

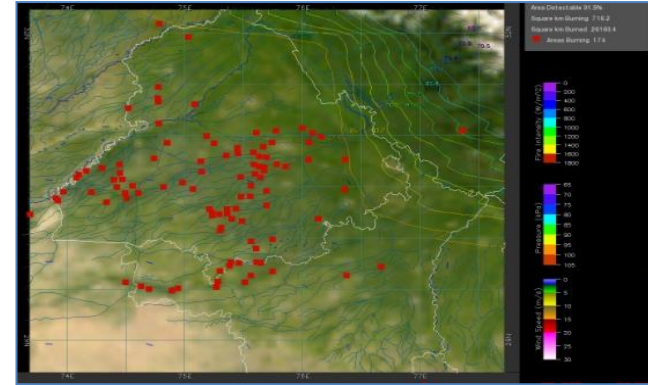
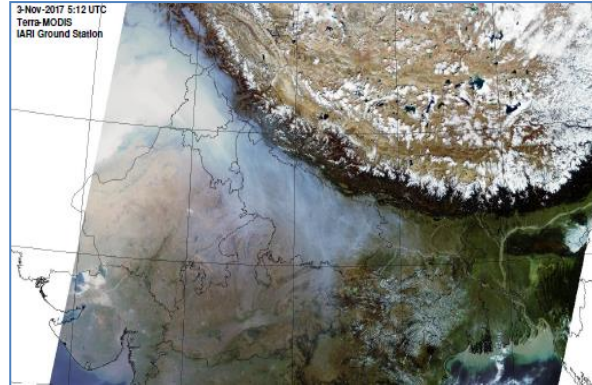


# MONITORING PADDY RESIDUE BURNING IN NORTH INDIA USING SATELLITE REMOTE SENSING DURING 2019

**Bulletin  
No. 18**

**Events Date:  
18-Oct-2019**

**Issued on:  
19-Oct-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**

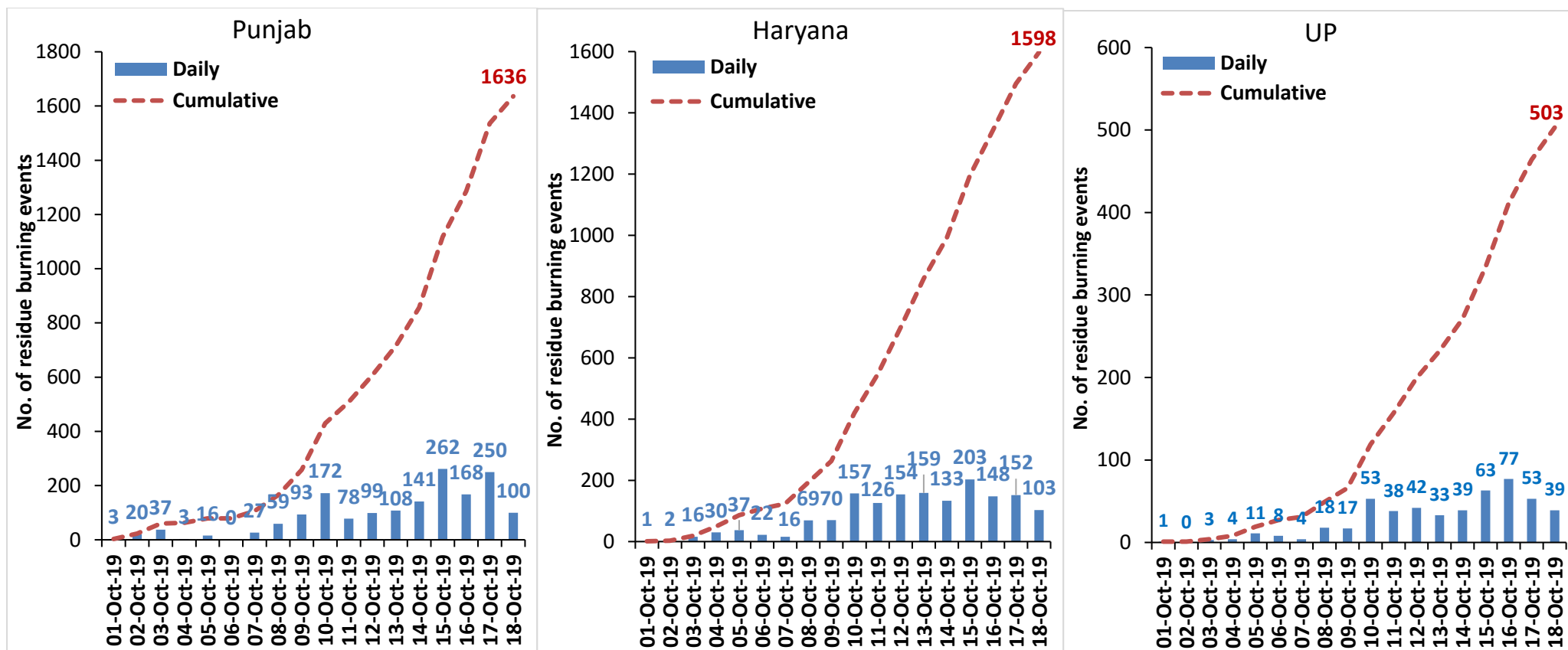
<http://creams.iari.res.in>



## Highlights for 18-October-2019

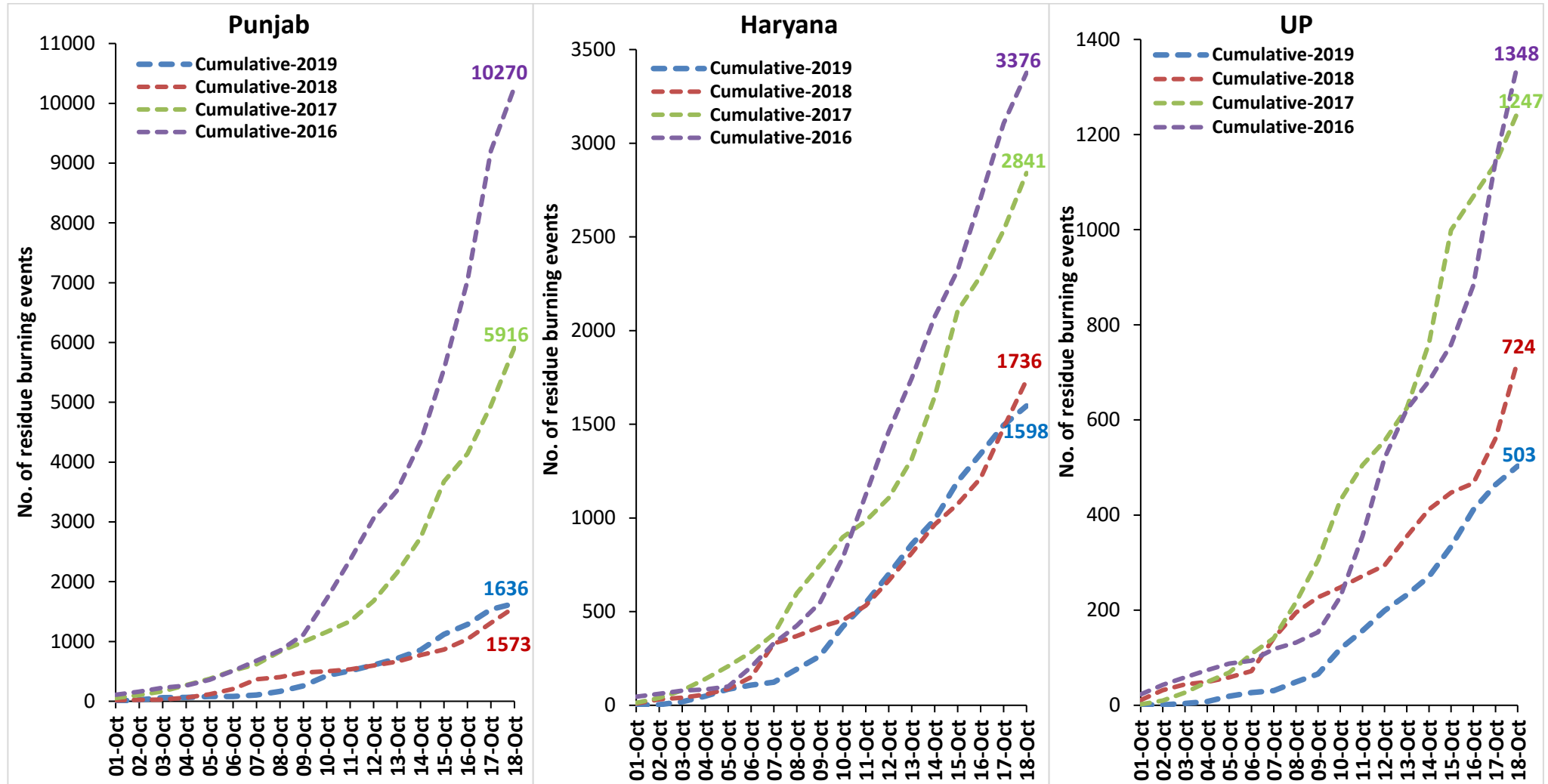
- Satellites detected **242** residue burning events in the three study States on 18-Oct-2019.
- The burning events detected on **18-Oct-2019** are **100**, **103** and **39** in Punjab, Haryana and UP, respectively.
- The number of events has decreased from **455** on **17-Oct-2019** to **242** on **18-Oct-2019** in the three states.
- Total **3737** burning events were detected in the three States between **01-Oct-2019** and **18-Oct-2019**, which are distributed as **1636**, **1598** and **503** in Punjab, Haryana and UP, respectively.
- Overall, the total burning events recorded in the three states are **7.4%** less than in 2018 till date. Haryana and UP recorded **7.9%** and **30.5%** reduction respectively while Punjab recorded **4.0%** increase, in the current season than in 2018.

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

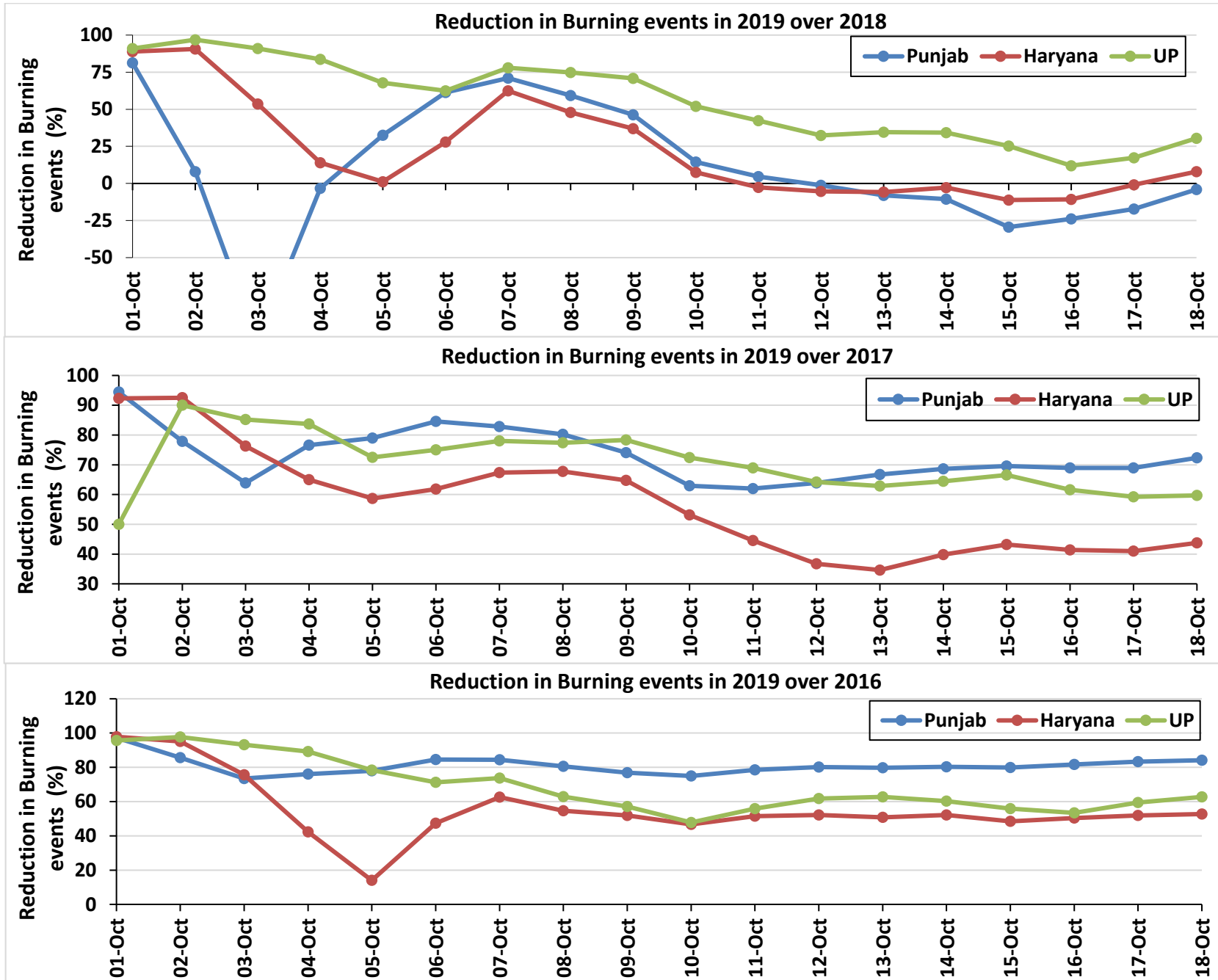


**Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States**

**(01-Oct to 18-Oct)**



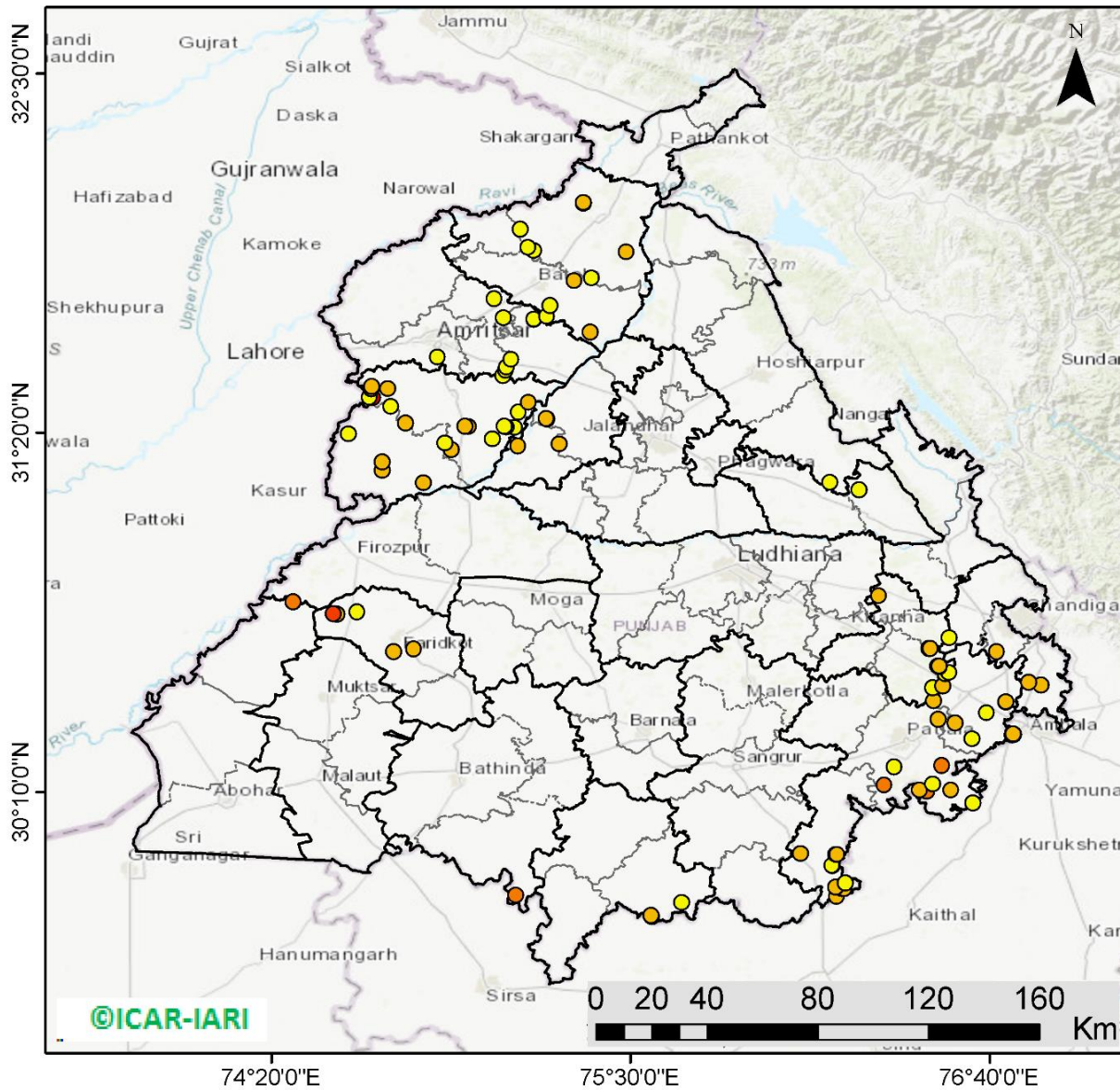
## Percent Reduction in Burning events in 2019 over 2018, 2017 and 2016 (Daily Cumulative)





(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



**100** burning events detected in Punjab on 18th October 2019

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

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

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**Details of residue burning events in Punjab on 18-Oct-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	AMRITSAR	AMRITSAR I	TERRA	75.09700	31.54600	11:20:00	D	4.10
2	AMRITSAR	AMRITSAR I	S-NPP	75.08681	31.70632	12:36:00	D	4.30
3	AMRITSAR	AMRITSAR I	S-NPP	75.05780	31.76867	12:36:00	D	4.00
4	AMRITSAR	AMRITSAR II	S-NPP	74.87365	31.57880	12:36:00	D	2.10
5	AMRITSAR	BABA BAKALA	TERRA	75.09500	31.53700	11:20:00	D	4.70
6	AMRITSAR	BABA BAKALA	TERRA	75.11300	31.57100	11:20:00	D	4.40
7	AMRITSAR	BABA BAKALA	S-NPP	75.18729	31.69978	12:36:00	D	4.20
8	AMRITSAR	BABA BAKALA	S-NPP	75.18683	31.70235	12:36:00	D	4.70
9	BATHINDA	TALWANDI SABO	TERRA	75.12700	29.83100	11:20:00	D	14.40
10	FARIDKOT	FARIDKOT	TERRA	74.73000	30.62300	11:20:00	D	8.60
11	FARIDKOT	FARIDKOT	TERRA	74.79600	30.63100	11:20:00	D	8.00
12	FARIDKOT	FARIDKOT	TERRA	74.54600	30.74400	11:20:00	D	7.10
13	FARIDKOT	FARIDKOT	TERRA	74.53500	30.74500	11:20:00	D	17.30
14	FARIDKOT	FARIDKOT	TERRA	74.61200	30.75200	11:20:00	D	3.80
15	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.48207	30.50511	14:12:00	D	2.30
16	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.50169	30.57170	14:12:00	D	9.10
17	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.49793	30.57515	14:12:00	D	5.10
18	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.50283	30.57544	14:12:00	D	7.70
19	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.46897	30.63282	14:12:00	D	5.20
20	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.47385	30.63312	14:12:00	D	5.20
21	FATEHGARH SAHIB	KHAMANOH	TERRA	76.30700	30.80400	11:20:00	D	9.10
22	FAZILKA	JALALABAD	TERRA	74.40400	30.78400	11:20:00	D	14.20
23	GURDASPUR	BATALA	TERRA	75.36900	31.66100	11:20:00	D	5.50
24	GURDASPUR	BATALA	S-NPP	75.22836	31.71103	12:36:00	D	4.50
25	GURDASPUR	BATALA	TERRA	75.23900	31.74600	11:20:00	D	3.30
26	GURDASPUR	BATALA	TERRA	75.31700	31.82600	11:20:00	D	5.50
27	GURDASPUR	BATALA	S-NPP	75.16716	31.93502	14:12:00	D	2.00
28	GURDASPUR	GURDASPUR	TERRA	75.37400	31.83500	11:20:00	D	3.60
29	GURDASPUR	GURDASPUR	TERRA	75.48700	31.92000	11:20:00	D	5.50
30	GURDASPUR	GURDASPUR	S-NPP	75.18512	31.92508	14:12:00	D	1.80

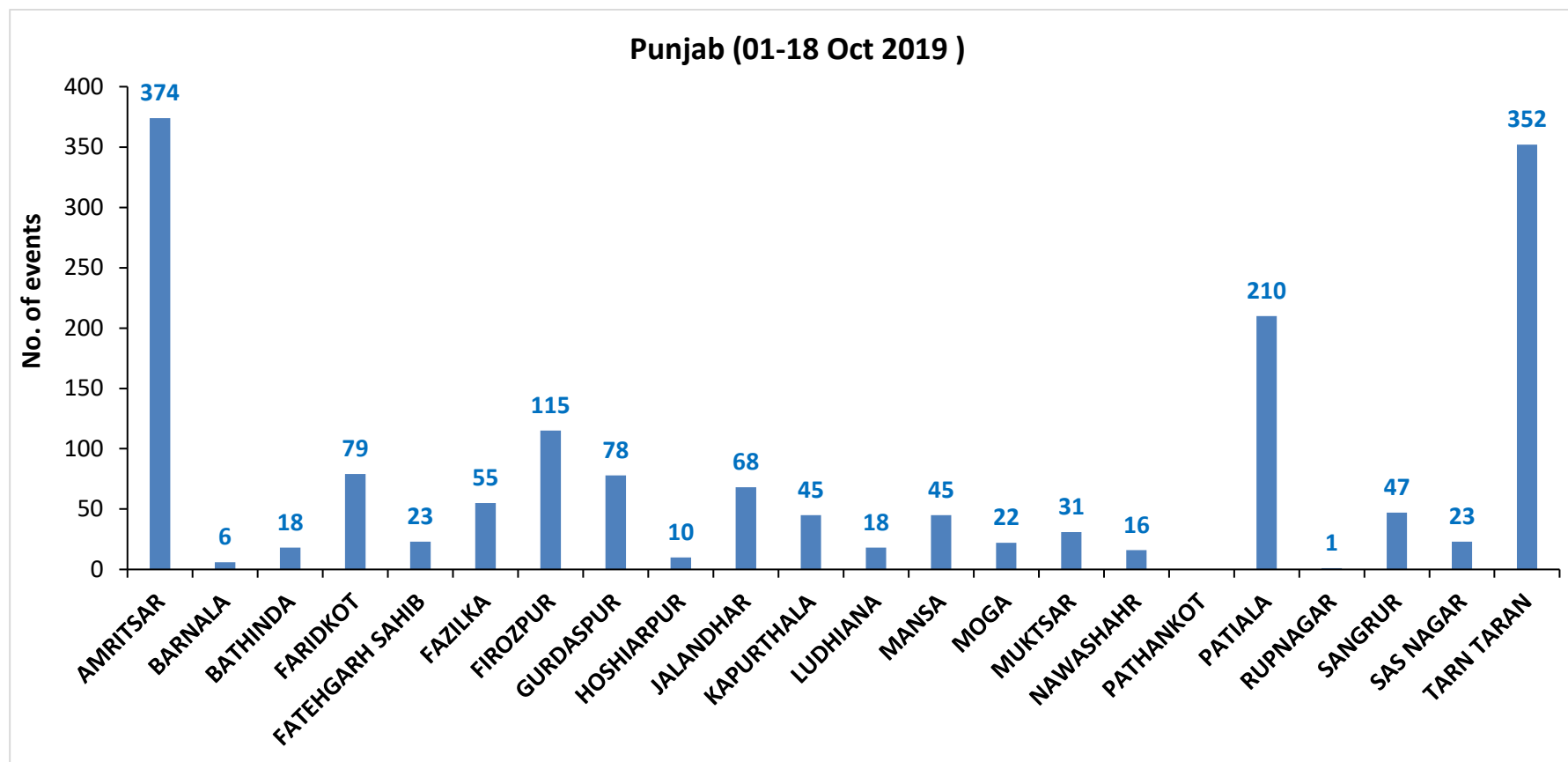
31	GURDASPUR	GURDASPUR	S-NPP	75.14135	31.99416	14:12:00	D	2.20
32	GURDASPUR	GURDASPUR	S-NPP	75.34690	32.07833	14:12:00	D	4.20
33	GURDASPUR	GURDASPUR	S-NPP	75.34688	32.08086	14:12:00	D	5.10
34	HOSHIARPUR	GARHSHANKAR	S-NPP	76.14733	31.17148	14:12:00	D	3.10
35	KAPURTHALA	KAPURTHALA	TERRA	75.26800	31.29700	11:20:00	D	8.10
36	KAPURTHALA	KAPURTHALA	S-NPP	75.22971	31.37887	12:36:00	D	8.10
37	KAPURTHALA	KAPURTHALA	S-NPP	75.22644	31.37935	12:36:00	D	8.40
38	KAPURTHALA	SULTANPUR LODHI	TERRA	75.13400	31.29000	11:20:00	D	7.60
39	MANSA	BUDHLADA	S-NPP	75.56804	29.76200	14:12:00	D	5.50
40	MANSA	BUDHLADA	S-NPP	75.56728	29.76604	14:12:00	D	8.00
41	MANSA	BUDHLADA	S-NPP	75.66567	29.80643	14:12:00	D	3.70
42	NAWASHAHR	BALACHAUR	S-NPP	76.24302	31.14861	14:12:00	D	2.70
43	PATIALA	PATIALA	S-NPP	76.61160	30.13111	14:12:00	D	3.90
44	PATIALA	PATIALA	TERRA	76.46200	30.16800	11:20:00	D	10.30
45	PATIALA	PATIALA	TERRA	76.43900	30.17200	11:20:00	D	6.40
46	PATIALA	PATIALA	S-NPP	76.54158	30.17220	14:12:00	D	5.20
47	PATIALA	PATIALA	S-NPP	76.32339	30.18813	14:12:00	D	10.40
48	PATIALA	PATIALA	S-NPP	76.48155	30.19223	14:12:00	D	2.80
49	PATIALA	PATIALA	S-NPP	76.35728	30.24758	14:12:00	D	3.10
50	PATIALA	PATIALA	TERRA	76.51100	30.25300	11:20:00	D	11.40
51	PATIALA	PATIALA	S-NPP	76.49940	30.40217	14:12:00	D	5.70
52	PATIALA	PATIALA	TERRA	76.48500	30.46200	11:20:00	D	7.60
53	PATIALA	RAJPURA	S-NPP	76.60924	30.33800	12:36:00	D	3.00
54	PATIALA	RAJPURA	S-NPP	76.74017	30.35269	12:36:00	D	4.00
55	PATIALA	RAJPURA	S-NPP	76.74534	30.35403	12:36:00	D	4.00
56	PATIALA	RAJPURA	S-NPP	76.74220	30.35429	12:36:00	D	6.40
57	PATIALA	RAJPURA	TERRA	76.55500	30.39100	11:20:00	D	5.80
58	PATIALA	RAJPURA	S-NPP	76.65622	30.42369	14:12:00	D	2.30
59	PATIALA	RAJPURA	S-NPP	76.71922	30.45757	14:12:00	D	3.70
60	PATIALA	RAJPURA	S-NPP	76.71965	30.45927	14:12:00	D	5.80
61	PATIALA	RAJPURA	TERRA	76.51400	30.51100	11:20:00	D	6.90
62	PATIALA	RAJPURA	S-NPP	76.52303	30.54926	14:12:00	D	2.00
63	PATIALA	RAJPURA	S-NPP	76.53412	30.55344	14:12:00	D	4.70
64	PATIALA	SAMANA	TERRA	76.16900	29.82700	11:20:00	D	9.50

65	PATIALA	SAMANA	TERRA	76.18700	29.85300	11:20:00	D	6.60
66	PATIALA	SAMANA	S-NPP	76.19479	29.85338	14:12:00	D	6.20
67	PATIALA	SAMANA	S-NPP	76.16683	29.85735	14:12:00	D	6.20
68	PATIALA	SAMANA	S-NPP	76.19798	29.87102	14:12:00	D	1.90
69	PATIALA	SAMANA	S-NPP	76.15678	29.92625	14:12:00	D	3.60
70	PATIALA	SAMANA	S-NPP	76.15556	29.92694	14:12:00	D	3.00
71	PATIALA	SAMANA	S-NPP	76.16650	29.96245	14:12:00	D	5.10
72	PATIALA	SAMANA	S-NPP	76.17110	29.96275	14:12:00	D	6.50
73	PATIALA	SAMANA	S-NPP	76.05180	29.96641	14:12:00	D	7.40
74	SAS NAGAR	DERABASSI	S-NPP	76.83296	30.51397	14:12:00	D	5.40
75	SAS NAGAR	DERABASSI	S-NPP	76.79272	30.52233	12:36:00	D	5.80
76	SAS NAGAR	KHARAR	S-NPP	76.53551	30.66674	14:12:00	D	2.40
77	SAS NAGAR	MOHALI	S-NPP	76.68897	30.62226	14:12:00	D	6.70
78	TARN TARAN	KHADOOR SAHIB	TERRA	74.91800	31.27800	11:20:00	D	6.50
79	TARN TARAN	KHADOOR SAHIB	TERRA	75.05100	31.31300	11:20:00	D	4.10
80	TARN TARAN	KHADOOR SAHIB	S-NPP	75.12207	31.34935	12:36:00	D	2.80
81	TARN TARAN	KHADOOR SAHIB	TERRA	75.09800	31.35100	11:20:00	D	5.50
82	TARN TARAN	KHADOOR SAHIB	TERRA	74.97300	31.35300	11:20:00	D	9.10
83	TARN TARAN	KHADOOR SAHIB	TERRA	74.96200	31.35400	11:20:00	D	6.50
84	TARN TARAN	KHADOOR SAHIB	S-NPP	75.09037	31.35491	12:36:00	D	2.60
85	TARN TARAN	KHADOOR SAHIB	S-NPP	75.13605	31.40115	12:36:00	D	3.00
86	TARN TARAN	KHADOOR SAHIB	S-NPP	75.16828	31.43151	12:36:00	D	6.50
87	TARN TARAN	KHADOOR SAHIB	TERRA	74.66300	31.44600	11:20:00	D	23.40
88	TARN TARAN	KHADOOR SAHIB	TERRA	74.65200	31.44800	11:20:00	D	4.80
89	TARN TARAN	KHADOOR SAHIB	TERRA	74.65800	31.47500	11:20:00	D	5.90
90	TARN TARAN	KHADOOR SAHIB	TERRA	74.71200	31.47600	11:20:00	D	5.40
91	TARN TARAN	KHADOOR SAHIB	TERRA	74.65900	31.48400	11:20:00	D	8.20
92	TARN TARAN	KHADOOR SAHIB	TERRA	75.08500	31.52000	11:20:00	D	4.90
93	TARN TARAN	PATTI	S-NPP	74.82726	31.17000	12:36:00	D	5.30
94	TARN TARAN	PATTI	TERRA	74.69300	31.21100	11:20:00	D	6.00
95	TARN TARAN	PATTI	TERRA	74.69400	31.23900	11:20:00	D	8.80
96	TARN TARAN	PATTI	TERRA	74.89700	31.30000	11:20:00	D	3.90
97	TARN TARAN	PATTI	TERRA	74.58300	31.32900	11:20:00	D	4.10
98	TARN TARAN	PATTI	TERRA	74.78000	31.36400	11:20:00	D	56.60



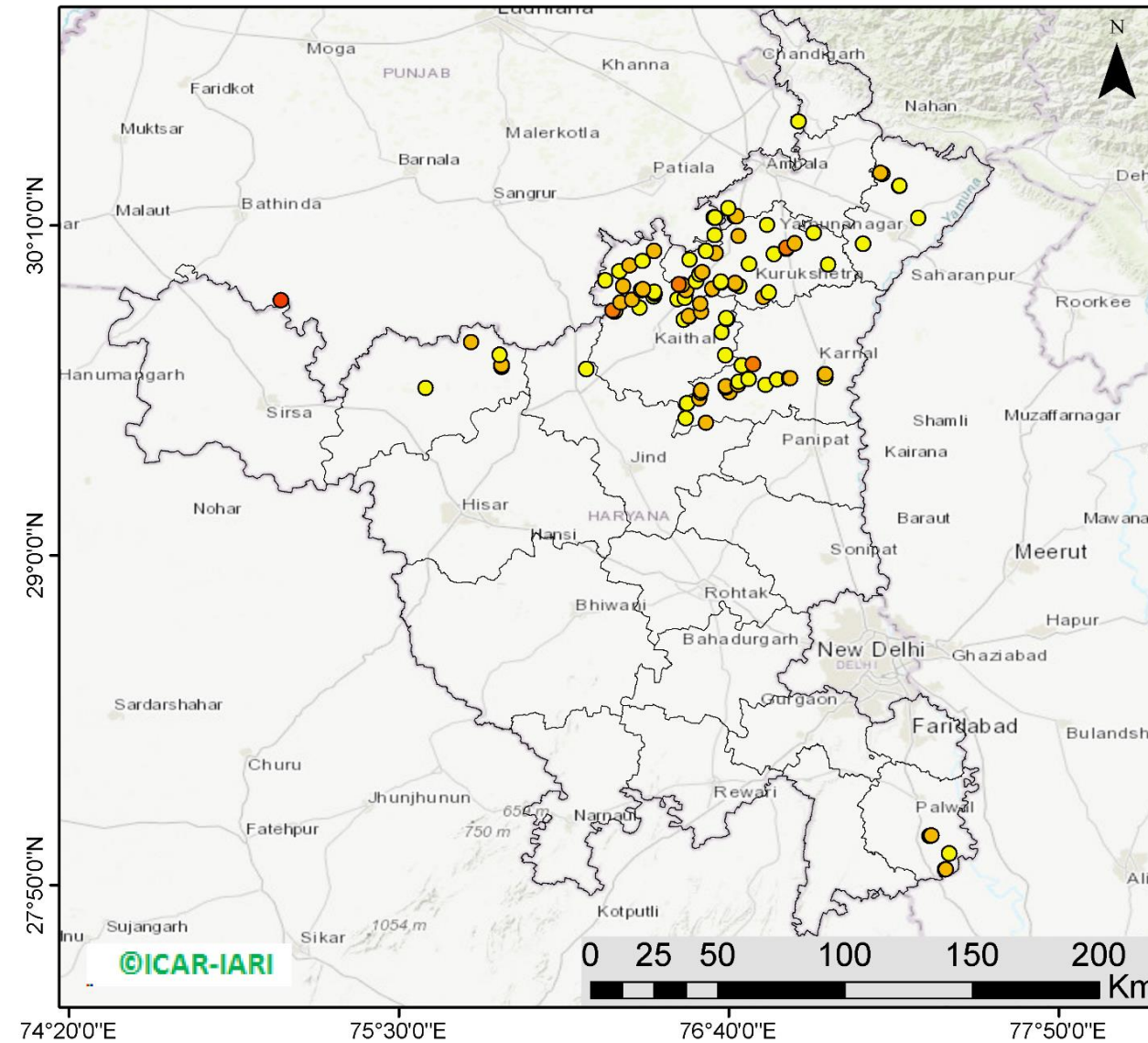
99	TARN TARAN	PATTI	TERRA	74.76900	31.36500	11:20:00	D	5.40
100	TARN TARAN	PATTI	TERRA	74.72200	31.41900	11:20:00	D	4.20

**District-wise cumulative number of residue burning events in Punjab (01 to 18-Oct 2019)**



(b) Haryana

**RICE RESIDUE BURNING IN HARYANA**



**103** burning events detected in Haryana on 18th October 2019

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

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

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**Details of residue burning events in Haryana on 18-Oct-2019**

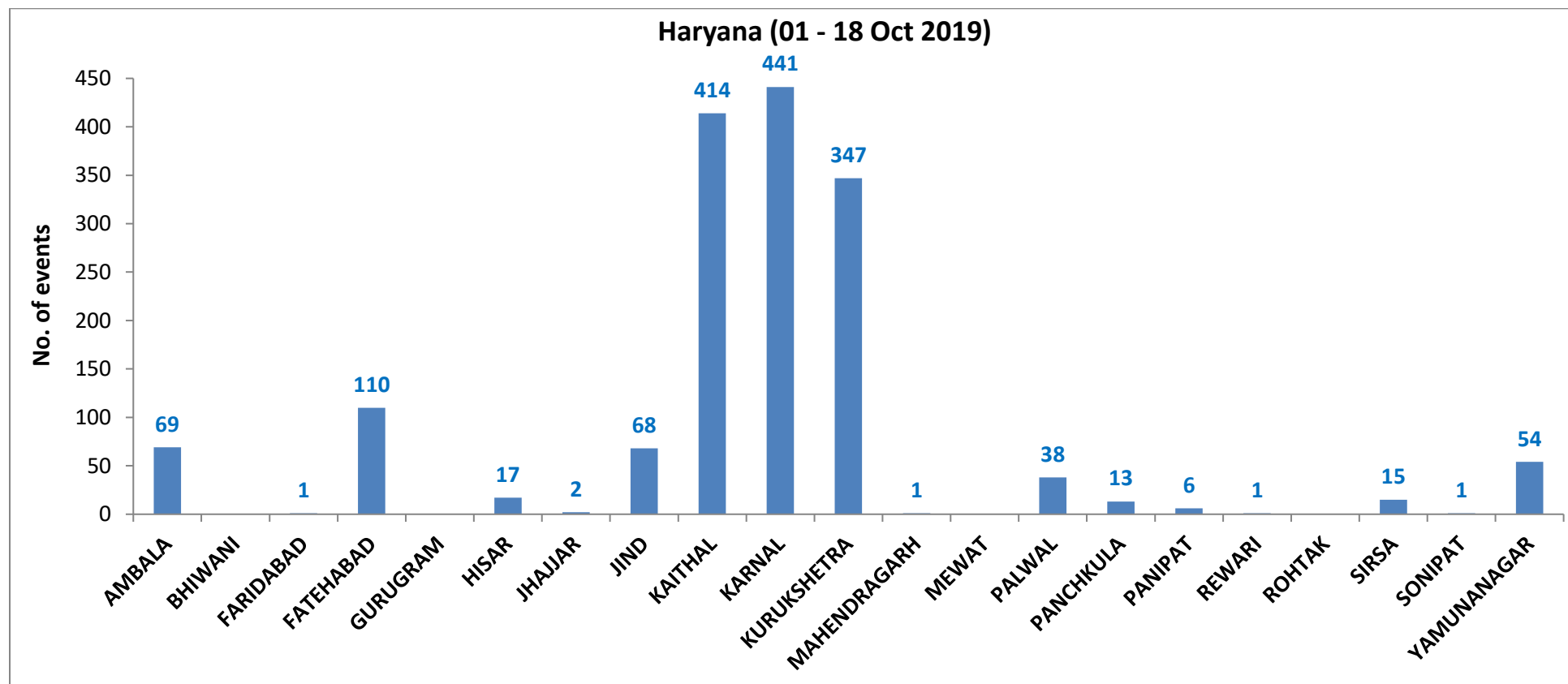
S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m <sup>2</sup> )
1	AMBALA	AMBALA	S-NPP	76.61651	30.13142	14:12:00	D	4.40
2	AMBALA	AMBALA	S-NPP	76.61369	30.19444	14:12:00	D	4.70
3	AMBALA	AMBALA	S-NPP	76.61861	30.19474	14:12:00	D	4.70
4	AMBALA	AMBALA	S-NPP	76.68790	30.19895	14:12:00	D	6.00
5	AMBALA	AMBALA	S-NPP	76.69287	30.19925	14:12:00	D	8.50
6	AMBALA	AMBALA	S-NPP	76.66581	30.22753	14:12:00	D	3.00
7	FATEHABAD	RATIA	S-NPP	75.59496	29.59154	14:12:00	D	2.10
8	FATEHABAD	TOHANA	S-NPP	75.86304	29.66694	14:12:00	D	3.60
9	FATEHABAD	TOHANA	S-NPP	75.86256	29.67259	14:12:00	D	6.20
10	FATEHABAD	TOHANA	S-NPP	75.85590	29.70899	14:12:00	D	4.40
11	FATEHABAD	TOHANA	S-NPP	75.75648	29.75316	14:12:00	D	6.40
12	JIND	JIND	S-NPP	76.51376	29.48375	12:30:00	D	3.50
13	JIND	NARWANA	S-NPP	76.16308	29.65909	14:12:00	D	3.80
14	JIND	SAFIDON	TERRA	76.58700	29.46800	11:20:00	D	6.10
15	KAITHAL	GUHLA	S-NPP	76.40086	29.91373	14:12:00	D	4.60
16	KAITHAL	GUHLA	S-NPP	76.40469	29.92575	14:12:00	D	3.30
17	KAITHAL	GUHLA	S-NPP	76.40342	29.93073	14:12:00	D	5.80
18	KAITHAL	GUHLA	S-NPP	76.40426	29.93160	14:12:00	D	4.60
19	KAITHAL	GUHLA	TERRA	76.29300	29.95200	11:20:00	D	6.10
20	KAITHAL	GUHLA	S-NPP	76.23055	29.97246	14:12:00	D	4.30
21	KAITHAL	GUHLA	S-NPP	76.27940	30.00487	14:12:00	D	3.60
22	KAITHAL	GUHLA	S-NPP	76.31576	30.02402	14:12:00	D	8.70
23	KAITHAL	GUHLA	S-NPP	76.31548	30.02484	14:12:00	D	8.90
24	KAITHAL	GUHLA	S-NPP	76.36166	30.03969	14:12:00	D	4.70
25	KAITHAL	GUHLA	S-NPP	76.40191	30.07634	14:12:00	D	8.30
26	KAITHAL	KAITHAL	S-NPP	76.51839	29.53693	14:12:00	D	4.80
27	KAITHAL	KAITHAL	S-NPP	76.65368	29.70823	12:36:00	D	3.70
28	KAITHAL	KAITHAL	S-NPP	76.64156	29.78938	14:12:00	D	3.10
29	KAITHAL	KAITHAL	S-NPP	76.50705	29.83400	14:12:00	D	3.50
30	KAITHAL	KAITHAL	S-NPP	76.65849	29.83521	14:12:00	D	5.70

31	KAITHAL	KAITHAL	S-NPP	76.65753	29.83807	14:12:00	D	3.90
32	KAITHAL	KAITHAL	S-NPP	76.52606	29.84505	14:12:00	D	6.00
33	KAITHAL	KAITHAL	S-NPP	76.52535	29.84707	14:12:00	D	6.20
34	KAITHAL	KAITHAL	TERRA	76.26100	29.86100	11:20:00	D	19.50
35	KAITHAL	KAITHAL	S-NPP	76.56874	29.86117	12:36:00	D	6.10
36	KAITHAL	KAITHAL	TERRA	76.26700	29.86400	11:20:00	D	9.50
37	KAITHAL	KAITHAL	TERRA	76.25600	29.86600	11:20:00	D	13.30
38	KAITHAL	KAITHAL	S-NPP	76.35174	29.87528	14:12:00	D	4.70
39	KAITHAL	KAITHAL	S-NPP	76.56631	29.88904	14:12:00	D	8.40
40	KAITHAL	KAITHAL	S-NPP	76.28448	29.89425	14:12:00	D	5.40
41	KAITHAL	KAITHAL	TERRA	76.32400	29.90400	11:20:00	D	7.30
42	KAITHAL	KAITHAL	S-NPP	76.48609	29.90410	12:36:00	D	4.10
43	KAITHAL	KAITHAL	TERRA	76.35600	29.93800	11:20:00	D	6.30
44	KAITHAL	KAITHAL	TERRA	76.36300	29.94100	11:20:00	D	10.00
45	KARNAL	ASSANDH	TERRA	76.56200	29.55500	11:20:00	D	6.80
46	KARNAL	ASSANDH	S-NPP	76.56820	29.57556	14:12:00	D	2.20
47	KARNAL	ASSANDH	TERRA	76.66800	29.57700	11:20:00	D	7.10
48	KARNAL	ASSANDH	TERRA	76.56900	29.58400	11:20:00	D	5.70
49	KARNAL	ASSANDH	S-NPP	76.65501	29.59322	12:30:00	D	7.50
50	KARNAL	ASSANDH	S-NPP	76.65591	29.59812	12:36:00	D	6.50
51	KARNAL	ASSANDH	TERRA	76.69900	29.60200	11:20:00	D	6.60
52	KARNAL	ASSANDH	S-NPP	76.79642	29.60208	14:12:00	D	3.70
53	KARNAL	ASSANDH	S-NPP	76.70153	29.61391	14:12:00	D	2.70
54	KARNAL	ASSANDH	S-NPP	76.73544	29.62210	14:12:00	D	3.60
55	KARNAL	KARNAL	S-NPP	76.83715	29.62074	12:30:00	D	4.20
56	KARNAL	KARNAL	S-NPP	76.87986	29.62543	14:12:00	D	5.70
57	KARNAL	KARNAL	S-NPP	76.88489	29.62575	14:12:00	D	7.20
58	KARNAL	KARNAL	S-NPP	77.00697	29.62742	14:12:00	D	4.00
59	KARNAL	KARNAL	S-NPP	77.00610	29.63950	14:12:00	D	7.90
60	KARNAL	KARNAL	S-NPP	77.00701	29.64052	14:12:00	D	7.80
61	KARNAL	KARNAL	S-NPP	76.71252	29.67115	14:12:00	D	3.40
62	KARNAL	KARNAL	S-NPP	76.75201	29.67573	12:36:00	D	12.70
63	KURUKSHETRA	PEHOWA	S-NPP	76.51144	29.90921	14:12:00	D	4.90
64	KURUKSHETRA	PEHOWA	S-NPP	76.51578	29.93825	12:36:00	D	5.40

65	KURUKSHETRA	PEHOWA	S-NPP	76.60786	29.94289	12:36:00	D	8.20
66	KURUKSHETRA	PEHOWA	S-NPP	76.70422	29.95153	14:12:00	D	3.20
67	KURUKSHETRA	PEHOWA	TERRA	76.50200	29.95700	11:20:00	D	8.30
68	KURUKSHETRA	PEHOWA	TERRA	76.49000	29.95900	11:20:00	D	12.90
69	KURUKSHETRA	PEHOWA	S-NPP	76.68811	29.95976	14:12:00	D	5.30
70	KURUKSHETRA	PEHOWA	S-NPP	76.68853	29.96246	14:12:00	D	5.60
71	KURUKSHETRA	PEHOWA	S-NPP	76.63895	29.96513	14:12:00	D	2.80
72	KURUKSHETRA	PEHOWA	S-NPP	76.63798	29.96869	14:12:00	D	3.60
73	KURUKSHETRA	PEHOWA	S-NPP	76.54971	29.96923	14:12:00	D	4.10
74	KURUKSHETRA	PEHOWA	S-NPP	76.56248	29.99377	14:12:00	D	4.70
75	KURUKSHETRA	PEHOWA	S-NPP	76.57175	30.00029	14:12:00	D	8.00
76	KURUKSHETRA	PEHOWA	S-NPP	76.52847	30.04492	12:36:00	D	2.90
77	KURUKSHETRA	PEHOWA	TERRA	76.61900	30.06900	11:20:00	D	8.00
78	KURUKSHETRA	PEHOWA	S-NPP	76.58617	30.07593	14:12:00	D	2.30
79	KURUKSHETRA	PEHOWA	TERRA	76.70100	30.12800	11:20:00	D	8.80
80	KURUKSHETRA	SHAHABAD	S-NPP	76.96649	30.14047	12:36:00	D	2.50
81	KURUKSHETRA	SHAHABAD	S-NPP	76.80161	30.16808	12:36:00	D	2.90
82	KURUKSHETRA	THANESAR	S-NPP	76.78834	29.91200	12:36:00	D	5.30
83	KURUKSHETRA	THANESAR	S-NPP	76.80704	29.93066	12:36:00	D	4.00
84	KURUKSHETRA	THANESAR	S-NPP	77.01850	30.02777	14:12:00	D	3.10
85	KURUKSHETRA	THANESAR	S-NPP	76.73780	30.02868	14:12:00	D	1.70
86	KURUKSHETRA	THANESAR	S-NPP	76.82658	30.06625	14:12:00	D	3.30
87	KURUKSHETRA	THANESAR	S-NPP	76.87014	30.08530	14:12:00	D	8.70
88	KURUKSHETRA	THANESAR	S-NPP	76.87087	30.08694	14:12:00	D	11.30
89	KURUKSHETRA	THANESAR	TERRA	76.90000	30.10400	11:20:00	D	6.10
90	PALWAL	HODAL	S-NPP	77.43203	27.88852	14:12:00	D	4.10
91	PALWAL	HODAL	S-NPP	77.43440	27.88963	14:12:00	D	6.00
92	PALWAL	HODAL	S-NPP	77.44572	27.94550	14:12:00	D	4.00
93	PALWAL	HODAL	S-NPP	77.37874	28.00648	12:30:00	D	8.30
94	PALWAL	HODAL	S-NPP	77.37679	28.00726	12:30:00	D	6.80
95	PALWAL	HODAL	S-NPP	77.38210	28.00860	12:30:00	D	8.30
96	PANCHKULA	PANCHKULA	S-NPP	76.91346	30.53315	12:36:00	D	2.10
97	SIRSA	SIRSA	TERRA	75.08200	29.90200	11:20:00	D	16.70
98	YAMUNANAGAR	JAGADHRI	S-NPP	77.14123	30.10131	12:36:00	D	2.50

99	YAMUNANAGAR	JAGADHRI	S-NPP	77.33658	30.19312	14:12:00	D	2.50
100	YAMUNANAGAR	JAGADHRI	S-NPP	77.26965	30.30481	12:36:00	D	3.20
101	YAMUNANAGAR	JAGADHRI	S-NPP	77.27000	30.30676	12:36:00	D	3.00
102	YAMUNANAGAR	JAGADHRI	TERRA	77.20900	30.35000	11:20:00	D	7.30
103	YAMUNANAGAR	JAGADHRI	TERRA	77.20200	30.35200	11:20:00	D	9.30

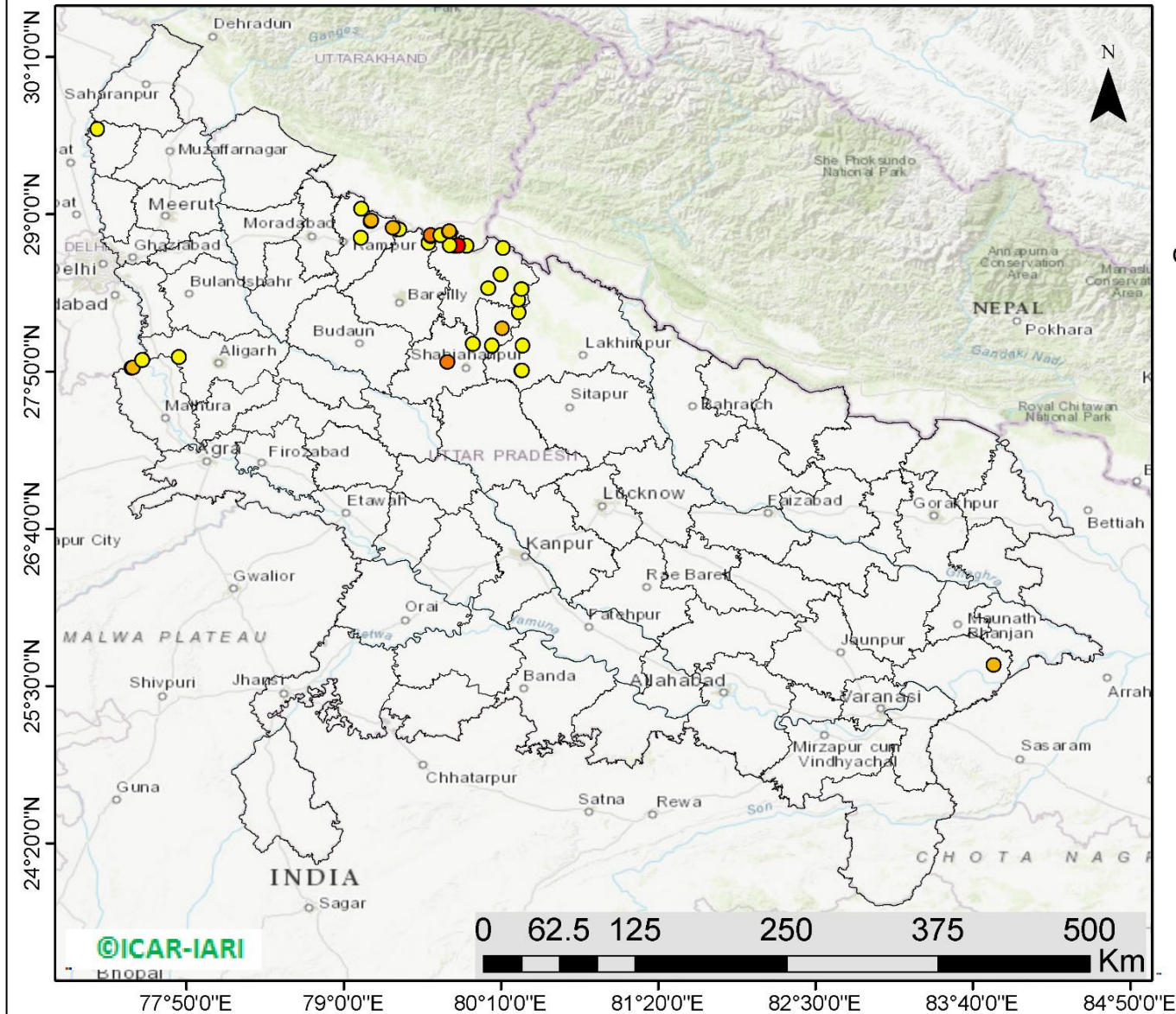
**District-wise cumulative number of residue burning events in Haryana (01 to 18-Oct 2019)**





(c) UP

### RICE RESIDUE BURNING IN UTTAR PRADESH



**39** burning events detected in Uttar Pradesh on 18th October 2019

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

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



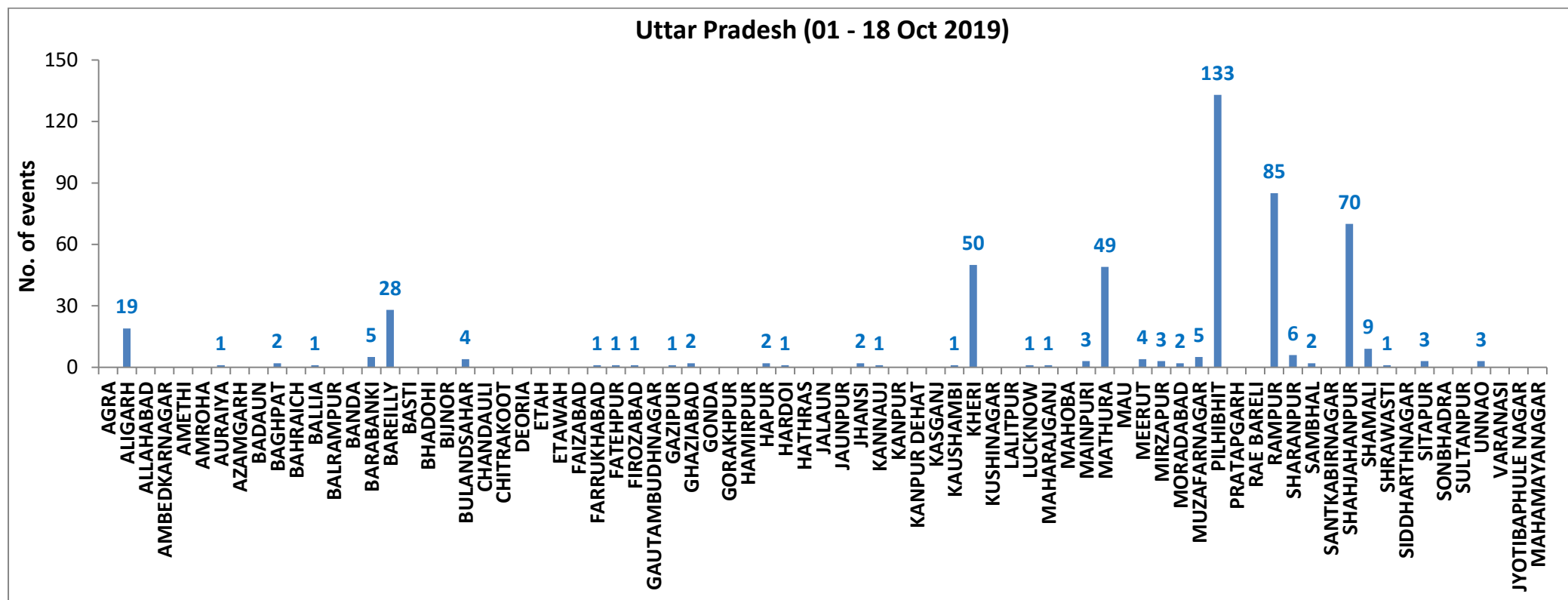
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

**Details of residue burning events in Uttar Pradesh on 18-Oct-2019**

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m <sup>2</sup> )
1	ALIGARH	KHAIR	S-NPP	77.77721	27.94020	12:30:00	D	4.00
2	BAREILLY	BAHERI	S-NPP	79.63065	28.78737	12:30:00	D	2.60
3	BAREILLY	BAHERI	S-NPP	79.64679	28.83882	12:30:00	D	0.80
4	BAREILLY	BAHERI	S-NPP	79.64523	28.84406	12:30:00	D	10.10
5	BAREILLY	BAHERI	S-NPP	79.41368	28.88666	14:12:00	D	2.70
6	GAZIPUR	MUHAMMADBAD	METOP-1	83.82000	25.65462	20:48:00	N	6.00
7	KHERI	MOHMADI	S-NPP	80.32130	27.83885	12:30:00	D	4.80
8	KHERI	MOHMADI	S-NPP	80.31856	27.83918	12:30:00	D	2.20
9	KHERI	MOHMADI	S-NPP	80.32214	27.84000	12:30:00	D	2.20
10	KHERI	MOHMADI	S-NPP	80.32722	28.02695	12:30:00	D	3.80
11	MATHURA	CHHATA	S-NPP	77.42542	27.85703	12:30:00	D	7.80
12	MATHURA	CHHATA	S-NPP	77.43596	27.85974	12:30:00	D	6.40
13	MATHURA	CHHATA	S-NPP	77.50520	27.91853	14:12:00	D	3.60
14	PILHIBHIT	PILHIBHIT	S-NPP	79.91105	28.76403	12:30:00	D	3.20
15	PILHIBHIT	PILHIBHIT	AQUA	79.84800	28.76500	12:55:00	D	21.60
16	PILHIBHIT	PILHIBHIT	S-NPP	79.82452	28.76578	12:30:00	D	3.30
17	PILHIBHIT	PILHIBHIT	AQUA	79.85200	28.76700	12:55:00	D	29.10
18	PILHIBHIT	PILHIBHIT	S-NPP	79.78823	28.76835	12:30:00	D	3.20
19	PILHIBHIT	PILHIBHIT	S-NPP	79.71823	28.84447	14:12:00	D	3.90
20	PILHIBHIT	PILHIBHIT	S-NPP	79.71908	28.84547	14:12:00	D	5.00
21	PILHIBHIT	PILHIBHIT	S-NPP	79.78062	28.87050	12:30:00	D	7.90
22	PILHIBHIT	PILHIBHIT	S-NPP	79.78429	28.87136	12:30:00	D	8.00
23	PILHIBHIT	PURANPUR	S-NPP	80.29548	28.36412	12:30:00	D	1.70
24	PILHIBHIT	PURANPUR	S-NPP	80.32035	28.44204	12:30:00	D	4.90
25	PILHIBHIT	PURANPUR	S-NPP	80.07187	28.45033	12:30:00	D	2.40
26	PILHIBHIT	PURANPUR	S-NPP	80.16263	28.55333	12:30:00	D	3.30
27	PILHIBHIT	PURANPUR	S-NPP	80.18259	28.75046	12:30:00	D	1.60
28	RAMPUR	BILASPUR	S-NPP	79.36388	28.89807	14:12:00	D	8.40
29	RAMPUR	RAMPUR	S-NPP	79.12702	28.82577	14:12:00	D	2.70
30	RAMPUR	SUAR	S-NPP	79.19955	28.94639	14:12:00	D	5.90
31	RAMPUR	SUAR	S-NPP	79.20179	28.95154	14:12:00	D	7.20

32	RAMPUR	SUAR	S-NPP	79.13047	29.03931	12:30:00	D	2.30
33	SHAHJAHANPUR	PUWANYA	S-NPP	80.10097	28.02232	12:30:00	D	3.20
34	SHAHJAHANPUR	PUWANYA	S-NPP	80.10125	28.02460	12:30:00	D	3.70
35	SHAHJAHANPUR	PUWANYA	S-NPP	79.95821	28.03893	12:30:00	D	4.40
36	SHAHJAHANPUR	PUWANYA	S-NPP	80.17573	28.15353	14:12:00	D	6.90
37	SHAHJAHANPUR	PUWANYA	S-NPP	80.30097	28.27247	12:30:00	D	2.60
38	SHAHJAHANPUR	SHAHJAHANPUR	S-NPP	79.76849	27.90236	12:30:00	D	10.20
39	SHAMLI	KAIRANA	S-NPP	77.17453	29.63102	12:30:00	D	4.90

### District-wise cumulative number of residue burning events in Uttar Pradesh (01 to 18-Oct 2019)



**State-wise, date-wise and district-wise number of residue burning events detected in 2016, 2017, 2018 and 2019**  
**(Period: 01-Oct to 18-Oct)**

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
<b>Total</b>	<b>1636</b>	<b>1573</b>	<b>5916</b>	<b>10270</b>	<b>1598</b>	<b>1736</b>	<b>2841</b>	<b>3376</b>	<b>503</b>	<b>724</b>	<b>1247</b>	<b>1348</b>	<b>3737</b>	<b>4033</b>	<b>10004</b>	<b>14994</b>

**(a) Punjab**

Districts	01-18 Oct			
	2016	2017	2018	2019
AMRITSAR	868	575	495	374
BARNALA	30	19	5	6
BATHINDA	602	464	41	18
FARIDKOT	789	799	58	79
FATEHGARH SAHIB	569	216	29	23
FAZILKA	0	0	0	55
FIROZPUR	1094	774	116	115
GURDASPUR	484	160	64	78
HOSHIARPUR	98	25	3	10
JALANDHAR	648	213	13	68
KAPURTHALA	581	79	7	45
LUDHIANA	481	366	32	18
MANSA	97	112	36	45
MOGA	153	85	7	22
MUKTSAR	867	306	35	31
NAWASHAHR (SBS Nagar)	190	71	17	16
PATHANKOT	0	0	0	0
PATIALA	818	675	209	210
RUPNAGAR	117	16	0	1
SANGRUR	200	193	77	47
SAS NAGAR	58	52	38	23
TARN TARAN	1526	716	291	352
<b>Total</b>	<b>10270</b>	<b>5916</b>	<b>1573</b>	<b>1636</b>

**(b) Haryana**

Districts	01-18 Oct			
	2016	2017	2018	2019
AMBALA	218	196	55	69
BHIWANI	1	2	3	0
FARIDABAD	24	52	49	1
FATEHABAD	165	160	86	110
GURUGRAM	0	0	0	0
HISAR	27	23	13	17
JHAJJAR	4	1	5	2
JIND	101	116	73	68
KAITHAL	901	622	481	414
KARNAL	1044	854	492	441
KURUKSHETRA	681	624	372	347
MAHENDRAGARH	0	0	0	1
MEWAT	0	0	0	0
PALWAL	0	0	0	38
PANCHKULA	0	0	3	13
PANIPAT	27	33	33	6
REWARI	0	0	0	1
ROHTAK	3	1	0	0
SIRSA	99	44	19	15
SONIPAT	8	15	11	1
YAMUNANAGAR	73	98	41	54
<b>Total</b>	<b>3376</b>	<b>2841</b>	<b>1736</b>	<b>1598</b>

(c) Uttar Pradesh

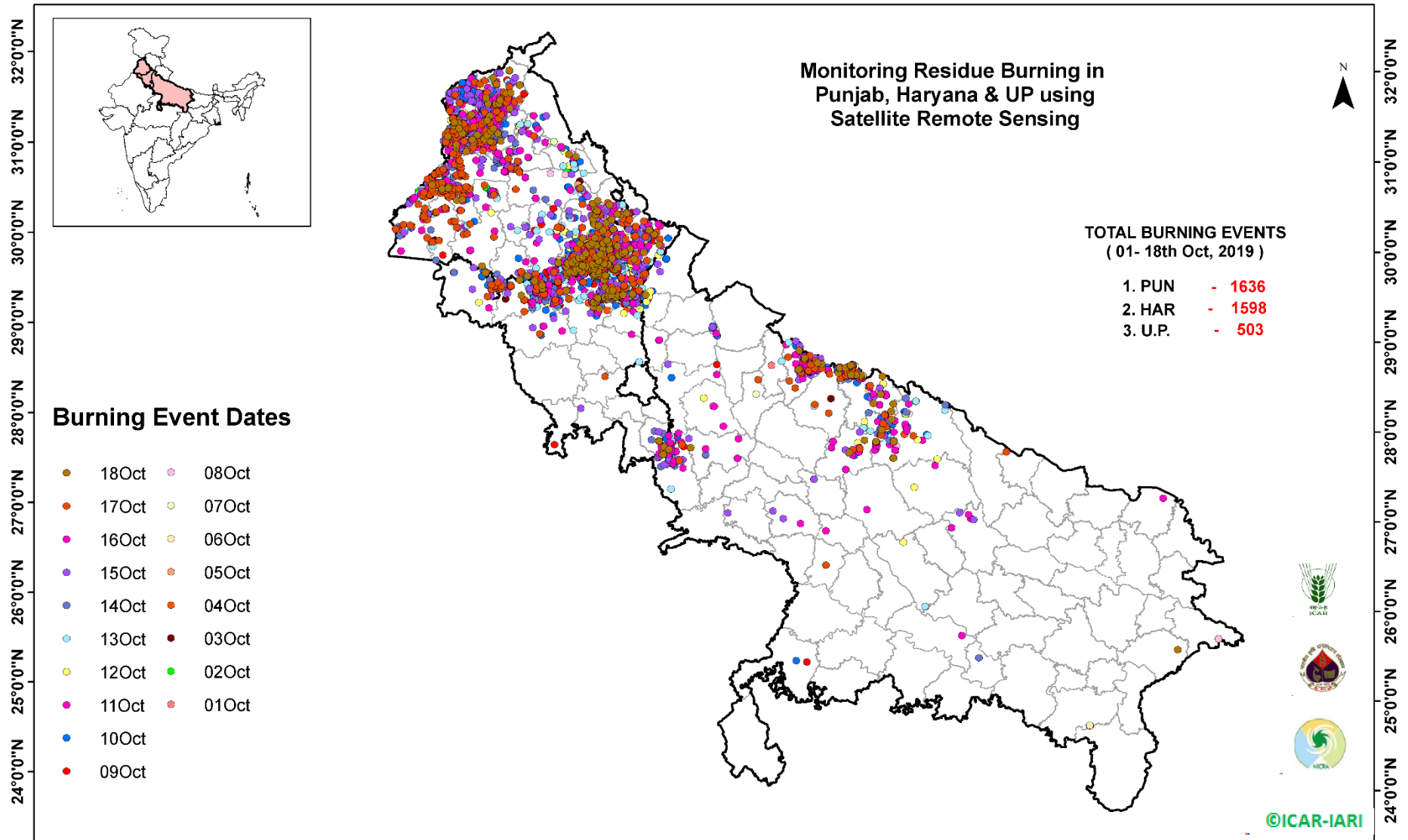
Districts	01-18 Oct			
	2016	2017	2018	2019
AGRA	0	0	0	0
ALIGARH	6	14	14	19
ALLAHABAD	0	0	3	0
AMBEDKARNAGAR	0	1	0	0
AMETHI	0	0	0	0
AMROHA	0	0	0	0
AURAIYA	45	50	15	1
AZAMGARH	0	0	0	0
BADAUN	0	1	0	0
BAGHPAT	0	0	0	2
BAHRAICH	0	2	5	0
BALLIA	0	0	0	1
BALRAMPUR	0	0	1	0
BANDA	1	0	1	0
BARABANKI	35	27	56	5
BAREILLY	72	44	14	28
BASTI	0	0	0	0
BHADOHI	0	0	0	0
BIJNOR	2	0	1	0
BULANDSAHAR	3	6	6	4
CHANDAULI	0	0	0	0
CHITRAKOOT	0	0	0	0
DEORIA	0	0	0	0
ETAH	0	7	11	0
ETAWAH	3	8	1	0
FAIZABAD	1	1	0	0
FARRUKHABAD	0	0	0	1
FATEHPUR	5	4	10	1
FIROZABAD	3	0	1	1

GAUTAMBUDHNAGAR	3	4	3	0
GAZIPUR	0	0	0	1
GHAZIABAD	8	5	3	2
GONDA	0	0	0	0
GORAKHPUR	0	2	4	0
HAMIRPUR	0	0	1	0
HAPUR	0	0	0	2
HARDOI	13	11	7	1
HATHRAS	0	0	0	0
JALAUN	0	0	0	0
JAUNPUR	1	0	3	0
JHANSI	0	0	2	2
KANNAUJ	0	1	2	1
KANPUR	1	3	0	0
KANPUR DEHAT	0	1	0	0
KASGANJ	0	0	0	0
KAUSHAMBI	0	4	9	1
KHERI	118	101	55	50
KUSHINAGAR	0	1	0	0
LALITPUR	0	0	0	0
LUCKNOW	6	5	0	1
MAHARAJGANJ	3	13	8	1
MAHOBA	0	0	0	0
MAINPURI	0	6	4	3
MATHURA	25	55	159	49
MAU	1	0	0	0
MEERUT	13	9	0	4
MIRZAPUR	0	2	4	3
MORADABAD	9	8	5	2
MUZAFARNAGAR	40	44	16	5
PILHIBHIT	261	235	115	133
PRATAPGARH	0	0	2	0

RAE BARELI	0	0	0	0
RAMPUR	265	183	58	85
SHARANPUR	21	23	13	6
SAMBHAL	0	0	0	2
SANTKABIRNAGAR	0	0	0	0
SHAHJAHANPUR	352	348	91	70
SHAMALI	0	0	0	9
SHRAWASTI	0	3	1	1
SIDDHARTHANAGAR	1	1	0	0
SITAPUR	23	10	8	3
SONBHADRA	4	1	7	0
SULTANPUR	0	0	0	0
UNNAO	3	3	3	3
VARANASI	0	0	0	0
JYOTIBAPHULE NAGAR	1	0	1	0
MAHAMAYANAGAR	0	0	1	0
<b>Total</b>	<b>1348</b>	<b>1247</b>	<b>724</b>	<b>503</b>



## Map of Cumulative Burning Events (01 – 18 Oct 2019)



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

## 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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