

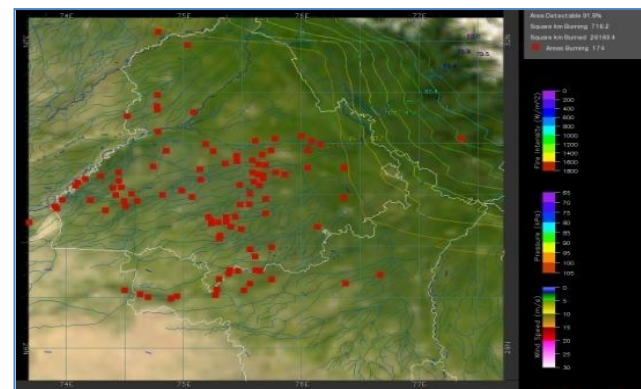
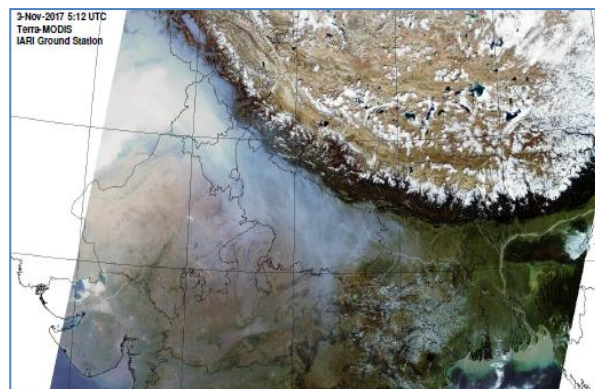


MONITORING PADDY RESIDUE BURNING IN NORTH INDIA USING SATELLITE REMOTE SENSING DURING 2018

**Bulletin
No. 56**

**Events Date:
26-Nov-2018**

**Issued on:
27-Nov-2018**



Prepared by:

**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
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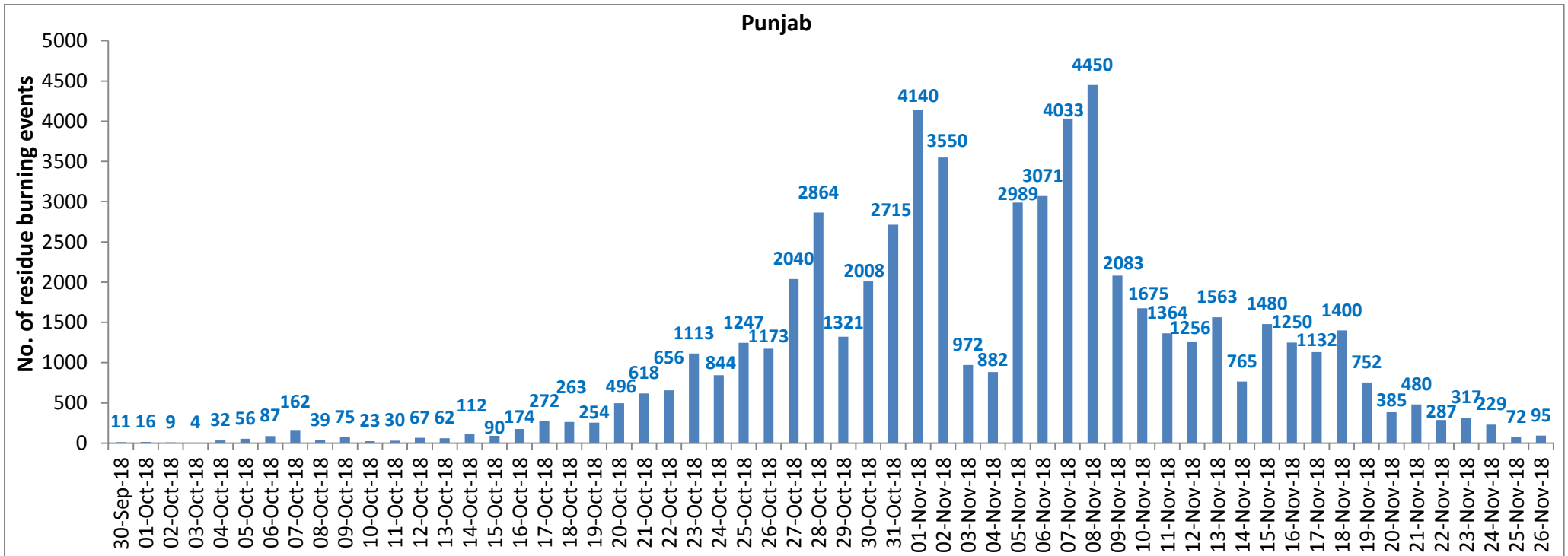
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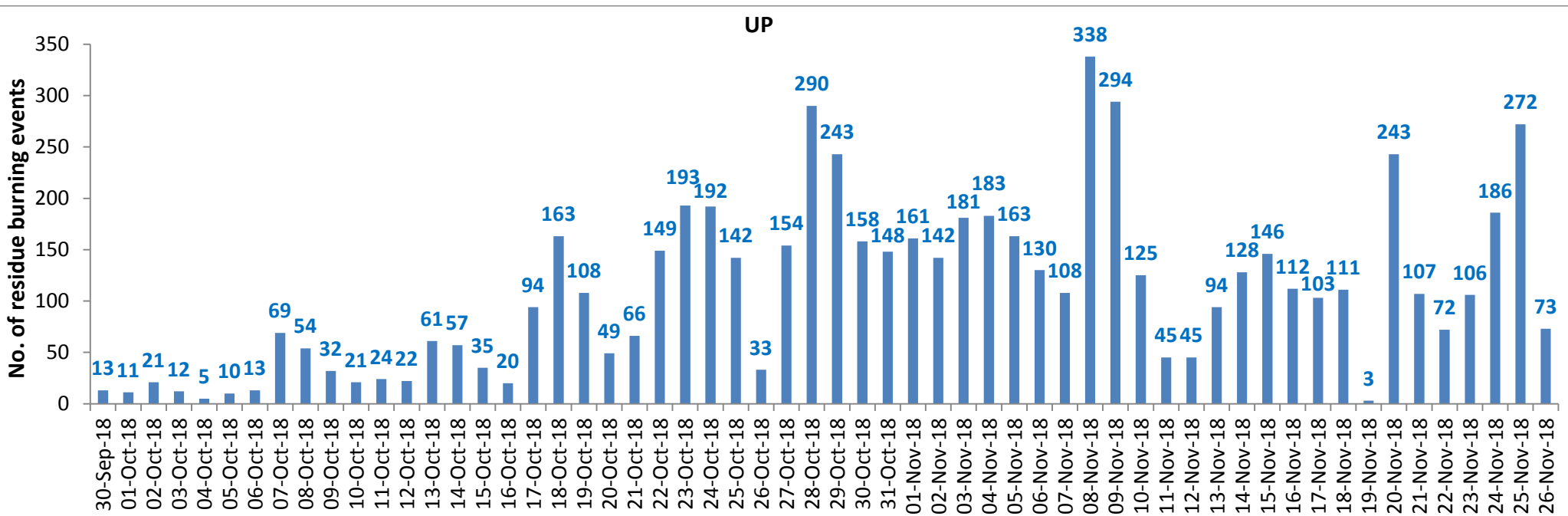
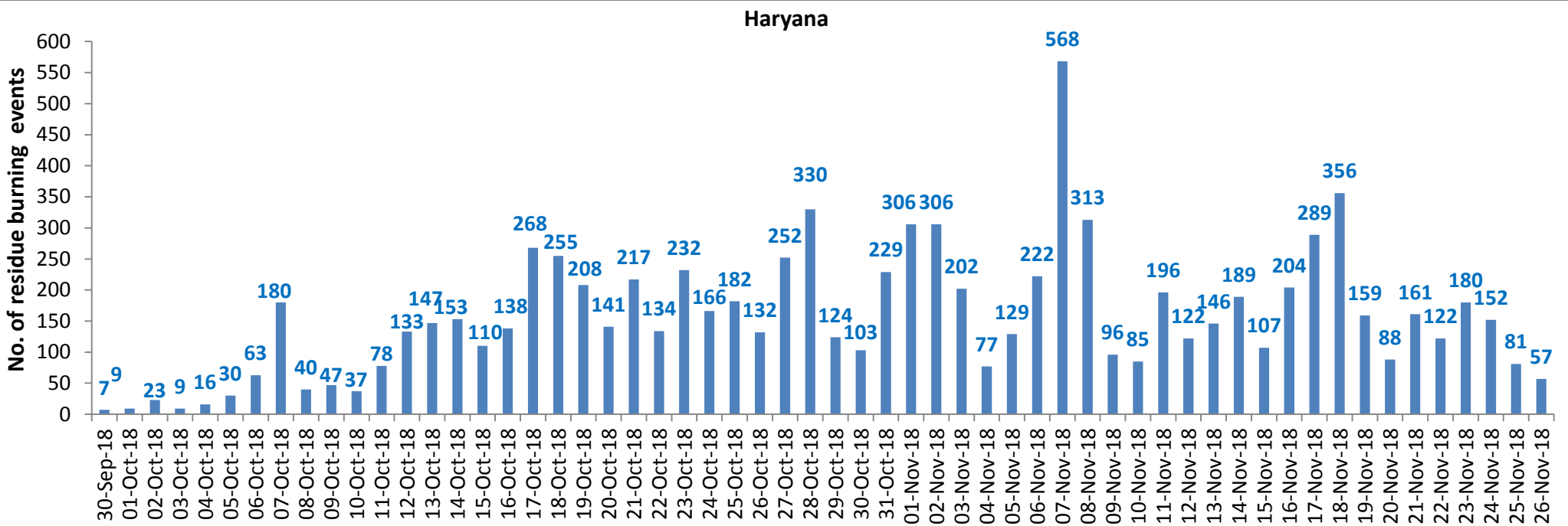


Highlights for 26-November-2018

- Satellites detected **225** residue burning events in the three States (Punjab, Haryana & UP) on **26-Nov-2018**.
- The burning events detected on **26-Nov-2018** are **95**, **57** and **73** in Punjab, Haryana, and UP, respectively.
- The number of events has decreased from **425** on **25-Nov-2018** to **225** on **26-Nov-2018** in the three States.
- Total **75044** burning events were detected in the three States between **30-Sept-2018** and **26-Nov-2018**, which are distributed as **59605**, **9106** and **6333** in Punjab, Haryana and UP, respectively.
- Till **26-Nov-2018**, the burning events in the current year are about **85.7%** of the events detected in 2017 and about **59%** of the events detected in 2016.
- Overall, about **14%** and **41%** reduction in burning events are observed in current year (2018) till date as compared to that in 2017 and 2016, respectively.

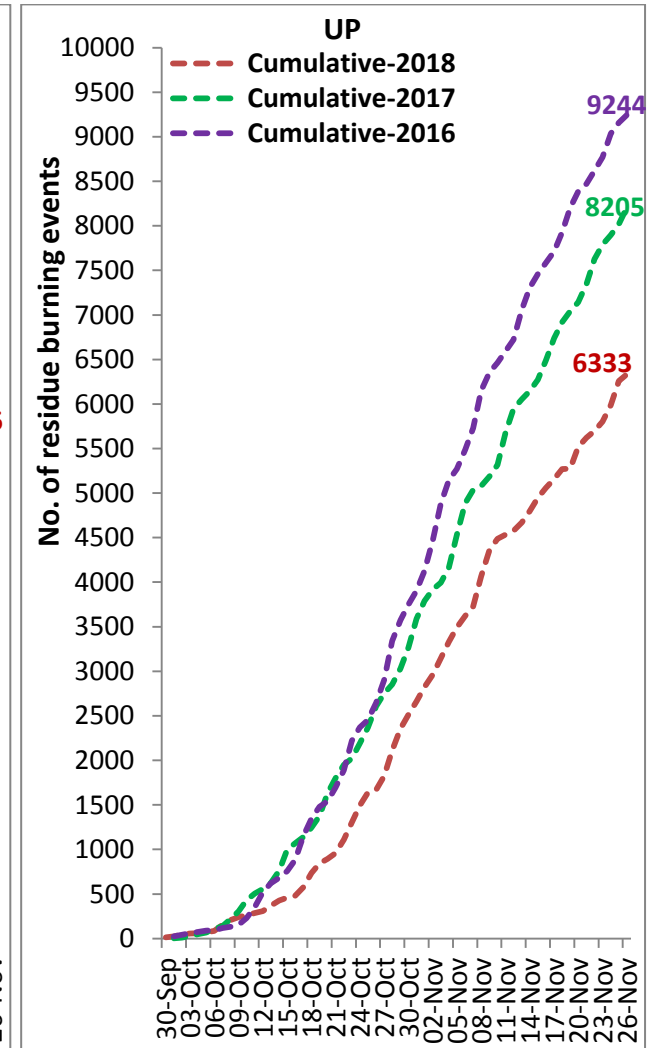
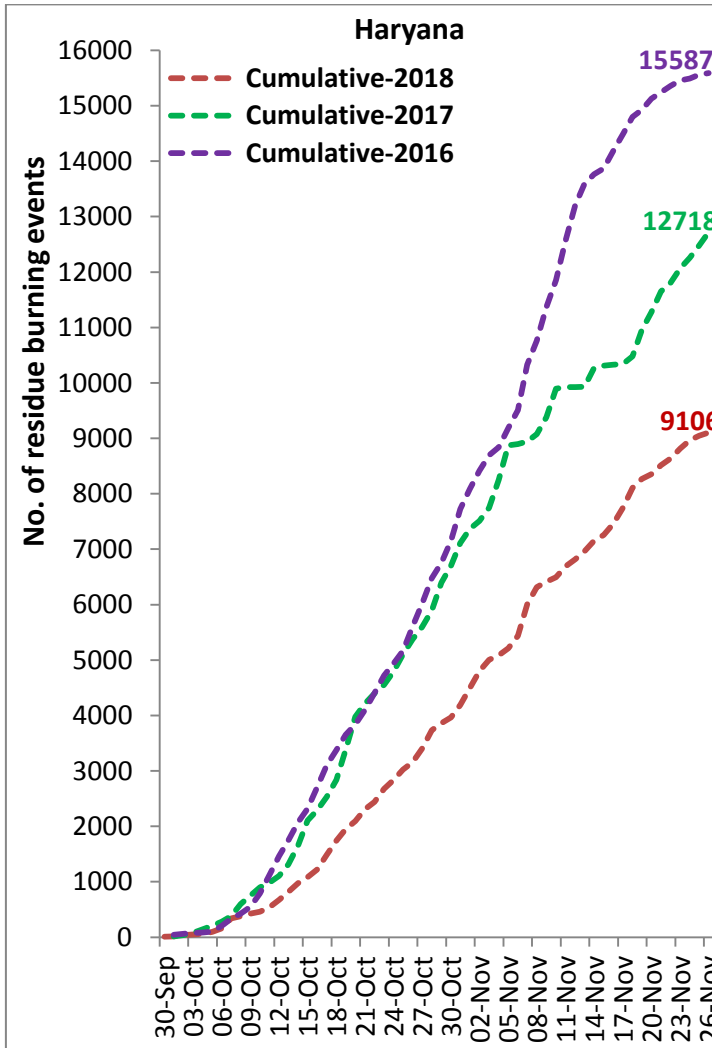
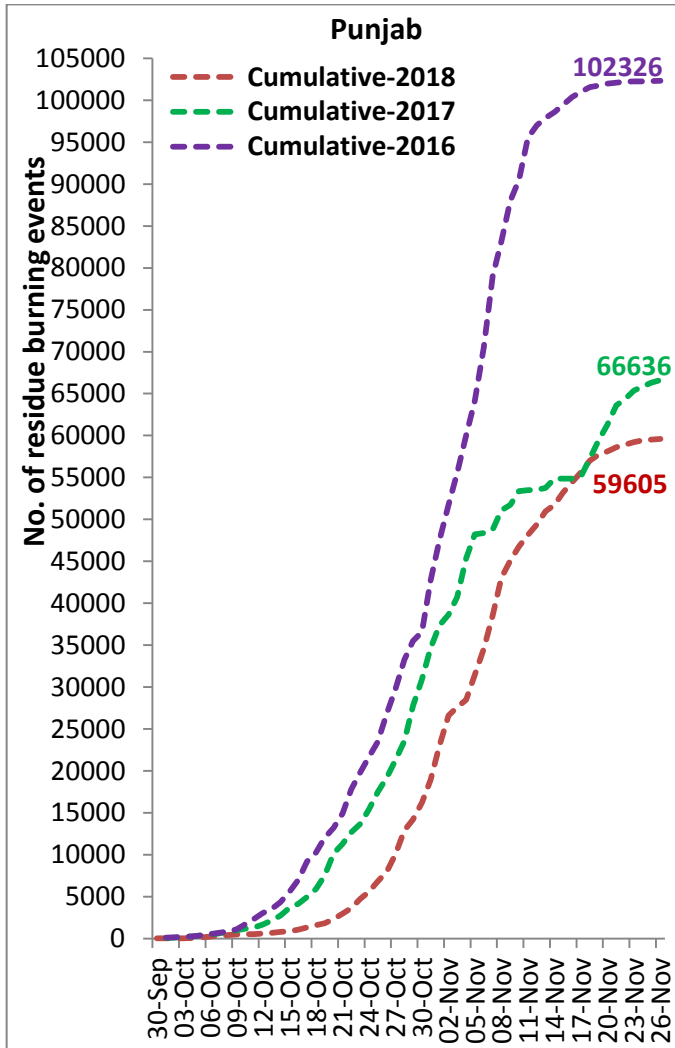
Temporal distribution of residue burning events for the three study States



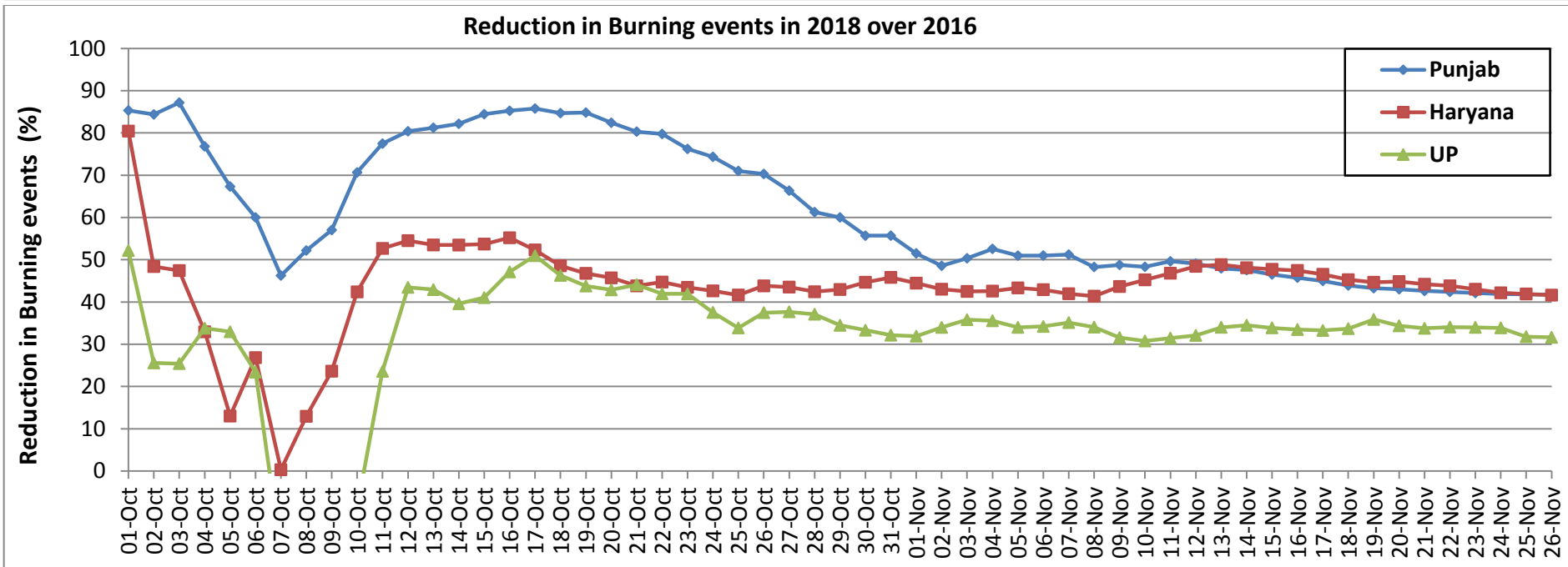
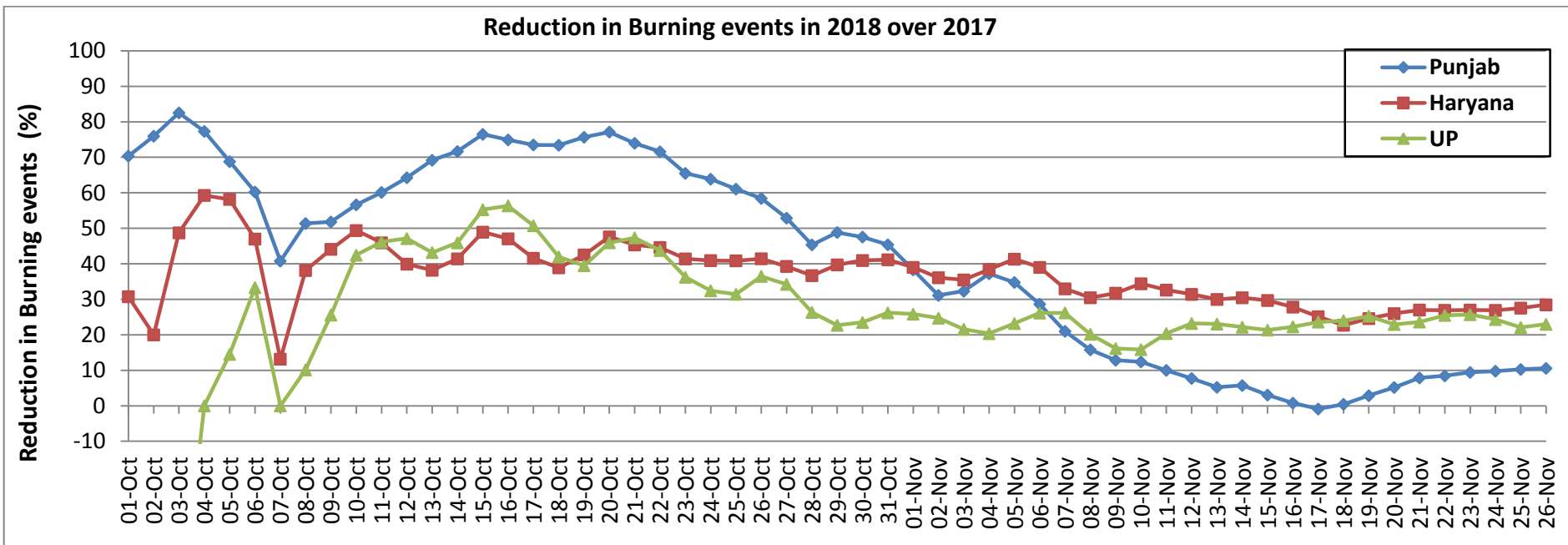


Comparison of residue burning events in current year (2018) with previous years (2017& 2016) for the three study States

(30-Sep to 26-Nov)

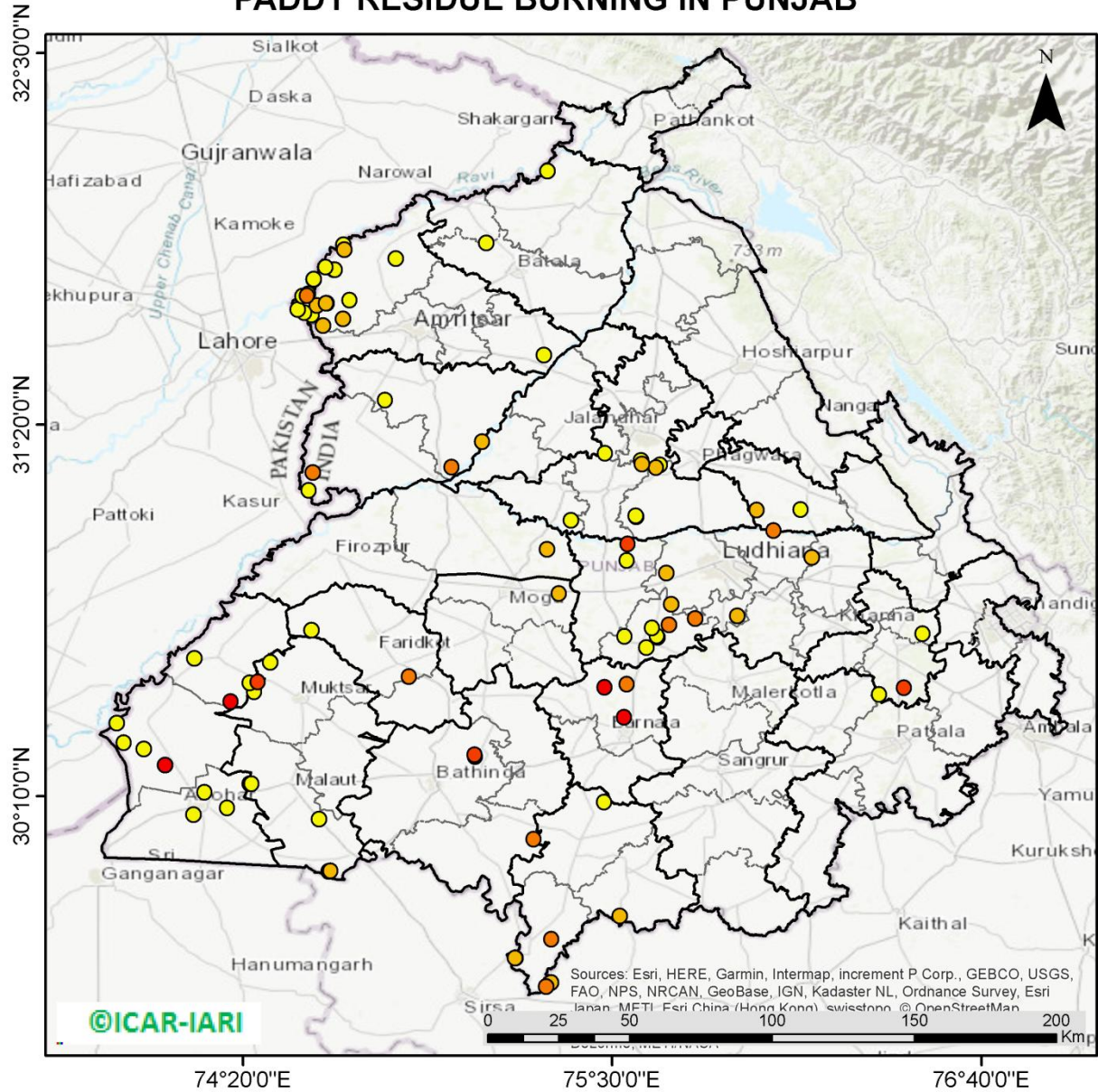


Percent Reduction in Burning events in 2018 over 2017 and 2016 (Daily Cumulative)



(a) Punjab

PADDY RESIDUE BURNING IN PUNJAB



95 burning events detected in Punjab on 26th November, 2018

Fire Intensity (W/m²)

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

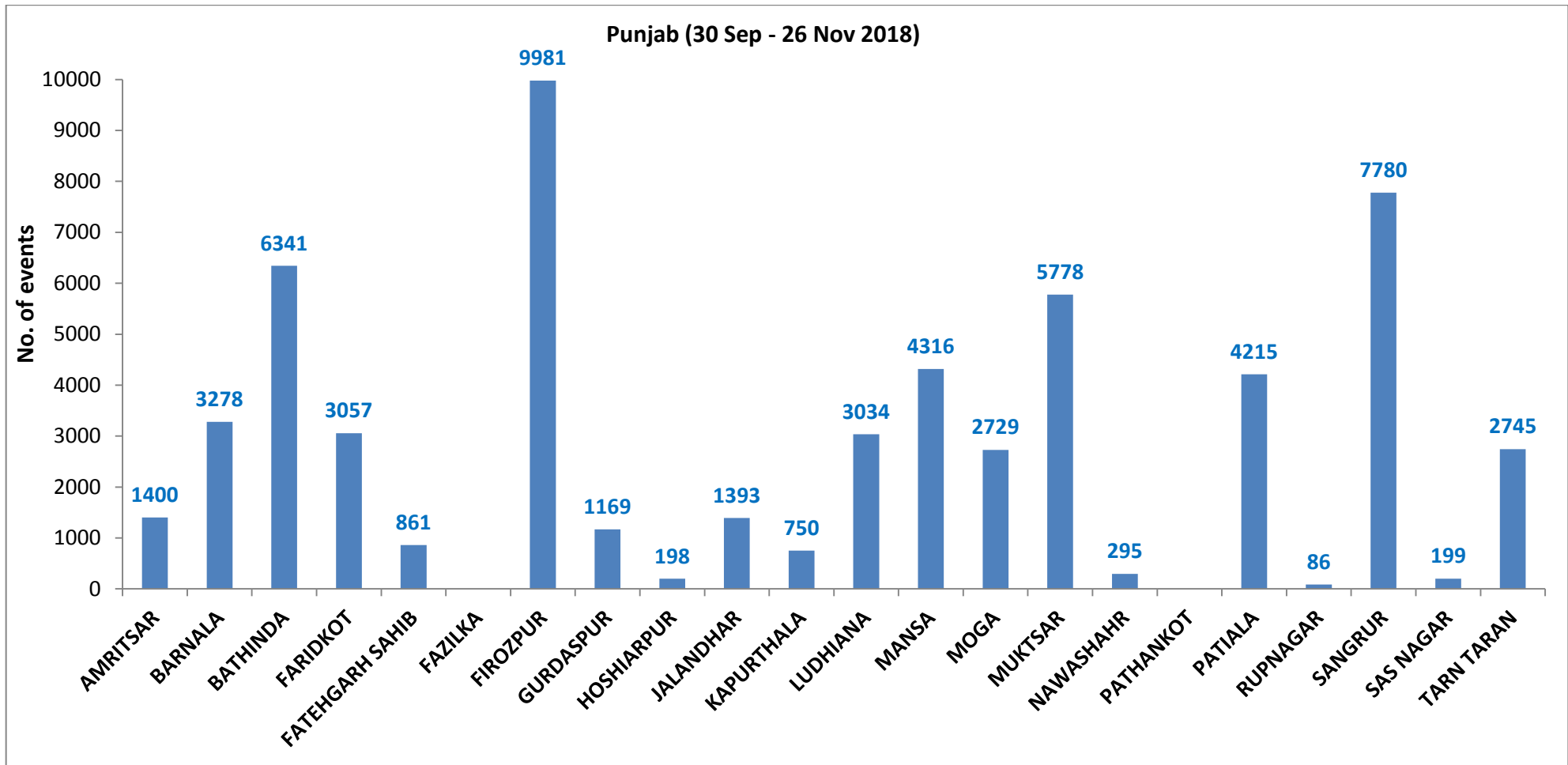
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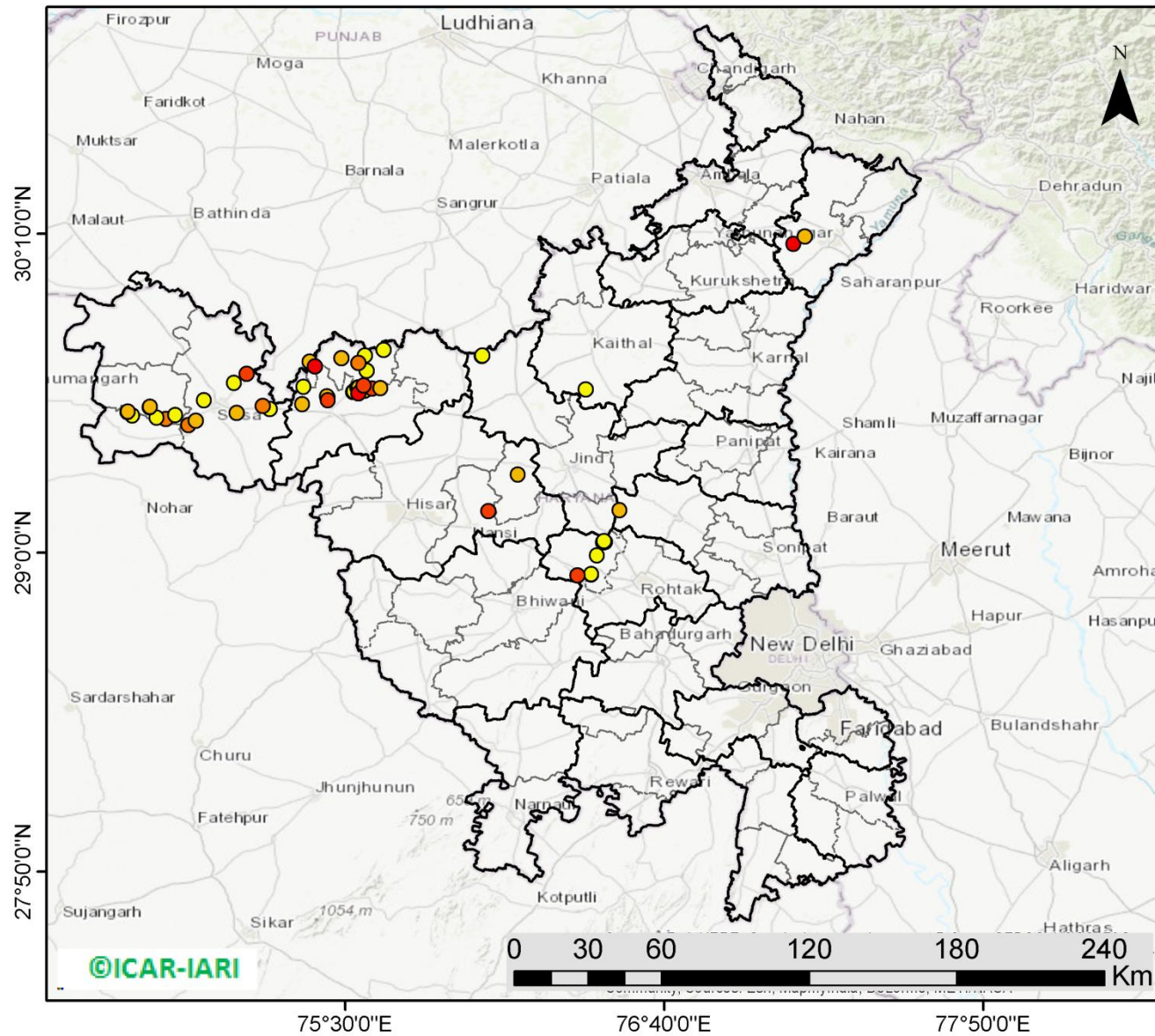
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residue burning events in Punjab (30-Sep-2018 to 26-Nov-2018)



(b) Haryana

PADDY RESIDUE BURNING IN HARYANA



57 burning events detected in Haryana on 26th November, 2018

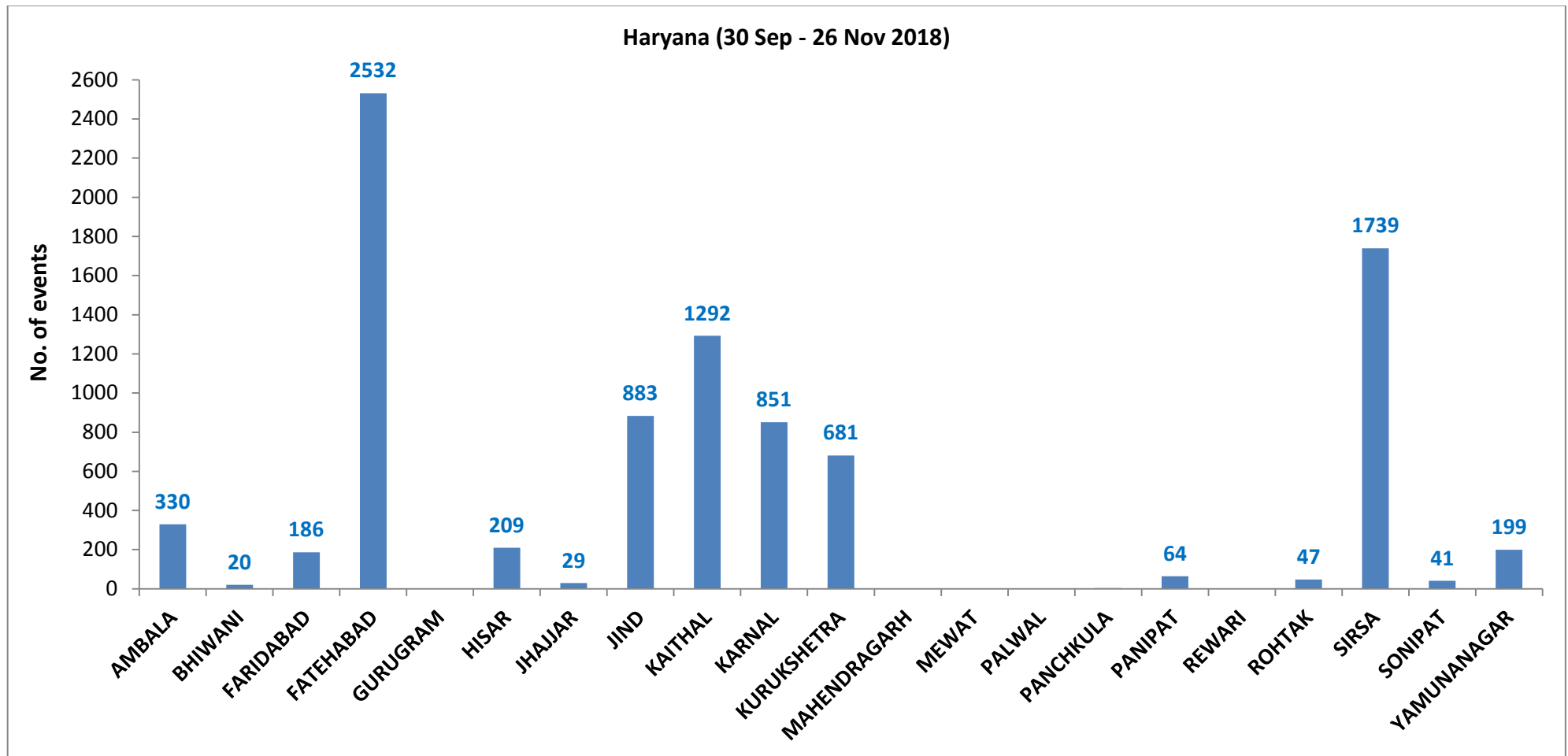
Fire Intensity (W/m²)

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



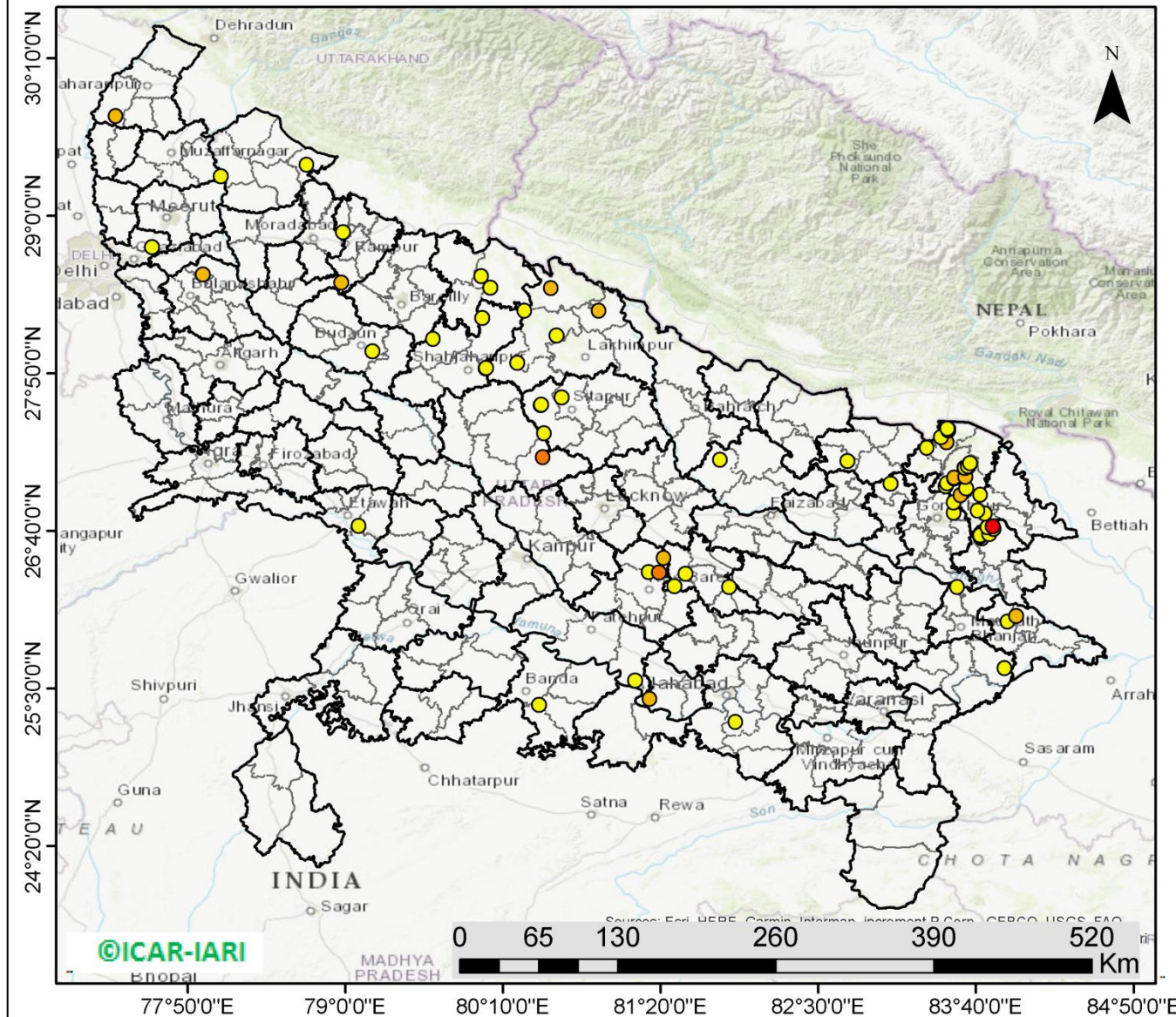
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residue burning events in Haryana (30-Sep-2018 to 26-Nov-2018)



(c) Uttar Pradesh

PADDY RESIDUE BURNING IN UTTAR PRADESH



73 burning events detected in Uttar Pradesh on **26th Nov, 2018**

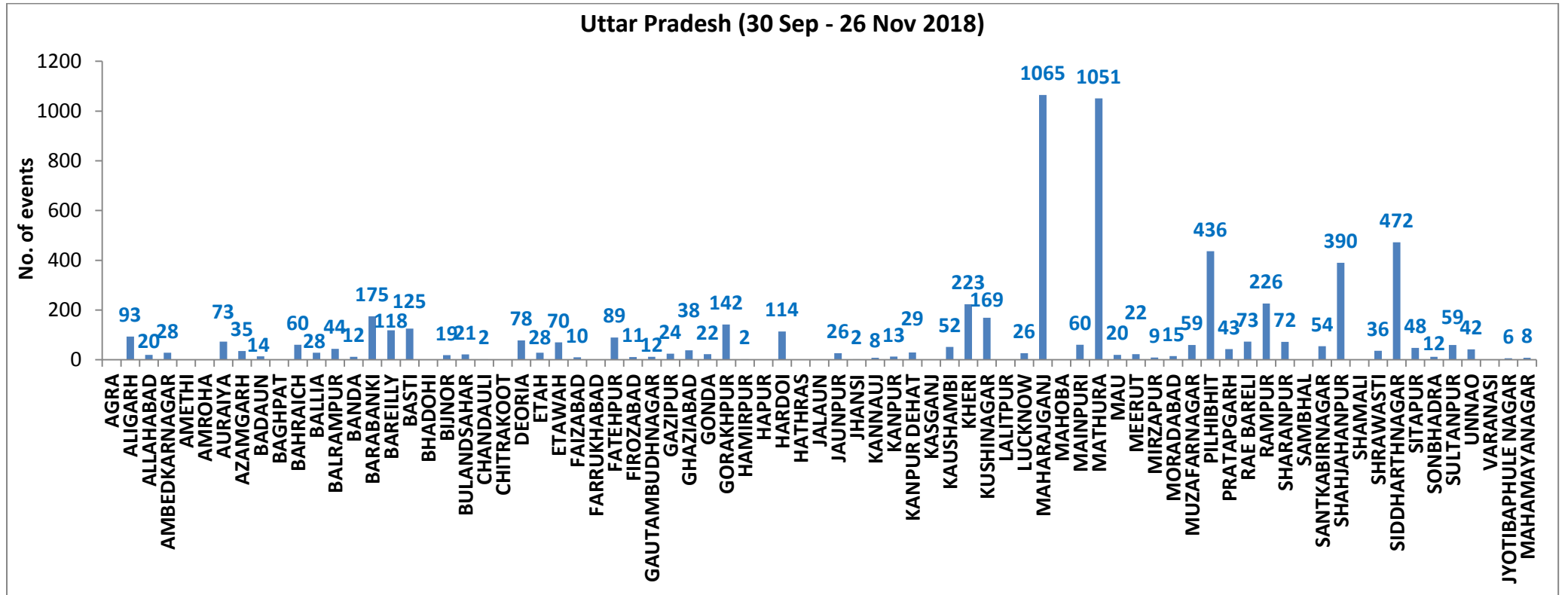
Fire Intensity (W/m²)

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



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

District-wise cumulative number of residue burning events in Uttar Pradesh (30-Sep-2018 to 26-Nov-2018)



State wise, date wise and district-wise number of residue burning events detected in 2016, 2017 and 2018
(Period: 30-Sep to 26-Nov)

Date	Punjab			Haryana			UP			Total		
	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
30-Sep	--	--	11	--	---	7	--	---	13	--	---	31
1-Oct	109	54	16	46	13	9	23	2	11	178	69	36
2-Oct	51	50	9	16	27	23	20	8	21	87	85	53
3-Oct	66	62	4	16	40	9	16	17	12	98	119	25
4-Oct	37	103	32	7	60	16	15	22	5	59	185	53
5-Oct	95	106	56	15	68	30	14	20	10	124	194	96
6-Oct	152	138	87	105	75	65	6	39	13	263	252	165
7-Oct	171	105	162	126	97	180	24	31	69	321	233	411
8-Oct	166	215	39	94	218	40	14	75	54	274	508	133
9-Oct	270	163	75	121	148	47	22	87	32	413	398	154
10-Oct	597	164	23	242	151	37	74	126	21	913	441	81
11-Oct	652	177	30	336	87	78	128	74	24	1116	338	132
12-Oct	694	342	67	338	123	133	164	51	22	1196	516	222
13-Oct	467	470	62	284	207	147	102	69	61	853	746	270
14-Oct	812	582	112	328	333	153	60	137	57	1200	1052	322
15-Oct	1215	943	90	248	458	110	76	237	35	1539	1638	235
16-Oct	1478	465	174	385	186	138	125	71	20	1988	722	332
17-Oct	2173	807	272	399	244	268	261	69	94	2833	1120	634
18-Oct	1065	970	263	270	306	255	204	108	163	1539	1384	681
19-Oct	1762	1591	254	276	541	208	132	128	108	2170	2260	570
20-Oct	1175	2653	496	188	597	141	62	255	49	1425	3505	686
21-Oct	1726	1139	618	257	233	217	152	168	66	2135	1540	901
22-Oct	2837	1356	656	309	186	134	194	151	149	3340	1693	939
23-Oct	2040	994	1113	313	155	232	331	72	193	2684	1221	1538
24-Oct	1836	1714	844	221	244	166	152	171	192	2209	2129	1202
25-Oct	1813	2104	1247	229	303	182	83	175	142	2125	2582	1571
26-Oct	3390	1715	1173	434	276	132	195	240	33	4019	2231	1338
27-Oct	2904	2069	2040	417	224	252	255	145	154	3576	2438	2446

28-Oct	3493	2318	2864	458	292	330	435	99	290	4386	2709	3484
29-Oct	2258	4184	1321	278	502	124	237	180	243	2773	4866	1688
30-Oct	1076	3152	2008	395	307	103	175	238	158	1646	3697	2269
31-Oct	6132	3743	2715	575	413	229	153	321	148	6860	4447	3092
01-Nov	4843	2736	4140	362	250	306	223	199	161	5628	3185	4607
02-Nov	4183	1246	3550	332	145	306	345	131	142	4860	1522	3998
03-Nov	3806	2109	972	275	240	202	409	75	181	4409	2424	1355
04-Nov	4477	4603	882	146	499	77	265	168	183	4888	5270	1142
05-Nov	4137	2876	2989	345	625	129	125	367	163	4607	3868	3281
06-Nov	6303	171	3071	322	26	222	215	357	130	6840	327	3423
07-Nov	8575	420	4033	821	46	568	244	149	108	9640	615	4709
08-Nov	4129	2256	4450	432	128	313	419	43	338	4874	2427	5101
09-Nov	4857	675	2083	608	311	96	205	107	294	5670	1093	2473
10-Nov	2468	1642	1675	484	509	85	109	131	125	3061	2282	1885
11-Nov	5040	103	1364	716	29	196	129	358	45	5885	490	1605
12-Nov	1477	33	1256	634	3	122	129	269	45	2240	305	1423
13-Nov	885	237	1563	389	7	146	338	109	94	1612	353	1803
14-Nov	692	1101	765	171	340	189	247	95	128	1110	1536	1082
15-Nov	871	5	1480	107	40	107	154	123	146	1132	168	1733
16-Nov	911	8	1250	318	17	204	123	218	112	1352	243	1566
17-Nov	638	217	1132	299	12	289	130	249	103	1067	478	1524
18-Nov	568	2147	1400	312	139	356	217	180	111	1097	2466	1867
19-Nov	168	2200	752	125	471	159	273	122	3	566	2793	914
20-Nov	240	1857	385	204	325	88	183	101	243	627	2283	716
21-Nov	112	2310	480	115	378	161	86	205	107	313	2893	748
22-Nov	99	719	287	118	154	122	148	281	72	365	1154	481
23-Nov	54	1033	317	97	259	180	151	163	106	302	1455	603
24-Nov	21	507	229	36	192	152	265	105	186	322	794	567
25-Nov	33	443	72	68	219	81	123	124	272	224	786	425
26-Nov	27	334	95	25	240	57	85	186	73	137	760	225
Total	102326	66636	59605	15587	12718	9106	9244	8205	6333	127157	87559	75044

(a) Punjab

Districts	01 Oct - 26Nov		
	2016	2017	2018
AMRITSAR	2170	1352	1400
BARNALA	5699	3413	3278
BATHINDA	8843	5732	6341
FARIDKOT	4628	3464	3057
FATEHGARH SAHIB	2461	1642	861
FAZILKA	0	0	0
FIROZPUR	13633	9870	9981
GURDASPUR	2215	1587	1169
HOSHIARPUR	901	495	198
JALANDHAR	4660	2116	1393
KAPURTHALA	3136	1623	750
LUDHIANA	9545	4711	3034
MANSA	5648	4480	4316
MOGA	6393	2746	2729
MUKTSAR	7032	5391	5778
NAWASHAHR (SBS Nagar)	1363	683	295
PATHANKOT	0	0	0
PATIALA	6544	5031	4215
RUPNAGAR	717	328	86
SANGRUR	11862	8427	7780
SAS NAGAR	363	246	199
TARN TARAN	4513	3299	2745
Total	102326	66636	59605

(b) Haryana

Districts	01 Oct - 26Nov		
	2016	2017	2018
AMBALA	534	500	330
BHIWANI	85	45	20
FARIDABAD	288	343	186
FATEHABAD	4826	3698	2532
GURUGRAM	0	0	0
HISAR	406	188	209
JHAJJAR	36	19	29
JIND	858	943	883
KAITHAL	1748	1512	1292
KARNAL	1637	1508	851
KURUKSHETRA	1078	1148	681
MAHENDRAGARH	0	0	0
MEWAT	0	0	0
PALWAL	0	0	0
PANCHKULA	0	0	3
PANIPAT	93	102	64
REWARI	0	0	0
ROHTAK	99	91	47
SIRSA	3561	2230	1739
SONIPAT	94	74	41
YAMUNANAGAR	244	317	199
Total	15587	12718	9106

(c) Uttar Pradesh				FATEHPUR	74	57	89	MUZAFARNAGAR	143	169	59
				FIROZABAD	23	18	11	PILHIBHIT	952	737	436
Distrites	01 Oct - 26Nov			GAUTAMBUDH				PRATAPGARH	45	55	43
	2016	2017	2018	NAGAR	29	43	12	RAE BARELI	115	118	73
AGRA	0	0	0	GAZIPUR	16	18	24	RAMPUR	623	646	226
ALIGARH	55	80	93	GHAZIABAD	89	61	38	SHARANPUR	122	150	72
ALLAHABAD	6	16	20	GONDA	48	34	22	SAMBHAL	0	0	0
AMBEDKAR				GORAKHPUR	66	112	142	SANTKABIR			
NAGAR	76	56	28	HAMIRPUR	0	0	2	NAGAR	56	63	54
AMETHI	0	0	0	HAPUR	0	0	0	SHAHJAHANPUR	1148	700	390
AMROHA	0	0	0	HARDOI	257	205	114	SHAMALI	0	0	0
AURAIYA	271	233	73	HATHRAS	0	0	0	SHRAWASTI	37	31	36
AZAMGARH	38	46	35	JALAUN	0	0	0	SIDDHARTH			
BADAUN	12	9	14	JAUNPUR	24	34	26	NAGAR	259	185	472
BAGHPAT	0	0	0	JHANSI	0	0	2	SITAPUR	136	82	48
BAHRAICH	81	40	60	KANNAUJ	35	18	8	SONBHADRA	16	16	12
BALLIA	19	42	28	KANPUR	20	10	13	SULTANPUR	78	59	59
BALRAMPUR	37	27	44	KANPUR DEHAT	68	70	29	UNNAO	67	56	42
BANDA	2	20	12	KASGANJ	0	0	0	VARANASI	2	0	0
BARABANKI	220	167	175	KAUSHAMBI	33	49	52	JYOTIBAPHULE			
BAREILLY	258	232	118	KHERI	469	314	223	NAGAR	12	17	6
BASTI	146	186	125	KUSHINAGAR	66	152	169	MAHAMAYA			
BHADOHI	0	0	0	LALITPUR	0	0	0	NAGAR	2	2	8
BIJNOR	65	62	19	LUCKNOW	62	30	26	Total	9244	8205	6333
BULANDSAHAR	32	35	21	MAHARAJGANJ	717	1018	1065				
CHANDAULI	18	15	2	MAHOBA	0	0	0				
CHITRAKOOT	0	0	0	MAINPURI	94	94	60				
DEORIA	62	78	78	MATHURA	1458	1083	1051				
ETAH	22	32	28	MAU	15	19	20				
ETAWAH	178	132	70	MEERUT	93	102	22				
FAIZABAD	15	15	10	MIRZAPUR	5	15	9				
FARRUKHABAD	0	0	0	MORADABAD	57	40	15				

Details of residue burning events in Punjab on 26-Nov-2018

Event S. No.	District	Tehsil/Block	Satellite	Longitude	Latitude	Time (IST)	Day/Night	Fire Power (W/m²)
1	AMRITSAR	AJNALA	S-NPP	74.54814	31.67865	12:48:00	D	2.50
2	AMRITSAR	AJNALA	S-NPP	74.52597	31.68517	14:24:00	D	4.70
3	AMRITSAR	AJNALA	S-NPP	74.50557	31.69553	12:48:00	D	3.20
4	AMRITSAR	AJNALA	S-NPP	74.56512	31.70764	14:24:00	D	5.40
5	AMRITSAR	AJNALA	S-NPP	74.59757	31.71444	14:24:00	D	7.90
6	AMRITSAR	AJNALA	S-NPP	74.59528	31.71541	14:24:00	D	5.70
7	AMRITSAR	AJNALA	S-NPP	74.66886	31.72507	12:48:00	D	1.40
8	AMRITSAR	AJNALA	S-NPP	74.52091	31.73781	14:24:00	D	4.70
9	AMRITSAR	AJNALA	S-NPP	74.53873	31.74506	14:24:00	D	5.00
10	AMRITSAR	AJNALA	S-NPP	74.55627	31.79000	12:48:00	D	4.90
11	AMRITSAR	AJNALA	S-NPP	74.55583	31.79041	12:48:00	D	4.30
12	AMRITSAR	AJNALA	S-NPP	74.62048	31.81985	14:24:00	D	6.20
13	AMRITSAR	AJNALA	S-NPP	74.62312	31.82023	14:24:00	D	4.40
14	AMRITSAR	AJNALA	S-NPP	74.59317	31.82864	12:48:00	D	2.00
15	AMRITSAR	AJNALA	S-NPP	74.81599	31.85575	12:48:00	D	4.30
16	AMRITSAR	AJNALA	S-NPP	74.64975	31.89906	14:24:00	D	3.40
17	AMRITSAR	AJNALA	AQUA-1	74.64893	31.66625	13:29:00	D	7.19
18	AMRITSAR	AJNALA	AQUA-1	74.53467	31.73961	13:29:00	D	13.62
19	AMRITSAR	AJNALA	AQUA-1	74.65234	31.88334	13:29:00	D	9.21
20	AMRITSAR	AMRITSAR II	AQUA-1	74.58583	31.64529	13:29:00	D	8.14
21	AMRITSAR	BABA BAKALA	S-NPP	75.28428	31.55286	14:24:00	D	2.80
22	BARNALA	BARNALA	TERRA-1	75.53737	30.41460	11:56:00	D	47.51
23	BARNALA	BARNALA	AQUA-1	75.47598	30.50892	13:29:00	D	21.71
24	BARNALA	BARNALA	AQUA-1	75.54590	30.51940	13:29:00	D	11.05
25	BATHINDA	BATHINDA	S-NPP	75.06663	30.29172	12:48:00	D	13.70
26	BATHINDA	BATHINDA	S-NPP	75.06487	30.29718	12:48:00	D	19.30
27	FARIDKOT	FARIDKOT	S-NPP	74.54814	30.68909	12:48:00	D	4.40
28	FARIDKOT	FARIDKOT	AQUA-1	74.85697	30.54261	13:29:00	D	11.67
29	FATEHGARH SAHIB	BASSI PATHANAN	S-NPP	76.48112	30.67793	12:48:00	D	2.00

30	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.34364	30.48723	12:48:00	D	2.90
31	FATEHGARH SAHIB	FATEHGARH SAHIB	AQUA-1	76.42240	30.50700	13:29:00	D	15.88
32	FIROZPUR	ABOHAR	S-NPP	74.17604	30.10993	12:48:00	D	3.50
33	FIROZPUR	ABOHAR	S-NPP	74.28215	30.13069	12:48:00	D	2.60
34	FIROZPUR	ABOHAR	S-NPP	74.21033	30.17906	14:24:00	D	4.80
35	FIROZPUR	FAZILKA	S-NPP	74.01911	30.31506	14:24:00	D	5.00
36	FIROZPUR	FAZILKA	S-NPP	73.95610	30.33454	12:48:00	D	2.70
37	FIROZPUR	FAZILKA	S-NPP	73.93246	30.39668	14:24:00	D	4.80
38	FIROZPUR	FAZILKA	AQUA-1	74.08619	30.26488	13:29:00	D	35.36
39	FIROZPUR	JALALABAD	S-NPP	74.36760	30.49541	12:48:00	D	4.70
40	FIROZPUR	JALALABAD	S-NPP	74.35355	30.52238	12:48:00	D	3.80
41	FIROZPUR	JALALABAD	S-NPP	74.35420	30.52256	12:48:00	D	4.20
42	FIROZPUR	JALALABAD	S-NPP	74.17891	30.60049	12:48:00	D	2.40
43	FIROZPUR	JALALABAD	AQUA-1	74.29423	30.46400	13:29:00	D	29.05
44	FIROZPUR	JALALABAD	AQUA-1	74.37950	30.52539	13:29:00	D	16.43
45	FIROZPUR	ZIRA	S-NPP	75.29354	30.94166	14:24:00	D	5.80
46	GURDASPUR	BATALA	S-NPP	75.10100	31.90448	12:48:00	D	2.50
47	GURDASPUR	GURDASPUR	S-NPP	75.29453	32.12999	12:48:00	D	2.80
48	JALANDHAR	JALANDHAR I	S-NPP	75.59082	31.22085	12:48:00	D	2.10
49	JALANDHAR	JALANDHAR II	S-NPP	75.47684	31.24389	12:48:00	D	1.90
50	JALANDHAR	NAKODAR	AQUA-1	75.59364	31.20961	13:29:00	D	8.50
51	JALANDHAR	PHILLAUR	S-NPP	75.57483	31.04461	12:48:00	D	2.30
52	JALANDHAR	PHILLAUR	S-NPP	75.57475	31.04720	12:48:00	D	2.40
53	JALANDHAR	PHILLAUR	S-NPP	75.65187	31.20774	12:48:00	D	2.20
54	JALANDHAR	PHILLAUR	AQUA-1	75.63798	31.19913	13:29:00	D	7.93
55	JALANDHAR	SHAHKOT	S-NPP	75.36998	31.03387	12:48:00	D	2.70
56	LUDHIANA	JAGRAON	S-NPP	75.54616	30.90736	12:48:00	D	3.00
57	LUDHIANA	JAGRAON	S-NPP	75.54817	30.95918	14:24:00	D	17.90
58	LUDHIANA	LUDHIANA EAST	AQUA-1	75.89547	30.73350	13:29:00	D	8.07
59	LUDHIANA	LUDHIANA EAST	AQUA-1	76.13080	30.91765	13:29:00	D	9.31
60	LUDHIANA	LUDHIANA EAST	AQUA-1	76.00973	31.00150	13:29:00	D	14.82
61	LUDHIANA	LUDHIANA WEST	S-NPP	75.68620	30.76951	12:48:00	D	9.50

62	LUDHIANA	LUDHIANA WEST	AQUA-1	75.67038	30.86825	13:29:00	D	9.28
63	LUDHIANA	RAIKOT	S-NPP	75.60802	30.63415	12:48:00	D	2.90
64	LUDHIANA	RAIKOT	S-NPP	75.64368	30.66547	12:48:00	D	1.80
65	LUDHIANA	RAIKOT	S-NPP	75.53859	30.66829	12:48:00	D	3.90
66	LUDHIANA	RAIKOT	S-NPP	75.64200	30.67070	12:48:00	D	3.10
67	LUDHIANA	RAIKOT	S-NPP	75.62590	30.69504	12:48:00	D	2.20
68	LUDHIANA	RAIKOT	AQUA-1	75.67891	30.70505	13:29:00	D	10.83
69	LUDHIANA	RAIKOT	AQUA-1	75.76246	30.72452	13:29:00	D	14.85
70	MANSA	BUDHLADA	AQUA-1	75.52348	29.79091	13:29:00	D	8.18
71	MANSA	MANSA	S-NPP	75.47395	30.14902	12:48:00	D	2.30
72	MANSA	MANSA	AQUA-1	75.25088	30.03281	13:29:00	D	12.10
73	MANSA	SARDULGARH	S-NPP	75.30261	29.57972	12:48:00	D	7.70
74	MANSA	SARDULGARH	S-NPP	75.30759	29.58137	14:24:00	D	8.30
75	MANSA	SARDULGARH	S-NPP	75.19334	29.65840	14:24:00	D	6.40
76	MANSA	SARDULGARH	S-NPP	75.19205	29.65911	14:24:00	D	5.80
77	MANSA	SARDULGARH	AQUA-1	75.29108	29.56890	13:29:00	D	13.72
78	MANSA	SARDULGARH	AQUA-1	75.30716	29.71840	13:29:00	D	11.48
79	MOGA	MOGA	AQUA-1	75.33103	30.80387	13:29:00	D	7.98
80	MUKTSAR	GIDDARBAHA	S-NPP	74.62095	30.33872	12:48:00	D	111.90
81	MUKTSAR	MALAUT	S-NPP	74.60332	29.93056	12:48:00	D	6.40
82	MUKTSAR	MALAUT	S-NPP	74.60396	29.93074	12:48:00	D	6.80
83	MUKTSAR	MALAUT	S-NPP	74.60789	29.93168	12:48:00	D	6.40
84	MUKTSAR	MALAUT	S-NPP	74.60849	29.93190	12:48:00	D	6.80
85	MUKTSAR	MALAUT	S-NPP	74.57214	30.09486	14:24:00	D	3.50
86	MUKTSAR	MALAUT	S-NPP	74.35453	30.20589	14:24:00	D	4.80
87	MUKTSAR	MALAUT	S-NPP	74.36018	30.20621	14:24:00	D	4.80
88	MUKTSAR	MUKTSAR	S-NPP	74.41854	30.58813	14:24:00	D	3.30
89	NAWASHAHR	NAWASHAHR	S-NPP	76.09558	31.06708	12:48:00	D	1.70
90	NAWASHAHR	NAWASHAHR	AQUA-1	75.95686	31.06588	13:29:00	D	5.83
91	TARN TARAN	KHADOOR SAHIB	S-NPP	74.78120	31.41065	12:48:00	D	2.60
92	TARN TARAN	KHADOOR SAHIB	AQUA-1	74.99203	31.19972	13:29:00	D	10.67
93	TARN TARAN	KHADOOR SAHIB	AQUA-1	75.08888	31.27997	13:29:00	D	8.67

94	TARN TARAN	PATTI	S-NPP	74.53992	31.12760	14:24:00	D	3.60
95	TARN TARAN	PATTI	AQUA-1	74.55343	31.18415	13:29:00	D	10.68

Details of residue burning events in Haryana on 26-Nov-2018

Event S. No.	District	Tehsil/Block	Satellite	Longitude	Latitude	Time (IST)	Day/Night	Fire Power (W/m ²)
1	FATEHABAD	FATEHABAD	AQUA-1	75.43676	29.55820	13:29:00	D	17.05
2	FATEHABAD	FATEHABAD	AQUA-1	75.54760	29.58366	13:29:00	D	22.97
3	FATEHABAD	FATEHABAD	S-NPP	75.34148	29.54356	14:24:00	D	8.20
4	FATEHABAD	FATEHABAD	S-NPP	75.43655	29.56838	14:24:00	D	7.30
5	FATEHABAD	FATEHABAD	S-NPP	75.43275	29.57217	14:24:00	D	8.50
6	FATEHABAD	FATEHABAD	S-NPP	75.34775	29.60851	12:48:00	D	0.90
7	FATEHABAD	RATIA	AQUA-1	75.59876	29.60162	13:29:00	D	17.81
8	FATEHABAD	RATIA	AQUA-1	75.62775	29.60312	13:29:00	D	7.62
9	FATEHABAD	RATIA	AQUA-1	75.56704	29.61330	13:29:00	D	17.72
10	FATEHABAD	RATIA	AQUA-1	75.38901	29.68247	13:29:00	D	27.93
11	FATEHABAD	RATIA	AQUA-1	75.54760	29.69595	13:29:00	D	11.72
12	FATEHABAD	RATIA	S-NPP	75.52764	29.58857	12:48:00	D	3.80
13	FATEHABAD	RATIA	S-NPP	75.53154	29.58962	12:48:00	D	4.10
14	FATEHABAD	RATIA	S-NPP	75.56992	29.59307	12:48:00	D	1.40
15	FATEHABAD	RATIA	S-NPP	75.56999	29.59327	12:48:00	D	3.20
16	FATEHABAD	RATIA	S-NPP	75.54443	29.60435	12:48:00	D	5.60
17	FATEHABAD	RATIA	S-NPP	75.54462	29.60442	12:48:00	D	6.50
18	FATEHABAD	RATIA	S-NPP	75.54850	29.60533	12:48:00	D	8.80
19	FATEHABAD	RATIA	S-NPP	75.54869	29.60543	12:48:00	D	7.80
20	FATEHABAD	RATIA	S-NPP	75.57829	29.66589	14:24:00	D	3.70
21	FATEHABAD	RATIA	S-NPP	75.36906	29.69976	14:24:00	D	8.50
22	FATEHABAD	RATIA	S-NPP	75.48519	29.71195	14:24:00	D	8.70
23	FATEHABAD	RATIA	S-NPP	75.57040	29.72266	14:24:00	D	4.70
24	FATEHABAD	RATIA	S-NPP	75.63973	29.74347	12:48:00	D	1.00

25	HISAR	HANSI	AQUA-1	76.02337	29.15246	13:29:00	D	18.60
26	HISAR	NARNAUND	AQUA-1	76.13080	29.28721	13:29:00	D	8.02
27	JIND	JULANA	S-NPP	76.50214	29.15698	14:24:00	D	5.10
28	JIND	NARWANA	S-NPP	75.99859	29.72050	14:24:00	D	4.40
29	JIND	NARWANA	S-NPP	76.00073	29.72174	14:24:00	D	4.80
30	KAITHAL	KAITHAL	S-NPP	76.37931	29.59861	12:48:00	D	2.70
31	ROHTAK	MAHAM	AQUA-1	76.34907	28.91741	13:29:00	D	16.15
32	ROHTAK	MAHAM	S-NPP	76.39981	28.92108	12:48:00	D	2.30
33	ROHTAK	MAHAM	S-NPP	76.39962	28.92299	12:48:00	D	3.40
34	ROHTAK	MAHAM	S-NPP	76.41939	28.99087	01:30:00	N	2.40
35	ROHTAK	MAHAM	S-NPP	76.44420	29.03817	01:30:00	N	3.10
36	ROHTAK	MAHAM	S-NPP	76.44291	29.03917	03:12:00	N	1.90
37	ROHTAK	MAHAM	S-NPP	76.44941	29.04061	03:12:00	N	0.90
38	ROHTAK	MAHAM	S-NPP	76.44481	29.04321	01:30:00	N	0.90
39	SIRSA	ELLENABAD	S-NPP	74.70280	29.51524	14:24:00	D	4.40
40	SIRSA	ELLENABAD	S-NPP	74.70461	29.51712	14:24:00	D	8.80
41	SIRSA	RANIA	AQUA-1	74.71957	29.50987	13:29:00	D	58.57
42	SIRSA	RANIA	S-NPP	74.84317	29.48946	12:48:00	D	13.60
43	SIRSA	RANIA	S-NPP	74.80979	29.49563	14:24:00	D	4.60
44	SIRSA	RANIA	S-NPP	74.72103	29.50350	14:24:00	D	3.80
45	SIRSA	RANIA	S-NPP	74.87725	29.50403	12:48:00	D	3.60
46	SIRSA	RANIA	S-NPP	74.78386	29.53266	14:24:00	D	5.00
47	SIRSA	RANIA	S-NPP	74.78577	29.53406	14:24:00	D	6.80
48	SIRSA	SIRSA	AQUA-1	74.92518	29.46837	13:29:00	D	11.85
49	SIRSA	SIRSA	AQUA-1	74.95246	29.48334	13:29:00	D	9.95
50	SIRSA	SIRSA	AQUA-1	75.10253	29.51179	13:29:00	D	6.58
51	SIRSA	SIRSA	AQUA-1	75.19802	29.53724	13:29:00	D	14.41
52	SIRSA	SIRSA	AQUA-1	75.13834	29.65552	13:29:00	D	15.20
53	SIRSA	SIRSA	S-NPP	75.22292	29.52662	12:48:00	D	2.20
54	SIRSA	SIRSA	S-NPP	74.98225	29.55911	03:12:00	N	1.10
55	SIRSA	SIRSA	S-NPP	75.09281	29.62142	01:30:00	N	0.70

56	YAMUNANAGAR	JAGADHRI	AQUA-1	77.13861	30.13163	13:29:00	D	21.33
57	YAMUNANAGAR	JAGADHRI	AQUA-1	77.17954	30.15858	13:29:00	D	9.32

Details of residue burning events in Uttar Pradesh on 26-Nov-2018

Event S. No.	District	Tehsil/Block	Satellite	Longitude	Latitude	Time (IST)	Day/Night	Fire Power (W/m ²)
1	ALLAHABAD	KARCHHANA	S-NPP	81.88780	25.25291	12:42:00	D	2.60
2	BADAUN	BADAUN	S-NPP	79.19894	27.99736	12:48:00	D	2.50
3	BALLIA	RASRA	S-NPP	83.89964	25.99638	12:42:00	D	2.70
4	BALLIA	SIKANDARPUR	S-NPP	83.96421	26.03835	12:42:00	D	6.80
5	BANDA	ATARRA	S-NPP	80.43198	25.37994	01:30:00	N	0.50
6	BAREILLY	FARIDPUR	S-NPP	79.64940	28.08753	12:48:00	D	4.00
7	BIJNOR	AFZALGARH	S-NPP	78.71232	29.37845	12:48:00	D	2.60
8	BULANSAHAR	BULANSHAHR	S-NPP	77.94415	28.56505	12:48:00	D	7.90
9	DEORIA	DEORIA	S-NPP	83.71207	26.61229	12:42:00	D	9.40
10	DEORIA	DEORIA	S-NPP	83.70934	26.61300	12:42:00	D	5.00
11	DEORIA	DEORIA	S-NPP	83.69930	26.62512	12:42:00	D	1.90
12	DEORIA	DEORIA	S-NPP	83.69688	26.63605	12:42:00	D	3.70
13	DEORIA	DEORIA	S-NPP	83.76434	26.64454	12:42:00	D	2.30
14	DEORIA	DEORIA	S-NPP	83.79580	26.68042	12:42:00	D	2.20
15	DEORIA	DEORIA	S-NPP	83.79099	26.70218	12:42:00	D	22.70
16	ETAWAH	BHARTHNA	S-NPP	79.09873	26.70349	12:42:00	D	5.00
17	FATEHPUR	KHAGA	S-NPP	81.14470	25.56091	12:42:00	D	1.70
18	GAZIPUR	MUHAMMADBAD	S-NPP	83.87754	25.65159	12:42:00	D	4.20
19	GHAZIABAD	MODINAGAR	S-NPP	77.56857	28.76781	12:48:00	D	1.50
20	GONDA	COLONELGANJ	S-NPP	81.77404	27.19269	01:30:00	N	0.90
21	GORAKHPUR	GORAKHPUR	S-NPP	83.50280	26.80338	12:42:00	D	4.20

22	GORAKHPUR	GORAKHPUR	S-NPP	83.50093	26.87938	12:42:00	D	3.80
23	HARDOI	SANDILA	AQUA-1	80.46046	27.21360	13:29:00	D	10.07
24	KAUSHAMBI	MANJHANPUR	AQUA-1	81.25171	25.42446	13:29:00	D	8.11
25	KHERI	GOLA	S-NPP	80.56284	28.11309	12:48:00	D	2.30
26	KHERI	MOHMADI	S-NPP	80.27267	27.91103	12:42:00	D	2.60
27	KHERI	NIGHASAN	AQUA-1	80.87655	28.29757	13:29:00	D	9.74
28	KHERI	PALIA KALAN	AQUA-1	80.52015	28.46525	13:29:00	D	9.22
29	KUSHINAGAR	HATA	S-NPP	83.75307	26.69539	12:42:00	D	1.60
30	KUSHINAGAR	HATA	S-NPP	83.73232	26.79708	12:42:00	D	4.50
31	KUSHINAGAR	HATA	S-NPP	83.67823	26.81765	12:42:00	D	3.20
32	KUSHINAGAR	HATA	S-NPP	83.69860	26.93371	12:42:00	D	3.80
33	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.55136	26.93302	12:42:00	D	6.80
34	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.59526	26.98276	12:42:00	D	2.50
35	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.44116	26.99688	12:42:00	D	4.70
36	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.45307	27.01995	12:42:00	D	2.80
37	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.50546	27.05621	12:42:00	D	6.50
38	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.50464	27.05986	12:42:00	D	6.50
39	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.58804	27.06743	12:42:00	D	5.10
40	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.58092	27.13372	12:42:00	D	4.80
41	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.58292	27.13465	12:42:00	D	4.80
42	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.61079	27.14339	12:42:00	D	4.50
43	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.60793	27.14624	12:42:00	D	2.90
44	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.62292	27.16787	12:42:00	D	3.10
45	MAHARAJGANJ	NAUTANWA	S-NPP	83.44958	27.32482	12:42:00	D	9.30
46	MAHARAJGANJ	NAUTANWA	S-NPP	83.40805	27.36187	12:42:00	D	3.30
47	MAHARAJGANJ	NAUTANWA	S-NPP	83.46177	27.41340	12:42:00	D	2.40
48	MAHARAJGANJ	NAUTANWA	S-NPP	83.46012	27.42069	12:42:00	D	4.30

49	MAHARAJGANJ	NAUTANWA	S-NPP	83.45448	27.42347	12:42:00	D	3.90
50	MAHARAJGANJ	PHARENDA	S-NPP	83.30185	27.28297	12:42:00	D	5.00
51	MAU	GHOSI	S-NPP	83.52874	26.25160	12:42:00	D	3.10
52	MUZAFARNAGAR	JANSATH	S-NPP	78.07797	29.29340	12:48:00	D	4.20
53	PILHIBHIT	PURANPUR	S-NPP	80.07088	28.46732	12:48:00	D	2.80
54	PILHIBHIT	PURANPUR	S-NPP	80.00520	28.55375	12:48:00	D	3.50
55	RAIBEARELI	MAHARAJGANG	S-NPP	81.35437	26.46658	12:42:00	D	5.20
56	RAIBEARELI	RAEBARELI	S-NPP	81.24569	26.36197	12:42:00	D	2.60
57	RAIBEARELI	RAEBARELI	AQUA-1	81.31992	26.36020	13:29:00	D	10.09
58	RAIBEARELI	TILOI	S-NPP	81.43443	26.25964	12:42:00	D	0.90
59	RAIBEARELI	TILOI	S-NPP	81.51814	26.35110	12:42:00	D	4.10
60	RAMPUR	SHAHBAD	AQUA-1	78.97006	28.50568	13:29:00	D	9.98
61	RAMPUR	TANDA	S-NPP	78.98187	28.87951	12:48:00	D	2.90
62	SANTKABIRNAGAR	MEHDAWAL	S-NPP	83.03454	27.01639	12:42:00	D	4.40
63	SHAHJAHANPUR	PUWANYA	S-NPP	80.01067	28.24492	12:48:00	D	2.50
64	SHAHJAHANPUR	PUWANYA	S-NPP	80.32465	28.29636	12:48:00	D	2.10
65	SHAHJAHANPUR	SHAHJAHANPUR	S-NPP	80.03760	27.87147	12:42:00	D	3.70
66	SHAHJAHANPUR	SHAHJAHANPUR	S-NPP	80.03944	27.87269	12:42:00	D	4.90
67	SHARANPUR	NAKUR	AQUA-1	77.29891	29.73787	13:29:00	D	6.72
68	SIDDHARTHANAGAR	DOMARIYAGANJ	S-NPP	82.71645	27.18365	12:42:00	D	2.20
69	SITAPUR	MISRIK	S-NPP	80.47044	27.39093	12:42:00	D	4.20
70	SITAPUR	MISRIK	S-NPP	80.44534	27.59992	12:42:00	D	3.50
71	SITAPUR	MISRIK	S-NPP	80.44990	27.60084	12:42:00	D	4.60
72	SITAPUR	SITAPUR	S-NPP	80.59906	27.65614	12:42:00	D	2.20
73	SULTANPUR	AMETHI	S-NPP	81.83928	26.25102	12:42:00	D	2.10

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 / 1000	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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GIS Maps of fire events can be visualized online on ICAR KRISHI & CREAMS Geoportal

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

<http://creams.iari.res.in:8080/geoexplorer/composer/>
