



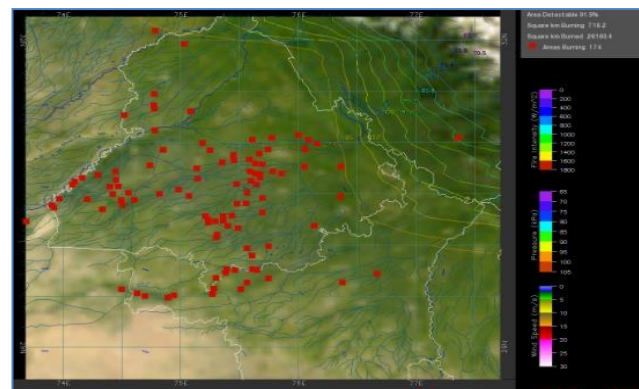
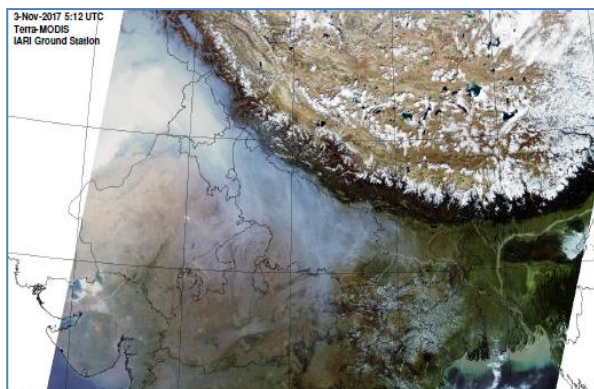
**Bulletin
No. 39**

**Events Date:
08-Nov-2019**

**Issued on:
09-Nov-2019**



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



Prepared by:

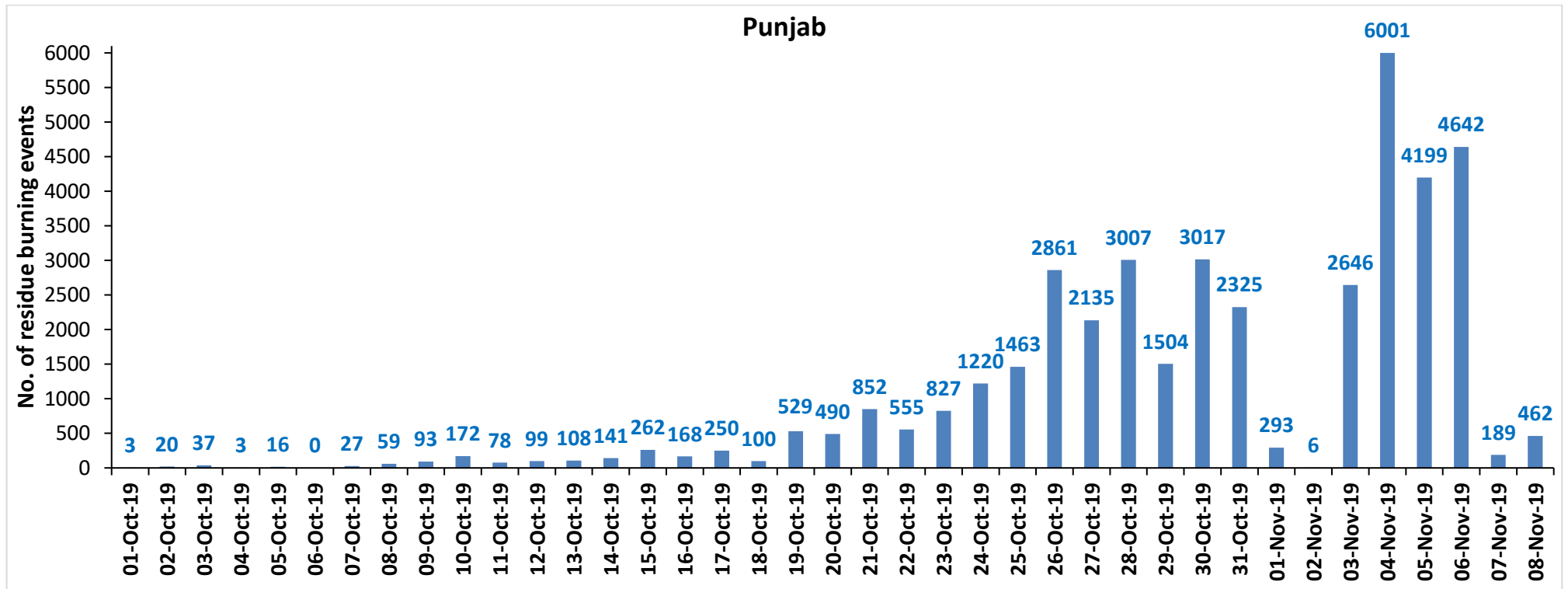
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

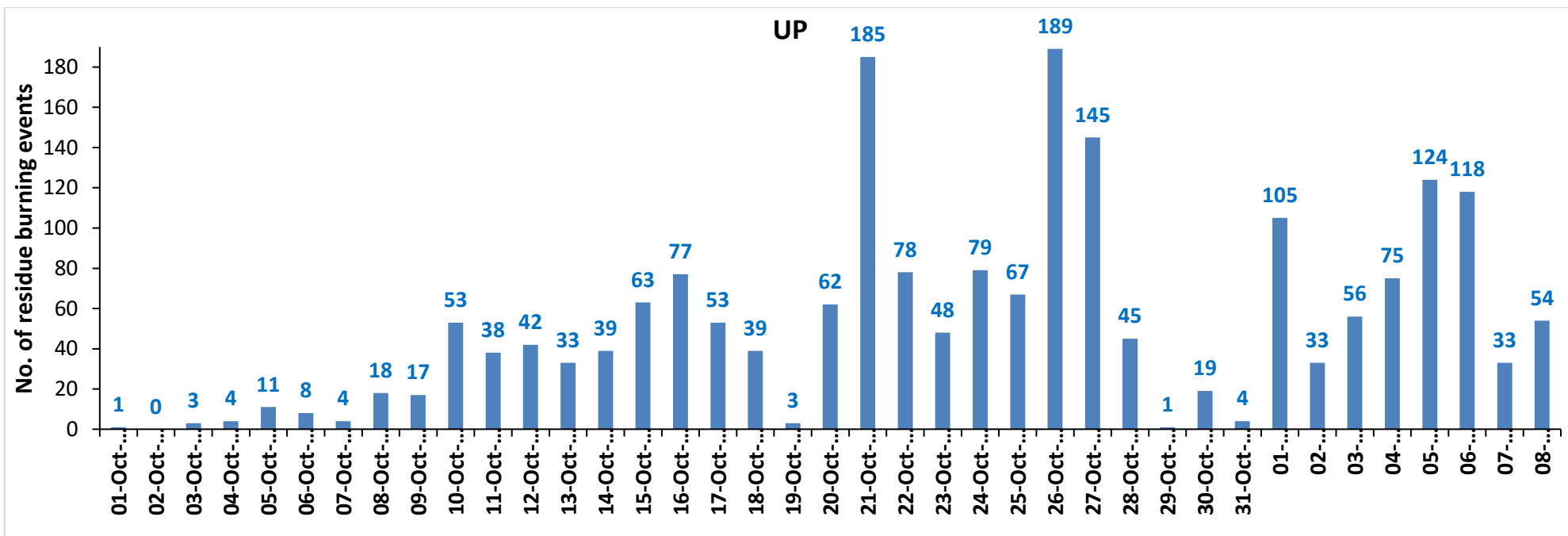
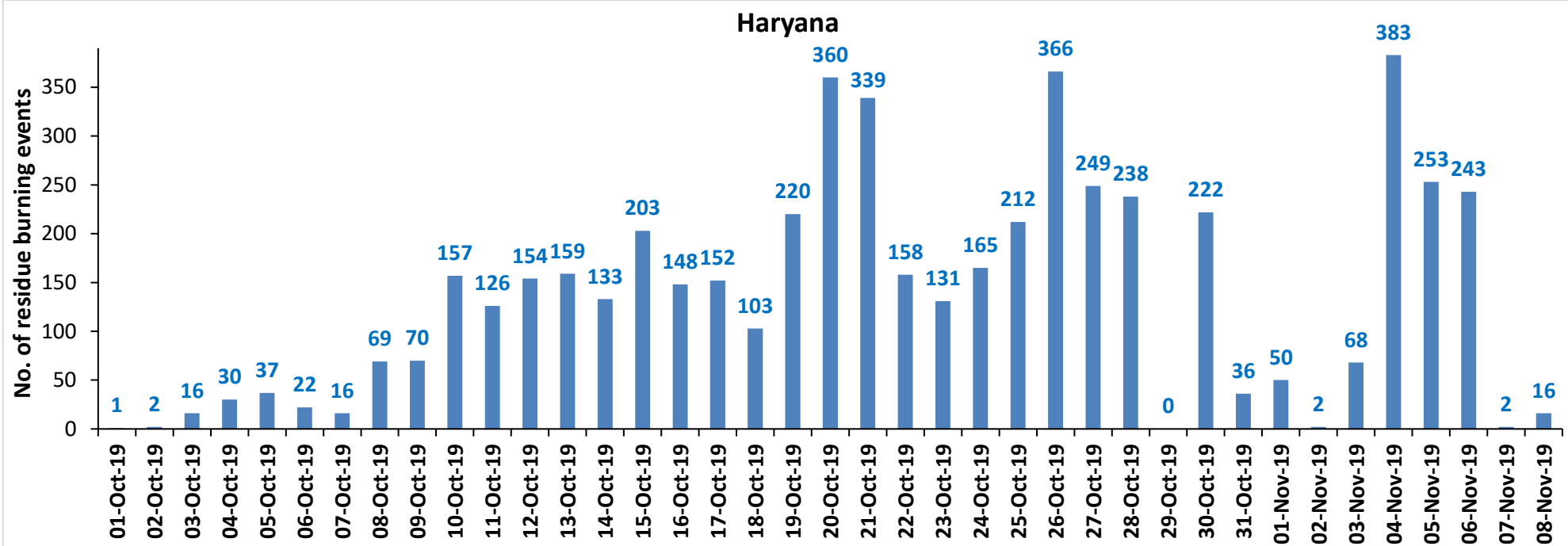
<http://creams.iari.res.in>

Highlights for 08-November-2019

- Satellites detected **532** residue burning events in the three study States on 08-Nov-2019.
- The burning events detected on **08-Nov-2019** are **462**, **16** and **54** in Punjab, Haryana and UP, respectively.
- The number of events has increased from **224** on **07-Nov-2019** to **532** on **08-Nov-2019** in the three states.
- Total **48196** burning events were detected in the three States between **01-Oct-2019** and **08-Nov-2019**, which are distributed as **40859**, **5311** and **2026** in Punjab, Haryana and UP, respectively.
- Overall, the total burning events recorded in the three states are **9.7%** less than in 2018 till date. UP recorded **50%** reduction, Haryana recorded **15.8%** reduction, and Punjab recorded **5%** reduction, respectively, in the current season than in 2018.

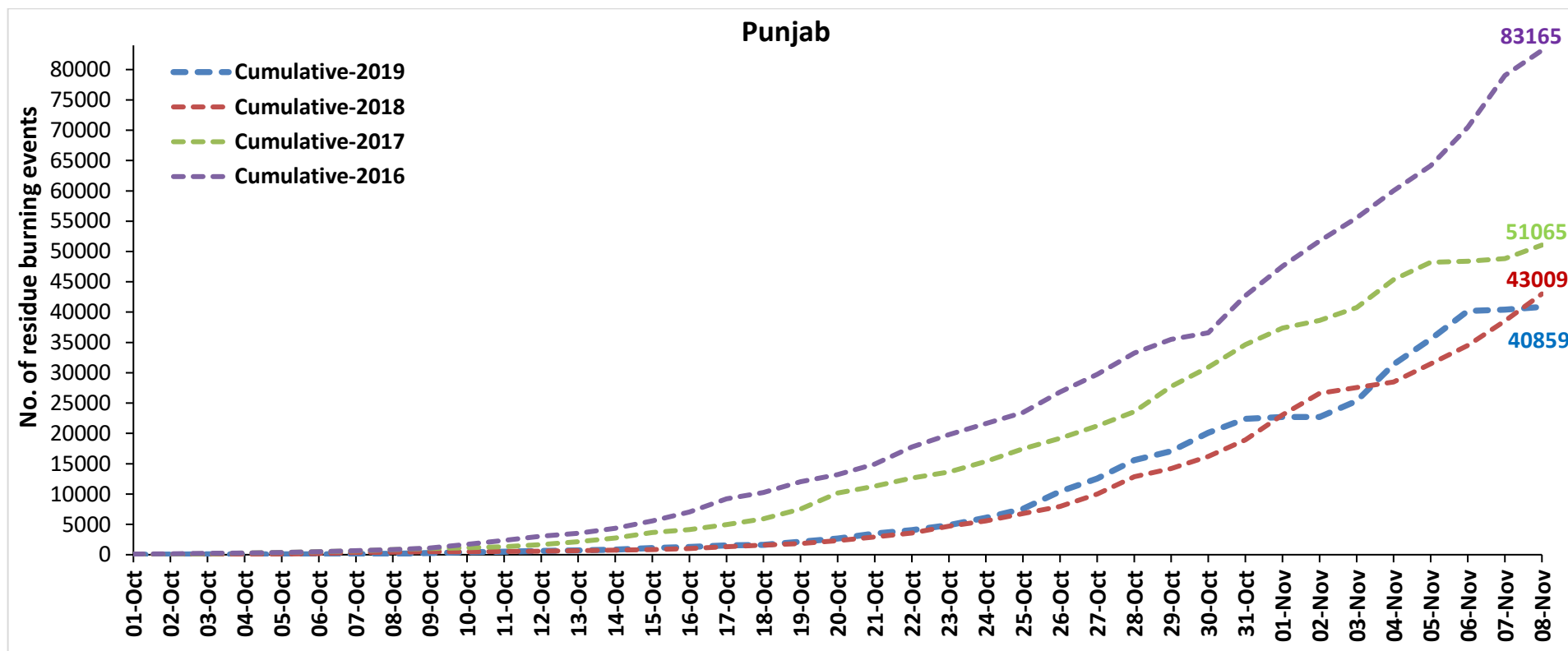
Temporal distribution of residue burning events for the three study States in 2019



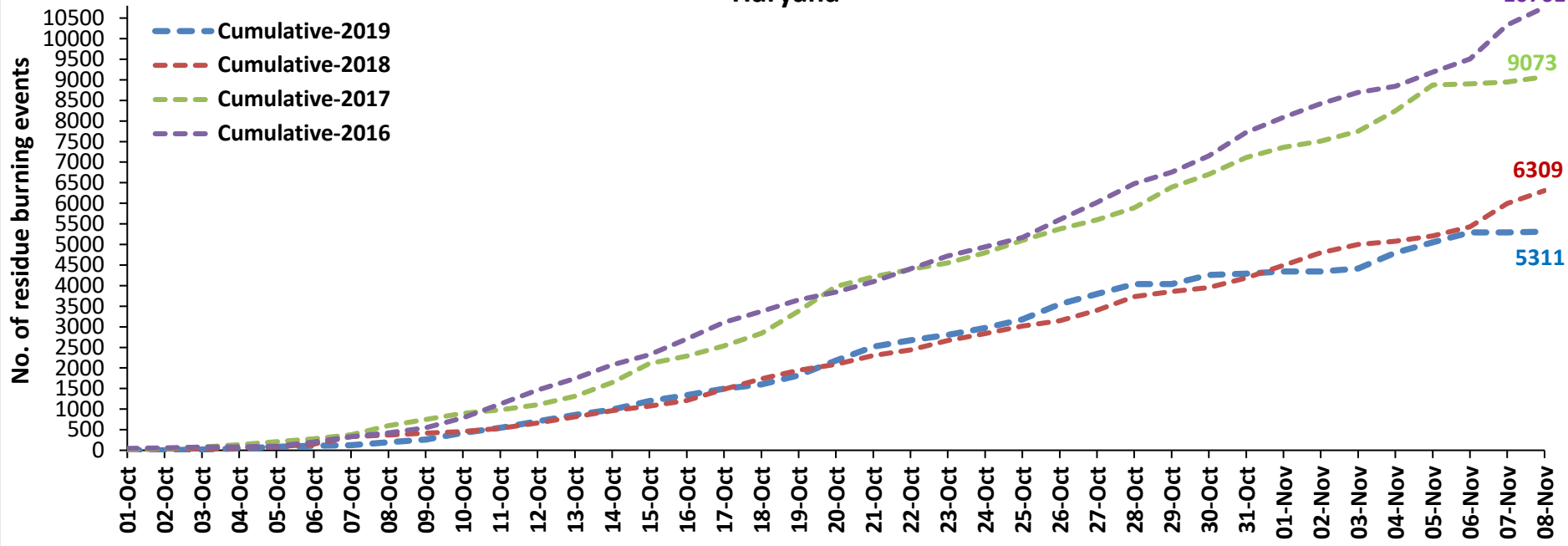


Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States

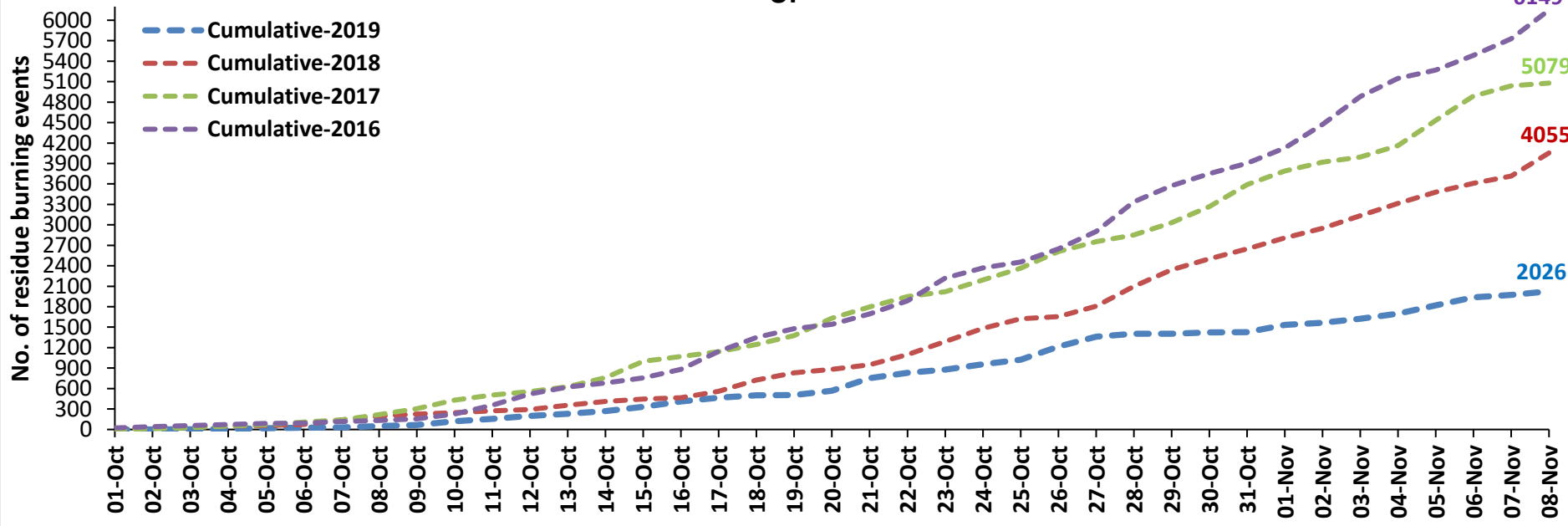
(01-Oct to 08-Nov)



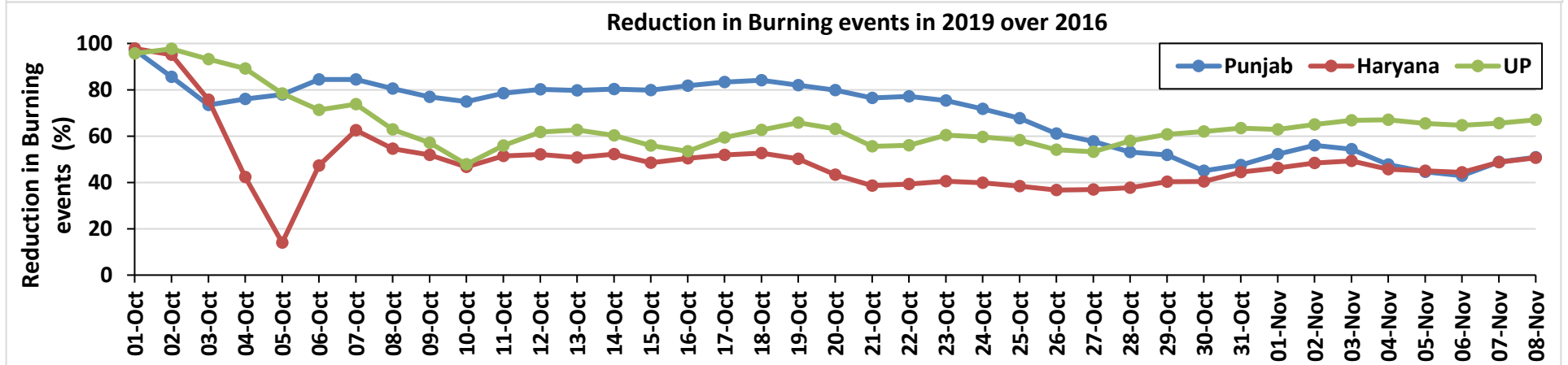
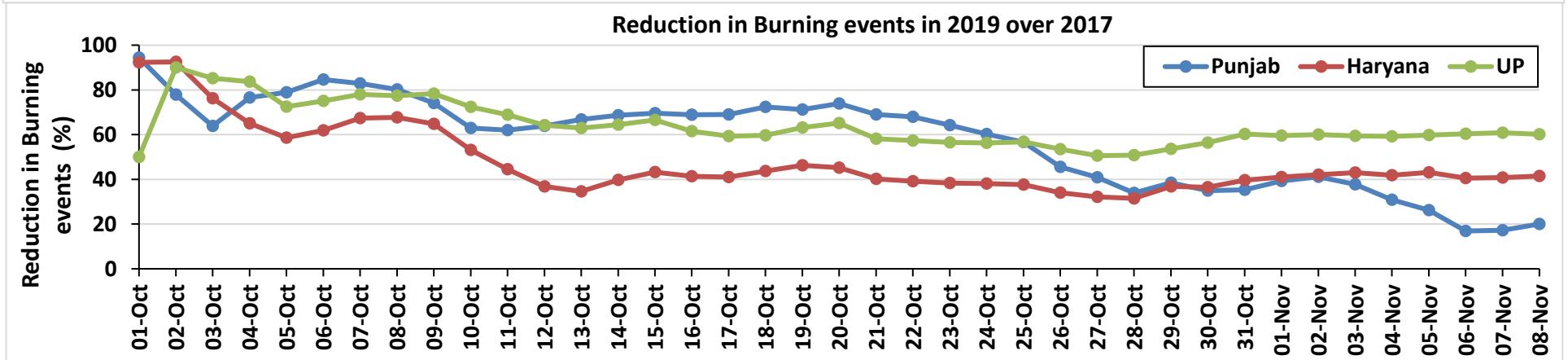
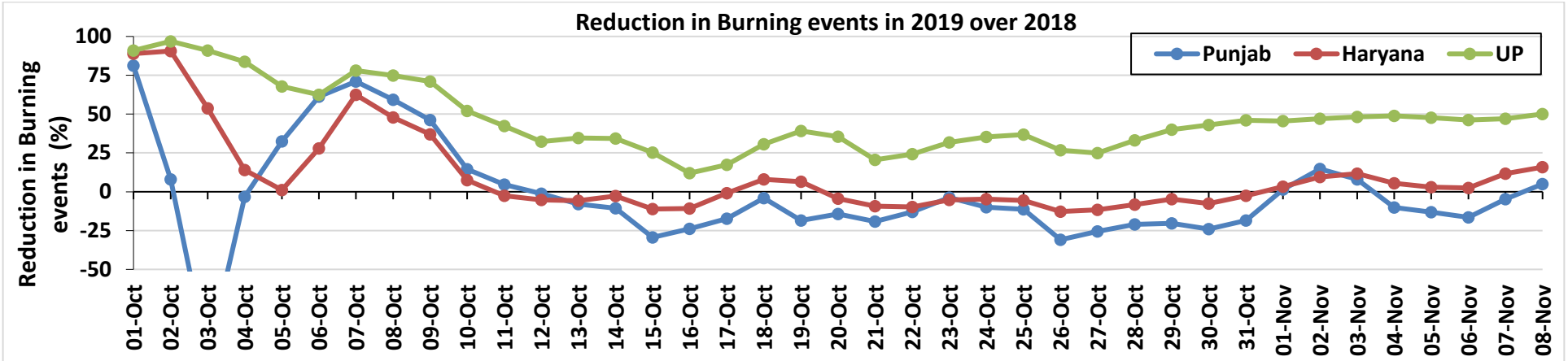
Haryana



UP

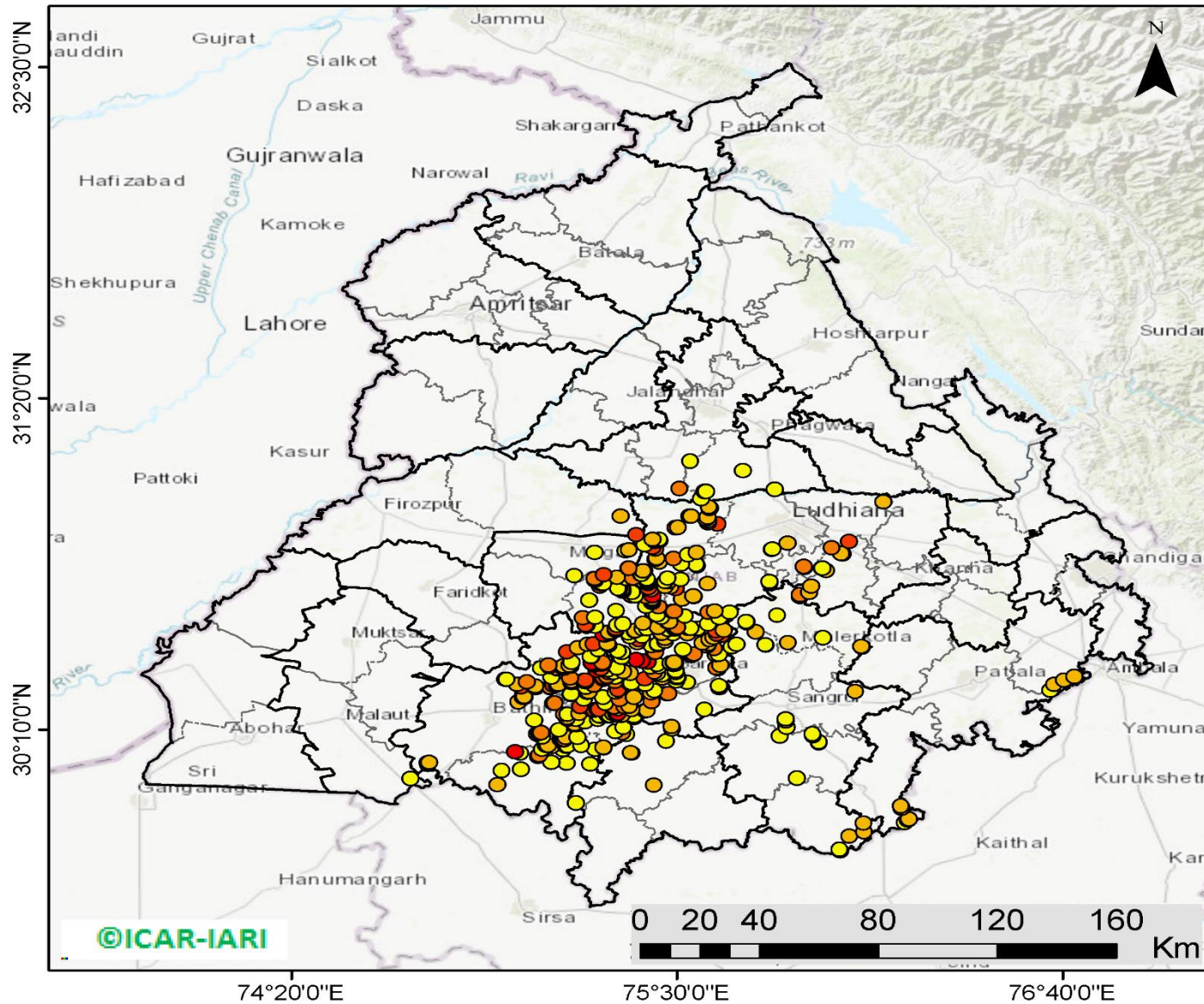


Percent Reduction in Burning events in 2019 over 2018, 2017 and 2016 (Daily Cumulative)



(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



462 burning events detected in Punjab on **08th November 2019**

Fire Intensity (W/m²)

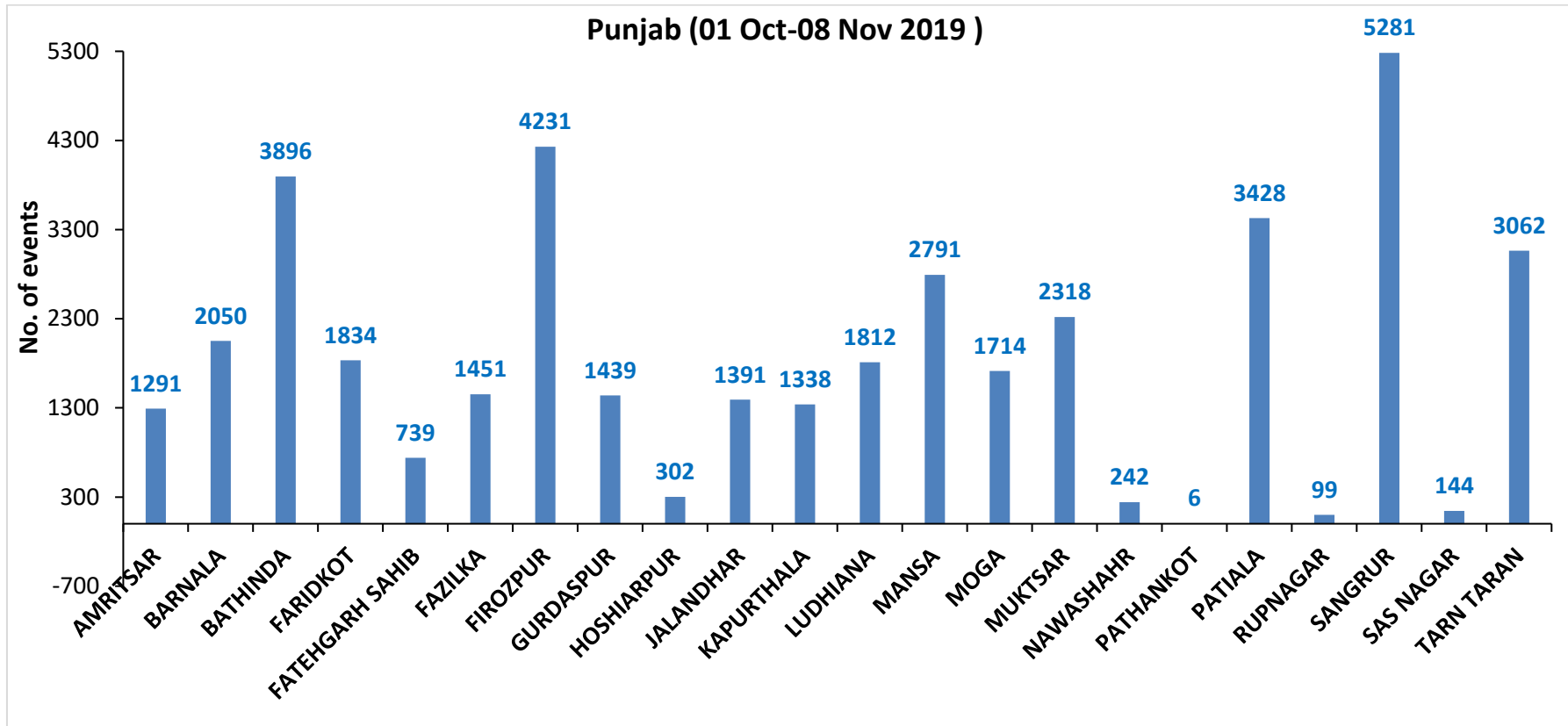
-  0 - 5
-  6 - 10
-  11 - 15
-  16 - 20
-  >20

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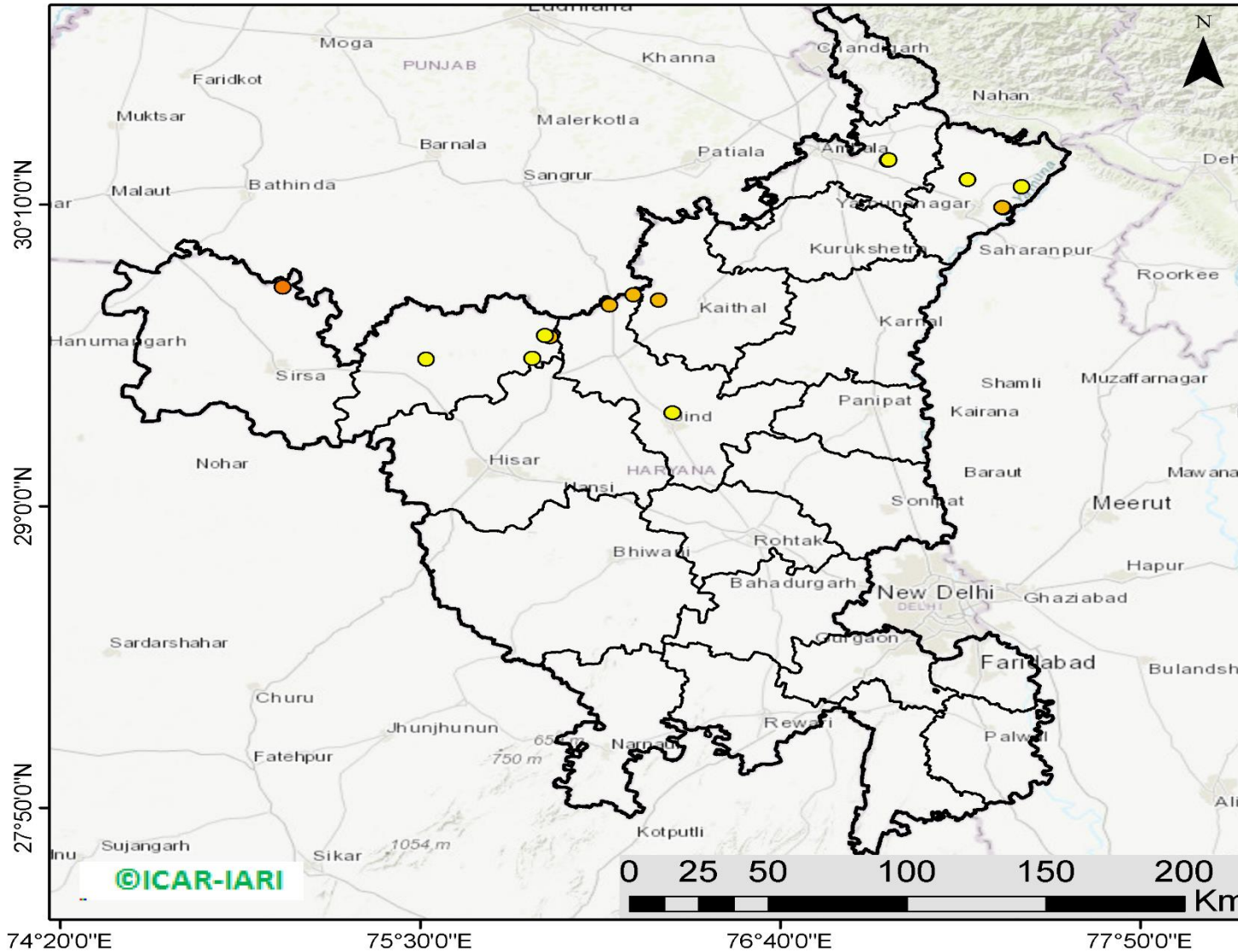
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (01 Oct to 08-Nov 2019)



(b) Haryana

RICE RESIDUE BURNING IN HARYANA



16 burning events detected in Haryana on **08th November 2019**

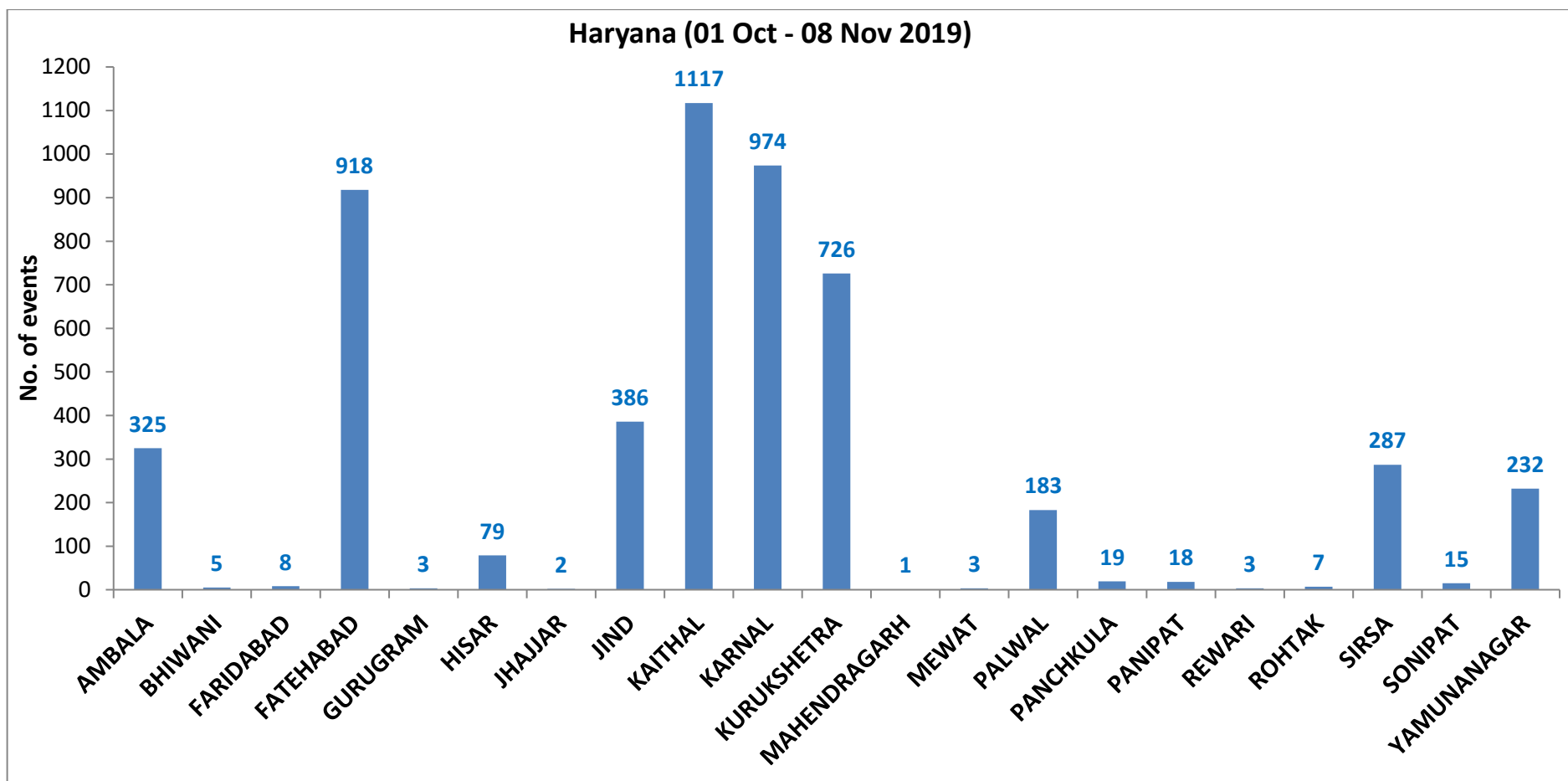
Fire Intensity (W/m²)

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



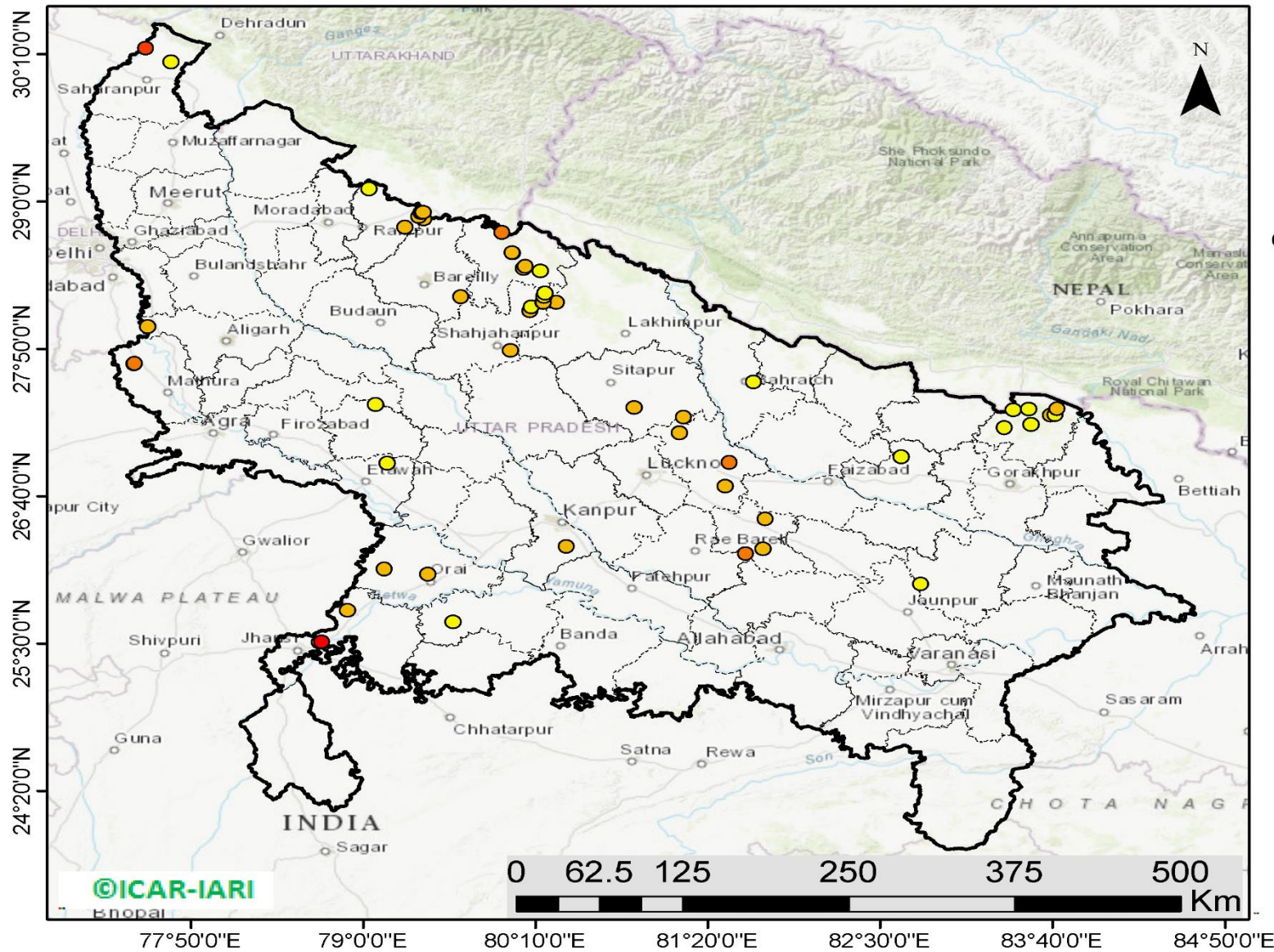
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (01 Oct to 08-Nov 2019)



(c) UP

RICE RESIDUE BURNING IN UTTAR PRADESH



54 burning events detected in Uttar Pradesh on 08th November 2019

Fire Intensity (W/m²)

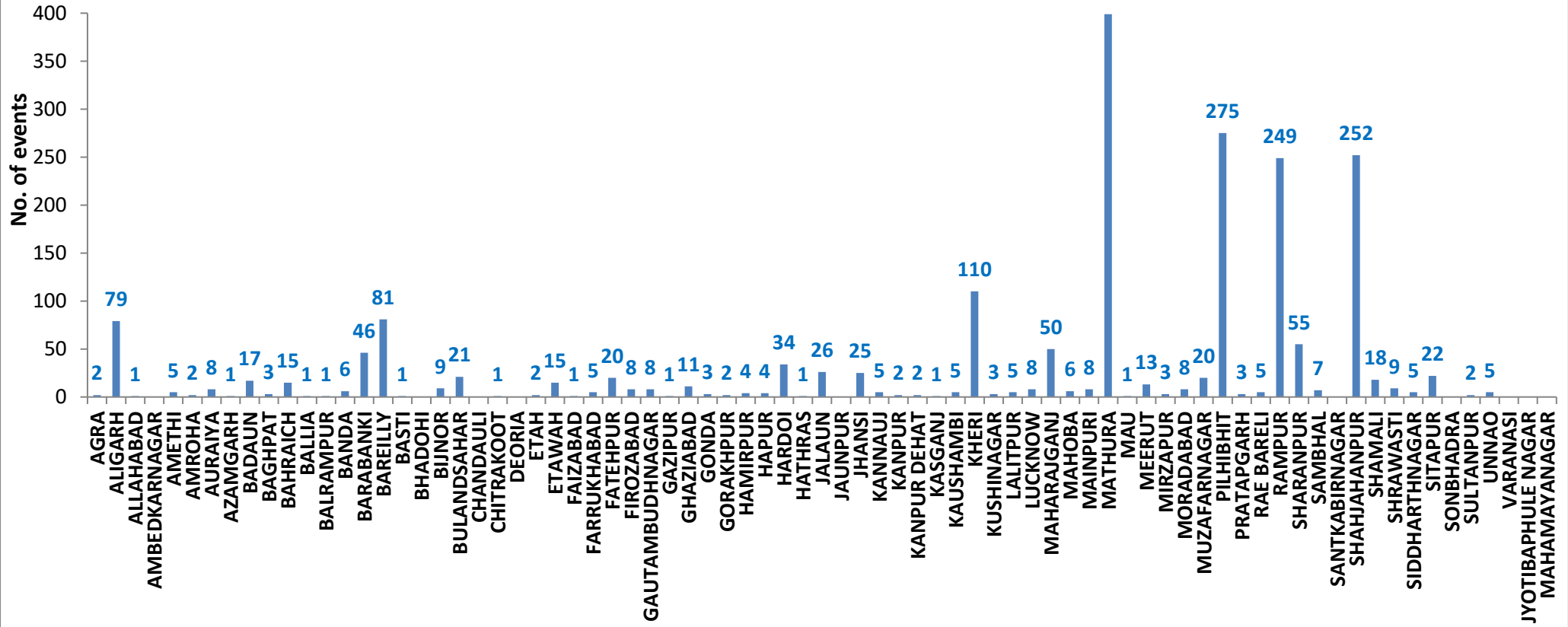
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



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

District-wise cumulative number of residues burning events in Uttar Pradesh (01 Oct to 08-Nov 2019)

Uttar Pradesh (01 Oct- 08 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 08-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
Total	40859	43009	51065	83165	5311	6309	9073	10761	2026	4055	5079	6149	48196	53373	65217	100075

(a) Punjab

Districts	01Oct-08 Nov			
	2016	2017	2018	2019
AMRITSAR	1820	1170	1092	1291
BARNALA	4424	2410	1868	2050
BATHINDA	6867	4435	4553	3896
FARIDKOT	3918	2844	2386	1834
FATEHGARH SAHIB	2375	1537	723	739
FAZILKA	0	0	0	1451
FIROZPUR	9364	5348	7038	4231
GURDASPUR	2030	1367	1048	1439
HOSHIARPUR	865	449	173	302
JALANDHAR	4180	1852	1130	1391
KAPURTHALA	3018	1506	675	1338
LUDHIANA	7131	3494	1431	1812
MANSA	4017	3311	3093	2791
MOGA	5261	1867	1729	1714
MUKTSAR	5115	3286	4189	2318
NAWASHAHR (SBS Nagar)	1429	704	283	242
PATHANKOT	0	0	0	6
PATIALA	6270	4830	3537	3428
RUPNAGAR	679	300	58	99
SANGRUR	10707	7637	5559	5281
SAS NAGAR	114	107	100	144
TARN TARAN	3581	2611	2344	3062
Total	83165	51065	43009	40859

(b) Haryana

Districts	01Oct-08 Nov			
	2016	2017	2018	2019
AMBALA	524	484	310	325
BHIWANI	28	18	12	5
FARIDABAD	248	322	179	8
FATEHABAD	2893	2228	1546	918
GURUGRAM	0	0	0	3
HISAR	213	131	105	79
JHAJJAR	10	8	10	2
JIND	702	744	504	386
KAITHAL	1689	1444	1167	1117
KARNAL	1566	1454	791	974
KURUKSHETRA	1064	1140	676	726
MAHENDRAGARH	0	0	0	1
MEWAT	0	0	0	3
PALWAL	0	0	0	183
PANCHKULA	0	0	3	19
PANIPAT	65	57	46	18
REWARI	0	0	0	3
ROHTAK	40	35	6	7
SIRSA	1433	673	765	287
SONIPAT	51	38	24	15
YAMUNANAGAR	235	297	165	232
Total	10761	9073	6309	5311

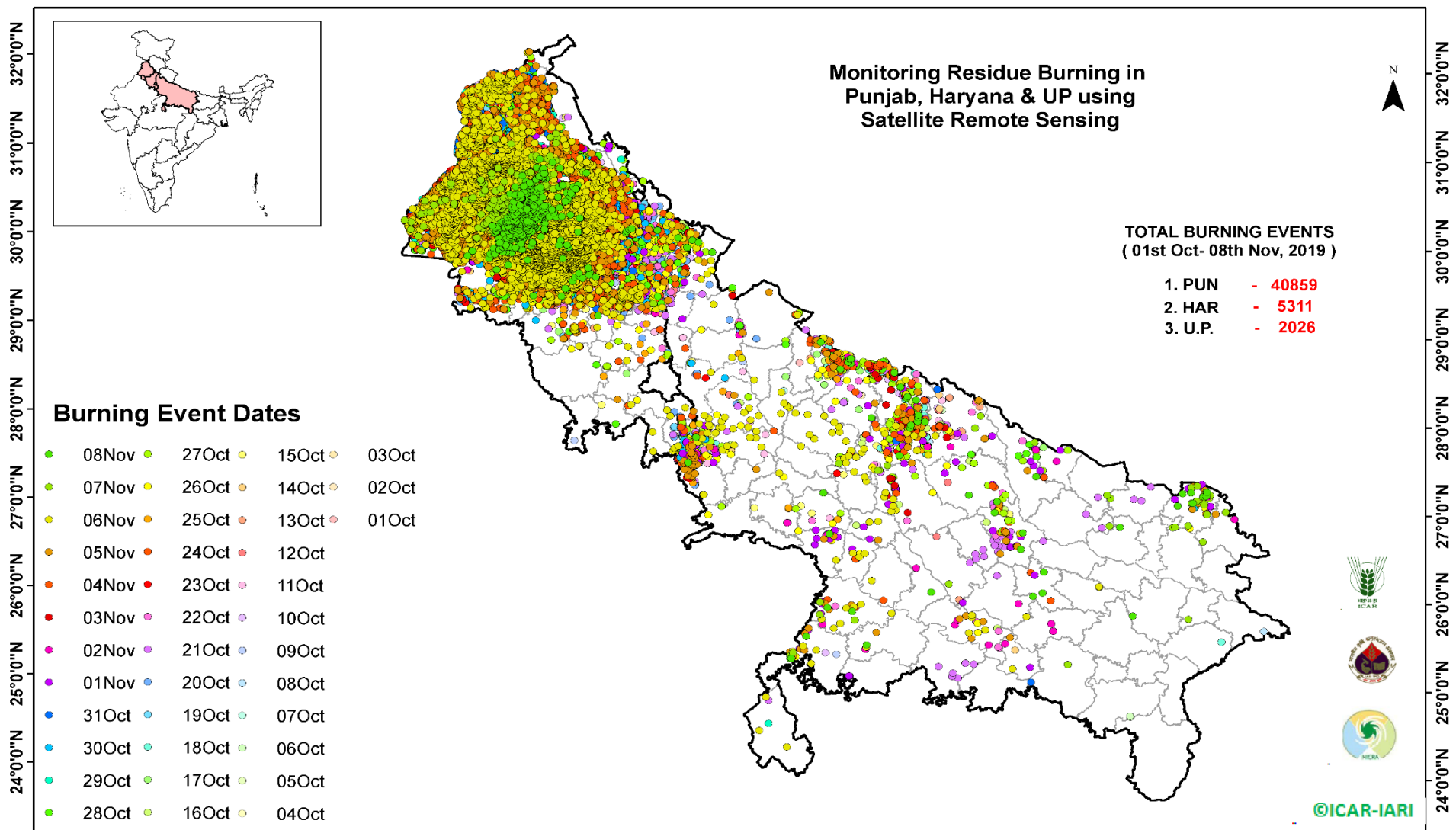
(c) Uttar Pradesh

Districts	01Oct-08 Nov			
	2016	2017	2018	2019
AGRA	0	0	0	2
ALIGARH	40	71	82	79
ALLAHABAD	0	1	6	1
AMBEDKARNAGAR	34	14	6	0
AMETHI	0	0	0	5
AMROHA	0	0	0	2
AURAIYA	130	96	37	8
AZAMGARH	12	6	9	1
BADAUN	5	5	5	17
BAGHPAT	0	0	0	3
BAHRAICH	49	30	48	15
BALLIA	3	6	7	1
BALRAMPUR	16	18	28	1
BANDA	1	2	6	6
BARABANKI	177	126	150	46
BAREILLY	221	173	112	81
BASTI	58	76	36	1
BHADOHI	0	0	0	0
BIJNOR	34	16	6	9
BULANDSAHAR	11	22	11	21
CHANDAULI	2	0	0	0
CHITRAKOOT	0	0	0	1
DEORIA	22	25	27	0
ETAH	9	26	21	2
ETAWAH	39	56	26	15
FAIZABAD	9	4	4	1
FARRUKHABAD	0	0	0	5
FATEHPUR	35	25	44	20
FIROZABAD	17	15	9	8

GAUTAMBUDHNAGAR	15	29	11	8
GAZIPUR	11	5	2	1
GHAZIABAD	39	21	15	11
GONDA	28	19	13	3
GORAKHPUR	29	24	41	2
HAMIRPUR	0	0	1	4
HAPUR	0	0	0	4
HARDOI	193	154	95	34
HATHRAS	0	0	0	1
JALAUN	0	0	0	26
JAUNPUR	5	1	7	0
JHANSI	0	0	2	25
KANNAUJ	6	9	4	5
KANPUR	4	4	8	2
KANPUR DEHAT	8	23	8	2
KASGANJ	0	0	0	1
KAUSHAMBI	13	17	24	5
KHERI	339	198	162	110
KUSHINAGAR	12	15	36	3
LALITPUR	0	0	0	5
LUCKNOW	43	24	23	8
MAHARAJGANJ	157	310	428	50
MAHOBA	0	0	0	6
MAINPURI	34	61	33	8
MATHURA	1233	1058	1026	399
MAU	6	3	6	1
MEERUT	38	25	9	13
MIRZAPUR	0	8	5	3
MORADABAD	32	21	10	8
MUZAFARNAGAR	89	81	23	20
PILHIBHIT	833	629	388	275
PRATAPGARH	10	11	8	3

RAE BARELI	22	14	15	5
RAMPUR	596	575	214	249
SHARANPUR	69	77	45	55
SAMBHAL	0	0	0	7
SANTKABIRNAGAR	24	30	26	0
SHAHJAHANPUR	1052	656	326	252
SHAMALI	0	0	0	18
SHRAWASTI	23	22	27	9
SIDDHARTHANAGAR	104	56	252	5
SITAPUR	88	46	31	22
SONBHADRA	9	4	7	0
SULTANPUR	18	11	8	2
UNNAO	34	17	29	5
VARANASI	0	0	0	0
JYOTIBAPHULE NAGAR	7	6	2	0
MAHAMAYANAGAR	2	2	5	0
Total	6149	5079	4055	2026

Map of Cumulative Burning Events (01 Oct – 08 Nov 2019)



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

Details of residue burning events in Punjab on 08-Nov-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	BARNALA	BARNALA	S-NPP	75.53014	30.33278	14:18:00	D	4.90
2	BARNALA	BARNALA	S-NPP	75.52901	30.33306	14:18:00	D	4.20
3	BARNALA	BARNALA	S-NPP	75.49683	30.33721	14:18:00	D	4.50
4	BARNALA	BARNALA	S-NPP	75.45486	30.34697	14:18:00	D	7.40
5	BARNALA	BARNALA	S-NPP	75.49704	30.34936	14:18:00	D	8.60
6	BARNALA	BARNALA	S-NPP	75.50234	30.34966	14:18:00	D	12.40
7	BARNALA	BARNALA	S-NPP	75.50122	30.35397	12:42:00	D	3.10
8	BARNALA	BARNALA	S-NPP	75.49580	30.36768	14:18:00	D	2.00
9	BARNALA	BARNALA	S-NPP	75.49536	30.37380	14:18:00	D	2.80
10	BARNALA	BARNALA	AQUA	75.62300	30.38100	13:15:00	D	14.50
11	BARNALA	BARNALA	AQUA	75.61800	30.38400	13:15:00	D	11.60
12	BARNALA	BARNALA	S-NPP	75.63079	30.39350	12:42:00	D	5.90
13	BARNALA	BARNALA	AQUA	75.48900	30.39700	13:15:00	D	23.90
14	BARNALA	BARNALA	S-NPP	75.49370	30.39824	14:18:00	D	4.90
15	BARNALA	BARNALA	S-NPP	75.48056	30.39905	12:42:00	D	1.90
16	BARNALA	BARNALA	S-NPP	75.48093	30.40174	12:42:00	D	3.60
17	BARNALA	BARNALA	TERRA	75.49000	30.40200	11:40:00	D	11.90
18	BARNALA	BARNALA	S-NPP	75.49327	30.40435	14:18:00	D	4.90
19	BARNALA	BARNALA	S-NPP	75.49061	30.40454	14:18:00	D	6.20
20	BARNALA	BARNALA	AQUA	75.39400	30.40800	13:15:00	D	33.40
21	BARNALA	BARNALA	AQUA	75.37700	30.41300	13:15:00	D	34.40
22	BARNALA	BARNALA	S-NPP	75.33161	30.42028	14:18:00	D	5.00
23	BARNALA	BARNALA	S-NPP	75.54254	30.42575	14:18:00	D	12.50
24	BARNALA	BARNALA	S-NPP	75.54519	30.42589	14:18:00	D	17.00
25	BARNALA	BARNALA	S-NPP	75.61769	30.42979	14:18:00	D	9.60
26	BARNALA	BARNALA	S-NPP	75.62565	30.43071	14:18:00	D	3.90
27	BARNALA	BARNALA	S-NPP	75.54745	30.43217	14:18:00	D	7.20
28	BARNALA	BARNALA	S-NPP	75.55013	30.43234	14:18:00	D	11.50
29	BARNALA	BARNALA	S-NPP	75.43279	30.43743	14:18:00	D	12.90
30	BARNALA	BARNALA	S-NPP	75.42996	30.43797	14:18:00	D	6.70

31	BARNALA	BARNALA	S-NPP	75.43523	30.43827	14:18:00	D	11.20
32	BARNALA	BARNALA	S-NPP	75.33032	30.43845	14:18:00	D	2.60
33	BARNALA	BARNALA	S-NPP	75.33551	30.43875	14:18:00	D	2.60
34	BARNALA	BARNALA	S-NPP	75.32119	30.44256	12:42:00	D	2.10
35	BARNALA	BARNALA	S-NPP	75.51817	30.44917	12:42:00	D	2.50
36	BARNALA	BARNALA	AQUA	75.61300	30.45200	13:15:00	D	13.50
37	BARNALA	BARNALA	S-NPP	75.66485	30.45708	14:18:00	D	4.20
38	BARNALA	BARNALA	AQUA	75.59000	30.46000	13:15:00	D	8.60
39	BARNALA	BARNALA	S-NPP	75.42303	30.46204	14:18:00	D	4.90
40	BARNALA	BARNALA	S-NPP	75.29170	30.46321	12:42:00	D	7.70
41	BARNALA	BARNALA	S-NPP	75.44260	30.46490	12:42:00	D	3.00
42	BARNALA	BARNALA	S-NPP	75.44254	30.46743	12:42:00	D	2.30
43	BARNALA	BARNALA	AQUA	75.59500	30.46800	13:15:00	D	8.90
44	BARNALA	BARNALA	S-NPP	75.28971	30.46905	12:42:00	D	7.70
45	BARNALA	BARNALA	S-NPP	75.57704	30.47077	14:18:00	D	5.70
46	BARNALA	BARNALA	S-NPP	75.38028	30.47178	14:18:00	D	6.70
47	BARNALA	BARNALA	S-NPP	75.46435	30.47666	14:18:00	D	6.00
48	BARNALA	BARNALA	S-NPP	75.38466	30.48424	14:18:00	D	18.50
49	BARNALA	BARNALA	S-NPP	75.59778	30.48428	14:18:00	D	8.10
50	BARNALA	BARNALA	S-NPP	75.46352	30.48886	14:18:00	D	5.50
51	BARNALA	BARNALA	S-NPP	75.60925	30.49139	12:42:00	D	5.70
52	BARNALA	BARNALA	S-NPP	75.35771	30.49484	14:18:00	D	3.70
53	BARNALA	BARNALA	S-NPP	75.39435	30.49645	12:42:00	D	4.90
54	BARNALA	BARNALA	S-NPP	75.63478	30.49874	14:18:00	D	15.70
55	BARNALA	BARNALA	AQUA	75.28200	30.50100	13:15:00	D	26.50
56	BARNALA	BARNALA	AQUA	75.62000	30.50400	13:15:00	D	17.70
57	BARNALA	BARNALA	S-NPP	75.48871	30.50440	12:42:00	D	3.80
58	BARNALA	BARNALA	S-NPP	75.29602	30.50451	14:18:00	D	4.50
59	BARNALA	BARNALA	S-NPP	75.53177	30.50513	14:18:00	D	5.40
60	BARNALA	BARNALA	AQUA	75.29700	30.50600	13:15:00	D	12.70
61	BARNALA	BARNALA	S-NPP	75.45169	30.50656	14:18:00	D	8.90
62	BARNALA	BARNALA	S-NPP	75.45336	30.50691	14:18:00	D	8.10
63	BARNALA	BARNALA	S-NPP	75.35314	30.50763	14:18:00	D	2.40

64	BARNALA	BARNALA	S-NPP	75.29421	30.50924	14:18:00	D	6.00
65	BARNALA	BARNALA	S-NPP	75.37211	30.51400	14:18:00	D	8.60
66	BARNALA	BARNALA	S-NPP	75.37358	30.51483	14:18:00	D	8.60
67	BARNALA	BARNALA	AQUA	75.61700	30.51600	13:15:00	D	16.80
68	BARNALA	BARNALA	S-NPP	75.31449	30.51657	14:18:00	D	11.20
69	BARNALA	BARNALA	S-NPP	75.64096	30.51676	14:18:00	D	6.40
70	BARNALA	BARNALA	S-NPP	75.31586	30.51776	14:18:00	D	9.30
71	BARNALA	BARNALA	S-NPP	75.47368	30.52026	14:18:00	D	3.70
72	BARNALA	BARNALA	S-NPP	75.56153	30.52124	12:42:00	D	2.90
73	BARNALA	BARNALA	S-NPP	75.49325	30.52130	14:18:00	D	4.10
74	BARNALA	BARNALA	S-NPP	75.39638	30.52225	12:42:00	D	2.60
75	BARNALA	BARNALA	S-NPP	75.40985	30.52292	14:18:00	D	2.30
76	BARNALA	BARNALA	S-NPP	75.56180	30.52299	12:42:00	D	2.60
77	BARNALA	BARNALA	AQUA	75.31400	30.52300	13:15:00	D	15.10
78	BARNALA	BARNALA	AQUA	75.53200	30.52400	13:15:00	D	24.90
79	BARNALA	BARNALA	S-NPP	75.54124	30.52416	14:18:00	D	3.40
80	BARNALA	BARNALA	S-NPP	75.48918	30.52723	14:18:00	D	13.00
81	BARNALA	BARNALA	S-NPP	75.49285	30.52741	14:18:00	D	12.60
82	BARNALA	BARNALA	S-NPP	75.49451	30.52752	14:18:00	D	12.40
83	BARNALA	BARNALA	S-NPP	75.49816	30.52773	14:18:00	D	12.60
84	BARNALA	BARNALA	S-NPP	75.49982	30.52780	14:18:00	D	12.40
85	BARNALA	BARNALA	S-NPP	75.44268	30.52797	12:42:00	D	5.30
86	BARNALA	BARNALA	S-NPP	75.31841	30.53505	14:18:00	D	5.00
87	BARNALA	BARNALA	S-NPP	75.59408	30.53964	14:18:00	D	3.40
88	BARNALA	BARNALA	S-NPP	75.47195	30.54470	14:18:00	D	4.90
89	BARNALA	BARNALA	S-NPP	75.47573	30.54479	14:18:00	D	6.00
90	BARNALA	BARNALA	S-NPP	75.62715	30.55935	14:18:00	D	2.00
91	BARNALA	BARNALA	S-NPP	75.45244	30.56195	12:42:00	D	2.20
92	BARNALA	BARNALA	S-NPP	75.52397	30.56602	14:18:00	D	3.70
93	BARNALA	BARNALA	S-NPP	75.43864	30.57098	12:42:00	D	4.70
94	BARNALA	BARNALA	AQUA	75.59500	30.57900	13:15:00	D	11.10
95	BARNALA	BARNALA	S-NPP	75.65857	30.57965	14:18:00	D	2.50
96	BARNALA	BARNALA	S-NPP	75.48539	30.58228	14:18:00	D	9.90

97	BARNALA	BARNALA	S-NPP	75.61469	30.58342	14:18:00	D	7.30
98	BARNALA	TAPPA	S-NPP	75.48433	30.17660	14:18:00	D	6.90
99	BARNALA	TAPPA	S-NPP	75.36926	30.20751	14:18:00	D	3.90
100	BARNALA	TAPPA	S-NPP	75.40392	30.23383	14:18:00	D	9.40
101	BARNALA	TAPPA	S-NPP	75.40912	30.23413	14:18:00	D	9.40
102	BARNALA	TAPPA	S-NPP	75.58360	30.23784	14:18:00	D	4.10
103	BARNALA	TAPPA	S-NPP	75.42264	30.26542	14:18:00	D	14.40
104	BARNALA	TAPPA	S-NPP	75.36926	30.28053	14:18:00	D	8.10
105	BARNALA	TAPPA	S-NPP	75.46810	30.29257	14:18:00	D	9.50
106	BARNALA	TAPPA	S-NPP	75.47337	30.29289	14:18:00	D	12.50
107	BARNALA	TAPPA	S-NPP	75.42052	30.29582	14:18:00	D	6.30
108	BARNALA	TAPPA	S-NPP	75.42156	30.29622	14:18:00	D	7.20
109	BARNALA	TAPPA	S-NPP	75.43159	30.30287	14:18:00	D	2.80
110	BARNALA	TAPPA	TERRA	75.32200	30.30600	11:40:00	D	16.00
111	BARNALA	TAPPA	S-NPP	75.62823	30.31345	14:18:00	D	1.40
112	BARNALA	TAPPA	S-NPP	75.62778	30.31961	14:18:00	D	3.70
113	BARNALA	TAPPA	S-NPP	75.62643	30.32048	14:18:00	D	4.50
114	BARNALA	TAPPA	S-NPP	75.40280	30.32525	14:18:00	D	7.90
115	BARNALA	TAPPA	S-NPP	75.39849	30.32546	14:18:00	D	4.10
116	BARNALA	TAPPA	S-NPP	75.40372	30.32575	14:18:00	D	4.10
117	BARNALA	TAPPA	S-NPP	75.36077	30.32871	14:18:00	D	7.70
118	BARNALA	TAPPA	S-NPP	75.35646	30.32917	14:18:00	D	4.30
119	BARNALA	TAPPA	S-NPP	75.36163	30.32947	14:18:00	D	4.30
120	BARNALA	TAPPA	S-NPP	75.40241	30.34398	14:18:00	D	16.70
121	BARNALA	TAPPA	S-NPP	75.45398	30.35916	14:18:00	D	3.50
122	BARNALA	TAPPA	S-NPP	75.43946	30.36562	12:42:00	D	2.30
123	BARNALA	TAPPA	S-NPP	75.35907	30.36584	14:18:00	D	9.90
124	BARNALA	TAPPA	S-NPP	75.43210	30.37012	14:18:00	D	11.70
125	BARNALA	TAPPA	S-NPP	75.33790	30.37068	14:18:00	D	5.40
126	BARNALA	TAPPA	S-NPP	75.31906	30.38482	12:42:00	D	5.00
127	BARNALA	TAPPA	S-NPP	75.42039	30.38777	14:18:00	D	4.90
128	BARNALA	TAPPA	S-NPP	75.44660	30.38932	14:18:00	D	4.60
129	BARNALA	TAPPA	S-NPP	75.43954	30.39725	12:42:00	D	2.50

130	BARNALA	TAPPA	TERRA	75.41200	30.40600	11:40:00	D	21.10
131	BATHINDA	BATHINDA	S-NPP	74.74628	30.04375	14:18:00	D	5.50
132	BATHINDA	BATHINDA	S-NPP	74.74873	30.04866	14:18:00	D	17.10
133	BATHINDA	BATHINDA	S-NPP	74.74584	30.04959	14:18:00	D	6.40
134	BATHINDA	BATHINDA	S-NPP	74.75056	30.04991	14:18:00	D	6.40
135	BATHINDA	BATHINDA	S-NPP	75.02676	30.08301	14:18:00	D	4.60
136	BATHINDA	BATHINDA	AQUA	75.01000	30.08800	13:15:00	D	35.30
137	BATHINDA	BATHINDA	S-NPP	75.09203	30.09620	14:18:00	D	3.70
138	BATHINDA	BATHINDA	S-NPP	75.10410	30.11152	14:18:00	D	7.50
139	BATHINDA	BATHINDA	S-NPP	75.10907	30.11182	14:18:00	D	7.50
140	BATHINDA	BATHINDA	S-NPP	75.09193	30.14072	14:18:00	D	3.70
141	BATHINDA	BATHINDA	S-NPP	75.08614	30.15512	12:42:00	D	15.20
142	BATHINDA	BATHINDA	S-NPP	75.08837	30.15636	12:42:00	D	10.30
143	BATHINDA	BATHINDA	S-NPP	75.06776	30.19903	14:18:00	D	4.00
144	BATHINDA	BATHINDA	S-NPP	75.16930	30.20816	14:18:00	D	8.40
145	BATHINDA	BATHINDA	S-NPP	75.15836	30.21955	14:18:00	D	14.60
146	BATHINDA	BATHINDA	S-NPP	75.16842	30.22014	14:18:00	D	3.80
147	BATHINDA	BATHINDA	S-NPP	75.12517	30.25960	14:18:00	D	10.40
148	BATHINDA	BATHINDA	S-NPP	75.13017	30.25991	14:18:00	D	10.40
149	BATHINDA	BATHINDA	S-NPP	75.01993	30.26500	14:18:00	D	5.40
150	BATHINDA	BATHINDA	S-NPP	75.21728	30.27412	12:42:00	D	2.80
151	BATHINDA	BATHINDA	S-NPP	75.03430	30.28059	14:18:00	D	9.60
152	BATHINDA	BATHINDA	S-NPP	75.03925	30.28087	14:18:00	D	9.60
153	BATHINDA	BATHINDA	S-NPP	75.03342	30.28378	14:18:00	D	9.10
154	BATHINDA	BATHINDA	S-NPP	75.03836	30.28409	14:18:00	D	9.10
155	BATHINDA	BATHINDA	S-NPP	75.07178	30.31268	14:18:00	D	8.80
156	BATHINDA	BATHINDA	S-NPP	75.11633	30.31308	14:18:00	D	9.00
157	BATHINDA	BATHINDA	S-NPP	75.11678	30.31533	14:18:00	D	14.70
158	BATHINDA	BATHINDA	AQUA	75.02700	30.31700	13:15:00	D	17.00
159	BATHINDA	BATHINDA	S-NPP	75.06637	30.31835	14:18:00	D	7.40
160	BATHINDA	BATHINDA	S-NPP	75.07137	30.31865	14:18:00	D	8.80
161	BATHINDA	BATHINDA	S-NPP	75.01549	30.32461	12:42:00	D	6.90
162	BATHINDA	BATHINDA	AQUA	75.04500	30.33400	13:15:00	D	13.60

163	BATHINDA	BATHINDA	S-NPP	74.98006	30.34299	14:18:00	D	4.90
164	BATHINDA	BATHINDA	S-NPP	74.98499	30.34329	14:18:00	D	4.90
165	BATHINDA	BATHINDA	S-NPP	75.11947	30.35186	12:42:00	D	2.80
166	BATHINDA	BATHINDA	S-NPP	75.13716	30.38219	12:42:00	D	6.40
167	BATHINDA	BATHINDA	S-NPP	75.08886	30.38247	14:18:00	D	2.90
168	BATHINDA	BATHINDA	S-NPP	75.13620	30.38368	12:42:00	D	10.90
169	BATHINDA	BATHINDA	S-NPP	75.11347	30.38987	14:18:00	D	13.30
170	BATHINDA	BATHINDA	S-NPP	75.11118	30.39305	14:18:00	D	11.60
171	BATHINDA	RAMPURA PHUL	S-NPP	75.16225	30.13903	14:18:00	D	5.90
172	BATHINDA	RAMPURA PHUL	S-NPP	75.19910	30.13941	12:42:00	D	3.40
173	BATHINDA	RAMPURA PHUL	S-NPP	75.33444	30.15546	14:18:00	D	13.10
174	BATHINDA	RAMPURA PHUL	S-NPP	75.31345	30.16027	14:18:00	D	4.50
175	BATHINDA	RAMPURA PHUL	S-NPP	75.14239	30.16429	12:42:00	D	3.60
176	BATHINDA	RAMPURA PHUL	S-NPP	75.33831	30.17391	14:18:00	D	2.60
177	BATHINDA	RAMPURA PHUL	S-NPP	75.19442	30.18314	14:18:00	D	4.30
178	BATHINDA	RAMPURA PHUL	S-NPP	75.19125	30.18535	14:18:00	D	6.60
179	BATHINDA	RAMPURA PHUL	S-NPP	75.22112	30.19308	14:18:00	D	4.20
180	BATHINDA	RAMPURA PHUL	S-NPP	75.26137	30.20141	14:18:00	D	4.50
181	BATHINDA	RAMPURA PHUL	S-NPP	75.16974	30.20217	14:18:00	D	8.40
182	BATHINDA	RAMPURA PHUL	S-NPP	75.19438	30.20249	12:42:00	D	2.80
183	BATHINDA	RAMPURA PHUL	S-NPP	75.16754	30.20551	14:18:00	D	19.60
184	BATHINDA	RAMPURA PHUL	S-NPP	75.26879	30.21200	14:18:00	D	6.20
185	BATHINDA	RAMPURA PHUL	S-NPP	75.28920	30.21330	14:18:00	D	6.20
186	BATHINDA	RAMPURA PHUL	S-NPP	75.36882	30.21357	14:18:00	D	2.60
187	BATHINDA	RAMPURA PHUL	S-NPP	75.26559	30.21375	14:18:00	D	3.40
188	BATHINDA	RAMPURA PHUL	S-NPP	75.29943	30.21396	14:18:00	D	6.30
189	BATHINDA	RAMPURA PHUL	S-NPP	75.29116	30.21522	14:18:00	D	3.70
190	BATHINDA	RAMPURA PHUL	S-NPP	75.29630	30.21551	14:18:00	D	3.70
191	BATHINDA	RAMPURA PHUL	S-NPP	75.33025	30.21591	14:18:00	D	8.00
192	BATHINDA	RAMPURA PHUL	S-NPP	75.32710	30.21728	14:18:00	D	4.60
193	BATHINDA	RAMPURA PHUL	S-NPP	75.33227	30.21757	14:18:00	D	5.80
194	BATHINDA	RAMPURA PHUL	S-NPP	75.31097	30.21972	12:42:00	D	6.90
195	BATHINDA	RAMPURA PHUL	S-NPP	75.30740	30.22094	12:42:00	D	7.20

196	BATHINDA	RAMPURA PHUL	S-NPP	75.31953	30.22130	14:18:00	D	25.00
197	BATHINDA	RAMPURA PHUL	S-NPP	75.20375	30.22223	14:18:00	D	6.30
198	BATHINDA	RAMPURA PHUL	S-NPP	75.31637	30.22273	14:18:00	D	14.60
199	BATHINDA	RAMPURA PHUL	S-NPP	75.32151	30.22302	14:18:00	D	20.70
200	BATHINDA	RAMPURA PHUL	S-NPP	75.24345	30.23663	14:18:00	D	8.50
201	BATHINDA	RAMPURA PHUL	S-NPP	75.24854	30.23693	14:18:00	D	15.70
202	BATHINDA	RAMPURA PHUL	S-NPP	75.36193	30.23751	14:18:00	D	5.40
203	BATHINDA	RAMPURA PHUL	S-NPP	75.25874	30.23754	14:18:00	D	19.80
204	BATHINDA	RAMPURA PHUL	S-NPP	75.26384	30.23784	14:18:00	D	19.80
205	BATHINDA	RAMPURA PHUL	S-NPP	75.32014	30.24122	12:42:00	D	6.60
206	BATHINDA	RAMPURA PHUL	S-NPP	75.30441	30.24629	14:18:00	D	10.20
207	BATHINDA	RAMPURA PHUL	S-NPP	75.30954	30.24659	14:18:00	D	12.20
208	BATHINDA	RAMPURA PHUL	AQUA	75.20800	30.24800	13:15:00	D	15.80
209	BATHINDA	RAMPURA PHUL	S-NPP	75.34039	30.24841	14:18:00	D	12.80
210	BATHINDA	RAMPURA PHUL	S-NPP	75.35590	30.24932	14:18:00	D	6.20
211	BATHINDA	RAMPURA PHUL	S-NPP	75.28334	30.25936	12:42:00	D	3.10
212	BATHINDA	RAMPURA PHUL	TERRA	75.32600	30.27300	11:40:00	D	12.20
213	BATHINDA	RAMPURA PHUL	S-NPP	75.27617	30.28095	14:18:00	D	4.00
214	BATHINDA	RAMPURA PHUL	S-NPP	75.17841	30.28968	12:42:00	D	2.20
215	BATHINDA	RAMPURA PHUL	S-NPP	75.17965	30.29054	12:42:00	D	3.20
216	BATHINDA	RAMPURA PHUL	S-NPP	75.22765	30.29688	12:42:00	D	6.40
217	BATHINDA	RAMPURA PHUL	S-NPP	75.23168	30.29707	12:42:00	D	10.50
218	BATHINDA	RAMPURA PHUL	S-NPP	75.23275	30.29823	12:42:00	D	6.40
219	BATHINDA	RAMPURA PHUL	S-NPP	75.31387	30.29922	12:42:00	D	2.60
220	BATHINDA	RAMPURA PHUL	S-NPP	75.22563	30.31470	12:42:00	D	4.70
221	BATHINDA	RAMPURA PHUL	S-NPP	75.12638	30.32190	14:18:00	D	16.00
222	BATHINDA	RAMPURA PHUL	S-NPP	75.13642	30.32249	14:18:00	D	8.40
223	BATHINDA	RAMPURA PHUL	AQUA	75.24900	30.32300	13:15:00	D	12.70
224	BATHINDA	RAMPURA PHUL	S-NPP	75.13991	30.32505	12:42:00	D	6.80
225	BATHINDA	RAMPURA PHUL	S-NPP	75.18137	30.33116	14:18:00	D	5.10
226	BATHINDA	RAMPURA PHUL	S-NPP	75.22198	30.33354	14:18:00	D	16.40
227	BATHINDA	RAMPURA PHUL	AQUA	75.31200	30.33600	13:15:00	D	15.00
228	BATHINDA	RAMPURA PHUL	S-NPP	75.18092	30.33716	14:18:00	D	5.10

229	BATHINDA	RAMPURA PHUL	S-NPP	75.21645	30.33925	14:18:00	D	14.90
230	BATHINDA	RAMPURA PHUL	S-NPP	75.22157	30.33956	14:18:00	D	16.40
231	BATHINDA	RAMPURA PHUL	S-NPP	75.27777	30.34286	14:18:00	D	4.30
232	BATHINDA	RAMPURA PHUL	AQUA	75.17600	30.34700	13:15:00	D	12.70
233	BATHINDA	RAMPURA PHUL	S-NPP	75.27734	30.34889	14:18:00	D	19.30
234	BATHINDA	RAMPURA PHUL	S-NPP	75.29081	30.35061	12:42:00	D	2.90
235	BATHINDA	RAMPURA PHUL	S-NPP	75.31333	30.35100	14:18:00	D	2.00
236	BATHINDA	RAMPURA PHUL	S-NPP	75.28717	30.35553	14:18:00	D	14.90
237	BATHINDA	RAMPURA PHUL	S-NPP	75.29144	30.36791	14:18:00	D	10.50
238	BATHINDA	RAMPURA PHUL	S-NPP	75.30688	30.36883	14:18:00	D	2.40
239	BATHINDA	RAMPURA PHUL	AQUA	75.25700	30.37600	13:15:00	D	24.20
240	BATHINDA	RAMPURA PHUL	S-NPP	75.28886	30.37693	12:42:00	D	2.80
241	BATHINDA	RAMPURA PHUL	AQUA	75.27000	30.38200	13:15:00	D	16.80
242	BATHINDA	RAMPURA PHUL	S-NPP	75.15727	30.38391	14:18:00	D	3.40
243	BATHINDA	RAMPURA PHUL	S-NPP	75.15422	30.38615	14:18:00	D	9.50
244	BATHINDA	RAMPURA PHUL	S-NPP	75.15685	30.38991	14:18:00	D	8.70
245	BATHINDA	RAMPURA PHUL	S-NPP	75.17706	30.39117	14:18:00	D	9.00
246	BATHINDA	RAMPURA PHUL	S-NPP	75.17403	30.39329	14:18:00	D	6.70
247	BATHINDA	RAMPURA PHUL	S-NPP	75.24832	30.39558	14:18:00	D	8.80
248	BATHINDA	RAMPURA PHUL	S-NPP	75.25046	30.39755	14:18:00	D	7.70
249	BATHINDA	RAMPURA PHUL	S-NPP	75.27100	30.39869	14:18:00	D	5.40
250	BATHINDA	RAMPURA PHUL	S-NPP	75.27613	30.39898	14:18:00	D	5.40
251	BATHINDA	RAMPURA PHUL	AQUA	75.25000	30.40100	13:15:00	D	32.20
252	BATHINDA	RAMPURA PHUL	S-NPP	75.24144	30.40286	12:42:00	D	5.20
253	BATHINDA	RAMPURA PHUL	AQUA	75.24300	30.40300	13:15:00	D	48.20
254	BATHINDA	RAMPURA PHUL	S-NPP	75.27354	30.40320	14:18:00	D	11.40
255	BATHINDA	RAMPURA PHUL	S-NPP	75.18128	30.40349	14:18:00	D	3.20
256	BATHINDA	RAMPURA PHUL	S-NPP	75.24048	30.42175	12:42:00	D	5.00
257	BATHINDA	RAMPURA PHUL	S-NPP	75.23921	30.42386	12:42:00	D	4.90
258	BATHINDA	RAMPURA PHUL	AQUA	75.16700	30.43900	13:15:00	D	19.50
259	BATHINDA	RAMPURA PHUL	S-NPP	75.26237	30.44668	14:18:00	D	4.60
260	BATHINDA	RAMPURA PHUL	S-NPP	75.20015	30.45512	14:18:00	D	7.10
261	BATHINDA	RAMPURA PHUL	S-NPP	75.23029	30.46621	12:42:00	D	8.20

262	BATHINDA	RAMPURA PHUL	AQUA	75.24700	30.46800	13:15:00	D	15.40
263	BATHINDA	RAMPURA PHUL	AQUA	75.27700	30.50200	13:15:00	D	20.10
264	BATHINDA	TALWANDI SABO	S-NPP	74.95568	29.97214	12:42:00	D	5.60
265	BATHINDA	TALWANDI SABO	S-NPP	74.96917	30.02274	14:18:00	D	4.80
266	BATHINDA	TALWANDI SABO	S-NPP	75.02777	30.02640	14:18:00	D	4.60
267	BATHINDA	TALWANDI SABO	S-NPP	75.23637	30.04526	14:18:00	D	4.80
268	BATHINDA	TALWANDI SABO	S-NPP	75.16558	30.04692	14:18:00	D	5.00
269	BATHINDA	TALWANDI SABO	S-NPP	75.12031	30.05010	14:18:00	D	4.10
270	BATHINDA	TALWANDI SABO	S-NPP	75.07892	30.07142	14:18:00	D	4.60
271	BATHINDA	TALWANDI SABO	AQUA	75.08200	30.07600	13:15:00	D	13.50
272	BATHINDA	TALWANDI SABO	S-NPP	75.15533	30.09563	12:42:00	D	3.10
273	BATHINDA	TALWANDI SABO	S-NPP	75.25153	30.09612	14:18:00	D	4.40
274	BATHINDA	TALWANDI SABO	S-NPP	75.11945	30.10644	14:18:00	D	5.80
275	BATHINDA	TALWANDI SABO	S-NPP	75.16444	30.10911	14:18:00	D	3.60
276	BATHINDA	TALWANDI SABO	S-NPP	75.16946	30.10941	14:18:00	D	3.60
277	BATHINDA	TALWANDI SABO	S-NPP	75.20972	30.11178	14:18:00	D	2.80
278	BATHINDA	TALWANDI SABO	AQUA	75.15700	30.13100	13:15:00	D	17.10
279	BATHINDA	TALWANDI SABO	S-NPP	75.14765	30.13213	14:18:00	D	16.10
280	BATHINDA	TALWANDI SABO	S-NPP	75.15266	30.13244	14:18:00	D	10.70
281	BATHINDA	TALWANDI SABO	S-NPP	75.15768	30.13274	14:18:00	D	10.70
282	BATHINDA	TALWANDI SABO	S-NPP	75.07618	30.15171	14:18:00	D	4.60
283	BATHINDA	TALWANDI SABO	S-NPP	75.08315	30.15497	12:42:00	D	10.30
284	FIROZPUR	ZIRA	AQUA	75.37600	30.85300	13:15:00	D	15.10
285	FIROZPUR	ZIRA	S-NPP	75.32981	30.91835	14:18:00	D	5.10
286	JALANDHAR	NAKODAR	AQUA	75.50800	31.01600	13:15:00	D	12.50
287	JALANDHAR	PHILLAUR	S-NPP	75.57316	30.98043	14:18:00	D	2.20
288	JALANDHAR	PHILLAUR	S-NPP	75.58241	31.00570	14:18:00	D	4.80
289	JALANDHAR	PHILLAUR	S-NPP	75.58784	31.00600	14:18:00	D	4.80
290	JALANDHAR	PHILLAUR	S-NPP	75.79542	31.01250	12:42:00	D	3.10
291	JALANDHAR	PHILLAUR	S-NPP	75.69961	31.07890	14:18:00	D	3.20
292	JALANDHAR	PHILLAUR	S-NPP	75.54016	31.11167	12:42:00	D	1.90
293	LUDHIANA	JAGRAON	AQUA	75.44300	30.59900	13:15:00	D	13.80
294	LUDHIANA	JAGRAON	S-NPP	75.40708	30.60064	12:42:00	D	2.80

295	LUDHIANA	JAGRAON	AQUA	75.46300	30.60300	13:15:00	D	89.50
296	LUDHIANA	JAGRAON	S-NPP	75.42466	30.61553	14:18:00	D	5.00
297	LUDHIANA	JAGRAON	S-NPP	75.42451	30.61648	14:18:00	D	8.50
298	LUDHIANA	JAGRAON	S-NPP	75.42425	30.62163	14:18:00	D	5.00
299	LUDHIANA	JAGRAON	S-NPP	75.41857	30.62741	14:18:00	D	5.90
300	LUDHIANA	JAGRAON	S-NPP	75.42384	30.62773	14:18:00	D	9.80
301	LUDHIANA	JAGRAON	S-NPP	75.41838	30.62840	14:18:00	D	6.60
302	LUDHIANA	JAGRAON	S-NPP	75.42365	30.62868	14:18:00	D	6.60
303	LUDHIANA	JAGRAON	AQUA	75.40500	30.63500	13:15:00	D	13.90
304	LUDHIANA	JAGRAON	AQUA	75.42500	30.63900	13:15:00	D	34.60
305	LUDHIANA	JAGRAON	TERRA	75.41900	30.65900	11:40:00	D	12.00
306	LUDHIANA	JAGRAON	TERRA	75.41400	30.66500	11:40:00	D	19.10
307	LUDHIANA	JAGRAON	S-NPP	75.46487	30.66916	12:42:00	D	6.40
308	LUDHIANA	JAGRAON	S-NPP	75.41303	30.68092	12:42:00	D	5.80
309	LUDHIANA	JAGRAON	S-NPP	75.41315	30.68517	12:42:00	D	15.50
310	LUDHIANA	JAGRAON	S-NPP	75.47295	30.68660	14:18:00	D	7.70
311	LUDHIANA	JAGRAON	S-NPP	75.41106	30.68669	12:42:00	D	5.80
312	LUDHIANA	JAGRAON	AQUA	75.41200	30.68700	13:15:00	D	15.50
313	LUDHIANA	JAGRAON	S-NPP	75.46382	30.68769	12:42:00	D	3.70
314	LUDHIANA	JAGRAON	S-NPP	75.40907	30.69247	12:42:00	D	4.30
315	LUDHIANA	JAGRAON	S-NPP	75.50996	30.69485	14:18:00	D	3.20
316	LUDHIANA	JAGRAON	S-NPP	75.40923	30.69672	12:42:00	D	4.90
317	LUDHIANA	JAGRAON	S-NPP	75.47215	30.69884	14:18:00	D	2.50
318	LUDHIANA	JAGRAON	S-NPP	75.39142	30.71252	14:18:00	D	4.70
319	LUDHIANA	JAGRAON	S-NPP	75.39294	30.71301	14:18:00	D	3.50
320	LUDHIANA	JAGRAON	S-NPP	75.39587	30.72502	14:18:00	D	4.00
321	LUDHIANA	JAGRAON	S-NPP	75.40115	30.72534	14:18:00	D	7.30
322	LUDHIANA	JAGRAON	S-NPP	75.39737	30.72549	14:18:00	D	9.10
323	LUDHIANA	JAGRAON	S-NPP	75.56030	30.74354	12:42:00	D	2.50
324	LUDHIANA	JAGRAON	S-NPP	75.56001	30.74868	12:42:00	D	6.70
325	LUDHIANA	JAGRAON	S-NPP	75.55833	30.74926	12:42:00	D	2.50
326	LUDHIANA	JAGRAON	S-NPP	75.51173	30.75037	14:18:00	D	2.50
327	LUDHIANA	JAGRAON	S-NPP	75.44705	30.75681	12:42:00	D	7.20

328	LUDHIANA	JAGRAON	NOAA-18	75.43415	30.76603	21:19:00	N	7.00
329	LUDHIANA	JAGRAON	AQUA	75.49000	30.77000	13:15:00	D	13.90
330	LUDHIANA	JAGRAON	S-NPP	75.43684	30.77052	14:18:00	D	5.70
331	LUDHIANA	JAGRAON	S-NPP	75.53277	30.78199	14:18:00	D	3.30
332	LUDHIANA	JAGRAON	S-NPP	75.55936	30.78963	14:18:00	D	8.70
333	LUDHIANA	JAGRAON	METOP-1	75.43415	30.80196	21:53:00	N	13.00
334	LUDHIANA	JAGRAON	TERRA	75.42500	30.80800	22:40:00	N	19.20
335	LUDHIANA	JAGRAON	S-NPP	75.40171	30.81755	14:18:00	D	4.00
336	LUDHIANA	JAGRAON	S-NPP	75.43307	30.82831	12:42:00	D	3.20
337	LUDHIANA	JAGRAON	S-NPP	75.43793	30.82954	12:42:00	D	3.20
338	LUDHIANA	JAGRAON	S-NPP	75.43268	30.83198	12:42:00	D	15.80
339	LUDHIANA	JAGRAON	S-NPP	75.44763	30.83202	12:42:00	D	2.60
340	LUDHIANA	JAGRAON	S-NPP	75.44720	30.83577	12:42:00	D	3.30
341	LUDHIANA	JAGRAON	S-NPP	75.42587	30.83647	12:42:00	D	6.90
342	LUDHIANA	JAGRAON	AQUA	75.49600	30.87700	13:15:00	D	17.30
343	LUDHIANA	JAGRAON	S-NPP	75.50229	30.87882	14:18:00	D	7.60
344	LUDHIANA	JAGRAON	S-NPP	75.62134	30.89149	14:18:00	D	16.30
345	LUDHIANA	JAGRAON	AQUA	75.59300	30.89600	13:15:00	D	20.40
346	LUDHIANA	JAGRAON	S-NPP	75.59322	30.90235	14:18:00	D	9.10
347	LUDHIANA	JAGRAON	S-NPP	75.58736	30.90822	14:18:00	D	9.10
348	LUDHIANA	JAGRAON	S-NPP	75.59245	30.91469	14:18:00	D	9.60
349	LUDHIANA	JAGRAON	S-NPP	75.53768	30.91780	14:18:00	D	8.50
350	LUDHIANA	JAGRAON	S-NPP	75.54309	30.91811	14:18:00	D	7.10
351	LUDHIANA	JAGRAON	S-NPP	75.59745	30.94454	14:18:00	D	8.90
352	LUDHIANA	JAGRAON	S-NPP	75.60150	30.94618	14:18:00	D	14.50
353	LUDHIANA	JAGRAON	S-NPP	75.59705	30.95072	14:18:00	D	8.90
354	LUDHIANA	LUDHIANA EAST	S-NPP	75.88477	30.73811	14:18:00	D	10.80
355	LUDHIANA	LUDHIANA EAST	S-NPP	75.88242	30.74063	14:18:00	D	11.00
356	LUDHIANA	LUDHIANA EAST	AQUA	75.96700	30.80700	13:15:00	D	13.90
357	LUDHIANA	LUDHIANA EAST	AQUA	76.01900	30.82900	13:15:00	D	18.00
358	LUDHIANA	LUDHIANA EAST	S-NPP	76.12348	30.96872	14:18:00	D	6.90
359	LUDHIANA	LUDHIANA WEST	S-NPP	75.78691	30.80087	12:42:00	D	2.40
360	LUDHIANA	LUDHIANA WEST	S-NPP	75.78783	30.80163	12:42:00	D	2.60

361	LUDHIANA	LUDHIANA WEST	S-NPP	75.83396	30.82337	14:18:00	D	6.90
362	LUDHIANA	PAYAL	TERRA	75.90000	30.65100	11:40:00	D	8.30
363	LUDHIANA	PAYAL	S-NPP	75.90518	30.67160	12:42:00	D	5.60
364	LUDHIANA	PAYAL	S-NPP	75.95167	30.72552	14:18:00	D	8.50
365	LUDHIANA	PAYAL	S-NPP	75.93851	30.73491	12:42:00	D	1.40
366	LUDHIANA	PAYAL	S-NPP	75.93890	30.73558	12:42:00	D	2.00
367	LUDHIANA	PAYAL	S-NPP	75.99973	30.78502	14:18:00	D	4.80
368	LUDHIANA	PAYAL	S-NPP	75.99597	30.78778	14:18:00	D	6.40
369	LUDHIANA	RAIKOT	S-NPP	75.49072	30.58258	14:18:00	D	14.10
370	LUDHIANA	RAIKOT	S-NPP	75.51453	30.62701	14:18:00	D	8.30
371	LUDHIANA	RAIKOT	S-NPP	75.51453	30.62741	14:18:00	D	9.80
372	LUDHIANA	RAIKOT	S-NPP	75.55025	30.63498	12:42:00	D	6.20
373	LUDHIANA	RAIKOT	S-NPP	75.54856	30.63663	12:42:00	D	6.70
374	LUDHIANA	RAIKOT	S-NPP	75.49593	30.66331	14:18:00	D	16.70
375	LUDHIANA	RAIKOT	S-NPP	75.47953	30.66854	14:18:00	D	8.50
376	LUDHIANA	RAIKOT	S-NPP	75.59200	30.68094	14:18:00	D	7.20
377	LUDHIANA	RAIKOT	S-NPP	75.78049	30.68295	12:42:00	D	1.90
378	LUDHIANA	RAIKOT	S-NPP	75.77950	30.68833	12:42:00	D	2.80
379	MANSA	MANSA	S-NPP	75.19401	29.90772	14:18:00	D	3.10
380	MANSA	MANSA	S-NPP	75.42977	29.97040	14:18:00	D	10.00
381	MANSA	MANSA	S-NPP	75.36176	30.08323	14:18:00	D	2.50
382	MANSA	MANSA	S-NPP	75.36030	30.08410	14:18:00	D	5.70
383	MANSA	MANSA	S-NPP	75.27821	30.10222	14:18:00	D	5.80
384	MANSA	MANSA	S-NPP	75.27654	30.10360	14:18:00	D	9.10
385	MANSA	MANSA	S-NPP	75.46672	30.12664	14:18:00	D	3.40
386	MANSA	MANSA	S-NPP	75.34517	30.15003	14:18:00	D	3.50
387	MANSA	MANSA	S-NPP	75.48519	30.16741	12:42:00	D	3.70
388	MOGA	MOGA	S-NPP	75.34496	30.69757	14:18:00	D	2.70
389	MOGA	MOGA	S-NPP	75.36594	30.69880	14:18:00	D	10.90
390	MOGA	MOGA	S-NPP	75.18953	30.70813	14:18:00	D	3.30
391	MOGA	MOGA	TERRA	75.27900	30.71100	11:40:00	D	17.60
392	MOGA	MOGA	S-NPP	75.35299	30.73466	14:18:00	D	6.90
393	MOGA	MOGA	S-NPP	75.35435	30.73538	14:18:00	D	10.40

394	MOGA	MOGA	S-NPP	75.25102	30.79041	14:18:00	D	4.10
395	MOGA	MOGA	S-NPP	75.34403	30.79619	12:42:00	D	3.10
396	MOGA	MOGA	S-NPP	75.35381	30.79877	12:42:00	D	5.10
397	MOGA	NIHAL SINGH WALA	S-NPP	75.25253	30.53242	14:18:00	D	4.20
398	MOGA	NIHAL SINGH WALA	S-NPP	75.22334	30.53453	12:42:00	D	14.10
399	MOGA	NIHAL SINGH WALA	S-NPP	75.22842	30.53584	12:42:00	D	14.10
400	MOGA	NIHAL SINGH WALA	S-NPP	75.22409	30.53672	12:42:00	D	15.90
401	MOGA	NIHAL SINGH WALA	S-NPP	75.33685	30.53843	12:42:00	D	4.90
402	MOGA	NIHAL SINGH WALA	S-NPP	75.39807	30.54060	14:18:00	D	5.50
403	MOGA	NIHAL SINGH WALA	S-NPP	75.21451	30.56049	14:18:00	D	11.10
404	MOGA	NIHAL SINGH WALA	S-NPP	75.25266	30.56115	12:42:00	D	2.90
405	MOGA	NIHAL SINGH WALA	S-NPP	75.31635	30.58469	14:18:00	D	4.80
406	MOGA	NIHAL SINGH WALA	S-NPP	75.23337	30.62192	12:42:00	D	2.30
407	MOGA	NIHAL SINGH WALA	AQUA	75.36200	30.63900	13:15:00	D	15.30
408	MOGA	NIHAL SINGH WALA	S-NPP	75.37379	30.63933	12:42:00	D	5.00
409	MOGA	NIHAL SINGH WALA	S-NPP	75.36404	30.64985	14:18:00	D	4.90
410	MOGA	NIHAL SINGH WALA	S-NPP	75.33618	30.65484	12:42:00	D	10.50
411	MOGA	NIHAL SINGH WALA	S-NPP	75.33157	30.65734	12:42:00	D	6.50
412	MOGA	NIHAL SINGH WALA	S-NPP	75.33652	30.65865	12:42:00	D	6.50
413	MOGA	NIHAL SINGH WALA	S-NPP	75.33181	30.66023	14:18:00	D	5.30
414	MOGA	NIHAL SINGH WALA	S-NPP	75.32466	30.66184	12:42:00	D	3.10
415	MOGA	NIHAL SINGH WALA	S-NPP	75.32228	30.66389	12:42:00	D	3.10
416	MOGA	NIHAL SINGH WALA	AQUA	75.26700	30.67100	13:15:00	D	10.80
417	MOGA	NIHAL SINGH WALA	S-NPP	75.27011	30.67913	12:42:00	D	2.70
418	MOGA	NIHAL SINGH WALA	S-NPP	75.27509	30.68044	12:42:00	D	2.70
419	MOGA	NIHAL SINGH WALA	S-NPP	75.25135	30.69203	14:18:00	D	5.90
420	MOGA	NIHAL SINGH WALA	S-NPP	75.25093	30.69807	14:18:00	D	10.50
421	MOGA	NIHAL SINGH WALA	S-NPP	75.31841	30.70209	14:18:00	D	5.60
422	MUKTSAR	MALAUT	S-NPP	74.69360	29.99346	14:18:00	D	3.70
423	PATIALA	RAJPURA	S-NPP	76.62905	30.30474	14:18:00	D	4.20
424	PATIALA	RAJPURA	S-NPP	76.64032	30.32485	14:18:00	D	6.90
425	PATIALA	RAJPURA	S-NPP	76.67065	30.33941	14:18:00	D	7.20
426	PATIALA	RAJPURA	S-NPP	76.70119	30.35402	14:18:00	D	7.40

427	PATIALA	SAMANA	S-NPP	76.18957	29.83761	14:18:00	D	4.40
428	PATIALA	SAMANA	S-NPP	76.19817	29.84752	14:18:00	D	6.60
429	PATIALA	SAMANA	S-NPP	76.20027	29.85093	14:18:00	D	6.50
430	PATIALA	SAMANA	S-NPP	76.17815	29.89088	14:18:00	D	8.00
431	PATIALA	SAMANA	S-NPP	76.17774	29.89720	14:18:00	D	8.00
432	SANGRUR	DHURI	S-NPP	75.76868	30.46409	12:42:00	D	4.00
433	SANGRUR	DHURI	S-NPP	75.76733	30.46547	12:42:00	D	4.20
434	SANGRUR	DHURI	S-NPP	75.68034	30.46606	12:42:00	D	2.90
435	SANGRUR	DHURI	S-NPP	75.73813	30.51082	14:18:00	D	10.00
436	SANGRUR	DHURI	S-NPP	75.71071	30.54146	12:42:00	D	5.20
437	SANGRUR	DHURI	S-NPP	75.71147	30.54235	12:42:00	D	7.40
438	SANGRUR	MALERKOTLA	S-NPP	76.05989	30.45585	14:18:00	D	13.40
439	SANGRUR	MALERKOTLA	S-NPP	76.05737	30.45885	14:18:00	D	7.50
440	SANGRUR	MALERKOTLA	S-NPP	75.83501	30.47248	14:18:00	D	7.70
441	SANGRUR	MALERKOTLA	S-NPP	75.94089	30.49068	14:18:00	D	4.80
442	SANGRUR	MALERKOTLA	AQUA	75.71100	30.54700	13:15:00	D	17.90
443	SANGRUR	MALERKOTLA	S-NPP	75.70879	30.54717	12:42:00	D	4.00
444	SANGRUR	MALERKOTLA	S-NPP	75.80300	30.56878	14:18:00	D	4.10
445	SANGRUR	MALERKOTLA	S-NPP	75.87170	30.63513	14:18:00	D	10.30
446	SANGRUR	MALERKOTLA	S-NPP	75.87189	30.63961	14:18:00	D	14.90
447	SANGRUR	MALERKOTLA	S-NPP	75.87128	30.64138	14:18:00	D	10.30
448	SANGRUR	MOONAK	S-NPP	75.99245	29.74060	14:18:00	D	4.70
449	SANGRUR	MOONAK	S-NPP	75.99123	29.74441	14:18:00	D	5.00
450	SANGRUR	MOONAK	S-NPP	76.02191	29.79008	14:18:00	D	5.40
451	SANGRUR	MOONAK	S-NPP	76.06604	29.80520	14:18:00	D	5.40
452	SANGRUR	MOONAK	S-NPP	76.06409	29.83660	14:18:00	D	6.70
453	SANGRUR	SANGRUR	S-NPP	75.83095	30.17452	12:42:00	D	3.50
454	SANGRUR	SANGRUR	S-NPP	75.82877	30.19662	14:18:00	D	5.00
455	SANGRUR	SANGRUR	S-NPP	75.82835	30.20283	14:18:00	D	5.00
456	SANGRUR	SANGRUR	S-NPP	76.03909	30.30022	14:18:00	D	8.80
457	SANGRUR	SUNAM	S-NPP	75.86244	29.99609	14:18:00	D	4.00
458	SANGRUR	SUNAM	S-NPP	75.92851	30.12071	14:18:00	D	4.10
459	SANGRUR	SUNAM	S-NPP	75.92936	30.12336	14:18:00	D	2.90

460	SANGRUR	SUNAM	S-NPP	75.81004	30.14426	12:42:00	D	4.40
461	SANGRUR	SUNAM	S-NPP	75.91064	30.14621	12:42:00	D	4.40
462	SANGRUR	SUNAM	S-NPP	75.91030	30.15161	12:42:00	D	4.00

Details of residue burning events in Haryana on 08-Nov-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	AMBALA	AMBALA	S-NPP	77.01502	30.33901	12:42:00	D	2.50
2	AMBALA	AMBALA	S-NPP	77.01740	30.33968	12:42:00	D	3.60
3	AMBALA	AMBALA	S-NPP	77.01904	30.34001	12:42:00	D	2.50
4	FATEHABAD	FATEHABAD	S-NPP	75.51855	29.56875	01:24:00	N	0.60
5	FATEHABAD	TOHANA	S-NPP	75.86255	29.57173	14:18:00	D	2.50
6	FATEHABAD	TOHANA	S-NPP	75.92027	29.65499	14:18:00	D	7.00
7	FATEHABAD	TOHANA	S-NPP	75.90333	29.66027	14:18:00	D	2.10
8	JIND	JIND	S-NPP	76.31609	29.36094	12:42:00	D	3.20
9	JIND	NARWANA	METOP-2	76.11355	29.77788	20:39:00	N	7.00
10	JIND	NARWANA	S-NPP	76.19073	29.81864	14:18:00	D	5.80
11	KAITHAL	KAITHAL	S-NPP	76.27311	29.79780	14:18:00	D	10.00
12	SIRSA	SIRSA	S-NPP	75.05372	29.84838	14:18:00	D	11.80
13	YAMUNANAGAR	CHHACHHRAULII	S-NPP	77.44834	30.23641	12:42:00	D	3.70
14	YAMUNANAGAR	JAGADHRI	AQUA	77.39100	30.15300	13:15:00	D	8.90
15	YAMUNANAGAR	JAGADHRI	AQUA	77.38500	30.15500	13:15:00	D	9.60
16	YAMUNANAGAR	JAGADHRI	S-NPP	77.27364	30.26218	12:42:00	D	2.20

Details of residue burning events in Uttar Pradesh on 08-Nov-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	ALIGARH	KHAIR	S-NPP	77.54073	28.00924	12:36:00	D	5.20
2	AMETHI	GAURIGANJ	NOAA-19	81.70509	26.24750	06:21:00	N	7.60
3	AMETHI	MUSAFIRKHANA	NOAA-19	81.72353	26.48556	06:21:00	N	7.00
4	AZAMGARH	PHULPUR	S-NPP	82.77518	25.97073	01:24:00	N	0.50
5	BAHRAICH	BAHRAICH	AQUA	81.64500	27.56900	13:15:00	D	3.60
6	BARABANKI	FATEHPUR	AQUA	81.14000	27.16800	13:15:00	D	8.10
7	BARABANKI	RAMSANEHIGHAT	AQUA	81.45200	26.74600	13:15:00	D	6.80
8	BARABANKI	SIRAULI GAUSPUR	AQUA	81.47900	26.93500	13:15:00	D	11.10
9	BAREILLY	BAHERI	S-NPP	79.40935	28.86092	12:36:00	D	6.20
10	BAREILLY	FARIDPUR	S-NPP	79.65984	28.24818	12:36:00	D	9.40
11	BASTI	BHANPUR	AQUA	82.64200	26.98000	13:15:00	D	3.60
12	ETAWAH	ETAWAH	S-NPP	79.16026	26.92816	12:36:00	D	2.70
13	HAMIRPUR	RATH	S-NPP	79.60880	25.66959	12:36:00	D	1.90
14	JALAUN	KONCH	AQUA	79.14200	26.09100	13:15:00	D	7.70
15	JALAUN	URAI	AQUA	79.43700	26.04900	13:15:00	D	7.60
16	JHANSI	JHANSI	AQUA	78.70500	25.50800	13:15:00	D	14.00
17	JHANSI	JHANSI	AQUA	78.72000	25.51100	13:15:00	D	24.40
18	JHANSI	MOTH	S-NPP	78.89196	25.76153	12:36:00	D	5.30
19	KANPUR	GHATAMPUR	AQUA	80.37700	26.26800	13:15:00	D	6.90
20	KHERI	GOLA	S-NPP	80.30497	28.20177	12:36:00	D	6.10
21	MAHARAJGANJ	MAHARAJGANJ	S-NPP	83.52208	27.23652	12:36:00	D	3.30
22	MAHARAJGANJ	NAUTANWA	S-NPP	83.40249	27.34855	12:36:00	D	1.80
23	MAHARAJGANJ	NAUTANWA	S-NPP	83.50560	27.35523	12:36:00	D	1.80
24	MAHARAJGANJ	NICHLAUL	AQUA	83.65500	27.30900	13:15:00	D	7.00
25	MAHARAJGANJ	NICHLAUL	S-NPP	83.68475	27.31137	12:36:00	D	3.00
26	MAHARAJGANJ	NICHLAUL	S-NPP	83.69706	27.35885	12:36:00	D	7.00
27	MAHARAJGANJ	PHARENDA	AQUA	83.34000	27.21000	13:15:00	D	5.00
28	MAINPURI	BHOGAON	S-NPP	79.08189	27.39252	12:36:00	D	1.90
29	MATHURA	CHHATA	S-NPP	77.44844	27.71599	14:18:00	D	8.50
30	MATHURA	CHHATA	S-NPP	77.45126	27.71915	14:18:00	D	10.70

31	PILHIBHIT	PILHIBHIT	AQUA	79.93800	28.75700	13:15:00	D	10.70
32	PILHIBHIT	PURANPUR	S-NPP	80.20015	28.44811	01:24:00	N	0.90
33	PILHIBHIT	PURANPUR	AQUA	80.08400	28.47000	13:15:00	D	7.10
34	PILHIBHIT	PURANPUR	AQUA	80.09700	28.48700	13:15:00	D	5.90
35	PILHIBHIT	PURANPUR	S-NPP	80.01180	28.59138	12:36:00	D	4.40
36	PILHIBHIT	PURANPUR	S-NPP	80.00964	28.59532	12:36:00	D	11.30
37	PILHIBHIT	PURANPUR	S-NPP	80.01048	28.59610	12:36:00	D	9.90
38	RAIBEARELI	SALON	NOAA-19	81.59072	26.21204	06:21:00	N	11.53
39	RAMPUR	BILASPUR	S-NPP	79.28038	28.79528	12:36:00	D	9.40
40	RAMPUR	BILASPUR	AQUA	79.37600	28.87800	13:15:00	D	5.20
41	RAMPUR	BILASPUR	AQUA	79.39400	28.91200	13:15:00	D	13.40
42	RAMPUR	BILASPUR	AQUA	79.40600	28.91400	13:15:00	D	9.40
43	RAMPUR	SUAR	S-NPP	79.03994	29.10017	12:36:00	D	2.20
44	SHAHJAHANPUR	PUWANYA	S-NPP	80.12843	28.13321	12:36:00	D	6.90
45	SHAHJAHANPUR	PUWANYA	S-NPP	80.13809	28.16542	12:36:00	D	5.00
46	SHAHJAHANPUR	PUWANYA	S-NPP	80.21886	28.20253	12:36:00	D	4.20
47	SHAHJAHANPUR	PUWANYA	S-NPP	80.21973	28.20317	12:36:00	D	5.80
48	SHAHJAHANPUR	PUWANYA	S-NPP	80.22444	28.24863	12:36:00	D	4.60
49	SHAHJAHANPUR	PUWANYA	S-NPP	80.23010	28.27628	01:24:00	N	0.70
50	SHAHJAHANPUR	SHAHJAHANPUR	AQUA	79.99700	27.81900	13:15:00	D	5.40
51	SHARANPUR	BEHAT	S-NPP	77.69857	30.10423	12:42:00	D	2.80
52	SHARANPUR	BEHAT	AQUA	77.52900	30.21400	13:15:00	D	16.20
53	SITAPUR	MAHMUDABAD	AQUA	81.17000	27.29100	13:15:00	D	7.90
54	SITAPUR	SIDHAULI	AQUA	80.83400	27.36900	13:15:00	D	5.50

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)
