

2. RAINFALL

India Meteorological Department (IMD) is the central agency which records, and archives rainfall data in India. The IMD maintains a large rainguage network consisting of various types of observatories.

As on January, 2006, the network consists of 660 surface observatories and 697 hydromet observatories. In addition, rainfall data are also recorded at 7941 observatories maintained by various state governments and other non-IMD agencies. Since 1992, IMD had introduced DRMS under which 2821 selected observatories (411 surface observatories + 232 hydromet observatories + 2178 state rainguage stations) record rainfall and transmit to the respective Regional Met Centres of the IMD on real time basis for better rainfall representation. The rainfall data given in this section in respect of 36 meteorological sub-divisions of India are derived from the District-wise Rainfall Monitoring Scheme(DRMS) observatories.

Daily rainfall is recorded at 08.30 hours everyday throughout the country. The daily rainfall at an observatory is the total rainfall for the preceding 24 hours ending at 08.30 hours of the date of the measurement. The monthly rainfall is the sum of all the daily rainfall recorded during that month.

The monthly "Actual rainfall" of a sub-division for a month of a year is the mean of monthly rainfall of all the stations in that sub-division for which rainfall data are available for that month. The sum of actual monthly rainfall for the 12 months is the "actual annual" rainfall of the sub-division for that year. Similarly, the monthly "normal rainfall" of the sub-division is the mean of monthly normal rainfall of the corresponding stations and "annual normal rainfall" is the sum of the monthly normal rainfall for all the 12 months.

The 'monthly normal' rainfall of a station was calculated using all the available data during the period 1941-1990.

Table 2.1 gives sub-divisionwise actual and normal monthly rainfall in the months and annual scale.

Table 2.2 gives sub-divisionwise annual actual rainfall.

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Table 2.1-MONTHLY (ACTUAL AND NORMAL) RAINFALL, 2005
(by meteorological sub-divisions)

Sub-division	Monthly rainfall							
	January		February		March		April	
	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Normal
1	2	3	4	5	6	7	8	9
1.Andaman and Nicobar Islands	18.9	56.1	0.0	29.0	21.5	19.0	43.4	69.0
2.Arunachal Pradesh	52.6	49.0	133.5	88.9	248.0	158.2	204.6	276.5
3.Assam and Meghalaya	24.9	17.9	34.3	26.7	195.3	83.6	200.8	201.5
4.Nagaland, Manipur, Mizoram, and Tripura	4.2	14.4	23.7	26.6	162.9	64.8	82.8	149.1
5.Sub-Himalayan, West Bengal & Sikkim	22.4	19.3	24.8	29.6	122.3	54.6	153.1	116.5
6.Gangetic West Bengal	27.7	13.4	13.4	18.9	79.9	27.4	59.1	46.2
7.Orissa	31.3	12.3	4.9	20.2	27.0	25.0	23.1	35.4
8.Jharkhand	22.0	18.5	25.0	20.7	17.3	20.0	3.9	22.2
9.Bihar	15.6	16.6	14.2	11.8	12.8	11.2	7.0	19.4
10.Uttar Pradesh East	14.0	19.3	14.5	14.0	10.6	9.6	1.3	6.1
11.Uttar Pradesh West	11.6	20.1	17.0	16.1	23.7	11.5	2.3	4.8
12.Uttaranchal	34.9	60.0	82.3	55.8	32.2	59.5	3.9	35.5
13.Haryana, Chandigarh & Delhi	17.2	19.8	38.9	15.9	39.4	13.5	4.3	7.2
14.Punjab	45.0	27.3	61.8	23.8	35.2	26.7	6.6	12.1
15.Himachal Pradesh	67.3	99.9	127.9	92.2	89.1	114.8	14.3	66.1
16.Jammu & Kashmir	151.0	105.9	363.7	128.2	173.3	169.5	60.3	99.7
17.Rajasthan West	1.2	3.9	12.3	4.3	7.1	3.8	4.7	3.3
18.Rajasthan East	0.8	6.4	3.3	4.9	8.1	3.9	8.5	2.6
19.Madhya Pradesh West	6.3	11.1	1.9	6.0	9.5	5.0	5.0	2.1
20.Madhya Pradesh East	41.4	25.8	10.8	19.0	21.0	13.9	2.9	6.1
21.Gujarat Region	0.0	1.3	0.0	0.8	0.0	1.3	0.0	1.3
22.Saurashtra, Kutch & Diu	0.0	0.9	0.0	0.9	0.0	1.3	0.2	1.1
23.Konkan & Goa	0.1	0.8	0.1	0.2	0.0	0.3	1.7	3.7
24.Madhya Maharashtra	0.9	2.4	0.1	1.2	0.6	3.2	5.0	9.9
25.Marathwada	7.0	3.5	0.5	3.2	4.8	6.1	4.3	6.7
26.Vidarbha	70.3	11.1	19.5	10.7	17.2	12.4	11.0	7.9
27. Chattisgarh	53.7	12.9	24.2	14.4	5.9	15.7	9.4	16.5
28.Coastal Andhra Pradesh	4.2	6.7	6.6	8.7	8.7	12.5	21.9	22.1
29.Telangana	36.5	4.4	7.3	5.8	22.0	9.9	10.5	16.6
30.Rayalseema	1.0	3.5	10.7	3.2	6.8	6.5	35.7	17.9
31.Tamil Nadu	3.2	21.0	11.8	14.2	28.7	19.4	126.4	42.3
32.Coastal Karnataka	0.9	1.6	0.1	0.4	0.0	4.2	84.8	27.4
33.North Interior Karnataka	8.7	1.9	1.1	2.7	6.7	6.2	64.4	26.0
34.South Interior Karnataka	8.8	2.0	4.9	3.4	5.2	8.8	91.2	44.2
35.Kerala	18.7	10.8	6.6	15.7	25.8	35.7	202.9	121.7
36.Lakshadweep	17.6	20.4	11.0	16.5	0.0	12.5	37.1	43.0

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Table 2.1-MONTHLY (ACTUAL AND NORMAL) RAINFALL, 2005-Contd.
(by meteorological sub-divisions)

(millimetre)								
Monthly rainfall - Contd.								
Sub-division	May		June		July		August	
	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Normal
1	10	11	12	13	14	15	16	17
1.Andaman and Nicobar Islands	229.6	372.9	471.0	482.0	348.4	419.0	301.1	415.8
2.Arunachal Pradesh	181.8	284.8	282.9	493.7	594.6	595.5	362.7	388.1
3.Assam and Meghalaya	251.8	396.4	350.2	567.1	439.9	563.5	445.4	434.1
4.Nagaland, Manipur, Mizoram, and Tripura	218.6	229.4	167.1	361.1	256.4	345.2	266.7	308.5
5.Sub-Himalayan, West Bengal & Sikkim	244.4	264.6	436.0	495.8	750.8	602.1	330.6	469.7
6.Gangetic West Bengal	80.7	93.1	176.5	239.7	342.1	314.6	238.9	312.4
7.Orissa	44.7	58.1	204.8	204.7	414.0	343.5	199.0	363.4
8.Jharkhand	15.3	47.6	111.6	193.2	254.6	338.1	215.2	329.3
9.Bihar	19.3	56.5	85.7	175.2	272.9	348.1	336.7	297.8
10.Uttar Pradesh East	11.8	17.5	67.0	105.3	308.9	309.2	243.7	301.3
11.Uttar Pradesh West	5.5	12.7	61.3	68.6	312.2	268.4	93.2	286.2
12.Uttaranchal	19.1	62.0	94.2	163.9	541.6	425.4	250.6	426.3
13.Haryana, Chandigarh & Delhi	9.4	13.7	59.7	43.1	198.1	170.5	54.8	167.9
14.Punjab	9.1	15.6	47.5	41.6	200.3	189.2	86.5	168.7
15.Himachal Pradesh	34.3	65.7	52.8	89.9	365.6	288.1	88.9	261.6
16.Jammu & Kashmir	73.0	76.5	28.6	58.5	251.7	186.0	105.6	173.8
17.Rajasthan West	13.5	10.0	33.5	27.0	87.1	101.7	25.6	93.6
18.Rajasthan East	5.8	10.8	76.6	61.2	272.5	224.3	83.7	232.9
19.Madhya Pradesh West	3.2	7.3	81.8	108.1	378.7	304.5	131.6	315.0
20.Madhya Pradesh East	7.3	8.0	149.6	143.6	651.7	371.0	293.0	382.0
21.Gujarat Region	0.1	5.9	402.4	122.6	384.5	360.6	246.2	290.8
22.Saurashtra, Kutch & Diu	0.2	2.3	193.7	81.0	141.5	194.9	63.3	138.2
23.Konkan & Goa	1.5	36.2	724.7	674.5	1316.9	1069.1	750.3	711.7
24.Madhya Maharashtra	2.7	28.3	199.9	134.3	321.7	238.1	224.0	176.3
25.Marathwada	1.4	20.5	52.0	144.0	388.3	192.2	117.3	194.0
26.Vidarbha	8.7	11.0	150.5	167.4	390.8	328.5	248.3	300.4
27. Chattisgarh	29.8	21.1	197.9	188.6	351.5	394.4	261.5	391.2
28.Coastal Andhra Pradesh	55.5	59.8	77.3	99.5	151.0	159.7	97.1	153.8
29.Telangana	11.1	29.2	99.6	135.5	397.6	242.4	145.8	218.0
30.Rayalseema	59.9	53.7	59.6	60.1	132.2	91.1	123.1	97.3
31.Tamil Nadu	77.9	66.5	27.2	41.5	72.4	70.7	80.6	90.1
32.Coastal Karnataka	49.0	147.7	814.3	901.3	1127.2	1188.0	602.8	766.6
33.North Interior Karnataka	42.4	55.7	95.9	98.3	224.7	126.4	122.7	113.2
34.South Interior Karnataka	87.7	97.3	150.4	132.4	325.9	225.5	220.5	164.1
35.Kerala	137.3	268.2	634.9	678.0	877.1	758.0	301.4	447.3
36.Lakshadweep	92.7	178.2	248.8	325.6	381.9	282.3	102.4	212.9

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Table 2.1-MONTHLY (ACTUAL AND NORMAL) RAINFALL, 2005- Concl'd.
(by meteorological sub-divisions)

(millimetre)

Sub-division	Monthly rainfall								Annual rainfall	
	September		October		November		December		Actual	Normal
	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Normal		
1	18	19	20	21	22	23	24	25	26	27
1.Andaman and Nicobar										
Islands	434.4	438.4	306.2	304.9	302.6	236.0	285.5	159.5	2762.6	3001.6
2.Arunachal Pradesh	300.5	357.6	152.4	165.8	25.1	42.4	3.7	35.5	2542.4	2936.0
3.Assam and Meghalaya	143.7	320.6	219.2	153.7	8.4	25.5	0.9	11.4	2314.8	2802.0
4.Nagaland,Mizoram,Manipur and Tripura	240.3	226.2	170.1	145.2	9.3	40.3	10.3	9.9	1612.4	1920.7
5.Sub-Himalayan,West Bengal & Sikkim	262.4	387.7	285.3	155.2	5.9	17.7	0.4	10.2	2670.8	2617.0
6.Gangetic West Bengal	216.2	269.7	343.0	130.3	2.4	22.6	5.5	6.4	1585.4	1494.7
7.Orissa	361.0	248.4	220.1	120.3	13.3	27.6	7.5	5.6	1550.7	1464.3
8.Jharkhand	143.1	244.0	38.3	86.1	1.4	10.5	11.7	4.5	859.4	1334.7
9.Bihar	105.5	227.1	38.2	69.3	4.8	5.3	1.0	3.8	913.7	1242.1
10.Uttar Pradesh East	135.5	197.8	17.5	51.7	0.0	4.0	3.5	6.2	828.3	1042.0
11.Uttar Pradesh West	223.4	149.6	1.3	39.8	0.4	4.2	0.7	6.8	752.6	888.8
12.Uttaranchal	387.2	207.5	18.3	56.2	2.9	8.5	2.1	22.0	1469.3	1582.6
13.Haryana,Chandigarh & Delhi	163.8	88.6	0.0	16.1	1.3	4.7	0.0	6.5	586.9	567.5
14.Punjab	110.8	102.3	0.4	21.5	0.3	5.2	0.0	14.8	603.5	648.8
15.Himachal Pradesh	154.8	134.0	1.3	46.0	0.1	19.8	0.0	45.8	996.4	1323.9
16.Jammu & Kashmir	70.5	95.2	13.3	36.0	18.4	32.2	0.4	84.4	1309.8	1245.9
17.Rajasthan West	75.0	40.5	0.0	4.2	0.3	2.7	0.0	1.9	260.3	296.9
18.Rajasthan East	161.1	105.2	0.0	15.3	0.0	7.1	0.0	3.6	617.4	678.2
19.Madhya Pradesh West	165.3	176.7	1.0	31.8	0.0	13.3	0.1	6.9	784.4	987.8
20.Madhya Pradesh East	204.9	200.7	21.3	38.8	1.4	11.6	3.1	8.7	1408.4	1229.2
21.Gujarat Region	351.1	159.6	1.1	21.7	0.0	11.0	0.0	2.1	1385.4	979.0
22.Saurashtra,Kutch & Diu	238.5	71.6	1.2	13.8	0.0	10.8	0.0	1.3	638.6	518.1
23.Konkan & Goa	708.3	346.8	53.9	104.9	0.0	26.1	0.0	4.4	3557.5	2978.7
24.Madhya Maharashtra	265.1	151.3	81.6	70.9	0.0	28.3	0.0	6.2	1101.3	850.4
25.Marathwada	218.5	174.1	70.2	67.1	0.0	22.0	0.0	6.9	864.3	840.3
26.Vidarbha	254.2	180.0	85.0	53.2	0.0	14.5	2.2	7.5	1257.7	1104.6
27. Chattisgarh	269.8	231.6	100.7	67.3	0.5	10.0	0.2	4.7	1305.1	1368.4
28.Coastal Andhra Pradesh	304.8	162.2	386.7	196.8	95.0	103.6	30.1	25.9	1238.9	1011.3
29.Telangana	315.5	171.4	180.8	84.2	2.3	20.9	1.8	4.5	1230.8	942.8
30.Rayalseema	147.3	132.4	281.3	121.3	97.3	66.4	44.3	24.4	999.2	677.8
31.Tamil Nadu	114.1	113.2	270.6	181.7	347.8	165.3	153.3	85.0	1314.0	910.9
32.Coastal Karnataka	394.7	318.0	165.8	178.5	30.9	65.8	4.3	13.7	3274.8	3613.2
33.North Interior Karnataka	164.3	153.1	120.1	102.9	4.8	27.7	0.3	6.1	856.1	720.2
34.South Interior Karnataka	144.7	137.3	249.3	138.6	61.0	48.1	7.4	13.0	1357.0	1014.7
35.Kerala	431.3	259.7	250.5	291.6	202.0	163.8	62.5	43.2	3151.0	3093.7
36.Lakshadweep	277.9	164.4	164.2	153.0	218.1	116.9	27.3	59.0	1579.0	1584.7

Source: India Meteorological Department

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Table 2.2-ANNUAL RAINFALL
(by meteorological sub-divisions)

(millimetre)

Sub-division	1991	1995	1996	1997	1998	1999
1	2	3	4	5	6	7
1.Andaman and Nicobar Islands	2465.5	3102.1	3165.0	2355.7	2842.9	2103.8
2.Arunachal Pradesh	3309.2	2938.9	2589.7	2742.6	3794.0	2796.7
3.Assam and Meghalaya	2206.1	2706.1	2635.0	2432.5	2992.6	2625.2
4.Nagaland,Mizoram,Manipur and Tripura	2513.5	1670.0	1559.4	1830.9	1827.7	1877.4
5.Sub-Himalayan,West Bengal & Sikkim	3105.6	2896.3	2531.1	2350.9	3274.5	3006.5
6.Gangetic West Bengal	1969.1	1738.6	1399.5	1670.5	1570.4	1849.5
7.Orissa	1583.5	1725.9	1042.4	1556.8	1306.2	1527.0
8.Jharkhand	1505.7	1402.8	1215.8	1494.9	1457.2	1762.8
9.Bihar	1024.1	1088.7	1124.0	1347.6	1322.3	1430.0
10.Uttar Pradesh East	833.7	904.5	1047.1	1068.0	1137.0	1032.1
11. Uttar Pradesh West	644.5	869.5	953.4	938.8	1056.3	852.0
12.Uttranchal	856.2	1398.0	1259.2	1450.8	1846.9	1511.9
13.Haryana,Chandigarh & Delhi	586.4	1066.6	872.2	875.5	888.4	464.0
14.Punjab	662.2	877.1	747.0	896.7	837.4	570.0
15.Himachal Pradesh	1319.9	1458.5	1247.4	1385.1	1349.2	1117.9
16.Jammu & Kashmir	1132.3	893.7	1135.8	1045.4	973.7	788.4
17.Rajasthan West	166.7	458.4	456.7	568.1	376.1	254.0
18.Rajasthan East	482.9	808.8	942.2	800.0	673.0	542.0
19.Madhya Pradesh West	839.5	927.1	1142.6	1118.3	910.5	1142.0
20. Madhya Pradesh East	1203.3	1220.8	1125.2	1274.1	1013.2	1307.0
21.Gujarat Region	536.8	881.9	1182.0	1408.7	1399.6	917.0
22.Saurashtra,Kutch & Diu	299.5	402.9	480.0	660.2	707.0	350.0
23.Konkan & Goa	2682.5	2692.9	2656.0	2930.0	3251.7	2894.0
24.Madhya Maharashtra	781.1	897.8	966.0	1049.1	1142.0	874.0
25.Marathwada	665.3	864.1	844.1	794.2	1215.2	845.0
26.Vidarbha	817.4	1089.9	843.6	1068.8	1125.1	1119.0
27.Chattisgarh	*	*	*	*	*	*
28.Coastal Andhra Pradesh	1185.2	1354.3	1251.4	1093.0	1285.2	847.7
29.Telangana	866.3	1246.8	1014.8	864.7	1140.0	865.8
30.Rayalseema	894.0	759.6	1280.1	805.5	963.1	583.3
31.Tamil Nadu	969.1	864.9	1231.9	1205.1	1034.7	839.4
32.Coastal Karnataka	3798.4	3633.5	3121.5	4144.6	4160.3	3972.1
33.North Interior Karnataka	855.9	646.5	883.4	750.8	939.3	736.4
34.South Interior Karnataka	1149.6	1024.9	1231.2	1265.8	1221.5	1209.3
35.Kerala	2836.7	2888.6	2683.6	3213.9	3116.3	2870.2
36.Lakshadweep	1610.6	1747.6	1603.1	1764.3	1977.6	1858.5

For footnotes please see next page.

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Table 2.2-ANNUAL RAINFALL-Concl.
(by meteorological sub-divisions)

(millimetre)

Sub-division	2000	2001	2002	2003	2004	2005
1	8	9	10	11	12	13
1.Andaman and Nicobar Islands	2386.0	2935.1	2310.7	2446.9	2508.1	2762.6
2.Arunachal Pradesh	2762.6	2199.9	2559.6	2761.2	2891.7	2542.4
3.Assam and Meghalaya	2695.4	2260.1	2530.4	2835.1	2890.9	2314.8
4.Nagaland,Mizoram,Manipur and Tripura	1998.4	1962.9	1960.8	2029.0	1999.3	1612.4
5.Sub-Himalayan,West Bengal & Sikkim	2559.3	2620.0	2820.1	3288.5	2768.3	2670.8
6.Gangetic West Bengal	1590.3	1459.9	1597.5	1457.8	1488.1	1585.4
7.Orissa	1163.1	1777.5	1166.6	1750.6	1337.6	1550.7
8.Jharkhand	1360.8	1397.8	1315.5	1299.0	1153.5	859.4
9.Bihar	1302.8	1353.9	1193.3	1454.8	1077.0	913.7
10.Uttar Pradesh East	1027.7	1025.6	796.0	1177.1	902.4	828.3
11. Uttar Pradesh West	838.8	696.0	729.1	1129.5	647.2	752.6
12.Uttranchal	1935.3	1460.6	1588.5	1903.7	1584.4	1469.3
13.Haryana,Chandigarh & Delhi	538.4	616.9	471.8	720.7	524.0	586.9
14.Punjab	543.7	634.2	446.1	645.1	445.1	603.5
15.Himachal Pradesh	1113.3	1102.5	1075.5	1268.9	766.4	996.4
16.Jammu & Kashmir	825.7	795.4	750.5	1106.1	916.1	1309.8
17.Rajasthan West	236.3	294.1	118.9	386.7	190.3	260.3
18.Rajasthan East	481.3	579.7	307.2	629.7	627.5	617.4
19.Madhya Pradesh West	625.8	829.7	754.7	1011.0	839.7	784.4
20. Madhya Pradesh East	863.3	1306.1	1075.7	1532.5	946.8	1408.4
21.Gujarat Region	788.4	1007.6	705.4	1259.4	1004.2	1385.4
22.Saurashtra,Kutch & Diu	316.3	532.4	402.7	733.1	498.3	638.6
23.Konkan & Goa	3134.5	2373.8	2324.2	2828.5	2911.7	3557.5
24.Madhya Maharashtra	789.7	866.6	711.7	740.3	883.4	1101.6
25.Marathwada	863.7	849.1	704.8	645.2	676.5	864.3
26.Vidarbha	1043.9	1107.5	1045.4	1033.1	796.3	1257.7
27.Chattisgarh	*	*	*	1702.7	1174.3	1305.1
28.Coastal Andhra Pradesh	1043.0	1051.5	757.3	1118.6	933.7	1238.9
29.Telangana	1074.7	896.0	767.7	1006.7	761.7	1230.8
30.Rayalseema	861.5	860.4	504.4	654.0	655.9	999.2
31.Tamil Nadu	873.1	785.4	723.4	925.0	1104.6	1314.0
32.Coastal Karnataka	3542.7	3529.3	2920.4	3086.5	3061.6	3274.8
33.North Interior Karnataka	746.3	586.5	556.3	473.6	644.5	856.1
34.South Interior Karnataka	1241.3	948.1	869.1	817.9	1028.3	1357.0
35.Kerala	2465.8	2910.6	2457.3	2275.8	2911.3	3151.0
36.Lakshadweep	1372.3	1383.7	1034.4	1533.2	2096.8	1579.0

Source: India Meteorological Department

Note: Figures for the year 1991 are based on observatory data while the figures for 1995 onwards are based on District-wise rainfall monitoring scheme data.

(*) Data not available as the sub-division "Chattisgarh" came into existence in March 2002.