

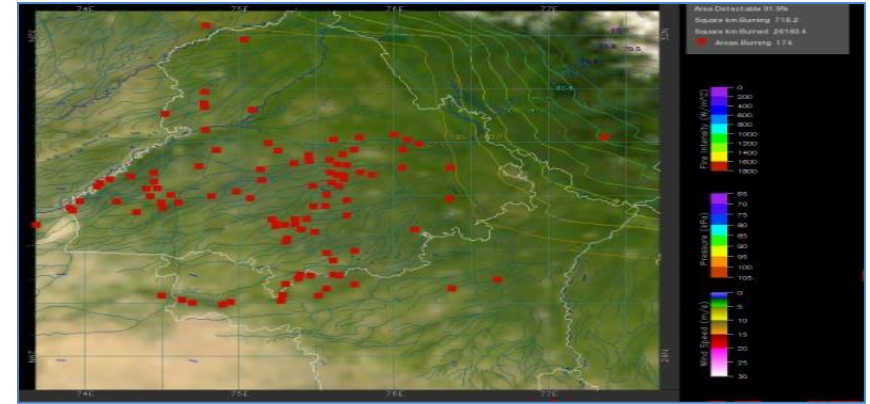
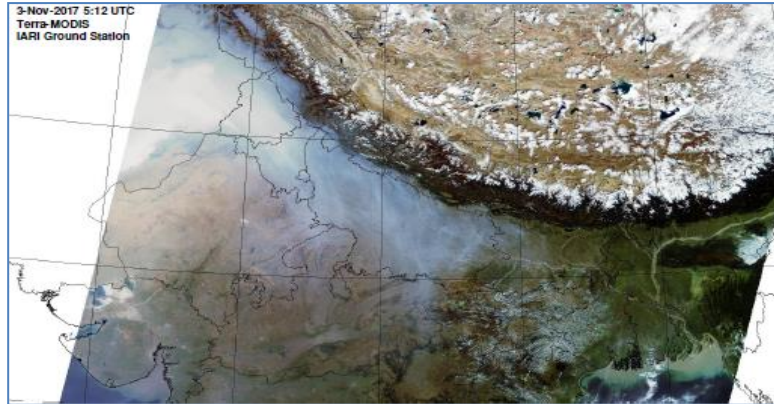


# MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2024

Bulletin  
No. 11

Events Date:  
25-Sep-2024

Issued on:  
25-Sep-2024



Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS)  
Laboratory,

Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012

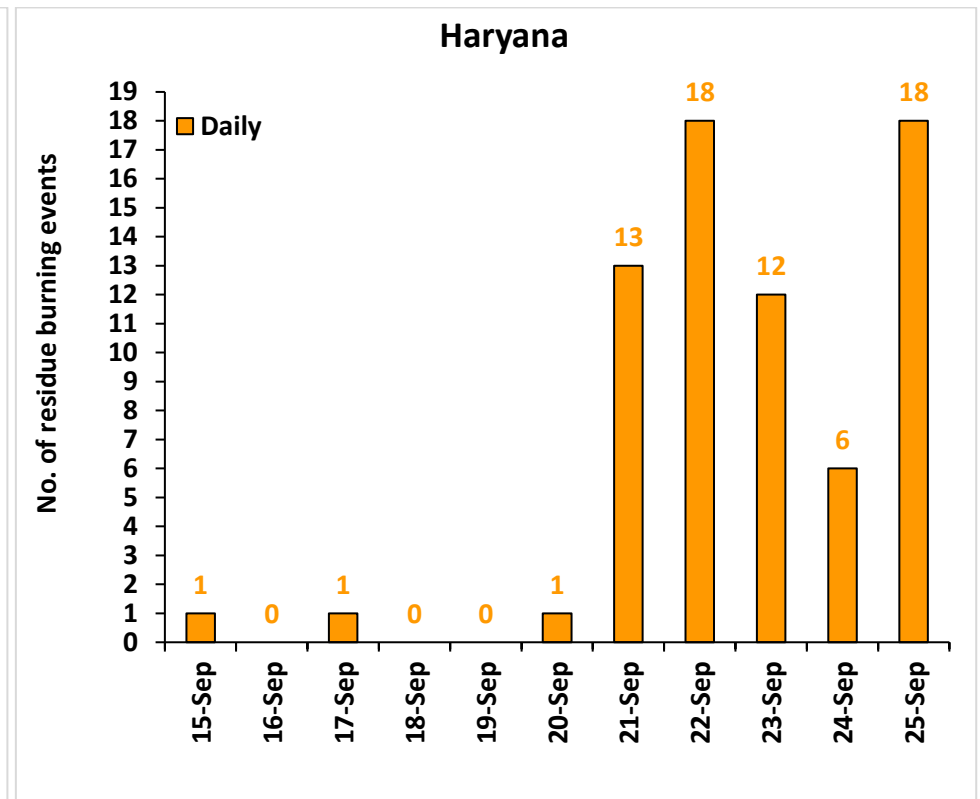
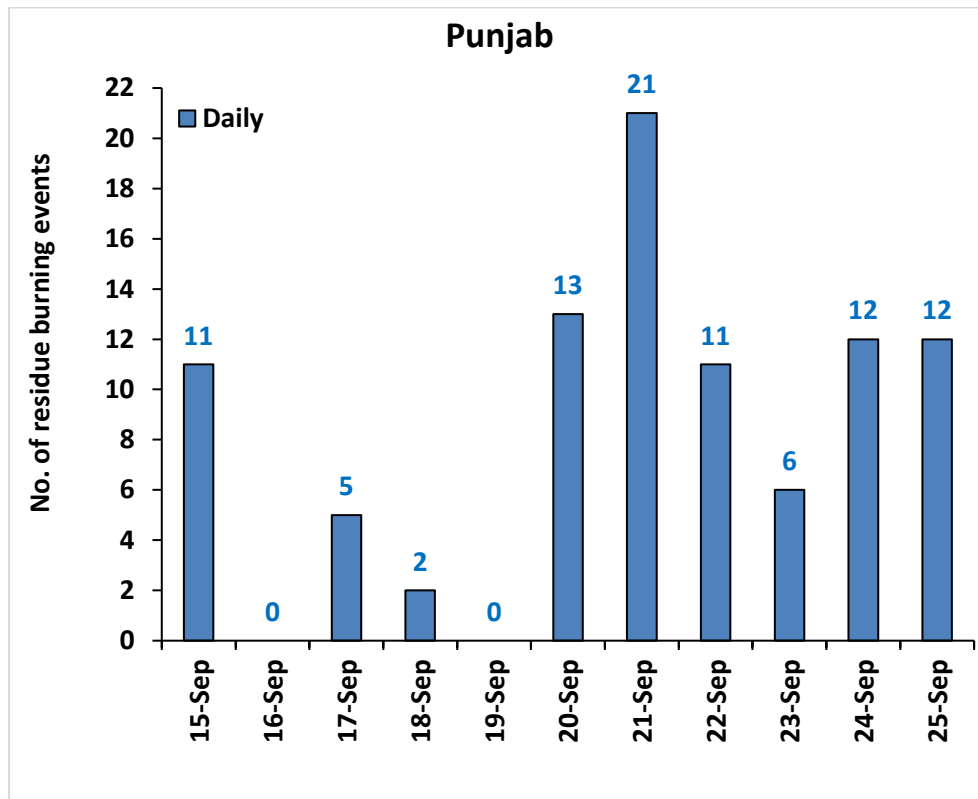
<https://creams.iari.res.in>



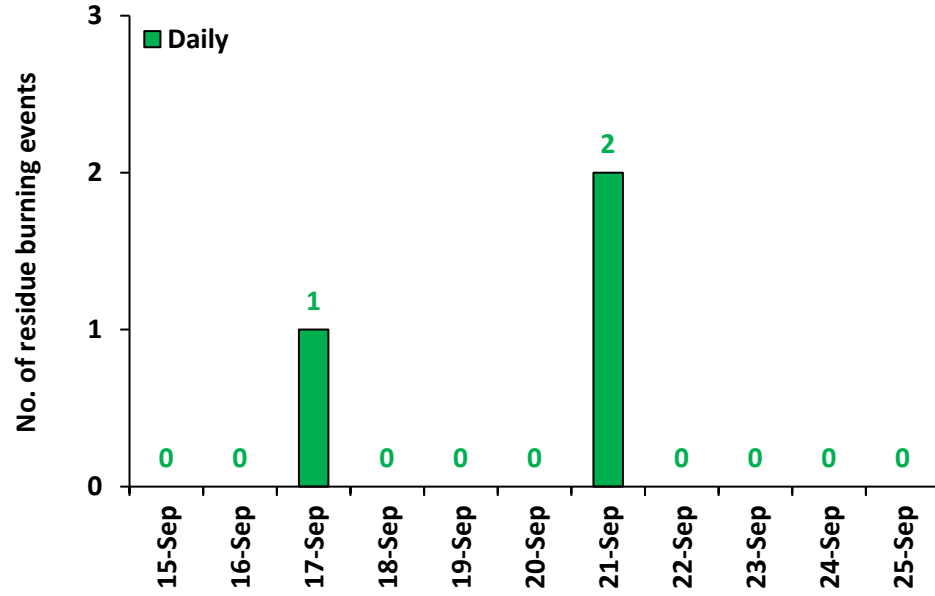
## Highlights for 25-Sep-2024

- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **33** residue burning events in the six study States on **25-Sep-2024**.
- The state wise events detected on **25-Sep-2024** were **12** in Punjab, **18** in Haryana, **00** in UP, **00** in Delhi, **03** in Rajasthan and **00** in MP.
- Detection of residue burning events was hampered by the presence of thick clouds over Uttar Pradesh, and Madhya Pradesh state.

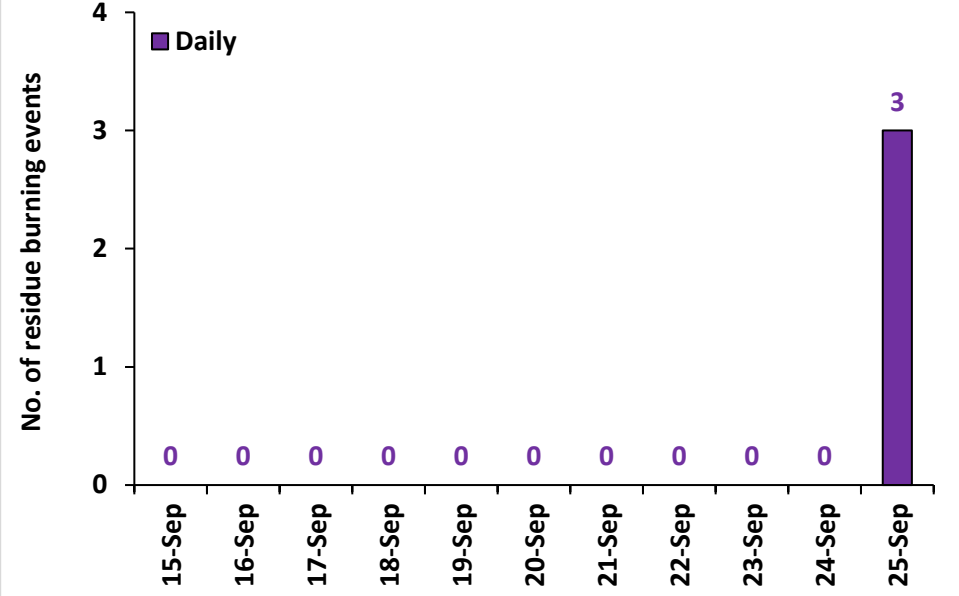
### Temporal distribution of rice residue burning events for the study States in 2024



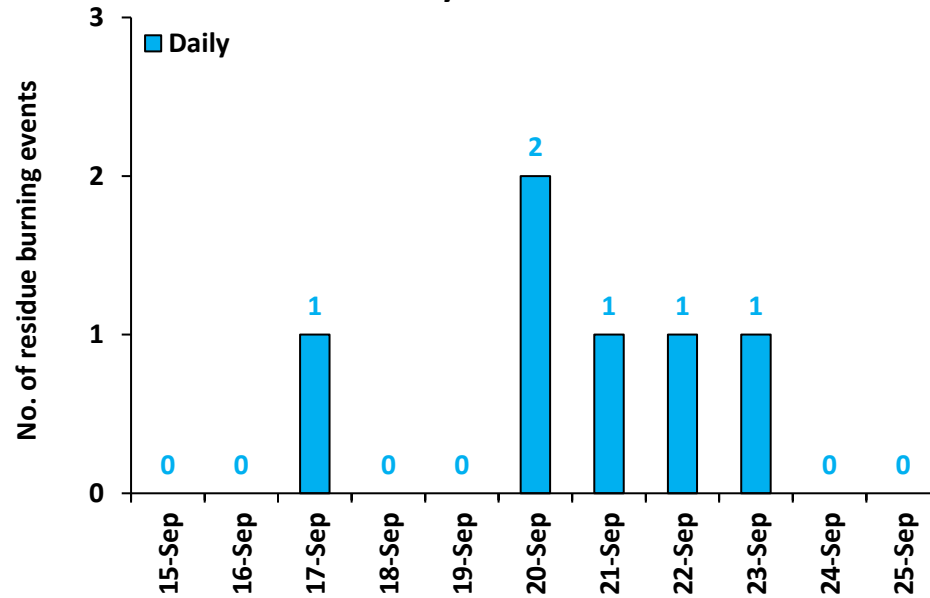
### Uttar Pradesh



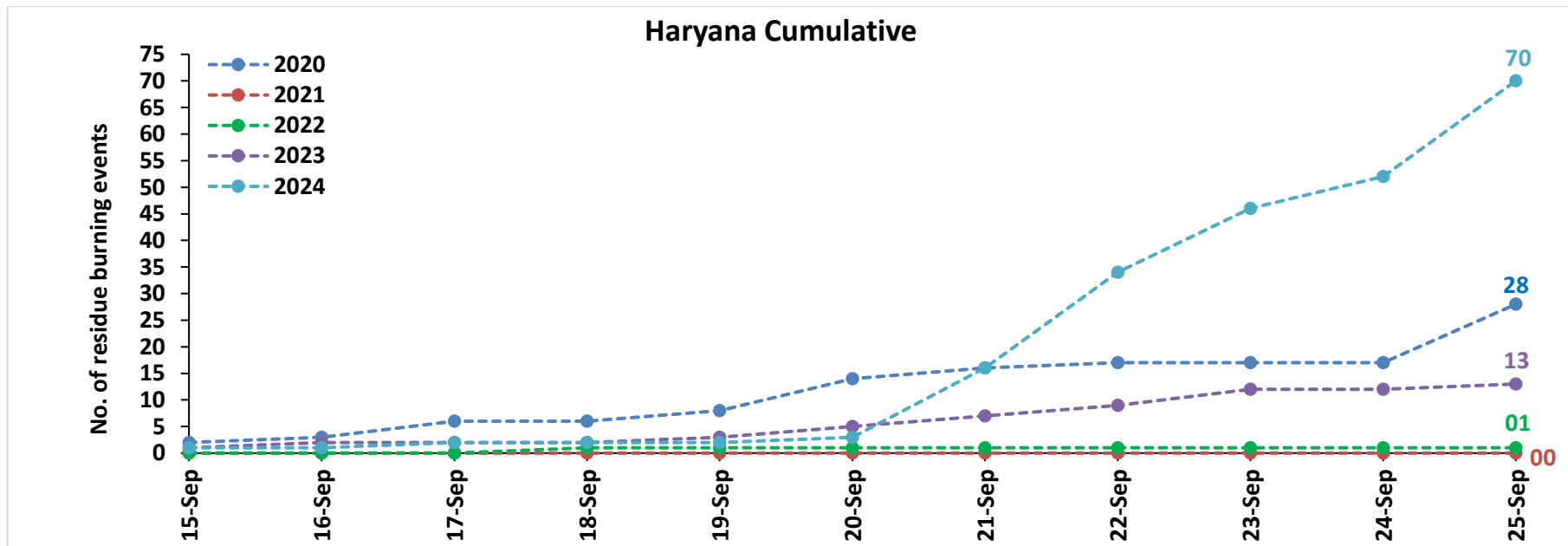
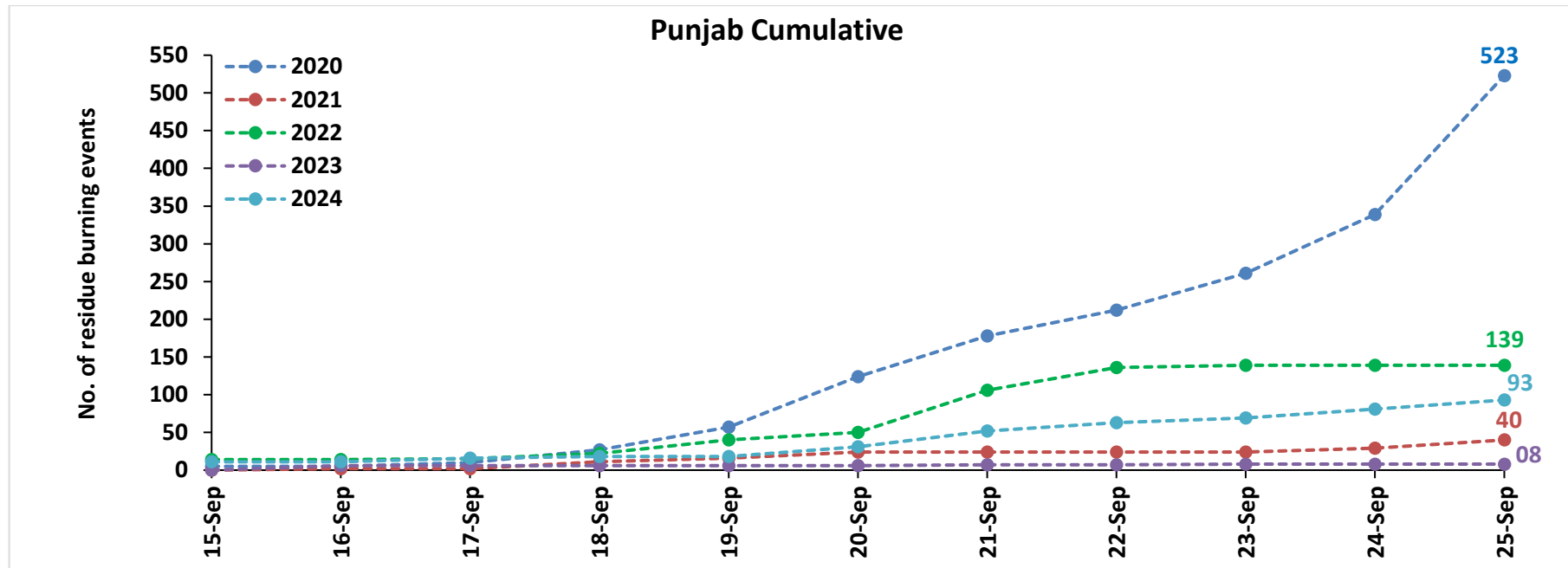
### Rajasthan

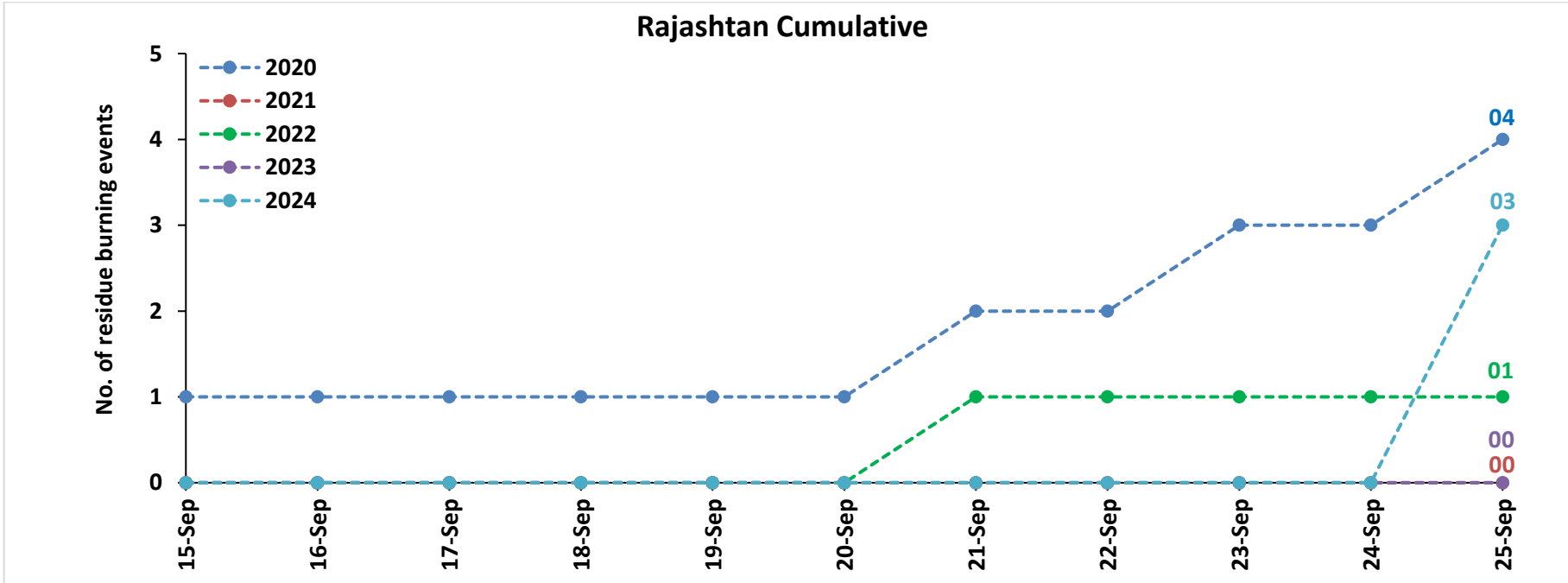
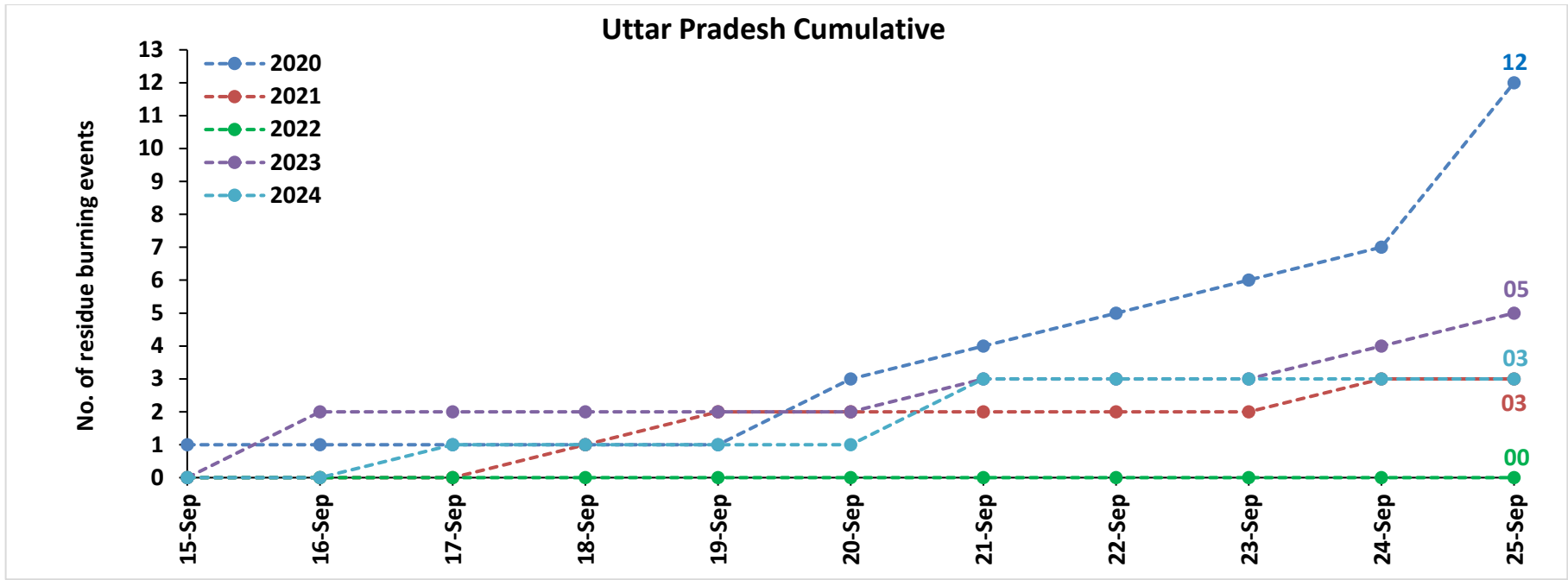


### Madhya Pradesh

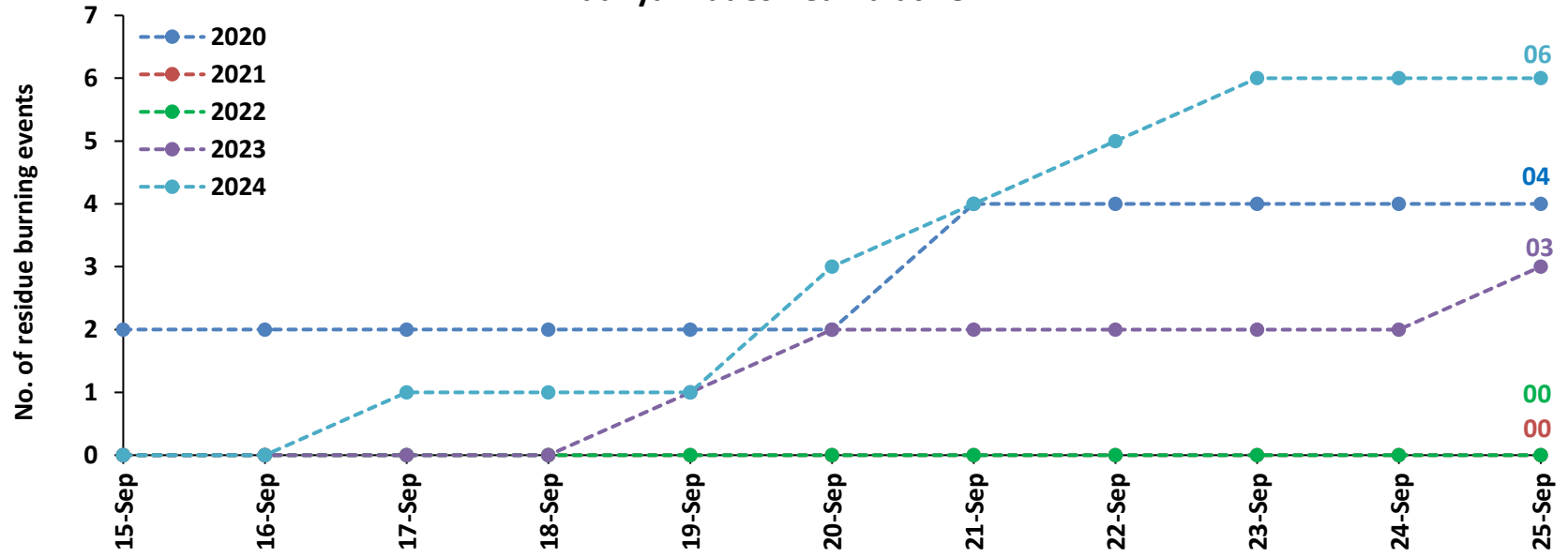


**Comparison of residue burning events in current year (2024) with previous years (2020, 2021, 2022 and 2023) for the study States**

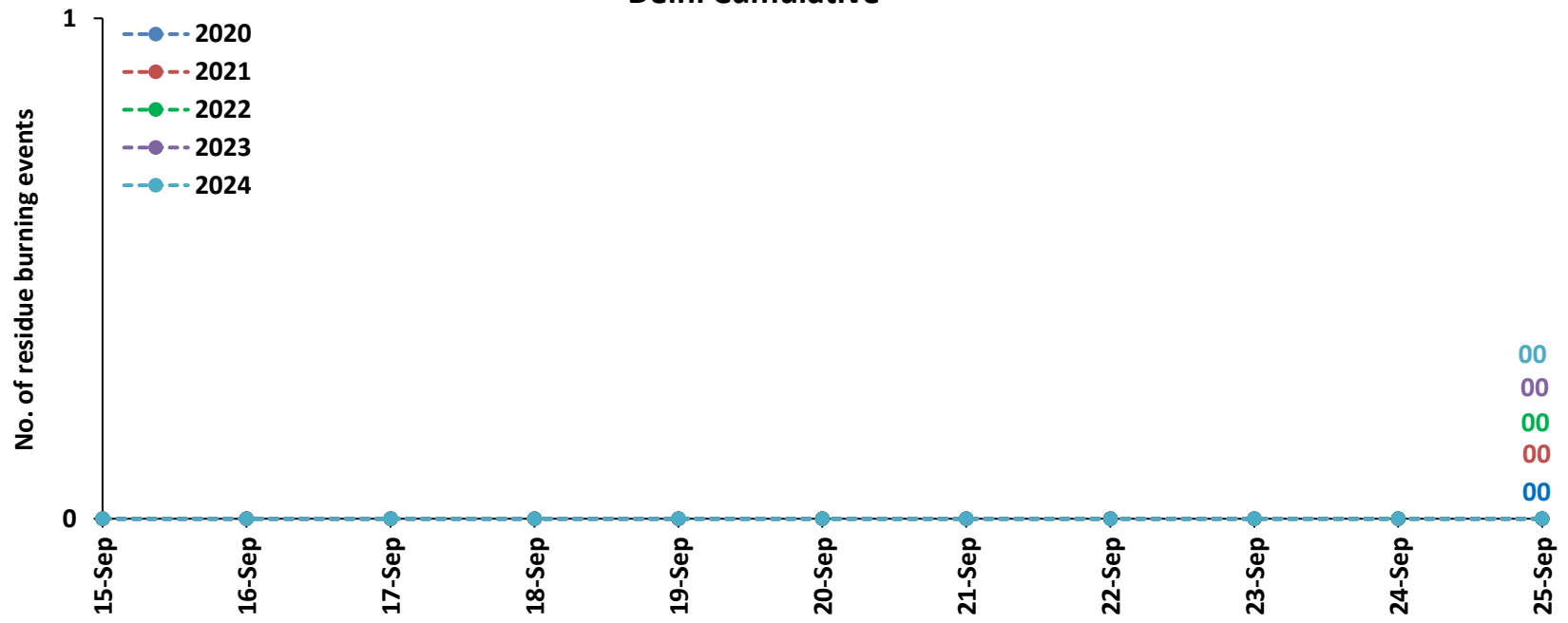




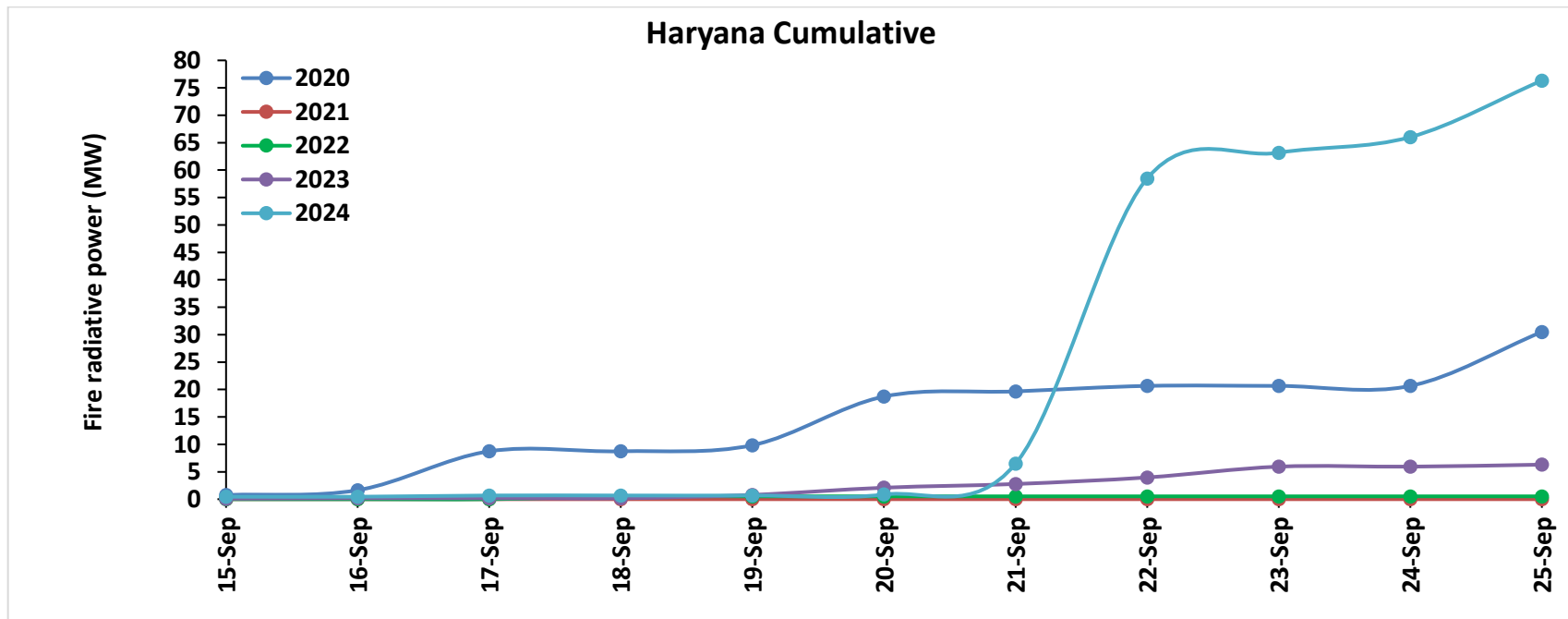
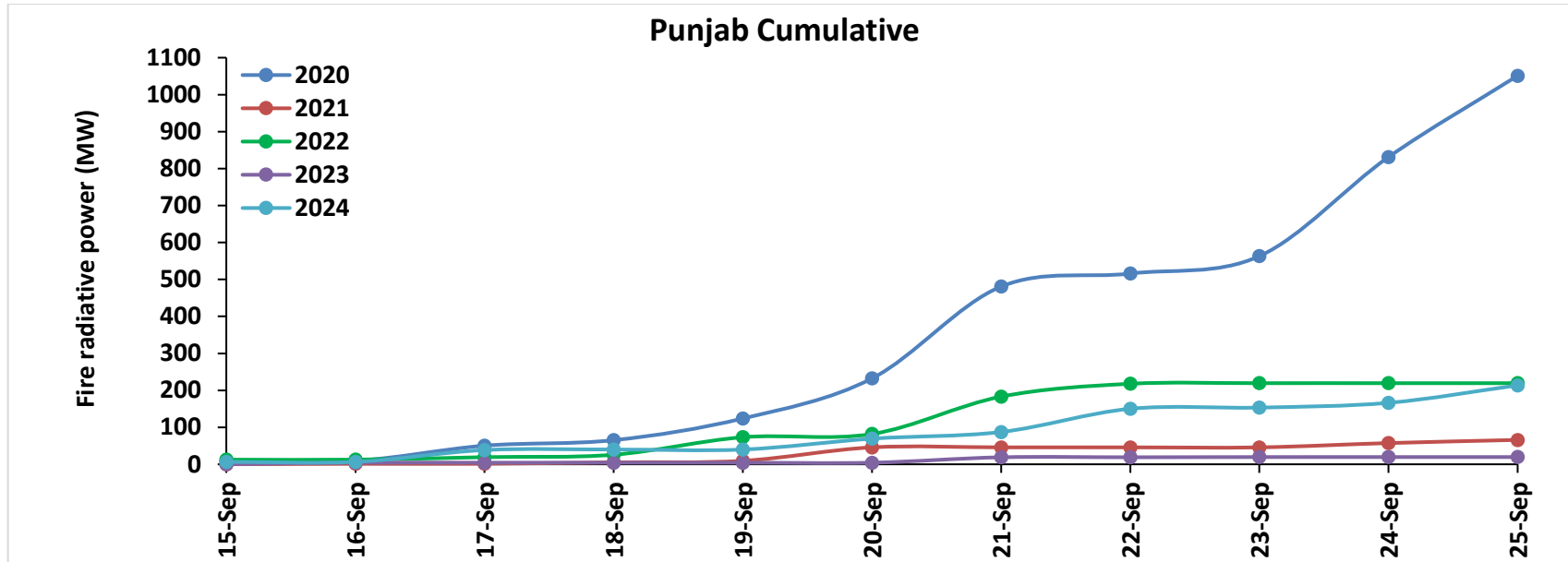
### Madhya Pradesh Cumulative

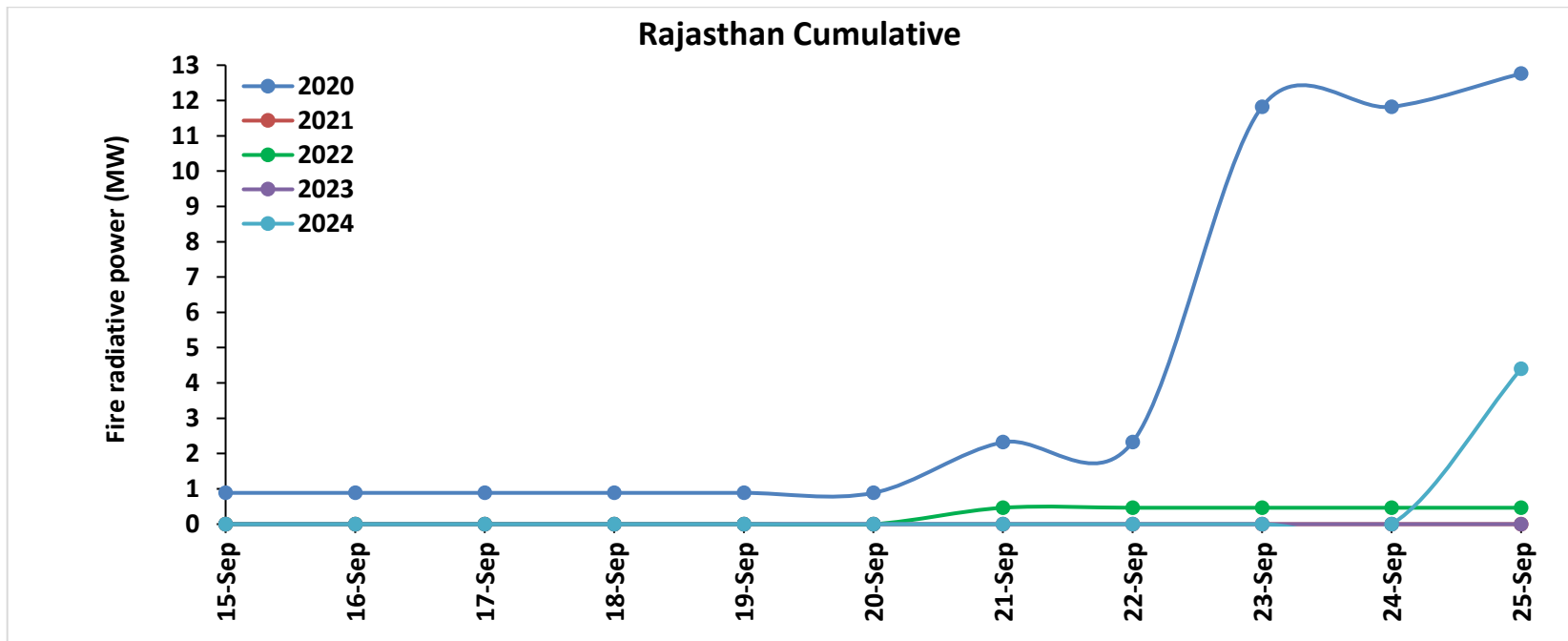
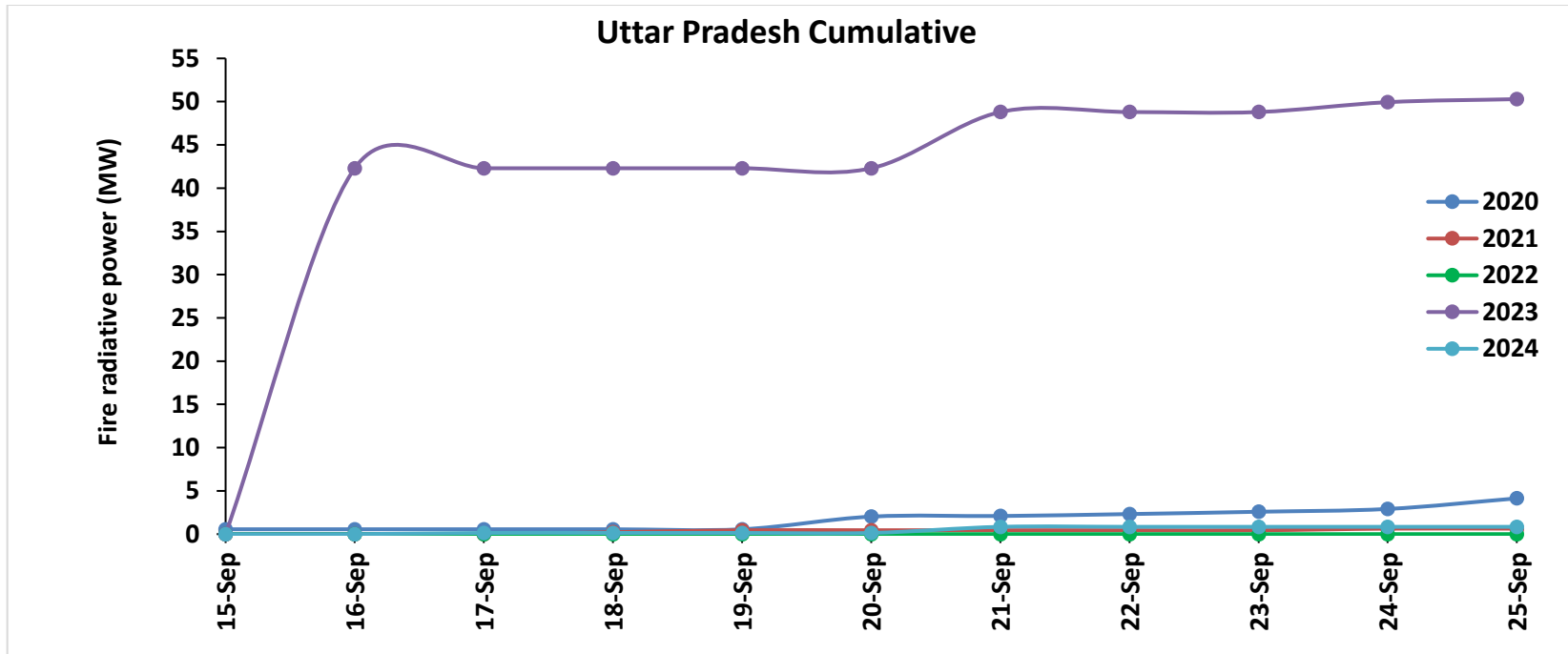


### Delhi Cumulative

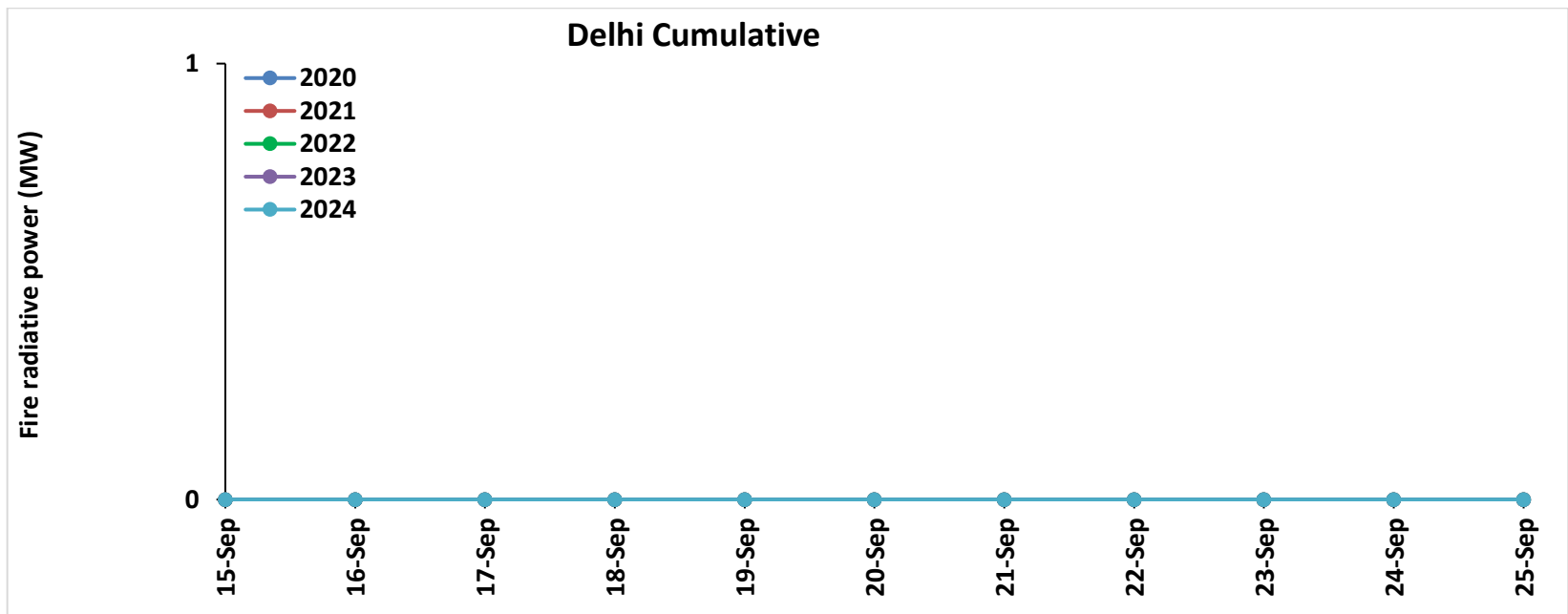
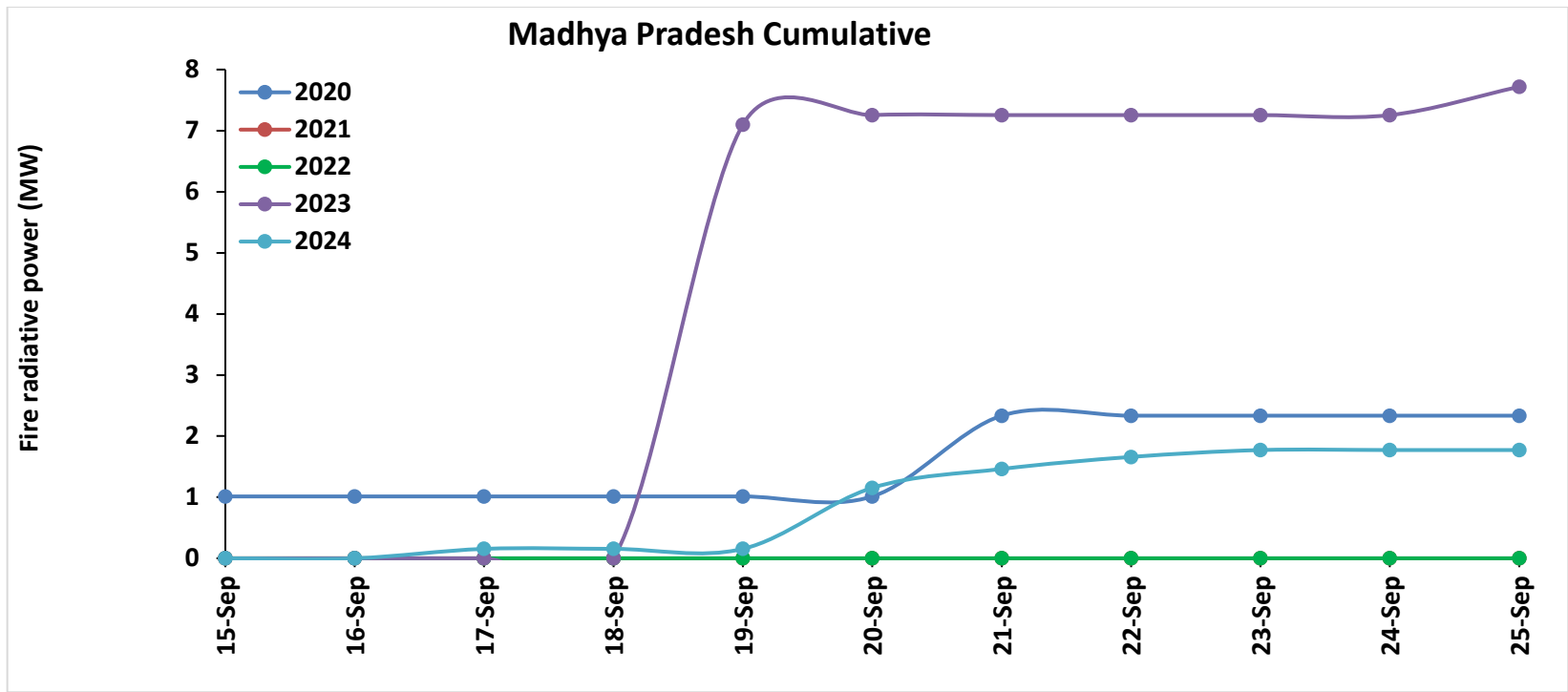


**Comparison of residue burning fire power in current year (2024) with previous years (2020,2021,2022 and 2023) for the study States**



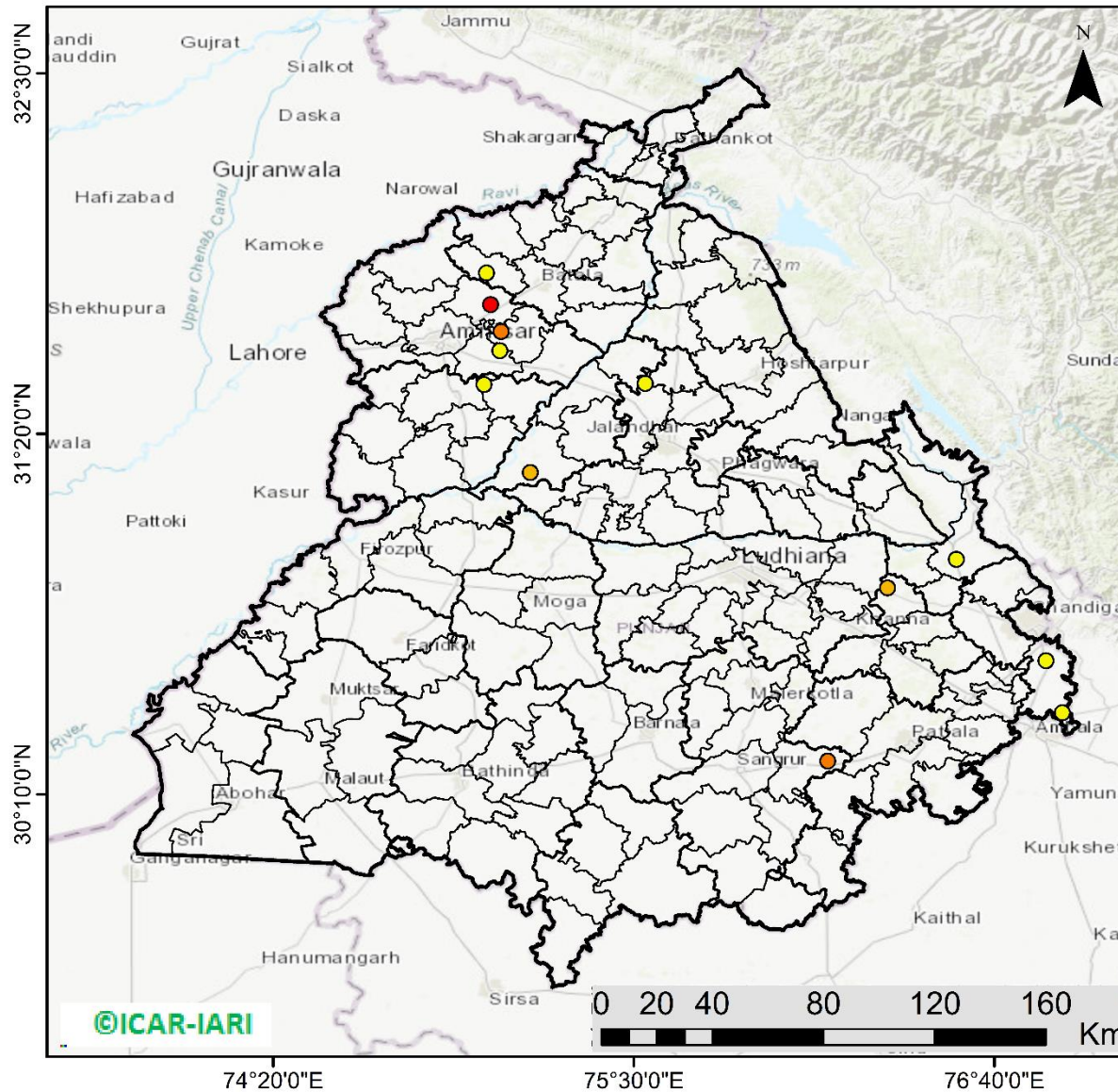






# Punjab

## RICE RESIDUE BURNING IN PUNJAB



**12** burning events detected in Punjab during (25th Sep 2024)

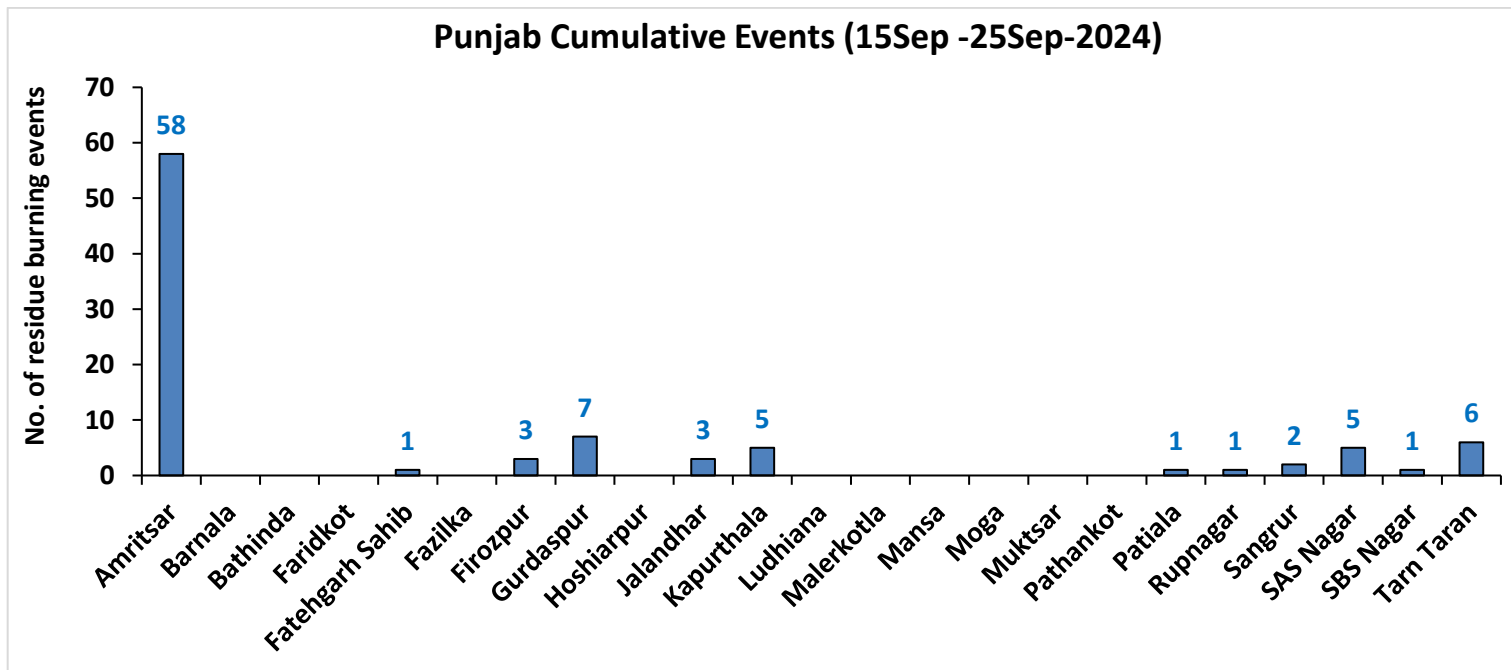
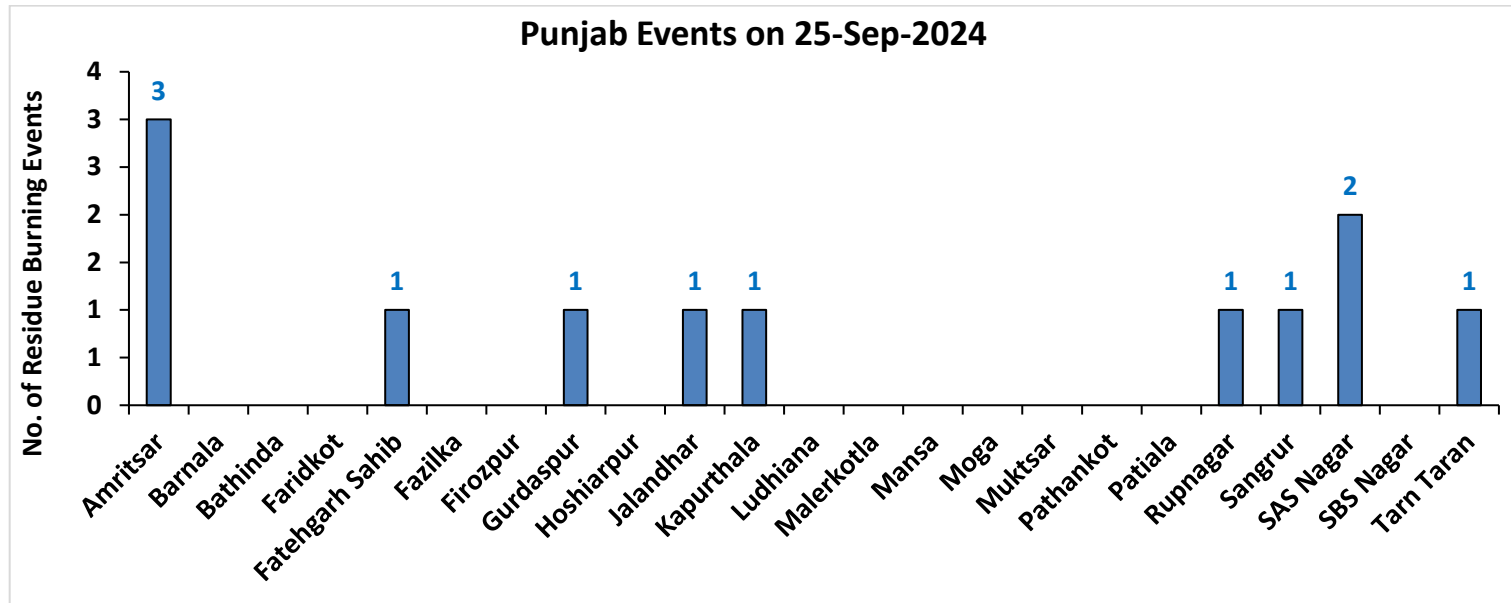
### Fire Intensity (W/m<sup>2</sup>)

- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



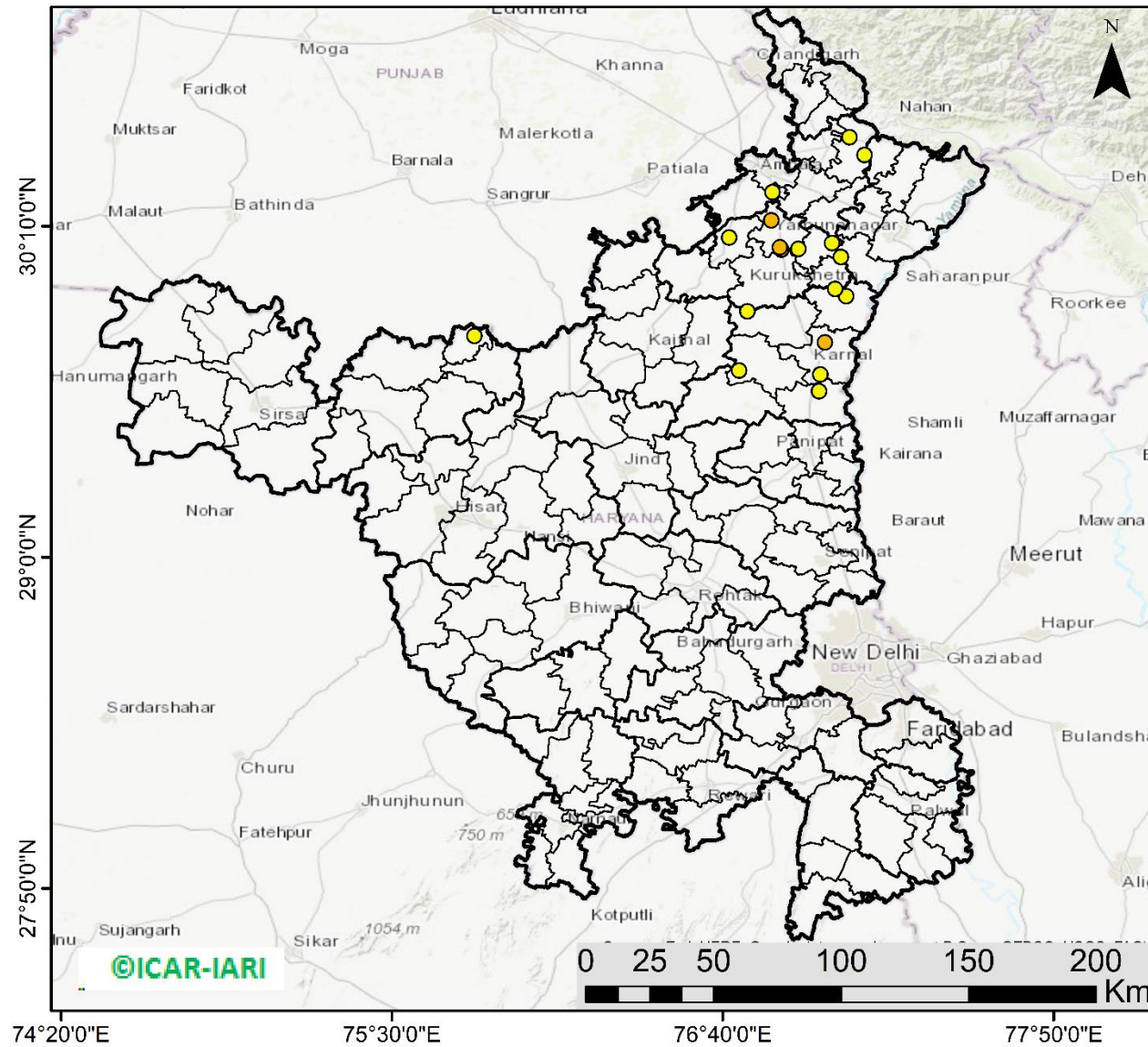
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Punjab (15Sep-25Sep-2024)



# Haryana

## RICE RESIDUE BURNING IN HARYANA



**18** burning events detected in Haryana on (25th Sep 2024)

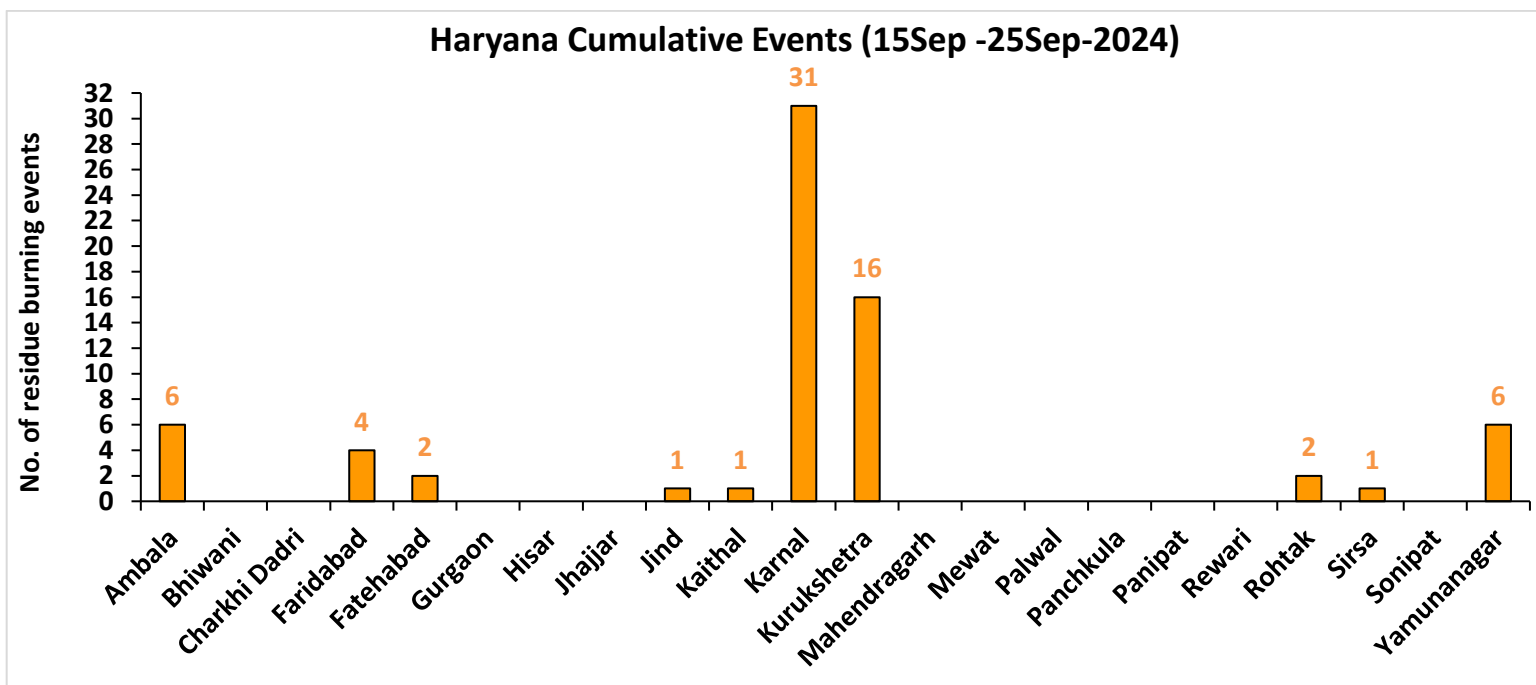
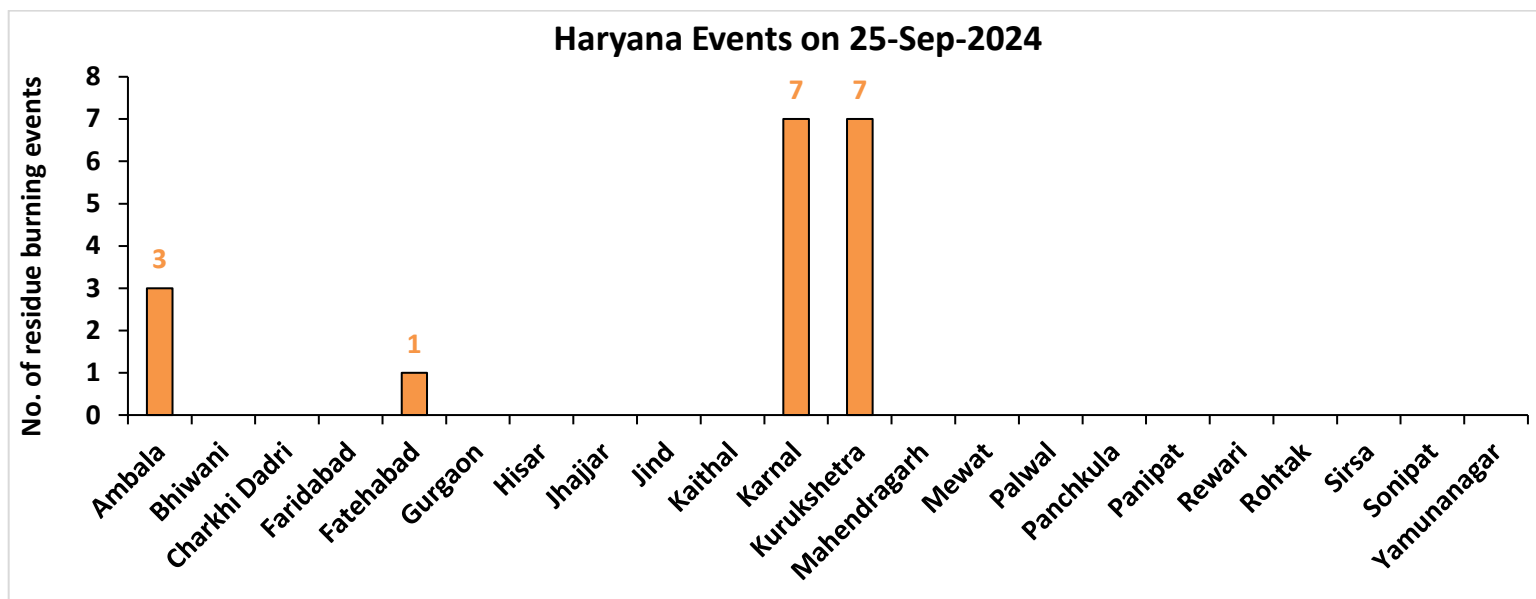
### Fire Intensity (W/m<sup>2</sup>)

- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



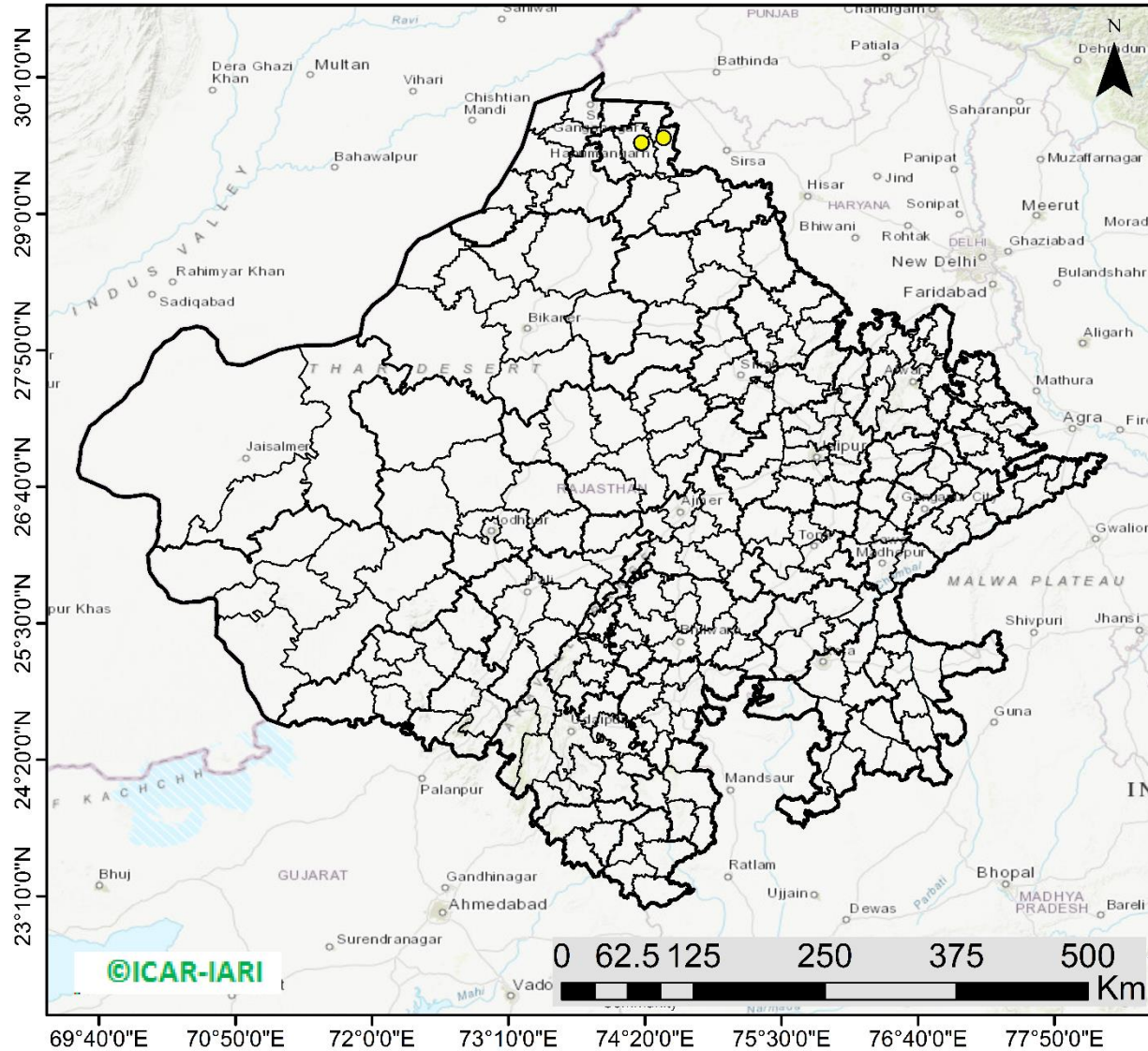
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Haryana (15Sep-25Sep-2024)



# Rajasthan

## RICE RESIDUE BURNING IN RAJASTHAN



**03** burning events  
detected in Rajasthan on  
(25th Sep 2024)

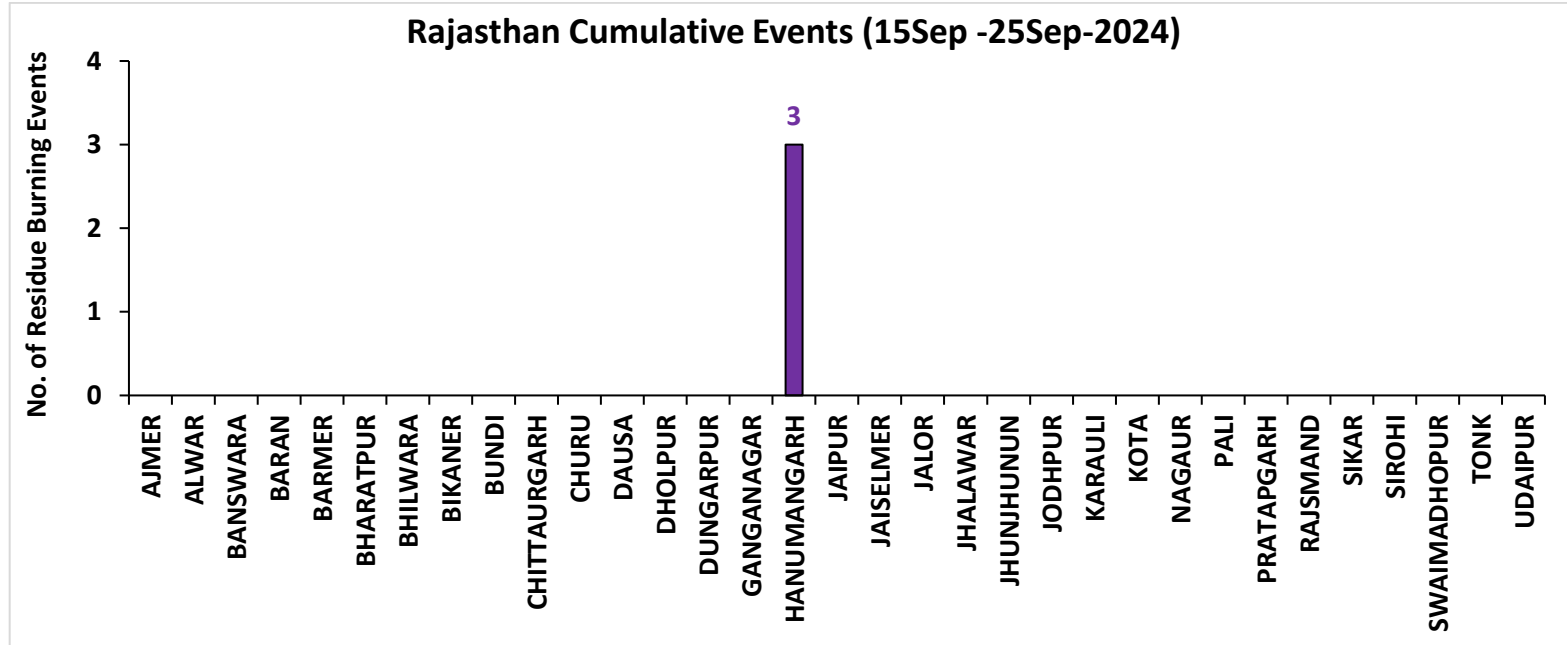
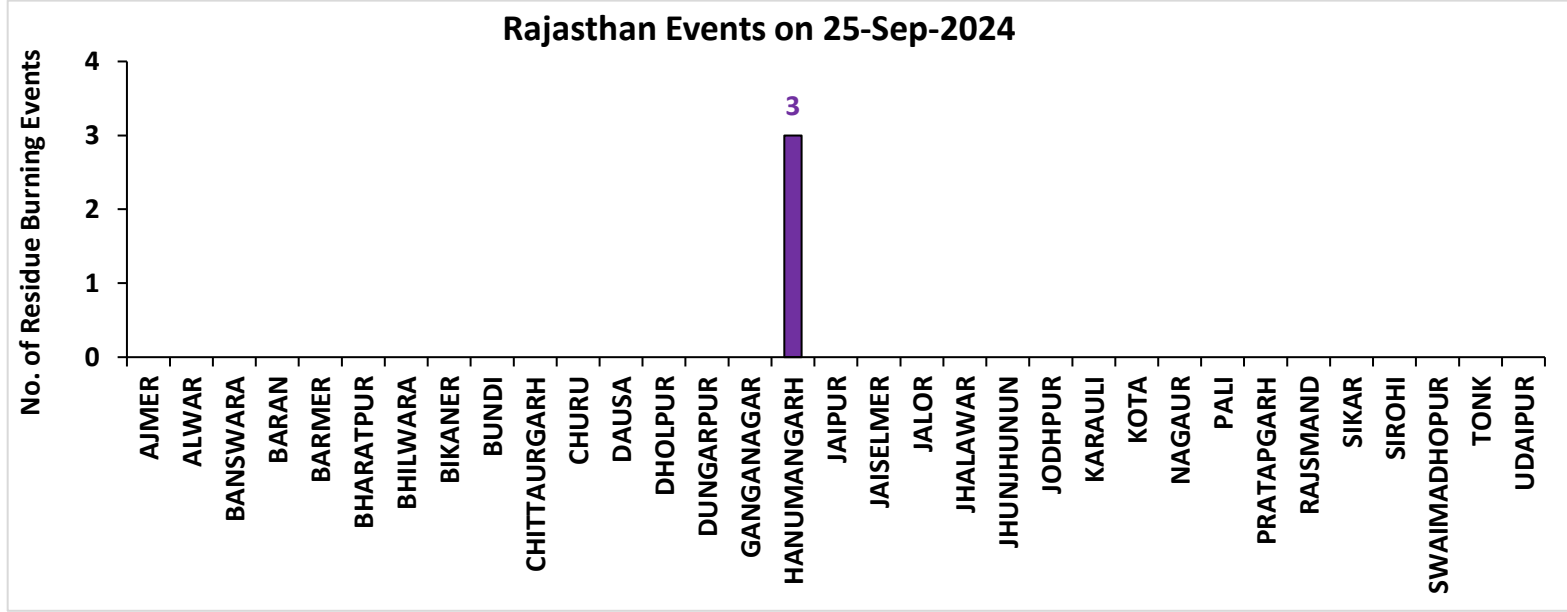
### Fire Intensity (W/m<sup>2</sup>)

- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15Sep-25Sep-2024)



**District-wise cumulative number of residues burning events detected in 2020, 2021, 2022, 2023 and 2024**  
**(Period: 15 September-25 September)**

**(a) Punjab**

District	15 Sep-25 Sep				
	2020	2021	2022	2023	2024
Amritsar	425	34	121	6	58
Barnala	1	0	0	0	0
Bathinda	0	0	0	0	0
Faridkot	1	1	0	0	0
Fatehgarh Sahib	0	0	0	0	1
Fazilka	0	0	0	0	0
Firozpur	2	0	0	1	3
Gurdaspur	5	0	1	0	7
Hoshiarpur	0	0	0	1	0
Jalandhar	2	0	0	0	3
Kapurthala	5	0	0	0	5
Ludhiana	5	1	0	0	0
Malerkotla	0	0	0	0	0
Mansa	1	0	0	0	0
Moga	3	0	0	0	0
Muktsar	1	0	0	0	0
Pathankot	0	0	0	0	0
Patiala	11	3	1	0	1
Rupnagar	0	0	0	0	1
Sangrur	2	0	0	0	2
SAS NAGAR (Mohali)	3	0	1	0	5
SBS Nagar	0	0	1	0	1
Tarn Taran	56	1	14	0	6
<b>Total</b>	<b>523</b>	<b>40</b>	<b>139</b>	<b>8</b>	<b>93</b>

**(b) Haryana**

District	15 Sep-25 Sep				
	2020	2021	2022	2023	2024
AMBALA	3	0	0	0	6
BHIWANI	0	0	0	0	0
CHARKHI DADRI	0	0	0	0	0
FARIDABAD	0	0	0	0	4
FATEHABAD	2	0	0	1	2
GURGAON	0	0	0	0	0
HISAR	0	0	0	0	0
JHAJJAR	0	0	0	0	0
JIND	0	0	1	1	1
KAITHAL	1	0	0	0	1
KARNAL	16	0	0	6	31
KURUKSHETRA	4	0	0	1	16
MAHENDRAGARH	0	0	0	0	0
MEWAT	0	0	0	0	0
PALWAL	0	0	0	0	0
PANCHKULA	0	0	0	0	0
PANIPAT	1	0	0	0	0
REWARI	0	0	0	0	0
ROHTAK	0	0	0	1	2
SIRSA	1	0	0	0	1
SONIPAT	0	0	0	2	0
YAMUNANAGAR	0	0	0	1	6
<b>Total</b>	<b>28</b>	<b>0</b>	<b>1</b>	<b>13</b>	<b>70</b>



**(c) Uttar Pradesh**

District	15 Sep-25 Sep																
	2020	2021	2022	2023	2024	GAUTAMBUDHNAGAR	0	0	0	0	1	MUZAFARNAGAR	0	0	0	0	0
AGRA	0	0	0	0	0	GAZIPUR	0	0	0	0	0	PILHIBHIT	0	0	0	1	0
ALIGARH	1	0	0	0	0	GHAZIABAD	1	0	0	0	1	PRATAPGARH	0	0	0	0	0
ALLAHABAD	0	0	0	0	0	GONDA	0	0	0	0	0	RAIBEARELI	1	0	0	0	0
AMBEDKARNAGAR	0	0	0	0	0	GORAKHPUR	0	0	0	0	0	RAMPUR	0	1	0	0	0
AMETHI	0	0	0	0	0	HAMIRPUR	0	0	0	0	0	SAMBHAL	3	0	0	0	0
AMROHA	0	0	0	0	0	HAPUR	1	0	0	0	0	SANTKABIRNAGAR	0	0	0	0	0
AURAIYA	1	0	0	0	0	HARDOI	0	0	0	0	0	SANTRAVIDASNAGAR	0	0	0	0	0
AZAMGARH	0	0	0	0	0	HATHRAS	0	0	0	0	0	SHAHJAHANPUR	0	0	0	1	1
BADAUN	0	0	0	0	0	JALAUN	0	0	0	0	0	SHAMLI	1	0	0	0	0
BAGHPAT	1	0	0	0	0	JAUNPUR	0	0	0	0	0	SHARANPUR	0	0	0	0	0
BAHRAICH	0	0	0	0	0	JHANSI	0	0	0	0	0	SHRAWASTI	0	0	0	0	0
BALLIA	0	0	0	0	0	KANNAUJ	0	0	0	0	0	SIDDHARTHNAGAR	0	0	0	0	0
BALRAMPUR	0	0	0	0	0	KANPUR	0	1	0	0	0	SITAPUR	0	0	0	0	0
BANDA	0	0	0	0	0	KANPUR DEHAT	0	0	0	0	0	SONBHADRA	0	0	0	0	0
BARABANKI	0	0	0	0	0	KASGANJ	0	0	0	0	0	SULTANPUR	0	0	0	0	0
BAREILLY	0	0	0	0	0	KAUSHAMBI	0	0	0	1	0	UNNAO	0	0	0	0	0
BASTI	0	0	0	0	0	KHERI	0	0	0	0	0	VARANASI	0	0	0	0	0
BIJNOR	1	0	0	0	0	KUSHINAGAR	0	0	0	0	0	<b>Total</b>	<b>12</b>	<b>3</b>	<b>0</b>	<b>5</b>	<b>3</b>
BULANDSAHAR	0	0	0	0	0	LALITPUR	0	0	0	0	0						
CHANDAULI	0	0	0	0	0	LUCKNOW	0	0	0	0	0						
CHITRAKOOT	0	0	0	0	0	MAHARAJGANJ	0	0	0	0	0						
DEORIA	0	0	0	2	0	MAHOBA	0	0	0	0	0						
ETAH	0	0	0	0	0	MAINPURI	0	0	0	0	0						
ETAWAH	0	0	0	0	0	MATHURA	0	1	0	0	0						
FAIZABAD	0	0	0	0	0	MAU	0	0	0	0	0						
FARRUKHABAD	0	0	0	0	0	MEERUT	1	0	0	0	0						
FATEHPUR	0	0	0	0	0	MIRZAPUR	0	0	0	0	0						
FIROZABAD	0	0	0	0	0	MORADABAD	0	0	0	0	0						

**(d) Delhi**

District	15 Sep-25 Sep				
	2020	2021	2022	2023	2024
CENTRAL	0	0	0	0	0
EAST	0	0	0	0	0
NEW DELHI	0	0	0	0	0
NORTH	0	0	0	0	0
NORTH EAST	0	0	0	0	0
NORTH WEST DELHI	0	0	0	0	0
SHAHADRA	0	0	0	0	0
SOUTH	0	0	0	0	0
SOUTH EAST	0	0	0	0	0
SOUTH WEST DELHI	0	0	0	0	0
WEST DELHI	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**(e) Rajasthan**

District	15 Sep-25 Sep				
	2020	2021	2022	2023	2024
AJMER	0	0	0	0	0
ALWAR	0	0	0	0	0
BANSWARA	0	0	0	0	0
BARAN	0	0	0	0	0
BARMER	1	0	0	0	0
BHARATPUR	0	0	0	0	0
BHILWARA	1	0	0	0	0
BIKANER	0	0	0	0	0
BUNDI	0	0	1	0	0
CHITTAURGARH	0	0	0	0	0
CHURU	0	0	0	0	0
DAUSA	0	0	0	0	0
DHOLPUR	0	0	0	0	0
DUNGARPUR	0	0	0	0	0
GANGANAGAR	0	0	0	0	0
HANUMANGARH	0	0	0	0	3
JAIPUR	0	0	0	0	0
JAISELMER	1	0	0	0	0
JALOR	0	0	0	0	0
JHALAWAR	0	0	0	0	0
JHUNJHUNUN	0	0	0	0	0
JODHPUR	1	0	0	0	0
KARAULI	0	0	0	0	0
KOTA	0	0	0	0	0
NAGOUR	0	0	0	0	0
PALI	0	0	0	0	0
PRATAPGARH	0	0	0	0	0
RAJSMAND	0	0	0	0	0
SIKAR	0	0	0	0	0
SIROHI	0	0	0	0	0
SWAIMADHOPUR	0	0	0	0	0
TONK	0	0	0	0	0
UDAIPUR	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>

(f) Madhya Pradesh

District	15 Sep-25 Sep										
	2020	2021	2022	2023	2024	PANNA	0	0	0	0	0
ALIRAJPUR	0	0	0	0	0	RAISEN	0	0	0	0	0
ANUPPUR	0	0	0	0	0	RAJGARH	0	0	0	0	0
ASHOKNAGAR	0	0	0	0	0	RATLAM	0	0	0	0	0
BALAGHAT	0	0	0	0	0	REWA	0	0	0	0	0
BARWANI	0	0	0	0	0	SAGAR	2	0	0	1	0
BETUL	0	0	0	0	0	SATNA	0	0	0	0	0
BHIND	0	0	0	0	0	SEHORE	0	0	0	0	0
BHOPAL	0	0	0	0	0	SEONI	0	0	0	0	0
BURHANPUR	0	0	0	0	0	SHAHDOL	0	0	0	0	0
CHHATARPUR	0	0	0	0	0	SHAJAPUR	0	0	0	0	0
CHHINDWARA	0	0	0	0	0	SHEOPUR	0	0	0	0	0
DAMOH	0	0	0	1	0	SHIVPURI	0	0	0	0	0
DATIA	0	0	0	0	0	SIDHI	0	0	0	0	0
DEWAS	0	0	0	0	0	SINGRAULI	0	0	0	0	2
DHAR	0	0	0	0	1	TIKAMGARH	0	0	0	0	0
DINDORI	0	0	0	0	0	UJJAIN	0	0	0	0	0
EAST NIMAR	0	0	0	0	0	UMARIA	0	0	0	0	0
GUNA	0	0	0	0	0	VIDESHA	0	0	0	0	0
GWALIOR	0	0	0	0	0	WEST NIMAR	0	0	0	0	0
HARDA	2	0	0	0	0	<b>Total</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>6</b>
HOSHANGABAD	0	0	0	1	0						
INDORE	0	0	0	0	3						
JABALPUR	0	0	0	0	0						
JHABUA	0	0	0	0	0						
KATNI	0	0	0	0	0						
MANDLA	0	0	0	0	0						
MANDSAUR	0	0	0	0	0						
MORENA	0	0	0	0	0						
NARSHIMAPURA	0	0	0	0	0						
NIMACH	0	0	0	0	0						

**State-wise and date-wise number of paddy residue burning events detected in 2020 ,2021 ,2022, 2023 and 2024**  
**(Period: 15 September-25 September)**

**Number of Paddy Residue Burning Events Detected**

Date	Punjab					Haryana					Uttar Pradesh				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
15-Sep	5	0	14	0	11	2	0	0	1	1	1	0	0	0	0
16-Sep	0	2	0	6	0	1	0	0	1	0	0	0	0	2	0
17-Sep	5	0	1	0	5	3	0	0	0	1	0	0	0	0	1
18-Sep	17	9	7	0	2	0	0	1	0	0	0	1	0	0	0
19-Sep	30	5	18	0	0	2	0	0	1	0	0	1	0	0	0
20-Sep	67	8	10	0	13	6	0	0	2	1	2	0	0	0	0
21-Sep	54	0	56	1	21	2	0	0	2	13	1	0	0	1	2
22-Sep	34	0	30	0	11	1	0	0	2	18	1	0	0	0	0
23-Sep	49	0	3	1	6	0	0	0	3	12	1	0	0	0	0
24-Sep	78	5	0	0	12	0	0	0	0	6	1	1	0	1	0
25-Sep	184	11	0	0	12	11	0	0	1	18	5	0	0	1	0
<b>Total</b>	<b>523</b>	<b>40</b>	<b>139</b>	<b>8</b>	<b>93</b>	<b>28</b>	<b>0</b>	<b>1</b>	<b>13</b>	<b>70</b>	<b>12</b>	<b>3</b>	<b>0</b>	<b>5</b>	<b>3</b>

## Number of Paddy Residue Burning Events Detected

Date	Delhi					Rajasthan					Madhya Pradesh				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
15-Sep	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0
16-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
20-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
21-Sep	0	0	0	0	0	1	0	1	0	0	2	0	0	0	1
22-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
23-Sep	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
24-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Sep	0	0	0	0	0	1	0	0	0	3	0	0	0	1	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>6</b>

### Details of residue burning events in Punjab on 25-Sep-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	JANDIALA GURU	S-NPP	31.60178	75.06712	13:46:59	D	3.30
2	AMRITSAR	MAJITHA	AQUA	31.75100	75.03700	14:40:07	D	29.90
3	AMRITSAR	TARSIKKA	AQUA	31.66400	75.07100	14:40:07	D	11.30
4	FATEHGARH SAHIB	KHAMANON	S-NPP	30.83450	76.32136	13:46:59	D	5.60
5	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.85353	75.02360	13:46:59	D	4.50
6	JALANDHAR	JALANDHAR WEST	S-NPP	31.49590	75.53761	13:46:59	D	3.90
7	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.20764	75.16534	13:46:59	D	5.80
8	RUPNAGAR	RUPNAGAR	S-NPP	30.92642	76.54400	02:37:42	N	1.50
9	SANGRUR	BHAWANIGARH	S-NPP	30.27392	76.12807	13:46:59	D	11.20
10	SAS NAGAR	DERABASSI	S-NPP	30.43054	76.88698	13:46:59	D	2.20
11	SAS NAGAR	DERABASSI	S-NPP	30.59900	76.83410	13:46:59	D	2.80
12	TARN TARAN	TARN TARAN	S-NPP	31.49238	75.01570	13:46:59	D	2.30

### Details of residue burning events in Haryana on 25-Sep-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMBALA	AMBALA-II	S-NPP	30.28576	76.84211	13:46:59	D	2.30
2	AMBALA	NARAINGARH	S-NPP	30.41692	77.16671	13:46:59	D	3.10
3	AMBALA	NARAINGARH	S-NPP	30.47963	77.11378	13:46:59	D	2.00
4	FATEHABAD	JAKHAL	S-NPP	29.77948	75.79122	13:46:59	D	2.60
5	KARNAL	CHIRAO	S-NPP	29.65753	76.72440	13:46:59	D	4.30
6	KARNAL	GHARAUNDA	S-NPP	29.58483	77.00617	13:46:59	D	1.90
7	KARNAL	INDRI	S-NPP	29.91950	77.10153	13:46:59	D	3.30
8	KARNAL	INDRI	S-NPP	29.94494	77.06303	13:46:59	D	5.00
9	KARNAL	KARNAL	S-NPP	29.64388	77.01086	13:46:59	D	3.30
10	KARNAL	KARNAL	S-NPP	29.75690	77.02721	13:46:59	D	9.20
11	KARNAL	NILOKHERI	S-NPP	29.86605	76.75365	13:46:59	D	2.30
12	KURUKSHETRA	BABAIN	S-NPP	30.08585	76.93320	13:46:59	D	3.30
13	KURUKSHETRA	BABAIN	S-NPP	30.10657	77.05206	13:46:59	D	3.70
14	KURUKSHETRA	ISMAILABAD	S-NPP	30.12642	76.68947	13:46:59	D	5.00
15	KURUKSHETRA	LADWA	S-NPP	30.05773	77.08306	13:46:59	D	2.70
16	KURUKSHETRA	SHAHBAD	S-NPP	30.09158	76.86792	13:46:59	D	7.00
17	KURUKSHETRA	SHAHBAD	S-NPP	30.18668	76.83788	13:46:59	D	7.00
18	KURUKSHETRA	THANESAR	S-NPP	30.08380	76.87329	13:46:59	D	5.20

### Details of residue burning events in Rajasthan on 25-Sep-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	HANUMANGARH	HANUMANGARH	S-NPP	29.60319	74.30342	13:46:59	D	22.90
2	HANUMANGARH	HANUMANGARH	S-NPP	29.60676	74.30283	13:46:59	D	4.20
3	HANUMANGARH	TIBI	S-NPP	29.64909	74.49236	13:46:59	D	4.20

**The study used data received from following Satellites at NRSC Ground Station**

S. No.	Satellite Name	Sensor	Resolution (meter)	Day / Night Passes
1.	Suomi NPP	VIIRS	375 / 750	Both
2.	Terra	MODIS	1000	Both
3.	Aqua	MODIS	1000	Both

**The rice mask for the Punjab and Haryana were provided by MNCFC, MoA&FW, Govt of India  
The kharif crop mask for Delhi, Uttar Pradesh, Rajasthan and Madhya Pradesh were provided by NRSC**

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GIS Maps of fire events can be visualized online on ICAR KRISHI Geoportal website: <http://geoportal.icar.gov.in:8080/geoexplorer/composer/>  
(Part of KRISHI Portal: <https://krishi.icar.gov.in> initiative)

The DASHBOARD for paddy residue burning events is available at weblink: [CREAMS Fire Dashboard](#)

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