



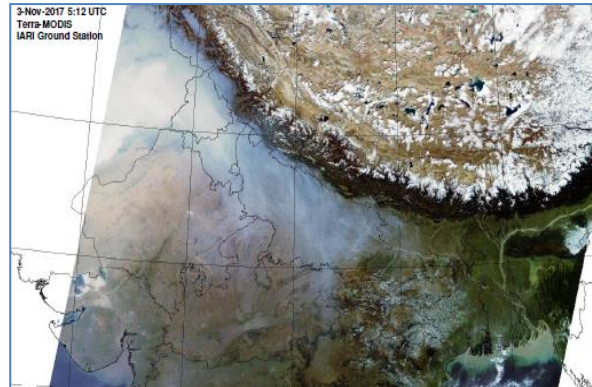
Bulletin No. 41

Events Date:
25-Oct-2021

Issued on:
25-Oct-2021



MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2021



Prepared by:

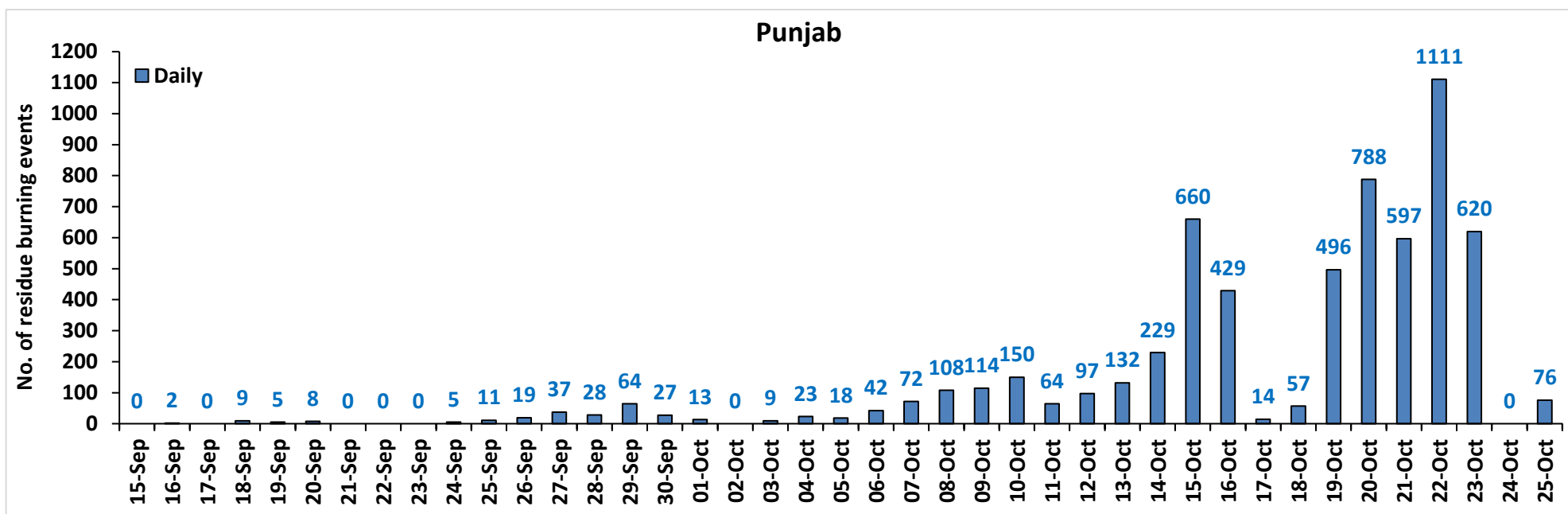
Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012

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

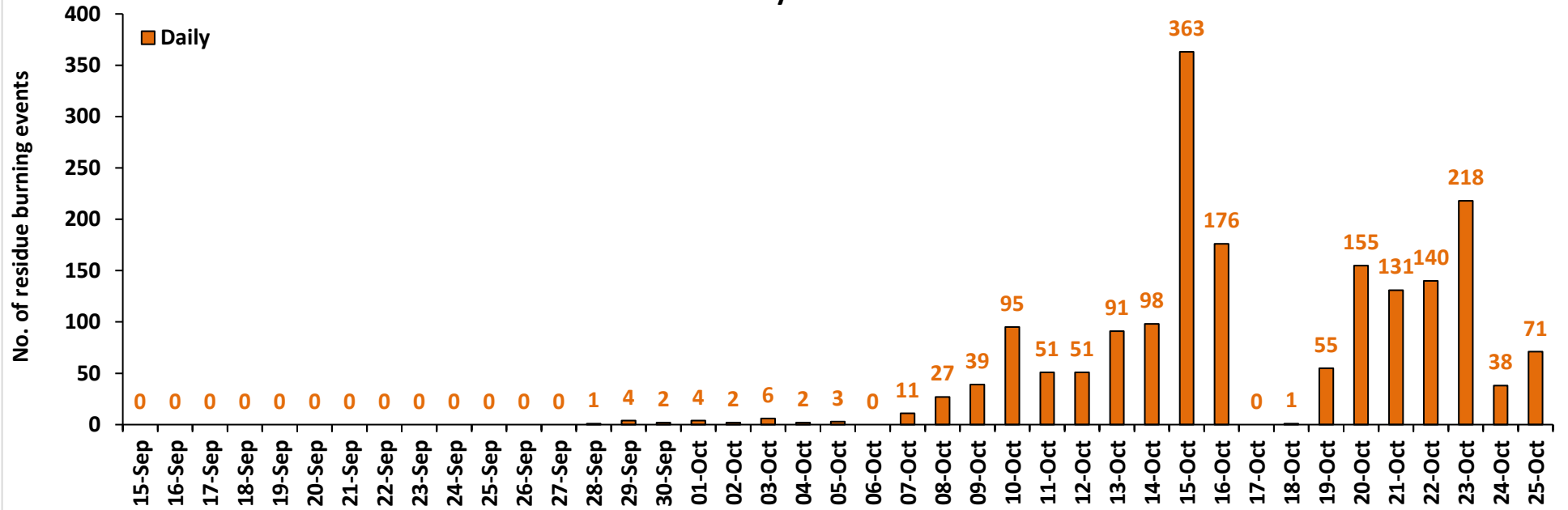
Highlights for 25-October-2021

- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the new "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **227** residue burning events in the six study States on 25-Oct-2021.
- The state wise events detected on 25-Oct-2021 were **76** in Punjab, **71** in Haryana, **18** in UP, **0** in Delhi, **2** in Rajasthan and **60** in MP.
- Detection of burning events by satellites was hampered due to scattered clouds over Madhya Pradesh.
- The number of events has increased from **87** on 24-Oct-2021 to **227** on 25-Oct-2021 in the six study states.
- Total **8989** burning events were detected in the six states between 15-Sept-2021 and 25-Oct-2021, which are distributed as **6134**, **1835**, **671**, **0**, **58** and **291** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.
- Overall, the total burning events recorded in the six states are **50.6%** less than in 2020 till date. Punjab recorded **62.2%** reduction, Haryana recorded **3.6%** increase, UP recorded **14.93%** reduction, Delhi recorded **100%** reduction, Rajasthan recorded **87.2%** reduction and MP recorded **78.0%** reduction, in the current season than in 2020.

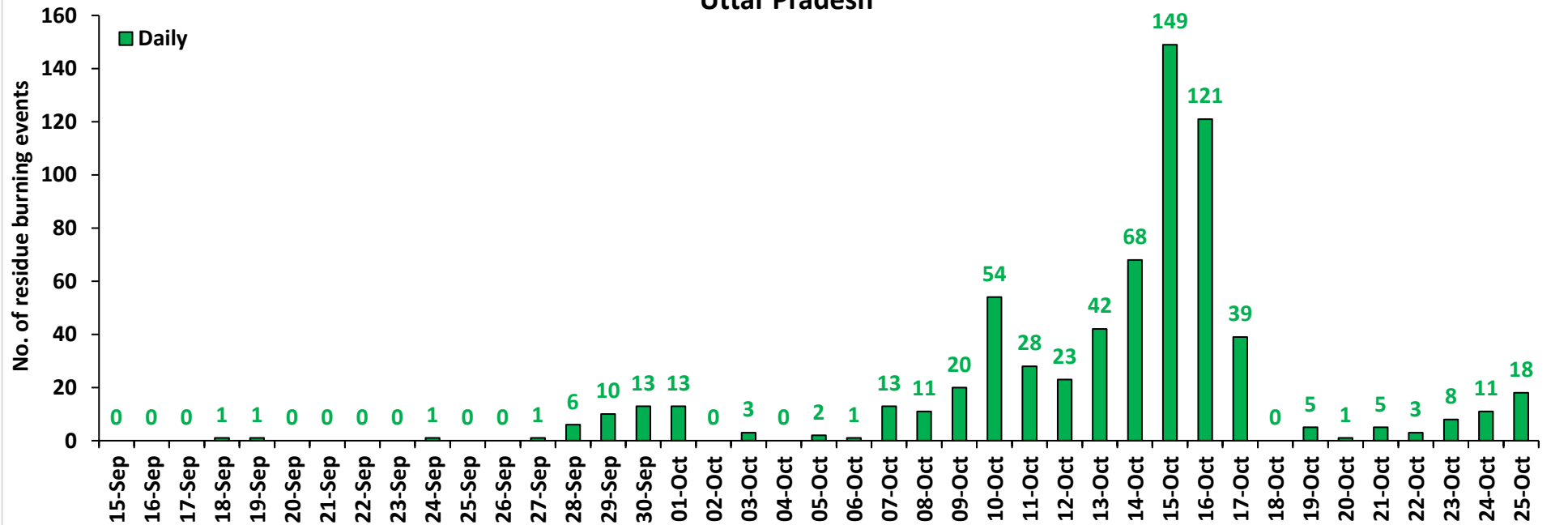
Temporal distribution of rice residue burning events for the study States in 2021



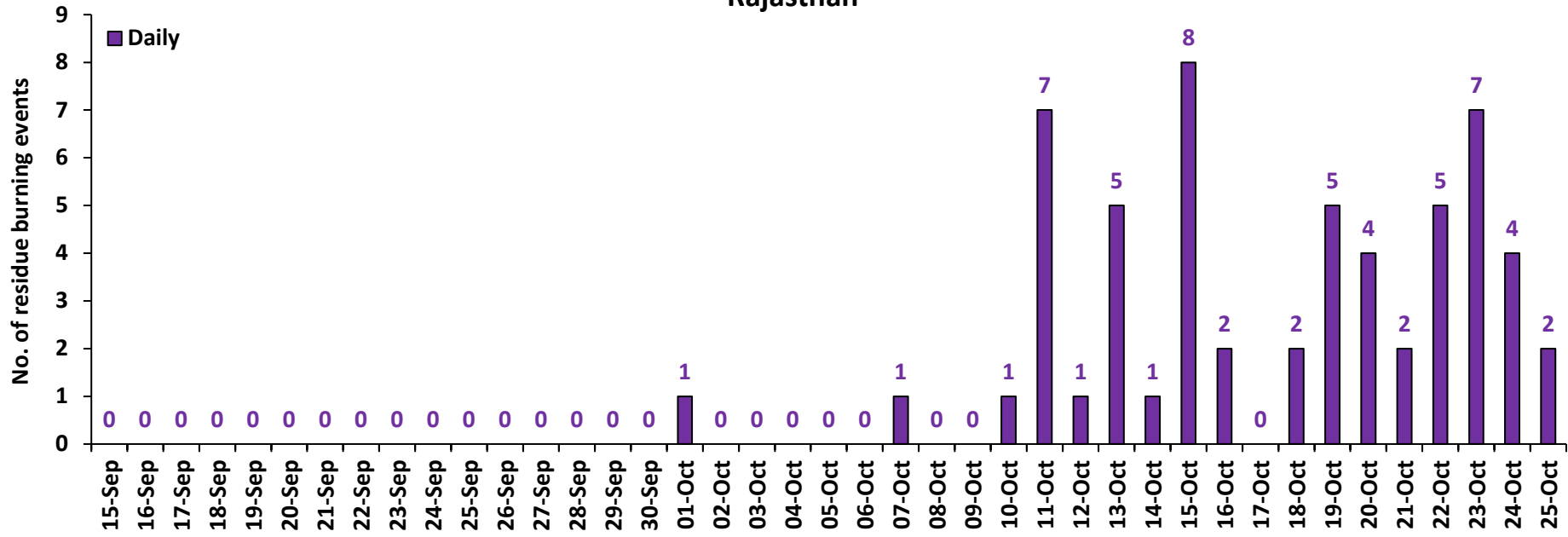
Haryana



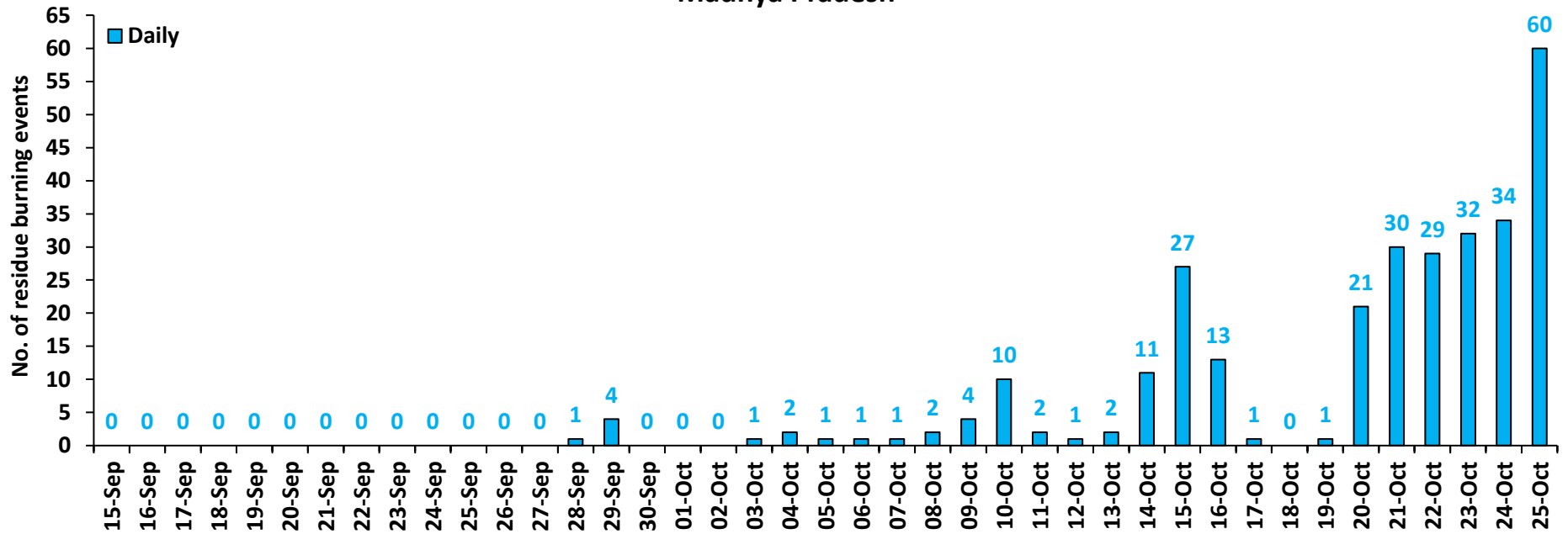
Uttar Pradesh



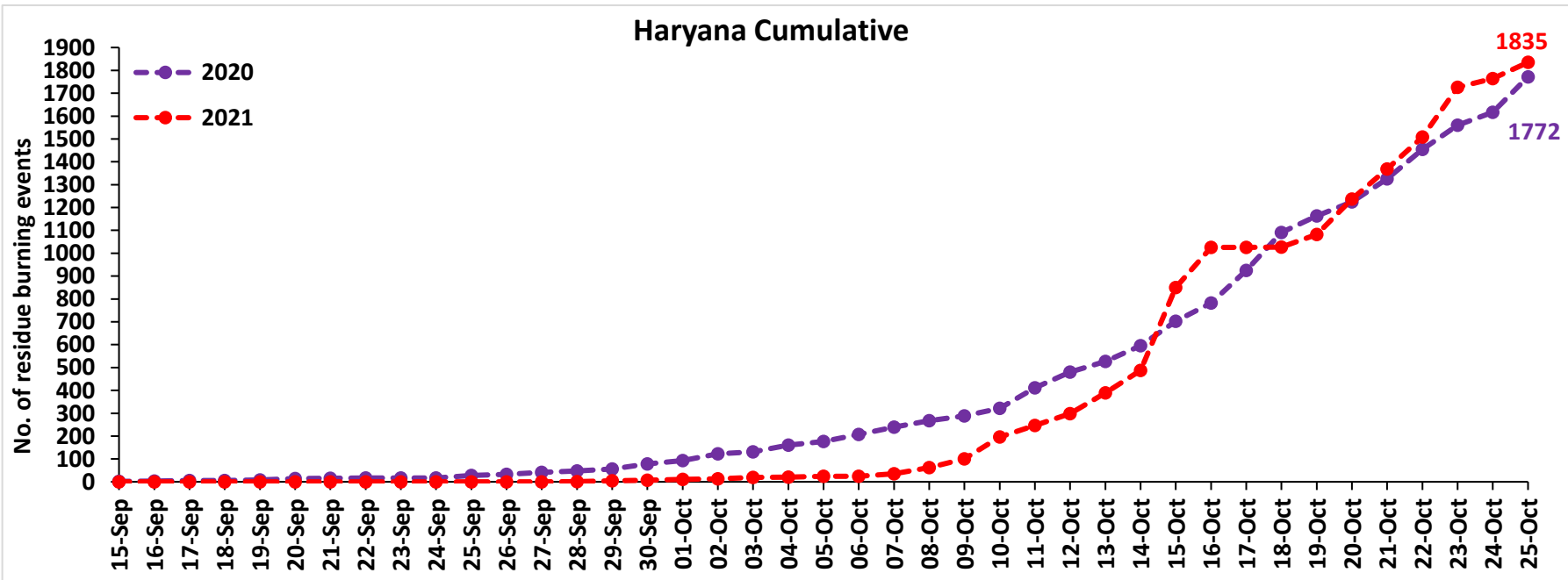
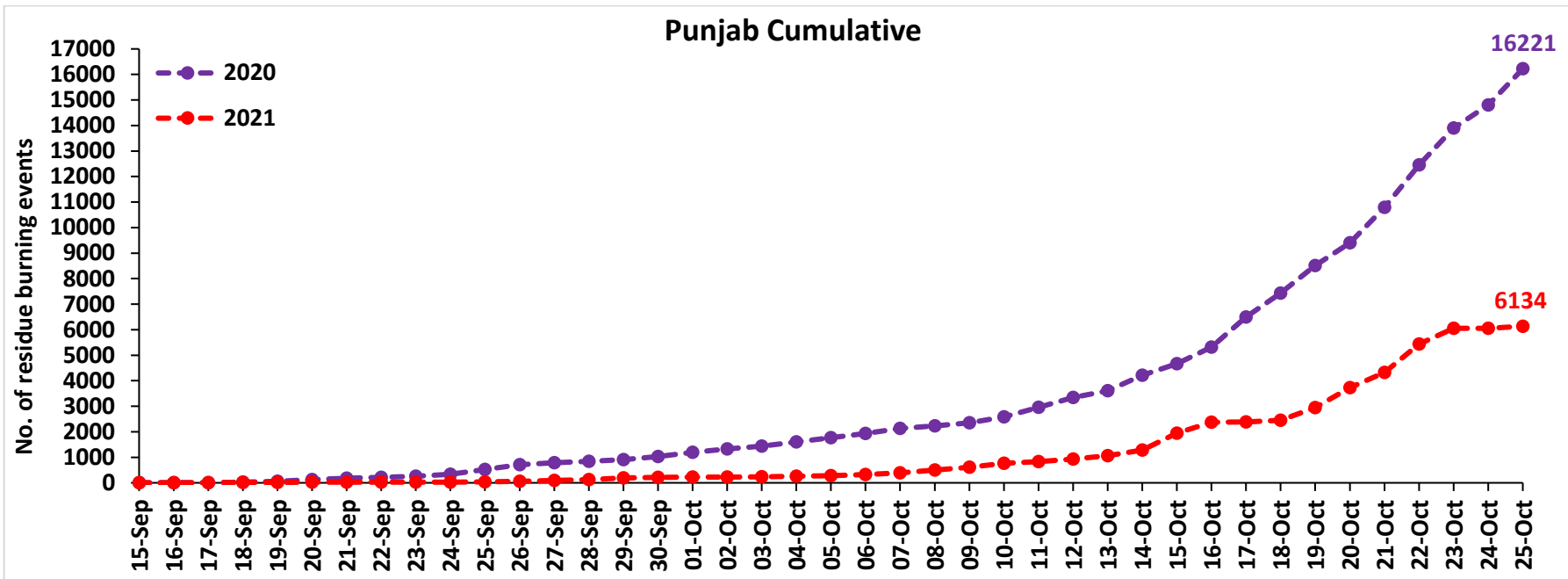
Rajasthan

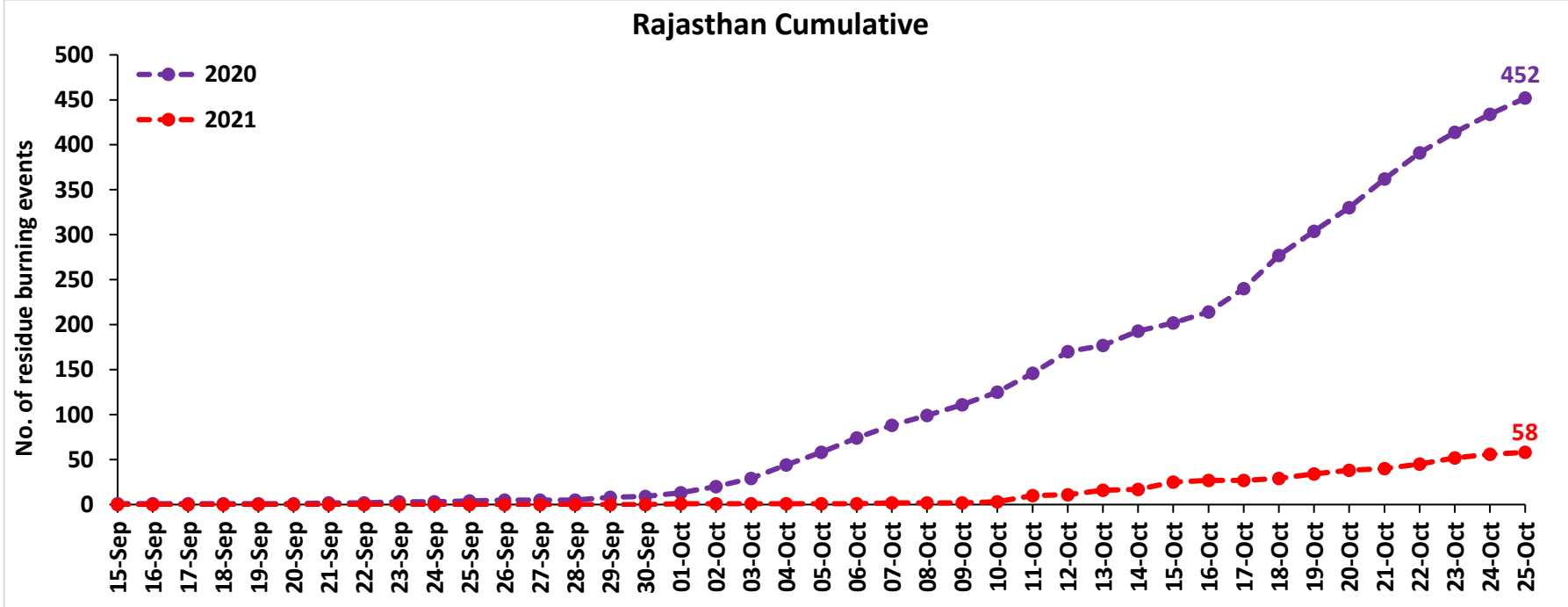
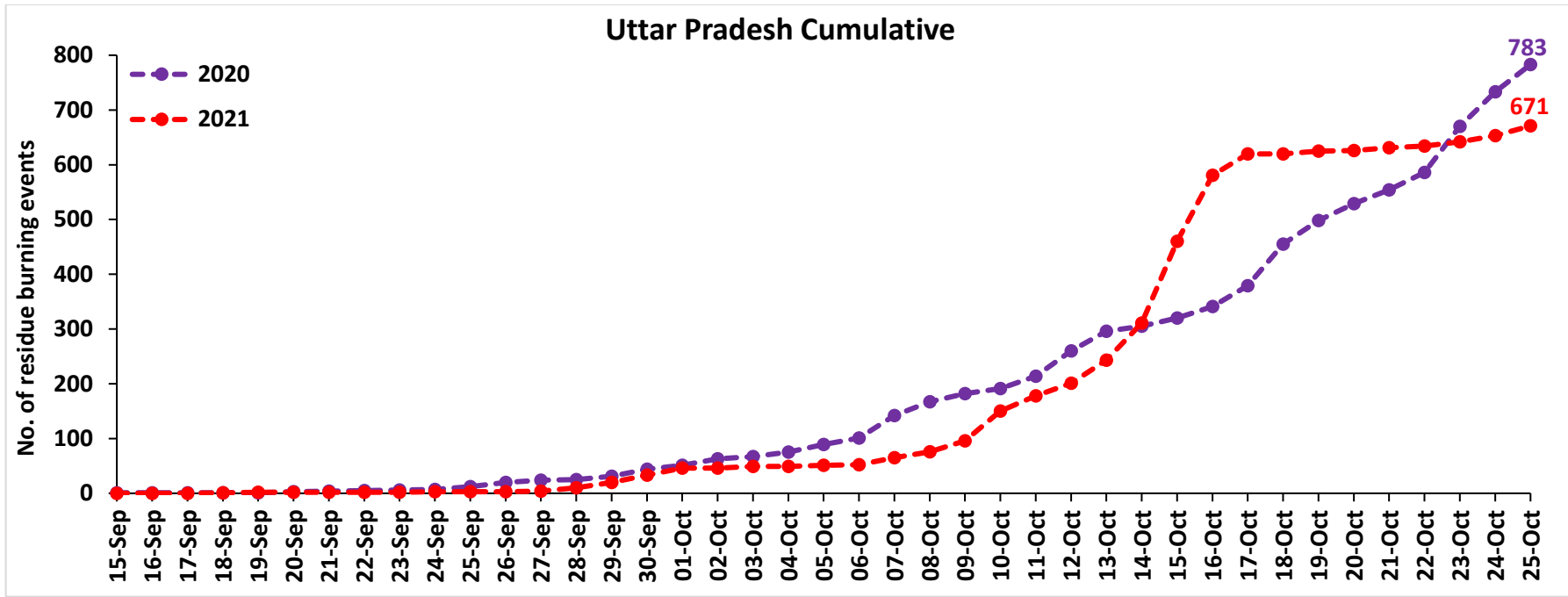


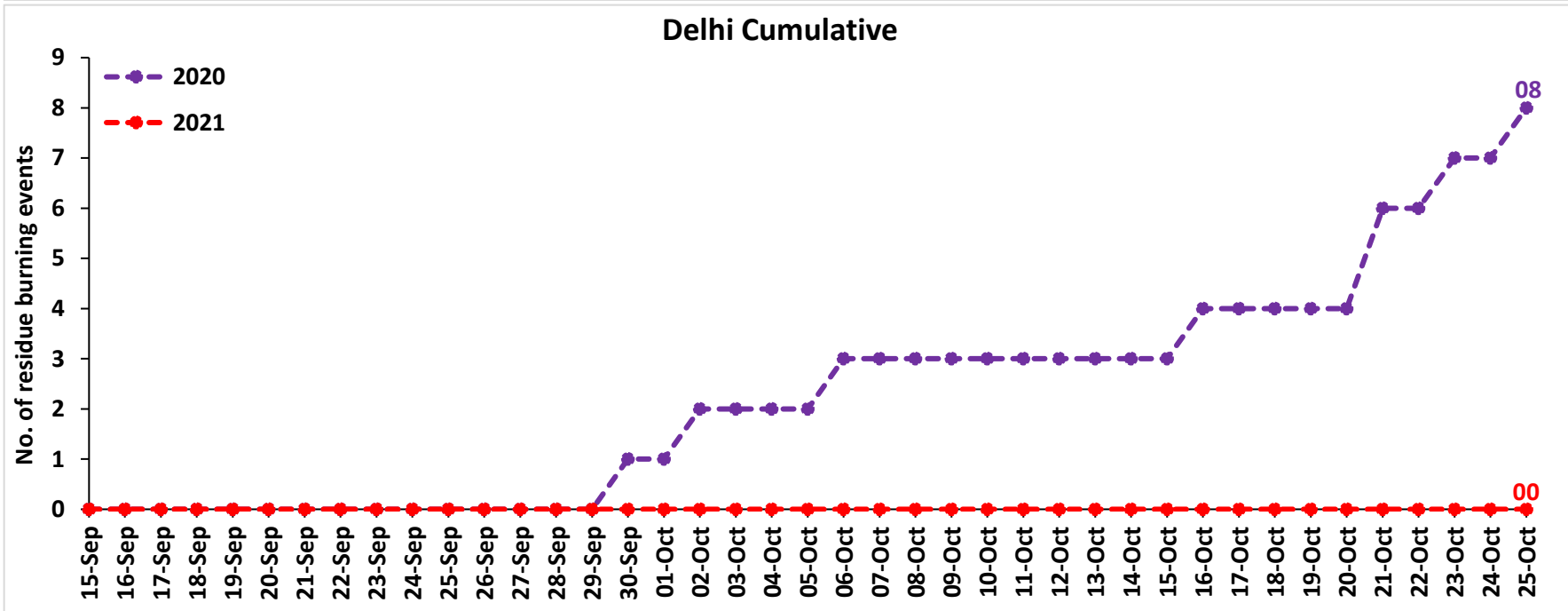
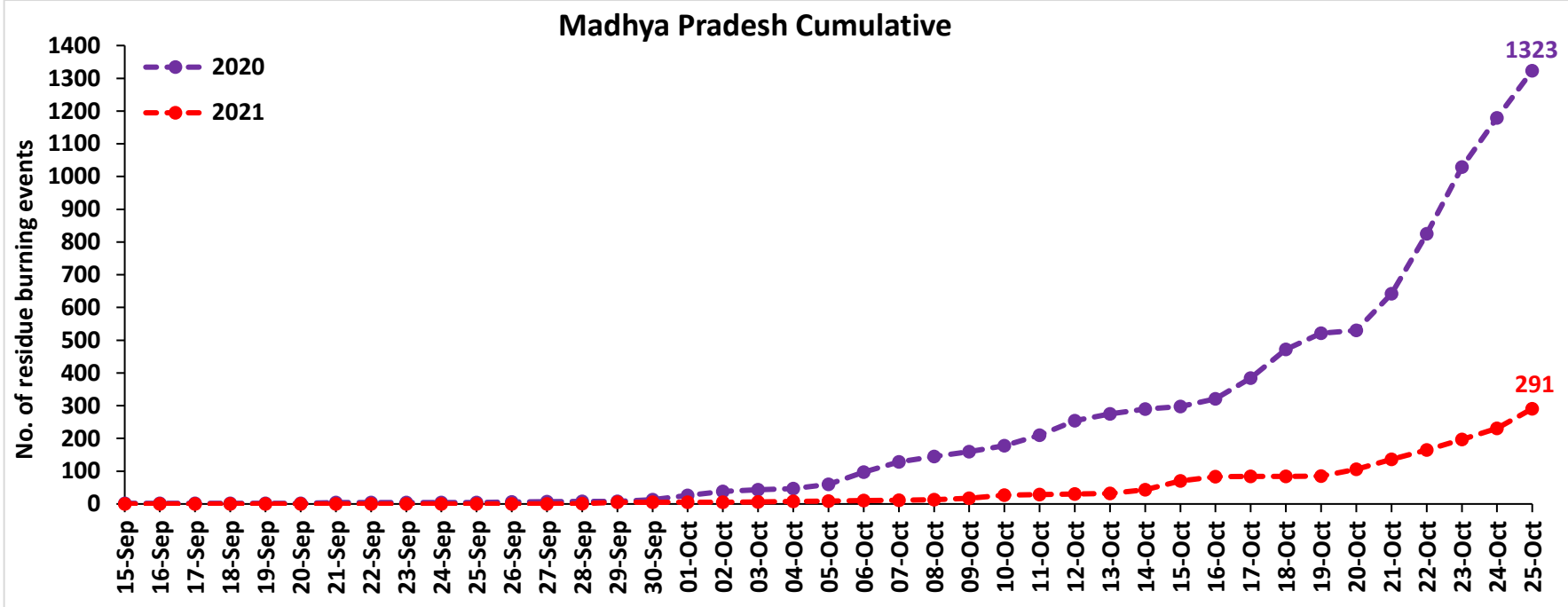
Madhya Pradesh



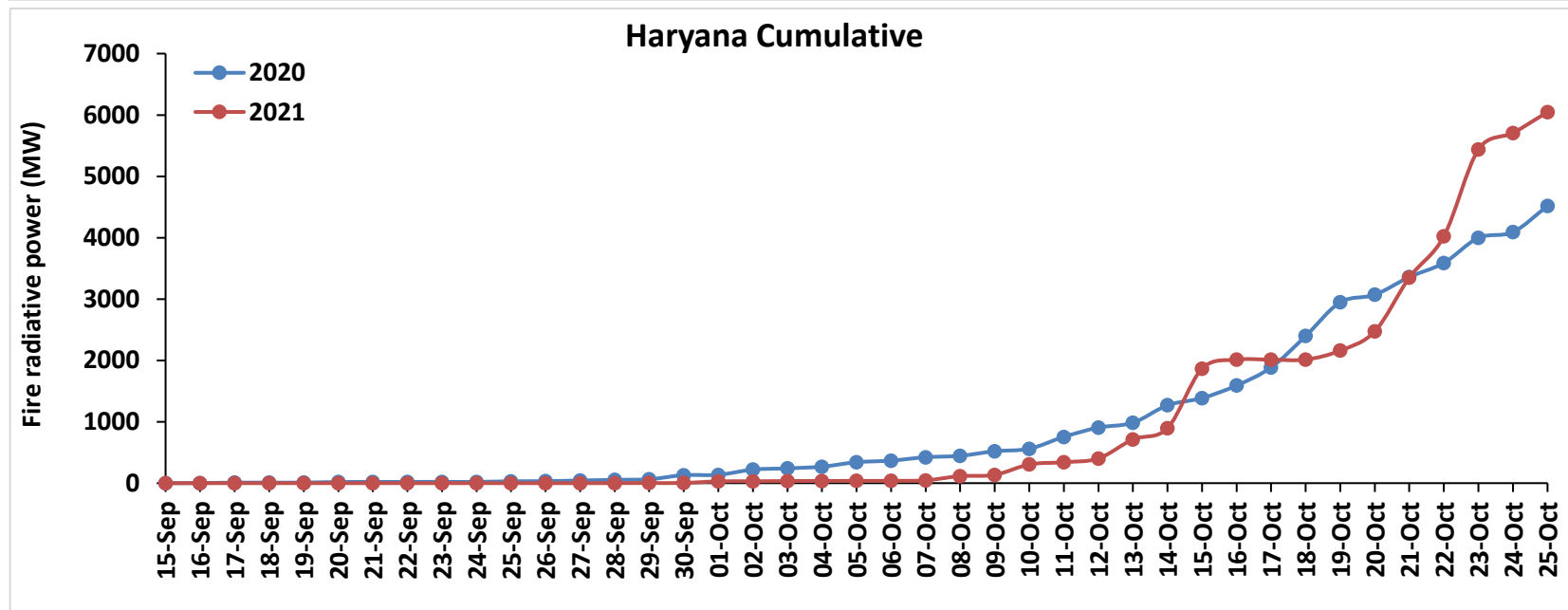
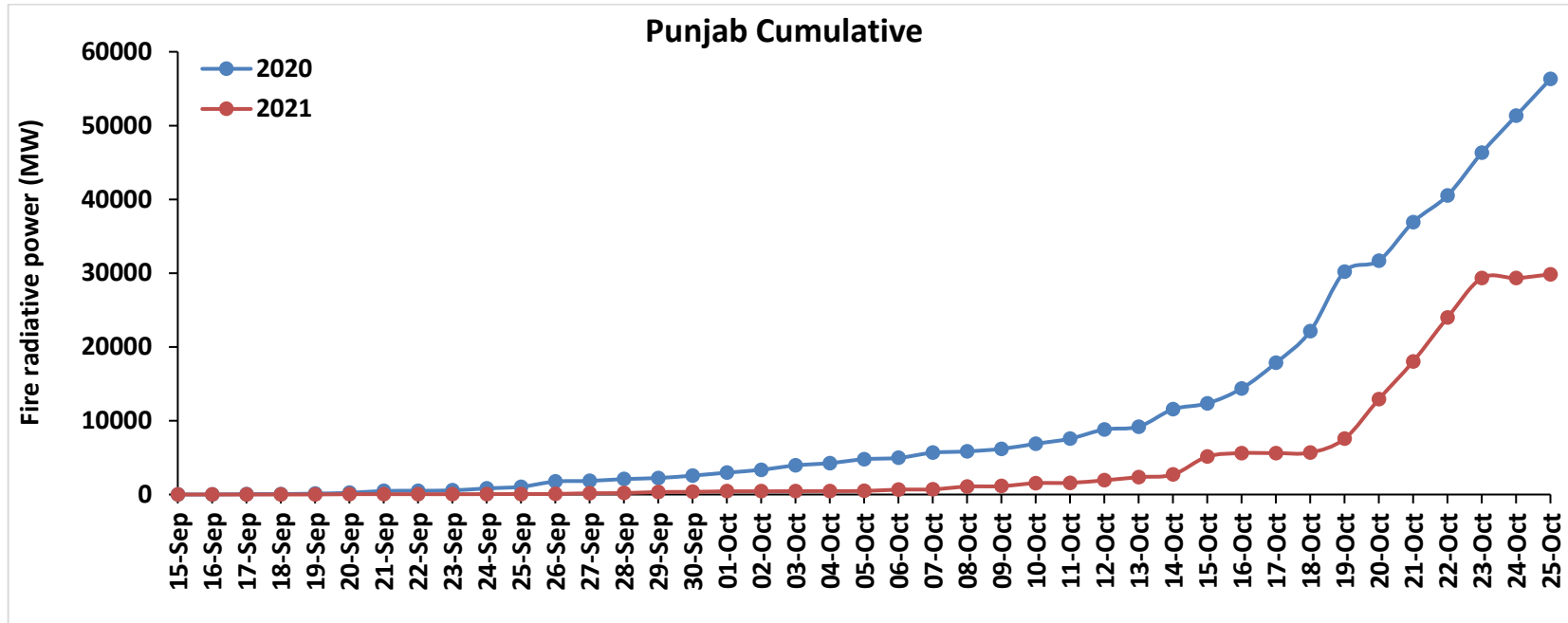
Comparison of residue burning events in current year (2021) with previous year (2020) for the study States

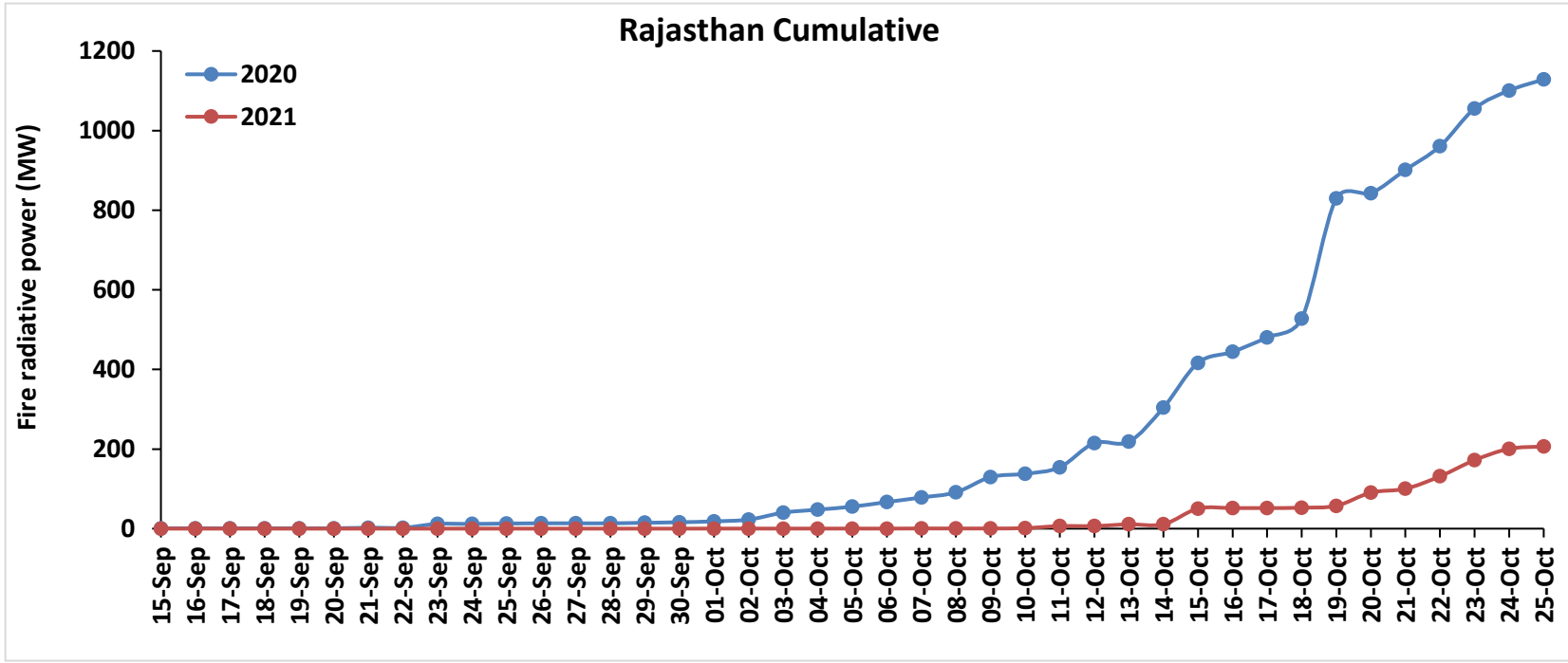
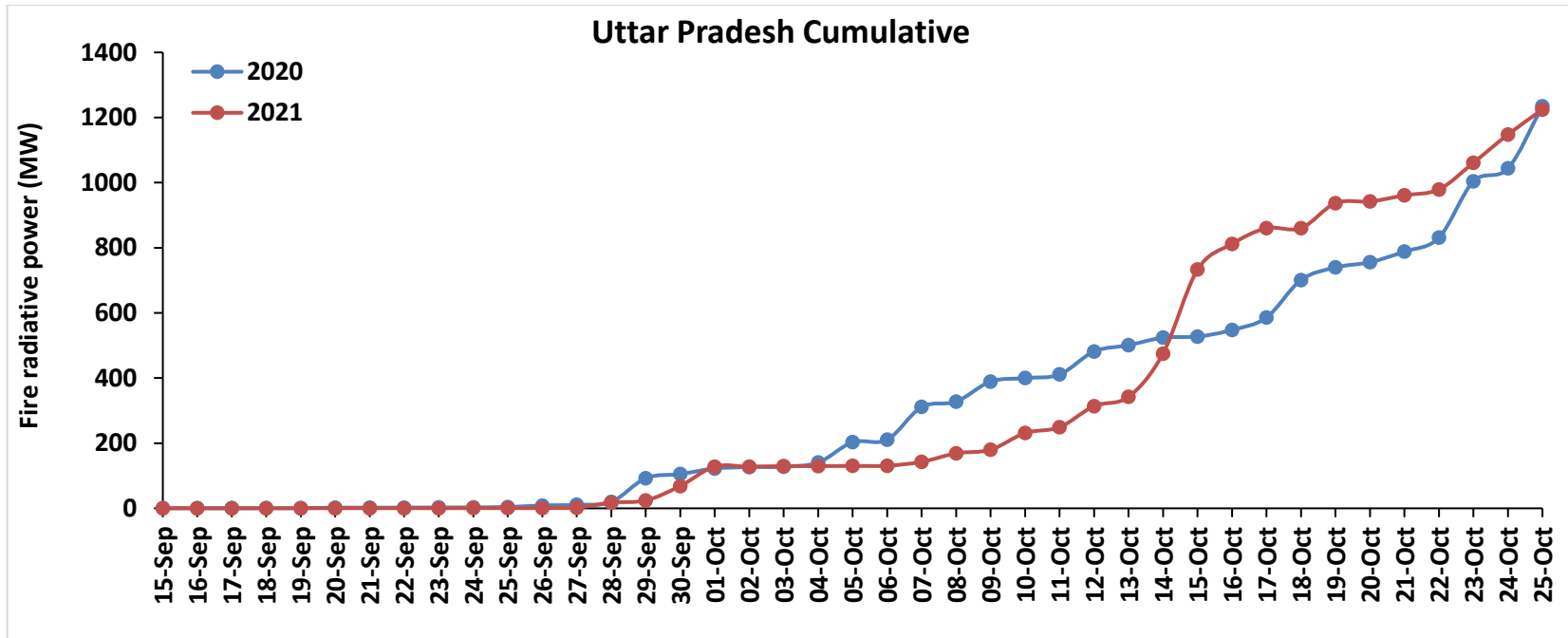


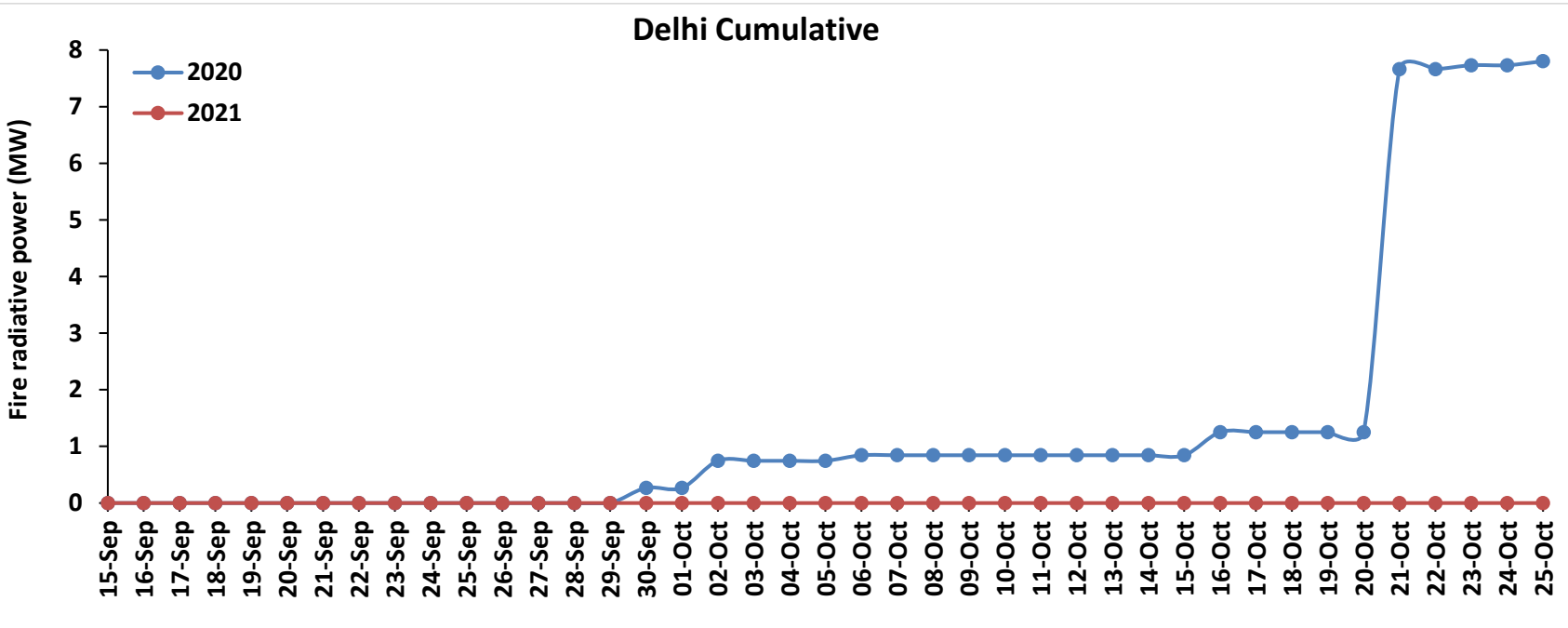
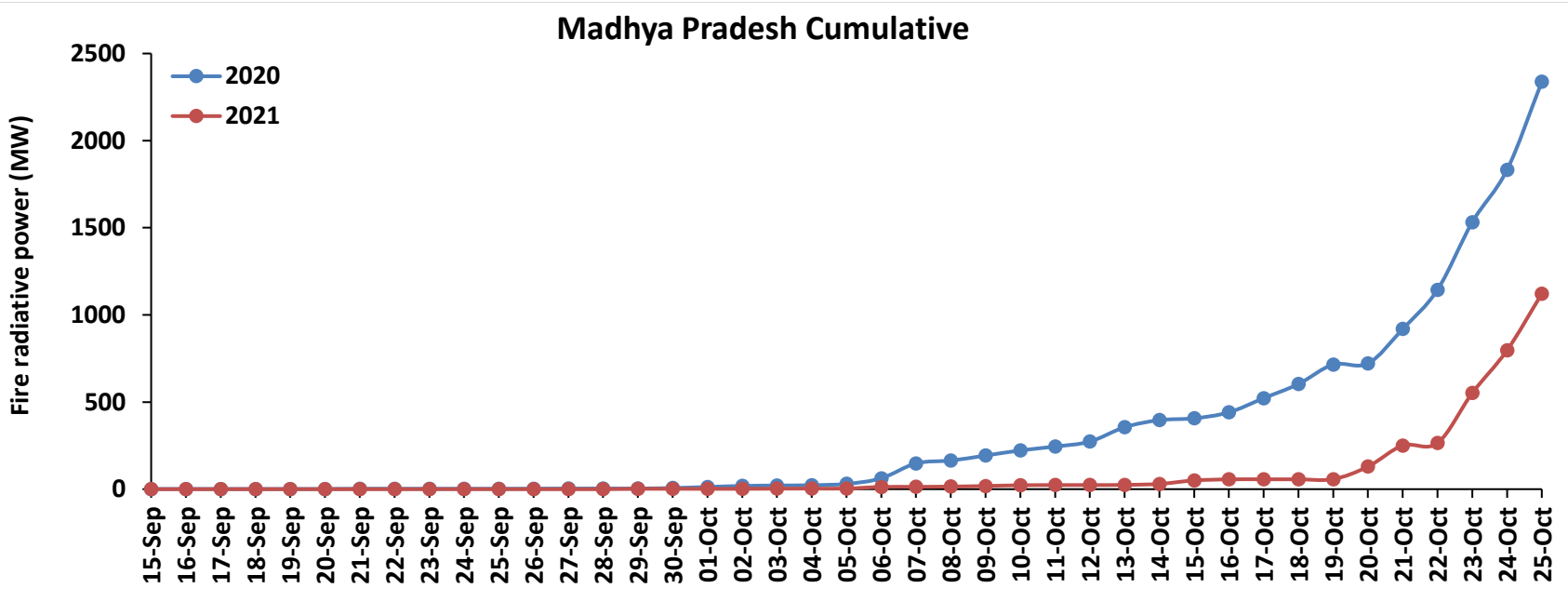




Comparison of residue burning fire power in current year (2021) with previous year (2020) for the study States

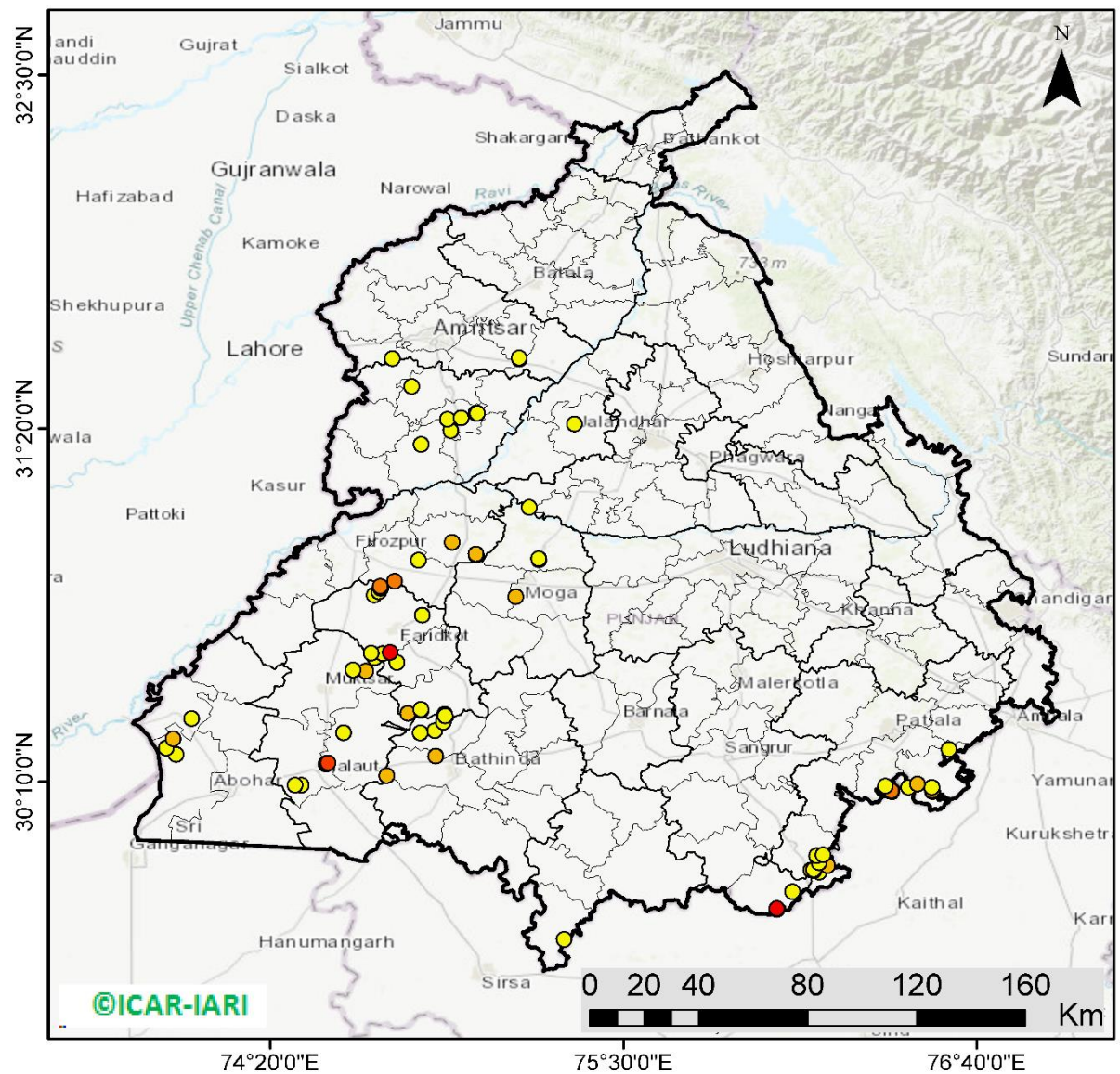






Punjab

RICE RESIDUE BURNING IN PUNJAB



76 burning events detected in Punjab on **25th October 2021**

Fire Intensity (W/m²)

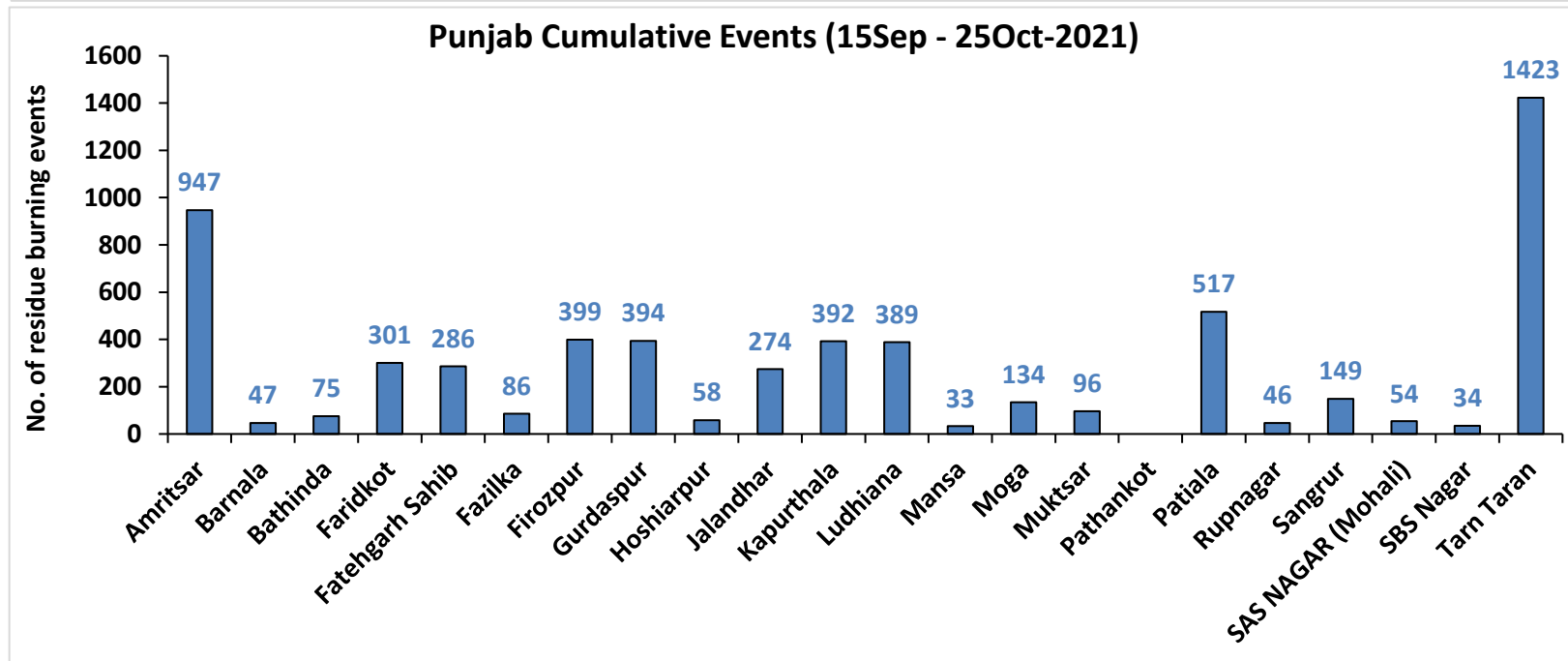
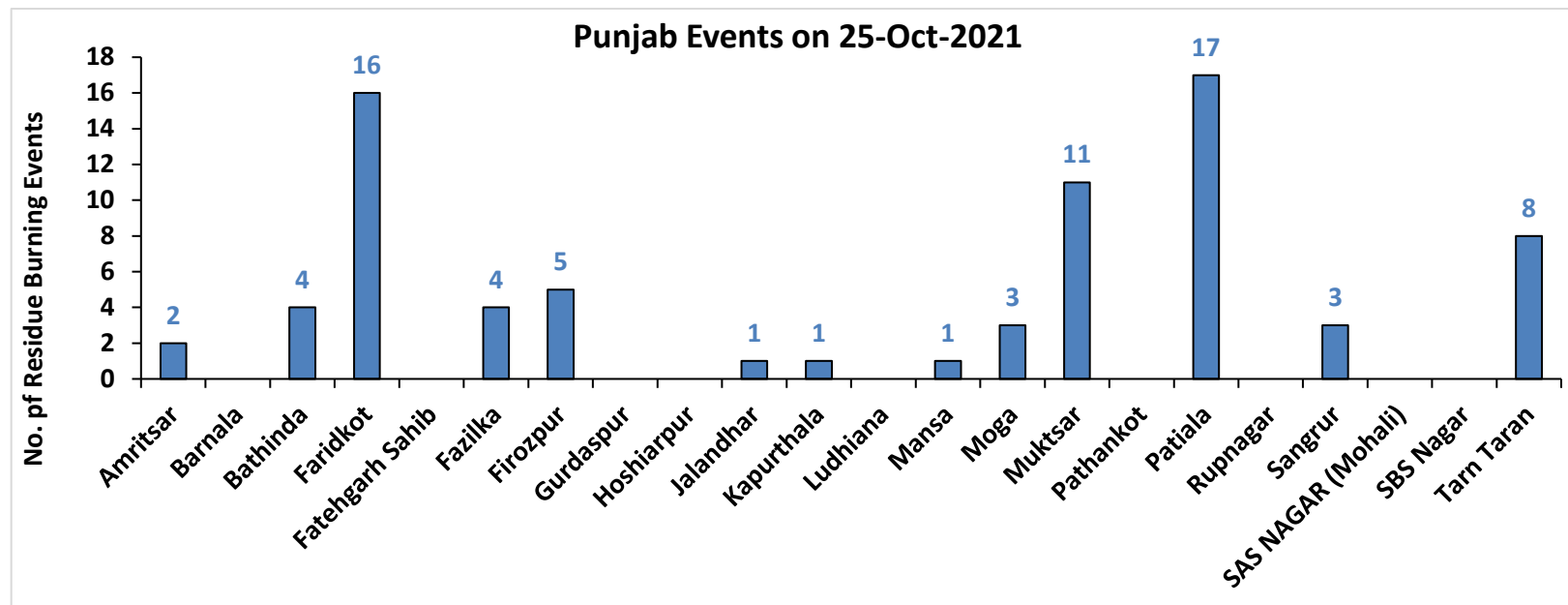
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



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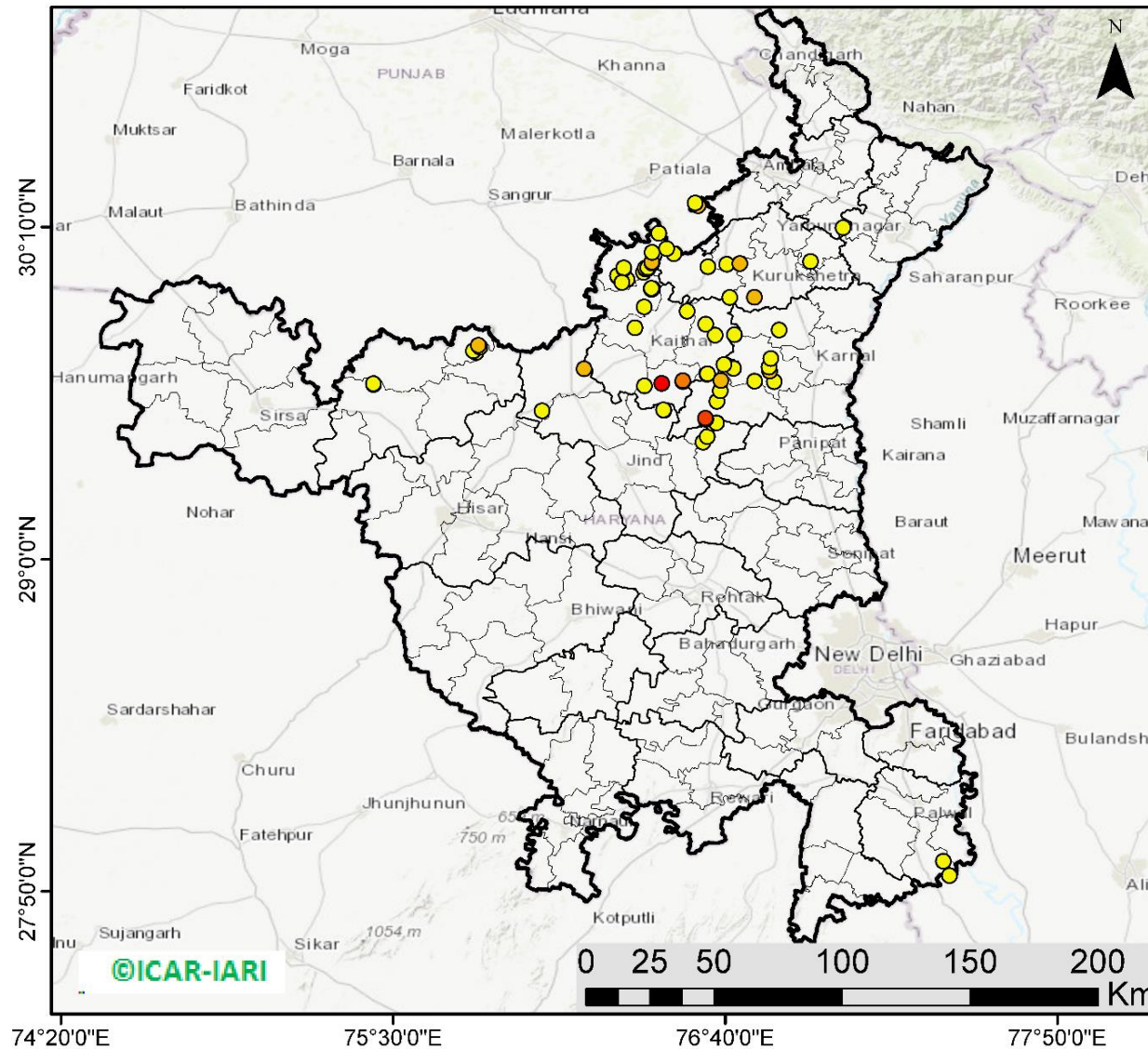
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15 Sep - 25 Oct-2021)



Haryana

RICE RESIDUE BURNING IN HARYANA



71 burning events detected in Haryana on **25th October 2021**

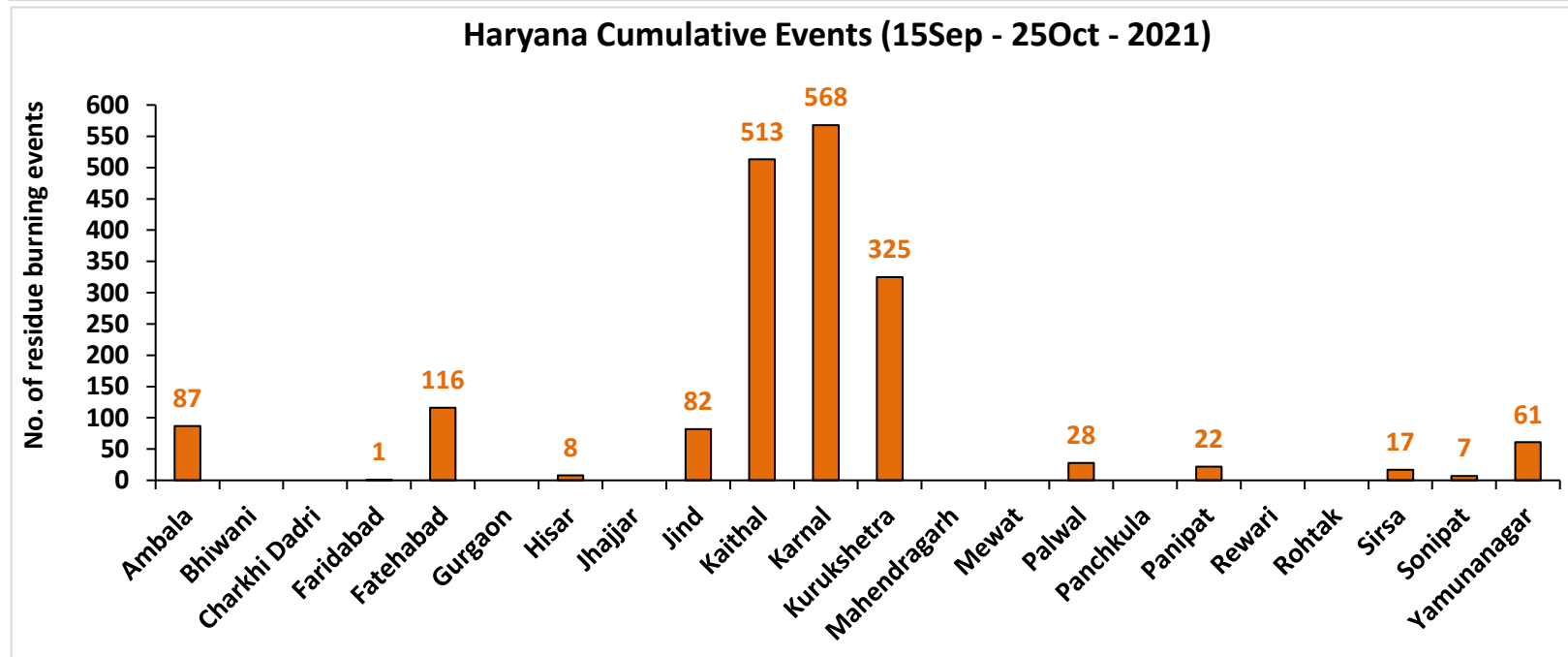
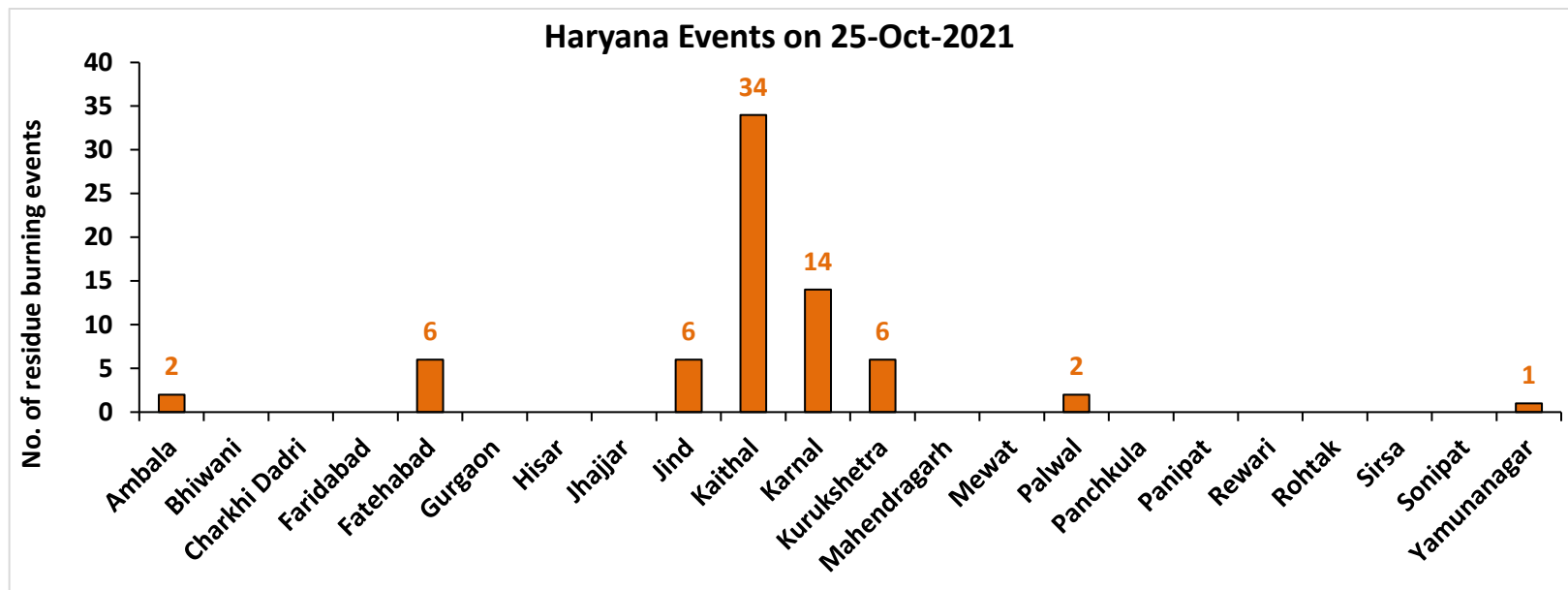
Fire Intensity (W/m²)

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



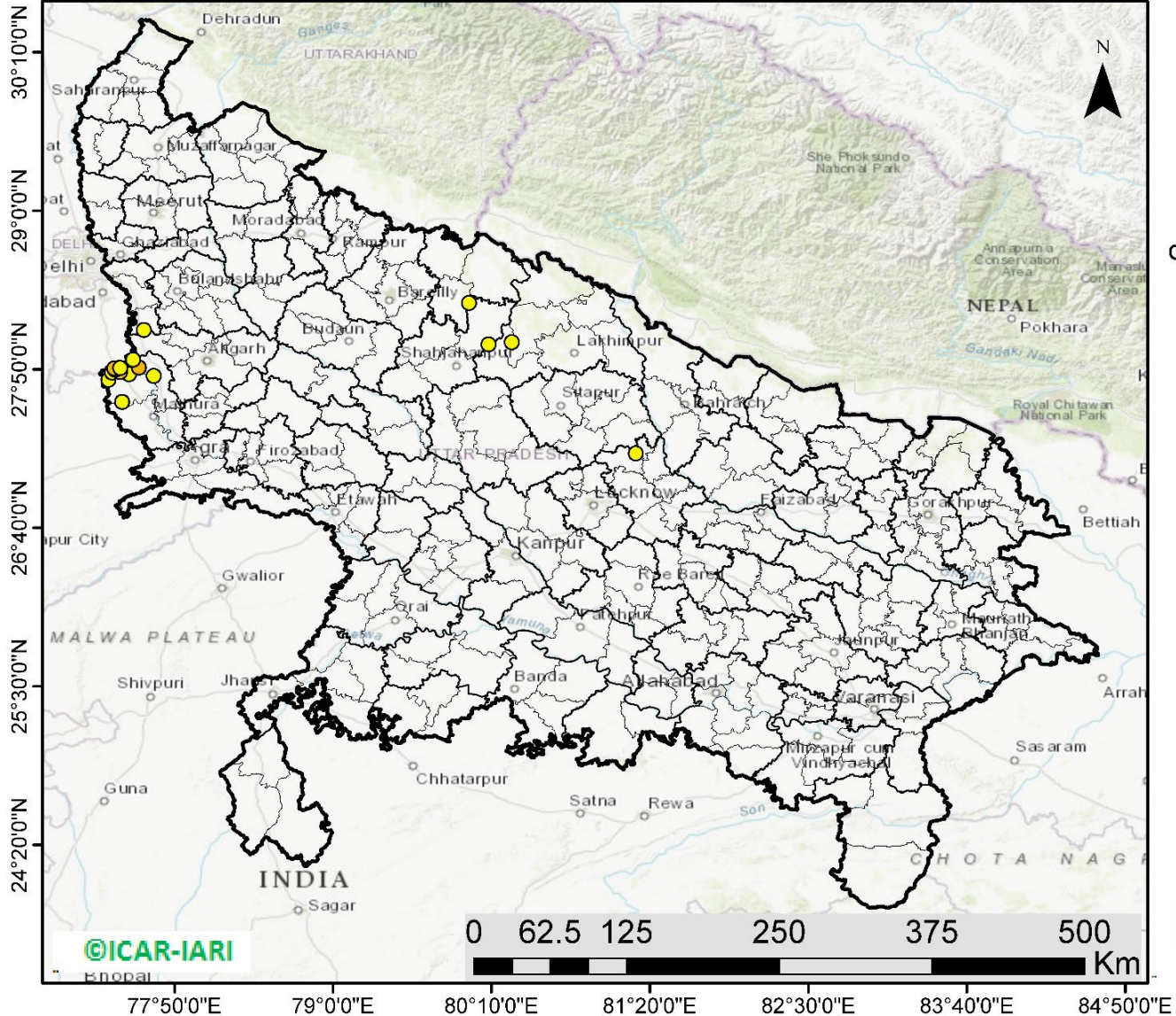
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15 Sep - 25 Oct-2021)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



18 burning events detected in Uttar Pradesh on 25th October 2021

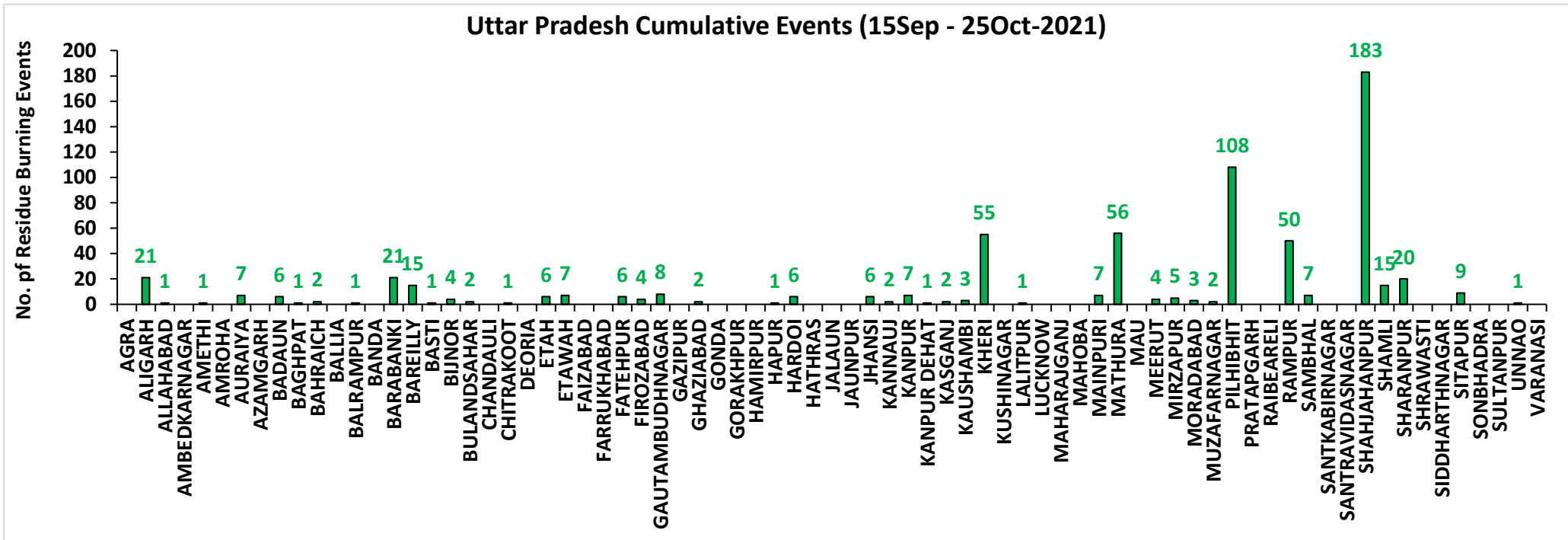
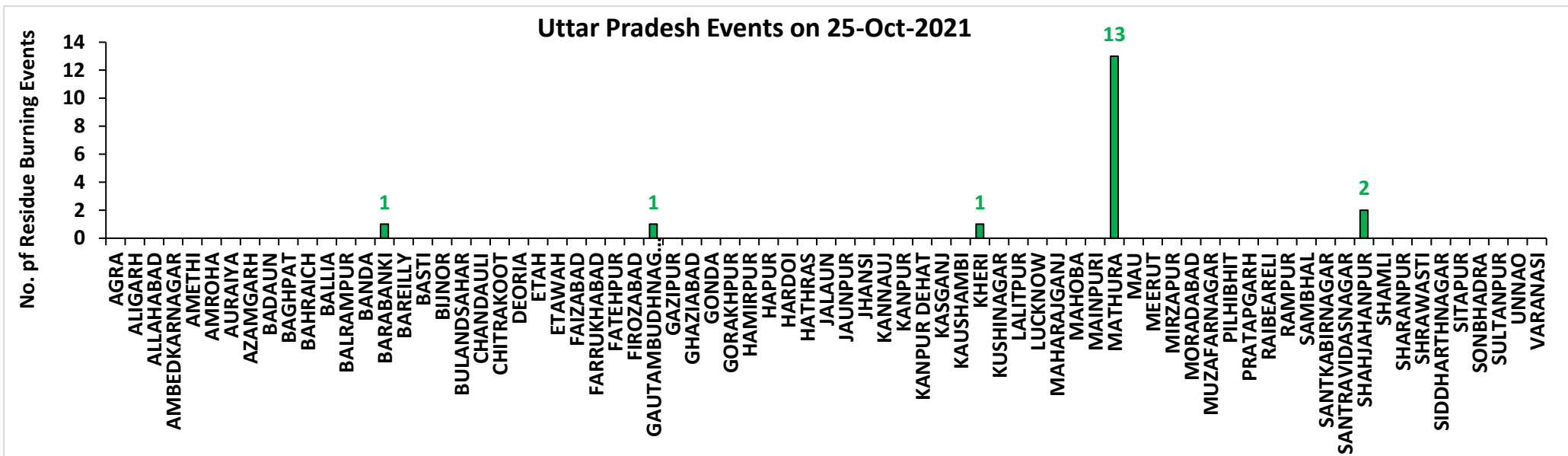
Fire Intensity (W/m²)

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



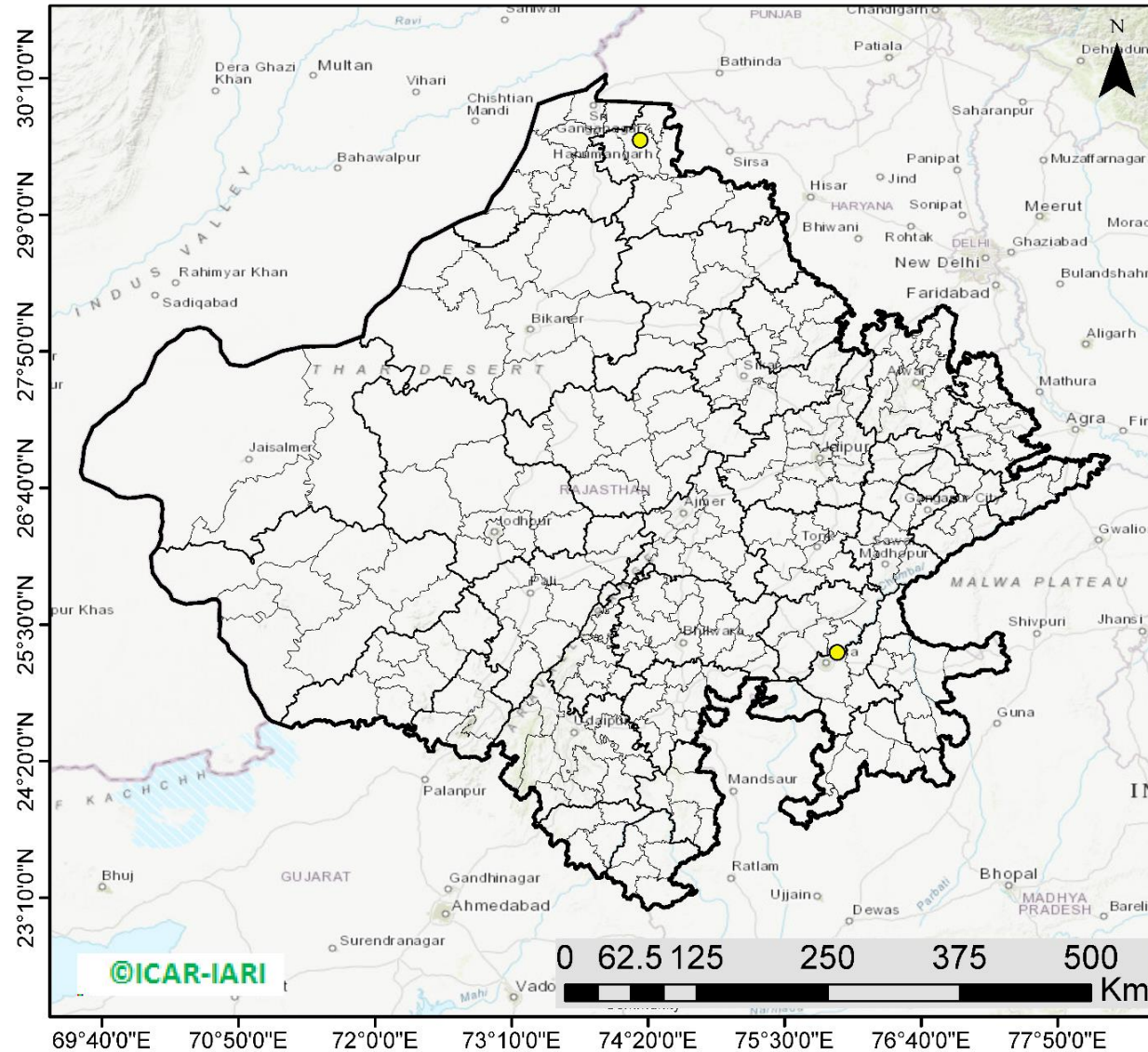
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Uttar Pradesh (15 Sep - 25 Oct-2021)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



02 burning events
detected in Rajasthan on
25th October 2021

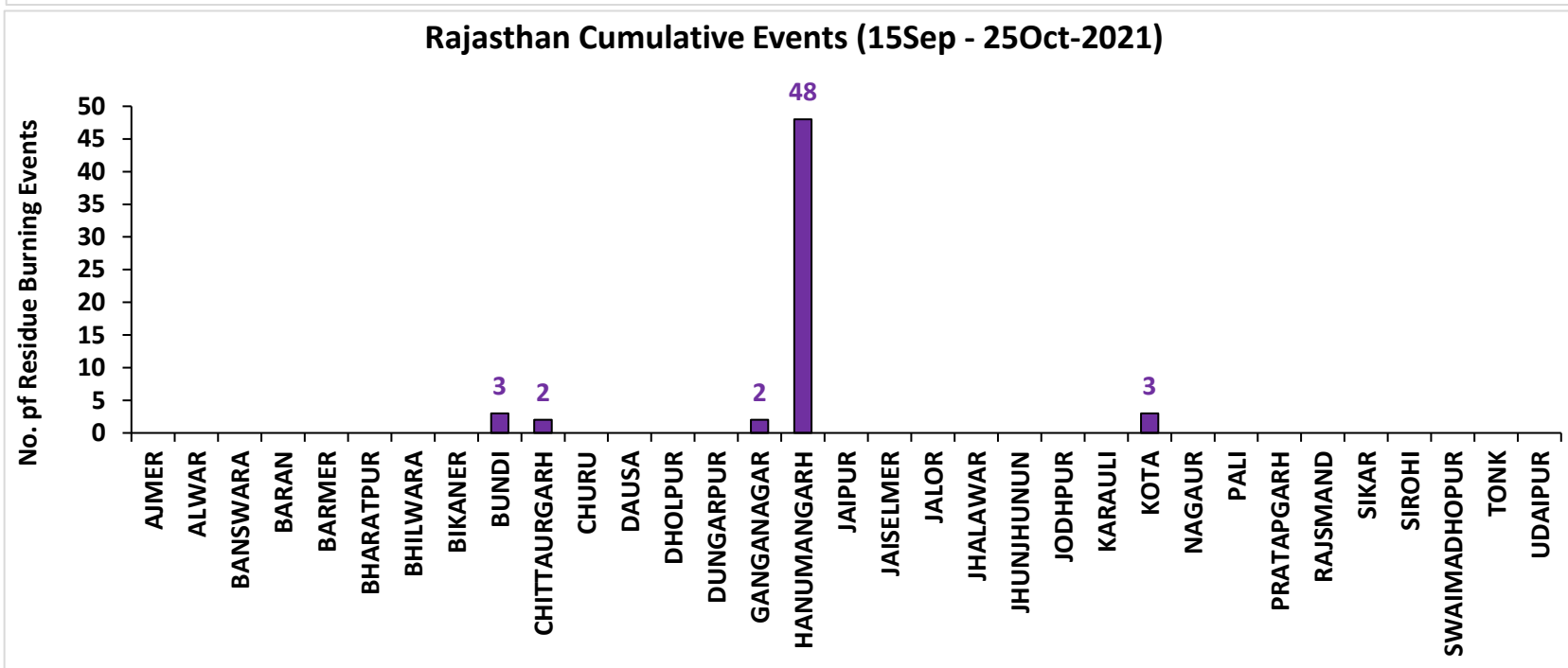
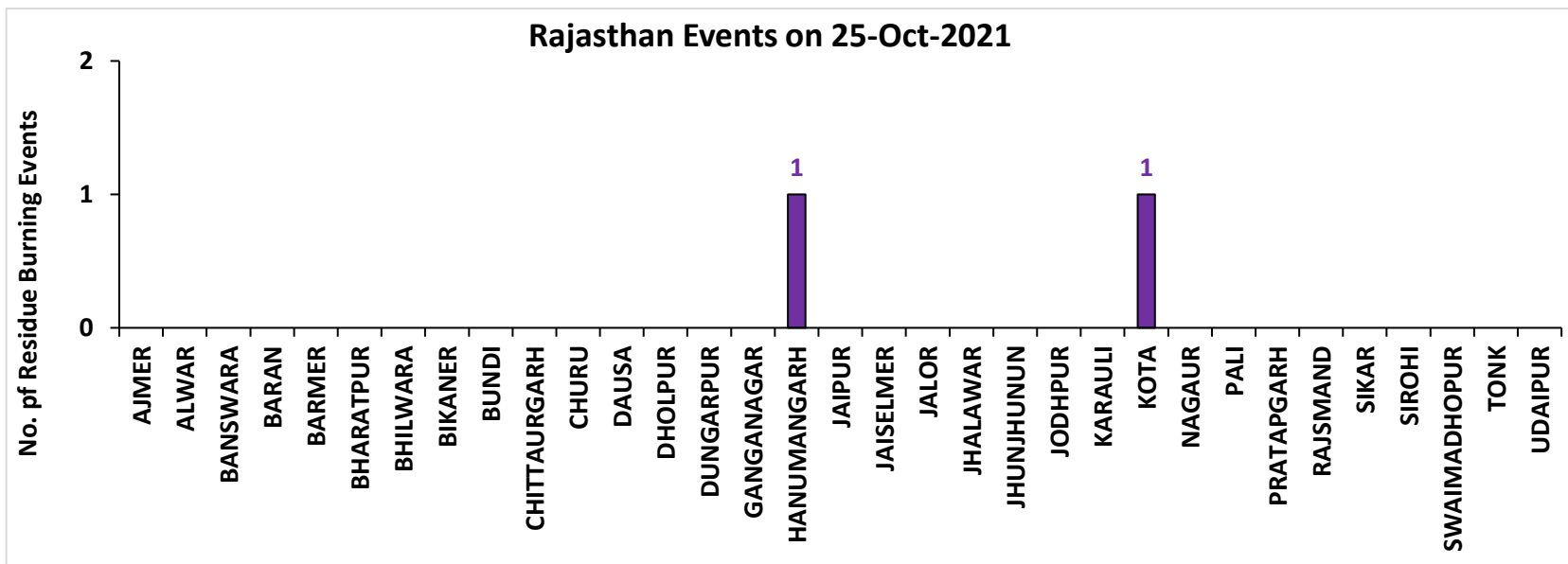
Fire Intensity (W/m²)

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



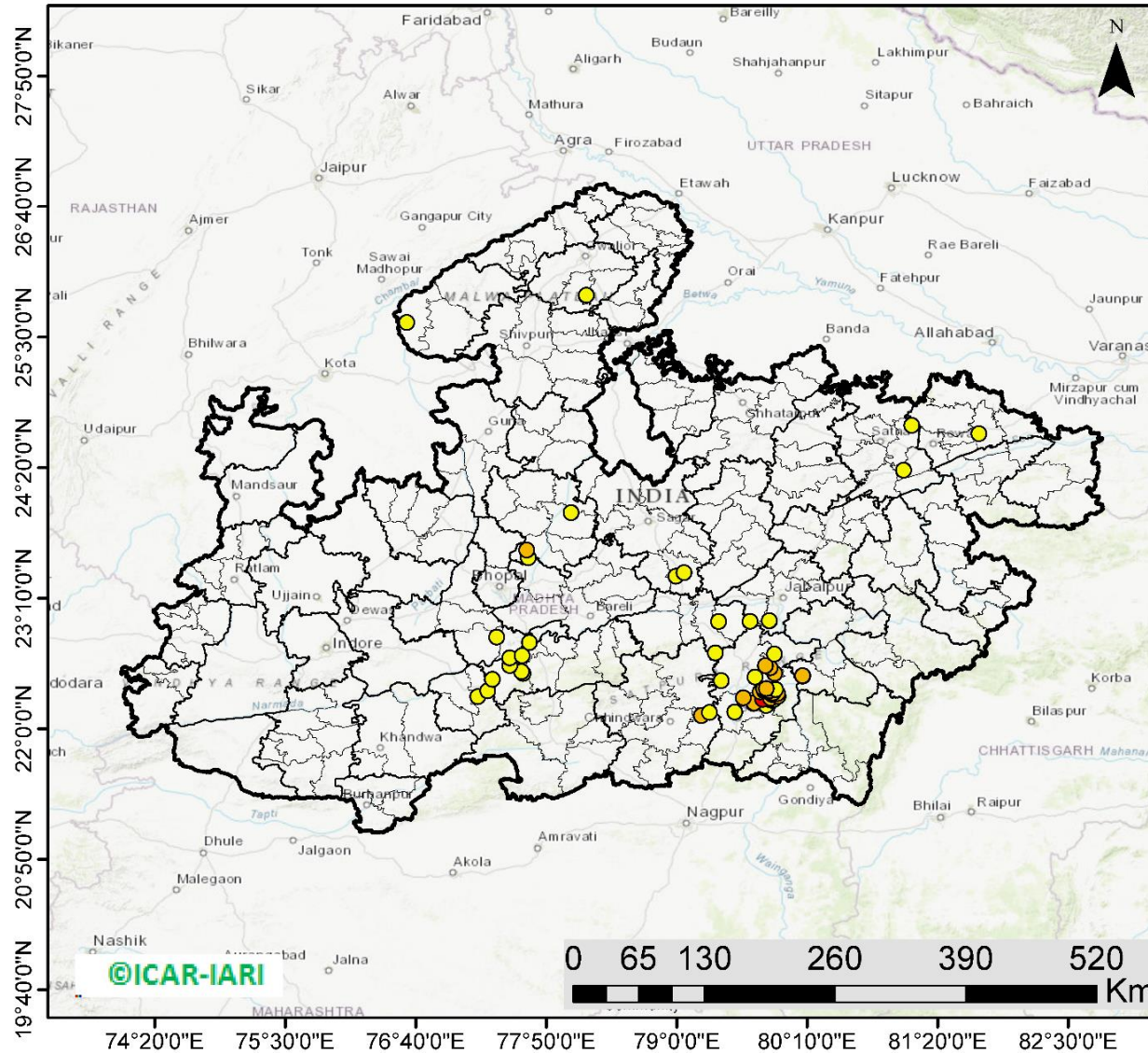
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15 Sep - 25 Oct-2021)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



60 burning events detected in MP on 25th October 2021

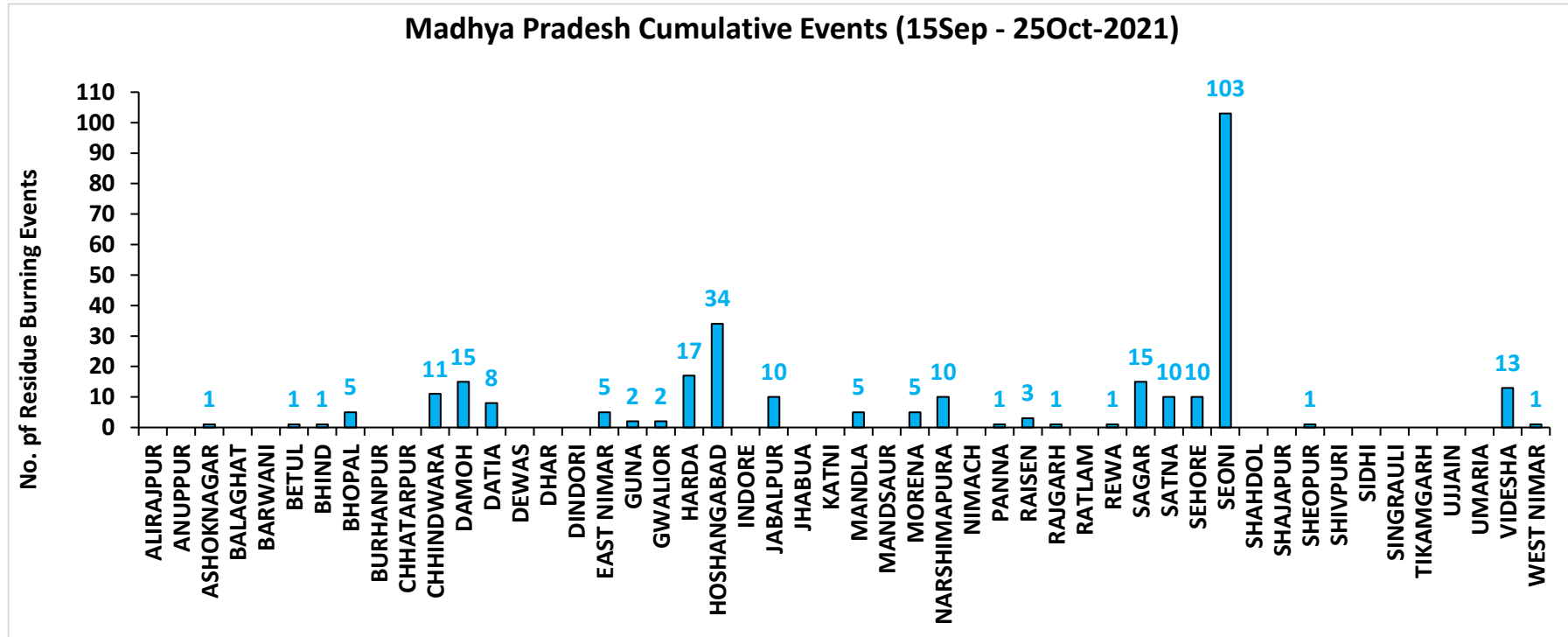
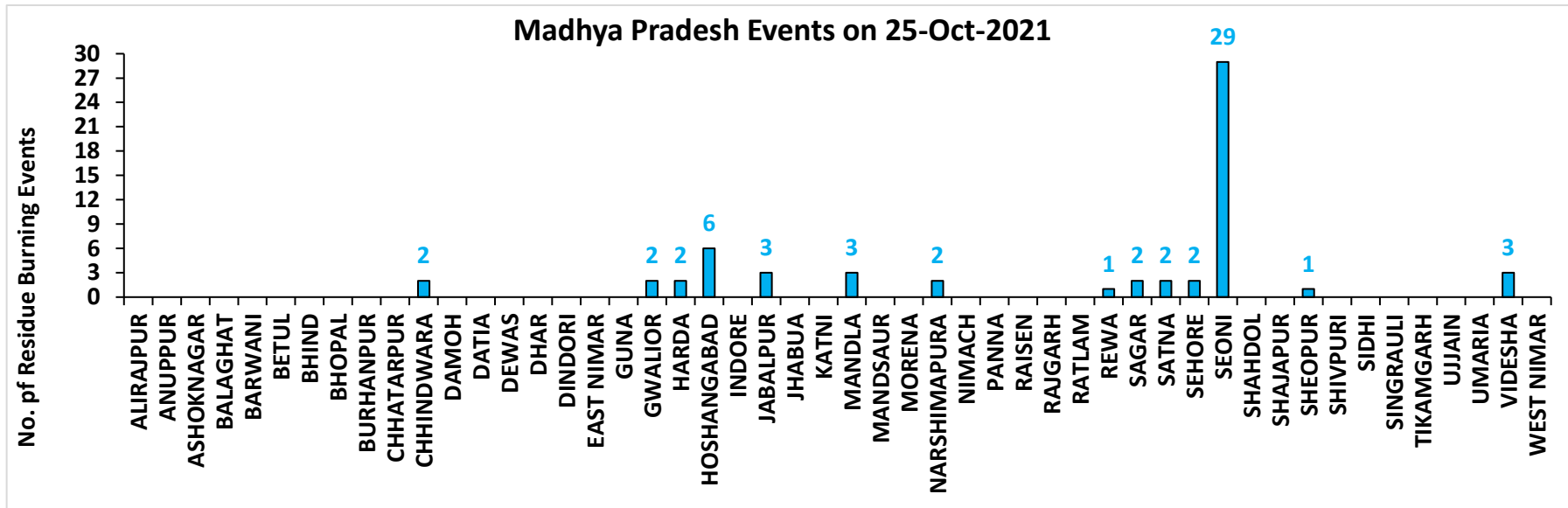
Fire Intensity (W/m²)

- 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 (15 Sep - 25 Oct-2021)



District-wise cumulative number of residues burning events detected in 2020 and 2021

(Period: 15 September - 25 October)

(a) Punjab

District	15 Sep – 25 Oct	
	2020	2021
AMRITSAR	2367	947
BARNALA	100	47
BATHINDA	225	75
FARIDKOT	844	301
FATEHGARH SAHIB	536	286
FAZILKA	246	86
FIROZPUR	2125	399
GURDASPUR	1295	394
HOSHIARPUR	232	58
JALANDHAR	400	274
KAPURTHALA	845	392
LUDHIANA	456	389
MANSA	152	33
MOGA	316	134
MUKTSAR	320	96
PATHANKOT	7	0
PATIALA	1527	517
RUPNAGAR	78	46
SANGRUR	595	149
SAS NAGAR (MOHALI)	86	54
SBS NAGAR	37	34
TARN TARAN	3432	1423
Total	16221	6134

(b) Haryana

District	15 Sep – 25 Oct	
	2020	2021
AMBALA	222	87
BHIWANI	0	0
CHARKHI DADRI	0	0
FARIDABAD	1	1
FATEHABAD	129	116
GURGAON	0	0
HISAR	10	8
JHAJJAR	1	0
JIND	55	82
KAITHAL	378	513
KARNAL	437	568
KURUKSHETRA	348	325
MAHENDRAGARH	0	0
MEWAT	0	0
PALWAL	30	28
PANCHKULA	0	0
PANIPAT	13	22
REWARI	0	0
ROHTAK	2	0
SIRSA	35	17
SONIPAT	17	7
YAMUNANAGAR	94	61
Total	1772	1835

(c) Uttar Pradesh

District	15 Sep – 25 Oct							
	2020	2021	GAUTAMBUDHNAGAR	6	8	MUZAFARNAGAR	3	2
AGRA	2	0	GAZIPUR	0	0	PILHIBHIT	10	108
ALIGARH	55	21	GHAZIABAD	5	2	PRATAPGARH	4	0
ALLAHABAD	0	1	GONDA	0	0	RAIBEARELI	1	0
AMBEDKARNAGAR	0	0	GORAKHPUR	1	0	RAMPUR	60	50
AMETHI	0	1	HAMIRPUR	1	0	SAMBHAL	7	7
AMROHA	2	0	HAPUR	7	1	SANTKABIRNAGAR	0	0
AURAIYA	19	7	HARDOI	19	6	SANTRAVIDASNAGAR	0	0
AZAMGARH	0	0	HATHRAS	0	0	SHAHJAHANPUR	51	183
BADAUN	2	6	JALAUN	0	0	SHAMLI	21	15
BAGHPAT	4	1	JAUNPUR	0	0	SHARANPUR	46	20
BAHRAICH	23	2	JHANSI	30	6	SHRAWASTI	8	0
BALLIA	0	0	KANNAUJ	7	2	SIDDHARTHANAGAR	0	0
BALRAMPUR	5	1	KANPUR	5	7	SITAPUR	21	9
BANDA	0	0	KANPUR DEHAT	15	1	SONBHADRA	0	0
BARABANKI	23	21	KASGANJ	2	2	SULTANPUR	1	0
BAREILLY	25	15	KAUSHAMBI	17	3	UNNAO	7	1
BASTI	3	1	KHERI	52	55	VARANASI	1	0
BIJNOR	8	4	KUSHINAGAR	0	0	Total	783	671
BULANDSAHAR	18	2	LALITPUR	0	1			
CHANDAULI	0	0	LUCKNOW	4	0			
CHITRAKOOT	0	1	MAHARAJGANJ	0	0			
DEORIA	0	0	MAHOBA	12	0			
ETAH	12	6	MAINPURI	15	7			
ETAWAH	10	7	MATHURA	61	56			
FAIZABAD	3	0	MAU	0	0			
FARRUKHABAD	1	0	MEERUT	16	4			
FATEHPUR	26	6	MIRZAPUR	6	5			
FIROZABAD	12	4	MORADABAD	8	3			

(d) Delhi

District	15 Sep – 25 Oct	
	2020	2021
CENTRAL	0	0
EAST	0	0
NEW DELHI	0	0
NORTH	2	0
NORTH EAST	0	0
NORTH WEST DELHI	3	0
SHAHADRA	0	0
SOUTH	1	0
SOUTH EAST	0	0
SOUTH WEST DELHI	0	0
WEST DELHI	2	0
Total	8	0

(e) Rajasthan

District	15 Sep – 25 Oct	
	2020	2021
AJMER	2	0
ALWAR	2	0
BANSWARA	0	0
BARAN	109	0
BARMER	2	0
BHARATPUR	2	0
BHILWARA	4	0
BIKANER	1	0
BUNDI	26	3
CHITTAURGARH	0	2
CHURU	0	0
DAUSA	0	0
DHOLPUR	0	0
DUNGARPUR	0	0
GANGANAGAR	5	2
HANUMANGARH	222	48
JAIPUR	2	0
JAISELMER	2	0
JALOR	0	0
JHALAWAR	1	0
JHUNJHUNUN	1	0
JODHPUR	1	0
KARALI	1	0
KOTA	43	3
NAGPUR	0	0
PALI	2	0
PRATAPGARH	4	0
RAJSMAND	0	0
SIKAR	0	0
SIROHI	1	0
SWAIMADHOPUR	16	0
TONK	3	0
UDAIPUR	0	0
Total	452	58

(f) Madhya Pradesh

District	15 Sep – 25 Oct				
	2020	2021			
			PANNA	10	1
ALIRAJPUR	0	0	RAISEN	79	3
ANUPPUR	0	0	RAJGARH	7	1
ASHOKNAGAR	50	1	RATLAM	0	0
BALAGHAT	0	0	REWA	19	1
BARWANI	0	0	SAGAR	20	15
BETUL	4	1	SATNA	44	10
BHIND	16	1	SEHORE	21	10
BHOPAL	14	5	SEONI	149	103
BURHANPUR	0	0	SHAHDOL	0	0
CHHATARPUR	4	0	SHAJAPUR	5	0
CHHINDWARA	17	11	SHEOPUR	54	1
DAMOH	41	15	SHIVPURI	27	0
DATIA	136	8	SIDHI	0	0
DEWAS	3	0	SINGRAULI	0	0
DHAR	23	0	TIKAMGARH	1	0
DINDORI	0	0	UJJAIN	5	0
EAST NIMAR	10	5	UMARIA	0	0
GUNA	29	2	VIDESHA	74	13
GWALIOR	147	2	WEST NIMAR	16	1
HARDA	10	17	Total	1323	291
HOSHANGABAD	169	34			
INDORE	2	0			
JABALPUR	40	10			
JHABUA	0	0			
KATNI	22	0			
MANDLA	5	5			
MANDSAUR	3	0			
MORENA	23	5			
NARSHIMAPURA	24	10			
NIMACH	0	0			

State-wise and date-wise number of paddy residue burning events detected in 2020 and 2021
(Period: 15 September – 25 October)

Number of Paddy Residue Burning Events Detected

	Punjab		Haryana		Uttar Pradesh		Delhi		Rajasthan		Madhya Pradesh	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
15-Sep	5	0	2	0	1	0	0	0	1	0	2	0
16-Sep	0	2	1	0	0	0	0	0	0	0	0	0
17-Sep	5	0	3	0	0	0	0	0	0	0	0	0
18-Sep	17	9	0	0	0	1	0	0	0	0	0	0
19-Sep	30	5	2	0	0	1	0	0	0	0	0	0
20-Sep	67	8	6	0	2	0	0	0	0	0	0	0
21-Sep	54	0	2	0	1	0	0	0	1	0	2	0
22-Sep	34	0	1	0	1	0	0	0	0	0	0	0
23-Sep	49	0	0	0	1	0	0	0	1	0	0	0
24-Sep	78	5	0	0	1	1	0	0	0	0	0	0
25-Sep	184	11	11	0	5	0	0	0	1	0	0	0
26-Sep	190	19	5	0	8	0	0	0	1	0	2	0
27-Sep	78	37	8	0	4	1	0	0	0	0	1	0
28-Sep	55	28	6	1	1	6	0	0	0	0	1	1
29-Sep	63	64	9	4	6	10	0	0	3	0	0	4
30-Sep	116	27	22	2	13	13	1	0	1	0	5	0
01-Oct	165	13	15	4	7	13	0	0	4	1	13	0
02-Oct	141	0	30	2	12	0	1	0	7	0	12	0
03-Oct	110	9	8	6	4	3	0	0	9	0	5	1
04-Oct	162	23	29	2	8	0	0	0	15	0	4	2
05-Oct	161	18	17	3	14	2	0	0	14	0	13	1
06-Oct	171	42	30	0	12	1	1	0	16	0	37	1
07-Oct	197	72	32	11	41	13	0	0	14	1	31	1
08-Oct	95	108	29	27	25	11	0	0	11	0	17	2
09-Oct	121	114	20	39	15	20	0	0	12	0	15	4
10-Oct	232	150	33	95	9	54	0	0	14	1	18	10
11-Oct	377	64	90	51	23	28	0	0	21	7	32	2
12-Oct	388	97	69	51	46	23	0	0	24	1	44	1

13-Oct	266	132	47	91	36	42	0	0	7	5	21	2
14-Oct	605	229	69	98	9	68	0	0	16	1	15	11
15-Oct	449	660	106	363	15	149	0	0	9	8	8	27
16-Oct	654	429	80	176	21	121	1	0	12	2	23	13
17-Oct	1172	14	143	0	38	39	0	0	26	0	63	1
18-Oct	938	57	166	1	76	0	0	0	37	2	88	0
19-Oct	1080	496	72	55	43	5	0	0	27	5	49	1
20-Oct	890	788	62	155	31	1	0	0	26	4	9	21
21-Oct	1392	597	101	131	25	5	2	0	32	2	112	30
22-Oct	1665	1111	128	140	32	3	0	0	29	5	183	29
23-Oct	1438	620	106	218	84	8	1	0	23	7	204	32
24-Oct	911	0	57	38	63	11	0	0	20	4	150	34
25-Oct	1416	76	155	71	50	18	1	0	18	2	144	60
Total	16221	6134	1772	1835	783	671	8	0	452	58	1323	291

Details of residue burning events in Punjab on 25-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMRITSAR	RAYYA	S-NPP	31.56297	75.15627	10/25/2021	13:39	D	3.51
2	AMRITSAR	TARSIKKA	S-NPP	31.56634	75.15563	10/25/2021	13:39	D	3.10
3	BATHINDA	GONIANA MANDI	S-NPP	30.25132	74.88062	10/25/2021	13:39	D	5.19
4	BATHINDA	GONIANA MANDI	S-NPP	30.32826	74.82890	10/25/2021	13:39	D	2.64
5	BATHINDA	GONIANA MANDI	S-NPP	30.33529	74.87751	10/25/2021	13:39	D	2.62
6	BATHINDA	GONIANA MANDI	S-NPP	30.36329	74.90553	10/25/2021	13:39	D	3.71
7	FARIDKOT	FARIDKOT	S-NPP	30.59143	74.66747	10/25/2021	13:39	D	2.81
8	FARIDKOT	FARIDKOT	S-NPP	30.71709	74.83584	10/25/2021	13:39	D	4.18
9	FARIDKOT	FARIDKOT	S-NPP	30.73901	74.86938	10/25/2021	13:39	D	50.94
10	FARIDKOT	FARIDKOT	S-NPP	30.78313	74.67674	10/25/2021	13:39	D	2.58
11	FARIDKOT	FARIDKOT	S-NPP	30.79413	74.69230	10/25/2021	13:39	D	3.20
12	FARIDKOT	FARIDKOT	S-NPP	30.80528	74.69851	10/25/2021	13:39	D	4.91
13	FARIDKOT	FARIDKOT	S-NPP	30.80861	74.69787	10/25/2021	13:39	D	4.91
14	FARIDKOT	FARIDKOT	S-NPP	30.81193	74.69722	10/25/2021	13:39	D	12.03
15	FARIDKOT	JAITON	S-NPP	30.38779	74.90919	10/25/2021	13:39	D	3.63
16	FARIDKOT	JAITON	S-NPP	30.38957	74.90971	10/25/2021	13:39	D	2.33
17	FARIDKOT	JAITON	S-NPP	30.40241	74.83219	10/25/2021	13:39	D	10.89
18	FARIDKOT	JAITON	S-NPP	30.40574	74.83156	10/25/2021	13:39	D	3.28
19	FARIDKOT	JAITON	TERRA	30.38420	74.91164	10/25/2021	11:08	D	4.43
20	FARIDKOT	KOT KAPURA	S-NPP	30.56071	74.75225	10/25/2021	13:39	D	1.92
21	FARIDKOT	KOT KAPURA	S-NPP	30.59005	74.70518	10/25/2021	13:39	D	3.34
22	FARIDKOT	KOT KAPURA	S-NPP	30.59356	74.72950	10/25/2021	13:39	D	48.62
23	FAZILKA	FAZILKA	S-NPP	30.37554	74.07388	10/25/2021	13:39	D	2.12
24	FAZILKA	KHUIAN SARWAR	S-NPP	30.25669	74.02277	10/25/2021	13:39	D	2.41
25	FAZILKA	KHUIAN SARWAR	S-NPP	30.27831	73.99046	10/25/2021	13:39	D	4.08
26	FAZILKA	KHUIAN SARWAR	S-NPP	30.30892	74.01305	10/25/2021	13:39	D	7.19
27	FIROZPUR	GHALL KHURD	S-NPP	30.82895	74.74415	10/25/2021	13:39	D	12.15
28	FIROZPUR	GHALL KHURD	S-NPP	30.89852	74.82307	10/25/2021	13:39	D	2.35
29	FIROZPUR	ZIRA	S-NPP	30.91552	75.01385	10/25/2021	13:39	D	20.81

30	FIROZPUR	ZIRA	S-NPP	30.91887	75.01322	10/25/2021	13:39	D	6.10
31	FIROZPUR	ZIRA	S-NPP	30.95754	74.93458	10/25/2021	13:39	D	6.61
32	JALANDHAR	LOHIAN	S-NPP	31.07274	75.18913	10/25/2021	13:39	D	4.09
33	KAPURTHAL A	KAPURTHALA	S-NPP	31.34800	75.33825	10/25/2021	13:39	D	3.74
34	MANSA	SARDULGARH	S-NPP	29.64636	75.30418	10/25/2021	13:39	D	4.38
35	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.89993	75.22085	10/25/2021	13:39	D	4.63
36	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.90329	75.22021	10/25/2021	13:39	D	4.63
37	MOGA	MOGA-1	S-NPP	30.77802	75.14471	10/25/2021	13:39	D	6.36
38	MUKTSAR	KOT BHAI AT GIDDERBAHA	S-NPP	30.18681	74.71878	10/25/2021	13:39	D	5.52
39	MUKTSAR	KOT BHAI AT GIDDERBAHA	S-NPP	30.32893	74.57594	10/25/2021	13:39	D	3.62
40	MUKTSAR	KOT BHAI AT GIDDERBAHA	S-NPP	30.39267	74.78828	10/25/2021	13:39	D	9.59
41	MUKTSAR	MALOUT	S-NPP	30.15557	74.43625	10/25/2021	13:39	D	2.51
42	MUKTSAR	MALOUT	S-NPP	30.15592	74.41562	10/25/2021	13:39	D	2.27
43	MUKTSAR	MALOUT	S-NPP	30.22494	74.51772	10/25/2021	13:39	D	5.04
44	MUKTSAR	MALOUT	S-NPP	30.22884	74.52109	10/25/2021	13:39	D	5.04
45	MUKTSAR	MALOUT	S-NPP	30.22943	74.52509	10/25/2021	13:39	D	17.91
46	MUKTSAR	MUKTSAR	S-NPP	30.53211	74.64958	10/25/2021	13:39	D	6.72
47	MUKTSAR	MUKTSAR	S-NPP	30.53618	74.60729	10/25/2021	13:39	D	4.31
48	MUKTSAR	MUKTSAR	S-NPP	30.57598	74.67876	10/25/2021	13:39	D	3.72
49	PATIALA	BHUNARHERI	S-NPP	30.13434	76.52122	10/25/2021	13:39	D	5.91
50	PATIALA	BHUNARHERI	S-NPP	30.13781	76.52061	10/25/2021	13:39	D	5.91
51	PATIALA	BHUNARHERI	S-NPP	30.14824	76.51881	10/25/2021	13:39	D	3.13
52	PATIALA	BHUNARHERI	S-NPP	30.14865	76.44202	10/25/2021	13:39	D	3.07
53	PATIALA	BHUNARHERI	S-NPP	30.15972	76.47164	10/25/2021	13:39	D	6.21
54	PATIALA	BHUNARHERI	S-NPP	30.27398	76.57513	10/25/2021	13:39	D	3.09
55	PATIALA	PATRAN	S-NPP	29.86854	76.14727	10/25/2021	13:39	D	1.84
56	PATIALA	PATRAN	S-NPP	29.87307	76.12896	10/25/2021	13:39	D	2.35
57	PATIALA	PATRAN	S-NPP	29.87532	76.11982	10/25/2021	13:39	D	5.08
58	PATIALA	PATRAN	S-NPP	29.87649	76.12836	10/25/2021	13:39	D	2.35

59	PATIALA	PATRAN	S-NPP	29.88976	76.17419	10/25/2021	13:39	D	5.25
60	PATIALA	PATRAN	S-NPP	29.89996	76.14609	10/25/2021	13:39	D	2.25
61	PATIALA	PATRAN	S-NPP	29.92234	76.13831	10/25/2021	13:39	D	1.62
62	PATIALA	PATRAN	S-NPP	29.92521	76.15974	10/25/2021	13:39	D	1.88
63	PATIALA	SANAUR	S-NPP	30.13407	76.38619	10/25/2021	13:39	D	11.02
64	PATIALA	SANAUR	S-NPP	30.13754	76.38559	10/25/2021	13:39	D	14.14
65	PATIALA	SANAUR	S-NPP	30.15247	76.36507	10/25/2021	13:39	D	2.63
66	SANGRUR	ANDANA	S-NPP	29.74487	76.00745	10/25/2021	13:39	D	21.23
67	SANGRUR	ANDANA	S-NPP	29.74828	76.00684	10/25/2021	13:39	D	32.79
68	SANGRUR	ANDANA	S-NPP	29.80396	76.05839	10/25/2021	13:39	D	4.37
69	TARN TARAN	GANDIWIND TATLA	S-NPP	31.56404	74.73698	10/25/2021	13:39	D	1.55
70	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.32546	74.93002	10/25/2021	13:39	D	2.89
71	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.36331	74.91917	10/25/2021	13:39	D	4.28
72	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.36823	74.96449	10/25/2021	13:39	D	2.39
73	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.38341	75.01352	10/25/2021	13:39	D	3.61
74	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.38399	75.01769	10/25/2021	13:39	D	3.61
75	TARN TARAN	PATTI	S-NPP	31.28067	74.83242	10/25/2021	13:39	D	3.54
76	TARN TARAN	TARN TARAN	S-NPP	31.47173	74.80089	10/25/2021	13:39	D	2.26

Details of residue burning events in Haryana on 25-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMBALA	AMBALA-II	S-NPP	30.24142	76.57166	10/25/2021	13:39	D	9.43
2	AMBALA	AMBALA-II	S-NPP	30.25071	76.56094	10/25/2021	13:39	D	3.86
3	FATEHABAD	FATEHABAD	S-NPP	29.61285	75.43161	10/25/2021	13:39	D	3.48
4	FATEHABAD	FATEHABAD	S-NPP	29.61621	75.43099	10/25/2021	13:39	D	3.48
5	FATEHABAD	JAKHAL	S-NPP	29.72546	75.79169	10/25/2021	13:39	D	2.64
6	FATEHABAD	JAKHAL	S-NPP	29.73108	75.78214	10/25/2021	13:39	D	3.44
7	FATEHABAD	JAKHAL	S-NPP	29.74473	75.80531	10/25/2021	13:39	D	2.91
8	FATEHABAD	JAKHAL	S-NPP	29.75092	75.79991	10/25/2021	13:39	D	6.97
9	JIND	ALEWA	S-NPP	29.52248	76.45144	10/25/2021	13:39	D	4.26
10	JIND	ALEWA	S-NPP	29.52425	76.45048	10/25/2021	13:39	D	3.53
11	JIND	NARWANA	S-NPP	29.52090	76.02396	10/25/2021	13:39	D	2.83
12	JIND	NARWANA	TERRA	29.66835	76.17101	10/25/2021	11:08	D	6.24
13	JIND	SAFIDON	S-NPP	29.41028	76.58904	10/25/2021	13:39	D	3.20
14	JIND	SAFIDON	S-NPP	29.42995	76.60347	10/25/2021	13:39	D	3.29
15	KAITHAL	GUHLA	S-NPP	29.98211	76.32188	10/25/2021	13:39	D	3.77
16	KAITHAL	GUHLA	S-NPP	29.99183	76.28912	10/25/2021	13:39	D	6.07
17	KAITHAL	GUHLA	S-NPP	29.99527	76.28851	10/25/2021	13:39	D	4.45
18	KAITHAL	GUHLA	S-NPP	30.00752	76.37975	10/25/2021	13:39	D	3.10
19	KAITHAL	GUHLA	S-NPP	30.01906	76.38667	10/25/2021	13:39	D	6.07
20	KAITHAL	GUHLA	S-NPP	30.01946	76.31087	10/25/2021	13:39	D	4.88
21	KAITHAL	GUHLA	S-NPP	30.02023	76.39540	10/25/2021	13:39	D	7.23
22	KAITHAL	GUHLA	S-NPP	30.02252	76.38606	10/25/2021	13:39	D	5.85
23	KAITHAL	GUHLA	S-NPP	30.02291	76.31027	10/25/2021	13:39	D	4.88
24	KAITHAL	GUHLA	S-NPP	30.02369	76.39479	10/25/2021	13:39	D	3.90
25	KAITHAL	GUHLA	S-NPP	30.03988	76.40985	10/25/2021	13:39	D	5.21
26	KAITHAL	GUHLA	S-NPP	30.04334	76.40924	10/25/2021	13:39	D	5.21
27	KAITHAL	GUHLA	S-NPP	30.07699	76.40961	10/25/2021	13:39	D	1.76
28	KAITHAL	GUHLA	S-NPP	30.09087	76.46109	10/25/2021	13:39	D	4.34
29	KAITHAL	GUHLA	S-NPP	30.14400	76.43384	10/25/2021	13:39	D	3.40
30	KAITHAL	GUHLA	TERRA	29.97192	76.30452	10/25/2021	11:08	D	4.07

31	KAITHAL	KAITHAL	S-NPP	29.81264	76.34993	10/25/2021	13:39	D	1.68
32	KAITHAL	KAITHAL	S-NPP	29.87067	76.53273	10/25/2021	13:39	D	1.80
33	KAITHAL	PUNDRI	S-NPP	29.64899	76.60334	10/25/2021	13:39	D	4.55
34	KAITHAL	PUNDRI	S-NPP	29.65056	76.60485	10/25/2021	13:39	D	4.72
35	KAITHAL	PUNDRI	S-NPP	29.66960	76.69624	10/25/2021	13:39	D	1.84
36	KAITHAL	PUNDRI	S-NPP	29.68297	76.66230	10/25/2021	13:39	D	3.03
37	KAITHAL	PUNDRI	S-NPP	29.78644	76.63177	10/25/2021	13:39	D	1.80
38	KAITHAL	PUNDRI	S-NPP	29.82469	76.59809	10/25/2021	13:39	D	4.62
39	KAITHAL	PUNDRI	S-NPP	29.91882	76.68272	10/25/2021	13:39	D	2.22
40	KAITHAL	RAJOUND	S-NPP	29.60860	76.38335	10/25/2021	13:39	D	3.00
41	KAITHAL	RAJOUND	S-NPP	29.61681	76.44386	10/25/2021	13:39	D	27.52
42	KAITHAL	RAJOUND	S-NPP	29.62334	76.51830	10/25/2021	13:39	D	11.75
43	KAITHAL	RAJOUND	S-NPP	29.62680	76.51770	10/25/2021	13:39	D	11.75
44	KAITHAL	SIWAN	S-NPP	29.88617	76.38245	10/25/2021	13:39	D	2.50
45	KAITHAL	SIWAN	S-NPP	29.94762	76.40810	10/25/2021	13:39	D	3.84
46	KAITHAL	SIWAN	S-NPP	29.94959	76.40703	10/25/2021	13:39	D	4.64
47	KAITHAL	SIWAN	S-NPP	29.95018	76.41139	10/25/2021	13:39	D	3.78
48	KAITHAL	SIWAN	S-NPP	29.95108	76.40749	10/25/2021	13:39	D	3.84
49	KARNAL	ASSANDH	S-NPP	29.47668	76.62335	10/25/2021	13:39	D	2.73
50	KARNAL	ASSANDH	S-NPP	29.47843	76.63648	10/25/2021	13:39	D	2.80
51	KARNAL	ASSANDH	S-NPP	29.49112	76.59850	10/25/2021	13:39	D	18.85
52	KARNAL	ASSANDH	S-NPP	29.49459	76.59789	10/25/2021	13:39	D	18.85
53	KARNAL	ASSANDH	S-NPP	29.55408	76.63768	10/25/2021	13:39	D	4.04
54	KARNAL	ASSANDH	S-NPP	29.59115	76.64925	10/25/2021	13:39	D	2.30
55	KARNAL	ASSANDH	S-NPP	29.62491	76.77003	10/25/2021	13:39	D	2.45
56	KARNAL	ASSANDH	S-NPP	29.62709	76.65206	10/25/2021	13:39	D	5.32
57	KARNAL	CHIRAO	S-NPP	29.62320	76.83865	10/25/2021	13:39	D	1.75
58	KARNAL	CHIRAO	S-NPP	29.66054	76.82315	10/25/2021	13:39	D	7.21
59	KARNAL	CHIRAO	S-NPP	29.67455	76.82076	10/25/2021	13:39	D	2.83
60	KARNAL	CHIRAO	S-NPP	29.70443	76.82677	10/25/2021	13:39	D	2.68
61	KARNAL	NILOKHERI	S-NPP	29.78816	76.69942	10/25/2021	13:39	D	3.22
62	KARNAL	NILOKHERI	S-NPP	29.80494	76.85651	10/25/2021	13:39	D	2.86
63	KURUKSHETRA	BABAIN	S-NPP	30.04505	76.96664	10/25/2021	13:39	D	1.67
64	KURUKSHETRA	PEHOWA	S-NPP	30.02691	76.60590	10/25/2021	13:39	D	2.87

65	KURUKSHETRA	PEHOWA	S-NPP	30.03570	76.67265	10/25/2021	13:39	D	2.57
66	KURUKSHETRA	PEHOWA	S-NPP	30.07294	76.48673	10/25/2021	13:39	D	2.29
67	KURUKSHETRA	THANESAR	S-NPP	29.91941	76.76941	10/25/2021	13:39	D	5.57
68	KURUKSHETRA	THANESAR	S-NPP	30.03806	76.71797	10/25/2021	13:39	D	5.44
69	PALWAL	HODAL	S-NPP	27.88784	77.45438	10/25/2021	13:37	D	2.89
70	PALWAL	HODAL	S-NPP	27.93846	77.43334	10/25/2021	13:37	D	4.29
71	YAMUNANAGAR	MUSTAFABAD	S-NPP	30.16371	77.08070	10/25/2021	13:39	D	1.99

Details of residue burning events in Uttar Pradesh on 25-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	BARABANKI	FATEHPUR	S-NPP	27.21346	81.23072	10/25/2021	13:37	D	3.92
2	GAUTAMBUDHNAGAR	JEVAR	S-NPP	28.12309	77.60736	10/25/2021	13:37	D	3.37
3	KHERI	MOHMADI	S-NPP	28.03254	80.31734	10/25/2021	13:37	D	3.08
4	MATHURA	CHHATA	S-NPP	27.59281	77.44909	10/25/2021	13:37	D	2.82
5	MATHURA	CHHATA	S-NPP	27.75513	77.34745	10/25/2021	13:37	D	3.29
6	MATHURA	CHHATA	S-NPP	27.78414	77.68104	10/25/2021	13:37	D	4.79
7	MATHURA	CHHATA	S-NPP	27.79672	77.49937	10/25/2021	13:37	D	4.25
8	MATHURA	CHHATA	S-NPP	27.80900	77.37467	10/25/2021	13:37	D	4.21
9	MATHURA	CHHATA	S-NPP	27.81317	77.43291	10/25/2021	13:37	D	8.60
10	MATHURA	CHHATA	S-NPP	27.82978	77.39569	10/25/2021	13:37	D	3.74
11	MATHURA	CHHATA	S-NPP	27.83330	77.39510	10/25/2021	13:37	D	3.74
12	MATHURA	CHHATA	S-NPP	27.83388	77.39954	10/25/2021	13:37	D	3.74
13	MATHURA	CHHATA	S-NPP	27.83976	77.38950	10/25/2021	13:37	D	9.51
14	MATHURA	CHHATA	S-NPP	27.84201	77.43456	10/25/2021	13:37	D	3.95
15	MATHURA	CHHATA	S-NPP	27.84519	77.57141	10/25/2021	13:37	D	5.04
16	MATHURA	MAT	S-NPP	27.90491	77.52947	10/25/2021	13:37	D	2.59
17	SHAHJAHANPUR	PUWANYA	S-NPP	28.01734	80.14534	10/25/2021	13:37	D	2.34
18	SHAHJAHANPUR	PUWANYA	S-NPP	28.32154	80.00143	10/25/2021	13:37	D	3.92

Details of residue burning events in Rajasthan on 25-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	HANUMANGARH	HANUMANGARH	S-NPP	29.63659	74.26649	10/25/2021	13:39	D	2.13
2	KOTA	LADPURA	S-NPP	25.26014	75.95041	10/25/2021	13:37	D	3.77

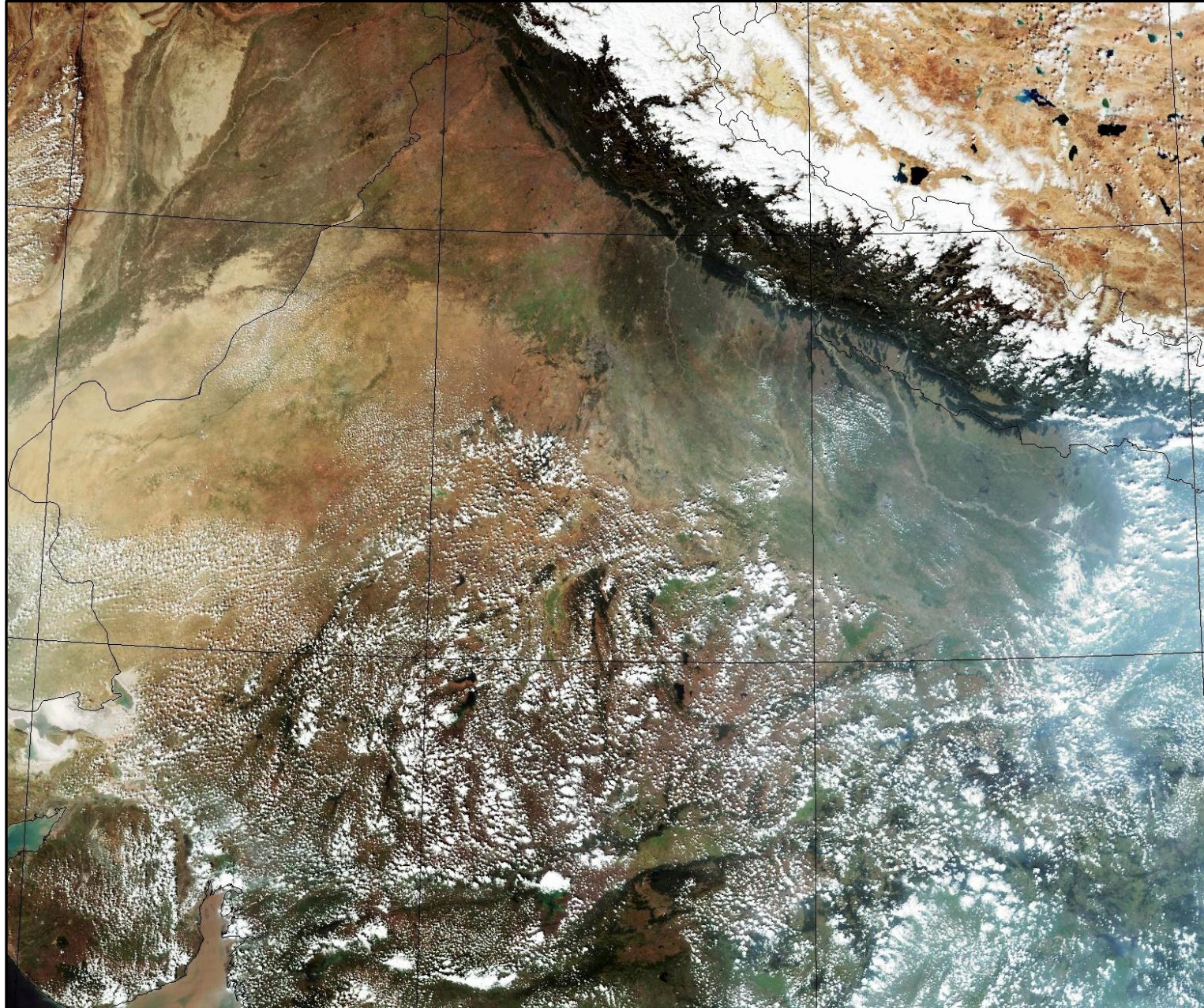
Details of residue burning events in Madhya Pradesh on 25-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	CHHINDWARA	CHAURAI	S-NPP	22.11460	79.22005	10/25/2021	13:37	D	5.62
2	CHHINDWARA	CHAURAI	S-NPP	22.14359	79.29388	10/25/2021	13:37	D	3.17
3	GWALIOR	DABRA	S-NPP	25.87183	78.19147	10/25/2021	13:37	D	1.69
4	GWALIOR	DABRA	S-NPP	25.87362	78.19213	10/25/2021	13:37	D	3.71
5	HARDA	TIMURNI	S-NPP	22.28450	77.22017	10/25/2021	13:37	D	3.09
6	HARDA	TIMURNI	S-NPP	22.33644	77.30962	10/25/2021	13:37	D	4.07
7	HOSHANGABAD	HOSHANGABAD	S-NPP	22.65152	77.61729	10/25/2021	13:37	D	1.92
8	HOSHANGABAD	SEONI MALWA	S-NPP	22.44030	77.35181	10/25/2021	13:37	D	2.09
9	HOSHANGABAD	SEONI MALWA	S-NPP	22.49298	77.62631	10/25/2021	13:37	D	3.23
10	HOSHANGABAD	SEONI MALWA	S-NPP	22.50829	77.61178	10/25/2021	13:37	D	3.85
11	HOSHANGABAD	SEONI MALWA	S-NPP	22.56310	77.50721	10/25/2021	13:37	D	2.78
12	HOSHANGABAD	SEONI MALWA	S-NPP	22.63247	77.50790	10/25/2021	13:37	D	2.82
13	JABALPUR	JABALPUR	S-NPP	22.96297	79.83001	10/25/2021	13:37	D	4.79
14	JABALPUR	JABALPUR	S-NPP	22.96336	79.82705	10/25/2021	13:37	D	4.91
15	JABALPUR	SAHPURA	S-NPP	22.95724	79.65613	10/25/2021	13:37	D	2.57
16	MANDLA	NAINPUR	S-NPP	22.46793	80.12548	10/25/2021	13:37	D	4.38
17	MANDLA	NAINPUR	S-NPP	22.47139	80.12771	10/25/2021	13:37	D	4.10
18	MANDLA	NAINPUR	S-NPP	22.47171	80.12493	10/25/2021	13:37	D	6.84
19	NARSHIMAPURA	GOTECAON	S-NPP	22.95506	79.37407	10/25/2021	13:37	D	3.66
20	NARSHIMAPURA	NARSIMHAPUR	S-NPP	22.67676	79.34466	10/25/2021	13:37	D	4.51
21	REWA	MAUGANJ	S-NPP	24.63580	81.70151	10/25/2021	13:37	D	1.79

22	SAGAR	DEVRI	S-NPP	23.36175	78.99289	10/25/2021	13:37	D	2.56
23	SAGAR	DEVRI	S-NPP	23.39360	79.06644	10/25/2021	13:37	D	3.60
24	SATNA	AMARPATAN	S-NPP	24.30829	81.02830	10/25/2021	13:37	D	2.62
25	SATNA	RAMPURBAGHLEAN	S-NPP	24.70883	81.10227	10/25/2021	13:37	D	2.48
26	SEHORE	BUDHNI	S-NPP	22.76904	77.68341	10/25/2021	13:37	D	3.55
27	SEHORE	NASRULLAHGANJ	S-NPP	22.81772	77.38951	10/25/2021	13:37	D	1.68
28	SEONI	GHANSAUR	S-NPP	22.45949	79.70048	10/25/2021	13:37	D	3.44
29	SEONI	GHANSAUR	S-NPP	22.49324	79.87510	10/25/2021	13:37	D	6.60
30	SEONI	GHANSAUR	S-NPP	22.54263	79.83535	10/25/2021	13:37	D	5.03
31	SEONI	GHANSAUR	S-NPP	22.56016	79.79372	10/25/2021	13:37	D	8.91
32	SEONI	GHANSAUR	S-NPP	22.56388	79.79319	10/25/2021	13:37	D	8.91
33	SEONI	GHANSAUR	S-NPP	22.66596	79.87325	10/25/2021	13:37	D	2.65
34	SEONI	KEWLARI	S-NPP	22.25257	79.85255	10/25/2021	13:37	D	13.89
35	SEONI	KEWLARI	S-NPP	22.25507	79.84248	10/25/2021	13:37	D	9.24
36	SEONI	KEWLARI	S-NPP	22.25812	79.86636	10/25/2021	13:37	D	3.94
37	SEONI	KEWLARI	S-NPP	22.26994	79.84031	10/25/2021	13:37	D	6.48
38	SEONI	KEWLARI	S-NPP	22.28973	79.90568	10/25/2021	13:37	D	9.77
39	SEONI	KEWLARI	S-NPP	22.30218	79.85513	10/25/2021	13:37	D	14.21
40	SEONI	KEWLARI	S-NPP	22.30590	79.85459	10/25/2021	13:37	D	8.23
41	SEONI	KEWLARI	S-NPP	22.31213	79.90247	10/25/2021	13:37	D	7.83
42	SEONI	KEWLARI	S-NPP	22.31833	79.86253	10/25/2021	13:37	D	8.09
43	SEONI	KEWLARI	S-NPP	22.33641	79.78396	10/25/2021	13:37	D	6.26
44	SEONI	KEWLARI	S-NPP	22.33701	79.78870	10/25/2021	13:37	D	9.24
45	SEONI	KEWLARI	S-NPP	22.33812	79.82739	10/25/2021	13:37	D	5.71
46	SEONI	KEWLARI	S-NPP	22.34911	79.88441	10/25/2021	13:37	D	3.14
47	SEONI	KEWLARI	S-NPP	22.35436	79.77652	10/25/2021	13:37	D	5.27
48	SEONI	KEWLARI	S-NPP	22.35740	79.80035	10/25/2021	13:37	D	5.43
49	SEONI	LAKHNADOU	S-NPP	22.42764	79.39709	10/25/2021	13:37	D	1.72
50	SEONI	SEONI	S-NPP	22.14692	79.51852	10/25/2021	13:37	D	2.61
51	SEONI	SEONI	S-NPP	22.20646	79.79967	10/25/2021	13:37	D	4.01
52	SEONI	SEONI	S-NPP	22.22403	79.68813	10/25/2021	13:37	D	6.01
53	SEONI	SEONI	S-NPP	22.22831	79.69228	10/25/2021	13:37	D	6.01
54	SEONI	SEONI	S-NPP	22.26078	79.76912	10/25/2021	13:37	D	31.42

55	SEONI	SEONI	S-NPP	22.27564	79.59489	10/25/2021	13:37	D	5.37
56	SEONI	SEONI	S-NPP	22.32789	79.74654	10/25/2021	13:37	D	6.94
57	SHEOPUR	SHEOPUR	S-NPP	25.62961	76.58535	10/25/2021	13:37	D	2.04
58	VIDESHA	BASODA	S-NPP	23.92908	78.05587	10/25/2021	13:37	D	2.56
59	VIDESHA	VIDESHA	S-NPP	23.52639	77.67264	10/25/2021	13:37	D	4.97
60	VIDESHA	VIDESHA	TERRA	23.59598	77.65841	10/25/2021	11:10	D	6.55

SNPP (VIIRS) Satellite image (TCC) of North and Central India Acquired on 25-Oct-2021 at 13:32:00 IST by IARI Ground Station



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

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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)
