

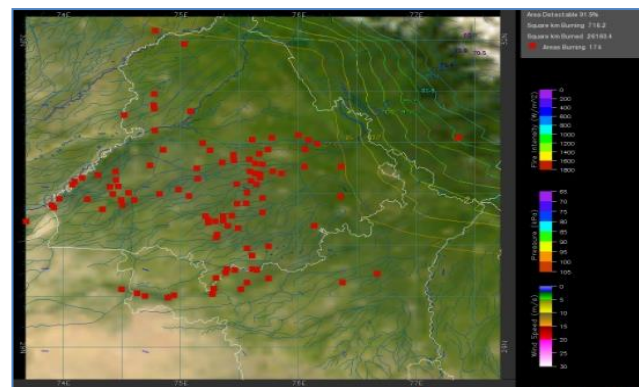
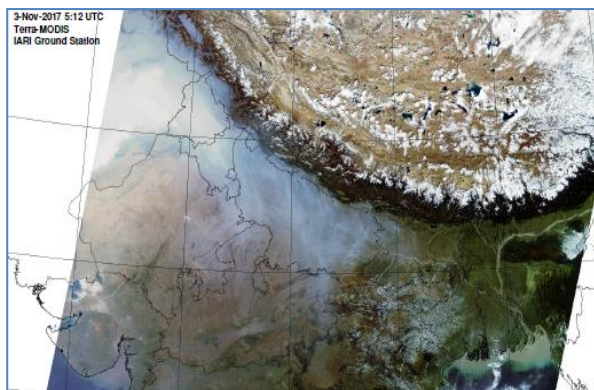


# MONITORING PADDY RESIDUE BURNING IN NORTH INDIA USING SATELLITE REMOTE SENSING DURING 2019

**Bulletin  
No. 13**

**Events Date:  
13-Oct-2019**

**Issued on:  
14-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**

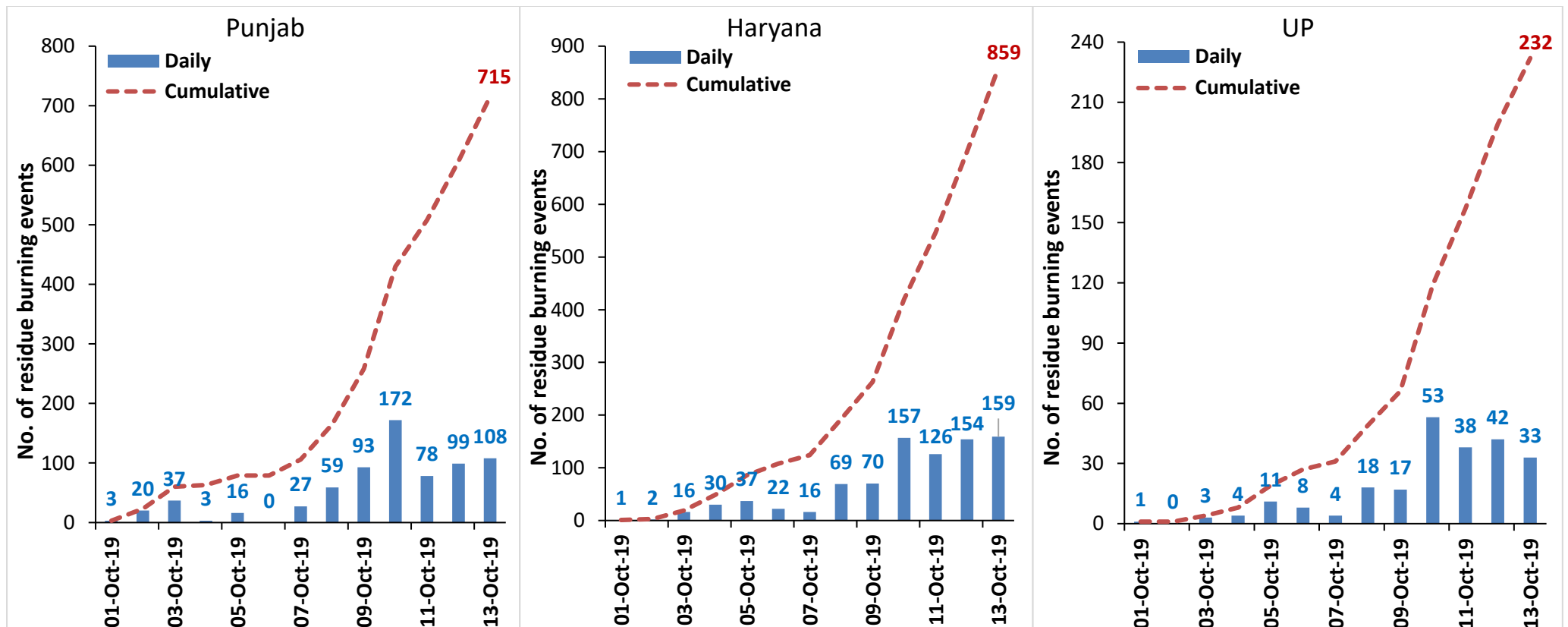
<http://creams.iari.res.in>



## Highlights for 13-October-2019

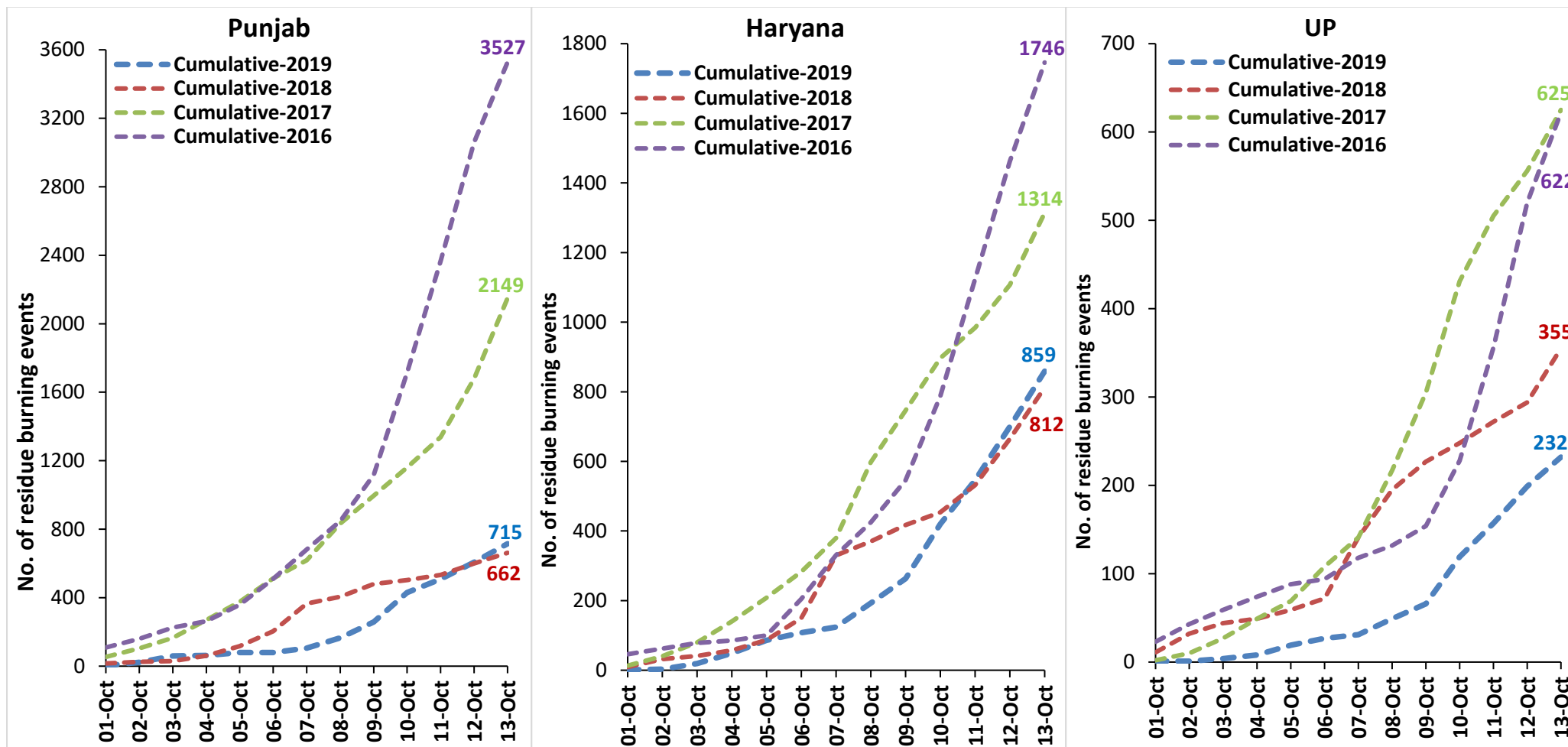
- Satellites detected **300** residue burning events in the three study States on 13-Oct-2019.
- The burning events detected on **13-Oct-2019** are **108**, **159** and **33** in Punjab, Haryana and UP, respectively.
- The number of events has marginally increased from **295** on **12-Oct-2019** to **300** on **13-Oct-2019** in the three states.
- Total **1806** burning events were detected in the three States between **01-Oct-2019** and **13-Oct-2019**, which are distributed as **715**, **859** and **232** in Punjab, Haryana and UP, respectively.
- Overall, the total burning events recorded in the three states are **1.2%** less than in 2018 till date. UP recorded **34.6%** reduction while Punjab and Haryana recorded **8%** and **5.7%** increase, respectively, in the current season than in 2018.

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

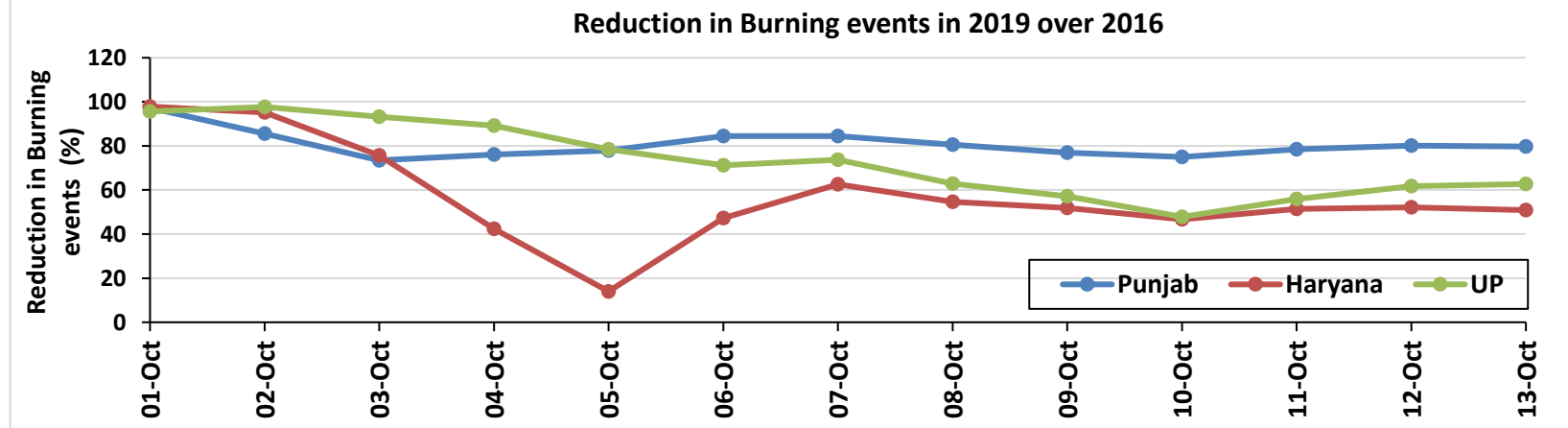
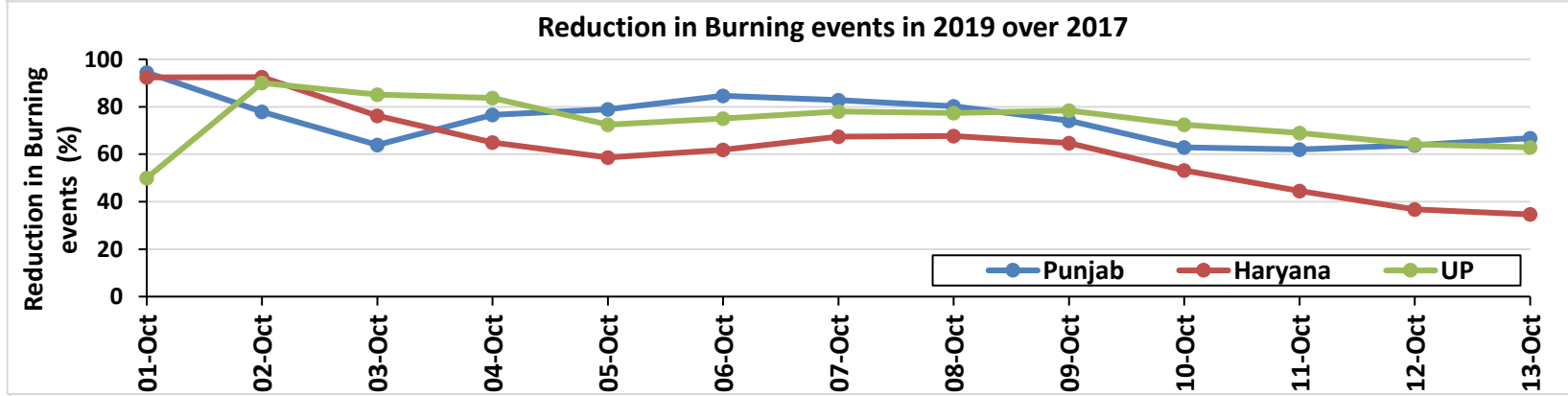
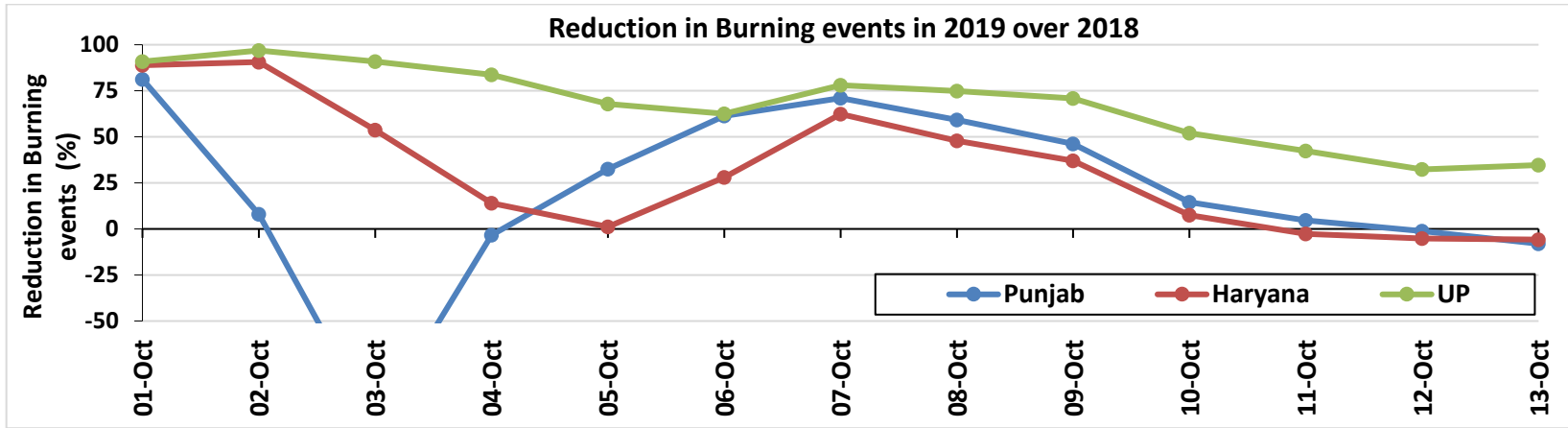


**Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States**

**(01-Oct to 13-Oct)**



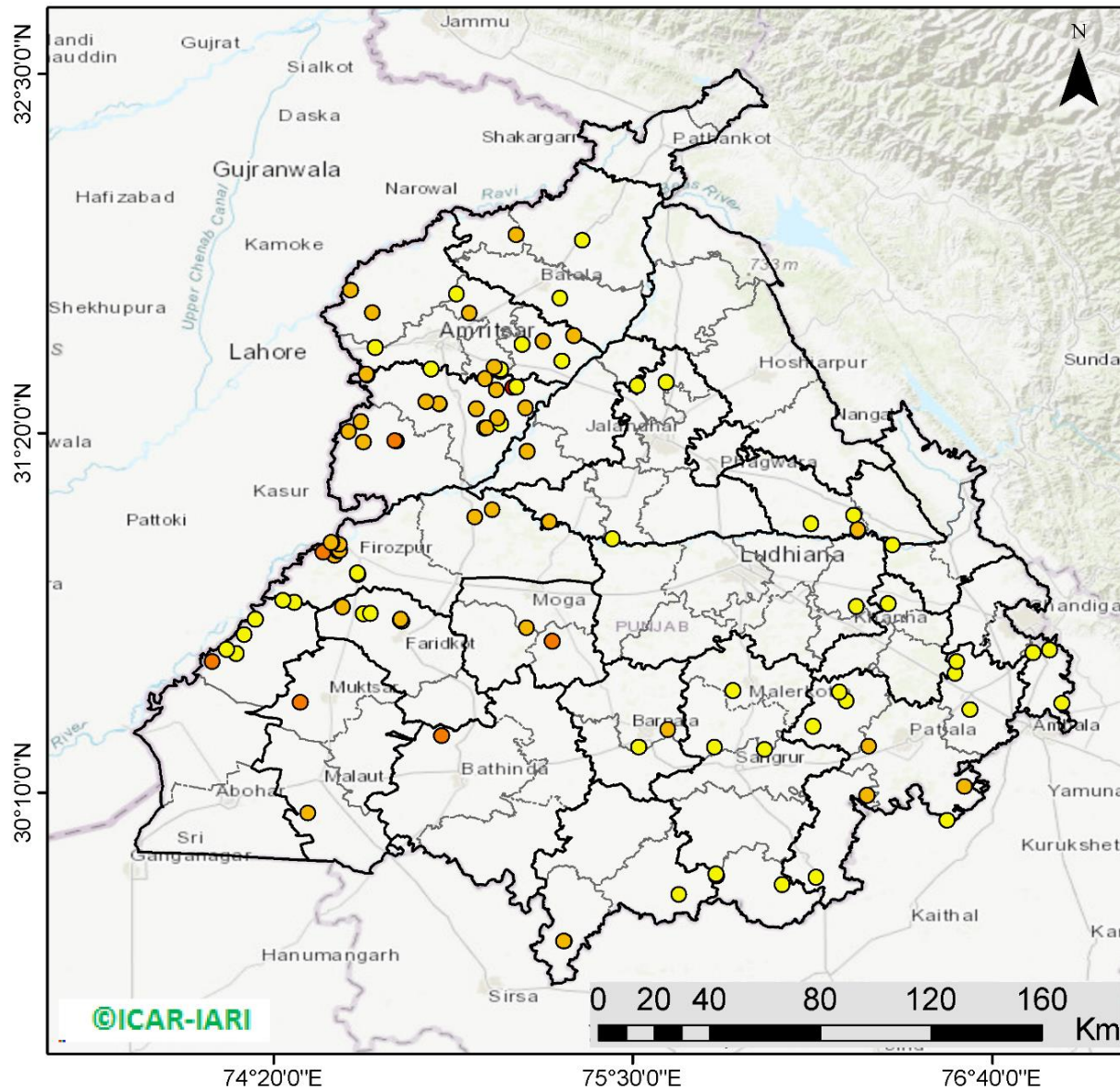
## Percent Reduction in Burning events in 2019 over 2018, 2017 and 2016 (Daily Cumulative)





(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



**108** burning events detected in Punjab on 13th 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 Punjab on 13-Oct-2019**

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m <sup>2</sup> )
1	AMRITSAR	AJNALA	S-NPP	74.65567	31.72384	14:06:00	D	5.80
2	AMRITSAR	AJNALA	S-NPP	74.58437	31.79675	14:06:00	D	6.30
3	AMRITSAR	AMRITSAR I	S-NPP	75.07076	31.53465	14:06:00	D	4.80
4	AMRITSAR	AMRITSAR I	S-NPP	75.06894	31.53959	14:06:00	D	5.90
5	AMRITSAR	AMRITSAR I	S-NPP	75.07024	31.53964	14:06:00	D	4.80
6	AMRITSAR	AMRITSAR I	S-NPP	75.04929	31.54798	14:06:00	D	5.30
7	AMRITSAR	AMRITSAR I	S-NPP	74.96934	31.72268	14:06:00	D	6.10
8	AMRITSAR	AMRITSAR I	S-NPP	74.92831	31.78516	14:06:00	D	3.60
9	AMRITSAR	AMRITSAR II	S-NPP	74.84447	31.54220	14:06:00	D	3.90
10	AMRITSAR	AMRITSAR II	S-NPP	74.66378	31.61146	14:06:00	D	5.00
11	AMRITSAR	BABA BAKALA	S-NPP	75.26933	31.56617	14:06:00	D	2.80
12	AMRITSAR	BABA BAKALA	S-NPP	75.14125	31.62102	14:06:00	D	4.30
13	AMRITSAR	BABA BAKALA	S-NPP	75.20827	31.63145	14:06:00	D	5.80
14	AMRITSAR	BABA BAKALA	S-NPP	75.30835	31.64951	12:30:00	D	5.40
15	BARNALA	BARNALA	S-NPP	75.51958	30.31388	14:06:00	D	3.50
16	BARNALA	BARNALA	S-NPP	75.61405	30.37111	14:06:00	D	5.30
17	BATHINDA	BATHINDA	S-NPP	74.87862	30.34986	14:06:00	D	11.80
18	FARIDKOT	FARIDKOT	S-NPP	74.74972	30.72214	12:30:00	D	4.80
19	FARIDKOT	FARIDKOT	S-NPP	74.74535	30.72614	12:30:00	D	6.60
20	FARIDKOT	FARIDKOT	S-NPP	74.74706	30.72905	12:30:00	D	6.30
21	FARIDKOT	FARIDKOT	S-NPP	74.62458	30.74631	14:06:00	D	3.10
22	FARIDKOT	FARIDKOT	S-NPP	74.64884	30.74843	14:06:00	D	3.10
23	FARIDKOT	FARIDKOT	S-NPP	74.55860	30.76859	14:06:00	D	8.50
24	FATEHGARH SAHIB	FATEHGARH SAHIB	S-NPP	76.55158	30.59085	14:06:00	D	2.00
25	FATEHGARH SAHIB	KHAMANOH	S-NPP	76.32909	30.77934	14:06:00	D	2.60
26	FAZILKA	JALALABAD	S-NPP	74.13566	30.59142	14:06:00	D	11.50
27	FAZILKA	JALALABAD	S-NPP	74.21272	30.61743	14:06:00	D	2.90
28	FAZILKA	JALALABAD	S-NPP	74.18173	30.63088	14:06:00	D	4.00
29	FAZILKA	JALALABAD	S-NPP	74.23956	30.67865	14:06:00	D	2.60
30	FAZILKA	JALALABAD	S-NPP	74.27442	30.72939	14:06:00	D	4.30
31	FAZILKA	JALALABAD	S-NPP	74.40068	30.78417	14:06:00	D	4.30

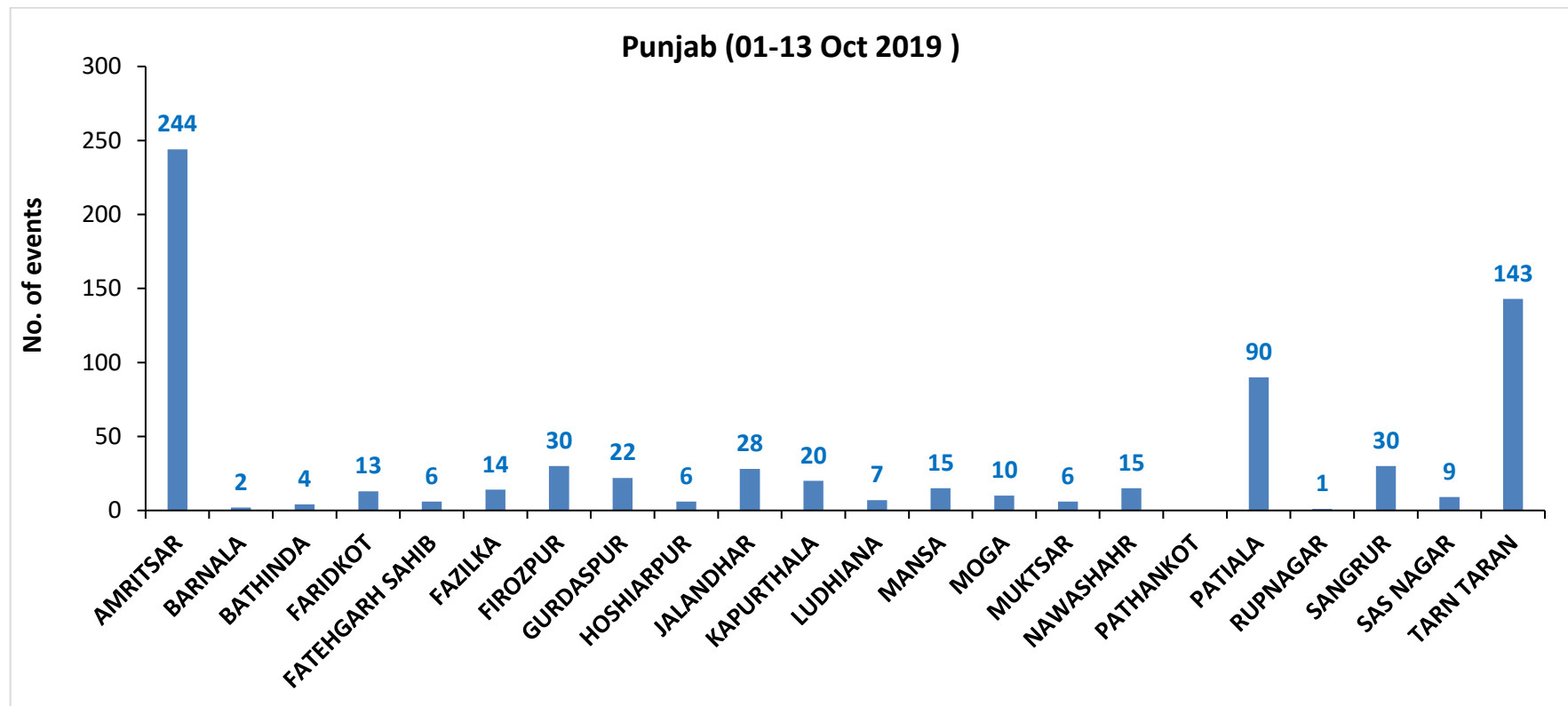
32	FAZILKA	JALALABAD	S-NPP	74.36440	30.79063	14:06:00	D	3.20
33	FIROZPUR	FIROZPUR	S-NPP	74.60782	30.87489	14:06:00	D	4.50
34	FIROZPUR	FIROZPUR	S-NPP	74.60553	30.87853	14:06:00	D	4.10
35	FIROZPUR	FIROZPUR	S-NPP	74.53201	30.93548	14:06:00	D	8.20
36	FIROZPUR	FIROZPUR	S-NPP	74.49436	30.94672	14:06:00	D	11.40
37	FIROZPUR	FIROZPUR	S-NPP	74.54248	30.95095	14:06:00	D	6.30
38	FIROZPUR	FIROZPUR	S-NPP	74.54852	30.95148	14:06:00	D	6.30
39	FIROZPUR	FIROZPUR	S-NPP	74.54639	30.97072	14:06:00	D	6.40
40	FIROZPUR	FIROZPUR	S-NPP	74.52476	30.97746	14:06:00	D	6.50
41	FIROZPUR	FIROZPUR	S-NPP	74.52123	30.97819	14:06:00	D	5.10
42	FIROZPUR	ZIRA	S-NPP	74.98763	31.05984	14:06:00	D	5.30
43	FIROZPUR	ZIRA	S-NPP	75.04385	31.08446	14:06:00	D	6.00
44	GURDASPUR	BATALA	S-NPP	75.26432	31.77197	14:06:00	D	2.40
45	GURDASPUR	DERA BABA NANAK	S-NPP	75.12187	31.97677	14:06:00	D	6.30
46	GURDASPUR	GURDASPUR	S-NPP	75.33705	31.95812	14:06:00	D	2.20
47	JALANDHAR	JALANDHAR II	S-NPP	75.51511	31.48774	14:06:00	D	1.60
48	JALANDHAR	JALANDHAR II	S-NPP	75.60857	31.49862	14:06:00	D	2.40
49	JALANDHAR	NAKODAR	S-NPP	75.43404	30.99026	14:06:00	D	3.10
50	JALANDHAR	SHAHKOT	S-NPP	75.22739	31.04380	14:06:00	D	8.90
51	JALANDHAR	SHAHKOT	S-NPP	75.22938	31.04483	14:06:00	D	8.20
52	KAPURTHALA	SULTANPUR LODHI	S-NPP	75.15670	31.27376	12:30:00	D	5.20
53	LUDHIANA	SAMRALA	S-NPP	76.22588	30.77154	14:06:00	D	5.00
54	MANSA	BUDHLADA	S-NPP	75.64986	29.83543	14:06:00	D	2.10
55	MANSA	SARDULGARH	S-NPP	75.27788	29.68344	14:06:00	D	5.90
56	MANSA	SARDULGARH	S-NPP	75.27621	29.68430	14:06:00	D	5.10
57	MOGA	MOGA	S-NPP	75.15530	30.70094	14:06:00	D	5.10
58	MOGA	MOGA	S-NPP	75.15552	30.70143	14:06:00	D	6.20
59	MOGA	NIHAL SINGH WALA	S-NPP	75.23906	30.65758	14:06:00	D	12.10
60	MUKTSAR	MALAUT	S-NPP	74.44525	30.09902	14:06:00	D	6.30
61	MUKTSAR	MUKTSAR	S-NPP	74.41970	30.45860	14:06:00	D	13.20
62	NAWASHAHR	NAWASHAHR	S-NPP	76.23077	31.01477	14:06:00	D	9.40
63	NAWASHAHR	NAWASHAHR	S-NPP	76.23003	31.01827	14:06:00	D	19.60
64	NAWASHAHR	NAWASHAHR	S-NPP	76.23027	31.02010	14:06:00	D	9.40
65	NAWASHAHR	NAWASHAHR	S-NPP	76.07904	31.03943	14:06:00	D	3.30
66	NAWASHAHR	NAWASHAHR	S-NPP	76.21775	31.06567	14:06:00	D	2.10

67	PATIALA	NABHA	S-NPP	76.08548	30.38132	14:06:00	D	2.30
68	PATIALA	NABHA	S-NPP	76.19324	30.46382	14:06:00	D	2.40
69	PATIALA	NABHA	S-NPP	76.17043	30.49270	14:06:00	D	1.70
70	PATIALA	PATIALA	S-NPP	76.52069	30.07535	14:06:00	D	2.90
71	PATIALA	PATIALA	TERRA	76.57700	30.18500	11:05:00	D	7.10
72	PATIALA	PATIALA	S-NPP	76.26620	30.31576	14:06:00	D	7.40
73	PATIALA	RAJPURA	S-NPP	76.59457	30.43452	14:06:00	D	3.00
74	PATIALA	RAJPURA	S-NPP	76.54716	30.55242	14:06:00	D	2.80
75	PATIALA	SAMANA	S-NPP	76.09567	29.89162	14:06:00	D	2.70
76	PATIALA	SAMANA	S-NPP	76.26036	30.15787	14:06:00	D	7.70
77	RUPNAGAR	CHAMKOR SAHIB	S-NPP	76.34362	30.96940	14:06:00	D	3.10
78	SANGRUR	DHURI	S-NPP	75.92714	30.30562	14:06:00	D	3.50
79	SANGRUR	DHURI	S-NPP	75.76578	30.31360	14:06:00	D	2.00
80	SANGRUR	MALERKOTLA	S-NPP	75.82499	30.49819	14:06:00	D	2.00
81	SANGRUR	MOONAK	S-NPP	75.98604	29.86729	14:06:00	D	1.60
82	SANGRUR	MOONAK	S-NPP	75.77115	29.89677	14:06:00	D	2.70
83	SANGRUR	MOONAK	S-NPP	75.77065	29.90189	14:06:00	D	1.70
84	SAS NAGAR	DERABASSI	S-NPP	76.89329	30.45550	14:06:00	D	2.20
85	SAS NAGAR	DERABASSI	S-NPP	76.79959	30.62015	14:06:00	D	3.50
86	SAS NAGAR	DERABASSI	S-NPP	76.79988	30.62052	14:06:00	D	3.60
87	SAS NAGAR	DERABASSI	S-NPP	76.85248	30.62955	14:06:00	D	1.60
88	TARN TARAN	KHADOOR SAHIB	S-NPP	75.02049	31.34909	14:06:00	D	12.30
89	TARN TARAN	KHADOOR SAHIB	S-NPP	75.01907	31.34965	14:06:00	D	4.70
90	TARN TARAN	KHADOOR SAHIB	S-NPP	75.02563	31.35016	14:06:00	D	6.70
91	TARN TARAN	KHADOOR SAHIB	S-NPP	75.07062	31.36375	14:06:00	D	4.00
92	TARN TARAN	KHADOOR SAHIB	S-NPP	75.06191	31.38318	14:06:00	D	5.90
93	TARN TARAN	KHADOOR SAHIB	S-NPP	74.99265	31.41268	14:06:00	D	5.80
94	TARN TARAN	KHADOOR SAHIB	S-NPP	75.15222	31.41568	14:06:00	D	6.70
95	TARN TARAN	KHADOOR SAHIB	S-NPP	74.87346	31.42764	14:06:00	D	7.00
96	TARN TARAN	KHADOOR SAHIB	S-NPP	74.87114	31.42842	14:06:00	D	7.50
97	TARN TARAN	KHADOOR SAHIB	TERRA	74.82900	31.43500	11:05:00	D	8.80
98	TARN TARAN	KHADOOR SAHIB	S-NPP	75.05712	31.47310	14:06:00	D	5.20
99	TARN TARAN	KHADOOR SAHIB	AQUA	75.11100	31.48200	14:15:00	D	31.30
100	TARN TARAN	KHADOOR SAHIB	S-NPP	75.12302	31.48334	14:06:00	D	4.80
101	TARN TARAN	KHADOOR SAHIB	S-NPP	75.01991	31.51034	14:06:00	D	5.60



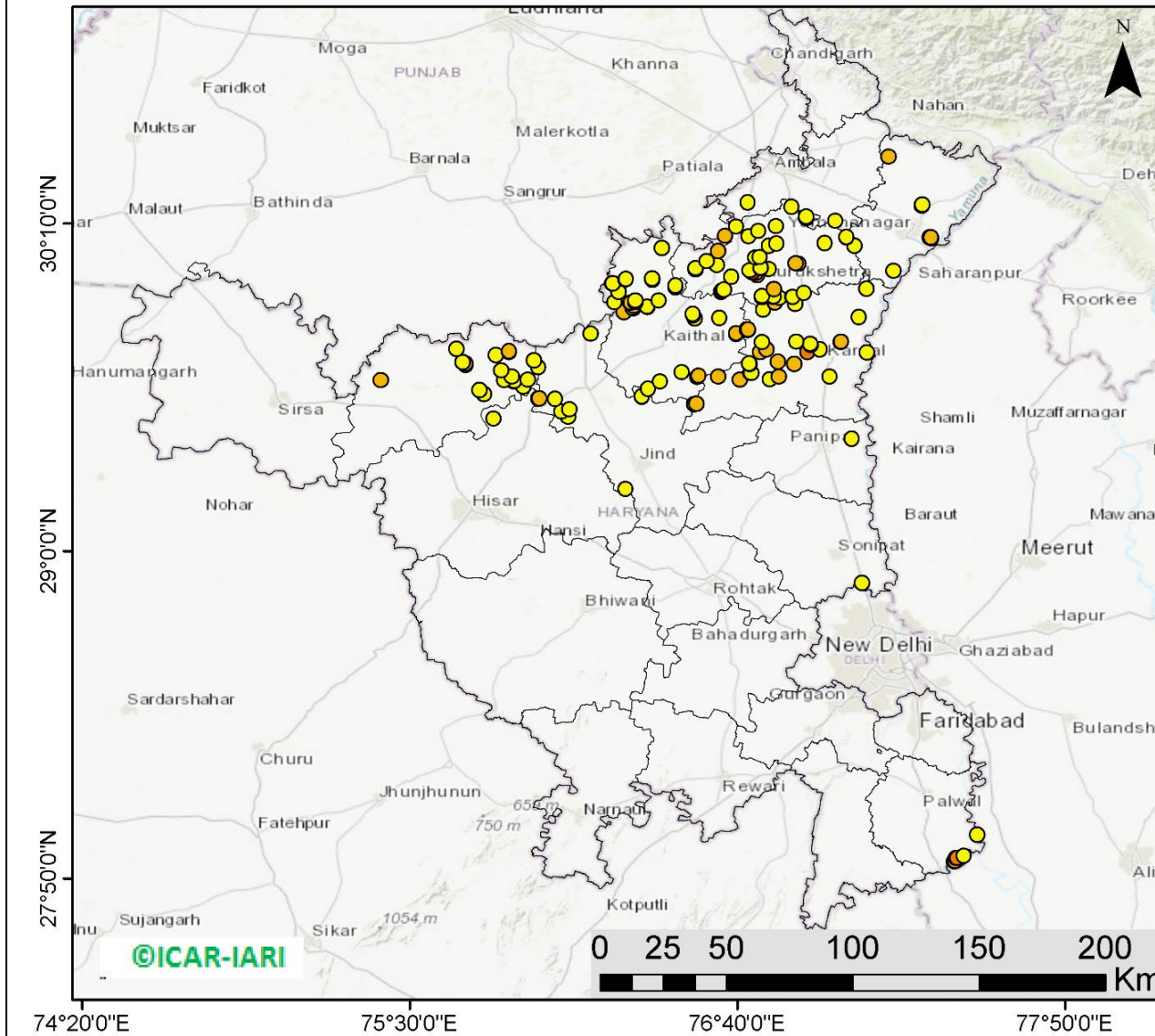
102	TARN TARAN	KHADOOR SAHIB	S-NPP	74.63725	31.52274	14:06:00	D	8.10
103	TARN TARAN	KHADOOR SAHIB	S-NPP	74.63519	31.52547	14:06:00	D	8.20
104	TARN TARAN	PATTI	S-NPP	74.62595	31.30340	14:06:00	D	5.20
105	TARN TARAN	PATTI	S-NPP	74.73256	31.30706	14:06:00	D	6.30
106	TARN TARAN	PATTI	S-NPP	74.72755	31.30898	14:06:00	D	11.00
107	TARN TARAN	PATTI	S-NPP	74.57845	31.33862	14:06:00	D	8.60
108	TARN TARAN	PATTI	S-NPP	74.61851	31.37135	14:06:00	D	5.80

**District-wise cumulative number of residue burning events in Punjab (01 to 13-Oct 2019)**








(b) Haryana

**RICE RESIDUE BURNING IN HARYANA**



**159** burning events  
detected in Haryana on  
**13th 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 Haryana on 13-Oct-2019**

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m <sup>2</sup> )
1	AMBALA	AMBALA	TERRA	76.62200	30.12300	11:05:00	D	6.30
2	AMBALA	AMBALA	S-NPP	76.70289	30.24277	14:06:00	D	4.30
3	AMBALA	BARARA	S-NPP	77.01578	30.17631	14:06:00	D	4.10
4	FATEHABAD	FATEHABAD	S-NPP	75.74844	29.57308	14:06:00	D	2.00
5	FATEHABAD	FATEHABAD	S-NPP	75.39614	29.60835	14:06:00	D	6.10
6	FATEHABAD	RATIA	S-NPP	75.66522	29.72106	14:06:00	D	4.80
7	FATEHABAD	TOHANA	S-NPP	75.76360	29.55891	14:06:00	D	3.50
8	FATEHABAD	TOHANA	S-NPP	75.90323	29.58594	14:06:00	D	5.00
9	FATEHABAD	TOHANA	S-NPP	75.86993	29.60390	14:06:00	D	3.00
10	FATEHABAD	TOHANA	S-NPP	75.87136	29.60572	14:06:00	D	2.90
11	FATEHABAD	TOHANA	S-NPP	75.83624	29.60817	14:06:00	D	1.70
12	FATEHABAD	TOHANA	S-NPP	75.92011	29.60949	14:06:00	D	2.30
13	FATEHABAD	TOHANA	S-NPP	75.86284	29.62059	14:06:00	D	1.30
14	FATEHABAD	TOHANA	S-NPP	75.82568	29.64351	14:06:00	D	1.70
15	FATEHABAD	TOHANA	S-NPP	75.69952	29.66411	14:06:00	D	6.10
16	FATEHABAD	TOHANA	S-NPP	75.69901	29.66919	14:06:00	D	6.10
17	FATEHABAD	TOHANA	S-NPP	75.68835	29.67343	14:06:00	D	4.20
18	FATEHABAD	TOHANA	S-NPP	75.94138	29.67876	14:06:00	D	3.30
19	FATEHABAD	TOHANA	S-NPP	75.80624	29.69875	14:06:00	D	1.80
20	FATEHABAD	TOHANA	S-NPP	75.85286	29.71006	14:06:00	D	5.60
21	FATEHABAD	TOHANA	S-NPP	75.85356	29.71306	14:06:00	D	5.70
22	HISAR	HISAR	S-NPP	75.79762	29.47129	14:06:00	D	1.70
23	HISAR	HISAR	S-NPP	75.95672	29.54351	14:06:00	D	5.70
24	JIND	JIND	S-NPP	76.26787	29.22009	14:06:00	D	1.80
25	JIND	JIND	S-NPP	76.32569	29.55097	14:06:00	D	2.10
26	JIND	JIND	S-NPP	76.32610	29.55169	14:06:00	D	2.20
27	JIND	JIND	S-NPP	76.34904	29.57936	14:06:00	D	2.00
28	JIND	NARWANA	S-NPP	76.06353	29.47758	14:06:00	D	2.10
29	JIND	NARWANA	S-NPP	76.04022	29.49660	14:06:00	D	3.50
30	JIND	NARWANA	S-NPP	76.06808	29.50412	14:06:00	D	2.20

31	JIND	NARWANA	S-NPP	76.01705	29.54306	14:06:00	D	2.90
32	JIND	NARWANA	S-NPP	75.96021	29.54379	14:06:00	D	7.50
33	JIND	NARWANA	S-NPP	75.95802	29.65406	14:06:00	D	2.20
34	JIND	NARWANA	S-NPP	76.14328	29.77431	14:06:00	D	2.40
35	KAITHAL	GUHLA	S-NPP	76.22858	29.88605	14:06:00	D	2.40
36	KAITHAL	GUHLA	S-NPP	76.24346	29.92436	14:06:00	D	1.20
37	KAITHAL	GUHLA	S-NPP	76.22146	29.95403	14:06:00	D	4.00
38	KAITHAL	GUHLA	S-NPP	76.22202	29.95452	14:06:00	D	4.20
39	KAITHAL	GUHLA	S-NPP	76.36352	29.96585	14:06:00	D	2.20
40	KAITHAL	GUHLA	S-NPP	76.26859	29.96815	14:06:00	D	3.20
41	KAITHAL	GUHLA	S-NPP	76.26908	29.96895	14:06:00	D	3.70
42	KAITHAL	GUHLA	S-NPP	76.36268	29.96973	14:06:00	D	5.90
43	KAITHAL	GUHLA	S-NPP	76.36302	29.97116	14:06:00	D	3.80
44	KAITHAL	GUHLA	S-NPP	76.39800	30.07965	14:06:00	D	2.10
45	KAITHAL	KAITHAL	S-NPP	76.39169	29.60399	14:06:00	D	4.20
46	KAITHAL	KAITHAL	S-NPP	76.52308	29.61964	12:24:00	D	6.80
47	KAITHAL	KAITHAL	S-NPP	76.52754	29.62373	12:24:00	D	10.00
48	KAITHAL	KAITHAL	S-NPP	76.46801	29.63672	14:06:00	D	2.20
49	KAITHAL	KAITHAL	S-NPP	76.66264	29.77322	14:06:00	D	8.50
50	KAITHAL	KAITHAL	S-NPP	76.66228	29.77541	14:06:00	D	7.70
51	KAITHAL	KAITHAL	S-NPP	76.51324	29.82940	14:06:00	D	3.80
52	KAITHAL	KAITHAL	S-NPP	76.60229	29.83074	14:06:00	D	4.10
53	KAITHAL	KAITHAL	S-NPP	76.50842	29.83982	14:06:00	D	2.10
54	KAITHAL	KAITHAL	S-NPP	76.50790	29.84517	14:06:00	D	3.40
55	KAITHAL	KAITHAL	S-NPP	76.26168	29.85137	14:06:00	D	6.80
56	KAITHAL	KAITHAL	S-NPP	76.29403	29.86440	14:06:00	D	7.00
57	KAITHAL	KAITHAL	S-NPP	76.29346	29.86571	14:06:00	D	8.50
58	KAITHAL	KAITHAL	S-NPP	76.34629	29.86827	14:06:00	D	4.10
59	KAITHAL	KAITHAL	S-NPP	76.34559	29.86993	14:06:00	D	3.90
60	KAITHAL	KAITHAL	TERRA	76.29600	29.87400	11:05:00	D	6.10
61	KAITHAL	KAITHAL	S-NPP	76.28458	29.88499	14:06:00	D	2.30
62	KAITHAL	KAITHAL	TERRA	76.28700	29.88500	11:05:00	D	7.40
63	KAITHAL	KAITHAL	S-NPP	76.30315	29.88639	14:06:00	D	3.30
64	KAITHAL	KAITHAL	S-NPP	76.30265	29.89168	14:06:00	D	3.10

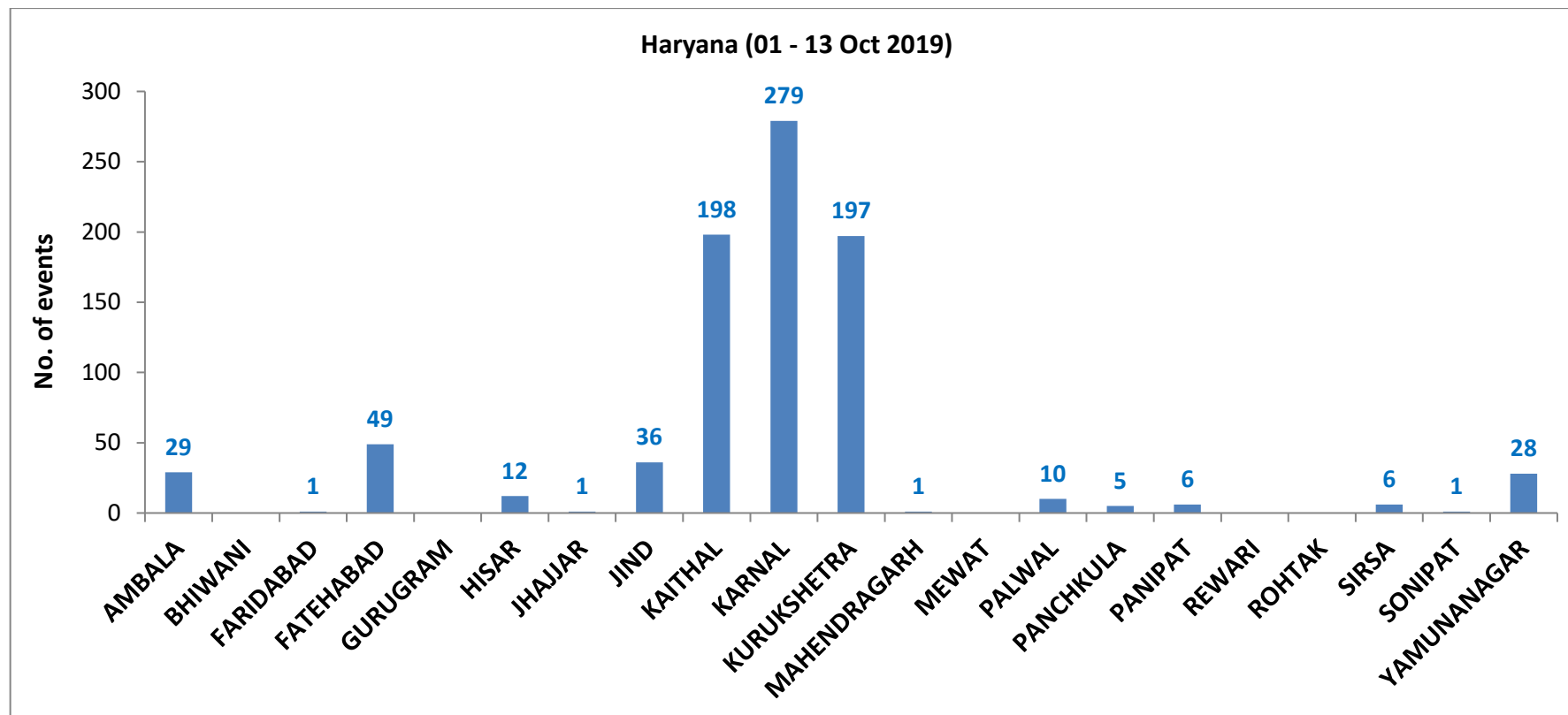
65	KAITHAL	KAITHAL	S-NPP	76.38557	29.89259	14:06:00	D	4.60
66	KAITHAL	KAITHAL	S-NPP	76.44592	29.94010	14:06:00	D	2.30
67	KAITHAL	KAITHAL	S-NPP	76.44540	29.94544	14:06:00	D	3.40
68	KARNAL	ASSANDH	S-NPP	76.51299	29.52324	12:24:00	D	7.30
69	KARNAL	ASSANDH	S-NPP	76.51978	29.52514	12:24:00	D	7.00
70	KARNAL	ASSANDH	S-NPP	76.67501	29.60937	14:06:00	D	6.40
71	KARNAL	ASSANDH	S-NPP	76.78129	29.61178	14:06:00	D	3.00
72	KARNAL	ASSANDH	TERRA	76.59700	29.62100	11:05:00	D	5.20
73	KARNAL	ASSANDH	S-NPP	76.71202	29.63390	14:06:00	D	3.50
74	KARNAL	ASSANDH	S-NPP	76.71593	29.63420	14:06:00	D	3.50
75	KARNAL	ASSANDH	S-NPP	76.70906	29.66635	14:06:00	D	2.90
76	KARNAL	ASSANDH	S-NPP	76.70778	29.66774	14:06:00	D	4.50
77	KARNAL	INDRI	S-NPP	77.09926	29.83371	14:06:00	D	2.40
78	KARNAL	INDRI	S-NPP	77.12554	29.93472	14:06:00	D	1.90
79	KARNAL	KARNAL	S-NPP	76.81329	29.62099	12:24:00	D	7.70
80	KARNAL	KARNAL	S-NPP	76.99429	29.62170	14:06:00	D	2.70
81	KARNAL	KARNAL	S-NPP	76.86826	29.66760	14:06:00	D	6.60
82	KARNAL	KARNAL	TERRA	76.81000	29.67500	11:05:00	D	6.40
83	KARNAL	KARNAL	S-NPP	77.12675	29.70795	14:06:00	D	3.30
84	KARNAL	KARNAL	S-NPP	76.74748	29.70877	14:06:00	D	7.90
85	KARNAL	KARNAL	S-NPP	76.91606	29.70992	14:06:00	D	14.60
86	KARNAL	KARNAL	S-NPP	76.96009	29.71857	14:06:00	D	4.20
87	KARNAL	KARNAL	S-NPP	76.76933	29.71962	12:24:00	D	6.90
88	KARNAL	KARNAL	S-NPP	76.92619	29.73271	14:06:00	D	6.10
89	KARNAL	KARNAL	S-NPP	77.03371	29.74350	12:24:00	D	6.30
90	KARNAL	KARNAL	S-NPP	76.75367	29.74366	12:24:00	D	4.70
91	KARNAL	KARNAL	S-NPP	77.03518	29.74492	12:24:00	D	6.20
92	KARNAL	KARNAL	S-NPP	76.87634	29.74561	14:06:00	D	4.40
93	KARNAL	NILOKHERI	S-NPP	76.92570	29.73820	14:06:00	D	3.40
94	KARNAL	NILOKHERI	S-NPP	76.70074	29.78708	14:06:00	D	4.00
95	KARNAL	NILOKHERI	S-NPP	76.70466	29.78738	14:06:00	D	5.30
96	KARNAL	NILOKHERI	S-NPP	76.70042	29.78902	14:06:00	D	4.50
97	KARNAL	NILOKHERI	S-NPP	76.70435	29.78930	14:06:00	D	5.70
98	KARNAL	NILOKHERI	S-NPP	76.75758	29.85875	14:06:00	D	4.50

99	KARNAL	NILOKHERI	S-NPP	76.87237	29.87902	12:24:00	D	3.50
100	KARNAL	NILOKHERI	S-NPP	76.90273	29.91925	14:06:00	D	3.60
101	KURUKSHETRA	PEHOWA	S-NPP	76.60912	29.92434	12:24:00	D	3.00
102	KURUKSHETRA	PEHOWA	S-NPP	76.61237	29.92843	12:24:00	D	5.70
103	KURUKSHETRA	PEHOWA	S-NPP	76.61736	29.93147	14:06:00	D	2.50
104	KURUKSHETRA	PEHOWA	S-NPP	76.64471	29.97703	14:06:00	D	1.60
105	KURUKSHETRA	PEHOWA	TERRA	76.72000	29.99100	11:05:00	D	29.20
106	KURUKSHETRA	PEHOWA	S-NPP	76.51686	30.00253	14:06:00	D	4.20
107	KURUKSHETRA	PEHOWA	S-NPP	76.51637	30.00789	14:06:00	D	4.20
108	KURUKSHETRA	PEHOWA	S-NPP	76.59344	30.01896	14:06:00	D	4.10
109	KURUKSHETRA	PEHOWA	S-NPP	76.55692	30.03253	14:06:00	D	3.90
110	KURUKSHETRA	PEHOWA	S-NPP	76.59675	30.06808	14:06:00	D	6.10
111	KURUKSHETRA	PEHOWA	S-NPP	76.70582	30.12114	14:06:00	D	4.60
112	KURUKSHETRA	PEHOWA	S-NPP	76.74021	30.14003	14:06:00	D	2.10
113	KURUKSHETRA	PEHOWA	S-NPP	76.66272	30.15625	14:06:00	D	3.90
114	KURUKSHETRA	SHAHABAD	S-NPP	76.80460	30.15684	12:24:00	D	3.50
115	KURUKSHETRA	SHAHABAD	S-NPP	76.91119	30.18547	14:06:00	D	5.80
116	KURUKSHETRA	SHAHABAD	S-NPP	76.91068	30.19097	14:06:00	D	4.80
117	KURUKSHETRA	SHAHABAD	S-NPP	76.85836	30.22580	14:06:00	D	2.10
118	KURUKSHETRA	THANESAR	S-NPP	76.79942	29.88383	14:06:00	D	6.00
119	KURUKSHETRA	THANESAR	S-NPP	76.80047	29.88459	14:06:00	D	6.30
120	KURUKSHETRA	THANESAR	S-NPP	76.81499	29.90207	14:06:00	D	2.40
121	KURUKSHETRA	THANESAR	TERRA	76.75300	29.90400	11:05:00	D	5.80
122	KURUKSHETRA	THANESAR	S-NPP	76.86208	29.90510	14:06:00	D	6.00
123	KURUKSHETRA	THANESAR	S-NPP	76.79348	29.90532	14:06:00	D	3.50
124	KURUKSHETRA	THANESAR	S-NPP	76.86323	29.90545	14:06:00	D	4.50
125	KURUKSHETRA	THANESAR	S-NPP	76.79448	29.90611	14:06:00	D	4.20
126	KURUKSHETRA	THANESAR	S-NPP	76.75415	29.90873	14:06:00	D	2.60
127	KURUKSHETRA	THANESAR	S-NPP	76.79601	29.93366	14:06:00	D	5.80
128	KURUKSHETRA	THANESAR	S-NPP	76.73538	29.98396	14:06:00	D	2.10
129	KURUKSHETRA	THANESAR	TERRA	76.73100	29.99000	11:05:00	D	9.00
130	KURUKSHETRA	THANESAR	S-NPP	76.70984	30.00011	14:06:00	D	2.00
131	KURUKSHETRA	THANESAR	S-NPP	76.77752	30.00488	14:06:00	D	2.80
132	KURUKSHETRA	THANESAR	S-NPP	76.74934	30.00693	14:06:00	D	3.50



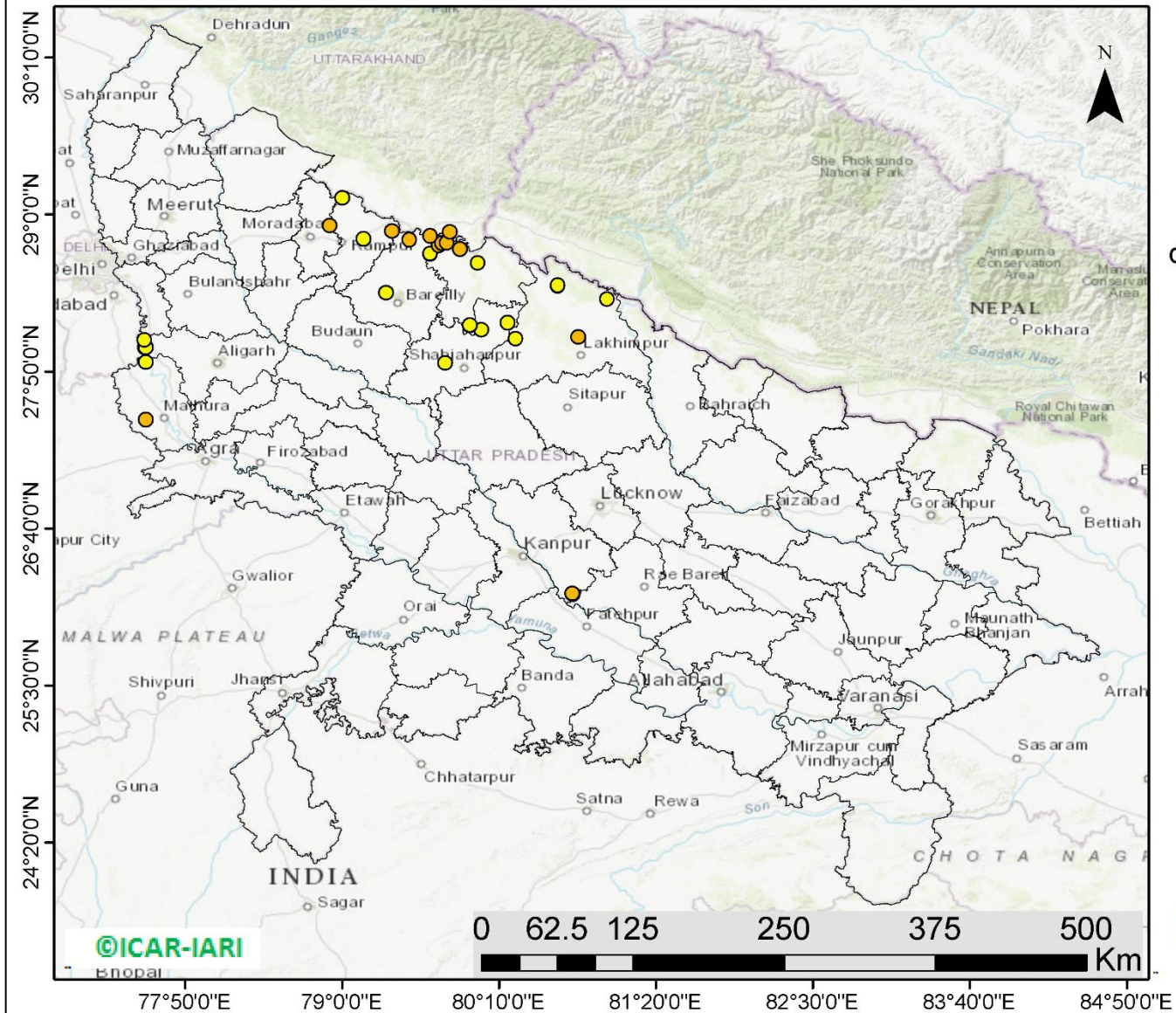
133	KURUKSHETRA	THANESAR	S-NPP	76.74908	30.00836	14:06:00	D	3.50
134	KURUKSHETRA	THANESAR	TERRA	76.88500	30.02300	11:05:00	D	6.90
135	KURUKSHETRA	THANESAR	TERRA	76.87400	30.02500	11:05:00	D	7.30
136	KURUKSHETRA	THANESAR	S-NPP	76.72966	30.04528	14:06:00	D	1.20
137	KURUKSHETRA	THANESAR	S-NPP	76.74561	30.04645	14:06:00	D	2.80
138	KURUKSHETRA	THANESAR	S-NPP	76.77816	30.08725	14:06:00	D	1.00
139	KURUKSHETRA	THANESAR	S-NPP	76.80486	30.09517	14:06:00	D	2.50
140	KURUKSHETRA	THANESAR	S-NPP	76.97778	30.09653	14:06:00	D	3.50
141	KURUKSHETRA	THANESAR	S-NPP	77.05455	30.11764	14:06:00	D	1.50
142	KURUKSHETRA	THANESAR	S-NPP	77.05509	30.11892	14:06:00	D	1.40
143	PALWAL	HODAL	S-NPP	77.43702	27.89417	14:06:00	D	7.10
144	PALWAL	HODAL	S-NPP	77.44109	27.89448	14:06:00	D	7.00
145	PALWAL	HODAL	S-NPP	77.44418	27.90590	14:06:00	D	11.60
146	PALWAL	HODAL	S-NPP	77.44827	27.90622	14:06:00	D	11.30
147	PALWAL	HODAL	S-NPP	77.47243	27.91367	14:06:00	D	4.80
148	PALWAL	PALWAL	S-NPP	77.52029	27.98906	14:06:00	D	3.70
149	PANIPAT	SAMALKHA	S-NPP	77.07393	29.40050	14:06:00	D	2.30
150	PANIPAT	SAMALKHA	S-NPP	77.07378	29.40060	14:06:00	D	2.00
151	SONIPAT	SONIPAT	S-NPP	77.11042	28.88596	02:48:00	N	0.80
152	YAMUNANAGAR	CHHACHHRAULII	S-NPP	77.32328	30.23180	14:06:00	D	4.10
153	YAMUNANAGAR	JAGADHRI	S-NPP	77.22209	29.99759	14:06:00	D	2.10
154	YAMUNANAGAR	JAGADHRI	S-NPP	77.08304	30.08743	14:06:00	D	2.20
155	YAMUNANAGAR	JAGADHRI	TERRA	77.35700	30.11500	11:05:00	D	5.20
156	YAMUNANAGAR	JAGADHRI	S-NPP	77.35097	30.11767	14:06:00	D	5.20
157	YAMUNANAGAR	JAGADHRI	S-NPP	77.35532	30.11797	14:06:00	D	5.20
158	YAMUNANAGAR	JAGADHRI	S-NPP	77.32378	30.23489	14:06:00	D	4.10
159	YAMUNANAGAR	JAGADHRI	S-NPP	77.20506	30.40428	12:24:00	D	6.30

**District-wise cumulative number of residue burning events in Haryana (01 to 13-Oct 2019)**



(c) UP

### RICE RESIDUE BURNING IN UTTAR PRADESH



**33** burning events  
detected in Uttar Pradesh on  
13th October 2019

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

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



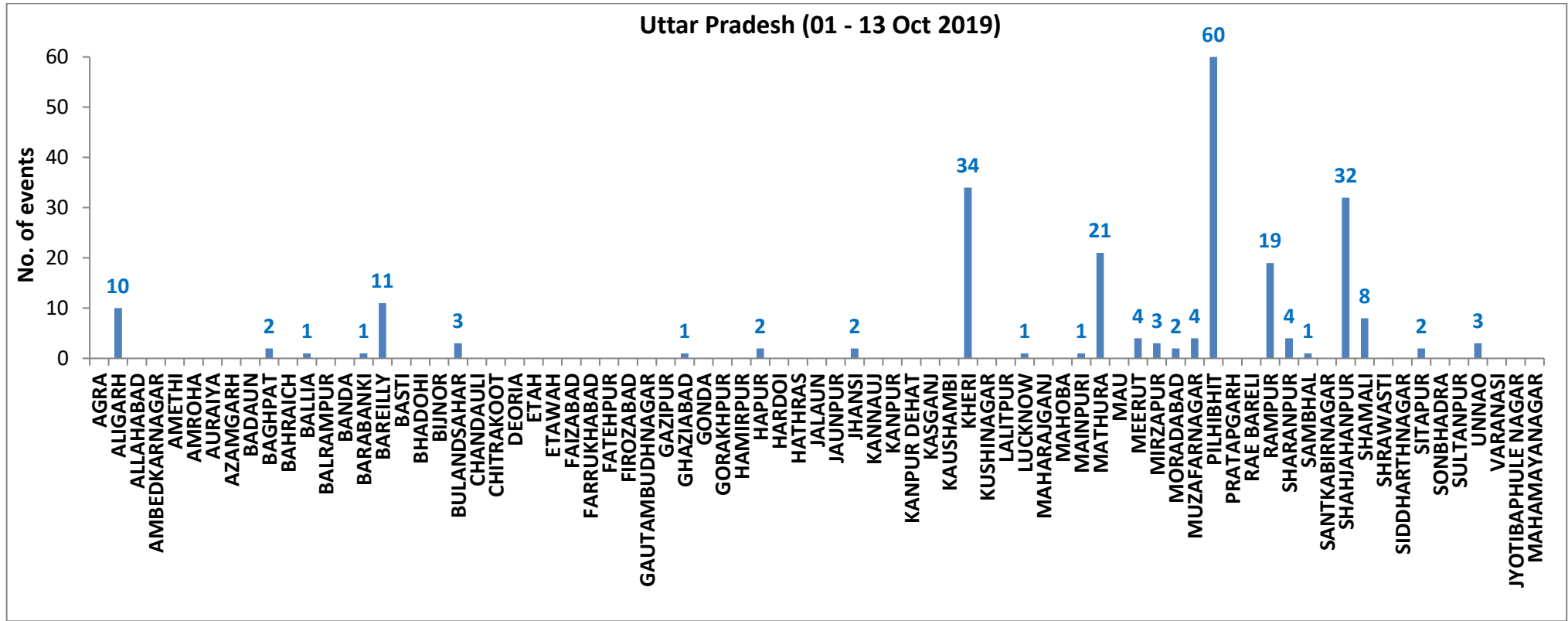
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

**Details of residue burning events in Uttar Pradesh on 13-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	77.53496	28.01266	14:06:00	D	3.50
2	ALIGARH	KHAIR	S-NPP	77.53911	28.01297	14:06:00	D	4.60
3	ALIGARH	KHAIR	S-NPP	77.52963	28.06647	14:06:00	D	2.90
4	BAREILLY	BAHERI	S-NPP	79.49867	28.81110	14:06:00	D	6.60
5	BAREILLY	BAHERI	S-NPP	79.50034	28.81383	14:06:00	D	9.30
6	BAREILLY	BAHERI	S-NPP	79.65384	28.84134	14:06:00	D	5.40
7	BAREILLY	MIRGANJ	S-NPP	79.32555	28.41811	14:06:00	D	3.80
8	KHERI	LAKHIMPUR	S-NPP	80.75398	28.08761	14:06:00	D	6.10
9	KHERI	MOHMADI	S-NPP	80.29094	28.07624	14:06:00	D	2.70
10	KHERI	NIGHASAN	S-NPP	80.97117	28.37061	12:24:00	D	2.40
11	KHERI	PALIA KALAN	S-NPP	80.60297	28.47181	12:24:00	D	4.70
12	KHERI	PALIA KALAN	S-NPP	80.60431	28.47355	12:24:00	D	4.90
13	MATHURA	MAT	S-NPP	77.54025	27.90202	14:06:00	D	3.10
14	MATHURA	MATHURA	S-NPP	77.53999	27.47564	14:06:00	D	7.00
15	MORADABAD	MORADABAD	METOP-2	78.90884	28.91550	21:17:00	N	10.00
16	PILHIBHIT	BISALPUR	S-NPP	79.95025	28.17481	12:24:00	D	4.60
17	PILHIBHIT	BISALPUR	S-NPP	79.94924	28.17577	12:24:00	D	3.90
18	PILHIBHIT	PILHIBHIT	S-NPP	79.65497	28.70553	14:06:00	D	5.10
19	PILHIBHIT	PILHIBHIT	S-NPP	79.65404	28.70952	14:06:00	D	4.60
20	PILHIBHIT	PILHIBHIT	S-NPP	79.87561	28.74201	14:06:00	D	5.20
21	PILHIBHIT	PILHIBHIT	TERRA	79.71800	28.77300	11:05:00	D	6.10
22	PILHIBHIT	PILHIBHIT	S-NPP	79.74296	28.78724	14:06:00	D	5.20
23	PILHIBHIT	PILHIBHIT	S-NPP	79.77819	28.78924	14:06:00	D	6.30
24	PILHIBHIT	PILHIBHIT	TERRA	79.79900	28.87100	11:05:00	D	6.00
25	PILHIBHIT	PURANPUR	S-NPP	80.00875	28.63916	14:06:00	D	2.60
26	RAMPUR	BILASPUR	S-NPP	79.37194	28.87597	14:06:00	D	7.60
27	RAMPUR	RAMPUR	S-NPP	79.15905	28.81928	12:24:00	D	3.30
28	RAMPUR	TANDA	S-NPP	79.00018	29.12366	14:06:00	D	4.80
29	SHAHJAHANPUR	PUWANYA	S-NPP	80.03374	28.14148	12:24:00	D	2.60
30	SHAHJAHANPUR	PUWANYA	S-NPP	80.23190	28.19695	14:06:00	D	3.60
31	SHAHJAHANPUR	SHAHJAHANPUR	S-NPP	79.76495	27.89503	14:06:00	D	5.00
32	UNNAO	BIGHAPUR	S-NPP	80.71391	26.17781	14:06:00	D	4.20

33	UNNAO	BIGHAPUR	S-NPP	80.71007	26.18177	14:06:00	D	5.70
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**District-wise cumulative number of residue burning events in Uttar Pradesh (01 to 13-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 13-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
<b>Total</b>	<b>715</b>	<b>662</b>	<b>2149</b>	<b>3527</b>	<b>859</b>	<b>812</b>	<b>1314</b>	<b>1746</b>	<b>232</b>	<b>355</b>	<b>625</b>	<b>622</b>	<b>1806</b>	<b>1829</b>	<b>4088</b>	<b>5895</b>



**(a) Punjab**

Districts	01-13 Oct			
	2016	2017	2018	2019
AMRITSAR	609	379	315	244
BARNALA	11	6	1	2
BATHINDA	172	98	12	4
FARIDKOT	227	305	5	13
FATEHGARH SAHIB	213	70	11	6
FAZILKA	0	0	0	14
FIROZPUR	265	245	33	30
GURDASPUR	147	48	26	22
HOSHIARPUR	31	5	3	6
JALANDHAR	227	89	1	28
KAPURTHALA	187	29	2	20
LUDHIANA	162	128	22	7
MANSA	17	33	4	15
MOGA	53	27	0	10
MUKTSAR	226	37	3	6
NAWASHAHR (SBS Nagar)	40	21	8	15
PATHANKOT	0	0	0	0
PATIALA	304	250	65	90
RUPNAGAR	31	3	0	1
SANGRUR	56	93	34	30
SAS NAGAR	29	32	20	9
TARN TARAN	520	251	97	143
<b>Total</b>	<b>3527</b>	<b>2149</b>	<b>662</b>	<b>715</b>

**(b) Haryana**

Districts	01-13 Oct			
	2016	2017	2018	2019
AMBALA	107	98	38	29
BHIWANI	0	2	2	0
FARIDABAD	4	13	23	1
FATEHABAD	51	52	25	49
GURUGRAM	0	0	0	0
HISAR	13	12	8	12
JHAJJAR	4	0	3	1
JIND	37	65	38	36
KAITHAL	479	277	174	198
KARNAL	617	435	264	279
KURUKSHETRA	351	285	169	197
MAHENDRAGARH	0	0	0	1
MEWAT	0	0	0	0
PALWAL	0	0	0	10
PANCHKULA	0	0	3	5
PANIPAT	15	20	30	6
REWARI	0	0	0	0
ROHTAK	1	1	0	0
SIRSA	29	12	7	6
SONIPAT	3	8	8	1
YAMUNANAGAR	35	34	20	28
<b>Total</b>	<b>1746</b>	<b>1314</b>	<b>812</b>	<b>859</b>

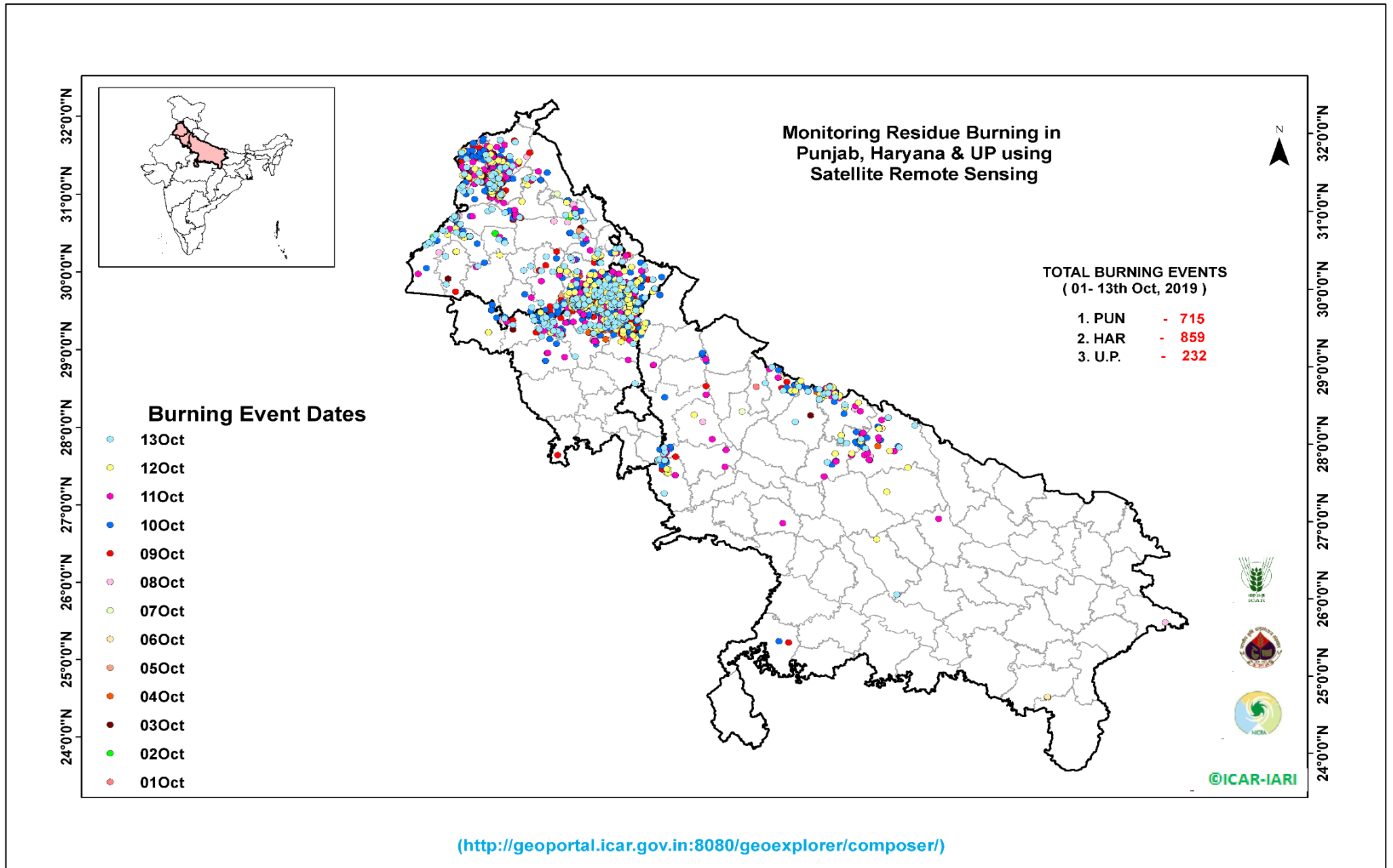
(c) Uttar Pradesh

Districts	01-13 Oct			
	2016	2017	2018	2019
AGRA	0	0	0	0
ALIGARH	0	8	8	10
ALLAHABAD	0	0	3	0
AMBEDKARNAGAR	0	1	0	0
AMETHI	0	0	0	0
AMROHA	0	0	0	0
AURAIYA	34	31	14	0
AZAMGARH	0	0	0	0
BADAUN	0	0	0	0
BAGHPAT	0	0	0	2
BAHRAICH	0	0	2	0
BALLIA	0	0	0	1
BALRAMPUR	0	0	0	0
BANDA	0	0	1	0
BARABANKI	10	13	33	1
BAREILLY	32	16	7	11
BASTI	0	0	0	0
BHADOHI	0	0	0	0
BIJNOR	1	0	1	0
BULANDSAHAR	0	2	4	3
CHANDAULI	0	0	0	0
CHITRAKOOT	0	0	0	0
DEORIA	0	0	0	0
ETAH	0	1	6	0
ETAWAH	0	2	1	0
FAIZABAD	0	1	0	0
FARRUKHABAD	0	0	0	0
FATEHPUR	1	3	2	0
FIROZABAD	0	0	0	0

GAUTAMBUDHNAGAR	1	0	2	0
GAZIPUR	0	0	0	0
GHAZIABAD	5	1	2	1
GONDA	0	0	0	0
GORAKHPUR	0	2	3	0
HAMIRPUR	0	0	1	0
HAPUR	0	0	0	2
HARDOI	5	2	2	0
HATHRAS	0	0	0	0
JALAUN	0	0	0	0
JAUNPUR	0	0	2	0
JHANSI	0	0	0	2
KANNAUJ	0	0	1	0
KANPUR	0	0	0	0
KANPUR DEHAT	0	1	0	0
KASGANJ	0	0	0	0
KAUSHAMBI	0	2	6	0
KHERI	57	62	24	34
KUSHINAGAR	0	1	0	0
LALITPUR	0	0	0	0
LUCKNOW	2	4	0	1
MAHARAJGANJ	0	1	3	0
MAHOBA	0	0	0	0
MAINPURI	0	2	4	1
MATHURA	8	15	46	21
MAU	1	0	0	0
MEERUT	4	4	0	4
MIRZAPUR	0	1	1	3
MORADABAD	1	3	1	2
MUZAFARNAGAR	12	28	10	4
PILHIBHIT	105	100	43	60
PRATAPGARH	0	0	0	0

RAE BARELI	0	0	0	0
RAMPUR	136	87	31	19
SHARANPUR	9	9	7	4
SAMBHAL	0	0	0	1
SANTKABIRNAGAR	0	0	0	0
SHAHJAHANPUR	179	217	74	32
SHAMALI	0	0	0	8
SHRAWASTI	0	0	0	0
SIDDHARTHANAGAR	1	0	0	0
SITAPUR	12	4	3	2
SONBHADRA	3	1	4	0
SULTANPUR	0	0	0	0
UNNAO	3	0	1	3
VARANASI	0	0	0	0
JYOTIBAPHULE NAGAR	0	0	1	0
MAHAMAYANAGAR	0	0	1	0
<b>Total</b>	<b>622</b>	<b>625</b>	<b>355</b>	<b>232</b>

## Map of Cumulative Burning Events (01 – 13 Oct 2019)



**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

**Study Team**

ICAR – HQ	Dr K. Alagusundaram	DDG (AG. ENGG.)	<a href="mailto:ddgengg@icar.org.in">ddgengg@icar.org.in</a>
	Dr S. Bhasker	ADG (NRM)	<a href="mailto:adgagroandaf@gmail.com">adgagroandaf@gmail.com</a>
	Dr K.K. Singh	ADG (AG. ENGG)	<a href="mailto:kanchansingh044@gmail.com">kanchansingh044@gmail.com</a>
ICAR - IARI	Dr V.K. Sehgal	Professor & Nodal Scientist	<a href="mailto:iaricreams@gmail.com">iaricreams@gmail.com</a>
	Dr Rajkumar Dhakar	Scientist	<a href="mailto:raidhakar.iari@gmail.com">raidhakar.iari@gmail.com</a>
	Mr Rakeswer Verma	Chief Technical Officer	<a href="mailto:rakeshwar.verma@icar.gov.in">rakeshwar.verma@icar.gov.in</a>
	Mr Mohd Jahangir	Lab Assistant (KRISHI)	<a href="mailto:mjahangir198@gmail.com">mjahangir198@gmail.com</a>
ICAR - ATARI	Dr Rajbir Singh	Director ATARI (Zone-I) Ludhiana	<a href="mailto:rajbirsingh.zpd@gmail.com">rajbirsingh.zpd@gmail.com</a>
	Dr S.K. Singh	Director ATARI (Zone-II) Jodhpur	<a href="mailto:sushilsinghiipr@yahoo.co.in">sushilsinghiipr@yahoo.co.in</a>
	Dr Atar Singh	Director ATARI (Zone-III) Kanpur	<a href="mailto:zpdicarkanpur@gmail.com">zpdicarkanpur@gmail.com</a>
ICAR - IASRI	Dr Rajender Parsad	Principal Scientist	<a href="mailto:rajender.parsad@icar.gov.in">rajender.parsad@icar.gov.in</a>

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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