



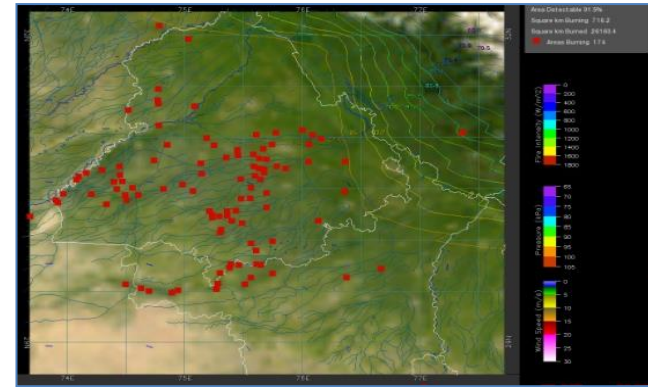
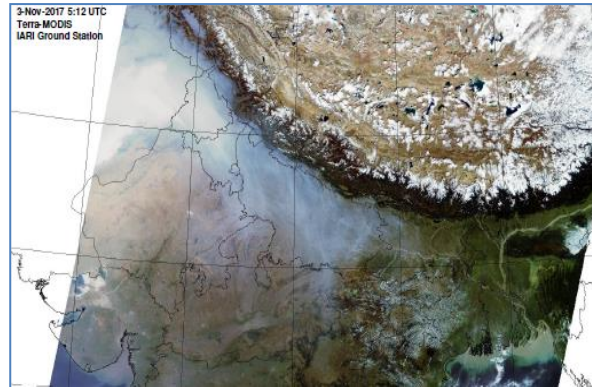
Bulletin No. 41

Events Date:
11-May-2022

Issued on:
12-May-2022



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



Prepared by:

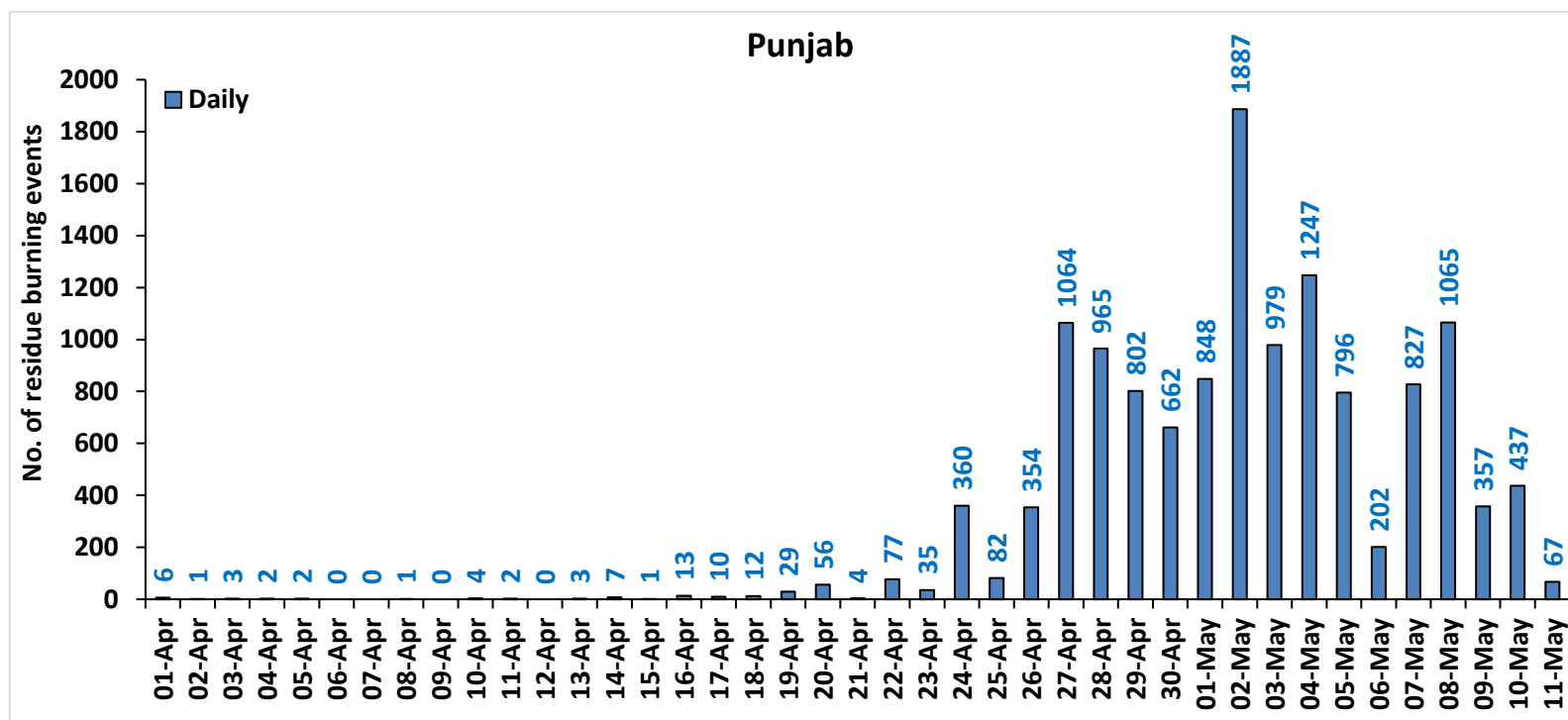
Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012

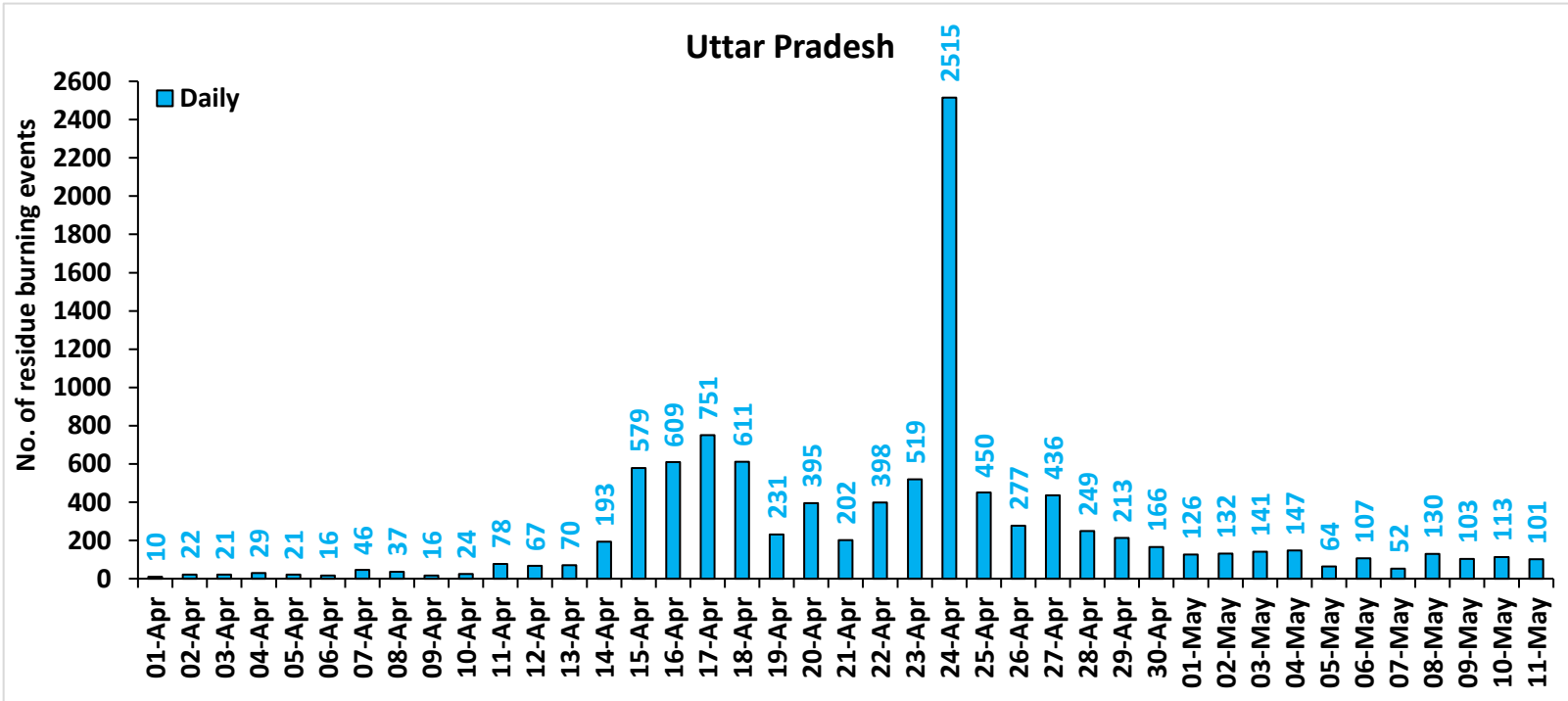
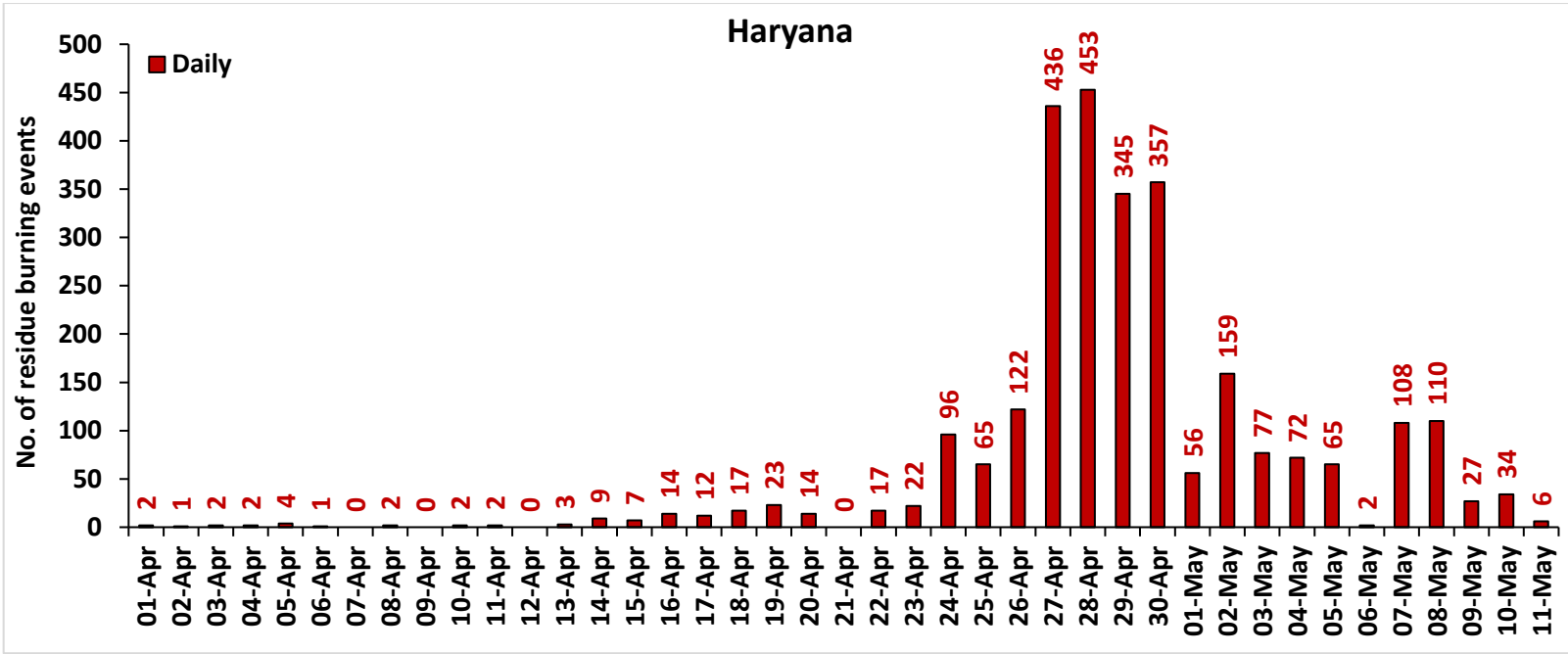
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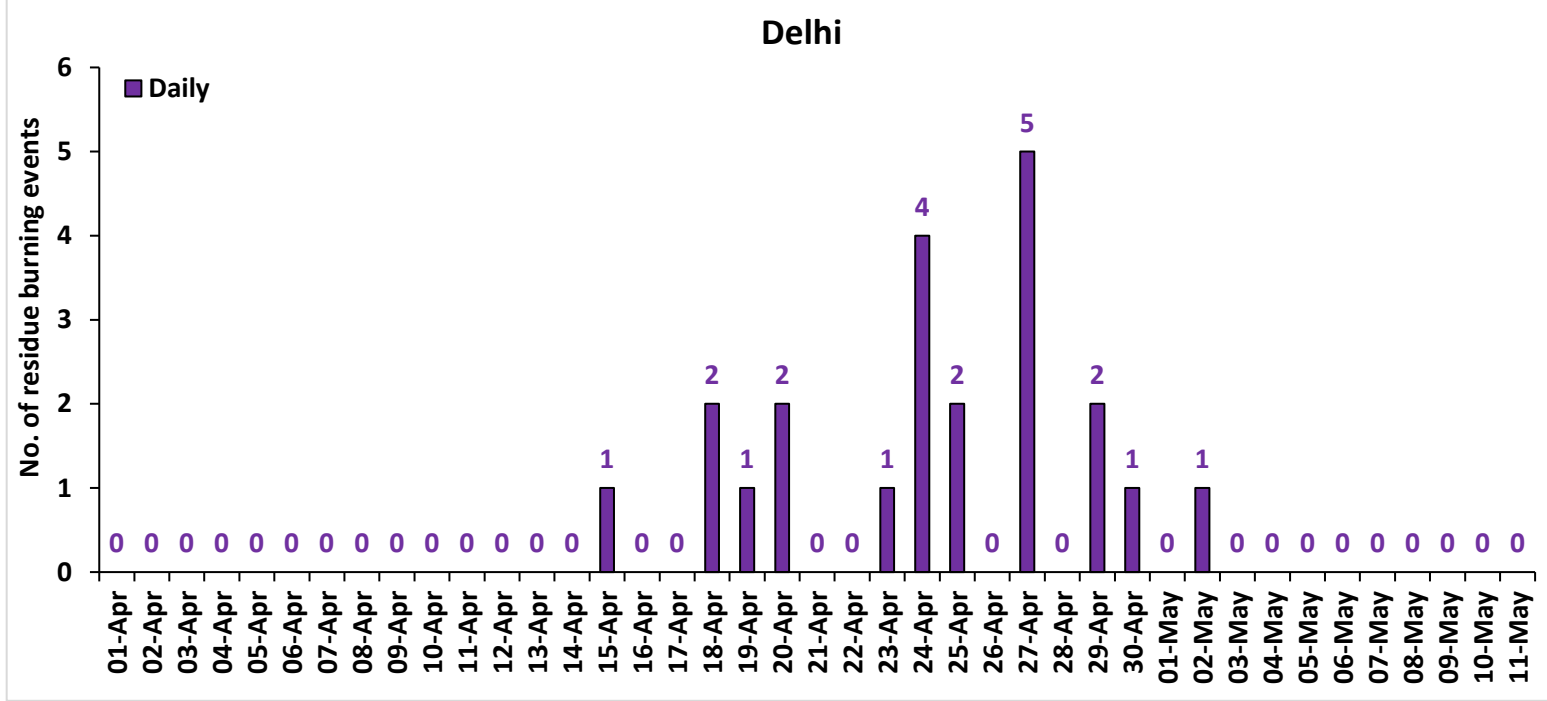
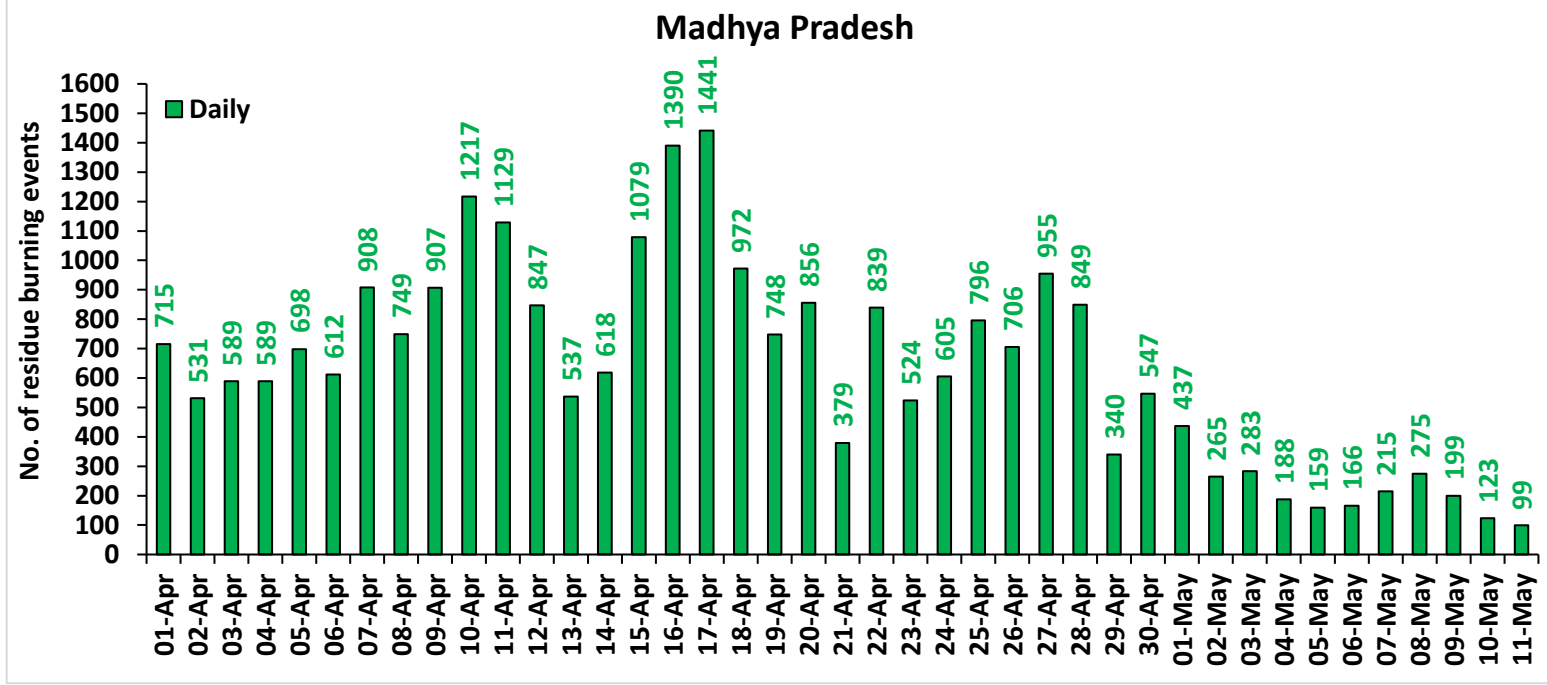
Highlights for 11-May-2022

- The active fire events due to wheat 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 **273** residue burning events in the five study States on 11-May-2022.
- The state wise events detected on 11-May-2022 were **67** in Punjab, **06** in Haryana, **00** in Delhi, **101** in Uttar Pradesh and **99** in Madhya Pradesh.
- The number of events has decreased from **707** on 10-May-2022 to **273** on 11-May-2022 in the five study states.
- Total **52585** burning events were detected in the five states between 01-Apr-2022 and 11-May-2022, which are distributed as **13269**, **2746**, **10467**, **22**, and **26081** in Punjab, Haryana, UP, Delhi, and MP, respectively.

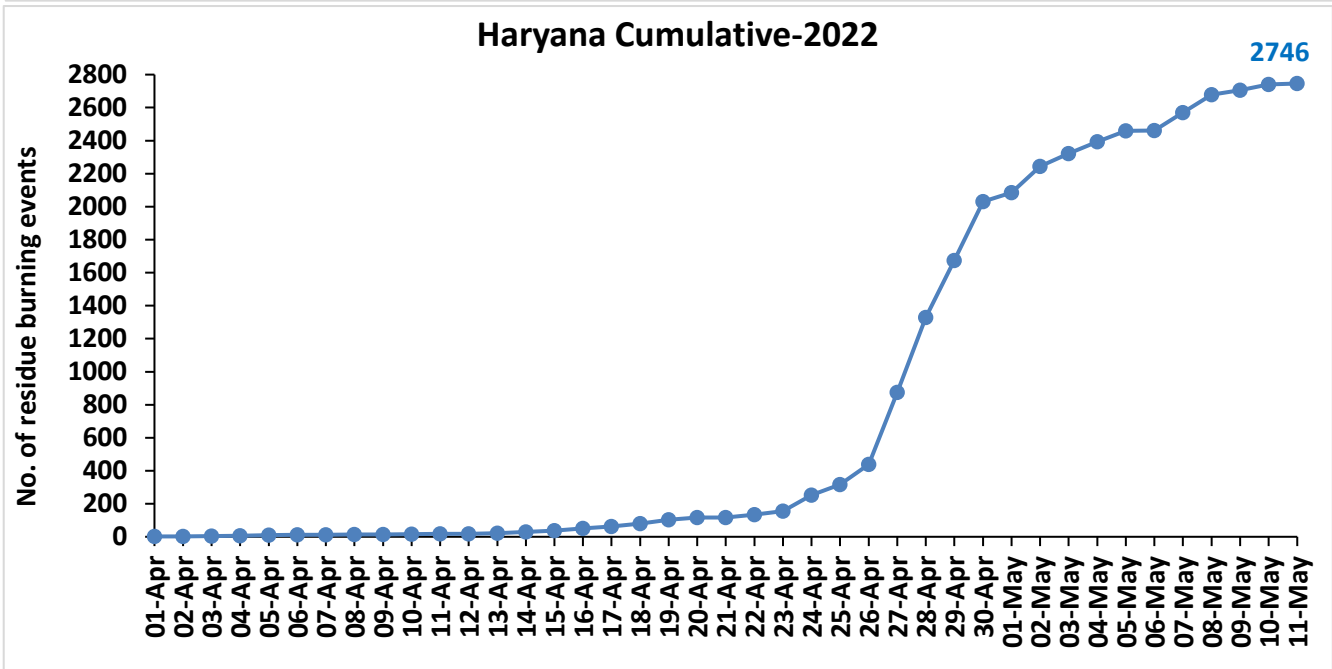
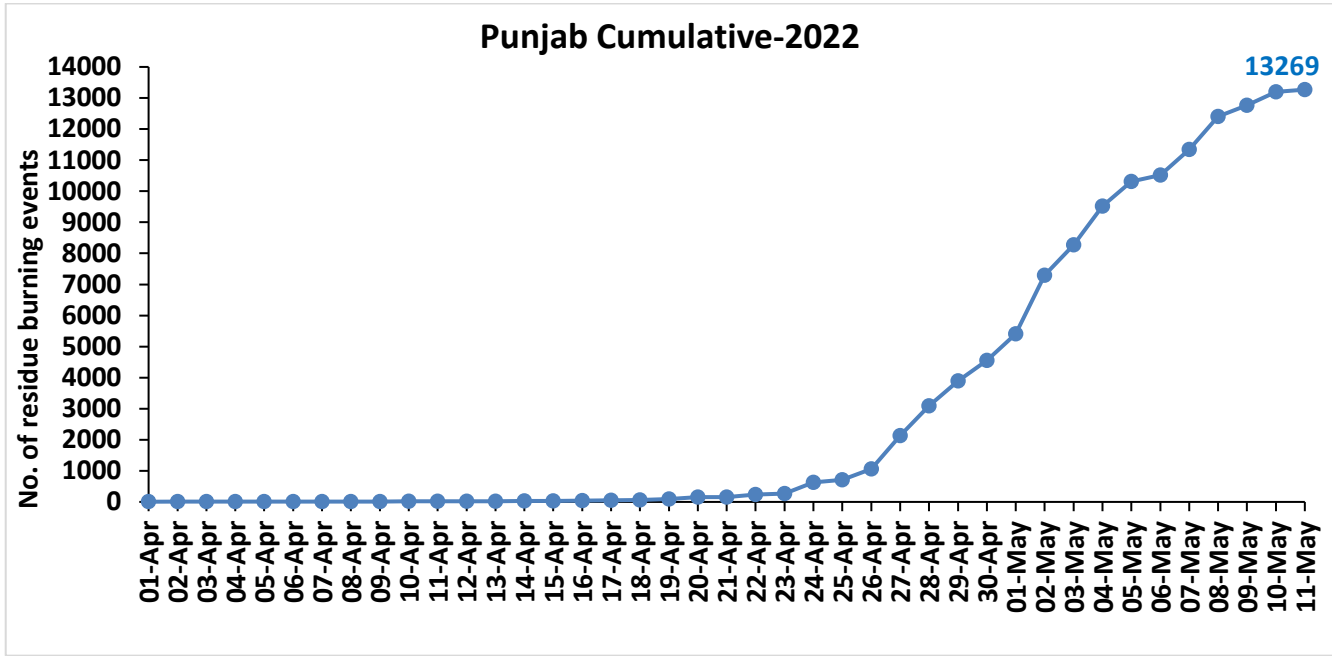
Temporal distribution of wheat residue burning events for the study States in 2022



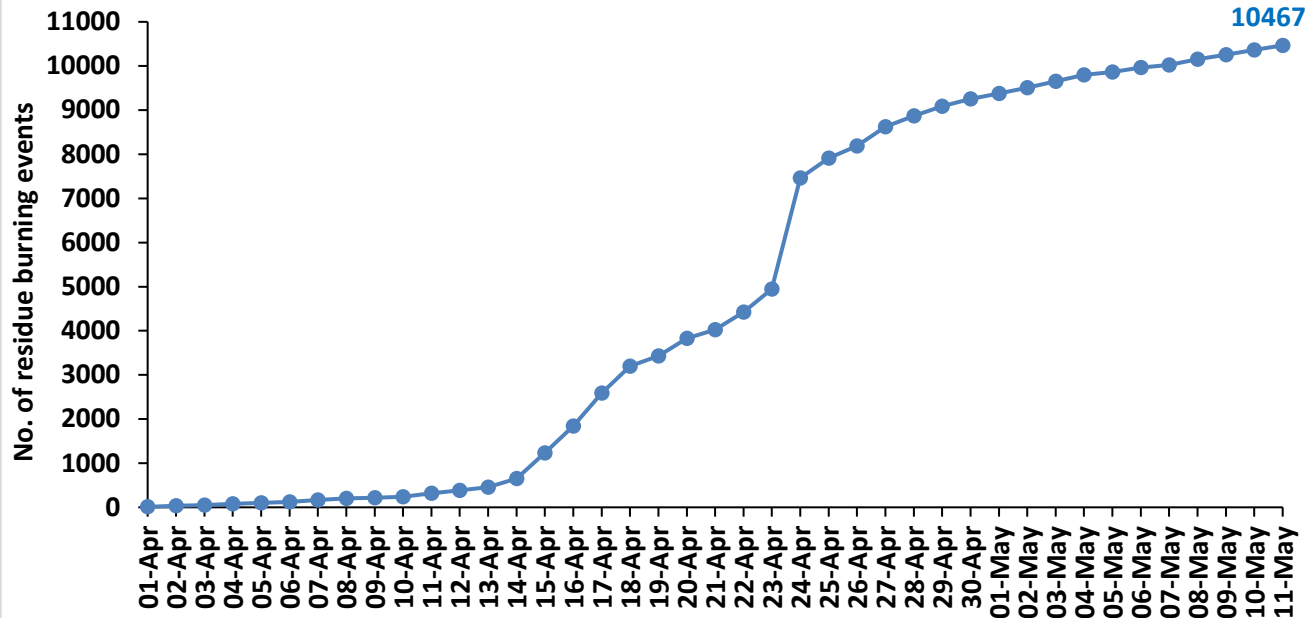




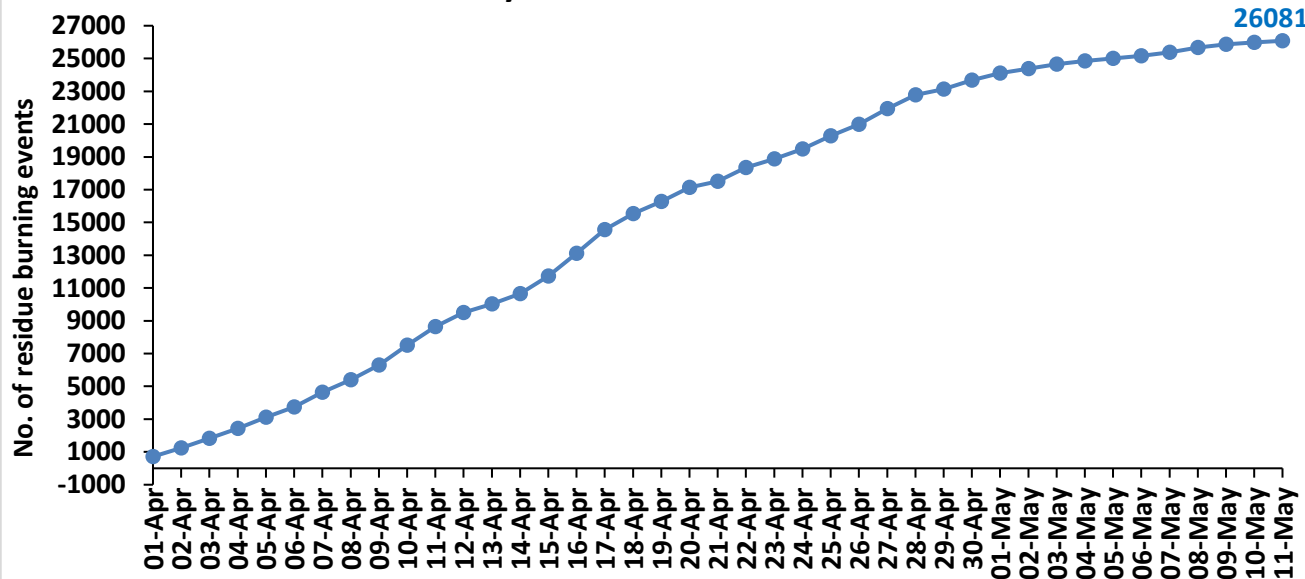
Cumulative Wheat Residue burning events in current year (2022) for the study States



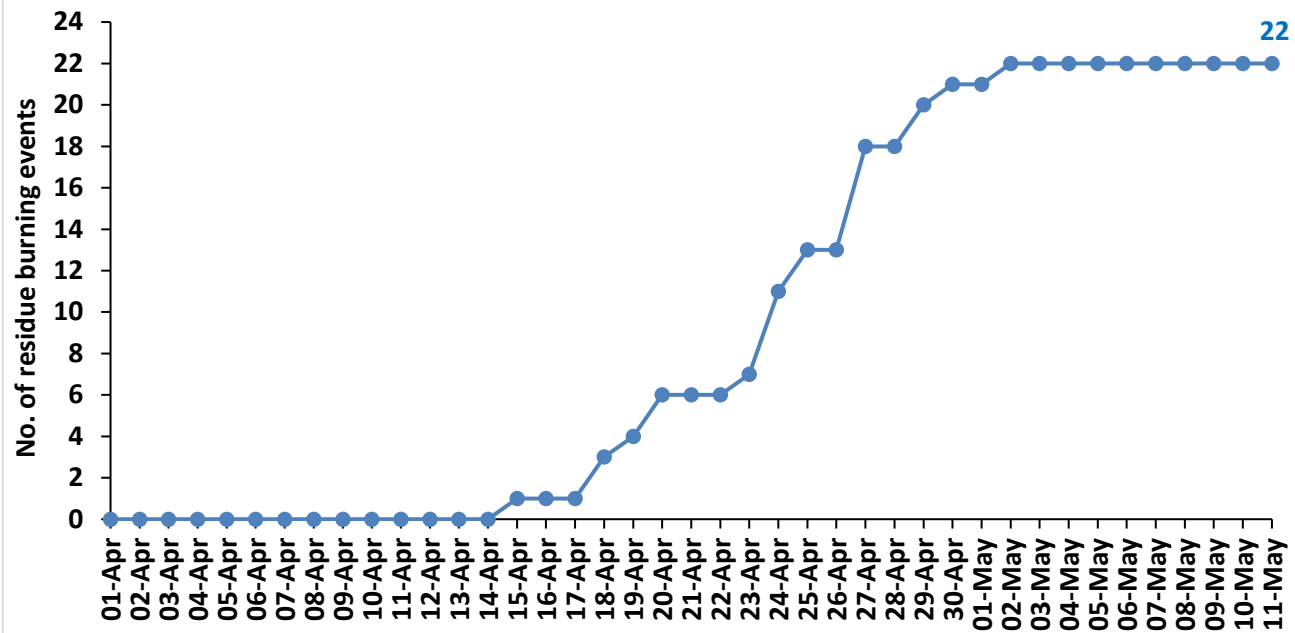
Uttar Pradesh Cumulative-2022



Madhya Pradesh Cumulative-2022

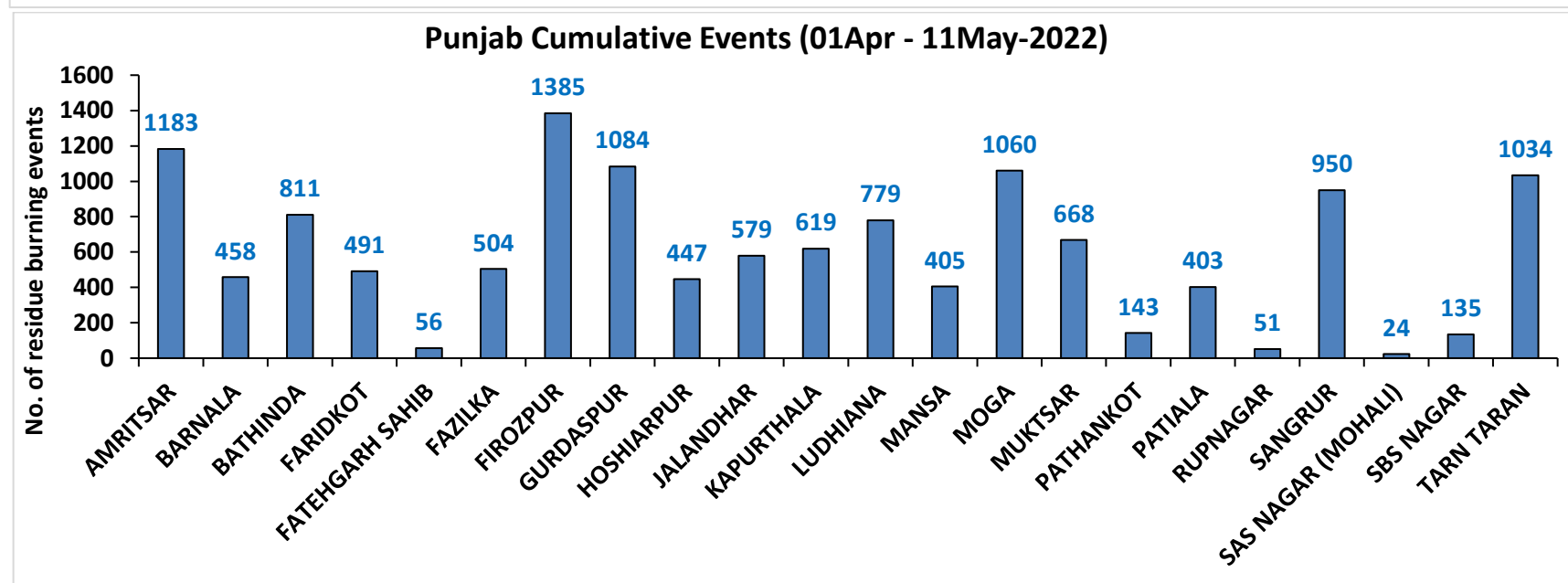
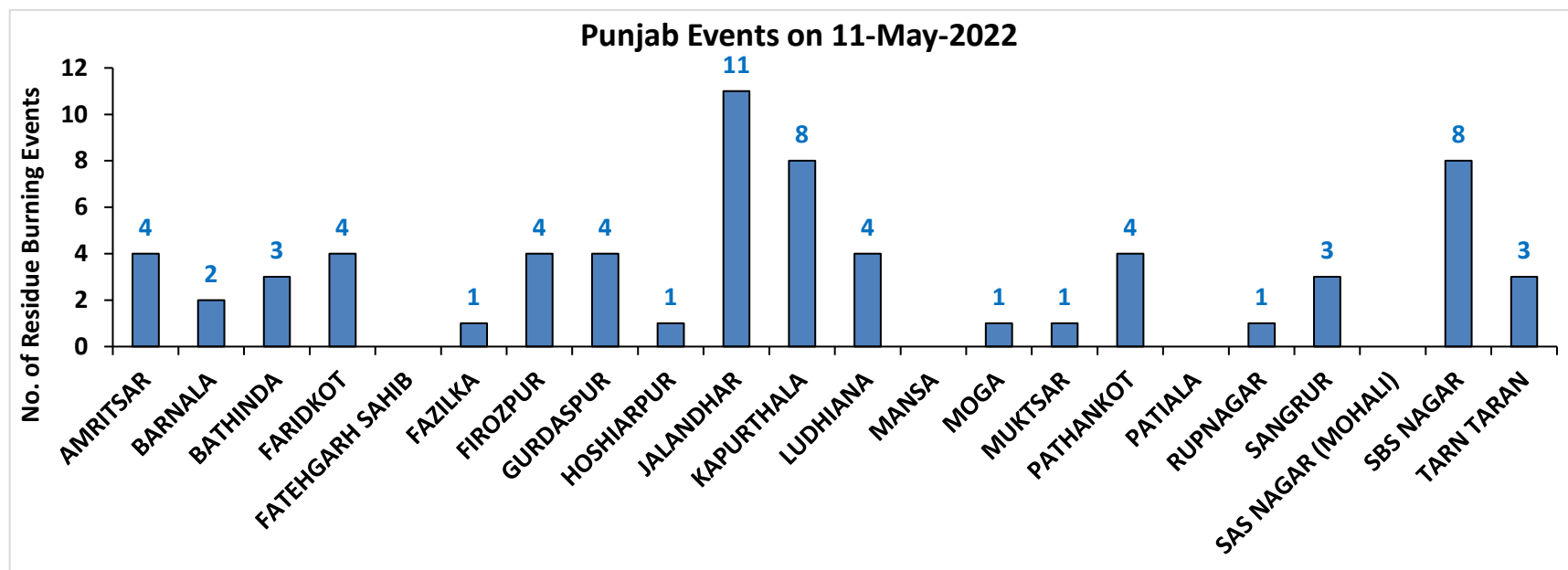


Delhi Cumulative-2022



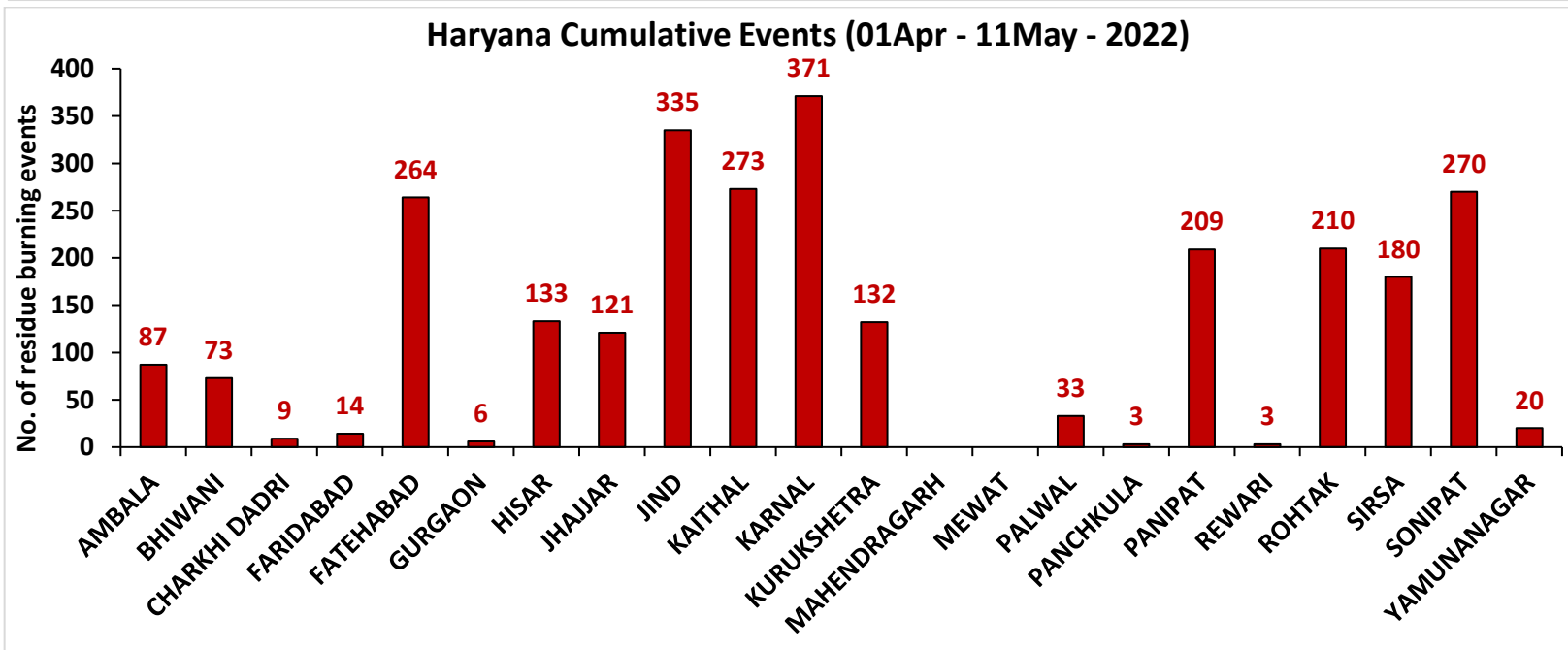
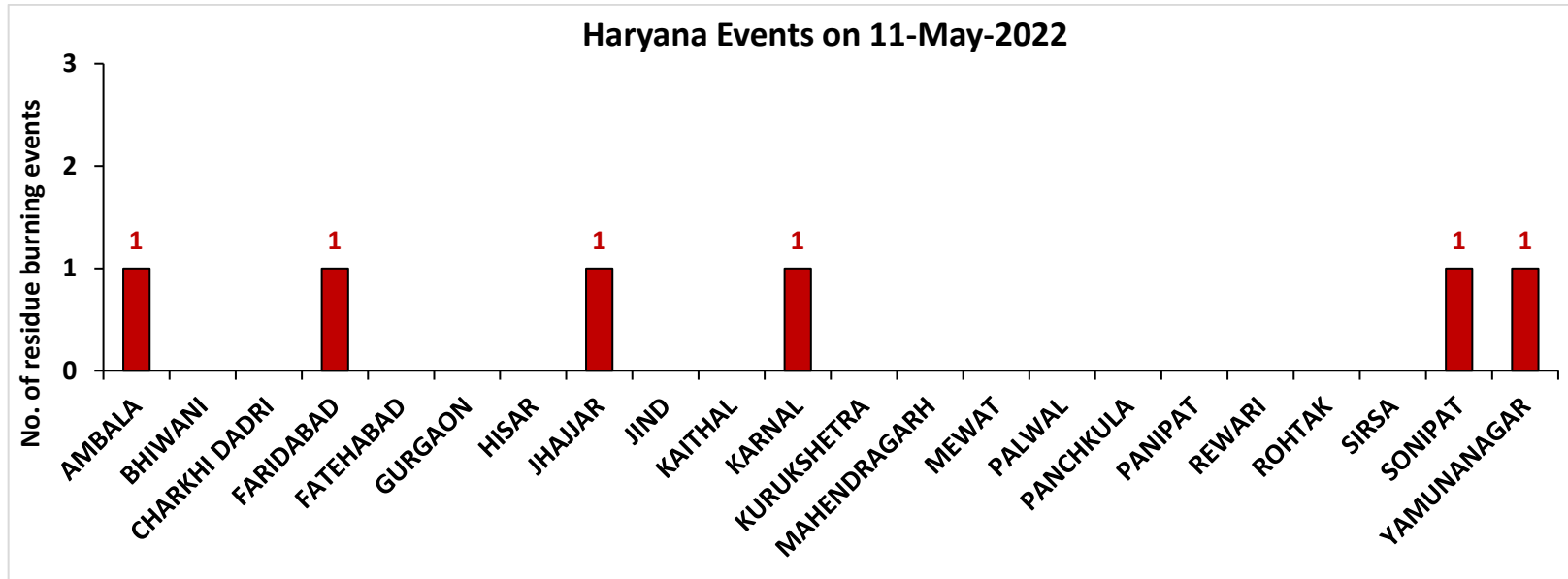
Punjab

District-wise cumulative number of wheat residue burning events in Punjab (01 Apr-11 May-2022)



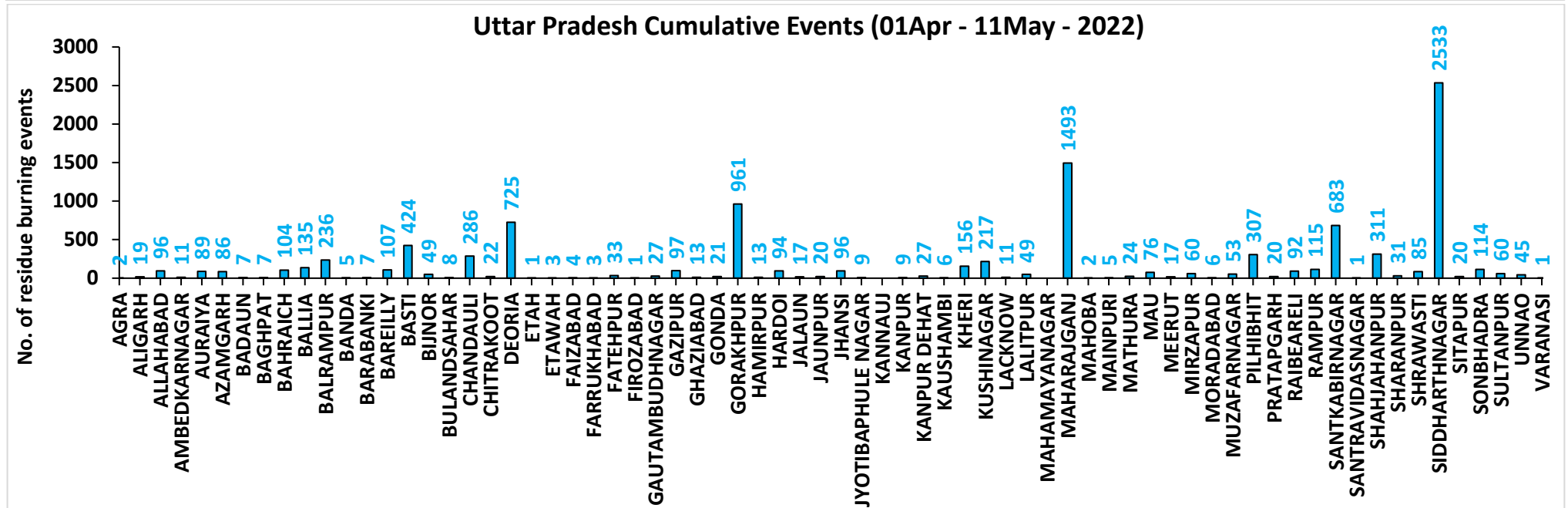
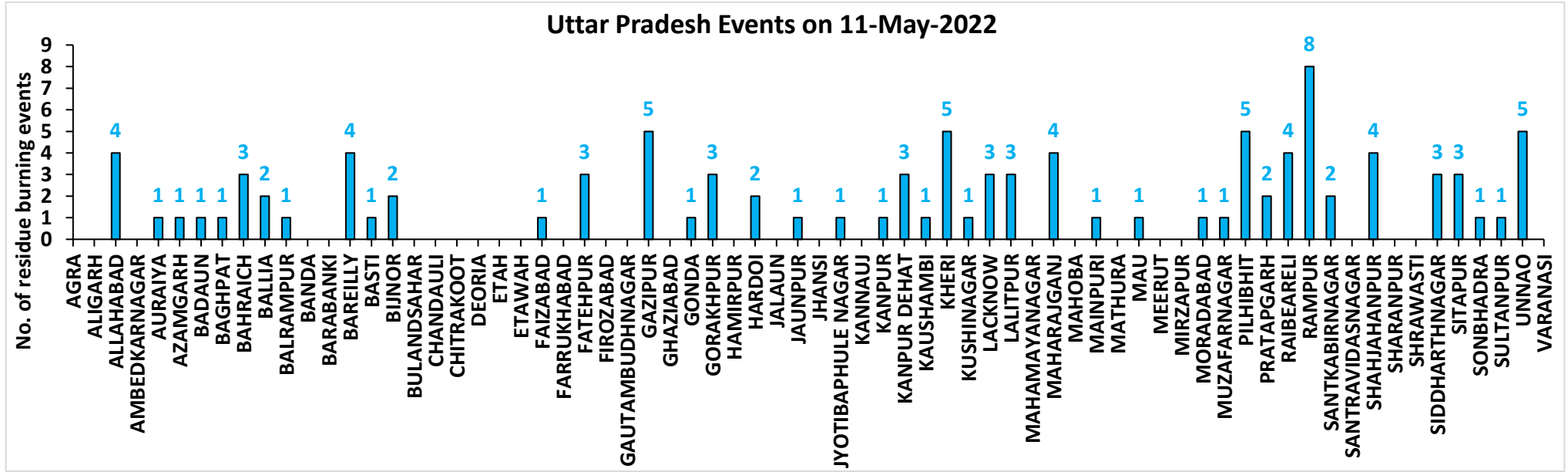
Haryana

District-wise cumulative number of residue burning events in Haryana (01 Apr-11 May-2022)



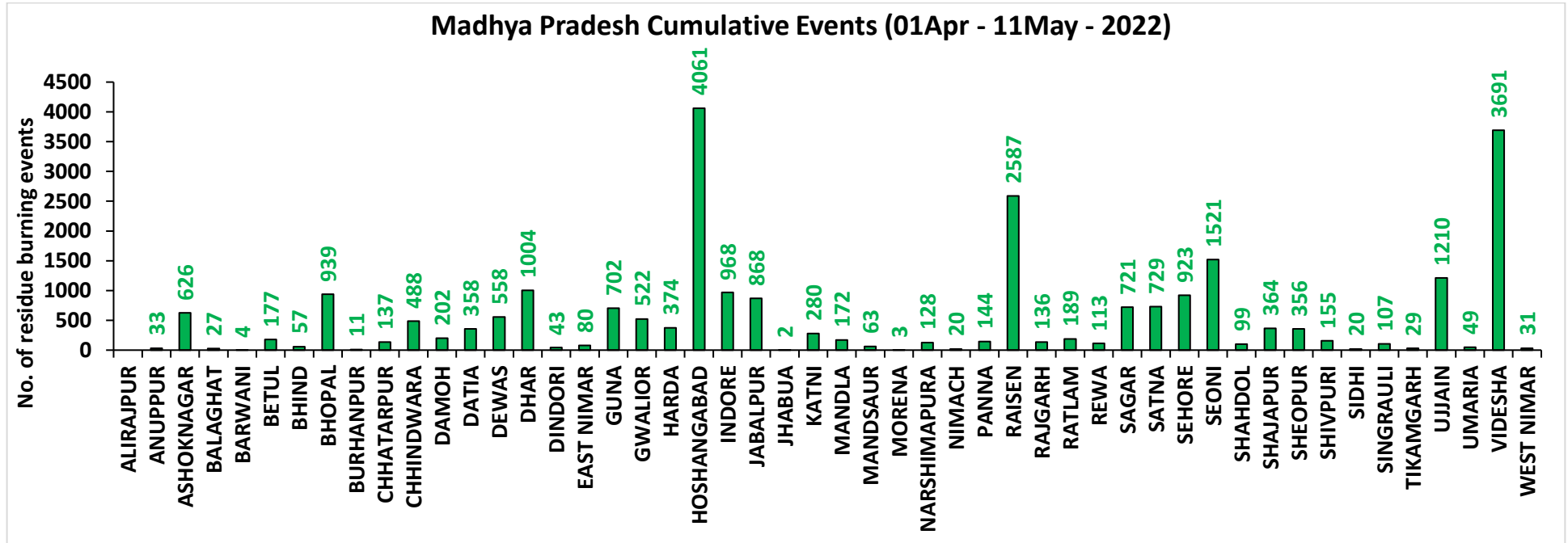
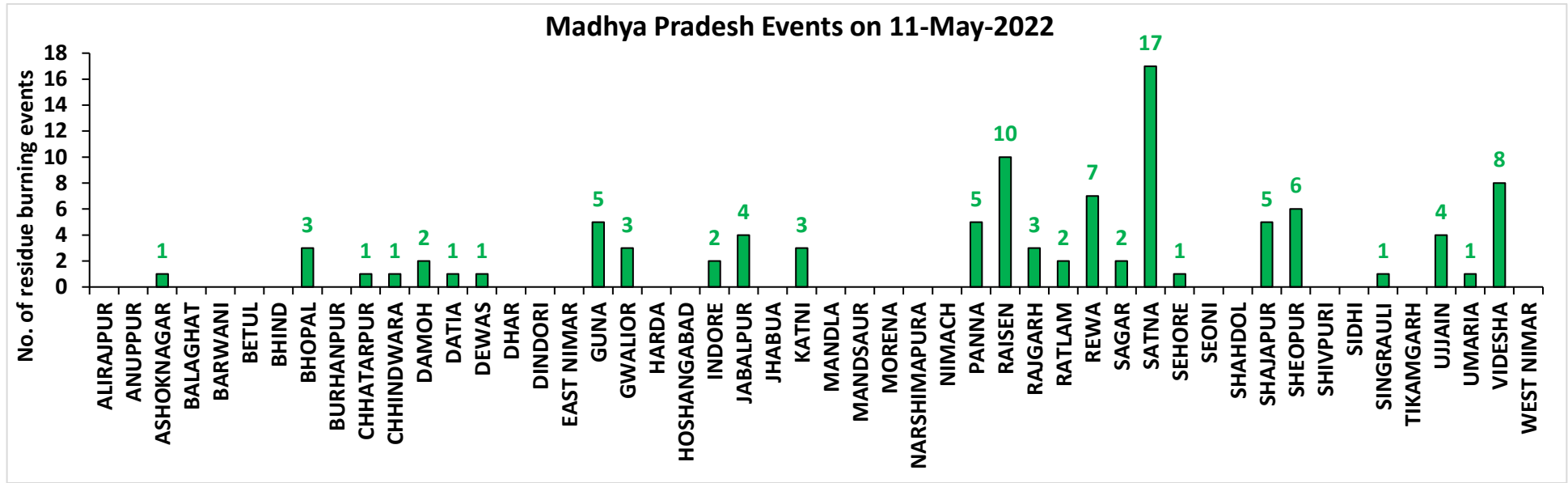
Uttar Pradesh

District-wise cumulative number of wheat residue burning events in Uttar Pradesh (01 Apr-11 May-2022)



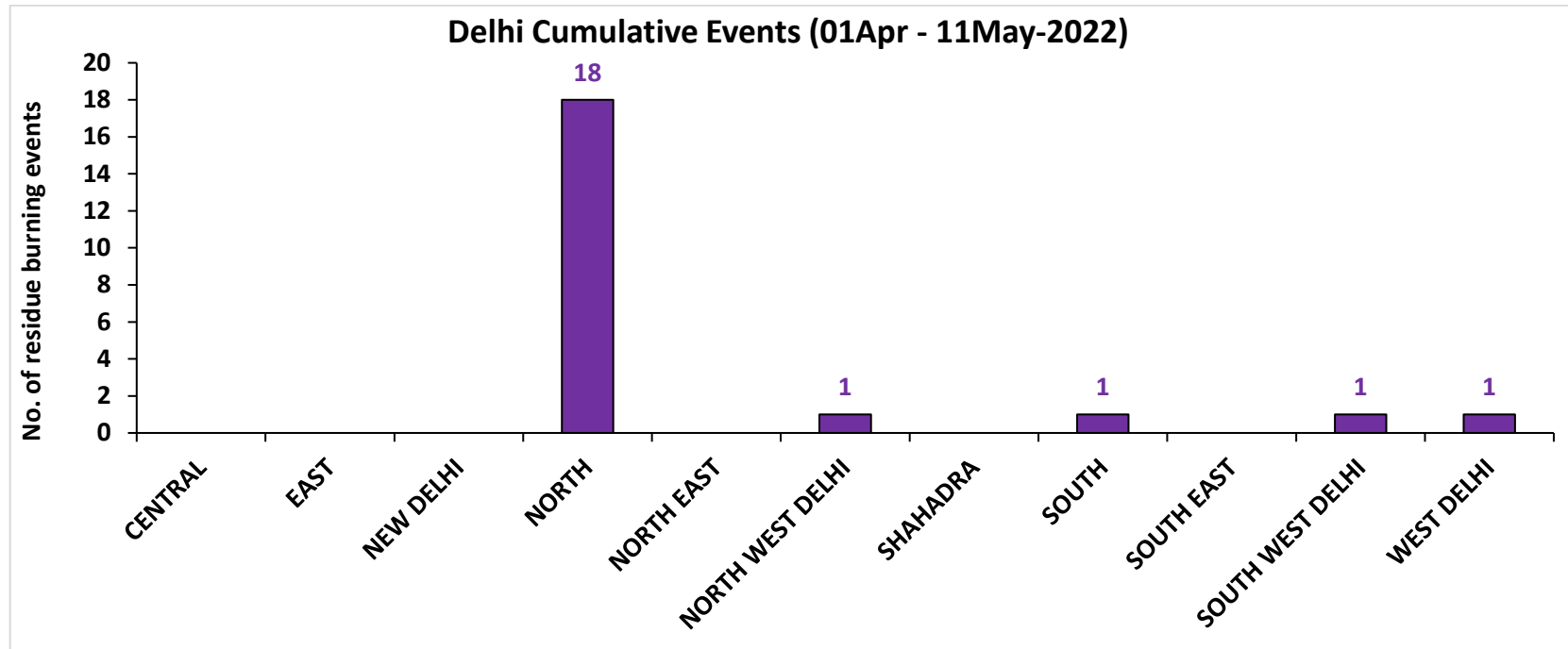
Madhya Pradesh

District-wise cumulative number of wheat residue burning events in Madhya Pradesh (01 Apr-11 May-2022)



Delhi

District-wise cumulative number of wheat residue burning events in Delhi (01 Apr-11 May-2022)



District-wise cumulative number of wheat residue burning events detected in 2022

(Period: 01 April – 11 May)

(a) Punjab

District	01Apr-11 May
	Year 2022
Amritsar	1183
Barnala	458
Bathinda	811
Faridkot	491
Fatehgarh Sahib	56
Fazilka	504
Firozpur	1385
Gurdaspur	1084
Hoshiarpur	447
Jalandhar	579
Kapurthala	619
Ludhiana	779
Mansa	405
Moga	1060
Muktsar	668
Pathankot	143
Patiala	403
Rupnagar	51
Sangrur	950
SAS NAGAR (Mohali)	24
SBS Nagar	135
Tarn Taran	1034
Total	13269

(b) Haryana

District	01Apr-11 May
	Year 2022
Ambala	87
Bhiwani	73
Charkhi Dadri	9
Faridabad	14
Fatehabad	264
Gurgaon	6
Hisar	133
Jhajjar	121
Jind	335
Kaithal	273
Karnal	371
Kurukshetra	132
Mahendragarh	0
Mewat	0
Palwal	33
Panchkula	3
Panipat	209
Rewari	3
Rohtak	210
Sirsa	180
Sonipat	270
Yamunanagar	20
Total	2746

(c) Uttar Pradesh

District	01Apr-11 May				
	Year 2022				
		GAUTAMBUDHNAGAR	27	MUZAFARNAGAR	53
		GAZIPUR	97	PILHIBHIT	307
AGRA	2	GHAZIABAD	13	PRATAPGARH	20
ALIGARH	19	GONDA	21	RAIBEARELI	92
ALLAHABAD	96	GORAKHPUR	961	RAMPUR	115
AMBEDKARNAGAR	11	HAMIRPUR	13	SANTKABIRNAGAR	683
AURAIYA	89	HARDOI	94	SANTRAVIDASNAGAR	1
AZAMGARH	86	JALAUN	17	SHAHJAHANPUR	311
BADAUN	7	JAUNPUR	20	SHARANPUR	31
BAGHPAT	7	JHANSI	96	SHRAWASTI	85
BAHRAICH	104	JYOTIBAPHULE NAGAR	9	SIDDHARTHANAGAR	2533
BALLIA	135	KANNAUJ	0	SITAPUR	20
BALRAMPUR	236	KANPUR	9	SONBHADRA	114
BANDA	5	KANPUR DEHAT	27	SULTANPUR	60
BARABANKI	7	KAUSHAMBI	6	UNNAO	45
BAREILLY	107	KHERI	156	VARANASI	1
BASTI	424	KUSHINAGAR	217	Total	10467
BIJNOR	49	LACKNOW	11		
BULANDSAHAR	8	LALITPUR	49		
CHANDAULI	286	MAHAMAYANAGAR	0		
CHITRAKOOT	22	MAHARAJGANJ	1493		
DEORIA	725	MAHOBA	2		
ETAH	1	MAINPURI	5		
ETAWAH	3	MATHURA	24		
FAIZABAD	4	MAU	76		
FARRUKHABAD	3	MEERUT	17		
FATEHPUR	33	MIRZAPUR	60		
FIROZABAD	1	MORADABAD	6		

(f) Madhya Pradesh

District	01Apr-11 May	
	Year 2022	
ALIRAJPUR	0	PANNA 144
ANUPPUR	33	RAISEN 2587
ASHOKNAGAR	626	RAJGARH 136
BALAGHAT	27	RATLAM 189
BARWANI	4	REWA 113
BETUL	177	SAGAR 721
BHIND	57	SATNA 729
BHOPAL	939	SEHORE 923
BURHANPUR	11	SEONI 1521
CHHATARPUR	137	SHAHDOL 99
CHHINDWARA	488	SHAJAPUR 364
DAMOH	202	SHEOPUR 356
DATIA	358	SHIVPURI 155
DEWAS	558	SIDHI 20
DHAR	1004	SINGRAULI 107
DINDORI	43	TIKAMGARH 29
EAST NIMAR	80	UJJAIN 1210
GUNA	702	UMARIA 49
GWALIOR	522	VIDESHA 3691
HARDA	374	WEST NIMAR 31
HOSHANGABAD	4061	Total 26081
INDORE	968	
JABALPUR	868	
JHABUA	2	
KATNI	280	
MANDLA	172	
MANDSAUR	63	
MORENA	3	
NARSHIMAPURA	128	
NIMACH	20	

(g) Delhi

District	01Apr-11 May
	2022
CENTRAL	0
EAST	0
NEW DELHI	0
NORTH	18
NORTH EAST	0
NORTH WEST DELHI	1
SHAHADRA	0
SOUTH	1
SOUTH EAST	0
SOUTH WEST DELHI	1
WEST DELHI	1
Total	22

State-wise and date-wise number of wheat residue burning events detected in 2022

(Period: 01 April – 11 May)

Date	Punjab	Haryana	UP	MP	Delhi
1-Apr	6	2	10	715	0
2-Apr	1	1	22	531	0
3-Apr	3	2	21	589	0
4-Apr	2	2	29	589	0
5-Apr	2	4	21	698	0
6-Apr	0	1	16	612	0
7-Apr	0	0	46	908	0
8-Apr	1	2	37	749	0
9-Apr	0	0	16	907	0
10-Apr	4	2	24	1217	0
11-Apr	2	2	78	1129	0
12-Apr	0	0	67	847	0
13-Apr	3	3	70	537	0
14-Apr	7	9	193	618	0
15-Apr	1	7	579	1079	1
16-Apr	13	14	609	1390	0
17-Apr	10	12	751	1441	0
18-Apr	12	17	611	972	2
19-Apr	29	23	231	748	1
20-Apr	56	14	395	856	2
21-Apr	4	0	202	379	0
22-Apr	77	17	398	839	0
23-Apr	35	22	519	524	1
24-Apr	360	96	2515	605	4
25-Apr	82	65	450	796	2
26-Apr	354	122	277	706	0
27-Apr	1064	436	436	955	5
28-Apr	965	453	249	849	0
29-Apr	802	345	213	340	2
30-Apr	662	357	166	547	1
01-May	848	56	126	437	0

02-May	1887	159	132	265	1
03-May	979	77	141	283	0
04-May	1247	72	147	188	0
05-May	796	65	64	159	0
06-May	202	2	107	166	0
07-May	827	108	52	215	0
08-May	1065	110	130	275	0
09-May	357	27	103	199	0
10-May	437	34	113	123	0
11-May	67	6	101	99	0
Total	13269	2746	10467	26081	22

Details of wheat residue burning events in Punjab on 11-May-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMRITSAR	HARSHA CHHINA	npp	31.76800	74.79270	5/11/2022	13:21:55	D	8.70
2	AMRITSAR	RAYYA	Aqua	31.61200	75.23900	5/11/2022	13:38:16	D	9.20
3	AMRITSAR	RAYYA	npp	31.50180	75.21480	5/11/2022	13:21:55	D	4.70
4	AMRITSAR	TARSIKKA	npp	31.61270	75.18670	5/11/2022	13:21:55	D	7.10
5	BARNALA	BARNALA	npp	30.25890	75.50420	5/11/2022	13:21:55	D	8.90
6	BARNALA	BARNALA	npp	30.33340	75.48850	5/11/2022	13:21:55	D	5.90
7	BATHINDA	PHUL	npp	30.29840	75.15300	5/11/2022	13:21:55	D	7.50
8	BATHINDA	RAMPURA	Aqua	30.15900	75.16300	5/11/2022	13:38:16	D	11.80
9	BATHINDA	TALWANDI SABO	Aqua	30.03800	74.92700	5/11/2022	13:38:16	D	11.50
10	FARIDKOT	JAITON	Aqua	30.46200	74.97000	5/11/2022	13:38:16	D	35.40
11	FARIDKOT	JAITON	Aqua	30.46300	74.98100	5/11/2022	13:38:16	D	19.10
12	FARIDKOT	JAITON	npp	30.49950	74.95040	5/11/2022	13:21:55	D	10.70
13	FARIDKOT	JAITON	npp	30.53300	74.92240	5/11/2022	13:21:55	D	38.20
14	FAZILKA	JALALABAD	Aqua	30.51900	74.34900	5/11/2022	13:38:16	D	35.00
15	FIROZPUR	FIROZPUR	npp	31.01680	74.57030	5/11/2022	13:21:55	D	7.90
16	FIROZPUR	GHALL KHURD	Aqua	30.80700	74.81500	5/11/2022	13:38:16	D	13.70
17	FIROZPUR	MAMDOT	npp	30.84510	74.50710	5/11/2022	13:21:55	D	11.70
18	FIROZPUR	ZIRA	Aqua	31.00300	75.00800	5/11/2022	13:38:16	D	8.90
19	GURDASPUR	GURDASPUR	npp	32.01220	75.35080	5/11/2022	13:21:55	D	4.40
20	GURDASPUR	KAHNUWAN	Aqua	31.86200	75.48400	5/11/2022	13:38:16	D	10.90
21	GURDASPUR	KAHNUWAN	Aqua	31.86800	75.34100	5/11/2022	13:38:16	D	23.60
22	GURDASPUR	KAHNUWAN	Aqua	31.88800	75.53300	5/11/2022	13:38:16	D	8.90
23	HOSHIARPUR	HOSHIARPUR-2	Aqua	31.43200	75.81600	5/11/2022	13:38:16	D	14.40
24	JALANDHAR	NAKODAR	Aqua	31.17500	75.57900	5/11/2022	13:38:16	D	8.70
25	JALANDHAR	NUR MAHAL	Aqua	30.99500	75.67200	5/11/2022	13:38:16	D	11.40
26	JALANDHAR	NUR MAHAL	npp	31.04310	75.64880	5/11/2022	13:21:55	D	19.90
27	JALANDHAR	PHILLAUR	Aqua	31.02600	75.81600	5/11/2022	13:38:16	D	11.40
28	JALANDHAR	PHILLAUR	Aqua	31.02700	75.82700	5/11/2022	13:38:16	D	13.00

29	JALANDHAR	RURKA KALAN	Aqua	31.09000	75.75400	5/11/2022	13:38:16	D	10.10
30	JALANDHAR	RURKA KALAN	Aqua	31.09100	75.76500	5/11/2022	13:38:16	D	11.70
31	JALANDHAR	RURKA KALAN	Aqua	31.13300	75.60900	5/11/2022	13:38:16	D	25.40
32	JALANDHAR	RURKA KALAN	Aqua	31.14200	75.60800	5/11/2022	13:38:16	D	13.10
33	JALANDHAR	RURKA KALAN	Aqua	31.19200	75.63000	5/11/2022	13:38:16	D	9.70
34	JALANDHAR	SHAHKOT	Aqua	31.04700	75.35100	5/11/2022	13:38:16	D	16.10
35	KAPURTHALA	PHAGWARA	Aqua	31.32900	75.81100	5/11/2022	13:38:16	D	10.00
36	KAPURTHALA	PHAGWARA	Aqua	31.33000	75.82200	5/11/2022	13:38:16	D	24.90
37	KAPURTHALA	PHAGWARA	Aqua	31.33200	75.83200	5/11/2022	13:38:16	D	8.90
38	KAPURTHALA	PHAGWARA	Aqua	31.33300	75.77800	5/11/2022	13:38:16	D	13.00
39	KAPURTHALA	PHAGWARA	Aqua	31.34100	75.83000	5/11/2022	13:38:16	D	28.10
40	KAPURTHALA	PHAGWARA	Aqua	31.34200	75.84100	5/11/2022	13:38:16	D	14.80
41	KAPURTHALA	SULTANPUR LODHI	Aqua	31.27100	75.24200	5/11/2022	13:38:16	D	11.00
42	KAPURTHALA	SULTANPUR LODHI	Aqua	31.30400	75.21300	5/11/2022	13:38:16	D	8.30
43	LUDHIANA	LUDHIANA-2	Aqua	30.92400	76.00400	5/11/2022	13:38:16	D	13.80
44	LUDHIANA	LUDHIANA-2	Aqua	30.94800	75.73100	5/11/2022	13:38:16	D	43.80
45	LUDHIANA	MACHHIWARA	Aqua	30.90400	76.30100	5/11/2022	13:38:16	D	14.30
46	LUDHIANA	SIDHWAN BET	Aqua	30.95200	75.57300	5/11/2022	13:38:16	D	12.00
47	MOGA	NIHAL SINGH	Aqua	30.64700	75.27400	5/11/2022	13:38:16	D	7.90
48	MUKTSAR	MUKTSAR	Aqua	30.41500	74.61600	5/11/2022	13:38:16	D	20.20
49	PATHANKOT	GHAROTA	Aqua	32.20000	75.52600	5/11/2022	13:38:16	D	17.20
50	PATHANKOT	GHAROTA	Aqua	32.20200	75.53600	5/11/2022	13:38:16	D	21.80
51	PATHANKOT	SUJANPUR	Aqua	32.32600	75.56300	5/11/2022	13:38:16	D	11.60
52	PATHANKOT	SUJANPUR	Aqua	32.33700	75.57200	5/11/2022	13:38:16	D	7.10
53	RUPNAGAR	ANANDPUR SAHIB	Aqua	31.30100	76.43200	5/11/2022	13:38:16	D	13.60
54	SANGRUR	MALERKOTLA-1	Aqua	30.41500	75.99400	5/11/2022	13:38:16	D	8.10
55	SANGRUR	MALERKOTLA-1	Aqua	30.51100	76.07500	5/11/2022	13:38:16	D	10.00
56	SANGRUR	SANGRUR	Aqua	30.22800	75.91600	5/11/2022	13:38:16	D	14.80
57	SBS NAGAR	AUR	Aqua	31.01900	75.95700	5/11/2022	13:38:16	D	11.00
58	SBS NAGAR	AUR	Aqua	31.03200	76.10400	5/11/2022	13:38:16	D	19.80
59	SBS NAGAR	AUR	Aqua	31.04900	75.97200	5/11/2022	13:38:16	D	9.80

60	SBS NAGAR	AUR	Aqua	31.05100	75.98200	5/11/2022	13:38:16	D	10.20
61	SBS NAGAR	AUR	Aqua	31.08000	75.99800	5/11/2022	13:38:16	D	6.80
62	SBS NAGAR	AUR	Aqua	31.13700	75.94900	5/11/2022	13:38:16	D	7.40
63	SBS NAGAR	BALACHAUR	Aqua	30.98900	76.44900	5/11/2022	13:38:16	D	9.20
64	SBS NAGAR	BALACHAUR	npp	30.97370	76.42810	5/11/2022	13:21:55	D	7.00
65	TARN TARAN	CHOHLA SAHIB	Aqua	31.31900	75.13200	5/11/2022	13:38:16	D	18.80
66	TARN TARAN	CHOHLA SAHIB	npp	31.28330	75.04030	5/11/2022	13:21:55	D	7.70
67	TARN TARAN	CHOHLA SAHIB	npp	31.37000	75.05620	5/11/2022	13:21:55	D	5.60

Details of wheat residue burning events in Haryana on 11-May-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMBALA	SHAHZADPUR	npp	30.53380	77.05540	5/11/2022	02:11:56	N	1.10
2	FARIDABAD	FARIDABAD	npp	28.43570	77.43190	5/11/2022	13:21:55	D	7.80
3	JHAJJAR	BERI	npp	28.64440	76.45890	5/11/2022	02:11:56	N	1.10
4	KARNAL	INDRI	npp	29.93010	77.21530	5/11/2022	13:21:55	D	10.80
5	SONIPAT	MUNDLANA	npp	29.26110	76.67630	5/11/2022	02:11:56	N	0.80
6	YAMUNANAGAR	CHHACHHRAULI	npp	30.26370	77.49200	5/11/2022	13:21:55	D	1.80

Details of wheat residue burning events in Uttar Pradesh on 11-May-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	ALLAHABAD	BARA	npp	25.09080	81.68610	5/11/2022	13:21:55	D	12.30
2	ALLAHABAD	KORAWN	npp	25.02610	81.98680	5/11/2022	13:21:55	D	9.70
3	ALLAHABAD	MEZA	npp	25.06520	82.02390	5/11/2022	13:21:55	D	8.70
4	ALLAHABAD	MEZA	npp	25.08670	82.00080	5/11/2022	02:11:56	N	0.80
5	AURAIYA	BIDHUNA	npp	26.64370	79.48150	5/11/2022	02:11:56	N	1.80
6	AZAMGARH	SAGRI	npp	26.22230	83.31610	5/11/2022	13:21:55	D	5.00
7	BADAUN	DATAGANJ	npp	28.01480	79.45810	5/11/2022	13:21:55	D	4.50
8	BAGHPAT	BAGHPAT	npp	28.88030	77.36960	5/11/2022	02:11:56	N	0.70
9	BAHRAICH	BAHRAICH	npp	27.49260	81.81440	5/11/2022	13:21:55	D	8.40
10	BAHRAICH	NANPARA	Terra	27.89200	81.54700	5/11/2022	10:27:41	D	10.70
11	BAHRAICH	NANPARA	npp	27.96400	81.53010	5/11/2022	13:21:55	D	4.40
12	BALLIA	BANSDIH	npp	25.94520	84.16490	5/11/2022	13:21:55	D	6.30
13	BALLIA	BELTHARA ROAD	npp	26.00510	83.76010	5/11/2022	02:11:56	N	0.60
14	BALRAMPUR	TULSIPUR	npp	27.33870	82.48850	5/11/2022	13:21:55	D	4.60
15	BAREILLY	BAHERI	npp	28.72540	79.63420	5/11/2022	13:21:55	D	3.20
16	BAREILLY	BAHERI	npp	28.75520	79.65090	5/11/2022	13:21:55	D	3.50
17	BAREILLY	BAHERI	npp	28.75570	79.65510	5/11/2022	13:21:55	D	3.50
18	BAREILLY	FARIDPUR	npp	28.10000	79.64390	5/11/2022	13:21:55	D	3.10
19	BASTI	BHANPUR	npp	26.88750	82.72420	5/11/2022	13:21:55	D	9.40
20	BIJNOR	NAGINA	Aqua	29.51900	78.66900	5/11/2022	13:38:16	D	16.00
21	BIJNOR	NAGINA	npp	29.55760	78.46290	5/11/2022	13:21:55	D	7.80
22	FAIZABAD	BIKAPUR	npp	26.50950	82.25850	5/11/2022	13:21:55	D	4.20
23	FATEHPUR	FATEHPUR	npp	25.76060	80.84820	5/11/2022	13:21:55	D	10.80
24	FATEHPUR	FATEHPUR	npp	25.97460	80.78420	5/11/2022	13:21:55	D	5.60
25	FATEHPUR	KHAGA	npp	25.72150	81.03140	5/11/2022	13:21:55	D	9.50
26	GAZIPUR	ZAMANIA	npp	25.41110	83.70760	5/11/2022	13:21:55	D	8.40
27	GAZIPUR	ZAMANIA	npp	25.41180	83.71320	5/11/2022	13:21:55	D	8.40
28	GAZIPUR	ZAMANIA	npp	25.43810	83.83580	5/11/2022	13:21:55	D	5.10
29	GAZIPUR	ZAMANIA	npp	25.49810	83.82740	5/11/2022	13:21:55	D	6.80
30	GAZIPUR	ZAMANIA	npp	25.49950	83.82630	5/11/2022	13:21:55	D	11.60

31	GONDA	COLONELGANJ	npp	27.01720	81.77860	5/11/2022	13:21:55	D	10.90
32	GORAKHPUR	CHAURI CHAURA	npp	26.74950	83.54100	5/11/2022	13:21:55	D	13.70
33	GORAKHPUR	CHAURI CHAURA	npp	26.75160	83.54450	5/11/2022	13:21:55	D	14.40
34	GORAKHPUR	SAHJANWA	npp	26.76500	83.23870	5/11/2022	13:21:55	D	7.70
35	HARDOI	SIWAIJPUR	npp	27.15530	79.91210	5/11/2022	13:21:55	D	1.80
36	HARDOI	SIWAIJPUR	npp	27.15570	79.91250	5/11/2022	13:21:55	D	3.20
37	JAUNPUR	MACHHALI SAHAR	npp	25.60310	82.29020	5/11/2022	13:21:55	D	4.00
38	JYOTIBAPHULE NAGAR	AMROHA	npp	28.82370	78.57780	5/11/2022	13:21:55	D	2.00
39	KANPUR	BILHAUR	Terra	26.64700	80.03700	5/11/2022	10:27:41	D	14.40
40	KANPUR DEHAT	AKBARPUR	npp	26.51550	79.99410	5/11/2022	13:21:55	D	4.00
41	KANPUR DEHAT	BHOGANIPUR	npp	26.16300	79.81680	5/11/2022	13:21:55	D	5.30
42	KANPUR DEHAT	RASULABAD	npp	26.70990	79.76040	5/11/2022	13:21:55	D	6.30
43	KAUSHAMBI	MANJHANPUR	npp	25.45510	81.26830	5/11/2022	13:21:55	D	6.70
44	KHERI	NIGHASAN	npp	28.41750	80.98060	5/11/2022	13:21:55	D	5.30
45	KHERI	NIGHASAN	npp	28.41810	80.98520	5/11/2022	13:21:55	D	7.20
46	KHERI	NIGHASAN	npp	28.42100	80.98000	5/11/2022	13:21:55	D	5.30
47	KHERI	NIGHASAN	npp	28.42160	80.98460	5/11/2022	13:21:55	D	7.20
48	KHERI	PALIA KALAN	npp	28.61110	80.37610	5/11/2022	13:21:55	D	1.60
49	KUSHINAGAR	PADRAUNA	npp	26.86580	83.94000	5/11/2022	13:21:55	D	1.40
50	LACKNOW	LUCKNOW	npp	26.69380	80.91600	5/11/2022	13:21:55	D	9.60
51	LACKNOW	MOHANLAL GANJ	npp	26.60780	80.94610	5/11/2022	13:21:55	D	9.50
52	LACKNOW	MOHANLAL GANJ	npp	26.60840	80.95040	5/11/2022	13:21:55	D	5.50
53	LALITPUR	KHAGA	npp	24.45440	78.58430	5/11/2022	02:11:56	N	0.90
54	LALITPUR	LALITPUR	npp	24.64620	78.36500	5/11/2022	02:11:56	N	0.60
55	LALITPUR	TALBEHAT	Aqua	24.76800	78.56100	5/11/2022	13:38:16	D	15.30
56	MAHARAJGANJ	MAHARAJGANJ	npp	27.04440	83.66480	5/11/2022	13:21:55	D	8.90
57	MAHARAJGANJ	NICHLAUL	npp	27.20870	83.77110	5/11/2022	13:21:55	D	3.10
58	MAHARAJGANJ	NICHLAUL	npp	27.21250	83.77090	5/11/2022	13:21:55	D	3.80
59	MAHARAJGANJ	PHARENDA	npp	27.11310	83.21240	5/11/2022	02:11:56	N	1.40
60	MAINPURI	KARHAL	npp	26.99640	79.06600	5/11/2022	13:21:55	D	4.00
61	MAU	MADHUBAN	npp	26.06950	83.67210	5/11/2022	13:21:55	D	4.60
62	MORADABAD	MORADABAD	npp	29.09860	78.96400	5/11/2022	13:21:55	D	24.00
63	MUZAFARNAGAR	MUZAFFARNAGAR	npp	29.59420	77.49700	5/11/2022	13:21:55	D	1.60

64	PILHIBHIT	PILHIBHIT	npp	28.52710	79.93800	5/11/2022	13:21:55	D	2.20
65	PILHIBHIT	PILHIBHIT	npp	28.54360	79.93080	5/11/2022	13:21:55	D	3.60
66	PILHIBHIT	PURANPUR	npp	28.51680	79.93980	5/11/2022	13:21:55	D	2.10
67	PILHIBHIT	PURANPUR	npp	28.61510	80.08000	5/11/2022	13:21:55	D	1.40
68	PILHIBHIT	PURANPUR	npp	28.65420	80.08200	5/11/2022	13:21:55	D	5.40
69	PRATAPGARH	PATTI	npp	26.00280	82.11050	5/11/2022	13:21:55	D	4.70
70	PRATAPGARH	PRATAPGARH	npp	25.99560	81.83450	5/11/2022	02:11:56	N	1.20
71	RAIBEARELI	LALGANJ	npp	26.03420	80.81810	5/11/2022	13:21:55	D	3.60
72	RAIBEARELI	LALGANJ	npp	26.10730	80.79870	5/11/2022	13:21:55	D	3.90
73	RAIBEARELI	MAHARAJGANG	npp	26.41140	81.27970	5/11/2022	13:21:55	D	2.70
74	RAIBEARELI	TILOI	npp	26.30020	81.44640	5/11/2022	13:21:55	D	8.80
75	RAMPUR	BILASPUR	npp	28.79840	79.25560	5/11/2022	13:21:55	D	3.40
76	RAMPUR	MILAK	npp	28.61640	79.15330	5/11/2022	13:21:55	D	3.30
77	RAMPUR	RAMPUR	npp	28.76650	79.02810	5/11/2022	13:21:55	D	1.20
78	RAMPUR	SUAR	Aqua	29.12900	79.07400	5/11/2022	13:38:16	D	14.90
79	RAMPUR	SUAR	npp	29.13200	79.07890	5/11/2022	13:21:55	D	4.10
80	RAMPUR	SUAR	npp	29.13530	79.07830	5/11/2022	13:21:55	D	4.10
81	RAMPUR	SUAR	npp	29.13870	79.07770	5/11/2022	13:21:55	D	5.40
82	RAMPUR	TANDA	npp	28.99330	78.93340	5/11/2022	13:21:55	D	1.30
83	SANTKABIRNAGAR	GHANGHATA	Terra	26.63700	82.95500	5/11/2022	10:27:41	D	11.50
84	SANTKABIRNAGAR	KHALILABAD	npp	26.81740	82.90790	5/11/2022	13:21:55	D	7.40
85	SHAHJAHANPUR	JALALABAD	Aqua	27.80900	79.64200	5/11/2022	13:38:16	D	21.20
86	SHAHJAHANPUR	JALALABAD	npp	27.80750	79.64320	5/11/2022	13:21:55	D	5.50
87	SHAHJAHANPUR	SHAHJAHANPUR	npp	27.81310	79.65890	5/11/2022	13:21:55	D	4.10
88	SHAHJAHANPUR	TILHAR	npp	27.95940	79.56320	5/11/2022	13:21:55	D	9.70
89	SIDDHARTHANAGAR	BANSI	npp	27.12570	83.06580	5/11/2022	13:21:55	D	8.80
90	SIDDHARTHANAGAR	DOMARIYAGANJ	npp	27.14360	82.61720	5/11/2022	13:21:55	D	13.70
91	SIDDHARTHANAGAR	ITWA	npp	27.33930	82.49370	5/11/2022	13:21:55	D	6.90
92	SITAPUR	BISWAN	npp	27.56420	81.23730	5/11/2022	13:21:55	D	4.10
93	SITAPUR	BISWAN	npp	27.59160	81.22360	5/11/2022	13:21:55	D	1.40
94	SITAPUR	MAHMUDABAD	npp	27.31580	81.22240	5/11/2022	13:21:55	D	11.00
95	SONBHADRA	DUDHI	npp	24.00970	83.19180	5/11/2022	13:21:55	D	12.80
96	SULTANPUR	MUSAFIRKHANA	npp	26.55200	81.56100	5/11/2022	13:21:55	D	7.20
97	UNNAO	BIGHAPUR	npp	26.32610	80.61340	5/11/2022	13:21:55	D	6.60

98	UNNAO	BIGHAPUR	npp	26.38300	80.66820	5/11/2022	13:21:55	D	11.60
99	UNNAO	UNNAO	npp	26.31920	80.61460	5/11/2022	13:21:55	D	6.70
100	UNNAO	UNNAO	npp	26.32270	80.61400	5/11/2022	13:21:55	D	6.60
101	UNNAO	UNNAO	npp	26.38240	80.66400	5/11/2022	13:21:55	D	11.60

Details of wheat residue burning events in Madhya Pradesh on 11-May-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_DATE	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	ASHOKNAGAR	MUNGAOLI	npp	24.30610	77.90880	5/11/2022	02:11:56	N	1.40
2	BHOPAL	HUZUR	npp	23.18070	77.55840	5/11/2022	02:11:56	N	0.60
3	BHOPAL	HUZUR	npp	23.18410	77.55910	5/11/2022	02:11:56	N	1.20
4	BHOPAL	HUZUR	npp	23.23930	77.20240	5/11/2022	02:11:56	N	1.80
5	CHHATARPUR	BARAMALEHRA	npp	24.42270	79.03160	5/11/2022	02:11:56	N	1.40
6	CHHINDWARA	CHAURAI	npp	21.98160	79.15190	5/11/2022	02:11:56	N	1.20
7	DAMOH	DAMOH	Terra	23.95300	79.55900	5/11/2022	10:27:41	D	22.90
8	DAMOH	PATHARIA	npp	23.87690	79.38060	5/11/2022	02:11:56	N	0.80
9	DATIA	SEONDHA	npp	25.79270	78.47780	5/11/2022	13:21:55	D	11.60
10	DEWAS	DEWAS	npp	22.88960	76.20780	5/11/2022	02:11:56	N	1.40
11	GUNA	ARON	npp	24.26770	77.43380	5/11/2022	02:11:56	N	0.40
12	GUNA	ARON	npp	24.48200	77.43260	5/11/2022	02:11:56	N	0.70
13	GUNA	GUNA	Aqua	24.84900	76.97800	5/11/2022	13:38:16	D	10.40
14	GUNA	GUNA	Aqua	24.85800	76.97600	5/11/2022	13:38:16	D	12.90
15	GUNA	GUNA	Aqua	24.86000	76.98600	5/11/2022	13:38:16	D	13.00
16	GWALIOR	BHITARWAR	Aqua	25.73700	78.06400	5/11/2022	13:38:16	D	30.20
17	GWALIOR	BHITARWAR	Aqua	25.89100	78.04500	5/11/2022	13:38:16	D	37.10
18	GWALIOR	BHITARWAR	npp	25.73940	78.06400	5/11/2022	13:21:55	D	19.90
19	INDORE	DEPALPUR	npp	23.00910	75.47960	5/11/2022	02:11:56	N	0.60
20	INDORE	INDORE	npp	22.69210	76.06800	5/11/2022	02:11:56	N	1.00
21	JABALPUR	JABALPUR	npp	23.08830	80.13780	5/11/2022	02:11:56	N	0.80
22	JABALPUR	MAJHOULI	npp	23.49680	79.94100	5/11/2022	02:11:56	N	1.10
23	JABALPUR	MAJHOULI	npp	23.49710	79.93960	5/11/2022	02:11:56	N	0.90

24	JABALPUR	PATAN	npp	23.23230	79.84430	5/11/2022	02:11:56	N	1.00
25	KATNI	BARHI	npp	23.71410	80.79890	5/11/2022	13:21:55	D	12.70
26	KATNI	DHIMERKHEDA	npp	23.33850	80.35730	5/11/2022	13:21:55	D	7.80
27	KATNI	DHIMERKHEDA	npp	23.34190	80.35670	5/11/2022	13:21:55	D	7.80
28	PANNA	GUNAUR	Terra	24.53400	80.28200	5/11/2022	10:27:41	D	17.20
29	PANNA	GUNAUR	npp	24.38020	80.11080	5/11/2022	13:21:55	D	16.90
30	PANNA	GUNAUR	npp	24.45900	80.06160	5/11/2022	13:21:55	D	30.70
31	PANNA	GUNAUR	npp	24.45960	80.06550	5/11/2022	13:21:55	D	26.00
32	PANNA	PANNA	npp	24.48320	80.10120	5/11/2022	13:21:55	D	13.50
33	RAISEN	BAGAMGANJ	npp	23.55690	78.36980	5/11/2022	02:11:56	N	0.60
34	RAISEN	GOHARGANJ	npp	22.95940	77.65990	5/11/2022	02:11:56	N	0.80
35	RAISEN	RAISEN	Aqua	23.38900	77.69100	5/11/2022	13:38:16	D	9.60
36	RAISEN	RAISEN	Terra	23.38900	77.72000	5/11/2022	10:27:41	D	24.20
37	RAISEN	RAISEN	npp	23.21730	77.82490	5/11/2022	02:11:56	N	1.40
38	RAISEN	RAISEN	npp	23.36190	77.80660	5/11/2022	02:11:56	N	1.20
39	RAISEN	RAISEN	npp	23.38990	77.68930	5/11/2022	02:11:56	N	0.80
40	RAISEN	RAISEN	npp	23.44400	77.73120	5/11/2022	02:11:56	N	1.00
41	RAISEN	RAISEN	npp	23.46640	77.53980	5/11/2022	02:11:56	N	1.20
42	RAISEN	RAISEN	npp	23.46840	77.80050	5/11/2022	02:11:56	N	2.70
43	RAJGARH	NARSINGHGAR	npp	23.51920	76.98470	5/11/2022	02:11:56	N	1.20
44	RAJGARH	SARANGPUR	npp	23.58980	76.65120	5/11/2022	02:11:56	N	1.70
45	RAJGARH	SARANGPUR	npp	23.59040	76.64720	5/11/2022	02:11:56	N	1.70
46	RATLAM	ALOTOT	npp	23.71510	75.66270	5/11/2022	02:11:56	N	0.60
47	RATLAM	RATLAM	npp	23.53620	75.05560	5/11/2022	13:21:55	D	19.60
48	REWA	SIRMAUR	Terra	24.81300	81.52900	5/11/2022	10:27:41	D	15.70
49	REWA	SIRMAUR	npp	24.64520	81.44190	5/11/2022	13:21:55	D	15.70
50	REWA	SIRMAUR	npp	24.77130	81.25520	5/11/2022	13:21:55	D	9.70
51	REWA	SIRMAUR	npp	24.77480	81.25460	5/11/2022	13:21:55	D	9.70
52	REWA	TEONTHAR	npp	24.95620	81.78730	5/11/2022	13:21:55	D	13.10
53	REWA	TEONTHAR	npp	24.95680	81.79180	5/11/2022	13:21:55	D	13.10
54	REWA	TEONTHAR	npp	25.07980	81.60260	5/11/2022	13:21:55	D	9.10
55	SAGAR	KHURAI	npp	24.04940	78.45460	5/11/2022	02:11:56	N	0.90
56	SAGAR	SAGAR	npp	23.76630	78.56660	5/11/2022	02:11:56	N	1.60

57	SATNA	AMARPATAN	npp	24.40010	81.27750	5/11/2022	13:21:55	D	3.40
58	SATNA	MAIHAR	Terra	24.17600	80.75500	5/11/2022	10:27:41	D	14.90
59	SATNA	MAIHAR	Terra	24.17800	80.74200	5/11/2022	10:27:41	D	27.20
60	SATNA	MAIHAR	npp	24.16760	80.69700	5/11/2022	02:11:56	N	0.40
61	SATNA	MAIHAR	npp	24.20180	80.80090	5/11/2022	02:11:56	N	1.30
62	SATNA	MAIHAR	npp	24.27100	80.94470	5/11/2022	02:11:56	N	1.00
63	SATNA	MAIHAR	npp	24.29640	80.93230	5/11/2022	13:21:55	D	17.70
64	SATNA	MAIHAR	npp	24.30700	80.92690	5/11/2022	02:11:56	N	0.60
65	SATNA	MAIHAR	npp	24.31010	80.93000	5/11/2022	13:21:55	D	16.00
66	SATNA	MAIHAR	npp	24.35110	80.89620	5/11/2022	02:11:56	N	0.60
67	SATNA	NAGOD	npp	24.65160	80.43150	5/11/2022	13:21:55	D	14.00
68	SATNA	RAGURAJNAGAR	npp	24.65300	80.76660	5/11/2022	13:21:55	D	14.80
69	SATNA	RAMPURBAGHLEAN	npp	24.42940	81.04030	5/11/2022	13:21:55	D	27.90
70	SATNA	RAMPURBAGHLEAN	npp	24.43280	81.03970	5/11/2022	13:21:55	D	21.20
71	SATNA	RAMPURBAGHLEAN	npp	24.64740	81.12120	5/11/2022	02:11:56	N	0.90
72	SATNA	RAMPURBAGHLEAN	npp	24.65960	81.12210	5/11/2022	13:21:55	D	15.60
73	SATNA	UCHAHAR	npp	24.52670	80.70880	5/11/2022	13:21:55	D	12.80
74	SEHORE	SEHORE	npp	23.43170	77.02660	5/11/2022	02:11:56	N	0.90
75	SHAJAPUR	BAROUD	npp	23.75370	75.88840	5/11/2022	02:11:56	N	1.20
76	SHAJAPUR	BAROUD	npp	23.78330	75.72630	5/11/2022	02:11:56	N	0.50
77	SHAJAPUR	NALKHERA	npp	23.80970	76.16980	5/11/2022	02:11:56	N	0.50
78	SHAJAPUR	SUSNER	npp	23.95950	76.09920	5/11/2022	02:11:56	N	1.60
79	SHAJAPUR	SUSNER	npp	23.96280	76.09990	5/11/2022	02:11:56	N	0.80
80	SHEOPUR	KARAHAL	npp	25.47710	76.70220	5/11/2022	02:11:56	N	1.80
81	SHEOPUR	SHEOPUR	npp	25.42330	76.61110	5/11/2022	02:11:56	N	0.60
82	SHEOPUR	SHEOPUR	npp	25.42390	76.60720	5/11/2022	02:11:56	N	0.70
83	SHEOPUR	SHEOPUR	npp	25.50040	76.60250	5/11/2022	02:11:56	N	0.60
84	SHEOPUR	SHEOPUR	npp	25.59460	76.68860	5/11/2022	02:11:56	N	1.00
85	SHEOPUR	SHEOPUR	npp	25.71740	76.65570	5/11/2022	02:11:56	N	0.30
86	SINGRAULI	CHITRANGI	npp	24.52550	82.66940	5/11/2022	02:11:56	N	1.60
87	UJJAIN	KACHROD	npp	23.41230	75.24830	5/11/2022	02:11:56	N	1.30
88	UJJAIN	MEHIDPUR	npp	23.50810	75.66250	5/11/2022	13:21:55	D	2.60
89	UJJAIN	NAGDA	npp	23.42200	75.41990	5/11/2022	02:11:56	N	0.80

90	UJJAIN	UJJAIN	npp	23.13790	75.83270	5/11/2022	02:11:56	N	1.30
91	UMARIA	MANPUR	Terra	23.97700	80.88300	5/11/2022	10:27:41	D	10.60
92	VIDESHA	KORWAI	npp	23.99390	78.25630	5/11/2022	02:11:56	N	0.50
93	VIDESHA	NATERAN	npp	23.87110	77.67340	5/11/2022	02:11:56	N	1.10
94	VIDESHA	NATERAN	npp	23.87450	77.67420	5/11/2022	02:11:56	N	0.80
95	VIDESHA	NATERAN	npp	23.91740	77.59210	5/11/2022	02:11:56	N	0.90
96	VIDESHA	NATERAN	npp	23.91920	77.59100	5/11/2022	02:11:56	N	1.50
97	VIDESHA	VIDESHA	Aqua	23.54200	77.91100	5/11/2022	13:38:16	D	19.20
98	VIDESHA	VIDESHA	npp	23.39740	78.01950	5/11/2022	02:11:56	N	0.70
99	VIDESHA	VIDESHA	npp	23.55180	77.73850	5/11/2022	02:11:56	N	2.20

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 wheat masks for the Punjab and Haryana were provided by MNCFC, MoA&FW, Govt of India
The rabi crop masks for Delhi, Uttar Pradesh and Madhya Pradesh were provided by NRSC (ISRO)**

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GIS Maps of fire events can be visualized online on ICAR KRISHI Geoportal website: <http://geoportal.icar.gov.in:8080/geoexplorer/composer/>
(Part of KRISHI Portal: <https://krishi.icar.gov.in> initiative)
