

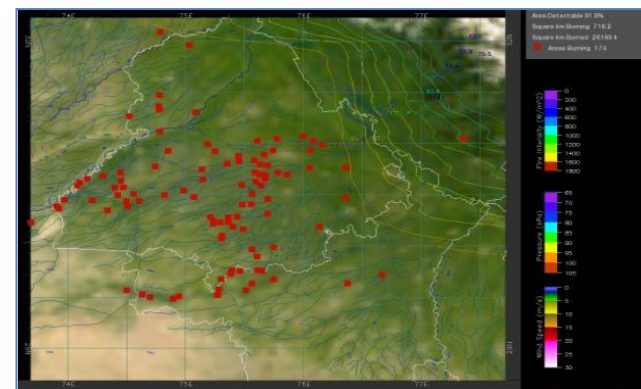
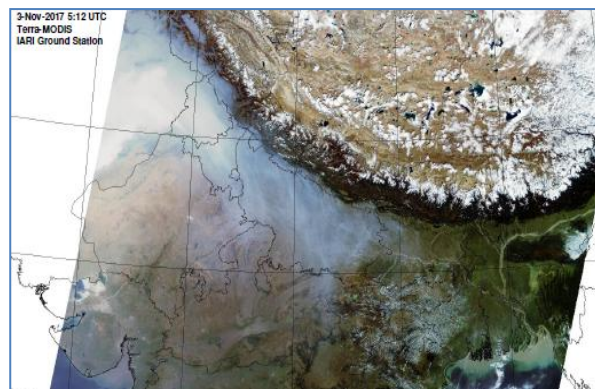


MONITORING PADDY RESIDUE BURNING IN NORTH INDIA USING SATELLITE REMOTE SENSING DURING 2019

**Bulletin
No. 05**

**Events Date:
05-Oct-2019**

**Issued on:
06-Oct-2019**



Prepared by:

**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
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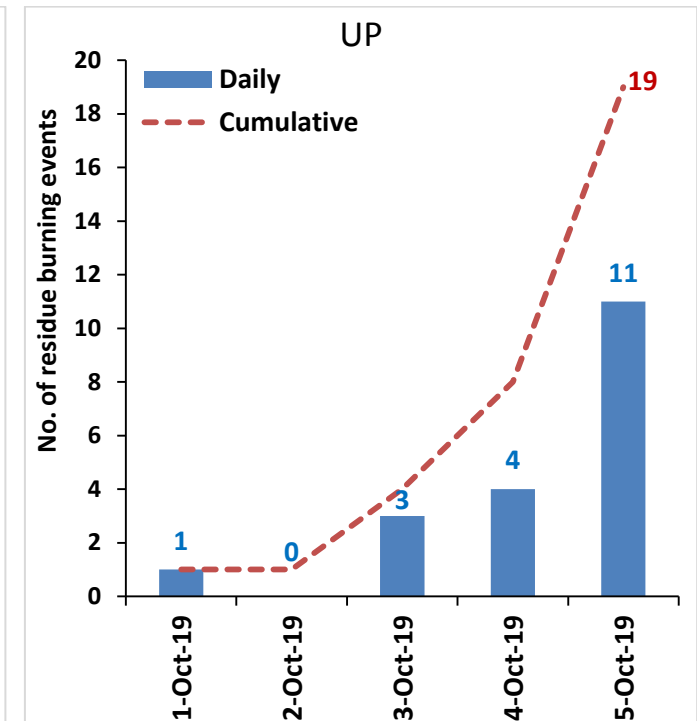
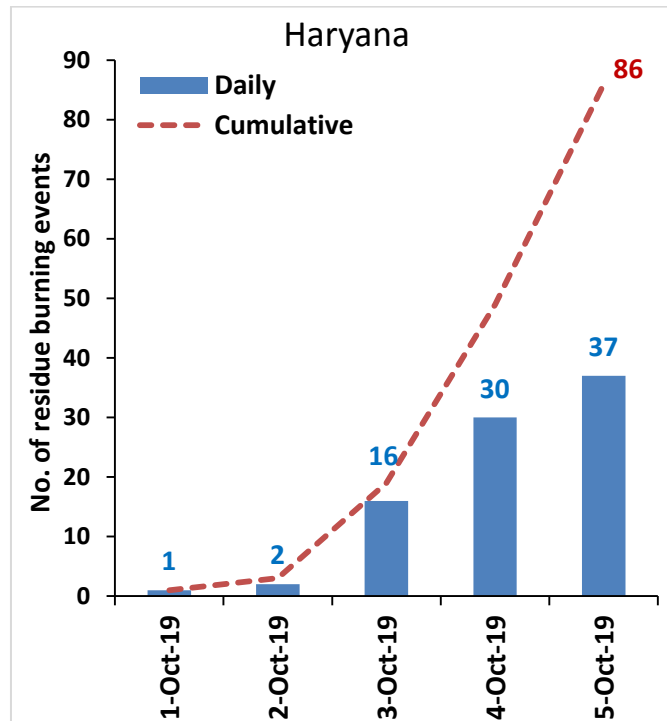
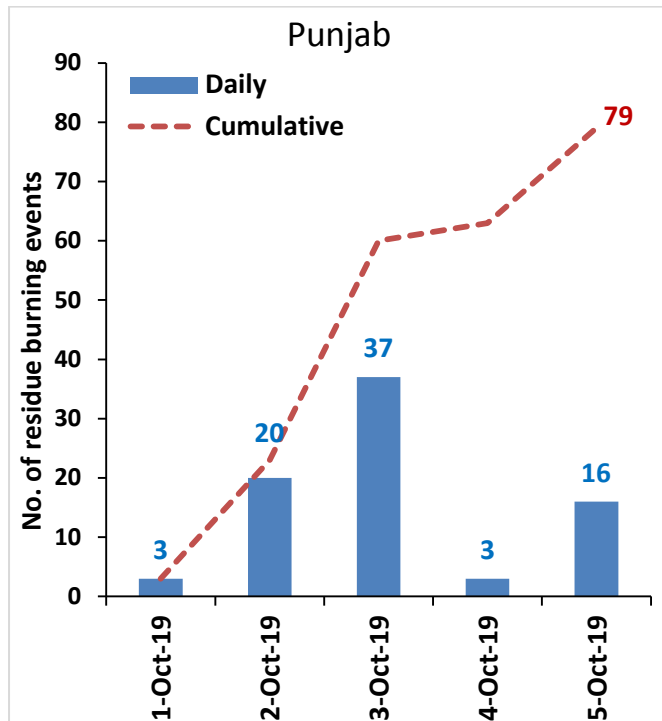
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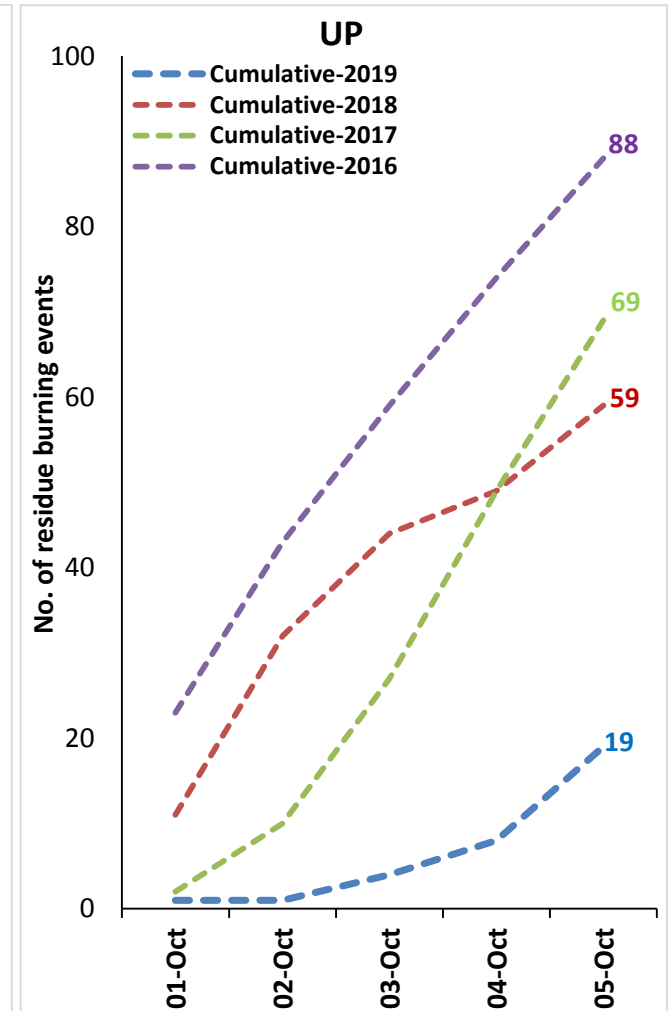
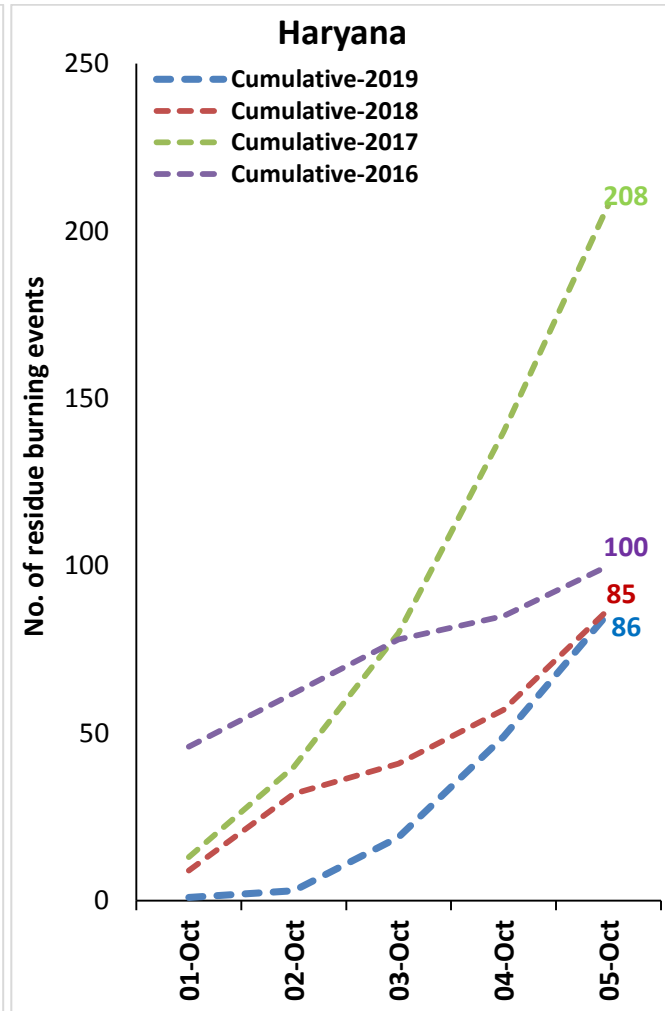
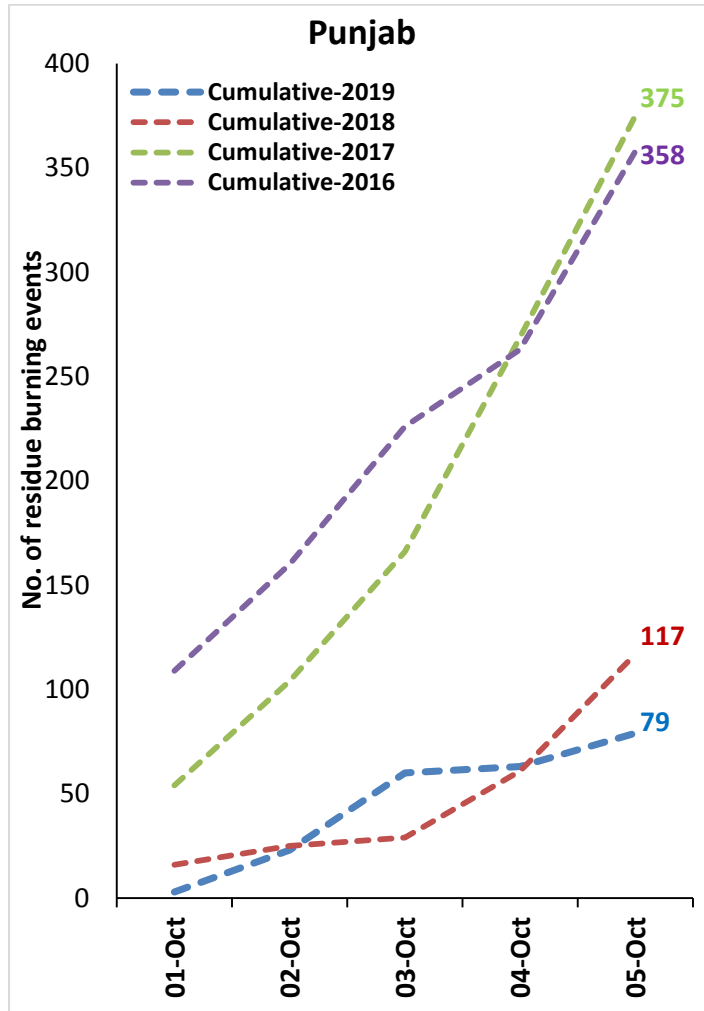
Highlights for 05-October-2019

- Satellites detected 64 residue burning events in the three study States on 05-Oct-2019.
- In Punjab most of the events were recorded in Amritsar district.
- In Haryana most of the burning events were recorded in Karnal district.
- Overall, the residue burning/fire events are very few till date in the three study States being monitored.
- Till date the total numbers of burning event in current year 2019 are lower than in previous three years.

Temporal distribution of residue burning events for the three study States

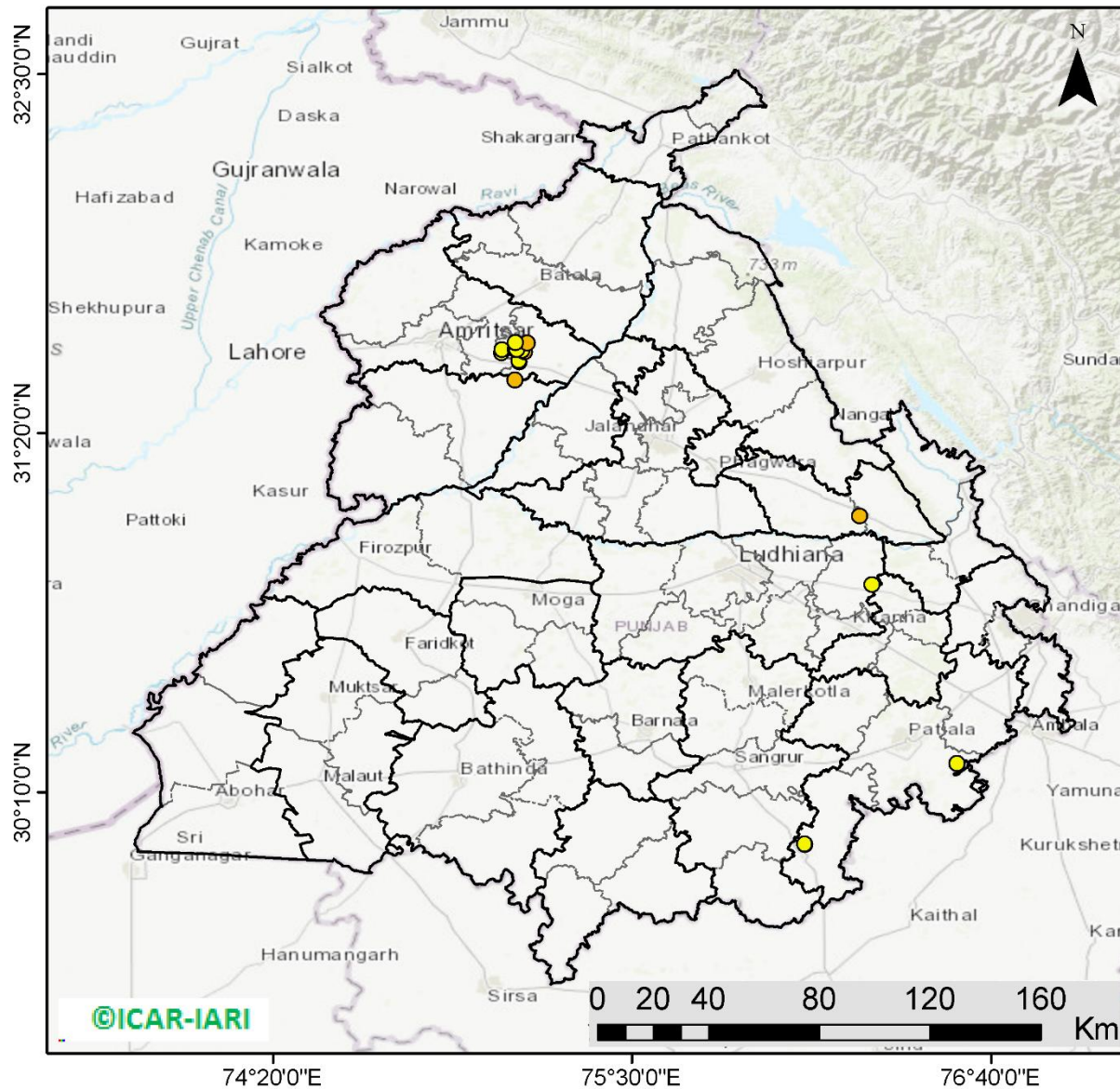


**Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States
(01-Oct to 05-Oct)**



(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



16 burning events detected in Punjab on **05th October 2019**

Fire Intensity (W/m²)

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

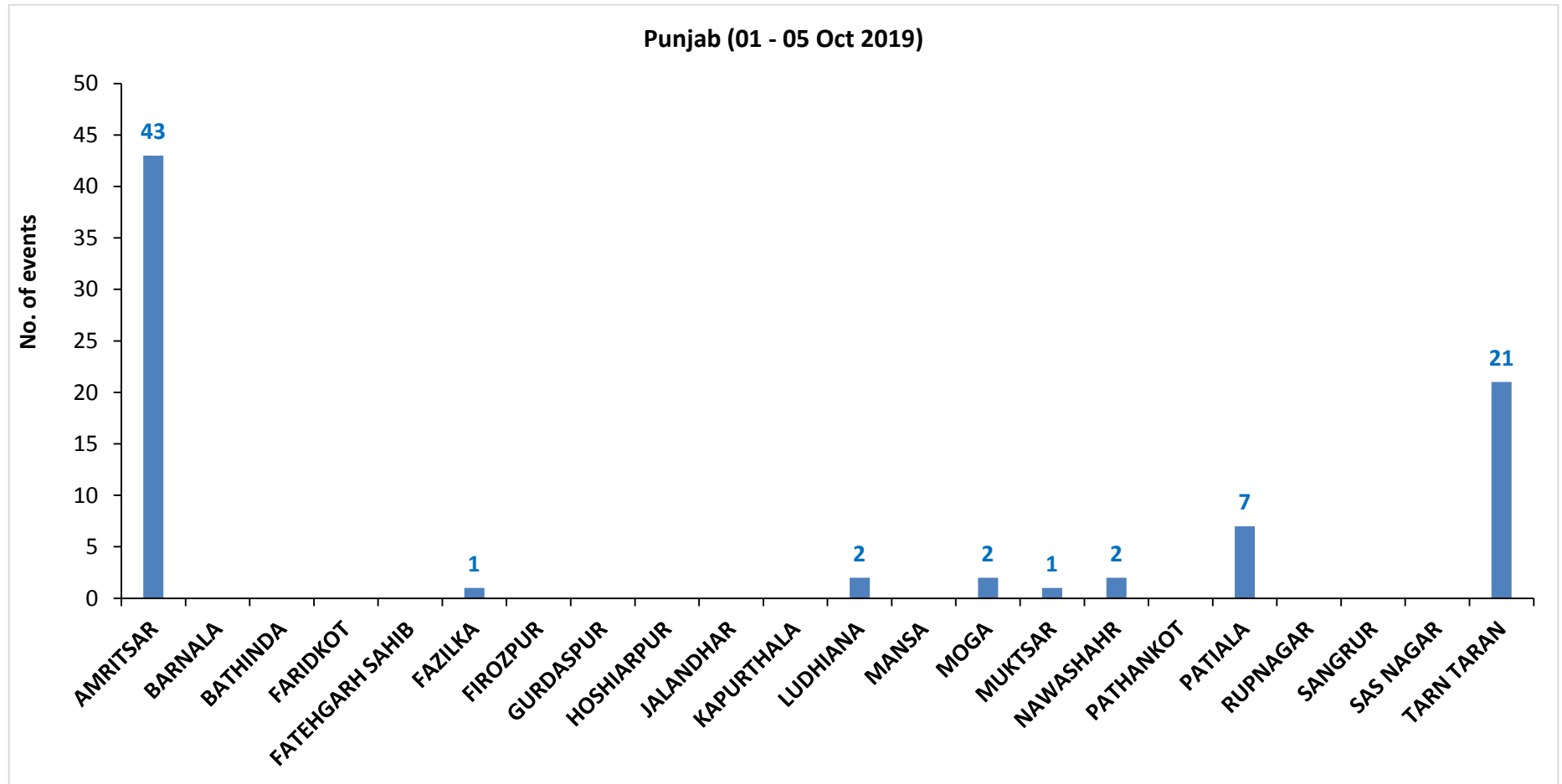


<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

Details of residue burning events in Punjab on 05-Oct-2019

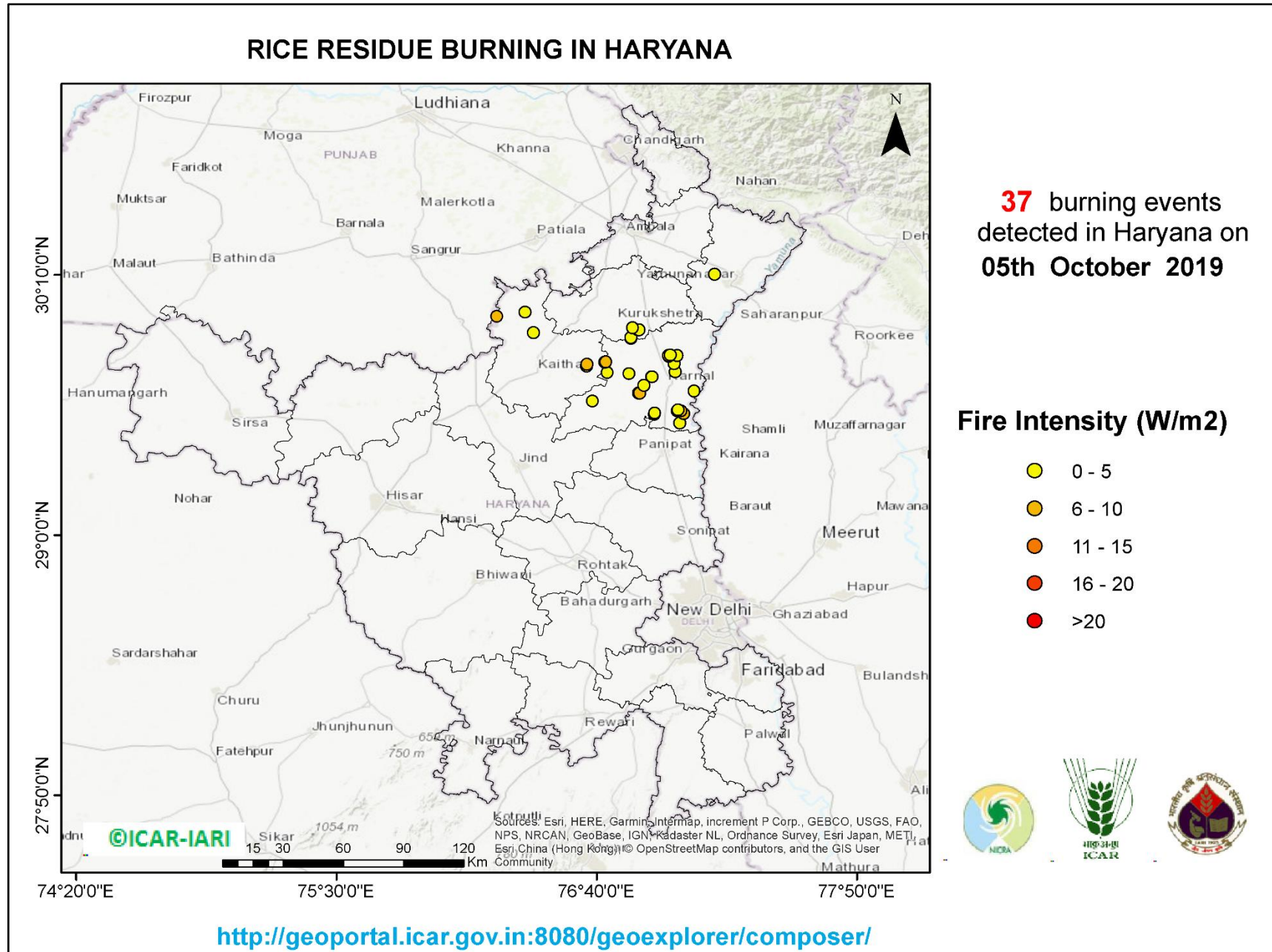
S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m²)
1	AMRITSAR	AMRITSAR I	S-NPP	75.07597	31.59315	13:18:00	D	3.20
2	AMRITSAR	AMRITSAR I	S-NPP	75.07806	31.60454	13:18:00	D	2.90
3	AMRITSAR	BABA BAKALA	S-NPP	75.11959	31.50632	13:18:00	D	6.70
4	AMRITSAR	BABA BAKALA	S-NPP	75.13470	31.56403	13:18:00	D	2.60
5	AMRITSAR	BABA BAKALA	S-NPP	75.13385	31.56754	13:18:00	D	2.60
6	AMRITSAR	BABA BAKALA	S-NPP	75.15288	31.59600	13:18:00	D	6.40
7	AMRITSAR	BABA BAKALA	S-NPP	75.14191	31.60135	13:18:00	D	1.70
8	AMRITSAR	BABA BAKALA	S-NPP	75.12165	31.60504	13:18:00	D	2.40
9	AMRITSAR	BABA BAKALA	S-NPP	75.12630	31.60587	13:18:00	D	2.40
10	AMRITSAR	BABA BAKALA	S-NPP	75.15997	31.62656	13:18:00	D	5.90
11	AMRITSAR	BABA BAKALA	S-NPP	75.12118	31.62694	13:18:00	D	4.20
12	LUDHIANA	SAMRALA	S-NPP	76.27906	30.84118	13:18:00	D	3.20
13	NAWASHAHR	NAWASHAHR	S-NPP	76.23991	31.06281	13:18:00	D	5.10
14	PATIALA	PATIALA	S-NPP	76.55579	30.26001	13:18:00	D	2.20
15	PATIALA	SAMANA	S-NPP	76.06342	29.99759	13:18:00	D	3.90
16	PATIALA	SAMANA	S-NPP	76.06069	29.99833	13:18:00	D	3.80

District-wise cumulative number of residue burning events in Punjab (01 to 05-Oct 2019)



(b) Haryana

RICE RESIDUE BURNING IN HARYANA

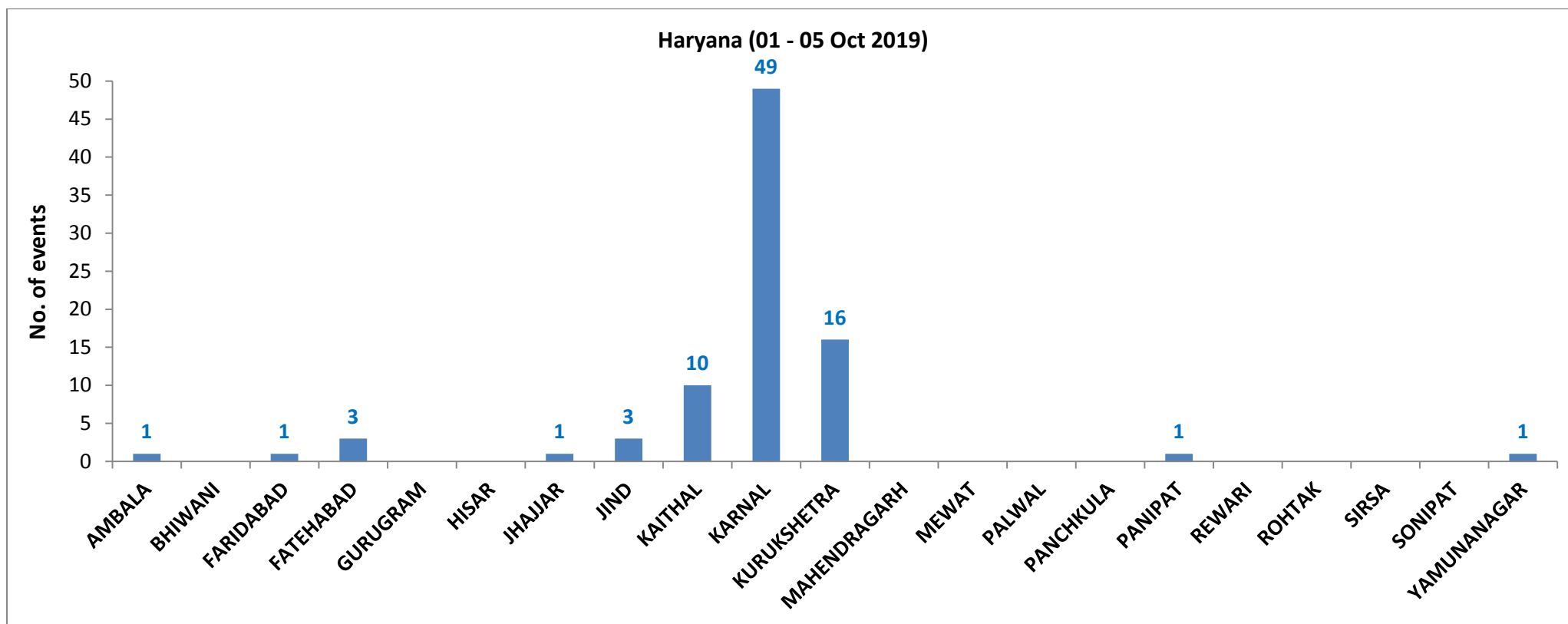


Details of residue burning events in Haryana on 05-Oct-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m2)
1	FARIDABAD	FARIDABAD	S-NPP	77.24505	28.34582	20:30:00	N	0.30
2	JHAJJAR	BAHADURGARH	S-NPP	76.89471	28.75368	20:30:00	N	0.30
3	KAITHAL	GUHLA	AQUA	76.219	29.981	07:55:00	D	9.70
4	KAITHAL	GUHLA	S-NPP	76.345	29.999	07:48:00	D	2.70
5	KAITHAL	KAITHAL	AQUA	76.62100	29.75900	07:55:00	D	6.40
6	KAITHAL	KAITHAL	S-NPP	76.62148	29.76625	07:48:00	D	5.60
7	KAITHAL	KAITHAL	S-NPP	76.382	29.908	07:48:00	D	3.40
8	KARNAL	ASSANDH	S-NPP	76.64752	29.60154	07:48:00	D	3.30
9	KARNAL	GHARAUNDA	S-NPP	77.03867	29.50251	07:48:00	D	3.80
10	KARNAL	GHARAUNDA	AQUA	76.92500	29.54100	07:55:00	D	6.90
11	KARNAL	GHARAUNDA	S-NPP	77.05615	29.54437	07:48:00	D	7.60
12	KARNAL	GHARAUNDA	S-NPP	76.92590	29.54707	07:48:00	D	2.00
13	KARNAL	GHARAUNDA	S-NPP	77.04491	29.55648	07:48:00	D	5.30
14	KARNAL	GHARAUNDA	AQUA	77.02800	29.55700	07:55:00	D	20.40
15	KARNAL	GHARAUNDA	S-NPP	77.03097	29.56115	07:48:00	D	2.00
16	KARNAL	KARNAL	S-NPP	76.85470	29.63659	07:48:00	D	3.20
17	KARNAL	KARNAL	S-NPP	76.85889	29.63730	07:48:00	D	6.20
18	KARNAL	KARNAL	S-NPP	77.10320	29.64676	07:48:00	D	2.10
19	KARNAL	KARNAL	S-NPP	76.87740	29.67202	07:48:00	D	2.30
20	KARNAL	KARNAL	S-NPP	76.91263	29.70946	07:48:00	D	3.70
21	KARNAL	KARNAL	S-NPP	76.91403	29.70994	07:48:00	D	3.50
22	KARNAL	KARNAL	S-NPP	76.81085	29.72411	07:48:00	D	3.10
23	KARNAL	KARNAL	S-NPP	76.71349	29.72879	07:48:00	D	3.10
24	KARNAL	KARNAL	S-NPP	77.01753	29.73088	07:48:00	D	2.30
25	KARNAL	KARNAL	S-NPP	77.01362	29.76868	07:48:00	D	3.10
26	KARNAL	KARNAL	S-NPP	76.70296	29.77639	07:48:00	D	4.50
27	KARNAL	KARNAL	S-NPP	76.70720	29.77710	07:48:00	D	6.60
28	KARNAL	KARNAL	S-NPP	76.98888	29.80301	07:48:00	D	1.90
29	KARNAL	KARNAL	S-NPP	77.02706	29.80585	07:48:00	D	3.80
30	KARNAL	KARNAL	S-NPP	76.98814	29.80639	07:48:00	D	6.20
31	KARNAL	KARNAL	S-NPP	76.99646	29.80777	07:48:00	D	2.40
32	KARNAL	NILOKHERI	S-NPP	76.81996	29.88341	07:48:00	D	6.10
33	KARNAL	NILOKHERI	S-NPP	76.81921	29.88680	07:48:00	D	3.20

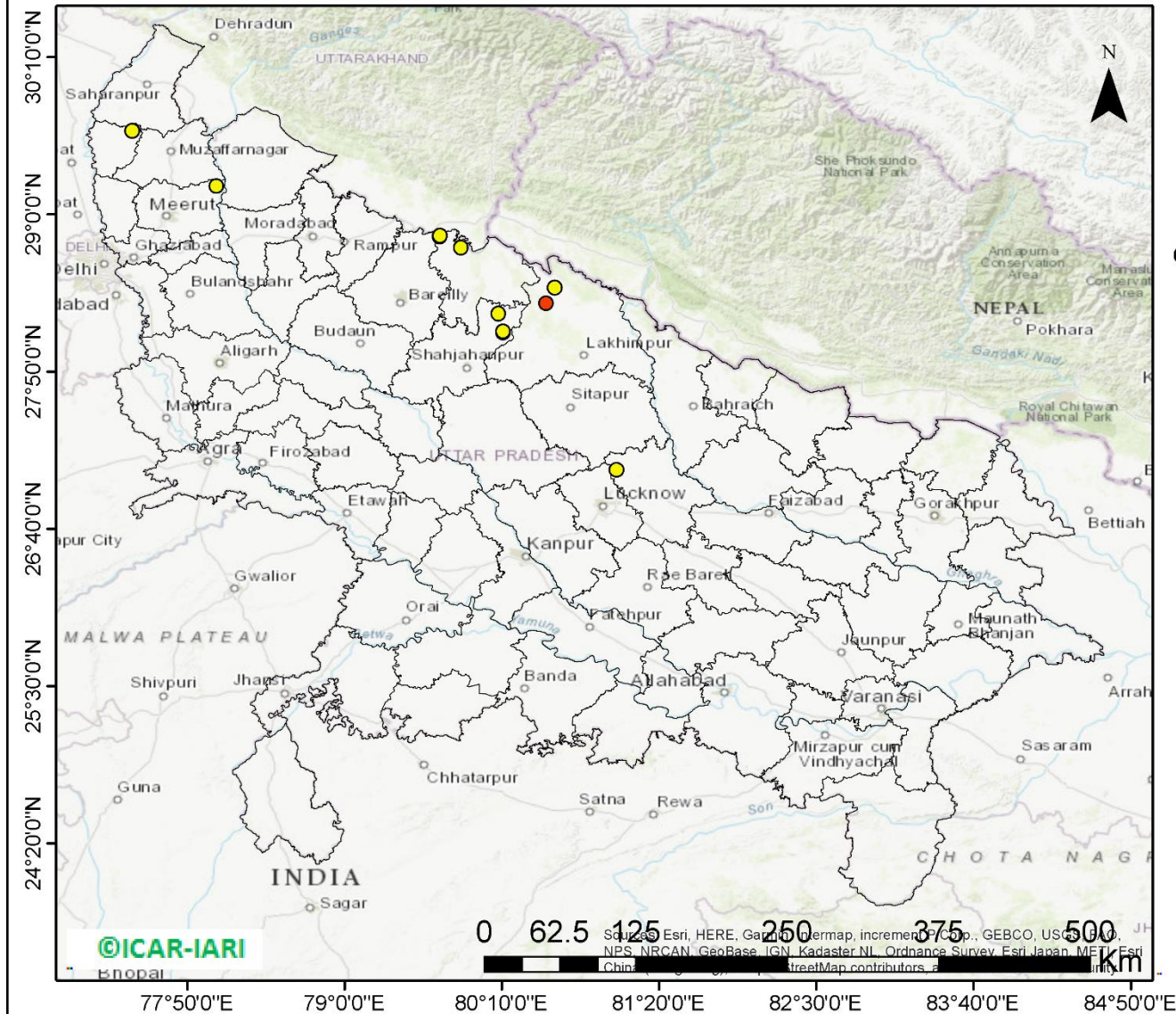
34	KURUKSHETRA	THANESAR	S-NPP	76.852	29.921	07:48:00	D	3.20
35	KURUKSHETRA	THANESAR	S-NPP	76.856	29.921	07:48:00	D	3.20
36	KURUKSHETRA	THANESAR	S-NPP	76.828	29.931	07:48:00	D	3.50
37	YAMUNANAGAR	JAGADHRI	S-NPP	77.194	30.170	07:48:00	D	3.80

District-wise cumulative number of residue burning events in Haryana (01 to 05-Oct 2019)



(c) UP

RICE RESIDUE BURNING IN UTTAR PRADESH



11 burning events detected in Uttar Pradesh on 05th October 2019

Fire Intensity (W/m²)

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



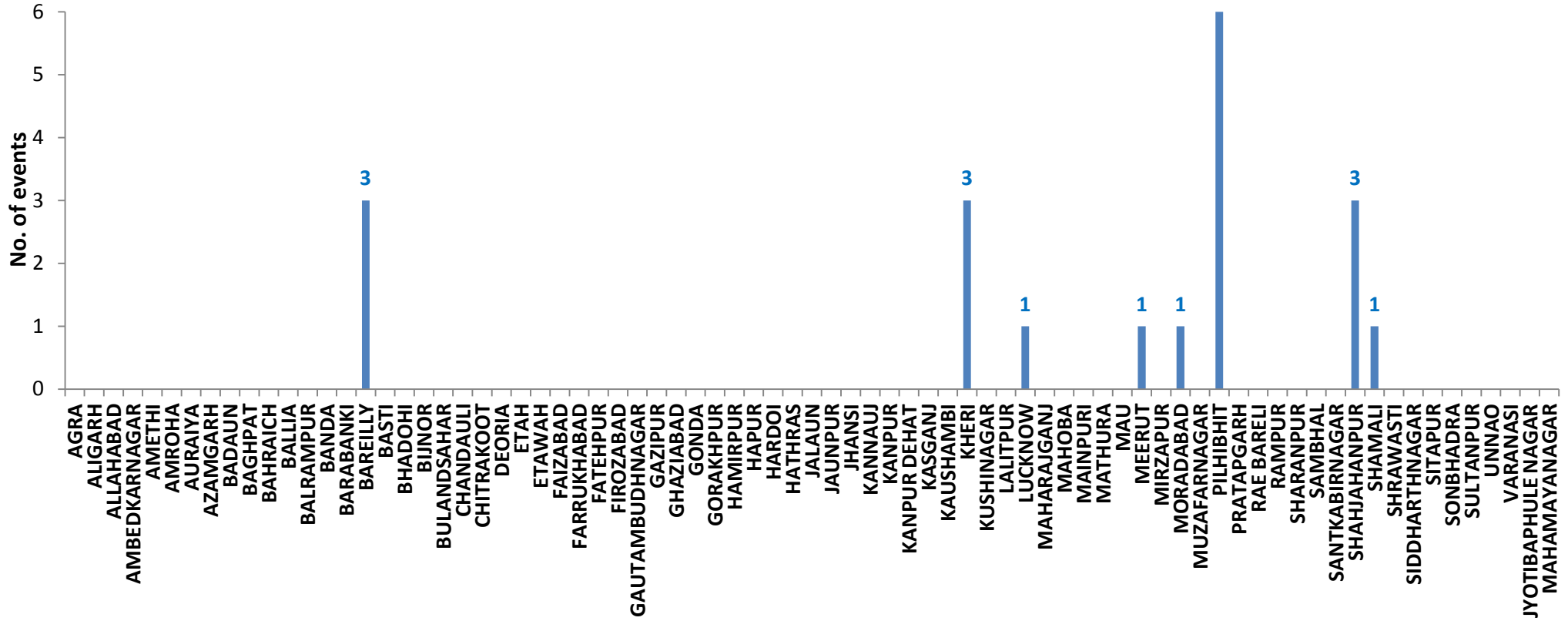
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

Details of residue burning events in Uttar Pradesh on 05-Oct-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m²)
1	KHERI	PALIA KALAN	S-NPP	80.49651	28.33880	13:18:00	D	16.60
2	KHERI	PALIA KALAN	S-NPP	80.55769	28.45536	13:18:00	D	1.30
3	LUCKNOW	BAKSHIKA TALAB	S-NPP	81.01615	27.10233	13:18:00	D	1.40
4	MEERUT	MAWANA	S-NPP	78.04944	29.20805	13:18:00	D	4.10
5	PILHIBHIT	PILHIBHIT	S-NPP	79.86318	28.75125	13:18:00	D	1.60
6	PILHIBHIT	PILHIBHIT	AQUA	79.70700	28.83600	13:25:00	D	5.90
7	PILHIBHIT	PILHIBHIT	S-NPP	79.70852	28.83982	13:18:00	D	3.30
8	SHAHJAHANPUR	PUWANYA	S-NPP	80.17692	28.12098	13:18:00	D	4.10
9	SHAHJAHANPUR	PUWANYA	S-NPP	80.17508	28.13094	13:18:00	D	2.80
10	SHAHJAHANPUR	PUWANYA	S-NPP	80.14333	28.26416	13:18:00	D	2.20
11	SHAMLI	SHAMLI	S-NPP	77.42368	29.61916	13:18:00	D	1.80

District-wise cumulative number of residue burning events in Haryana (01 to 05-Oct 2019)

Uttar Pradesh (01 - 05 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 05-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
Total	79	117	375	358	86	87	208	100	19	59	69	88	184	263	652	546

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)
