

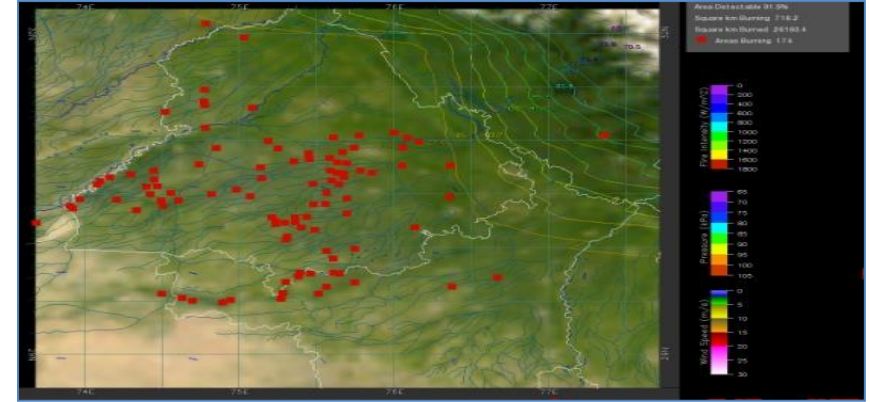
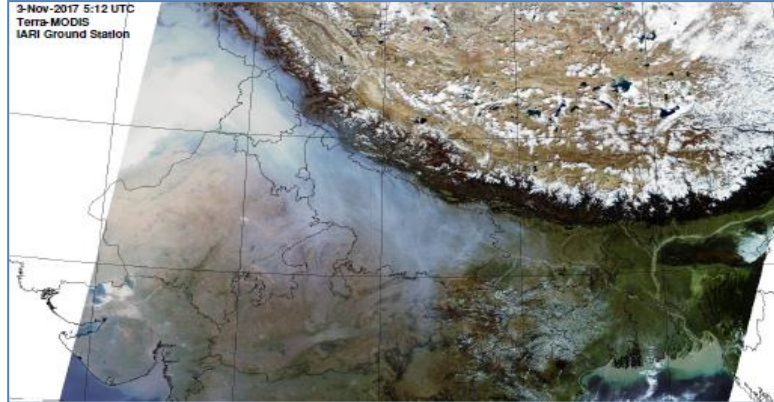


MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2024

Bulletin
No. 26

Events Date:
10-Oct-2024

Issued on:
10-Oct-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

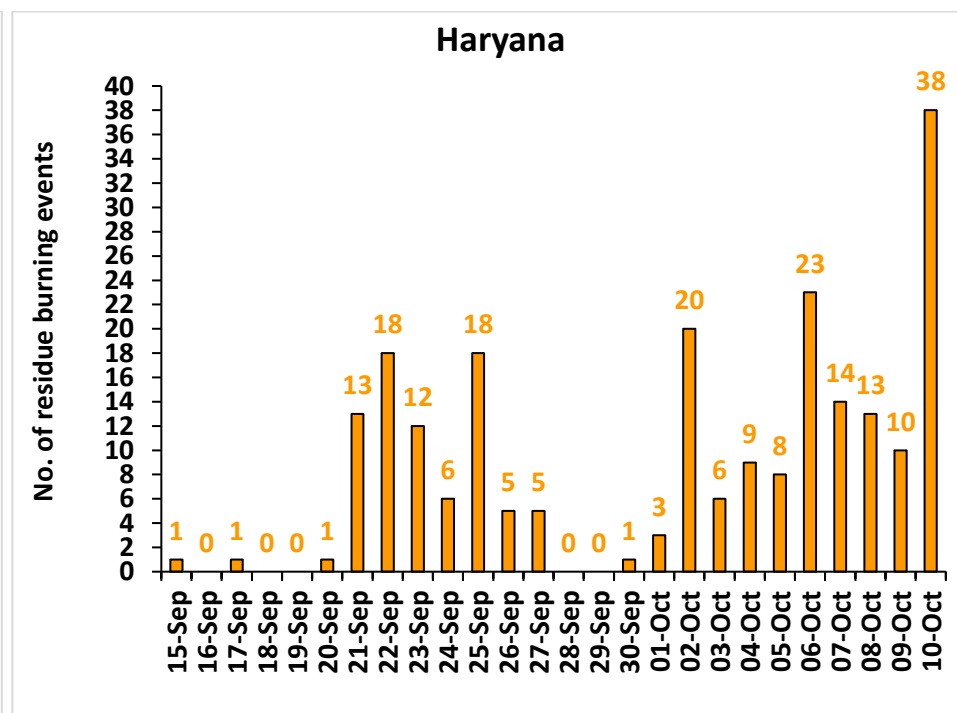
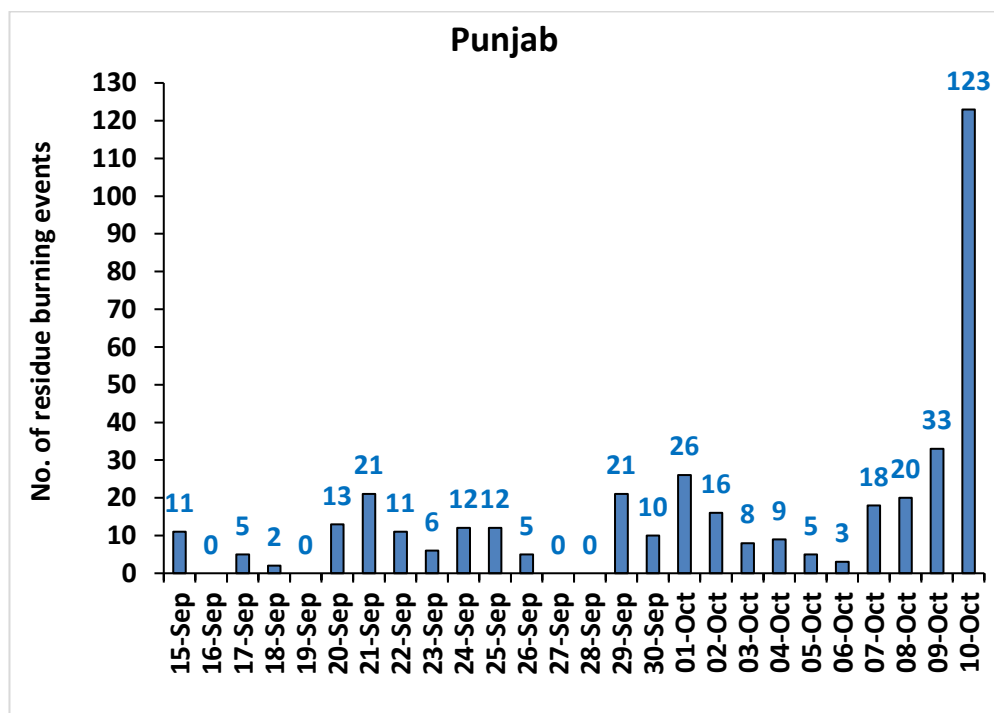
<https://creams.iari.res.in>



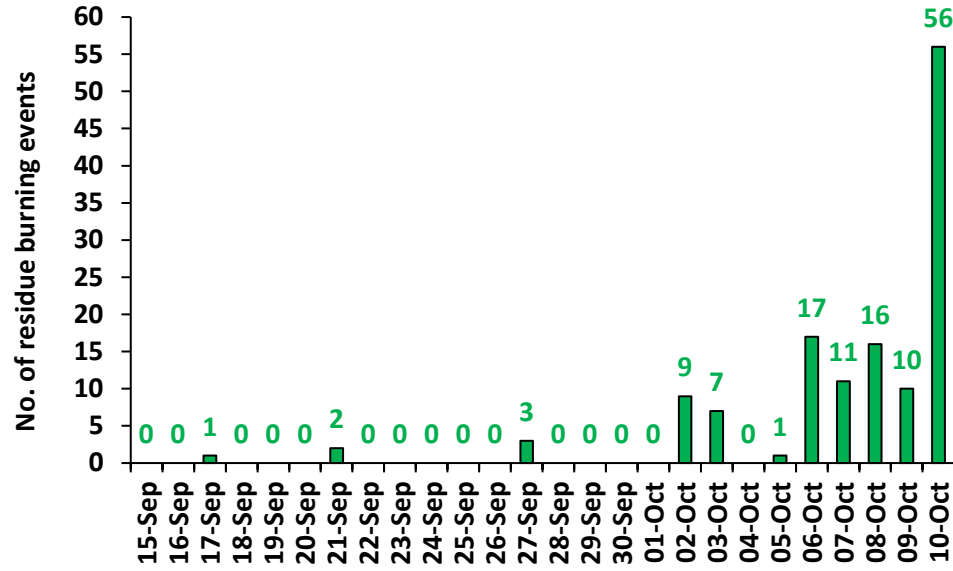
Highlights for 10-Oct-2024

- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol " recommended by CAQM. The data from JPSS-1 and JPSS-2 satellites are included from 10-Oct-2024 onwards.
- Satellites detected **224** residue burning events in the six study States on **10-Oct-2024**.
- The state wise events detected on **10-Oct-2024** were **123** in Punjab, **38** in Haryana, **56** in UP, **03** in Delhi, **03** in Rajasthan and **01** in MP.
- Total **826** burning events were detected in the six states between **15-Sept-2024** and **10-Oct-2024**, which are distributed as **390**, **225**, **133**, **03**, **21** and **54** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.
- Detection of burning events was hampered by the presence of scattered clouds over parts of Uttar Pradesh, Rajasthan and Madhya Pradesh states.

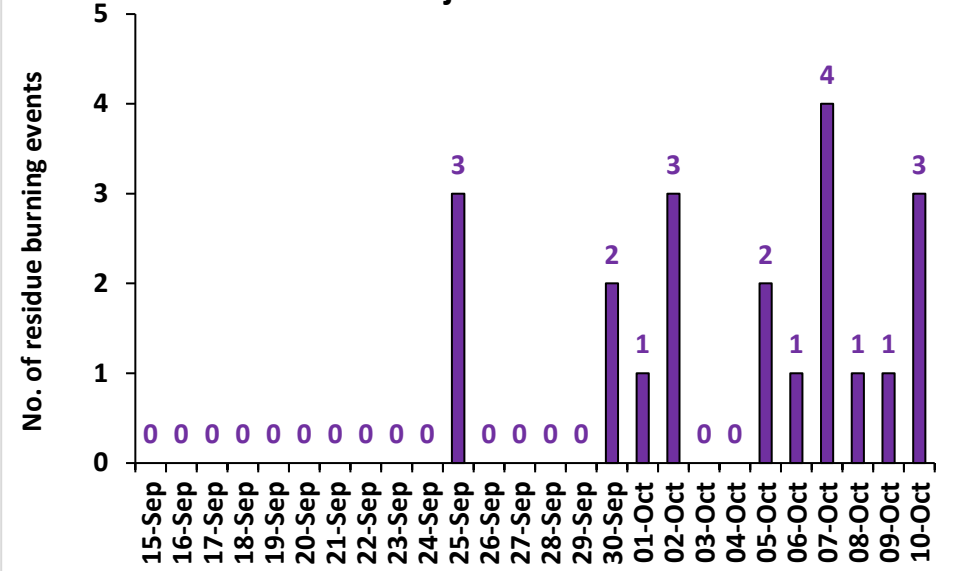
Temporal distribution of rice residue burning events for the study States in 2024



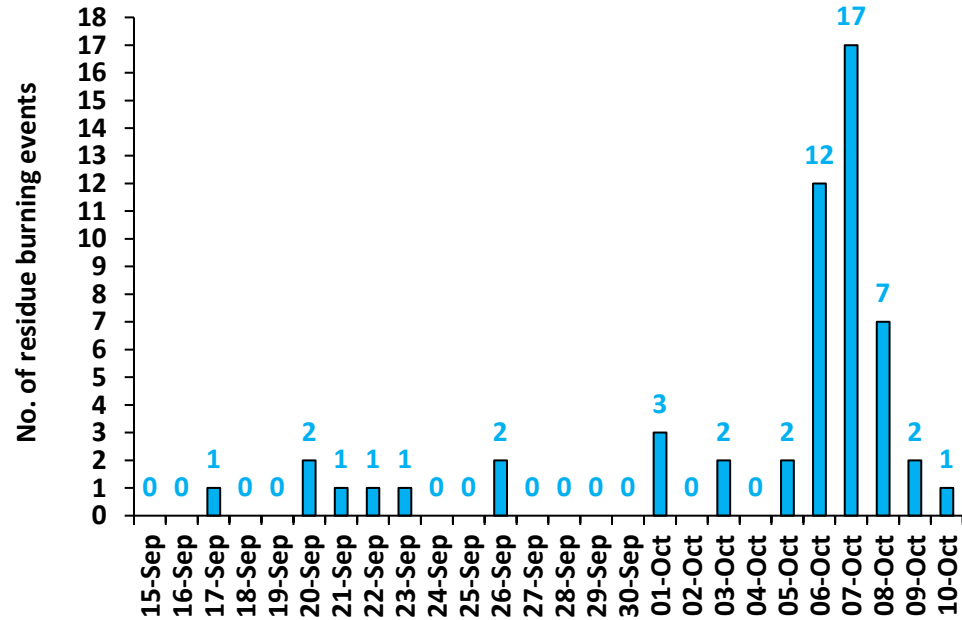
Uttar Pradesh



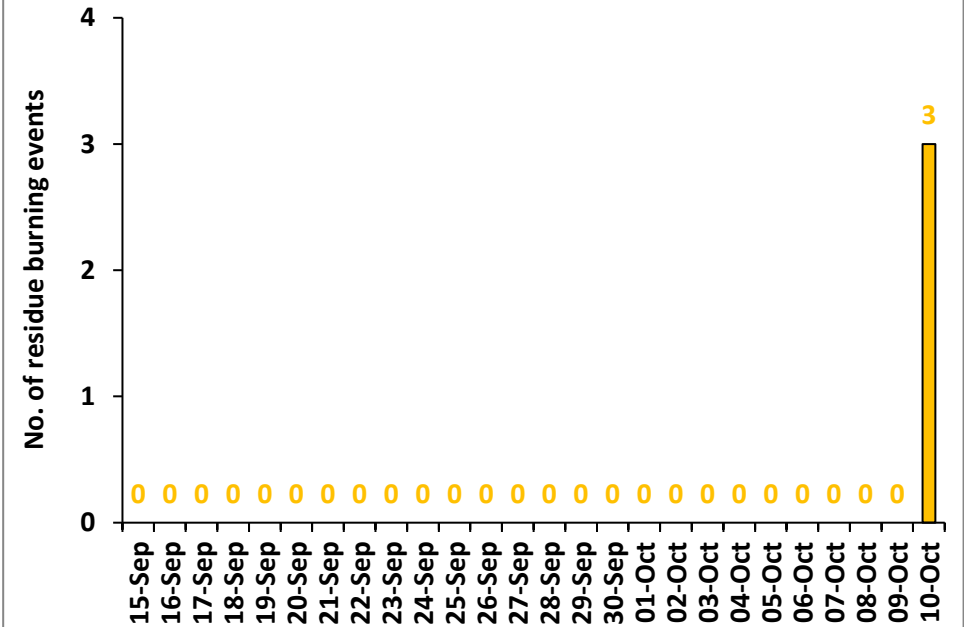
Rajasthan



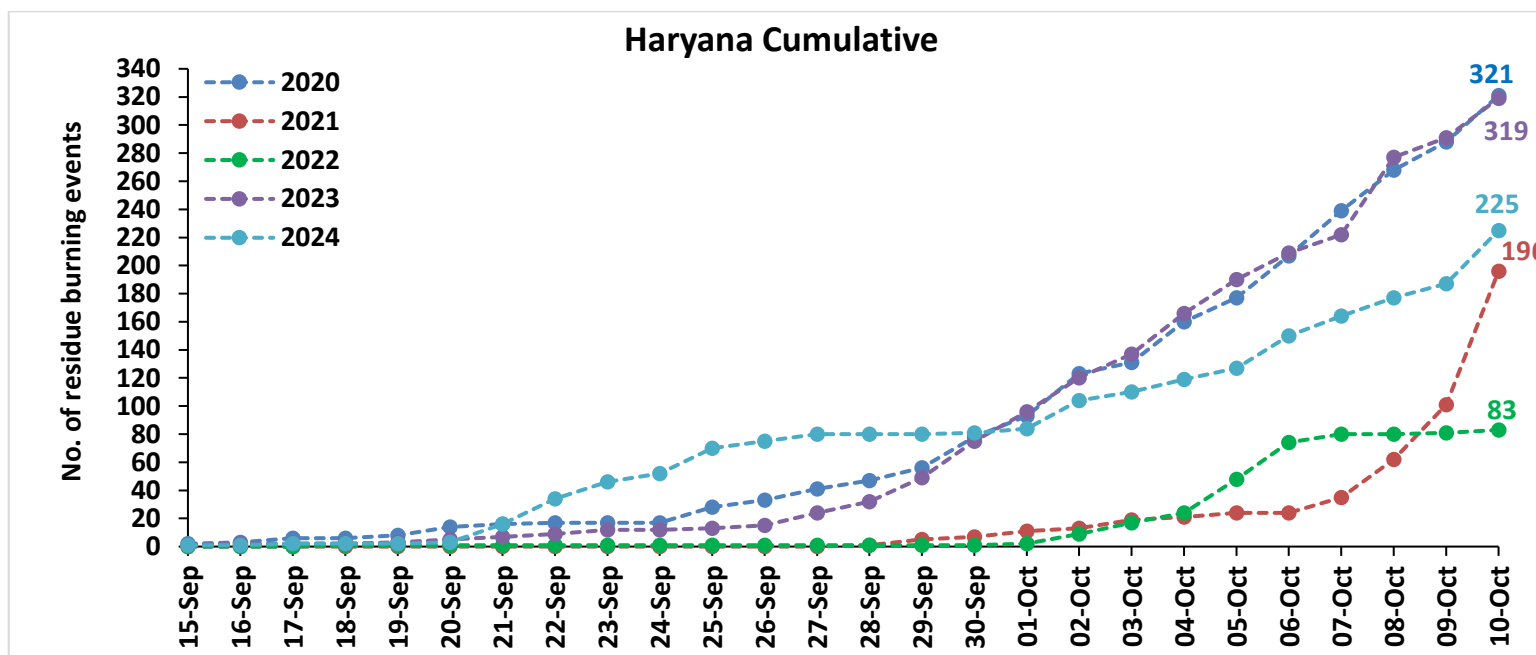
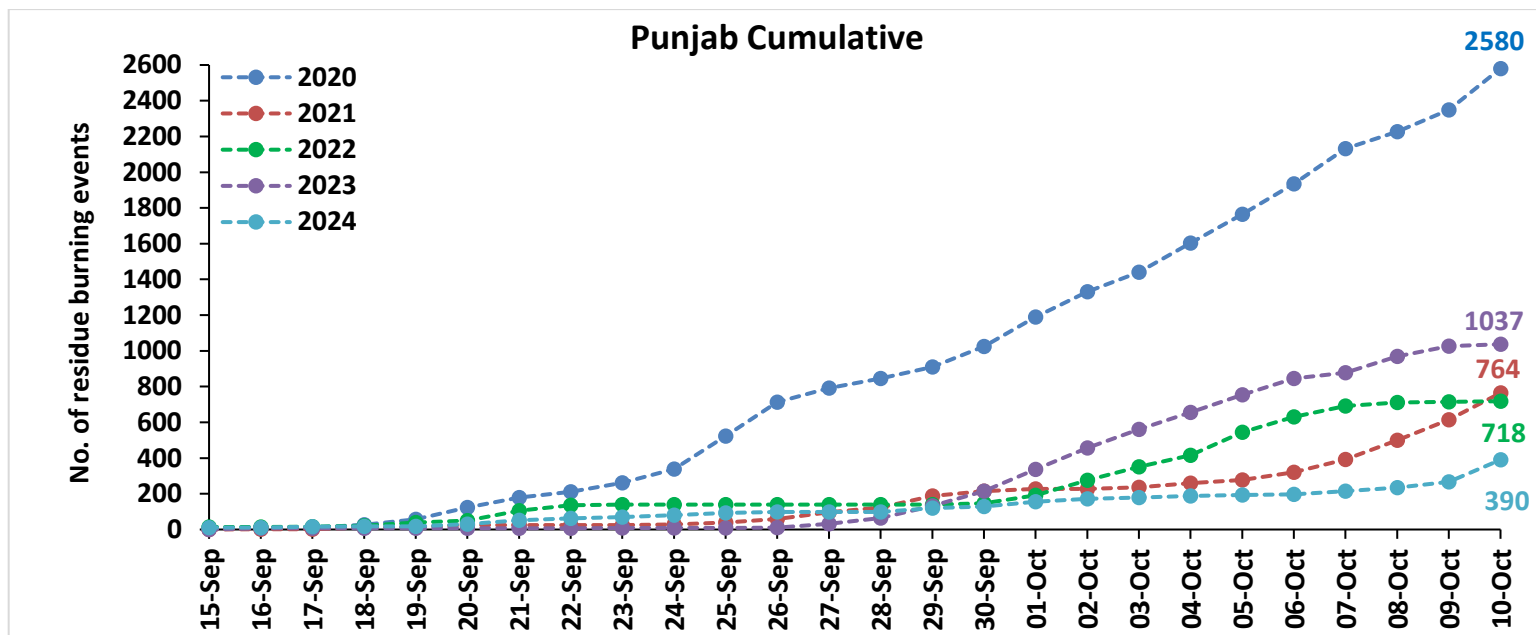
Madhya Pradesh

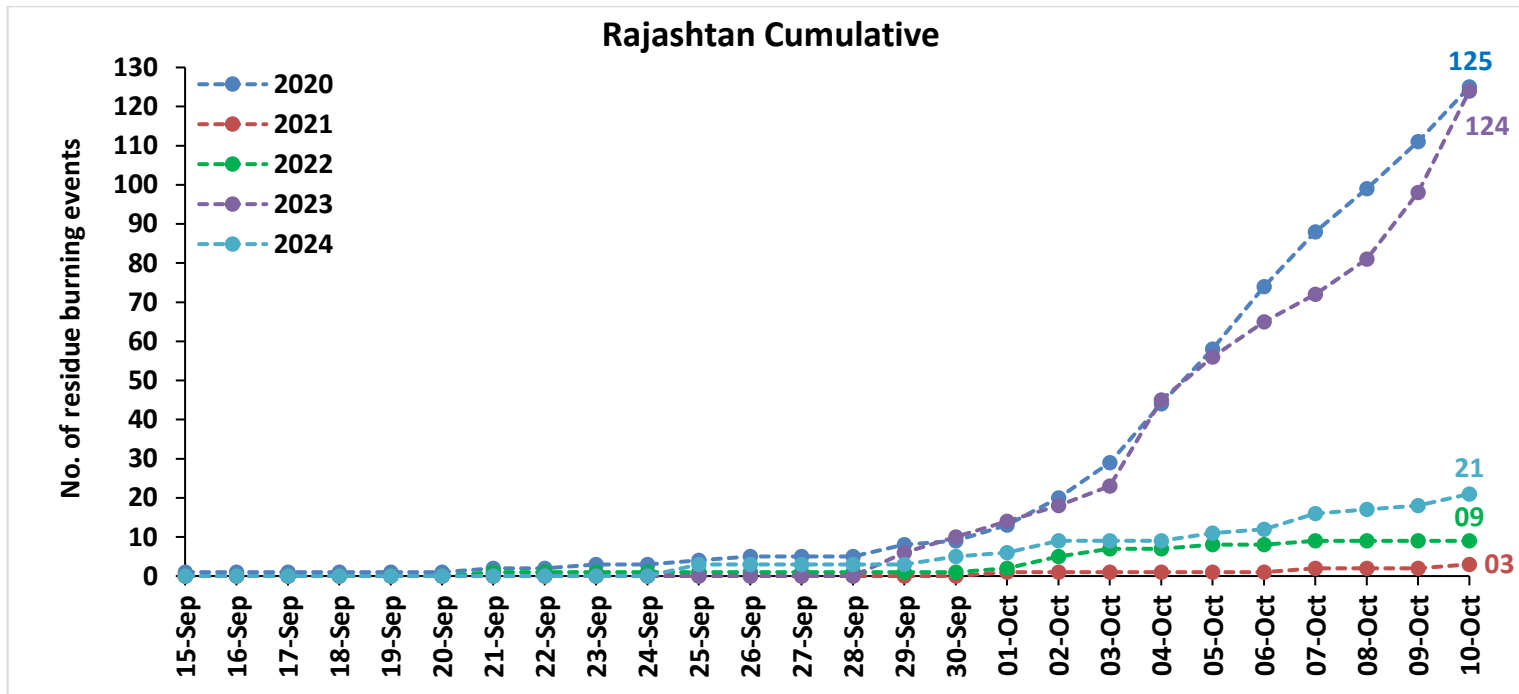
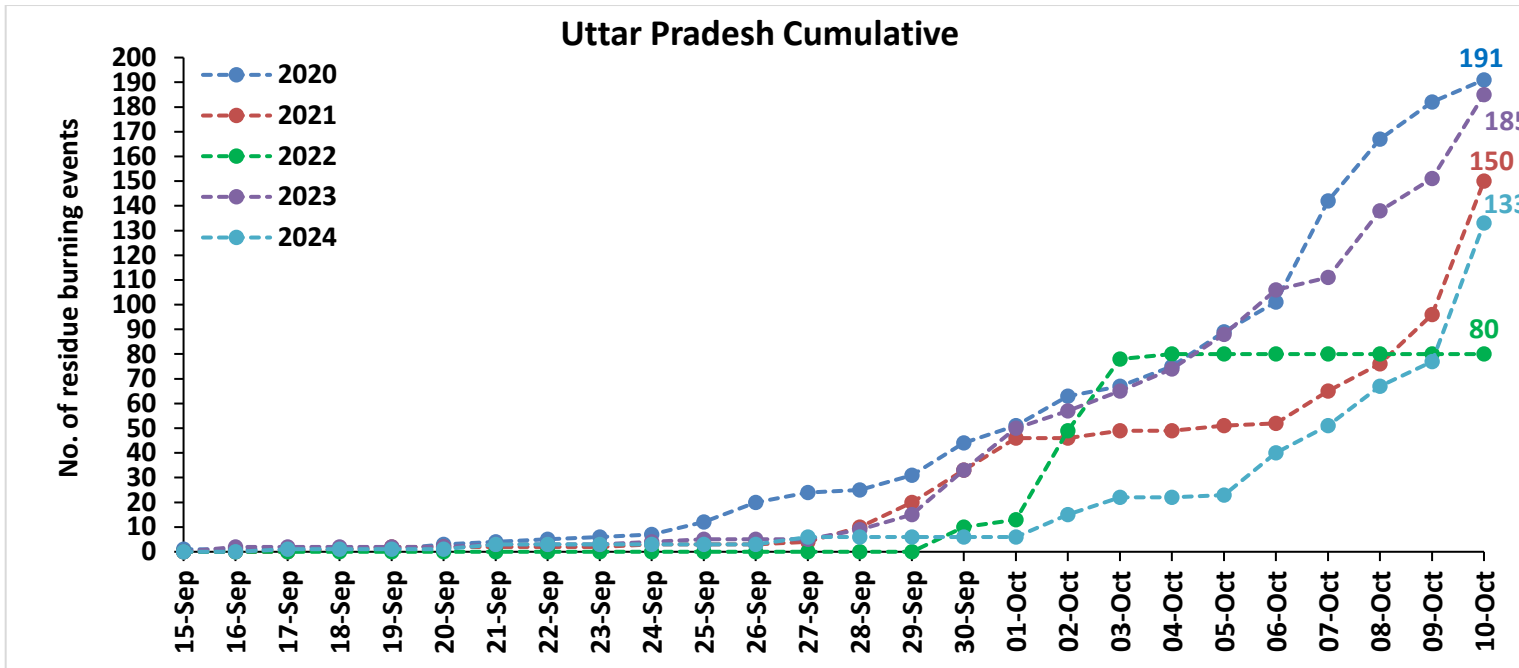


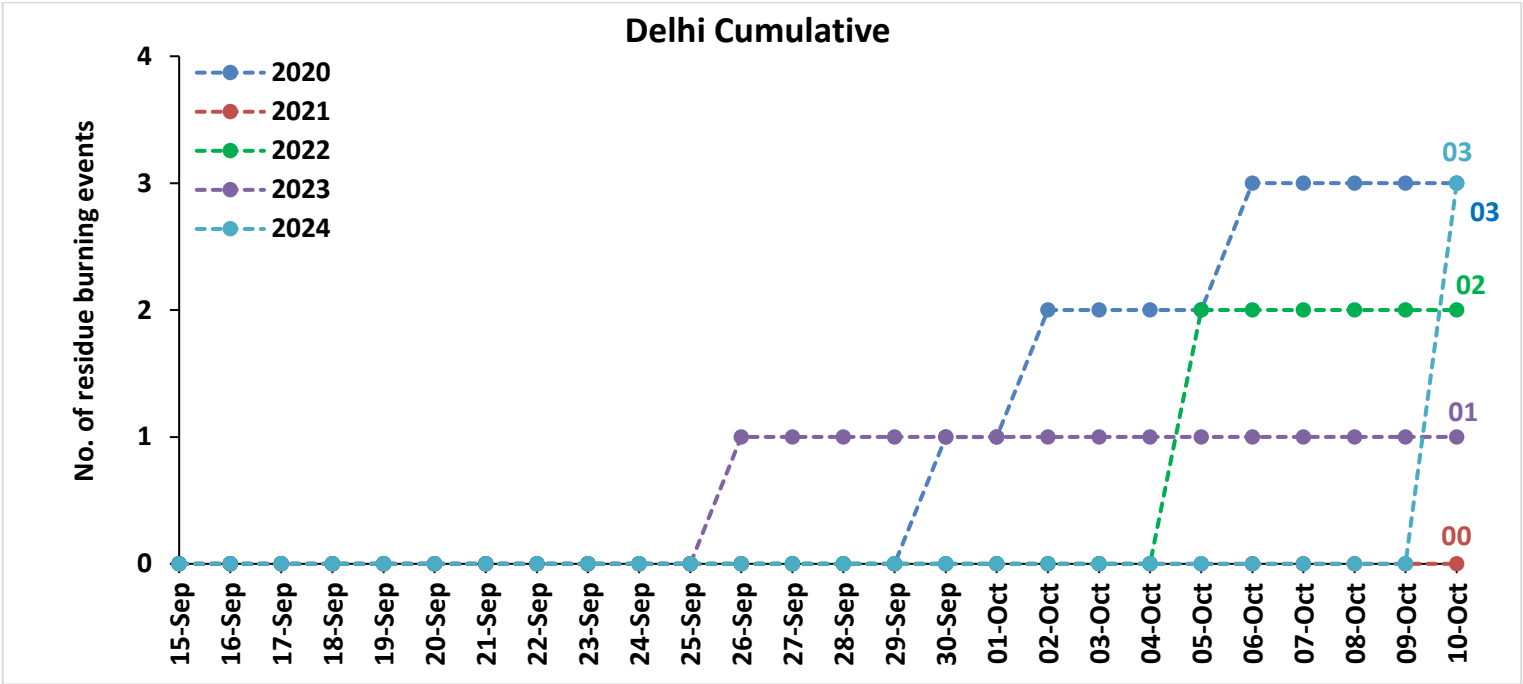
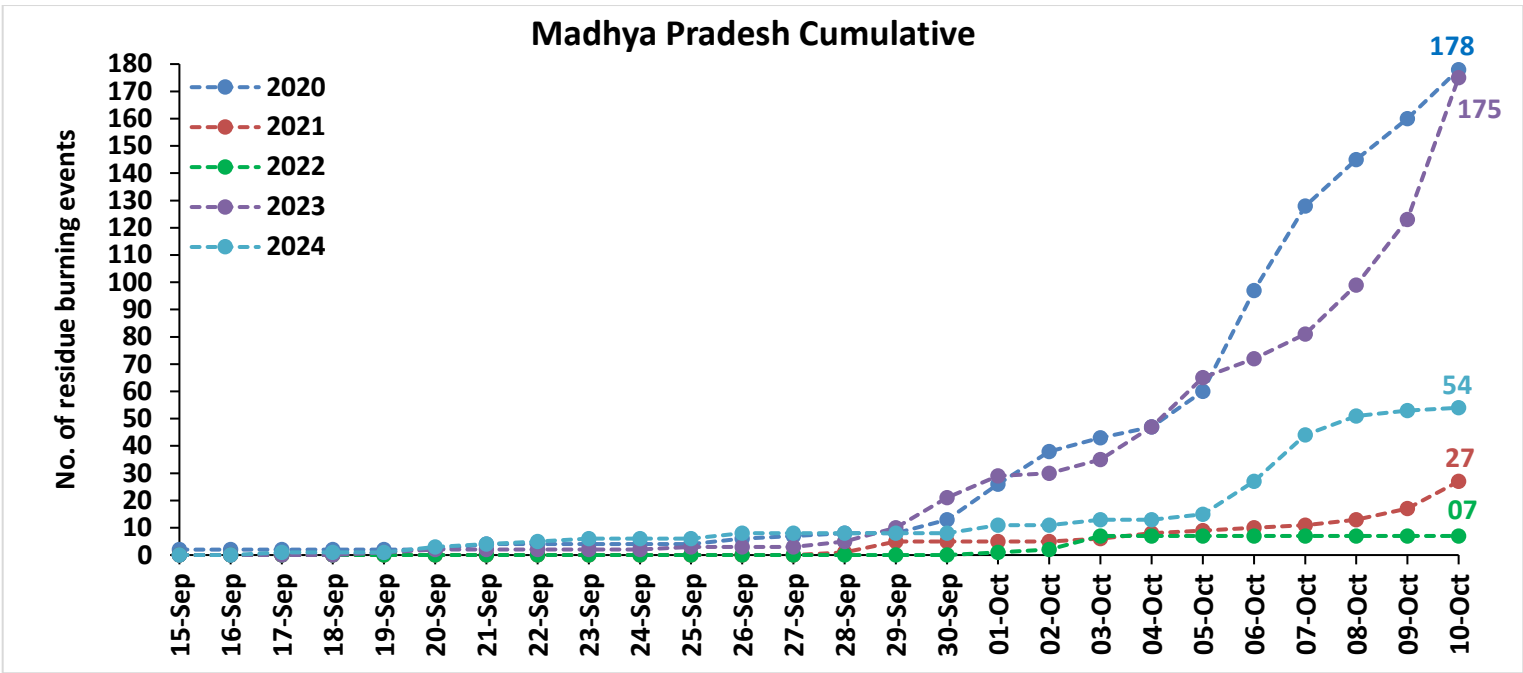
Delhi



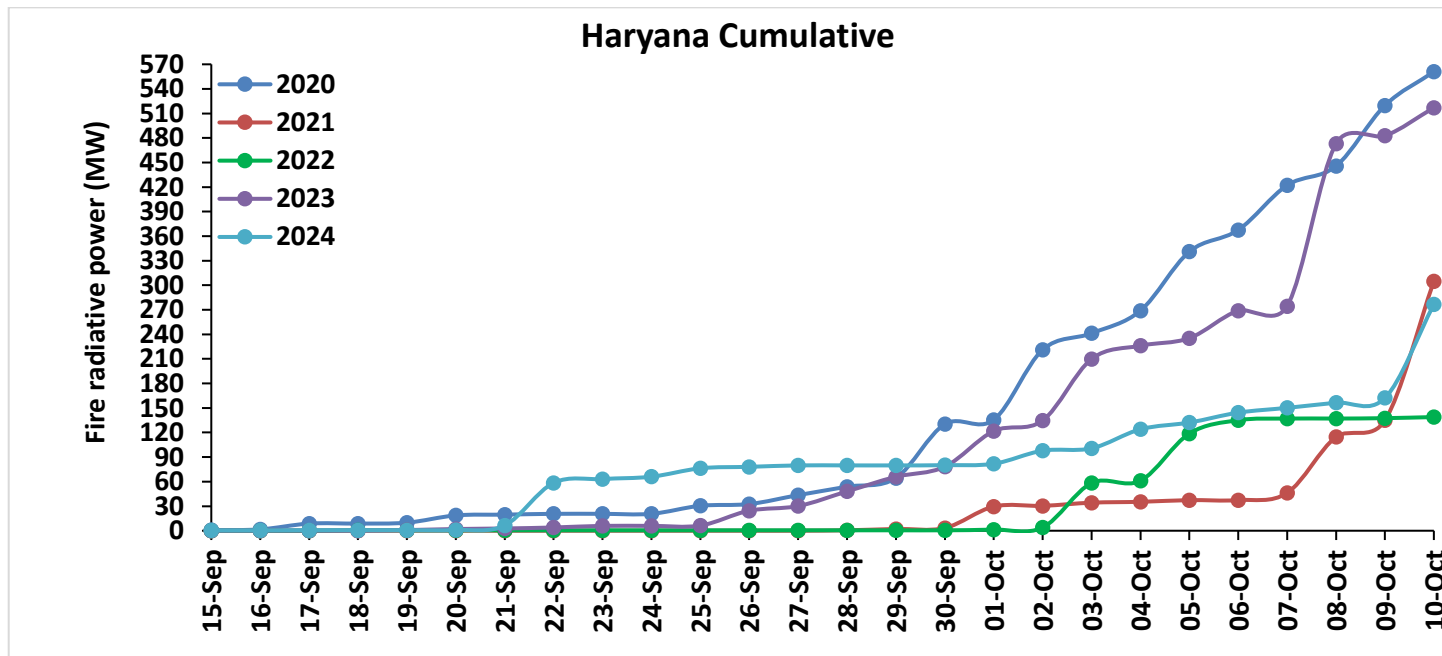
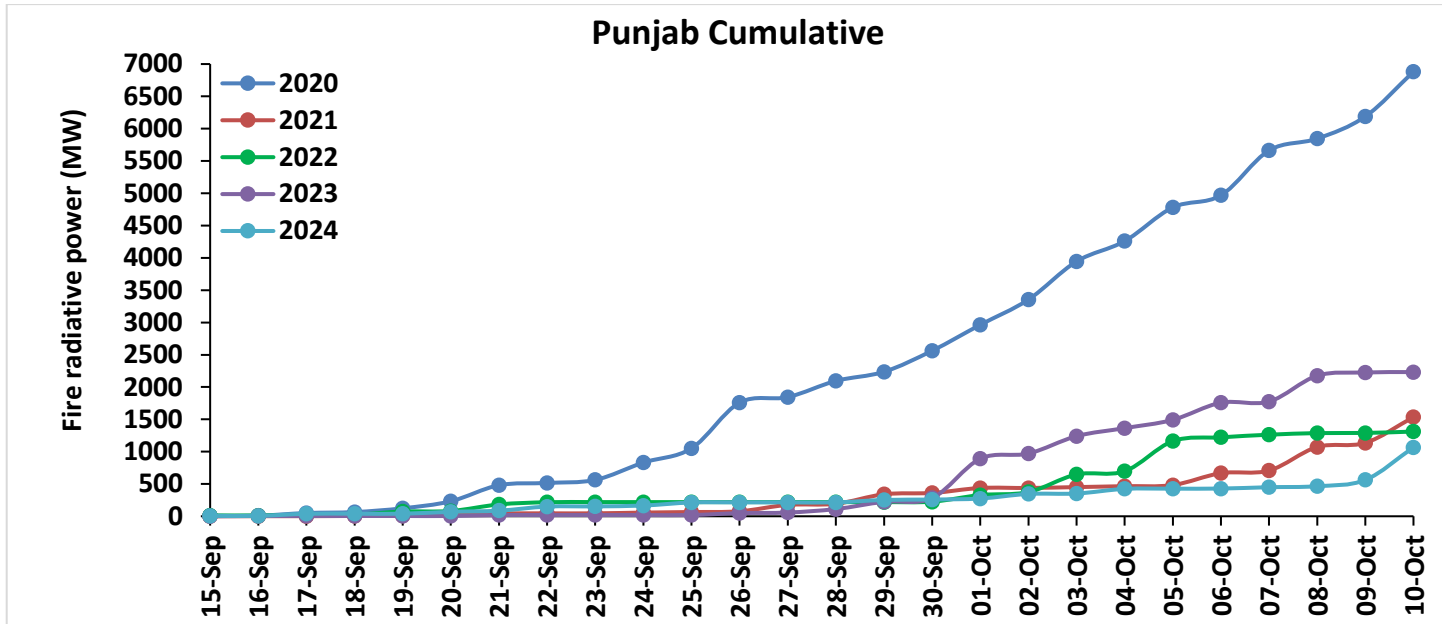
Comparison of residue burning events in current year (2024) with previous years (2020, 2021, 2022 and 2023) for the study States



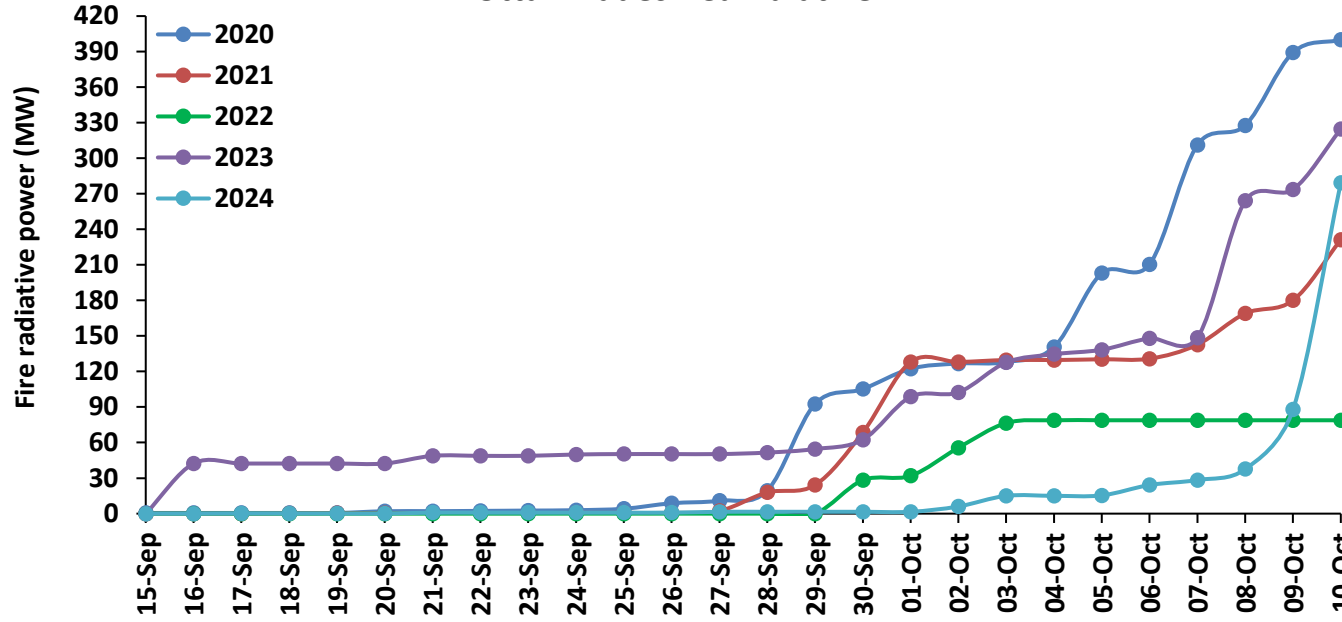




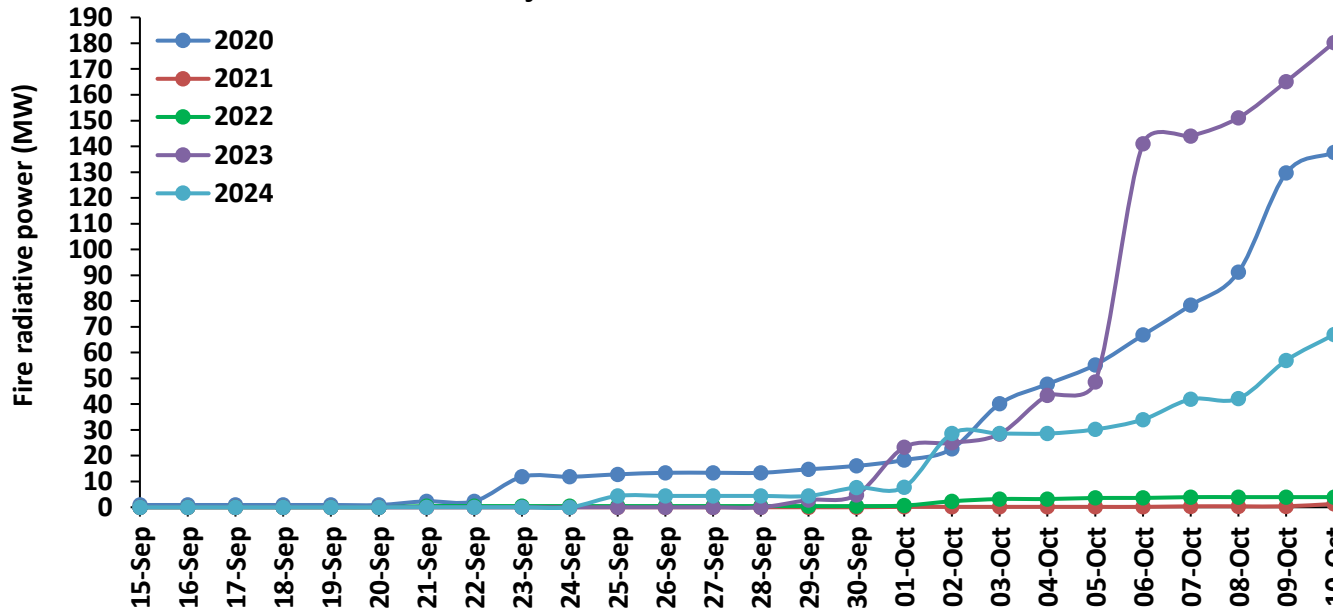
Comparison of residue burning fire power in current year (2024) with previous years (2020,2021,2022 and 2023) for the study States

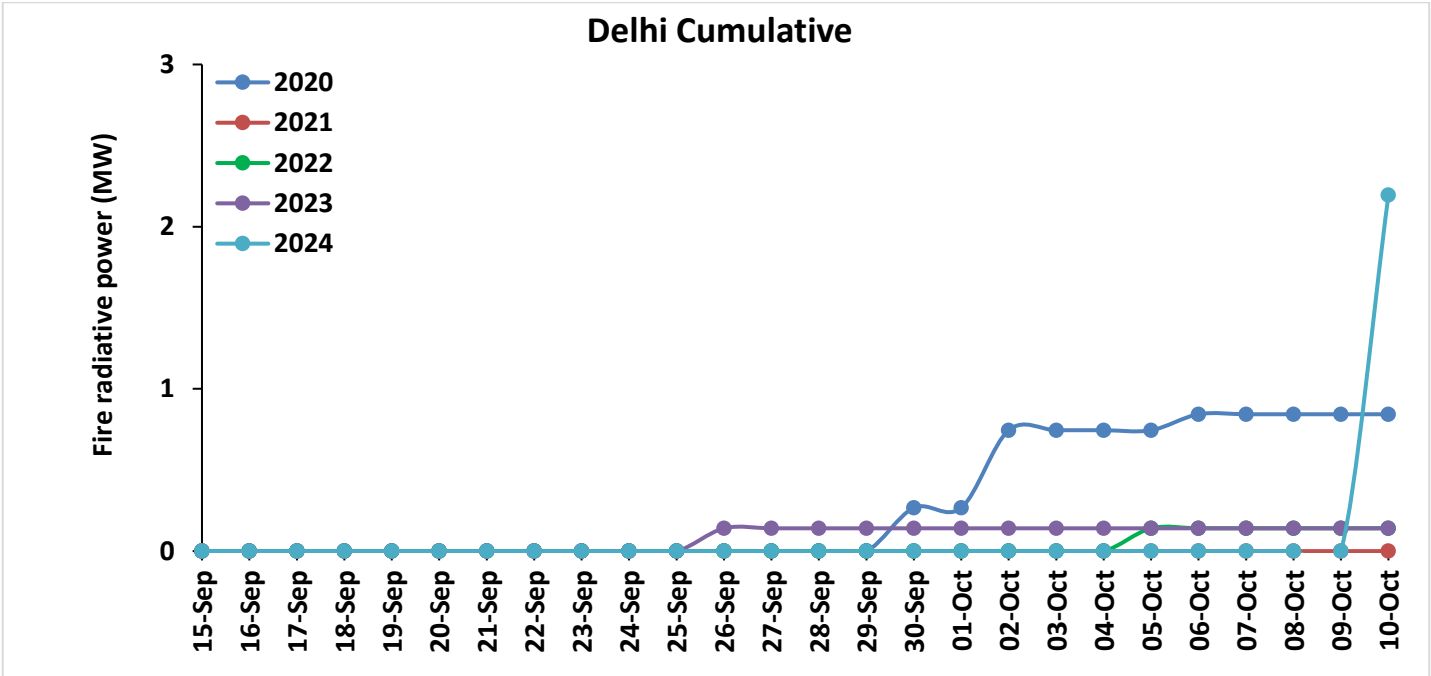
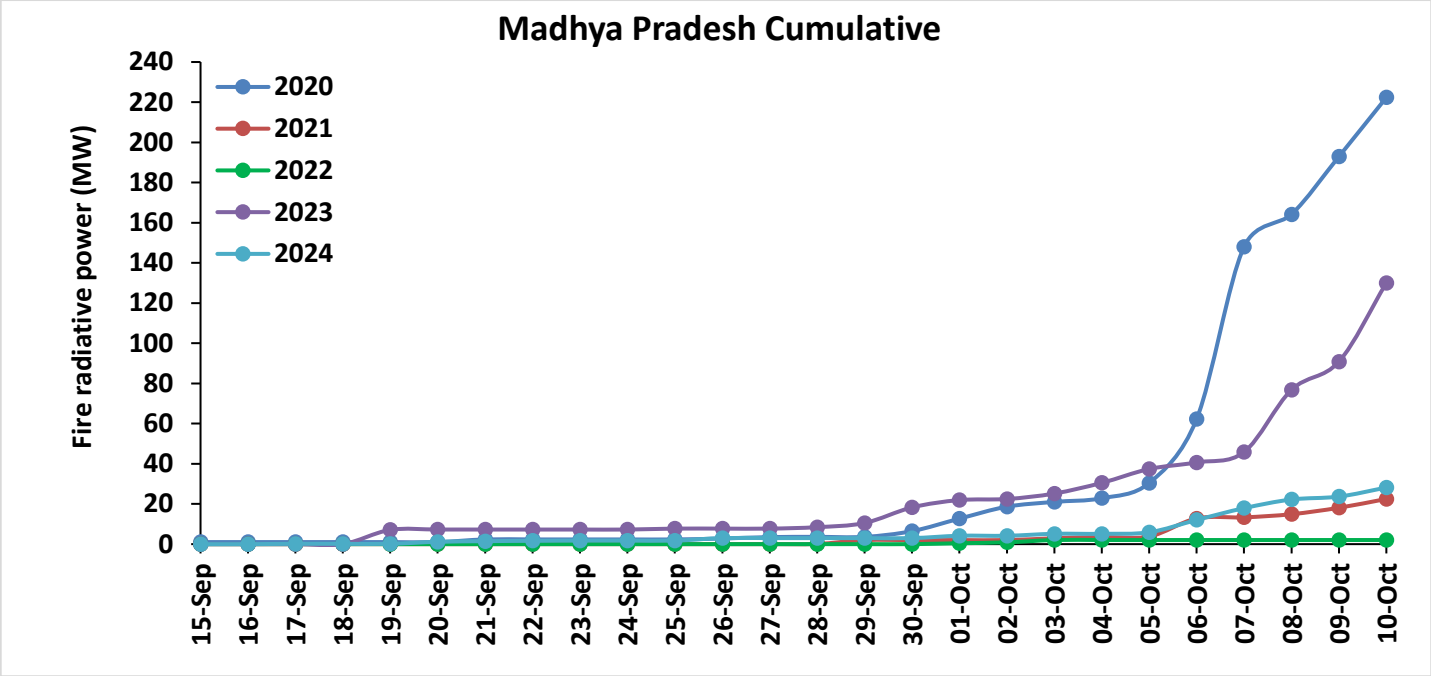


Uttar Pradesh Cumulative



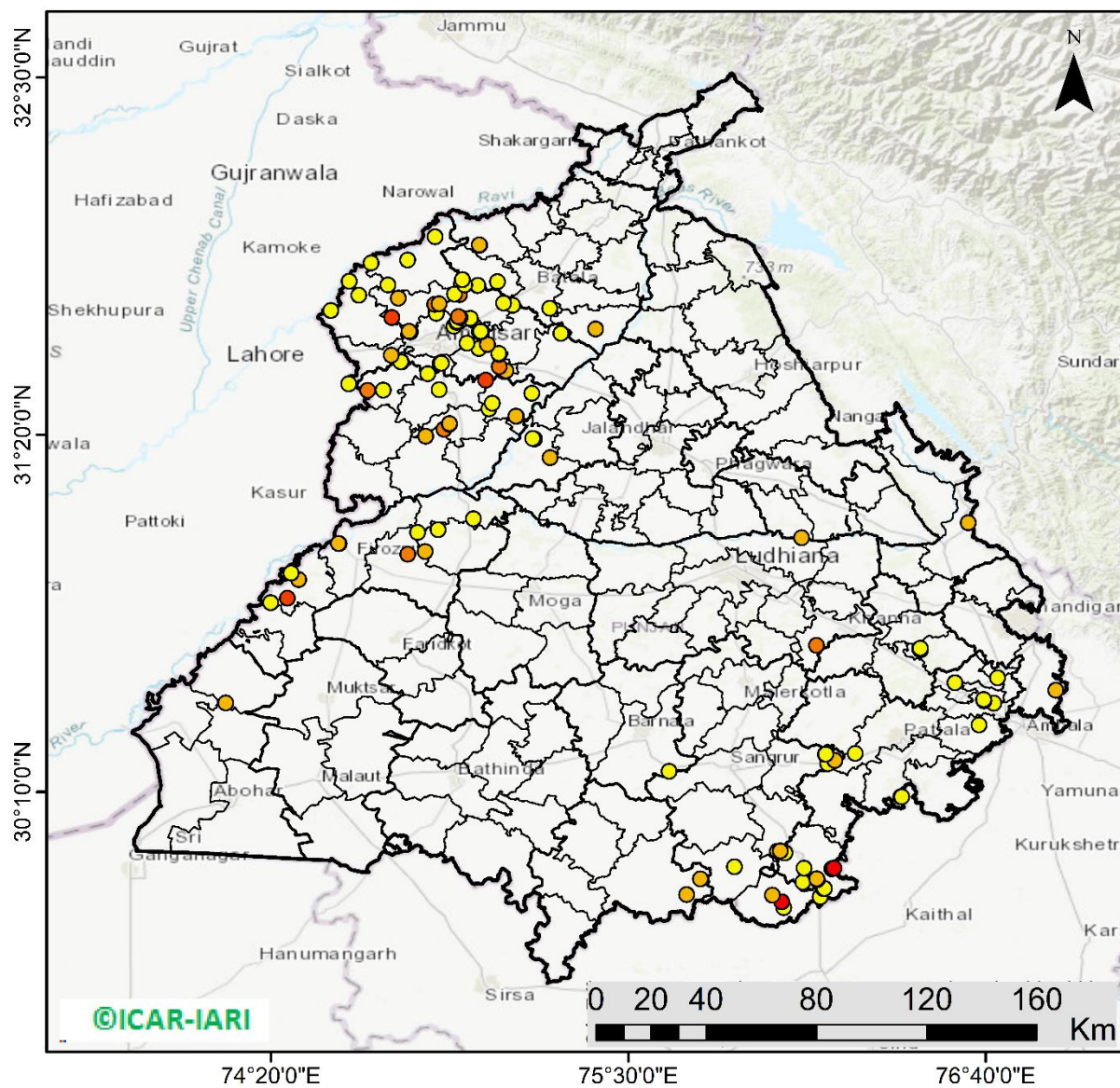
Rajasthan Cumulative





Punjab

RICE RESIDUE BURNING IN PUNJAB



123 burning events detected in Punjab during (10th Oct 2024)

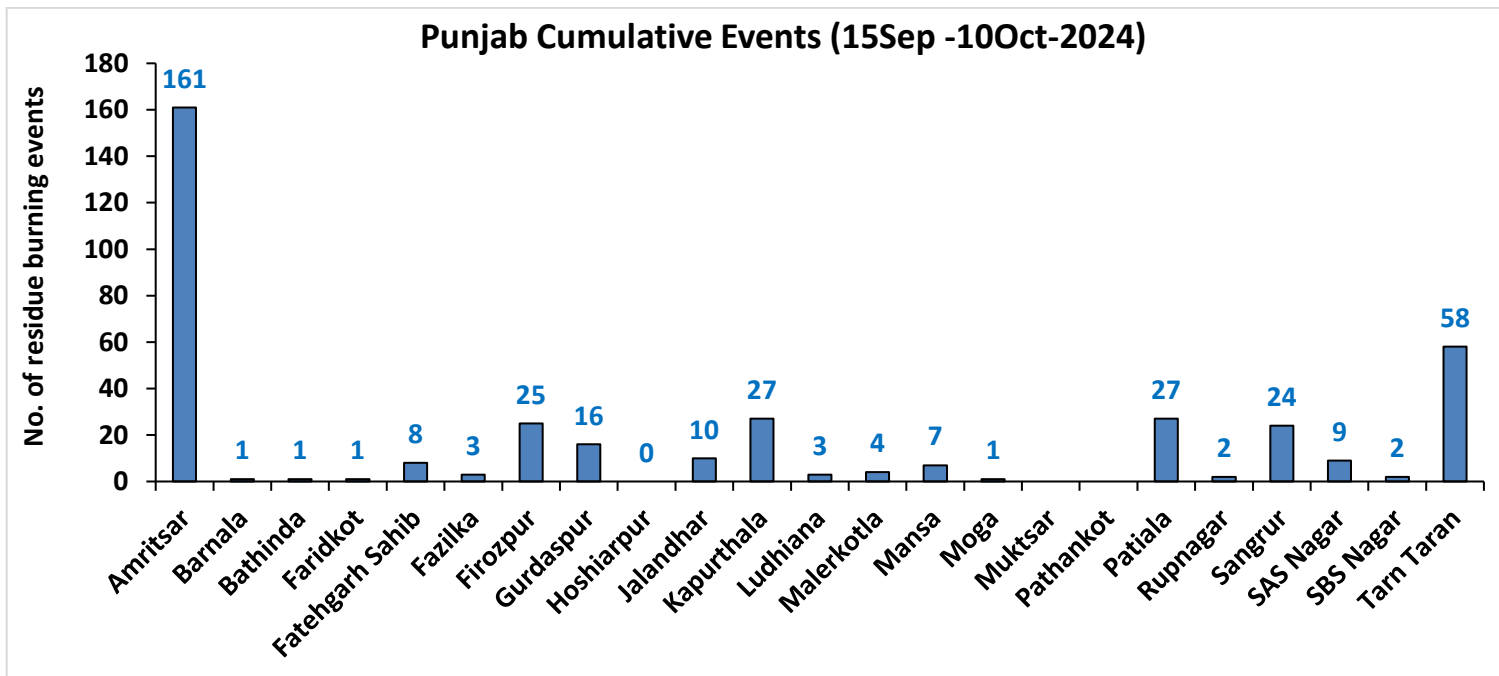
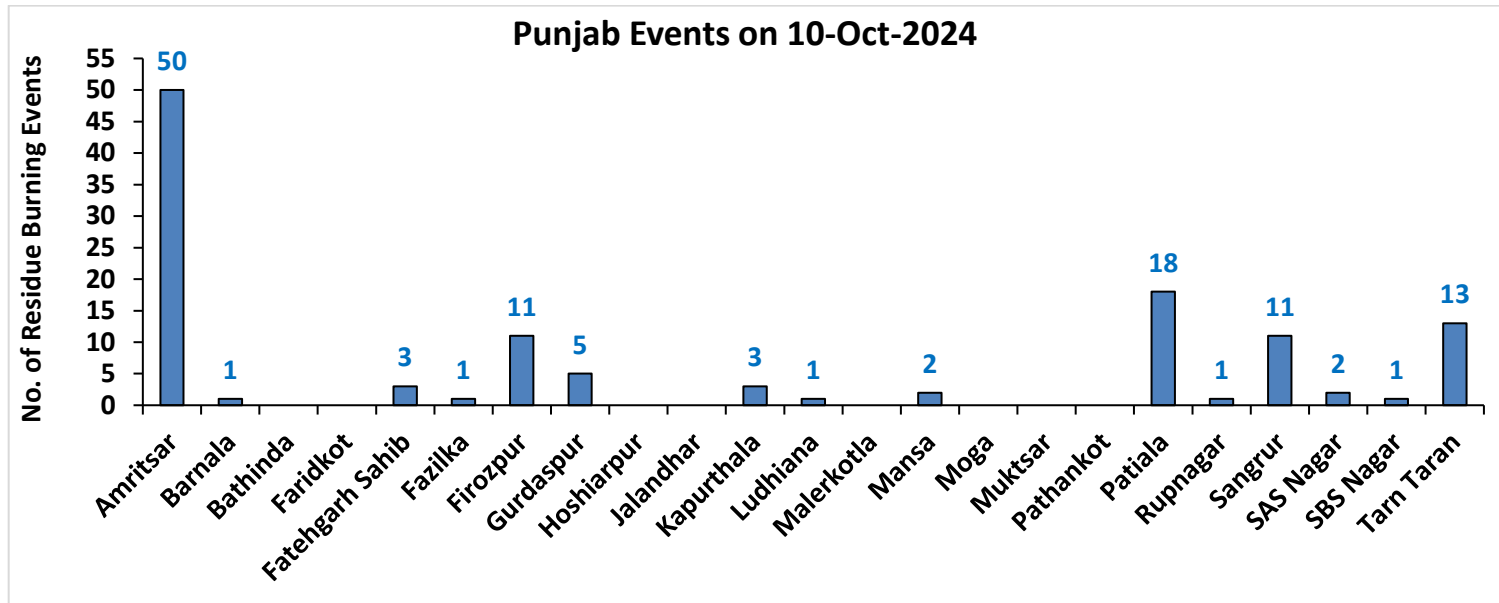
Fire Intensity (W/m²)

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



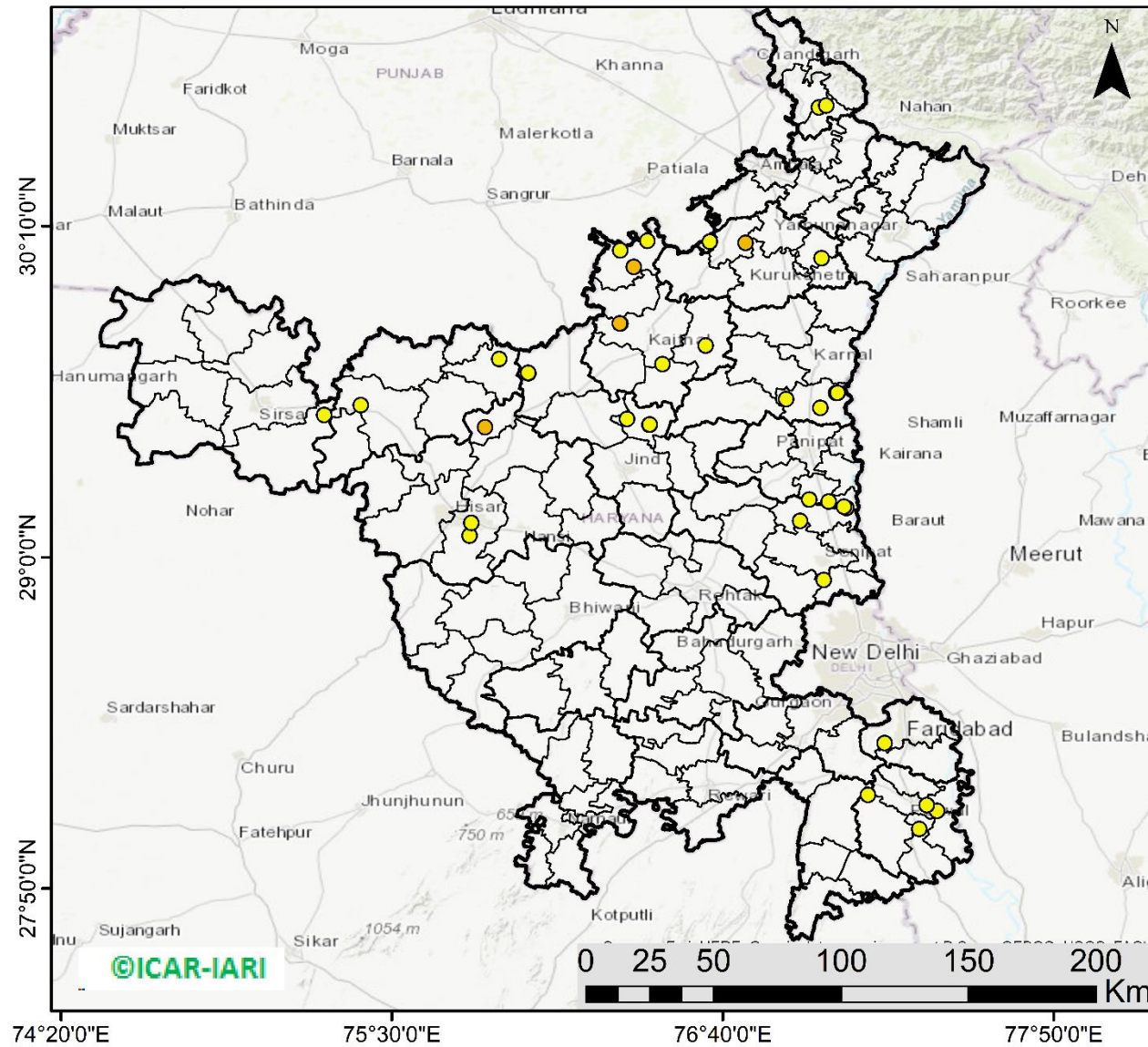
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15Sep-10Oct-2024)



Haryana

RICE RESIDUE BURNING IN HARYANA



38 burning events detected in Haryana on (10th Oct 2024)

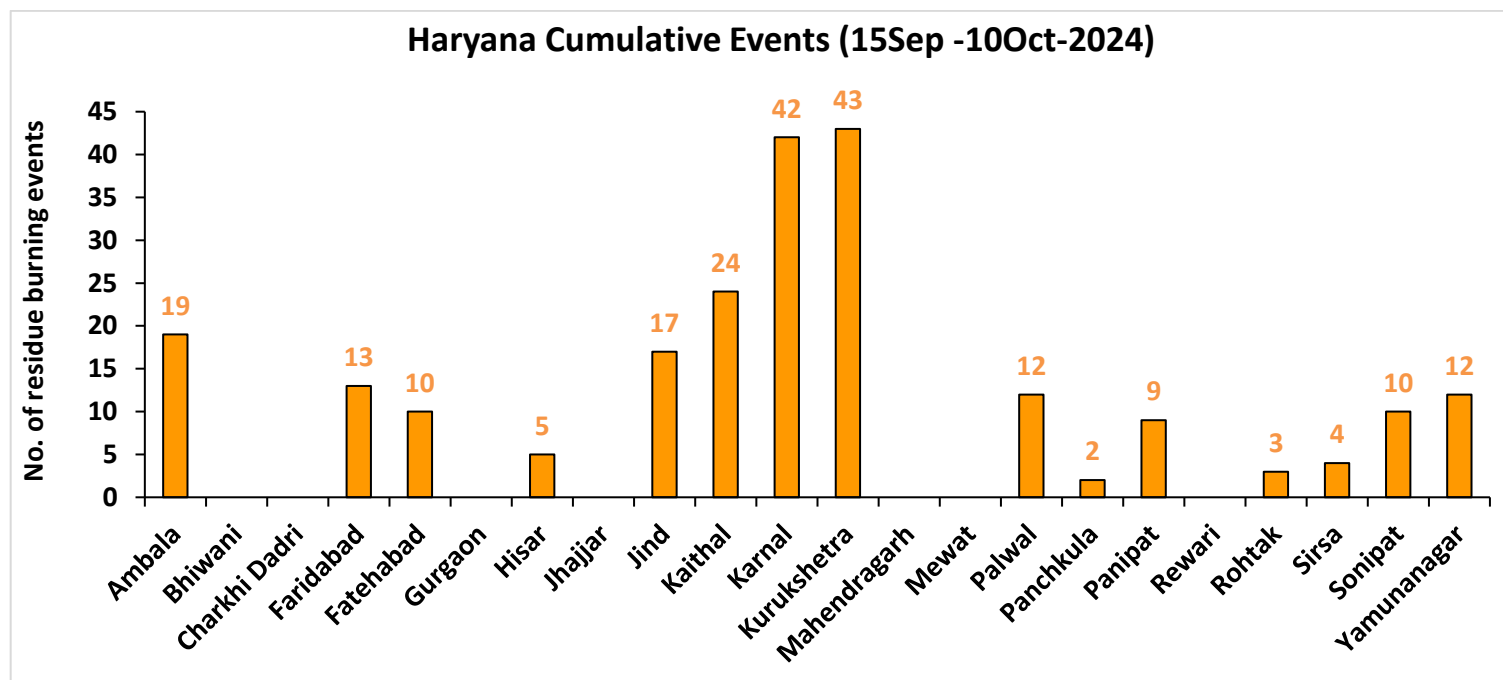
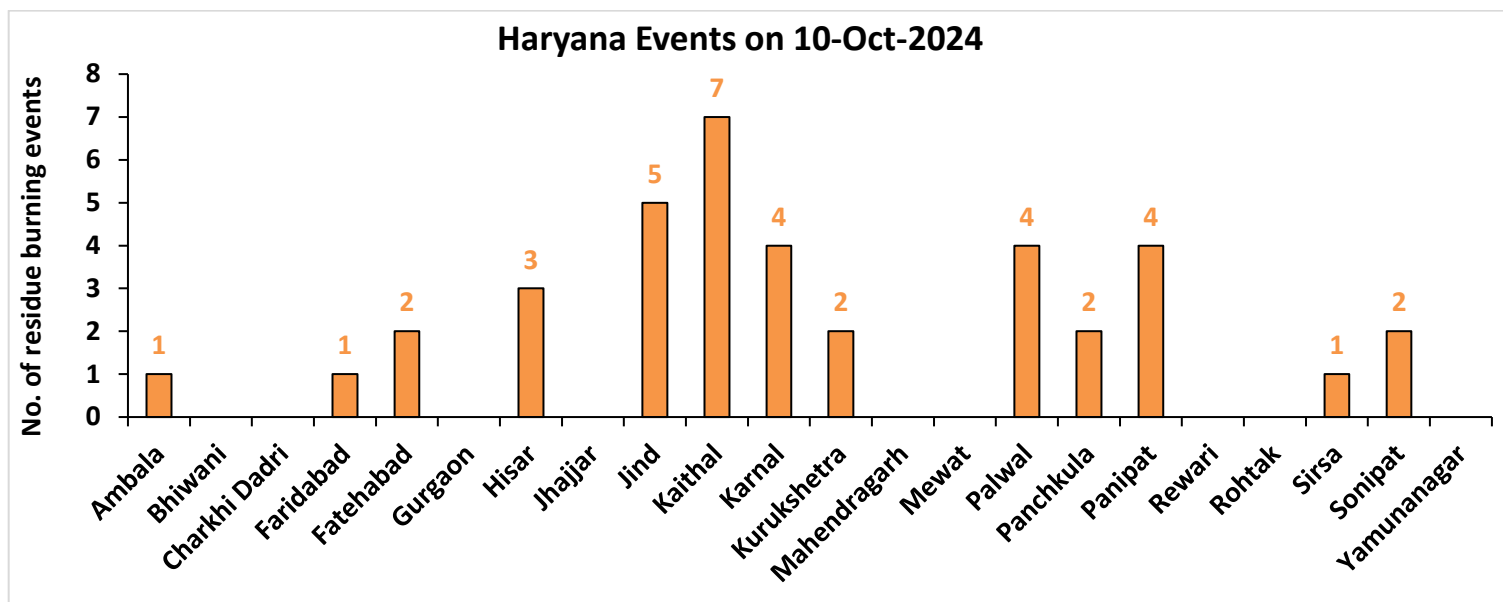
Fire Intensity (W/m²)

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



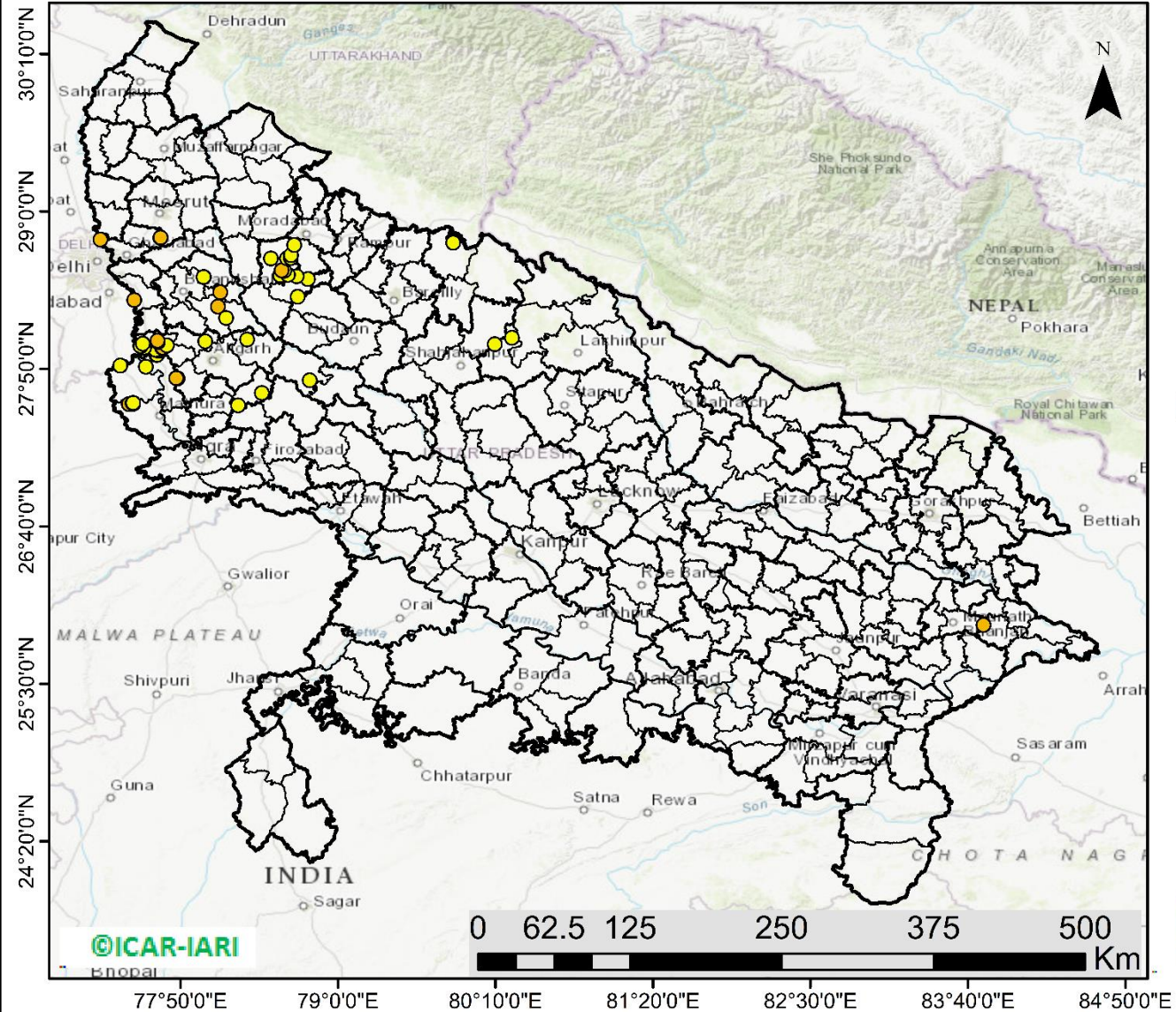
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15Sep-10Oct-2024)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



56 burning events detected in Uttar Pradesh on (10th Oct 2024)

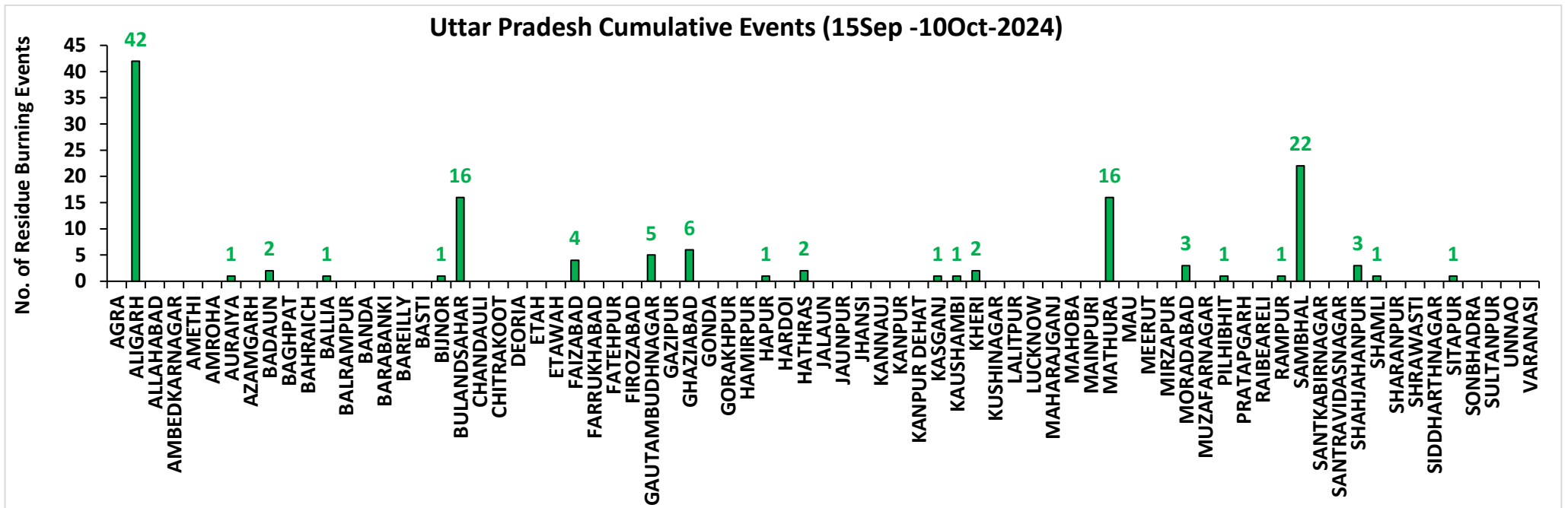
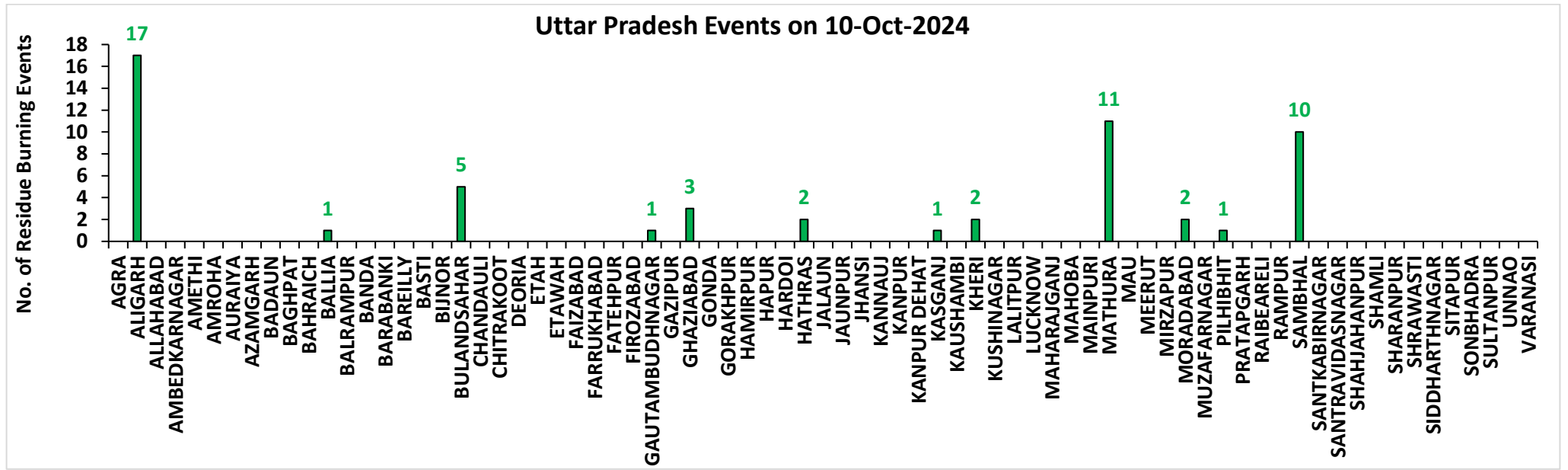
Fire Intensity (W/m2)

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



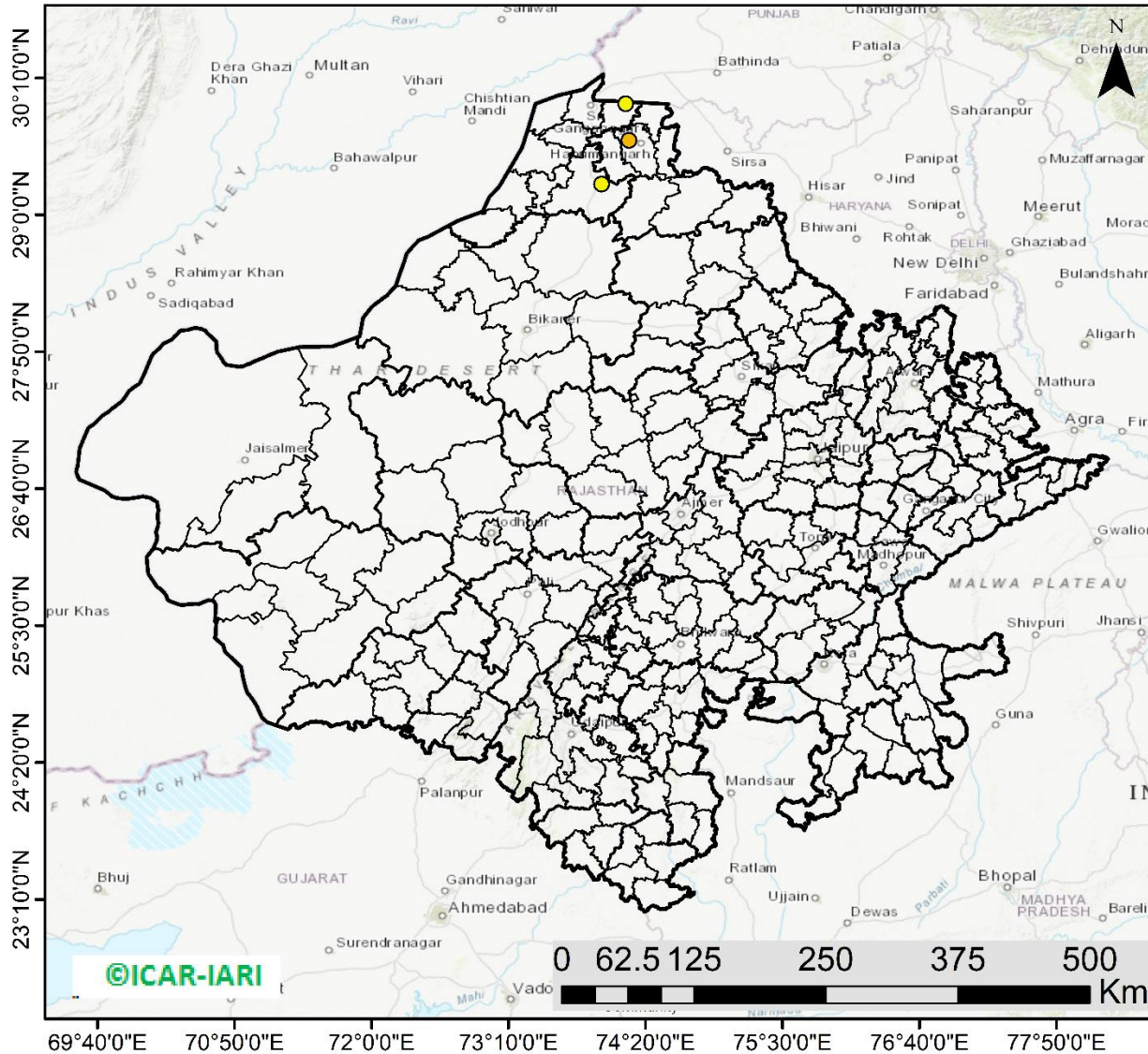
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-10Oct-2024)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



03 burning events
detected in Rajasthan on
(10th Oct 2024)

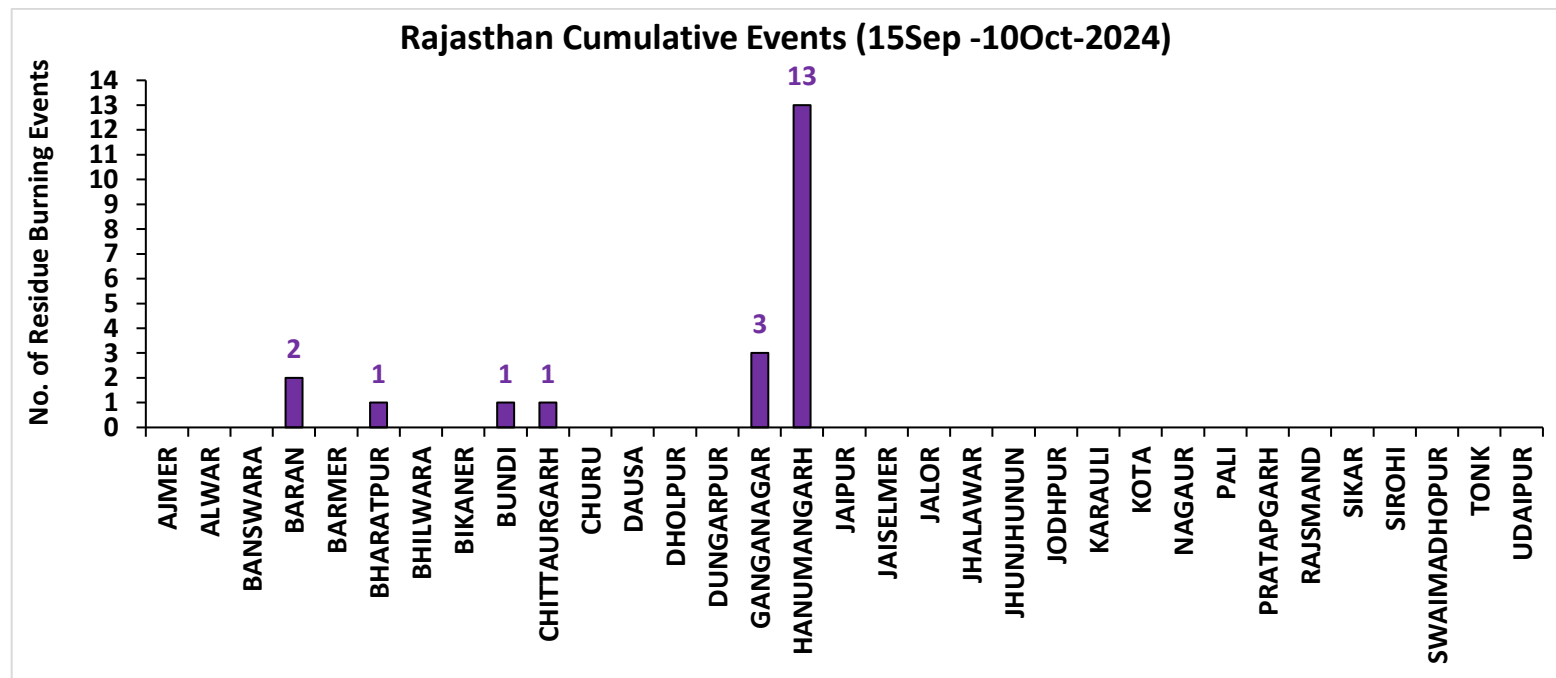
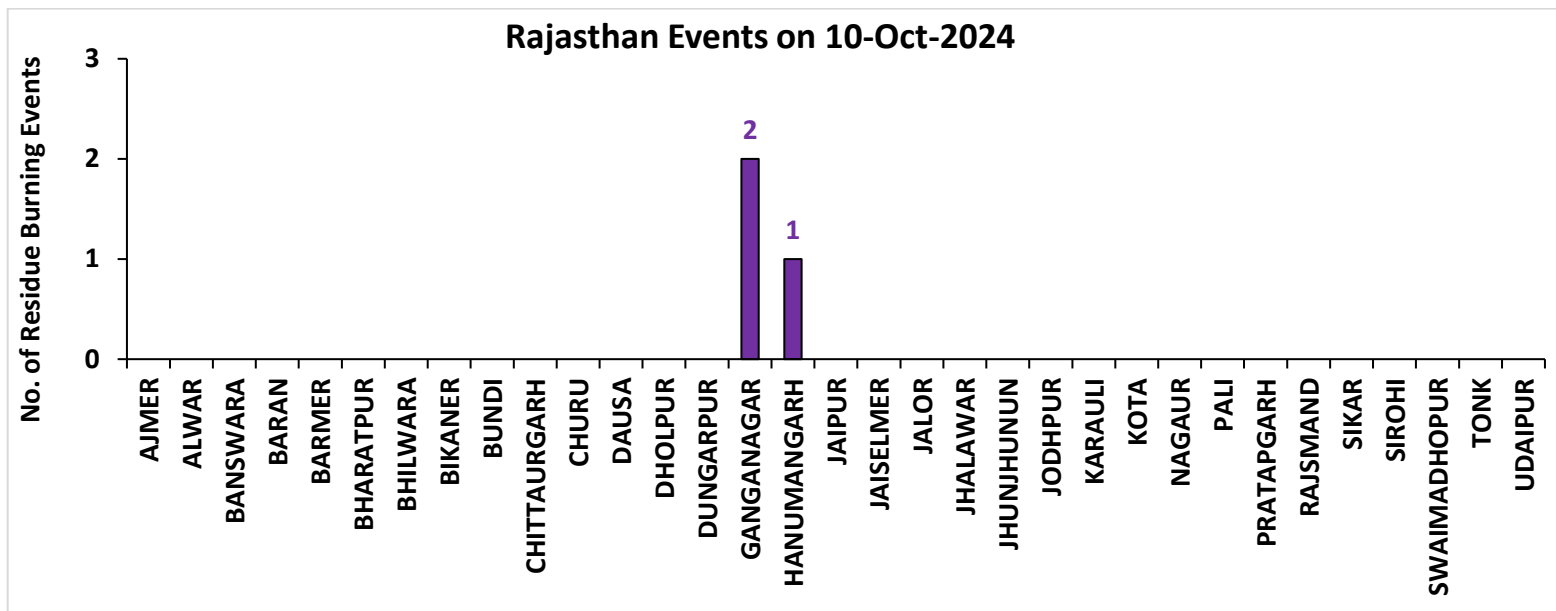
Fire Intensity (W/m²)

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



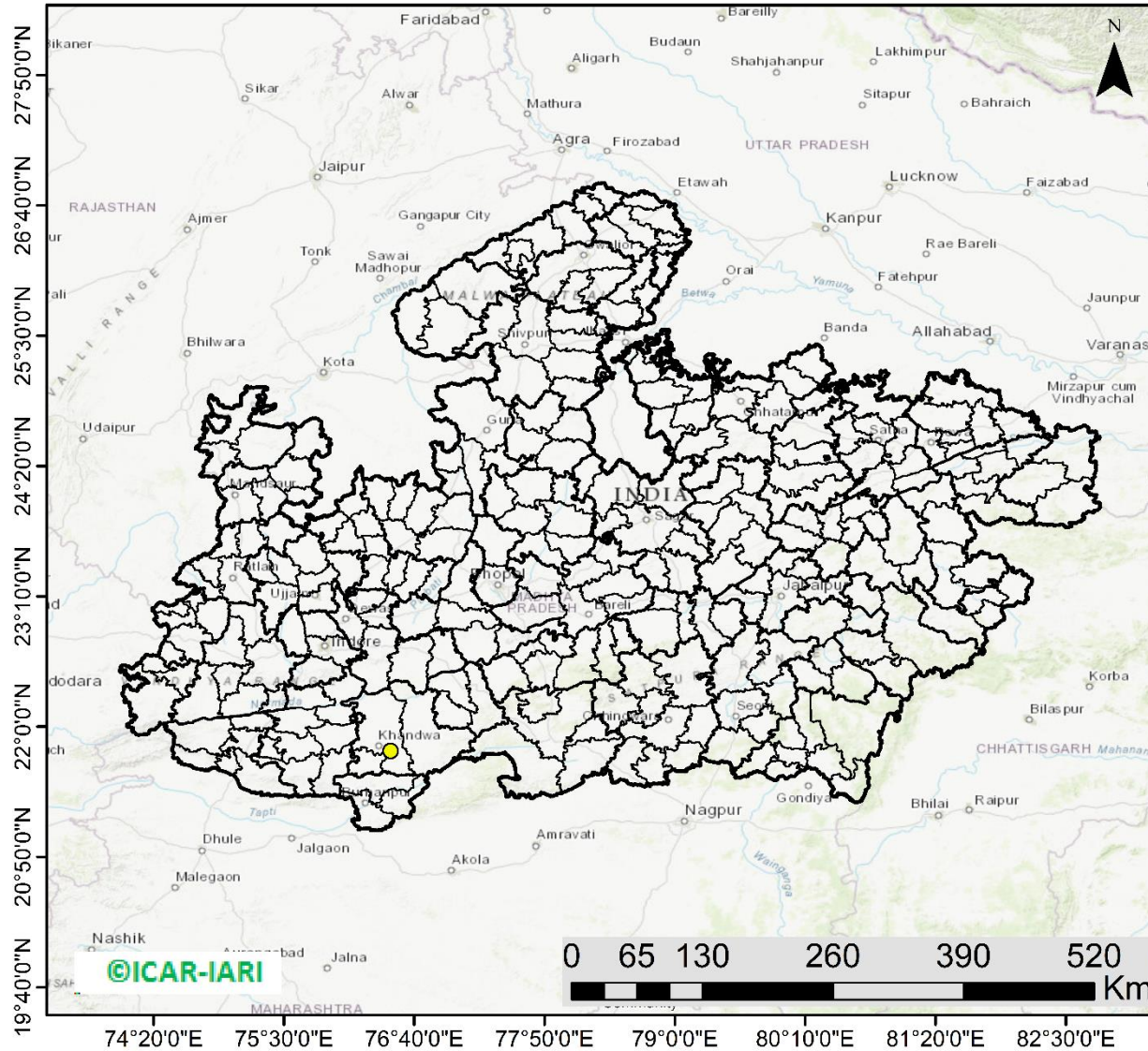
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15Sep-10Oct-2024)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



01 burning events detected in MP on (10th Oct 2024)

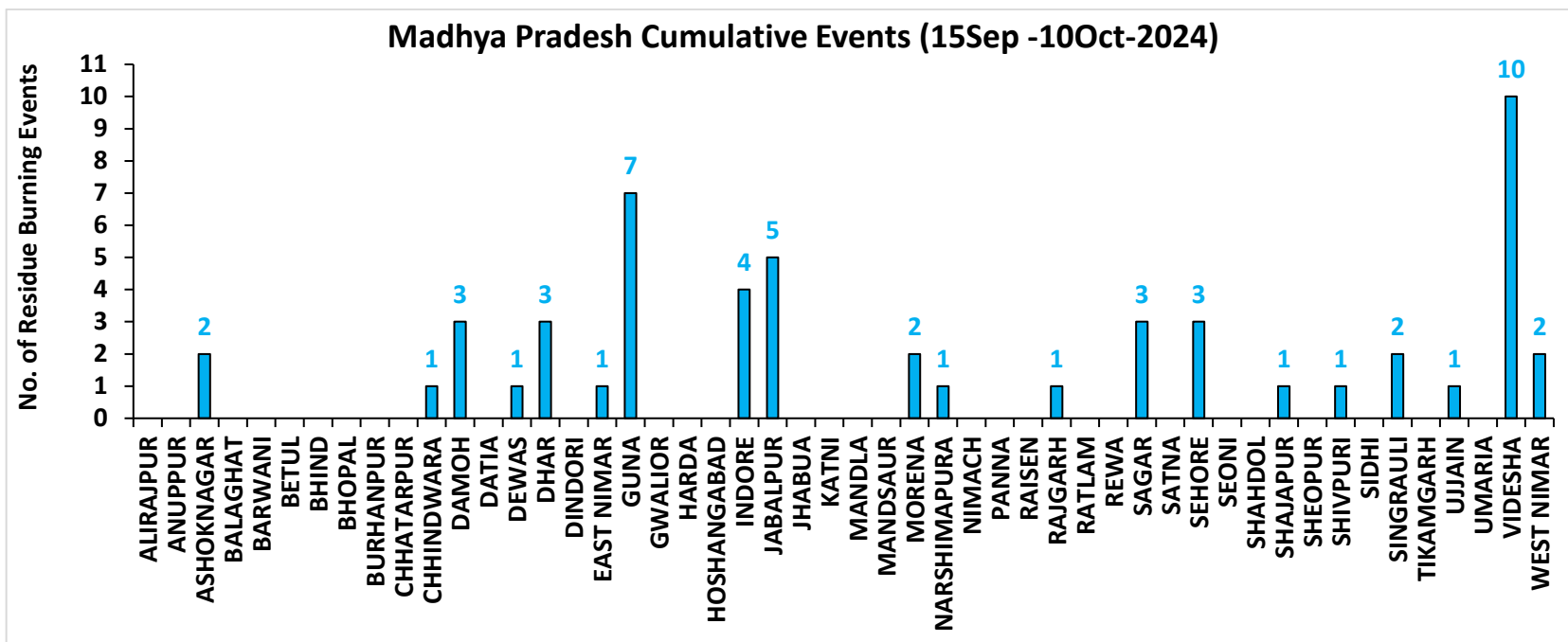
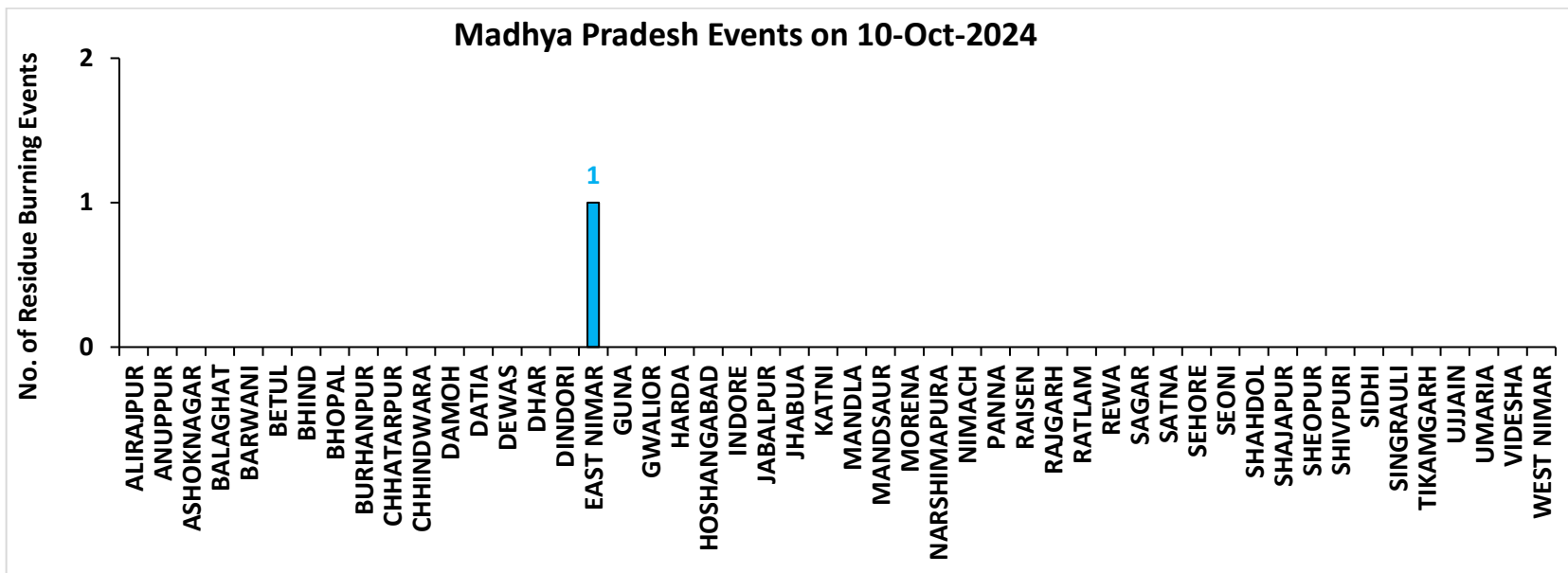
Fire Intensity (W/m²)

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



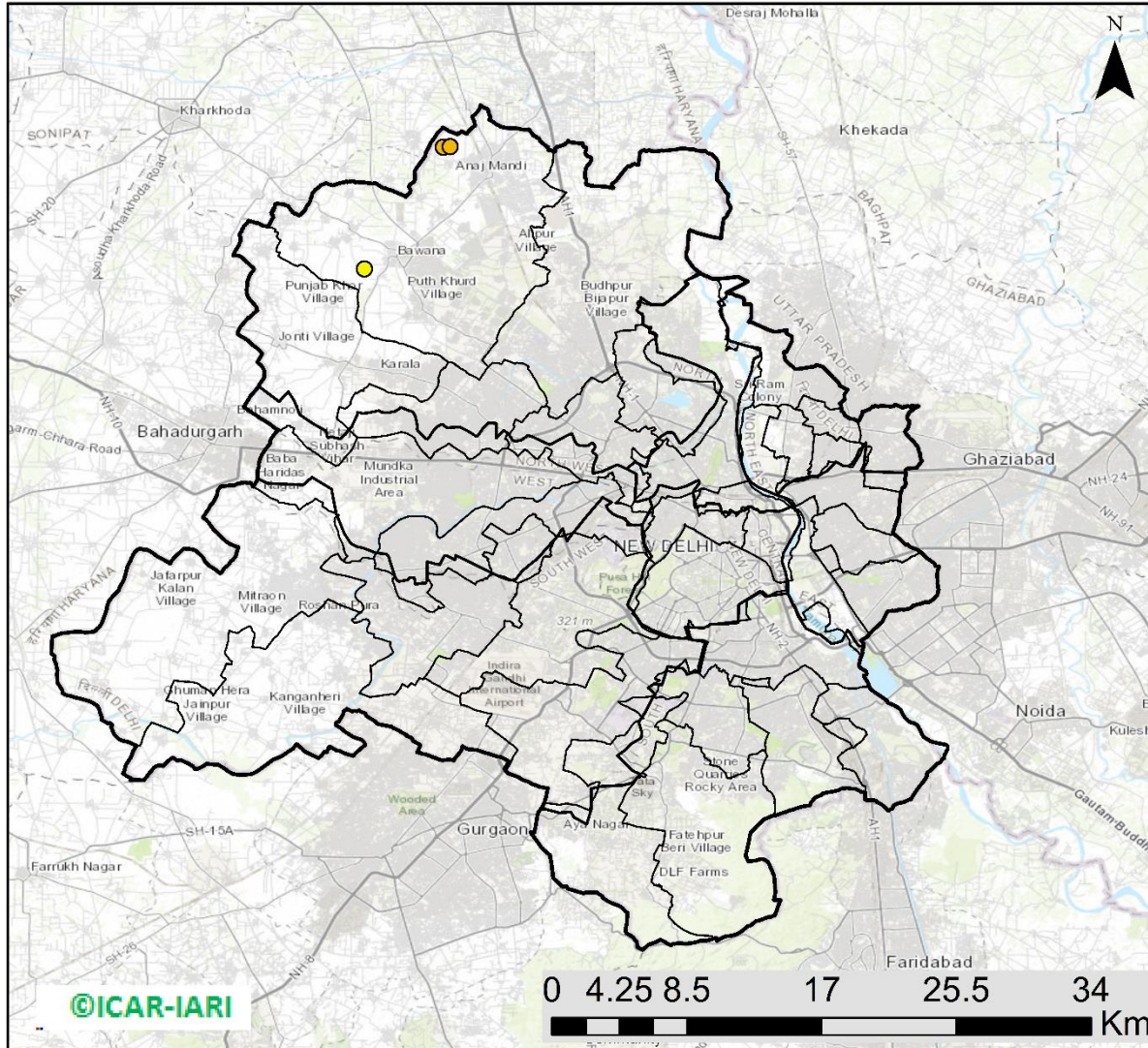
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Madhya Pradesh (15Sep-10Oct-2024)



Delhi

RICE RESIDUE BURNING IN DELHI



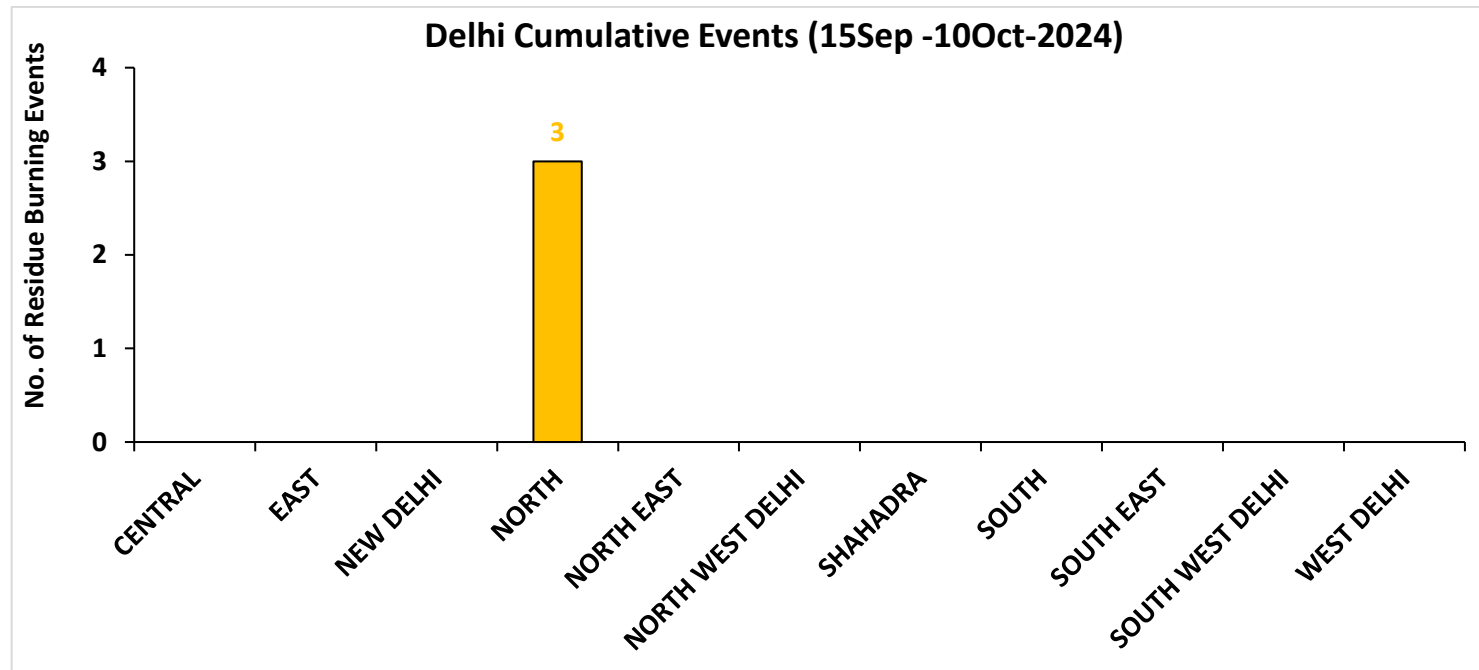
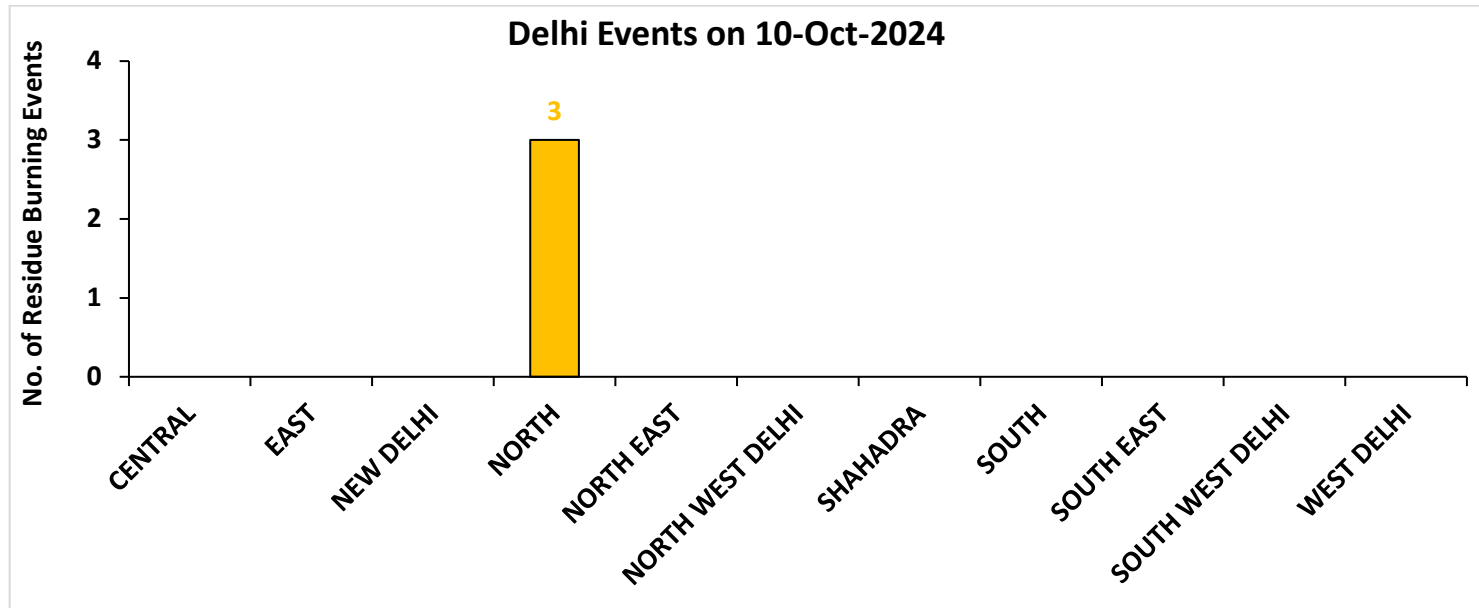
03 burning events detected in Delhi on (10th Oct 2024)

Fire Intensity (W/m²)

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



District-wise cumulative number of residues burning events in Delhi (15Sep-10Oct-2024)



District-wise cumulative number of residues burning events detected in 2020, 2021, 2022, 2023 and 2024
(Period: 15 September-10 October)

(a) Punjab

District	15 Sep-10 Oct				
	2020	2021	2022	2023	2024
Amritsar	1338	318	456	568	161
Barnala	5	4	3	6	1
Bathinda	7	0	0	0	1
Faridkot	22	20	3	8	1
Fatehgarh Sahib	35	28	4	11	8
Fazilka	2	3	0	3	3
Firozpur	76	25	16	25	25
Gurdaspur	118	20	9	10	16
Hoshiarpur	5	0	0	2	0
Jalandhar	30	16	13	16	10
Kapurthala	44	26	23	61	27
Ludhiana	67	57	12	9	3
Malerkotla	0	0	0	2	4
Mansa	6	1	1	6	7
Moga	19	7	2	2	1
Muktsar	2	2	1	0	0
Pathankot	0	0	0	0	0
Patiala	175	62	26	78	27
Rupnagar	10	2	0	1	2
Sangrur	58	9	12	32	24
SAS NAGAR (Mohali)	14	11	4	40	9
SBS Nagar	6	2	2	2	2
Tarn Taran	541	151	131	155	58
Total	2580	764	718	1037	390

(b) Haryana

District	15 Sep-10 Oct				
	2020	2021	2022	2023	2024
AMBALA	48	13	10	59	19
BHIWANI	0	0	0	1	0
CHARKHI DADRI	0	0	0	0	0
FARIDABAD	0	1	0	1	13
FATEHABAD	22	5	3	40	10
GURGAON	0	0	0	0	0
HISAR	4	0	0	13	5
JHAJJAR	1	0	0	2	0
JIND	3	6	8	31	17
KAITHAL	45	43	9	24	24
KARNAL	83	69	20	20	42
KURUKSHETRA	71	42	27	49	43
MAHENDRAGARH	0	0	0	0	0
MEWAT	0	0	0	0	0
PALWAL	5	5	0	7	12
PANCHKULA	0	0	0	0	2
PANIPAT	6	2	1	11	9
REWARI	0	0	0	0	0
ROHTAK	0	0	0	1	3
SIRSA	2	0	0	1	4
SONIPAT	6	1	2	31	10
YAMUNANAGAR	25	9	3	28	12
Total	321	196	83	319	225

(c) Uttar Pradesh

District	15 Sep-10 Oct																		
	2020	2021	2022	2023	2024	GAUTAMBUDHNAGAR	1	1	0	4	5	MUZAFARNAGAR	2	0	0	0	0		
AGRA	0	0	0	0	0	GAZIPUR	0	0	0	0	0	PILHIBHIT	4	4	2	20	1		
ALIGARH	16	2	1	47	42	GHAZIABAD	1	2	1	5	6	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	5	14	0	5	1		
AMETHI	0	0	0	0	0	HAMIRPUR	0	0	0	0	0	SAMBHAL	6	1	4	8	22		
AMROHA	1	0	0	2	0	HAPUR	3	0	0	0	1	SANTKABIRNAGAR	0	0	0	0	0		
AURAIYA	12	0	4	3	1	HARDOI	2	3	0	3	0	SANTRAVIDASNAGAR	0	0	0	0	0		
AZAMGARH	0	0	0	0	0	HATHRAS	0	0	0	2	2	SHAHJAHANPUR	12	83	53	19	3		
BADAUN	0	0	0	0	2	JALAUN	0	0	0	0	0	SHAMLI	17	5	2	2	1		
BAGHPAT	1	0	0	0	0	JAUNPUR	0	0	0	0	0	SHARANPUR	14	0	0	0	0		
BAHRAICH	2	0	0	0	0	JHANSI	5	0	0	2	0	SHRAWASTI	0	0	0	0	0		
BALLIA	0	0	0	0	1	KANNAUJ	2	0	0	0	0	SIDDHARTHANAGAR	0	0	0	0	0		
BALRAMPUR	0	0	0	0	0	KANPUR	0	1	0	0	0	SITAPUR	4	1	0	1	1		
BANDA	0	0	0	0	0	KANPUR DEHAT	1	0	0	0	0	SONBHADRA	0	0	0	0	0		
BARABANKI	7	0	0	8	0	KASGANJ	1	0	0	0	1	SULTANPUR	0	0	0	0	0		
BAREILLY	5	4	0	6	0	KAUSHAMBI	6	1	0	1	1	UNNAO	2	0	0	2	0		
BASTI	2	0	0	0	0	KHERI	15	14	8	1	2	VARANASI	0	0	0	0	0		
BIJNOR	3	1	1	1	1	KUSHINAGAR	0	0	0	0	0	Total	191	150	80	185	133		
BULANDSAHAR	3	1	2	3	16	LALITPUR	0	1	2	0	0								
CHANDAULI	0	0	0	0	0	LUCKNOW	2	0	0	1	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	4	1	0	7	0	MAINPURI	0	2	0	3	0								
ETAWAH	2	3	0	5	0	MATHURA	4	4	0	16	16								
FAIZABAD	0	0	0	0	4	MAU	0	0	0	0	0								
FARRUKHABAD	0	0	0	0	0	MEERUT	9	0	0	2	0								
FATEHPUR	7	0	0	2	0	MIRZAPUR	5	0	0	0	0								
FIROZABAD	1	0	0	0	0	MORADABAD	1	1	0	2	3								

(d) Delhi

District	15 Sep-10 Oct				
	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	2	0	2	1	3
NORTH EAST	0	0	0	0	0
NORTH WEST DELHI	0	0	0	0	0
SHAHADRA	0	0	0	0	0
SOUTH	1	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
Total	3	0	2	1	3

(e) Rajasthan

District	15 Sep-10 Oct				
	2020	2021	2022	2023	2024
AJMER	0	0	0	0	0
ALWAR	1	0	0	0	0
BANSWARA	0	0	0	0	0
BARAN	59	0	3	50	2
BARMER	2	0	0	0	0
BHARATPUR	0	0	0	2	1
BHILWARA	2	0	0	0	0
BIKANER	0	0	0	0	0
BUNDI	1	0	3	6	1
CHITTAURGARH	0	1	0	4	1
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	2	0	0	6	3
HANUMANGARH	32	2	2	20	13
JAIPUR	0	0	0	0	0
JAISELMER	2	0	0	0	0
JALOR	0	0	0	0	0
JHALAWAR	0	0	0	4	0
JHUNJHUNUN	1	0	0	0	0
JODHPUR	1	0	0	0	0
KARALI	1	0	0	0	0
KOTA	17	0	1	29	0
NAGPUR	0	0	0	0	0
PALI	1	0	0	0	0
PRATAPGARH	0	0	0	0	0
RAJSMAND	0	0	0	0	0
SIKAR	0	0	0	0	0
SIROHI	1	0	0	0	0
SWAIMADHOPUR	1	0	0	3	0
TONK	1	0	0	0	0
UDAIPUR	0	0	0	0	0
Total	125	3	9	124	21

(f) Madhya Pradesh

District	15 Sep-10 Oct										
	2020	2021	2022	2023	2024	PANNA	1	0	0	0	0
ALIRAJPUR	0	0	0	0	0	RAISEN	2	0	0	1	0
ANUPPUR	0	0	0	0	0	RAJGARH	6	1	2	5	1
ASHOKNAGAR	7	0	0	7	2	RATLAM	0	0	0	1	0
BALAGHAT	0	0	0	0	0	REWA	2	0	0	0	0
BARWANI	0	0	0	0	0	SAGAR	9	2	1	4	3
BETUL	0	0	0	0	0	SATNA	3	0	0	1	0
BHIND	0	0	0	6	0	SEHORE	4	0	1	8	3
BHOPAL	2	2	0	5	0	SEONI	2	1	0	0	0
BURHANPUR	0	0	0	0	0	SHAHDOL	0	0	0	0	0
CHHATARPUR	2	0	0	1	0	SHAJAPUR	4	0	0	6	1
CHHINDWARA	0	0	0	0	1	SHEOPUR	3	0	0	3	0
DAMOH	6	1	0	7	3	SHIVPURI	3	0	0	1	1
DATIA	8	2	0	7	0	SIDHI	0	0	0	0	0
DEWAS	3	0	0	4	1	SINGRAULI	0	0	0	0	2
DHAR	15	0	0	16	3	TIKAMGARH	1	0	0	0	0
DINDORI	0	0	0	0	0	UJJAIN	5	0	0	6	1
EAST NIMAR	0	1	0	0	1	UMARIA	0	0	0	0	0
GUNA	8	1	1	33	7	VIDESHA	37	5	1	13	10
GWALIOR	17	0	1	4	0	WEST NIMAR	1	0	0	0	2
HARDA	8	7	0	8	0	Total	178	27	7	175	54
HOSHANGABAD	5	0	0	4	0						
INDORE	2	0	0	9	4						
JABALPUR	6	1	0	3	5						
JHABUA	0	0	0	0	0						
KATNI	0	0	0	0	0						
MANDLA	0	0	0	0	0						
MANDSAUR	0	0	0	1	0						
MORENA	5	2	0	10	2						
NARSHIMAPURA	1	1	0	1	1						
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-10 October)

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
26-Sep	190	19	0	3	5	5	0	0	2	5	8	0	0	0	0
27-Sep	78	37	0	21	0	8	0	0	9	5	4	1	0	0	3
28-Sep	55	28	0	33	0	6	1	0	8	0	1	6	0	4	0
29-Sep	63	64	0	68	21	9	4	0	17	0	6	10	0	6	0
30-Sep	116	27	8	81	10	22	2	0	26	1	13	13	10	18	0
01-Oct	165	13	45	123	26	15	4	1	21	3	7	13	3	17	0
02-Oct	141	0	83	119	16	30	2	7	24	20	12	0	36	7	9
03-Oct	110	9	75	105	8	8	6	8	17	6	4	3	29	8	7
04-Oct	162	23	65	95	9	29	2	7	29	9	8	0	2	9	0
05-Oct	161	18	130	98	5	17	3	24	24	8	14	2	0	14	1
06-Oct	171	42	85	91	3	30	0	26	19	23	12	1	0	18	17
07-Oct	197	72	62	32	18	32	11	6	13	14	41	13	0	5	11
08-Oct	95	108	19	92	20	29	27	0	55	13	25	11	0	27	16
09-Oct	121	114	3	58	33	20	39	1	14	10	15	20	0	13	10
10-Oct	232	150	4	10	123	33	95	2	28	38	9	54	0	34	56
Total	2580	764	718	1037	390	321	196	83	319	225	191	150	80	185	133

Number of Paddy Residue Burning Events Detected

Number of Paddy Residue Burning Events Detected															
Delhi						Rajasthan					Madhya Pradesh				
Date	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
26-Sep	0	0	0	1	0	1	0	0	0	0	2	0	0	0	2
27-Sep	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
28-Sep	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0
29-Sep	0	0	0	0	0	3	0	0	6	0	0	4	0	5	0
30-Sep	1	0	0	0	0	1	0	0	4	2	5	0	0	11	0
01-Oct	0	0	0	0	0	4	1	1	4	1	13	0	1	8	3
02-Oct	1	0	0	0	0	7	0	3	4	3	12	0	1	1	0
03-Oct	0	0	0	0	0	9	0	2	5	0	5	1	5	5	2
04-Oct	0	0	0	0	0	15	0	0	22	0	4	2	0	12	0
05-Oct	0	0	2	0	0	14	0	1	11	2	13	1	0	18	2
06-Oct	1	0	0	0	0	16	0	0	9	1	37	1	0	7	12
07-Oct	0	0	0	0	0	14	1	1	7	4	31	1	0	9	17
08-Oct	0	0	0	0	0	11	0	0	9	1	17	2	0	18	7
09-Oct	0	0	0	0	0	12	0	0	17	1	15	4	0	24	2
10-Oct	0	0	0	0	3	14	1	0	26	3	18	10	0	52	1
Total	3	0	2	1	3	125	3	9	124	21	178	27	7	175	54

Details of residue burning events in Punjab on 10-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMRITSAR	AJNALA	S-NPP	31.89374	74.66079	14:05:26	D	2.70
2	AMRITSAR	AJNALA	S-NPP	31.90347	74.78033	14:05:26	D	2.50
3	AMRITSAR	AJNALA	JPSS-2	31.97898	74.86967	01:10:52	N	2.70
4	AMRITSAR	ATTARI	JPSS-1	31.49904	74.58794	12:10:02	D	4.60
5	AMRITSAR	ATTARI	JPSS-2	31.53185	74.84573	01:10:52	N	2.80
6	AMRITSAR	ATTARI	JPSS-2	31.56560	74.88586	01:10:52	N	5.40
7	AMRITSAR	ATTARI	JPSS-2	31.56620	74.89038	01:10:52	N	4.00
8	AMRITSAR	ATTARI	JPSS-1	31.57035	74.75948	12:10:02	D	5.10
9	AMRITSAR	ATTARI	JPSS-1	31.57092	74.75739	12:10:02	D	4.10
10	AMRITSAR	ATTARI	JPSS-2	31.59263	74.72659	01:10:52	N	6.80
11	AMRITSAR	CHOGAWAN	S-NPP	31.73847	74.52950	14:05:26	D	2.10
12	AMRITSAR	CHOGAWAN	JPSS-2	31.78838	74.62058	01:10:52	N	2.30
13	AMRITSAR	CHOGAWAN	JPSS-2	31.83377	74.58947	01:10:52	N	5.00
14	AMRITSAR	HARSHA CHHINA	JPSS-2	31.71542	74.72868	01:10:52	N	15.20
15	AMRITSAR	HARSHA CHHINA	S-NPP	31.75873	74.86843	14:05:26	D	10.10
16	AMRITSAR	HARSHA CHHINA	JPSS-2	31.76045	74.88246	01:10:52	N	5.20
17	AMRITSAR	HARSHA CHHINA	JPSS-2	31.77851	74.74950	01:10:52	N	6.60
18	AMRITSAR	HARSHA CHHINA	JPSS-2	31.82205	74.71541	01:10:52	N	2.60
19	AMRITSAR	JANDIALA GURU	S-NPP	31.53952	75.09998	12:25:08	D	6.50
20	AMRITSAR	JANDIALA GURU	S-NPP	31.53958	75.09344	12:25:08	D	5.40
21	AMRITSAR	JANDIALA GURU	S-NPP	31.54174	75.10092	12:25:08	D	5.40
22	AMRITSAR	JANDIALA GURU	JPSS-2	31.55508	75.07893	01:10:52	N	10.60
23	AMRITSAR	JANDIALA GURU	JPSS-1	31.61441	75.01281	12:10:02	D	2.50
24	AMRITSAR	JANDIALA GURU	S-NPP	31.62759	75.04081	14:05:26	D	8.10
25	AMRITSAR	JANDIALA GURU	JPSS-2	31.63189	74.97386	01:10:52	N	2.70
26	AMRITSAR	JANDIALA GURU	JPSS-2	31.66928	75.01402	01:10:52	N	3.60
27	AMRITSAR	JANDIALA GURU	JPSS-1	31.66954	75.02145	12:10:02	D	1.80
28	AMRITSAR	JANDIALA GURU	JPSS-2	31.66988	75.01859	01:10:52	N	3.60
29	AMRITSAR	JANDIALA GURU	JPSS-1	31.59523	75.07904	02:10:19	N	3.80
30	AMRITSAR	JANDIALA GURU	JPSS-1	31.59813	75.07760	02:10:19	N	3.60

31	AMRITSAR	MAJITHA	S-NPP	31.71191	74.96418	14:05:26	D	5.50
32	AMRITSAR	MAJITHA	JPSS-2	31.71289	74.98442	01:10:52	N	2.10
33	AMRITSAR	MAJITHA	JPSS-2	31.75568	75.12304	01:10:52	N	3.00
34	AMRITSAR	MAJITHA	JPSS-2	31.76267	75.09335	01:10:52	N	3.40
35	AMRITSAR	MAJITHA	S-NPP	31.79047	74.94925	14:05:26	D	12.10
36	AMRITSAR	MAJITHA	JPSS-2	31.79204	74.93282	01:10:52	N	4.90
37	AMRITSAR	MAJITHA	JPSS-2	31.81977	75.00766	01:10:52	N	4.80
38	AMRITSAR	MAJITHA	JPSS-2	31.82071	75.00913	01:10:52	N	3.00
39	AMRITSAR	MAJITHA	JPSS-2	31.82244	74.96648	01:10:52	N	2.90
40	AMRITSAR	MAJITHA	JPSS-2	31.83935	74.95875	01:10:52	N	4.80
41	AMRITSAR	RAYYA	JPSS-2	31.66385	75.28052	01:10:52	N	2.60
42	AMRITSAR	VERKA	S-NPP	31.66808	74.78880	14:05:26	D	4.10
43	AMRITSAR	VERKA	S-NPP	31.67064	74.78455	14:05:26	D	8.70
44	AMRITSAR	VERKA	JPSS-2	31.68708	74.93134	01:10:52	N	3.20
45	AMRITSAR	VERKA	JPSS-2	31.70006	74.93993	01:10:52	N	3.90
46	AMRITSAR	VERKA	S-NPP	31.70048	74.94590	14:05:26	D	5.70
47	AMRITSAR	VERKA	JPSS-2	31.70284	74.94252	01:10:52	N	4.40
48	AMRITSAR	VERKA	JPSS-2	31.71578	74.95113	01:10:52	N	11.10
49	AMRITSAR	VERKA	JPSS-2	31.71869	74.94595	01:10:52	N	11.00
50	AMRITSAR	VERKA	JPSS-1	31.72942	74.87376	12:10:02	D	1.50
51	BARNALA	BARNALA	JPSS-2	30.23386	75.63376	01:10:52	N	3.70
52	FATEHGARH SAHIB	KHERA	S-NPP	30.63021	76.45412	14:05:26	D	2.30
53	FATEHGARH SAHIB	KHERA	S-NPP	30.63330	76.45140	14:05:26	D	3.10
54	FATEHGARH SAHIB	KHERA	S-NPP	30.63555	76.45361	14:05:26	D	2.30
55	FAZILKA	ARNIWALA SHEIKH SUBANPUR	S-NPP	30.45710	74.18639	14:05:26	D	7.70
56	FIROZPUR	FIROZPUR	JPSS-1	30.97734	74.55658	12:10:02	D	5.30
57	FIROZPUR	FIROZPUR	JPSS-1	30.97793	74.55412	12:10:02	D	6.90
58	FIROZPUR	GHALL KHURD	JPSS-2	30.94259	74.78042	01:10:52	N	14.40
59	FIROZPUR	MAKHU	S-NPP	31.05864	74.99506	14:05:26	D	4.90
60	FIROZPUR	MAMDOT	JPSS-2	30.78468	74.33302	01:10:52	N	3.00
61	FIROZPUR	MAMDOT	JPSS-2	30.79902	74.38719	01:10:52	N	16.00
62	FIROZPUR	MAMDOT	JPSS-2	30.85988	74.42427	01:10:52	N	7.60
63	FIROZPUR	MAMDOT	JPSS-2	30.88134	74.39998	01:10:52	N	3.00

64	FIROZPUR	ZIRA	JPSS-1	30.95161	74.83707	12:10:02	D	6.20
65	FIROZPUR	ZIRA	JPSS-2	31.01400	74.81277	01:10:52	N	2.90
66	FIROZPUR	ZIRA	JPSS-2	31.02289	74.87930	01:10:52	N	4.80
67	GURDASPUR	BATALA	JPSS-2	31.74573	75.24402	01:10:52	N	4.40
68	GURDASPUR	DERA BABA NANAK	JPSS-1	31.95187	75.01546	12:10:02	D	4.20
69	GURDASPUR	DERA BABA NANAK	JPSS-1	31.95280	75.01394	12:10:02	D	6.70
70	GURDASPUR	FATEHGARH CHURIAN	JPSS-2	31.83241	75.07320	01:10:52	N	2.60
71	GURDASPUR	SRI HARGOBINDPUR	JPSS-2	31.67808	75.39371	01:10:52	N	6.80
72	KAPURTHALA	SULTANPUR LODHI	JPSS-2	31.31918	75.19402	02:10:53	N	1.60
73	KAPURTHALA	SULTANPUR LODHI	JPSS-1	31.32093	75.18828	01:10:20	N	1.00
74	KAPURTHALA	SULTANPUR LODHI	JPSS-1	31.25780	75.24532	02:10:19	N	9.10
75	LUDHIANA	KHANNA	JPSS-2	30.64523	76.11473	01:10:52	N	14.30
76	MANSA	BUDHLADA	JPSS-1	29.83141	75.69041	12:10:02	D	5.70
77	MANSA	BUDHLADA	JPSS-2	29.88249	75.73538	01:10:52	N	7.20
78	PATIALA	GHANAUR	S-NPP	30.38541	76.64513	14:05:26	D	2.90
79	PATIALA	PATIALA	JPSS-2	30.29218	76.24101	01:10:52	N	4.90
80	PATIALA	PATRAN	JPSS-2	29.82368	76.12685	01:10:52	N	5.00
81	PATIALA	PATRAN	S-NPP	29.85118	76.13670	14:05:26	D	4.30
82	PATIALA	PATRAN	S-NPP	29.85147	76.14027	14:05:26	D	4.30
83	PATIALA	PATRAN	JPSS-2	29.87163	76.07021	01:10:52	N	2.40
84	PATIALA	PATRAN	JPSS-1	29.88000	76.11736	12:10:02	D	3.80
85	PATIALA	PATRAN	JPSS-1	29.88312	76.11559	12:10:02	D	7.80
86	PATIALA	PATRAN	S-NPP	29.91548	76.16441	12:25:08	D	14.90
87	PATIALA	PATRAN	S-NPP	29.91630	76.16972	12:25:08	D	20.50
88	PATIALA	PATRAN	S-NPP	29.91752	76.17147	12:25:08	D	23.10
89	PATIALA	PATRAN	JPSS-2	29.91783	76.07418	01:10:52	N	4.70
90	PATIALA	RAJPURA	S-NPP	30.52307	76.56689	12:25:08	D	3.30
91	PATIALA	SANAUR	JPSS-2	30.15048	76.38986	01:10:52	N	3.50
92	PATIALA	SANAUR	JPSS-2	30.15060	76.39293	01:10:52	N	4.20
93	PATIALA	SHAMBU KALAN	S-NPP	30.45632	76.69385	14:05:26	D	1.50
94	PATIALA	SHAMBU KALAN	JPSS-1	30.46378	76.66147	12:10:02	D	3.30
95	PATIALA	SHAMBU KALAN	JPSS-1	30.46835	76.66014	12:10:02	D	3.40
96	RUPNAGAR	RUPNAGAR	JPSS-2	31.04560	76.60992	01:10:52	N	7.70

97	SANGRUR	ANDANA	S-NPP	29.78863	76.00792	14:05:26	D	2.30
98	SANGRUR	ANDANA	JPSS-1	29.80773	76.00094	12:10:02	D	29.90
99	SANGRUR	ANDANA	JPSS-2	29.82973	75.97097	01:10:52	N	7.00
100	SANGRUR	BHAWANIGARH	S-NPP	30.25861	76.15160	14:05:26	D	4.10
101	SANGRUR	BHAWANIGARH	JPSS-2	30.26921	76.17496	01:10:52	N	6.90
102	SANGRUR	BHAWANIGARH	S-NPP	30.28947	76.14346	14:05:26	D	2.70
103	SANGRUR	BHAWANIGARH	S-NPP	30.28968	76.14487	14:05:26	D	2.50
104	SANGRUR	DIRBA	S-NPP	29.96768	76.01187	12:25:08	D	4.50
105	SANGRUR	DIRBA	JPSS-2	29.97286	75.98735	01:10:52	N	6.60
106	SANGRUR	DIRBA	JPSS-2	29.97407	75.99682	01:10:52	N	7.60
107	SANGRUR	LEHRA GAGA	JPSS-2	29.92212	75.84713	01:10:52	N	3.40
108	SAS NAGAR	DERABASSI	JPSS-2	30.49836	76.89572	01:10:52	N	5.20
109	SAS NAGAR	MAJRI	S-NPP	30.53900	76.70595	14:05:26	D	2.70
110	SBS NAGAR	AUR	JPSS-1	30.99654	76.06590	12:10:02	D	6.70
111	TARN TARAN	GANDIWIND TATLA	JPSS-2	31.47771	74.64967	01:10:52	N	14.90
112	TARN TARAN	GANDIWIND TATLA	S-NPP	31.47868	74.70046	14:05:26	D	4.10
113	TARN TARAN	KHADUR SAHIB	S-NPP	31.39300	75.13502	14:05:26	D	7.40
114	TARN TARAN	KHADUR SAHIB	S-NPP	31.39347	75.13368	14:05:26	D	6.30
115	TARN TARAN	KHADUR SAHIB	JPSS-2	31.41748	75.04564	01:10:52	N	3.10
116	TARN TARAN	KHADUR SAHIB	JPSS-1	31.43558	75.05652	12:10:02	D	2.40
117	TARN TARAN	KHADUR SAHIB	S-NPP	31.46808	75.18536	14:05:26	D	4.90
118	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.36706	74.91658	12:25:08	D	5.50
119	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.36947	74.91665	12:25:08	D	7.50
120	TARN TARAN	PATTI	S-NPP	31.32775	74.83879	14:05:26	D	6.30
121	TARN TARAN	PATTI	JPSS-2	31.35059	74.89858	01:10:52	N	14.10
122	TARN TARAN	TARN TARAN	JPSS-2	31.47977	74.88277	01:10:52	N	1.30
123	TARN TARAN	TARN TARAN	S-NPP	31.51110	75.03508	14:05:26	D	17.20

Details of residue burning events in Haryana on 10-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMBALA	AMBALA-II	JPSS-2	30.11139	76.62122	01:10:52	N	2.40
2	FARIDABAD	FARIDABAD	JPSS-2	28.34476	77.23744	02:10:53	N	1.50
3	FATEHABAD	FATEHABAD	JPSS-1	29.53551	75.39049	12:10:02	D	3.60
4	FATEHABAD	TOHANA	S-NPP	29.69827	75.87879	14:05:26	D	4.90
5	HISAR	HISAR-I	JPSS-2	29.07577	75.77423	01:10:52	N	2.80
6	HISAR	HISAR-I	JPSS-2	29.12060	75.78031	02:10:53	N	1.40
7	HISAR	UKLANA	JPSS-2	29.45802	75.82854	01:10:52	N	8.00
8	JIND	ALEWA	S-NPP	29.46626	76.40839	14:05:26	D	1.90
9	JIND	ALEWA	S-NPP	29.46733	76.40948	14:05:26	D	2.70
10	JIND	ALEWA	S-NPP	29.48670	76.32939	14:05:26	D	2.30
11	JIND	NARWANA	S-NPP	29.64795	75.98103	14:05:26	D	2.50
12	JIND	NARWANA	S-NPP	29.64960	75.98086	14:05:26	D	3.50
13	KAITHAL	GUHLA	JPSS-2	30.02286	76.35314	01:10:52	N	9.10
14	KAITHAL	GUHLA	S-NPP	30.08105	76.30537	14:05:26	D	3.10
15	KAITHAL	GUHLA	JPSS-2	30.11451	76.40081	01:10:52	N	3.00
16	KAITHAL	KAITHAL	JPSS-2	29.82299	76.30595	01:10:52	N	2.90
17	KAITHAL	KAITHAL	JPSS-2	29.82336	76.30394	01:10:52	N	5.30
18	KAITHAL	PUNDRI	S-NPP	29.74535	76.60659	14:05:26	D	2.90
19	KAITHAL	RAJOUND	S-NPP	29.68034	76.45427	14:05:26	D	2.00
20	KARNAL	GHARAUNDA	S-NPP	29.52626	77.01090	14:05:26	D	1.50
21	KARNAL	GHARAUNDA	JPSS-2	29.55702	76.89030	01:10:52	N	3.50
22	KARNAL	GHARAUNDA	JPSS-2	29.57856	77.06611	01:10:52	N	31.00
23	KARNAL	GHARAUNDA	JPSS-2	29.57920	77.07133	01:10:52	N	4.40
24	KURUKSHETRA	ISMAILABAD	JPSS-2	30.10749	76.74680	01:10:52	N	7.00
25	KURUKSHETRA	LADWA	S-NPP	30.05333	77.01500	12:25:08	D	2.10
26	PALWAL	HODAL	JPSS-2	28.04220	77.35974	01:10:52	N	1.60
27	PALWAL	PALWAL	S-NPP	28.10632	77.42260	14:05:26	D	3.70
28	PALWAL	PALWAL	JPSS-2	28.12644	77.38590	01:10:52	N	3.90
29	PALWAL	PALWAL	JPSS-1	28.16235	77.17896	12:10:02	D	3.90
30	PANCHKULA	RAIPUR RANI	JPSS-2	30.58445	77.00565	01:10:52	N	2.80
31	PANCHKULA	RAIPUR RANI	JPSS-2	30.59136	77.03192	01:10:52	N	4.70

32	PANIPAT	SAMALKHA	S-NPP	29.17313	77.10246	14:05:26	D	9.10
33	PANIPAT	SAMALKHA	S-NPP	29.17799	77.09396	14:05:26	D	3.40
34	PANIPAT	SAMALKHA	S-NPP	29.19585	77.04029	14:05:26	D	0.70
35	PANIPAT	SAMALKHA	S-NPP	29.20299	76.97177	14:05:26	D	2.70
36	SIRSA	NATHUSARI CHOPTA	S-NPP	29.50080	75.26118	14:05:26	D	3.00
37	SONIPAT	GANAUR	S-NPP	29.12792	76.93973	14:05:26	D	2.60
38	SONIPAT	RAI	JPSS-1	28.91958	77.02292	12:10:02	D	3.80

Details of residue burning events in Uttar Pradesh on 10-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ALIGARH	ATRAULI	JPSS-1	28.05079	78.32753	12:10:02	D	2.30
2	ALIGARH	GABHANA	JPSS-2	28.03586	78.01718	01:10:52	N	5.00
3	ALIGARH	KHAIR	S-NPP	27.96562	77.67509	14:05:26	D	5.80
4	ALIGARH	KHAIR	S-NPP	27.97122	77.67458	14:05:26	D	5.80
5	ALIGARH	KHAIR	S-NPP	27.97487	77.64915	14:05:26	D	2.70
6	ALIGARH	KHAIR	S-NPP	27.98469	77.70275	14:05:26	D	2.30
7	ALIGARH	KHAIR	S-NPP	27.98815	77.69874	14:05:26	D	6.10
8	ALIGARH	KHAIR	S-NPP	27.98845	77.70290	14:05:26	D	9.80
9	ALIGARH	KHAIR	S-NPP	27.98972	77.56525	14:05:26	D	1.90
10	ALIGARH	KHAIR	S-NPP	27.99030	77.70226	14:05:26	D	7.50
11	ALIGARH	KHAIR	S-NPP	27.99067	77.56489	14:05:26	D	2.90
12	ALIGARH	KHAIR	JPSS-1	27.99987	77.53881	12:10:02	D	8.40
13	ALIGARH	KHAIR	JPSS-1	28.00269	77.53653	12:10:02	D	4.70
14	ALIGARH	KHAIR	S-NPP	28.00655	77.73335	12:25:08	D	4.90
15	ALIGARH	KHAIR	JPSS-2	28.01944	77.55467	01:10:52	N	4.00
16	ALIGARH	KHAIR	JPSS-1	28.03187	77.66702	12:10:02	D	2.80
17	ALIGARH	KHAIR	S-NPP	28.04202	77.66439	14:05:26	D	5.40
18	BALLIA	RASRA	JPSS-1	25.93463	83.78228	12:10:02	D	8.30
19	BULANSAHAR	ANUP SHAHR	JPSS-2	28.39988	78.12845	01:10:52	N	8.50
20	BULANSAHAR	DIBAI	JPSS-2	28.20960	78.17237	01:10:52	N	2.20
21	BULANSAHAR	SHIKARPUR	JPSS-2	28.29421	78.11167	01:10:52	N	8.40
22	BULANSAHAR	SIYANA	JPSS-2	28.51322	78.00704	01:10:52	N	5.20
23	BULANSAHAR	SIYANA	JPSS-2	28.51336	78.00503	01:10:52	N	4.30
24	GAUTAMBUDHNAGAR	GAUTAMBUDHNAGAR	JPSS-2	28.34290	77.49137	01:10:52	N	7.20
25	GHAZIABAD	GHAZIABAD	JPSS-1	28.79101	77.24066	12:10:02	D	8.80
26	GHAZIABAD	MODINAGAR	JPSS-2	28.80393	77.68493	01:10:52	N	8.70
27	GHAZIABAD	MODINAGAR	JPSS-2	28.80617	77.68688	01:10:52	N	8.90
28	HATHRAS	SIKANDRA RAO	JPSS-2	27.56171	78.26153	01:10:52	N	2.20
29	HATHRAS	SIKANDRA RAO	JPSS-2	27.65382	78.43635	01:10:52	N	4.80
30	KASGANJ	KASGANJ	JPSS-2	27.74830	78.79088	01:10:52	N	3.70

31	KHERI	MOHMADI	JPSS-2	28.01571	80.16260	02:10:53	N	1.90
32	KHERI	MOHMADI	JPSS-1	28.06317	80.28951	01:10:20	N	0.90
33	MATHURA	CHHATA	S-NPP	27.57172	77.45198	14:05:26	D	6.30
34	MATHURA	CHHATA	S-NPP	27.57415	77.48390	14:05:26	D	8.60
35	MATHURA	CHHATA	JPSS-2	27.57833	77.47938	01:10:52	N	4.90
36	MATHURA	CHHATA	S-NPP	27.57966	77.48338	14:05:26	D	4.10
37	MATHURA	CHHATA	JPSS-2	27.84884	77.57800	01:10:52	N	2.60
38	MATHURA	CHHATA	JPSS-2	27.85653	77.38766	01:10:52	N	2.60
39	MATHURA	MAT	JPSS-1	27.76158	77.81287	12:10:02	D	5.00
40	MATHURA	MAT	JPSS-2	27.76380	77.80283	01:10:52	N	6.50
41	MATHURA	MAT	JPSS-2	27.93551	77.65543	01:10:52	N	3.70
42	MATHURA	MAT	S-NPP	27.93607	77.65679	14:05:26	D	3.70
43	MATHURA	MAT	S-NPP	27.93639	77.66096	14:05:26	D	3.70
44	MORADABAD	BILARI	JPSS-2	28.51883	78.69488	01:10:52	N	3.90
45	MORADABAD	BILARI	S-NPP	28.67507	78.65288	14:05:26	D	4.80
46	PILHIBHIT	PILHIBHIT	JPSS-2	28.76692	79.85466	02:10:53	N	1.00
47	SAMBHAL	CHANDAUSI	JPSS-2	28.36662	78.70232	01:10:52	N	3.00
48	SAMBHAL	CHANDAUSI	JPSS-1	28.49769	78.77843	12:10:02	D	3.90
49	SAMBHAL	CHANDAUSI	JPSS-1	28.52967	78.63045	12:10:02	D	3.60
50	SAMBHAL	SAMBHAL	JPSS-1	28.52681	78.57271	12:10:02	D	2.10
51	SAMBHAL	SAMBHAL	JPSS-1	28.55997	78.60300	12:10:02	D	4.00
52	SAMBHAL	SAMBHAL	JPSS-1	28.56231	78.58346	12:10:02	D	8.10
53	SAMBHAL	SAMBHAL	JPSS-2	28.65029	78.50369	01:10:52	N	2.40
54	SAMBHAL	SAMBHAL	JPSS-1	28.65133	78.62315	12:10:02	D	2.40
55	SAMBHAL	SAMBHAL	JPSS-2	28.65452	78.65107	01:10:52	N	4.40
56	SAMBHAL	SAMBHAL	JPSS-1	28.74990	78.67653	12:10:02	D	4.00

Details of residue burning events in Rajasthan on 10-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	GANGANAGAR	SADULSHAR	JPSS-1	29.94481	74.16579	12:10:02	D	1.30
2	GANGANAGAR	SURATGARH	JPSS-2	29.26012	73.96024	01:10:52	N	2.80
3	HANUMANGARH	HANUMANGARH	JPSS-2	29.63316	74.19314	01:10:52	N	5.90

Details of residue burning events in Madhya Pradesh on 10-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	EAST NIMAR	KHANDWA	JPSS-2	21.78085	76.45604	01:10:52	N	4.50

Details of residue burning events in Delhi on 10-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	NORTH	NARELA	S-NPP	28.79080	77.01665	14:05:26	D	2.2
2	NORTH	NARELA	S-NPP	28.85987	77.06140	14:05:26	D	6.7
3	NORTH	NARELA	S-NPP	28.86018	77.06533	14:05:26	D	6.7

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	Both
2.	JPSS-1	VIIRS	375	Both
3.	JPSS-2	VIIRS	375	Both
4.	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](#)
