



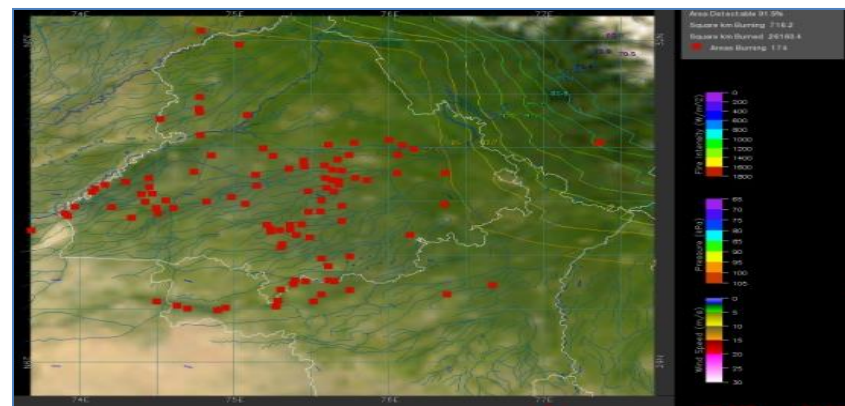
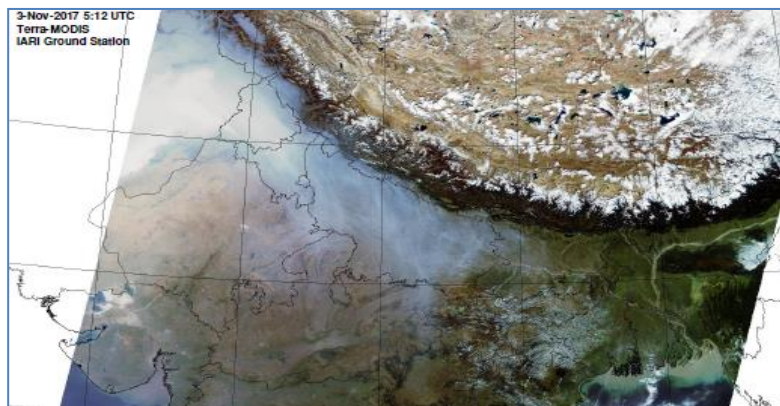
**Bulletin  
No. 20**

**Events Date:  
04-Oct-2023**

**Issued on:  
04-Oct-2023**



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



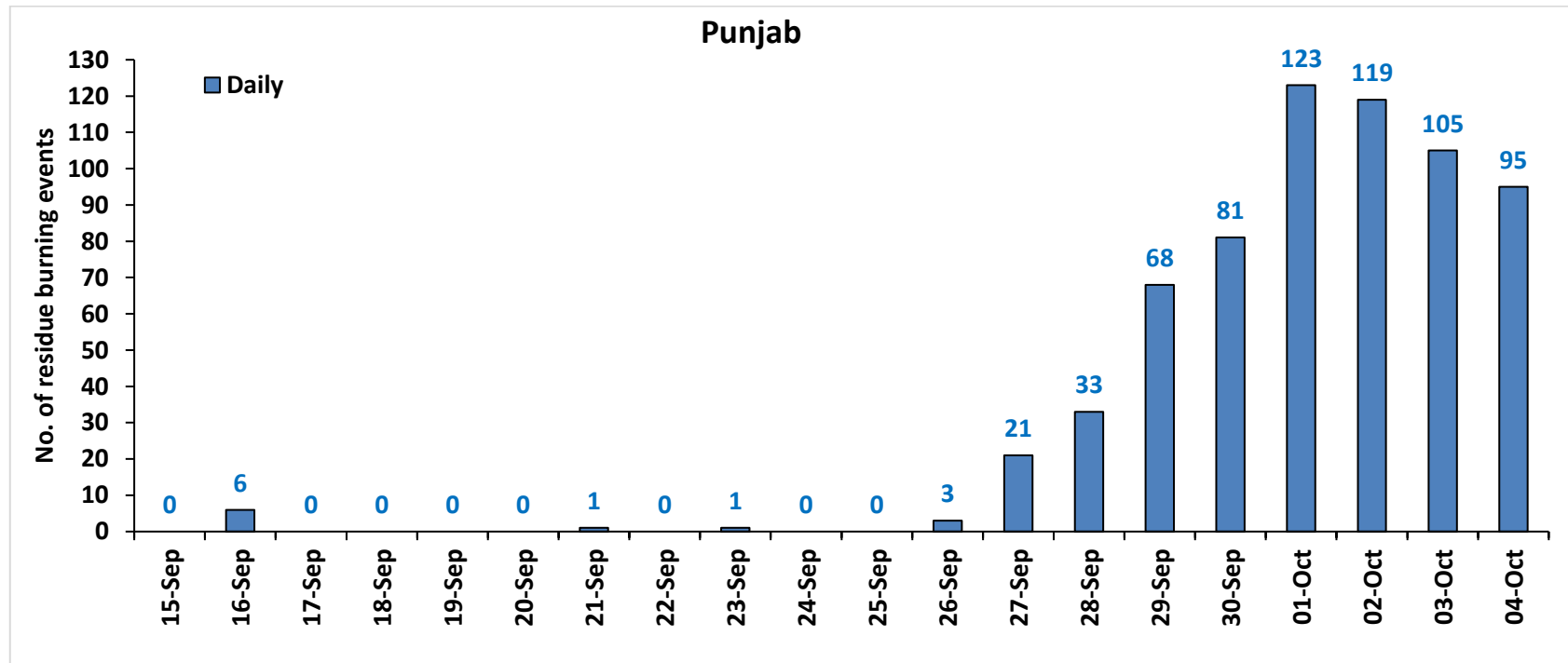
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,  
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

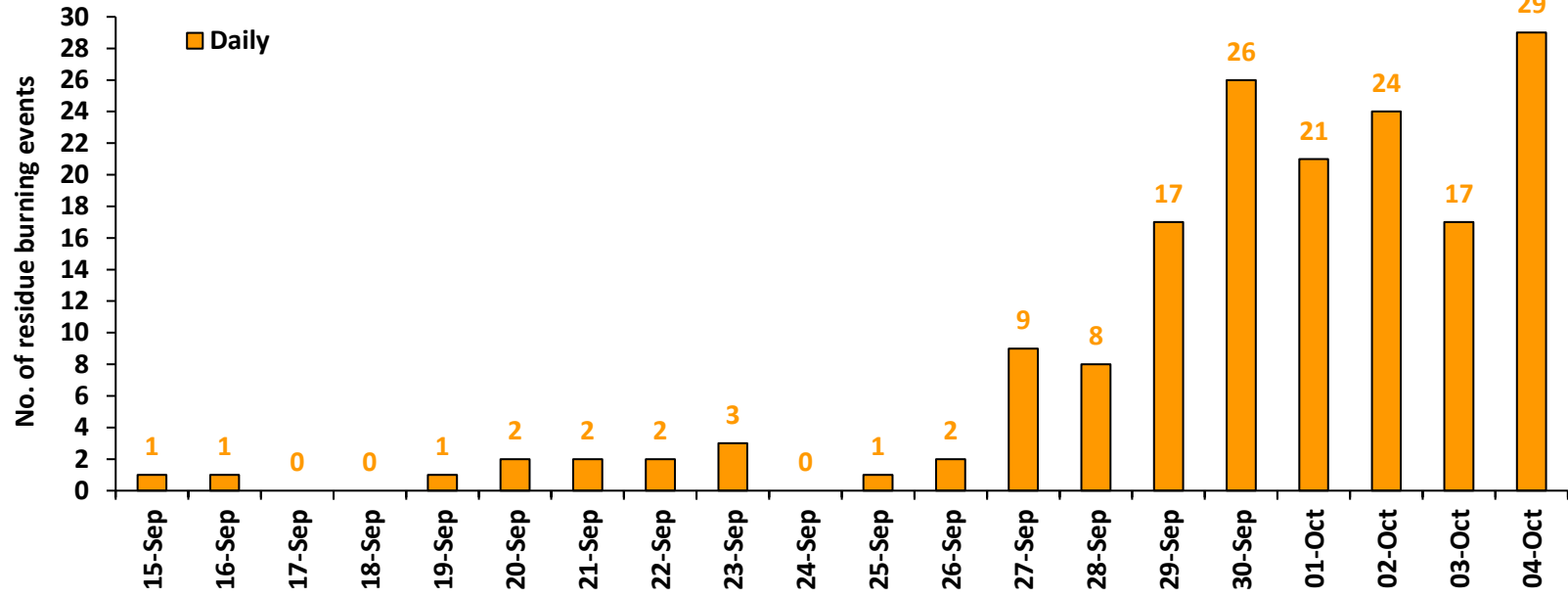
## Highlights for 04-Oct-2023

- 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 **167** residue burning events in the six study States on 04-Oct-2023.
- The state wise events detected on 04-Oct-2023 were **95** in Punjab, **29** in Haryana, **09** in UP, **00** in Delhi, **22** in Rajasthan and **12** in MP.
- Total **989** burning events were detected in the six states between 15-Sept-2023 and 04-Oct-2023, which are distributed as **656**, **166**, **74**, **01**, **45** and **47** 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.

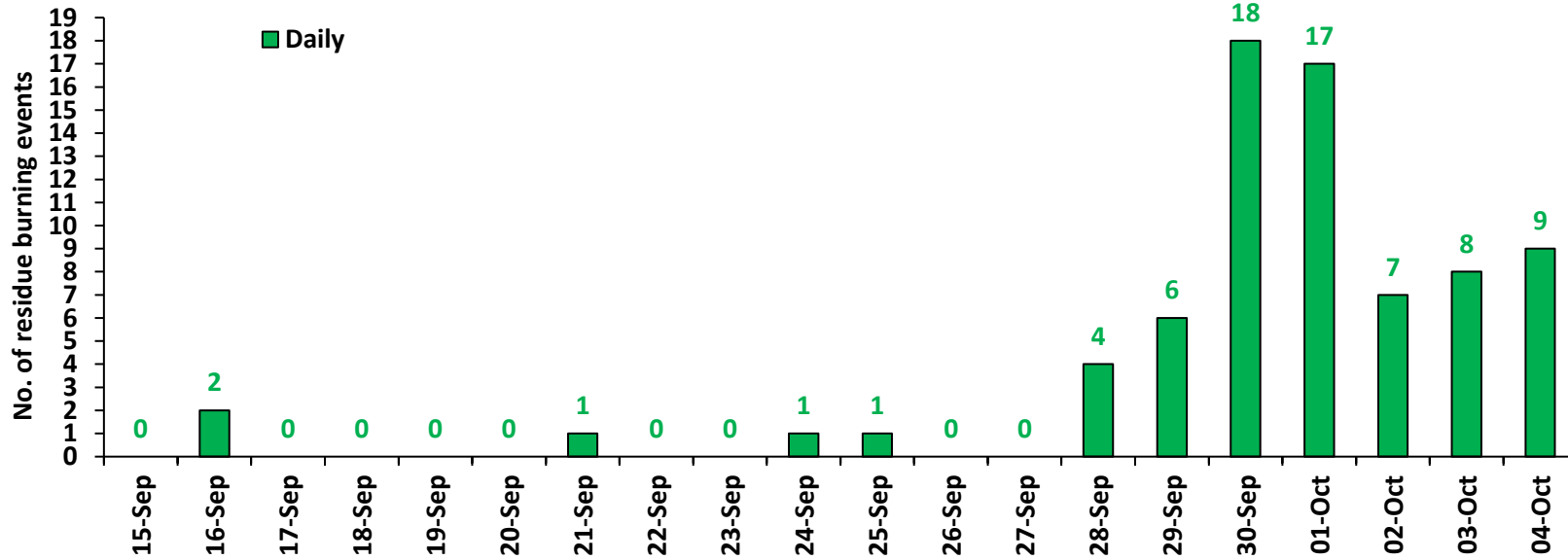
### Temporal distribution of rice residue burning events for the study States in 2023

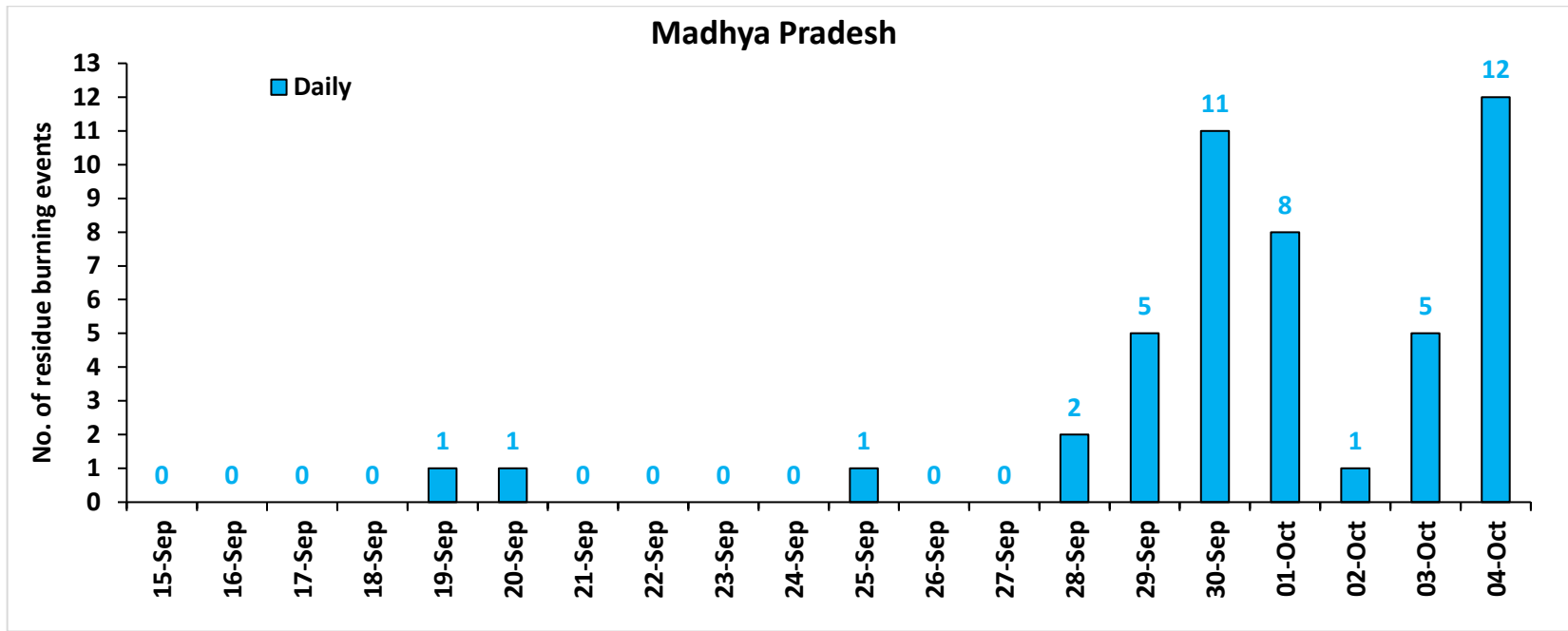
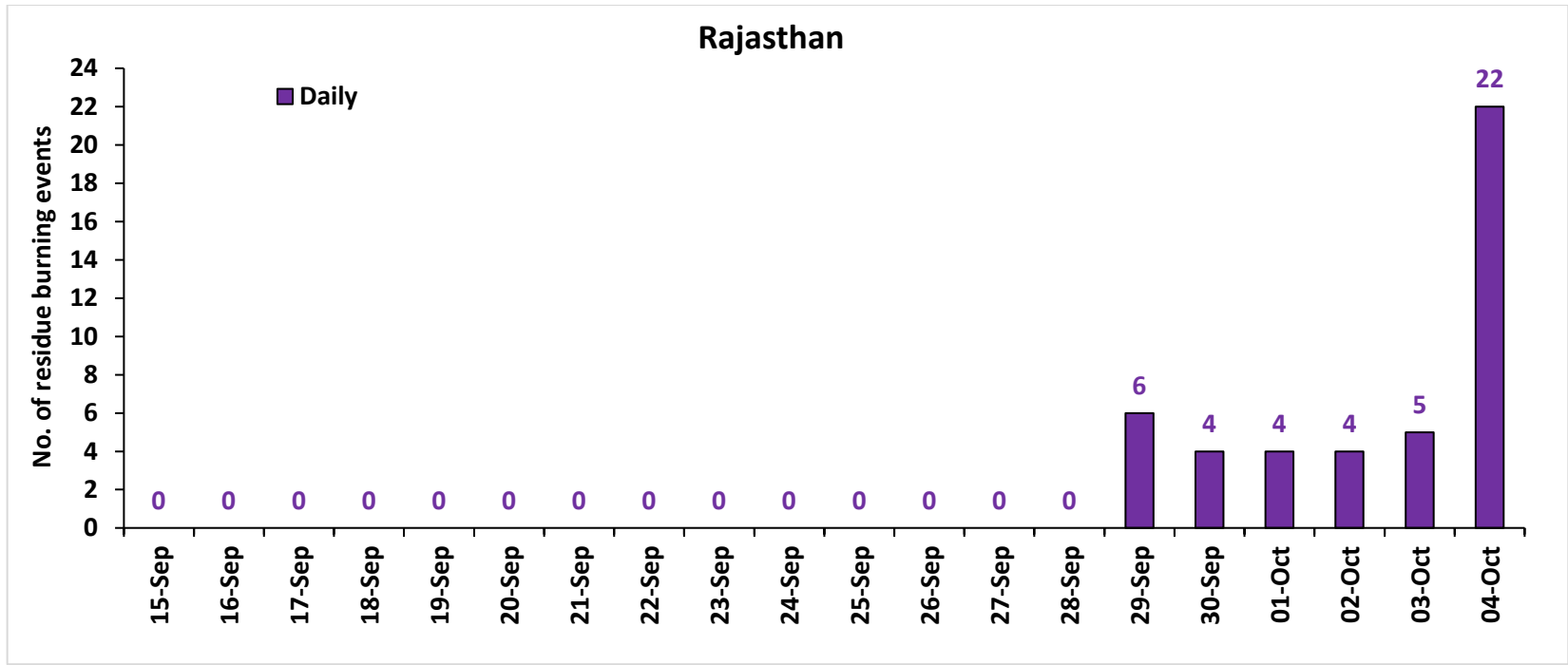


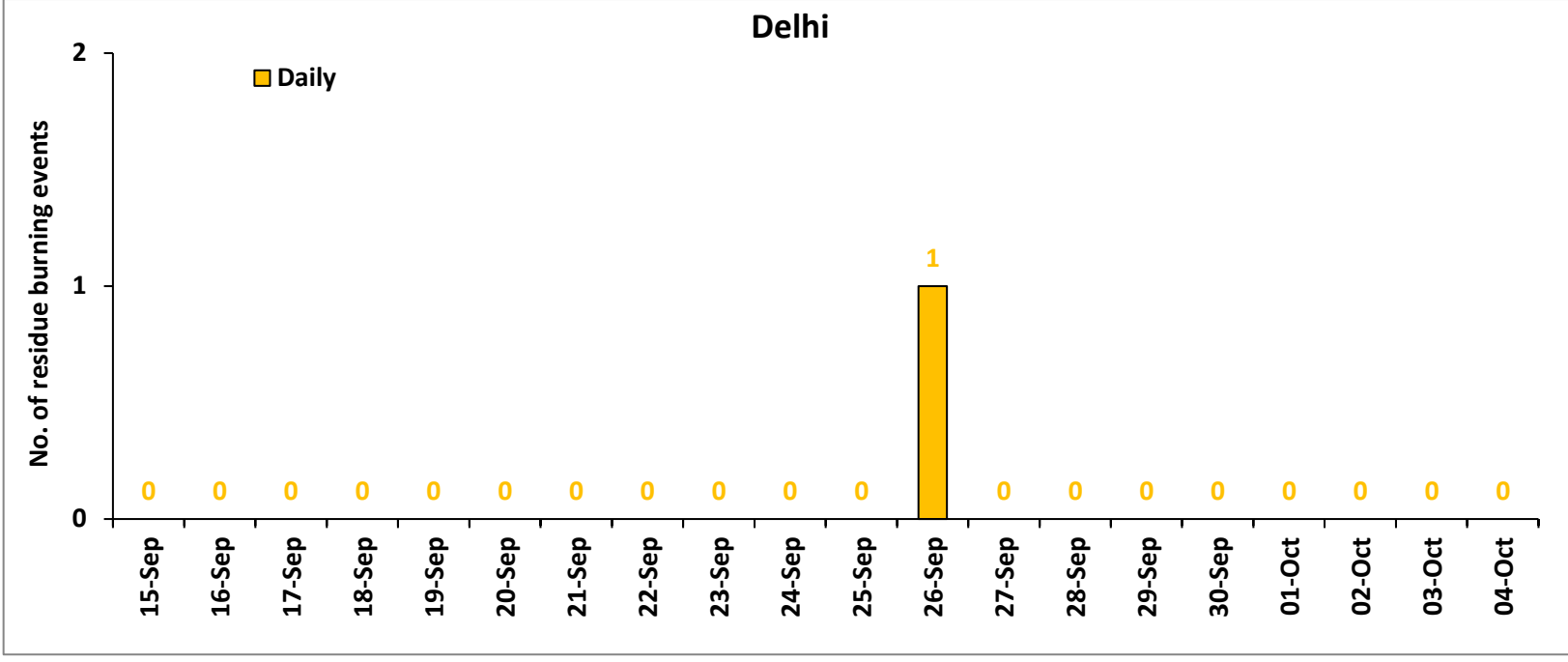
### Haryana



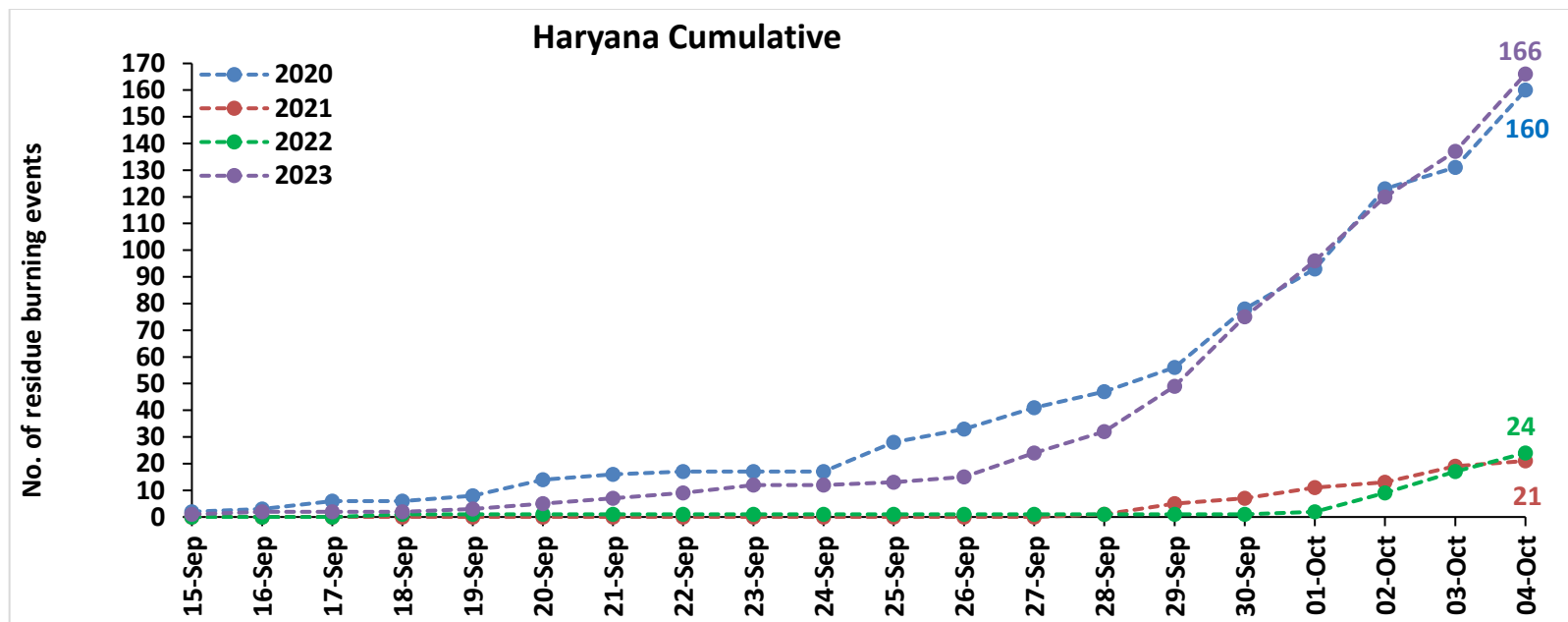
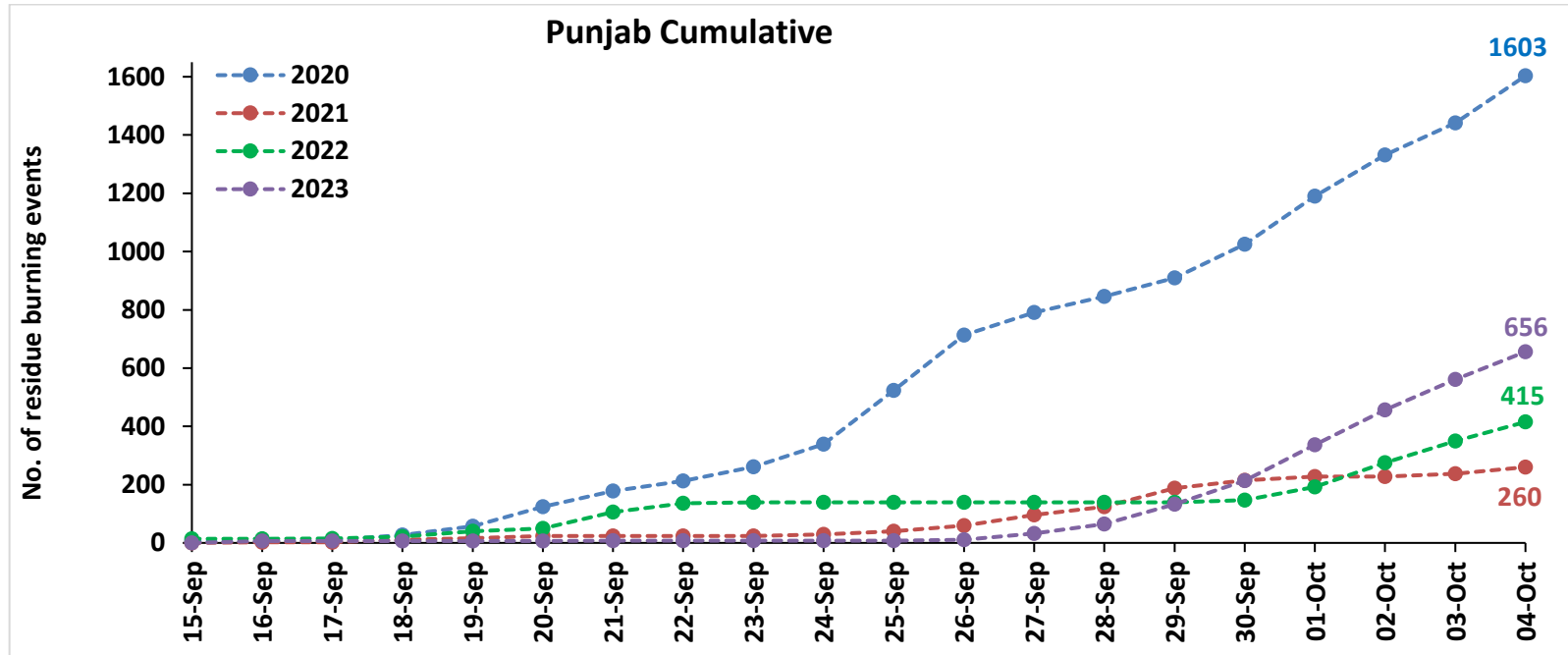
### Uttar Pradesh

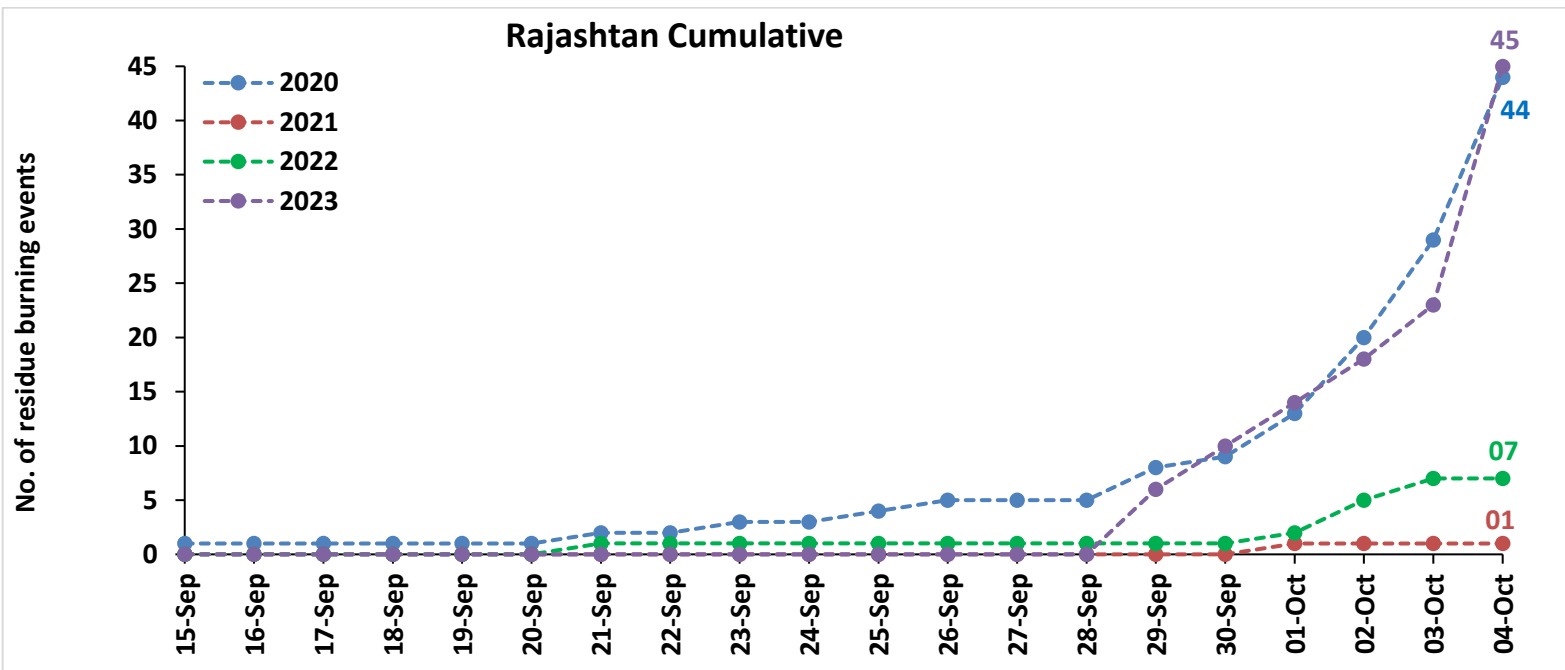
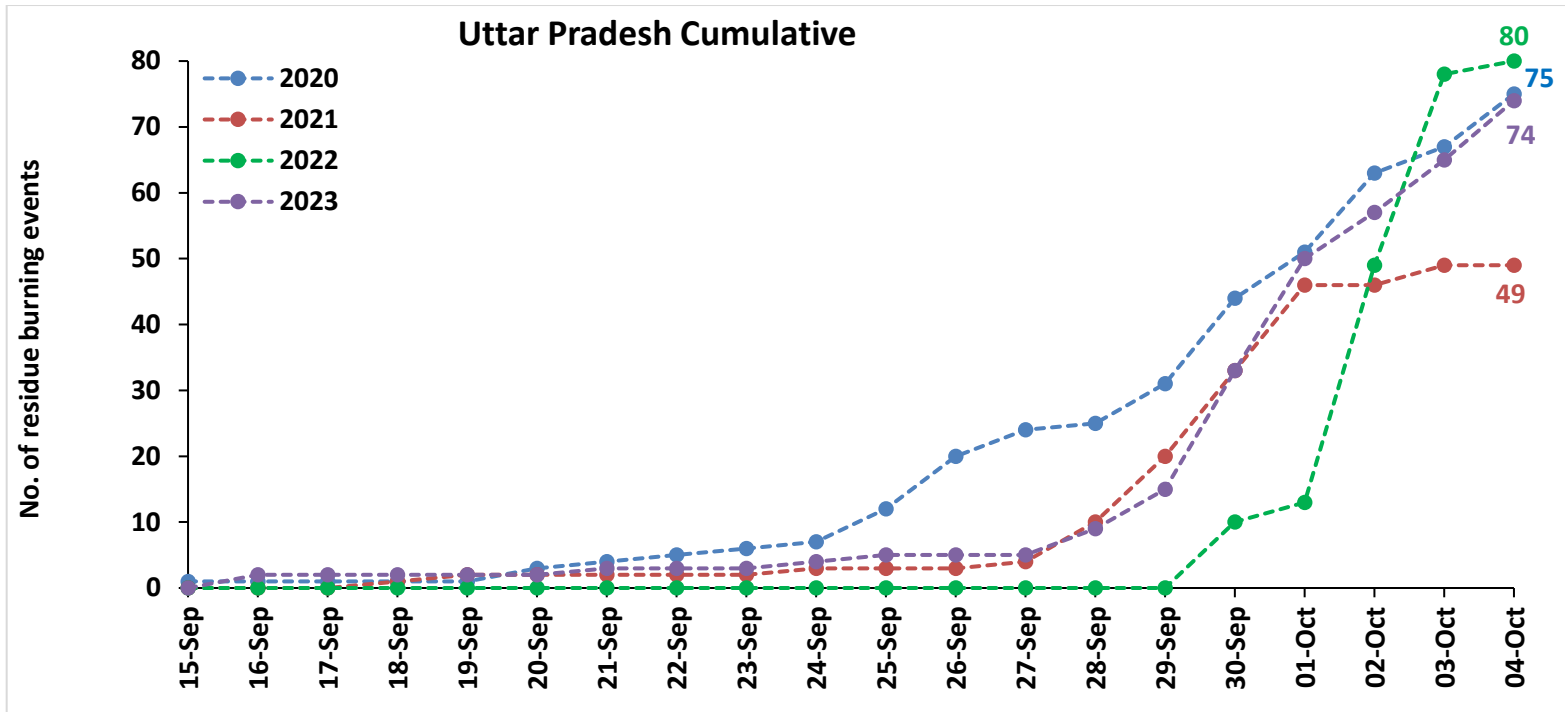


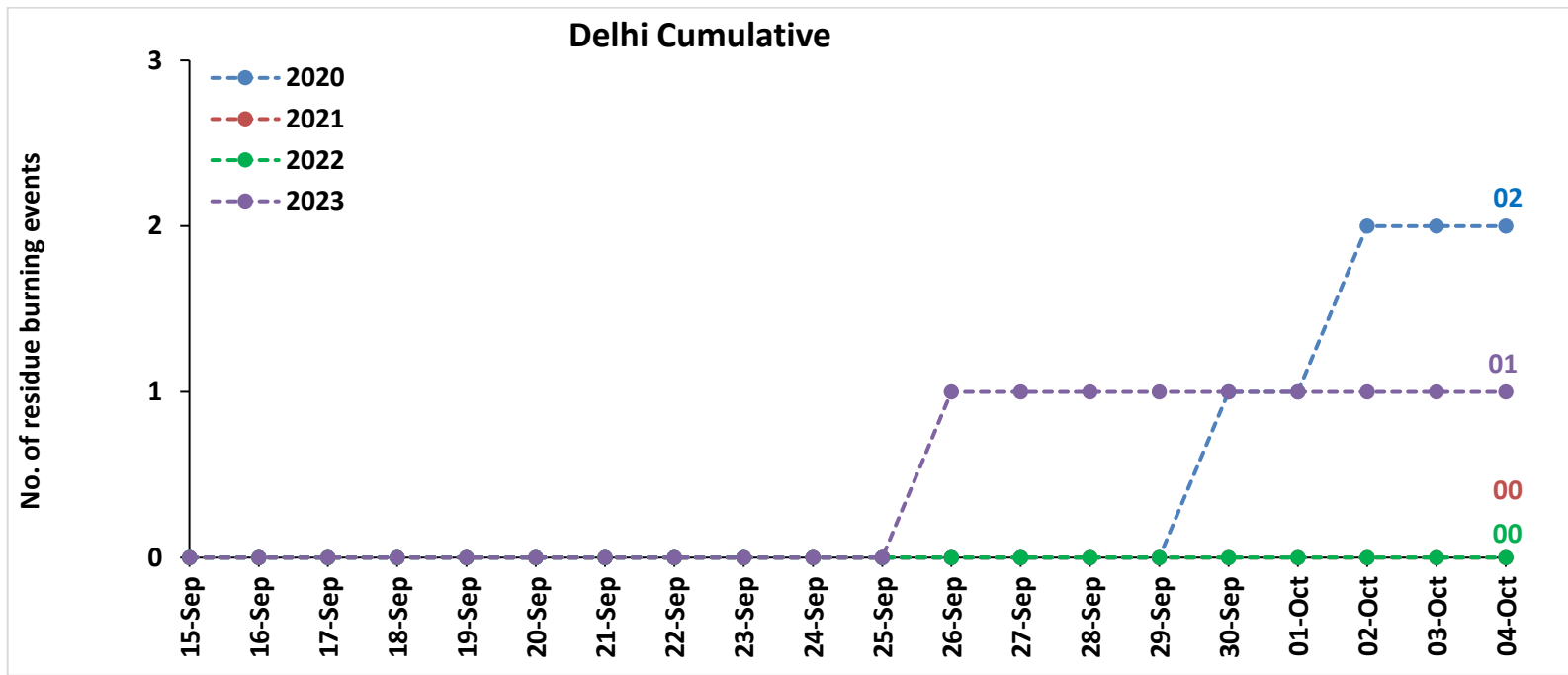
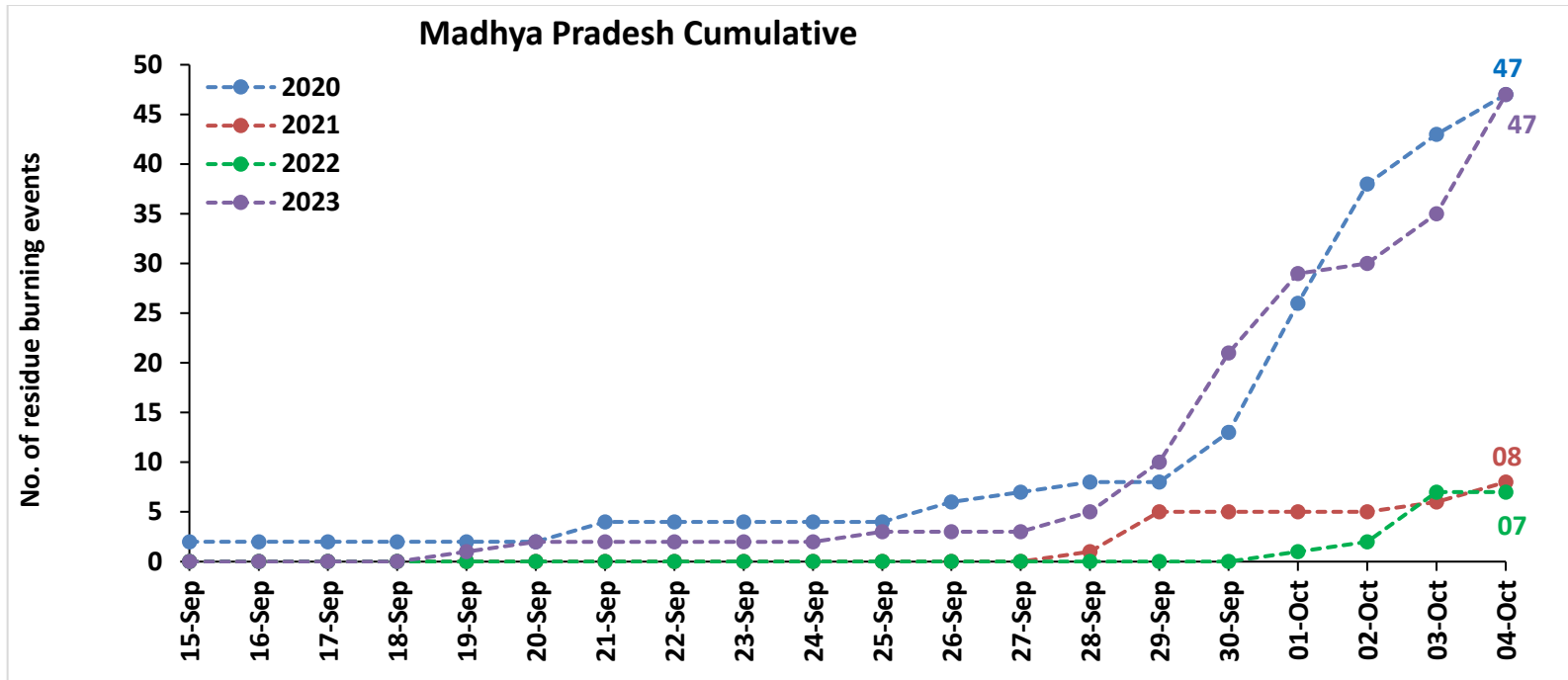




**Comparison of residue burning events in current year (2023) with previous years (2020, 2021 and 2022) for the study State**

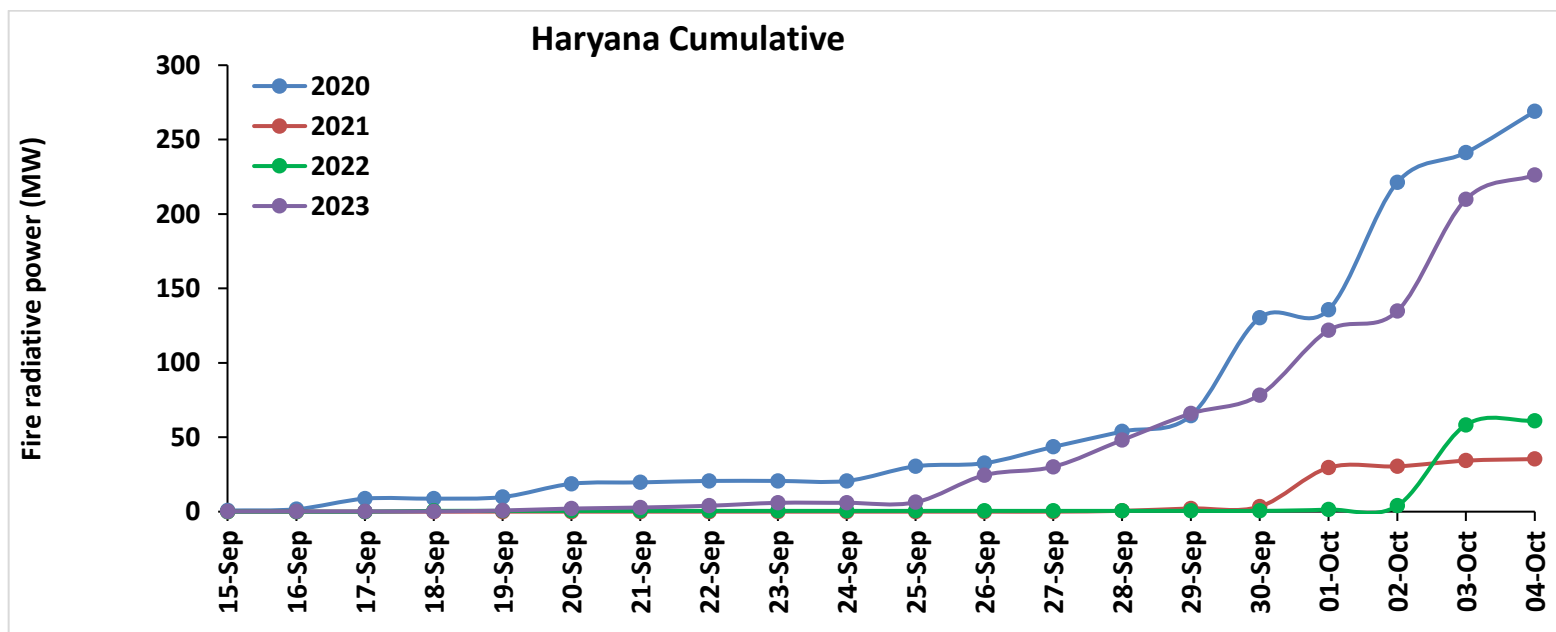
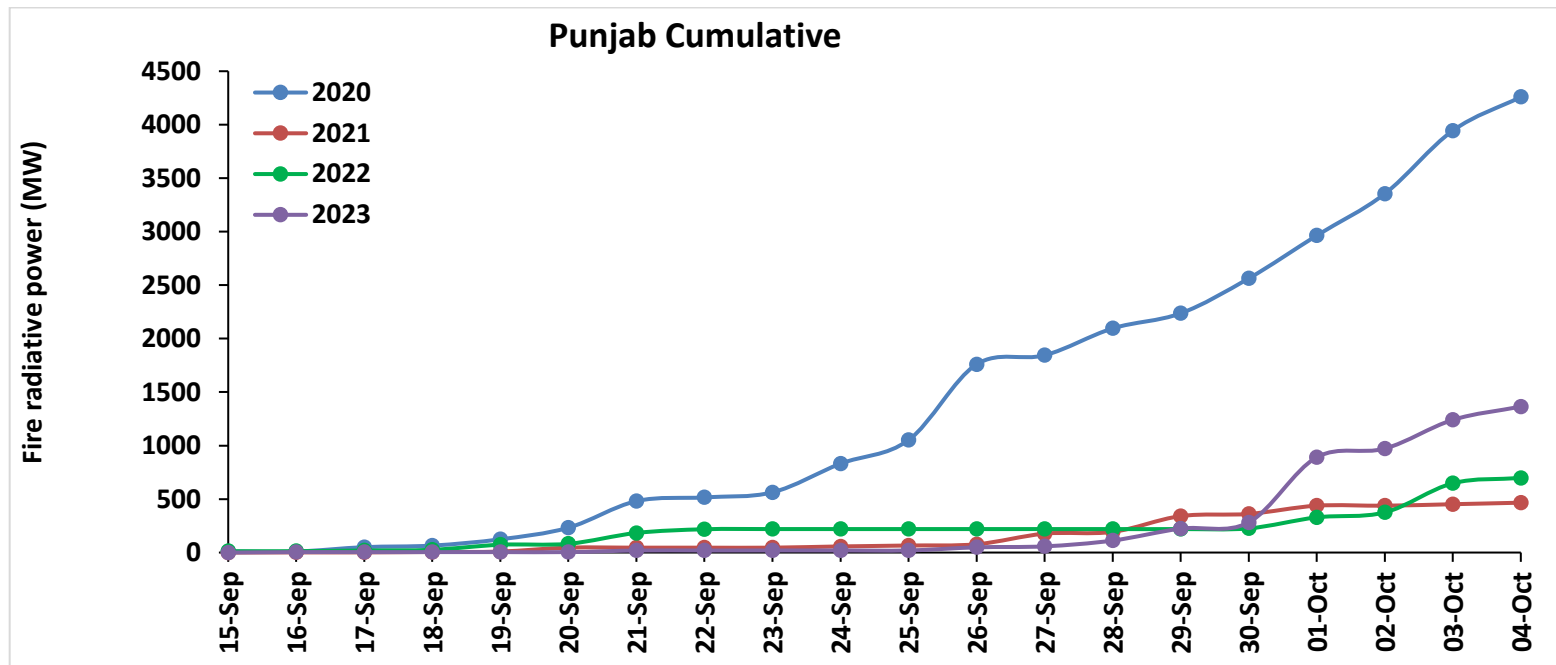


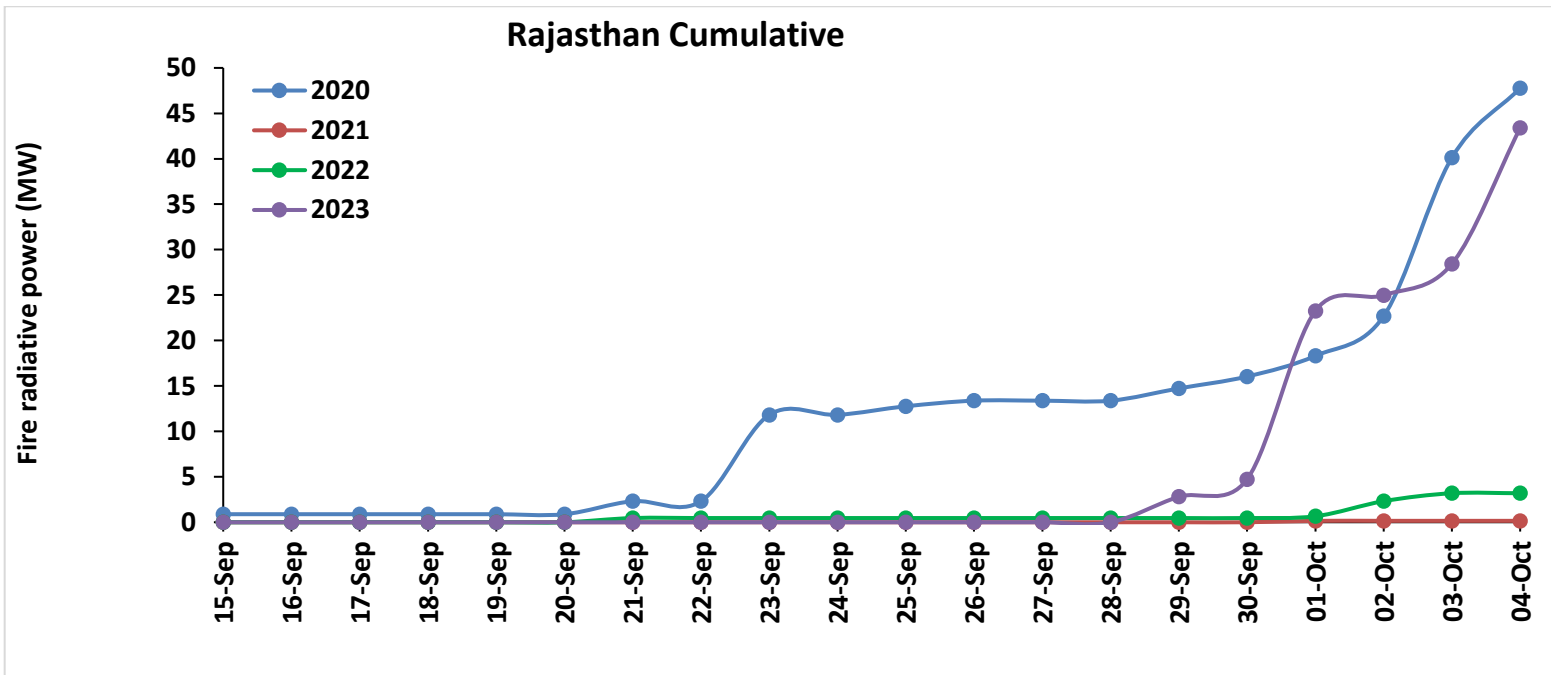
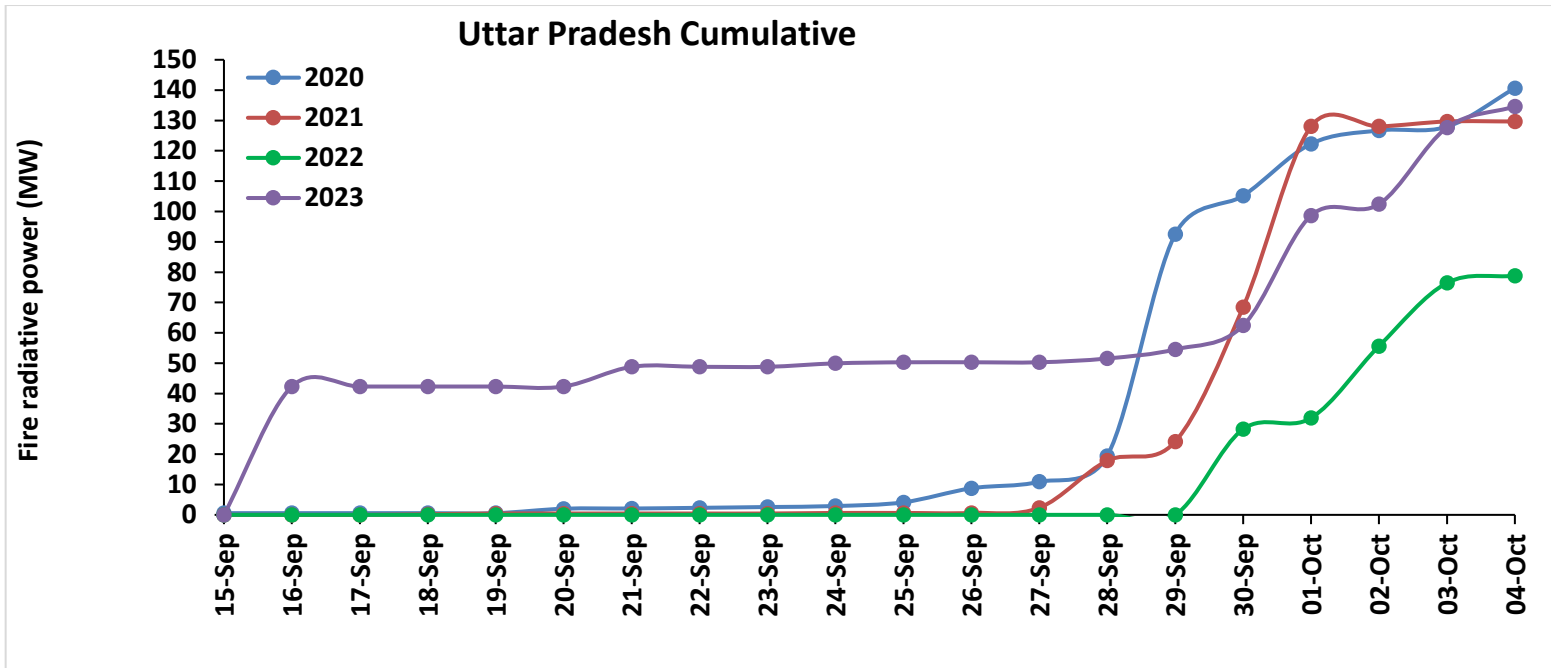


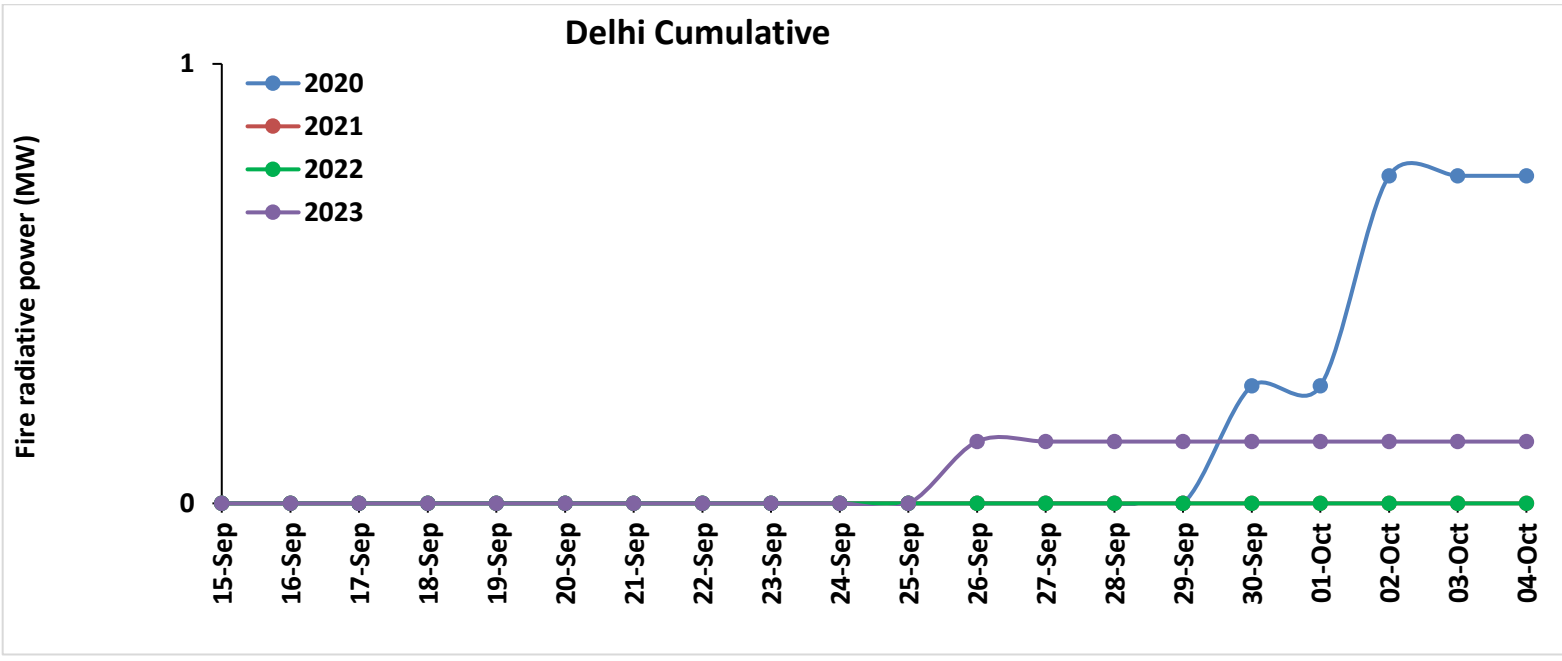
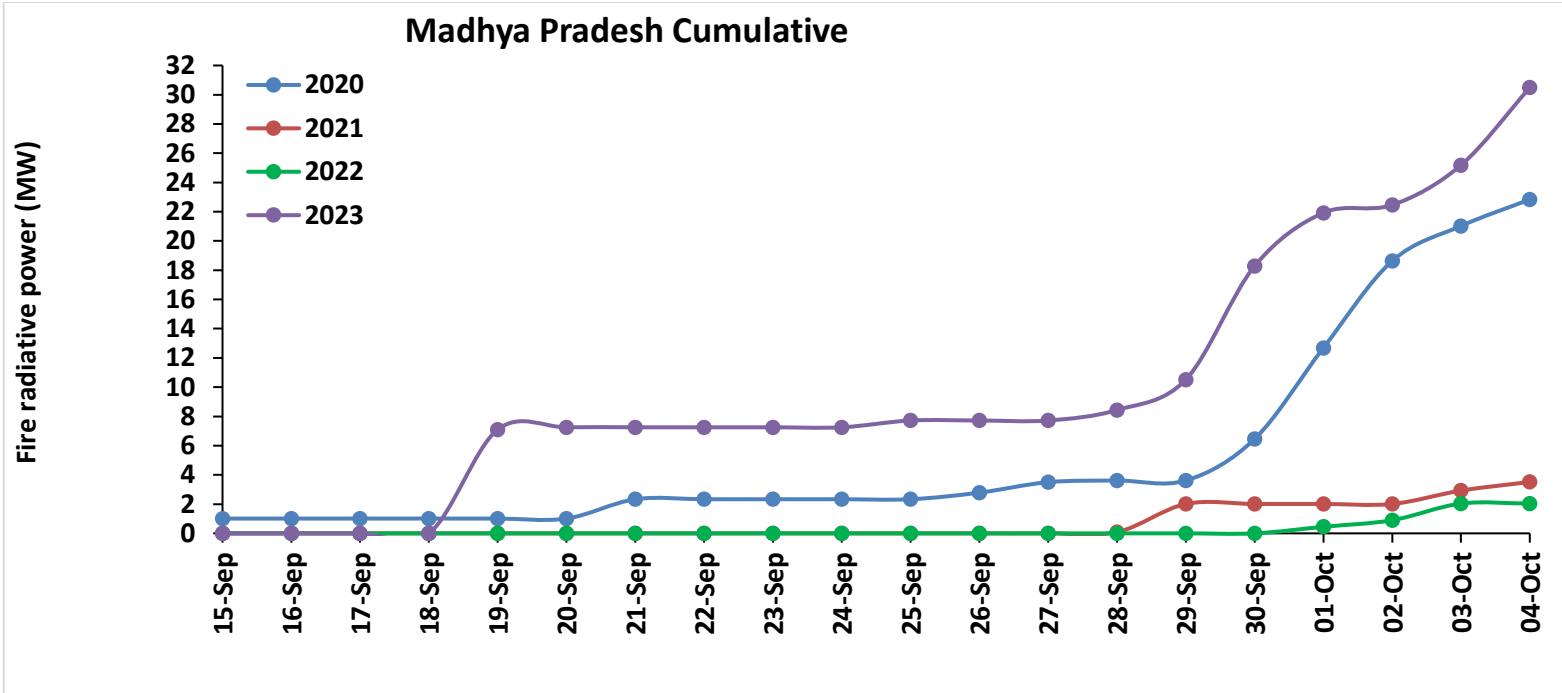




## Comparison of residue burning fire power in current year (2023) with previous years (2020, 2021 and 2022) for the study States

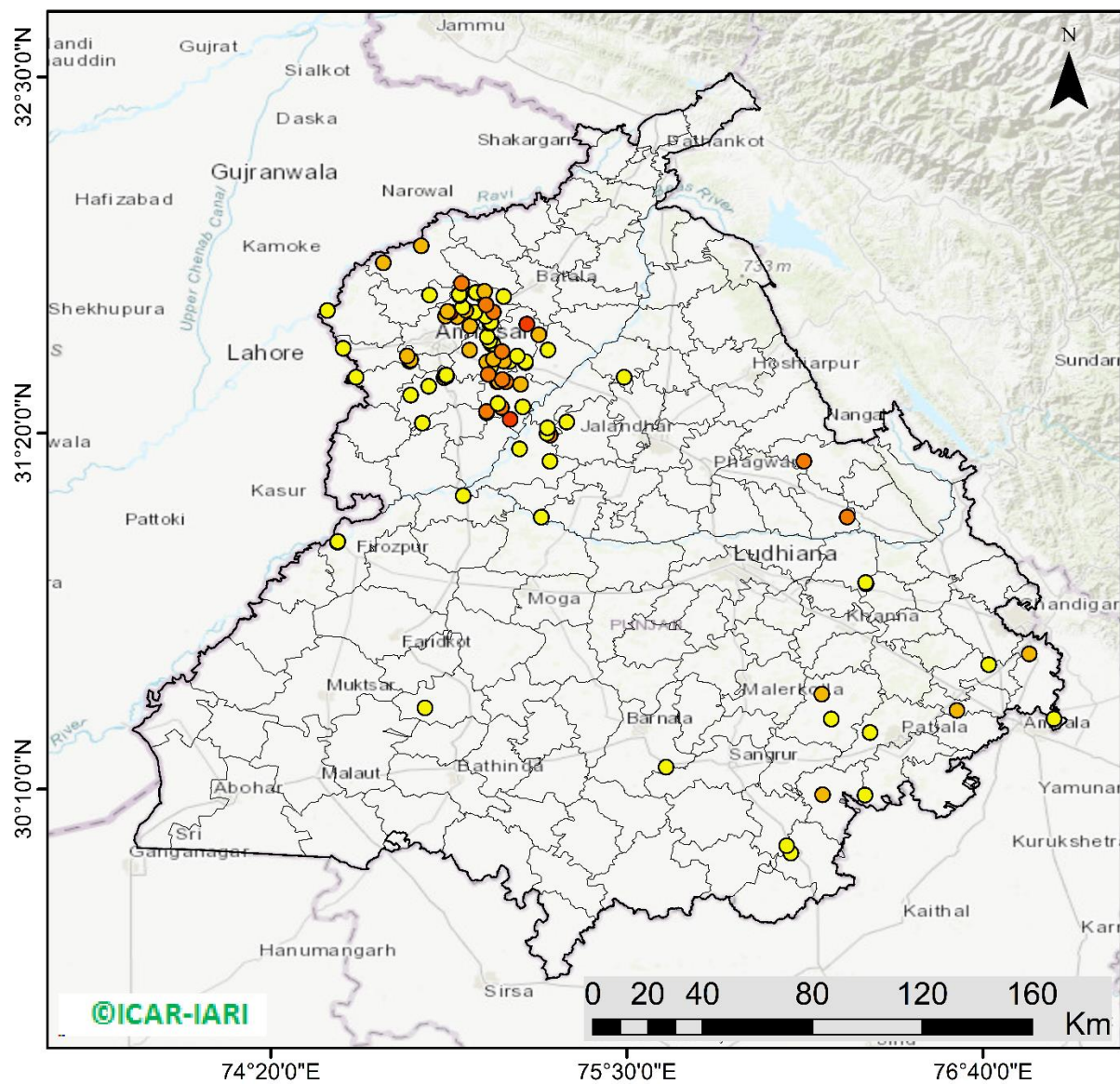






# Punjab

## RICE RESIDUE BURNING IN PUNJAB



**95** burning events detected in Punjab during (04th Oct 2023)

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

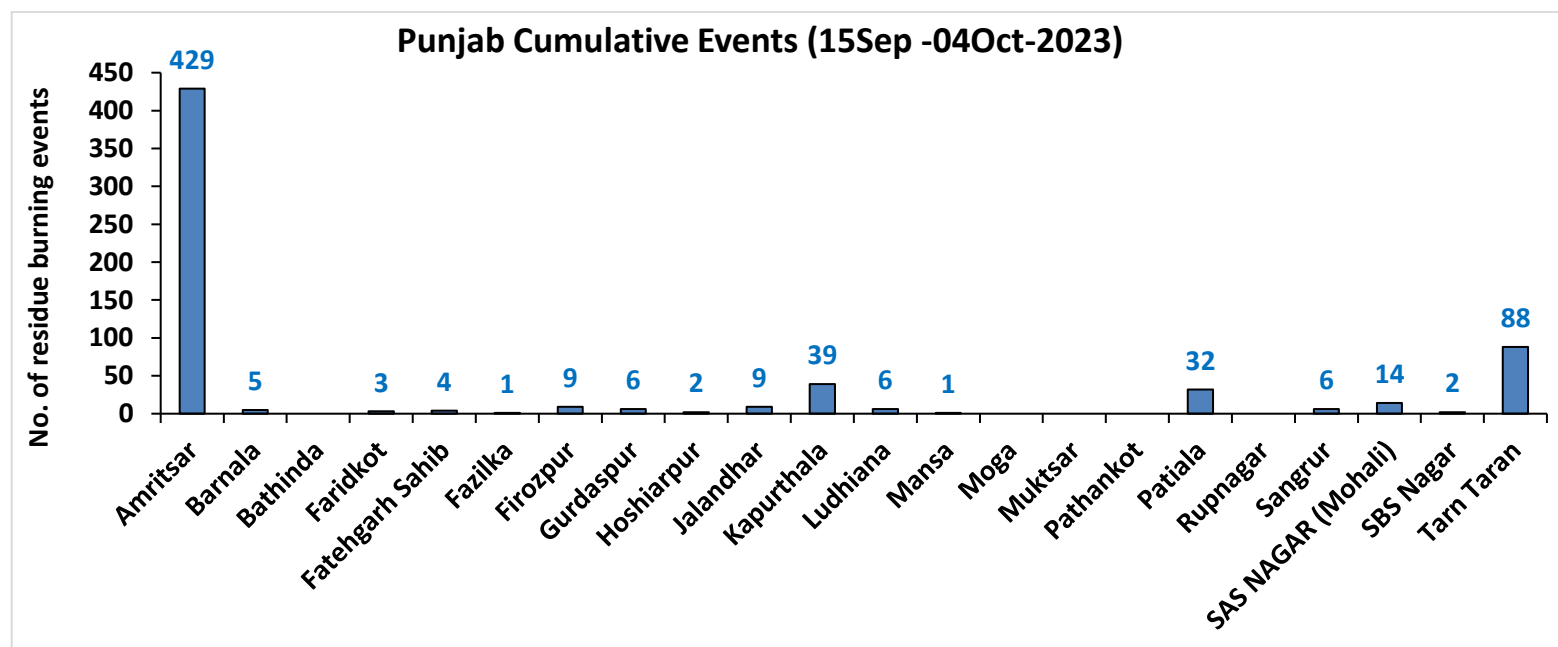
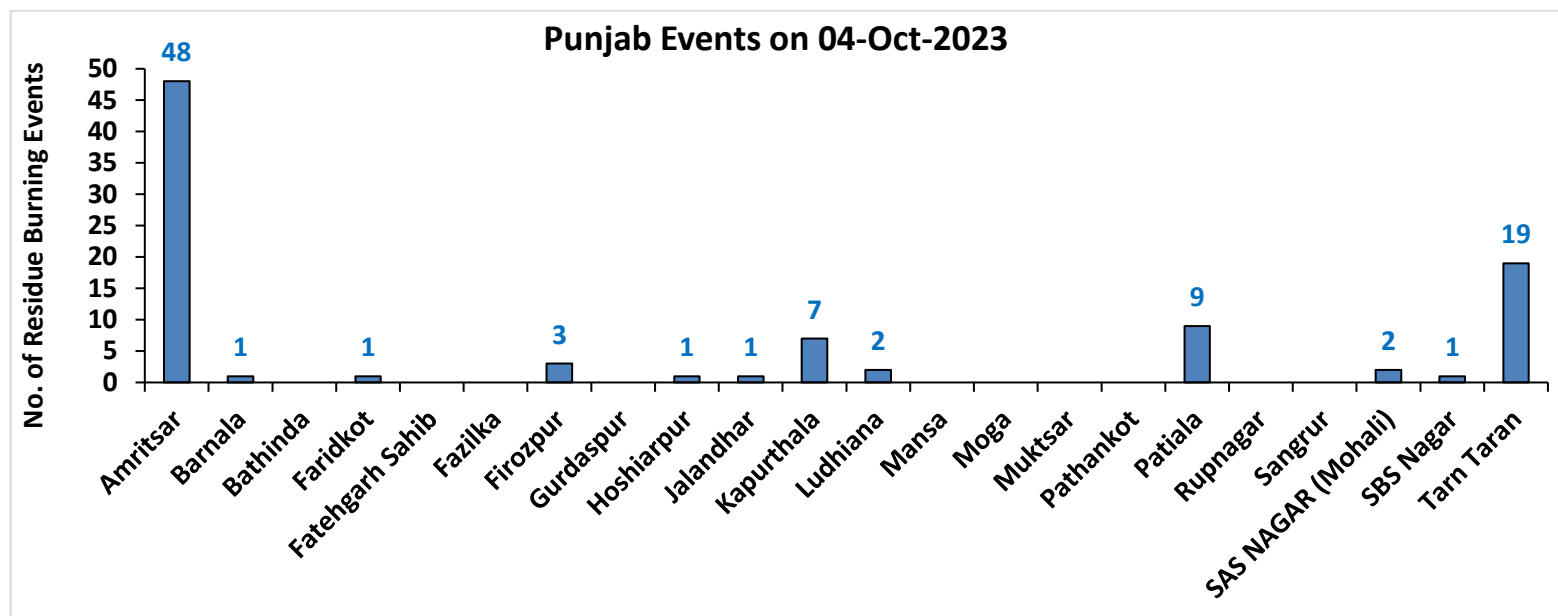
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20

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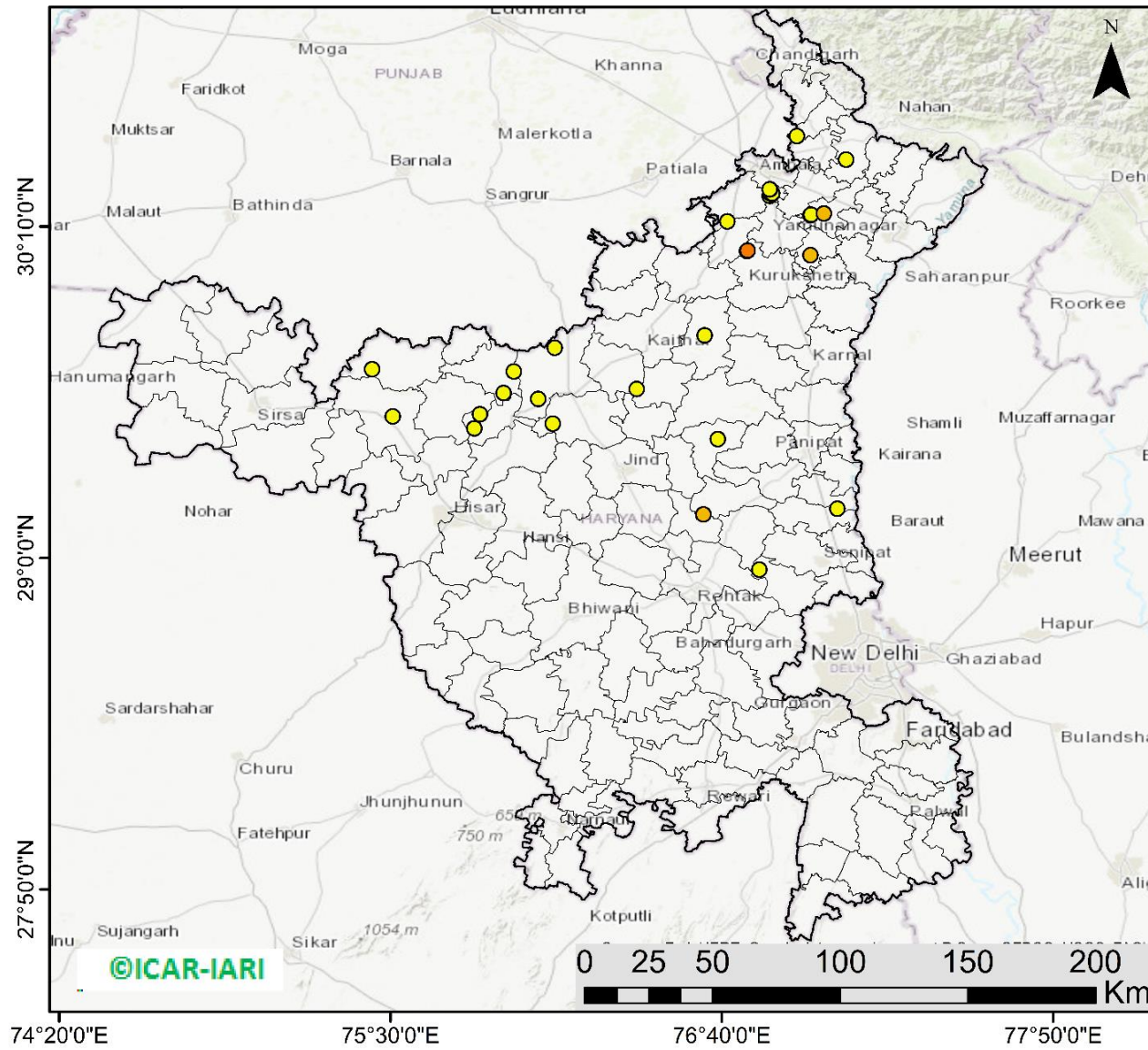
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Punjab (15Sep- 04Oct-2023)



# Haryana

## RICE RESIDUE BURNING IN HARYANA



**29** burning events detected in Haryana on **(04th Oct 2023)**

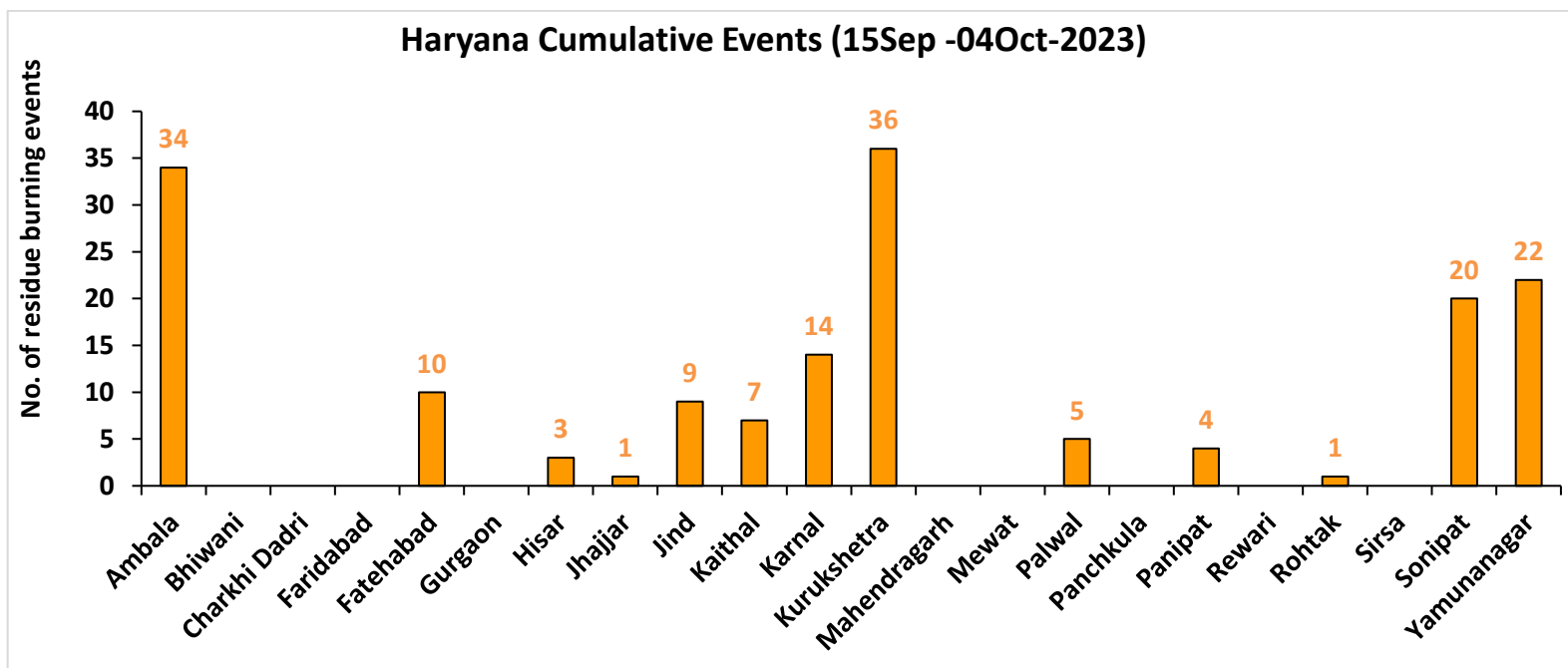
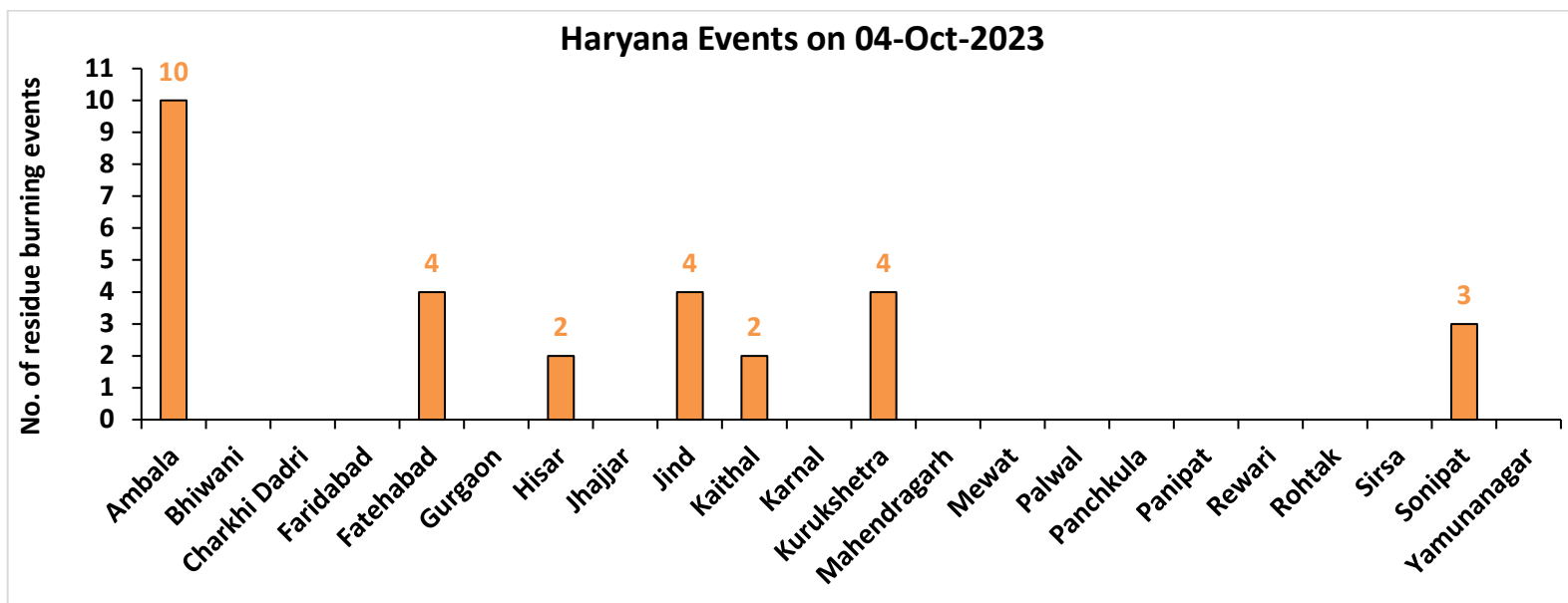
### Fire Intensity (W/m<sup>2</sup>)

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



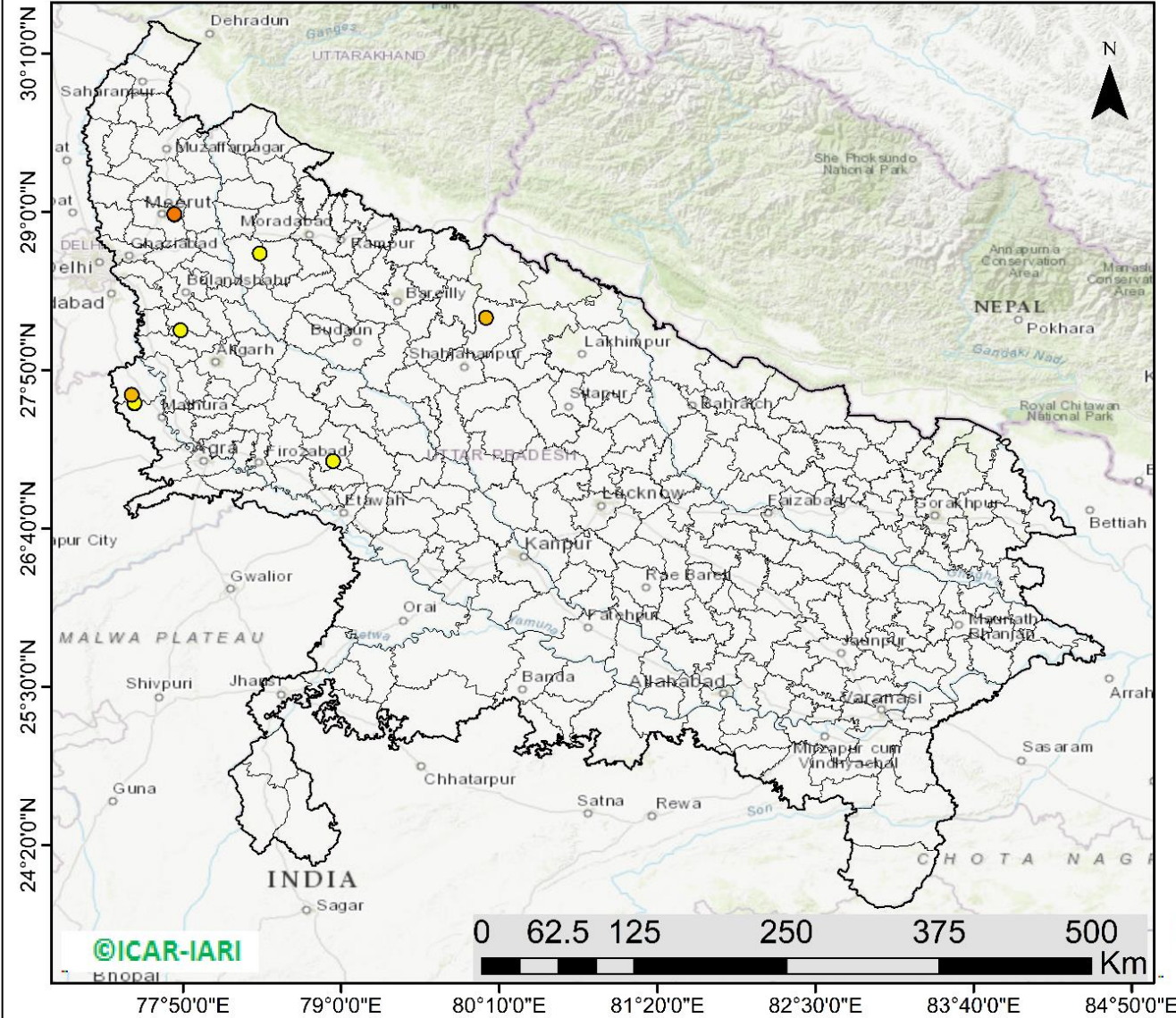
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Haryana (15Sep-04Oct -2023)



# Uttar Pradesh

## RICE RESIDUE BURNING IN UTTAR PRADESH



**09** burning events detected in Uttar Pradesh on (04th Oct 2023)

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

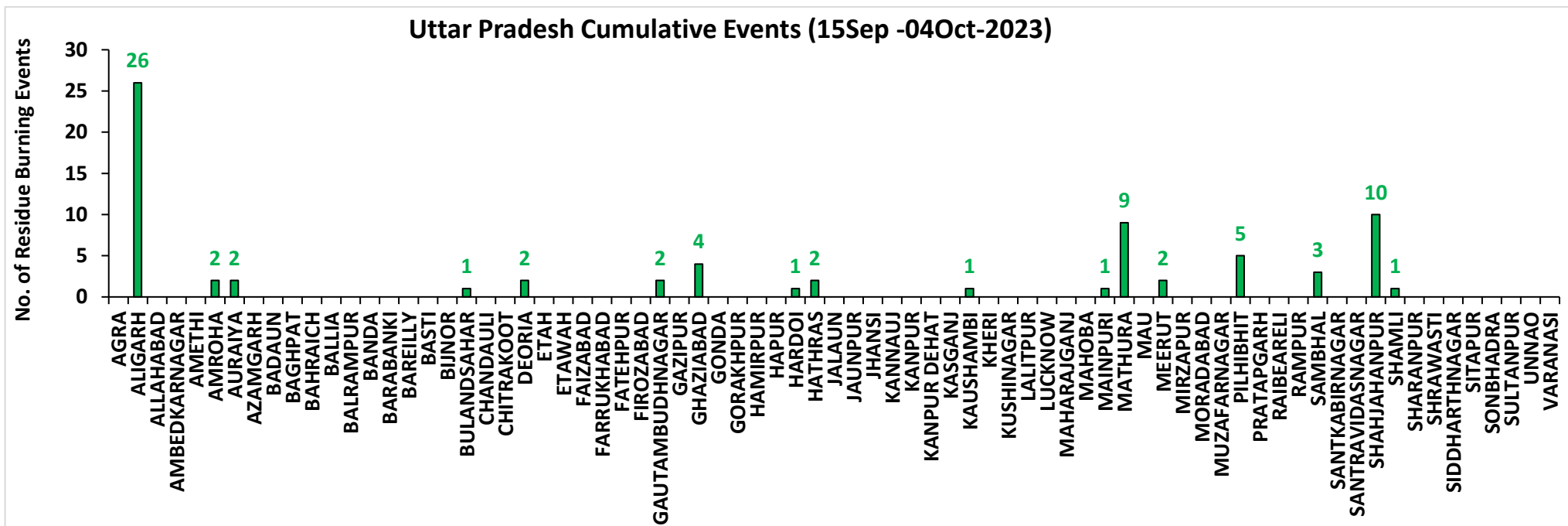
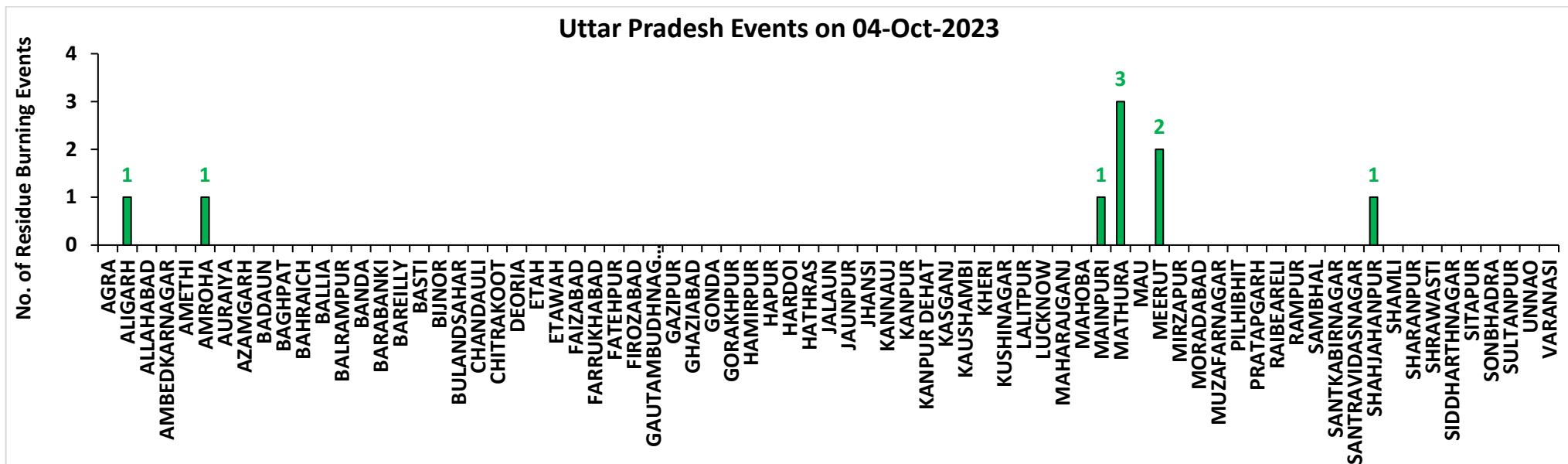
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



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

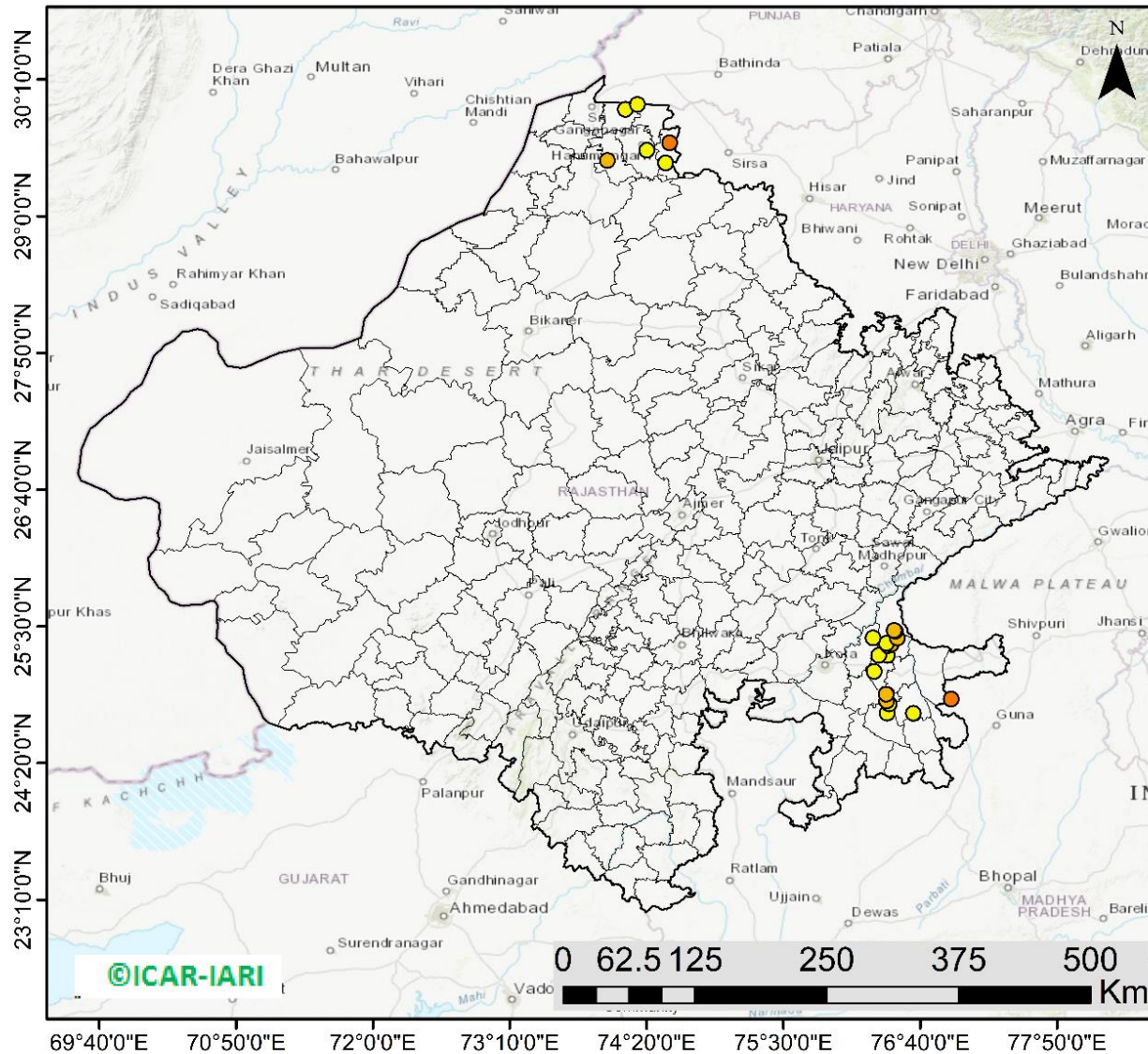


## District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-04Oct -2023)



# Rajasthan

## RICE RESIDUE BURNING IN RAJASTHAN



**22** burning events  
detected in Rajasthan on  
(04th Oct 2023)

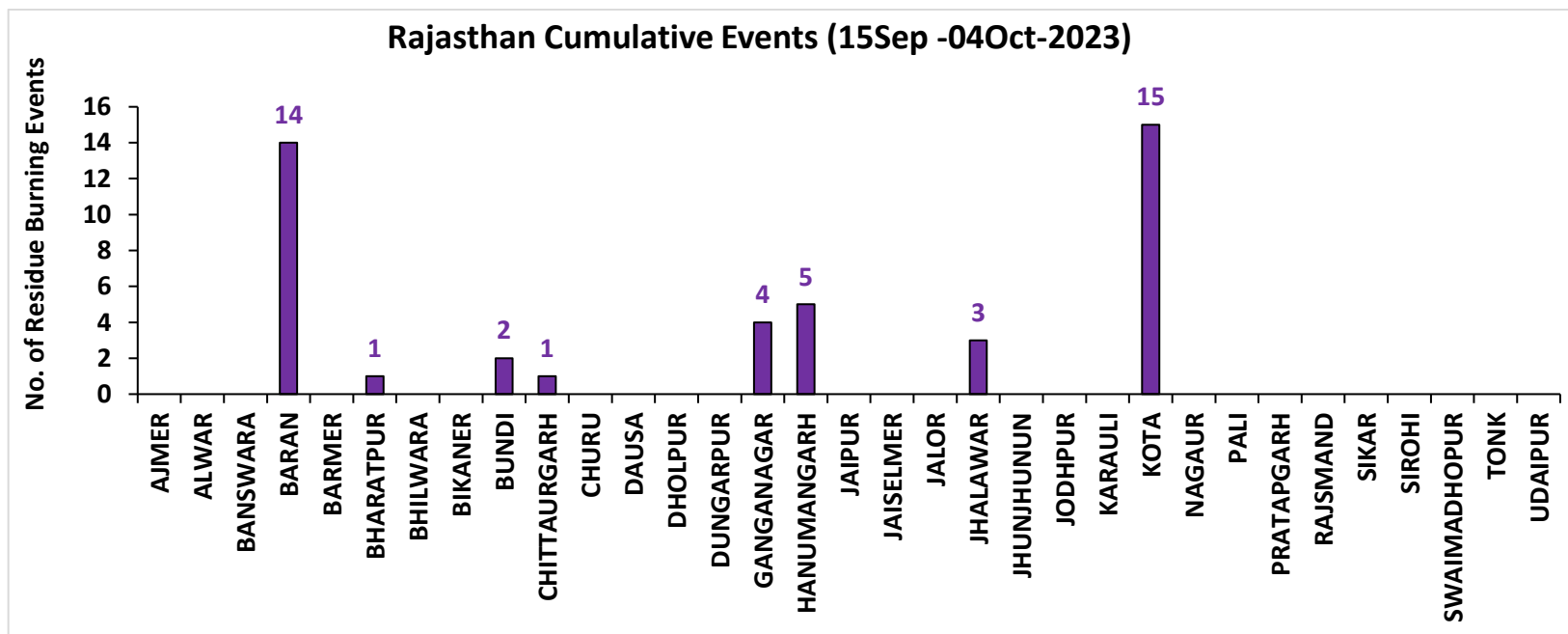
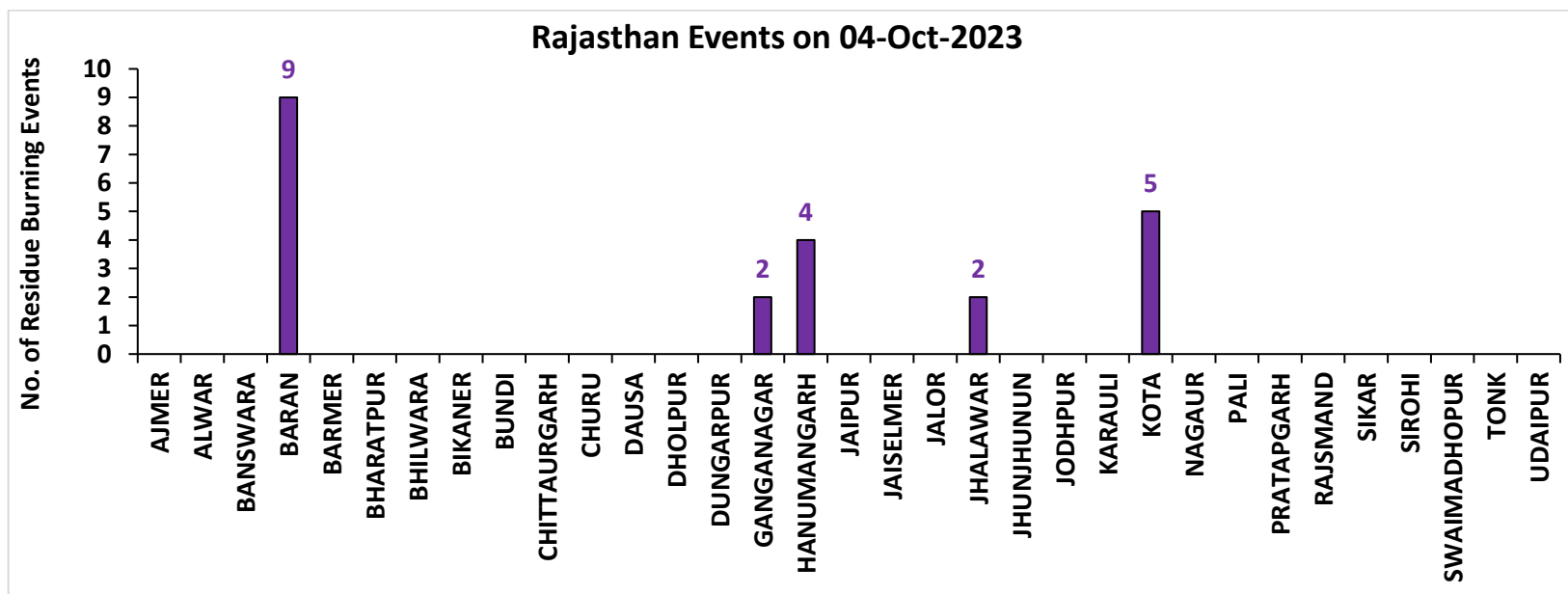
### Fire Intensity (W/m<sup>2</sup>)

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



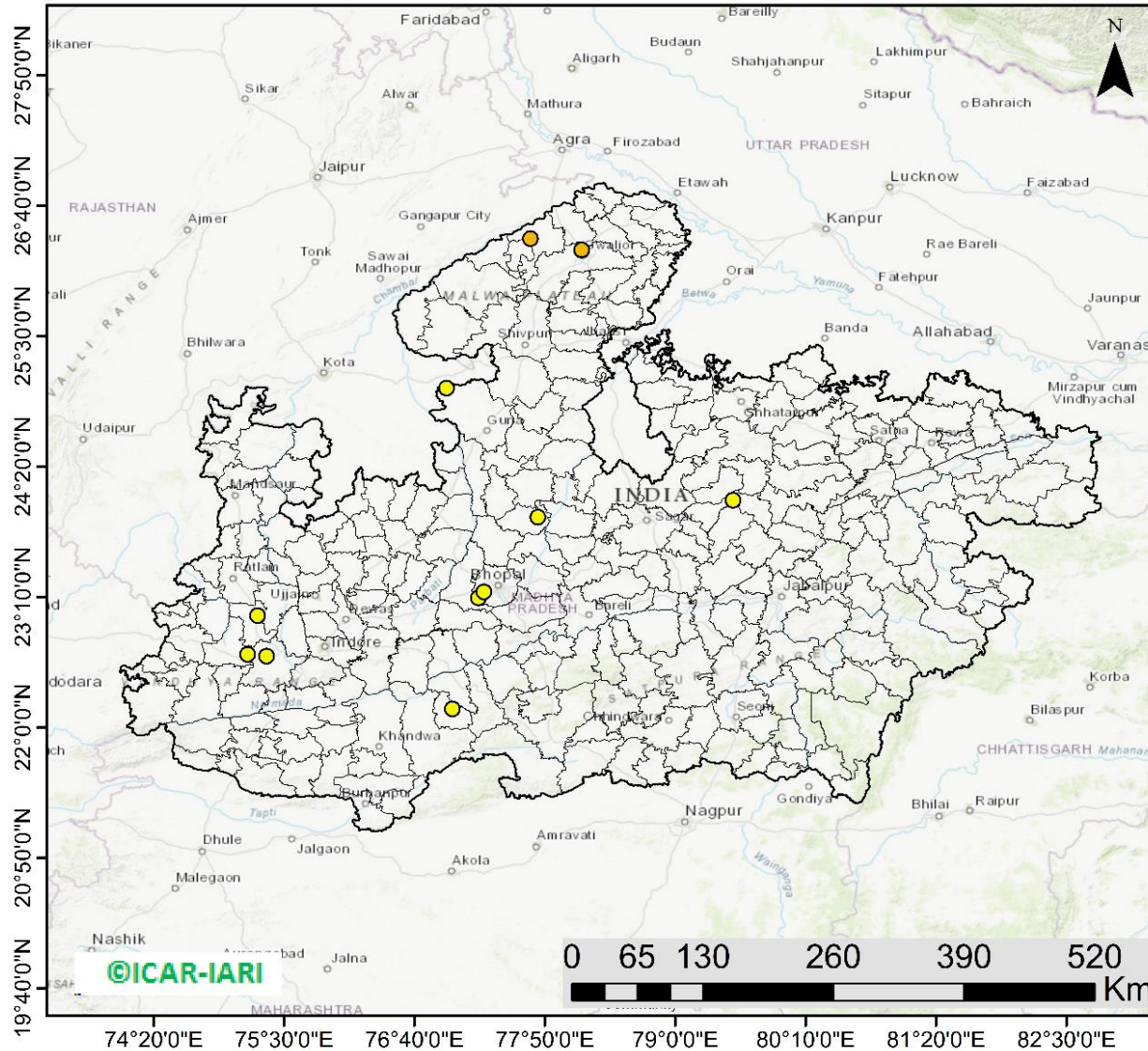
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Rajasthan (15Sep-04Oct -2023)



# Madhya Pradesh

## RICE RESIDUE BURNING IN MADHYA PRADESH



**12** burning events detected in MP on (04th Oct 2023)

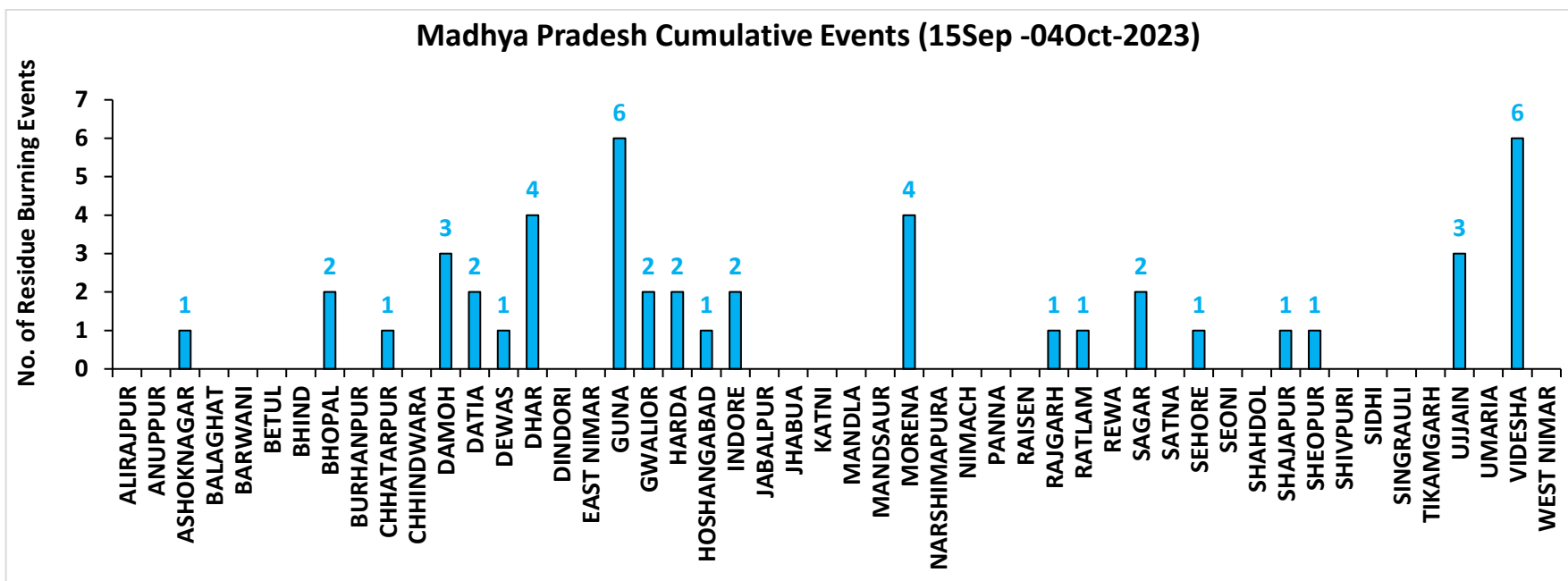
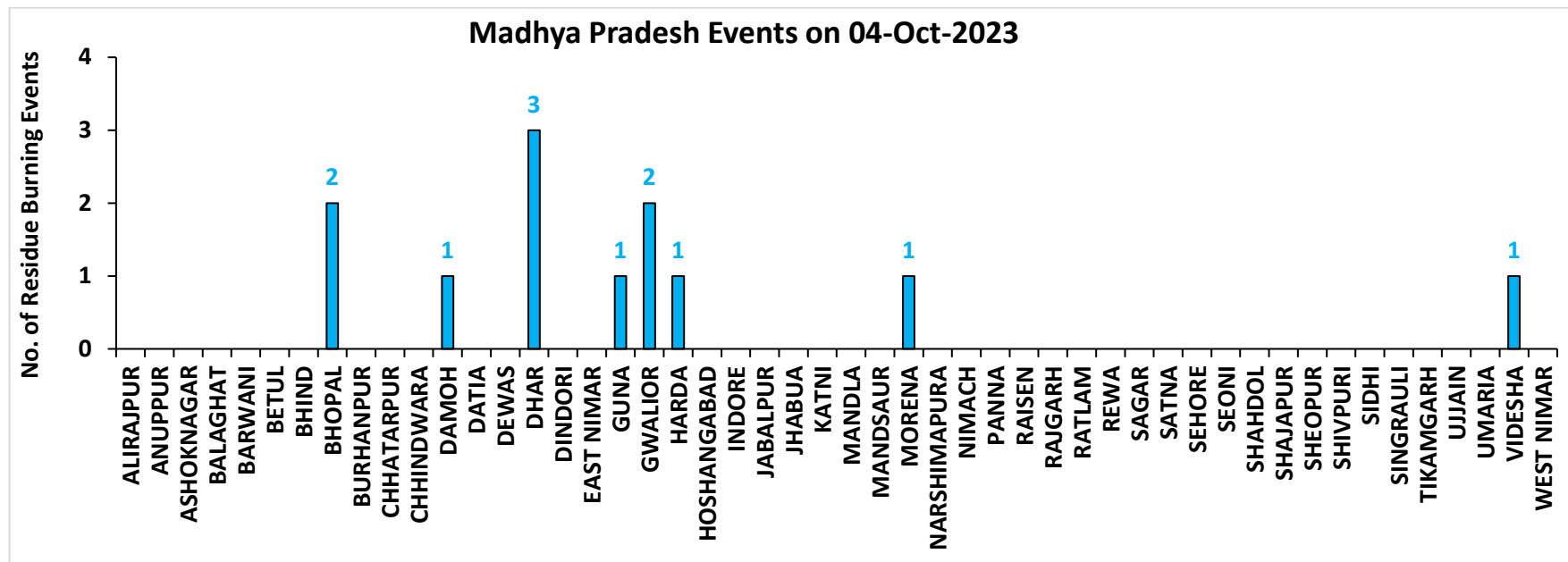
### Fire Intensity (W/m<sup>2</sup>)

- 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-04Oct -2023)



**District-wise cumulative number of residues burning events detected in 2020, 2021, 2022 and 2023**  
**(Period: 15 September-04 October)**

**(a) Punjab**

District	15 Sep-04 Oct			
	2020	2021	2022	2023
Amritsar	1015	161	320	429
Barnala	2	0	0	5
Bathinda	0	0	0	0
Faridkot	3	9	2	3
Fatehgarh Sahib	15	1	1	4
Fazilka	0	1	0	1
Firozpur	22	5	6	9
Gurdaspur	54	4	6	6
Hoshiarpur	3	0	0	2
Jalandhar	13	6	7	9
Kapurthala	22	2	6	39
Ludhiana	34	19	1	6
Mansa	2	0	0	1
Moga	9	0	0	0
Muktsar	1	1	1	0
Pathankot	0	0	0	0
Patiala	63	11	8	32
Rupnagar	1	1	0	0
Sangrur	17	4	0	6
SAS NAGAR (Mohali)	8	0	2	14
SBS Nagar	2	1	1	2
Tarn Taran	317	34	54	88
<b>Total</b>	<b>1603</b>	<b>260</b>	<b>415</b>	<b>656</b>

**(b) Haryana**

District	15 Sep-04 Oct			
	2020	2021	2022	2023
AMBALA	22	0	5	34
BHIWANI	0	0	0	0
CHARKHI DADRI	0	0	0	0
FARIDABAD	0	0	0	0
FATEHABAD	15	1	1	10
GURGAON	0	0	0	0
HISAR	3	0	0	3
JHAJJAR	0	0	0	1
JIND	2	0	1	9
KAITHAL	21	2	1	7
KARNAL	46	4	7	14
KURUKSHETRA	31	12	8	36
MAHENDRAGARH	0	0	0	0
MEWAT	0	0	0	0
PALWAL	1	0	0	5
PANCHKULA	0	0	0	0
PANIPAT	6	0	0	4
REWARI	0	0	0	0
ROHTAK	0	0	0	1
SIRSA	1	0	0	0
SONIPAT	2	1	0	20
YAMUNANAGAR	10	1	1	22
<b>Total</b>	<b>160</b>	<b>21</b>	<b>24</b>	<b>166</b>

(c) Uttar Pradesh

District	15 Sep-04 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	26	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	3	0	0
AMETHI	0	0	0	0	HAMIRPUR	0	0	0	0	SAMBHAL	5	0	4	3
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	5	37	53	10
BADAUN	0	0	0	0	JALAUN	0	0	0	0	SHAMLI	7	2	2	1
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	1	0	0	0	SONBHADRA	0	0	0	0
BARABANKI	1	0	0	0	KASGANJ	0	0	0	0	SULTANPUR	0	0	0	0
BAREILLY	2	0	0	0	KAUSHAMBI	1	0	0	1	UNNAO	2	0	0	0
BASTI	0	0	0	0	KHERI	2	3	8	0	VARANASI	0	0	0	0
BIJNOR	1	0	1	0	KUSHINAGAR	0	0	0	0	<b>Total</b>	<b>75</b>	<b>49</b>	<b>80</b>	<b>74</b>
BULANDSAHAR	1	0	2	1	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	2	0	0	0	MAINPURI	0	0	0	1					
ETAWAH	0	0	0	0	MATHURA	2	1	0	9					
FAIZABAD	0	0	0	0	MAU	0	0	0	0					
FARRUKHABAD	0	0	0	0	MEERUT	6	0	0	2					
FATEHPUR	1	0	0	0	MIRZAPUR	0	0	0	0					
FIROZABAD	0	0	0	0	MORADABAD	1	0	0	0					

**(d) Delhi**

District	15 Sep-04 Oct			
	2020	2021	2022	2023
CENTRAL	0	0	0	0
EAST	0	0	0	0
NEW DELHI	0	0	0	0
NORTH	1	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>2</b>	<b>0</b>	<b>0</b>	<b>1</b>

**(e) Rajasthan**

District	15 Sep-04 Oct			
	2020	2021	2022	2023
AJMER	0	0	0	0
ALWAR	1	0	0	0
BANSWARA	0	0	0	0
BARAN	20	0	3	14
BARMER	2	0	0	0
BHARATPUR	0	0	0	1
BHILWARA	1	0	0	0
BIKANER	0	0	0	0
BUNDI	1	0	2	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	8	0	1	5
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	4	0	1	15
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>44</b>	<b>1</b>	<b>7</b>	<b>45</b>



**(f) Madhya Pradesh**

District	15 Sep-04 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	1
ASHOKNAGAR	5	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	1	2
BETUL	0	0	0	0	SATNA	1	0	0	0
BHIND	0	0	0	0	SEHORE	1	0	1	1
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	2	0	0	1
CHHINDWARA	0	0	0	0	SHEOPUR	0	0	0	1
DAMOH	5	0	0	3	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	4	0	0	4	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	6	VIDESHA	5	1	1	6
GWALIOR	3	0	1	2	WEST NIMAR	0	0	0	0
HARDA	5	4	0	2	<b>Total</b>	<b>47</b>	<b>8</b>	<b>7</b>	<b>47</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	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-04 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
<b>Total</b>	<b>1603</b>	<b>260</b>	<b>415</b>	<b>656</b>	<b>160</b>	<b>21</b>	<b>24</b>	<b>166</b>	<b>75</b>	<b>49</b>	<b>80</b>	<b>74</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
<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>44</b>	<b>1</b>	<b>7</b>	<b>45</b>	<b>47</b>	<b>8</b>	<b>7</b>	<b>47</b>

**Details of residue burning events in Punjab on 04-Oct-2023**

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.89082	74.70204	13:41:53	D	9.40
2	AMRITSAR	AJNALA	S-NPP	31.94623	74.82642	13:41:53	D	5.80
3	AMRITSAR	ATTARI	S-NPP	31.51547	74.61314	13:41:53	D	1.80
4	AMRITSAR	ATTARI	S-NPP	31.56842	74.78799	13:41:53	D	4.10
5	AMRITSAR	ATTARI	S-NPP	31.57248	74.79186	13:41:53	D	9.00
6	AMRITSAR	ATTARI	S-NPP	31.58523	74.78042	13:41:53	D	7.40
7	AMRITSAR	ATTARI	S-NPP	31.61075	74.57079	13:41:53	D	3.10
8	AMRITSAR	CHOGAWAN	S-NPP	31.73458	74.51912	13:41:53	D	2.50
9	AMRITSAR	HARSHA CHHINA	S-NPP	31.78506	74.85374	13:41:53	D	2.50
10	AMRITSAR	JANDIALA GURU	S-NPP	31.54856	75.05338	13:41:53	D	3.00
11	AMRITSAR	JANDIALA GURU	S-NPP	31.56493	75.04116	13:41:53	D	5.40
12	AMRITSAR	JANDIALA GURU	S-NPP	31.56857	75.09677	13:41:53	D	5.20
13	AMRITSAR	JANDIALA GURU	S-NPP	31.57494	75.06281	13:41:53	D	6.80
14	AMRITSAR	JANDIALA GURU	S-NPP	31.60457	74.98514	13:41:53	D	6.20
15	AMRITSAR	JANDIALA GURU	S-NPP	31.62449	75.05649	13:41:53	D	2.20
16	AMRITSAR	JANDIALA GURU	AQUA	31.60000	75.09100	14:23:08	D	12.60
17	AMRITSAR	MAJITHA	S-NPP	31.68345	74.98658	13:41:53	D	9.00
18	AMRITSAR	MAJITHA	S-NPP	31.69159	75.05080	13:41:53	D	3.40
19	AMRITSAR	MAJITHA	S-NPP	31.69569	75.05478	13:41:53	D	4.00
20	AMRITSAR	MAJITHA	S-NPP	31.71503	75.03728	13:41:53	D	2.80
21	AMRITSAR	MAJITHA	S-NPP	31.72849	75.00207	13:41:53	D	3.30
22	AMRITSAR	MAJITHA	S-NPP	31.72898	74.92256	13:41:53	D	24.20
23	AMRITSAR	MAJITHA	S-NPP	31.72911	75.06303	13:41:53	D	11.70
24	AMRITSAR	MAJITHA	S-NPP	31.73130	74.91283	13:41:53	D	6.20
25	AMRITSAR	MAJITHA	S-NPP	31.73547	74.97276	13:41:53	D	9.50
26	AMRITSAR	MAJITHA	S-NPP	31.74481	74.96176	13:41:53	D	4.90
27	AMRITSAR	MAJITHA	S-NPP	31.78024	75.09656	13:41:53	D	2.80
28	AMRITSAR	MAJITHA	S-NPP	31.78327	74.95191	13:41:53	D	3.40
29	AMRITSAR	MAJITHA	S-NPP	31.78534	75.02496	13:41:53	D	4.00
30	AMRITSAR	MAJITHA	S-NPP	31.78628	74.94979	13:41:53	D	7.00

31	AMRITSAR	MAJITHA	S-NPP	31.78678	74.95129	13:41:53	D	3.40
32	AMRITSAR	MAJITHA	S-NPP	31.79349	75.00474	13:41:53	D	2.40
33	AMRITSAR	MAJITHA	S-NPP	31.79376	75.00632	13:41:53	D	2.90
34	AMRITSAR	MAJITHA	S-NPP	31.79725	75.03393	13:41:53	D	7.60
35	AMRITSAR	MAJITHA	S-NPP	31.82361	74.95885	13:41:53	D	13.10
36	AMRITSAR	MAJITHA	AQUA	31.75300	75.03900	14:23:08	D	12.50
37	AMRITSAR	RAYYA	S-NPP	31.56342	75.16831	13:41:53	D	2.10
38	AMRITSAR	RAYYA	S-NPP	31.60540	75.24163	13:41:53	D	2.80
39	AMRITSAR	RAYYA	S-NPP	31.65514	75.21172	13:41:53	D	5.70
40	AMRITSAR	TARSIKKA	S-NPP	31.56695	75.16771	13:41:53	D	3.30
41	AMRITSAR	TARSIKKA	S-NPP	31.56744	75.11576	13:41:53	D	2.70
42	AMRITSAR	TARSIKKA	S-NPP	31.58511	75.14095	13:41:53	D	3.40
43	AMRITSAR	TARSIKKA	S-NPP	31.62508	75.06107	13:41:53	D	2.30
44	AMRITSAR	TARSIKKA	S-NPP	31.63445	75.05005	13:41:53	D	3.00
45	AMRITSAR	TARSIKKA	S-NPP	31.64791	75.04300	13:41:53	D	2.90
46	AMRITSAR	TARSIKKA	S-NPP	31.68985	75.17246	13:41:53	D	15.60
47	AMRITSAR	VERKA	S-NPP	31.71383	74.94388	13:41:53	D	9.30
48	AMRITSAR	VERKA	S-NPP	31.71613	74.90620	13:41:53	D	7.30
49	BARNALA	BARNALA	S-NPP	30.23832	75.62871	13:41:53	D	4.80
50	FARIDKOT	JAISON	S-NPP	30.43231	74.83892	13:41:53	D	2.70
51	FIROZPUR	FIROZPUR	S-NPP	30.97530	74.55201	13:41:53	D	3.70
52	FIROZPUR	FIROZPUR	S-NPP	30.97765	74.55321	13:41:53	D	3.60
53	FIROZPUR	MAKHU	S-NPP	31.12759	74.96428	13:41:53	D	4.30
54	HOSHIARPUR	GARH SHANKAR	S-NPP	31.24062	76.08040	13:41:53	D	11.70
55	JALANDHAR	SHAHKOT	S-NPP	31.05717	75.21983	13:41:53	D	2.10
56	KAPURTHALA	KAPURTHALA	S-NPP	31.36911	75.30308	13:41:53	D	2.00
57	KAPURTHALA	NADALA	S-NPP	31.51546	75.49088	13:41:53	D	2.30
58	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.24024	75.24825	13:41:53	D	1.40
59	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.28088	75.14873	13:41:53	D	3.00
60	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.32604	75.24896	13:41:53	D	14.40
61	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.33193	75.23850	13:41:53	D	3.00
62	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.35018	75.24007	13:41:53	D	3.70
63	LUDHIANA	MACHHIWARA	S-NPP	30.83930	76.28334	13:41:53	D	3.40
64	LUDHIANA	MACHHIWARA	S-NPP	30.84298	76.28275	13:41:53	D	3.40

65	PATIALA	NABHA	S-NPP	30.39598	76.16980	13:41:53	D	3.10
66	PATIALA	NABHA	S-NPP	30.47750	76.13872	13:41:53	D	7.70
67	PATIALA	PATIALA	S-NPP	30.35199	76.29697	13:41:53	D	3.90
68	PATIALA	PATRAN	S-NPP	29.95677	76.03738	13:41:53	D	2.30
69	PATIALA	PATRAN	S-NPP	29.98076	76.02373	13:41:53	D	2.70
70	PATIALA	RAJPURA	S-NPP	30.57420	76.68577	13:41:53	D	3.90
71	PATIALA	SAMANA	S-NPP	30.14786	76.14143	13:41:53	D	6.00
72	PATIALA	SANAUR	S-NPP	30.14636	76.28033	13:41:53	D	3.90
73	PATIALA	SHAMBU KALAN	S-NPP	30.42378	76.58153	13:41:53	D	6.50
74	SAS NAGAR (MOHALI)	DERABASSI	S-NPP	30.39675	76.89957	13:41:53	D	3.10
75	SAS NAGAR (MOHALI)	DERABASSI	S-NPP	30.60927	76.81827	13:41:53	D	8.60
76	SBS NAGAR	NAWAN SHAHR	S-NPP	31.05789	76.22185	13:41:53	D	12.70
77	TARN TARAN	KHADUR SAHIB	S-NPP	31.37753	75.11781	13:41:53	D	17.40
78	TARN TARAN	KHADUR SAHIB	S-NPP	31.40001	75.04084	13:41:53	D	12.40
79	TARN TARAN	KHADUR SAHIB	S-NPP	31.40352	75.04022	13:41:53	D	12.40
80	TARN TARAN	KHADUR SAHIB	S-NPP	31.41699	75.08916	13:41:53	D	10.90
81	TARN TARAN	KHADUR SAHIB	S-NPP	31.41878	75.15916	13:41:53	D	2.30
82	TARN TARAN	KHADUR SAHIB	S-NPP	31.42986	75.07758	13:41:53	D	3.40
83	TARN TARAN	KHADUR SAHIB	S-NPP	31.49290	75.15229	13:41:53	D	6.80
84	TARN TARAN	KHADUR SAHIB	S-NPP	31.50114	75.10384	13:41:53	D	12.20
85	TARN TARAN	KHADUR SAHIB	S-NPP	31.50116	75.07572	13:41:53	D	5.00
86	TARN TARAN	KHADUR SAHIB	S-NPP	31.50174	75.08030	13:41:53	D	8.40
87	TARN TARAN	KHADUR SAHIB	AQUA	31.50800	75.09200	14:23:08	D	13.00
88	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.36560	74.83002	13:41:53	D	4.10
89	TARN TARAN	TARN TARAN	S-NPP	31.45747	74.79187	13:41:53	D	2.30
90	TARN TARAN	TARN TARAN	S-NPP	31.48650	74.85094	13:41:53	D	3.50
91	TARN TARAN	TARN TARAN	S-NPP	31.51446	74.90131	13:41:53	D	9.90
92	TARN TARAN	TARN TARAN	S-NPP	31.51913	74.90972	13:41:53	D	3.70
93	TARN TARAN	TARN TARAN	S-NPP	31.52203	74.90459	13:41:53	D	5.90
94	TARN TARAN	TARN TARAN	S-NPP	31.52262	74.90911	13:41:53	D	3.70
95	TARN TARAN	TARN TARAN	AQUA	31.52500	75.04600	14:23:08	D	13.10

### Details of residue burning events in Haryana on 04-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMBALA	AMBALA-II	S-NPP	30.27383	76.83521	13:41:53	D	2.80
2	AMBALA	AMBALA-II	S-NPP	30.28197	76.83924	13:41:53	D	4.30
3	AMBALA	AMBALA-II	S-NPP	30.28260	76.84445	13:41:53	D	4.30
4	AMBALA	AMBALA-II	S-NPP	30.29699	76.83691	13:41:53	D	5.10
5	AMBALA	AMBALA-II	S-NPP	30.29717	76.83521	13:41:53	D	4.40
6	AMBALA	BARARA	S-NPP	30.20637	76.97907	13:41:53	D	2.40
7	AMBALA	BARARA	S-NPP	30.20744	76.98164	13:41:53	D	2.40
8	AMBALA	BARARA	S-NPP	30.21183	77.02670	13:41:53	D	8.40
9	AMBALA	NARAINGARH	S-NPP	30.40178	77.10460	13:41:53	D	4.60
10	AMBALA	SHAHZADPUR	S-NPP	30.48455	76.93142	13:41:53	D	3.70
11	FATEHABAD	FATEHABAD	S-NPP	29.49774	75.50846	13:41:53	D	2.90
12	FATEHABAD	RATIA	S-NPP	29.66374	75.43551	13:41:53	D	4.20
13	FATEHABAD	TOHANA	S-NPP	29.58011	75.89835	13:41:53	D	2.40
14	FATEHABAD	TOHANA	S-NPP	29.65554	75.93445	13:41:53	D	1.60
15	HISAR	UKLANA	S-NPP	29.45564	75.79552	13:41:53	D	4.10
16	HISAR	UKLANA	S-NPP	29.50528	75.81525	13:41:53	D	3.00
17	JIND	NARWANA	S-NPP	29.55900	76.02055	13:41:53	D	2.70
18	JIND	NARWANA	S-NPP	29.73955	76.07860	13:41:53	D	2.80
19	JIND	SAFIDON	S-NPP	29.41788	76.65297	13:41:53	D	4.00
20	JIND	UCHANA	S-NPP	29.47232	76.07134	13:41:53	D	1.50
21	KAITHAL	PUNDRI	S-NPP	29.78274	76.60632	13:41:53	D	2.60
22	KAITHAL	RAJOUND	S-NPP	29.59433	76.36714	13:41:53	D	2.40
23	KURUKSHETRA	BABAIN	S-NPP	30.06509	76.97932	13:41:53	D	6.50
24	KURUKSHETRA	ISMAILABAD	S-NPP	30.08000	76.75535	13:41:53	D	4.60
25	KURUKSHETRA	ISMAILABAD	S-NPP	30.08134	76.75781	13:41:53	D	11.00
26	KURUKSHETRA	ISMAILABAD	S-NPP	30.18378	76.68668	13:41:53	D	3.10
27	SONIPAT	GANAUR	S-NPP	29.17249	77.07388	13:41:53	D	3.20
28	SONIPAT	KHARKHODA	S-NPP	28.95867	76.79919	13:41:53	D	3.40
29	SONIPAT	MUNDLANA	S-NPP	29.15307	76.60239	13:41:53	D	7.30

### Details of residue burning events in Uttar Pradesh on 04-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ALIGARH	GABHANA	S-NPP	28.12698	77.81599	13:41:53	D	4.10
2	AMROHA	HASANPUR	S-NPP	28.69369	78.40110	13:41:53	D	2.90
3	MAINPURI	MAINPURI	S-NPP	27.16222	78.94150	13:41:53	D	2.00
4	MATHURA	CHHATA	S-NPP	27.58815	77.47665	13:41:53	D	5.00
5	MATHURA	CHHATA	S-NPP	27.59191	77.47609	13:41:53	D	5.00
6	MATHURA	CHHATA	S-NPP	27.65078	77.45497	13:41:53	D	5.10
7	MEERUT	MEERUT	S-NPP	28.97956	77.77112	13:41:53	D	10.20
8	MEERUT	MEERUT	S-NPP	28.98345	77.77054	13:41:53	D	10.20
9	SHAHJAHANPUR	PUWANYA	S-NPP	28.21964	80.06990	13:41:53	D	5.10

### Details of residue burning events in Madhya Pradesh on 04-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BHOPAL	HUZUR	S-NPP	23.15682	77.23916	13:41:53	D	2.40
2	BHOPAL	HUZUR	S-NPP	23.21033	77.28822	13:41:53	D	1.60
3	DAMOH	PATERA	S-NPP	24.03086	79.51764	13:41:53	D	1.70
4	DHAR	BADNAWAR	S-NPP	22.99826	75.26308	13:41:53	D	1.90
5	DHAR	DHAR	S-NPP	22.63556	75.34398	13:41:53	D	2.50
6	DHAR	DHAR	S-NPP	22.65062	75.17530	13:41:53	D	2.60
7	GUNA	GUNA	S-NPP	25.03274	76.95322	13:41:53	D	2.40
8	GWALIOR	GWALIOR	S-NPP	26.26769	78.16148	13:41:53	D	3.10
9	GWALIOR	GWALIOR	S-NPP	26.27019	78.16288	13:41:53	D	6.80
10	HARDA	KHIRKIYAN	S-NPP	22.16329	77.00533	13:41:53	D	2.50
11	MORENA	JORA	S-NPP	26.37083	77.70495	13:41:53	D	7.20
12	VIDESHA	NATERAN	S-NPP	23.87801	77.77128	13:41:53	D	3.00



### Details of residue burning events in Rajasthan on 04-Oct-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BARAN	ANTA	S-NPP	25.11435	76.27493	13:41:53	D	2.30
2	BARAN	ANTA	S-NPP	25.25196	76.31334	13:41:53	D	3.00
3	BARAN	ATRU	S-NPP	24.75679	76.60941	13:41:53	D	4.80
4	BARAN	KISHANGUNJ	S-NPP	24.87832	76.93121	13:41:53	D	10.70
5	BARAN	MANGROL	S-NPP	25.25123	76.38696	13:41:53	D	3.00
6	BARAN	MANGROL	S-NPP	25.33487	76.39170	13:41:53	D	4.70
7	BARAN	MANGROL	S-NPP	25.34584	76.42039	13:41:53	D	6.20
8	BARAN	MANGROL	S-NPP	25.35468	76.37982	13:41:53	D	3.80
9	BARAN	MANGROL	S-NPP	25.39938	76.47301	13:41:53	D	8.30
10	GANGANAGAR	SADULSHAR	S-NPP	29.91043	74.15308	13:41:53	D	3.50
11	GANGANAGAR	SADULSHAR	S-NPP	29.95249	74.25571	13:41:53	D	2.60
12	HANUMANGARH	HANUMANGARH	S-NPP	29.56231	74.33691	02:31:53	N	1.40
13	HANUMANGARH	PILIBANGA	S-NPP	29.47395	74.00018	13:41:53	D	5.90
14	HANUMANGARH	TIBI	S-NPP	29.45332	74.49609	13:41:53	D	3.20
15	HANUMANGARH	TIBI	S-NPP	29.62539	74.53098	13:41:53	D	13.70
16	JHALAWAR	KHANPUR	S-NPP	24.75827	76.38475	13:41:53	D	1.40
17	JHALAWAR	KHANPUR	S-NPP	24.83640	76.40269	13:41:53	D	2.60
18	KOTA	DIGOD	S-NPP	25.40056	76.26469	13:41:53	D	2.40
19	KOTA	PIPALDA	S-NPP	25.45804	76.45546	13:41:53	D	3.20
20	KOTA	PIPALDA	S-NPP	25.46390	76.44574	13:41:53	D	9.30
21	KOTA	SANGOD	S-NPP	24.86192	76.38144	13:41:53	D	5.10
22	KOTA	SANGOD	S-NPP	24.91968	76.37723	13:41:53	D	5.20

**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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