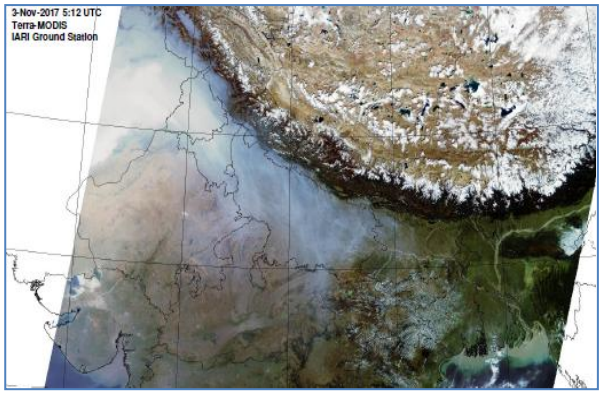
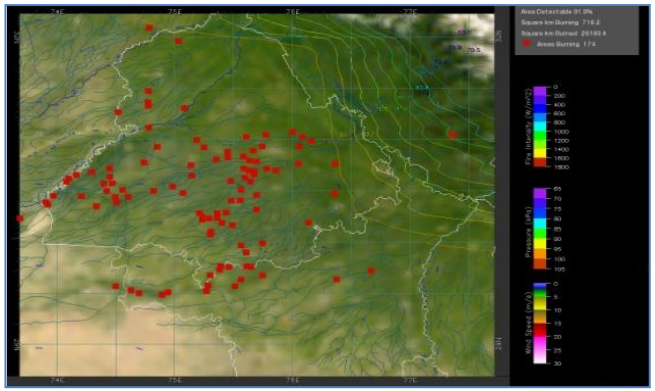
MONITORING PADDY RESIDUE BURNING IN NORTH INDIA USING SATELLITE REMOTE SENSING DURING 2019





Bulletin No. 02

Events Date: 02-Oct-2019

Issued on: 03-Oct-2019

Prepared by:

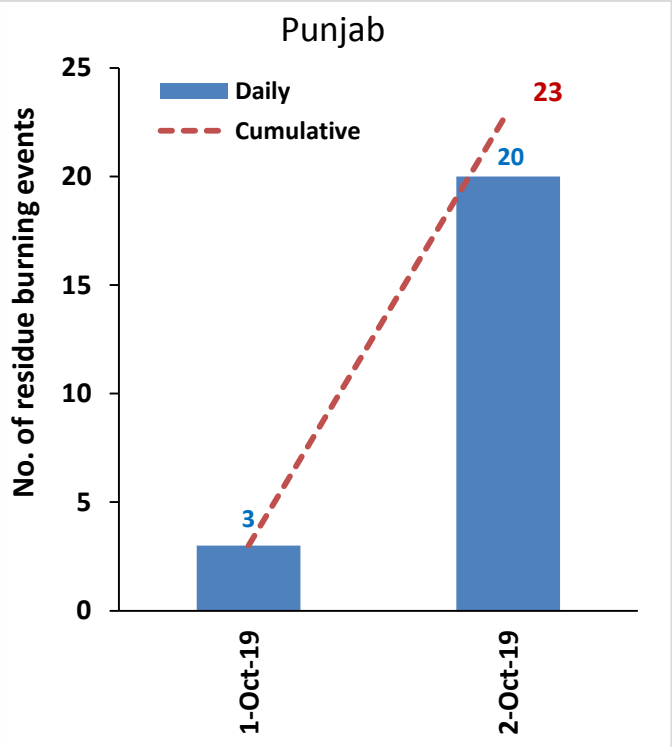
Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory, Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012

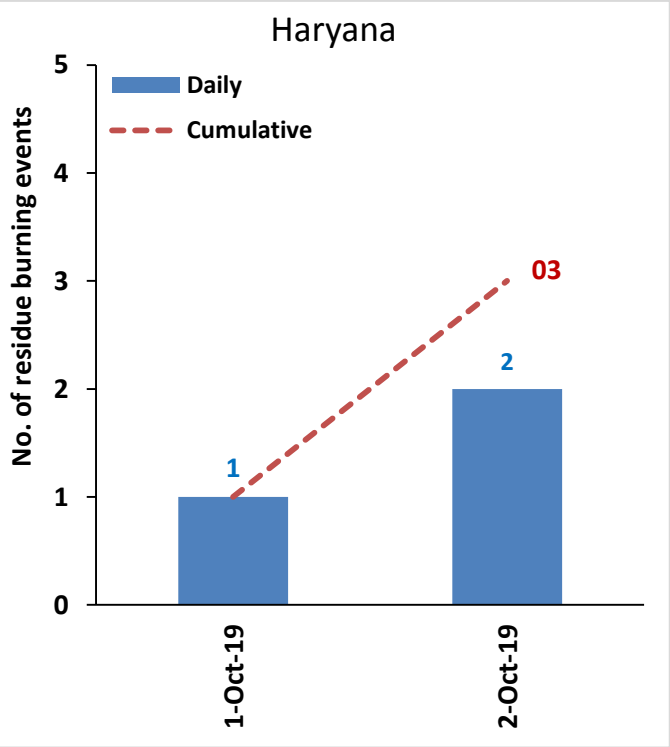
http://creams.iari.res.in

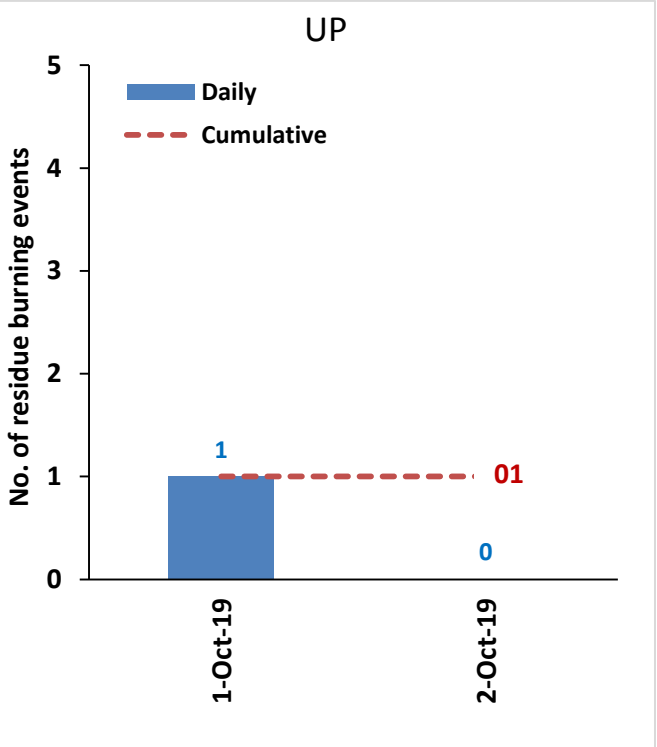
Highlights for 02-October-2019

- **Satellites detected 22 residue burning events in the three study States on 02-Oct-2019.**
- **In Punjab, majority of burning/fire events were concentrated in Amritsar and Tarn Taran districts.**
- **In Haryana and Uttar Pradesh, the burning/fire events were scattered across State.**
- **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

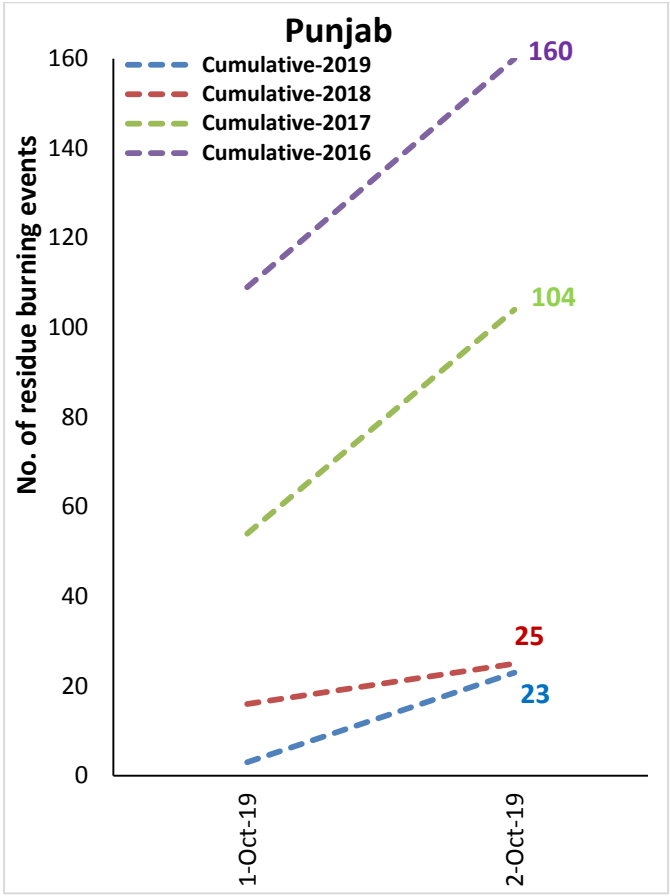


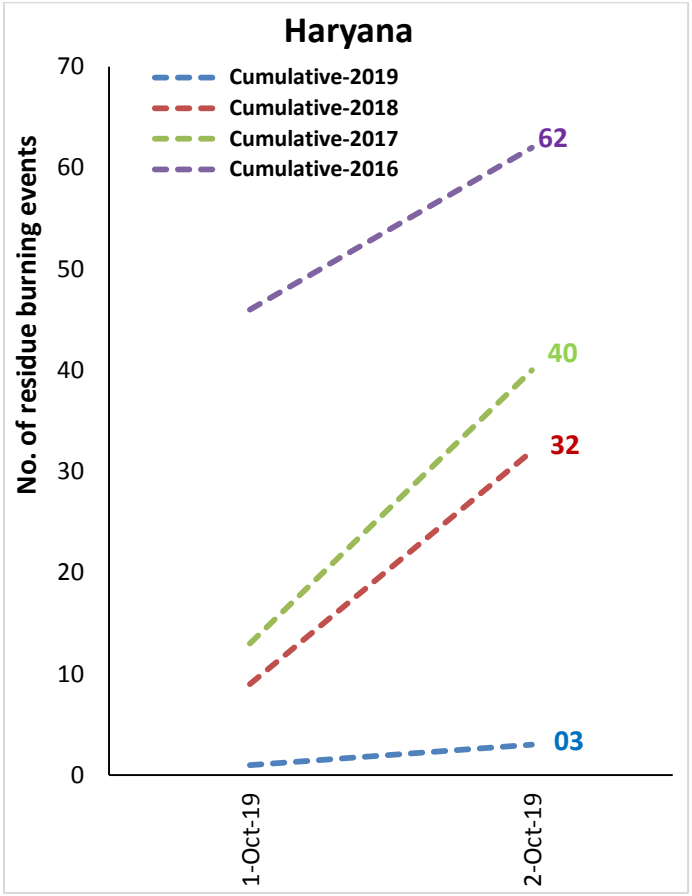


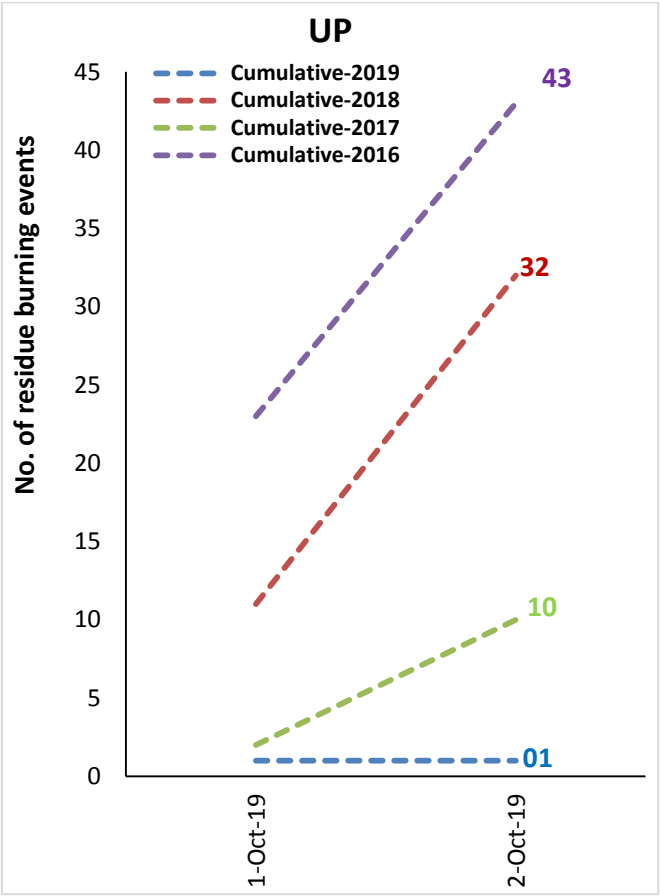


Comparison of residue burning events in current year (2019) with previous years (2018, 2017 & 2016) for the three study States

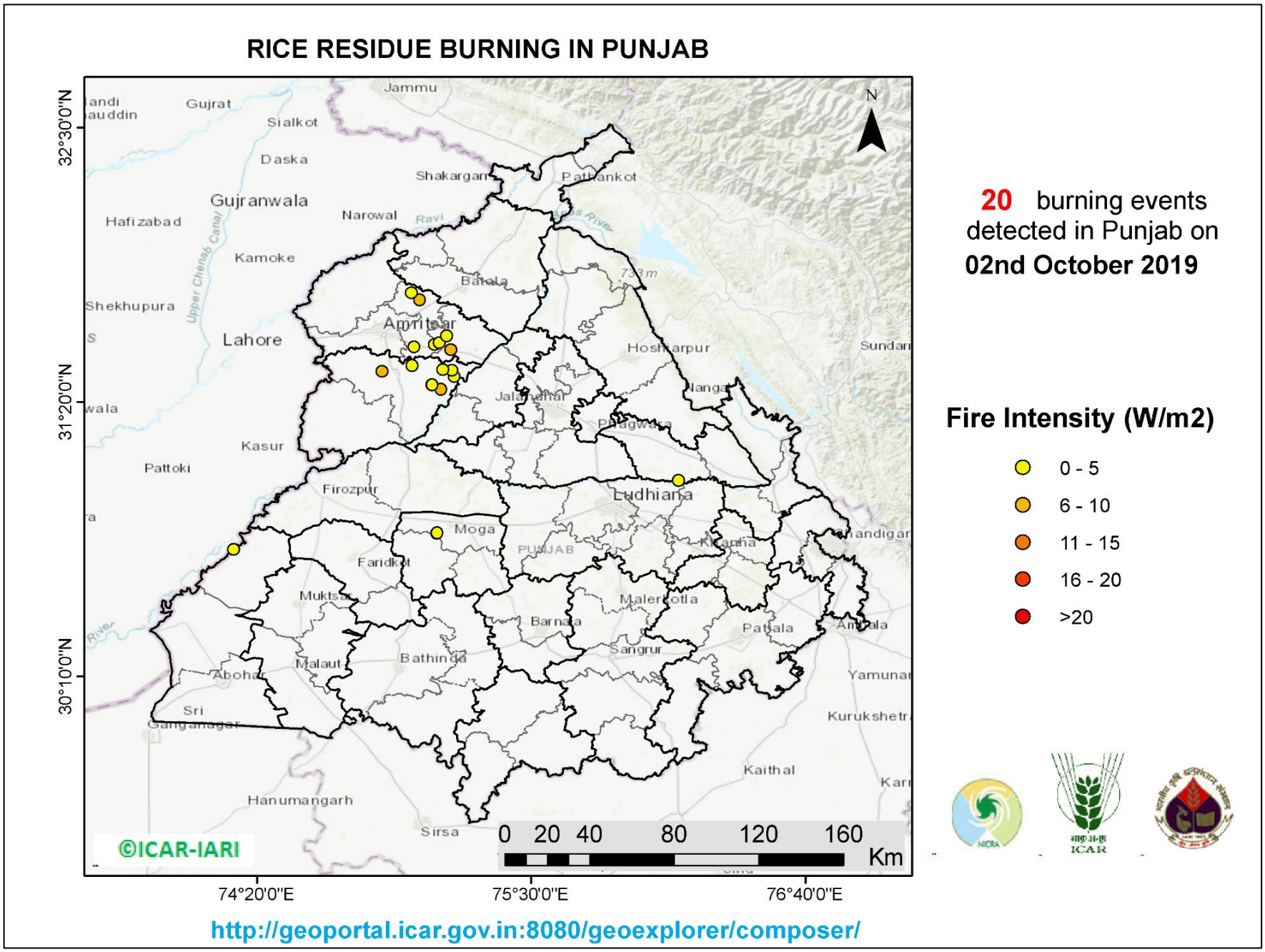
(01-Oct to 02-Oct)







(a) Punjab

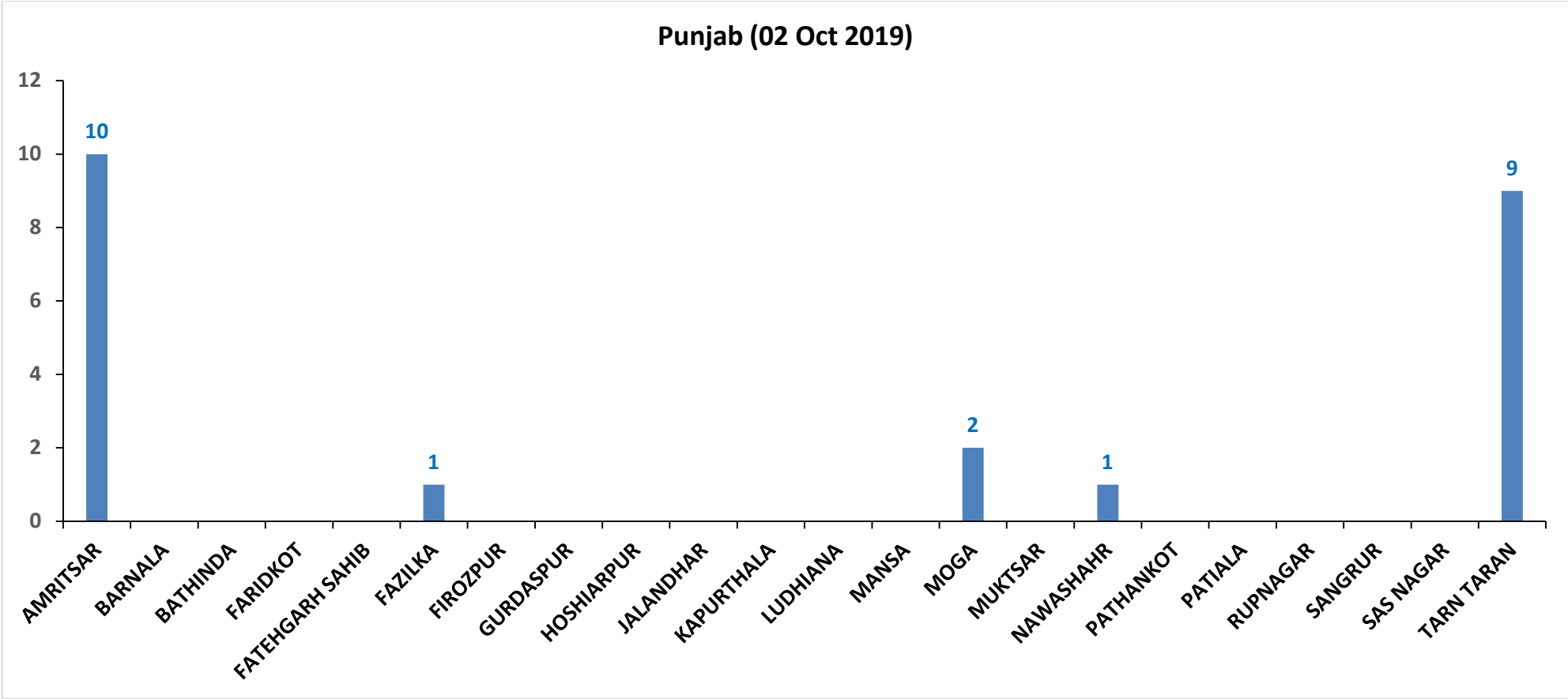


http://geoportal.icar.gov.in:8080/geoexplorer/composer/

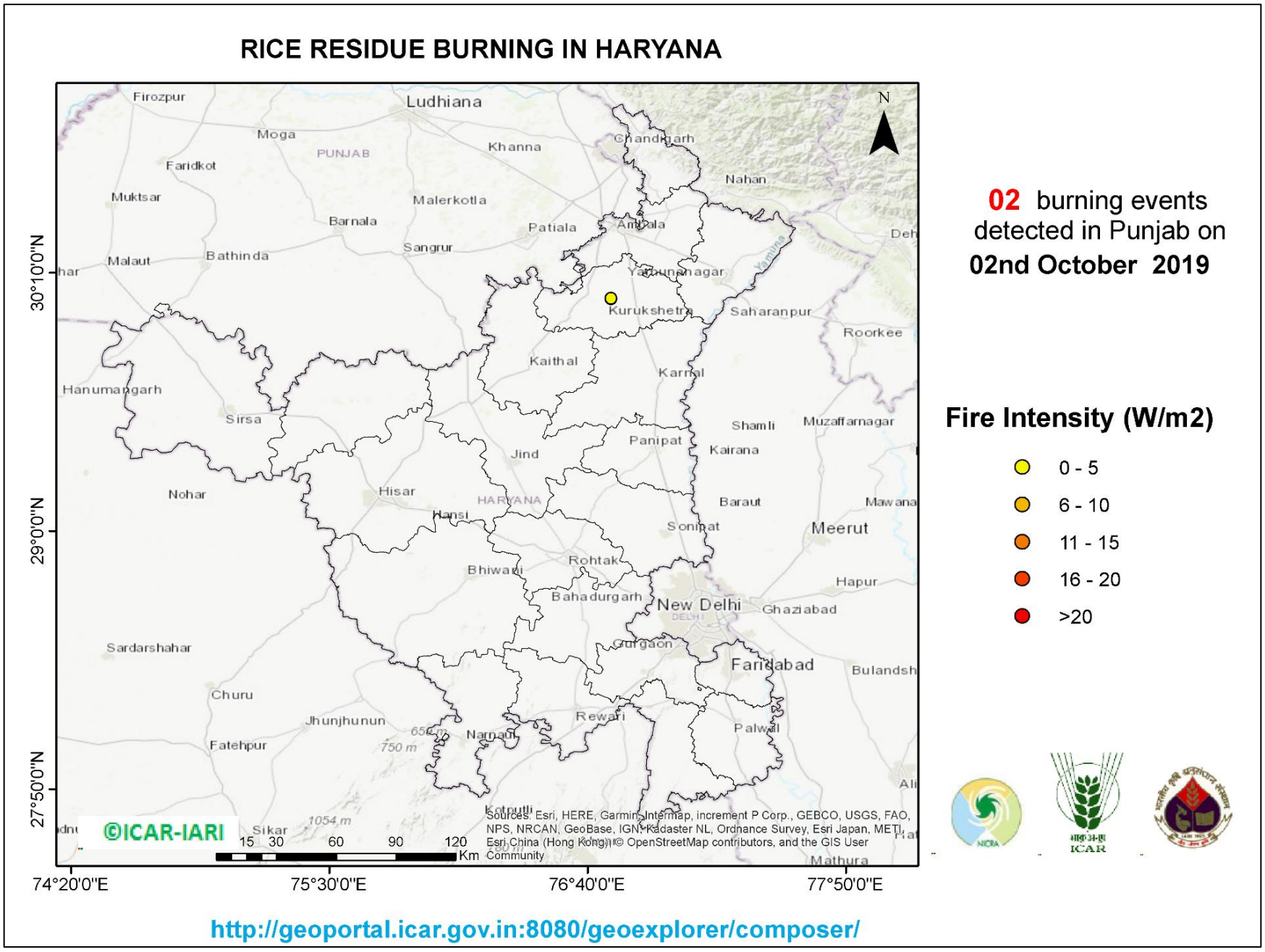
Details of residue burning events in Punjab on 02-Oct-2018

S. No	DISTRICT	Tehsil/Block	Satellite	LONGITUDE	LATITUDE	TIME_IST	Day/Night	Fire Power (W/m2)
1	FAZILKA	JALALABAD	S-NPP	74.23450	30.70517	14:12:00	D	2.80
2	MOGA	MOGA	S-NPP	75.09969	30.77587	14:12:00	D	2.30
3	MOGA	MOGA	S-NPP	75.09978	30.77723	14:12:00	D	2.60
4	NAWASHAHR	NAWASHAHR	S-NPP	76.12630	31.00002	14:12:00	D	2.60
5	TARN TARAN	KHADOOR SAHIB	S-NPP	75.11656	31.38658	14:12:00	D	6.20
6	TARN TARAN	KHADOOR SAHIB	S-NPP	75.07757	31.40589	14:12:00	D	2.50
7	TARN TARAN	KHADOOR SAHIB	S-NPP	75.07980	31.40641	14:12:00	D	3.60
8	TARN TARAN	KHADOOR SAHIB	S-NPP	75.17281	31.44023	14:12:00	D	3.70
9	TARN TARAN	KHADOOR SAHIB	S-NPP	74.86628	31.46308	14:12:00	D	8.30
10	TARN TARAN	KHADOOR SAHIB	S-NPP	75.16209	31.46725	14:12:00	D	4.70
11	TARN TARAN	KHADOOR SAHIB	S-NPP	75.12413	31.47019	14:12:00	D	1.20
12	TARN TARAN	KHADOOR SAHIB	S-NPP	74.99415	31.48865	14:12:00	D	3.10
13	AMRITSAR	BABA BAKALA	S-NPP	75.15800	31.55492	14:12:00	D	5.10
14	AMRITSAR	AMRITSAR I	S-NPP	75.00292	31.56646	14:12:00	D	3.60
15	AMRITSAR	AMRITSAR I	S-NPP	75.08900	31.57793	14:12:00	D	2.60
16	AMRITSAR	BABA BAKALA	S-NPP	75.10928	31.58487	14:12:00	D	3.50
17	AMRITSAR	BABA BAKALA	S-NPP	75.14059	31.61453	14:12:00	D	6.20
18	AMRITSAR	BABA BAKALA	S-NPP	75.14027	31.61475	14:12:00	D	4.70
19	AMRITSAR	AMRITSAR I	S-NPP	75.02627	31.76707	14:12:00	D	5.50
20	AMRITSAR	AMRITSAR I	S-NPP	74.99043	31.79770	14:12:00	D	2.70

District-wise cumulative number of residue burning events in Punjab (02-Oct-2019)



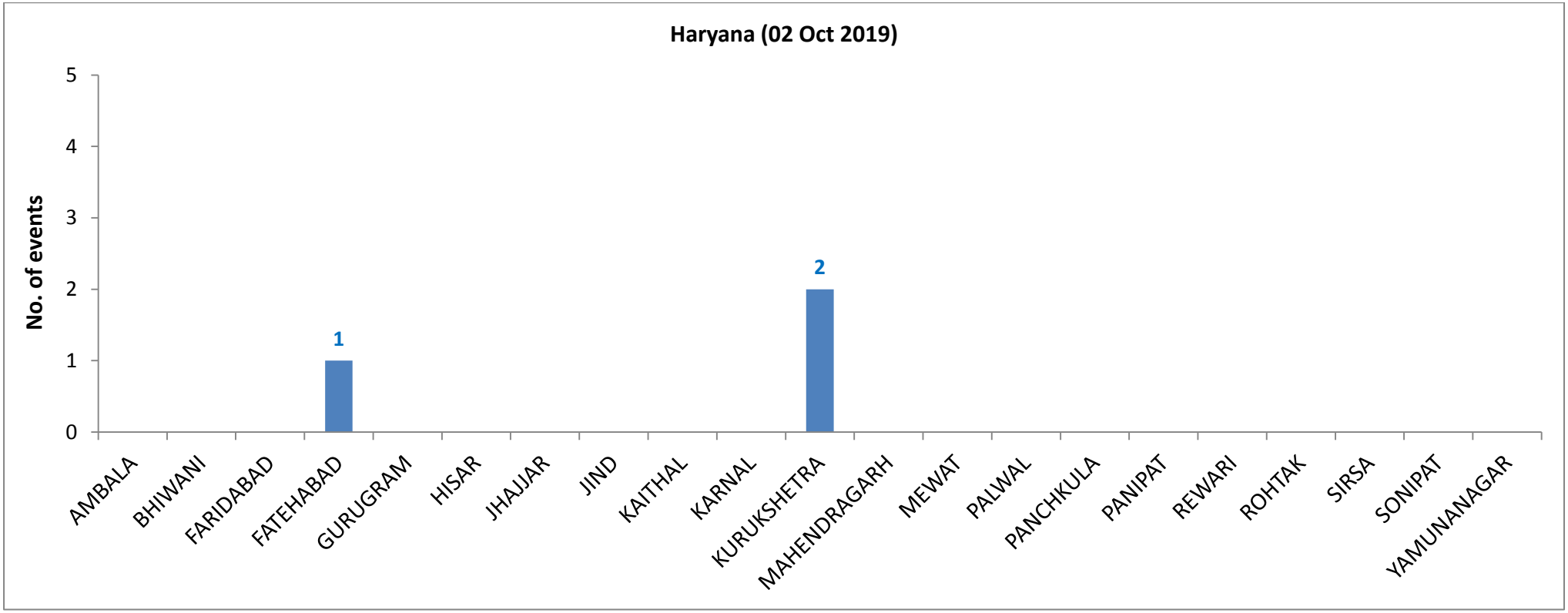
(b) Haryana


RICE RESIDUE BURNING IN HARYANA
Firozpur
Ludhiana
Moga
PUNJAB
Khanna
Chandigarh
Faridkot
Nahan
Muktsar
Malerkotla
Barnala
Patiala
Ambala
Malaut
Bathinda
Sangrur
Yamunanagar
Kurukshetra
Saharanpur
Roorkee
Kaithal
Karnal
Hanumangarh
Sirsa
Shamli
Muzaffarnagar
Panipat
Kairana
Jind
Nohar
Hisar
HARYANA
Baraut
Mawana
Hansi
Sonipat
Meerut
Rohtak
Bhiwani
Hapur
Bahadurgarh
New Delhi
DELHI
Ghaziabad
Sardarshahar
Gurgaon
Faridabad
Bulandsh
Churu
Jhunjhunun
Rewari
Palwal
Fatehpur
Narnaul
Mathura
30°10'0"N
29°0'0"N
27°50'0"N
74°20'0"E
75°30'0"E
76°40'0"E
77°50'0"E
N
©ICAR-IARI
15 30 60 90 120
Km
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), © OpenStreetMap contributors, and the GIS User Community
02 burning events detected in Punjab on 02nd October 2019
Fire Intensity (W/m2)
0 - 5
6 - 10
11 - 15
16 - 20
>20
ICAR
http://geoportal.icar.gov.in:8080/geoexplorer/composer/

Details of residue burning events in Haryana on 02-Oct-2019

S.NO	DISTRICT	Tehsil/Block	Satellite	LONGITUDE	LATITUDE	TIME IST	Day/Night	Fire Power (W/m2)
1	KURUKSHETRA	THANESAR	S-NPP	76.77197	30.04944	14:12:00	D	4.00
2	KURUKSHETRA	THANESAR	S-NPP	76.77220	30.05235	14:12:00	D	3.00

District-wise cumulative number of residue burning events in Haryana (02-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 02-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	25	104	160	2	32	40	62	--	32	10	43	22	89	154	265
Total	**23**	**41**	**158**	**269**	**3**	**41**	**53**	**108**	**1**	**43**	**12**	**66**	**27**	**125**	**223**	**443**

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)

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