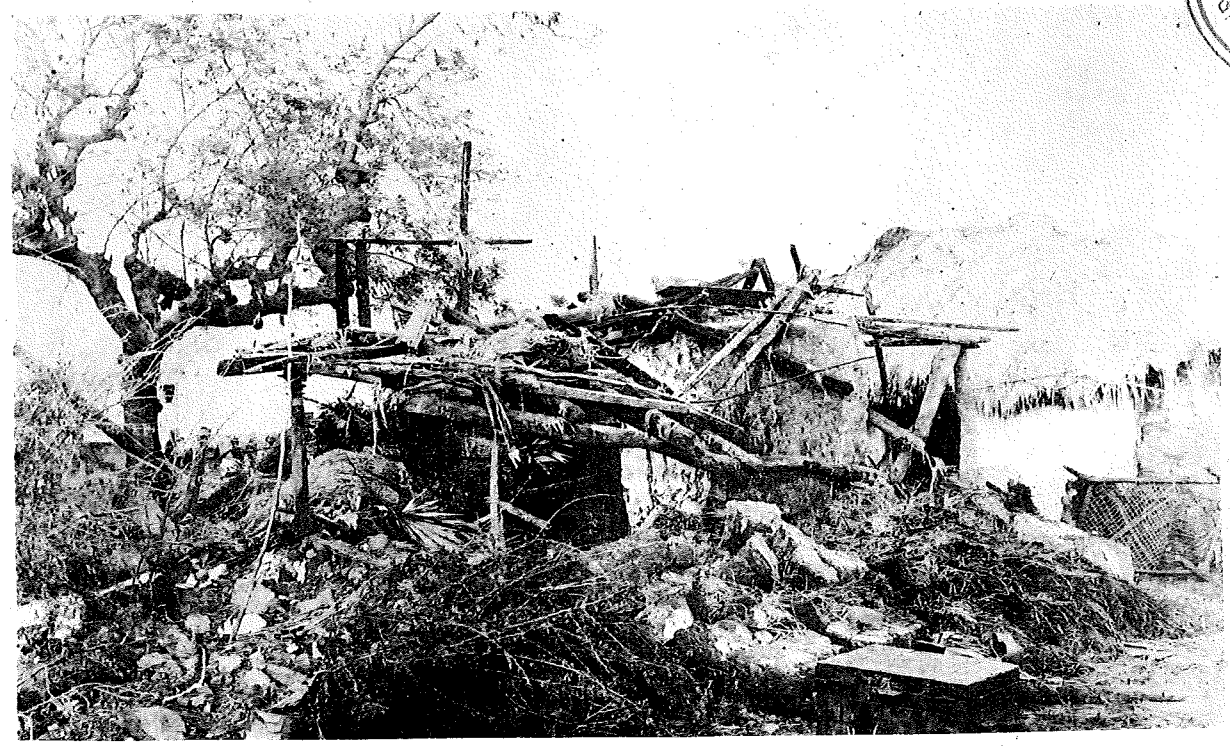


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INDIA METEOROLOGICAL DEPARTMENT  
**DISASTROUS WEATHER EVENTS , 1985**  
A REPORT



ISSUED BY  
ADDITIONAL DIRECTOR GENERAL OF METEOROLOGY  
( RESEARCH )  
PUNE - 411005

Cover Photo : Damage caused by cyclonic storm which crossed Andhra coast near Sriharikota on 13 December 1985.

Courtesy, Collector, Nellore (Andhra Pradesh)

Printed at Rotaprint, India Met. Dept., Pune-5.

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DISASTROUS WEATHER EVENTS OF 1985

The most striking disastrous weather events in 1985 were the following :-

- (i) Severe flooding in many rivers of the country during south-west monsoon season took a heavy toll of human lives and live-stock. It also affected large areas of cultivated land damaging standing kharif crops heavily. The affect was rather severe in the states of Haryana, Punjab and Uttar Pradesh.
- (ii) While some parts experienced floods, concurrently, drought conditions prevailed in large areas in Andhra Pradesh, Gujrat, Karnataka, Maharashtra and Rajasthan States.
- (iii) A Bay cyclone, during 13-17 October crossed Orissa coast, took a toll of 57 human lives and 2500 cattle-heads in Orissa and West Bengal.
- (iv) Severe cold wave conditions during first week of January over Bihar claimed 204 human lives.
- (v) Severe heat wave prevailed over Bihar during 1st week of June and claimed 140 human lives.
- (vi) Gale conditions prevailed over coastal areas of Kerala during 4th week of June and claimed 18 human lives. Associated sea erosion caused extensive damage to agricultural land.

The summary of these natural hazards is based on the various reports in the India Meteorological Department and the press information. The figures of estimated losses is as per the press reports. The areas affected by the weather phenomena are depicted on four maps (seasonwise).

I N D E X

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S.N.	Date/Period	Area affected	Intensity	Casualties	Extent of damage
(1)	(2)	(3)	(4)	(5)	(6)

TABLE - I : SNOWFALL

CRITERIA

Moderate : 7.6 to 34.9 cm in 24 hrs.

Heavy :  $\geq$  35.0 cm in 24 hrs.

1.	Jan. (1st week)	Jammu & Kashmir	Moderate to Heavy		<ul style="list-style-type: none"> <li>(i) 2000 passengers and several vehicles stranded on Srinagar-Jammu National Highway.</li> <li>(ii) More than 500 vehicles stranded at Udhampur.</li> <li>(iii) Number of Leh-bound passengers held up at Chandigarh due to suspension of IA flights.</li> <li>(iv) Vehicular traffic disrupted.</li> <li>(v) IA flights to and from Srinagar delayed/cancelled.</li> <li>(vi) Pilgrims to Vaishnodevi shrine (near Jammu) stranded.</li> </ul>
2.	21 Feb.	Banihal, Patnitop (J&K)	Heavy		Vehicular traffic on National Highway remained closed.
3.	26 Dec.	(a) Jammu & Kashmir	Heavy	7 persons died.	Jammu-Srinagar National Highway closed at many points.
		(b) Himachal Pradesh	Heavy		<ul style="list-style-type: none"> <li>(i) Telecommunication, power supply and vehicular traffic completely disrupted.</li> <li>(ii) Normal life came to standstill.</li> </ul>

(1) (2) (3) (4) (5) (6)

TABLE - II : COLD WAVE

CRITERIA

Moderate : Night temperature 6 to 7°C below normal.

Severe : Night temperature  $\geq$  8°C below normal.

1.	Jan. (1st week)	(a) Jammu, Srinagar ( J&K )	Severe	(i) Thousands of vehicles stranded on Jammu-Srinagar National Highway. (ii) IA flights from Srinagar delayed/ suspended.
		(b) Simla (Himachal Pradesh)	Severe	Normal life in the city disrupted due to disruption of power supply and frozen tap water.
2.	2-3 Jan.	Gaya, Hazaribagh, Khagaria, Mokameh- Barauni, Nalanda, Nawada, Vaishali (Bihar)	Severe	(i) 204 persons died (of which 62 in Nawada, 56 in Nalanda and 46 in Gaya). (ii) 24 cattle-heads perished.
3.	3 Jan.	Uttar Pradesh	Moderate	9 persons died (3 each in Bareilly, Gorakhpur and Nawtanwa).
4.	4-6 Jan.	Begusarai, Nalanda, Nawada and Vaishali (Bihar)	Severe	56 persons died (including 30 in Nalanda and Vaishali districts alone).
5.	6 Jan.	Jalpaiguri (West Bengal)	Severe	One person died.
6.	9-14 Jan.	Gaya, Hazaribagh, Mohameh, Muzaffarpur, Nalanda, Nawada, Patna (Bihar)	Severe	179 persons died (of which 86 died in Mokameh-Barauni industrial belt and 40 in Nawada district). Potato crop badly damaged in Nalanda district.
7.	9 Dec.	Dhanbad and Gaya (Bihar)	Severe	2 persons died.

(1)	(2)	(3)	(4)	(5)	(6)
8.	11 Dec.	Kapurthala (Punjab)	Moderate	One person died at Phagwara.	
9.	Dec. (4th week)	Punjab and Chandigarh	Severe	One person died.	
10.	26 Dec.	Jammu & Kashmir	Severe	2 persons died near Jammu Bus Stand.	(i) Fruit trees badly damaged. (ii) Srinagar town completely cut off from the country on the National Highway as well as IA flights suspended. (iii) Many passengers stranded.
11.	27 Dec.	Jammu	Severe	2 persons died.	
12.	28 Dec.	Jammu & Kashmir	Severe	2 persons frozen to death on Aknoor Road.	
13.	28 Dec.	Nawada (Bihar)	Severe	(i) 7 persons including 3 aged and 2 children died in hilly areas of Rajgir and Giriak blocks. (ii) 60 persons, mostly children, admitted to hospital.	
14.	29 Dec.	Nawada and Vaishali (Bihar)	Severe	24 persons died (of which 9 died in Vaishali district).	
15.	30 Dec.	Purnea (Bihar)	Severe	4 persons died.	

(1) (2) (3) (4) (5) (6)

TABLE - III : HEAT WAVE

CRITERIA

Moderate : Day temperature 6 to 7°C above normal.

Severe : Day temperature  $\geq$  8°C above normal.

1.	27 Apr.	Adilabad (Andhra Pradesh)	Moderate	One person died at Nirmal bus stand.
2.	30 May	Ferozepur (Punjab)	Moderate	2 children died at Baghpurana.
3.	2 & 3 Jun.	Hazaribagh, Nawada and Vaishali (Bihar)	Severe	36 persons died (including 15 in Nawada district and 8 in Vaishali district.)
4.	6 Jun.	Gaya, Hazaribagh, Nalanda and Vaishali (Bihar)	Severe	(i) 103 people died (of which 41 in Nalanda district and 22 in Gaya district). (ii) 42 cattleheads perished. (iii) 150 people admitted to hospital due to attack of hyper-thermia.

TABLE - IV : DROUGHT

ANDHRA PRADESH

1.	Apr.	Visakhapatnam	(i) 660 large open wells dried up. (ii) Acute shortage of drinking water reported.
2.	Jun. to Aug.	Anantpur, Kurnool, Mahbubnagar and Nellore	(i) 11.21 tonnes of paddy crop worth Rs. 333.6 crore lost. (ii) Total loss of foodgrains estimated to be around Rs. 860 crore.

GUJARAT

1.	Aug. to Oct.	Entire State	75% of the kharif crops damaged.
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(1)	(2)	(3)	(4)	(5)	(6)
		<u>HIMACHAL PRADESH</u>			
1.	Mar & Apr.	Entire State			Agriculture and horticultural crop worth Rs. 50 crore damaged.
		<u>JAMMU &amp; KASHMIR</u>			
1.	Mar. & Apr.	Entire State		(i)	This is reported to be worst drought in the last five decades.
				(ii)	Paddy crops badly damaged.
				(iii)	Srinagar city experienced acute shortage of drinking water.
		<u>KARNATAKA</u>			
1.	Aug. & Sep.	Entire State		(i)	80,000 villages in 141 talukas covering more than 50% of the State population affected.
				(ii)	Worst affected district was Dharwar where 75% of the normal kharif crop including 5.8 million tonnes of foodgrains and 77,000 bales of lint damaged.
				(iii)	6,70,000 small and marginal farmers affected.
		<u>MADHYA PRADESH</u>			
1.	Apr. & May	26 districts		(i)	26 districts with a population of 1.2 crore affected.
				(ii)	The worst affected districts were Bastar, Raigarh and Surguja.
				(iii)	Crop worth Rs. 122 crore damaged.
				(iv)	Acute shortage of drinking water reported.
2.	Oct. & Nov.	West M.P.		(i)	The affected districts were Dewas, Dhar, Indore, Jhabua, Khandwa, Khargone, Mandasaur, Ratlam and Ujjain.
				(ii)	Maize, Urad and groundnut crop badly damaged.
				(iii)	5932 villages of 27 districts experienced acute shortage of drinking water.
		<u>MAHARASHTRA</u>			
1.	Mar. to May	22 districts		(i)	14 million people and 6 million cattle in 22 districts affected.

(1)	(2)	(3)	(4)	(5)	(6)
					(ii) Standing sugarcane crop in 4000 hectares of land in Ahmednagar district completely wiped out. (iii) 90% of wells in Ahmednagar district dried up. (iv) Acute shortage of drinking water reported.
2.	Jun. to Sep.	(a) Ahmednagar			(i) 40% of kharif crop damaged as the water level of Bhandardara, Mula, Darara, Gangapur and Ghod dams fallen considerably. (ii) Only 10% of the sugarcane cultivation survived. (iii) Standing crop in 48,080 hectares of land in Pathardi taluka, completely damaged.
		(b) Thane			(i) 380 villages of Morbad, Shahapur and Kalyan talukas affected. (ii) 90% of the tubewells used for irrigation purposes, dried up causing considerable damages to crops. (iii) Estimated loss of kharif crops around several crores of rupees reported.
3.	Sep. to Nov.	19 districts			(i) Ahmednagar, Dhule and Nashik districts worst affected. (ii) Srirampur town of Ahmednagar district faced acute shortage of drinking water. (iii) Rural population migrated to the cities for jobs.
		<u>ORISSA</u>			
1.	Aug. & Sep.	Kalahandi			Acute shortage of drinking water reported.
		<u>RAJASTHAN</u>			
1.	Mar.	Ajmer, Banswara, Jaipur, Jhalwar, Sikar, Tonk and Udaipur			Acute shortage of drinking water reported. 59 tankers employed for distribution of drinking water.
2.	Aug. & Sep.	Entire State			(i) 75% of 37,584 villages affected. (ii) 70% of the total crops damaged. (iii) Acute shortage of drinking water reported.

(1)	(2)	(3)	(4)	(5)	(6)
		<u>HIMACHAL PRADESH</u>			
1.	Mar & Apr.	Entire State			Agriculture and horticultural crop worth Rs. 50 crore damaged.
		<u>JAMMU &amp; KASHMIR</u>			
1.	Mar. & Apr.	Entire State		(i)	This is reported to be worst drought in the last five decades.
				(ii)	Paddy crops badly damaged.
				(iii)	Srinagar city experienced acute shortage of drinking water.
		<u>KARNATAKA</u>			
1.	Aug. & Sep.	Entire State		(i)	80,000 villages in 141 talukas covering more than 50% of the State population affected.
				(ii)	Worst affected district was Dharwar where 75% of the normal kharif crop including 5.8 million tonnes of foodgrains and 77,000 bales of lint damaged.
				(iii)	6,70,000 small and marginal farmers affected.
		<u>MADHYA PRADESH</u>			
1.	Apr. & May	26 districts		(i)	26 districts with a population of 1.2 crore affected.
				(ii)	The worst affected districts were Bastar, Raigarh and Surguja.
				(iii)	Crop worth Rs. 122 crore damaged.
				(iv)	Acute shortage of drinking water reported.
2.	Oct. & Nov.	West M.P.		(i)	The affected districts were <del>Nxx</del> Dewas, Dhar, Indore, Jhabua, Khandwa, Khargone, Mandasaur, Ratlam and Ujjain.
				(ii)	Maize, Urad and groundnut crop badly damaged.
				(iii)	5932 villages of 27 districts experienced acute shortage of drinking water.
		<u>MAHARASHTRA</u>			
1.	Mar. to May	22 districts		(i)	14 million people and 6 million cattle in 22 districts affected.

(1)	(2)	(3)	(4)	(5)	(6)
				(ii)	Standing sugarcane crop in 4000 hectares of land in Ahmednagar district completely wiped out.
				(iii)	90% of wells in Ahmednagar district dried up.
				(iv)	Acute shortage of drinking water reported.
2.	Jun. to Sep.	(a) Ahmednagar		(i)	40% of kharif crop damaged as the water level of Bhandardara, Mula, Darara, Gangapur and Ghod dams fallen considerably.
				(ii)	Only 10% of the sugarcane cultivation survived.
				(iii)	Standing crop in 48,080 hectares of land in Pathardi taluka, completely damaged.
		(b) Thane		(i)	380 villages of Morbad, Shahapur and Kalyan talukas affected.
				(ii)	90% of the tubewells used for irrigation purposes, dried up causing considerable damages to crops.
				(iii)	Estimated loss of kharif crops around several crores of rupees reported.
3.	Sep. to Nov.	19 districts		(i)	Ahmednagar, Dhule and Nashik districts worst affected.
				(ii)	Srirampur town of Ahmednagar district faced acute shortage of drinking water.
				(iii)	Rural population migrated to the cities for jobs.
<u>ORISSA</u>					
1.	Aug. & Sep.	Kalahandi			Acute shortage of drinking water reported.
<u>RAJASTHAN</u>					
1.	Mar.	Ajmer, Banswara, Jaipur, Jhalwar, Sikar, Tonk and Udaipur			Acute shortage of drinking water reported. 59 tankers employed for distribution of drinking water.
2.	Aug. & Sep.	Entire State		(i)	75% of 37,584 villages affected.
				(ii)	70% of the total crops damaged.
				(iii)	Acute shortage of drinking water reported.

(1)	(2)	(3)	(4)	(5)	(6)
3.	Oct.	Ajmer			1.5 million people in Ajmer city, Krishnagar, Beawar, Vijaynagar experienced acute shortage of drinking water.
<u>TAMILNADU</u>					
1.	May	Coimbatore, Dharmapuri, Madurai, Salem and Tiruchirapalli.			(i) 25 talukas of these districts affected. (ii) Dindigul and Madurai cities worst affected. (iii) Acute shortage of drinking water reported as the ground water level went down to 2 metres below normal.
<u>WEST BENGAL</u>					
1.	Mar. & Apr.	Bankura, Birbhum, Hooghly, Malda, Midnapur and Purulia			(i) 75% of the State population affected. (ii) Acute shortage of drinking water reported as ponds, wells and tube-wells dried up. (iii) Damodar valley corporation, Hydro power generation unit at Maithon, Panchet, Tilaiya and Konar closed down due to shortage of water.

TABLE - V : SQUALLS

CRITERIA

Moderate : Surface wind speed (in gusts) upto 80 kmph.

Severe : Surface wind speed (in gusts)  $\geq$  80 kmph.

1.	30 Mar.	Lucknow	(84 Severe - 87 kmph)	(i) Trees, telephone poles uprooted. (ii) Power supply disrupted.	
2.	9 Apr.	New Delhi	Severe	(i) 2 persons died when roof of a godown of central warehouse collapsed. (ii) Two women injured in collapse incidents and another injured when a tree fell over her.	A massive six tonne iron container kept on the top of the central warehouse fell down on the ground due to strong wind.

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 (1)            (2)            (3)            (4)            (5)            (6)  
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(iii) 3 persons of Tamil Nadu special Police branch injured.

3.	2 May	Lucknow	Moderate (70 kmph)	2 persons died.	
4.	15 Jun.	New Delhi	Moderate		(i) About 100 trees uprooted. (ii) Vehicular traffic disrupted.

TABLE - VI : GALE

CRITERIA

Strong : Wind speed  $\geq$  75 kmph.

1.	12 Mar.	Malappuram (Kerala)	Strong	A 4-year old girl died due to falling of a tree.	(i) Several huts damaged. (ii) Hundreds of trees uprooted.
2.	23 Mar.	Raichur (Karnataka)	Strong	3 persons died in a house collapse near Chinala in Koppal tehsil.	
3.	16 Apr.	(a) Midnapur (W. Bengal)	Strong (200 kmph)	60 persons seriously injured.	(i) 500 mud houses collapsed. (ii) Many trees uprooted disrupting vehicular traffic. (iii) Power supply completely disrupted.
		(b) Mysore	Strong	One person died.	In Mysore city, many electric and telephone poles uprooted snapping power and communication lines. Damage estimated to be over Rs. 10 lakh.
4.	1 May	Quilon (Kerala)	Strong	One person electrocuted in Anchal village when broken electric wire fell over him.	Several houses damaged.

(1)	(2)	(3)	(4)	(5)	(6)
5.	1 Jun.	Alleppey (Kerala)	Strong		(i) About 200 houses in Karthikapally, Ambalapuzha and Sherthala tehsils damaged. (ii) 400 hectares of paddy field affected.
6.	2 Jun.	Trivandrum and Trichur (Kerala)	Strong		(i) Hundreds of coconut trees uprooted. (ii) Many thatched houses damaged.
7.	24 Jun.	(a) Alleppey (Kerala)	Strong		(i) One coir factory damaged. (ii) Several coconut and other trees uprooted.
		(b) Kottayam (Kerala)	Strong	60 students injured in Karuna- chal village when roof-tops of a school blown away.	
		(c) Malappuram (Kerala)	Strong	5 persons <del>s</del> injured.	100 coconut trees uprooted and 15 houses damaged in Kadalundi.
		(d) Trivandrum (Kerala)	Strong		50 houses and several huts damaged in Poonthura and Valiyathura.
8.	25-28 Jun.	(a) Alleppey (Kerala)	Strong	4 people died.	(i) 213 houses fully and 5442 houses partially damaged. (ii) Cultivation in 1150 hectares of land, affected. (iii) 29,000 people removed to safer places.
		(b) Cannanore (Kerala)	Strong	10 persons died.	
		(c) Kozhikode (Kerala)	Strong	4 persons died and 5 other injured.	
9.	25-29 Jun.	Ernakulam and Trichur (Kerala)	Strong	4 people reported missing in Ernakulam and two in Trichur.	
10.	4 Aug.	Cannanore (Kerala)	Strong		Six houses collapsed and 400 coconut trees uprooted in Puthiyangudi village.
11.	22 Aug.	Quilon (Kerala)	Strong	Many people feared drowned.	19 boats capsized in Neendakara.

(1)	(2)	(3)	(4)	(5)	(6)
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TABLE - VII : DUSTSTORM

CRITERIA

Moderate : Wind speed between 39 to 74 kmph and horizontal visibility upto 500 metres.  
 Severe : Wind speed  $\geq$  75 kmph and horizontal visibility upto 50 metres.

1.	10 Jun.	(a) Delhi	Severe	3 persons electrocuted in Jahangirpuri area of north Delhi when a conductor of LT feeder fell on them.	
		(b) Punjab, Haryana and Chandigarh	Severe	One person killed in Ludhiana and 5 injured in Karnal.	(i) 220 KV tower collapsed in Zirakpur (in Punjab) (ii) Power supply and telecommunication links disrupted. (iii) Many trees uprooted causing extensive damage to electric poles and T.V. antennas.

TABLE - VIII : LIGHTNING

1.	1 Jan.	Kapurthala (Punjab)		One person killed at Sadhura.	
2.	30 Mar.	(a) Hyderabad (Andhra Pradesh)		A 40-year old person killed at Kookatpalli, a suburb of Hyderabad city.	Cotton bales worth Rs. 20 lakhs destroyed in a fire caused by lightning in Sarroonagar an outskirts of Hyderabad city.
		(b) Nasik (Maharashtra)		One person died and 2 other injured in Nasik city.	
3.	7 Apr.	(a) Kottayam (Kerala)		One girl killed in Thekkemala.	
		(b) Yeotmal (Maharashtra)		(i) 3 people died and 9 injured. (ii) 4 cattle perished in Mulawa village in Umardhed tehsil.	
4.	21 Apr.	Coorg (Karnataka)		One person killed and 4 injured in Somwarpet tehsil.	



(1)	(2)	(3)	(4)	(5)	(6)
5.	23 Apr.	Kottayam (Kerala)		One boy killed and two other injured in Puthoor.	
6.	25 Apr.	(a) Hoshiarpur (Punjab)		One person killed and 4 other injured.	
		(b) Kottayam (Kerala)		2 persons electrocuted.	
7.	7 May	Karimnagar (Andhra Pradesh)		3 persons killed at Kamanpur village.	
8.	17 May	Quilon (Kerala)		8 persons killed and 7 injured in Pathanamthitta.	
9.	19 May	(a) Midnapur (West Bengal)		A 8-year old boy killed and 24 injured in Contai.	
		(b) Palghat (Kerala)		2 persons killed.	
10.	23 May	Dhar (Madhya Pradesh)		2 children died and a man injured in Mendikhedi village, 30 km from Dhar.	
11.	25 May	Visakhapatnam (Andhra Pradesh)		2 persons electrocuted in Kapuladibbidipalem, 25 km from Visakhapatnam.	
12.	2 Aug.	Ernakulam (Kerala)		One person killed.	
13.	11 Aug.	Patiala		2 persons electrocuted.	
14.	19 Sep.	Chatarpur (Madhya Pradesh)		A 10-year old girl killed at Gulgomj village.	
15.	26 Sep.	(a) Nasik (Maharashtra)		One person killed and another injured in Sonambe village (Sinnar tehsil).	

(1)	(2)	(3)	(4)	(5)	(6)
		(b) Thane		One person killed in Karal village and 8 injured in Chargaon village of Ulhasnagar tehsil.	
16.	4 Oct.	Ratnagiri (Maharashtra)		One farmer killed and 5 injured in Talqarundhe village of Chiplun tehsil.	
17.	10 Oct.	Thane (Maharashtra)		One man and 3 women killed at Ganjad, Kothi and Sogabe villages in Dahanu tehsil.	
18.	8 Nov.	Kozhikode and Quilon (Kerala)		2 persons killed in Mughathala village (Quilon district) and one in Pympru village (Kozhikode district).	
19.	9 Nov.	Kozhikode (Kerala)		One person killed in Mattamchery.	
20.	15 Dec.	Kangra (Himachal Pradesh)		(i) 2 persons injured in Shahpur. (ii) One buffalo killed.	
21.	26 Dec.	Simla (Himachal Pradesh)		5 persons killed in Puab village.	A house caught fire due to lightning. Loss estimated to be Rs. 4 lakhs.

(1) (2) (3) (4) (5) (6)

TABLE - IX : THUNDERSTORM

CRITERIA

Moderate : Loud peals of thunder with frequent lightning flashes, moderate to heavy rains and maximum wind speed 29 to 74 kmph.

Severe Continuous thunder and lightning, heavy rains and maximum wind speed  $\geq$  75 kmph.

1.	21 Jan.	Amravati (Maharashtra)	Moderate		Standing crop badly damaged.
2.	27 Jan.	Chandigarh	Moderate		Cricketmatch being played between India and England disrupted.
3.	18 Mar.	(a) Kamrup (Assam)	Severe	One person died and another injured.	(i) 100 houses completely destroyed. (ii) Several roof-tops blown away. (iii) Large number of trees uprooted. (iv) Rabi crop razed to ground.
		(b) Sangli (Maharashtra)	Severe		(i) At Miraj, several huts levelled to ground. (ii) Many roof-tops blown away and several trees uprooted, disrupting vehicular traffic. (iii) Grape orchards badly damaged.
4.	31 Mar.	North Tripura (Tripura)	Severe	One child died and two including a girl seriously injured.	Several houses damaged and many trees uprooted.
5.	1 Apr.	Nasik (Maharashtra)	Severe		(i) 10,000 bags of wheat brought by Adivasi Mahamandal at Harsul, Karanjli and Jogmodi, destroyed. (ii) Grapes and harvested wheat damaged. (iii) Power supply in Igatpuri, Niphad and Sinnar disrupted.

(1)	(2)	(3)	(4)	(5)	(6)
6.	2 Apr.	(a) Gwalior (Madhya Pradesh)	Severe	4 persons died in a house collapse.	
		(b) Jhabua (Madhya Pradesh)	Severe	3 cattleheads perished.	(i) 40 houses collapsed, In all 100 tribal houses damaged. Loss estimated around Rs. one lakh. (ii) Roof-tops of 60 houses blown away. (iii) Several trees uprooted.
7.	16 Apr.	Midnapur (West Bengal)	Severe	50 persons injured, many of them hospitalized in Kharagpur	(i) 500 huts badly damaged. (ii) Many trees uprooted.
8.	17 Apr.	Hooghly and Howrah (West Bengal)	Severe	4 persons died.	(i) 400 huts badly damaged. (ii) Two transmission towers belonging to State Electricity Board in Adisaptagram, uprooted. (iii) Power line between Rishra-Kaitala, Raghunathpur-Rishra and Kolaghat-Howrah, snapped.
9.	26 Apr.	Gauhati and neighbourhoods (Assam)	Severe	(i) 5 persons died and 36 injured. (ii) 100 cattle perished.	(i) 450 houses damaged. (ii) Several trees, telephone and telegraph poles uprooted, disrupting power supply.
10.	29 Apr.	(a) Calcutta and suburbs (West Bengal)	Severe	One person died due to electrocution and another injured in a house collapse.	(i) Train services on Sialdah; south section of 'Eastern Railway' suspended for several hours. (ii) Several trees, electric poles uprooted.
		(b) Cuttack (Orissa)	Tornado	(i) 2 persons died and 49 injured. (ii) 20 cattle perished.	(i) 40 houses completely and 25 partially collapsed in Chirgunia village in Sukinda block. (ii) 65 families affected.
11.	4 May	Balasore	Severe	(i) 3 persons died. (ii) 4 cattle perished.	Many trees uprooted.

(1)	(2)	(3)	(4)	(5)	(6)
12.	7 May	(a) Kalahandi, Sundargarh (Orissa)	Tornado	Two persons died (one each in Hatibari and Nawapara).	(i) 136 houses in 3 villages viz. Brahmbani, Hatibari and Nawapara, collapsed. (ii) In all 800 families affected.
		(b) Ratnagiri (Maharashtra)	Severe		(i) Standing mango orchards badly damaged. (ii) Power supply completely disrupted.
13.	12-15 May	Agartala (Tripura)	Moderate		Damage to private property reported.
14.	13 May	Alleppey (Kerala)	Severe	One person died and 6 injured.	(i) 30 houses damaged. (ii) Extensive damage to telephone and electric lines reported.
15.	14 May	(a) Allahabad (Uttar Pradesh)	Severe	20 persons died in the out- skirts of Allahabad city.	Standing crop badly damaged.
		(b) Cooch Behar (West Bengal)	Tornado	3 persons died.	(i) One house damaged. (ii) Many roads blocked due to uprooting of trees, disrupting vehicular traffic.
		(c) Katihar (Bihar)	Severe	7 persons died.	1000 huts destroyed.
16.	15 May	Katihar, Purnea (Bihar)	Severe	(i) 9 persons drowned in Katihar district. (ii) 10 persons died and many injured in Purnea district.	(i) Roof-top of Paranpur block office and 244 m. long wall of Katihar jail, collapsed. (ii) Crop in Purnea district badly damaged.
17.	25 May	Kolhapur (Maharashtra)	Severe	One man injured when strong wind hurled him 100 ft. away.	(i) Roof-tops of 250 houses blown away. (ii) Damage to property worth Rs. 35 lakh in Hupari, Rendal areas reported.
18.	27 May	Nagpur (Maharashtra)	Severe	One person died and 8 (includ- ing 5 children) injured in a house collapse at Shantinagar, in eastern parts of the city.	
19.	2 Jun.	Nagpur (Maharashtra)	Moderate		(i) Low lying areas flooded with rain water. (ii) Many trees uprooted.

(1)	(2)	(3)	(4)	(5)	(6)
20.	5 Jun.	Nagpur (Maharashtra)	Severe	4 children died and one girl injured in a house collapse in the northern part of the city.	
21.	6 Jun.	Jabalpur (Madhya Pradesh)	Severe	One person injured.	Several trees, telephone and electric poles uprooted disrupting power and telecommunication services.
22.	14 Jun.	Wardha (Maharashtra)	Moderate		(i) 13 cement sheets of a shop blown away. (ii) Several trees and two electric poles uprooted.
23.	15 Jun.	Amravati (Maharashtra)	Moderate		Several trees and electric poles uprooted disrupting vehicular traffic.
24.	30 Sep.	Guntur (Andhra Pradesh)	Severe	3 persons died (one in Chall-gonda village and 2 other in Kothapalli village).	
25.	2 Oct.	Hyderabad (Andhra Pradesh)	Severe	2 persons died in Bowanpalli area of the city.	
26.	10 Oct.	(a) Jaunpur (Uttar Pradesh)	Severe	One person died due to electrocution.	
		(b) Kanpur (Uttar Pradesh)	Severe	9 persons (including 5 children) died in a house collapse.	
27.	12 Oct.	Bahraich (Uttar Pradesh)	Severe		Many houses collapsed and several trees uprooted in Chirai village.

(1) (2) (3) (4) (5) (6)

TABLE - X : HAILSTORMS

CRITERIA

Slight : Sparse, usually small in size and often mixed with rain.

Moderate : Fall abundant enough to whiten ground.

Heavy : Includes at least a proportion of large stones.

1.	1 & 2 Jan.	Mukteshwar and Mussorie (Uttar Pradesh)	Moderate		20% of the standing crops in Bansi, Nawgarh and Basti tehsil, damaged.
2.	2 Jan.	Amravati (Maharashtra)	Heavy		Orange orchards in Morshi tehsil and adjoining areas badly damaged.
3.	23 Mar.	Nalgonda (Andhra Pradesh)	Heavy		(i) 25 villages of Munugodu Panchayat, affected. (ii) Crop worth Rs. 40-50 lakhs, damaged.
4.	2-4 Apr.	Akola (Maharashtra)	Heavy	Some cattle reported died.	
5.	22 Apr.	(a) Vizianagaram (Andhra Pradesh)	Heavy		Many trees uprooted, disrupting telecommunication.
		(b) Warangal (Andhra Pradesh)	Heavy		(i) Mango grooves and plantations in Rayaparthi village, badly damaged. Loss estimated at Rs. 20 lakhs. (ii) Many trees and electric poles uprooted. (iii) Many huts damaged.
6.	25 Apr.	Tiruchirapalli (Tamilnadu)	Heavy		(i) Hailstorm at Tiruchirapalli airport reported. (ii) Few houses and many huts damaged.
7.	14 May	Lucknow (Uttar Pradesh)	Heavy		(i) Hailstones weighing 100 gms reported. (ii) Many orchards badly damaged.

(1)	(2)	(3)	(4)	(5)	(6)
8.	26 Dec.	Chandigarh	Moderate	One person died.	Many trees uprooted.
9.	27 Dec.	Haryana, Himachal Pradesh and Punjab	Moderate		(i) Normal life disrupted. (ii) Vehicular traffic from Simla suspended. (iii) Telecommunication link disrupted. (iv) Large scale destruction of crop reported in Patiala district of Punjab.



S.No.	Date/period	Area affected	Intensity(river)	Casualties	Extent of damage
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TABLE - XI : FLOODS & HEAVY RAINS

ANDHRA PRADESH

1.	5 Oct.	Hyderabad	Heavy rains	One person died in city in a house collapse.	
2.	11,12 Nov.	Nellore	Heavy rains	6 persons died.	(i) 72 tanks breached. (ii) Banks of Challakalra, Swarnamukti and Kalengi rivers breached at several places. (iii) Property worth Rs. one crore lost.

ASSAM

1.	Jun. (1st and 2nd week)	Cachar, Darrang, Dibrugarh, Karimganj, Lakhimpur, Nowgong	Severe (Brahmaputra, Barak and their tributaries)	6 persons died.	(i) 30,000 hectares of paddy field in 400 villages submerged under flood water. (ii) 500 houses inundated. (iii) Cachar and Karimganj districts cut off from rest of the state as Jowai - Bodarpur section of National Highway No. 44 closed down due to landslide near Sonapur. (iv) Rail communication to these districts disrupted following collapse of two railway bridges on Lomding-Bodarpur metre-gauge section of northeast Frontier Railway. (v) Road traffic to Tripura closed as Assam-Agartala road submerged by flood water at several places near Patharkandi.
2.	Jul.	Cachar, Darrang, Dhubri, Goalpara, Kamrup, Karimganj, Kokrajhar, Lakhimpur, Nowgong, Sonitpur and Sibsagar	Severe (Brahmaputra and its tributaries)	15 persons died.	(i) Lakhs of people rendered homeless. (ii) Rail and road communication completely disrupted.

(1)	(2)	(3)	(4)	(5)	(6)
3.	2 & 3 Aug.	Lakhimpur	Flash floods	3 persons drowned.	
		<u>BIHAR</u>			
1.	3 Jul.	Munger	Severe (Kiul)	7 persons drowned.	(i) 5000 people affected. (ii) Newly constructed Badua dam costing Rs.2 crore breached at two places.
2.	14 Jul.	Patna	Heavy rains	5 boys injured in two separate incidents of house collapse in Lodhipur Mohallah area.	
3.	Jul. (3rd week)	East Champaran, Gopalganj, Samastipur	Severe (Gandak, Kosi and Mahananda)		(i) 100 houses damaged in Gopalganj and Samastipur districts between 17-18 July. (ii) 500 families rendered homeless in these districts. (iii) In East Champaran district flood water eroded 4 villages under Madhuban block. 20 houses washed away.
4.	Jul. (4th week) and Aug.	Bhojpur, East Champaran, Katihar, Khagaria, Madhubani, Munger, Saharsa, Samastipur, Patna, West Champaran, Muzaffarpur, Begusarai, Rohtas, Gopalganj, Saran, Ranchi, Palamau	Severe (Bagmati, Gandak, Burhi Gandak, Ganga, Kamla Balan, Kosi and Son)	15 persons died.	(i) In all 17 districts with a population of 3 million spread over 2500 villages affected. Madhubani and West Champaran districts worst affected. (ii) In Madhubani district, one lakh people affected due to breach in Laukahati-Jhajhari embankment. (iii) Crop in 1,80,000 hectares damaged. Loss estimated around Rs. 9 crore. (iv) 2448 houses worth Rs. 16.88 lakh and the public property worth Rs. 105.17 lakh damaged. (v) In West Champaran district, 20,000 people rendered homeless in Thakuraha block. Pipra-Piprasi embankment breached atleast 1000 metre at Thori. Wireless communication between Thori and State Capital cut off for 4 days. 700 houses damaged rendering 4000 people homeless.

(1)	(2)	(3)	(4)	(5)	(6)
					(vi) In Katihar district, Ganga-Darjeeling road at Karthagola suspended.
5.	Sep. (2nd to 4th week)	East Champaran, Madhubani, Muzaffarpur and Sitamarhi	Severe (Ganga and its Tributaries)	40 people died.	(i) Worst affected districts being East Champaran where 3532 villages with a population of 37 lakh affected and 12,363 houses damaged. (ii) In Muzaffarpur district, 4 lakh people affected. (iii) Crop worth Rs. 20 crore damaged. (iv) Public utility services worth Rs.1.18 crore lost.
6.	6 Oct.	Begusarai	Severe (Baiti and Baleu)		(i) 70,000 people in 24 villages affected. (ii) Standing crop worth about Rs. 25 lakh damaged.
7.	17 Oct.	Patna	Flash floods (Ganga)		Normal life in Patna city, paralysed.
8.	Oct. (3rd week)	Nalanda, Patna and Samastipur	Severe (Ganga and Tributaries)		(i) In Samastipur district, one lakh people affected. Maize and chilli crop worth Rs. one crore damaged. (ii) In Nalanda district, 70 villages submerged under flood water. Large number of houses either collapsed or damaged. (iii) Paddy crop in Harnaul and Rahai blocks of Patna district affected.
<u>GUJARAT</u>					
1.	6-8 Aug.	Ahmedabad, Panch Mahals, Vadodara	Heavy rains	11 persons (including 5 children) died. The district-wise break-up : Ahmedabad - 2 Panch Mahals - 3 Vadodara - 6	

(1)	(2)	(3)	(4)	(5)	(6)
<u>HARYANA</u>					
1.	5-16 Aug.	Ambala, Hisar, Jind, Karnal, Rohtak, Sirsa	Severe (Suflaj, Yamuna)	In all 21 persons died and 300 cattle- heads perished.	(i) In all these districts, 1.5 lakh people rendered homeless while cotton and kharif crop worth Rs. 60 crore damaged. (ii) Jind and Sirsa districts affected. / worst (iii) In all 40,000 houses (of which 1000 in Jind and Sirsa districts) collapsed. (iv) In Jind district, standing crop in 13,000 hect- ares of land damaged. Two goods train derailed due to sinking of railway track. (v) In Hisar district, 4043 out of 5010 villages affected. Crop worth Rs. 8.2 crore damaged. (vi) In Sirsa district, 15,000 hectares of cultivated land washed away while crops in 8000 hectares severely damaged. (vii) In Rohtak district, 4047 hectares of cultivated land affected due to waterlogging.
<u>HIMACHAL PRADESH</u>					
1.	14-16 Jul.	Entire area	Heavy rains		Telecommunication link and power supply dis- rupted.
2.	5 Aug.	Hamirpur and Una	Heavy rains	2 persons killed in Una district.	Vehicular traffic disrupted due to landslide in Hamirpur district.
3.	6-7 Aug.	Una	Heavy rains		Property worth Rs. 6 crore damaged.
4.	11 Aug.	Kangra	Heavy rains		(i) Power supply and telecommunication link snapped. (ii) Vehicular traffic affected due to landslide.
5.	13 & 14 Aug.	Una	Heavy rains	2 persons killed.	(i) 230 houses collapsed or damaged. (ii) Maize crop in 405 hectare damaged.
6.	22 Aug.	Mandi	Heavy rains	3 persons killed in a landslide.	

(1)	(2)	(3)	(4)	(5)	(6)
7.	24 Aug.	Hamirpur, Kangra, Mandi	Moderate rains	4 persons died (2 each at Mandi and Jamunanagar).	(i) 300 families rendered homeless in Mandi district. (ii) Property worth Rs. 4 lakh damaged in Dharamsala, headquarters of Kangra district. (iii) In Hamirpur, 200 houses collapsed. (iv) Extensive damage to crop, roads, buildings and bridges reported.
<u>JAMMU &amp; KASHMIR</u>					
1.	18 Jul.	Jammu	Heavy rains	8 persons killed and 50 other injured due to house collapse at <del>Akhnoor</del> Akhnoor.	
2.	22 Jul.	Poonch	Heavy rains	7 persons died in drowning.	
3.	24 Jul.	Badgam and Baramula	Cloud burst		(i) Many houses damaged. (ii) Agricultural crop destroyed.
4.	4 Aug.	Baramula	Cloud burst	5 persons killed at Bagana, Noor village of Uri <del>tehsil</del> <del>tehsil</del> tehsil.	Srinagar-Jammu National Highway blocked due to landslide.
<u>KARNATAKA</u>					
1.	12 May	Hassan	Heavy rains	5 people killed and 17 other injured when a shed housing a touring <del>at</del> cinema at Shravanabelogola collapsed.	
2.	28 Sep.	Mysore	Flash flood	5 persons drowned in Derkanambi village of Gundalpet tehsil.	
<u>KERALA</u>					
1.	13 Jun.	Kozhikode	Heavy rains	2 persons injured in a house collapse.	

(1)	(2)	(3)	(4)	(5)	(6)
2.	24-28 Jun.	Idukki	Heavy rains	28 people including a family of 9, killed in different parts of the city.	<ul style="list-style-type: none"> <li>(i) 1000 houses collapsed.</li> <li>(ii) Vehicular traffic between Idukki-Kothamangalam disrupted due to landslide at Vazathoppu and Karimbam.</li> <li>(iii) Road and telecommunication link disrupted.</li> <li>(iv) Paddy crop suffered extensive damage.</li> <li>(v) Pepper vines and Cardamam Plantations badly damaged.</li> <li>(vi) Crop worth Rs. 95 crore lost.</li> </ul>
3.	25-29 Jun.	(a) Alleppey	Heavy rains	3 persons (including a 12-year old school girl) died.	
		(b) Cannanore	Heavy rains	5 persons died.	
		(c) Kottayam	Heavy rains	2 persons died.	
		(d) Kozhikode	Heavy rains	2 persons died.	
		(e) Palghat	Heavy rains	3 persons died.	
		(f) Trichur	Heavy rains	One person died.	
4.	14 Jul.	Trivandrum	Heavy rains		About 10 houses collapsed.
<u>MADHYA PRADESH</u>					
1.	24 May	Indore	Heavy rains	One girl died in a house collapse.	
2.	4-5 Aug.	Rewa	Severe (Bichhiya)		<ul style="list-style-type: none"> <li>(i) Vehicular traffic from Satna, Shahdol and Sidhi cut off. Vehicular traffic on National Highway No. 7 completely closed.</li> <li>(ii) 400 families residing in low lying areas in the Rewa city removed to safer places.</li> </ul>

(1)	(2)	(3)	(4)	(5)	(6)
3.	6-10 Aug.	Bhopal	Heavy rains		(i) Bhopal city cut off from rest of the State. (ii) Normal life in the city completely paralysed. (iii) 12 houses collapsed. (iv) Many trees/electric poles uprooted disrupting power supply and telecommunication system. (v) All low lying areas submerged.
4.	6-9 Aug.	Vidisha	Heavy rains		(i) Vidisha town cut off as the road transport service completely paralysed. (ii) Bridge on Betwa river submerged under water.
5.	7-8 Aug.	Sagar	Heavy rains	3 persons including a 4-year old child injured in a house collapse.	(i) 6 houses collapsed. (ii) Life in Sagar city completely paralysed. (iii) Rain water entered into a cinema hall.
6.	17-18 Aug.	(a) Bhopal	Heavy rains		(i) 12 houses collapsed. (ii) Rain water entered into 150 huts. (iii) One house caught fire in Pari bazar due to short circuit.
		(b) Durg	Heavy rains		(i) Thousands of labourers of Rajhara labour colony rendered homeless as the rain water entered into the hutment colony. (ii) Property worth lakhs of rupees lost.
7.	22 Aug.	Vidisha	Heavy rains		(i) Roads and bridges submerged under water due to flooding in Peelia nullah on Vidisha-Bhopal road. (ii) Road link of Vidisha with Bhopal, Raisen and Sagar, suspended.
8.	13 Sep.	Raipur	Heavy rains		(i) Several hundred people rendered homeless. (ii) Hundreds of huts washed away. (iii) IA flights suspended.
<u>MAHARASHTRA</u>					
1.	4 Jun.	Nagpur	Heavy rains	4 children died in a wall collapse.	

(1)	(2)	(3)	(4)	(5)	(6)
2.	11 Jun.	Bombay	Heavy rains		(i) City life completely paralysed. (ii) Rail and road communications completely disrupted. (iii) Low lying areas submerged.
3.	13 Jun.	Aurangabad	Heavy rains	12 workers buried alive due to wall collapse at Deoulgaon bazar in Sillod tehsil.	
4.	16 Jun.	(a) Bombay	Heavy rains	5 persons (including 2 children) died and 8 other injured in a house collapse.	(i) Normal life completely paralysed. (ii) Suburban transport service disrupted. (iii) Loading/unloading operations at the port affected. (iv) Domestic/International flights delayed. (v) Fire <del>brigade</del> brigade attended 30 calls of electric short-circuit.
		(b) Jalgaon	Heavy rains	4 women (including a minor girl) died and 3 men injured at Phokari and Morgaon villages.	
		(c) Ratnagiri	Flash flood		(i) Low lying areas of Sangameshwar, Dapoli, Chiplun and Khed submerged under flood water. (ii) Road communication between Ratnagiri and other parts of the state completely suspended.
		(d) Thane	Heavy rains	6 people injured in a wall collapse at Gautamnagar colony.	
5.	25 Jun.	Bombay	Heavy rains	24 people died and 33 injured in separate wall collapse incidents at Tardeo and Byculla.	(i) 41.4 cm of rainfall recorded at Colaba observatory during 24 hours period ending 1730 hrs of 25th Jun. (ii) Road traffic disrupted due to flooding. Konkan bound State Transport Service from Bombay suspended. (iii) Thousands of people affected.



(1)	(2)	(3)	(4)	(5)	(6)
					(iv) Long distance outgoing trains on the Western Railway cancelled, while incoming trains terminated outside the city at various points.
					(v) Suburban train services on Western and Central railways completely paralysed.
6.	17 Jul.	Nagpur	Heavy rains	One person died and two other injured in a house collapse.	(i) A house and a bridge collapsed. (ii) City bus service completely disrupted.
7.	Jul. (4th week) to Aug. (1st week)	Raigad, Ratnagiri and Sindhudurg	Flash flood (Bavnadi, Kond and Sarasvati)	(i) A man drowned when a small boat capsized in a flooded river. (ii) 5 people died and 4 injured in a house collapse.	(i) Dapoli town cut off. (ii) Flood water entered Chiplun, Khed and Sangameshwar towns.
8.	12 Aug.	Akola	Heavy rains	8 persons injured when a wall of main Post Office compound collapsed.	
<u>MANIPUR</u>					
1.	May (4th week) & Jun. (1st week)	Entire state	Severe		(i) Property worth several crores of rupees lost. (ii) Road link between Imphal-Tamenglong cut off as three bridges on Imphal-Tamenglong highway washed away. (iii) Fourth Assam Rifle Barracks submerged under 2 metre deep water. (iv) Flood water breached embankment at 2 places on the outskirts of Imphal. (v) Compound wall of Raj Bhavan washed away by flood water. (vi) Long stretch of National Highway No. 39 submerged under flood water.
<u>MEGHALAYA</u>					
1.	27-30 Jul.	Entire State	Severe	30 people died due to landslides in Garo hills.	

(1)	(2)	(3)	(4)	(5)	(6)
<u>ORISSA</u>					
1.	Aug. (1st week)	Cuttack, Balasore, Keonjhar, Mayurbhanj, Bolangir, Ganjam	Severe (Mahanadi)		(i) Hundreds of villages marooned. (ii) Large tracts of cultivated land submerged under flood water.
2.	10 Sep.	Bolangir	Severe (Songarh)		(i) Large number of villages and cultivated land submerged under flood water. (ii) Major breach on Bolangir-Saintala road washed away disconnecting Titlagarh and Pusra tehsil from the dist.H.Q. (iii) Flood water entered into large number of houses in Titlagarh and Kantabanji towns. (iv) Many irrigation projects severely affected.
<u>PUNJAB</u>					
1.	18-25 Jul.	Amritsar, Hoshiarpur, Jullundar, Kapurthala, Ludhiana	Severe (Ravi, Sutlaj)	(i) 70 people, including 32 from Jullundar, died. (ii) 150 cattleheads perished in Kapurthala district.	(i) Jullundar district worst affected. (ii) In Jullundar district 20 lakh people affected. 200 Houses collapsed. Low lying areas of the Jullundar city submerged under 2-3 meters of water. Six bridges on Jullundar-Pathankot highway washed away. (iii) Bist Doab canal breached near Adampur. (iv) Rail traffic on Jullundar-Nakodar and Pathankot-Hoshiarpur section suspended for four days. (v) In Kapurthala district, 24 villages with a population of 10 lakh people submerged under 3 mtrs. deep water. 8000 houses badly damaged. (vi) Two lakh hectares of fertile land and 40,468 hectares of crop-sown land, damaged. (vii) Bus services from Jullundar to Pathankot, Amritsar, Nakodar suspended. (viii) Army/Air force helicopters employed for rescue work.

(1)	(2)	(3)	(4)	(5)	(6)
2.	29-30 Jul.	Jullundar	Heavy rains	2 persons died.	
3.	5-16 Aug.	Entire State (except Hoshiarpur)	Severe (Ravi, Sutlaj and their tributaries)	(i) 23 persons died. (ii) Hundreds of cattle-heads perished.	(i) In all 743 villages affected. (ii) <del>X</del> 75,000 houses damaged rendering 2 lakh people homeless. (iii) In Kapurthala district, thousands of houses collapsed, loss estimated around Rs. 37 crore. (iv) In Jullundar district, 75,000 bags of wheat and 3000 bags of sugar in F.C.I. godowns damaged. (v) In Bhatinda district, crops in one lakh hectare area damaged. (vi) In Faridkot district, 60% of the villages affected. 2200 houses damaged. Loss estimated around Rs.5 crore. (vii) In Ropar district, a railway bridge, near Lohand canal, damaged due to slit. (viii) Property worth crores of rupees damaged in Gurdaspur and Sangrur districts. (ix) Amritsar-Gurdaspur road damaged.

RAJASTHAN

1.	16 Dec.	Jaipur	Heavy rains	6 people died in a house collapse at Bhilwara.	
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TAMIL NADU

1.	Nov. (1st & 2nd week)	Entire State	Severe	80 persons died.	(i) Chengleput, Madras, South Arcot and Tanjavour districts worst affected. (ii) One lakh people affected. (iii) 80,000 hectares of standing crop submerged. (iv) Many culverts and one major railway bridge in Chengleput district totally washed away. (v) Road and rail traffic between Madras city and southern districts of the state completely cut off. (vi) Many houses damaged.
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(1)	(2)	(3)	(4)	(5)	(6)
					(vii) Estimated loss to railways due to washing away of railway bridge and culverts worth Rs. 8 crore.
					(viii) Electricity/telephone/telecommunication installations extensively damaged.
					(ix) Roads breached at many places.
		<u>TRIPURA</u>			
1.	May (4th week)	Entire State	Severe (Manu, Deo and Gomti)	10 people died and 4 other injured.	(i) Heavy landslides reported in Champali village of West Tripura district. (ii) In all 2 lakh population affected. (iii) Flood water inundated 68 villages. (iv) Assam-Agartala road completely damaged. (v) Kulaicherra bridge connecting Kamalpur with Agartala damaged, disrupting vehicular traffic. (vi) 7 bridges damaged.
2.	Jun. (2nd week)	Entire State	Severe (Manu, Deo and Dholai)		(i) Surface communication between the state and the rest of the country cut off, as the approach road to a major bridge on Assam-Agartala National Highway washed away. (ii) More than 60,000 people affected. Large areas in Kailashar and Kamalpur sub-divisions and in Kanchanpur, submerged under flood <del>watex</del> water.
		<u>UTTAR PRADESH</u>			
1.	Jul. (4th week)	Garhwal	Flash flood (Gola)	12 persons swept away in Gola river at Kotedwara.	
2.	Aug. (2nd & 3rd week)	Ballia, Deoria, Ghazipur, Moradabad, Nainital	Severe (Ganga, Yamuna and their tri- butaries)	24 persons died and 7 injured in different incidents of house coll- apse.	(i) About 2200 mud houses and 8000 pucca houses collapsed. (ii) 350 villages in Moradabad district, and 12 villages in Deoria district affected. (iii) Several villages inundated by flood water. (iv) Hassanpuram bund breached.

(1)	(2)	(3)	(4)	(5)	(6)
3.	Sep. (2nd to 4th week)	Agra, Allahabad, Azamgarh, Bahraich, Ballia, Banda, Bara Banki, Bareilly, Basti, Budaun, Bulandshahr, Deoria, Etah, Etawah, Faizabad, Farrukhabad, Fatehpur, Garhwal, Ghazipur, Gonda, Gorakhpur, Hamirpur, Hardoi, Jalaun, Jaunpur, Kanpur, Kheri, Lucknow, Mainpuri, Mathura, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Pilibhit, Pratapgarh, Rae Bareilly, Shahjahanpur, Sitapur, Sultanpur, Unnao, Varanasi.	Severe (Ganga and its tri- butaries)	(i) 220 persons died (of which 50 in Lucknow city itself). (ii) 467 cattleheads perished.	(i) 8.63 million population in 11256 villages of 42 districts of the State, affected. (ii) 1.9 million hectares of land (including 1.2 million hectares of cropped area) submerged under flood water. (iii) 58,676 houses either collapsed or damaged. (iv) In Jaunpur district, 326 villages with a population 1.55 lakh marooned. (v) Food packets air-dropped in affected villages of Bara Banki district. (vi) Varanasi-Jaunpur road submerged under 1.5 m (5 ft) deep flood water.
4.	9-10 Oct.	Lucknow	Heavy rains	7 people (including 4 children) died in house collapse.	
5.	10-11 Oct.	Kanpur	Heavy rains	16 persons died in several incidents of house collapse.	
6.	Oct. (3rd week)	Rae Bareilly	Heavy rains	6 persons died.	
7.	Oct. (4th week)	Garhwal	Heavy rains		A bridge near Malari, situated at an height of 3048 m. (10,000 ft) high breached due to landslides.
<u>WEST BENGAL</u>					
1.	Jul. (4th week)	West Dinajpur, Malda	Severe (Punajbhabha, Tangon).		40,000 people evacuated to safer places.

(1)	(2)	(3)	(4)	(5)	(6)
2.	4 Aug.	Calcutta	Heavy rains		<ul style="list-style-type: none"> <li>(i) Normal city life paralysed.</li> <li>(ii) Train service on Eastern Railway, (Howrah-Sialdah section) disrupted.</li> <li>(iii) 1 km. long stretch of railway track near Howrah station waterlogged.</li> <li>(iv) North and Central Calcutta worst affected.</li> <li>(v) Low lying areas remained under waist deep water.</li> </ul>
<u>ARUNACHAL PRADESH(U.T.)</u>					
1.	Jul. (4th week)	Entire area	Heavy rains		<ul style="list-style-type: none"> <li>(i) Itanagar remained cut off.</li> <li>(ii) Several bridges washed away disrupting road communication.</li> <li>(iii) 3 bridges on National Highway No. 52 between Itanagar and Bandertewa, collapsed.</li> </ul>
2.	Jul. (2nd week)	Lohit, Lower Subansiri, West Siang, East Siang	Moderate	One person killed.	<ul style="list-style-type: none"> <li>(i) Ziro, the district HQ of Lower Subansiri completely cut off due to landslide.</li> <li>(ii) Tezu, the district HQ of Lohit, completely cut off.</li> </ul>
3.	23 & 24 Aug.	Kameng	Heavy rains		Tawang, district HQ of Kameng cut off from other parts of the country due to heavy landslides.
<u>DELHI (U.T.)</u>					
1.	11 Jul.	Entire area	Heavy rains	2 children killed in a wall collapse.	
2.	25 Jul.	Entire area	Heavy rains		<ul style="list-style-type: none"> <li>(i) Most of the roads submerged under water.</li> <li>(ii) Vehicular traffic disrupted.</li> </ul>
<u>PONDICHERRY(U.T.)</u>					
1.	Nov. (1st & 2nd week)	Entire area	Heavy rains	3 people died.	<ul style="list-style-type: none"> <li>(i) 9000 people affected.</li> <li>(ii) 75% of the crop in Karaikal, submerged.</li> <li>(iii) Pondicherry-Madras road traffic suspended.</li> </ul>

S.No.	Date/Period	Area of Formation/Dissipation	Intensity	Casualties	Extent of damage
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TABLE - XII : CYCLONIC STORMS

BAY CYCLONES

1.	19-21 Sep.	<p><u>Formation</u> : At Lat. 19°30'N Long. 87°E</p> <p><u>Landfall</u> : Near Puri around 1800 hrs IST of 20th.</p> <p><u>Dissipation</u>: At the point of landfall itself.</p>	<p>Max. wind speed 35 knots.</p>	<p>(i) 6 fishermen drowned in Chilka lake (Puri dis- trict).</p> <p>(ii) 264 cattleheads perished.</p>	<p>(i) Puri district of Orissa state affected.</p> <p>(ii) Several villages in Ashtrang block of Puri district submerged under 0.6-0.9 m (2-3 ft) of water. (iii) 300 thatched houses collapsed and 400 coconut trees uprooted. (iv) 8 country trawlers damaged. (v) 4047 hectares of paddy field sub- merged under flood water causing widespread damage to paddy crop.</p>
2.	9-12 Oct.	<p><u>Formation</u> : Over west central Bay near Lat. 16°N Long. 84°30'E.</p> <p><u>Landfall</u> : Near Visakhapatnam between 0300 to 0400 hrs IST of 11th.</p> <p><u>Dissipation</u>: 50 km north-west of Waltair on 11th.</p>	<p>Max. wind speed 35 knots.</p>	<p>(i) One person died.</p> <p>(ii) Four cattleheads in Srikakulam district peri- shed.</p>	<p>(i) East Godavari, West Godavari, Srikakulam and Visakhapatnam districts of Andhra Pradesh affected.</p> <p>(ii) Srikakulam district worst affected. 1115 sq.km. area affected. 182 houses fully and 1934 houses par- tially damaged. Total loss estimated to be Rs. 6.72 lakhs.</p> <p>(iii) In West Godavari district, 1833 sq.km. area affected. 8 houses fully damaged. Crop worth Rs. 2 lakh damaged.</p> <p>(iv) In East Godavari district, 233 houses fully and 145 partially damaged. Damage estimated around Rs. 3.73 lakh.</p> <p>(v) In Visakhapatnam district, 215 houses completely and 1390 partially damaged.</p>

(1)	(2)	(3)	(4)	(5)	(6)
3.	13-17 Oct.	<p><u>Formation</u> : Over north-west and adjoining west central Bay in the night of 14th.</p> <p><u>Landfall</u> : South of Balasore on 0430 hrs IST of 16th.</p> <p><u>Dissipation</u>: Over Bihar plateau and adjoining Bihar plains on 17th morning.</p>	Max. wind speed 45 knots.	<p><u>In Orissa</u></p> <p>(i) 47 persons of which 20 from Balasore district, <del>one</del> died.</p> <p>(ii) 1073 cattle-heads perished.</p>	<p><u>In Orissa</u></p> <p>(i) Balasore, Cuttack, Dhenkanal, Keonjhar and Mayurbhanj districts affected.</p> <p>(ii) Balasore and Cuttack districts worst affected.</p> <p>(iii) In Balasore district, 1972 villages affected. 4110 houses fully and 12071 partially collapsed. 9 country boats capsized. 12 Lakh hectares of cropped area submerged. 400 houses swept away. 349 breaches in embankments reported.</p> <p>(iv) In Cuttack district, 3937 villages affected. 1300 houses fully and 9865 partially collapsed while 85 houses swept away. 4 country boats capsized. 15 lakh hectares of cropped area submerged.</p> <p>(v) In Dhenkanal district, 368 villages affected. 32 houses fully and 1207 houses partially collapsed. 28,800 hectares of cropped area submerged under flood water.</p> <p>(vi) In Keonjhar district, 497 villages affected. 1394 houses fully and 13669 houses partially collapsed while 21 houses swept away. 7150 hectares of cropped area submerged. 12 country boats capsized.</p> <p>(vii) In Mayurbhanj district, 1735 villages affected. 850 houses <del>swept away</del> fully and 2715 houses partially collapsed while 500 houses swept away. 16565 hectares of cropped area submerged.</p>



(1) (2) (3) (4) (5) (6)

In West Bengal

- (i) 10 persons died.
- (ii) 1570 cattleheads perished.

In West Bengal

- (i) Midnapur and 24-Parganas districts affected.
- (ii) In Midnapur district, 706 villages with a population of 1.65 lakh affected. 3466 houses collapsed while 7672 houses damaged. 12950 hectares of land area submerged under water.
- (iii) In 24-Parganas district, 490 villages with a population of 5.75 lakh affected. 27500 houses collapsed and 35500 houses damaged. 40,000 hectares of land-area submerged under water.
- (iv) Total loss to crop and property estimated Rs. 15.13 crore.

In Andhra Pradesh

8 persons died and 3 injured.

In Andhra Pradesh

- (i) Nellore district affected.
- (ii) A number of houses collapsed while 113 houses damaged.
- (iii) One country boat and 3 nylon nets damaged. 7 tanks breached.
- (iv) 2 telegraphic poles and 40 electric poles uprooted. Electric supply to 661 villages affected. 1550 transformers and 57 HT lines snapped.
- (v) 21250 agriculture services affected while 1500 industrial and 9750 other services affected.

4. 11-14 Dec.

Formation : Near Lat. 10°N  
Long. 84°30'E  
on 1730 hrs IST  
of 12th.

Landfall : Near Shar at  
2330 hrs IST of  
13th.

Dissipation: Over south  
Andhra Pradesh  
and adjoining  
north Tamil  
Nadu on 14th.

In Tamil Nadu

Many houses in Madras city damaged.

