



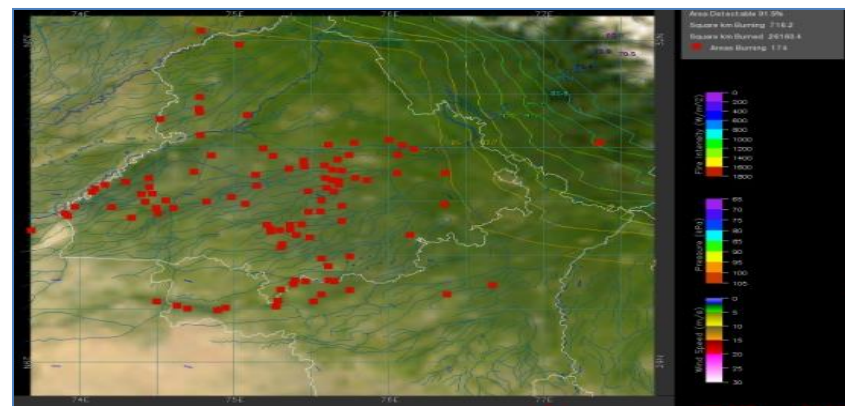
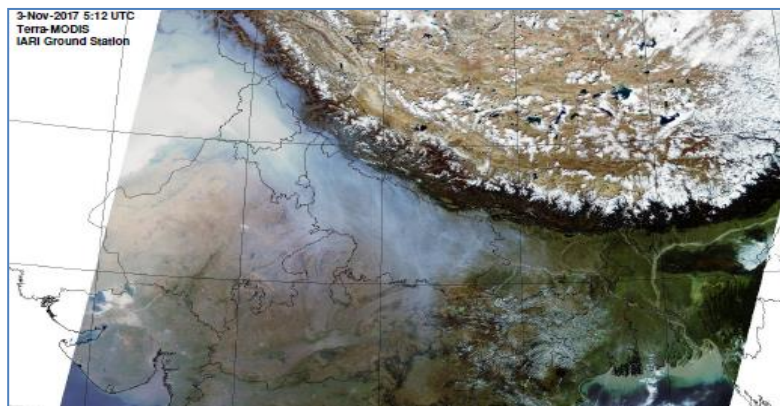
**Bulletin  
No. 21**

**Events Date:  
05-Oct-2023**

**Issued on:  
05-Oct-2023**



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



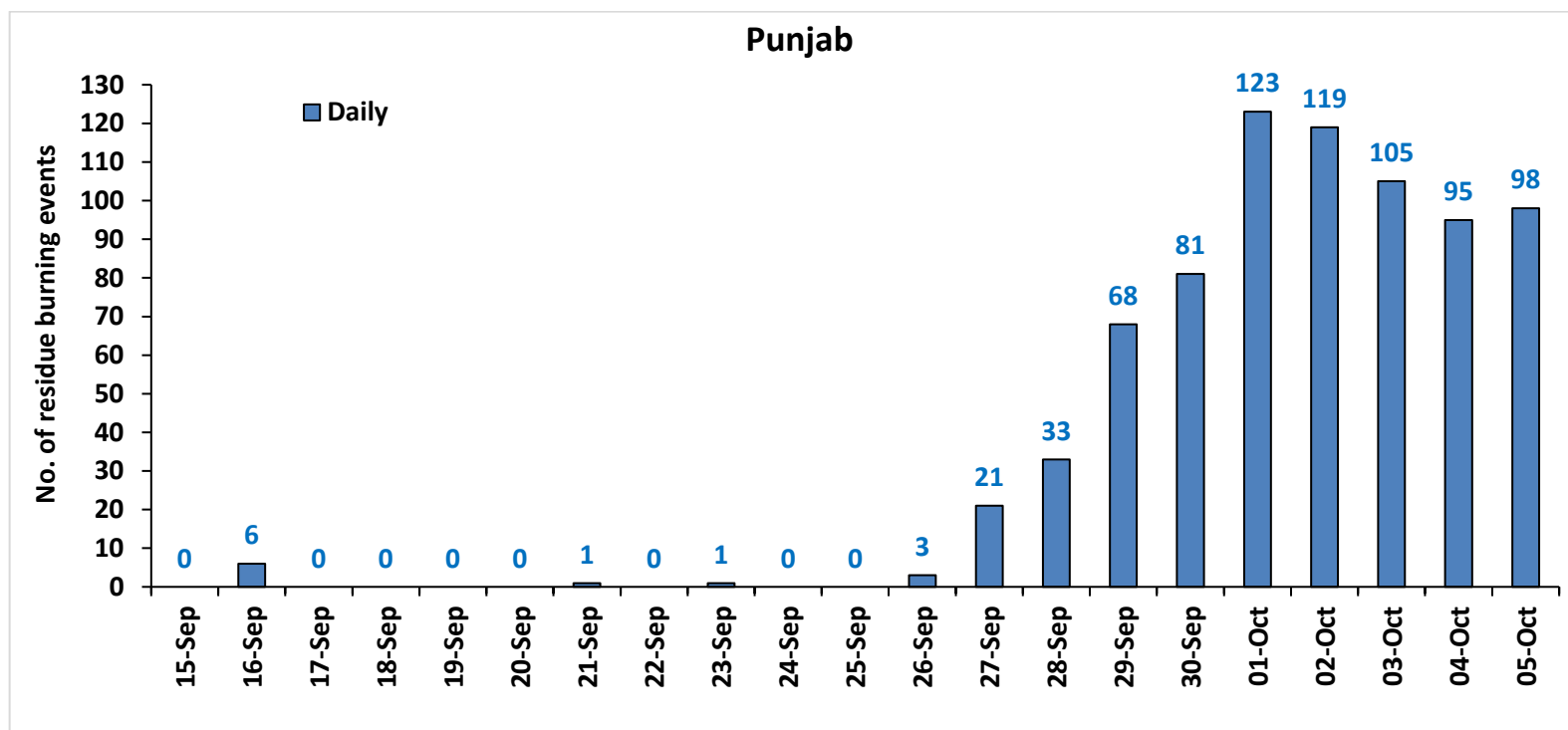
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,  
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

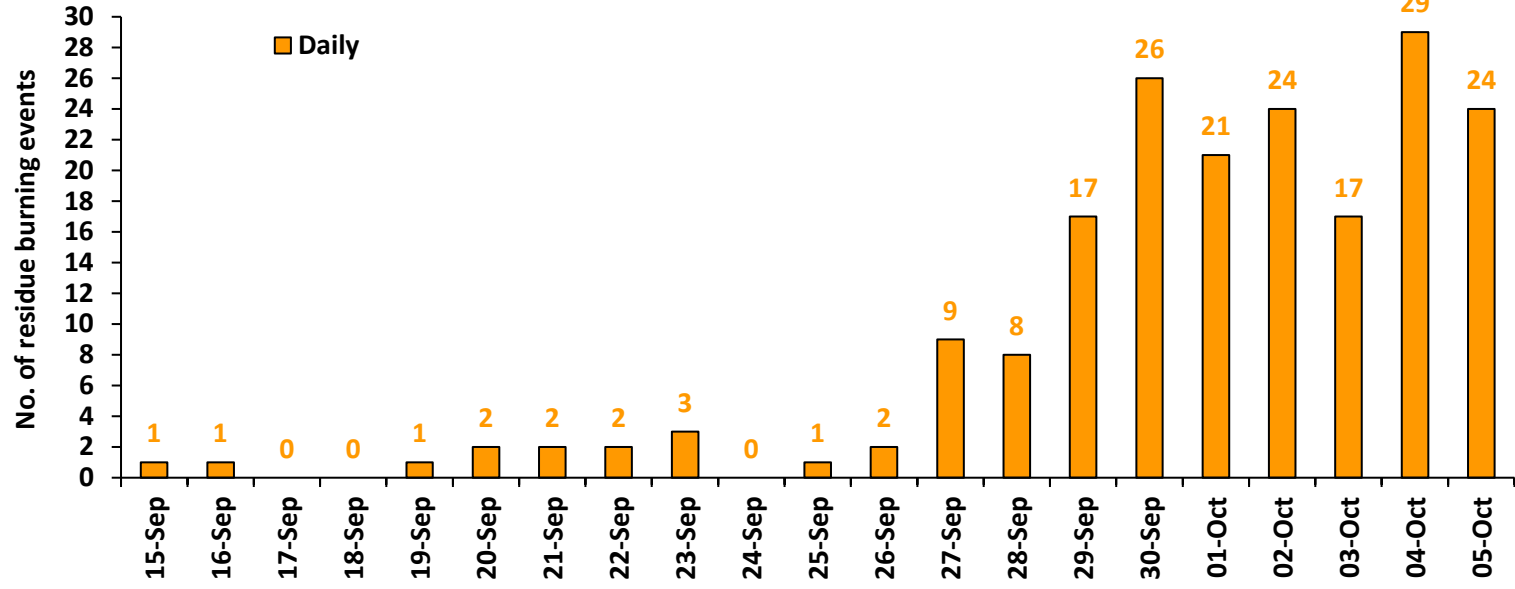
## Highlights for 05-Oct-2023

- 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 **165** residue burning events in the six study States on 05-Oct-2023.
- The state wise events detected on 05-Oct-2023 were **98** in Punjab, **24** in Haryana, **14** in UP, **00** in Delhi, **11** in Rajasthan and **18** in MP.
- Total **1154** burning events were detected in the six states between 15-Sept-2023 and 05-Oct-2023, which are distributed as **754**, **190**, **88**, **01**, **56** and **65** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.
- Detection of residue burning events was hampered by the presence of clouds over eastern Uttar Pradesh state.

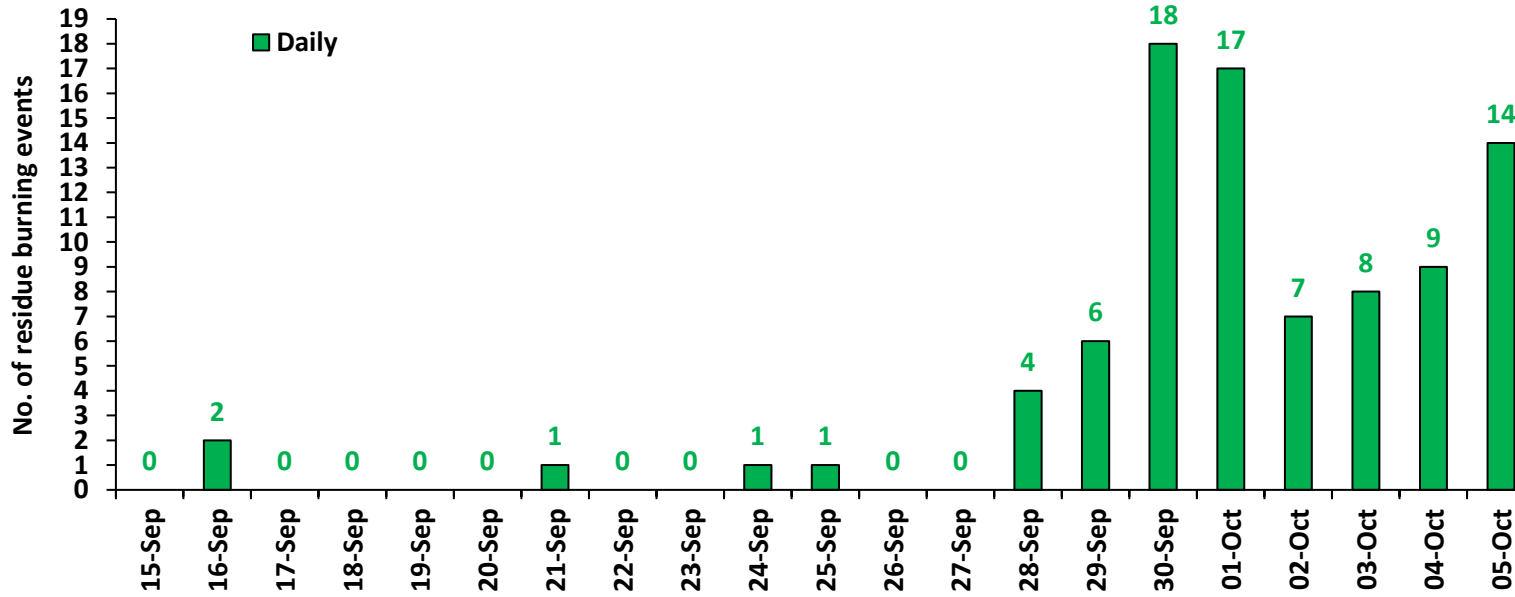
### Temporal distribution of rice residue burning events for the study States in 2023



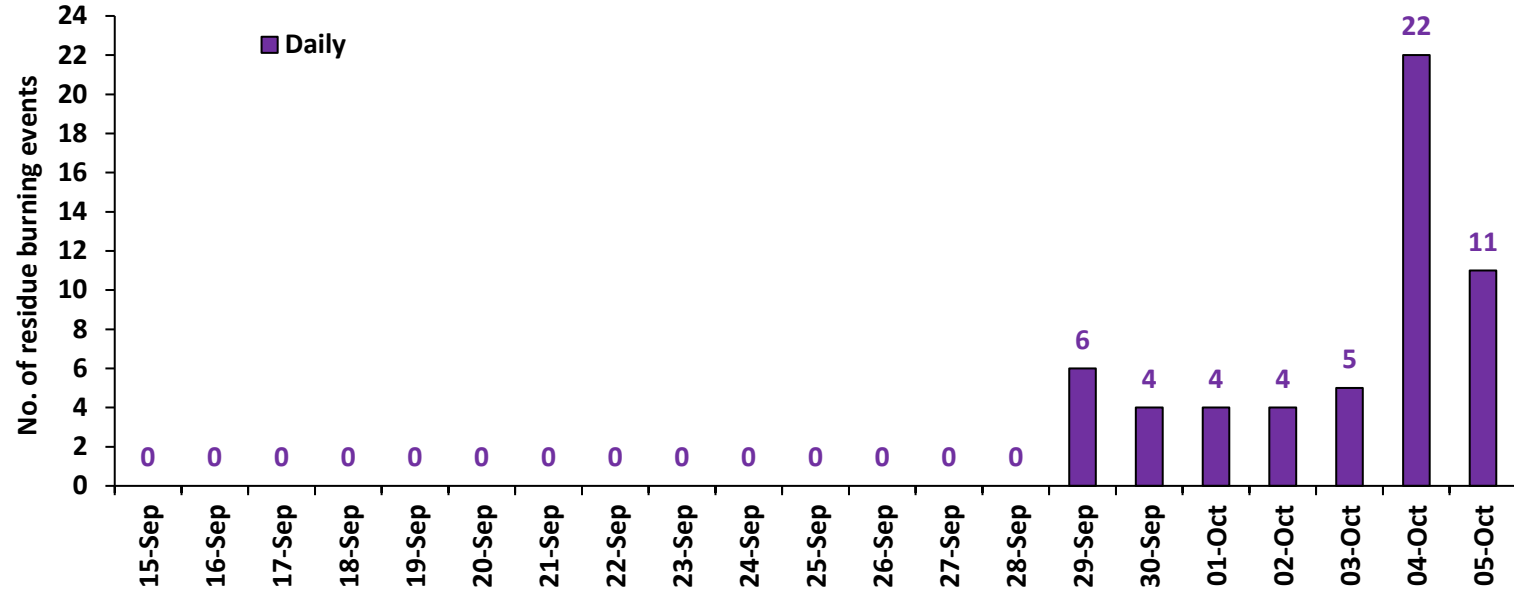
### Haryana



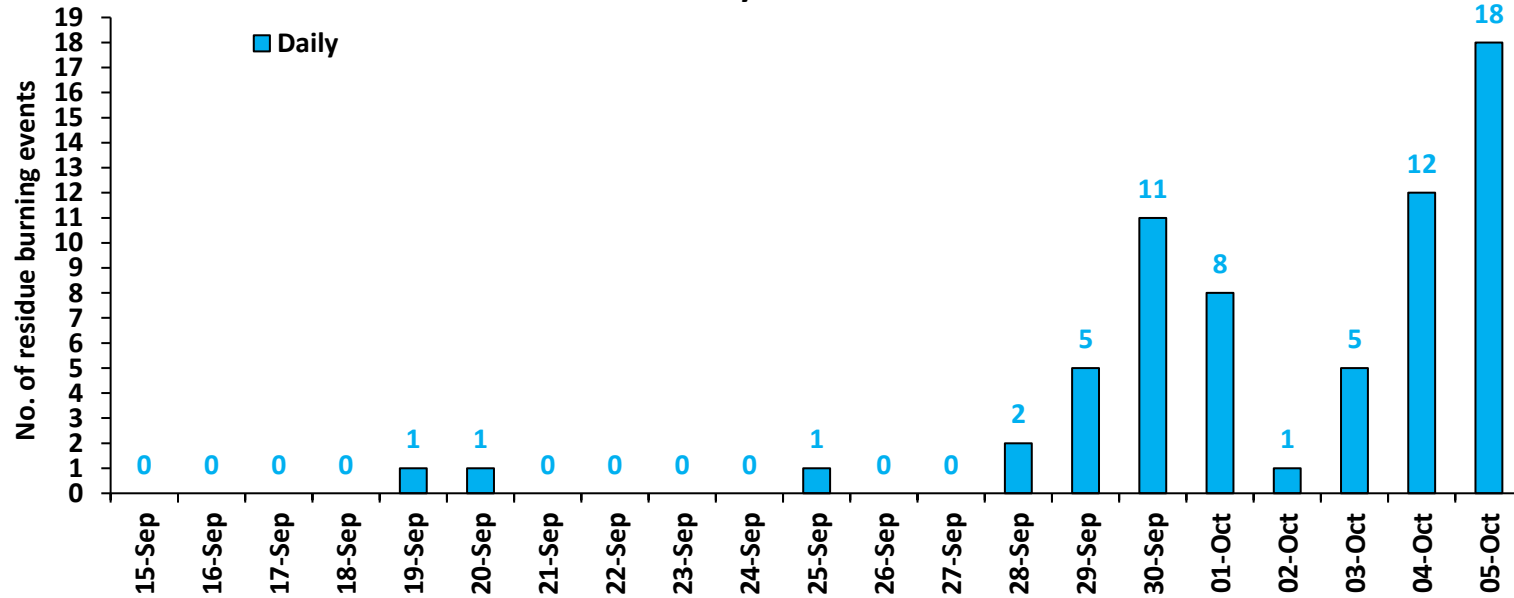
### Uttar Pradesh

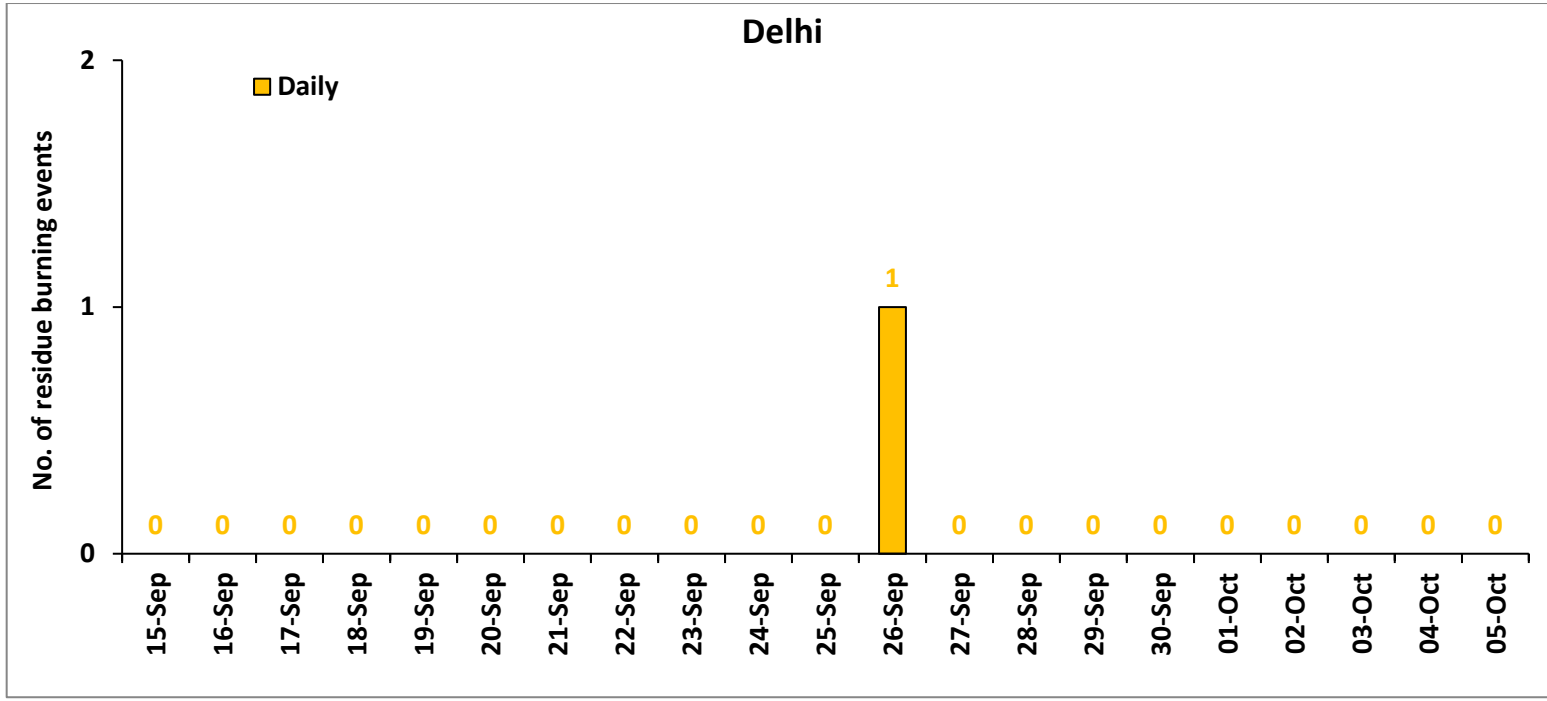


### Rajasthan

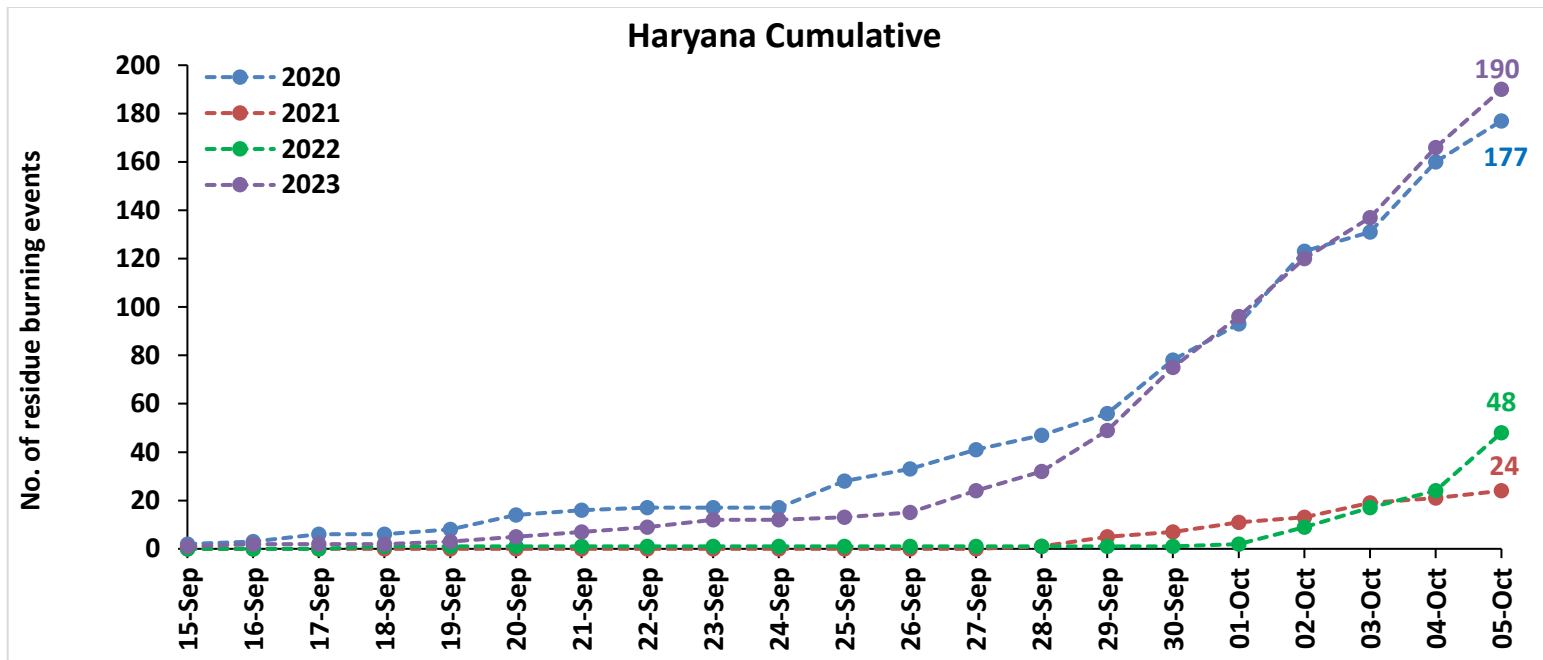
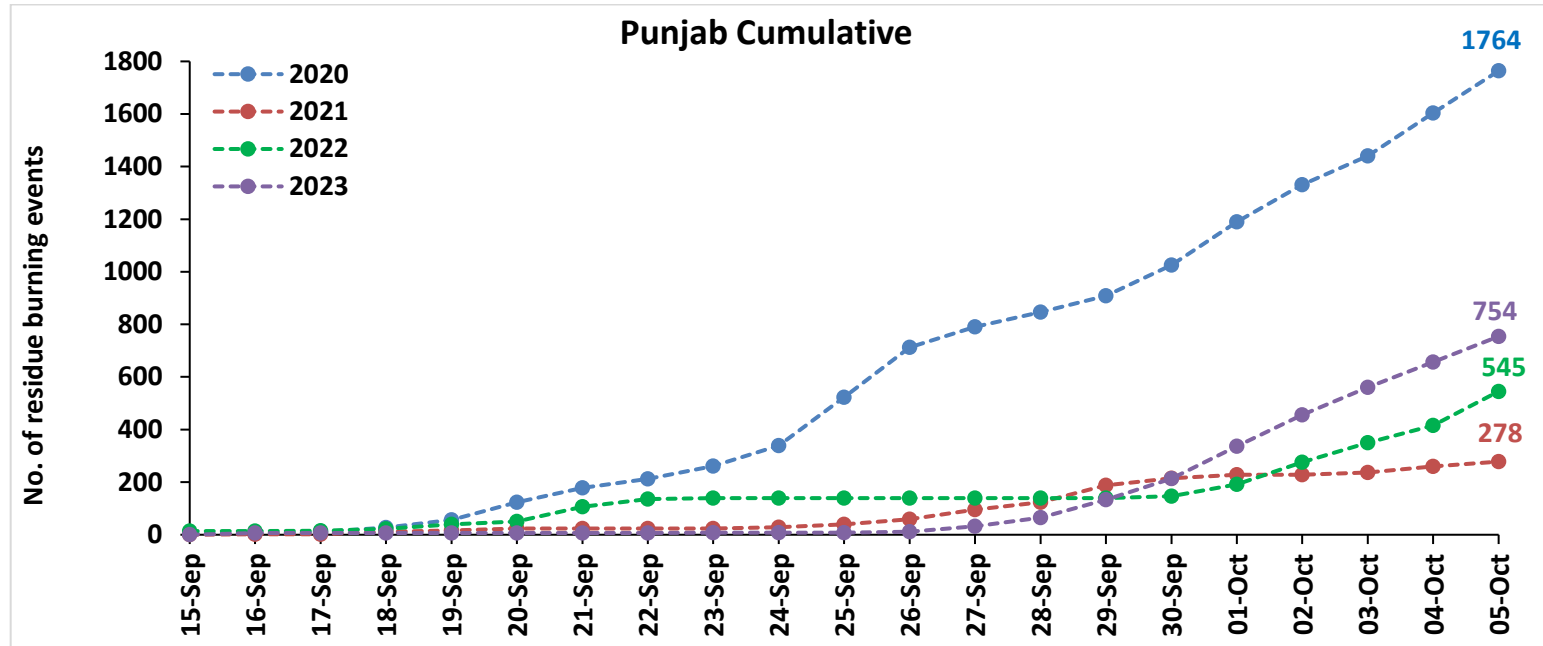


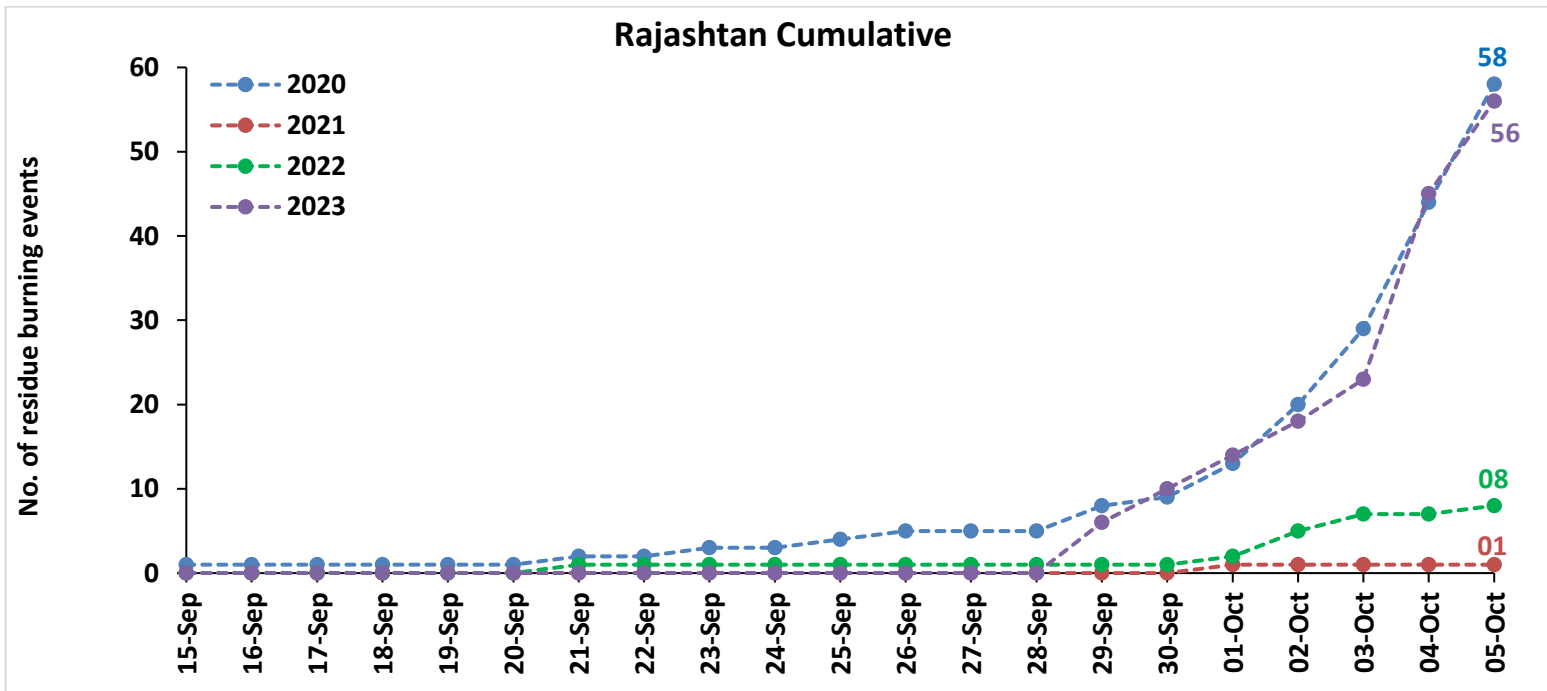
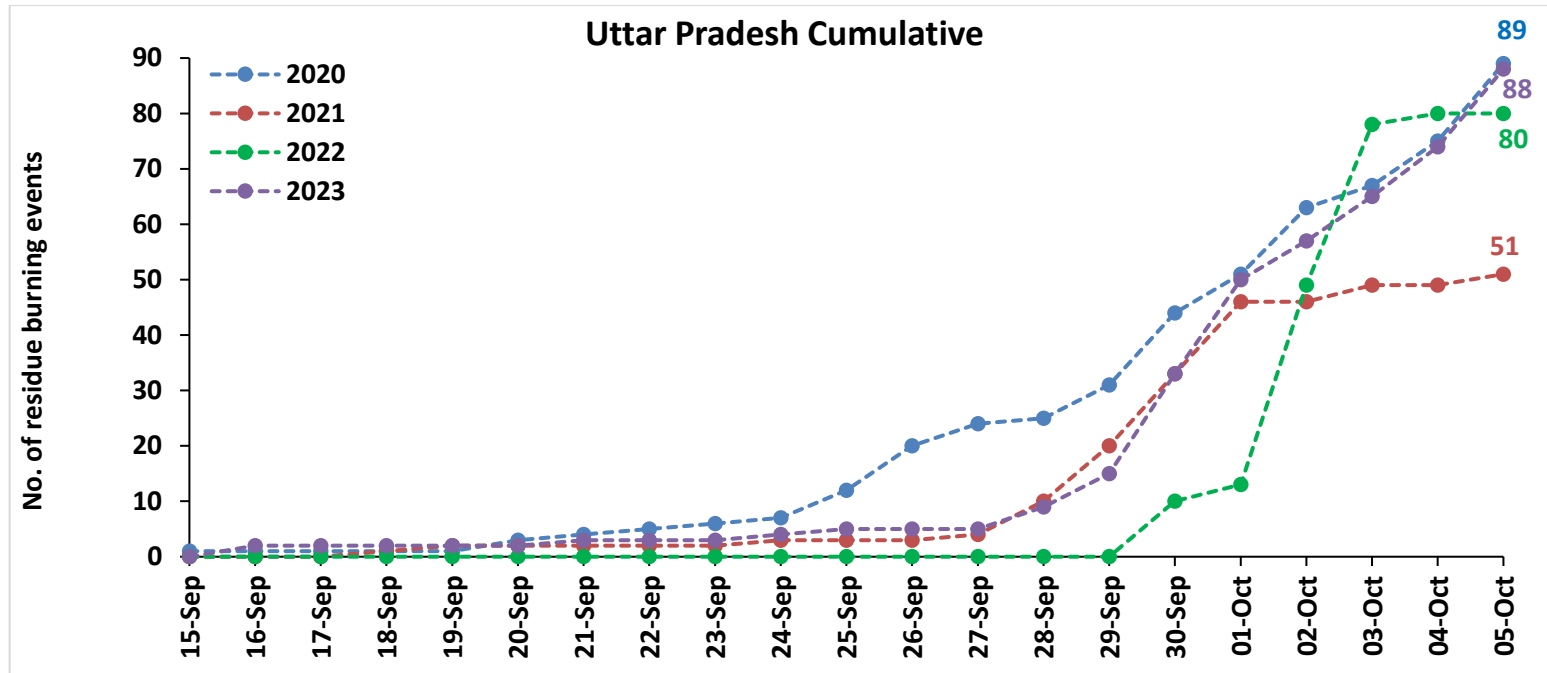
### Madhya Pradesh

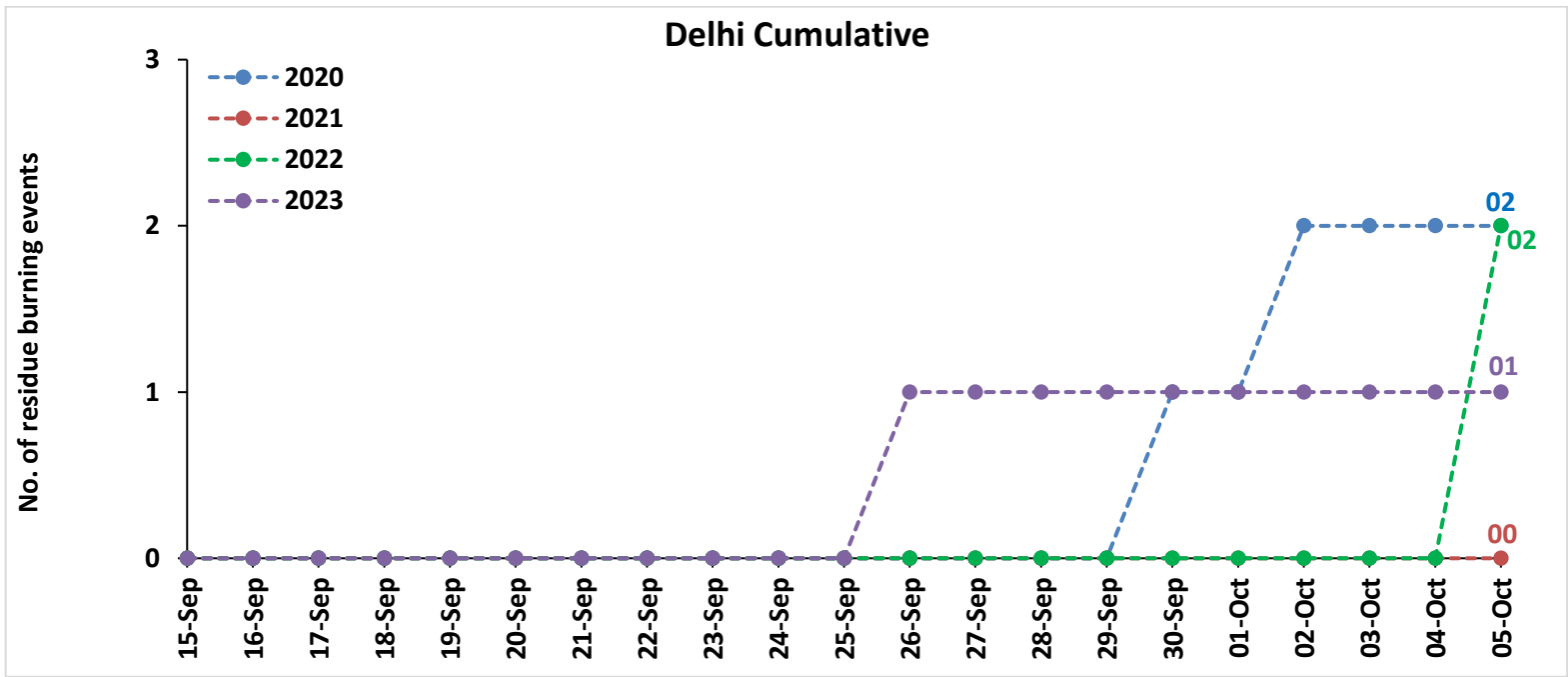
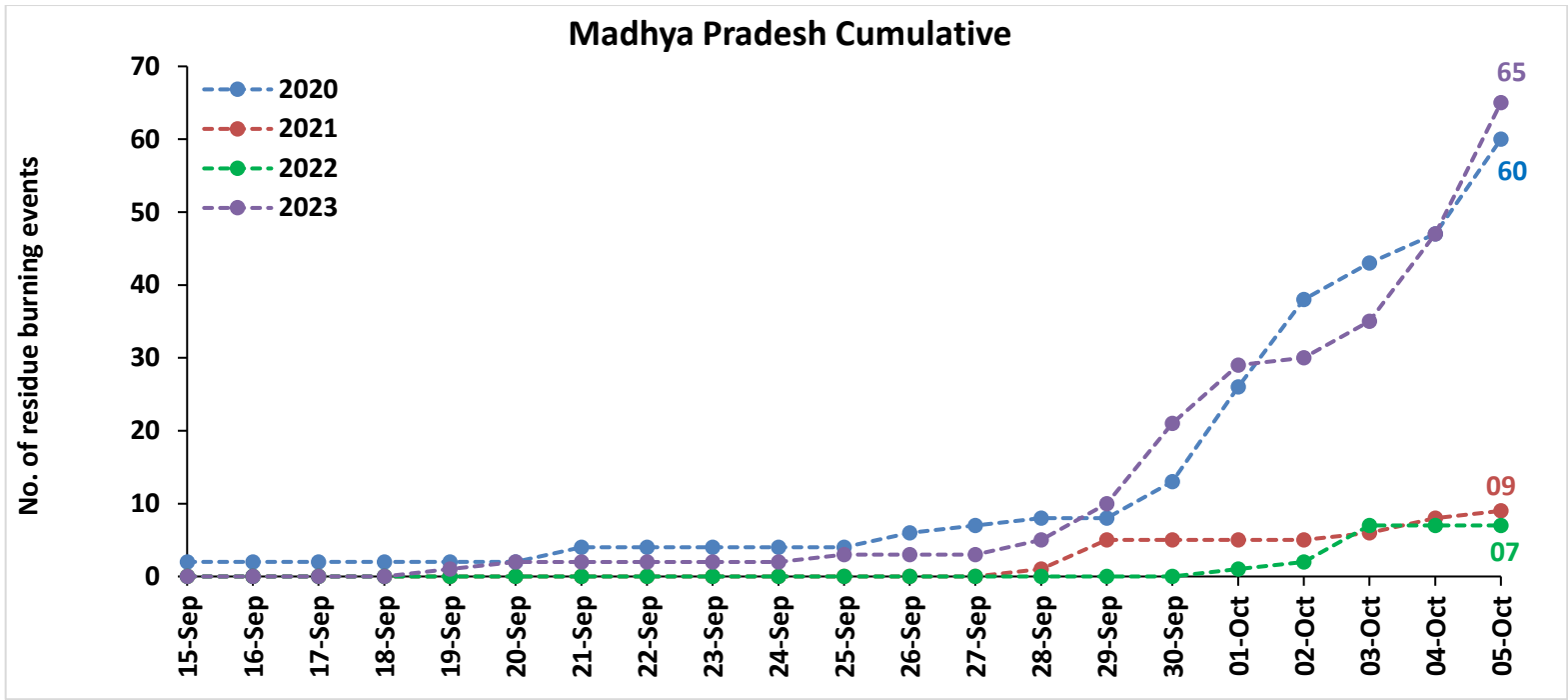




**Comparison of residue burning events in current year (2023) with previous years (2020, 2021 and 2022) for the study State**

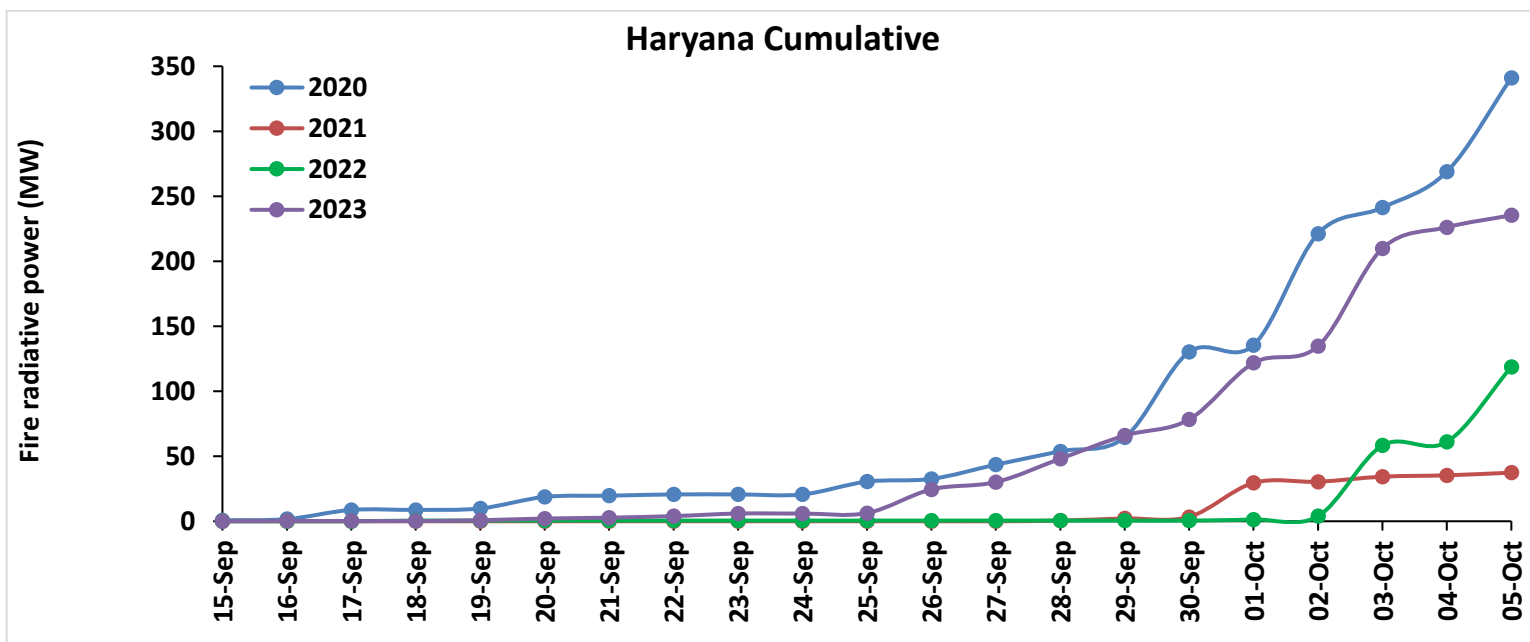
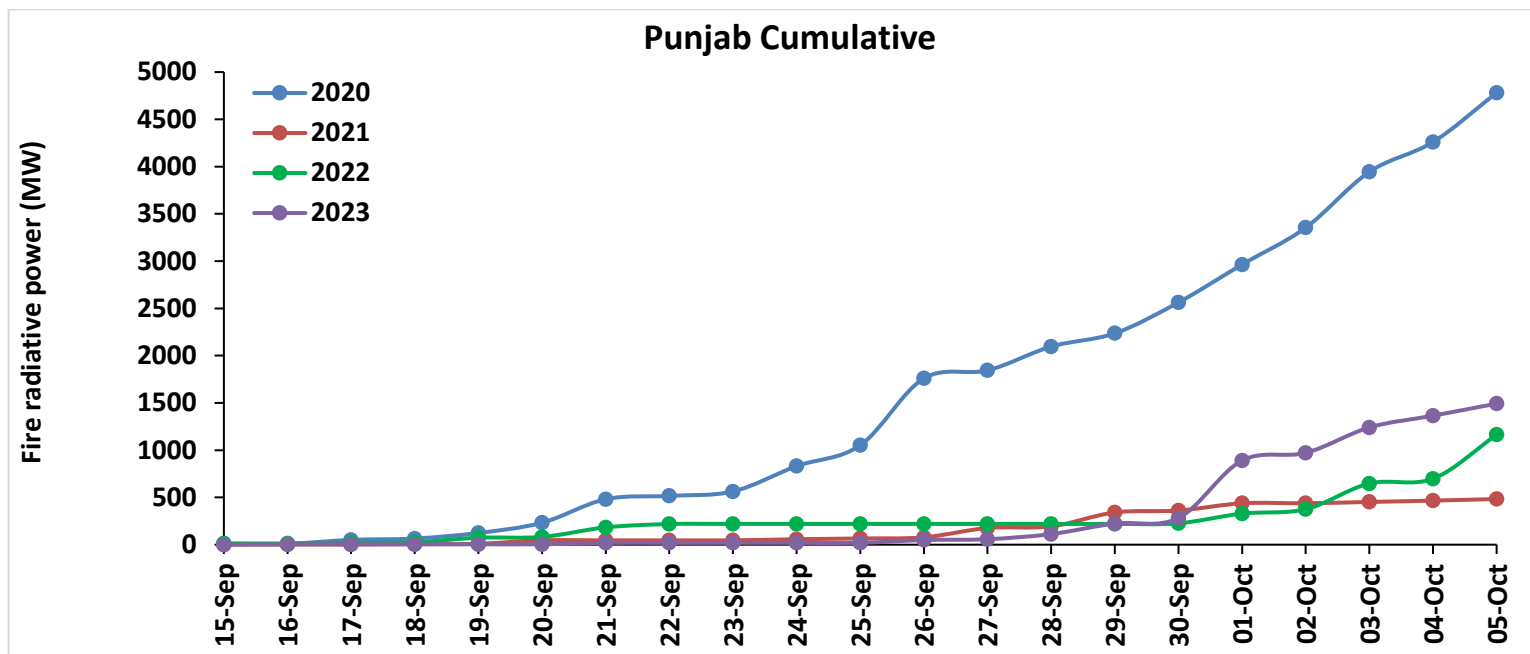


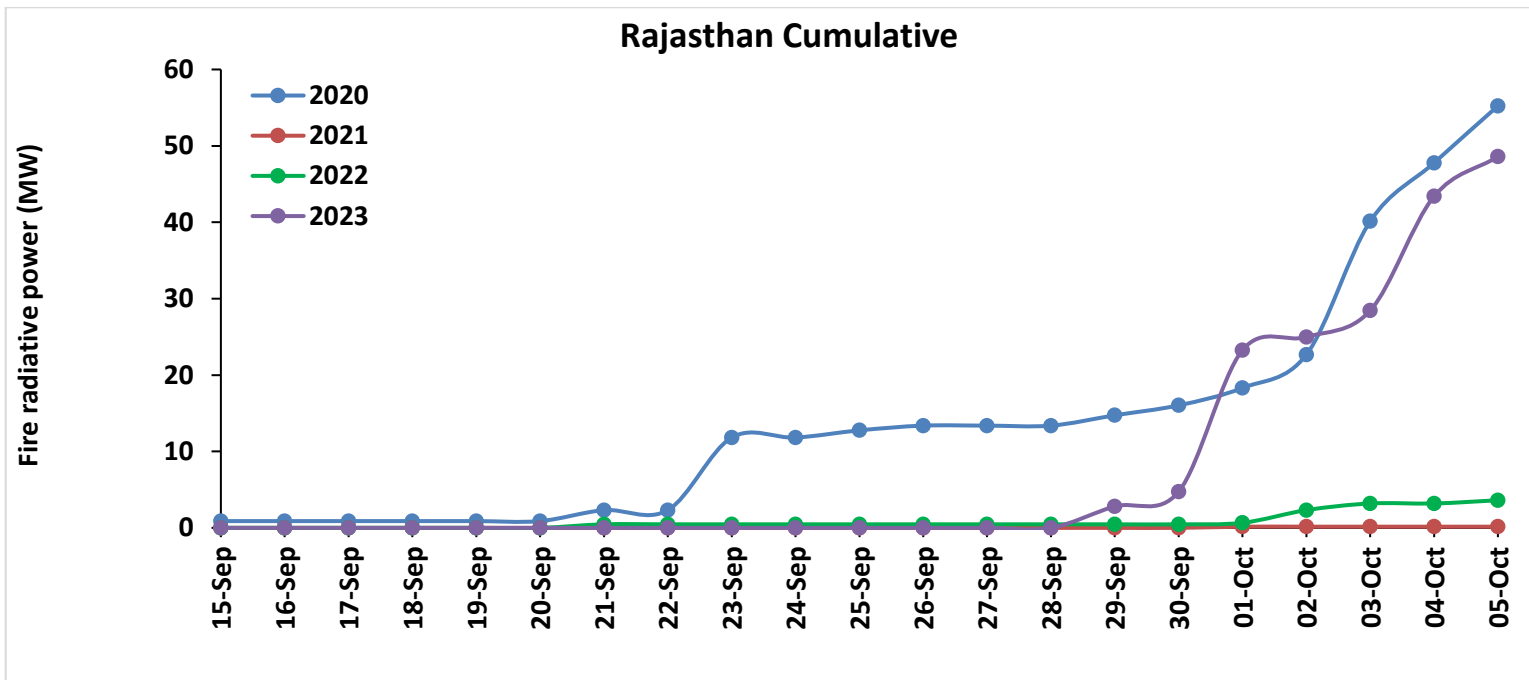
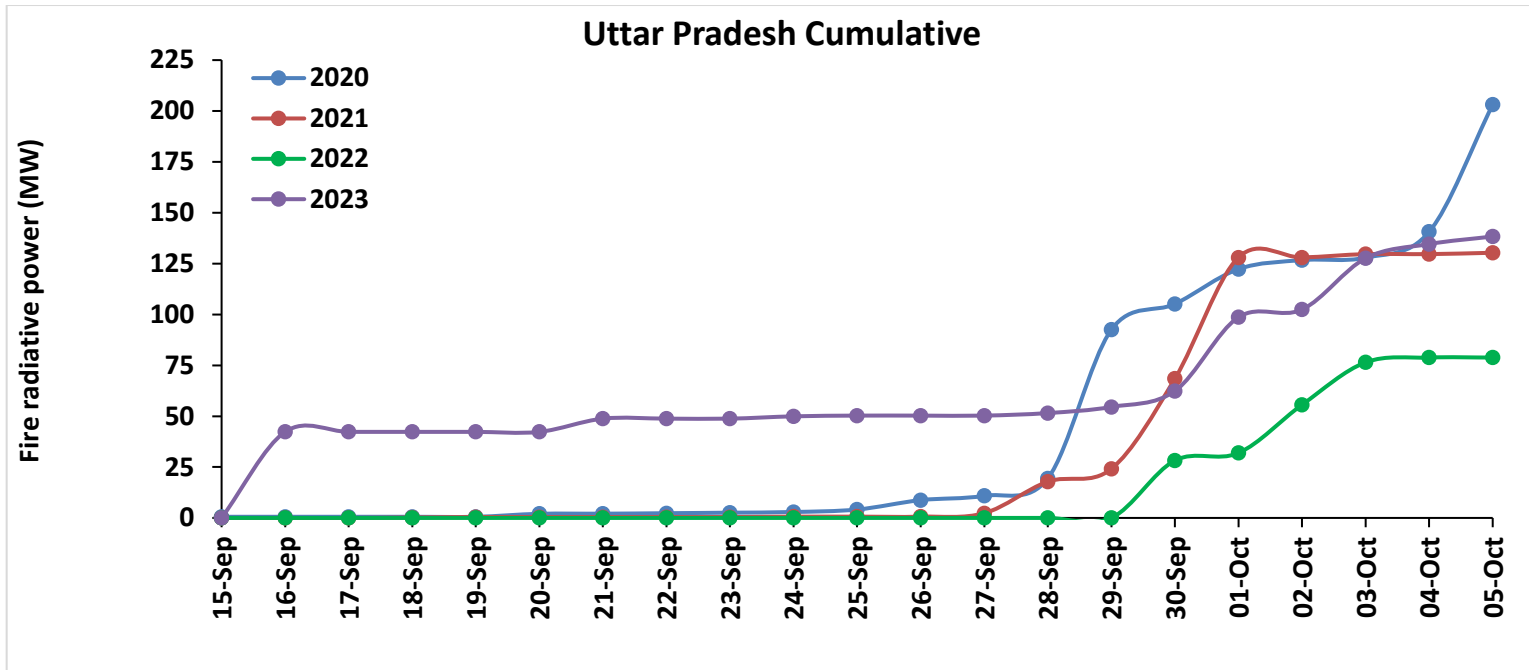


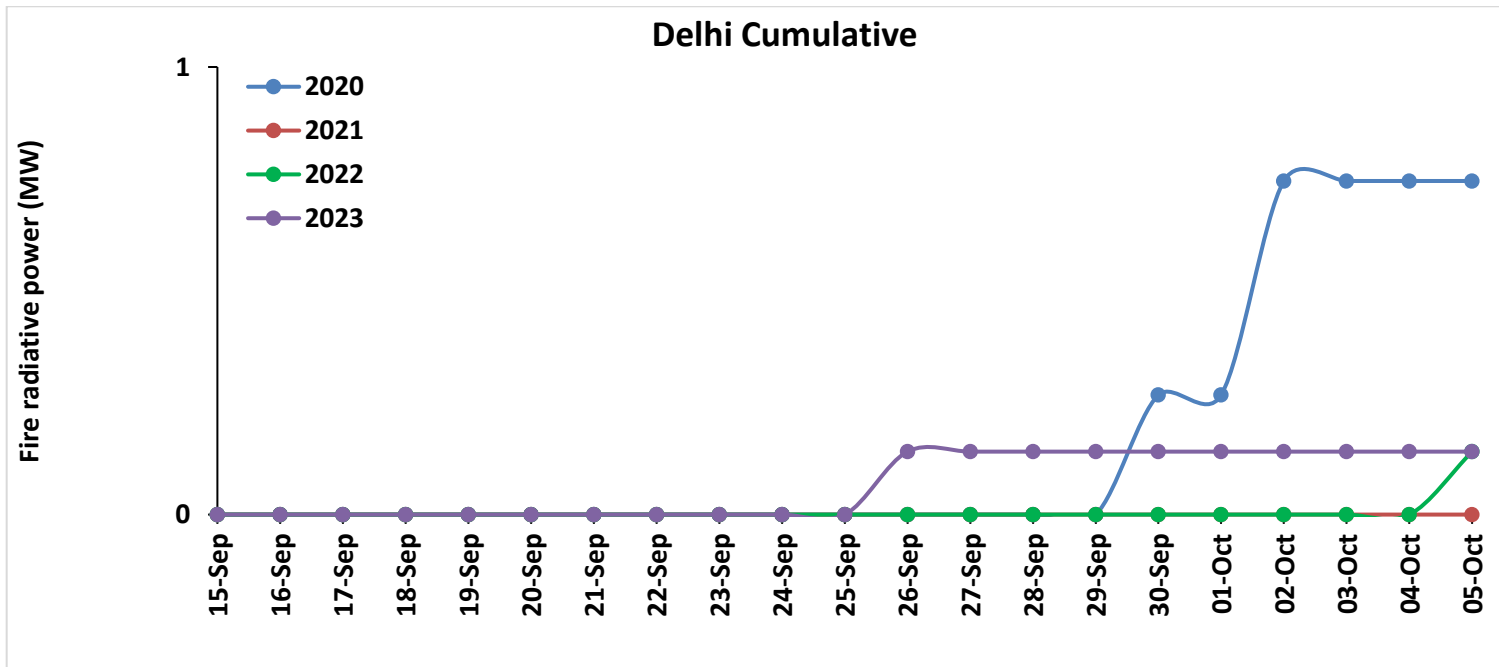
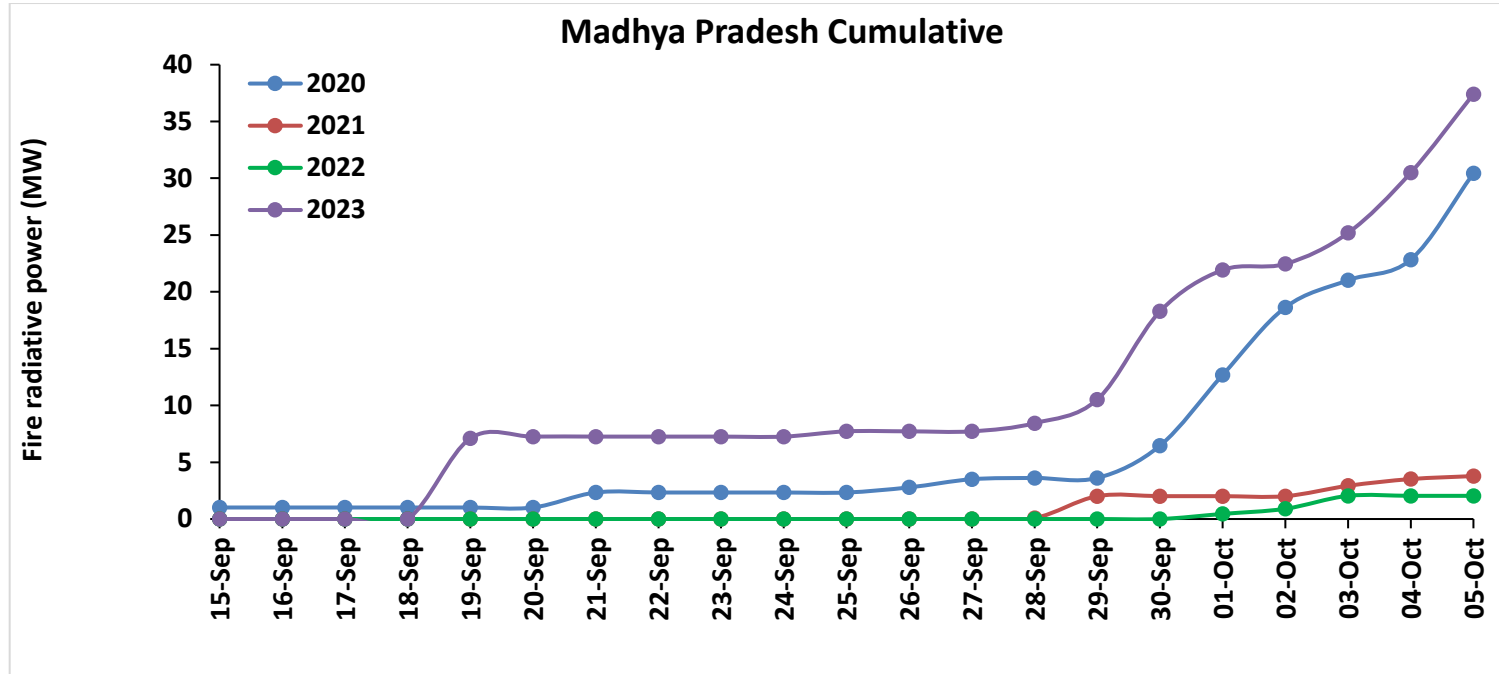




## Comparison of residue burning fire power in current year (2023) with previous years (2020, 2021 and 2022) for the study States

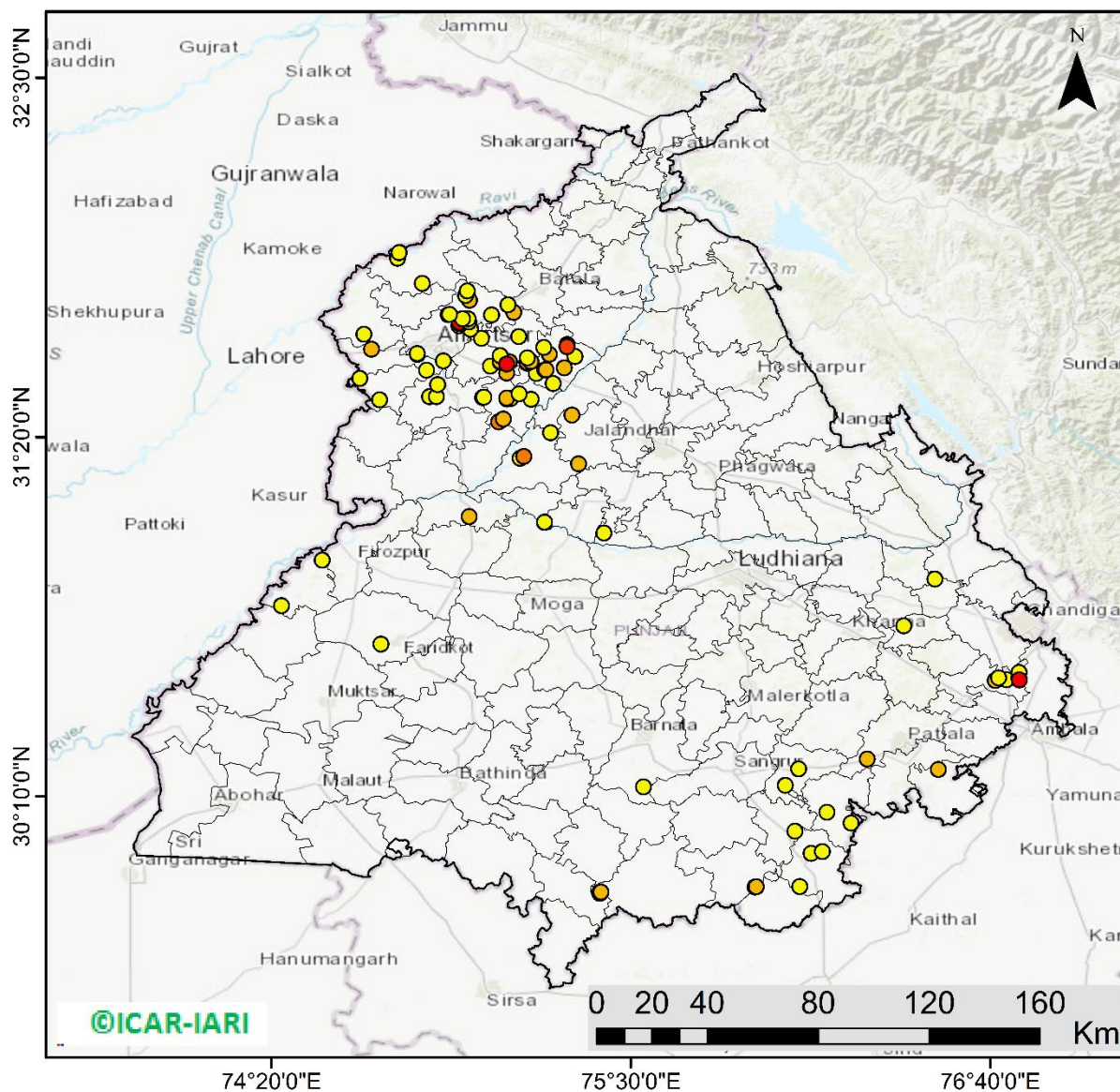






# Punjab

## RICE RESIDUE BURNING IN PUNJAB



**98** burning events  
detected in Punjab during  
(05th Oct 2023)

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

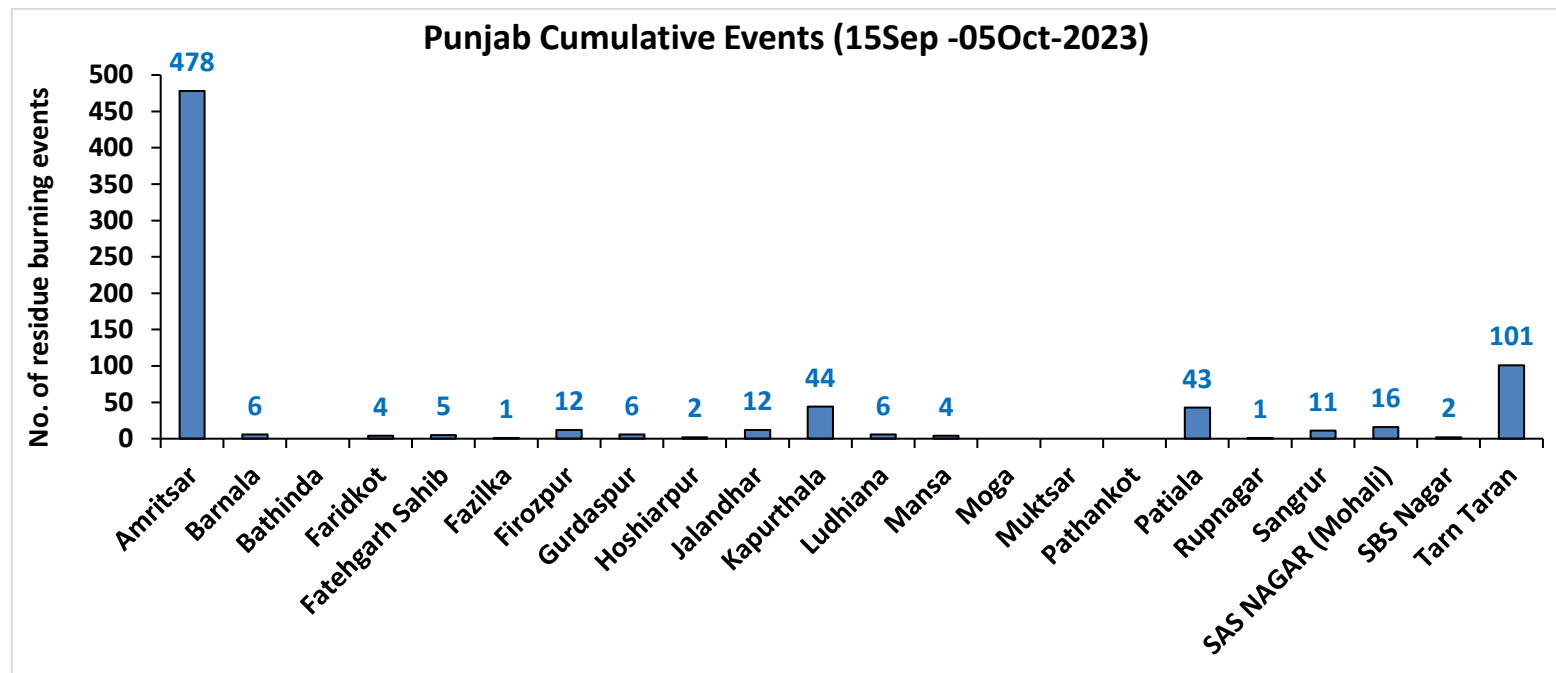
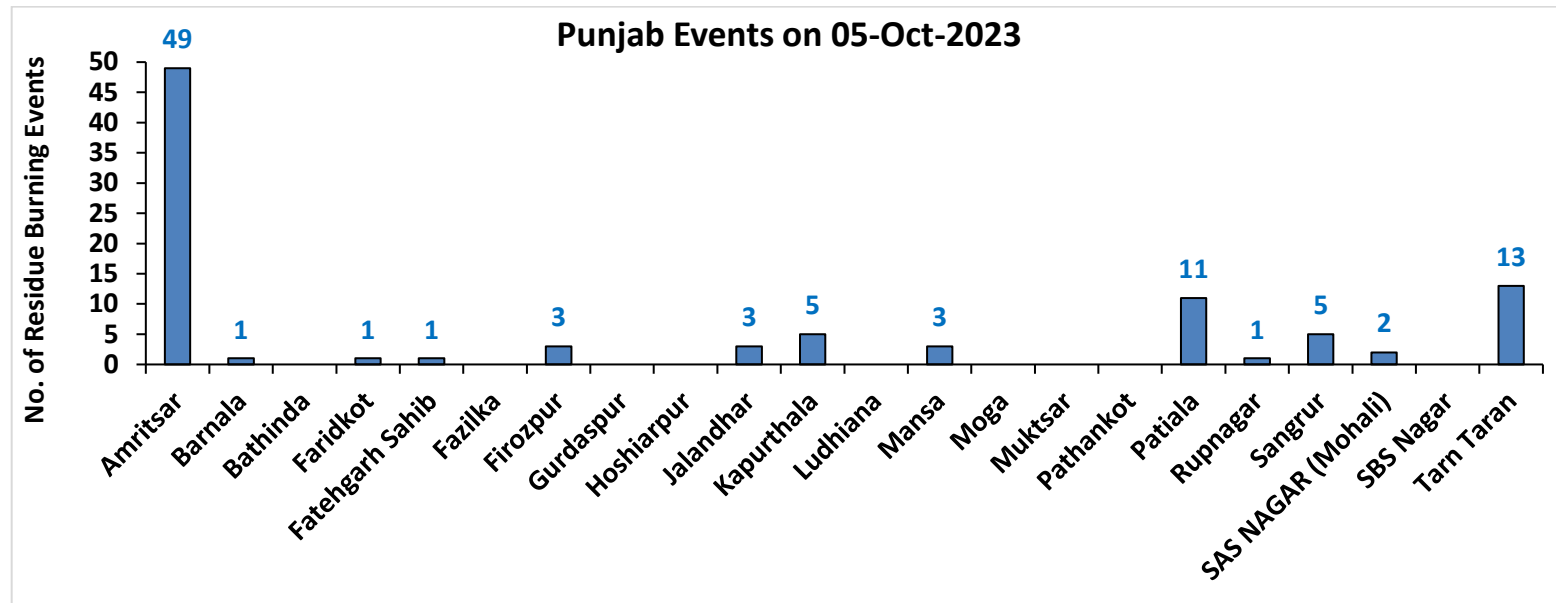
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20

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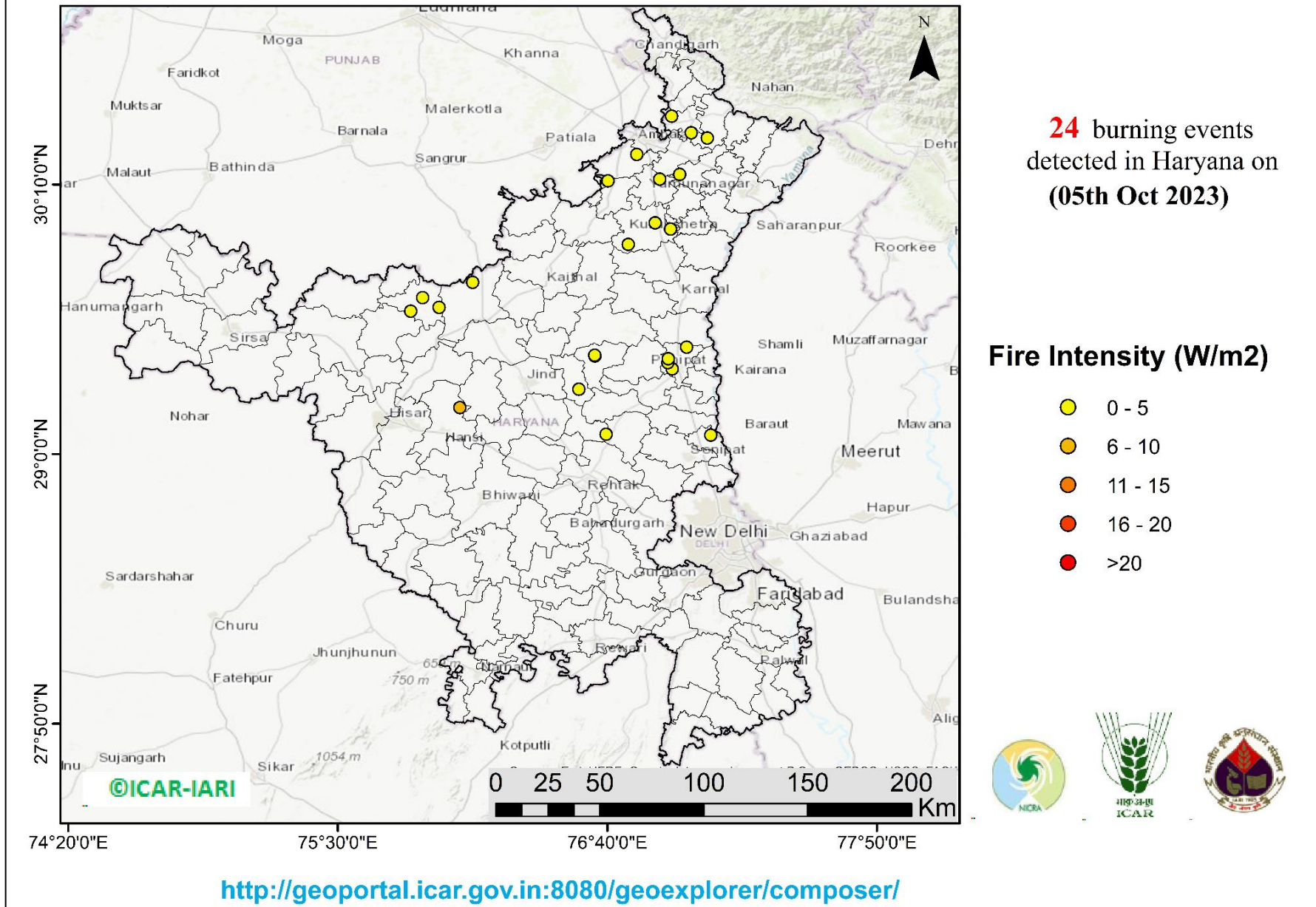
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Punjab (15Sep- 05Oct-2023)



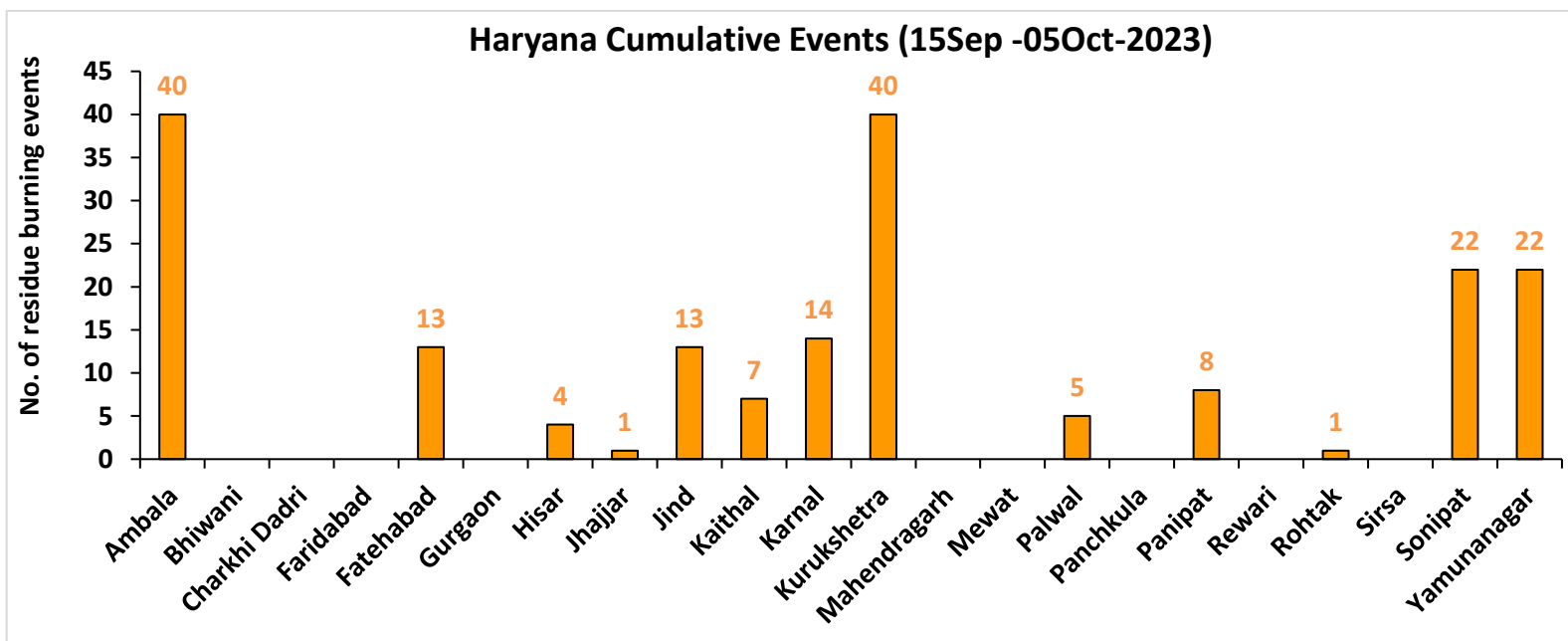
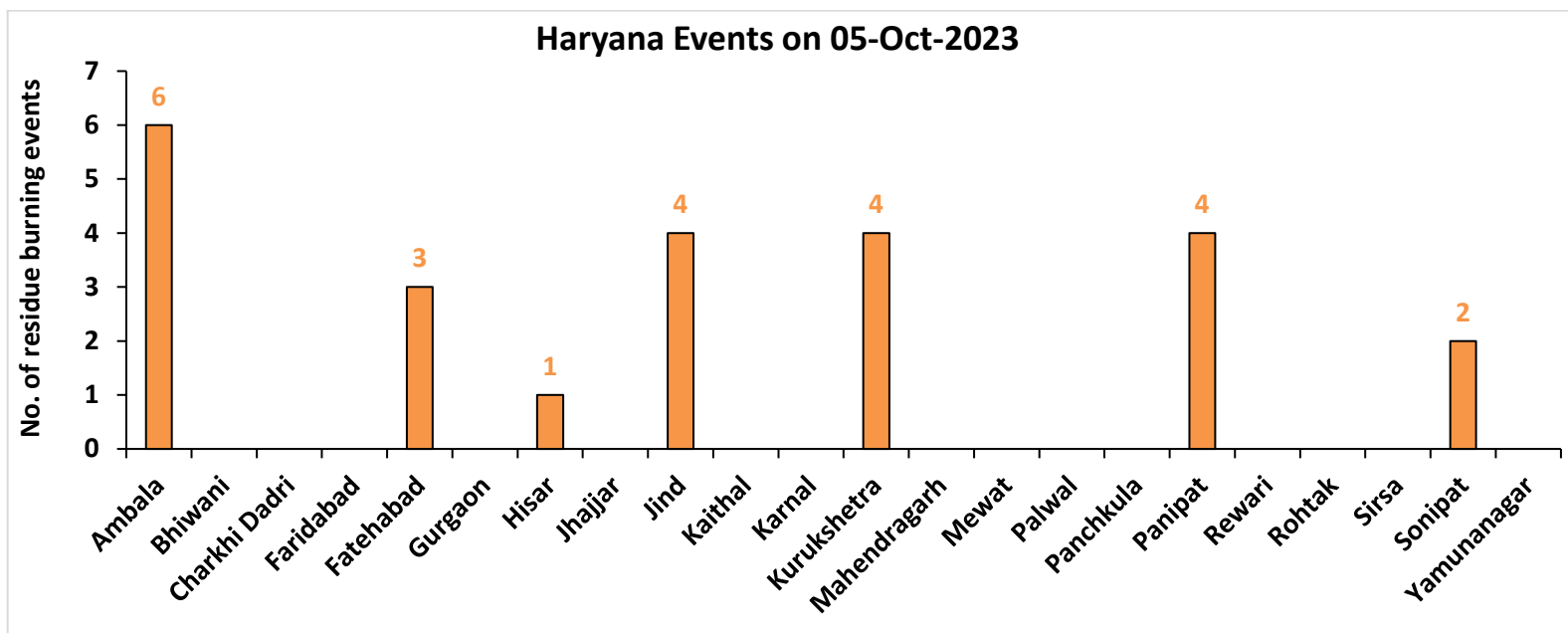
# Haryana

## RICE RESIDUE BURNING IN HARYANA



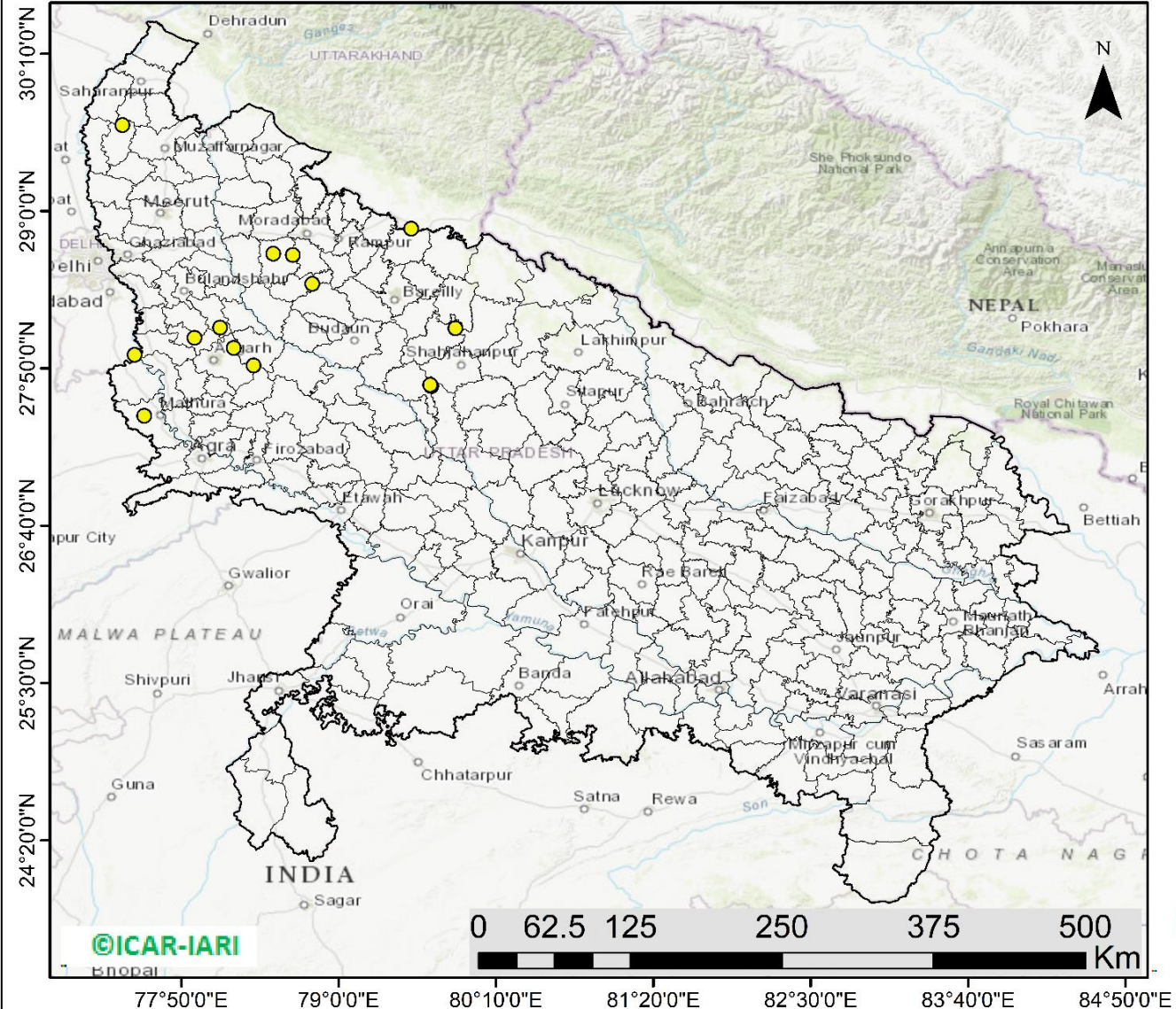


## District-wise cumulative number of residues burning events in Haryana (15Sep-05Oct -2023)



# Uttar Pradesh

## RICE RESIDUE BURNING IN UTTAR PRADESH



**14** burning events detected in Uttar Pradesh on **(05th Oct 2023)**

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

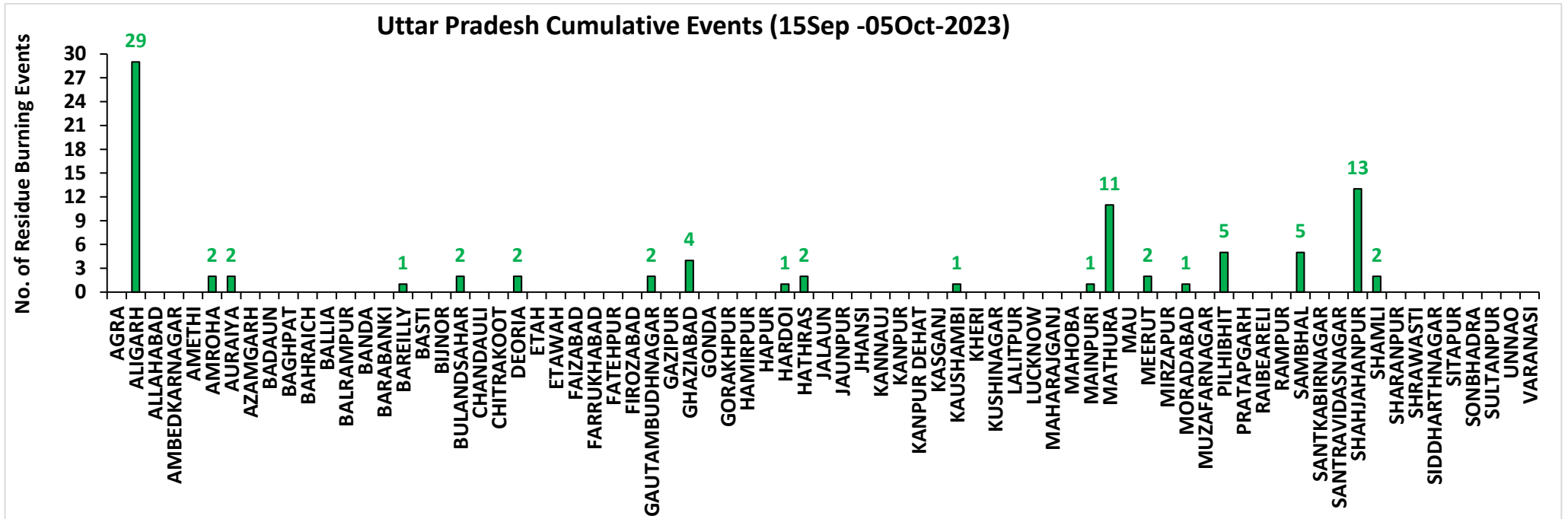
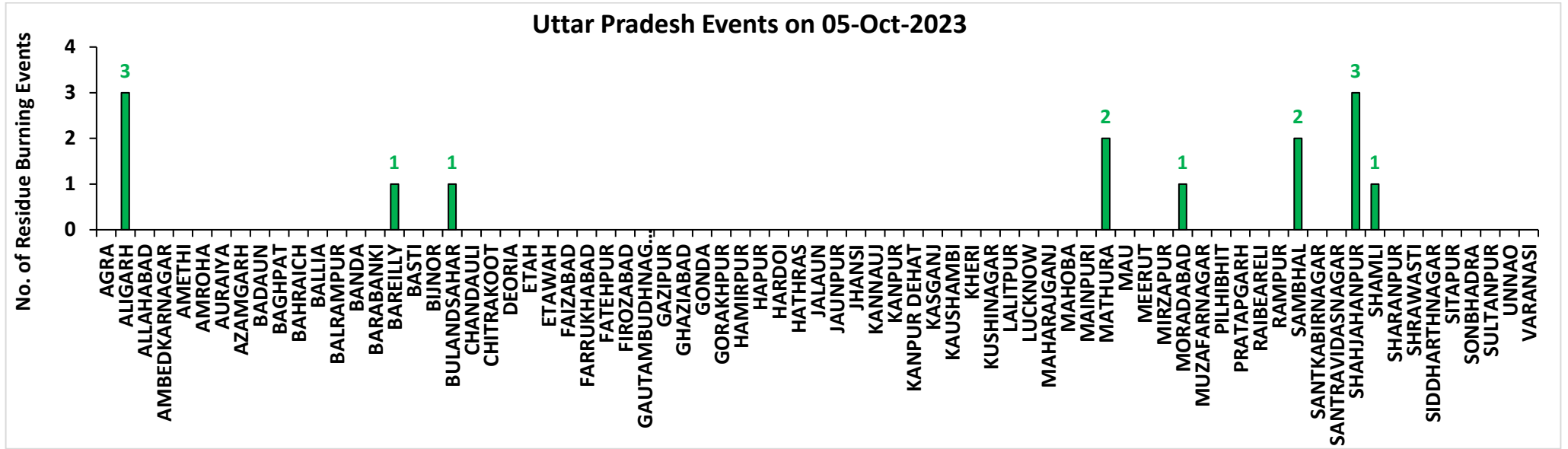
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



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

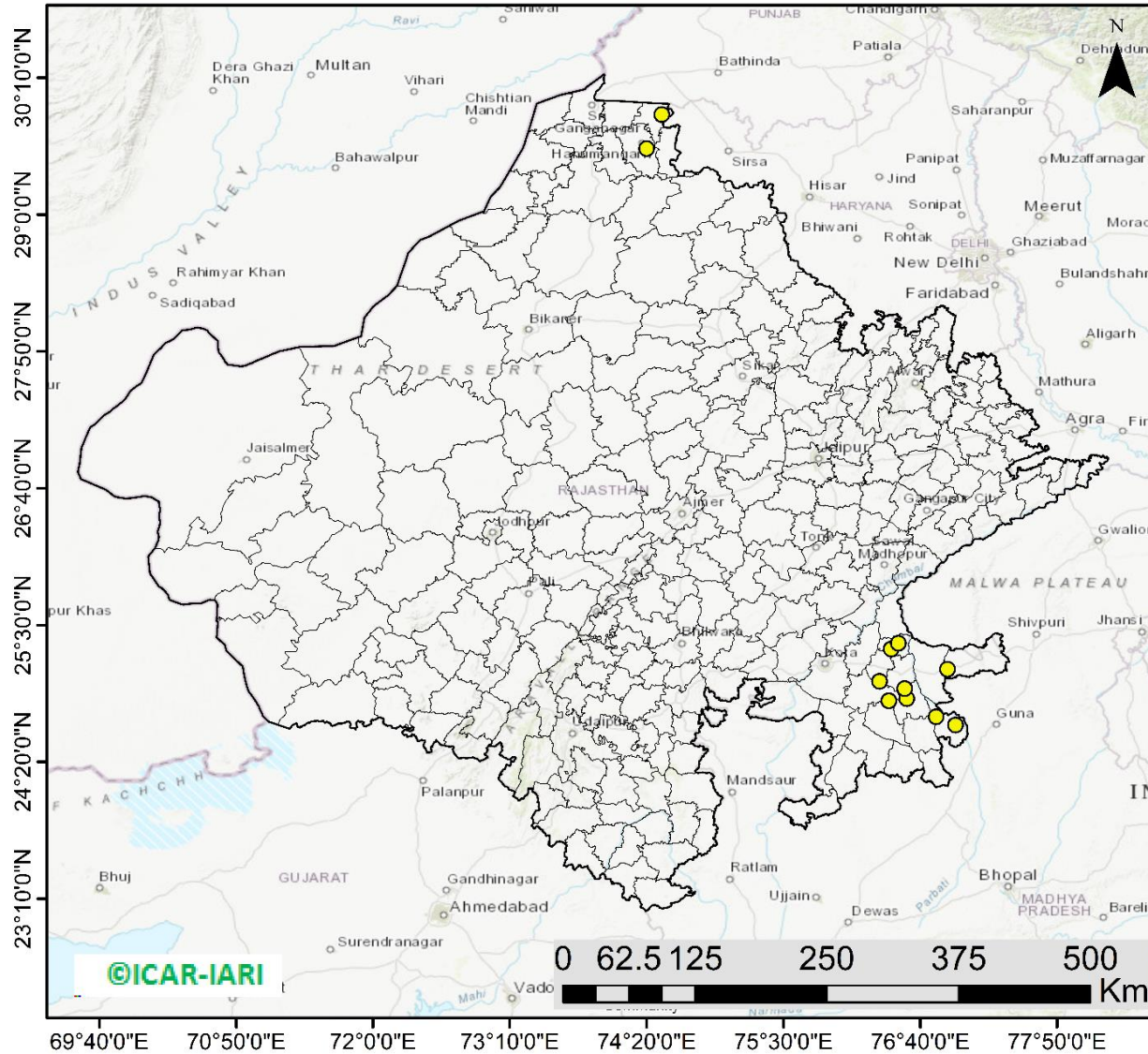


## District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-05Oct -2023)



# Rajasthan

## RICE RESIDUE BURNING IN RAJASTHAN



**11** burning events  
detected in Rajasthan on  
(05th Oct 2023)

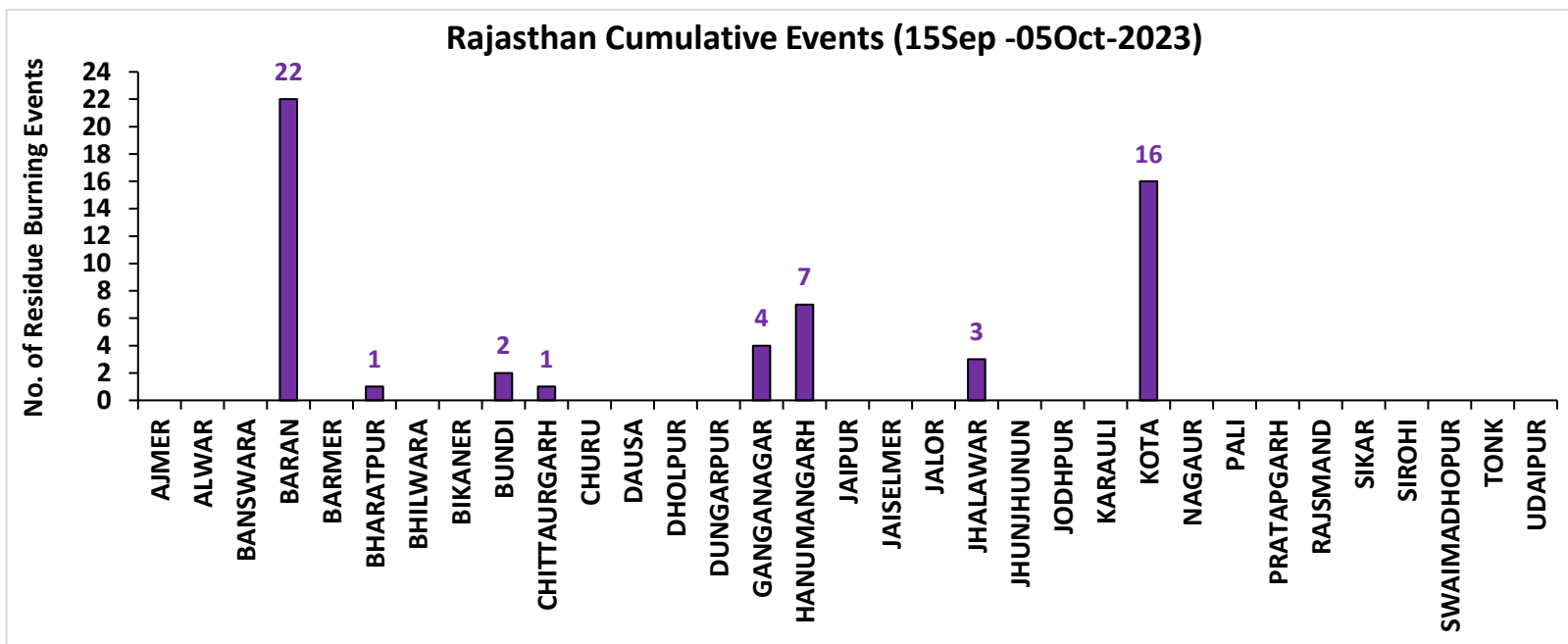
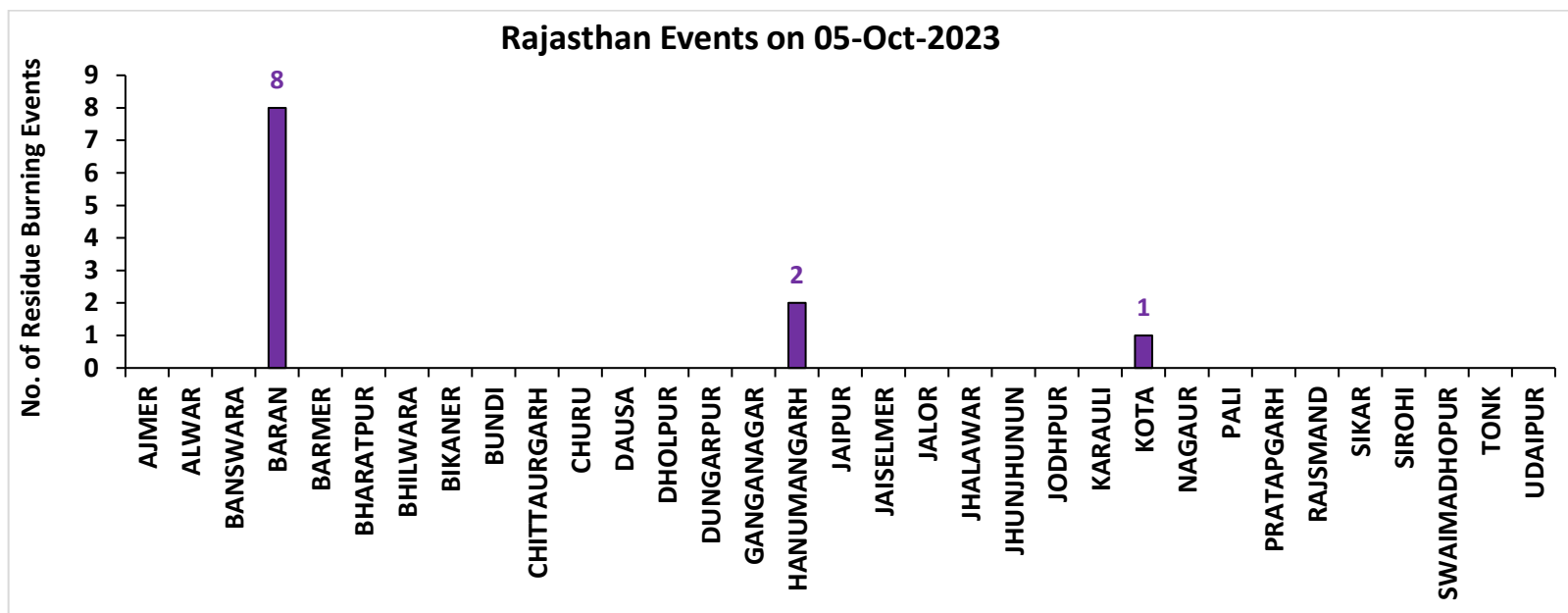
### Fire Intensity (W/m<sup>2</sup>)

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



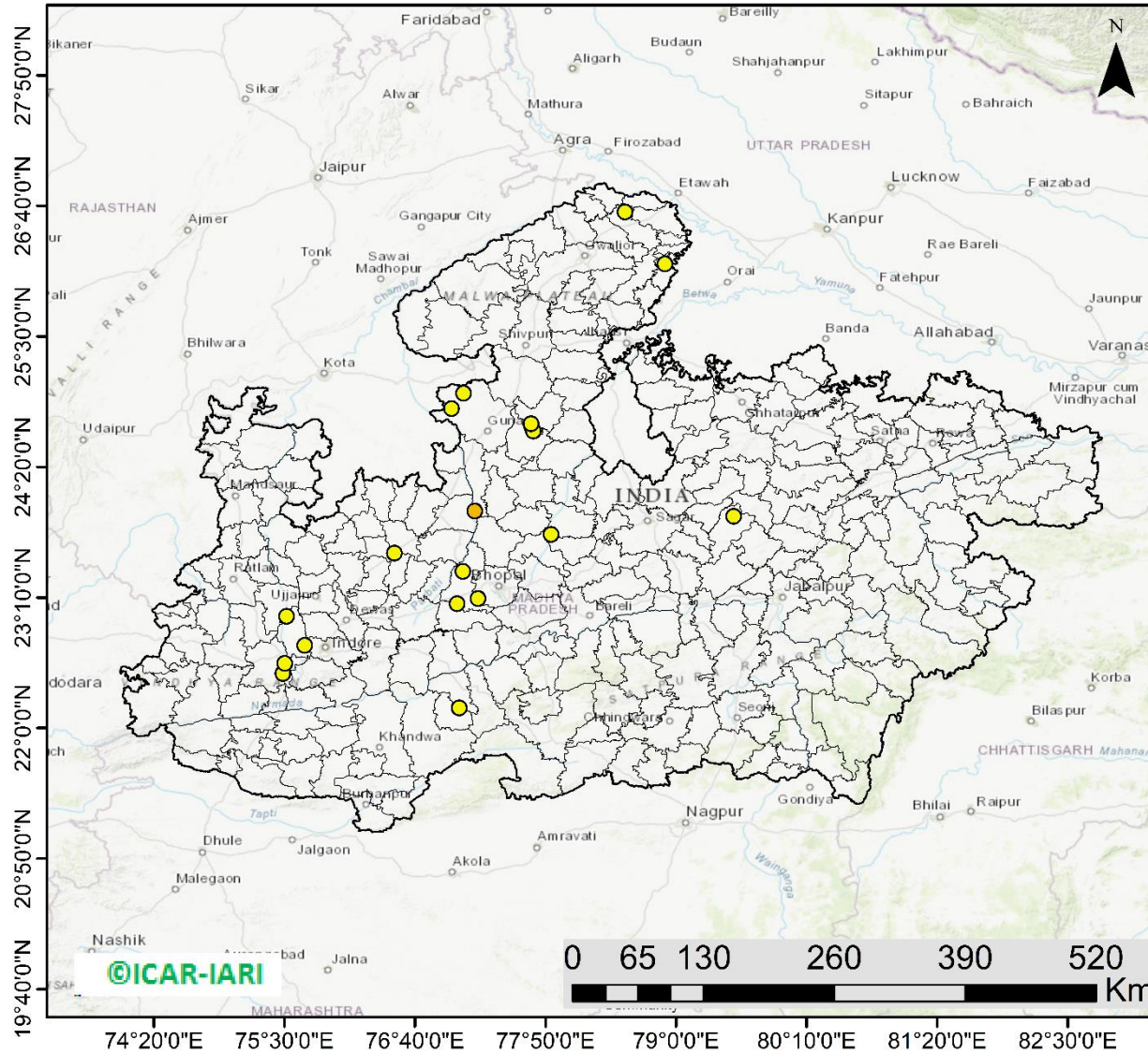
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Rajasthan (15Sep-05Oct -2023)



# Madhya Pradesh

## RICE RESIDUE BURNING IN MADHYA PRADESH



**18** burning events detected in MP on (05th Oct 2023)

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

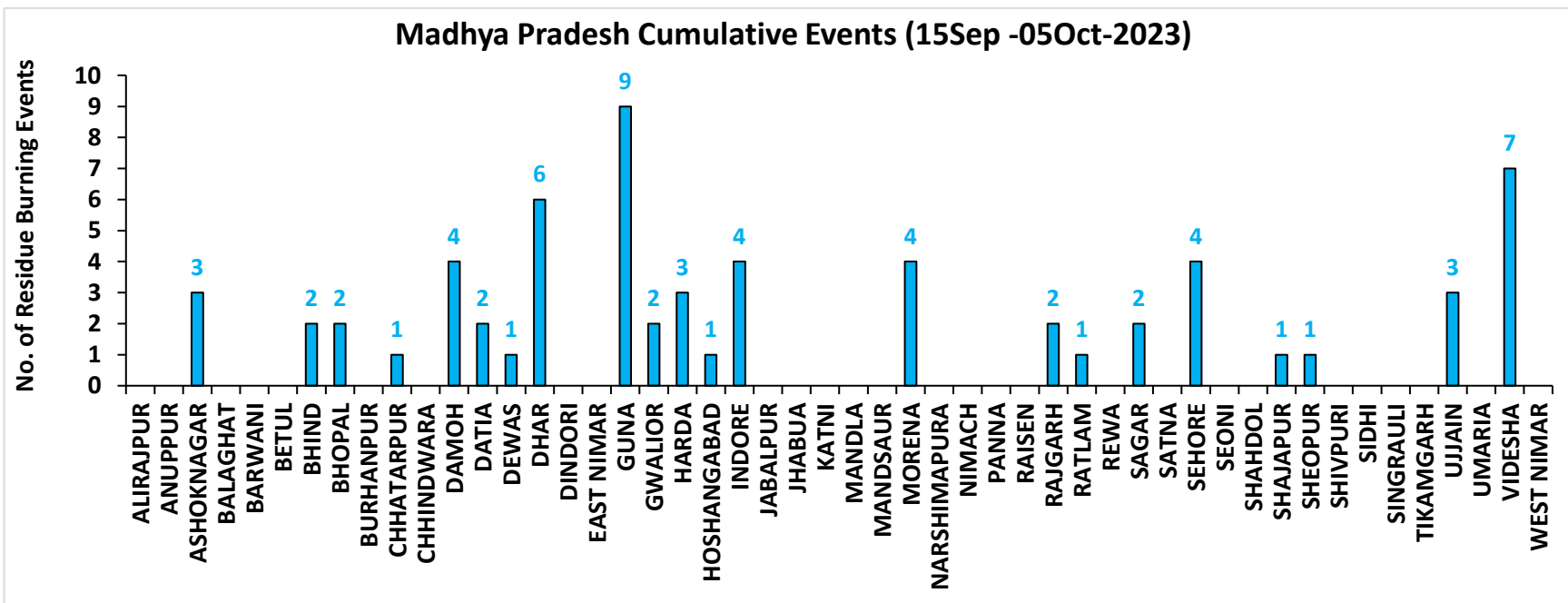
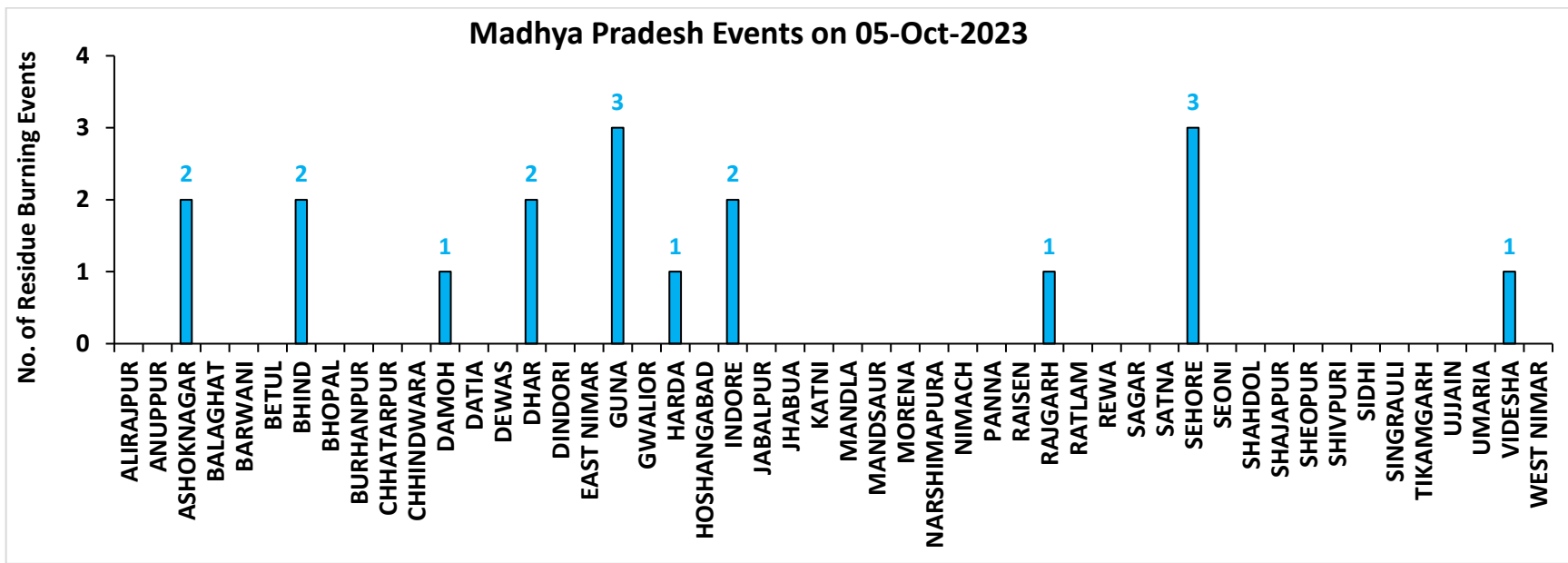
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



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



## District-wise cumulative number of residues burning events in Madhya Pradesh (15Sep-05Oct -2023)



**District-wise cumulative number of residues burning events detected in 2020, 2021, 2022 and 2023**  
**(Period: 15 September-05 October)**

**(a) Punjab**

District	15 Sep-05 Oct			
	2020	2021	2022	2023
Amritsar	1088	169	390	478
Barnala	3	0	1	6
Bathinda	0	0	0	0
Faridkot	4	9	2	4
Fatehgarh Sahib	17	2	3	5
Fazilka	0	1	0	1
Firozpur	30	5	9	12
Gurdaspur	70	5	7	6
Hoshiarpur	3	0	0	2
Jalandhar	14	6	10	12
Kapurthala	24	3	13	44
Ludhiana	35	21	3	6
Mansa	2	0	1	4
Moga	9	0	0	0
Muktsar	1	1	1	0
Pathankot	0	0	0	0
Patiala	73	11	13	43
Rupnagar	1	1	0	1
Sangrur	25	4	6	11
SAS NAGAR (Mohali)	8	1	4	16
SBS Nagar	2	1	2	2
Tarn Taran	355	38	80	101
<b>Total</b>	<b>1764</b>	<b>278</b>	<b>545</b>	<b>754</b>

**(b) Haryana**

District	15 Sep-05 Oct			
	2020	2021	2022	2023
AMBALA	24	1	5	40
BHIWANI	0	0	0	0
CHARKHI DADRI	0	0	0	0
FARIDABAD	0	0	0	0
FATEHABAD	15	1	1	13
GURGAON	0	0	0	0
HISAR	3	0	0	4
JHAJJAR	0	0	0	1
JIND	2	0	4	13
KAITHAL	27	2	3	7
KARNAL	50	5	14	14
KURUKSHETRA	34	13	18	40
MAHENDRAGARH	0	0	0	0
MEWAT	0	0	0	0
PALWAL	1	0	0	5
PANCHKULA	0	0	0	0
PANIPAT	6	0	1	8
REWARI	0	0	0	0
ROHTAK	0	0	0	1
SIRSA	1	0	0	0
SONIPAT	4	1	1	22
YAMUNANAGAR	10	1	1	22
<b>Total</b>	<b>177</b>	<b>24</b>	<b>48</b>	<b>190</b>

(c) Uttar Pradesh

District	15 Sep-05 Oct													
	2020	2021	2022	2023	GAUTAMBUDHNAGAR	1	0	0	2	MUZAFARNAGAR	2	0	0	0
AGRA	0	0	0	0	GAZIPUR	0	0	0	0	PILHIBHIT	3	1	2	5
ALIGARH	4	0	1	29	GHAZIABAD	1	0	1	4	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	2	4	0	0
AMETHI	0	0	0	0	HAMIRPUR	0	0	0	0	SAMBHAL	5	0	4	5
AMROHA	0	0	0	2	HAPUR	2	0	0	0	SANTKABIRNAGAR	0	0	0	0
AURAIYA	11	0	4	2	HARDOI	0	0	0	1	SANTRAVIDASNAGAR	0	0	0	0
AZAMGARH	0	0	0	0	HATHRAS	0	0	0	2	SHAHJAHANPUR	6	37	53	13
BADAUN	0	0	0	0	JALAUN	0	0	0	0	SHAMLI	7	2	2	2
BAGHPAT	1	0	0	0	JAUNPUR	0	0	0	0	SHARANPUR	4	0	0	0
BAHRAICH	0	0	0	0	JHANSI	4	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	3	0	0	0
BANDA	0	0	0	0	KANPUR DEHAT	1	0	0	0	SONBHADRA	0	0	0	0
BARABANKI	1	0	0	0	KASGANJ	1	0	0	0	SULTANPUR	0	0	0	0
BAREILLY	3	0	0	1	KAUSHAMBI	1	0	0	1	UNNAO	2	0	0	0
BASTI	0	0	0	0	KHERI	4	3	8	0	VARANASI	0	0	0	0
BIJNOR	1	0	1	0	KUSHINAGAR	0	0	0	0	<b>Total</b>	<b>89</b>	<b>51</b>	<b>80</b>	<b>88</b>
BULANDSAHAR	1	0	2	2	LALITPUR	0	1	2	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	3	0	0	0	MAINPURI	0	1	0	1					
ETAWAH	0	0	0	0	MATHURA	2	1	0	11					
FAIZABAD	0	0	0	0	MAU	0	0	0	0					
FARRUKHABAD	0	0	0	0	MEERUT	8	0	0	2					
FATEHPUR	1	0	0	0	MIRZAPUR	0	0	0	0					
FIROZABAD	1	0	0	0	MORADABAD	1	0	0	1					

**(d) Delhi**

District	15 Sep-05 Oct			
	2020	2021	2022	2023
CENTRAL	0	0	0	0
EAST	0	0	0	0
NEW DELHI	0	0	0	0
NORTH	1	0	2	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>2</b>	<b>0</b>	<b>2</b>	<b>1</b>

**(e) Rajasthan**

District	15 Sep-05 Oct			
	2020	2021	2022	2023
AJMER	0	0	0	0
ALWAR	1	0	0	0
BANSWARA	0	0	0	0
BARAN	30	0	3	22
BARMER	2	0	0	0
BHARATPUR	0	0	0	1
BHILWARA	1	0	0	0
BIKANER	0	0	0	0
BUNDI	1	0	3	2
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	4
HANUMANGARH	9	0	1	7
JAIPUR	0	0	0	0
JAISELMER	1	0	0	0
JALOR	0	0	0	0
JHALAWAR	0	0	0	3
JHUNJHUNUN	1	0	0	0
JODHPUR	1	0	0	0
KARAULI	1	0	0	0
KOTA	7	0	1	16
NAGAU	0	0	0	0
PALI	1	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	1	0	0	0
UDAIPUR	0	0	0	0
<b>Total</b>	<b>58</b>	<b>1</b>	<b>8</b>	<b>56</b>



**(f) Madhya Pradesh**

District	15 Sep-05 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	2	2
ASHOKNAGAR	5	0	0	3	RATLAM	0	0	0	1
BALAGHAT	0	0	0	0	REWA	0	0	0	0
BARWANI	0	0	0	0	SAGAR	2	2	1	2
BETUL	0	0	0	0	SATNA	2	0	0	0
BHIND	0	0	0	2	SEHORE	1	0	1	4
BHOPAL	1	0	0	2	SEONI	0	0	0	0
BURHANPUR	0	0	0	0	SHAHDOL	0	0	0	0
CHHATARPUR	1	0	0	1	SHAJAPUR	3	0	0	1
CHHINDWARA	0	0	0	0	SHEOPUR	0	0	0	1
DAMOH	5	0	0	4	SHIVPURI	0	0	0	0
DATIA	1	0	0	2	SIDHI	0	0	0	0
DEWAS	0	0	0	1	SINGRAULI	0	0	0	0
DHAR	6	0	0	6	TIKAMGARH	0	0	0	0
DINDORI	0	0	0	0	UJJAIN	3	0	0	3
EAST NIMAR	0	0	0	0	UMARIA	0	0	0	0
GUNA	5	1	1	9	VIDESHA	11	1	1	7
GWALIOR	4	0	1	2	WEST NIMAR	0	0	0	0
HARDA	6	5	0	3	<b>Total</b>	<b>60</b>	<b>9</b>	<b>7</b>	<b>65</b>
HOSHANGABAD	0	0	0	1					
INDORE	1	0	0	4					
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	1	0	0	4					
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-05 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
02-Oct	141	0	83	119	30	2	7	24	12	0	36	7
03-Oct	110	9	75	105	8	6	8	17	4	3	29	8
04-Oct	162	23	65	95	29	2	7	29	8	0	2	9
05-Oct	161	18	130	98	17	3	24	24	14	2	0	14
<b>Total</b>	<b>1764</b>	<b>278</b>	<b>545</b>	<b>754</b>	<b>177</b>	<b>24</b>	<b>48</b>	<b>190</b>	<b>89</b>	<b>51</b>	<b>80</b>	<b>88</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
02-Oct	1	0	0	0	7	0	3	4	12	0	1	1
03-Oct	0	0	0	0	9	0	2	5	5	1	5	5
04-Oct	0	0	0	0	15	0	0	22	4	2	0	12
05-Oct	0	0	2	0	14	0	1	11	13	1	0	18
<b>Total</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>58</b>	<b>1</b>	<b>8</b>	<b>56</b>	<b>60</b>	<b>9</b>	<b>7</b>	<b>65</b>

### Details of residue burning events in Punjab on 05-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.83191	74.82275	13:22:58	D	3.10
2	AMRITSAR	AJNALA	S-NPP	31.91357	74.74287	13:22:58	D	3.60
3	AMRITSAR	AJNALA	S-NPP	31.93190	74.74749	13:22:58	D	3.20
4	AMRITSAR	ATTARI	S-NPP	31.52347	74.62011	13:22:58	D	3.40
5	AMRITSAR	ATTARI	S-NPP	31.54977	74.83660	13:22:58	D	4.30
6	AMRITSAR	ATTARI	S-NPP	31.58009	74.89146	13:22:58	D	3.00
7	AMRITSAR	ATTARI	S-NPP	31.61801	74.65818	13:22:58	D	5.10
8	AMRITSAR	CHOGAWAN	S-NPP	31.66674	74.63349	13:22:58	D	4.00
9	AMRITSAR	JANDIALA GURU	S-NPP	31.54074	75.09700	13:22:58	D	8.80
10	AMRITSAR	JANDIALA GURU	S-NPP	31.56334	75.04385	13:22:58	D	3.00
11	AMRITSAR	JANDIALA GURU	S-NPP	31.57563	75.07600	13:22:58	D	3.70
12	AMRITSAR	JANDIALA GURU	S-NPP	31.57620	75.07647	13:22:58	D	5.30
13	AMRITSAR	JANDIALA GURU	S-NPP	31.57712	75.10617	13:22:58	D	11.50
14	AMRITSAR	JANDIALA GURU	S-NPP	31.57956	75.07572	13:22:58	D	5.30
15	AMRITSAR	JANDIALA GURU	S-NPP	31.59707	75.07611	13:22:58	D	3.20
16	AMRITSAR	JANDIALA GURU	S-NPP	31.65325	75.01527	13:22:58	D	4.60
17	AMRITSAR	JANDIALA GURU	AQUA	31.57000	75.09700	13:27:07	D	24.40
18	AMRITSAR	MAJITHA	S-NPP	31.71667	74.97178	13:22:58	D	4.20
19	AMRITSAR	MAJITHA	S-NPP	31.72932	75.04765	13:22:58	D	4.00
20	AMRITSAR	MAJITHA	S-NPP	31.73782	75.11982	13:22:58	D	5.10
21	AMRITSAR	MAJITHA	S-NPP	31.76258	75.10115	13:22:58	D	4.20
22	AMRITSAR	MAJITHA	S-NPP	31.77714	74.97609	13:22:58	D	9.60
23	AMRITSAR	MAJITHA	S-NPP	31.79255	74.96382	13:22:58	D	4.90
24	AMRITSAR	MAJITHA	S-NPP	31.80741	74.96918	13:22:58	D	4.40
25	AMRITSAR	RAYYA	S-NPP	31.50662	75.24799	13:22:58	D	1.80
26	AMRITSAR	RAYYA	S-NPP	31.53924	75.19301	13:22:58	D	2.20
27	AMRITSAR	RAYYA	S-NPP	31.55078	75.22074	13:22:58	D	6.10
28	AMRITSAR	RAYYA	S-NPP	31.55146	75.22492	13:22:58	D	6.10
29	AMRITSAR	RAYYA	S-NPP	31.55774	75.28404	13:22:58	D	6.40
30	AMRITSAR	RAYYA	S-NPP	31.59468	75.31890	13:22:58	D	2.90

31	AMRITSAR	RAYYA	S-NPP	31.60180	75.23522	13:22:58	D	5.70
32	AMRITSAR	RAYYA	S-NPP	31.62413	75.21778	13:22:58	D	1.60
33	AMRITSAR	RAYYA	S-NPP	31.63320	75.29354	13:22:58	D	3.20
34	AMRITSAR	RAYYA	AQUA	31.62600	75.29300	13:27:07	D	16.80
35	AMRITSAR	TARSIKKA	S-NPP	31.57268	75.16374	13:22:58	D	12.50
36	AMRITSAR	TARSIKKA	S-NPP	31.57603	75.16299	13:22:58	D	12.50
37	AMRITSAR	TARSIKKA	S-NPP	31.57810	75.17554	13:22:58	D	5.40
38	AMRITSAR	TARSIKKA	S-NPP	31.59014	75.16414	13:22:58	D	3.50
39	AMRITSAR	TARSIKKA	S-NPP	31.65930	75.13605	13:22:58	D	3.90
40	AMRITSAR	VERKA	S-NPP	31.60099	74.80714	13:22:58	D	3.40
41	AMRITSAR	VERKA	S-NPP	31.60437	74.80637	13:22:58	D	3.40
42	AMRITSAR	VERKA	S-NPP	31.68301	74.97946	13:22:58	D	2.50
43	AMRITSAR	VERKA	S-NPP	31.69417	74.94180	13:22:58	D	5.10
44	AMRITSAR	VERKA	S-NPP	31.70162	74.94450	13:22:58	D	19.40
45	AMRITSAR	VERKA	S-NPP	31.70499	74.94373	13:22:58	D	20.60
46	AMRITSAR	VERKA	S-NPP	31.70657	74.97408	13:22:58	D	2.60
47	AMRITSAR	VERKA	S-NPP	31.71721	74.95410	13:22:58	D	1.70
48	AMRITSAR	VERKA	S-NPP	31.73036	74.90716	13:22:58	D	2.50
49	AMRITSAR	VERKA	S-NPP	31.73106	74.91140	13:22:58	D	3.00
50	BARNALA	BARNALA	S-NPP	30.19695	75.54088	13:22:58	D	1.70
51	FARIDKOT	FARIDKOT	S-NPP	30.66035	74.68905	13:22:58	D	4.90
52	FATEHGARH SAHIB	BASSI PATHANAN	S-NPP	30.71965	76.38604	13:22:58	D	2.90
53	FIROZPUR	FIROZPUR	S-NPP	30.93299	74.49835	13:22:58	D	2.60
54	FIROZPUR	MAKHU	S-NPP	31.07475	74.97535	13:22:58	D	5.10
55	FIROZPUR	MAMDOT	S-NPP	30.78525	74.36584	13:22:58	D	2.10
56	JALANDHAR	MEHATPUR	S-NPP	31.02112	75.41265	13:22:58	D	2.90
57	JALANDHAR	SHAHKOT	S-NPP	31.05534	75.21925	13:22:58	D	5.80
58	JALANDHAR	SHAHKOT	S-NPP	31.05628	75.21983	13:22:58	D	3.10
59	KAPURTHALA	DHILWAN	S-NPP	31.40426	75.30902	13:22:58	D	7.20
60	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.24581	75.33018	13:22:58	D	6.40
61	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.26411	75.14058	13:22:58	D	4.30
62	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.26959	75.15240	13:22:58	D	10.50
63	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.34675	75.23923	13:22:58	D	4.90

64	MANSA	BUDHLADA	S-NPP	29.85122	75.39944	13:22:58	D	4.10
65	MANSA	BUDHLADA	S-NPP	29.85459	75.39869	13:22:58	D	4.10
66	MANSA	BUDHLADA	S-NPP	29.85529	75.40287	13:22:58	D	6.00
67	PATIALA	BHUNARHERI	S-NPP	30.25323	76.49812	13:22:58	D	5.70
68	PATIALA	PATIALA	S-NPP	30.28731	76.26755	13:22:58	D	7.70
69	PATIALA	PATRAN	S-NPP	29.87293	76.04841	13:22:58	D	2.10
70	PATIALA	PATRAN	S-NPP	29.98082	76.08533	13:22:58	D	2.20
71	PATIALA	PATRAN	S-NPP	29.98666	76.12170	13:22:58	D	4.10
72	PATIALA	RAJPURA	S-NPP	30.54249	76.68309	13:22:58	D	5.70
73	PATIALA	RAJPURA	S-NPP	30.54479	76.71970	13:22:58	D	3.20
74	PATIALA	RAJPURA	S-NPP	30.55096	76.69370	13:22:58	D	2.30
75	PATIALA	RAJPURA	S-NPP	30.56811	76.76017	13:22:58	D	2.40
76	PATIALA	SAMANA	S-NPP	30.07902	76.21500	13:22:58	D	3.90
77	PATIALA	SAMANA	S-NPP	30.11458	76.13658	13:22:58	D	3.10
78	RUPNAGAR	CHAMKAUR SAHIB	S-NPP	30.87166	76.48715	13:22:58	D	2.20
79	SANGRUR	BHAWANIGARH	S-NPP	30.20165	76.00137	13:22:58	D	2.70
80	SANGRUR	BHAWANIGARH	S-NPP	30.25501	76.04491	13:22:58	D	3.00
81	SANGRUR	DIRBA	S-NPP	30.05311	76.03255	13:22:58	D	2.30
82	SANGRUR	LEHRA GAGA	S-NPP	29.87182	75.90289	13:22:58	D	5.40
83	SANGRUR	LEHRA GAGA	S-NPP	29.87249	75.90696	13:22:58	D	5.40
84	SAS NAGAR (MOHALI)	DERABASSI	S-NPP	30.55099	76.75960	13:22:58	D	5.80
85	SAS NAGAR (MOHALI)	DERABASSI	AQUA	30.54400	76.76100	13:27:07	D	22.80
86	TARN TARAN	CHOHLA SAHIB	S-NPP	31.38199	75.07099	13:22:58	D	10.10
87	TARN TARAN	GANDI WIND TATLA	S-NPP	31.45398	74.68458	13:22:58	D	3.00
88	TARN TARAN	KHADUR SAHIB	S-NPP	31.39154	75.08629	13:22:58	D	8.50
89	TARN TARAN	KHADUR SAHIB	S-NPP	31.45533	75.17635	13:22:58	D	2.70
90	TARN TARAN	KHADUR SAHIB	S-NPP	31.45629	75.09782	13:22:58	D	4.80
91	TARN TARAN	KHADUR SAHIB	S-NPP	31.45837	75.11041	13:22:58	D	1.80
92	TARN TARAN	KHADUR SAHIB	S-NPP	31.45965	75.09705	13:22:58	D	6.60
93	TARN TARAN	KHADUR SAHIB	S-NPP	31.46134	75.01890	13:22:58	D	3.10
94	TARN TARAN	KHADUR SAHIB	S-NPP	31.46205	75.02312	13:22:58	D	3.60
95	TARN TARAN	KHADUR SAHIB	S-NPP	31.47330	75.13752	13:22:58	D	3.90
96	TARN TARAN	TARN TARAN	S-NPP	31.46384	74.84673	13:22:58	D	2.40

97	TARN TARAN	TARN TARAN	S-NPP	31.46406	74.86879	13:22:58	D	4.00
98	TARN TARAN	TARN TARAN	S-NPP	31.50338	74.87303	13:22:58	D	2.40

### Details of residue burning events in Haryana on 05-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	AMBALA	AMBALA-II	S-NPP	30.18163	76.66924	13:22:58	D	3.10
2	AMBALA	AMBALA-II	S-NPP	30.29605	76.79408	13:22:58	D	4.70
3	AMBALA	BARARA	S-NPP	30.20930	76.97957	13:22:58	D	4.70
4	AMBALA	NARAINGARH	S-NPP	30.36688	77.09960	13:22:58	D	2.70
5	AMBALA	SHAHZADPUR	S-NPP	30.38949	77.02969	13:22:58	D	2.60
6	AMBALA	SHAHZADPUR	S-NPP	30.46162	76.94518	13:22:58	D	1.60
7	FATEHABAD	TOHANA	S-NPP	29.61782	75.81561	13:22:58	D	2.70
8	FATEHABAD	TOHANA	S-NPP	29.63441	75.93878	13:22:58	D	1.80
9	FATEHABAD	TOHANA	S-NPP	29.67627	75.86708	13:22:58	D	1.40
10	HISAR	HANSI-I	S-NPP	29.20082	76.02844	13:22:58	D	6.00
11	JIND	NARWANA	S-NPP	29.74271	76.08410	13:22:58	D	2.50
12	JIND	PILLUKHERA	S-NPP	29.28020	76.54358	13:22:58	D	3.40
13	JIND	SAFIDON	S-NPP	29.42390	76.61295	13:22:58	D	3.20
14	JIND	SAFIDON	S-NPP	29.42721	76.61227	13:22:58	D	3.20
15	KURUKSHETRA	SHAHBAD	S-NPP	30.18922	76.89358	13:22:58	D	2.90
16	KURUKSHETRA	THANESAR	S-NPP	29.90684	76.75758	13:22:58	D	3.80
17	KURUKSHETRA	THANESAR	S-NPP	29.97283	76.94068	13:22:58	D	1.30
18	KURUKSHETRA	THANESAR	S-NPP	29.99994	76.87373	13:22:58	D	2.20
19	PANIPAT	MADLAUDA	S-NPP	29.39499	76.92856	02:12:58	N	1.30
20	PANIPAT	PANIPAT	S-NPP	29.36758	76.94733	13:22:58	D	2.10
21	PANIPAT	PANIPAT	S-NPP	29.41224	76.93044	13:22:58	D	1.90
22	PANIPAT	PANIPAT	S-NPP	29.46211	77.01000	13:22:58	D	2.90
23	SONIPAT	GOHANA	S-NPP	29.08531	76.66116	13:22:58	D	1.10
24	SONIPAT	MURTHAL	S-NPP	29.08130	77.11447	13:22:58	D	2.50

### Details of residue burning events in Uttar Pradesh on 05-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	ALIGARH	ATRAULI	S-NPP	27.98359	78.22298	13:22:58	D	1.40
2	ALIGARH	GABHANA	S-NPP	28.05867	77.93255	13:22:58	D	2.30
3	ALIGARH	KOL	S-NPP	27.85393	78.37068	13:22:58	D	1.60
4	BAREILLY	BAHERI	S-NPP	28.86898	79.53819	13:22:58	D	3.30
5	BULANDSAHAR	SHIKARPUR	S-NPP	28.13481	78.12238	13:22:58	D	1.80
6	MATHURA	CHHATA	S-NPP	27.93329	77.48814	13:22:58	D	3.60
7	MATHURA	MATHURA	S-NPP	27.48020	77.55947	13:22:58	D	1.60
8	MORADABAD	BILARI	S-NPP	28.67303	78.66125	13:22:58	D	2.90
9	SAMBHAL	CHANDAUSI	S-NPP	28.45897	78.80550	02:12:58	N	0.80
10	SAMBHAL	SAMBHAL	S-NPP	28.68290	78.51665	13:22:58	D	2.50
11	SHAHJAHANPUR	JALALABAD	S-NPP	27.70061	79.68774	02:12:58	N	1.10
12	SHAHJAHANPUR	JALALABAD	S-NPP	27.70956	79.67999	02:12:58	N	0.70
13	SHAHJAHANPUR	TILHAR	S-NPP	28.13040	79.86655	02:12:58	N	0.80
14	SHAMLI	SHAMLI	S-NPP	29.63666	77.39824	13:22:58	D	2.10

### Details of residue burning events in Rajasthan on 05-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	BARAN	ANTA	S-NPP	25.01949	76.32028	13:22:58	D	3.40
2	BARAN	ATRU	S-NPP	24.87162	76.55212	13:22:58	D	3.80
3	BARAN	ATRU	S-NPP	24.95687	76.53513	13:22:58	D	3.90
4	BARAN	CHHABRA	S-NPP	24.64636	76.96811	13:22:58	D	4.60
5	BARAN	CHHABRA	S-NPP	24.71708	76.80286	13:22:58	D	4.40
6	BARAN	MANGROL	S-NPP	25.29461	76.41946	13:22:58	D	3.50
7	BARAN	MANGROL	S-NPP	25.34364	76.48104	13:22:58	D	3.40
8	BARAN	SHAHBAD	S-NPP	25.12203	76.90079	13:22:58	D	3.20
9	HANUMANGARH	HANUMANGARH	S-NPP	29.56154	74.33504	02:12:58	N	0.90
10	HANUMANGARH	SANGHRIYA	S-NPP	29.85180	74.46429	13:22:58	D	1.60
11	KOTA	SANGOD	S-NPP	24.85307	76.39989	13:22:58	D	4.20



### Details of residue burning events in Madhya Pradesh on 05-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.65295	77.72567	13:22:58	D	3.30
2	ASHOKNAGAR	ISAGARH	S-NPP	24.71825	77.70536	13:22:58	D	1.70
3	BHIND	LAHAR	S-NPP	26.14679	78.90098	13:22:58	D	3.40
4	BHIND	MAHGAWAN	S-NPP	26.61131	78.54406	13:22:58	D	2.60
5	DAMOH	DAMOH	S-NPP	23.89157	79.51575	13:22:58	D	1.50
6	DHAR	DHAR	S-NPP	22.48674	75.48654	13:22:58	D	3.40
7	DHAR	DHAR	S-NPP	22.57683	75.50318	02:12:58	N	0.70
8	GUNA	GUNA	S-NPP	24.85396	76.99400	13:22:58	D	3.70
9	GUNA	GUNA	S-NPP	24.99037	77.10167	13:22:58	D	3.30
10	GUNA	RAGHOGARH	S-NPP	23.93824	77.20132	13:22:58	D	9.20
11	HARDA	HARDA	S-NPP	22.17871	77.06294	13:22:58	D	1.50
12	INDORE	DEPALPUR	S-NPP	22.73786	75.68119	13:22:58	D	3.10
13	INDORE	DEPALPUR	S-NPP	22.99784	75.51934	13:22:58	D	4.00
14	RAJGARH	SARANGPUR	S-NPP	23.56270	76.48275	13:22:58	D	2.30
15	SEHORE	SEHORE	S-NPP	23.11060	77.04316	13:22:58	D	2.80
16	SEHORE	SEHORE	S-NPP	23.15579	77.23132	13:22:58	D	1.30
17	SEHORE	SEHORE	S-NPP	23.39953	77.09551	13:22:58	D	0.70
18	VIDESHA	GYARASPUR	S-NPP	23.72903	77.88369	02:12:58	N	0.70

**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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