



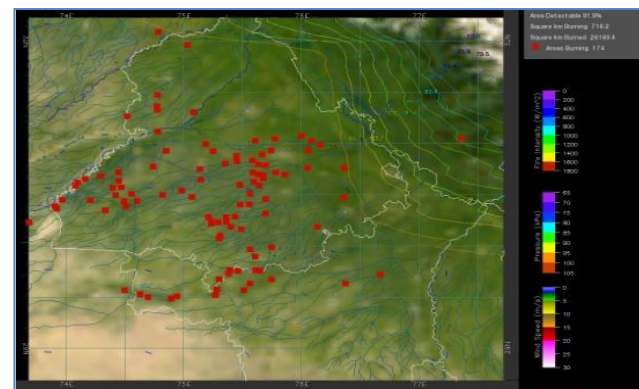
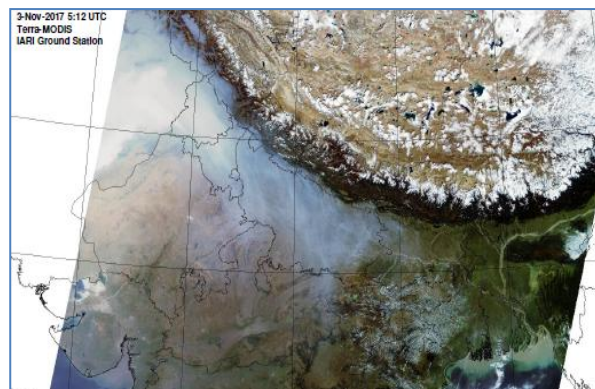
**Bulletin
No. 11**

**Events Date:
11-Oct-2018**

**Issued on:
12-Oct-2018**



MONITORING PADDY RESIDUE BURNING IN NORTH INDIA USING SATELLITE REMOTE SENSING DURING 2018



Prepared by:

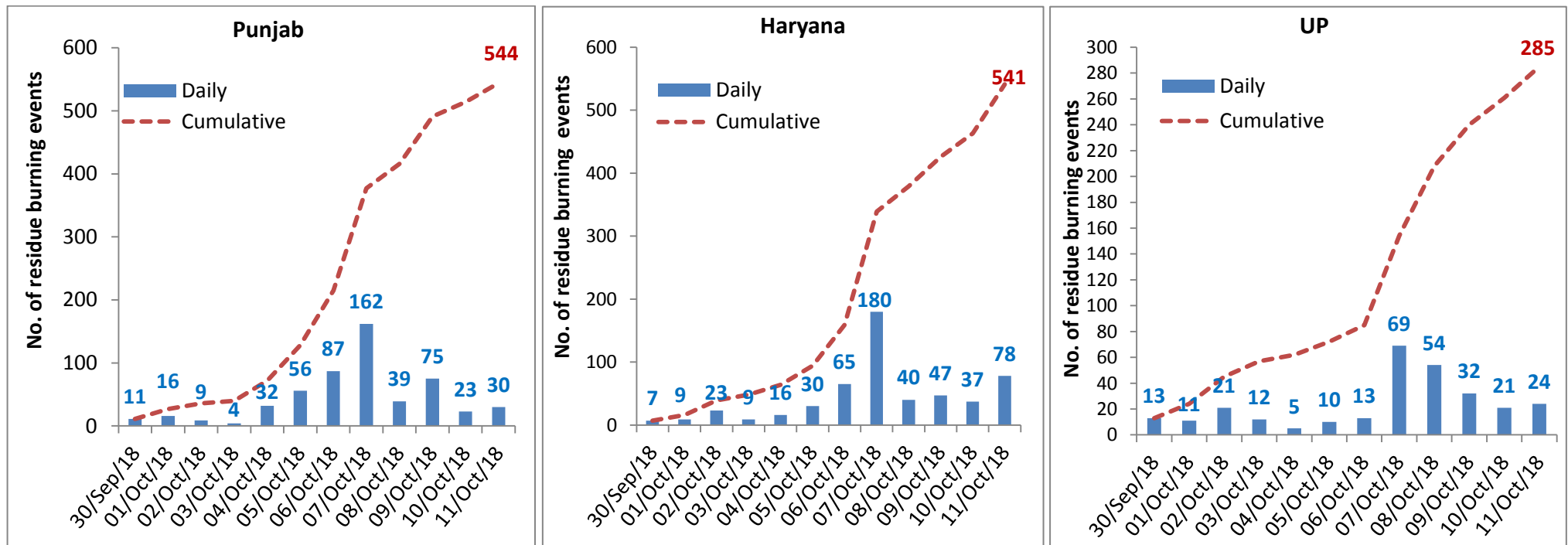
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

Highlights for 11-October-2018

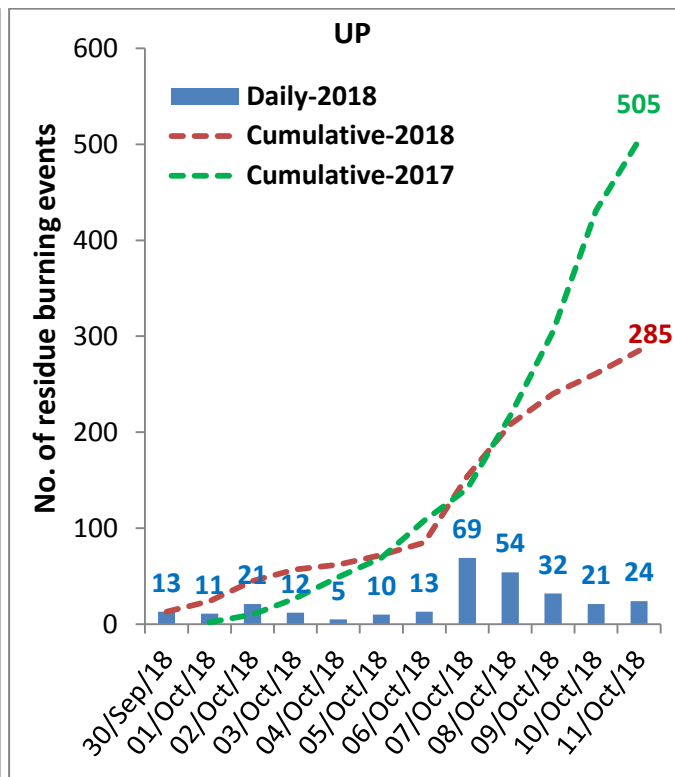
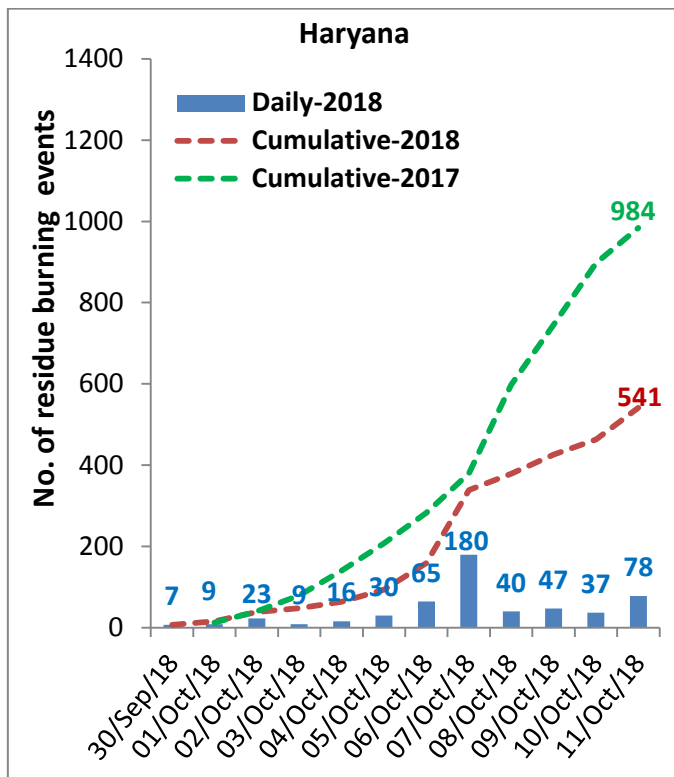
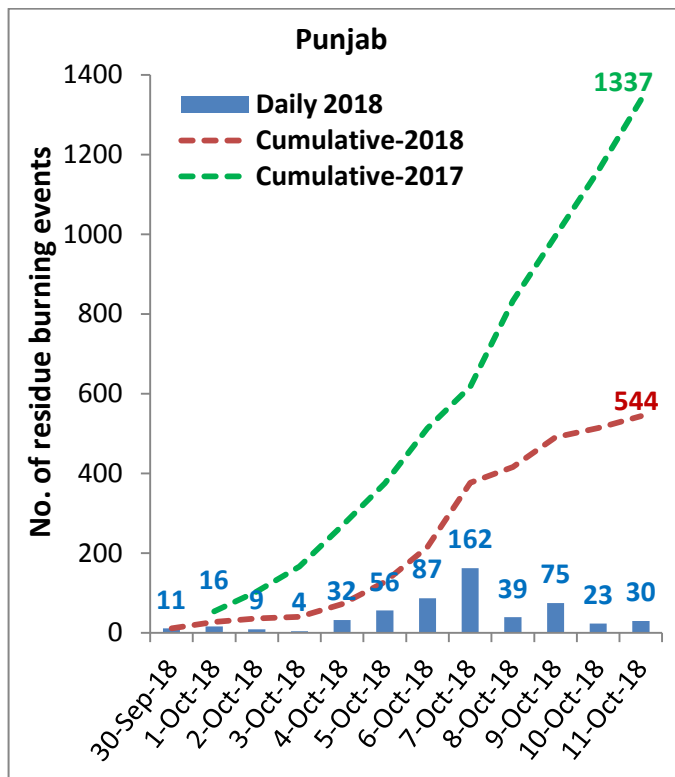
- Satellites detected 132 residue burning events in the three States (Punjab, Haryana & UP) on 11-Oct-2018.
- The burning events detected on 11-Oct-2018 are 30, 78 and 24 in Punjab, Haryana, and UP, respectively.
- The number of events increased from 81 on 10-Oct-2018 to 132 on 11-Oct-2018 in the three States.
- Total 1370 burning events were detected in three States between 30-Sep-2018 and 11-Oct-2018, which were distributed as 544, 541 and 285 in Punjab, Haryana and UP, respectively.
- Till 11-Oct-2018, the burning events in current year were about 48.4% of the events detected in 2017.

Temporal distribution of residue burning events for the three study States



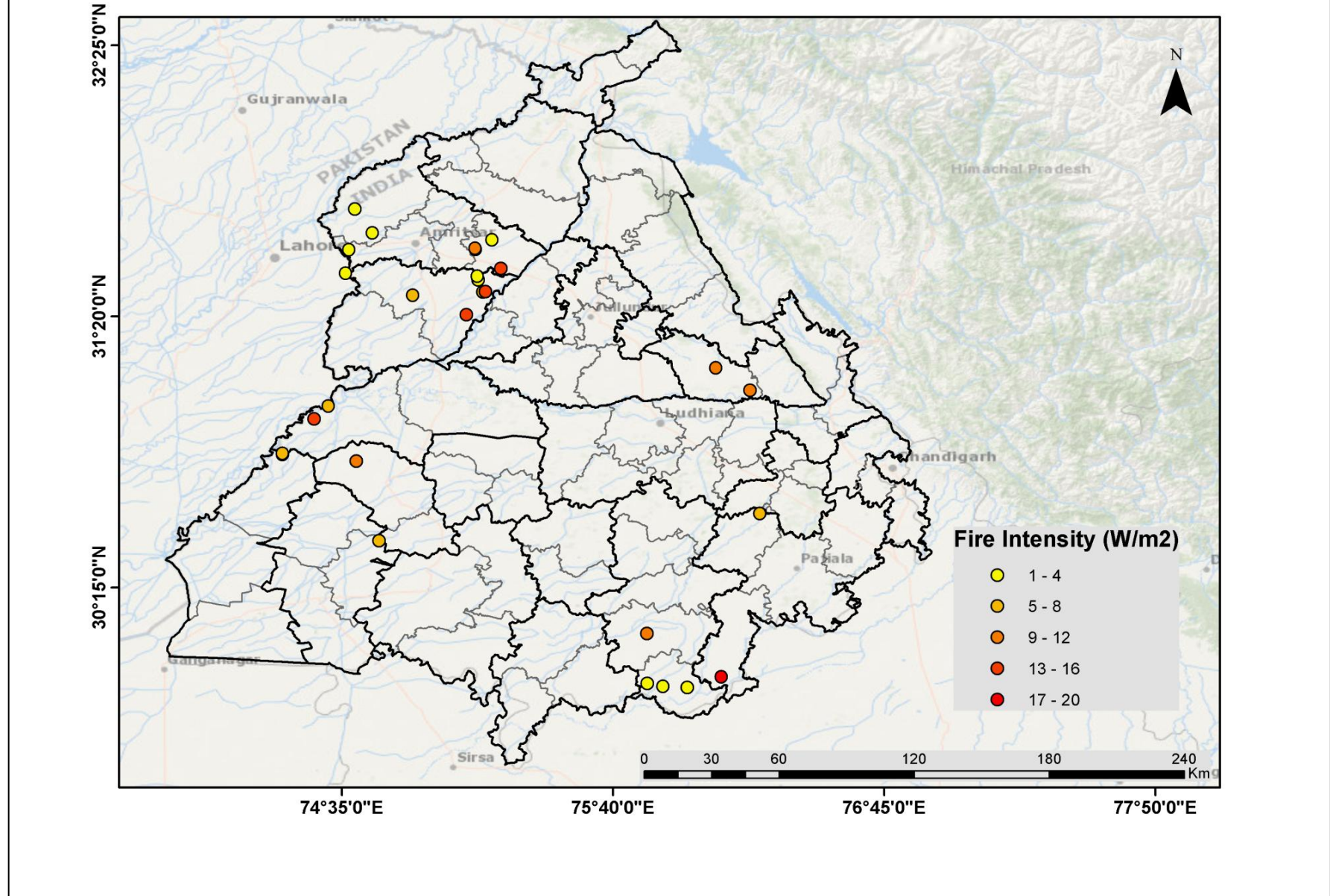
Comparison of residue burning events in current year (2018) with previous year (2017) for the three study States

(30-Sep-2018 to 11-Oct-2018)



(a) Punjab

Paddy Residue Burning in Punjab on 11th Oct 2018

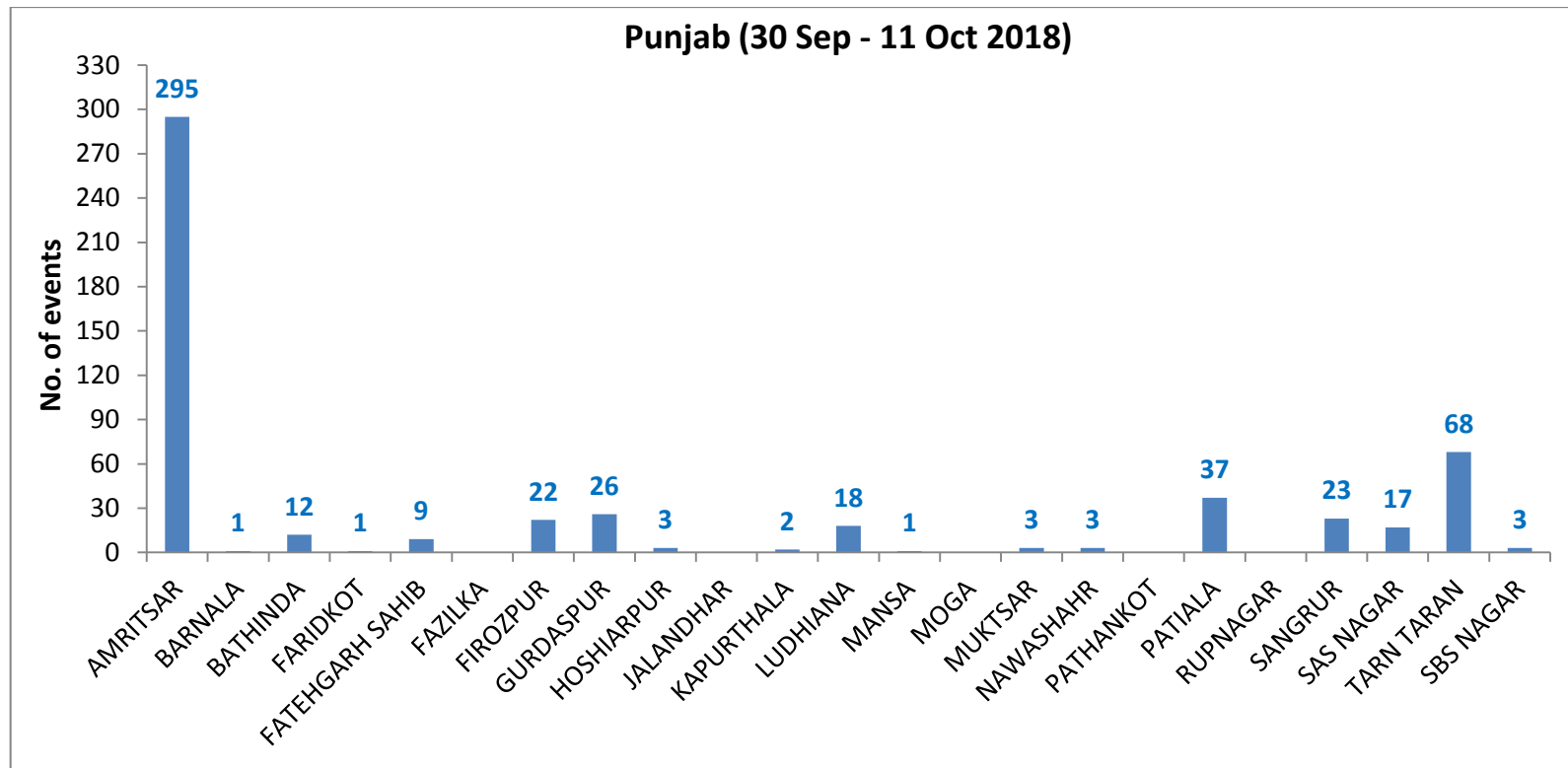


Details of residue burning events in Punjab on 11-Oct-2018

Event S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day/Night	Fire Power (W/m²)
1	AMRITSAR	AJNALA	S-NPP	74.70472	31.66721	13:48:00	D	3.10
2	AMRITSAR	AJNALA	S-NPP	74.63497	31.76256	13:48:00	D	3.20
3	AMRITSAR	AMRITSAR II	S-NPP	74.59769	31.50567	13:48:00	D	3.20
4	AMRITSAR	AMRITSAR II	S-NPP	74.61073	31.59931	13:48:00	D	3.30
5	AMRITSAR	BABA BAKALA	AQUA	75.21848	31.52551	13:17:00	D	12.32
6	AMRITSAR	BABA BAKALA	S-NPP	75.11638	31.60135	13:48:00	D	10.50
7	AMRITSAR	BABA BAKALA	S-NPP	75.11579	31.60514	13:48:00	D	10.50
8	AMRITSAR	BABA BAKALA	S-NPP	75.18212	31.64003	13:48:00	D	3.60
9	FARIDKOT	FARIDKOT	S-NPP	74.64059	30.75540	13:48:00	D	9.30
10	FIROZPUR	FIROZPUR	S-NPP	74.47097	30.92348	13:48:00	D	12.80
11	FIROZPUR	FIROZPUR	S-NPP	74.54719	30.95131	13:48:00	D	20.80
12	FIROZPUR	FIROZPUR	S-NPP	74.52814	30.97510	13:48:00	D	4.90
13	FIROZPUR	JALALABAD	S-NPP	74.34574	30.78210	13:48:00	D	5.00
14	FIROZPUR	JALALABAD	S-NPP	74.34763	30.78286	13:48:00	D	12.00
15	FIROZPUR	JALALABAD	S-NPP	74.34515	30.78572	13:48:00	D	7.50
16	MUKTSAR	GIDDARBAHA	S-NPP	74.73045	30.43701	13:48:00	D	6.10
17	NAWASHAHR	NAWASHAHR	AQUA	76.21265	31.03893	13:17:00	D	9.97
18	NAWASHAHR	NAWASHAHR	AQUA	76.07657	31.12786	13:17:00	D	10.59
19	PATIALA	NABHA	S-NPP	76.25227	30.54506	13:48:00	D	4.80
20	PATIALA	SAMANA	S-NPP	76.09876	29.89368	13:48:00	D	19.10
21	SANGRUR	MOONAK	S-NPP	75.96206	29.85027	13:48:00	D	3.60
22	SANGRUR	MOONAK	S-NPP	75.86542	29.85491	13:48:00	D	3.80
23	SANGRUR	MOONAK	S-NPP	75.80207	29.86714	13:48:00	D	3.90
24	SANGRUR	SUNAM	S-NPP	75.80193	30.06566	13:48:00	D	8.40
25	TARN TARAN	KHADOOR SAHIB	S-NPP	75.08055	31.34034	13:48:00	D	12.90
26	TARN TARAN	KHADOOR SAHIB	S-NPP	74.86656	31.41858	13:48:00	D	7.50
27	TARN TARAN	KHADOOR SAHIB	S-NPP	75.14529	31.43163	13:48:00	D	5.50
28	TARN TARAN	KHADOOR SAHIB	S-NPP	75.15607	31.43286	13:48:00	D	12.80

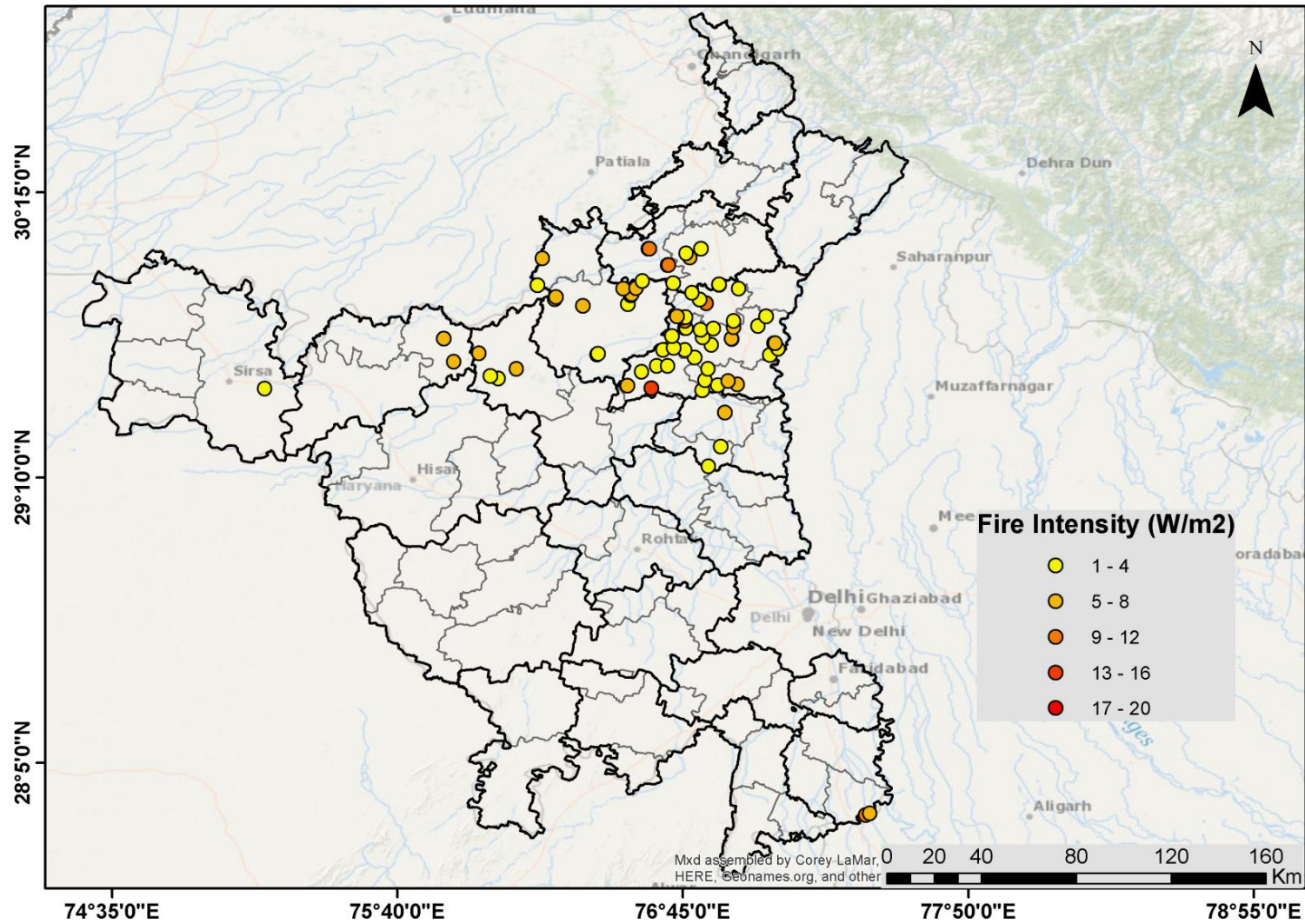
29	TARN TARAN	KHADOOR SAHIB	S-NPP	75.12685	31.47965	13:48:00	D	3.60
30	TARN TARAN	KHADOOR SAHIB	S-NPP	75.12450	31.49480	13:48:00	D	3.00

District-wise cumulative number of residue burning events in Punjab (30-Sep-2018 to 11-Oct-2018)



(b) Haryana

Paddy Residue Burning in Haryana on 11th Oct 2018



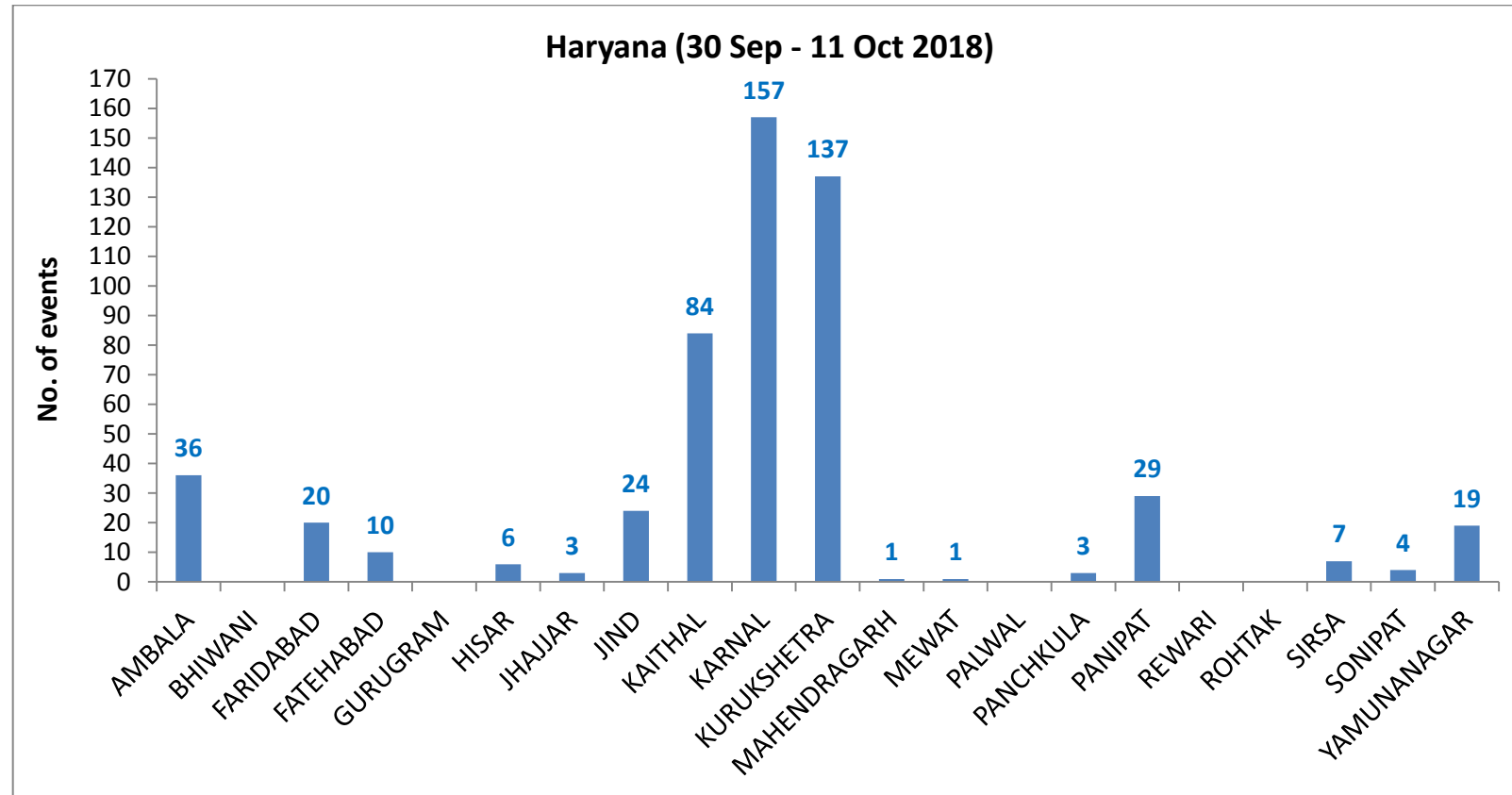
Details of residue burning events in Haryana on 11-Oct-2018

Event S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day/Night	Fire Power (W/m²)
1	FARIDABAD	HODAL	S-NPP	77.44330	27.88524	13:48:00	D	8.80
2	FARIDABAD	HODAL	S-NPP	77.45943	27.89121	13:48:00	D	5.80
3	FATEHABAD	TOHANA	S-NPP	75.87944	29.60702	13:48:00	D	4.60
4	FATEHABAD	TOHANA	S-NPP	75.84175	29.69432	13:48:00	D	5.90
5	JIND	NARWANA	S-NPP	76.04889	29.54321	13:48:00	D	2.60
6	JIND	NARWANA	S-NPP	76.01934	29.55165	13:48:00	D	2.80
7	JIND	NARWANA	S-NPP	76.11771	29.57887	13:48:00	D	6.60
8	JIND	NARWANA	S-NPP	75.97580	29.63772	13:48:00	D	5.50
9	KAITHAL	GUHLA	S-NPP	76.19704	29.89692	13:48:00	D	3.60
10	KAITHAL	GUHLA	S-NPP	76.21640	29.99832	13:48:00	D	5.50
11	KAITHAL	KAITHAL	S-NPP	76.42464	29.63423	13:48:00	D	5.50
12	KAITHAL	KAITHAL	S-NPP	76.42791	29.63630	13:48:00	D	3.50
13	KAITHAL	KAITHAL	S-NPP	76.37009	29.81778	13:48:00	D	4.10
14	KAITHAL	KAITHAL	S-NPP	76.54041	29.82469	13:48:00	D	1.80
15	KAITHAL	KAITHAL	S-NPP	76.26331	29.84421	13:48:00	D	4.40
16	KAITHAL	KAITHAL	S-NPP	76.26795	29.85275	13:48:00	D	7.60
17	KAITHAL	KAITHAL	S-NPP	76.55184	29.85858	13:48:00	D	2.10
18	KAITHAL	KAITHAL	S-NPP	76.55527	29.86305	13:48:00	D	4.70
19	KAITHAL	KAITHAL	S-NPP	76.55492	29.86364	13:48:00	D	4.30
20	KAITHAL	KAITHAL	S-NPP	76.52351	29.88471	13:48:00	D	7.60
21	KAITHAL	KAITHAL	S-NPP	76.57212	29.88588	13:48:00	D	7.60
22	KAITHAL	KAITHAL	S-NPP	76.59686	29.91309	13:48:00	D	3.20
23	KARNAL	ASSANDH	S-NPP	76.62908	29.50546	13:48:00	D	12.70
24	KARNAL	ASSANDH	S-NPP	76.53809	29.51563	13:48:00	D	6.40
25	KARNAL	ASSANDH	S-NPP	76.59315	29.56785	13:48:00	D	3.50
26	KARNAL	ASSANDH	S-NPP	76.65076	29.59044	13:48:00	D	3.70
27	KARNAL	ASSANDH	S-NPP	76.69154	29.59078	13:48:00	D	1.50
28	KARNAL	ASSANDH	AQUA	76.70547	29.60312	13:17:00	D	21.63

29	KARNAL	ASSANDH	S-NPP	76.67498	29.65040	13:48:00	D	3.60
30	KARNAL	ASSANDH	S-NPP	76.71478	29.65896	13:48:00	D	1.20
31	KARNAL	GHARAUNDA	S-NPP	76.88242	29.51675	0.575	D	2
32	KARNAL	GHARAUNDA	S-NPP	76.95750	29.52068	13:48:00	D	4.30
33	KARNAL	GHARAUNDA	S-NPP	76.92201	29.53346	13:48:00	D	4.10
34	KARNAL	GHARAUNDA	S-NPP	76.83386	29.53625	13:48:00	D	2.60
35	KARNAL	GHARAUNDA	S-NPP	76.84461	29.57874	13:48:00	D	2.50
36	KARNAL	KARNAL	S-NPP	76.79423	29.62248	13:48:00	D	2.10
37	KARNAL	KARNAL	S-NPP	77.08023	29.63235	13:48:00	D	3.30
38	KARNAL	KARNAL	S-NPP	76.75706	29.65134	13:48:00	D	2.90
39	KARNAL	KARNAL	S-NPP	77.11142	29.65662	13:48:00	D	2.70
40	KARNAL	KARNAL	S-NPP	76.85837	29.67083	13:48:00	D	1.20
41	KARNAL	KARNAL	S-NPP	77.09582	29.67594	13:48:00	D	3.00
42	KARNAL	KARNAL	S-NPP	77.10007	29.67639	13:48:00	D	5.20
43	KARNAL	KARNAL	S-NPP	76.93543	29.69182	13:48:00	D	8.60
44	KARNAL	KARNAL	S-NPP	76.93518	29.69440	13:48:00	D	7.40
45	KARNAL	KARNAL	S-NPP	76.82511	29.69937	13:48:00	D	1.80
46	KARNAL	KARNAL	S-NPP	76.70841	29.70332	13:48:00	D	1.50
47	KARNAL	KARNAL	S-NPP	76.81702	29.72743	13:48:00	D	2.70
48	KARNAL	KARNAL	S-NPP	76.86656	29.73277	13:48:00	D	1.70
49	KARNAL	KARNAL	S-NPP	76.75792	29.73338	13:48:00	D	1.90
50	KARNAL	KARNAL	S-NPP	76.76201	29.73383	13:48:00	D	3.30
51	KARNAL	KARNAL	S-NPP	76.94205	29.73672	13:48:00	D	6.90
52	KARNAL	KARNAL	S-NPP	77.03526	29.74247	13:48:00	D	2.60
53	KARNAL	KARNAL	AQUA	76.75663	29.76182	13:17:00	D	11.70
54	KARNAL	KARNAL	S-NPP	76.74816	29.77349	13:48:00	D	3.30
55	KARNAL	KARNAL	S-NPP	76.76042	29.77486	13:48:00	D	3.10
56	KARNAL	KARNAL	S-NPP	77.06470	29.77913	13:48:00	D	1.80
57	KARNAL	KARNAL	S-NPP	76.72665	29.77932	13:48:00	D	3.20
58	KARNAL	KARNAL	S-NPP	76.72696	29.77944	13:48:00	D	4.50
59	KARNAL	NILOKHERI	S-NPP	76.94283	29.76178	13:48:00	D	1.80

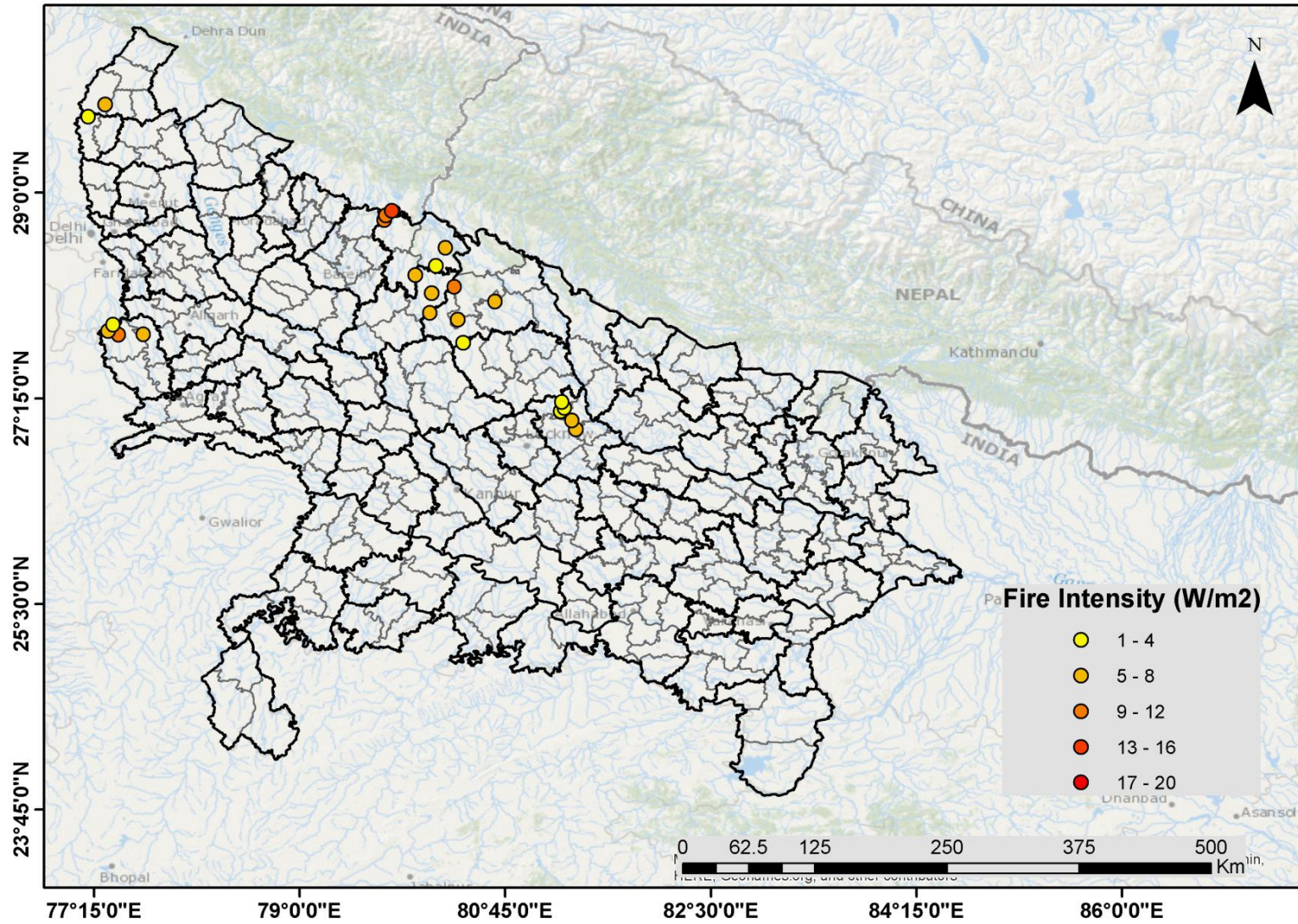
60	KARNAL	NILOKHERI	AQUA	76.83848	29.82770	13:17:00	D	11.91
61	KARNAL	NILOKHERI	S-NPP	76.81397	29.84238	13:48:00	D	1.80
62	KARNAL	NILOKHERI	S-NPP	76.78525	29.86819	0.575	D	1.5
63	KARNAL	NILOKHERI	S-NPP	76.96075	29.88324	13:48:00	D	3.30
64	KURUKSHETRA	PEHOWA	S-NPP	76.69148	29.97273	13:48:00	D	5.30
65	KURUKSHETRA	PEHOWA	S-NPP	76.69556	29.97318	13:48:00	D	10.70
66	KURUKSHETRA	PEHOWA	S-NPP	76.61800	30.03476	13:48:00	D	5.50
67	KURUKSHETRA	PEHOWA	S-NPP	76.62206	30.03520	13:48:00	D	9.10
68	KURUKSHETRA	THANESAR	S-NPP	76.88634	29.89857	13:48:00	D	2.80
69	KURUKSHETRA	THANESAR	S-NPP	76.88609	29.90005	13:48:00	D	2.40
70	KURUKSHETRA	THANESAR	S-NPP	76.71336	29.90514	13:48:00	D	2.20
71	KURUKSHETRA	THANESAR	S-NPP	76.77647	30.00232	13:48:00	D	6.80
72	KURUKSHETRA	THANESAR	S-NPP	76.76180	30.01730	13:48:00	D	2.10
73	KURUKSHETRA	THANESAR	S-NPP	76.81816	30.03571	13:48:00	D	1.30
74	PANIPAT	ISRANA	S-NPP	76.84621	29.20891	13:48:00	D	2.20
75	PANIPAT	ISRANA	S-NPP	76.89357	29.28364	13:48:00	D	1.50
76	PANIPAT	PANIPAT	S-NPP	76.90934	29.41306	13:48:00	D	7.70
77	PANIPAT	PANIPAT	S-NPP	76.82262	29.49791	13:48:00	D	2.60
78	SIRSA	SIRSA	S-NPP	75.16292	29.50413	13:48:00	D	2.50

District-wise cumulative number of residue burning events in Haryana (30-Sep-2018 to 11-Oct-2018)



(c) Uttar Pradesh

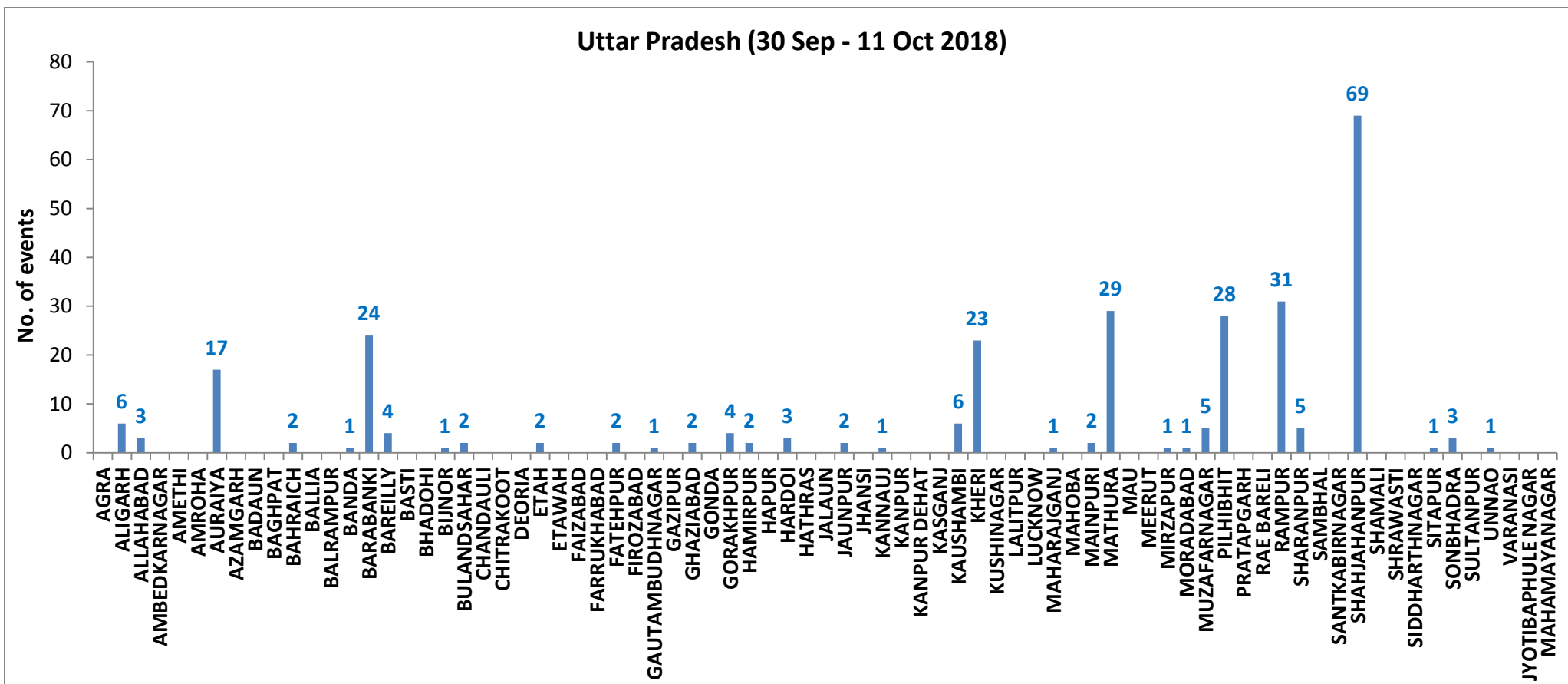
Paddy Residue Burning in Uttar Pradesh on 11th Oct 2018



Details of residue burning events in Uttar Pradesh on 11-Oct-2018

Event S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day/Night	Fire Power (W/m²)
1	BARABANKI	FATEHPUR	S-NPP	81.22226	27.13922	13:48:00	D	3.60
2	BARABANKI	FATEHPUR	S-NPP	81.22197	27.14010	13:48:00	D	3.50
3	BARABANKI	FATEHPUR	S-NPP	81.25256	27.17042	12:06:00	D	3.60
4	BARABANKI	FATEHPUR	S-NPP	81.23138	27.21934	13:48:00	D	2.40
5	BARABANKI	NAWABGANJ	S-NPP	81.35082	26.98687	13:48:00	D	4.90
6	BARABANKI	RAMNAGAR	AQUA	81.31821	27.06388	13:17:00	D	6.31
7	KHERI	GOLA	AQUA	80.34451	27.92028	13:17:00	D	7.39
8	KHERI	GOLA	AQUA	80.31552	28.20025	13:17:00	D	8.75
9	KHERI	LAKHIMPUR	AQUA	80.66339	28.07449	13:17:00	D	6.81
10	KHERI	MOHMADI	S-NPP	80.39112	27.72391	13:48:00	D	4.00
11	MATHURA	CHHATA	S-NPP	77.45995	27.79303	13:48:00	D	9.40
12	MATHURA	CHHATA	S-NPP	77.66956	27.79488	13:48:00	D	5.80
13	MATHURA	CHHATA	S-NPP	77.36773	27.82274	13:48:00	D	5.60
14	MATHURA	CHHATA	S-NPP	77.41061	27.87747	13:48:00	D	3.60
15	MUZAFARNAGAR	KAIRANA	S-NPP	77.19941	29.64908	13:48:00	D	1.50
16	PILHIBHIT	PILHIBHIT	AQUA	79.72038	28.76769	13:17:00	D	8.67
17	PILHIBHIT	PILHIBHIT	AQUA	79.73402	28.80961	13:17:00	D	8.48
18	PILHIBHIT	PILHIBHIT	AQUA	79.78177	28.84554	13:17:00	D	12.46
19	PILHIBHIT	PURANPUR	S-NPP	80.15862	28.37830	13:48:00	D	3.80
20	PILHIBHIT	PURANPUR	AQUA	80.24219	28.53113	13:17:00	D	6.88
21	SHAHJAHANPUR	PUWANYA	S-NPP	80.11041	27.97977	13:48:00	D	4.90
22	SHAHJAHANPUR	PUWANYA	AQUA	80.12282	28.14485	13:17:00	D	7.62
23	SHAHJAHANPUR	PUWANYA	S-NPP	79.98482	28.30099	13:48:00	D	4.80
24	SHARANPUR	NAKUR	S-NPP	77.34503	29.75362	13:48:00	D	4.40

District-wise cumulative number of residue burning events in Uttar Pradesh (30-Sep-2018 to 11-Oct-2018)



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 websites:

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

<http://creams.iari.res.in:8080/geoexplorer/composer/>
