



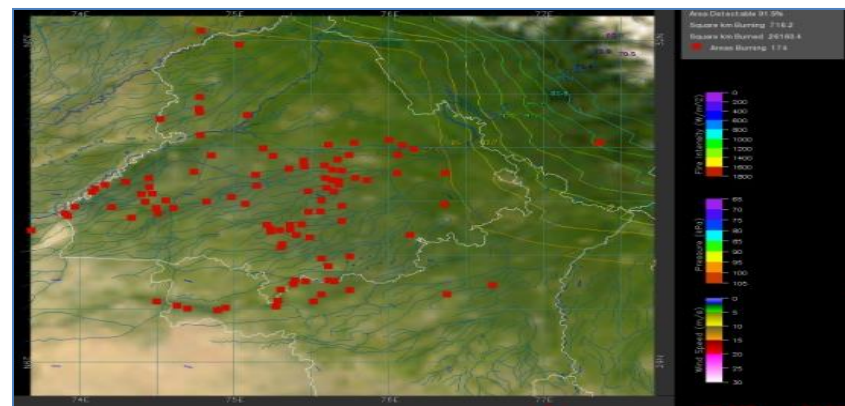
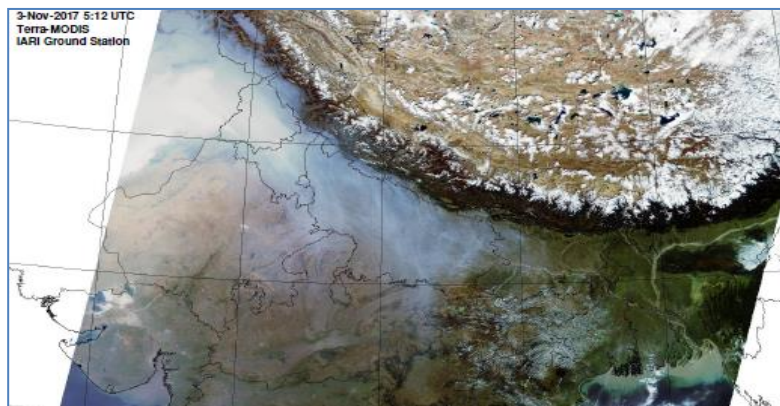
**Bulletin
No. 27**

**Events Date:
11-Oct-2023**

**Issued on:
11-Oct-2023**



MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2023



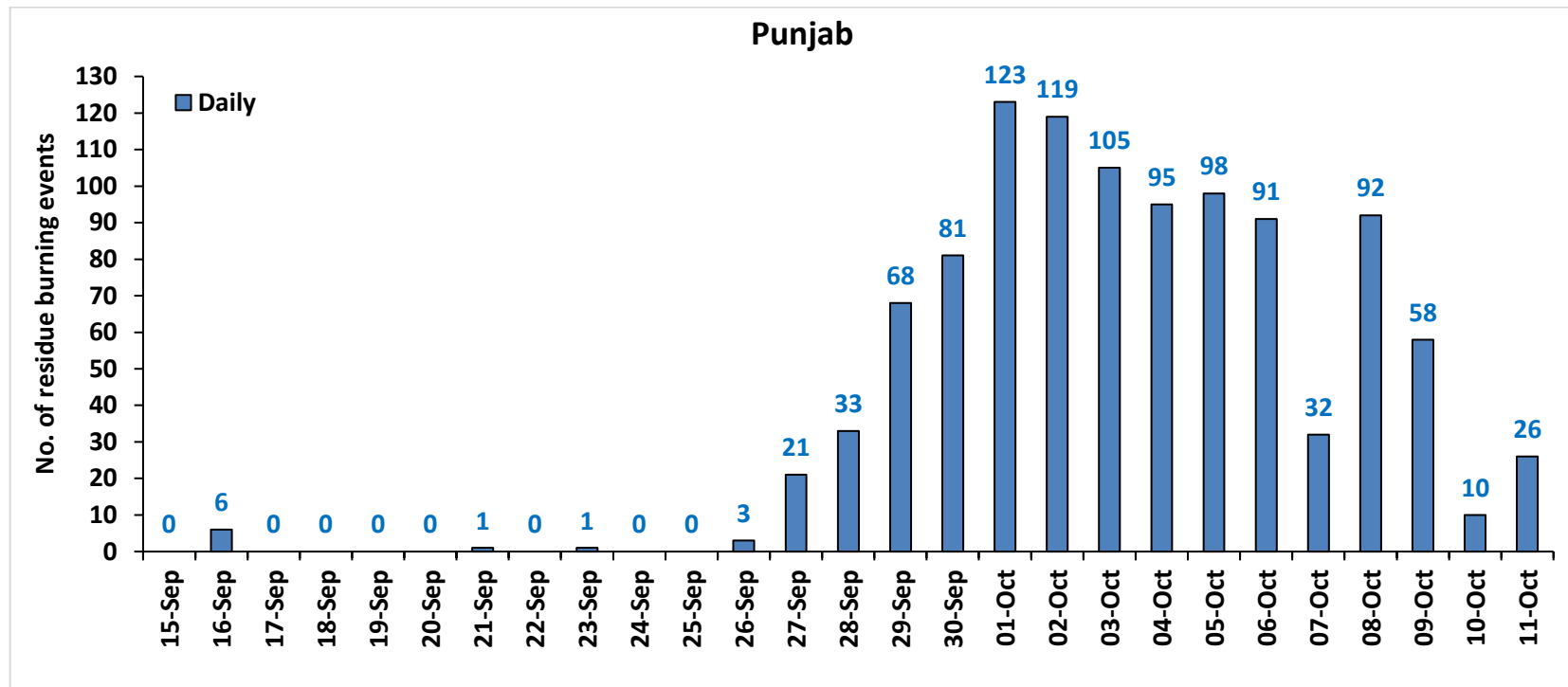
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

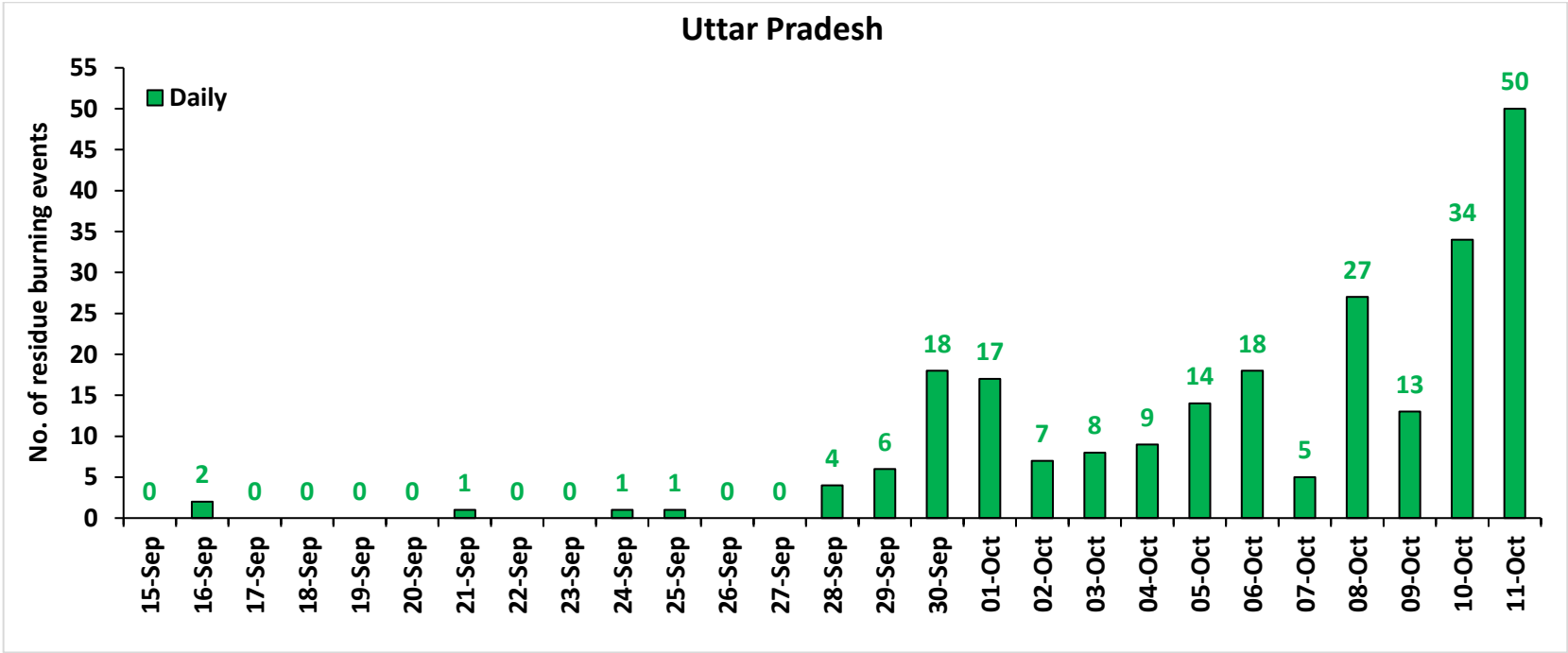
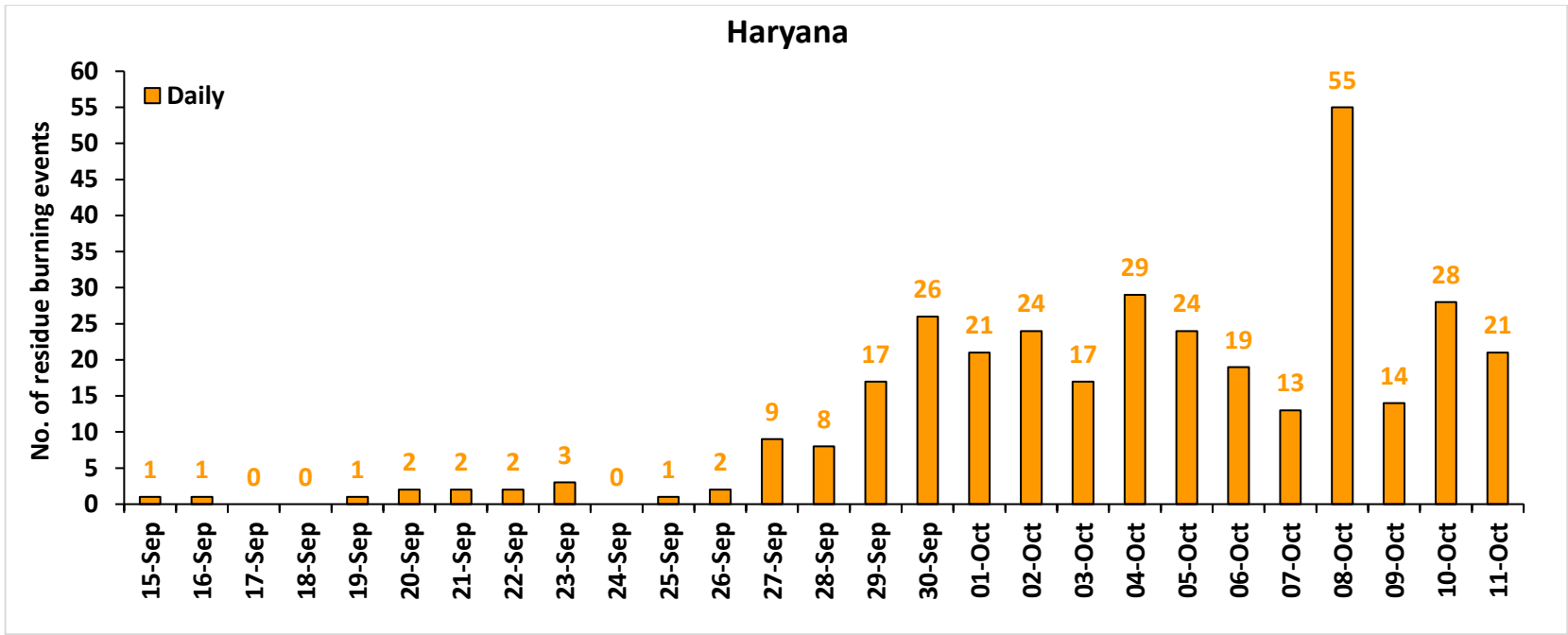
<http://creams.iari.res.in>

Highlights for 11-Oct-2023

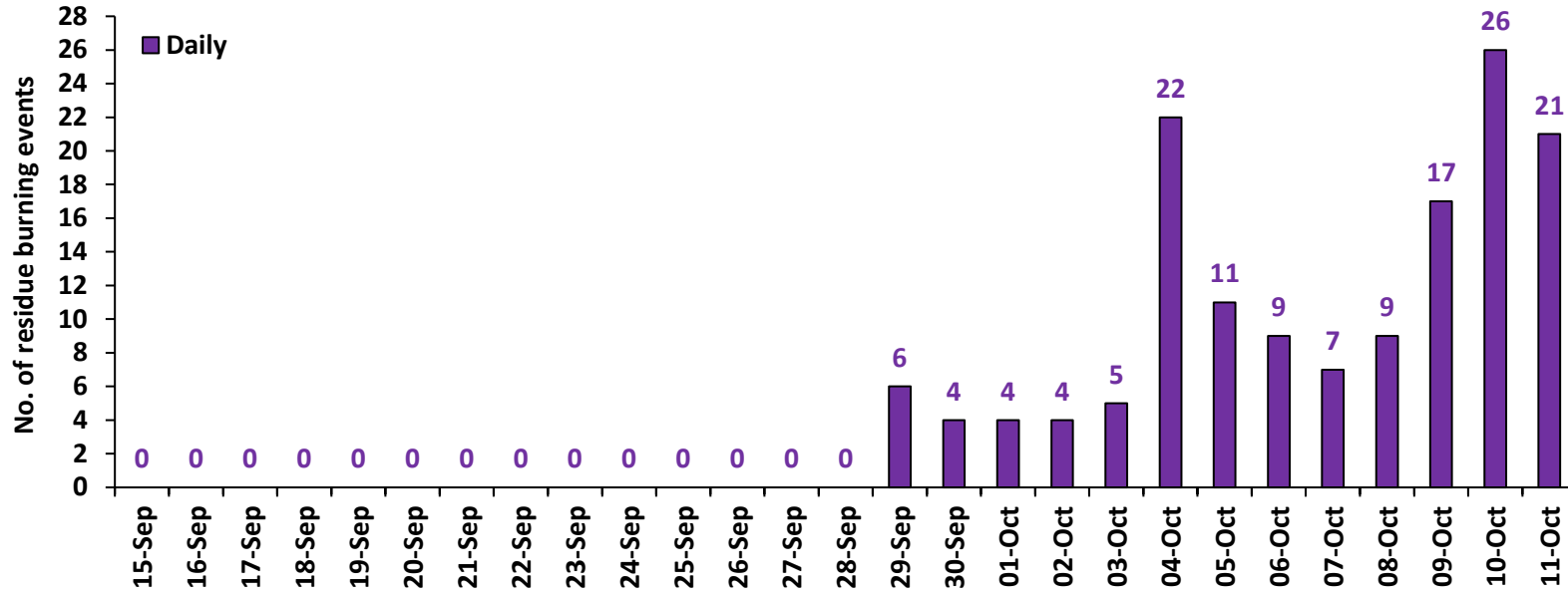
- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **143** residue burning events in the six study States on 11-Oct-2023.
- The state wise events detected on 11-Oct-2023 were **26** in Punjab, **21** in Haryana, **50** in UP, **01** in Delhi, **21** in Rajasthan and **24** in MP.
- Total **1984** burning events were detected in the six states between 15-Sept-2023 and 11-Oct-2023, which are distributed as **1063**, **340**, **235**, **02**, **145** and **199** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.

Temporal distribution of rice residue burning events for the study States in 2023

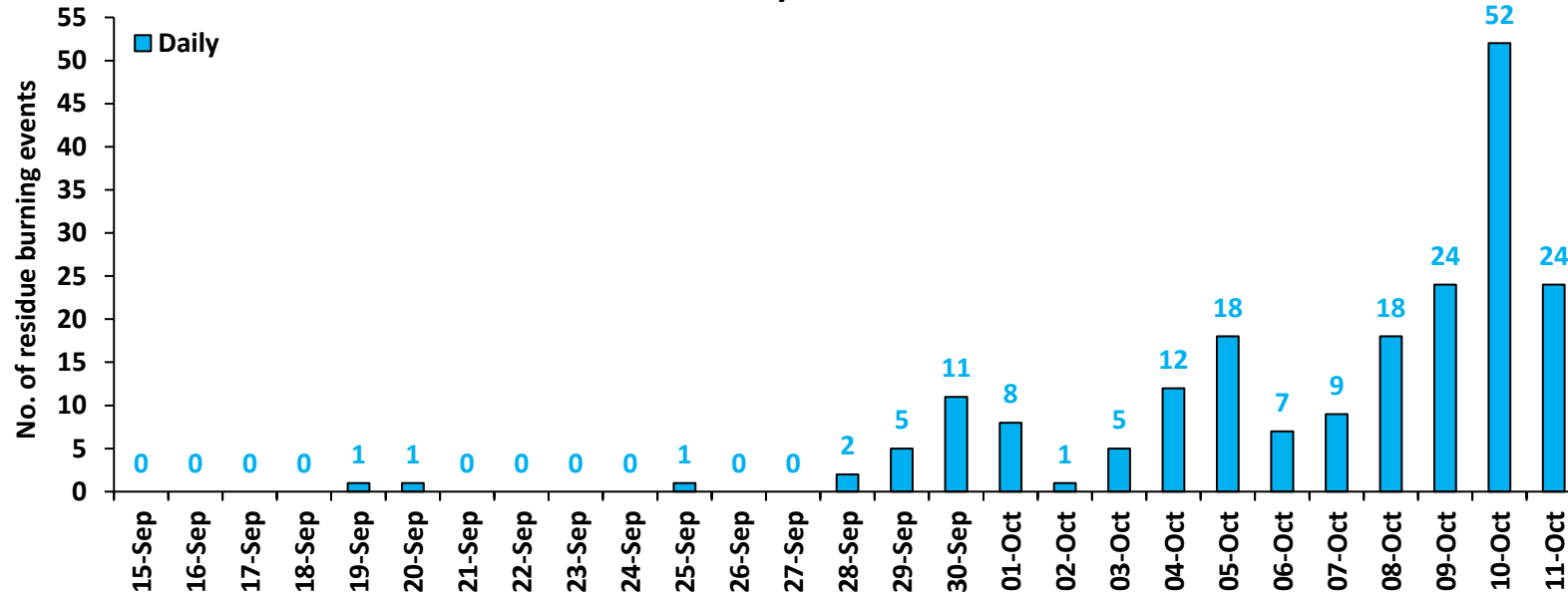


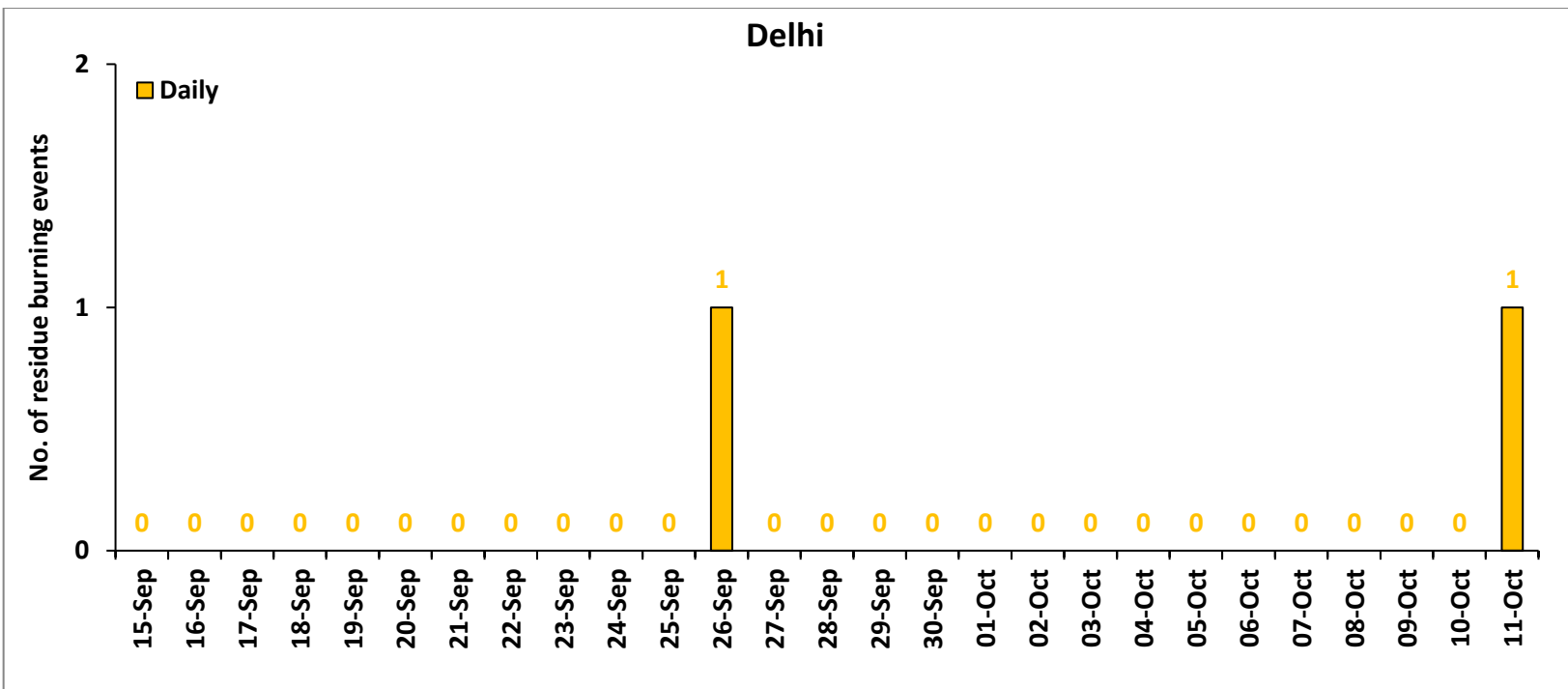


Rajasthan

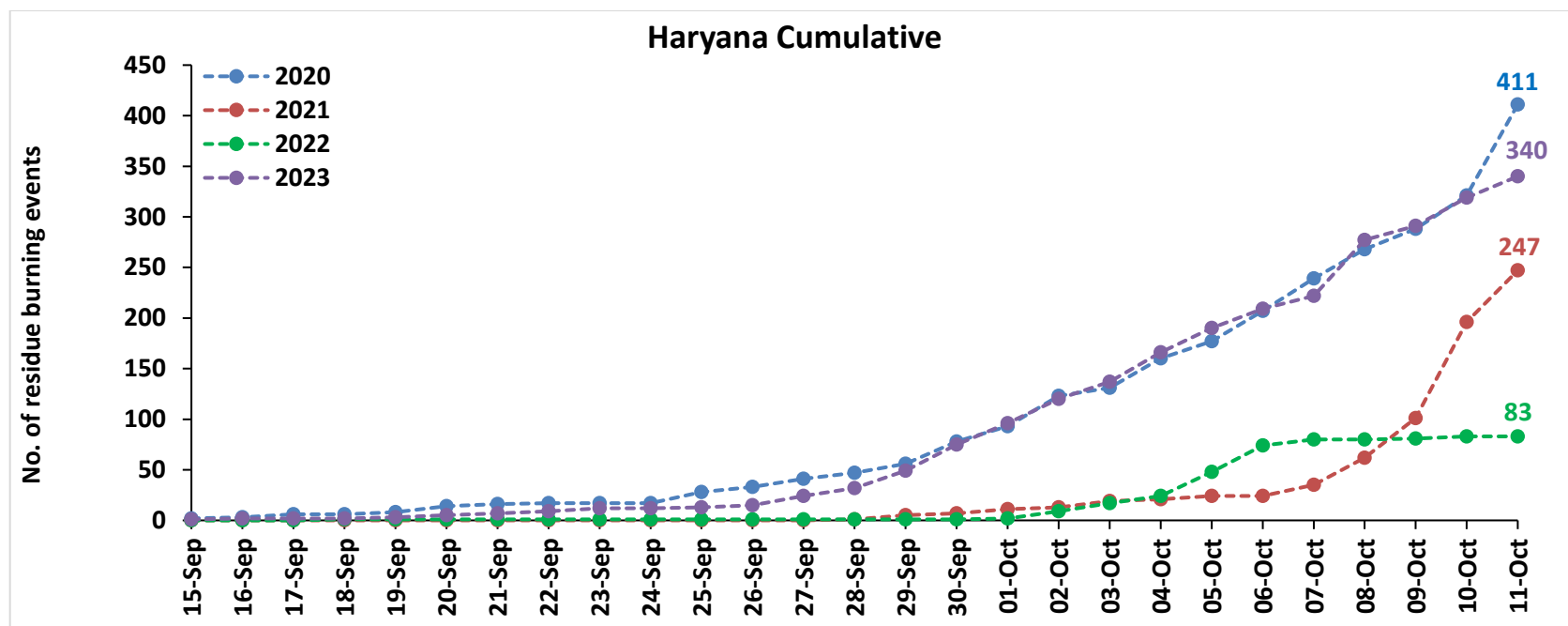
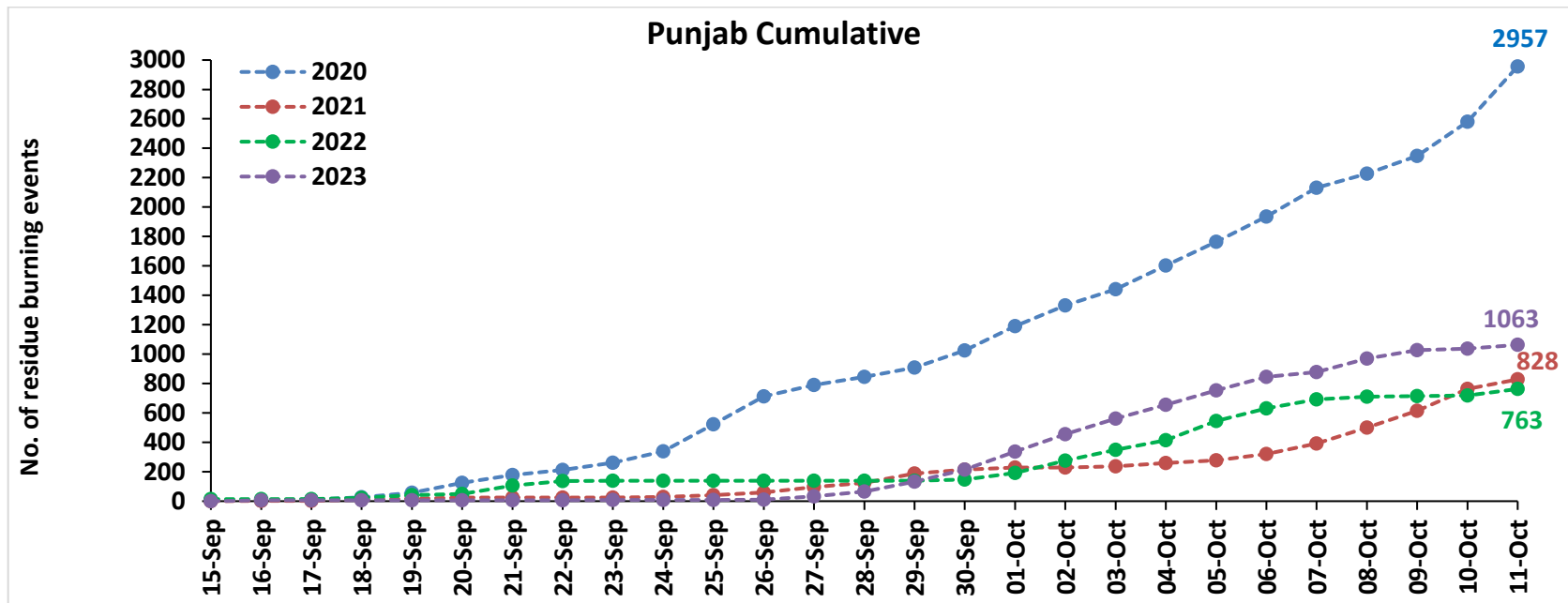


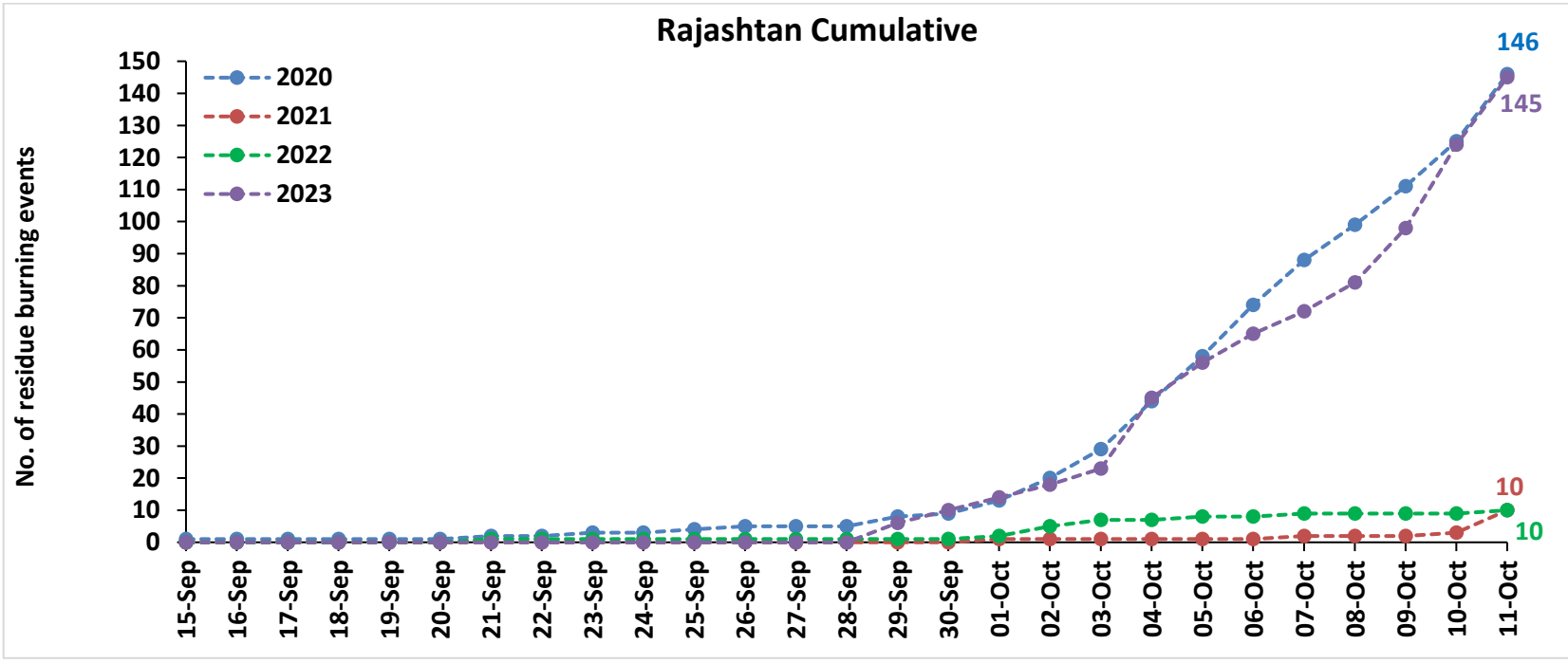
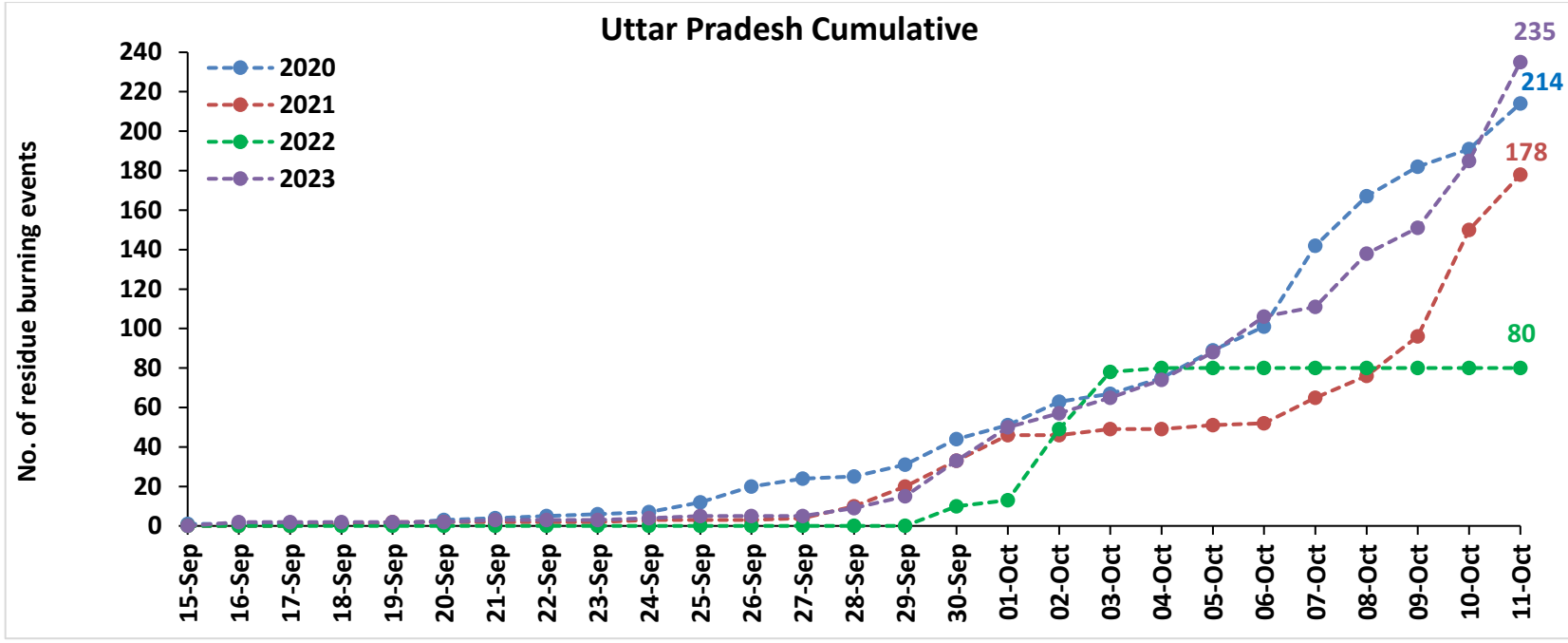
Madhya Pradesh

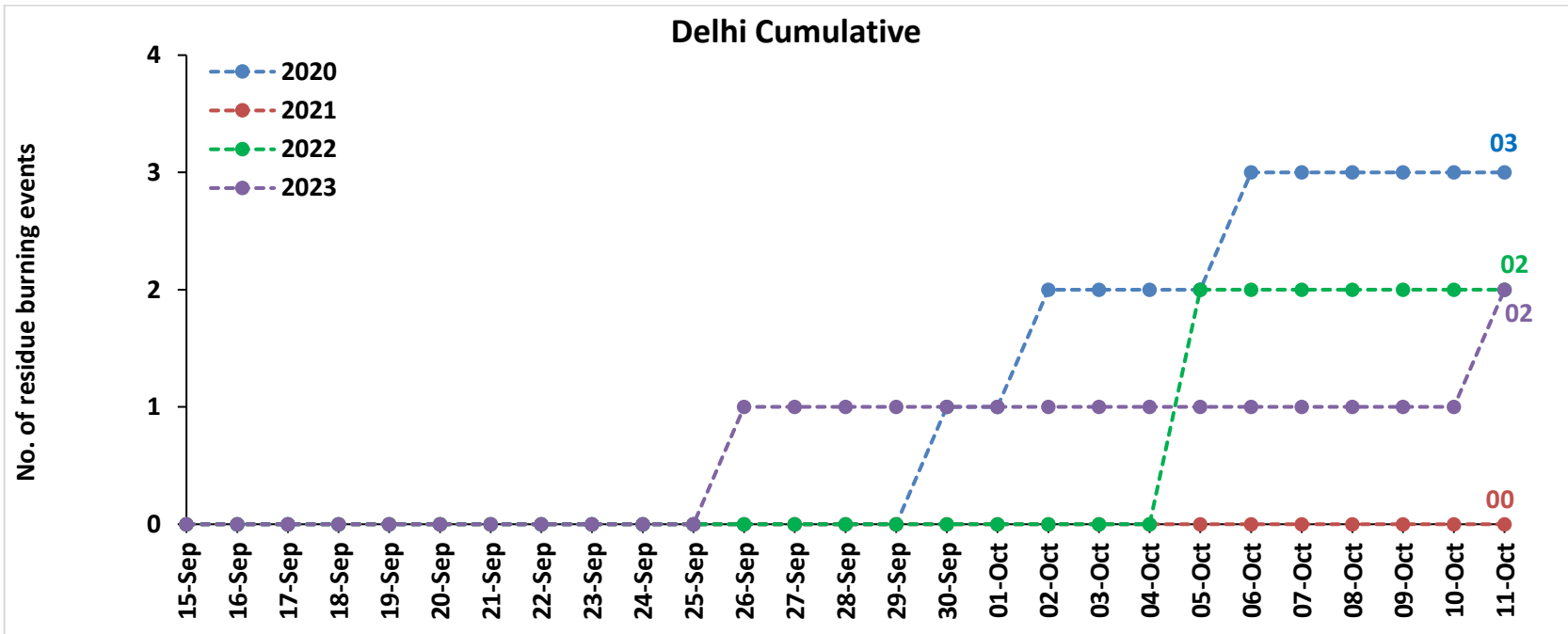
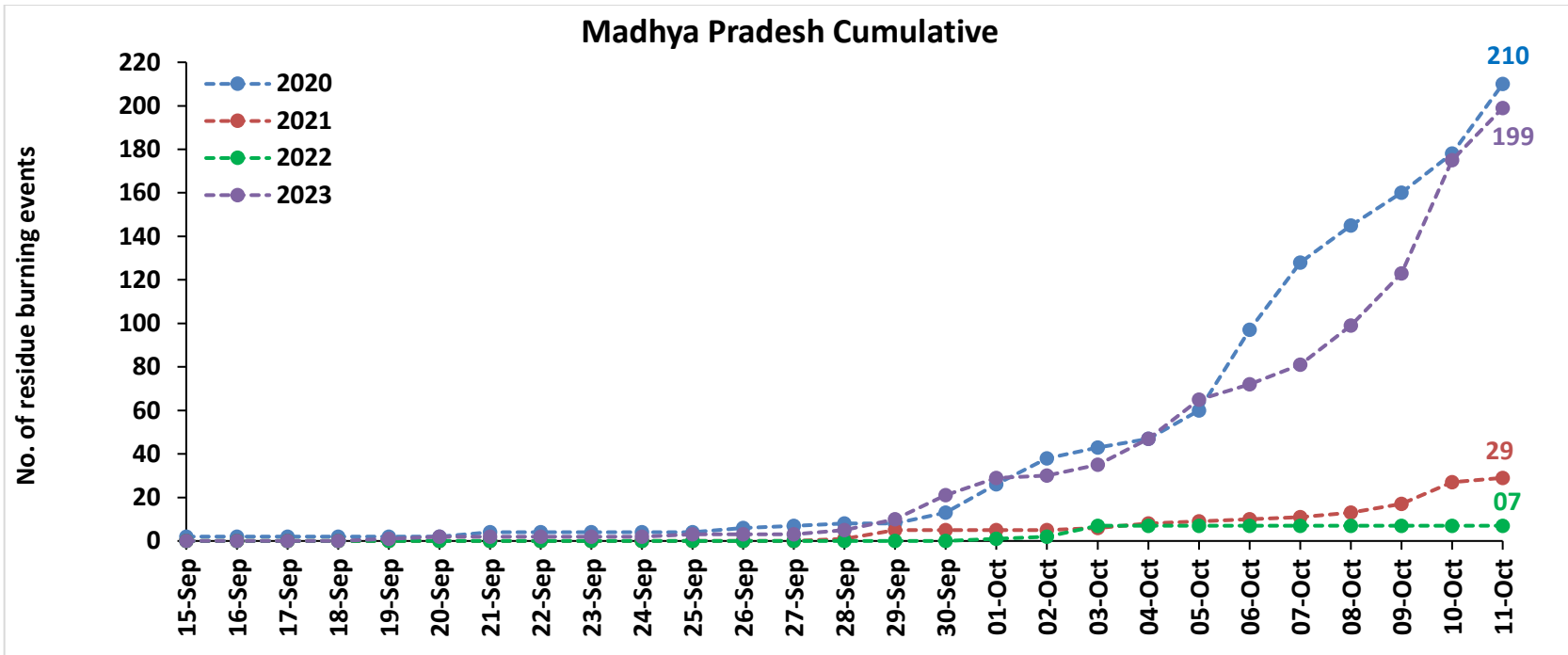




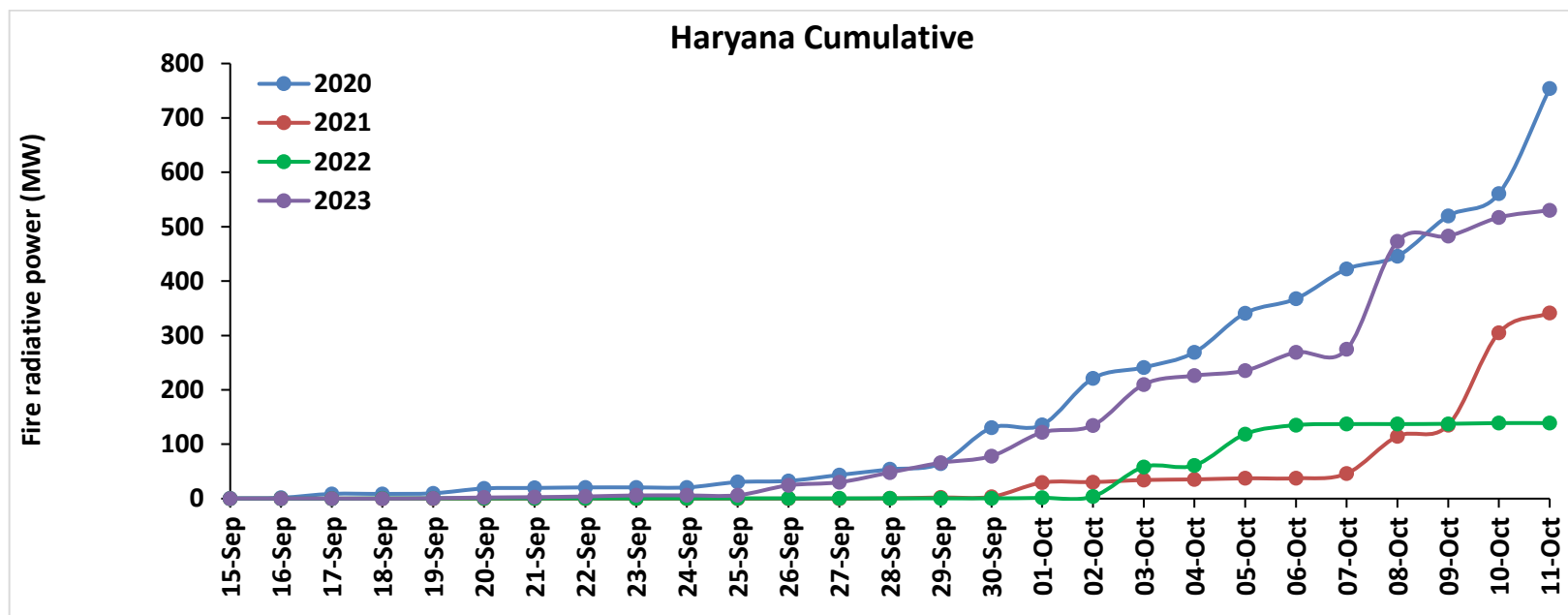
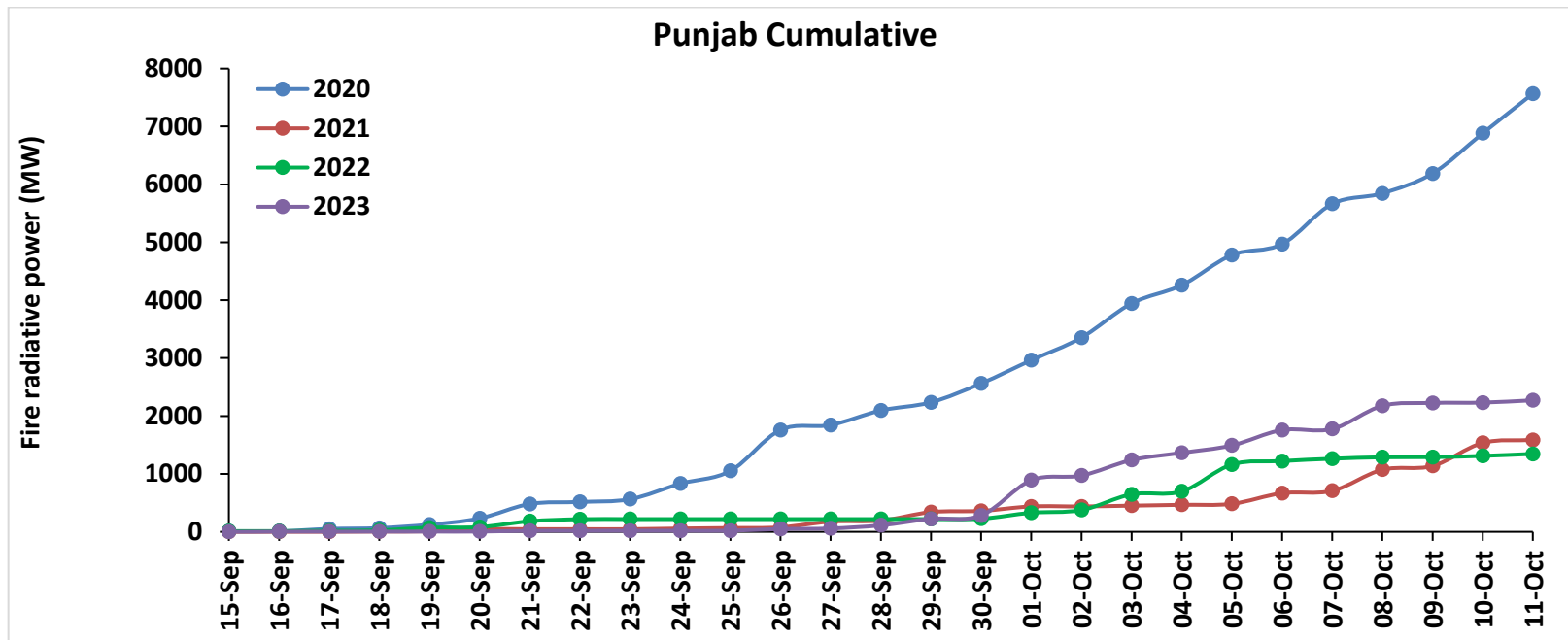
Comparison of residue burning events in current year (2023) with previous years (2020, 2021 and 2022) for the study State

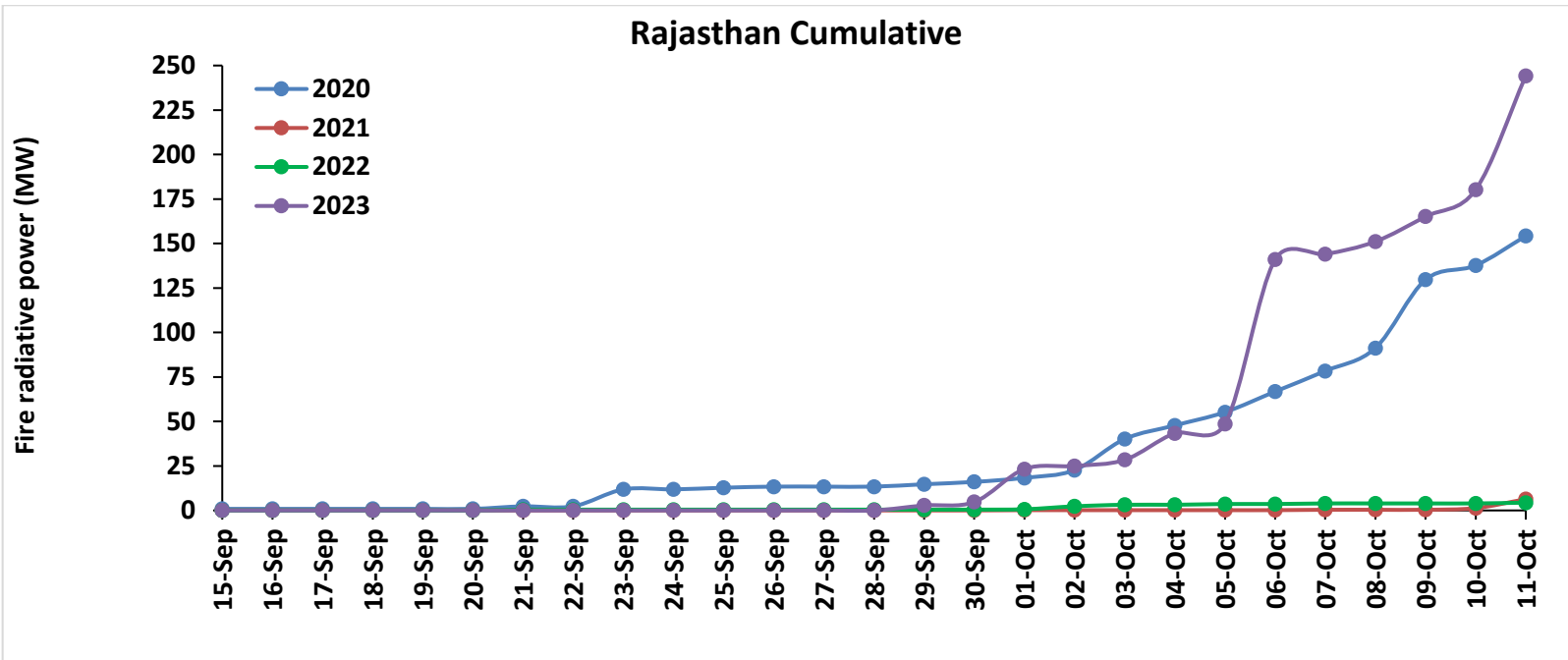
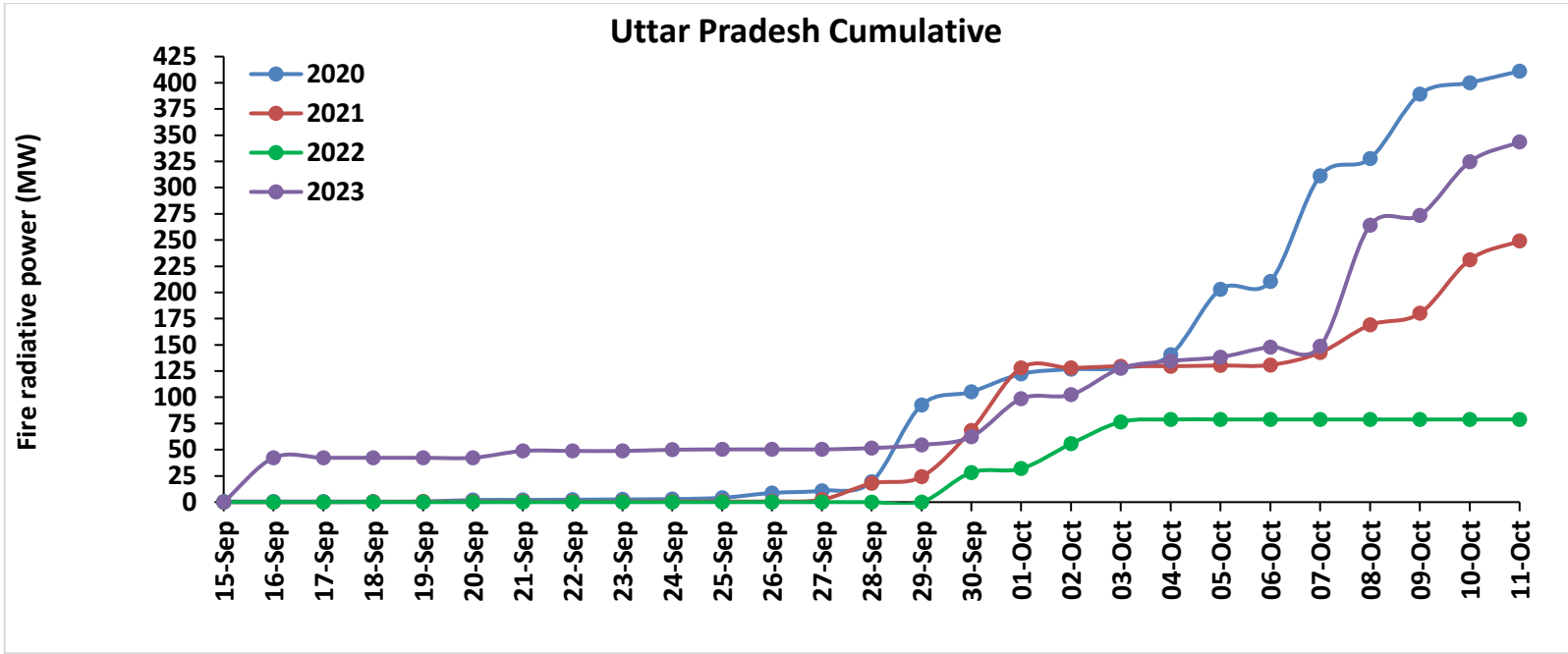


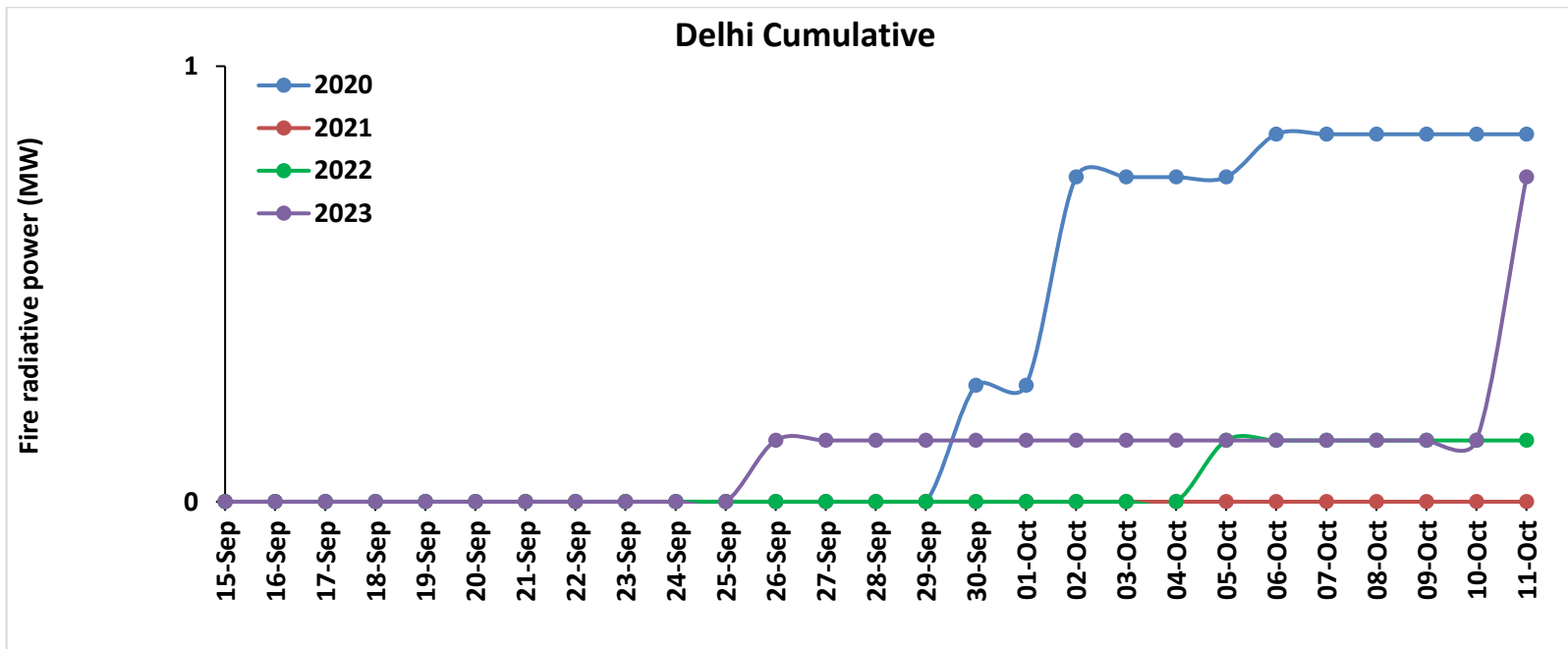
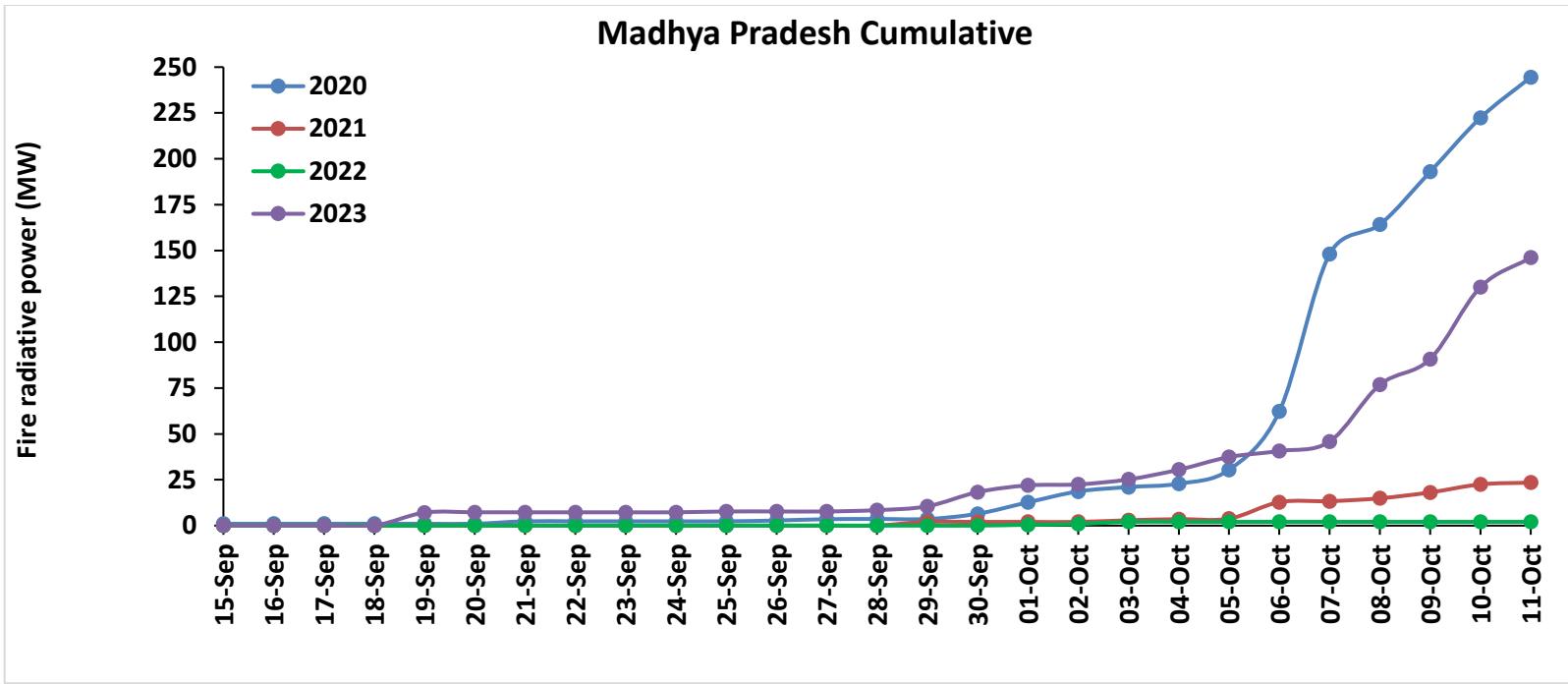




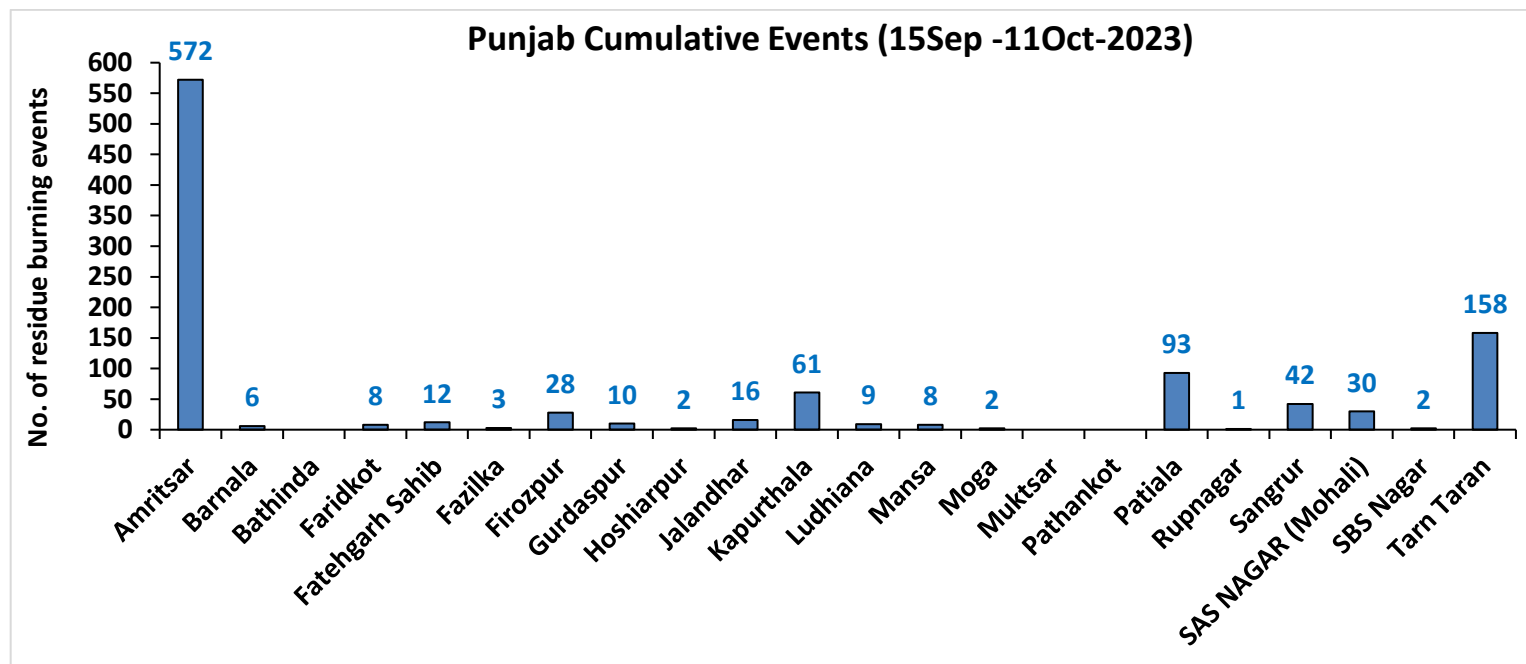
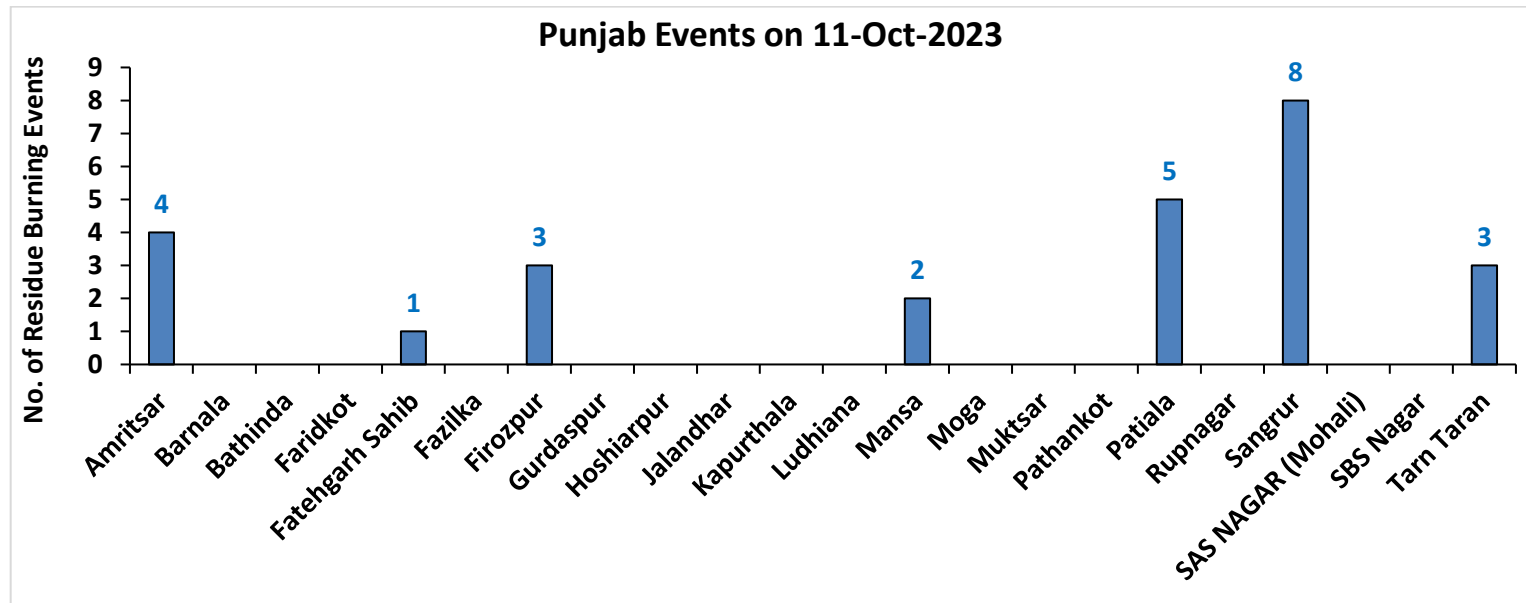
Comparison of residue burning fire power in current year (2023) with previous years (2020, 2021 and 2022) for the study States





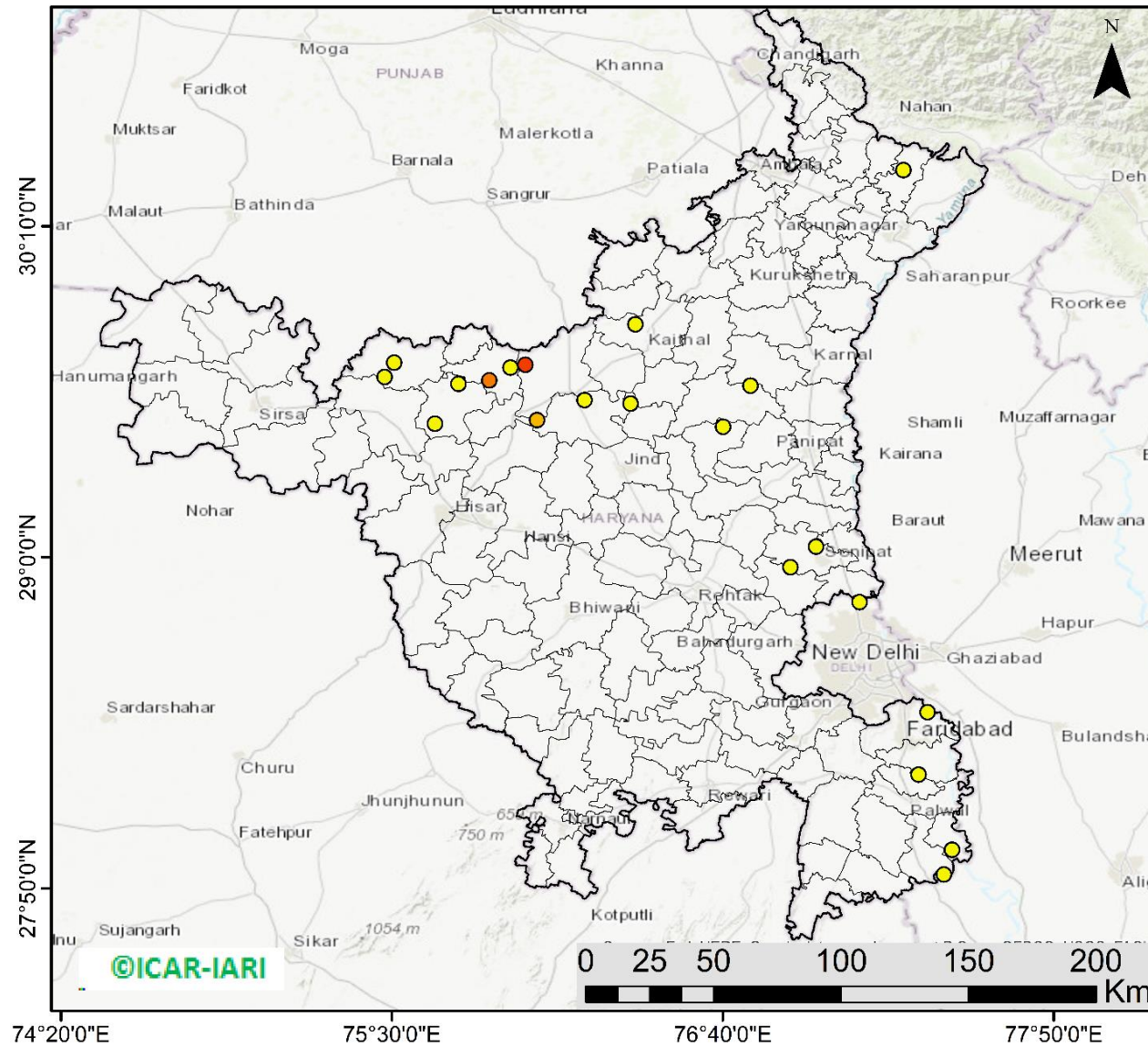


District-wise cumulative number of residues burning events in Punjab (15Sep- 11Oct-2023)



Haryana

RICE RESIDUE BURNING IN HARYANA



21 burning events detected in Haryana on **(11th Oct 2023)**

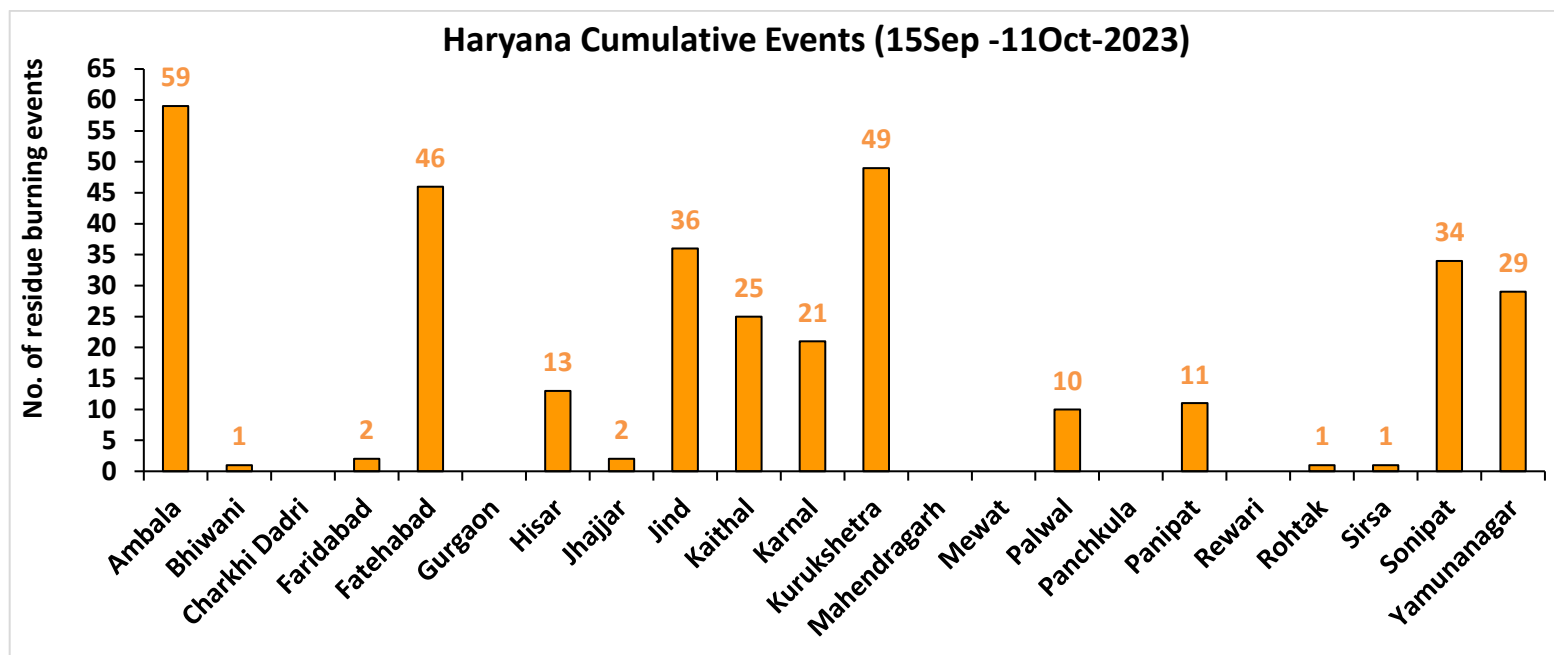
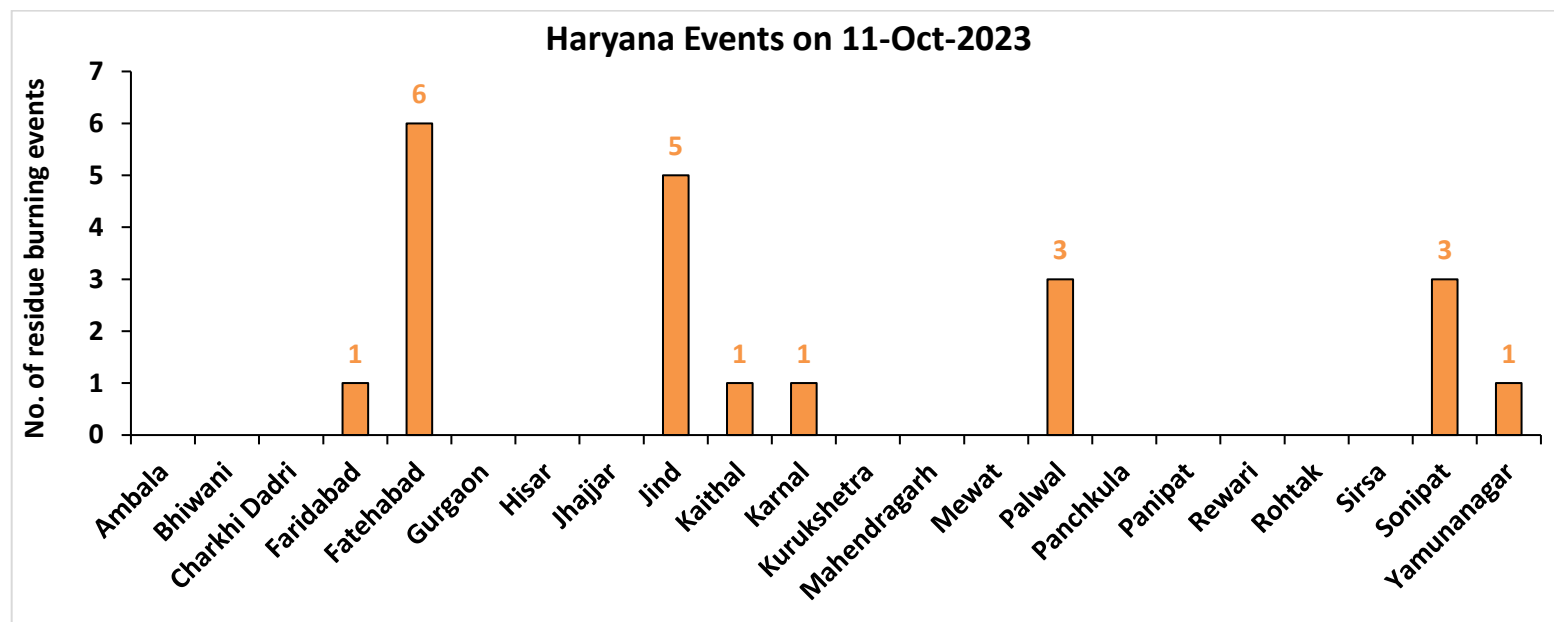
Fire Intensity (W/m²)

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



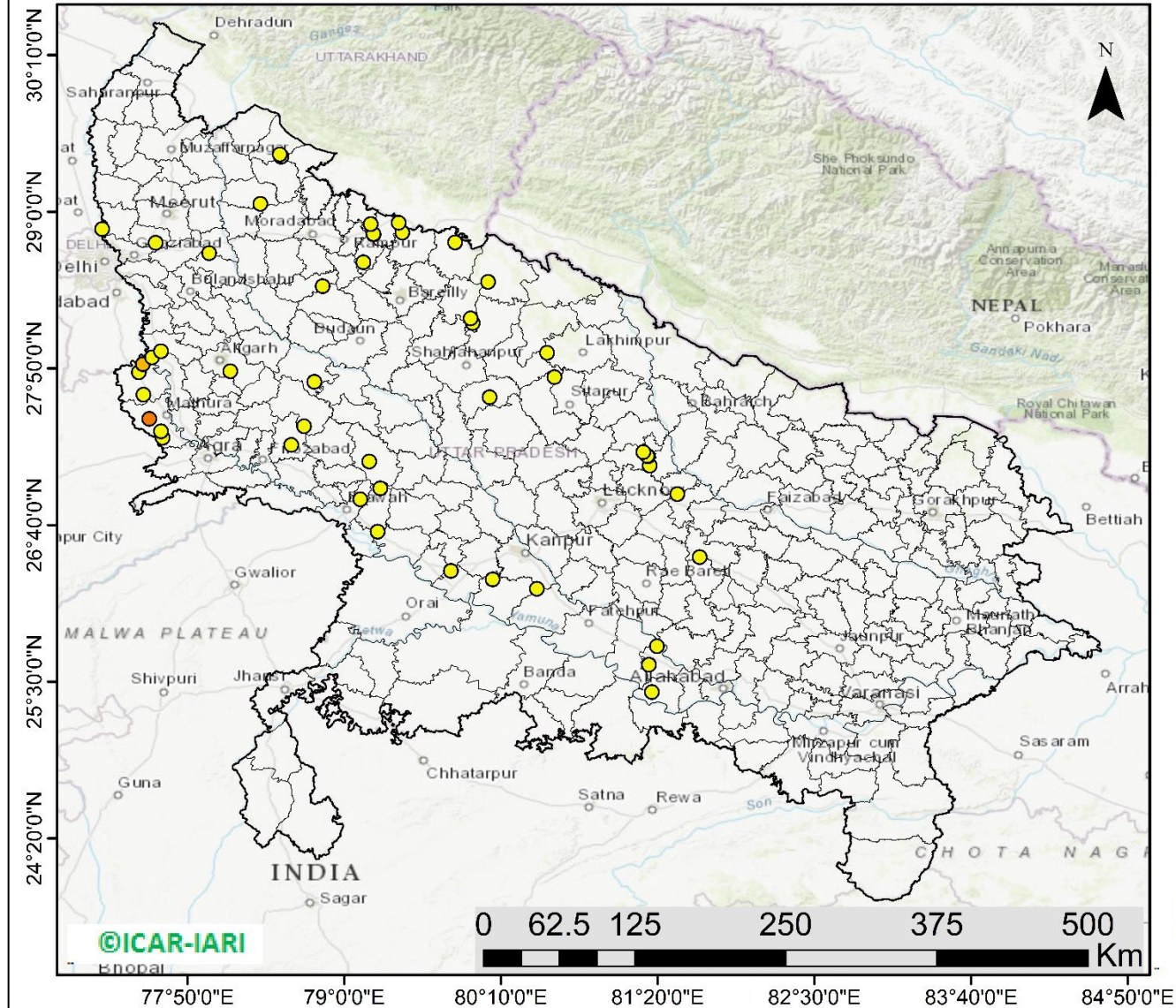
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15Sep-11Oct -2023)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



50 burning events detected in Uttar Pradesh on (11th Oct 2023)

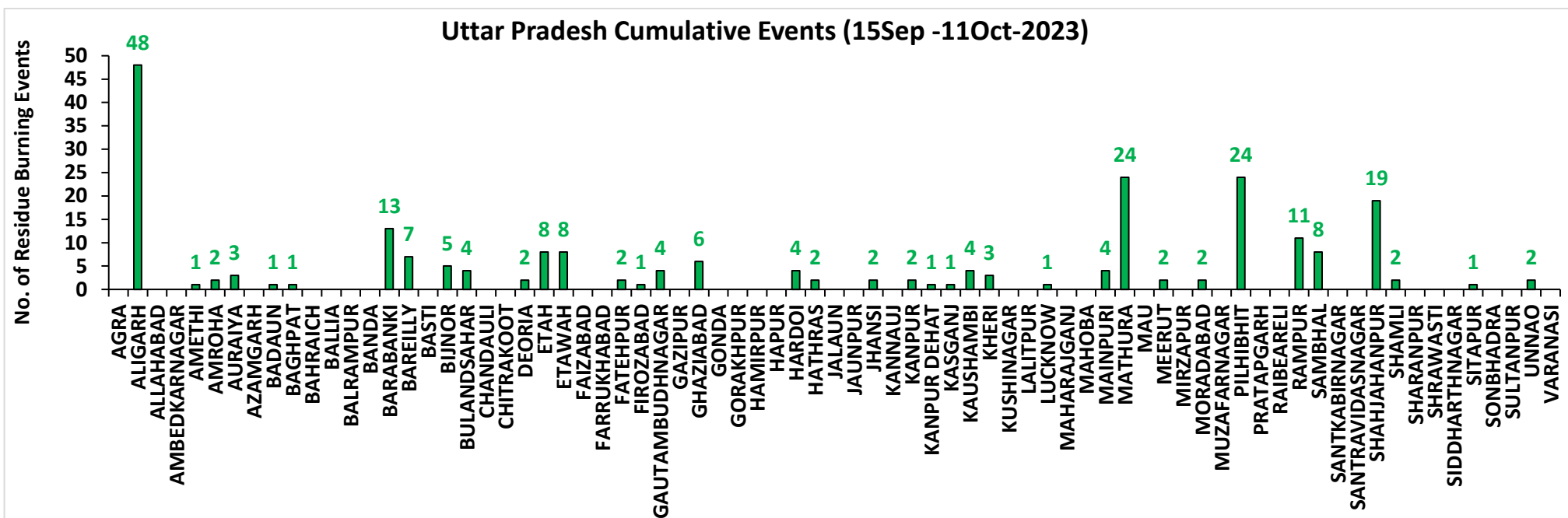
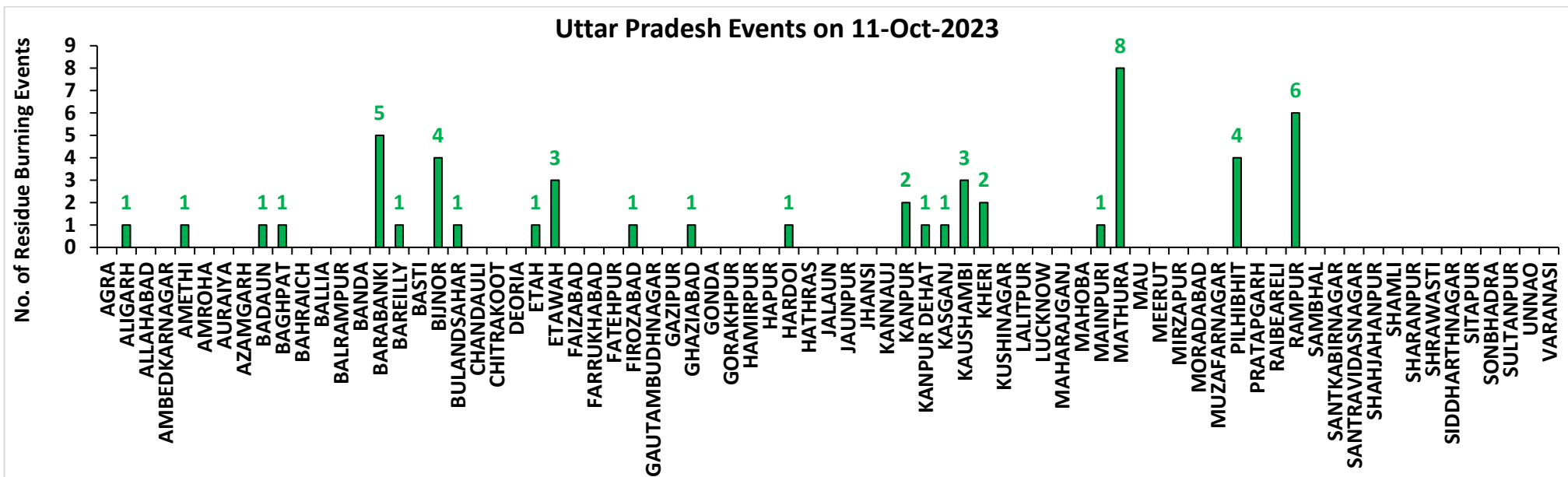
Fire Intensity (W/m²)

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

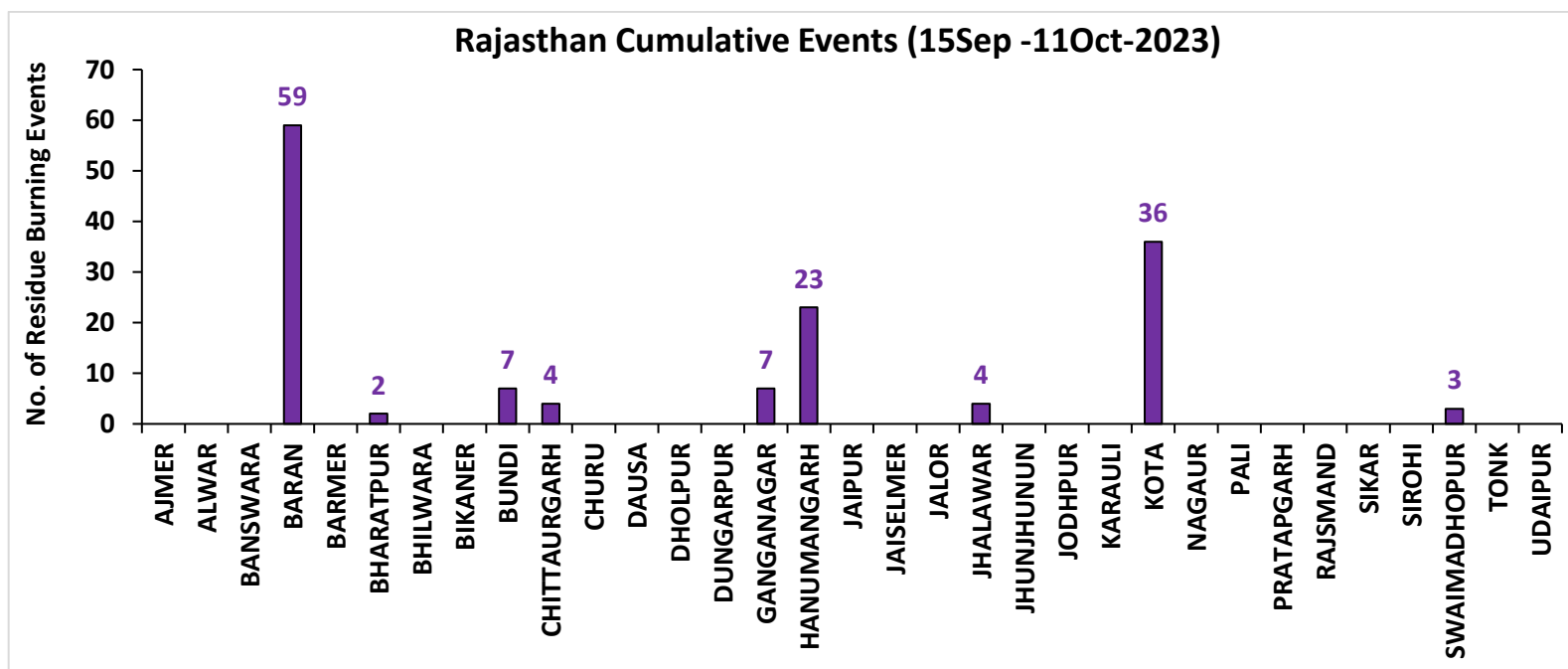
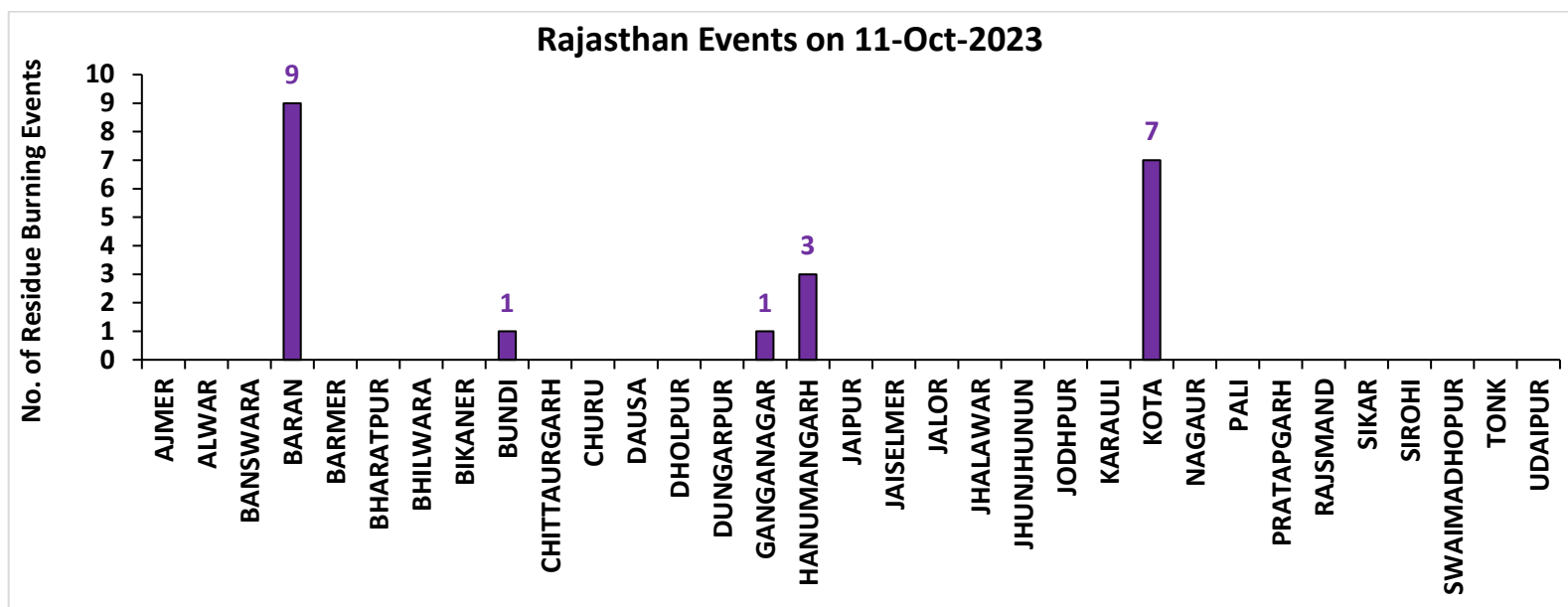


<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-11Oct -2023)

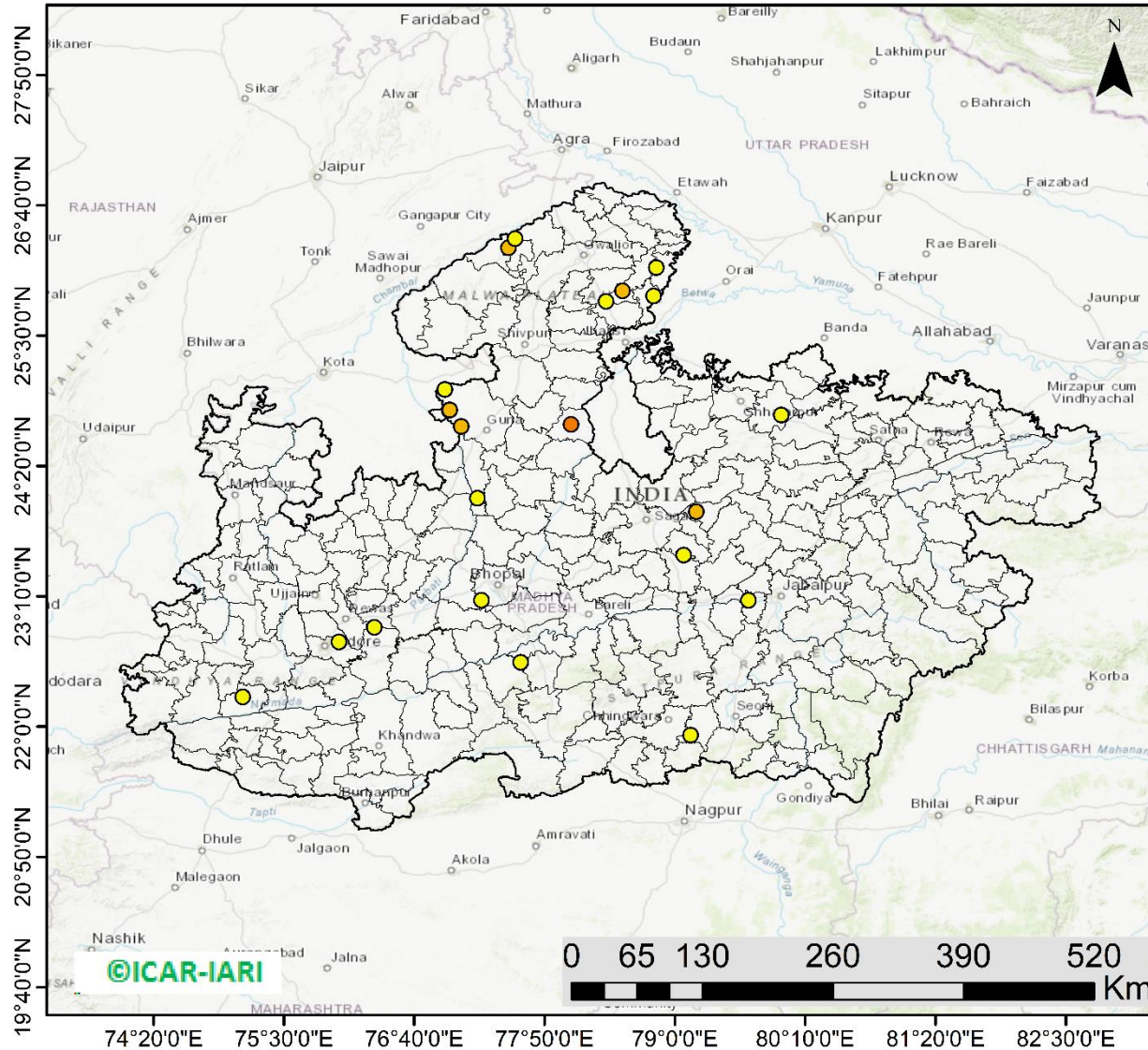


District-wise cumulative number of residues burning events in Rajasthan (15Sep-11Oct -2023)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



24 burning events detected in MP on (11th Oct 2023)

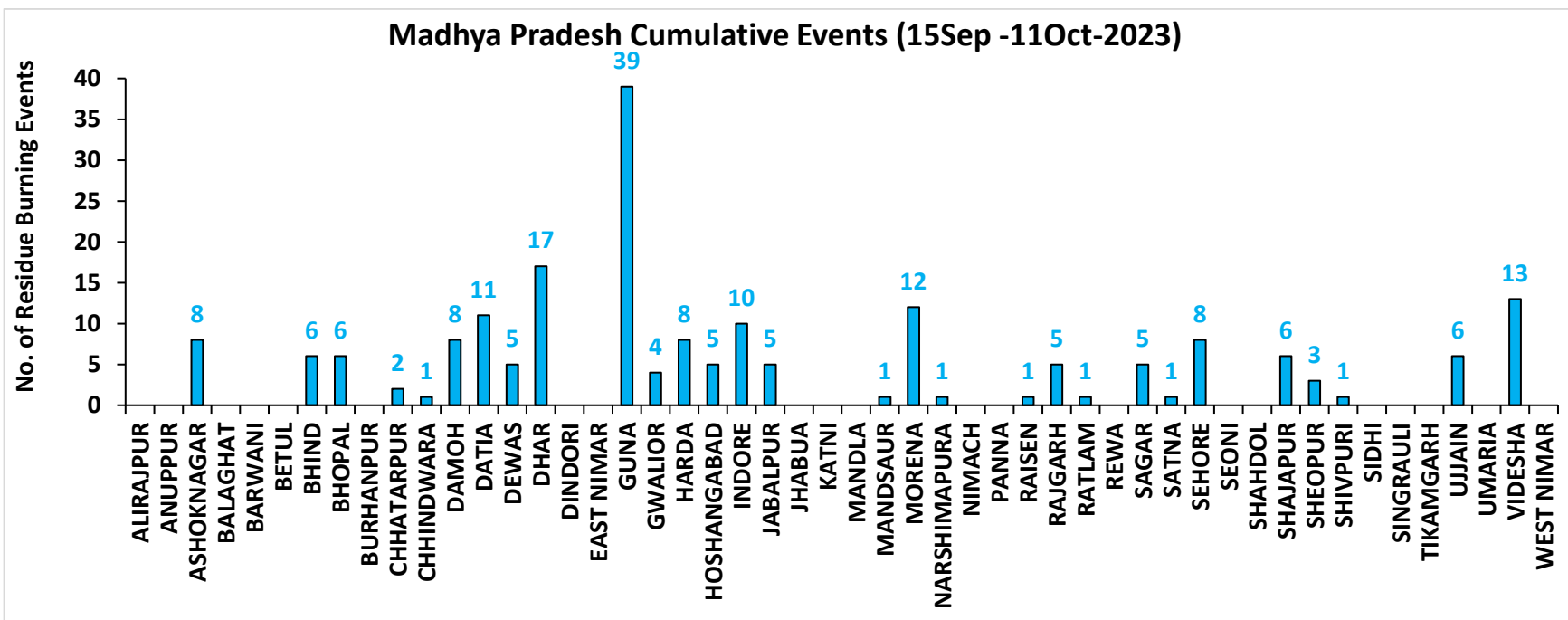
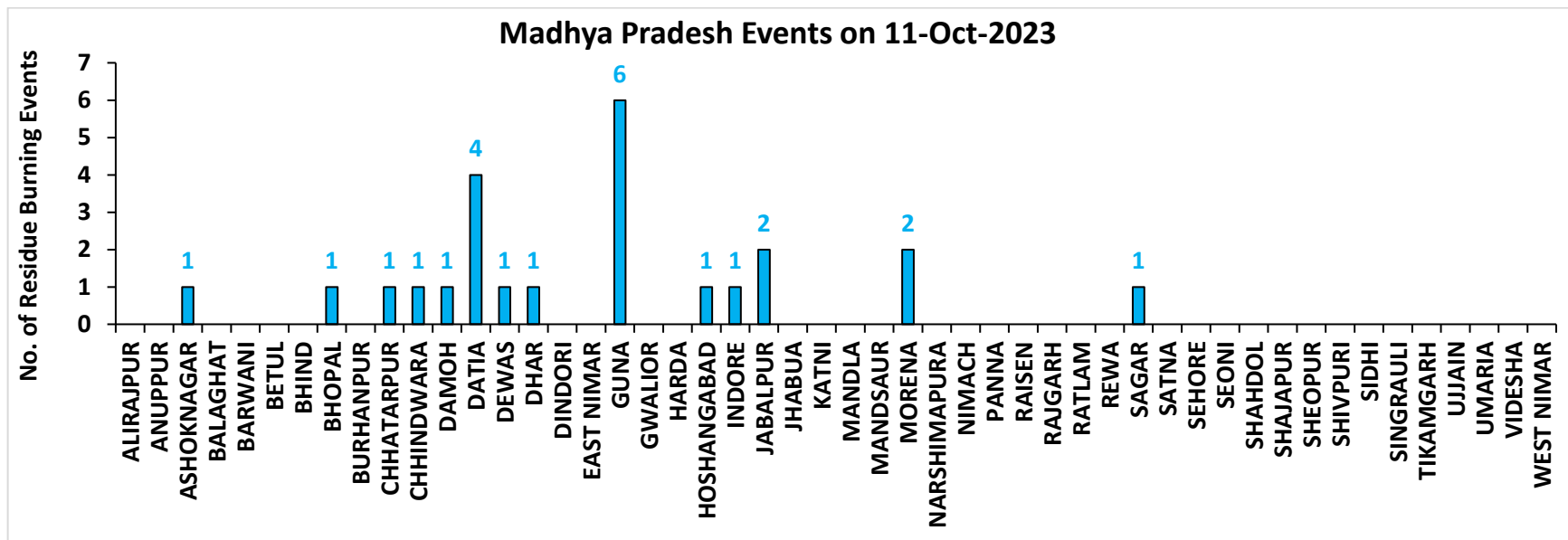
Fire Intensity (W/m²)

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



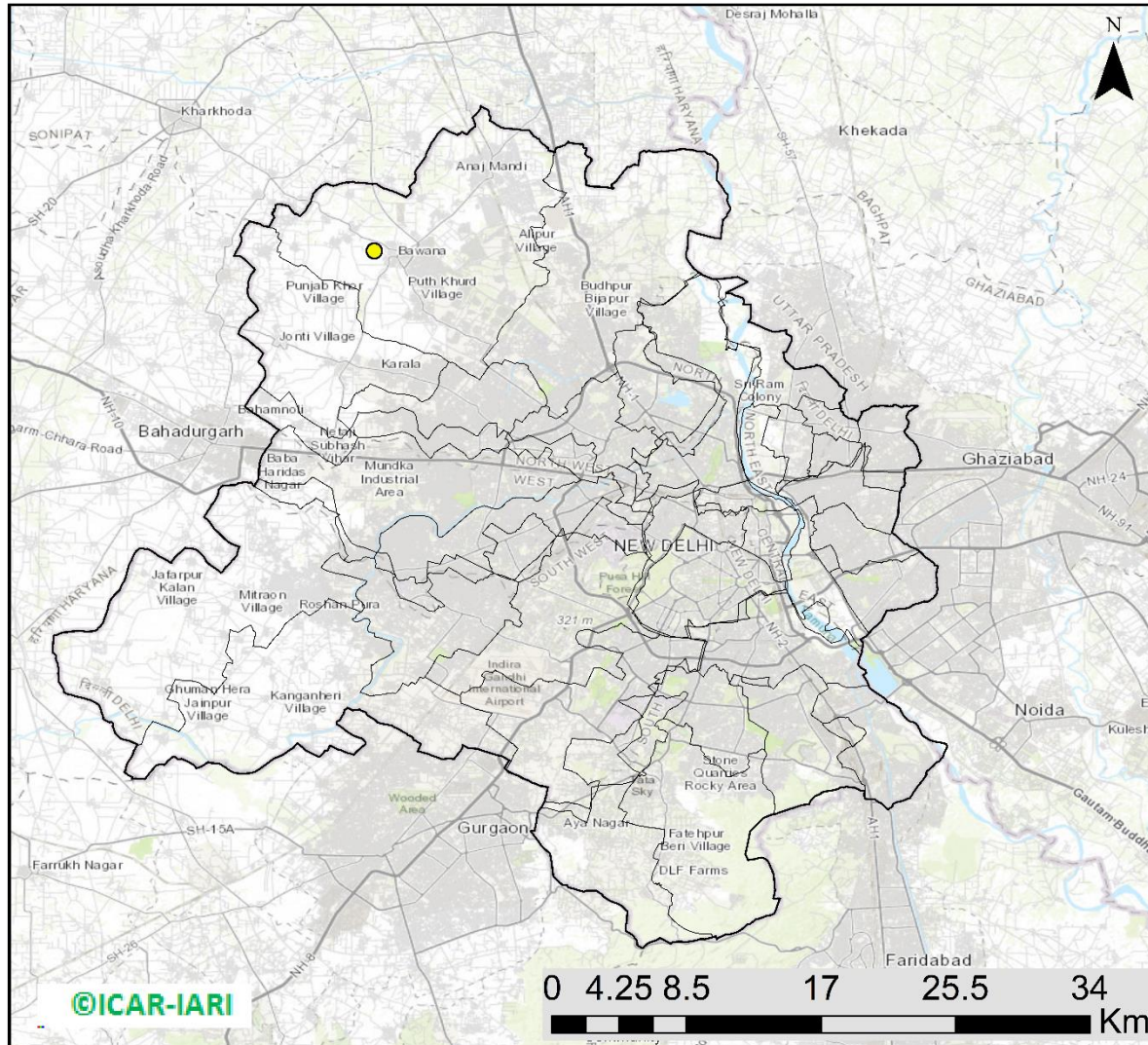
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Madhya Pradesh (15Sep-11Oct -2023)



Delhi

RICE RESIDUE BURNING IN DELHI



01 burning events detected in Delhi on (11th Oct 2023)

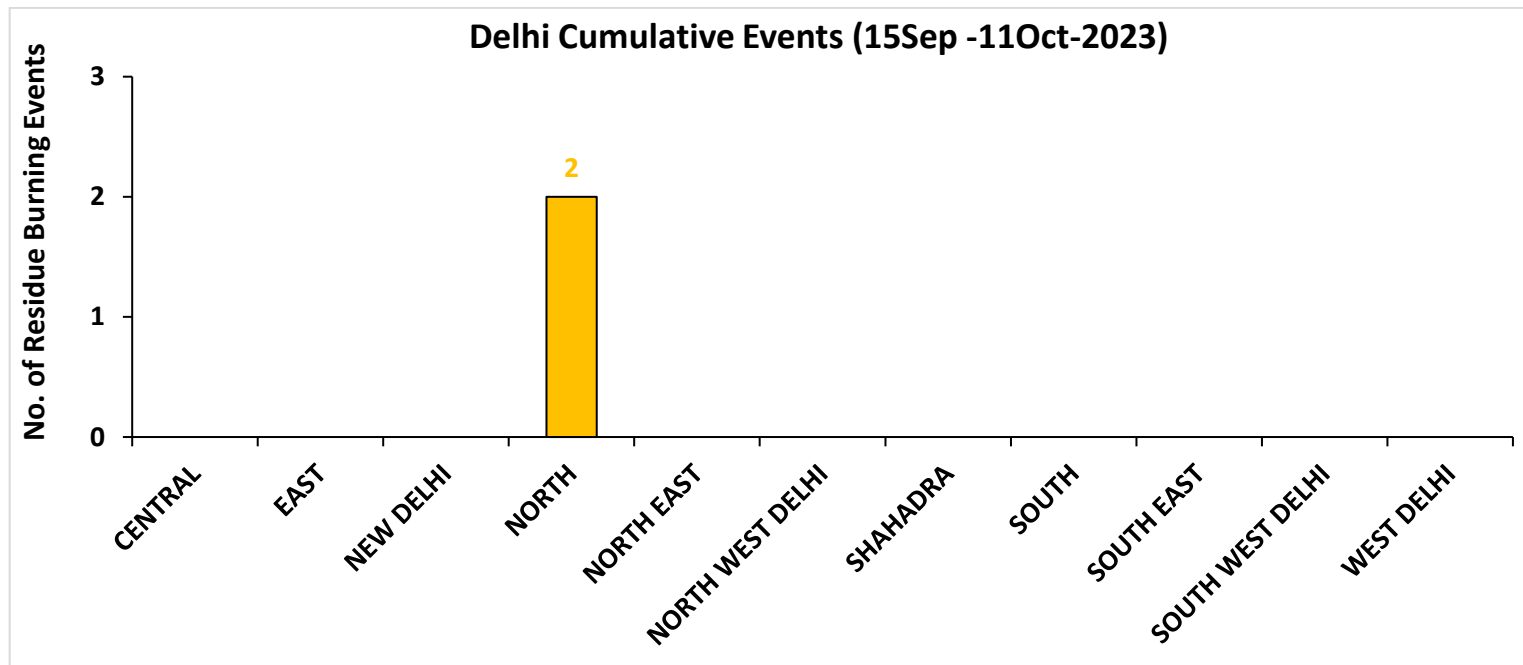
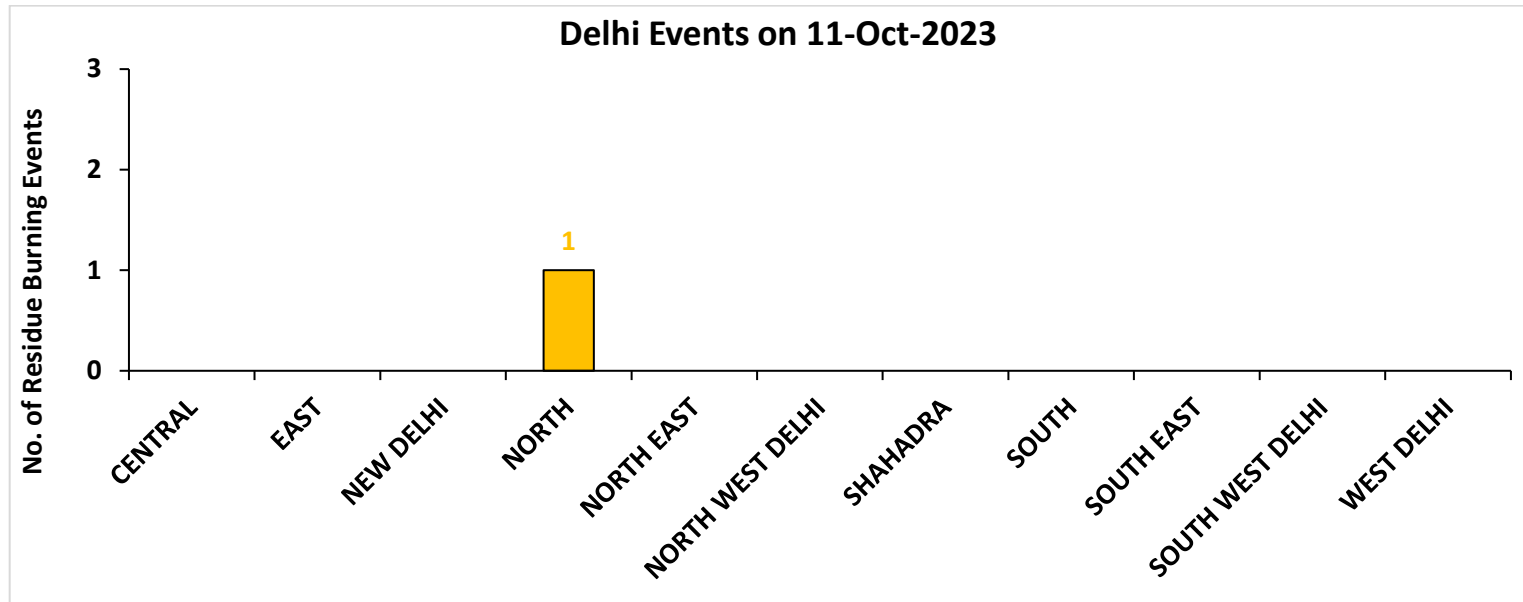
Fire Intensity (W/m²)

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



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

District-wise cumulative number of residues burning events in Delhi (15Sep-11Oct-2023)



District-wise cumulative number of residues burning events detected in 2020, 2021, 2022 and 2023
(Period: 15 September-11 October)

(a) Punjab

District	15 Sep-11 Oct			
	2020	2021	2022	2023
Amritsar	1426	343	470	572
Barnala	6	5	3	6
Bathinda	10	0	0	0
Faridkot	27	20	3	8
Fatehgarh Sahib	45	28	4	12
Fazilka	7	7	0	3
Firozpur	98	25	17	28
Gurdaspur	155	27	12	10
Hoshiarpur	6	1	0	2
Jalandhar	40	19	13	16
Kapurthala	63	26	25	61
Ludhiana	85	61	12	9
Mansa	8	1	1	8
Moga	22	8	5	2
Muktsar	4	2	1	0
Pathankot	0	0	0	0
Patiala	209	67	26	93
Rupnagar	10	4	0	1
Sangrur	70	11	12	42
SAS NAGAR (Mohali)	17	11	4	30
SBS Nagar	9	2	2	2
Tarn Taran	640	160	153	158
Total	2957	828	763	1063

(b) Haryana

District	15 Sep-11 Oct			
	2020	2021	2022	2023
AMBALA	57	13	10	59
BHIWANI	0	0	0	1
CHARKHI DADRI	0	0	0	0
FARIDABAD	0	1	0	2
FATEHABAD	29	9	3	46
GURGAON	0	0	0	0
HISAR	4	0	0	13
JHAJJAR	1	0	0	2
JIND	9	9	8	36
KAITHAL	65	50	9	25
KARNAL	116	94	20	21
KURUKSHETRA	81	49	27	49
MAHENDRAGARH	0	0	0	0
MEWAT	0	0	0	0
PALWAL	5	7	0	10
PANCHKULA	0	0	0	0
PANIPAT	6	3	1	11
REWARI	0	0	0	0
ROHTAK	0	0	0	1
SIRSA	3	0	0	1
SONIPAT	6	1	2	34
YAMUNANAGAR	29	11	3	29
Total	411	247	83	340

(c) Uttar Pradesh

District	15 Sep-11 Oct													
	2020	2021	2022	2023	GAUTAMBUDHNAGAR	1	4	0	4	MUZAFARNAGAR	2	0	0	0
AGRA	1	0	0	0	GAZIPUR	0	0	0	0	PILHIBHIT	4	7	2	24
ALIGARH	17	3	1	48	GHAZIABAD	1	2	1	6	PRATAPGARH	0	0	0	0
ALLAHABAD	0	0	0	0	GONDA	0	0	0	0	RAIBEARELI	1	0	0	0
AMBEDKARNAGAR	0	0	0	0	GORAKHPUR	0	0	0	0	RAMPUR	8	16	0	11
AMETHI	0	1	0	1	HAMIRPUR	0	0	0	0	SAMBHAL	6	1	4	8
AMROHA	1	0	0	2	HAPUR	3	0	0	0	SANTKABIRNAGAR	0	0	0	0
AURAIYA	12	1	4	3	HARDOI	2	4	0	4	SANTRAVIDASNAGAR	0	0	0	0
AZAMGARH	0	0	0	0	HATHRAS	0	0	0	2	SHAHJAHANPUR	16	87	53	19
BADAUN	0	0	0	1	JALAUN	0	0	0	0	SHAMLI	17	5	2	2
BAGHPAT	1	0	0	1	JAUNPUR	0	0	0	0	SHARANPUR	15	0	0	0
BAHRAICH	2	2	0	0	JHANSI	5	0	0	2	SHRAWASTI	0	0	0	0
BALLIA	0	0	0	0	KANNAUJ	2	0	0	0	SIDDHARTHANAGAR	0	0	0	0
BALRAMPUR	0	0	0	0	KANPUR	0	1	0	2	SITAPUR	8	1	0	1
BANDA	0	0	0	0	KANPUR DEHAT	2	0	0	1	SONBHADRA	0	0	0	0
BARABANKI	10	0	0	13	KASGANJ	1	0	0	1	SULTANPUR	0	0	0	0
BAREILLY	7	4	0	7	KAUSHAMBI	7	1	0	4	UNNAO	2	0	0	2
BASTI	2	0	0	0	KHERI	16	16	8	3	VARANASI	0	0	0	0
BIJNOR	3	1	1	5	KUSHINAGAR	0	0	0	0	Total	214	178	80	235
BULANSAHAR	3	1	2	4	LALITPUR	0	1	2	0					
CHANDAULI	0	0	0	0	LUCKNOW	2	0	0	1					
CHITRAKOOT	0	0	0	0	MAHARAJGANJ	0	0	0	0					
DEORIA	0	0	0	2	MAHOBA	0	0	0	0					
ETAH	4	2	0	8	MAINPURI	0	2	0	4					
ETAWAH	2	3	0	8	MATHURA	5	6	0	24					
FAIZABAD	0	0	0	0	MAU	0	0	0	0					
FARRUKHABAD	0	0	0	0	MEERUT	9	0	0	2					
FATEHPUR	7	0	0	2	MIRZAPUR	5	5	0	0					
FIROZABAD	1	0	0	1	MORADABAD	1	1	0	2					

(d) Delhi

District	15 Sep-11 Oct			
	2020	2021	2022	2023
CENTRAL	0	0	0	0
EAST	0	0	0	0
NEW DELHI	0	0	0	0
NORTH	2	0	2	2
NORTH EAST	0	0	0	0
NORTH WEST DELHI	0	0	0	0
SHAHADRA	0	0	0	0
SOUTH	1	0	0	0
SOUTH EAST	0	0	0	0
SOUTH WEST DELHI	0	0	0	0
WEST DELHI	0	0	0	0
Total	3	0	2	2

(e) Rajasthan

District	15 Sep-11 Oct			
	2020	2021	2022	2023
AJMER	0	0	0	0
ALWAR	1	0	0	0
BANSWARA	0	0	0	0
BARAN	67	0	3	59
BARMER	2	0	0	0
BHARATPUR	0	0	0	2
BHILWARA	2	0	0	0
BIKANER	0	0	0	0
BUNDI	3	0	3	7
CHITTAURGARH	0	1	0	4
CHURU	0	0	0	0
DAUSA	0	0	0	0
DHOLPUR	0	0	0	0
DUNGARPUR	0	0	0	0
GANGANAGAR	2	0	0	7
HANUMANGARH	40	9	3	23
JAIPUR	0	0	0	0
JAISELMER	2	0	0	0
JALOR	0	0	0	0
JHALAWAR	0	0	0	4
JHUNJHUNUN	1	0	0	0
JODHPUR	1	0	0	0
KARAULI	1	0	0	0
KOTA	19	0	1	36
NAGOUR	0	0	0	0
PALI	1	0	0	0
PRATAPGARH	0	0	0	0
RAJSMAND	0	0	0	0
SIKAR	0	0	0	0
SIROHI	1	0	0	0
SWAIMADHOPUR	2	0	0	3
TONK	1	0	0	0
UDAIPUR	0	0	0	0
Total	146	10	10	145

(f) Madhya Pradesh

District	15 Sep-11 Oct								
	2020	2021	2022	2023					
					PANNA	1	0	0	0
ALIRAJPUR	0	0	0	0	RAISEN	3	0	0	1
ANUPPUR	0	0	0	0	RAJGARH	6	1	2	5
ASHOKNAGAR	7	0	0	8	RATLAM	0	0	0	1
BALAGHAT	0	0	0	0	REWA	2	0	0	0
BARWANI	0	0	0	0	SAGAR	10	3	1	5
BETUL	0	0	0	0	SATNA	3	0	0	1
BHIND	0	0	0	6	SEHORE	4	0	1	8
BHOPAL	3	2	0	6	SEONI	2	2	0	0
BURHANPUR	0	0	0	0	SHAHDOL	0	0	0	0
CHHATARPUR	3	0	0	2	SHAJAPUR	4	0	0	6
CHHINDWARA	0	0	0	1	SHEOPUR	5	0	0	3
DAMOH	11	1	0	8	SHIVPURI	3	0	0	1
DATIA	17	2	0	11	SIDHI	0	0	0	0
DEWAS	3	0	0	5	SINGRAULI	0	0	0	0
DHAR	16	0	0	17	TIKAMGARH	1	0	0	0
DINDORI	0	0	0	0	UJJAIN	5	0	0	6
EAST NIMAR	1	1	0	0	UMARIA	0	0	0	0
GUNA	9	1	1	39	VIDESHA	42	5	1	13
GWALIOR	18	0	1	4	WEST NIMAR	2	0	0	0
HARDA	8	7	0	8	Total	210	29	7	199
HOSHANGABAD	7	0	0	5					
INDORE	2	0	0	10					
JABALPUR	6	1	0	5					
JHABUA	0	0	0	0					
KATNI	0	0	0	0					
MANDLA	0	0	0	0					
MANDSAUR	0	0	0	1					
MORENA	5	2	0	12					
NARSHIMAPURA	1	1	0	1					
NIMACH	0	0	0	0					

State-wise and date-wise number of paddy residue burning events detected in 2020, 2021, 2022 and 2023
(Period: 15 September-11 October)

Number of Paddy Residue Burning Events Detected

Date	Punjab				Haryana				Uttar Pradesh			
	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
15-Sep	5	0	14	0	2	0	0	1	1	0	0	0
16-Sep	0	2	0	6	1	0	0	1	0	0	0	2
17-Sep	5	0	1	0	3	0	0	0	0	0	0	0
18-Sep	17	9	7	0	0	0	1	0	0	1	0	0
19-Sep	30	5	18	0	2	0	0	1	0	1	0	0
20-Sep	67	8	10	0	6	0	0	2	2	0	0	0
21-Sep	54	0	56	1	2	0	0	2	1	0	0	1
22-Sep	34	0	30	0	1	0	0	2	1	0	0	0
23-Sep	49	0	3	1	0	0	0	3	1	0	0	0
24-Sep	78	5	0	0	0	0	0	0	1	1	0	1
25-Sep	184	11	0	0	11	0	0	1	5	0	0	1
26-Sep	190	19	0	3	5	0	0	2	8	0	0	0
27-Sep	78	37	0	21	8	0	0	9	4	1	0	0
28-Sep	55	28	0	33	6	1	0	8	1	6	0	4
29-Sep	63	64	0	68	9	4	0	17	6	10	0	6
30-Sep	116	27	8	81	22	2	0	26	13	13	10	18
01-Oct	165	13	45	123	15	4	1	21	7	13	3	17
02-Oct	141	0	83	119	30	2	7	24	12	0	36	7
03-Oct	110	9	75	105	8	6	8	17	4	3	29	8
04-Oct	162	23	65	95	29	2	7	29	8	0	2	9
05-Oct	161	18	130	98	17	3	24	24	14	2	0	14
06-Oct	171	42	85	91	30	0	26	19	12	1	0	18
07-Oct	197	72	62	32	32	11	6	13	41	13	0	5
08-Oct	95	108	19	92	29	27	0	55	25	11	0	27
09-Oct	121	114	3	58	20	39	1	14	15	20	0	13
10-Oct	232	150	4	10	33	95	2	28	9	54	0	34
11-Oct	377	64	45	26	90	51	0	21	23	28	0	50

Total	2957	828	763	1063	411	247	83	340	214	178	80	235
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Number of Paddy Residue Burning Events Detected

Date	Delhi				Rajasthan				Madhya Pradesh			
	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
15-Sep	0	0	0	0	1	0	0	0	2	0	0	0
16-Sep	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
18-Sep	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	1
20-Sep	0	0	0	0	0	0	0	0	0	0	0	1
21-Sep	0	0	0	0	1	0	1	0	2	0	0	0
22-Sep	0	0	0	0	0	0	0	0	0	0	0	0
23-Sep	0	0	0	0	1	0	0	0	0	0	0	0
24-Sep	0	0	0	0	0	0	0	0	0	0	0	0
25-Sep	0	0	0	0	1	0	0	0	0	0	0	1
26-Sep	0	0	0	1	1	0	0	0	2	0	0	0
27-Sep	0	0	0	0	0	0	0	0	1	0	0	0
28-Sep	0	0	0	0	0	0	0	0	1	1	0	2
29-Sep	0	0	0	0	3	0	0	6	0	4	0	5
30-Sep	1	0	0	0	1	0	0	4	5	0	0	11
01-Oct	0	0	0	0	4	1	1	4	13	0	1	8
02-Oct	1	0	0	0	7	0	3	4	12	0	1	1
03-Oct	0	0	0	0	9	0	2	5	5	1	5	5
04-Oct	0	0	0	0	15	0	0	22	4	2	0	12
05-Oct	0	0	2	0	14	0	1	11	13	1	0	18
06-Oct	1	0	0	0	16	0	0	9	37	1	0	7
07-Oct	0	0	0	0	14	1	1	7	31	1	0	9
08-Oct	0	0	0	0	11	0	0	9	17	2	0	18
09-Oct	0	0	0	0	12	0	0	17	15	4	0	24
10-Oct	0	0	0	0	14	1	0	26	18	10	0	52
11-Oct	0	0	0	1	21	7	1	21	32	2	0	24
Total	3	0	2	2	146	10	10	145	210	29	7	199

Details of residue burning events in Punjab on 11-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.88865	74.66840	13:10:25	D	3.70
2	AMRITSAR	JANDIALA GURU	AQUA	31.53000	75.10700	14:20:25	D	16.10
3	AMRITSAR	JANDIALA GURU	AQUA	31.59800	75.01500	14:20:25	D	9.70
4	AMRITSAR	MAJITHA	S-NPP	31.76852	74.98523	13:10:25	D	3.20
5	FATEHGARH SAHIB	KHERA	S-NPP	30.57285	76.54739	13:10:25	D	1.70
6	FIROZPUR	GURUHAR SAHAI	S-NPP	30.67640	74.37087	13:10:25	D	5.50
7	FIROZPUR	MAMDOT	S-NPP	30.80207	74.41004	13:10:25	D	7.30
8	FIROZPUR	MAMDOT	S-NPP	30.92887	74.45277	13:10:25	D	4.50
9	MANSA	SARDULGARH	S-NPP	29.67001	75.19826	13:10:25	D	4.00
10	MANSA	SARDULGARH	S-NPP	29.82557	75.24613	13:10:25	D	4.50
11	PATIALA	PATRAN	S-NPP	29.98810	76.12717	13:10:25	D	2.90
12	PATIALA	RAJPURA	S-NPP	30.57887	76.62134	13:10:25	D	3.20
13	PATIALA	SAMANA	S-NPP	30.03075	76.16991	13:10:25	D	3.70
14	PATIALA	SHAMBU KALAN	S-NPP	30.43554	76.64115	13:10:25	D	2.80
15	PATIALA	SHAMBU KALAN	S-NPP	30.45120	76.49816	13:10:25	D	8.00
16	SANGRUR	ANDANA	S-NPP	29.80078	75.98160	13:10:25	D	5.60
17	SANGRUR	BHAWANIGARH	S-NPP	30.23280	76.01668	13:10:25	D	6.00
18	SANGRUR	BHAWANIGARH	S-NPP	30.30562	76.13730	13:10:25	D	4.10
19	SANGRUR	DIRBA	S-NPP	29.97689	75.94111	13:10:25	D	2.80
20	SANGRUR	DIRBA	S-NPP	30.10040	75.95503	13:10:25	D	5.10
21	SANGRUR	LEHRA GAGA	S-NPP	29.92203	75.87807	13:10:25	D	3.50
22	SANGRUR	LEHRA GAGA	S-NPP	29.93525	75.88579	13:10:25	D	4.00
23	SANGRUR	SANGRUR	S-NPP	30.17040	75.64836	13:10:25	D	3.80
24	TARN TARAN	TARN TARAN	S-NPP	31.43722	74.86805	13:10:25	D	3.30
25	TARN TARAN	TARN TARAN	S-NPP	31.44720	75.00053	13:10:25	D	2.10
26	TARN TARAN	VALTOHA	S-NPP	31.13458	74.58446	13:10:25	D	4.40

Details of residue burning events in Haryana on 11-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	FARIDABAD	FARIDABAD	S-NPP	28.45391	77.38898	13:10:25	D	2.80
2	FATEHABAD	BHUNA	S-NPP	29.47018	75.65206	13:10:25	D	3.40
3	FATEHABAD	BHUNA	S-NPP	29.61061	75.73460	13:10:25	D	2.70
4	FATEHABAD	RATIA	S-NPP	29.63477	75.47475	13:10:25	D	2.50
5	FATEHABAD	RATIA	S-NPP	29.68541	75.50832	13:10:25	D	3.80
6	FATEHABAD	TOHANA	S-NPP	29.62312	75.84348	13:10:25	D	11.00
7	FATEHABAD	TOHANA	S-NPP	29.66797	75.91850	13:10:25	D	4.00
8	JIND	ALEWA	S-NPP	29.54115	76.34169	13:10:25	D	4.20
9	JIND	NARWANA	S-NPP	29.48298	76.01218	13:10:25	D	9.10
10	JIND	NARWANA	S-NPP	29.67797	75.97091	13:10:25	D	16.30
11	JIND	SAFIDON	S-NPP	29.45941	76.66783	13:10:25	D	4.90
12	JIND	UCHANA	S-NPP	29.55341	76.17921	13:10:25	D	4.10
13	KAITHAL	KAITHAL	S-NPP	29.82023	76.35853	13:10:25	D	4.00
14	KARNAL	ASSANDH	S-NPP	29.60432	76.76430	13:10:25	D	3.50
15	PALWAL	HASSANPUR	S-NPP	27.96906	77.47557	13:10:25	D	3.40
16	PALWAL	HODAL	S-NPP	27.88172	77.44672	13:10:25	D	2.60
17	PALWAL	PRITHLA	S-NPP	28.23396	77.35719	13:10:25	D	2.90
18	SONIPAT	KHARKHODA	S-NPP	28.96446	76.90539	13:10:25	D	2.30
19	SONIPAT	RAI	S-NPP	28.84163	77.14909	02:00:26	N	0.50
20	SONIPAT	SONIPAT	S-NPP	29.03717	76.99563	13:10:25	D	2.80
21	YAMUNANAGAR	BILASPUR	S-NPP	30.36386	77.30355	13:10:25	D	3.60

Details of residue burning events in Uttar Pradesh on 11-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	ALIGARH	KOL	S-NPP	27.81116	78.15183	13:10:25	D	3.10
2	AMETHI	MUSAFIRKHANA	S-NPP	26.42709	81.64597	13:10:25	D	2.00
3	BADAUN	BISAU LI	S-NPP	28.44489	78.83923	13:10:25	D	1.80
4	BAGHPAT	BAGHPAT	S-NPP	28.87067	77.19854	13:10:25	D	2.50
5	BARABANKI	FATEHPUR	S-NPP	27.10875	81.27430	13:10:25	D	2.20
6	BARABANKI	FATEHPUR	S-NPP	27.17814	81.26113	13:10:25	D	3.90
7	BARABANKI	FATEHPUR	S-NPP	27.18086	81.25665	13:10:25	D	3.00
8	BARABANKI	FATEHPUR	S-NPP	27.20967	81.22727	13:10:25	D	2.90
9	BARABANKI	SIRAULI GAUSPUR	S-NPP	26.89611	81.48023	13:10:25	D	1.70
10	BAREILLY	BAHERI	S-NPP	28.84396	79.43351	13:10:25	D	3.90
11	BIJNOR	CHANDPUR	S-NPP	29.05803	78.37601	13:10:25	D	2.70
12	BIJNOR	NAGINA	S-NPP	29.41006	78.52925	13:10:25	D	4.50
13	BIJNOR	NAGINA	S-NPP	29.41077	78.53346	13:10:25	D	3.90
14	BIJNOR	NAGINA	S-NPP	29.42634	78.52132	13:10:25	D	4.10
15	BULANSAHAR	SIYANA	S-NPP	28.69109	77.99522	13:10:25	D	1.50
16	ETAH	ETAH	S-NPP	27.40144	78.70113	13:10:25	D	2.40
17	ETAWAH	BHARTHNA	S-NPP	26.61687	79.24904	13:10:25	D	2.40
18	ETAWAH	BHARTHNA	S-NPP	26.93900	79.26965	13:10:25	D	3.00
19	ETAWAH	ETAWAH	S-NPP	26.85746	79.12006	13:10:25	D	4.80
20	FIROZABAD	JASRANA	S-NPP	27.26201	78.60629	13:10:25	D	1.80
21	GHAZIABAD	MODINAGAR	S-NPP	28.76817	77.59699	02:00:26	N	1.20
22	HARDOI	SHAHABAD	S-NPP	27.61801	80.08277	13:10:25	D	2.40
23	KANPUR	GHATAMPUR	S-NPP	26.19130	80.43461	13:10:25	D	2.90
24	KANPUR	GHATAMPUR	S-NPP	26.26073	80.10578	13:10:25	D	1.30
25	KANPUR DEHAT	BHOGANIPUR	S-NPP	26.32504	79.79429	13:10:25	D	1.90
26	KASGANJ	KASGANJ	S-NPP	27.73321	78.77776	13:10:25	D	3.90
27	KAUSHAMBI	MANJHANPUR	S-NPP	25.42199	81.29046	13:10:25	D	2.10
28	KAUSHAMBI	SIRATHU	S-NPP	25.62516	81.26851	13:10:25	D	2.30
29	KAUSHAMBI	SIRATHU	S-NPP	25.76299	81.32886	13:10:25	D	2.30
30	KHERI	GOLA	S-NPP	27.94921	80.51069	13:10:25	D	1.90
31	KHERI	MOHMADI	S-NPP	27.76821	80.56556	13:10:25	D	2.20

32	MAINPURI	BHOGAON	S-NPP	27.13893	79.18661	13:10:25	D	2.20
33	MATHURA	CHHATA	S-NPP	27.63683	77.50581	13:10:25	D	2.30
34	MATHURA	CHHATA	S-NPP	27.80364	77.47165	13:10:25	D	3.50
35	MATHURA	CHHATA	S-NPP	27.86499	77.50152	13:10:25	D	5.80
36	MATHURA	MAT	S-NPP	27.91509	77.56993	13:10:25	D	2.70
37	MATHURA	MAT	S-NPP	27.96035	77.63645	13:10:25	D	2.70
38	MATHURA	MATHURA	S-NPP	27.31670	77.64916	13:10:25	D	2.30
39	MATHURA	MATHURA	S-NPP	27.36386	77.63636	13:10:25	D	2.60
40	MATHURA	MATHURA	S-NPP	27.45684	77.54930	13:10:25	D	12.80
41	PILHIBHIT	BISALPUR	S-NPP	28.17105	79.95634	13:10:25	D	2.90
42	PILHIBHIT	BISALPUR	S-NPP	28.20533	79.94159	13:10:25	D	1.40
43	PILHIBHIT	PILHIBHIT	S-NPP	28.77075	79.82554	02:00:26	N	1.00
44	PILHIBHIT	PURANPUR	S-NPP	28.47725	80.07105	13:10:25	D	1.20
45	RAMPUR	BILASPUR	S-NPP	28.81358	79.33730	02:00:26	N	0.30
46	RAMPUR	BILASPUR	S-NPP	28.83076	79.21894	13:10:25	D	1.90
47	RAMPUR	BILASPUR	S-NPP	28.83412	79.21823	13:10:25	D	1.90
48	RAMPUR	BILASPUR	S-NPP	28.90729	79.19854	13:10:25	D	2.80
49	RAMPUR	BILASPUR	S-NPP	28.91679	79.40606	13:10:25	D	1.90
50	RAMPUR	MILAK	S-NPP	28.62336	79.14351	02:00:26	N	0.60

Details of residue burning events in Delhi on 11-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	NORTH	NARELA	S-NPP	28.80127	77.02189	13:10:25	D	4.30

Details of residue burning events in Rajasthan on 11-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BARAN	ANTA	S-NPP	25.04220	76.28435	13:10:25	D	6.00
2	BARAN	ANTA	S-NPP	25.11621	76.23512	13:10:25	D	2.60
3	BARAN	ANTA	S-NPP	25.12855	76.25636	13:10:25	D	1.70
4	BARAN	ANTA	S-NPP	25.12947	76.25616	13:10:25	D	2.10
5	BARAN	ANTA	S-NPP	25.17256	76.34989	13:10:25	D	0.60
6	BARAN	ATRU	S-NPP	24.90006	76.67989	13:10:25	D	3.50
7	BARAN	CHHABRA	AQUA	24.61700	76.87700	14:20:25	D	16.10
8	BARAN	KISHANGUNJ	S-NPP	24.90033	76.91465	13:10:25	D	2.60
9	BARAN	SHAHBAD	S-NPP	25.21515	77.02401	13:10:25	D	4.90
10	BUNDI	KESHORAIPATAN	S-NPP	25.39347	75.86878	13:10:25	D	4.20
11	GANGANAGAR	GANGANAGAR	S-NPP	29.97274	73.71694	13:10:25	D	2.20
12	HANUMANGARH	HANUMANGARH	AQUA	29.66200	74.32600	14:20:25	D	11.40
13	HANUMANGARH	HANUMANGARH	AQUA	29.66400	74.33900	14:20:25	D	13.40
14	HANUMANGARH	TIBI	S-NPP	29.64894	74.47417	13:10:25	D	2.80
15	KOTA	DIGOD	S-NPP	25.14909	76.09805	13:10:25	D	3.60
16	KOTA	DIGOD	S-NPP	25.27908	76.07706	13:10:25	D	4.90
17	KOTA	DIGOD	S-NPP	25.35959	76.18797	13:10:25	D	3.80
18	KOTA	LADPURA	S-NPP	25.08001	76.04403	13:10:25	D	1.90
19	KOTA	LADPURA	S-NPP	25.13661	75.98966	13:10:25	D	4.00
20	KOTA	PIPALDA	S-NPP	25.45606	76.43315	13:10:25	D	6.00
21	KOTA	SANGOD	AQUA	24.87600	76.15600	14:20:25	D	15.00

Details of residue burning events in Madhya Pradesh on 11-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	ASHOKNAGAR	CHANDERI	S-NPP	24.70477	78.07178	13:10:25	D	12.60
2	BHOPAL	HUZUR	S-NPP	23.13105	77.26996	13:10:25	D	4.80
3	CHHATARPUR	RAJNAGAR	S-NPP	24.78874	79.95292	13:10:25	D	2.50
4	CHHINDWARA	CHAURAI	S-NPP	21.92216	79.14191	13:10:25	D	3.40
5	DAMOH	PATHARIA	S-NPP	23.92317	79.19287	13:10:25	D	6.80
6	DATIA	BHANDER	S-NPP	25.85462	78.81049	13:10:25	D	2.50
7	DATIA	DATIA	S-NPP	25.80639	78.38504	13:10:25	D	4.20
8	DATIA	SEONDHA	S-NPP	25.90018	78.53156	13:10:25	D	7.10
9	DATIA	SEONDHA	S-NPP	26.10864	78.83452	13:10:25	D	3.40
10	DEWAS	BAGLI	S-NPP	22.88785	76.31084	13:10:25	D	1.90
11	DHAR	MANAWAR	S-NPP	22.26499	75.13274	02:00:26	N	1.70
12	GUNA	GUNA	S-NPP	24.68650	77.08804	13:10:25	D	6.30
13	GUNA	GUNA	S-NPP	24.83159	76.98158	13:10:25	D	8.20
14	GUNA	GUNA	S-NPP	24.83215	76.97992	13:10:25	D	6.60
15	GUNA	GUNA	S-NPP	24.83315	76.98521	13:10:25	D	6.60
16	GUNA	GUNA	S-NPP	25.01791	76.94138	13:10:25	D	3.80
17	GUNA	RAGHOGARH	S-NPP	24.04382	77.23326	13:10:25	D	4.80
18	HOSHANGABAD	HOSHANGABAD	S-NPP	22.57491	77.62006	13:10:25	D	4.50
19	INDORE	INDORE	S-NPP	22.75715	75.99312	13:10:25	D	3.70
20	JABALPUR	SAHPURA	S-NPP	23.12902	79.65910	13:10:25	D	3.50
21	JABALPUR	SAHPURA	S-NPP	23.13012	79.65965	13:10:25	D	3.90
22	MORENA	JORA	S-NPP	26.36697	77.57045	13:10:25	D	2.10
23	MORENA	KAILARAS	S-NPP	26.28567	77.51185	13:10:25	D	6.80
24	SAGAR	DEVRI	S-NPP	23.53438	79.08013	13:10:25	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 / 750	Both
2.	Terra	MODIS	1000	Both
3.	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 (ISRO)**

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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)
