

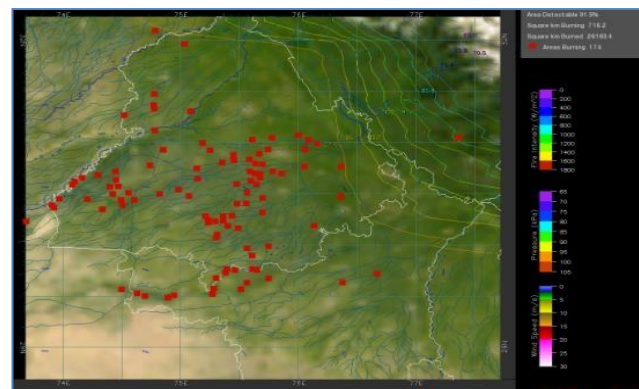
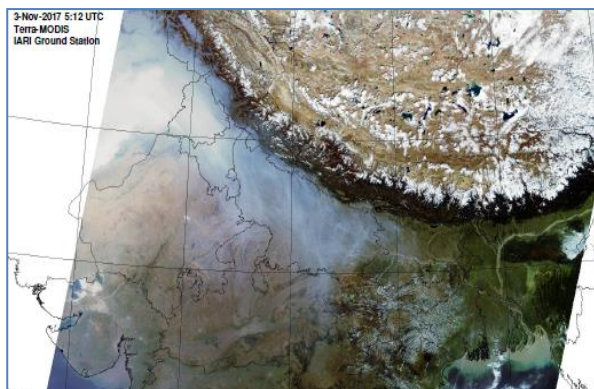


MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2021

**Bulletin
No. 28**

**Events Date:
12-Oct-2021**

**Issued on:
12-Oct-2021**



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**

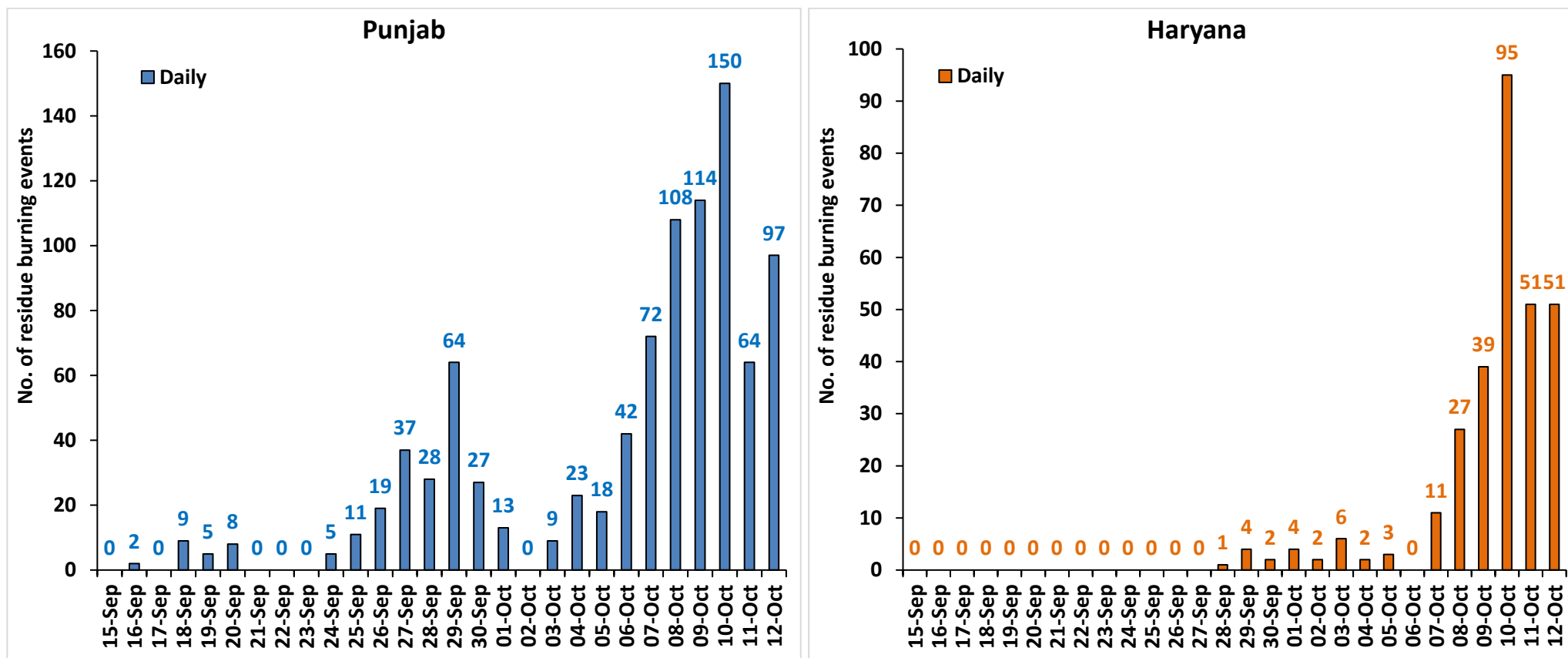
<http://creams.iari.res.in>

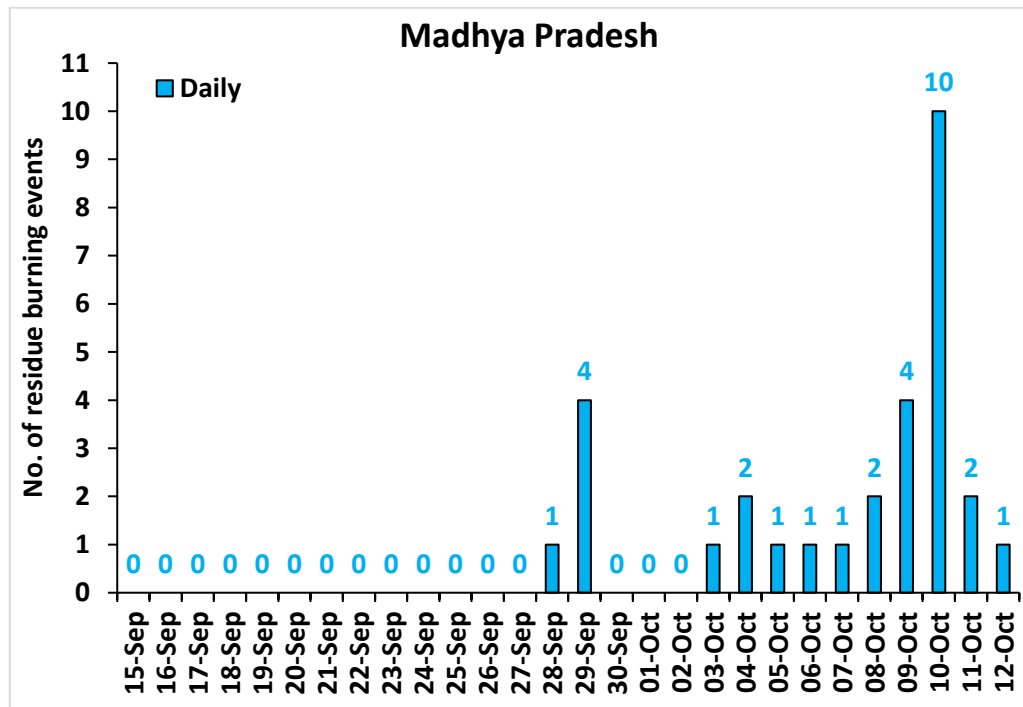
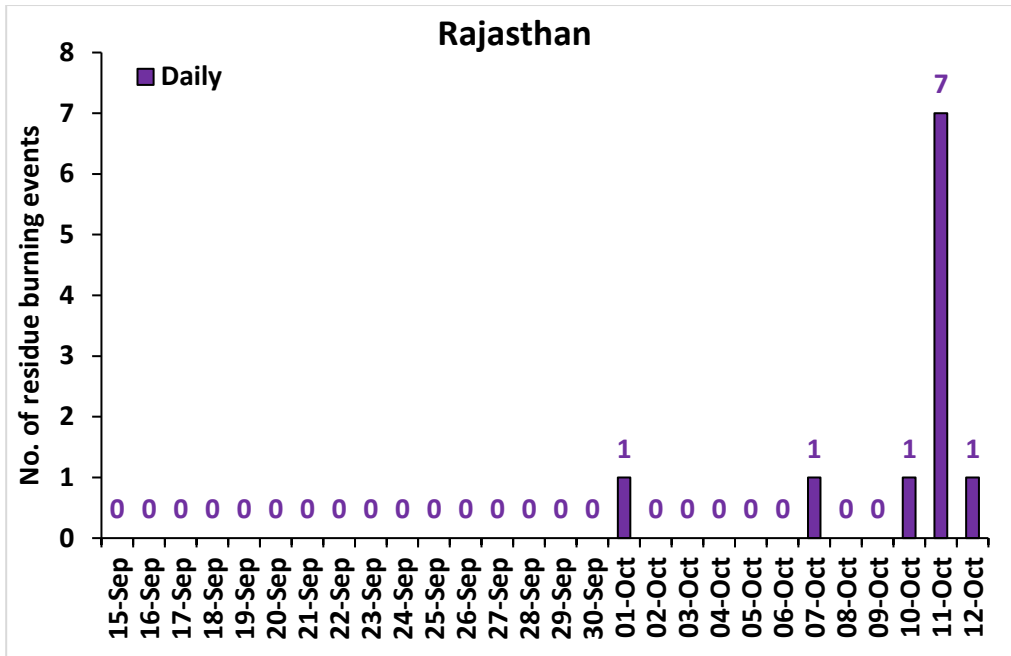
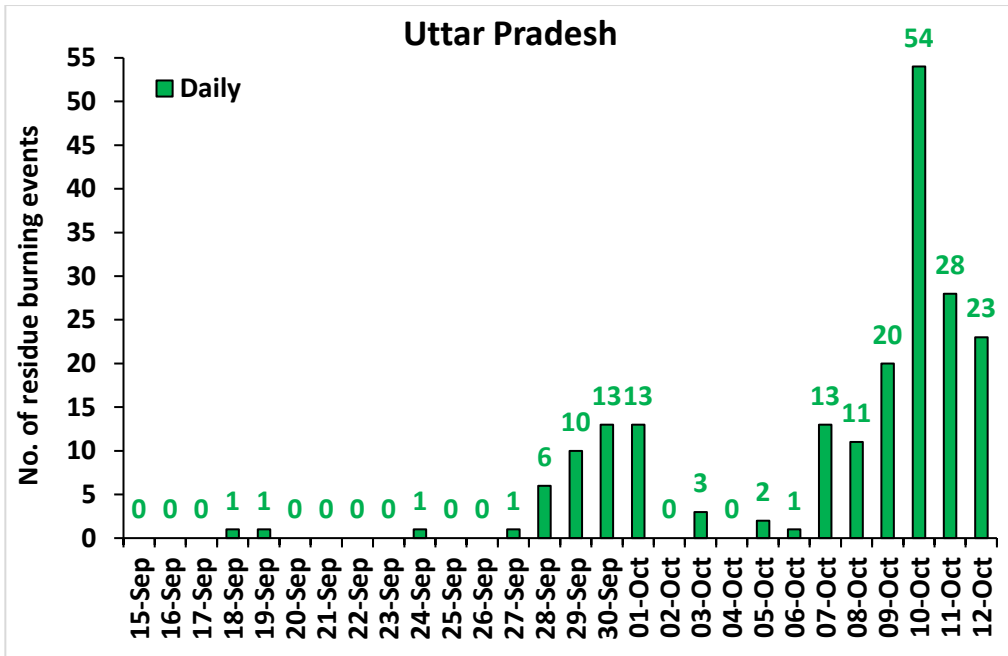


Highlights for 12-October-2021

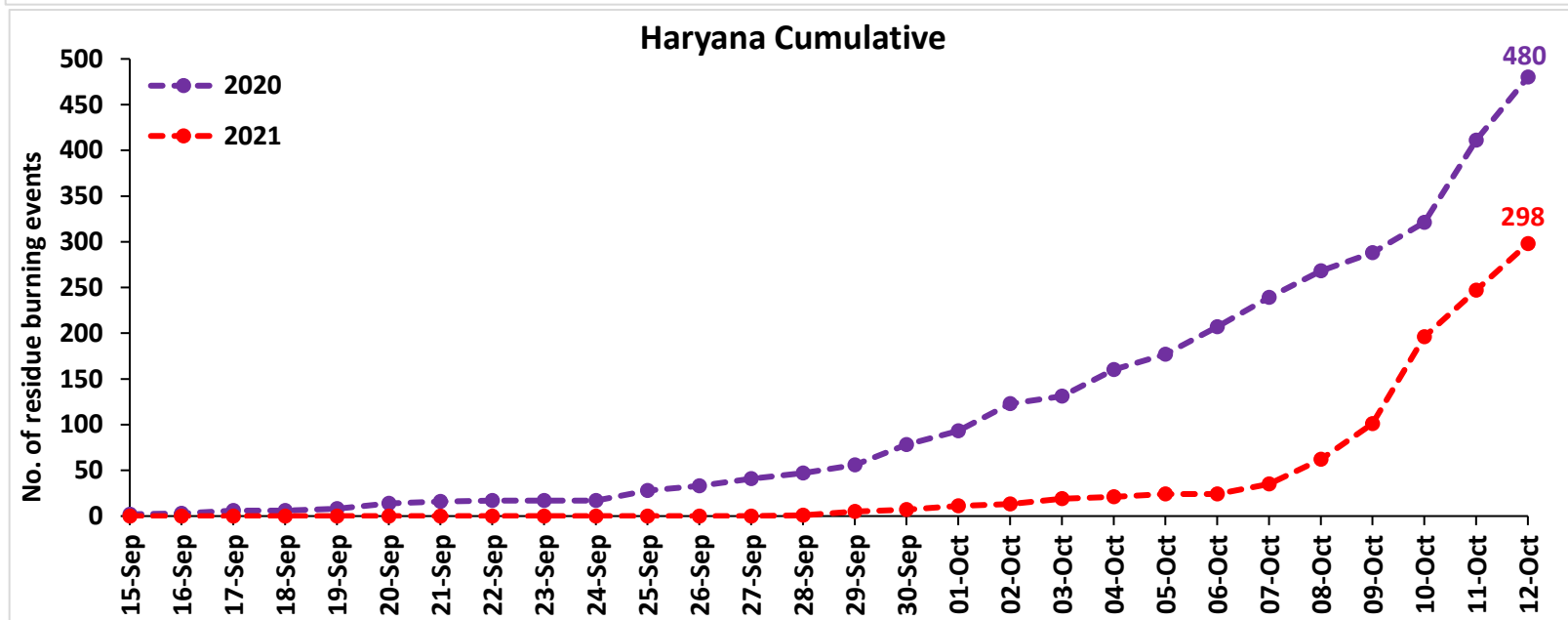
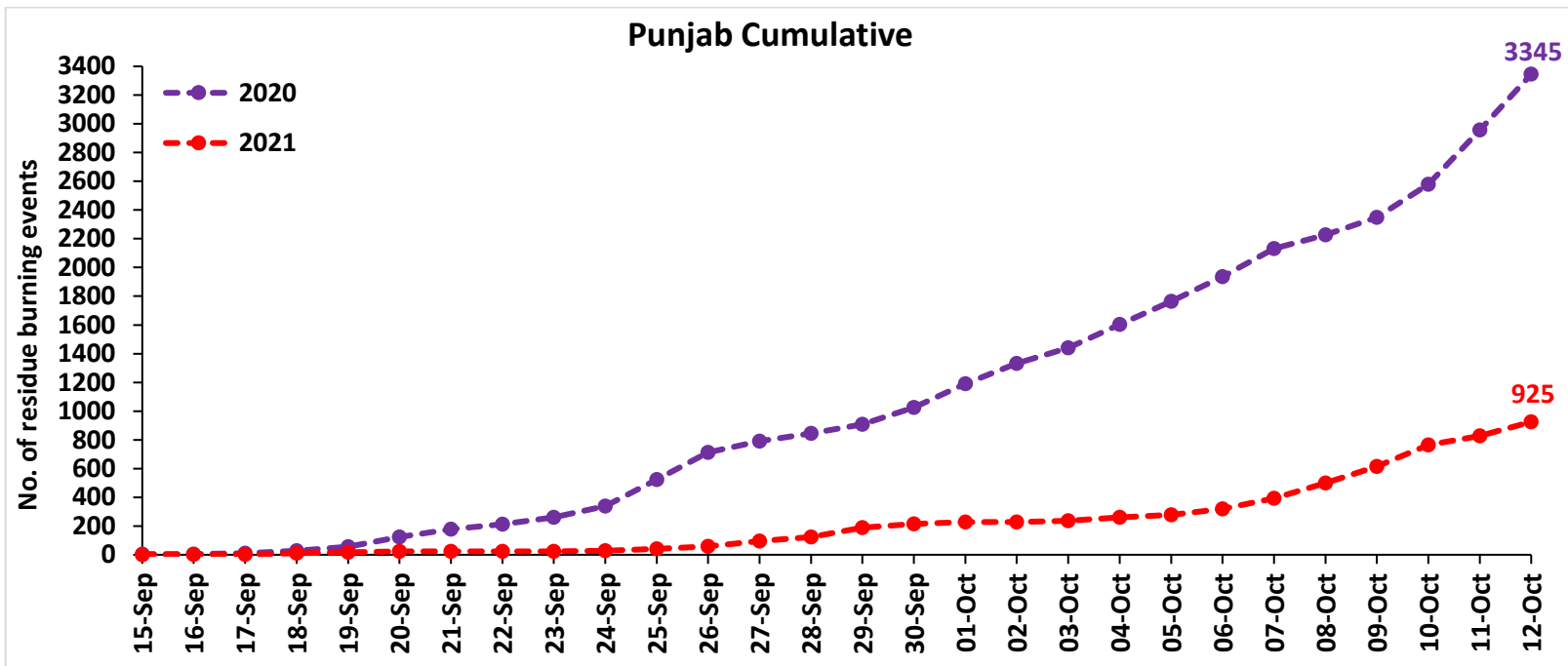
- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the new "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **173** residue burning events in the six study States on 12-Oct-2021.
- The state wise events detected on 12-Oct-2021 were **97** in Punjab, **51** in Haryana, **23** in UP, **0** in Delhi, **1** in Rajasthan and **1** in MP.
- Detection of burning events by satellites was hampered due to scattered clouds over southern Madhya Pradesh.

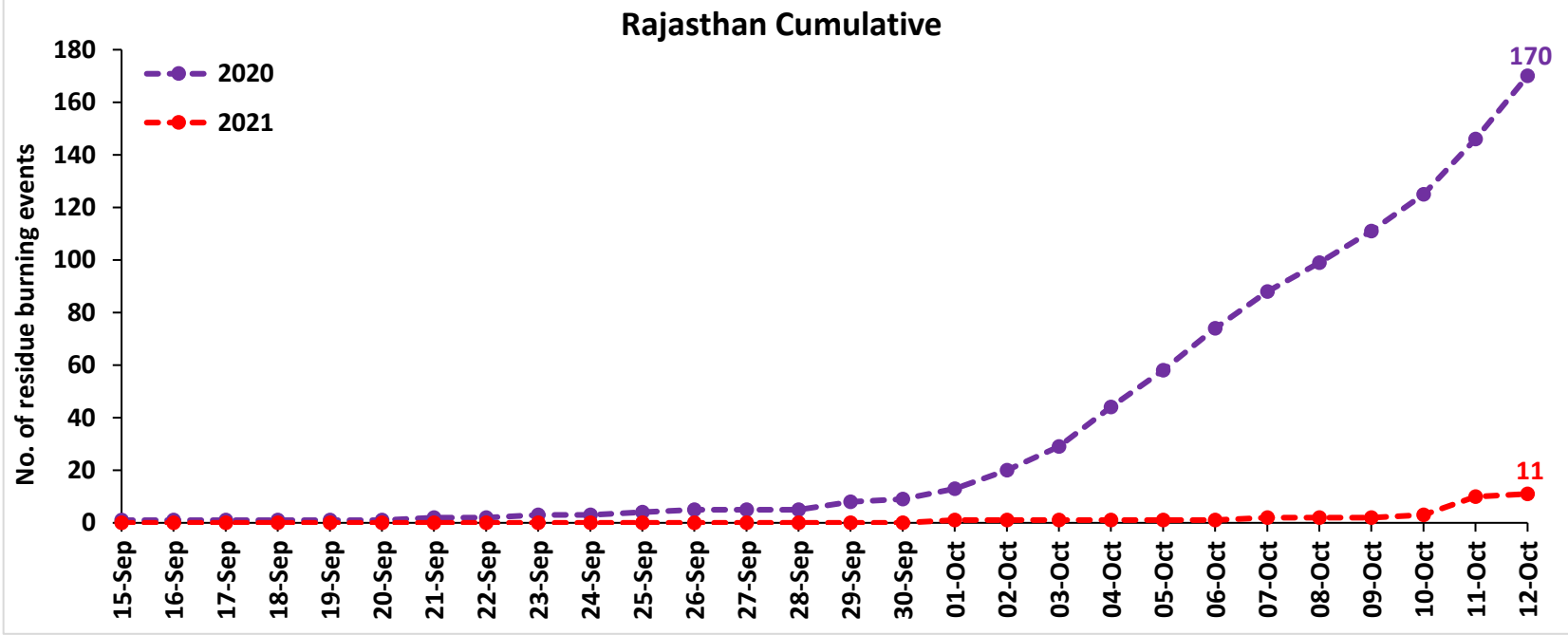
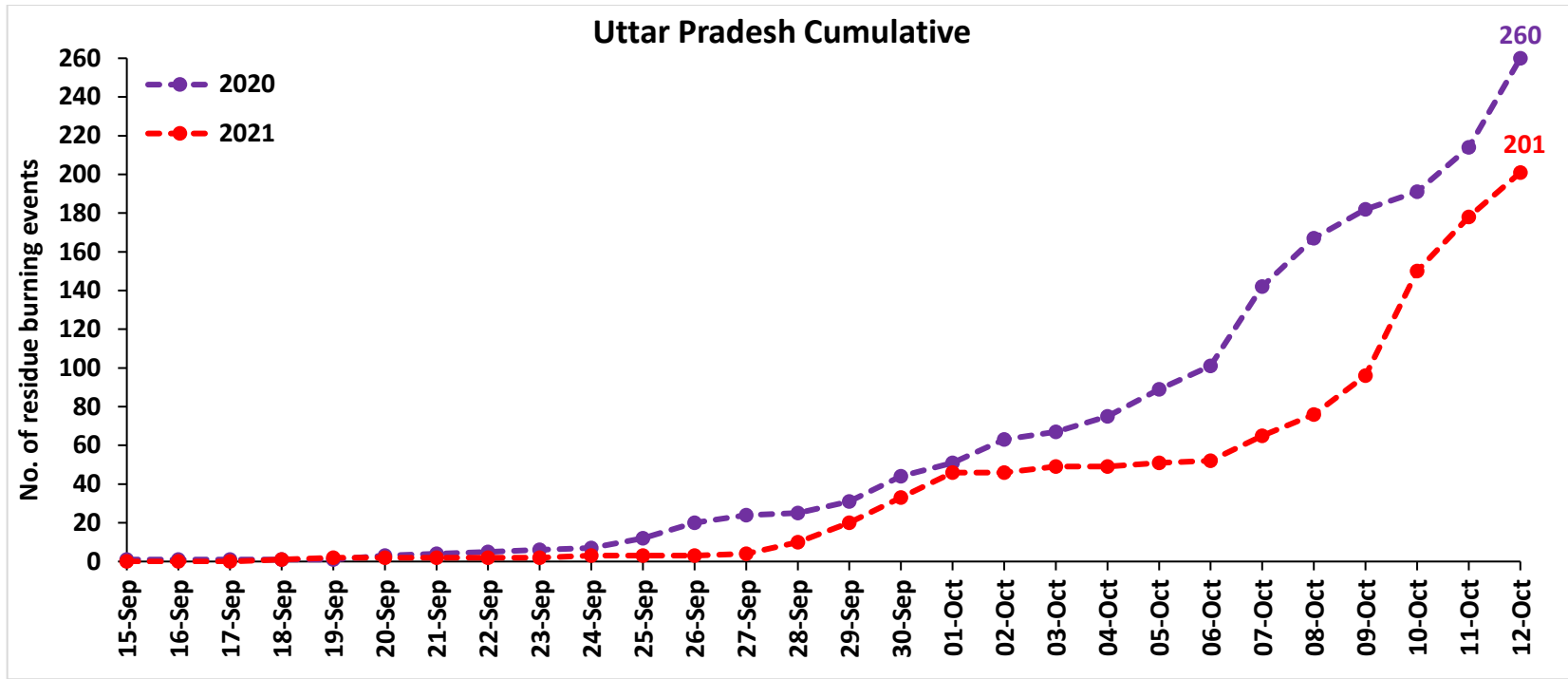
Temporal distribution of rice residue burning events for the study States in 2021

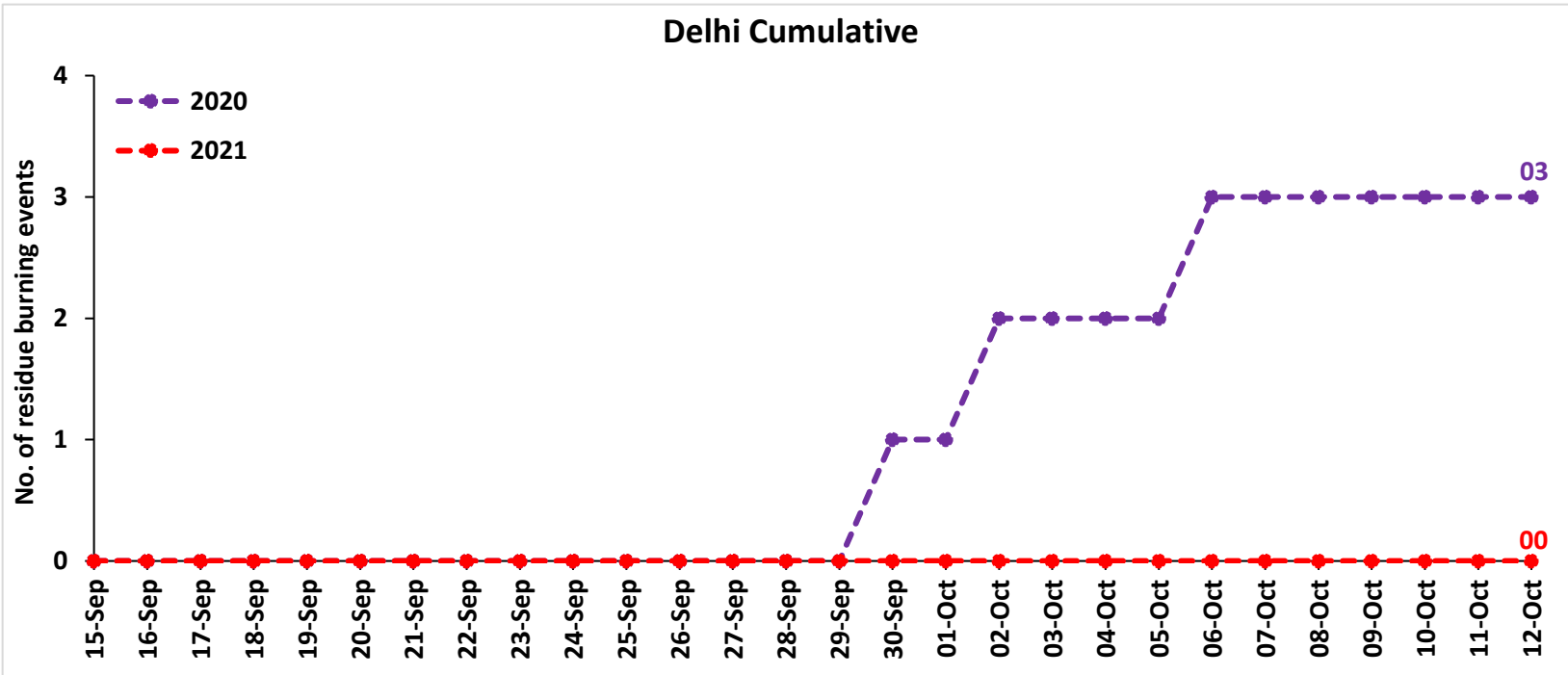
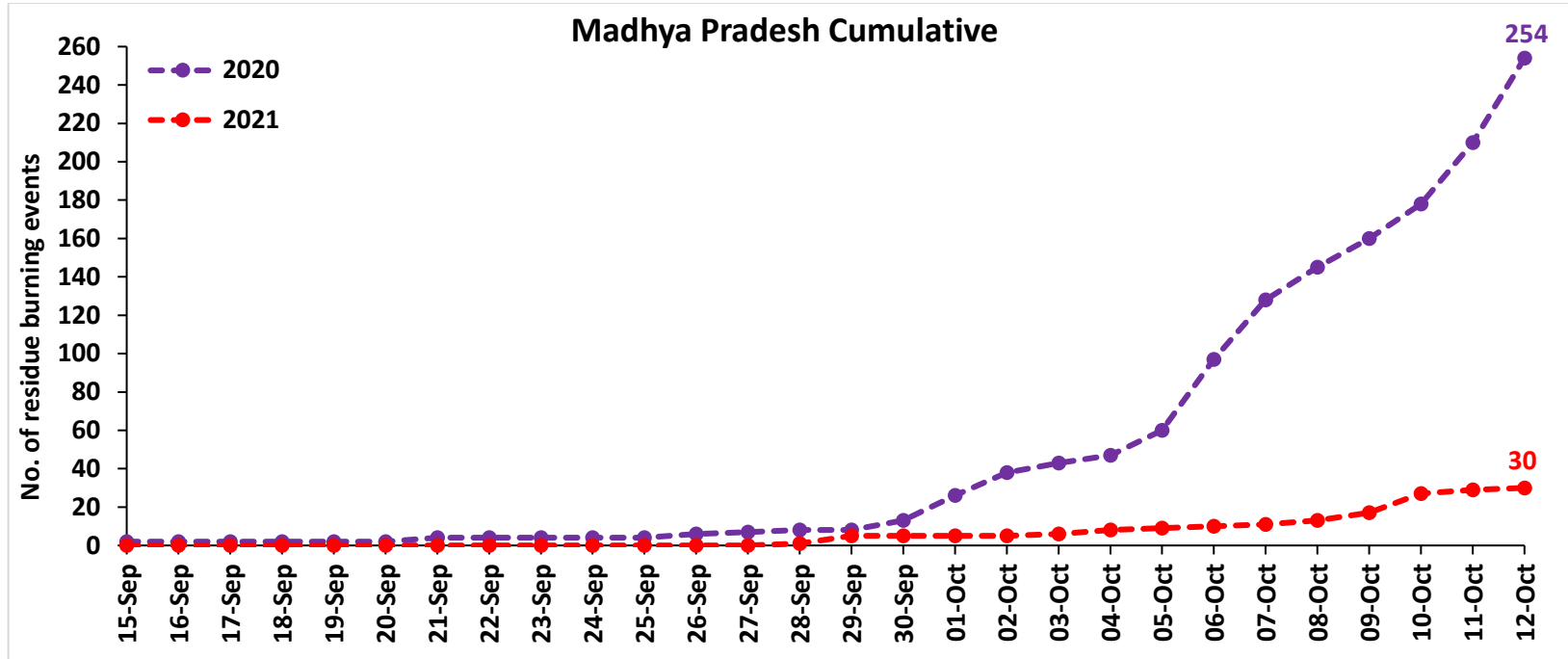




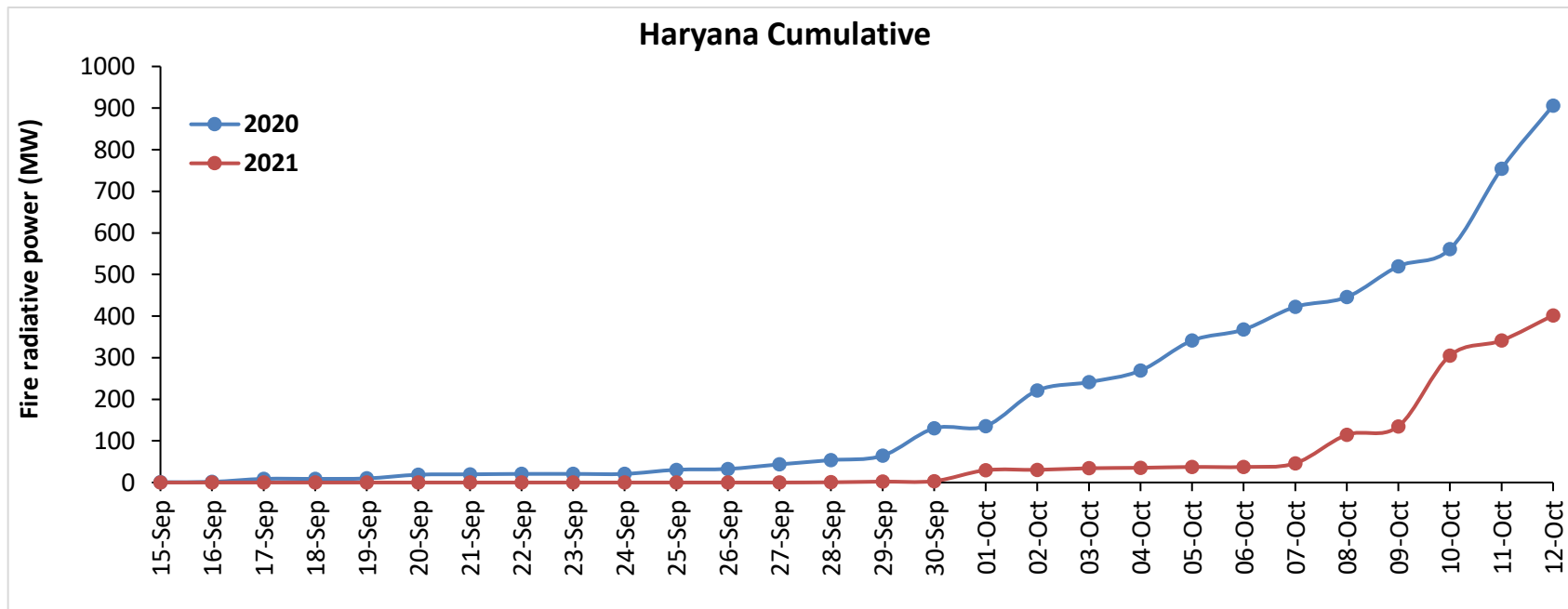
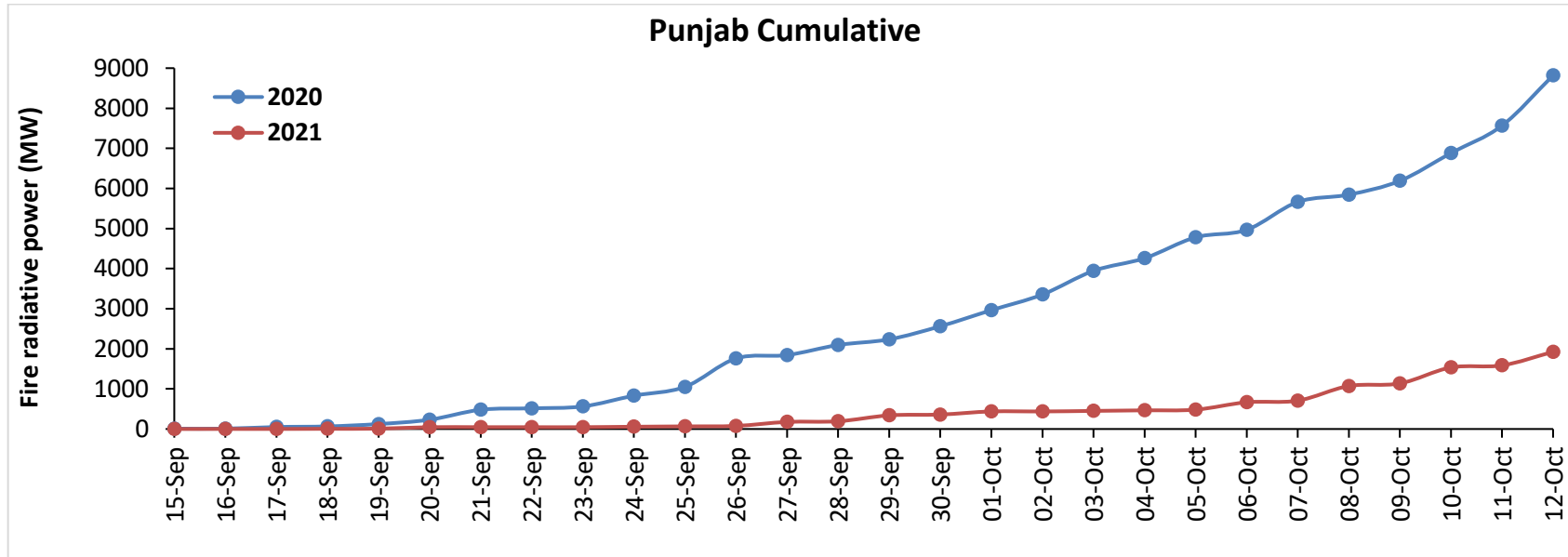
Comparison of residue burning events in current year (2021) with previous year (2020) for the study States



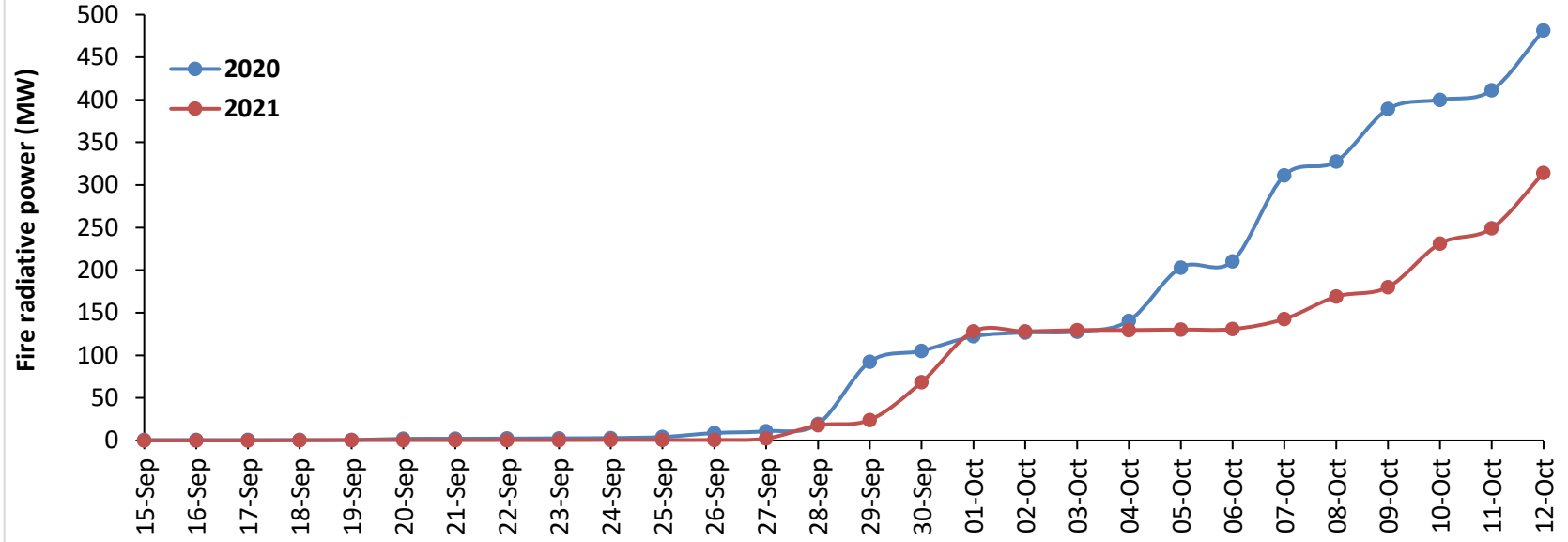




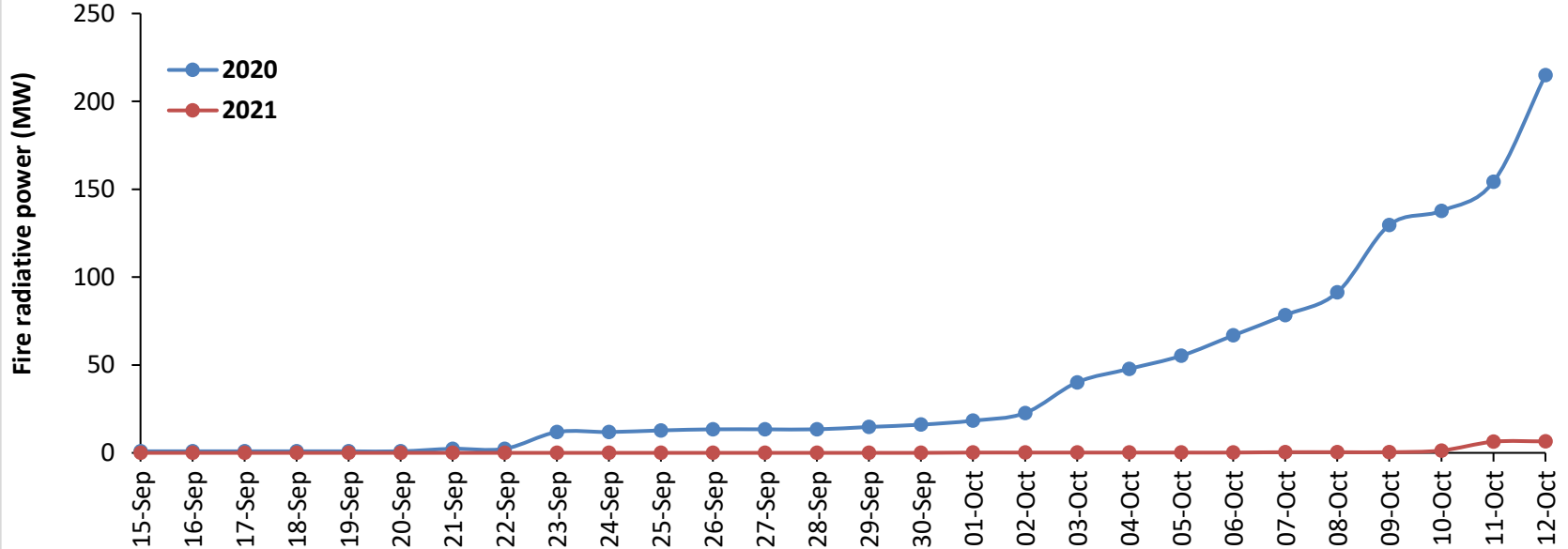
Comparison of residue burning fire power in current year (2021) with previous year (2020) for the study States

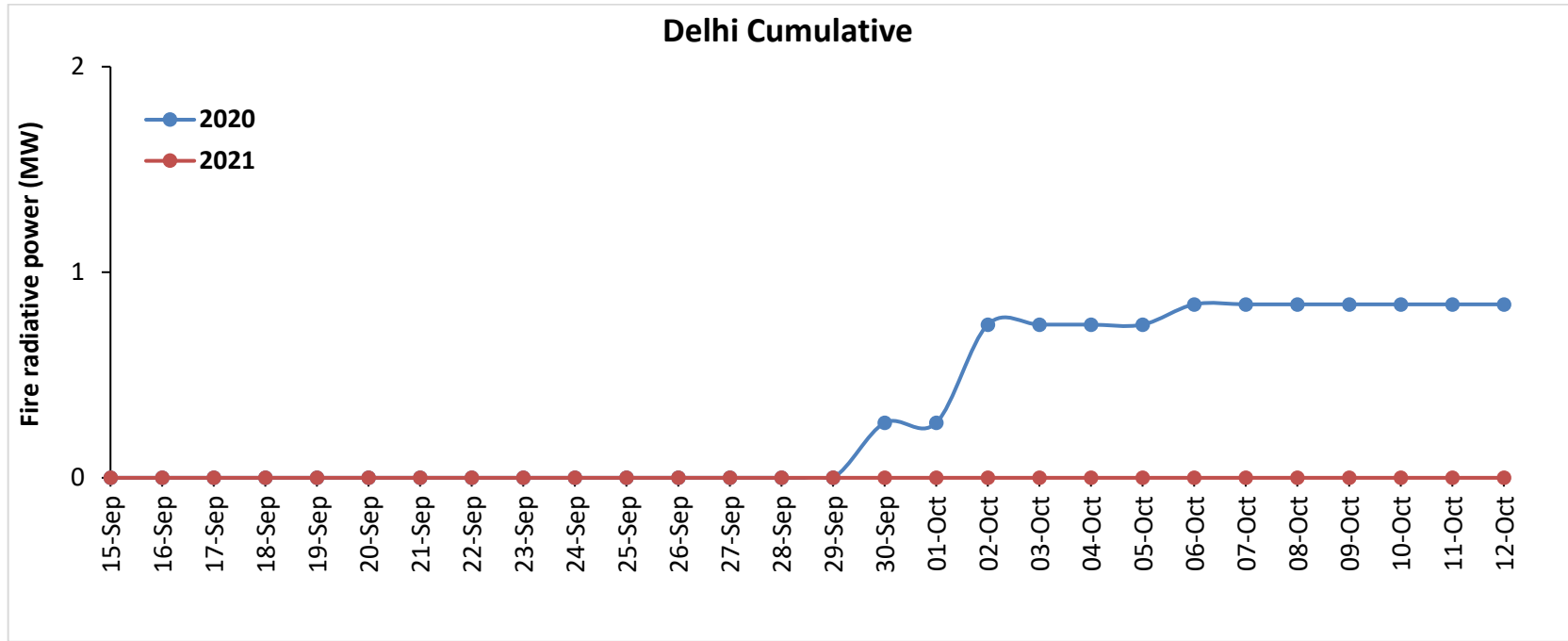
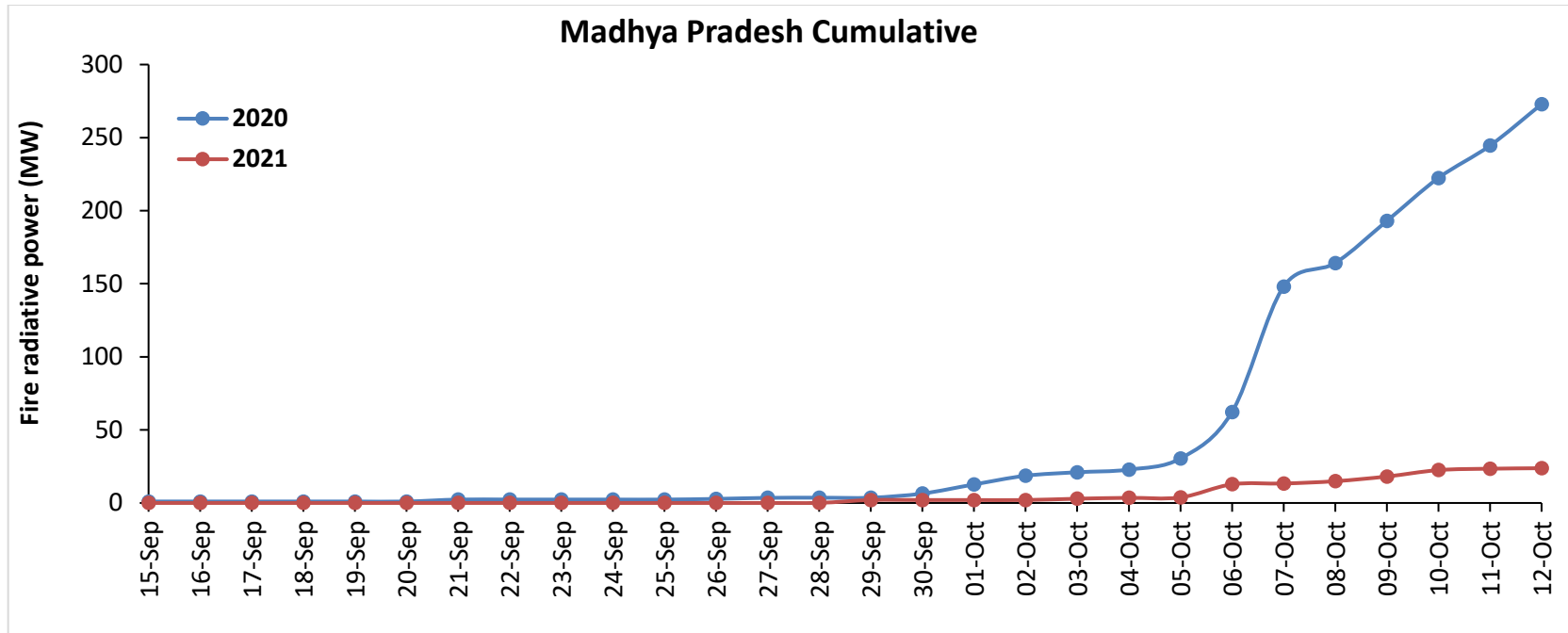


Uttar Pradesh Cumulative



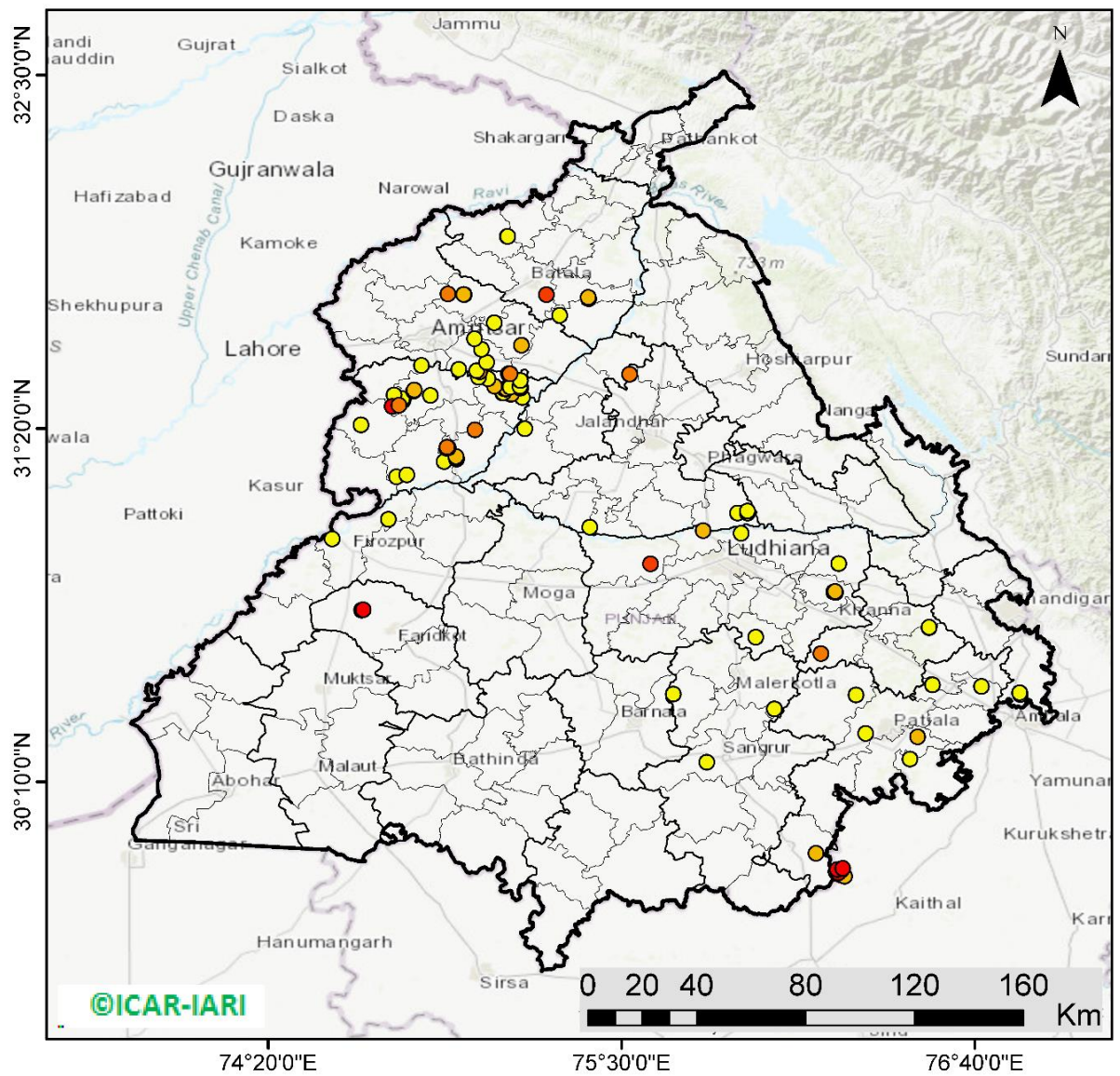
Rajasthan Cumulative





Punjab

RICE RESIDUE BURNING IN PUNJAB



97 burning events detected in Punjab on **12th October 2021**

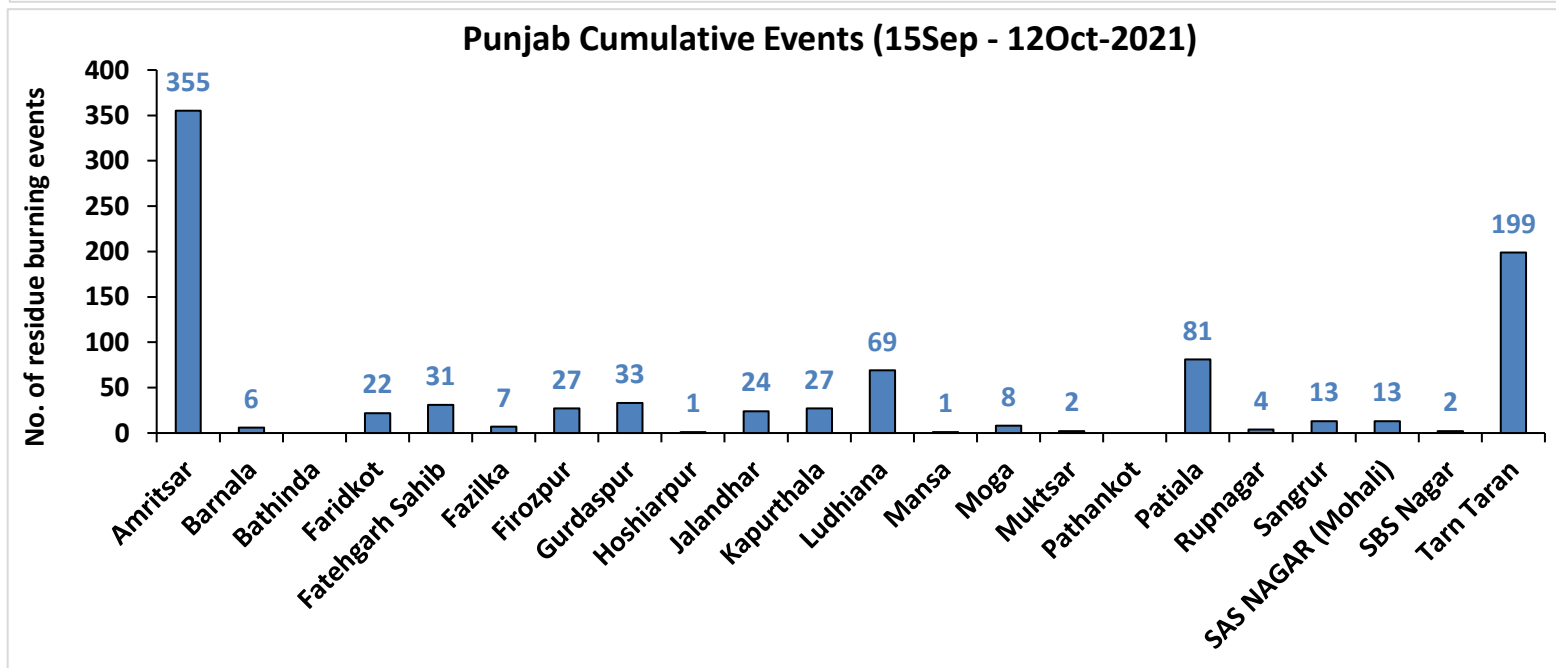
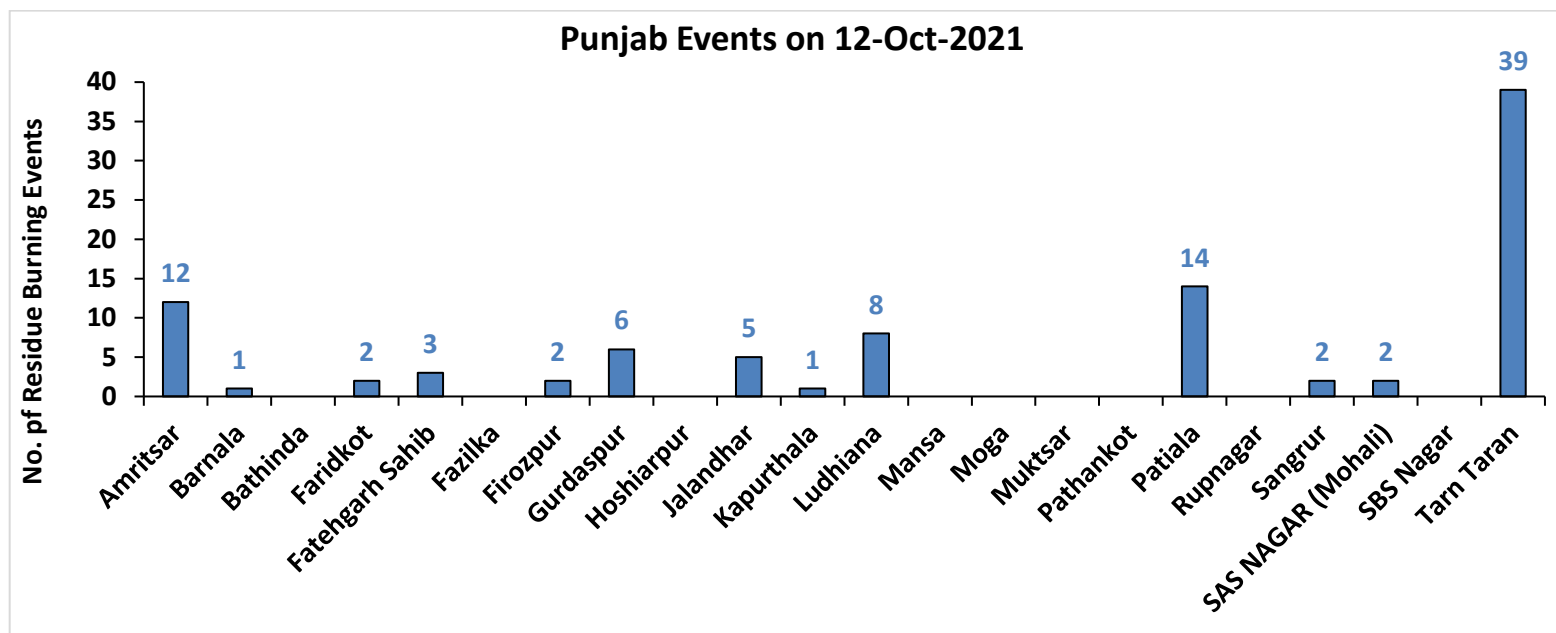
Fire Intensity (W/m²)

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



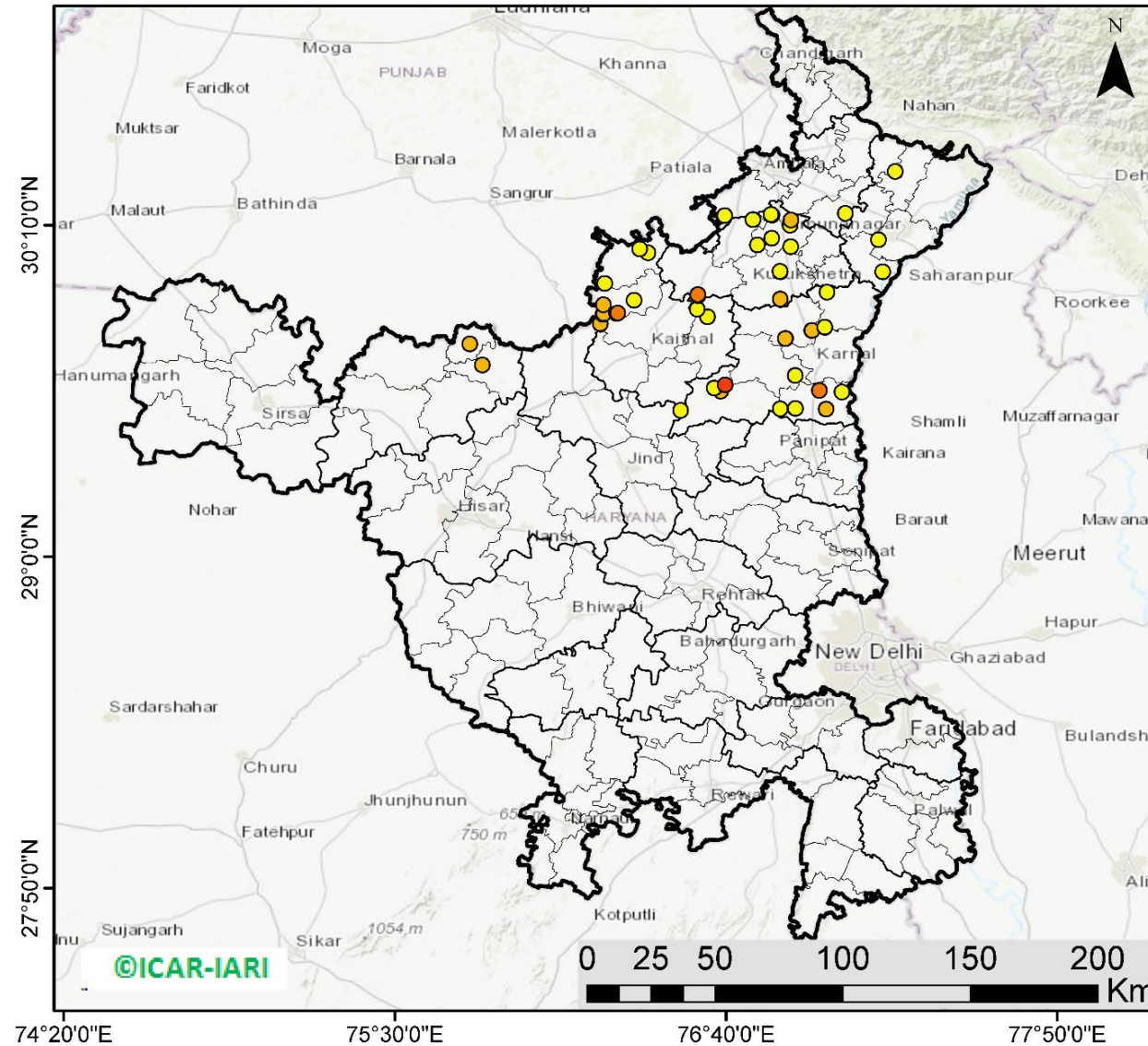
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15Sep - 12Oct-2021)



Haryana

RICE RESIDUE BURNING IN HARYANA



51 burning events detected in Haryana on 12th October 2021

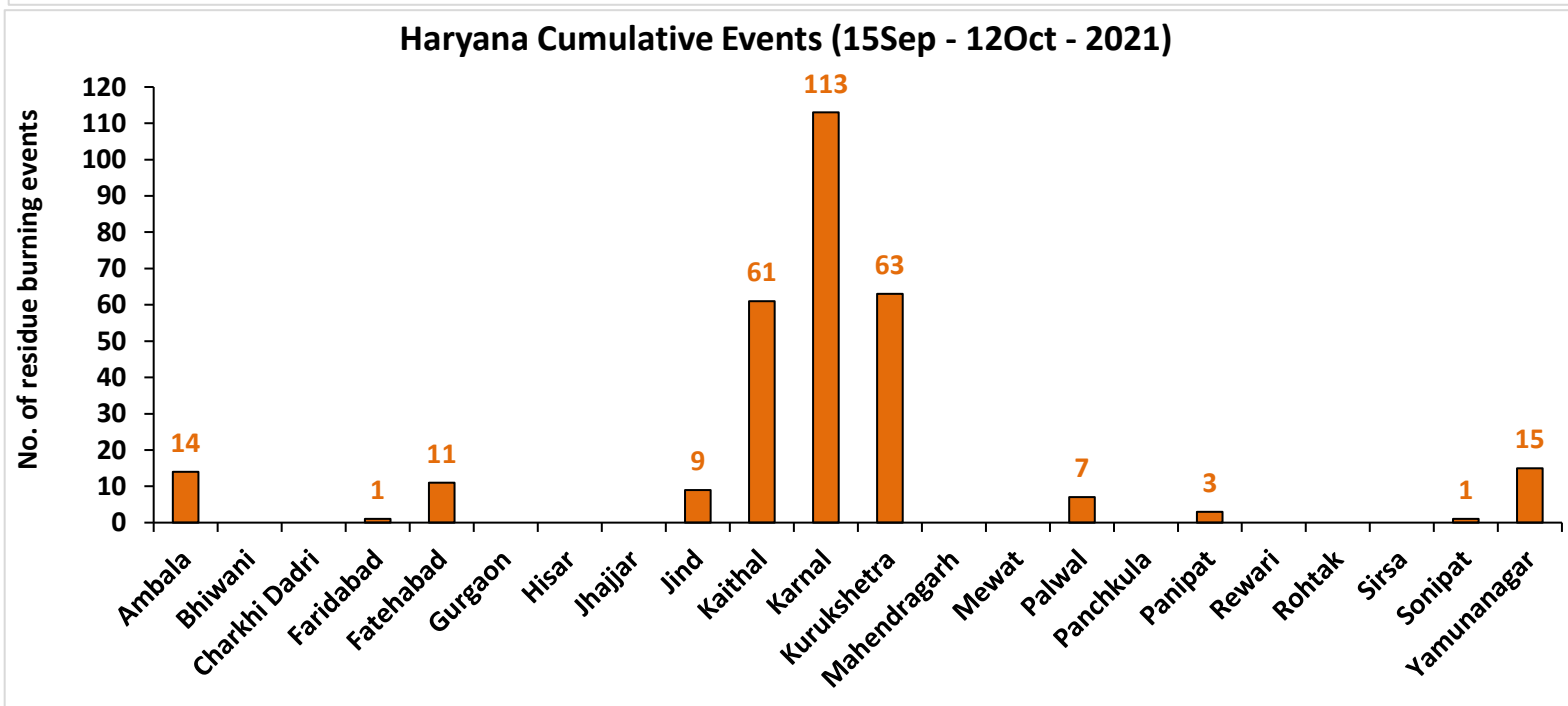
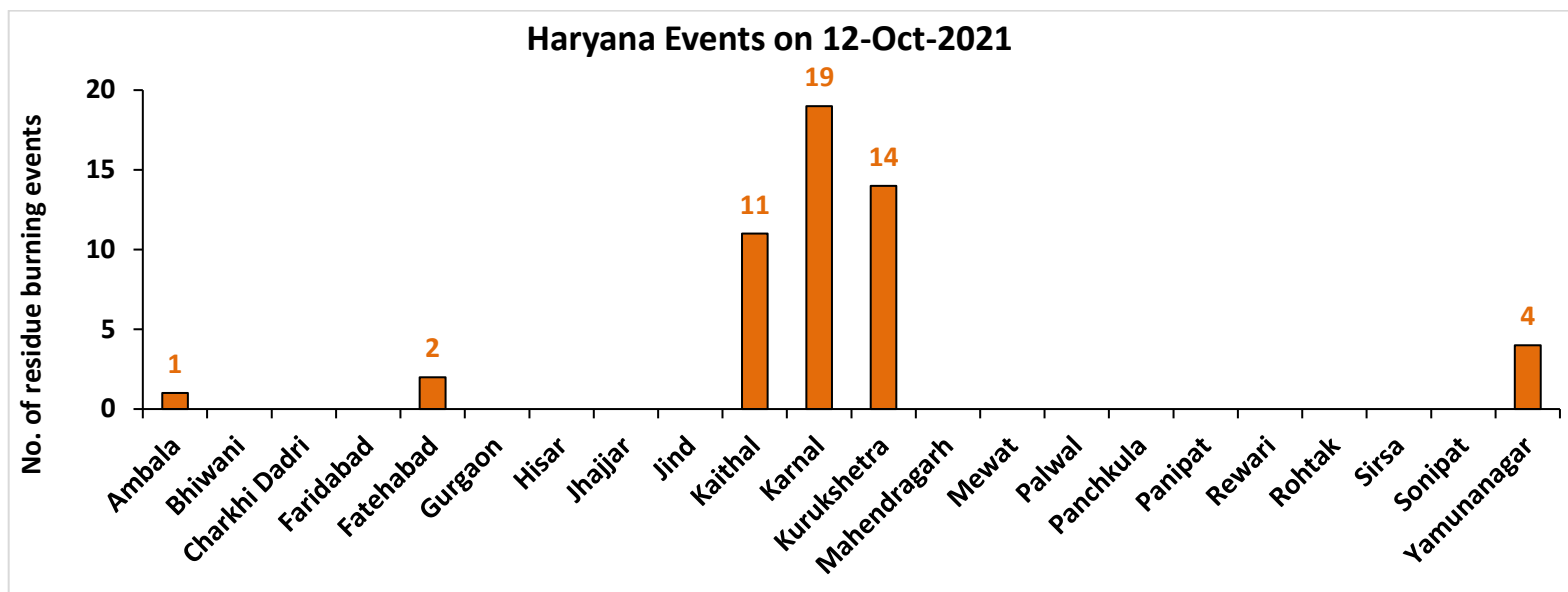
Fire Intensity (W/m²)

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



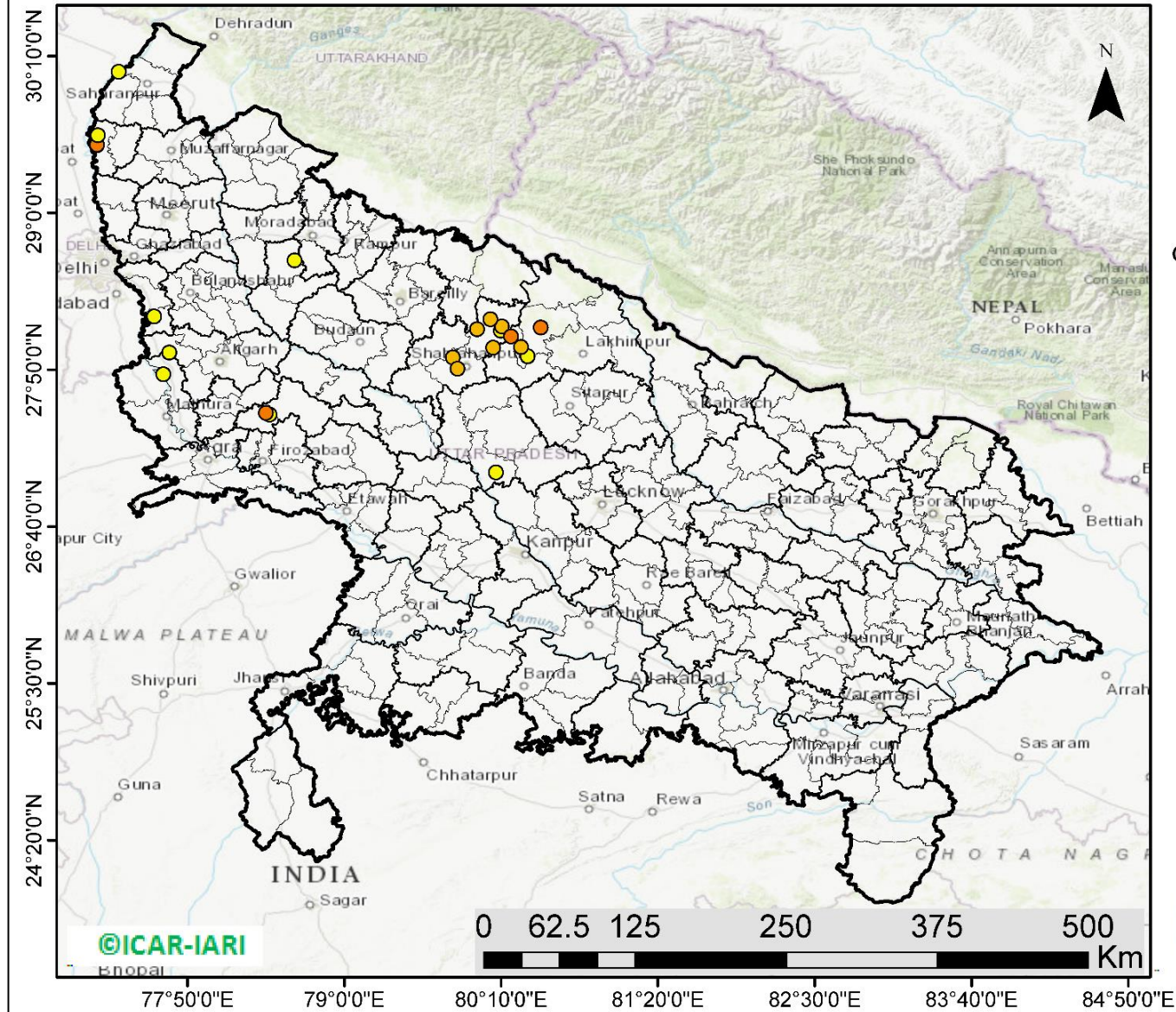
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Haryana (15Sep - 12Oct-2021)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



23 burning events detected in Uttar Pradesh on 12th October 2021

Fire Intensity (W/m²)

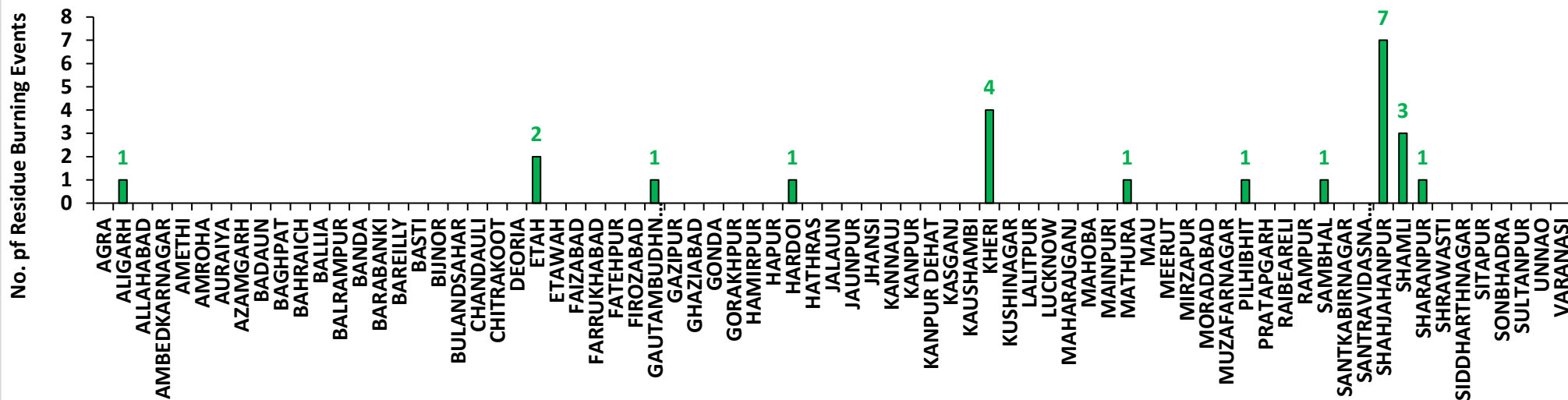
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



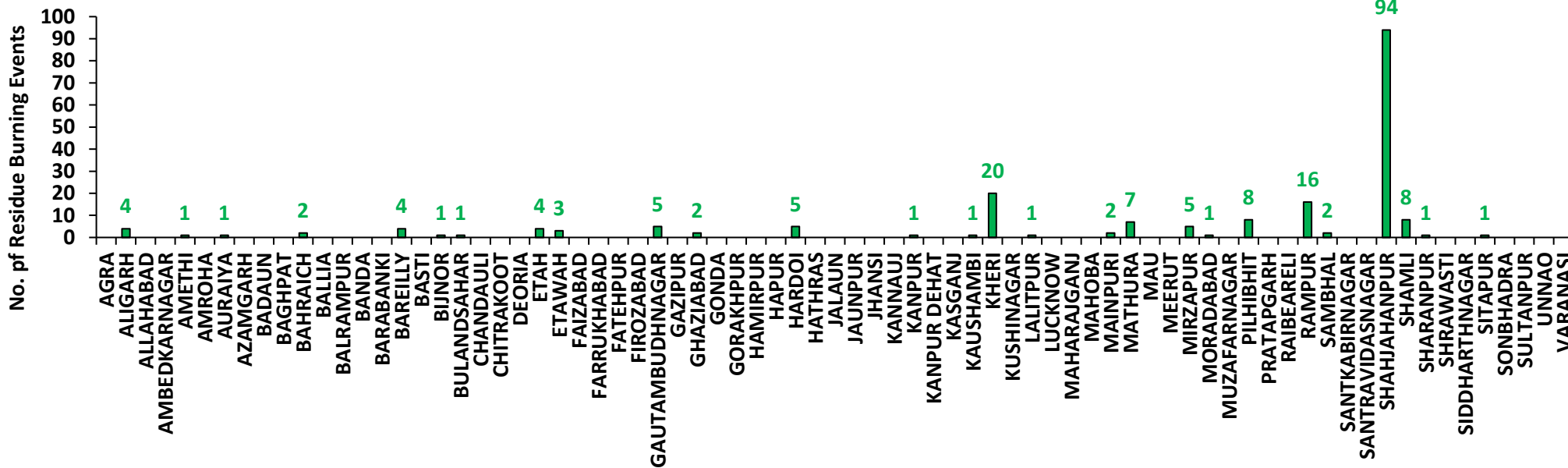
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District-wise cumulative number of residues burning events in Uttar Pradesh (15 Sep - 12 Oct-2021)

Uttar Pradesh Events on 12-Oct-2021

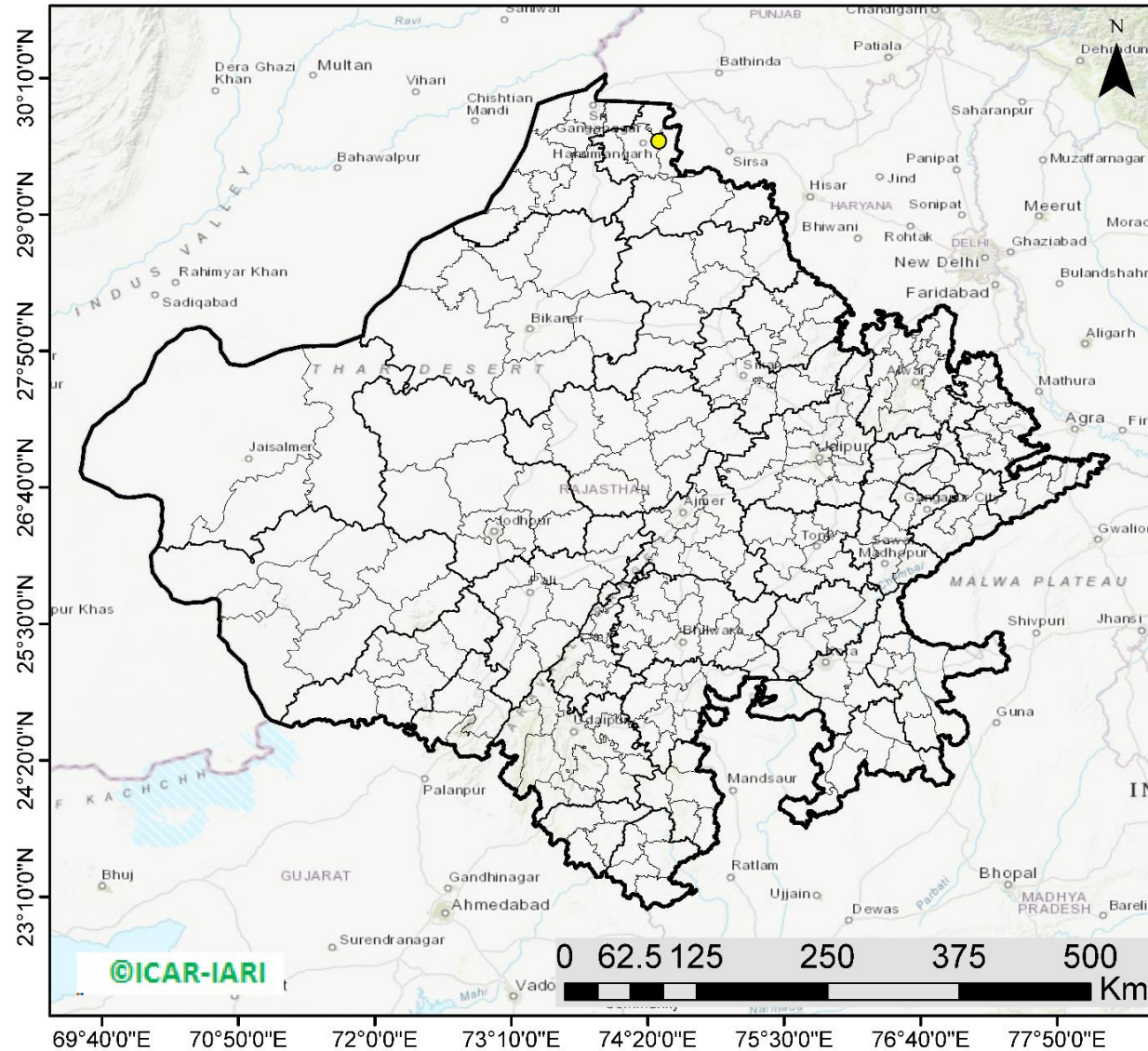


Uttar Pradesh Cumulative Events (15Sep - 12Oct-2021)



Rajasthan

RICE RESIDUE BURNING IN RAJASTHAN



01 burning events
detected in Rajasthan on
12th October 2021

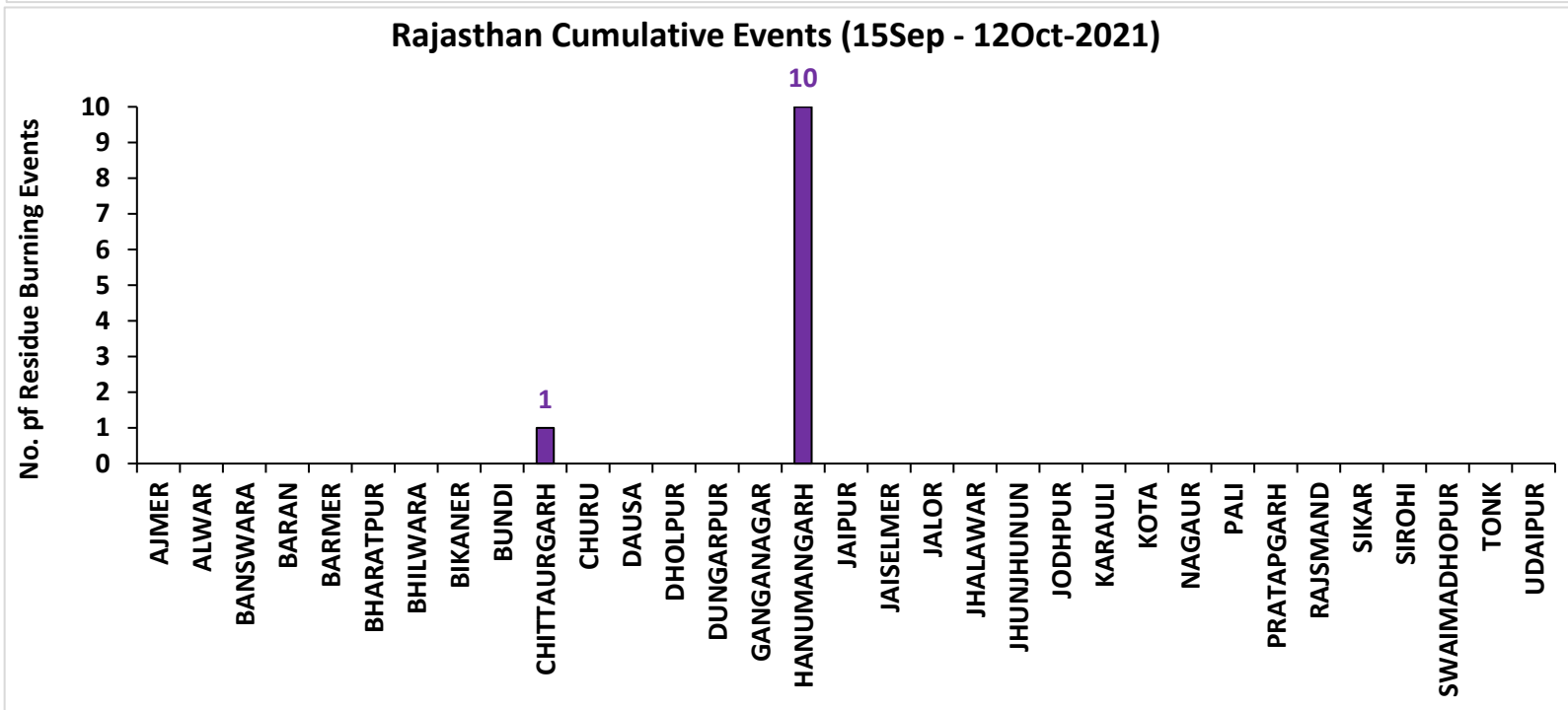
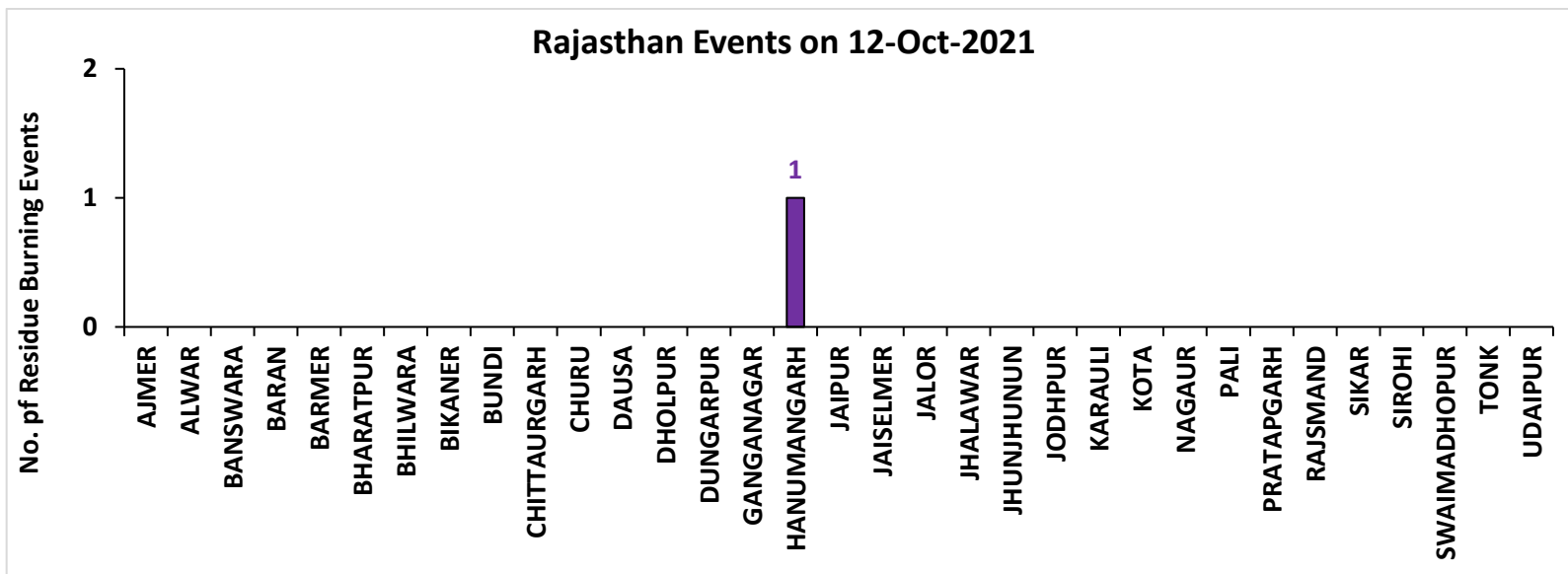
Fire Intensity (W/m²)

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



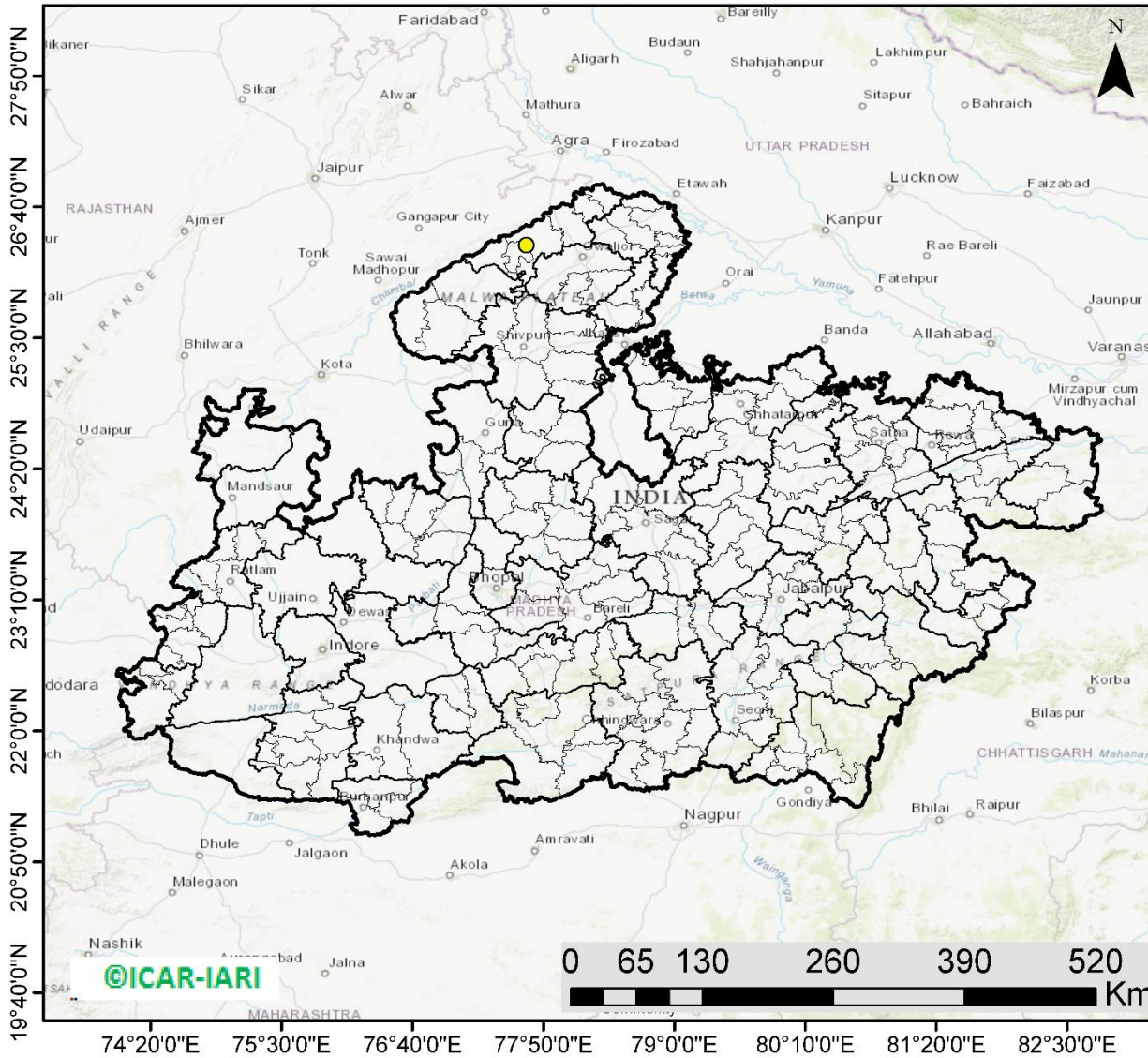
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Rajasthan (15 Sep - 12 Oct-2021)



Madhya Pradesh

RICE RESIDUE BURNING IN MADHYA PRADESH



01 burning events detected in MP on 12th October 2021

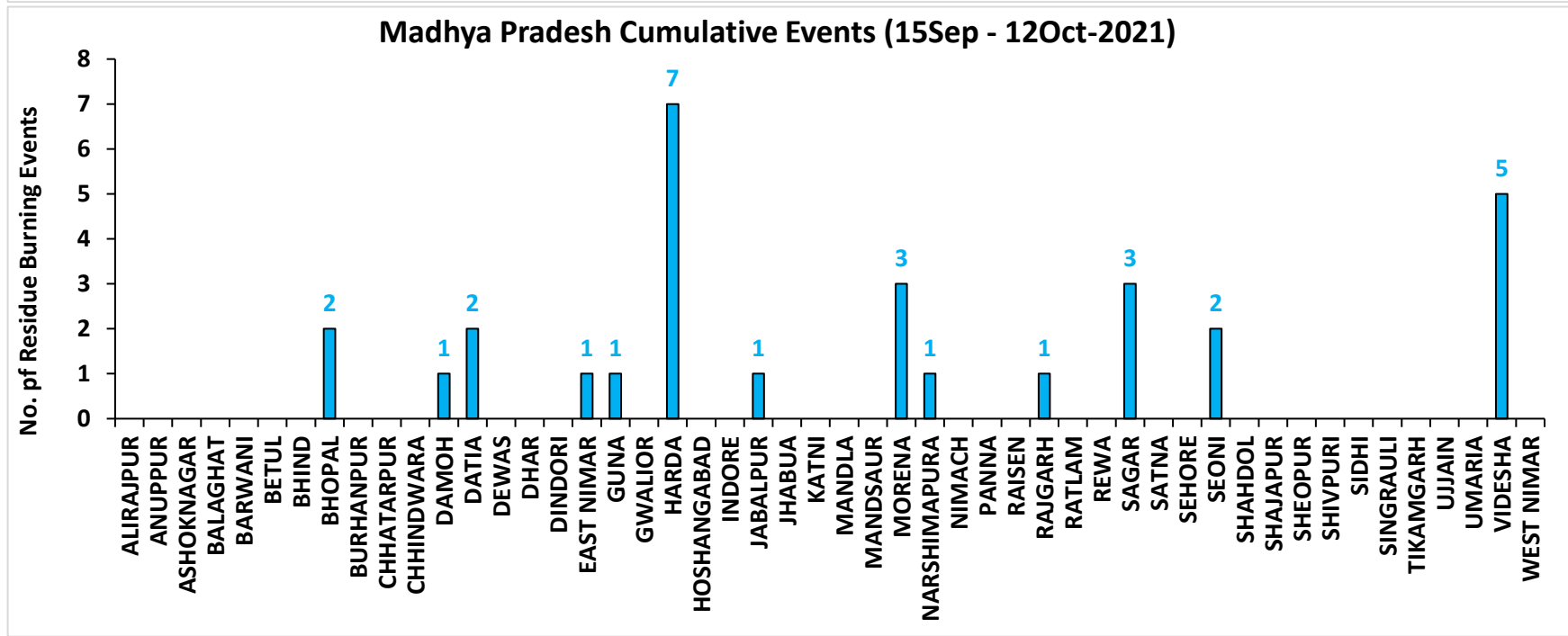
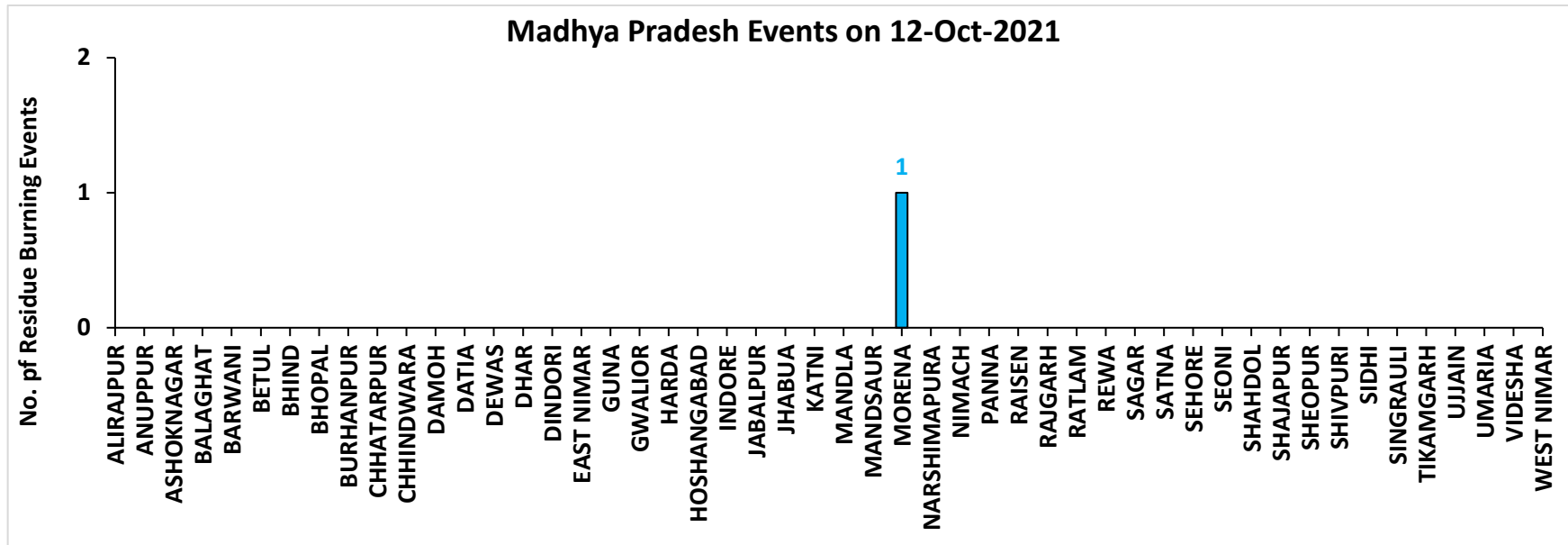
Fire Intensity (W/m²)

- 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 (15 Sep - 12 Oct-2021)



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

(a) Punjab

District	15 Sep – 12 Oct	
	2020	2021
AMRITSAR	1485	355
BARNALA	9	6
BATHINDA	15	0
FARIDKOT	44	22
FATEHGARH SAHIB	51	31
FAZILKA	10	7
FIROZPUR	132	27
GURDASPUR	173	33
HOSHIARPUR	8	1
JALANDHAR	46	24
KAPURTHALA	74	27
LUDHIANA	93	69
MANSA	16	1
MOGA	25	8
MUKTSAR	6	2
PATHANKOT	0	0
PATIALA	256	81
RUPNAGAR	10	4
SANGRUR	85	13
SAS NAGAR (MOHALI)	19	13
SBS NAGAR	9	2
TARN TARAN	779	199
Total	3345	925

(b) Haryana

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

(c) Uttar Pradesh

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

(d) Delhi

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

(e) Rajasthan

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

(f) Madhya Pradesh

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

State-wise and date-wise number of paddy residue burning events detected in 2020 and 2021

(Period: 15 September – 12 October)

Number of Paddy Residue Burning Events Detected

	Punjab		Haryana		Uttar Pradesh		Delhi		Rajasthan		Madhya Pradesh	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
15-Sep	5	0	2	0	1	0	0	0	1	0	2	0
16-Sep	0	2	1	0	0	0	0	0	0	0	0	0
17-Sep	5	0	3	0	0	0	0	0	0	0	0	0
18-Sep	17	9	0	0	0	1	0	0	0	0	0	0
19-Sep	30	5	2	0	0	1	0	0	0	0	0	0
20-Sep	67	8	6	0	2	0	0	0	0	0	0	0
21-Sep	54	0	2	0	1	0	0	0	1	0	2	0
22-Sep	34	0	1	0	1	0	0	0	0	0	0	0
23-Sep	49	0	0	0	1	0	0	0	1	0	0	0
24-Sep	78	5	0	0	1	1	0	0	0	0	0	0
25-Sep	184	11	11	0	5	0	0	0	1	0	0	0
26-Sep	190	19	5	0	8	0	0	0	1	0	2	0
27-Sep	78	37	8	0	4	1	0	0	0	0	1	0
28-Sep	55	28	6	1	1	6	0	0	0	0	1	1
29-Sep	63	64	9	4	6	10	0	0	3	0	0	4
30-Sep	116	27	22	2	13	13	1	0	1	0	5	0
01-Oct	165	13	15	4	7	13	0	0	4	1	13	0
02-Oct	141	0	30	2	12	0	1	0	7	0	12	0
03-Oct	110	9	8	6	4	3	0	0	9	0	5	1
04-Oct	162	23	29	2	8	0	0	0	15	0	4	2
05-Oct	161	18	17	3	14	2	0	0	14	0	13	1
06-Oct	171	42	30	0	12	1	1	0	16	0	37	1
07-Oct	197	72	32	11	41	13	0	0	14	1	31	1
08-Oct	95	108	29	27	25	11	0	0	11	0	17	2
09-Oct	121	114	20	39	15	20	0	0	12	0	15	4
10-Oct	232	150	33	95	9	54	0	0	14	1	18	1
11-Oct	377	64	90	51	23	28	0	0	21	7	32	2
12-Oct	388	97	69	51	46	23	0	0	24	1	44	1
Total	3345	925	480	298	260	201	3	0	170	11	254	21

Details of residue burning events in Punjab on 12-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	ATTARI	S-NPP	31.54110	74.83930	10/12/2021	14:19:13	D	2.40
2	AMRITSAR	JANDIALA GURU	S-NPP	31.52830	74.96310	10/12/2021	14:19:13	D	3.10
3	AMRITSAR	JANDIALA GURU	S-NPP	31.55180	75.05450	10/12/2021	12:39:39	D	2.20
4	AMRITSAR	JANDIALA GURU	S-NPP	31.59430	75.03800	10/12/2021	14:19:13	D	5.00
5	AMRITSAR	JANDIALA GURU	S-NPP	31.62940	75.01450	10/12/2021	14:19:13	D	4.90
6	AMRITSAR	MAJITHA	S-NPP	31.68190	75.07970	10/12/2021	14:19:13	D	2.70
7	AMRITSAR	MAJITHA	S-NPP	31.77470	74.98080	10/12/2021	14:19:13	D	6.20
8	AMRITSAR	MAJITHA	S-NPP	31.77570	74.97930	10/12/2021	14:19:13	D	5.40
9	AMRITSAR	MAJITHA	AQUA	31.77700	74.92700	10/12/2021	13:13:58	D	13.40
10	AMRITSAR	RAYYA	S-NPP	31.51340	75.12710	10/12/2021	14:19:13	D	13.30
11	AMRITSAR	RAYYA	S-NPP	31.51370	75.13240	10/12/2021	14:19:13	D	13.30
12	AMRITSAR	TARSIKKA	S-NPP	31.60760	75.16990	10/12/2021	14:19:13	D	7.80
13	BARNALA	BARNALA	S-NPP	30.45650	75.67070	10/12/2021	14:19:13	D	3.60
14	FARIDKOT	FARIDKOT	AQUA	30.73300	74.64200	10/12/2021	13:13:58	D	30.40
15	FARIDKOT	FARIDKOT	AQUA	30.73500	74.64700	10/12/2021	13:13:58	D	27.20
16	FATEHGARH SAHIB	AMLOH	AQUA	30.59000	76.15900	10/12/2021	13:13:58	D	13.40
17	FATEHGARH SAHIB	BASSI PATHANAN	S-NPP	30.67570	76.51620	10/12/2021	12:39:39	D	4.40
18	FATEHGARH SAHIB	BASSI PATHANAN	S-NPP	30.67710	76.51560	10/12/2021	12:39:39	D	3.60
19	FIROZPUR	FIROZPUR	S-NPP	30.96840	74.54470	10/12/2021	14:19:13	D	3.50
20	FIROZPUR	FIROZPUR	S-NPP	31.03350	74.73040	10/12/2021	14:19:13	D	3.80
21	GURDASPUR	BATALA	AQUA	31.77500	75.25200	10/12/2021	13:13:58	D	15.10
22	GURDASPUR	DERA BABA NANAK	S-NPP	31.96750	75.12340	10/12/2021	14:19:13	D	3.30
23	GURDASPUR	DERA BABA NANAK	S-NPP	31.96760	75.12460	10/12/2021	14:19:13	D	4.50
24	GURDASPUR	QADIAN	S-NPP	31.76130	75.39180	10/12/2021	14:19:13	D	7.30
25	GURDASPUR	QADIAN	S-NPP	31.76600	75.39050	10/12/2021	14:19:13	D	7.30
26	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.70670	75.29610	10/12/2021	14:19:13	D	2.90
27	JALANDHAR	JALANDHAR WEST	AQUA	31.51200	75.52700	10/12/2021	13:13:58	D	10.10
28	JALANDHAR	MEHATPUR	S-NPP	31.00700	75.39580	10/12/2021	14:19:13	D	3.10
29	JALANDHAR	PHILLAUR	S-NPP	31.05400	75.88370	10/12/2021	12:39:39	D	3.50

30	JALANDHAR	PHILLAUR	S-NPP	31.05410	75.91630	10/12/2021	14:19:13	D	3.00
31	JALANDHAR	PHILLAUR	S-NPP	31.06050	75.91600	10/12/2021	14:19:13	D	3.60
32	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.33280	75.18090	10/12/2021	12:39:39	D	3.10
33	LUDHIANA	LUDHIANA-2	S-NPP	30.98730	75.89510	10/12/2021	14:19:13	D	2.60
34	LUDHIANA	LUDHIANA-2	S-NPP	30.99590	75.76990	10/12/2021	14:19:13	D	7.00
35	LUDHIANA	MACHHIWARA	S-NPP	30.88670	76.21710	10/12/2021	12:39:39	D	3.40
36	LUDHIANA	MALoud	S-NPP	30.64460	75.94380	10/12/2021	14:19:13	D	3.80
37	LUDHIANA	SAMRALA	S-NPP	30.79170	76.20690	10/12/2021	12:39:39	D	6.30
38	LUDHIANA	SAMRALA	S-NPP	30.79350	76.20140	10/12/2021	12:39:39	D	5.50
39	LUDHIANA	SAMRALA	S-NPP	30.79460	76.20570	10/12/2021	12:39:39	D	6.70
40	LUDHIANA	SIDHWAN BET	AQUA	30.88600	75.59600	10/12/2021	13:13:58	D	16.70
41	PATIALA	BHUNARHERI	S-NPP	30.24220	76.45290	10/12/2021	12:39:39	D	4.00
42	PATIALA	NABHA	S-NPP	30.45360	76.27430	10/12/2021	12:39:39	D	4.10
43	PATIALA	PATIALA	S-NPP	30.32620	76.30680	10/12/2021	14:19:13	D	4.00
44	PATIALA	PATran	S-NPP	29.85480	76.23680	10/12/2021	14:19:13	D	6.00
45	PATIALA	PATran	S-NPP	29.87020	76.20860	10/12/2021	14:19:13	D	4.30
46	PATIALA	PATran	S-NPP	29.87330	76.22380	10/12/2021	14:19:13	D	8.10
47	PATIALA	PATran	S-NPP	29.87840	76.22540	10/12/2021	12:39:39	D	3.70
48	PATIALA	PATran	S-NPP	29.93090	76.14260	10/12/2021	12:39:39	D	6.30
49	PATIALA	PATran	AQUA	29.86600	76.21600	10/12/2021	13:13:58	D	27.50
50	PATIALA	PATran	AQUA	29.87700	76.21300	10/12/2021	13:13:58	D	27.90
51	PATIALA	PATran	AQUA	29.88100	76.23100	10/12/2021	13:13:58	D	39.90
52	PATIALA	SANAUR	S-NPP	30.31550	76.47840	10/12/2021	14:19:13	D	7.70
53	PATIALA	SHAMBU KALAN	S-NPP	30.48190	76.68890	10/12/2021	14:19:13	D	3.80
54	PATIALA	SHAMBU KALAN	S-NPP	30.48720	76.52720	10/12/2021	12:39:39	D	4.90
55	SANGRUR	MALERKOTLA-1	S-NPP	30.40770	76.00520	10/12/2021	14:19:13	D	4.90
56	SANGRUR	SANGRUR	S-NPP	30.23160	75.78140	10/12/2021	12:39:39	D	3.00
57	SAS NAGAR (MOHALI)	DERABASSI	S-NPP	30.45530	76.81700	10/12/2021	12:39:39	D	2.70
58	SAS NAGAR (MOHALI)	DERABASSI	S-NPP	30.46070	76.81520	10/12/2021	12:39:39	D	2.70
59	TARN TARAN	BHIKHIWIND	S-NPP	31.34480	74.63980	10/12/2021	14:19:13	D	4.20
60	TARN TARAN	CHOHLA SAHIB	S-NPP	31.23250	74.95530	10/12/2021	14:19:13	D	3.40
61	TARN TARAN	CHOHLA SAHIB	S-NPP	31.23450	74.95470	10/12/2021	14:19:13	D	6.60
62	TARN TARAN	CHOHLA SAHIB	S-NPP	31.23850	74.95480	10/12/2021	14:19:13	D	5.80

63	TARN TARAN	CHOHLA SAHIB	S-NPP	31.24050	74.95420	10/12/2021	14:19:13	D	6.60
64	TARN TARAN	CHOHLA SAHIB	S-NPP	31.26790	74.92300	10/12/2021	12:39:39	D	5.20
65	TARN TARAN	CHOHLA SAHIB	S-NPP	31.26910	74.92800	10/12/2021	12:39:39	D	5.20
66	TARN TARAN	CHOHLA SAHIB	S-NPP	31.27130	74.92440	10/12/2021	12:39:39	D	10.20
67	TARN TARAN	GANDIWIND TATLA	S-NPP	31.44390	74.74910	10/12/2021	14:19:13	D	4.70
68	TARN TARAN	GANDIWIND TATLA	AQUA	31.40600	74.74300	10/12/2021	13:13:58	D	27.20
69	TARN TARAN	KHADUR SAHIB	S-NPP	31.43580	75.17250	10/12/2021	14:19:13	D	2.30
70	TARN TARAN	KHADUR SAHIB	S-NPP	31.44580	75.13460	10/12/2021	14:19:13	D	4.80
71	TARN TARAN	KHADUR SAHIB	S-NPP	31.44680	75.13700	10/12/2021	14:19:13	D	6.40
72	TARN TARAN	KHADUR SAHIB	S-NPP	31.45030	75.10780	10/12/2021	14:19:13	D	4.70
73	TARN TARAN	KHADUR SAHIB	S-NPP	31.45150	75.11010	10/12/2021	14:19:13	D	4.60
74	TARN TARAN	KHADUR SAHIB	S-NPP	31.46310	75.11760	10/12/2021	14:19:13	D	7.30
75	TARN TARAN	KHADUR SAHIB	S-NPP	31.46390	75.11450	10/12/2021	14:19:13	D	3.80
76	TARN TARAN	KHADUR SAHIB	S-NPP	31.46420	75.11980	10/12/2021	14:19:13	D	7.00
77	TARN TARAN	KHADUR SAHIB	S-NPP	31.46590	75.16520	10/12/2021	14:19:13	D	6.00
78	TARN TARAN	KHADUR SAHIB	S-NPP	31.46670	75.16750	10/12/2021	14:19:13	D	17.40
79	TARN TARAN	KHADUR SAHIB	S-NPP	31.47010	75.13300	10/12/2021	14:19:13	D	4.10
80	TARN TARAN	KHADUR SAHIB	S-NPP	31.47200	75.16480	10/12/2021	14:19:13	D	4.10
81	TARN TARAN	KHADUR SAHIB	S-NPP	31.47280	75.08090	10/12/2021	12:39:39	D	7.80
82	TARN TARAN	KHADUR SAHIB	S-NPP	31.49110	75.16590	10/12/2021	14:19:13	D	2.40
83	TARN TARAN	KHADUR SAHIB	S-NPP	31.49740	75.05940	10/12/2021	14:19:13	D	2.80
84	TARN TARAN	KHADUR SAHIB	S-NPP	31.50280	75.02780	10/12/2021	12:39:39	D	3.80
85	TARN TARAN	NAUSHERA PANNUAN	AQUA	31.32900	75.01600	10/12/2021	13:13:58	D	14.90
86	TARN TARAN	PATTI	S-NPP	31.17350	74.75690	10/12/2021	12:39:39	D	4.50
87	TARN TARAN	PATTI	S-NPP	31.18060	74.79140	10/12/2021	14:19:13	D	5.00
88	TARN TARAN	PATTI	S-NPP	31.22400	74.91480	10/12/2021	14:19:13	D	2.40
89	TARN TARAN	TARN TARAN	S-NPP	31.42530	74.77850	10/12/2021	12:39:39	D	2.50
90	TARN TARAN	TARN TARAN	S-NPP	31.42830	74.77920	10/12/2021	12:39:39	D	8.40
91	TARN TARAN	TARN TARAN	S-NPP	31.43120	74.77640	10/12/2021	12:39:39	D	4.30
92	TARN TARAN	TARN TARAN	S-NPP	31.44210	74.86910	10/12/2021	14:19:13	D	3.30
93	TARN TARAN	TARN TARAN	S-NPP	31.45640	74.81330	10/12/2021	12:39:39	D	4.90
94	TARN TARAN	TARN TARAN	S-NPP	31.46040	74.81560	10/12/2021	12:39:39	D	6.00
95	TARN TARAN	TARN TARAN	S-NPP	31.52010	75.03150	10/12/2021	14:19:13	D	10.30

96	TARN TARAN	TARN TARAN	S-NPP	31.52440	75.02180	10/12/2021	12:39:39	D	3.70
97	TARN TARAN	TARN TARAN	AQUA	31.41000	74.76500	10/12/2021	13:13:58	D	13.80

Details of residue burning events in Haryana on 12-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMBALA	AMBALA-II	S-NPP	30.20060	76.66230	10/12/2021	14:19:13	D	2.50
2	FATEHABAD	JAKHAL	S-NPP	29.74870	75.76420	10/12/2021	12:39:39	D	6.00
3	FATEHABAD	TOHANA	S-NPP	29.67420	75.80850	10/12/2021	12:39:39	D	9.90
4	KAITHAL	GUHLA	S-NPP	29.96170	76.23980	10/12/2021	12:39:39	D	3.30
5	KAITHAL	GUHLA	S-NPP	30.06910	76.39200	10/12/2021	12:39:39	D	3.10
6	KAITHAL	GUHLA	S-NPP	30.08290	76.36300	10/12/2021	12:39:39	D	2.40
7	KAITHAL	KAITHAL	S-NPP	29.81990	76.22350	10/12/2021	14:19:13	D	5.20
8	KAITHAL	KAITHAL	S-NPP	29.85240	76.23330	10/12/2021	14:19:13	D	7.70
9	KAITHAL	PUNDRI	S-NPP	29.84400	76.60180	10/12/2021	12:39:39	D	2.80
10	KAITHAL	PUNDRI	S-NPP	29.87060	76.56530	10/12/2021	12:39:39	D	4.10
11	KAITHAL	SIWAN	S-NPP	29.85610	76.28120	10/12/2021	12:39:39	D	9.80
12	KAITHAL	SIWAN	S-NPP	29.85720	76.28560	10/12/2021	12:39:39	D	11.40
13	KAITHAL	SIWAN	S-NPP	29.88670	76.23480	10/12/2021	14:19:13	D	9.20
14	KAITHAL	SIWAN	S-NPP	29.90200	76.34320	10/12/2021	12:39:39	D	2.60
15	KARNAL	ASSANDH	S-NPP	29.51410	76.50690	10/12/2021	12:39:39	D	3.40
16	KARNAL	ASSANDH	S-NPP	29.52030	76.85740	10/12/2021	12:39:39	D	2.70
17	KARNAL	ASSANDH	S-NPP	29.58200	76.64800	10/12/2021	14:19:13	D	5.30
18	KARNAL	ASSANDH	S-NPP	29.58260	76.64830	10/12/2021	14:19:13	D	5.90
19	KARNAL	ASSANDH	S-NPP	29.59350	76.62550	10/12/2021	12:39:39	D	3.30
20	KARNAL	ASSANDH	AQUA	29.60400	76.66400	10/12/2021	13:13:58	D	15.30
21	KARNAL	CHIRAO	S-NPP	29.63750	76.91080	10/12/2021	12:39:39	D	3.70
22	KARNAL	GHARAUNDA	S-NPP	29.51890	77.01930	10/12/2021	12:39:39	D	8.30
23	KARNAL	GHARAUNDA	S-NPP	29.52170	76.91120	10/12/2021	12:39:39	D	3.10
24	KARNAL	GHARAUNDA	S-NPP	29.57890	77.07550	10/12/2021	12:39:39	D	3.90
25	KARNAL	GHARAUNDA	S-NPP	29.57910	77.07520	10/12/2021	12:39:39	D	3.30

26	KARNAL	GHARAUNDA	AQUA	29.58500	76.99600	10/12/2021	13:13:58	D	11.90
27	KARNAL	INDRI	S-NPP	29.93110	77.02280	10/12/2021	12:39:39	D	2.90
28	KARNAL	KARNAL	S-NPP	29.79630	76.96920	10/12/2021	12:39:39	D	9.80
29	KARNAL	KARNAL	S-NPP	29.79630	76.96960	10/12/2021	12:39:39	D	9.30
30	KARNAL	KARNAL	S-NPP	29.80710	77.01420	10/12/2021	12:39:39	D	2.70
31	KARNAL	KARNAL	S-NPP	29.80740	77.01440	10/12/2021	12:39:39	D	2.90
32	KARNAL	NILOKHERI	S-NPP	29.76730	76.87670	10/12/2021	12:39:39	D	5.90
33	KARNAL	NILOKHERI	S-NPP	29.76790	76.87600	10/12/2021	12:39:39	D	5.40
34	KURUKSHETRA	ISMAILABAD	S-NPP	30.18630	76.76240	10/12/2021	12:39:39	D	6.30
35	KURUKSHETRA	ISMAILABAD	S-NPP	30.18650	76.76180	10/12/2021	12:39:39	D	4.80
36	KURUKSHETRA	PEHOWA	S-NPP	29.91890	76.56820	10/12/2021	12:39:39	D	3.90
37	KURUKSHETRA	PEHOWA	S-NPP	29.92240	76.56740	10/12/2021	12:39:39	D	12.70
38	KURUKSHETRA	SHAHBAD	S-NPP	30.09100	76.89450	10/12/2021	12:39:39	D	1.50
39	KURUKSHETRA	SHAHBAD	S-NPP	30.12100	76.82760	10/12/2021	12:39:39	D	2.00
40	KURUKSHETRA	SHAHBAD	S-NPP	30.16610	76.89250	10/12/2021	12:39:39	D	3.50
41	KURUKSHETRA	SHAHBAD	S-NPP	30.18420	76.89550	10/12/2021	12:39:39	D	5.50
42	KURUKSHETRA	SHAHBAD	S-NPP	30.20180	76.82860	10/12/2021	14:19:13	D	3.00
43	KURUKSHETRA	SHAHBAD	S-NPP	30.20400	76.82550	10/12/2021	14:19:13	D	2.60
44	KURUKSHETRA	THANESAR	S-NPP	29.90660	76.85780	10/12/2021	14:19:13	D	5.50
45	KURUKSHETRA	THANESAR	S-NPP	30.00210	76.85760	10/12/2021	14:19:13	D	4.30
46	KURUKSHETRA	THANESAR	S-NPP	30.00440	76.85720	10/12/2021	14:19:13	D	4.90
47	KURUKSHETRA	THANESAR	S-NPP	30.09680	76.77740	10/12/2021	12:39:39	D	2.40
48	YAMUNANAGAR	JAGADHRI	S-NPP	30.11500	77.20400	10/12/2021	12:39:39	D	2.80
49	YAMUNANAGAR	MUSTAFABAD	S-NPP	30.20790	77.08700	10/12/2021	12:39:39	D	2.50
50	YAMUNANAGAR	RADAUR	S-NPP	30.00230	77.21900	10/12/2021	12:39:39	D	3.00
51	YAMUNANAGAR	SADHAURA	S-NPP	30.35560	77.26290	10/12/2021	12:39:39	D	2.60

Details of residue burning events in Uttar Pradesh on 12-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ALIGARH	KHAIR	S-NPP	27.96080	77.69740	10/12/2021	12:39:39	D	1.60
2	ETAH	JALESAR	S-NPP	27.50050	78.44320	10/12/2021	12:39:39	D	3.60
3	ETAH	JALESAR	AQUA	27.51300	78.41700	10/12/2021	13:13:58	D	13.60
4	GAUTAMBUDHNAGAR	JEVAR	S-NPP	28.22980	77.58540	10/12/2021	12:39:39	D	1.70
5	HARDOI	BILGRAM	S-NPP	27.07070	80.12920	10/12/2021	12:39:39	D	3.70
6	KHERI	GOLA	S-NPP	27.93340	80.36470	10/12/2021	12:39:39	D	2.90
7	KHERI	GOLA	S-NPP	27.93460	80.36350	10/12/2021	12:39:39	D	4.10
8	KHERI	GOLA	AQUA	28.14800	80.46200	10/12/2021	13:13:58	D	11.30
9	KHERI	MOHMADI	S-NPP	28.00300	80.31510	10/12/2021	12:39:39	D	7.90
10	MATHURA	CHHATA	S-NPP	27.79940	77.65370	10/12/2021	14:19:13	D	2.20
11	PILHIBHIT	BISALPUR	S-NPP	28.13550	79.98760	10/12/2021	12:39:39	D	5.40
12	SAMBHAL	SAMBHAL	S-NPP	28.64760	78.62980	10/12/2021	12:39:39	D	1.50
13	SHAHJAHANPUR	PUWANYA	S-NPP	27.99710	80.10830	10/12/2021	12:39:39	D	5.80
14	SHAHJAHANPUR	PUWANYA	S-NPP	28.12430	80.16480	10/12/2021	12:39:39	D	2.90
15	SHAHJAHANPUR	PUWANYA	S-NPP	28.15620	80.17210	10/12/2021	12:39:39	D	6.90
16	SHAHJAHANPUR	PUWANYA	AQUA	28.08200	80.24100	10/12/2021	13:13:58	D	12.50
17	SHAHJAHANPUR	PUWANYA	AQUA	28.20900	80.08800	10/12/2021	13:13:58	D	9.20
18	SHAHJAHANPUR	SHAHJAHANPUR	S-NPP	27.92460	79.80800	10/12/2021	12:39:39	D	7.20
19	SHAHJAHANPUR	SHAHJAHANPUR	AQUA	27.84100	79.84200	10/12/2021	13:13:58	D	6.50
20	SHAMLI	KAIRANA	S-NPP	29.50320	77.15950	10/12/2021	14:19:13	D	10.10
21	SHAMLI	KAIRANA	S-NPP	29.50650	77.16090	10/12/2021	14:19:13	D	11.20
22	SHAMLI	KAIRANA	S-NPP	29.57820	77.16720	10/12/2021	12:39:39	D	2.80
23	SHARANPUR	NAKUR	S-NPP	30.04990	77.32130	10/12/2021	12:39:39	D	2.40

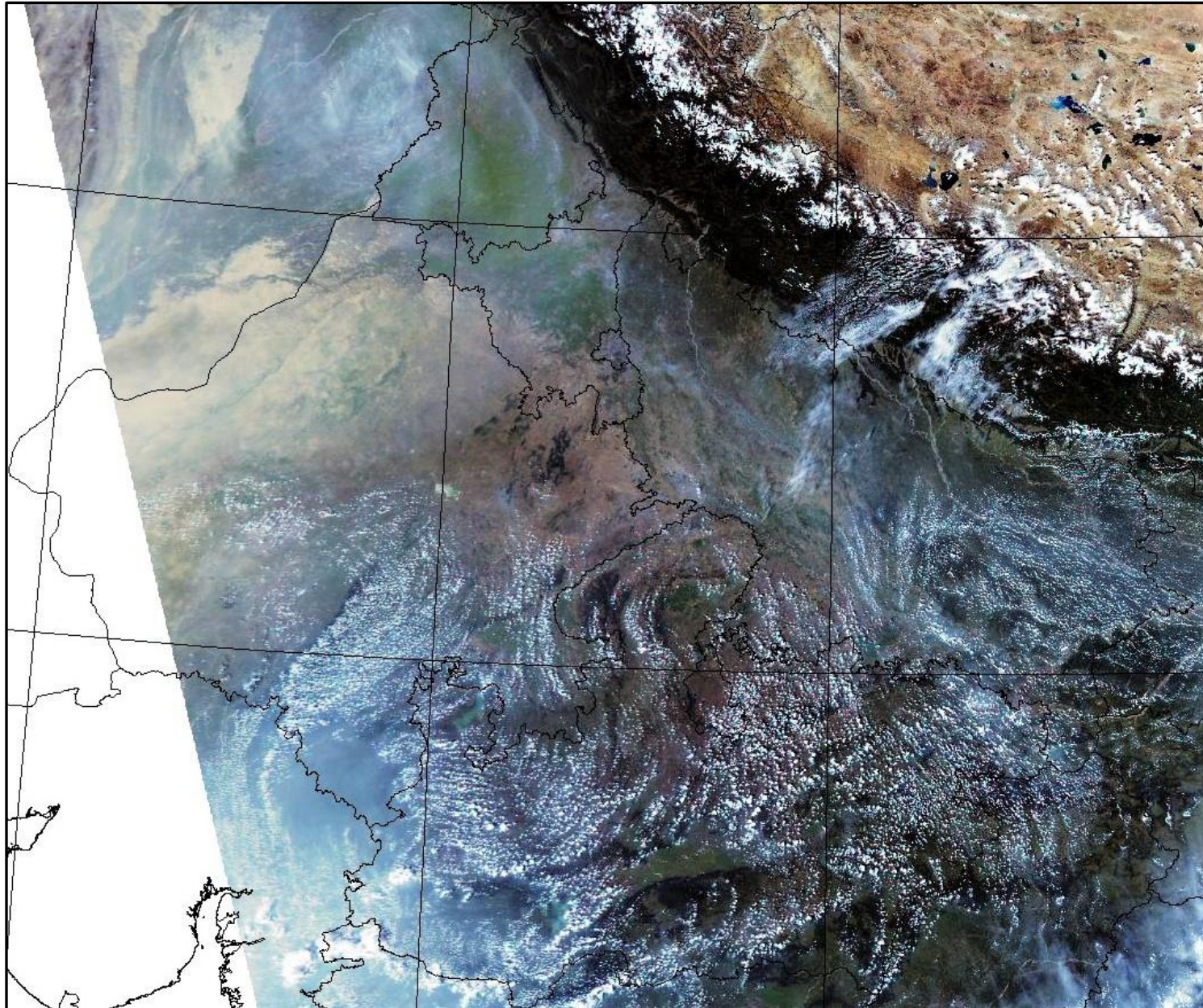
Details of residue burning events in Rajasthan on 12-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	HANUMANGARH	SANGHRIYA	S-NPP	29.62690	74.42790	10/12/2021	14:19:13	D	1.30

Details of residue burning events in Madhya Pradesh on 12-Oct-2021

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	MORENA	KAILARAS	S-NPP	26.32510	77.68070	10/12/2021	14:19:13	D	2.40

[AQUA \(MODIS\) Satellite image \(TCC\) of North and Central India Acquired on 12-Oct-2021 at 13:11:37 IST by IARI Ground Station](#)



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)
