

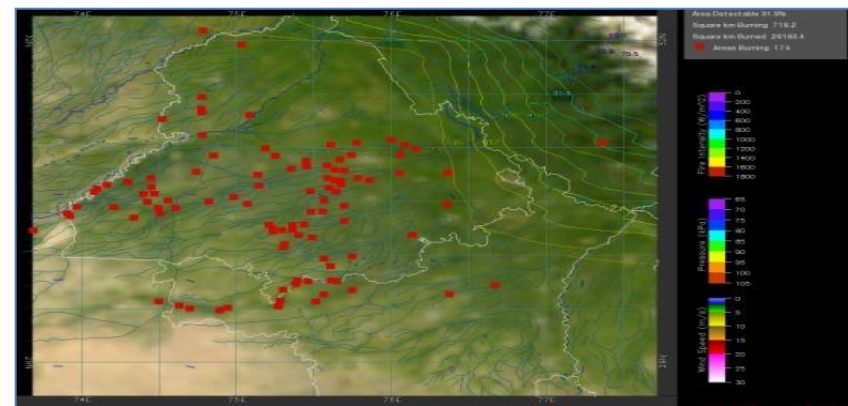
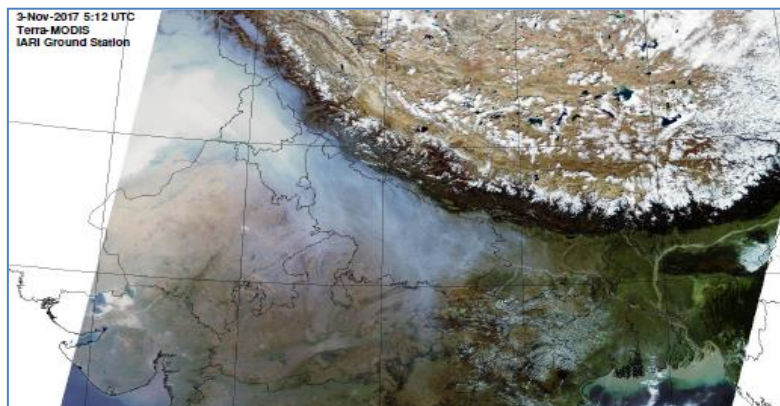


# MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2023

Bulletin  
No. 15

Events Date:  
29-Sep-2023

Issued on:  
29-Sep-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

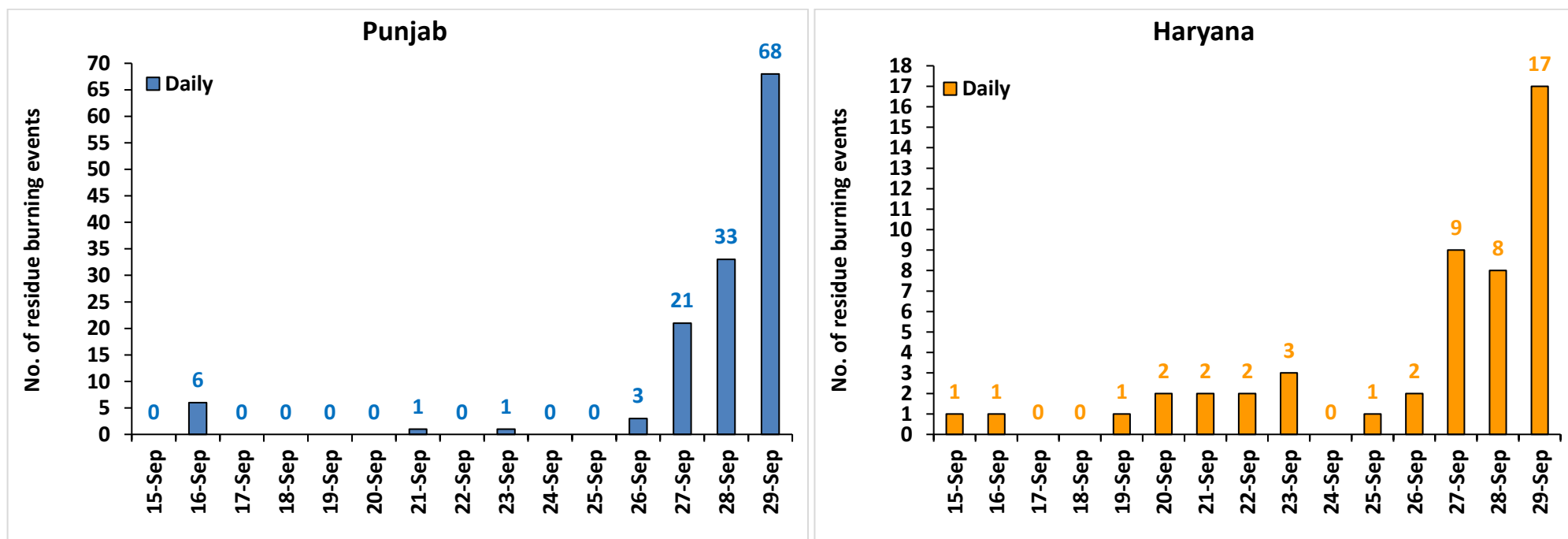
<http://creams.iari.res.in>



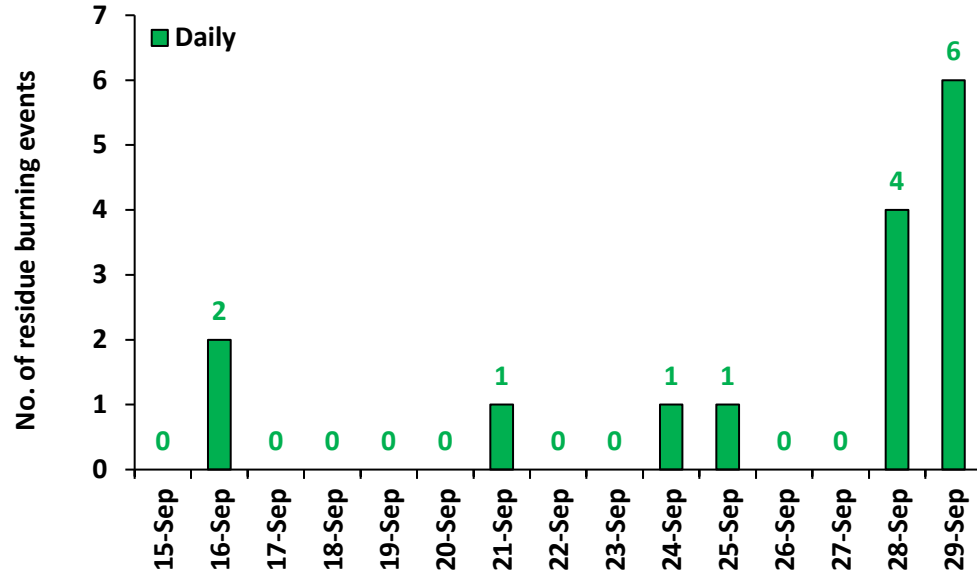
## Highlights for 29-Sep-2023

- 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 **102** residue burning events in the six study States on 29-Sep-2023.
- The state wise events detected on 29-Sep-2023 were **68** in Punjab, **17** in Haryana, **06** in UP, **00** in Delhi, **06** in Rajasthan and **05** in MP.
- Total **214** burning events were detected in the six states between 15-Sept-2023 and 29-Sep-2023, which are distributed as **133**, **49**, **15**, **01**, **06** and **10** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.
- Detection of residue burning events was hampered by the presence of scattered clouds over eastern Uttar Pradesh, and eastern Madhya Pradesh states.

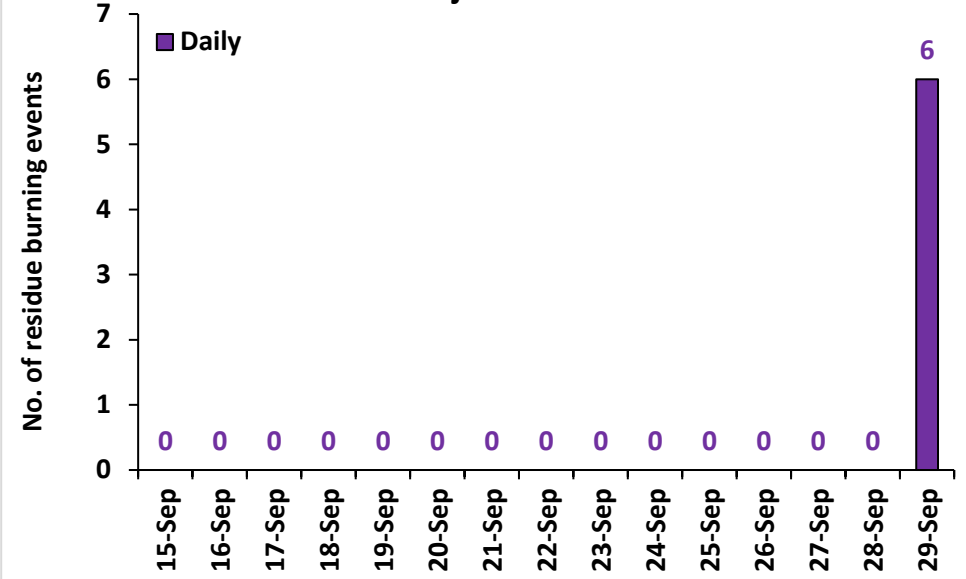
### Temporal distribution of rice residue burning events for the study States in 2023



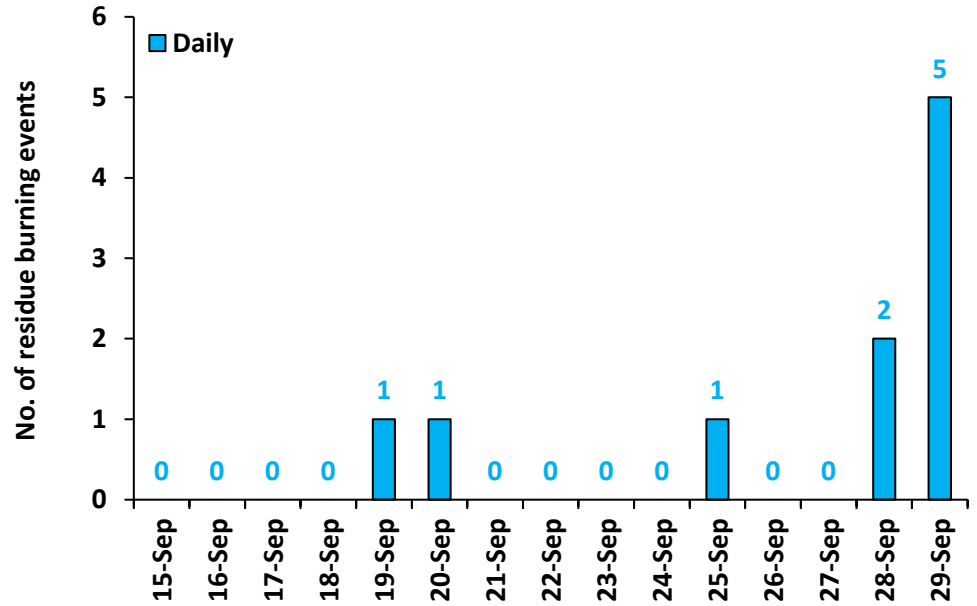
### Uttar Pradesh



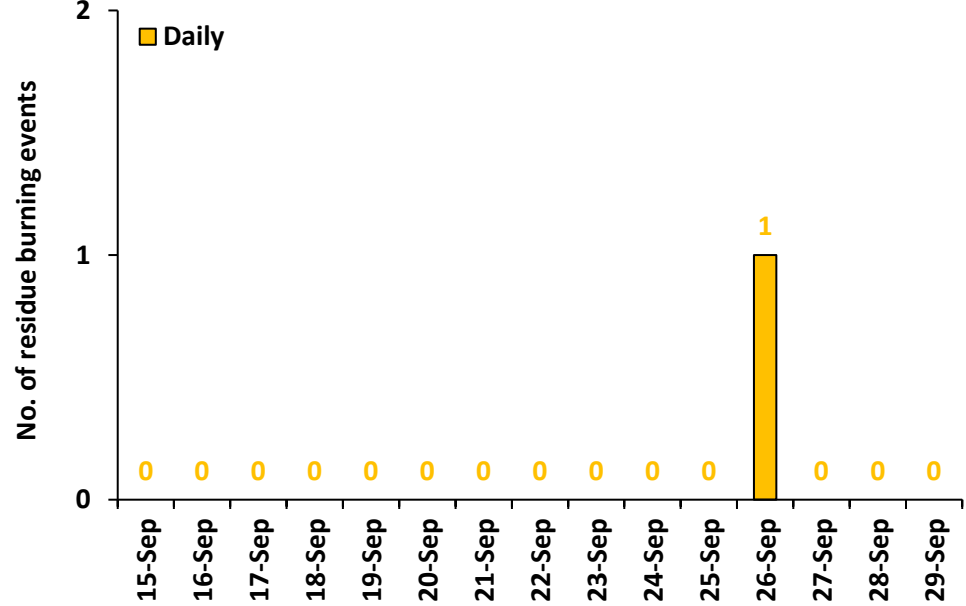
### Rajasthan



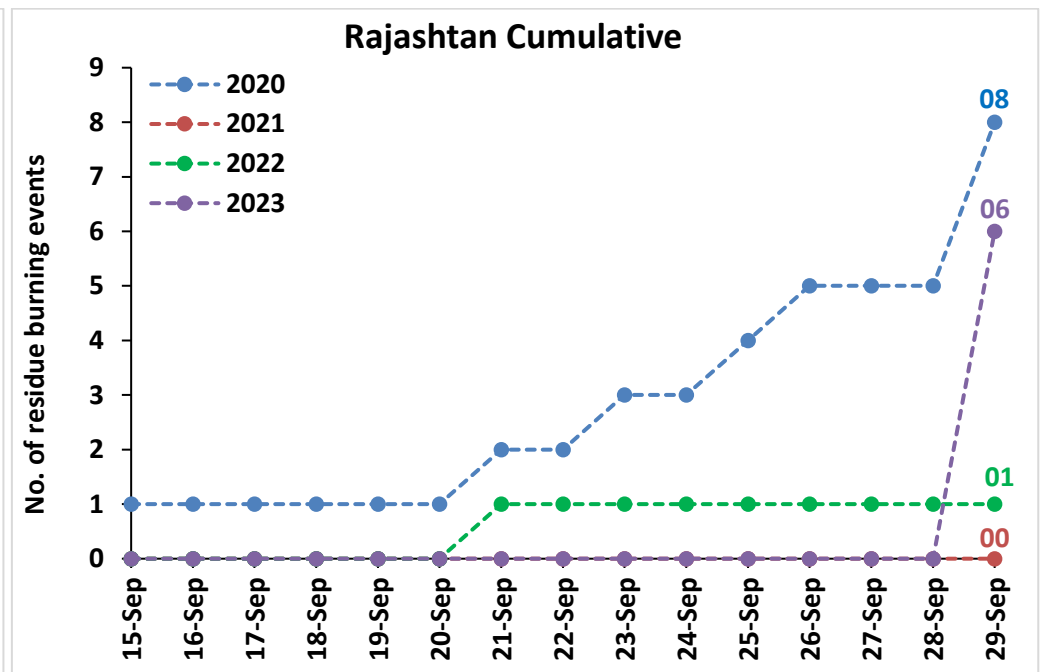
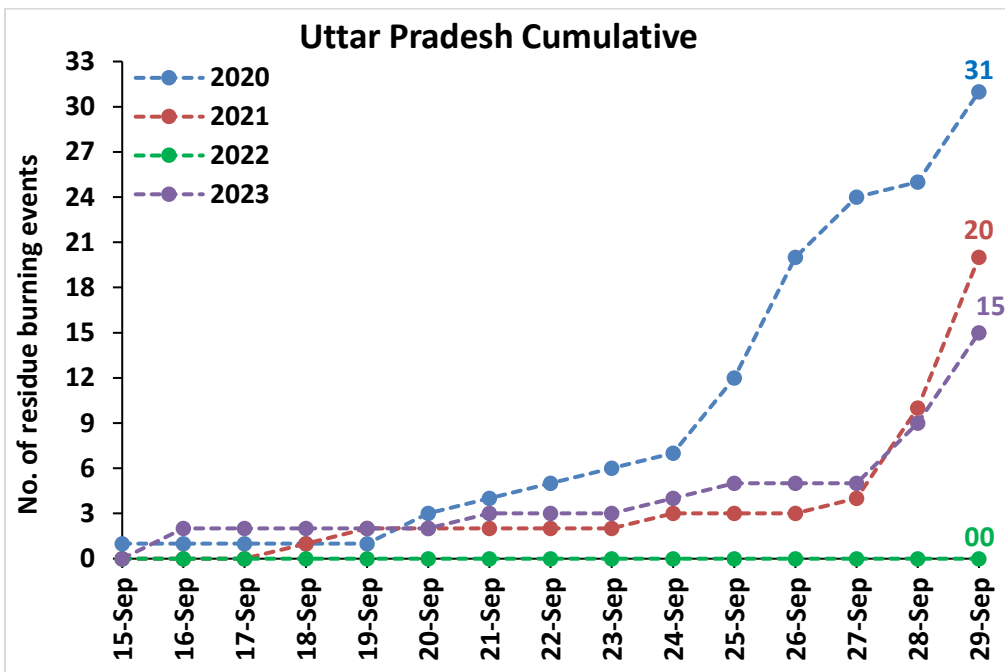
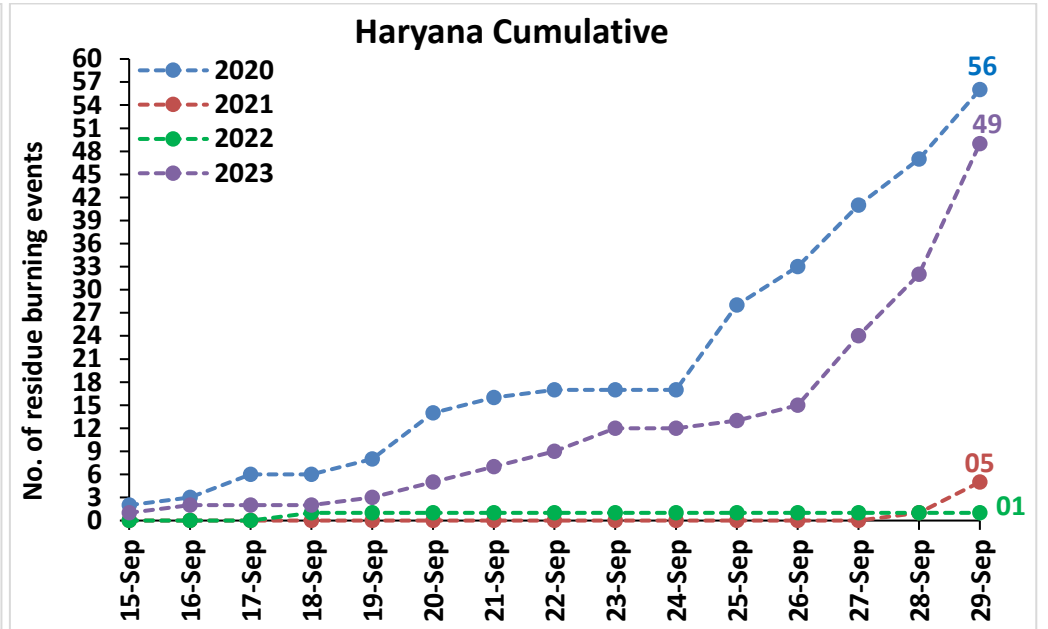
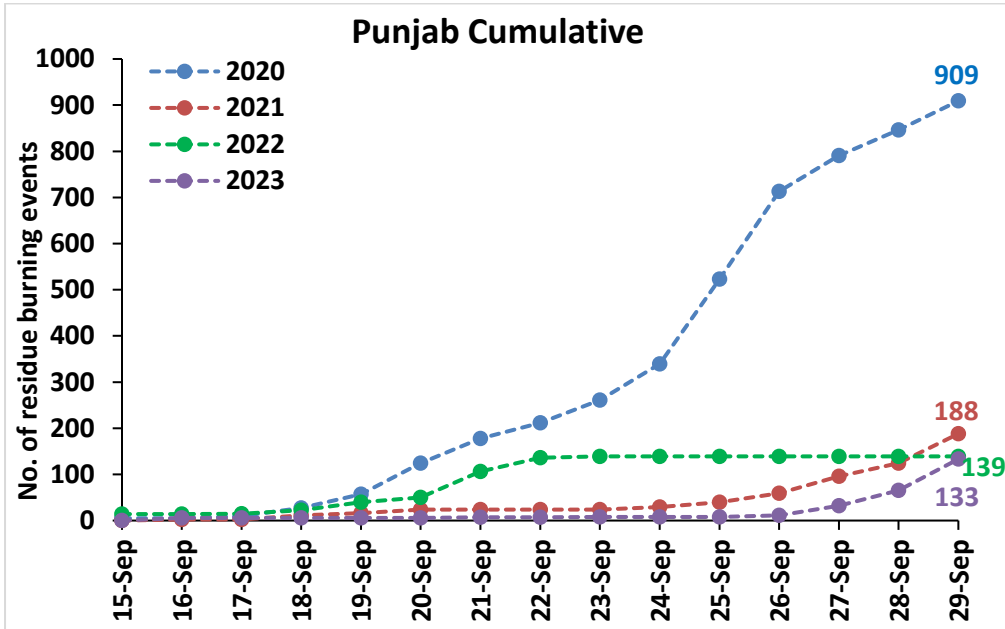
### Madhya Pradesh



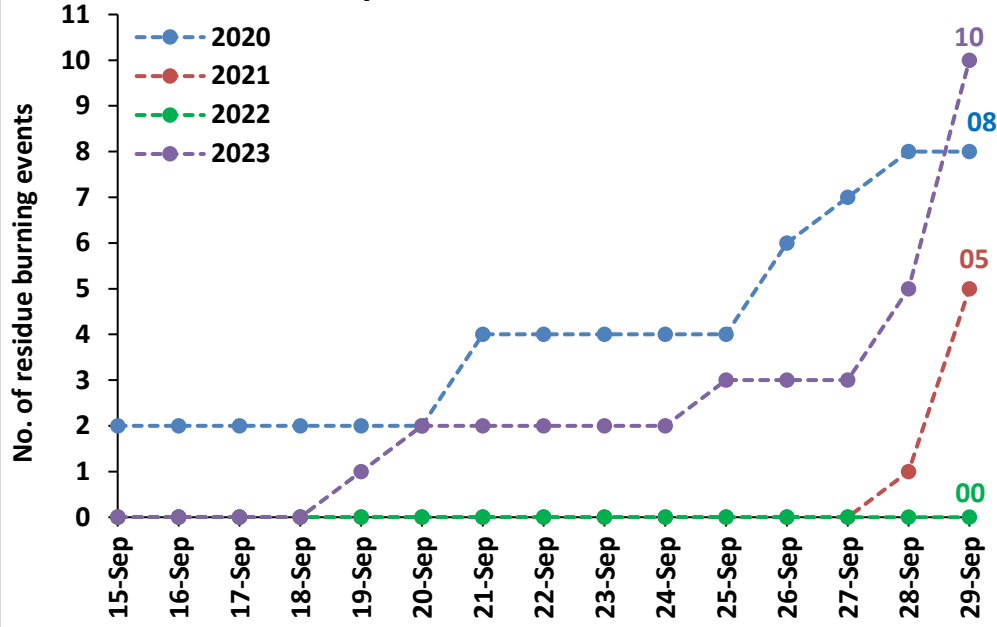
### Delhi



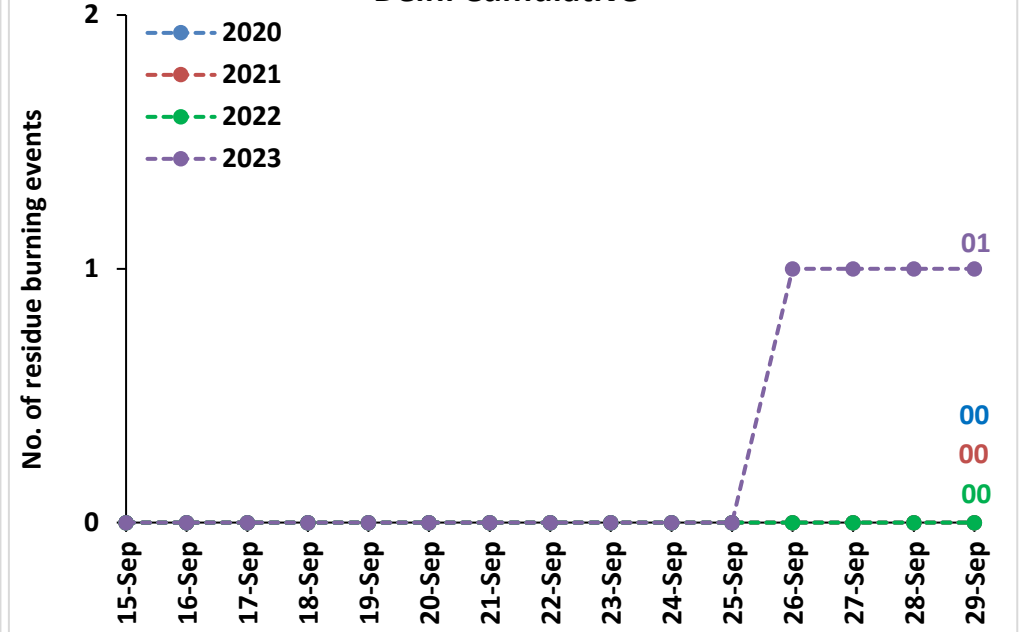
**Comparison of residue burning events in current year (2023) with previous years (2020, 2021 and 2022) for the study State**



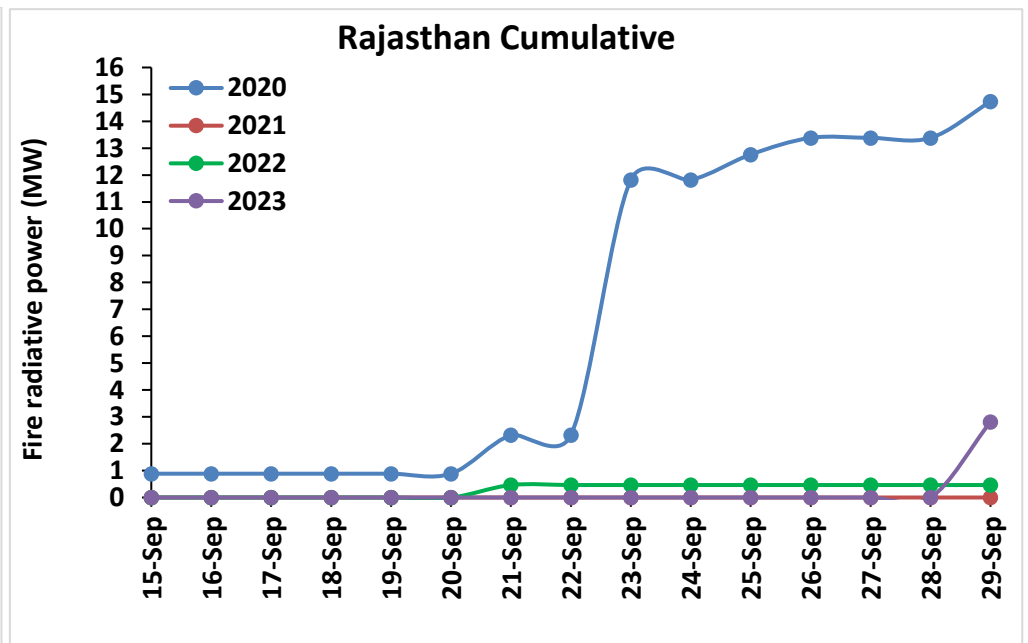
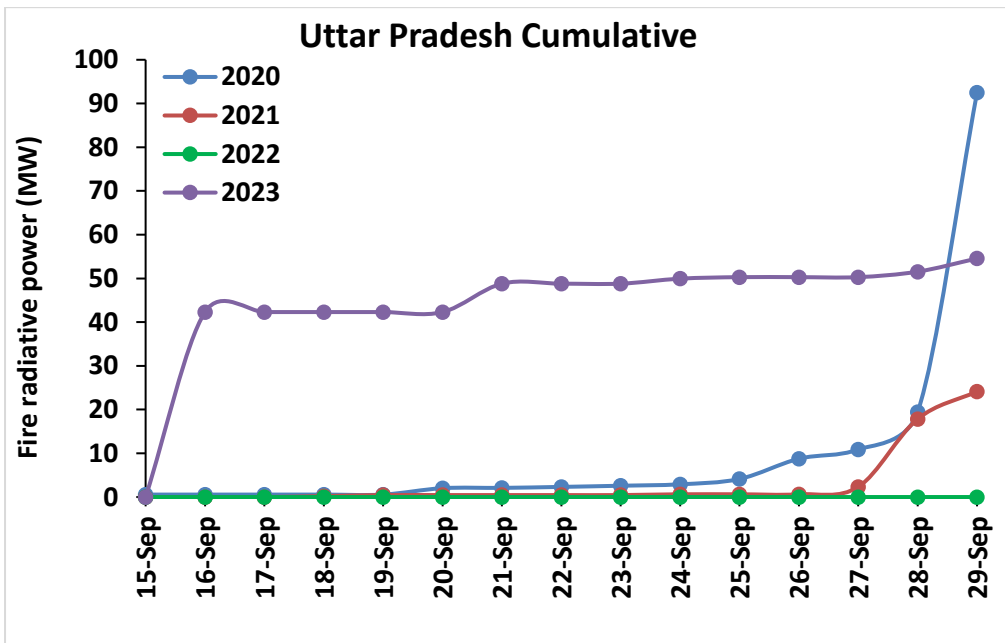
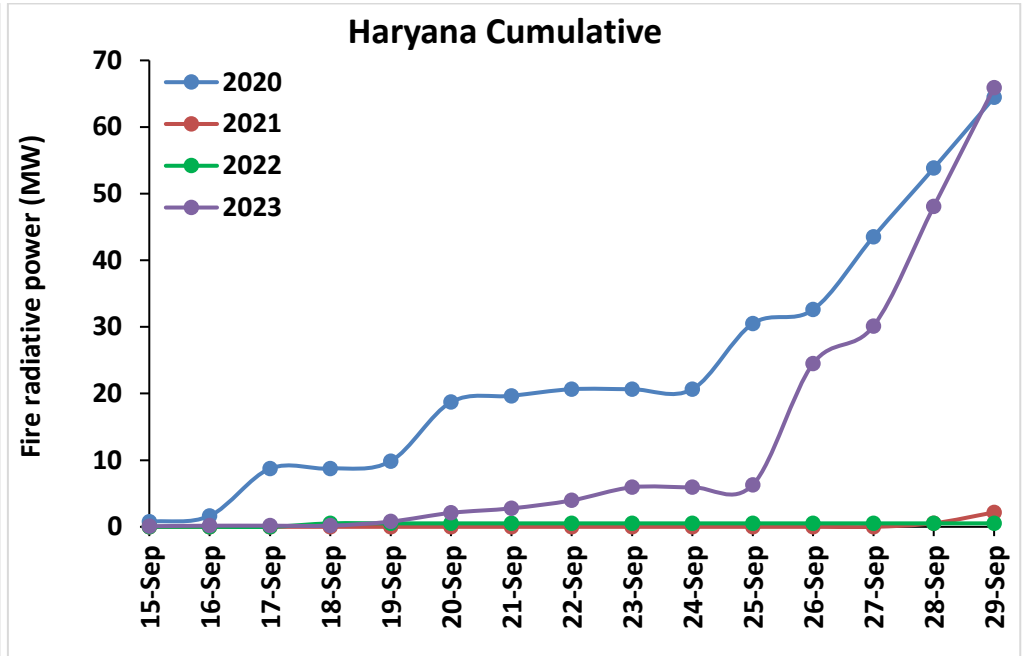
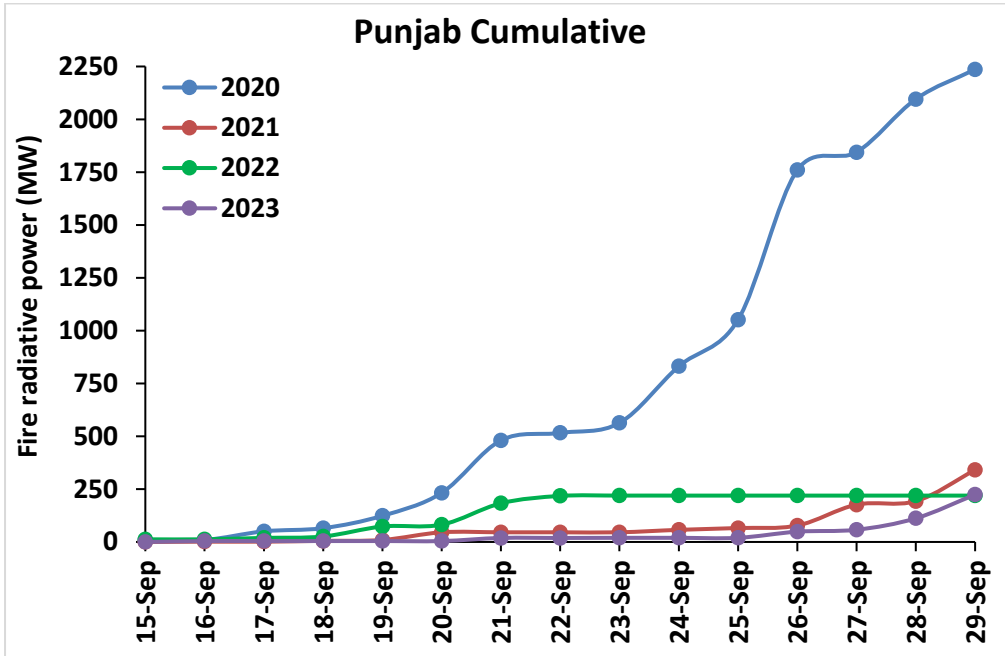
### Madhya Pradesh Cumulative

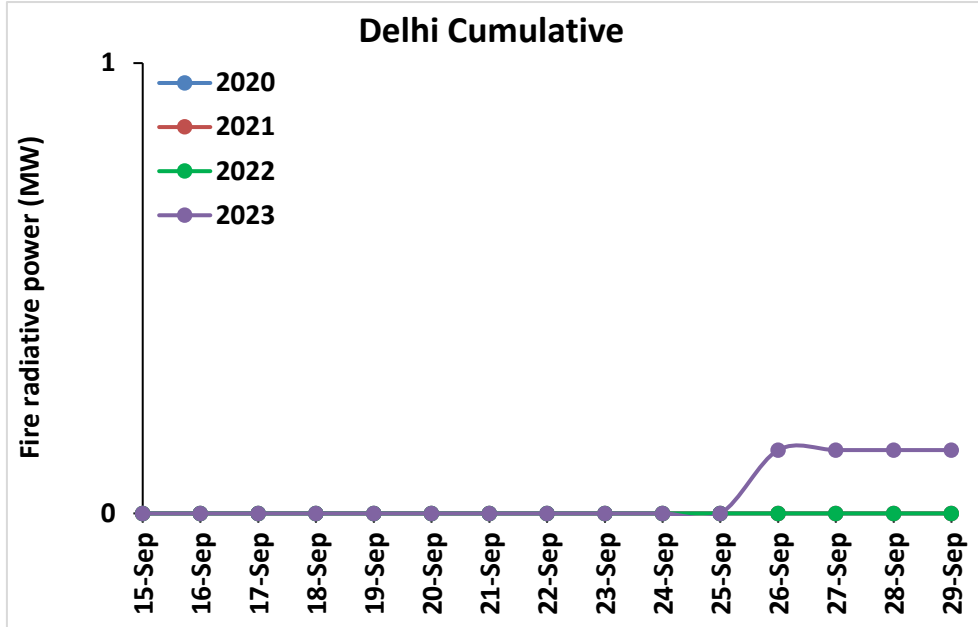
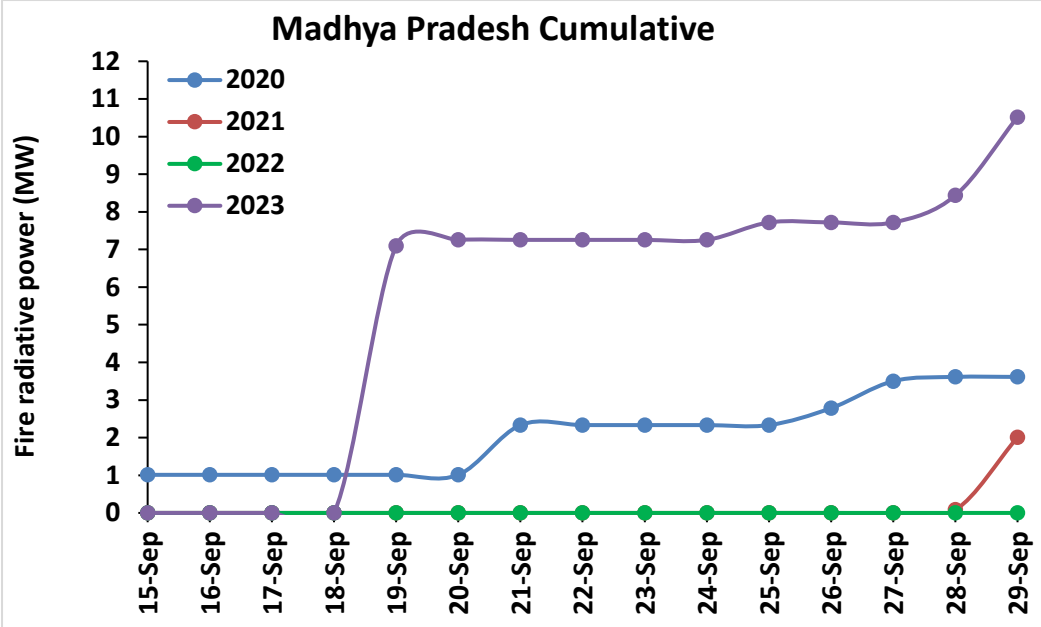


### Delhi Cumulative



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

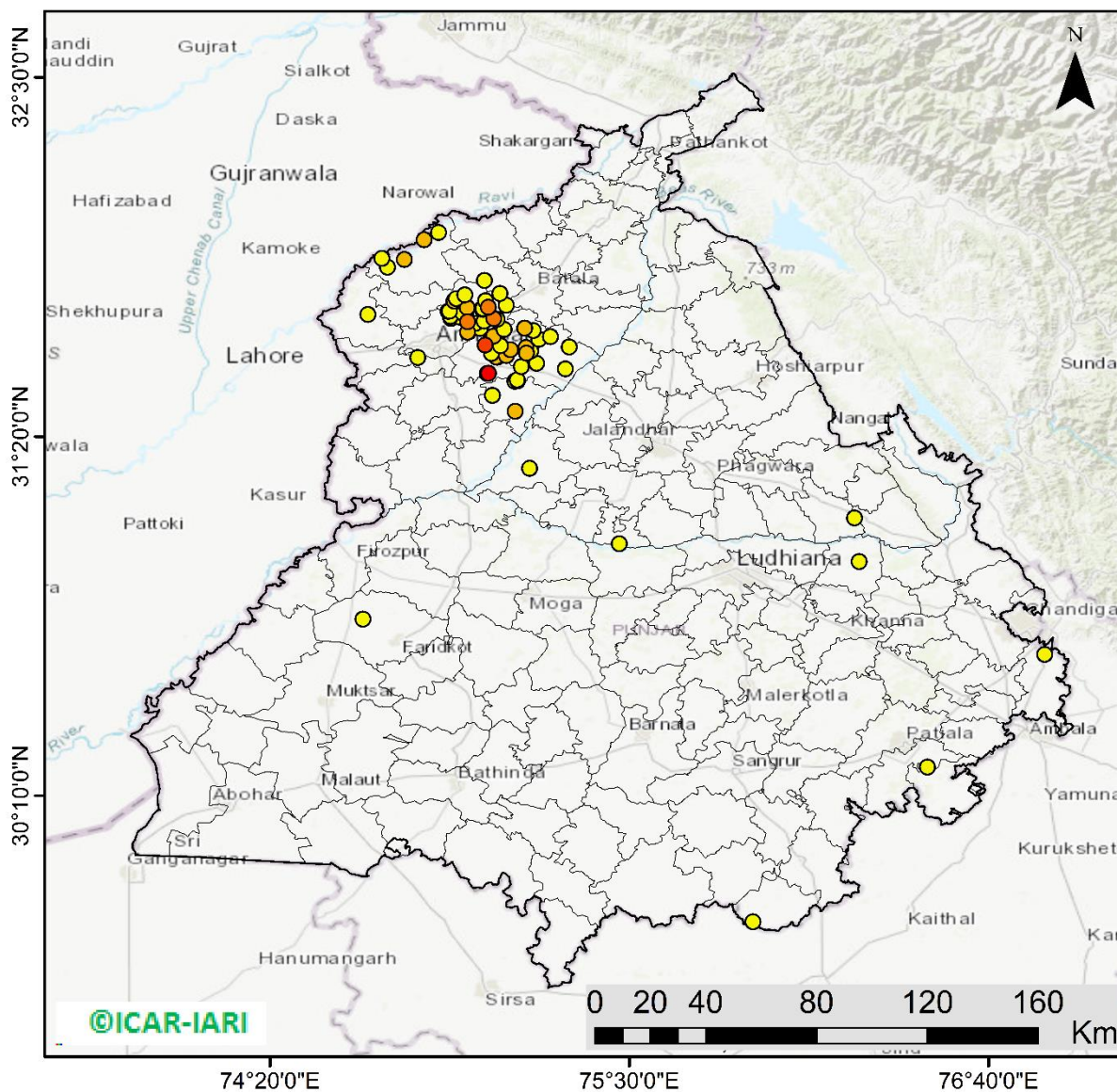






# Punjab

## RICE RESIDUE BURNING IN PUNJAB



**68** burning events detected in Punjab during (29th Sep 2023)

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

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

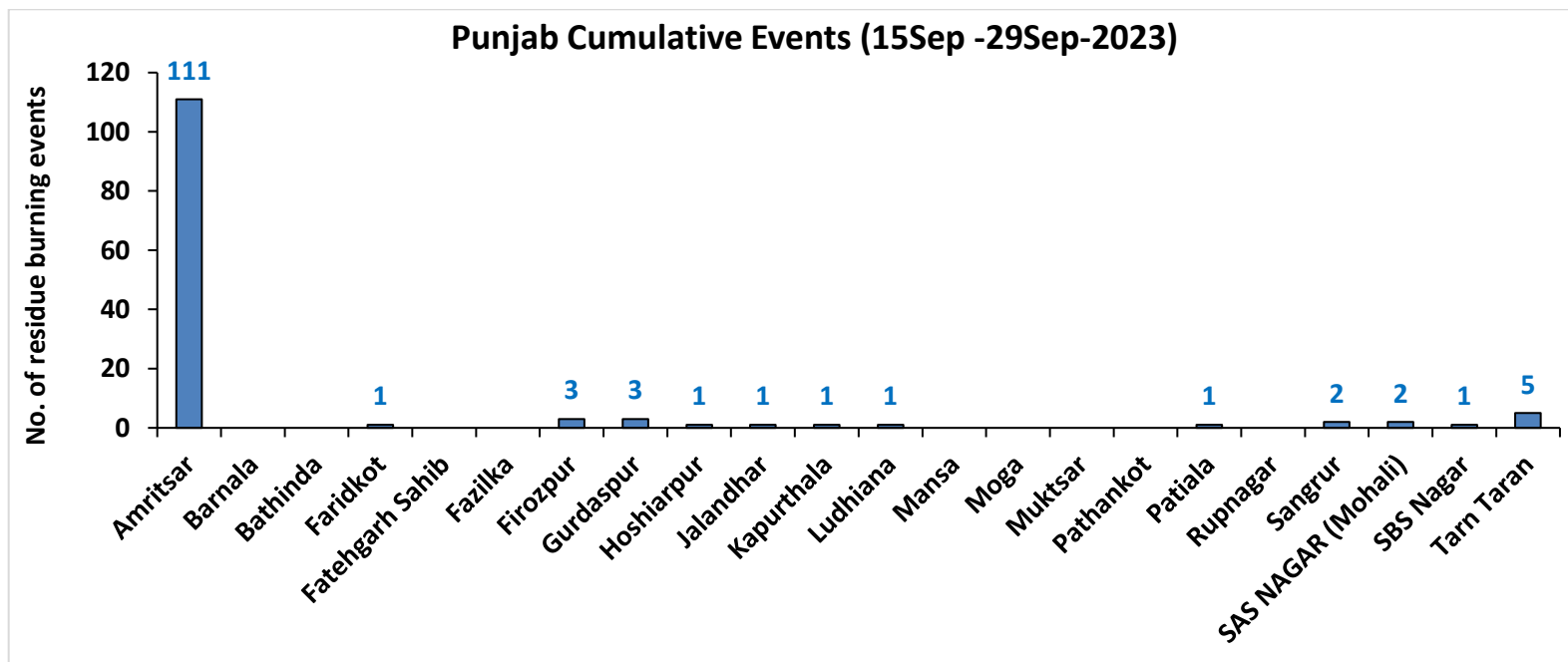
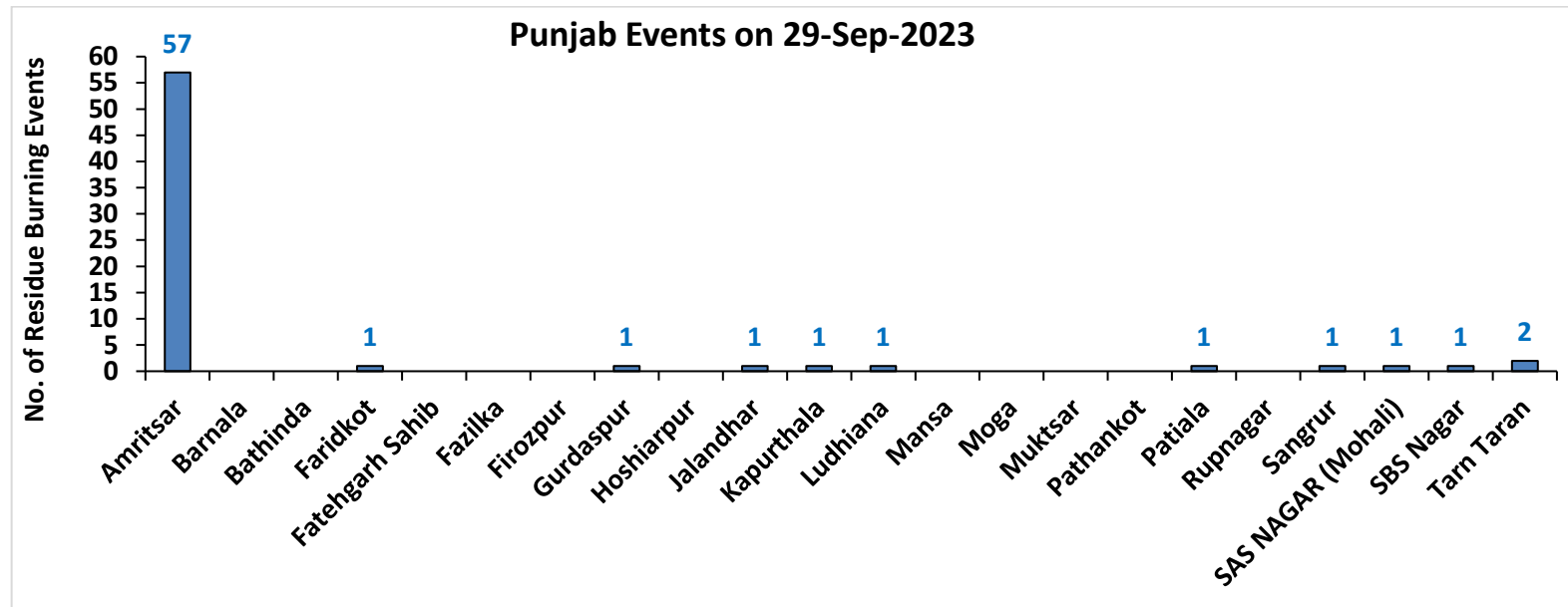


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<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

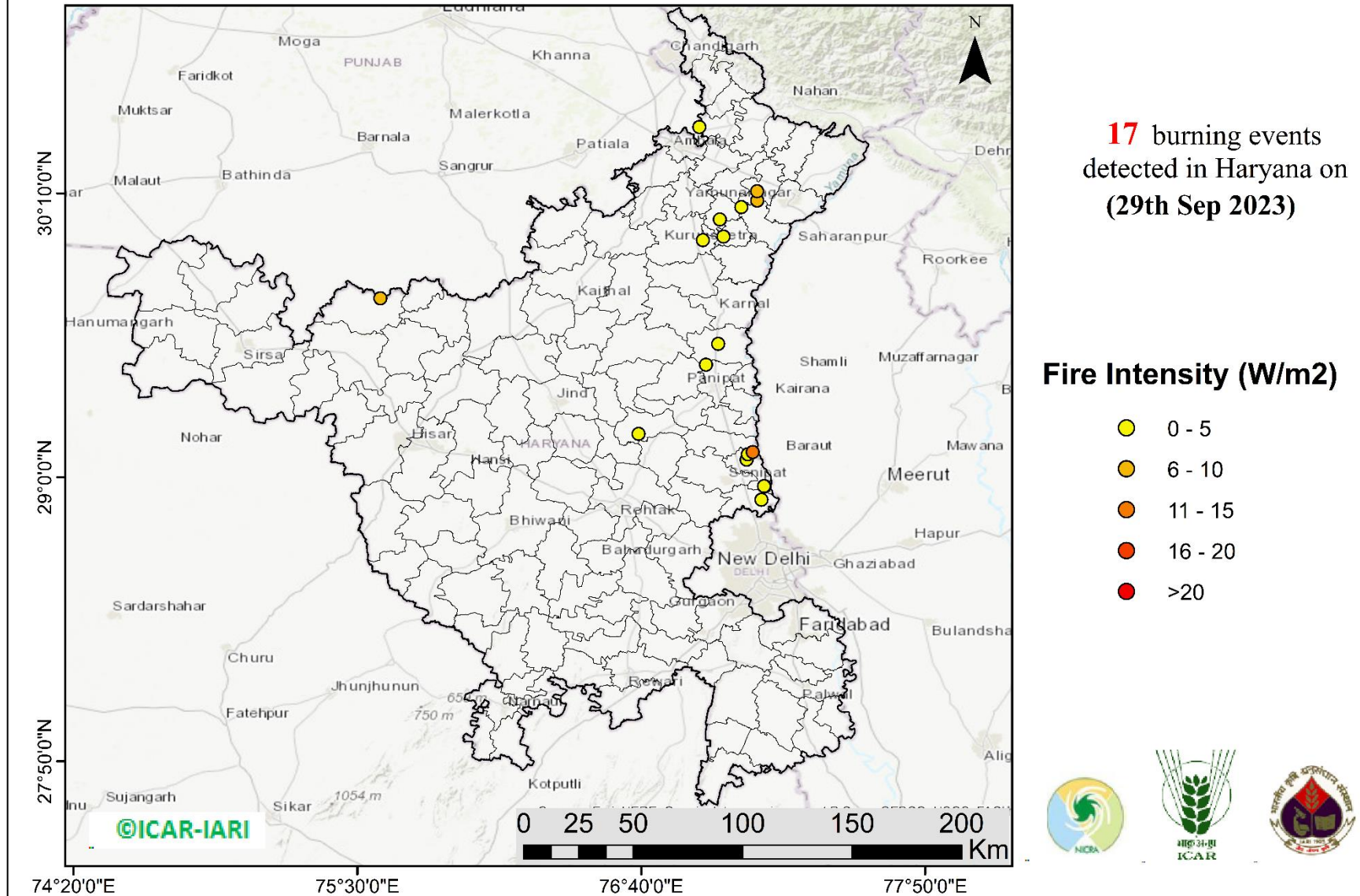


## District-wise cumulative number of residues burning events in Punjab (15Sep- 29Sep-2023)



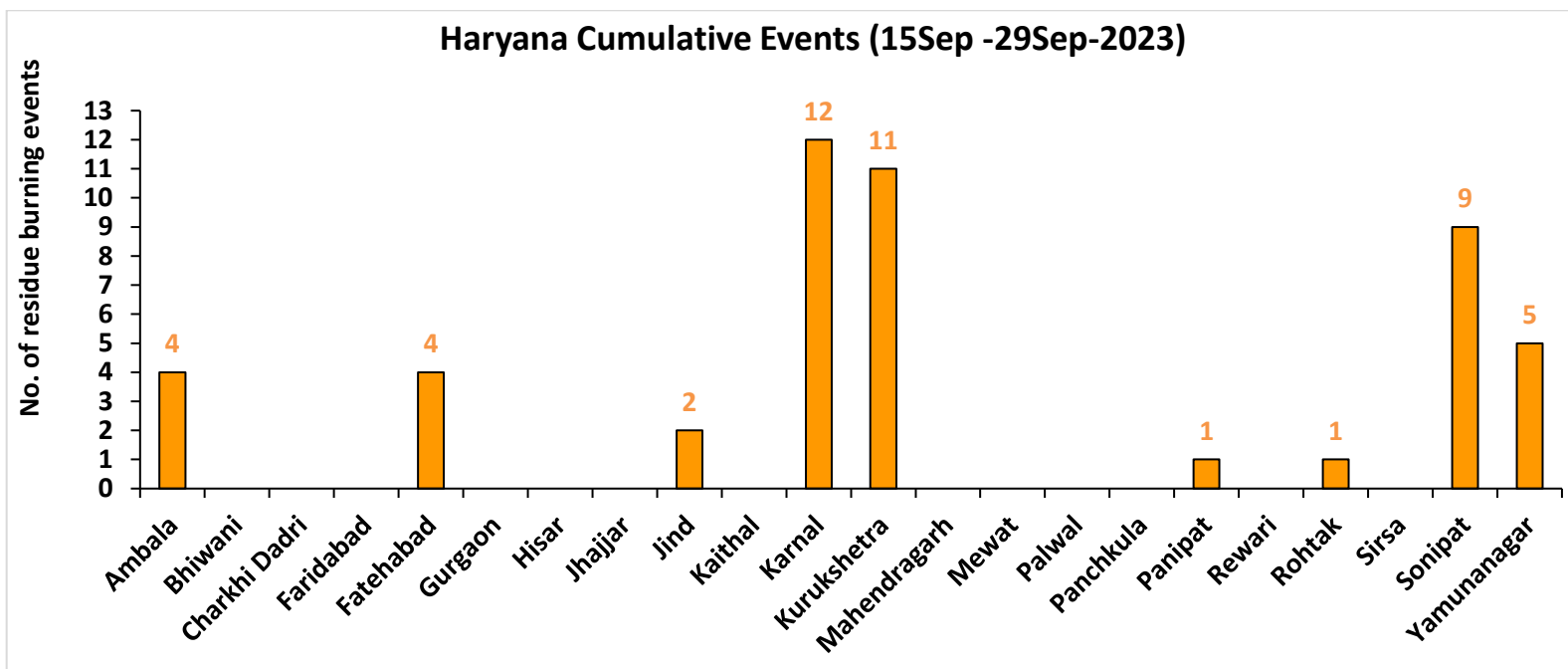
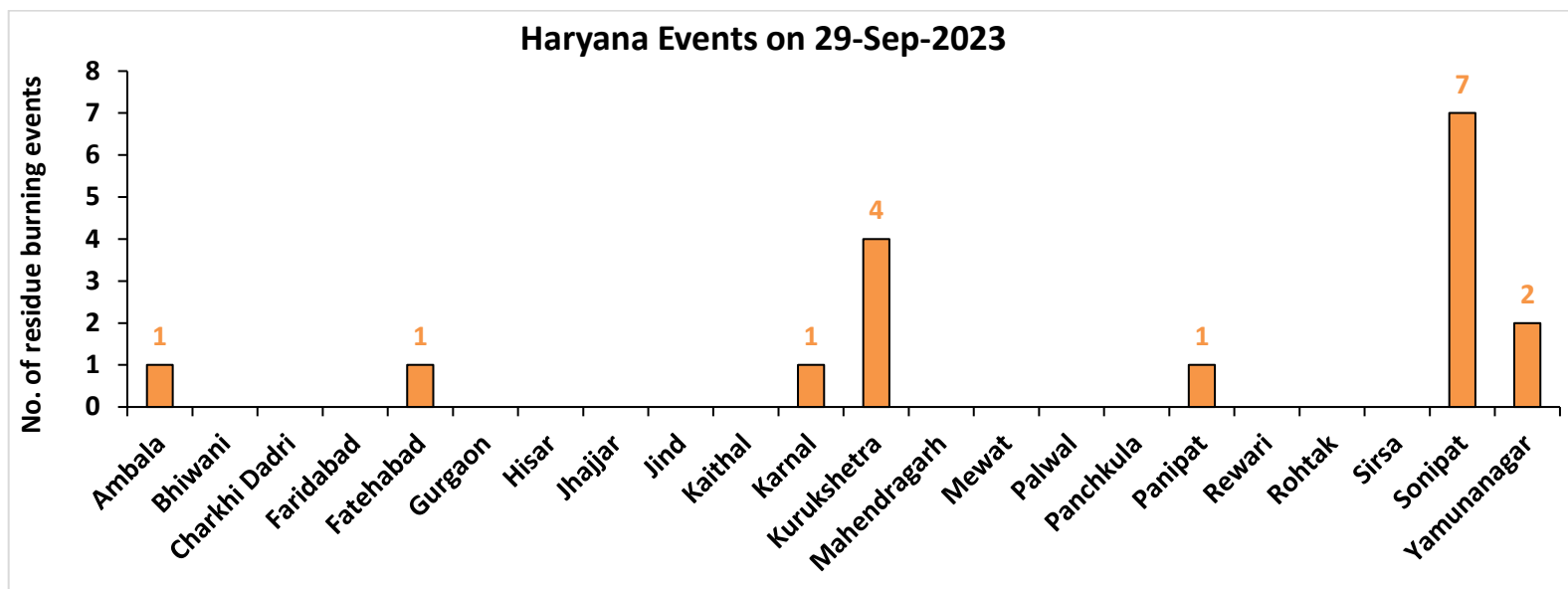
# Haryana

## RICE RESIDUE BURNING IN HARYANA



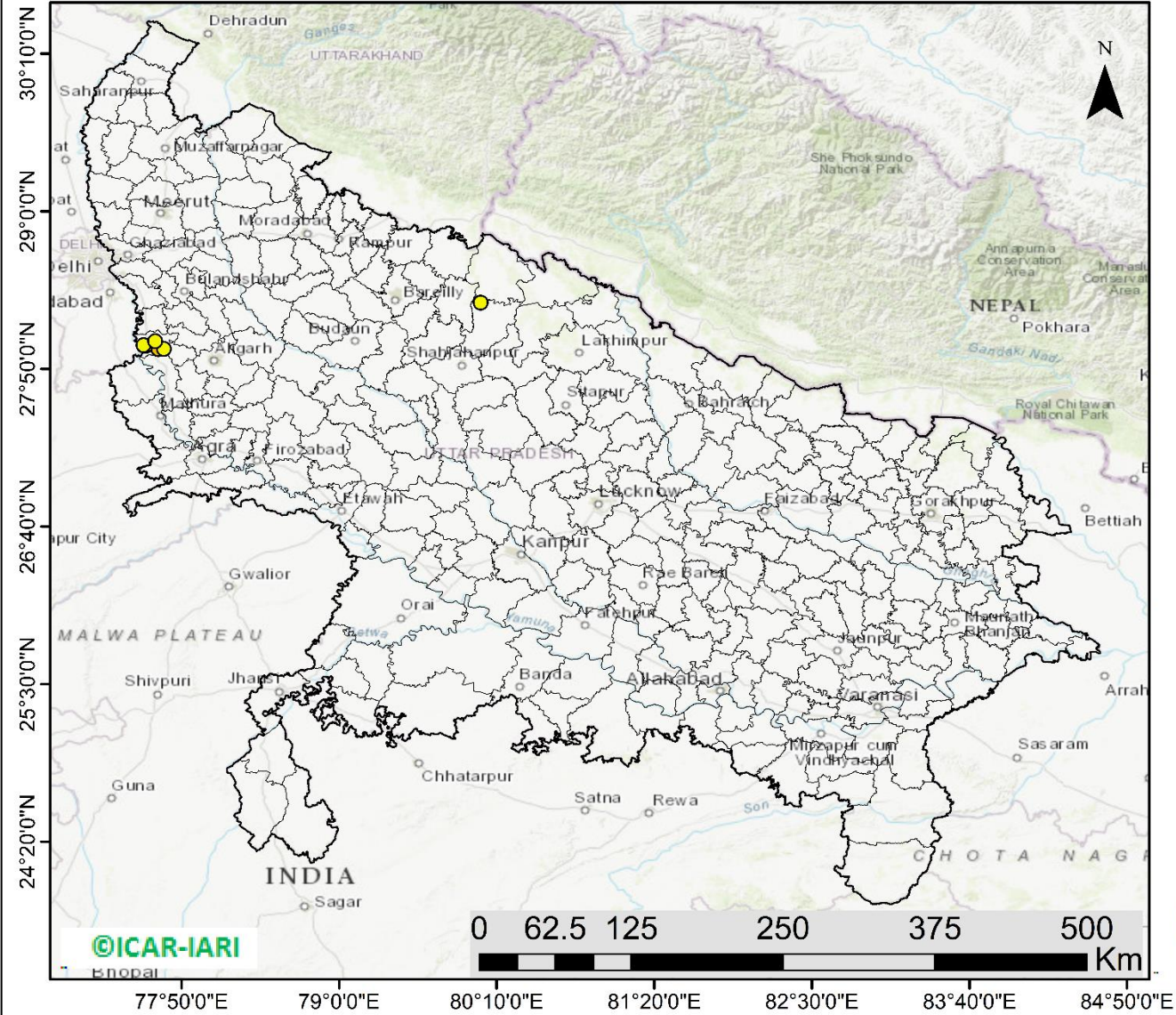
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Haryana (15Sep-29Sep-2023)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



06 burning events detected in Uttar Pradesh on (29th Sep 2023)

Fire Intensity (W/m2)

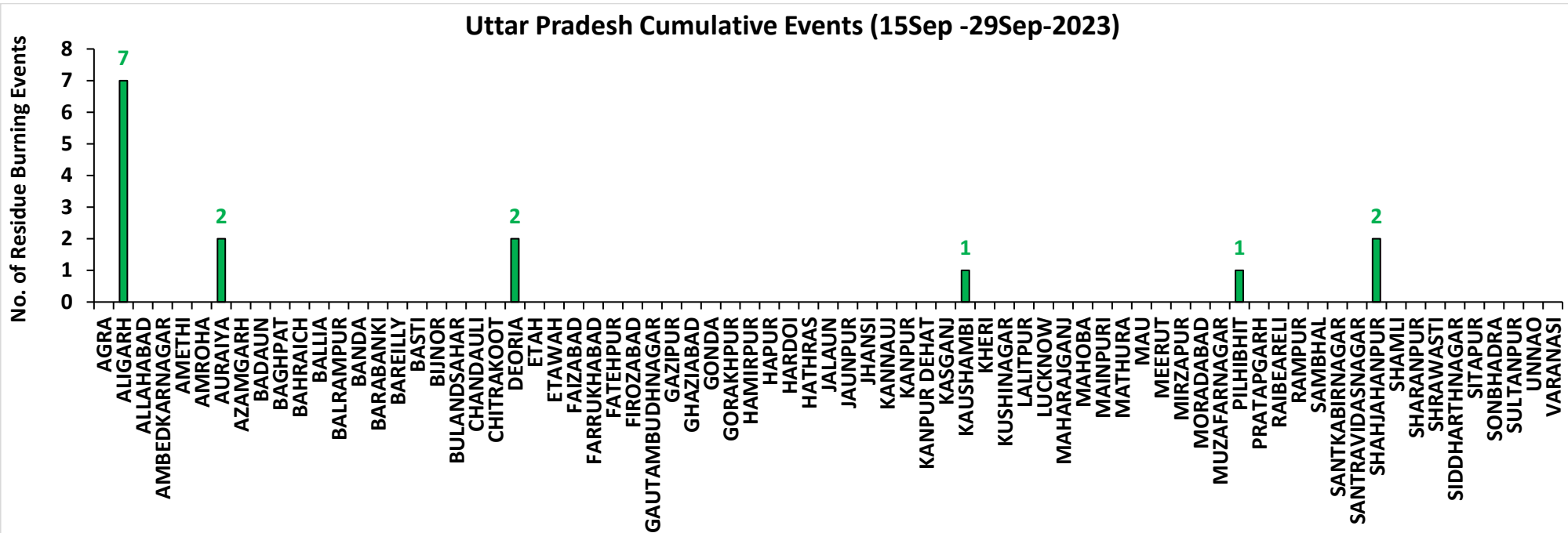
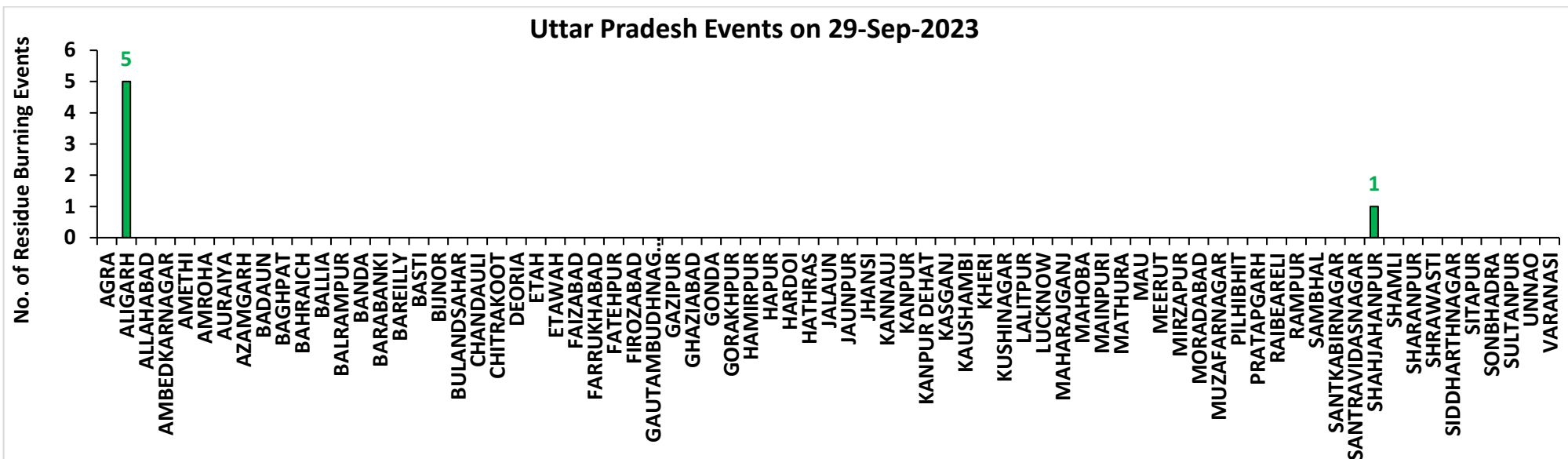
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



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

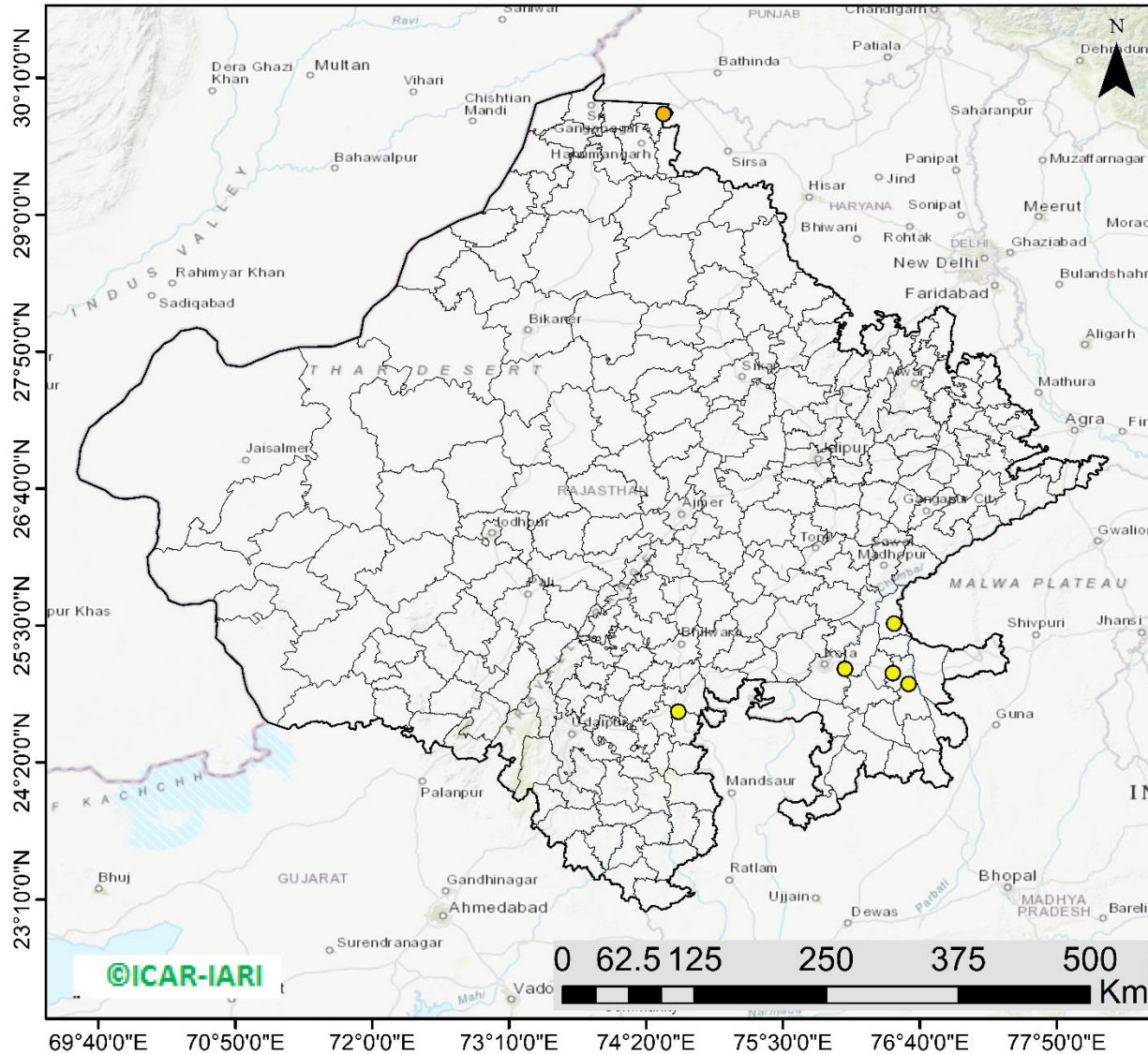


## District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep-29Sep-2023)



# Rajasthan

## RICE RESIDUE BURNING IN RAJASTHAN



**06** burning events  
detected in Rajasthan on  
(29th Sep 2023)

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

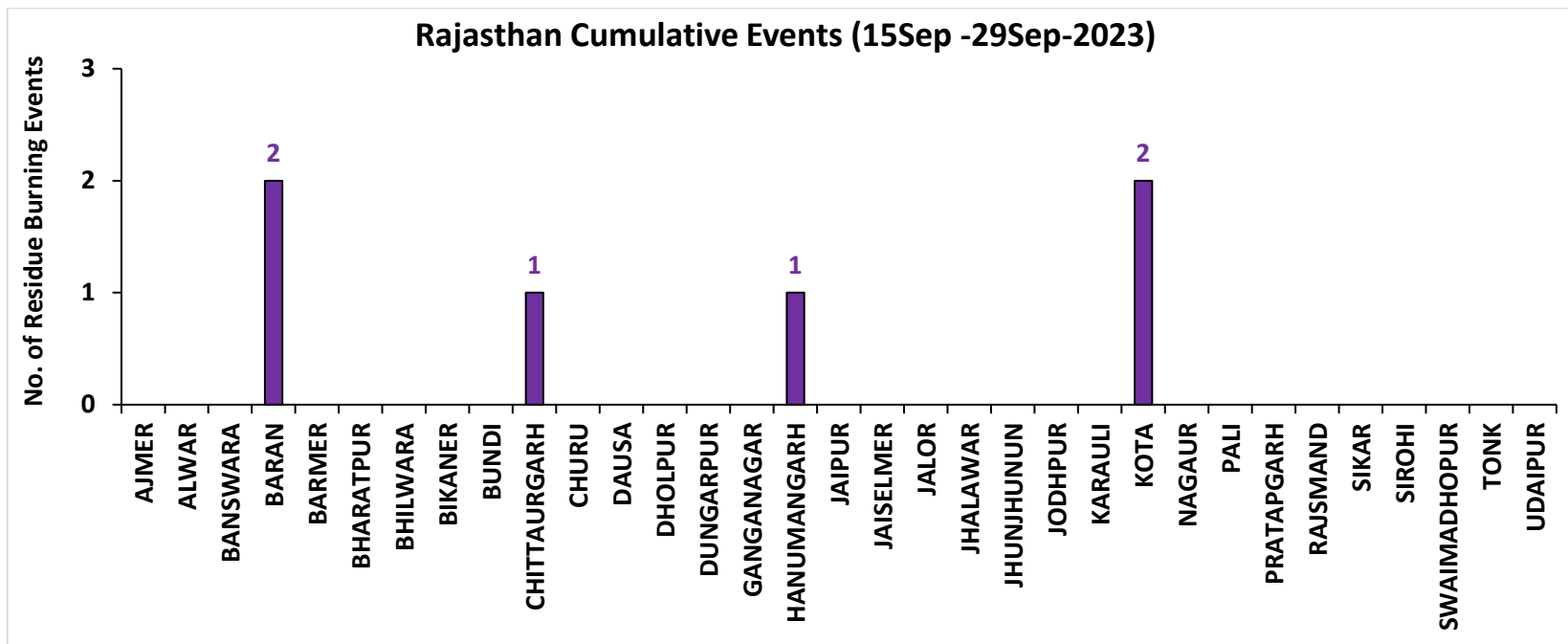
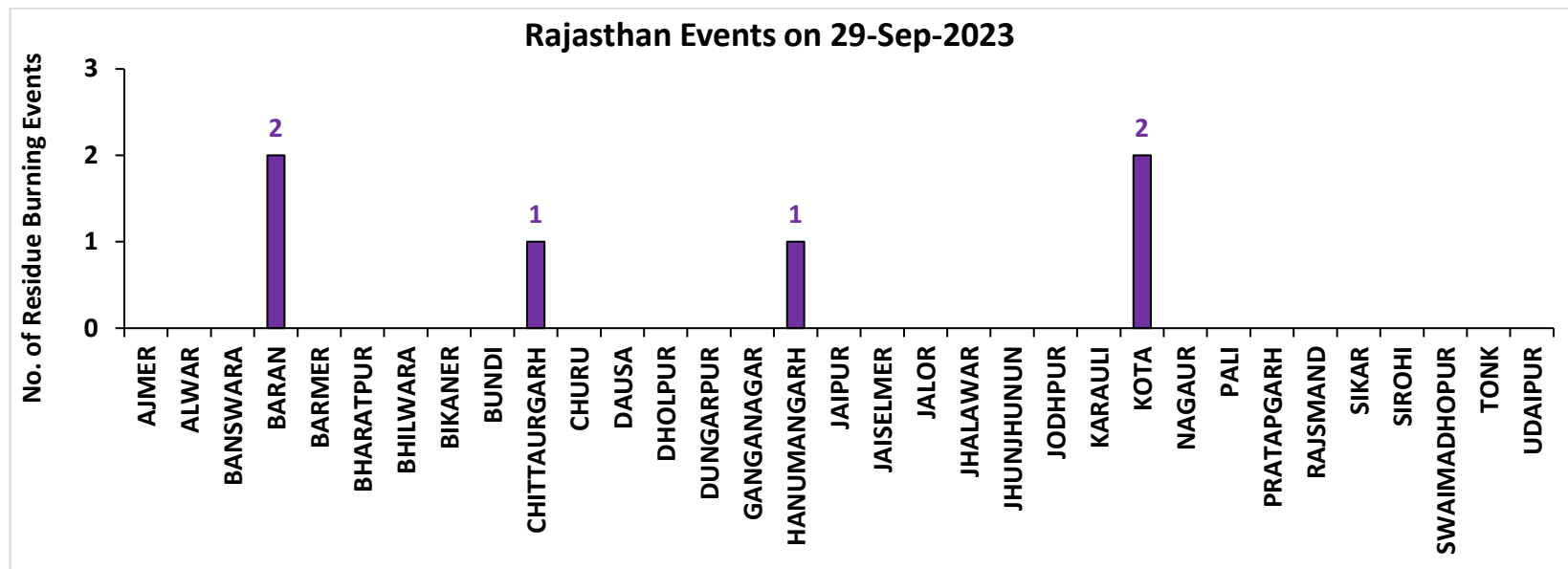
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



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

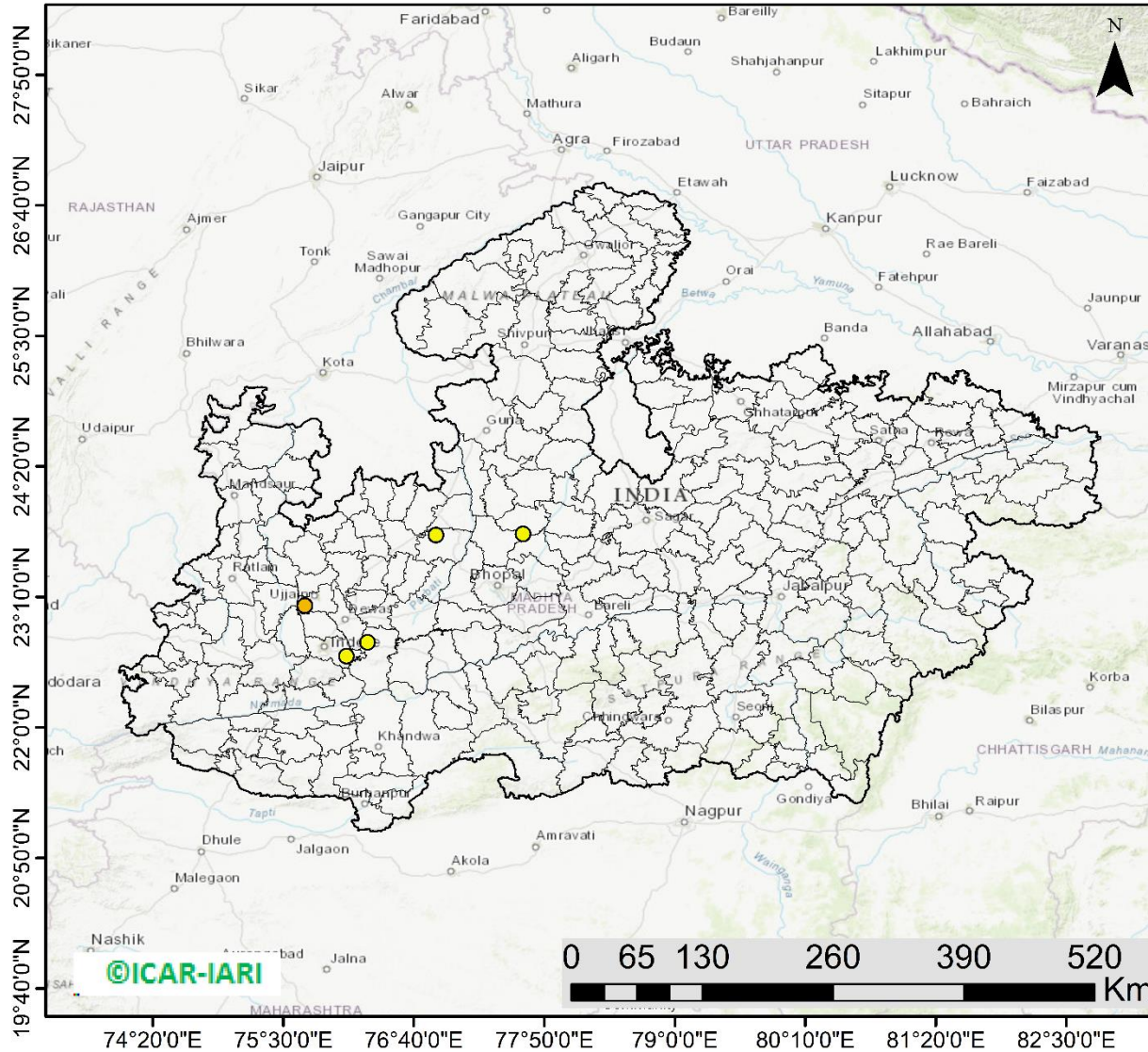


## District-wise cumulative number of residues burning events in Rajasthan (15Sep-29Sep-2023)



# Madhya Pradesh

## RICE RESIDUE BURNING IN MADHYA PRADESH



**05** burning events detected in MP on (29th Sep 2023)

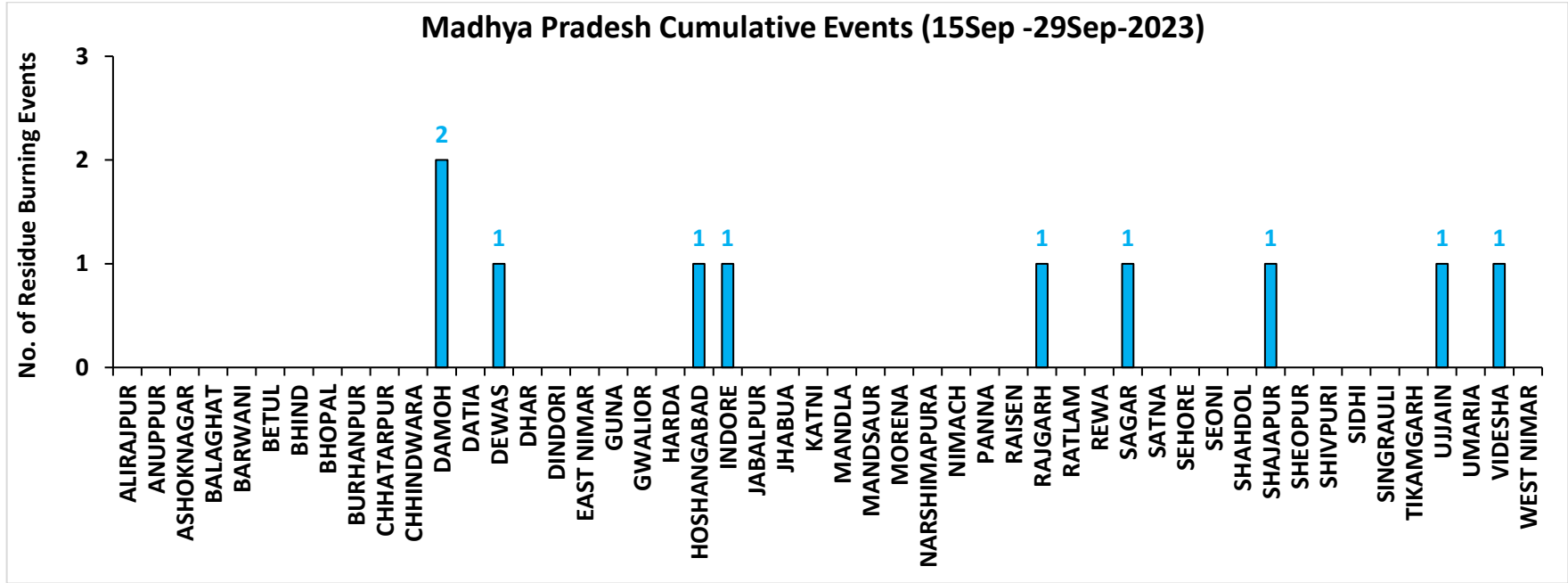
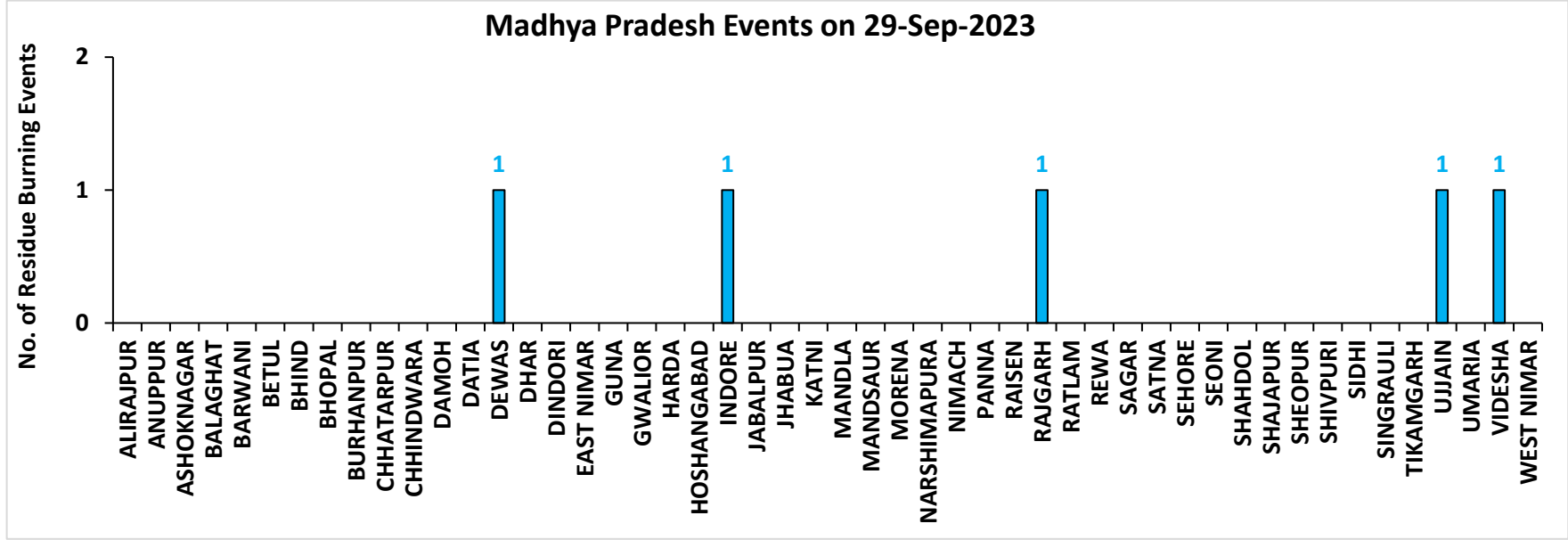
### Fire Intensity (W/m<sup>2</sup>)

- 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-29Sep-2023)**



**District-wise cumulative number of residues burning events detected in 2020, 2021, 2022 and 2023**  
**(Period: 15 September-29 September)**

**(a) Punjab**

District	15 Sep-29 Sep			
	2020	2021	2022	2023
Amritsar	691	138	121	111
Barnala	2	0	0	0
Bathinda	0	0	0	0
Faridkot	1	8	0	1
Fatehgarh Sahib	0	0	0	0
Fazilka	0	1	0	0
Firozpur	4	2	0	3
Gurdaspur	22	2	1	3
Hoshiarpur	1	0	0	1
Jalandhar	2	1	0	1
Kapurthala	8	1	0	1
Ludhiana	13	7	0	1
Mansa	1	0	0	0
Moga	4	0	0	0
Muktsar	1	0	0	0
Pathankot	0	0	0	0
Patiala	21	5	1	1
Rupnagar	0	0	0	0
Sangrur	3	3	0	2
SAS NAGAR (Mohali)	5	0	1	2
SBS Nagar	0	0	1	1
Tarn Taran	130	20	14	5
<b>Total</b>	<b>909</b>	<b>188</b>	<b>139</b>	<b>133</b>

**(b) Haryana**

District	15 Sep-29 Sep			
	2020	2021	2022	2023
AMBALA	6	0	0	4
BHIWANI	0	0	0	0
CHARKHI DADRI	0	0	0	0
FARIDABAD	0	0	0	0
FATEHABAD	5	0	0	4
GURGAON	0	0	0	0
HISAR	1	0	0	0
JHAJJAR	0	0	0	0
JIND	0	0	1	2
KAITHAL	9	0	0	0
KARNAL	20	2	0	12
KURUKSHETRA	9	2	0	11
MAHENDRAGARH	0	0	0	0
MEWAT	0	0	0	0
PALWAL	0	0	0	0
PANCHKULA	0	0	0	0
PANIPAT	3	0	0	1
REWARI	0	0	0	0
ROHTAK	0	0	0	1
SIRSA	1	0	0	0
SONIPAT	0	0	0	9
YAMUNANAGAR	2	1	0	5
<b>Total</b>	<b>56</b>	<b>5</b>	<b>1</b>	<b>49</b>

(c) Uttar Pradesh

District	15 Sep-29 Sep													
	2020	2021	2022	2023	GAUTAMBUDHNAGAR	0	0	0	0	MUZAFARNAGAR	0	0	0	0
AGRA	0	0	0	0	GAZIPUR	0	0	0	0	PILHIBHIT	1	0	0	1
ALIGARH	1	0	0	7	GHAZIABAD	1	0	0	0	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	0	2	0	0
AMETHI	0	0	0	0	HAMIRPUR	0	0	0	0	SAMBHAL	3	0	0	0
AMROHA	0	0	0	0	HAPUR	1	0	0	0	SANTKABIRNAGAR	0	0	0	0
AURAIYA	2	0	0	2	HARDOI	0	0	0	0	SANTRAVIDASNAGAR	0	0	0	0
AZAMGARH	0	0	0	0	HATHRAS	0	0	0	0	SHAHJAHANPUR	3	15	0	2
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	0	0	0	0	SIDDHARTHANAGAR	0	0	0	0
BALRAMPUR	0	0	0	0	KANPUR	0	1	0	0	SITAPUR	0	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	0	0	0	1	UNNAO	2	0	0	0
BASTI	0	0	0	0	KHERI	0	0	0	0	VARANASI	0	0	0	0
BIJNOR	1	0	0	0	KUSHINAGAR	0	0	0	0	<b>Total</b>	<b>31</b>	<b>20</b>	<b>0</b>	<b>15</b>
BULANDSAHAR	0	0	0	0	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	0	1	0	0					
FAIZABAD	0	0	0	0	MAU	0	0	0	0					
FARRUKHABAD	0	0	0	0	MEERUT	2	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-29 Sep			
	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	0	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>0</b>	<b>0</b>	<b>0</b>	<b>1</b>

**(e) Rajasthan**

District	15 Sep-29 Sep			
	2020	2021	2022	2023
AJMER	0	0	0	0
ALWAR	0	0	0	0
BANSWARA	0	0	0	0
BARAN	2	0	0	2
BARMER	2	0	0	0
BHARATPUR	0	0	0	0
BHILWARA	1	0	0	0
BIKANER	0	0	0	0
BUNDI	0	0	1	0
CHITTAURGARH	0	0	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	0
HANUMANGARH	0	0	0	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	2
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>8</b>	<b>0</b>	<b>1</b>	<b>6</b>



(f) Madhya Pradesh

District	15 Sep-29 Sep								
	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	0	0	0	1
ASHOKNAGAR	0	0	0	0	RATLAM	0	0	0	0
BALAGHAT	0	0	0	0	REWA	0	0	0	0
BARWANI	0	0	0	0	SAGAR	2	2	0	1
BETUL	0	0	0	0	SATNA	0	0	0	0
BHIND	0	0	0	0	SEHORE	0	0	0	0
BHOPAL	0	0	0	0	SEONI	0	0	0	0
BURHANPUR	0	0	0	0	SHAHDOL	0	0	0	0
CHHATARPUR	0	0	0	0	SHAJAPUR	0	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	0	0	0	1
EAST NIMAR	0	0	0	0	UMARIA	0	0	0	0
GUNA	2	1	0	0	VIDESHA	0	1	0	1
GWALIOR	2	0	0	0	WEST NIMAR	0	0	0	0
HARDA	2	1	0	0	Total	8	5	0	10
HOSHANGABAD	0	0	0	1					
INDORE	0	0	0	1					
JABALPUR	0	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	0					
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-29 September)**

**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
<b>Total</b>	<b>909</b>	<b>188</b>	<b>139</b>	<b>133</b>	<b>56</b>	<b>5</b>	<b>1</b>	<b>49</b>	<b>31</b>	<b>20</b>	<b>0</b>	<b>15</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
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>8</b>	<b>5</b>	<b>0</b>	<b>10</b>

**Details of residue burning events in Punjab on 29-Sep-2023**

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.88321	74.71490	13:35:30	D	3.40
2	AMRITSAR	AJNALA	S-NPP	31.90811	74.76947	13:35:30	D	5.20
3	AMRITSAR	AJNALA	S-NPP	31.91146	74.69664	13:35:30	D	3.70
4	AMRITSAR	AJNALA	S-NPP	31.97217	74.83360	13:35:30	D	6.60
5	AMRITSAR	AJNALA	S-NPP	31.99600	74.88020	13:35:30	D	2.30
6	AMRITSAR	ATTARI	S-NPP	31.58978	74.81297	13:35:30	D	3.50
7	AMRITSAR	CHOGAWAN	S-NPP	31.72968	74.65096	13:35:30	D	3.90
8	AMRITSAR	JANDIALA GURU	S-NPP	31.53790	75.03830	13:35:30	D	4.20
9	AMRITSAR	JANDIALA GURU	S-NPP	31.53848	75.04246	13:35:30	D	26.20
10	AMRITSAR	JANDIALA GURU	S-NPP	31.59069	75.07081	13:35:30	D	9.40
11	AMRITSAR	JANDIALA GURU	S-NPP	31.59135	75.06757	13:35:30	D	7.40
12	AMRITSAR	JANDIALA GURU	S-NPP	31.59600	75.10086	13:35:30	D	7.80
13	AMRITSAR	JANDIALA GURU	S-NPP	31.60302	75.05252	13:35:30	D	2.10
14	AMRITSAR	JANDIALA GURU	AQUA	31.63000	75.03200	14:11:00	D	15.30
15	AMRITSAR	MAJITHA	S-NPP	31.68386	75.01563	13:35:30	D	2.40
16	AMRITSAR	MAJITHA	S-NPP	31.70048	75.00028	13:35:30	D	3.40
17	AMRITSAR	MAJITHA	S-NPP	31.70791	75.02874	13:35:30	D	3.00
18	AMRITSAR	MAJITHA	S-NPP	31.71373	75.07040	13:35:30	D	3.10
19	AMRITSAR	MAJITHA	S-NPP	31.72084	74.94944	13:35:30	D	2.50
20	AMRITSAR	MAJITHA	S-NPP	31.72343	74.91912	13:35:30	D	3.00
21	AMRITSAR	MAJITHA	S-NPP	31.73046	74.96889	13:35:30	D	1.90
22	AMRITSAR	MAJITHA	S-NPP	31.73264	74.95995	13:35:30	D	4.50
23	AMRITSAR	MAJITHA	S-NPP	31.73957	74.91174	13:35:30	D	3.50
24	AMRITSAR	MAJITHA	S-NPP	31.74016	74.91588	13:35:30	D	3.50
25	AMRITSAR	MAJITHA	S-NPP	31.74537	75.02580	13:35:30	D	10.10
26	AMRITSAR	MAJITHA	S-NPP	31.74813	75.02100	13:35:30	D	3.00
27	AMRITSAR	MAJITHA	S-NPP	31.74872	75.02515	13:35:30	D	3.00
28	AMRITSAR	MAJITHA	S-NPP	31.75173	74.97333	13:35:30	D	8.40

29	AMRITSAR	MAJITHA	S-NPP	31.75927	75.10023	13:35:30	D	1.90
30	AMRITSAR	MAJITHA	S-NPP	31.77321	74.93079	13:35:30	D	9.90
31	AMRITSAR	MAJITHA	S-NPP	31.77395	75.03313	13:35:30	D	4.10
32	AMRITSAR	MAJITHA	S-NPP	31.78108	74.93778	13:35:30	D	2.80
33	AMRITSAR	MAJITHA	S-NPP	31.79317	74.96580	13:35:30	D	2.80
34	AMRITSAR	MAJITHA	S-NPP	31.79779	75.07996	13:35:30	D	2.20
35	AMRITSAR	MAJITHA	AQUA	31.71600	75.06000	14:11:00	D	11.40
36	AMRITSAR	MAJITHA	AQUA	31.75300	75.04200	14:11:00	D	14.60
37	AMRITSAR	RAYYA	S-NPP	31.51270	75.12846	13:35:30	D	2.50
38	AMRITSAR	RAYYA	S-NPP	31.51386	75.13678	13:35:30	D	2.30
39	AMRITSAR	RAYYA	S-NPP	31.51722	75.13614	13:35:30	D	2.30
40	AMRITSAR	RAYYA	S-NPP	31.55279	75.29240	13:35:30	D	2.60
41	AMRITSAR	RAYYA	S-NPP	31.56042	75.14927	13:35:30	D	1.70
42	AMRITSAR	RAYYA	S-NPP	31.57081	75.19870	13:35:30	D	4.30
43	AMRITSAR	RAYYA	S-NPP	31.62370	75.30483	13:35:30	D	3.70
44	AMRITSAR	RAYYA	S-NPP	31.64866	75.20657	13:35:30	D	2.70
45	AMRITSAR	RAYYA	S-NPP	31.65728	75.24365	13:35:30	D	2.60
46	AMRITSAR	TARSIKKA	S-NPP	31.61039	75.17950	13:35:30	D	2.40
47	AMRITSAR	TARSIKKA	S-NPP	31.61510	75.11432	13:35:30	D	5.40
48	AMRITSAR	TARSIKKA	S-NPP	31.62209	75.16440	13:35:30	D	9.10
49	AMRITSAR	TARSIKKA	S-NPP	31.62780	75.08194	13:35:30	D	1.80
50	AMRITSAR	TARSIKKA	S-NPP	31.65899	75.05885	13:35:30	D	7.80
51	AMRITSAR	TARSIKKA	S-NPP	31.67717	75.18823	13:35:30	D	1.90
52	AMRITSAR	TARSIKKA	S-NPP	31.68105	75.09312	13:35:30	D	4.20
53	AMRITSAR	TARSIKKA	AQUA	31.60400	75.16600	14:11:00	D	8.50
54	AMRITSAR	TARSIKKA	AQUA	31.68500	75.16000	14:11:00	D	7.60
55	AMRITSAR	VERKA	S-NPP	31.71674	74.92042	13:35:30	D	3.50
56	AMRITSAR	VERKA	AQUA	31.67200	74.97500	14:11:00	D	7.40
57	AMRITSAR	VERKA	AQUA	31.70600	74.97500	14:11:00	D	10.30
58	FARIDKOT	FARIDKOT	S-NPP	30.73990	74.63483	13:35:30	D	4.00
59	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.83995	75.02950	13:35:30	D	4.30
60	JALANDHAR	MEHATPUR	S-NPP	30.98468	75.46744	13:35:30	D	4.10
61	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.22963	75.17613	13:35:30	D	3.60

62	LUDHIANA	MACHHIWARA	S-NPP	30.92703	76.24645	13:35:30	D	2.60
63	PATIALA	SANAUR	S-NPP	30.25893	76.46832	13:35:30	D	2.10
64	SANGRUR	ANDANA	S-NPP	29.75666	75.90182	13:35:30	D	2.30
65	SAS NAGAR (MOHALI)	DERABASSI	S-NPP	30.62531	76.84897	13:35:30	D	3.20
66	SBS NAGAR	NAWAN SHAHR	S-NPP	31.06833	76.23125	13:35:30	D	3.00
67	TARN TARAN	KHADUR SAHIB	S-NPP	31.41493	75.12932	13:35:30	D	6.90
68	TARN TARAN	KHADUR SAHIB	S-NPP	31.46647	75.05556	13:35:30	D	1.00

### Details of residue burning events in Haryana on 29-Sep-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	AMBALA	SHAHZADPUR	S-NPP	30.43888	76.90546	13:35:30	D	1.40
2	FATEHABAD	RATIA	S-NPP	29.73492	75.59457	13:35:30	D	6.00
3	KARNAL	GHARAUNDA	S-NPP	29.54804	76.98310	13:35:30	D	2.20
4	KURUKSHETRA	BABAIN	S-NPP	30.05887	76.98968	13:35:30	D	2.90
5	KURUKSHETRA	BABAIN	S-NPP	30.10991	77.07809	13:35:30	D	2.60
6	KURUKSHETRA	LADWA	S-NPP	29.98886	77.00465	13:35:30	D	2.90
7	KURUKSHETRA	THANESAR	S-NPP	29.97419	76.92006	13:35:30	D	1.20
8	PANIPAT	PANIPAT	S-NPP	29.46242	76.93279	13:35:30	D	3.90
9	SONIPAT	GANAUR	AQUA	29.10300	77.12500	14:11:00	D	10.70
10	SONIPAT	MUNDLANA	S-NPP	29.17780	76.65562	13:35:30	D	3.30
11	SONIPAT	MURTHAL	S-NPP	28.96274	77.17400	13:35:30	D	2.60
12	SONIPAT	MURTHAL	S-NPP	28.96299	77.17140	13:35:30	D	2.70
13	SONIPAT	MURTHAL	S-NPP	29.07187	77.09963	13:35:30	D	3.00
14	SONIPAT	MURTHAL	S-NPP	29.09399	77.10490	13:35:30	D	2.50
15	SONIPAT	RAI	S-NPP	28.90733	77.16074	13:35:30	D	2.40
16	YAMUNANAGAR	MUSTAFABAD	S-NPP	30.17514	77.14297	13:35:30	D	5.90
17	YAMUNANAGAR	RADAUR	S-NPP	30.13648	77.14349	13:35:30	D	5.30



### Details of residue burning events in Uttar Pradesh on 29-Sep-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	ALIGARH	KHAIR	S-NPP	27.97870	77.66258	13:35:30	D	7.10
2	ALIGARH	KHAIR	S-NPP	27.98035	77.70359	13:35:30	D	4.60
3	ALIGARH	KHAIR	S-NPP	28.00241	77.56754	13:35:30	D	1.90
4	ALIGARH	KHAIR	S-NPP	28.00770	77.55303	13:35:30	D	4.80
5	ALIGARH	KHAIR	S-NPP	28.03707	77.63928	13:35:30	D	2.10
6	SHAHJAHANPUR	PUWANYA	S-NPP	28.32246	80.04858	02:25:30	N	0.90

### Details of residue burning events in Rajasthan on 29-Sep-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	BARAN	BARAN	S-NPP	25.00221	76.57273	13:35:30	D	3.30
2	BARAN	BARAN	S-NPP	25.09426	76.43815	13:35:30	D	3.60
3	CHITTAURGARH	CHITTAURGARH	S-NPP	24.76527	74.60912	02:25:30	N	0.90
4	HANUMANGARH	SANGHRIYA	S-NPP	29.85849	74.48328	13:35:30	D	6.20
5	KOTA	LADPURA	S-NPP	25.13021	76.02995	13:35:30	D	1.90
6	KOTA	PIPALDA	S-NPP	25.51600	76.44854	13:35:30	D	4.10

### Details of residue burning events in Madhya Pradesh on 29-Sep-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	DEWAS	BAGLI	S-NPP	22.75919	76.25394	13:35:30	D	2.80
2	INDORE	INDORE	S-NPP	22.63627	76.06506	13:35:30	D	2.00
3	RAJGARH	NARSINGHGAR	S-NPP	23.71824	76.86562	13:35:30	D	1.70
4	UJJAIN	UJJAIN	S-NPP	23.08718	75.69400	13:35:30	D	5.10
5	VIDESHA	NATERAN	S-NPP	23.72848	77.64385	13:35:30	D	3.20

**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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