



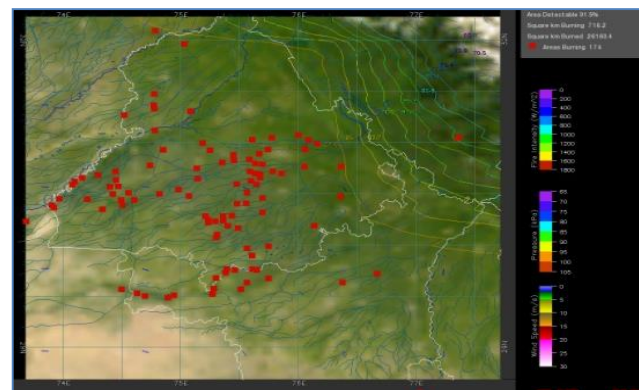
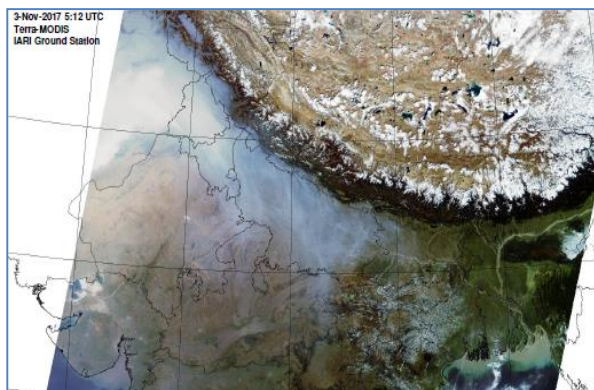
**Bulletin
No. 53**

**Events Date:
22-Nov-2019**

**Issued on:
23-Nov-2019**



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



Prepared by:

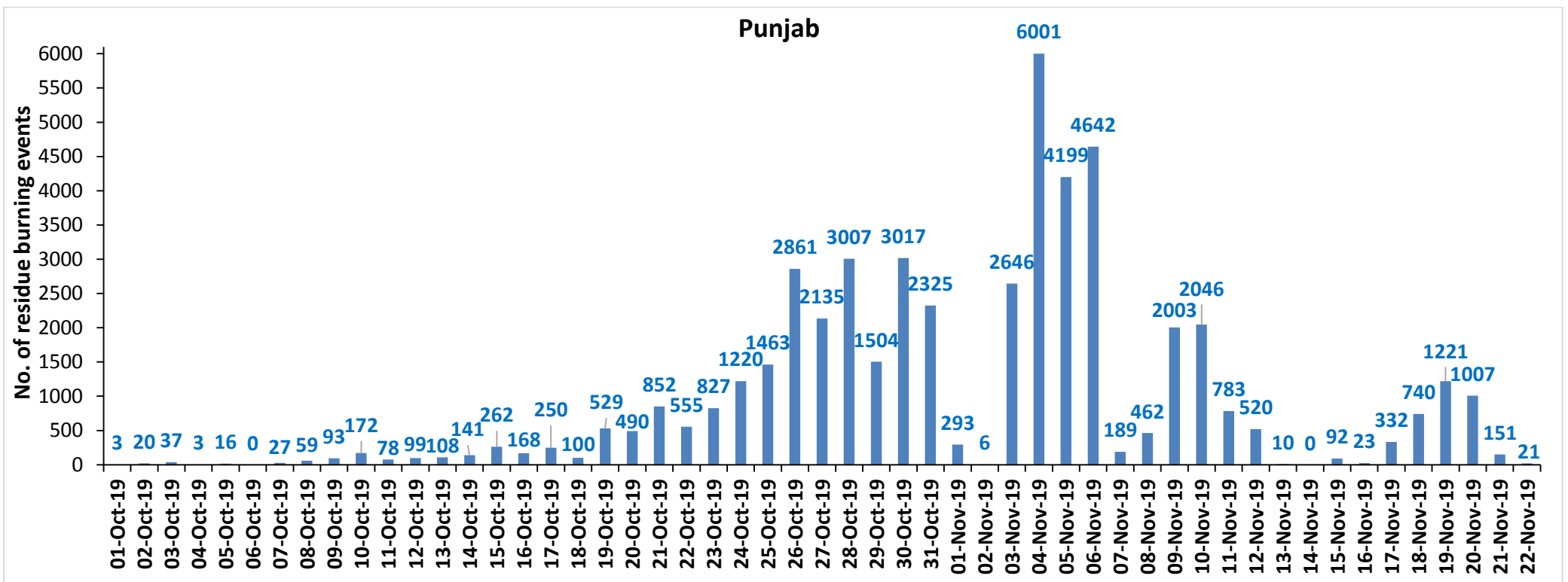
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

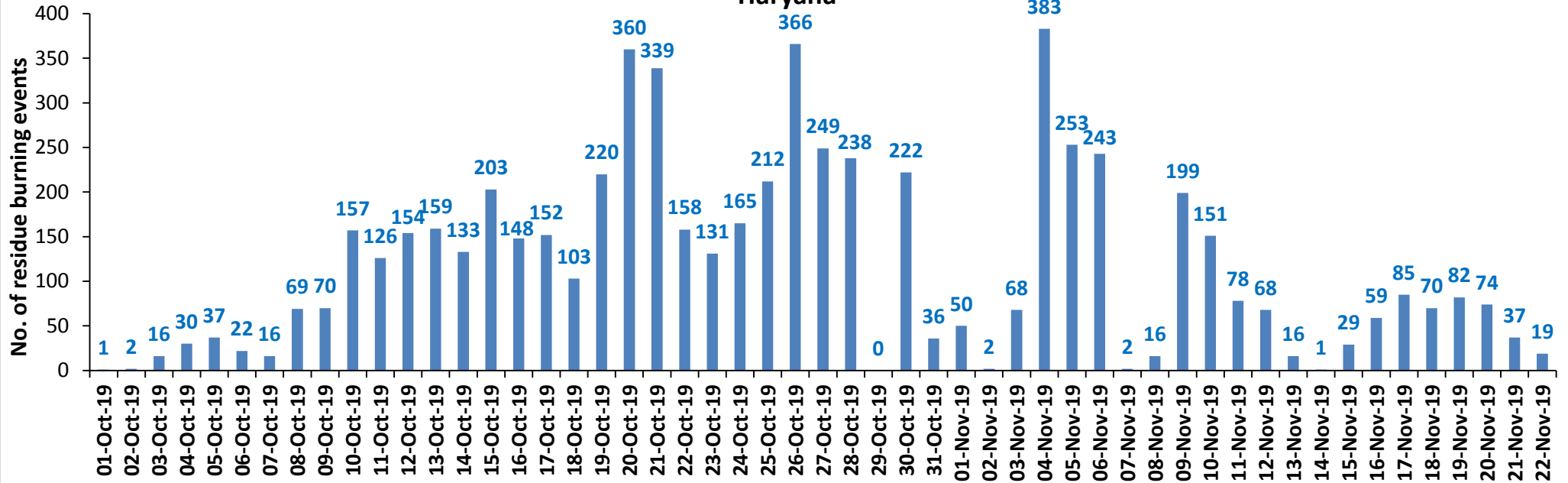
Highlights for 22-November-2019

- Satellites detected **156** residue burning events in the three study States on **22-Nov-2019**.
- The burning events detected on **22-Nov-2019** are **21**, **19** and **116** in Punjab, Haryana and UP, respectively.
- The number of events has decreased from **272** on **21-Nov-2019** to **156** on **22-Nov-2019** in the three states.
- The state of Punjab and Haryana were partially covered with clouds which prevented fire event detection by satellites
- Total **59712** burning events were detected in the three States between **01-Oct-2019** and **22-Nov-2019**, which are distributed as **49808**, **6279** and **3625** in Punjab, Haryana and UP, respectively.
- Overall, the total burning events recorded in the three states are **18.4%** less than in 2018 till date. UP recorded **36.2%** reduction, Haryana recorded **27.2%** reduction, and Punjab recorded **15.4%** reduction, respectively, in the current season than in 2018.

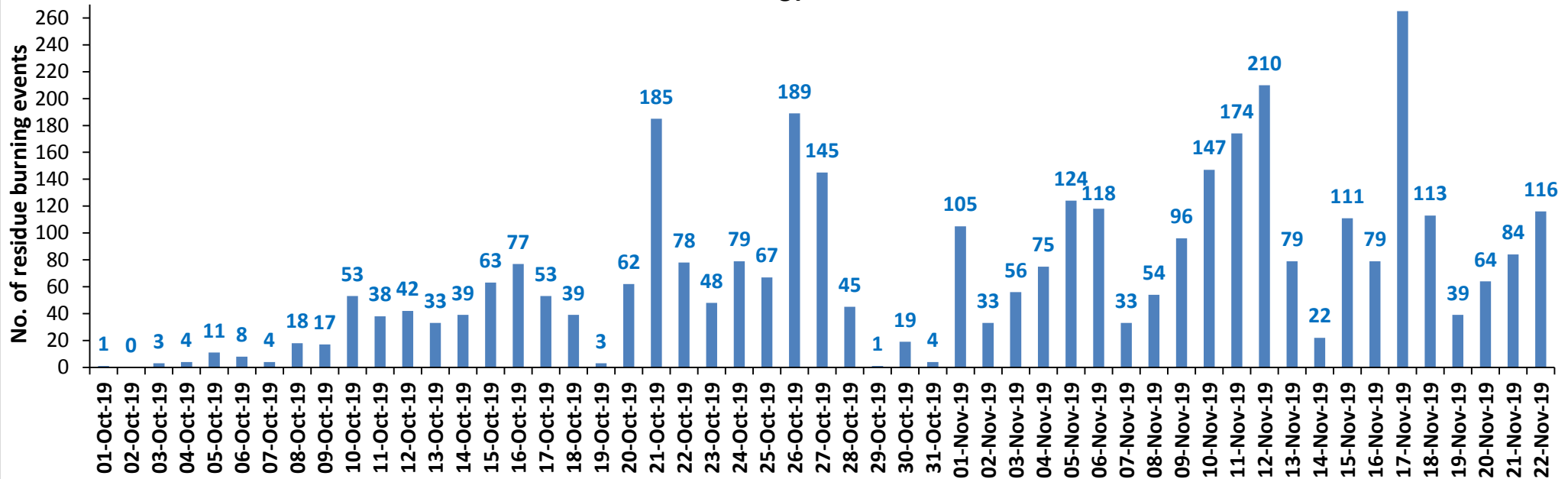
Temporal distribution of residue burning events for the three study States in 2019



Haryana



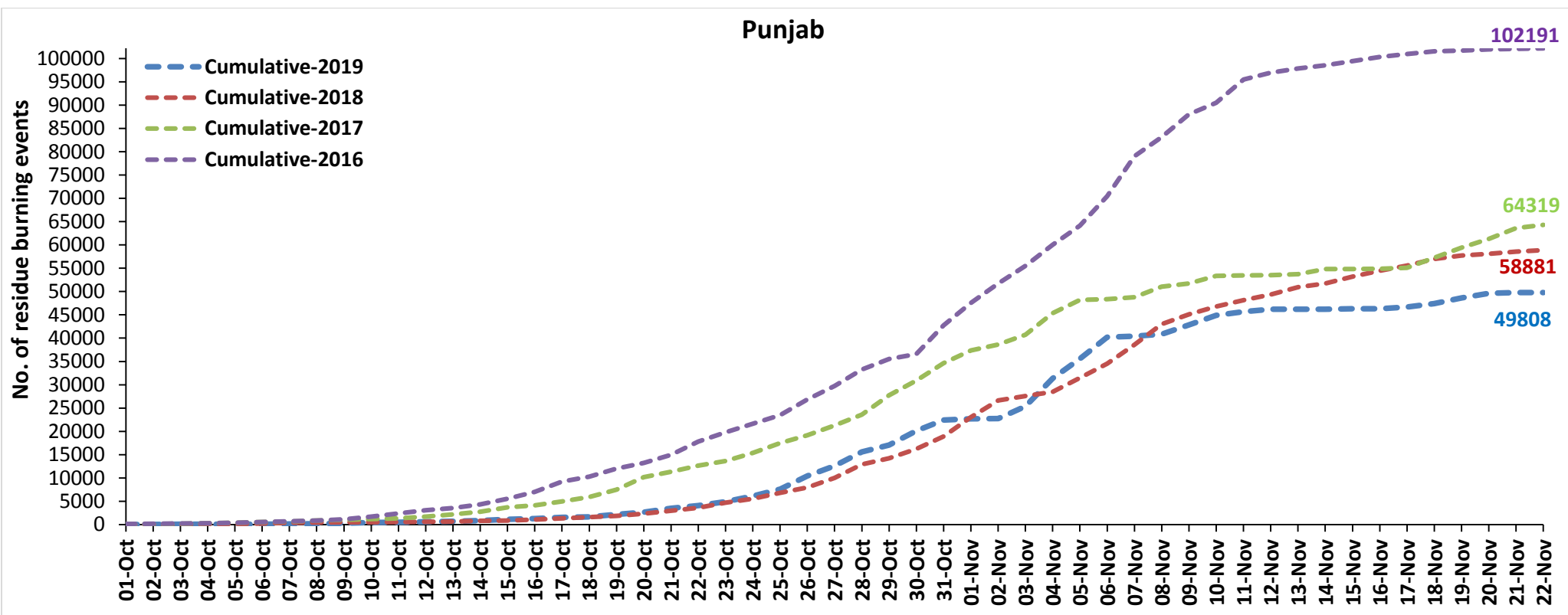
UP



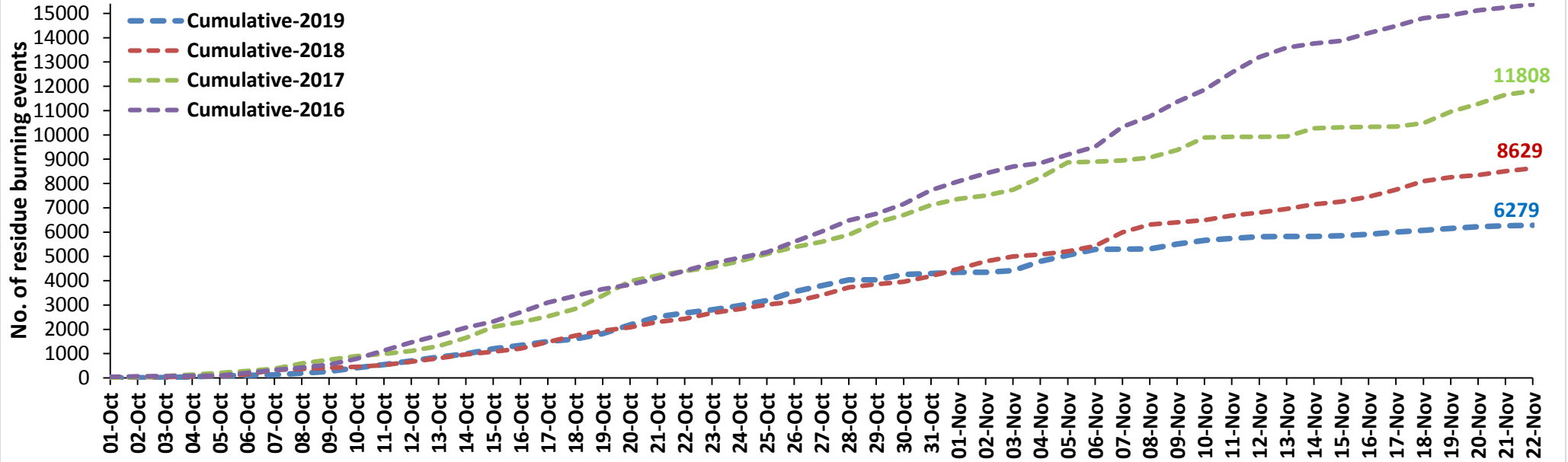
Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States

(01-Oct to 22-Nov)

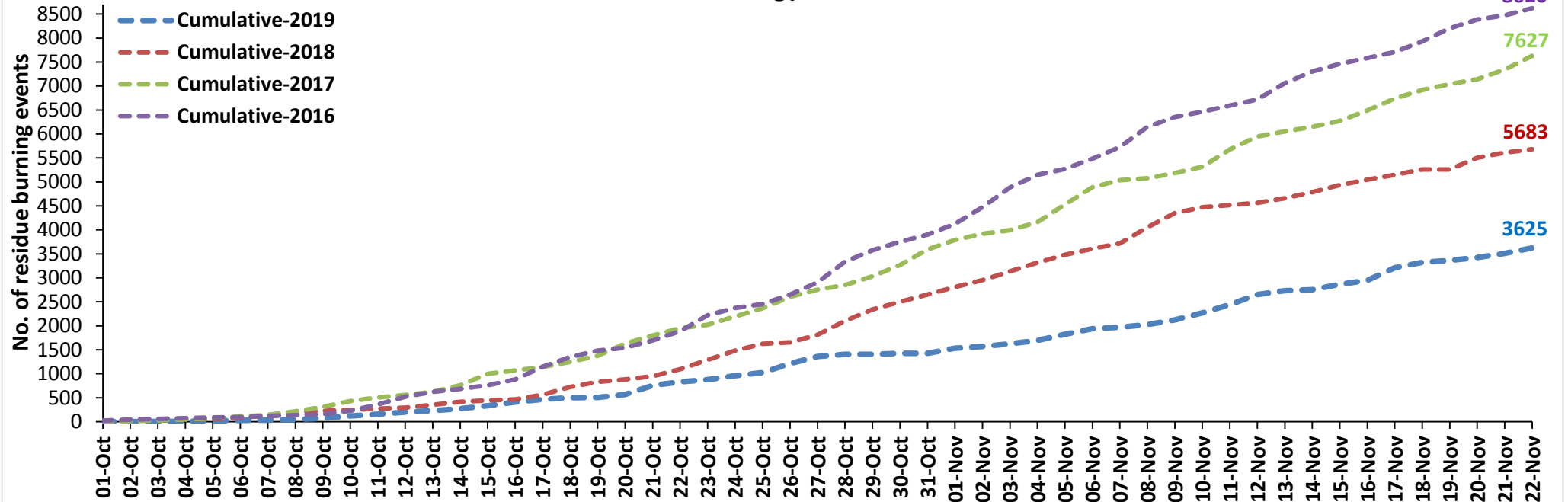
Punjab



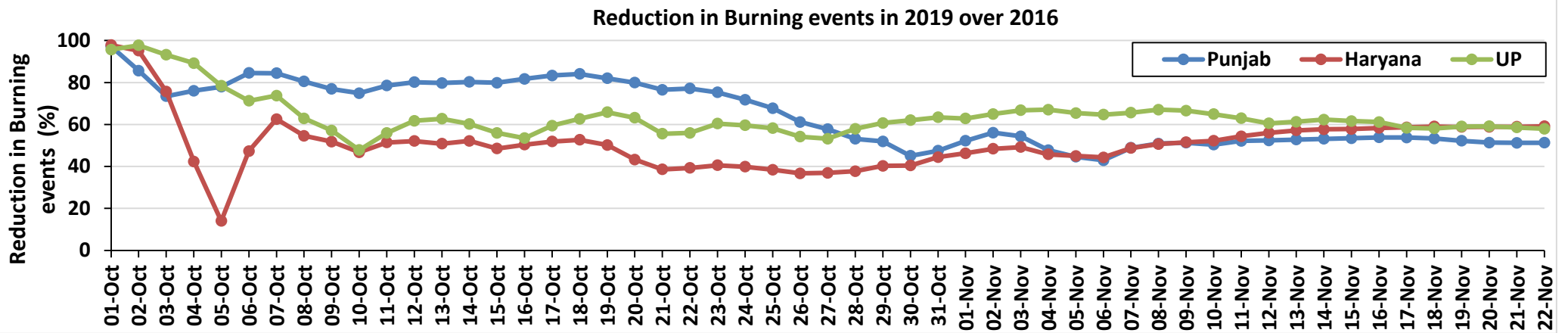
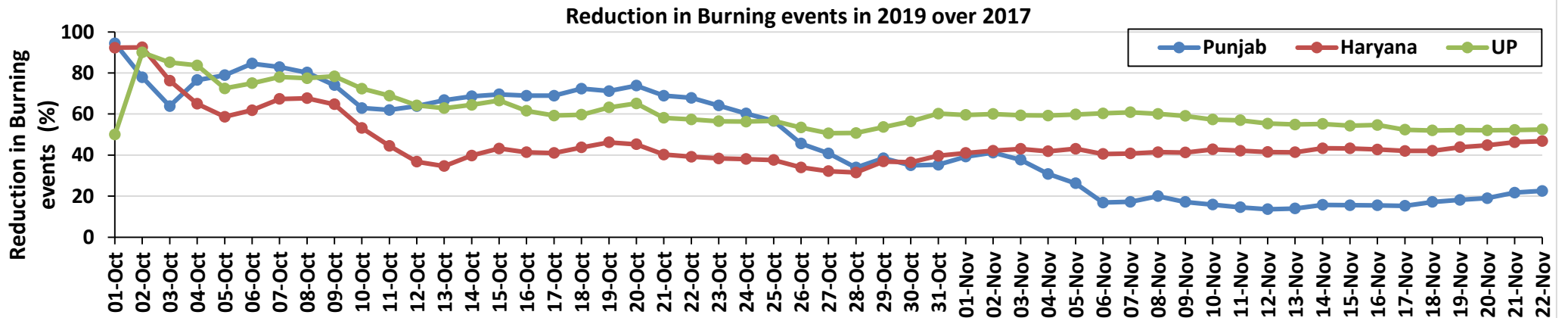
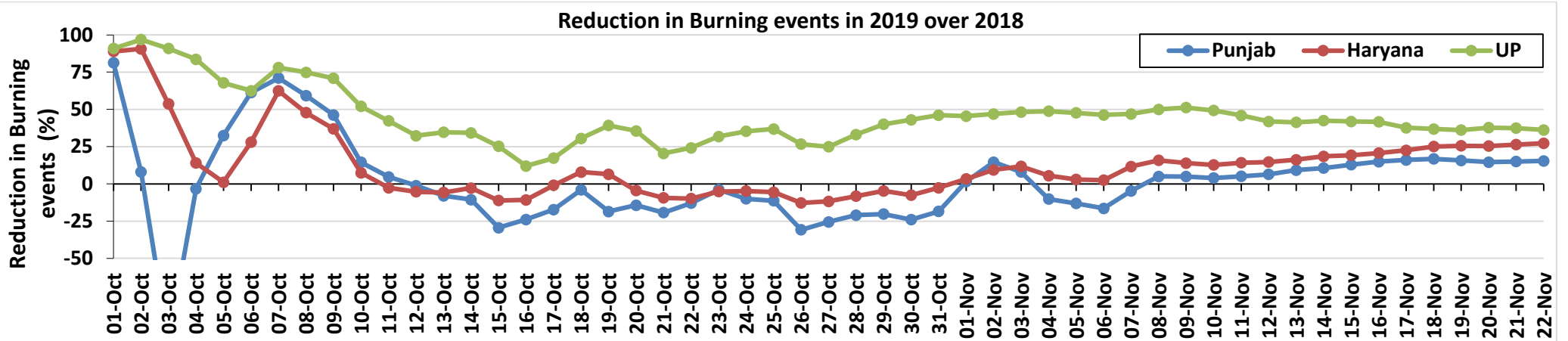
Haryana



UP

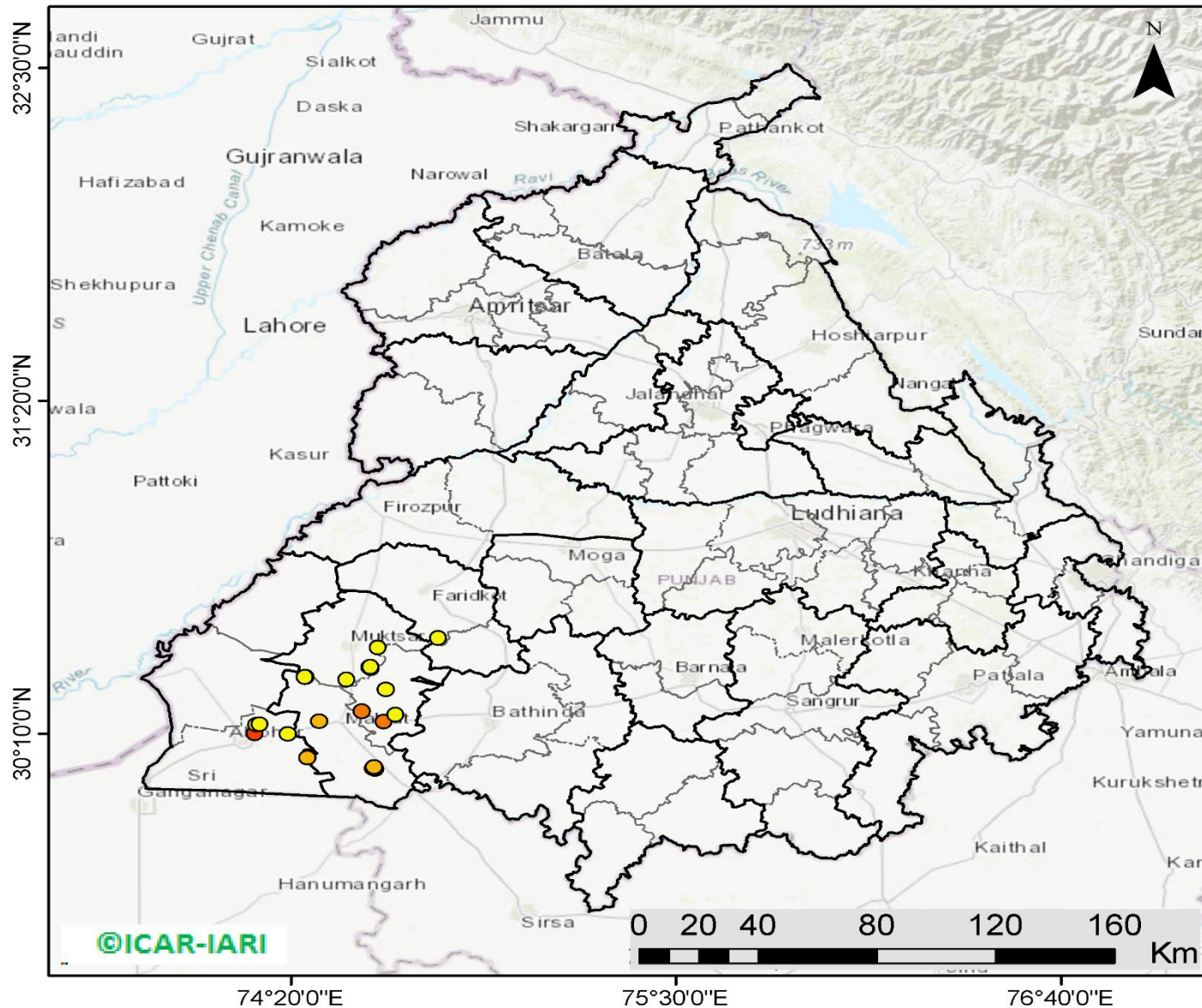


Percent Reduction in Burning events in 2019 over 2018, 2017 and 2016 (Daily Cumulative)



(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



21 burning events detected in Punjab on 22nd November 2019

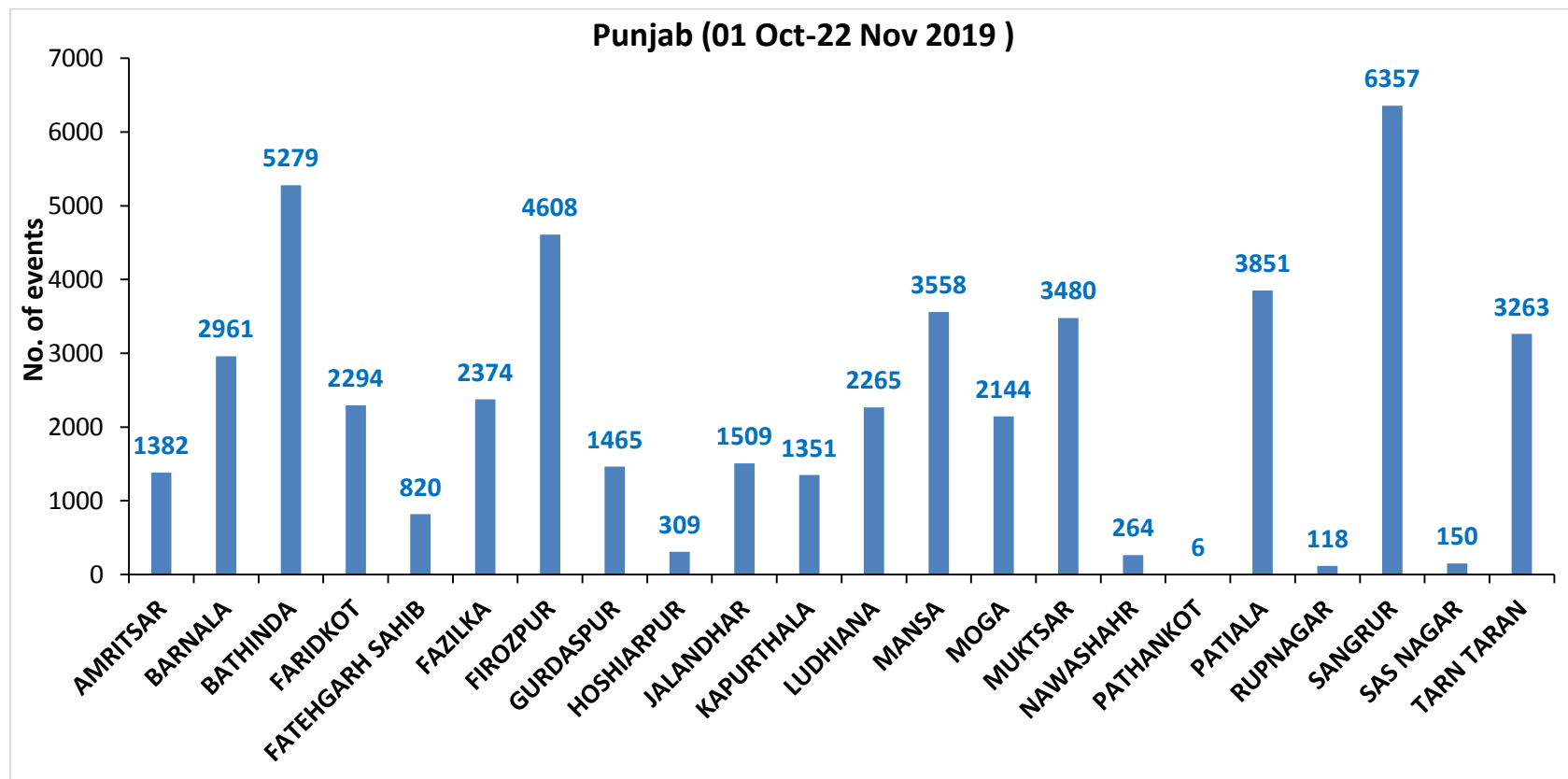
Fire Intensity (W/m²)

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



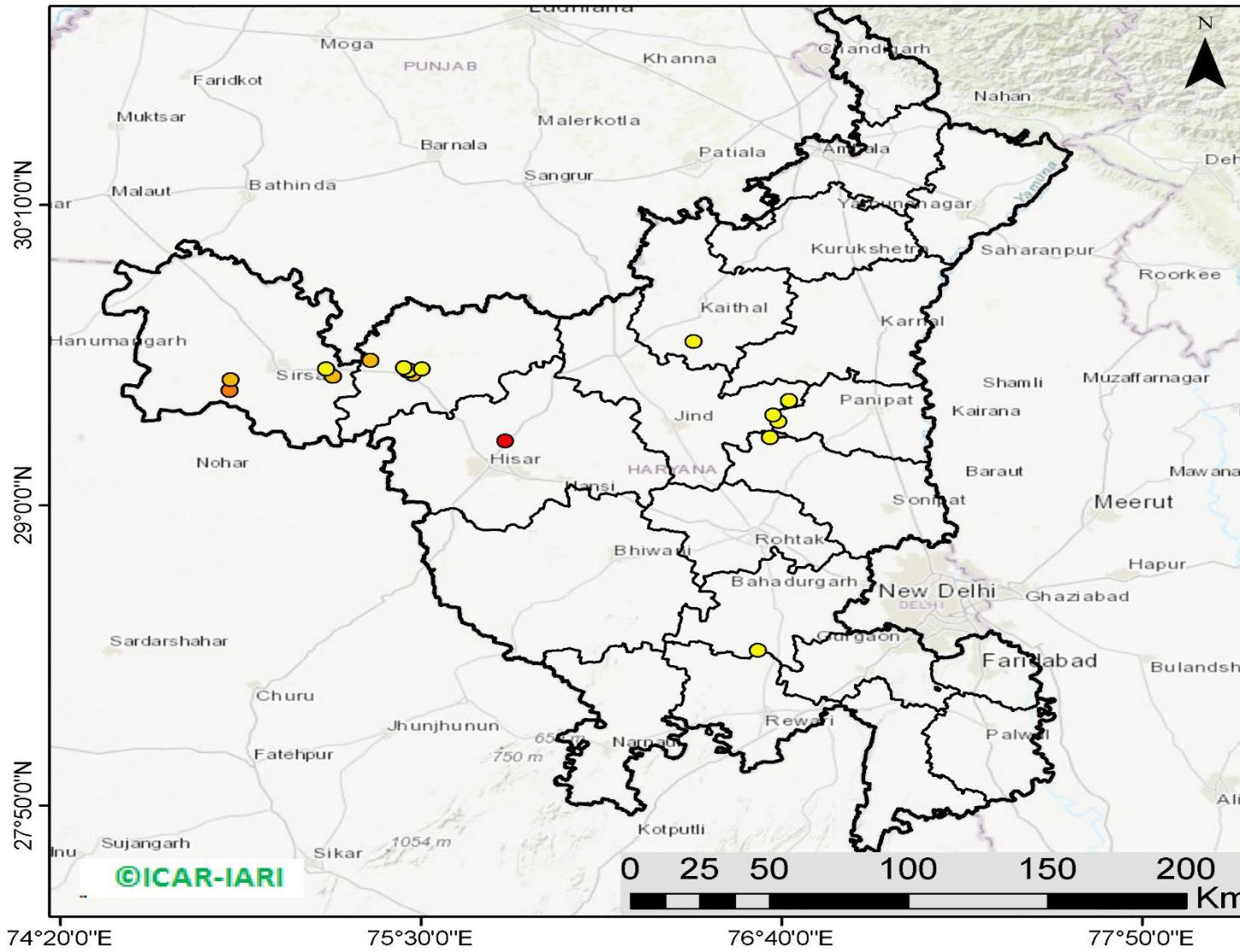
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (01 Oct to 22-Nov 2019)



(b) Haryana

RICE RESIDUE BURNING IN HARYANA



19 burning events detected in Haryana on 22nd November 2019

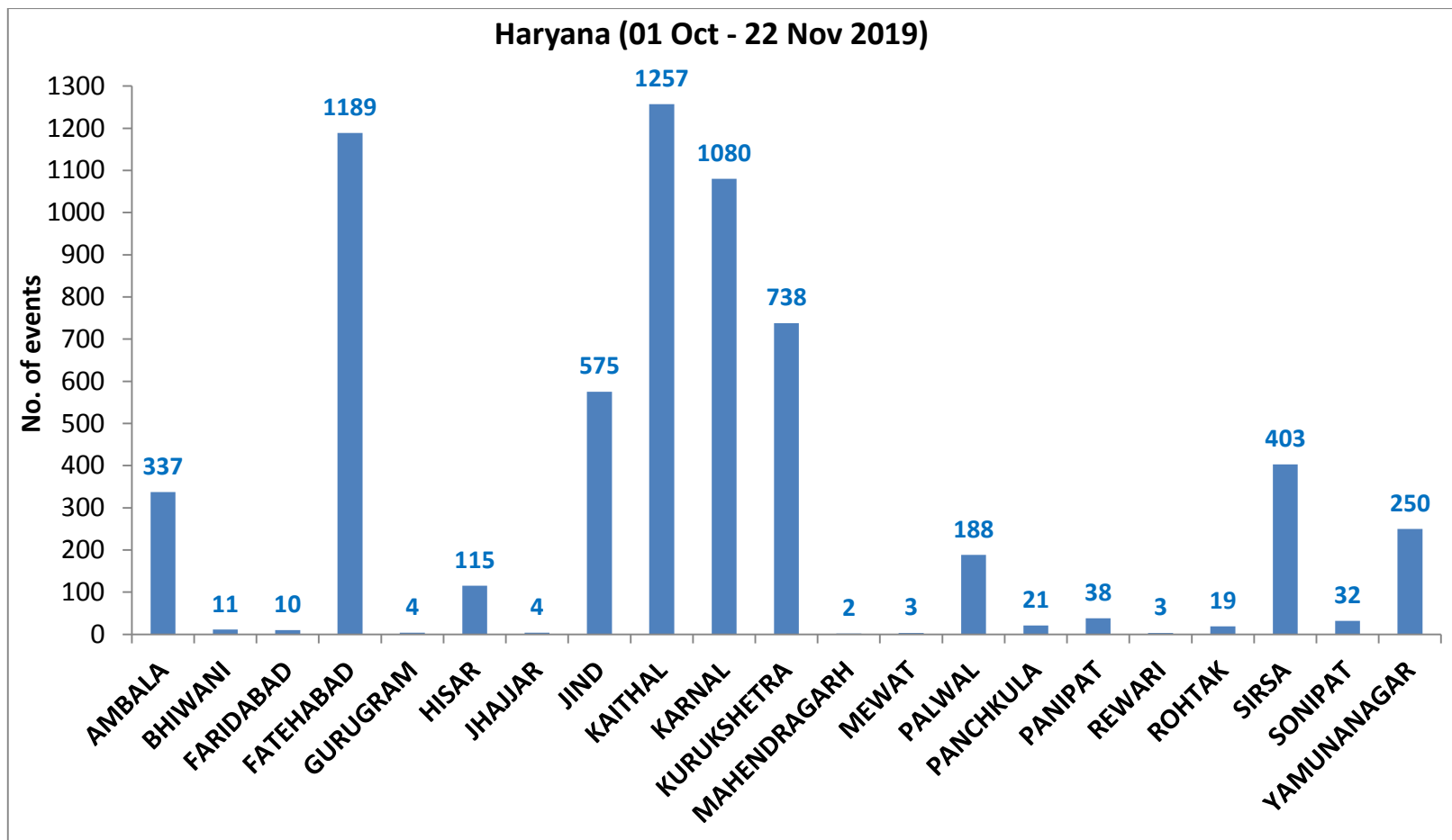
Fire Intensity (W/m²)

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



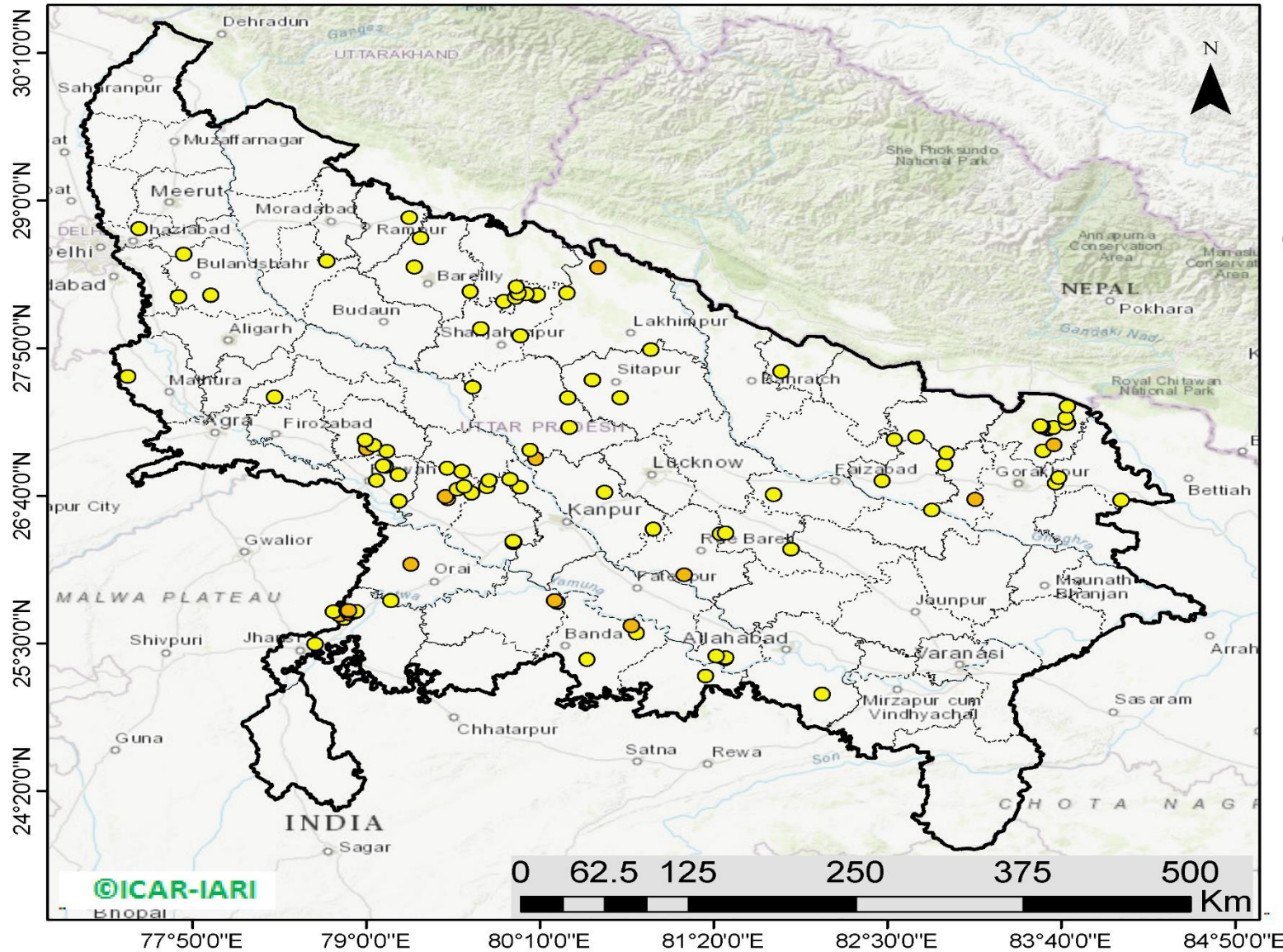
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (01 Oct to 22-Nov 2019)



(c) UP

RICE RESIDUE BURNING IN UTTAR PRADESH



116 burning events detected in Uttar Pradesh on 22nd November 2019

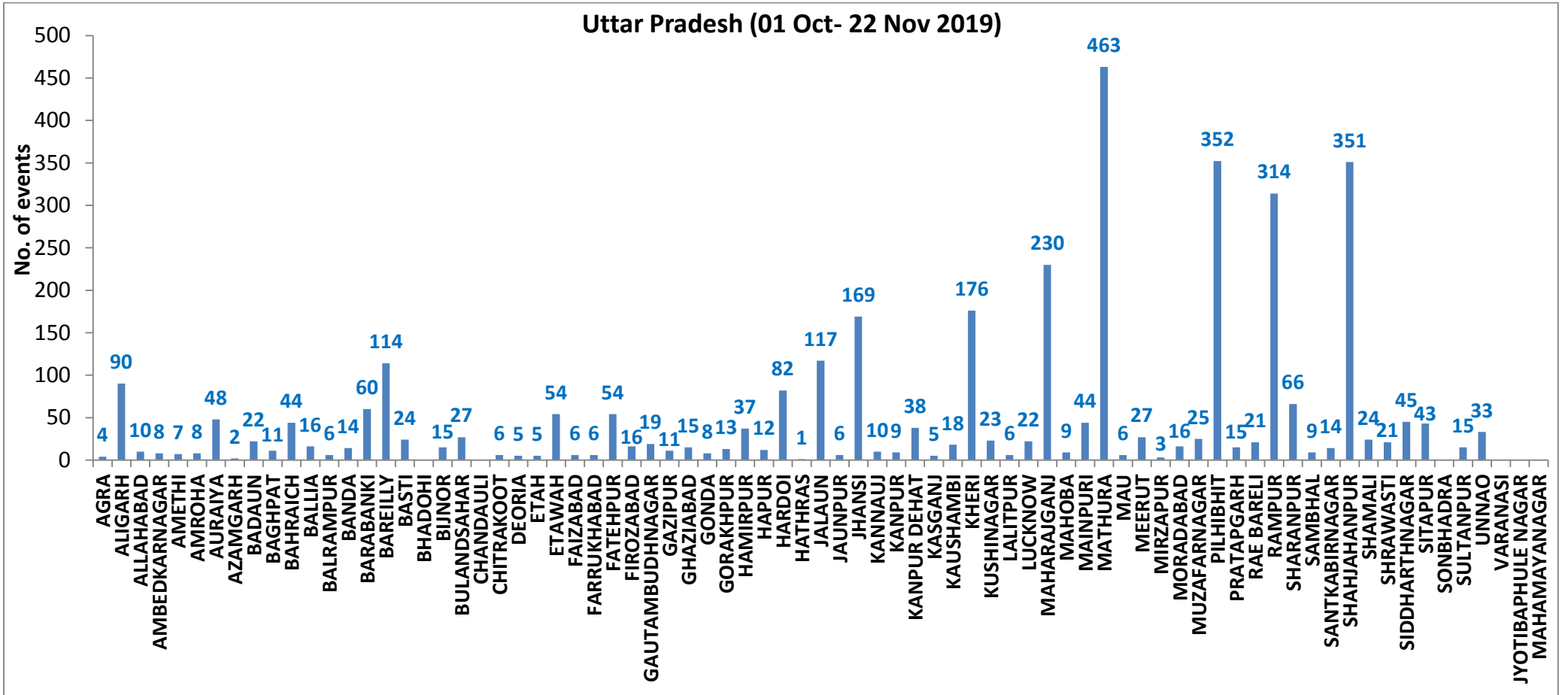
Fire Intensity (W/m²)

- 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 (01 Oct to 22-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 22-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

03-Nov	2646	972	2109	3806	68	202	240	275	56	181	75	409	2770	1355	2424	4490
04-Nov	6001	882	4603	4477	383	77	499	146	75	183	168	265	6459	1142	5270	4888
05-Nov	4199	2989	2876	4137	253	129	625	345	124	163	367	125	4576	3281	3868	4607
06-Nov	4642	3071	171	6303	243	222	26	322	118	130	357	215	5003	3423	554	6840
07-Nov	189	4033	420	8575	2	568	46	821	33	108	149	244	224	4709	615	9640
08-Nov	462	4450	2256	4129	16	313	128	432	54	338	43	419	532	5101	2427	4980
09-Nov	2003	2083	675	4857	199	199	311	608	96	294	107	205	2298	2473	1093	5670
10-Nov	2046	1675	1642	2468	151	85	509	484	147	125	131	109	2344	1885	2282	3061
11-Nov	783	1364	103	5040	78	196	29	716	174	45	358	129	1035	1605	490	5885
12-Nov	520	1256	33	1477	68	122	3	634	210	45	269	129	798	1423	305	2240
13-Nov	10	1563	237	885	16	146	7	389	79	94	109	338	105	1803	353	1612
14-Nov	0	765	1101	692	1	189	340	171	22	128	95	247	23	1082	1536	1110
15-Nov	92	1480	5	871	29	107	40	107	111	146	123	154	232	1733	168	1132
16-Nov	23	1250	8	911	59	204	17	318	79	112	218	123	161	1566	243	1352
17-Nov	332	1132	217	638	85	289	12	299	265	103	249	130	682	1524	478	1067
18-Nov	740	1400	2147	568	70	356	139	312	113	111	180	217	923	1867	2466	1097
19-Nov	1221	752	2200	168	82	159	471	125	39	3	122	273	1342	914	2793	566
20-Nov	1007	385	1857	240	74	88	325	204	64	243	101	183	1145	716	2283	627
21-Nov	151	480	2310	112	37	161	378	115	84	107	205	86	272	748	2893	313
22-Nov	21	287	719	99	19	122	154	118	116	72	281	148	156	481	1154	365
Total	49808	58881	64319	102191	6279	8629	11808	15361	3625	5683	7627	8620	59712	73193	83754	126172

(a) Punjab

Districts	01Oct-22 Nov			
	2016	2017	2018	2019
AMRITSAR	2169	1323	1298	1382
BARNALA	5696	3258	3252	2961
BATHINDA	8828	5416	6312	5279
FARIDKOT	4624	3402	3038	2294
FATEHGARH SAHIB	2460	1622	854	820
FAZILKA	0	0	0	2374
FIROZPUR	13591	9356	9846	4608
GURDASPUR	2215	1568	1139	1465
HOSHIARPUR	900	486	197	309
JALANDHAR	4659	2078	1367	1509
KAPURTHALA	3134	1599	746	1351
LUDHIANA	9535	4428	2924	2265
MANSA	5636	4401	4294	3558
MOGA	6392	2486	2712	2144
MUKTSAR	7010	5062	5681	3480
NAWASHAHR (SBS Nagar)	1609	807	374	264
PATHANKOT	0	0	0	6
PATIALA	6539	5027	4207	3851
RUPNAGAR	717	326	84	118
SANGRUR	11860	8365	7766	6357
SAS NAGAR	115	107	104	150
TARN TARAN	4502	3202	2686	3263
Total	102191	64319	58881	49808

(b) Haryana

Districts	01Oct-22 Nov			
	2016	2017	2018	2019
AMBALA	530	495	328	337
BHIWANI	80	33	14	11
FARIDABAD	286	341	185	10
FATEHABAD	4802	3465	2403	1189
GURUGRAM	0	0	0	4
HISAR	390	178	181	115
JHAJJAR	30	18	22	4
JIND	854	933	856	575
KAITHAL	1748	1512	1288	1257
KARNAL	1625	1501	846	1080
KURUKSHETRA	1078	1144	680	738
MAHENDRAGARH	0	0	0	2
MEWAT	0	0	0	3
PALWAL	0	0	0	188
PANCHKULA	0	0	3	21
PANIPAT	82	88	57	38
REWARI	0	0	0	3
ROHTAK	86	65	28	19
SIRSA	3446	1661	1517	403
SONIPAT	83	64	30	32
YAMUNANAGAR	241	310	191	250
Total	15361	11808	8629	6279

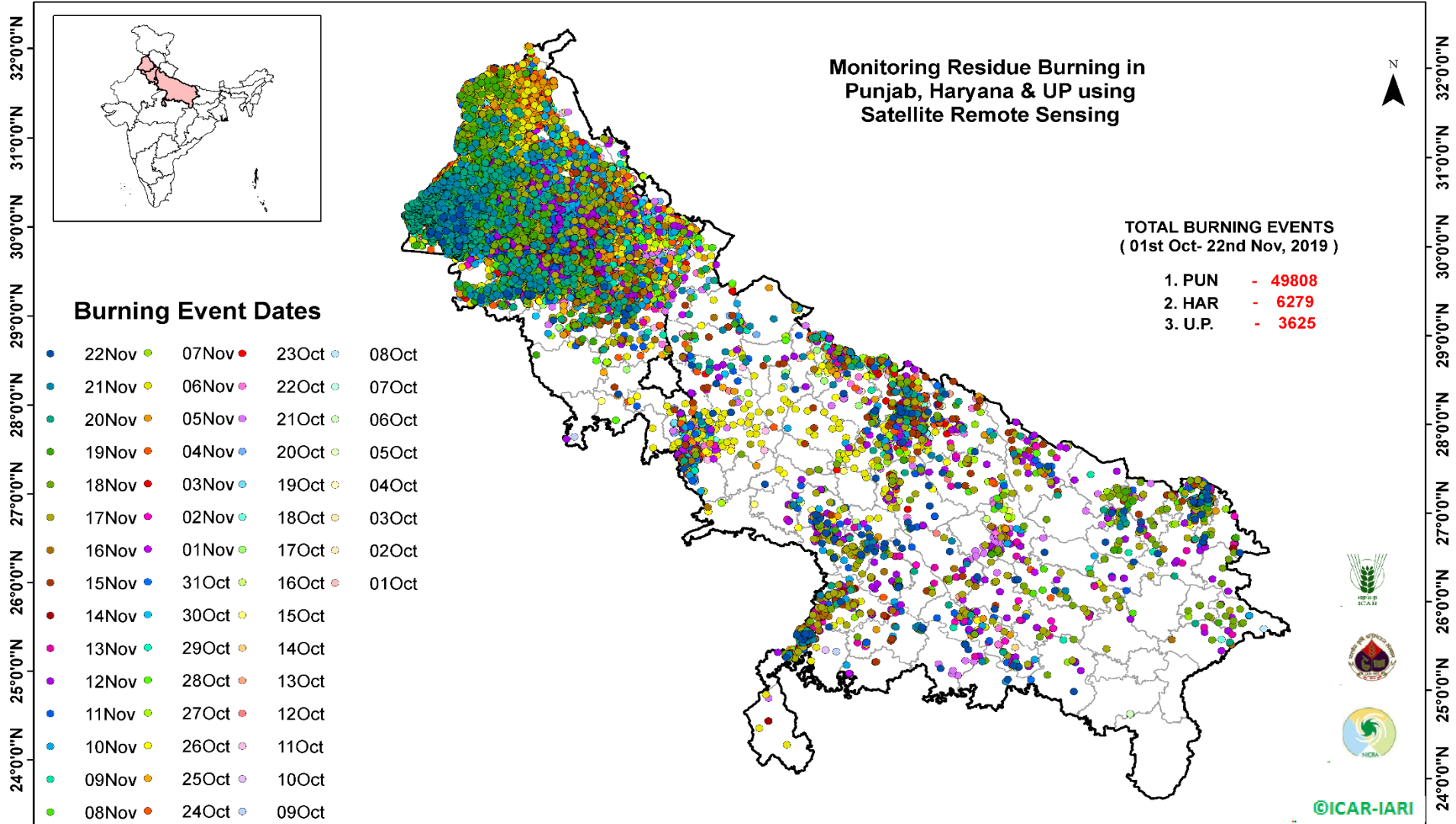
(c) Uttar Pradesh

Districts	01Oct-22 Nov			
	2016	2017	2018	2019
AGRA	0	0	0	4
ALIGARH	53	80	92	90
ALLAHABAD	5	11	13	10
AMBEDKARNAGAR	67	46	15	8
AMETHI	0	0	0	7
AMROHA	0	0	0	8
AURAIYA	230	207	57	48
AZAMGARH	36	39	26	2
BADAUN	6	7	11	22
BAGHPAT	0	0	0	11
BAHRAICH	70	40	57	44
BALLIA	17	32	17	16
BALRAMPUR	34	27	40	6
BANDA	2	16	8	14
BARABANKI	214	163	171	60
BAREILLY	246	213	114	114
BASTI	141	182	113	24
BHADOHI	0	0	0	0
BIJNOR	54	52	13	15
BULANDSAHAR	29	30	15	27
CHANDAULI	9	9	1	0
CHITRAKOOT	0	0	0	6
DEORIA	58	67	53	5
ETAH	17	31	25	5
ETAWAH	137	113	46	54
FAIZABAD	13	11	8	6
FARRUKHABAD	0	0	0	6
FATEHPUR	62	49	75	54
FIROZABAD	23	18	9	16

GAUTAMBUDHNAGAR	23	38	12	19
GAZIPUR	13	14	16	11
GHAZIABAD	70	49	35	15
GONDA	46	34	18	8
GORAKHPUR	63	111	118	13
HAMIRPUR	0	0	1	37
HAPUR	0	0	0	12
HARDOI	240	198	109	82
HATHRAS	0	0	0	1
JALAUN	0	0	0	117
JAUNPUR	17	24	16	6
JHANSI	0	0	2	169
KANNAUJ	32	15	6	10
KANPUR	14	9	13	9
KANPUR DEHAT	53	59	20	38
KASGANJ	0	0	0	5
KAUSHAMBI	22	43	41	18
KHERI	435	268	198	176
KUSHINAGAR	50	132	116	23
LALITPUR	0	0	0	6
LUCKNOW	61	30	26	22
MAHARAJGANJ	631	966	934	230
MAHOBA	0	0	0	9
MAINPURI	83	89	45	44
MATHURA	1451	1083	1048	463
MAU	12	16	11	6
MEERUT	77	78	20	27
MIRZAPUR	4	12	6	3
MORADABAD	49	36	13	16
MUZAFARNAGAR	124	142	44	25
PILHIBHIT	938	720	428	352
PRATAPGARH	39	45	30	15

RAE BARELI	87	81	41	21
RAMPUR	618	625	221	314
SHARANPUR	101	120	60	66
SAMBHAL	0	0	0	9
SANTKABIRNAGAR	55	61	50	14
SHAHJAHANPUR	1133	681	377	351
SHAMALI	0	0	0	24
SHRAWASTI	32	31	36	21
SIDDHARTHANAGAR	243	181	460	45
SITAPUR	123	72	40	43
SONBHADRA	15	14	11	0
SULTANPUR	67	39	31	15
UNNAO	63	53	39	33
VARANASI	1	0	0	0
JYOTIBAPHULE NAGAR	10	13	4	0
MAHAMAYANAGAR	2	2	8	0
Total	8620	7627	5683	3625

Map of Cumulative Burning Events (01 Oct – 22 Nov 2019)



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

Details of residue burning events in Punjab on 22-Nov-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m²)
1	FARIDKOT	FARIDKOT	S-NPP	74.77933	30.50183	13:18:00	D	2.80
2	FAZILKA	ABOHAR	S-NPP	74.32314	30.16453	13:18:00	D	4.80
3	FAZILKA	ABOHAR	AQUA	74.22400	30.16700	13:25:00	D	18.50
4	FAZILKA	ABOHAR	S-NPP	74.22848	30.19730	13:18:00	D	3.60
5	FAZILKA	ABOHAR	S-NPP	74.23886	30.19924	13:18:00	D	3.60
6	MUKTSAR	GIDDARBAHA	S-NPP	74.61455	30.20766	13:18:00	D	11.60
7	MUKTSAR	GIDDARBAHA	S-NPP	74.64994	30.23333	13:18:00	D	2.60
8	MUKTSAR	GIDDARBAHA	S-NPP	74.54787	30.24501	13:18:00	D	11.60
9	MUKTSAR	GIDDARBAHA	S-NPP	74.62020	30.32148	13:18:00	D	3.10
10	MUKTSAR	GIDDARBAHA	S-NPP	74.57565	30.39717	13:18:00	D	4.80
11	MUKTSAR	GIDDARBAHA	S-NPP	74.57248	30.39902	13:18:00	D	8.30
12	MUKTSAR	GIDDARBAHA	S-NPP	74.57476	30.40082	13:18:00	D	4.80
13	MUKTSAR	MALAUT	S-NPP	74.58766	30.04172	13:18:00	D	4.90
14	MUKTSAR	MALAUT	S-NPP	74.58174	30.04447	13:18:00	D	4.90
15	MUKTSAR	MALAUT	S-NPP	74.58587	30.04906	13:18:00	D	5.80
16	MUKTSAR	MALAUT	S-NPP	74.38379	30.08194	13:18:00	D	7.80
17	MUKTSAR	MALAUT	S-NPP	74.41912	30.20960	13:18:00	D	5.30
18	MUKTSAR	MALAUT	S-NPP	74.37797	30.36484	13:18:00	D	3.90
19	MUKTSAR	MALAUT	S-NPP	74.37514	30.36567	13:18:00	D	3.80
20	MUKTSAR	MUKTSAR	S-NPP	74.50172	30.35686	13:18:00	D	2.10
21	MUKTSAR	MUKTSAR	S-NPP	74.59711	30.46843	13:18:00	D	2.60

Details of residue burning events in Haryana on 22-Nov-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	FATEHABAD	FATEHABAD	METOP-2	75.47297	29.50839	20:49:00	N	10.00
2	FATEHABAD	FATEHABAD	S-NPP	75.46120	29.52132	02:00:00	N	3.70
3	FATEHABAD	FATEHABAD	S-NPP	75.45686	29.52192	02:00:00	N	2.40
4	FATEHABAD	FATEHABAD	S-NPP	75.46183	29.52478	02:00:00	N	0.40
5	FATEHABAD	FATEHABAD	S-NPP	75.50282	29.52976	02:00:00	N	0.80
6	FATEHABAD	FATEHABAD	S-NPP	75.44566	29.53409	02:00:00	N	0.40
7	FATEHABAD	FATEHABAD	METOP-2	75.33709	29.56229	20:49:00	N	7.00
8	HISAR	HISAR	S-NPP	75.77357	29.24851	13:18:00	D	27.40
9	JHAJJAR	JHAJJAR	S-NPP	76.58922	28.43595	13:18:00	D	1.70
10	JIND	SAFIDON	S-NPP	76.63953	29.35063	02:00:00	N	0.40
11	JIND	SAFIDON	S-NPP	76.69026	29.40308	02:00:00	N	2.40
12	JIND	SAFIDON	S-NPP	76.69091	29.40642	02:00:00	N	2.40
13	KAITHAL	KAITHAL	S-NPP	76.38156	29.63513	13:18:00	D	2.00
14	PANIPAT	ISRANA	S-NPP	76.65575	29.32486	13:18:00	D	2.60
15	SIRSA	ELLENABAD	METOP-2	74.88091	29.44551	20:49:00	N	13.00
16	SIRSA	RANIA	METOP-2	74.88415	29.48743	20:49:00	N	10.00
17	SIRSA	SIRSA	METOP-2	75.21576	29.49940	20:49:00	N	8.50
18	SIRSA	SIRSA	S-NPP	75.19231	29.52931	02:00:00	N	1.40
19	SONIPAT	GOHANA	S-NPP	76.62943	29.26363	13:18:00	D	4.90

Details of residue burning events in Uttar Pradesh on 22-Nov-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	ALLAHABAD	MEZA	S-NPP	82.05965	25.09743	13:18:00	D	2.30
2	AMBEDKARNAGAR	TANDA	AQUA	82.79600	26.55200	13:25:00	D	4.50
3	AMETHI	AMETHI	S-NPP	81.85255	26.24190	13:18:00	D	1.90
4	AURAIYA	AURAIYA	S-NPP	79.54607	26.64360	02:00:00	N	0.40
5	AURAIYA	BIDHUNA	AQUA	79.53100	26.65900	13:25:00	D	9.20
6	AURAIYA	BIDHUNA	S-NPP	79.70744	26.68980	13:18:00	D	0.80
7	AURAIYA	BIDHUNA	S-NPP	79.61160	26.71585	13:18:00	D	3.00
8	AURAIYA	BIDHUNA	S-NPP	79.65849	26.73997	13:18:00	D	1.90
9	AURAIYA	BIDHUNA	S-NPP	79.64381	26.85941	13:18:00	D	1.20
10	BANDA	ATARRA	S-NPP	80.48404	25.37232	13:18:00	D	2.50
11	BANDA	BABERU	S-NPP	80.81631	25.58319	13:18:00	D	2.10
12	BANDA	BABERU	AQUA	80.77900	25.64000	13:25:00	D	5.20
13	BAREILLY	BAHERI	S-NPP	79.36378	28.70170	13:18:00	D	2.50
14	BAREILLY	FARIDPUR	S-NPP	79.70074	28.28241	13:18:00	D	3.80
15	BAREILLY	MIRGANJ	S-NPP	79.32334	28.47286	13:18:00	D	2.90
16	BAREILLY	MIRGANJ	S-NPP	79.32274	28.47555	13:18:00	D	3.40
17	BASTI	HARRAIYA	S-NPP	82.46459	26.78187	02:00:00	N	0.50
18	BASTI	RUDHAULI	S-NPP	82.89693	27.00420	13:18:00	D	2.00
19	BULANSAHAR	BULANSHAHR	S-NPP	77.77406	28.57465	13:18:00	D	1.80
20	BULANSAHAR	KHURJA	S-NPP	77.73865	28.23914	13:18:00	D	2.00
21	BULANSAHAR	KHURJA	S-NPP	77.95657	28.24917	13:18:00	D	4.40
22	BULANSAHAR	KHURJA	S-NPP	77.95588	28.25251	13:18:00	D	4.40
23	CHITRAKOOT	MAU	S-NPP	81.28046	25.24188	13:18:00	D	3.50
24	ETAH	JALESAR	S-NPP	78.38322	27.44598	13:18:00	D	2.00
25	ETAWAH	BHARTHNA	AQUA	79.21800	26.62200	13:25:00	D	21.20
26	ETAWAH	BHARTHNA	S-NPP	79.22078	26.62509	13:18:00	D	1.50
27	ETAWAH	BHARTHNA	S-NPP	79.21686	26.83137	13:18:00	D	1.40
28	ETAWAH	ETAWAH	S-NPP	79.07061	26.78483	13:18:00	D	1.50
29	ETAWAH	ETAWAH	S-NPP	79.12833	26.89901	13:18:00	D	1.80
30	ETAWAH	ETAWAH	S-NPP	79.11546	26.90382	13:18:00	D	2.50

31	FAIZABAD	RUDAULI	S-NPP	81.73460	26.67486	02:00:00	N	1.30
32	GHAZIABAD	MODINAGAR	S-NPP	77.47314	28.77727	13:18:00	D	3.70
33	HAMIRPUR	HAMIRPUR	S-NPP	80.28041	25.82510	13:18:00	D	2.90
34	HAMIRPUR	HAMIRPUR	S-NPP	80.26653	25.83661	13:18:00	D	5.10
35	HARDOI	BILGRAM	S-NPP	80.10087	27.02625	13:18:00	D	2.80
36	HARDOI	HARDOI	S-NPP	80.35277	27.43932	02:00:00	N	0.60
37	HARDOI	SANDILA	S-NPP	80.36388	27.20701	13:18:00	D	2.90
38	JALAUN	JALAUN	AQUA	79.30000	26.12600	13:25:00	D	6.70
39	JALAUN	KONCH	S-NPP	79.16463	25.83764	13:18:00	D	2.40
40	JHANSI	JHANSI	S-NPP	78.65570	25.49174	13:18:00	D	4.40
41	JHANSI	MOTH	S-NPP	78.85008	25.69198	13:18:00	D	2.90
42	JHANSI	MOTH	S-NPP	78.84944	25.69531	13:18:00	D	2.90
43	JHANSI	MOTH	S-NPP	78.82030	25.72154	13:18:00	D	8.60
44	JHANSI	MOTH	S-NPP	78.82420	25.72216	13:18:00	D	7.80
45	JHANSI	MOTH	AQUA	78.88600	25.73100	13:25:00	D	12.70
46	JHANSI	MOTH	AQUA	78.92600	25.74700	13:25:00	D	15.30
47	JHANSI	MOTH	S-NPP	78.91468	25.74777	02:00:00	N	0.80
48	JHANSI	MOTH	S-NPP	78.92318	25.74824	13:18:00	D	7.00
49	JHANSI	MOTH	S-NPP	78.77880	25.74925	13:18:00	D	3.20
50	JHANSI	MOTH	S-NPP	78.92641	25.75219	13:18:00	D	5.10
51	JHANSI	MOTH	S-NPP	78.93029	25.75280	13:18:00	D	3.00
52	JHANSI	MOTH	AQUA	78.87100	25.75700	13:25:00	D	9.10
53	JHANSI	MOTH	AQUA	78.88100	25.75800	13:25:00	D	9.10
54	KANNAUJ	TIRWA	S-NPP	79.82413	26.78541	13:18:00	D	3.60
55	KANNAUJ	TIRWA	S-NPP	79.54398	26.88481	13:18:00	D	1.40
56	KANPUR	BILHAUR	S-NPP	80.03203	26.73192	13:18:00	D	3.10
57	KANPUR	BILHAUR	S-NPP	79.96468	26.79633	13:18:00	D	2.40
58	KANPUR DEHAT	AKBARPUR	S-NPP	79.98855	26.30242	13:18:00	D	2.20
59	KANPUR DEHAT	AKBARPUR	S-NPP	79.98795	26.30572	13:18:00	D	2.20
60	KANPUR DEHAT	BHOGANIPUR	S-NPP	79.98646	26.29212	13:18:00	D	3.30
61	KANPUR DEHAT	RASULABAD	S-NPP	79.80965	26.73569	13:18:00	D	2.00
62	KAUSHAMBI	MANJHANPUR	AQUA	81.40900	25.37800	13:25:00	D	4.90
63	KAUSHAMBI	MANJHANPUR	S-NPP	81.41266	25.38579	13:18:00	D	2.70

64	KAUSHAMBI	MANJHANPUR	S-NPP	81.35034	25.39750	13:18:00	D	2.00
65	KHERI	GOLA	S-NPP	80.34641	28.26870	13:18:00	D	2.90
66	KHERI	PALIA KALAN	AQUA	80.55600	28.47100	13:25:00	D	9.20
67	KUSHINAGAR	HATA	S-NPP	83.62996	26.76391	13:18:00	D	4.40
68	KUSHINAGAR	HATA	S-NPP	83.64996	26.80988	13:18:00	D	3.10
69	KUSHINAGAR	KASAYA	S-NPP	84.06895	26.63083	02:00:00	N	0.60
70	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.54306	27.01905	13:18:00	D	2.20
71	MAHARAJGANJ	MAHARAJGANJ	AQUA	83.61900	27.06800	13:25:00	D	6.00
72	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.58270	27.19507	13:18:00	D	4.40
73	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.59196	27.20001	13:18:00	D	5.90
74	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.58157	27.20248	13:18:00	D	2.40
75	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.61607	27.20680	13:18:00	D	4.50
76	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.54060	27.20866	13:18:00	D	2.20
77	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.53141	27.21705	13:18:00	D	4.40
78	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.52913	27.21851	13:18:00	D	4.30
79	MAHARAJGANJ	NICHLAUL	S-NPP	83.70760	27.23721	13:18:00	D	1.40
80	MAHARAJGANJ	NICHLAUL	S-NPP	83.70467	27.23789	13:18:00	D	2.30
81	MAHARAJGANJ	NICHLAUL	S-NPP	83.69900	27.27974	02:00:00	N	2.60
82	MAHARAJGANJ	NICHLAUL	S-NPP	83.70687	27.37176	13:18:00	D	3.20
83	MAINPURI	KARHAL	S-NPP	79.13826	27.01550	13:18:00	D	2.00
84	MAINPURI	KARHAL	S-NPP	79.00303	27.03492	13:18:00	D	5.30
85	MAINPURI	KARHAL	S-NPP	79.04891	27.06594	13:18:00	D	1.80
86	MAINPURI	KARHAL	S-NPP	78.99406	27.10168	13:18:00	D	3.00
87	MAINPURI	MAINPURI	S-NPP	78.99342	27.10499	13:18:00	D	2.00
88	MATHURA	CHHATA	S-NPP	77.39936	27.60730	02:00:00	N	1.30
89	MORADABAD	BILARI	S-NPP	78.73392	28.52097	13:18:00	D	2.60
90	PILHIBHIT	BISALPUR	S-NPP	79.92449	28.20389	02:00:00	N	0.60
91	RAIBEARELI	DALMAU	AQUA	81.13400	26.03900	13:25:00	D	5.80
92	RAIBEARELI	MAHARAJGANG	S-NPP	81.37648	26.36669	13:18:00	D	4.10
93	RAIBEARELI	TILOI	S-NPP	81.41252	26.37178	13:18:00	D	1.20
94	RAMPUR	BILASPUR	S-NPP	79.28829	28.86339	13:18:00	D	4.10
95	SANTKABIRNAGAR	GHANGHATA	AQUA	83.08800	26.63900	13:25:00	D	5.80
96	SANTKABIRNAGAR	KHALILABAD	S-NPP	82.88150	26.91600	02:00:00	N	0.40

97	SANTKABIRNAGAR	KHALILABAD	S-NPP	82.88172	26.91733	02:00:00	N	0.50
98	SHAHJAHANPUR	JALALABAD	S-NPP	79.71485	27.52314	13:18:00	D	2.10
99	SHAHJAHANPUR	PUWANYA	S-NPP	80.03545	27.92977	13:18:00	D	2.10
100	SHAHJAHANPUR	PUWANYA	S-NPP	80.00385	28.23485	02:00:00	N	2.20
101	SHAHJAHANPUR	PUWANYA	S-NPP	80.13446	28.24749	02:00:00	N	0.90
102	SHAHJAHANPUR	PUWANYA	S-NPP	80.14957	28.25554	02:00:00	N	1.80
103	SHAHJAHANPUR	PUWANYA	S-NPP	80.07147	28.26208	02:00:00	N	0.40
104	SHAHJAHANPUR	PUWANYA	S-NPP	80.01796	28.26795	13:18:00	D	2.10
105	SHAHJAHANPUR	PUWANYA	S-NPP	80.02190	28.26853	13:18:00	D	2.10
106	SHAHJAHANPUR	PUWANYA	S-NPP	80.00871	28.31561	02:00:00	N	0.50
107	SHAHJAHANPUR	TILHAR	S-NPP	79.76734	27.98780	13:18:00	D	1.50
108	SHRAWASTI	IKAUNA	S-NPP	81.78715	27.64788	13:18:00	D	3.20
109	SIDDHARTHANAGAR	DOMARIYAGANJ	S-NPP	82.54852	27.10923	02:00:00	N	0.60
110	SIDDHARTHANAGAR	DOMARIYAGANJ	S-NPP	82.69408	27.12971	02:00:00	N	1.10
111	SITAPUR	LAHARPUR	S-NPP	80.90995	27.81949	13:18:00	D	1.80
112	SITAPUR	MISRIK	S-NPP	80.70518	27.44195	13:18:00	D	2.90
113	SITAPUR	MISRIK	S-NPP	80.51892	27.58002	13:18:00	D	2.50
114	UNNAO	HASANGANJ	S-NPP	80.60012	26.69429	13:18:00	D	1.50
115	UNNAO	PURWA	S-NPP	80.92771	26.40363	13:18:00	D	1.40
116	UNNAO	SAFIPUR	AQUA	80.13800	26.95900	13:25:00	D	5.40

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)
