

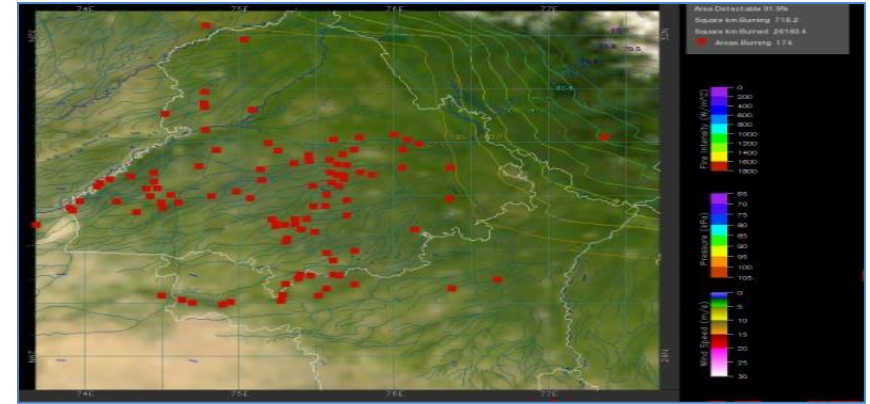
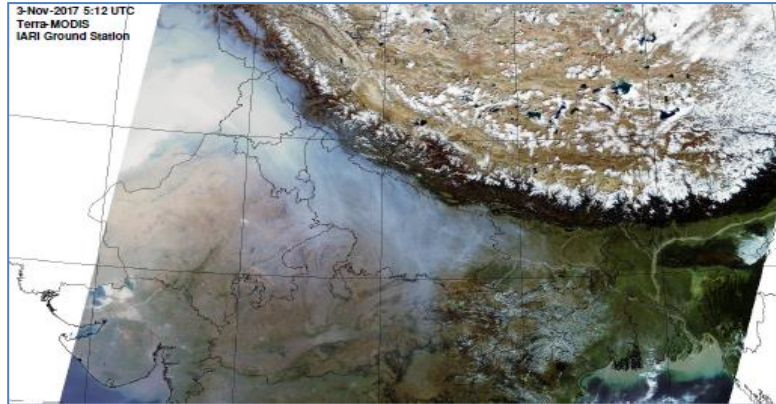


MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2024

Bulletin
No. 38

Events Date:
22-Oct-2024

Issued on:
22-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

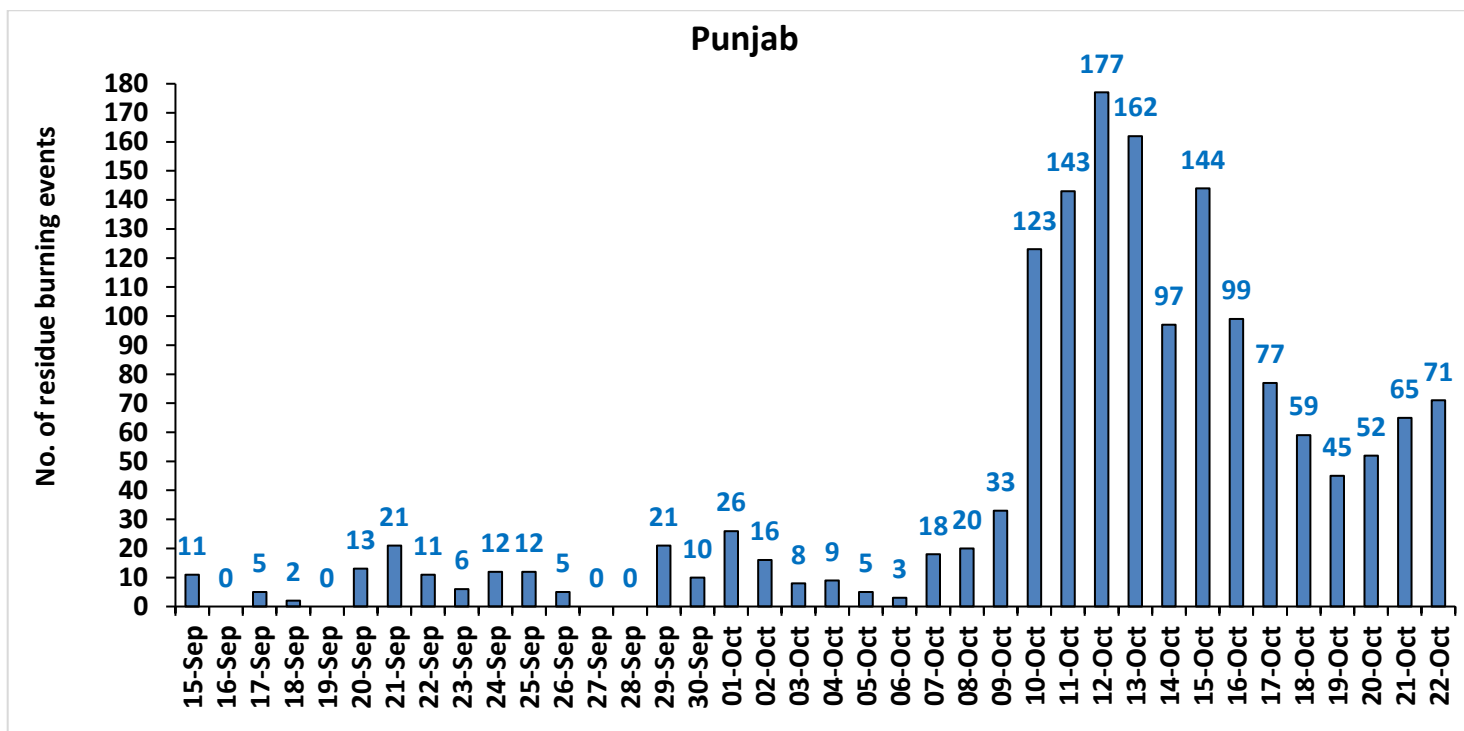
<https://creams.iari.res.in>



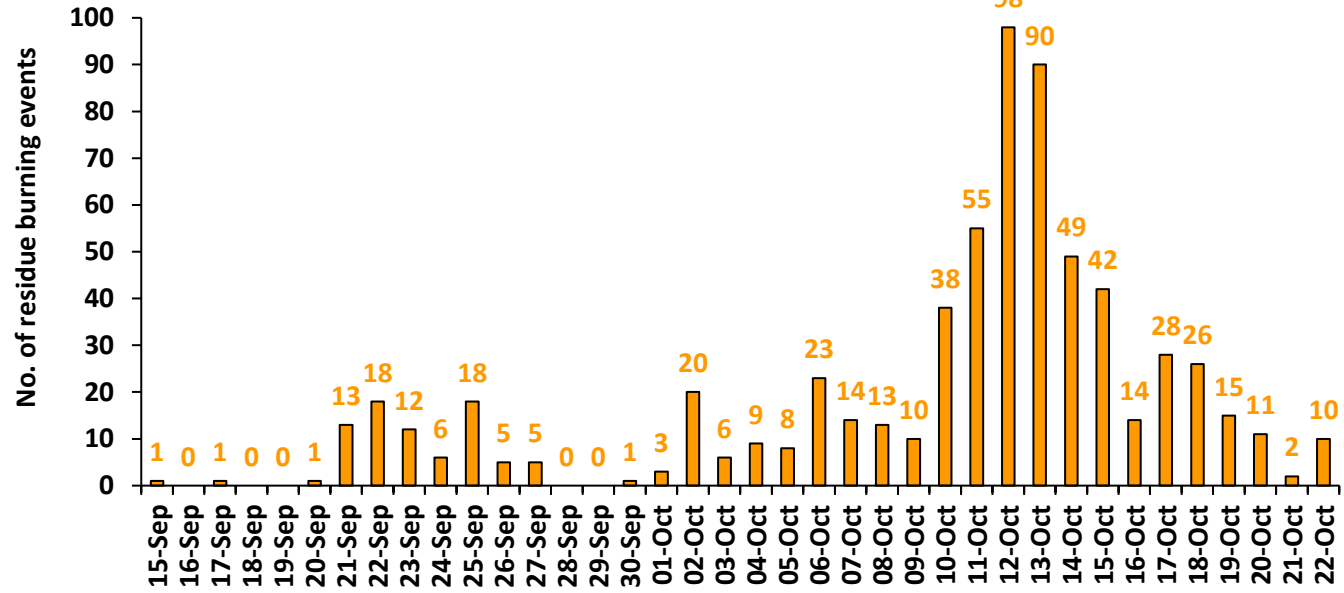
Highlights for 22-Oct-2024

- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol " recommended by CAQM.
- Satellites detected **227** residue burning events in the six study States on **22-Oct-2024**.
- The state wise events detected on **22-Oct-2024** were **71** in Punjab, **10** in Haryana, **17** in UP, **00** in Delhi, **36** in Rajasthan and **93** in MP.
- Total **3878** burning events were detected in the six states between **15-Sept-2024** and **22-Oct-2024**, which are distributed as **1581**, **665**, **740**, **11**, **332** and **549** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.
- Detection of burning events was hampered by the presence of scattered clouds over Rajasthan and western Madhya Pradesh states.

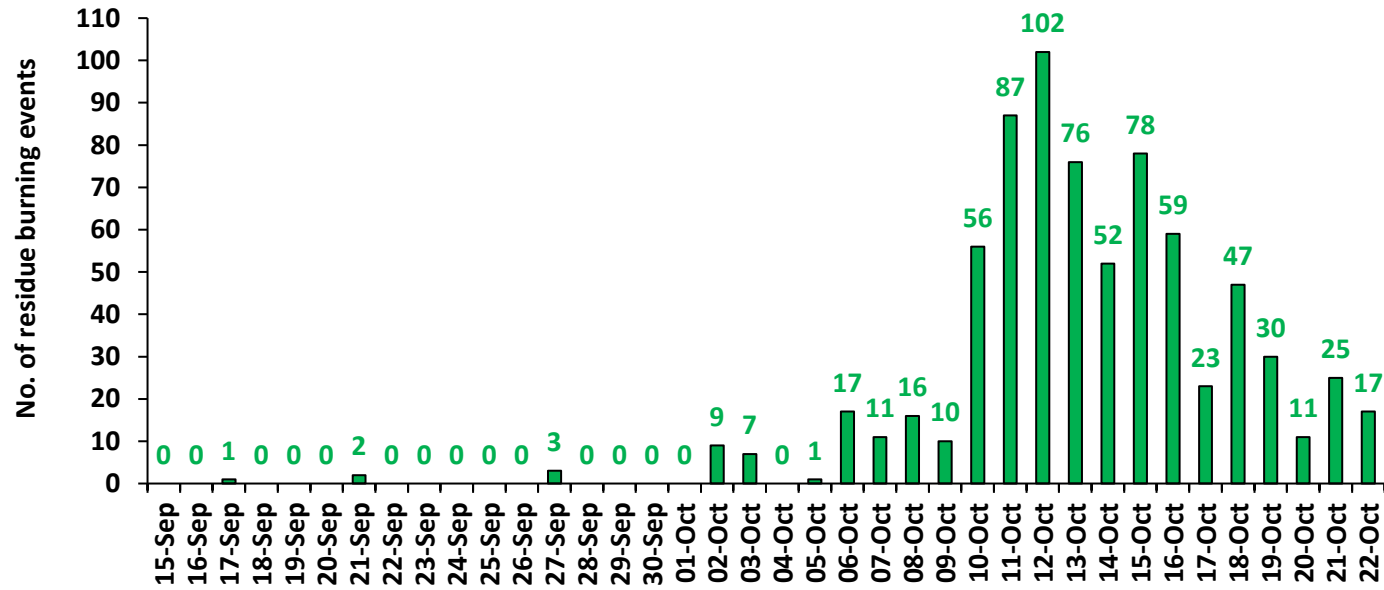
Temporal distribution of rice residue burning events for the study States in 2024



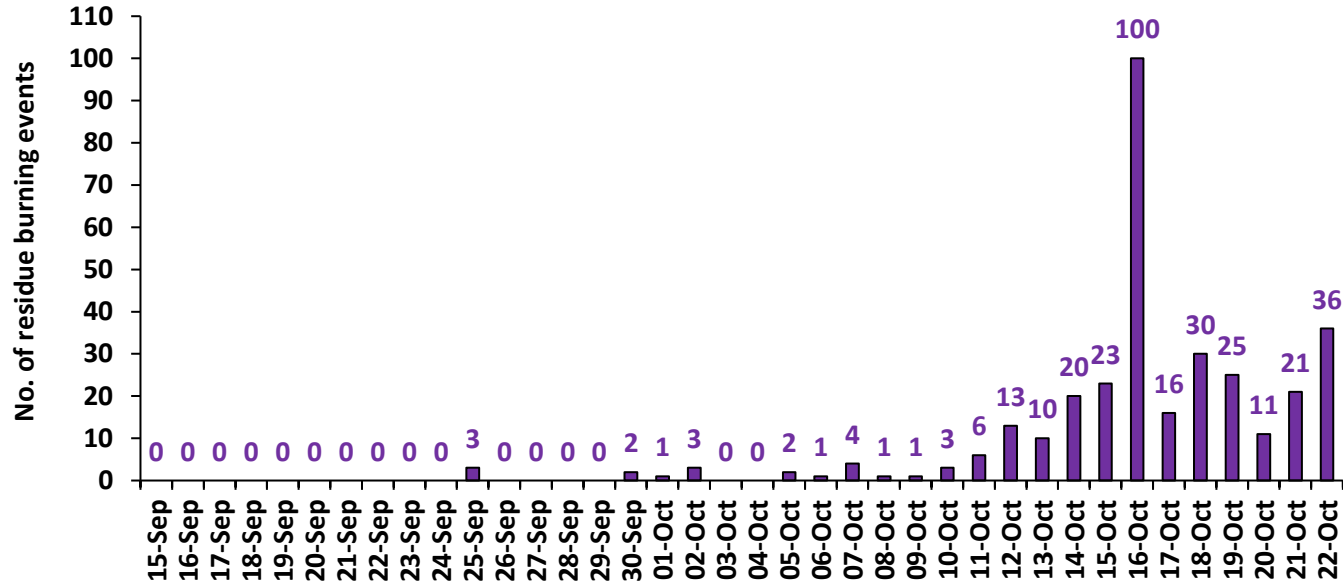
Haryana



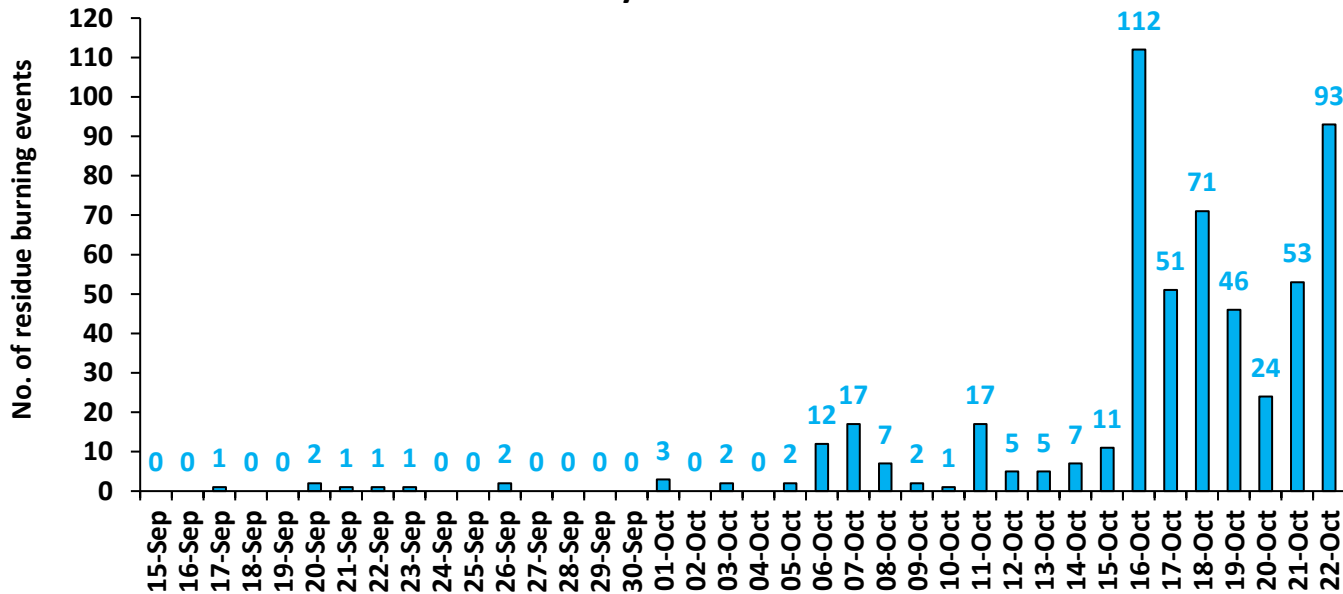
Uttar Pradesh



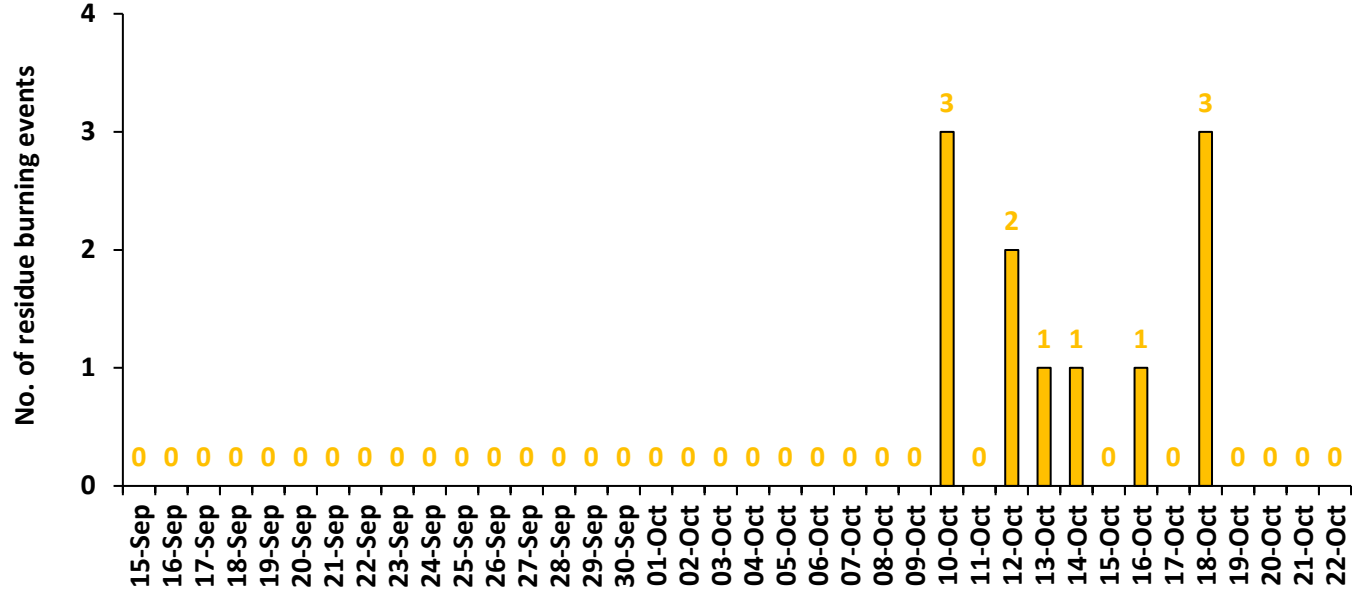
Rajasthan



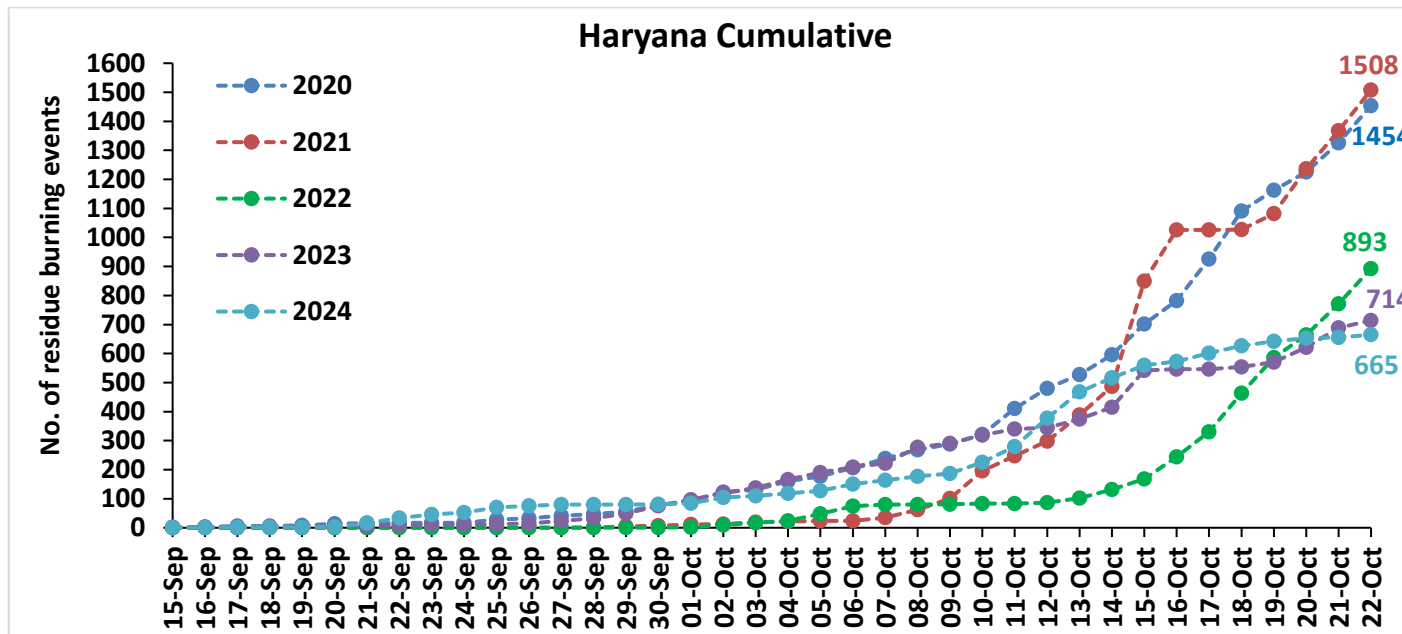
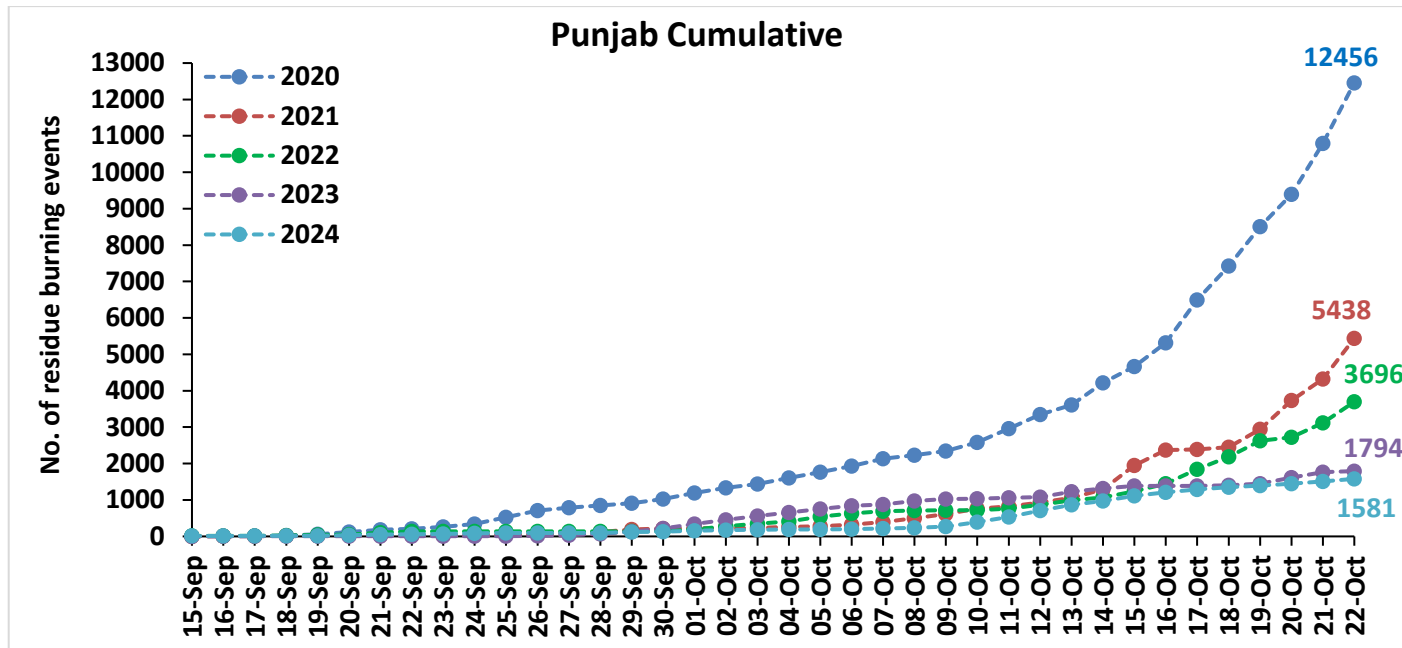
Madhya Pradesh

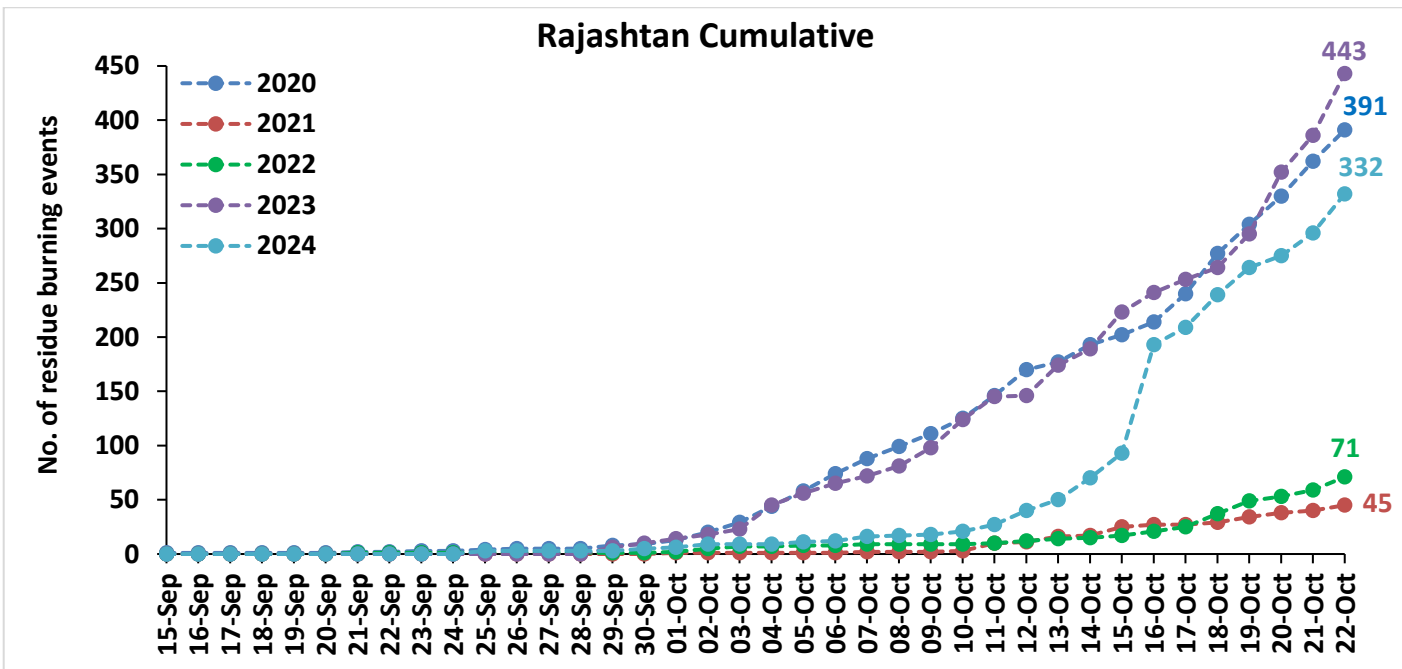
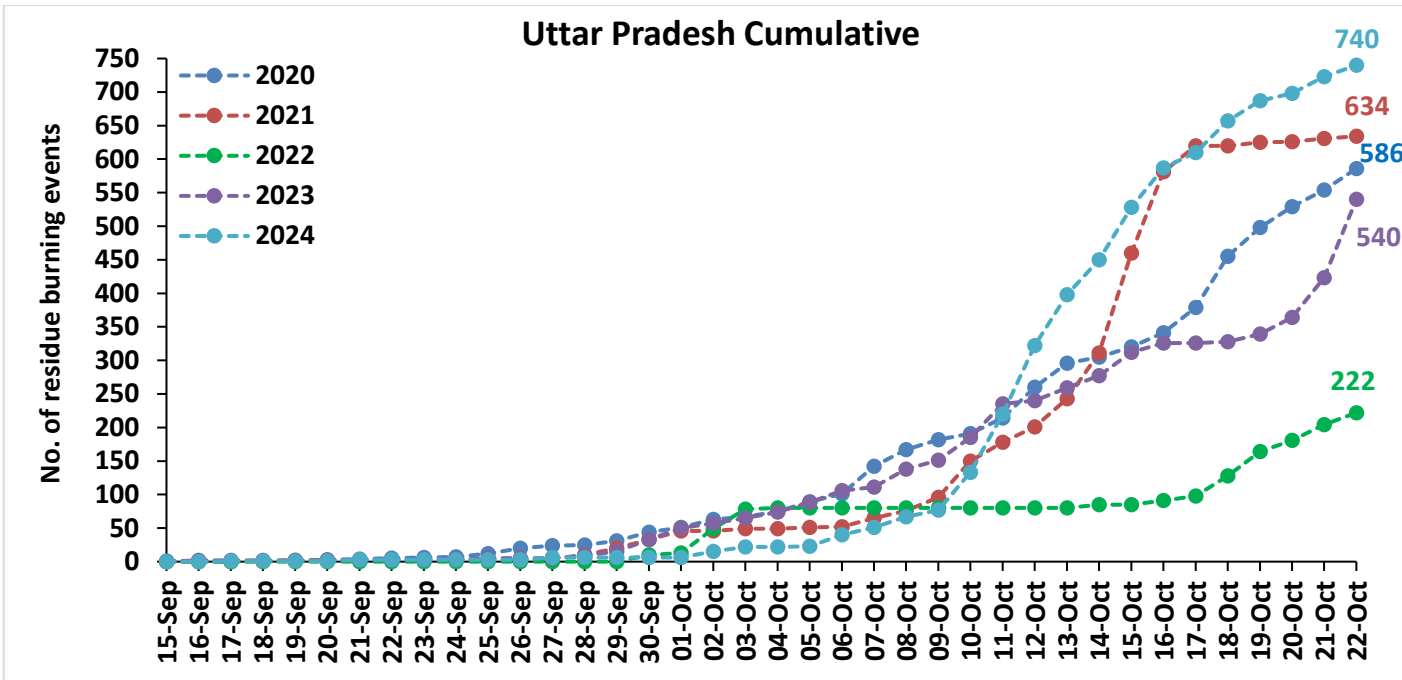


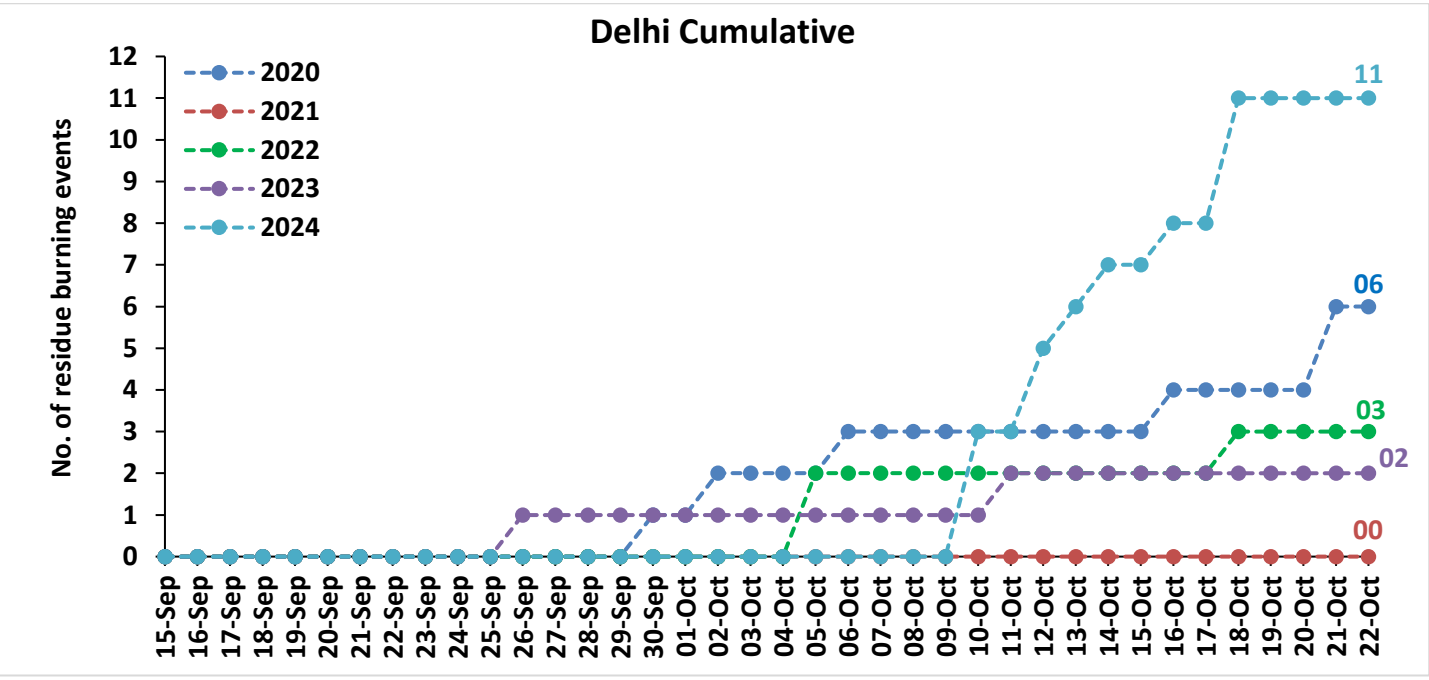
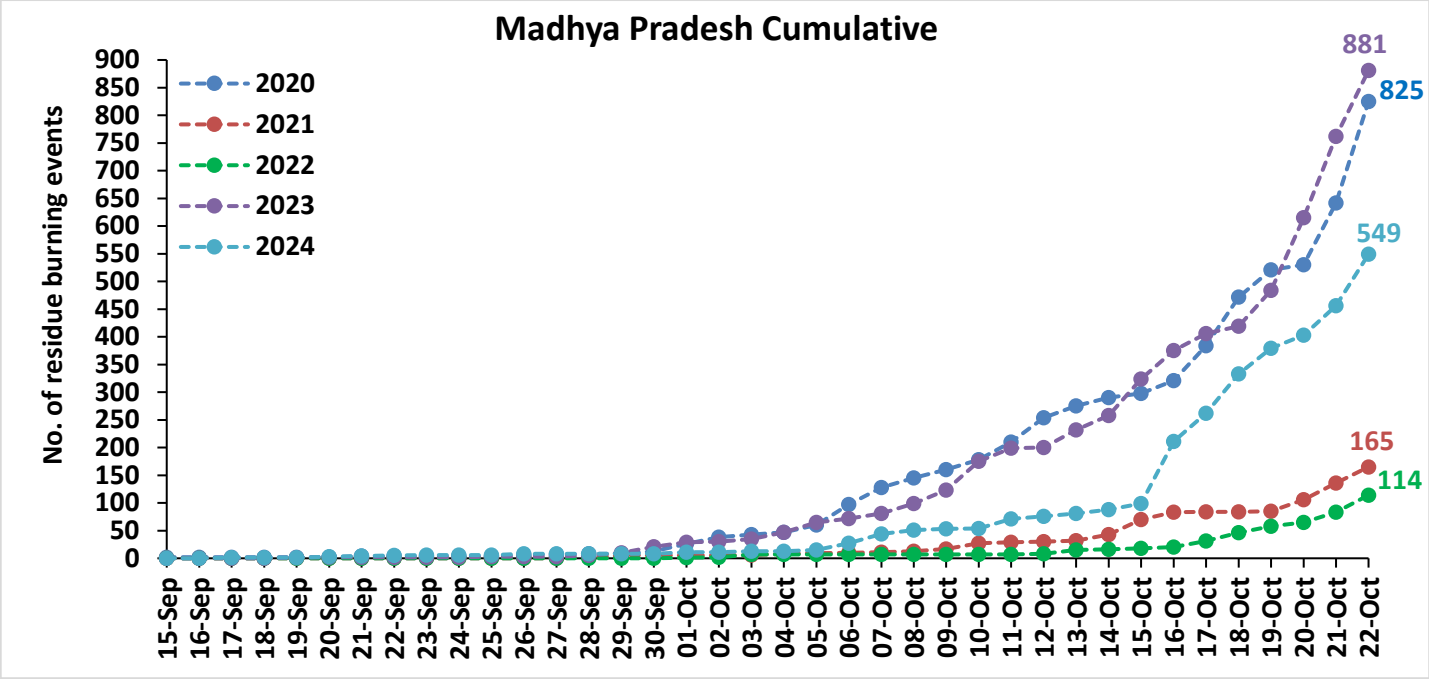
Delhi



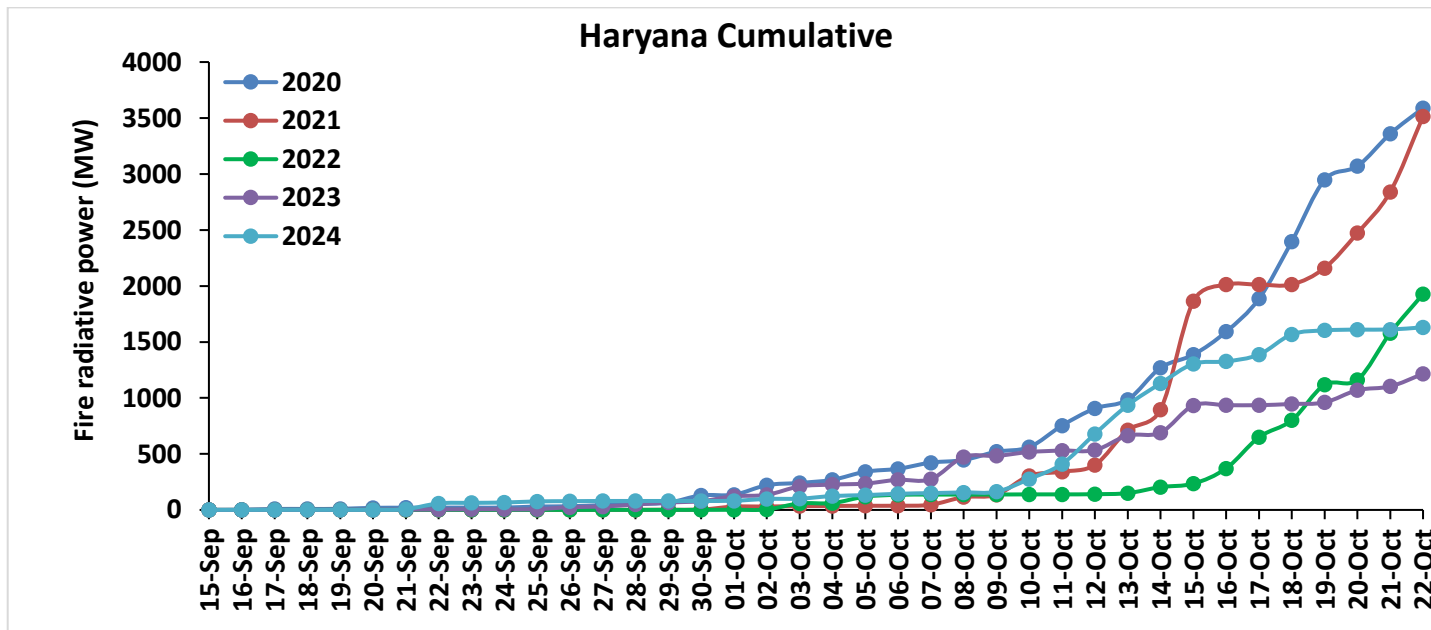
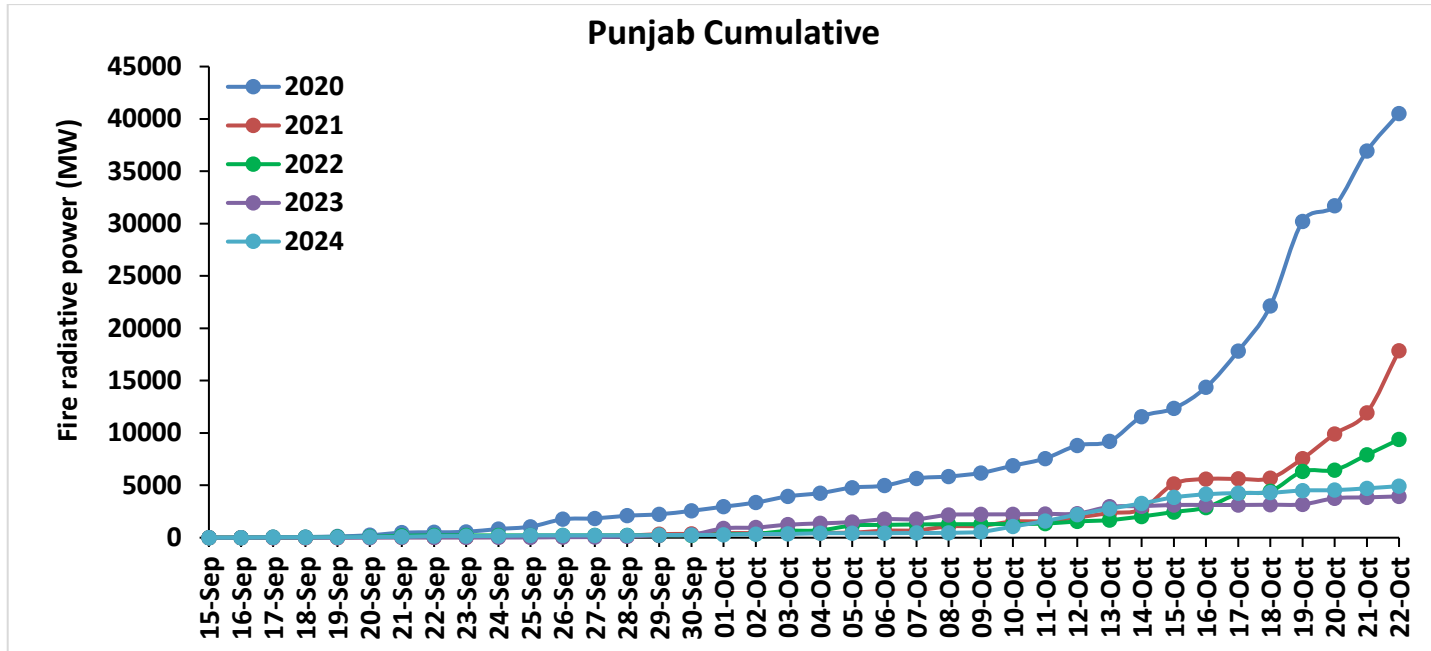
Comparison of residue burning events in current year (2024) with previous years (2020, 2021, 2022 and 2023) for the study States



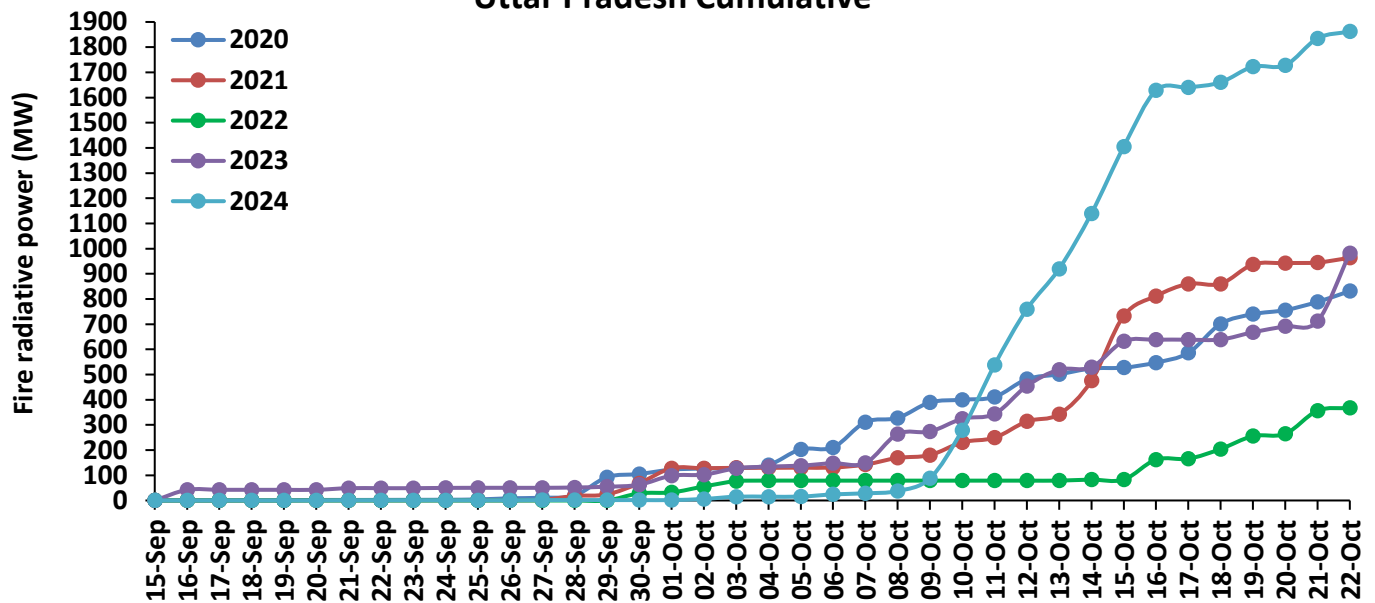




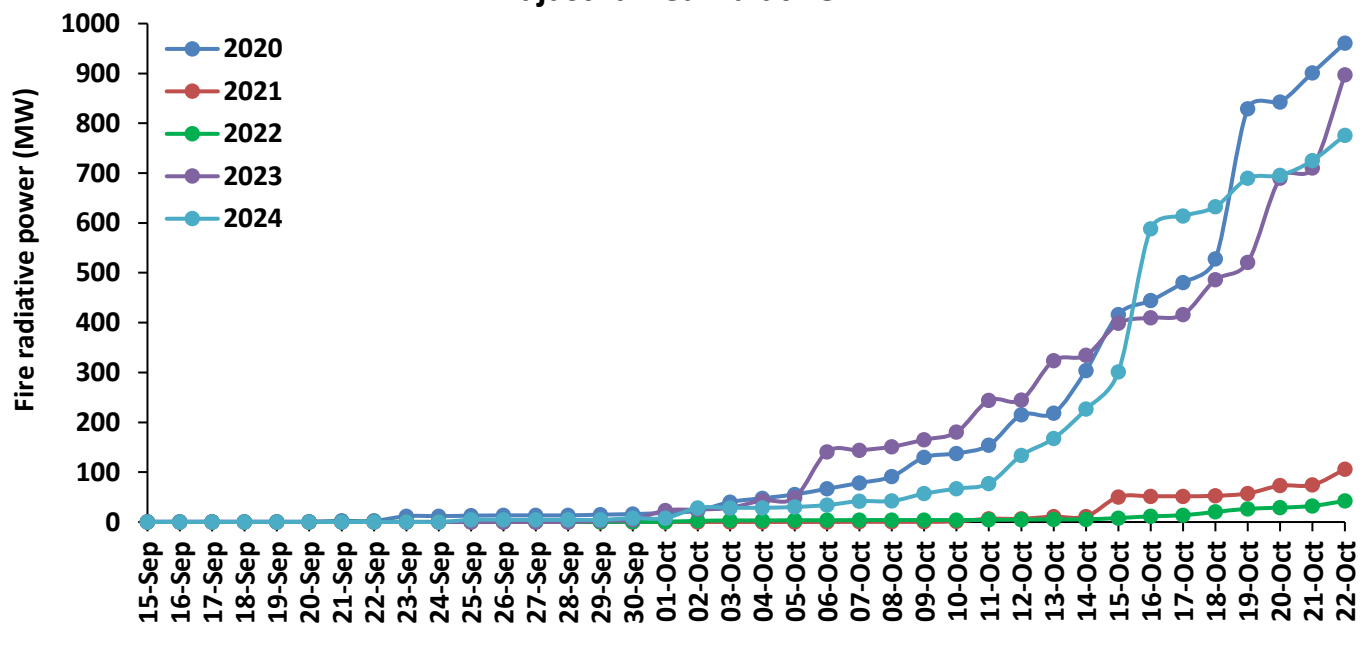
Comparison of residue burning fire power in current year (2024) with previous years (2020,2021,2022 and 2023) for the study States



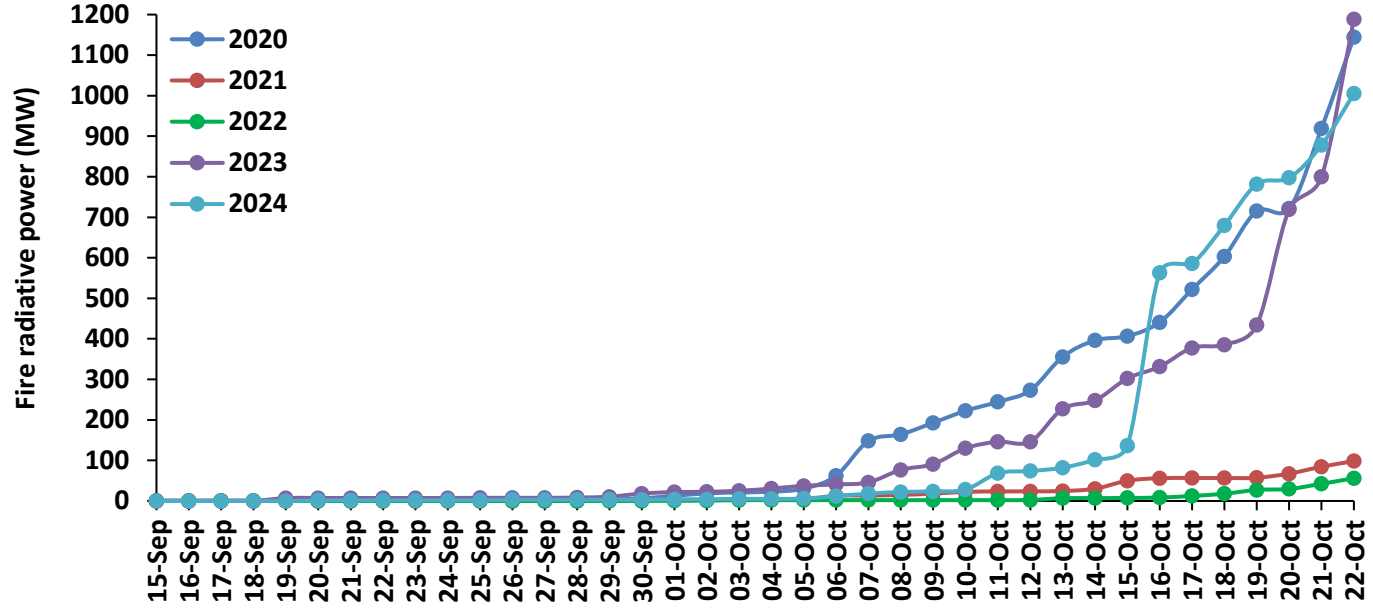
Uttar Pradesh Cumulative



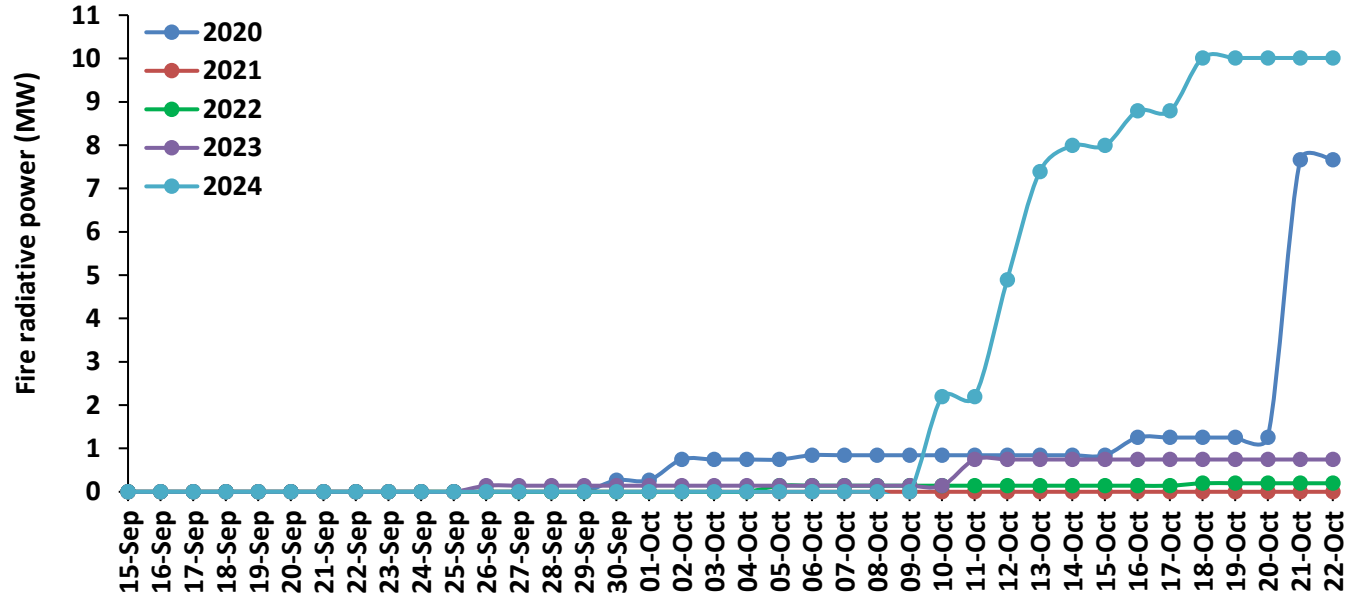
Rajasthan Cumulative



Madhya Pradesh Cumulative

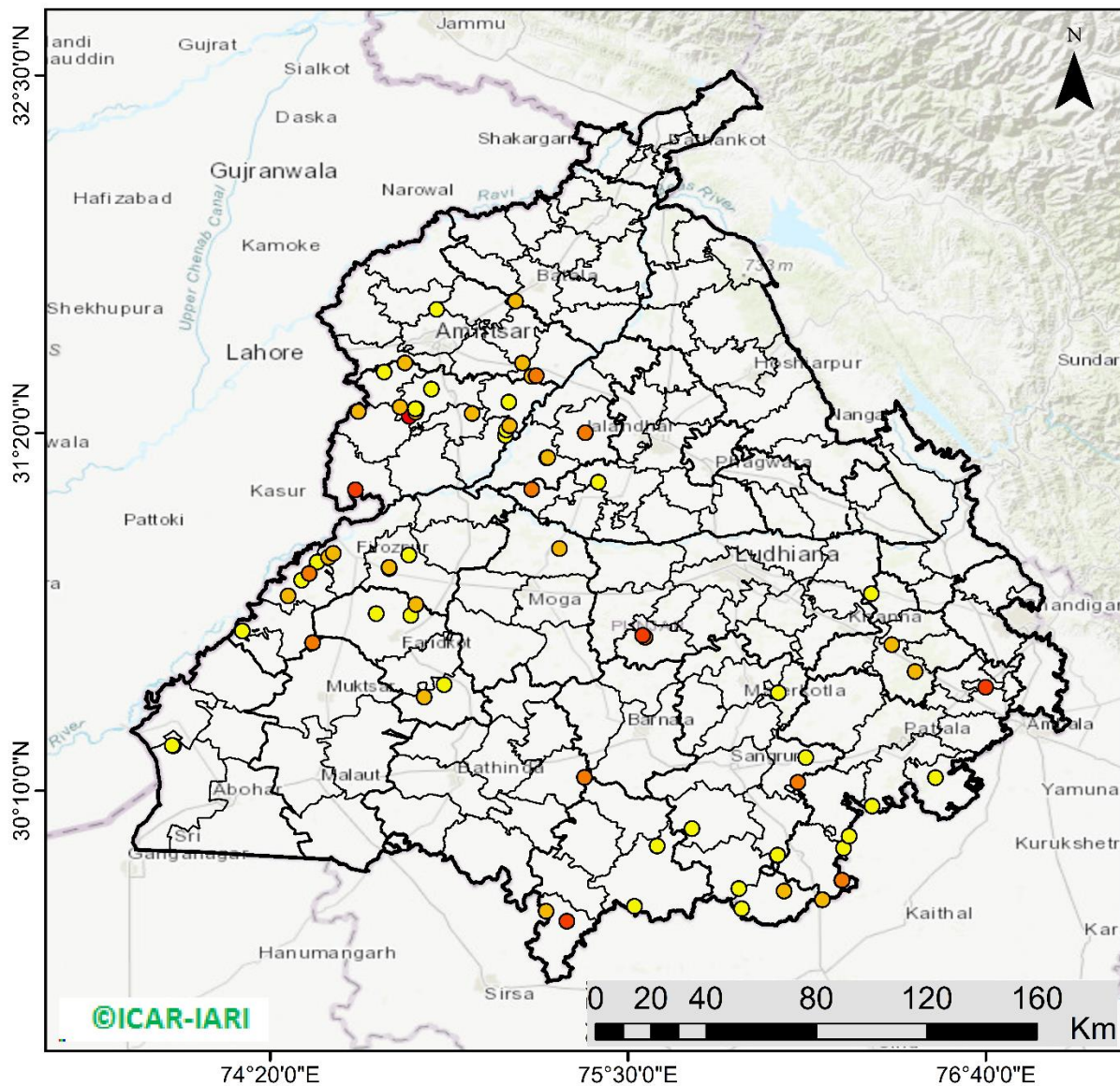


Delhi Cumulative



Punjab

RICE RESIDUE BURNING IN PUNJAB



71 burning events detected in Punjab during (22nd Oct 2024)

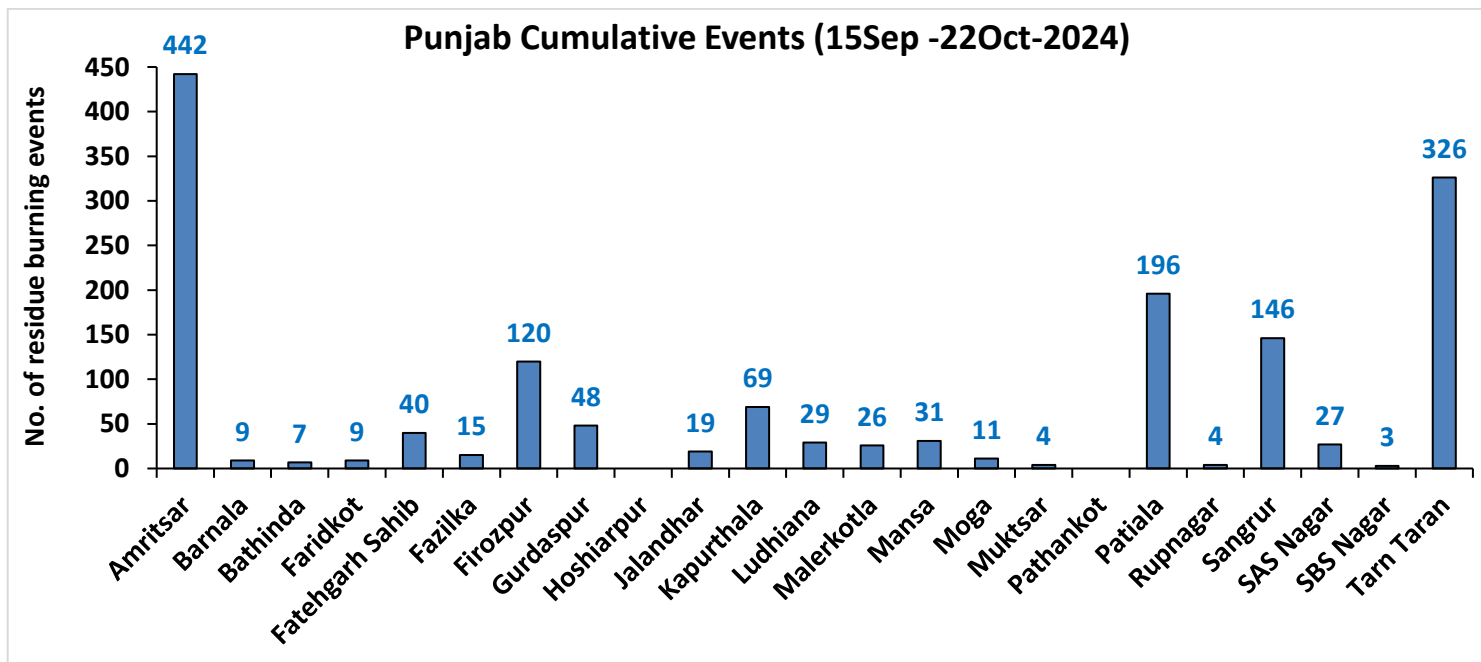
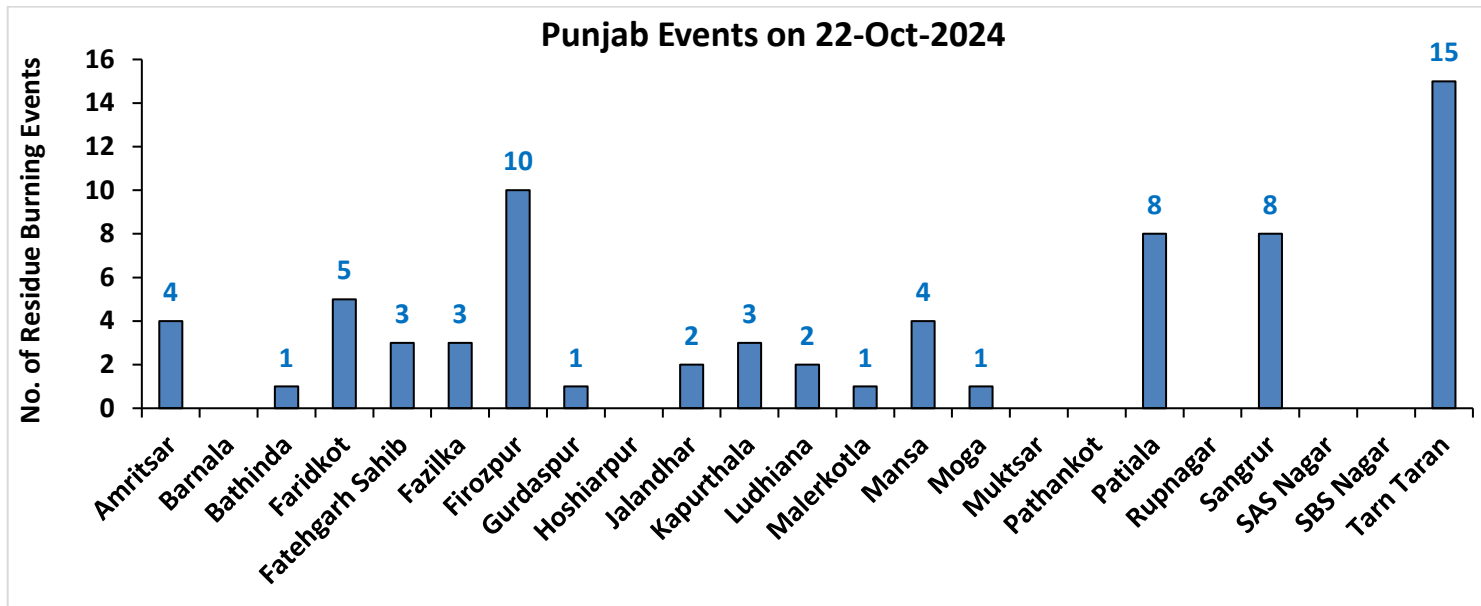
Fire Intensity (W/m²)

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



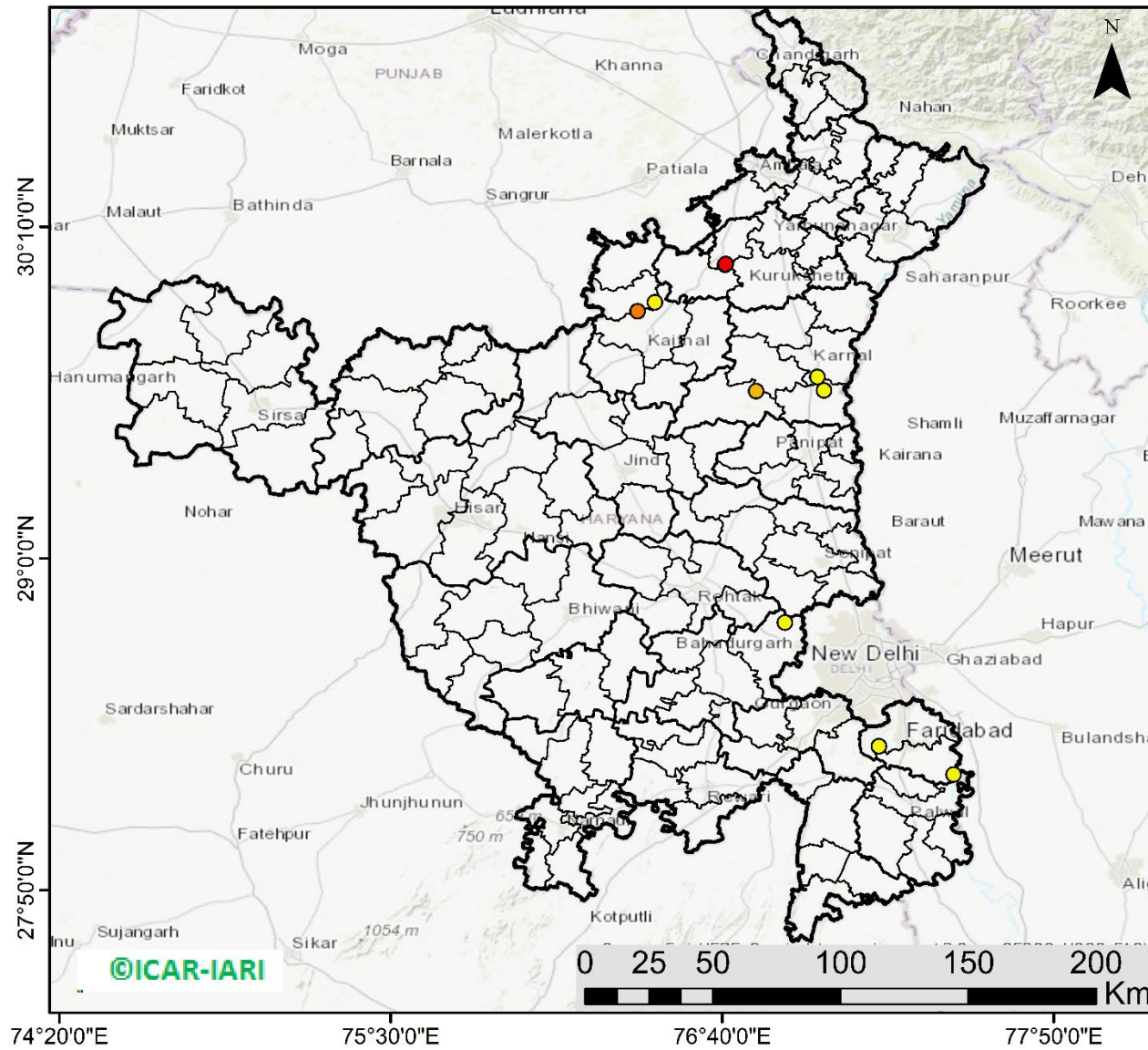
http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Punjab (15Sep-22Oct-2024)



Haryana

RICE RESIDUE BURNING IN HARYANA



10 burning events detected in Haryana on (22nd Oct 2024)

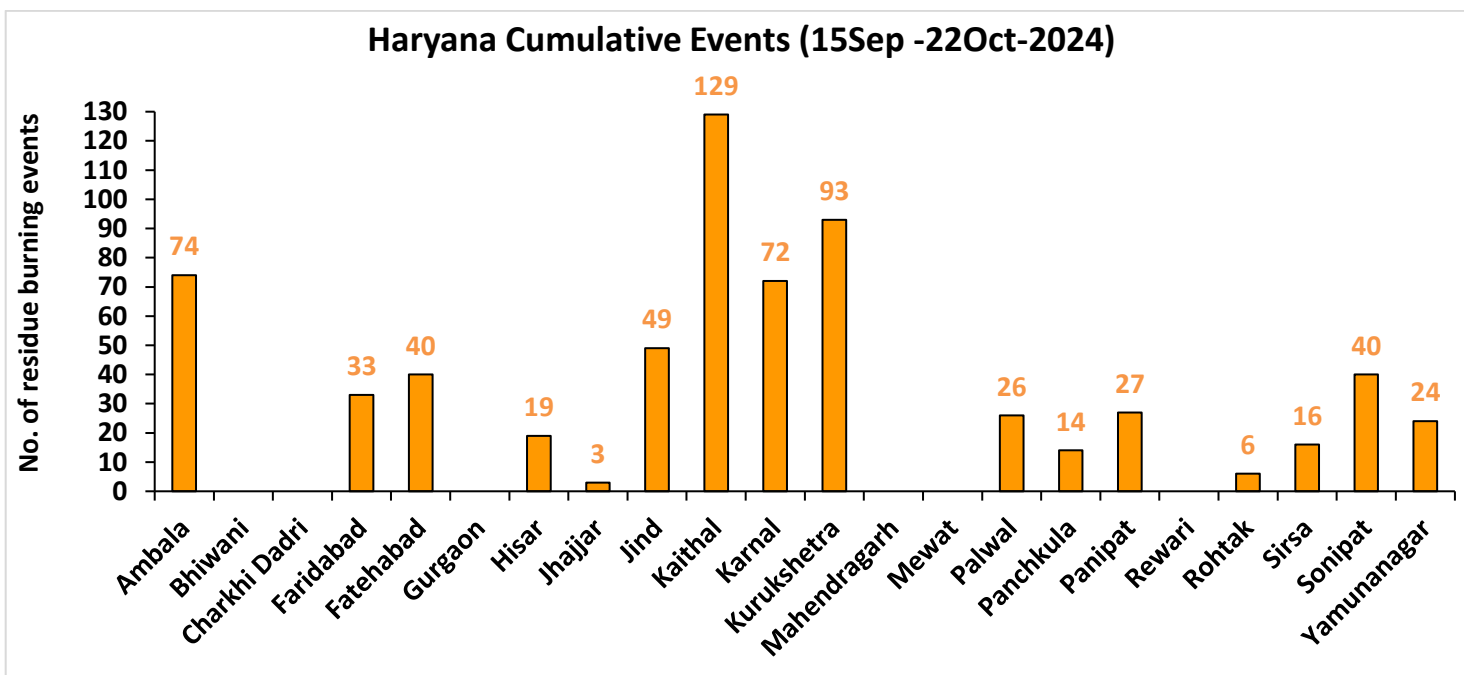
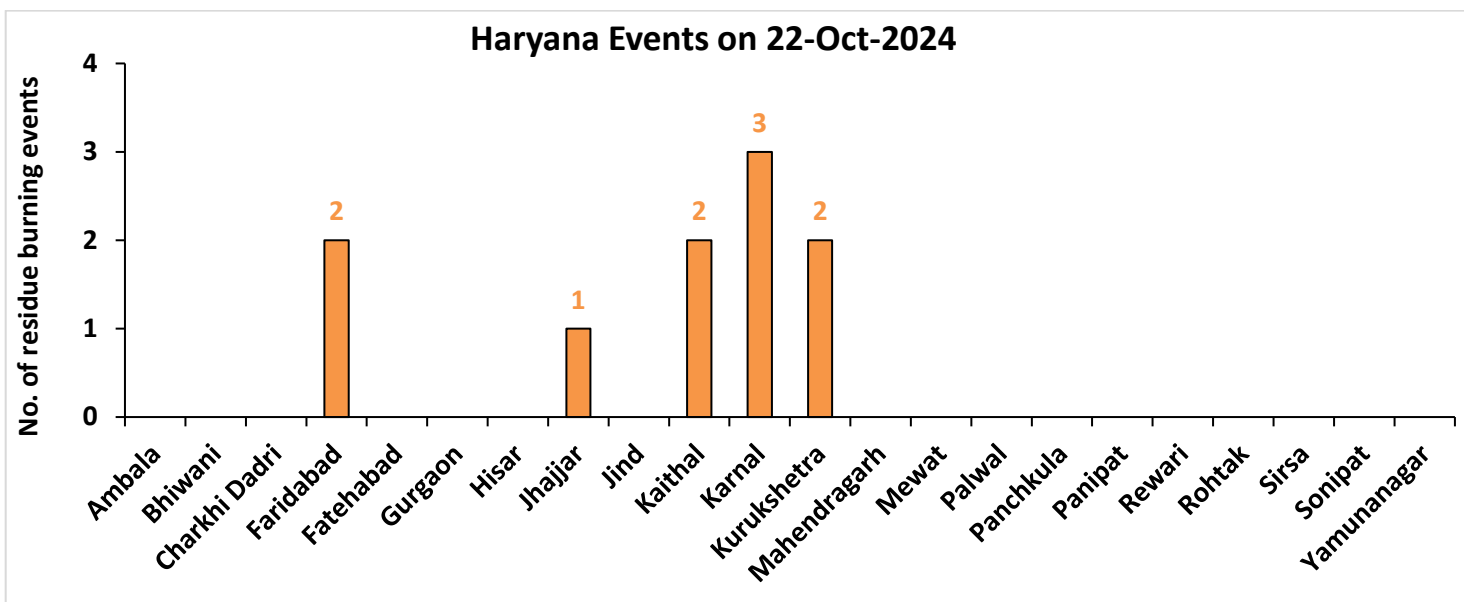
Fire Intensity (W/m²)

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



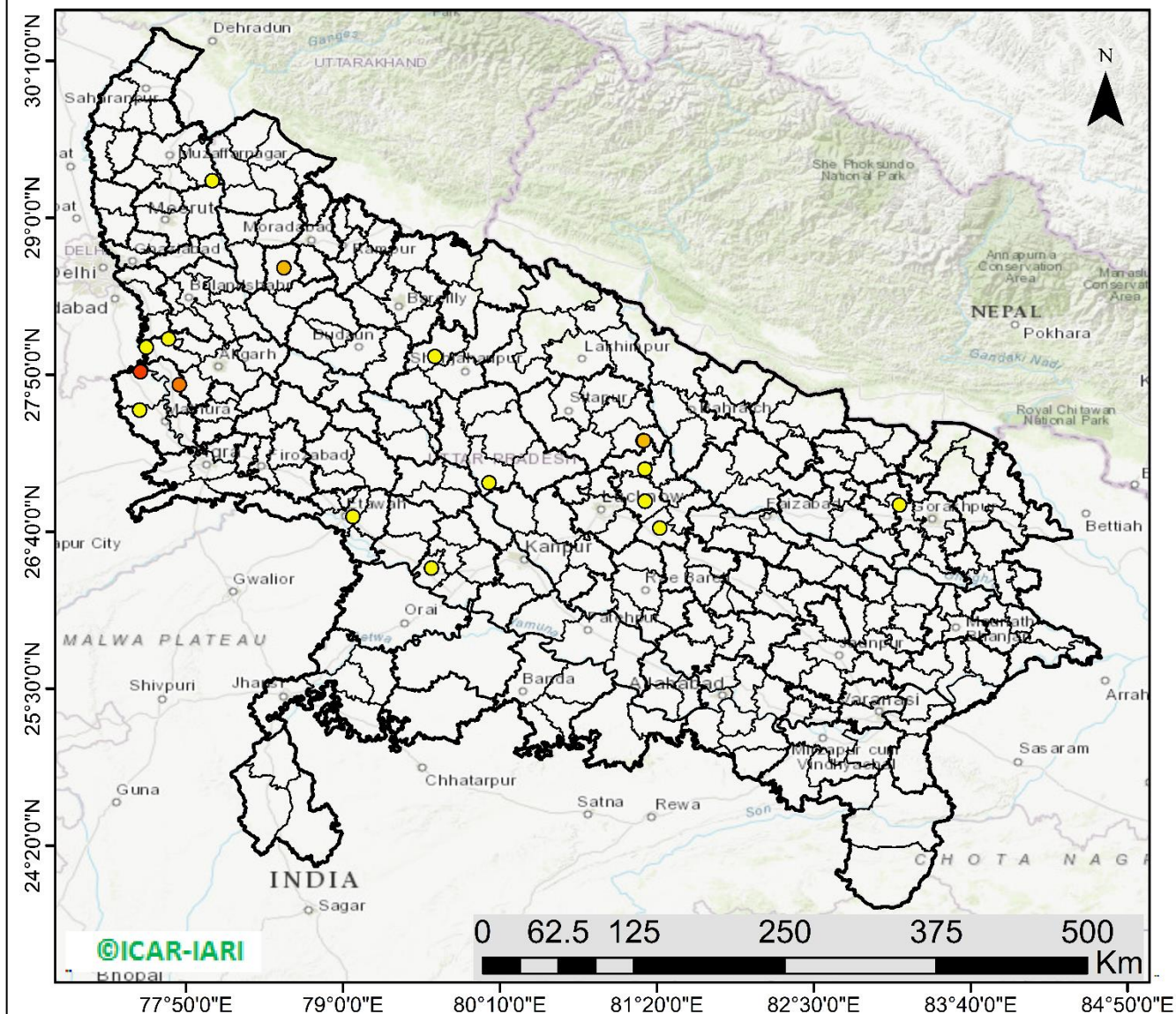
http://103.111.37.126/icar_geportal/

District-wise cumulative number of residues burning events in Haryana (15Sep-22Oct-2024)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



17 burning events
detected in Uttar Pradesh on
(22nd Oct 2024)

Fire Intensity (W/m²)

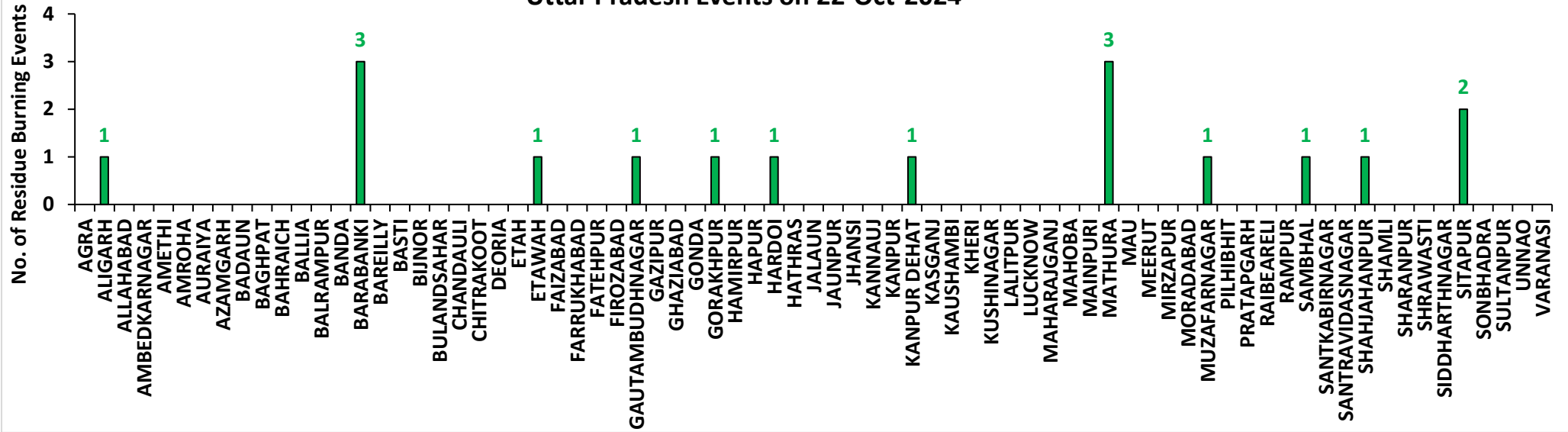
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



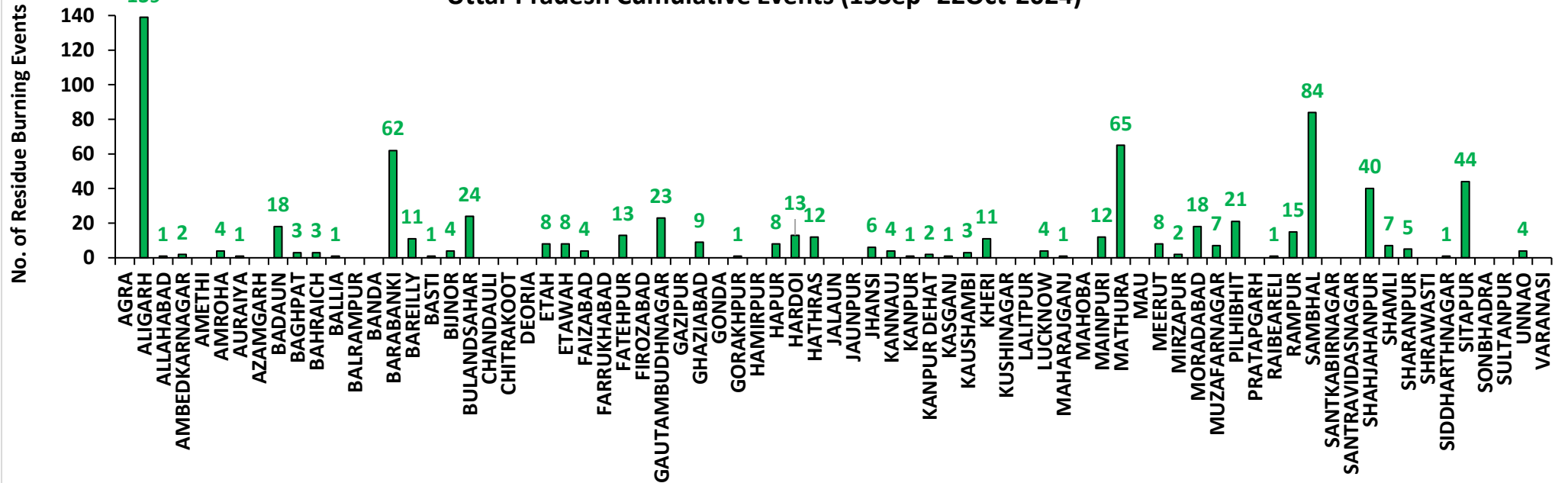
http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-22Oct-2024)

Uttar Pradesh Events on 22-Oct-2024

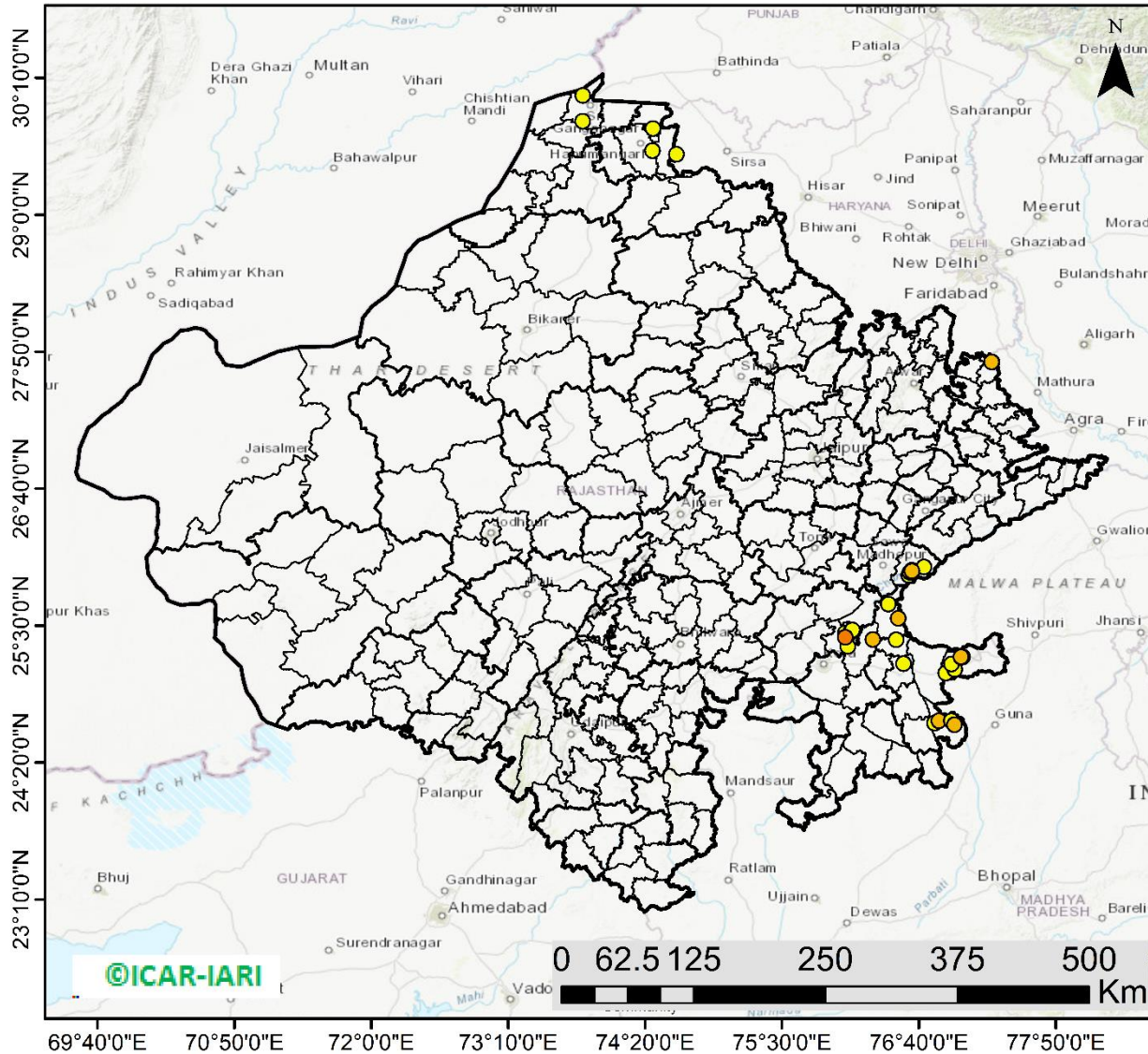


Uttar Pradesh Cumulative Events (15Sep -22Oct-2024)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



36 burning events detected in Rajasthan on (22nd Oct 2024)

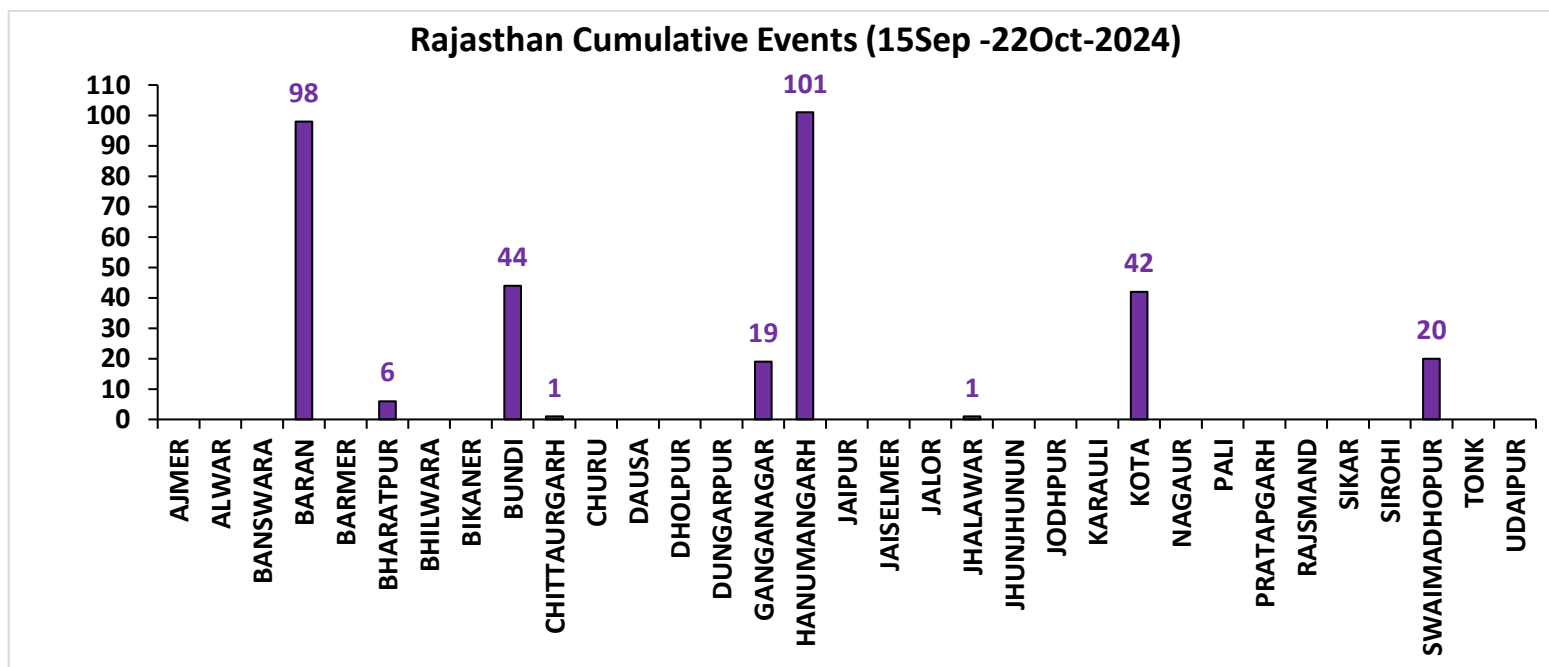
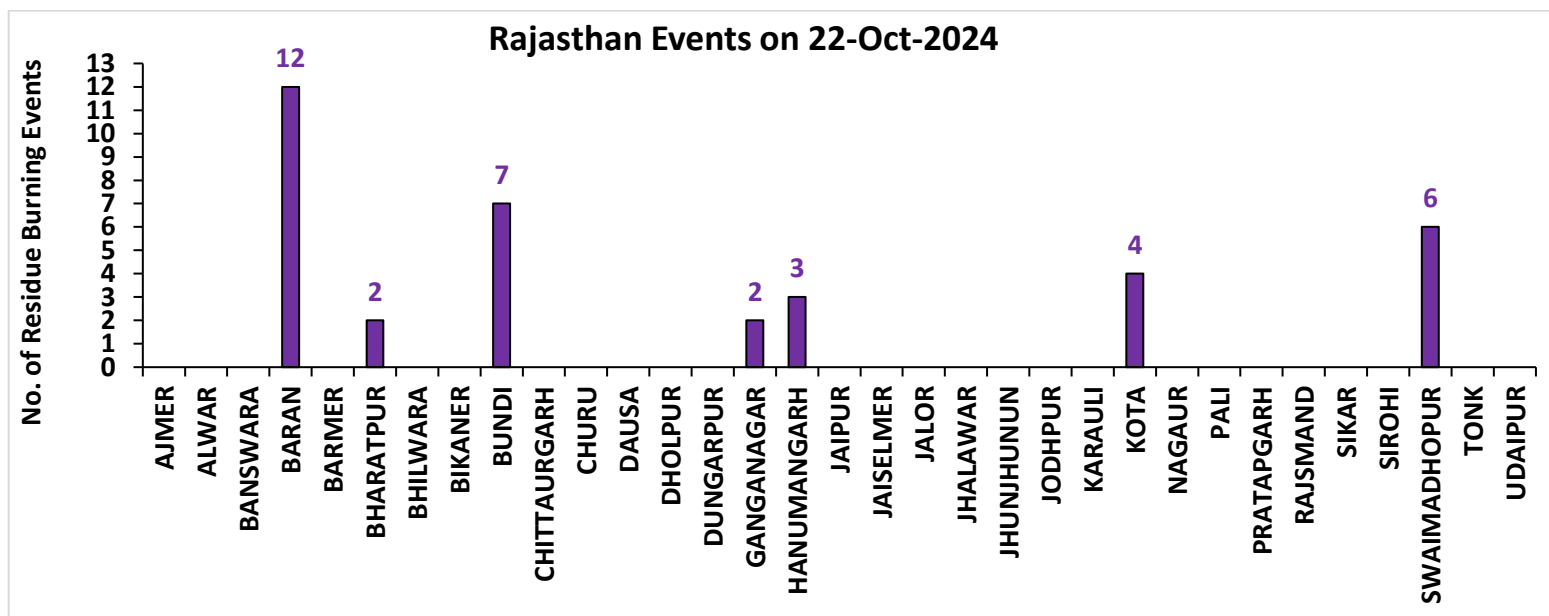
Fire Intensity (W/m²)

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



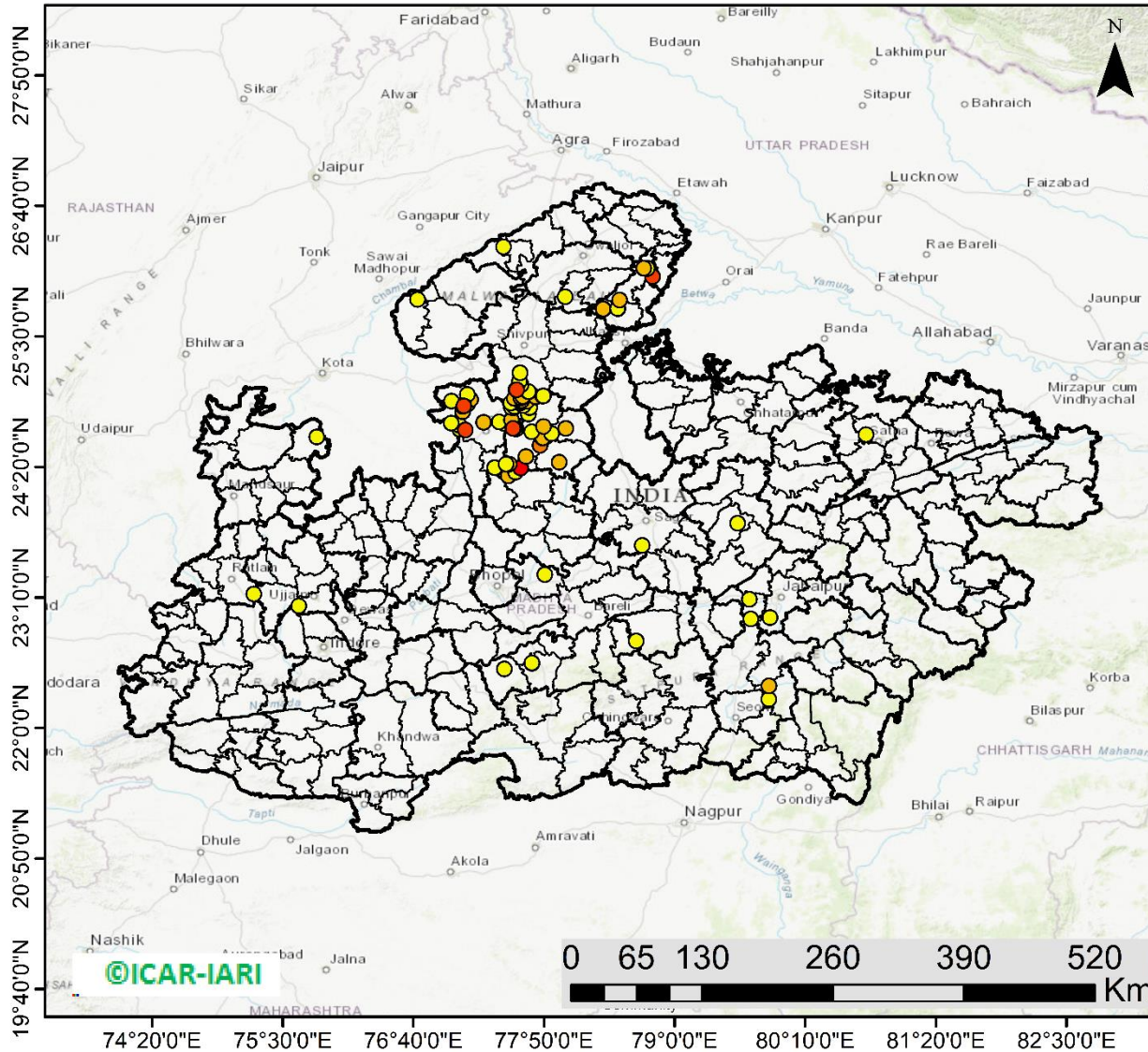
http://103.111.37.126/icar_geoportal/

District-wise cumulative number of residues burning events in Rajasthan (15Sep-22Oct-2024)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



93 burning events detected in MP on (22nd Oct 2024)

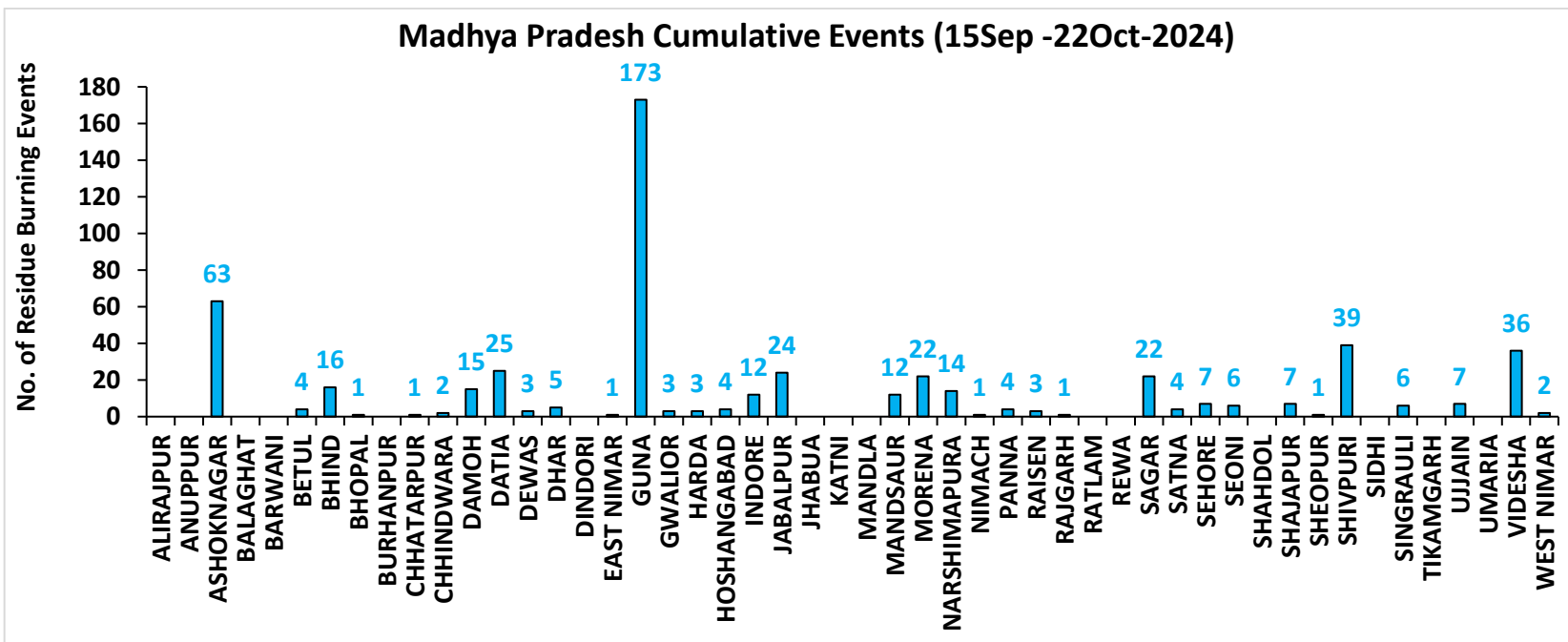
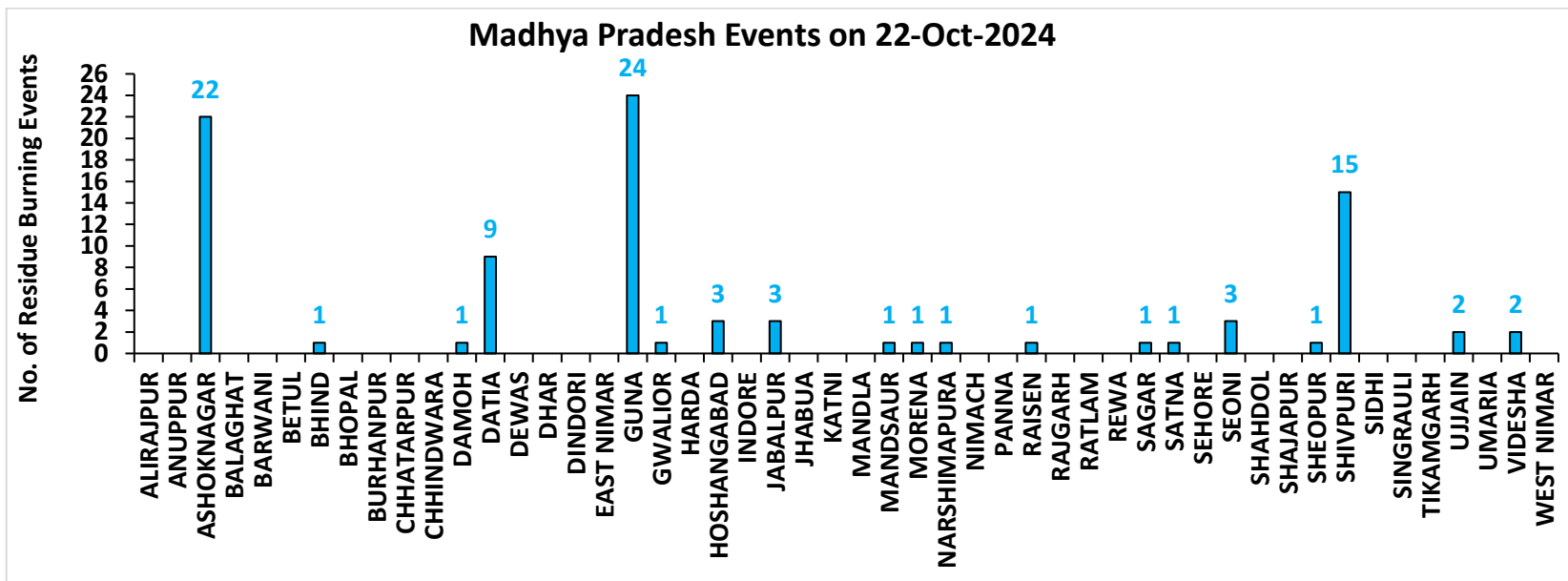
Fire Intensity (W/m²)

- 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-22Oct-2024)



District-wise cumulative number of residues burning events detected in 2020, 2021, 2022, 2023 and 2024
(Period: 15 September-22 October)

(a) Punjab

District	15 Sep-22 Oct				
	2020	2021	2022	2023	2024
Amritsar	2268	923	895	700	442
Barnala	41	42	18	10	9
Bathinda	156	59	26	7	7
Faridkot	633	255	26	23	9
Fatehgarh Sahib	336	215	101	43	40
Fazilka	195	75	30	12	15
Firozpur	1570	363	187	100	120
Gurdaspur	1012	379	324	17	48
Hoshiarpur	146	49	12	2	0
Jalandhar	294	242	169	29	19
Kapurthala	618	292	214	95	69
Ludhiana	292	341	131	42	29
Malerkotla	0	0	0	3	26
Mansa	113	24	24	61	31
Moga	212	119	83	36	11
Muktsar	187	76	9	2	4
Pathankot	7	0	0	0	0
Patiala	1037	420	254	201	196
Rupnagar	53	35	18	1	4
Sangrur	304	110	118	112	146
SAS NAGAR (Mohali)	63	47	21	61	27
SBS Nagar	18	24	2	3	3
Tarn Taran	2901	1348	1034	234	326
Total	12456	5438	3696	1794	1581

(b) Haryana

District	15 Sep-22 Oct				
	2020	2021	2022	2023	2024
AMBALA	165	66	53	93	74
BHIWANI	0	0	0	2	0
CHARKHI DADRI	0	0	0	0	0
FARIDABAD	1	1	1	2	33
FATEHABAD	82	93	83	106	40
GURGAON	0	0	0	0	0
HISAR	10	4	15	43	19
JHAJJAR	1	0	0	4	3
JIND	46	59	82	93	49
KAITHAL	294	421	250	88	129
KARNAL	390	493	140	48	72
KURUKSHETRA	310	250	185	76	93
MAHENDRAGARH	0	0	0	0	0
MEWAT	0	0	0	0	0
PALWAL	23	25	4	37	26
PANCHKULA	0	0	0	1	14
PANIPAT	11	19	14	16	27
REWARI	0	0	0	0	0
ROHTAK	1	0	0	5	6
SIRSA	25	16	14	8	16
SONIPAT	15	7	7	46	40
YAMUNANAGAR	80	54	45	46	24
Total	1454	1508	893	714	665

(c) Uttar Pradesh

District	15 Sep-22 Oct																
	2020	2021	2022	2023	2024	GAUTAMBUDHNAGAR	3	7	2	7	23	MUZAFARNAGAR	3	2	1	0	7
AGRA	2	0	0	0	0	GAZIPUR	0	0	0	0	0	PILHIBHIT	8	108	33	63	21
ALIGARH	42	21	9	72	139	GHAZIABAD	3	2	2	10	9	PRATAPGARH	1	0	0	0	0
ALLAHABAD	0	1	0	2	1	GONDA	0	0	0	0	0	RAIBEARELI	1	0	0	1	1
AMBEDKARNAGAR	0	0	0	0	2	GORAKHPUR	1	0	0	0	1	RAMPUR	43	50	8	25	15
AMETHI	0	1	4	1	0	HAMIRPUR	1	0	0	0	0	SAMBHAL	7	7	4	12	84
AMROHA	1	0	0	2	4	HAPUR	4	1	0	0	8	SANTKABIRNAGAR	0	0	0	0	0
AURAIYA	19	6	5	10	1	HARDOI	14	6	2	7	13	SANTRAVIDASNAGAR	0	0	0	0	0
AZAMGARH	0	0	0	0	0	HATHRAS	0	0	0	2	12	SHAHJAHANPUR	47	181	90	29	40
BADAUN	1	6	0	2	18	JALAUN	0	0	0	0	0	SHAMLI	20	12	5	5	7
BAGHPAT	3	1	1	1	3	JAUNPUR	0	0	0	1	0	SHARANPUR	40	20	3	1	5
BAHRAICH	9	2	4	1	3	JHANSI	17	6	0	15	6	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	4	7	10	18	1	SITAPUR	15	9	0	4	44
BANDA	0	0	0	0	0	KANPUR DEHAT	11	1	0	9	2	SONBHADRA	0	0	0	0	0
BARABANKI	15	20	2	37	62	KASGANJ	2	2	0	1	1	SULTANPUR	0	0	0	0	0
BAREILLY	21	15	2	13	11	KAUSHAMBI	9	3	0	15	3	UNNAO	6	1	0	6	4
BASTI	3	1	0	0	1	KHERI	47	54	12	5	11	VARANASI	1	0	0	0	0
BIJNOR	6	4	2	5	4	KUSHINAGAR	0	0	0	0	0	Total	586	634	222	540	740
BULANDSAHAR	16	2	2	6	24	LALITPUR	0	1	2	1	0						
CHANDAULI	0	0	0	0	0	LUCKNOW	2	0	0	1	4						
CHITRAKOOT	0	1	1	3	0	MAHARAJGANJ	0	0	0	1	1						
DEORIA	0	0	0	2	0	MAHOBA	6	0	0	0	0						
ETAH	11	6	1	11	8	MAINPURI	11	7	4	13	12						
ETAWAH	6	7	2	28	8	MATHURA	36	29	3	68	65						
FAIZABAD	1	0	0	1	4	MAU	0	0	0	0	0						
FARRUKHABAD	0	0	0	0	0	MEERUT	12	4	1	2	8						
FATEHPUR	21	6	2	14	13	MIRZAPUR	6	5	2	0	2						
FIROZABAD	11	4	0	3	0	MORADABAD	6	3	0	3	18						

(d) Delhi

District	15 Sep-22 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	3	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	6	0	3	2	11

(e) Rajasthan

District	15 Sep-22 Oct				
	2020	2021	2022	2023	2024
AJMER	2	0	0	0	0
ALWAR	1	0	0	0	0
BANSWARA	0	0	0	0	0
BARAN	97	0	7	178	98
BARMER	2	0	0	0	0
BHARATPUR	2	0	0	2	6
BHILWARA	3	0	0	0	0
BIKANER	1	0	0	0	0
BUNDI	21	1	26	61	44
CHITTAURGARH	0	2	2	8	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	19
HANUMANGARH	198	41	13	52	101
JAIPUR	2	0	0	0	0
JAISELMER	2	0	0	0	0
JALOR	0	0	0	0	0
JHALAWAR	1	0	2	8	1
JHUNJHUNUN	1	0	0	0	0
JODHPUR	1	0	0	0	0
KARALI	1	0	0	0	0
KOTA	34	1	17	91	42
NAGAU	0	0	0	0	0
PALI	2	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	10	0	3	34	20
TONK	2	0	0	0	0
UDAIPUR	0	0	0	0	0
Total	391	45	71	443	332

(f) Madhya Pradesh

District	15 Sep-22 Oct										
	2020	2021	2022	2023	2024	PANNA	5	1	0	0	4
ALIRAJPUR	0	0	0	0	0	RAISEN	51	2	3	18	3
ANUPPUR	0	0	0	0	0	RAJGARH	7	1	3	9	1
ASHOKNAGAR	26	1	3	52	63	RATLAM	0	0	0	1	0
BALAGHAT	0	0	0	0	0	REWA	6	0	1	1	0
BARWANI	0	0	0	0	0	SAGAR	17	13	8	24	22
BETUL	4	1	0	3	4	SATNA	24	8	0	4	4
BHIND	11	1	2	22	16	SEHORE	14	3	16	18	7
BHOPAL	10	5	3	12	1	SEONI	56	42	10	22	6
BURHANPUR	0	0	0	1	0	SHAHDOL	0	0	0	0	0
CHHATARPUR	4	0	0	3	1	SHAJAPUR	5	0	0	7	7
CHHINDWARA	9	9	1	10	2	SHEOPUR	28	0	1	73	1
DAMOH	26	10	8	17	15	SHIVPURI	12	0	8	27	39
DATIA	103	8	3	103	25	SIDHI	0	0	0	0	0
DEWAS	3	0	0	7	3	SINGRAULI	0	0	0	0	6
DHAR	22	0	0	24	5	TIKAMGARH	1	0	0	3	0
DINDORI	0	0	0	1	0	UJJAIN	5	0	0	14	7
EAST NIMAR	3	1	3	2	1	UMARIA	0	0	0	0	0
GUNA	20	2	8	174	173	VIDESHA	71	9	9	39	36
GWALIOR	76	0	2	26	3	WEST NIMAR	13	0	0	8	2
HARDA	10	12	4	17	3	Total	825	165	114	881	549
HOSHANGABAD	115	16	6	56	4						
INDORE	2	0	0	12	12						
JABALPUR	18	6	3	26	24						
JHABUA	0	0	0	0	0						
KATNI	9	0	0	2	0						
MANDLA	2	1	0	2	0						
MANDSAUR	3	0	0	1	12						
MORENA	19	5	3	25	22						
NARSHIMAPURA	15	8	6	15	14						
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-22 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
21-Oct	1392	597	393	146	65	101	131	107	68	2	25	5	23	59	25
22-Oct	1665	1111	582	30	71	128	140	122	25	10	32	3	18	117	17
Total	12456	5438	3696	1794	1581	1454	1508	893	714	665	586	634	222	540	740

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
21-Oct	2	0	0	0	0	32	2	6	34	21	112	30	18	147	53
22-Oct	0	0	0	0	0	29	5	12	57	36	183	29	31	119	93
Total	6	0	3	2	11	391	45	71	443	332	825	165	114	881	549

Details of residue burning events in Punjab on 22-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	ATTARI	S-NPP	31.56194	74.77300	13:40:21	D	6.40
2	AMRITSAR	RAYYA	S-NPP	31.56149	75.15604	13:40:21	D	9.50
3	AMRITSAR	RAYYA	AQUA	31.52000	75.20100	14:42:22	D	10.30
4	AMRITSAR	VERKA	S-NPP	31.73659	74.87644	13:40:21	D	2.80
5	BATHINDA	RAMPURA	S-NPP	30.20983	75.35850	13:40:21	D	13.60
6	FARIDKOT	FARIDKOT	S-NPP	30.73821	74.79203	13:40:21	D	2.70
7	FARIDKOT	FARIDKOT	S-NPP	30.74416	74.67950	13:40:21	D	1.20
8	FARIDKOT	FARIDKOT	S-NPP	30.77378	74.80898	13:40:21	D	7.10
9	FARIDKOT	JAITON	S-NPP	30.51229	74.90102	13:40:21	D	2.90
10	FARIDKOT	JAITON	AQUA	30.47200	74.83600	14:42:22	D	9.50
11	FATEHGARH SAHIB	BASSI PATHANAN	AQUA	30.64300	76.36000	14:42:22	D	9.40
12	FATEHGARH SAHIB	KHAMANON	S-NPP	30.80886	76.29338	13:40:21	D	5.00
13	FATEHGARH SAHIB	SIRHIND	S-NPP	30.55503	76.43629	13:40:21	D	6.50
14	FAZILKA	GURUHAR SAHAI	S-NPP	30.68757	74.24289	13:40:21	D	4.30
15	FAZILKA	KHUIAN SARWAR	S-NPP	30.31334	74.01856	02:30:21	N	0.70
16	FAZILKA	KHUIAN SARWAR	S-NPP	30.31406	74.01436	02:30:21	N	0.70
17	FIROZPUR	FIROZPUR	S-NPP	30.92813	74.52403	13:40:21	D	8.00
18	FIROZPUR	FIROZPUR	S-NPP	30.94078	74.53943	13:40:21	D	8.00
19	FIROZPUR	GHALL KHURD	S-NPP	30.89139	74.72193	13:40:21	D	9.90
20	FIROZPUR	GHALL KHURD	S-NPP	30.89484	74.72131	13:40:21	D	9.90
21	FIROZPUR	GHALL KHURD	S-NPP	30.93526	74.78587	13:40:21	D	2.70
22	FIROZPUR	GURUHAR SAHAI	S-NPP	30.64924	74.47176	13:40:21	D	13.50
23	FIROZPUR	MAMDOT	S-NPP	30.80201	74.39213	13:40:21	D	8.30
24	FIROZPUR	MAMDOT	S-NPP	30.85311	74.43633	13:40:21	D	4.80
25	FIROZPUR	MAMDOT	S-NPP	30.91257	74.48711	13:40:21	D	2.30
26	FIROZPUR	MAMDOT	AQUA	30.87500	74.46100	14:42:22	D	13.30
27	GURDASPUR	BATALA	S-NPP	31.76314	75.13387	13:40:21	D	7.20
28	JALANDHAR	LOHIAN	S-NPP	31.14925	75.18630	13:40:21	D	12.60
29	JALANDHAR	NAKODAR	S-NPP	31.17315	75.40334	13:40:21	D	4.50
30	KAPURTHALA	KAPURTHALA	AQUA	31.33400	75.36100	14:42:22	D	11.40

31	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.25203	75.23526	13:40:21	D	5.40
32	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.25317	75.23843	13:40:21	D	5.60
33	LUDHIANA	RAIKOT	AQUA	30.66700	75.55600	14:42:22	D	10.70
34	LUDHIANA	RAIKOT	AQUA	30.67300	75.54800	14:42:22	D	17.00
35	MALERKOTLA	AMARGARH	S-NPP	30.48588	75.99056	13:40:21	D	1.60
36	MANSA	BUDHLADA	S-NPP	29.78950	75.52129	13:40:21	D	2.60
37	MANSA	BUDHLADA	S-NPP	29.98622	75.59551	13:40:21	D	3.30
38	MANSA	SARDULGARH	S-NPP	29.77347	75.23318	13:40:21	D	5.70
39	MANSA	SARDULGARH	AQUA	29.74100	75.30100	14:42:22	D	15.80
40	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.95664	75.27682	13:40:21	D	7.30
41	PATIALA	BHUNARHERI	S-NPP	30.20889	76.50256	13:40:21	D	1.40
42	PATIALA	PATRAN	S-NPP	29.81099	76.13434	13:40:21	D	5.70
43	PATIALA	PATRAN	S-NPP	29.87427	76.19698	13:40:21	D	9.20
44	PATIALA	PATRAN	S-NPP	29.87461	76.19859	13:40:21	D	10.90
45	PATIALA	PATRAN	S-NPP	29.97911	76.20303	13:40:21	D	3.70
46	PATIALA	SAMANA	S-NPP	30.01836	76.22118	13:40:21	D	4.60
47	PATIALA	SANAUR	S-NPP	30.11622	76.29614	13:40:21	D	3.40
48	PATIALA	SHAMBU KALAN	AQUA	30.50400	76.66600	14:42:22	D	15.70
49	SANGRUR	ANDANA	S-NPP	29.78122	75.87110	13:40:21	D	3.80
50	SANGRUR	ANDANA	S-NPP	29.83913	76.00916	13:40:21	D	7.80
51	SANGRUR	BHAWANIGARH	S-NPP	30.19407	76.05408	13:40:21	D	12.20
52	SANGRUR	BHAWANIGARH	S-NPP	30.27473	76.07983	13:40:21	D	2.70
53	SANGRUR	DIRBA	S-NPP	29.95461	75.98670	13:40:21	D	2.20
54	SANGRUR	DIRBA	S-NPP	29.95630	75.98817	13:40:21	D	3.00
55	SANGRUR	LEHRA GAGA	S-NPP	29.84728	75.86147	13:40:21	D	3.00
56	SANGRUR	SUNAM	S-NPP	30.04308	75.70884	13:40:21	D	2.60
57	TARN TARAN	BHIKHIWIND	AQUA	31.40300	74.62100	14:42:22	D	6.50
58	TARN TARAN	CHOHLA SAHIB	S-NPP	31.32463	75.10101	13:40:21	D	3.50
59	TARN TARAN	CHOHLA SAHIB	S-NPP	31.34310	75.10395	13:40:21	D	3.90
60	TARN TARAN	CHOHLA SAHIB	AQUA	31.35700	75.11400	14:42:22	D	7.70
61	TARN TARAN	GANDIWIND TATLA	S-NPP	31.53176	74.70541	13:40:21	D	4.30
62	TARN TARAN	KHADUR SAHIB	S-NPP	31.43384	75.11137	13:40:21	D	3.30
63	TARN TARAN	KHADUR SAHIB	AQUA	31.51800	75.18600	14:42:22	D	8.80

64	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.39676	74.99233	13:40:21	D	5.10
65	TARN TARAN	TARN TARAN	S-NPP	31.38753	74.78736	13:40:21	D	29.00
66	TARN TARAN	TARN TARAN	S-NPP	31.40091	74.80777	13:40:21	D	5.50
67	TARN TARAN	TARN TARAN	S-NPP	31.41193	74.81038	13:40:21	D	3.10
68	TARN TARAN	TARN TARAN	S-NPP	31.41225	74.80682	13:40:21	D	2.70
69	TARN TARAN	TARN TARAN	S-NPP	31.47608	74.85957	13:40:21	D	4.20
70	TARN TARAN	TARN TARAN	AQUA	31.41800	74.75700	14:42:22	D	7.90
71	TARN TARAN	VALTOHA	AQUA	31.14800	74.61200	14:42:22	D	17.10

Details of residue burning events in Haryana on 22-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	FARIDABAD	BALLABGARH	S-NPP	28.23967	77.48117	13:40:21	D	2.40
2	FARIDABAD	FARIDABAD	S-NPP	28.33887	77.21854	02:30:21	N	1.30
3	JHAJJAR	BAHADURGARH	S-NPP	28.77395	76.88737	13:40:21	D	2.90
4	KAITHAL	SIWAN	S-NPP	29.90014	76.42999	13:40:21	D	3.90
5	KAITHAL	SIWAN	AQUA	29.86900	76.36900	14:42:22	D	10.60
6	KARNAL	ASSANDH	S-NPP	29.58823	76.78631	13:40:21	D	5.30
7	KARNAL	GHARAUNDA	S-NPP	29.59052	77.02503	13:40:21	D	4.10
8	KARNAL	KARNAL	S-NPP	29.63746	77.00195	13:40:21	D	3.10
9	KURUKSHETRA	PEHOWA	S-NPP	30.03241	76.67709	13:40:21	D	21.70
10	KURUKSHETRA	PEHOWA	S-NPP	30.03480	76.67946	13:40:21	D	21.20

Details of residue burning events in Uttar Pradesh on 22-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ALIGARH	KHAIR	S-NPP	28.03594	77.53851	13:40:21	D	3.80
2	BARABANKI	FATEHPUR	S-NPP	27.13070	81.24548	13:40:21	D	4.40
3	BARABANKI	HADARGARH	S-NPP	26.69268	81.35614	13:40:21	D	4.20
4	BARABANKI	NAWABGANJ	S-NPP	26.89217	81.24726	13:40:21	D	3.70
5	ETAWAH	ETAWAH	S-NPP	26.77658	79.07473	13:40:21	D	4.20
6	GAUTAMBUDHNAGAR	JEVAR	S-NPP	28.09877	77.70335	02:30:21	N	2.30
7	GORAKHPUR	SAHJANWA	S-NPP	26.86411	83.13821	13:40:21	D	2.90
8	HARDOI	BILGRAM	S-NPP	27.02922	80.08629	13:40:21	D	2.20
9	KANPUR DEHAT	SIKANDRA	S-NPP	26.39470	79.65891	13:40:21	D	3.30
10	MATHURA	CHHATA	S-NPP	27.57002	77.48901	13:40:21	D	3.60
11	MATHURA	CHHATA	AQUA	27.85500	77.49500	14:42:22	D	17.40
12	MATHURA	MAT	S-NPP	27.75866	77.78428	13:40:21	D	10.80
13	MUZAFARNAGAR	JANSATH	S-NPP	29.27477	78.02852	13:40:21	D	1.80
14	SAMBHAL	SAMBHAL	S-NPP	28.62706	78.56213	13:40:21	D	7.60
15	SHAHJAHANPUR	TILHAR	S-NPP	27.96819	79.68493	13:40:21	D	2.70
16	SITAPUR	MAHMUDABAD	S-NPP	27.34185	81.23194	13:40:21	D	6.20
17	SITAPUR	MAHMUDABAD	S-NPP	27.34237	81.23744	13:40:21	D	7.60

Details of residue burning events in Rajasthan on 22-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BARAN	BARAN	S-NPP	25.17491	76.53634	13:40:21	D	2.90
2	BARAN	CHHABRA	S-NPP	24.66830	76.80064	13:40:21	D	2.10
3	BARAN	CHHABRA	S-NPP	24.68759	76.83829	13:40:21	D	9.70
4	BARAN	CHHABRA	S-NPP	24.68761	76.94372	13:40:21	D	4.20
5	BARAN	CHHABRA	AQUA	24.65500	76.97100	14:42:22	D	8.80
6	BARAN	MANGROL	S-NPP	25.37844	76.47460	13:40:21	D	4.80
7	BARAN	SHAHBAD	S-NPP	25.09397	76.89704	13:40:21	D	3.00
8	BARAN	SHAHBAD	S-NPP	25.12591	76.97311	13:40:21	D	2.50
9	BARAN	SHAHBAD	S-NPP	25.17183	76.94534	13:40:21	D	3.10
10	BARAN	SHAHBAD	S-NPP	25.22995	77.02688	13:40:21	D	7.10
11	BARAN	SHAHBAD	S-NPP	25.23172	77.04028	13:40:21	D	6.30
12	BARAN	SHAHBAD	S-NPP	25.23352	77.02632	13:40:21	D	7.10
13	BHARATPUR	KAMAN	S-NPP	27.74430	77.29015	13:40:21	D	7.50
14	BHARATPUR	KAMAN	S-NPP	27.74527	77.28719	13:40:21	D	6.30
15	BUNDI	KESHORAIPATAN	S-NPP	25.42203	76.05907	13:40:21	D	5.10
16	BUNDI	KESHORAIPATAN	S-NPP	25.42261	76.06322	13:40:21	D	5.10
17	BUNDI	KESHORAIPATAN	S-NPP	25.43411	76.04436	13:40:21	D	4.80
18	BUNDI	KESHORAIPATAN	S-NPP	25.43592	76.04117	13:40:21	D	4.20
19	BUNDI	KESHORAIPATAN	S-NPP	25.45300	76.08932	13:40:21	D	4.90
20	BUNDI	KESHORAIPATAN	S-NPP	25.46159	76.10069	13:40:21	D	3.20
21	BUNDI	KESHORAIPATAN	AQUA	25.39900	76.04000	14:42:22	D	12.60
22	GANGANAGAR	GANGANAGAR	S-NPP	29.79634	73.80177	13:40:21	D	2.80
23	GANGANAGAR	GANGANAGAR	S-NPP	30.01617	73.80361	13:40:21	D	3.00
24	HANUMANGARH	HANUMANGARH	S-NPP	29.54588	74.39674	13:40:21	D	4.70
25	HANUMANGARH	SANGHRIYA	S-NPP	29.73407	74.40127	13:40:21	D	1.70
26	HANUMANGARH	TIBI	S-NPP	29.51475	74.60132	13:40:21	D	2.80
27	KOTA	DIGOD	S-NPP	25.32191	76.06248	13:40:21	D	3.50
28	KOTA	DIGOD	S-NPP	25.38068	76.27530	13:40:21	D	6.30
29	KOTA	PIPALDA	S-NPP	25.56038	76.49149	13:40:21	D	7.10
30	KOTA	PIPALDA	S-NPP	25.68161	76.40671	13:40:21	D	3.10
31	SWAIMADHOPUR	KHANDAR	S-NPP	25.92776	76.58160	13:40:21	D	3.60
32	SWAIMADHOPUR	KHANDAR	S-NPP	25.95214	76.60577	13:40:21	D	7.30
33	SWAIMADHOPUR	KHANDAR	S-NPP	25.95396	76.59200	13:40:21	D	1.90

34	SWAIMADHOPUR	KHANDAR	S-NPP	25.97041	76.60732	13:40:21	D	3.80
35	SWAIMADHOPUR	KHANDAR	S-NPP	25.99848	76.71130	13:40:21	D	2.80
36	SWAIMADHOPUR	KHANDAR	AQUA	25.96400	76.60800	14:42:22	D	8.30

Details of residue burning events in Madhya Pradesh on 22-Oct-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.42454	77.67374	13:40:21	D	5.60
2	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.52536	77.79902	13:40:21	D	12.70
3	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.59045	77.82010	13:40:21	D	5.60
4	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.59230	77.82278	13:40:21	D	5.40
5	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.64597	77.72463	13:40:21	D	1.80
6	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.67200	77.58445	13:40:21	D	2.80
7	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.67293	77.58688	13:40:21	D	3.20
8	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.68543	77.57294	13:40:21	D	3.50
9	ASHOKNAGAR	ASHOKNAGAR	AQUA	24.67700	77.55800	14:42:22	D	15.70
10	ASHOKNAGAR	CHANDERI	S-NPP	24.63078	77.90188	13:40:21	D	4.50
11	ASHOKNAGAR	CHANDERI	S-NPP	24.67698	78.02855	13:40:21	D	6.20
12	ASHOKNAGAR	ISAGARH	S-NPP	24.69319	77.82890	13:40:21	D	6.20
13	ASHOKNAGAR	ISAGARH	S-NPP	24.80473	77.69513	13:40:21	D	4.00
14	ASHOKNAGAR	ISAGARH	S-NPP	24.86188	77.55733	13:40:21	D	1.90
15	ASHOKNAGAR	ISAGARH	S-NPP	24.86309	77.56665	13:40:21	D	5.30
16	ASHOKNAGAR	ISAGARH	S-NPP	24.87101	77.57022	13:40:21	D	1.60
17	ASHOKNAGAR	ISAGARH	S-NPP	24.88136	77.64996	13:40:21	D	1.50
18	ASHOKNAGAR	ISAGARH	S-NPP	24.90247	77.61949	13:40:21	D	4.60
19	ASHOKNAGAR	ISAGARH	S-NPP	24.94472	77.56992	13:40:21	D	6.50
20	ASHOKNAGAR	ISAGARH	S-NPP	24.96565	77.82326	13:40:21	D	3.00
21	ASHOKNAGAR	ISAGARH	S-NPP	24.96625	77.82807	13:40:21	D	4.70
22	ASHOKNAGAR	MUNGAOLI	S-NPP	24.37362	77.96921	13:40:21	D	7.20
23	BHIND	LAHAR	S-NPP	26.03384	78.80420	13:40:21	D	16.00
24	DAMOH	DAMOH	S-NPP	23.82849	79.56313	13:40:21	D	2.70
25	DATIA	DATIA	S-NPP	25.74284	78.36504	13:40:21	D	4.80
26	DATIA	DATIA	S-NPP	25.74418	78.36319	13:40:21	D	5.20
27	DATIA	DATIA	S-NPP	25.74697	78.49415	13:40:21	D	2.40
28	DATIA	DATIA	S-NPP	25.74755	78.49253	13:40:21	D	4.70
29	DATIA	SEONDHA	S-NPP	25.82457	78.50877	13:40:21	D	5.30
30	DATIA	SEONDHA	S-NPP	26.10448	78.75423	13:40:21	D	6.00

31	DATIA	SEONDHA	S-NPP	26.10700	78.75710	13:40:21	D	5.00
32	DATIA	SEONDHA	S-NPP	26.10711	78.72295	13:40:21	D	8.10
33	DATIA	SEONDHA	S-NPP	26.10902	78.72517	13:40:21	D	7.20
34	GUNA	ARON	S-NPP	24.25194	77.51526	13:40:21	D	5.20
35	GUNA	ARON	S-NPP	24.28615	77.57999	13:40:21	D	2.30
36	GUNA	ARON	S-NPP	24.32182	77.62618	13:40:21	D	30.50
37	GUNA	ARON	S-NPP	24.35706	77.52400	13:40:21	D	5.30
38	GUNA	ARON	S-NPP	24.35718	77.49604	13:40:21	D	3.90
39	GUNA	GUNA	S-NPP	24.66962	77.08104	13:40:21	D	4.90
40	GUNA	GUNA	S-NPP	24.70528	77.07545	13:40:21	D	4.90
41	GUNA	GUNA	S-NPP	24.71847	77.48286	13:40:21	D	2.90
42	GUNA	GUNA	S-NPP	24.72402	77.00623	13:40:21	D	3.30
43	GUNA	GUNA	S-NPP	24.73079	77.29481	13:40:21	D	6.30
44	GUNA	GUNA	S-NPP	24.73428	77.43360	13:40:21	D	5.00
45	GUNA	GUNA	S-NPP	24.75236	77.54385	13:40:21	D	6.70
46	GUNA	GUNA	S-NPP	24.82477	77.10767	13:40:21	D	3.40
47	GUNA	GUNA	S-NPP	24.82646	77.10844	13:40:21	D	5.30
48	GUNA	GUNA	S-NPP	24.86371	77.54279	13:40:21	D	2.70
49	GUNA	GUNA	S-NPP	24.87353	77.10561	13:40:21	D	7.20
50	GUNA	GUNA	S-NPP	24.88778	77.13071	13:40:21	D	6.10
51	GUNA	GUNA	S-NPP	24.88836	77.13519	13:40:21	D	6.10
52	GUNA	GUNA	S-NPP	24.89429	77.15252	13:40:21	D	3.30
53	GUNA	GUNA	S-NPP	24.92133	77.00877	13:40:21	D	4.30
54	GUNA	GUNA	S-NPP	24.93431	77.17832	13:40:21	D	7.10
55	GUNA	GUNA	S-NPP	24.97972	77.14972	13:40:21	D	4.90
56	GUNA	GUNA	AQUA	24.66200	77.13100	14:42:22	D	15.30
57	GUNA	GUNA	AQUA	24.87700	77.11800	14:42:22	D	16.80
58	GWALIOR	BHITARWAR	S-NPP	25.85305	78.02293	13:40:21	D	4.10
59	HOSHANGABAD	ITARSI	S-NPP	22.57663	77.72669	13:40:21	D	1.20
60	HOSHANGABAD	ITARSI	S-NPP	22.58023	77.72615	13:40:21	D	3.40
61	HOSHANGABAD	SEONI MALWA	S-NPP	22.52592	77.48044	13:40:21	D	3.90
62	JABALPUR	JABALPUR	S-NPP	22.98609	79.85315	13:40:21	D	2.40
63	JABALPUR	SAHPURA	S-NPP	22.97351	79.68076	13:40:21	D	3.70
64	JABALPUR	SAHPURA	S-NPP	23.14955	79.66859	13:40:21	D	1.40
65	MANDSAUR	BHANPURA	S-NPP	24.60022	75.80436	13:40:21	D	1.70

66	MORENA	SABALGARH	S-NPP	26.29916	77.47250	13:40:21	D	3.10
67	NARSHIMAPURA	GADARWARA	S-NPP	22.77698	78.65824	13:40:21	D	3.80
68	RAISEN	RAISEN	S-NPP	23.37061	77.84096	13:40:21	D	3.80
69	SAGAR	SAGAR	S-NPP	23.63003	78.71156	13:40:21	D	2.70
70	SATNA	RAGURAJNAGAR	S-NPP	24.62139	80.71030	13:40:21	D	1.70
71	SEONI	GHANSAUR	S-NPP	22.37506	79.84417	13:40:21	D	5.10
72	SEONI	GHANSAUR	S-NPP	22.37545	79.84355	13:40:21	D	5.60
73	SEONI	KEWLARI	S-NPP	22.25505	79.84156	13:40:21	D	4.80
74	SHEOPUR	SHEOPUR	S-NPP	25.82947	76.70438	13:40:21	D	2.90
75	SHIVPURI	KOLARAS	S-NPP	24.86232	77.70581	13:40:21	D	2.70
76	SHIVPURI	KOLARAS	S-NPP	24.90340	77.53806	13:40:21	D	3.90
77	SHIVPURI	KOLARAS	S-NPP	24.91158	77.63250	13:40:21	D	6.20
78	SHIVPURI	KOLARAS	S-NPP	24.91750	77.67967	13:40:21	D	5.10
79	SHIVPURI	KOLARAS	S-NPP	24.92685	77.63496	13:40:21	D	5.60
80	SHIVPURI	KOLARAS	S-NPP	24.94828	77.62692	13:40:21	D	5.90
81	SHIVPURI	KOLARAS	S-NPP	24.95778	77.76089	13:40:21	D	5.90
82	SHIVPURI	KOLARAS	S-NPP	24.96170	77.64408	13:40:21	D	6.70
83	SHIVPURI	KOLARAS	S-NPP	25.00477	77.69739	13:40:21	D	8.90
84	SHIVPURI	KOLARAS	S-NPP	25.00580	77.69530	13:40:21	D	4.20
85	SHIVPURI	KOLARAS	S-NPP	25.02424	77.58360	13:40:21	D	3.40
86	SHIVPURI	KOLARAS	S-NPP	25.06754	77.62996	13:40:21	D	3.10
87	SHIVPURI	KOLARAS	S-NPP	25.09939	77.61546	13:40:21	D	4.10
88	SHIVPURI	KOLARAS	S-NPP	25.17354	77.62019	13:40:21	D	4.00
89	SHIVPURI	KOLARAS	AQUA	25.02100	77.59000	14:42:22	D	18.60
90	UJJAIN	BARNAGAR	S-NPP	23.19606	75.24291	13:40:21	D	2.70
91	UJJAIN	UJJAIN	S-NPP	23.08970	75.64447	13:40:21	D	2.50
92	VIDESHA	LETERI	S-NPP	24.32502	77.39764	13:40:21	D	2.20
93	VIDESHA	LETERI	S-NPP	24.32574	77.39431	13:40:21	D	2.40

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](#)
