



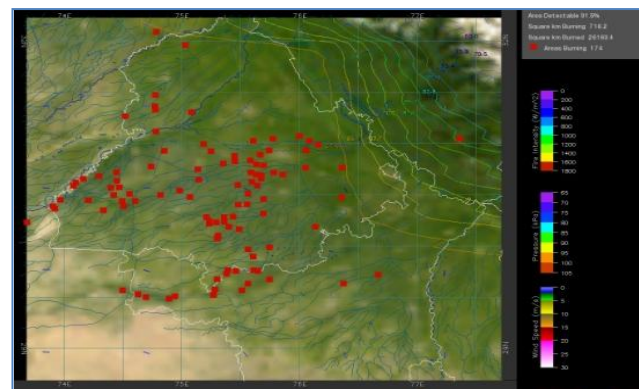
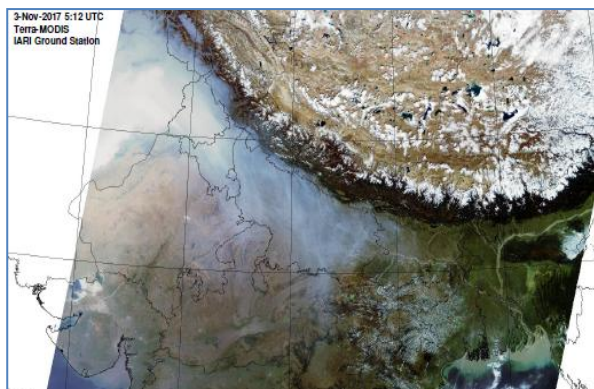
**Bulletin
No. 04**

**Events Date:
04-Oct-2019**

**Issued on:
05-Oct-2019**



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



Prepared by:

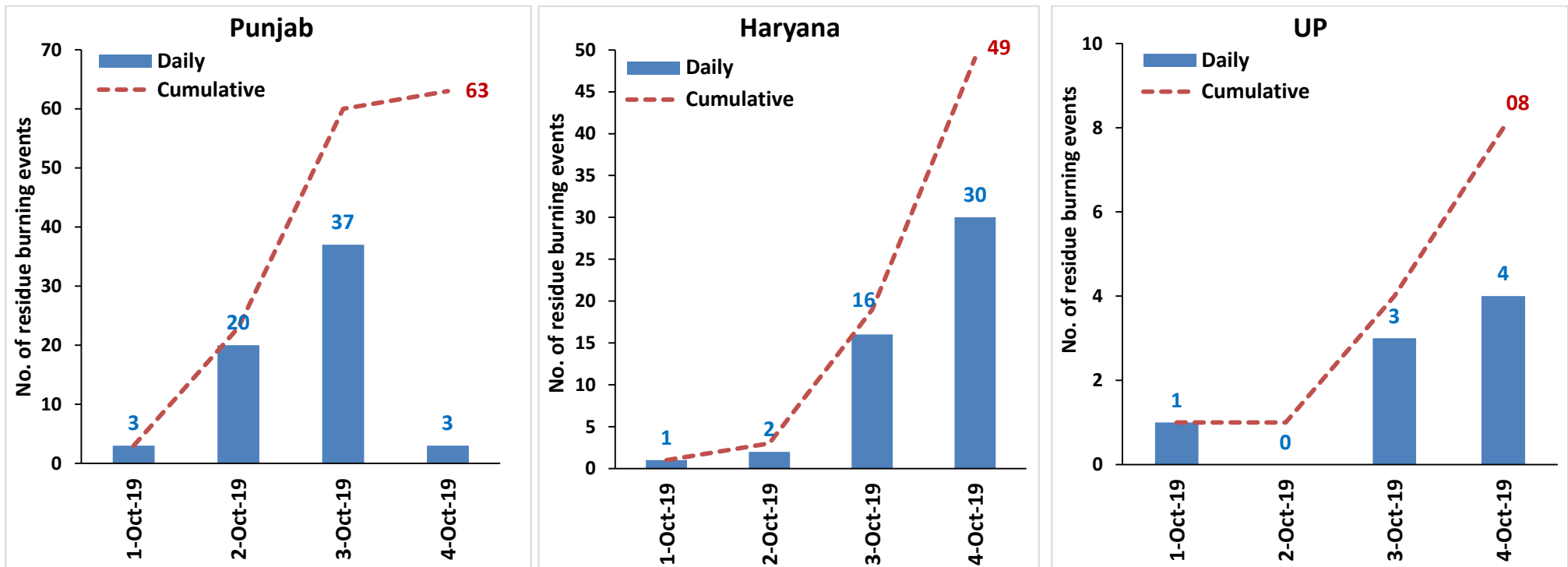
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

Highlights for 04-October-2019

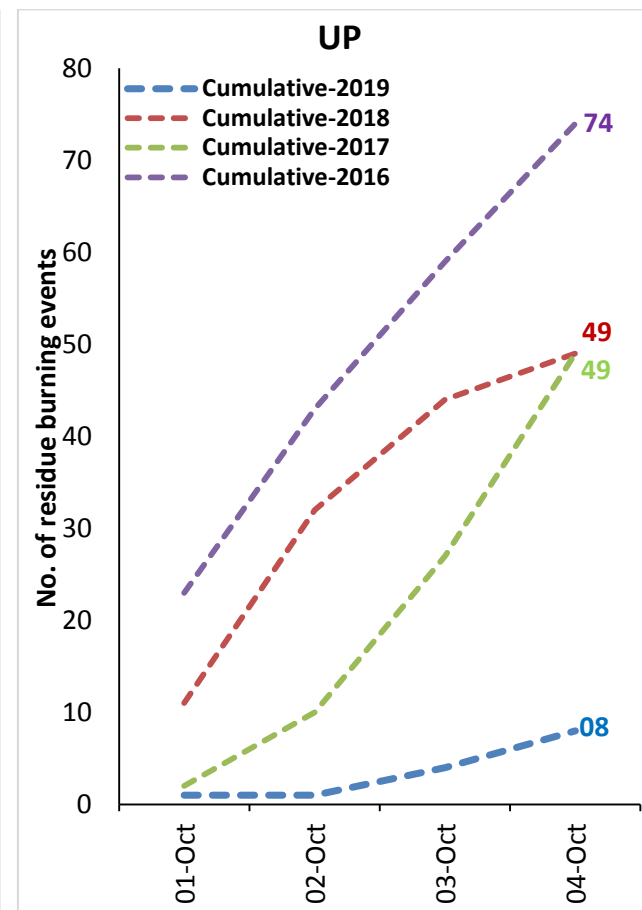
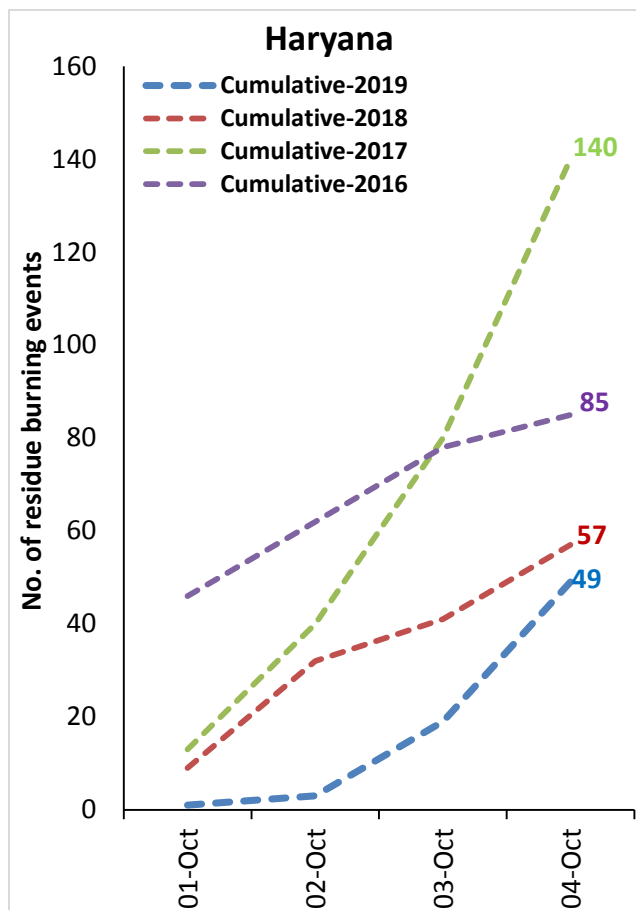
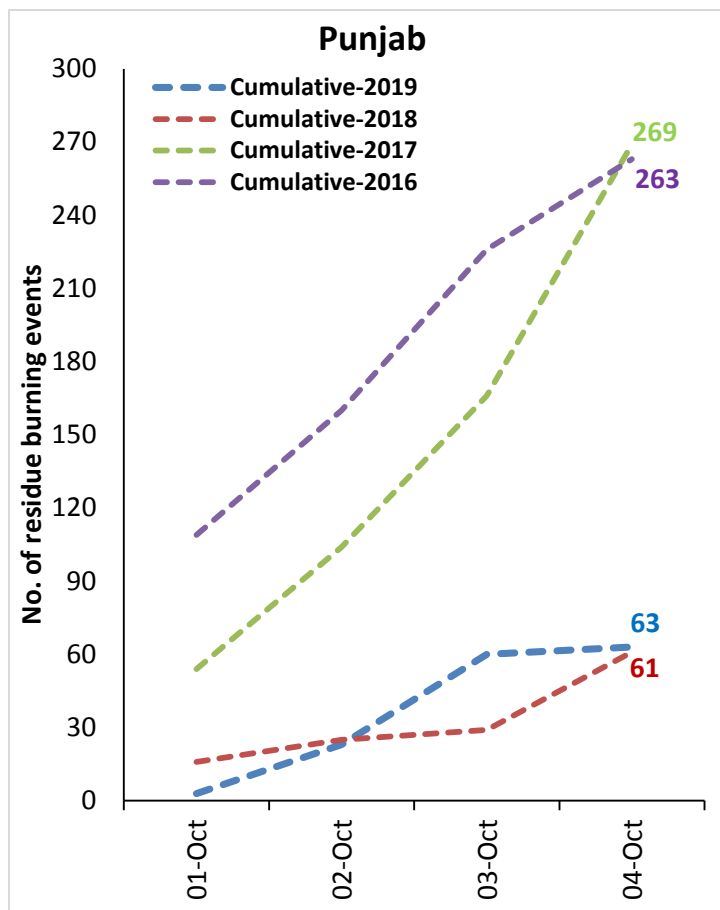
- Satellites detected 37 residue burning events in the three study States on 04-Oct-2019.
- In Punjab and UP, two and four fire events were only recorded by satellite.
- In Haryana most of the burning events were recorded in Karnal district.
- Overall, the residue burning/fire events are very few till date in the three study States being monitored.

Temporal distribution of residue burning events for the three study States



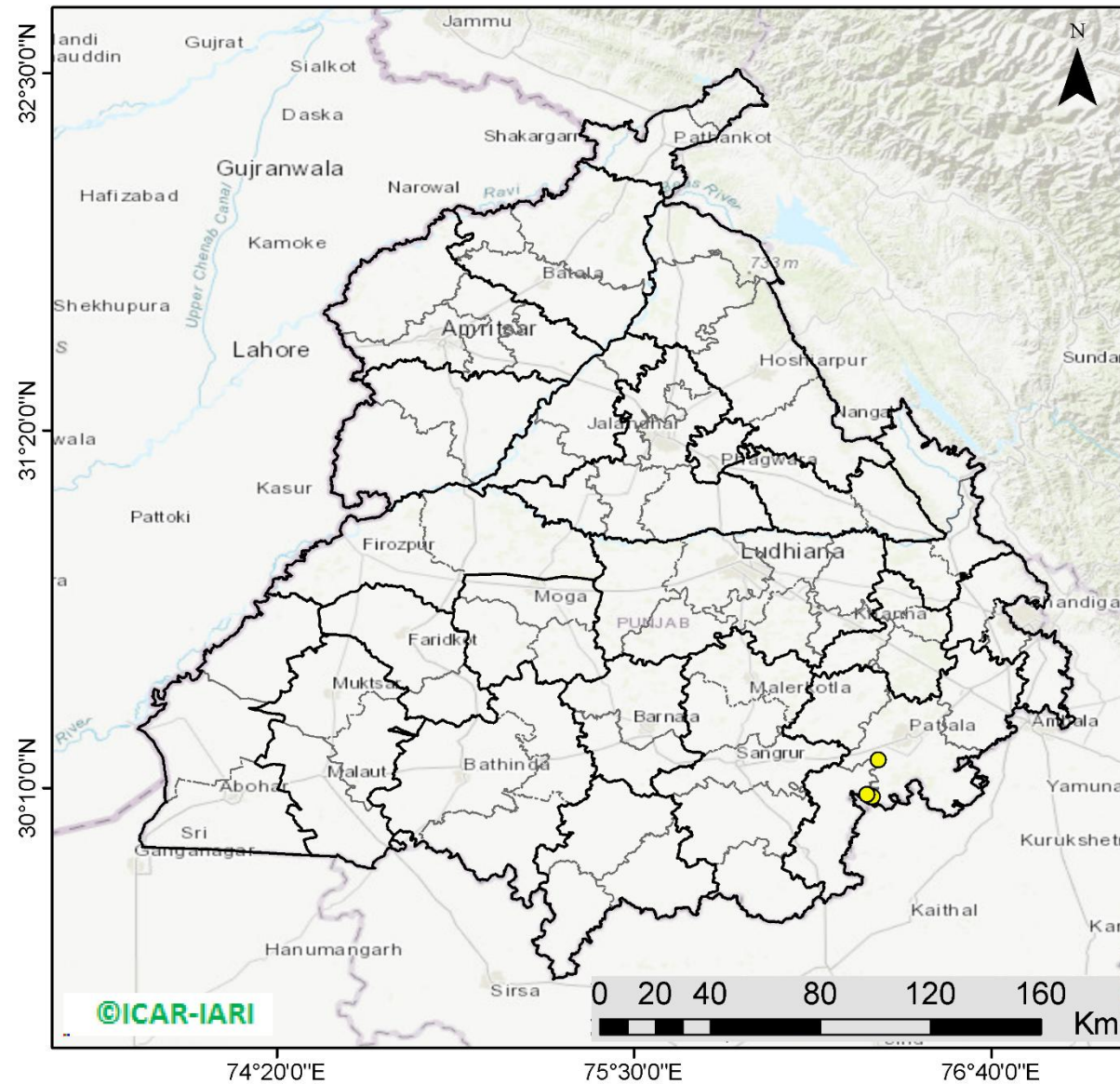
Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States

(01-Oct to 04-Oct)



(a) Punjab

RICE RESIDUE BURNING IN PUNJAB



03 burning events detected in Punjab on **04 th October 2019**

Fire Intensity (W/m²)

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

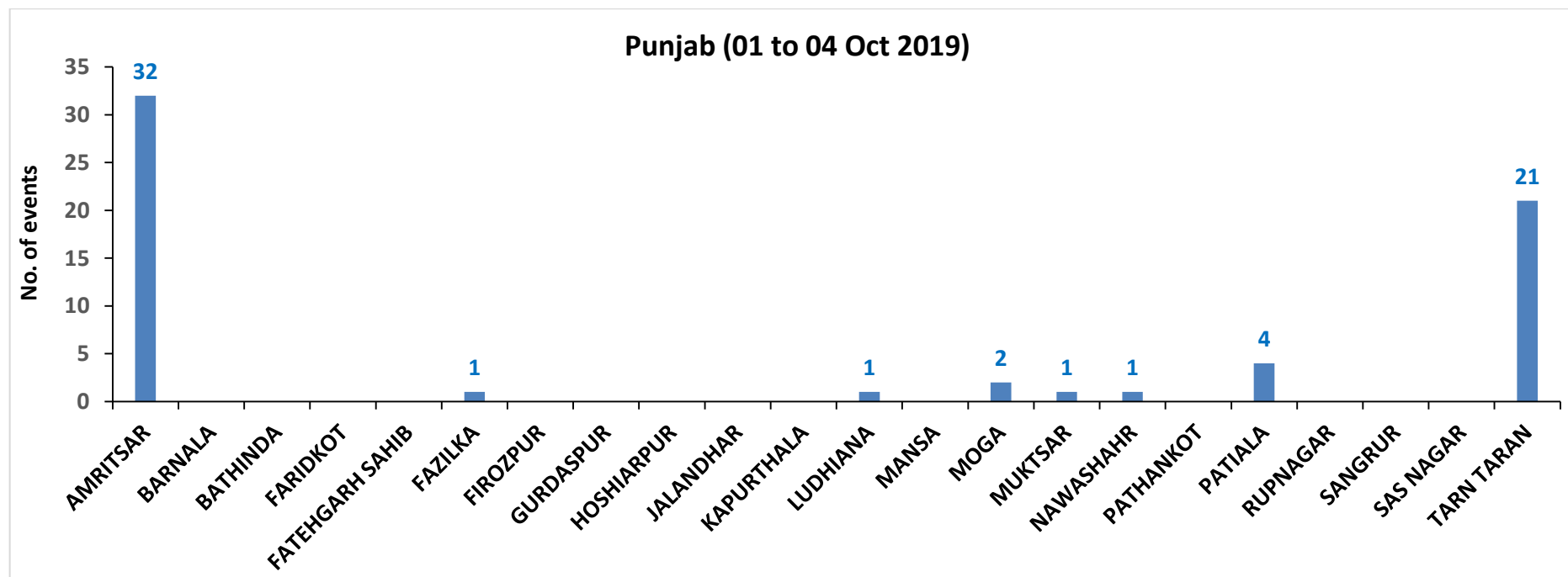


<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

Details of residue burning events in Punjab on 04-Oct-2019

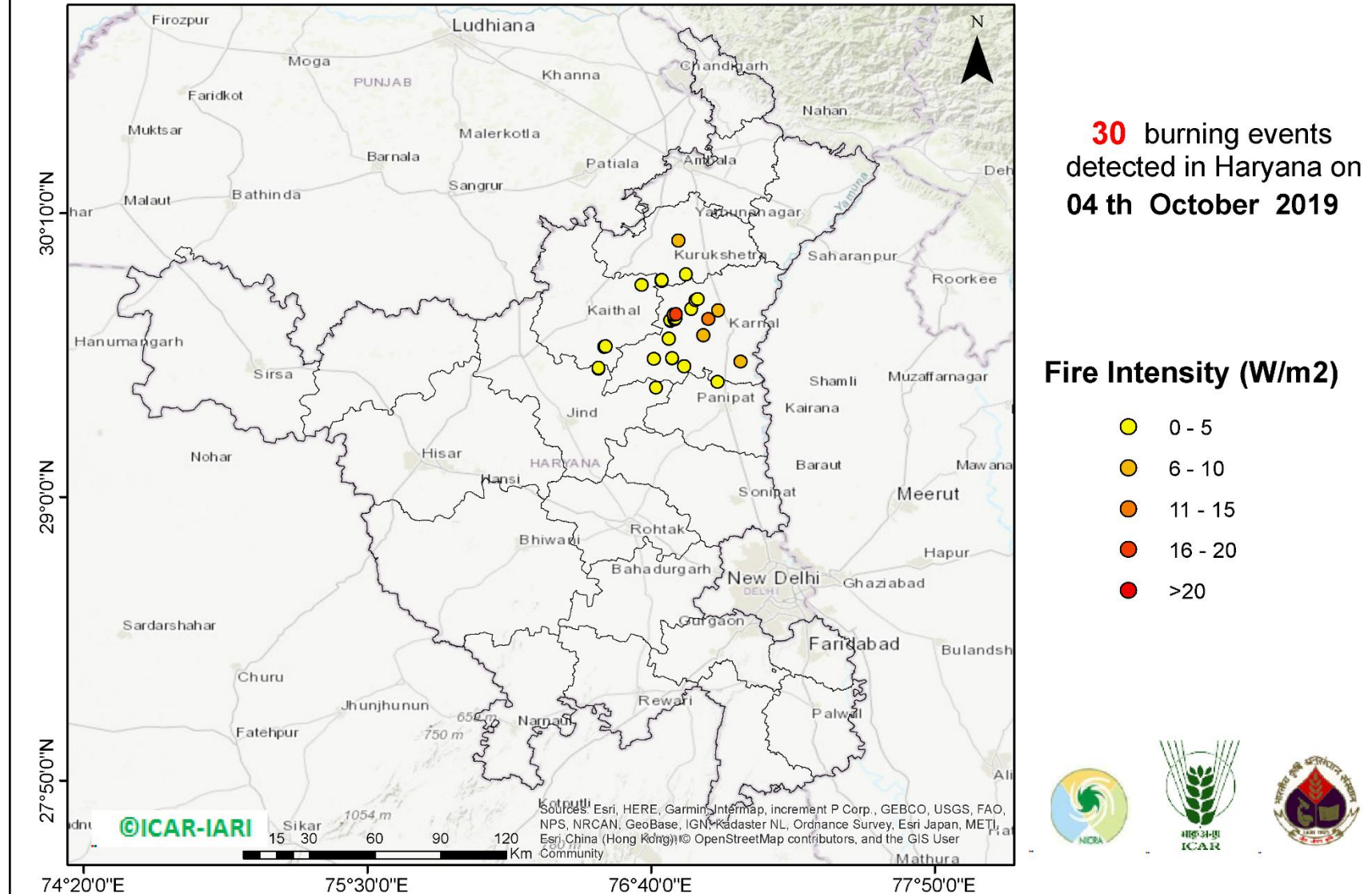
S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	PATIALA	PATIALA	S-NPP	76.29765	30.25915	13:36:00	D	4.40
2	PATIALA	SAMANA	S-NPP	76.27876	30.13839	13:36:00	D	2.40
3	PATIALA	SAMANA	S-NPP	76.25980	30.14633	13:36:00	D	3.00

District-wise cumulative number of residue burning events in Punjab (01 to 04-Oct 2019)



(b) Haryana

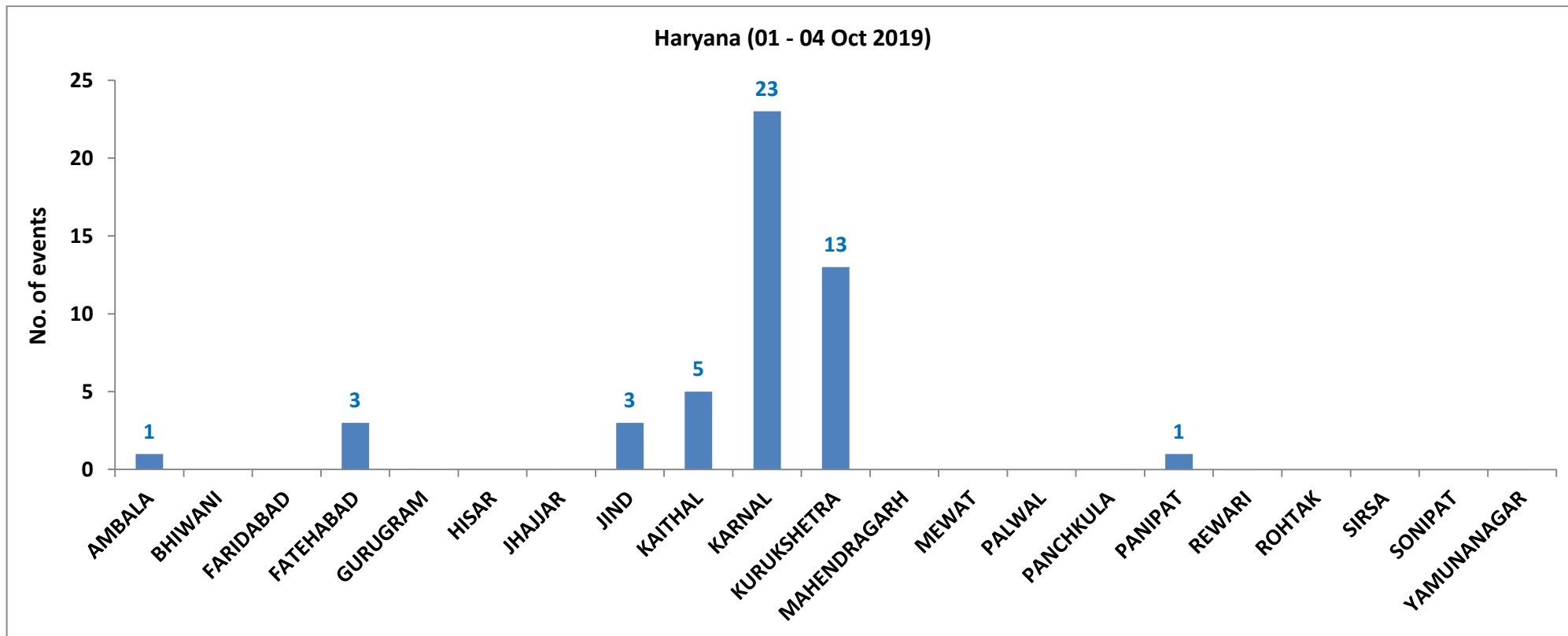
RICE RESIDUE BURNING IN HARYANA



Details of residue burning events in Haryana on 04-Oct-2019

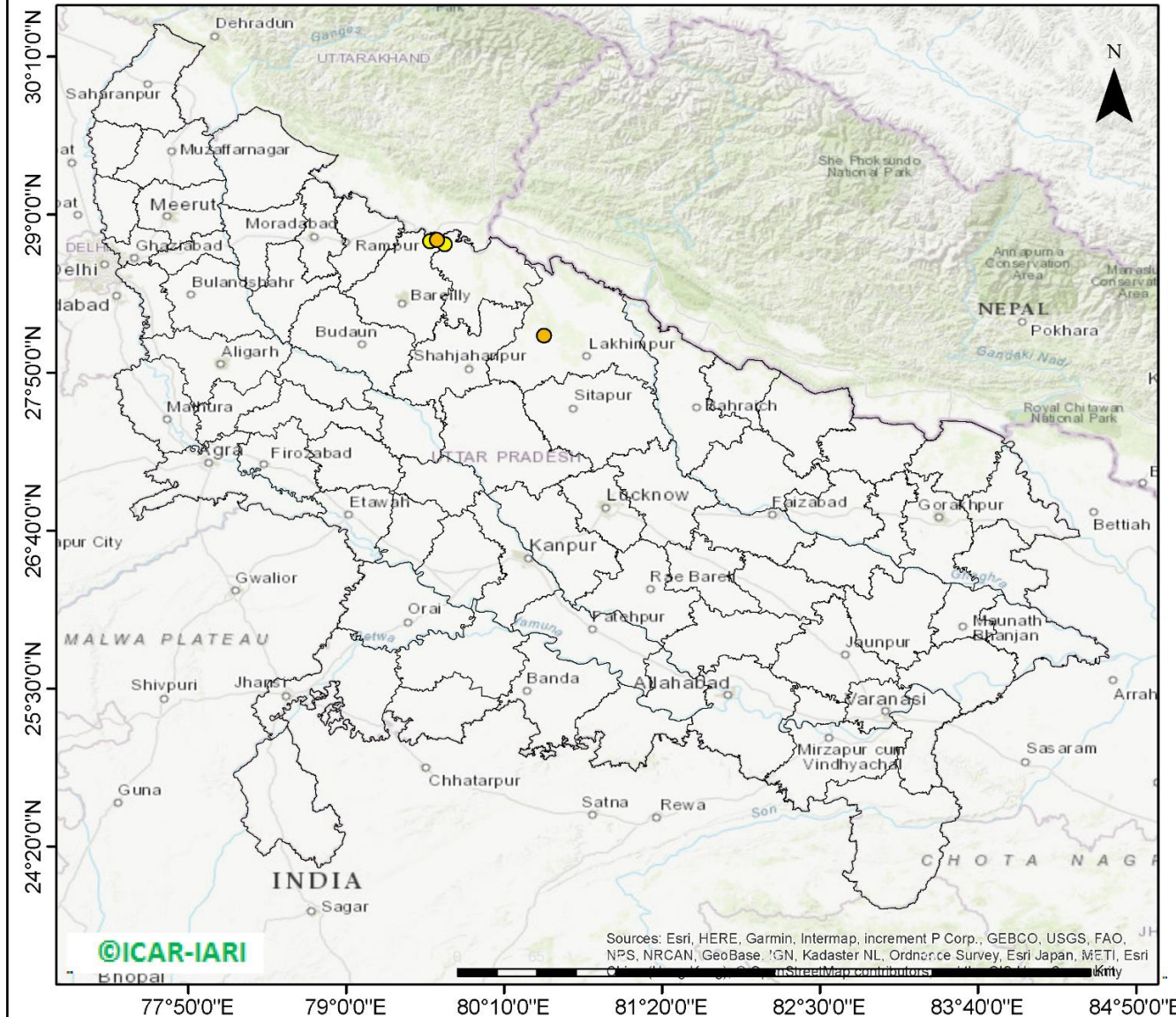
S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	JIND	JIND	S-NPP	76.45047	29.52879	08:06:00	D	4.20
2	JIND	JIND	S-NPP	76.45060	29.53116	08:06:00	D	4.10
3	JIND	SAFIDON	S-NPP	76.68763	29.44940	08:06:00	D	2.60
4	KAITHAL	KAITHAL	S-NPP	76.47468	29.61868	08:06:00	D	4.70
5	KAITHAL	KAITHAL	S-NPP	76.47896	29.61926	08:06:00	D	4.70
6	KAITHAL	KAITHAL	S-NPP	76.62733	29.87248	08:06:00	D	2.40
7	KARNAL	ASSANDH	S-NPP	76.67767	29.56827	08:06:00	D	1.70
8	KARNAL	ASSANDH	S-NPP	76.75241	29.56976	08:06:00	D	2.60
9	KARNAL	ASSANDH	S-NPP	76.75291	29.57107	08:06:00	D	3.80
10	KARNAL	GHARAUNDA	S-NPP	76.80267	29.53746	08:06:00	D	1.90
11	KARNAL	GHARAUNDA	S-NPP	77.03421	29.55729	08:06:00	D	5.10
12	KARNAL	KARNAL	S-NPP	76.73917	29.65076	08:06:00	D	1.90
13	KARNAL	KARNAL	S-NPP	76.88039	29.66599	08:06:00	D	7.10
14	KARNAL	KARNAL	S-NPP	76.74618	29.72414	08:06:00	D	5.40
15	KARNAL	KARNAL	S-NPP	76.74557	29.72761	08:06:00	D	4.90
16	KARNAL	KARNAL	S-NPP	76.76311	29.72992	08:06:00	D	2.30
17	KARNAL	KARNAL	TERRA	76.90100	29.73200	05:40:00	D	10.50
18	KARNAL	KARNAL	S-NPP	76.76691	29.73397	08:06:00	D	2.70
19	KARNAL	KARNAL	S-NPP	76.75953	29.75075	08:06:00	D	5.30
20	KARNAL	KARNAL	TERRA	76.76900	29.75200	05:40:00	D	16.90
21	KARNAL	NILOKHERI	S-NPP	76.94202	29.76771	08:06:00	D	6.90
22	KARNAL	NILOKHERI	S-NPP	76.83200	29.77459	08:06:00	D	3.90
23	KARNAL	NILOKHERI	S-NPP	76.84946	29.80954	08:06:00	D	10.00
24	KARNAL	NILOKHERI	S-NPP	76.85771	29.81417	08:06:00	D	4.00
25	KURUKSHETRA	THANESAR	S-NPP	76.71073	29.88870	08:06:00	D	3.10
26	KURUKSHETRA	THANESAR	S-NPP	76.70924	29.89058	08:06:00	D	5.80
27	KURUKSHETRA	THANESAR	S-NPP	76.71012	29.89217	08:06:00	D	3.10
28	KURUKSHETRA	THANESAR	S-NPP	76.80980	29.91580	08:06:00	D	4.50
29	KURUKSHETRA	THANESAR	S-NPP	76.77780	30.05468	08:06:00	D	8.40
30	PANIPAT	PANIPAT	S-NPP	76.93852	29.47241	08:06:00	D	4.40

District-wise cumulative number of residue burning events in Haryana (01 to 04-Oct 2019)



(c) UP

RICE RESIDUE BURNING IN UTTAR PRADESH



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

Fire Intensity (W/m²)

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



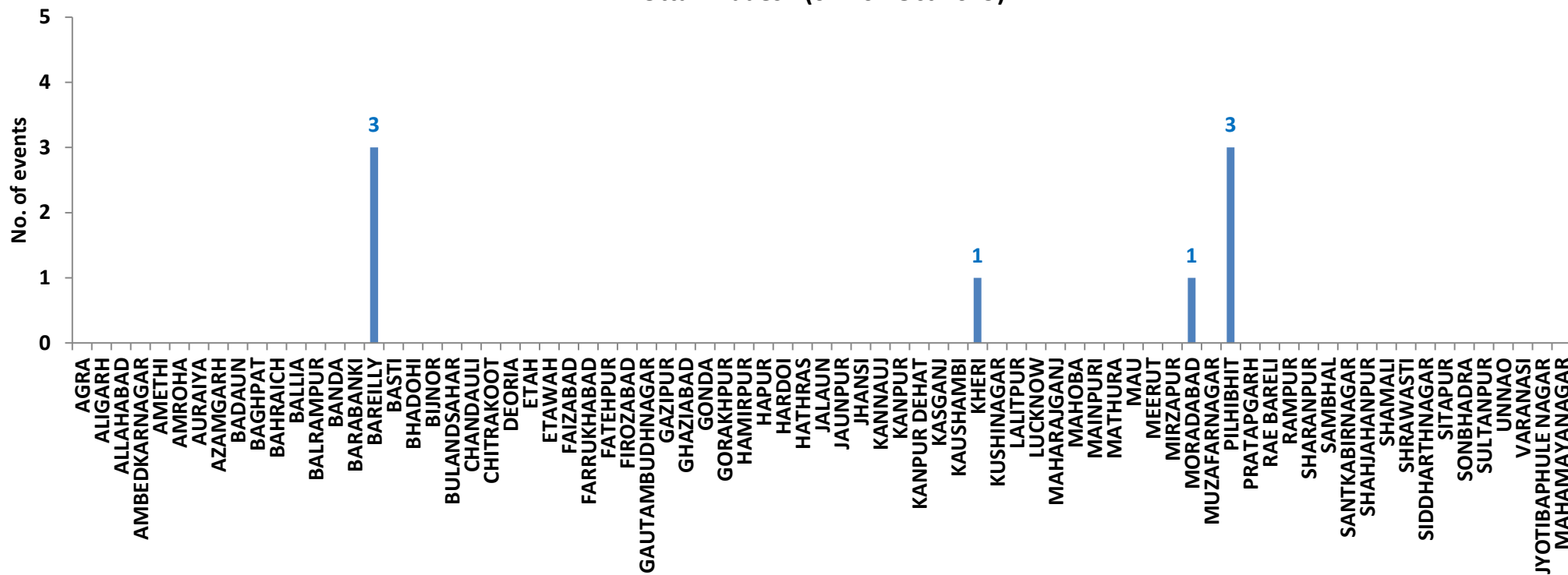
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

Details of residue burning events in Uttar Pradesh on 04-Oct-2019

S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m ²)
1	BAREILLY	BAHERI	S-NPP	79.62047	28.80347	13:36:00	D	4.00
2	BAREILLY	BAHERI	S-NPP	79.67133	28.81328	13:36:00	D	7.50
3	KHERI	GOLA	S-NPP	80.46074	28.10328	13:36:00	D	5.80
4	PILHIBHIT	PILHIBHIT	S-NPP	79.72880	28.77955	13:36:00	D	4.70

District-wise cumulative number of residue burning events in Haryana (01 to 04-Oct 2019)

Uttar Pradesh (01 - 04 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 04-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
Total	63	61	269	263	49	57	140	85	08	49	49	74	120	167	458	422

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)
