



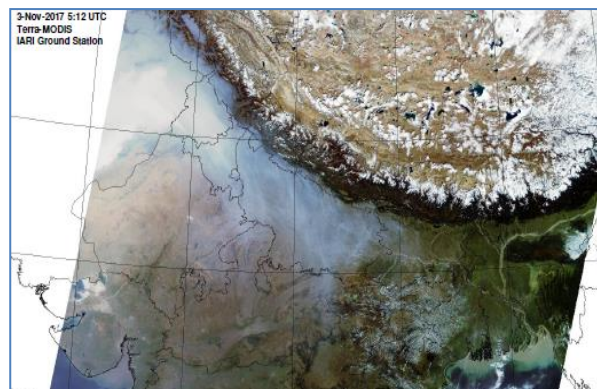
**Bulletin  
No. 47**

**Events Date:  
16-Nov-2019**

**Issued on:  
17-Nov-2019**



# **MONITORING PADDY RESIDUE BURNING IN NORTH INDIA USING SATELLITE REMOTE SENSING DURING 2019**



**Prepared by:**

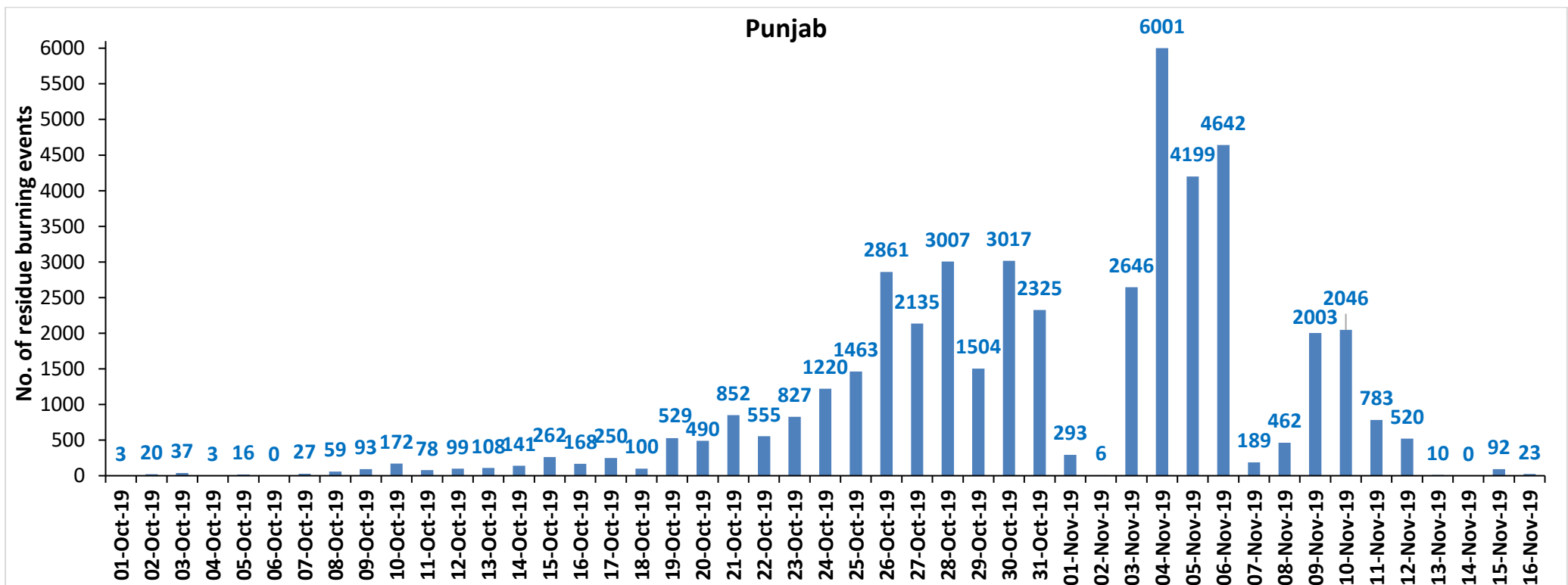
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,  
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

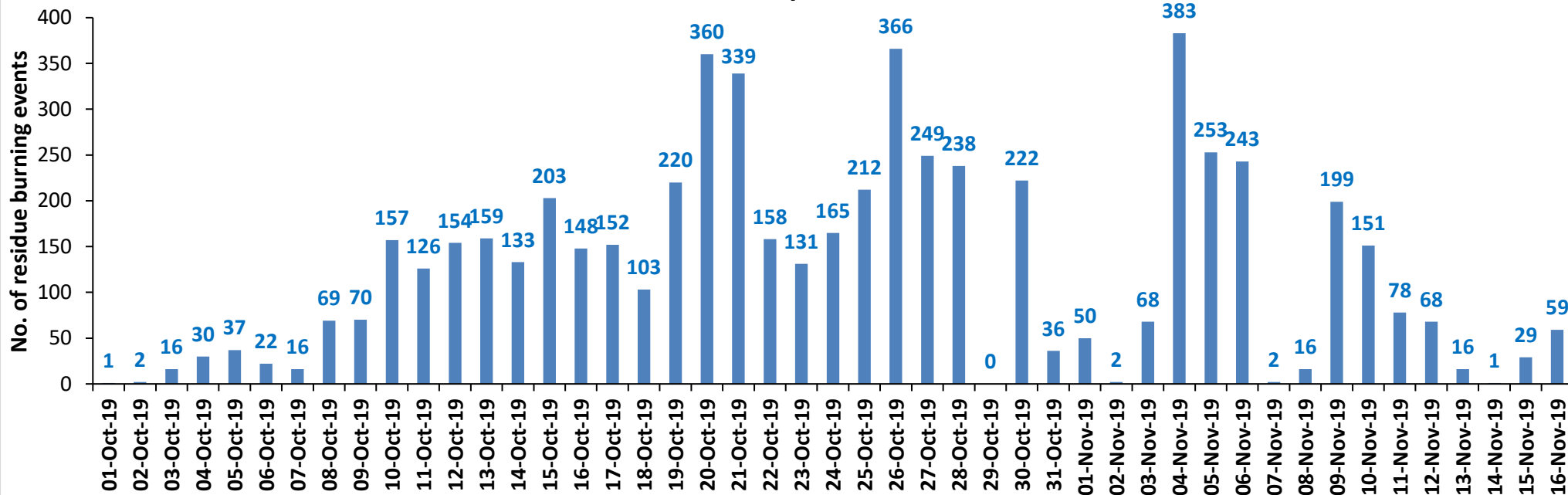
## Highlights for 16-November-2019

- Satellites detected **161** residue burning events in the three study States on **16-Nov-2019**.
- The burning events detected on **16-Nov-2019** are **23**, **59** and **79** in Punjab, Haryana and UP, respectively.
- The state of Punjab was partially covered with clouds which prevented fire event detection by satellites.
- The number of events has decreased from **232** on **15-Nov-2019** to **161** on **16-Nov-2019** in the three states.
- Total **55192** burning events were detected in the three States between **01-Oct-2019** and **16-Nov-2019**, which are distributed as **46336**, **5912** and **2944** in Punjab, Haryana and UP, respectively.
- Overall, the total burning events recorded in the three states are **17.6%** less than in 2018 till date. UP recorded **41.6%** reduction, Haryana recorded **20.7%** reduction, and Punjab recorded **14.9%** reduction, respectively, in the current season than in 2018.

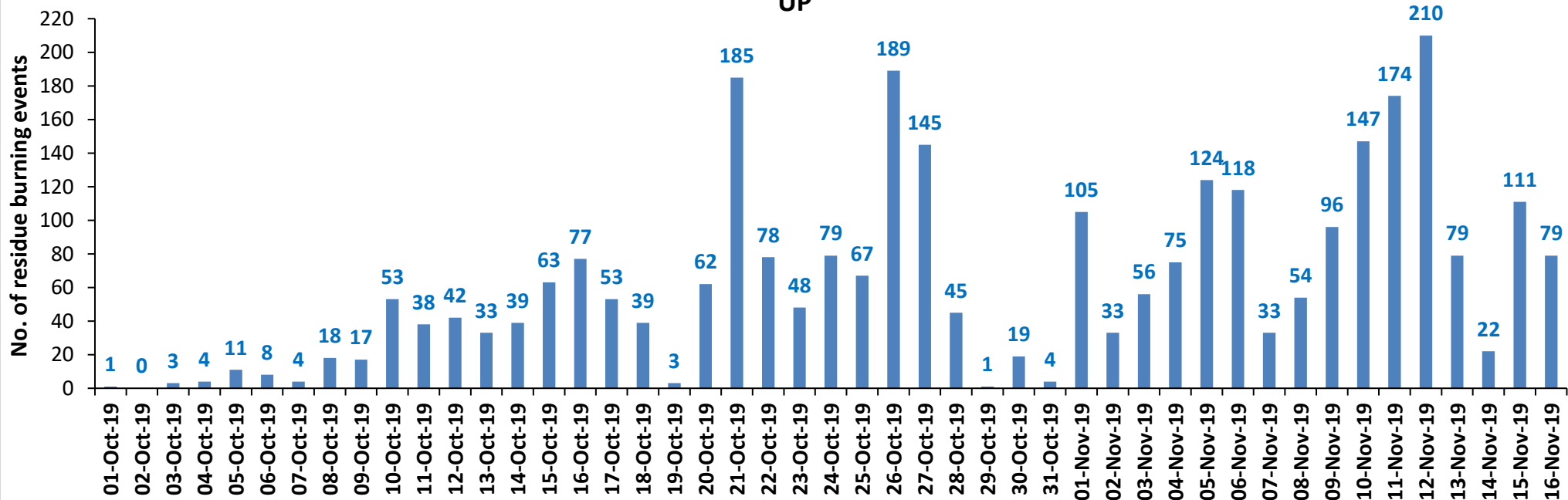
### Temporal distribution of residue burning events for the three study States in 2019



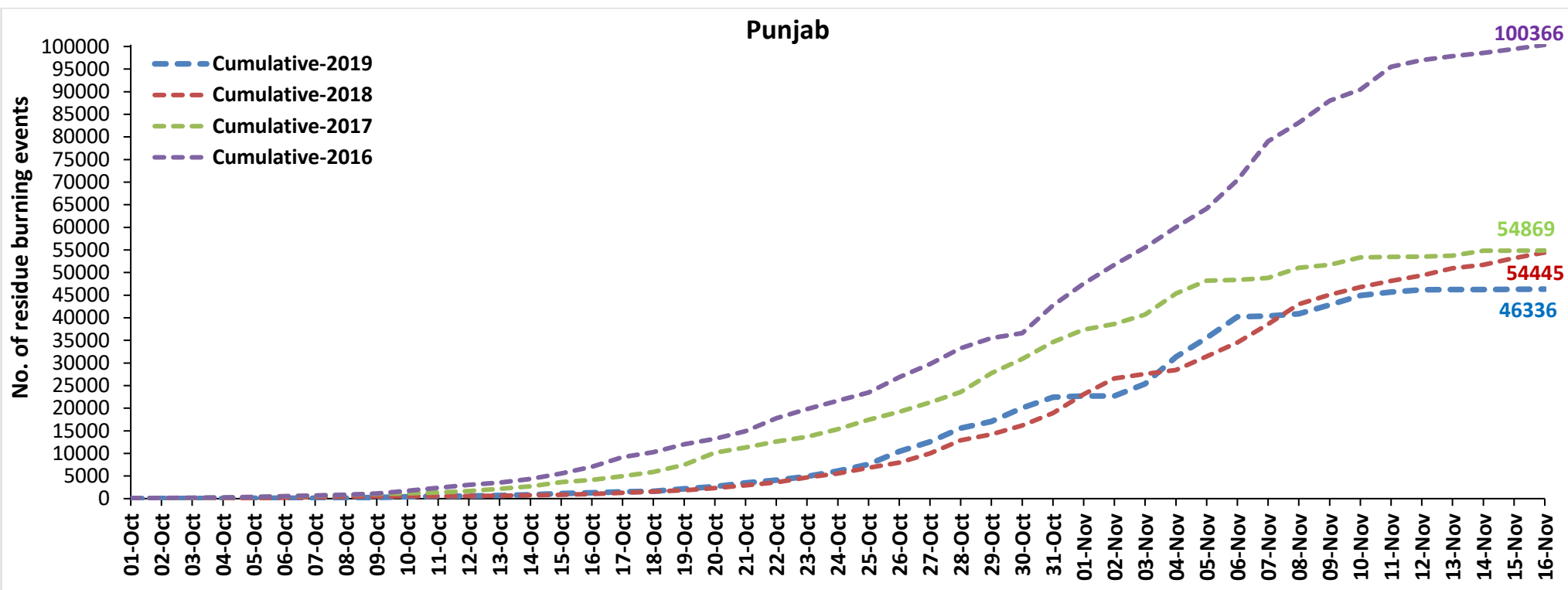
### Haryana



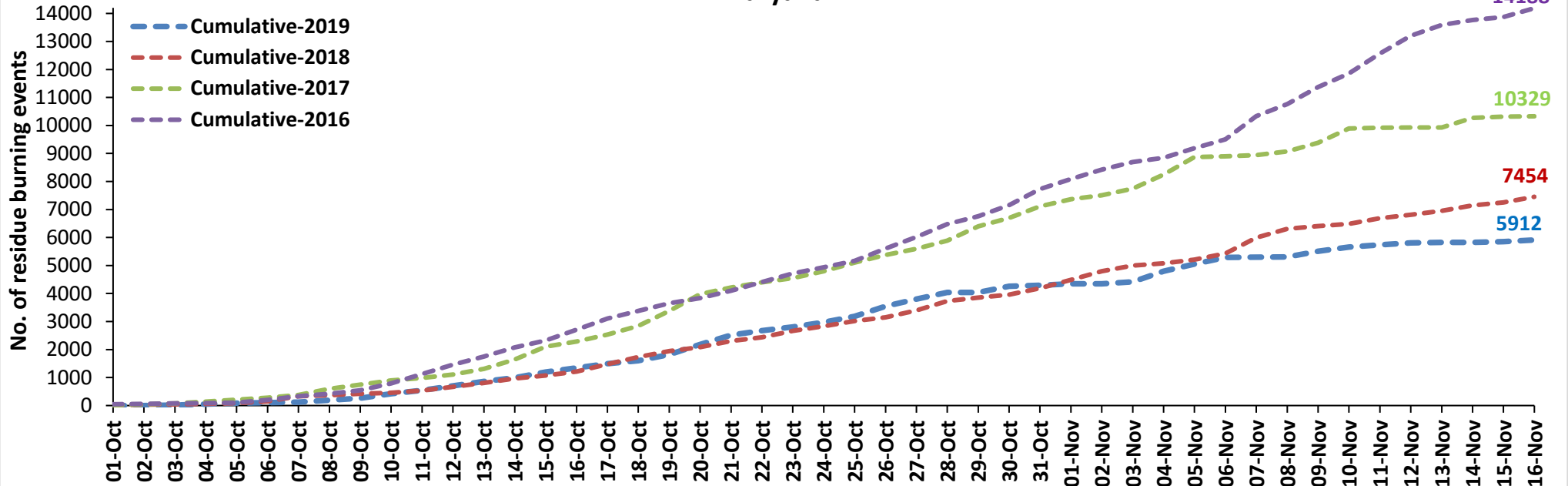
### UP



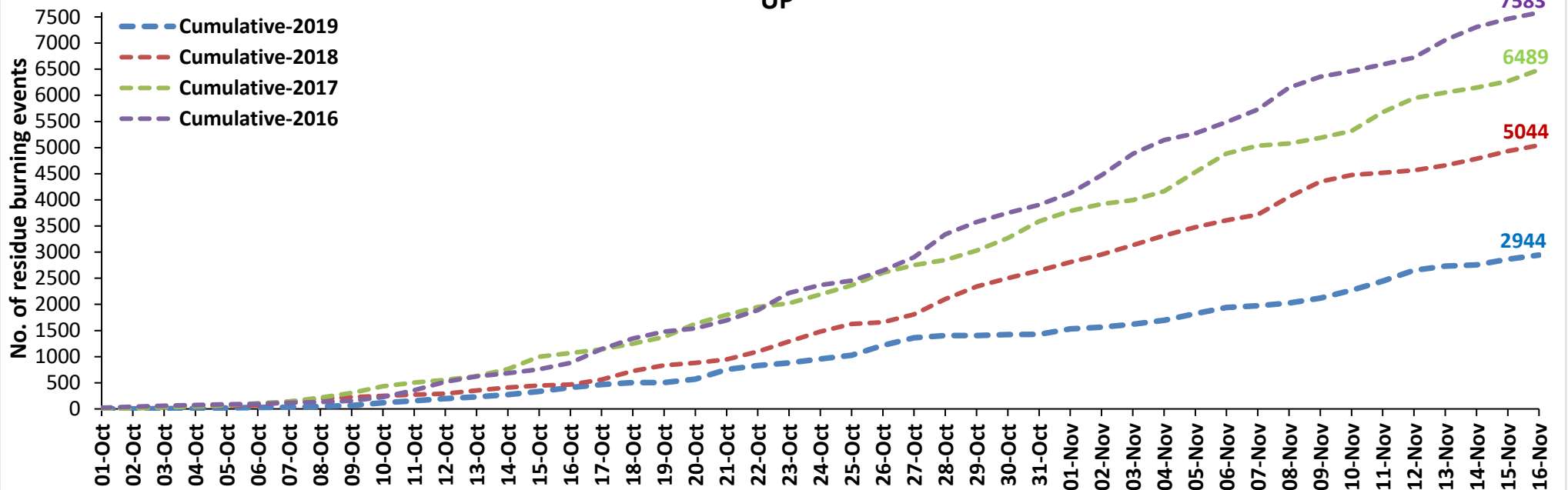
**Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States**  
**(01-Oct to 16-Nov)**



### Haryana

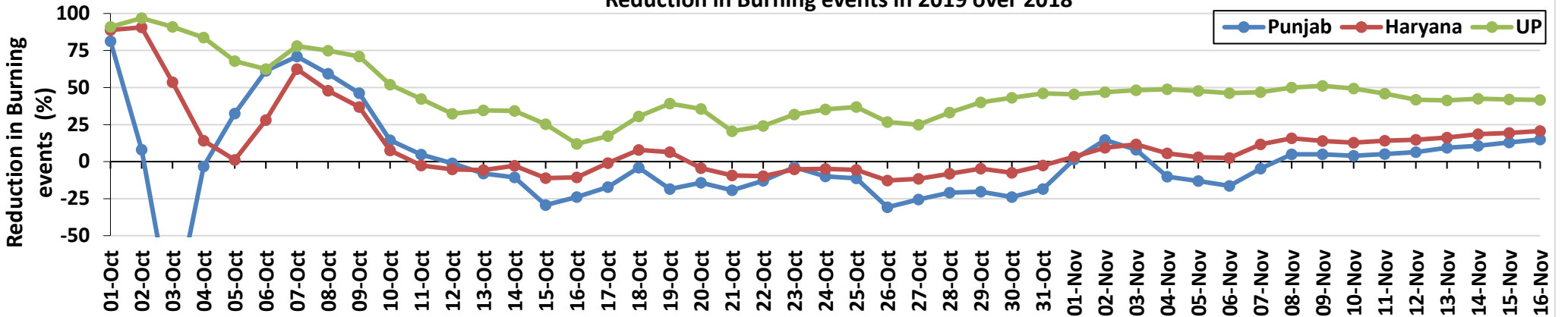


### UP

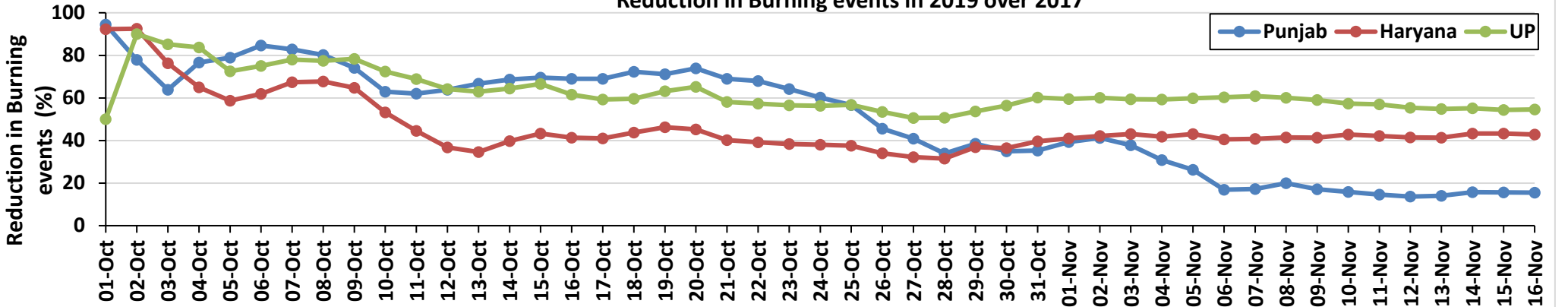


## Percent Reduction in Burning events in 2019 over 2018, 2017 and 2016 (Daily Cumulative)

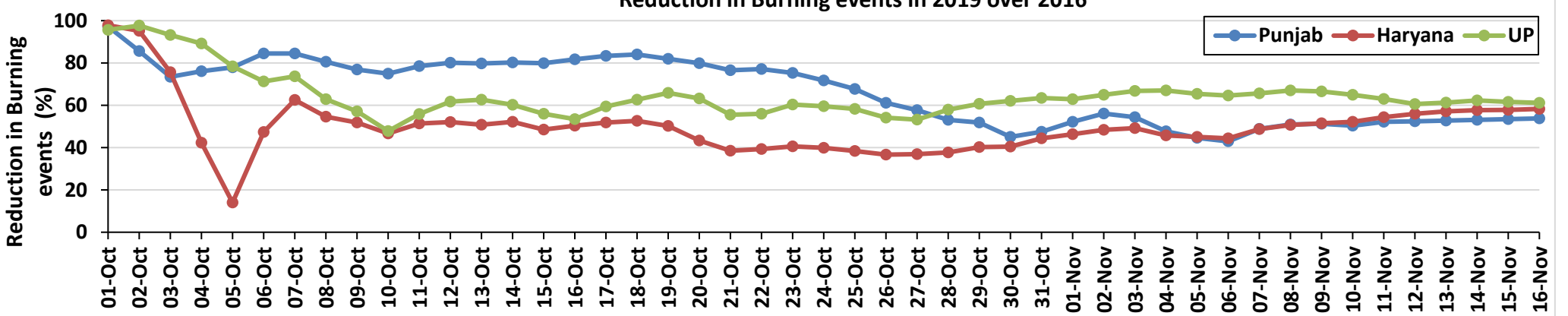
### Reduction in Burning events in 2019 over 2018



### Reduction in Burning events in 2019 over 2017

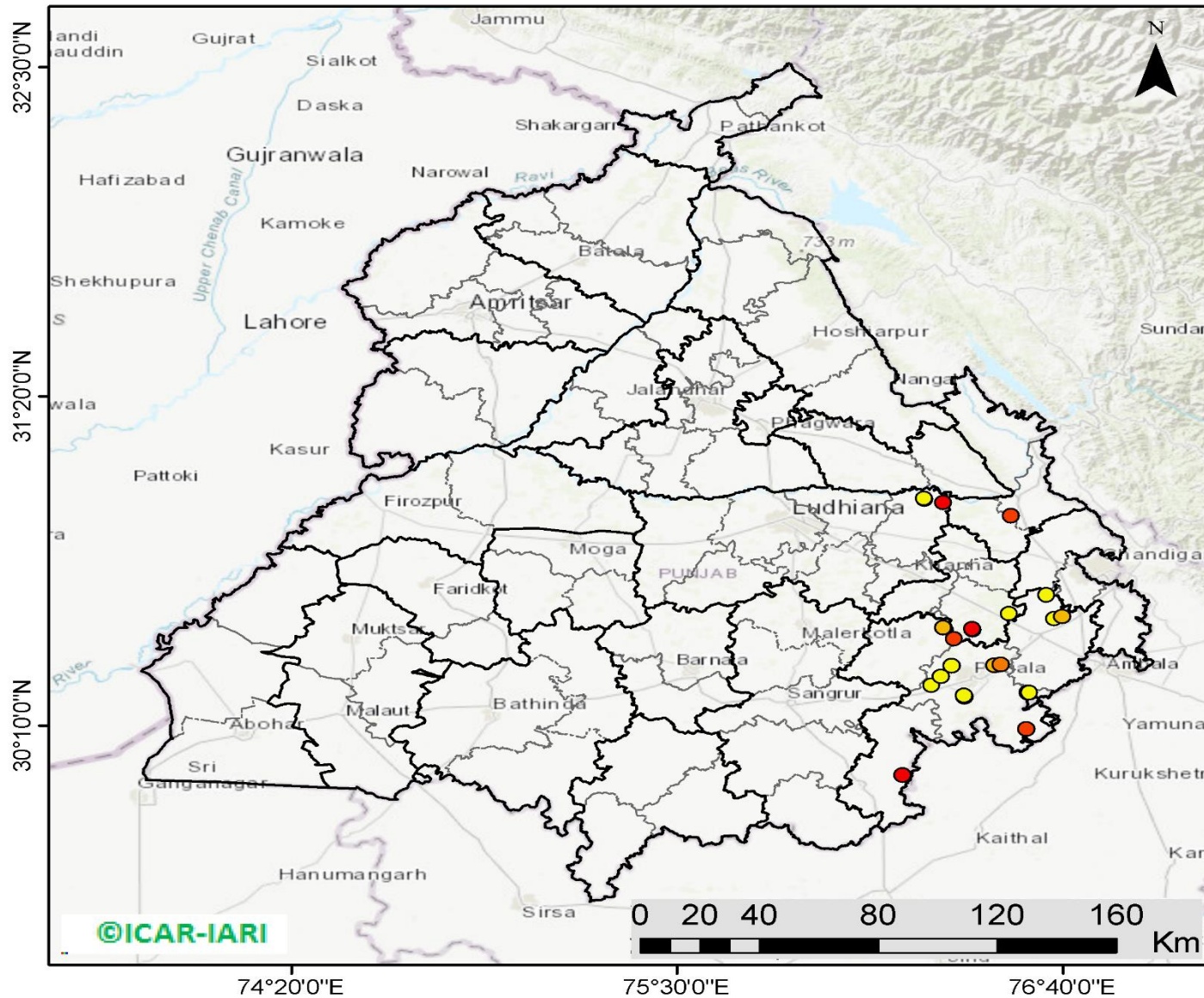


### Reduction in Burning events in 2019 over 2016



(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



**23** burning events detected in Punjab on 16th November 2019

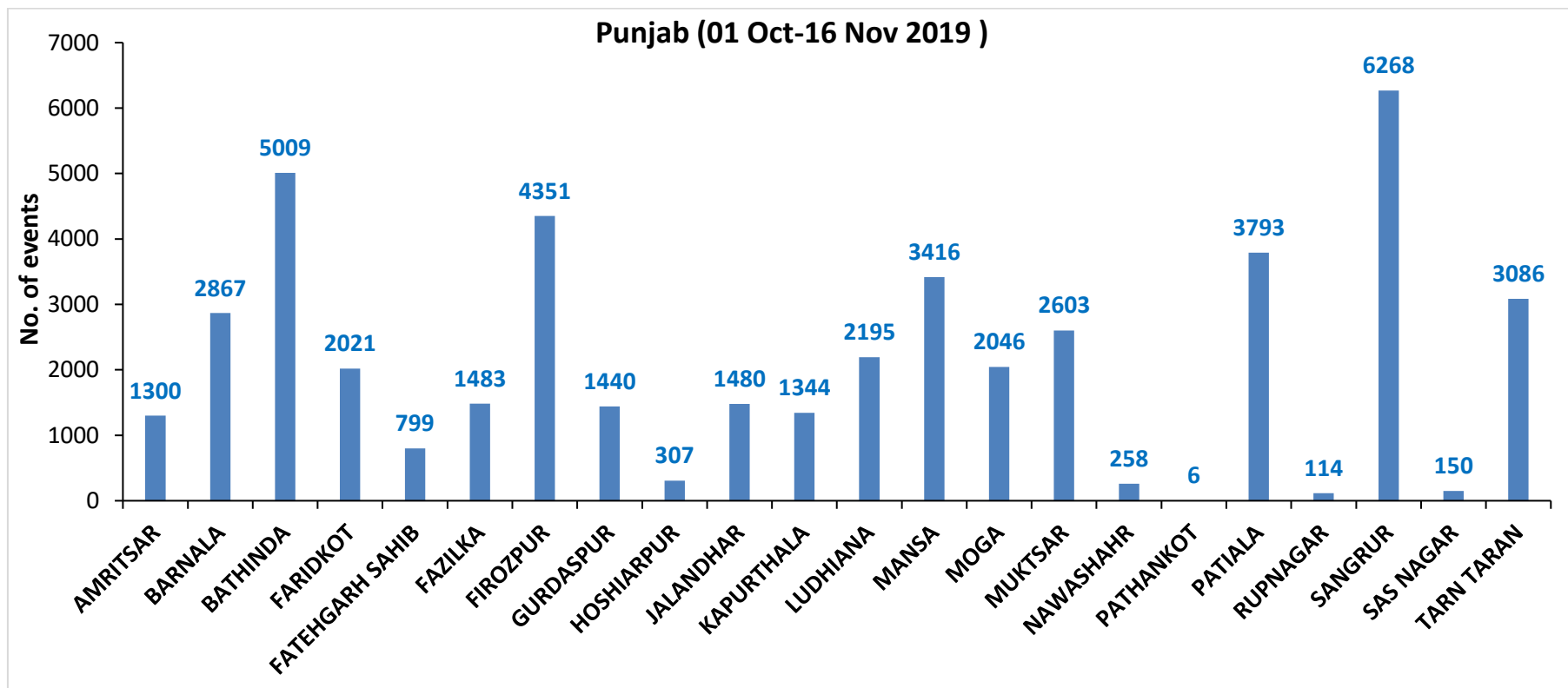
Fire Intensity (W/m<sup>2</sup>)

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



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

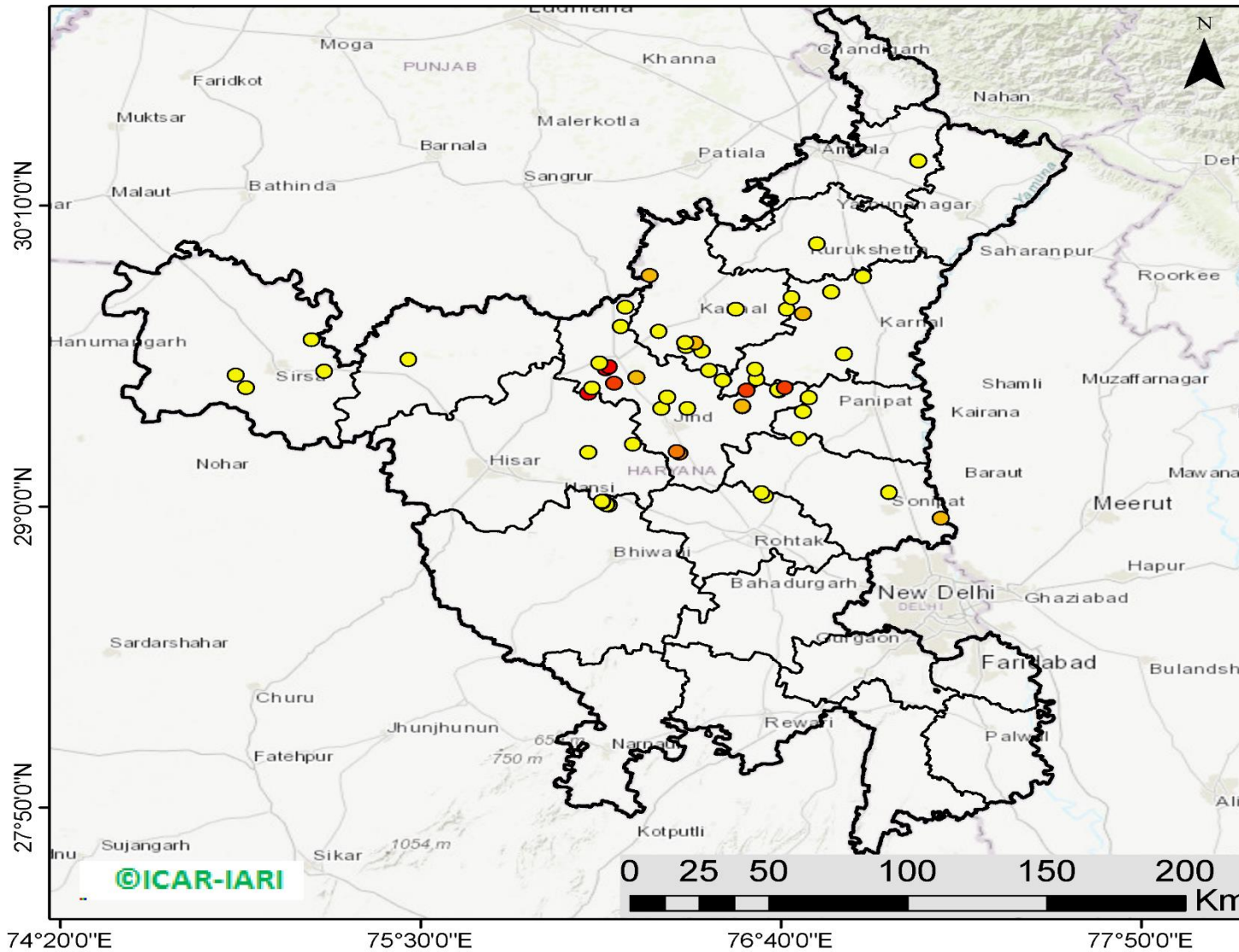
**District-wise cumulative number of residues burning events in Punjab (01 Oct to 16-Nov 2019)**





(b) Haryana

**RICE RESIDUE BURNING IN HARYANA**



**59** burning events  
detected in Haryana on  
**16th November 2019**

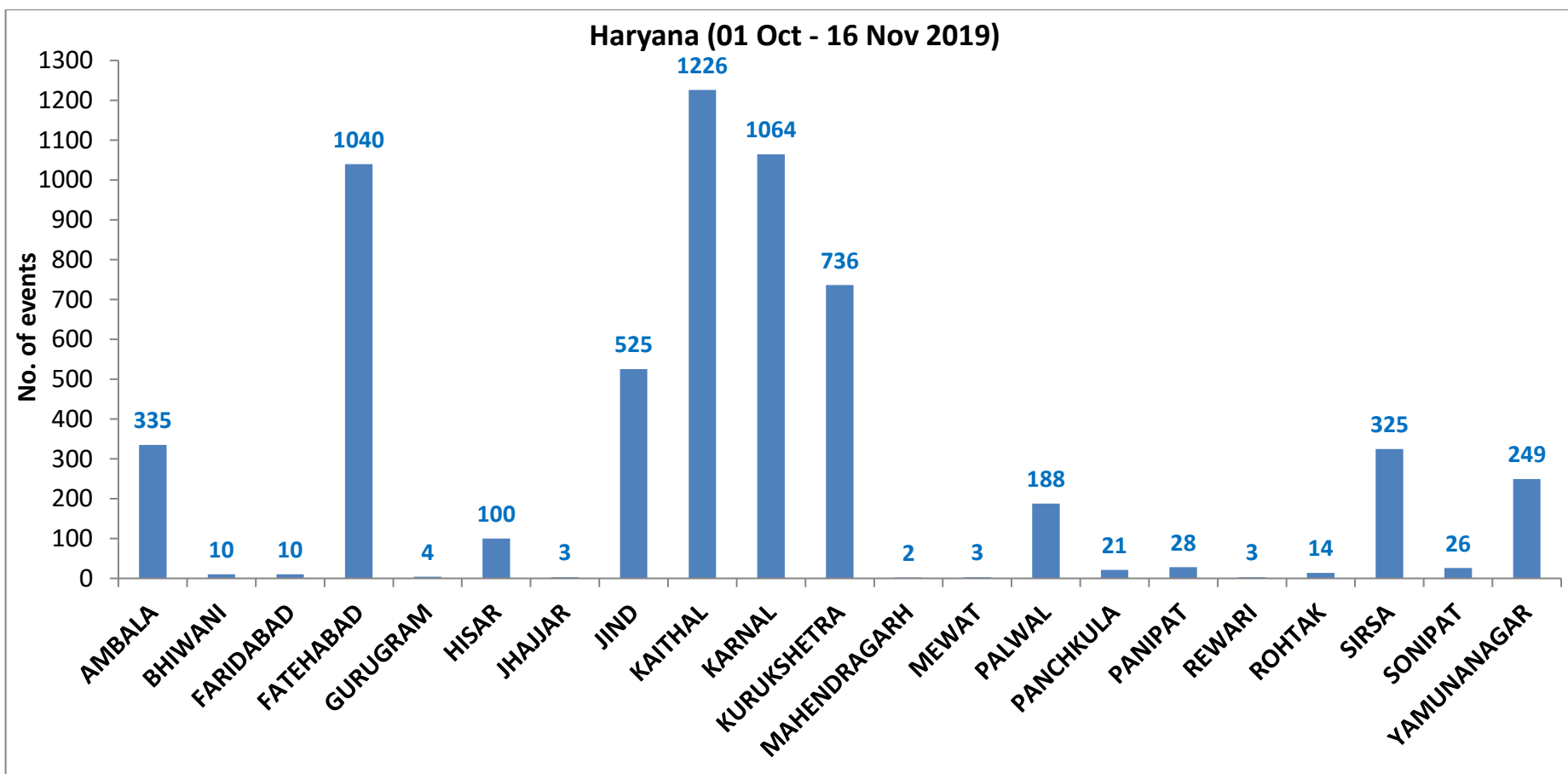
**Fire Intensity (W/m<sup>2</sup>)**

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



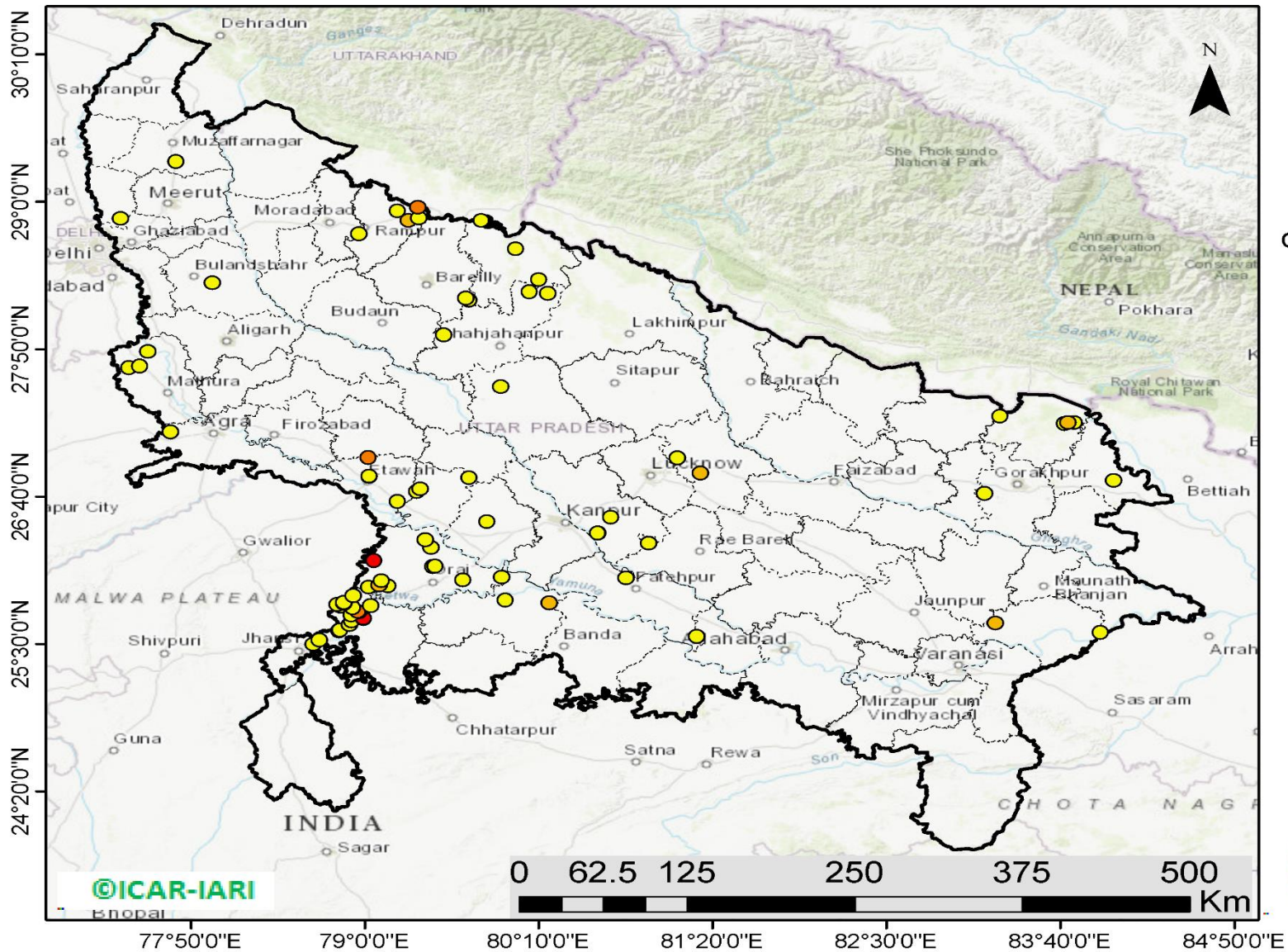
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

**District-wise cumulative number of residues burning events in Haryana (01 Oct to 16-Nov 2019)**



(c) UP

### RICE RESIDUE BURNING IN UTTAR PRADESH



**79** burning events detected in Uttar Pradesh on 16th November 2019

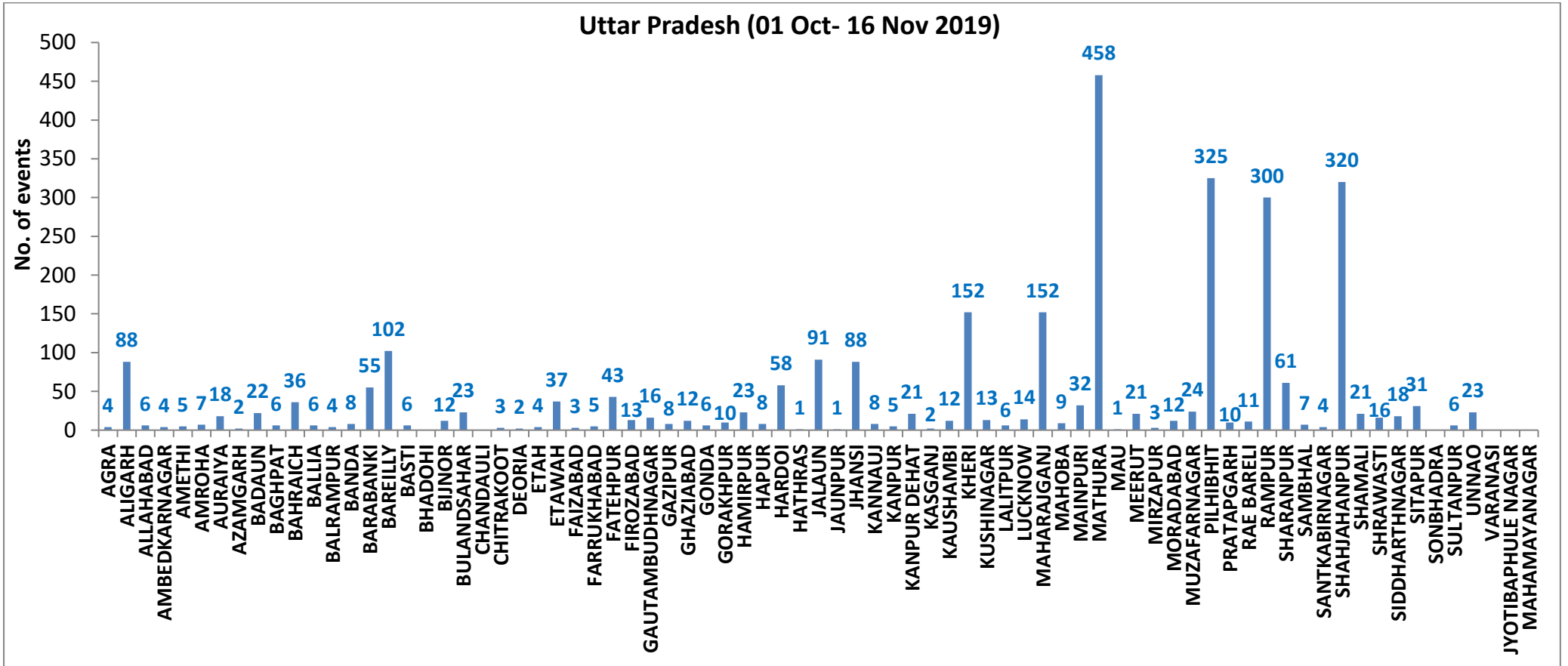
#### Fire Intensity (W/m<sup>2</sup>)

- 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 (01 Oct to 16-Nov 2019)**



**State-wise, date-wise and district-wise number of residues burning events detected in 2016, 2017, 2018 and 2019**  
**(Period: 01-Oct to 16-Nov)**

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

<b>03-Nov</b>	2646	972	2109	3806	68	202	240	275	56	181	75	409	2770	1355	2424	4490
<b>04-Nov</b>	6001	882	4603	4477	383	77	499	146	75	183	168	265	6459	1142	5270	4888
<b>05-Nov</b>	4199	2989	2876	4137	253	129	625	345	124	163	367	125	4576	3281	3868	4607
<b>06-Nov</b>	4642	3071	171	6303	243	222	26	322	118	130	357	215	5003	3423	554	6840
<b>07-Nov</b>	189	4033	420	8575	2	568	46	821	33	108	149	244	224	4709	615	9640
<b>08-Nov</b>	462	4450	2256	4129	16	313	128	432	54	338	43	419	532	5101	2427	4980
<b>09-Nov</b>	2003	2083	675	4857	199	199	311	608	96	294	107	205	2298	2473	1093	5670
<b>10-Nov</b>	2046	1675	1642	2468	151	85	509	484	147	125	131	109	2344	1885	2282	3061
<b>11-Nov</b>	783	1364	103	5040	78	196	29	716	174	45	358	129	1035	1605	490	5885
<b>12-Nov</b>	520	1256	33	1477	68	122	3	634	210	45	269	129	798	1423	305	2240
<b>13-Nov</b>	10	1563	237	885	16	146	7	389	79	94	109	338	105	1803	353	1612
<b>14-Nov</b>	0	765	1101	692	1	189	340	171	22	128	95	247	23	1082	1536	1110
<b>15-Nov</b>	92	1480	5	871	29	107	40	107	111	146	123	154	232	1733	168	1132
<b>16-Nov</b>	23	1250	8	911	59	204	17	318	79	112	218	123	161	1566	243	1352
<b>Total</b>	<b>46336</b>	<b>54445</b>	<b>54869</b>	<b>100366</b>	<b>5912</b>	<b>7454</b>	<b>10329</b>	<b>14188</b>	<b>2944</b>	<b>5044</b>	<b>6489</b>	<b>7583</b>	<b>55192</b>	<b>66943</b>	<b>71687</b>	<b>122137</b>

**(a) Punjab**

Districts	01Oct-16 Nov			
	2016	2017	2018	2019
AMRITSAR	2090	1205	1151	1300
BARNALA	5662	2790	2997	2867
BATHINDA	8743	4750	5889	5009
FARIDKOT	4583	2862	2813	2021
FATEHGARH SAHIB	2451	1607	832	799
FAZILKA	0	0	0	1483
FIROZPUR	13017	5611	8703	4351
GURDASPUR	2152	1507	1092	1440
HOSHIARPUR	895	477	187	307
JALANDHAR	4625	1987	1307	1480
KAPURTHALA	3121	1526	718	1344
LUDHIANA	9336	3978	2454	2195
MANSA	5524	4082	4065	3416
MOGA	6372	1986	2486	2046
MUKTSAR	6700	3433	5003	2603
NAWASHAHR (SBS Nagar)	1591	792	343	258
PATHANKOT	0	0	0	6
PATIALA	6530	5006	4156	3793
RUPNAGAR	709	326	76	114
SANGRUR	11820	8222	7609	6268
SAS NAGAR	114	107	104	150
TARN TARAN	4331	2615	2460	3086
<b>Total</b>	<b>100366</b>	<b>54869</b>	<b>54445</b>	<b>46336</b>

**(b) Haryana**

Districts	01Oct-16 Nov			
	2016	2017	2018	2019
AMBALA	529	490	323	335
BHIWANI	62	27	13	10
FARIDABAD	283	341	184	10
FATEHABAD	4530	2955	1976	1040
GURUGRAM	0	0	0	4
HISAR	338	160	132	100
JHAJJAR	24	13	14	3
JIND	818	898	734	525
KAITHAL	1738	1491	1260	1226
KARNAL	1623	1484	833	1064
KURUKSHETRA	1075	1141	679	736
MAHENDRAGARH	0	0	0	2
MEWAT	0	0	0	3
PALWAL	0	0	0	188
PANCHKULA	0	0	3	21
PANIPAT	76	74	51	28
REWARI	0	0	0	3
ROHTAK	74	53	13	14
SIRSA	2710	840	1033	325
SONIPAT	69	55	28	26
YAMUNANAGAR	239	307	178	249
<b>Total</b>	<b>14188</b>	<b>10329</b>	<b>7454</b>	<b>5912</b>

(c) Uttar Pradesh

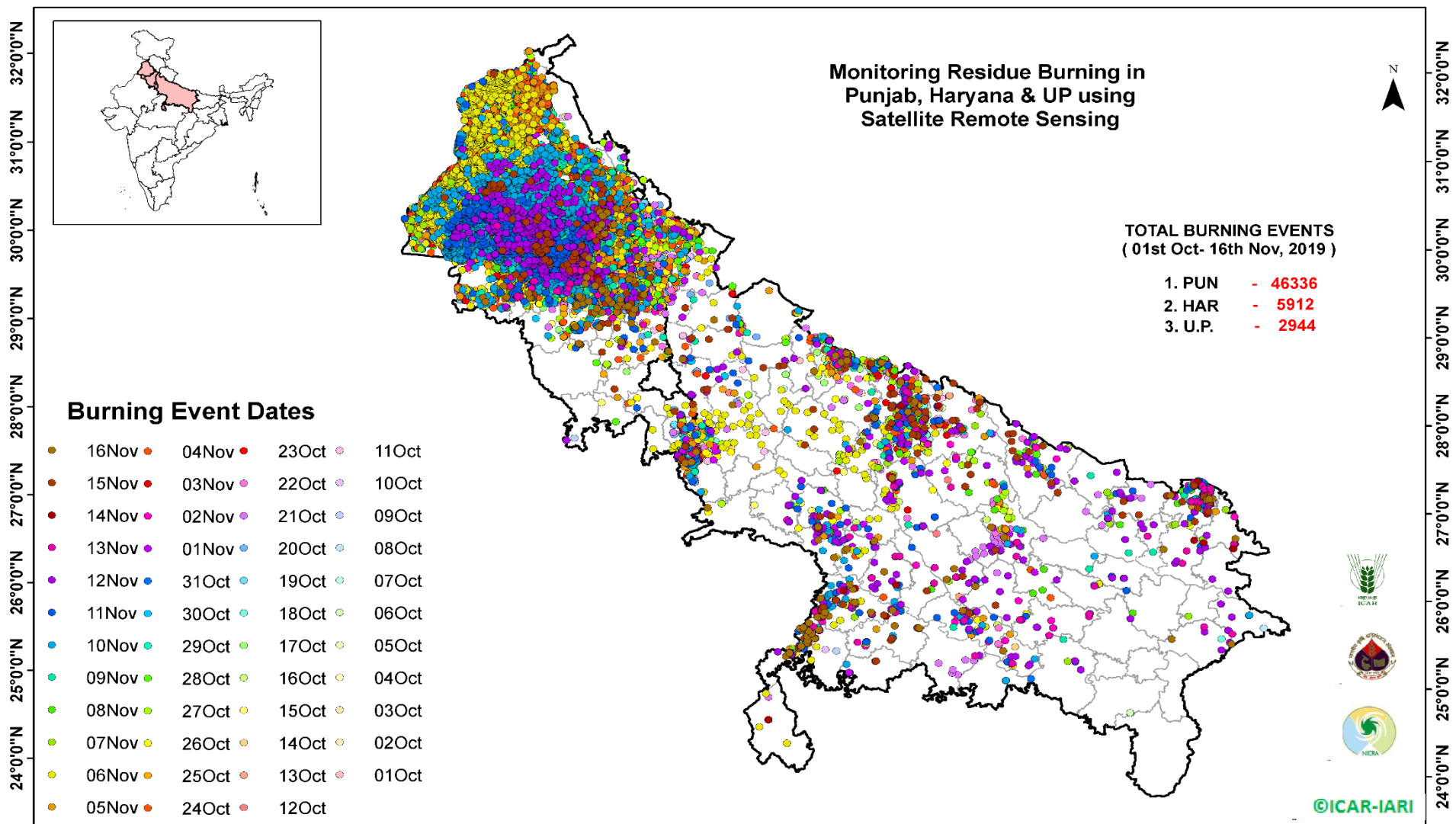
Districts	01Oct-16 Nov			
	2016	2017	2018	2019
AGRA	0	0	0	4
ALIGARH	48	75	89	88
ALLAHABAD	3	8	11	6
AMBEDKARNAGAR	59	25	11	4
AMETHI	0	0	0	5
AMROHA	0	0	0	7
AURAIYA	181	152	48	18
AZAMGARH	26	19	20	2
BADAUN	6	6	9	22
BAGHPAT	0	0	0	6
BAHRAICH	58	37	57	36
BALLIA	10	16	10	6
BALRAMPUR	28	26	38	4
BANDA	1	11	8	8
BARABANKI	204	147	166	55
BAREILLY	235	193	114	102
BASTI	121	175	98	6
BHADOHI	0	0	0	0
BIJNOR	40	37	6	12
BULANDSAHAR	16	28	12	23
CHANDAULI	2	1	0	0
CHITRAKOOT	0	0	0	3
DEORIA	37	35	42	2
ETAH	16	28	24	4
ETAWAH	77	88	33	37
FAIZABAD	10	8	7	3
FARRUKHABAD	0	0	0	5
FATEHPUR	43	35	67	43
FIROZABAD	23	18	9	13

GAUTAMBUDHNAGAR	20	34	11	16
GAZIPUR	13	7	8	8
GHAZIABAD	60	39	24	12
GONDA	43	33	18	6
GORAKHPUR	47	60	65	10
HAMIRPUR	0	0	1	23
HAPUR	0	0	0	8
HARDOI	227	185	107	58
HATHRAS	0	0	0	1
JALAUN	0	0	0	91
JAUNPUR	11	6	14	1
JHANSI	0	0	2	88
KANNAUJ	21	14	6	8
KANPUR	9	7	8	5
KANPUR DEHAT	28	40	17	21
KASGANJ	0	0	0	2
KAUSHAMBI	15	35	32	12
KHERI	385	244	172	152
KUSHINAGAR	28	47	66	13
LALITPUR	0	0	0	6
LUCKNOW	55	30	26	14
MAHARAJGANJ	374	620	731	152
MAHOBA	0	0	0	9
MAINPURI	60	81	41	32
MATHURA	1429	1082	1046	458
MAU	10	5	9	1
MEERUT	56	60	12	21
MIRZAPUR	2	10	5	3
MORADABAD	40	29	11	12
MUZAFARNAGAR	104	109	31	24
PILHIBHIT	908	702	412	325
PRATAPGARH	25	32	22	10

RAE BARELI	50	44	29	11
RAMPUR	611	610	219	300
SHARANPUR	79	104	48	61
SAMBHAL	0	0	0	7
SANTKABIRNAGAR	49	57	47	4
SHAHJAHANPUR	1119	673	360	320
SHAMALI	0	0	0	21
SHRAWASTI	31	29	35	16
SIDDHARTHANAGAR	212	152	426	18
SITAPUR	105	62	33	31
SONBHADRA	14	9	9	0
SULTANPUR	40	18	19	6
UNNAO	48	39	33	23
VARANASI	1	0	0	0
JYOTIBAPHULE NAGAR	8	11	4	0
MAHAMAYANAGAR	2	2	6	0
<b>Total</b>	<b>7583</b>	<b>6489</b>	<b>5044</b>	<b>2944</b>



## Map of Cumulative Burning Events (01 Oct – 16 Nov 2019)



[\(http://geoportal.icar.gov.in:8080/geoexplorer/composer/\)](http://geoportal.icar.gov.in:8080/geoexplorer/composer/)

**Details of residue burning events in Punjab on 16-Nov-2019**

<b>S. No.</b>	<b>District</b>	<b>Tehsil / Block</b>	<b>Satellite</b>	<b>Longitude</b>	<b>Latitude</b>	<b>Time (IST)</b>	<b>Day / Night</b>	<b>Fire Power (W/m<sup>2</sup>)</b>
1	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.39352	30.50630	13:30:00	D	21.90
2	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.39288	30.50962	13:30:00	D	21.90
3	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.50320	30.56317	13:30:00	D	4.30
4	LUDHIANA	SAMRALA	TERRA	76.30500	30.95700	10:50:00	D	21.50
5	LUDHIANA	SAMRALA	S-NPP	76.24776	30.96901	13:30:00	D	2.20
6	LUDHIANA	SAMRALA	S-NPP	76.24754	30.97114	13:30:00	D	3.00
7	PATIALA	NABHA	S-NPP	76.30498	30.51390	13:30:00	D	8.50
8	PATIALA	PATIALA	S-NPP	76.55543	30.15394	13:30:00	D	18.00
9	PATIALA	PATIALA	S-NPP	76.36816	30.26932	13:30:00	D	2.60
10	PATIALA	PATIALA	S-NPP	76.36753	30.27263	13:30:00	D	3.10
11	PATIALA	PATIALA	S-NPP	76.56013	30.28342	13:30:00	D	3.30
12	PATIALA	PATIALA	S-NPP	76.56418	30.28400	13:30:00	D	3.30
13	PATIALA	PATIALA	S-NPP	76.26958	30.30945	13:30:00	D	2.30
14	PATIALA	PATIALA	S-NPP	76.29692	30.33960	13:30:00	D	3.70
15	PATIALA	PATIALA	S-NPP	76.33071	30.37861	13:30:00	D	4.10
16	PATIALA	PATIALA	S-NPP	76.45882	30.38012	13:30:00	D	5.40
17	PATIALA	PATIALA	S-NPP	76.47901	30.38303	13:30:00	D	15.00
18	PATIALA	PATIALA	S-NPP	76.33749	30.47429	13:30:00	D	18.90
19	PATIALA	RAJPURA	S-NPP	76.64020	30.54523	13:30:00	D	2.00
20	PATIALA	RAJPURA	S-NPP	76.66401	30.55206	13:30:00	D	5.40
21	PATIALA	SAMANA	S-NPP	76.18206	29.99164	13:30:00	D	31.10
22	RUPNAGAR	CHAMKOR SAHIB	TERRA	76.51000	30.91100	10:50:00	D	18.20
23	SAS NAGAR	KHARAR	S-NPP	76.61676	30.62922	13:30:00	D	1.90

**Details of residue burning events in Haryana on 16-Nov-2019**

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m2)
1	AMBALA	NARAYANGARH	S-NPP	77.11140	30.34068	13:30:00	D	1.80
2	BHIWANI	BAWANI_KHERA	S-NPP	76.11015	29.00644	13:30:00	D	2.20
3	BHIWANI	BAWANI_KHERA	S-NPP	76.10165	29.00856	13:30:00	D	1.60
4	BHIWANI	BAWANI_KHERA	S-NPP	76.08793	29.01669	13:30:00	D	2.00
5	BHIWANI	BAWANI_KHERA	S-NPP	76.08729	29.01999	13:30:00	D	3.30
6	FATEHABAD	FATEHABAD	S-NPP	75.48903	29.52039	02:12:00	N	0.30
7	FATEHABAD	FATEHABAD	S-NPP	75.47714	29.52231	02:12:00	N	0.30
8	FATEHABAD	FATEHABAD	S-NPP	75.46085	29.57131	13:30:00	D	4.70
9	HISAR	HANSI	S-NPP	76.04310	29.20958	13:30:00	D	2.90
10	HISAR	NARNAUND	S-NPP	76.18703	29.24132	13:30:00	D	3.70
11	JIND	JIND	AQUA	76.33700	29.20600	14:05:00	D	13.10
12	JIND	JIND	AQUA	76.32900	29.21300	14:05:00	D	14.00
13	JIND	JIND	S-NPP	76.36398	29.37938	13:30:00	D	4.70
14	JIND	JIND	S-NPP	76.27827	29.38033	13:30:00	D	2.00
15	JIND	JIND	S-NPP	76.47789	29.48808	13:30:00	D	3.60
16	JIND	JIND	S-NPP	76.43345	29.52824	13:30:00	D	1.30
17	JIND	NARWANA	S-NPP	76.29834	29.42411	13:30:00	D	3.30
18	JIND	NARWANA	S-NPP	76.04314	29.43976	13:30:00	D	22.30
19	JIND	NARWANA	S-NPP	76.05573	29.45864	13:30:00	D	1.80
20	JIND	NARWANA	AQUA	76.12600	29.47700	14:05:00	D	19.50
21	JIND	NARWANA	S-NPP	76.19813	29.50028	13:30:00	D	6.80
22	JIND	NARWANA	AQUA	76.10000	29.53400	14:05:00	D	30.30
23	JIND	NARWANA	TERRA	76.11100	29.54300	10:50:00	D	22.50
24	JIND	NARWANA	S-NPP	76.07816	29.55688	13:30:00	D	2.60
25	JIND	NARWANA	S-NPP	76.14824	29.69917	13:30:00	D	1.90
26	JIND	NARWANA	S-NPP	76.16288	29.77237	13:30:00	D	4.40
27	JIND	SAFIDON	S-NPP	76.54202	29.38572	13:30:00	D	8.00
28	JIND	SAFIDON	S-NPP	76.54139	29.38903	13:30:00	D	8.00
29	JIND	SAFIDON	AQUA	76.66100	29.45000	14:05:00	D	13.20
30	JIND	SAFIDON	S-NPP	76.55439	29.45159	13:30:00	D	16.70

31	JIND	SAFIDON	S-NPP	76.65662	29.45284	13:30:00	D	2.40
32	JIND	SAFIDON	S-NPP	76.67997	29.45964	13:30:00	D	16.70
33	KAITHAL	GUHLA	S-NPP	76.24141	29.89538	13:30:00	D	6.00
34	KAITHAL	KAITHAL	S-NPP	76.41193	29.60283	13:30:00	D	3.60
35	KAITHAL	KAITHAL	S-NPP	76.35975	29.61901	13:30:00	D	3.00
36	KAITHAL	KAITHAL	S-NPP	76.38966	29.63362	13:30:00	D	9.50
37	KAITHAL	KAITHAL	S-NPP	76.35656	29.63557	13:30:00	D	2.20
38	KAITHAL	KAITHAL	S-NPP	76.27041	29.67982	13:30:00	D	2.00
39	KAITHAL	KAITHAL	S-NPP	76.52064	29.76416	13:30:00	D	5.00
40	KAITHAL	KAITHAL	S-NPP	76.70142	29.81087	13:30:00	D	2.30
41	KARNAL	ASSANDH	S-NPP	76.58733	29.49391	13:30:00	D	1.40
42	KARNAL	ASSANDH	S-NPP	76.58403	29.53319	13:30:00	D	4.80
43	KARNAL	GHARAUNDA	S-NPP	76.86968	29.59149	13:30:00	D	2.30
44	KARNAL	KARNAL	S-NPP	76.73813	29.74778	13:30:00	D	7.20
45	KARNAL	KARNAL	S-NPP	76.68546	29.76413	13:30:00	D	2.50
46	KARNAL	NILOKHERI	S-NPP	76.82988	29.83279	13:30:00	D	3.10
47	KARNAL	NILOKHERI	S-NPP	76.93191	29.89047	13:30:00	D	3.40
48	KURUKSHETRA	THANESAR	S-NPP	76.78316	30.01831	13:30:00	D	2.80
49	PANIPAT	ISRANA	S-NPP	76.72472	29.26353	13:30:00	D	2.40
50	PANIPAT	PANIPAT	S-NPP	76.73819	29.36660	13:30:00	D	3.30
51	PANIPAT	PANIPAT	S-NPP	76.75675	29.42293	13:30:00	D	3.70
52	ROHTAK	ROHTAK	S-NPP	76.61456	29.04133	13:30:00	D	2.60
53	ROHTAK	ROHTAK	S-NPP	76.60413	29.05343	13:30:00	D	2.40
54	SIRSA	RANIA	S-NPP	74.90078	29.50927	02:12:00	N	0.60
55	SIRSA	SIRSA	S-NPP	74.93526	29.45963	02:12:00	N	0.40
56	SIRSA	SIRSA	S-NPP	75.18761	29.52449	02:12:00	N	0.70
57	SIRSA	SIRSA	S-NPP	75.14680	29.64663	02:12:00	N	0.60
58	SONIPAT	SONIPAT	S-NPP	77.18403	28.95372	13:30:00	D	7.40
59	SONIPAT	SONIPAT	S-NPP	77.01720	29.05532	13:30:00	D	2.80

**Details of residue burning events in Uttar Pradesh on 16-Nov-2019**

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m2)
1	AGRA	KURAU LI	S-NPP	77.69433	27.17783	13:30:00	D	2.40
2	AGRA	KURAU LI	S-NPP	77.69431	27.17963	13:30:00	D	3.00
3	AURAIYA	BIDHUNA	S-NPP	79.34781	26.70622	13:30:00	D	5.00
4	AURAIYA	BIDHUNA	S-NPP	79.37122	26.72727	13:30:00	D	2.20
5	AURAIYA	BIDHUNA	S-NPP	79.69907	26.81624	13:30:00	D	2.60
6	BAGHPAT	BAGHPAT	S-NPP	77.36116	28.86745	13:30:00	D	3.50
7	BARABANKI	NAWABGANJ	S-NPP	81.25243	26.85375	13:30:00	D	6.30
8	BARABANKI	NAWABGANJ	S-NPP	81.09776	26.97331	13:30:00	D	2.50
9	BAREILLY	FARIDPUR	S-NPP	79.67755	28.23655	13:30:00	D	1.70
10	BULANDSAHAR	BULANDSHAHR	S-NPP	77.97665	28.35726	13:30:00	D	2.60
11	ETAWAH	BHARTHNA	S-NPP	79.21720	26.62782	13:30:00	D	4.40
12	ETAWAH	ETAWAH	S-NPP	79.02915	26.82494	13:30:00	D	3.00
13	ETAWAH	ETAWAH	S-NPP	79.02956	26.82599	13:30:00	D	3.10
14	FATEHPUR	BINKI	S-NPP	80.75179	26.02196	13:30:00	D	4.80
15	FATEHPUR	KHAGA	S-NPP	81.22736	25.55941	13:30:00	D	1.60
16	GAZIPUR	MUHAMMADBAD	S-NPP	83.93574	25.59095	13:30:00	D	3.30
17	GAZIPUR	SAIDPUR	S-NPP	83.23039	25.66339	13:30:00	D	5.10
18	GORAKHPUR	SAHJANWA	S-NPP	83.15659	26.69230	13:30:00	D	2.70
19	HAMIRPUR	HAMIRPUR	S-NPP	80.23582	25.82383	13:30:00	D	5.80
20	HAMIRPUR	HAMIRPUR	S-NPP	79.91862	26.02766	13:30:00	D	2.30
21	HAMIRPUR	MAUDAHA	S-NPP	79.94371	25.84844	13:30:00	D	2.40
22	HARDOI	SHAHABAD	S-NPP	79.91075	27.53600	13:30:00	D	4.30
23	JALAUN	JALAUN	S-NPP	79.44196	26.26299	13:30:00	D	2.40
24	JALAUN	JALAUN	TERRA	79.40500	26.32400	10:50:00	D	4.90
25	JALAUN	KALPI	S-NPP	79.65862	26.00449	13:30:00	D	3.30
26	JALAUN	KALPI	S-NPP	79.45461	26.11370	13:30:00	D	2.60
27	JALAUN	KALPI	S-NPP	79.47195	26.11603	13:30:00	D	3.40
28	JALAUN	KONCH	S-NPP	79.02499	25.94761	13:30:00	D	1.30
29	JALAUN	KONCH	S-NPP	79.15610	25.95848	13:30:00	D	4.90
30	JALAUN	KONCH	S-NPP	79.09498	25.96427	13:30:00	D	9.00

31	JALAUN	KONCH	S-NPP	79.11107	25.99995	13:30:00	D	4.70
32	JALAUN	MADHOGARH	S-NPP	79.05953	26.16109	13:30:00	D	23.50
33	JHANSI	JHANSI	S-NPP	78.65407	25.49567	13:30:00	D	5.00
34	JHANSI	JHANSI	S-NPP	78.69331	25.53239	13:30:00	D	2.40
35	JHANSI	MOTH	S-NPP	78.89475	25.65081	13:30:00	D	2.10
36	JHANSI	MOTH	S-NPP	78.91075	25.68102	13:30:00	D	3.00
37	JHANSI	MOTH	S-NPP	78.99210	25.69921	13:30:00	D	3.30
38	JHANSI	MOTH	S-NPP	78.99152	25.70264	13:30:00	D	26.20
39	JHANSI	MOTH	S-NPP	78.90748	25.72614	13:30:00	D	5.00
40	JHANSI	MOTH	S-NPP	78.95879	25.75315	13:30:00	D	2.40
41	JHANSI	MOTH	S-NPP	78.95408	25.75602	13:30:00	D	11.50
42	JHANSI	MOTH	S-NPP	78.91949	25.78639	13:30:00	D	3.20
43	JHANSI	MOTH	S-NPP	78.83735	25.79961	13:30:00	D	2.50
44	JHANSI	MOTH	S-NPP	79.03965	25.80281	13:30:00	D	2.40
45	JHANSI	MOTH	S-NPP	78.81401	25.81387	13:30:00	D	2.70
46	JHANSI	MOTH	S-NPP	78.85857	25.82356	13:30:00	D	3.00
47	JHANSI	MOTH	S-NPP	78.85800	25.82699	13:30:00	D	4.50
48	JHANSI	MOTH	S-NPP	78.92139	25.88067	13:30:00	D	2.10
49	JHANSI	TAHRAULI	S-NPP	78.82687	25.60327	13:30:00	D	3.80
50	JHANSI	TAHRAULI	S-NPP	78.83025	25.61053	13:30:00	D	3.80
51	JHANSI	TAHRAULI	S-NPP	78.83390	25.61124	13:30:00	D	3.70
52	KANPUR DEHAT	DERAPUR	S-NPP	79.81818	26.46710	13:30:00	D	3.10
53	KUSHINAGAR	KASAYA	S-NPP	84.02283	26.79343	13:30:00	D	3.50
54	MAHARAJGANJ	NICHLAUL	S-NPP	83.69424	27.24502	13:30:00	D	4.10
55	MAHARAJGANJ	NICHLAUL	S-NPP	83.75961	27.25175	13:30:00	D	2.80
56	MAHARAJGANJ	NICHLAUL	S-NPP	83.71880	27.25212	13:30:00	D	5.10
57	MAHARAJGANJ	PHARENDA	S-NPP	83.26044	27.30190	13:30:00	D	2.80
58	MAINPURI	KARHAL	S-NPP	79.02322	26.97571	13:30:00	D	12.50
59	MATHURA	CHHATA	S-NPP	77.41747	27.68704	13:30:00	D	2.30
60	MATHURA	CHHATA	S-NPP	77.48842	27.70056	13:30:00	D	2.80
61	MATHURA	CHHATA	S-NPP	77.54220	27.81298	13:30:00	D	2.00
62	MORADABAD	MORADABAD	S-NPP	78.95877	28.74780	13:30:00	D	2.40
63	MUZAFARNAGAR	KHATOLI	S-NPP	77.73204	29.31885	13:30:00	D	2.50
64	PILHIBHIT	PILHIBHIT	S-NPP	79.78080	28.85021	13:30:00	D	2.20

65	PILHIBHIT	PURANPUR	S-NPP	80.16670	28.38177	13:30:00	D	2.90
66	PILHIBHIT	PURANPUR	S-NPP	80.18850	28.40601	02:12:00	N	0.30
67	PILHIBHIT	PURANPUR	S-NPP	80.01314	28.62692	02:12:00	N	0.40
68	RAIBEARELI	LALGANJ	S-NPP	80.90248	26.29763	13:30:00	D	2.50
69	RAMPUR	BILASPUR	S-NPP	79.29250	28.85133	13:30:00	D	7.30
70	RAMPUR	BILASPUR	S-NPP	79.36063	28.87099	13:30:00	D	2.90
71	RAMPUR	BILASPUR	S-NPP	79.22009	28.92800	13:30:00	D	2.90
72	RAMPUR	BILASPUR	S-NPP	79.35330	28.95580	13:30:00	D	10.30
73	SHAHJAHANPUR	PUWANYA	S-NPP	80.22724	28.27640	02:12:00	N	0.60
74	SHAHJAHANPUR	PUWANYA	S-NPP	80.10261	28.28898	02:12:00	N	0.60
75	SHAHJAHANPUR	TILHAR	S-NPP	79.52837	27.94644	13:30:00	D	3.40
76	SHAHJAHANPUR	TILHAR	S-NPP	79.69936	28.22080	13:30:00	D	2.50
77	UNNAO	UNNAO	S-NPP	80.56467	26.37796	13:30:00	D	7.20
78	UNNAO	UNNAO	S-NPP	80.56212	26.37930	13:30:00	D	4.70
79	UNNAO	UNNAO	S-NPP	80.65075	26.50136	13:30:00	D	3.40

## 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 Geoportal website: <http://geoportal.icar.gov.in:8080/geoexplorer/composer/>  
(Part of KRISHI Portal: <https://krishi.icar.gov.in> initiative)

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