



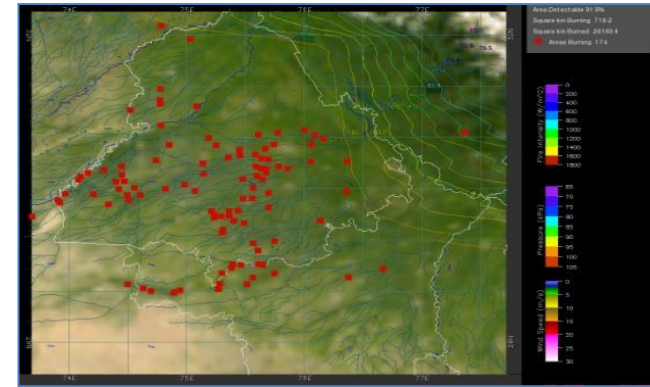
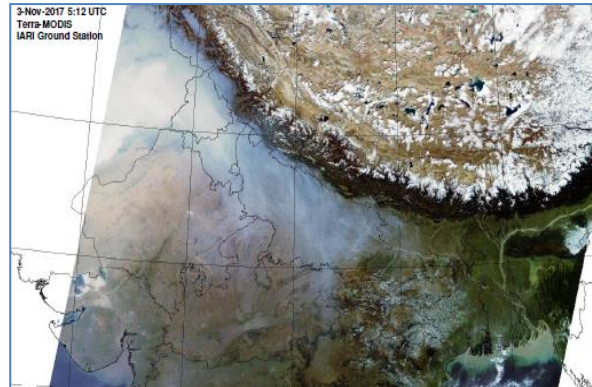
**Bulletin
No. 58**

**Events Date:
27-Nov-2020**

**Issued on:
28-Nov-2020**



MONITORING PADDY RESIDUE BURNING IN NORTH INDIA USING SATELLITE REMOTE SENSING DURING 2020



Prepared by:

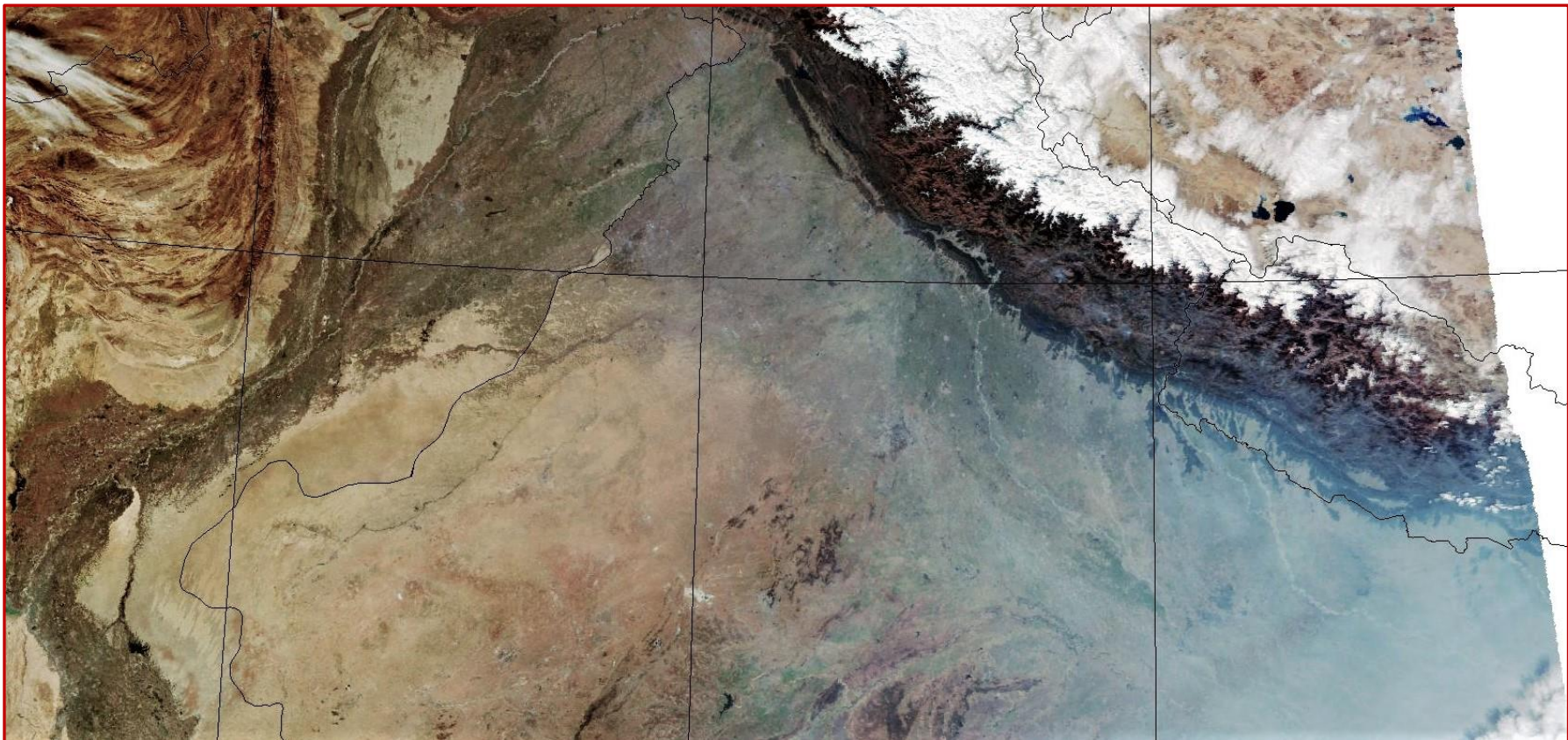
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

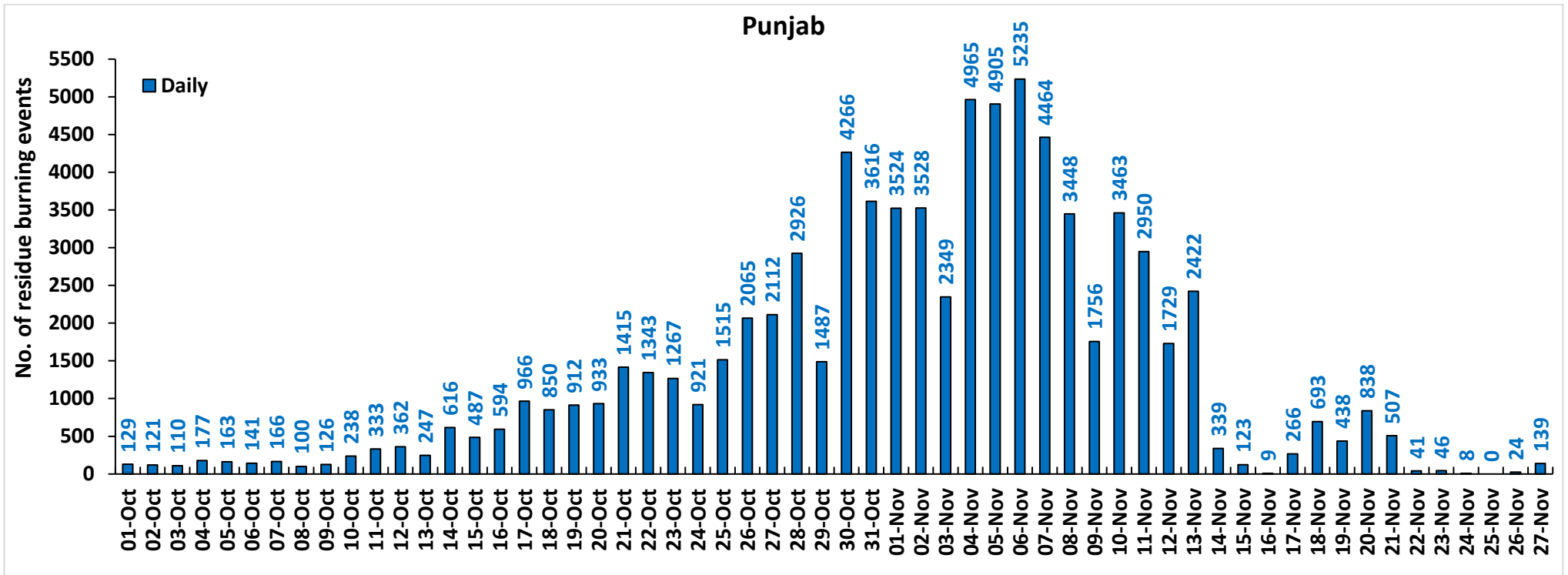
Highlights for 27-November-2020

- Satellites detected **271** residue burning events in the three study States on **27-Nov-2020**.
- The state wise events detected on **27-Nov-2020** were **139** in Punjab, **50** in Haryana and **82** in UP.
- The number of events has increased from **111** on **26-Nov-2020** to **271** on **27-Nov-2020** in the three states.
- Fazilka in Punjab, Fatehabad in Haryana and Kheri in UP reported the highest number of events on **27-Nov-2020**.
- Total **88453** burning events were detected in the three States between **01-Oct-2020** and **27-Nov-2020**, which are distributed as **78913**, **5508** and **4032** in Punjab, Haryana and UP, respectively.
- In Haryana the cumulative number of burning events between **01-Oct** and **27-Nov 2020** were lower than in **2019**, while in Punjab and UP the cumulative number of events were more than in **2019**.

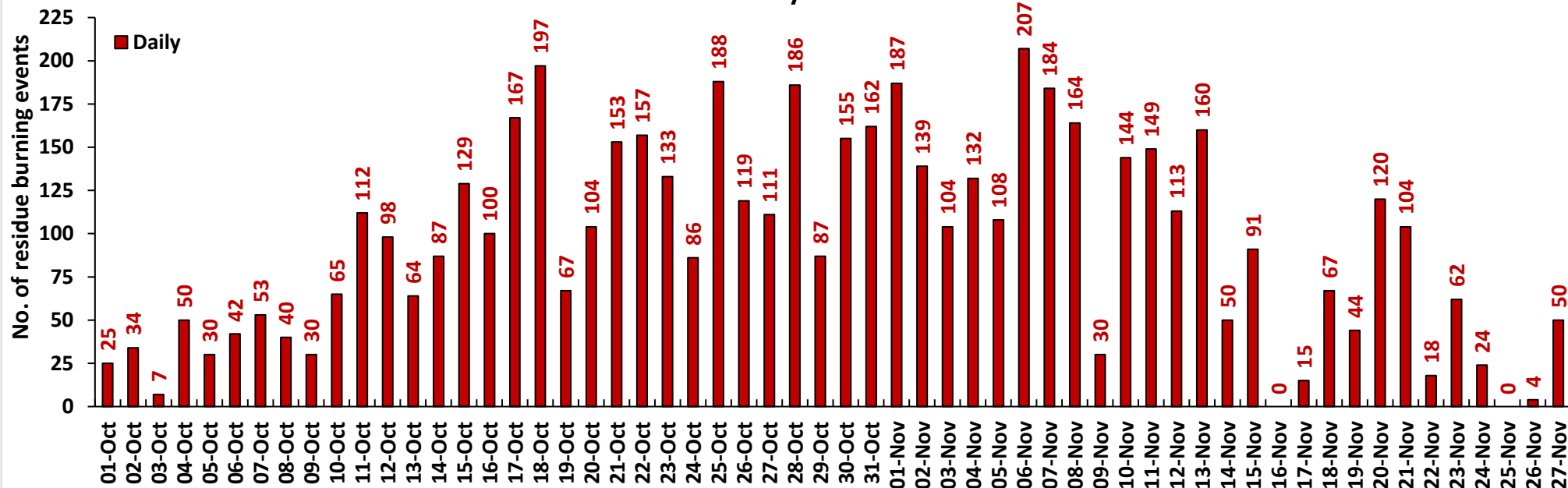
[SNPP \(VIIRS\) Satellite image of North India Acquired on 27-Nov-2020 at 13:56 IST by IARI Ground Station](#)



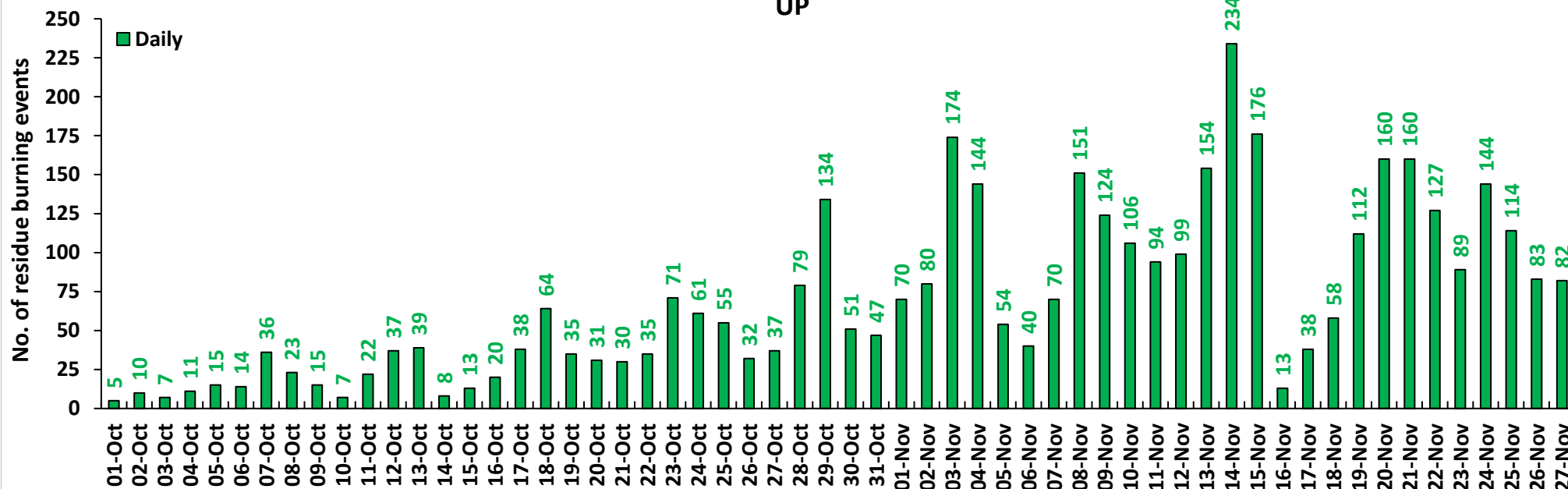
Temporal distribution of residue burning events for the three study States in 2020.



Haryana



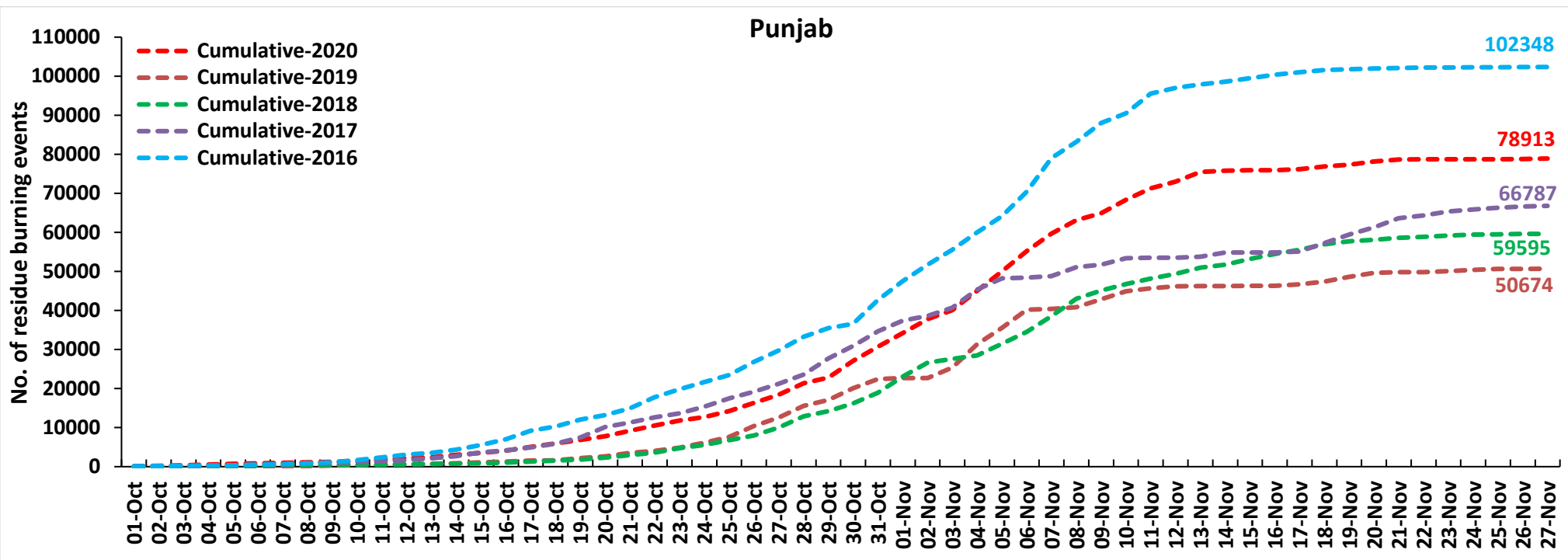
UP



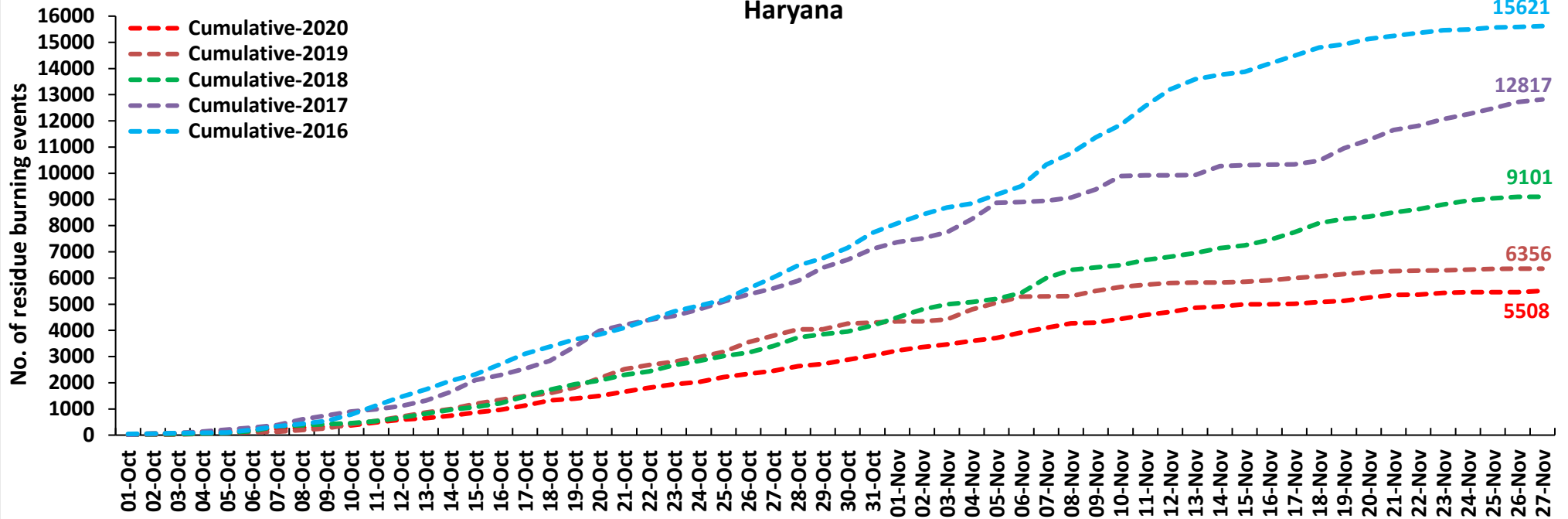
Comparison of residue burning events in current year (2020) with previous years (2019, 2018, 2017 & 2016) for the three study States

(01-Oct to 27-Nov)

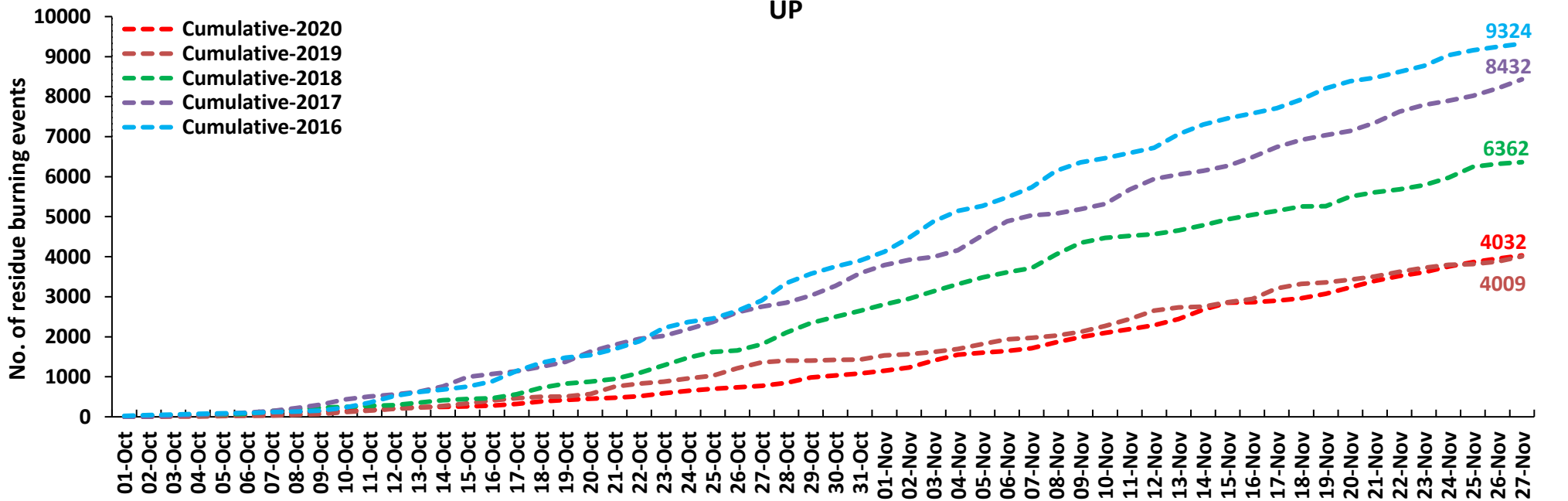
Punjab



Haryana

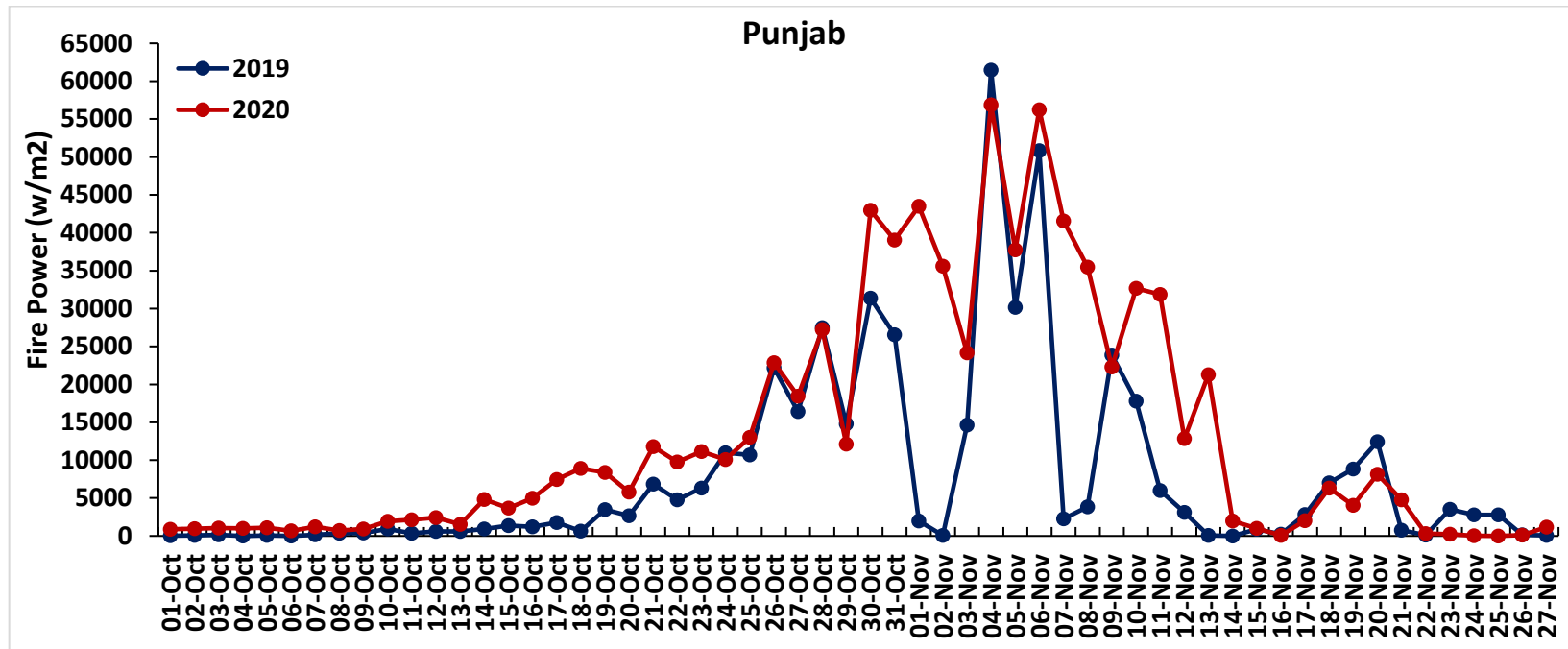


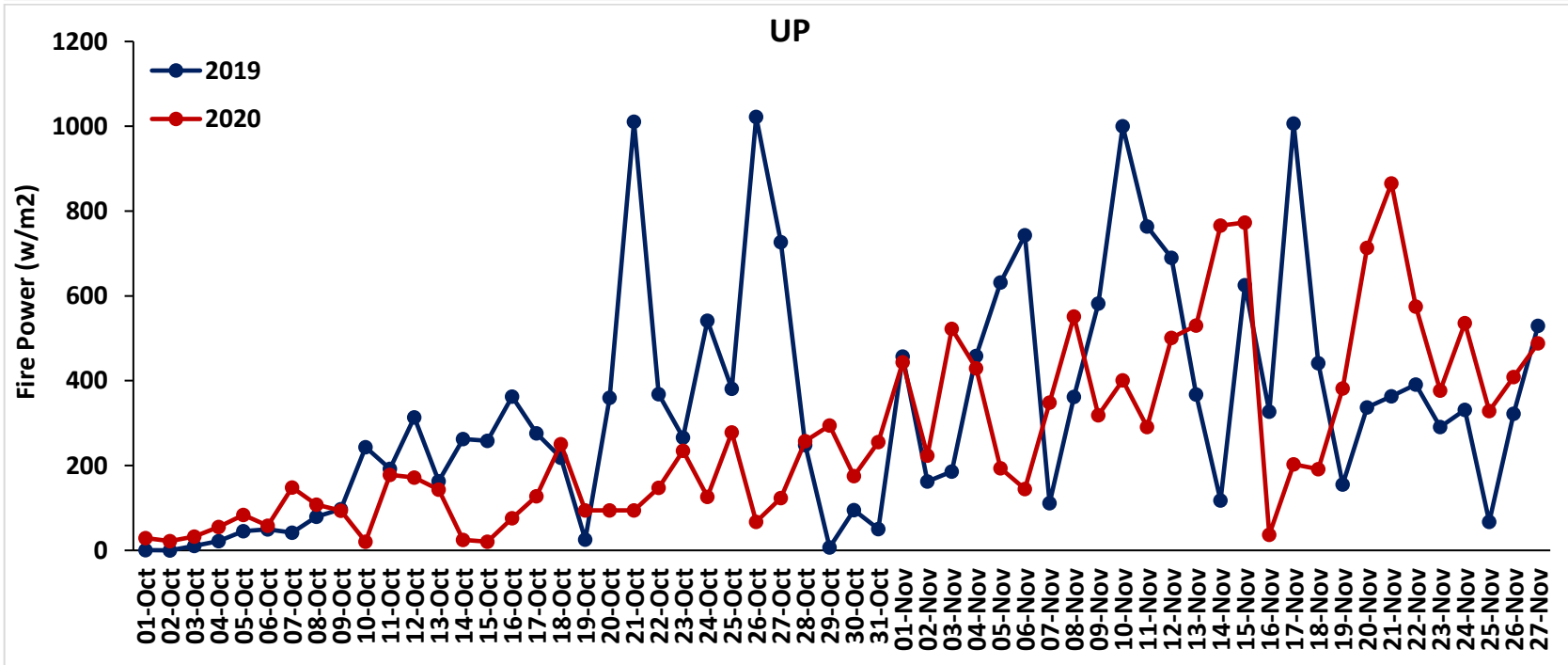
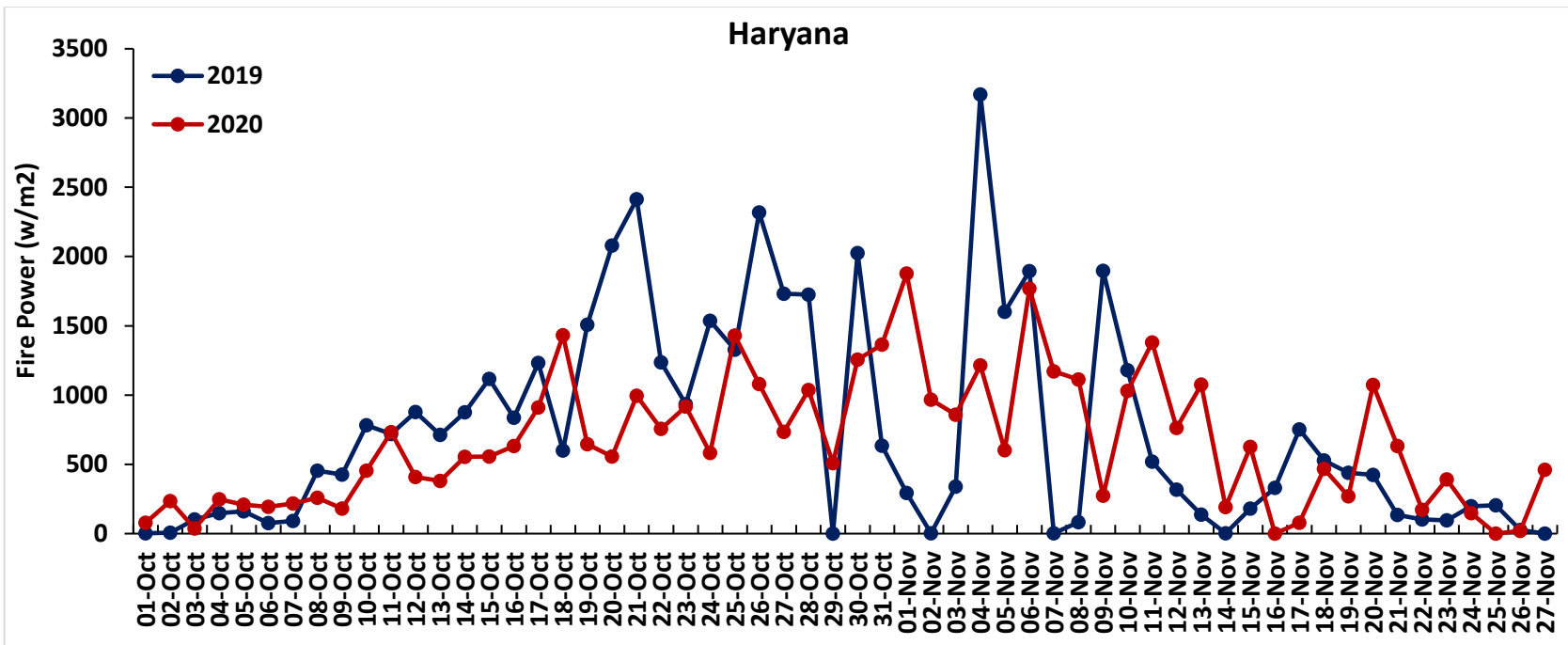
UP



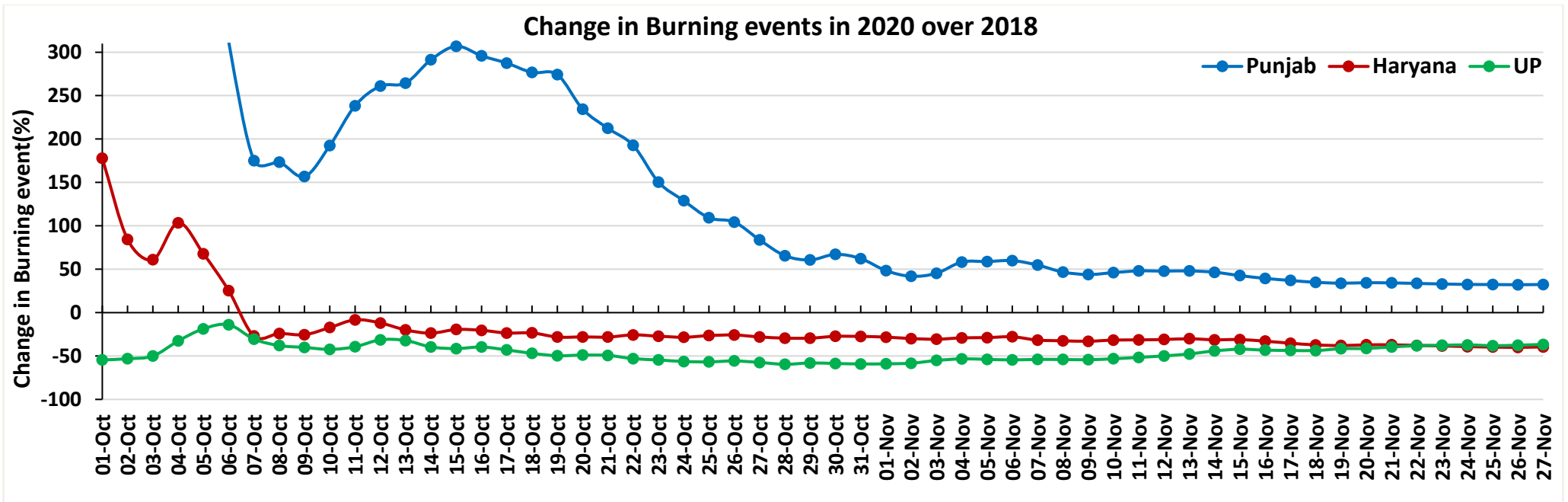
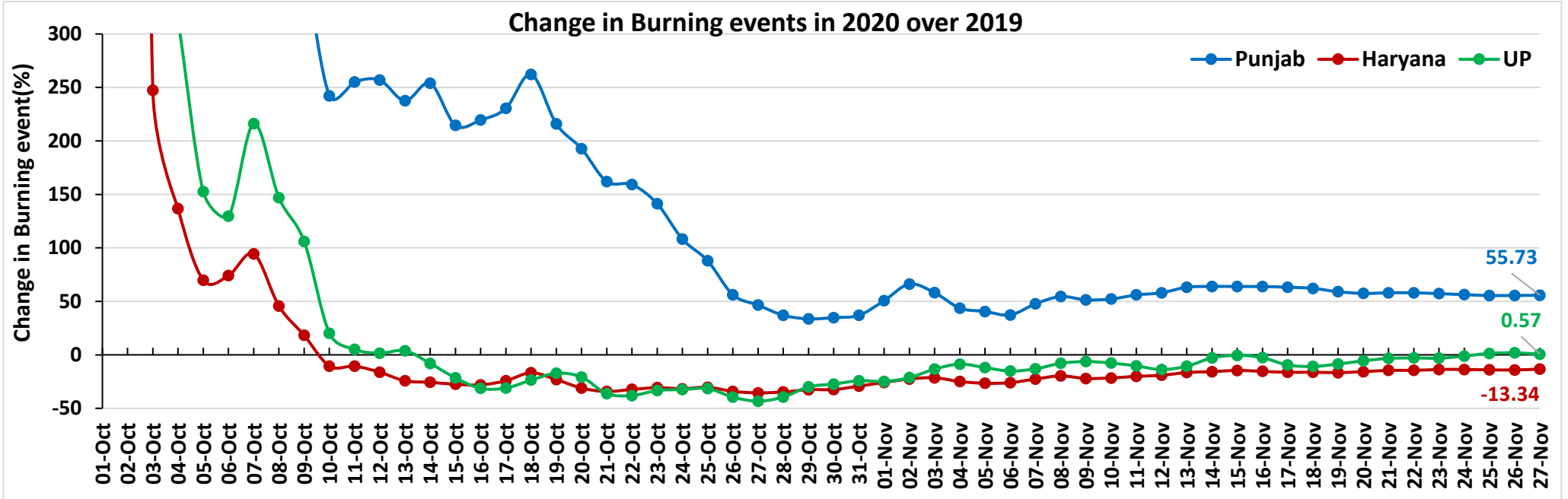
Comparison of Fire Intensity of residue burning events in current year (2020) with previous year (2019)
For the three study States

(01-Oct to 27-Nov)

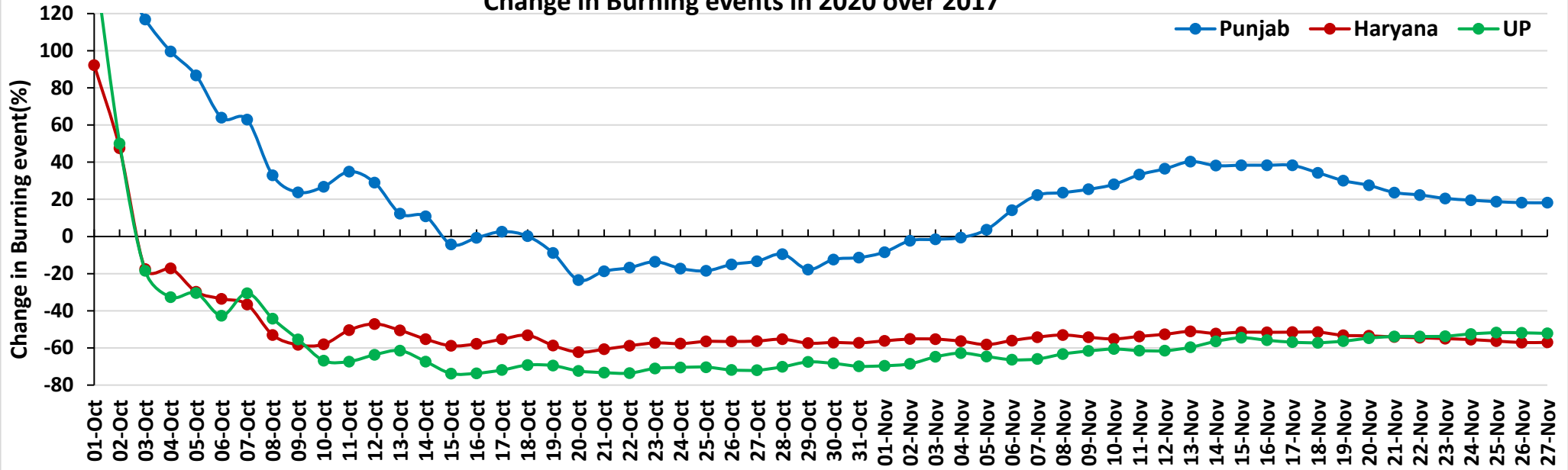




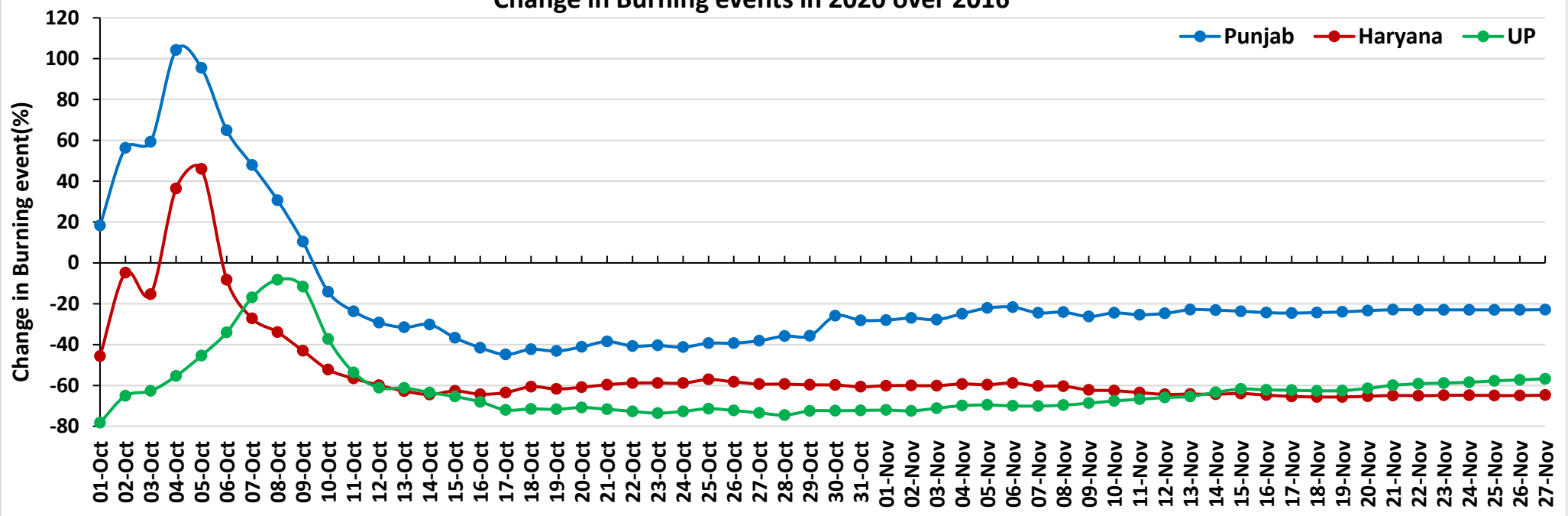
Percent Change in Burning events in 2020 over 2019, 2018, 2017 and 2016 (Daily Cumulative)



Change in Burning events in 2020 over 2017

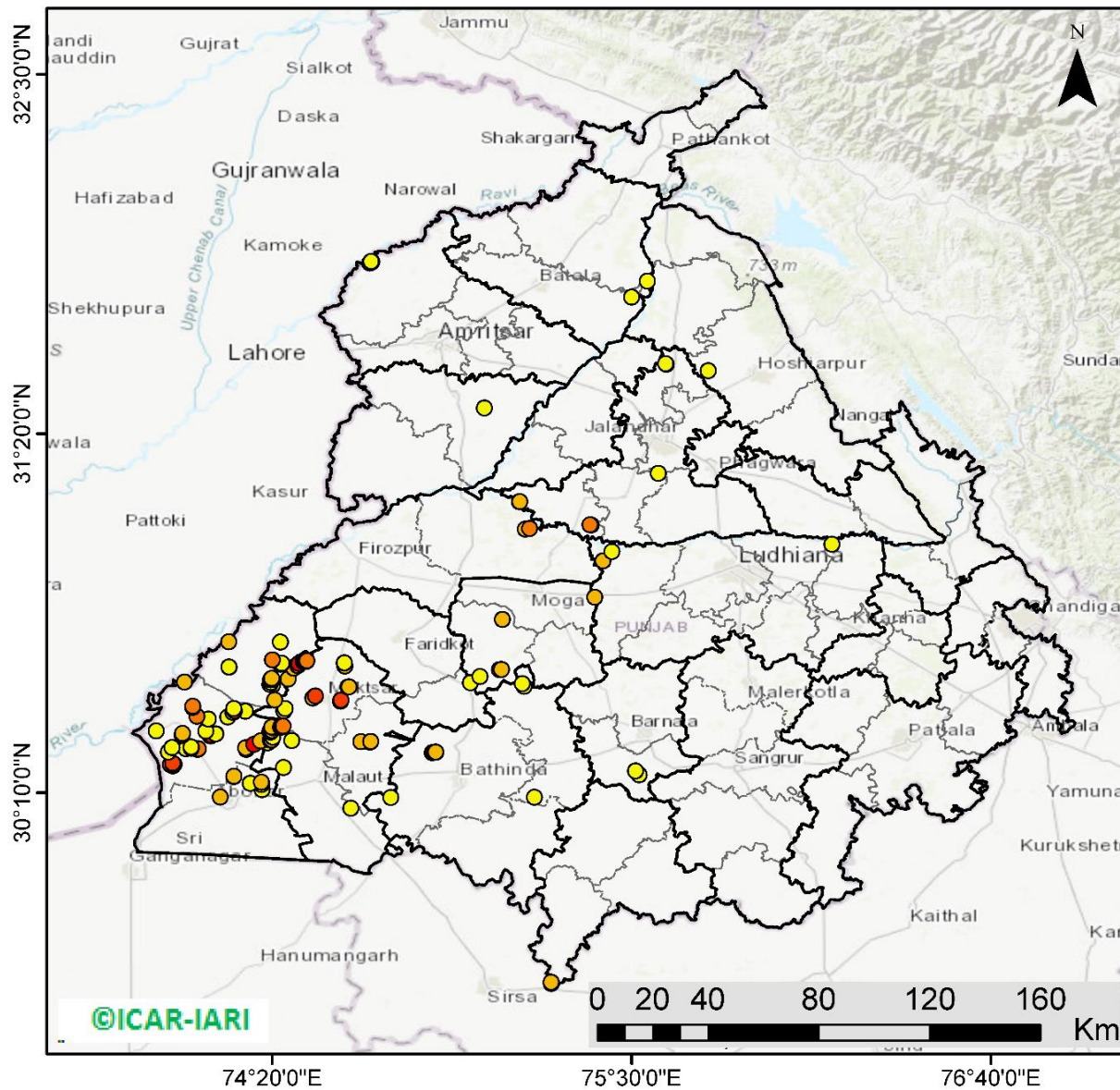


Change in Burning events in 2020 over 2016



(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



139 burning events detected in Punjab on 27th November 2020

Fire Intensity (W/m²)

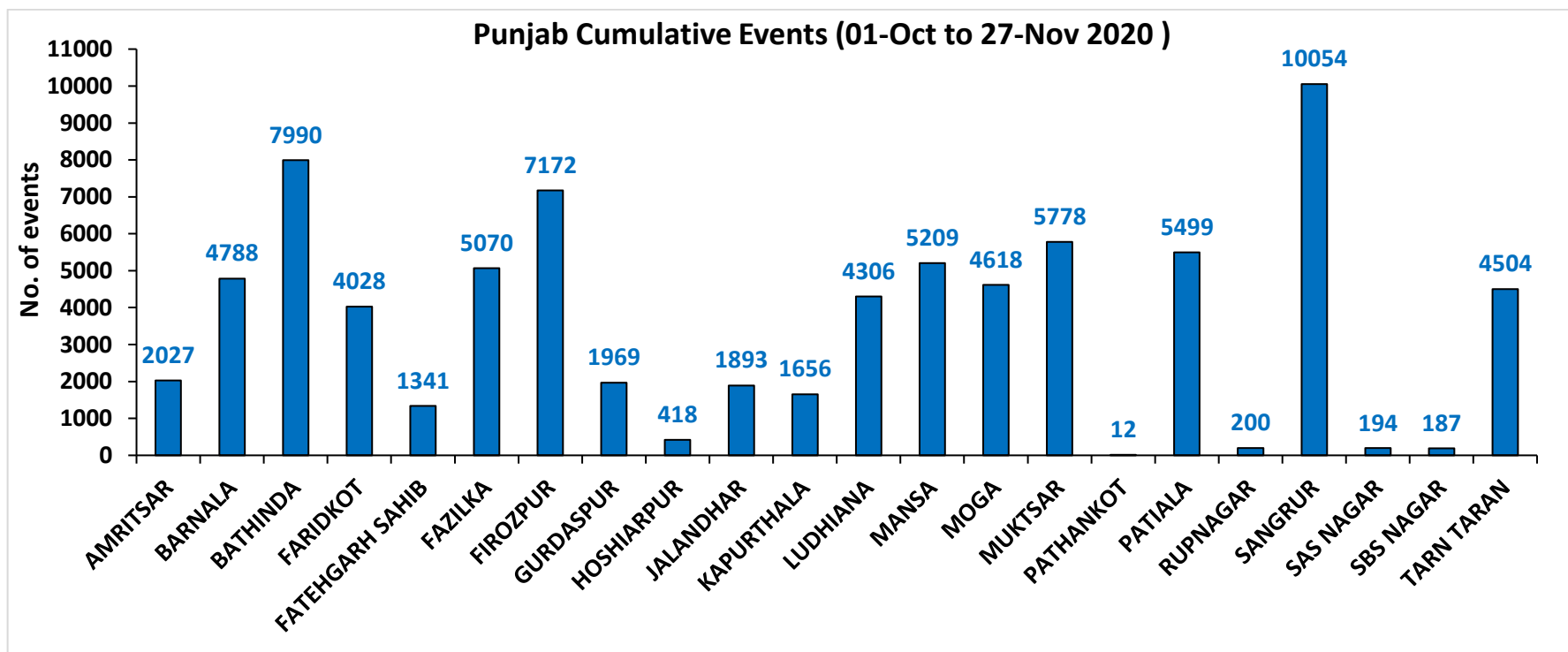
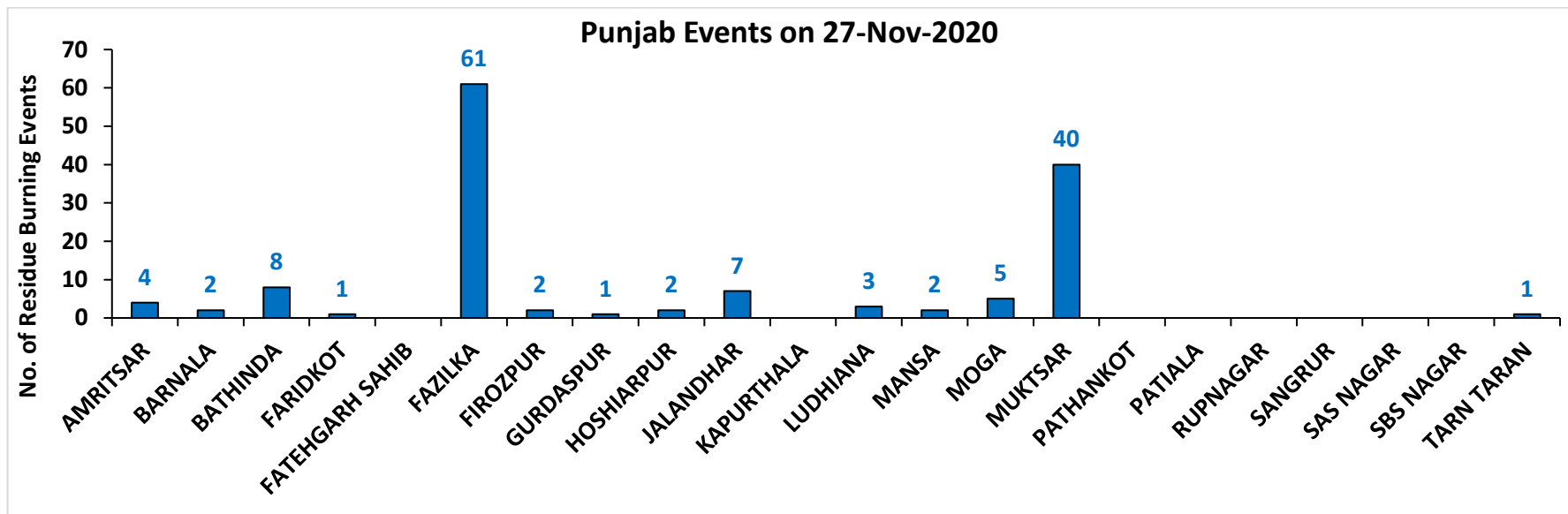
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



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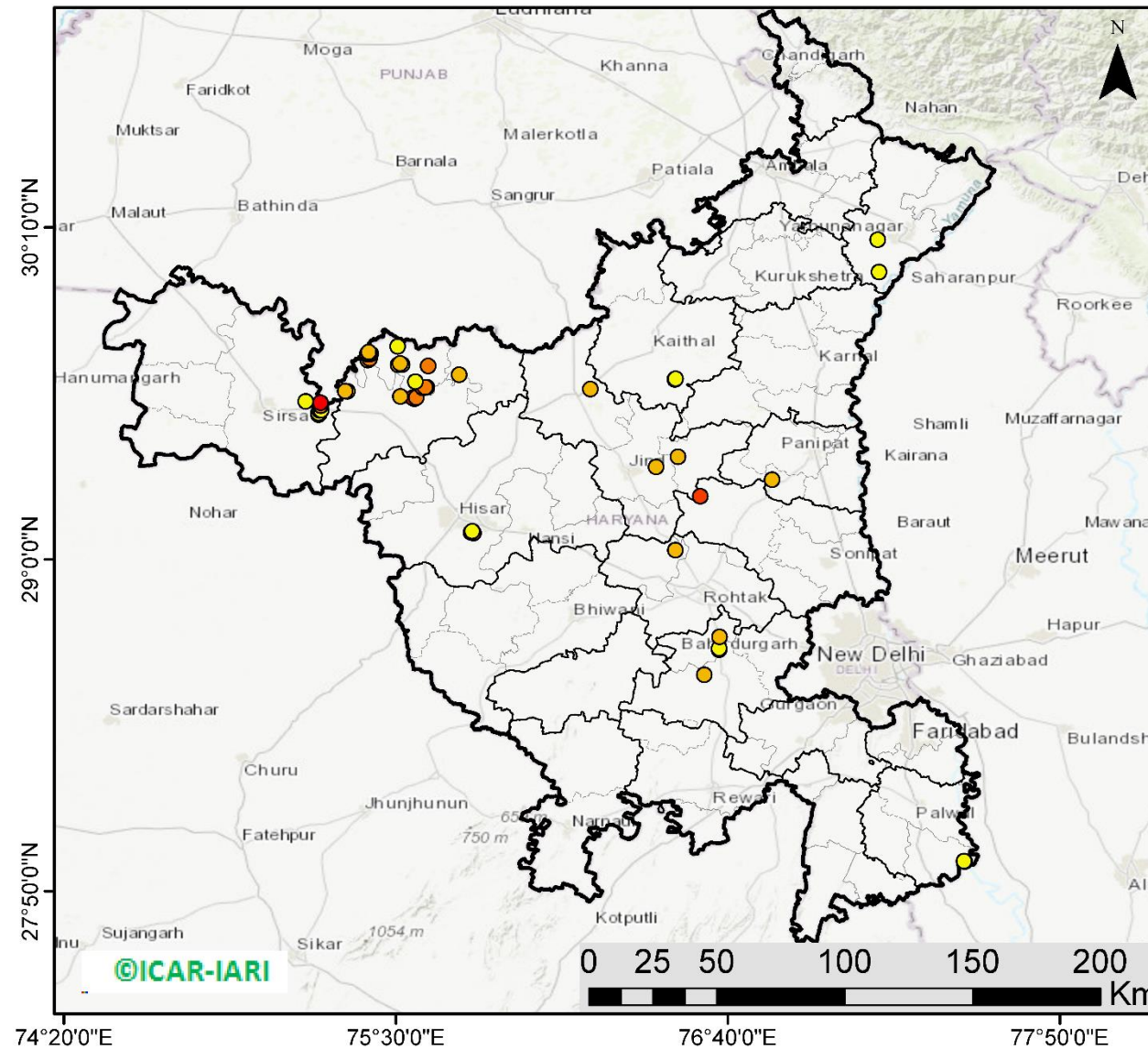
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise number of residue burning events in Punjab (01-Oct to 27-Nov 2020)



(b) Haryana

RICE RESIDUE BURNING IN HARYANA



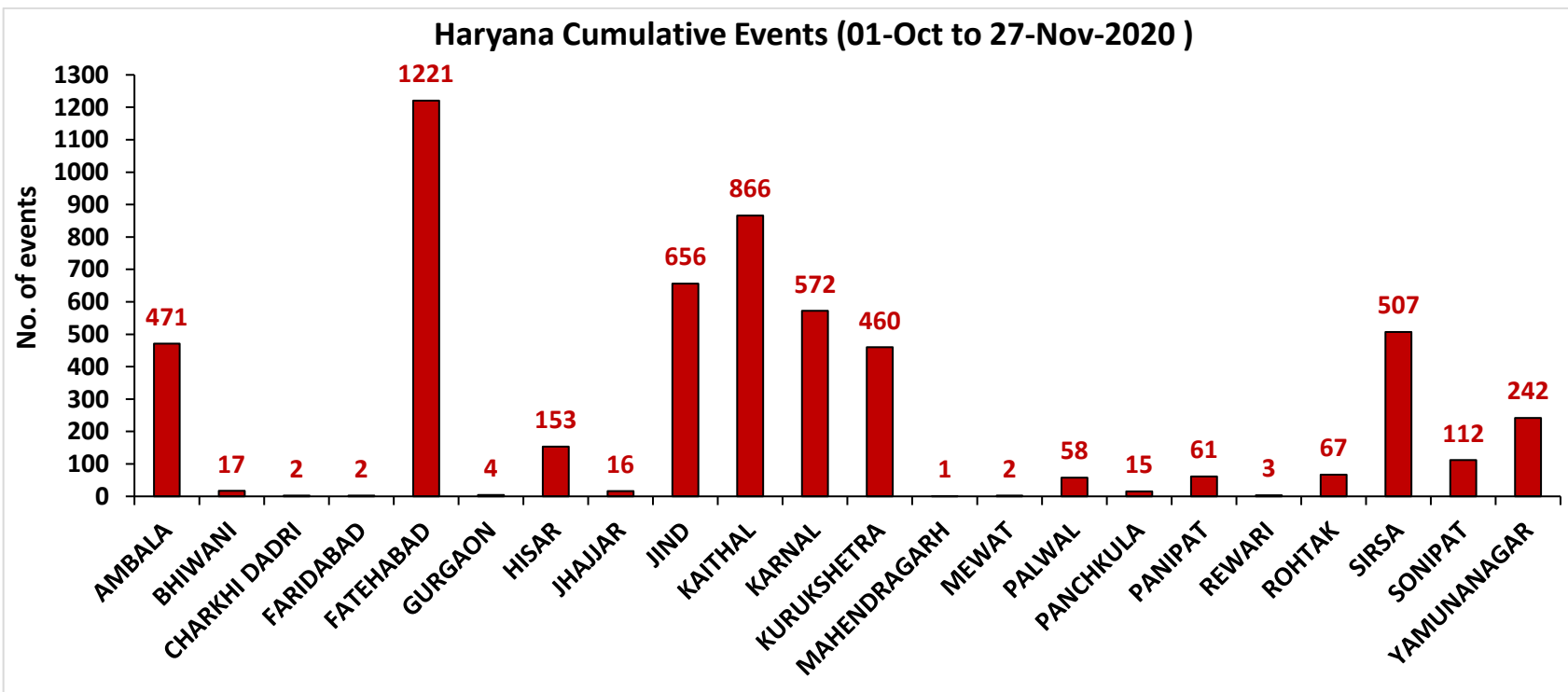
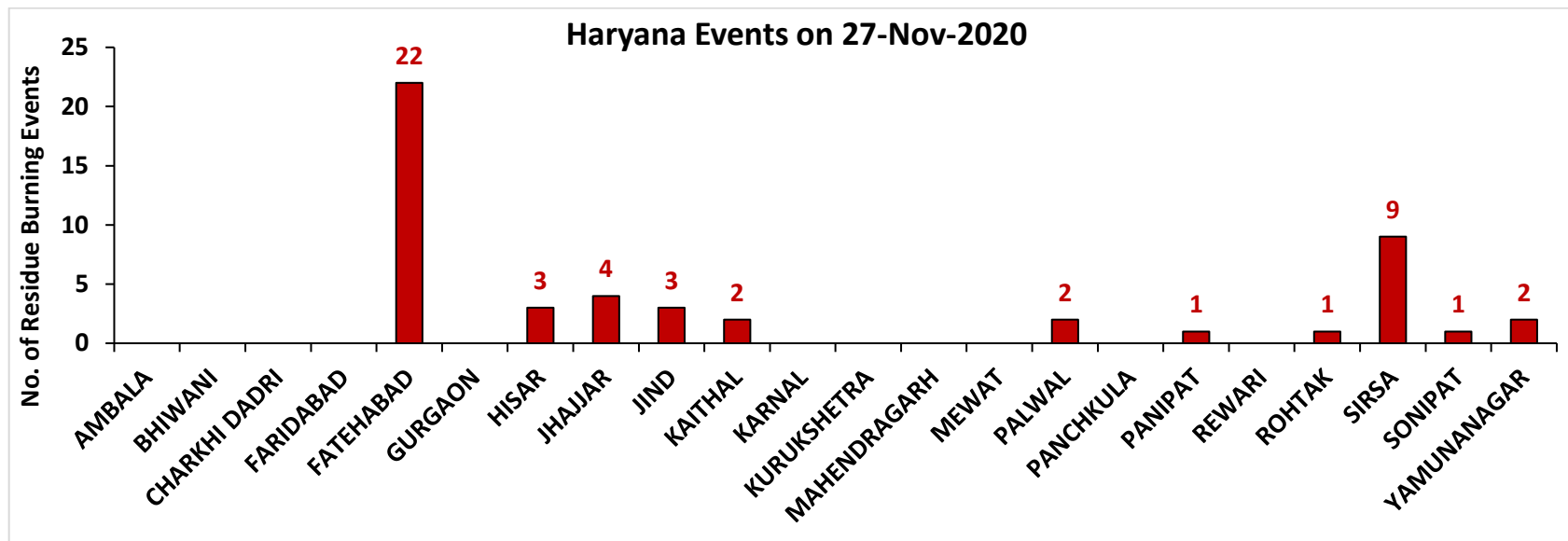
50 burning events detected in Haryana on 27th November 2020

Fire Intensity (W/m²)

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

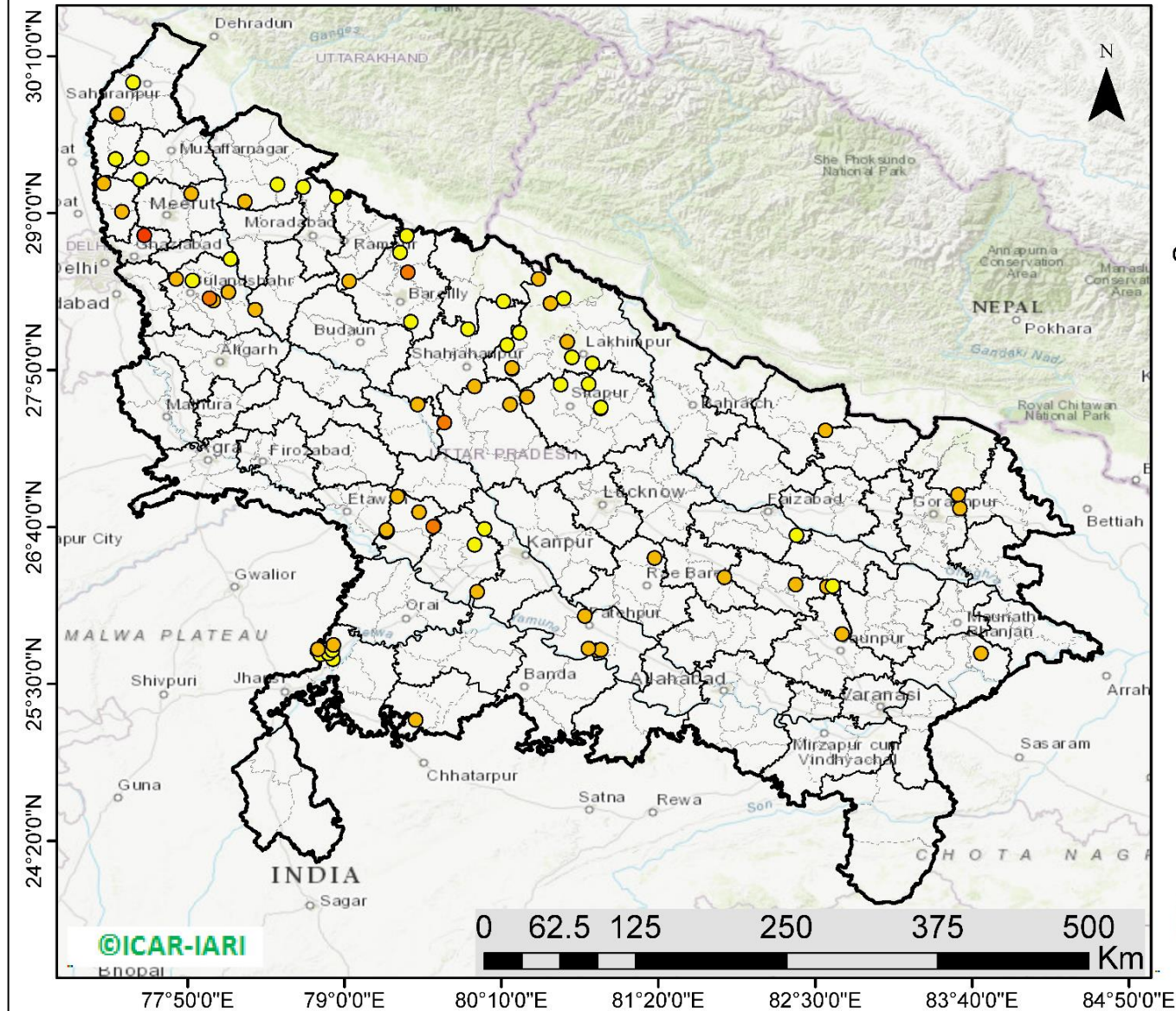


District-wise number of residue burning events in Haryana (01-Oct to 27-Nov 2020)



(c) Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



82 burning events detected in Uttar Pradesh on 27th November 2020

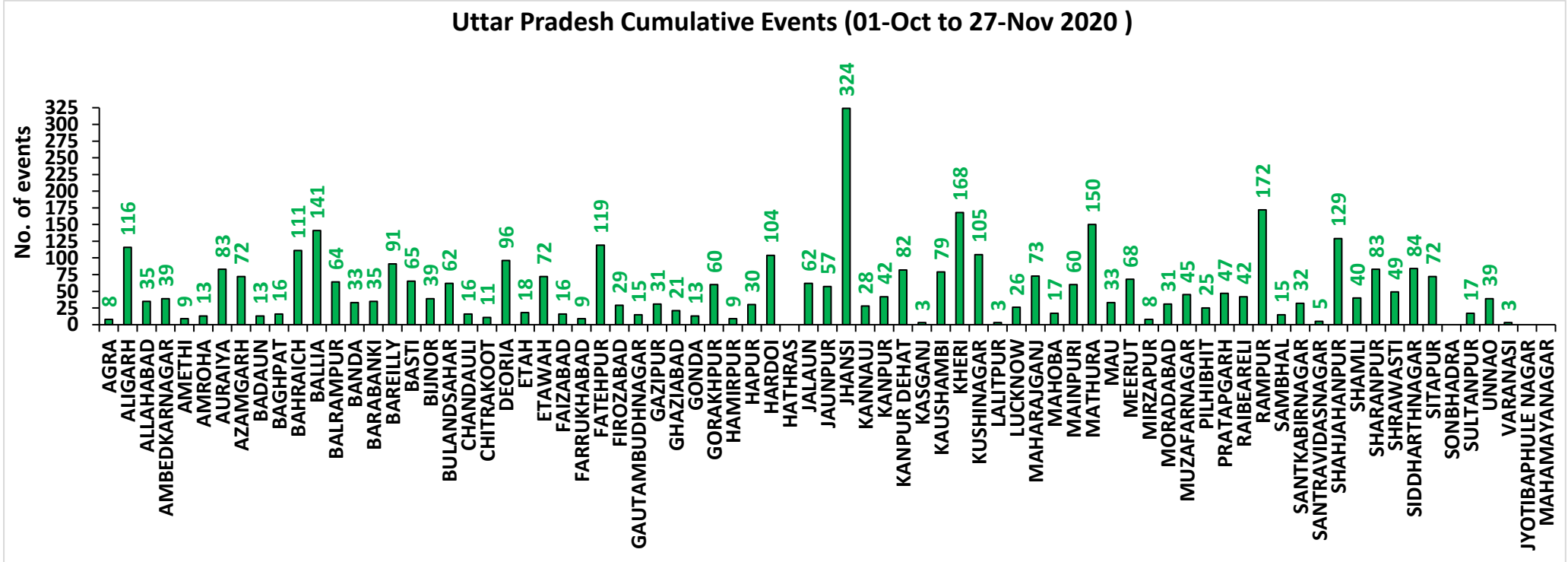
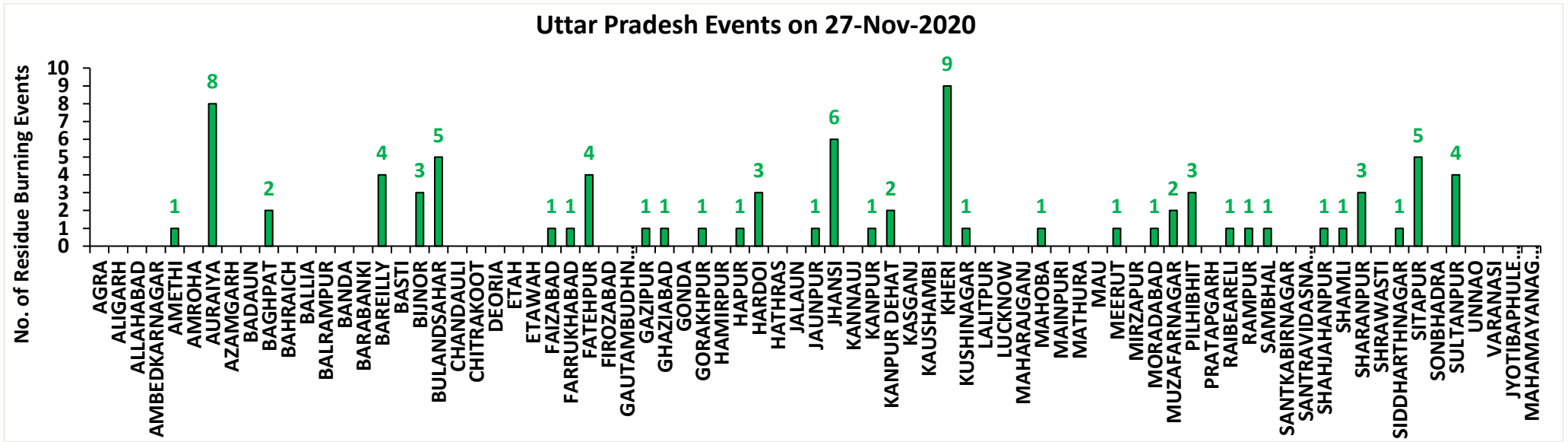
Fire Intensity (W/m²)

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



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

District-wise number of residue burning events in Uttar Pradesh (01-Oct to 27-Nov 2020)



State-wise and date-wise number of residue burning events detected in 2016, 2017, 2018, 2019 and 2020
(Period: 01-October to 27-November)

Date	Punjab					Haryana					UP					Total				
	2020	2019	2018	2017	2016	2020	2019	2018	2017	2016	2020	2019	2018	2017	2016	2020	2019	2018	2017	2016
01-Oct	129	3	16	54	109	25	1	9	13	46	5	1	11	2	23	159	5	36	69	178
02-Oct	121	20	9	50	51	34	2	23	27	16	10	0	21	8	20	165	22	53	85	87
03-Oct	110	37	4	62	66	07	16	9	40	16	07	3	12	17	16	124	56	25	119	98
04-Oct	177	3	32	103	37	50	30	16	60	7	11	4	5	22	15	238	37	53	185	59
05-Oct	163	16	56	106	95	30	37	30	68	15	15	11	10	20	14	208	64	96	194	124
06-Oct	141	0	87	138	152	42	22	63	75	105	14	8	13	39	6	197	30	163	252	263
07-Oct	166	27	162	105	171	53	16	180	97	126	36	4	69	33	24	255	47	411	235	321
08-Oct	100	59	39	215	166	40	69	40	218	94	23	18	54	76	14	163	146	133	509	274
09-Oct	126	93	75	163	270	30	70	47	148	121	15	17	32	88	22	171	180	154	399	413
10-Oct	238	172	23	164	597	65	157	37	151	242	07	53	21	126	74	310	382	81	441	913
11-Oct	333	78	30	177	652	112	126	78	87	336	22	38	24	74	128	467	242	132	338	1116
12-Oct	362	99	67	342	694	98	154	133	123	338	37	42	22	51	164	497	295	222	516	1196
13-Oct	247	108	62	470	467	64	159	147	207	284	39	33	61	69	102	350	300	270	746	853
14-Oct	616	141	112	582	812	87	133	153	333	328	08	39	57	137	60	711	313	322	1052	1200
15-Oct	487	262	90	943	1215	129	203	110	458	248	13	63	35	237	76	629	528	235	1638	1539
16-Oct	594	168	174	465	1478	100	148	138	186	385	20	77	20	71	125	714	393	332	722	1988
17-Oct	966	250	272	807	2173	167	152	268	244	399	38	53	94	69	261	1171	455	634	1120	2833
18-Oct	850	100	263	970	1065	197	103	255	306	270	64	39	163	108	204	1111	242	681	1384	1539
19-Oct	912	529	254	1591	1762	67	220	208	541	276	35	3	108	128	132	1014	752	570	2260	2170
20-Oct	933	490	496	2653	1175	104	360	141	597	188	31	62	49	255	62	1068	912	686	3505	1425
21-Oct	1415	852	618	1139	1726	153	339	217	233	257	30	185	66	168	152	1598	1376	901	1540	2135
22-Oct	1343	555	656	1356	2837	157	158	134	186	309	35	78	149	151	194	1535	791	939	1693	3340
23-Oct	1267	827	1113	994	2040	133	131	232	155	313	71	48	193	72	331	1471	1006	1538	1221	2684
24-Oct	921	1220	844	1714	1836	86	165	166	244	221	61	79	192	171	152	1068	1464	1202	2129	2209
25-Oct	1515	1463	1247	2104	1813	188	212	182	303	229	55	67	142	175	83	1758	1742	1571	2582	2125
26-Oct	2065	2861	1173	1715	3390	119	366	132	276	434	32	189	33	240	195	2216	3416	1338	2231	4019
27-Oct	2112	2135	2040	2069	2904	111	249	252	224	417	37	145	154	145	255	2260	2529	2446	2438	3576
28-Oct	2926	3007	2864	2318	3493	186	238	330	292	458	79	45	290	99	435	3191	3290	3484	2709	4386
29-Oct	1487	1504	1321	4184	2258	87	0	124	502	278	134	1	243	180	237	1708	1505	1688	4866	2773
30-Oct	4266	3017	2008	3152	1076	155	222	103	307	395	51	19	158	238	175	4472	3258	2269	3697	1646
31-Oct	3616	2325	2715	3743	6132	162	36	229	413	575	47	4	148	321	153	3825	2365	3092	4477	6860
01-Nov	3524	293	4140	2736	4843	187	50	306	250	362	70	105	161	199	223	3781	448	4607	3185	5428
02-Nov	3528	6	3550	1246	4183	139	2	306	145	332	80	33	142	131	345	3747	41	3998	1522	4860

03-Nov	2349	2646	972	2109	3806	104	68	202	240	375	174	56	181	75	409	2627	2770	1355	2424	4490
04-Nov	4965	6001	882	4603	4477	132	383	77	499	146	144	75	183	168	265	5241	6459	1142	5270	4888
05-Nov	4905	4199	2989	2876	4137	108	253	129	625	345	54	124	163	367	125	5067	4576	3281	3868	4607
06-Nov	5235	4642	3071	171	6303	207	243	222	26	322	40	118	130	357	215	5482	5003	3423	554	6840
07-Nov	4464	189	4033	420	8575	184	2	568	46	821	70	33	108	149	244	4718	224	4709	615	9640
08-Nov	3448	462	4450	2256	4129	164	16	313	128	432	151	54	338	43	419	3763	532	5101	2427	4980
09-Nov	1756	2003	2083	675	4857	30	199	96	311	608	124	96	294	107	205	1910	2298	2473	1093	5670
10-Nov	3463	2046	1675	1642	2468	144	151	85	509	484	106	147	125	131	109	3713	2344	1885	2282	3061
11-Nov	2950	783	1364	103	5040	149	78	196	29	716	94	174	45	358	129	3193	1035	1605	490	5885
12-Nov	1729	520	1256	33	1477	113	68	122	3	634	99	210	45	269	129	1941	798	1423	305	2240
13-Nov	2422	10	1563	237	885	160	16	146	7	389	154	79	94	109	338	2736	105	1803	353	1612
14-Nov	339	0	765	1101	692	50	1	189	340	171	234	22	128	95	247	623	23	1082	1536	1110
15-Nov	123	92	1480	5	871	91	29	107	40	107	176	111	146	123	154	390	232	1733	168	1132
16-Nov	9	23	1250	8	911	0	59	204	17	318	13	79	112	218	123	22	161	1566	243	1352
17-Nov	266	332	1132	217	638	15	85	289	12	299	38	265	103	249	130	319	682	1524	478	1067
18-Nov	693	740	1400	2147	568	67	70	356	139	312	58	113	111	180	217	818	923	1867	2466	1097
19-Nov	438	1221	752	2200	168	44	82	159	471	125	112	39	3	122	273	594	1342	914	2793	566
20-Nov	838	1007	385	1857	240	120	74	88	325	204	160	64	243	101	183	1118	1145	716	2283	627
21-Nov	507	151	480	2310	112	104	37	161	378	115	160	84	107	205	86	771	272	748	2893	313
22-Nov	41	21	287	719	99	18	19	122	154	118	127	116	72	281	148	186	156	481	1154	365
23-Nov	46	286	317	1033	54	62	14	180	259	97	89	100	106	163	151	197	400	603	1455	302
24-Nov	8	293	229	507	21	24	23	152	192	36	144	72	186	105	265	176	388	567	804	322
25-Nov	0	266	72	443	33	0	31	81	219	68	114	18	272	124	123	114	315	425	786	224
26-Nov	24	8	95	334	27	4	9	57	240	25	83	62	73	186	85	111	79	225	760	137
27-Nov	139	13	1	151	22	50	0	2	99	34	82	132	42	227	80	271	145	45	477	136
Total	78913	50674	59595	66787	102348	5508	6356	9101	12817	15621	4032	4009	6362	8432	9324	88453	61039	75058	88036	127293

District-wise and date-wise cumulative number of residue burning events detected in 2016, 2017, 2018, 2019 and 2020
(Period: 01-Oct to 27-Nov)

(a) Punjab

Districts	01-Oct to 27-Nov				
	2016	2017	2018	2019	2020
AMRITSAR	2170	1355	1393	1410	2027
BARNALA	5701	3419	3278	2964	4788
BATHINDA	8845	5750	6341	5309	7990
FARIDKOT	4628	3469	3057	2317	4028
FATEHGARH SAHIB	2461	1642	861	827	1341
FAZILKA	0	0	0	2773	5070
FIROZPUR	13638	9900	9981	4635	7172
GURDASPUR	2218	1590	1169	1478	1969
HOSHIARPUR	901	497	198	311	418
JALANDHAR	4660	2118	1393	1515	1893
KAPURTHALA	3136	1623	750	1353	1656
LUDHIANA	9546	4734	3033	2273	4306
MANSA	5651	4486	4316	3568	5209
MOGA	6393	2764	2730	2150	4618
MUKTSAR	7035	5417	5778	3711	5778
PATHANKOT	0	0	0	6	12
PATIALA	6544	5034	4213	3853	5499
RUPNAGAR	717	328	86	119	200
SANGRUR	11862	8428	7780	6363	10054
SAS NAGAR	117	107	104	150	194
SBS NAGAR	1612	822	389	265	187
TARN TARAN	4513	3304	2745	3324	4504
Total	102348	66787	59595	50674	78913

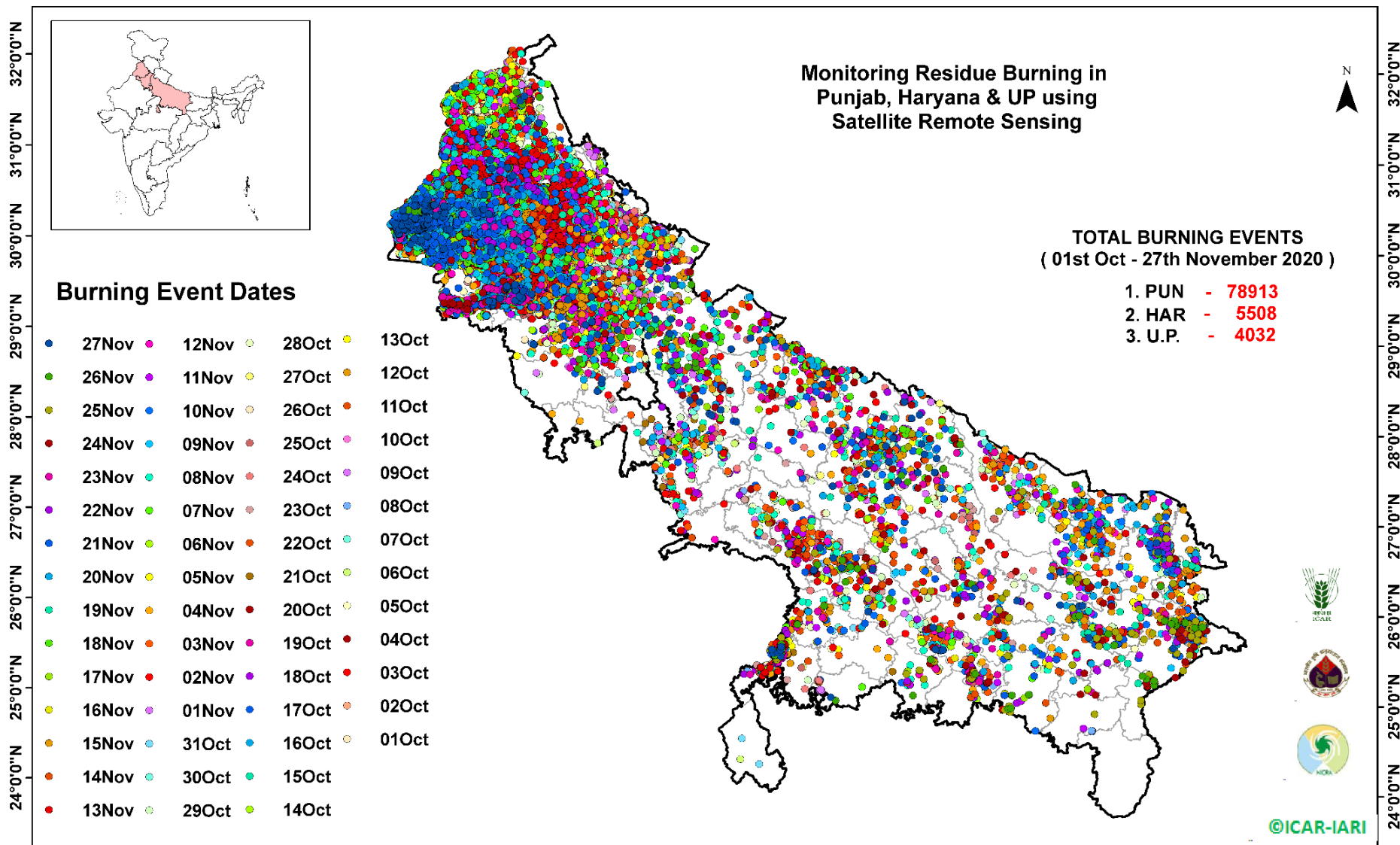
(b) Haryana

Districts	01-Oct to 27-Nov				
	2016	2017	2018	2019	2020
AMBALA	534	500	329	339	471
BHIWANI	89	47	21	11	17
CHARKHI DADRI	0	0	0	0	2
FARIDABAD	288	343	185	10	2
FATEHABAD	4829	3710	2532	1203	1221
GURGAON	0	0	0	4	4
HISAR	410	189	209	116	153
JHAJJAR	37	19	29	4	16
JIND	859	943	883	579	656
KAITHAL	1748	1512	1292	1258	866
KARNAL	1639	1511	851	1083	572
KURUKSHETRA	1078	1148	680	738	460
MAHENDRAGARH	0	0	0	2	1
MEWAT	0	0	0	3	2
PALWAL	0	0	0	188	58
PANCHKULA	0	0	3	21	15
PANIPAT	98	105	60	40	61
REWARI	0	0	0	3	3
ROHTAK	100	92	47	23	67
SIRSA	3574	2297	1739	448	507
SONIPAT	94	81	42	33	112
YAMUNANAGAR	244	320	199	250	242
Total	15621	12817	9101	6356	5508

(C)
Uttar Pradesh

Districts	01-Oct to 27-Nov																
	2016	2017	2018	2019	2020	GAUTAMBUDHNAGAR	30	46	12	20	15	MUZAFARNAGAR	145	175	59	38	45
AGRA	0	0	0	4	8	GAZIPUR	16	20	26	12	31	PILHIBIT	958	743	436	361	25
ALIGARH	55	82	93	90	116	GHAZIABAD	90	64	40	17	21	PRATAPGARH	45	61	43	20	47
ALLAHABAD	6	17	20	18	35	GONDA	48	38	22	11	13	RAIBEARELI	115	141	73	27	42
AMBEDKARNAGAR	77	65	28	10	39	GORAKHPUR	66	113	141	17	60	RAMPUR	626	649	226	318	172
AMETHI	0	0	0	10	9	HAMIRPUR	0	0	1	39	9	SAMBHAL	0	0	0	10	15
AMROHA	0	0	0	10	13	HAPUR	0	0	0	17	30	SANTKABIRNAGAR	56	64	54	14	32
AURAIYA	280	244	70	56	83	HARDOI	257	208	113	89	104	SANTRAVIDASNAGAR	0	0	0	1	5
AZAMGARH	38	52	36	5	72	HATHRAS	0	0	0	1	0	SHAHJAHANPUR	1154	702	389	370	129
BADAUN	12	10	14	22	13	JALAUN	0	0	0	131	62	SHAMLI	0	0	0	26	40
BAGHPAT	0	0	0	14	16	JAUNPUR	25	41	26	11	57	SHARANPUR	124	157	72	68	83
BAHRAICH	81	41	60	45	111	JHANSI	0	0	2	229	324	SHRAWASTI	37	32	37	22	49
BALLIA	19	43	29	23	141	KANNAUJ	35	18	8	10	28	SIDDHARTHANAGAR	262	188	475	49	84
BALRAMPUR	37	27	45	9	64	KANPUR	20	14	13	10	42	SITAPUR	137	83	48	48	72
BANDA	2	23	12	17	33	KANPUR DEHAT	70	73	29	50	82	SONBHADRA	16	16	13	0	0
BARABANKI	222	168	175	60	35	KASGANJ	0	0	0	6	3	SULTANPUR	78	77	61	17	17
BAREILLY	262	234	120	116	91	KAUSHAMBI	34	53	53	20	79	UNNAO	67	59	41	38	39
BASTI	146	187	126	30	65	KHERI	481	331	228	195	168	VARANASI	2	0	0	0	3
BIJNOR	66	67	19	17	39	KUSHINAGAR	66	154	171	42	105	JYOTIBAPHULE NAGAR	12	18	7	0	0
BULANDSAHAR	33	37	23	27	62	LALITPUR	0	0	0	7	3	MAHAMAYANAGAR	2	2	8	0	0
CHANDAULI	18	19	3	1	16	LUCKNOW	62	30	26	24	26	Total	9324	8432	6362	4009	4032
CHITRAKOOT	0	0	0	6	11	MAHARAJGANJ	719	1022	1071	282	73						
DEORIA	62	81	78	9	96	MAHOBA	0	0	0	9	17						
ETAH	22	33	28	5	18	MAINPURI	94	94	60	47	60						
ETAWAH	182	140	70	56	72	MATHURA	1462	1083	1049	463	150						
FAIZABAD	18	16	10	7	16	MAU	15	22	21	10	33						
FARRUKHABAD	0	0	0	8	9	MEERUT	93	110	24	38	68						
FATEHPUR	78	64	90	61	119	MIRZAPUR	5	19	9	4	8						
FIROZABAD	23	18	11	17	29	MORADABAD	61	44	15	18	31						

Map of Cumulative Burning Events (01-Oct to 27-Nov 2020)



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

Details of residue burning events in Punjab on 27-Nov-2020

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	AMRITSAR	AJNALA	AQUA	31.88700	74.65000	14:00:00	D	11.10
2	AMRITSAR	AJNALA	AQUA	31.88900	74.65500	14:00:00	D	16.00
3	AMRITSAR	AJNALA	S-NPP	31.89144	74.65675	14:00:00	D	4.20
4	AMRITSAR	AJNALA	S-NPP	31.89261	74.65462	14:00:00	D	2.50
5	BARNALA	TAPPA	S-NPP	30.22495	75.52513	14:00:00	D	4.50
6	BARNALA	TAPPA	S-NPP	30.23768	75.51277	14:00:00	D	2.80
7	BATHINDA	BATHINDA	S-NPP	30.15152	74.71886	14:00:00	D	4.60
8	BATHINDA	BATHINDA	AQUA	30.29700	74.85300	14:00:00	D	15.30
9	BATHINDA	BATHINDA	AQUA	30.29800	74.86500	14:00:00	D	18.30
10	BATHINDA	BATHINDA	S-NPP	30.29835	74.85874	14:00:00	D	6.90
11	BATHINDA	BATHINDA	S-NPP	30.29884	74.86366	14:00:00	D	6.90
12	BATHINDA	RAMPURA PHUL	S-NPP	30.15187	75.18458	14:00:00	D	4.00
13	BATHINDA	RAMPURA PHUL	S-NPP	30.51241	75.15158	14:00:00	D	2.40
14	BATHINDA	RAMPURA PHUL	S-NPP	30.52090	75.14536	14:00:00	D	2.50
15	FARIDKOT	JAITO	AQUA	30.52400	74.97700	14:00:00	D	4.20
16	FAZILKA	ABOHAR	AQUA	30.15300	74.16500	14:00:00	D	7.70
17	FAZILKA	ABOHAR	S-NPP	30.17673	74.30081	14:00:00	D	2.20
18	FAZILKA	ABOHAR	S-NPP	30.19372	74.29855	14:00:00	D	2.30
19	FAZILKA	ABOHAR	AQUA	30.19700	74.26200	14:00:00	D	4.90
20	FAZILKA	ABOHAR	AQUA	30.20100	74.29800	14:00:00	D	6.50
21	FAZILKA	ABOHAR	S-NPP	30.21879	74.20828	14:00:00	D	2.40
22	FAZILKA	ABOHAR	AQUA	30.22000	74.20900	14:00:00	D	6.60
23	FAZILKA	FAZILKA	AQUA	30.25400	74.01000	14:00:00	D	39.20
24	FAZILKA	FAZILKA	AQUA	30.25800	74.00300	14:00:00	D	17.00
25	FAZILKA	FAZILKA	S-NPP	30.25825	74.01078	14:00:00	D	15.30
26	FAZILKA	FAZILKA	AQUA	30.25900	74.01500	14:00:00	D	25.10
27	FAZILKA	FAZILKA	S-NPP	30.26242	74.01022	14:00:00	D	15.30
28	FAZILKA	FAZILKA	S-NPP	30.29912	73.99635	14:00:00	D	2.50
29	FAZILKA	FAZILKA	AQUA	30.30700	74.09100	14:00:00	D	9.00
30	FAZILKA	FAZILKA	AQUA	30.30700	74.24900	14:00:00	D	5.40

31	FAZILKA	FAZILKA	S-NPP	30.30929	74.09332	14:00:00	D	12.60
32	FAZILKA	FAZILKA	S-NPP	30.30931	74.05293	14:00:00	D	2.60
33	FAZILKA	FAZILKA	S-NPP	30.31116	74.07059	14:00:00	D	6.20
34	FAZILKA	FAZILKA	S-NPP	30.31240	74.24734	14:00:00	D	8.40
35	FAZILKA	FAZILKA	S-NPP	30.31304	74.00781	14:00:00	D	3.30
36	FAZILKA	FAZILKA	S-NPP	30.31536	74.07004	14:00:00	D	4.00
37	FAZILKA	FAZILKA	S-NPP	30.32368	74.27345	14:00:00	D	20.60
38	FAZILKA	FAZILKA	S-NPP	30.32837	74.31905	14:00:00	D	3.20
39	FAZILKA	FAZILKA	S-NPP	30.33453	74.29509	14:00:00	D	7.40
40	FAZILKA	FAZILKA	S-NPP	30.35134	74.13344	14:00:00	D	25.80
41	FAZILKA	FAZILKA	S-NPP	30.35185	74.13276	14:00:00	D	51.80
42	FAZILKA	FAZILKA	AQUA	30.35200	74.13200	14:00:00	D	20.80
43	FAZILKA	FAZILKA	AQUA	30.35300	74.04100	14:00:00	D	14.40
44	FAZILKA	FAZILKA	S-NPP	30.35556	74.13287	14:00:00	D	25.80
45	FAZILKA	FAZILKA	S-NPP	30.35735	74.15076	14:00:00	D	4.00
46	FAZILKA	FAZILKA	S-NPP	30.35797	74.15005	14:00:00	D	4.70
47	FAZILKA	FAZILKA	S-NPP	30.35920	74.04227	14:00:00	D	8.70
48	FAZILKA	FAZILKA	S-NPP	30.36685	74.11777	14:00:00	D	3.80
49	FAZILKA	FAZILKA	S-NPP	30.36738	73.95650	14:00:00	D	2.80
50	FAZILKA	FAZILKA	S-NPP	30.40614	74.12610	14:00:00	D	5.00
51	FAZILKA	FAZILKA	S-NPP	30.41261	74.18897	14:00:00	D	2.50
52	FAZILKA	FAZILKA	S-NPP	30.41507	74.08870	14:00:00	D	12.50
53	FAZILKA	FAZILKA	S-NPP	30.42717	74.20536	14:00:00	D	2.60
54	FAZILKA	FAZILKA	S-NPP	30.43138	74.24615	14:00:00	D	3.40
55	FAZILKA	FAZILKA	AQUA	30.43300	74.21100	14:00:00	D	15.60
56	FAZILKA	FAZILKA	S-NPP	30.44035	74.20820	14:00:00	D	2.40
57	FAZILKA	FAZILKA	S-NPP	30.44357	74.07586	14:00:00	D	9.40
58	FAZILKA	FAZILKA	AQUA	30.44500	74.07500	14:00:00	D	12.10
59	FAZILKA	FAZILKA	S-NPP	30.44777	74.07531	14:00:00	D	10.50
60	FAZILKA	FAZILKA	S-NPP	30.52617	74.04886	14:00:00	D	5.20
61	FAZILKA	JALALABAD	AQUA	30.46800	74.34100	14:00:00	D	8.60
62	FAZILKA	JALALABAD	S-NPP	30.51680	74.33485	14:00:00	D	3.00
63	FAZILKA	JALALABAD	AQUA	30.51900	74.32600	14:00:00	D	8.00

64	FAZILKA	JALALABAD	S-NPP	30.52489	74.32912	14:00:00	D	2.70
65	FAZILKA	JALALABAD	S-NPP	30.53344	74.32799	14:00:00	D	6.40
66	FAZILKA	JALALABAD	S-NPP	30.53390	74.33261	14:00:00	D	11.70
67	FAZILKA	JALALABAD	AQUA	30.53600	74.38500	14:00:00	D	8.20
68	FAZILKA	JALALABAD	S-NPP	30.53818	74.33205	14:00:00	D	6.80
69	FAZILKA	JALALABAD	S-NPP	30.57440	74.19339	14:00:00	D	4.10
70	FAZILKA	JALALABAD	S-NPP	30.57552	74.19257	14:00:00	D	3.60
71	FAZILKA	JALALABAD	AQUA	30.58400	74.36000	14:00:00	D	9.20
72	FAZILKA	JALALABAD	S-NPP	30.58478	74.36350	14:00:00	D	3.70
73	FAZILKA	JALALABAD	S-NPP	30.58683	74.36411	14:00:00	D	3.60
74	FAZILKA	JALALABAD	NOAA-19	30.59834	74.33415	18:03:00	N	12.67
75	FAZILKA	JALALABAD	S-NPP	30.65588	74.35973	14:00:00	D	2.40
76	FAZILKA	JALALABAD	AQUA	30.65700	74.19200	14:00:00	D	5.70
77	FIROZPUR	ZIRA	AQUA	31.02300	75.15500	14:00:00	D	7.70
78	FIROZPUR	ZIRA	AQUA	31.02500	75.16900	14:00:00	D	11.20
79	GURDASPUR	BATALA	S-NPP	31.77664	75.50012	14:00:00	D	1.50
80	HOSHIARPUR	DASUYA	S-NPP	31.82831	75.55187	14:00:00	D	4.70
81	HOSHIARPUR	HOSHIARPUR	S-NPP	31.53743	75.74877	14:00:00	D	3.70
82	JALANDHAR	JALANDHAR II	S-NPP	31.55839	75.61280	14:00:00	D	3.40
83	JALANDHAR	JALANDHAR II	S-NPP	31.56007	75.61116	14:00:00	D	4.00
84	JALANDHAR	NAKODAR	S-NPP	31.20436	75.58723	14:00:00	D	3.00
85	JALANDHAR	SHAHKOT	S-NPP	31.03647	75.36908	14:00:00	D	9.50
86	JALANDHAR	SHAHKOT	AQUA	31.03700	75.36500	14:00:00	D	14.80
87	JALANDHAR	SHAHKOT	AQUA	31.11200	75.13600	14:00:00	D	5.90
88	JALANDHAR	SHAHKOT	S-NPP	31.11231	75.13689	14:00:00	D	6.40
89	LUDHIANA	JAGRAON	S-NPP	30.91946	75.40731	14:00:00	D	9.10
90	LUDHIANA	JAGRAON	S-NPP	30.94995	75.43667	14:00:00	D	4.90
91	LUDHIANA	SAMRALA	S-NPP	30.97422	76.15082	14:00:00	D	3.10
92	MANSA	SARDULGARH	S-NPP	29.54666	75.23971	14:00:00	D	5.90
93	MANSA	SARDULGARH	S-NPP	29.55112	75.23916	14:00:00	D	5.90
94	MOGA	BAGHA PURANA	S-NPP	30.54371	75.00829	14:00:00	D	1.90
95	MOGA	BAGHA PURANA	AQUA	30.56600	75.07100	14:00:00	D	11.60
96	MOGA	BAGHA PURANA	AQUA	30.56700	75.07800	14:00:00	D	7.70

97	MOGA	BAGHA PURANA	AQUA	30.73000	75.08100	14:00:00	D	8.50
98	MOGA	MOGA	S-NPP	30.80181	75.38063	14:00:00	D	5.10
99	MUKTSAR	GIDDARBAHA	S-NPP	30.33111	74.65039	14:00:00	D	12.90
100	MUKTSAR	GIDDARBAHA	S-NPP	30.33263	74.62119	14:00:00	D	6.80
101	MUKTSAR	GIDDARBAHA	AQUA	30.33300	74.65300	14:00:00	D	8.60
102	MUKTSAR	MALAUT	S-NPP	30.11657	74.58869	14:00:00	D	3.90
103	MUKTSAR	MALAUT	S-NPP	30.24852	74.36997	14:00:00	D	2.80
104	MUKTSAR	MALAUT	S-NPP	30.33636	74.39725	14:00:00	D	1.70
105	MUKTSAR	MALAUT	AQUA	30.33700	74.33000	14:00:00	D	7.00
106	MUKTSAR	MALAUT	S-NPP	30.33783	74.32708	14:00:00	D	7.70
107	MUKTSAR	MALAUT	S-NPP	30.33830	74.33167	14:00:00	D	7.70
108	MUKTSAR	MALAUT	S-NPP	30.34730	74.33512	14:00:00	D	4.80
109	MUKTSAR	MALAUT	S-NPP	30.36389	74.32831	14:00:00	D	10.60
110	MUKTSAR	MALAUT	AQUA	30.36600	74.32600	14:00:00	D	7.70
111	MUKTSAR	MALAUT	S-NPP	30.36815	74.32775	14:00:00	D	10.10
112	MUKTSAR	MALAUT	S-NPP	30.36863	74.33234	14:00:00	D	7.40
113	MUKTSAR	MALAUT	S-NPP	30.37765	74.33581	14:00:00	D	5.30
114	MUKTSAR	MALAUT	S-NPP	30.37963	74.33176	14:00:00	D	5.60
115	MUKTSAR	MUKTSAR	AQUA	30.38000	74.36100	14:00:00	D	10.80
116	MUKTSAR	MUKTSAR	S-NPP	30.38103	74.36799	14:00:00	D	15.40
117	MUKTSAR	MUKTSAR	S-NPP	30.38280	74.36398	14:00:00	D	6.30
118	MUKTSAR	MUKTSAR	S-NPP	30.38326	74.36859	14:00:00	D	10.20
119	MUKTSAR	MUKTSAR	AQUA	30.43200	74.37100	14:00:00	D	5.70
120	MUKTSAR	MUKTSAR	S-NPP	30.44026	74.37513	14:00:00	D	2.90
121	MUKTSAR	MUKTSAR	AQUA	30.46400	74.55500	14:00:00	D	11.20
122	MUKTSAR	MUKTSAR	S-NPP	30.46739	74.55678	14:00:00	D	16.10
123	MUKTSAR	MUKTSAR	AQUA	30.47400	74.46500	14:00:00	D	10.00
124	MUKTSAR	MUKTSAR	S-NPP	30.48081	74.47375	14:00:00	D	17.60
125	MUKTSAR	MUKTSAR	AQUA	30.51000	74.58000	14:00:00	D	5.40
126	MUKTSAR	MUKTSAR	S-NPP	30.51065	74.58292	14:00:00	D	5.30
127	MUKTSAR	MUKTSAR	S-NPP	30.57146	74.40296	14:00:00	D	5.80
128	MUKTSAR	MUKTSAR	AQUA	30.57800	74.56900	14:00:00	D	5.90
129	MUKTSAR	MUKTSAR	AQUA	30.58000	74.41600	14:00:00	D	10.30

130	MUKTSAR	MUKTSAR	S-NPP	30.58627	74.41998	14:00:00	D	20.10
131	MUKTSAR	MUKTSAR	AQUA	30.58800	74.56700	14:00:00	D	8.50
132	MUKTSAR	MUKTSAR	S-NPP	30.58828	74.56808	14:00:00	D	4.40
133	MUKTSAR	MUKTSAR	S-NPP	30.59251	74.43815	14:00:00	D	9.40
134	MUKTSAR	MUKTSAR	S-NPP	30.59299	74.44284	14:00:00	D	9.40
135	MUKTSAR	MUKTSAR	AQUA	30.59300	74.43400	14:00:00	D	22.20
136	MUKTSAR	MUKTSAR	S-NPP	30.59408	74.43891	14:00:00	D	8.90
137	MUKTSAR	MUKTSAR	S-NPP	30.59454	74.44361	14:00:00	D	8.90
138	MUKTSAR	MUKTSAR	AQUA	30.59500	74.44600	14:00:00	D	10.90
139	TARN TARAN	KHADOOR SAHIB	S-NPP	31.41621	75.02190	14:00:00	D	2.90

Details of residue burning events in Haryana on 27-Nov-2020

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	FATEHABAD	FATEHABAD	S-NPP	29.56400	75.56558	14:00:00	D	3.30
2	FATEHABAD	FATEHABAD	AQUA	29.56700	75.55900	14:00:00	D	21.30
3	FATEHABAD	FATEHABAD	AQUA	29.56800	75.57200	14:00:00	D	10.40
4	FATEHABAD	FATEHABAD	AQUA	29.57200	75.51600	14:00:00	D	7.80
5	FATEHABAD	FATEHABAD	AQUA	29.59000	75.33000	14:00:00	D	7.00
6	FATEHABAD	FATEHABAD	AQUA	29.59100	75.32200	14:00:00	D	7.90
7	FATEHABAD	RATIA	AQUA	29.60200	75.59500	14:00:00	D	17.10
8	FATEHABAD	RATIA	AQUA	29.60400	75.60900	14:00:00	D	9.80
9	FATEHABAD	RATIA	S-NPP	29.60448	75.60346	14:00:00	D	11.90
10	FATEHABAD	RATIA	S-NPP	29.62424	75.56902	14:00:00	D	3.20
11	FATEHABAD	RATIA	NOAA-19	29.67907	75.61370	18:03:00	N	15.00
12	FATEHABAD	RATIA	AQUA	29.68300	75.50800	14:00:00	D	6.70
13	FATEHABAD	RATIA	AQUA	29.68400	75.52200	14:00:00	D	9.20
14	FATEHABAD	RATIA	S-NPP	29.68818	75.51534	14:00:00	D	6.40
15	FATEHABAD	RATIA	AQUA	29.70000	75.40200	14:00:00	D	7.60
16	FATEHABAD	RATIA	S-NPP	29.70534	75.40778	14:00:00	D	10.40
17	FATEHABAD	RATIA	AQUA	29.72100	75.39900	14:00:00	D	44.20
18	FATEHABAD	RATIA	AQUA	29.72200	75.41200	14:00:00	D	10.80
19	FATEHABAD	RATIA	S-NPP	29.72341	75.40558	14:00:00	D	6.30
20	FATEHABAD	RATIA	S-NPP	29.72792	75.40503	14:00:00	D	6.30
21	FATEHABAD	RATIA	S-NPP	29.74779	75.50679	14:00:00	D	4.20
22	FATEHABAD	TOHANA	S-NPP	29.64839	75.72261	14:00:00	D	5.20
23	HISAR	HISAR	AQUA	29.09200	75.77300	13:55:00	D	18.70
24	HISAR	HISAR	AQUA	29.09400	75.76400	13:55:00	D	19.20
25	HISAR	HISAR	S-NPP	29.09810	75.76826	14:00:00	D	3.20
26	JHAJJAR	BERI	AQUA	28.68200	76.63600	13:55:00	D	12.50
27	JHAJJAR	BERI	S-NPP	28.68666	76.63591	14:00:00	D	2.60
28	JHAJJAR	BERI	NOAA-19	28.72685	76.63767	18:03:00	N	10.00
29	JHAJJAR	JHAJJAR	TERRA	28.59400	76.58400	10:45:00	D	9.80
30	JIND	JIND	NOAA-19	29.32423	76.41444	18:03:00	N	9.00
31	JIND	NARWANA	AQUA	29.59800	76.18400	14:00:00	D	8.50

32	JIND	SAFIDON	NOAA-19	29.36017	76.49208	18:03:00	N	9.00
33	KAITHAL	KAITHAL	S-NPP	29.63204	76.48116	01:00:00	N	0.70
34	KAITHAL	KAITHAL	S-NPP	29.63453	76.48329	02:42:00	N	1.60
35	PALWAL	HODAL	S-NPP	27.93738	77.49910	12:18:00	D	5.30
36	PALWAL	HODAL	S-NPP	27.93839	77.49729	12:18:00	D	4.70
37	PANIPAT	ISRANA	NOAA-19	29.27932	76.82208	18:03:00	N	8.00
38	ROHTAK	MAHAM	NOAA-19	29.03228	76.48238	18:03:00	N	10.00
39	SIRSA	SIRSA	AQUA	29.50800	75.22800	14:00:00	D	16.70
40	SIRSA	SIRSA	S-NPP	29.50953	75.22907	14:00:00	D	3.20
41	SIRSA	SIRSA	S-NPP	29.51153	75.23170	14:00:00	D	7.80
42	SIRSA	SIRSA	S-NPP	29.51399	75.22851	14:00:00	D	3.20
43	SIRSA	SIRSA	S-NPP	29.52338	75.23241	14:00:00	D	3.70
44	SIRSA	SIRSA	S-NPP	29.52386	75.23743	14:00:00	D	3.70
45	SIRSA	SIRSA	AQUA	29.54000	75.23600	14:00:00	D	13.40
46	SIRSA	SIRSA	AQUA	29.55000	75.23500	14:00:00	D	21.50
47	SIRSA	SIRSA	S-NPP	29.55465	75.18292	14:00:00	D	3.10
48	SONIPAT	GOHANA	AQUA	29.22100	76.57000	13:55:00	D	16.70
49	YAMUNANAGAR	JAGADHRI	S-NPP	30.00941	77.19802	14:00:00	D	0.80
50	YAMUNANAGAR	JAGADHRI	S-NPP	30.12310	77.19324	14:00:00	D	2.90

Details of residue burning events in Uttar Pradesh on 27-Nov-2020

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	AMETHI	AMETHI	NOAA-19	26.29242	81.82544	18:03:00	N	7.50
2	AURAIYA	AURAIYA	AQUA	26.63000	79.31300	13:55:00	D	16.50
3	AURAIYA	AURAIYA	S-NPP	26.63892	79.31392	14:00:00	D	5.40
4	AURAIYA	AURAIYA	S-NPP	26.63924	79.31799	14:00:00	D	8.30
5	AURAIYA	AURAIYA	AQUA	26.64300	79.31200	13:55:00	D	12.50
6	AURAIYA	AURAIYA	S-NPP	26.64448	79.31342	14:00:00	D	6.10
7	AURAIYA	BIDHUNA	NOAA-19	26.66971	79.66104	18:03:00	N	11.00
8	AURAIYA	BIDHUNA	NOAA-19	26.77751	79.55428	18:03:00	N	10.00
9	AURAIYA	BIDHUNA	NOAA-19	26.89429	79.39413	18:03:00	N	6.00
10	BAGHPAT	BAGHPAT	NOAA-19	29.00982	77.34620	18:03:00	N	9.00
11	BAGHPAT	BARAUT	NOAA-19	29.22093	77.21031	18:03:00	N	8.00
12	BAREILLY	BAHERI	S-NPP	28.70758	79.41377	14:00:00	D	2.30
13	BAREILLY	BAHERI	S-NPP	28.83028	79.46303	02:42:00	N	2.50
14	BAREILLY	BAREILY	NOAA-19	28.56067	79.47178	18:03:00	N	11.00
15	BAREILLY	FARIDPUR	S-NPP	28.19208	79.49352	01:06:00	N	0.40
16	BIJNOR	CHANDPUR	NOAA-19	29.08618	78.25855	18:03:00	N	7.00
17	BIJNOR	DHAMPUR	S-NPP	29.19381	78.69296	14:00:00	D	2.20
18	BIJNOR	DHAMPUR	S-NPP	29.21270	78.50199	14:00:00	D	2.10
19	BULANSAHAR	ANUP SHAHR	NOAA-19	28.41244	78.13722	18:03:00	N	10.00
20	BULANSAHAR	BULANSHAHAR	NOAA-19	28.36753	77.99649	18:03:00	N	13.00
21	BULANSAHAR	BULANSHAHAR	S-NPP	28.49866	77.86982	14:00:00	D	3.20
22	BULANSAHAR	SHIKARPUR	NOAA-19	28.34956	78.02561	18:03:00	N	9.00
23	BULANSAHAR	SIKANDARABAD	NOAA-19	28.51126	77.74899	18:03:00	N	10.00
24	FAIZABAD	FAIZSBAD	TERRA	26.60600	82.36100	10:45:00	D	4.40
25	FARRUKHABAD	AMRITPUR	NOAA-19	27.57701	79.54457	18:03:00	N	7.50
26	FATEHPUR	FATEHPUR	NOAA-19	25.74894	80.87912	18:03:00	N	7.00
27	FATEHPUR	FATEHPUR	NOAA-19	25.75343	80.90824	18:03:00	N	7.00
28	FATEHPUR	FATEHPUR	S-NPP	25.76249	80.81373	14:00:00	D	5.30
29	FATEHPUR	FATEHPUR	NOAA-19	26.00496	80.78692	18:03:00	N	8.00
30	GAZIPUR	MUHAMMADBAD	NOAA-19	25.72648	83.73264	18:03:00	N	8.00

31	GHAZIABAD	MODINAGAR	NOAA-19	28.83465	77.51120	18:03:00	N	19.00
32	GORAKHPUR	GORAKHPUR	NOAA-19	26.80446	83.57735	18:03:00	N	6.00
33	HAPUR	GARHMUKTESAR	S-NPP	28.65838	78.15320	14:00:00	D	1.60
34	HARDOI	HARDOI	TERRA	27.57800	80.23100	10:45:00	D	9.60
35	HARDOI	SHAHABAD	NOAA-19	27.71176	79.96677	18:03:00	N	7.00
36	HARDOI	SIWAJIPUR	NOAA-19	27.44226	79.74354	18:03:00	N	14.00
37	JAUNPUR	SHHGANJ	NOAA-19	25.87021	82.69897	18:03:00	N	6.50
38	JHANSI	MOTH	S-NPP	25.68396	78.91436	14:00:00	D	2.30
39	JHANSI	MOTH	S-NPP	25.71870	78.81953	12:18:00	D	2.90
40	JHANSI	MOTH	S-NPP	25.72703	78.88235	14:00:00	D	2.50
41	JHANSI	MOTH	S-NPP	25.75097	78.90991	14:00:00	D	3.80
42	JHANSI	MOTH	NOAA-19	25.75792	78.80207	18:03:00	N	6.00
43	JHANSI	MOTH	NOAA-19	25.78936	78.91854	18:03:00	N	7.00
44	KANPUR	BILHAUR	S-NPP	26.65343	80.04089	12:18:00	D	2.60
45	KANPUR DEHAT	AKBARPUR	S-NPP	26.53468	79.96736	01:06:00	N	0.40
46	KANPUR DEHAT	BHOGANIPUR	NOAA-19	26.18462	79.98619	18:03:00	N	6.00
47	KHERI	LAKHIMPUR	S-NPP	27.88209	80.84303	14:00:00	D	2.60
48	KHERI	LAKHIMPUR	S-NPP	27.92868	80.69047	12:18:00	D	4.00
49	KHERI	LAKHIMPUR	TERRA	28.04400	80.65700	10:45:00	D	9.50
50	KHERI	MOHMADI	S-NPP	27.84341	80.24641	14:00:00	D	6.20
51	KHERI	MOHMADI	S-NPP	27.84937	80.24593	14:00:00	D	6.20
52	KHERI	MOHMADI	S-NPP	28.01997	80.20993	14:00:00	D	2.50
53	KHERI	MOHMADI	S-NPP	28.11146	80.30007	12:18:00	D	3.00
54	KHERI	PALIA KALAN	S-NPP	28.32920	80.53139	14:00:00	D	9.40
55	KHERI	PALIA KALAN	S-NPP	28.36580	80.63086	12:18:00	D	2.30
56	KUSHINAGAR	HATA	NOAA-19	26.90777	83.56279	18:03:00	N	6.50
57	MAHOBA	KULPAHAR	NOAA-19	25.23241	79.53001	18:03:00	N	6.00
58	MEERUT	MAWANA	NOAA-19	29.14457	77.86061	18:03:00	N	8.00
59	MORADABAD	MORADABAD	S-NPP	29.12068	78.94490	12:18:00	D	3.90
60	MUZAFARNAGAR	BUDHANA	S-NPP	29.24756	77.48194	14:00:00	D	3.10
61	MUZAFARNAGAR	BUDHANA	S-NPP	29.40830	77.49189	14:00:00	D	1.40
62	PILHIBHIT	BISALPUR	S-NPP	28.13801	79.91866	02:42:00	N	1.10
63	PILHIBHIT	PURANPUR	S-NPP	28.34299	80.18232	01:06:00	N	0.50
64	PILHIBHIT	PURANPUR	NOAA-19	28.51126	80.44236	18:03:00	N	6.00

65	RAIBEARELI	MAHARAJGANG	NOAA-19	26.43615	81.30618	18:03:00	N	6.00
66	RAMPUR	SHAHBAD	NOAA-19	28.49329	79.03501	18:03:00	N	8.00
67	SAMBHAL	GUNNAUR	NOAA-19	28.28219	78.33619	18:03:00	N	6.00
68	SHAHJAHANPUR	SHAHJAHANPUR	S-NPP	27.82570	80.00213	01:06:00	N	0.30
69	SHAMLI	SHAMLI	S-NPP	29.40290	77.29763	14:00:00	D	3.00
70	SHARANPUR	NAKUR	AQUA	29.73000	77.30700	14:00:00	D	9.70
71	SHARANPUR	NAKUR	S-NPP	29.73626	77.31298	14:00:00	D	6.50
72	SHARANPUR	NAKUR	S-NPP	29.97210	77.42914	14:00:00	D	1.30
73	SIDDHARTHANAGAR	ITWA	S-NPP	27.38513	82.57605	14:00:00	D	6.00
74	SITAPUR	BISWAN	S-NPP	27.54925	80.90517	14:00:00	D	2.20
75	SITAPUR	BISWAN	S-NPP	27.55441	80.90627	14:00:00	D	3.50
76	SITAPUR	LAHARPUR	S-NPP	27.72902	80.81633	12:18:00	D	3.20
77	SITAPUR	MISRIK	TERRA	27.63400	80.35800	10:45:00	D	9.00
78	SITAPUR	SITAPUR	S-NPP	27.72609	80.60780	14:00:00	D	4.40
79	SULTANPUR	KADIRPUR	S-NPP	26.22264	82.58697	14:00:00	D	5.70
80	SULTANPUR	KADIRPUR	S-NPP	26.22714	82.62960	12:18:00	D	2.20
81	SULTANPUR	KADIRPUR	S-NPP	26.22785	82.62955	12:18:00	D	2.80
82	SULTANPUR	KADIRPUR	NOAA-19	26.23852	82.35441	18:03:00	N	9.00

The study used images received from following Satellites at IARI Satellite 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
4.	NOAA – 18	AVHRR	1000	Night
5.	NOAA – 19	AVHRR	1000	Night
6.	Metop - 1	AVHRR	1000	Night
7.	Metop - 2	AVHRR	1000	Night

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Softcopy of this report and latest statistics can be seen on <http://creams.iari.res.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)
