



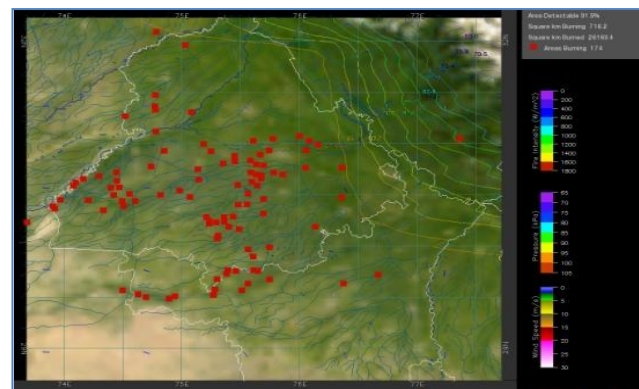
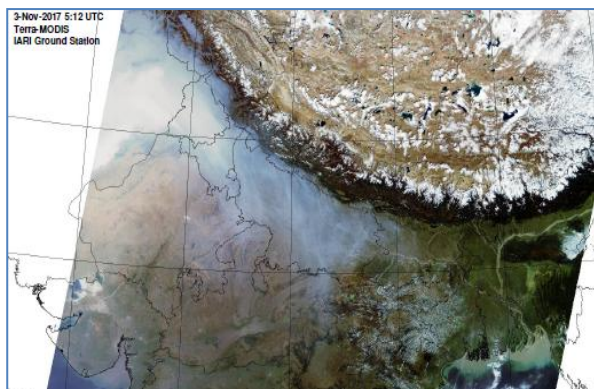
**Bulletin  
No. 5**

**Events Date:  
05-Oct-2018**

**Issued on:  
06-Oct-2018**



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



**Prepared by:**

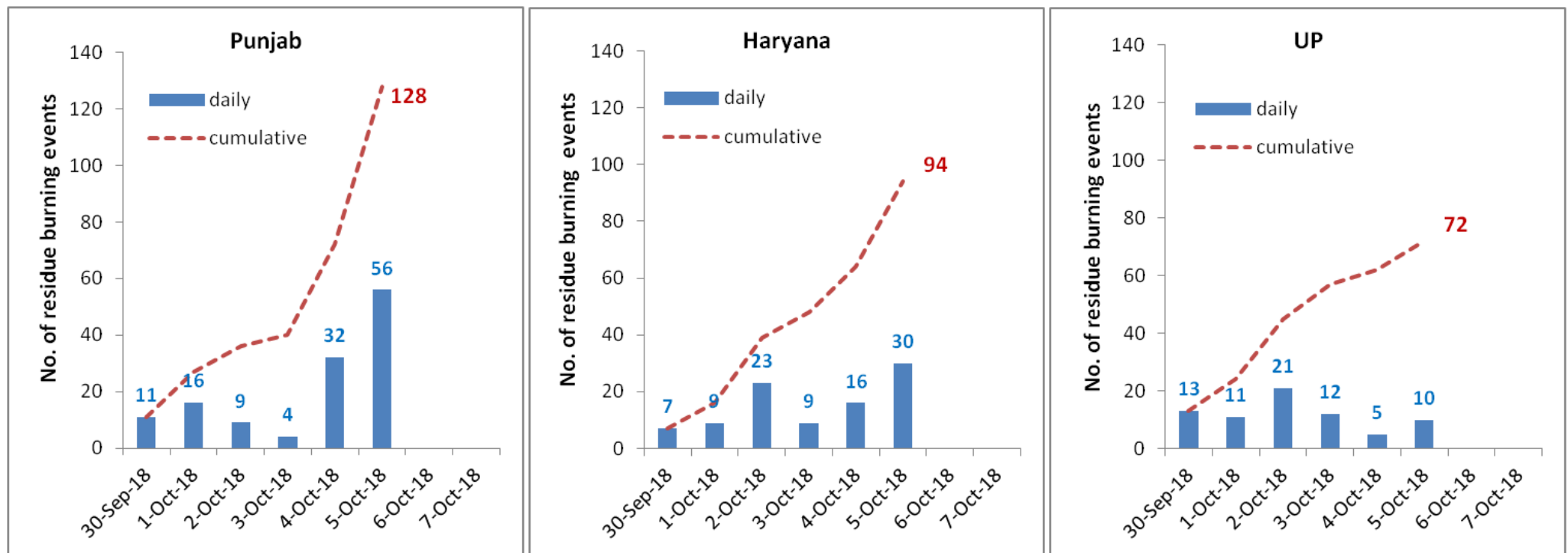
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,  
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

## Highlights for 05-October-2018

- Satellites detected 96 residue burning events in the three States (Punjab, Haryana & UP) on 05-Oct-2018.
- The burning events detected on 05-Oct-2018 are 56, 30 and 10 in Punjab, Haryana, and UP, respectively.
- The number of events increased from 53 on 04-Oct-2018 to 96 on 05-Oct-2018 in three States.
- Total 294 burning events were detected in three States between 30-Sept-2018 and 05-Oct-2018, which were distributed as 128, 94 and 72 in Punjab, Haryana and UP, respectively.
- A marginal spurt in burning activities was observed on 05-Oct-2018, especially in Punjab contributed mainly by the events that occurred in Amritsar district.

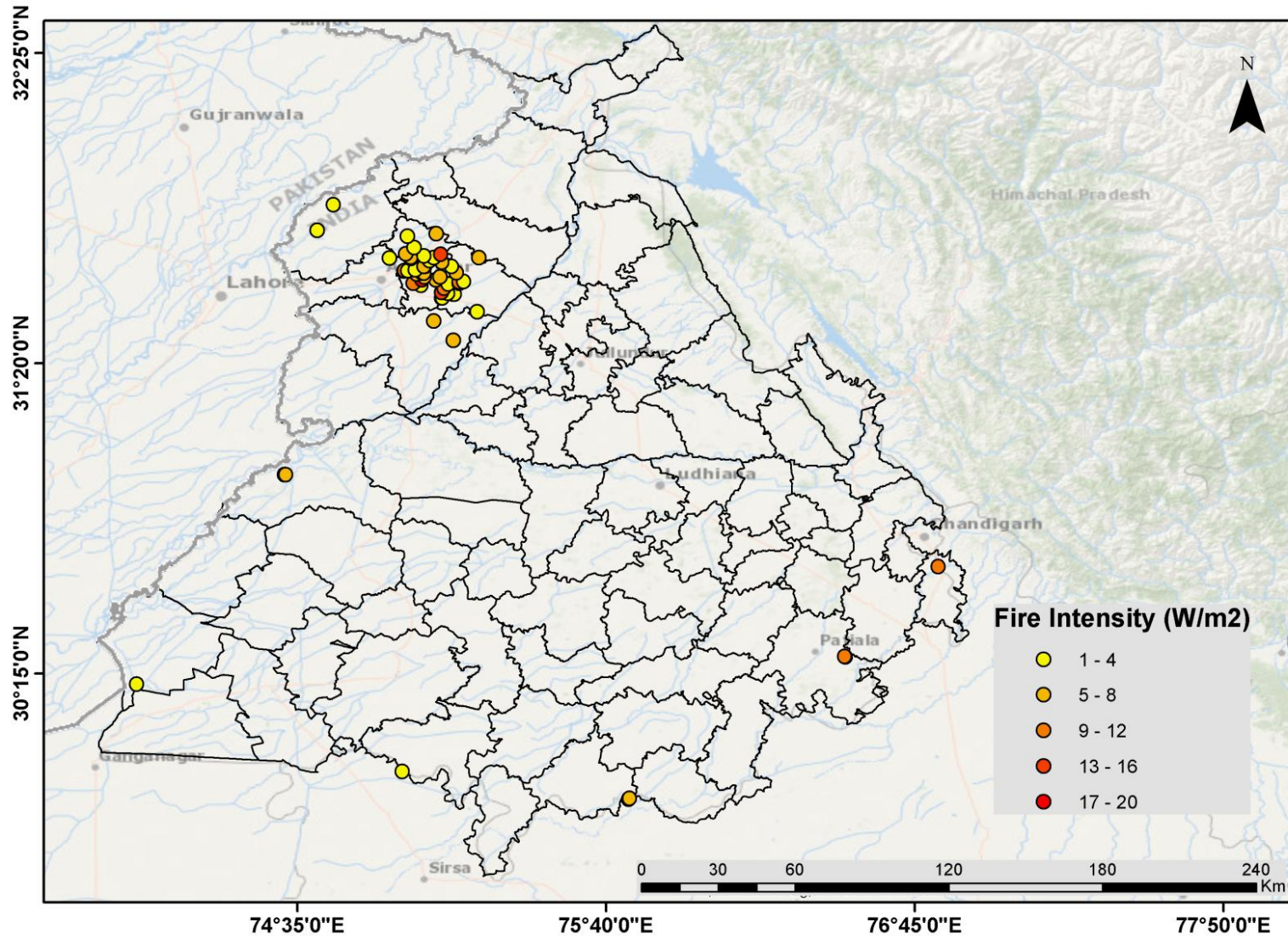
### Temporal distribution of residue burning events for the three study States





**(a) Punjab**

Paddy Residue Burning in Punjab on 5th Oct 2018

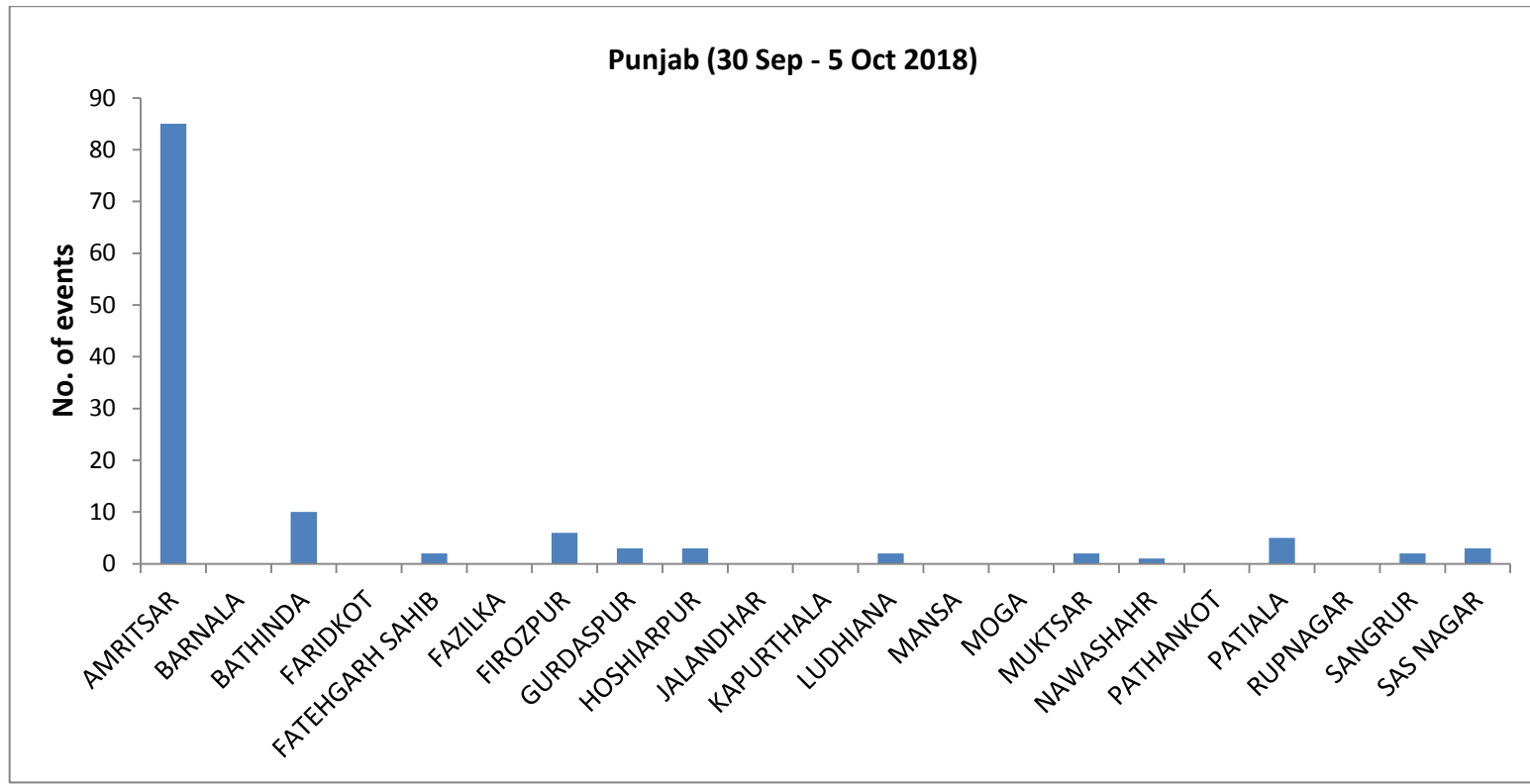


**Details of residue burning events in Punjab on 05-Oct-2018**

<b>Events S. No.</b>	<b>District</b>	<b>Tehsil / Block</b>	<b>Satellite</b>	<b>Longitude</b>	<b>Latitude</b>	<b>Time (IST)</b>	<b>Day / Night</b>	<b>Fire Power (W/m<sup>2</sup>)</b>
1	SANGRUR	MOONAK	S-NPP	75.74614	29.81179	14:00:00	D	7.50
2	SANGRUR	MOONAK	S-NPP	75.74904	29.81371	14:00:00	D	6.20
3	BATHINDA	TALWANDI SABO	S-NPP	74.95114	29.90748	02:42:00	N	2.20
4	FIROZPUR	FAZILKA	S-NPP	74.01880	30.21336	14:00:00	D	2.70
5	PATIALA	PATIALA	S-NPP	76.50636	30.30811	14:00:00	D	9.90
6	PATIALA	PATIALA	S-NPP	76.50361	30.31016	14:00:00	D	9.50
7	SAS NAGAR	DERABASSI	S-NPP	76.83219	30.62372	14:00:00	D	8.30
8	FIROZPUR	FIROZPUR	S-NPP	74.53767	30.94423	14:00:00	D	6.20
9	FIROZPUR	FIROZPUR	S-NPP	74.54251	30.94471	14:00:00	D	6.20
10	TARN TARAN	KHADOOR SAHIB	S-NPP	75.13013	31.41310	14:00:00	D	5.70
11	TARN TARAN	KHADOOR SAHIB	S-NPP	75.06098	31.48052	14:00:00	D	6.80
12	AMRITSAR	BABA BAKALA	S-NPP	75.21401	31.51284	14:00:00	D	4.00
13	AMRITSAR	AMRITSAR I	S-NPP	75.08880	31.56104	14:00:00	D	3.70
14	AMRITSAR	AMRITSAR I	S-NPP	75.09145	31.56220	14:00:00	D	3.80
15	AMRITSAR	BABA BAKALA	S-NPP	75.13042	31.57421	14:00:00	D	3.30
16	AMRITSAR	BABA BAKALA	S-NPP	75.13317	31.57510	14:00:00	D	3.30
17	AMRITSAR	BABA BAKALA	S-NPP	75.11117	31.57773	14:00:00	D	3.30
18	AMRITSAR	AMRITSAR I	S-NPP	75.08924	31.58036	14:00:00	D	14.00
19	AMRITSAR	AMRITSAR I	S-NPP	75.09827	31.59495	14:00:00	D	8.60
20	AMRITSAR	AMRITSAR I	S-NPP	75.01628	31.60577	14:00:00	D	3.20
21	AMRITSAR	BABA BAKALA	S-NPP	75.11266	31.61004	14:00:00	D	2.50
22	AMRITSAR	AMRITSAR I	S-NPP	74.98880	31.61236	14:00:00	D	9.50
23	AMRITSAR	BABA BAKALA	S-NPP	75.15025	31.61348	14:00:00	D	8.50
24	AMRITSAR	BABA BAKALA	S-NPP	75.14971	31.61803	14:00:00	D	8.50
25	AMRITSAR	BABA BAKALA	S-NPP	75.16589	31.61951	14:00:00	D	3.60
26	AMRITSAR	BABA BAKALA	S-NPP	75.06770	31.62428	14:00:00	D	5.50
27	AMRITSAR	AMRITSAR I	S-NPP	75.01936	31.62435	14:00:00	D	18.10
28	AMRITSAR	AMRITSAR I	S-NPP	75.02884	31.63439	14:00:00	D	7.80
29	AMRITSAR	BABA BAKALA	S-NPP	75.08260	31.63484	14:00:00	D	5.00

30	AMRITSAR	AMRITSAR I	S-NPP	75.00076	31.64546	14:00:00	D	4.70
31	AMRITSAR	AMRITSAR I	S-NPP	75.02190	31.64746	14:00:00	D	4.00
32	AMRITSAR	AMRITSAR I	S-NPP	75.02721	31.64797	14:00:00	D	4.40
33	AMRITSAR	BABA BAKALA	S-NPP	75.14049	31.64944	14:00:00	D	4.10
34	AMRITSAR	AMRITSAR II	S-NPP	74.95699	31.65497	14:00:00	D	5.00
35	AMRITSAR	AMRITSAR II	S-NPP	74.95895	31.65631	14:00:00	D	8.70
36	AMRITSAR	AMRITSAR II	S-NPP	74.97276	31.65648	14:00:00	D	4.10
37	AMRITSAR	AMRITSAR II	S-NPP	74.96948	31.65726	14:00:00	D	3.20
38	AMRITSAR	AMRITSAR I	S-NPP	74.99586	31.65961	14:00:00	D	3.90
39	AMRITSAR	AMRITSAR I	S-NPP	75.12392	31.67098	14:00:00	D	3.80
40	AMRITSAR	AMRITSAR I	S-NPP	75.02979	31.67111	14:00:00	D	4.00
41	AMRITSAR	AMRITSAR I	S-NPP	75.02657	31.67151	14:00:00	D	6.40
42	AMRITSAR	AMRITSAR I	S-NPP	75.08952	31.68632	14:00:00	D	7.20
43	AMRITSAR	AMRITSAR I	S-NPP	75.04565	31.69155	14:00:00	D	3.10
44	AMRITSAR	AMRITSAR II	S-NPP	74.98030	31.69931	14:00:00	D	6.30
45	AMRITSAR	AMRITSAR II	S-NPP	74.90565	31.70153	14:00:00	D	3.90
46	AMRITSAR	AMRITSAR I	S-NPP	75.06056	31.70207	14:00:00	D	2.80
47	GURDASPUR	BATALA	S-NPP	75.21873	31.70246	14:00:00	D	7.10
48	AMRITSAR	AMRITSAR I	S-NPP	74.97974	31.70383	14:00:00	D	8.00
49	AMRITSAR	AMRITSAR I	S-NPP	75.02745	31.70822	14:00:00	D	3.90
50	AMRITSAR	AMRITSAR I	S-NPP	75.08620	31.71359	14:00:00	D	14.90
51	AMRITSAR	AMRITSAR I	S-NPP	74.96227	31.71591	14:00:00	D	4.20
52	AMRITSAR	AMRITSAR I	S-NPP	74.99175	31.73694	14:00:00	D	3.40
53	AMRITSAR	AMRITSAR I	S-NPP	74.96822	31.77722	14:00:00	D	3.00
54	AMRITSAR	AMRITSAR I	S-NPP	75.06944	31.78629	14:00:00	D	6.20
55	AMRITSAR	AJNALA	S-NPP	74.65146	31.79765	14:00:00	D	2.00
56	AMRITSAR	AJNALA	S-NPP	74.70921	31.88669	14:00:00	D	3.50

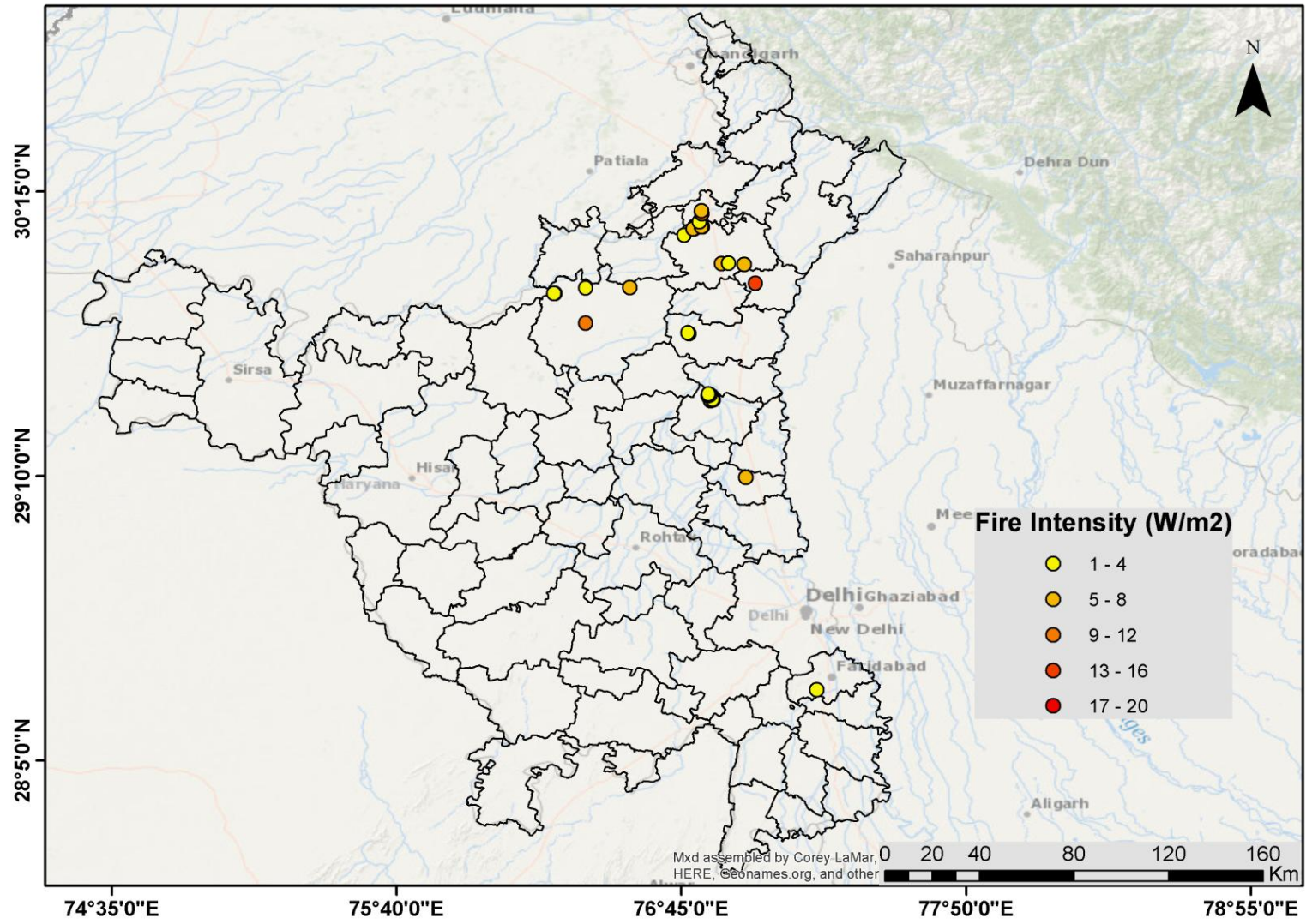
**District-wise cumulative number of residue burning events in Punjab (30-Sep-2018 to 05-Oct-2018)**





## (b) Haryana

### Paddy Residue Burning in Haryana on 5th Oct 2018

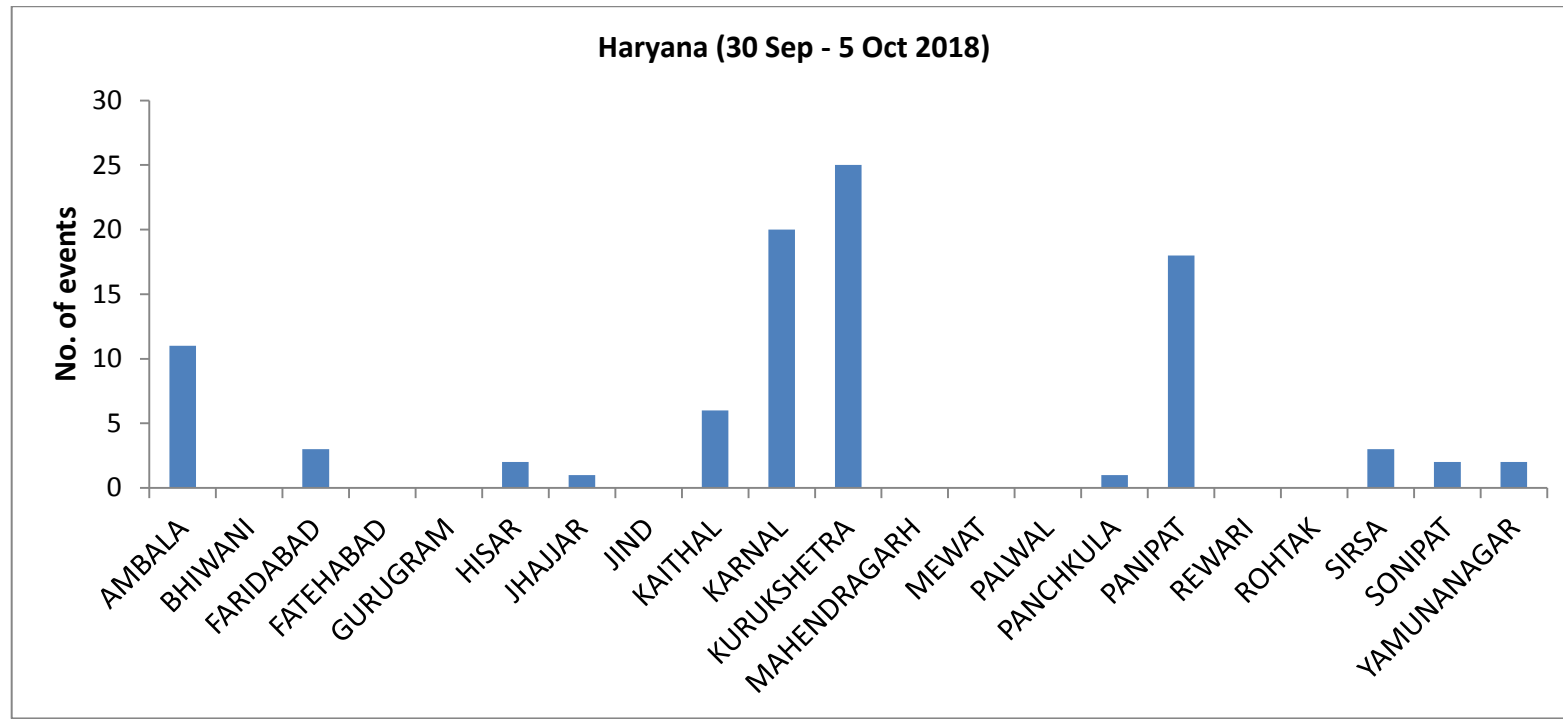


**Details of residue burning events in Haryana on 05-Oct-2018**

<b>Events S. No.</b>	<b>District</b>	<b>Tehsil / Block</b>	<b>Satellite</b>	<b>Longitude</b>	<b>Latitude</b>	<b>Time (IST)</b>	<b>Day / Night</b>	<b>Fire Power (W/m<sup>2</sup>)</b>
1	FARIDABAD	FARIDABAD	S-NPP	77.26505	28.35266	02:42:00	N	0.80
2	SONIPAT	GANAUR	S-NPP	76.99512	29.16175	14:00:00	D	4.70
3	PANIPAT	PANIPAT	S-NPP	76.86112	29.45355	01:06:00	N	3.10
4	PANIPAT	PANIPAT	S-NPP	76.87211	29.45666	02:42:00	N	0.80
5	PANIPAT	PANIPAT	S-NPP	76.85906	29.45736	01:06:00	N	2.60
6	PANIPAT	PANIPAT	S-NPP	76.86868	29.45748	02:42:00	N	1.10
7	PANIPAT	PANIPAT	S-NPP	76.85207	29.47197	01:06:00	N	1.20
8	PANIPAT	PANIPAT	TERRA-1	76.85895	29.47436	10:43:00	D	28.98
9	PANIPAT	PANIPAT	S-NPP	76.85469	29.47524	01:06:00	N	2.40
10	PANIPAT	PANIPAT	S-NPP	76.85961	29.47580	02:42:00	N	4.40
11	PANIPAT	PANIPAT	S-NPP	76.85254	29.47910	01:06:00	N	0.90
12	KARNAL	KARNAL	S-NPP	76.77941	29.70820	14:00:00	D	6.10
13	KARNAL	KARNAL	S-NPP	76.77517	29.71160	14:00:00	D	3.70
14	KAITHAL	KAITHAL	S-NPP	76.38554	29.74770	14:00:00	D	8.50
15	KAITHAL	KAITHAL	S-NPP	76.26790	29.86209	14:00:00	D	5.80
16	KAITHAL	KAITHAL	S-NPP	76.26469	29.86228	14:00:00	D	3.40
17	KAITHAL	KAITHAL	S-NPP	76.38568	29.88182	14:00:00	D	2.90
18	KAITHAL	KAITHAL	S-NPP	76.55338	29.88371	14:00:00	D	6.70
19	KARNAL	INDRI	S-NPP	77.03165	29.90054	14:00:00	D	14.10
20	KURUKSHETRA	THANESAR	S-NPP	76.98885	29.97211	14:00:00	D	6.40
21	KURUKSHETRA	THANESAR	S-NPP	76.90321	29.97503	14:00:00	D	4.60
22	KURUKSHETRA	THANESAR	S-NPP	76.92913	29.97721	14:00:00	D	2.80
23	KURUKSHETRA	THANESAR	S-NPP	76.76080	30.08396	14:00:00	D	3.90
24	KURUKSHETRA	THANESAR	S-NPP	76.79699	30.10705	14:00:00	D	5.50
25	KURUKSHETRA	THANESAR	S-NPP	76.79472	30.10744	14:00:00	D	5.40
26	KURUKSHETRA	THANESAR	S-NPP	76.82851	30.11479	14:00:00	D	3.40
27	KURUKSHETRA	THANESAR	S-NPP	76.82629	30.11497	14:00:00	D	4.80
28	KURUKSHETRA	SHAHABAD	S-NPP	76.81772	30.13430	14:00:00	D	3.50
29	KURUKSHETRA	SHAHABAD	S-NPP	76.82742	30.16513	14:00:00	D	9.80
30	KURUKSHETRA	SHAHABAD	S-NPP	76.82638	30.17507	14:00:00	D	5.90

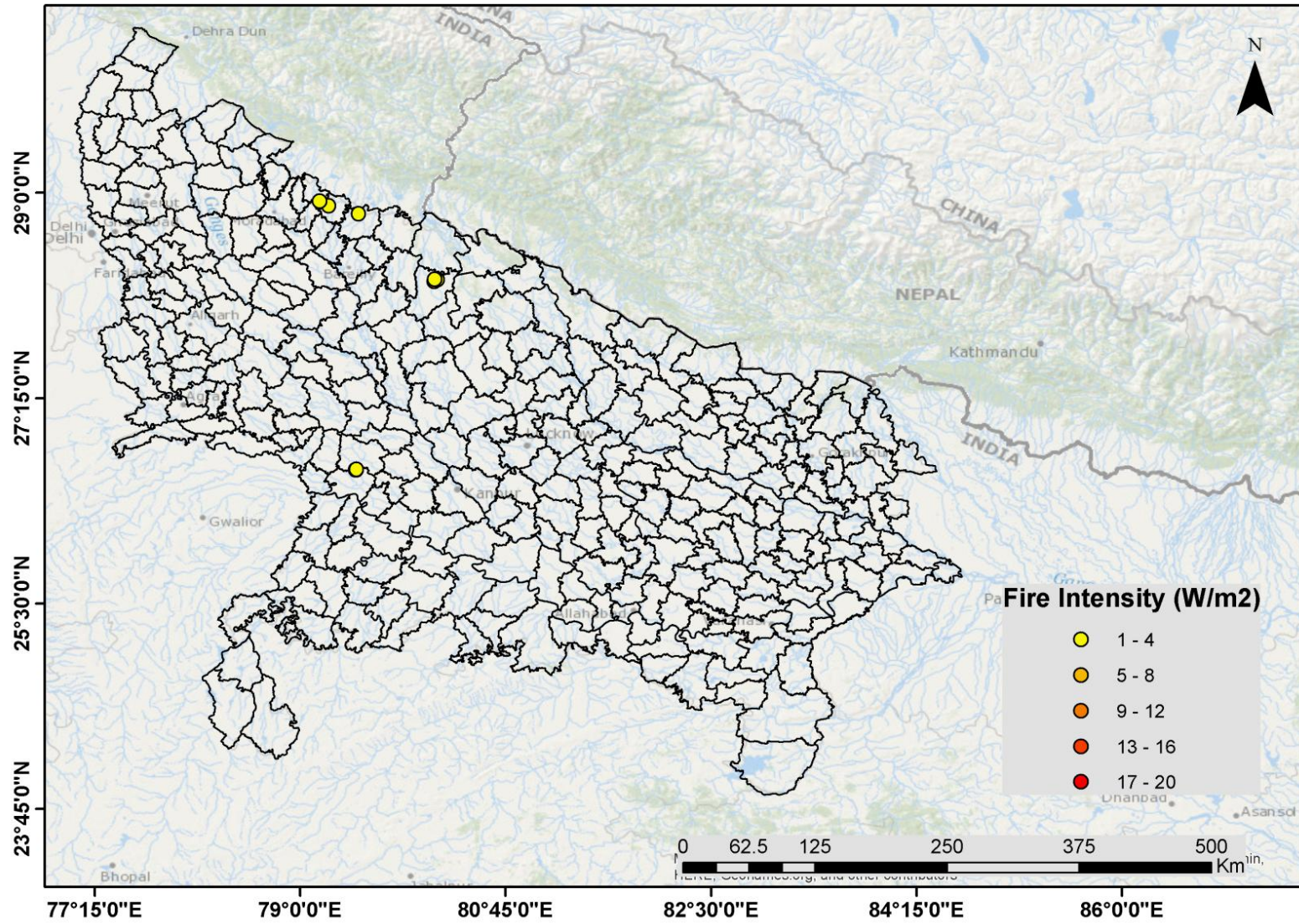


**District-wise cumulative number of residue burning events in Haryana (30-Sep-2018 to 05-Oct-2018)**



### (c) Uttar Pradesh

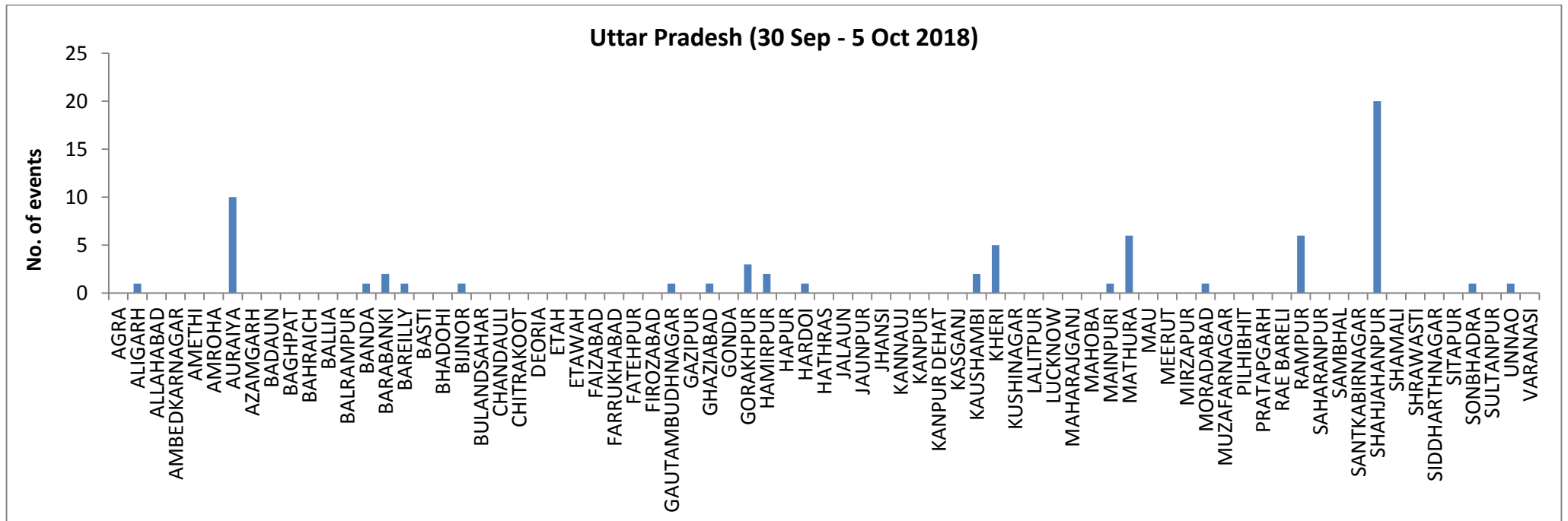
Paddy Residue Burning in Uttar Pradesh on 5th Oct 2018



### Details of residue burning events in Uttar Pradesh on 05-Oct-2018

Event S. No.	District	Tehsil / Block	Satellite	Longitude	Latitude	Time (IST)	Day / Night	Fire Power (W/m <sup>2</sup> )
1	AURAIYA	BIDHUNA	S-NPP	79.47253	26.63988	01:06:00	N	0.90
2	AURAIYA	BIDHUNA	S-NPP	79.47858	26.64067	02:42:00	N	1.40
3	AURAIYA	BIDHUNA	S-NPP	79.47812	26.64558	01:06:00	N	0.90
4	SHAHJAHANPUR	PUWANYA	S-NPP	80.13944	28.24627	12:18:00	D	11.70
5	SHAHJAHANPUR	PUWANYA	S-NPP	80.16513	28.25961	12:18:00	D	2.40
6	SHAHJAHANPUR	PUWANYA	S-NPP	80.14563	28.26270	14:00:00	D	2.50
7	SHAHJAHANPUR	PUWANYA	S-NPP	80.14613	28.26555	14:00:00	D	3.90
8	BAREILLY	BAHERI	S-NPP	79.49722	28.82276	14:00:00	D	2.40
9	RAMPUR	BILASPUR	S-NPP	79.24255	28.88857	12:18:00	D	3.60
10	RAMPUR	SUAR	S-NPP	79.16553	28.92934	14:00:00	D	2.00

### District-wise cumulative number of residue burning events in Uttar Pradesh (30-Sep-2018 to 05-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/>

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