



## Bulletin No. 12

Events Date:  
12-Oct-2019

Issued on:  
13-Oct-2019



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



Prepared by:

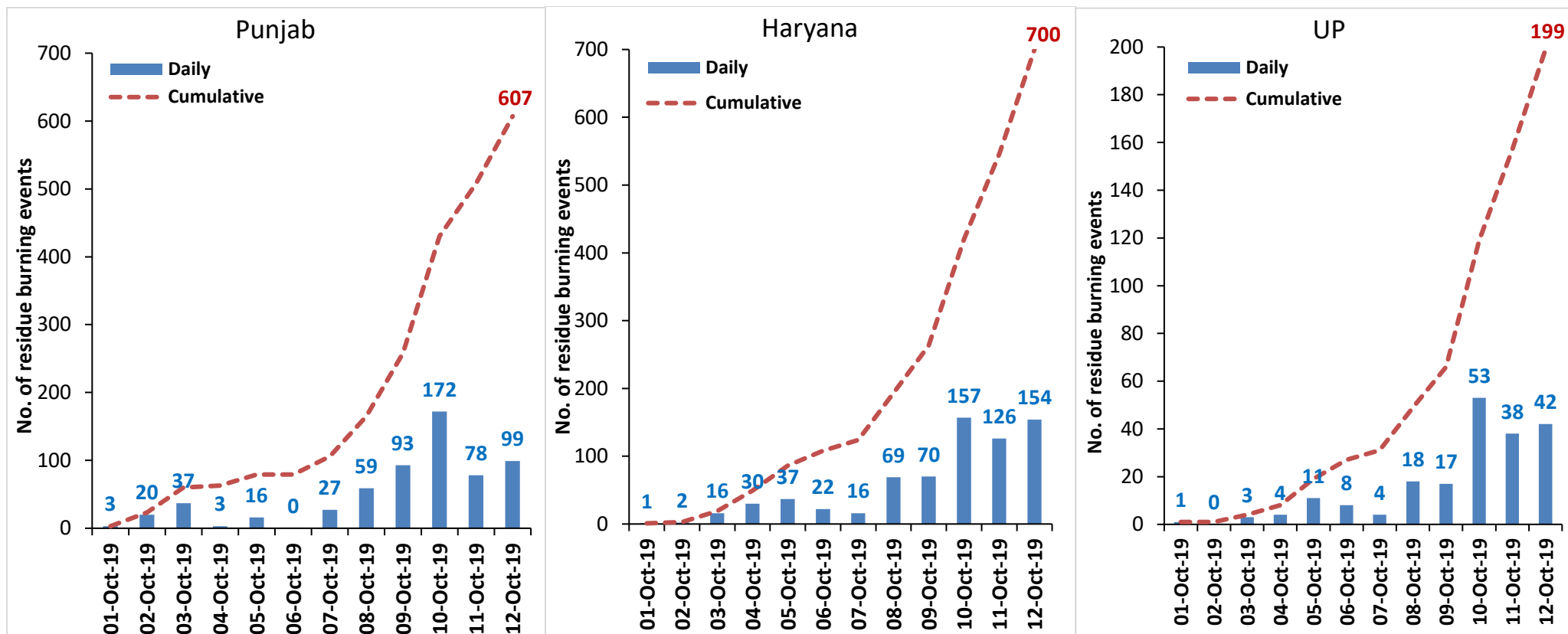
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<http://creams.iari.res.in>

## Highlights for 12-October-2019

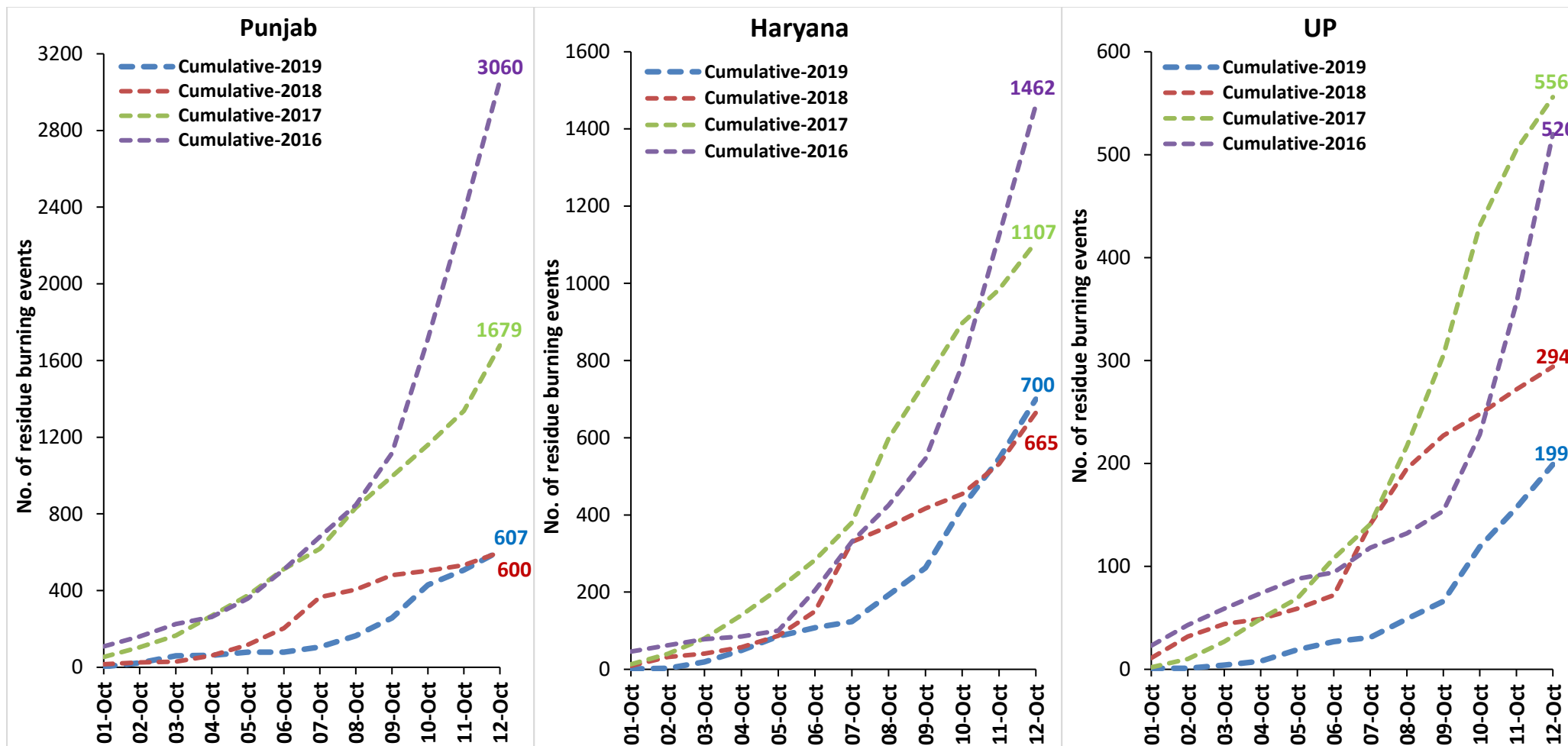
- Satellites detected **295** residue burning events in the three study States on 12-Oct-2019.
- The burning events detected on **12-Oct-2019** are **99**, **154** and **42** in Punjab, Haryana and UP, respectively.
- The number of events has increased from **242** on **11-Oct-2019** to **295** on **12-Oct-2019** in the three states.
- Total **1506** burning events were detected in the three States between **01-Oct-2019** and **12-Oct-2019**, which are distributed as **607**, **700** and **199** in Punjab, Haryana and UP, respectively.
- Overall, the total burning events recorded in the three states are **3.4%** less than in 2018 till date. UP recorded **32.3%** reduction while Punjab and Haryana recorded **1.1%** and **5.2%** increase, respectively, in the current season than in 2018.

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

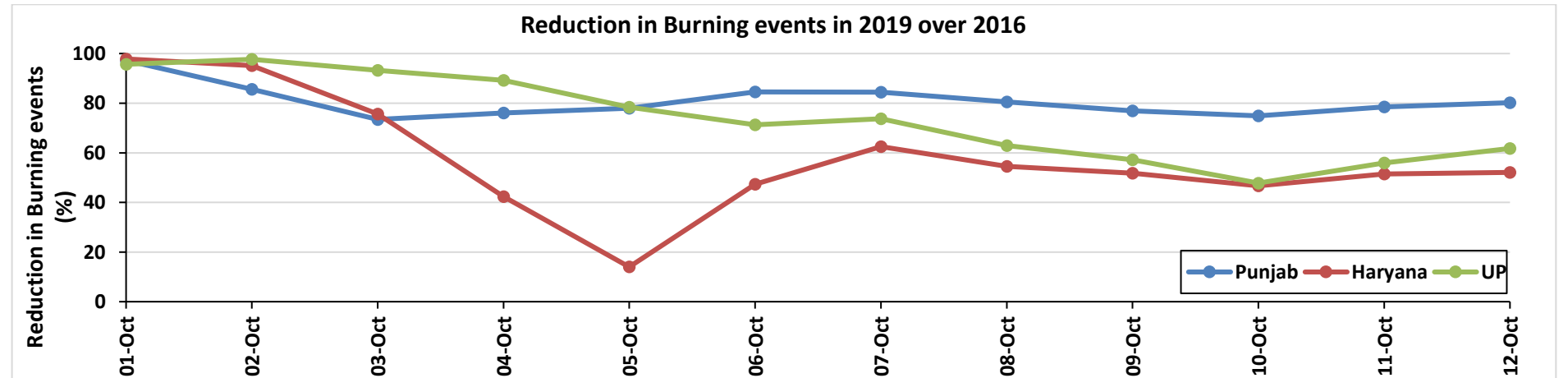
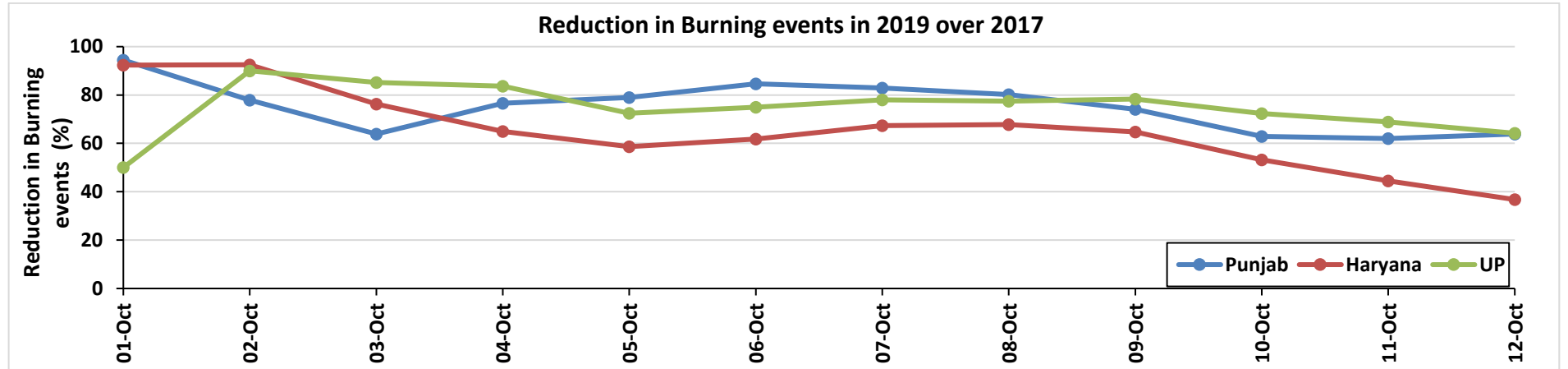
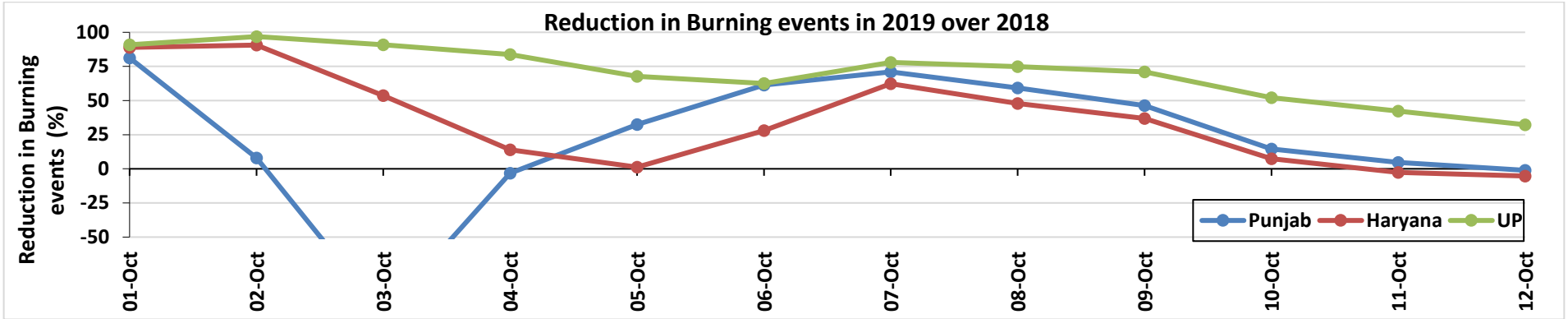


**Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States**

**(01-Oct to 12-Oct)**



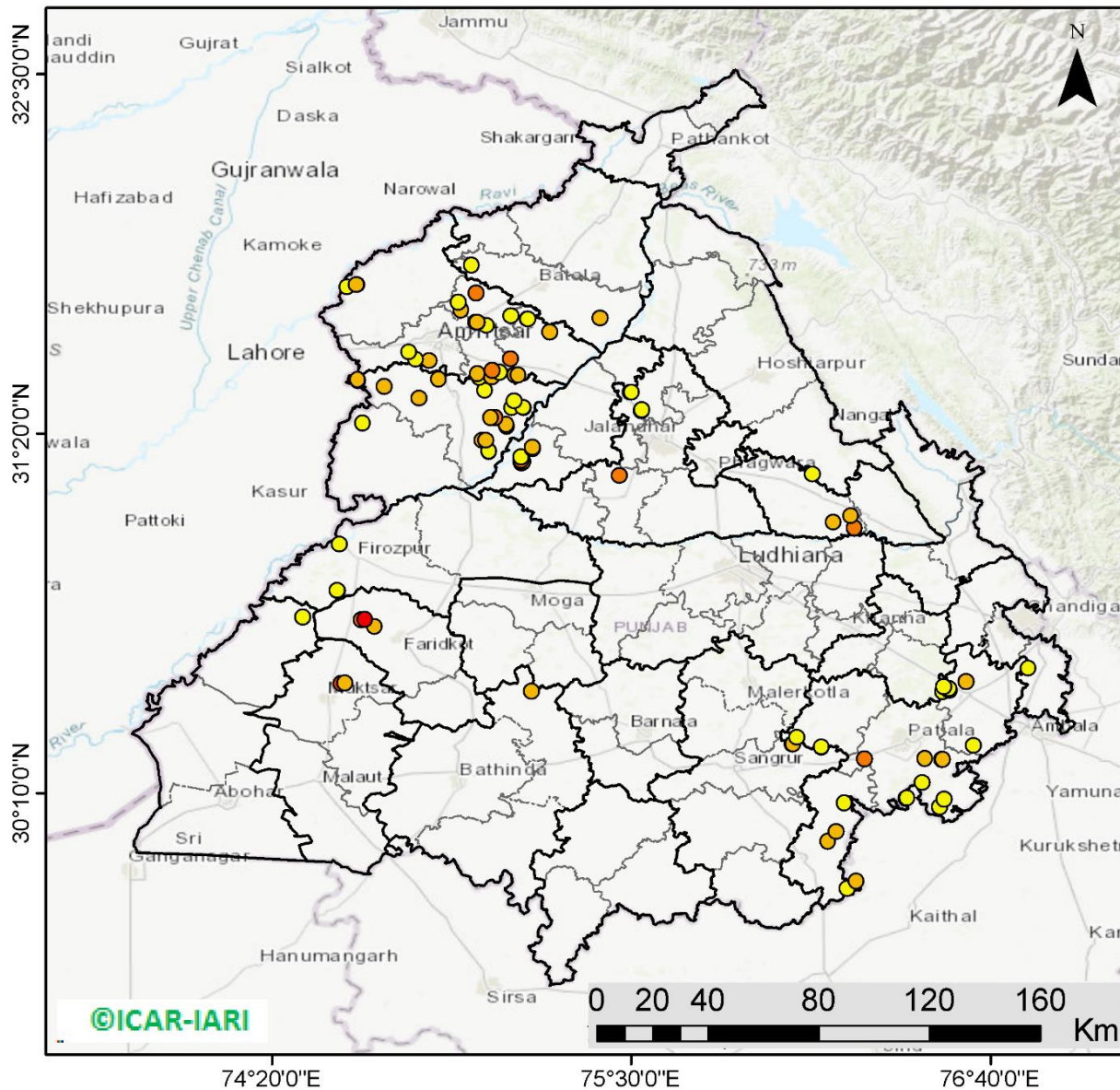
## Percent Reduction in Burning events in 2019 over 2018, 2017 and 2016 (Daily Cumulative)





### (a) Punjab

## RICE RESIDUE BURNING IN PUNJAB



**99** burning events detected in Punjab on 12th 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 12-Oct-2019**

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	74.57808	31.80865	14:24:00	D	2.70
2	AMRITSAR	AJNALA	S-NPP	74.60838	31.81618	12:48:00	D	8.00
3	AMRITSAR	AJNALA	S-NPP	74.60744	31.81684	12:48:00	D	5.90
4	AMRITSAR	AMRITSAR I	S-NPP	75.00102	31.52872	14:24:00	D	5.10
5	AMRITSAR	AMRITSAR I	S-NPP	75.07150	31.53191	14:24:00	D	3.10
6	AMRITSAR	AMRITSAR I	AQUA	75.04800	31.53900	13:35:00	D	12.50
7	AMRITSAR	AMRITSAR I	S-NPP	75.02893	31.68365	12:48:00	D	2.80
8	AMRITSAR	AMRITSAR I	S-NPP	74.94781	31.73452	14:24:00	D	5.70
9	AMRITSAR	AMRITSAR I	S-NPP	74.93786	31.76016	12:48:00	D	2.00
10	AMRITSAR	AMRITSAR I	AQUA	74.99600	31.79000	13:35:00	D	11.10
11	AMRITSAR	AMRITSAR II	S-NPP	74.61338	31.50600	12:48:00	D	9.30
12	AMRITSAR	AMRITSAR II	S-NPP	74.61229	31.50934	12:48:00	D	9.10
13	AMRITSAR	AMRITSAR II	AQUA	74.84400	31.57000	13:35:00	D	9.80
14	AMRITSAR	AMRITSAR II	S-NPP	74.80019	31.57455	12:48:00	D	2.40
15	AMRITSAR	AMRITSAR II	S-NPP	74.77866	31.59835	12:48:00	D	2.20
16	AMRITSAR	AMRITSAR II	S-NPP	74.99948	31.69365	12:48:00	D	5.90
17	AMRITSAR	AMRITSAR II	S-NPP	74.99508	31.69378	12:48:00	D	5.20
18	AMRITSAR	AMRITSAR II	S-NPP	74.99910	31.69479	12:48:00	D	7.50
19	AMRITSAR	BABA BAKALA	AQUA	75.12200	31.52300	13:35:00	D	5.80
20	AMRITSAR	BABA BAKALA	AQUA	75.13300	31.52400	13:35:00	D	8.00
21	AMRITSAR	BABA BAKALA	S-NPP	75.10860	31.57616	12:48:00	D	10.90
22	AMRITSAR	BABA BAKALA	AQUA	75.23600	31.66300	13:35:00	D	6.30
23	AMRITSAR	BABA BAKALA	AQUA	75.16300	31.70500	13:35:00	D	16.30
24	AMRITSAR	BABA BAKALA	S-NPP	75.16368	31.70537	12:48:00	D	2.40
25	AMRITSAR	BABA BAKALA	S-NPP	75.10921	31.71482	12:48:00	D	3.80
26	BATHINDA	RAMPURA PHUL	S-NPP	75.17615	30.49694	14:24:00	D	7.80
27	FARIDKOT	FARIDKOT	AQUA	74.66700	30.70700	13:35:00	D	7.00
28	FARIDKOT	FARIDKOT	AQUA	74.62400	30.72900	13:35:00	D	10.60
29	FARIDKOT	FARIDKOT	AQUA	74.63600	30.73100	13:35:00	D	22.40
30	FAZILKA	JALALABAD	S-NPP	74.43428	30.73868	12:48:00	D	3.80

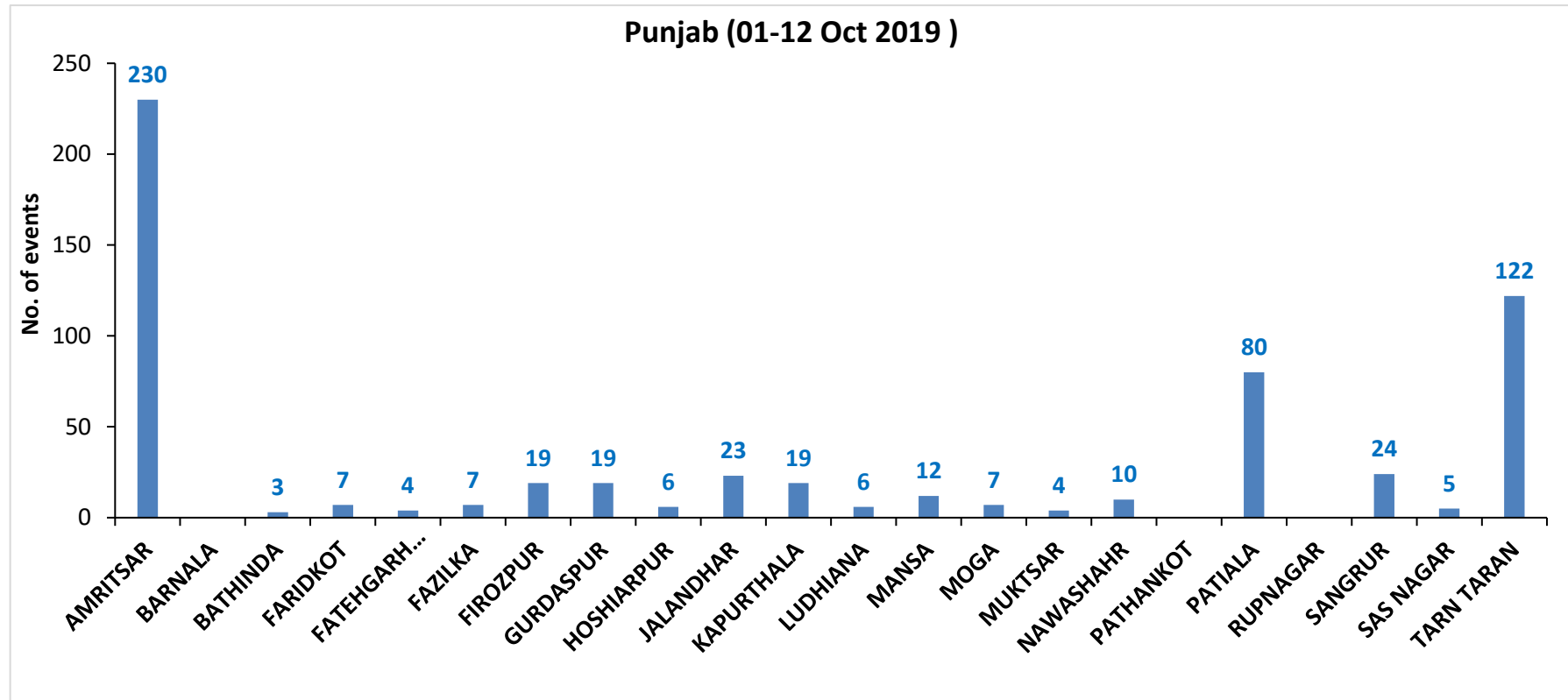
31	FIROZPUR	FIROZPUR	S-NPP	74.54637	30.82284	14:24:00	D	5.40
32	FIROZPUR	FIROZPUR	S-NPP	74.54569	30.82477	14:24:00	D	4.80
33	FIROZPUR	FIROZPUR	S-NPP	74.55213	30.97409	14:24:00	D	4.80
34	GURDASPUR	BATALA	AQUA	75.39900	31.70800	13:35:00	D	5.80
35	GURDASPUR	BATALA	AQUA	74.98200	31.88000	13:35:00	D	4.90
36	HOSHIARPUR	GARHSHANKAR	S-NPP	76.08830	31.20087	14:24:00	D	2.60
37	JALANDHAR	JALANDHAR II	S-NPP	75.53220	31.40762	14:24:00	D	3.20
38	JALANDHAR	JALANDHAR II	S-NPP	75.53335	31.41108	14:24:00	D	4.80
39	JALANDHAR	JALANDHAR II	S-NPP	75.49709	31.46706	12:48:00	D	3.10
40	JALANDHAR	NAKODAR	AQUA	75.46200	31.19700	13:35:00	D	11.40
41	KAPURTHALA	BHOLATH	S-NPP	75.50090	31.46798	12:48:00	D	3.10
42	KAPURTHALA	SULTANPUR LODHI	AQUA	75.14400	31.23900	13:35:00	D	5.90
43	KAPURTHALA	SULTANPUR LODHI	S-NPP	75.14266	31.24301	14:24:00	D	6.80
44	KAPURTHALA	SULTANPUR LODHI	S-NPP	75.14910	31.24331	14:24:00	D	9.80
45	KAPURTHALA	SULTANPUR LODHI	S-NPP	75.14263	31.24757	14:24:00	D	12.00
46	KAPURTHALA	SULTANPUR LODHI	S-NPP	75.14271	31.25813	12:48:00	D	2.80
47	KAPURTHALA	SULTANPUR LODHI	S-NPP	75.17943	31.28434	14:24:00	D	4.80
48	KAPURTHALA	SULTANPUR LODHI	S-NPP	75.17932	31.28870	14:24:00	D	5.60
49	MUKTSAR	MUKTSAR	AQUA	74.55800	30.52300	13:35:00	D	15.10
50	MUKTSAR	MUKTSAR	AQUA	74.57000	30.52500	13:35:00	D	8.30
51	NAWASHAHR	NAWASHAHR	S-NPP	76.22392	31.02670	14:24:00	D	12.50
52	NAWASHAHR	NAWASHAHR	S-NPP	76.22488	31.02740	14:24:00	D	14.80
53	NAWASHAHR	NAWASHAHR	S-NPP	76.15648	31.04503	14:24:00	D	6.50
54	NAWASHAHR	NAWASHAHR	AQUA	76.21300	31.06600	13:35:00	D	5.10
55	PATIALA	NABHA	AQUA	76.03800	30.34700	13:35:00	D	4.80
56	PATIALA	PATIALA	S-NPP	76.50024	30.12129	12:48:00	D	3.90
57	PATIALA	PATIALA	S-NPP	76.51520	30.14664	12:48:00	D	2.90
58	PATIALA	PATIALA	S-NPP	76.39174	30.15037	12:48:00	D	2.60
59	PATIALA	PATIALA	S-NPP	76.39533	30.15122	12:48:00	D	2.60
60	PATIALA	PATIALA	S-NPP	76.44412	30.20087	12:48:00	D	4.40
61	PATIALA	PATIALA	S-NPP	76.50822	30.27599	12:48:00	D	4.40
62	PATIALA	PATIALA	S-NPP	76.51173	30.27681	12:48:00	D	5.90
63	PATIALA	PATIALA	AQUA	76.25700	30.27800	13:35:00	D	11.90
64	PATIALA	PATIALA	AQUA	76.45300	30.28000	13:35:00	D	6.40

65	PATIALA	RAJPURA	S-NPP	76.61025	30.32144	12:48:00	D	4.50
66	PATIALA	RAJPURA	S-NPP	76.51145	30.49618	12:48:00	D	3.20
67	PATIALA	RAJPURA	S-NPP	76.53234	30.50107	12:48:00	D	4.00
68	PATIALA	RAJPURA	S-NPP	76.53078	30.50611	12:48:00	D	4.00
69	PATIALA	RAJPURA	S-NPP	76.51373	30.51292	12:48:00	D	3.60
70	PATIALA	RAJPURA	S-NPP	76.58725	30.52937	14:24:00	D	6.30
71	PATIALA	SAMANA	S-NPP	76.20123	29.85794	12:48:00	D	2.90
72	PATIALA	SAMANA	S-NPP	76.22987	29.88148	12:48:00	D	7.30
73	PATIALA	SAMANA	AQUA	76.13800	30.01000	13:35:00	D	6.00
74	PATIALA	SAMANA	AQUA	76.16500	30.04200	13:35:00	D	7.70
75	PATIALA	SAMANA	S-NPP	76.19249	30.13490	12:48:00	D	4.90
76	SANGRUR	SANGRUR	S-NPP	76.11749	30.31431	12:48:00	D	4.00
77	SANGRUR	SANGRUR	S-NPP	76.11785	30.31601	12:48:00	D	3.20
78	SANGRUR	SANGRUR	S-NPP	76.02233	30.32464	12:48:00	D	9.80
79	SANGRUR	SANGRUR	S-NPP	76.02607	30.32555	12:48:00	D	9.80
80	SAS NAGAR	DERABASSI	S-NPP	76.78869	30.57143	12:48:00	D	2.30
81	TARN TARAN	KHADOOR SAHIB	S-NPP	75.03806	31.27601	14:24:00	D	3.60
82	TARN TARAN	KHADOOR SAHIB	S-NPP	75.03804	31.27741	14:24:00	D	3.10
83	TARN TARAN	KHADOOR SAHIB	AQUA	75.01600	31.31100	13:35:00	D	6.90
84	TARN TARAN	KHADOOR SAHIB	AQUA	75.02800	31.31200	13:35:00	D	6.90
85	TARN TARAN	KHADOOR SAHIB	S-NPP	75.09658	31.35773	12:48:00	D	7.10
86	TARN TARAN	KHADOOR SAHIB	S-NPP	75.09481	31.36305	12:48:00	D	7.10
87	TARN TARAN	KHADOOR SAHIB	AQUA	75.05900	31.38500	13:35:00	D	12.20
88	TARN TARAN	KHADOOR SAHIB	S-NPP	75.04369	31.38511	12:48:00	D	5.80
89	TARN TARAN	KHADOOR SAHIB	S-NPP	75.11260	31.41662	14:24:00	D	3.20
90	TARN TARAN	KHADOOR SAHIB	S-NPP	75.15076	31.41700	12:48:00	D	3.10
91	TARN TARAN	KHADOOR SAHIB	S-NPP	75.14816	31.41755	12:48:00	D	2.00
92	TARN TARAN	KHADOOR SAHIB	S-NPP	75.11941	31.43912	12:48:00	D	2.40
93	TARN TARAN	KHADOOR SAHIB	AQUA	74.81100	31.44800	13:35:00	D	5.70
94	TARN TARAN	KHADOOR SAHIB	S-NPP	75.02513	31.47341	12:48:00	D	3.60
95	TARN TARAN	KHADOOR SAHIB	S-NPP	74.69854	31.48595	12:48:00	D	9.50
96	TARN TARAN	KHADOOR SAHIB	AQUA	74.87500	31.51100	13:35:00	D	8.10
97	TARN TARAN	KHADOOR SAHIB	S-NPP	75.00671	31.51632	12:48:00	D	2.20
98	TARN TARAN	KHADOOR SAHIB	S-NPP	75.04638	31.51764	14:24:00	D	6.40



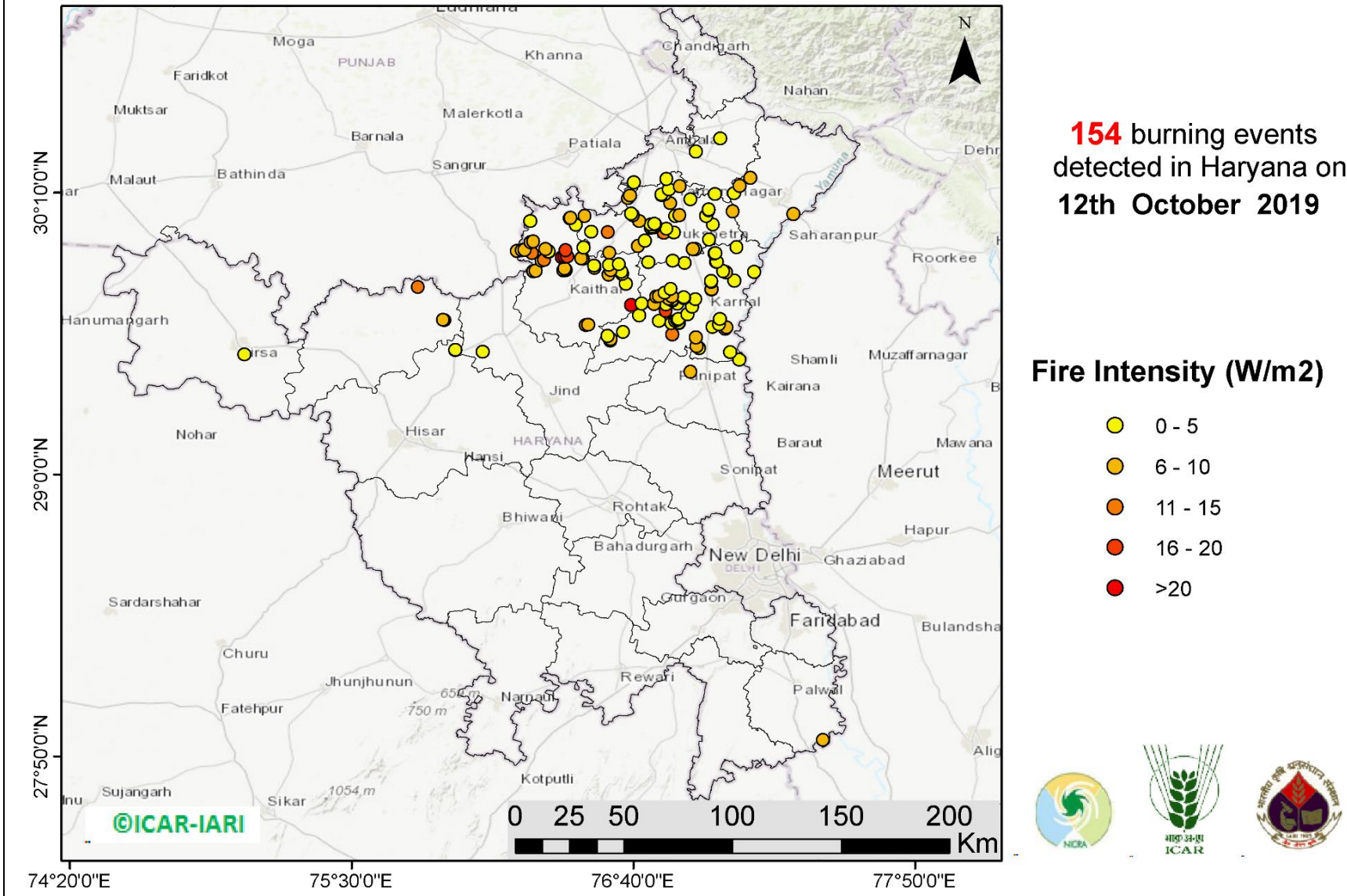
99	TARN TARAN	PATTI	S-NPP	74.62800	31.36852	14:24:00	D	2.80
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**District-wise cumulative number of residue burning events in Punjab (01 to 12-Oct 2019)**



(b) Haryana

**RICE RESIDUE BURNING IN HARYANA**



**Details of residue burning events in Haryana on 12-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/m2)</b>
1	AMBALA	AMBALA	AQUA	76.65300	30.15400	13:35:00	D	7.00
2	AMBALA	AMBALA	S-NPP	76.66815	30.20956	12:48:00	D	2.80
3	AMBALA	AMBALA	AQUA	76.80400	30.22300	13:35:00	D	4.40
4	AMBALA	AMBALA	S-NPP	76.92566	30.33609	12:48:00	D	1.30
5	AMBALA	BARARA	AQUA	77.15000	30.22800	13:35:00	D	5.70
6	AMBALA	NARAYANGARH	S-NPP	77.02550	30.39086	12:48:00	D	1.60
7	FATEHABAD	TOHANA	S-NPP	75.88264	29.63834	14:24:00	D	4.00
8	FATEHABAD	TOHANA	S-NPP	75.87938	29.63989	14:24:00	D	5.80
9	FATEHABAD	TOHANA	AQUA	75.77400	29.77600	13:35:00	D	11.70
10	HISAR	HISAR	S-NPP	75.92909	29.51399	12:48:00	D	2.10
11	HISAR	HISAR	S-NPP	75.92847	29.51550	12:48:00	D	3.10
12	JIND	NARWANA	S-NPP	76.04238	29.50810	14:24:00	D	4.50
13	KAITHAL	GUHLA	AQUA	76.24700	29.91600	13:35:00	D	10.70
14	KAITHAL	GUHLA	AQUA	76.18400	29.92500	13:35:00	D	8.10
15	KAITHAL	GUHLA	AQUA	76.20500	29.92800	13:35:00	D	6.30
16	KAITHAL	GUHLA	AQUA	76.38700	29.92900	13:35:00	D	19.60
17	KAITHAL	GUHLA	AQUA	76.21600	29.93000	13:35:00	D	5.50
18	KAITHAL	GUHLA	AQUA	76.30300	29.93400	13:35:00	D	7.30
19	KAITHAL	GUHLA	AQUA	76.24200	29.96200	13:35:00	D	6.70
20	KAITHAL	GUHLA	AQUA	76.25300	29.96400	13:35:00	D	6.80
21	KAITHAL	GUHLA	S-NPP	76.24007	30.04812	12:48:00	D	2.10
22	KAITHAL	GUHLA	S-NPP	76.40431	30.06087	14:24:00	D	7.40
23	KAITHAL	GUHLA	S-NPP	76.40716	30.06302	14:24:00	D	6.10
24	KAITHAL	KAITHAL	AQUA	76.46900	29.61800	13:35:00	D	6.00
25	KAITHAL	KAITHAL	AQUA	76.47900	29.62000	13:35:00	D	5.20
26	KAITHAL	KAITHAL	AQUA	76.65700	29.70200	13:35:00	D	44.60
27	KAITHAL	KAITHAL	S-NPP	76.63505	29.79033	12:48:00	D	2.80
28	KAITHAL	KAITHAL	AQUA	76.56500	29.82700	13:35:00	D	7.20
29	KAITHAL	KAITHAL	S-NPP	76.61975	29.83008	14:24:00	D	9.20
30	KAITHAL	KAITHAL	S-NPP	76.61603	29.84035	12:48:00	D	1.90

31	KAITHAL	KAITHAL	AQUA	76.25200	29.84200	13:35:00	D	5.50
32	KAITHAL	KAITHAL	AQUA	76.26200	29.84400	13:35:00	D	6.70
33	KAITHAL	KAITHAL	AQUA	76.37700	29.84500	13:35:00	D	6.60
34	KAITHAL	KAITHAL	AQUA	76.38800	29.84600	13:35:00	D	5.40
35	KAITHAL	KAITHAL	AQUA	76.57200	29.84600	13:35:00	D	7.30
36	KAITHAL	KAITHAL	S-NPP	76.38494	29.85188	12:48:00	D	9.20
37	KAITHAL	KAITHAL	AQUA	76.38100	29.85300	13:35:00	D	5.10
38	KAITHAL	KAITHAL	AQUA	76.50600	29.85500	13:35:00	D	6.30
39	KAITHAL	KAITHAL	S-NPP	76.50586	29.86374	12:48:00	D	4.80
40	KAITHAL	KAITHAL	S-NPP	76.50500	29.86418	12:48:00	D	5.00
41	KAITHAL	KAITHAL	S-NPP	76.56613	29.86685	12:48:00	D	1.00
42	KAITHAL	KAITHAL	S-NPP	76.60667	29.87085	12:48:00	D	1.80
43	KAITHAL	KAITHAL	AQUA	76.28700	29.88500	13:35:00	D	4.60
44	KAITHAL	KAITHAL	AQUA	76.29700	29.88700	13:35:00	D	10.40
45	KAITHAL	KAITHAL	S-NPP	76.45638	29.89150	14:24:00	D	6.40
46	KAITHAL	KAITHAL	S-NPP	76.45145	29.89309	14:24:00	D	8.40
47	KAITHAL	KAITHAL	AQUA	76.37100	29.89800	13:35:00	D	23.30
48	KAITHAL	KAITHAL	AQUA	76.38200	29.90000	13:35:00	D	22.70
49	KAITHAL	KAITHAL	AQUA	76.39300	29.90200	13:35:00	D	18.40
50	KAITHAL	KAITHAL	S-NPP	76.31505	29.92262	12:48:00	D	5.40
51	KAITHAL	KAITHAL	S-NPP	76.31566	29.92394	12:48:00	D	5.00
52	KAITHAL	KAITHAL	AQUA	76.46100	29.94000	13:35:00	D	4.90
53	KARNAL	ASSANDH	S-NPP	76.57055	29.55535	12:48:00	D	5.70
54	KARNAL	ASSANDH	S-NPP	76.57166	29.56061	12:48:00	D	5.50
55	KARNAL	ASSANDH	S-NPP	76.55981	29.57429	12:48:00	D	2.50
56	KARNAL	ASSANDH	S-NPP	76.62424	29.58961	12:48:00	D	2.50
57	KARNAL	ASSANDH	S-NPP	76.69030	29.65977	12:48:00	D	2.10
58	KARNAL	GHARAUNDA	AQUA	77.10500	29.47400	13:35:00	D	3.70
59	KARNAL	GHARAUNDA	S-NPP	77.06706	29.50626	12:48:00	D	3.60
60	KARNAL	GHARAUNDA	AQUA	76.94000	29.52300	13:35:00	D	4.90
61	KARNAL	GHARAUNDA	AQUA	76.92800	29.53100	13:35:00	D	9.30
62	KARNAL	GHARAUNDA	AQUA	76.92600	29.56700	13:35:00	D	8.20
63	KARNAL	GHARAUNDA	AQUA	76.82700	29.58000	13:35:00	D	11.80
64	KARNAL	GHARAUNDA	AQUA	77.04600	29.60300	13:35:00	D	5.80

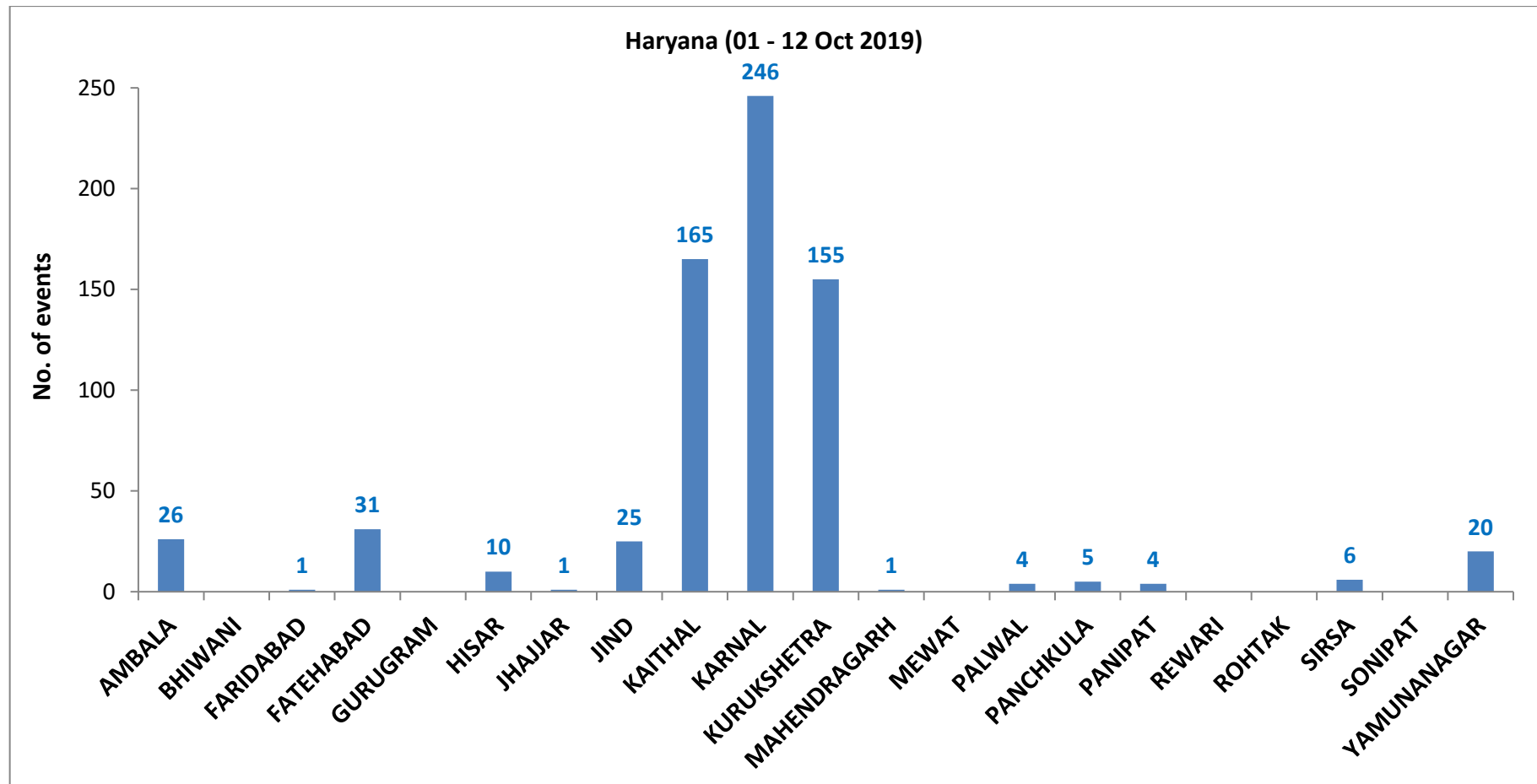
65	KARNAL	GHARAUNDA	S-NPP	77.05367	29.60791	12:48:00	D	8.00
66	KARNAL	INDRI	S-NPP	77.08521	29.80309	12:48:00	D	3.80
67	KARNAL	INDRI	S-NPP	77.05005	29.83737	12:48:00	D	5.40
68	KARNAL	INDRI	S-NPP	77.16657	29.83789	12:48:00	D	3.30
69	KARNAL	INDRI	AQUA	77.03900	29.84200	13:35:00	D	4.90
70	KARNAL	INDRI	S-NPP	77.00915	29.87897	12:48:00	D	3.30
71	KARNAL	INDRI	S-NPP	77.01249	29.87975	12:48:00	D	3.70
72	KARNAL	INDRI	S-NPP	77.00199	29.91453	12:48:00	D	3.60
73	KARNAL	INDRI	S-NPP	77.00533	29.91531	12:48:00	D	3.60
74	KARNAL	INDRI	S-NPP	77.09346	29.94108	12:48:00	D	2.30
75	KARNAL	KARNAL	S-NPP	76.99520	29.61040	12:48:00	D	1.50
76	KARNAL	KARNAL	S-NPP	77.02073	29.62164	12:48:00	D	2.60
77	KARNAL	KARNAL	S-NPP	76.82402	29.62604	12:48:00	D	3.00
78	KARNAL	KARNAL	S-NPP	76.85487	29.62641	12:48:00	D	2.60
79	KARNAL	KARNAL	S-NPP	76.85316	29.62752	12:48:00	D	1.70
80	KARNAL	KARNAL	S-NPP	76.83978	29.63517	12:48:00	D	2.80
81	KARNAL	KARNAL	S-NPP	76.77274	29.63561	12:48:00	D	3.70
82	KARNAL	KARNAL	AQUA	76.84800	29.63800	13:35:00	D	17.80
83	KARNAL	KARNAL	S-NPP	76.85207	29.64347	12:48:00	D	4.70
84	KARNAL	KARNAL	S-NPP	77.02486	29.64395	12:48:00	D	4.20
85	KARNAL	KARNAL	S-NPP	76.89030	29.66323	12:48:00	D	1.90
86	KARNAL	KARNAL	AQUA	76.80100	29.67800	13:35:00	D	15.70
87	KARNAL	KARNAL	S-NPP	76.91013	29.69474	12:48:00	D	2.90
88	KARNAL	KARNAL	S-NPP	76.80306	29.70524	14:24:00	D	4.70
89	KARNAL	KARNAL	AQUA	76.75200	29.70700	13:35:00	D	5.50
90	KARNAL	KARNAL	S-NPP	76.84761	29.70714	12:48:00	D	2.40
91	KARNAL	KARNAL	S-NPP	76.70123	29.70730	12:48:00	D	1.80
92	KARNAL	KARNAL	S-NPP	76.82749	29.72100	12:48:00	D	3.40
93	KARNAL	KARNAL	S-NPP	76.82769	29.72411	12:48:00	D	2.70
94	KARNAL	KARNAL	S-NPP	76.92307	29.72456	12:48:00	D	3.00
95	KARNAL	KARNAL	AQUA	76.81300	29.72600	13:35:00	D	8.90
96	KARNAL	KARNAL	S-NPP	76.87401	29.72937	12:48:00	D	2.20
97	KARNAL	KARNAL	S-NPP	76.87743	29.73016	12:48:00	D	3.80
98	KARNAL	KARNAL	S-NPP	76.87556	29.73240	12:48:00	D	4.90

99	KARNAL	KARNAL	AQUA	76.76200	29.73600	13:35:00	D	6.30
100	KARNAL	KARNAL	AQUA	76.82600	29.73700	13:35:00	D	7.50
101	KARNAL	KARNAL	AQUA	76.77300	29.73800	13:35:00	D	6.90
102	KARNAL	KARNAL	S-NPP	76.79610	29.75140	12:48:00	D	2.50
103	KARNAL	KARNAL	S-NPP	76.98947	29.76466	12:48:00	D	5.60
104	KARNAL	KARNAL	S-NPP	76.99015	29.76669	12:48:00	D	5.50
105	KARNAL	KARNAL	S-NPP	76.98907	29.79830	14:24:00	D	9.20
106	KARNAL	KARNAL	S-NPP	76.98836	29.80134	14:24:00	D	3.60
107	KARNAL	NILOKHERI	S-NPP	76.82069	29.76797	12:48:00	D	1.90
108	KARNAL	NILOKHERI	S-NPP	76.88024	29.87539	12:48:00	D	1.20
109	KARNAL	NILOKHERI	S-NPP	76.82974	29.88504	12:48:00	D	3.70
110	KURUKSHETRA	PEHOWA	S-NPP	76.56814	29.91695	14:24:00	D	7.80
111	KURUKSHETRA	PEHOWA	AQUA	76.68600	29.94600	13:35:00	D	7.40
112	KURUKSHETRA	PEHOWA	S-NPP	76.71474	29.96840	12:48:00	D	2.10
113	KURUKSHETRA	PEHOWA	AQUA	76.56100	30.00200	13:35:00	D	14.90
114	KURUKSHETRA	PEHOWA	S-NPP	76.49168	30.00358	12:48:00	D	2.50
115	KURUKSHETRA	PEHOWA	S-NPP	76.42899	30.03257	12:48:00	D	1.60
116	KURUKSHETRA	PEHOWA	AQUA	76.46500	30.07000	13:35:00	D	7.20
117	KURUKSHETRA	PEHOWA	AQUA	76.66500	30.07300	13:35:00	D	6.60
118	KURUKSHETRA	PEHOWA	AQUA	76.65700	30.08000	13:35:00	D	4.50
119	KURUKSHETRA	PEHOWA	AQUA	76.64500	30.14300	13:35:00	D	7.60
120	KURUKSHETRA	SHAHABAD	AQUA	76.82000	30.12300	13:35:00	D	7.30
121	KURUKSHETRA	SHAHABAD	S-NPP	76.78378	30.15610	12:48:00	D	2.80
122	KURUKSHETRA	SHAHABAD	S-NPP	76.79398	30.15852	12:48:00	D	2.30
123	KURUKSHETRA	SHAHABAD	S-NPP	76.78419	30.15858	12:48:00	D	3.70
124	KURUKSHETRA	SHAHABAD	S-NPP	76.81317	30.17911	12:48:00	D	1.40
125	KURUKSHETRA	SHAHABAD	AQUA	76.85900	30.19400	13:35:00	D	7.80
126	KURUKSHETRA	THANESAR	S-NPP	76.72860	29.87759	12:48:00	D	2.20
127	KURUKSHETRA	THANESAR	S-NPP	76.92428	29.93379	12:48:00	D	1.70
128	KURUKSHETRA	THANESAR	AQUA	76.91300	29.93400	13:35:00	D	8.20
129	KURUKSHETRA	THANESAR	AQUA	76.98000	29.97200	13:35:00	D	4.90
130	KURUKSHETRA	THANESAR	AQUA	76.79300	29.99900	13:35:00	D	12.80
131	KURUKSHETRA	THANESAR	S-NPP	76.83354	30.00157	12:48:00	D	2.30
132	KURUKSHETRA	THANESAR	S-NPP	76.80352	30.01604	12:48:00	D	2.20



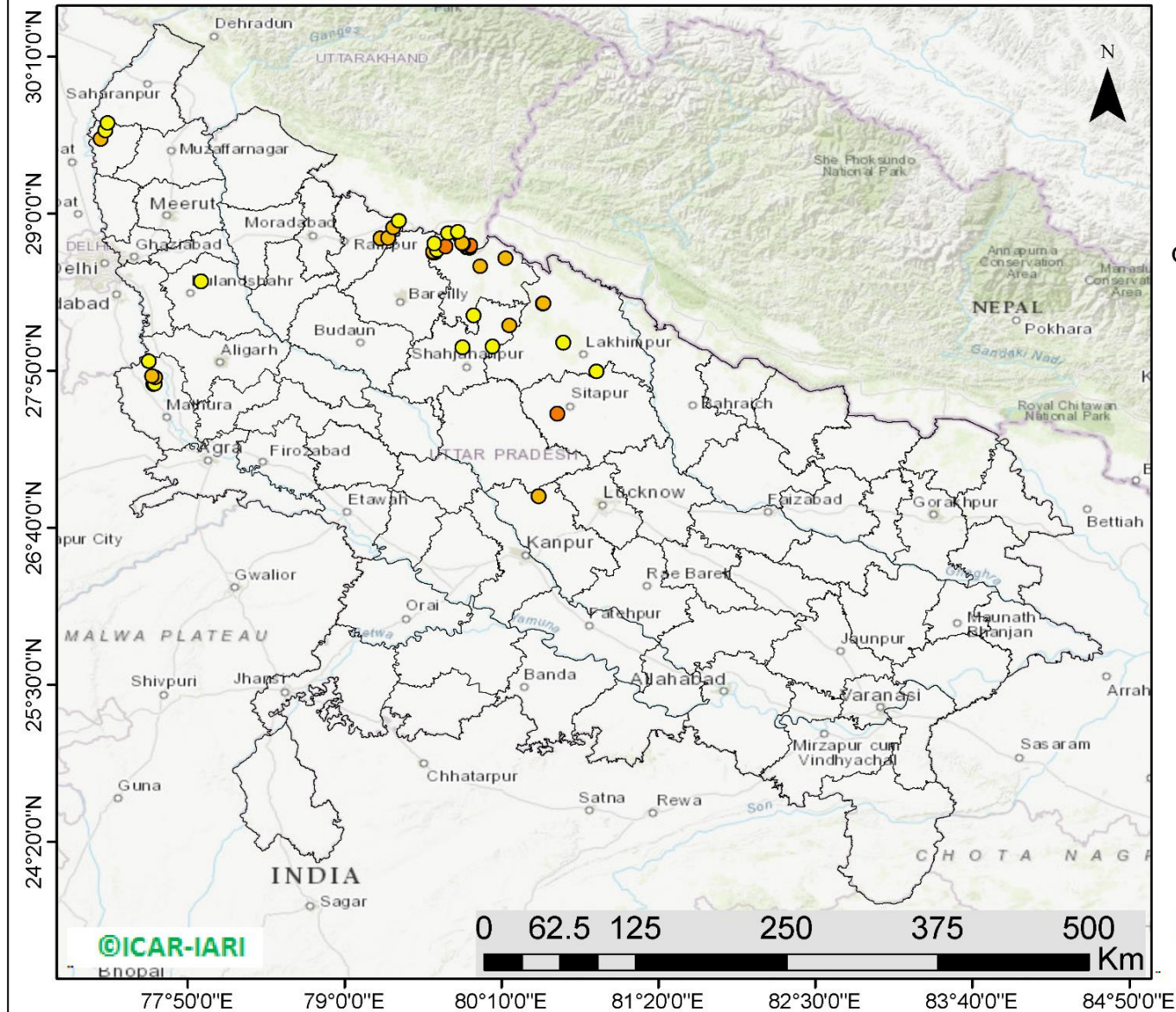
133	KURUKSHETRA	THANESAR	AQUA	76.74000	30.02000	13:35:00	D	8.90
134	KURUKSHETRA	THANESAR	AQUA	76.75000	30.02100	13:35:00	D	10.50
135	KURUKSHETRA	THANESAR	S-NPP	76.74586	30.02419	12:48:00	D	1.90
136	KURUKSHETRA	THANESAR	S-NPP	76.75620	30.03390	12:48:00	D	2.80
137	KURUKSHETRA	THANESAR	S-NPP	76.99679	30.03422	12:48:00	D	2.20
138	KURUKSHETRA	THANESAR	S-NPP	76.73749	30.03485	12:48:00	D	1.60
139	KURUKSHETRA	THANESAR	S-NPP	76.75312	30.03662	12:48:00	D	4.40
140	KURUKSHETRA	THANESAR	AQUA	76.69100	30.04900	13:35:00	D	6.20
141	KURUKSHETRA	THANESAR	S-NPP	76.84036	30.06994	12:48:00	D	2.60
142	KURUKSHETRA	THANESAR	S-NPP	76.96806	30.07003	12:48:00	D	1.70
143	KURUKSHETRA	THANESAR	AQUA	76.85700	30.07400	13:35:00	D	7.50
144	KURUKSHETRA	THANESAR	S-NPP	76.97874	30.09369	12:48:00	D	1.50
145	KURUKSHETRA	THANESAR	S-NPP	76.97955	30.09738	12:48:00	D	2.40
146	KURUKSHETRA	THANESAR	S-NPP	76.90285	30.13793	12:48:00	D	1.50
147	KURUKSHETRA	THANESAR	AQUA	77.00400	30.16000	13:35:00	D	4.80
148	PALWAL	HODAL	AQUA	77.45200	27.90200	13:35:00	D	8.70
149	PANIPAT	PANIPAT	AQUA	76.90300	29.42500	13:35:00	D	5.70
150	SIRSA	SIRSA	S-NPP	75.05631	29.49728	14:24:00	D	2.60
151	YAMUNANAGAR	JAGADHRI	AQUA	77.32900	30.07800	13:35:00	D	5.90
152	YAMUNANAGAR	JAGADHRI	AQUA	77.07800	30.08900	13:35:00	D	5.60
153	YAMUNANAGAR	JAGADHRI	S-NPP	77.08318	30.16381	12:48:00	D	1.10
154	YAMUNANAGAR	JAGADHRI	S-NPP	77.10683	30.19554	12:48:00	D	5.30

**District-wise cumulative number of residue burning events in Haryana (01 to 12-Oct 2019)**



(c) UP

### RICE RESIDUE BURNING IN UTTAR PRADESH



**42** burning events detected in Uttar Pradesh on **12th 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/>

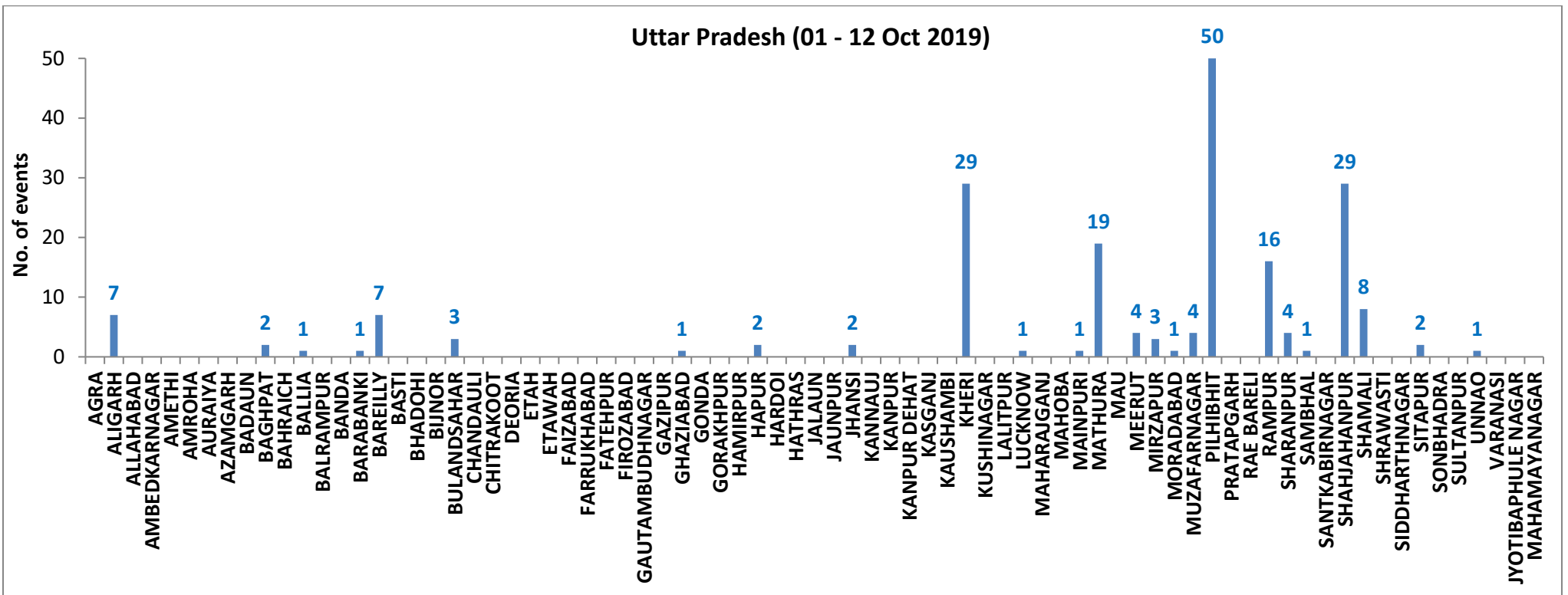
**Details of residue burning events in Uttar Pradesh on 12-Oct-2019**

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m2)
1	BAREILLY	BAHERI	S-NPP	79.66860	28.77812	12:48:00	D	3.40
2	BULANDSAHAR	BULANDSHAHR	AQUA	77.93100	28.49700	13:35:00	D	5.00
3	KHERI	LAKHIMPUR	S-NPP	80.62403	28.04202	12:42:00	D	5.00
4	KHERI	PALIA KALAN	S-NPP	80.47495	28.33047	12:42:00	D	6.20
5	KHERI	PALIA KALAN	S-NPP	80.47327	28.33155	12:42:00	D	3.90
6	KHERI	PALIA KALAN	S-NPP	80.47775	28.33245	12:42:00	D	6.00
7	MATHURA	CHHATA	AQUA	77.57900	27.73600	13:35:00	D	5.90
8	MATHURA	CHHATA	S-NPP	77.58741	27.73809	14:24:00	D	5.00
9	MATHURA	CHHATA	S-NPP	77.58976	27.78335	14:24:00	D	6.70
10	MATHURA	CHHATA	AQUA	77.56900	27.79000	13:35:00	D	8.70
11	MATHURA	MAT	S-NPP	77.54375	27.90188	12:42:00	D	4.50
12	PILHIBHIT	BISALPUR	S-NPP	79.95867	28.24506	12:42:00	D	4.40
13	PILHIBHIT	PILHIBHIT	AQUA	79.65900	28.70800	13:35:00	D	36.10
14	PILHIBHIT	PILHIBHIT	AQUA	79.67000	28.70900	13:35:00	D	23.40
15	PILHIBHIT	PILHIBHIT	AQUA	79.65800	28.71700	13:35:00	D	7.30
16	PILHIBHIT	PILHIBHIT	AQUA	79.68800	28.73000	13:35:00	D	5.00
17	PILHIBHIT	PILHIBHIT	S-NPP	79.93040	28.74617	12:48:00	D	3.20
18	PILHIBHIT	PILHIBHIT	S-NPP	79.90906	28.75089	12:48:00	D	3.70
19	PILHIBHIT	PILHIBHIT	S-NPP	79.91048	28.75109	12:48:00	D	4.20
20	PILHIBHIT	PILHIBHIT	AQUA	79.74900	28.75700	13:35:00	D	14.70
21	PILHIBHIT	PILHIBHIT	S-NPP	79.93169	28.76009	12:48:00	D	7.80
22	PILHIBHIT	PILHIBHIT	S-NPP	79.93305	28.76044	12:48:00	D	15.10
23	PILHIBHIT	PILHIBHIT	S-NPP	79.93644	28.76106	12:48:00	D	13.00
24	PILHIBHIT	PILHIBHIT	AQUA	79.87900	28.77400	13:35:00	D	9.40
25	PILHIBHIT	PILHIBHIT	AQUA	79.87200	28.78100	13:35:00	D	7.80
26	PILHIBHIT	PILHIBHIT	S-NPP	79.76861	28.85384	12:48:00	D	3.50
27	PILHIBHIT	PILHIBHIT	S-NPP	79.84177	28.86477	12:48:00	D	3.00
28	PILHIBHIT	PURANPUR	AQUA	80.00900	28.60700	13:35:00	D	6.60
29	PILHIBHIT	PURANPUR	AQUA	80.19500	28.66700	13:35:00	D	8.20
30	RAMPUR	BILASPUR	S-NPP	79.26614	28.81727	12:48:00	D	8.90

31	RAMPUR	BILASPUR	AQUA	79.32400	28.81900	13:35:00	D	7.00
32	RAMPUR	BILASPUR	S-NPP	79.36130	28.89490	12:48:00	D	9.90
33	RAMPUR	BILASPUR	S-NPP	79.40123	28.94563	12:48:00	D	2.40
34	SHAHJAHANPUR	PUWANYA	AQUA	80.10100	28.01200	13:35:00	D	4.70
35	SHAHJAHANPUR	PUWANYA	AQUA	80.22400	28.16700	13:35:00	D	7.20
36	SHAHJAHANPUR	TILHAR	S-NPP	79.87613	28.00775	01:30:00	N	0.70
37	SHAMLI	KAIRANA	S-NPP	77.18485	29.55467	12:48:00	D	10.00
38	SHAMLI	KAIRANA	S-NPP	77.22067	29.62012	12:48:00	D	2.40
39	SHAMLI	KAIRANA	S-NPP	77.23697	29.67135	12:48:00	D	1.00
40	SITAPUR	LAHARPUR	S-NPP	80.87340	27.82658	12:42:00	D	2.10
41	SITAPUR	SITAPUR	S-NPP	80.58150	27.51338	12:42:00	D	13.10
42	UNNAO	HASANGANJ	AQUA	80.44100	26.90100	13:30:00	D	7.40

**District-wise cumulative number of residue burning events in Haryana (01 to 12-Oct 2019)**

**Uttar Pradesh (01 - 12 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 12-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
<b>Total</b>	<b>607</b>	<b>600</b>	<b>1679</b>	<b>3060</b>	<b>700</b>	<b>665</b>	<b>1107</b>	<b>1462</b>	<b>199</b>	<b>294</b>	<b>556</b>	<b>520</b>	<b>1506</b>	<b>1559</b>	<b>3342</b>	<b>5042</b>



**(a) Punjab**

Districts	01-12 Oct			
	2016	2017	2018	2019
AMRITSAR	569	345	300	230
BARNALA	11	6	1	0
BATHINDA	132	67	12	3
FARIDKOT	192	241	5	7
FATEHGARH SAHIB	174	50	9	4
FAZILKA	0	0	0	7
FIROZPUR	240	165	29	19
GURDASPUR	134	34	26	19
HOSHIARPUR	25	4	3	6
JALANDHAR	199	82	1	23
KAPURTHALA	165	20	2	19
LUDHIANA	127	99	19	6
MANSA	12	25	3	12
MOGA	47	17	0	7
MUKTSAR	193	21	3	4
NAWASHAHR (SBS Nagar)	35	15	8	10
PATHANKOT	0	0	0	0
PATIALA	255	198	48	80
RUPNAGAR	23	2	0	0
SANGRUR	49	75	29	24
SAS NAGAR	26	22	17	5
TARN TARAN	452	191	85	122
<b>Total</b>	<b>3060</b>	<b>1679</b>	<b>600</b>	<b>607</b>

**(b) Haryana**

Districts	01-12 Oct			
	2016	2017	2018	2019
AMBALA	89	88	36	26
BHIWANI	0	2	1	0
FARIDABAD	4	9	20	1
FATEHABAD	40	45	20	31
GURUGRAM	0	0	0	0
HISAR	10	11	7	10
JHAJJAR	4	0	3	1
JIND	28	53	34	25
KAITHAL	405	213	128	165
KARNAL	519	373	204	246
KURUKSHETRA	297	245	149	155
MAHENDRAGARH	0	0	0	1
MEWAT	0	0	0	0
PALWAL	0	0	0	4
PANCHKULA	0	0	3	5
PANIPAT	12	18	29	4
REWARI	0	0	0	0
ROHTAK	1	1	0	0
SIRSA	28	11	7	6
SONIPAT	1	7	5	0
YAMUNANAGAR	24	31	19	20
<b>Total</b>	<b>1462</b>	<b>1107</b>	<b>665</b>	<b>700</b>

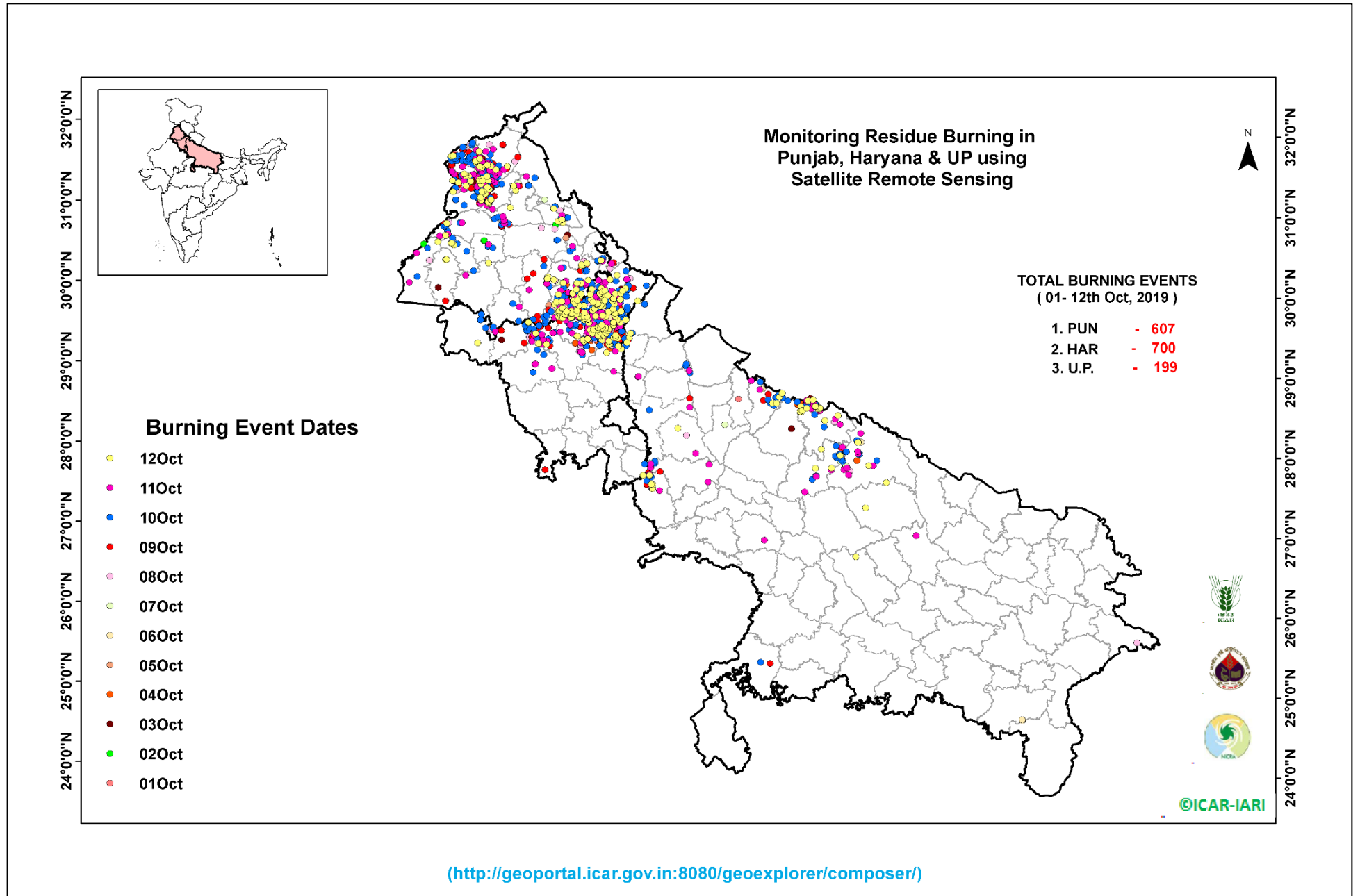
(c) Uttar Pradesh

Districts	01-12 Oct			
	2016	2017	2018	2019
AGRA	0	0	0	0
ALIGARH	0	8	7	7
ALLAHABAD	0	0	3	0
AMBEDKARNAGAR	0	1	0	0
AMETHI	0	0	0	0
AMROHA	0	0	0	0
AURAIYA	32	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	8	13	24	1
BAREILLY	26	16	4	7
BASTI	0	0	0	0
BHADOHI	0	0	0	0
BIJNOR	1	0	1	0
BULANDSAHAR	0	2	2	3
CHANDAULI	0	0	0	0
CHITRAKOOT	0	0	0	0
DEORIA	0	0	0	0
ETAH	0	1	2	0
ETAWAH	0	2	0	0
FAIZABAD	0	1	0	0
FARRUKHABAD	0	0	0	0
FATEHPUR	0	2	2	0
FIROZABAD	0	0	0	0

GAUTAMBUDHNAGAR	1	0	1	0
GAZIPUR	0	0	0	0
GHAZIABAD	2	1	2	1
GONDA	0	0	0	0
GORAKHPUR	0	0	3	0
HAMIRPUR	0	0	1	0
HAPUR	0	0	0	2
HARDOI	1	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	48	57	21	29
KUSHINAGAR	0	1	0	0
LALITPUR	0	0	0	0
LUCKNOW	2	4	0	1
MAHARAJGANJ	0	1	1	0
MAHOBA	0	0	0	0
MAINPURI	0	2	4	1
MATHURA	8	10	38	19
MAU	0	0	0	0
MEERUT	3	2	0	4
MIRZAPUR	0	1	1	3
MORADABAD	1	3	1	1
MUZAFARNAGAR	11	27	7	4
PILHIBHIT	86	87	28	50
PRATAPGARH	0	0	0	0

RAE BARELI	0	0	0	0
RAMPUR	119	73	31	16
SHARANPUR	7	7	6	4
SAMBHAL	0	0	0	1
SANTKABIRNAGAR	0	0	0	0
SHAHJAHANPUR	153	193	69	29
SHAMALI	0	0	0	8
SHRAWASTI	0	0	0	0
SIDDHARTHANAGAR	0	0	0	0
SITAPUR	5	4	1	2
SONBHADRA	3	1	4	0
SULTANPUR	0	0	0	0
UNNAO	3	0	0	1
VARANASI	0	0	0	0
JYOTIBAPHULE NAGAR	0	0	1	0
MAHAMAYANAGAR	0	0	1	0
<b>Total</b>	<b>520</b>	<b>556</b>	<b>294</b>	<b>199</b>

### Map of Cumulative Burning Events (01 – 12 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

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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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