



मौसम विश्लेषण METEOROLOGICAL ANALYSIS

Andaman & Nicobar Islands
2022



अण्डमान तथा निकोबार प्रशासन
Andaman & Nicobar Administration
आर्थिक एवं सांख्यिकी निदेशालय
Directorate of Economics & Statistics

PREFACE

The present edition of Meteorological Statistics of Andaman & Nicobar Islands is the fourteenth in the series being published by the Directorate of Economics & Statistics, Andaman & Nicobar Administration. This edition contains data from 2011 to 2022 along with historic data on the climatic condition of the Union Territory of Andaman and Nicobar Islands viz., Rainfall, Temperature, Humidity, Wind Speed and Earthquake.

I express my profound gratitude to Meteorological Department, Port Blair for making available the data presented in the publication. Suggestions for improvement of this publication are most welcome.

Director of Economics & Statistics

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INTRODUCTION

Andaman and Nicobar Islands is an archipelago in Bay of Bengal that lies between 6°N to 14°N latitude and 92°E to 94°E longitudes. It comprises of two Island groups, the Andaman Islands and the Nicobar Islands, separated by the 10° Channel, with the Andaman to the north of this Latitude and the Nicobar to the south.

Andaman and Nicobar Islands extends over an area of 8249 Sq km of which the area of Andaman group of Islands is 6408 sq km and the Nicobar group is 1841 Sq. Km. The Archipelago consists of over 836 islands/islets/rocky outcrops of which 31 islands are inhabited. The Exclusive Economic Zone (EEZ) around the island encompasses an area of 6,00,000 sq km which is approx. 30% of the total Indian EEZ with a coastline of 1962 km, approx. 1/4th of total coastline of India.

The topography of the Andaman and Nicobar Islands is hilly and undulating. The elevation in the Andaman group of Islands is from 0 to 732 m, Saddle Peak being the highest in North Andaman Island. In the Nicobar group of Islands the elevation rises from 0 to 642 m, Mt Thuillier being the highest peak on Great Nicobar Island.

The Andaman and Nicobar Islands consists of very fragile island eco systems, most pristine in the world and supports one of the world's most extensive mangrove ecosystems and has very unique flora and fauna with a high level of endemism.

The northern most point of the Island is Landfall Island which is 901 km from the mouth of Hoogly River and about 190 km from Burma. The southern-most Island is Great Nicobar and southern-most tip is Indira Point, 150 km from Sumatra (Indonesia) which is also the southernmost tip of India.

As per 2011 Census, the population of Andaman & Nicobar Islands is 380581, (and out of this District-wise population is) 238142 in South Andaman District, 105597 in North & Middle Andaman District and 36842 in Nicobar District.

A & N Islands has a tropical humid climate and has no distinct winter season. It gets rain almost throughout the year (from) under the influence of southwest monsoon during mid-May to end of September and under northeast monsoon during November to January. The southwest monsoon touches the Indian soil first in the A & N Islands and then proceeds towards the Indian mainland. A & N Islands has moderate temperature throughout the year and approximately the temperature ranges from 18 degree Celsius to 34 degree Celsius. The cumulative Standardized Precipitation Index (SPI) SPI values in past twelve months of 2022 highlights "extremely wet – severely wet conditions" in many parts of India including A & N Islands. The humidity ranges between 70% to 95%. The average annual rainfall approximately ranges between 1400 mm to 3800 mm.

As per IMD report during 2022, 15 cyclonic disturbances (three cyclonic storms and 12 depressions) formed over the north Indian Ocean. It included three cyclones of which, two were Severe Cyclonic Storms "ASANI" (7May to 12 May) and "MANDOUS" (6 December to 10 December) and one Cyclonic Storm "SITRANG" (22 October to 25 October), and seven depressions formed over Bay of Bengal.

Meteorological data viz average rainfall, station wise rainfall, rainy days & weather of A&N Islands are updated in the website of Directorate of Economics & Statistics under the head “Meteorological Statistics” and can be viewed at <http://andssw1.and.nic.in/ecostat/index.php>.

The first meteorological statistics was published in 1984 and from the repository of data, rainfall data of Port Blair from 1947 onward was found which was 3485.5 mm in 1947 and 3369.5 mm in 1948. Rainfall recorded at Port Blair from 1949, Station wise Rainfall from 1967, Rainy Days at Port Blair from 1961 can be viewed at

<http://andssw1.and.nic.in/ecostat/2009/Meteorological/Rainfall.pdf>

Weather report of Port Blair viz, Temperature from 1949 can be viewed at

<http://andssw1.and.nic.in/ecostat/2009/Meteorological/Temperature.pdf>

Relative Humidity from 1966 can be accessed at

<http://andssw1.and.nic.in/ecostat/2009/Meteorological/HUMIDITY.pdf>

Wind Speed at Port Blair from 1975 can be viewed at

<http://andssw1.and.nic.in/ecostat/2009/Meteorological/WINDSPEED.pdf>

Also a crisp analysis of climate of A&N Islands was conceptualised during 2010 and can be viewed at

<http://andssw1.and.nic.in/ecostat/2010/metrologicalstatistics2010.pdf>

This edition of “Meteorology Analysis 2022” is an attempt to analysis the climate of Andaman & Nicobar Islands along with the historic data available.

A. RAINFALL

According to the press release of IMD, Ministry of Earth Sciences (MoES) – “[Statement on climate of India during 2022](#)” the annual rainfall over India as a whole during 2022 was 108% of its long period average (LPA) based on data of 1971-2020. During Southwest monsoon season(June-September) rainfall over India as a whole was normal at 106% of its LPA while Northeast or post monsoon season (October-December) rainfall over the country was ‘above normal’ at 119% of LPA. Month wise rainfall of India & Andaman and Nicobar Islands during 2022 is given below:

NORMAL & ACTUAL RAINFALL (mm) IN 2022

Period	India		A & N Islands
	Normal	Actual	Actual
January	17.3	39.6	52.85
February	23.5	19.1	171.0
March	30.4	8.9	132.28
April	39.3	38.4	47.02
May	62	83.4	540.3
June	165.3	152.3	271.95
July	280.5	327.7	491.57
August	254.9	263.7	363.07
September	167.9	181.3	373.76
October	75.4	110.8	325.58
November	29.7	18.7	181.07
December	15.9	13.6	187.73

Period	India		A&N Islands
Winter season	40.8	58.7	223.85
Pre-monsoon season	131.7	130.7	719.6
Monsoon season	868.6	925	1500.35
Post-monsoon season	121	143.1	694.38
Annual	1162.1	1257.5	3138.18

From the above table it is apparent that in any season the rainfall remains higher for A & N Islands compared to India as a whole. The Year-wise average Annual rainfall recorded in Andaman & Nicobar Islands from 1967 to 2022 are given in table below.

AVERAGE ANNUAL RAINFALL (in mm) IN A & N ISLANDS

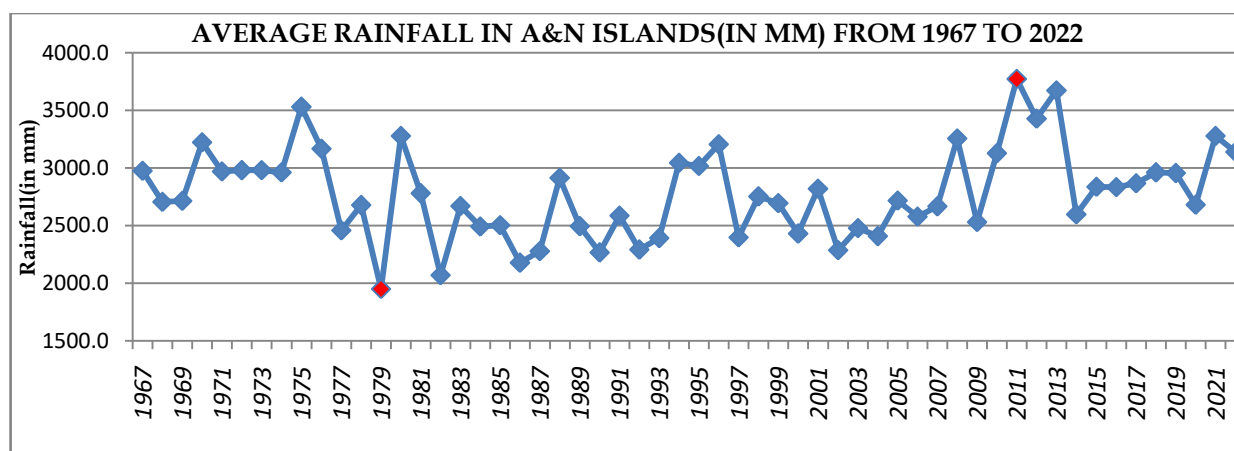
Year	Rainfall	Year	Rainfall	Year	Rainfall
1967	2975.7	1986	2177.1	2005	2717.7
1968	2705.4	1987	2277.8	2006	2577.9
1969	2714.1	1988	2913.8	2007	2665.3
1970	3222.9	1989	2493.4	2008	3254.8
1971	2970.1	1990	2265.1	2009	2531.6
1972	2979.6	1991	2585.4	2010	3126.6
1973	2980.7	1992	2290.2	2011	3771.6
1974	2961.0	1993	2390.6	2012	3428.5
1975	3529.6	1994	3044.0	2013	3672.3
1976	3166.6	1995	3016.5	2014	2597.8
1977	2458.4	1996	3206.5	2015	2837.1
1978	2676.9	1997	2396.7	2016	2833.2
1979	1950.3	1998	2751.9	2017	2866.6
1980	3278.2	1999	2693.8	2018	2959.8
1981	2778.9	2000	2429.0	2019	2954.4
1982	2069.9	2001	2820.3	2020	2681.6
1983	2669.6	2002	2287.1	2021	3277.85
1984	2492.3	2003	2477.6	2022	3138.18
1985	2503.8	2004	2406.8		

It is observed that earlier to 1967 the data for Port Blair only used to be depicted however since 1967 onwards separate station wise data was available for A&N Islands including Port Blair.

On analyzing the average rainfall of A&N Islands from 1967 to 2022 it has been observed that the highest rainfall of 3771.64 was recorded during 2011 and lowest rainfall of 1950.3 was recorded during 1979.

Earlier to 1979 rainfall was on higher side, it was above 2600 mm with an exception of 2458.4 mm during 1977. From then onwards rainfall fluctuated hugely, it is observed that from 1980 onwards there has been a moderately increasing trend with exception during 1982.

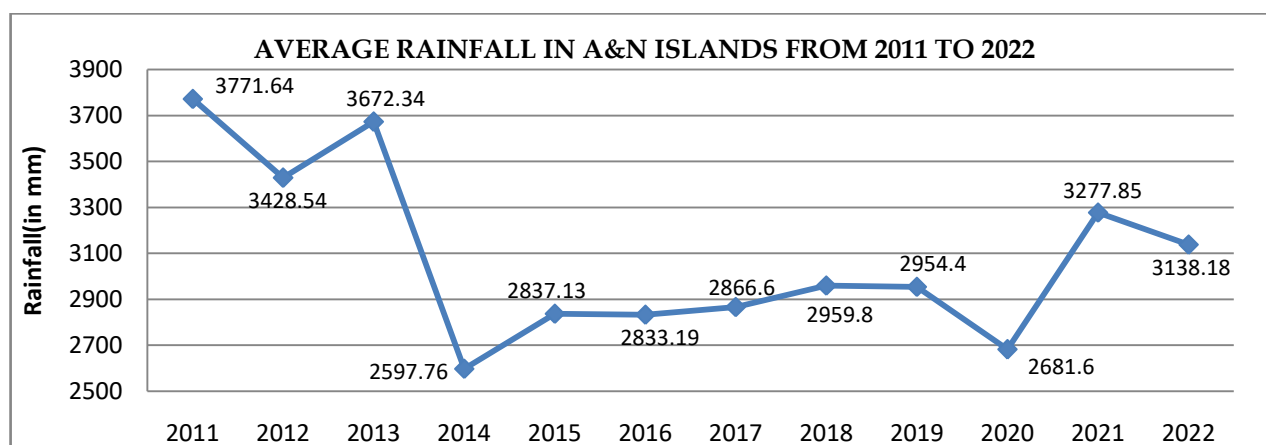
Andaman & Nicobar experienced low rainfall of less than 2100 mm during 1979 & 1982 and years 1975, 2011, 2012 & 2013 had seen unprecedented rainfall of above 3400 mm since 1967.



AVERAGE MONTHLY RAINFALL (in MM) IN A&N ISLANDS from 2011 TO 2022

Year /Month	January	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Total
2011	244.53	99.02	298.63	103.97	300.65	408.42	563.73	447.68	703.77	193.72	141.77	265.75	3771.64
2012	146.9	47.07	41.87	64.4	531.58	407.55	318.32	342.82	812.18	197.3	320.67	197.88	3428.54
2013	98.23	53.3	49.38	44.92	478.08	757.57	536.05	326.57	454.17	430.82	334.05	109.2	3672.34
2014	73.33	11.17	0	17.83	251.68	383.63	440.23	307.05	400.12	382.7	212.67	117.35	2597.76
2015	129.58	9.78	4.8	142.72	309.25	350.57	307.25	421.88	505.73	259.87	252.73	142.97	2837.13
2016	103.65	32.07	4.9	3.37	186.18	414.53	275.5	237.15	583.77	288.42	176	527.65	2833.19
2017	279.02	9.05	33.28	101.42	276.05	320.85	364.61	386	354.85	247.8	223.35	270.32	2866.60
2018	170.67	50.2	19.8	114.47	359.18	478.77	213.52	366.3	343.12	296.22	229.73	317.82	2959.80
2019	174.85	11.97	19.5	39.28	231.95	611.52	213.82	766.03	546.53	143.15	151.63	44.2	2954.40
2020	4.95	4.08	0.2	38.47	225.5	470.3	325.4	325.98	461.78	438.32	188.65	197.97	2681.60
2021	54.57	51.98	44.11	146.53	380.58	289.42	492.62	487.22	605.32	377.67	257.45	90.38	3277.85
2022	52.85	171	132.28	47.02	540.3	271.95	491.57	363.07	373.76	325.58	181.07	187.73	3138.18

From 2011 to 2022 it is seen that rainfall of A&N Islands was highest during 2011 and least during 2014. Period from 2014 to 2022 shows slightly increasing trend.



DISTRICT-WISE AVERAGE ANNUAL RAINFALL

From 1967-2006, out of two districts the Nicobar district received highest average rainfall of 3923.8 mm in 1975 and lowest rainfall of 1335.8mm in 1982.

After the bifurcation of Andaman District into two Districts in 2006 viz. North & Middle Andaman District and South Andaman District, weather data was collected separately for these two districts. It shows that the lowest average annual rainfall was 1896.7mm during 2009 in Nicobar District and highest was 4758.2 mm in North & Middle Andaman District during 2013.

DISTRICT-WISE HIGHEST AND LOWEST AVERAGE ANNUAL RAINFALL

From 1967 to 2006

District	Highest Rainfall	Lowest Rainfall
Andaman	3651.1 (1972)	1774.3 (1979)
Nicobar	3923.8 (1975)	1335.8 (1982)

From 2007 to 2022

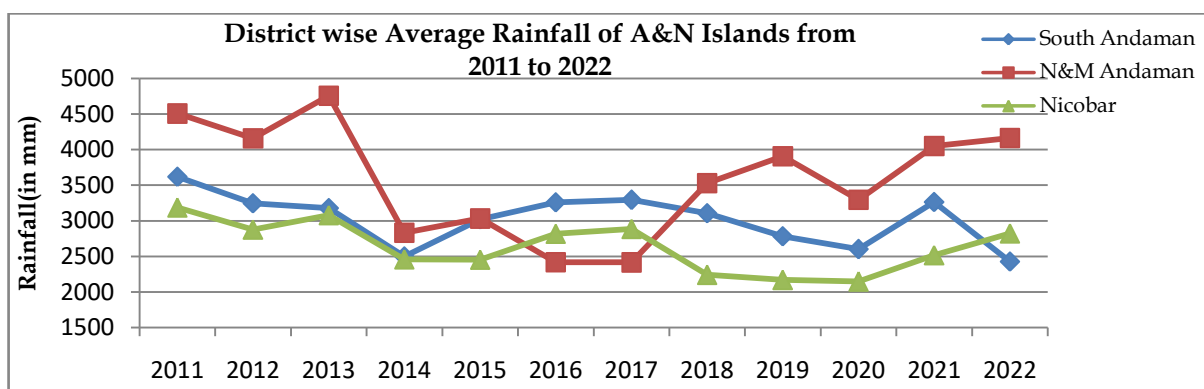
District	Highest Rainfall	Lowest Rainfall
North & Middle Andaman	4758.2 (2013)	2416.85(2017)
South Andaman	3619.5 (2011)	2325.2 (2009)
Nicobar	3186.95 (2011)	1896.7 (2009)

Andaman District was bifurcated into two Districts during August 2006

STATION WISE/DISTRICT WISE ANNUAL RAINFALL

Station/Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NORTH AND MIDDLE ANDAMAN DISTRICT												
MAYABUNDER	5361.3	5121.8	5935	3039.8	3058	2639.1	2547.5	3363	2973.7	2345.1	3457.4	3094.9
LONG ISLAND	3655.6	3197.5	3581.4	2627.6	3010	2198.3	2286.2	3697.8	4843.9	4247.7	4646.8	5232.9
AVERAGE RAINFALL	4508.5	4159.7	4758.2	2833.7	3034	2418.7	2416.85	3530.4	3908.8	3296.4	4052.1	4163.9
SOUTH ANDAMAN DISTRICT												
PORTBLAIR	3888.7	3465.2	3405.4	2877	2888	3650.1	3292.4	3435.5	3221.2	2881.8	3461.1	2587.2
HUT BAY	3350.3	3031.6	2952.8	2124.1	3156	2872.5	3297.2	2779.4	2348.3	2320	3067.4	2267.1
AVERAGE RAINFALL	3619.5	3248.4	3179.1	2500.6	3022	3261.3	3294.8	3107.45	2784.75	2600.9	3264.25	2427.15
NICOBAR DISTRICT												
CAR NICOBAR	3258.6	3182.2	3269.4	2396.1	2317	2920.2	2985.4	2480.5	2595.2	2454.9	2900.7	3044.2
NANCOWRIE	3115.3	2572.9	2890	2522	2595	2718.9	2791.7	2002.5	1744.3	1840.2	2133.7	2602.8
AVERAGE RAINFALL	3186.95	2877.6	3079.7	2459.1	2456	2819.6	2888.6	2241.5	2169.8	2147.6	2517.2	2823.5

It observed that North & Middle Andaman received highest rainfall among the three districts except for years 2016 & 2017 wherein South Andaman received highest rainfall. Looking into station-wise rainfall data it was observed that Mayabunder received highest annual rainfall except for the year 2016 & 2017 wherein stations Port Blair & Hut Bay received highest rainfall.



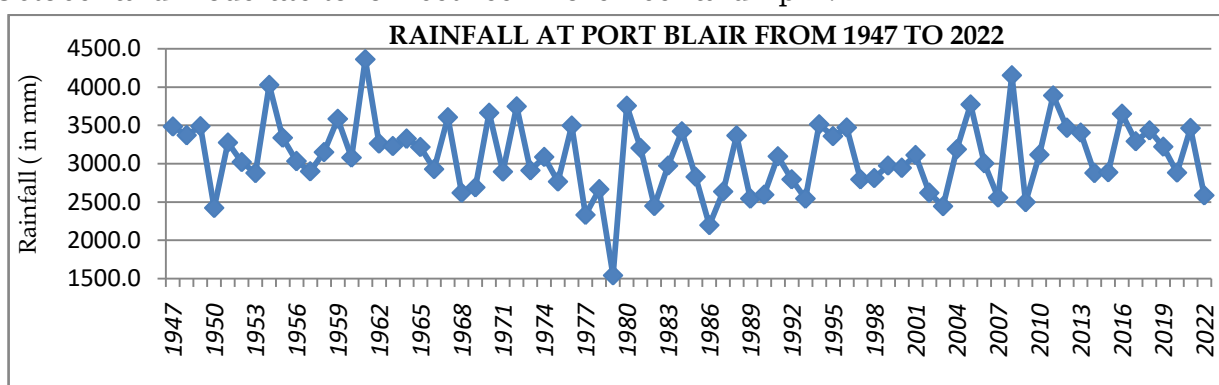
DISTRICT-WISE AVERAGE ANNUAL RAINFALL (mm) AND VARIATION

District	North & Middle Andaman		South Andaman		Nicobar	
Year	Rainfall	Variation	Rainfall	Variation	Rainfall	Variation
2011	4508.5	(+)1104.6	3619.5	(+)671.6	3187	(+)158.95
2012	4159.7	(-)348.8	3248.4	(-)371.1	2877.6	(-)309.4
2013	4758.2	(+)598.5	3179.1	(-)69.3	3079.7	(+)202.1
2014	2833.7	(-)1924.5	2500.6	(-)678.5	2459.1	(-)620.6
2015	3034	(+)200.3	3022	(+)521.4	2456	(-)3.1
2016	2418.7	(-)615.3	3261.3	(+)239.3	2819.6	(+)363.6
2017	2416.85	(-)1.85	3294.8	(+)33.5	2888.6	(+)69
2018	3530.4	(+)1113.55	3107.45	(-)187.35	2241.5	(-)647.1
2019	3908.8	(+)378.4	2784.75	(-)322.7	2169.8	(-)71.7
2020	3296.4	(-)612.4	2600.9	(-)183.85	2147.6	(-)22.2
2021	4052.1	(+)755.7	3264.25	(+)663.35	2517.2	(+)369.6
2022	4163.9	(+)111.8	2427.15	(-)837.1	2823.5	(+)306.3

STATION-WISE RAINFALL

There are six meteorological sub stations in A&N Islands at present and on analyzing station-wise rainfall data from 1967 to 2022 it is observed that the highest rainfall of 5935 mm was recorded at Mayabunder during 2013 and lowest of 1002.4 mm was recorded at Hut Bay during 1984.

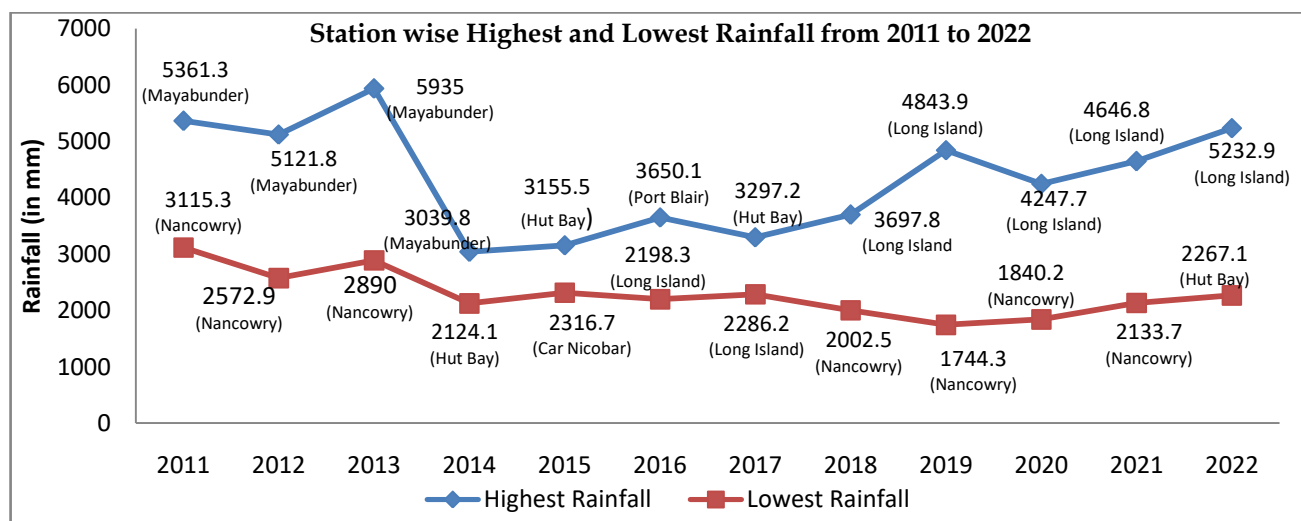
At Port Blair from 1947 to 2022 the highest rainfall was recorded as 4362.4 mm during 1961 and lowest recorded as 1541.4 mm during 1979. In the last seventy-six years at Port Blair, the highest monthly rainfall of 1122.9 mm was received in the month of September, 1954. It was also observed that January to April months experienced no rainfall in some of the years during 1947 to 2022. Rainfall is generally higher between May and October and moderate to low between November and April.



The station wise highest and lowest rainfall from 2011 to 2022 is given in the table below:

Year	Highest Rainfall	Station	Lowest Rainfall	Station
2011	5361.3	Mayabunder	3115.3	Nancowry
2012	5121.8	Mayabunder	2572.9	Nancowry
2013	5935.0	Mayabunder	2890	Nancowry
2014	3039.8	Mayabunder	2124.1	Hut Bay
2015	3155.5	Hut Bay	2316.7	Car Nicobar
2016	3650.1	Port Blair	2198.3	Long Island

Year	Highest Rainfall	Station	Lowest Rainfall	Station
2017	3297.2	Hut Bay	2286.2	Long Island
2018	3697.8	Long Island	2002.5	Nancowry
2019	4843.9	Long Island	1744.3	Nancowry
2020	4247.7	Long Island	1840.2	Nancowry
2021	4646.8	Long Island	2133.7	Nancowry
2022	5232.9	Long Island	2267.1	Hut Bay

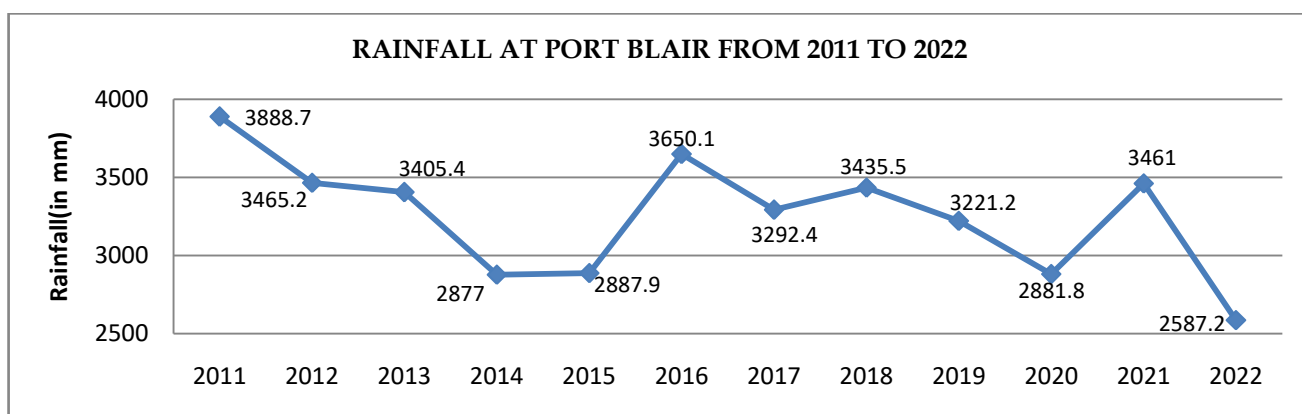


It has been observed that during 2013 Mayabunder received highest rainfall of 5935 mm and during 2019 Nancowry received lowest rainfall of 1744.3 mm.

MONTH WISE/STATION WISE RAINFALL OF A&N ISLANDS FROM 2011 TO 2022

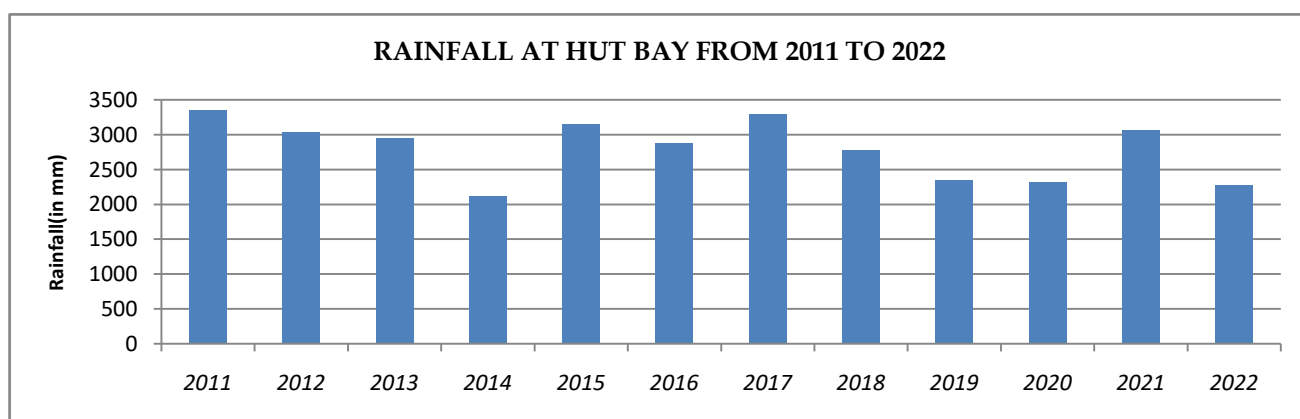
PORT BLAIR STATION												
Year/Month	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
January	132.1	36.6	28.9	0.4	123.1	71	92.6	126.8	119.2	1.3	18.1	68.2
February	77.4	109.4	0.1	0	0	0	0.3	32.4	0	0	92.2	104
March	456.2	8.7	5.7	0	8	29.4	4.6	36.2	56	0	0	96.1
April	54.2	62.2	21.3	0	149.2	7	148.7	42.8	17.9	9.8	247.9	63.8
May	409.3	597	659.1	229.9	364	342.7	226	576.2	238.6	276.7	473.7	493.50
June	510.4	401.3	615.6	501.7	407.5	491	556.5	673.8	712.4	550.8	321.9	304.30
July	607.6	298	597.1	696.6	292.4	421.1	544.2	192.5	139.4	382.5	649.2	394.70
August	535.2	406.4	235.2	283.5	557.3	332.7	546.1	584	1057.7	382.7	470.2	328.9
September	643.6	904.9	493.2	409.4	419	991.2	520.9	338	537.4	427.5	554	326.2
October	150.7	252.4	267.1	564.9	225	302	256.5	335.4	173.4	462.2	307.2	234.8
November	71.4	233.2	352.7	174.6	205.8	168.2	193.9	303	167.4	225	228.7	86.4
December	240.6	155.1	129.4	16	136.6	493.8	202.1	194.4	1.8	163.3	98	86.30
TOTAL	3888.7	3465.2	3405.4	2877	2887.9	3650.1	3292.4	3435.5	3221.2	2881.8	3461	2587.2

In Port Blair month of January & February usually receives less or no rainfall however during January year 2011, 2015, 2018 & 2019 received above 100 mm rainfall with highest decadal rainfall of 132.1 in 2011. Similarly during February the highest decadal rainfall was 109.4 mm during year 2012.



In pre monsoon season (March to May) month of March, 2011 received an extraordinary rainfall of 456.2 mm and 247.9 mm rainfall was recorded in April, 2022. Highest decadal rainfall during pre monsoon season was recorded as 659.1 mm in May, 2013. In monsoon season (June to September) highest decadal rainfall was 1057.7 mm during August, 2019. Throughout post monsoon season (October to December) the highest decadal rainfall of 564.9 mm was recorded during October, 2014 and least rainfall of 1.8 mm was recorded during December 2019.

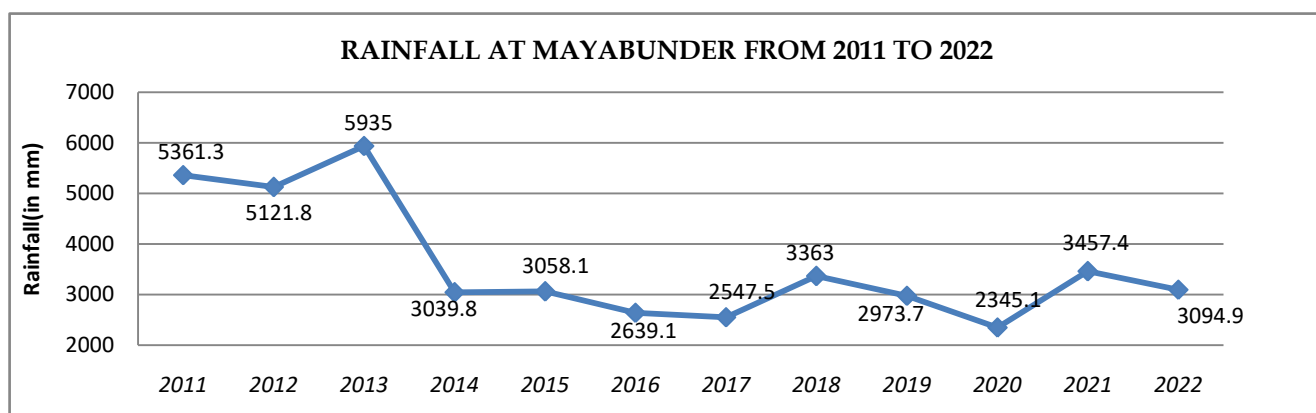
HUT BAY STATION												
Year/Month	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
January	341.3	170	60.4	8.2	130.1	59.1	196.6	199.2	240.1	0	44.2	70.4
February	82.7	34.8	63.1	7.4	7.8	0	5	29	1.2	0	105.1	71.9
March	292.1	24.2	25.8	0	1.4	0	88	16.4	0	0	60	99.8
April	115.9	29	32.6	6.4	195	0	96.6	112.6	49.4	32.6	59.1	63.5
May	270.2	485.8	487.8	314.8	343	131.2	362.7	508.7	221.1	167.3	518	408.6
June	318.8	220.1	559	228.5	254.4	437.6	419.8	497.6	434.1	267.2	264.3	188.4
July	515	267	575.3	330.8	360.2	385.1	480.6	124.4	118.6	331.6	485.9	431.30
August	233.2	212.1	336.2	211.4	252.2	186.6	375.6	219.6	488.1	189.7	366.9	207.8
September	567.2	821.6	362.2	497.2	713.6	550.5	439.3	249.6	588.5	504.7	454.5	190.4
October	277.3	152.2	232.4	277.2	395.4	325	352.4	227.4	69.6	352.1	388.3	321.6
November	144.4	363.6	142.2	194.8	356.5	193.6	288.6	219.2	137.6	316.6	181.7	139.4
December	192.2	251.2	75.8	47.4	145.9	603.8	192	375.7	0	158.2	139.4	74.0
TOTAL	3350.3	3031.6	2952.8	2124.1	3155.5	2872.5	3297.2	2779.4	2348.3	2320	3067.4	2267.1



In Hut Bay an unprecedented rainfall of 341.3 mm was recorded during January, 2011 and no rainfall received during 2020. Month of February received highest rainfall of

105.1 mm during 2021 and no rainfall during 2016 & 2020. During March, 2011 extraordinary rainfall of 292.1 mm was recorded, however no rainfall recorded for the years 2014, 2016, 2019 & 2020. In April highest rainfall of 115.9 mm was recorded during 2011 and no rainfall received during 2016. Month of May received highest rainfall of 518 mm during 2021 and least rainfall of 131.2 mm during 2016. During monsoon season highest decadal rainfall of 821.6 mm was received during September, 2012. In post monsoon season the highest decadal rainfall of 603.8 mm was recorded during December, 2016.

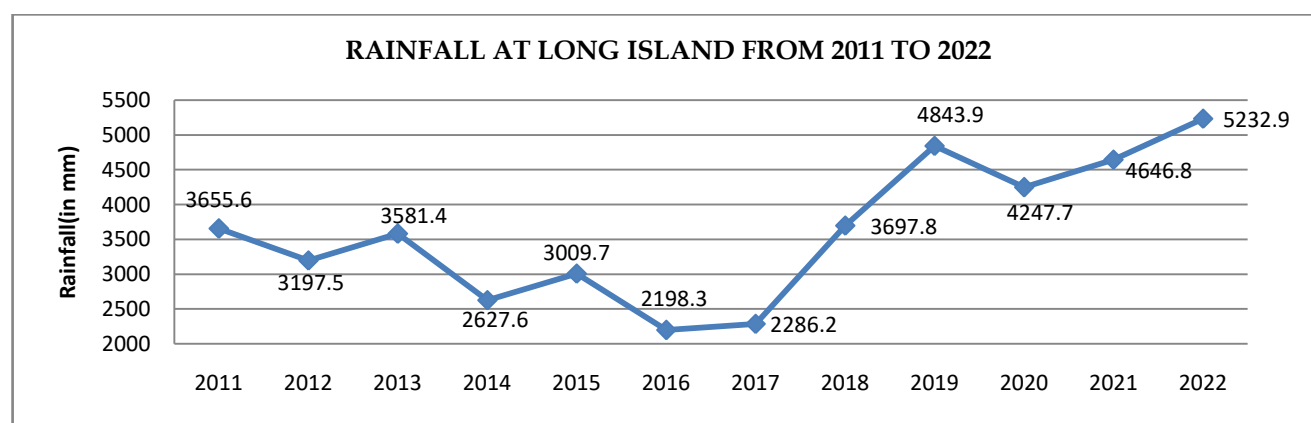
MAYABUNDER STATION												
Year/Month	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
January	189	2	10	0	151.6	15	41.7	211.8	116	0	5	24.6
February	5	14	0	1.2	3	0	0	0	0	0	14	86.8
March	302	0	2.8	0	6	0	0	38.2	0	0	0.6	68
April	44	54	89	7	99.6	0	93.2	66.8	11.8	18.3	78.1	14.4
May	444	604	871.9	92	369.3	249.4	260.4	230.3	156	88	310.1	633.0
June	569	911	1219.5	548.4	313	369.6	394.6	375.2	870.5	462.4	345.4	154.3
July	819	549	741	704.7	365	384.2	508.3	407.6	241	319.4	413.7	572.0
August	919	713	600.2	462.3	766.6	257.6	390.4	651.4	818.5	333.3	593.2	505.2
September	1481	1358	699.6	386.8	544.6	551.6	324.3	737.2	620	472.9	902.6	507.4
October	208	356.2	941.2	637.1	206.1	283.1	257.9	205.5	71.7	565	472	237.6
November	112	463	715.7	184.2	85.5	150.4	110.1	209.8	65.8	57	232.7	213.6
December	269.3	97.6	44.1	16.1	147.8	378.2	166.6	229.2	2.4	28.8	90	78.0
TOTAL	5361.3	5121.8	5935	3039.8	3058.1	2639.1	2547.5	3363	2973.7	2345.1	3457.4	3094.9



In Mayabunder station during winter season (January & February) there is exceptional rainfall of 211.8 mm during January, 2018 and no rainfall during 2014 & 2020. In February there was no or negligible rainfall during the decade except in Feb, 2022 where in rainfall of 86.8 mm was recorded. In pre monsoon season for the month of March, 2011 received unprecedented rainfall of 302 mm whereas years 2012, 2014, 2016, 2017, 2019 & 2020 received no rainfall. In pre monsoon season highest rainfall of 871.9 mm recorded during May, 2013. During monsoon season extraordinary rainfall of 1481 mm, 1358 mm & 1219.5 mm was recorded during 2011, 2012 & 2013. From October to December the highest decadal rainfall of 941.2 mm was recorded during 2013.

In Mayabunder station highest annual rainfall of 5935 mm was recorded in 2013 followed by 5361.3 mm in 2011 and 5121.8 mm in 2012. There was exceptionally high rainfall during the decade.

LONG ISLAND STATION												
Year/Month	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
January	117.2	53	4	0	112.1	37	100.6	83	220	0	32	43
February	78.4	23	4	0	4.8	0	0	16	0	0	0	149
March	222.6	0	67	0	5.4	0	0	0	0	0	0	159
April	36	22	51	0	91.6	0	56.4	9.2	38	71	200.4	30
May	295	601	300.9	150.8	445.5	111	179.6	289.1	280	362	523	1215.5
June	353.8	643	810.5	537.1	374.3	285.5	218.2	731.9	937.6	635	427.6	504.0
July	732.4	180	563.2	460.7	437.7	239.4	363.4	320	366.3	620.3	774	868.7
August	636.2	329	296.3	429.5	695.8	165	537.5	528.8	1798	727	619	636.5
September	857	812	497.2	461	469.7	433.5	318	431	975	569.9	983	646.8
October	92	178	567	300.9	225.2	245.1	227.2	518.6	179	790.8	564	463.9
November	67	237.2	382.1	162.6	107.9	204.2	156.3	305.2	50	125	429.4	234.2
December	168	119.3	38.2	125	39.7	477.6	129	465	0	347	94.4	282.3
TOTAL	3655.6	3197.5	3581.4	2627.6	3009.7	2198.3	2286.2	3697.8	4843.9	4247.7	4646.8	5232.9



During winter season for the month of January, Long Island recorded highest decadal rainfall of 220 mm during January, 2019 and no rainfall during 2014 & 2020. Month of February recorded highest rainfall of 149 mm during 2022 and no rainfall during 2014, 2016, 2017, 2019, 2020 & 2021. In pre monsoon season March, 2011 received exceptional rainfall of 222.6 mm and no rainfall during maximum years from 2011 to 2022. Month of April received rainfall of 200.4 mm during 2021 and no rainfall during 2014. Month of May received extraordinary rainfall of 1215.5 mm during 2022. In Monsoon season Long Island received highest decadal rainfall of 1798 mm during August, 2019 and least rainfall of 165 mm during August, 2016. In post monsoon season October, 2020 recorded unprecedented rainfall of 790.8 mm and no rainfall during December, 2019.

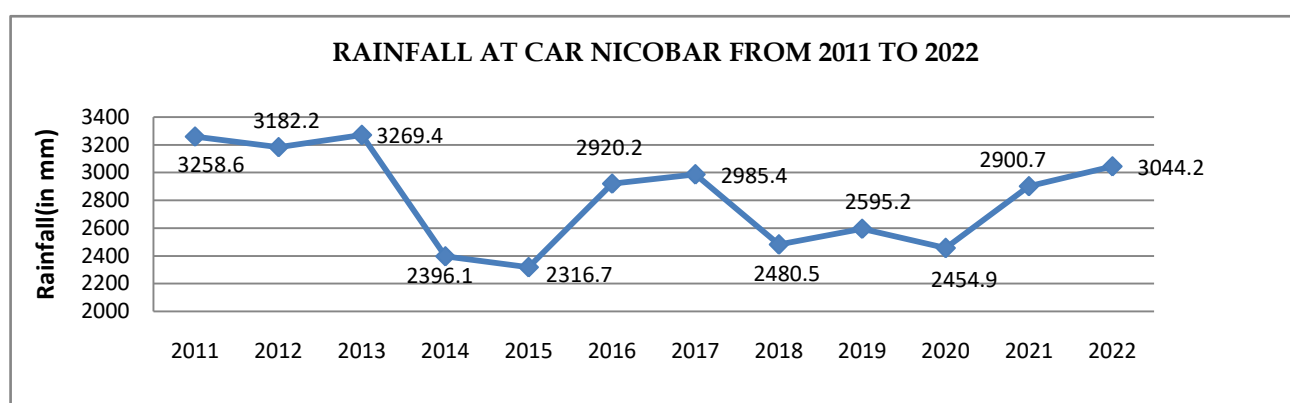
Long Island received highest annual rainfall of 5232.9 mm in 2022 followed by 4843.9 mm in 2019 & 4646.8 mm in 2021.

CAR NICOBAR STATION												
Year/Month	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
January	412.7	352.6	157.9	99	88.3	42	524.4	105	235.8	15	88.2	70.6
February	142.5	45.2	97	30.4	21	25	4	19	9	16.4	22.6	281.2
March	296.5	107.2	136.4	0	8	0	49.5	6	9.2	0	160.6	219.4
April	143.4	88.4	45.1	19.8	161.5	0	110.6	269	68.3	34.6	171.8	38.6
May	144.8	513.7	308.4	413	148.1	102.6	375	307.3	380.1	251.9	253.1	325.4

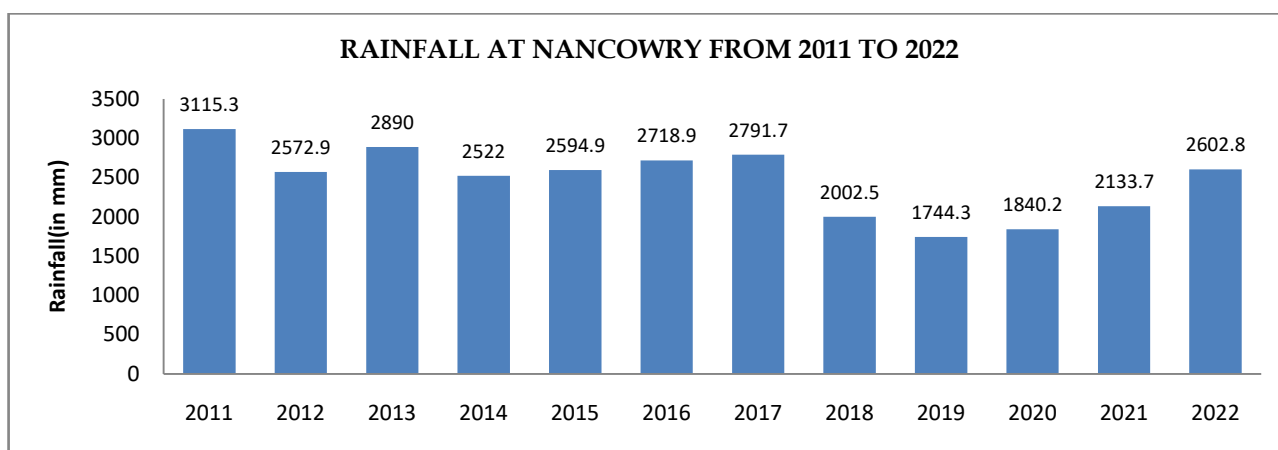
June	355.7	207.2	709	326.2	319.6	564.3	185	491.7	585.2	599.1	164.4	327.3
July	352.4	358.4	424.2	211.6	212.8	166.5	206.6	143.4	231.8	219.8	361.8	334.4
August	223.3	264.6	249.4	166.6	162.6	226.5	271.6	123	280.5	235.4	489.6	205.7
September	433	554.2	413	317.9	581.1	696.9	278	231.5	368.2	553.4	437.6	388.3
October	175.7	112.4	357.4	276.4	168.7	324	170	274.2	170	184.2	404.8	389.7
November	225.6	313.6	218.4	323.6	337	219.7	280.7	165.8	185.7	173.9	270.2	238.4
December	353	264.7	153.2	211.6	108	552.7	530	344.6	71.4	171.2	76	225.2
TOTAL	3258.6	3182.2	3269.4	2396.1	2316.7	2920.2	2985.4	2480.5	2595.2	2454.9	2900.7	3044.2

In January Car Nicobar recorded highest 524.4 mm rainfall during 2017 and least rainfall of 15 mm during 2020. Month of February received highest rainfall of 281.2 mm during 2022. It has been observed that Car Nicobar station received continuous rainfall during winter season. During March highest decadal rainfall of 296.5 was recorded in the year 2011 and no rainfall during 2014, 2016 and 2020. Month of April received rainfall of 171.8 mm during 2021 and no rainfall during 2016. Highest decadal rainfall during May was recorded as 513.7 mm in 2012. In monsoon season June, 2013 received highest rainfall of 709 mm and August, 2018 received least rainfall of 123 mm. During post monsoon season an unprecedented rainfall of 552.7 mm was recorded during December, 2016.

From 2011 to 2022 Car Nicobar received highest rainfall of 3269.4 mm in 2013 followed by 3258.6 mm in 2011 & 3182.2 mm in 2012.



NANCOWRY STATION												
Year/Month	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
January	274.9	267.2	328.2	332.4	172.3	397.8	718.2	298.2	118	13.4	139.9	40.3
February	208.1	56	155.6	28	22.1	167.4	45	204.8	61.6	8.1	78	333.1
March	222.4	111.1	58.6	0	0	0	57.6	22	51.8	1.2	43.5	151.4
April	230.3	130.8	30.5	73.8	159.4	13.2	103	186.4	50.3	64.5	121.9	71.8
May	240.6	388	240.4	309.6	185.6	180.2	252.6	243.5	115.9	207.1	205.6	165.8
June	342.8	62.7	631.8	159.9	434.6	339.2	151	102.4	129.3	307.3	212.9	153.4
July	356	257.5	315.5	237	175.4	56.7	84.6	93.2	185.8	78.9	271.1	348.3
August	139.2	131.8	242.1	289	96.8	254.5	195.6	91	153.4	87.8	384.4	294.3
September	240.8	422.4	259.8	328.4	306.4	278.9	248.6	71.4	190.1	242.6	300.2	183.5
October	258.6	132.6	219.8	239.7	338.8	251.3	222.8	216.2	195.2	275.6	129.7	305.9
November	230.2	313.4	193.2	236.2	423.7	119.9	310.5	175.4	303.3	234.4	202	174.4
December	371.4	299.4	214.5	288	279.8	659.8	402.2	298	189.6	319.3	44.5	380.6
TOTAL	3115.3	2572.9	2890.0	2522.0	2594.9	2718.9	2791.7	2002.5	1744.3	1840.2	2133.7	2602.8



Meteorological station Nancowry received continuous rain during winter season. During the month of January, station received an unprecedented rainfall of 718.2 mm during 2017 and in February highest rainfall of 333.1 mm received during 2022. In pre monsoon season March, 2011 received exceptional rainfall of 222.4 mm and no rainfall recorded during 2014, 2015 & 2016. In the month of April highest rainfall of 230.3 mm was recorded during 2011. Month of May received highest decadal rainfall of 388 mm during 2012. During monsoon season highest decadal rainfall of 631.8 mm was recorded during June, 2013. In post monsoon season highest rainfall of 659.8 mm was recorded during December, 2016.

Nancowry station received highest annual rainfall of 3115.3 mm in 2011 and lowest rainfall of 1744.3 mm in 2019.

SEASON WISE RAINFALL (in mm) IN ANDAMAN & NICOBAR ISLANDS FROM 2011 TO 2022

Season	Pre monsoon	Monsoon	Post Monsoon	Winter
Year	March to May	June to September	October to December	January to February
2011	703.25	2123.6	601.24	343.55
2012	637.85	1880.87	715.85	193.97
2013	572.38	2074.36	874.07	151.53
2014	269.51	1531.03	712.72	84.5
2015	456.77	1585.43	655.57	139.36
2016	194.45	1510.95	992.07	135.72
2017	410.75	1426.31	741.47	288.07
2018	493.45	1401.71	843.77	220.87
2019	290.73	2137.9	338.98	186.82
2020	264.17	1583.46	824.94	9.03
2021	571.22	1874.58	725.5	106.55
2022	719.6	1500.35	694.38	223.85

During pre monsoon season least rainfall of 194.45 mm was seen during 2016 with small rainfall of 3.37 mm in April and 4.9 mm in March. It is observed that usually the month of March and April shows less rainfall and it gradually increases during the month of May with an exception of 298.63 mm during March, 2011 and 146.53 mm in April, 2021. Less rainfall during these months results in water scarcity in the Islands.

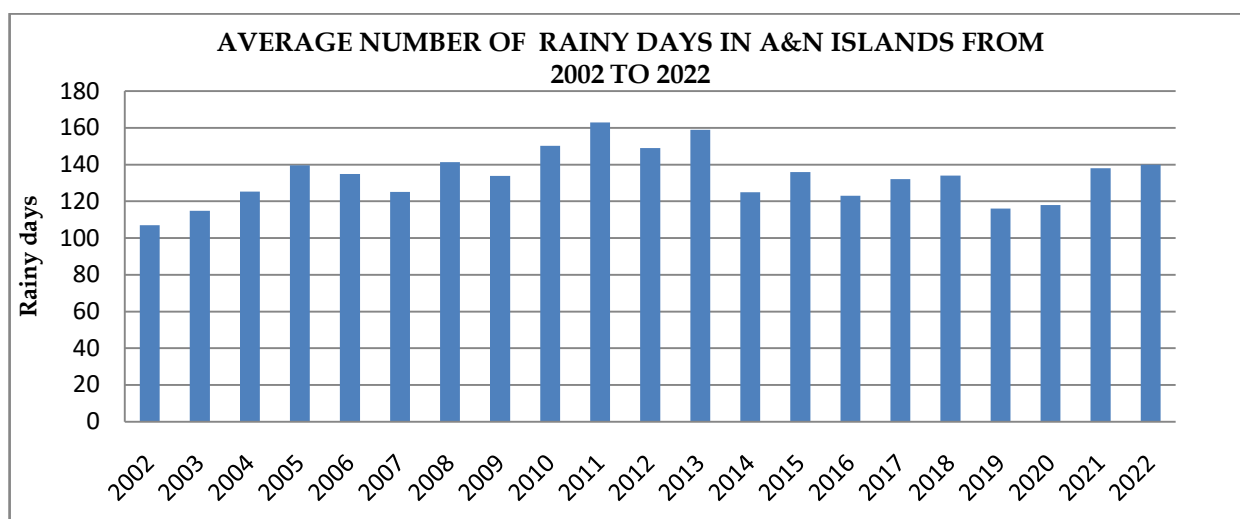
During monsoon season year 2018 received lowest rainfall of 1401.71 mm with least rainfall of 213.52 mm in July, 2018 followed by 2017 which received a rainfall of 1426.31 mm with least rainfall of 320.85 mm during the month of June, 2017.

During post monsoon season ANI received unprecedented rainfall of 992.07 mm in the year 2016 with an exceptional rainfall of 527.65 mm during the month of December.

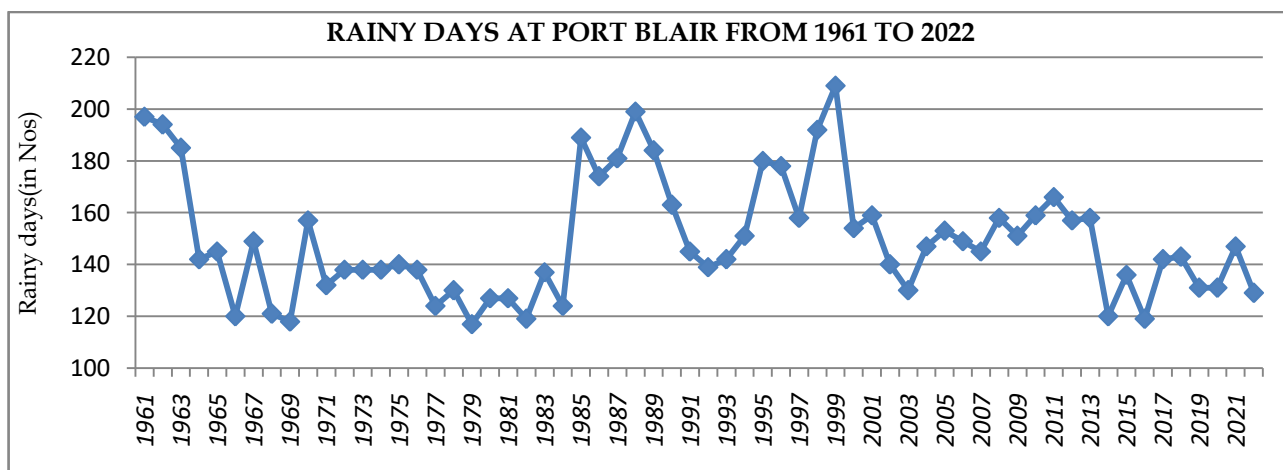
Andaman & Nicobar Islands receives rainfall throughout the year and winters are moderately mild. During winter season least rainfall of 9.03 mm was received in 2020 and highest rainfall of 343.55 mm was recorded in 2011.

RAINY DAYS

The highest number of average rainy days in A&N Islands from 2002 to 2022 was 163 during 2011 and the lowest was 107 days during 2002. The rainy days data pertaining to Andaman & Nicobar Islands is available from 2002 onwards however the rainy days data for Port Blair station is available from 1961.



From 1961 to 2022 Port Blair has least 117 rainy days during 1979 and highest 209 rainy days during 1999. It is seen that over the years the rainy days reduced at Port Blair. On an average 142 rainy days in a year were recorded at Port Blair but during last ten years it was reduced to 135 rainy days.



It is seen that rainfall at Port Blair is in decreasing trend from 1961 onwards with a fluctuation from 1967 and stagnate from 1972 to 1976. From 1977 onwards there is a marginal oscillation till 1984, during 1985 there are 189 rainy days at Port Blair and with minor swings and the major peak was shown as 199 rainy days during 1988 and afterwards 209 rainy days during 1999. From 2011 to 2022 it is seen that in 2011 there are 166 rainy days at Port Blair which was steeply decreased at 2014 with 120 rainy days however afterwards marginal fluctuations are seen.

B. TEMPERATURE

According to IMD the year 2022 is the fifth warmest year on record since 1901 in India. The annual mean land surface air temperature for the country during 2022 was +0.51°C above the long period average based on 1981-2010. The past decade (2012-2021/2013-2022) was also the warmest decade on record. The five warmest years on record in descending order were 2016(+0.71°C), 2009(+0.55°C), 2017(+0.541°C), 2010(+0.539°C), 2022(+0.51°C).

The pre- monsoon period was exceptionally hot in 2022. The country averaged seasonal mean temperature was normal during the winter season while temperature during other seasons viz, the pre-monsoon season, monsoon season & post monsoon season were above normal.

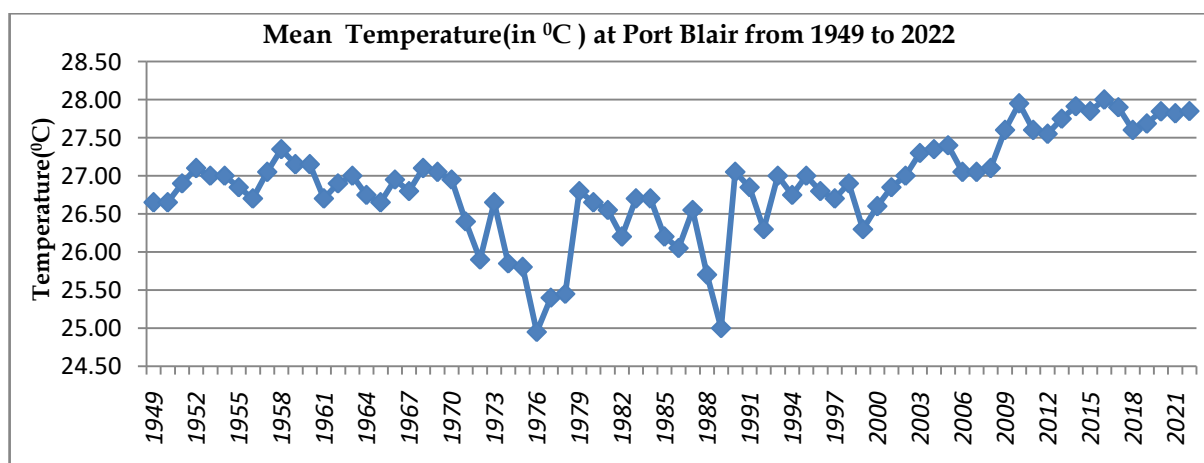
NORMAL & ACTUAL TEMPERATURE (°C) IN 2022

Month	India						A & N Islands		
	Normal			Actual			Actual		
	Max Temp(°C)	Min Temp(°C)	Mean Temp(°C)	Max Temp(°C)	Min Temp(°C)	Mean Temp(°C)	Max Temp(°C)	Min Temp(°C)	Mean Temp(°C)
January	25.60	13.69	19.64	24.94	14.53	19.74	30.5	25.0	27.75
February	27.80	15.49	21.65	27.49	15.48	21.48	30.1	24.0	27.05
March	31.24	18.87	25.06	33.10	20.24	26.27	31.4	25.0	28.20
April	33.94	22.15	28.04	35.30	23.51	29.41	32.7	26.0	29.35
May	35.17	24.32	29.74	35.07	24.84	29.96	30.5	26.0	28.25
June	33.73	24.76	29.25	34.12	25.06	29.59	30.7	25.0	27.85
July	31.62	24.33	27.98	31.65	24.68	28.17	30.1	25.0	27.55
August	31.09	24.01	27.55	31.44	24.45	27.94	30.2	25.0	27.60
September	31.37	23.26	27.31	31.76	23.89	27.82	30.4	25.0	27.70
October	31.16	20.88	26.02	31.14	21.38	26.26	30.1	25.0	27.55
November	29.03	17.40	23.22	29.37	17.69	23.53	30.3	25.0	27.65
December	26.53	14.44	20.49	27.32	15.65	21.49	30.4	25.0	27.70

*As per Statement on Climate of India during 2022, IMD, Ministry of Earth Science.

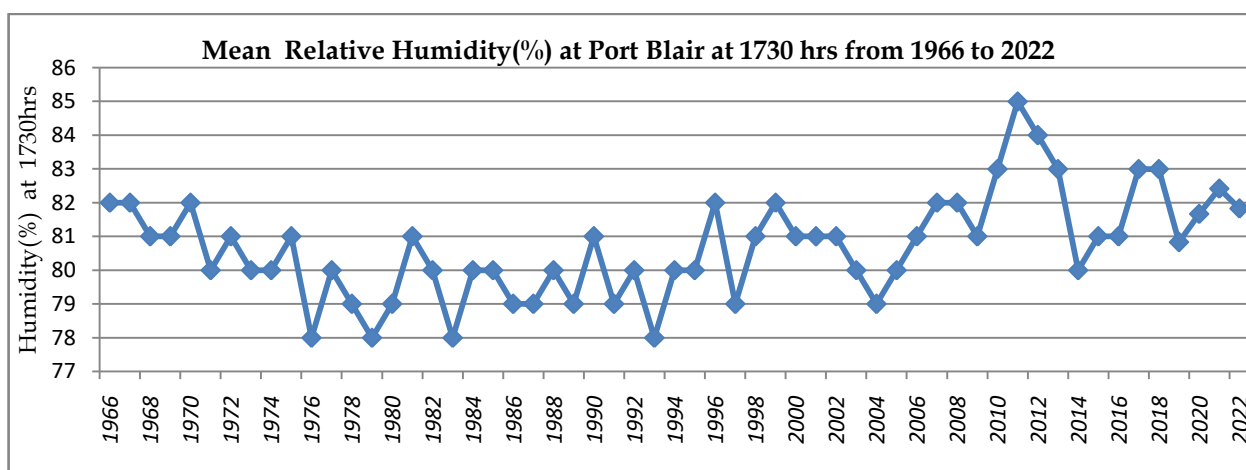
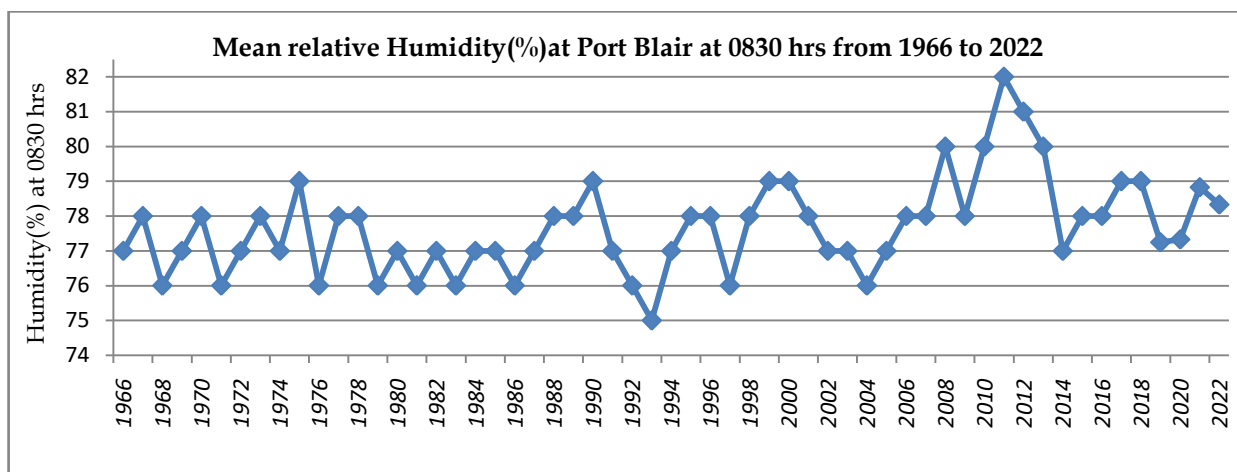
Andaman and Nicobar Islands experiences hot and humid climate which is strongly influenced by the condition of the surrounding sea. At Port Blair from 1949 to 2022, the lowest Mean Maximum Temperature was recorded as 29.10 Celsius during 1976 & 1985 and the highest Mean Maximum Temperature was recorded as 31.30 Celsius during 2010. Similarly lowest Mean Minimum Temperature was recorded as 20.40 Celsius during 1989 and the highest Mean Minimum Temperature was recorded as 25.08 Celsius during 2022.

The highest monthly maximum temperature experienced at Port Blair was 34.2°C (April, 2014) and the lowest monthly minimum temperature was 17.8°C during February, 1989. Mean temperature over 74 years showed moderately increasing trend more so after 90s.



C. HUMIDITY

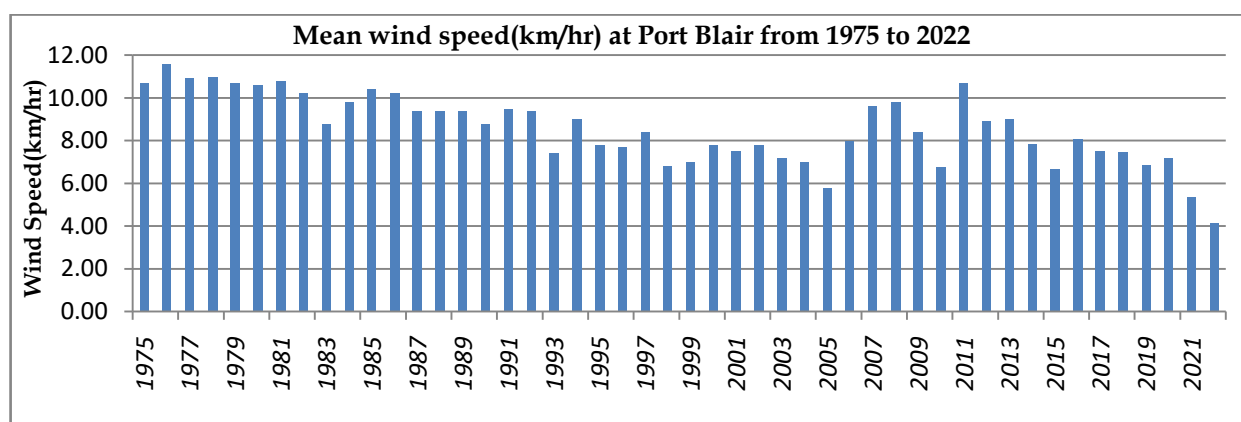
At Port Blair from 1966 to 2022 the lowest mean relative humidity at 0830 hrs was recorded as 75% during 1993 and the highest was recorded as 82% at 0830 hrs during 2011. Similarly the lowest mean relative humidity at 1730 hrs was recorded as 78% during 1976, 1979, 1983 & 1993 and the highest as 85% at 1730 hrs during 2011. The highest monthly relative humidity was recorded as 95% at 1730 hrs during September, 2012.



As per the statement on climate of India during 2022 by Climate Research and services(CRS), India Meteorological Department, Ministry of Earth Sciences (MoES) the cumulative Standardized Precipitation Index(SPI) values in past twelve months of 2022 highlights “extremely wet – severely wet conditions” in many parts of India including A & N Islands.

D. WIND SPEED

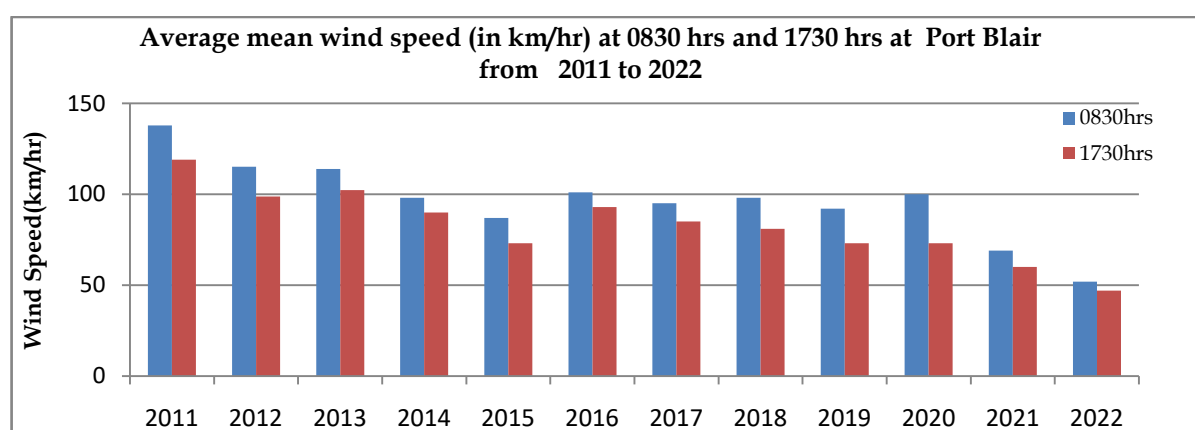
At Port Blair from 1975 to 2022 the lowest mean wind speed was recorded as 4.13 km/hr in 2022 and highest wind speed of 11.6 km/hr was recorded during 1976.



The monthly averages mean wind speed (in km/hr) recorded at Port Blair from 2011 to 2022 are given below:

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	7.19	8.16	8.19	11.5	6.5	9.5	8.5	6.5	7.5	8	8.5	3.5
Feb	7.75	7.31	6.43	6	6.5	10.5	8	6	4.5	8.5	6.5	4
Mar	7.58	4.03	6.03	6.5	3.5	5	4.5	3.5	2.5	5	3.5	1.5
April	4.9	4.76	5.63	2.5	3	1.5	1	4	1.5	5	1	1.5
May	10.66	10.77	9.83	4	5	6	4	2.5	7.5	3	1.5	5.5
June	18.28	19.96	13	13.5	8	12	14.5	15	10	8	8.5	5
July	15.35	14.57	15	15	12	9	13	16	13.5	7	9	5
Aug	13.77	13.74	13	10.5	9.5	12.5	11.5	15	13.5	12.5	7	7.5
Sep	12.87	6.8	13	9	9.5	8.5	6	6.5	4.5	9.5	7	5.5
Oct	9.32	5.42	3.5	1	1	7.5	4.5	1.5	3.5	6	2	2
Nov	9.06	3.56	4.5	4.5	6	6.5	6.5	6.5	4	7.5	4.5	2.5
Dec	11.68	7.86	10	10	9.5	8.5	8	6.5	10	6.5	5.5	6

The mean wind speed remains high during the months of June to August over the years. In last 12 years highest monthly average mean wind speed was recorded as 19.96 km/hrs in the month of June, 2012.



E. EARTHQUAKE

National Centre for Seismology (NCS), under the Ministry of Earth sciences (MoES), maintains a nationwide seismological network comprising of 115 seismic stations to monitor the earthquake activity in and around the country. The Bureau of Indian Standards (BIS), based on the historical seismicity and strong ground motions, grouped the country into four seismic zones, viz. Zone V, IV, III & II. Out of these zones, Zone V exhibits the highest seismic risk and zone II has the least. Andaman and Nicobar Islands falls under Zone V.

During the year 2022 total 46 earthquake shocks of 4.5 and above magnitudes occurred in A&N Islands.

S L. No.	Date	Time (Hrs) (IST)	Magnitude	Latitude	Longitude	Approx .Geographical Location /Region
1.	04-01-22	2032	4.5	11.93 N	93.68 E	Andaman Islands, India Region
2.	09-01-22	0925	4.5	6.94 N	93.90 E	Nicobar Islands, India Region
3.	11-01-22	1536	4.6	7.84 N	93.87 E	Nicobar Islands, India Region
4.	29-01-22	0252	4.7	14.60 N	93.18 E	Andaman Islands, India Region
5.	06-04-22	1059	5.6	7.28 N	94.31 E	Nicobar Islands, India Region
6.	06-04-22	1807	4.8	7.38 N	94.73 E	Nicobar Islands, India Region
7.	10-04-22	0702	5.2	7.57 N	94.36 E	Nicobar Islands, India Region
8.	10-04-22	0725	5	7.36 N	94.64 E	Nicobar Islands, India Region
9.	10-04-22	1550	4.5	7.20 N	94.31 E	Nicobar Islands, India Region
10.	10-04-22	1613	5	7.38 N	94.49	Nicobar Islands, India Region
11.	10-04-22	1904	5.1	7.31 N	94.71 E	Nicobar Islands, India Region
12.	10-04-22	1947	5	7.28 N	94.72 E	Nicobar Islands, India Region
13.	13-04-22	2223	4.6	7.40 N	94.54 E	Nicobar Islands, India Region
14.	22-04-22	0921	4.9	13.99 N	92.99 E	Andaman Islands, India Region
15.	09-05-22	0111	4.7	6.90 N	94.44 E	Nicobar Islands, India Region
16.	25-05-22	2035	5.6	4.43 S	93.23 E	South Indian Ocean
17.	27-05-22	0750	4.5	12.92 N	93.44 E	Andaman Islands, India Region
18.	05-06-22	1441	4.9	9.10 N	93.79 E	Nicobar Islands, India Region.
19.	04-07-22	1105	4.6	10.44 N	94.09 E	Andaman Islands, India Region.
20.	04-07-22	1332	4.6	10.49 N	93.92 E	Andaman Islands, India Region.
21.	04-07-22	1355	4.7	10.30 N	94.20 E	Andaman Islands, India Region.
22.	04-07-22	1406	4.8	10.74 N	94.41 E	Andaman Islands, India Region.
23.	04-07-22	1437	5.6	10.53 N	94.24 E	Andaman Islands, India Region.
24.	04-07-22	1502	4.7	10.36 N	94.31 E	Andaman Islands, India Region.
25.	04-07-22	1525	4.9	10.51 N	94.28 E	Andaman Islands, India Region.
26.	04-07-22	1539	4.5	10.30 N	94.28 E	Andaman Islands, India Region.
27.	04-07-22	1718	5	10.35 N	94.21 E	Andaman Islands, India Region.
28.	04-07-22	1750	4.6	10.29 N	94.15 E	Andaman Islands, India Region.
29.	04-07-22	2301	4.9	10.58 N	94.24 E	Andaman Islands, India Region.
30.	05-07-22	0254	5	10.57 N	94.35 E	Andaman Islands, India Region.
31.	05-07-22	0445	4.6	10.23 N	94.24 E	Andaman Islands, India Region.
32.	05-07-22	0557	5.1	10.92 N	94.54 E	Andaman Islands, India Region.
33.	05-07-22	0804	4.8	10.25 N	94.07 E	Andaman Islands, India Region.
34.	05-07-22	1136	4.9	10.49 N	94.18 E	Andaman Islands, India Region.
35.	05-07-22	1318	4.8	10.16 N	94.16 E	Andaman Islands, India Region.
36.	05/072022	1514	4.7	10.33 N	94.35 E	Andaman Islands, India Region.
37.	05-07-22	2020	5	11.23 N	91.81 E	Andaman Islands, India Region.
38.	06-07-22	0556	4.6	10.67 N	94.18 E	Andaman Sea.
39.	06-07-22	1331	5	10.52 N	94.25 E	Andaman Islands, India Region.
40.	09-07-22	0234	5.3	10.49 N	94.18 E	Andaman Islands, India Region.

41.	07-08-22	2114	4.8	10.35 N	93.86 E	Andaman Islands, India Region.
42.	28-09-22	1743	4.5	14.61 N	93.11 E	Andaman Sea.
43.	07-10-22	1659	4.9	7.92 N	94.20 E	Nicobar Islands, India Region
44.	20-10-22	1217	5	11.59 N	93.41 E	Andaman Islands, India Region.
45.	05-12-22	0832	5.1	19.14 N	89.78 E	Bay of Bengal
46.	13-12-22	1409	4.9	6.12 N	93.15 E	Nicobar Islands, India Region

Source: Directorate of Disaster Management, A&N Administration

Earthquake statistics for a period from 2004 to 2022 can be viewed at <http://andssw1.and.nic.in/ecostat/index.php>.

ANNEXURE

Statement on Climate of India during 2022, Climate Research and Services (CRS), India Meteorology Department, Ministry of Earth Sciences (MoES).

https://mausam.imd.gov.in/Forecast/marquee_data/Statement_climate_of_india_2022_final.pdf