

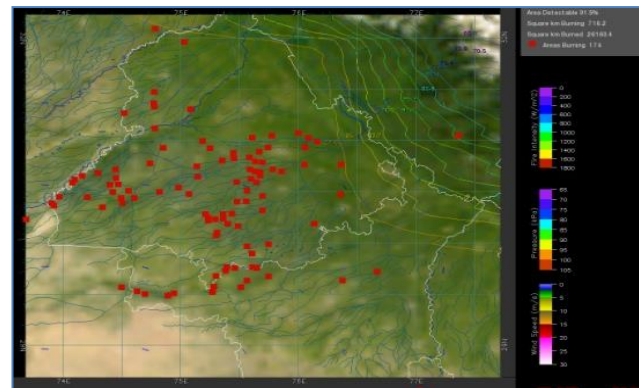
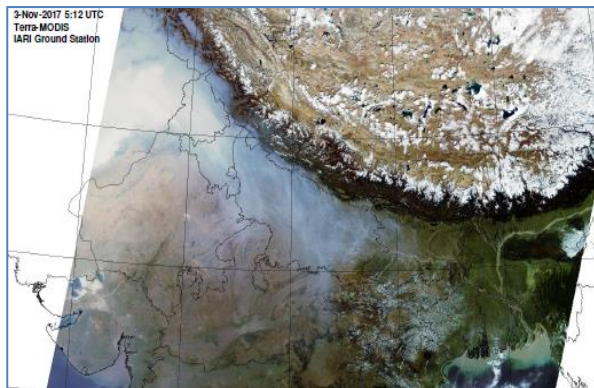


MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2022

**Bulletin
No. 29**

**Events Date:
13-Oct-2022**

**Issued on:
13-Oct-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**

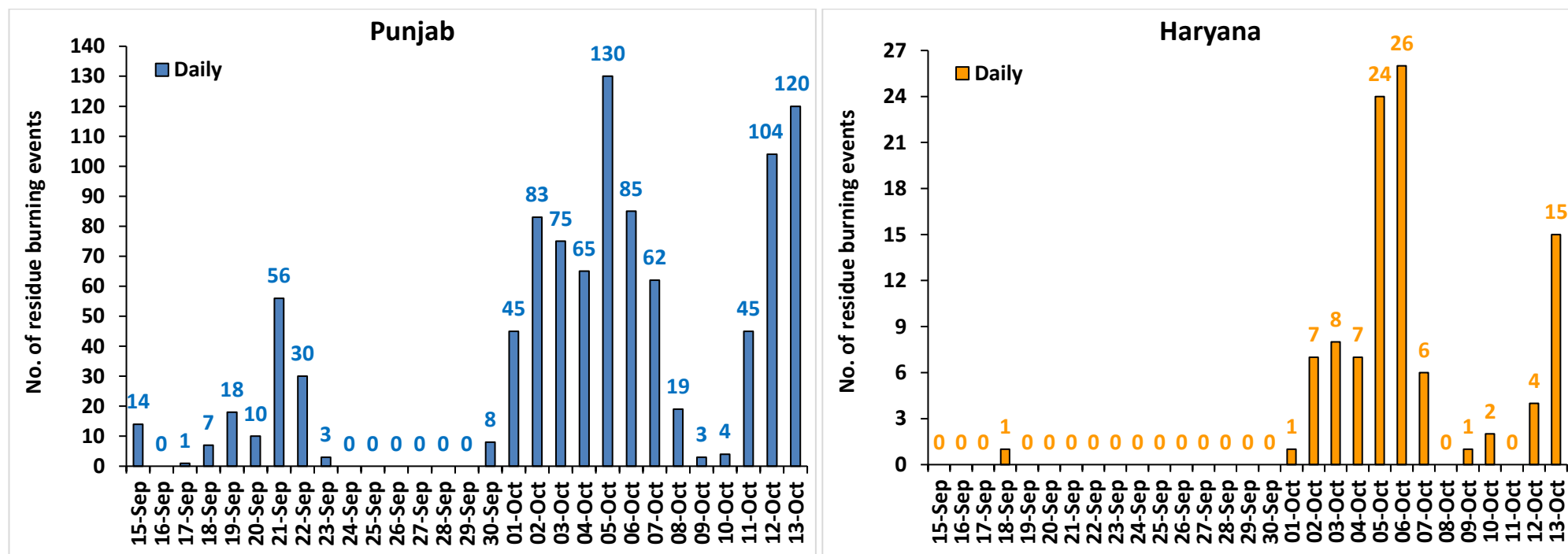
<http://creams.iari.res.in>

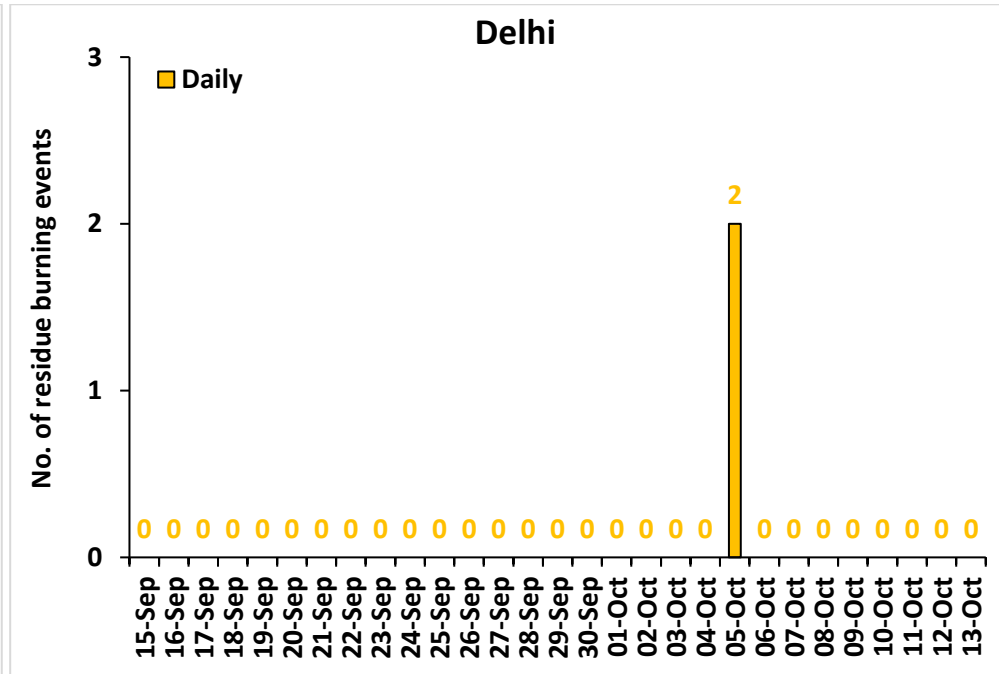
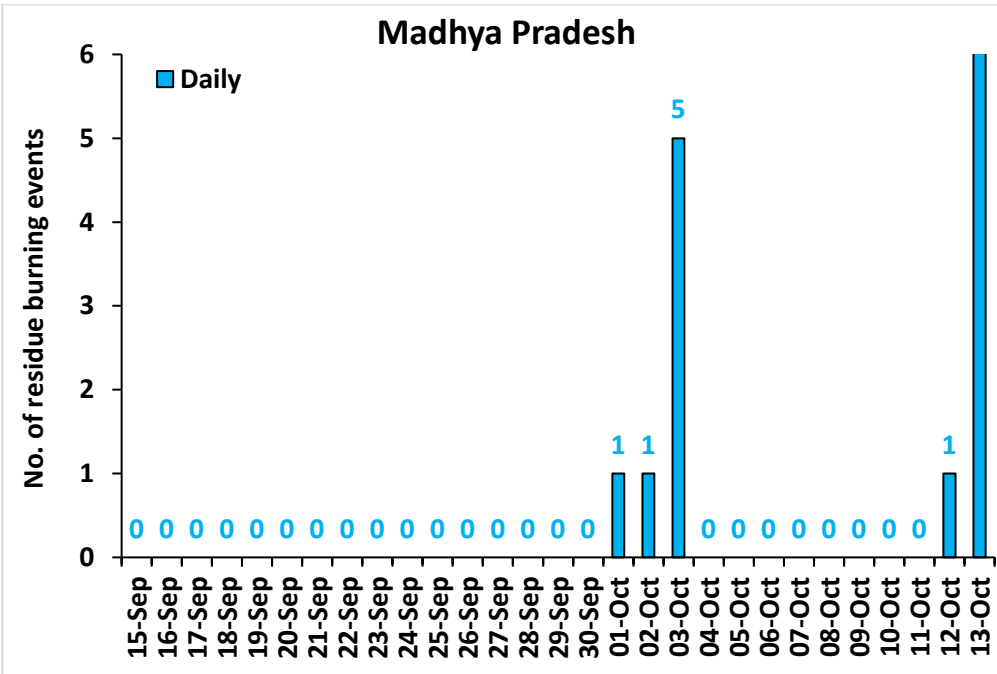
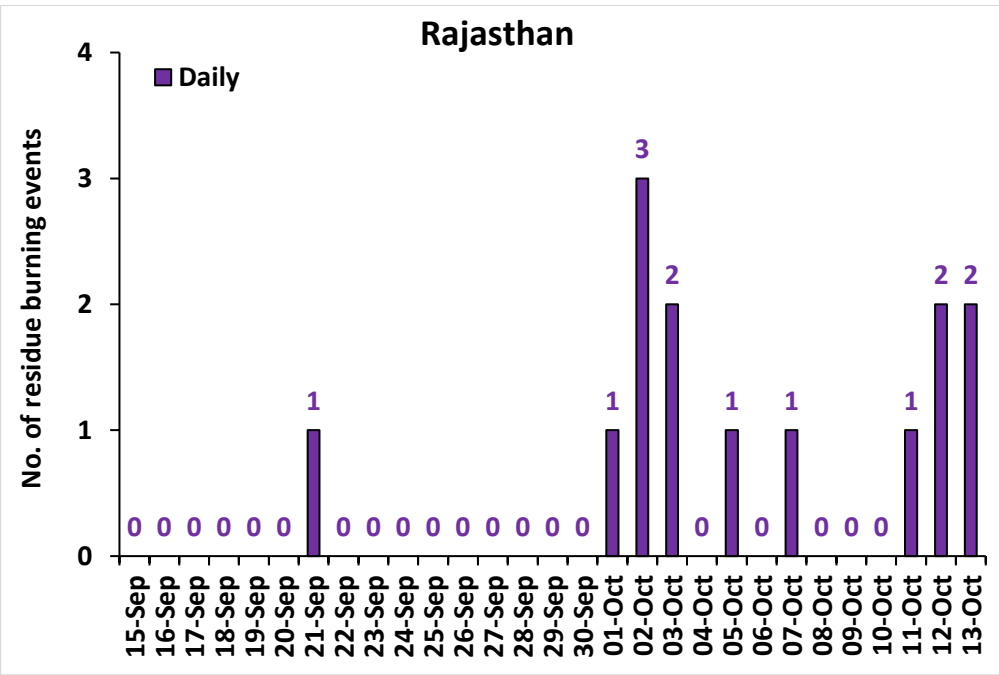
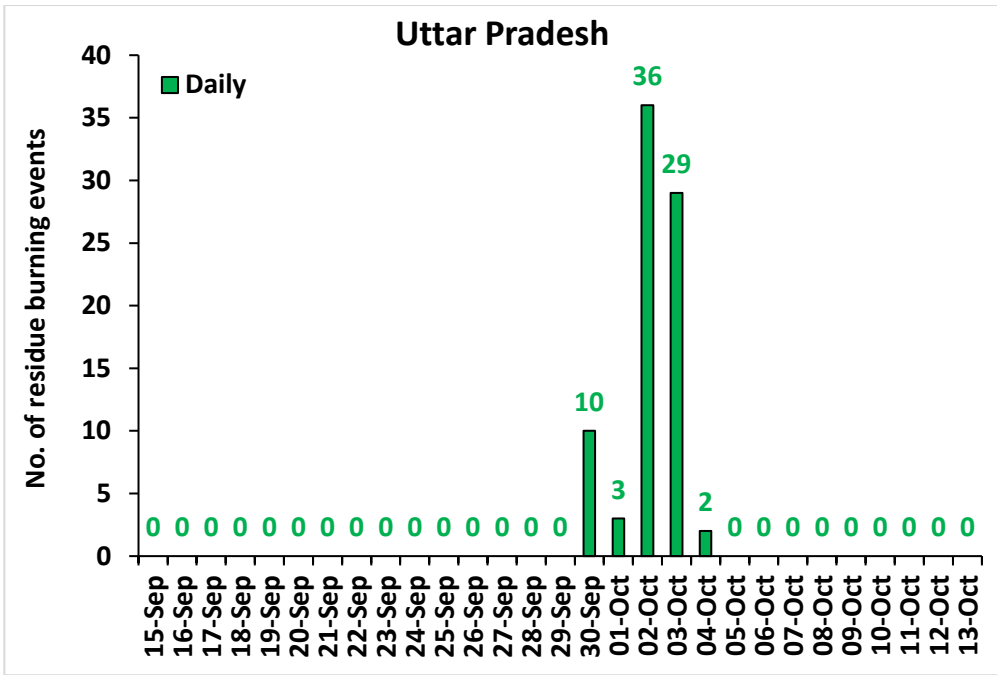


Highlights for 13-Oct-2022

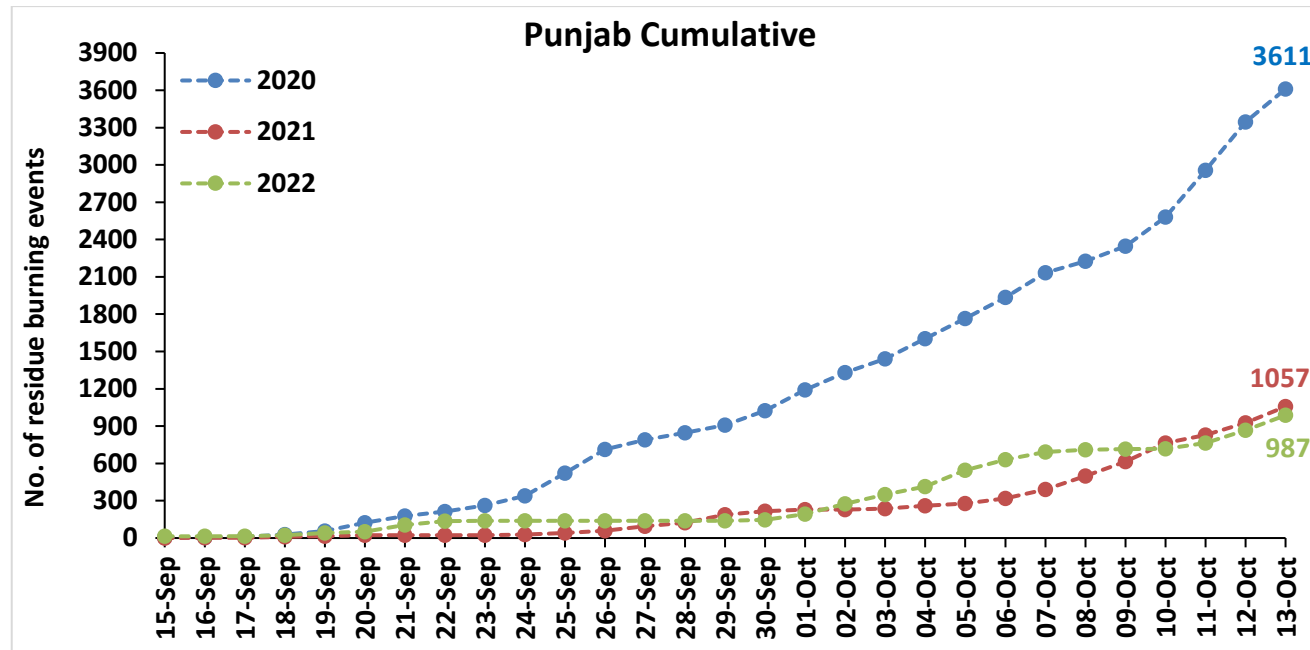
- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **144** residue burning events in the six study States on 13-Oct-2022.
- The state wise events detected on 13-Oct-2022 were **120** in Punjab, **15** in Haryana, **0** in UP, **0** in Delhi, **2** in Rajasthan and **7** in MP.
- Total **1200** burning events were detected in the six states between 15-Sept-2022 and 13-Oct-2022, which are distributed as **987**, **102**, **80**, **2**, **14** and **15** 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.

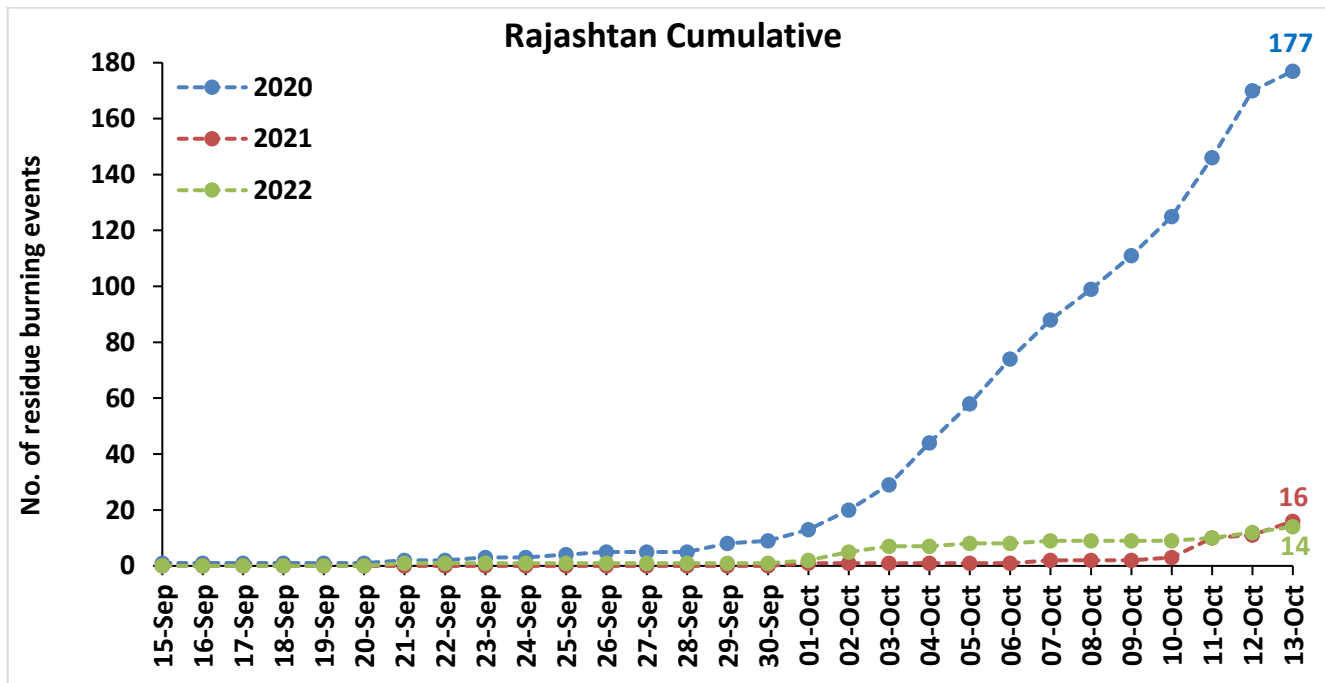
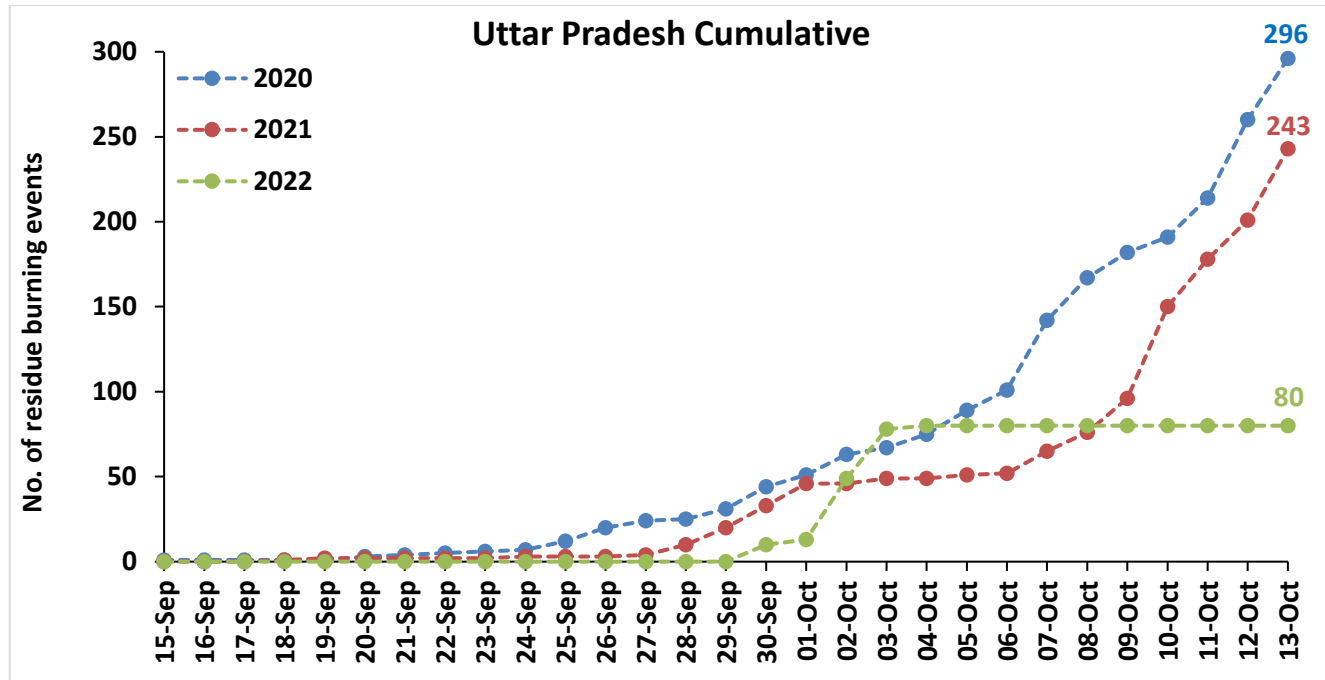
Temporal distribution of rice residue burning events for the study States in 2022

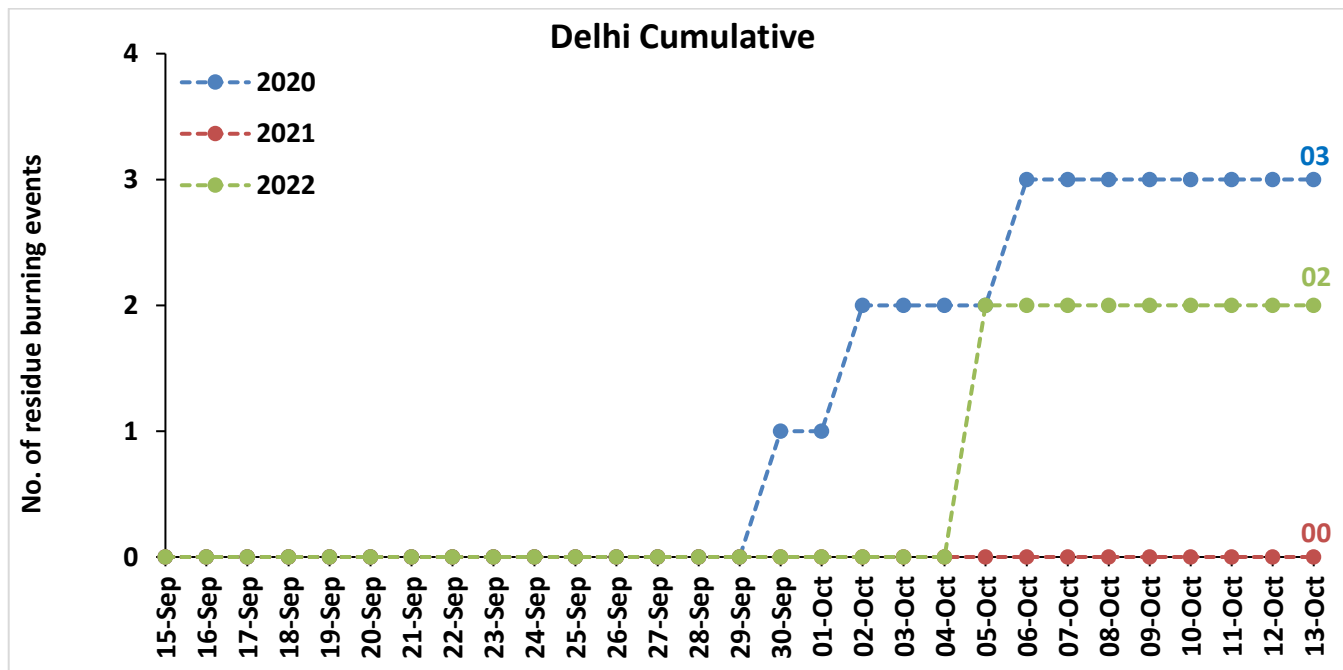
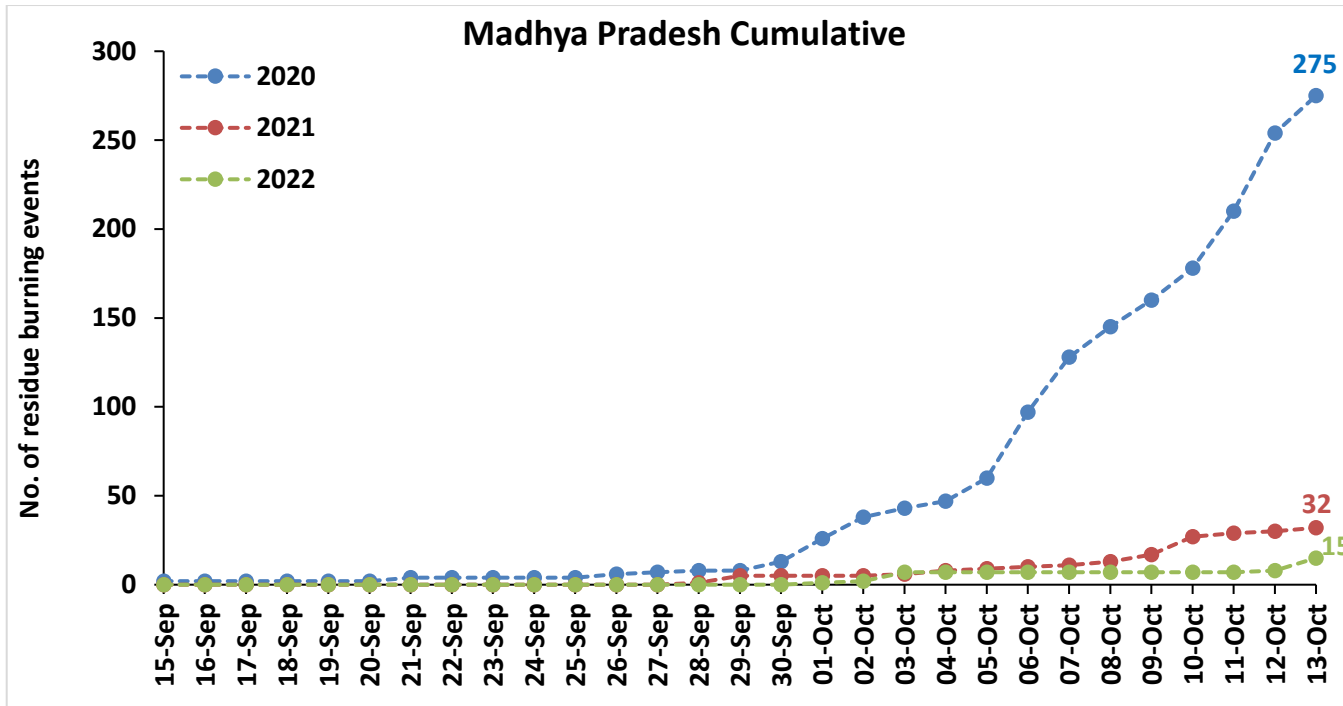




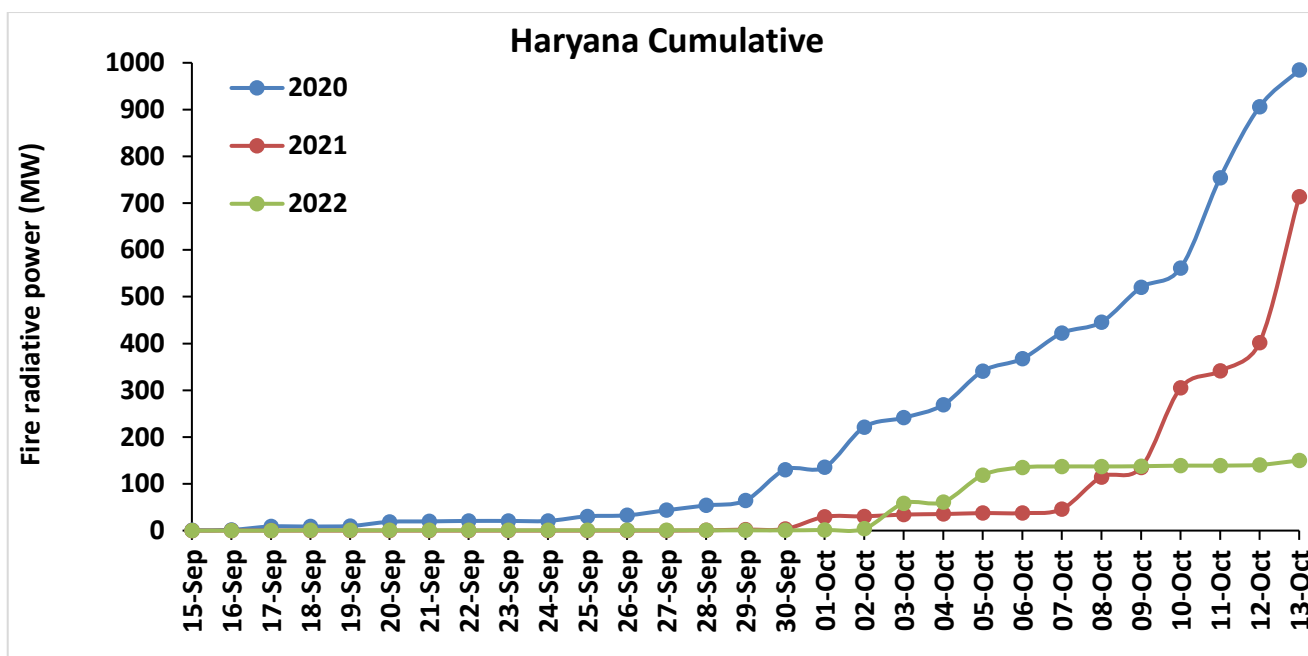
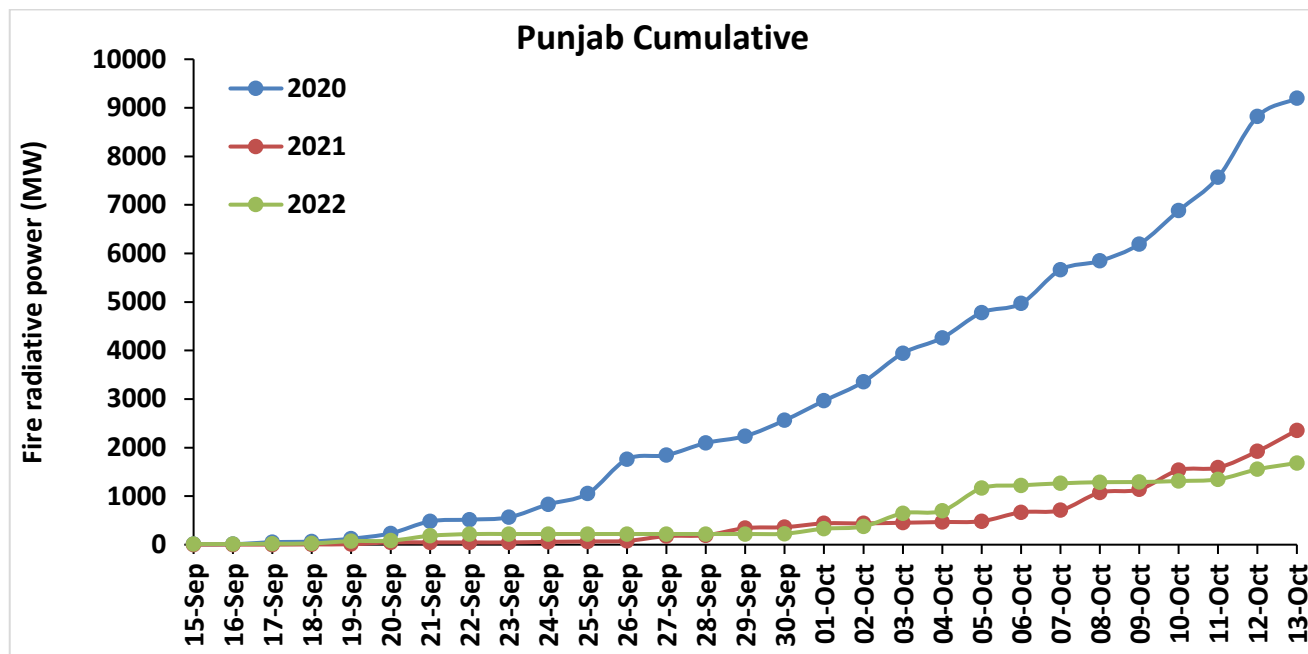
Comparison of residue burning events in current year (2022) with previous years (2020 and 2021) for the study States

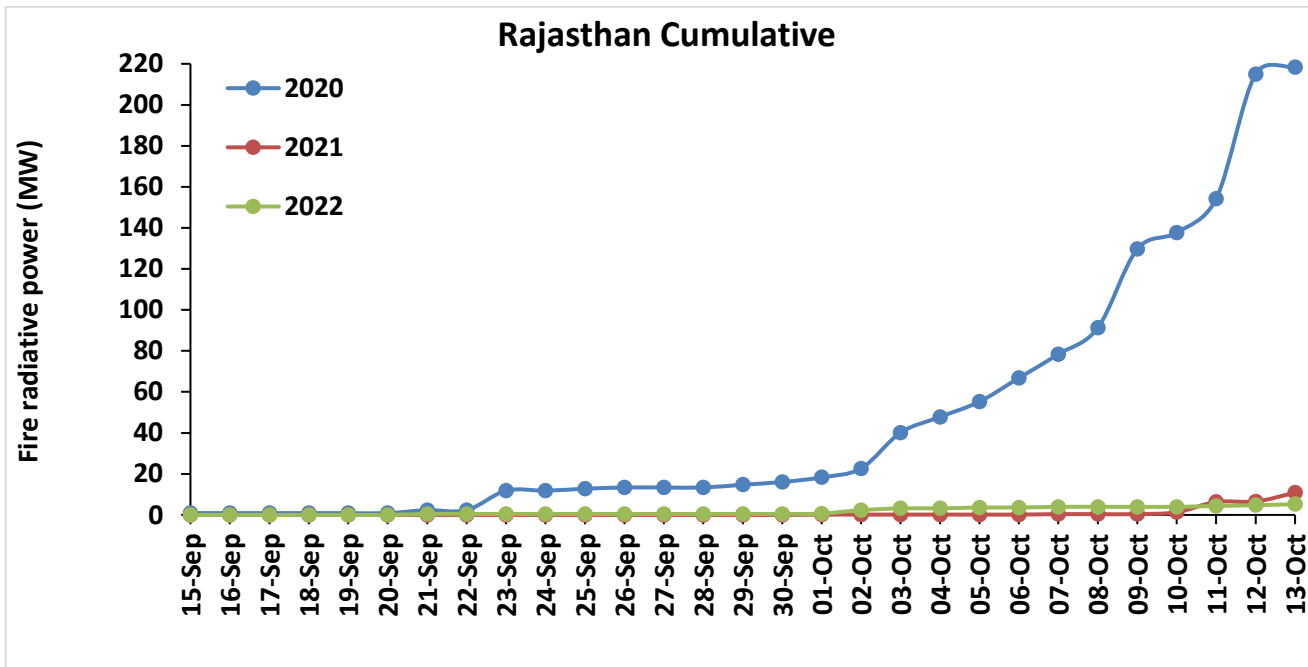
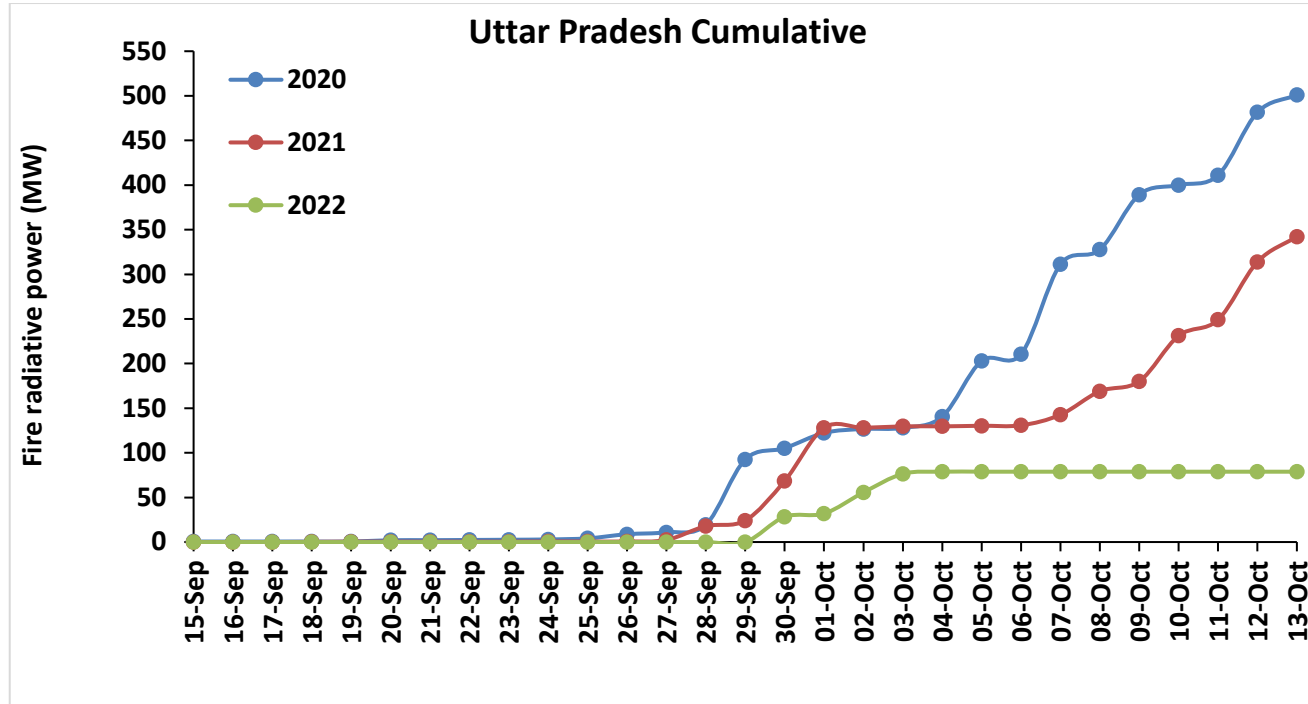


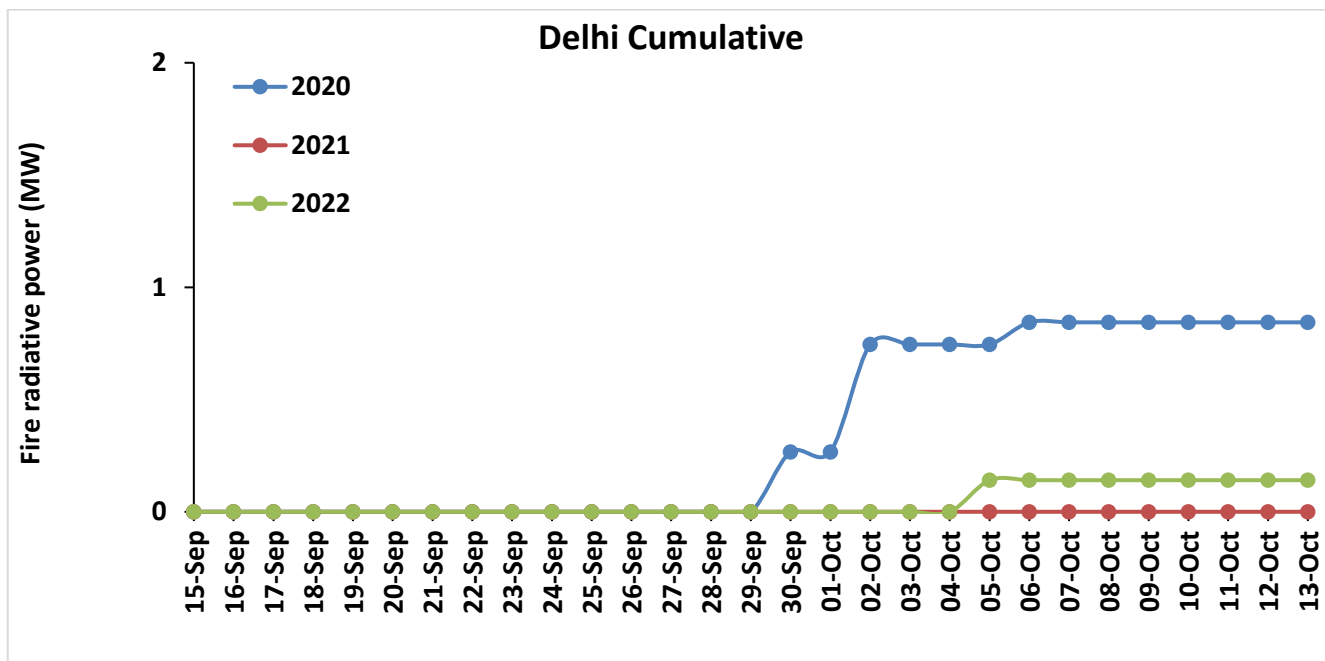
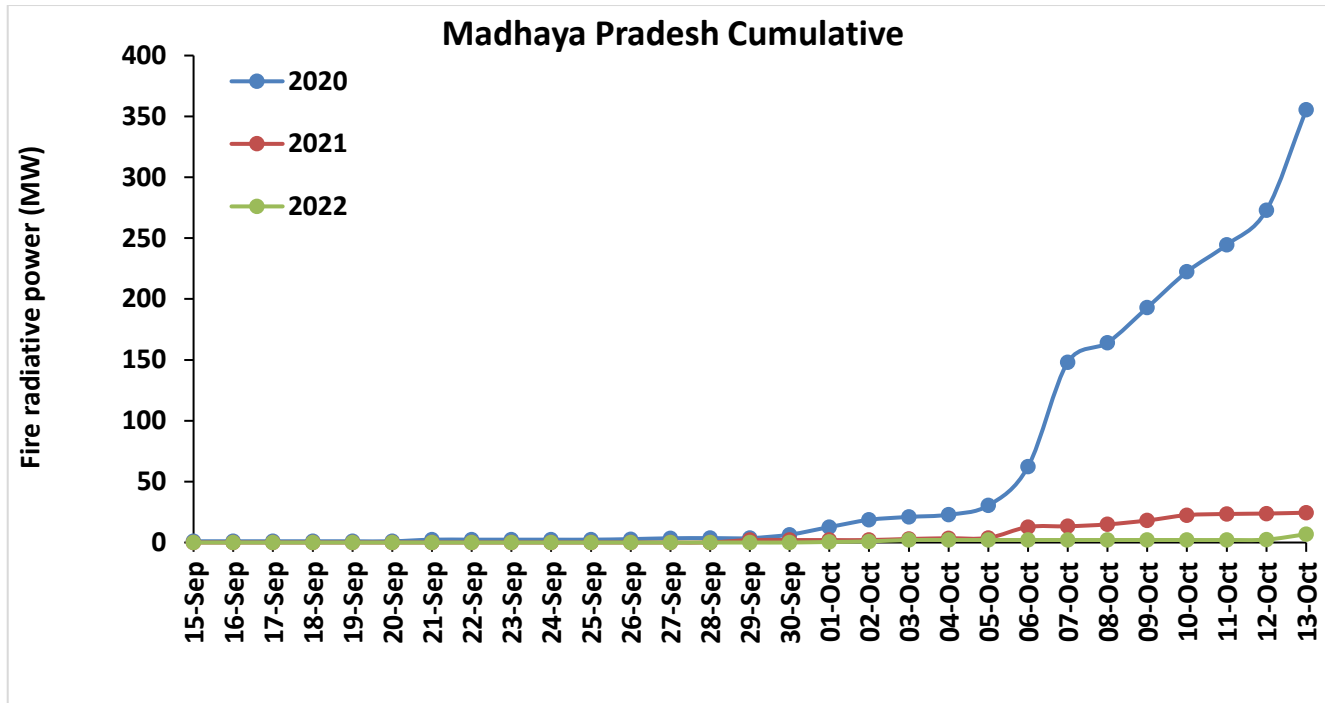




Comparison of residue burning fire power in current year (2022) with previous years (2021 and 2020) for the study States

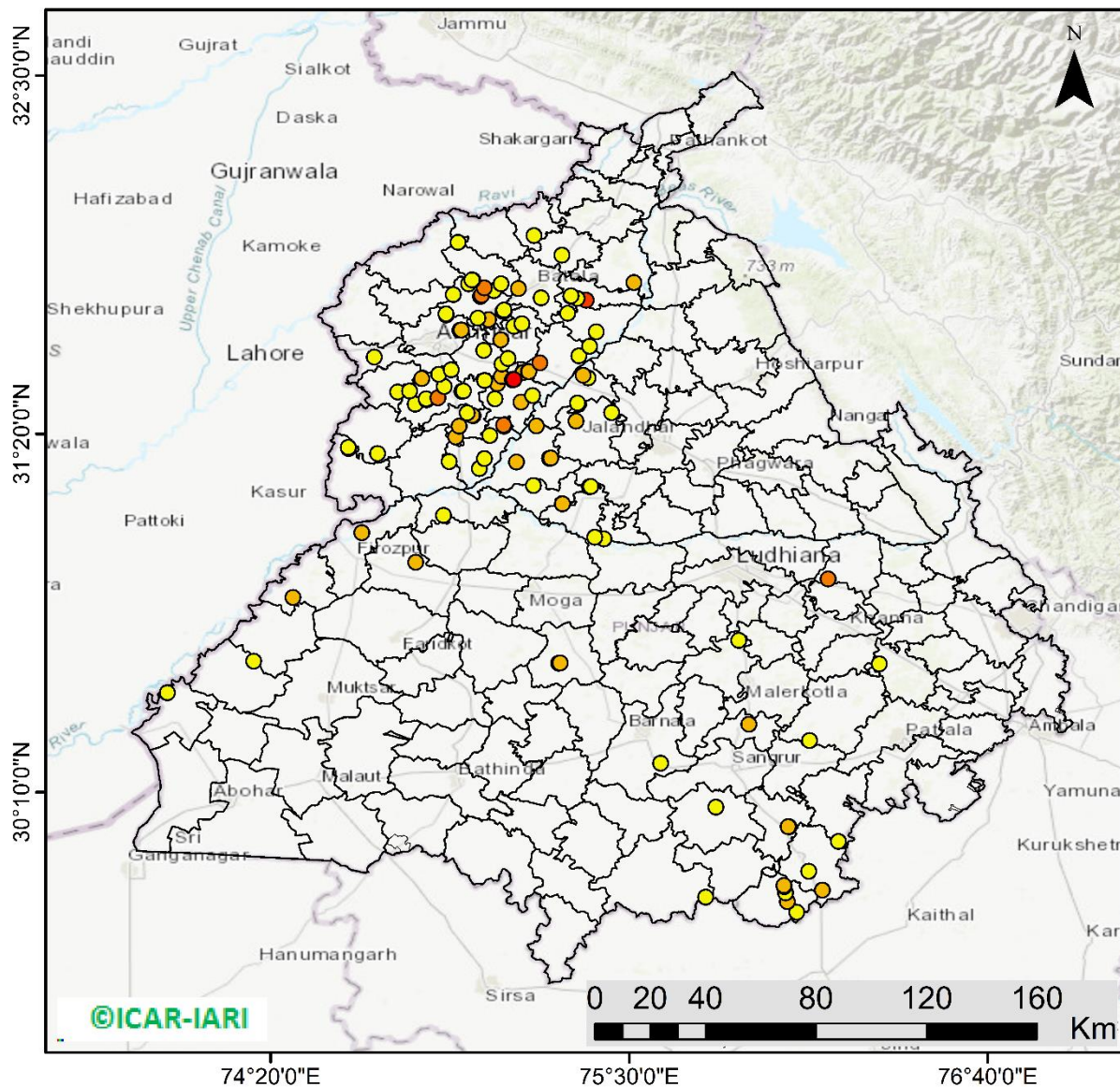






Punjab

RICE RESIDUE BURNING IN PUNJAB



120 burning events detected in Punjab during (13th Oct 2022)

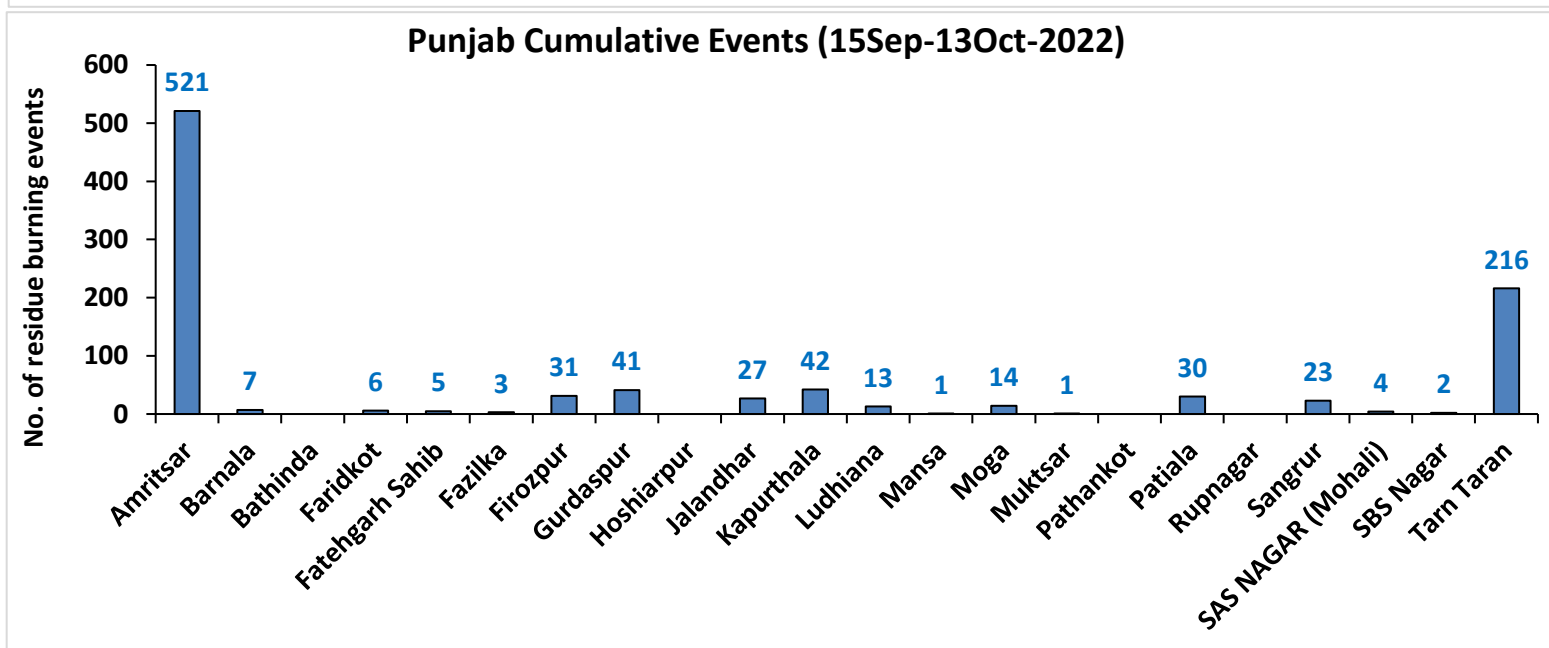
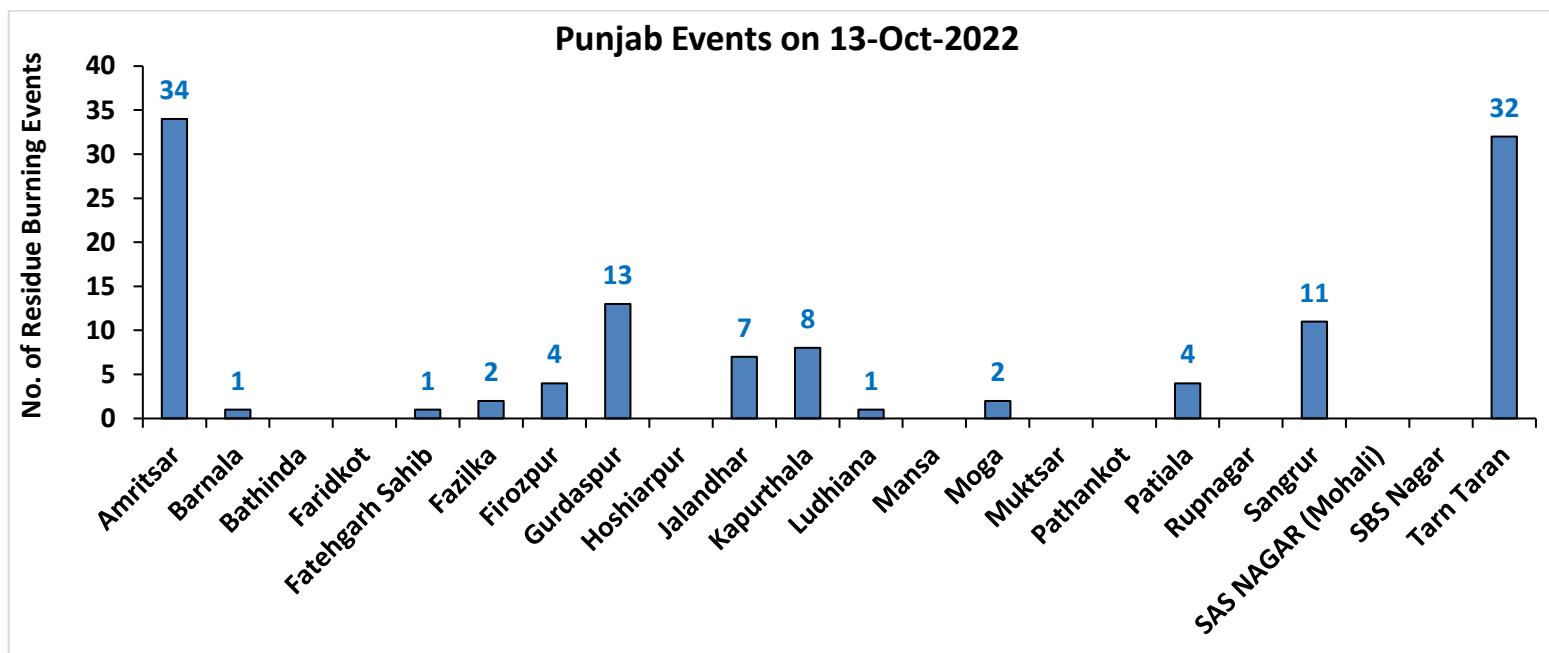
Fire Intensity (W/m²)

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



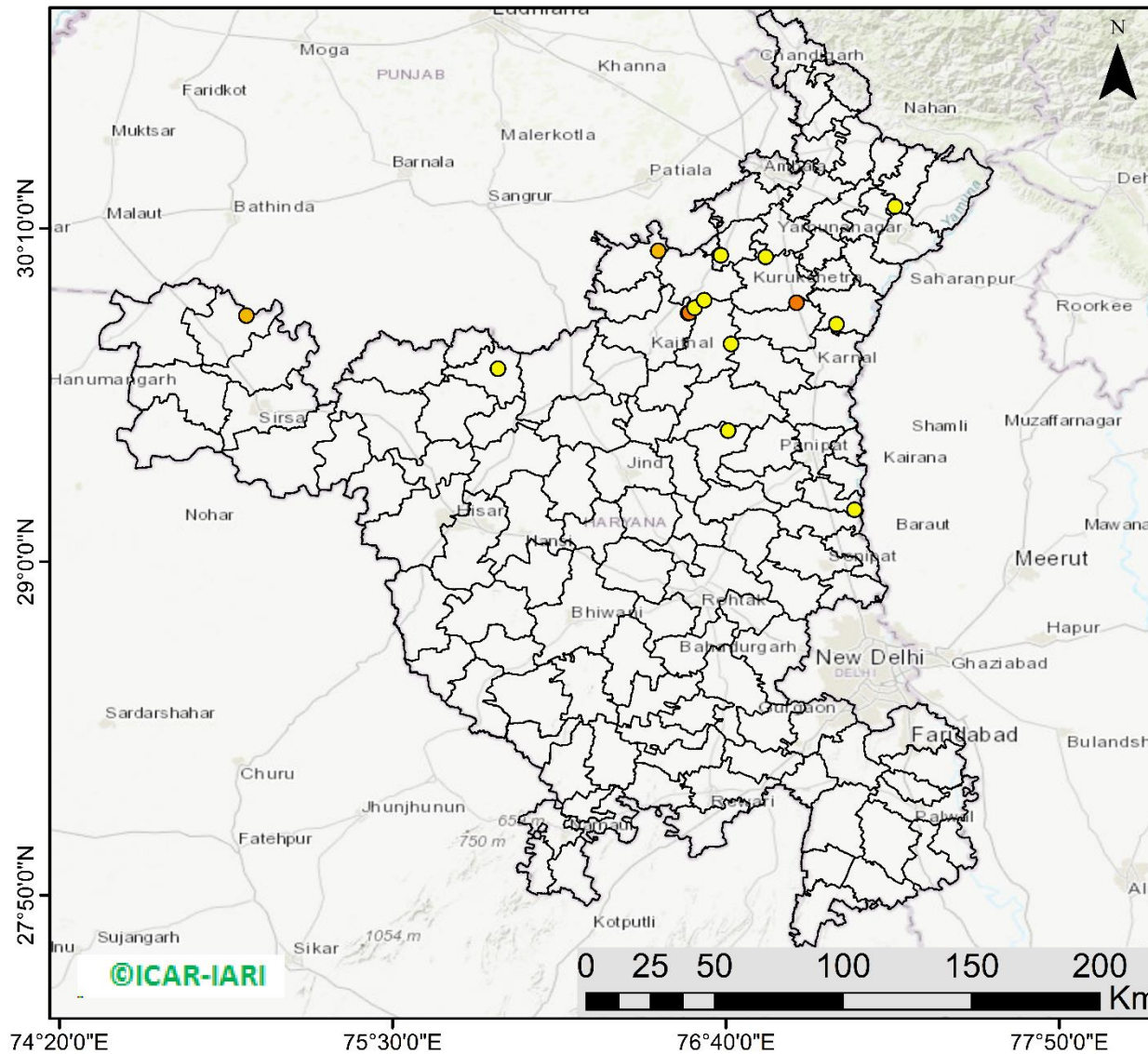
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15Sep- 13Oct-2022)



Haryana

RICE RESIDUE BURNING IN HARYANA



15 burning events detected in Haryana on (13th Oct 2022)

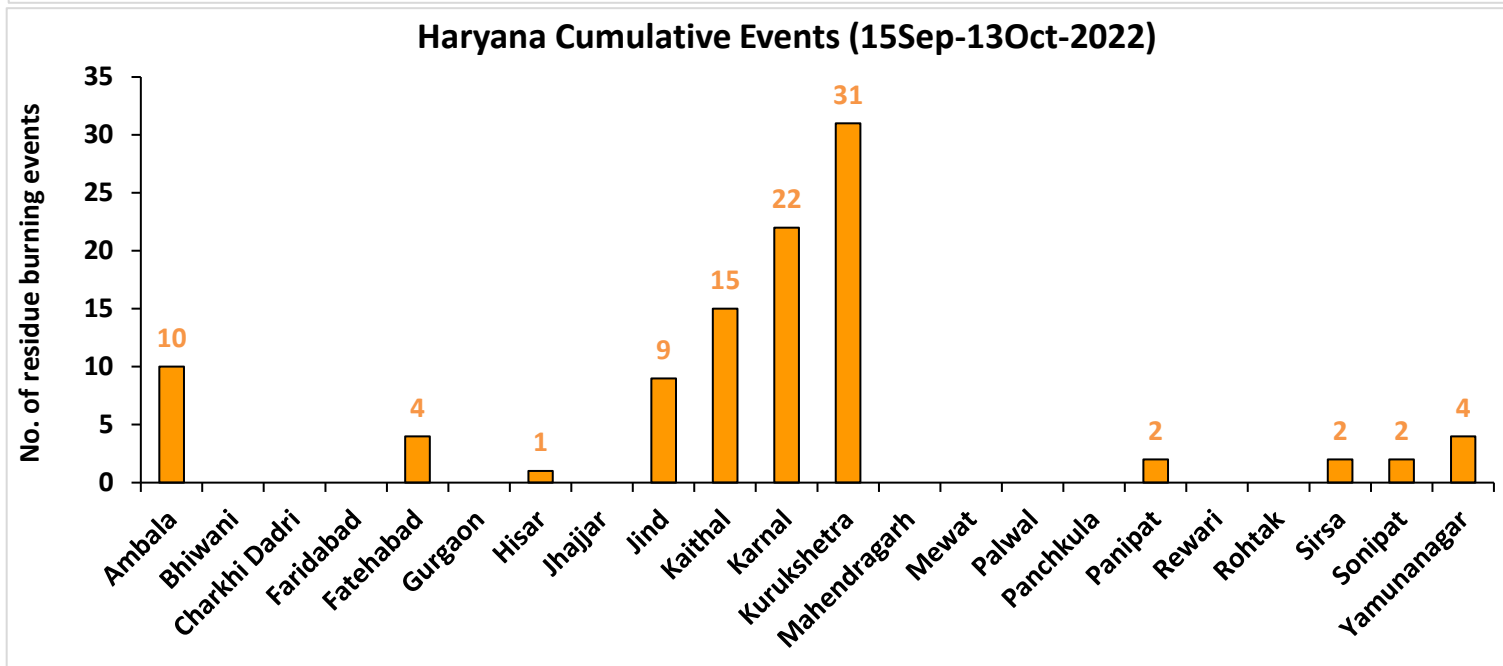
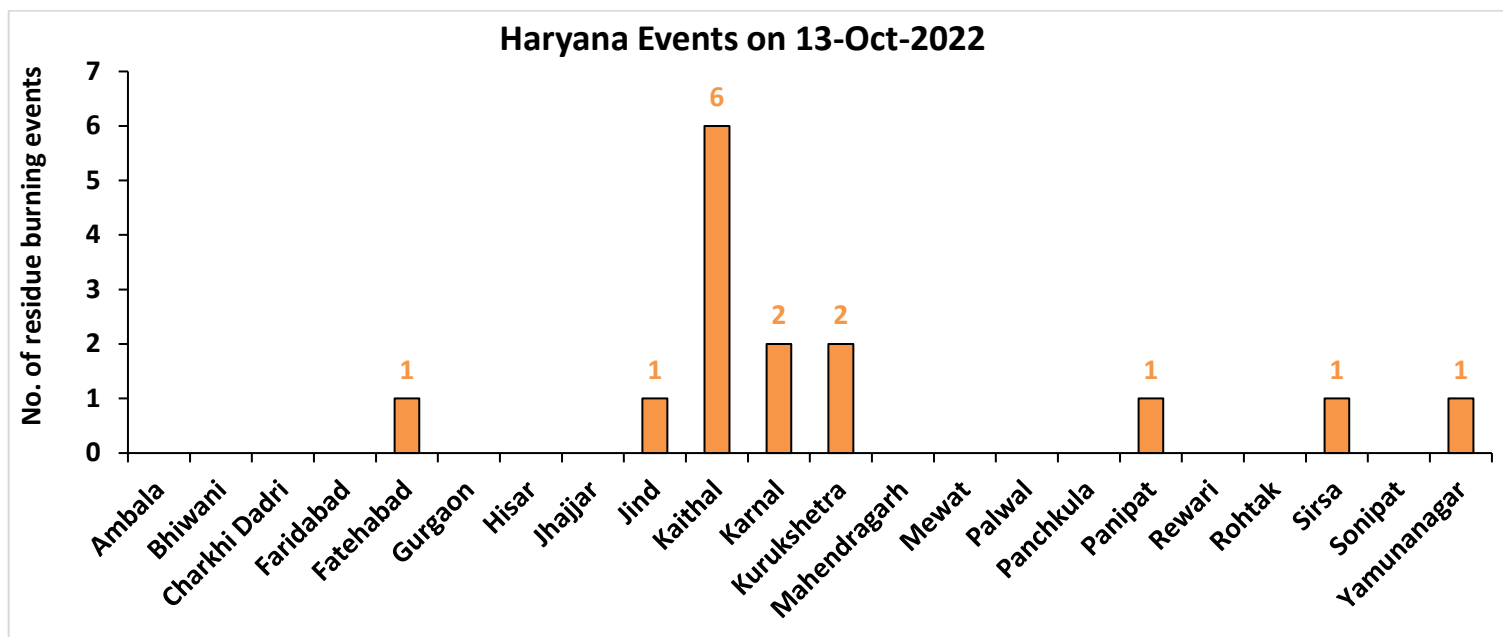
Fire Intensity (W/m²)

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



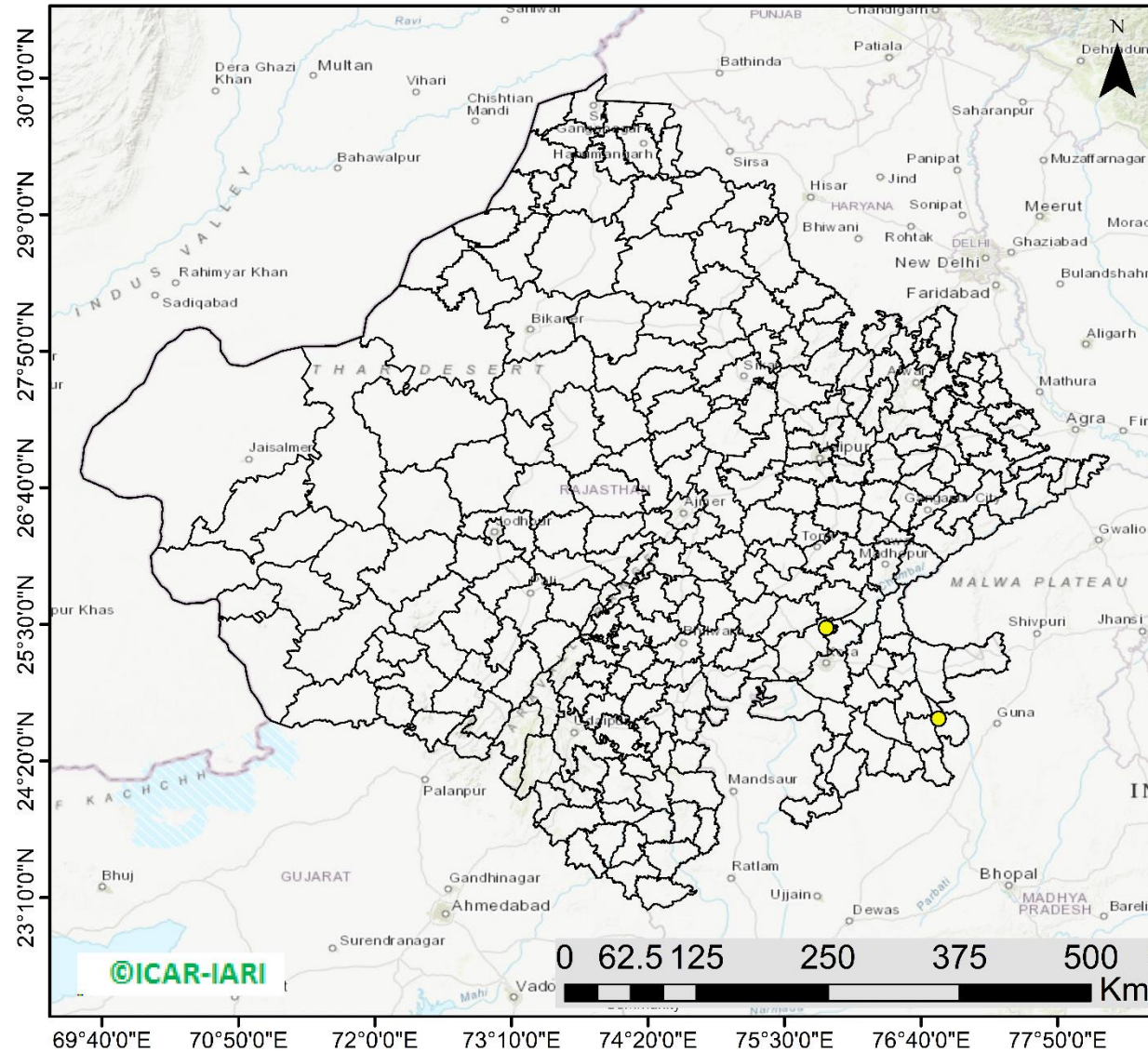
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15Sep- 13Oct-2022)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



02 burning events detected in Rajasthan on (13th Oct 2022)

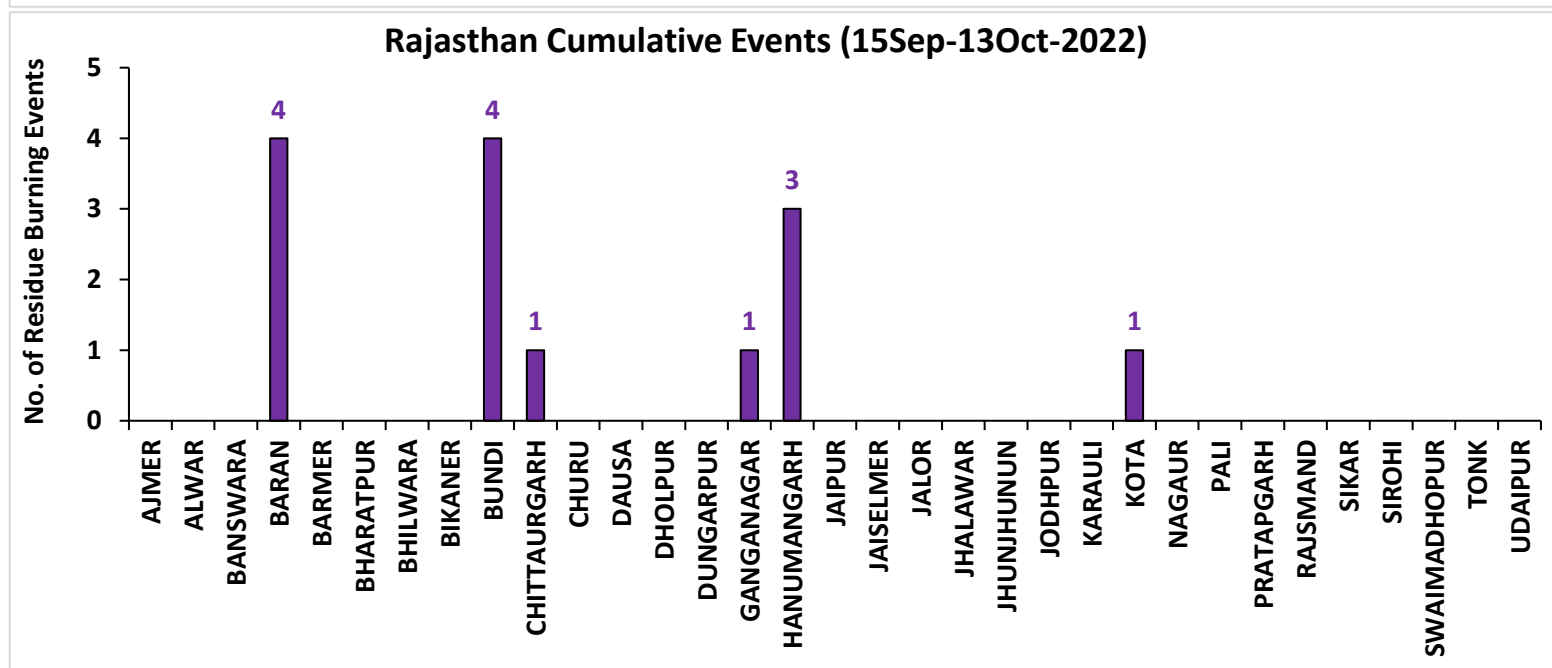
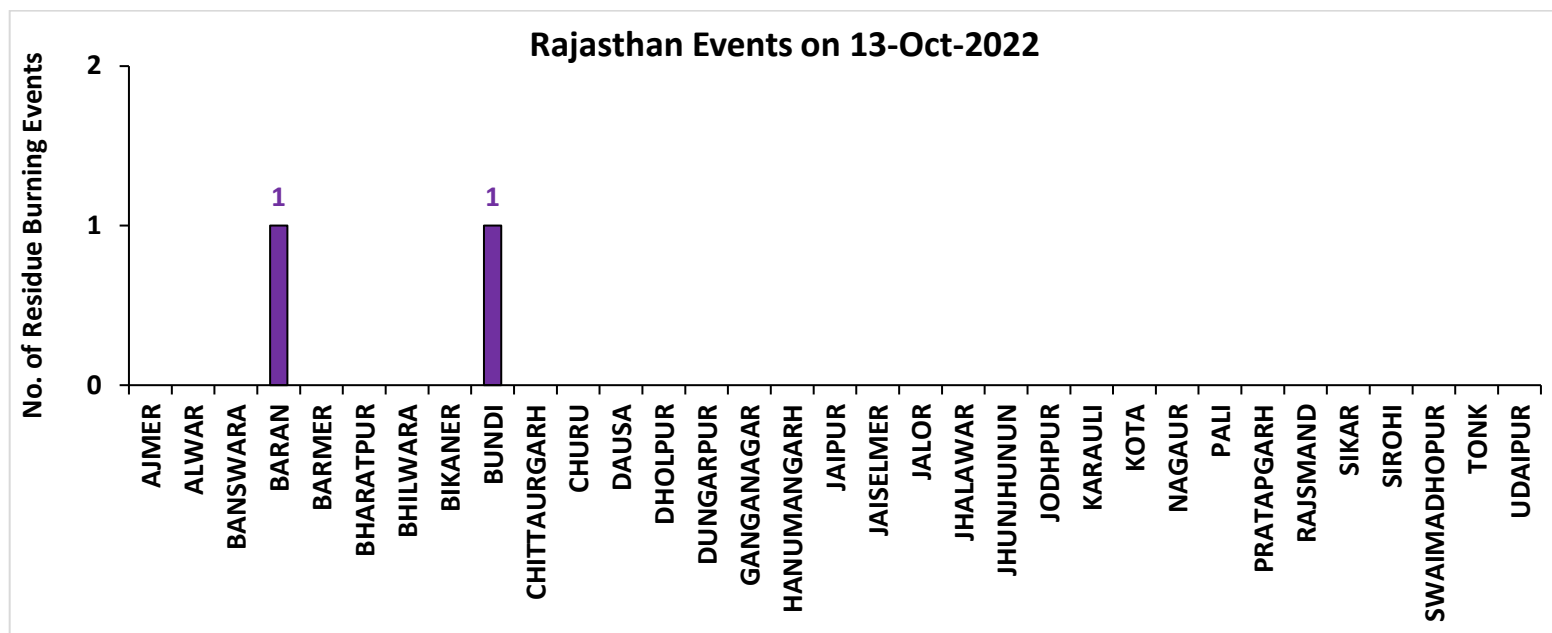
Fire Intensity (W/m²)

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



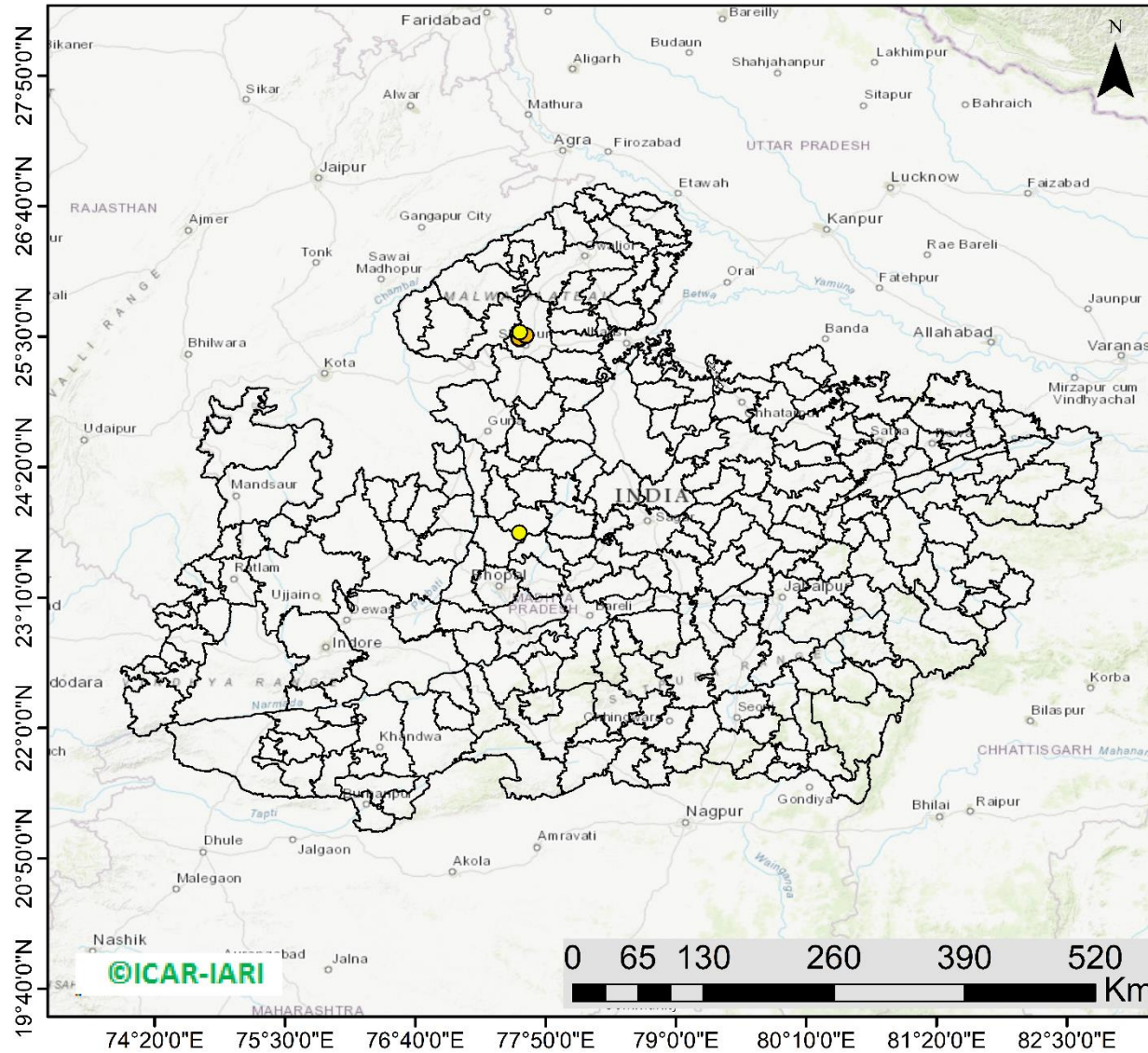
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15Sep- 13Oct -2022)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



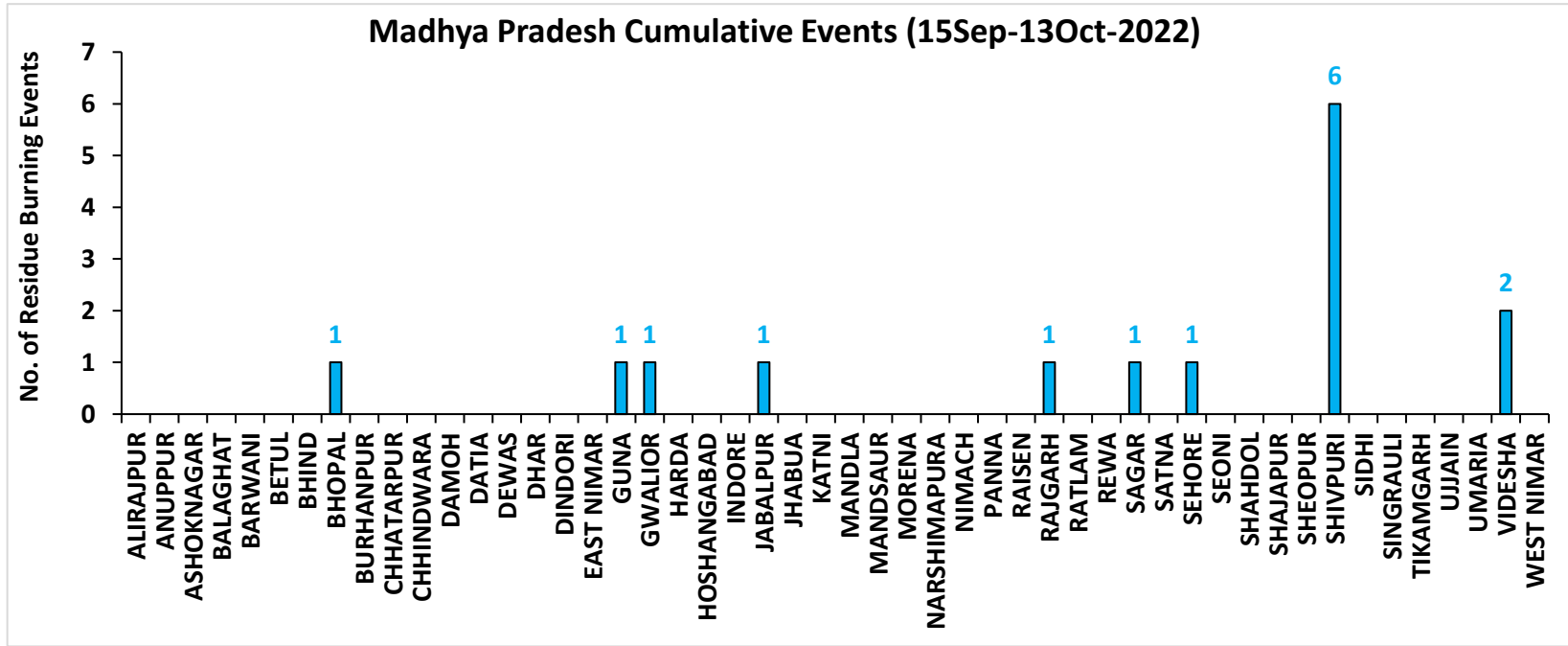
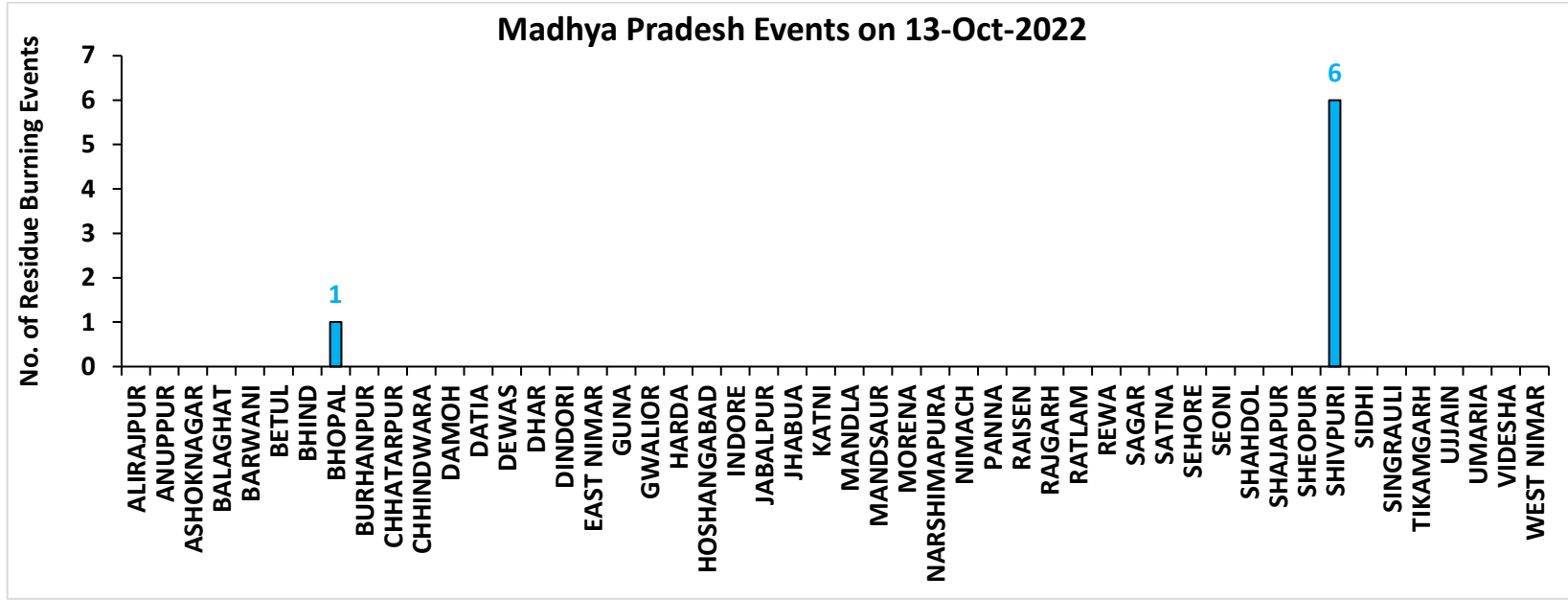
07 burning events detected in MP on (13th Oct 2022)

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- 13Oct -2022)



District-wise cumulative number of residues burning events detected in 2020 ,2021 and 2022
(Period: 15 September-13 October)

(a) Punjab

District	15 Sep-13 Oct 2022		
	2020	2021	2022
Amritsar	1532	381	521
Barnala	11	6	7
Bathinda	24	0	0
Faridkot	55	25	6
Fatehgarh Sahib	59	46	5
Fazilka	12	8	3
Firozpur	153	33	31
Gurdaspur	200	38	41
Hoshiarpur	11	1	0
Jalandhar	52	27	27
Kapurthala	81	42	42
Ludhiana	95	74	13
Mansa	19	1	1
Moga	27	11	14
Muktsar	9	5	1
Pathankot	0	0	0
Patiala	291	87	30
Rupnagar	11	6	0
Sangrur	89	14	23
SAS NAGAR (Mohali)	22	14	4
SBS Nagar	9	2	2
Tarn Taran	849	236	216
Total	3611	1057	987

(b) Haryana

District	15 Sep-13 Oct 2022		
	2020	2021	2022
AMBALA	72	18	10
BHIWANI	0	0	0
CHARKHI DADRI	0	0	0
FARIDABAD	0	1	0
FATEHABAD	33	16	4
GURGAON	0	0	0
HISAR	6	0	1
JHAJJAR	1	0	0
JIND	15	10	9
KAITHAL	86	86	15
KARNAL	154	141	22
KURUKSHETRA	99	84	31
MAHENDRAGARH	0	0	0
MEWAT	0	0	0
PALWAL	5	10	0
PANCHKULA	0	0	0
PANIPAT	7	3	2
REWARI	0	0	0
ROHTAK	0	0	0
SIRSA	6	0	2
SONIPAT	8	1	2
YAMUNANAGAR	35	19	4
Total	527	389	102

(c) Uttar Pradesh

District	15 Sep-13 Oct 2022										
	2020	2021	2022	GAUTAMBUDHNAGAR	1	5	0	MUZAFARNAGAR	2	0	0
AGRA	1	0	0	GAZIPUR	0	0	0	PILHIBHIT	4	17	2
ALIGARH	21	6	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	14	23	0
AMETHI	0	1	0	HAMIRPUR	1	0	0	SAMBHAL	6	3	4
AMROHA	1	0	0	HAPUR	3	0	0	SANTKABIRNAGAR	0	0	0
AURAIYA	15	2	4	HARDOI	4	5	0	SANTRAVIDASNAGAR	0	0	0
AZAMGARH	0	0	0	HATHRAS	0	0	0	SHAHJAHANPUR	35	101	53
BADAUN	0	0	0	JALAUN	0	0	0	SHAMLI	18	9	2
BAGHPAT	2	0	0	JAUNPUR	0	0	0	SHARANPUR	18	4	0
BAHRAICH	2	2	0	JHANSI	6	0	0	SHRAWASTI	1	0	0
BALLIA	0	0	0	KANNAUJ	3	0	0	SIDDHARTHANAGAR	0	0	0
BALRAMPUR	0	0	0	KANPUR	0	1	0	SITAPUR	8	1	0
BANDA	0	0	0	KANPUR DEHAT	3	0	0	SONBHADRA	0	0	0
BARABANKI	10	0	0	KASGANJ	1	0	0	SULTANPUR	0	0	0
BAREILLY	10	5	0	KAUSHAMBI	7	1	0	UNNAO	2	0	0
BASTI	2	0	0	KHERI	29	24	8	VARANASI	0	0	0
BIJNOR	3	1	1	KUSHINAGAR	0	0	0	Total	296	243	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	6	0	MAINPURI	4	2	0				
ETAWAH	2	3	0	MATHURA	7	10	0				
FAIZABAD	1	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	2	0				

(d) Delhi

District	15 Sep-13 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-13 Oct 2022		
	2020	2021	2022
AJMER	0	0	0
ALWAR	1	0	0
BANSWARA	0	0	0
BARAN	78	0	4
BARMER	2	0	0
BHARATPUR	0	0	0
BHILWARA	2	0	0
BIKANER	0	0	0
BUNDI	4	0	4
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	55	14	3
JAIPUR	0	0	0
JAISELMER	2	0	0
JALOR	0	0	0
JHALAWAR	1	0	0
JHUNJHUNUN	1	0	0
JODHPUR	1	0	0
KARAULI	1	0	0
KOTA	21	1	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	3	0	0
TONK	1	0	0
UDAIPUR	0	0	0
Total	177	16	14

(f) Madhya Pradesh

District	15 Sep-13 Oct 2022						
	2020	2021	2022				
				PANNA	2	0	0
ALIRAJPUR	0	0	0	RAISEN	10	0	0
ANUPPUR	0	0	0	RAJGARH	7	1	2
ASHOKNAGAR	9	0	0	RATLAM	0	0	0
BALAGHAT	0	0	0	REWA	3	0	0
BARWANI	0	0	0	SAGAR	13	3	1
BETUL	0	0	0	SATNA	3	0	0
BHIND	2	0	0	SEHORE	5	0	1
BHOPAL	4	2	1	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	6	0	0
DAMOH	14	1	0	SHIVPURI	4	0	6
DATIA	23	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	13	1	1	VIDESHA	50	5	2
GWALIOR	21	0	1	WEST NIMAR	2	0	0
HARDA	8	8	0	Total	275	32	15
HOSHANGABAD	9	0	0				
INDORE	2	0	0				
JABALPUR	6	2	0				
JHABUA	0	0	0				
KATNI	0	0	0				
MANDLA	0	0	0				
MANDSAUR	3	0	0				
MORENA	10	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 - 13 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
13-Oct	266	132	120	47	91	15	36	42	0	0	0	0	7	5	2	21	2	7
Total	3611	1057	987	527	389	102	296	243	80	3	0	2	177	16	14	275	32	15

Details of residue burning events in Punjab on 13-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.95660	74.94330	13:17:09	D	4.40
2	AMRITSAR	ATTARI	S-NPP	31.54160	74.92100	13:17:09	D	2.40
3	AMRITSAR	ATTARI	S-NPP	31.58280	74.67070	13:17:09	D	3.00
4	AMRITSAR	JANDIALA GURU	S-NPP	31.56030	75.08600	13:17:09	D	2.40
5	AMRITSAR	JANDIALA GURU	S-NPP	31.57840	75.10570	13:17:09	D	2.70
6	AMRITSAR	JANDIALA GURU	S-NPP	31.60470	75.02700	13:17:09	D	2.90
7	AMRITSAR	MAJITHA	S-NPP	31.70520	75.04260	13:17:09	D	5.40
8	AMRITSAR	MAJITHA	S-NPP	31.71000	75.00760	13:17:09	D	2.50
9	AMRITSAR	MAJITHA	S-NPP	31.73170	75.08900	13:17:09	D	1.80
10	AMRITSAR	MAJITHA	S-NPP	31.73250	75.09360	13:17:09	D	4.90
11	AMRITSAR	MAJITHA	S-NPP	31.73600	75.09280	13:17:09	D	4.90
12	AMRITSAR	MAJITHA	S-NPP	31.78060	75.01620	13:17:09	D	2.20
13	AMRITSAR	MAJITHA	S-NPP	31.78490	75.02000	13:17:09	D	11.00
14	AMRITSAR	MAJITHA	S-NPP	31.78670	74.92760	13:17:09	D	3.60
15	AMRITSAR	MAJITHA	S-NPP	31.79930	75.05980	13:17:09	D	2.30
16	AMRITSAR	MAJITHA	S-NPP	31.80840	75.02870	13:17:09	D	10.40
17	AMRITSAR	MAJITHA	S-NPP	31.82120	74.97730	13:17:09	D	4.90
18	AMRITSAR	MAJITHA	S-NPP	31.83420	74.98860	13:17:09	D	2.90
19	AMRITSAR	RAYYA	S-NPP	31.53240	75.15340	13:17:09	D	5.90
20	AMRITSAR	RAYYA	S-NPP	31.53250	75.15510	13:17:09	D	8.50
21	AMRITSAR	RAYYA	S-NPP	31.53570	75.17180	13:17:09	D	6.90
22	AMRITSAR	RAYYA	S-NPP	31.53580	75.17350	13:17:09	D	7.80

23	AMRITSAR	RAYYA	S-NPP	31.56410	75.20950	13:17:09	D	10.90
24	AMRITSAR	RAYYA	S-NPP	31.58680	75.33670	13:17:09	D	2.10
25	AMRITSAR	RAYYA	S-NPP	31.61830	75.37140	13:17:09	D	4.10
26	AMRITSAR	RAYYA	AQUA	31.50900	75.12000	14:23:12	D	26.10
27	AMRITSAR	RAYYA	AQUA	31.51000	75.12500	14:23:12	D	23.20
28	AMRITSAR	TARSIKKA	S-NPP	31.63920	75.08270	13:17:09	D	8.40
29	AMRITSAR	TARSIKKA	S-NPP	31.68330	75.12480	13:17:09	D	2.60
30	AMRITSAR	TARSIKKA	S-NPP	31.69170	75.15140	13:17:09	D	2.50
31	AMRITSAR	VERKA	S-NPP	31.67030	74.94950	13:17:09	D	4.80
32	AMRITSAR	VERKA	S-NPP	31.67110	74.95410	13:17:09	D	5.70
33	AMRITSAR	VERKA	S-NPP	31.72020	74.90500	13:17:09	D	2.70
34	AMRITSAR	VERKA	S-NPP	31.72370	74.90410	13:17:09	D	2.70
35	BARNALA	BARNALA	S-NPP	30.26040	75.60220	13:17:09	D	4.50
36	FATEHGARH SAHIB	SIRHIND	S-NPP	30.58370	76.31430	13:17:09	D	3.50
37	FAZILKA	FAZILKA	S-NPP	30.48970	73.99720	13:17:09	D	4.20
38	FAZILKA	JALALABAD	S-NPP	30.59280	74.27840	13:17:09	D	2.80
39	FIROZPUR	FIROZPUR	S-NPP	31.01120	74.63010	13:17:09	D	7.30
40	FIROZPUR	GHALL KHURD	S-NPP	30.91480	74.80560	13:17:09	D	5.60
41	FIROZPUR	MAKHU	S-NPP	31.06760	74.89610	13:17:09	D	3.80
42	FIROZPUR	MAMDOT	S-NPP	30.80030	74.40590	13:17:09	D	7.30
43	GURDASPUR	BATALA	S-NPP	31.77580	75.21350	13:17:09	D	1.60
44	GURDASPUR	DHARIWAL	S-NPP	31.91490	75.28130	13:17:09	D	4.00
45	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.80620	75.13950	13:17:09	D	6.20
46	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.82170	75.08310	13:17:09	D	1.70
47	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.83380	74.99110	13:17:09	D	4.50
48	GURDASPUR	KAHNUWAN	S-NPP	31.82570	75.51550	13:17:09	D	5.10
49	GURDASPUR	KALANAUR	S-NPP	31.97850	75.19020	13:17:09	D	3.90
50	GURDASPUR	QADIAN	S-NPP	31.76840	75.36010	13:17:09	D	19.40
51	GURDASPUR	QADIAN	S-NPP	31.77400	75.33050	13:17:09	D	3.10
52	GURDASPUR	QADIAN	S-NPP	31.78130	75.30990	13:17:09	D	3.40
53	GURDASPUR	QADIAN	S-NPP	31.78230	75.31120	13:17:09	D	4.40
54	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.66540	75.39300	13:17:09	D	3.20
55	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.72530	75.29990	13:17:09	D	4.20

56	JALANDHAR	JALANDHAR WEST	S-NPP	31.40220	75.44280	13:17:09	D	1.90
57	JALANDHAR	LOHIAN	S-NPP	31.16460	75.18880	13:17:09	D	1.80
58	JALANDHAR	MEHATPUR	S-NPP	30.99080	75.41790	13:17:09	D	1.70
59	JALANDHAR	MEHATPUR	S-NPP	30.99650	75.38820	13:17:09	D	4.40
60	JALANDHAR	SHAHKOT	S-NPP	31.10490	75.28290	13:17:09	D	10.00
61	JALANDHAR	SHAHKOT	S-NPP	31.16060	75.37080	13:17:09	D	3.70
62	JALANDHAR	SHAHKOT	S-NPP	31.16140	75.37530	13:17:09	D	3.70
63	KAPURTHALA	DHILWAN	S-NPP	31.43340	75.33190	13:17:09	D	5.00
64	KAPURTHALA	DHILWAN	S-NPP	31.51540	75.36630	13:17:09	D	1.70
65	KAPURTHALA	DHILWAN	S-NPP	31.52350	75.35020	13:17:09	D	5.50
66	KAPURTHALA	KAPURTHALA	S-NPP	31.37450	75.32710	13:17:09	D	5.30
67	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.24150	75.13320	13:17:09	D	9.10
68	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.25340	75.24060	13:17:09	D	9.40
69	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.25430	75.24510	13:17:09	D	9.40
70	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.35870	75.19780	13:17:09	D	8.40
71	LUDHIANA	MACHHIWARA	S-NPP	30.86060	76.14770	13:17:09	D	10.30
72	MOGA	NIHAL SINGH	S-NPP	30.58600	75.27070	13:17:09	D	4.10
73	MOGA	NIHAL SINGH	S-NPP	30.58680	75.27530	13:17:09	D	6.30
74	PATIALA	NABHA	S-NPP	30.33420	76.08720	13:17:09	D	1.90
75	PATIALA	PATRAN	S-NPP	29.84710	76.12910	13:17:09	D	8.10
76	PATIALA	PATRAN	S-NPP	29.90860	76.08440	13:17:09	D	2.90
77	PATIALA	SAMANA	S-NPP	30.00590	76.18090	13:17:09	D	2.20
78	SANGRUR	ANDANA	S-NPP	29.77520	76.04550	13:17:09	D	3.50
79	SANGRUR	ANDANA	S-NPP	29.80950	76.01480	13:17:09	D	6.70
80	SANGRUR	ANDANA	S-NPP	29.83800	76.00930	13:17:09	D	3.10
81	SANGRUR	ANDANA	S-NPP	29.85880	76.00450	13:17:09	D	7.50
82	SANGRUR	ANDANA	S-NPP	29.86220	76.00380	13:17:09	D	7.50
83	SANGRUR	DHURI	S-NPP	30.38750	75.88950	13:17:09	D	5.40
84	SANGRUR	DIRBA	S-NPP	30.05340	76.02050	13:17:09	D	2.80
85	SANGRUR	DIRBA	S-NPP	30.05400	76.01760	13:17:09	D	5.90
86	SANGRUR	LEHRA GAGA	S-NPP	29.82460	75.74900	13:17:09	D	2.80
87	SANGRUR	MALERKOTLA-2	S-NPP	30.66050	75.85690	13:17:09	D	3.40
88	SANGRUR	SUNAM	S-NPP	30.11750	75.78220	13:17:09	D	4.90

89	TARN TARAN	BHIKHIWIND	S-NPP	31.26890	74.68150	13:17:09	D	3.40
90	TARN TARAN	CHOHLA SAHIB	S-NPP	31.21980	75.01260	13:17:09	D	2.80
91	TARN TARAN	CHOHLA SAHIB	S-NPP	31.25230	75.02910	13:17:09	D	2.40
92	TARN TARAN	CHOHLA SAHIB	S-NPP	31.32790	75.04650	13:17:09	D	1.50
93	TARN TARAN	CHOHLA SAHIB	S-NPP	31.35810	75.09230	13:17:09	D	4.10
94	TARN TARAN	CHOHLA SAHIB	S-NPP	31.36160	75.09150	13:17:09	D	14.60
95	TARN TARAN	GANDIWIND TATLA	S-NPP	31.46920	74.74680	13:17:09	D	4.50
96	TARN TARAN	KHADUR SAHIB	S-NPP	31.43650	75.14790	13:17:09	D	9.30
97	TARN TARAN	KHADUR SAHIB	S-NPP	31.44700	75.06360	13:17:09	D	2.30
98	TARN TARAN	KHADUR SAHIB	S-NPP	31.45790	75.18580	13:17:09	D	4.60
99	TARN TARAN	KHADUR SAHIB	S-NPP	31.49590	75.07100	13:17:09	D	5.60
100	TARN TARAN	KHADUR SAHIB	S-NPP	31.52000	75.08620	13:17:09	D	5.60
101	TARN TARAN	KHADUR SAHIB	S-NPP	31.52030	75.08430	13:17:09	D	5.10
102	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.32260	74.93580	13:17:09	D	5.70
103	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.35780	74.94670	13:17:09	D	6.20
104	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.39170	74.99210	13:17:09	D	5.30
105	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.39320	74.98940	13:17:09	D	7.80
106	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.40120	74.97290	13:17:09	D	3.60
107	TARN TARAN	PATTI	S-NPP	31.24270	74.91420	13:17:09	D	4.00
108	TARN TARAN	TARN TARAN	S-NPP	31.42970	74.80400	13:17:09	D	1.70
109	TARN TARAN	TARN TARAN	S-NPP	31.44360	74.84010	13:17:09	D	7.90
110	TARN TARAN	TARN TARAN	S-NPP	31.44720	74.83920	13:17:09	D	4.20
111	TARN TARAN	TARN TARAN	S-NPP	31.45040	74.87770	13:17:09	D	12.10
112	TARN TARAN	TARN TARAN	S-NPP	31.47170	74.95570	13:17:09	D	2.40
113	TARN TARAN	TARN TARAN	S-NPP	31.47260	74.78560	13:17:09	D	2.60
114	TARN TARAN	TARN TARAN	S-NPP	31.47260	74.96040	13:17:09	D	4.30
115	TARN TARAN	TARN TARAN	S-NPP	31.48730	74.89810	13:17:09	D	2.60
116	TARN TARAN	TARN TARAN	S-NPP	31.50690	75.02970	13:17:09	D	2.30
117	TARN TARAN	TARN TARAN	S-NPP	31.51320	74.82500	13:17:09	D	5.70
118	TARN TARAN	TARN TARAN	S-NPP	31.52690	74.88050	13:17:09	D	4.50
119	TARN TARAN	VALTOHA	S-NPP	31.28530	74.58680	13:17:09	D	2.90
120	TARN TARAN	VALTOHA	S-NPP	31.28890	74.58590	13:17:09	D	2.90

Details of residue burning events in Haryana on 13-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	FATEHABAD	TOHANA	S-NPP	29.67510	75.86930	13:17:09	D	2.90
2	JIND	SAFIDON	S-NPP	29.45860	76.67480	13:17:09	D	2.50
3	KAITHAL	GUHLA	S-NPP	30.08770	76.43020	13:17:09	D	6.30
4	KAITHAL	KAITHAL	S-NPP	29.87010	76.53480	13:17:09	D	2.40
5	KAITHAL	PUNDRI	S-NPP	29.76180	76.68510	13:17:09	D	2.90
6	KAITHAL	PUNDRI	S-NPP	29.87080	76.53900	13:17:09	D	10.90
7	KAITHAL	PUNDRI	S-NPP	29.88800	76.55720	13:17:09	D	2.10
8	KAITHAL	PUNDRI	S-NPP	29.91480	76.59070	13:17:09	D	2.70
9	KARNAL	INDRI	S-NPP	29.83070	77.05410	13:17:09	D	1.90
10	KARNAL	NILOKHERI	S-NPP	29.90590	76.91410	13:17:09	D	12.50
11	KURUKSHETRA	ISMAILABAD	S-NPP	30.07190	76.64910	13:17:09	D	2.60
12	KURUKSHETRA	THANESAR	S-NPP	30.06630	76.80600	13:17:09	D	3.00
13	PANIPAT	SAMALKHA	S-NPP	29.18170	77.11730	13:17:09	D	3.70
14	SIRSA	ODHAN	S-NPP	29.86110	74.98840	13:17:09	D	6.50
15	YAMUNANAGAR	BILASPUR	S-NPP	30.24280	77.25930	13:17:09	D	3.30

Details of residue burning events in Rajasthan on 13-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BARAN	CHHABRA	S-NPP	24.69200	76.81600	13:17:09	D	3.10
2	BUNDI	BUNDI	S-NPP	25.46810	75.85610	02:07:09	N	0.50

Details of residue burning events in Madhya Pradesh on 13-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	BHOPAL	BERASIYA	S-NPP	23.74350	77.59810	13:17:09	D	2.70
2	SHIVPURI	SHIVPURI	S-NPP	25.47580	77.60170	13:17:09	D	4.00
3	SHIVPURI	SHIVPURI	S-NPP	25.48480	77.59130	13:17:09	D	2.30
4	SHIVPURI	SHIVPURI	S-NPP	25.48540	77.59550	13:17:09	D	9.20
5	SHIVPURI	SHIVPURI	S-NPP	25.50610	77.65520	13:17:09	D	3.20
6	SHIVPURI	SHIVPURI	S-NPP	25.51020	77.65870	13:17:09	D	5.40
7	SHIVPURI	SHIVPURI	S-NPP	25.53830	77.60290	13:17:09	D	4.50

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**

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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)

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