

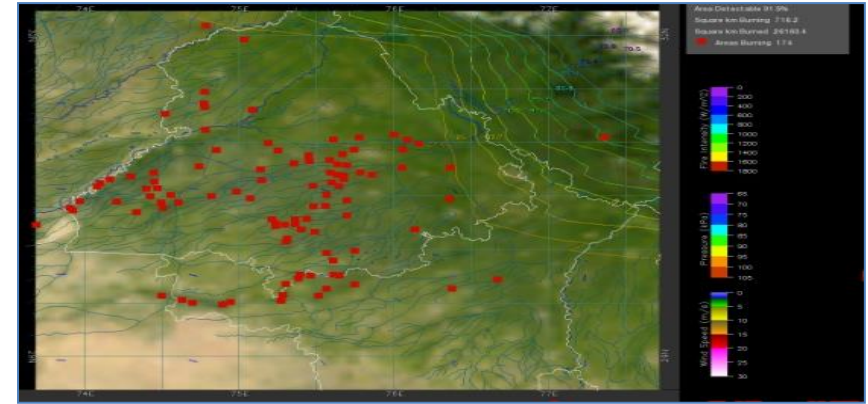
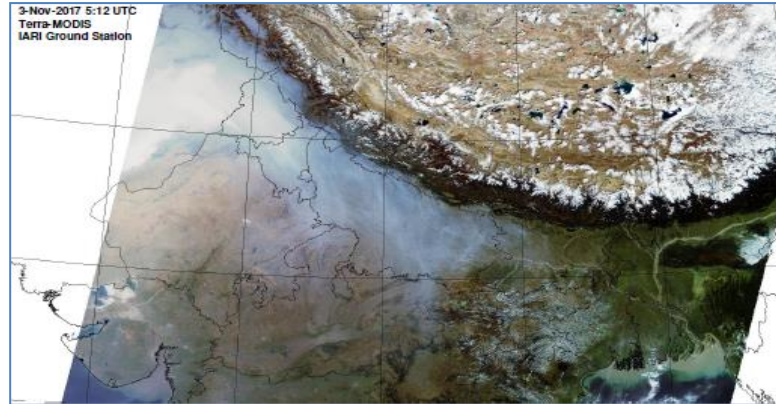


MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2024

Bulletin
No. 35

Events Date:
19-Oct-2024

Issued on:
19-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

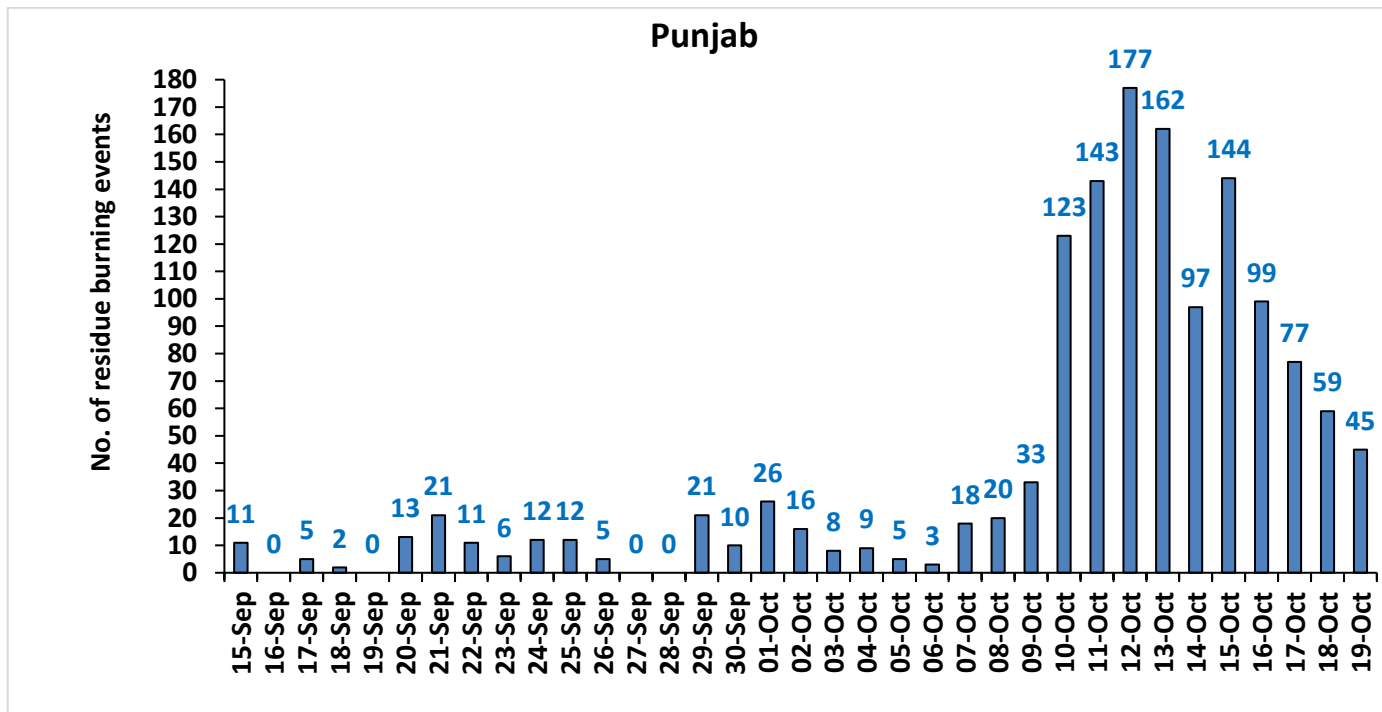
<https://creams.iari.res.in>



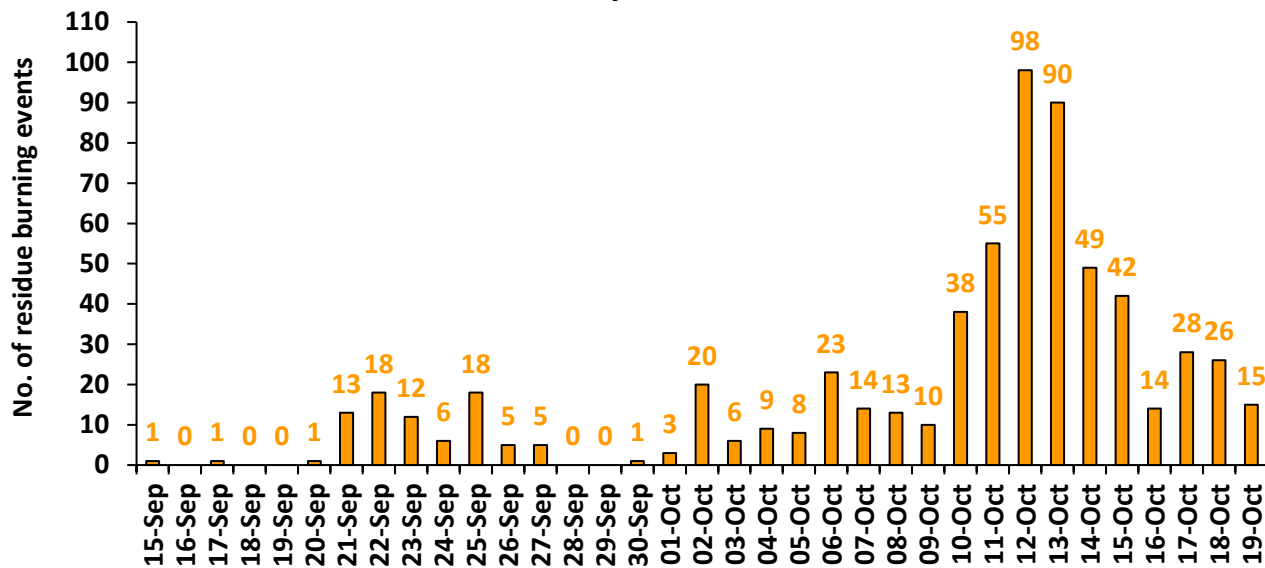
Highlights for 19-Oct-2024

- 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 **161** residue burning events in the six study States on **19-Oct-2024**.
- The state wise events detected on **19-Oct-2024** were **45** in Punjab, **15** in Haryana, **30** in UP, **00** in Delhi, **25** in Rajasthan and **46** in MP.
- Total **3376** burning events were detected in the six states between **15-Sept-2024** and **19-Oct-2024**, which are distributed as **1393**, **642**, **687**, **11**, **264** and **379** 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.

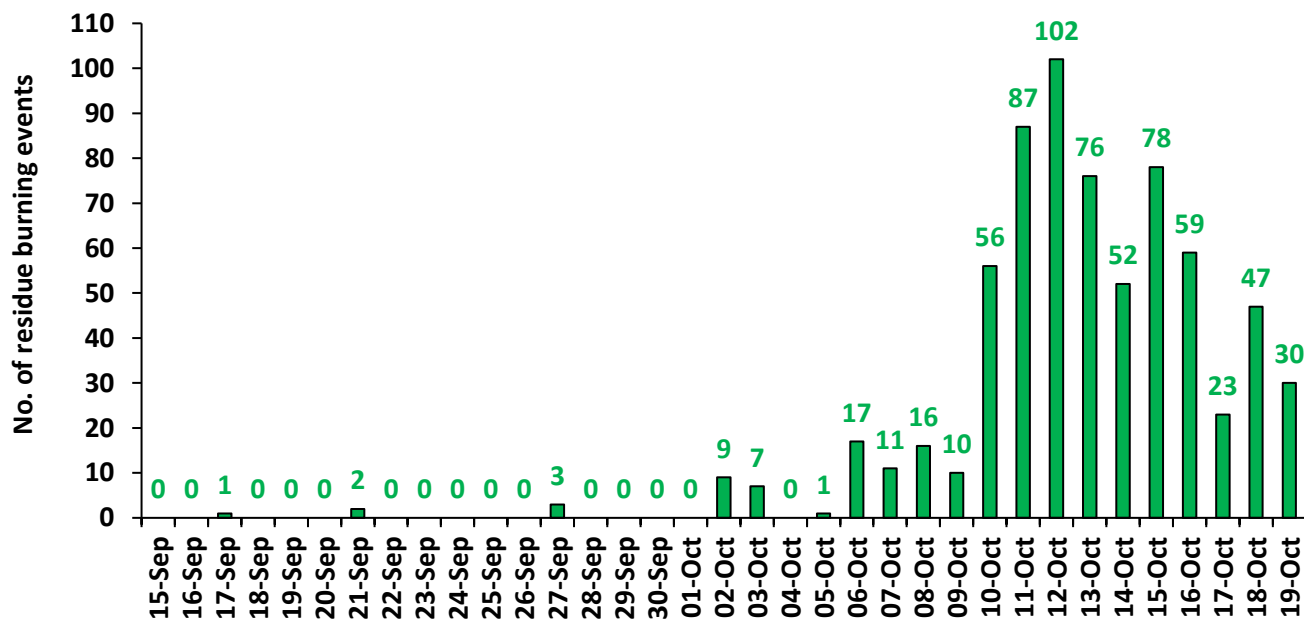
Temporal distribution of rice residue burning events for the study States in 2024



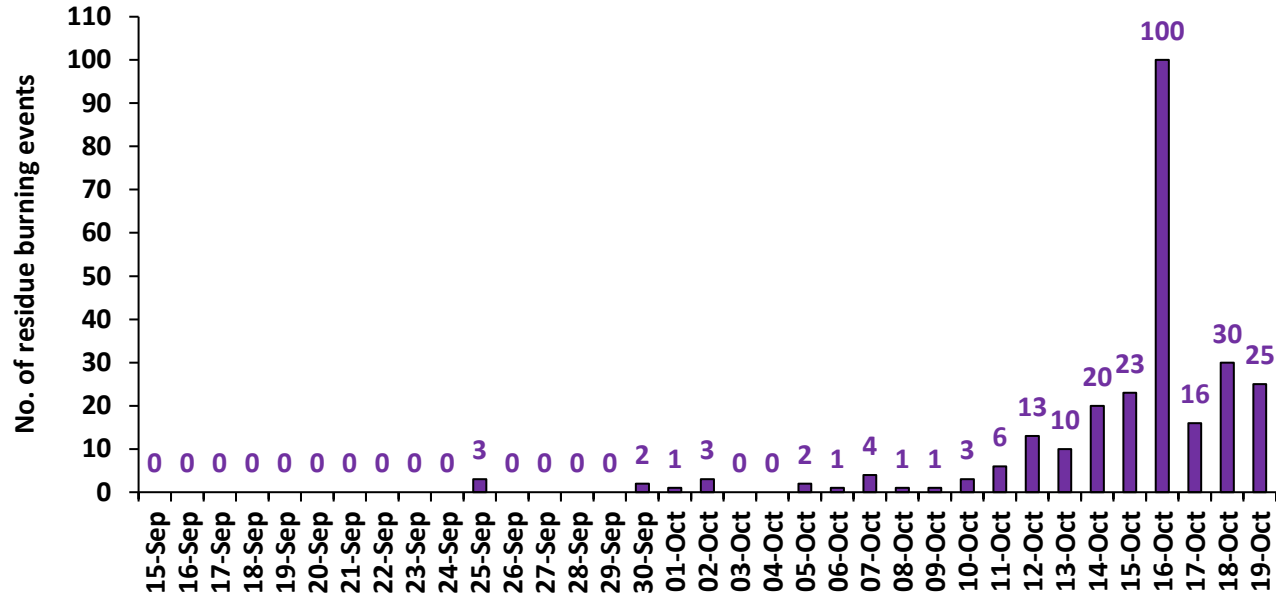
Haryana



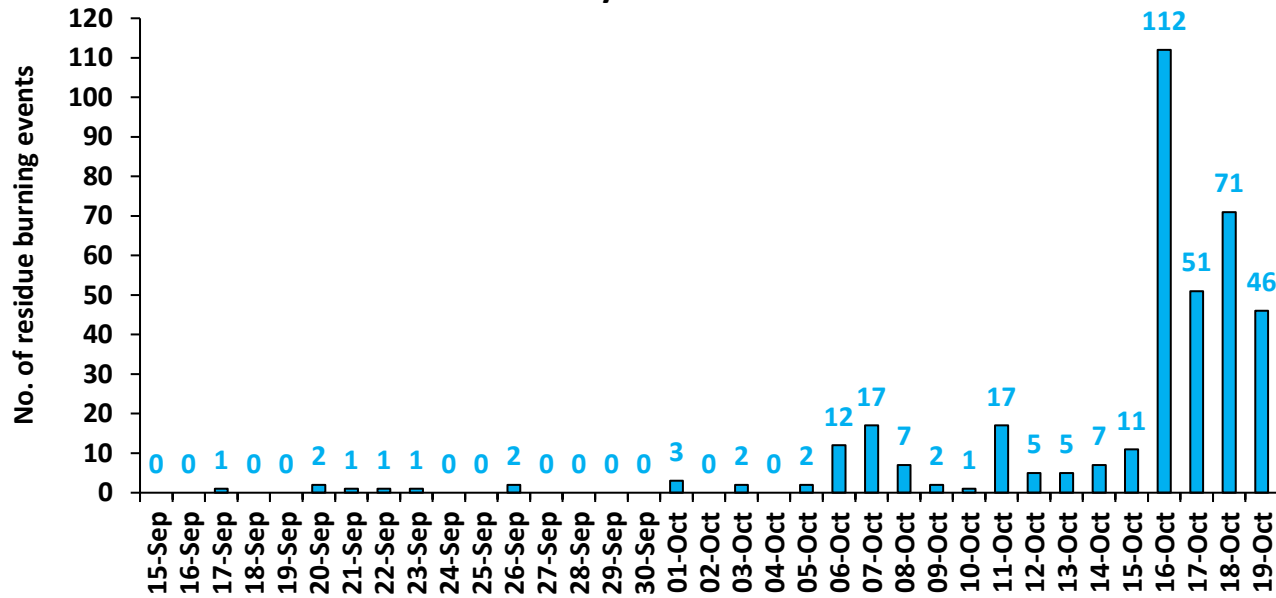
Uttar Pradesh



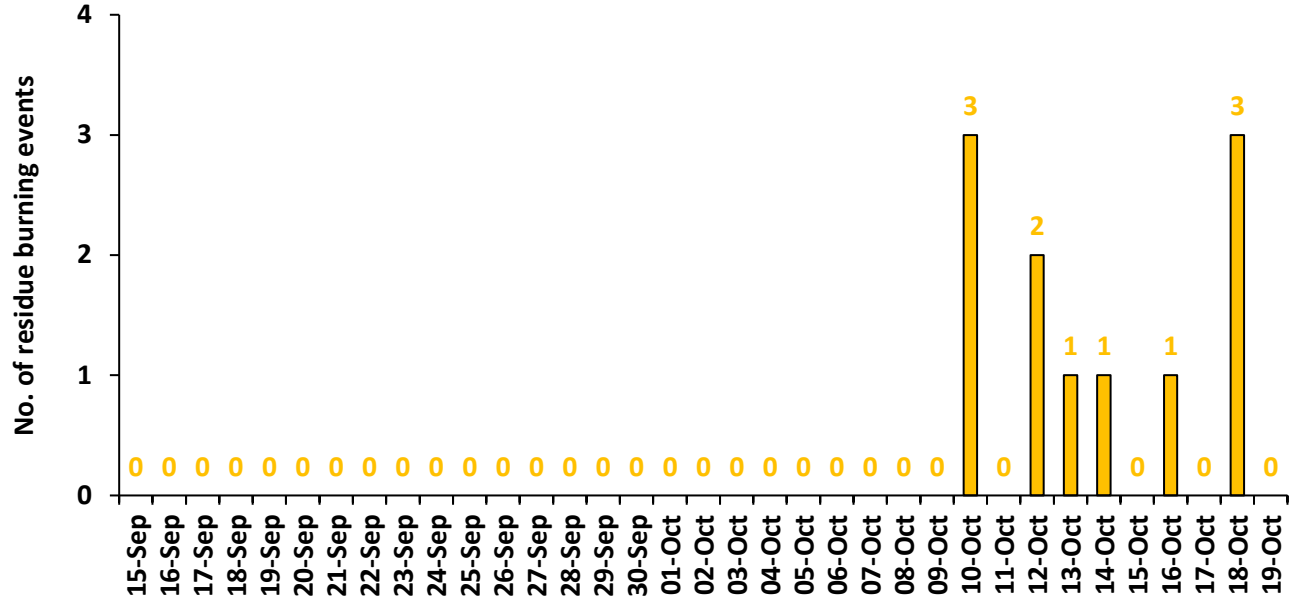
Rajasthan



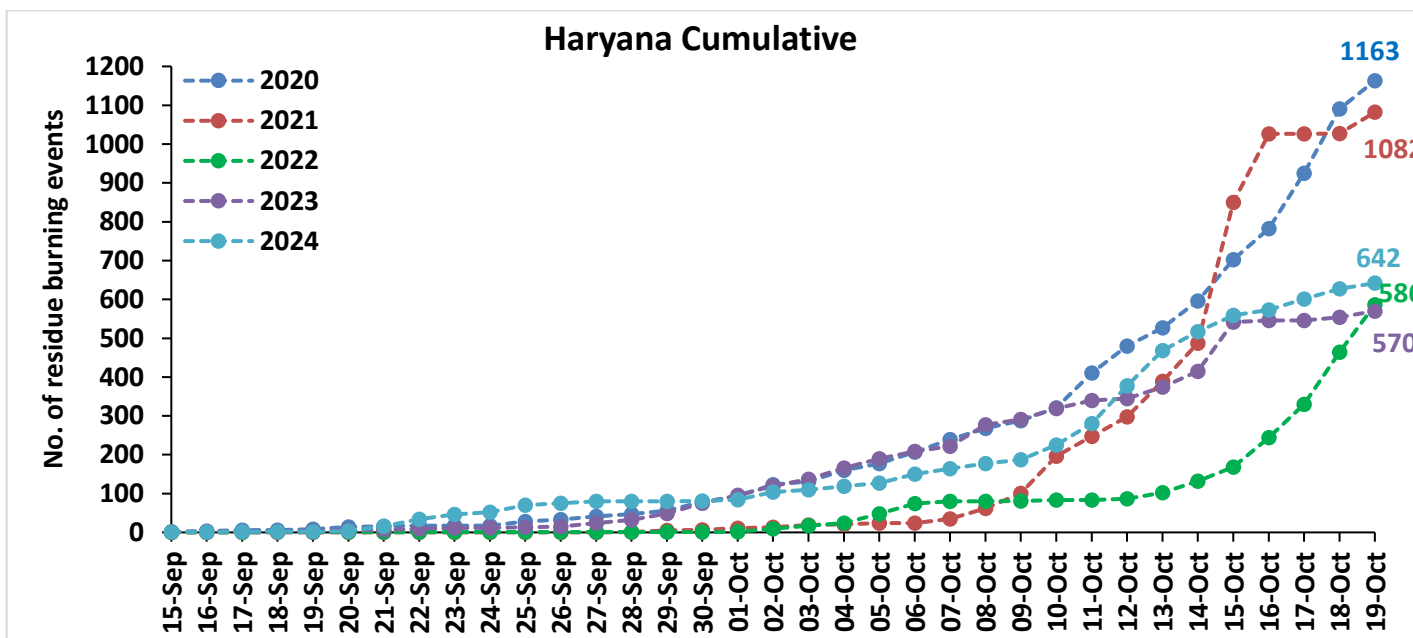
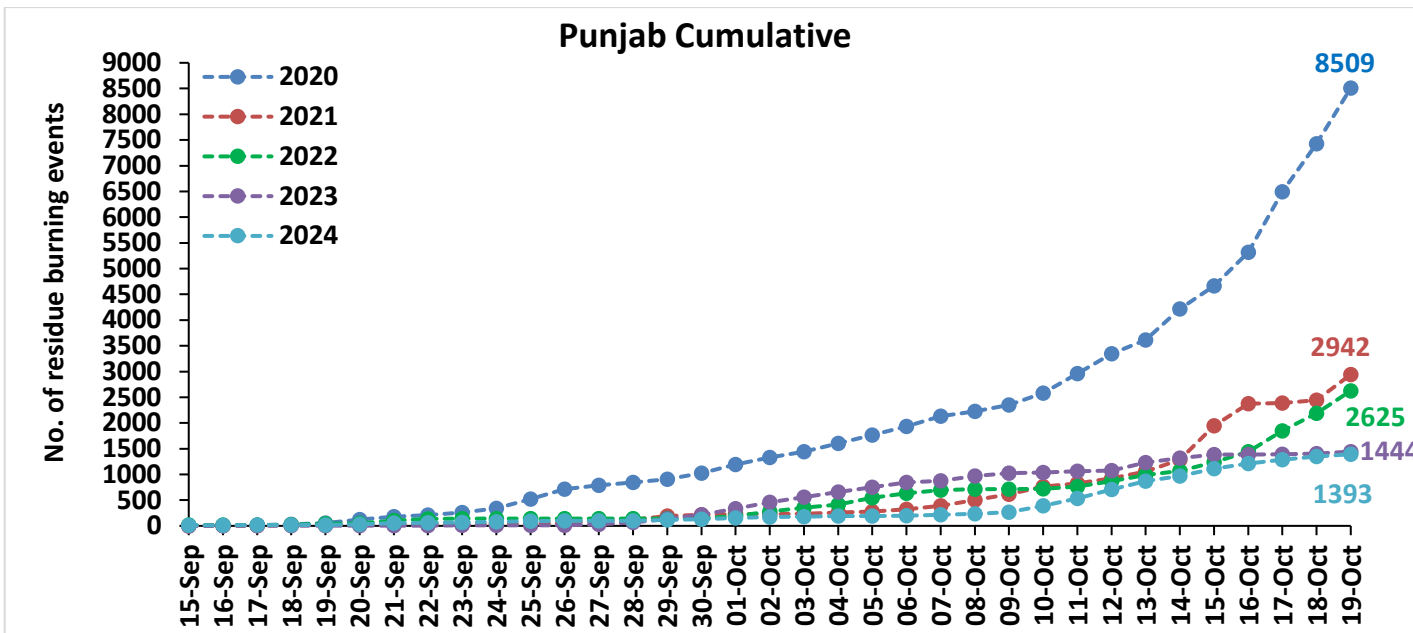
Madhya Pradesh

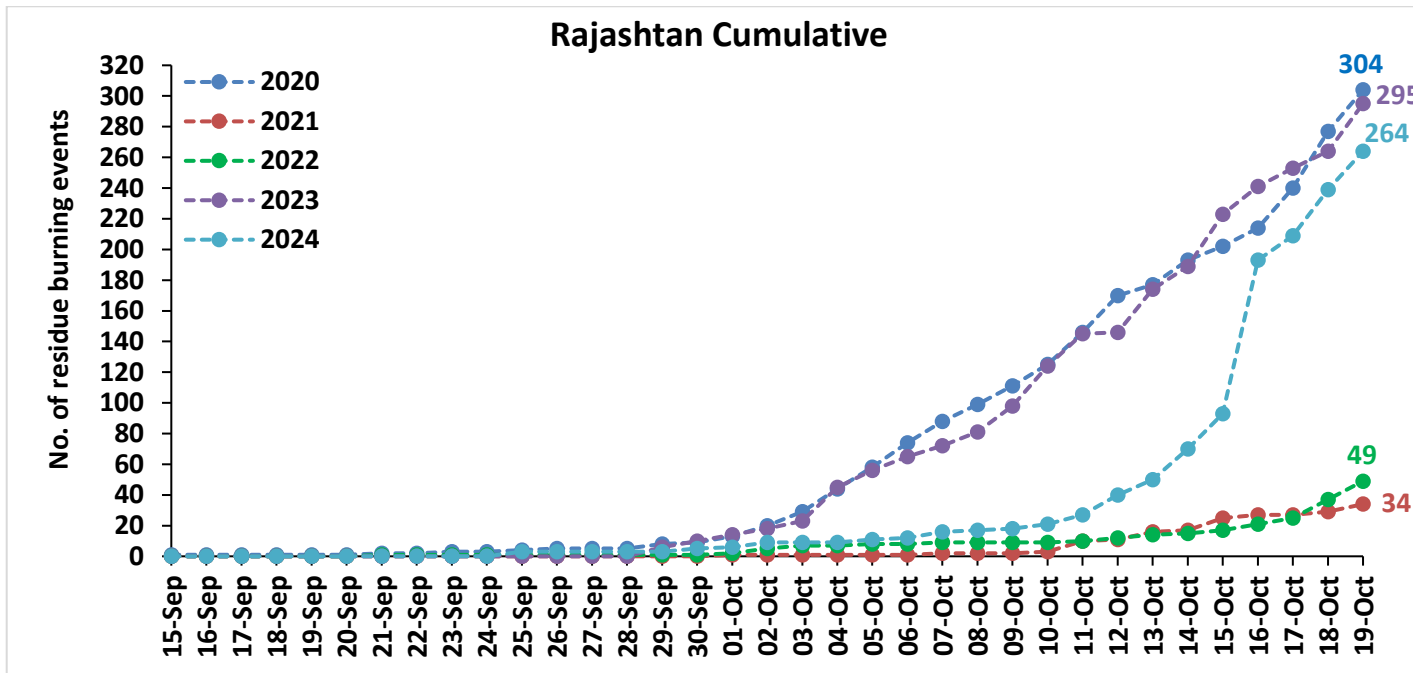
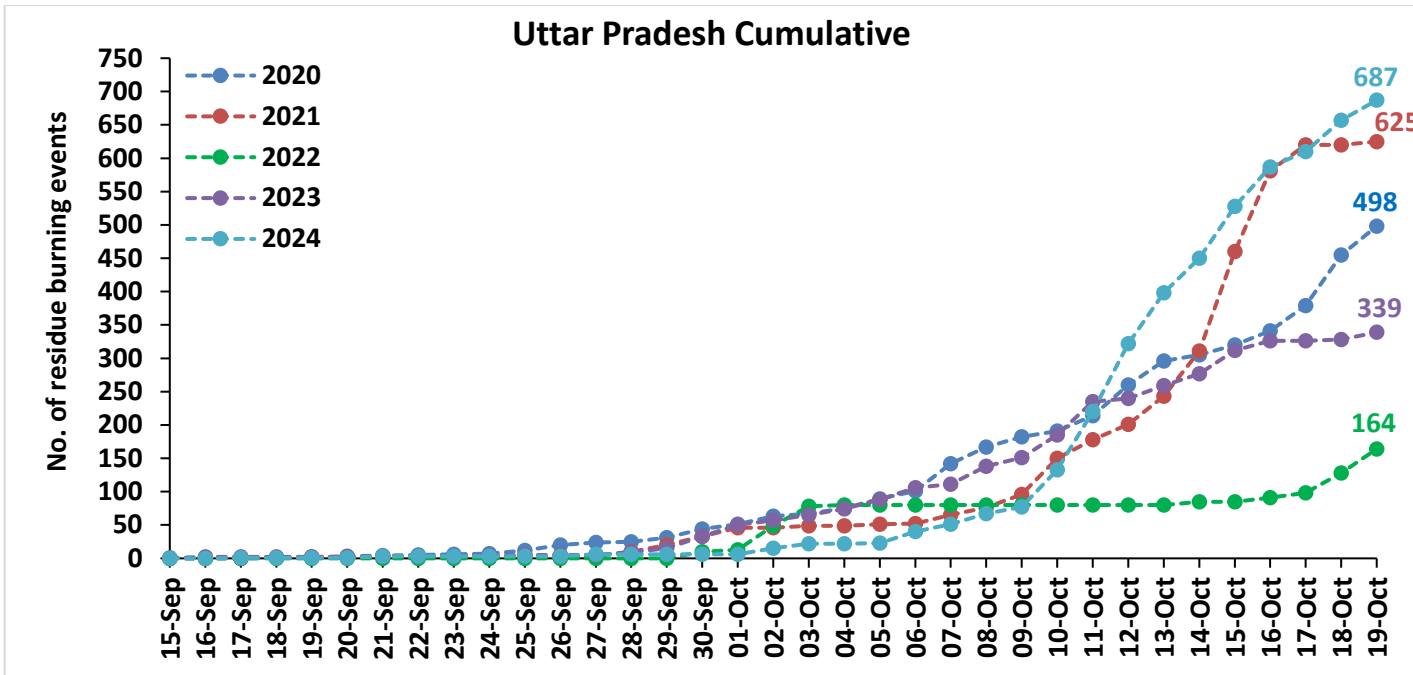


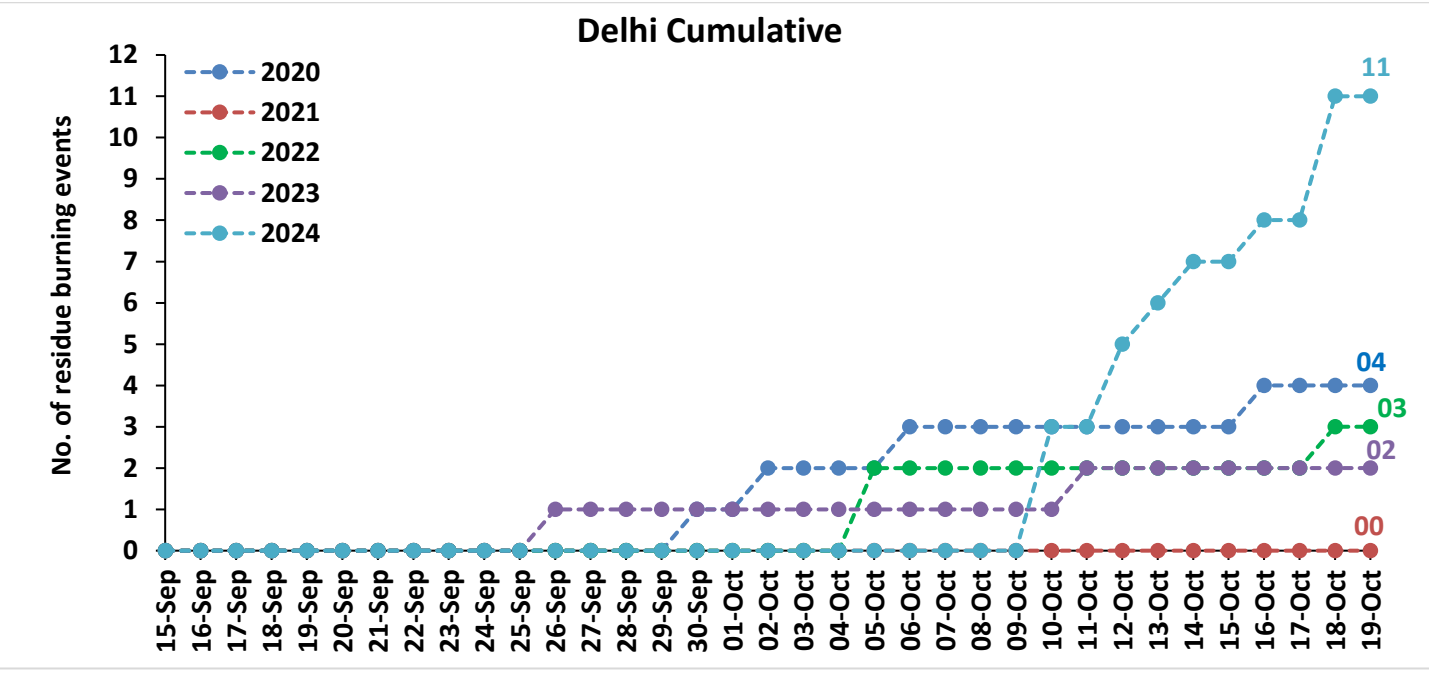
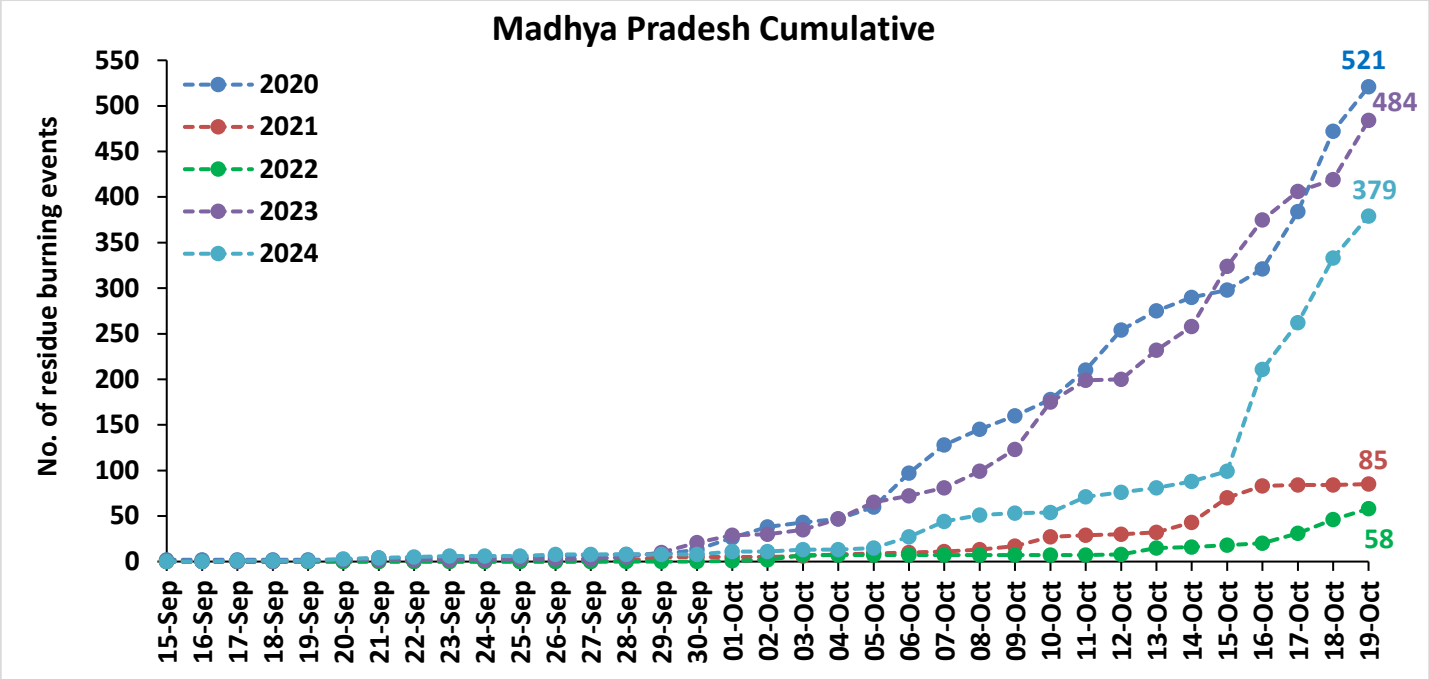
Delhi



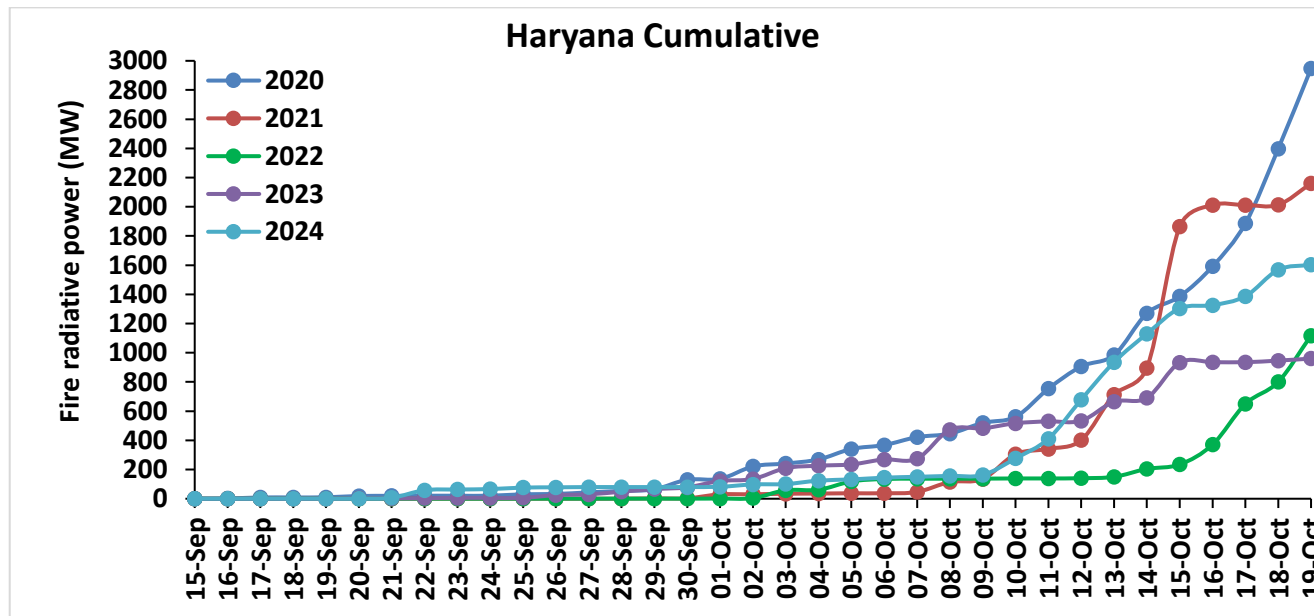
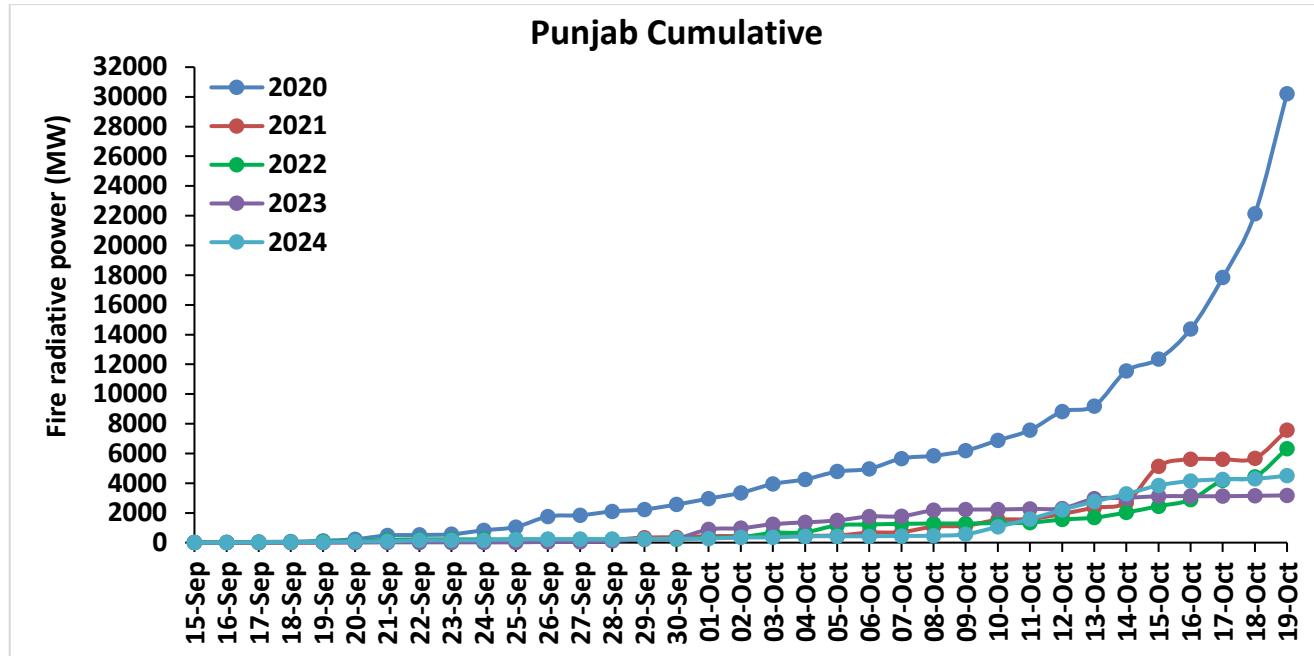
Comparison of residue burning events in current year (2024) with previous years (2020, 2021, 2022 and 2023) for the study States



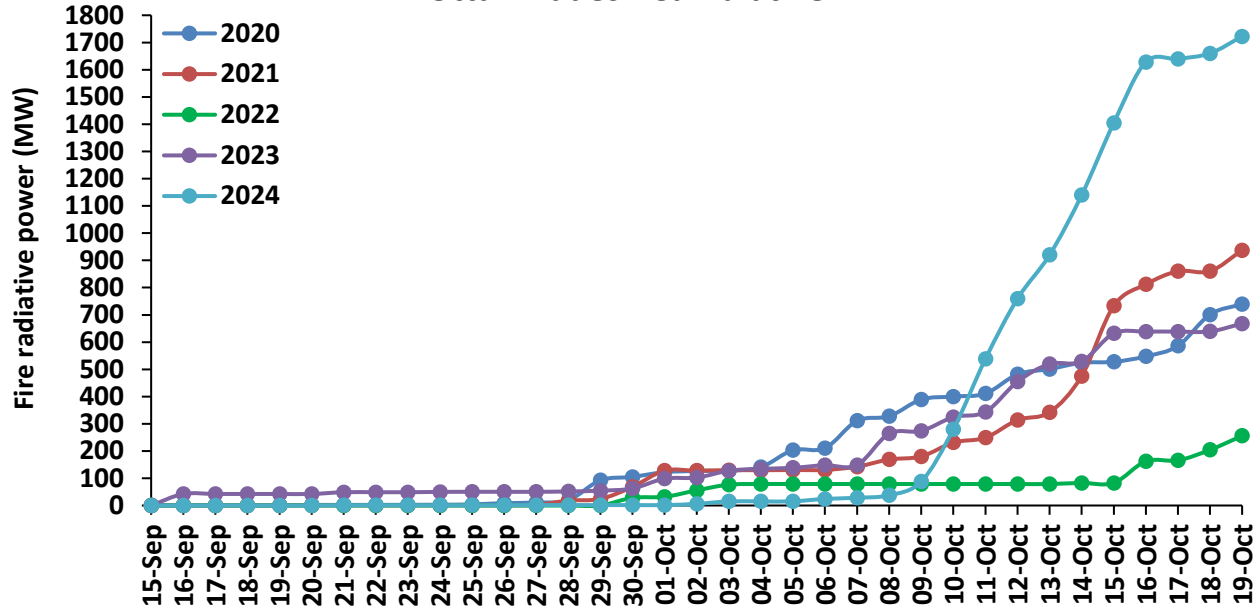




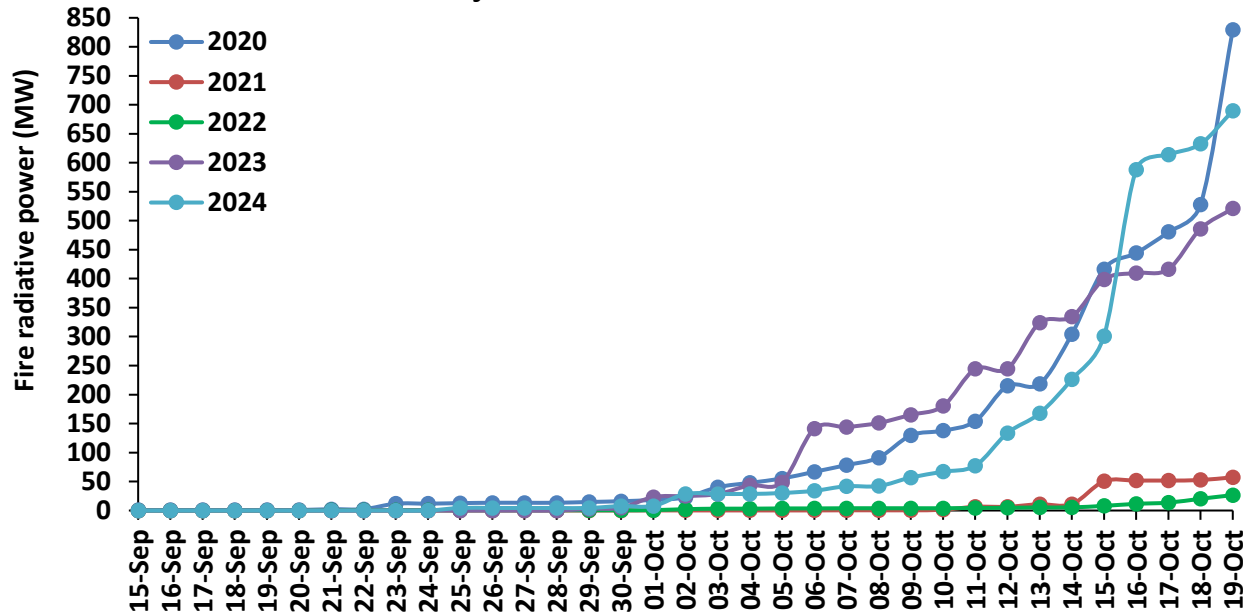
Comparison of residue burning fire power in current year (2024) with previous years (2020,2021,2022 and 2023) for the study States

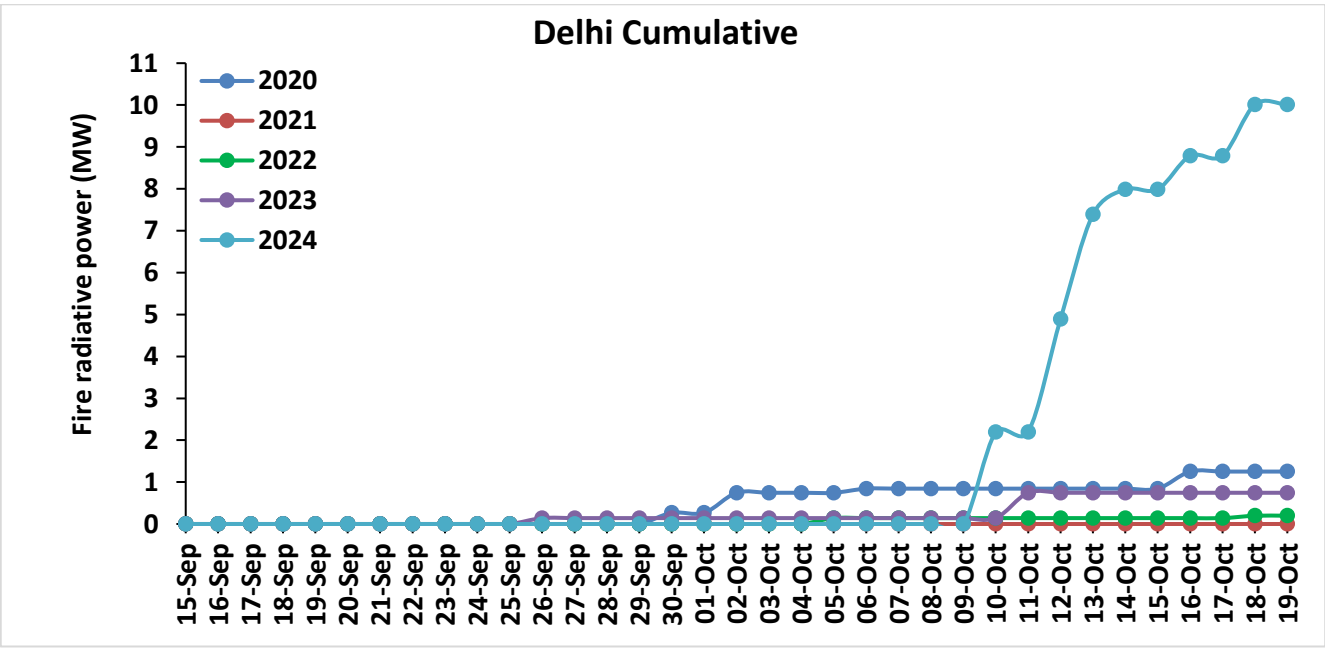
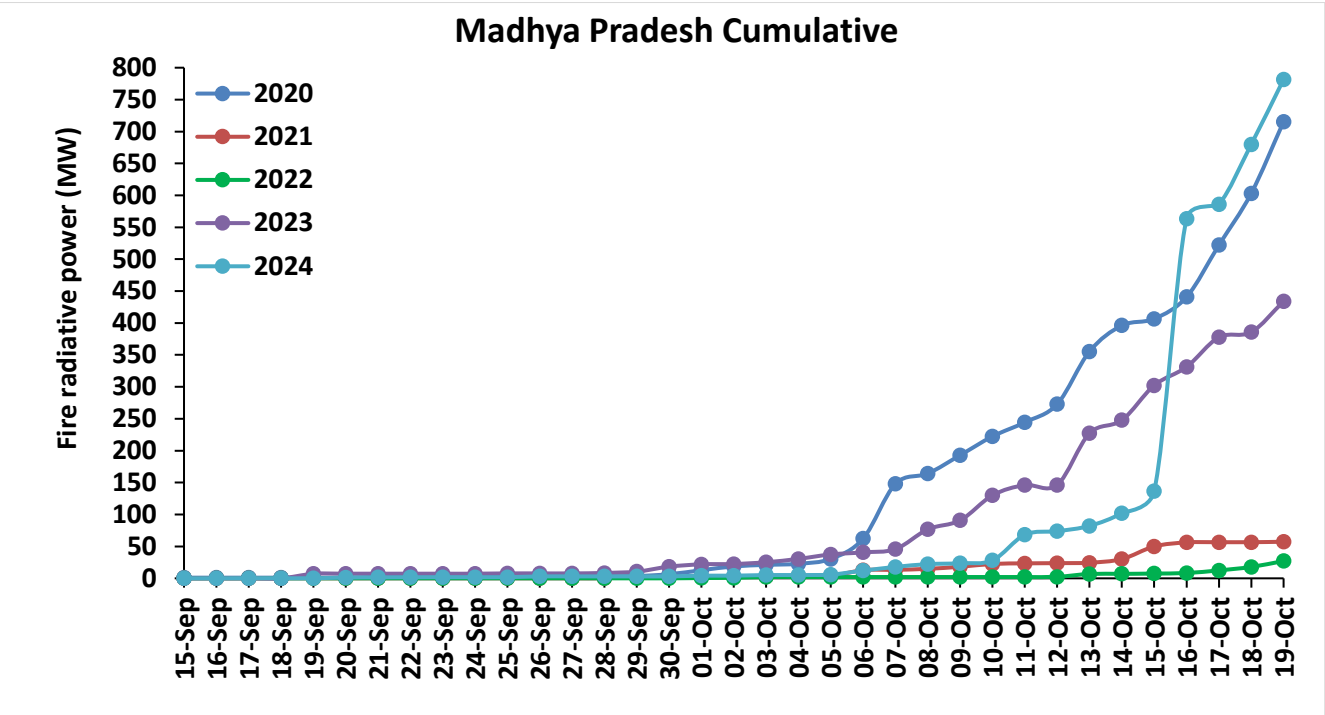


Uttar Pradesh Cumulative



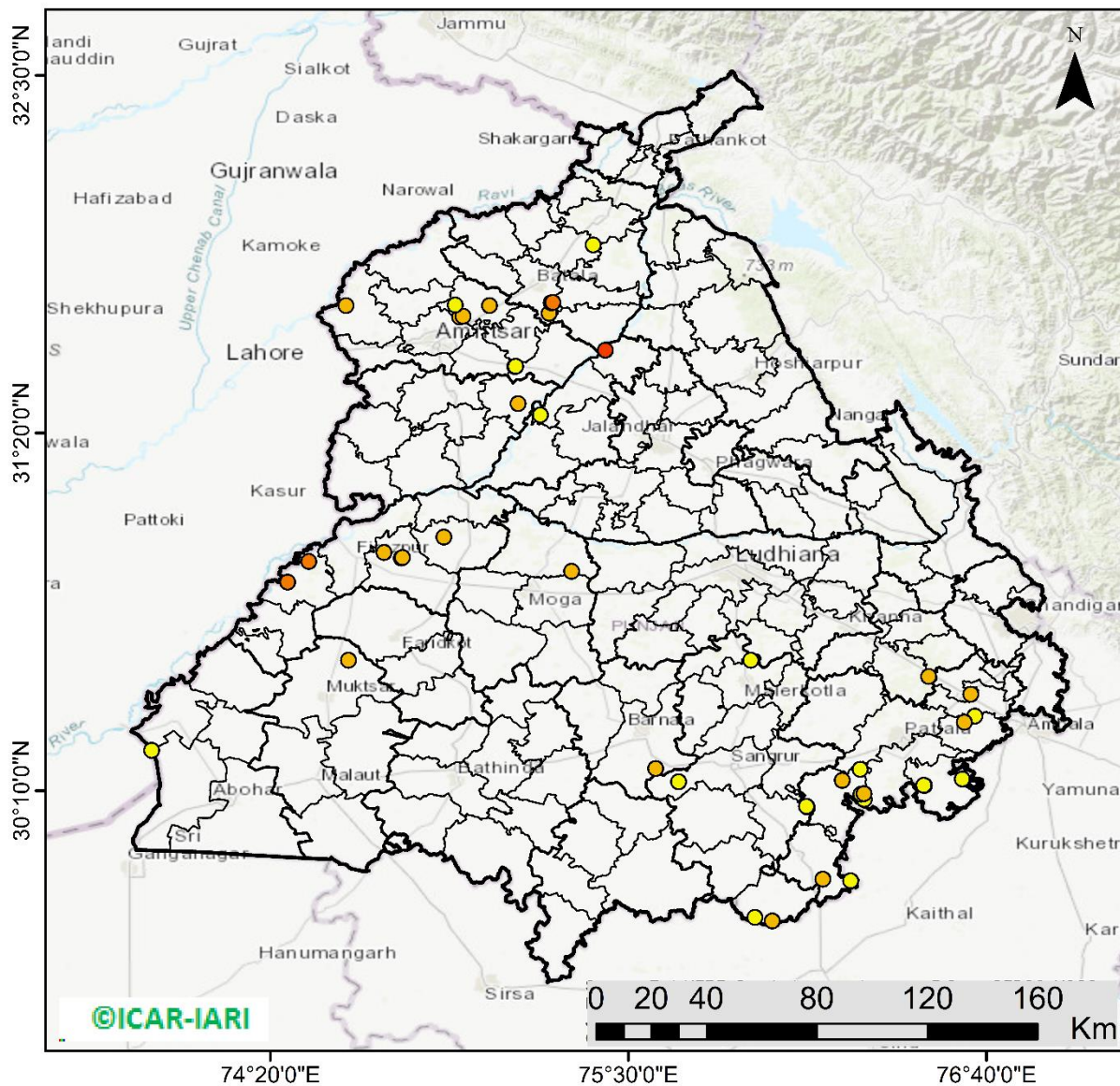
Rajasthan Cumulative





Punjab

RICE RESIDUE BURNING IN PUNJAB



45 burning events detected in Punjab during (19th Oct 2024)

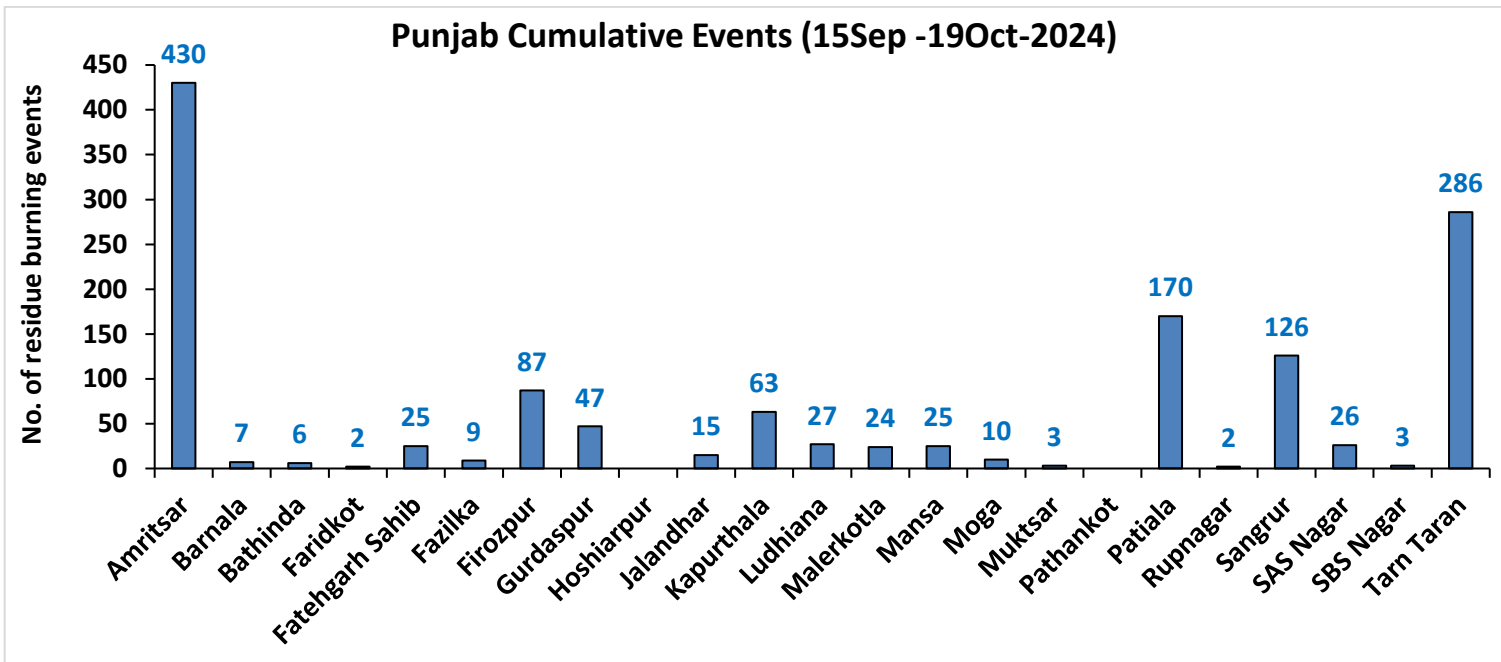
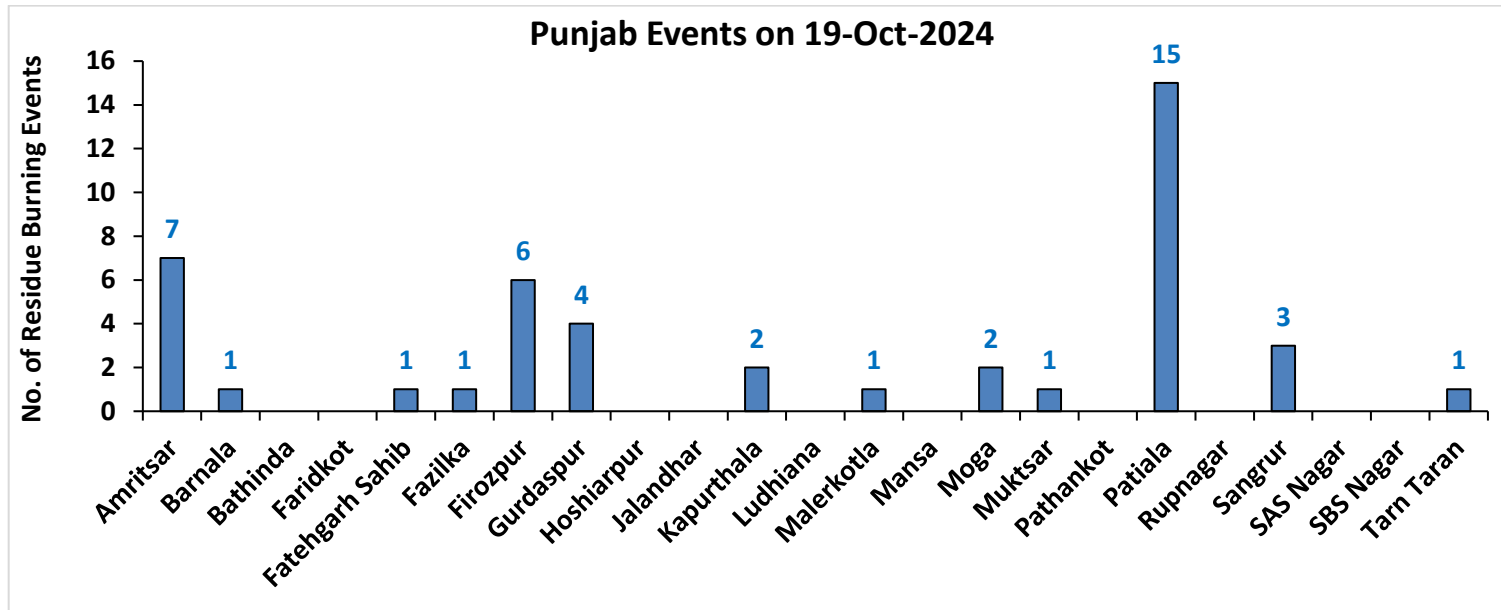
Fire Intensity (W/m²)

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



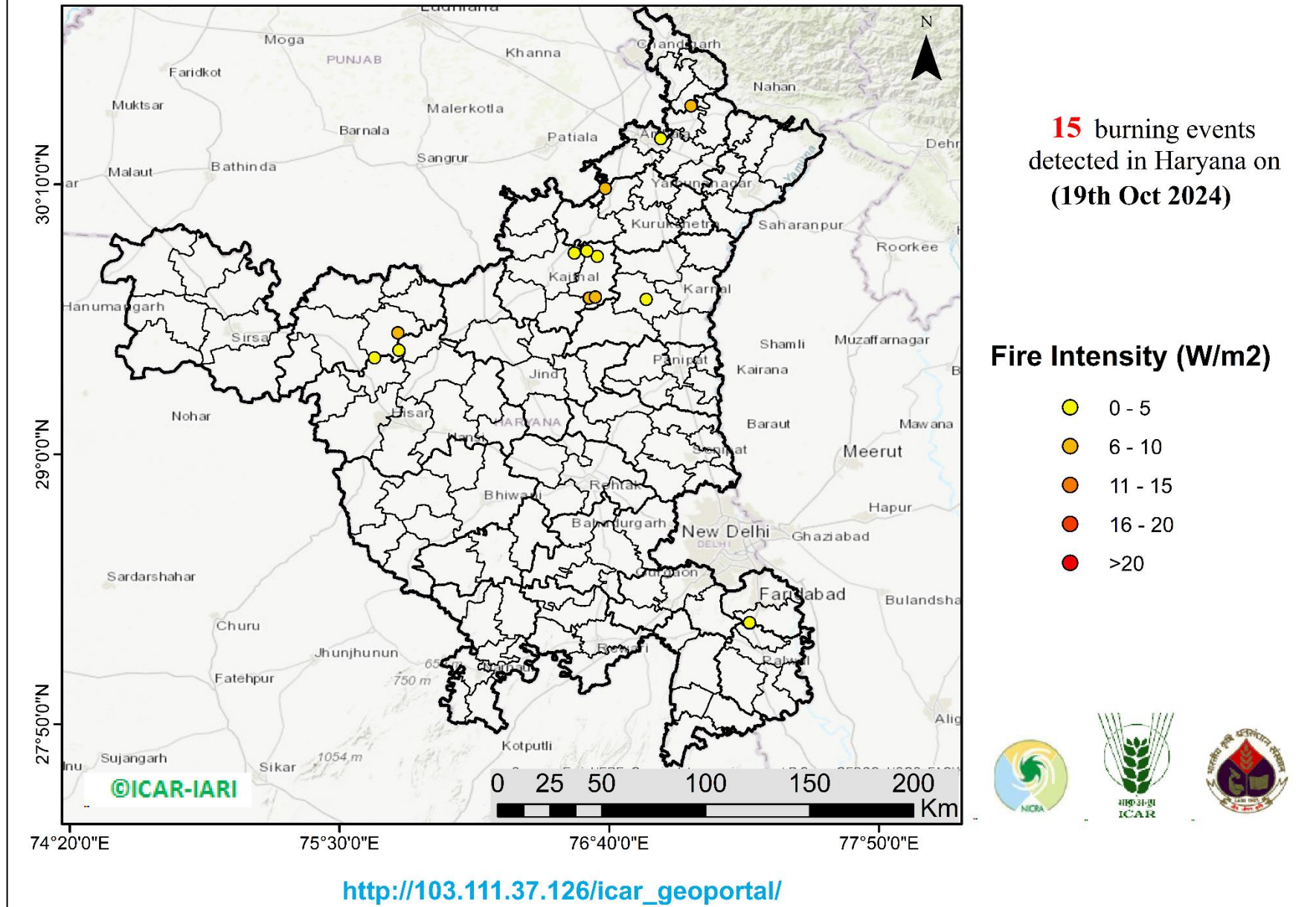
http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Punjab (15Sep-19Oct-2024)

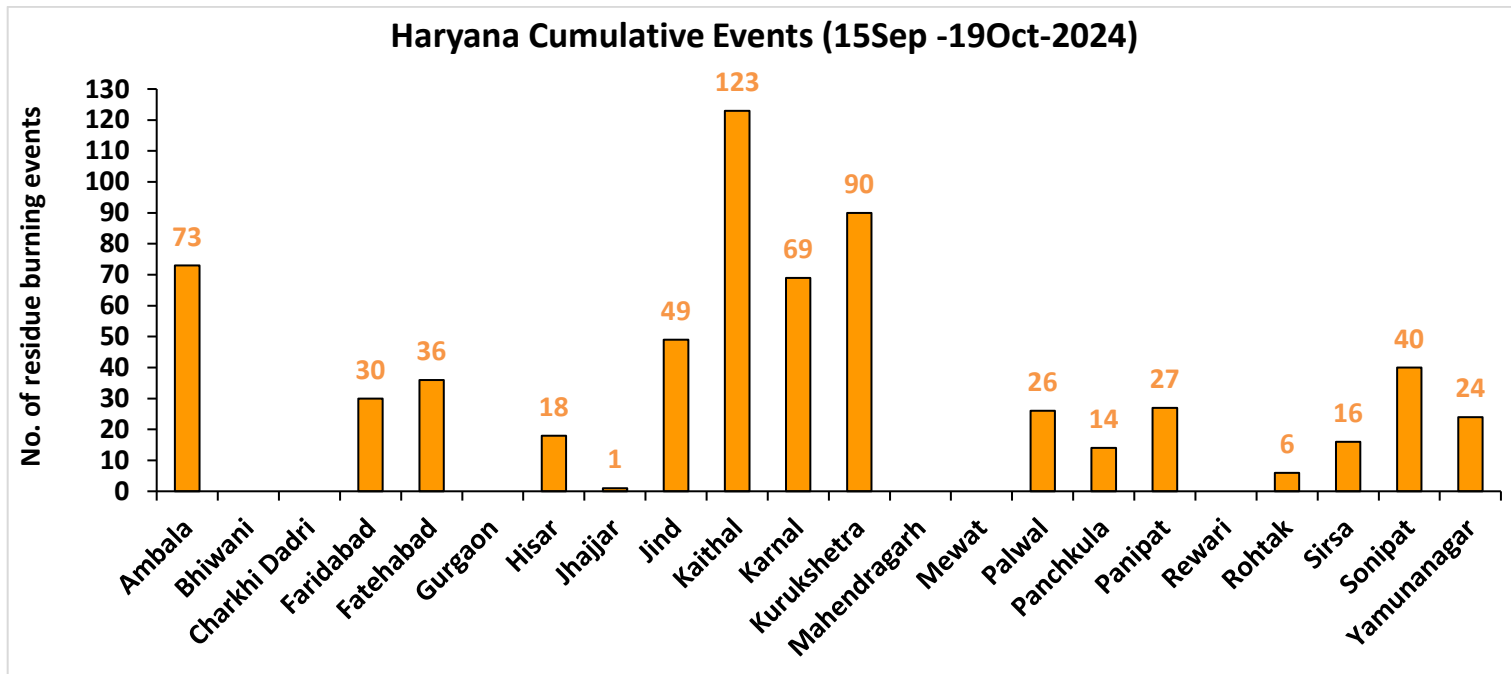
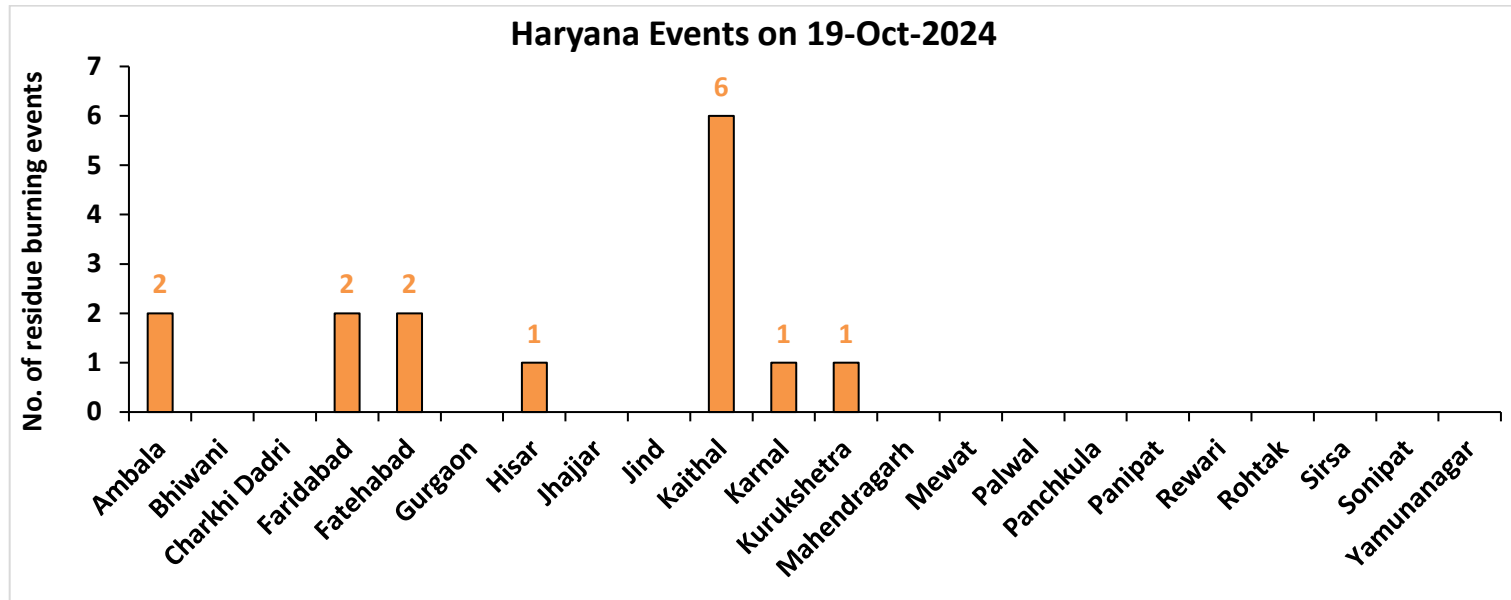


Haryana

RICE RESIDUE BURNING IN HARYANA

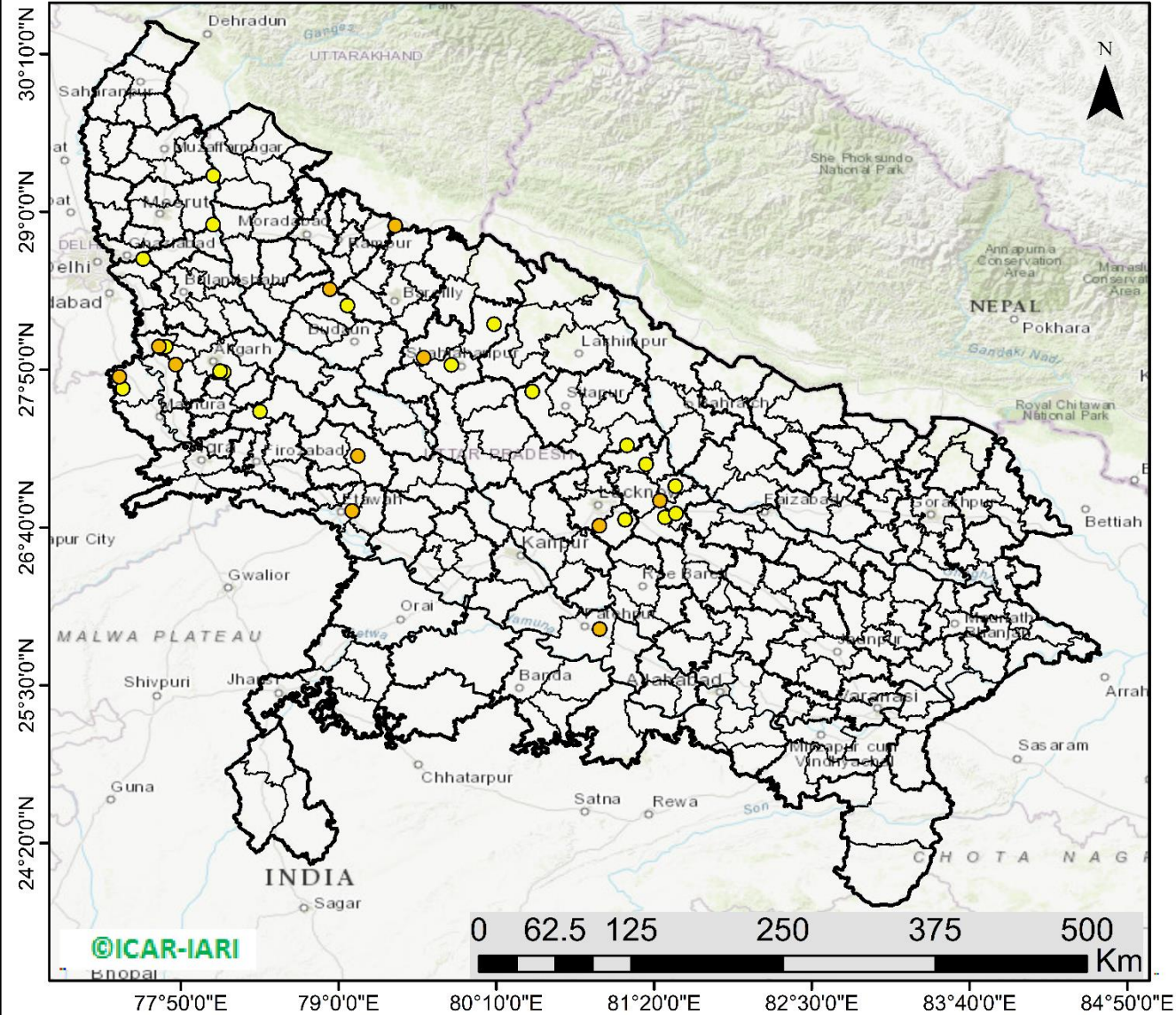


District-wise cumulative number of residues burning events in Haryana (15Sep-19Oct-2024)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



30 burning events detected in Uttar Pradesh on (19th Oct 2024)

Fire Intensity (W/m2)

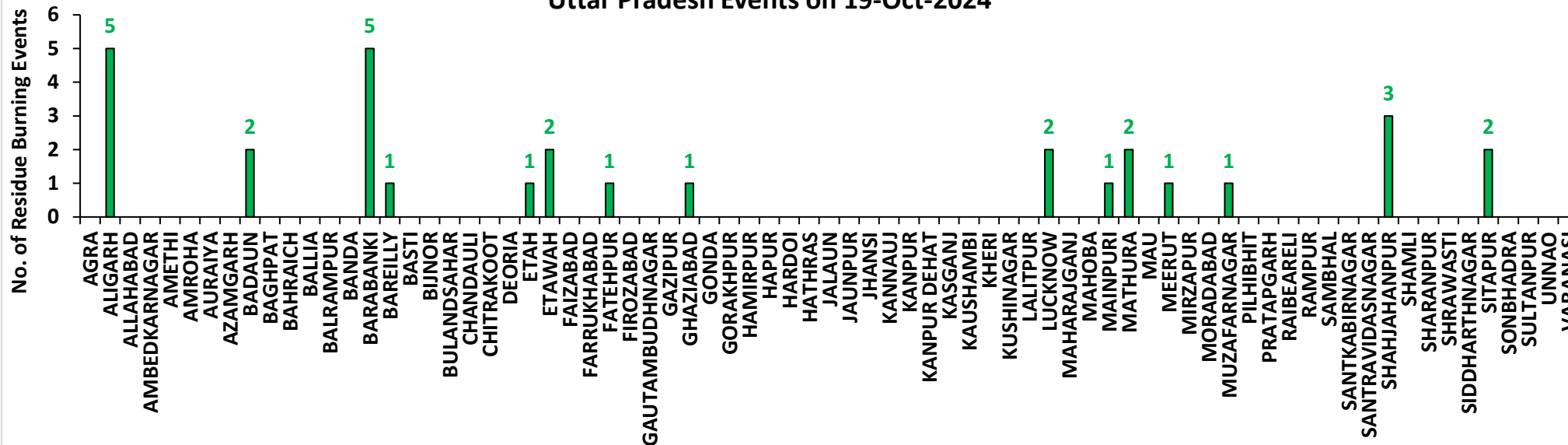
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



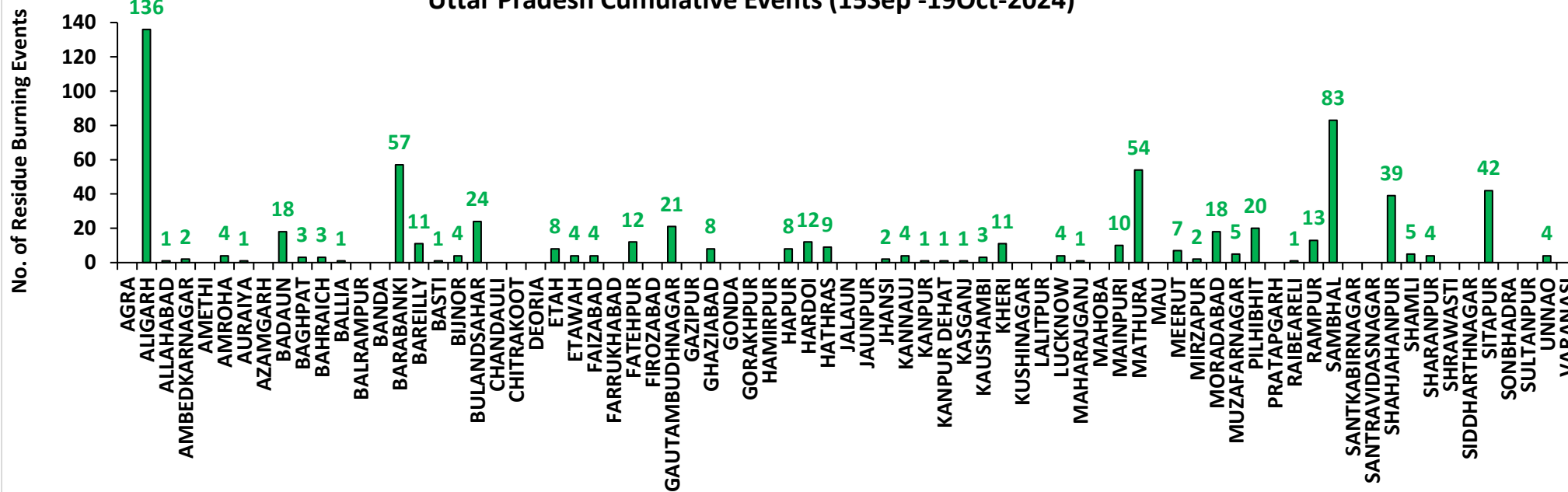
http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-19Oct-2024)

Uttar Pradesh Events on 19-Oct-2024

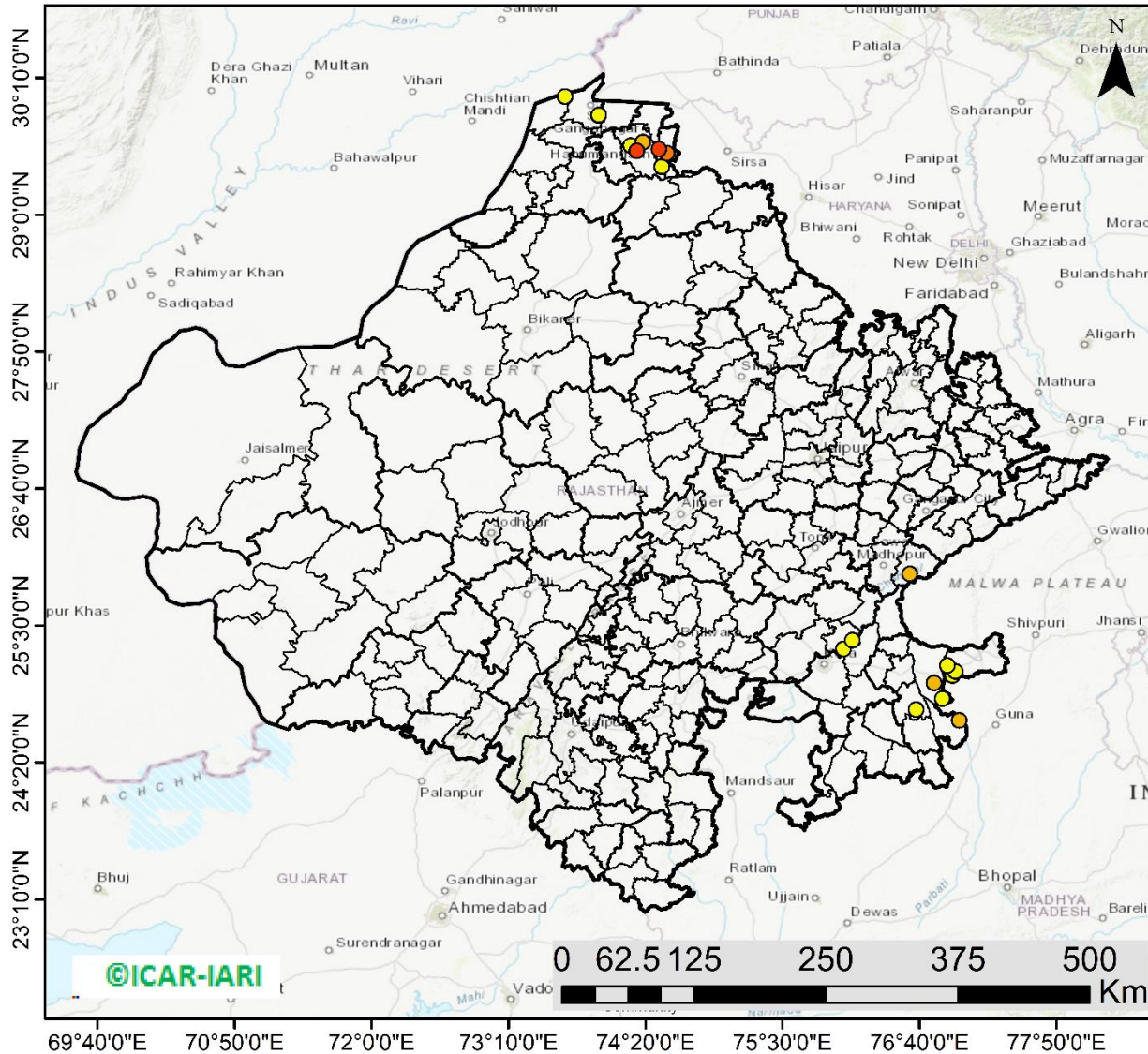


Uttar Pradesh Cumulative Events (15Sep -19Oct-2024)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



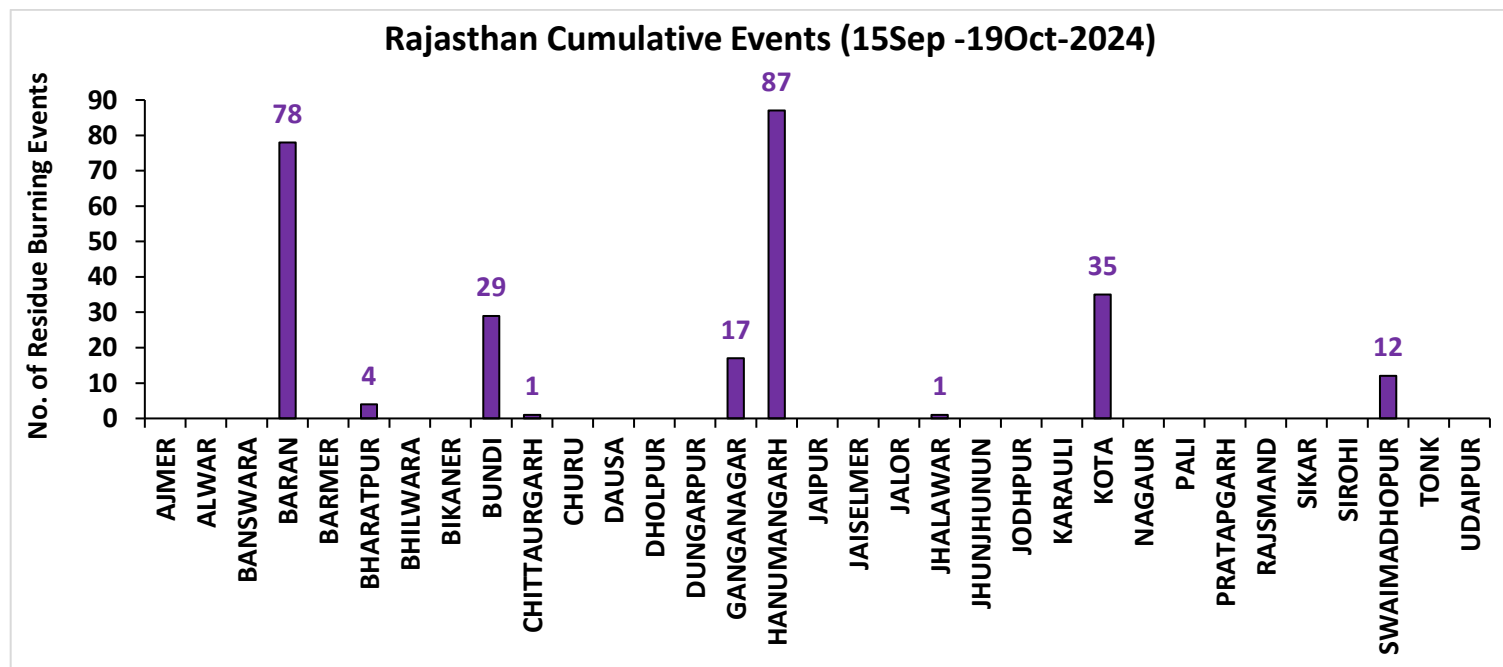
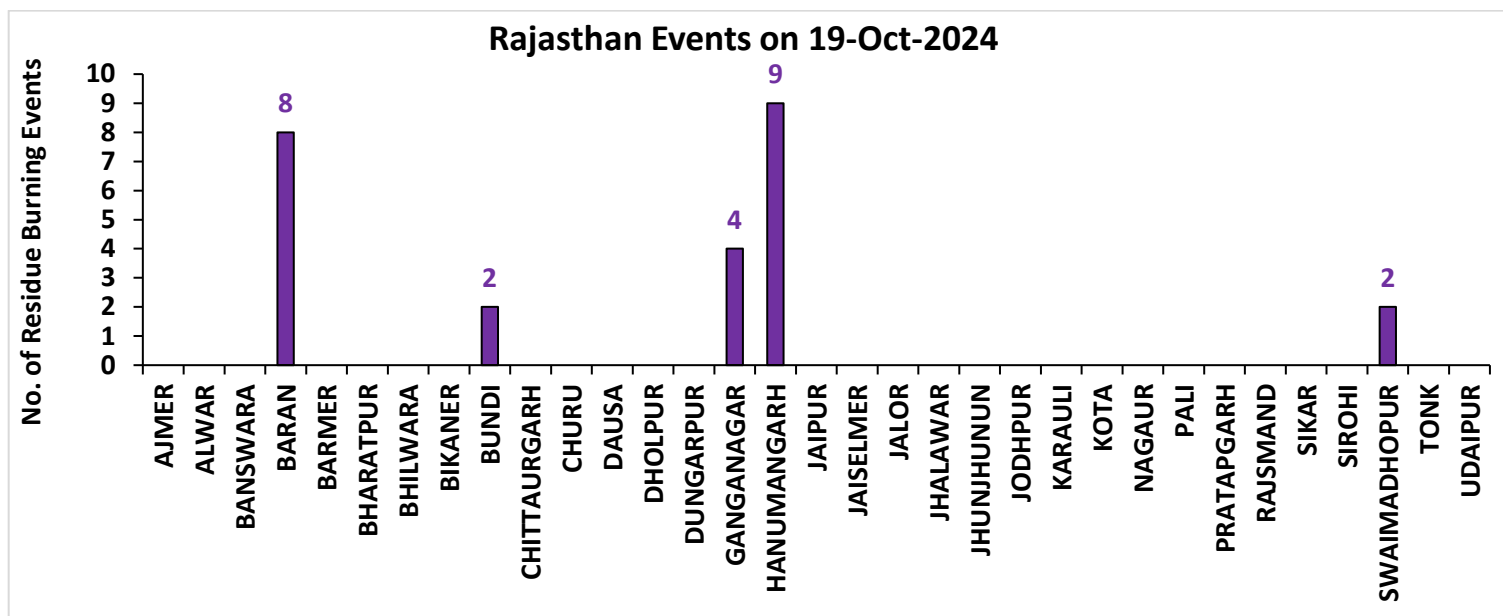
25 burning events detected in Rajasthan on (19th Oct 2024)

Fire Intensity (W/m²)

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

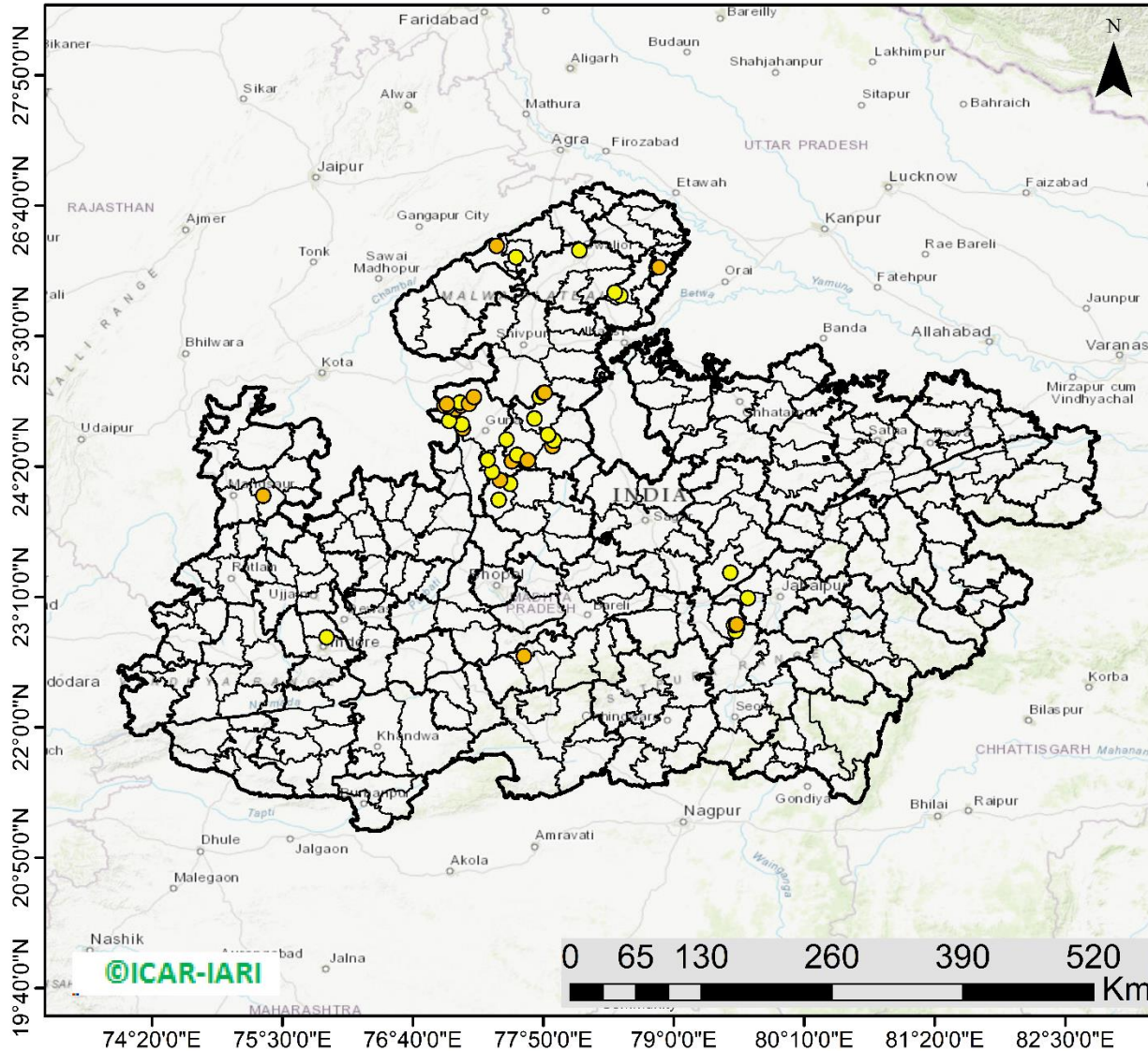


District-wise cumulative number of residues burning events in Rajasthan (15Sep-19Oct-2024)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



46 burning events detected in MP on (19th Oct 2024)

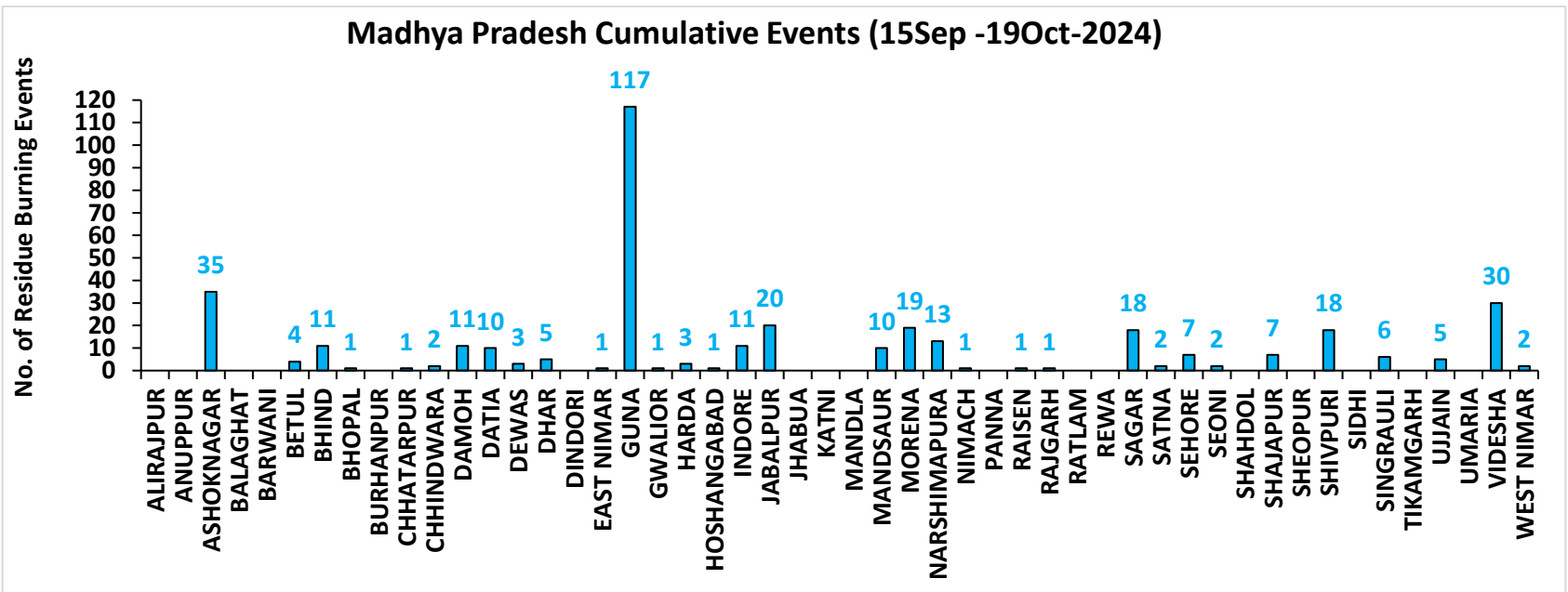
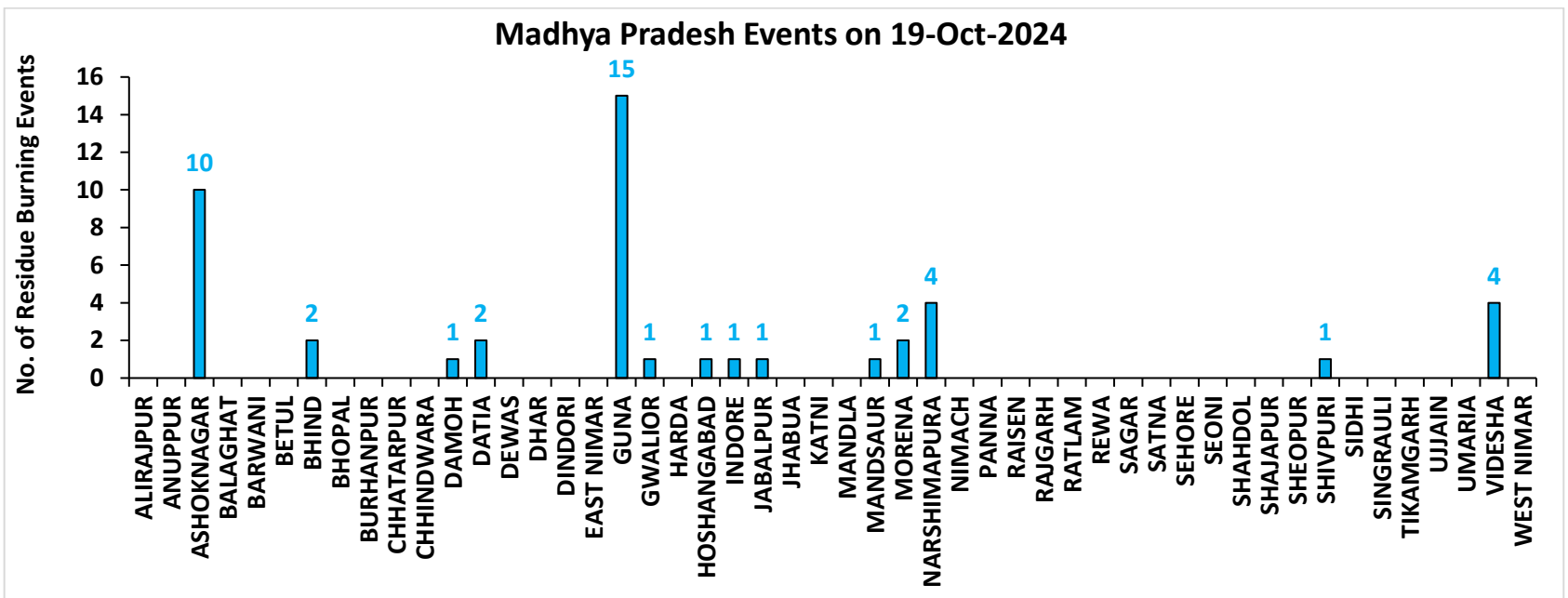
Fire Intensity (W/m²)

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



http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Madhya Pradesh (15Sep-19Oct-2024)



District-wise cumulative number of residues burning events detected in 2020, 2021, 2022, 2023 and 2024
(Period: 15 September-19 October)

(a) Punjab

District	15 Sep-19 Oct				
	2020	2021	2022	2023	2024
Amritsar	2055	665	788	648	430
Barnala	27	24	13	8	7
Bathinda	107	18	8	2	6
Faridkot	397	106	14	9	2
Fatehgarh Sahib	217	113	47	25	25
Fazilka	95	45	20	7	9
Firozpur	843	142	120	65	87
Gurdaspur	588	158	228	11	47
Hoshiarpur	72	19	3	2	0
Jalandhar	154	102	103	20	15
Kapurthala	360	123	138	81	63
Ludhiana	197	186	57	26	27
Malerkotla	0	0	0	3	24
Mansa	71	8	14	37	25
Moga	109	62	51	13	10
Muktsar	70	39	5	1	3
Pathankot	3	0	0	0	0
Patiala	704	284	117	153	170
Rupnagar	46	21	6	1	2
Sangrur	179	57	73	78	126
SAS NAGAR (Mohali)	52	28	11	55	26
SBS Nagar	17	14	2	2	3
Tarn Taran	2146	728	807	197	286
Total	8509	2942	2625	1444	1393

(b) Haryana

District	15 Sep-19 Oct				
	2020	2021	2022	2023	2024
AMBALA	130	54	35	81	73
BHIWANI	0	0	0	2	0
CHARKHI DADRI	0	0	0	0	0
FARIDABAD	0	1	1	2	30
FATEHABAD	67	57	49	87	36
GURGAON	0	0	0	0	0
HISAR	9	1	8	33	18
JHAJJAR	1	0	0	3	1
JIND	33	33	50	66	49
KAITHAL	215	287	162	53	123
KARNAL	326	350	102	39	69
KURUKSHETRA	254	205	126	67	90
MAHENDRAGARH	0	0	0	0	0
MEWAT	0	0	0	0	0
PALWAL	19	25	0	27	26
PANCHKULA	0	0	0	1	14
PANIPAT	9	15	8	14	27
REWARI	0	0	0	0	0
ROHTAK	1	0	0	4	6
SIRSA	18	4	7	6	16
SONIPAT	11	5	6	43	40
YAMUNANAGAR	70	45	32	42	24
Total	1163	1082	586	570	642

(c) Uttar Pradesh

District	15 Sep-19 Oct																
	2020	2021	2022	2023	2024	GAUTAMBUDHNAGAR	2	7	2	6	21	MUZAFARNAGAR	3	2	1	0	5
AGRA	2	0	0	0	0	GAZIPUR	0	0	0	0	0	PILHIBHIT	8	108	16	37	20
ALIGARH	35	21	4	64	136	GHAZIABAD	3	2	1	6	8	PRATAPGARH	1	0	0	0	0
ALLAHABAD	0	1	0	0	1	GONDA	0	0	0	0	0	RAIBEARELI	1	0	0	0	1
AMBEDKARNAGAR	0	0	0	0	2	GORAKHPUR	1	0	0	0	0	RAMPUR	35	50	6	16	13
AMETHI	0	1	4	1	0	HAMIRPUR	1	0	0	0	0	SAMBHAL	7	7	4	8	83
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	12	6	2	4	12	SANTRAVIDASNAGAR	0	0	0	0	0
AZAMGARH	0	0	0	0	0	HATHRAS	0	0	0	2	9	SHAHJAHANPUR	44	181	74	21	39
BADAUN	1	6	0	2	18	JALAUN	0	0	0	0	0	SHAMLI	20	11	3	3	5
BAGHPAT	3	1	1	1	3	JAUNPUR	0	0	0	1	0	SHARANPUR	32	17	2	0	4
BAHRAICH	8	2	4	0	3	JHANSI	10	6	0	5	2	SHRAWASTI	7	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	3	7	10	3	1	SITAPUR	14	9	0	2	42
BANDA	0	0	0	0	0	KANPUR DEHAT	11	1	0	3	1	SONBHADRA	0	0	0	0	0
BARABANKI	14	20	0	19	57	KASGANJ	1	2	0	1	1	SULTANPUR	0	0	0	0	0
BAREILLY	18	15	2	10	11	KAUSHAMBI	9	3	0	6	3	UNNAO	5	0	0	2	4
BASTI	3	1	0	0	1	KHERI	41	54	9	4	11	VARANASI	1	0	0	0	0
BIJNOR	6	3	1	5	4	KUSHINAGAR	0	0	0	0	0	Total	498	625	164	339	687
BULANDSAHAR	14	2	2	5	24	LALITPUR	0	1	2	0	0						
CHANDAULI	0	0	0	0	0	LUCKNOW	2	0	0	1	4						
CHITRAKOOT	0	0	1	0	0	MAHARAJGANJ	0	0	0	0	1						
DEORIA	0	0	0	2	0	MAHOBA	3	0	0	0	0						
ETAH	6	6	0	8	8	MAINPURI	10	7	3	6	10						
ETAWAH	4	7	0	11	4	MATHURA	26	27	1	54	54						
FAIZABAD	1	0	0	0	4	MAU	0	0	0	0	0						
FARRUKHABAD	0	0	0	0	0	MEERUT	12	4	1	2	7						
FATEHPUR	18	6	1	7	12	MIRZAPUR	6	5	2	0	2						
FIROZABAD	4	4	0	2	0	MORADABAD	5	3	0	2	18						

(d) Delhi

District	15 Sep-19 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	3	2	8
NORTH EAST	0	0	0	0	0
NORTH WEST DELHI	1	0	0	0	3
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	3	2	11

(e) Rajasthan

District	15 Sep-19 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	88	0	7	124	78
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	10	0	18	23	29
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	3	0	1	9	17
HANUMANGARH	148	31	8	40	87
JAIPUR	1	0	0	0	0
JAISELMER	2	0	0	0	0
JALOR	0	0	0	0	0
JHALAWAR	1	0	1	7	1
JHUNJHUNUN	1	0	0	0	0
JODHPUR	1	0	0	0	0
KARAULI	1	0	0	0	0
KOTA	27	1	9	62	35
NAGAUER	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	7	0	3	21	12
TONK	1	0	0	0	0
UDAIPUR	0	0	0	0	0
Total	304	34	49	295	264

(f) Madhya Pradesh

District	15 Sep-19 Oct										
	2020	2021	2022	2023	2024	PANNA	3	0	0	0	0
ALIRAJPUR	0	0	0	0	0	RAISEN	18	1	1	3	1
ANUPPUR	0	0	0	0	0	RAJGARH	7	1	3	7	1
ASHOKNAGAR	19	1	2	23	35	RATLAM	0	0	0	1	0
BALAGHAT	0	0	0	0	0	REWA	4	0	1	0	0
BARWANI	0	0	0	0	0	SAGAR	15	7	4	13	18
BETUL	1	0	0	2	4	SATNA	11	6	0	2	2
BHIND	9	1	0	12	11	SEHORE	9	3	7	11	7
BHOPAL	6	5	2	7	1	SEONI	35	5	1	5	2
BURHANPUR	0	0	0	0	0	SHAHDOL	0	0	0	0	0
CHHATARPUR	4	0	0	3	1	SHAJAPUR	5	0	0	7	7
CHHINDWARA	4	3	0	2	2	SHEOPUR	15	0	1	21	0
DAMOH	20	4	5	11	11	SHIVPURI	9	0	7	11	18
DATIA	76	8	0	52	10	SIDHI	0	0	0	0	0
DEWAS	3	0	0	6	3	SINGRAULI	0	0	0	0	6
DHAR	20	0	0	23	5	TIKAMGARH	1	0	0	2	0
DINDORI	0	0	0	1	0	UJJAIN	5	0	0	14	5
EAST NIMAR	2	1	3	1	1	UMARIA	0	0	0	0	0
GUNA	16	1	4	120	117	VIDESHA	60	8	7	23	30
GWALIOR	46	0	1	13	1	WEST NIMAR	6	0	0	5	2
HARDA	8	9	0	14	3	Total	521	85	58	484	379
HOSHANGABAD	38	8	2	19	1						
INDORE	2	0	0	12	11						
JABALPUR	12	4	3	12	20						
JHABUA	0	0	0	0	0						
KATNI	3	0	0	1	0						
MANDLA	1	0	0	0	0						
MANDSAUR	3	0	0	1	10						
MORENA	17	5	0	15	19						
NARSHIMAPURA	8	4	4	9	13						
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-19 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
18-Oct	938	57	342	18	59	166	1	134	8	26	76	0	30	2	47
19-Oct	1080	496	436	37	45	72	55	122	16	15	43	5	36	11	30
Total	8509	2942	2625	1444	1393	1163	1082	586	570	642	498	625	164	339	687

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
18-Oct	0	0	1	0	3	37	2	12	11	30	88	0	15	13	71
19-Oct	0	0	0	0	0	27	5	12	31	25	49	1	12	65	46
Total	4	0	3	2	11	304	34	49	295	264	521	85	58	484	379

Details of residue burning events in Punjab on 19-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	CHOGAWAN	AQUA	31.74900	74.58000	14:20:42	D	5.30
2	AMRITSAR	JANDIALA GURU	S-NPP	31.55037	75.13035	12:56:50	D	4.30
3	AMRITSAR	JANDIALA GURU	S-NPP	31.55071	75.13312	12:56:50	D	3.30
4	AMRITSAR	MAJITHA	AQUA	31.74900	75.04800	14:20:42	D	5.50
5	AMRITSAR	MAJITHA	S-NPP	31.71397	74.96129	12:56:50	D	9.70
6	AMRITSAR	MAJITHA	S-NPP	31.75060	74.93589	12:56:50	D	3.80
7	AMRITSAR	VERKA	S-NPP	31.71158	74.95042	12:56:50	D	5.10
8	BARNALA	BARNALA	AQUA	30.23900	75.58900	14:20:42	D	5.80
9	FATEHGARH SAHIB	SIRHIND	S-NPP	30.53912	76.47845	12:56:50	D	5.60
10	FAZILKA	KHUIAN SARWAR	S-NPP	30.29796	73.94726	12:56:50	D	3.50
11	FIROZPUR	GHALL KHURD	S-NPP	30.92512	74.76078	12:56:50	D	4.00
12	FIROZPUR	GHALL KHURD	S-NPP	30.92725	74.76411	12:56:50	D	6.80
13	FIROZPUR	GHALL KHURD	S-NPP	30.94339	74.70403	12:56:50	D	5.20
14	FIROZPUR	MAMDOT	AQUA	30.84700	74.39000	14:20:42	D	11.10
15	FIROZPUR	MAMDOT	AQUA	30.91400	74.45900	14:20:42	D	12.00
16	FIROZPUR	ZIRA	AQUA	30.99400	74.89900	14:20:42	D	8.50
17	GURDASPUR	BATALA	S-NPP	31.72329	75.24229	12:56:50	D	5.10
18	GURDASPUR	BATALA	S-NPP	31.75776	75.24871	12:56:50	D	6.90
19	GURDASPUR	BATALA	S-NPP	31.75890	75.25393	12:56:50	D	13.50
20	GURDASPUR	DHARIWAL	S-NPP	31.94657	75.38566	12:56:50	D	2.70
21	KAPURTHALA	DHILWAN	S-NPP	31.39215	75.21337	01:46:50	N	0.50
22	KAPURTHALA	NADALA	AQUA	31.60300	75.42500	14:20:42	D	16.00
23	MALERKOTLA	AHMEDGARH	AQUA	30.59200	75.89900	14:20:42	D	4.70
24	MOGA	KOT ISE KHAN AT DHARAMKOT	AQUA	30.88100	75.30400	14:20:42	D	59.10
25	MOGA	KOT ISE KHAN AT DHARAMKOT	AQUA	30.88200	75.31500	14:20:42	D	7.00
26	MUKTSAR	MUKTSAR	AQUA	30.59200	74.58800	14:20:42	D	9.80
27	PATIALA	BHUNARHERI	S-NPP	30.18363	76.46477	12:56:50	D	1.90
28	PATIALA	BHUNARHERI	S-NPP	30.18425	76.46265	12:56:50	D	1.80
29	PATIALA	BHUNARHERI	S-NPP	30.20469	76.58823	12:56:50	D	4.70
30	PATIALA	GHANAUR	AQUA	30.39000	76.59500	14:20:42	D	5.90
31	PATIALA	GHANAUR	S-NPP	30.40971	76.62906	12:56:50	D	2.30
32	PATIALA	PATRAN	AQUA	29.87800	76.13400	14:20:42	D	9.50

33	PATIALA	PATRAN	S-NPP	29.87277	76.22426	12:56:50	D	3.60
34	PATIALA	SAMANA	AQUA	30.15500	76.25800	14:20:42	D	5.00
35	PATIALA	SAMANA	AQUA	30.15700	76.26800	14:20:42	D	8.90
36	PATIALA	SAMANA	AQUA	30.20000	76.19700	14:20:42	D	7.80
37	PATIALA	SAMANA	S-NPP	30.11305	76.08277	12:56:50	D	3.30
38	PATIALA	SAMANA	S-NPP	30.11559	76.08046	12:56:50	D	3.00
39	PATIALA	SAMANA	S-NPP	30.23605	76.25536	12:56:50	D	3.20
40	PATIALA	SANAUR	S-NPP	30.13824	76.26892	12:56:50	D	2.60
41	PATIALA	SHAMBU KALAN	S-NPP	30.48111	76.61571	12:56:50	D	6.00
42	SANGRUR	ANDANA	AQUA	29.74200	75.96900	14:20:42	D	5.90
43	SANGRUR	ANDANA	S-NPP	29.75356	75.91234	12:56:50	D	3.00
44	SANGRUR	SANGRUR	S-NPP	30.19583	75.66385	12:56:50	D	3.60
45	TARN TARAN	KHADUR SAHIB	AQUA	31.42900	75.14100	14:20:42	D	6.50

Details of residue burning events in Haryana on 19-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMBALA	AMBALA-I	S-NPP	30.36318	76.88979	12:56:50	D	1.20
2	AMBALA	SHAHZADPUR	AQUA	30.50500	77.02100	14:20:42	D	7.90
3	FARIDABAD	BALLABGARH	S-NPP	28.26975	77.27425	01:46:50	N	0.60
4	FARIDABAD	BALLABGARH	S-NPP	28.27166	77.27374	01:46:50	N	0.60
5	FATEHABAD	BHUNA	AQUA	29.52400	75.75300	14:20:42	D	7.10
6	FATEHABAD	BHUNA	S-NPP	29.44882	75.75686	12:56:50	D	2.60
7	HISAR	AGROHA	S-NPP	29.41637	75.65188	12:56:50	D	3.80
8	KAITHAL	KAITHAL	AQUA	29.86900	76.51600	14:20:42	D	4.70
9	KAITHAL	PUNDRI	AQUA	29.67900	76.60700	14:20:42	D	5.90
10	KAITHAL	PUNDRI	S-NPP	29.67406	76.57973	12:56:50	D	3.60
11	KAITHAL	PUNDRI	S-NPP	29.67443	76.58130	12:56:50	D	5.40
12	KAITHAL	PUNDRI	S-NPP	29.85491	76.61495	12:56:50	D	1.90
13	KAITHAL	PUNDRI	S-NPP	29.87782	76.57045	12:56:50	D	0.90
14	KARNAL	CHIRAO	S-NPP	29.66884	76.82685	01:46:50	N	0.60
15	KURUKSHETRA	ISMAILABAD	AQUA	30.14800	76.65000	14:20:42	D	6.50

Details of residue burning events in Uttar Pradesh on 19-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ALIGARH	KHAIR	AQUA	28.00400	77.67200	14:20:42	D	9.10
2	ALIGARH	KHAIR	S-NPP	27.86896	77.79677	12:56:50	D	5.70
3	ALIGARH	KHAIR	S-NPP	28.00250	77.72246	12:56:50	D	1.20
4	ALIGARH	KOL	S-NPP	27.81393	78.15231	12:56:50	D	2.90
5	ALIGARH	KOL	S-NPP	27.82118	78.12436	12:56:50	D	1.80
6	BADAUN	BISAU LI	AQUA	28.42700	78.93600	14:20:42	D	5.60
7	BADAUN	BISAU LI	S-NPP	28.30626	79.06634	12:56:50	D	2.50
8	BARABANKI	HAI DARGARH	S-NPP	26.73995	81.41438	12:56:50	D	2.70
9	BARABANKI	NAWABGANJ	AQUA	26.86400	81.37700	14:20:42	D	8.50
10	BARABANKI	RAMNAGAR	S-NPP	27.13238	81.27446	12:56:50	D	3.90
11	BARABANKI	RAMSANEHIGHAT	S-NPP	26.76870	81.49564	12:56:50	D	4.20
12	BARABANKI	SIRAU LI GAUSPUR	S-NPP	26.97093	81.49155	12:56:50	D	4.20
13	BAREILLY	BAHERI	AQUA	28.89600	79.42000	14:20:42	D	5.40
14	ETAH	JALESAR	S-NPP	27.52297	78.41994	12:56:50	D	1.90
15	ETAWAH	ETAWAH	S-NPP	26.78634	79.10384	12:56:50	D	7.10
16	ETAWAH	ETAWAH	S-NPP	26.78784	79.10143	12:56:50	D	6.90
17	FATEHPUR	FATEHPUR	AQUA	25.91400	80.93100	14:20:42	D	9.30
18	GHAZIABAD	GHAZIABAD	S-NPP	28.65043	77.55562	01:46:50	N	0.50
19	LUCKNOW	LUCKNOW	AQUA	26.67800	80.92900	14:20:42	D	7.30
20	LUCKNOW	MOHANLAL GANJ	S-NPP	26.72304	81.11967	12:56:50	D	3.50
21	MAINPURI	BHOGAON	AQUA	27.19400	79.14400	14:20:42	D	6.00
22	MATHURA	CHHATA	S-NPP	27.69228	77.40485	12:56:50	D	3.40
23	MATHURA	CHHATA	S-NPP	27.77879	77.37933	12:56:50	D	5.70
24	MEERUT	MAWANA	S-NPP	28.90469	78.07236	12:56:50	D	3.50
25	MUZAFARNAGAR	JANSATH	S-NPP	29.26723	78.07434	12:56:50	D	2.40
26	SHAHJAHANPUR	PUWANYA	S-NPP	28.16884	80.15108	01:46:50	N	1.10
27	SHAHJAHANPUR	SHAHJAHANPUR	S-NPP	27.86765	79.83572	01:46:50	N	0.70
28	SHAHJAHANPUR	TILHAR	S-NPP	27.92002	79.63078	12:56:50	D	7.20
29	SITAPUR	MAHMUDABAD	S-NPP	27.27188	81.13303	12:56:50	D	2.30
30	SITAPUR	MISRIK	S-NPP	27.66995	80.43369	12:56:50	D	2.90

Details of residue burning events in Rajasthan on 19-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BARAN	ATRU	S-NPP	24.78419	76.63960	12:56:50	D	3.60
2	BARAN	CHHABRA	AQUA	24.69100	77.00700	14:20:42	D	9.30
3	BARAN	KISHANGUNJ	S-NPP	24.87644	76.86385	12:56:50	D	2.50
4	BARAN	KISHANGUNJ	S-NPP	25.00982	76.79264	12:56:50	D	3.30
5	BARAN	KISHANGUNJ	S-NPP	25.01054	76.79151	12:56:50	D	5.10
6	BARAN	SHAHBAD	S-NPP	25.07344	76.94825	12:56:50	D	3.00
7	BARAN	SHAHBAD	S-NPP	25.10800	76.97350	12:56:50	D	4.50
8	BARAN	SHAHBAD	S-NPP	25.15888	76.90652	12:56:50	D	4.00
9	BUNDI	KESHORAIPATAN	S-NPP	25.30045	76.01999	12:56:50	D	3.60
10	BUNDI	KESHORAIPATAN	S-NPP	25.37355	76.09640	12:56:50	D	2.50
11	GANGANAGAR	GANGANAGAR	S-NPP	29.84573	73.93457	12:56:50	D	2.20
12	GANGANAGAR	GANGANAGAR	S-NPP	29.84971	73.93561	12:56:50	D	3.60
13	GANGANAGAR	KARANPUR	S-NPP	30.00529	73.65019	12:56:50	D	1.90
14	GANGANAGAR	KARANPUR	S-NPP	30.00713	73.64844	12:56:50	D	1.40
15	HANUMANGARH	HANUMANGARH	AQUA	29.54400	74.25900	14:20:42	D	16.50
16	HANUMANGARH	HANUMANGARH	S-NPP	29.58849	74.20742	12:56:50	D	4.00
17	HANUMANGARH	HANUMANGARH	S-NPP	29.58997	74.20862	12:56:50	D	4.80
18	HANUMANGARH	HANUMANGARH	S-NPP	29.61785	74.31096	12:56:50	D	3.30
19	HANUMANGARH	HANUMANGARH	S-NPP	29.61865	74.31245	12:56:50	D	7.10
20	HANUMANGARH	TIBI	AQUA	29.55800	74.44900	14:20:42	D	17.60
21	HANUMANGARH	TIBI	S-NPP	29.40909	74.47136	12:56:50	D	5.20
22	HANUMANGARH	TIBI	S-NPP	29.40937	74.47303	12:56:50	D	4.30
23	HANUMANGARH	TIBI	S-NPP	29.52373	74.51836	12:56:50	D	14.10
24	SWAIMADHOPUR	KHANDAR	S-NPP	25.93923	76.58629	12:56:50	D	5.00
25	SWAIMADHOPUR	KHANDAR	S-NPP	25.93986	76.58468	12:56:50	D	7.80

Details of residue burning events in Madhya Pradesh on 19-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ASHOKNAGAR	ASHOKNAGAR	AQUA	24.38800	77.69500	14:20:42	D	6.20
2	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.43557	77.59943	12:56:50	D	3.30
3	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.57292	77.50442	12:56:50	D	3.60
4	ASHOKNAGAR	CHANDERI	S-NPP	24.61196	77.87819	12:56:50	D	2.00
5	ASHOKNAGAR	CHANDERI	S-NPP	24.61638	77.87712	12:56:50	D	4.80
6	ASHOKNAGAR	ISAGARH	AQUA	24.99100	77.83600	14:20:42	D	16.80
7	ASHOKNAGAR	ISAGARH	AQUA	24.99200	77.84600	14:20:42	D	6.10
8	ASHOKNAGAR	ISAGARH	S-NPP	24.76061	77.75398	12:56:50	D	4.20
9	ASHOKNAGAR	MUNGAOLI	S-NPP	24.51459	77.91475	12:56:50	D	6.30
10	ASHOKNAGAR	MUNGAOLI	S-NPP	24.56362	77.92800	12:56:50	D	2.80
11	BHIND	LAHAR	AQUA	26.11500	78.86800	14:20:42	D	7.70
12	BHIND	LAHAR	S-NPP	26.11226	78.84775	12:56:50	D	2.20
13	DAMOH	TENDUKHERA	S-NPP	23.38291	79.50530	12:56:50	D	3.20
14	DATIA	SEONDHA	S-NPP	25.86032	78.52403	12:56:50	D	3.40
15	DATIA	SEONDHA	S-NPP	25.88944	78.47272	12:56:50	D	4.90
16	GUNA	ARON	S-NPP	24.37881	77.55238	12:56:50	D	5.60
17	GUNA	ARON	S-NPP	24.39027	77.33611	12:56:50	D	4.30
18	GUNA	GUNA	AQUA	24.89000	76.97200	14:20:42	D	6.60
19	GUNA	GUNA	AQUA	24.89200	77.16900	14:20:42	D	6.70
20	GUNA	GUNA	AQUA	24.95400	77.21200	14:20:42	D	7.00
21	GUNA	GUNA	S-NPP	24.67162	77.11417	12:56:50	D	7.50
22	GUNA	GUNA	S-NPP	24.70865	77.10508	12:56:50	D	4.10
23	GUNA	GUNA	S-NPP	24.74005	76.99236	12:56:50	D	3.80
24	GUNA	GUNA	S-NPP	24.84413	77.04632	12:56:50	D	4.70
25	GUNA	GUNA	S-NPP	24.84693	77.04865	12:56:50	D	8.40
26	GUNA	GUNA	S-NPP	24.86565	76.97579	12:56:50	D	2.50
27	GUNA	GUNA	S-NPP	24.87502	76.95058	12:56:50	D	6.90
28	GUNA	GUNA	S-NPP	24.87673	77.09739	12:56:50	D	6.70
29	GUNA	GUNA	S-NPP	24.90439	77.09045	12:56:50	D	2.60
30	GUNA	GUNA	S-NPP	24.94912	77.21246	12:56:50	D	6.60
31	GWALIOR	GWALIOR	S-NPP	26.26628	78.15628	12:56:50	D	1.90
32	HOSHANGABAD	HOSHANGABAD	AQUA	22.63600	77.66100	14:20:42	D	6.40

33	INDORE	INDORE	S-NPP	22.80475	75.89674	12:56:50	D	2.50
34	JABALPUR	SAHPURA	S-NPP	23.15453	79.66280	12:56:50	D	4.40
35	MANDSAUR	SITAMAU	AQUA	24.07100	75.32900	14:20:42	D	9.40
36	MORENA	KAILARAS	S-NPP	26.20435	77.59050	12:56:50	D	2.70
37	MORENA	SABALGARH	AQUA	26.30500	77.41700	14:20:42	D	8.10
38	NARSHIMAPURA	GOTECAON	S-NPP	22.85978	79.55226	12:56:50	D	4.10
39	NARSHIMAPURA	GOTECAON	S-NPP	22.91349	79.54006	12:56:50	D	1.90
40	NARSHIMAPURA	GOTECAON	S-NPP	22.91738	79.56043	12:56:50	D	2.60
41	NARSHIMAPURA	GOTECAON	S-NPP	22.91815	79.56451	12:56:50	D	5.30
42	SHIVPURI	KOLARAS	S-NPP	24.95586	77.80166	12:56:50	D	2.10
43	VIDESHA	LETERI	S-NPP	24.03267	77.43494	01:46:50	N	0.50
44	VIDESHA	LETERI	S-NPP	24.20917	77.44567	12:56:50	D	6.30
45	VIDESHA	LETERI	S-NPP	24.28482	77.37560	12:56:50	D	4.60
46	VIDESHA	SIRANJ	S-NPP	24.17655	77.53629	12:56:50	D	3.60

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](#)
