

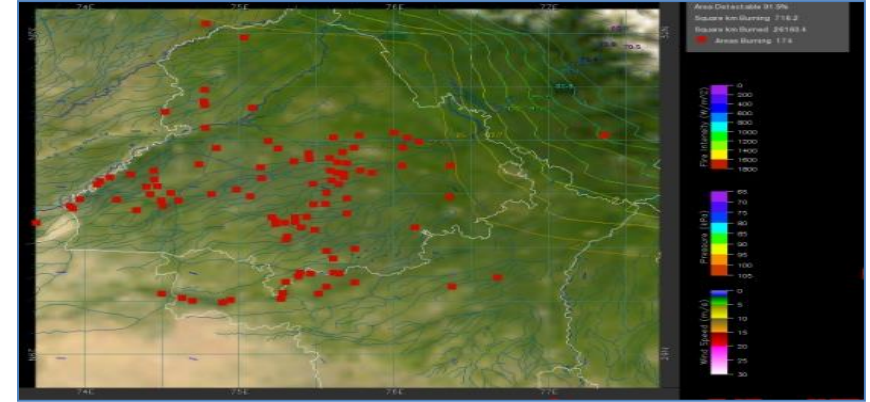
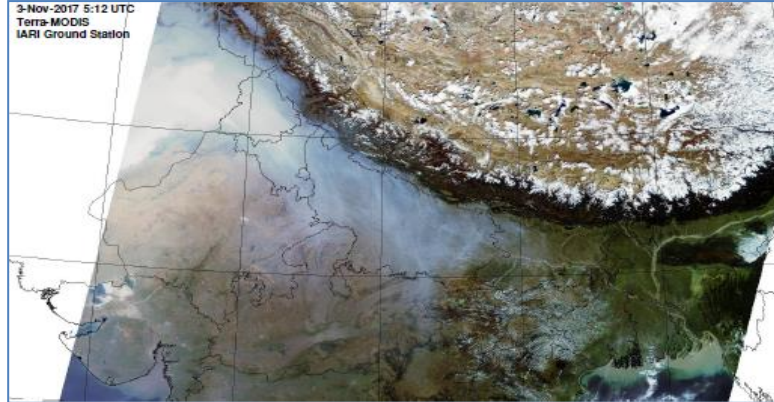


MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2024

**Bulletin
No. 36**

**Events Date:
20-Oct-2024**

**Issued on:
20-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

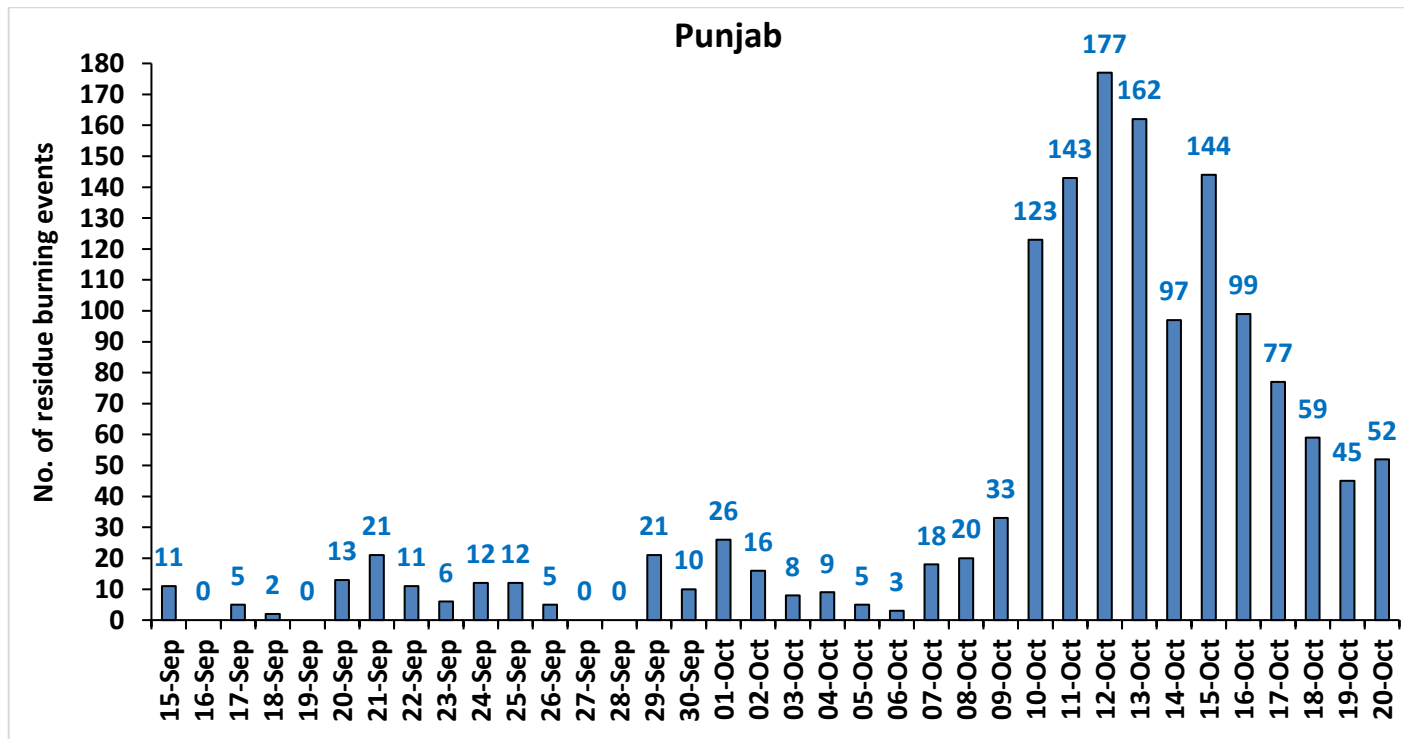
<https://creams.iari.res.in>



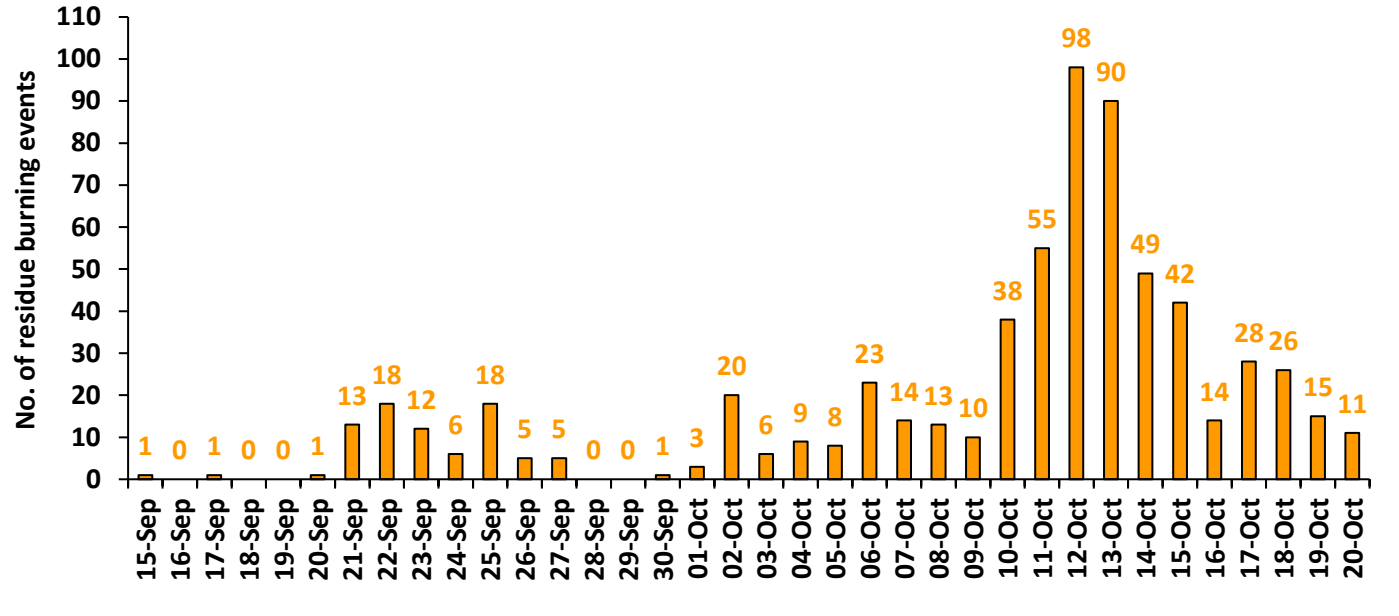
Highlights for 20-Oct-2024

- 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 **109** residue burning events in the six study States on **20-Oct-2024**.
- The state wise events detected on **20-Oct-2024** were **52** in Punjab, **11** in Haryana, **11** in UP, **00** in Delhi, **11** in Rajasthan and **24** in MP.
- Total **3485** burning events were detected in the six states between **15-Sept-2024** and **20-Oct-2024**, which are distributed as **1445**, **653**, **698**, **11**, **275** and **403** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.
- Detection of burning events was hampered by the presence of scattered clouds over Rajasthan and eastern Madhya Pradesh state.

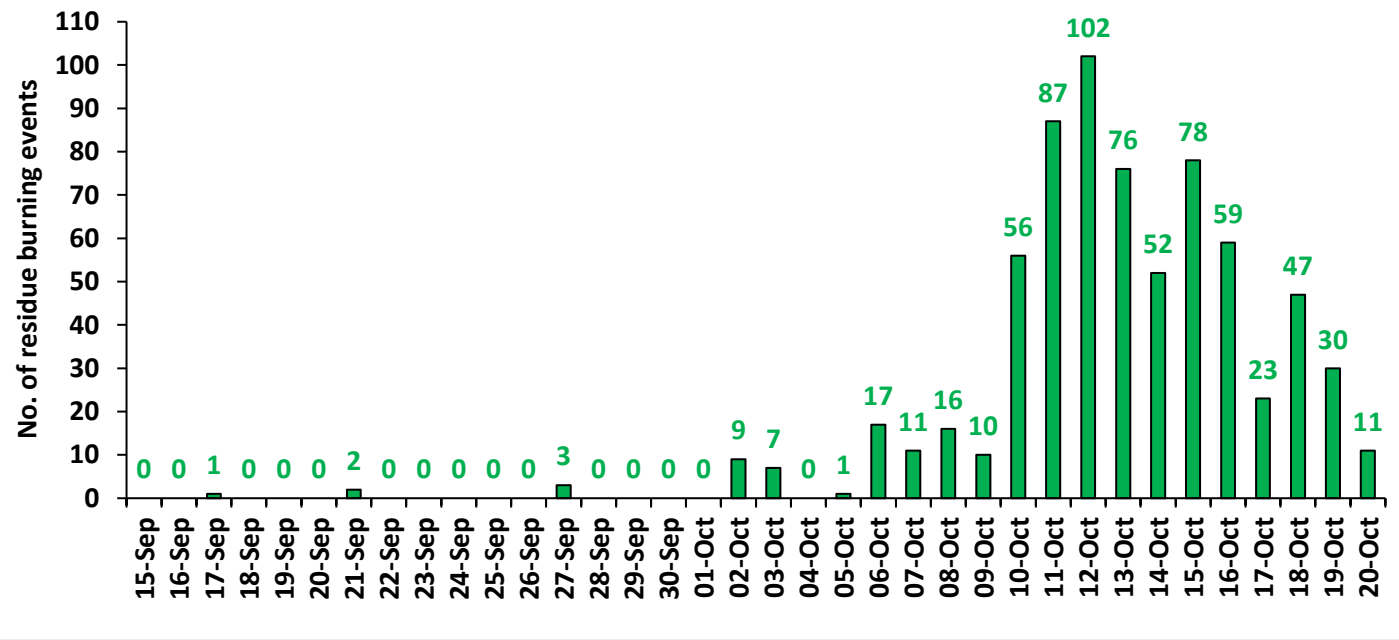
Temporal distribution of rice residue burning events for the study States in 2024



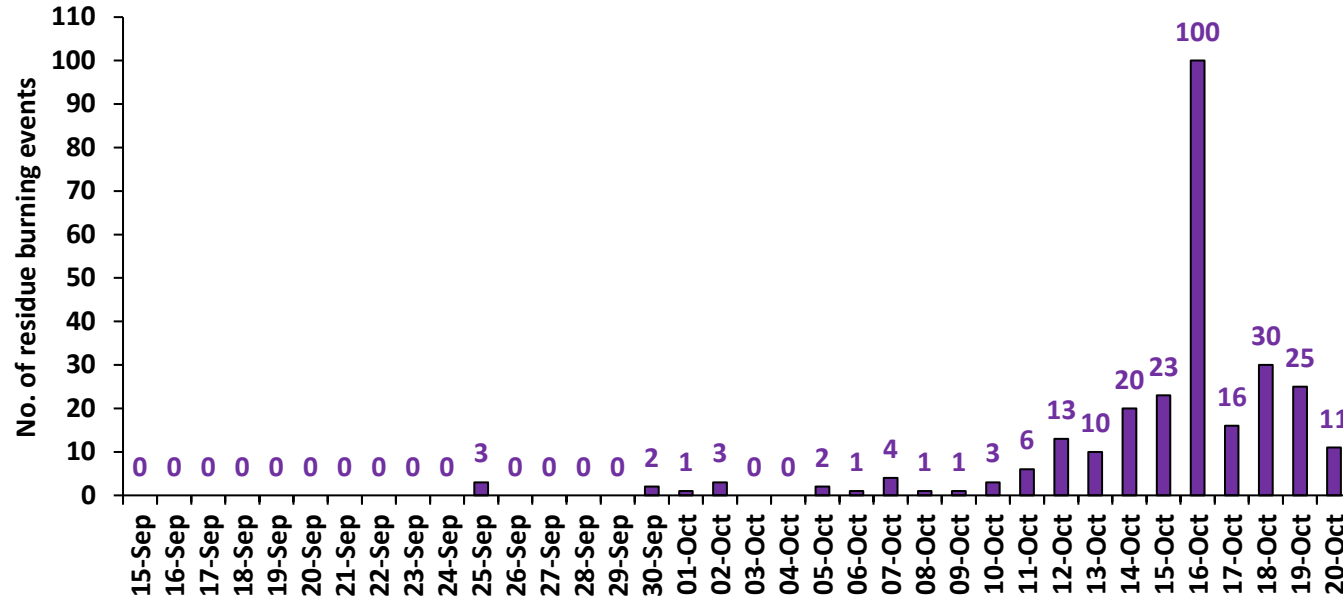
Haryana



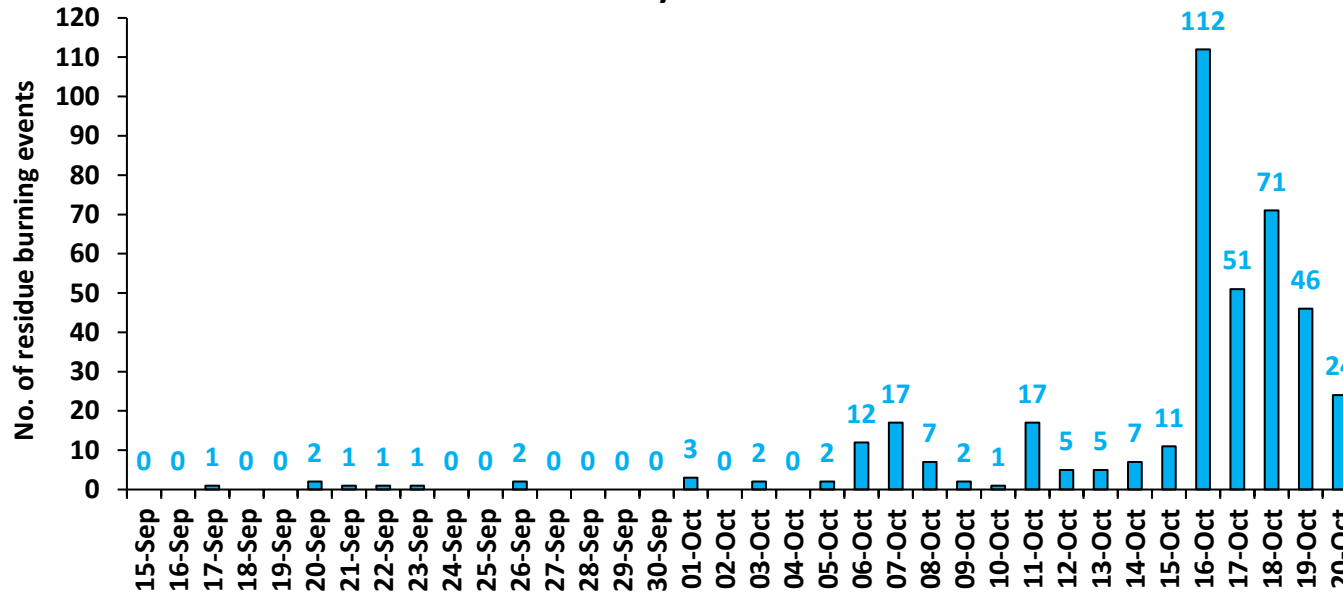
Uttar Pradesh



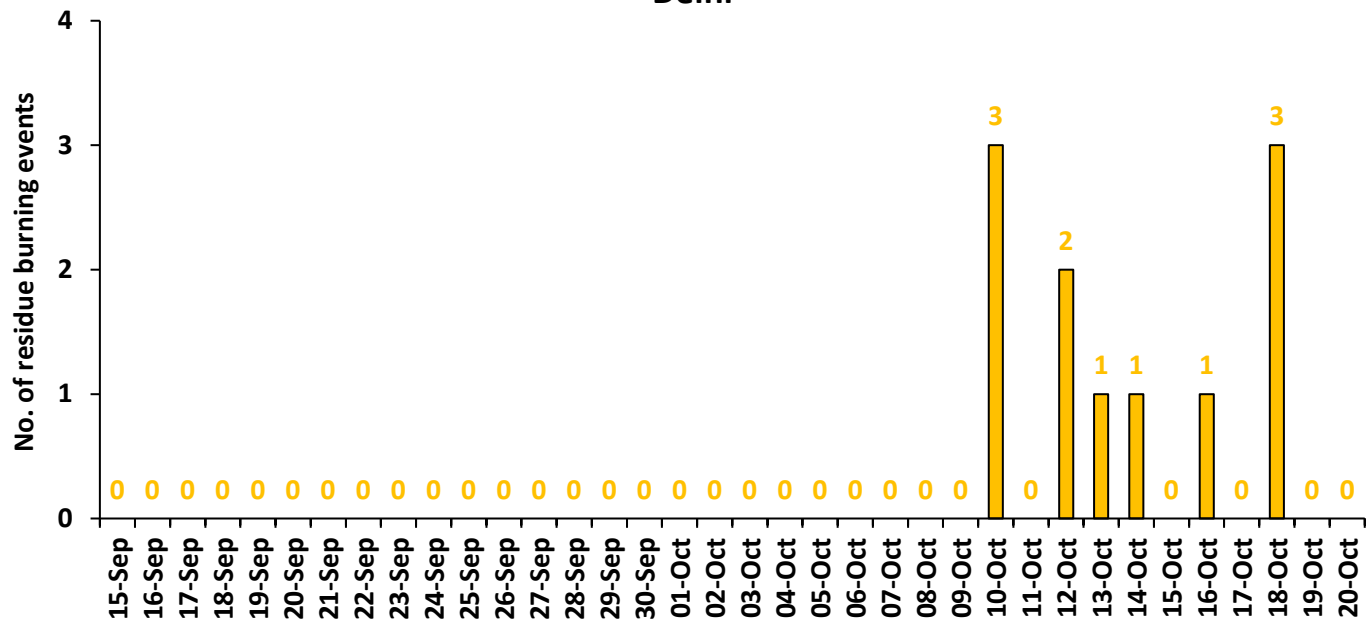
Rajasthan



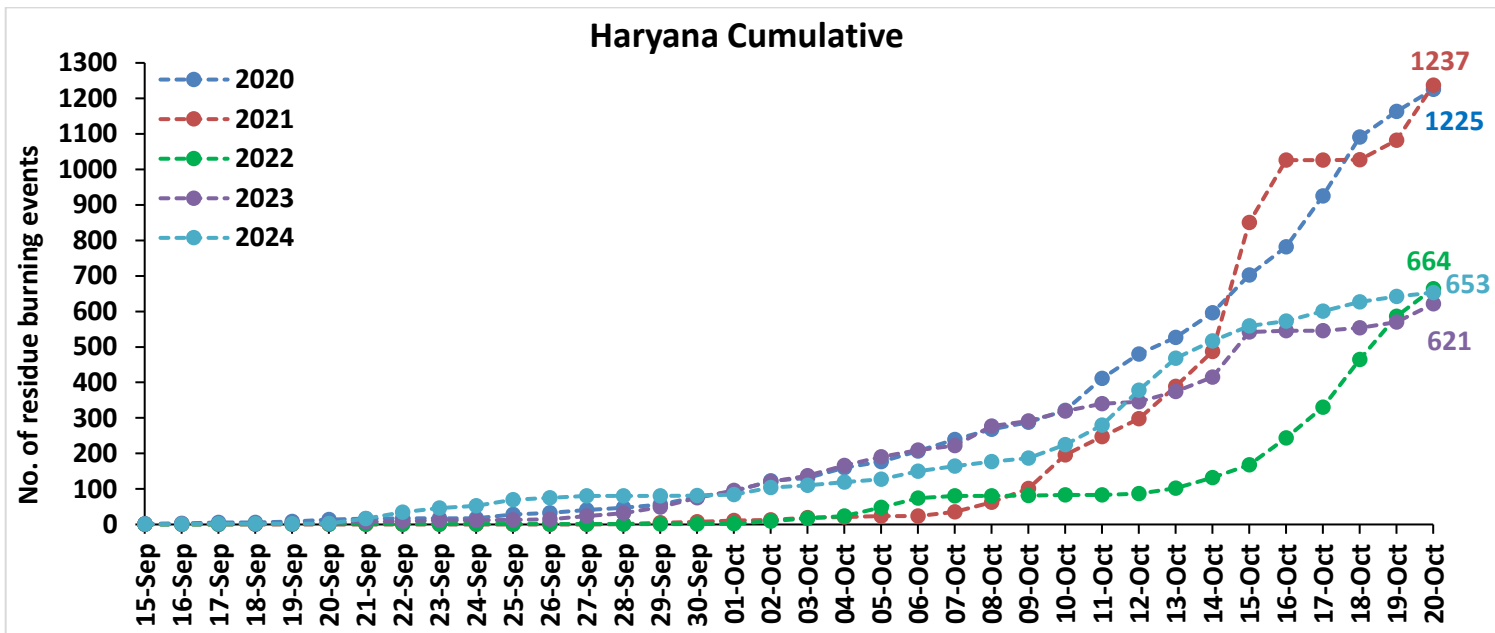
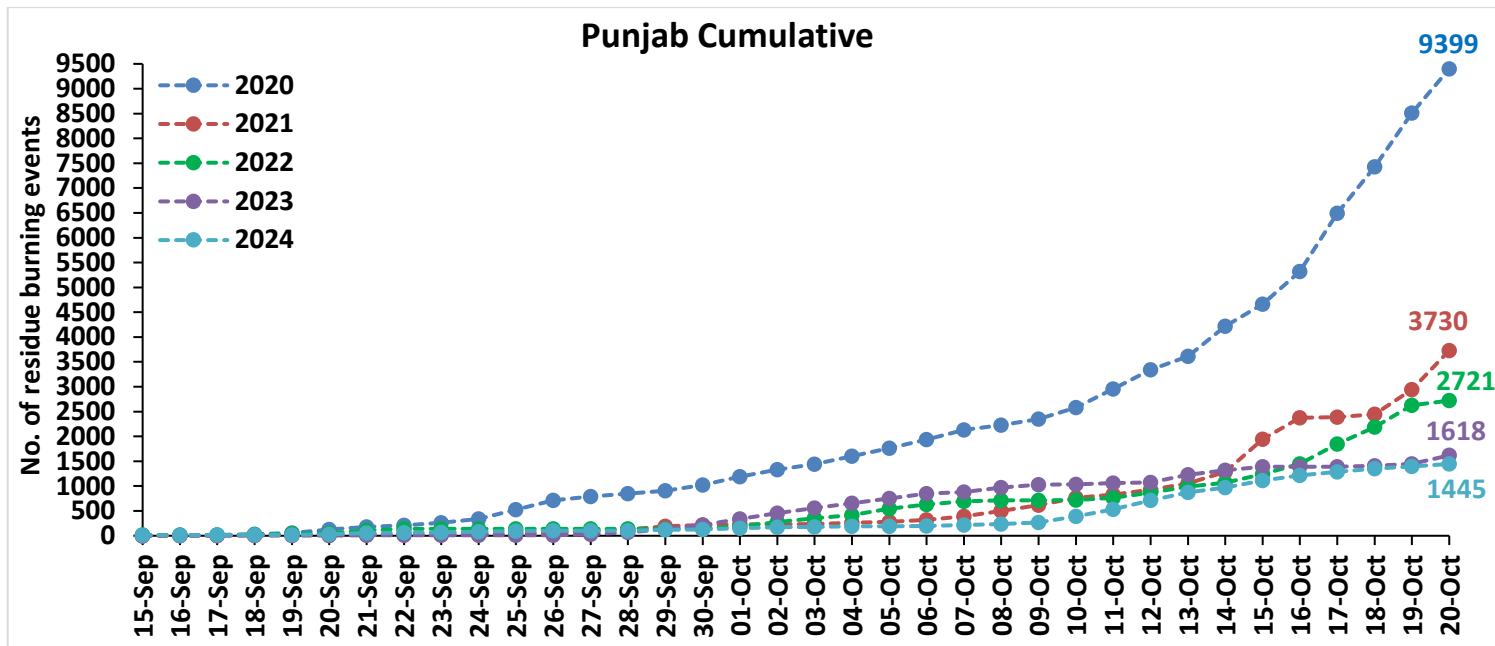
Madhya Pradesh

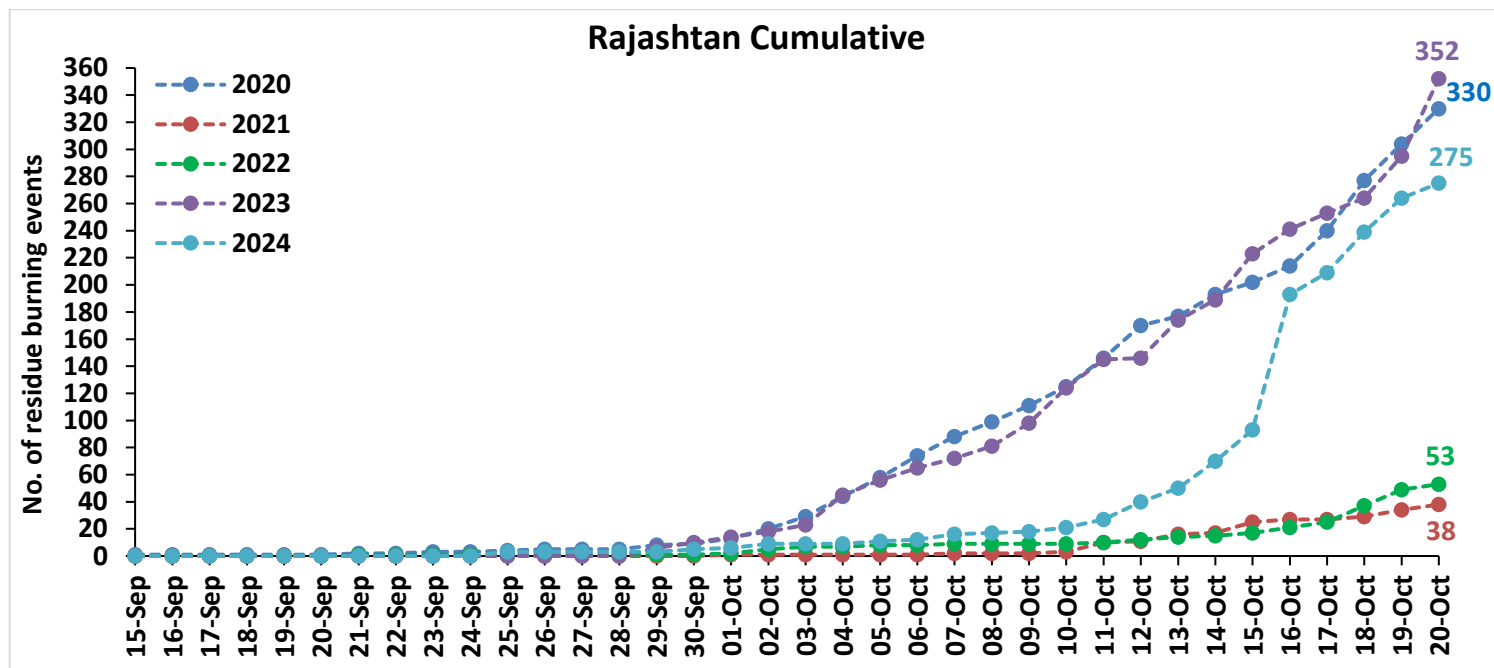
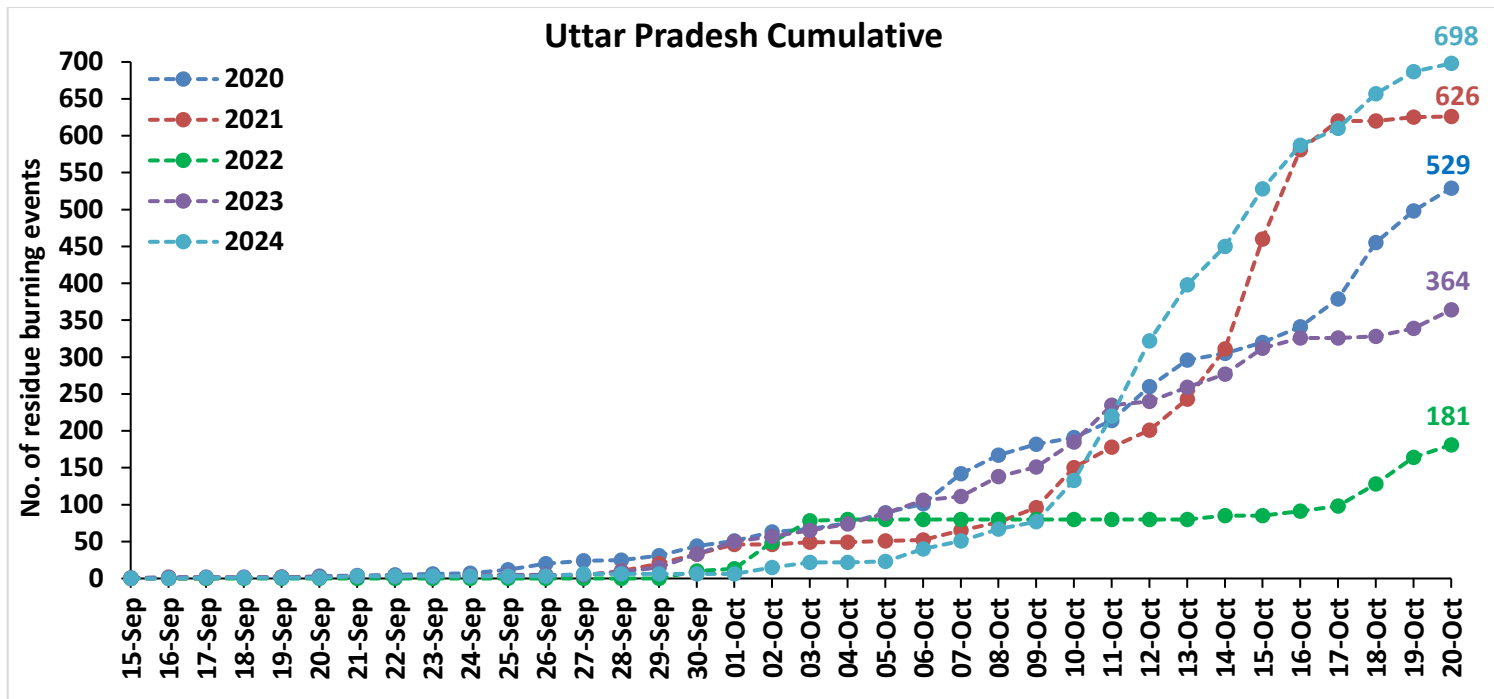


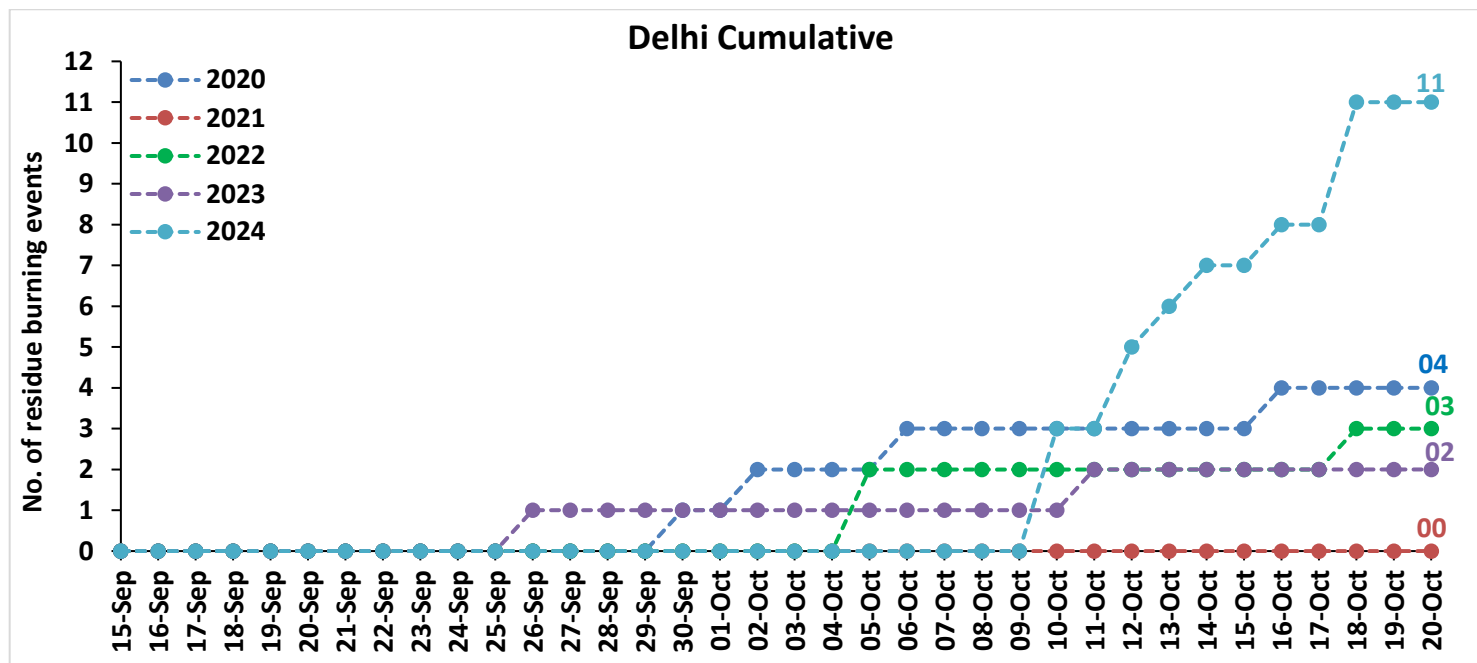
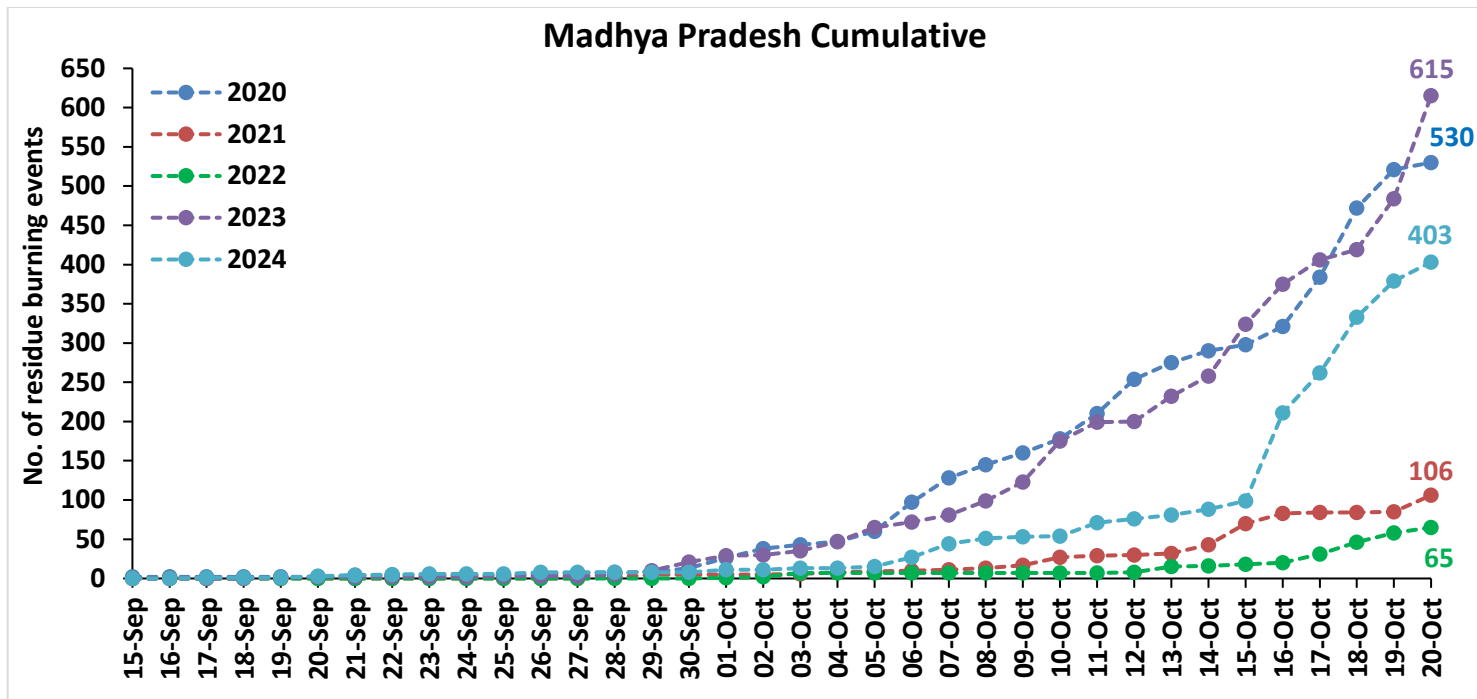
Delhi



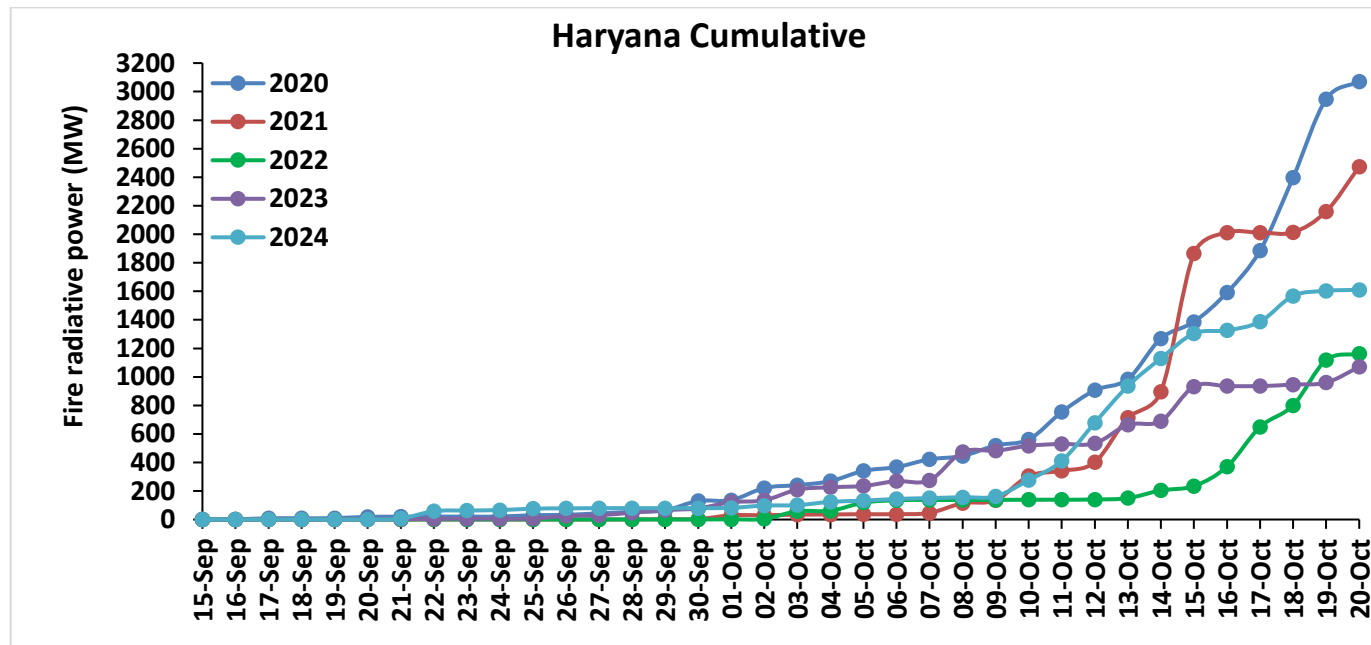
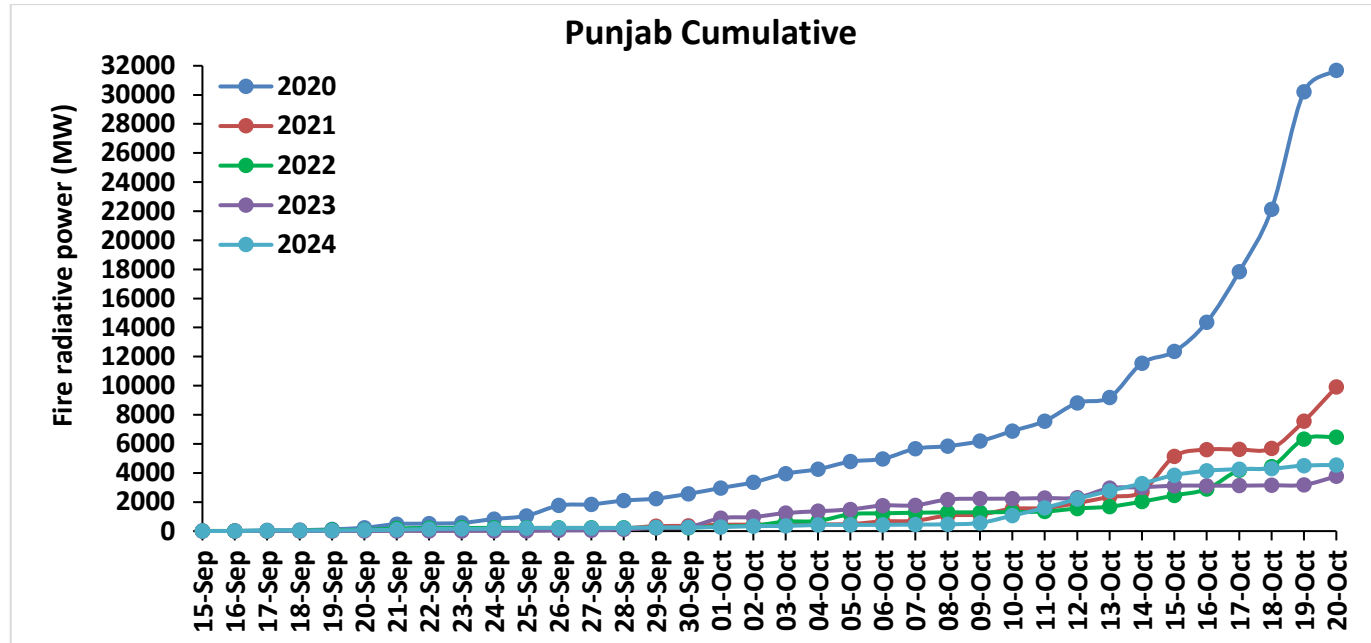
Comparison of residue burning events in current year (2024) with previous years (2020, 2021, 2022 and 2023) for the study States



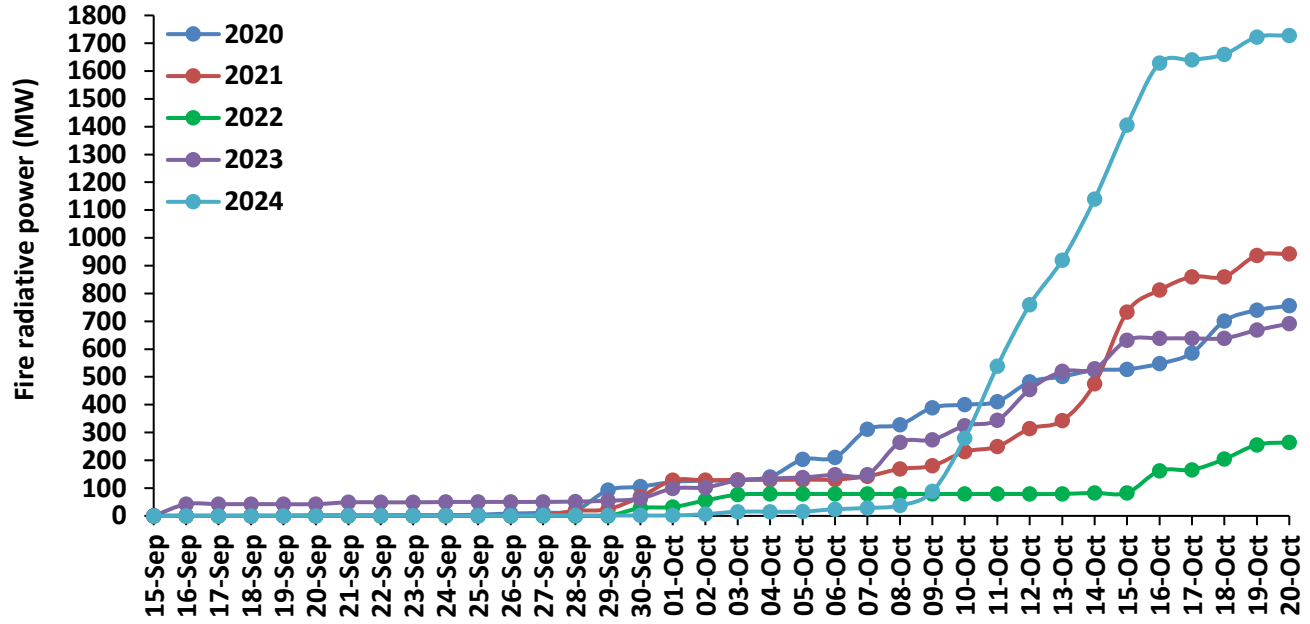




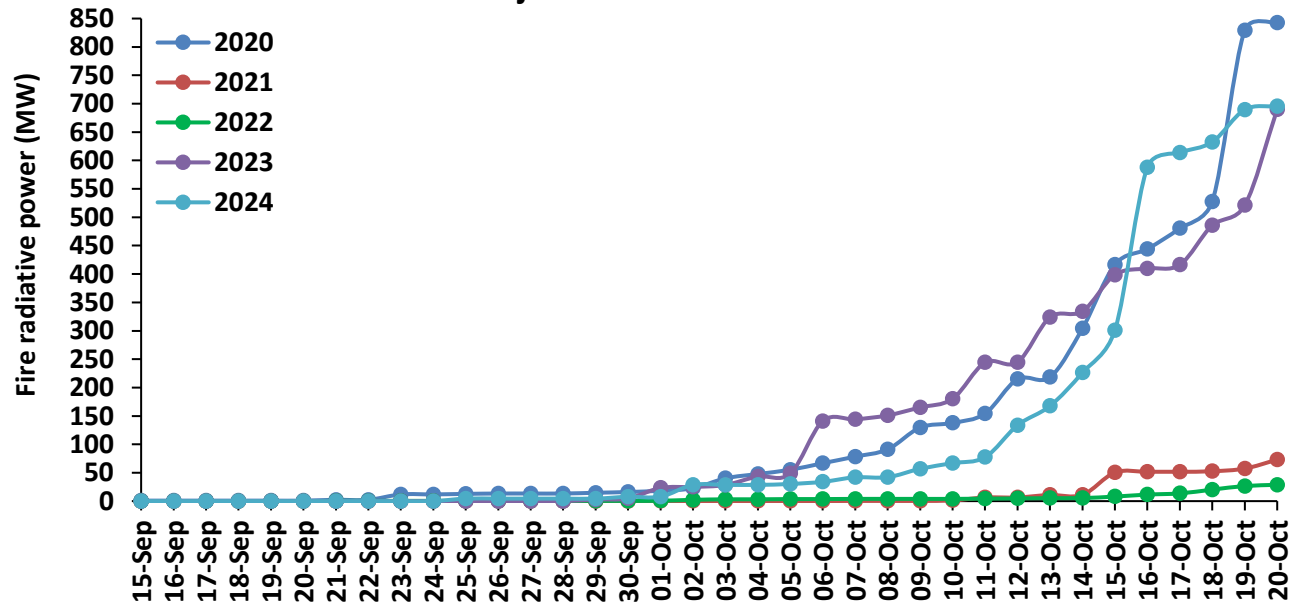
Comparison of residue burning fire power in current year (2024) with previous years (2020,2021,2022 and 2023) for the study States



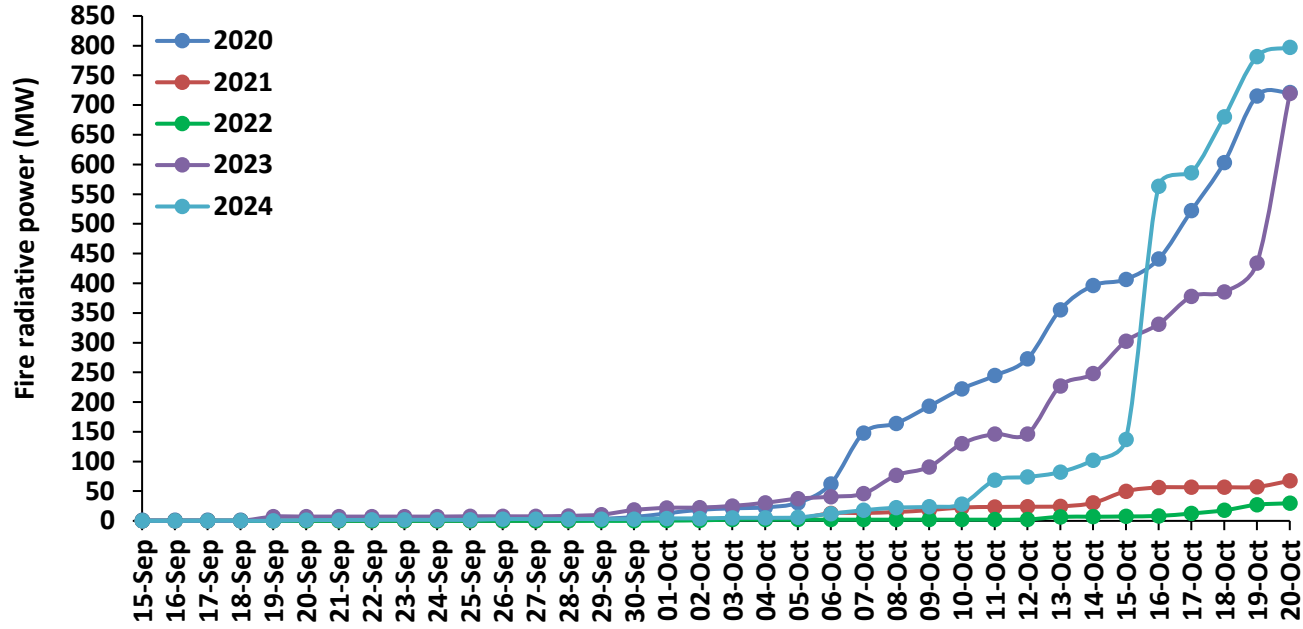
Uttar Pradesh Cumulative



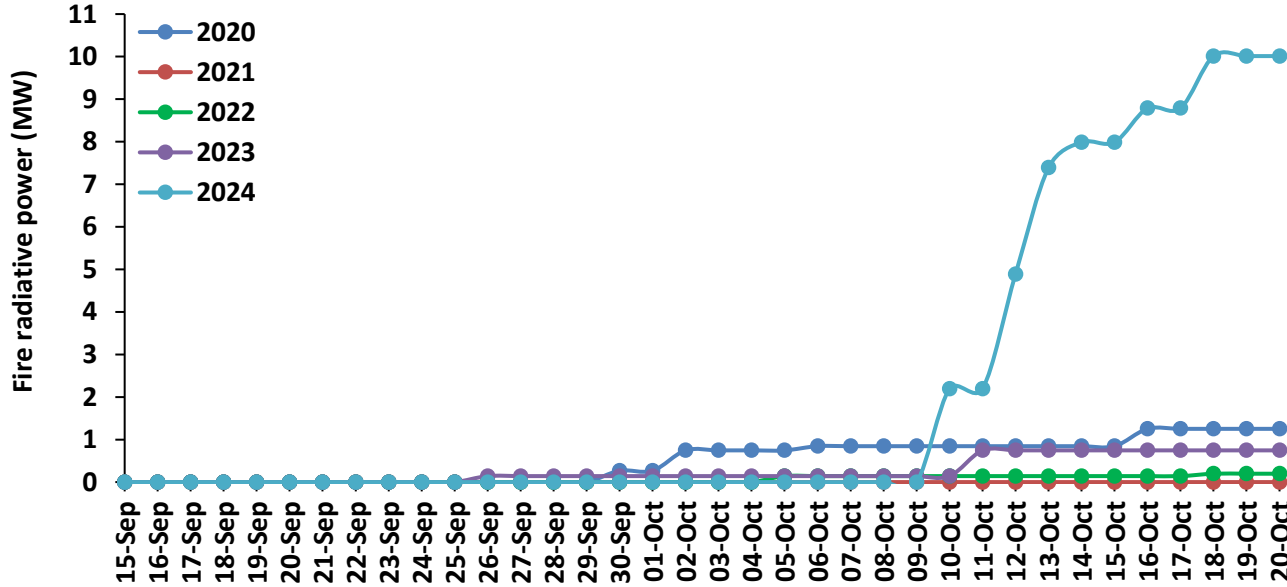
Rajasthan Cumulative



Madhya Pradesh Cumulative

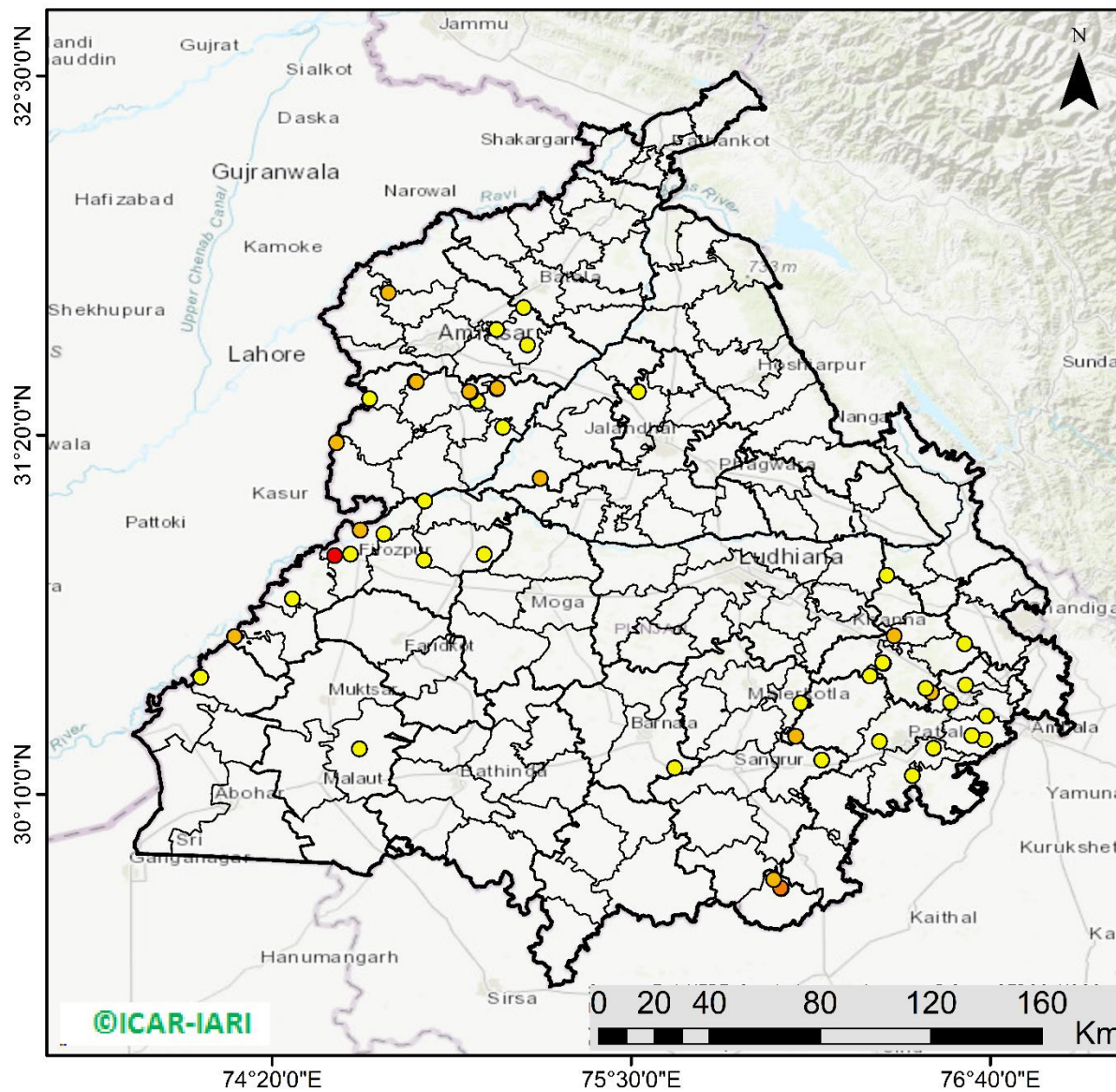


Delhi Cumulative



Punjab

RICE RESIDUE BURNING IN PUNJAB



52 burning events detected in Punjab during (20th Oct 2024)

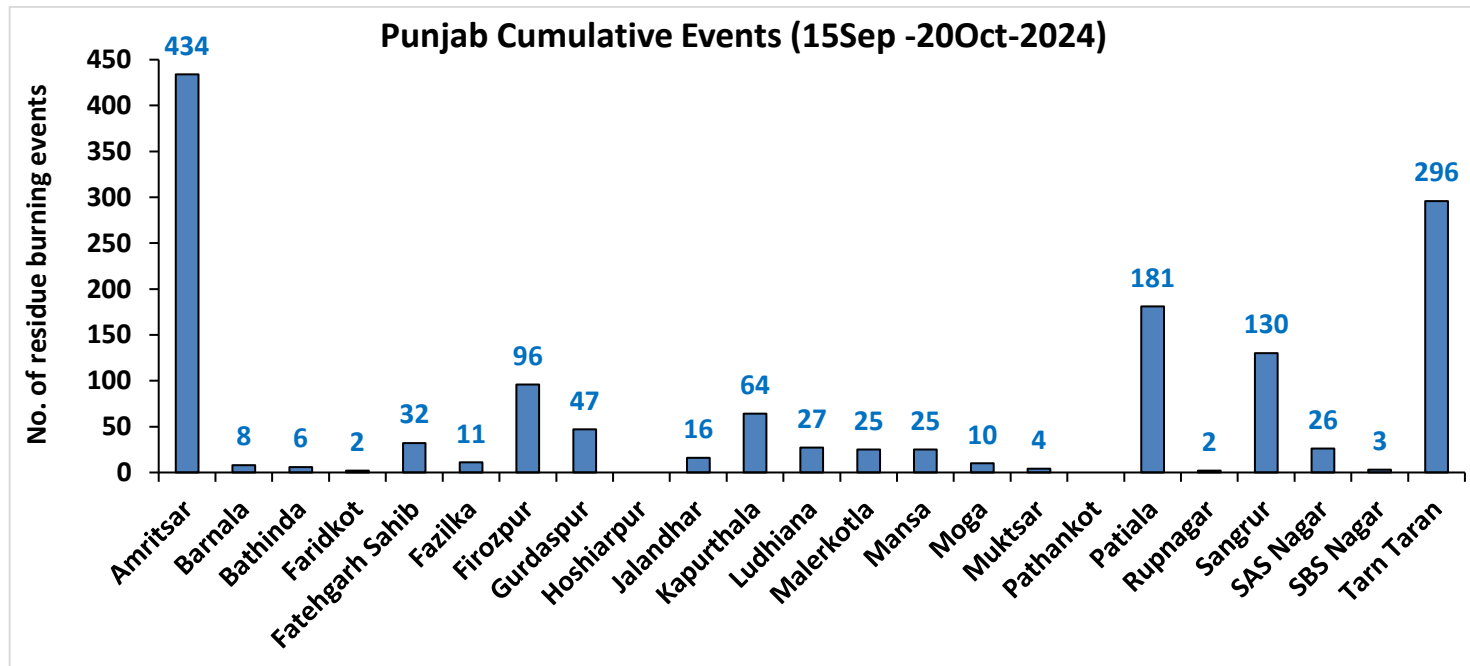
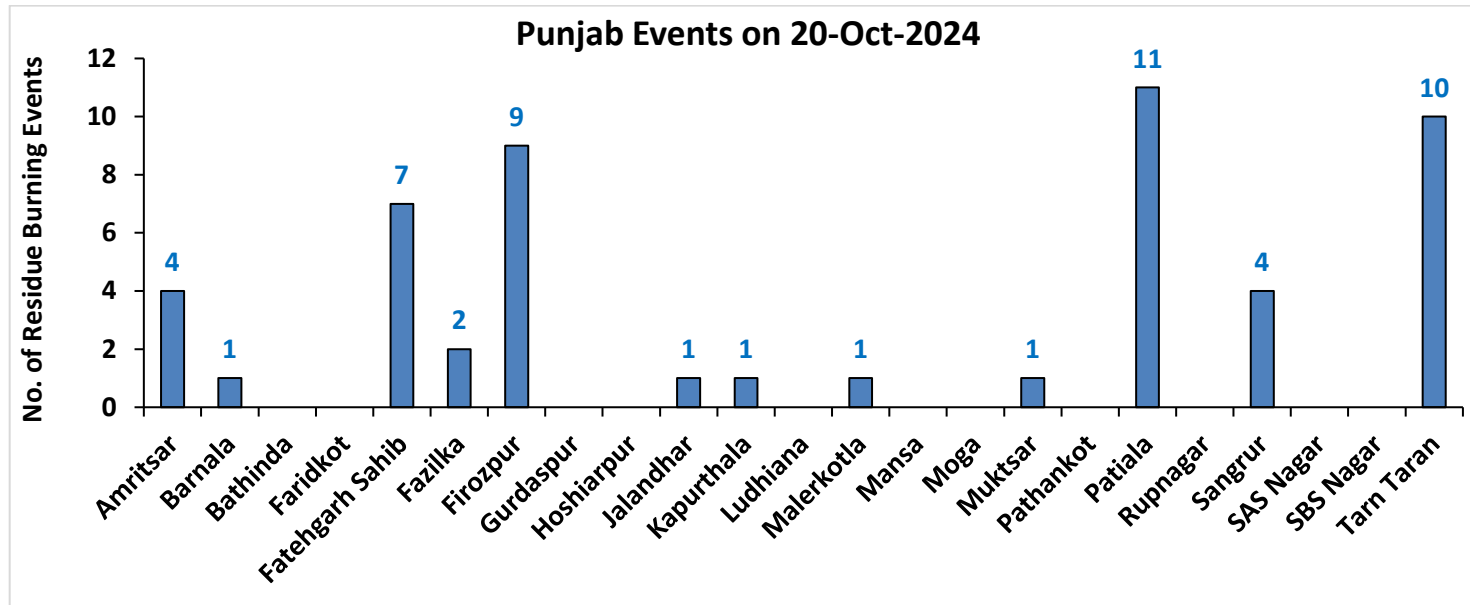
Fire Intensity (W/m²)

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



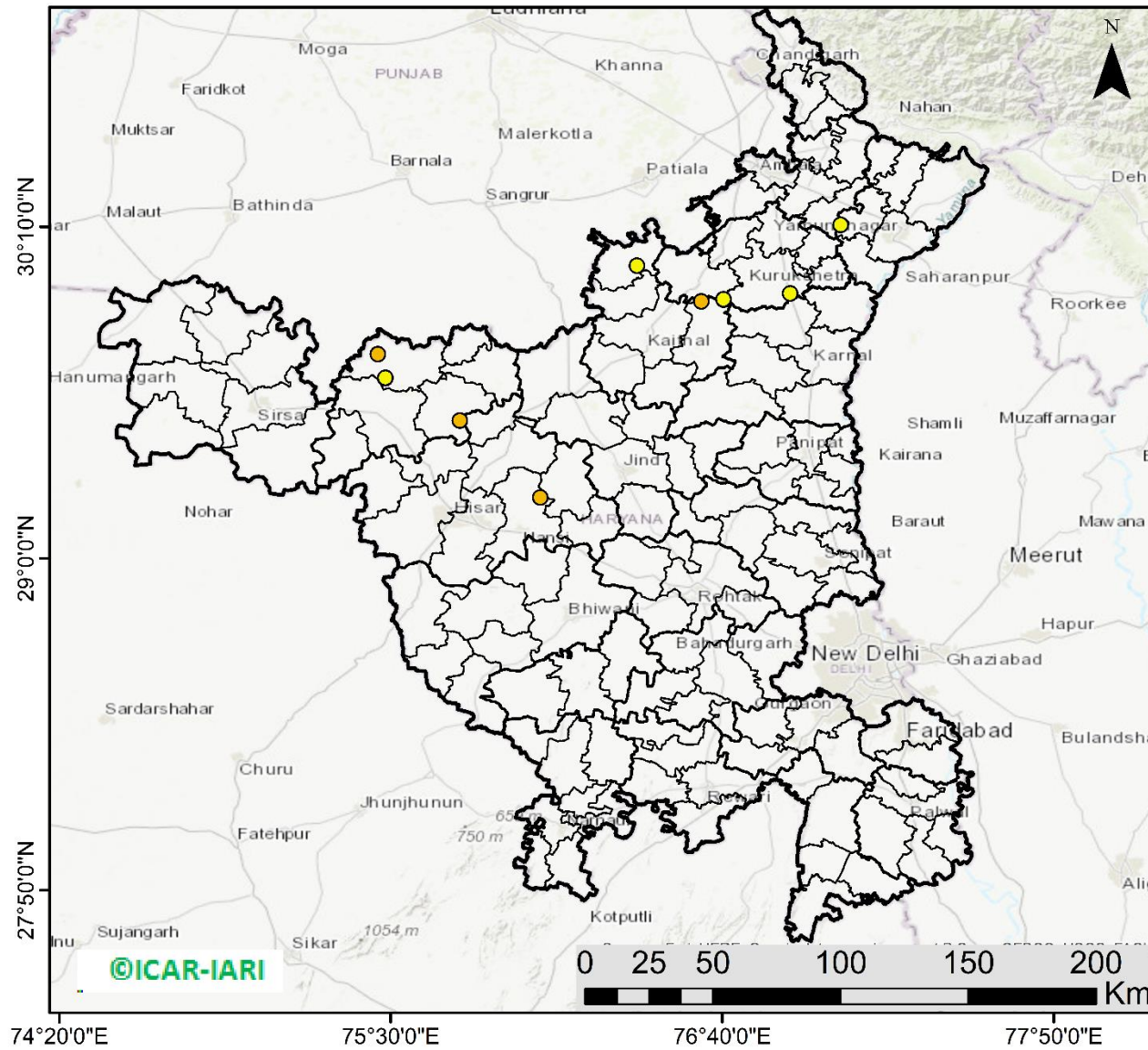
http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Punjab (15Sep-20Oct-2024)



Haryana

RICE RESIDUE BURNING IN HARYANA



11 burning events detected in Haryana on (20th Oct 2024)

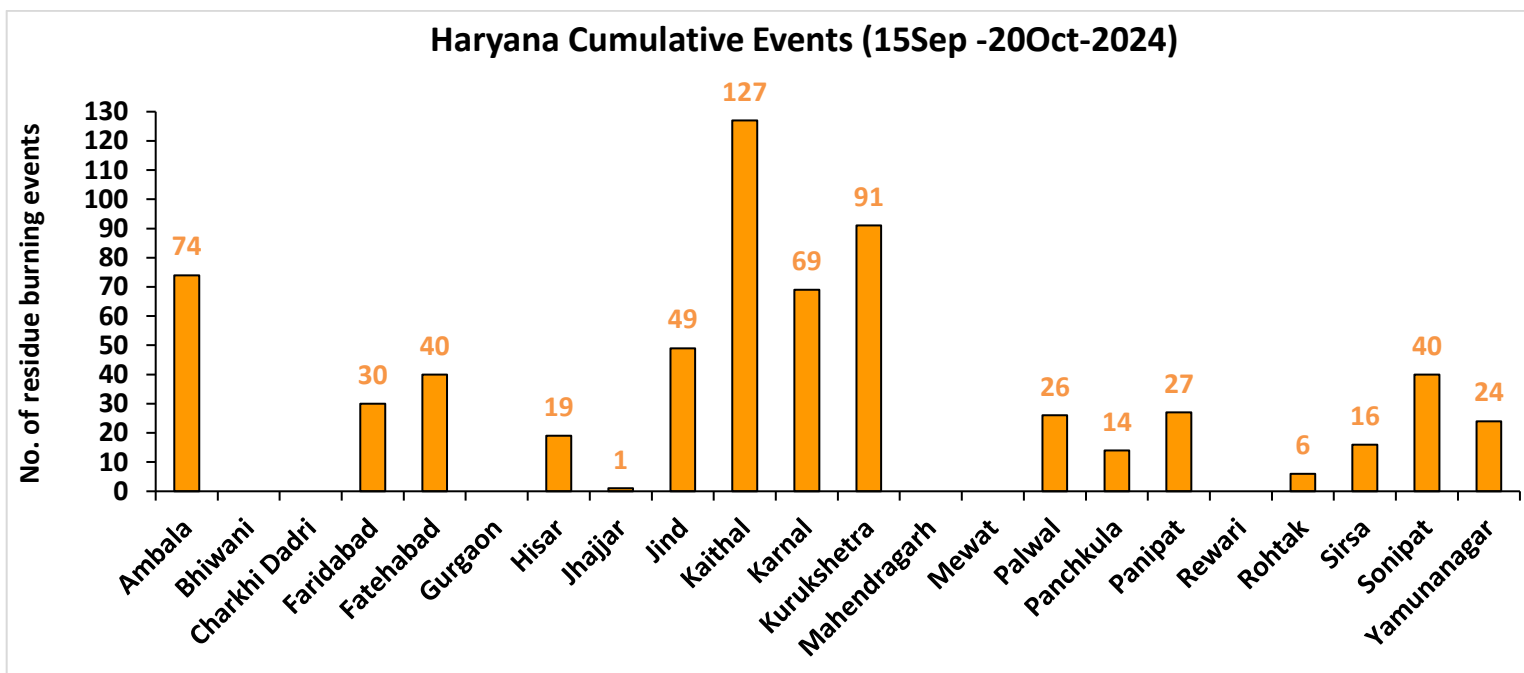
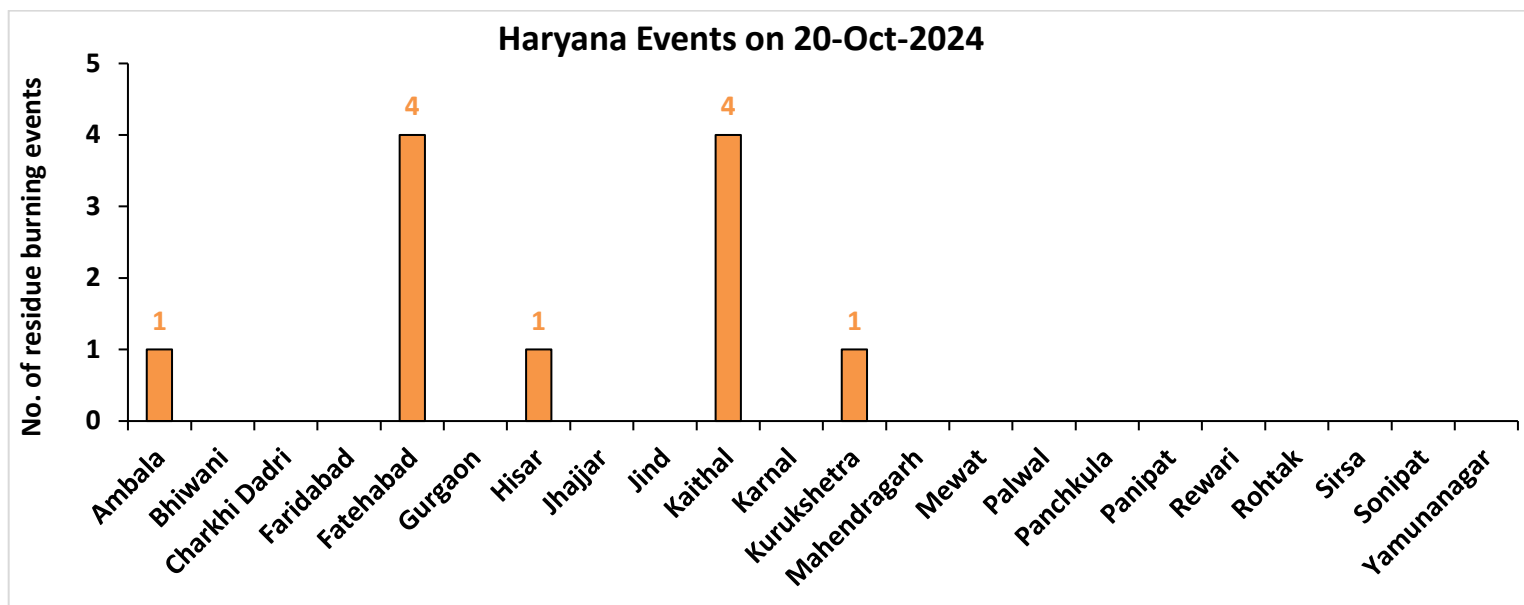
Fire Intensity (W/m²)

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



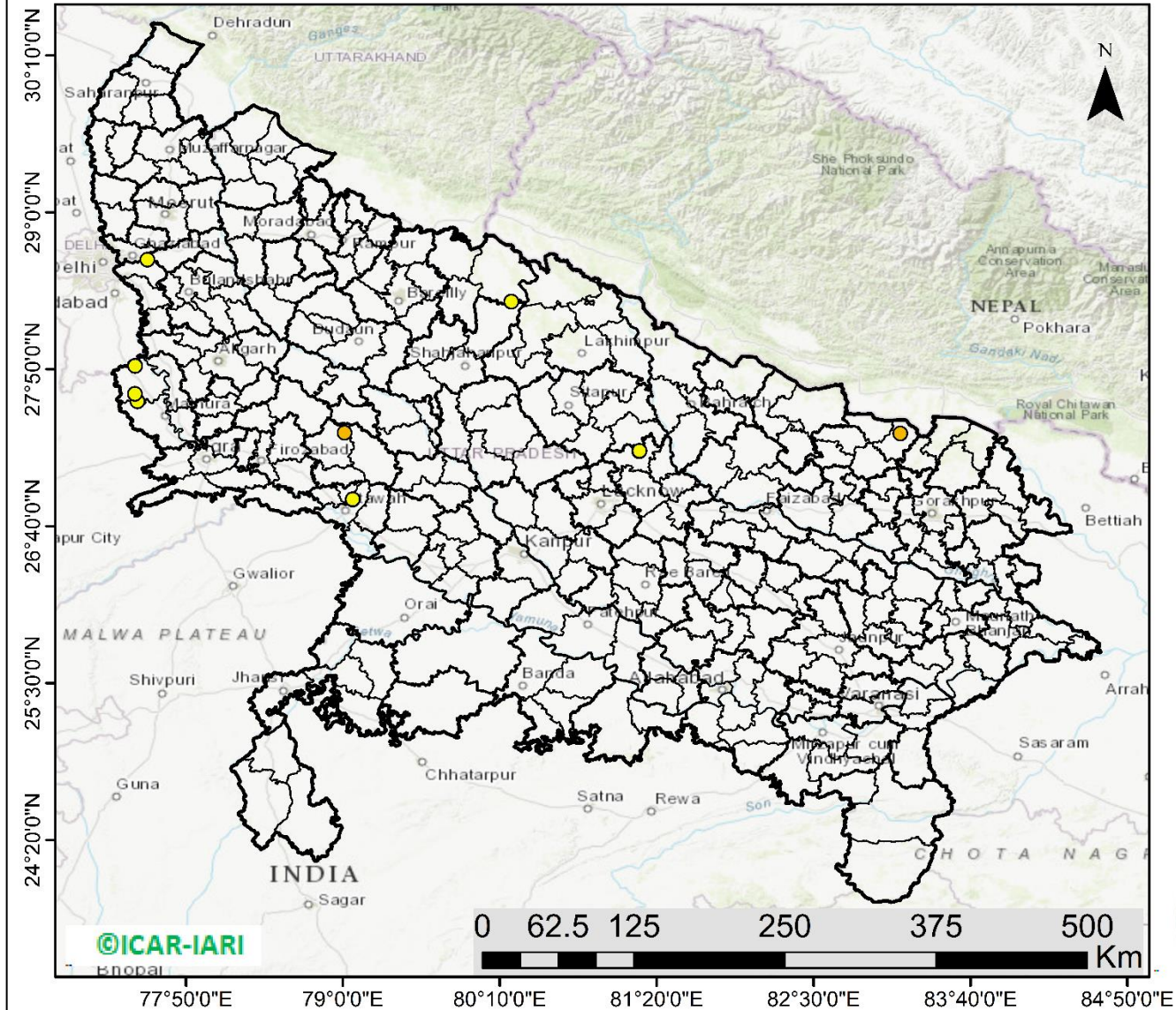
http://103.111.37.126/icar_geportal/

District-wise cumulative number of residues burning events in Haryana (15Sep-20Oct-2024)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



11 burning events detected in Uttar Pradesh on (20th Oct 2024)

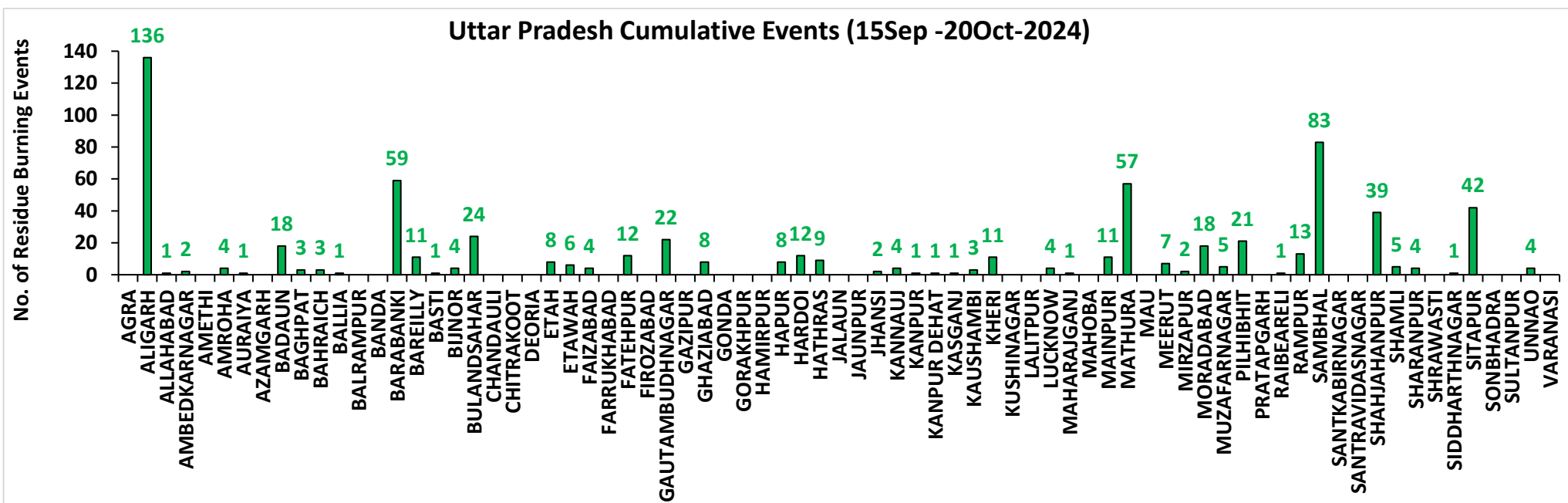
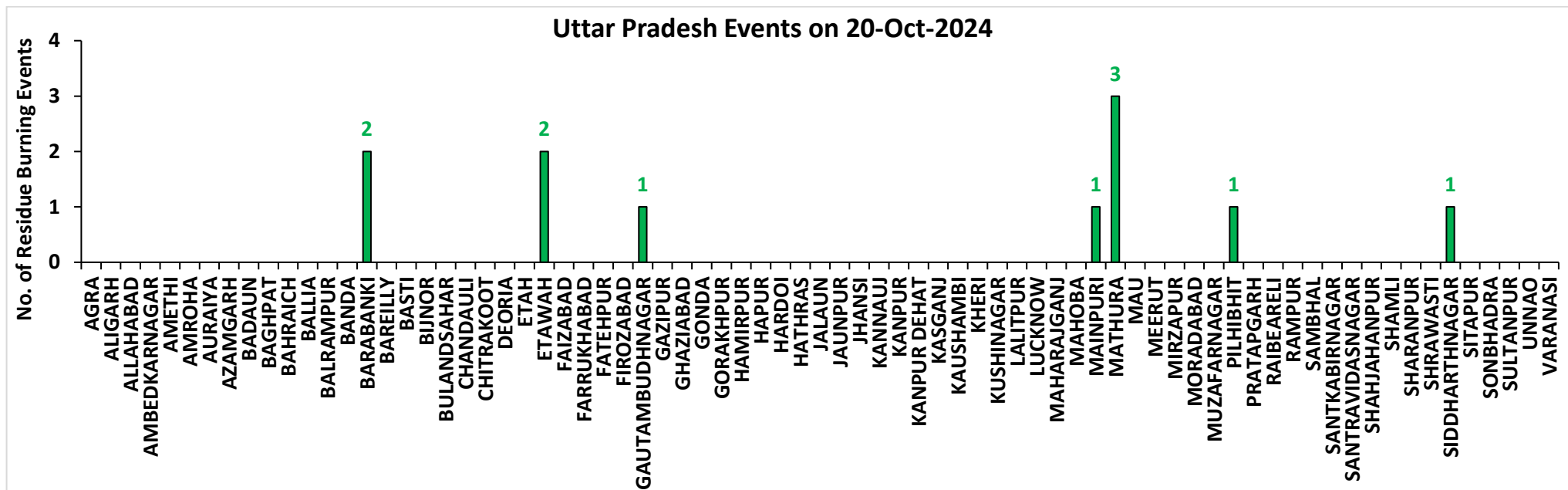
Fire Intensity (W/m²)

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



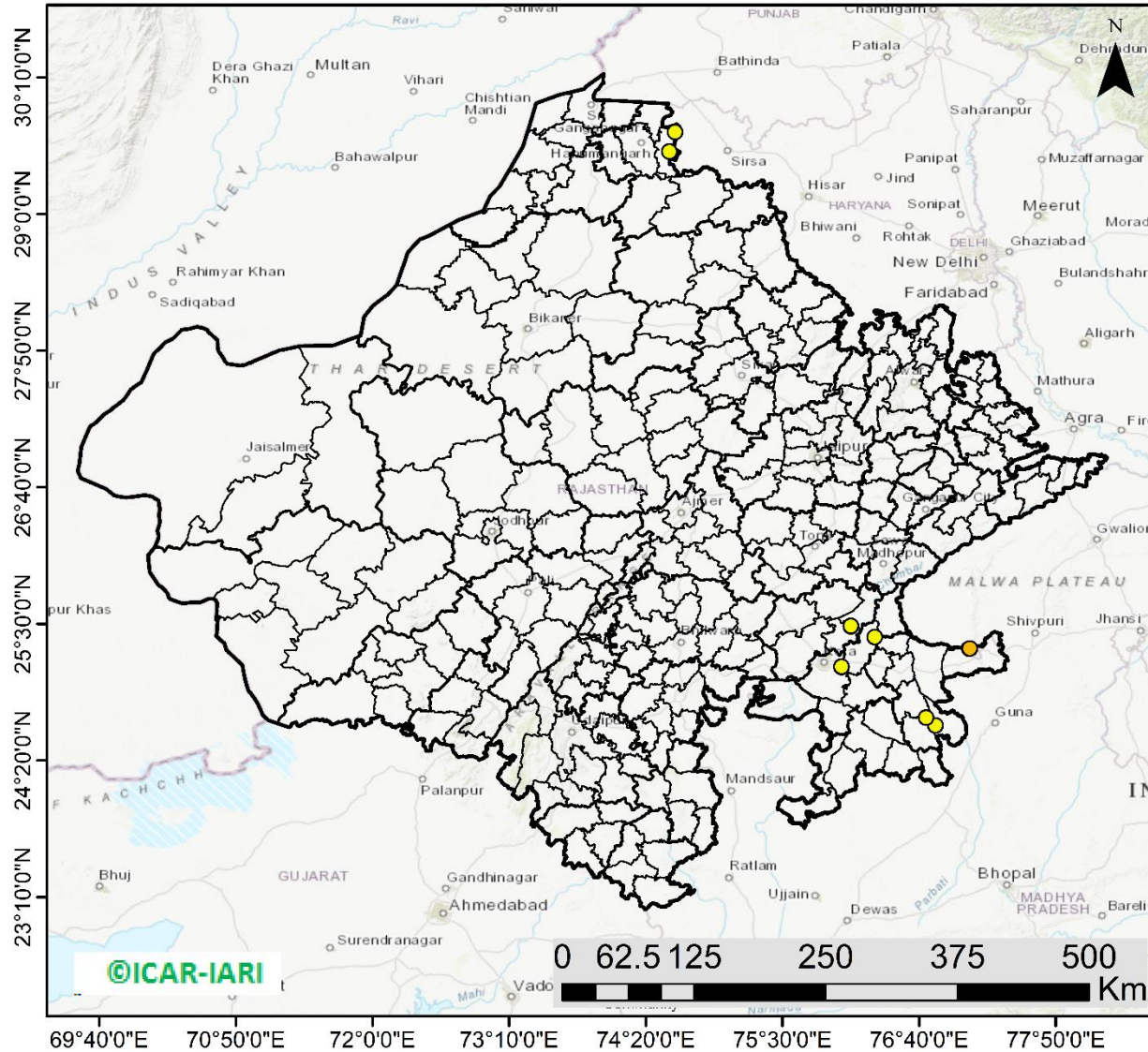
http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-20Oct-2024)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



11 burning events detected in Rajasthan on (20th Oct 2024)

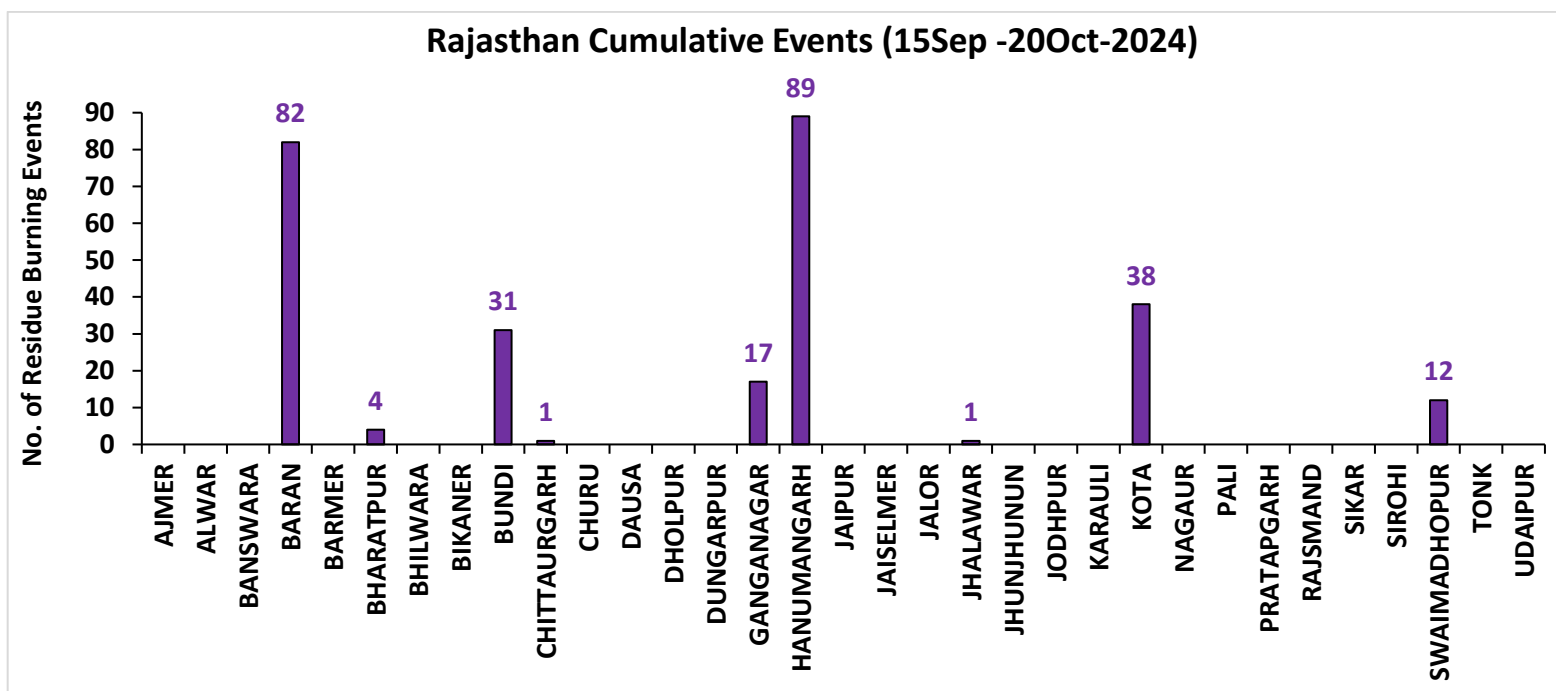
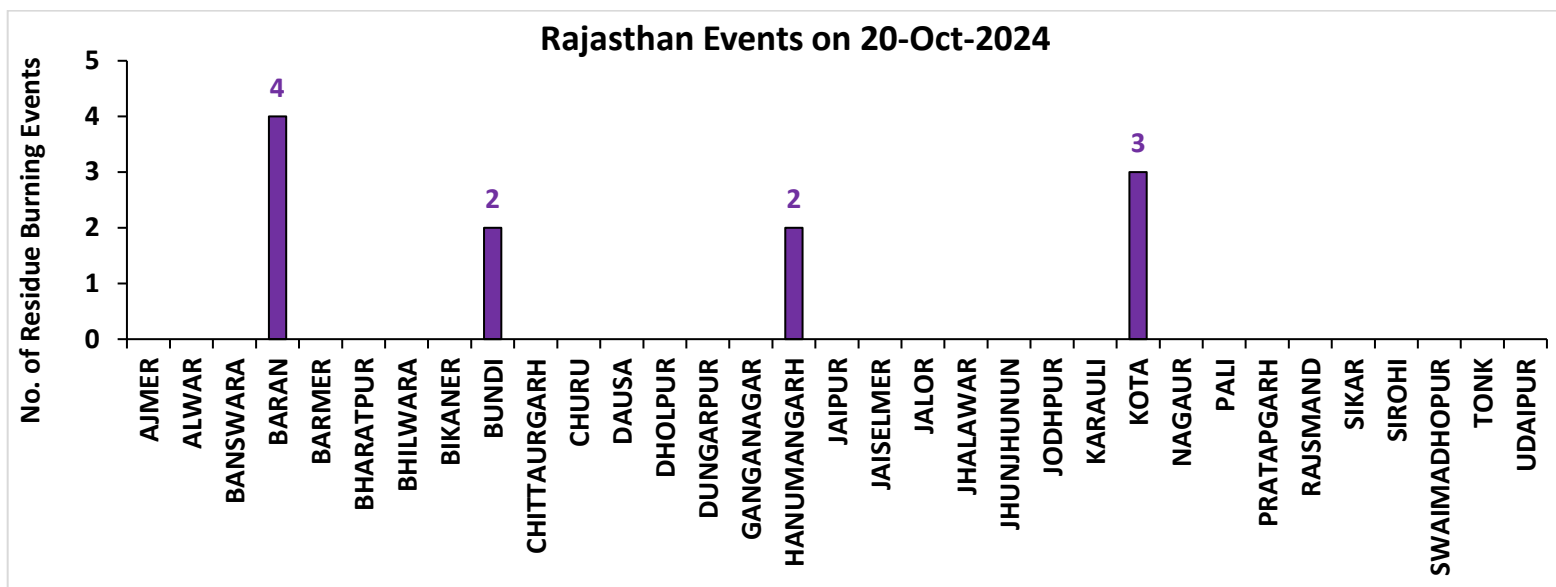
Fire Intensity (W/m²)

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



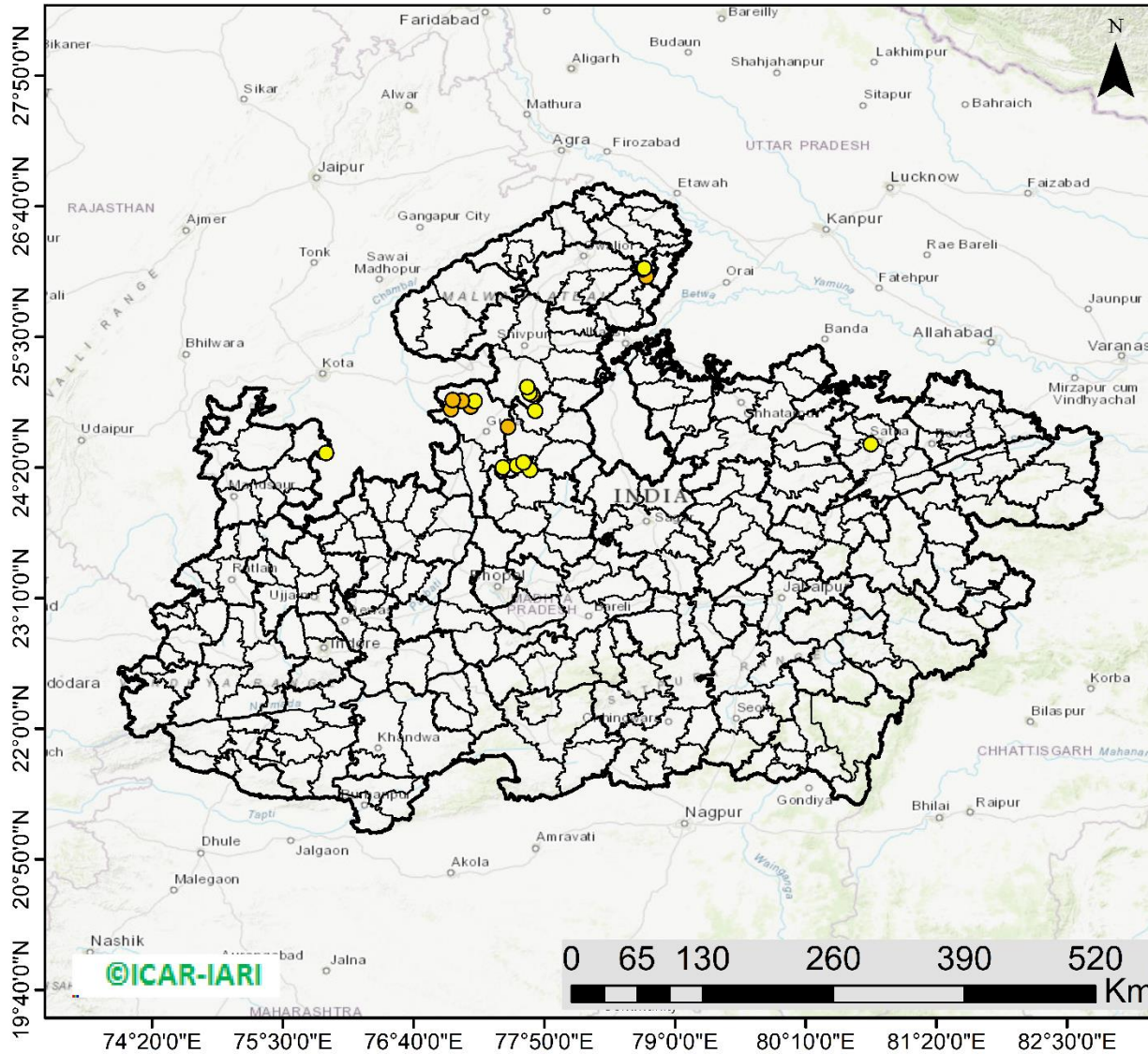
http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Rajasthan (15Sep-20Oct-2024)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



24 burning events detected in MP on (20th Oct 2024)

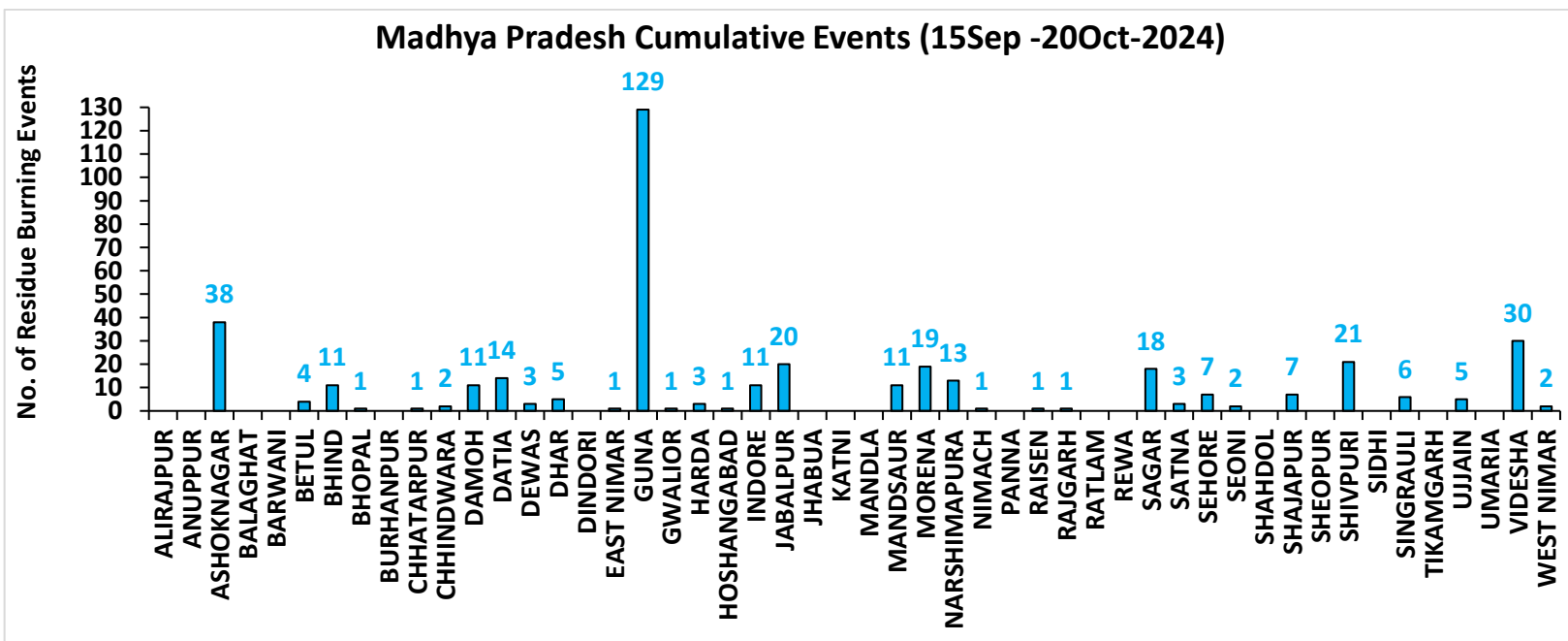
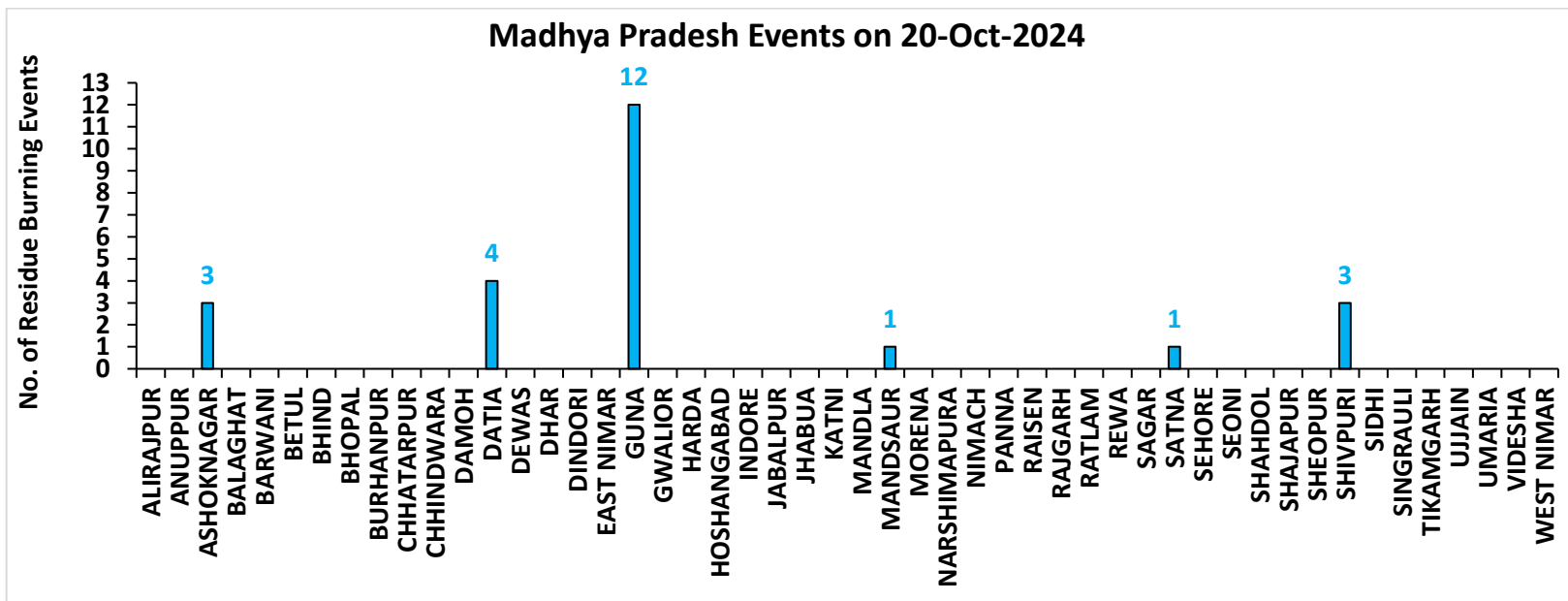
Fire Intensity (W/m²)

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



http://103.111.37.126/icar_geportal/

District-wise cumulative number of residues burning events in Madhya Pradesh (15Sep-20Oct-2024)



District-wise cumulative number of residues burning events detected in 2020, 2021, 2022, 2023 and 2024
(Period: 15 September-20 October)

(a) Punjab

District	15 Sep-20 Oct				
	2020	2021	2022	2023	2024
Amritsar	2111	752	792	665	434
Barnala	28	29	13	8	8
Bathinda	113	33	14	4	6
Faridkot	459	151	14	19	2
Fatehgarh Sahib	238	152	55	36	32
Fazilka	116	56	23	11	11
Firozpur	1026	203	127	83	96
Gurdaspur	664	234	230	13	47
Hoshiarpur	81	27	4	2	0
Jalandhar	188	150	107	26	16
Kapurthala	435	172	142	89	64
Ludhiana	216	232	70	34	27
Malerkotla	0	0	0	3	25
Mansa	77	12	17	45	25
Moga	129	76	52	28	10
Muktsar	94	49	5	1	4
Pathankot	4	0	0	0	0
Patiala	780	335	131	181	181
Rupnagar	46	27	8	1	2
Sangrur	210	71	81	95	130
SAS NAGAR (Mohali)	58	37	13	56	26
SBS Nagar	18	18	2	2	3
Tarn Taran	2308	914	821	216	296
Total	9399	3730	2721	1618	1445

(b) Haryana

District	15 Sep-20 Oct				
	2020	2021	2022	2023	2024
AMBALA	143	55	37	86	74
BHIWANI	0	0	0	2	0
CHARKHI DADRI	0	0	0	0	0
FARIDABAD	0	1	1	2	30
FATEHABAD	69	71	56	91	40
GURGAON	0	0	0	0	0
HISAR	9	2	10	37	19
JHAJJAR	1	0	0	4	1
JIND	34	51	55	80	49
KAITHAL	228	342	184	60	127
KARNAL	340	397	117	41	69
KURUKSHETRA	266	216	141	72	91
MAHENDRAGARH	0	0	0	0	0
MEWAT	0	0	0	0	0
PALWAL	19	25	4	32	26
PANCHKULA	0	0	0	1	14
PANIPAT	10	16	11	15	27
REWARI	0	0	0	0	0
ROHTAK	1	0	0	4	6
SIRSA	21	10	8	7	16
SONIPAT	12	5	6	44	40
YAMUNANAGAR	72	46	34	43	24
Total	1225	1237	664	621	653

(c) Uttar Pradesh

District	15 Sep-20 Oct																	
	2020	2021	2022	2023	2024	GAUTAMBUDHNAGAR	2	7	2	6	22	MUZAFARNAGAR	3	2	1	0	5	
AGRA	2	0	0	0	0	GAZIPUR	0	0	0	0	0	PILHIBHIT	8	108	24	39	21	
ALIGARH	38	21	4	68	136	GHAZIABAD	3	2	1	7	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	17	13	
AMETHI	0	1	4	1	0	HAMIRPUR	1	0	0	0	0	SAMBHAL	7	7	4	9	83	
AMROHA	1	0	0	2	4	HAPUR	3	1	0	0	8	SANTKABIRNAGAR	0	0	0	0	0	
AURAIYA	17	6	5	4	1	HARDOI	13	6	2	4	12	SANTRAVIDASNAGAR	0	0	0	0	0	
AZAMGARH	0	0	0	0	0	HATHRAS	0	0	0	2	9	SHAHJAHANPUR	47	181	78	21	39	
BADAUN	1	6	0	2	18	JALAUN	0	0	0	0	0	SHAMLI	20	11	4	3	5	
BAGHPAT	3	1	1	1	3	JAUNPUR	0	0	0	1	0	SHARANPUR	33	17	2	0	4	
BAHRAICH	9	2	4	0	3	JHANSI	10	6	0	7	2	SHRAWASTI	7	0	0	0	0	
BALLIA	0	0	0	0	1	KANNAUJ	3	1	0	1	4	SIDDHARTHANAGAR	0	0	0	0	1	
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	15	20	0	22	59	KASGANJ	2	2	0	1	1	SULTANPUR	0	0	0	0	0	
BAREILLY	19	15	2	10	11	KAUSHAMBI	9	3	0	6	3	UNNAO	5	0	0	3	4	
BASTI	3	1	0	0	1	KHERI	44	54	11	4	11	VARANASI	1	0	0	0	0	
BIJNOR	6	3	2	5	4	KUSHINAGAR	0	0	0	0	0	Total	529	626	181	364	698	
BULANDSAHAR	15	2	2	5	24	LALITPUR	0	1	2	0	0							
CHANDAULI	0	0	0	0	0	LUCKNOW	2	0	0	1	4							
CHITRAKOOT	0	1	1	0	0	MAHARAJGANJ	0	0	0	0	1							
DEORIA	0	0	0	2	0	MAHOBA	3	0	0	0	0							
ETAH	8	6	0	11	8	MAINPURI	11	7	3	7	11							
ETAWAH	5	7	0	13	6	MATHURA	31	27	1	57	57							
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	8	12	MIRZAPUR	6	5	2	0	2							
FIROZABAD	10	4	0	2	0	MORADABAD	5	3	0	2	18							

(d) Delhi

District	15 Sep-20 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-20 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	141	82
BARMER	2	0	0	0	0
BHARATPUR	2	0	0	2	4
BHILWARA	2	0	0	0	0
BIKANER	1	0	0	0	0
BUNDI	11	0	22	39	31
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	170	35	8	48	89
JAIPUR	1	0	0	0	0
JAISELMER	2	0	0	0	0
JALOR	0	0	0	0	0
JHALAWAR	1	0	1	8	1
JHUNJHUNUN	1	0	0	0	0
JODHPUR	1	0	0	0	0
KARALI	1	0	0	0	0
KOTA	27	1	9	73	38
NAGPUR	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	8	0	3	25	12
TONK	2	0	0	0	0
UDAIPUR	0	0	0	0	0
Total	330	38	53	352	275

(f) Madhya Pradesh

District	15 Sep-20 Oct										
	2020	2021	2022	2023	2024	PANNA	3	0	0	0	0
ALIRAJPUR	0	0	0	0	0	RAISEN	18	2	1	10	1
ANUPPUR	0	0	0	0	0	RAJGARH	7	1	3	9	1
ASHOKNAGAR	19	1	3	34	38	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	9	5	14	18
BETUL	1	0	0	3	4	SATNA	11	6	0	2	3
BHIND	9	1	0	14	11	SEHORE	9	3	9	13	7
BHOPAL	6	5	2	7	1	SEONI	37	15	1	13	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	5	0	3	2	SHEOPUR	16	0	1	42	0
DAMOH	20	4	5	13	11	SHIVPURI	9	0	7	17	21
DATIA	77	8	1	65	14	SIDHI	0	0	0	0	0
DEWAS	3	0	0	7	3	SINGRAULI	0	0	0	0	6
DHAR	21	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	2	4	142	129	VIDESHA	60	8	7	26	30
GWALIOR	48	0	1	19	1	WEST NIMAR	6	0	0	6	2
HARDA	8	10	0	15	3	Total	530	106	65	615	403
HOSHANGABAD	38	8	3	30	1						
INDORE	2	0	0	12	11						
JABALPUR	12	4	3	16	20						
JHABUA	0	0	0	0	0						
KATNI	3	0	0	1	0						
MANDLA	1	0	0	0	0						
MANDSAUR	3	0	0	1	11						
MORENA	18	5	0	19	19						
NARSHIMAPURA	9	8	5	10	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-20 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
20-Oct	890	788	96	174	52	62	155	78	51	11	31	1	17	25	11
Total	9399	3730	2721	1618	1445	1225	1237	664	621	653	529	626	181	364	698

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
20-Oct	0	0	0	0	0	26	4	4	57	11	9	21	7	131	24
Total	4	0	3	2	11	330	38	53	352	275	530	106	65	615	403

Details of residue burning events in Punjab on 20-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMRITSAR	HARSHA CHHINA	S-NPP	31.79573	74.71135	12:37:55	D	6.80
2	AMRITSAR	TARSIKKA	S-NPP	31.62579	75.16297	14:18:12	D	2.80
3	AMRITSAR	TARSIKKA	S-NPP	31.67607	75.06261	14:18:12	D	3.00
4	AMRITSAR	TARSIKKA	S-NPP	31.74738	75.15067	14:18:12	D	3.30
5	BARNALA	BARNALA	S-NPP	30.25220	75.64138	14:18:12	D	2.40
6	FATEHGARH SAHIB	BASSI PATHANAN	S-NPP	30.68115	76.35419	12:37:55	D	5.70
7	FATEHGARH SAHIB	KHAMANON	S-NPP	30.87765	76.33036	12:37:55	D	2.50
8	FATEHGARH SAHIB	KHERA	S-NPP	30.65548	76.58302	12:37:55	D	2.20
9	FATEHGARH SAHIB	SIRHIND	S-NPP	30.49719	76.47522	12:37:55	D	8.10
10	FATEHGARH SAHIB	SIRHIND	S-NPP	30.51050	76.45662	12:37:55	D	5.00
11	FATEHGARH SAHIB	SIRHIND	S-NPP	30.59183	76.31982	14:18:12	D	3.30
12	FATEHGARH SAHIB	SIRHIND	S-NPP	30.59366	76.31734	14:18:12	D	4.60
13	FAZILKA	GURUHAR SAHAI	S-NPP	30.67888	74.21157	14:18:12	D	5.60
14	FAZILKA	JALALABAD	S-NPP	30.54679	74.10175	14:18:12	D	3.50
15	FIROZPUR	FIROZPUR	S-NPP	30.94162	74.53667	12:37:55	D	24.60
16	FIROZPUR	FIROZPUR	S-NPP	30.94668	74.58807	14:18:12	D	4.30
17	FIROZPUR	FIROZPUR	S-NPP	31.01206	74.69672	14:18:12	D	5.00
18	FIROZPUR	FIROZPUR	S-NPP	31.02396	74.61998	14:18:12	D	5.30
19	FIROZPUR	FIROZPUR	S-NPP	31.02463	74.61967	14:18:12	D	5.90
20	FIROZPUR	GHALL KHURD	S-NPP	30.92716	74.82684	14:18:12	D	3.70
21	FIROZPUR	MAKHU	S-NPP	31.11910	74.82918	14:18:12	D	4.80
22	FIROZPUR	MAMDOT	S-NPP	30.80094	74.39936	14:18:12	D	2.50
23	FIROZPUR	ZIRA	S-NPP	30.94557	75.02230	14:18:12	D	3.40
24	JALANDHAR	JALANDHAR WEST	S-NPP	31.47385	75.52299	14:18:12	D	4.70
25	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.19238	75.20461	14:18:12	D	5.20
26	MALERKOTLA	AMARGARH	S-NPP	30.46308	76.05024	12:37:55	D	2.60
27	MUKTSAR	KOT BHAI AT GIDDERBAHA	S-NPP	30.31414	74.61705	14:18:12	D	2.30
28	PATIALA	BHUNARHERI	S-NPP	30.22720	76.41333	14:18:12	D	3.90
29	PATIALA	GHANAUR	S-NPP	30.34384	76.64873	12:37:55	D	3.60
30	PATIALA	GHANAUR	S-NPP	30.35735	76.60700	12:37:55	D	3.30

31	PATIALA	NABHA	S-NPP	30.35501	76.03448	14:18:12	D	8.00
32	PATIALA	NABHA	S-NPP	30.55111	76.27525	14:18:12	D	3.80
33	PATIALA	PATIALA	S-NPP	30.33820	76.30655	12:37:55	D	3.40
34	PATIALA	RAJPURA	S-NPP	30.52176	76.58616	14:18:12	D	4.10
35	PATIALA	SANAUR	S-NPP	30.31623	76.48201	12:37:55	D	1.60
36	PATIALA	SHAMBU KALAN	S-NPP	30.42119	76.65512	14:18:12	D	4.70
37	PATIALA	SHAMBU KALAN	S-NPP	30.42122	76.65349	14:18:12	D	4.10
38	PATIALA	SHAMBU KALAN	S-NPP	30.46503	76.53756	12:37:55	D	2.20
39	SANGRUR	ANDANA	S-NPP	29.86015	75.98751	14:18:12	D	11.40
40	SANGRUR	ANDANA	S-NPP	29.86228	75.98537	14:18:12	D	13.00
41	SANGRUR	ANDANA	S-NPP	29.88974	75.96260	12:37:55	D	7.70
42	SANGRUR	BHAWANIGARH	S-NPP	30.27764	76.11894	14:18:12	D	2.60
43	TARN TARAN	CHOHLA SAHIB	S-NPP	31.35823	75.08321	14:18:12	D	4.00
44	TARN TARAN	GANDIWIND TATLA	S-NPP	31.45152	74.64999	14:18:12	D	3.20
45	TARN TARAN	KHADUR SAHIB	S-NPP	31.48349	75.06401	14:18:12	D	6.90
46	TARN TARAN	KHADUR SAHIB	S-NPP	31.48546	75.06516	14:18:12	D	9.80
47	TARN TARAN	TARN TARAN	S-NPP	31.44362	75.00083	14:18:12	D	2.90
48	TARN TARAN	TARN TARAN	S-NPP	31.47223	74.97857	14:18:12	D	3.50
49	TARN TARAN	TARN TARAN	S-NPP	31.47442	74.97453	14:18:12	D	5.60
50	TARN TARAN	TARN TARAN	S-NPP	31.50596	74.79772	14:18:12	D	4.40
51	TARN TARAN	TARN TARAN	S-NPP	31.50625	74.80264	14:18:12	D	5.90
52	TARN TARAN	VALTOHA	S-NPP	31.30826	74.54269	12:37:55	D	5.40

Details of residue burning events in Haryana on 20-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMBALA	BARARA	S-NPP	30.17241	77.08397	12:37:55	D	3.40
2	FATEHABAD	BHUNA	S-NPP	29.48440	75.74345	14:18:12	D	8.60
3	FATEHABAD	RATIA	S-NPP	29.63359	75.48076	14:18:12	D	6.50
4	FATEHABAD	RATIA	S-NPP	29.63479	75.48141	14:18:12	D	3.30
5	FATEHABAD	RATIA	S-NPP	29.71802	75.45481	14:18:12	D	7.60
6	HISAR	HANSI-I	S-NPP	29.21367	76.02657	12:37:55	D	5.20
7	KAITHAL	GUHLA	S-NPP	30.02935	76.36652	14:18:12	D	4.00
8	KAITHAL	PUNDRI	S-NPP	29.90343	76.59344	12:37:55	D	5.10
9	KAITHAL	PUNDRI	S-NPP	29.90949	76.67166	12:37:55	D	2.10
10	KAITHAL	PUNDRI	S-NPP	29.91121	76.67143	12:37:55	D	2.90
11	KURUKSHETRA	THANESAR	S-NPP	29.93162	76.90569	12:37:55	D	3.90

Details of residue burning events in Uttar Pradesh on 20-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	BARABANKI	FATEHPUR	S-NPP	27.22223	81.20451	12:37:55	D	2.90
2	BARABANKI	FATEHPUR	S-NPP	27.22561	81.20636	12:37:55	D	4.90
3	ETAWAH	ETAWAH	S-NPP	26.86360	79.07308	12:37:55	D	2.20
4	ETAWAH	ETAWAH	S-NPP	26.86478	79.07355	12:37:55	D	1.90
5	GAUTAMBUDHNAGAR	DADRI	S-NPP	28.64706	77.54774	01:27:55	N	0.40
6	MAINPURI	MAINPURI	S-NPP	27.36010	79.01355	12:37:55	D	6.80
7	MATHURA	CHHATA	S-NPP	27.59333	77.47324	14:18:12	D	4.40
8	MATHURA	CHHATA	S-NPP	27.64923	77.45395	14:18:12	D	4.70
9	MATHURA	CHHATA	S-NPP	27.85709	77.45667	12:37:55	D	4.10
10	PILHIBHIT	PURANPUR	S-NPP	28.33523	80.25300	01:27:55	N	0.60
11	SIDDHARTHANAGAR	NAUGARH	S-NPP	27.35490	83.14524	12:37:55	D	6.70

Details of residue burning events in Rajasthan on 20-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	BARAN	CHHABRA	S-NPP	24.63168	76.80726	12:37:55	D	3.90
2	BARAN	CHHIPABAROD	S-NPP	24.69818	76.72744	14:18:12	D	1.60
3	BARAN	SHAHBAD	S-NPP	25.28755	77.09702	12:37:55	D	6.00
4	BARAN	SHAHBAD	S-NPP	25.28807	77.10004	12:37:55	D	5.30
5	BUNDI	KESHORAIPATAN	S-NPP	25.47730	76.08541	14:18:12	D	4.50
6	BUNDI	KESHORAIPATAN	S-NPP	25.48164	76.08453	14:18:12	D	4.60
7	HANUMANGARH	TIBI	S-NPP	29.53332	74.53551	14:18:12	D	2.00
8	HANUMANGARH	TIBI	S-NPP	29.69979	74.58416	12:37:55	D	4.70
9	KOTA	DIGOD	S-NPP	25.38633	76.28838	14:18:12	D	2.80
10	KOTA	LADPURA	S-NPP	25.13048	76.00514	14:18:12	D	2.30
11	KOTA	LADPURA	S-NPP	25.13340	76.00420	14:18:12	D	4.50

Details of residue burning events in Madhya Pradesh on 20-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.30869	77.70734	14:18:12	D	6.00
2	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.30995	77.70753	14:18:12	D	4.40
3	ASHOKNAGAR	ISAGARH	S-NPP	24.83766	77.75235	12:37:55	D	1.90
4	DATIA	SEONDHA	S-NPP	26.03492	78.74280	12:37:55	D	4.80
5	DATIA	SEONDHA	S-NPP	26.03576	78.74525	12:37:55	D	5.30
6	DATIA	SEONDHA	S-NPP	26.10242	78.71129	12:37:55	D	2.20
7	DATIA	SEONDHA	S-NPP	26.11145	78.72541	12:37:55	D	3.30
8	GUNA	ARON	S-NPP	24.33149	77.46472	14:18:12	D	7.10
9	GUNA	ARON	S-NPP	24.33175	77.46400	14:18:12	D	4.90
10	GUNA	ARON	S-NPP	24.34844	77.58955	12:37:55	D	3.10
11	GUNA	ARON	S-NPP	24.37690	77.64743	14:18:12	D	4.10
12	GUNA	GUNA	S-NPP	24.69362	77.51069	14:18:12	D	5.50
13	GUNA	GUNA	S-NPP	24.85212	77.00087	12:37:55	D	5.20
14	GUNA	GUNA	S-NPP	24.87635	77.17488	12:37:55	D	7.10
15	GUNA	GUNA	S-NPP	24.87658	77.17713	12:37:55	D	7.50
16	GUNA	GUNA	S-NPP	24.92426	77.21311	12:37:55	D	3.30
17	GUNA	GUNA	S-NPP	24.92444	77.09616	14:18:12	D	7.10
18	GUNA	GUNA	S-NPP	24.92654	77.09766	14:18:12	D	6.30
19	GUNA	GUNA	S-NPP	24.93430	77.01647	12:37:55	D	5.30
20	MANDSAUR	BHANPURA	S-NPP	24.46144	75.88585	14:18:12	D	1.50
21	SATNA	UCHAHAR	S-NPP	24.53999	80.74934	12:37:55	D	2.40
22	SHIVPURI	KOLARAS	S-NPP	24.98405	77.72678	12:37:55	D	5.30
23	SHIVPURI	KOLARAS	S-NPP	24.99709	77.70293	12:37:55	D	4.60
24	SHIVPURI	KOLARAS	S-NPP	25.05071	77.68243	14:18:12	D	3.30

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**

Study Team

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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](#)
