



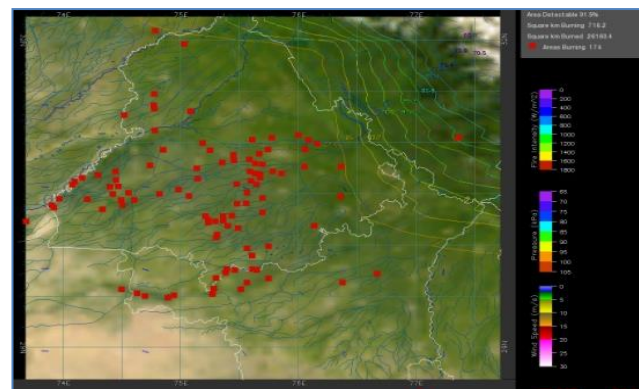
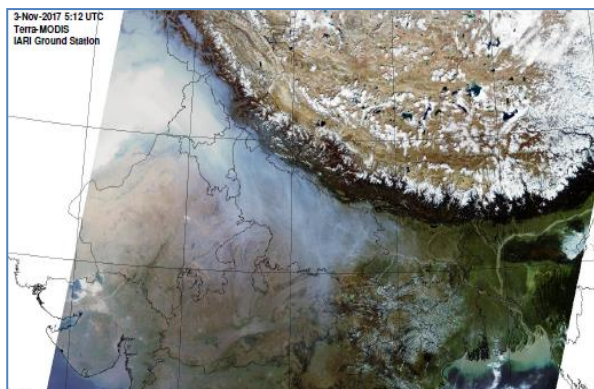
Bulletin No. 28

Events Date:
12-Oct-2022

Issued on:
12-Oct-2022



MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2022



Prepared by:

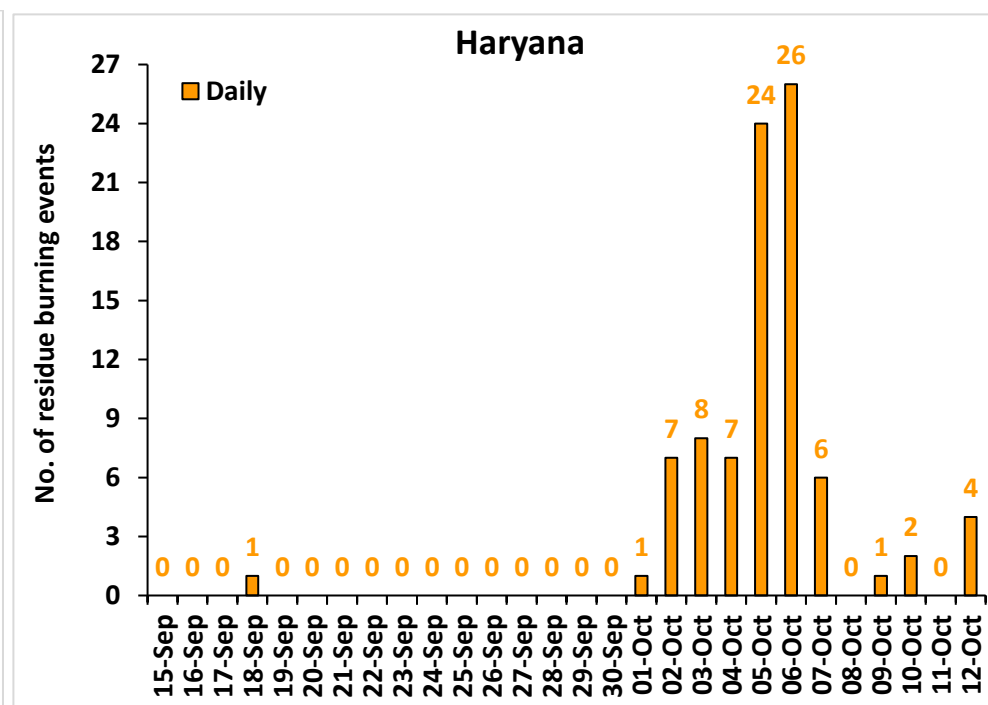
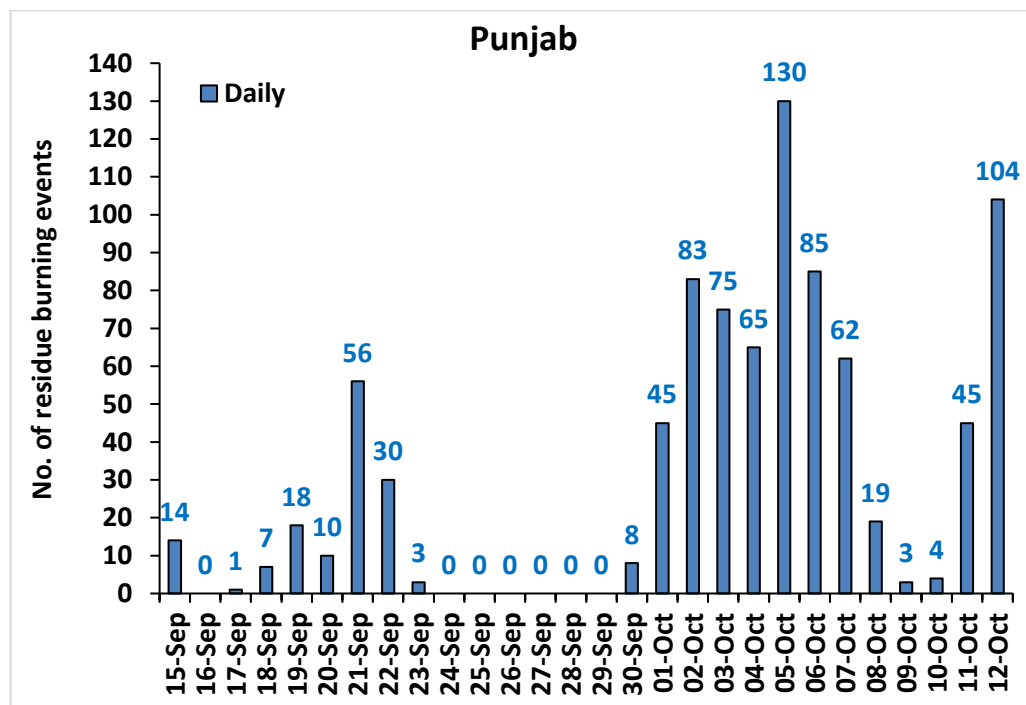
Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012

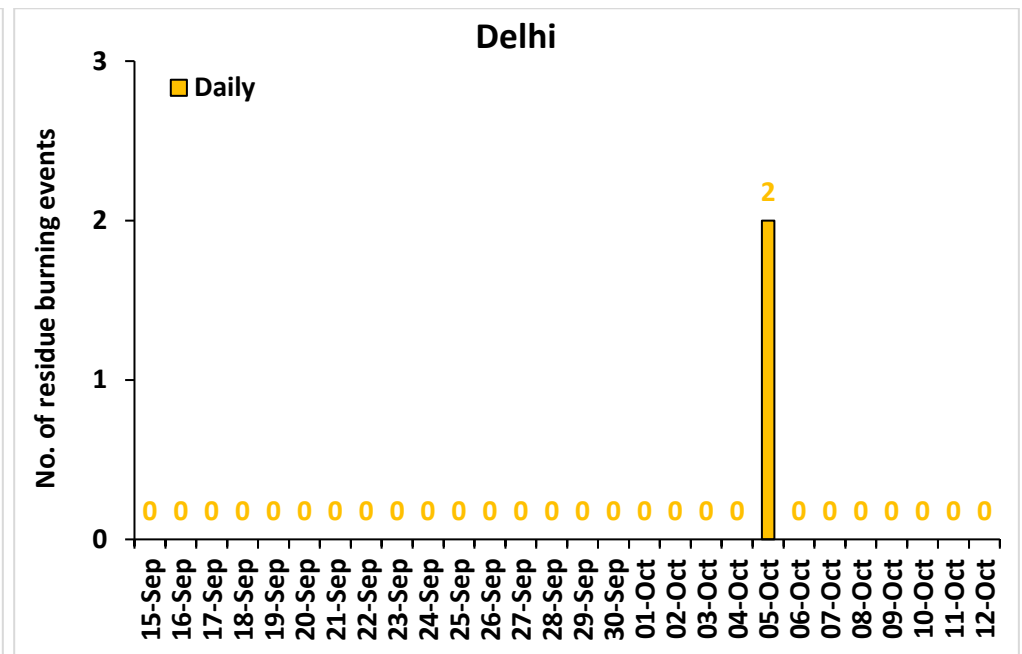
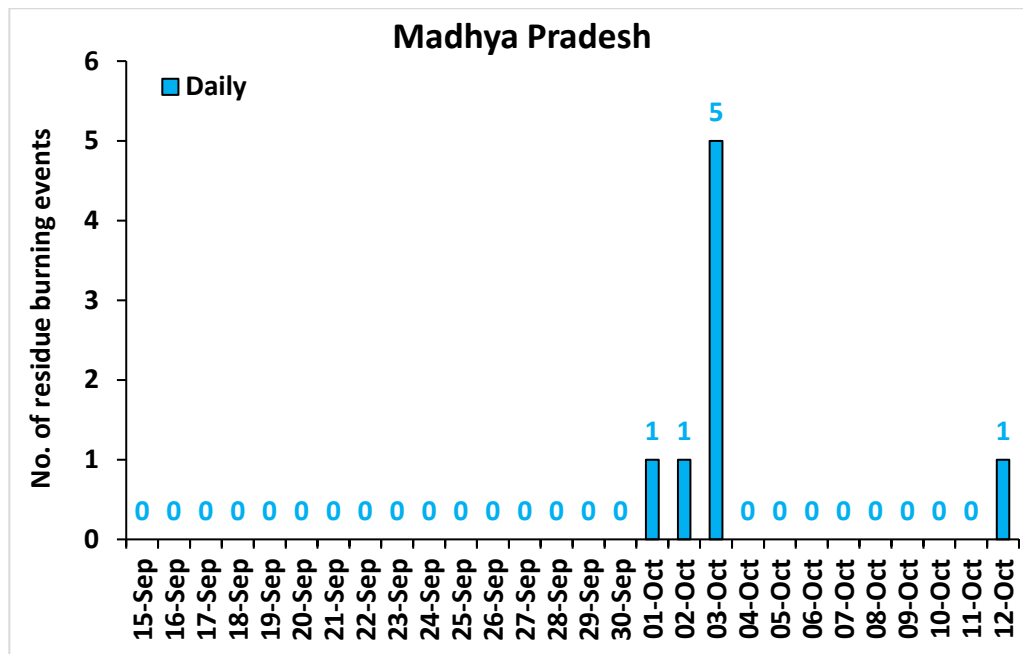
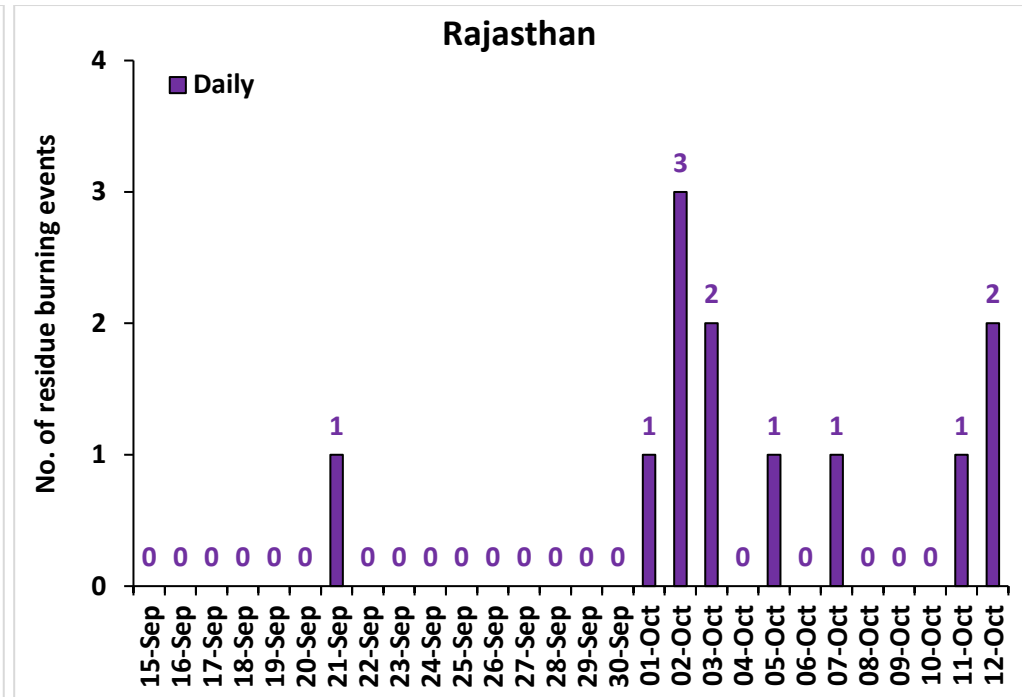
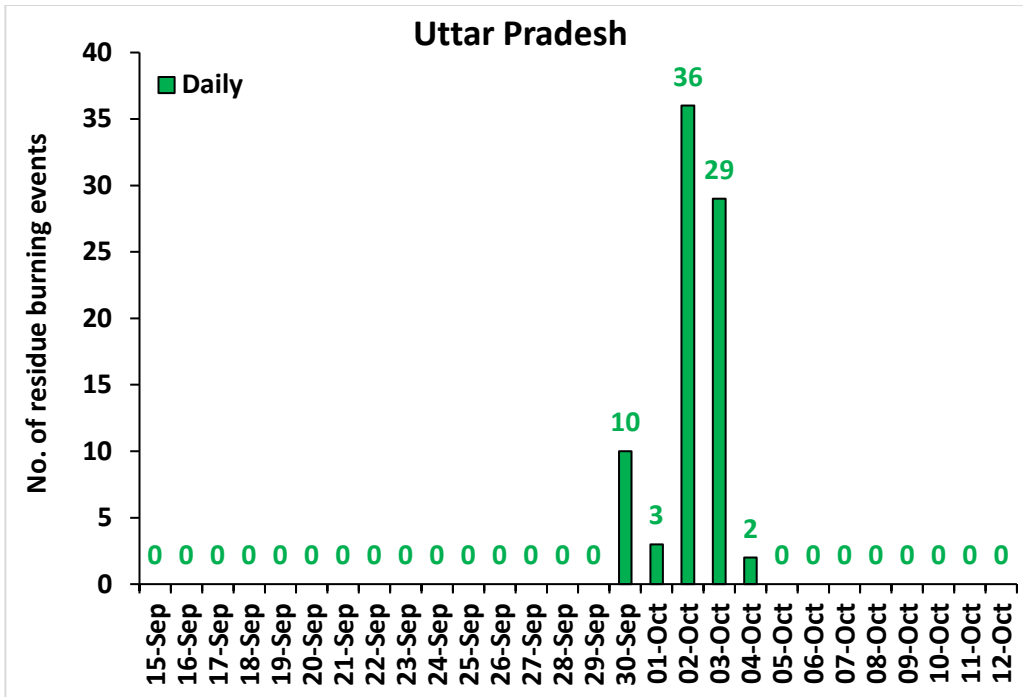
<http://creams.iari.res.in>

Highlights for 12-Oct-2022

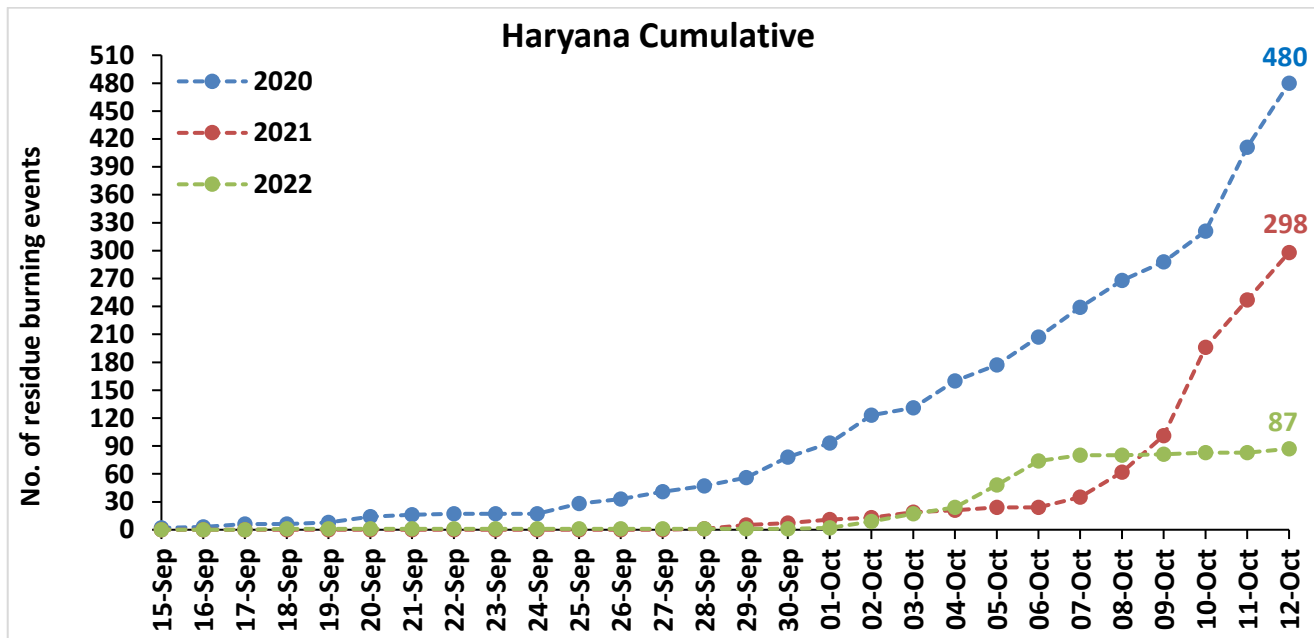
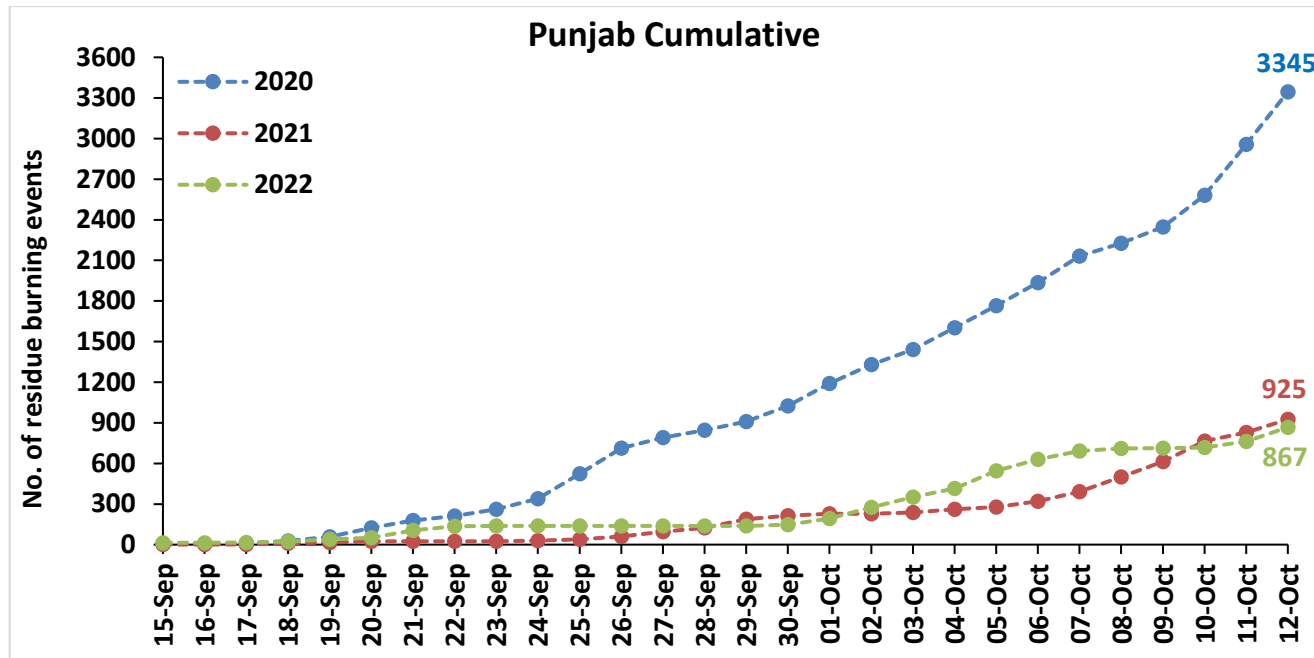
- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **111** residue burning events in the six study States on 12-Oct-2022.
- The state wise events detected on 12-Oct-2022 were **104** in Punjab, **4** in Haryana, **0** in UP, **0** in Delhi, **2** in Rajasthan and **1** in MP.
- Total **1056** burning events were detected in the six states between 15-Sept-2022 and 12-Oct-2022, which are distributed as **867**, **87**, **80**, **2**, **12** and **8** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.
- Detection of residue burning events was hampered by the presence of clouds over Uttar Pradesh and Madhya Pradesh.

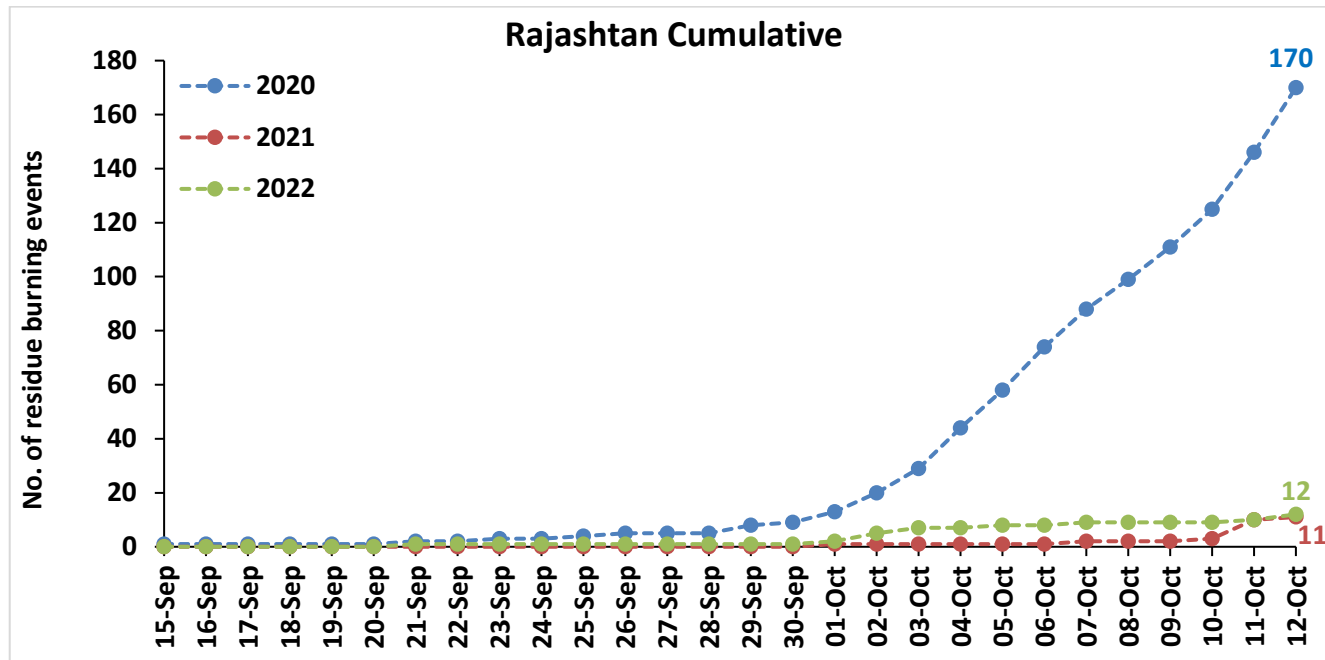
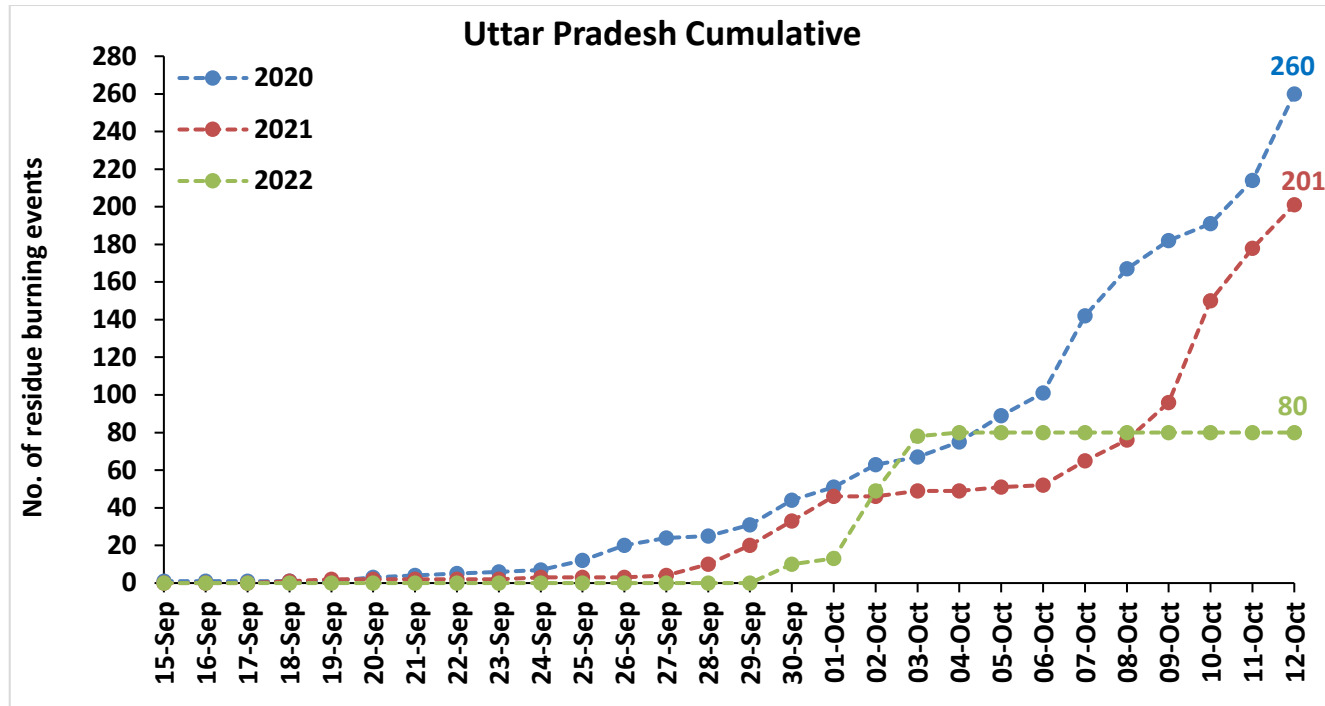
Temporal distribution of rice residue burning events for the study States in 2022

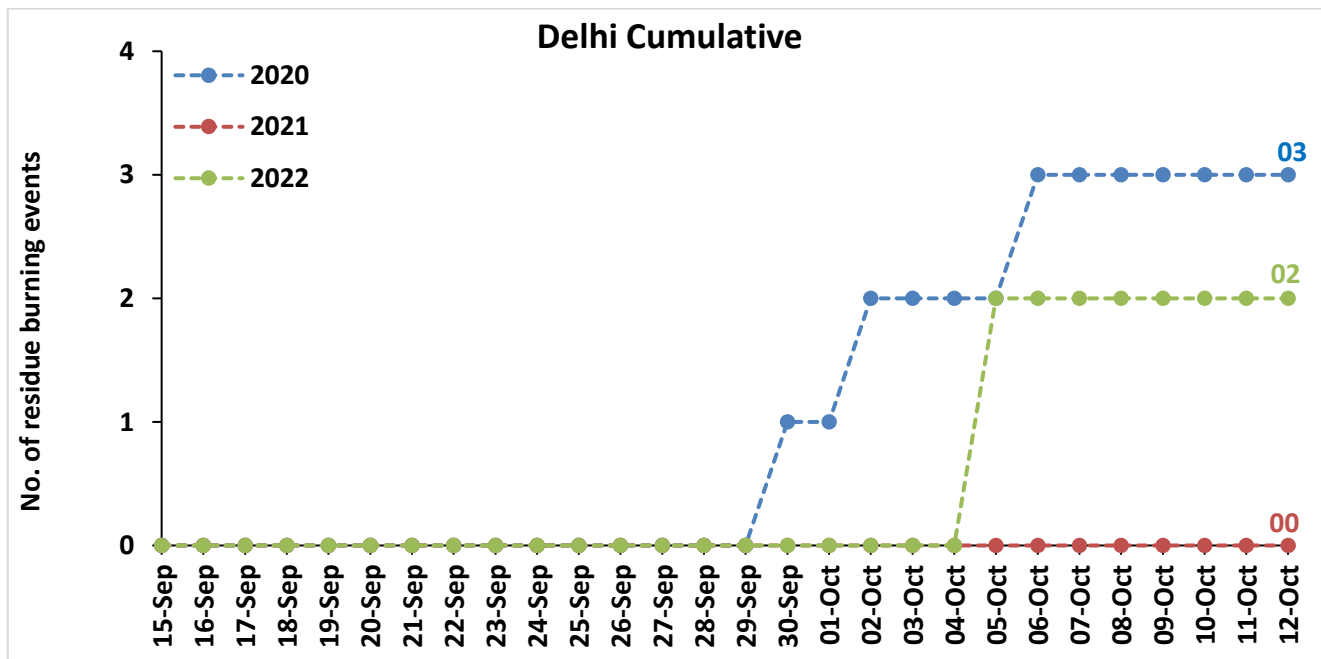
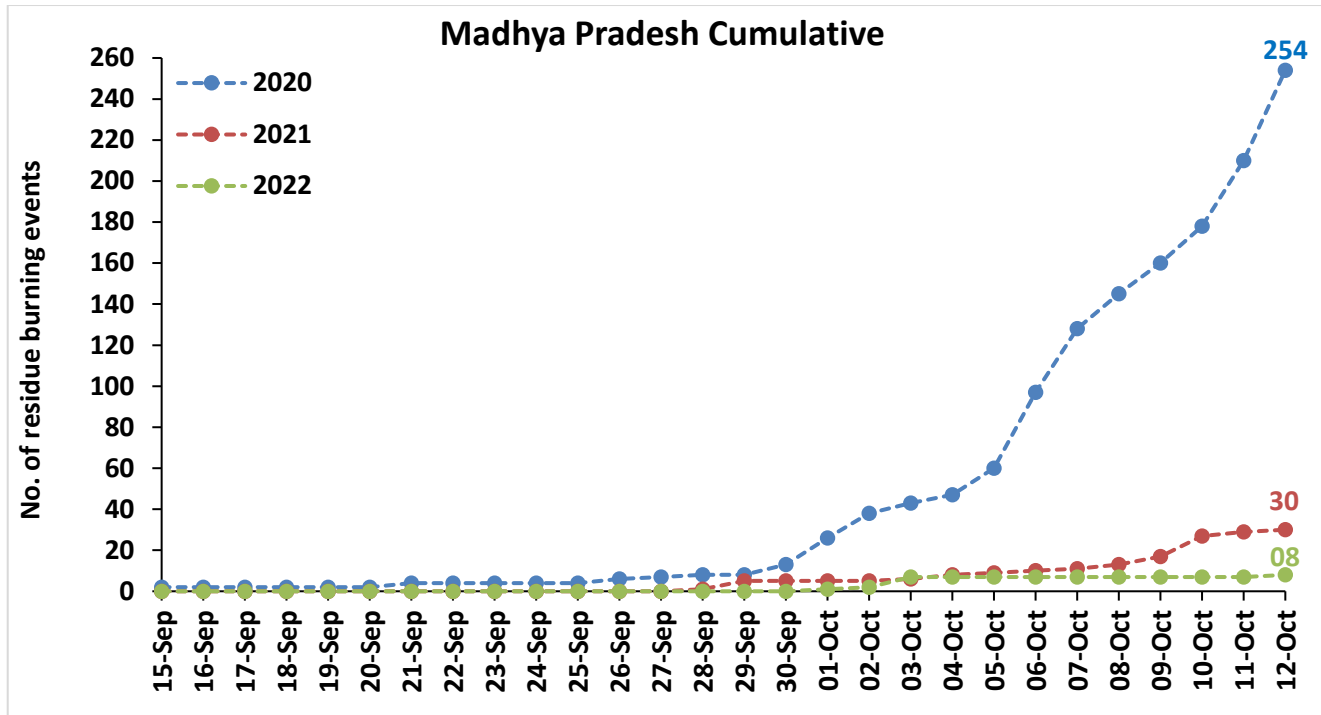




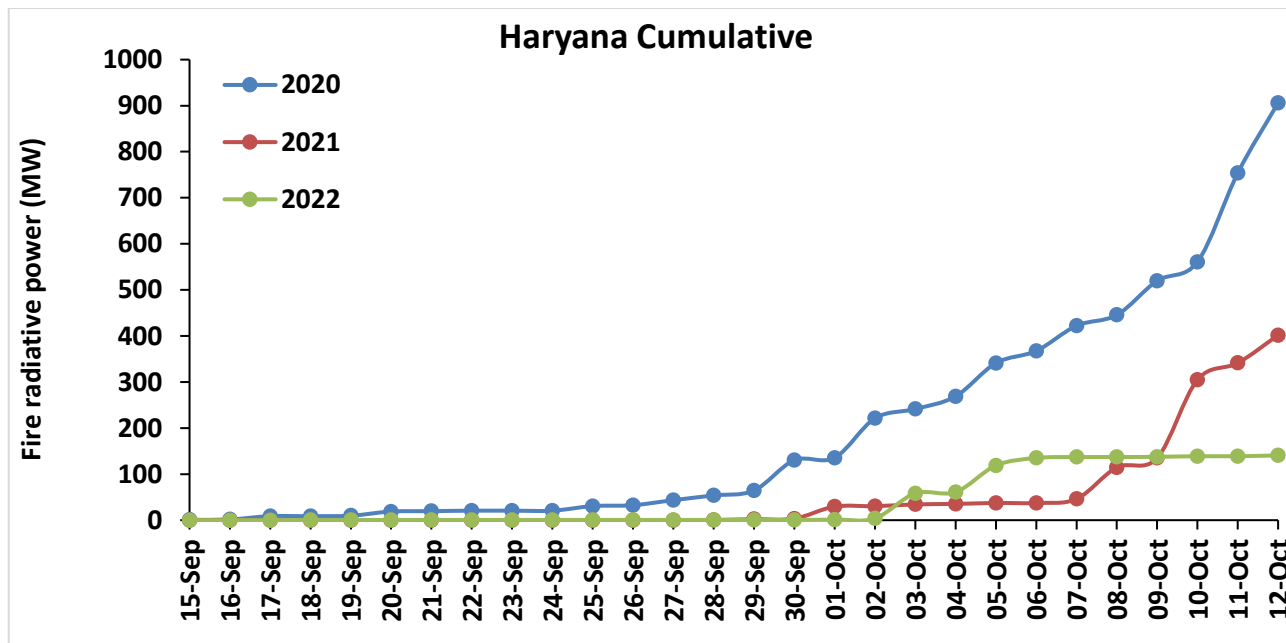
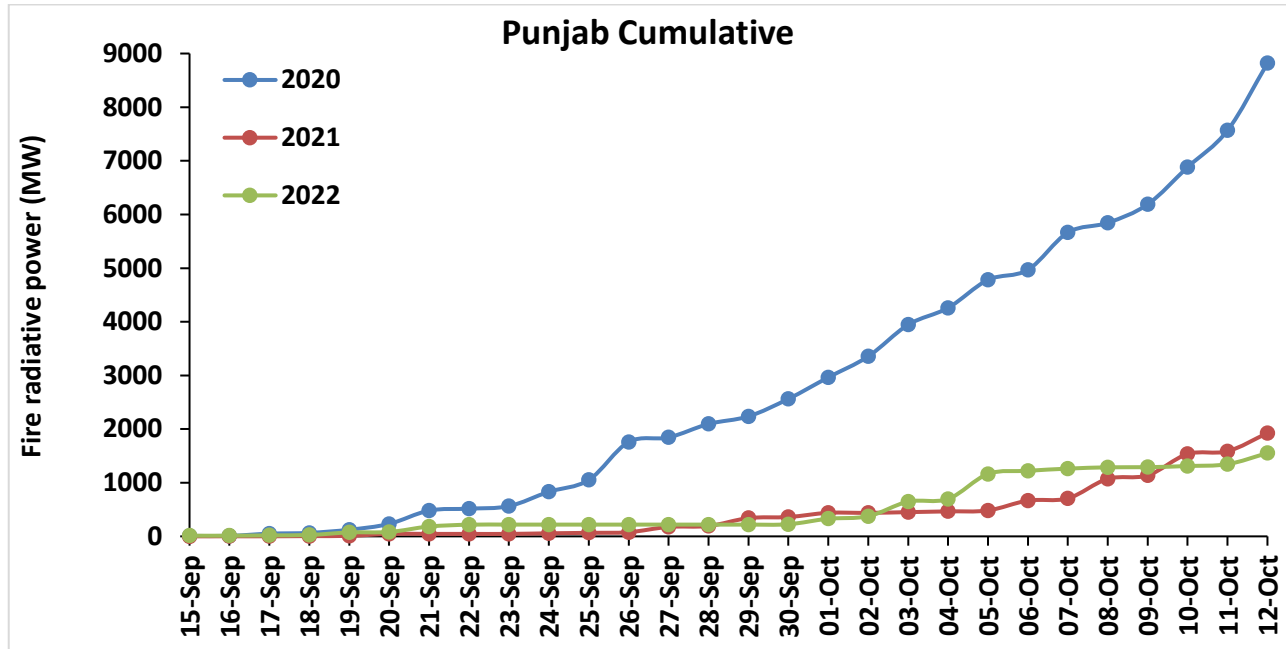
Comparison of residue burning events in current year (2022) with previous years (2020 and 2021) for the study States

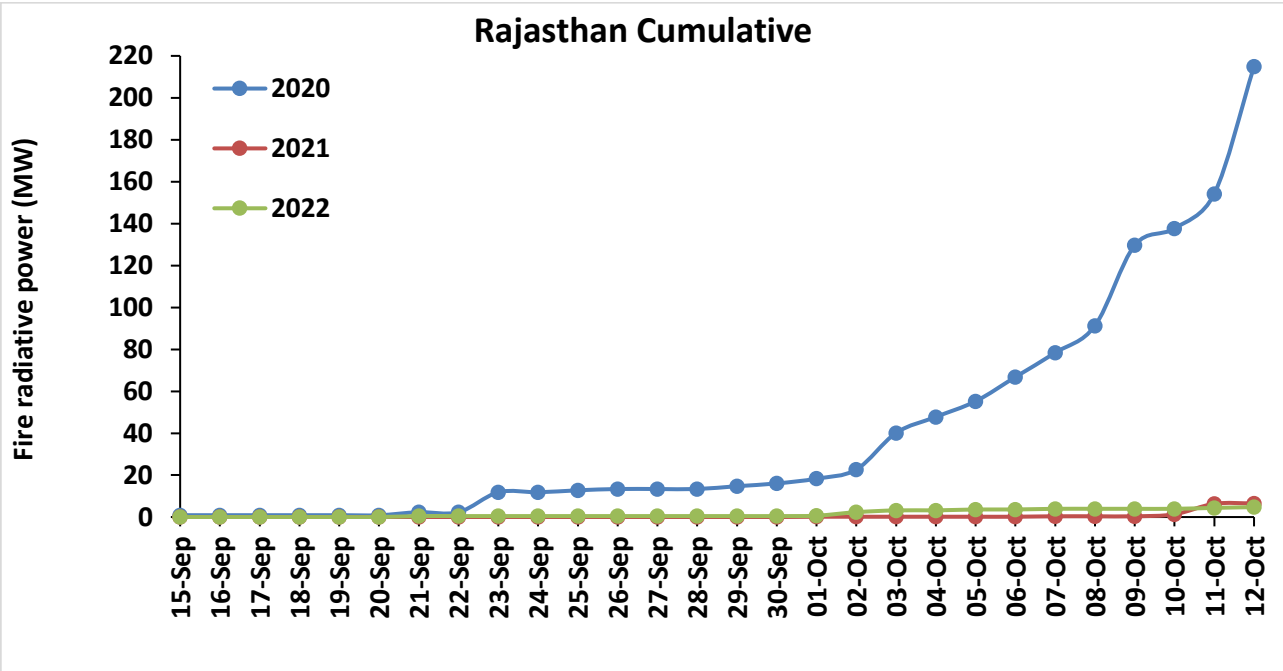
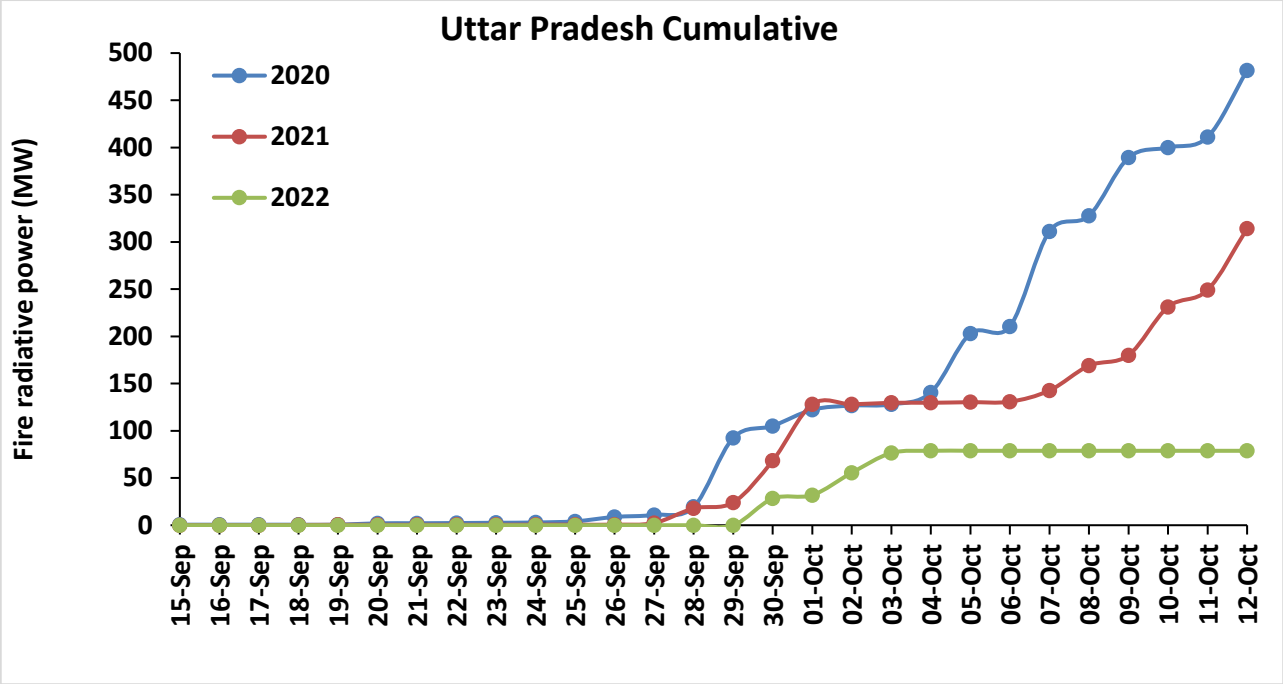


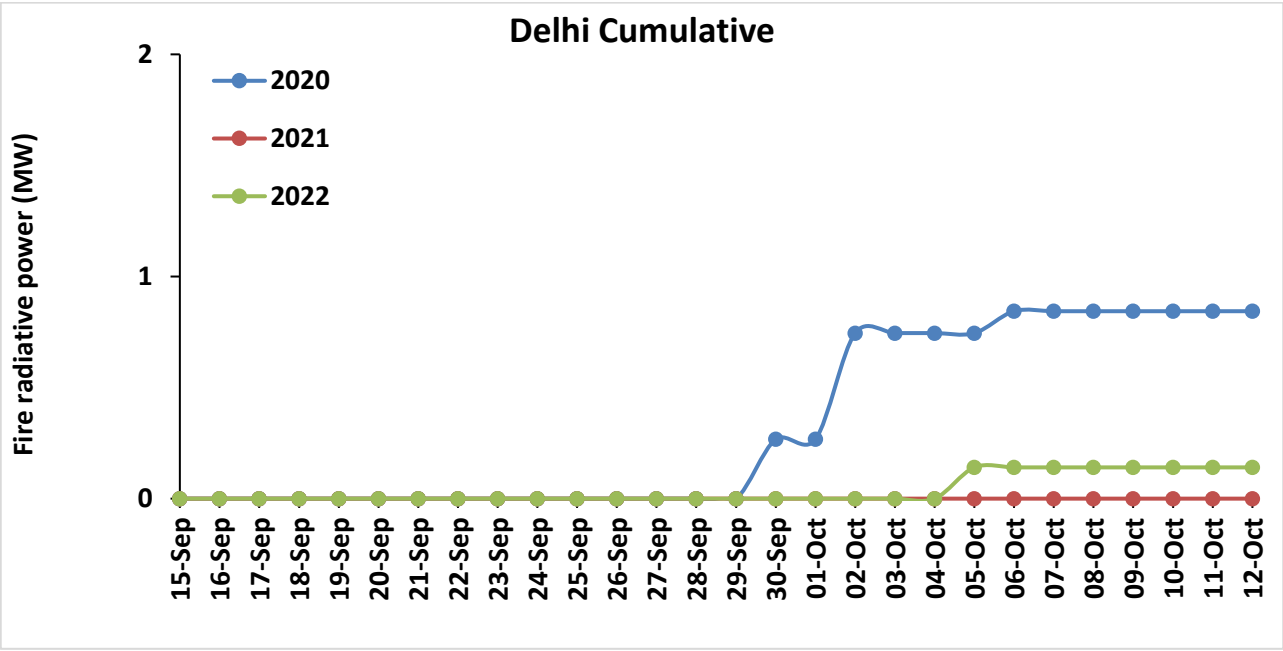
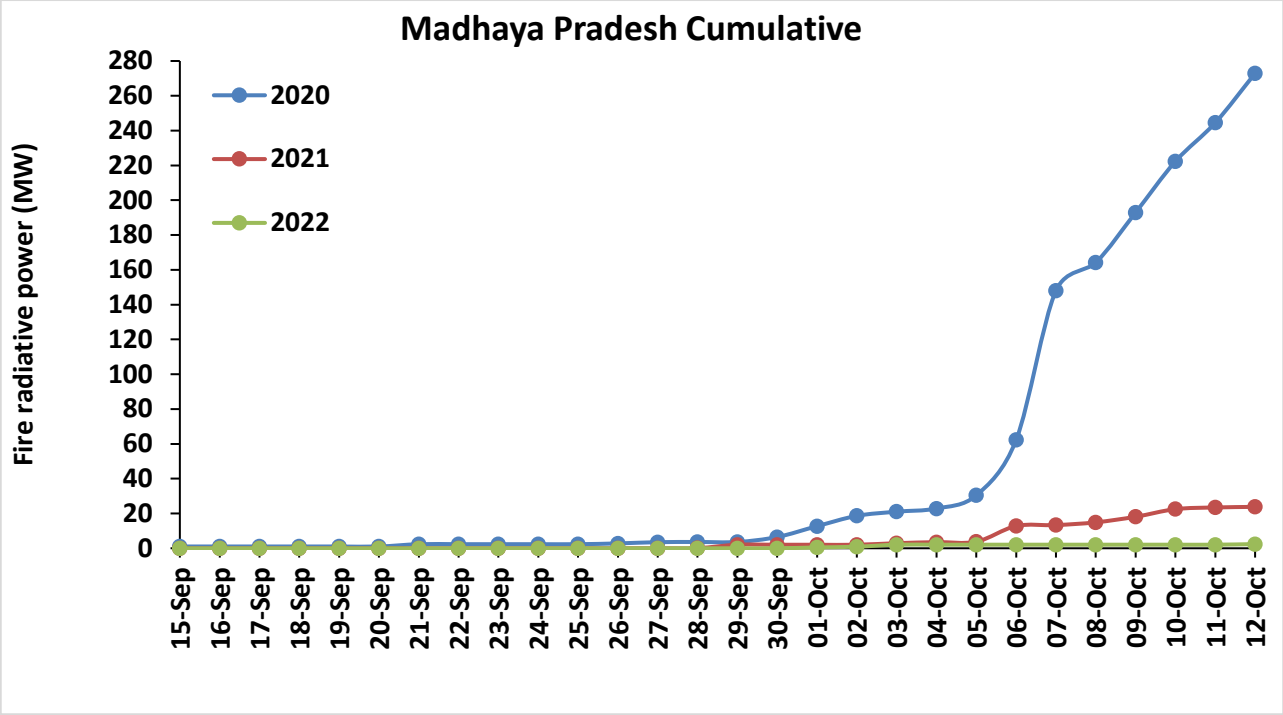




Comparison of residue burning fire power in current year (2022) with previous years (2021 and 2020) for the study States

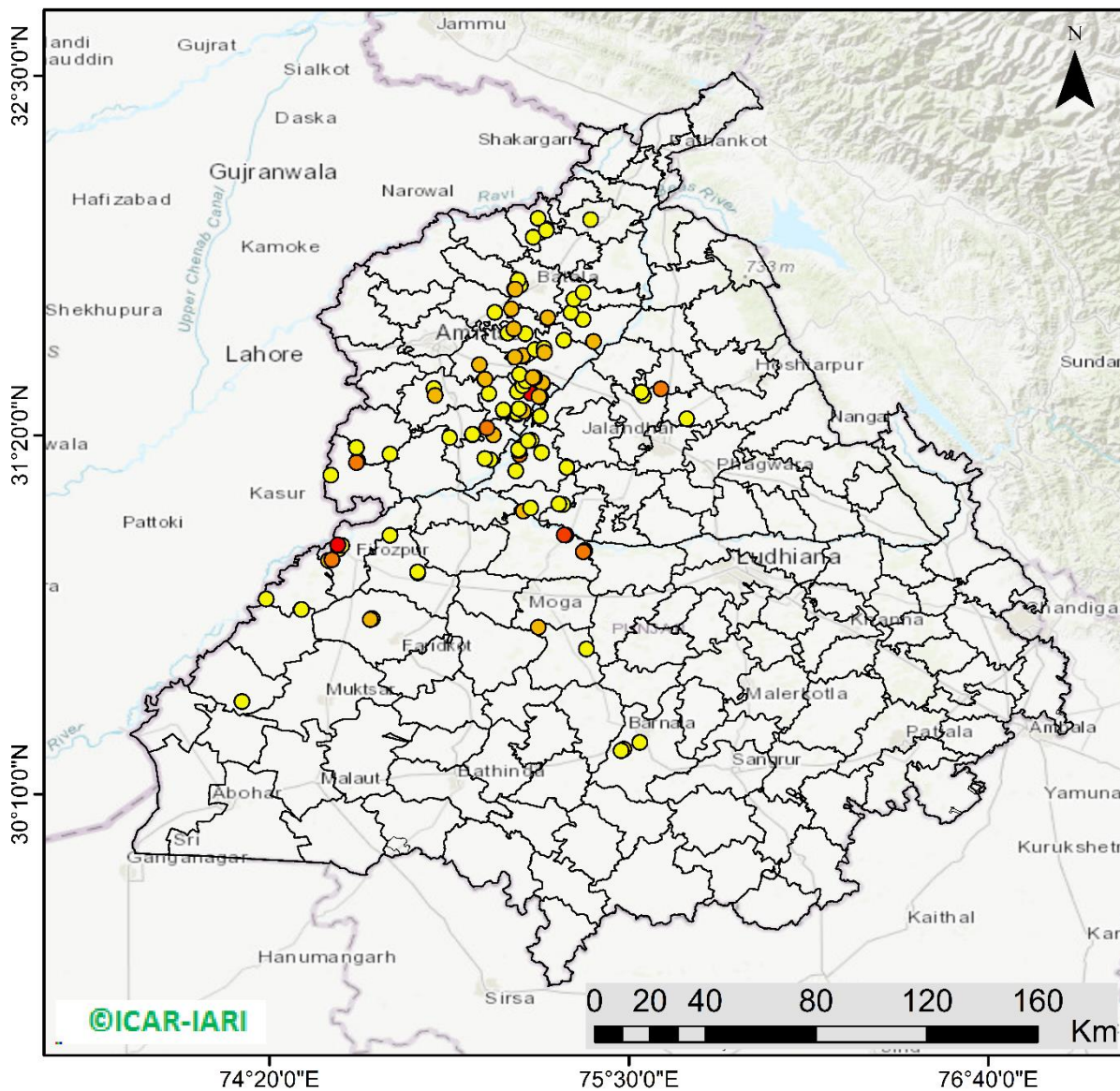






Punjab

RICE RESIDUE BURNING IN PUNJAB



104 burning events detected in Punjab during (12th Oct 2022)

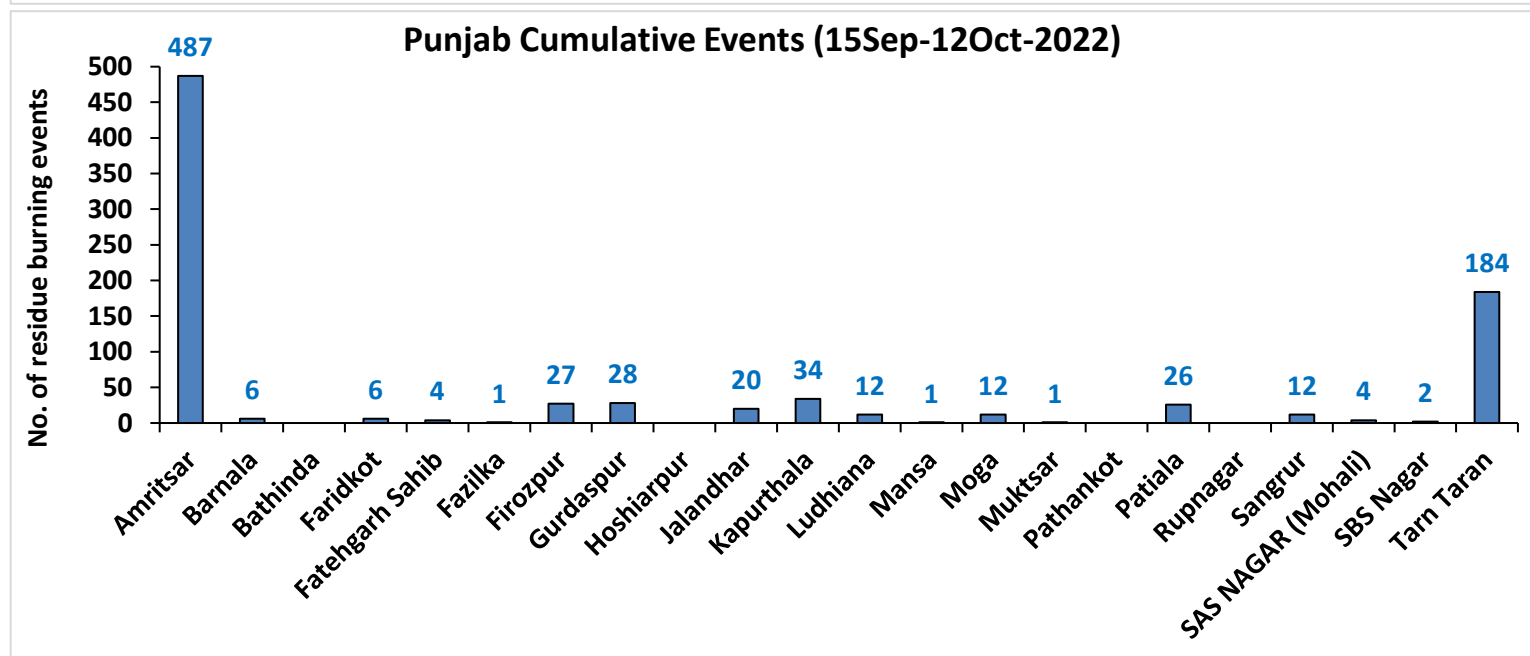
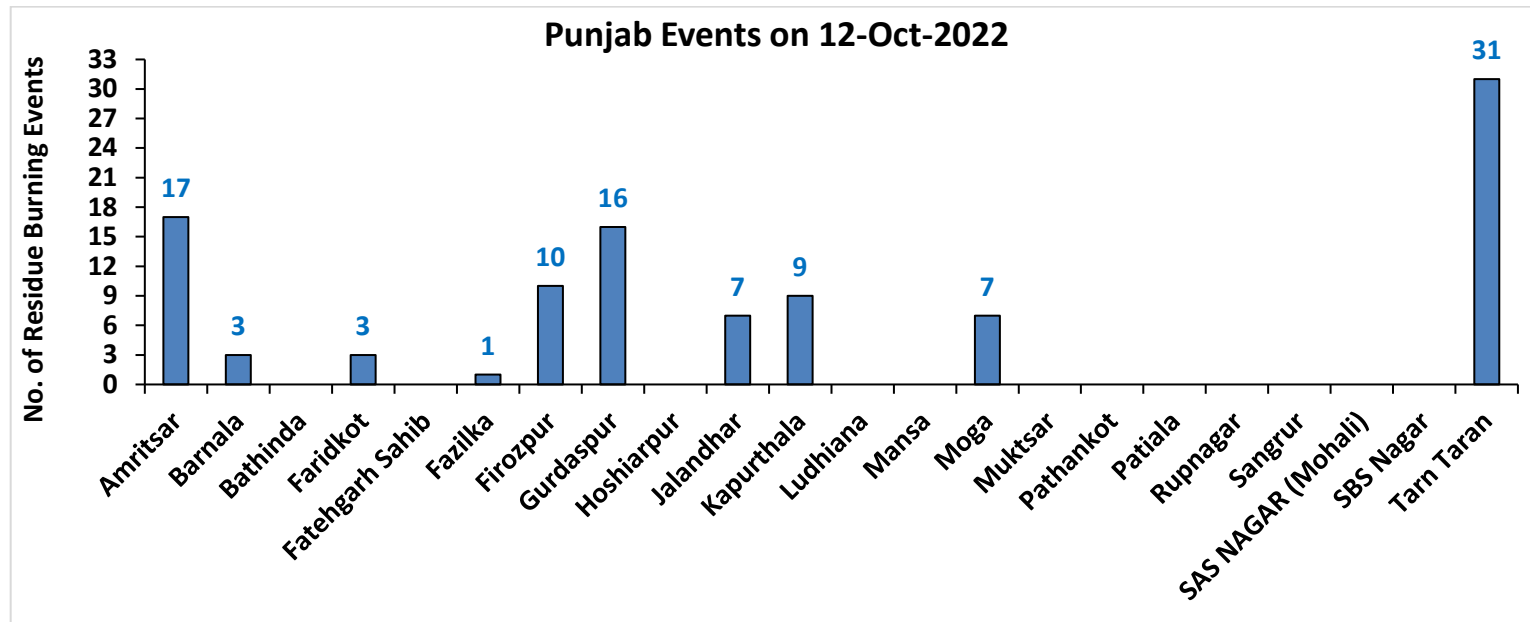
Fire Intensity (W/m²)

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



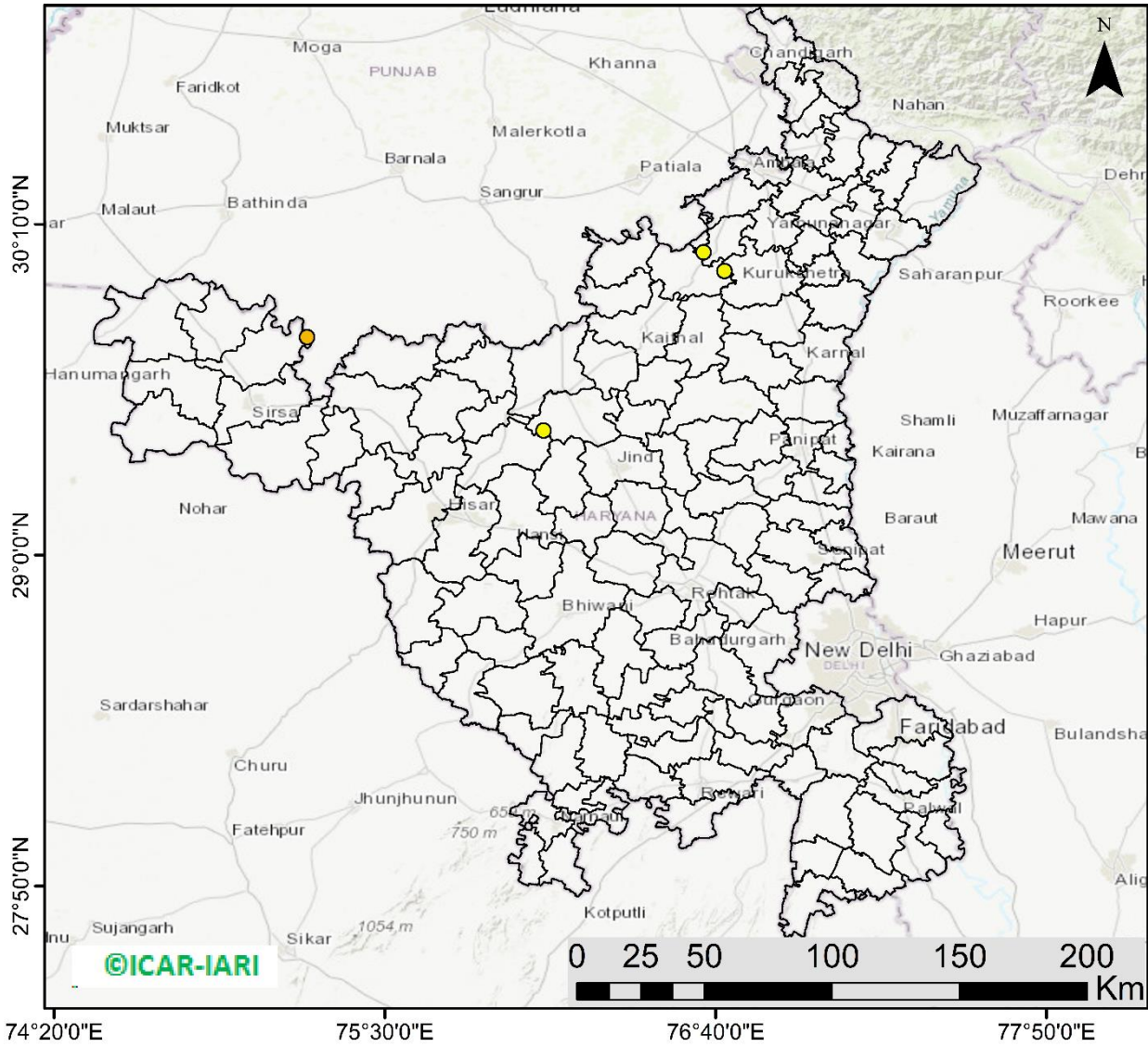
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15Sep- 12Oct-2022)



Haryana

RICE RESIDUE BURNING IN HARYANA



04 burning events detected in Haryana on (12th Oct 2022)

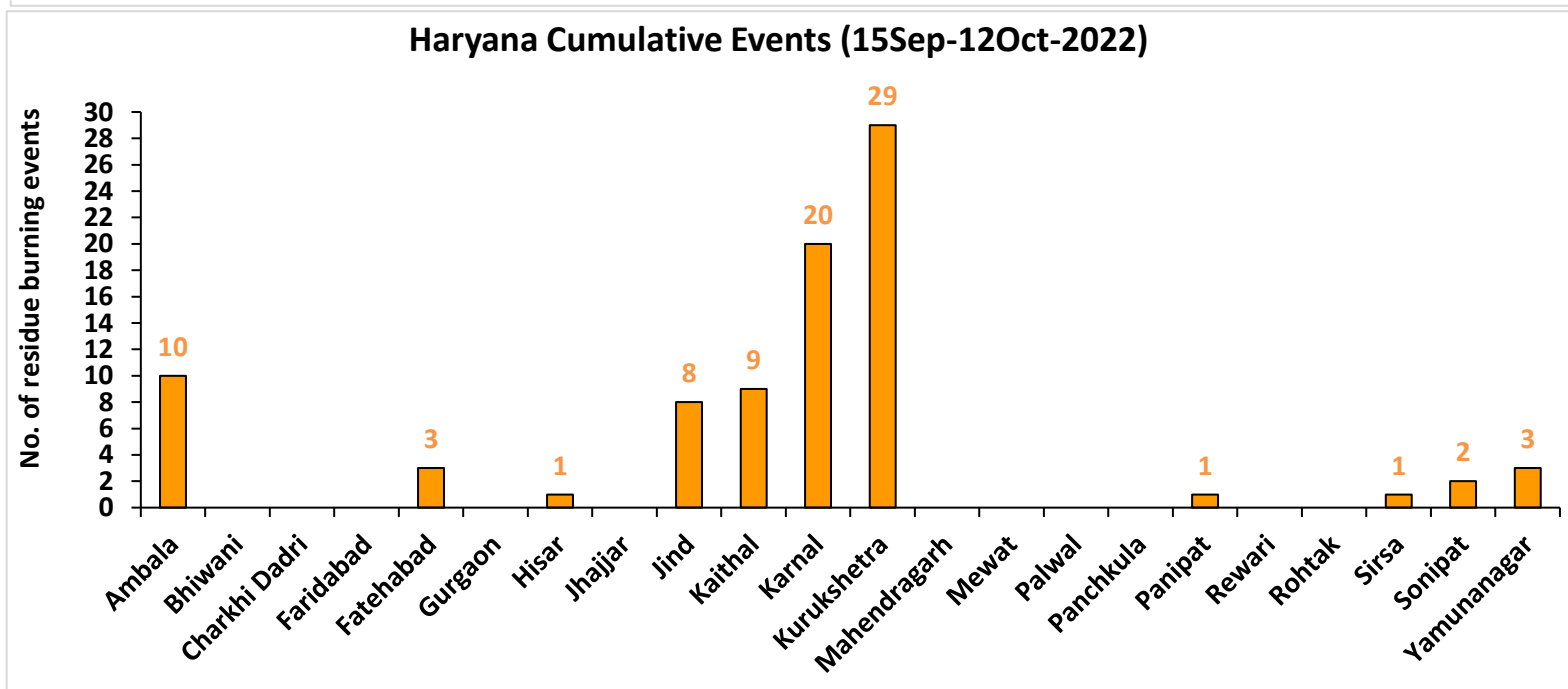
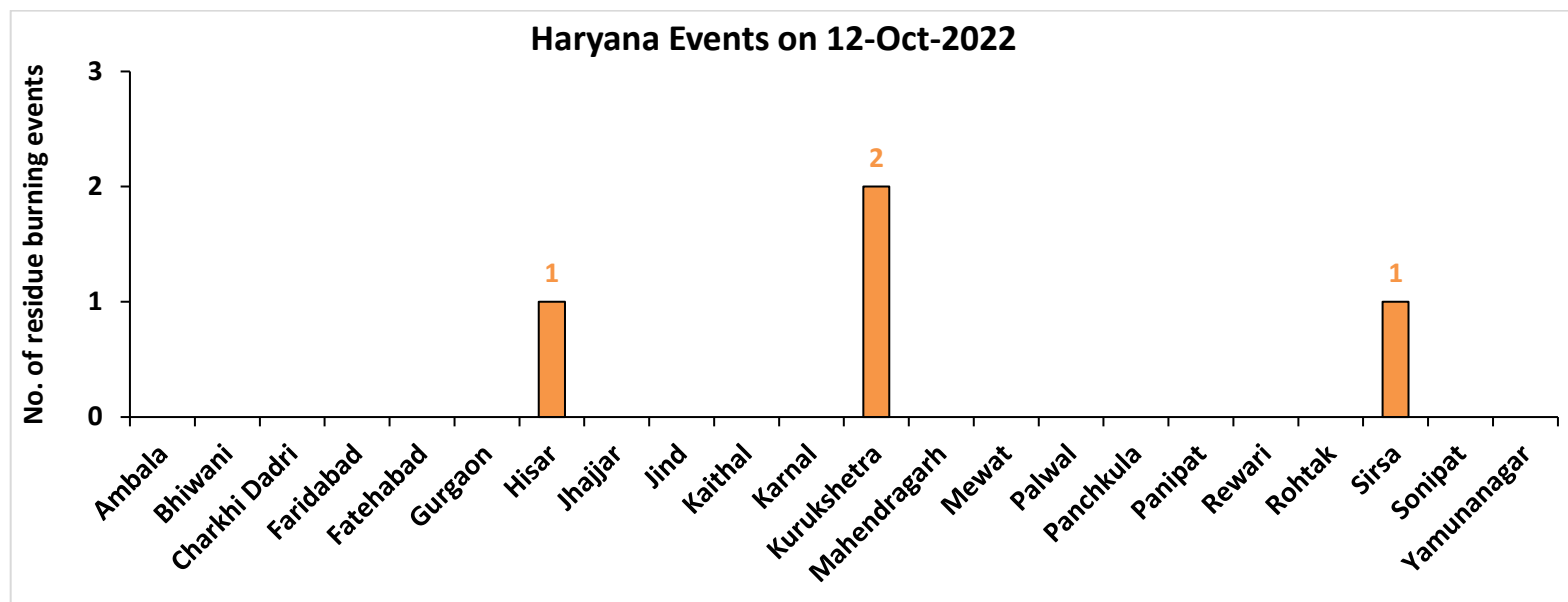
Fire Intensity (W/m²)

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



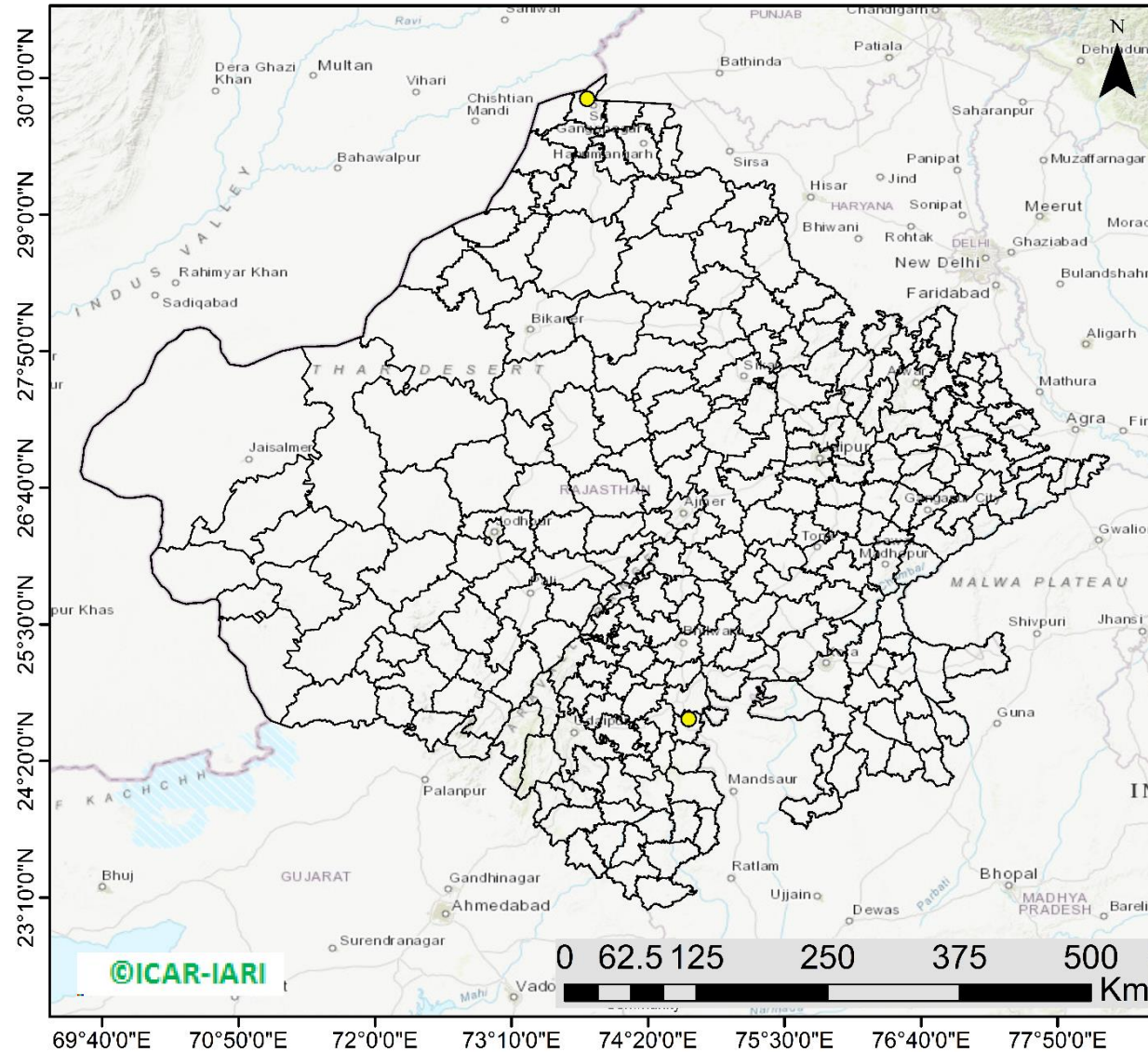
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15Sep- 12Oct-2022)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



02 burning events detected in Rajasthan on (12th Oct 2022)

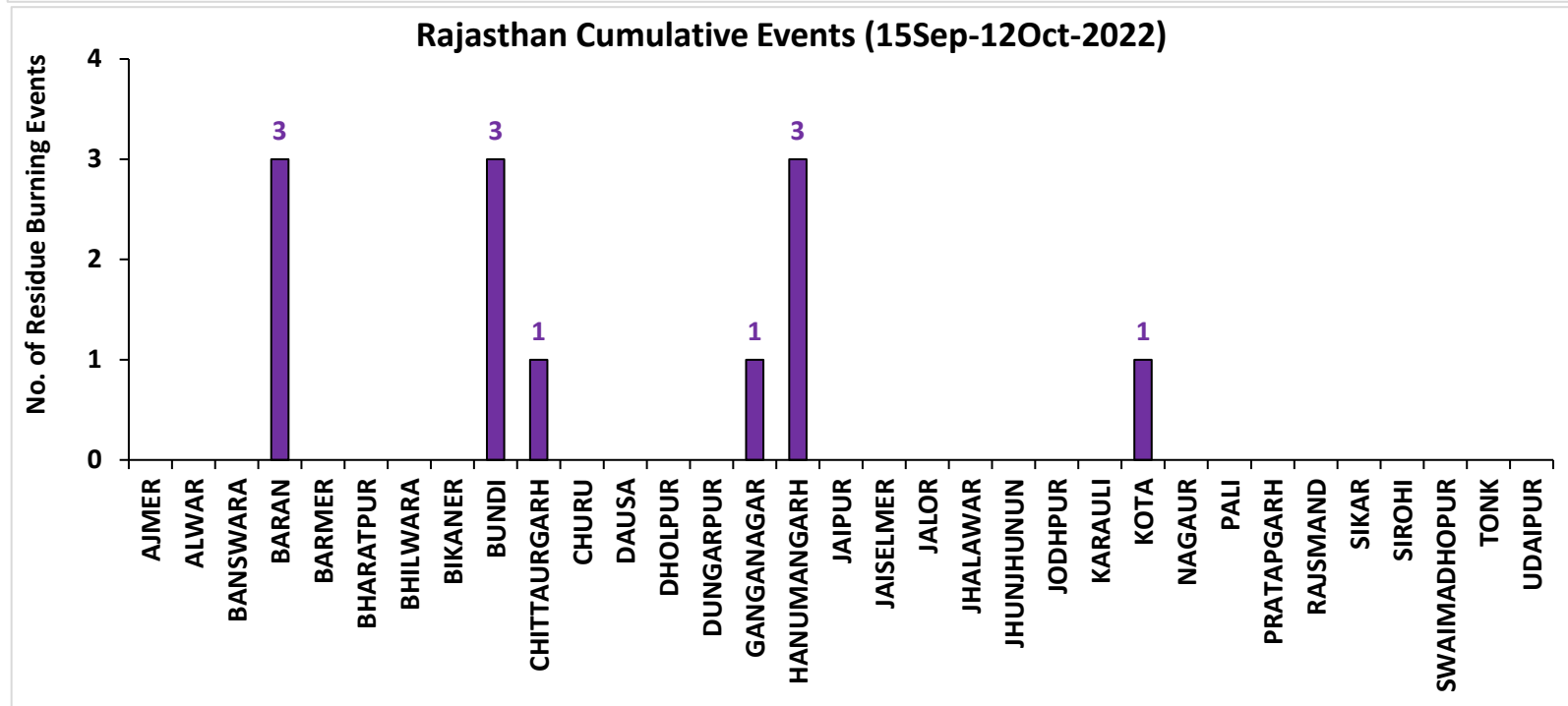
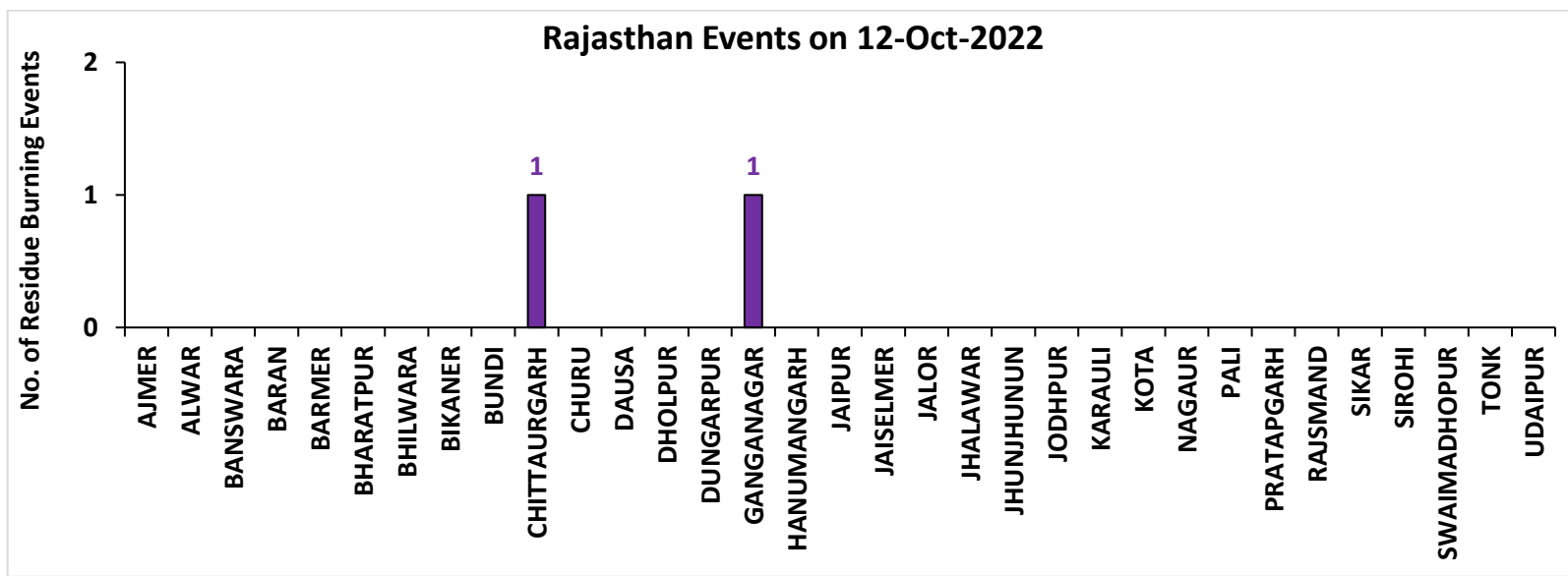
Fire Intensity (W/m²)

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



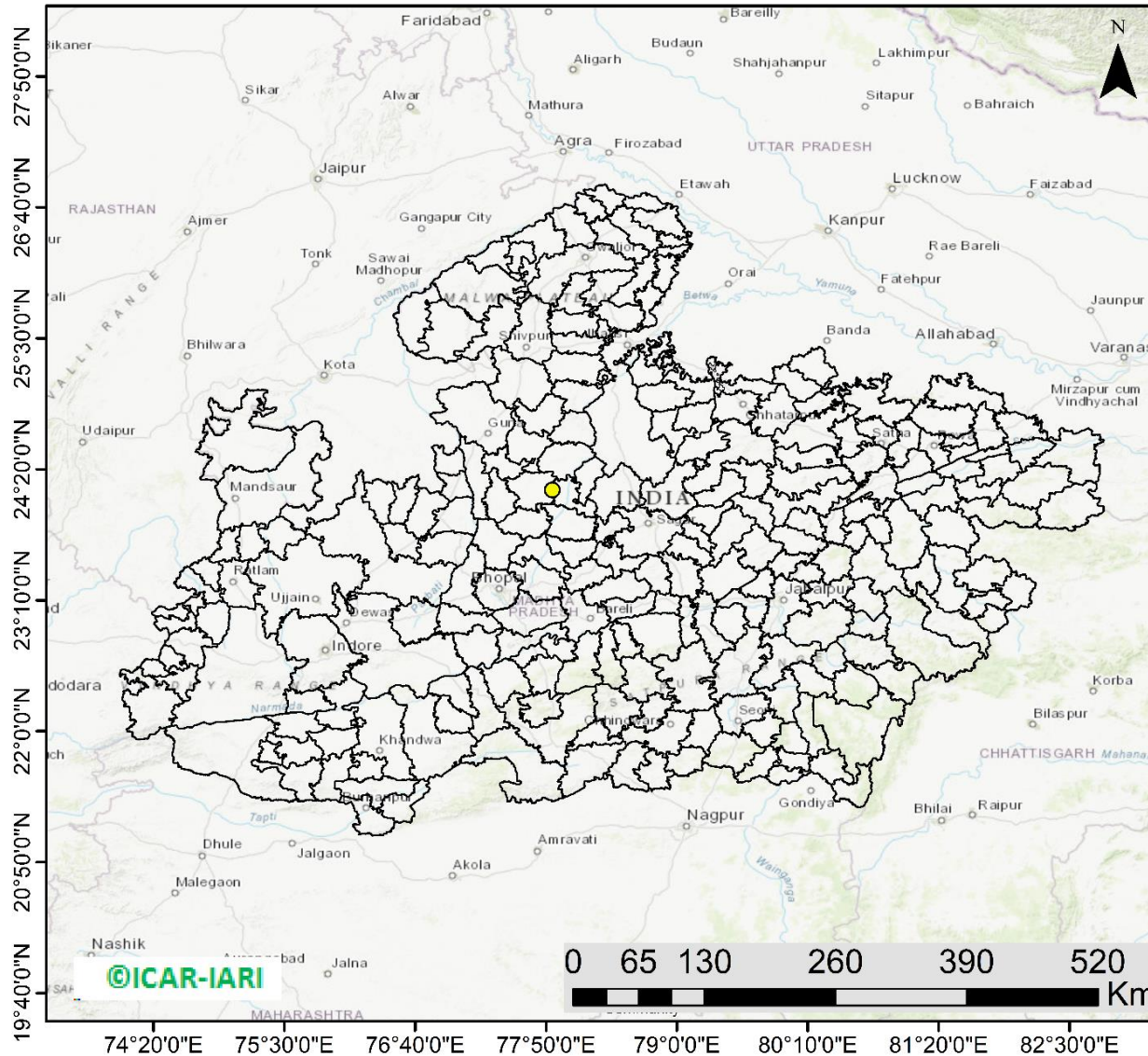
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15Sep- 12Oct -2022)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



01 burning events detected in MP on (12th Oct 2022)

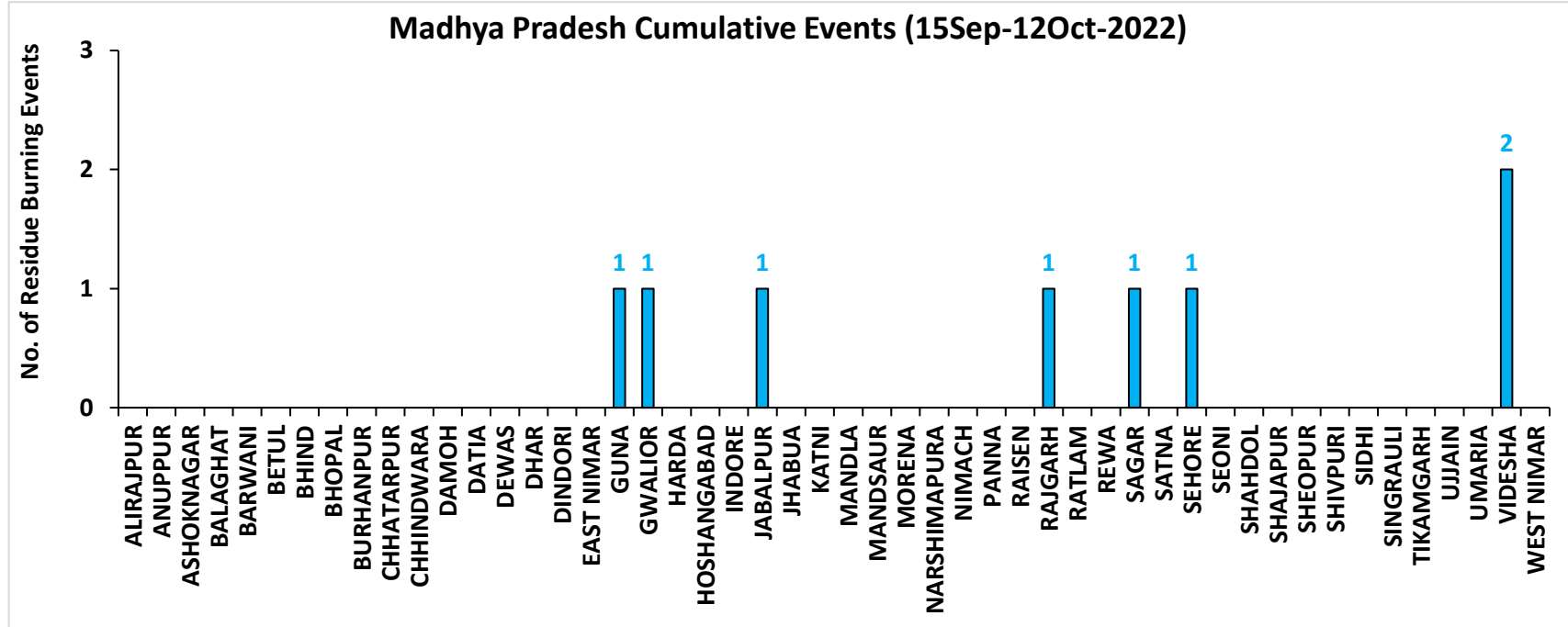
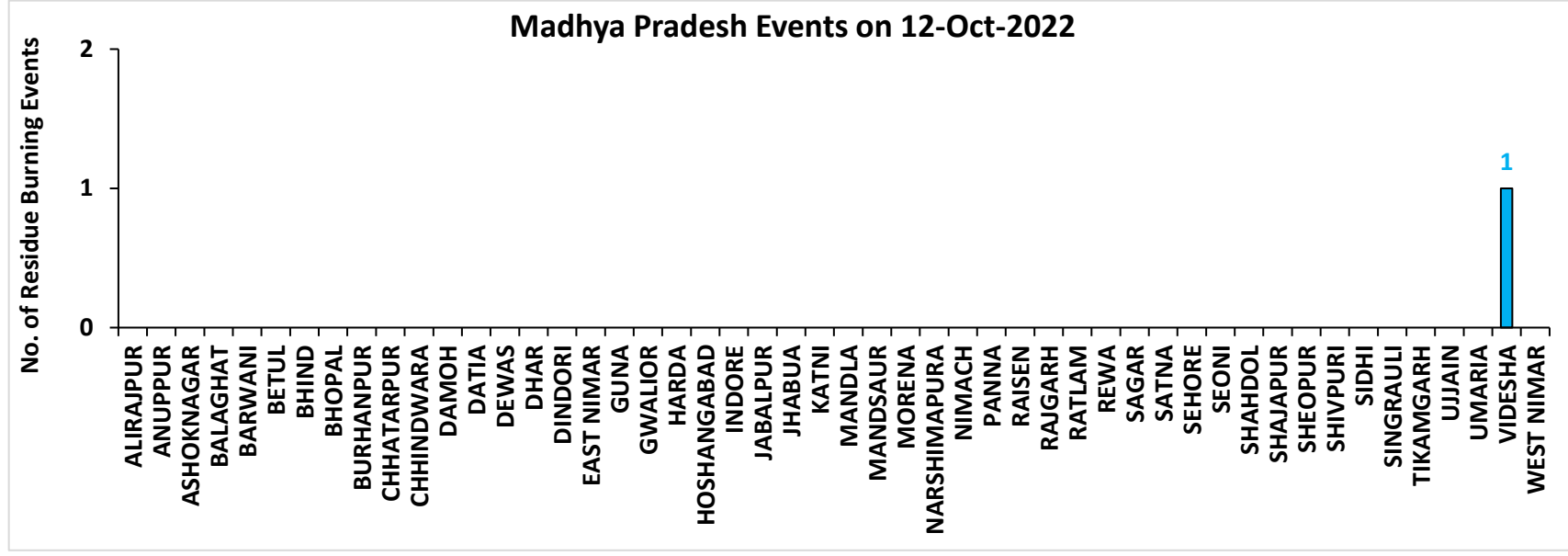
Fire Intensity (W/m²)

- 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 Madhya Pradesh (15Sep- 12Oct -2022)



District-wise cumulative number of residues burning events detected in 2020 ,2021 and 2022
(Period: 15 September-12 October)

(a) Punjab

District	15 Sep-12 Oct 2022		
	2020	2021	2022
Amritsar	1485	355	487
Barnala	9	6	6
Bathinda	15	0	0
Faridkot	44	22	6
Fatehgarh Sahib	51	31	4
Fazilka	10	7	1
Firozpur	132	27	27
Gurdaspur	173	33	28
Hoshiarpur	8	1	0
Jalandhar	46	24	20
Kapurthala	74	27	34
Ludhiana	93	69	12
Mansa	16	1	1
Moga	25	8	12
Muktsar	6	2	1
Pathankot	0	0	0
Patiala	256	81	26
Rupnagar	10	4	0
Sangrur	85	13	12
SAS NAGAR (Mohali)	19	13	4
SBS Nagar	9	2	2
Tarn Taran	779	199	184
Total	3345	925	867

(b) Haryana

District	15 Sep-12 Oct 2022		
	2020	2021	2022
AMBALA	65	14	10
BHIWANI	0	0	0
CHARKHI DADRI	0	0	0
FARIDABAD	0	1	0
FATEHABAD	31	11	3
GURGAON	0	0	0
HISAR	6	0	1
JHAJJAR	1	0	0
JIND	14	9	8
KAITHAL	80	61	9
KARNAL	131	113	20
KURUKSHETRA	94	63	29
MAHENDRAGARH	0	0	0
MEWAT	0	0	0
PALWAL	5	7	0
PANCHKULA	0	0	0
PANIPAT	7	3	1
REWARI	0	0	0
ROHTAK	0	0	0
SIRSA	5	0	1
SONIPAT	8	1	2
YAMUNANAGAR	33	15	3
Total	480	298	87

(c) Uttar Pradesh

District	15 Sep-12 Oct 2022										
	2020	2021	2022	GAUTAMBUDHNAGAR	1	5	0	MUZAFARNAGAR	2	0	0
AGRA	1	0	0	GAZIPUR	0	0	0	PILHIBHIT	4	8	2
ALIGARH	20	4	1	GHAZIABAD	1	2	1	PRATAPGARH	0	0	0
ALLAHABAD	0	0	0	GONDA	0	0	0	RAIBEARELI	1	0	0
AMBEDKARNAGAR	0	0	0	GORAKHPUR	0	0	0	RAMPUR	13	16	0
AMETHI	0	1	0	HAMIRPUR	0	0	0	SAMBHAL	6	2	4
AMROHA	1	0	0	HAPUR	3	0	0	SANTKABIRNAGAR	0	0	0
AURAIYA	14	1	4	HARDOI	2	5	0	SANTRAVIDASNAGAR	0	0	0
AZAMGARH	0	0	0	HATHRAS	0	0	0	SHAHJAHANPUR	20	94	53
BADAUN	0	0	0	JALAUN	0	0	0	SHAMLI	18	8	2
BAGHPAT	1	0	0	JAUNPUR	0	0	0	SHARANPUR	18	1	0
BAHRAICH	2	2	0	JHANSI	6	0	0	SHRAWASTI	0	0	0
BALLIA	0	0	0	KANNAUJ	2	0	0	SIDDHARTHANAGAR	0	0	0
BALRAMPUR	0	0	0	KANPUR	0	1	0	SITAPUR	8	1	0
BANDA	0	0	0	KANPUR DEHAT	2	0	0	SONBHADRA	0	0	0
BARABANKI	10	0	0	KASGANJ	1	0	0	SULTANPUR	0	0	0
BAREILLY	8	4	0	KAUSHAMBI	7	1	0	UNNAO	2	0	0
BASTI	2	0	0	KHERI	23	20	8	VARANASI	0	0	0
BIJNOR	3	1	1	KUSHINAGAR	0	0	0	Total	260	201	80
BULANDSAHAR	6	1	2	LALITPUR	0	1	2				
CHANDAULI	0	0	0	LUCKNOW	2	0	0				
CHITRAKOOT	0	0	0	MAHARAJGANJ	0	0	0				
DEORIA	0	0	0	MAHOBA	1	0	0				
ETAH	4	4	0	MAINPURI	3	2	0				
ETAWAH	2	3	0	MATHURA	6	7	0				
FAIZABAD	0	0	0	MAU	0	0	0				
FARRUKHABAD	0	0	0	MEERUT	9	0	0				
FATEHPUR	14	0	0	MIRZAPUR	5	5	0				
FIROZABAD	4	0	0	MORADABAD	2	1	0				

(d) Delhi

District	15 Sep-12 Oct 2022		
	2020	2021	2022
CENTRAL	0	0	0
EAST	0	0	0
NEW DELHI	0	0	0
NORTH	2	0	2
NORTH EAST	0	0	0
NORTH WEST DELHI	0	0	0
SHAHADRA	0	0	0
SOUTH	1	0	0
SOUTH EAST	0	0	0
SOUTH WEST DELHI	0	0	0
WEST DELHI	0	0	0
Total	3	0	2

(e) Rajasthan

District	15 Sep-12 Oct 2022		
	2020	2021	2022
AJMER	0	0	0
ALWAR	1	0	0
BANSWARA	0	0	0
BARAN	76	0	3
BARMER	2	0	0
BHARATPUR	0	0	0
BHILWARA	2	0	0
BIKANER	0	0	0
BUNDI	3	0	3
CHITTAURGARH	0	1	1
CHURU	0	0	0
DAUSA	0	0	0
DHOLPUR	0	0	0
DUNGARPUR	0	0	0
GANGANAGAR	2	0	1
HANUMANGARH	53	10	3
JAIPUR	0	0	0
JAISELMER	2	0	0
JALOR	0	0	0
JHALAWAR	0	0	0
JHUNJHUNUN	1	0	0
JODHPUR	1	0	0
KARAULI	1	0	0
KOTA	21	0	1
NAGAUR	0	0	0
PALI	1	0	0
PRATAPGARH	0	0	0
RAJSMAND	0	0	0
SIKAR	0	0	0
SIROHI	1	0	0
SWAIMADHOPUR	2	0	0
TONK	1	0	0
UDAIPUR	0	0	0
Total	170	11	12

(f) Madhya Pradesh

District	15 Sep-12 Oct 2022						
	2020	2021	2022				
				PANNA	2	0	0
ALIRAJPUR	0	0	0	RAISEN	10	0	0
ANUPPUR	0	0	0	RAJGARH	6	1	2
ASHOKNAGAR	9	0	0	RATLAM	0	0	0
BALAGHAT	0	0	0	REWA	2	0	0
BARWANI	0	0	0	SAGAR	13	3	1
BETUL	0	0	0	SATNA	3	0	0
BHIND	0	0	0	SEHORE	5	0	1
BHOPAL	4	2	0	SEONI	6	2	0
BURHANPUR	0	0	0	SHAHDOL	0	0	0
CHHATARPUR	4	0	0	SHAJAPUR	5	0	0
CHHINDWARA	0	0	0	SHEOPUR	5	0	0
DAMOH	12	1	0	SHIVPURI	4	0	0
DATIA	19	2	0	SIDHI	0	0	0
DEWAS	3	0	0	SINGRAULI	0	0	0
DHAR	19	0	0	TIKAMGARH	1	0	0
DINDORI	0	0	0	UJJAIN	5	0	0
EAST NIMAR	2	1	0	UMARIA	0	0	0
GUNA	10	1	1	VIDESHA	49	5	2
GWALIOR	21	0	1	WEST NIMAR	2	0	0
HARDA	8	7	0	Total	254	30	8
HOSHANGABAD	9	0	0				
INDORE	2	0	0				
JABALPUR	6	1	0				
JHABUA	0	0	0				
KATNI	0	0	0				
MANDLA	0	0	0				
MANDSAUR	0	0	0				
MORENA	7	3	0				
NARSHIMAPURA	1	1	0				
NIMACH	0	0	0				

State-wise and date-wise number of paddy residue burning events detected in 2020, 2021 and 2022
(Period: 15 September - 12 October 2022)

Number of Paddy Residue Burning Events Detected

	Punjab			Haryana			Uttar Pradesh			Delhi			Rajasthan			Madhya Pradesh		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
15-Sep	5	0	14	2	0	0	1	0	0	0	0	0	1	0	0	2	0	0
16-Sep	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	5	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Sep	17	9	7	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
19-Sep	30	5	18	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
20-Sep	67	8	10	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0
21-Sep	54	0	56	2	0	0	1	0	0	0	0	0	1	0	1	2	0	0
22-Sep	34	0	30	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
23-Sep	49	0	3	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
24-Sep	78	5	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
25-Sep	184	11	0	11	0	0	5	0	0	0	0	0	1	0	0	0	0	0
26-Sep	190	19	0	5	0	0	8	0	0	0	0	0	1	0	0	2	0	0
27-Sep	78	37	0	8	0	0	4	1	0	0	0	0	0	0	0	1	0	0
28-Sep	55	28	0	6	1	0	1	6	0	0	0	0	0	0	0	1	1	0
29-Sep	63	64	0	9	4	0	6	10	0	0	0	0	3	0	0	0	4	0
30-Sep	116	27	8	22	2	0	13	13	10	1	0	0	1	0	0	5	0	0
01-Oct	165	13	45	15	4	1	7	13	3	0	0	0	4	1	1	13	0	1
02-Oct	141	0	83	30	2	7	12	0	36	1	0	0	7	0	3	12	0	1
03-Oct	110	9	75	8	6	8	4	3	29	0	0	0	9	0	2	5	1	5
04-Oct	162	23	65	29	2	7	8	0	2	0	0	0	15	0	0	4	2	0
05-Oct	161	18	130	17	3	24	14	2	0	0	0	2	14	0	1	13	1	0
06-Oct	171	42	85	30	0	26	12	1	0	1	0	0	16	0	0	37	1	0
07-Oct	197	72	62	32	11	6	41	13	0	0	0	0	14	1	1	31	1	0
08-Oct	95	108	19	29	27	0	25	11	0	0	0	0	11	0	0	17	2	0

09-Oct	121	114	3	20	39	1	15	20	0	0	0	0	12	0	0	15	4	0
10-Oct	232	150	4	33	95	2	9	54	0	0	0	0	14	1	0	18	10	0
11-Oct	377	64	45	90	51	0	23	28	0	0	0	0	21	7	1	32	2	0
12-Oct	388	97	104	69	51	4	46	23	0	0	0	0	24	1	2	44	1	1
Total	3345	925	867	480	298	87	260	201	80	3	0	2	170	11	12	254	30	8

Details of residue burning events in Punjab on 12-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	JANDIALA GURU	S-NPP	31.56180	75.01510	13:35:22	D	6.70
2	AMRITSAR	MAJITHA	S-NPP	31.73180	75.06470	13:35:22	D	2.80
3	AMRITSAR	MAJITHA	S-NPP	31.74280	75.11870	13:35:22	D	5.20
4	AMRITSAR	RAYYA	S-NPP	31.49930	75.21970	13:35:22	D	3.30
5	AMRITSAR	RAYYA	S-NPP	31.50260	75.21910	13:35:22	D	6.60
6	AMRITSAR	RAYYA	S-NPP	31.52000	75.19420	13:35:22	D	2.10
7	AMRITSAR	RAYYA	S-NPP	31.53040	75.14480	13:35:22	D	3.10
8	AMRITSAR	RAYYA	S-NPP	31.61510	75.22460	13:35:22	D	5.00
9	AMRITSAR	RAYYA	S-NPP	31.64130	75.28900	13:35:22	D	3.00
10	AMRITSAR	RAYYA	AQUA	31.60100	75.22600	13:40:47	D	5.20
11	AMRITSAR	TARSIKKA	S-NPP	31.59170	75.15550	13:35:22	D	5.90
12	AMRITSAR	TARSIKKA	S-NPP	31.61100	75.19510	13:35:22	D	1.60
13	AMRITSAR	TARSIKKA	S-NPP	31.66210	75.16370	13:35:22	D	3.80
14	AMRITSAR	TARSIKKA	S-NPP	31.66450	75.10720	13:35:22	D	5.00
15	AMRITSAR	TARSIKKA	S-NPP	31.67760	75.12630	13:35:22	D	4.60
16	AMRITSAR	TARSIKKA	S-NPP	31.67820	75.12670	13:35:22	D	5.30
17	AMRITSAR	TARSIKKA	AQUA	31.58600	75.13000	13:40:47	D	6.00
18	BARNALA	BARNALA	S-NPP	30.31300	75.48390	13:35:22	D	6.30
19	BARNALA	BARNALA	S-NPP	30.33500	75.53580	13:35:22	D	2.60
20	BARNALA	BARNALA	AQUA	30.30800	75.47500	13:40:47	D	4.30
21	FARIDKOT	FARIDKOT	S-NPP	30.73600	74.66290	13:35:22	D	4.00
22	FARIDKOT	FARIDKOT	S-NPP	30.73660	74.66690	13:35:22	D	4.00
23	FARIDKOT	FARIDKOT	AQUA	30.73400	74.66100	13:40:47	D	7.60

24	FAZILKA	JALALABAD	S-NPP	30.46780	74.24370	13:35:22	D	1.50
25	FIROZPUR	FIROZPUR	S-NPP	30.96290	74.55790	13:35:22	D	2.20
26	FIROZPUR	FIROZPUR	S-NPP	30.97460	74.56810	13:35:22	D	2.40
27	FIROZPUR	FIROZPUR	S-NPP	30.97620	74.55530	13:35:22	D	30.90
28	FIROZPUR	FIROZPUR	S-NPP	31.00750	74.72470	13:35:22	D	2.90
29	FIROZPUR	FIROZPUR	AQUA	30.92600	74.52500	13:40:47	D	6.80
30	FIROZPUR	FIROZPUR	AQUA	30.92800	74.53600	13:40:47	D	10.90
31	FIROZPUR	GHALL KHURD	S-NPP	30.88520	74.81510	13:35:22	D	3.00
32	FIROZPUR	GHALL KHURD	S-NPP	30.88850	74.81450	13:35:22	D	3.00
33	FIROZPUR	GURUHAR SAHAI	S-NPP	30.76650	74.43710	13:35:22	D	3.80
34	FIROZPUR	MAMDOT	S-NPP	30.80070	74.32270	13:35:22	D	2.10
35	GURDASPUR	BATALA	S-NPP	31.71420	75.23680	13:35:22	D	5.90
36	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.80750	75.12890	13:35:22	D	5.70
37	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.82050	75.14800	13:35:22	D	3.80
38	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.83680	75.14060	13:35:22	D	2.70
39	GURDASPUR	FATEHGARH CHURIAN	AQUA	31.80700	75.13100	13:40:47	D	7.40
40	GURDASPUR	GURDASPUR	S-NPP	32.03280	75.37610	13:35:22	D	2.40
41	GURDASPUR	KALANAUR	S-NPP	31.97560	75.18960	13:35:22	D	2.10
42	GURDASPUR	KALANAUR	S-NPP	32.00240	75.23250	13:35:22	D	2.40
43	GURDASPUR	KALANAUR	S-NPP	32.03730	75.20510	13:35:22	D	2.80
44	GURDASPUR	KALANAUR	AQUA	31.99800	75.23200	13:40:47	D	4.20
45	GURDASPUR	QADIAN	S-NPP	31.77440	75.32120	13:35:22	D	2.40
46	GURDASPUR	QADIAN	S-NPP	31.79610	75.35210	13:35:22	D	2.30
47	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.63730	75.38570	13:35:22	D	6.50
48	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.70890	75.35040	13:35:22	D	3.60
49	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.70900	75.35100	13:35:22	D	3.30
50	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.73140	75.31190	13:35:22	D	2.70
51	JALANDHAR	ADAMPUR	S-NPP	31.38600	75.68800	13:35:22	D	2.40
52	JALANDHAR	BHOGPUR	AQUA	31.48300	75.60400	13:40:47	D	13.30
53	JALANDHAR	JALANDHAR WEST	S-NPP	31.46090	75.54750	13:35:22	D	2.40
54	JALANDHAR	JALANDHAR WEST	AQUA	31.47300	75.54000	13:40:47	D	5.00
55	JALANDHAR	LOHIAN	S-NPP	31.09650	75.18120	13:35:22	D	3.20
56	JALANDHAR	SHAHKOT	S-NPP	31.10780	75.28610	13:35:22	D	4.10

57	JALANDHAR	SHAHKOT	S-NPP	31.10940	75.27290	13:35:22	D	2.30
58	KAPURTHALA	DHILWAN	S-NPP	31.39400	75.21240	13:35:22	D	4.30
59	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.22810	75.29850	13:35:22	D	1.40
60	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.26950	75.14520	13:35:22	D	10.60
61	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.27600	75.21680	13:35:22	D	2.80
62	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.28290	75.14260	13:35:22	D	3.30
63	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.28630	75.14200	13:35:22	D	3.30
64	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.31630	75.18340	13:35:22	D	3.20
65	KAPURTHALA	SULTANPUR LODHI	AQUA	31.21700	75.13300	13:40:47	D	4.50
66	KAPURTHALA	SULTANPUR LODHI	AQUA	31.31500	75.17300	13:40:47	D	4.00
67	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.95790	75.35660	13:35:22	D	4.20
68	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	31.00830	75.29570	13:35:22	D	3.00
69	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	31.08630	75.15750	13:35:22	D	6.10
70	MOGA	KOT ISE KHAN AT DHARAMKOT	AQUA	30.95400	75.35200	13:40:47	D	10.80
71	MOGA	KOT ISE KHAN AT DHARAMKOT	AQUA	31.00900	75.29000	13:40:47	D	17.90
72	MOGA	MOGA-1	AQUA	30.70900	75.20600	13:40:47	D	5.80
73	MOGA	NIHAL SINGH	S-NPP	30.63820	75.36240	13:35:22	D	2.20
74	TARN TARAN	BHIKHIWIND	S-NPP	31.27170	74.72450	13:35:22	D	2.60
75	TARN TARAN	CHOHLA SAHIB	S-NPP	31.25270	75.05010	13:35:22	D	2.40
76	TARN TARAN	CHOHLA SAHIB	S-NPP	31.25710	75.03220	13:35:22	D	3.00
77	TARN TARAN	CHOHLA SAHIB	S-NPP	31.33350	75.06030	13:35:22	D	6.10
78	TARN TARAN	CHOHLA SAHIB	S-NPP	31.35610	75.03960	13:35:22	D	10.30
79	TARN TARAN	KHADUR SAHIB	S-NPP	31.40090	75.13800	13:35:22	D	3.60
80	TARN TARAN	KHADUR SAHIB	S-NPP	31.40420	75.13740	13:35:22	D	4.90
81	TARN TARAN	KHADUR SAHIB	S-NPP	31.41050	75.15770	13:35:22	D	7.40
82	TARN TARAN	KHADUR SAHIB	S-NPP	31.41180	75.09310	13:35:22	D	3.80
83	TARN TARAN	KHADUR SAHIB	S-NPP	31.41520	75.09240	13:35:22	D	3.80
84	TARN TARAN	KHADUR SAHIB	S-NPP	31.41890	75.14320	13:35:22	D	2.90
85	TARN TARAN	KHADUR SAHIB	S-NPP	31.45640	75.21350	13:35:22	D	3.70
86	TARN TARAN	KHADUR SAHIB	S-NPP	31.45920	75.20870	13:35:22	D	9.30
87	TARN TARAN	KHADUR SAHIB	S-NPP	31.46810	75.04510	13:35:22	D	3.70
88	TARN TARAN	KHADUR SAHIB	S-NPP	31.46910	75.18090	13:35:22	D	28.80
89	TARN TARAN	KHADUR SAHIB	S-NPP	31.47420	75.13830	13:35:22	D	3.00

90	TARN TARAN	KHADUR SAHIB	S-NPP	31.49390	75.15610	13:35:22	D	2.40
91	TARN TARAN	KHADUR SAHIB	S-NPP	31.50910	75.16610	13:35:22	D	2.40
92	TARN TARAN	KHADUR SAHIB	AQUA	31.45800	75.20800	13:40:47	D	6.70
93	TARN TARAN	KHADUR SAHIB	AQUA	31.52000	75.18800	13:40:47	D	6.60
94	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.32520	74.91780	13:35:22	D	1.90
95	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.33410	74.99190	13:35:22	D	2.90
96	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.33560	74.99230	13:35:22	D	4.00
97	TARN TARAN	TARN TARAN	S-NPP	31.48430	74.86710	13:35:22	D	3.60
98	TARN TARAN	TARN TARAN	S-NPP	31.51450	75.03190	13:35:22	D	3.70
99	TARN TARAN	TARN TARAN	AQUA	31.46200	74.87100	13:40:47	D	5.80
100	TARN TARAN	TARN TARAN	AQUA	31.51500	75.03300	13:40:47	D	10.00
101	TARN TARAN	VALTOHA	S-NPP	31.20290	74.53230	13:35:22	D	2.10
102	TARN TARAN	VALTOHA	S-NPP	31.24970	74.61950	13:35:22	D	2.50
103	TARN TARAN	VALTOHA	S-NPP	31.29250	74.61590	13:35:22	D	2.00
104	TARN TARAN	VALTOHA	AQUA	31.24400	74.61600	13:40:47	D	12.00

Details of residue burning events in Haryana on 12-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	HISAR	BARWALA	S-NPP	29.43900	76.05970	13:35:22	D	2.20
2	KURUKSHETRA	ISMAILABAD	S-NPP	30.06770	76.62380	13:35:22	D	1.90
3	KURUKSHETRA	PEHOWA	S-NPP	30.00160	76.69760	13:35:22	D	1.80
4	SIRSA	BARAGUNDA	S-NPP	29.76840	75.22560	13:35:22	D	5.90

Details of residue burning events in Rajasthan on 12-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	CHITTAURGARH	NIMBAHERA	S-NPP	24.69010	74.68040	02:26:05	N	1.00
2	GANGANAGAR	GANGANAGAR	S-NPP	29.98890	73.81400	13:35:22	D	1.60

Details of residue burning events in Madhya Pradesh on 12-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	VIDESHA	SIRANJ	S-NPP	24.14790	77.88930	13:35:22	D	2.50

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**

Study Team

ICAR - IARI	Dr V.K. Sehgal	Principal & Nodal Scientist	iaricreams@gmail.com
	Dr Rajkumar Dhakar	Scientist	rajdhakar.iari@gmail.com
	Mr Mohd Jahangir	Lab Assistant (KRISHI)	mjahangir198@gmail.com
ICAR - ATARI	Dr Rajbir Singh	Director ATARI (Zone-I) Ludhiana	rajbirsingh.zpd@gmail.com
	Dr S.K. Singh	Director ATARI (Zone-II) Jodhpur	sushilsinghiipr@yahoo.co.in
	Dr Atar Singh	Director ATARI (Zone-III) Kanpur	zpdicarkanpur@gmail.com
ICAR - IASRI	Dr Rajender Parsad	Director	rajender.parsad@icar.gov.in

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)

and on IARI CREAMS website (<http://creams.iari.res.in/cms2/index.php>)
