

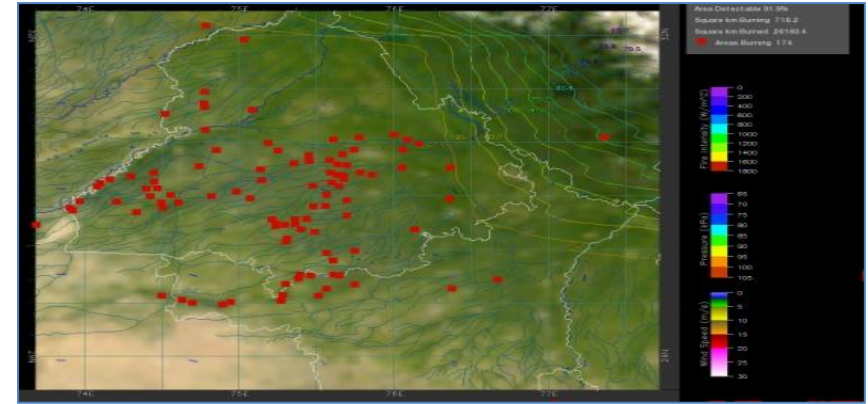
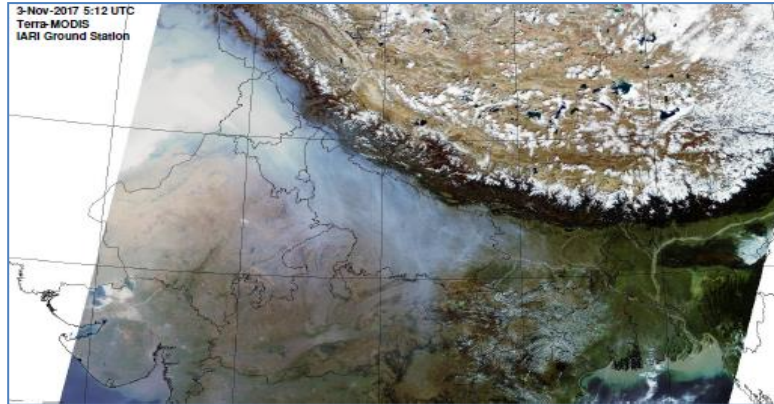


MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2024

Bulletin
No. 33

Events Date:
17-Oct-2024

Issued on:
18-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

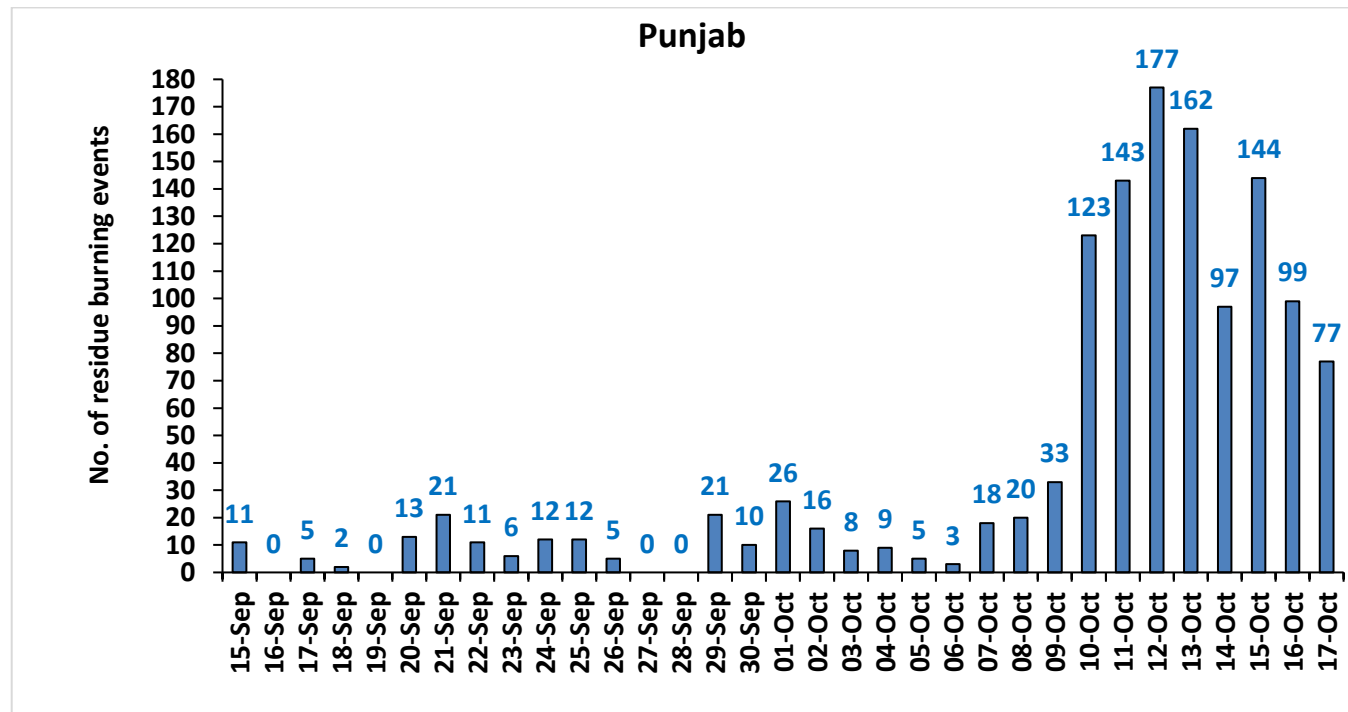
<https://creams.iari.res.in>



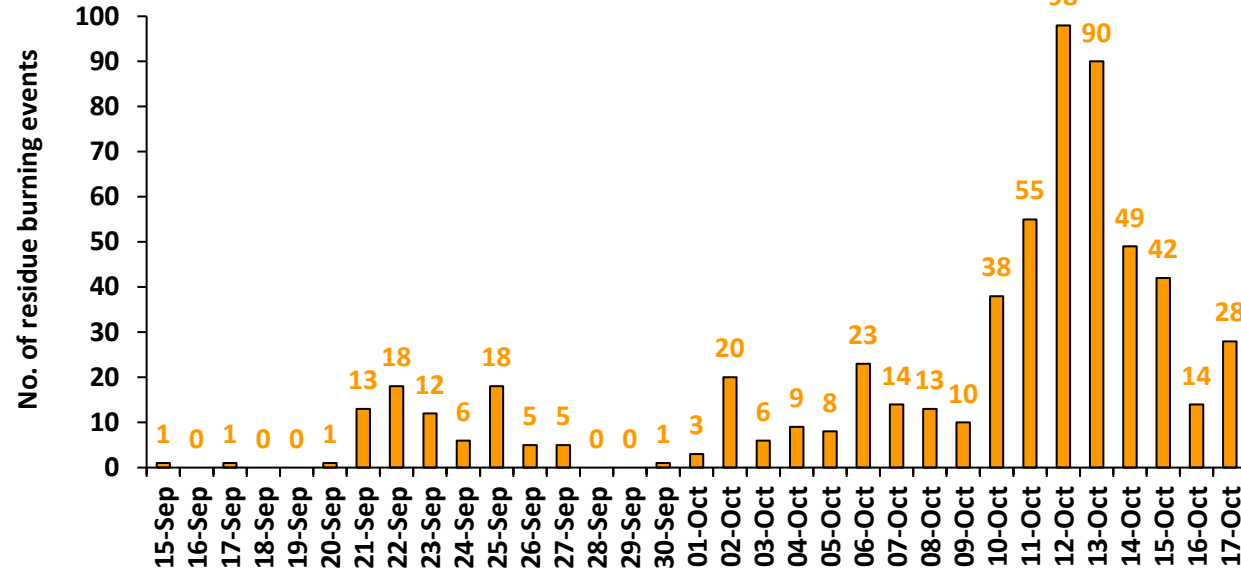
Highlights for 17-Oct-2024

- 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 **195** residue burning events in the six study States on **17-Oct-2024**.
- The state wise events detected on **17-Oct-2024** were **77** in Punjab, **28** in Haryana, **23** in UP, **00** in Delhi, **16** in Rajasthan and **51** in MP.
- Total **2979** burning events were detected in the six states between **15-Sept-2024** and **17-Oct-2024**, which are distributed as **1289**, **601**, **610**, **08**, **209** and **262** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.
- Detection of burning events was hampered by the presence of scattered clouds over southern Madhya Pradesh state.

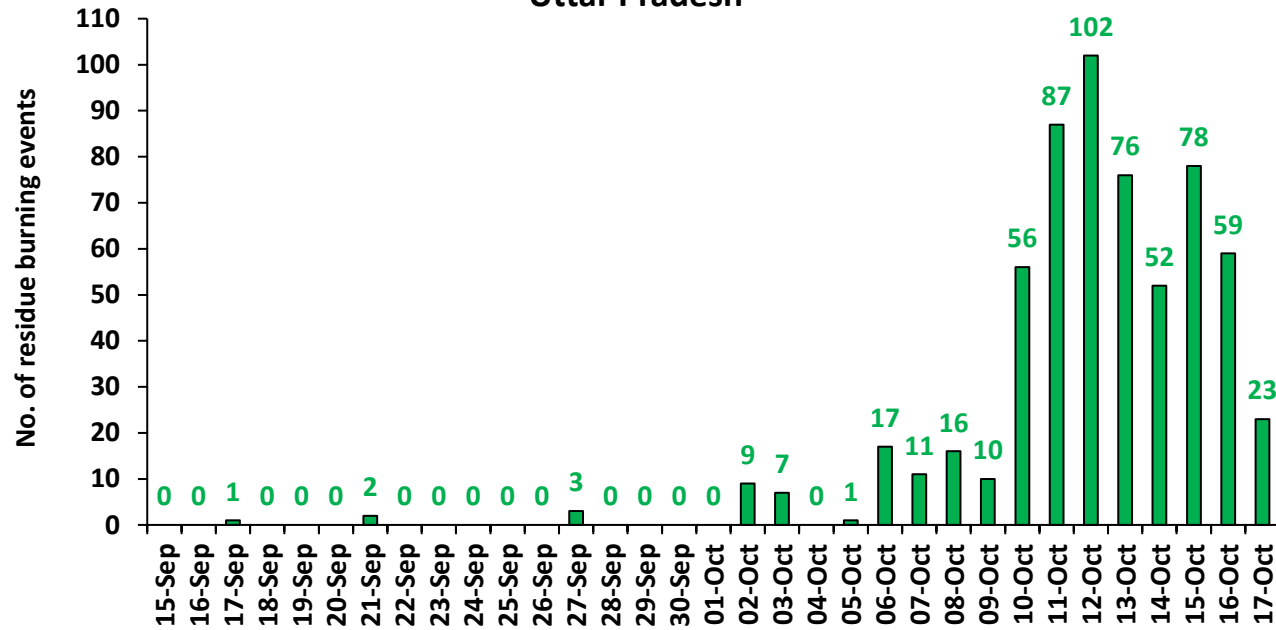
Temporal distribution of rice residue burning events for the study States in 2024



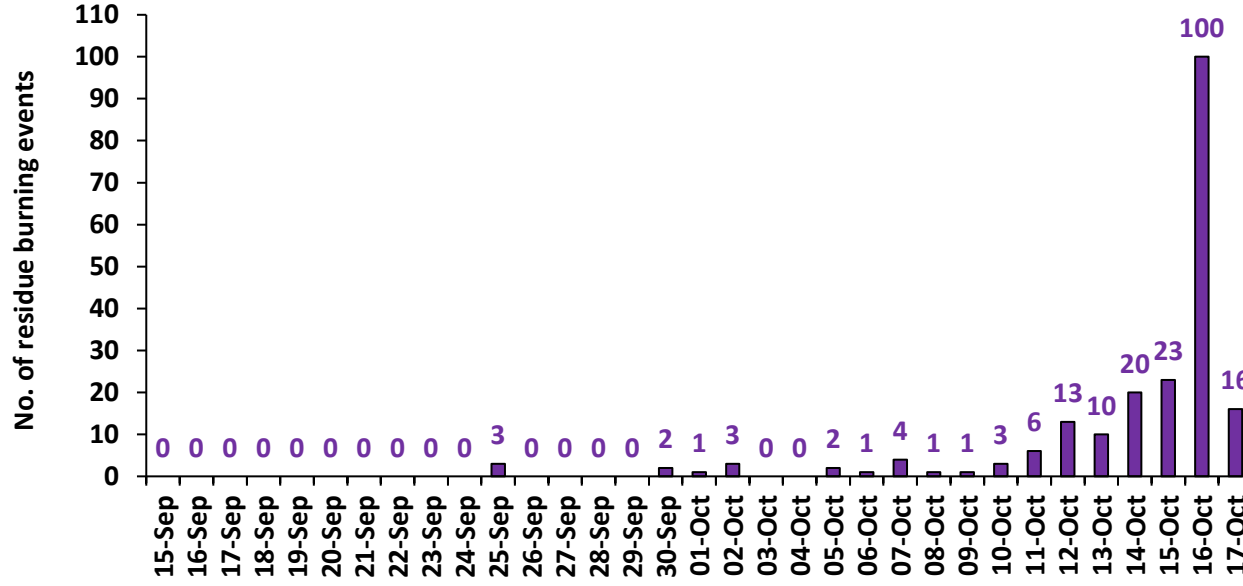
Haryana



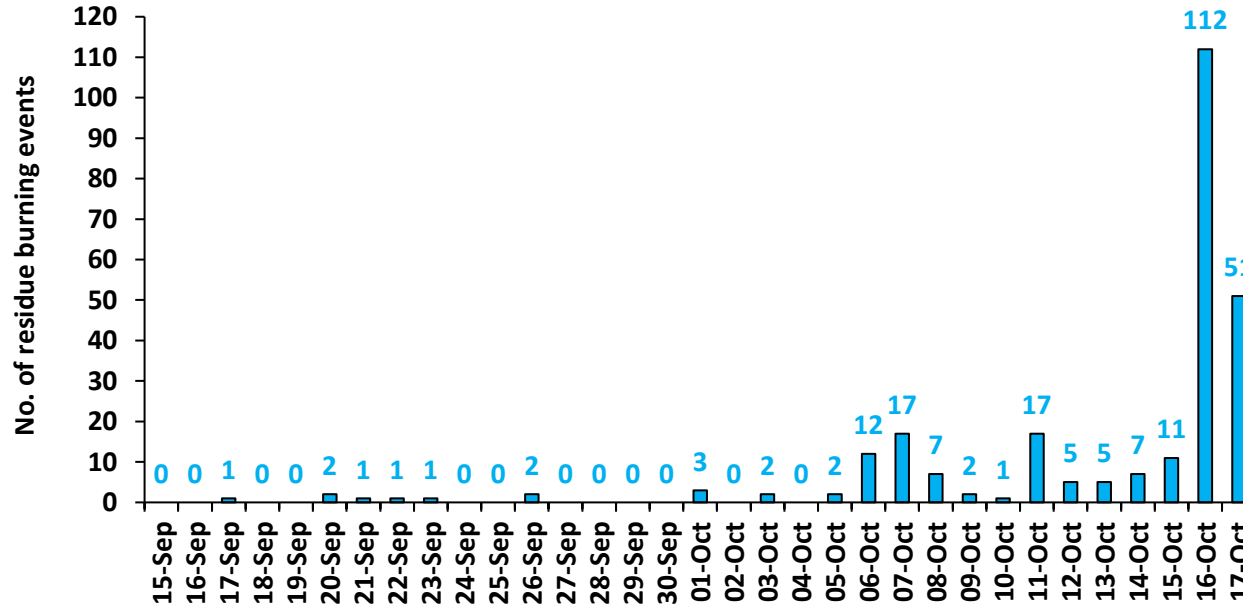
Uttar Pradesh



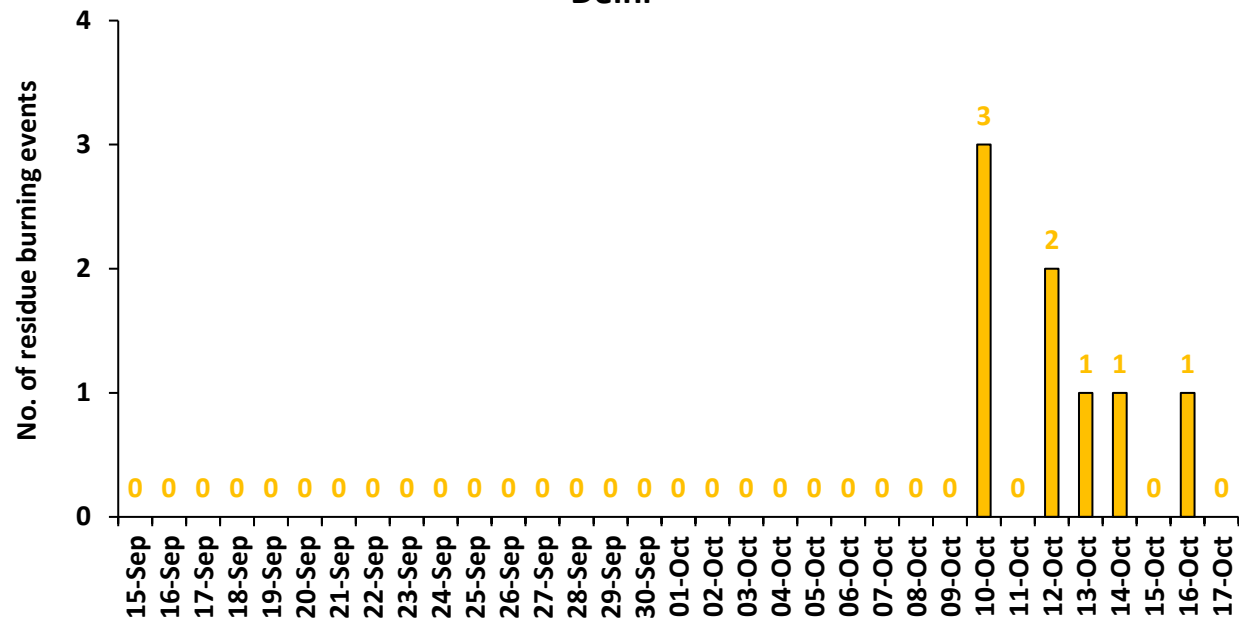
Rajasthan



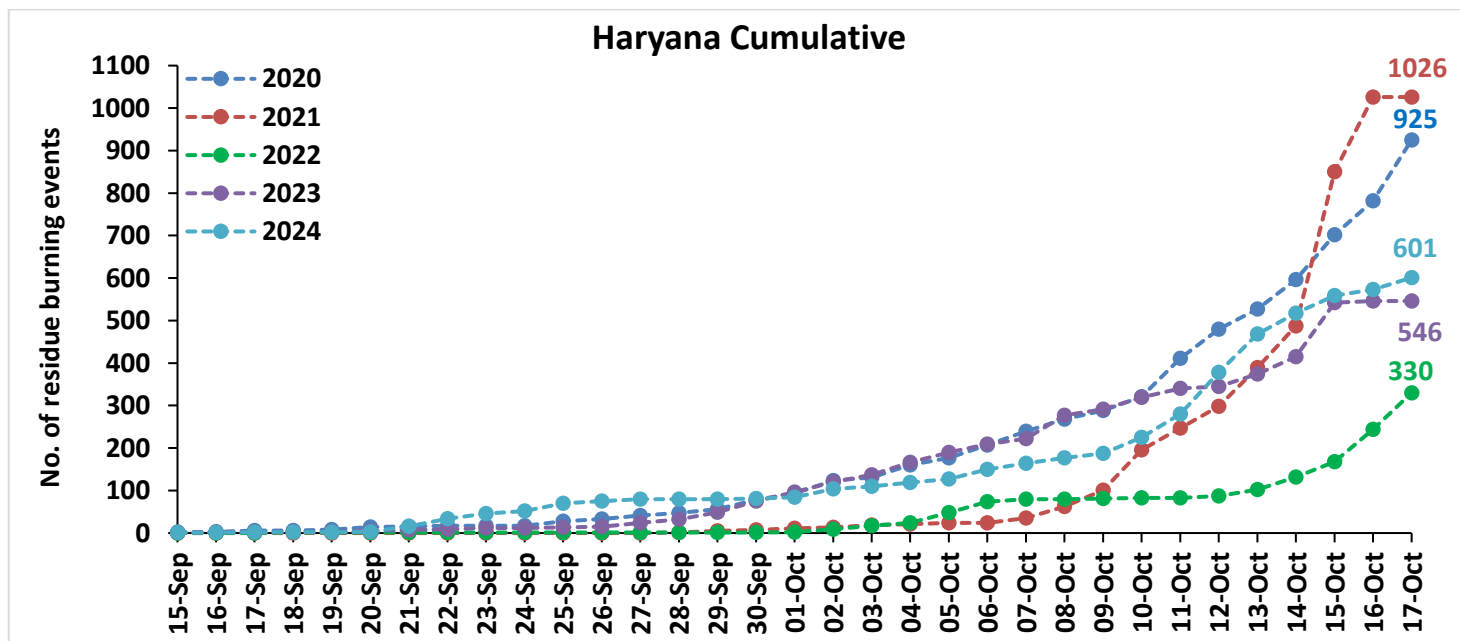
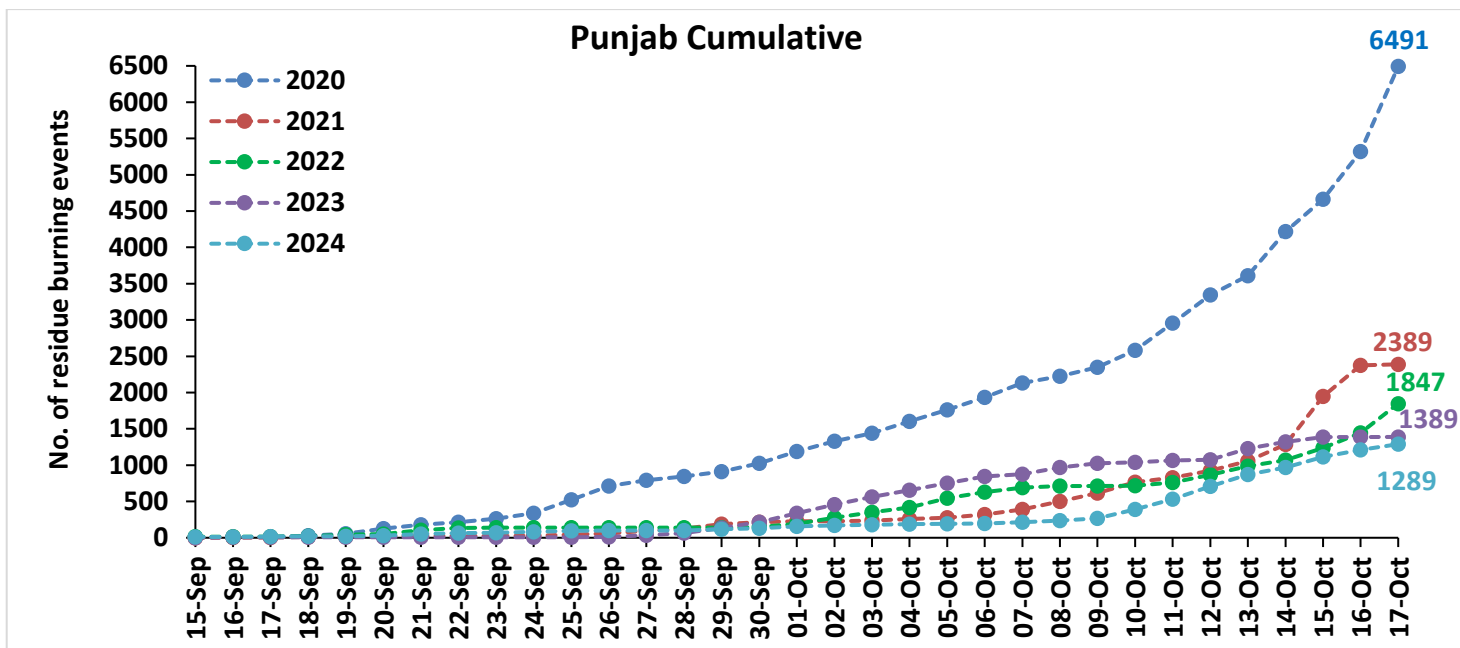
Madhya Pradesh

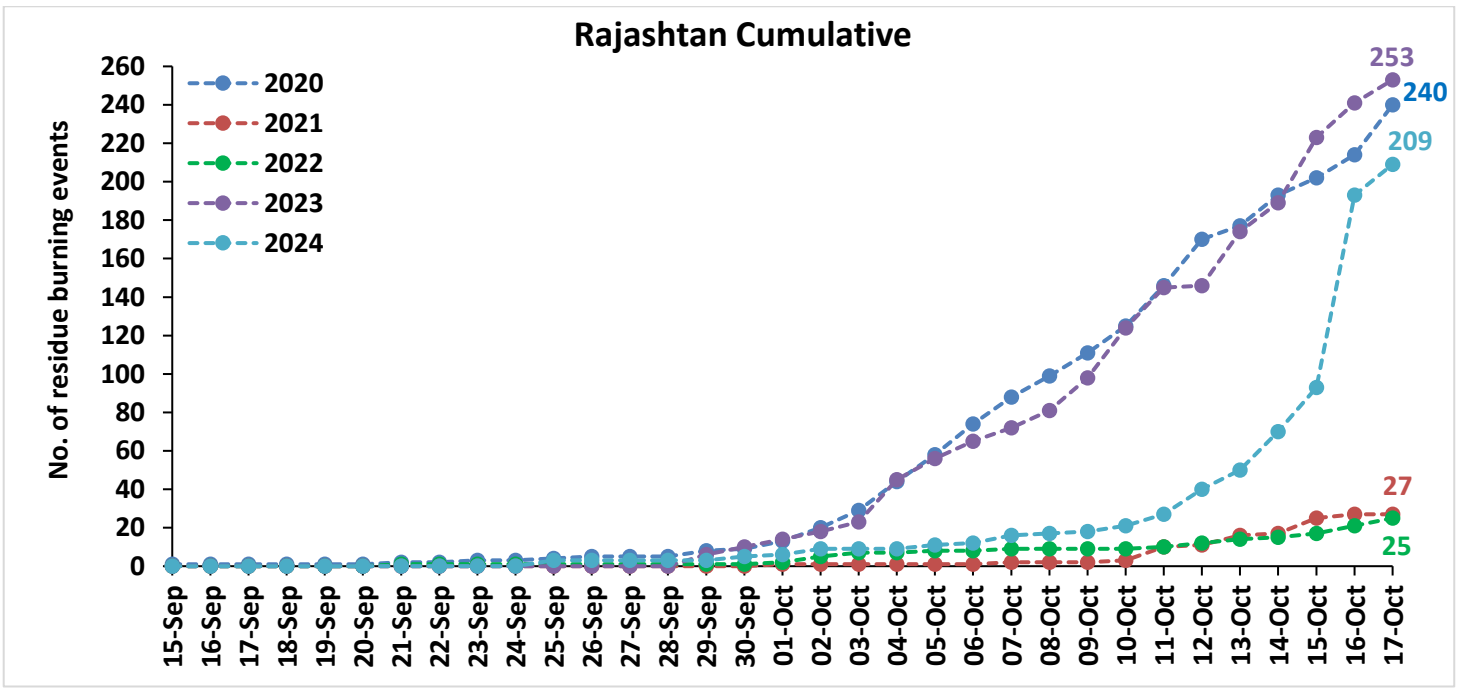
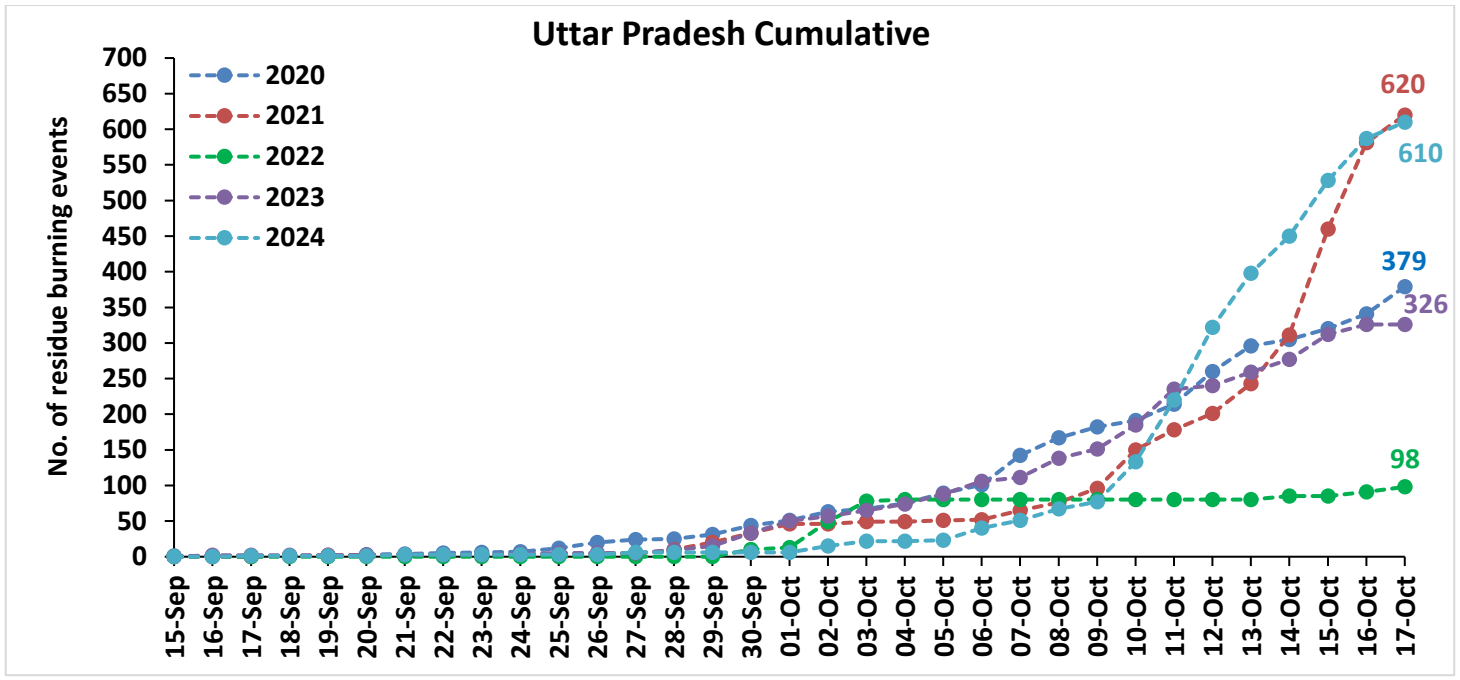


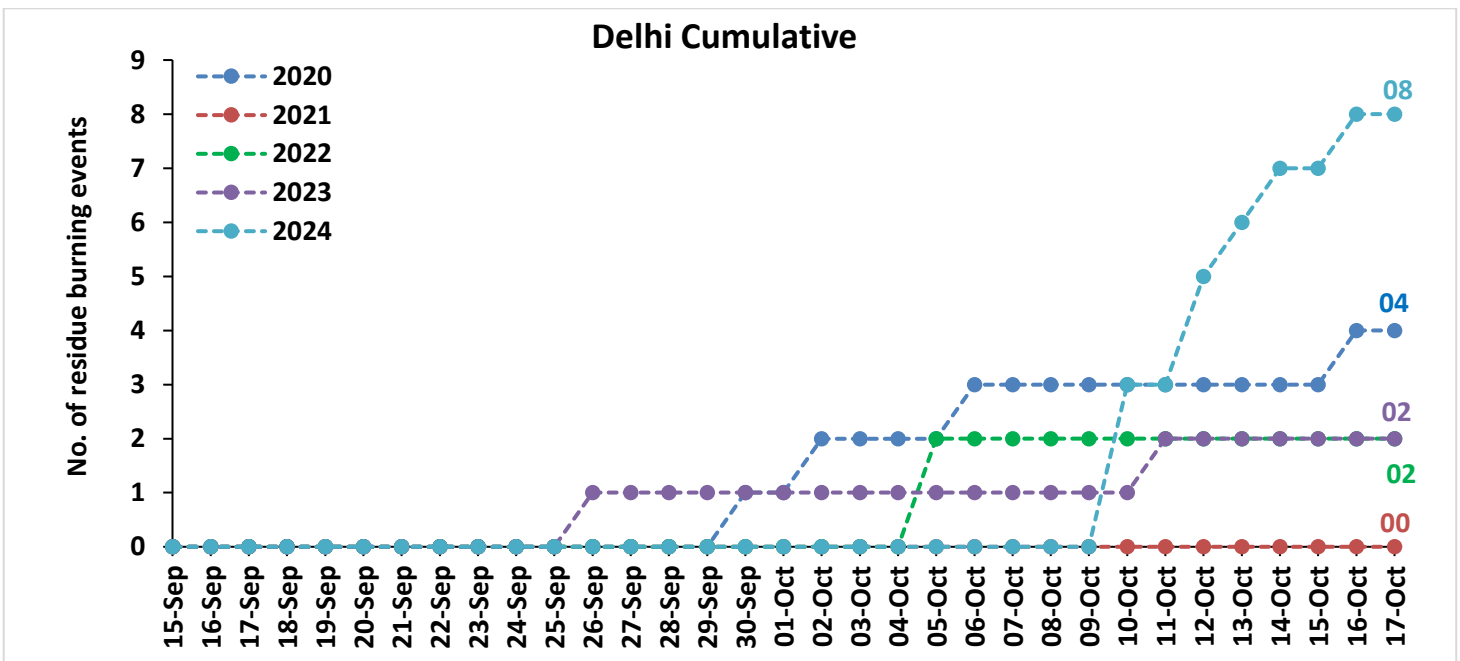
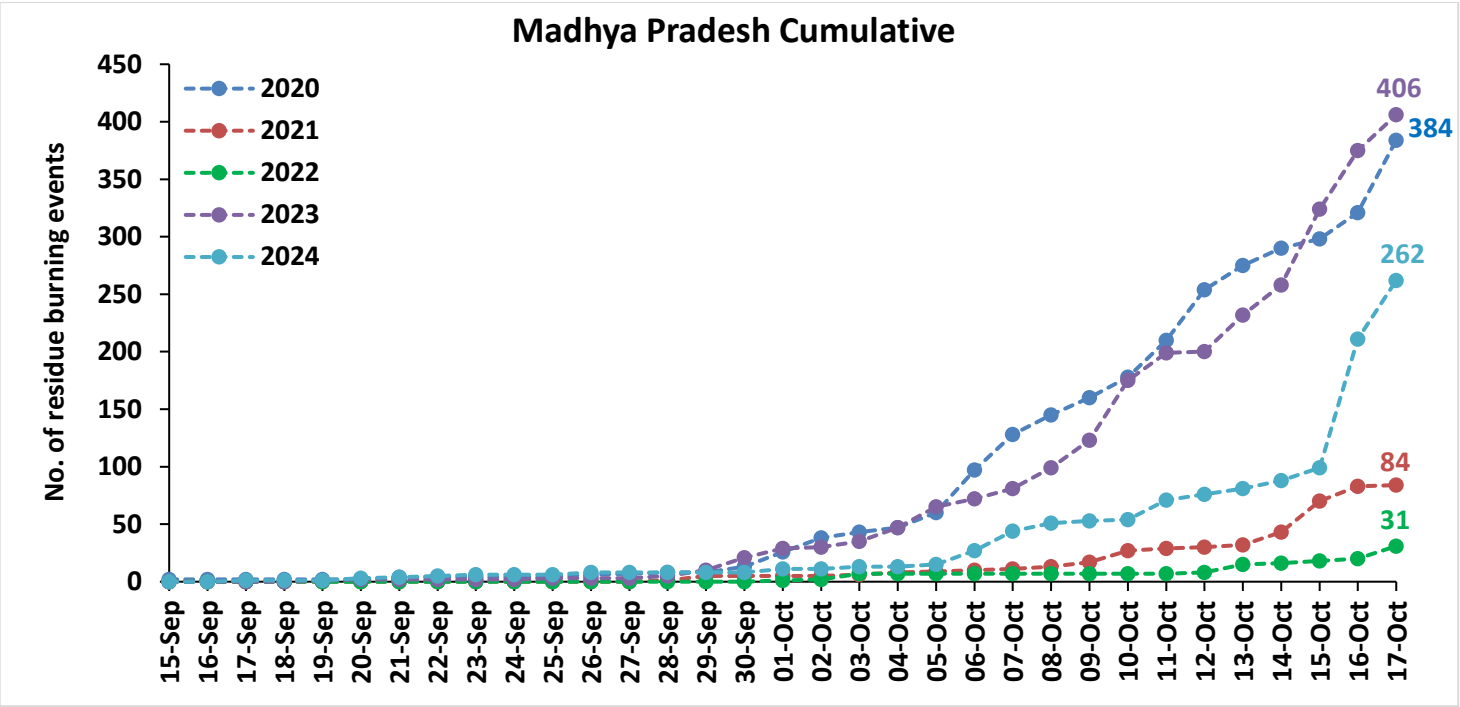
Delhi



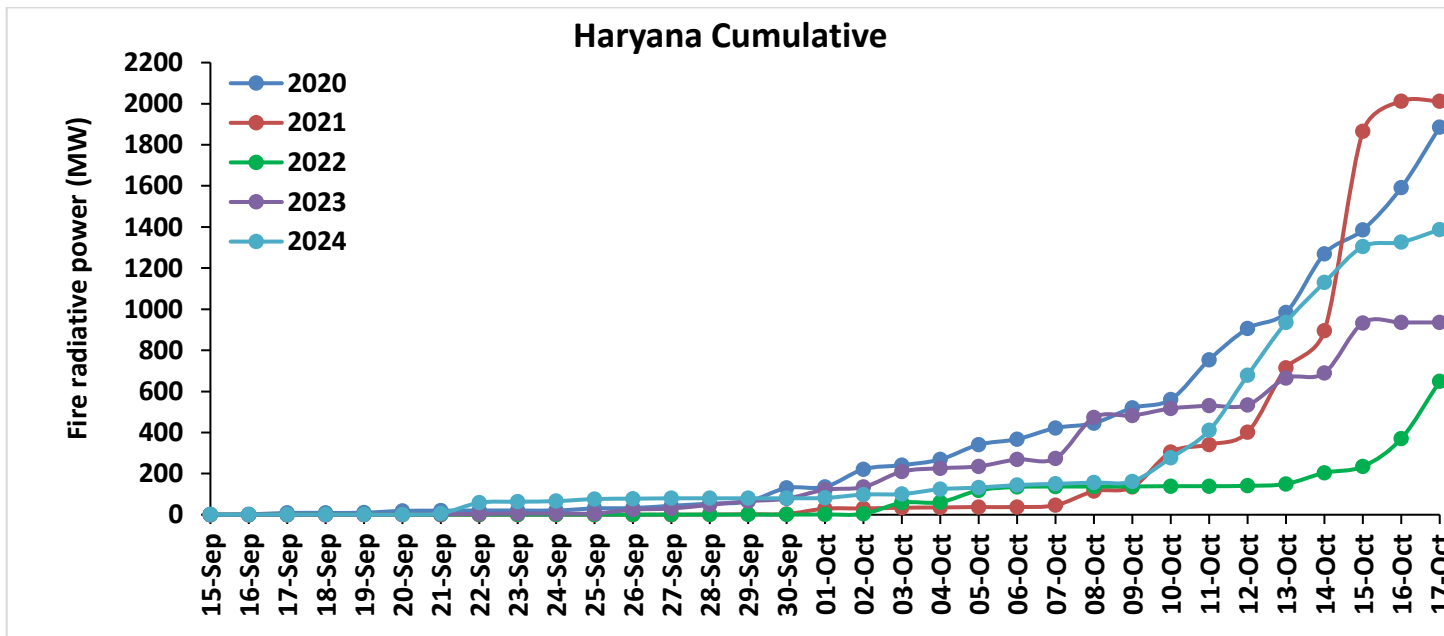
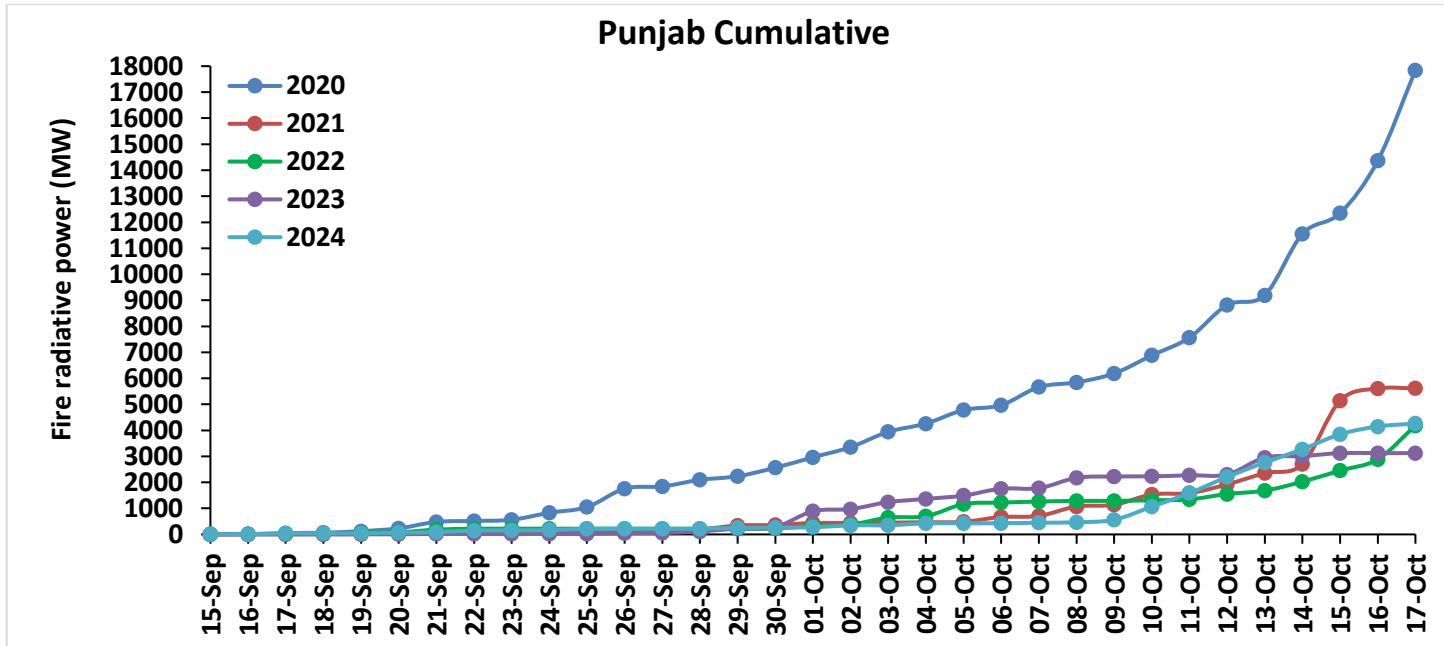
Comparison of residue burning events in current year (2024) with previous years (2020, 2021, 2022 and 2023) for the study States



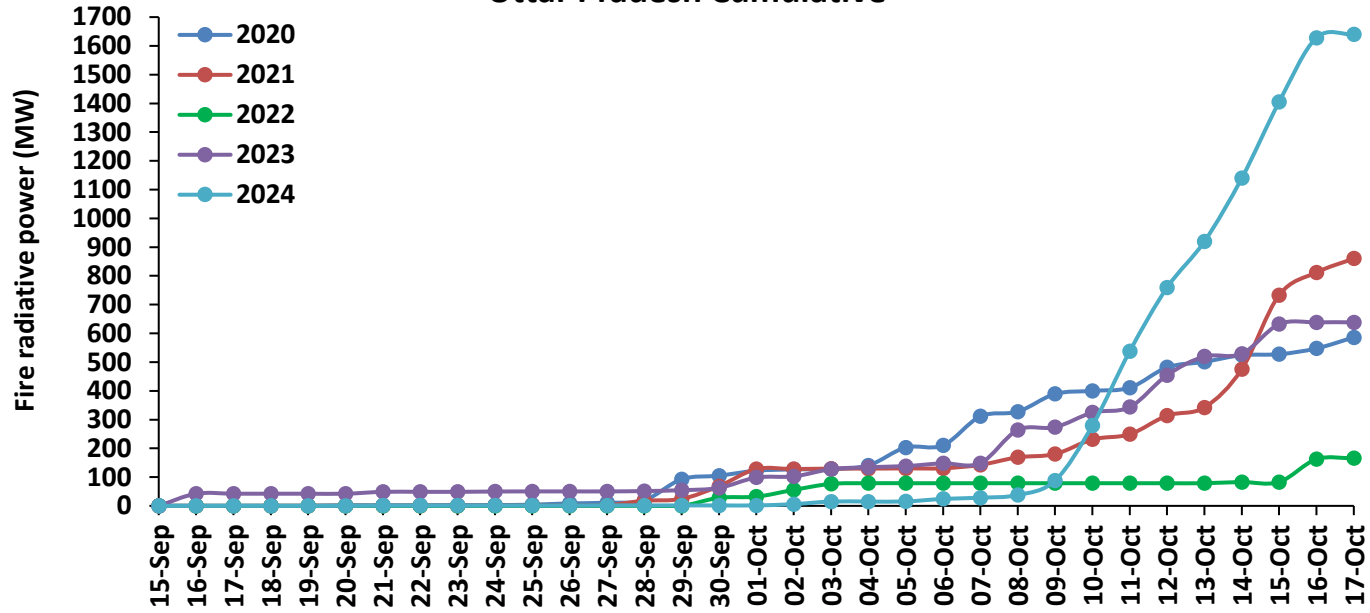




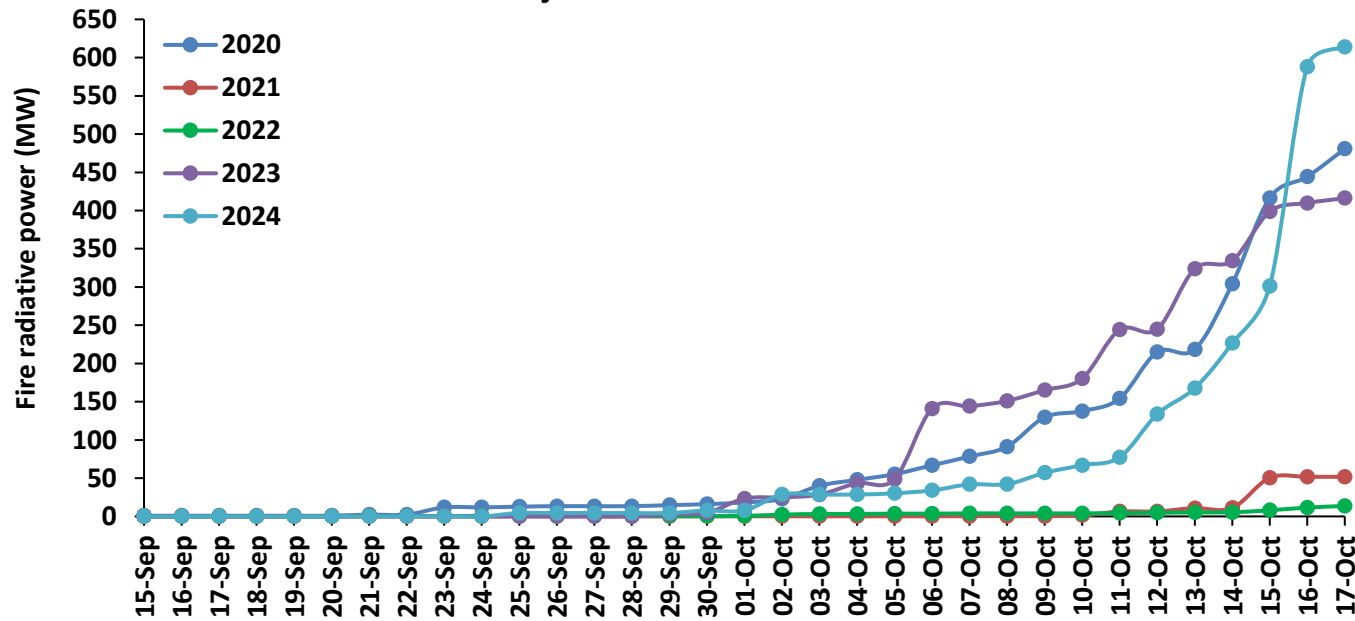
Comparison of residue burning fire power in current year (2024) with previous years (2020,2021,2022 and 2023) for the study States



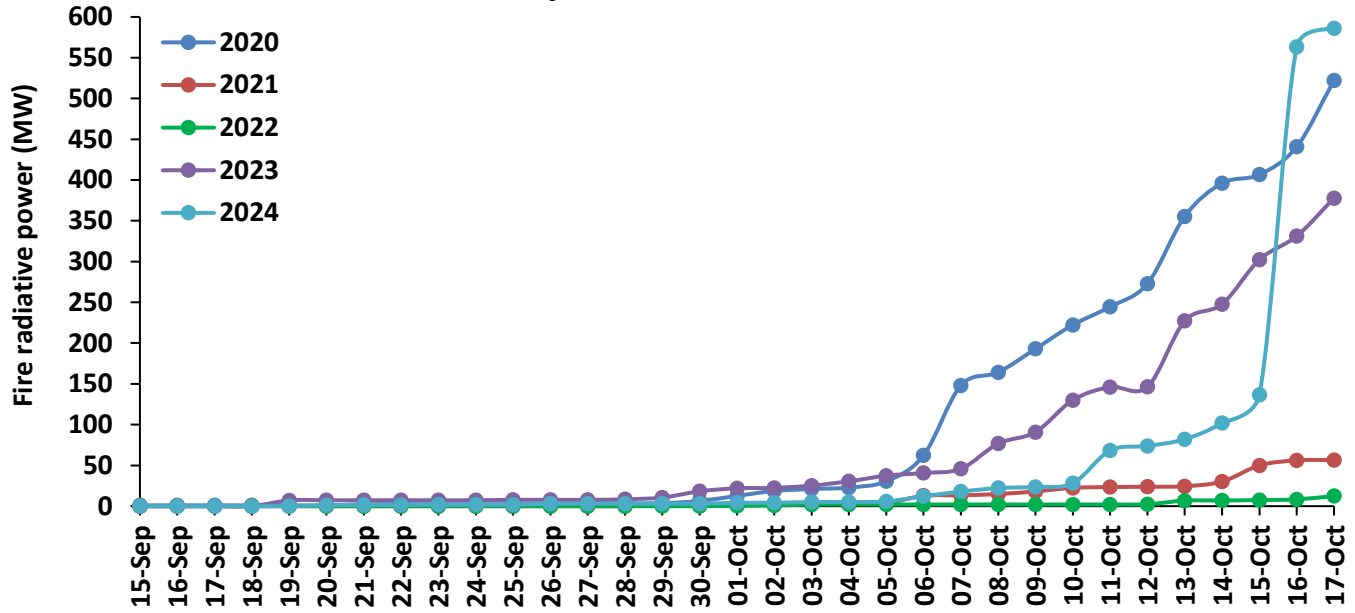
Uttar Pradesh Cumulative



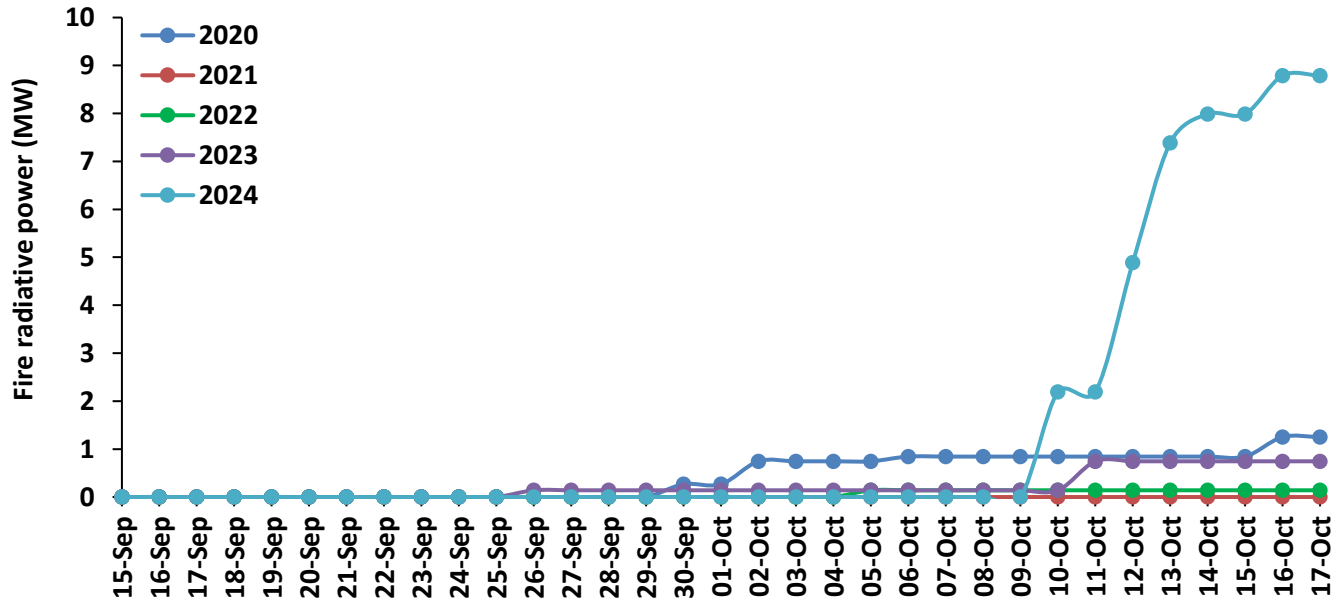
Rajasthan Cumulative



Madhya Pradesh Cumulative

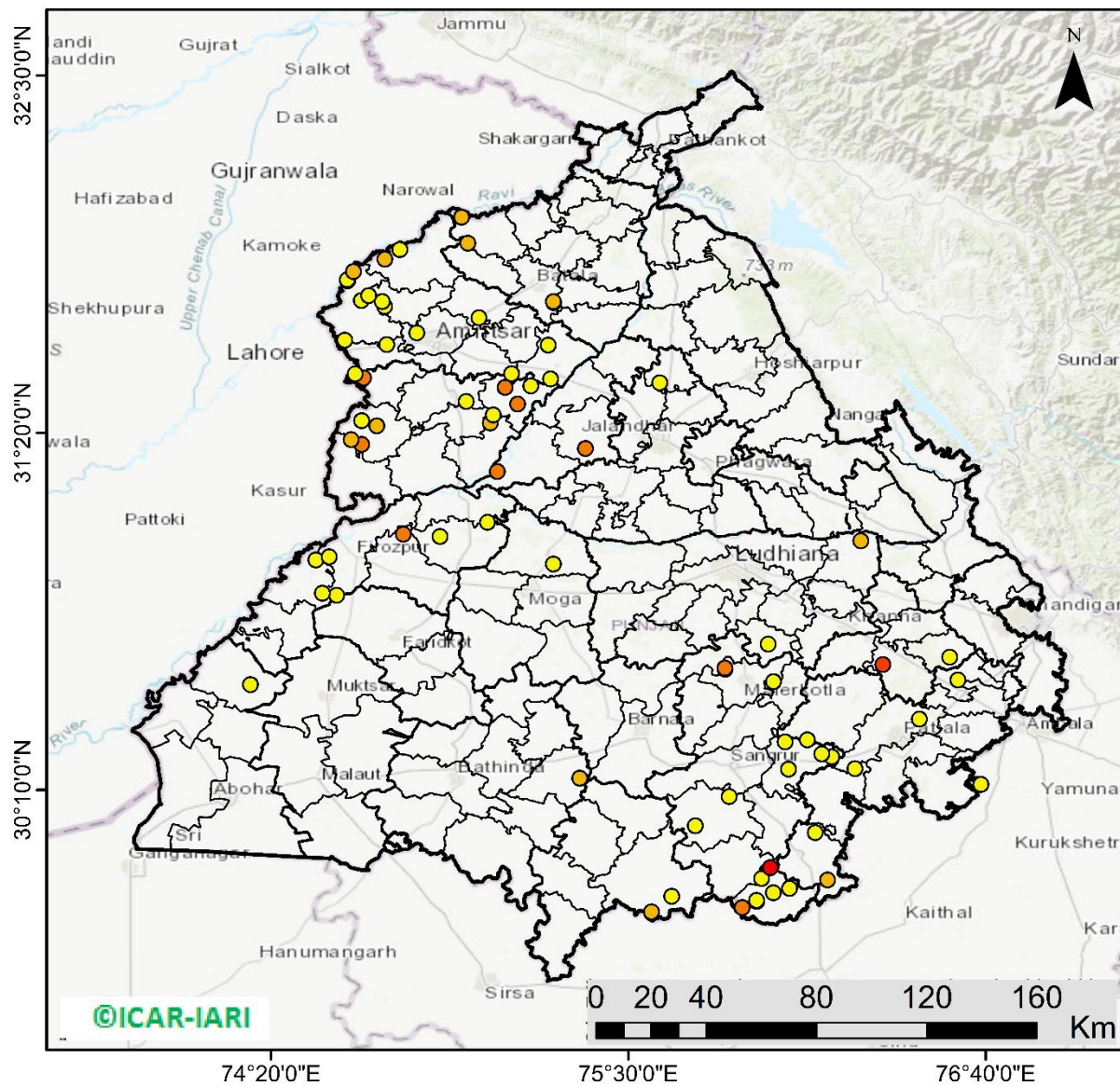


Delhi Cumulative



Punjab

RICE RESIDUE BURNING IN PUNJAB



77 burning events detected in Punjab during (17th Oct 2024)

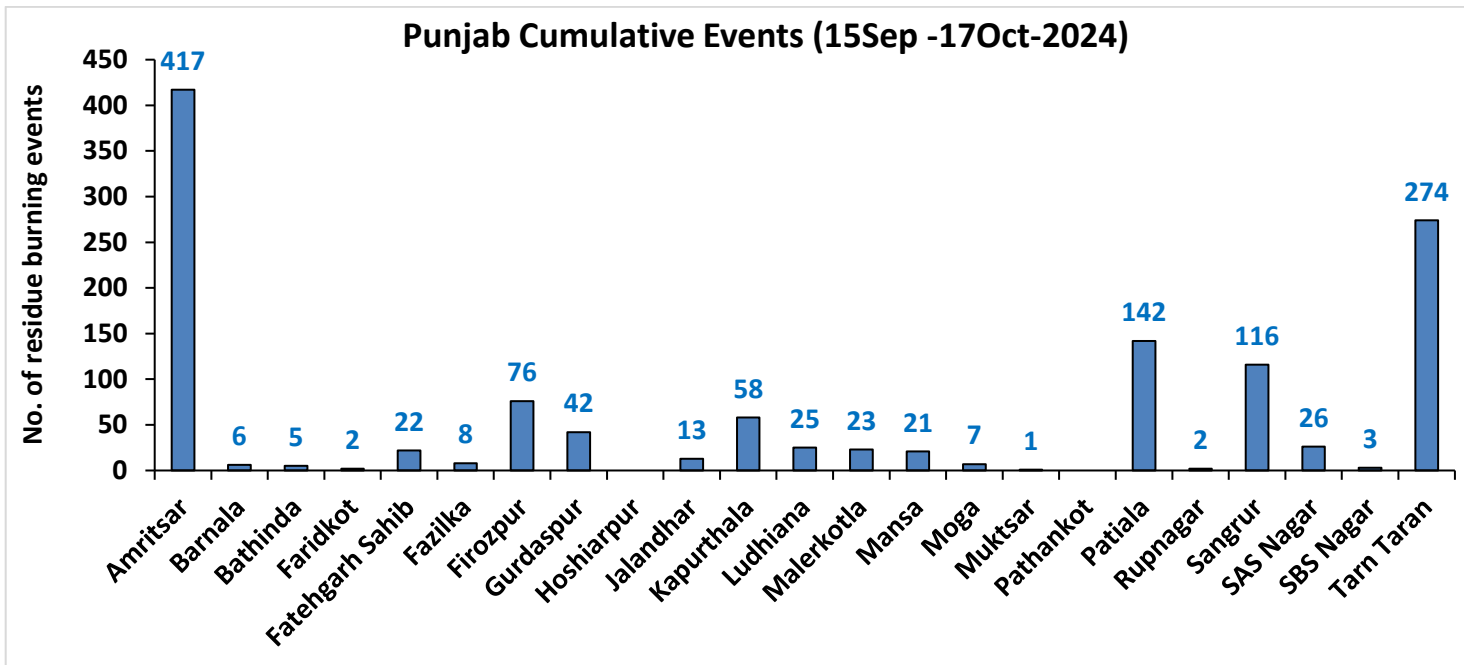
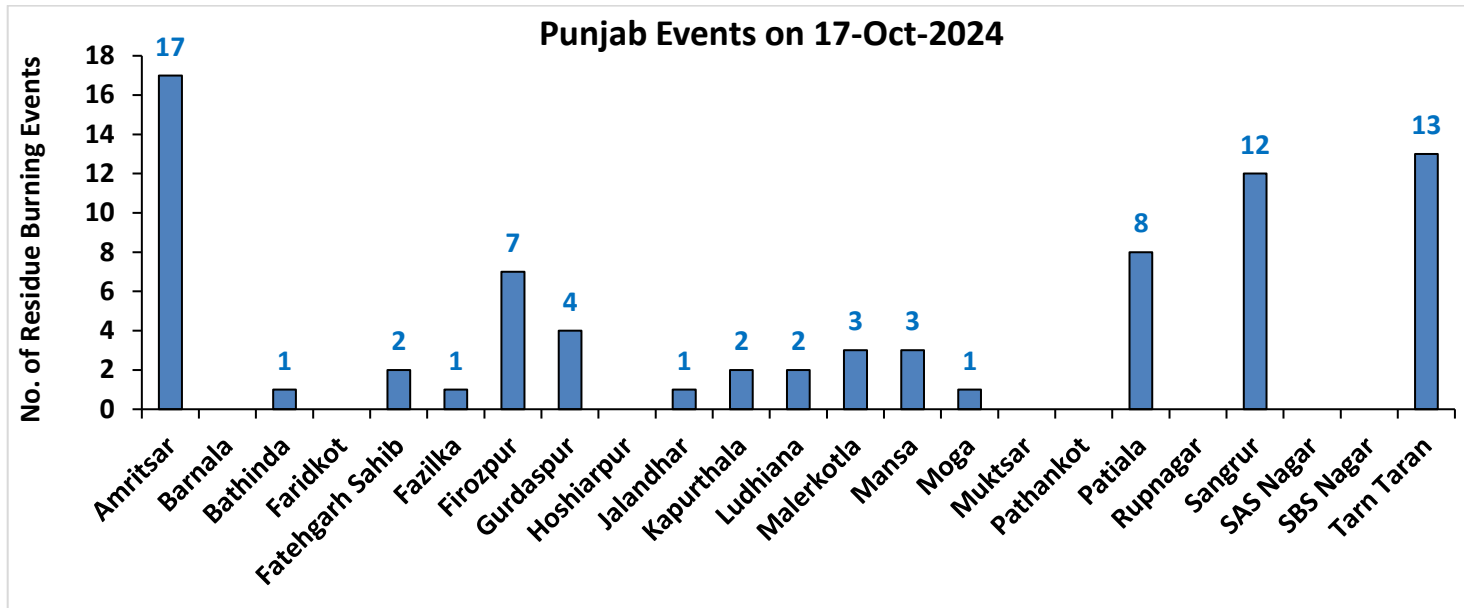
Fire Intensity (W/m²)

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



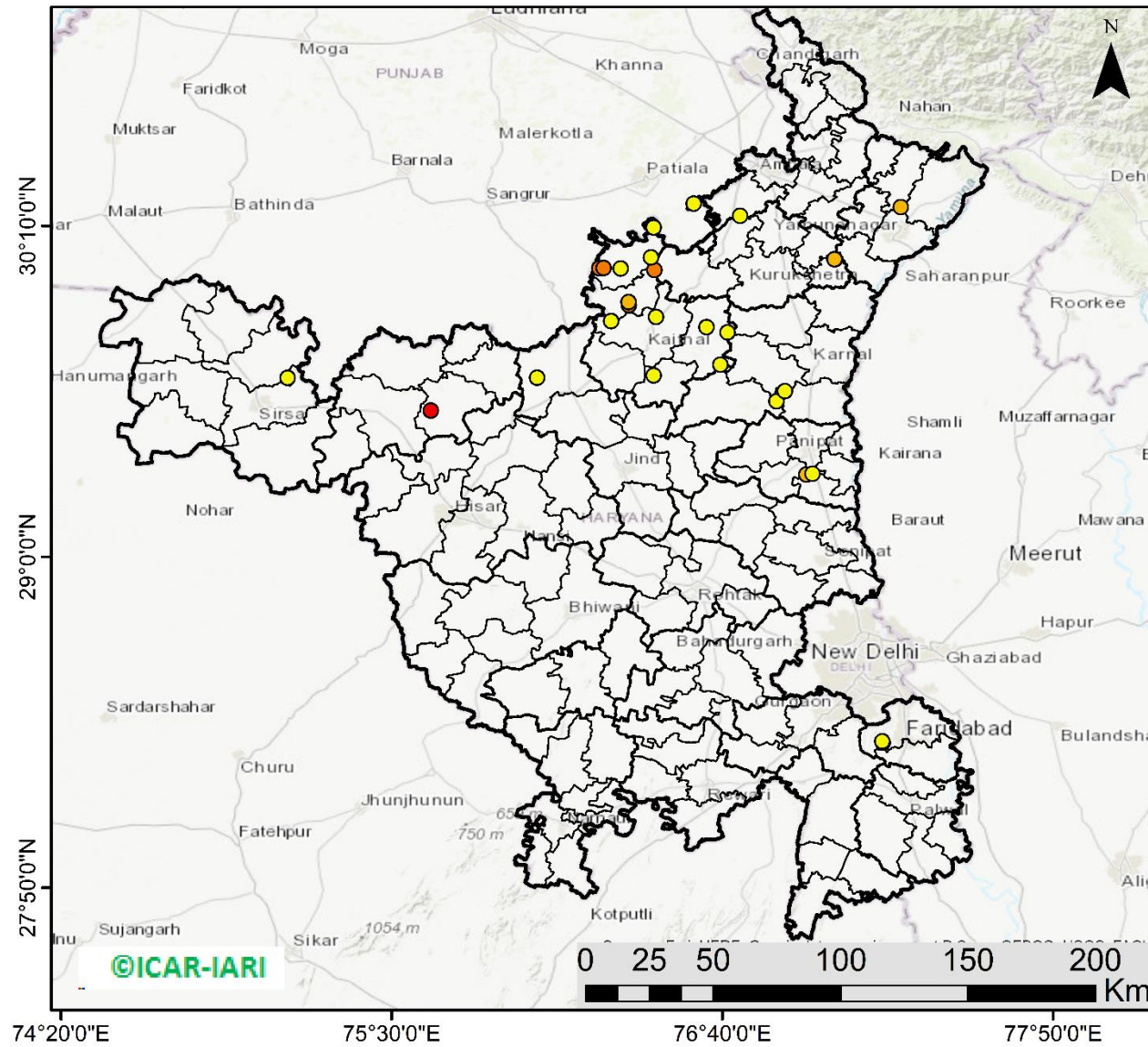
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15Sep-17Oct-2024)



Haryana

RICE RESIDUE BURNING IN HARYANA



28 burning events detected in Haryana on (17th Oct 2024)

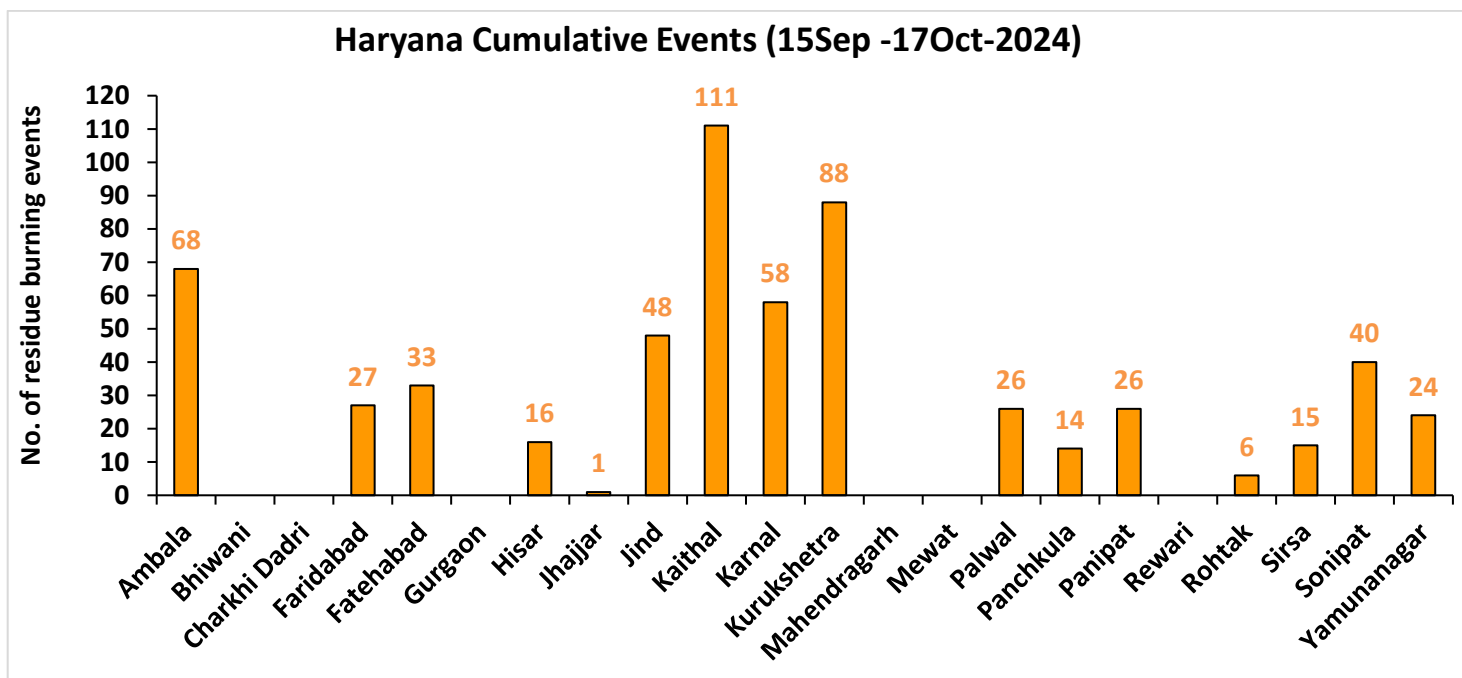
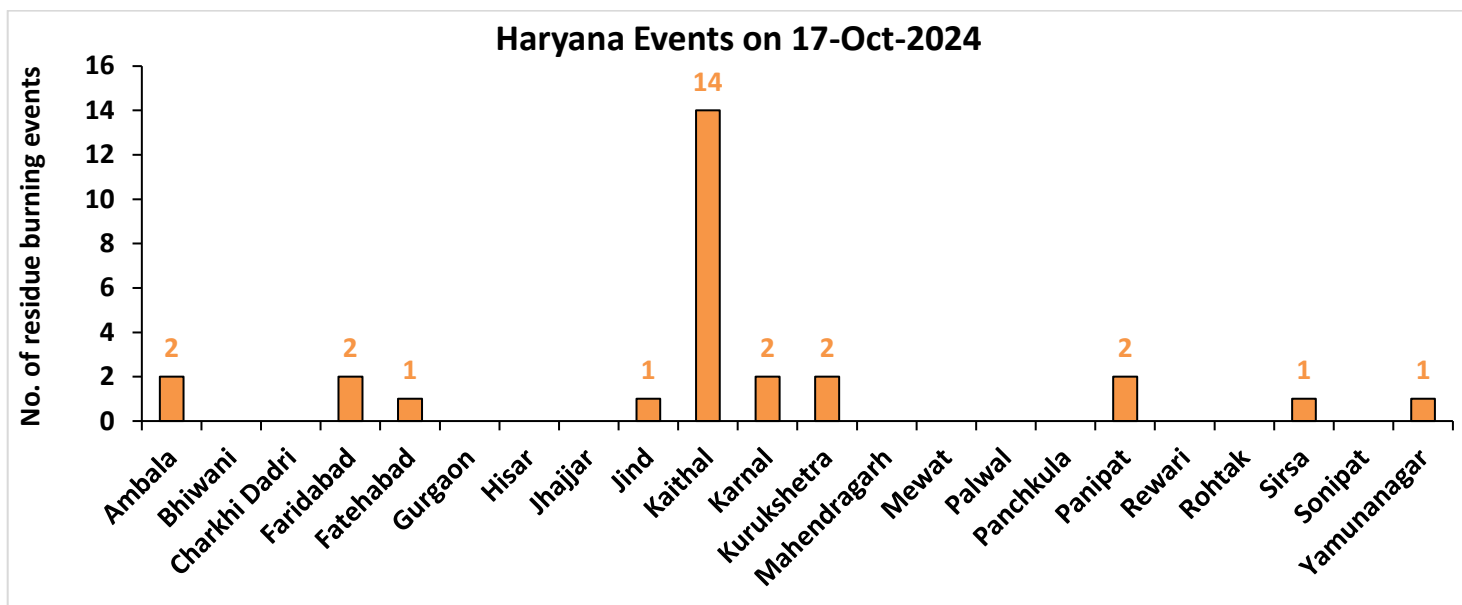
Fire Intensity (W/m²)

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



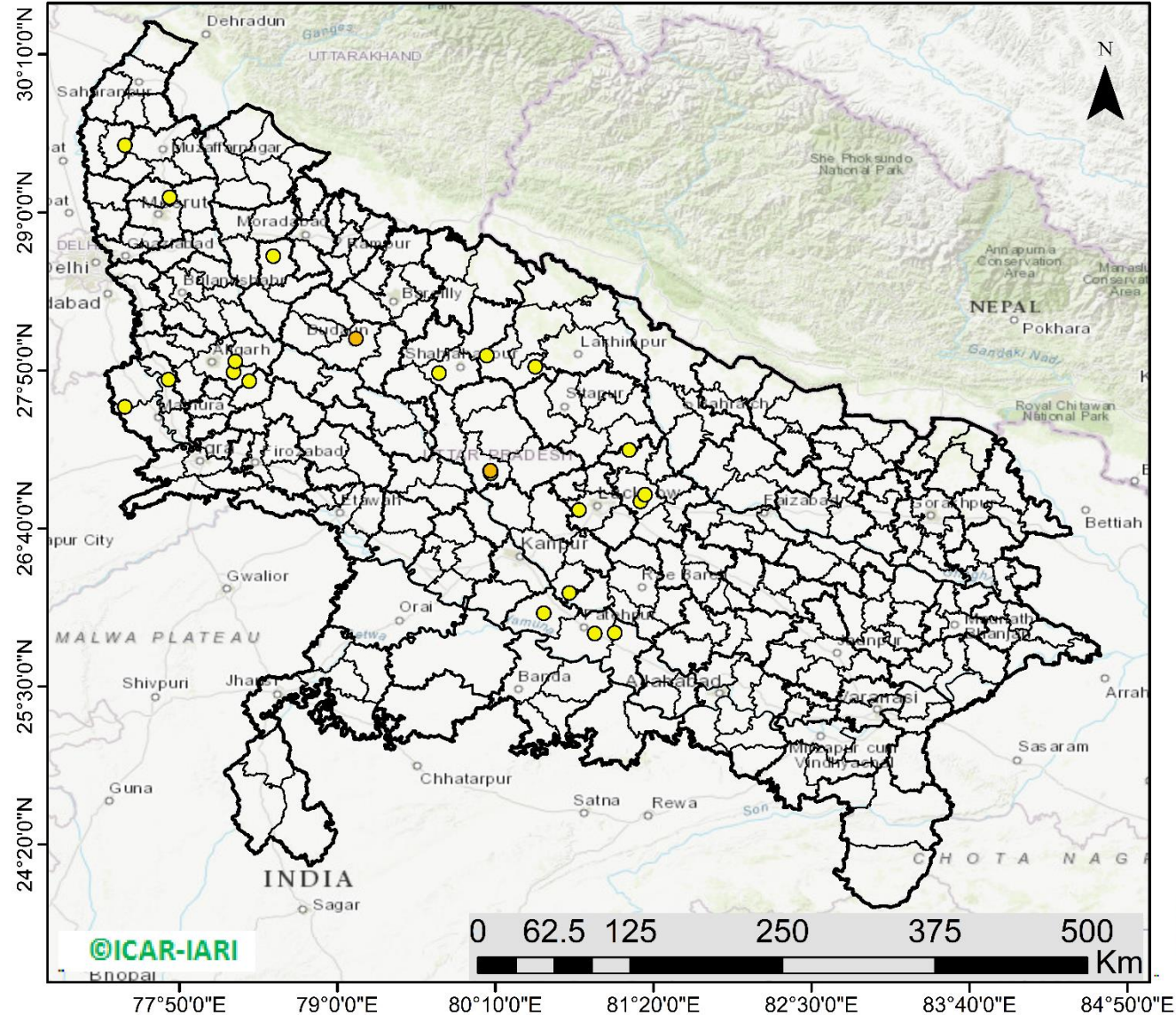
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15Sep-17Oct-2024)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



23 burning events detected in Uttar Pradesh on (17th Oct 2024)

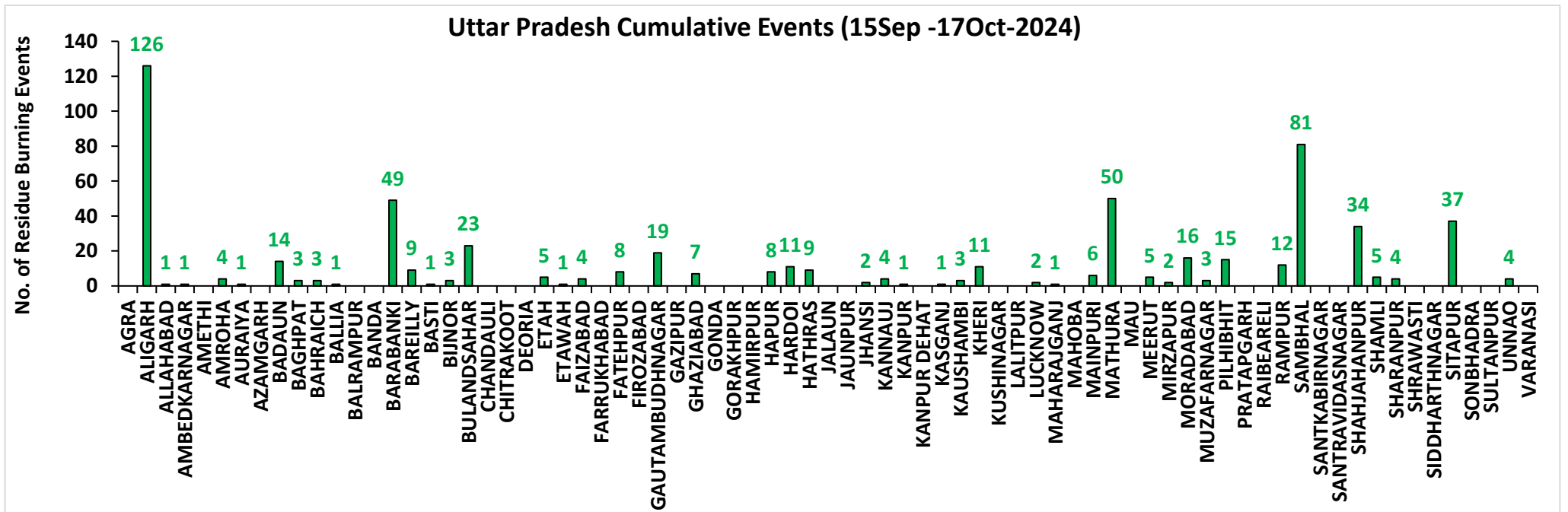
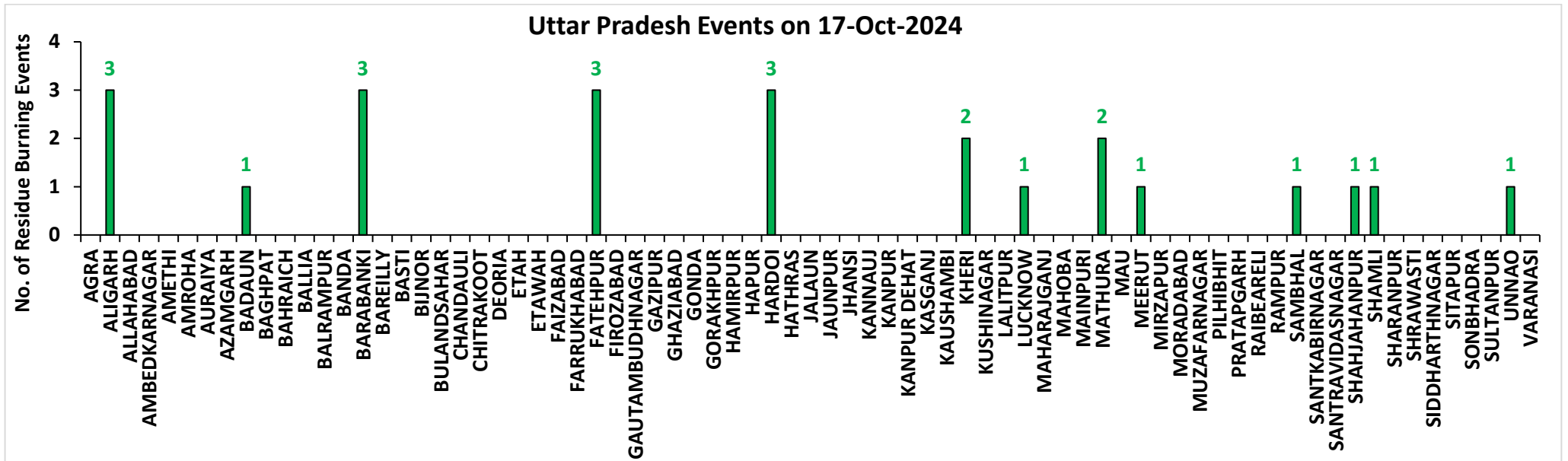
Fire Intensity (W/m2)

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



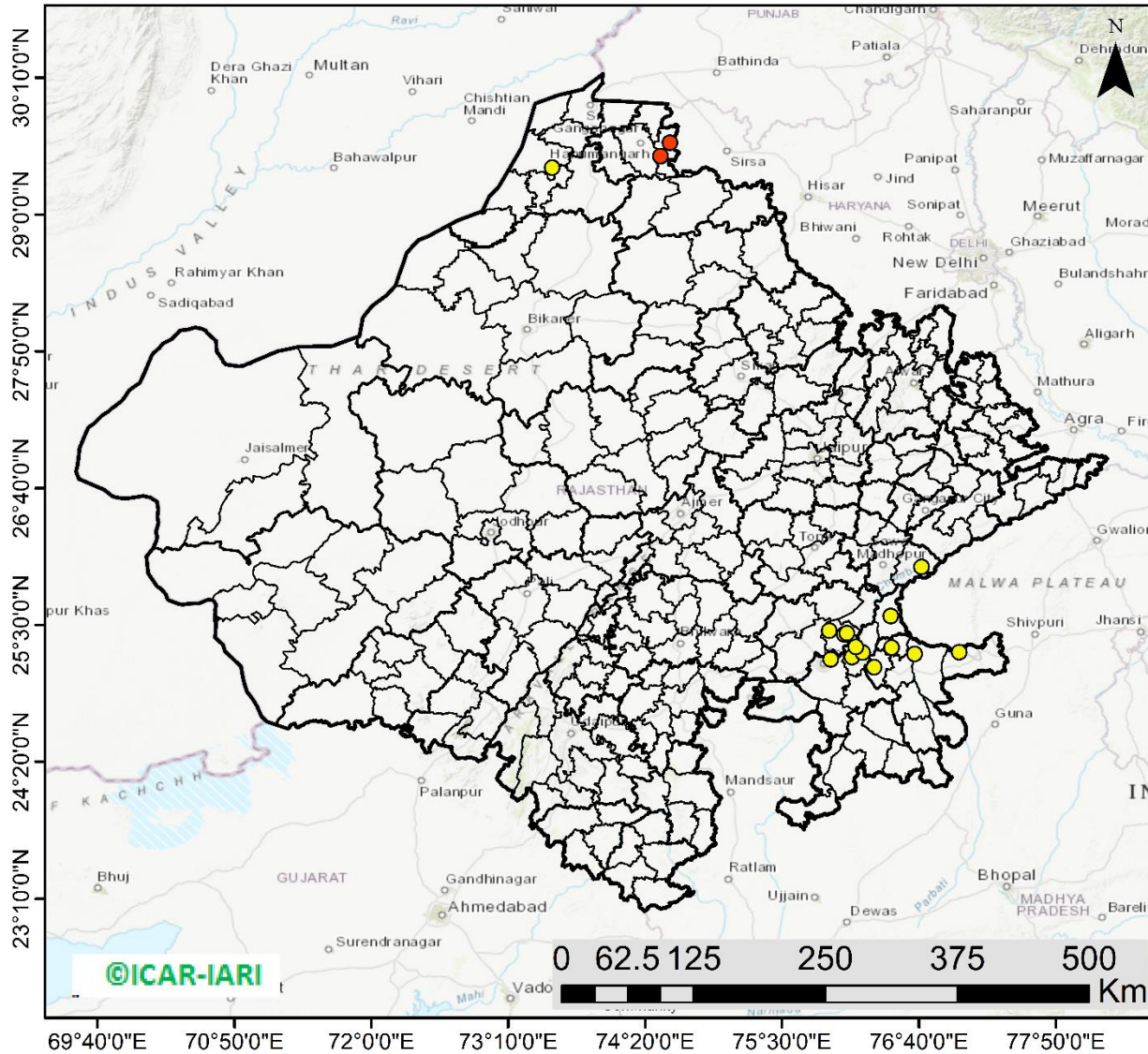
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-17Oct-2024)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



16 burning events detected in Rajasthan on (17th Oct 2024)

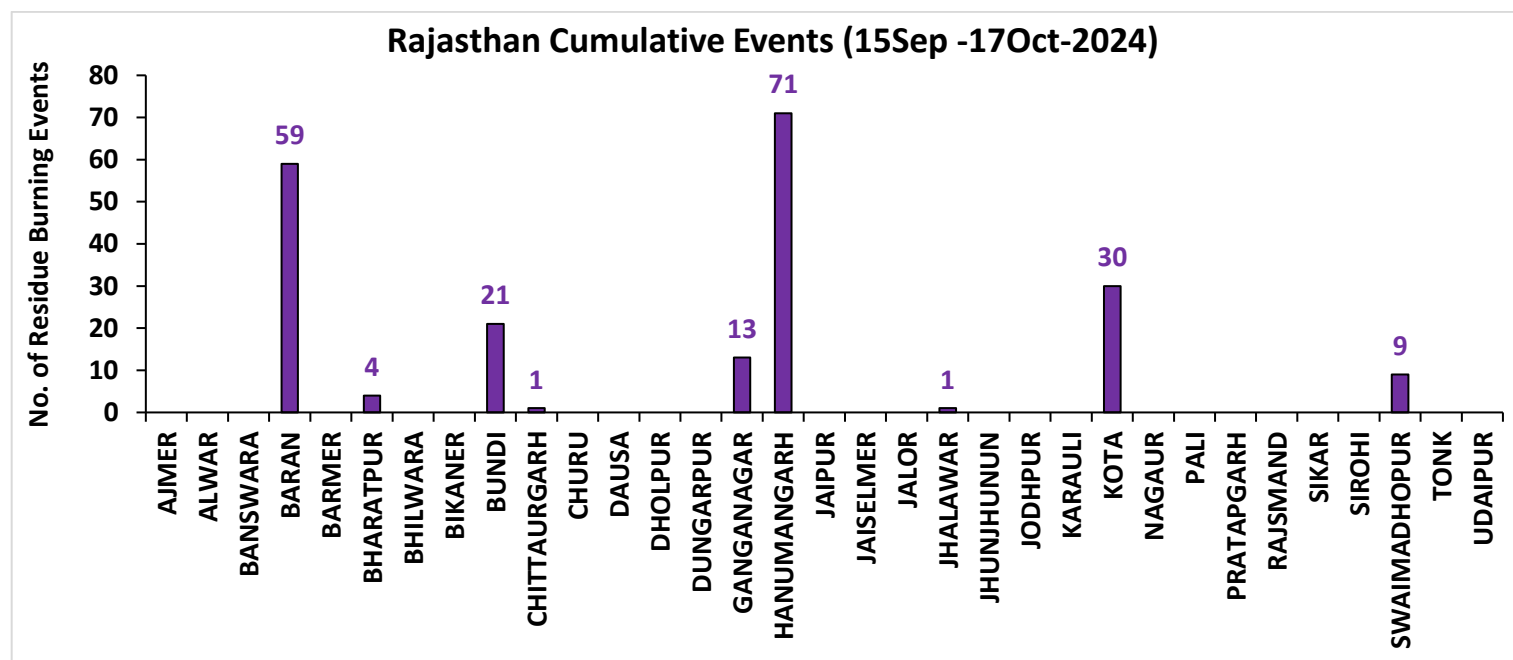
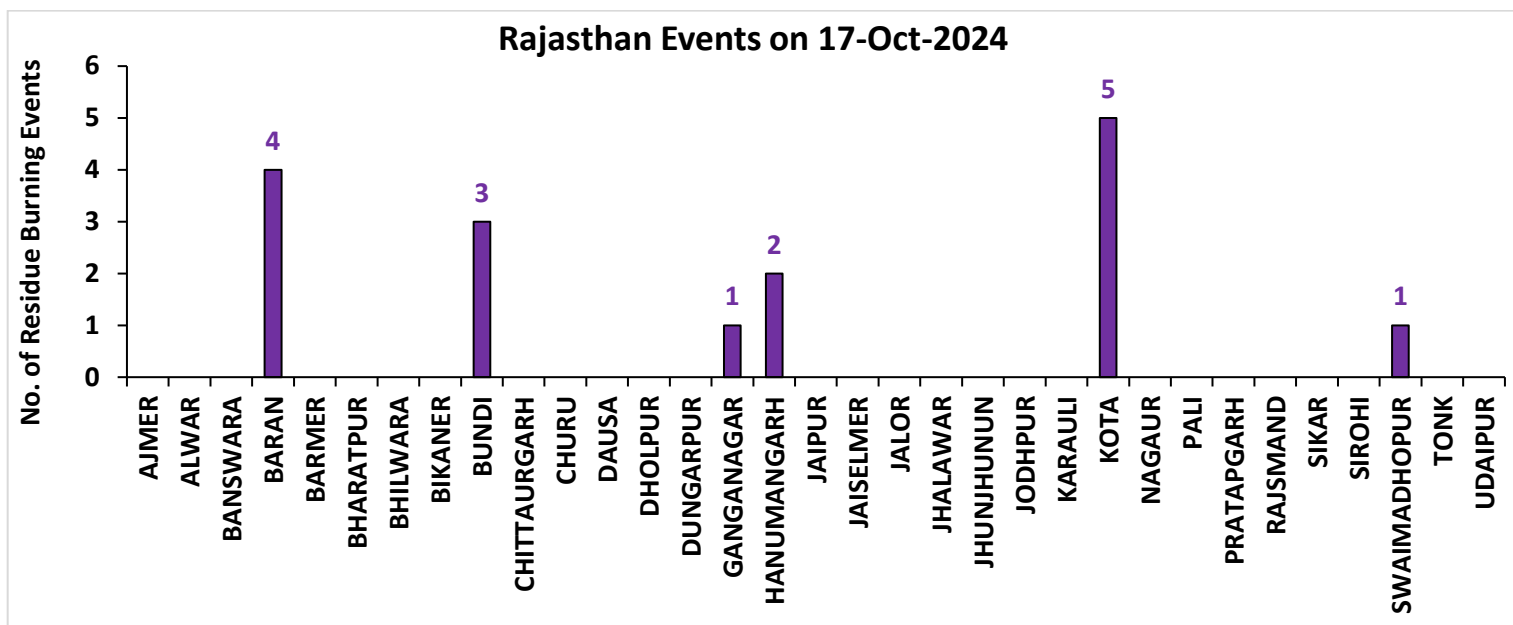
Fire Intensity (W/m²)

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



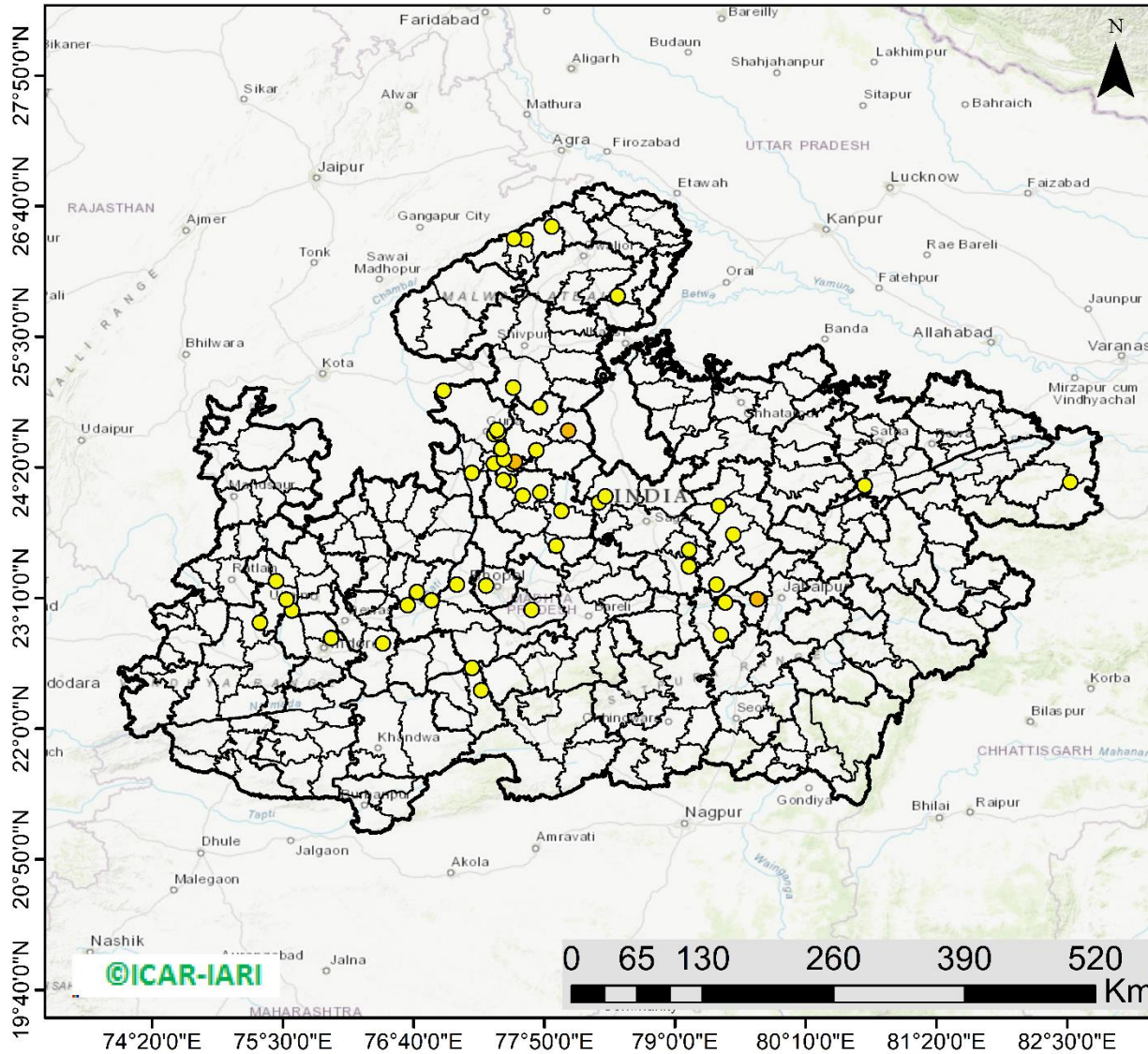
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15Sep-17Oct-2024)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



51 burning events detected in MP on (17th Oct 2024)

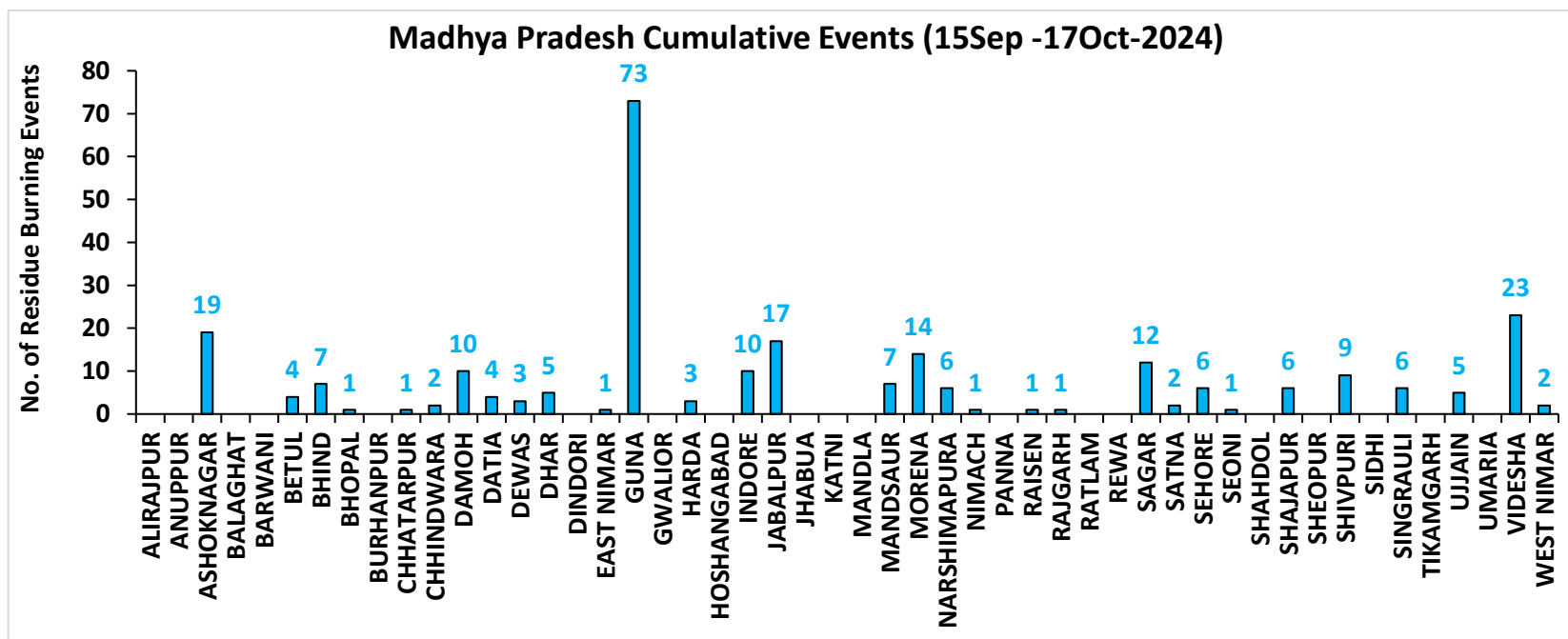
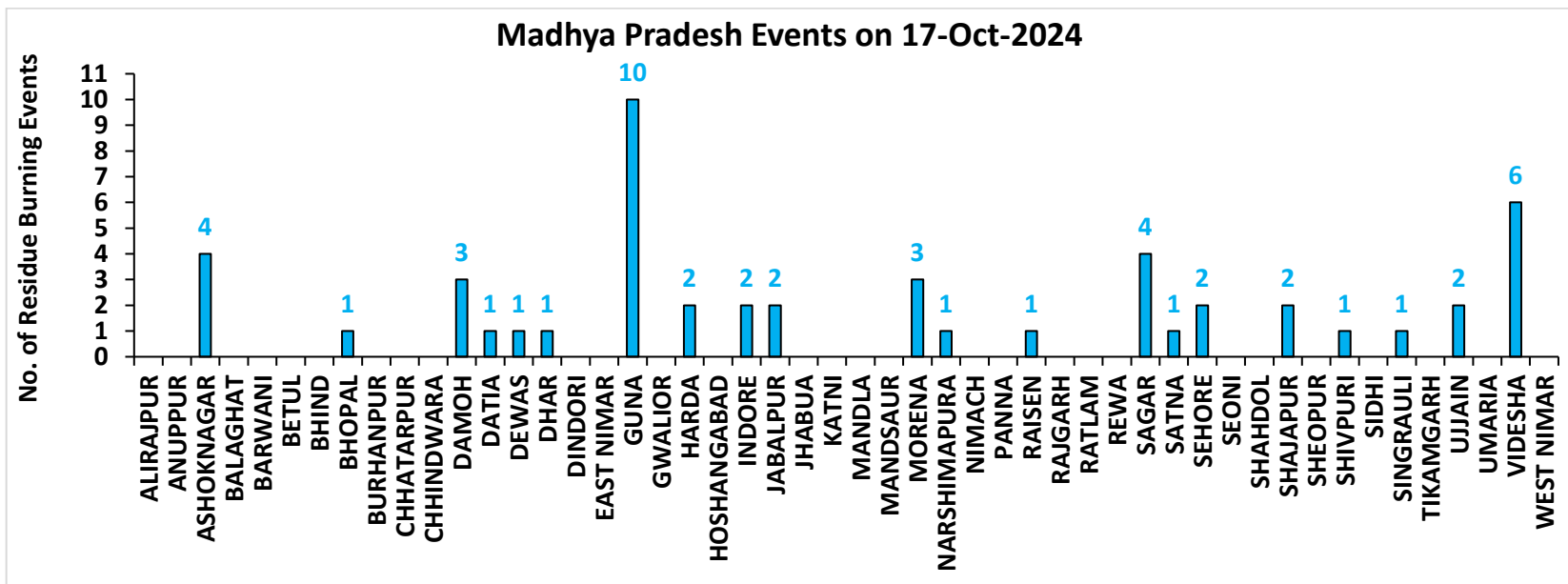
Fire Intensity (W/m²)

- 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-17Oct-2024)



District-wise cumulative number of residues burning events detected in 2020, 2021, 2022, 2023 and 2024
(Period: 15 September-17 October)

(a) Punjab

District	15 Sep-17 Oct				
	2020	2021	2022	2023	2024
Amritsar	1905	606	660	644	417
Barnala	22	13	10	7	6
Bathinda	69	8	3	2	5
Faridkot	214	70	9	9	2
Fatehgarh Sahib	136	101	18	24	22
Fazilka	52	31	15	7	8
Firozpur	485	79	84	46	76
Gurdaspur	460	143	117	11	42
Hoshiarpur	52	11	2	2	0
Jalandhar	115	77	68	20	13
Kapurthala	245	95	95	81	58
Ludhiana	158	148	38	24	25
Malerkotla	0	0	0	3	23
Mansa	51	2	9	29	21
Moga	58	39	35	9	7
Muktsar	29	21	3	1	1
Pathankot	3	0	0	0	0
Patiala	564	256	69	145	142
Rupnagar	29	16	0	1	2
Sangrur	147	45	41	78	116
SAS NAGAR (Mohali)	45	27	8	52	26
SBS Nagar	12	9	2	2	3
Tarn Taran	1640	592	561	192	274
Total	6491	2389	1847	1389	1289

(b) Haryana

District	15 Sep-17 Oct				
	2020	2021	2022	2023	2024
AMBALA	107	54	22	79	68
BHIWANI	0	0	0	2	0
CHARKHI DADRI	0	0	0	0	0
FARIDABAD	0	1	0	2	27
FATEHABAD	56	49	27	80	33
GURGAON	0	0	0	0	0
HISAR	6	1	5	29	16
JHAJJAR	1	0	0	3	1
JIND	29	30	30	59	48
KAITHAL	171	249	81	51	111
KARNAL	267	343	58	39	58
KURUKSHETRA	202	205	77	67	88
MAHENDRAGARH	0	0	0	0	0
MEWAT	0	0	0	0	0
PALWAL	11	25	0	27	26
PANCHKULA	0	0	0	0	14
PANIPAT	9	15	2	14	26
REWARI	0	0	0	0	0
ROHTAK	0	0	0	4	6
SIRSA	9	4	3	6	15
SONIPAT	11	5	4	42	40
YAMUNANAGAR	46	45	21	42	24
Total	925	1026	330	546	601

(c) Uttar Pradesh

District	15 Sep-17 Oct																
	2020	2021	2022	2023	2024	GAUTAMBUDHNAGAR	2	7	0	5	19	MUZAFARNAGAR	3	2	0	0	3
AGRA	1	0	0	0	0	GAZIPUR	0	0	0	0	0	PILHIBHIT	8	108	5	36	15
ALIGARH	28	21	2	63	126	GHAZIABAD	3	2	1	6	7	PRATAPGARH	0	0	0	0	0
ALLAHABAD	0	1	0	0	1	GONDA	0	0	0	0	0	RAIBEARELI	1	0	0	0	0
AMBEDKARNAGAR	0	0	0	0	1	GORAKHPUR	0	0	0	0	0	RAMPUR	22	50	0	14	12
AMETHI	0	1	4	1	0	HAMIRPUR	1	0	0	0	0	SAMBHAL	6	7	4	8	81
AMROHA	1	0	0	2	4	HAPUR	3	1	0	0	8	SANTKABIRNAGAR	0	0	0	0	0
AURAIYA	17	6	4	4	1	HARDOI	9	6	0	4	11	SANTRAVIDASNAGAR	0	0	0	0	0
AZAMGARH	0	0	0	0	0	HATHRAS	0	0	0	2	9	SHAHJAHANPUR	37	181	54	21	34
BADAUN	1	1	0	2	14	JALAUN	0	0	0	0	0	SHAMLI	19	11	2	3	5
BAGHPAT	3	1	0	1	3	JAUNPUR	0	0	0	0	0	SHARANPUR	22	17	0	0	4
BAHRAICH	2	2	4	0	3	JHANSI	9	6	0	3	2	SHRAWASTI	2	0	0	0	0
BALLIA	0	0	0	0	1	KANNAUJ	3	1	0	1	4	SIDDHARTHANAGAR	0	0	0	0	0
BALRAMPUR	1	1	1	0	0	KANPUR	0	7	0	2	1	SITAPUR	9	9	0	2	37
BANDA	0	0	0	0	0	KANPUR DEHAT	6	1	0	3	0	SONBHADRA	0	0	0	0	0
BARABANKI	12	20	0	18	49	KASGANJ	1	2	0	1	1	SULTANPUR	0	0	0	0	0
BAREILLY	10	15	1	10	9	KAUSHAMBI	7	3	0	6	3	UNNAO	4	0	0	2	4
BASTI	2	1	0	0	1	KHERI	38	54	8	3	11	VARANASI	0	0	0	0	0
BIJNOR	4	3	1	5	3	KUSHINAGAR	0	0	0	0	0	Total	379	620	98	326	610
BULANDSAHAR	8	2	2	5	23	LALITPUR	0	1	2	0	0						
CHANDAULI	0	0	0	0	0	LUCKNOW	2	0	0	1	2						
CHITRAKOOT	0	0	0	0	0	MAHARAJGANJ	0	0	0	0	1						
DEORIA	0	0	0	2	0	MAHOBA	2	0	0	0	0						
ETAH	5	6	0	8	5	MAINPURI	6	7	0	6	6						
ETAWAH	2	7	0	11	1	MATHURA	16	27	0	53	50						
FAIZABAD	1	0	0	0	4	MAU	0	0	0	0	0						
FARRUKHABAD	0	0	0	0	0	MEERUT	11	4	0	2	5						
FATEHPUR	16	6	1	6	8	MIRZAPUR	5	5	2	0	2						
FIROZABAD	4	4	0	2	0	MORADABAD	4	3	0	2	16						

(d) Delhi

District	15 Sep-17 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	2	8
NORTH EAST	0	0	0	0	0
NORTH WEST DELHI	1	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	4	0	2	2	8

(e) Rajasthan

District	15 Sep-17 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	82	0	4	99	59
BARMER	2	0	0	0	0
BHARATPUR	1	0	0	2	4
BHILWARA	2	0	0	0	0
BIKANER	1	0	0	0	0
BUNDI	5	0	10	20	21
CHITTAURGARH	0	2	2	7	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	1	9	13
HANUMANGARH	100	24	3	39	71
JAIPUR	1	0	0	0	0
JAISELMER	2	0	0	0	0
JALOR	0	0	0	0	0
JHALAWAR	1	0	1	6	1
JHUNJHUNUN	1	0	0	0	0
JODHPUR	1	0	0	0	0
KARALI	1	0	0	0	0
KOTA	24	1	4	56	30
NAGAU	0	0	0	0	0
PALI	1	0	0	0	0
PRATAPGARH	4	0	0	0	0
RAJSMAND	0	0	0	0	0
SIKAR	0	0	0	0	0
SIROHI	1	0	0	0	0
SWAIMADHOPUR	6	0	0	15	9
TONK	1	0	0	0	0
UDAIPUR	0	0	0	0	0
Total	240	27	25	253	209

(f) Madhya Pradesh

District	15 Sep-17 Oct										
	2020	2021	2022	2023	2024	PANNA	2	0	0	0	0
ALIRAJPUR	0	0	0	0	0	RAISEN	12	1	0	2	1
ANUPPUR	0	0	0	0	0	RAJGARH	7	1	3	7	1
ASHOKNAGAR	11	1	1	21	19	RATLAM	0	0	0	1	0
BALAGHAT	0	0	0	0	0	REWA	3	0	0	0	0
BARWANI	0	0	0	0	0	SAGAR	13	6	1	12	12
BETUL	0	0	0	2	4	SATNA	3	6	0	1	2
BHIND	6	1	0	7	7	SEHORE	5	3	4	11	6
BHOPAL	6	5	1	7	1	SEONI	15	5	0	3	1
BURHANPUR	0	0	0	0	0	SHAHDOL	0	0	0	0	0
CHHATARPUR	4	0	0	3	1	SHAJAPUR	5	0	0	7	6
CHHINDWARA	1	3	0	2	2	SHEOPUR	14	0	0	14	0
DAMOH	19	4	1	11	10	SHIVPURI	8	0	6	7	9
DATIA	50	8	0	38	4	SIDHI	0	0	0	0	0
DEWAS	3	0	0	6	3	SINGRAULI	0	0	0	0	6
DHAR	20	0	0	22	5	TIKAMGARH	1	0	0	2	0
DINDORI	0	0	0	0	0	UJJAIN	5	0	0	14	5
EAST NIMAR	2	1	2	1	1	UMARIA	0	0	0	0	0
GUNA	15	1	4	102	73	VIDESHA	55	8	2	21	23
GWALIOR	34	0	1	7	0	WEST NIMAR	6	0	0	3	2
HARDA	8	9	0	13	3	Total	384	84	31	406	262
HOSHANGABAD	20	8	0	13	0						
INDORE	2	0	0	12	10						
JABALPUR	7	4	3	11	17						
JHABUA	0	0	0	0	0						
KATNI	1	0	0	0	0						
MANDLA	0	0	0	0	0						
MANDSAUR	3	0	0	1	7						
MORENA	15	5	0	13	14						
NARSHIMAPURA	3	4	2	9	6						
NIMACH	0	0	0	0	1						

State-wise and date-wise number of paddy residue burning events detected in 2020 ,2021 ,2022, 2023 and 2024
(Period: 15 September-17 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
11-Oct	377	64	45	26	143	90	51	0	21	55	23	28	0	50	87
12-Oct	388	97	104	13	177	69	51	4	5	98	46	23	0	5	102

13-Oct	266	132	120	154	162	47	91	15	29	90	36	42	0	19	76
14-Oct	605	229	82	89	97	69	98	30	41	49	9	68	5	18	52
15-Oct	449	660	169	69	144	106	363	36	127	42	15	149	0	35	78
16-Oct	654	429	206	0	99	80	176	76	4	14	21	121	6	14	59
17-Oct	1172	14	403	1	77	143	0	86	0	28	38	39	7	0	23
Total	6491	2389	1847	1389	1289	925	1026	330	546	601	379	620	98	326	610

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
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
11-Oct	0	0	0	1	0	21	7	1	21	6	32	2	0	24	17
12-Oct	0	0	0	0	2	24	1	2	1	13	44	1	1	1	5
13-Oct	0	0	0	0	1	7	5	2	28	10	21	2	7	32	5
14-Oct	0	0	0	0	1	16	1	1	15	20	15	11	1	26	7
15-Oct	0	0	0	0	0	9	8	2	34	23	8	27	2	66	11
16-Oct	1	0	0	0	1	12	2	4	18	100	23	13	2	51	112
17-Oct	0	0	0	0	0	26	0	4	12	16	63	1	11	31	51
Total	4	0	2	2	8	240	27	25	253	209	384	84	31	406	262

Details of residue burning events in Punjab on 17-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.89993	74.70572	13:33:58	D	6.00
2	AMRITSAR	AJNALA	S-NPP	31.93095	74.75472	13:33:58	D	4.70
3	AMRITSAR	ATTARI	S-NPP	31.52518	74.60852	13:33:58	D	2.40
4	AMRITSAR	ATTARI	S-NPP	31.62115	74.71204	13:33:58	D	3.30
5	AMRITSAR	ATTARI	S-NPP	31.63541	74.57462	13:33:58	D	1.90
6	AMRITSAR	CHOGAWAN	S-NPP	31.74516	74.70484	13:33:58	D	2.00
7	AMRITSAR	CHOGAWAN	S-NPP	31.76501	74.62920	13:33:58	D	2.70
8	AMRITSAR	CHOGAWAN	S-NPP	31.78092	74.65271	13:33:58	D	3.70
9	AMRITSAR	CHOGAWAN	S-NPP	31.82919	74.58408	13:33:58	D	3.30
10	AMRITSAR	CHOGAWAN	S-NPP	31.83252	74.58341	13:33:58	D	3.30
11	AMRITSAR	CHOGAWAN	S-NPP	31.85938	74.60339	13:33:58	D	6.40
12	AMRITSAR	HARSHA CHHINA	S-NPP	31.76122	74.69744	13:33:58	D	2.20
13	AMRITSAR	MAJITHA	S-NPP	31.70896	75.01262	13:33:58	D	2.10
14	AMRITSAR	RAYYA	S-NPP	31.50894	75.24648	13:33:58	D	3.10
15	AMRITSAR	RAYYA	S-NPP	31.52574	75.11928	02:23:58	N	0.70
16	AMRITSAR	RAYYA	S-NPP	31.61908	75.23879	13:33:58	D	4.10
17	AMRITSAR	VERKA	S-NPP	31.65929	74.81007	13:33:58	D	3.10
18	BATHINDA	RAMPURA	S-NPP	30.20507	75.34187	13:33:58	D	7.80
19	FATEHGARH SAHIB	KHERA	S-NPP	30.59998	76.54945	02:23:58	N	0.80

20	FATEHGARH SAHIB	SIRHIND	AQUA	30.57600	76.33100	14:38:41	D	16.60
21	FAZILKA	JALALABAD	S-NPP	30.51072	74.26704	13:33:58	D	3.10
22	FIROZPUR	FIROZPUR	S-NPP	30.92775	74.52414	13:33:58	D	3.20
23	FIROZPUR	GHALL KHURD	AQUA	31.00200	74.76600	14:38:41	D	13.20
24	FIROZPUR	MAKHU	S-NPP	31.04051	75.04057	13:33:58	D	3.50
25	FIROZPUR	MAMDOT	S-NPP	30.80244	74.54855	13:33:58	D	4.30
26	FIROZPUR	MAMDOT	S-NPP	30.80917	74.50168	13:33:58	D	3.70
27	FIROZPUR	MAMDOT	S-NPP	30.91790	74.48051	13:33:58	D	2.70
28	FIROZPUR	ZIRA	S-NPP	30.99422	74.88586	13:33:58	D	2.30
29	GURDASPUR	BATALA	S-NPP	31.75803	75.25658	13:33:58	D	1.90
30	GURDASPUR	BATALA	S-NPP	31.76140	75.25594	13:33:58	D	8.10
31	GURDASPUR	DERA BABA NANAK	S-NPP	31.95215	74.97643	13:33:58	D	6.70
32	GURDASPUR	DERA BABA NANAK	AQUA	32.03700	74.95600	14:38:41	D	7.40
33	JALANDHAR	BHOGPUR	S-NPP	31.49621	75.60306	13:33:58	D	2.80
34	KAPURTHALA	KAPURTHALA	S-NPP	31.28143	75.36069	13:33:58	D	10.50
35	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.20636	75.07295	13:33:58	D	12.10
36	LUDHIANA	MACHHIWARA	S-NPP	30.98012	76.25951	13:33:58	D	7.60
37	LUDHIANA	MALoud	S-NPP	30.64300	75.95686	13:33:58	D	1.80
38	MALERKOTLA	MALERKOTLA	S-NPP	30.52028	75.97431	13:33:58	D	3.20
39	MALERKOTLA	MALERKOTLA	S-NPP	30.56093	75.81625	13:33:58	D	3.00
40	MALERKOTLA	MALERKOTLA	S-NPP	30.56432	75.81562	13:33:58	D	11.70
41	MANSA	BUDHLADA	S-NPP	29.76507	75.57662	13:33:58	D	4.60
42	MANSA	BUDHLADA	S-NPP	29.76842	75.57600	13:33:58	D	6.90
43	MANSA	BUDHLADA	S-NPP	29.81910	75.64201	13:33:58	D	2.70
44	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.90448	75.25594	13:33:58	D	4.40
45	PATIALA	BHUNARHERI	S-NPP	30.18444	76.65149	13:33:58	D	3.80
46	PATIALA	NABHA	S-NPP	30.33015	76.08479	13:33:58	D	2.60
47	PATIALA	PATIALA	S-NPP	30.39775	76.45061	13:33:58	D	1.80
48	PATIALA	PATran	S-NPP	29.87281	76.15085	13:33:58	D	5.20
49	PATIALA	PATran	S-NPP	29.91301	75.96392	13:33:58	D	22.80
50	PATIALA	PATran	S-NPP	30.02725	76.11061	13:33:58	D	2.50
51	PATIALA	RAJPURA	S-NPP	30.52591	76.57649	13:33:58	D	2.10
52	PATIALA	SAMANA	S-NPP	30.23640	76.24024	13:33:58	D	2.80

53	SANGRUR	ANDANA	S-NPP	29.78230	75.87241	13:33:58	D	11.40
54	SANGRUR	ANDANA	S-NPP	29.80269	75.91962	13:33:58	D	4.90
55	SANGRUR	ANDANA	S-NPP	29.80607	75.91901	13:33:58	D	4.90
56	SANGRUR	ANDANA	S-NPP	29.83104	75.97407	13:33:58	D	2.00
57	SANGRUR	ANDANA	S-NPP	29.84530	76.02701	13:33:58	D	2.80
58	SANGRUR	ANDANA	S-NPP	29.87776	75.93569	13:33:58	D	4.10
59	SANGRUR	BHAWANIGARH	S-NPP	30.23445	76.02338	13:33:58	D	1.40
60	SANGRUR	BHAWANIGARH	S-NPP	30.27463	76.16447	13:33:58	D	1.70
61	SANGRUR	BHAWANIGARH	S-NPP	30.28424	76.13224	13:33:58	D	3.60
62	SANGRUR	BHAWANIGARH	S-NPP	30.32363	76.01232	13:33:58	D	2.60
63	SANGRUR	SUNAM	S-NPP	30.04941	75.71916	13:33:58	D	2.80
64	SANGRUR	SUNAM	S-NPP	30.14493	75.82951	13:33:58	D	2.60
65	TARN TARAN	BHIKHIWIND	S-NPP	31.31049	74.59579	13:33:58	D	6.10
66	TARN TARAN	BHIKHIWIND	S-NPP	31.35577	74.67944	13:33:58	D	6.60
67	TARN TARAN	BHIKHIWIND	S-NPP	31.37253	74.63004	13:33:58	D	1.60
68	TARN TARAN	BHIKHIWIND	AQUA	31.29500	74.63000	14:38:41	D	11.70
69	TARN TARAN	CHOHLA SAHIB	AQUA	31.36500	75.05000	14:38:41	D	7.80
70	TARN TARAN	GANDIWIND TATLA	S-NPP	31.50821	74.63287	13:33:58	D	3.50
71	TARN TARAN	GANDIWIND TATLA	S-NPP	31.51153	74.63220	13:33:58	D	6.50
72	TARN TARAN	GANDIWIND TATLA	S-NPP	31.51213	74.63628	13:33:58	D	11.60
73	TARN TARAN	KHADUR SAHIB	S-NPP	31.39138	75.05957	13:33:58	D	3.20
74	TARN TARAN	KHADUR SAHIB	S-NPP	31.48101	75.09815	13:33:58	D	10.20
75	TARN TARAN	KHADUR SAHIB	S-NPP	31.48608	75.18244	13:33:58	D	2.60
76	TARN TARAN	KHADUR SAHIB	AQUA	31.42700	75.13900	14:38:41	D	11.10
77	TARN TARAN	TARN TARAN	S-NPP	31.43541	74.97118	13:33:58	D	4.00

Details of residue burning events in Haryana on 17-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMBALA	AMBALA-II	S-NPP	30.20196	76.72939	13:33:58	D	3.00
2	AMBALA	AMBALA-II	S-NPP	30.24511	76.56564	13:33:58	D	2.00
3	FARIDABAD	FARIDABAD	JPSS-2	28.34410	77.23296	02:00:44	N	0.80
4	FARIDABAD	FARIDABAD	JPSS-1	28.34868	77.23090	02:48:52	N	0.60
5	FATEHABAD	BHUNA	S-NPP	29.51495	75.63842	13:33:58	D	25.60
6	JIND	NARWANA	S-NPP	29.63107	76.01351	13:33:58	D	2.60
7	KAITHAL	GUHLA	S-NPP	30.01102	76.42713	13:33:58	D	11.80
8	KAITHAL	GUHLA	S-NPP	30.01594	76.30795	13:33:58	D	3.60
9	KAITHAL	GUHLA	S-NPP	30.05509	76.41489	13:33:58	D	2.90
10	KAITHAL	GUHLA	S-NPP	30.16086	76.42431	13:33:58	D	2.40
11	KAITHAL	GUHLA	AQUA	30.01700	76.23300	14:38:41	D	10.40
12	KAITHAL	GUHLA	AQUA	30.01800	76.24800	14:38:41	D	12.60
13	KAITHAL	KAITHAL	S-NPP	29.83060	76.27428	13:33:58	D	1.70
14	KAITHAL	KAITHAL	S-NPP	29.84539	76.43287	13:33:58	D	2.10
15	KAITHAL	PUNDRI	S-NPP	29.67677	76.66002	13:33:58	D	3.60
16	KAITHAL	PUNDRI	S-NPP	29.79114	76.68518	13:33:58	D	4.70
17	KAITHAL	PUNDRI	S-NPP	29.80956	76.61092	13:33:58	D	4.30
18	KAITHAL	RAJOUND	S-NPP	29.63902	76.42431	13:33:58	D	2.80
19	KAITHAL	SIWAN	AQUA	29.88700	76.33700	14:38:41	D	11.60
20	KAITHAL	SIWAN	AQUA	29.89800	76.33600	14:38:41	D	9.60
21	KARNAL	GHARAUNDA	S-NPP	29.54782	76.85784	13:33:58	D	2.10
22	KARNAL	GHARAUNDA	S-NPP	29.58377	76.88744	13:33:58	D	3.30
23	KURUKSHETRA	LADWA	S-NPP	30.04852	77.06389	13:33:58	D	6.80
24	KURUKSHETRA	LADWA	S-NPP	30.04875	77.06268	13:33:58	D	5.70
25	PANIPAT	SAMALKHA	S-NPP	29.28938	76.96310	13:33:58	D	6.00
26	PANIPAT	SAMALKHA	S-NPP	29.29225	76.98501	13:33:58	D	1.60
27	SIRSA	SIRSA	S-NPP	29.63076	75.13303	13:33:58	D	2.20
28	YAMUNANAGAR	BILASPUR	S-NPP	30.23289	77.29615	13:33:58	D	7.80

Details of residue burning events in Uttar Pradesh on 17-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ALIGARH	KOL	S-NPP	27.75285	78.35052	13:33:58	D	3.40
2	ALIGARH	KOL	S-NPP	27.81941	78.23454	13:33:58	D	3.60
3	ALIGARH	KOL	S-NPP	27.89880	78.24718	13:33:58	D	2.90
4	BADAUN	BADAUN	S-NPP	28.06666	79.13777	13:33:58	D	7.70
5	BARABANKI	FATEHPUR	S-NPP	27.24428	81.15536	13:33:58	D	1.80
6	BARABANKI	NAWABGANJ	S-NPP	26.86459	81.23827	13:33:58	D	4.10
7	BARABANKI	NAWABGANJ	S-NPP	26.91474	81.27153	13:33:58	D	3.40
8	FATEHPUR	BINKI	S-NPP	26.03895	80.52480	13:33:58	D	2.10
9	FATEHPUR	FATEHPUR	S-NPP	25.88941	80.90148	13:33:58	D	2.20
10	FATEHPUR	KHAGA	S-NPP	25.89384	81.04762	13:33:58	D	2.80
11	HARDOI	BILGRAM	S-NPP	27.07199	80.13311	13:33:58	D	5.00
12	HARDOI	BILGRAM	S-NPP	27.09026	80.12843	13:33:58	D	4.20
13	HARDOI	BILGRAM	S-NPP	27.09177	80.13029	13:33:58	D	6.80
14	KHERI	MOHMADI	S-NPP	27.85929	80.46172	13:33:58	D	4.60
15	KHERI	MOHMADI	S-NPP	27.94138	80.10389	13:33:58	D	3.40
16	LUCKNOW	LUCKNOW	S-NPP	26.80147	80.78474	13:33:58	D	2.50
17	MATHURA	MAT	S-NPP	27.76387	77.75444	13:33:58	D	3.80
18	MATHURA	MATHURA	S-NPP	27.56296	77.43231	13:33:58	D	3.60
19	MEERUT	SARDHANA	S-NPP	29.10909	77.76265	13:33:58	D	2.20
20	SAMBHAL	SAMBHAL	S-NPP	28.67500	78.52734	13:33:58	D	4.90
21	SHAHJAHANPUR	SHAHJAHANPUR	S-NPP	27.81279	79.75104	13:33:58	D	1.70
22	SHAMLI	SHAMLI	S-NPP	29.49354	77.43217	13:33:58	D	4.50
23	UNNAO	BIGHAPUR	S-NPP	26.18871	80.71297	13:33:58	D	3.40

Details of residue burning events in Rajasthan on 17-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BARAN	ANTA	S-NPP	25.13950	76.28599	13:33:58	D	4.40
2	BARAN	KISHANGUNJ	S-NPP	25.25279	76.63106	13:33:58	D	2.20
3	BARAN	MANGROL	S-NPP	25.30667	76.43448	13:33:58	D	3.60
4	BARAN	SHAHBAD	S-NPP	25.26800	77.01064	13:33:58	D	2.00
5	BUNDI	BUNDI	S-NPP	25.45166	75.90427	13:33:58	D	3.20
6	BUNDI	KESHORAIPATAN	S-NPP	25.41949	76.03191	13:33:58	D	1.60
7	BUNDI	KESHORAIPATAN	S-NPP	25.42952	76.05373	13:33:58	D	2.80
8	GANGANAGAR	RAISINGHNAGAR	S-NPP	29.39934	73.54291	13:33:58	D	3.40
9	HANUMANGARH	TIBI	S-NPP	29.49755	74.46471	13:33:58	D	17.70
10	HANUMANGARH	TIBI	AQUA	29.61200	74.54600	14:38:41	D	17.80
11	KOTA	DIGOD	S-NPP	25.22647	76.09727	13:33:58	D	2.60
12	KOTA	DIGOD	S-NPP	25.26387	76.18900	13:33:58	D	2.90
13	KOTA	DIGOD	S-NPP	25.31233	76.12991	13:33:58	D	3.40
14	KOTA	LADPURA	S-NPP	25.20648	75.91653	13:33:58	D	2.40
15	KOTA	PIPALDA	S-NPP	25.57539	76.42802	13:33:58	D	3.50
16	SWAIMADHOPUR	KHANDAR	S-NPP	25.99527	76.68964	13:33:58	D	2.00

Details of residue burning events in Madhya Pradesh on 17-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.48558	77.76310	13:33:58	D	3.30
2	ASHOKNAGAR	CHANDERI	S-NPP	24.66063	78.04841	13:33:58	D	5.50
3	ASHOKNAGAR	ISAGARH	S-NPP	24.86962	77.79430	13:33:58	D	5.40
4	ASHOKNAGAR	ISAGARH	S-NPP	24.87192	77.79460	13:33:58	D	2.50
5	BHOPAL	HUZUR	S-NPP	23.27642	77.31406	13:33:58	D	3.40
6	DAMOH	DAMOH	S-NPP	23.73171	79.52174	13:33:58	D	2.30
7	DAMOH	PATHARIA	JPSS-2	23.98671	79.39359	02:00:44	N	1.40
8	DAMOH	TENDUKHERA	S-NPP	23.28611	79.37094	13:33:58	D	2.30
9	DATIA	SEONDHA	S-NPP	25.86455	78.48847	13:33:58	D	2.70
10	DEWAS	BAGLI	S-NPP	22.75898	76.39252	13:33:58	D	1.90
11	DHAR	BADNAWAR	S-NPP	22.94602	75.29573	13:33:58	D	1.80
12	GUNA	ARON	S-NPP	24.36201	77.55114	13:33:58	D	3.70
13	GUNA	ARON	S-NPP	24.36614	77.38295	13:33:58	D	1.50
14	GUNA	ARON	S-NPP	24.38243	77.57239	13:33:58	D	8.20
15	GUNA	ARON	S-NPP	24.40378	77.47496	13:33:58	D	4.90
16	GUNA	ARON	S-NPP	24.49789	77.45109	13:33:58	D	4.80
17	GUNA	GUNA	S-NPP	24.62858	77.38950	13:33:58	D	3.00
18	GUNA	GUNA	S-NPP	24.64096	77.42841	13:33:58	D	2.90
19	GUNA	GUNA	S-NPP	24.66649	77.41180	13:33:58	D	3.20
20	GUNA	GUNA	JPSS-2	25.01790	76.93385	02:00:44	N	0.40
21	GUNA	RAGHOGARH	S-NPP	24.28297	77.18701	13:33:58	D	1.70
22	HARDA	TIMURNI	S-NPP	22.34057	77.27009	13:33:58	D	1.20
23	HARDA	TIMURNI	S-NPP	22.54165	77.19003	13:33:58	D	2.10
24	INDORE	DEPALPUR	S-NPP	23.05464	75.58073	13:33:58	D	2.30
25	INDORE	SANWER	S-NPP	22.80742	75.93200	13:33:58	D	4.10
26	JABALPUR	SAHPURA	S-NPP	23.12559	79.44833	13:33:58	D	1.80
27	JABALPUR	SAHPURA	S-NPP	23.15572	79.73600	13:33:58	D	5.10
28	MORENA	JORA	S-NPP	26.36687	77.66879	13:33:58	D	1.60
29	MORENA	JORA	S-NPP	26.37410	77.56352	13:33:58	D	3.50
30	MORENA	JORA	S-NPP	26.48349	77.90034	13:33:58	D	2.60

31	NARSHIMAPURA	NARSIMHAPUR	S-NPP	22.83534	79.41116	13:33:58	D	2.70
32	RAISEN	GOHARGANJ	S-NPP	23.05965	77.72092	13:33:58	D	3.10
33	SAGAR	DEVRI	S-NPP	23.44718	79.12466	13:33:58	D	2.30
34	SAGAR	KHURAI	S-NPP	24.01923	78.32195	13:33:58	D	1.60
35	SAGAR	KHURAI	S-NPP	24.07327	78.37801	13:33:58	D	2.30
36	SAGAR	REHLI	S-NPP	23.59546	79.12615	13:33:58	D	4.50
37	SATNA	MAIHAR	JPSS-1	24.17156	80.69370	02:48:52	N	0.90
38	SEHORE	AASHTA	S-NPP	23.10243	76.61349	13:33:58	D	2.80
39	SEHORE	SEHORE	S-NPP	23.28508	77.05265	13:33:58	D	2.10
40	SHAJAPUR	KALA PIPAL	S-NPP	23.14403	76.82699	13:33:58	D	1.60
41	SHAJAPUR	KALA PIPAL	S-NPP	23.21972	76.69764	13:33:58	D	2.20
42	SHIVPURI	KOLARAS	S-NPP	25.04532	77.55731	13:33:58	D	3.40
43	SINGRAULI	DEOSAR	JPSS-2	24.20153	82.52964	02:00:44	N	1.50
44	UJJAIN	BARNAGAR	S-NPP	23.15176	75.53205	13:33:58	D	1.10
45	UJJAIN	KACHROD	S-NPP	23.31766	75.44073	13:33:58	D	1.90
46	VIDESHA	BASODA	S-NPP	23.94185	77.98690	13:33:58	D	2.20
47	VIDESHA	GYARASPUR	S-NPP	23.63323	77.94013	13:33:58	D	1.10
48	VIDESHA	LETERI	S-NPP	24.21839	77.46851	13:33:58	D	2.80
49	VIDESHA	SIRANJ	S-NPP	24.07923	77.64230	13:33:58	D	1.60
50	VIDESHA	SIRANJ	S-NPP	24.10817	77.79845	13:33:58	D	2.30
51	VIDESHA	SIRANJ	S-NPP	24.20523	77.52373	13:33:58	D	2.20

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	Both
2.	JPSS-1 (NOAA -20)	VIIRS	375	Both
3.	JPSS-2 (NOAA-21)	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](#)
