



RAJASTHAN MONSOON REPORT-2024



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METEOROLOGICAL CENTRE JAIPUR
INDIA METEOROLOGICAL DEPARTMENT

PREFACE

The Rajasthan Monsoon Report 2024 provides a detailed analysis of the Southwest Monsoon's impact across the state. This report highlights the timely onset of the monsoon, its earlier-than-usual progression in Rajasthan, and the distribution of rainfall during the June to September period.

In 2024, Rajasthan received a total rainfall of 678.4 mm, which is 156% of its long-period average (435.6 mm). This year was marked by significant rainfall, particularly in districts like Dausa (1409.4 mm) and Sawai Madhopur (1285.6 mm), where rainfall was well above normal levels. August witnessed the second-highest monthly rainfall in the recorded history of the state.

This report is a valuable resource for understanding the monsoon patterns and their implications for agriculture, water management, and disaster preparedness. It offers crucial insights for effective planning and management of the state's climate and natural resources.

We are thankful to Smt Deepika Gupta, Shri Ashok Kumar Sharma, Shri Mahesh Chaudhary and Shri Pushkal Karamchandani for their help in compilation of data and bringing out this publication.

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RAJASTHAN MONSOON REPORT-2024

HIGHLIGHTS

- ❖ Southwest monsoon advanced over Kerala on 30th May and over Rajasthan on 25th June at scheduled normal date. Thereafter, monsoon covered the entire state by 2nd July against normal date of 8th July (about 6 days ahead of normal date).
- ❖ The rainfall recorded during monsoon season (June-September, 2024) over the Rajasthan state as a whole was 678.4 mm against its normal of 435.6 mm which is 156% of its long period average (LPA) based on data of 1971-2020. The rainfall received over the state was Excess (Departure +56% of long period average). The previous record of highest ever rainfall 844.2mm in 1917 and 682.2mm in 1908 during the period of 1901-2024 in Rajasthan.
- ❖ Meteorological subdivision wise 147% of its LPA over East Rajasthan and 171 % of its LPA over West Rajasthan observed during the monsoon season.
- ❖ Monthly rainfall received over the state was 91% of LPA in June, 101% of LPA in July, 221% of LPA in August and 191% of LPA in September.
- ❖ Cumulatively, 344.6 mm rainfall recorded in the month of August 2024. The observed rainfall was the second highest in the history of August during the period of 1901-2024. Earlier, the highest rainfall 358.6 mm recorded in 1944 in August.
- ❖ Out of total 33 districts, 16 districts received largely excess rainfall (Departure +60% or more), 10 districts received excess rainfall (Departure +20% to +59%) and 07 districts received normal rainfall (Departure -19% to +19%) during the season.
- ❖ Districtwise highest rainfall 1409.4mm (137% large excess than normal) observed in Dausa followed by 1285.6mm (94% large excess than normal) in Sawai Madhopur district.
- ❖ Southwest monsoon withdrew from parts of West Rajasthan and Kutch on September 23, 2024 (about 6 days behind normal date). Thereafter, monsoon withdrew from the entire state by 5th October against normal date of 30th September (about 5 days behind normal date).

1. Onset and Advance of Southwest Monsoon 2024

The Southwest Monsoon advanced on 30th May into the Lakshadweep area, most parts of Kerala, Mahe, and south Tamil Nadu, with further progress over northeast India, including Nagaland, Manipur, Mizoram, Arunachal Pradesh, and parts of Tripura, Meghalaya, and Assam. Thus, the monsoon onset over Kerala occurred on May 30, two days earlier than the normal date.

The progress of the southwest monsoon over its Bay of Bengal branch was more rapid than the Arabian Sea, partly due to the formation and movement of the Severe Cyclonic storm, Remal, over the region.

By June 27, the monsoon had reached the northern Arabian Sea, Gujarat, Rajasthan, and parts of Jammu & Kashmir, Himachal Pradesh, and Punjab. Monsoon covered the entire state by 2nd July against normal date of 8th July (about 6 days ahead of normal date). The Southwest Monsoon covered entire India by 2nd July, 2024 (six days earlier than its normal schedule of July 8), bringing widespread rainfall across the country. The onset dates of Monsoon 2024 are shown in **Fig.1**.

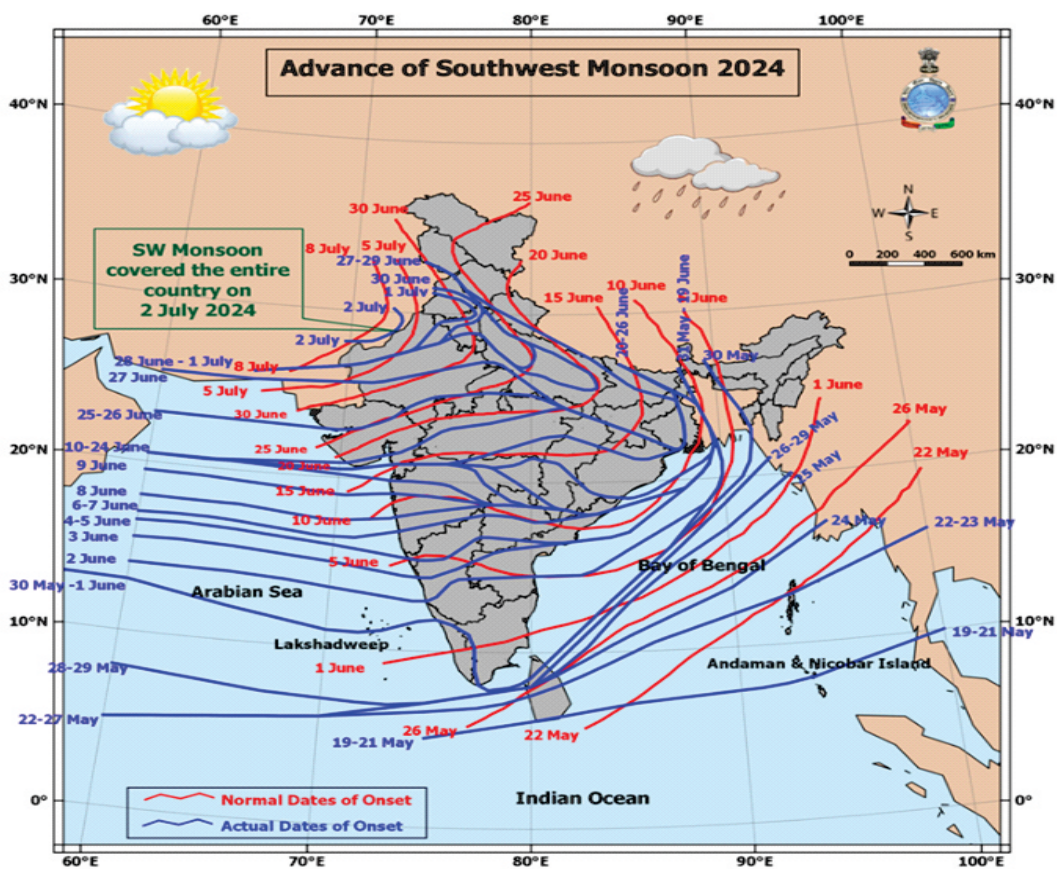


Fig. 1: Isochrones of advance of the Southwest monsoon during 2024

2. Rainfall Distribution

The seasonal rainfall over Rajasthan was 156% of its long period average (LPA) during SW monsoon season 2024. East Rajasthan received 147% and West Rajasthan received 171% of its LPA. Out of 33 districts, 16 districts received large excess rainfall, 10 districts received excess rainfall, 7 districts received normal rainfall and none of the districts received deficient or scanty rainfall during the season. District wise percentage departure of LPA during June-September 2024 is depicted in figure 2.

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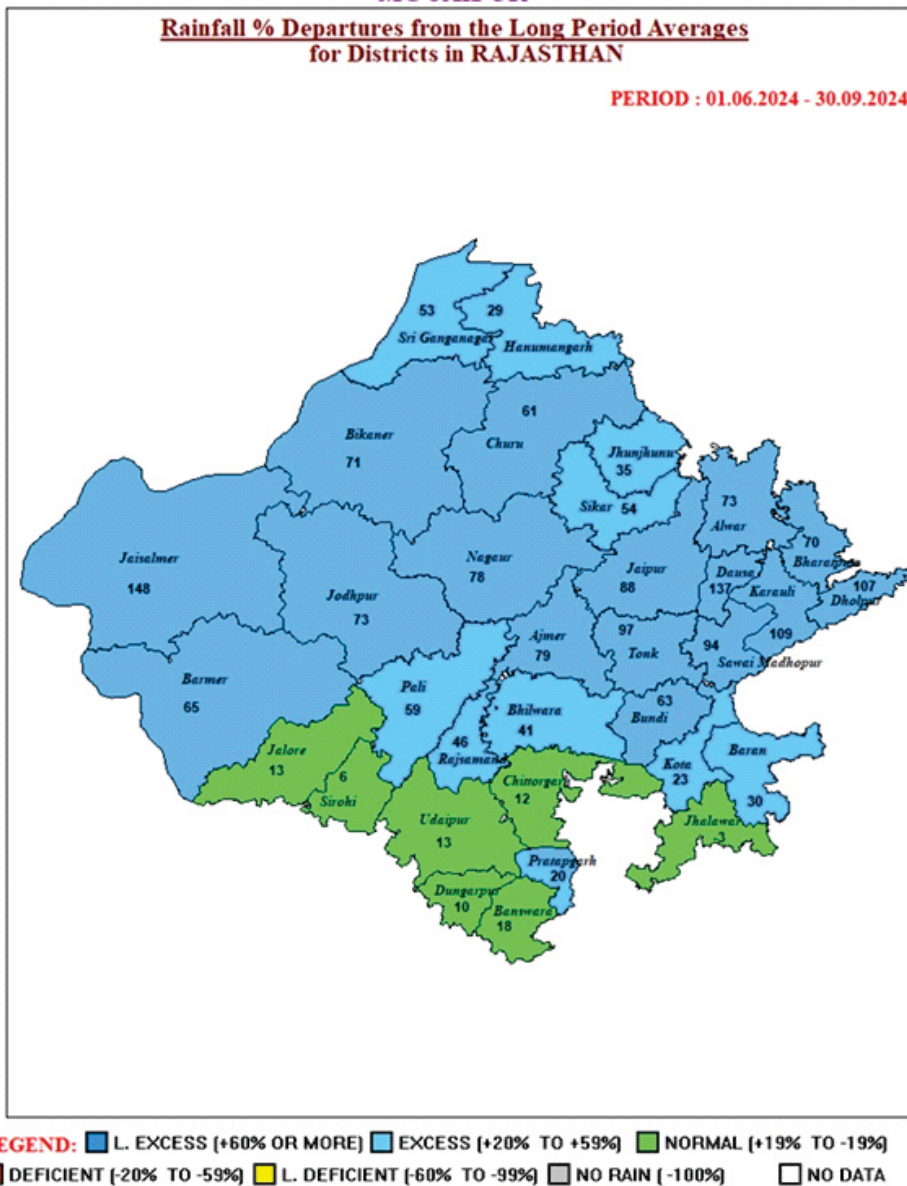


Fig. 2: Districtwise June-September 2024 Rainfall % Departures from the Long Period Averages

Table 1: CUMULATIVE RAINFALL STATISTIC (01/06/2024 to 30/09/2024)

SR NO.	NAME	ACTUAL RAINFALL (MM)	NORMAL RAINFALL (MM)	DEPARTURE FROM NORMAL (%)	CATEGORY
1	RAJASTHAN AS WHOLE	678.4	435.6	56	EXCESS
2	EAST RAJASTHAN	920	626.6	47	EXCESS
3	WEST RAJASTHAN	486.1	283.6	71	LARGE EXCESS

EASTRAJASTHAN

1	AJMER	819.6	458.3	79	LARGE EXCESS
2	ALWAR	946.3	545.9	73	LARGE EXCESS
3	BANSWARA	1043.4	886	18	NORMAL
4	BARAN	1084.9	832	30	EXCESS
5	BHARATPUR	925.4	543.3	70	LARGE EXCESS
6	BHILWARA	854.8	604.5	41	EXCESS
7	BUNDI	1052.6	644.4	63	LARGE EXCESS
8	CHITTORGARH	817.8	727.2	12	NORMAL
9	DAUSA	1409.4	594.5	137	LARGE EXCESS
10	DHOLPUR	1211.8	584.1	107	LARGE EXCESS
11	DUNGARPUR	774	706.5	10	NORMAL
12	JAIPUR	986.6	524.3	88	LARGE EXCESS
13	JHALAWAR	853.9	884.3	-3	NORMAL
14	JHUNJHUNU	550.5	408.8	35	EXCESS
15	KARALI	1245.8	595.8	109	LARGE EXCESS
16	KOTA	901.5	732.2	23	EXCESS
17	PRATAPGARH	1100.7	914.2	20	EXCESS
18	RAJSAMAND	788.1	538.1	46	EXCESS
19	SAWAI MADHOPUR	1285.6	661.5	94	LARGE EXCESS
20	SIKAR	628.4	407.1	54	EXCESS
21	SIROHI	928.9	873	6	NORMAL
22	TONK	1115.6	566.8	97	LARGE EXCESS
23	UDAIPUR	698.3	617.7	13	NORMAL

WEST RAJASTHAN

24	BARMER	448.6	272.7	65	LARGE EXCESS
25	BIKANER	423.3	247	71	LARGE EXCESS
26	CHURU	536.3	334	61	LARGE EXCESS
27	HANUMANGARH	328.4	253.6	29	EXCESS
28	JAISALMER	438.2	176.9	148	LARGE EXCESS
29	JALORE	471.6	417.8	13	NORMAL
30	JODHPUR	507.6	292.6	73	LARGE EXCESS
31	NAGOUR	656.5	369.5	78	LARGE EXCESS
32	PALI	779.9	491.6	59	EXCESS
33	SRI GANGANAGAR	314.1	204.7	53	EXCESS

Stationwise Total Seasonal Rainfall

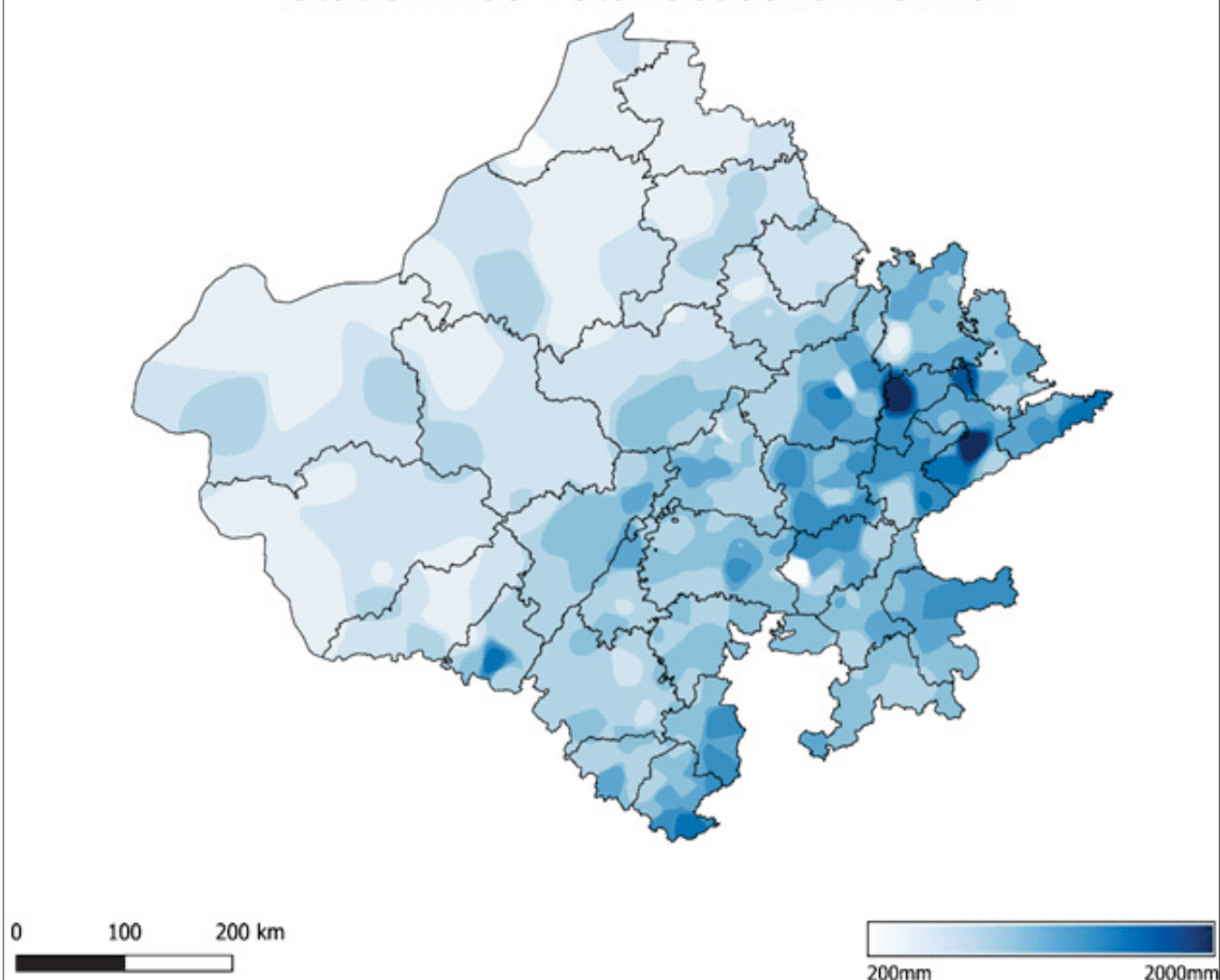


Fig 3.: Station wise Total Seasonal Rainfall

The rainfall recorded during monsoon season (June-September, 2024) over the Rajasthan state as a whole was 678.4 mm against its normal of 435.6 mm which is 156% of its long period average (LPA) based on data of 1971-2020. The top ten highest monsoon rainfall from 1901-2024 is shown in **Table 2**.

Table 2: Top Ten monsoon (1901-2024) for Rajasthan

Sr. No.	Year	Actual rainfall (mm)	Normal Rainfall(mm) (1971-2020)	% Departure
1	1917	844.2	435.6	94
2	1908	682.2	435.6	57
3	2024	678.4	435.6	56
4	1975	665.4	435.6	53
5	1973	641.8	435.6	47
6	1944	627.4	435.6	44
7	2022	596.1	435.6	37
8	2011	593.7	435.6	36
9	2019	583.8	435.6	34
10	1916	570.1	435.6	31

North, Central and northeastern parts of the state received large excess rainfall. Whereas, most of Southern Rajasthan received normal rainfall. In terms of percentage departure from normal, Jhalawar district received least rainfall (97% of LPA) and Jaisalmer district received highest rainfall (248% of LPA).

The monthly rainfall during monsoon season (June to September) for the State as a whole and its two meteorological sub divisions with respective LPA values and departure from normal is given in **Table 3-5**.

Table 3: Rainfall during southwest monsoon 2024 over Rajasthan

Month	Actual Rainfall (in mm)	Long Period Average (in mm)	Departure from Normal (in %)
June	50.3	55	-9
July	162.3	161.4	1
August	344.6	155.7	121
September	121.3	63.5	91

Table 4: Rainfall during southwest monsoon 2024 over East Rajasthan

Month	Actual Rainfall (in mm)	Long Period Average (in mm)	Departure from Normal (in %)
June	75.1	74.7	1
July	231.1	228.6	1
August	421.5	231.5	82
September	192.3	91.8	109

Table 5: Rainfall during southwest monsoon 2024 over West Rajasthan

Month	Actual Rainfall (in mm)	Long Period Average (in mm)	Departure from Normal (in %)
June	30.5	39.4	-22
July	107.5	107.8	0
August	283.3	95.5	197
September	64.8	40.9	58

Both East Rajasthan and West Rajasthan received their highest rainfall during month of August which was 182 % of LPA (large excess) and 297 % of LPA (large excess) respectively.



Fig. 4: Districtwise Monthly Distribution over Rajasthan – June



Fig. 5: Districtwise Monthly Distribution over Rajasthan – July

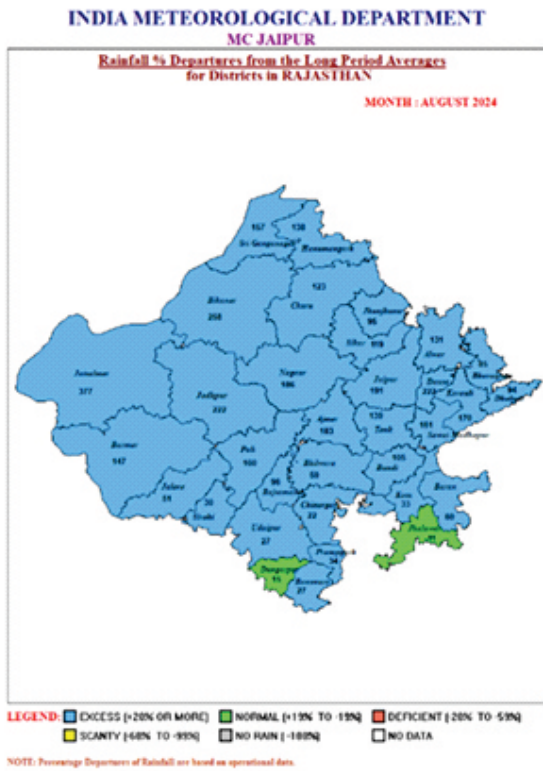


Fig. 6: Districtwise Monthly Distribution over Rajasthan – August



Fig. 7: Districtwise Monthly Distribution over Rajasthan – September

Fig. 8 depicts the monthly variation for Rajasthan and two subdivisions during 2024 southwest monsoon season and **Fig. 9** depicts the weekly and cumulative weekly rainfall anomaly expressed as percentage departure from the LPA.

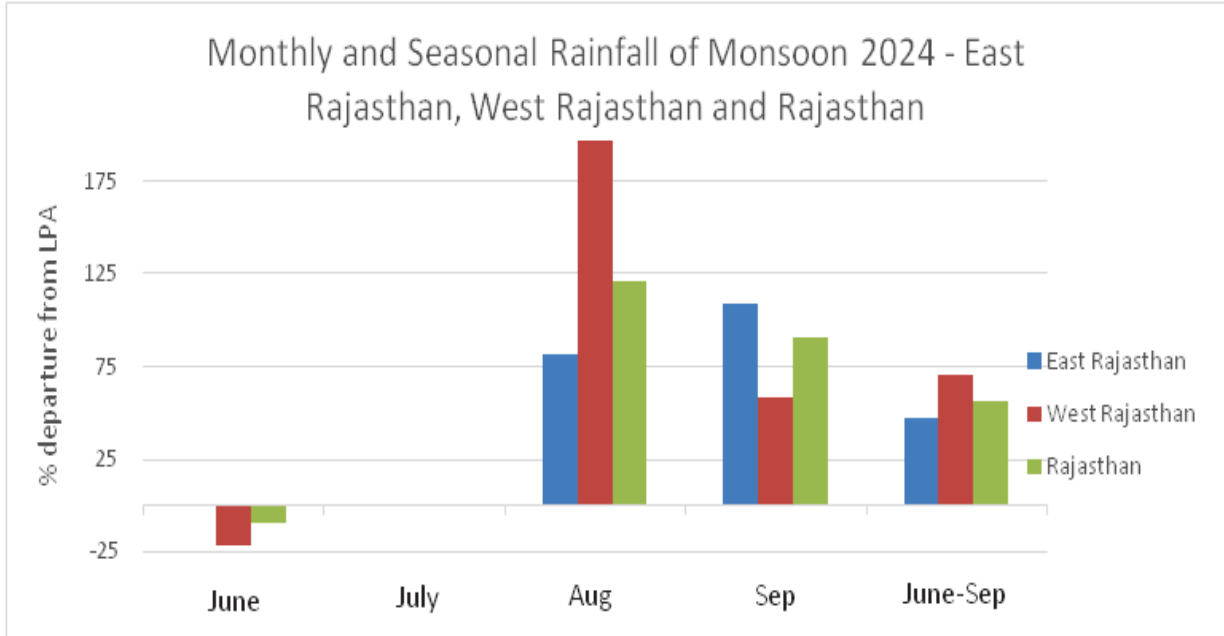


Fig. 8: Monthly and seasonal monsoon rainfall of 2024 over East Rajasthan, West Rajasthan and Rajasthan as whole in % departure.

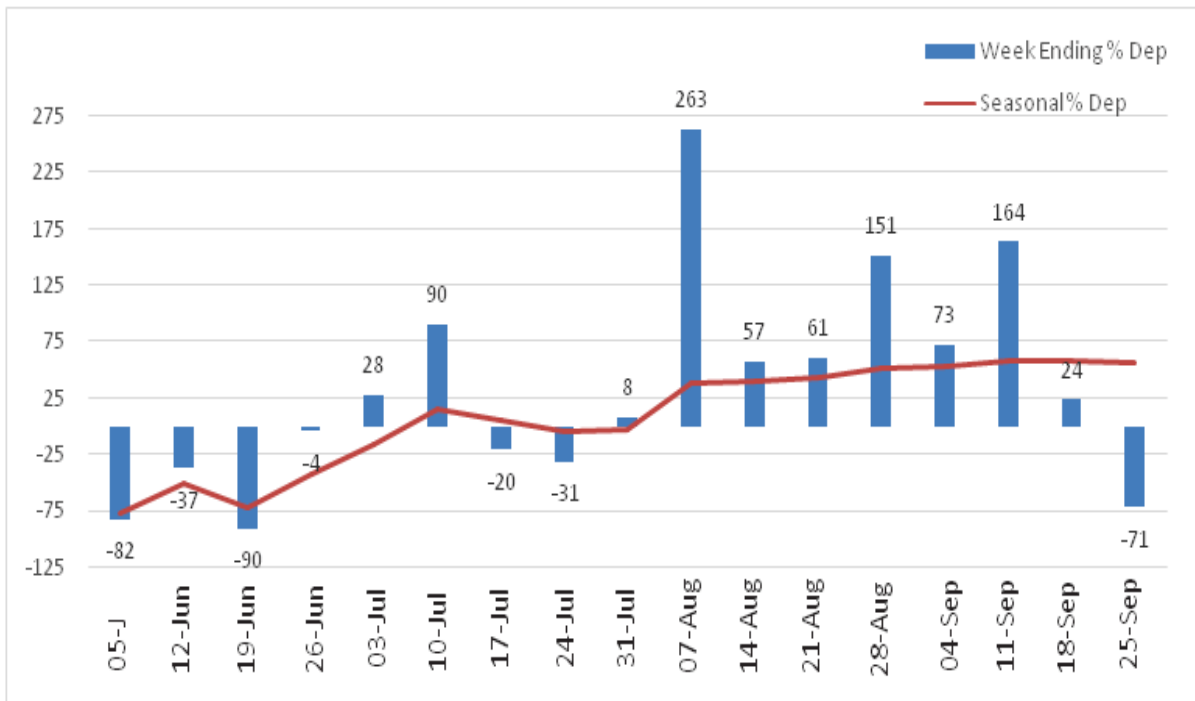


Fig. 9: Week by week progress and cumulative rainfall (% departure from normal) over Rajasthan as whole.

Out of the 10 positive rainfall anomaly weeks, 3 weeks were in July, 4 weeks were in August and 3 weeks were in September. The highest negative weekly rainfall anomaly was recorded during the week ending 19th June (-90% of LPA). The highest positive rainfall anomalies were recorded during the week ending on 07th August (263% of LPA), 11th September (164% of LPA), followed by the week ending on 28th August (151% of LPA). The increase in the weekly rainfall during the season was mainly associated with the low-pressure systems which moved along the monsoon trough.

Table 6: Weekly Rainfall (in mm)

	5-Jun	12-Jun	19-Jun	26-Jun	3-Jul	10-Jul	17-Jul	24-Jul	31-Jul	7-Aug	14-Aug	21-Aug	28-Aug	4-Sep	11-Sep	18-Sep	25-Sep
RAJASTHAN	1	4.7	1.2	16.5	33.2	49.6	31.7	28.9	45.9	142.9	60.4	60.8	73.2	46.6	57.5	15.2	2.8
EAST RAJASTHAN	1	5.2	2.6	26.9	48.5	75.5	41.3	30.9	74.6	142.6	103.3	52.2	114	57.7	97.8	31.6	5.1
AJMER	1.1	1.1	0.8	16.2	59.7	31.3	19.5	21.7	37.8	290.3	20.2	60.5	103.8	52.5	90.6	10.2	1.4
ALWAR	0	0.5	4.7	14.3	42.6	113.9	24.3	46	39.1	90.1	196.3	98.8	55.4	46.9	132.3	33.3	7.1
BANSWARA	0	10.4	0.8	15.9	46.4	53.1	47.3	3.1	127.8	60.1	51.1	10.3	308.4	101.2	144	17.1	9.4
BARAN	1.4	0.3	16.4	20.5	34.3	121	34.3	56.3	74.1	184.6	84.3	110.1	102.9	45	102.3	79.1	0.6
BHARATPUR	0.8	0.1	0.5	34.7	118.1	65.2	27.2	10.7	53.8	60.7	240.9	25.8	31.5	12.2	126.3	95.9	19.5
BHILWARA	0.8	4.1	1.5	24.9	39.4	44	29.4	52.8	109.8	147.8	25.7	57.6	138.2	72.7	98.4	7.2	0.2
BUNDI	0.2	1.3	1.5	34	35.8	108.3	60.8	43	84.8	193.7	100.5	100.5	93.8	39	136	18.5	0
CHITTORGARH	0.1	13.4	5.5	51	33	36.9	38.6	57.4	91	116.2	44.1	26.4	155.5	57.4	82.2	6.5	0.1
DAUSA	0	0	1.4	47.4	53.4	152.8	18.8	20.6	168.2	141.6	335.6	116.8	92.2	26.8	152	66.2	9.6
DHOLPUR	0	0	2.3	18.5	147.8	108.9	54.7	34	68.3	85.2	163.5	74.8	87.7	23.7	108.8	201.7	31.8
DUNGARPUR	0	12.1	0	19.6	63.7	47.8	64.7	2.4	40.5	67	17.3	8	197.4	84.5	89.4	5.6	13.9
JAIPUR	1.8	1.4	1.1	23.7	27.1	93.7	53.7	16.5	46.3	185	168.3	82.4	75.7	69.5	105.9	29.6	3.7
JHALAWAR	6.1	0	4.7	63.5	36	44.9	46.5	57.7	124.2	121.9	34.8	34.8	104.8	23.9	62.5	50.4	0.7
JHUNJHUNU	1.9	3.1	3.3	13.2	38.8	76.1	26.3	11.2	28.6	69.1	135.2	26.1	32.9	11	45.5	15.4	13.1
KARAULI	0	0	0.3	26.8	42.8	135.8	27.8	18.8	128.2	139.7	322.7	62.2	94.7	13.3	141.8	73.8	11.7
KOTA	0	1.5	3.8	35.4	92.4	64.9	38.4	46.1	112.6	127.2	81.6	52.2	101.9	38.7	71	30.6	0
PRATAPGARH	0	17.3	0	40.6	46.4	52	25.6	7.6	129.6	129.2	75.8	1.6	268.4	102.6	146.4	27.2	6.8
RAJSAMAND	0.9	16	4.4	12.4	69.9	31	33.3	39.6	43.3	187	8.6	41	142.7	54.6	78.6	19.4	1.1
SAWAI MADHOPUR	0.4	0.3	0.6	38.6	64.9	122.7	11.4	33	127.7	211.6	248.4	70	114.3	41.3	112.1	81.1	1.7
SIKAR	5.3	1.1	2.9	16.5	37.8	73.9	43.5	11.1	24.7	109.8	89.2	57.8	22.8	63	54.9	8.4	5.5
SIROHI	0	0	0	6.5	59.7	34.7	85.5	25.2	66.3	147	47.9	9.3	167.2	100.2	142.5	11.7	4.6
TONK	0	3.2	1.1	30.5	31.5	175.4	81.4	40.5	91.1	242.5	133.4	57.1	84.3	41.5	78.6	16.8	2.3
UDAIPUR	0	20.6	0.2	25.7	36.7	31.6	47.2	23.8	49.2	79.9	6.7	7	163.5	109.4	65.5	3.4	4.5
WEST RAJASTHAN	0.9	4.4	0.1	8.2	21	28.9	24.1	27.4	23.1	143.2	26.3	67.6	40.8	37.8	25.4	2.1	0.9
BARMER	0	2.1	0	17.2	14.2	11.7	17.9	45.7	17.7	114.6	0.8	51.5	60	57.9	30.4	0.4	0.1
BIKANER	0.3	2.6	0	1.3	8	39.5	33.6	9.9	36	112.8	55.7	86.8	16.6	17	2.3	0.1	0
CHURU	3.3	0	0.6	12.7	56.8	55.3	45.2	27.4	42	116.3	53.5	22.9	26.8	37.8	28.6	1.1	6
HANUMANGARH	1.1	6.4	0	9.3	9.7	57.3	24	9.9	10.6	85	31.4	27.2	21	28.7	2.6	0	3.9
JAISALMER	0	10.9	0	4.6	11.6	10	0.4	37.3	12.1	172.3	16.5	94.1	13.9	34.1	9.6	0.1	0
JALORE	0	1.3	0	7.6	17.9	5.1	52.9	36.1	30.4	126.4	13.4	10.1	61.6	49.8	44.6	2.3	3.8
JODHPUR	0	4.2	0	1.8	32.8	23.6	6.1	28.8	6.7	163.7	27.7	82.5	48.8	36.4	36.3	8.3	0
NAGAU	5.7	0.3	0.2	8.2	29.2	61.2	62.9	16.1	42.5	170.1	34	96.2	46.6	34.7	39.9	6.3	0.2
PALI	0	3.9	0	11.4	39	27.5	14.8	27	32.3	263.5	8.6	70	128.1	58	92.8	2.9	0
SRI GANGANAGAR	0.8	7.2	0	23.5	14.6	37.8	29.7	12.4	8.9	53.6	22.8	18.6	41.8	36.3	0	0.1	0.6

Fairly wide spread to widespread rainfall occurred on 15 days (minimum) to 55 days (maximum) over different districts in Rajasthan during the whole monsoon season. Dausa district got wide spread rainfall on 44 days (highest) during the whole season. The districtwise daily rainfall distribution of Monsoon 2024 is shown in **Fig.10**.

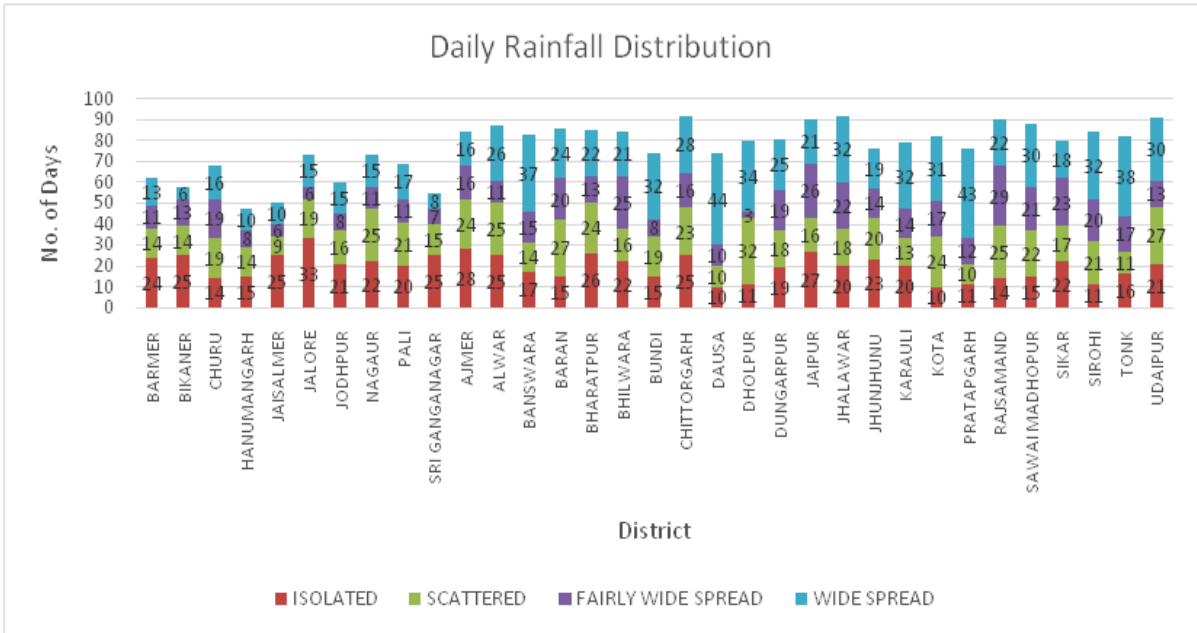


Fig. 10: Districtwise Daily Spatial Rainfall Distribution

Heavy to extremely heavy rainfall occurred at isolated to most places in all districts of the state on a few days. The districts namely Tonk, Banswara, Bharatpur, Bundi, Dholpur, Pratapgarh and Sawai Madhopur received heavy rainfall on a greater number of days at most places during the whole season. Karauli, Jaipur, Baran and Dausa districts experienced heavy rainfall at many places on 2 to 3 days during the season. The districtwise daily heavy to extremely heavy rainfall distribution of Monsoon 2024 is shown in **Fig.11**. Extremely Heavy rainfall of the season is shown in **Table 7**.

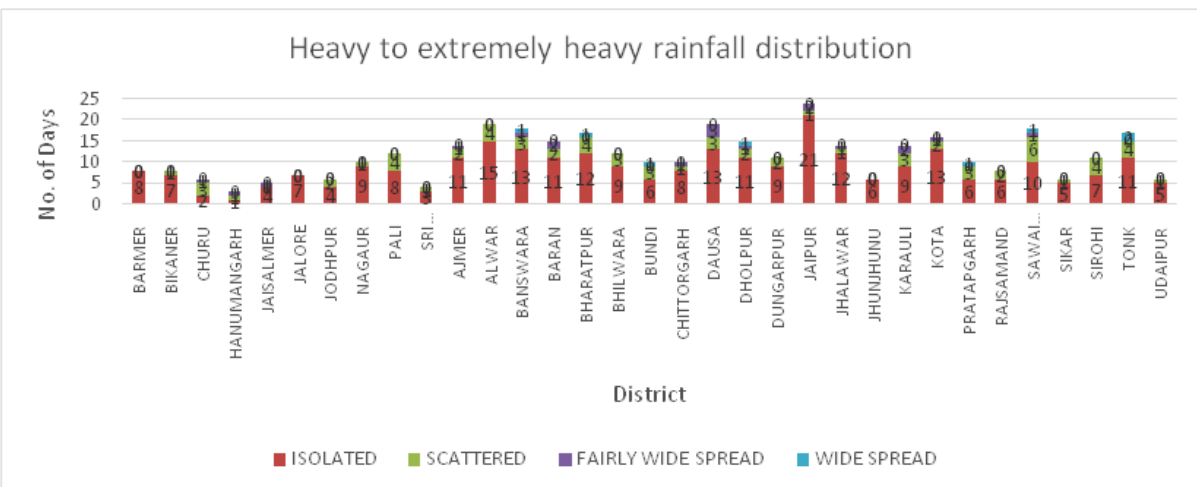


Fig. 11: Districtwise Daily Heavy to Extremely Heavy Rainfall Distribution

Table 7: Extremely Heavy Rainfall during Southwest Monsoon 2024

S.No.	Station	Date	Amount (in mm)	District
1	Karauli	11 August	380.0	Karauli
2	Nagarfort	05 August	321.0	Tonk
3	Sojat	05 August	261.0	Pali
4	Pipalkhunt	26 August	260.0	Pratapgarh
5	Pali	06 August	257.0	Pali
6	Rajakhera	12 September	237.0	Dholpur
7	Nagar	09 September	224.0	Bharatpur
8	Hindoli	16 August	220.0	Bundi
9	Hindoli	05 August	217.0	Bundi
10	Jahajpur	05 August	213.0	Bhilwara
11	Mangliawas	16 August	207.0	Ajmer
12	Sapotra	12August	207.0	Karauli

Month wise very heavy and extremely heavy rainfall events are shown in **Fig.12** and **Fig. 13** respectively. Most number of very heavy to extremely heavy rainfall events occurred in the month of August. Highest rainfall of 380mm occurred in Karauli on 11th August.

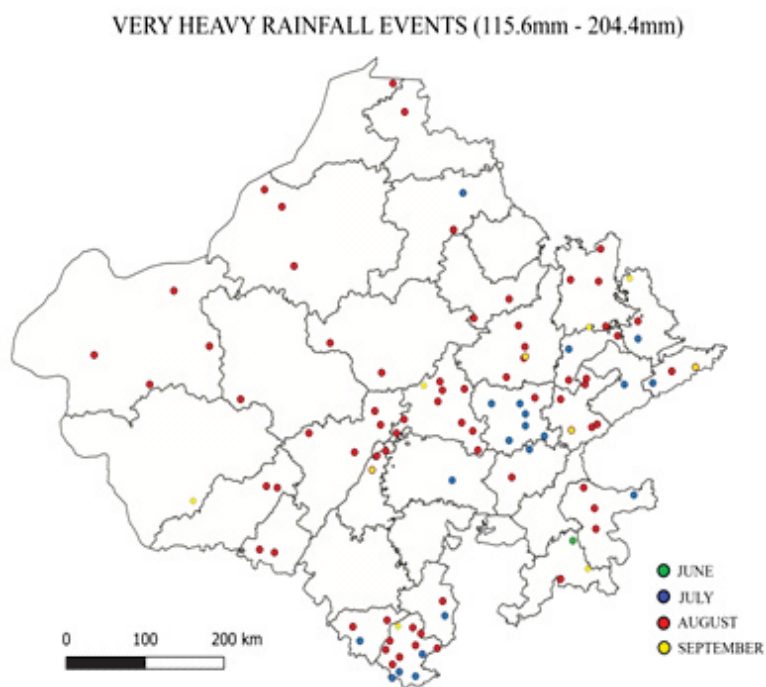


Fig. 12: The location of Very Heavy Rainfall (115.6 to 204.4 mm)

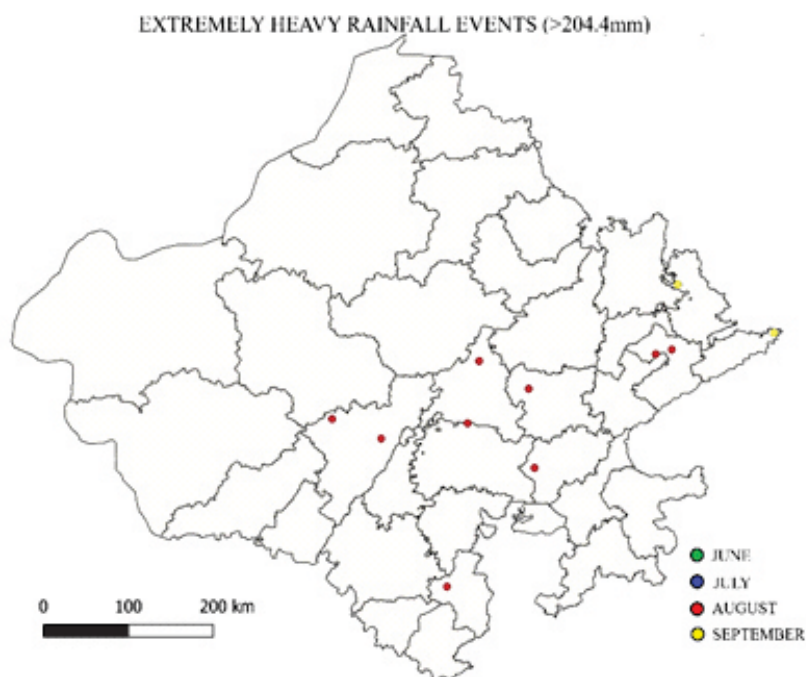


Fig. 13: The location of Extremely Heavy Rainfall (more than 204.4 mm)

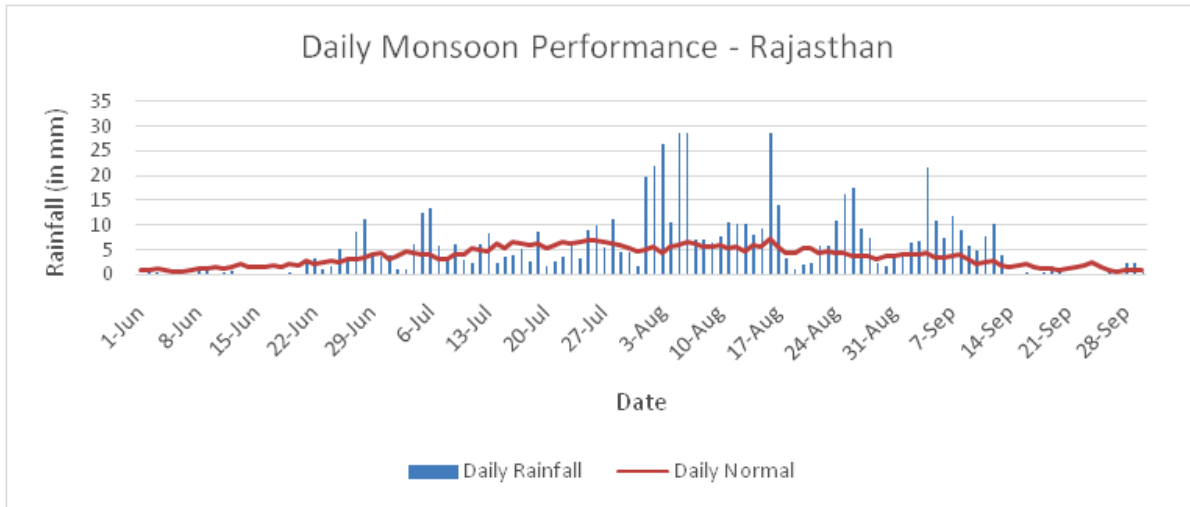


Fig. 14: Daily Rainfall - Rajasthan

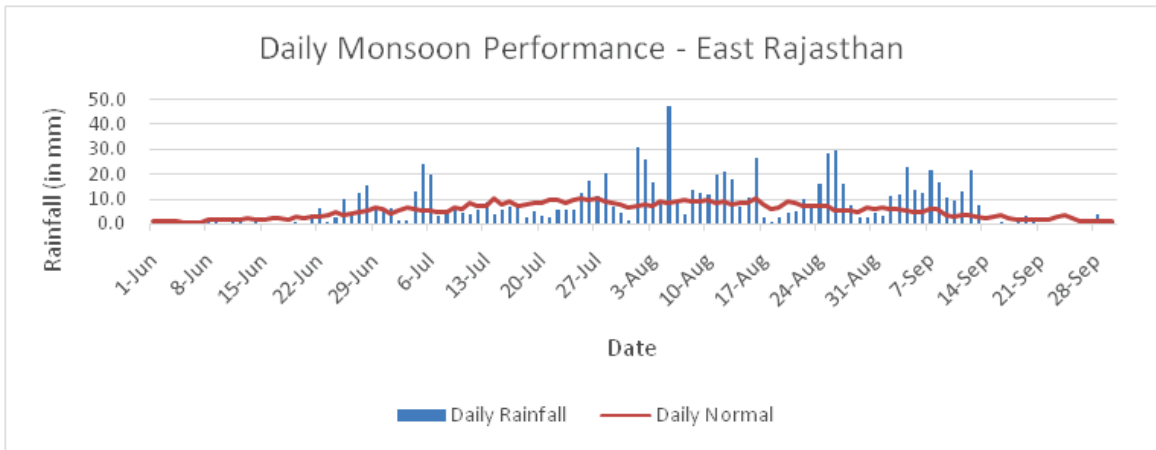


Fig. 15: Daily Rainfall – East Rajasthan

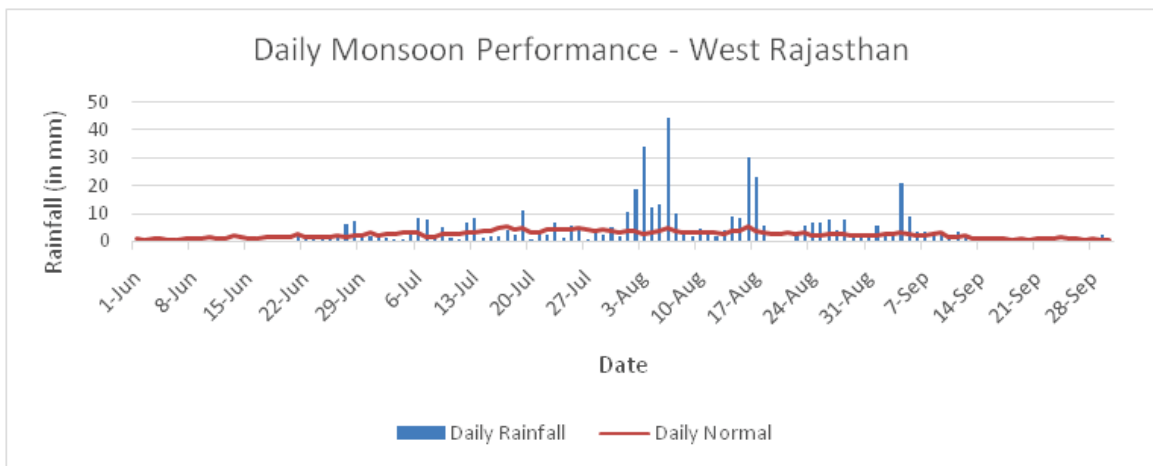


Fig. 16: Daily Rainfall – West Rajasthan

3. Chief Synoptic Features of Southwest Monsoon Season

During the season, six Monsoon depressions formed and one intensified into Cyclonic Storm. The tracks of the Cyclonic Storm and Deep Depression are shown in **Fig. 17**. The information of number of low-pressure systems formed during the season is shown in **Table 8**. In June, only one low-pressure System developed over the Bay of Bengal and Monsoon onset was delayed over many subdivisions over Indo Gangetic plains, causing large rainfall deficiency over the region. A total of three low-pressure systems (LPS) were formed during July (15 -17, 18-23 and 26-28 Jul). Out of these, one system intensified into Depression (19 to 20 Jul). The low-pressure systems formed during the monsoon season contributed heavy and very heavy rainfall over many parts of the country.

In August, six low-pressure systems formed (2 low pressure areas (one over land during 3- 5 August, one over Arabian Sea during 22 - 24 August), 1 well marked low pressure area over Bay of Bengal during 25 - 28 August, 1 Depression over Bay of Bengal during 29 August – 2 September, one land Deep depression during 2 - 5 August and one cyclonic storm “ASNA” over Bay of Bengal during 16 August - 2 September). These low-pressure systems helped to get good rainfall over many parts of the country.

In September, three low-pressure systems formed (one Deep Depression over West central and adjoining Northwest Bay of Bengal (8th- 10th Sept, 11-13 Sept 2024), which moved to Northeast Madhya Pradesh and weekend over the same areas as a well-marked Low-pressure area on the evening of 10th Sept. It re-intensified into a Depression on morning of 11th Sept over Northeast Madhya Pradesh and moved northwest Madhya Pradesh during 11-12 Sept and weakened into a well-marked low pressure area over northwest Uttar Pradesh & neighborhood on 13th Sept; one Deep depression Northeast Bay of Bengal and adjoining Bangladesh during 12th Sept – 19th Sept, which moved across central India and weakened into a well-marked Low Pressure Area over northeast Madhya Pradesh and adjoining southwest Uttar Pradesh on 19 Sept; 1 low pressure area formed over West central Bay of Bengal & adjoining Northwest Bay off north Andhra - south Odisha coasts which moved over to south Chhattisgarh & neighborhood across Odisha on 25th September and became less marked thereafter). The country as a whole received excess rainfall during September mainly due to the west/north-westward movement of three low-pressure systems and their associated cyclonic circulations along the monsoon trough from the Northwest Bay of Bengal towards central India. Out of these two systems intensified into the deep depression.

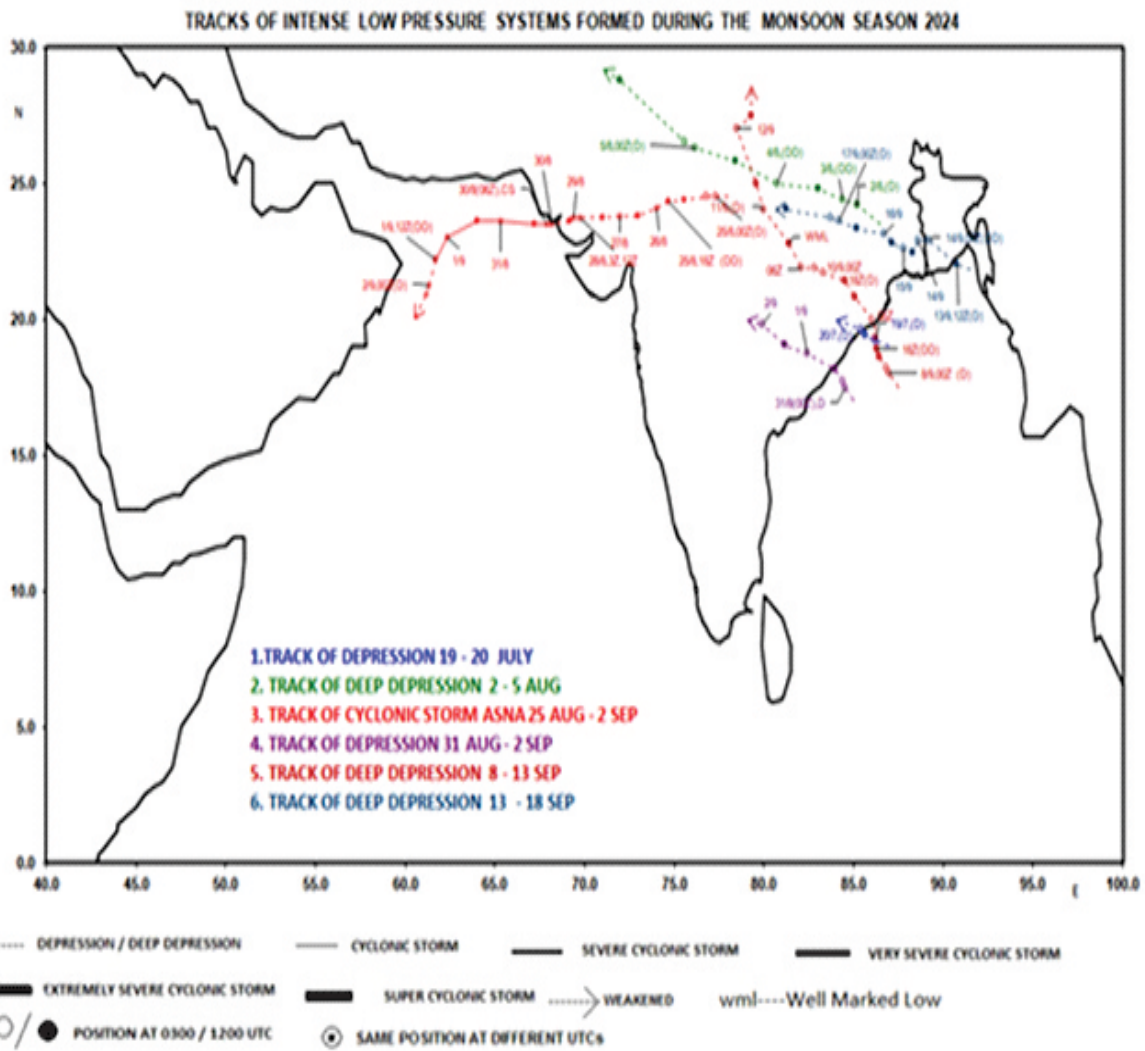


Fig. 17: Tracks of the Cyclonic Storms and Depressions formed during Monsoon 2024

Table 8: Number of Low-pressure System (LPS) including Low (L), Well Marked Low (WML), Depression (D), Deep Depression (DD), Cyclonic Storm (CS) and number of LPS days in monsoon 2024.

Systems/ Month	CS	DD	D	WML	L	Land Low	Total Systems
June	0	0	0	0	1	0	1
July	0	0	1	0	2	0	3
August	1	1	1	1	2	0	6
September	0	2	0	0	1	0	3

4. Withdrawal of Southwest Monsoon 2024

The withdrawal of the Southwest Monsoon 2024 commenced on September 23, delayed by 6 days from its normal date of September 17, following a reduction in rainfall and the formation of an anti-cyclonic circulation in the lower troposphere. Southwest monsoon 2024 withdrew from the entire country on October 15. The withdrawal dates of the 2024 Southwest Monsoon are illustrated in **Fig.18**.

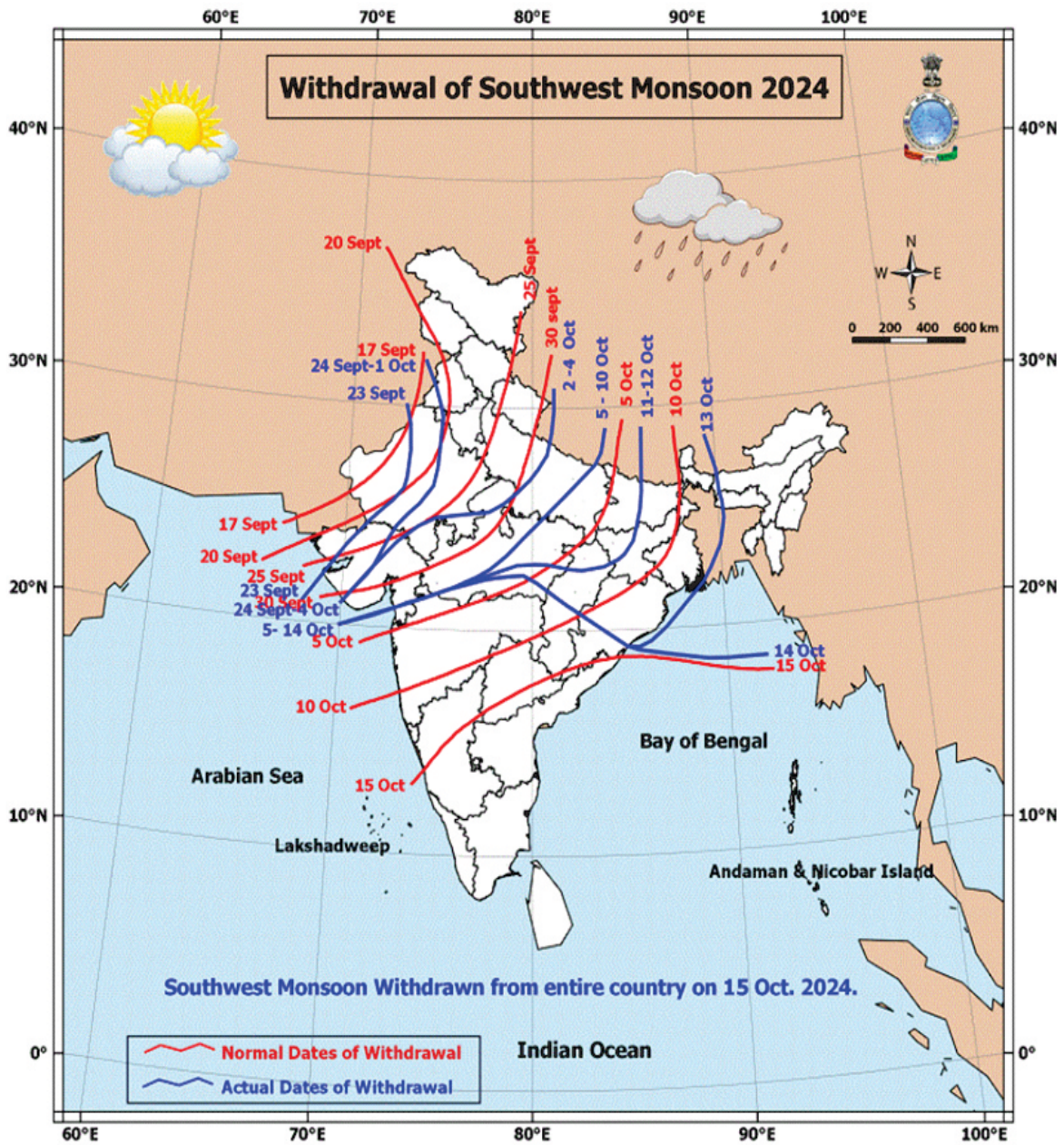


Fig. 18: Isochrones of withdrawal of the Southwest monsoon during 2024

5. Verification of Long-Range Forecast issued for SW Monsoon 2024

The forecast for monsoon onset over Kerala for this year was correct, which is the nineteenth consecutive correct forecast for this event except the year 2015 since the commencement of this forecast in 2005. The Forecast date of onset of monsoon over Kerala was 31st May with a model error of ± 4 days and realized date of onset of monsoon over Kerala was 30th May.

The first stage forecast for the season (June-September) rainfall over Northwest India issued on 27th May indicated that the southwest monsoon seasonal (June to September 2024) rainfall is most likely to be normal (92-108% of LPA). The actual rainfall over Northwest India was recorded at 7% of the LPA.

The monthly forecast issued during the season was within the range of the forecast. However, the June forecast was slightly underestimated. The forecast for the second half of the monsoon season (August –September) for the country as a whole also was within the forecast limits.

This year, IMD had indicated the weakening of El Niño conditions prevailed over the equatorial Pacific Ocean and the possibility of developing a La Niña conditions during the second half of the monsoon season. IMD has also indicated that a positive Indian Ocean Dipole is likely to develop during the monsoon season. The El Niño conditions over the equatorial Pacific were weakened, and neutral ENSO conditions prevailed during the season. However, large-scale atmospheric circulation features were similar to La Niña condition over the equatorial Pacific even though the Sea surface anomaly did not cross the La Niña threshold value (-0.5 Degree). Neutral IOD conditions prevailed during southwest monsoon season.



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