



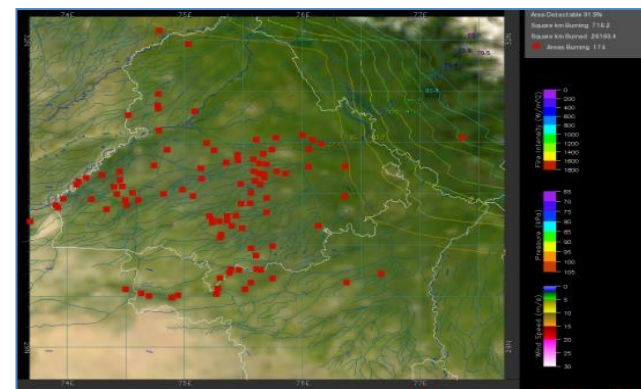
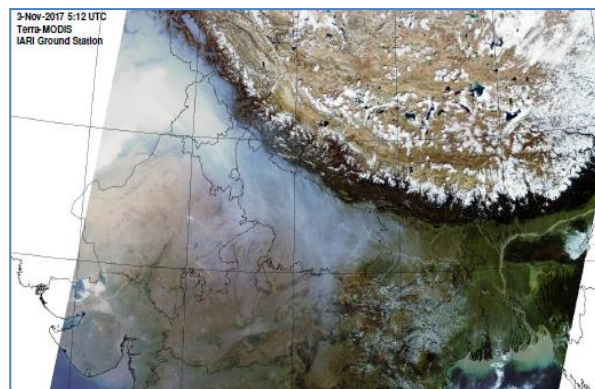
**Bulletin
No. 74**

**Events Date:
27-Nov-2022**

**Issued on:
27-Nov-2022**



MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2022



Prepared by:

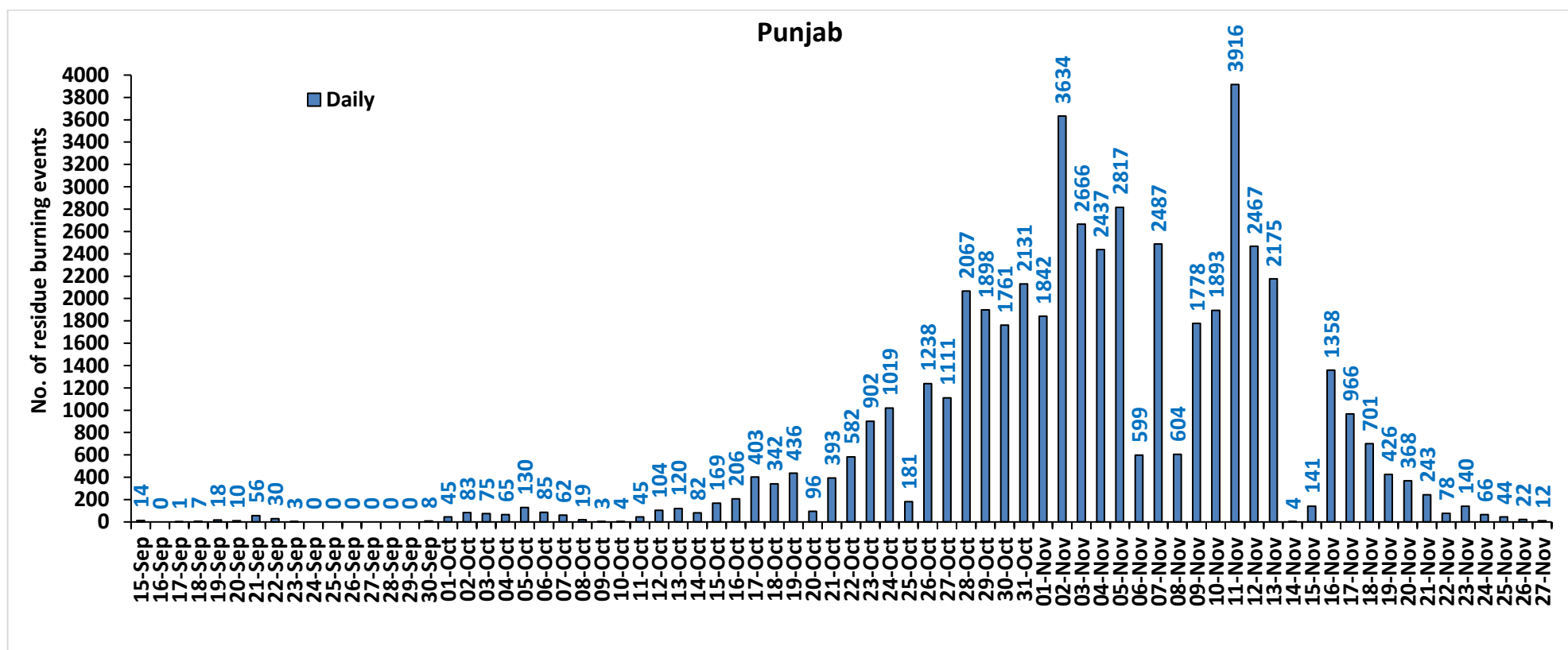
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

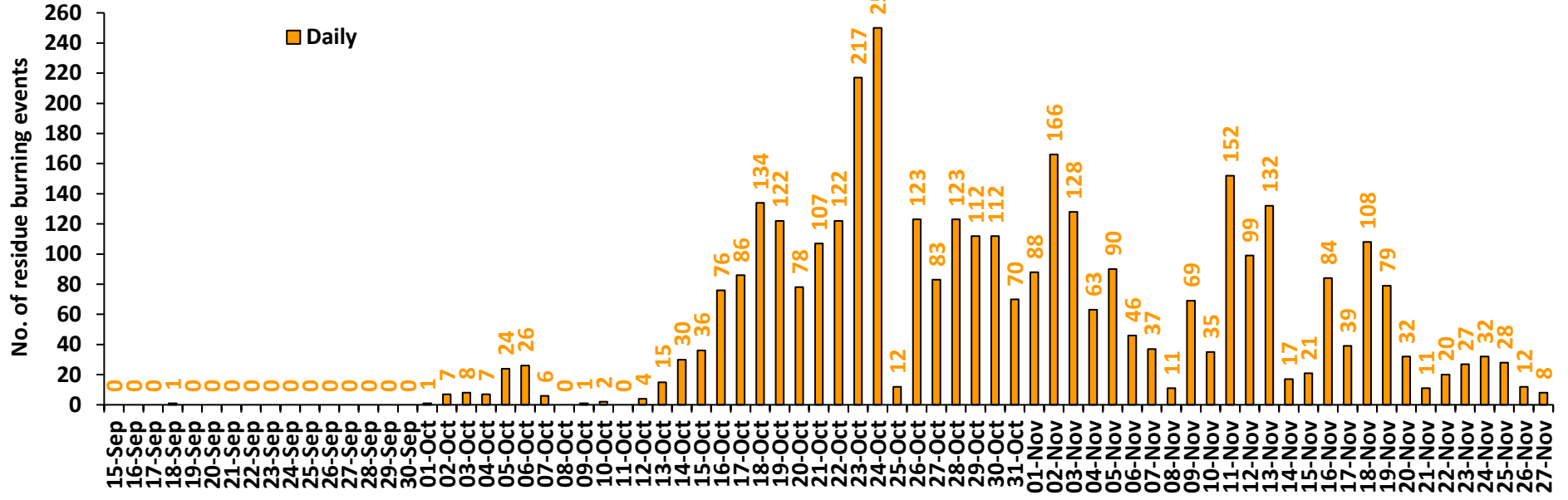
Highlights for 27-Nov-2022

- 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 **93** residue burning events in the six study States on 27-Nov-2022.
- The state wise events detected on 27-Nov-2022 were **12** in Punjab, **8** in Haryana, **14** in UP, **0** in Delhi, **2** in Rajasthan and **57** in MP.
- Total **68873** burning events were detected in the six states between 15-Sept-2022 and 27-Nov-2022, which are distributed as **49888**, **3629**, **2677**, **10,1266** and **11403** in Punjab, Haryana, UP, Delhi, Rajasthan and MP respectively.

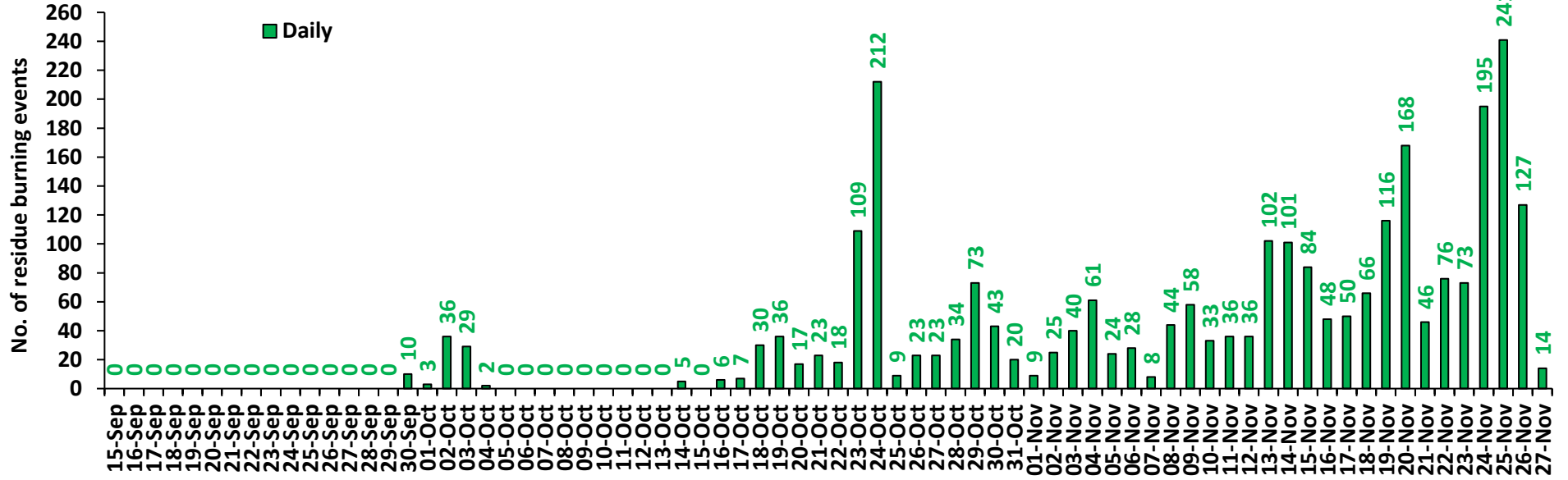
Temporal distribution of rice residue burning events for the study States in 2022



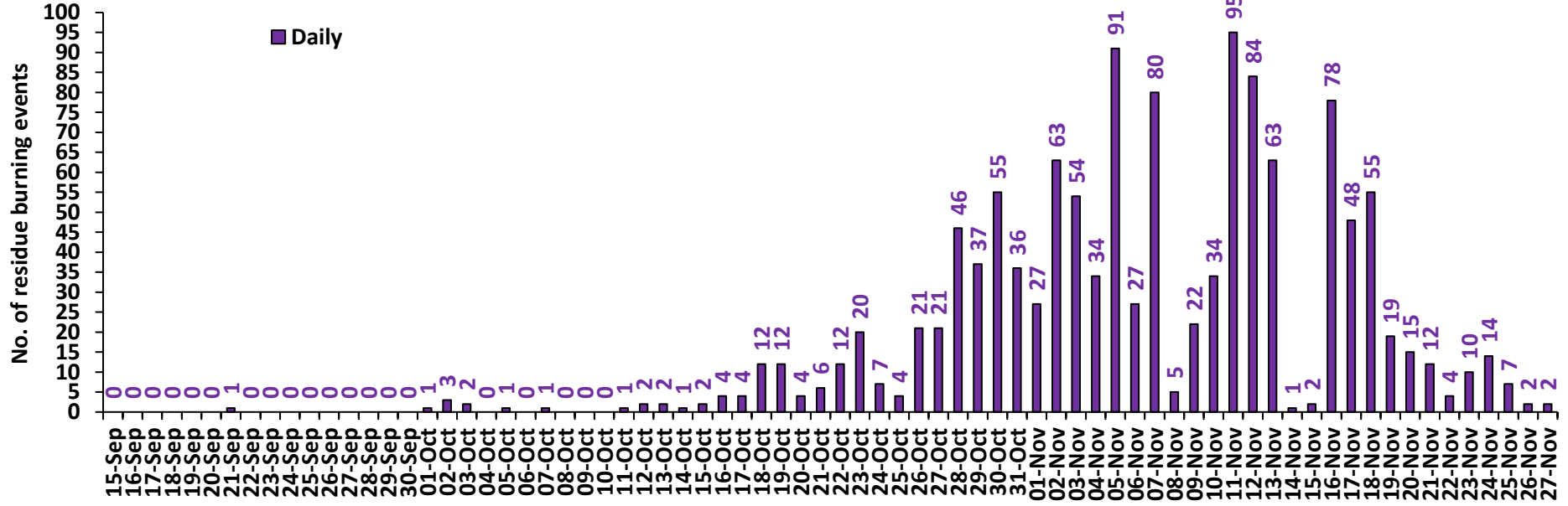
Haryana



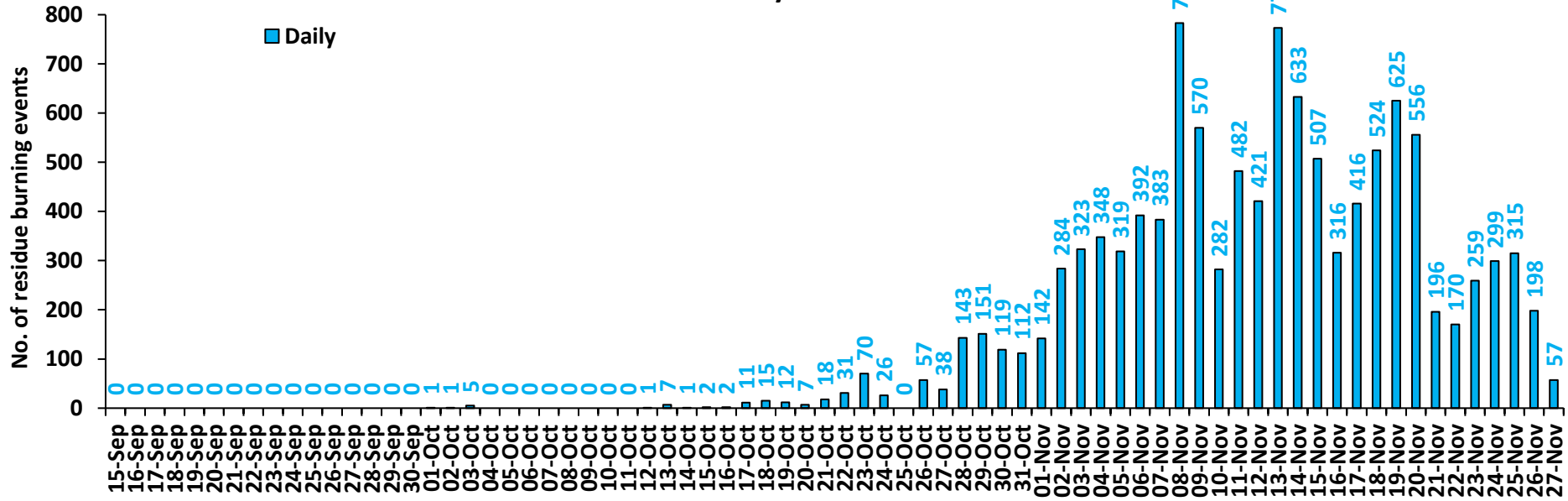
Uttar Pradesh



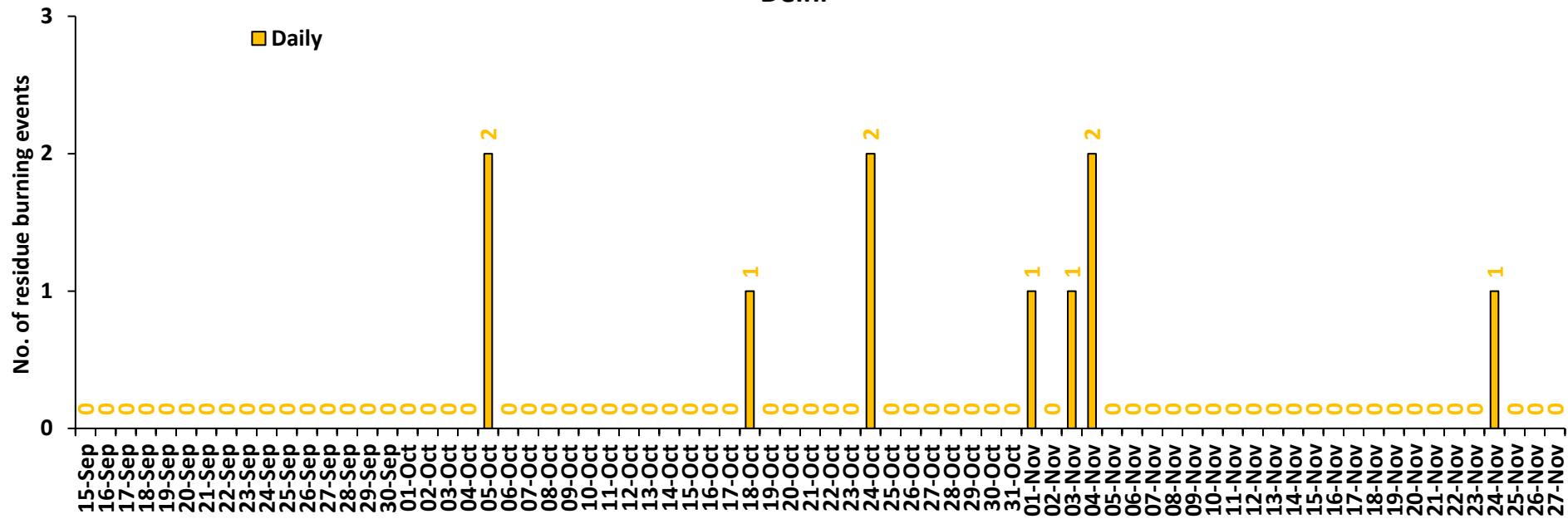
Rajasthan



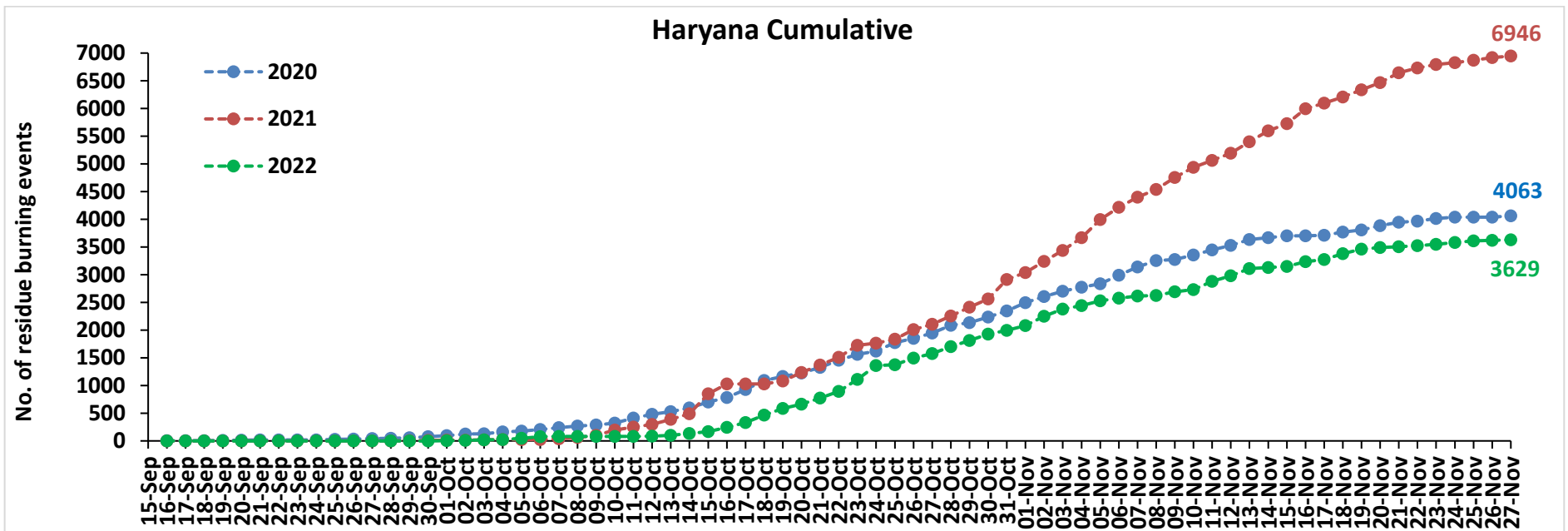
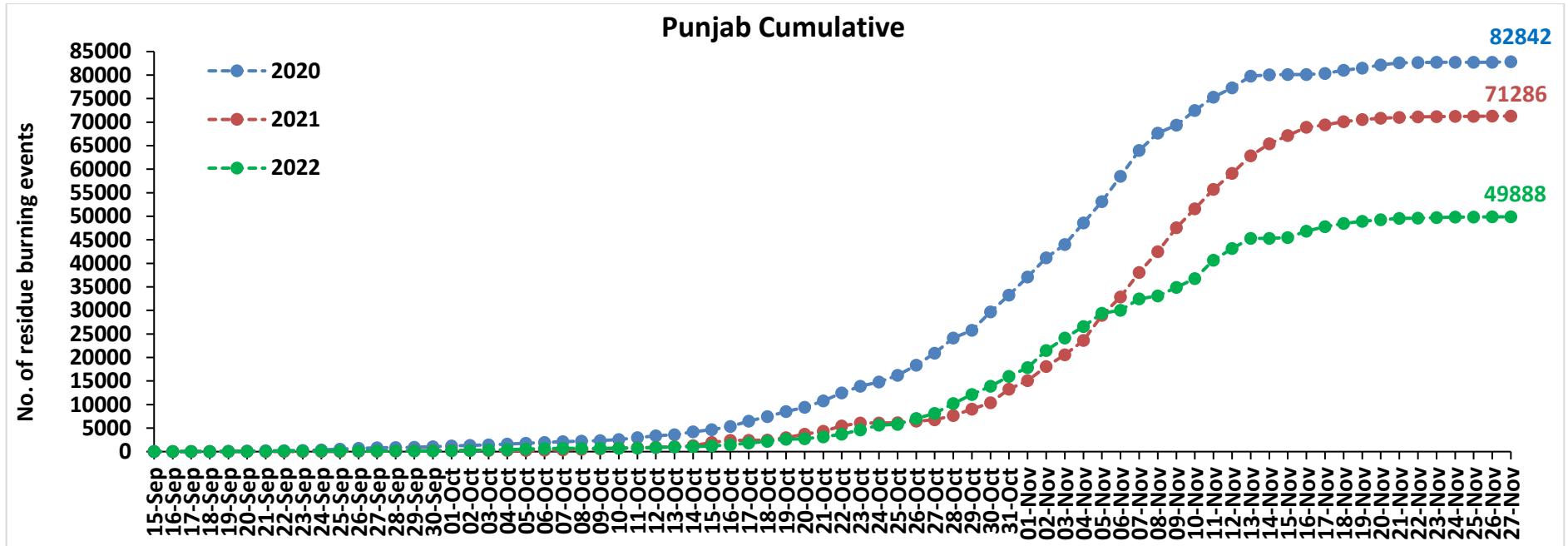
Madhya Pradesh

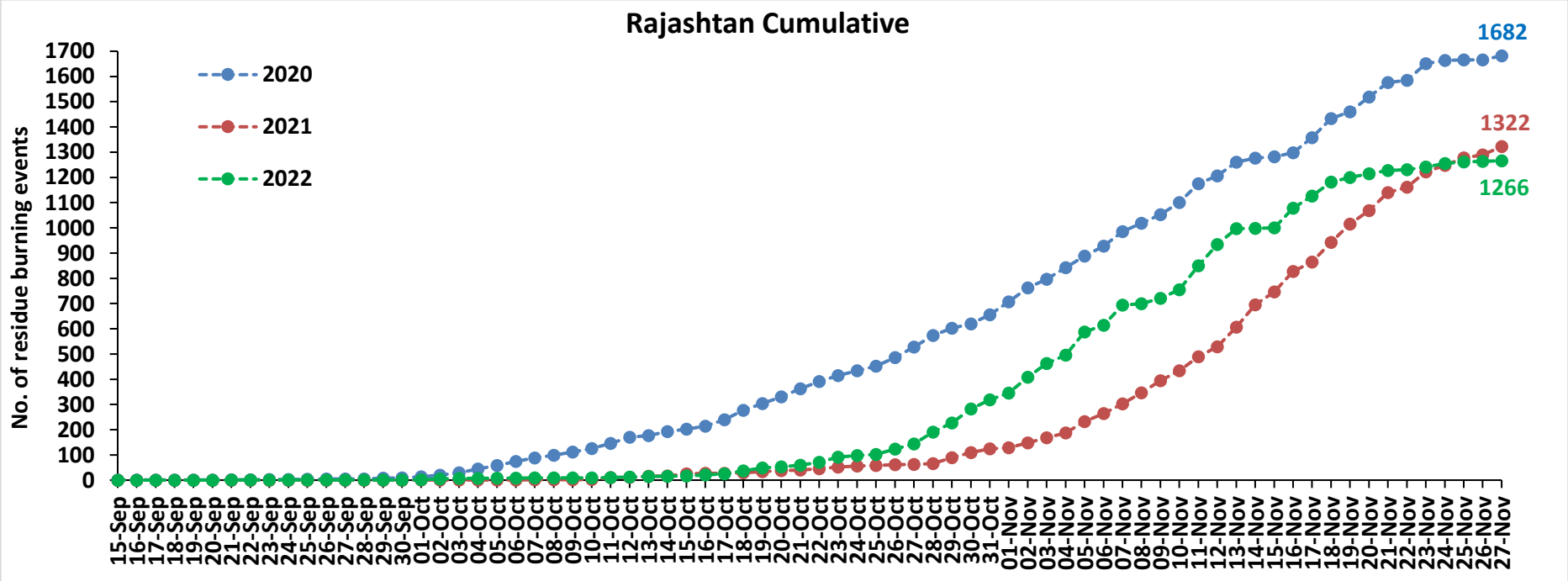
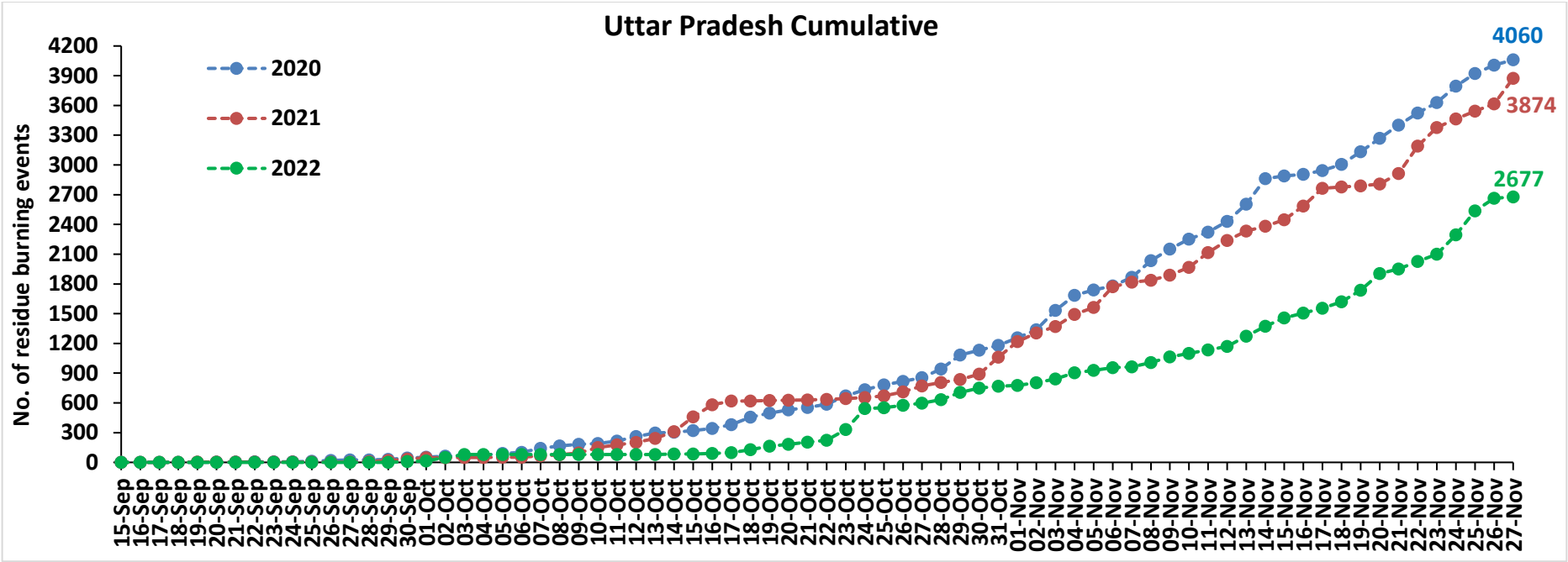


Delhi

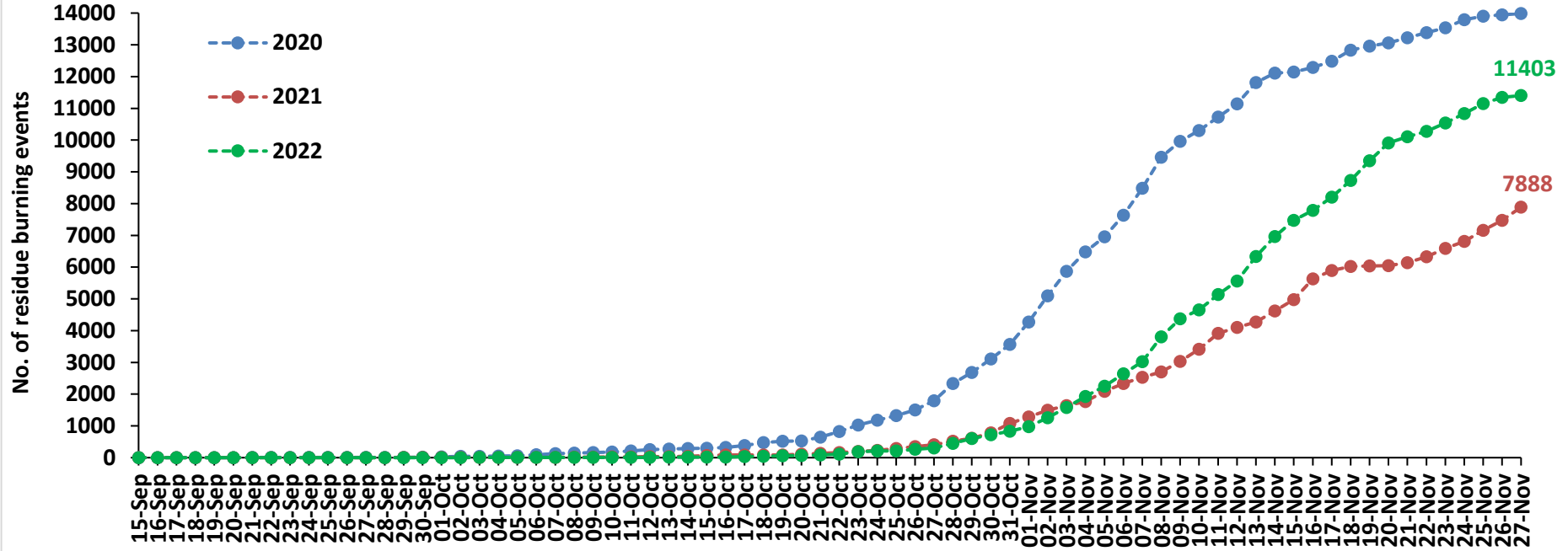


Comparison of residue burning events in current year (2022) with previous years (2020 and 2021) for the study States

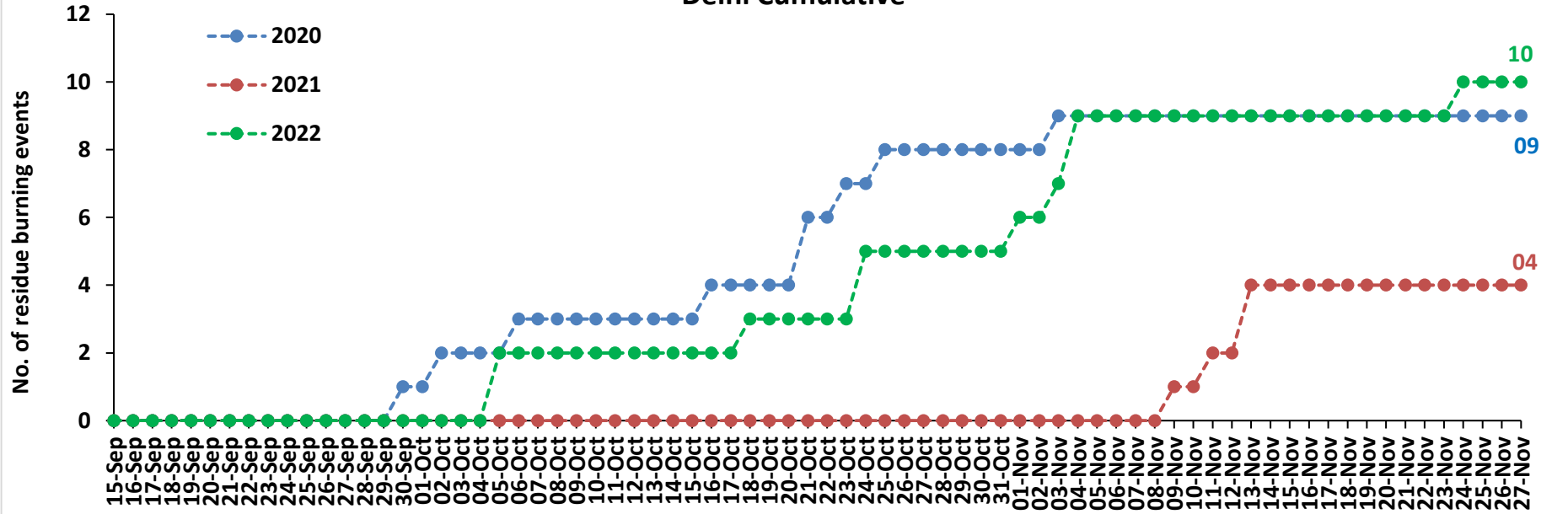




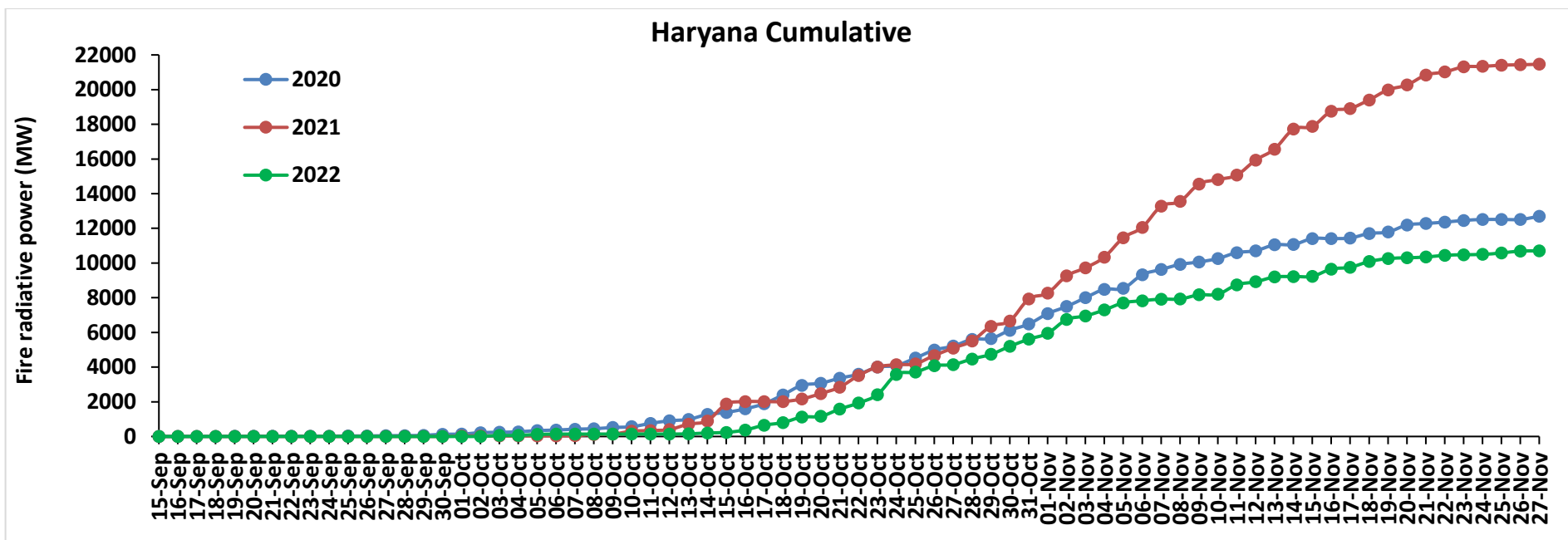
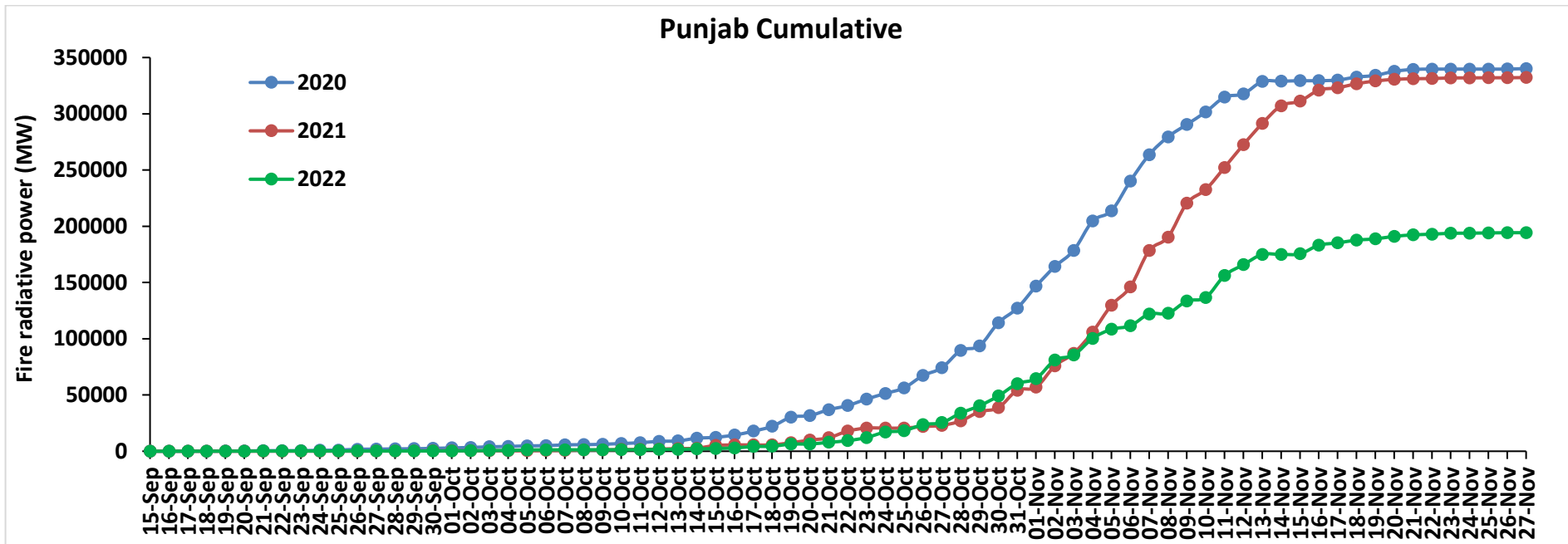
Madhya Pradesh Cumulative



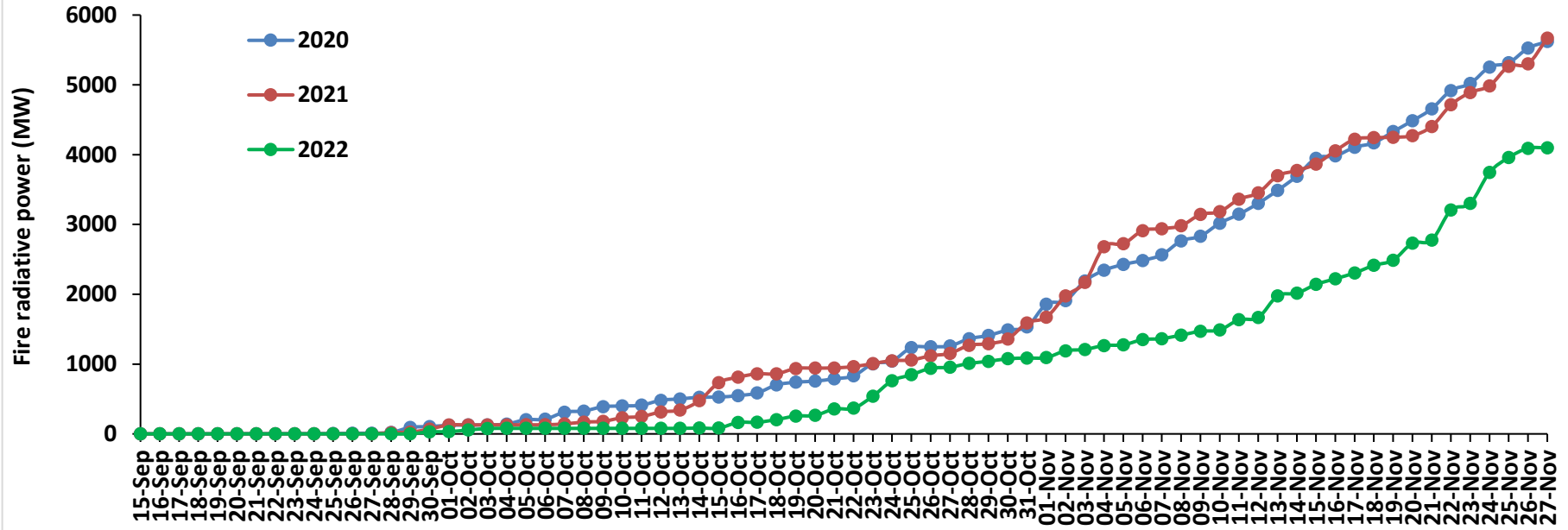
Delhi Cumulative



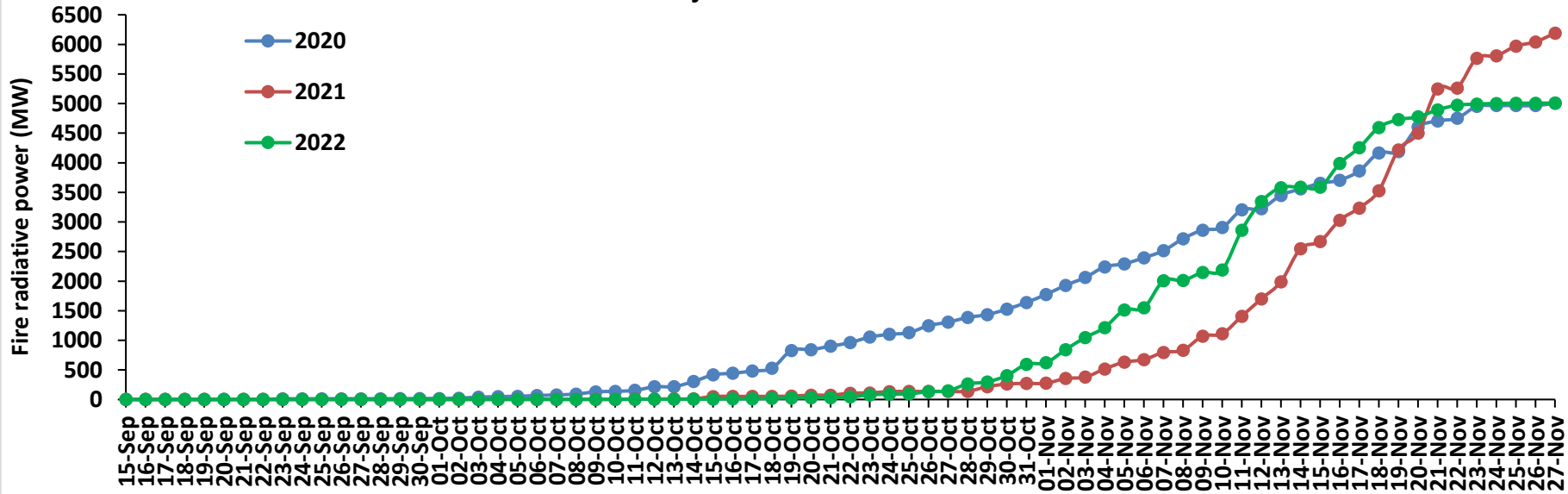
Comparison of residue burning fire power in current year (2022) with previous years (2021 and 2020) for the study States



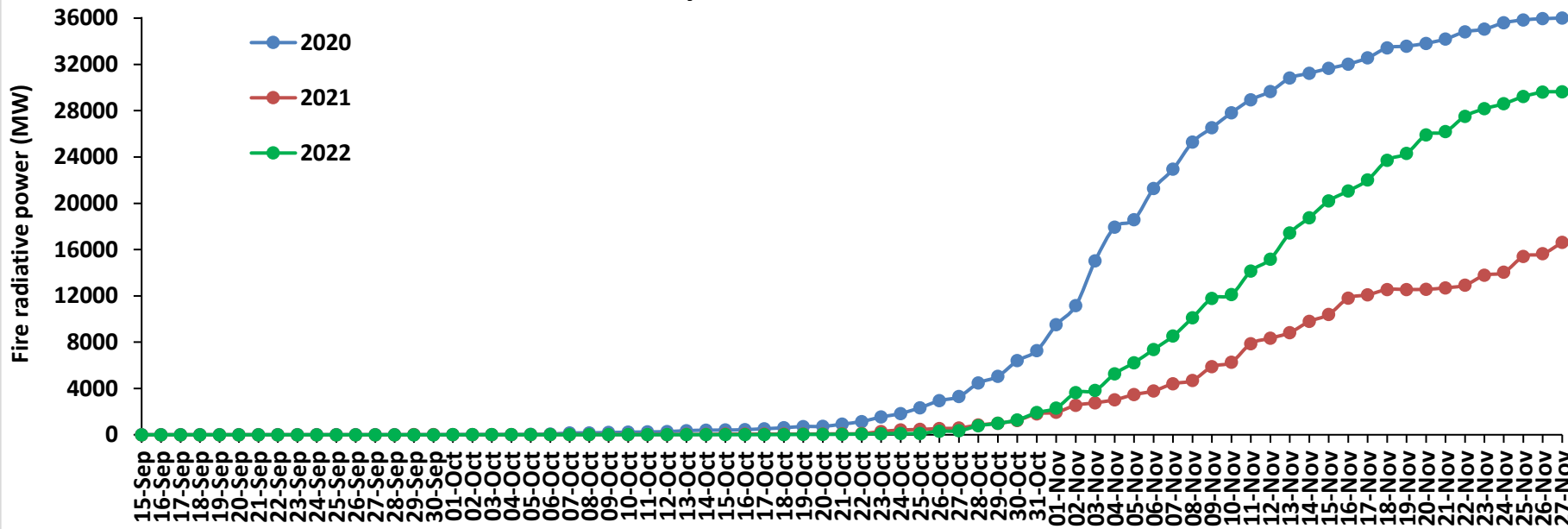
Uttar Pradesh Cumulative



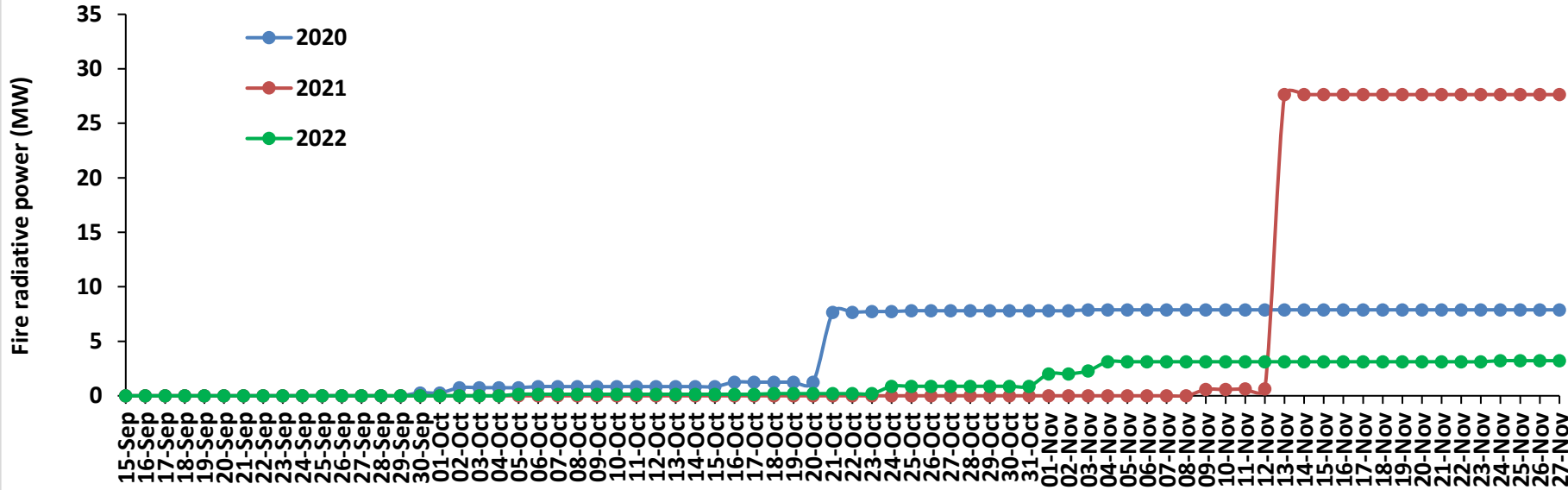
Rajasthan Cumulative



Madhya Pradesh Cumulative

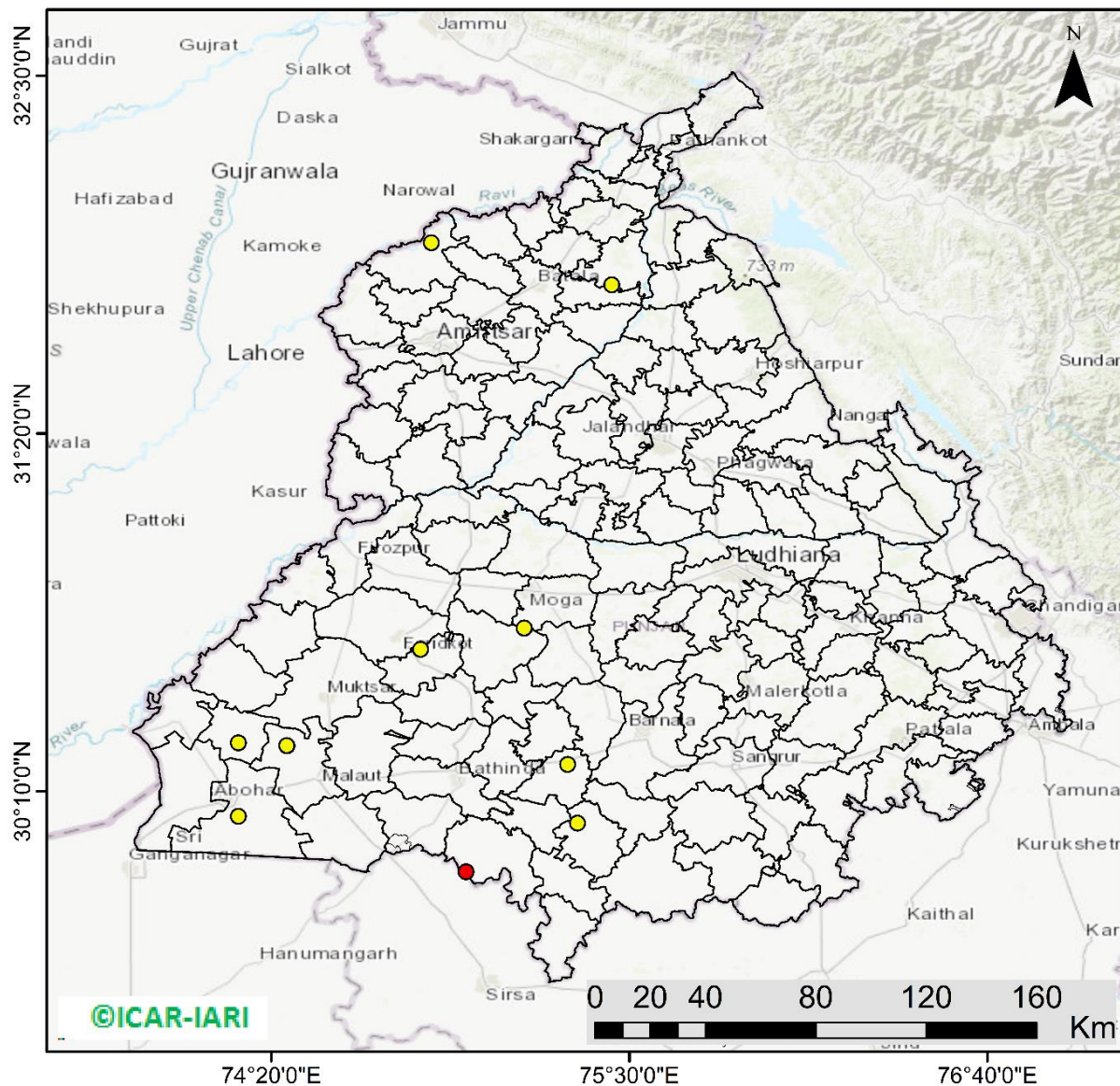


Delhi Cumulative



Punjab

RICE RESIDUE BURNING IN PUNJAB



12 burning events
detected in Punjab during
(27th Nov 2022)

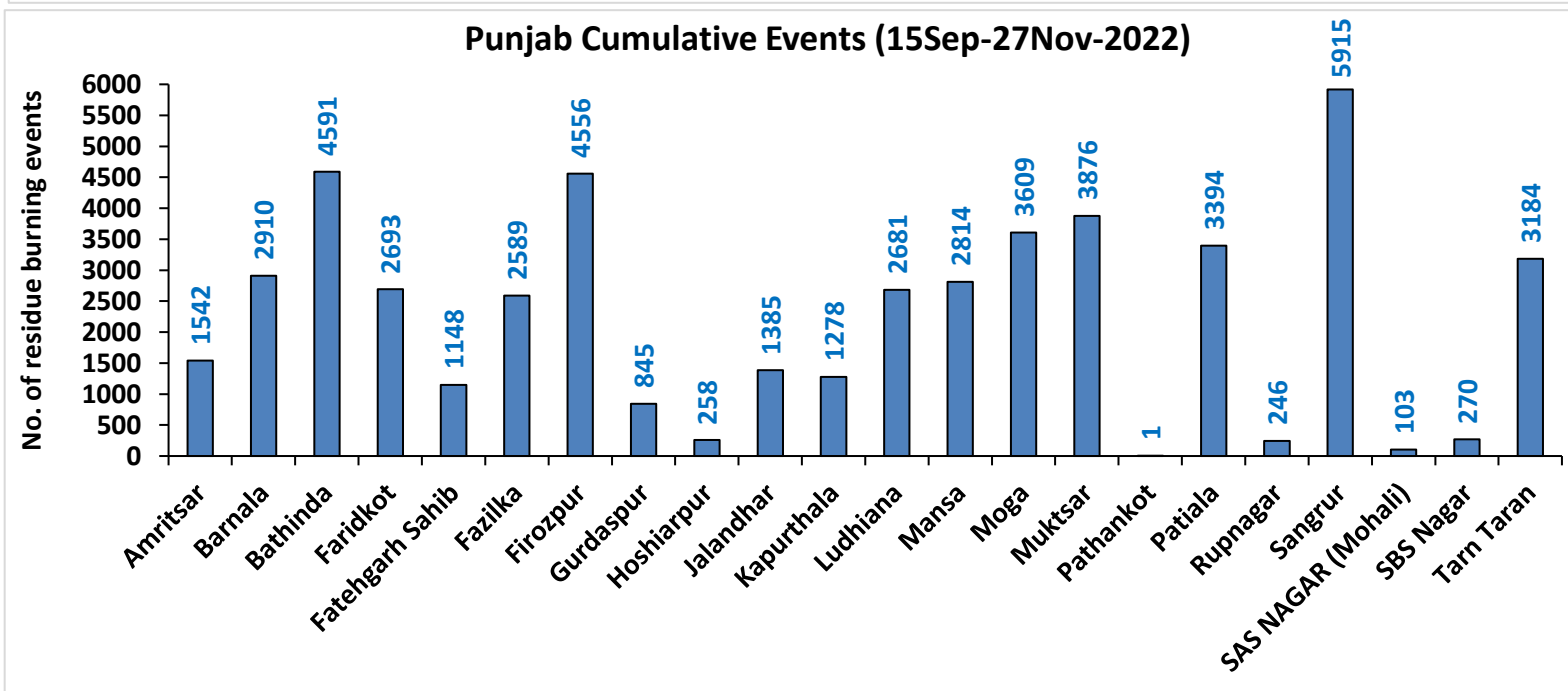
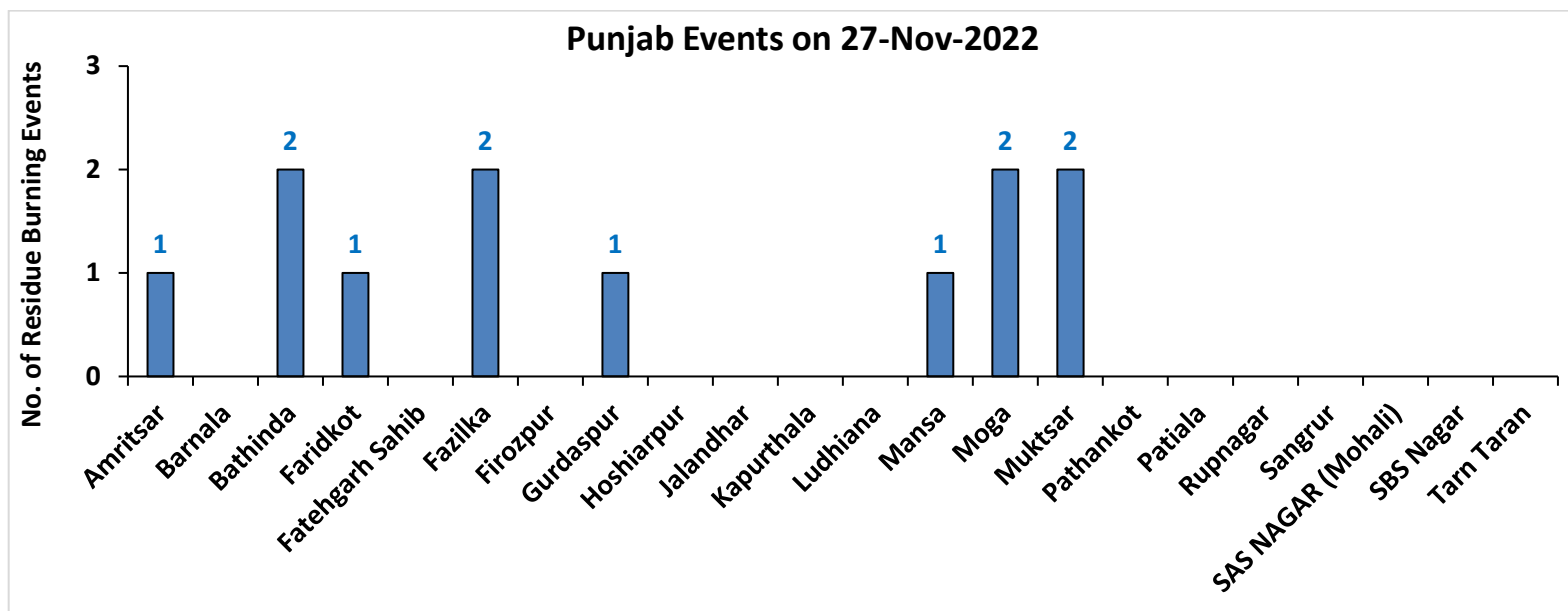
Fire Intensity (W/m²)

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



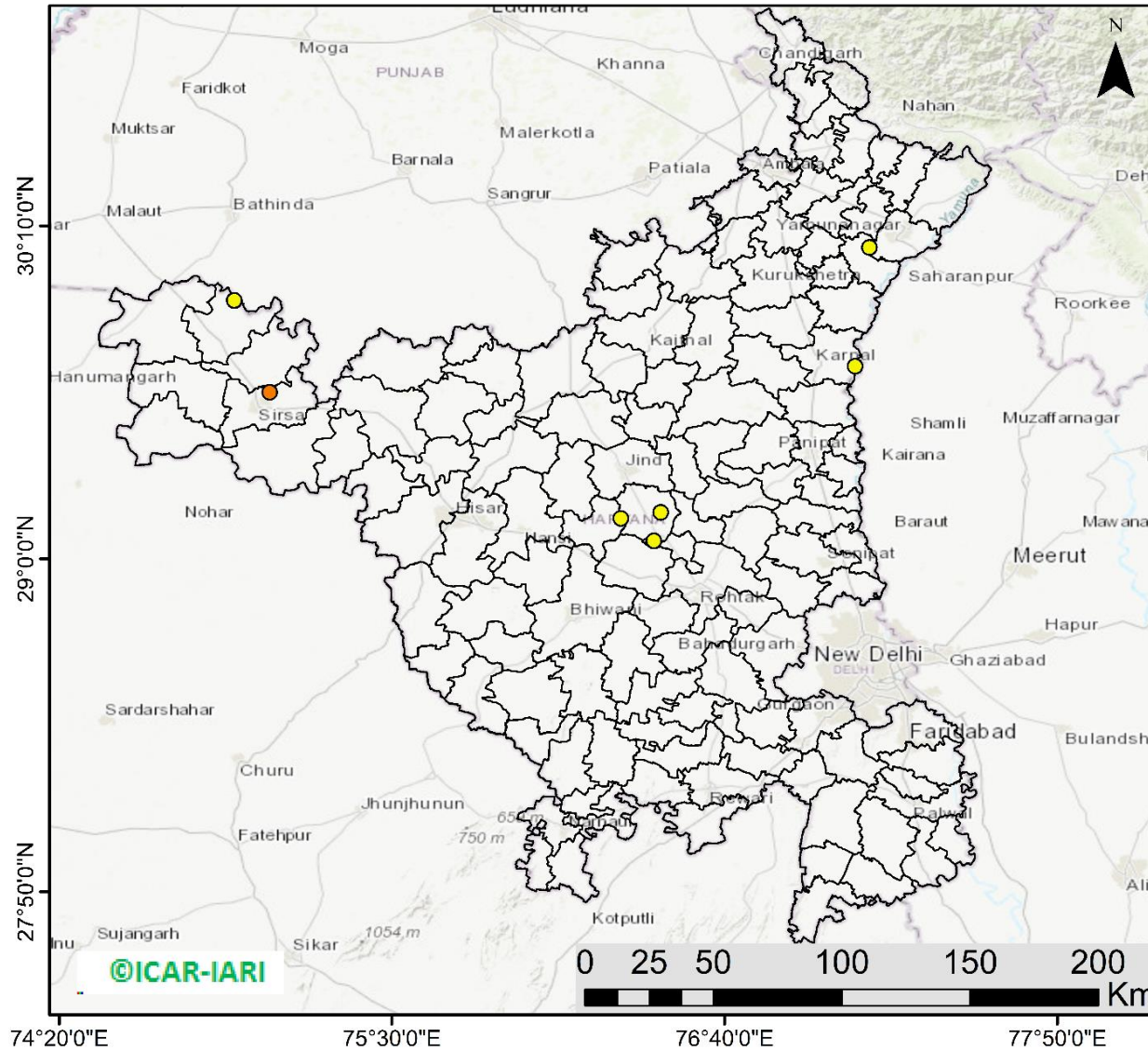
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15Sep- 27Nov-2022)



Haryana

RICE RESIDUE BURNING IN HARYANA



08 burning events
detected in Haryana on
(27th Nov 2022)

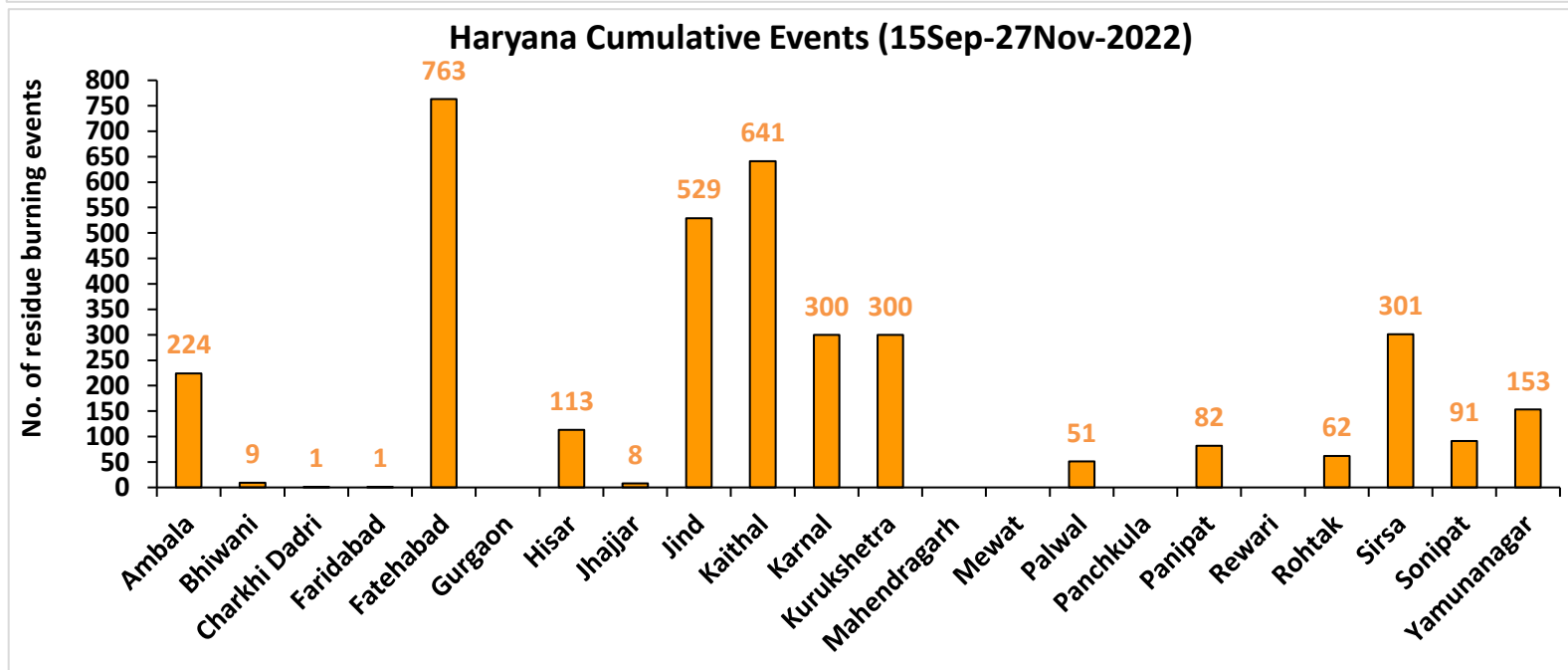
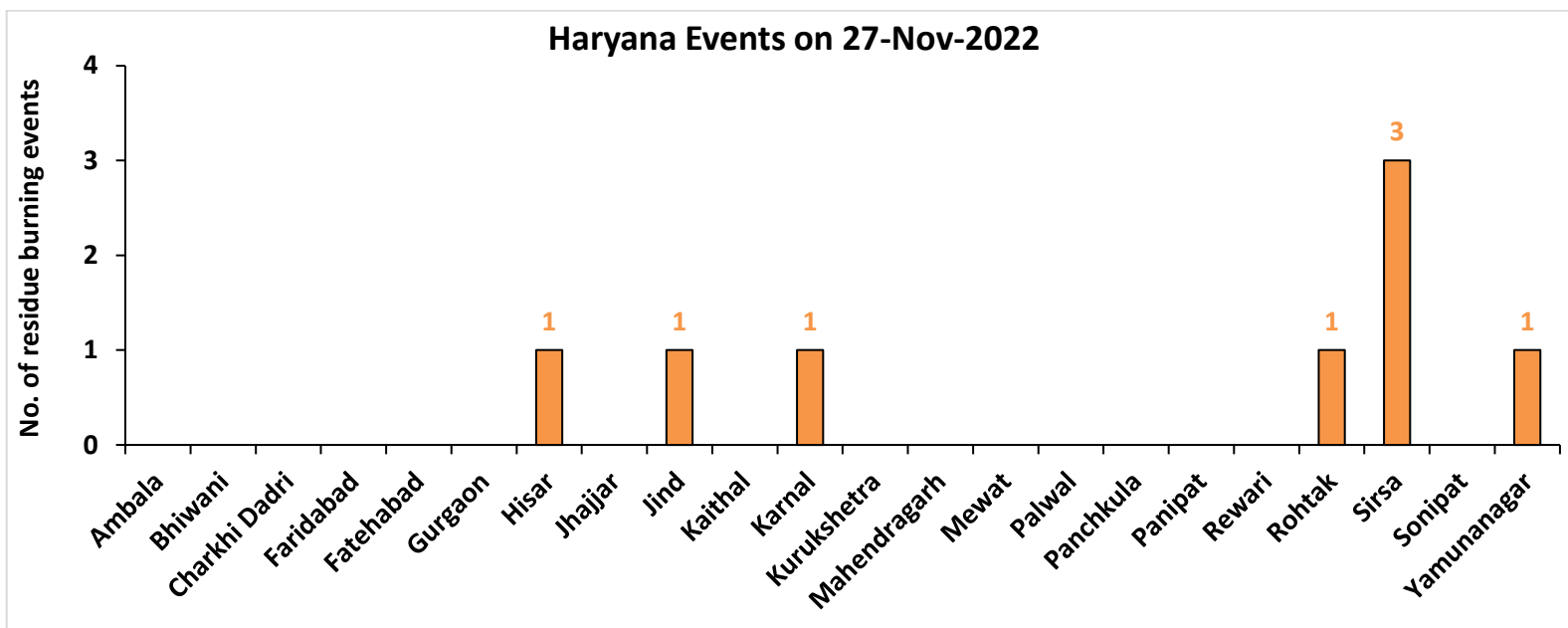
Fire Intensity (W/m²)

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



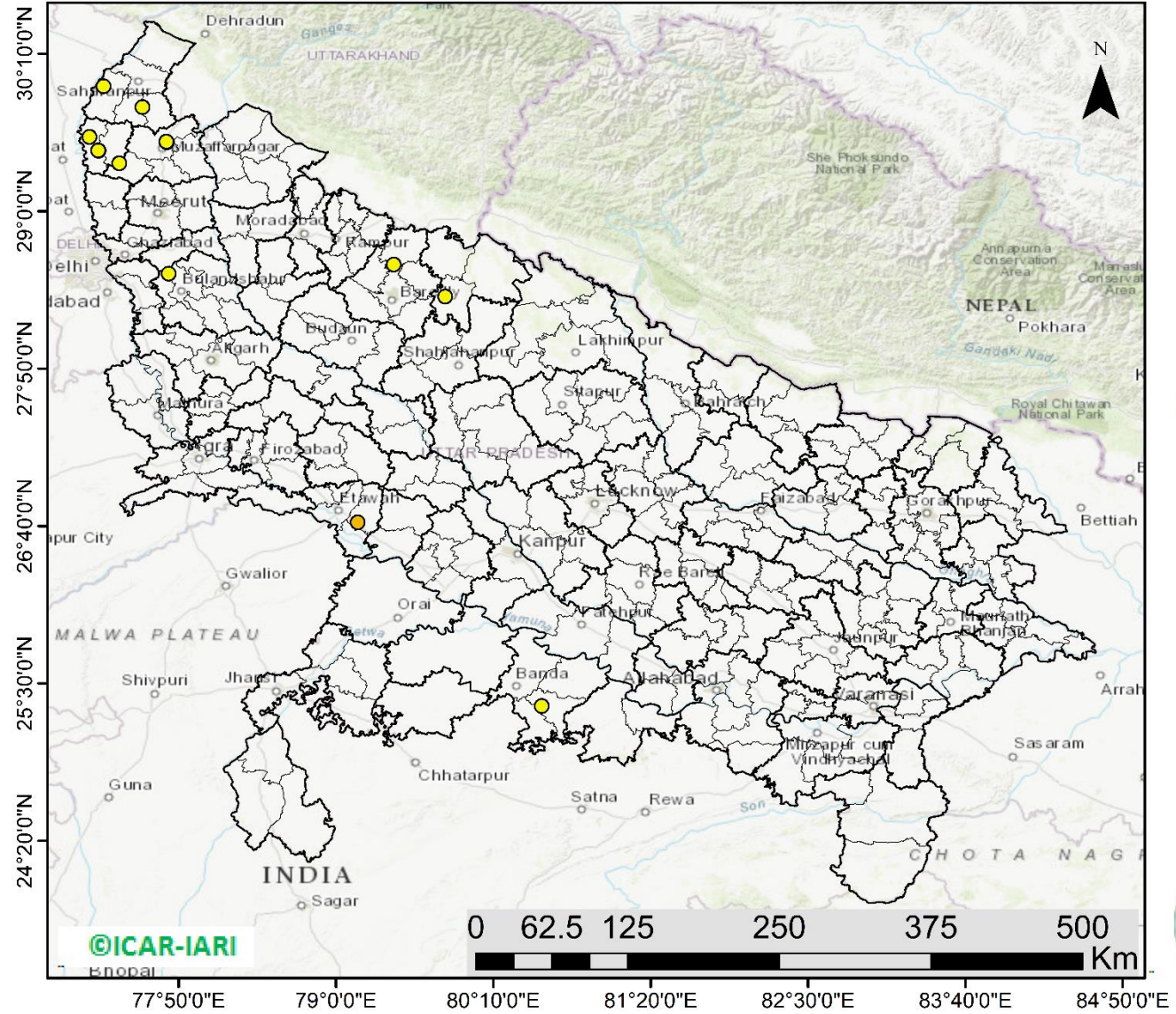
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15Sep- 27Nov-2022)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



14 burning events detected in Uttar Pradesh on (27th Nov 2022)

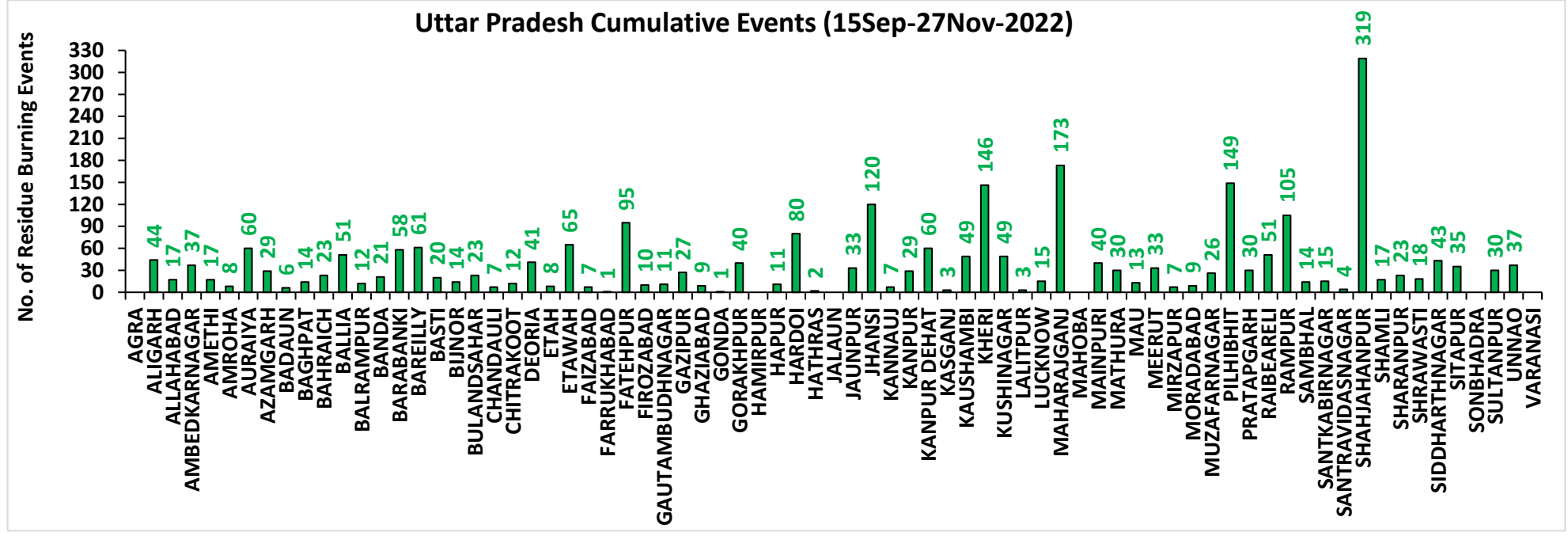
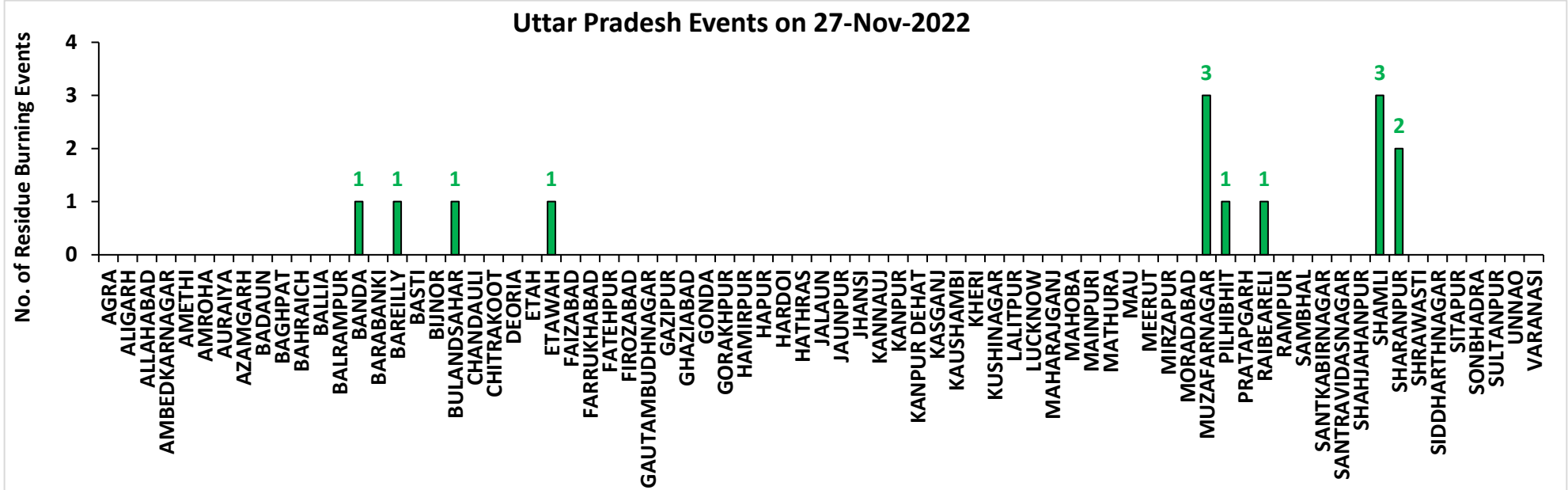
Fire Intensity (W/m2)

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



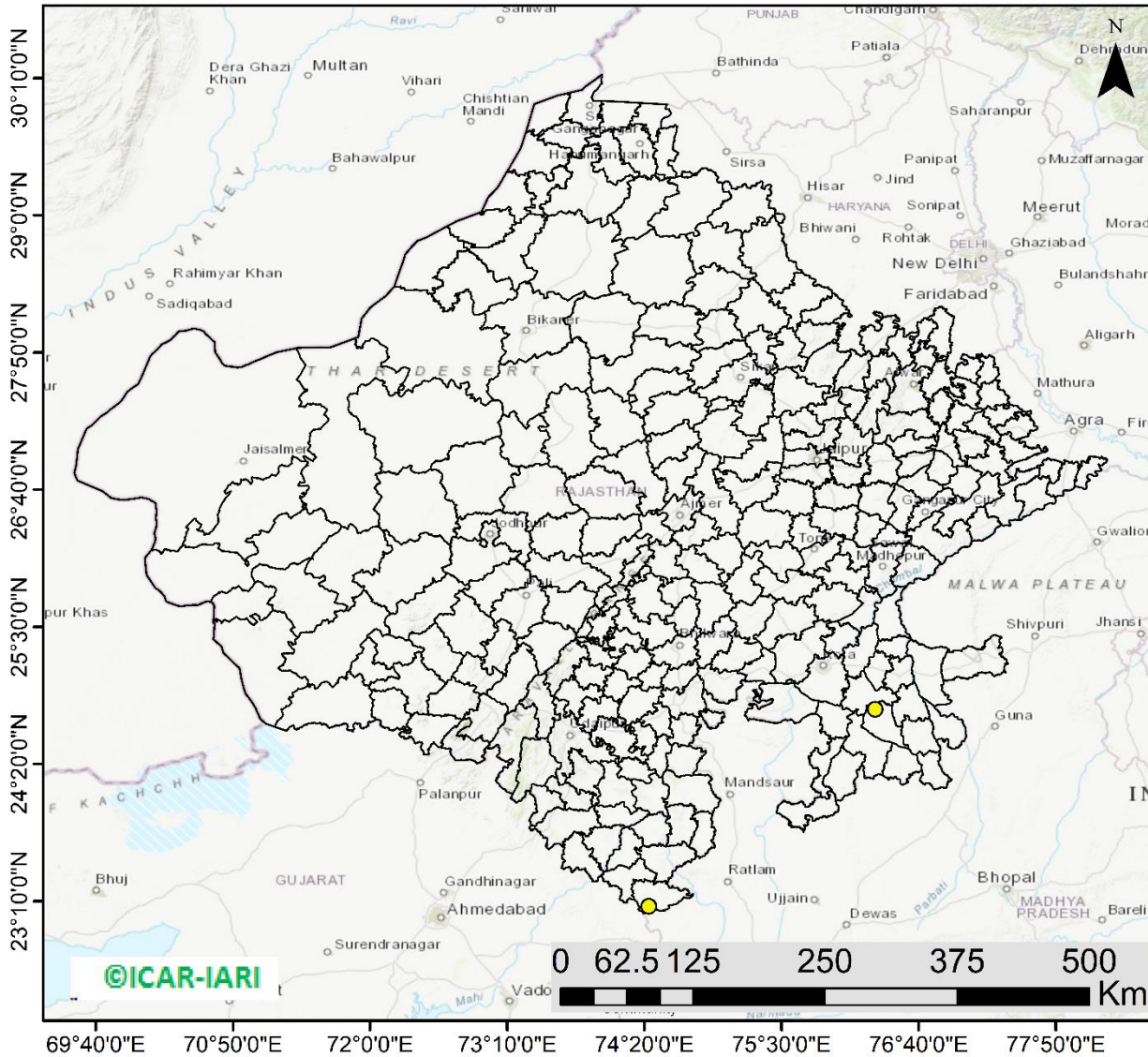
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep- 27Nov-2022)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



02 burning events
detected in Rajasthan on
(27th Nov 2022)

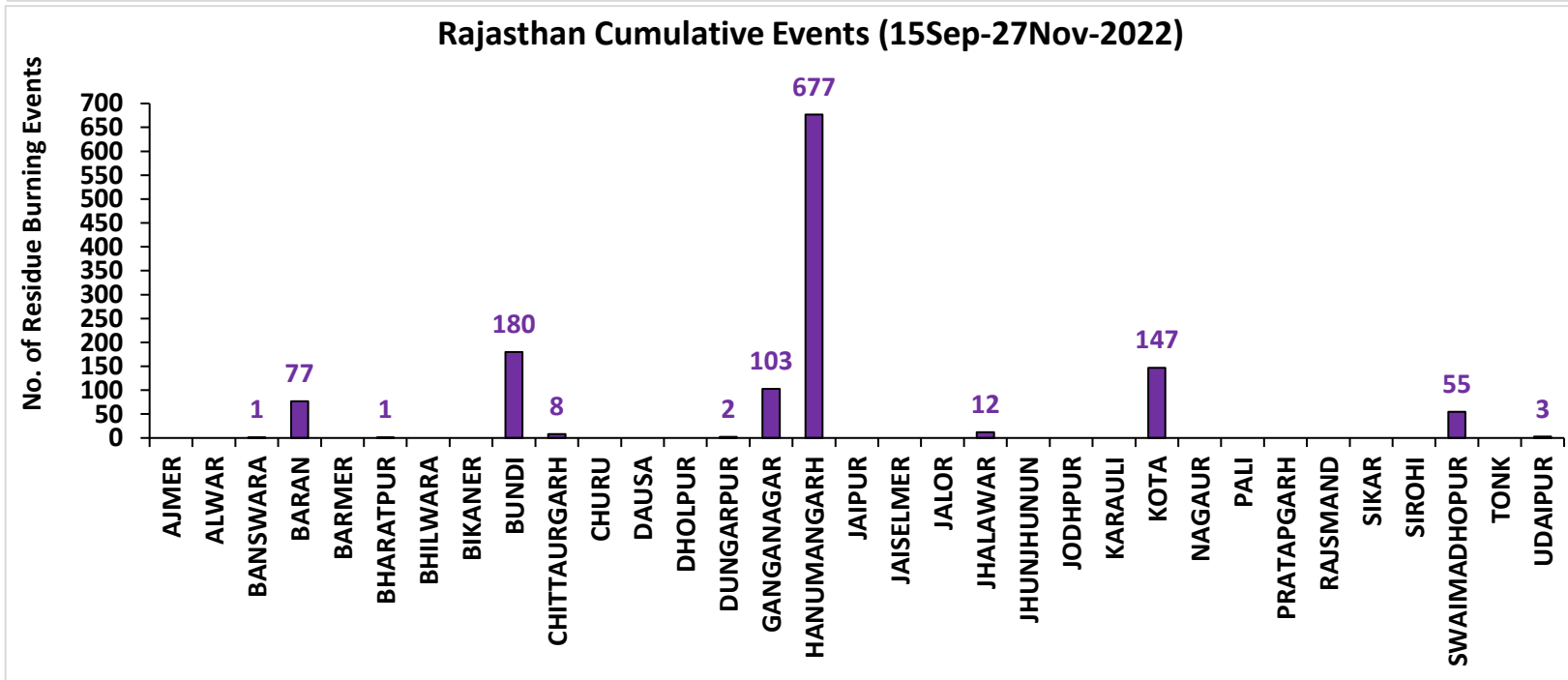
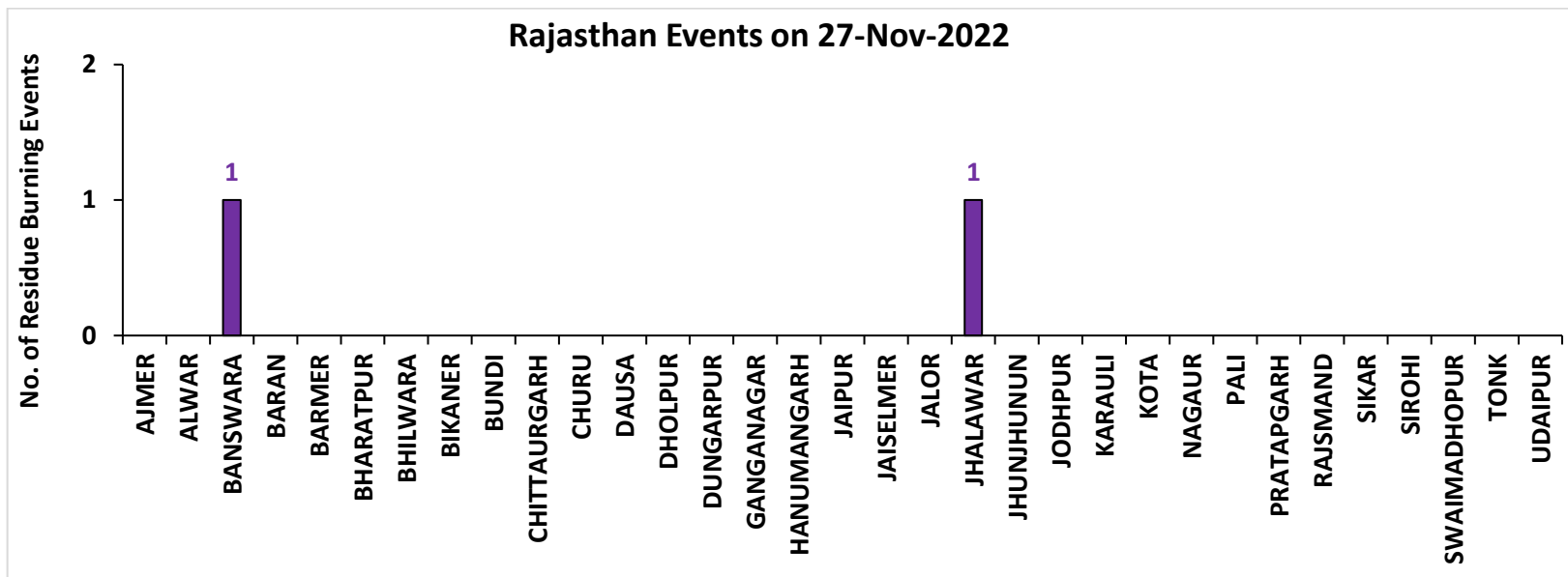
Fire Intensity (W/m²)

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



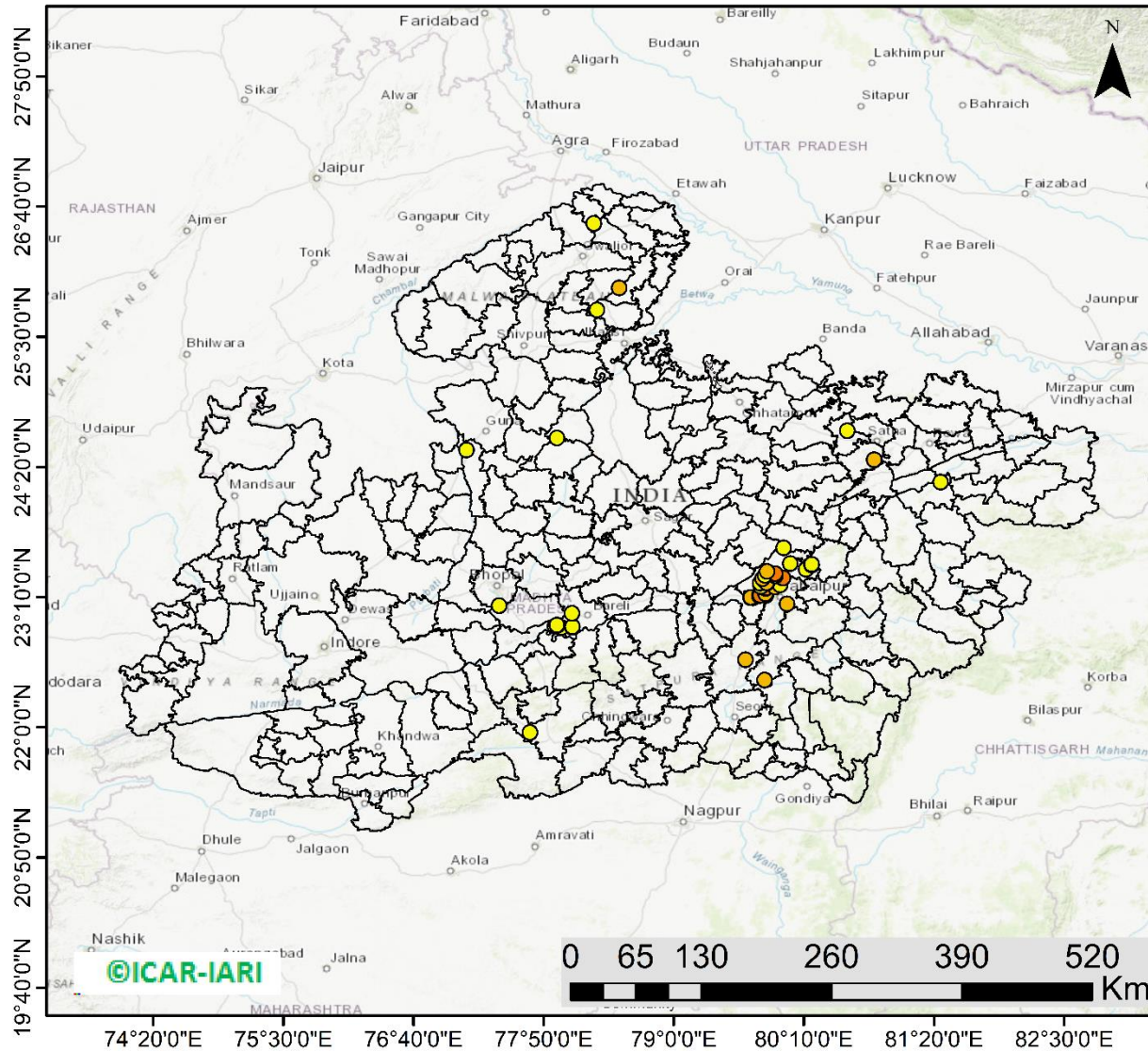
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15Sep- 27Nov-2022)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



57 burning events detected in MP on (27th Nov 2022)

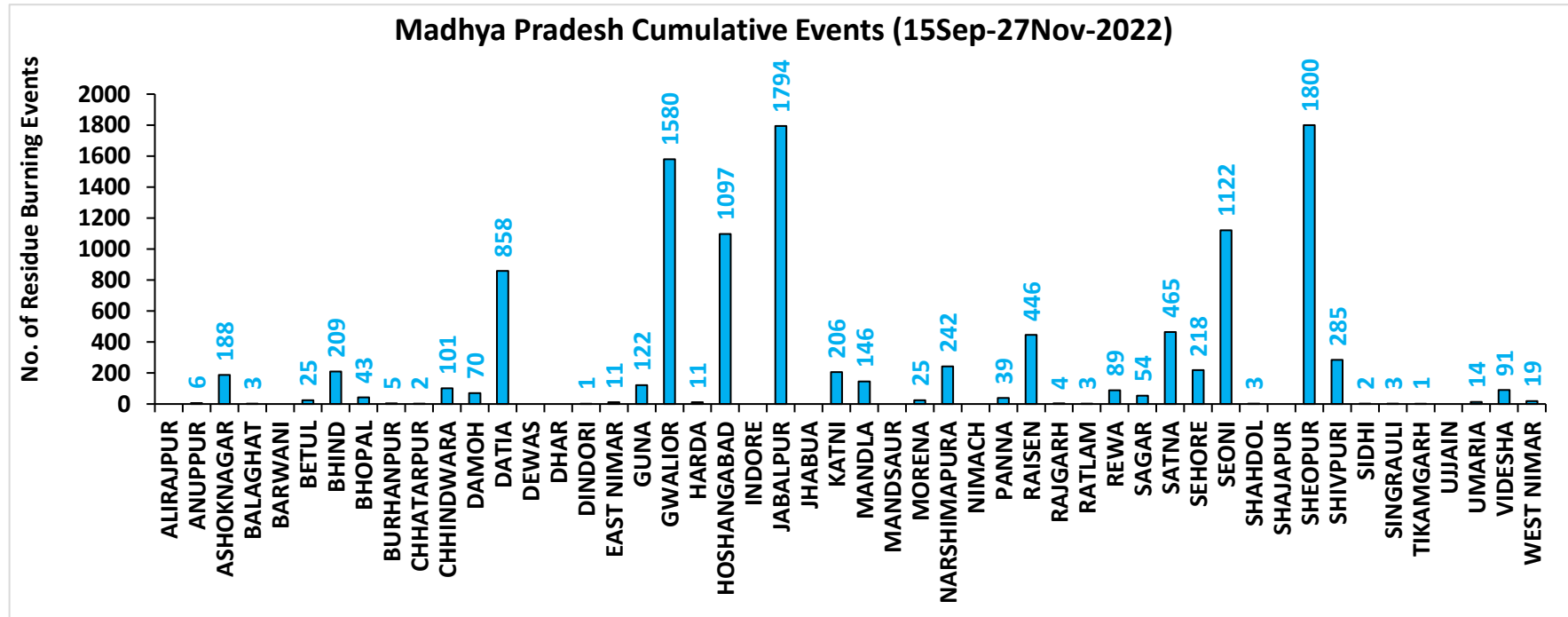
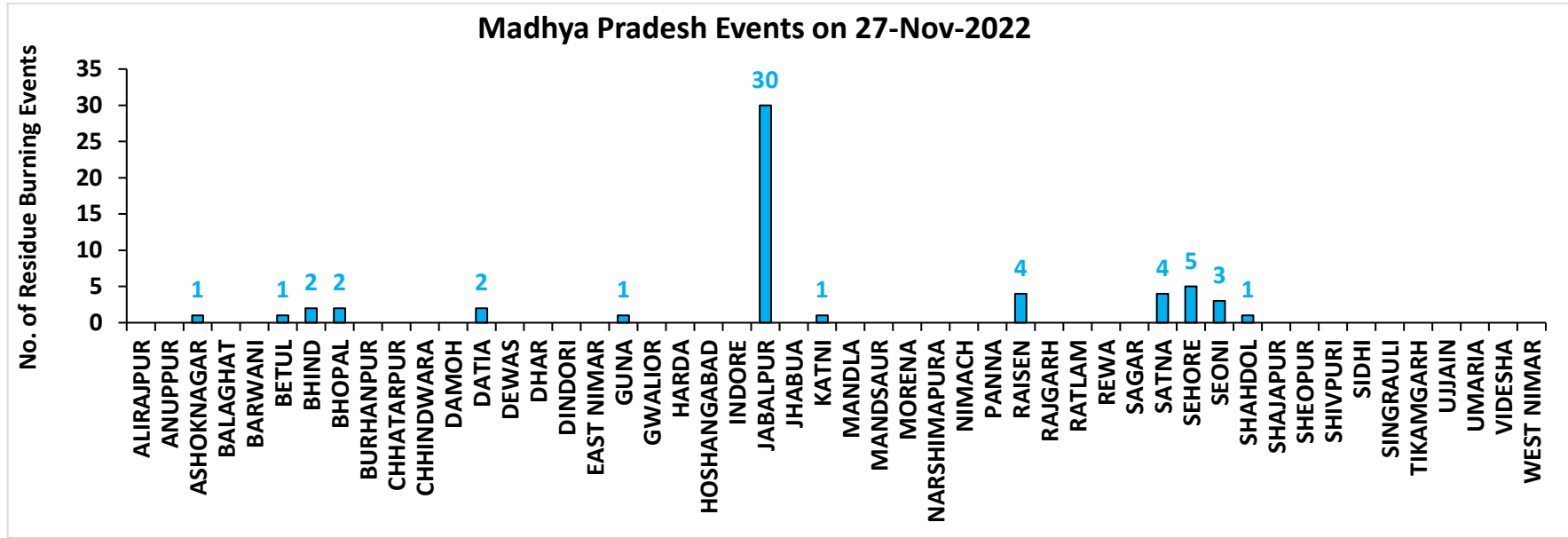
Fire Intensity (W/m²)

- 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- 27Nov-2022)



District-wise cumulative number of residues burning events detected in 2020 ,2021 and 2022
(Period: 15 September-27 November)

(a) Punjab

District	15 Sep-27 Nov 2022		
	2020	2021	2022
Amritsar	3063	2174	1542
Barnala	5338	4326	2910
Bathinda	5229	4481	4591
Faridkot	4732	3953	2693
Fatehgarh Sahib	1536	1722	1148
Fazilka	2578	2388	2589
Firozpur	8516	6289	4556
Gurdaspur	2129	1393	845
Hoshiarpur	386	330	258
Jalandhar	1945	2547	1385
Kapurthala	1883	1797	1278
Ludhiana	5058	5814	2681
Mansa	3780	3217	2814
Moga	7405	6515	3609
Muktsar	5028	4594	3876
Pathankot	13	6	1
Patiala	6431	5425	3394
Rupnagar	205	307	246
Sangrur	11724	9389	5915
SAS NAGAR (Mohali)	127	147	103
SBS Nagar	131	355	270
Tarn Taran	5605	4117	3184
Total	82842	71286	49888

(b) Haryana

District	15 Sep-27 Nov 2022		
	2020	2021	2022
AMBALA	346	305	224
BHIWANI	4	12	9
CHARKHI DADRI	0	0	1
FARIDABAD	1	3	1
FATEHABAD	859	1476	763
GURGAON	0	0	0
HISAR	53	240	113
JHAJJAR	6	7	8
JIND	343	911	529
KAITHAL	839	1154	641
KARNAL	581	954	300
KURUKSHETRA	406	538	300
MAHENDRAGARH	0	0	0
MEWAT	0	0	0
PALWAL	46	115	51
PANCHKULA	0	0	0
PANIPAT	50	249	82
REWARI	0	0	0
ROHTAK	48	75	62
SIRSA	268	545	301
SONIPAT	71	215	91
YAMUNANAGAR	142	147	153
Total	4063	6946	3629

(c) Uttar Pradesh

District	15 Sep-27 Nov 2022										
	2020	2021	2022	GAUTAMBUDHNAGAR	15	19	11	MUZAFARNAGAR	51	31	26
AGRA	7	0	0	GAZIPUR	24	25	27	PILHIBHIT	23	219	149
ALIGARH	113	40	44	GHAZIABAD	26	15	9	PRATAPGARH	41	38	30
ALLAHABAD	39	27	17	GONDA	12	12	1	RAIBEARELI	41	93	51
AMBEDKARNAGAR	36	30	37	GORAKHPUR	46	29	40	RAMPUR	163	192	105
AMETHI	9	26	17	HAMIRPUR	6	0	0	SAMBHAL	19	20	14
AMROHA	12	8	8	HAPUR	32	18	11	SANTKABIRNAGAR	29	20	15
AURAIYA	91	80	60	HARDOI	102	116	80	SANTRAVIDASNAGAR	4	6	4
AZAMGARH	62	34	29	HATHRAS	0	0	2	SHAHJAHANPUR	144	421	319
BADAUN	14	19	6	JALAUN	43	0	0	SHAMLI	48	41	17
BAGHPAT	19	17	14	JAUNPUR	49	39	33	SAHARANPUR	102	79	23
BAHRAICH	107	59	23	JHANSI	359	154	120	SHRAWASTI	47	45	18
BALLIA	143	68	51	KANNAUJ	33	6	7	SIDDHARTHANAGAR	76	128	43
BALRAMPUR	68	21	12	KANPUR	33	38	29	SITAPUR	73	51	35
BANDA	40	15	21	KANPUR DEHAT	87	53	60	SONBHADRA	0	2	0
BARABANKI	36	72	58	KASGANJ	3	2	3	SULTANPUR	9	34	30
BAREILLY	82	66	61	KAUSHAMBI	92	90	49	UNNAO	45	32	37
BASTI	58	51	20	KHERI	179	177	146	VARANASI	2	5	0
BIJNOR	42	48	14	KUSHINAGAR	80	40	49	Total	4060	3874	2677
BULANDSAHAR	62	14	23	LALITPUR	3	6	3				
CHANDAULI	21	11	7	LUCKNOW	35	33	15				
CHITRAKOOT	12	9	12	MAHARAJGANJ	55	154	173				
DEORIA	83	31	41	MAHOBA	27	0	0				
ETAH	17	10	8	MAINPURI	63	51	40				
ETAWAH	75	106	65	MATHURA	160	240	30				
FAIZABAD	15	12	7	MAU	34	17	13				
FARRUKHABAD	7	4	1	MEERUT	81	54	33				
FATEHPUR	124	106	95	MIRZAPUR	11	14	7				
FIROZABAD	27	17	10	MORADABAD	32	14	9				

(d) Delhi

District	15 Sep-27 Nov 2022		
	2020	2021	2022
CENTRAL	0	0	0
EAST	0	0	0
NEW DELHI	0	0	0
NORTH	3	3	9
NORTH EAST	0	0	0
NORTH WEST DELHI	3	1	0
SHAHADRA	0	0	0
SOUTH	1	0	0
SOUTH EAST	0	0	0
SOUTH WEST DELHI	0	0	0
WEST DELHI	2	0	1
Total	9	4	10

(e) Rajasthan

District	15 Sep-27 Nov 2022		
	2020	2021	2022
AJMER	3	0	0
ALWAR	10	0	0
BANSWARA	0	0	1
BARAN	167	11	77
BARMER	4	0	0
BHARATPUR	2	3	1
BHILWARA	11	0	0
BIKANER	1	0	0
BUNDI	128	87	180
CHITTAURGARH	2	13	8
CHURU	0	0	0
DAUSA	1	0	0
DHOLPUR	0	0	0
DUNGARPUR	0	0	2
GANGANAGAR	214	142	103
HANUMANGARH	897	973	677
JAIPUR	4	0	0
JAISELMER	5	0	0
JALOR	2	0	0
JHALAWAR	10	1	12
JHUNJHUNUN	1	0	0
JODHPUR	5	0	0
KARAULI	1	0	0
KOTA	116	57	147
NAGAUR	4	0	0
PALI	11	0	0
PRATAPGARH	8	0	0
RAJSMAND	1	0	0
SIKAR	0	0	0
SIROHI	2	0	0
SWAIMADHOPUR	65	34	55
TONK	5	0	0
UDAIPUR	2	1	3
Total	1682	1322	1266

(f) Madhya Pradesh

District	15 Sep-27 Nov 2022						
	2020	2021	2022	PANNA	50	22	39
ALIRAJPUR	0	0	0	RAISEN	603	356	446
ANUPPUR	3	2	6	RAJGARH	11	3	5
ASHOKNAGAR	156	90	188	RATLAM	10	7	3
BALAGHAT	8	6	3	REWA	136	111	89
BARWANI	4	0	0	SAGAR	28	31	54
BETUL	36	16	25	SATNA	570	511	465
BHIND	265	158	209	SEHORE	162	151	218
BHOPAL	52	40	43	SEONI	1231	891	1122
BURHANPUR	16	1	5	SHAHDOL	3	1	3
CHHATARPUR	9	0	2	SHAJAPUR	20	0	0
CHHINDWARA	135	59	101	SHEOPUR	1859	1008	1800
DAMOH	75	53	70	SHIVPURI	386	101	285
DATIA	1185	494	858	SIDHI	4	6	2
DEWAS	8	0	0	SINGRAULI	0	7	3
DHAR	47	0	0	TIKAMGARH	4	0	1
DINDORI	0	0	1	UJJAIN	14	0	0
EAST NIMAR	23	7	11	UMARIA	8	9	14
GUNA	69	12	122	VIDESHA	144	122	91
GWALIOR	2048	787	1580	WEST NIMAR	68	11	19
HARDA	14	21	11	Total	13986	7888	11403
HOSHANGABAD	1059	1066	1097				
INDORE	4	0	0				
JABALPUR	2619	1299	1793				
JHABUA	0	0	0				
KATNI	325	115	206				
MANDLA	147	112	146				
MANDSAUR	14	0	0				
MORENA	62	37	25				
NARSHIMAPURA	290	165	242				
NIMACH	2	0	0				

State-wise and date-wise number of paddy residue burning events detected in 2020, 2021 and 2022
(Period: 15 September - 27 November 2022)

Number of Paddy Residue Burning Events Detected

	Punjab			Haryana			Uttar Pradesh			Delhi			Rajasthan			Madhya Pradesh		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
15-Sep	5	0	14	2	0	0	1	0	0	0	0	0	1	0	0	2	0	0
16-Sep	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	5	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Sep	17	9	7	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
19-Sep	30	5	18	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
20-Sep	67	8	10	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0
21-Sep	54	0	56	2	0	0	1	0	0	0	0	0	1	0	1	2	0	0
22-Sep	34	0	30	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
23-Sep	49	0	3	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
24-Sep	78	5	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
25-Sep	184	11	0	11	0	0	5	0	0	0	0	0	1	0	0	0	0	0
26-Sep	190	19	0	5	0	0	8	0	0	0	0	0	1	0	0	2	0	0
27-Sep	78	37	0	8	0	0	4	1	0	0	0	0	0	0	0	1	0	0
28-Sep	55	28	0	6	1	0	1	6	0	0	0	0	0	0	0	1	1	0
29-Sep	63	64	0	9	4	0	6	10	0	0	0	0	3	0	0	0	4	0
30-Sep	116	27	8	22	2	0	13	13	10	1	0	0	1	0	0	5	0	0
01-Oct	165	13	45	15	4	1	7	13	3	0	0	0	4	1	1	13	0	1
02-Oct	141	0	83	30	2	7	12	0	36	1	0	0	7	0	3	12	0	1
03-Oct	110	9	75	8	6	8	4	3	29	0	0	0	9	0	2	5	1	5
04-Oct	162	23	65	29	2	7	8	0	2	0	0	0	15	0	0	4	2	0
05-Oct	161	18	130	17	3	24	14	2	0	0	0	2	14	0	1	13	1	0
06-Oct	171	42	85	30	0	26	12	1	0	1	0	0	16	0	0	37	1	0
07-Oct	197	72	62	32	11	6	41	13	0	0	0	0	14	1	1	31	1	0
08-Oct	95	108	19	29	27	0	25	11	0	0	0	0	11	0	0	17	2	0

09-Oct	121	114	3	20	39	1	15	20	0	0	0	0	12	0	0	15	4	0
10-Oct	232	150	4	33	95	2	9	54	0	0	0	0	14	1	0	18	10	0
11-Oct	377	64	45	90	51	0	23	28	0	0	0	0	21	7	1	32	2	0
12-Oct	388	97	104	69	51	4	46	23	0	0	0	0	24	1	2	44	1	1
13-Oct	266	132	120	47	91	15	36	42	0	0	0	0	7	5	2	21	2	7
14-Oct	605	229	82	69	98	30	9	68	5	0	0	0	16	1	1	15	11	1
15-Oct	449	660	169	106	363	36	15	149	0	0	0	0	9	8	2	8	27	2
16-Oct	654	429	206	80	176	76	21	121	6	1	0	0	12	2	4	23	13	2
17-Oct	1172	14	403	143	0	86	38	39	7	0	0	0	26	0	4	63	1	11
18-Oct	938	57	342	166	1	134	76	0	30	0	0	1	37	2	12	88	0	15
19-Oct	1080	496	436	72	55	122	43	5	36	0	0	0	27	5	12	49	1	12
20-Oct	890	788	96	62	155	78	31	1	17	0	0	0	26	4	4	9	21	7
21-Oct	1392	597	393	101	131	107	25	5	23	2	0	0	32	2	6	112	30	18
22-Oct	1665	1111	582	128	140	122	32	3	18	0	0	0	29	5	12	183	29	31
23-Oct	1438	620	902	106	218	217	84	8	109	1	0	0	23	7	20	204	32	70
24-Oct	911	0	1019	57	38	250	63	11	212	0	0	2	20	4	7	150	34	26
25-Oct	1416	76	181	155	71	12	50	18	9	1	0	0	18	2	4	144	60	0
26-Oct	2126	329	1238	77	175	123	33	41	23	0	0	0	34	3	21	178	55	57
27-Oct	2563	279	1111	96	93	83	40	58	23	0	0	0	42	1	21	294	62	38
28-Oct	3232	906	2067	139	149	123	87	35	34	0	0	0	45	4	46	537	110	143
29-Oct	1624	1353	1898	52	161	112	139	32	73	0	0	0	29	23	37	349	97	151
30-Oct	3946	1373	1761	100	148	112	50	53	43	0	0	0	17	20	55	428	168	119
31-Oct	3531	2895	2131	108	353	70	49	170	20	0	0	0	37	15	36	455	299	112
01-Nov	3835	1796	1842	151	124	88	74	157	9	0	0	1	51	5	27	709	198	142
02-Nov	4098	3001	3634	111	203	166	82	87	25	0	0	0	55	19	63	820	214	284
03-Nov	2818	2512	2666	93	197	128	197	66	40	1	0	1	34	20	54	771	148	323
04-Nov	4584	3032	2437	72	228	63	152	123	61	0	0	2	46	19	34	618	123	348
05-Nov	4529	5327	2817	66	331	90	52	70	24	0	0	0	46	45	91	474	320	319
06-Nov	5382	3942	599	151	219	46	43	208	28	0	0	0	40	32	27	678	248	392
07-Nov	5491	5199	2487	150	182	37	86	46	8	0	0	0	57	38	80	848	199	383
08-Nov	3674	4397	604	115	138	11	169	21	44	0	0	0	33	44	5	981	170	783

09-Nov	1718	5079	1778	21	217	69	115	51	58	0	1	0	34	48	22	495	330	570
10-Nov	3127	4008	1893	80	184	35	101	77	33	0	0	0	48	40	34	346	380	282
11-Nov	2822	4156	3916	93	126	152	71	151	36	0	1	0	75	55	95	418	506	482
12-Nov	1989	3403	2467	83	127	99	108	120	36	0	0	0	31	40	84	422	185	421
13-Nov	2441	3742	2175	105	210	132	172	95	102	0	2	0	54	78	63	670	171	773
14-Nov	307	2541	4	35	195	17	258	49	101	0	0	0	16	88	1	294	346	633
15-Nov	32	1761	141	31	129	21	29	67	84	0	0	0	6	51	2	35	353	507
16-Nov	8	1757	1358	0	269	84	15	138	48	0	0	0	16	81	78	145	660	316
17-Nov	248	523	966	9	101	39	38	177	50	0	0	0	60	38	48	191	261	416
18-Nov	670	680	701	60	111	108	62	14	66	0	0	0	75	77	55	352	126	524
19-Nov	454	448	426	37	132	79	129	11	116	0	0	0	27	73	19	124	16	625
20-Nov	677	283	368	77	127	32	134	20	168	0	0	0	59	53	15	106	6	556
21-Nov	457	168	243	65	178	11	135	106	46	0	0	0	57	72	12	159	95	196
22-Nov	46	66	78	15	91	20	120	276	76	0	0	0	9	21	4	165	188	170
23-Nov	43	91	140	52	59	27	106	186	73	0	0	0	66	61	10	150	262	259
24-Nov	9	34	66	20	37	32	167	87	195	0	0	1	13	26	14	258	224	299
25-Nov	0	31	44	1	41	28	127	80	241	0	0	0	2	30	7	106	343	315
26-Nov	16	21	22	0	48	12	83	74	127	0	0	0	0	11	2	48	318	198
27-Nov	124	19	12	26	28	8	54	257	14	0	0	0	16	33	2	39	416	57
Total	82842	71286	49888	4063	6946	3629	4060	3874	2677	9	4	10	1682	1322	1266	13986	7888	11403

Details of residue burning events in Punjab on 27-Nov-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.95494	74.85488	14:13:12	D	2.80
2	BATHINDA	RAMPURA	S-NPP	30.25403	75.29891	14:13:12	D	4.30
3	BATHINDA	TALWANDI SABO	TERRA	29.90400	74.96800	11:34:05	D	38.80
4	FARIDKOT	FARIDKOT	S-NPP	30.62920	74.81993	14:13:12	D	2.70
5	FAZILKA	ABOHAR	S-NPP	30.08517	74.22617	14:13:12	D	2.00
6	FAZILKA	ARNIWALA SHEIKH SUBANPUR	S-NPP	30.32465	74.22617	14:13:12	D	1.60
7	GURDASPUR	KAHNUWAN	S-NPP	31.81786	75.44311	14:13:12	D	2.60
8	MANSA	MANSA	S-NPP	30.06264	75.33106	14:13:12	D	2.60
9	MOGA	BAGHA PURANA	S-NPP	30.69829	75.15815	14:13:12	D	3.00
10	MOGA	BAGHA PURANA	S-NPP	30.69879	75.15754	14:13:12	D	2.80
11	MUKTSAR	MALOUT	S-NPP	30.31472	74.38463	14:13:12	D	2.60
12	MUKTSAR	MALOUT	S-NPP	30.31589	74.38379	14:13:12	D	2.50

Details of residue burning events in Haryana on 27-Nov-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	HISAR	HANSI-II	S-NPP	29.14126	76.30287	14:13:12	D	3.60
2	JIND	JULANA	S-NPP	29.16254	76.44308	14:13:12	D	4.00
3	KARNAL	KARNAL	S-NPP	29.67476	77.12442	14:13:12	D	2.90
4	ROHTAK	LAKHAN MAJRA	S-NPP	29.06237	76.41895	14:13:12	D	4.00
5	SIRSA	ODHAN	S-NPP	29.90463	74.94785	01:22:55	N	2.00
6	SIRSA	ODHAN	S-NPP	29.90533	74.94724	03:03:12	N	1.60
7	SIRSA	SIRSA	S-NPP	29.58339	75.07178	14:13:12	D	12.90
8	YAMUNANAGAR	RADAUR	S-NPP	30.09083	77.17458	14:13:12	D	2.50

Details of residue burning events in Uttar Pradesh on 27-Nov-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	BANDA	ATARRA	S-NPP	25.33066	80.52692	01:22:55	N	0.50
2	BAREILLY	BAHERI	S-NPP	28.60342	79.42952	14:13:12	D	4.70
3	BULANDSAHAR	BULANDSHAHR	S-NPP	28.53588	77.76086	14:13:12	D	4.00
4	ETAWAH	BHARTHNA	S-NPP	26.69266	79.16204	14:13:12	D	5.70
5	MUZAFARNAGAR	BUDHANA	S-NPP	29.35371	77.39464	14:13:12	D	3.20
6	MUZAFARNAGAR	MUZAFFARNAGAR	S-NPP	29.51074	77.74609	14:13:12	D	6.50
7	MUZAFARNAGAR	MUZAFFARNAGAR	S-NPP	29.51459	77.74335	14:13:12	D	4.40
8	PILHIBHIT	BISALPUR	S-NPP	28.36612	79.81052	01:22:55	N	1.60
9	RAIBEARELI	SALON	S-NPP	26.12382	81.46243	01:22:55	N	0.30
10	SHAMLI	KAIRANA	S-NPP	29.44826	77.24123	14:13:12	D	3.90
11	SHAMLI	KAIRANA	S-NPP	29.44897	77.23831	14:13:12	D	3.00
12	SHAMLI	KAIRANA	S-NPP	29.54900	77.17365	14:13:12	D	3.60
13	SHARANPUR	NAKUR	S-NPP	29.92494	77.27798	14:13:12	D	2.30
14	SHARANPUR	RAMPUR MANIHARRAN	S-NPP	29.77003	77.56667	14:13:12	D	2.30

Details of residue burning events in Rajasthan on 27-Nov-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	BANSWARA	KUSHALGARH	S-NPP	23.12162	74.37128	14:13:12	D	2.50
2	JHALAWAR	KHANPUR	S-NPP	24.79743	76.29724	14:13:12	D	2.20

Details of residue burning events in Madhya Pradesh on 27-Nov-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	ASHOKNAGAR	CHANDERI	S-NPP	24.59231	77.95387	14:13:12	D	1.80
2	BETUL	BETUL	S-NPP	21.95334	77.71205	01:22:55	N	0.50
3	BHIND	GOHAD	S-NPP	26.51221	78.28374	14:13:12	D	3.20
4	BHIND	GOHAD	S-NPP	26.51503	78.28271	14:13:12	D	3.30
5	BHOPAL	HUZUR	S-NPP	23.08887	77.43491	14:13:12	D	2.20
6	BHOPAL	HUZUR	S-NPP	23.08944	77.43520	14:13:12	D	2.40
7	DATIA	DATIA	S-NPP	25.73906	78.31181	14:13:12	D	3.50
8	DATIA	SEONDHA	S-NPP	25.93630	78.51203	14:13:12	D	7.30
9	GUNA	RAGHOGARH	S-NPP	24.48370	77.14305	01:22:55	N	1.30
10	JABALPUR	JABALPUR	S-NPP	23.10595	80.01591	14:13:12	D	5.20
11	JABALPUR	JABALPUR	S-NPP	23.25642	79.90746	14:13:12	D	5.60
12	JABALPUR	JABALPUR	S-NPP	23.27509	79.95380	14:13:12	D	4.10
13	JABALPUR	JABALPUR	S-NPP	23.33749	79.97510	14:13:12	D	8.70
14	JABALPUR	JABALPUR	S-NPP	23.33793	79.98151	14:13:12	D	10.60
15	JABALPUR	JABALPUR	S-NPP	23.35605	79.91064	14:13:12	D	5.50
16	JABALPUR	JABALPUR	S-NPP	23.37341	79.90852	14:13:12	D	7.20
17	JABALPUR	JABALPUR	S-NPP	23.37623	79.90918	14:13:12	D	10.90
18	JABALPUR	MAJHOULI	S-NPP	23.46680	80.04469	14:13:12	D	4.40
19	JABALPUR	PATAN	S-NPP	23.19664	79.82331	14:13:12	D	6.30
20	JABALPUR	PATAN	S-NPP	23.24387	79.82620	14:13:12	D	5.20
21	JABALPUR	PATAN	S-NPP	23.24666	79.82897	14:13:12	D	11.70
22	JABALPUR	PATAN	S-NPP	23.26074	79.78117	14:13:12	D	3.30
23	JABALPUR	PATAN	S-NPP	23.29006	79.77556	14:13:12	D	2.10
24	JABALPUR	PATAN	S-NPP	23.29160	79.83540	14:13:12	D	5.40
25	JABALPUR	PATAN	S-NPP	23.29390	79.83177	14:13:12	D	5.90
26	JABALPUR	PATAN	S-NPP	23.33183	79.79756	14:13:12	D	6.00
27	JABALPUR	PATAN	S-NPP	23.36036	79.82069	14:13:12	D	4.20
28	JABALPUR	PATAN	S-NPP	23.39520	79.83712	14:13:12	D	9.00
29	JABALPUR	SAHPURA	S-NPP	23.15814	79.71040	14:13:12	D	4.90

30	JABALPUR	SAHPURA	S-NPP	23.16069	79.68955	14:13:12	D	11.00
31	JABALPUR	SAHPURA	S-NPP	23.16340	79.69158	14:13:12	D	7.50
32	JABALPUR	SAHPURA	S-NPP	23.17946	79.76845	14:13:12	D	12.40
33	JABALPUR	SAHPURA	S-NPP	23.17988	79.77466	14:13:12	D	21.40
34	JABALPUR	SAHPURA	S-NPP	23.18019	79.82673	14:13:12	D	3.10
35	JABALPUR	SAHPURA	S-NPP	23.18268	79.77045	14:13:12	D	11.20
36	JABALPUR	SAHPURA	S-NPP	23.18315	79.77663	14:13:12	D	11.20
37	JABALPUR	SIHORA	S-NPP	23.41478	80.18665	14:13:12	D	3.40
38	JABALPUR	SIHORA	S-NPP	23.45250	80.23749	14:13:12	D	4.60
39	JABALPUR	SIHORA	S-NPP	23.45935	80.23704	14:13:12	D	4.10
40	KATNI	BAHURIBAND	S-NPP	23.60730	79.98571	14:13:12	D	4.50
41	RAISEN	BARELI	S-NPP	22.89453	78.09217	14:13:12	D	4.90
42	RAISEN	BARELI	S-NPP	22.90055	78.09162	14:13:12	D	4.90
43	RAISEN	BARELI	S-NPP	22.95795	78.03349	01:22:55	N	0.30
44	RAISEN	BARELI	S-NPP	23.02096	78.08861	01:22:55	N	0.60
45	SATNA	NAGOD	S-NPP	24.65554	80.55673	14:13:12	D	4.80
46	SATNA	NAGOD	S-NPP	24.65743	80.55707	14:13:12	D	3.30
47	SATNA	UCHAHAR	S-NPP	24.39366	80.79836	14:13:12	D	5.40
48	SATNA	UCHAHAR	S-NPP	24.39753	80.79694	14:13:12	D	5.40
49	SEHORE	BUDHNI	S-NPP	22.89332	77.99106	01:22:55	N	0.40
50	SEHORE	BUDHNI	S-NPP	22.90416	77.93600	01:22:55	N	0.50
51	SEHORE	BUDHNI	S-NPP	22.91293	77.95268	14:13:12	D	3.90
52	SEHORE	BUDHNI	S-NPP	22.91333	77.95735	14:13:12	D	5.50
53	SEHORE	BUDHNI	S-NPP	22.91538	77.95290	14:13:12	D	3.10
54	SEONI	GHANSAUR	S-NPP	22.42035	79.81500	14:13:12	D	2.30
55	SEONI	GHANSAUR	S-NPP	22.42325	79.81532	14:13:12	D	5.60
56	SEONI	LAKHNADOU	S-NPP	22.60534	79.64331	14:13:12	D	8.10
57	SHAH DOL	BEOHARI	S-NPP	24.19669	81.39326	01:22:55	N	0.60

The study used data received from following Satellites at NRSC Ground Station

S. No.	Satellite Name	Sensor	Resolution (meter)	Day / Night Passes
1.	Suomi NPP	VIIRS	375 / 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**

Study Team

ICAR - IARI	Dr V.K. Sehgal	Principal & Nodal Scientist	iaricreams@gmail.com
	Dr Rajkumar Dhakar	Scientist	rajdhakar.iari@gmail.com
	Mr Mohd Jahangir	Lab Assistant (KRISHI)	mjahangir198@gmail.com
ICAR - ATARI	Dr Rajbir Singh	Director ATARI (Zone-I) Ludhiana	rajbirsingh.zpd@gmail.com
	Dr S.K. Singh	Director ATARI (Zone-II) Jodhpur	sushilsinghiipr@yahoo.co.in
	Dr Atar Singh	Director ATARI (Zone-III) Kanpur	zpdicarkanpur@gmail.com
ICAR - IASRI	Dr Rajender Parsad	Director	rajender.parsad@icar.gov.in

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)

and on IARI CREAMS website (<http://creams.iari.res.in/cms2/index.php>)
