



**Bulletin
No. 07**

**Events Date:
07-Oct-2019**

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08-Oct-2019**



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



Prepared by:

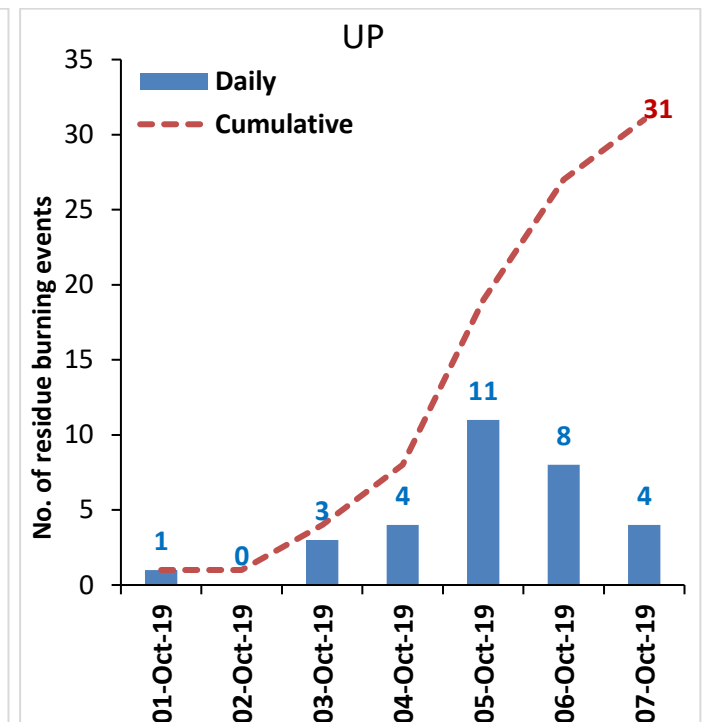
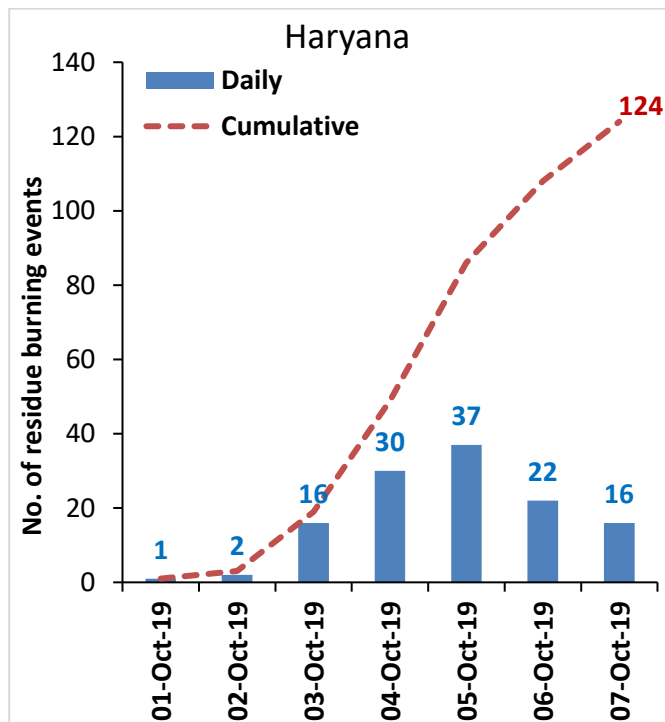
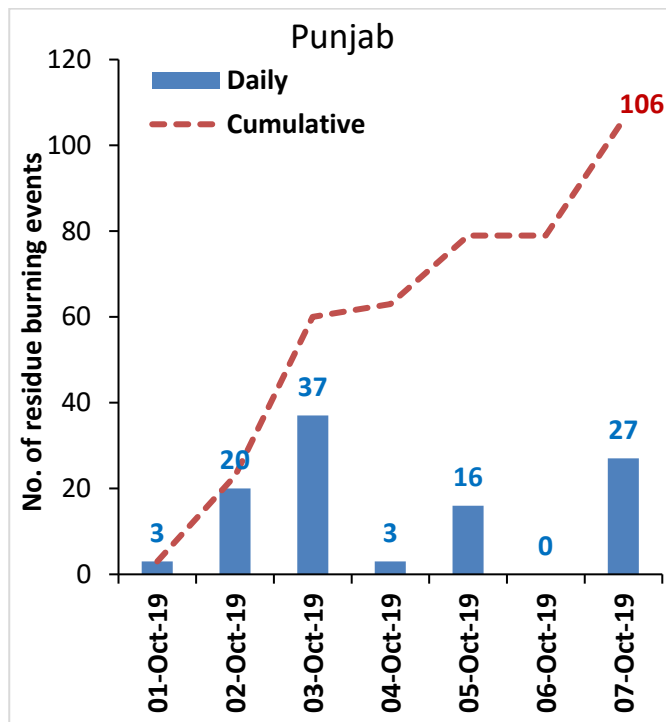
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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Highlights for 07-October-2019

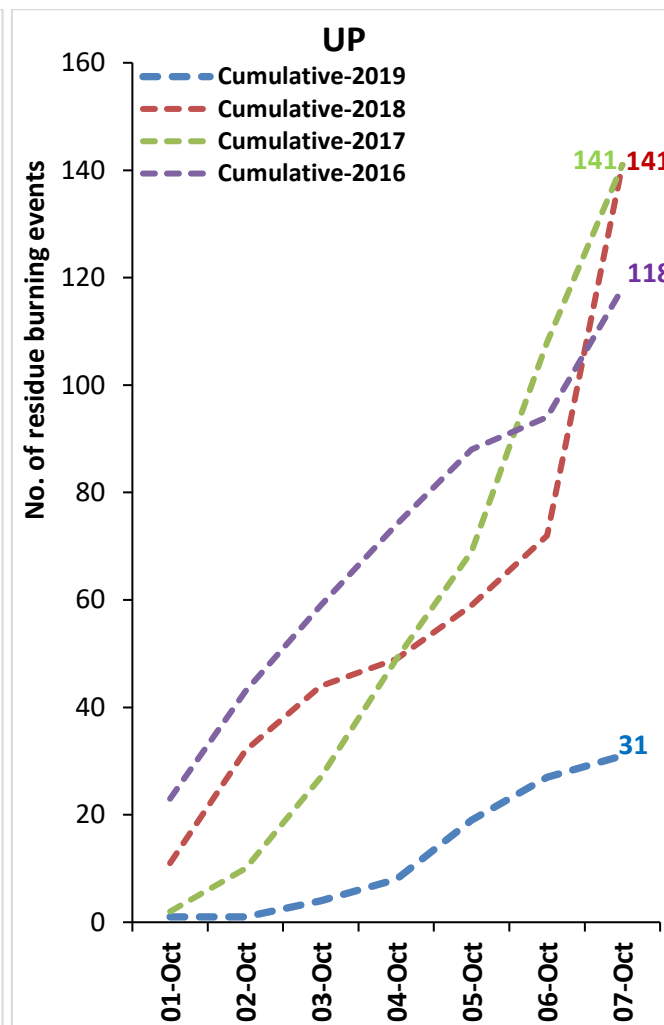
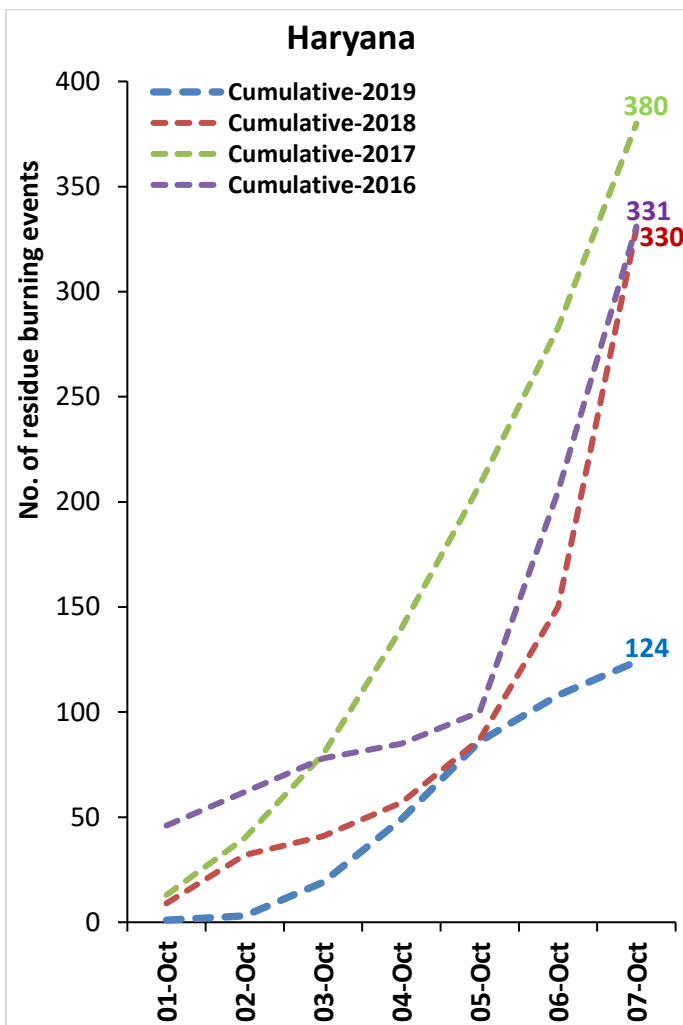
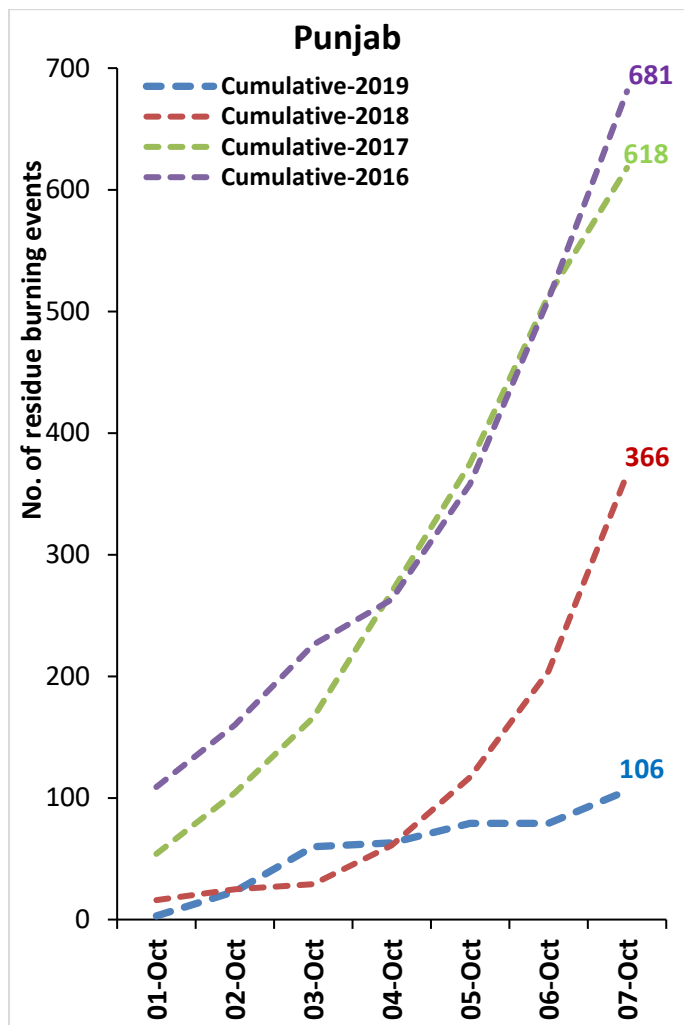
- Satellites detected **47** residue burning events in the three study States on 07-Oct-2019.
- **27**, **16** and **04** burning events were recorded in Punjab, Haryana and UP, respectively.
- In Punjab most of the burning events were recorded in Amritsar and Tarn Taran districts.
- In Haryana the burning events were scattered across Kaithal, Karnal and Kurukshetra districts.
- The residue burning events are very few till date in the three study States being monitored.
- Overall, the total burning events recorded in the three states are **69%** less than in 2018 till date. This reduction is **71%** in Punjab, **62%** in Haryana and **78%** in UP in current season as compared to 2018.

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



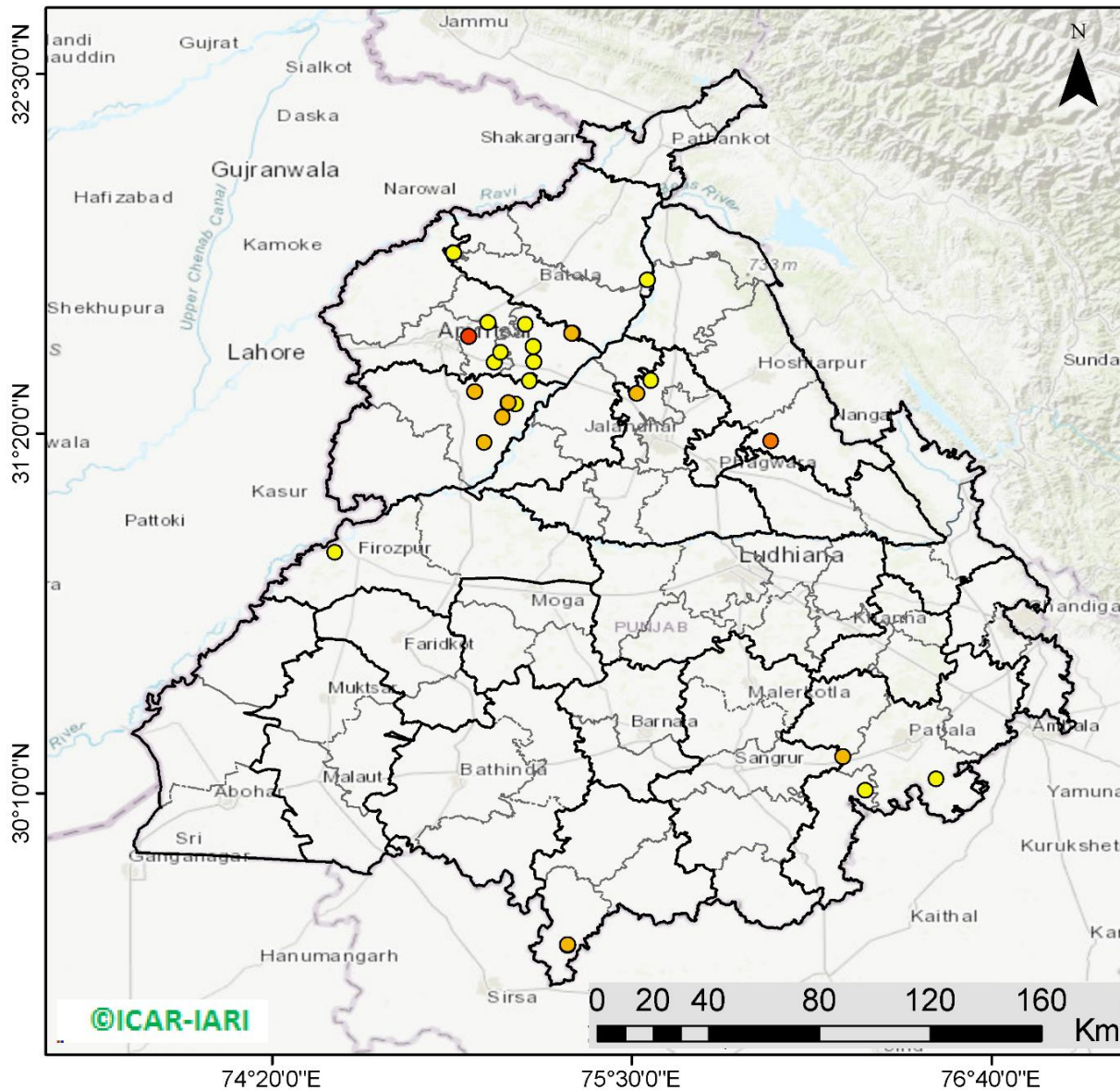
Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States

(01-Oct to 07-Oct)



(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



27 burning events detected in Punjab on 07th October 2019

Fire Intensity (W/m²)

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

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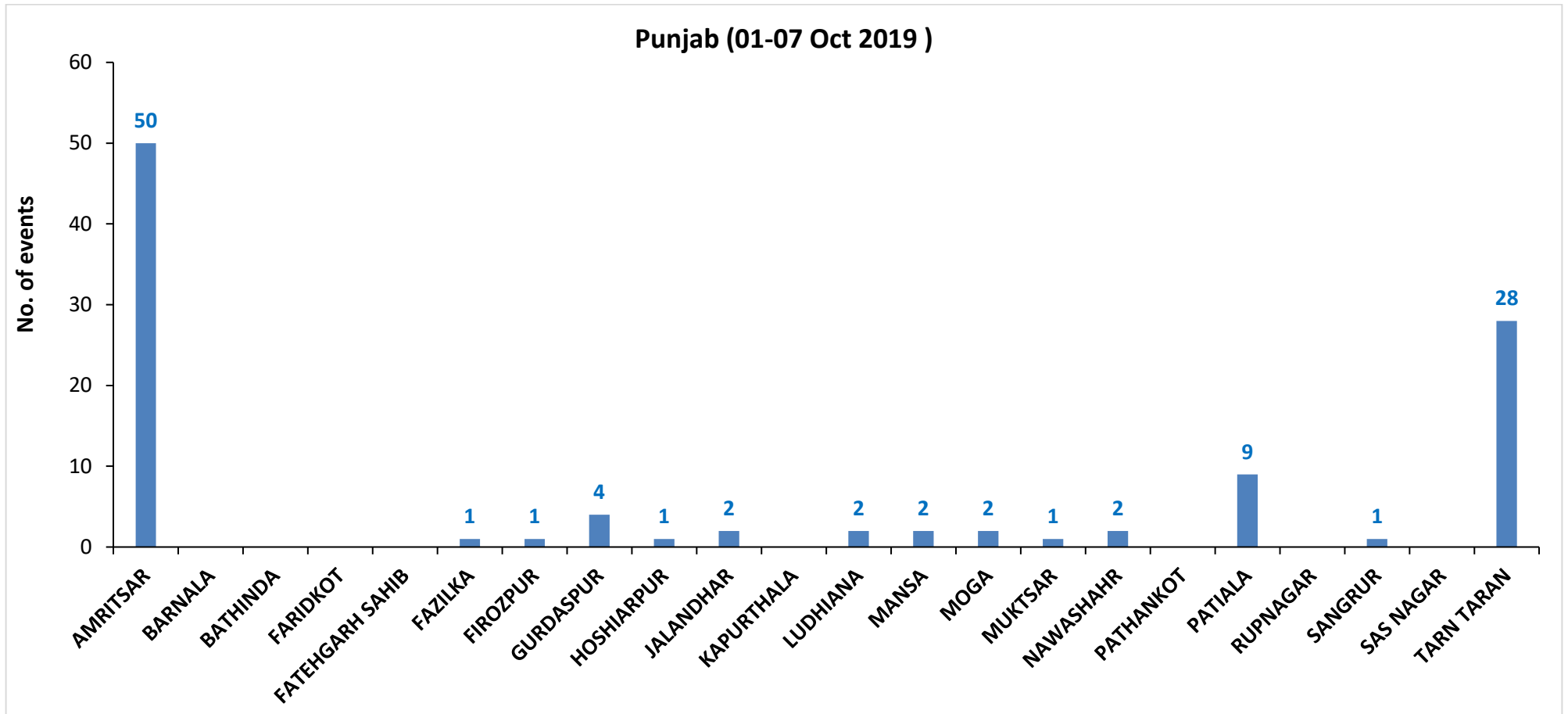


<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

Details of residue burning events in Punjab on 07-Oct-2019

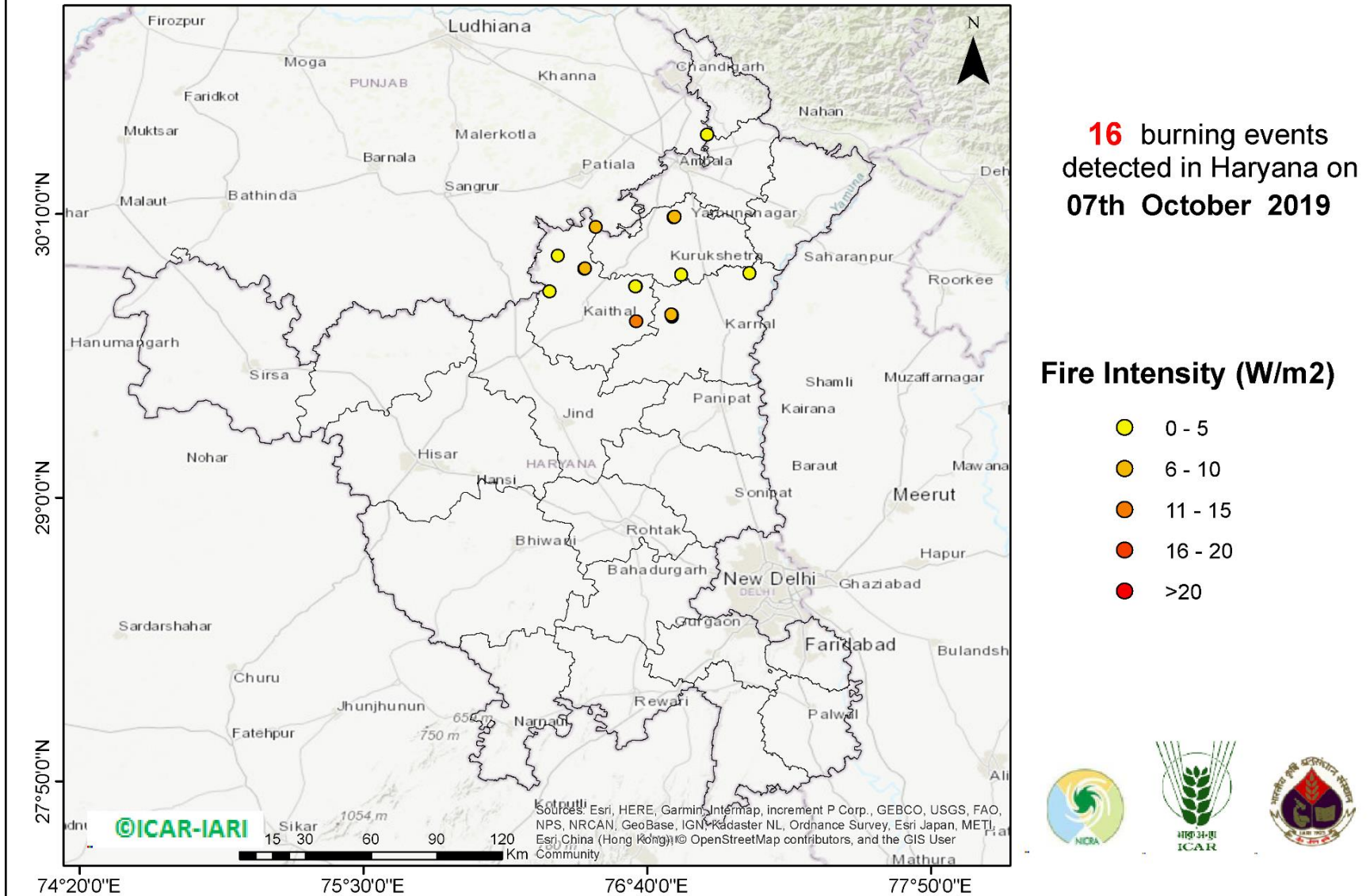
S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m²)
1	AMRITSAR	AMRITSAR I	S-NPP	75.05457	31.56397	12:42:00	D	2.80
2	AMRITSAR	AMRITSAR I	S-NPP	75.07503	31.59657	14:18:00	D	3.60
3	AMRITSAR	AMRITSAR I	S-NPP	75.03432	31.69291	14:18:00	D	1.80
4	AMRITSAR	AMRITSAR II	AQUA	74.97100	31.64900	13:15:00	D	16.70
5	AMRITSAR	BABA BAKALA	S-NPP	75.18214	31.56590	12:42:00	D	3.40
6	AMRITSAR	BABA BAKALA	S-NPP	75.18060	31.61548	12:42:00	D	2.30
7	AMRITSAR	BABA BAKALA	S-NPP	75.15476	31.68739	14:18:00	D	2.90
8	FIROZPUR	FIROZPUR	S-NPP	74.53813	30.94788	14:18:00	D	3.50
9	GURDASPUR	BATALA	S-NPP	75.30842	31.65841	14:18:00	D	6.50
10	GURDASPUR	BATALA	S-NPP	75.30562	31.65870	14:18:00	D	9.20
11	GURDASPUR	DERA BABA NANAK	S-NPP	74.92155	31.91943	14:18:00	D	4.00
12	GURDASPUR	GURDASPUR	S-NPP	75.55113	31.83066	14:18:00	D	4.80
13	HOSHIARPUR	GARHSHANKAR	AQUA	75.95200	31.30900	13:15:00	D	12.80
14	JALANDHAR	JALANDHAR II	S-NPP	75.51633	31.46251	12:42:00	D	5.50
15	JALANDHAR	JALANDHAR II	S-NPP	75.56228	31.50650	14:18:00	D	2.60
16	MANSA	SARDULGARH	S-NPP	75.29182	29.67239	14:18:00	D	3.60
17	MANSA	SARDULGARH	S-NPP	75.29222	29.67417	14:18:00	D	5.20
18	PATIALA	PATIALA	S-NPP	76.48755	30.21238	14:18:00	D	3.70
19	PATIALA	SAMANA	S-NPP	76.25750	30.17495	14:18:00	D	4.10
20	SANGRUR	SANGRUR	S-NPP	76.18510	30.28468	12:42:00	D	5.90
21	TARN TARAN	KHADOOR SAHIB	S-NPP	75.02152	31.30410	14:18:00	D	8.20
22	TARN TARAN	KHADOOR SAHIB	S-NPP	75.08096	31.38784	14:18:00	D	7.00
23	TARN TARAN	KHADOOR SAHIB	S-NPP	75.12204	31.42842	14:18:00	D	2.90
24	TARN TARAN	KHADOOR SAHIB	S-NPP	75.09865	31.43114	14:18:00	D	4.30
25	TARN TARAN	KHADOOR SAHIB	S-NPP	75.10091	31.43335	14:18:00	D	6.70
26	TARN TARAN	KHADOOR SAHIB	S-NPP	74.99019	31.46951	14:18:00	D	5.50
27	TARN TARAN	KHADOOR SAHIB	S-NPP	75.16903	31.50369	14:18:00	D	2.20

District-wise cumulative number of residue burning events in Punjab (01 to 07-Oct 2019)



(b) Haryana

RICE RESIDUE BURNING IN HARYANA

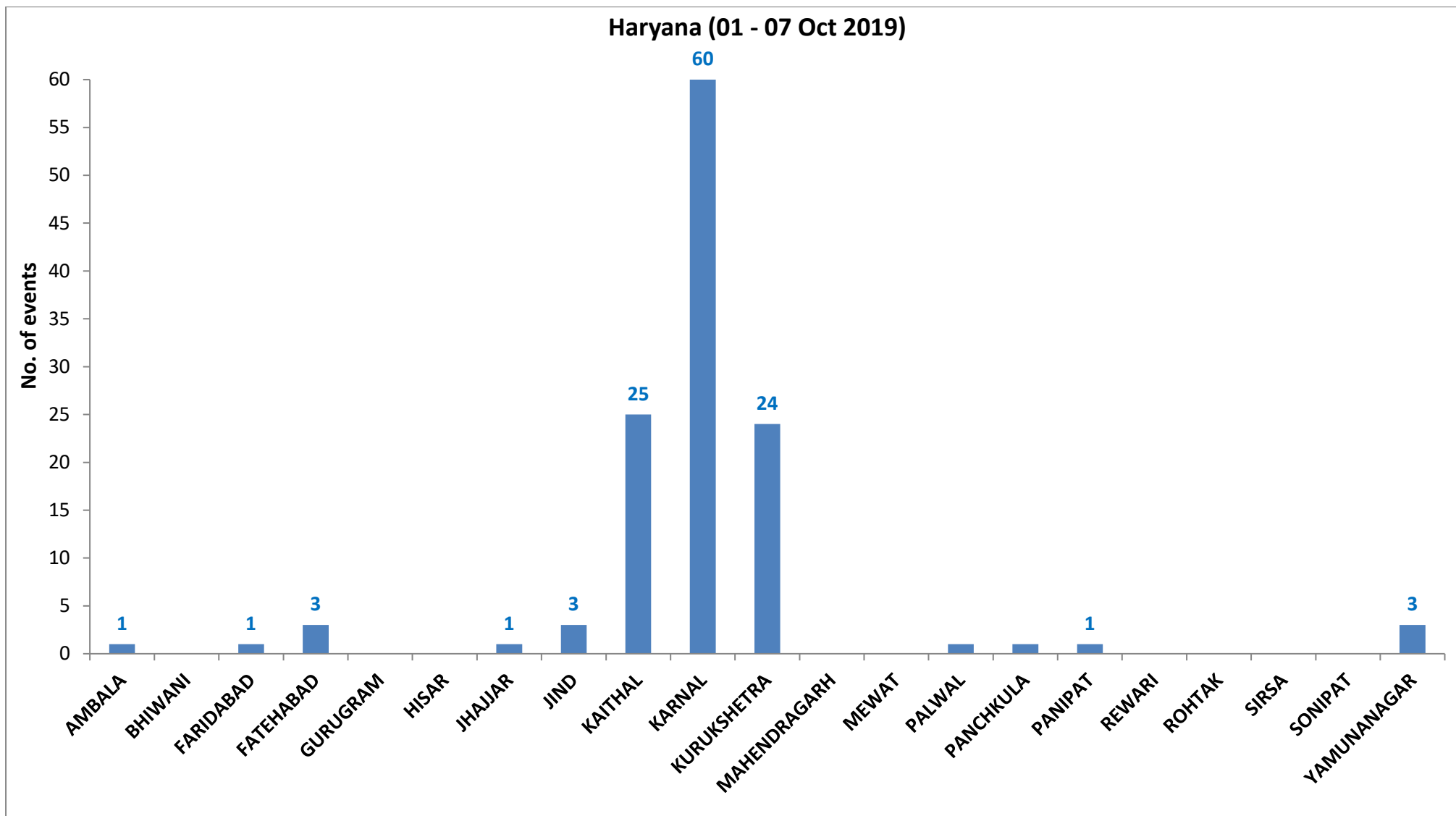


<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

Details of residue burning events in Haryana on 07-Oct-2019

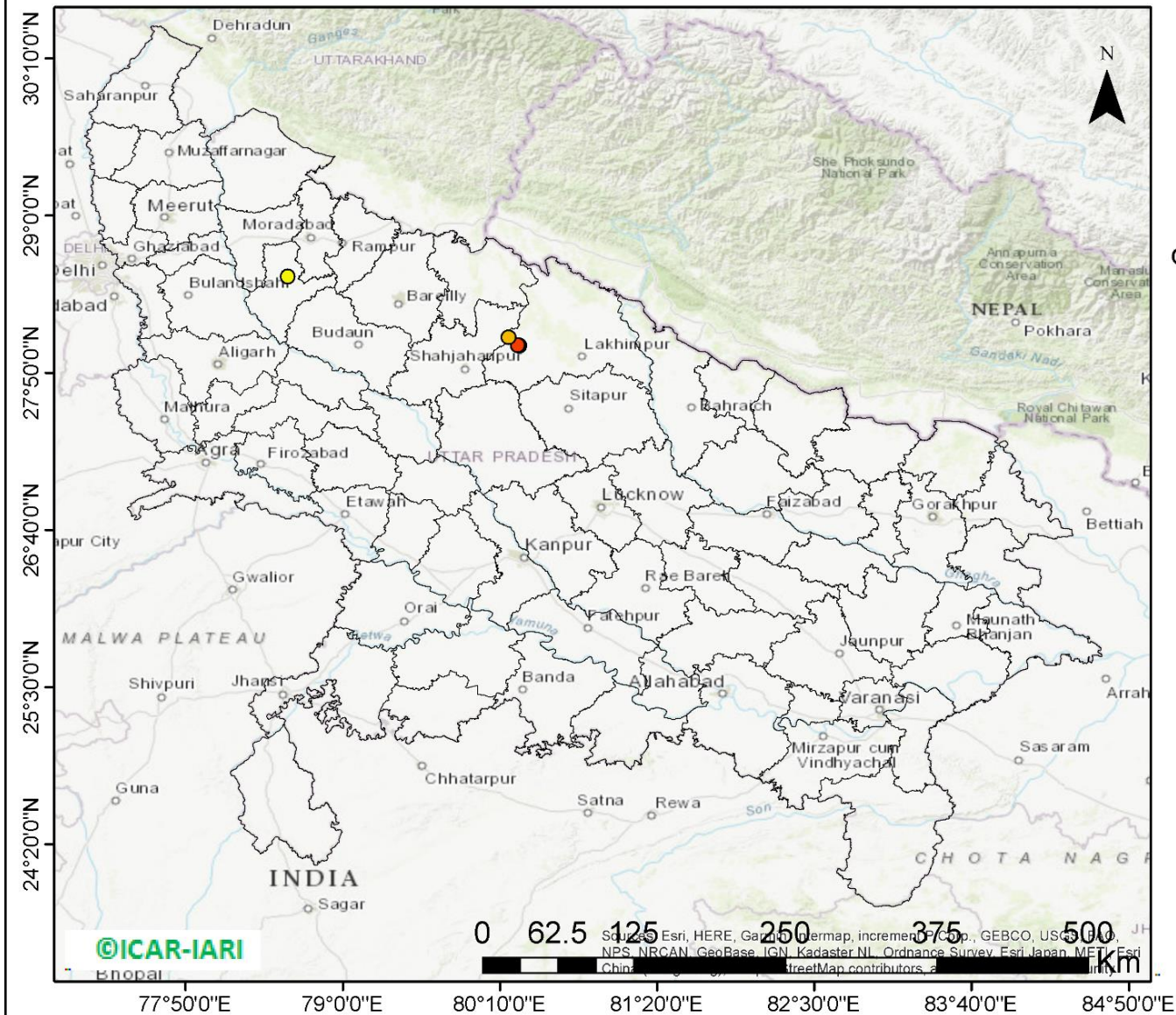
S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m²)
1	KAITHAL	GUHLA	S-NPP	76.40828	29.94161	14:18:00	D	7.10
2	KAITHAL	GUHLA	S-NPP	76.41048	29.94263	14:18:00	D	6.10
3	KAITHAL	GUHLA	S-NPP	76.29967	29.99470	12:42:00	D	4.30
4	KAITHAL	GUHLA	S-NPP	76.45474	30.11340	14:18:00	D	7.50
5	KAITHAL	KAITHAL	AQUA	76.62000	29.72600	13:15:00	D	11.20
6	KAITHAL	KAITHAL	S-NPP	76.26411	29.84845	14:18:00	D	2.70
7	KAITHAL	KAITHAL	S-NPP	76.61980	29.86857	14:18:00	D	4.40
8	KAITHAL	KAITHAL	S-NPP	76.61734	29.86867	14:18:00	D	4.40
9	KARNAL	INDRI	S-NPP	77.08771	29.92424	14:18:00	D	4.10
10	KARNAL	KARNAL	S-NPP	76.76865	29.74598	14:18:00	D	4.10
11	KARNAL	KARNAL	S-NPP	76.76826	29.75250	14:18:00	D	8.00
12	KARNAL	KARNAL	S-NPP	76.76569	29.75345	14:18:00	D	6.40
13	KURUKSHETRA	SHAHABAD	S-NPP	76.77494	30.15459	14:18:00	D	8.40
14	KURUKSHETRA	SHAHABAD	S-NPP	76.77809	30.15604	14:18:00	D	6.60
15	KURUKSHETRA	THANESAR	S-NPP	76.80637	29.91716	14:18:00	D	3.20
16	PANCHKULA	PANCHKULA	S-NPP	76.91213	30.49224	14:18:00	D	2.50

District-wise cumulative number of residue burning events in Haryana (01 to 07-Oct 2019)



(c) UP

RICE RESIDUE BURNING IN UTTAR PRADESH



04 burning events detected in Uttar Pradesh on **07th October 2019**

Fire Intensity (W/m²)

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



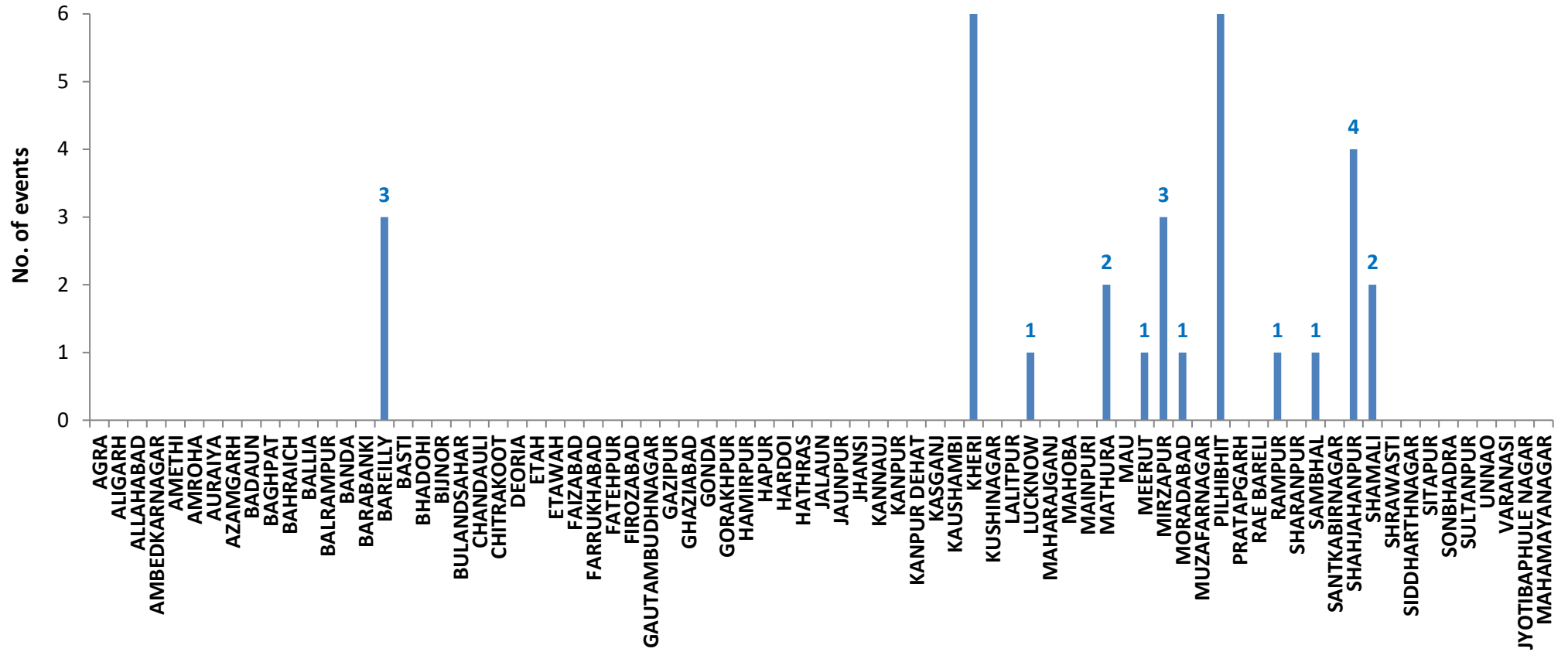
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

Details of residue burning events in Uttar Pradesh on 07-Oct-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m²)
1	KHERI	MOHMADI	AQUA	80.30800	28.03600	13:15:00	D	15.50
2	KHERI	MOHMADI	AQUA	80.30100	28.03900	13:15:00	D	17.30
3	SAMBHAL	SAMBHAL	S-NPP	78.59227	28.54739	12:36:00	D	1.80
4	SHAHJAHANPUR	PUWANYA	AQUA	80.23000	28.09600	13:15:00	D	7.00

District-wise cumulative number of residue burning events in Haryana (01 to 07-Oct 2019)

Uttar Pradesh (01 - 07 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 07-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
Total	106	366	618	681	124	330	380	331	31	141	141	118	261	837	1139	1130

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

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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)
