

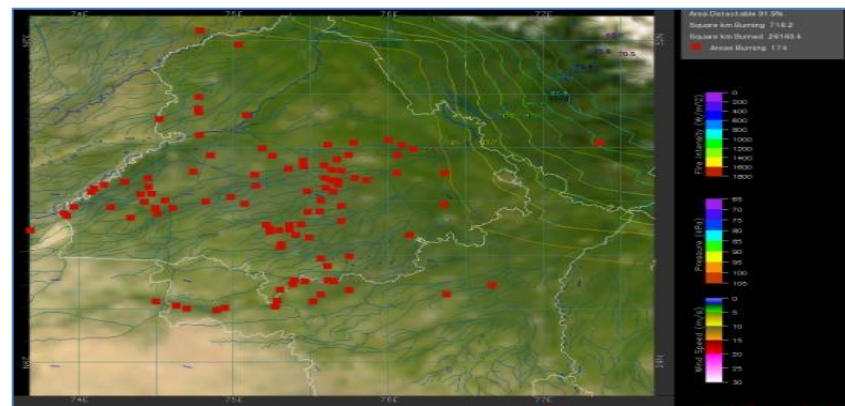
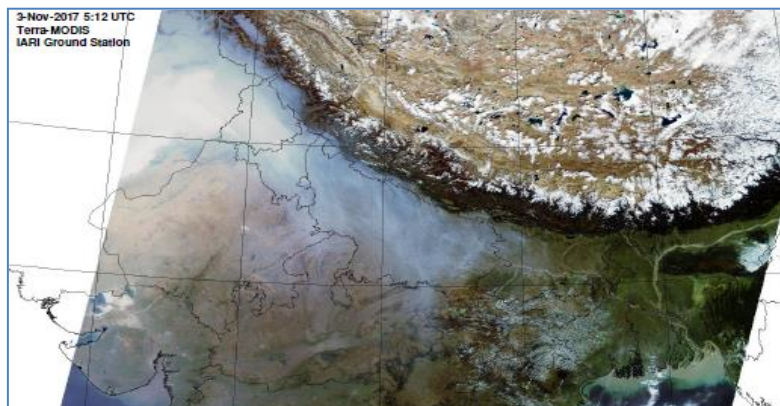


# MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2023

Bulletin  
No. 17

Events Date:  
01-Oct-2023

Issued on:  
01-Oct-2023



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

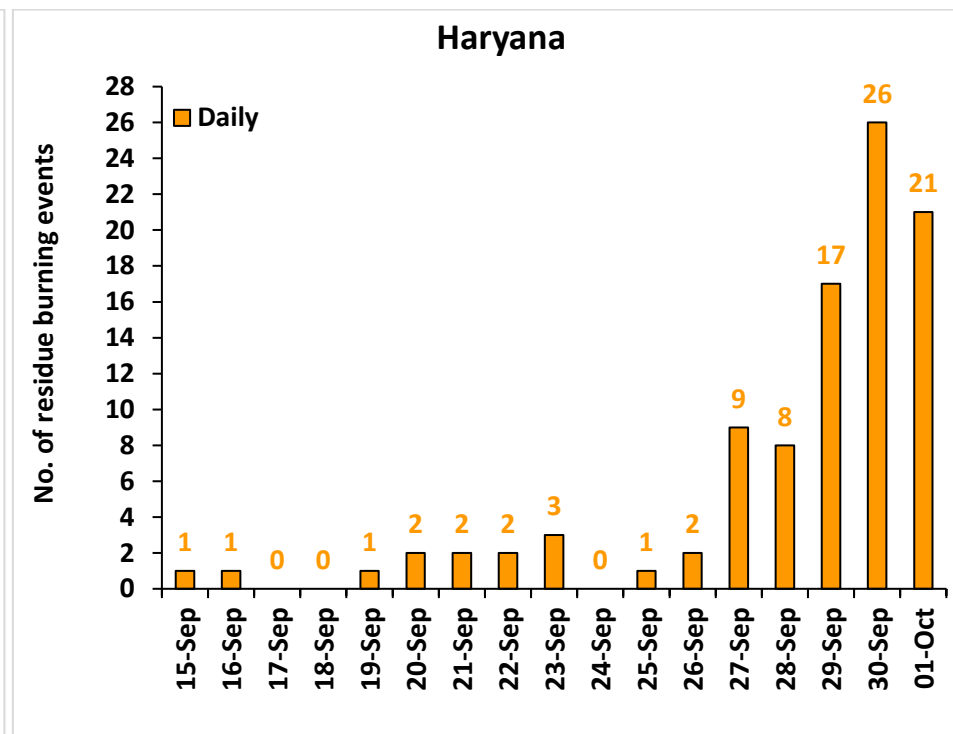
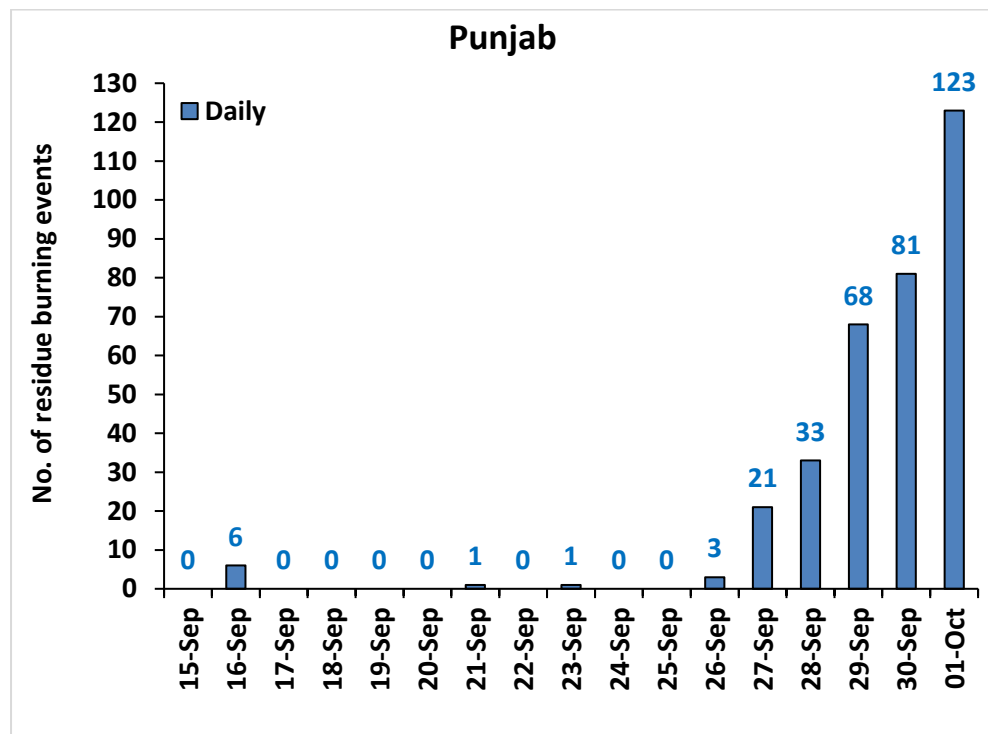
<http://creams.iari.res.in>



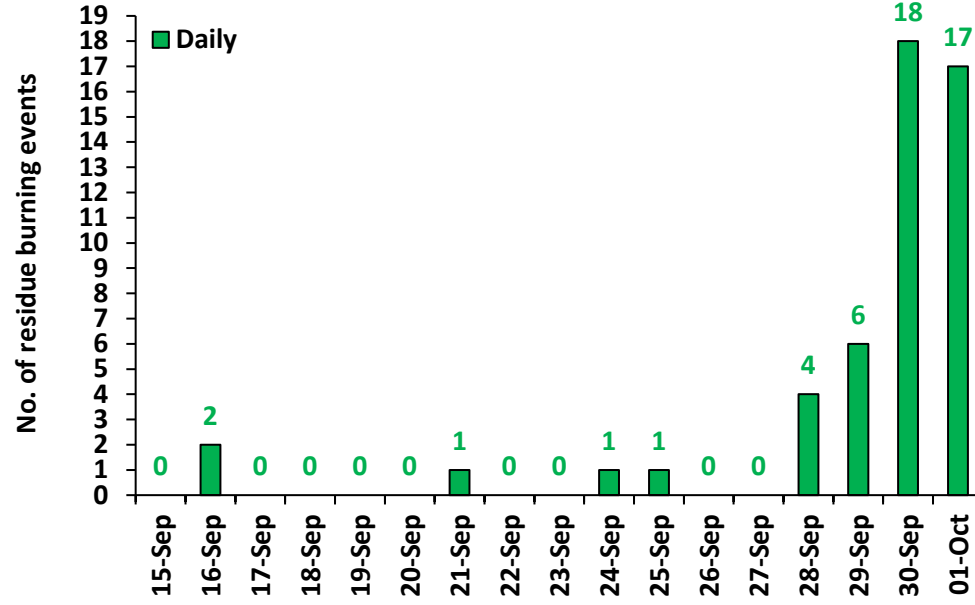
## Highlights for 01-Oct-2023

- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **173** residue burning events in the six study States on 01-Oct-2023.
- The state wise events detected on 01-Oct-2023 were **123** in Punjab, **21** in Haryana, **17** in UP, **00** in Delhi, **04** in Rajasthan and **08** in MP.
- Total **527** burning events were detected in the six states between 15-Sept-2023 and 01-Oct-2023, which are distributed as **337**, **96**, **50**, **01**, **14** and **29** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.

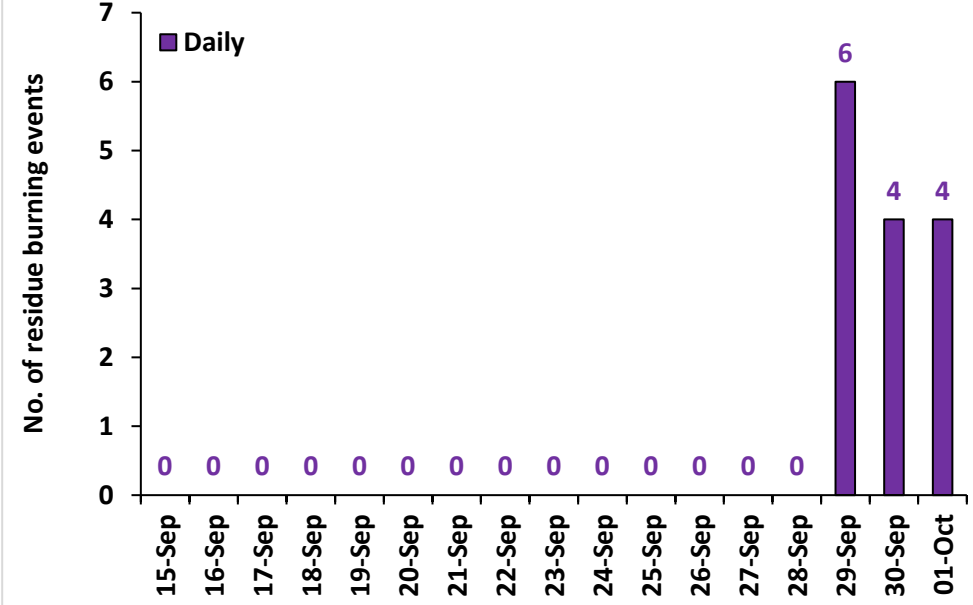
### Temporal distribution of rice residue burning events for the study States in 2023



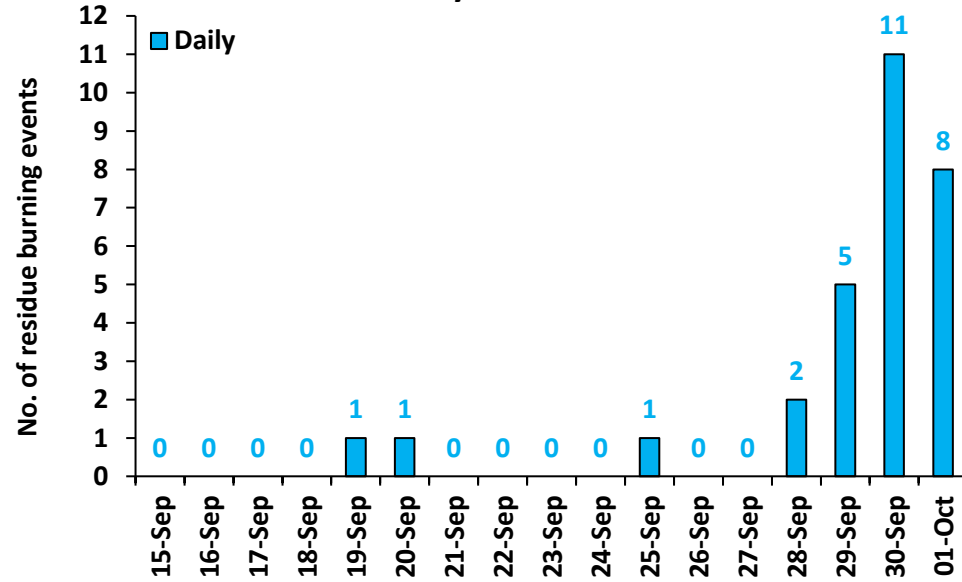
### Uttar Pradesh



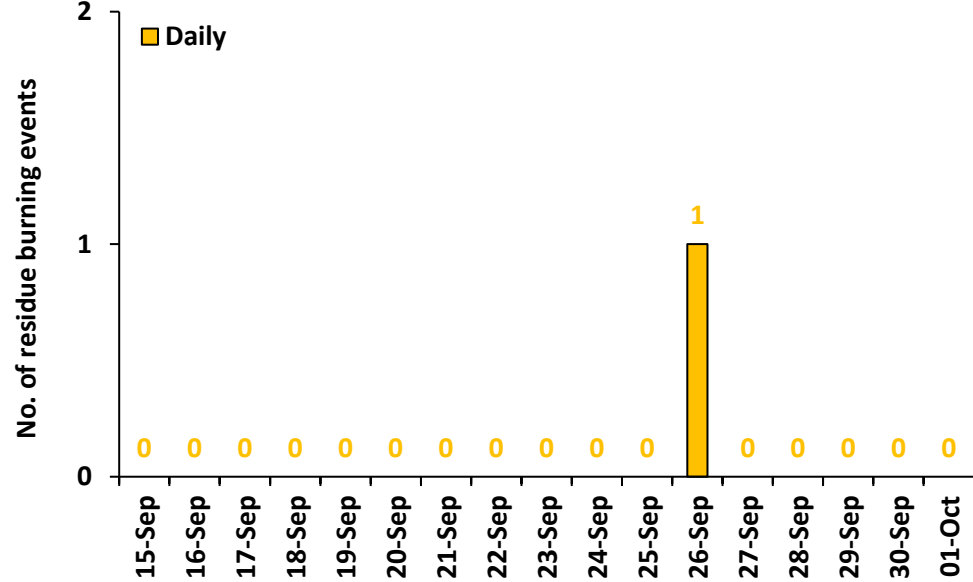
### Rajasthan



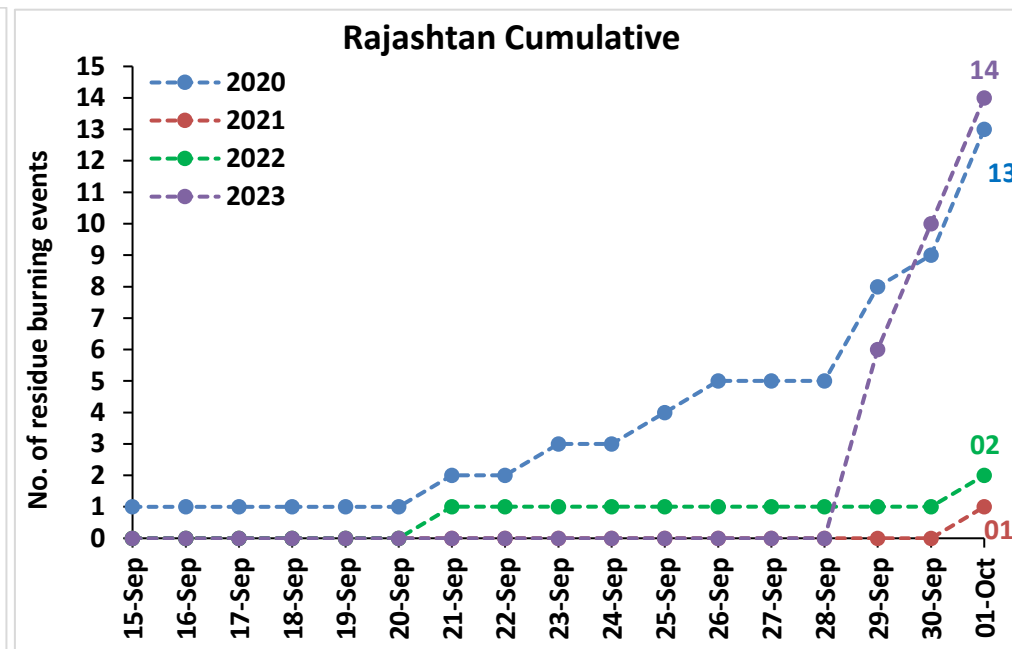
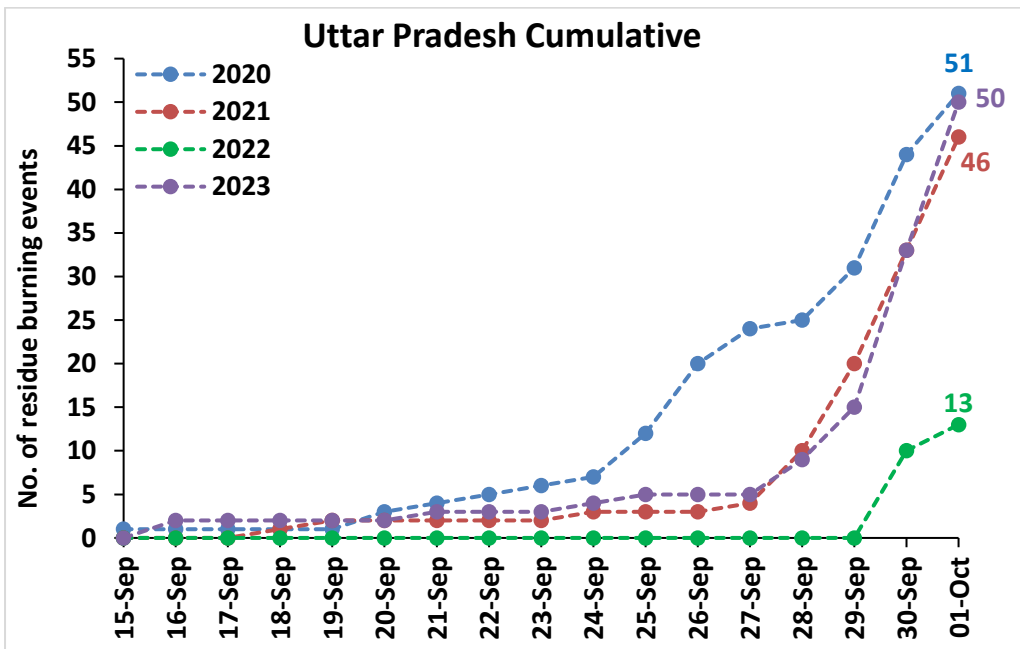
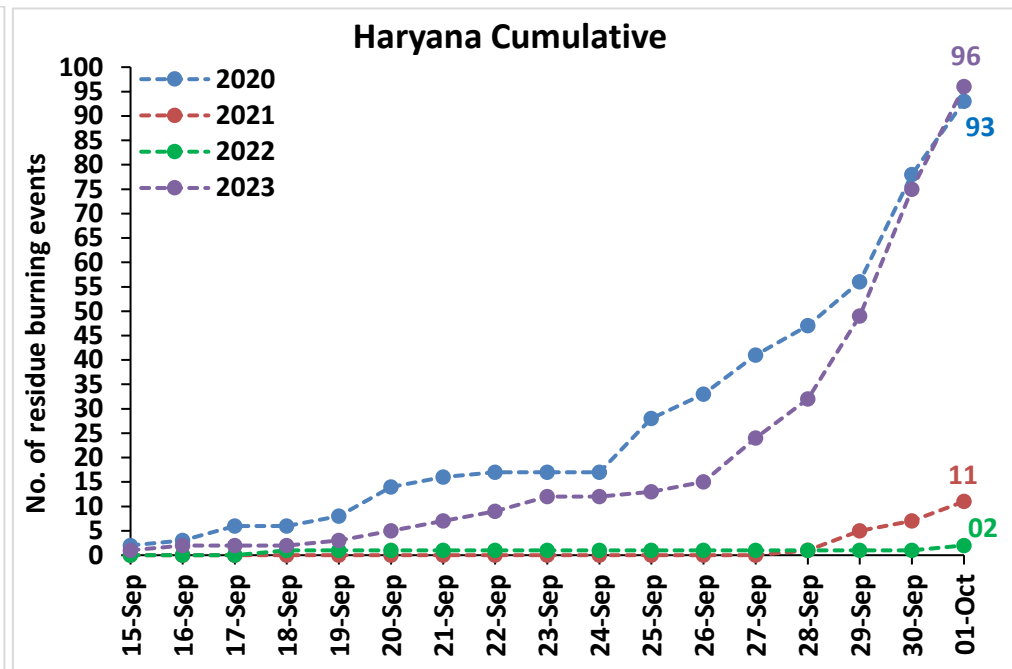
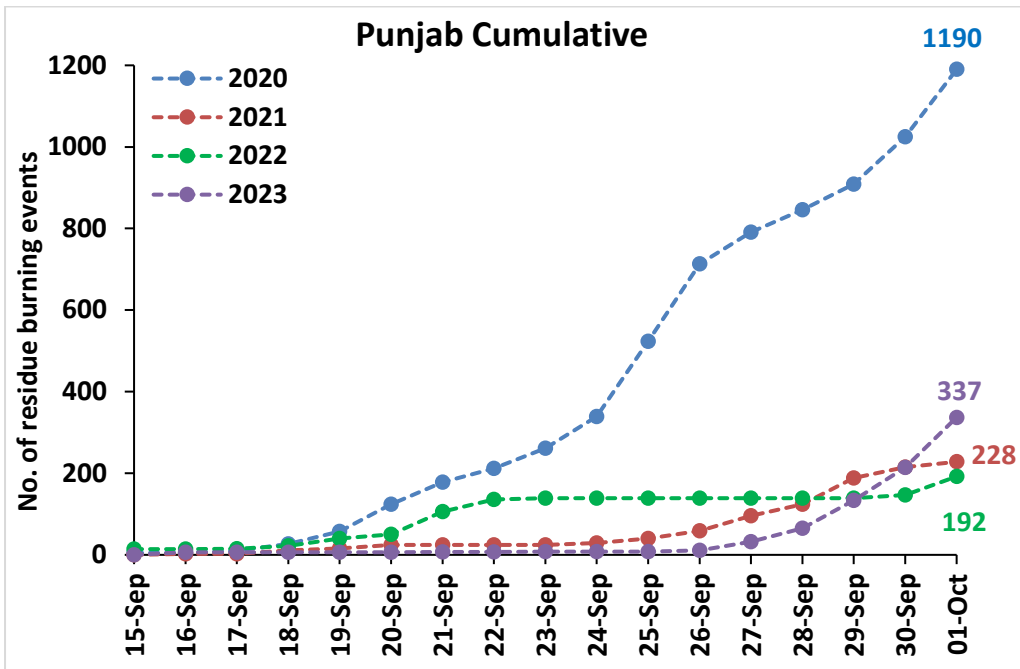
### Madhya Pradesh

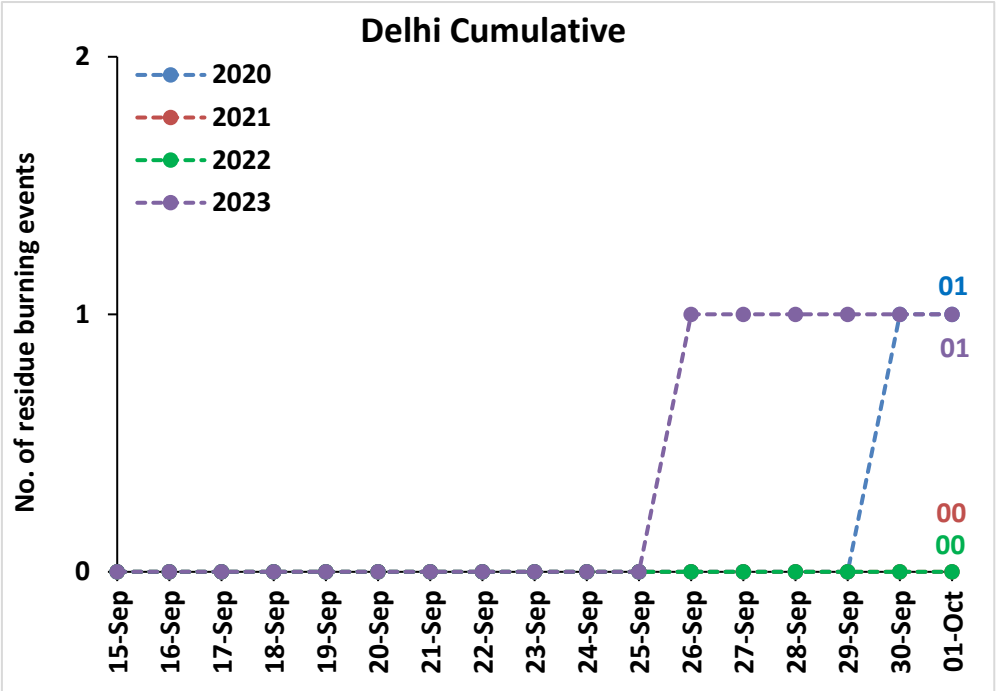
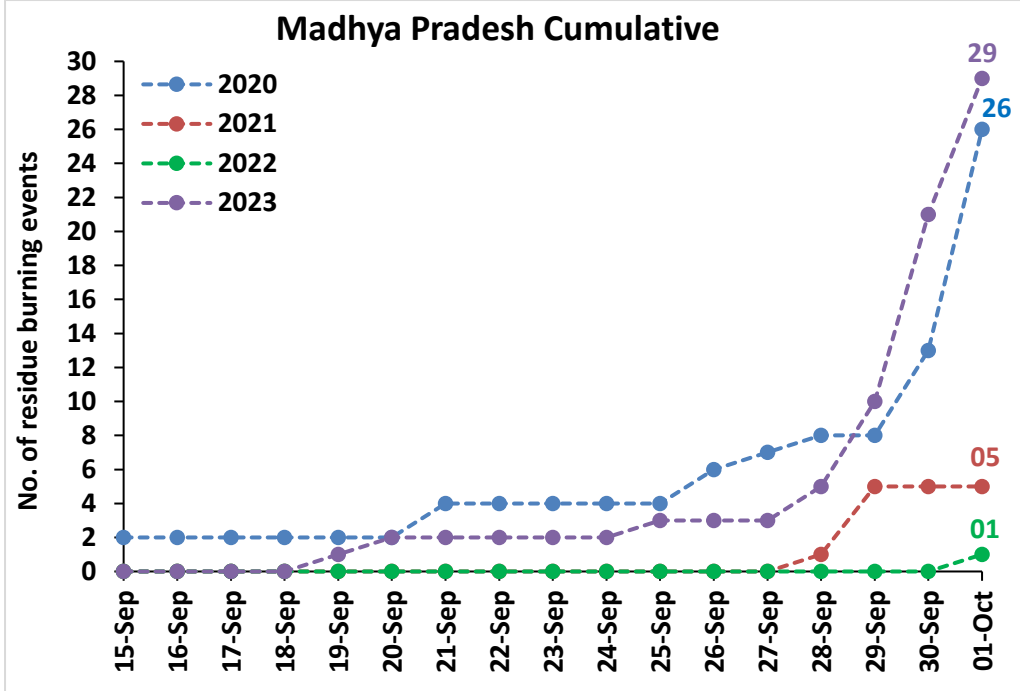


### Delhi

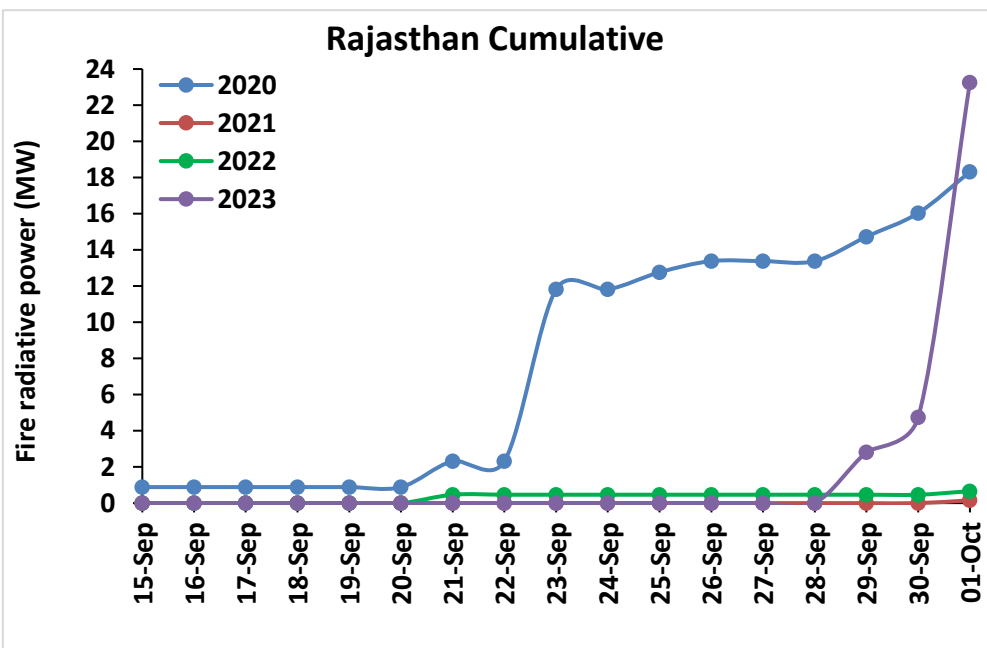
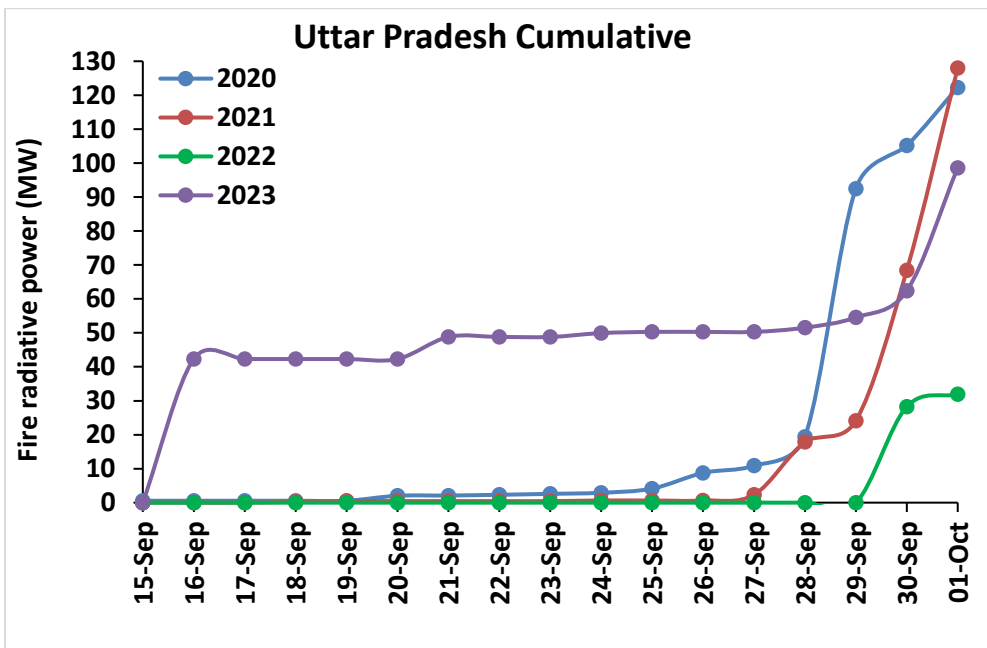
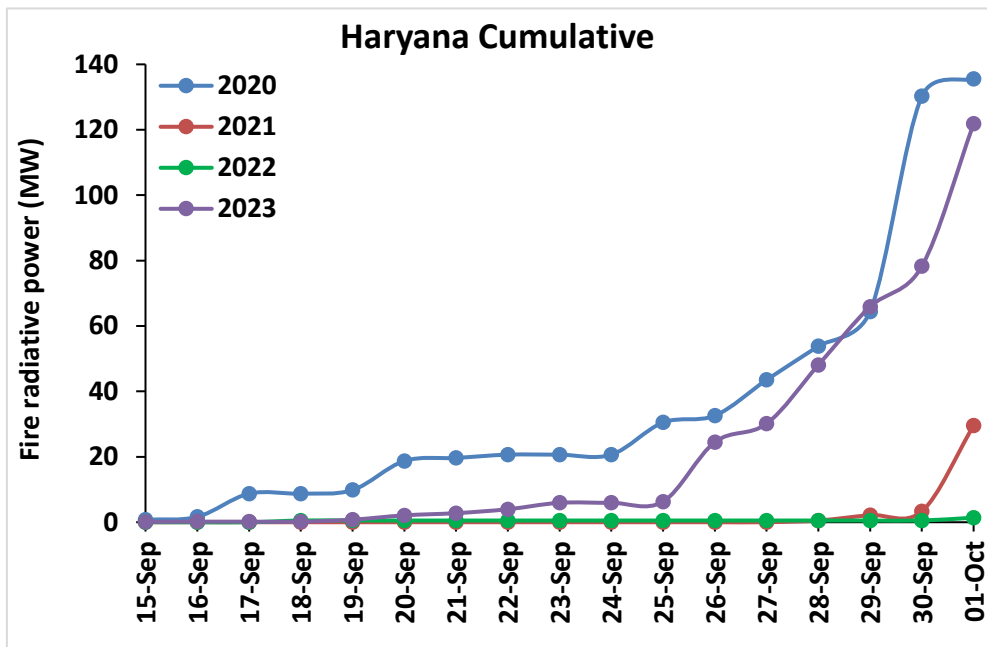
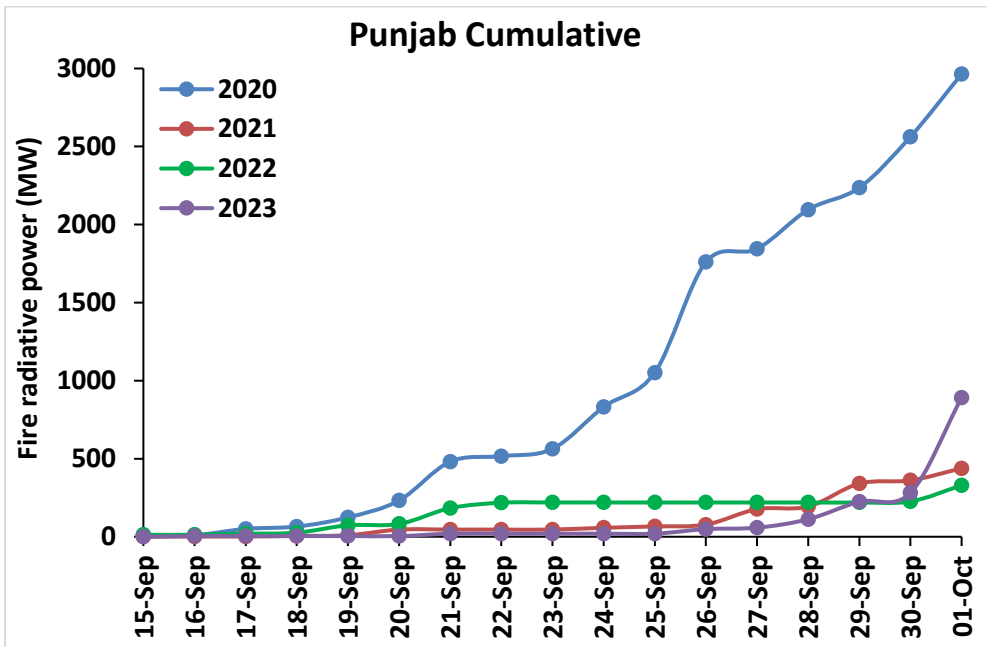


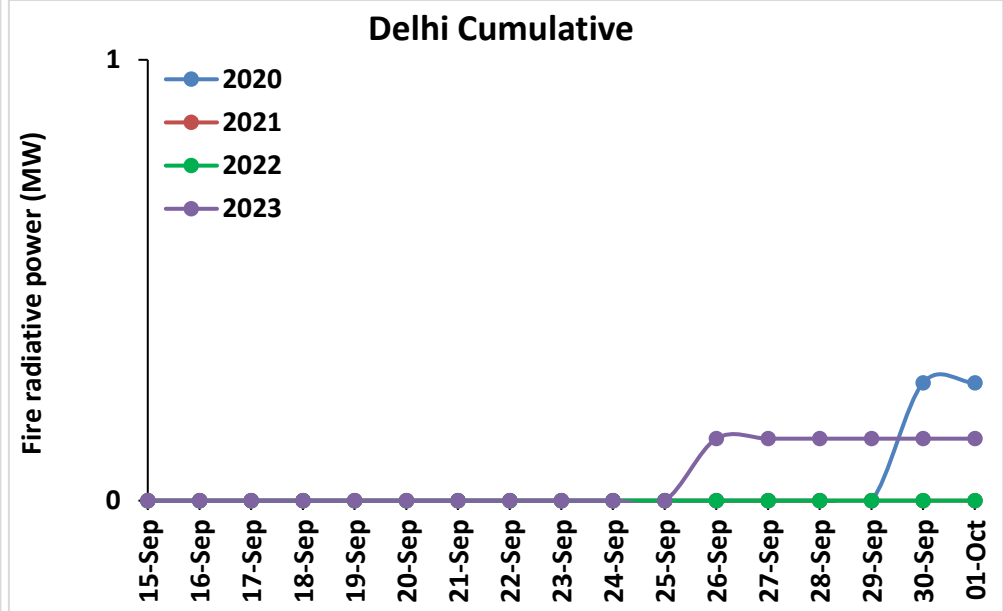
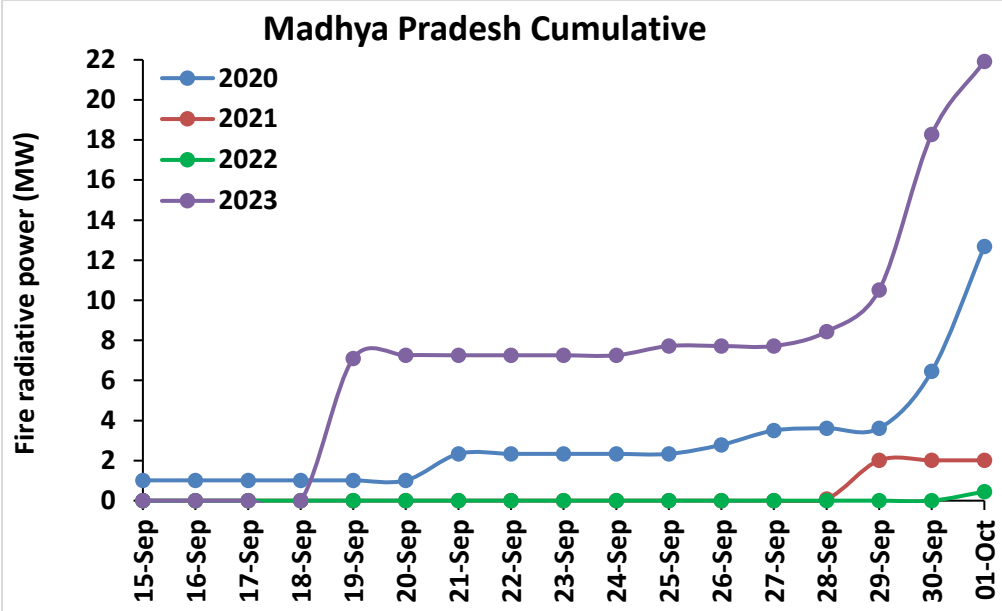
**Comparison of residue burning events in current year (2023) with previous years (2020, 2021 and 2022) for the study State**





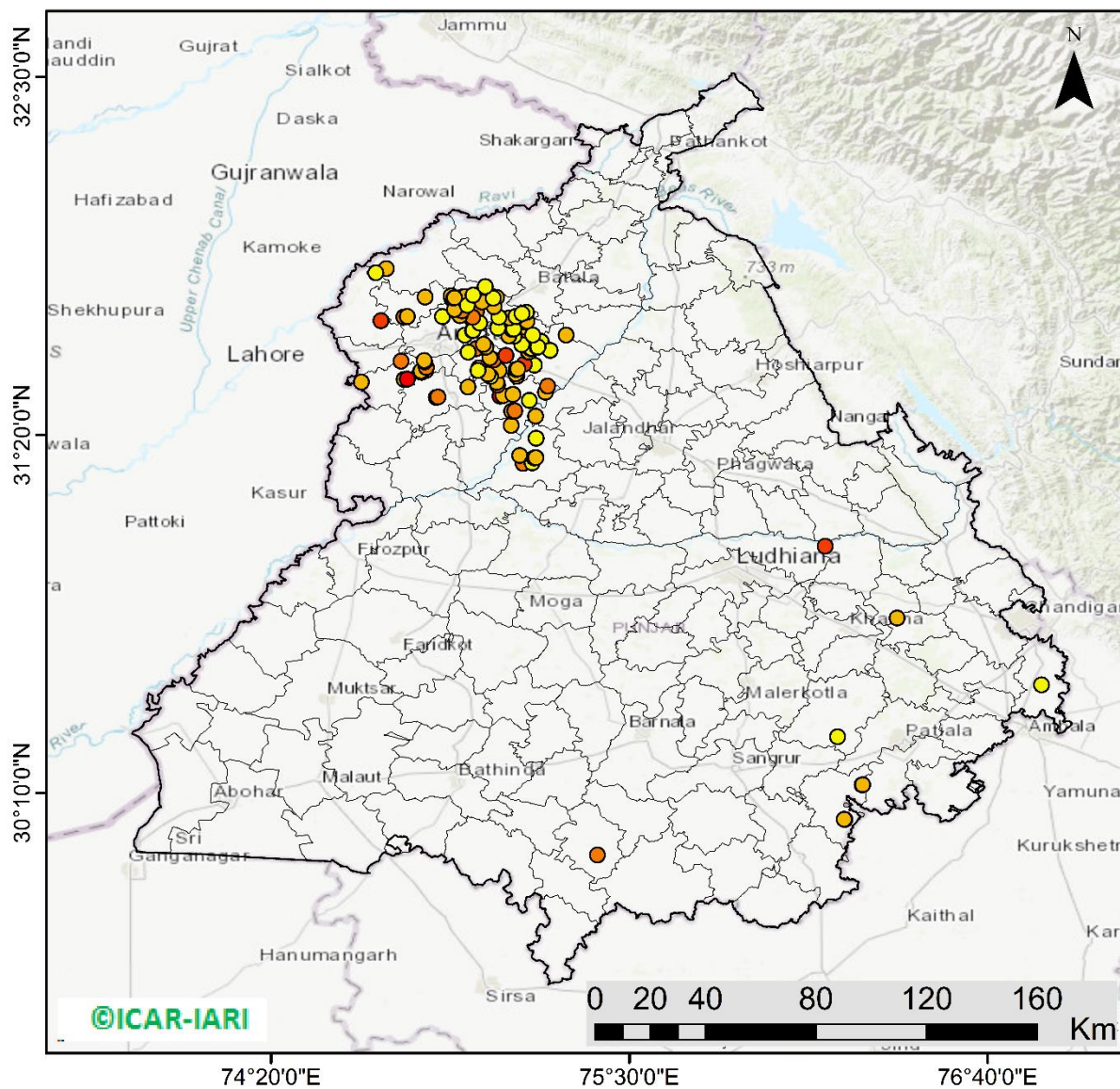
**Comparison of residue burning fire power in current year (2023) with previous years (2020, 2021 and 2022) for the study States**





# Punjab

## RICE RESIDUE BURNING IN PUNJAB



**123** burning events detected in Punjab during (01st Oct 2023)

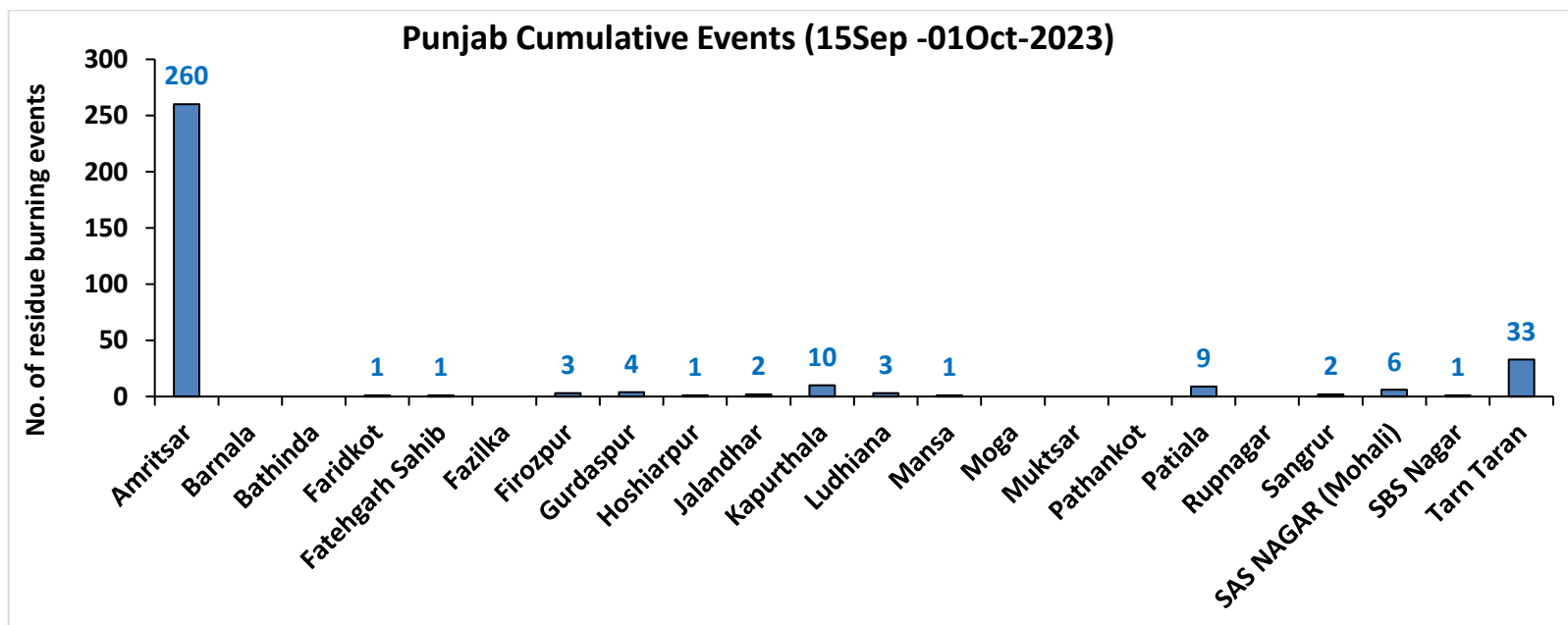
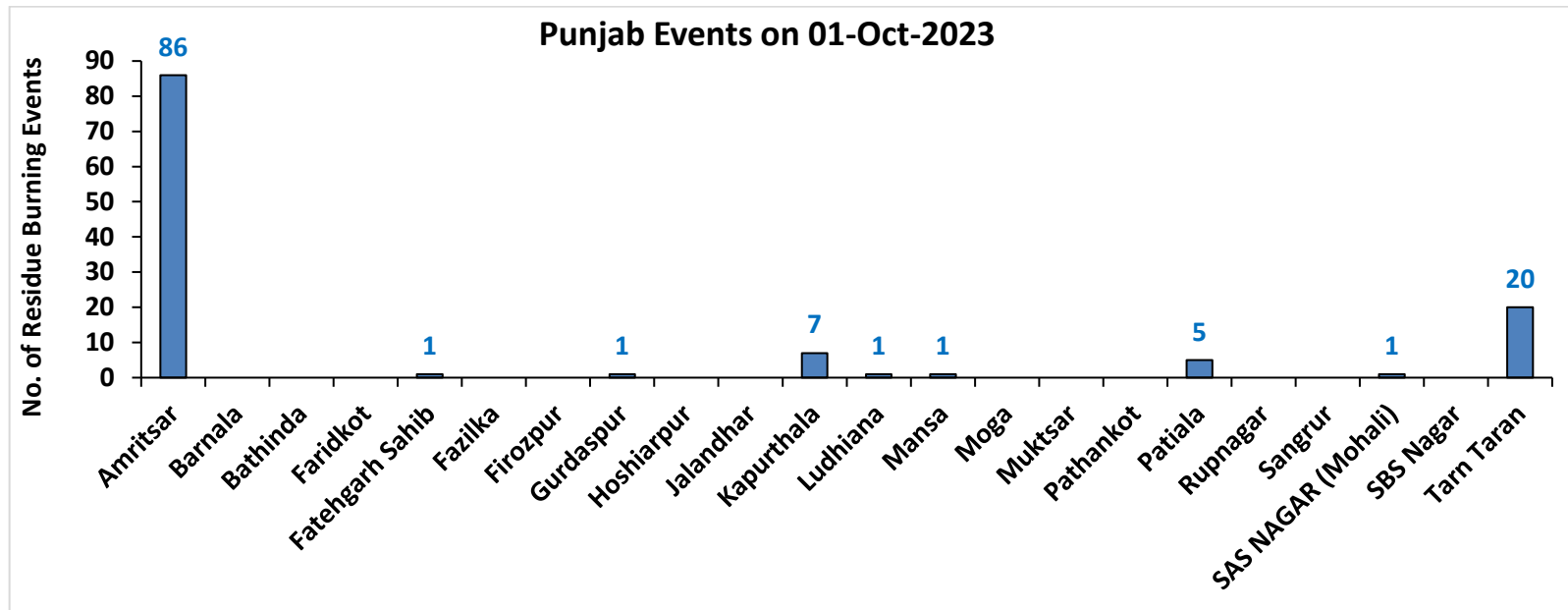
### Fire Intensity (W/m<sup>2</sup>)

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



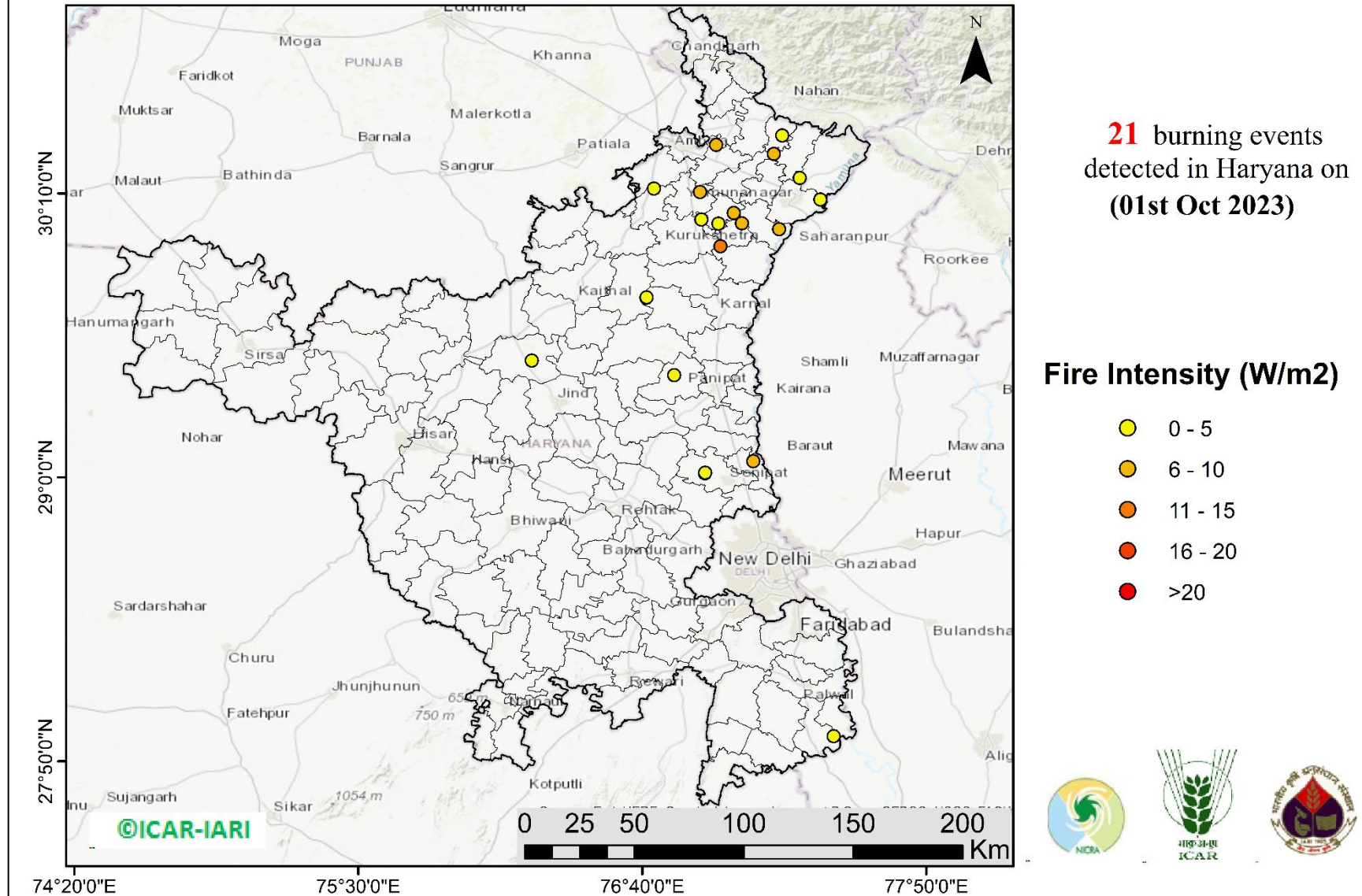
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Punjab (15Sep- 01Oct-2023)



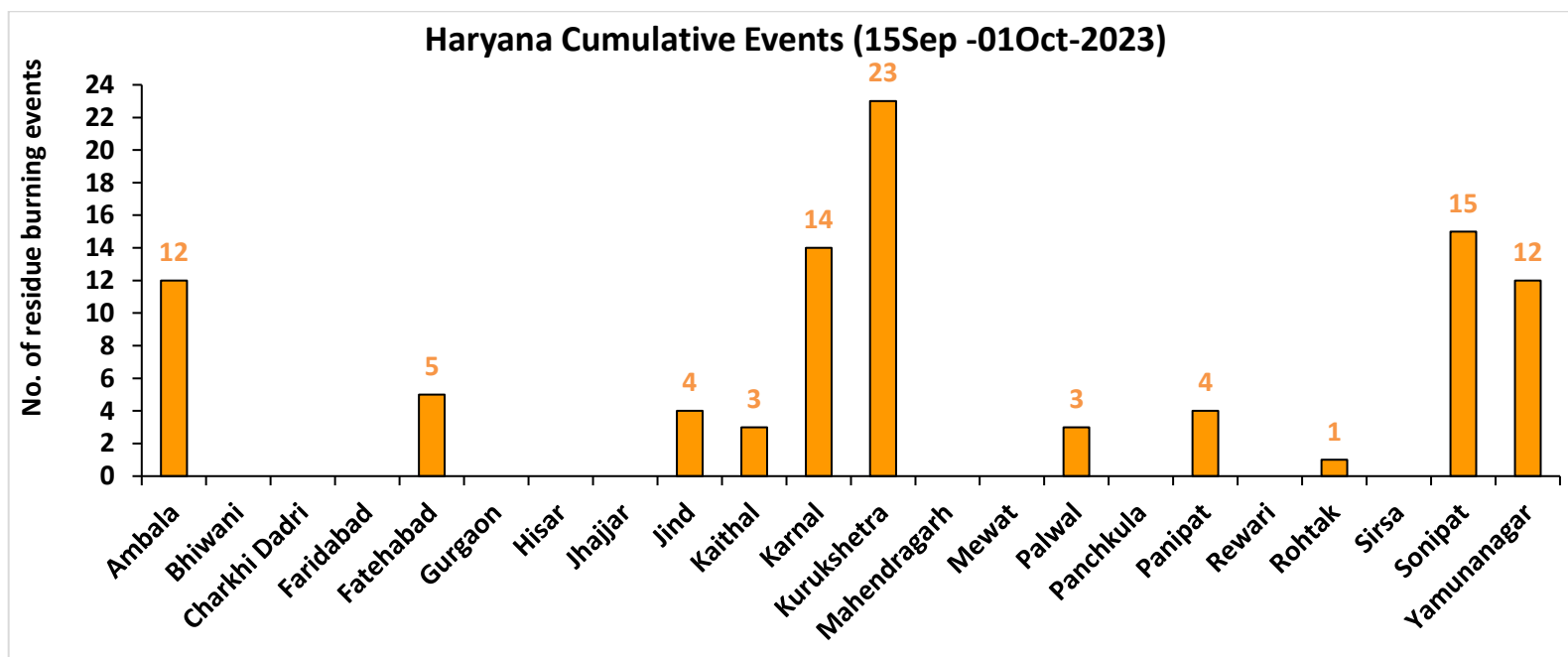
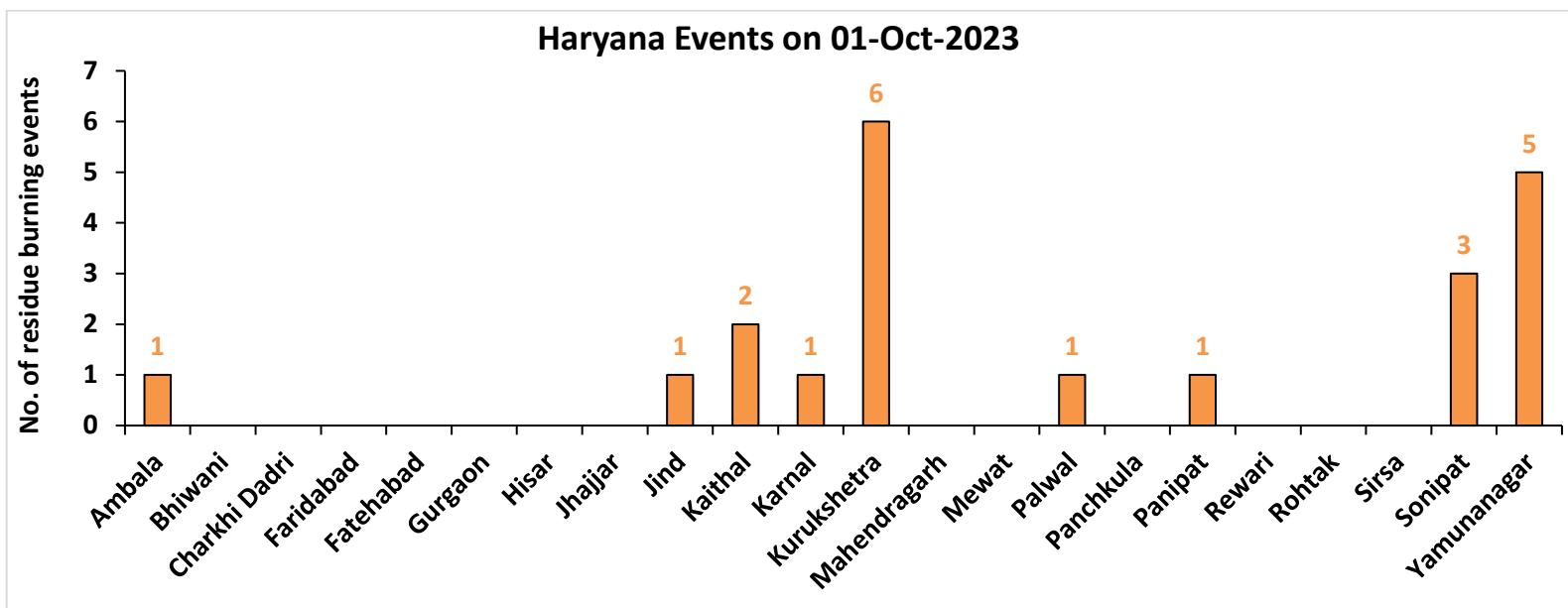
# Haryana

## RICE RESIDUE BURNING IN HARYANA



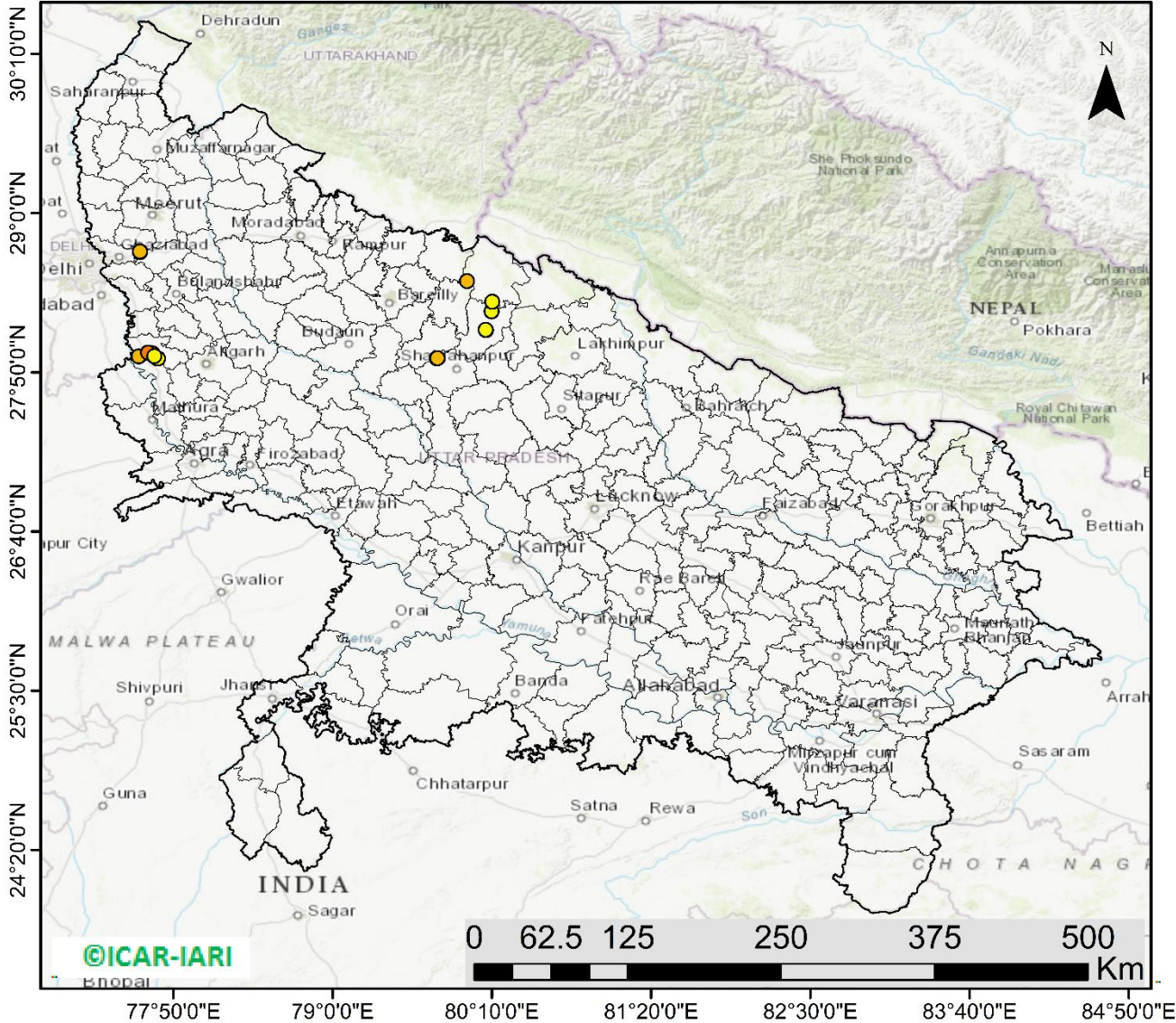
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Haryana (15Sep-01Oct -2023)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



17 burning events detected in Uttar Pradesh on (01st Oct 2023)

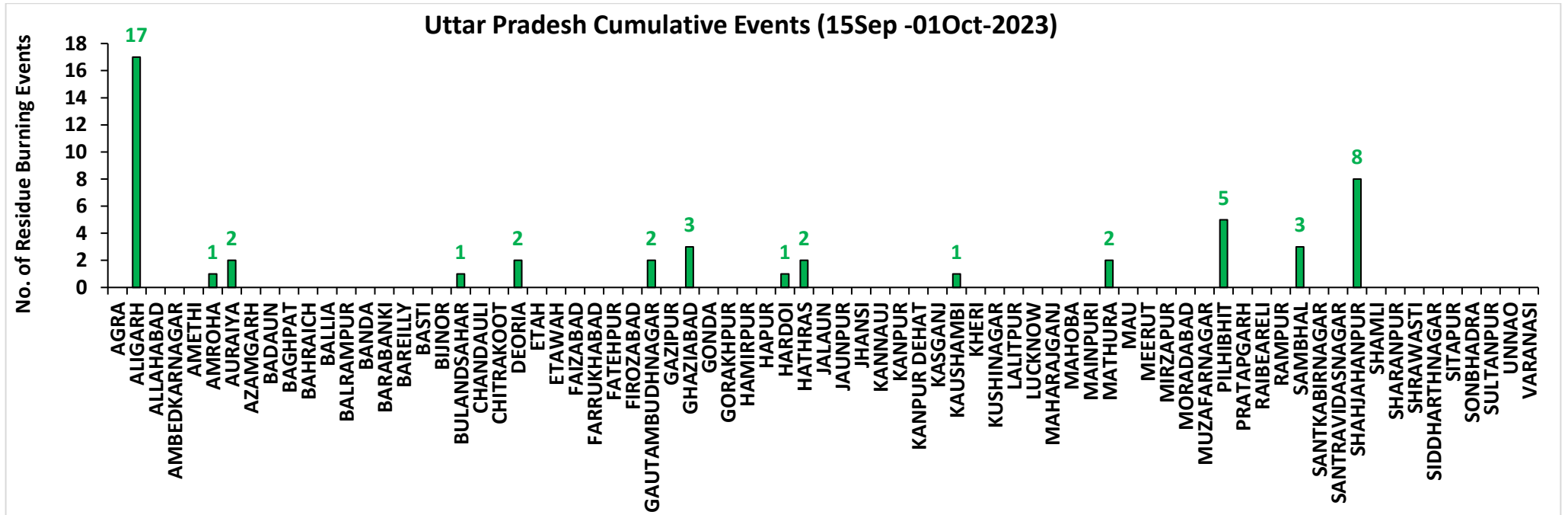
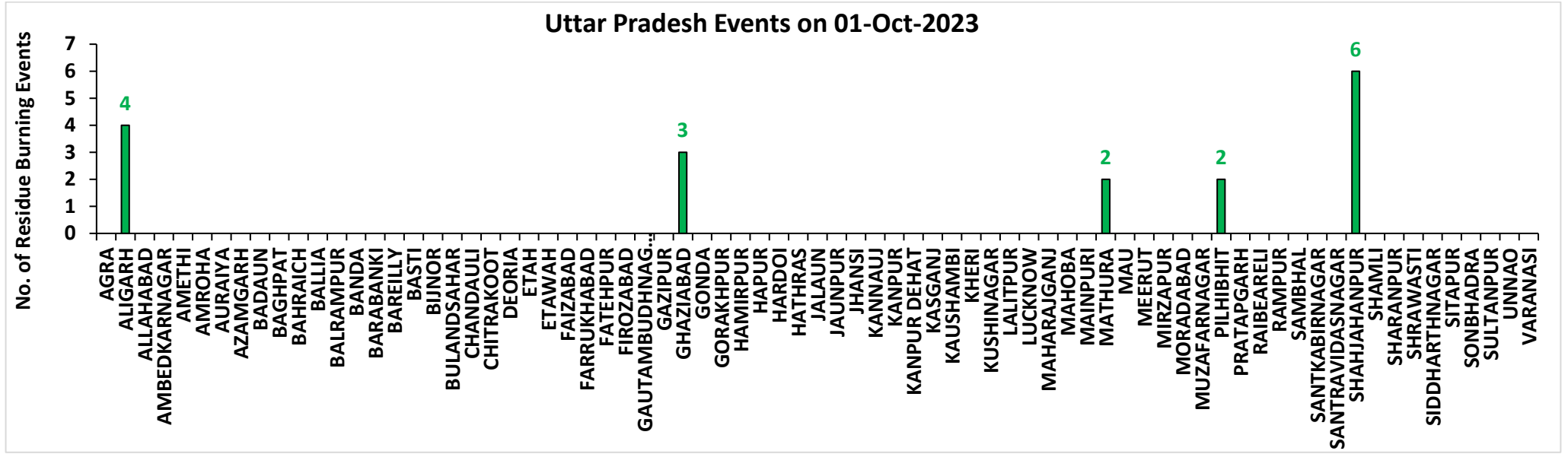
Fire Intensity (W/m2)

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



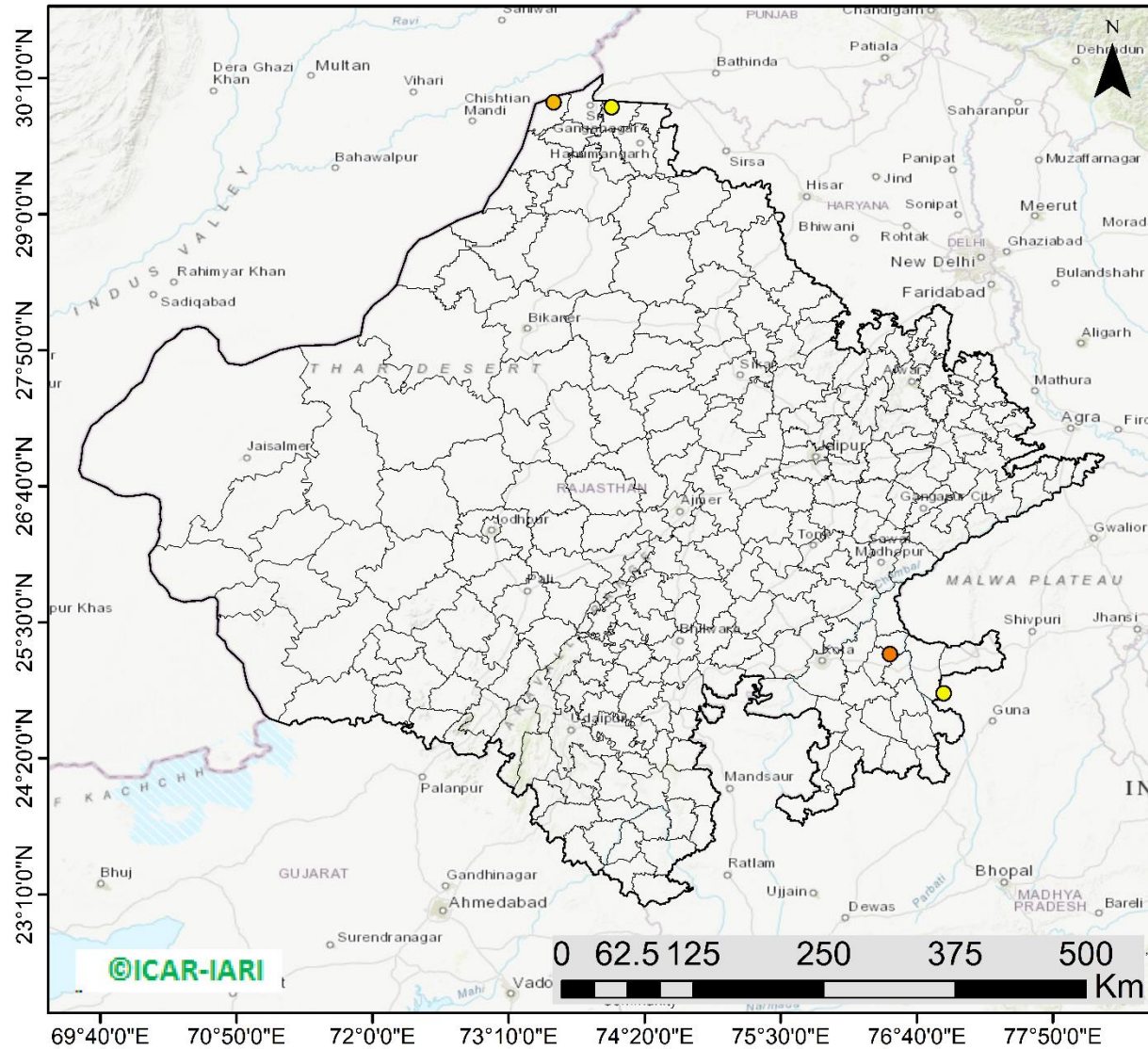
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-01Oct -2023)



# Rajasthan

## RICE RESIDUE BURNING IN RAJASTHAN



**04** burning events  
detected in Rajasthan on  
**(01st Oct 2023)**

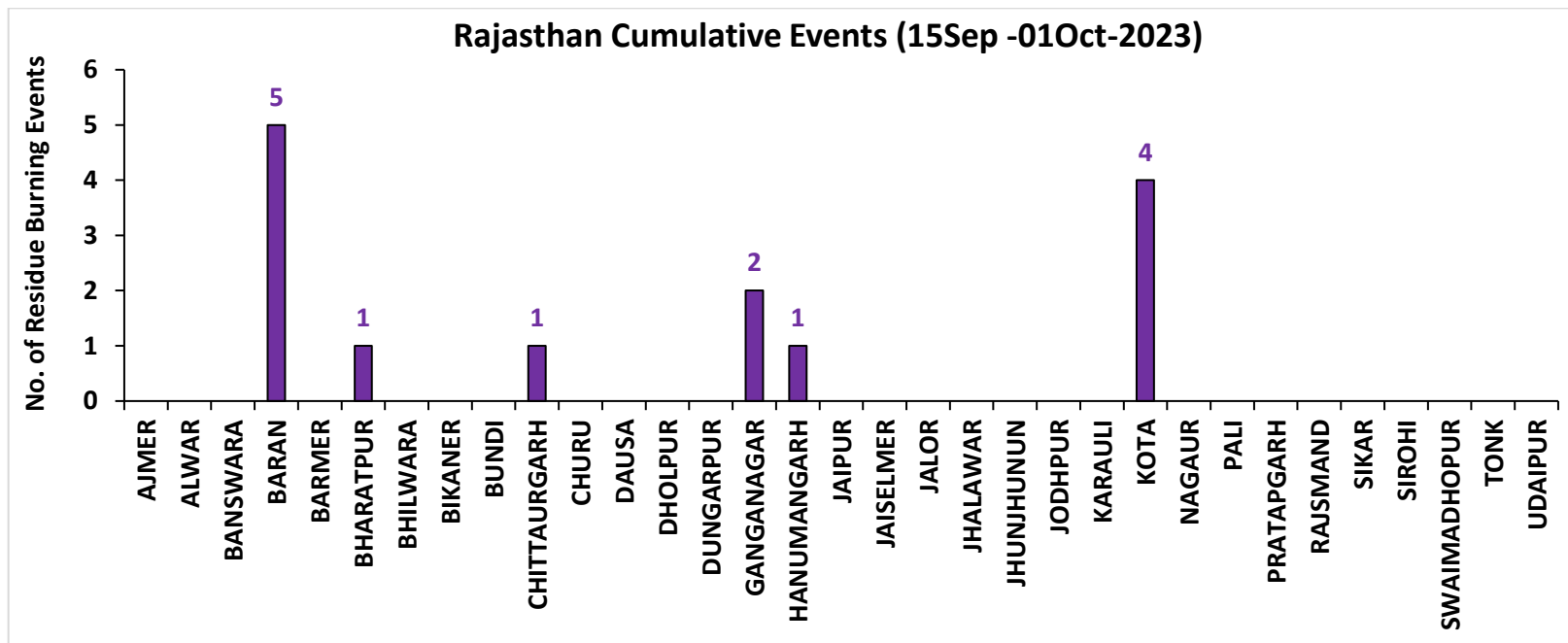
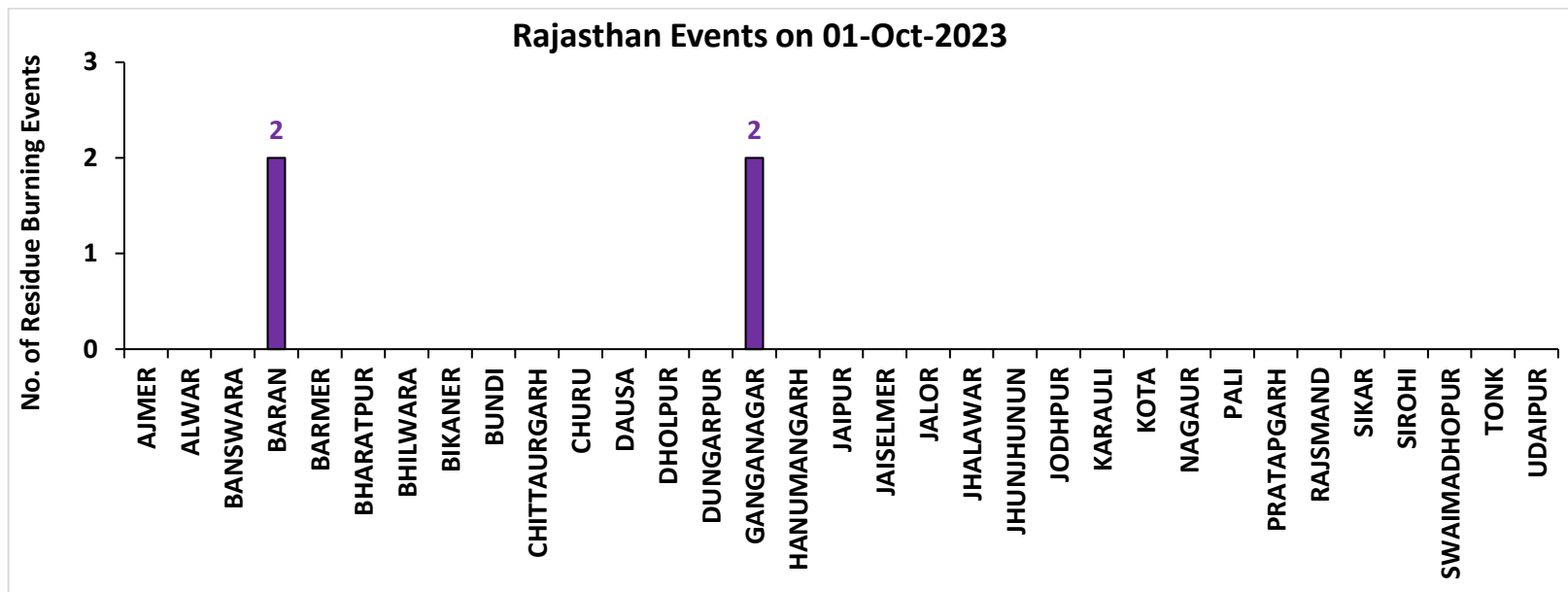
### Fire Intensity (W/m<sup>2</sup>)

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



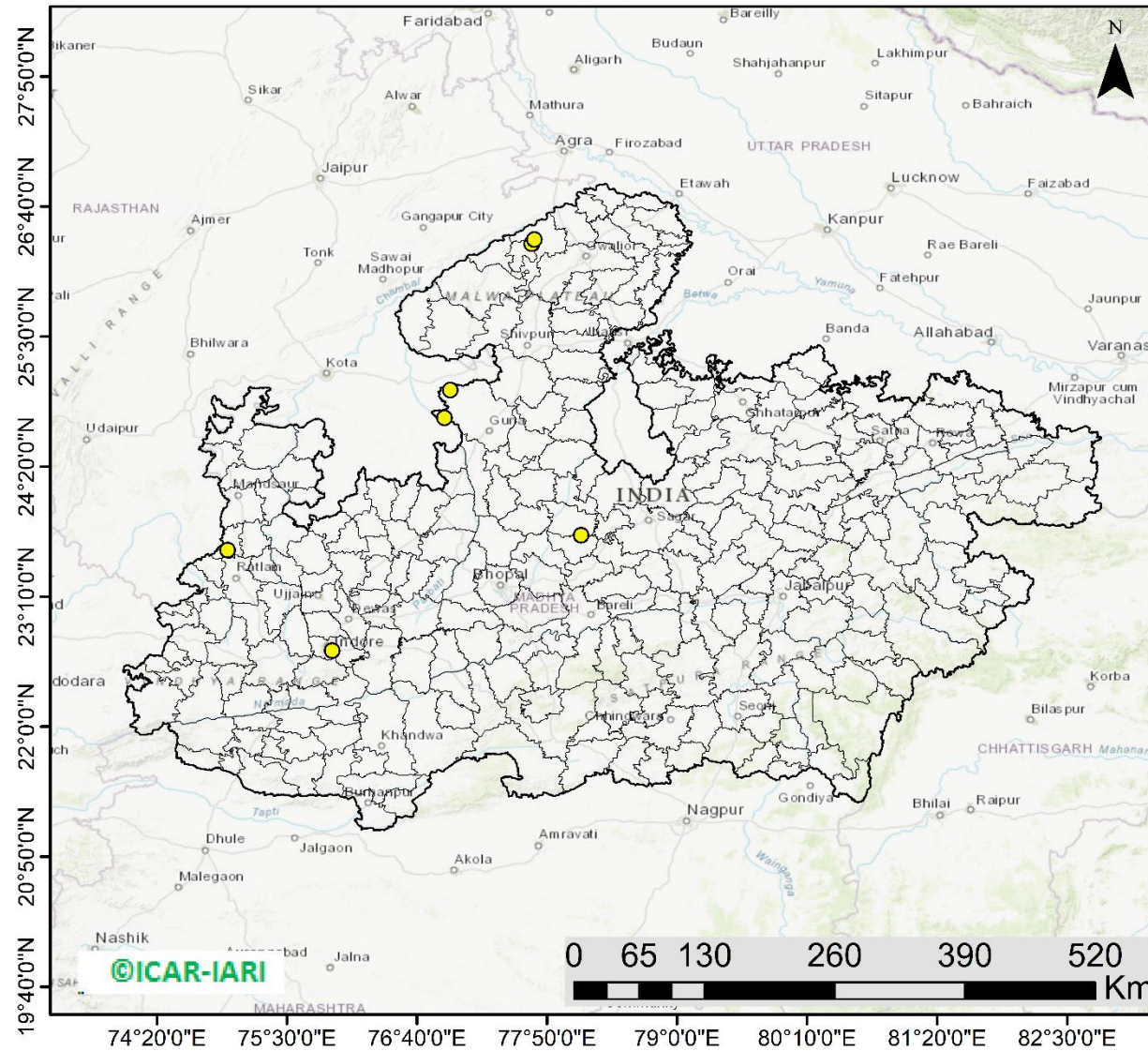
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Rajasthan (15Sep-01Oct -2023)



# Madhya Pradesh

## RICE RESIDUE BURNING IN MADHYA PRADESH



**08** burning events detected in MP on (01st Oct 2023)

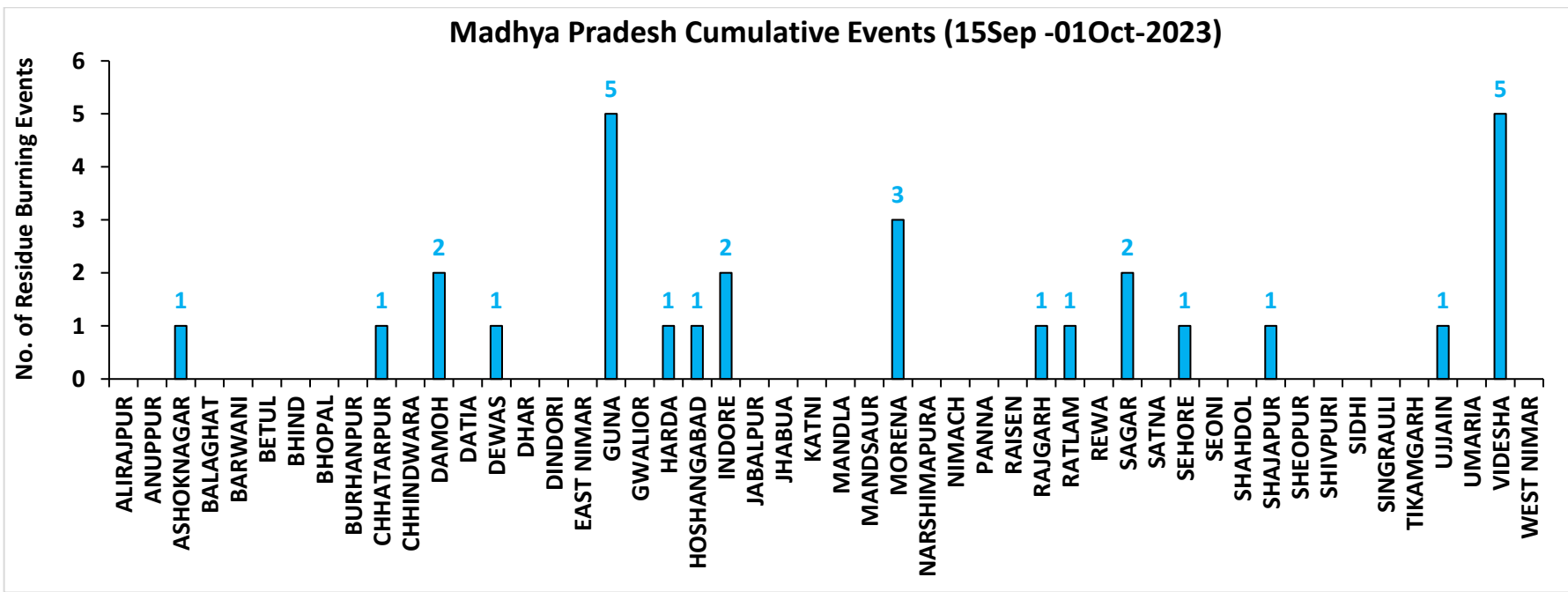
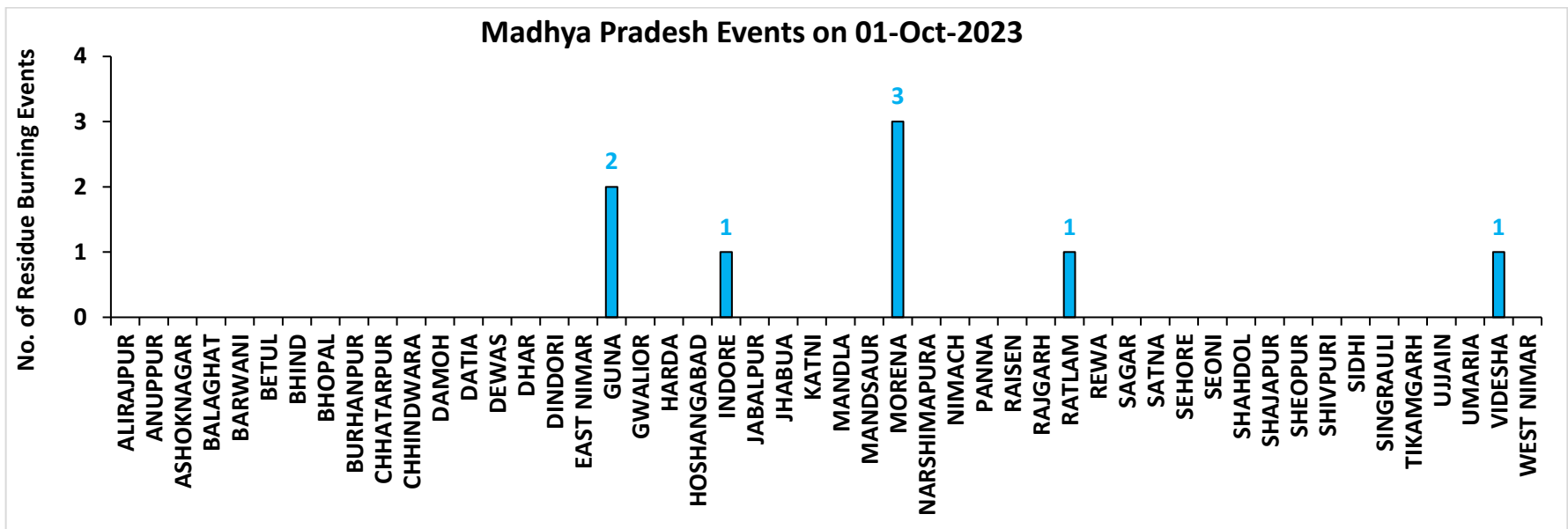
### Fire Intensity (W/m<sup>2</sup>)

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



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

## District-wise cumulative number of residues burning events in Madhya Pradesh (15Sep-01Oct -2023)



**District-wise cumulative number of residues burning events detected in 2020, 2021, 2022 and 2023**  
**(Period: 15 September-01 October)**

**(a) Punjab**

District	15 Sep-01 Oct			
	2020	2021	2022	2023
Amritsar	827	157	166	260
Barnala	2	0	0	0
Bathinda	0	0	0	0
Faridkot	3	9	0	1
Fatehgarh Sahib	8	0	1	1
Fazilka	0	1	0	0
Firozpur	12	3	2	3
Gurdaspur	40	4	1	4
Hoshiarpur	1	0	0	1
Jalandhar	6	1	1	2
Kapurthala	10	2	0	10
Ludhiana	21	7	0	3
Mansa	1	0	0	1
Moga	6	0	0	0
Muktsar	1	0	1	0
Pathankot	0	0	0	0
Patiala	34	10	1	9
Rupnagar	1	0	0	0
Sangrur	9	3	0	2
SAS NAGAR (Mohali)	7	0	1	6
SBS Nagar	1	0	1	1
Tarn Taran	200	31	17	33
<b>Total</b>	<b>1190</b>	<b>228</b>	<b>192</b>	<b>337</b>

**(b) Haryana**

District	15 Sep-01 Oct			
	2020	2021	2022	2023
AMBALA	13	0	0	12
BHIWANI	0	0	0	0
CHARKHI DADRI	0	0	0	0
FARIDABAD	0	0	0	0
FATEHABAD	10	0	0	5
GURGAON	0	0	0	0
HISAR	2	0	0	0
JHAJJAR	0	0	0	0
JIND	0	0	1	4
KAITHAL	11	1	0	3
KARNAL	28	2	1	14
KURUKSHETRA	16	7	0	23
MAHENDRAGARH	0	0	0	0
MEWAT	0	0	0	0
PALWAL	1	0	0	3
PANCHKULA	0	0	0	0
PANIPAT	4	0	0	4
REWARI	0	0	0	0
ROHTAK	0	0	0	1
SIRSA	1	0	0	0
SONIPAT	1	0	0	15
YAMUNANAGAR	6	1	0	12
<b>Total</b>	<b>93</b>	<b>11</b>	<b>2</b>	<b>96</b>

(c) Uttar Pradesh

District	15 Sep-01 Oct													
	2020	2021	2022	2023	GAUTAMBUDHNAGAR	0	0	0	2	MUZAFARNAGAR	0	0	0	0
AGRA	0	0	0	0	GAZIPUR	0	0	0	0	PILHIBHIT	1	1	0	5
ALIGARH	3	0	0	17	GHAZIABAD	1	0	1	3	PRATAPGARH	0	0	0	0
ALLAHABAD	0	0	0	0	GONDA	0	0	0	0	RAIBEARELI	1	0	0	0
AMBEDKARNAGAR	0	0	0	0	GORAKHPUR	0	0	0	0	RAMPUR	1	3	0	0
AMETHI	0	0	0	0	HAMIRPUR	0	0	0	0	SAMBHAL	4	0	0	3
AMROHA	0	0	0	1	HAPUR	1	0	0	0	SANTKABIRNAGAR	0	0	0	0
AURAIYA	10	0	4	2	HARDOI	0	0	0	1	SANTRAVIDASNAGAR	0	0	0	0
AZAMGARH	0	0	0	0	HATHRAS	0	0	0	2	SHAHJAHANPUR	3	36	5	8
BADAUN	0	0	0	0	JALAUN	0	0	0	0	SHAMLI	6	0	0	0
BAGHPAT	1	0	0	0	JAUNPUR	0	0	0	0	SHARANPUR	3	0	0	0
BAHRAICH	0	0	0	0	JHANSI	2	0	0	0	SHRAWASTI	0	0	0	0
BALLIA	0	0	0	0	KANNAUJ	1	0	0	0	SIDDHARTHANAGAR	0	0	0	0
BALRAMPUR	0	0	0	0	KANPUR	0	1	0	0	SITAPUR	1	0	0	0
BANDA	0	0	0	0	KANPUR DEHAT	0	0	0	0	SONBHADRA	0	0	0	0
BARABANKI	0	0	0	0	KASGANJ	0	0	0	0	SULTANPUR	0	0	0	0
BAREILLY	0	0	0	0	KAUSHAMBI	1	0	0	1	UNNAO	2	0	0	0
BASTI	0	0	0	0	KHERI	0	3	1	0	VARANASI	0	0	0	0
BIJNOR	1	0	1	0	KUSHINAGAR	0	0	0	0	<b>Total</b>	<b>51</b>	<b>46</b>	<b>13</b>	<b>50</b>
BULANDSAHAR	0	0	1	1	LALITPUR	0	1	0	0					
CHANDAULI	0	0	0	0	LUCKNOW	0	0	0	0					
CHITRAKOOT	0	0	0	0	MAHARAJGANJ	0	0	0	0					
DEORIA	0	0	0	2	MAHOBA	0	0	0	0					
ETAH	1	0	0	0	MAINPURI	0	0	0	0					
ETAWAH	0	0	0	0	MATHURA	1	1	0	2					
FAIZABAD	0	0	0	0	MAU	0	0	0	0					
FARRUKHABAD	0	0	0	0	MEERUT	6	0	0	0					
FATEHPUR	0	0	0	0	MIRZAPUR	0	0	0	0					
FIROZABAD	0	0	0	0	MORADABAD	0	0	0	0					

**(d) Delhi**

District	15 Sep-01 Oct			
	2020	2021	2022	2023
CENTRAL	0	0	0	0
EAST	0	0	0	0
NEW DELHI	0	0	0	0
NORTH	0	0	0	1
NORTH EAST	0	0	0	0
NORTH WEST DELHI	0	0	0	0
SHAHADRA	0	0	0	0
SOUTH	1	0	0	0
SOUTH EAST	0	0	0	0
SOUTH WEST DELHI	0	0	0	0
WEST DELHI	0	0	0	0
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>

**(e) Rajasthan**

District	15 Sep-01 Oct			
	2020	2021	2022	2023
AJMER	0	0	0	0
ALWAR	1	0	0	0
BANSWARA	0	0	0	0
BARAN	4	0	0	5
BARMER	2	0	0	0
BHARATPUR	0	0	0	1
BHILWARA	1	0	0	0
BIKANER	0	0	0	0
BUNDI	1	0	1	0
CHITTAURGARH	0	1	0	1
CHURU	0	0	0	0
DAUSA	0	0	0	0
DHOLPUR	0	0	0	0
DUNGARPUR	0	0	0	0
GANGANAGAR	1	0	0	2
HANUMANGARH	1	0	1	1
JAIPUR	0	0	0	0
JAISELMER	1	0	0	0
JALOR	0	0	0	0
JHALAWAR	0	0	0	0
JHUNJHUNUN	0	0	0	0
JODHPUR	1	0	0	0
KARAULI	0	0	0	0
KOTA	0	0	0	4
NAGAU	0	0	0	0
PALI	0	0	0	0
PRATAPGARH	0	0	0	0
RAJSMAND	0	0	0	0
SIKAR	0	0	0	0
SIROHI	0	0	0	0
SWAIMADHOPUR	0	0	0	0
TONK	0	0	0	0
UDAIPUR	0	0	0	0
<b>Total</b>	<b>13</b>	<b>1</b>	<b>2</b>	<b>14</b>

(f) Madhya Pradesh

District	15 Sep-01 Oct								
	2020	2021	2022	2023					
					PANNA	0	0	0	0
ALIRAJPUR	0	0	0	0	RAISEN	0	0	0	0
ANUPPUR	0	0	0	0	RAJGARH	1	0	1	1
ASHOKNAGAR	3	0	0	1	RATLAM	0	0	0	1
BALAGHAT	0	0	0	0	REWA	0	0	0	0
BARWANI	0	0	0	0	SAGAR	2	2	0	2
BETUL	0	0	0	0	SATNA	0	0	0	0
BHIND	0	0	0	0	SEHORE	1	0	0	1
BHOPAL	1	0	0	0	SEONI	0	0	0	0
BURHANPUR	0	0	0	0	SHAHDOL	0	0	0	0
CHHATARPUR	0	0	0	1	SHAJAPUR	1	0	0	1
CHHINDWARA	0	0	0	0	SHEOPUR	0	0	0	0
DAMOH	0	0	0	2	SHIVPURI	0	0	0	0
DATIA	0	0	0	0	SIDHI	0	0	0	0
DEWAS	0	0	0	1	SINGRAULI	0	0	0	0
DHAR	0	0	0	0	TIKAMGARH	0	0	0	0
DINDORI	0	0	0	0	UJJAIN	3	0	0	1
EAST NIMAR	0	0	0	0	UMARIA	0	0	0	0
GUNA	4	1	0	5	VIDESHA	3	1	0	5
GWALIOR	3	0	0	0	WEST NIMAR	0	0	0	0
HARDA	2	1	0	1	<b>Total</b>	<b>26</b>	<b>5</b>	<b>1</b>	<b>29</b>
HOSHANGABAD	0	0	0	1					
INDORE	1	0	0	2					
JABALPUR	1	0	0	0					
JHABUA	0	0	0	0					
KATNI	0	0	0	0					
MANDLA	0	0	0	0					
MANDSAUR	0	0	0	0					
MORENA	0	0	0	3					
NARSHIMAPURA	0	0	0	0					
NIMACH	0	0	0	0					

**State-wise and date-wise number of paddy residue burning events detected in 2020, 2021, 2022 and 2023**  
**(Period: 15 September-01 October)**

**Number of Paddy Residue Burning Events Detected**

Date	Punjab				Haryana				Uttar Pradesh			
	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
15-Sep	5	0	14	0	2	0	0	1	1	0	0	0
16-Sep	0	2	0	6	1	0	0	1	0	0	0	2
17-Sep	5	0	1	0	3	0	0	0	0	0	0	0
18-Sep	17	9	7	0	0	0	1	0	0	1	0	0
19-Sep	30	5	18	0	2	0	0	1	0	1	0	0
20-Sep	67	8	10	0	6	0	0	2	2	0	0	0
21-Sep	54	0	56	1	2	0	0	2	1	0	0	1
22-Sep	34	0	30	0	1	0	0	2	1	0	0	0
23-Sep	49	0	3	1	0	0	0	3	1	0	0	0
24-Sep	78	5	0	0	0	0	0	0	1	1	0	1
25-Sep	184	11	0	0	11	0	0	1	5	0	0	1
26-Sep	190	19	0	3	5	0	0	2	8	0	0	0
27-Sep	78	37	0	21	8	0	0	9	4	1	0	0
28-Sep	55	28	0	33	6	1	0	8	1	6	0	4
29-Sep	63	64	0	68	9	4	0	17	6	10	0	6
30-Sep	116	27	8	81	22	2	0	26	13	13	10	18
01-Oct	165	13	45	123	15	4	1	21	7	13	3	17
<b>Total</b>	<b>1190</b>	<b>228</b>	<b>192</b>	<b>337</b>	<b>93</b>	<b>11</b>	<b>2</b>	<b>96</b>	<b>51</b>	<b>46</b>	<b>13</b>	<b>50</b>

## Number of Paddy Residue Burning Events Detected

Date	Delhi				Rajasthan				Madhya Pradesh			
	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
15-Sep	0	0	0	0	1	0	0	0	2	0	0	0
16-Sep	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	0	0	0	0	0	0	0	0	0	0	0	0
18-Sep	0	0	0	0	0	0	0	0	0	0	0	0
19-Sep	0	0	0	0	0	0	0	0	0	0	0	1
20-Sep	0	0	0	0	0	0	0	0	0	0	0	1
21-Sep	0	0	0	0	1	0	1	0	2	0	0	0
22-Sep	0	0	0	0	0	0	0	0	0	0	0	0
23-Sep	0	0	0	0	1	0	0	0	0	0	0	0
24-Sep	0	0	0	0	0	0	0	0	0	0	0	0
25-Sep	0	0	0	0	1	0	0	0	0	0	0	1
26-Sep	0	0	0	1	1	0	0	0	2	0	0	0
27-Sep	0	0	0	0	0	0	0	0	1	0	0	0
28-Sep	0	0	0	0	0	0	0	0	1	1	0	2
29-Sep	0	0	0	0	3	0	0	6	0	4	0	5
30-Sep	1	0	0	0	1	0	0	4	5	0	0	11
01-Oct	0	0	0	0	4	1	1	4	13	0	1	8
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>13</b>	<b>1</b>	<b>2</b>	<b>14</b>	<b>26</b>	<b>5</b>	<b>1</b>	<b>29</b>

### Details of residue burning events in Punjab on 01-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	AMRITSAR	AJNALA	AQUA	31.87500	74.70900	13:56:24	D	5.90
2	AMRITSAR	AJNALA	S-NPP	31.86153	74.67445	12:57:39	D	5.00
3	AMRITSAR	ATTARI	AQUA	31.54300	74.83700	13:56:24	D	9.10
4	AMRITSAR	ATTARI	S-NPP	31.54000	74.82536	12:57:39	D	7.90
5	AMRITSAR	ATTARI	S-NPP	31.54108	74.82195	12:57:39	D	7.90
6	AMRITSAR	ATTARI	S-NPP	31.55280	74.83915	12:57:39	D	11.30
7	AMRITSAR	ATTARI	S-NPP	31.57096	74.83371	12:57:39	D	5.90
8	AMRITSAR	ATTARI	S-NPP	31.57313	74.75636	12:57:39	D	10.50
9	AMRITSAR	ATTARI	S-NPP	31.57549	74.83235	12:57:39	D	5.90
10	AMRITSAR	CHOGAWAN	AQUA	31.70500	74.69100	13:56:24	D	19.90
11	AMRITSAR	HARSHA CHHINA	AQUA	31.71700	74.76600	13:56:24	D	11.20
12	AMRITSAR	HARSHA CHHINA	AQUA	31.71900	74.77700	13:56:24	D	8.90
13	AMRITSAR	HARSHA CHHINA	AQUA	31.78600	74.92000	13:56:24	D	5.40
14	AMRITSAR	HARSHA CHHINA	S-NPP	31.78199	74.83474	12:57:39	D	8.80
15	AMRITSAR	JANDIALA GURU	AQUA	31.53800	75.04500	13:56:24	D	8.90
16	AMRITSAR	JANDIALA GURU	AQUA	31.54200	75.13100	13:56:24	D	11.10
17	AMRITSAR	JANDIALA GURU	AQUA	31.54300	75.07600	13:56:24	D	5.70
18	AMRITSAR	JANDIALA GURU	AQUA	31.55100	75.01000	13:56:24	D	9.30
19	AMRITSAR	JANDIALA GURU	AQUA	31.57700	75.05800	13:56:24	D	11.60
20	AMRITSAR	JANDIALA GURU	AQUA	31.58400	75.04600	13:56:24	D	6.20
21	AMRITSAR	JANDIALA GURU	AQUA	31.59200	75.09800	13:56:24	D	19.50
22	AMRITSAR	JANDIALA GURU	AQUA	31.61400	75.00200	13:56:24	D	11.80
23	AMRITSAR	JANDIALA GURU	AQUA	31.61900	75.03300	13:56:24	D	9.00
24	AMRITSAR	JANDIALA GURU	S-NPP	31.53099	75.03979	12:57:39	D	7.10
25	AMRITSAR	JANDIALA GURU	S-NPP	31.54307	75.00751	12:57:39	D	5.00
26	AMRITSAR	JANDIALA GURU	S-NPP	31.54642	75.13180	12:57:39	D	4.80
27	AMRITSAR	JANDIALA GURU	S-NPP	31.60246	74.97533	12:57:39	D	4.40
28	AMRITSAR	JANDIALA GURU	S-NPP	31.62783	75.02510	12:57:39	D	7.70
29	AMRITSAR	JANDIALA GURU	S-NPP	31.67340	74.99144	12:57:39	D	2.60
30	AMRITSAR	JANDIALA GURU	S-NPP	31.69734	75.01289	12:57:39	D	4.20

31	AMRITSAR	MAJITHA	AQUA	31.71400	74.98500	13:56:24	D	25.00
32	AMRITSAR	MAJITHA	AQUA	31.73300	74.99200	13:56:24	D	8.30
33	AMRITSAR	MAJITHA	AQUA	31.73400	74.93700	13:56:24	D	6.80
34	AMRITSAR	MAJITHA	AQUA	31.73500	75.00200	13:56:24	D	11.90
35	AMRITSAR	MAJITHA	AQUA	31.77700	74.92200	13:56:24	D	6.00
36	AMRITSAR	MAJITHA	AQUA	31.78100	75.06800	13:56:24	D	6.20
37	AMRITSAR	MAJITHA	AQUA	31.78200	74.95400	13:56:24	D	14.60
38	AMRITSAR	MAJITHA	AQUA	31.78400	74.96400	13:56:24	D	7.70
39	AMRITSAR	MAJITHA	AQUA	31.79400	75.02700	13:56:24	D	7.00
40	AMRITSAR	MAJITHA	AQUA	31.80200	75.02500	13:56:24	D	4.90
41	AMRITSAR	MAJITHA	S-NPP	31.71414	75.10979	12:57:39	D	5.70
42	AMRITSAR	MAJITHA	S-NPP	31.71601	75.07539	12:57:39	D	3.10
43	AMRITSAR	MAJITHA	S-NPP	31.71618	74.99011	12:57:39	D	11.30
44	AMRITSAR	MAJITHA	S-NPP	31.72132	74.94844	12:57:39	D	5.80
45	AMRITSAR	MAJITHA	S-NPP	31.73717	74.95516	12:57:39	D	10.90
46	AMRITSAR	MAJITHA	S-NPP	31.74143	74.93091	12:57:39	D	5.40
47	AMRITSAR	MAJITHA	S-NPP	31.75056	75.05946	12:57:39	D	5.60
48	AMRITSAR	MAJITHA	S-NPP	31.75536	74.97264	12:57:39	D	2.90
49	AMRITSAR	MAJITHA	S-NPP	31.76591	75.02087	12:57:39	D	7.60
50	AMRITSAR	MAJITHA	S-NPP	31.77850	75.05677	12:57:39	D	3.90
51	AMRITSAR	MAJITHA	S-NPP	31.77886	74.92822	12:57:39	D	6.60
52	AMRITSAR	MAJITHA	S-NPP	31.77975	74.93087	12:57:39	D	5.10
53	AMRITSAR	MAJITHA	S-NPP	31.78810	74.99142	12:57:39	D	3.40
54	AMRITSAR	RAYYA	AQUA	31.52400	75.13400	13:56:24	D	7.90
55	AMRITSAR	RAYYA	AQUA	31.56000	75.19100	13:56:24	D	4.30
56	AMRITSAR	RAYYA	AQUA	31.56400	75.15800	13:56:24	D	18.30
57	AMRITSAR	RAYYA	AQUA	31.63700	75.21300	13:56:24	D	4.50
58	AMRITSAR	RAYYA	AQUA	31.65800	75.29400	13:56:24	D	8.00
59	AMRITSAR	RAYYA	S-NPP	31.53185	75.13047	12:57:39	D	6.90
60	AMRITSAR	RAYYA	S-NPP	31.54758	75.13710	12:57:39	D	9.50
61	AMRITSAR	RAYYA	S-NPP	31.60835	75.24225	12:57:39	D	3.30
62	AMRITSAR	RAYYA	S-NPP	31.61949	75.20245	12:57:39	D	4.70
63	AMRITSAR	TARSIKKA	AQUA	31.67300	75.15100	13:56:24	D	10.20

64	AMRITSAR	TARSIKKA	AQUA	31.68400	75.16000	13:56:24	D	9.10
65	AMRITSAR	TARSIKKA	AQUA	31.70200	75.15600	13:56:24	D	9.20
66	AMRITSAR	TARSIKKA	AQUA	31.70300	75.16700	13:56:24	D	7.60
67	AMRITSAR	TARSIKKA	AQUA	31.73000	75.15400	13:56:24	D	10.50
68	AMRITSAR	TARSIKKA	AQUA	31.73200	75.16500	13:56:24	D	5.00
69	AMRITSAR	TARSIKKA	S-NPP	31.60252	75.17141	12:57:39	D	4.70
70	AMRITSAR	TARSIKKA	S-NPP	31.60360	75.17362	12:57:39	D	7.50
71	AMRITSAR	TARSIKKA	S-NPP	31.61368	75.17928	12:57:39	D	2.60
72	AMRITSAR	TARSIKKA	S-NPP	31.61484	75.18148	12:57:39	D	5.00
73	AMRITSAR	TARSIKKA	S-NPP	31.61821	75.20033	12:57:39	D	3.50
74	AMRITSAR	TARSIKKA	S-NPP	31.62682	75.14996	12:57:39	D	2.90
75	AMRITSAR	TARSIKKA	S-NPP	31.65453	75.12486	12:57:39	D	3.20
76	AMRITSAR	TARSIKKA	S-NPP	31.65551	75.10767	12:57:39	D	6.30
77	AMRITSAR	TARSIKKA	S-NPP	31.65832	75.18539	12:57:39	D	2.50
78	AMRITSAR	TARSIKKA	S-NPP	31.67682	75.11823	12:57:39	D	4.50
79	AMRITSAR	TARSIKKA	S-NPP	31.67797	75.12350	12:57:39	D	2.90
80	AMRITSAR	TARSIKKA	S-NPP	31.68097	75.07177	12:57:39	D	2.40
81	AMRITSAR	TARSIKKA	S-NPP	31.71816	75.13399	12:57:39	D	4.80
82	AMRITSAR	TARSIKKA	S-NPP	31.71882	75.13088	12:57:39	D	4.20
83	AMRITSAR	TARSIKKA	S-NPP	31.72794	75.15058	12:57:39	D	4.30
84	AMRITSAR	VERKA	S-NPP	31.65764	74.96458	12:57:39	D	2.10
85	AMRITSAR	VERKA	S-NPP	31.67250	74.98886	12:57:39	D	2.90
86	AMRITSAR	VERKA	S-NPP	31.71838	74.89165	12:57:39	D	2.80
87	FATEHGARH SAHIB	KHAMANON	AQUA	30.73600	76.37200	13:56:24	D	6.00
88	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.81617	75.03114	12:57:39	D	3.10
89	KAPURTHALA	DHILWAN	AQUA	31.39400	75.19500	13:56:24	D	6.40
90	KAPURTHALA	SULTANPUR LODHI	AQUA	31.24000	75.15400	13:56:24	D	13.60
91	KAPURTHALA	SULTANPUR LODHI	AQUA	31.26600	75.14300	13:56:24	D	8.80
92	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.24193	75.18367	12:57:39	D	4.10
93	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.25769	75.19035	12:57:39	D	7.30
94	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.25885	75.19567	12:57:39	D	7.30
95	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.32174	75.19683	12:57:39	D	4.10
96	LUDHIANA	LUDHIANA-2	AQUA	30.97000	76.13800	13:56:24	D	15.30

97	MANSA	MANSA	AQUA	29.96400	75.39600	13:56:24	D	10.40
98	PATIALA	NABHA	S-NPP	30.34899	76.17836	12:57:39	D	4.70
99	PATIALA	SAMANA	S-NPP	30.07952	76.20184	12:57:39	D	7.20
100	PATIALA	SAMANA	S-NPP	30.08003	76.19987	12:57:39	D	6.00
101	PATIALA	SAMANA	S-NPP	30.19225	76.25789	12:57:39	D	5.10
102	PATIALA	SAMANA	S-NPP	30.19288	76.25967	12:57:39	D	6.10
103	SAS NAGAR (MOHALI)	DERABASSI	S-NPP	30.51821	76.84246	12:57:39	D	3.20
104	TARN TARAN	CHOHLA SAHIB	AQUA	31.36400	75.11500	13:56:24	D	7.40
105	TARN TARAN	GANDIWIND TATLA	AQUA	31.51400	74.76700	13:56:24	D	5.30
106	TARN TARAN	GANDIWIND TATLA	AQUA	31.51500	74.77700	13:56:24	D	20.80
107	TARN TARAN	GANDIWIND TATLA	S-NPP	31.50503	74.62717	12:57:39	D	8.80
108	TARN TARAN	GANDIWIND TATLA	S-NPP	31.53654	74.82333	12:57:39	D	7.90
109	TARN TARAN	GANDIWIND TATLA	S-NPP	31.53876	74.81985	12:57:39	D	7.90
110	TARN TARAN	KHADUR SAHIB	AQUA	31.41000	75.11700	13:56:24	D	6.50
111	TARN TARAN	KHADUR SAHIB	AQUA	31.41100	75.12700	13:56:24	D	14.30
112	TARN TARAN	KHADUR SAHIB	AQUA	31.45900	75.07900	13:56:24	D	35.50
113	TARN TARAN	KHADUR SAHIB	AQUA	31.46100	75.08900	13:56:24	D	5.20
114	TARN TARAN	KHADUR SAHIB	AQUA	31.46500	75.12100	13:56:24	D	6.90
115	TARN TARAN	KHADUR SAHIB	AQUA	31.47200	75.22700	13:56:24	D	9.20
116	TARN TARAN	KHADUR SAHIB	AQUA	31.49200	75.23400	13:56:24	D	10.20
117	TARN TARAN	KHADUR SAHIB	AQUA	31.49500	75.07100	13:56:24	D	12.00
118	TARN TARAN	KHADUR SAHIB	AQUA	31.50400	75.06900	13:56:24	D	8.80
119	TARN TARAN	KHADUR SAHIB	S-NPP	31.44550	75.17434	12:57:39	D	3.60
120	TARN TARAN	TARN TARAN	AQUA	31.48900	74.97500	13:56:24	D	6.40
121	TARN TARAN	TARN TARAN	S-NPP	31.45509	74.87127	12:57:39	D	11.60
122	TARN TARAN	TARN TARAN	S-NPP	31.45632	74.87676	12:57:39	D	12.10
123	TARN TARAN	TARN TARAN	S-NPP	31.52319	75.04782	12:57:39	D	4.00

### Details of residue burning events in Haryana on 01-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMBALA	SAHA	S-NPP	30.36525	76.97035	12:57:39	D	7.80
2	JIND	UCHANA	S-NPP	29.47935	76.21278	12:57:39	D	2.60
3	KAITHAL	PUNDRI	S-NPP	29.73747	76.68359	12:57:39	D	4.10
4	KAITHAL	PUNDRI	S-NPP	29.73886	76.68443	12:57:39	D	3.80
5	KARNAL	INDRI	AQUA	29.94900	76.98800	13:56:24	D	10.10
6	KURUKSHETRA	BABAIN	S-NPP	30.04224	76.97990	12:57:39	D	3.70
7	KURUKSHETRA	BABAIN	S-NPP	30.08582	77.04257	12:57:39	D	6.90
8	KURUKSHETRA	ISMAILABAD	AQUA	30.18600	76.71500	13:56:24	D	4.70
9	KURUKSHETRA	LADWA	AQUA	30.04300	77.07600	13:56:24	D	5.70
10	KURUKSHETRA	SHAHBAD	S-NPP	30.17171	76.90411	12:57:39	D	5.50
11	KURUKSHETRA	THANESAR	S-NPP	30.05856	76.90981	12:57:39	D	3.50
12	PALWAL	HODAL	S-NPP	27.93587	77.45319	12:57:39	D	4.20
13	PANIPAT	MADLAUDA	S-NPP	29.41918	76.79794	12:57:39	D	1.90
14	SONIPAT	MURTHAL	S-NPP	29.06517	77.12280	12:57:39	D	10.00
15	SONIPAT	SONIPAT	S-NPP	29.01601	76.92426	12:57:39	D	2.10
16	SONIPAT	SONIPAT	S-NPP	29.01839	76.92519	12:57:39	D	2.90
17	YAMUNANAGAR	CHHACHHRAULI	S-NPP	30.22946	77.31377	12:57:39	D	2.30
18	YAMUNANAGAR	JAGADHRI	S-NPP	30.14103	77.39835	12:57:39	D	3.40
19	YAMUNANAGAR	RADAUR	AQUA	30.01900	77.22900	13:56:24	D	7.70
20	YAMUNANAGAR	SADHAURA	AQUA	30.32800	77.20700	13:56:24	D	5.70
21	YAMUNANAGAR	SADHAURA	S-NPP	30.40396	77.24170	12:57:39	D	4.00

### Details of residue burning events in Uttar Pradesh on 01-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	ALIGARH	KHAIR	AQUA	27.94900	77.58000	13:56:24	D	8.30
2	ALIGARH	KHAIR	AQUA	27.97200	77.68000	13:56:24	D	8.60
3	ALIGARH	KHAIR	AQUA	27.97600	77.64800	13:56:24	D	10.10
4	ALIGARH	KHAIR	S-NPP	27.95068	77.69426	12:57:39	D	4.20
5	GHAZIABAD	GHAZIABAD	S-NPP	28.71348	77.58970	12:57:39	D	5.90
6	GHAZIABAD	GHAZIABAD	S-NPP	28.71645	77.58797	12:57:39	D	12.50
7	GHAZIABAD	GHAZIABAD	S-NPP	28.71762	77.58864	12:57:39	D	5.90
8	MATHURA	MAT	S-NPP	27.93334	77.71694	12:57:39	D	3.60
9	MATHURA	MAT	S-NPP	27.93421	77.72127	12:57:39	D	3.60
10	PILHIBHIT	PURANPUR	S-NPP	28.34933	80.17044	12:57:39	D	2.10
11	PILHIBHIT	PURANPUR	S-NPP	28.50042	79.98540	12:57:39	D	5.10
12	SHAHJAHANPUR	PUWANYA	S-NPP	28.14186	80.12421	01:48:22	N	0.70
13	SHAHJAHANPUR	PUWANYA	S-NPP	28.14338	80.12174	01:48:22	N	1.00
14	SHAHJAHANPUR	PUWANYA	S-NPP	28.27912	80.16491	01:48:22	N	1.30
15	SHAHJAHANPUR	TILHAR	S-NPP	27.93455	79.76404	12:57:39	D	4.00
16	SHAHJAHANPUR	TILHAR	S-NPP	27.93524	79.76670	12:57:39	D	9.70
17	SHAHJAHANPUR	TILHAR	S-NPP	27.93550	79.76910	12:57:39	D	6.10

### Details of residue burning events in Rajasthan on 01-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BARAN	BARAN	AQUA	25.22600	76.43700	13:56:24	D	10.10
2	BARAN	KISHANGUNJ	S-NPP	24.89051	76.89838	12:57:39	D	4.30
3	GANGANAGAR	KARANPUR	AQUA	29.95800	73.55400	13:56:24	D	7.50
4	GANGANAGAR	SADULSHAR	S-NPP	29.91619	74.05053	12:57:39	D	2.30

### Details of residue burning events in Madhya Pradesh on 01-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	GUNA	GUNA	S-NPP	24.76938	76.91395	12:57:39	D	2.90
2	GUNA	GUNA	S-NPP	25.01858	76.96564	12:57:39	D	3.60
3	INDORE	INDORE	S-NPP	22.68114	75.90617	01:48:22	N	4.50
4	MORENA	JORA	S-NPP	26.36914	77.72091	12:57:39	D	3.70
5	MORENA	KAILARAS	S-NPP	26.33218	77.69956	12:57:39	D	3.40
6	MORENA	KAILARAS	S-NPP	26.33246	77.69632	12:57:39	D	4.40
7	RATLAM	PIPLODA	S-NPP	23.58366	74.96761	12:57:39	D	2.60
8	VIDESHA	BASODA	S-NPP	23.71627	78.14027	01:48:22	N	0.80

**The study used data received from following Satellites at NRSC Ground Station**

S. No.	Satellite Name	Sensor	Resolution (meter)	Day / Night Passes
1.	Suomi NPP	VIIRS	375 / 750	Both
2.	Terra	MODIS	1000	Both
3.	Aqua	MODIS	1000	Both

**The rice mask for the Punjab and Haryana were provided by MNCFC, MoA&FW, Govt of India  
The kharif crop mask for Delhi, Uttar Pradesh, Rajasthan and Madhya Pradesh were provided by NRSC (ISRO)**

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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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