



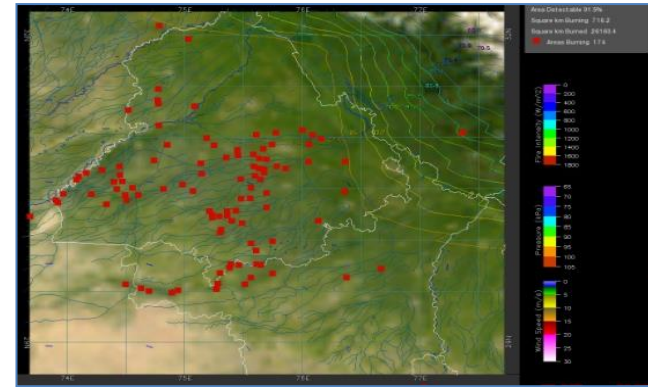
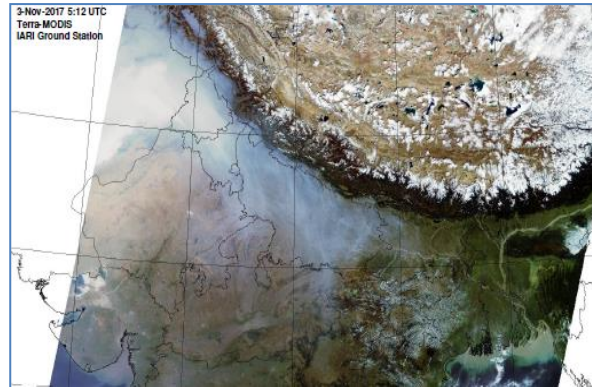
**Bulletin
No. 30**

**Events Date:
14-Oct-2022**

**Issued on:
14-Oct-2022**



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



Prepared by:

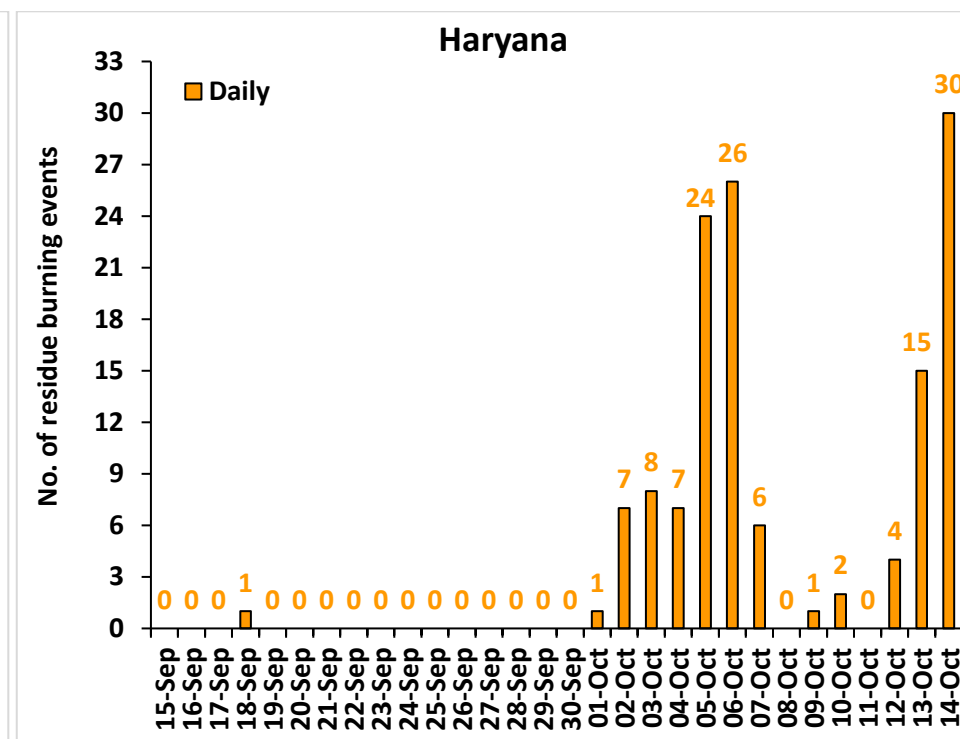
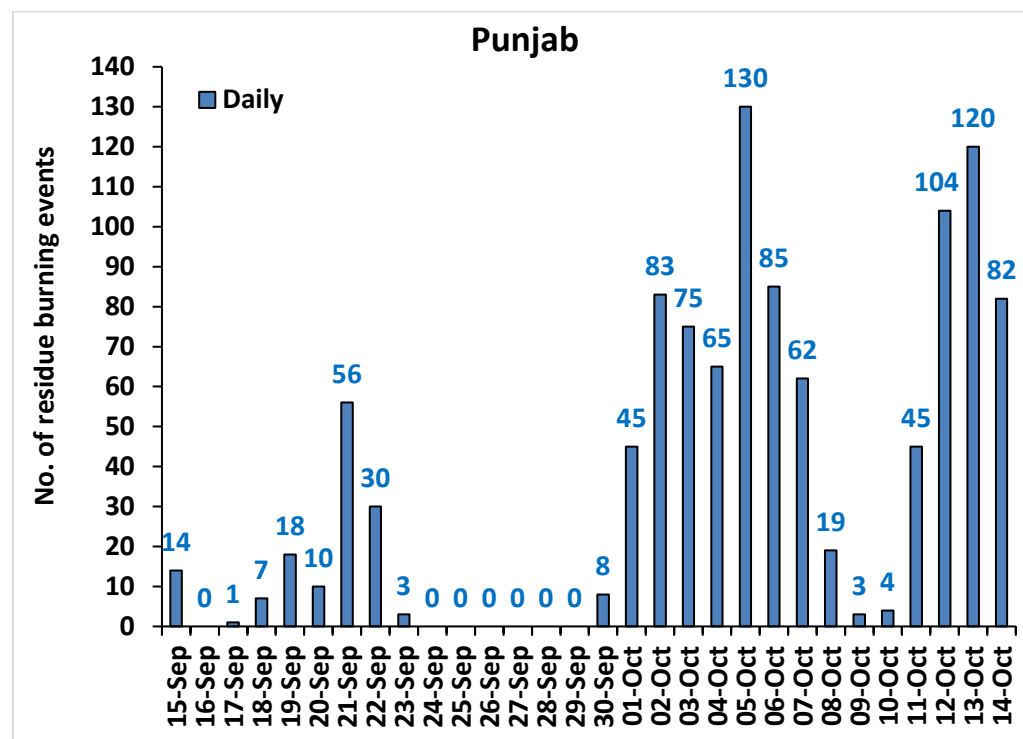
**Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

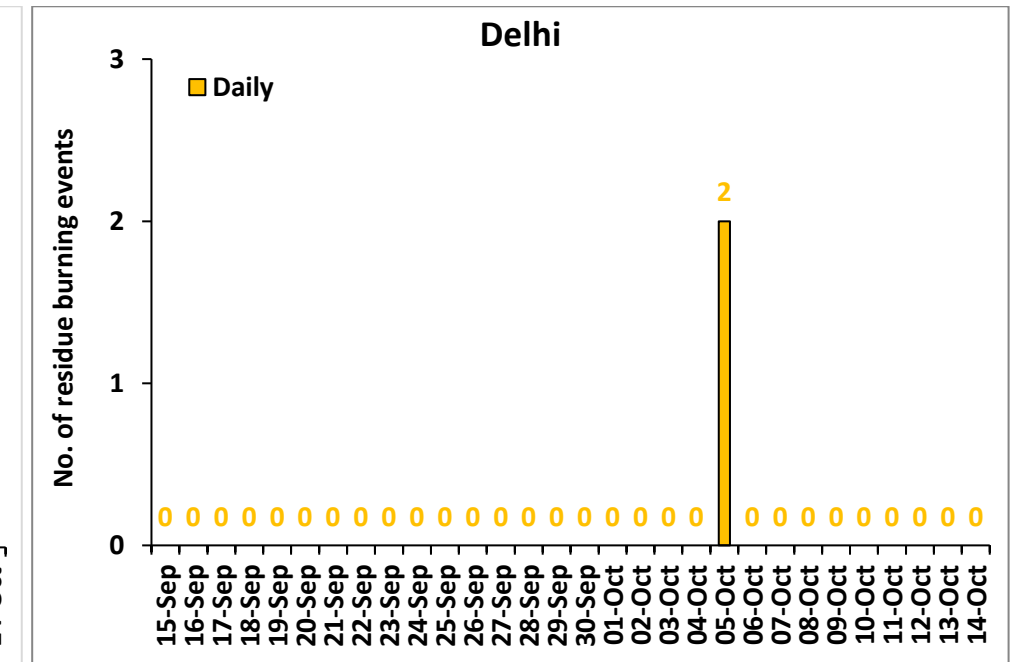
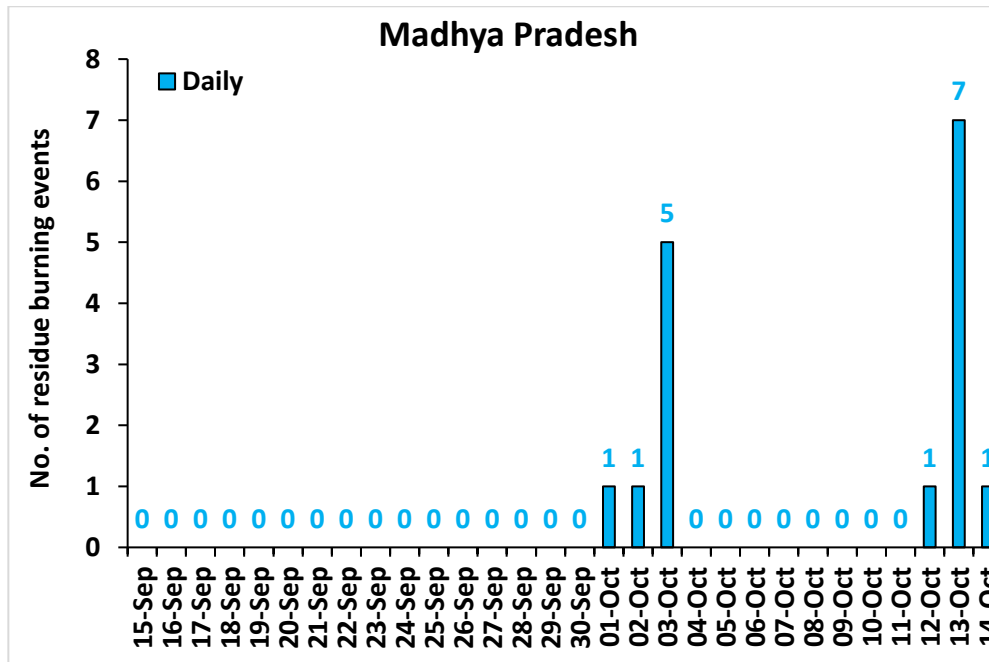
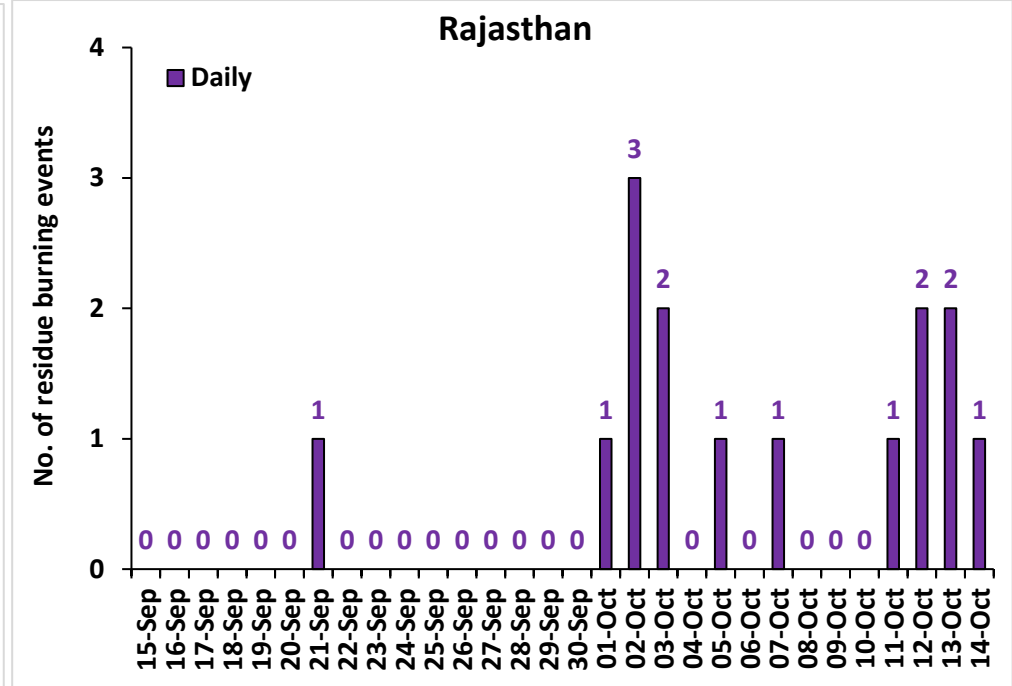
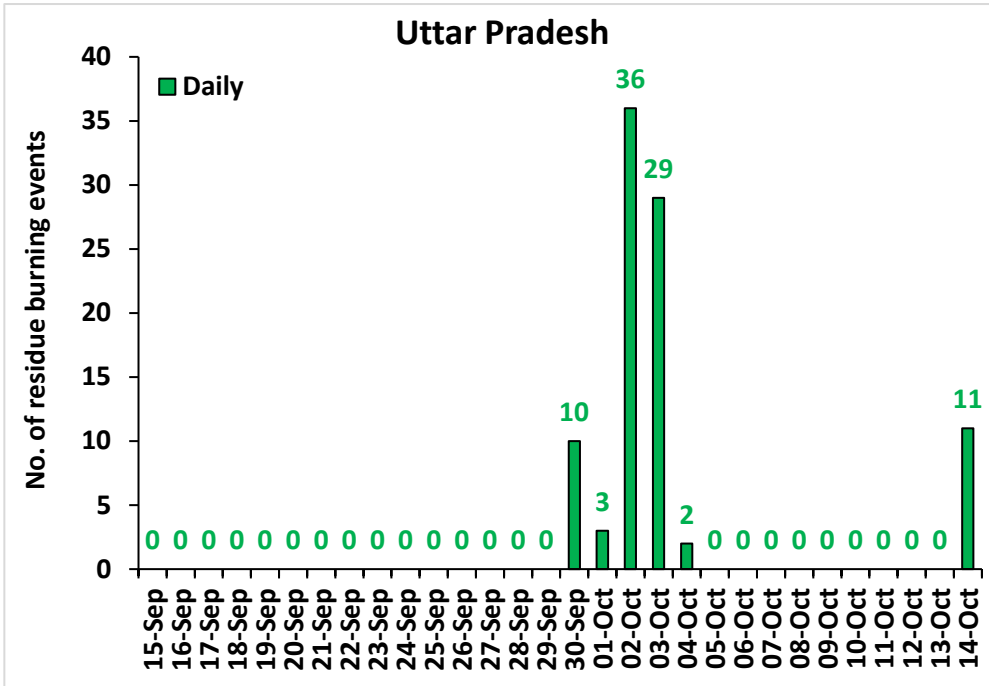
<http://creams.iari.res.in>

Highlights for 14-Oct-2022

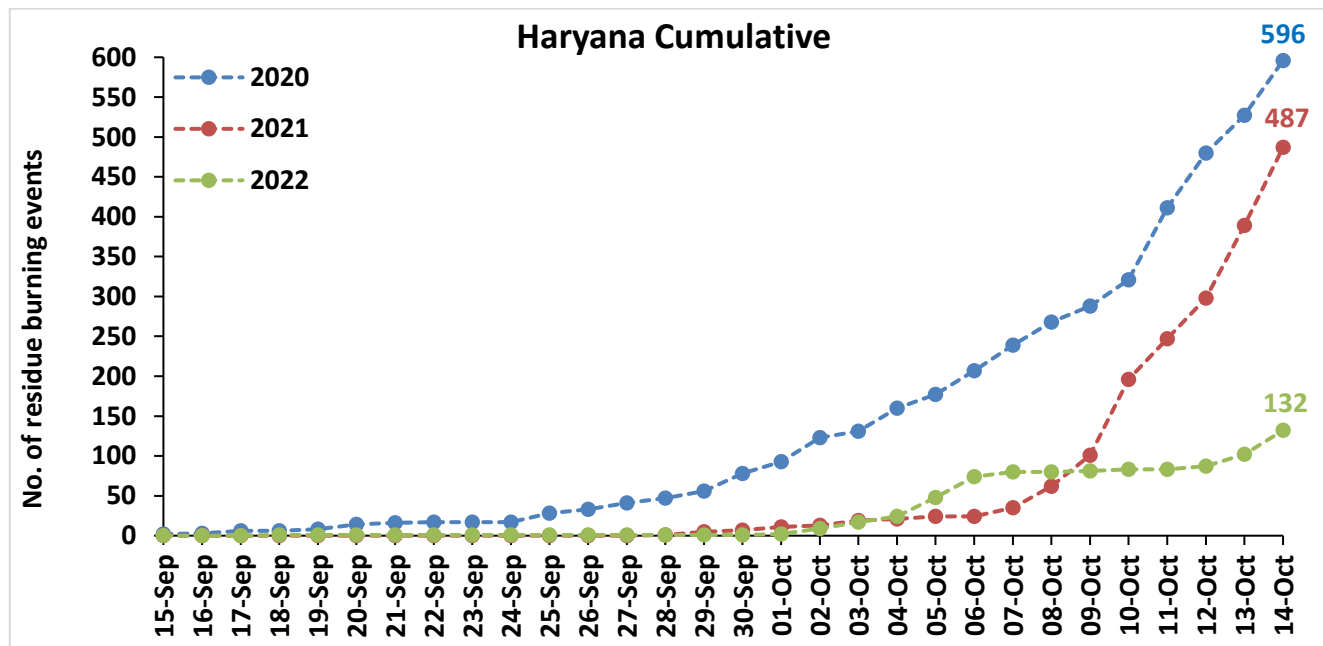
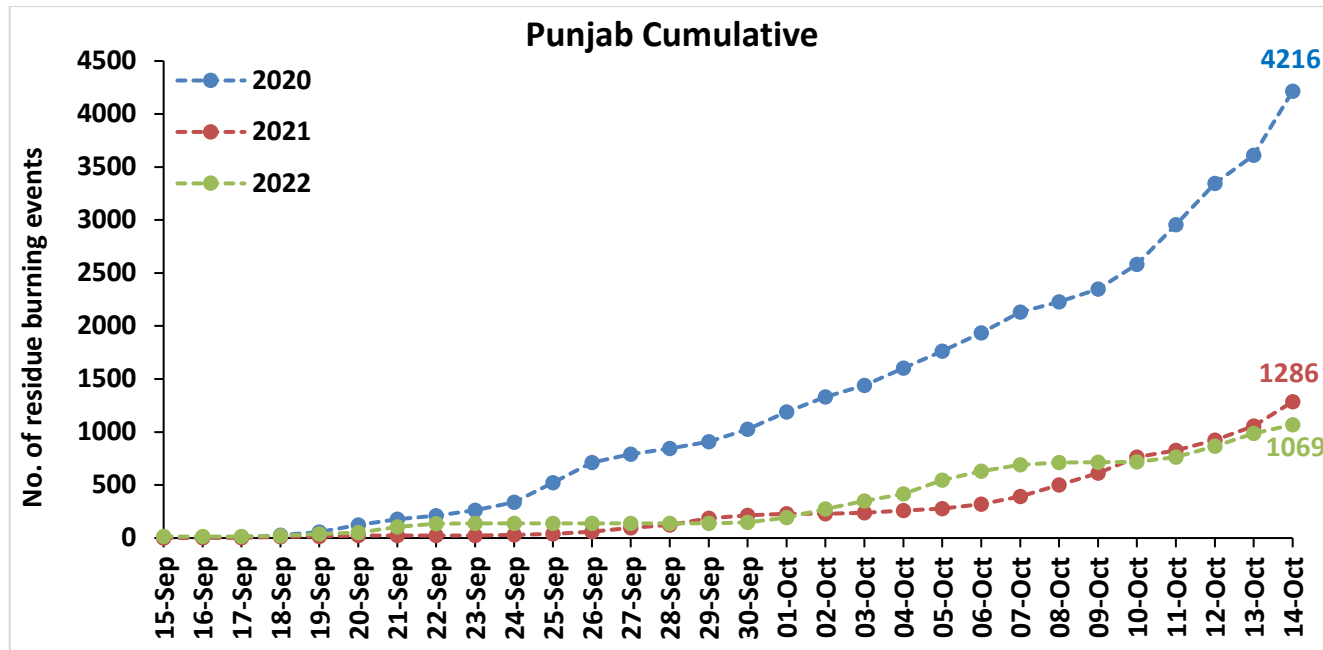
- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **125** residue burning events in the six study States on 14-Oct-2022.
- The state wise events detected on 14-Oct-2022 were **82** in Punjab, **30** in Haryana, **11** in UP, **0** in Delhi, **1** in Rajasthan and **1** in MP.
- Total **1325** burning events were detected in the six states between 15-Sept-2022 and 14-Oct-2022, which are distributed as **1069**, **132**, **91**, **2**, **15** and **16** 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.

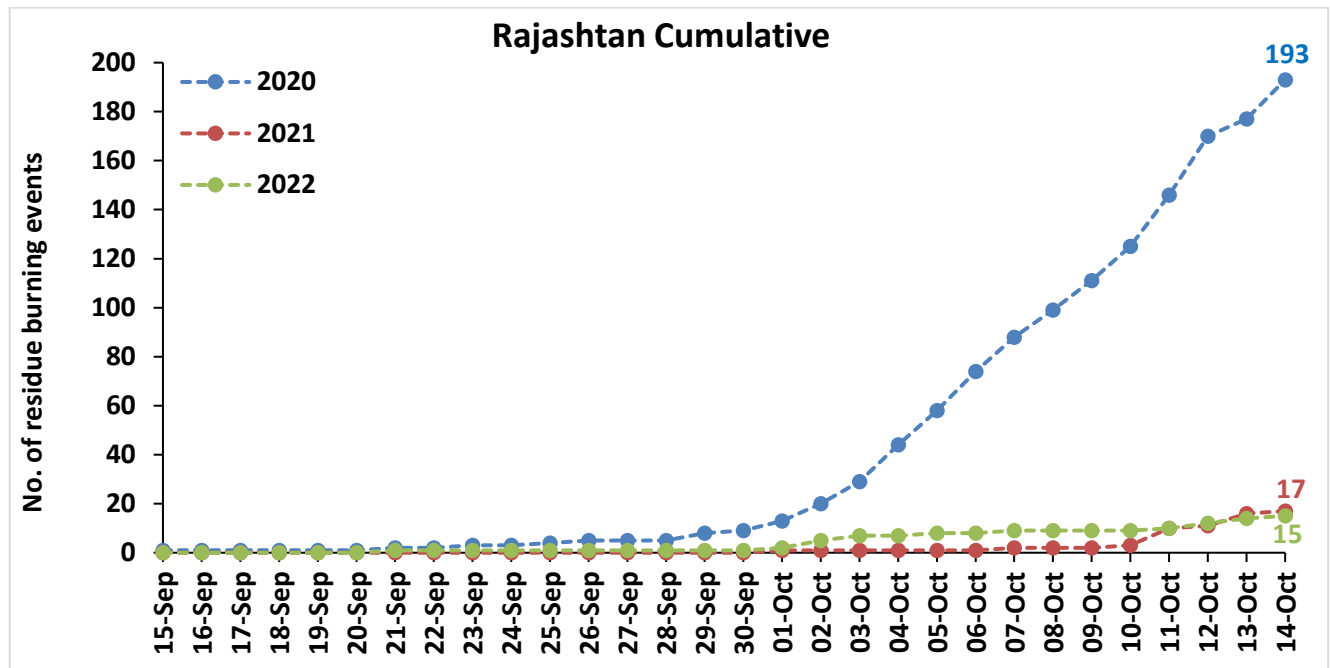
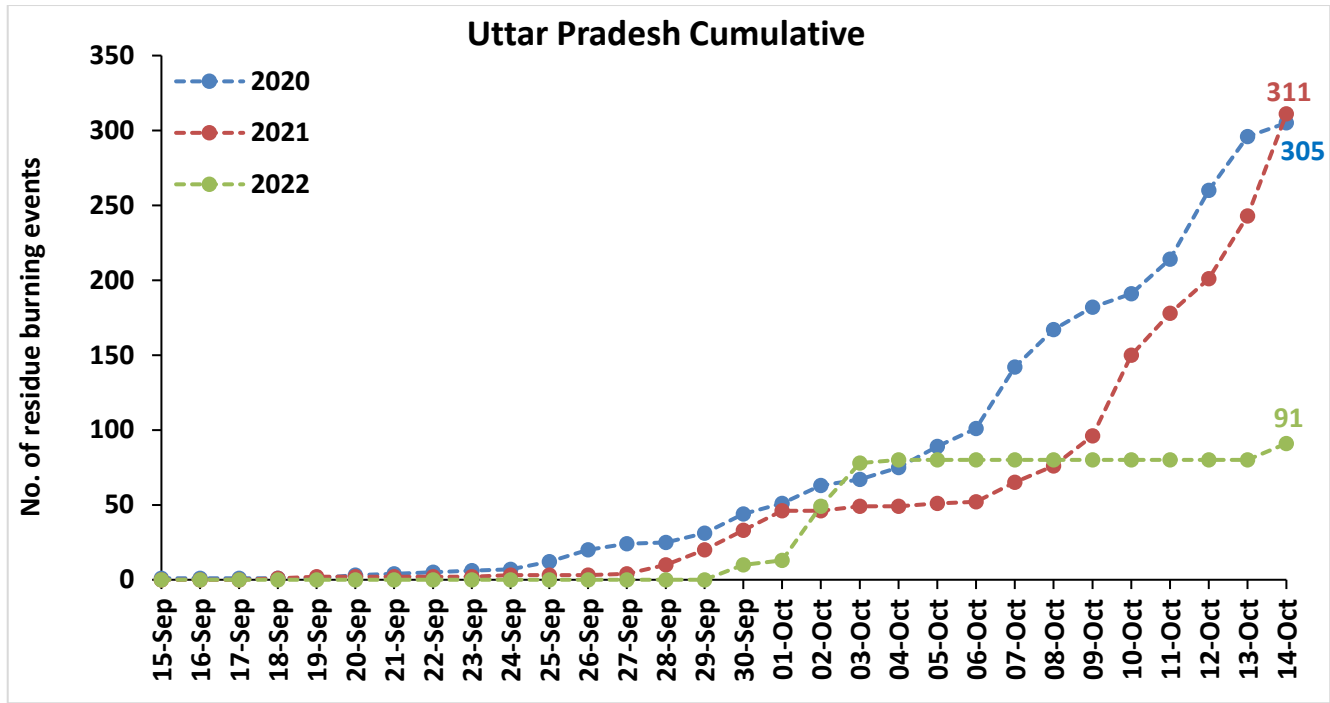
Temporal distribution of rice residue burning events for the study States in 2022

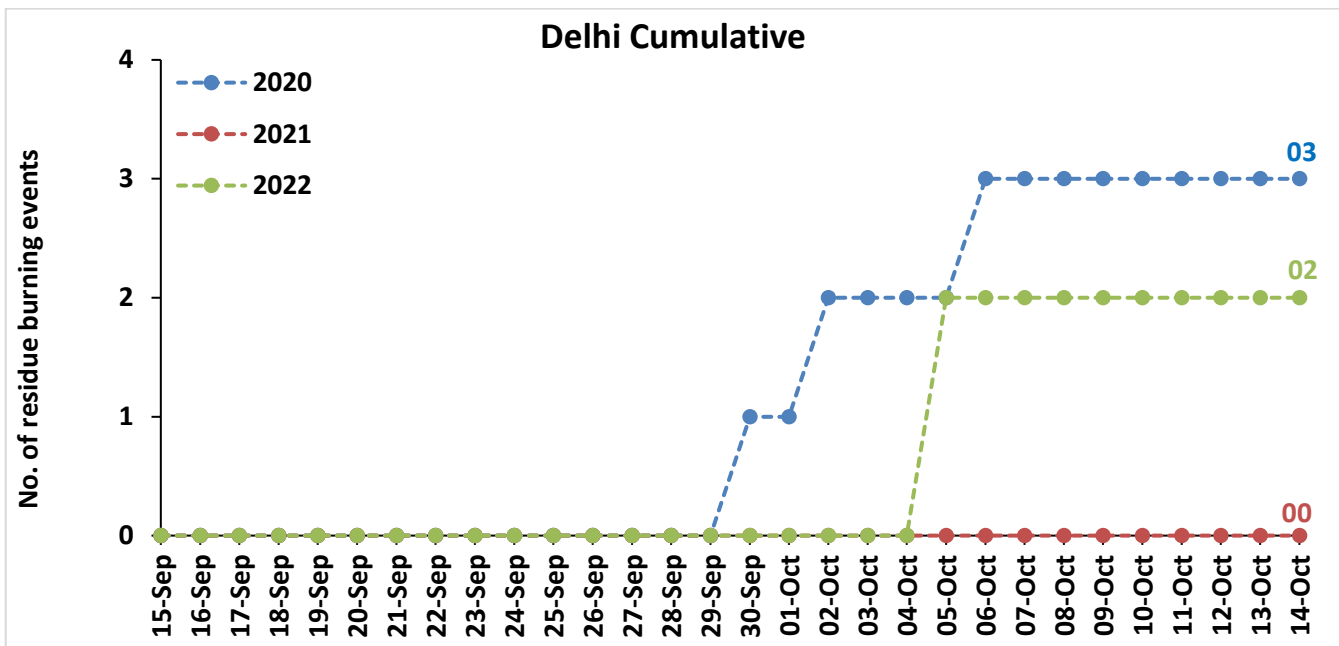
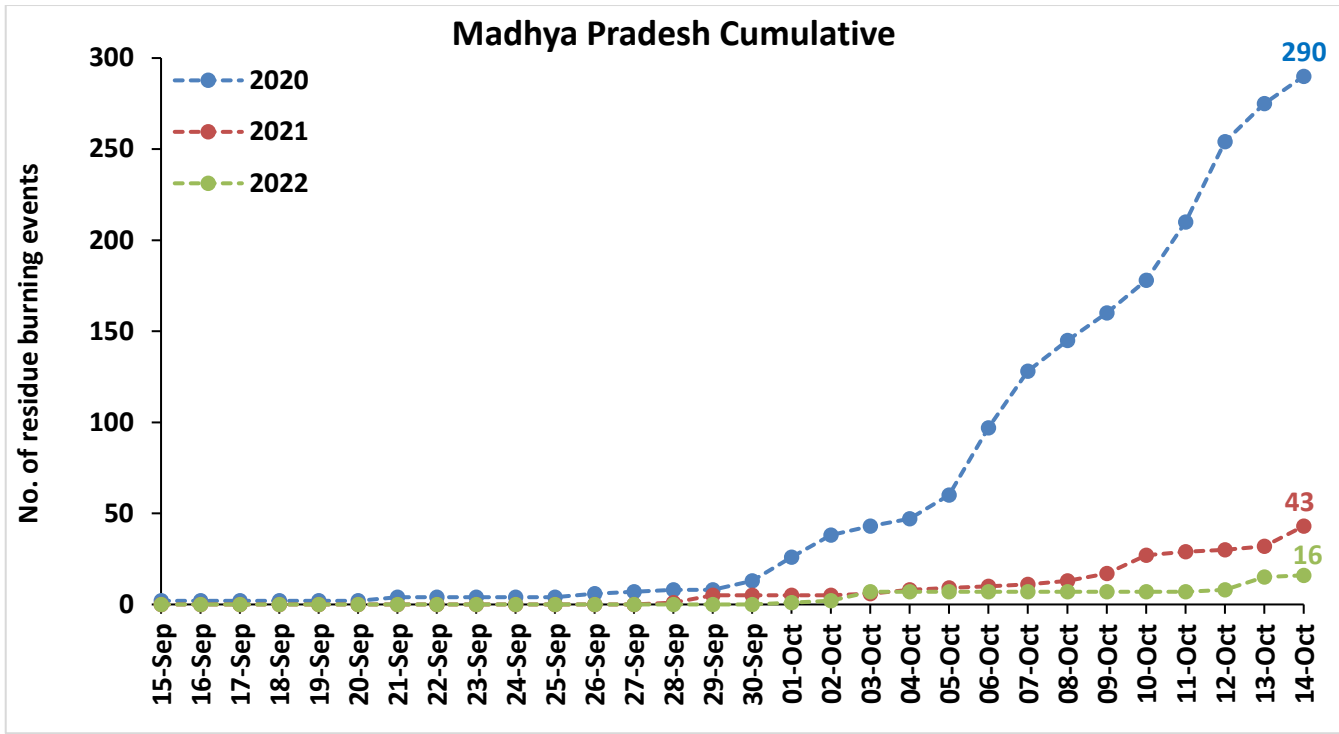




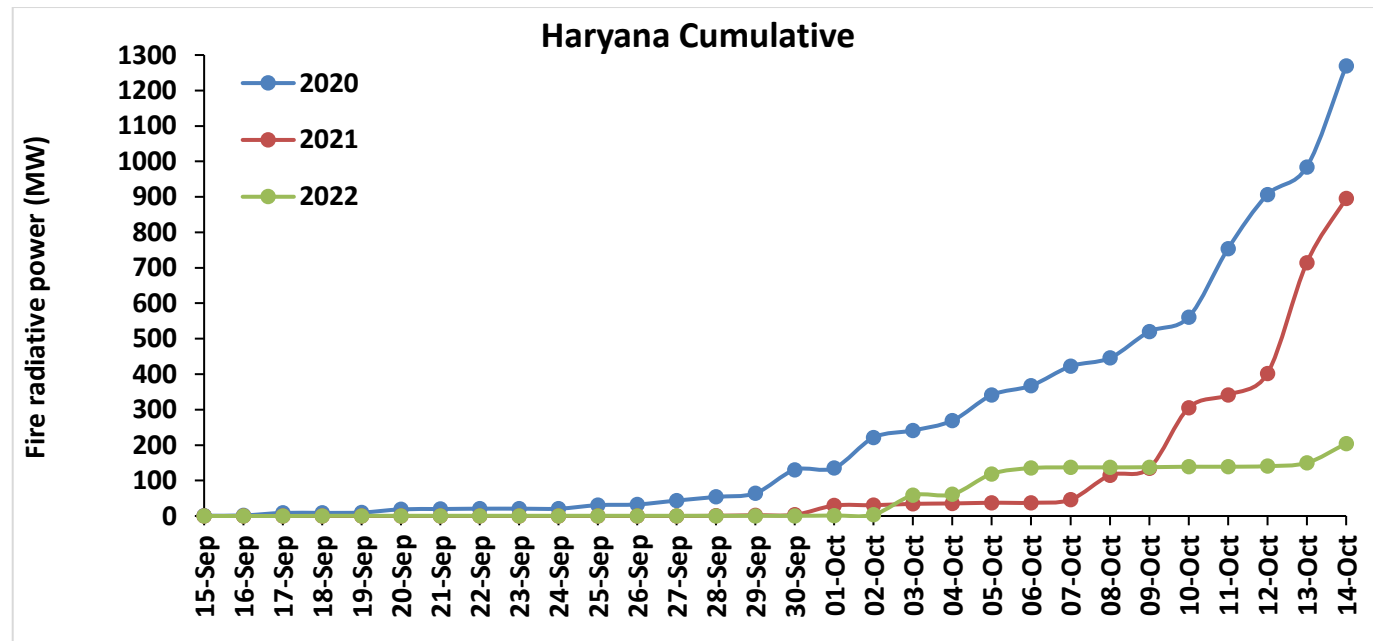
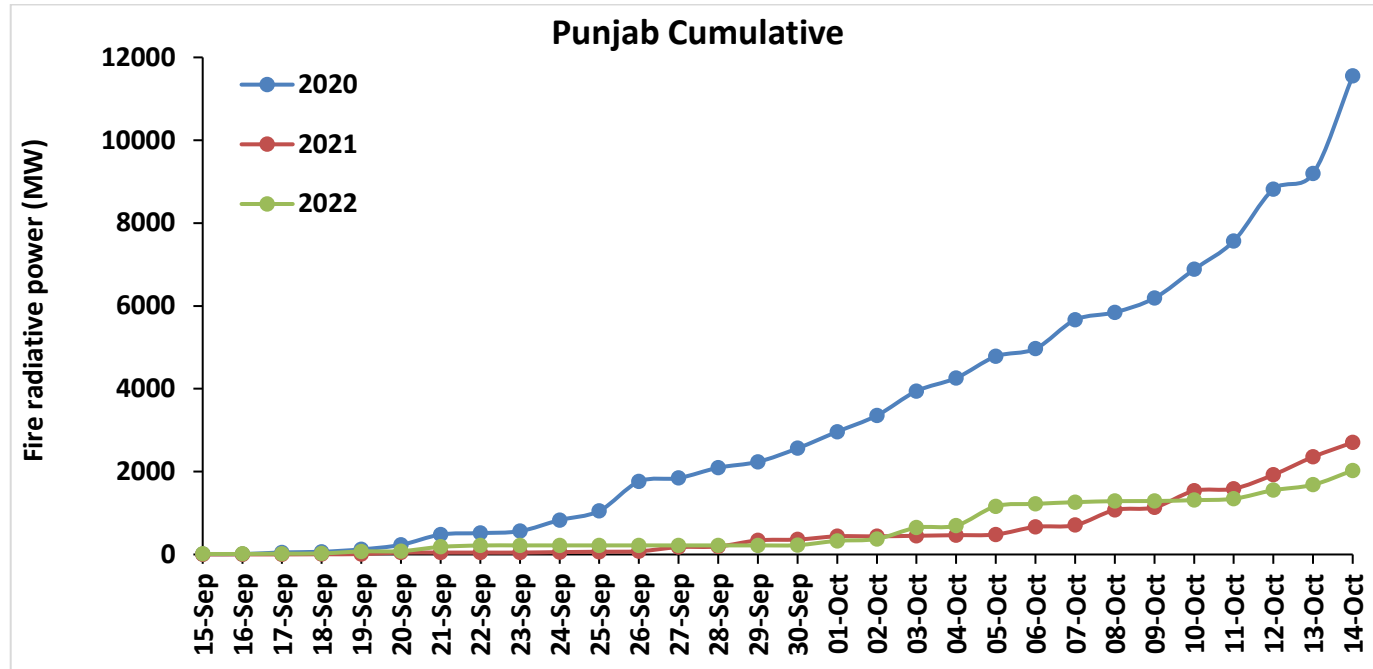
Comparison of residue burning events in current year (2022) with previous years (2020 and 2021) for the study States

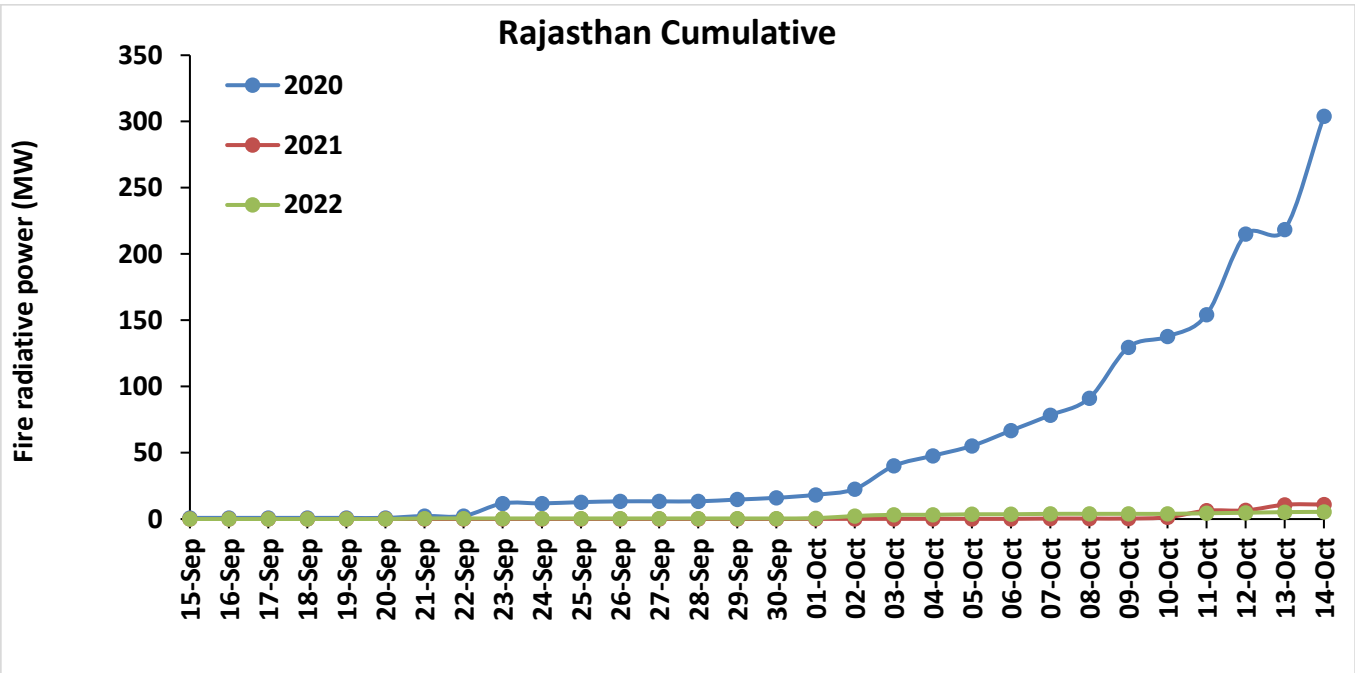
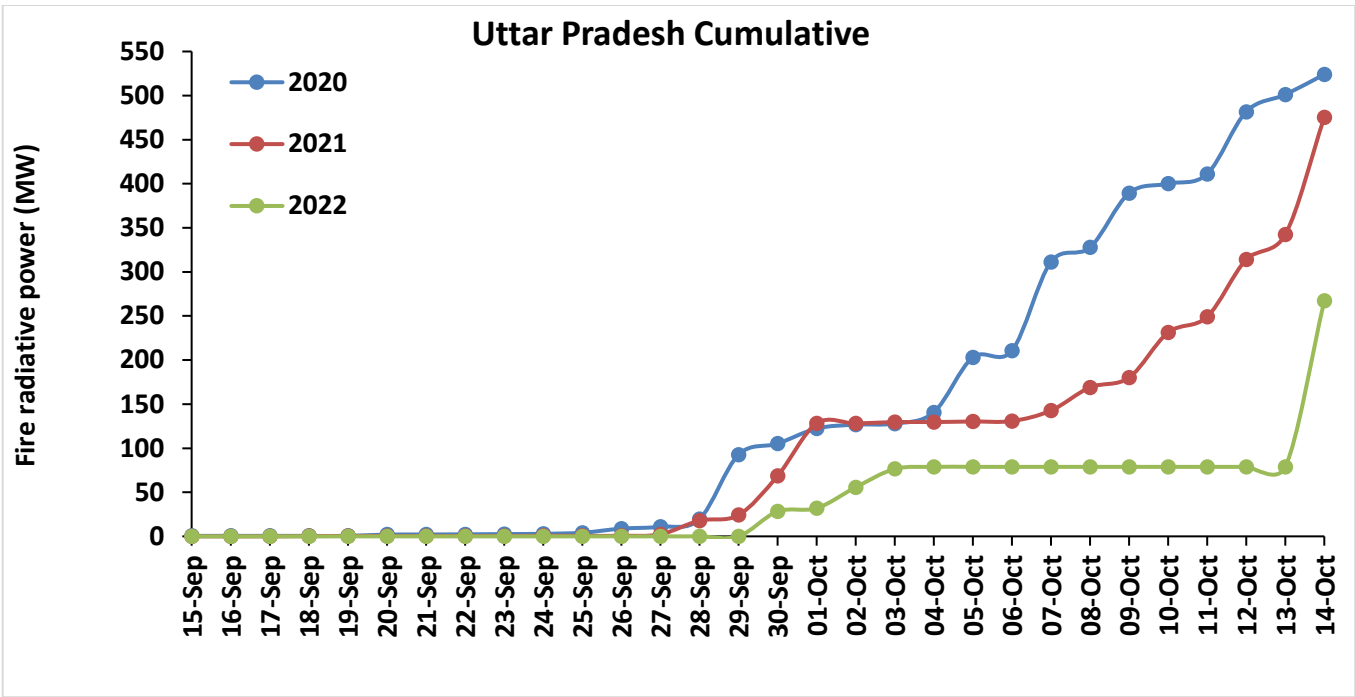


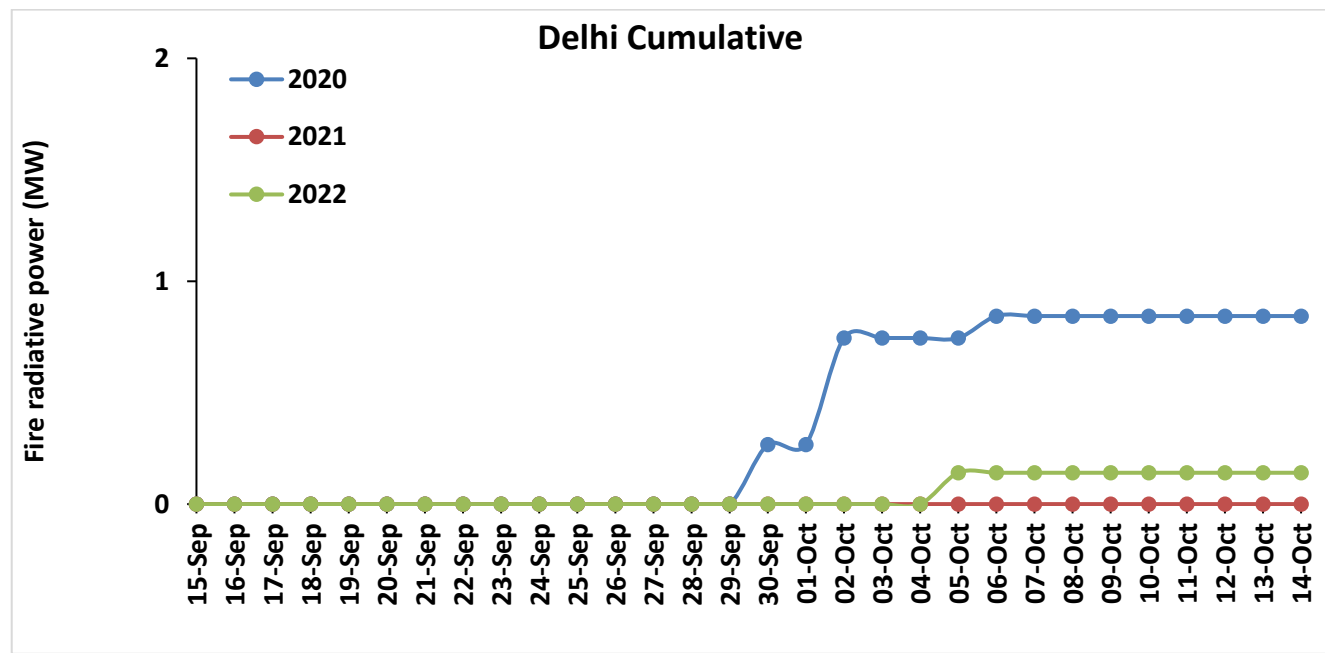
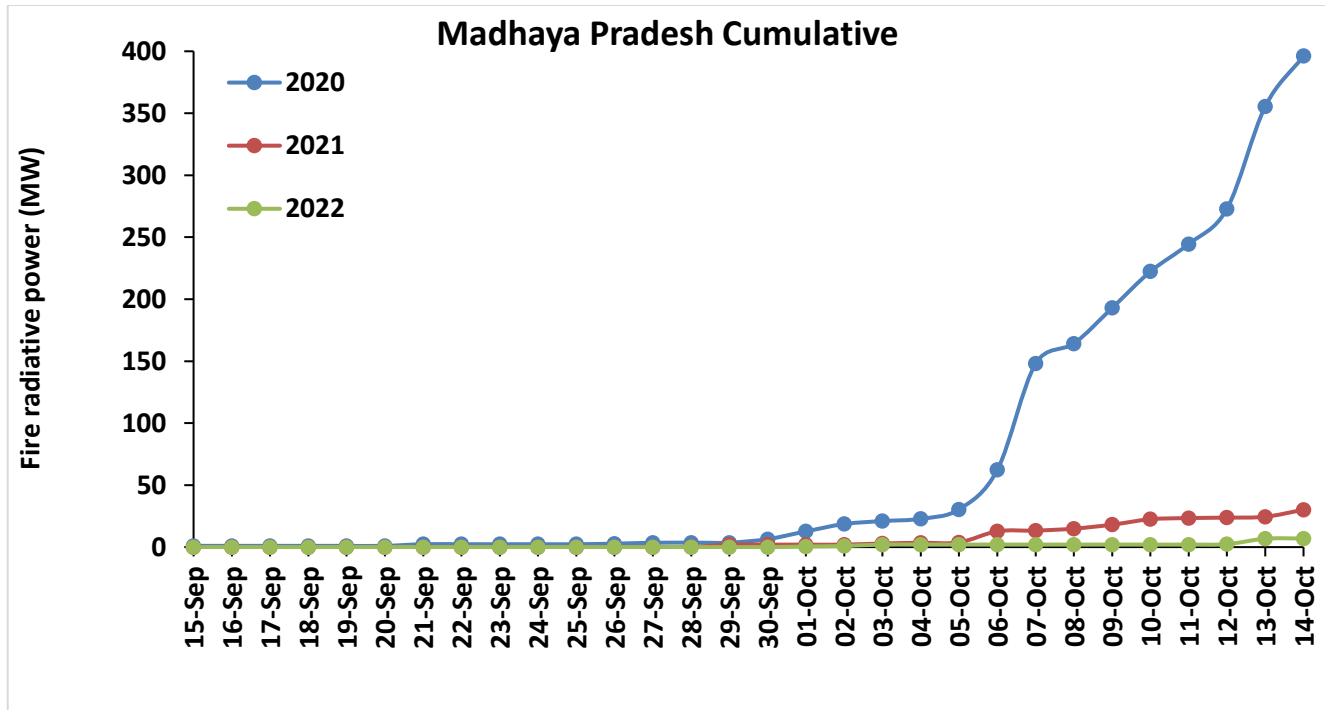




Comparison of residue burning fire power in current year (2022) with previous years (2021 and 2020) for the study States

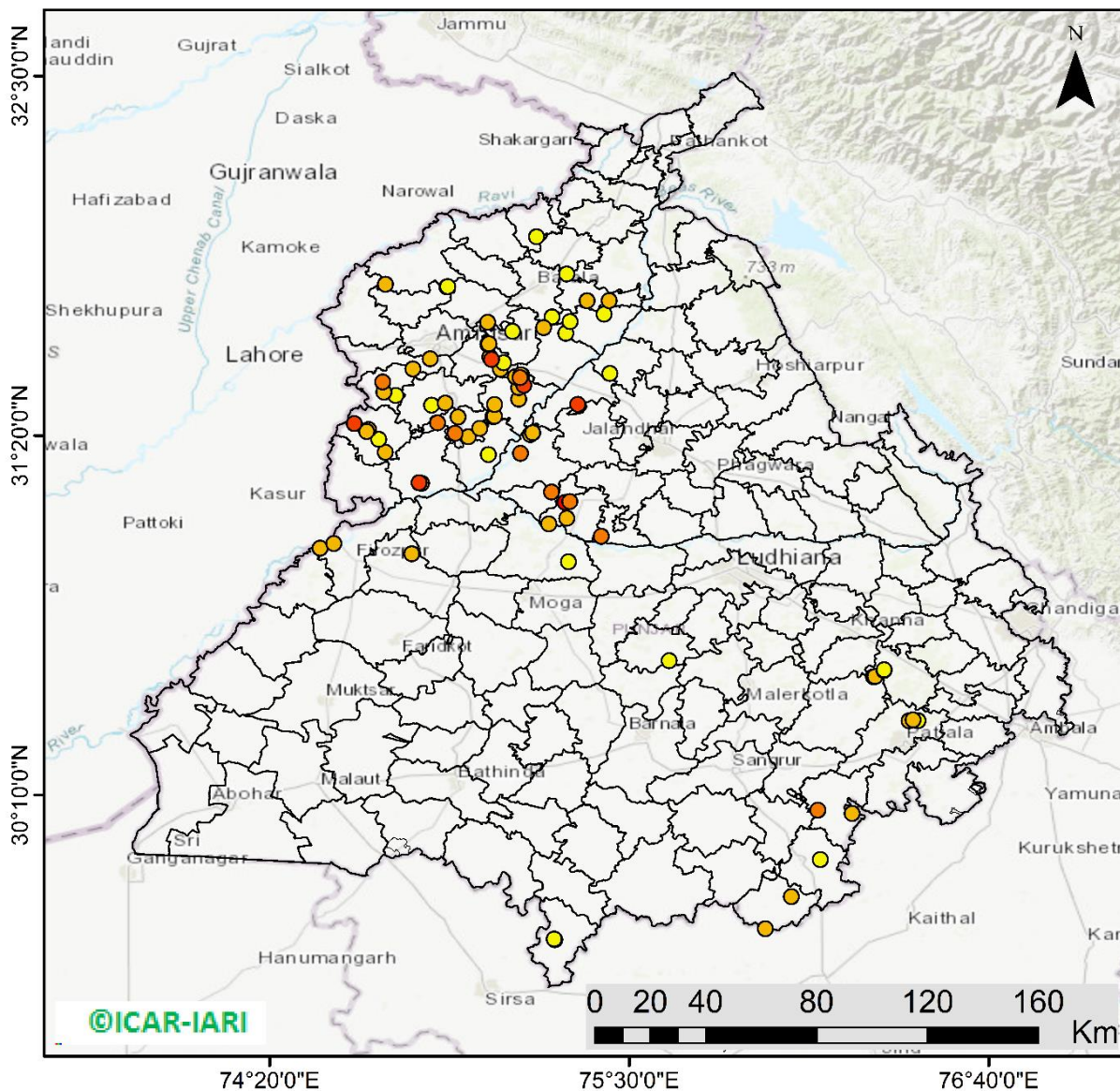






Punjab

RICE RESIDUE BURNING IN PUNJAB



82 burning events detected in Punjab during (14th Oct 2022)

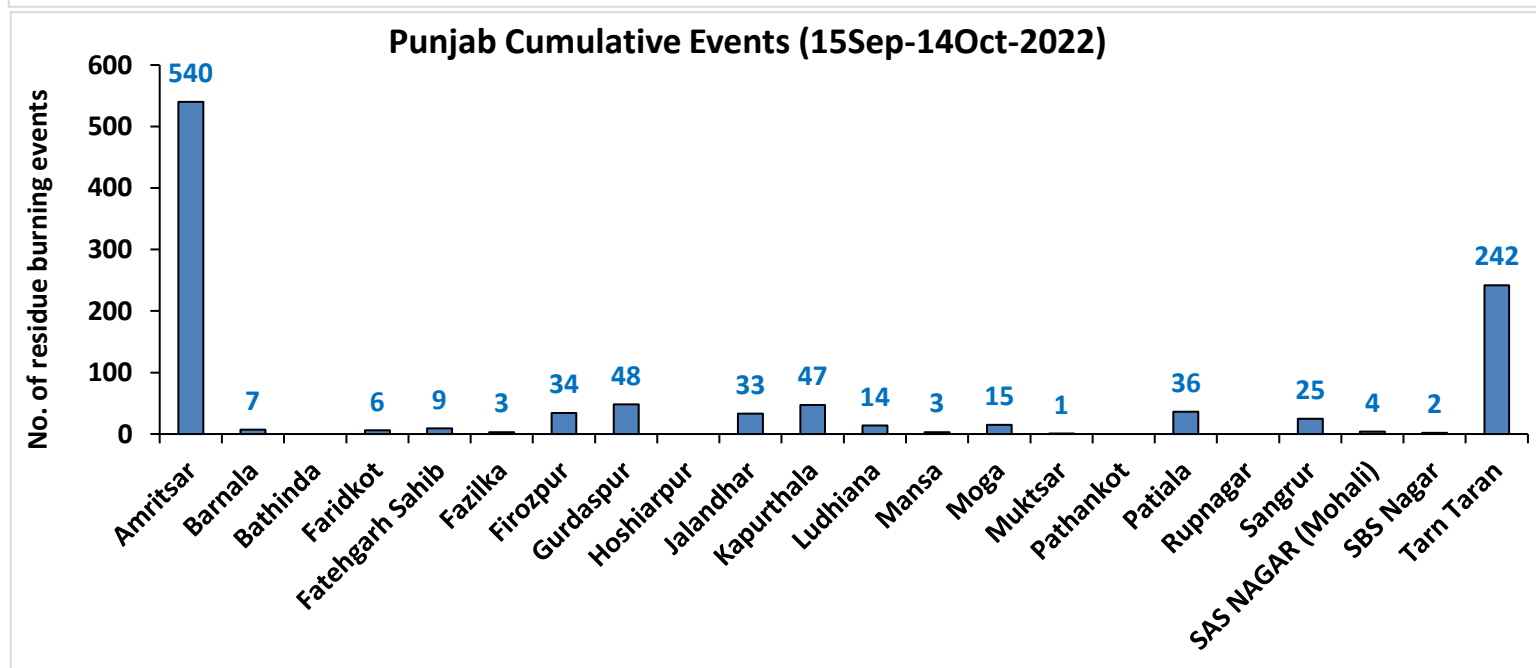
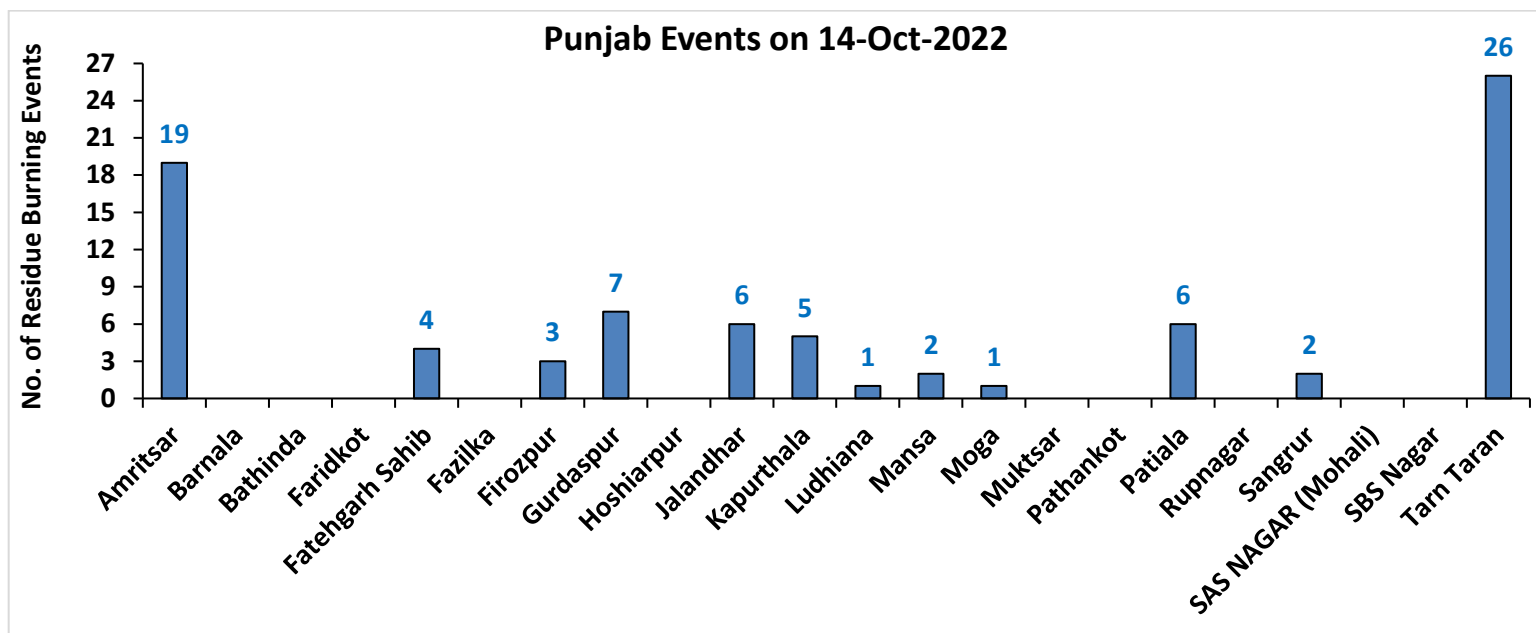
Fire Intensity (W/m²)

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



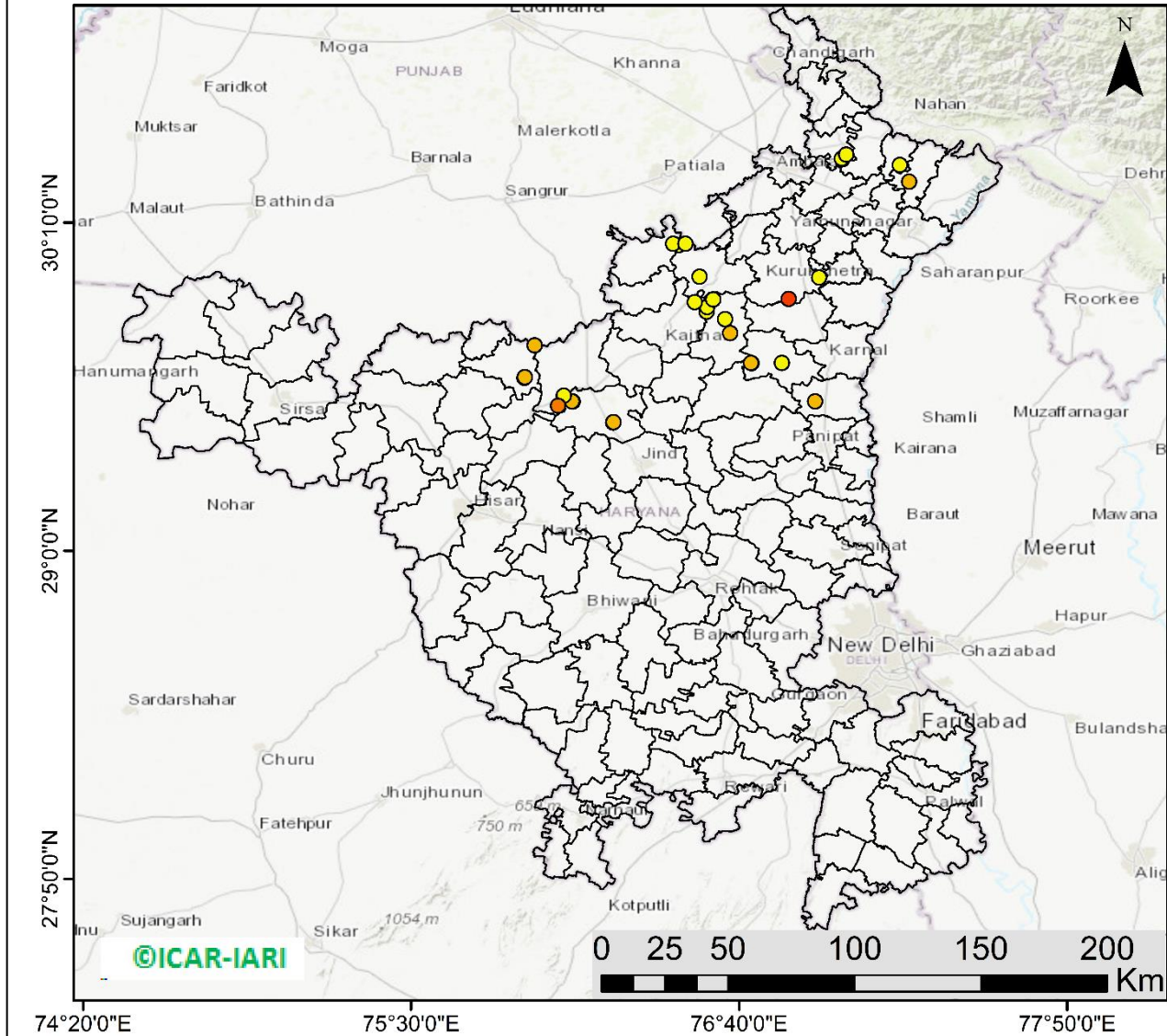
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15Sep- 14Oct-2022)



Haryana

RICE RESIDUE BURNING IN HARYANA



30 burning events detected in Haryana on (14th Oct 2022)

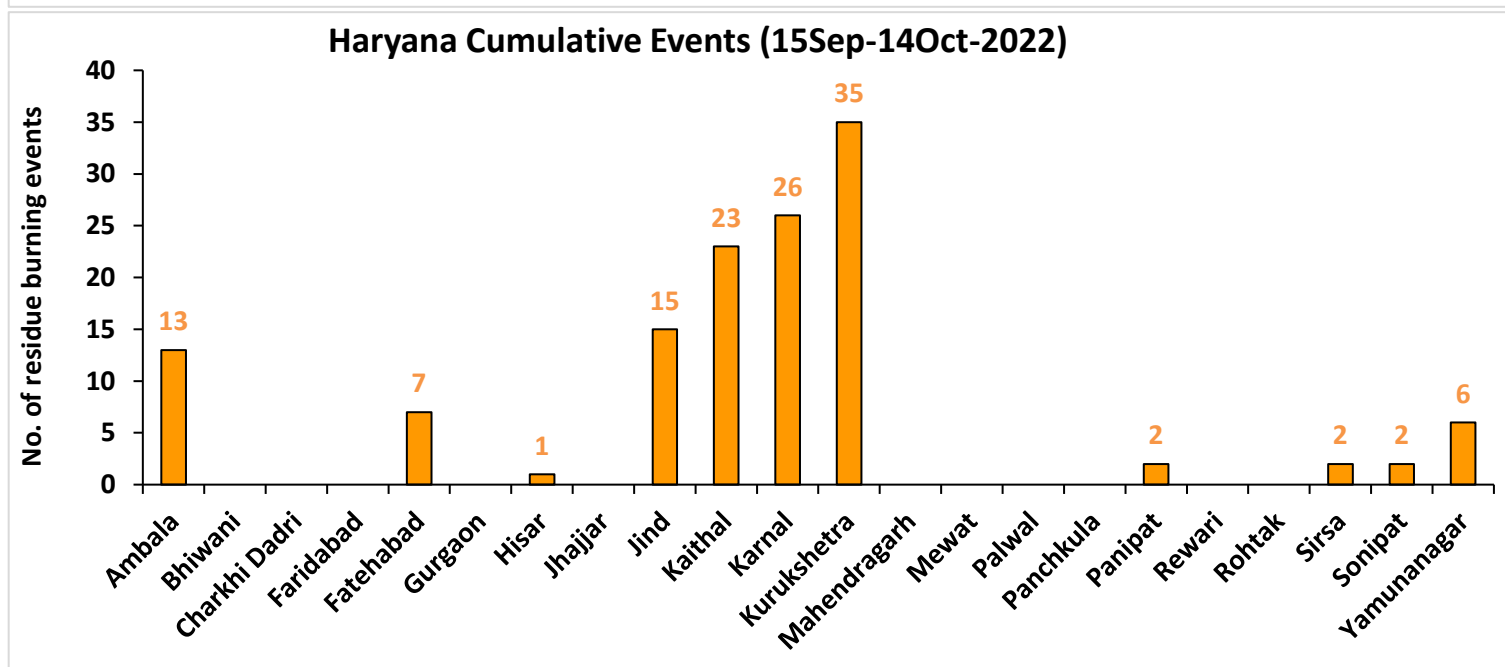
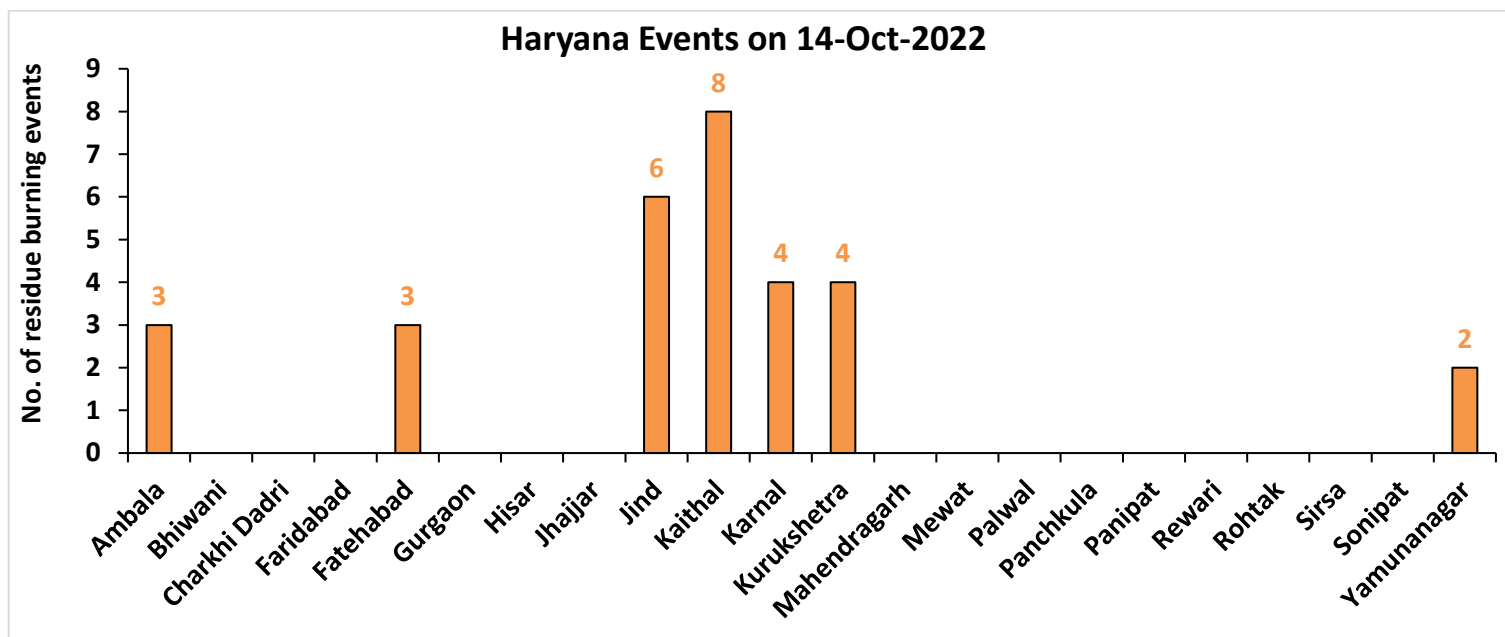
Fire Intensity (W/m²)

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



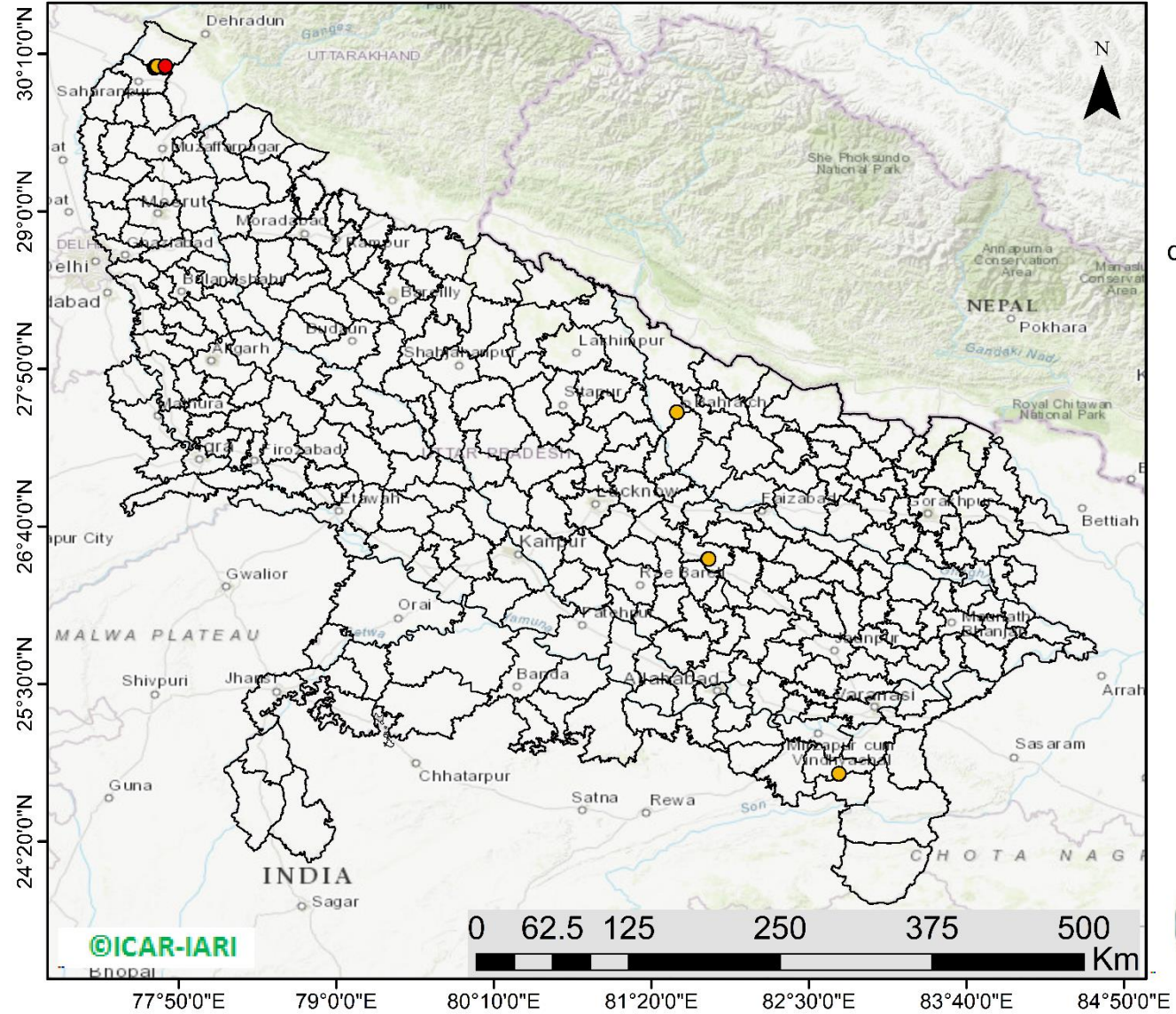
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15Sep- 14Oct-2022)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



11 burning events detected in Uttar Pradesh on (14th Oct 2022)

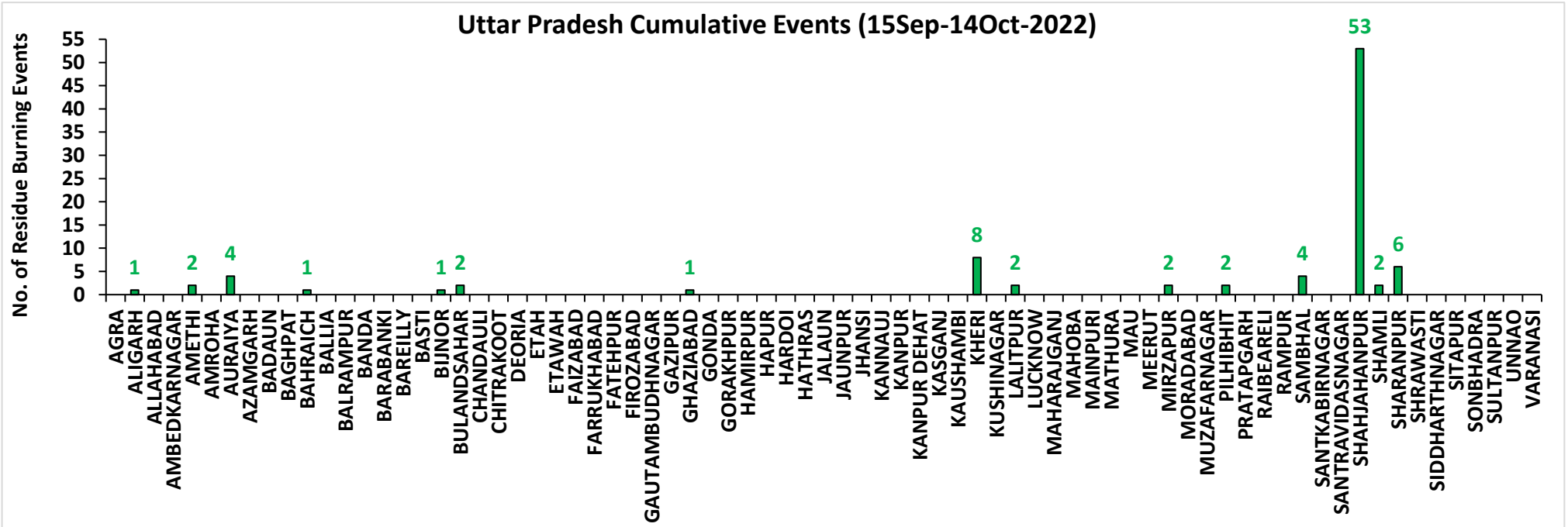
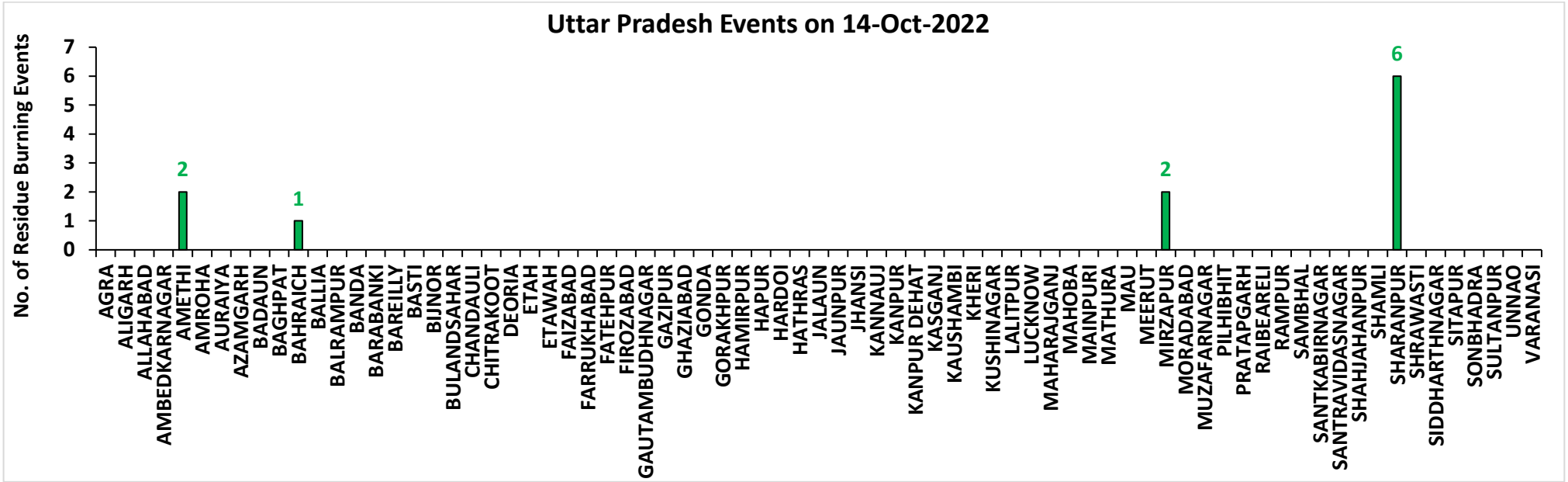
Fire Intensity (W/m2)

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



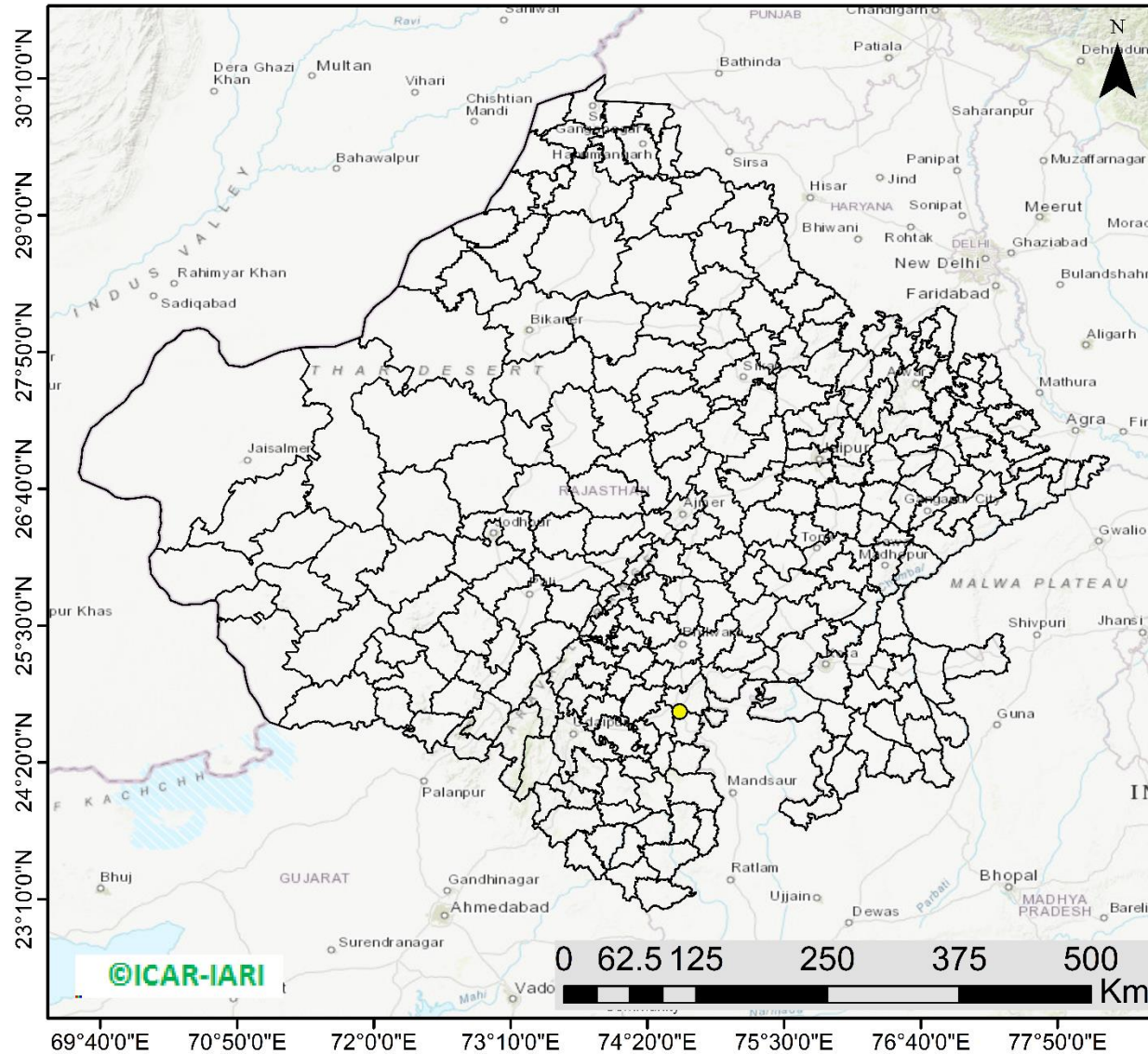
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep- 14Oct -2022)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



01 burning events detected in Rajasthan on (14th Oct 2022)

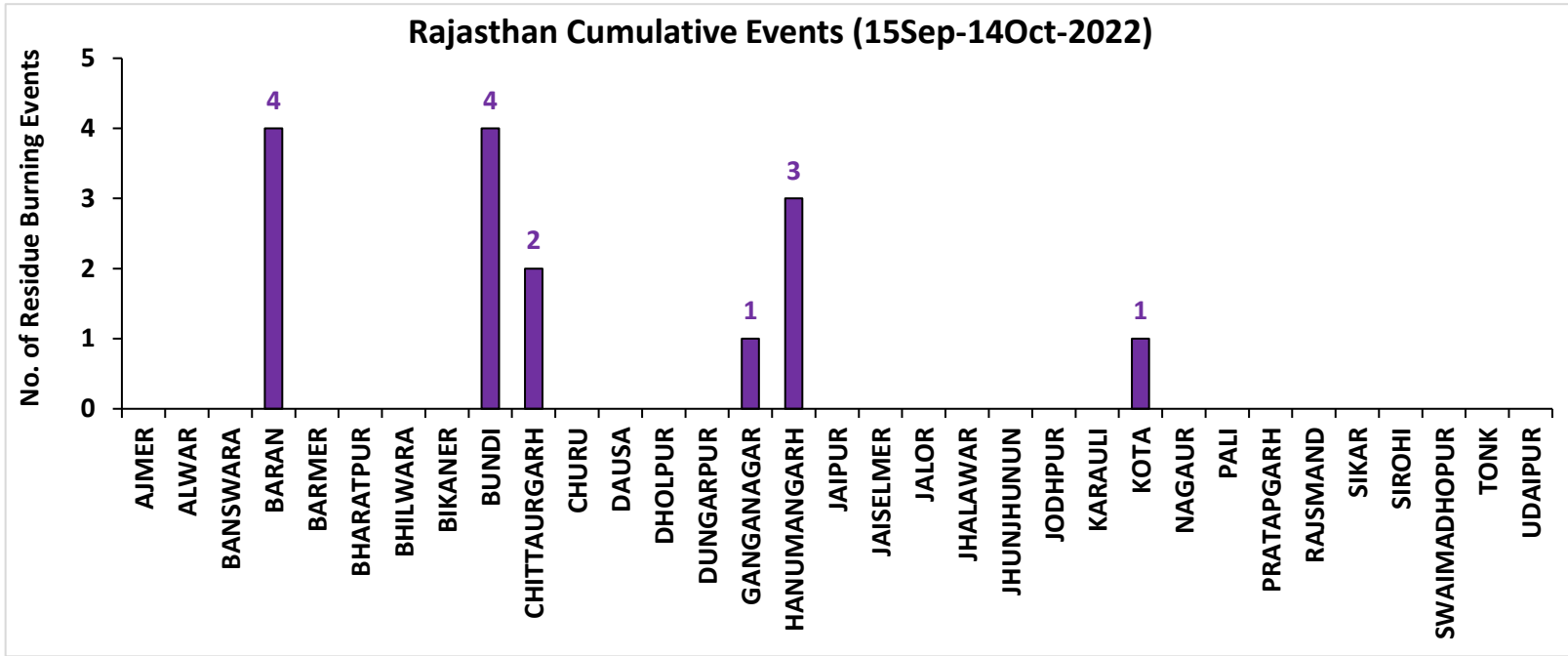
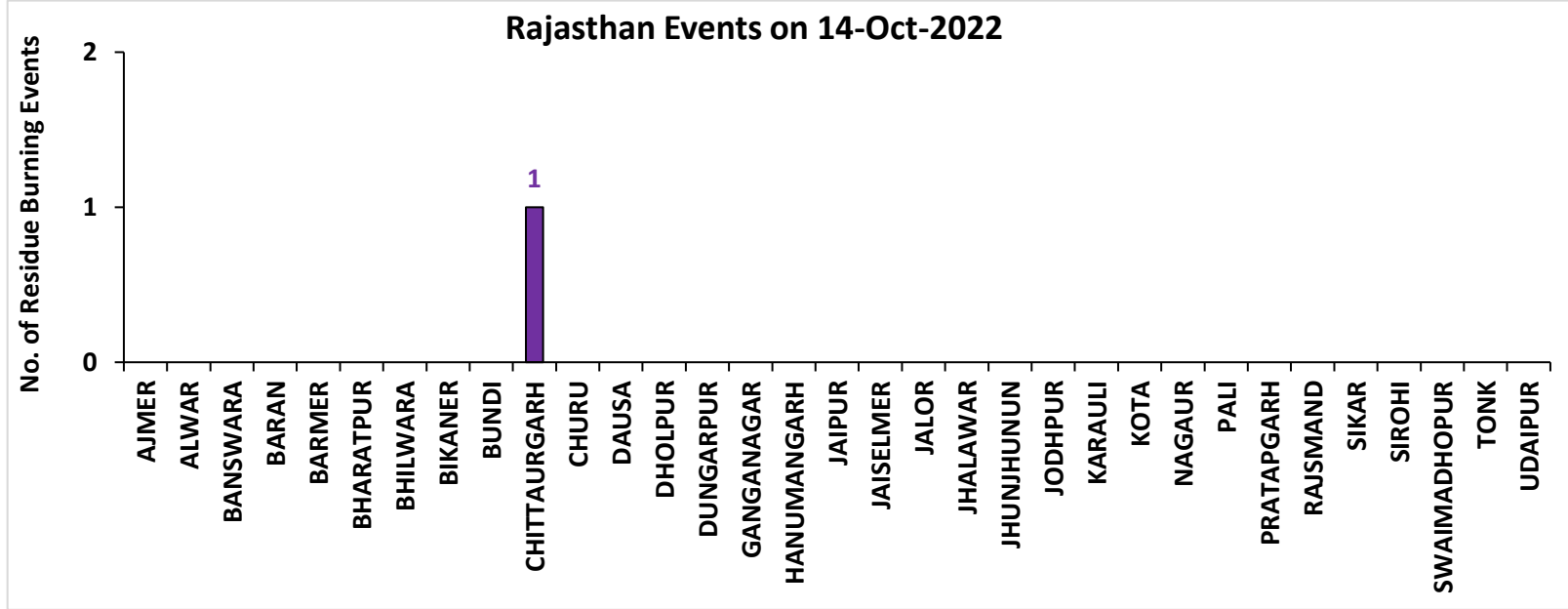
Fire Intensity (W/m²)

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



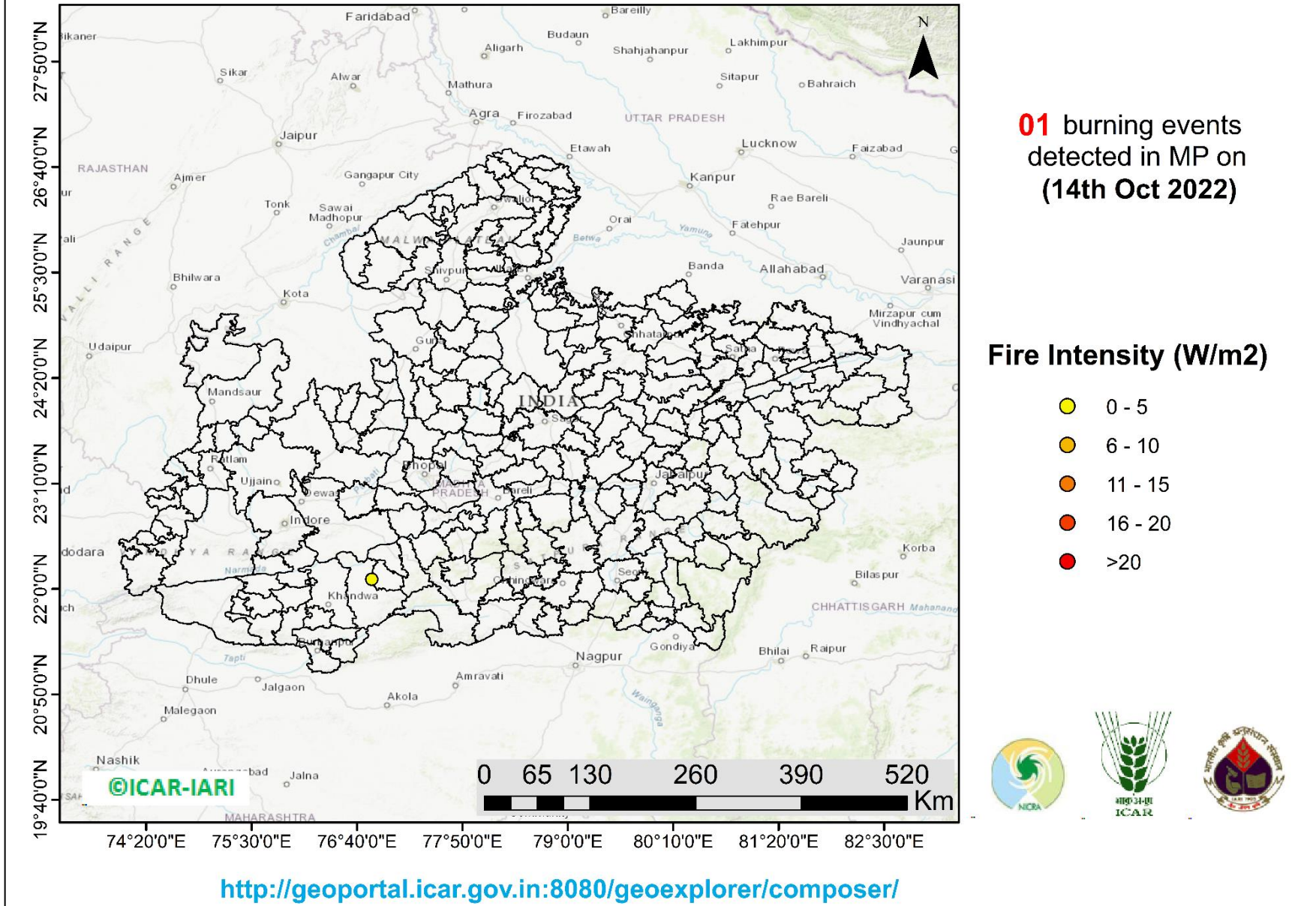
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15Sep- 14Oct -2022)

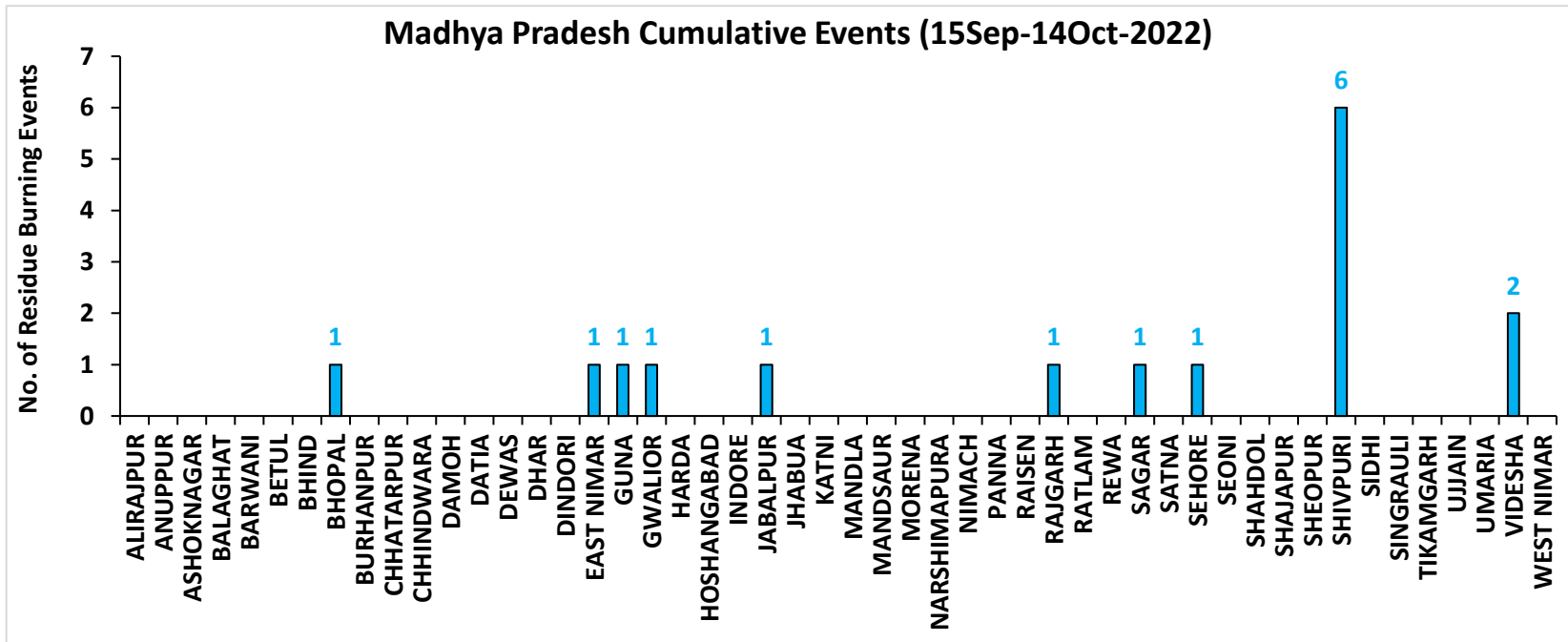
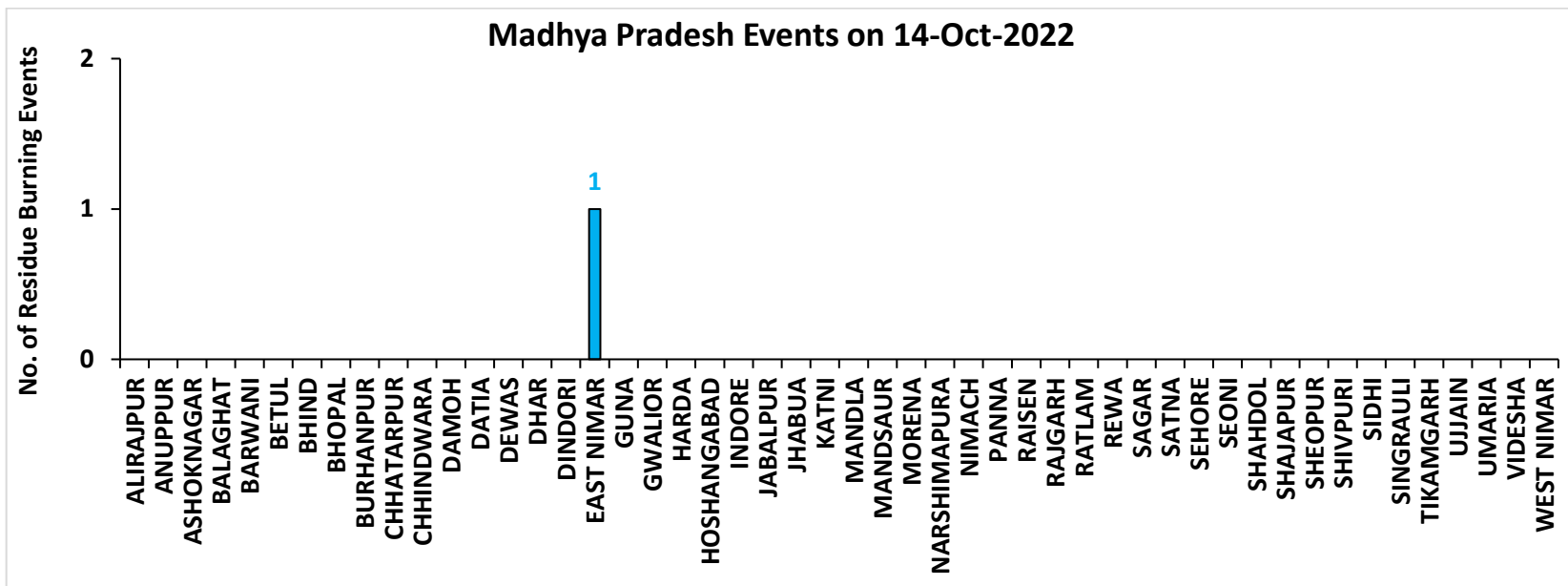


Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



District-wise cumulative number of residues burning events in Madhya Pradesh (15Sep- 14Oct -2022)



District-wise cumulative number of residues burning events detected in 2020 ,2021 and 2022
(Period: 15 September-14 October)

(a) Punjab

District	15 Sep-14 Oct 2022		
	2020	2021	2022
Amritsar	1642	423	540
Barnala	15	8	7
Bathinda	30	0	0
Faridkot	84	35	6
Fatehgarh Sahib	78	54	9
Fazilka	13	12	3
Firozpur	218	43	34
Gurdaspur	250	57	48
Hoshiarpur	24	1	0
Jalandhar	66	31	33
Kapurthala	116	51	47
Ludhiana	112	86	14
Mansa	30	1	3
Moga	32	14	15
Muktsar	10	10	1
Pathankot	0	0	0
Patiala	358	103	36
Rupnagar	12	6	0
Sangrur	91	19	25
SAS NAGAR (Mohali)	25	16	4
SBS Nagar	10	2	2
Tarn Taran	1000	314	242
Total	4216	1286	1069

(b) Haryana

District	15 Sep-14 Oct 2022		
	2020	2021	2022
AMBALA	82	21	13
BHIWANI	0	0	0
CHARKHI DADRI	0	0	0
FARIDABAD	0	1	0
FATEHABAD	38	20	7
GURGAON	0	0	0
HISAR	6	0	1
JHAJJAR	1	0	0
JIND	15	15	15
KAITHAL	101	103	23
KARNAL	168	180	26
KURUKSHETRA	120	105	35
MAHENDRAGARH	0	0	0
MEWAT	0	0	0
PALWAL	5	12	0
PANCHKULA	0	0	0
PANIPAT	7	5	2
REWARI	0	0	0
ROHTAK	0	0	0
SIRSA	7	1	2
SONIPAT	8	2	2
YAMUNANAGAR	38	22	6
Total	596	487	132

(c) Uttar Pradesh

District	15 Sep-14 Oct 2022										
	2020	2021	2022	GAUTAMBUDHNAGAR	1	7	0	MUZAFARNAGAR	2	1	0
AGRA	1	0	0	GAZIPUR	0	0	0	PILHIBHIT	5	26	2
ALIGARH	21	9	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	16	34	0
AMETHI	0	1	2	HAMIRPUR	1	0	0	SAMBHAL	6	4	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	36	118	53
BADAUN	0	0	0	JALAUN	0	0	0	SHAMLI	18	9	2
BAGHPAT	2	1	0	JAUNPUR	0	0	0	SHARANPUR	18	6	6
BAHRAICH	2	2	1	JHANSI	6	0	0	SHRAWASTI	2	0	0
BALLIA	0	0	0	KANNAUJ	3	0	0	SIDDHARTHANAGAR	0	0	0
BALRAMPUR	0	0	0	KANPUR	0	1	0	SITAPUR	9	4	0
BANDA	0	0	0	KANPUR DEHAT	3	0	0	SONBHADRA	0	0	0
BARABANKI	10	1	0	KASGANJ	1	0	0	SULTANPUR	0	0	0
BAREILLY	10	6	0	KAUSHAMBI	7	2	0	UNNAO	3	0	0
BASTI	2	0	0	KHERI	29	27	8	VARANASI	0	0	0
BIJNOR	4	1	1	KUSHINAGAR	0	0	0	Total	305	311	91
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	3	0				
ETAWAH	2	5	0	MATHURA	8	15	0				
FAIZABAD	1	0	0	MAU	0	0	0				
FARRUKHABAD	0	0	0	MEERUT	9	1	0				
FATEHPUR	14	1	0	MIRZAPUR	5	5	2				
FIROZABAD	4	2	0	MORADABAD	2	2	0				

(d) Delhi

District	15 Sep-14 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-14 Oct 2022		
	2020	2021	2022
AJMER	0	0	0
ALWAR	1	0	0
BANSWARA	0	0	0
BARAN	80	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	2
CHURU	0	0	0
DAUSA	0	0	0
DHOLPUR	0	0	0
DUNGARPUR	0	0	0
GANGANAGAR	2	0	1
HANUMANGARH	68	15	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	22	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	193	17	15

(f) Madhya Pradesh

District	15 Sep-14 Oct 2022						
	2020	2021	2022	PANNA			
ALIRAJPUR	0	0	0	RAISEN	10	1	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	3	0
BHIND	2	1	0	SEHORE	5	1	1
BHOPAL	5	4	1	SEONI	8	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	2	0	SHIVPURI	4	0	6
DATIA	28	3	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	1	UMARIA	0	0	0
GUNA	14	1	1	VIDESHA	51	5	2
GWALIOR	21	0	1	WEST NIMAR	2	0	0
HARDA	8	8	0	Total	290	43	16
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	14	3	0				
NARSHIMAPURA	2	2	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 - 14 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
14-Oct	605	229	82	69	98	30	9	68	11	0	0	0	16	1	1	15	11	1
Total	4216	1286	1069	596	487	132	305	311	91	3	0	2	193	17	15	290	43	16

Details of residue burning events in Punjab on 14-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMRITSAR	AJNALA	S-NPP	31.81530	74.90840	12:58:14	D	4.50
2	AMRITSAR	AJNALA	S-NPP	31.81620	74.91110	12:58:14	D	3.20
3	AMRITSAR	ATTARI	AQUA	31.58200	74.85400	13:27:59	D	9.20
4	AMRITSAR	HARSHA CHHINA	S-NPP	31.82370	74.70870	12:58:14	D	9.20
5	AMRITSAR	JANDIALA GURU	S-NPP	31.54810	75.08210	12:58:14	D	5.80
6	AMRITSAR	JANDIALA GURU	S-NPP	31.56930	75.09250	12:58:14	D	3.10
7	AMRITSAR	JANDIALA GURU	S-NPP	31.58800	75.04800	12:58:14	D	8.20
8	AMRITSAR	JANDIALA GURU	AQUA	31.58000	75.05300	13:27:59	D	16.00
9	AMRITSAR	MAJITHA	S-NPP	31.70070	75.04070	12:58:14	D	7.80
10	AMRITSAR	RAYYA	S-NPP	31.52190	75.13420	12:58:14	D	8.00
11	AMRITSAR	RAYYA	S-NPP	31.52410	75.13070	12:58:14	D	8.10
12	AMRITSAR	RAYYA	S-NPP	31.52860	75.15150	12:58:14	D	11.60
13	AMRITSAR	RAYYA	S-NPP	31.52980	75.14850	12:58:14	D	9.50
14	AMRITSAR	RAYYA	S-NPP	31.66470	75.29430	12:58:14	D	2.20
15	AMRITSAR	RAYYA	AQUA	31.52100	75.14600	13:27:59	D	12.10
16	AMRITSAR	TARSIKKA	S-NPP	31.62910	75.04130	12:58:14	D	2.30
17	AMRITSAR	TARSIKKA	S-NPP	31.63060	75.04480	12:58:14	D	5.30
18	AMRITSAR	TARSIKKA	S-NPP	31.67120	75.12150	12:58:14	D	4.10
19	AMRITSAR	TARSIKKA	AQUA	31.68300	75.22200	13:27:59	D	9.10
20	FATEHGARH SAHIB	AMLOH	S-NPP	30.55000	76.29290	12:58:14	D	5.20
21	FATEHGARH SAHIB	AMLOH	S-NPP	30.55090	76.29760	12:58:14	D	5.20

22	FATEHGARH SAHIB	SIRHIND	S-NPP	30.57040	76.32660	12:58:14	D	5.50
23	FATEHGARH SAHIB	SIRHIND	S-NPP	30.57270	76.32730	12:58:14	D	4.30
24	FIROZPUR	FIROZPUR	S-NPP	30.98250	74.54150	12:58:14	D	5.70
25	FIROZPUR	GHALL KHURD	S-NPP	30.94890	74.79450	12:58:14	D	9.90
26	FIROZPUR	MAMDOT	S-NPP	30.96740	74.49680	12:58:14	D	9.50
27	GURDASPUR	DHARIWAL	S-NPP	31.85710	75.29730	12:58:14	D	2.20
28	GURDASPUR	KALANAUR	S-NPP	31.97800	75.19930	12:58:14	D	2.40
29	GURDASPUR	QADIAN	S-NPP	31.77040	75.36320	12:58:14	D	6.10
30	GURDASPUR	QADIAN	AQUA	31.77100	75.43500	13:27:59	D	7.40
31	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.70280	75.30820	12:58:14	D	4.70
32	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.71800	75.24970	12:58:14	D	3.60
33	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.72690	75.41840	12:58:14	D	4.70
34	JALANDHAR	LOHIAN	S-NPP	31.14970	75.24780	12:58:14	D	10.80
35	JALANDHAR	LOHIAN	AQUA	31.04600	75.23900	13:27:59	D	9.20
36	JALANDHAR	LOHIAN	AQUA	31.11900	75.30700	13:27:59	D	10.20
37	JALANDHAR	MEHATPUR	AQUA	31.00600	75.40900	13:27:59	D	12.60
38	JALANDHAR	SHAHKOT	S-NPP	31.06460	75.29750	12:58:14	D	6.20
39	JALANDHAR	SHAHKOT	AQUA	31.11600	75.29200	13:27:59	D	22.00
40	KAPURTHALA	DHILWAN	AQUA	31.43400	75.33300	13:27:59	D	15.30
41	KAPURTHALA	NADALA	S-NPP	31.53420	75.43700	12:58:14	D	2.30
42	KAPURTHALA	SULTANPUR LODHI	AQUA	31.27500	75.14700	13:27:59	D	13.30
43	KAPURTHALA	SULTANPUR LODHI	AQUA	31.33600	75.17900	13:27:59	D	8.10
44	KAPURTHALA	SULTANPUR LODHI	AQUA	31.34200	75.18700	13:27:59	D	9.40
45	LUDHIANA	RAIKOT	S-NPP	30.60210	75.62940	12:58:14	D	4.30
46	MANSA	SARDULGARH	S-NPP	29.69660	75.25850	12:58:14	D	3.70
47	MANSA	SARDULGARH	S-NPP	29.69860	75.25650	12:58:14	D	3.80
48	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.92340	75.30280	12:58:14	D	2.80
49	PATIALA	PATIALA	S-NPP	30.40760	76.43710	12:58:14	D	2.80
50	PATIALA	PATIALA	AQUA	30.40700	76.40800	13:27:59	D	8.00
51	PATIALA	PATIALA	AQUA	30.41000	76.42100	13:27:59	D	7.20
52	PATIALA	PATRAN	S-NPP	29.95650	76.12020	12:58:14	D	2.50
53	PATIALA	SAMANA	S-NPP	30.10640	76.22340	12:58:14	D	5.10
54	PATIALA	SAMANA	AQUA	30.11700	76.11200	13:27:59	D	13.00

55	SANGRUR	ANDANA	S-NPP	29.73210	75.94200	12:58:14	D	6.50
56	SANGRUR	ANDANA	S-NPP	29.83660	76.02590	12:58:14	D	6.20
57	TARN TARAN	BHIKHIWIND	S-NPP	31.27890	74.70830	12:58:14	D	9.70
58	TARN TARAN	BHIKHIWIND	S-NPP	31.32070	74.68730	12:58:14	D	4.10
59	TARN TARAN	BHIKHIWIND	S-NPP	31.35220	74.65420	12:58:14	D	5.80
60	TARN TARAN	BHIKHIWIND	AQUA	31.34600	74.64800	13:27:59	D	8.80
61	TARN TARAN	BHIKHIWIND	AQUA	31.37200	74.60800	13:27:59	D	18.90
62	TARN TARAN	CHOHLA SAHIB	S-NPP	31.27120	75.04280	12:58:14	D	4.60
63	TARN TARAN	GANDIWIND TATLA	S-NPP	31.46290	74.74230	12:58:14	D	3.00
64	TARN TARAN	GANDIWIND TATLA	S-NPP	31.47370	74.70400	12:58:14	D	5.50
65	TARN TARAN	GANDIWIND TATLA	S-NPP	31.50670	74.69990	12:58:14	D	10.10
66	TARN TARAN	GANDIWIND TATLA	AQUA	31.54900	74.79800	13:27:59	D	9.50
67	TARN TARAN	KHADUR SAHIB	S-NPP	31.39440	75.05750	12:58:14	D	7.40
68	TARN TARAN	KHADUR SAHIB	S-NPP	31.39460	75.06020	12:58:14	D	11.80
69	TARN TARAN	KHADUR SAHIB	S-NPP	31.39550	75.06270	12:58:14	D	7.40
70	TARN TARAN	KHADUR SAHIB	S-NPP	31.43350	75.06280	12:58:14	D	5.50
71	TARN TARAN	KHADUR SAHIB	S-NPP	31.45090	75.14130	12:58:14	D	6.80
72	TARN TARAN	KHADUR SAHIB	S-NPP	31.48860	75.14120	12:58:14	D	8.60
73	TARN TARAN	KHADUR SAHIB	AQUA	31.49600	75.15800	13:27:59	D	17.00
74	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.32900	74.97780	12:58:14	D	5.40
75	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.35630	75.01510	12:58:14	D	6.10
76	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.39300	74.94470	12:58:14	D	6.00
77	TARN TARAN	NAUSHERA PANNUAN	AQUA	31.34000	74.93500	13:27:59	D	10.10
78	TARN TARAN	NAUSHERA PANNUAN	AQUA	31.37400	74.87800	13:27:59	D	13.60
79	TARN TARAN	PATTI	AQUA	31.17800	74.82600	13:27:59	D	14.00
80	TARN TARAN	PATTI	AQUA	31.18000	74.81800	13:27:59	D	15.70
81	TARN TARAN	TARN TARAN	S-NPP	31.43150	74.85870	12:58:14	D	4.00
82	TARN TARAN	TARN TARAN	AQUA	31.43800	74.90300	13:27:59	D	8.70

Details of residue burning events in Haryana on 14-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMBALA	SHAHZADPUR	S-NPP	30.39230	77.03390	12:58:14	D	5.50
2	AMBALA	SHAHZADPUR	S-NPP	30.39420	77.03240	12:58:14	D	4.30
3	AMBALA	SHAHZADPUR	S-NPP	30.40810	77.04770	12:58:14	D	2.10
4	FATEHABAD	TOHANA	S-NPP	29.61460	75.90300	12:58:14	D	4.00
5	FATEHABAD	TOHANA	S-NPP	29.61670	75.90470	12:58:14	D	5.90
6	FATEHABAD	TOHANA	S-NPP	29.72980	75.93960	12:58:14	D	6.10
7	JIND	NARWANA	S-NPP	29.55110	76.04300	12:58:14	D	2.80
8	JIND	NARWANA	AQUA	29.51500	76.02300	13:27:59	D	14.40
9	JIND	UCHANA	S-NPP	29.45550	76.21860	12:58:14	D	2.00
10	JIND	UCHANA	S-NPP	29.45710	76.22020	12:58:14	D	5.90
11	JIND	UCHANA	S-NPP	29.53010	76.07510	12:58:14	D	8.20
12	JIND	UCHANA	S-NPP	29.53090	76.07260	12:58:14	D	5.10
13	KAITHAL	GUHLA	S-NPP	30.08660	76.45270	12:58:14	D	3.10
14	KAITHAL	GUHLA	S-NPP	30.09120	76.43180	12:58:14	D	1.80
15	KAITHAL	KAITHAL	S-NPP	29.84970	76.55120	12:58:14	D	2.60
16	KAITHAL	KAITHAL	S-NPP	29.88360	76.50920	12:58:14	D	2.70
17	KAITHAL	PUNDRI	S-NPP	29.77320	76.63510	12:58:14	D	7.00
18	KAITHAL	PUNDRI	S-NPP	29.82300	76.61680	12:58:14	D	3.00
19	KAITHAL	PUNDRI	S-NPP	29.86590	76.55310	12:58:14	D	1.80
20	KAITHAL	PUNDRI	S-NPP	29.89290	76.57490	12:58:14	D	4.00
21	KARNAL	CHIRAO	S-NPP	29.66630	76.71100	12:58:14	D	10.20
22	KARNAL	CHIRAO	S-NPP	29.66730	76.70930	12:58:14	D	6.30
23	KARNAL	CHIRAO	S-NPP	29.66750	76.81910	12:58:14	D	2.50
24	KARNAL	GHARAUNDA	AQUA	29.53100	76.93700	13:27:59	D	8.10
25	KURUKSHETRA	PEHOWA	S-NPP	29.97410	76.52600	12:58:14	D	2.50
26	KURUKSHETRA	PEHOWA	S-NPP	30.09150	76.47590	12:58:14	D	2.10
27	KURUKSHETRA	THANESAR	S-NPP	29.97130	76.95110	12:58:14	D	1.20
28	KURUKSHETRA	THANESAR	AQUA	29.89500	76.84300	13:27:59	D	16.20
29	YAMUNANAGAR	BILASPUR	S-NPP	30.31160	77.27150	12:58:14	D	5.90
30	YAMUNANAGAR	SADHAURA	S-NPP	30.37150	77.23860	12:58:14	D	2.60

Details of residue burning events in Uttar Pradesh on 14-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMETHI	MUSAFIRKHANA	S-NPP	26.42450	81.75320	12:58:14	D	5.90
2	AMETHI	MUSAFIRKHANA	S-NPP	26.42520	81.75750	12:58:14	D	5.90
3	BAHRAICH	MAHASI	S-NPP	27.51200	81.52240	12:58:14	D	6.00
4	MIRZAPUR	MARIHAN	S-NPP	24.83190	82.72320	12:58:14	D	2.80
5	MIRZAPUR	MARIHAN	S-NPP	24.83530	82.72250	12:58:14	D	8.80
6	SHARANPUR	BEHAT	AQUA	30.06400	77.66600	13:27:59	D	74.30
7	SHARANPUR	BEHAT	AQUA	30.06400	77.72600	13:27:59	D	10.80
8	SHARANPUR	BEHAT	AQUA	30.07500	77.67600	13:27:59	D	6.90
9	SHARANPUR	BEHAT	AQUA	30.07500	77.73500	13:27:59	D	22.00
10	SHARANPUR	SHARANPUR	AQUA	30.06200	77.65500	13:27:59	D	20.40
11	SHARANPUR	SHARANPUR	AQUA	30.07300	77.66400	13:27:59	D	49.70

Details of residue burning events in Rajasthan on 14-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	CHITTAURGARH	CHITTAURGARH	S-NPP	24.76510	74.60980	01:48:14	N	1.20

Details of residue burning events in Madhya Pradesh on 14-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	EAST NIMAR	HARSUD	S-NPP	22.10520	76.83080	01:48:14	N	1.20

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**

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>)
