

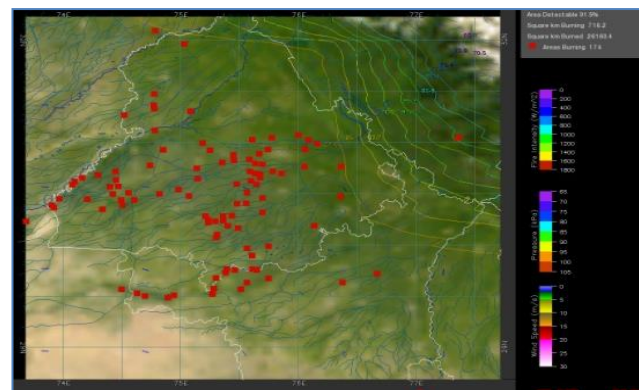
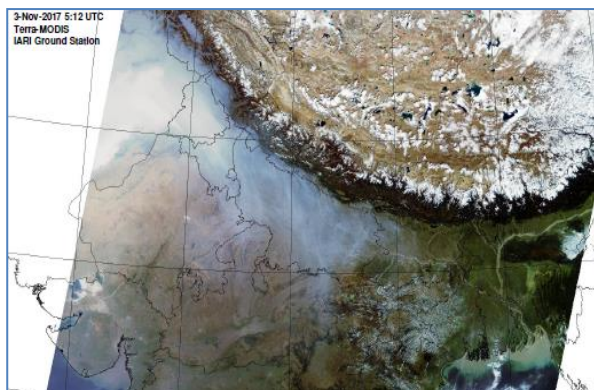


MONITORING WHEAT RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2023

**Bulletin
No. 44**

**Events Date:
14-May-2023**

**Issued on:
14-May-2023**



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**

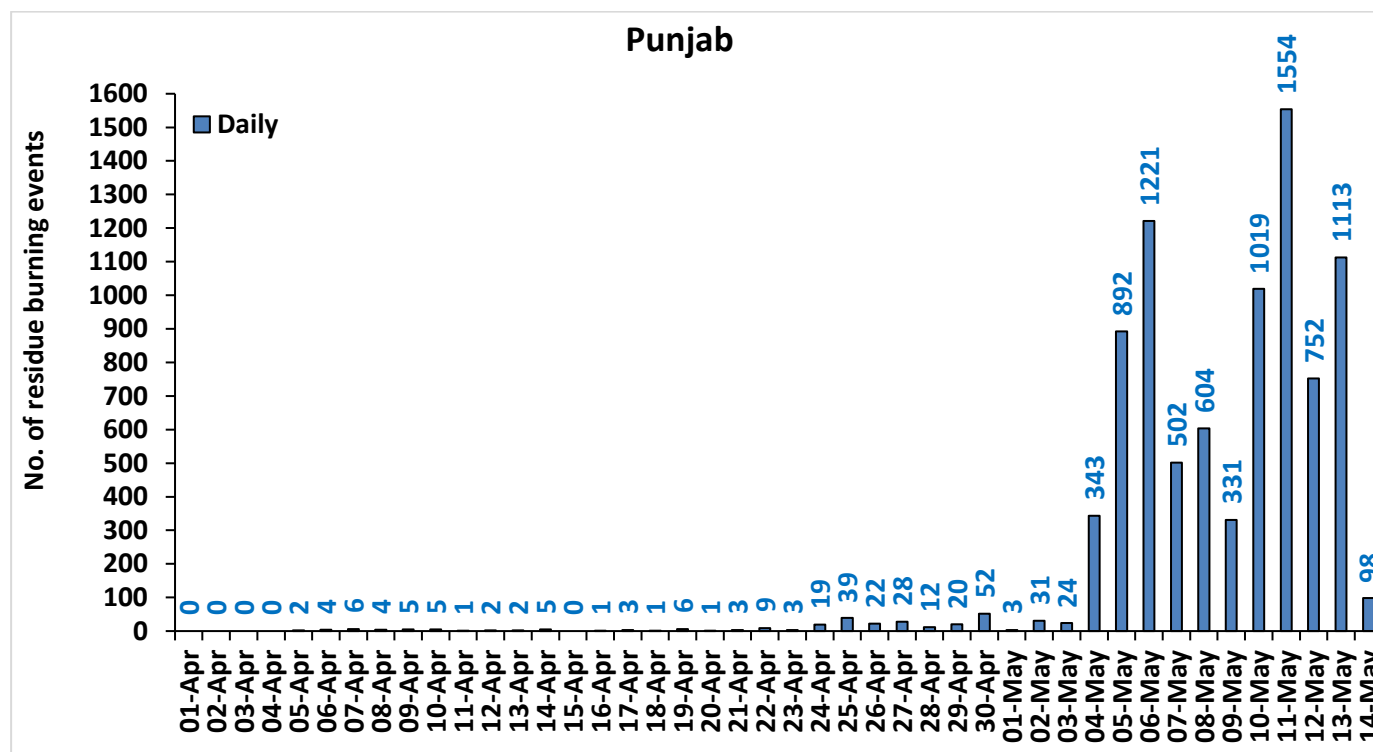
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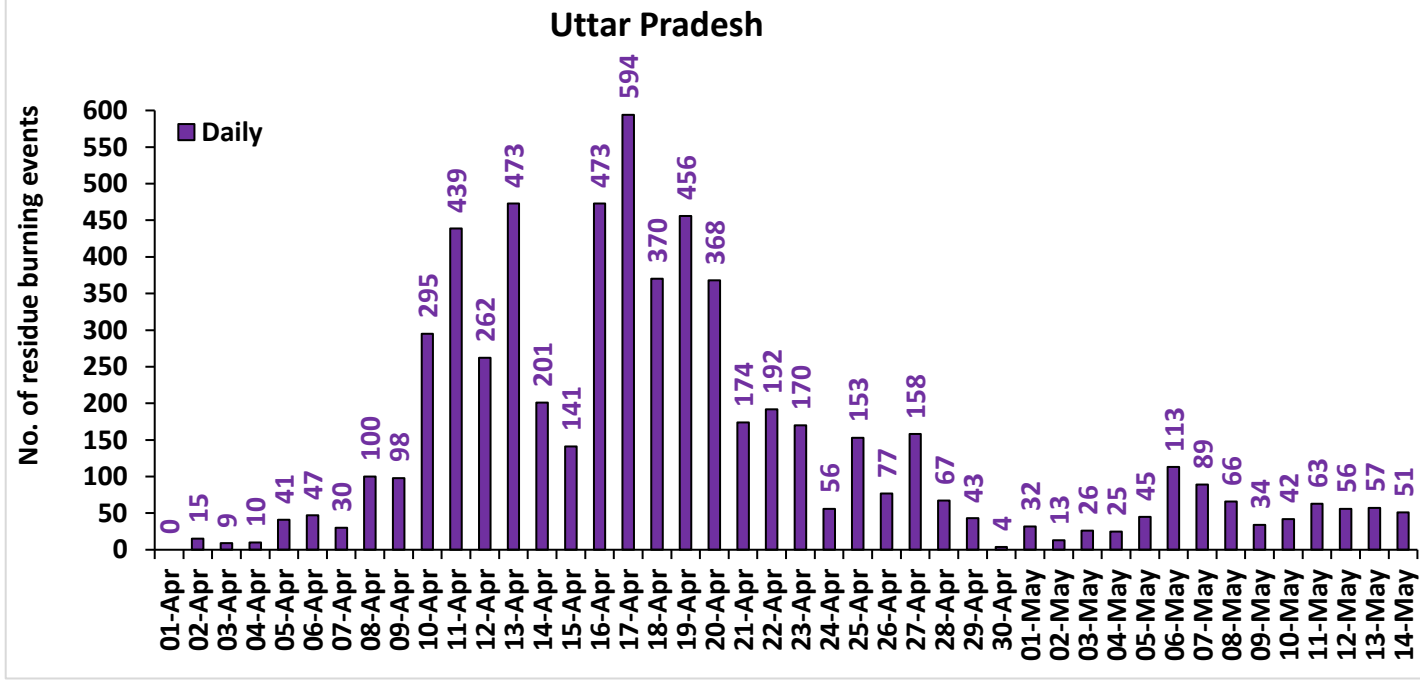
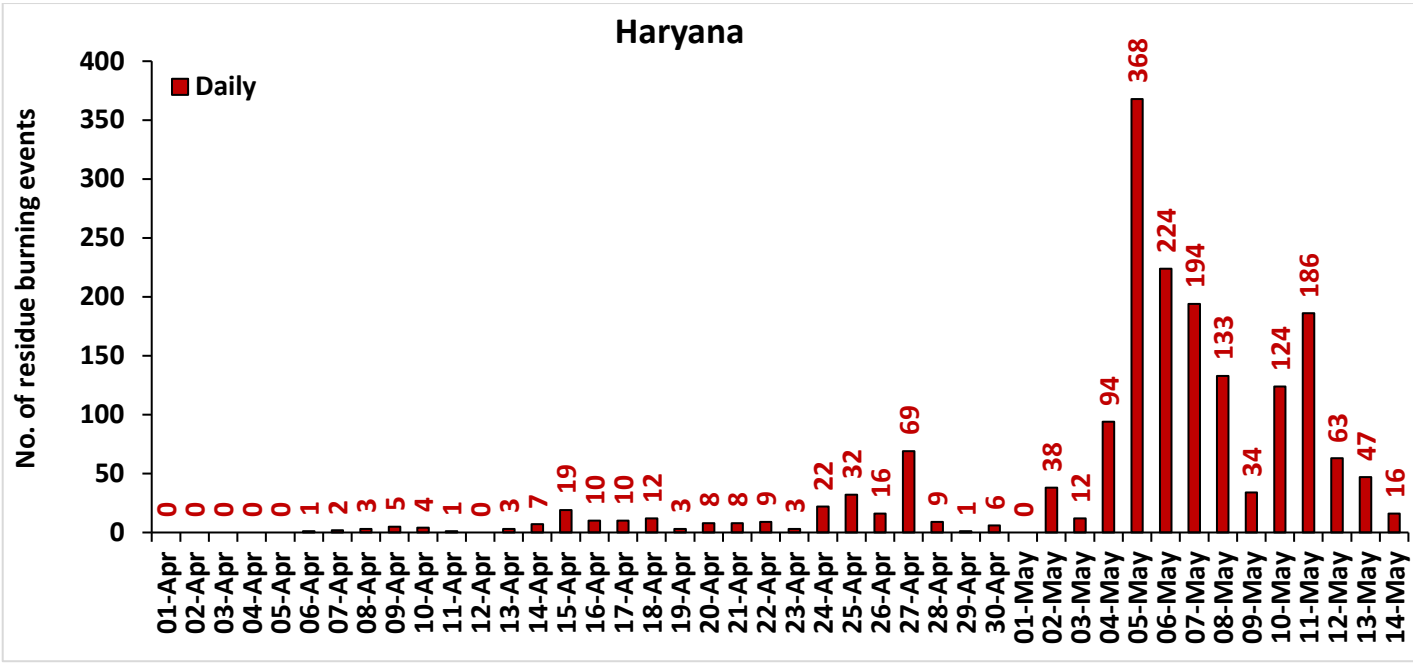


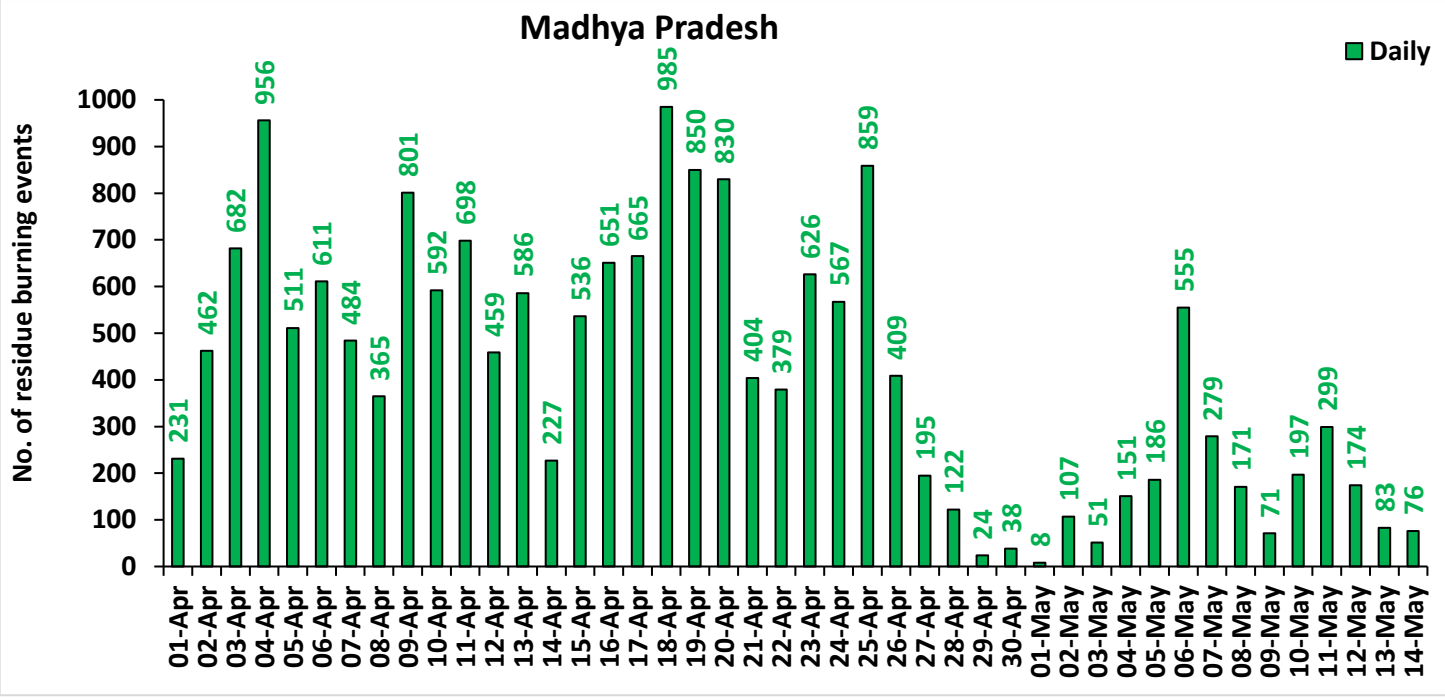
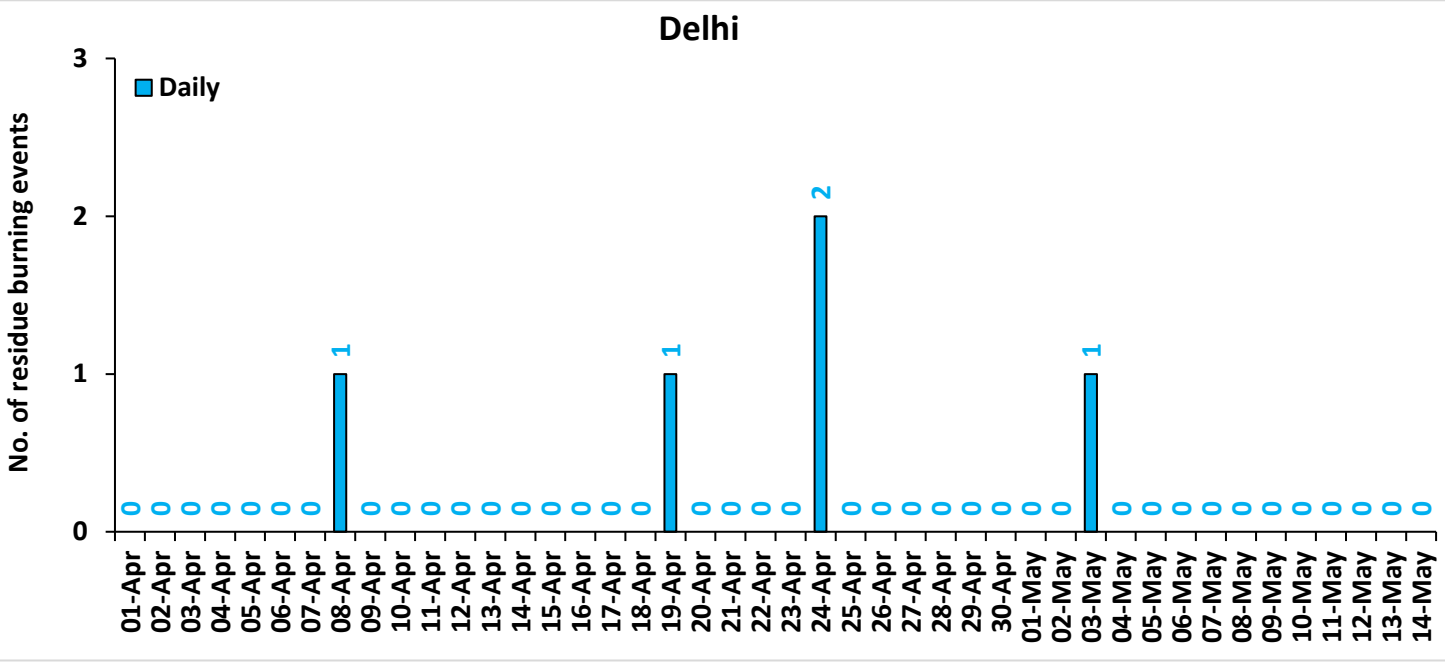
Highlights for 14-May-2023

- 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 **241** residue burning events in the five study States on 14-May-2023.
- The state wise events detected on 14-May-2023 were **98** in Punjab, **16** in Haryana, **00** in Delhi, **51** in Uttar Pradesh and **76** in Madhya Pradesh.
- The number of events has decreased from **1300** on 13-May-2023 to **241** on 14-May-2023 in the five study states.
- Total **34984** burning events were detected in the five states between 01-Apr-2023 and 14-May-2023, which are distributed as **8742**, **1796**, **6228**, **05**, and **18213** in Punjab, Haryana, UP, Delhi, and MP, respectively.

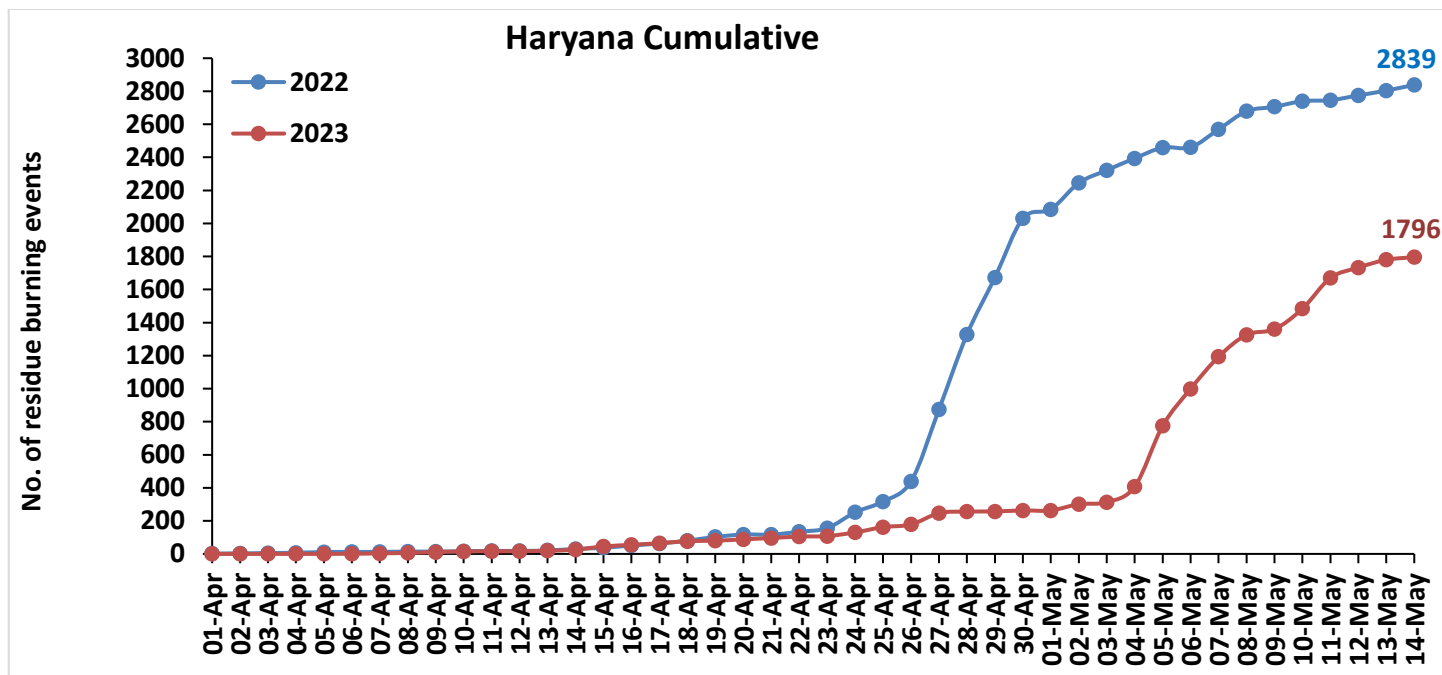
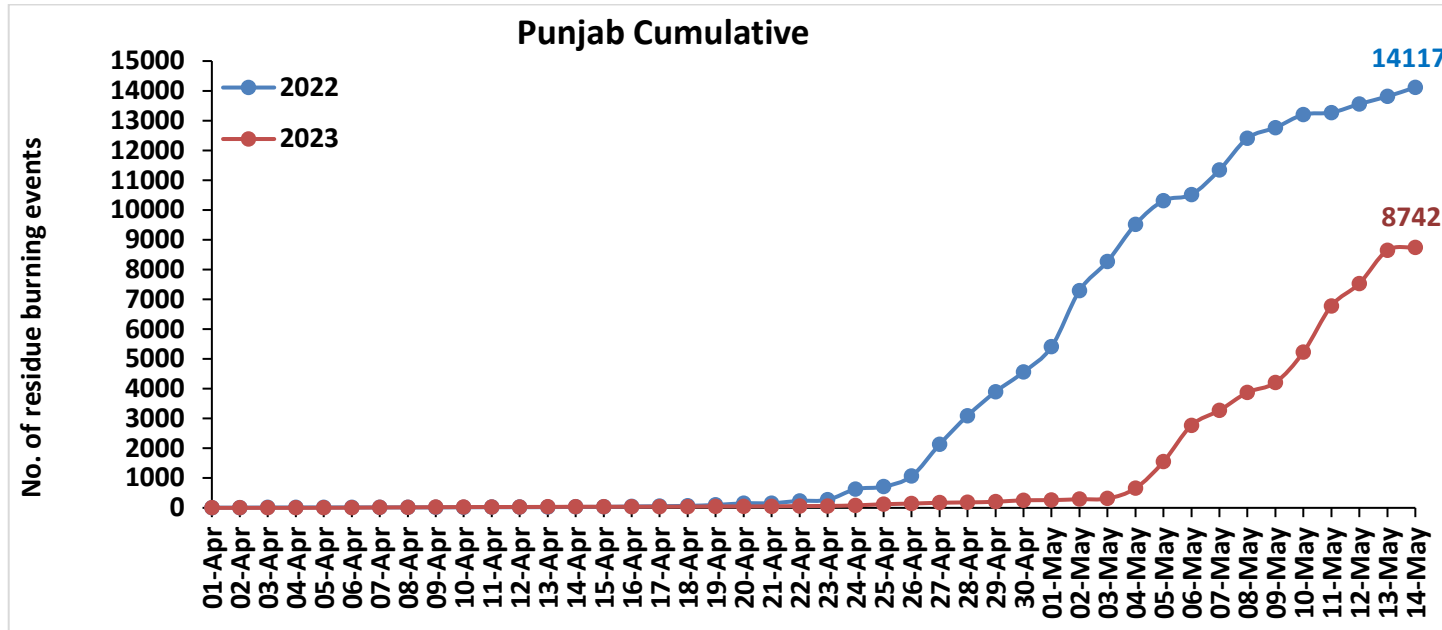
Temporal distribution of wheat residue burning events for the study States in 2023

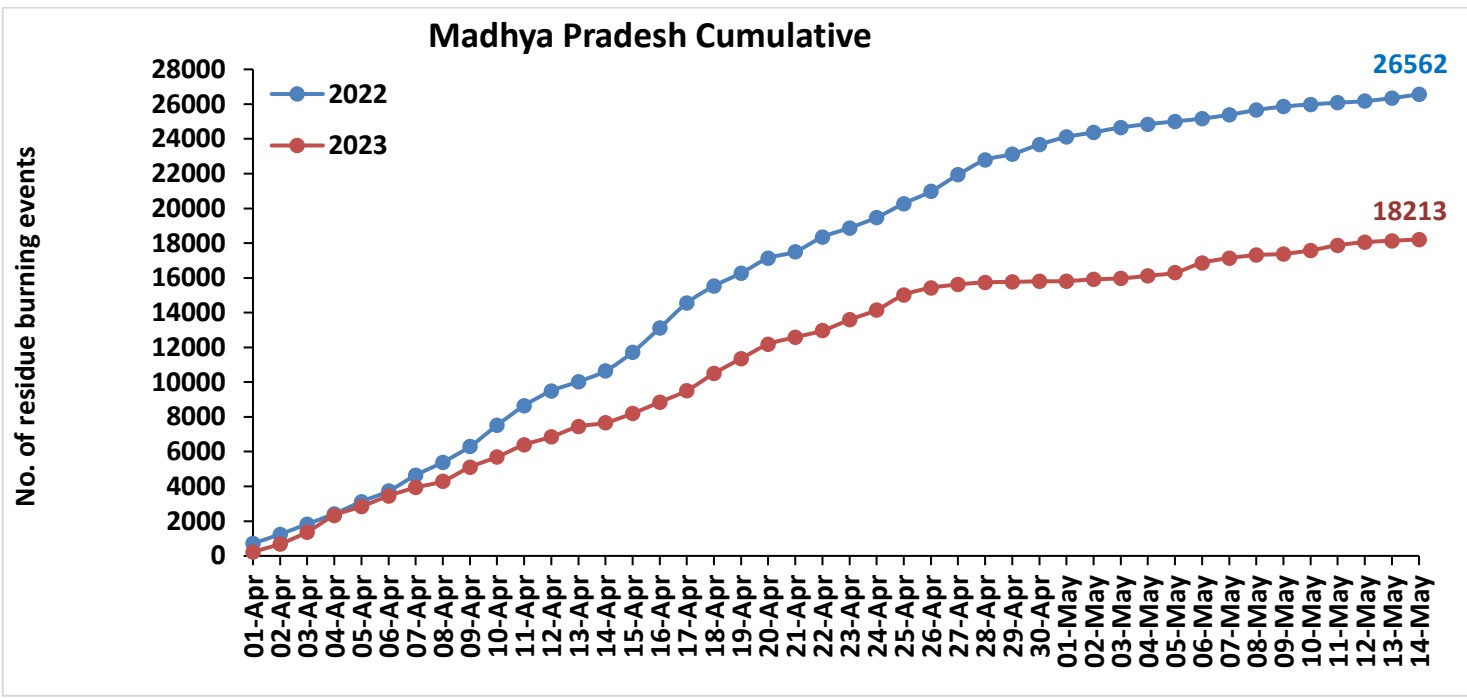
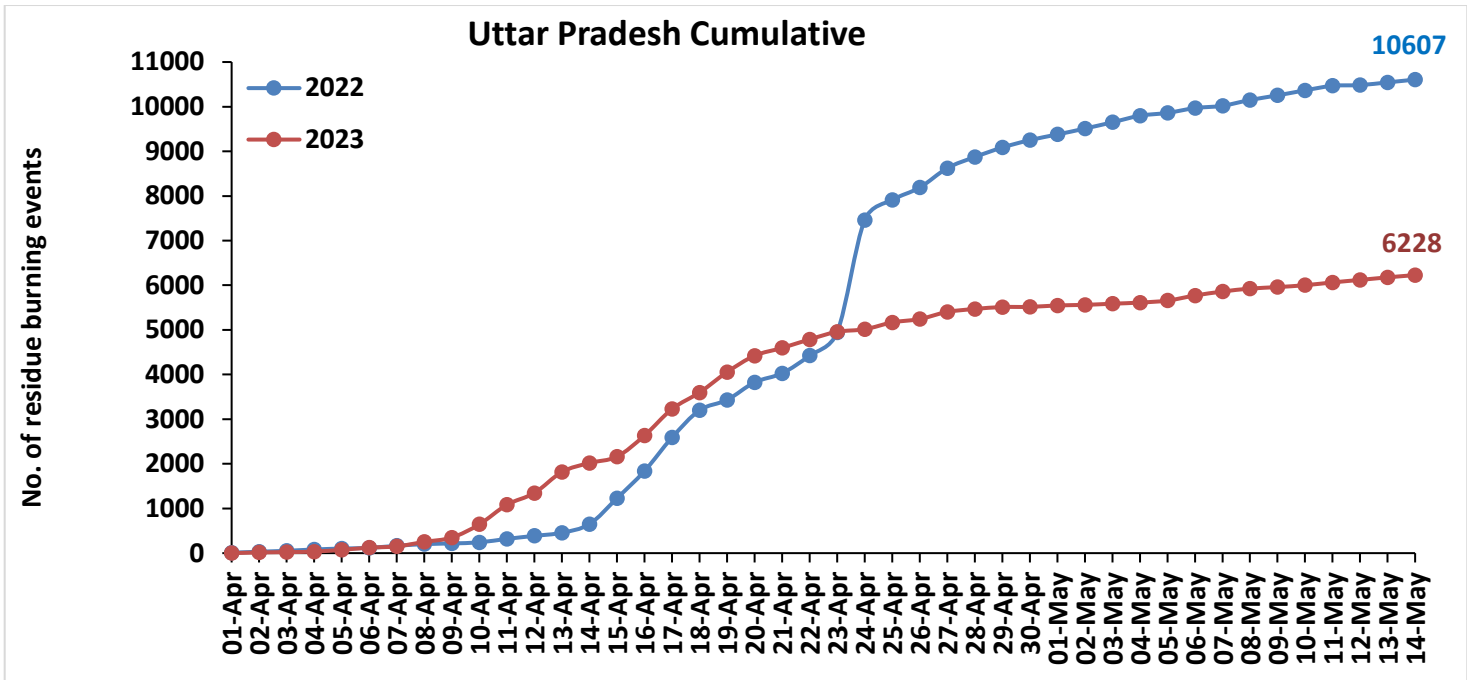




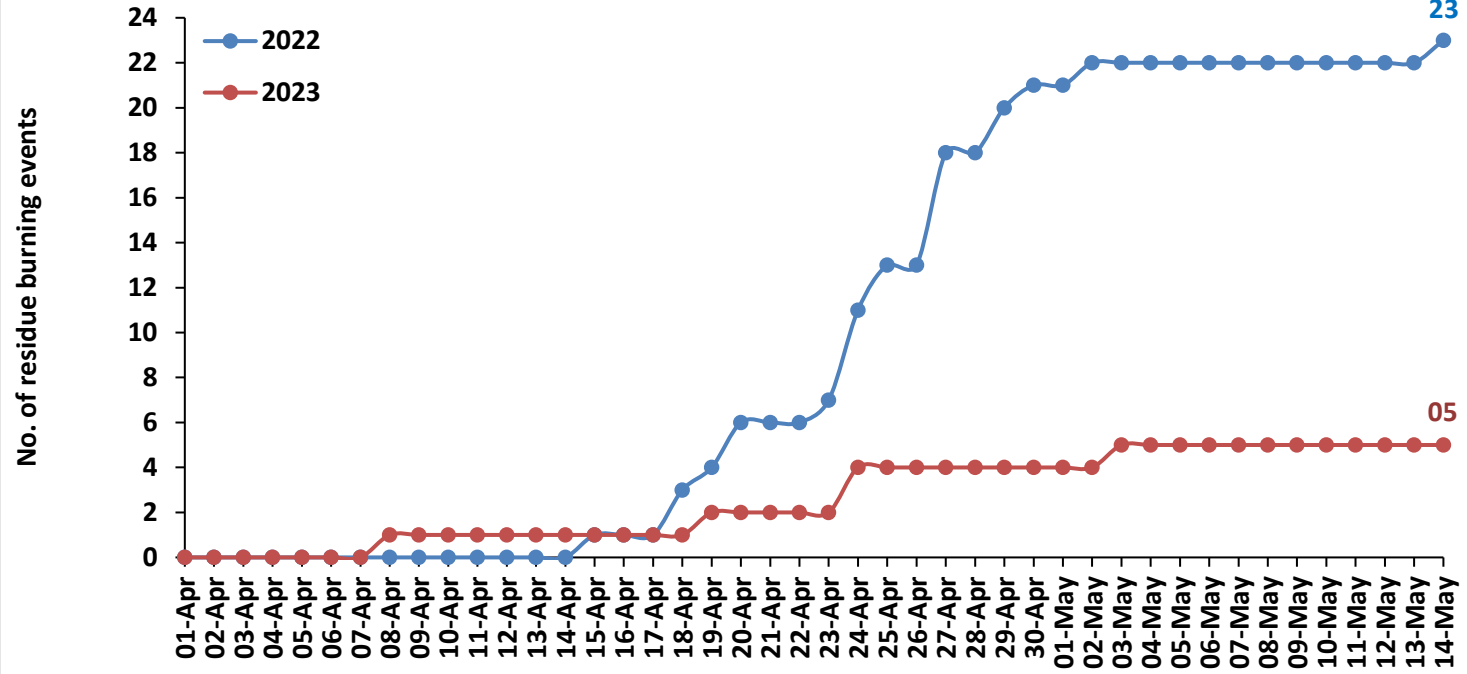


Comparison of residue burning events in current year (2023) with previous year (2022) for the study States





Delhi Cumulative



District-wise cumulative number of wheat residue burning events detected in 2022 and 2023
(Period: 01 April-14 May)

(a) Punjab

District	01 Apr-14 May	
	2022	2023
Amritsar	1225	653
Barnala	471	524
Bathinda	824	551
Faridkot	515	374
Fatehgarh Sahib	69	84
Fazilka	520	351
Firozpur	1414	703
Gurdaspur	1103	696
Hoshiarpur	474	328
Jalandhar	762	296
Kapurthala	695	252
Ludhiana	907	575
Mansa	407	322
Moga	1092	900
Muktsar	697	497
Pathankot	162	58
Patiala	434	386
Rupnagar	63	9
Sangrur	999	769
SAS NAGAR (Mohali)	24	9
SBS Nagar	201	56
Tarn Taran	1059	349
Total	14117	8742

(b) Haryana

District	01 Apr-14 May	
	2022	2023
AMBALA	91	73
BHIWANI	75	22
CHARKHI DADRI	9	7
FARIDABAD	17	16
FATEHABAD	273	264
GURGAON	6	9
HISAR	147	111
JHAJJAR	121	64
JIND	346	150
KAITHAL	295	177
KARNAL	380	215
KURUKSHETRA	136	52
MAHENDRAGARH	0	0
MEWAT	1	8
PALWAL	33	28
PANCHKULA	3	2
PANIPAT	215	107
REWARI	3	3
ROHTAK	210	91
SIRSA	183	240
SONIPAT	273	123
YAMUNANAGAR	22	34
Total	2839	1796

(c) Uttar Pradesh

District	01 Apr-14 May							
	2022	2023						
			GAUTAMBUDHNAGAR	27	24	MUZAFARNAGAR	54	32
			GAZIPUR	101	46	PILHIBHIT	316	62
AGRA	2	0	GHAZIABAD	13	9	PRATAPGARH	24	15
ALIGARH	19	33	GONDA	21	28	RAIBEARELI	93	17
ALLAHABAD	101	35	GORAKHPUR	965	366	RAMPUR	117	27
AMBEDKARNAGAR	11	13	HAMIRPUR	17	35	SANTKABIRNAGAR	684	430
AURAIYA	98	12	HARDOI	101	70	SANTRAVIDASNAGAR	1	2
AZAMGARH	86	73	JALAUN	20	18	SHAHJAHANPUR	324	93
BADAUN	7	5	JAUNPUR	22	6	SHARANPUR	31	21
BAGHPAT	7	3	JHANSI	101	127	SHRAWASTI	85	43
BAHRAICH	105	43	JYOTIBAPHULE NAGAR	9	5	SIDDHARTH NAGAR	2533	1848
BALLIA	140	204	KANNAUJ	0	1	SITAPUR	21	22
BALRAMPUR	237	96	KANPUR	11	2	SONBHADRA	115	30
BANDA	8	3	KANPUR DEHAT	28	18	SULTANPUR	60	27
BARABANKI	7	3	KAUSHAMBI	6	5	UNNAO	57	15
BAREILLY	107	20	KHERI	156	76	VARANASI	1	0
BASTI	425	225	KUSHINAGAR	222	95	Total	10607	6228
BIJNOR	52	26	LACKNOW	13	0			
BULANDSAHAR	8	9	LALITPUR	56	62			
CHANDAULI	291	61	MAHAMAYANAGAR	0	1			
CHITRAKOOT	23	3	MAHARAJGANJ	1494	977			
DEORIA	726	440	MAHOBA	2	44			
ETAH	1	5	MAINPURI	5	6			
ETAWAH	3	5	MATHURA	24	53			
FAIZABAD	4	10	MAU	76	64			
FARRUKHABAD	3	2	MEERUT	18	21			
FATEHPUR	42	27	MIRZAPUR	63	15			
FIROZABAD	1	0	MORADABAD	6	14			

(d) Madhya Pradesh

District	01 Apr-14 May				
	2022	2023			
			PANNA	151	65
ALIRAJPUR	0	0	RAISEN	2616	1657
ANUPPUR	33	1	RAJGARH	141	173
ASHOKNAGAR	632	229	RATLAM	192	290
BALAGHAT	27	1	REWA	136	53
BARWANI	5	7	SAGAR	738	565
BETUL	181	52	SATNA	838	205
BHIND	58	55	SEHORE	931	653
BHOPAL	951	485	SEONI	1524	796
BURHANPUR	12	2	SHAHDOL	104	8
CHHATARPUR	141	133	SHAJAPUR	377	538
CHHINDWARA	505	262	SHEOPUR	366	447
DAMOH	208	250	SHIVPURI	161	111
DATIA	371	280	SIDHI	21	1
DEWAS	560	567	SINGRAULI	109	3
DHAR	1005	874	TIKAMGARH	29	78
DINDORI	44	4	UJJAIN	1222	1773
EAST NIMAR	82	103	UMARIA	51	8
GUNA	725	388	VIDESHA	3717	1724
GWALIOR	568	386	WEST NIMAR	33	57
HARDA	376	270	Total	26562	18213
HOSHANGABAD	4062	2756			
INDORE	968	1009			
JABALPUR	881	474			
JHABUA	2	6			
KATNI	288	125			
MANDLA	174	41			
MANDSAUR	63	108			
MORENA	34	0			
NARSHIMAPURA	129	99			
NIMACH	20	41			

(e) Delhi

District	01 Apr-14 May	
	2022	2023
CENTRAL	0	0
EAST	0	0
NEW DELHI	0	0
NORTH	18	2
NORTH EAST	1	0
NORTH WEST DELHI	1	0
SHAHADRA	0	0
SOUTH	1	0
SOUTH EAST	0	0
SOUTH WEST DELHI	1	2
WEST DELHI	1	1
Total	23	5

State-wise and date-wise number of wheat residue burning events detected in 2022 and 2023
(Period: 01 April-14 May)

Date	Punjab		Haryana		Uttar Pradesh		Delhi		Madhya Pradesh	
	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
01-Apr	6	0	2	0	10	0	0	0	715	231
02-Apr	1	0	1	0	22	15	0	0	531	462
03-Apr	3	0	2	0	21	9	0	0	589	682
04-Apr	2	0	2	0	29	10	0	0	589	956
05-Apr	2	2	4	0	21	41	0	0	698	511
06-Apr	0	4	1	1	16	47	0	0	612	611
07-Apr	0	6	0	2	46	30	0	0	908	484
08-Apr	1	4	2	3	37	100	0	1	749	365
09-Apr	0	5	0	5	16	98	0	0	907	801
10-Apr	4	5	2	4	24	295	0	0	1217	592
11-Apr	2	1	2	1	78	439	0	0	1129	698
12-Apr	0	2	0	0	67	262	0	0	847	459
13-Apr	3	2	3	3	70	473	0	0	537	586
14-Apr	7	5	9	7	193	201	0	0	618	227
15-Apr	1	0	7	19	579	141	1	0	1079	536
16-Apr	13	1	14	10	609	473	0	0	1390	651
17-Apr	10	3	12	10	751	594	0	0	1441	665
18-Apr	12	1	17	12	611	370	2	0	972	985
19-Apr	29	6	23	3	231	456	1	1	748	850
20-Apr	56	1	14	8	395	368	2	0	856	830
21-Apr	4	3	0	8	202	174	0	0	379	404
22-Apr	77	9	17	9	398	192	0	0	839	379
23-Apr	35	3	22	2	519	170	1	0	524	626
24-Apr	360	19	96	22	2515	56	4	2	605	567
25-Apr	82	39	65	32	450	153	2	0	796	859

26-Apr	354	22	122	16	277	77	0	0	706	409
27-Apr	1064	28	436	69	436	158	5	0	955	195
28-Apr	965	12	453	9	249	67	0	0	849	122
29-Apr	802	20	345	1	213	43	2	0	340	24
30-Apr	662	52	357	6	166	4	1	0	547	38
01-May	848	3	56	0	126	32	0	0	437	8
02-May	1887	31	159	38	132	13	1	0	265	107
03-May	979	24	77	12	141	26	0	1	283	51
04-May	1247	343	72	94	147	25	0	0	188	151
05-May	796	892	65	368	64	45	0	0	159	186
06-May	202	1221	2	224	107	113	0	0	166	555
07-May	827	502	108	194	52	89	0	0	215	279
08-May	1065	604	110	133	130	66	0	0	275	171
09-May	357	331	27	34	103	34	0	0	199	71
10-May	437	1019	34	124	113	42	0	0	123	197
11-May	67	1554	6	186	101	63	0	0	99	299
12-May	289	752	29	63	17	56	0	0	94	174
13-May	253	1113	29	47	60	57	0	0	173	83
14-May	306	98	35	16	63	51	1	0	214	76
Total	14117	8742	2839	1796	10607	6228	23	5	26562	18213

Details of residue burning events in Punjab on 14-May-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	AMRITSAR	AJNALA	AQUA	31.95700	74.93900	14:21:33	D	22.90
2	AMRITSAR	ATTARI	S-NPP	31.57942	74.63187	13:24:26	D	10.30
3	AMRITSAR	HARSHA CHHINA	S-NPP	31.80937	74.91412	13:24:26	D	5.00
4	AMRITSAR	MAJITHA	S-NPP	31.73136	74.95312	13:24:26	D	9.40
5	AMRITSAR	MAJITHA	S-NPP	31.77694	74.99191	13:24:26	D	4.10
6	AMRITSAR	MAJITHA	S-NPP	31.81147	75.01034	13:24:26	D	10.80
7	AMRITSAR	MAJITHA	S-NPP	31.83010	74.97537	13:24:26	D	5.80
8	AMRITSAR	RAYYA	S-NPP	31.52630	75.11153	13:24:26	D	4.20
9	AMRITSAR	TARSIKKA	S-NPP	31.68770	75.06832	13:24:26	D	4.60
10	FARIDKOT	FARIDKOT	S-NPP	30.78832	74.73376	13:24:26	D	12.30
11	FIROZPUR	FIROZPUR	AQUA	31.10700	74.74500	14:21:33	D	30.30
12	FIROZPUR	FIROZPUR	S-NPP	31.07284	74.71245	13:24:26	D	15.80
13	FIROZPUR	GHALL KHURD	S-NPP	30.98407	74.78999	13:24:26	D	5.80
14	FIROZPUR	MAKHU	S-NPP	31.06986	74.83726	13:24:26	D	13.60
15	FIROZPUR	MAKHU	S-NPP	31.08690	75.00162	13:24:26	D	18.00
16	FIROZPUR	MAKHU	S-NPP	31.10082	74.95876	13:24:26	D	10.60
17	FIROZPUR	MAKHU	S-NPP	31.10368	74.89172	13:24:26	D	5.40
18	FIROZPUR	MAKHU	S-NPP	31.10733	74.91396	13:24:26	D	7.70
19	FIROZPUR	MAKHU	S-NPP	31.11339	74.90815	13:24:26	D	7.00
20	FIROZPUR	MAKHU	S-NPP	31.12214	75.10780	13:24:26	D	11.60
21	FIROZPUR	MAKHU	S-NPP	31.12551	75.10704	13:24:26	D	11.60
22	FIROZPUR	ZIRA	S-NPP	30.94083	75.05093	13:24:26	D	26.60
23	GURDASPUR	BATALA	S-NPP	31.72225	75.21297	13:24:26	D	4.40
24	GURDASPUR	BATALA	S-NPP	31.72560	75.21220	13:24:26	D	4.40
25	GURDASPUR	BATALA	S-NPP	31.78524	75.19439	13:24:26	D	7.40
26	GURDASPUR	DERA BABA NANAK	S-NPP	31.96702	74.93591	13:24:26	D	9.60
27	GURDASPUR	DHARIWAL	S-NPP	31.92523	75.25085	13:24:26	D	13.70
28	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.79390	75.09309	13:24:26	D	3.70
29	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.81530	75.07513	13:24:26	D	8.30

30	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.89085	75.02357	13:24:26	D	4.40
31	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.89244	74.97060	13:24:26	D	3.80
32	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.90305	75.03392	13:24:26	D	5.10
33	GURDASPUR	GURDASPUR	S-NPP	32.05484	75.27062	13:24:26	D	14.70
34	GURDASPUR	KAHNUWAN	AQUA	31.86300	75.49000	14:21:33	D	22.90
35	GURDASPUR	KAHNUWAN	S-NPP	31.80614	75.51306	13:24:26	D	7.60
36	GURDASPUR	KALANAUR	AQUA	31.95300	75.18600	14:21:33	D	22.70
37	GURDASPUR	KALANAUR	AQUA	32.02500	75.13200	14:21:33	D	48.80
38	GURDASPUR	SRI HARGOBINDPUR	AQUA	31.72000	75.33100	14:21:33	D	22.60
39	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.69106	75.34496	13:24:26	D	6.70
40	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.70023	75.27377	13:24:26	D	7.40
41	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.73471	75.46427	13:24:26	D	6.00
42	HOSHIARPUR	MAHILPUR	S-NPP	31.33300	75.90275	13:24:26	D	3.80
43	HOSHIARPUR	TANDA	S-NPP	31.65204	75.50838	13:24:26	D	10.90
44	HOSHIARPUR	TANDA	S-NPP	31.65537	75.50764	13:24:26	D	7.20
45	HOSHIARPUR	TANDA	S-NPP	31.65938	75.51102	13:24:26	D	7.20
46	JALANDHAR	ADAMPUR	S-NPP	31.40150	75.74014	13:24:26	D	4.00
47	JALANDHAR	ADAMPUR	S-NPP	31.40602	75.73003	02:14:26	N	0.50
48	JALANDHAR	ADAMPUR	S-NPP	31.40663	75.72590	02:14:26	N	0.50
49	JALANDHAR	JALANDHAR EAST	S-NPP	31.32806	75.70052	13:24:26	D	1.50
50	JALANDHAR	LOHIAN	AQUA	31.16400	75.17900	14:21:33	D	22.70
51	JALANDHAR	LOHIAN	S-NPP	31.14389	75.13351	13:24:26	D	9.30
52	JALANDHAR	LOHIAN	S-NPP	31.14460	75.13417	13:24:26	D	12.80
53	JALANDHAR	LOHIAN	S-NPP	31.15026	75.19317	13:24:26	D	6.10
54	JALANDHAR	NUR MAHAL	AQUA	31.01000	75.64500	14:21:33	D	74.60
55	JALANDHAR	NUR MAHAL	AQUA	31.01100	75.65200	14:21:33	D	97.30
56	JALANDHAR	NUR MAHAL	AQUA	31.01200	75.66800	14:21:33	D	35.90
57	JALANDHAR	NUR MAHAL	AQUA	31.03600	75.64200	14:21:33	D	41.40
58	JALANDHAR	PHILLAUR	AQUA	31.13400	75.84800	14:21:33	D	36.00
59	JALANDHAR	PHILLAUR	AQUA	31.14200	75.84100	14:21:33	D	29.80
60	KAPURTHALA	DHILWAN	S-NPP	31.48590	75.44035	13:24:26	D	28.70
61	KAPURTHALA	NADALA	AQUA	31.62800	75.48300	14:21:33	D	32.40
62	KAPURTHALA	NADALA	S-NPP	31.54994	75.50995	02:14:26	N	0.70

63	KAPURTHALA	NADALA	S-NPP	31.55929	75.45898	13:24:26	D	13.30
64	KAPURTHALA	NADALA	S-NPP	31.55997	75.46313	13:24:26	D	13.30
65	KAPURTHALA	NADALA	S-NPP	31.61271	75.44707	13:24:26	D	11.50
66	KAPURTHALA	NADALA	S-NPP	31.63411	75.47234	13:24:26	D	8.70
67	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.22383	75.06376	13:24:26	D	6.10
68	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.26461	75.26823	13:24:26	D	11.60
69	LUDHIANA	LUDHIANA-2	S-NPP	30.97980	75.86349	13:24:26	D	15.50
70	LUDHIANA	MACHHIWARA	S-NPP	30.94567	76.17735	13:24:26	D	8.60
71	LUDHIANA	RAIKOT	S-NPP	30.60042	75.51447	13:24:26	D	12.70
72	LUDHIANA	RAIKOT	S-NPP	30.68789	75.51362	13:24:26	D	7.80
73	LUDHIANA	RAIKOT	S-NPP	30.69125	75.51288	13:24:26	D	4.70
74	LUDHIANA	SIDHWAN BET	S-NPP	30.91378	75.39587	13:24:26	D	7.40
75	LUDHIANA	SIDHWAN BET	S-NPP	30.93888	75.48499	13:24:26	D	11.00
76	MOGA	BAGHA PURANA	S-NPP	30.62587	74.99636	13:24:26	D	7.70
77	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.97868	75.13012	13:24:26	D	31.80
78	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.98206	75.12936	13:24:26	D	46.30
79	MOGA	MOGA-1	S-NPP	30.86424	75.30743	13:24:26	D	8.20
80	MOGA	NIHAL SINGH	S-NPP	30.66084	75.32985	13:24:26	D	7.90
81	MUKTSAR	LAMBI	AQUA	30.08800	74.54400	14:21:33	D	30.40
82	MUKTSAR	LAMBI	S-NPP	30.06886	74.62776	13:24:26	D	14.30
83	MUKTSAR	MALOUT	S-NPP	30.17678	74.34709	13:24:26	D	7.80
84	PATHANKOT	PATHANKOT	S-NPP	32.10879	75.60634	02:14:26	N	1.50
85	PATIALA	BHUNARHERI	S-NPP	30.15773	76.44815	13:24:26	D	9.40
86	PATIALA	GHANAUR	S-NPP	30.36017	76.57233	13:24:26	D	3.70
87	PATIALA	NABHA	S-NPP	30.49787	76.17863	13:24:26	D	9.40
88	RUPNAGAR	NURPUR BEDI	S-NPP	31.06176	76.55246	13:24:26	D	20.00
89	RUPNAGAR	NURPUR BEDI	S-NPP	31.06239	76.55647	13:24:26	D	18.30
90	SANGRUR	MALERKOTLA-2	AQUA	30.58400	75.82200	14:21:33	D	21.00
91	SANGRUR	MALERKOTLA-2	AQUA	30.58800	75.82600	14:21:33	D	25.20
92	SANGRUR	SHER PUR	S-NPP	30.40811	75.73045	13:24:26	D	1.90
93	TARN TARAN	KHADUR SAHIB	S-NPP	31.39149	75.16302	13:24:26	D	5.60
94	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.36607	75.01130	13:24:26	D	6.50
95	TARN TARAN	PATTI	S-NPP	31.18159	74.93689	13:24:26	D	12.30

96	TARN TARAN	VALTOHA	AQUA	31.25600	74.53000	14:21:33	D	21.60
97	TARN TARAN	VALTOHA	AQUA	31.25700	74.55000	14:21:33	D	33.80
98	TARN TARAN	VALTOHA	S-NPP	31.29158	74.61471	13:24:26	D	8.00

Details of residue burning events in Haryana on 14-May-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMBALA	NARAINGARH	S-NPP	30.40178	77.17215	13:24:26	D	5.10
2	AMBALA	SAHA	S-NPP	30.30619	77.03491	13:24:26	D	5.30
3	FARIDABAD	FARIDABAD	S-NPP	28.34600	77.23251	02:14:26	N	0.30
4	KARNAL	CHIRAO	S-NPP	29.60498	76.90562	13:24:26	D	8.00
5	KARNAL	KARNAL	S-NPP	29.73164	76.86790	13:24:26	D	6.70
6	KARNAL	KARNAL	S-NPP	29.76016	77.02967	13:24:26	D	8.30
7	KARNAL	KARNAL	S-NPP	29.77470	77.07970	13:24:26	D	7.30
8	KARNAL	NILOKHERI	S-NPP	29.83940	76.75587	13:24:26	D	6.40
9	KARNAL	NILOKHERI	S-NPP	29.86615	76.97157	13:24:26	D	4.10
10	KURUKSHETRA	ISMAILABAD	S-NPP	30.11744	76.69180	13:24:26	D	7.10
11	PANIPAT	BAPPAULI	S-NPP	29.27351	77.08141	13:24:26	D	6.20
12	PANIPAT	BAPPAULI	S-NPP	29.33191	77.13090	13:24:26	D	4.60
13	YAMUNANAGAR	MUSTAFABAD	S-NPP	30.28217	77.21180	13:24:26	D	10.00
14	YAMUNANAGAR	MUSTAFABAD	S-NPP	30.28547	77.21113	13:24:26	D	10.00
15	YAMUNANAGAR	RADAUR	S-NPP	29.99578	77.13014	13:24:26	D	1.10
16	YAMUNANAGAR	RADAUR	S-NPP	30.02860	77.18889	13:24:26	D	1.90

Details of residue burning events in Uttar Pradesh on 14-May-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	ALLAHABAD	BARA	S-NPP	25.10073	81.69513	13:24:26	D	15.20
2	ALLAHABAD	BARA	S-NPP	25.24321	81.73375	02:14:26	N	0.40
3	ALLAHABAD	HADIYA	S-NPP	25.46299	82.29501	13:24:26	D	5.50
4	BAHRAICH	NANPARA	S-NPP	27.95416	81.38624	13:24:26	D	6.50
5	BAREILLY	BAHERI	S-NPP	28.81296	79.40273	13:24:26	D	1.90
6	BAREILLY	BAHERI	S-NPP	28.84299	79.46922	13:24:26	D	5.00
7	BASTI	HARRAIYA	S-NPP	26.63156	82.61935	13:24:26	D	4.90
8	BIJNOR	AFZALGARH	S-NPP	29.41722	78.64187	13:24:26	D	4.10
9	BIJNOR	NAJIBABAD	S-NPP	29.67086	78.40154	13:24:26	D	2.80
10	CHANDAULI	CHANDAULI	S-NPP	25.21063	83.15730	13:24:26	D	11.00
11	DEORIA	SALEMPUR	S-NPP	26.37234	83.89862	13:24:26	D	6.30
12	ETAWAH	BHARTHNA	S-NPP	26.84345	79.20043	13:24:26	D	9.20
13	FATEHPUR	FATEHPUR	S-NPP	25.74858	80.91695	13:24:26	D	17.30
14	GHAZIABAD	GHAZIABAD	S-NPP	28.77540	77.30655	02:14:26	N	0.40
15	HAMIRPUR	RATH	S-NPP	25.67255	79.47009	13:24:26	D	2.10
16	HAMIRPUR	SARILA	S-NPP	25.70430	79.52419	13:24:26	D	5.80
17	HAMIRPUR	SARILA	S-NPP	25.70763	79.52360	13:24:26	D	4.70
18	HARDOI	HARDOI	S-NPP	27.18924	80.25843	02:14:26	N	0.80
19	HARDOI	HARDOI	S-NPP	27.24180	80.25068	13:24:26	D	9.20
20	HARDOI	HARDOI	S-NPP	27.30715	80.14643	13:24:26	D	8.20
21	HARDOI	HARDOI	S-NPP	27.31057	80.14585	13:24:26	D	8.20
22	HARDOI	HARDOI	S-NPP	27.31399	80.14526	13:24:26	D	10.30
23	HARDOI	SIWAIJPUR	S-NPP	27.26745	79.88383	13:24:26	D	5.80
24	JALAUN	MADHOGARH	S-NPP	26.32204	79.19253	13:24:26	D	7.00
25	JHANSI	JHANSI	S-NPP	25.49669	78.60516	02:14:26	N	0.80
26	JHANSI	JHANSI	S-NPP	25.51203	78.62233	02:14:26	N	7.10
27	JHANSI	MAURANIPUR	S-NPP	25.22390	79.11982	02:14:26	N	1.30
28	JHANSI	MAURANIPUR	S-NPP	25.22466	79.11781	02:14:26	N	1.00
29	JHANSI	MAURANIPUR	S-NPP	25.22753	79.12062	02:14:26	N	1.30
30	KANPUR DEHAT	DERAPUR	S-NPP	26.57450	79.68410	13:24:26	D	10.40

31	KANPUR DEHAT	RASULABAD	S-NPP	26.58451	79.92822	13:24:26	D	7.80
32	KAUSHAMBI	SIRATHU	S-NPP	25.59913	81.22572	13:24:26	D	6.90
33	KHERI	DHAURAHRA	S-NPP	27.84089	81.04513	02:14:26	N	1.20
34	KHERI	MOHMADI	S-NPP	27.90405	80.08699	13:24:26	D	6.60
35	KHERI	NIGHASAN	S-NPP	28.39996	80.99057	13:24:26	D	3.10
36	LALITPUR	LALITPUR	S-NPP	24.59411	78.33702	02:14:26	N	1.10
37	LALITPUR	LALITPUR	S-NPP	24.59669	78.33519	02:14:26	N	1.20
38	LALITPUR	LALITPUR	S-NPP	24.70551	78.48013	02:14:26	N	1.10
39	PILHIBHIT	PURANPUR	S-NPP	28.42064	80.30305	13:24:26	D	7.30
40	PILHIBHIT	PURANPUR	S-NPP	28.50851	80.10088	13:24:26	D	10.80
41	RAMPUR	BILASPUR	S-NPP	28.75706	79.27414	13:24:26	D	3.50
42	RAMPUR	BILASPUR	S-NPP	28.93166	79.33195	13:24:26	D	3.00
43	SHAHJAHANPUR	PUWANYA	S-NPP	27.94635	80.08832	13:24:26	D	4.70
44	SHAHJAHANPUR	PUWANYA	S-NPP	28.18082	80.28042	13:24:26	D	5.30
45	SHAHJAHANPUR	PUWANYA	S-NPP	28.27163	80.02232	13:24:26	D	6.60
46	SHARANPUR	NAKUR	S-NPP	29.77236	77.35331	13:24:26	D	3.00
47	SHARANPUR	NAKUR	S-NPP	29.85413	77.24747	13:24:26	D	2.40
48	SHARANPUR	SHARANPUR	S-NPP	29.89351	77.43939	13:24:26	D	2.50
49	UNNAO	BIGHAPUR	S-NPP	26.40332	80.79262	13:24:26	D	8.50
50	UNNAO	PURWA	S-NPP	26.41322	80.76067	13:24:26	D	5.40
51	UNNAO	PURWA	S-NPP	26.52268	80.69557	13:24:26	D	5.60

Details of wheat residue burning events in Madhya Pradesh on 14-May-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.33245	77.68934	13:24:26	D	21.40
2	ASHOKNAGAR	ASHOKNAGAR	S-NPP	24.48584	77.66618	02:14:26	N	0.80
3	BHOPAL	BERASIYA	S-NPP	23.66064	77.40593	02:14:26	N	3.00
4	CHHATARPUR	BARAMALEHRA	S-NPP	24.50435	79.25551	02:14:26	N	1.20
5	CHHATARPUR	BARAMALEHRA	S-NPP	24.69183	79.33731	02:14:26	N	2.10
6	CHHATARPUR	RAJNAGAR	S-NPP	24.76724	79.93597	13:24:26	D	7.90
7	CHHATARPUR	RAJNAGAR	S-NPP	25.05328	79.88741	13:24:26	D	17.10
8	CHHINDWARA	CHHINDWARA	S-NPP	22.02390	78.92838	13:24:26	D	5.40
9	DAMOH	HATTA	S-NPP	24.26247	79.78173	02:14:26	N	0.90
10	DATIA	DATIA	S-NPP	25.57736	78.57937	02:14:26	N	1.00
11	GUNA	RAGHOGARH	S-NPP	24.15273	77.22910	02:14:26	N	1.20
12	GWALIOR	BHITARWAR	S-NPP	25.80595	78.11709	13:24:26	D	10.90
13	GWALIOR	BHITARWAR	S-NPP	25.81299	77.98204	02:14:26	N	0.90
14	GWALIOR	BHITARWAR	S-NPP	25.82368	78.02345	02:14:26	N	0.80
15	GWALIOR	DABRA	S-NPP	25.88129	78.40157	02:14:26	N	0.70
16	GWALIOR	DABRA	S-NPP	25.97453	78.36587	02:14:26	N	3.10
17	JABALPUR	JABALPUR	S-NPP	23.06503	79.98215	13:24:26	D	13.60
18	JABALPUR	SAHPURA	S-NPP	23.07127	79.63741	13:24:26	D	10.80
19	JABALPUR	SAHPURA	S-NPP	23.14594	79.77473	13:24:26	D	4.50
20	KATNI	BAHURIBAND	S-NPP	23.61267	80.15022	13:24:26	D	16.00
21	KATNI	BAHURIBAND	S-NPP	23.61801	80.28323	13:24:26	D	9.10
22	KATNI	BAHURIBAND	S-NPP	23.65115	80.08485	13:24:26	D	7.40
23	KATNI	BIJERAGHOGARH	S-NPP	23.94326	80.73875	13:24:26	D	18.30
24	KATNI	BIJERAGHOGARH	S-NPP	23.94666	80.73820	13:24:26	D	18.30
25	MANDLA	MANDLA	S-NPP	22.49748	80.34986	13:24:26	D	10.30
26	MANDLA	MANDLA	S-NPP	22.55910	80.43276	13:24:26	D	6.80
27	MANDLA	NAINPUR	S-NPP	22.49207	80.06439	13:24:26	D	8.30
28	MANDSAUR	MANDSAUR	S-NPP	24.05977	75.21928	13:24:26	D	4.70
29	PANNA	PANNA	S-NPP	24.53910	80.39436	13:24:26	D	2.90
30	RAISEN	BAGAMGANJ	S-NPP	23.62761	78.39651	02:14:26	N	0.30

31	RAJGARH	NARSINGHGAR	S-NPP	23.59690	76.95316	02:14:26	N	0.70
32	RAJGARH	NARSINGHGAR	S-NPP	23.71741	77.15561	02:14:26	N	2.40
33	RATLAM	JAURA	S-NPP	23.57685	75.11879	13:24:26	D	6.60
34	REWA	GURH	S-NPP	24.52156	81.54865	13:24:26	D	4.70
35	REWA	GURH	S-NPP	24.52204	81.54956	13:24:26	D	4.50
36	SAGAR	SAGAR	S-NPP	23.66095	78.52506	13:24:26	D	5.90
37	SAGAR	SAGAR	S-NPP	23.66426	78.52447	13:24:26	D	7.90
38	SAGAR	SAGAR	S-NPP	23.87451	79.01482	13:24:26	D	4.40
39	SATNA	AMARPATAN	S-NPP	24.40385	81.23129	13:24:26	D	9.20
40	SATNA	MAIHAR	S-NPP	24.27230	80.82552	13:24:26	D	6.70
41	SATNA	MAIHAR	S-NPP	24.33341	80.91919	13:24:26	D	11.00
42	SATNA	MAIHAR	S-NPP	24.33684	80.91864	13:24:26	D	28.10
43	SATNA	NAGOD	S-NPP	24.48496	80.52898	13:24:26	D	10.50
44	SATNA	NAGOD	S-NPP	24.56072	80.62269	13:24:26	D	4.00
45	SATNA	RAMPURBAGHLEAN	S-NPP	24.38888	80.88833	02:14:26	N	0.60
46	SATNA	RAMPURBAGHLEAN	S-NPP	24.61589	81.12611	13:24:26	D	9.40
47	SATNA	RAMPURBAGHLEAN	S-NPP	24.65368	81.12141	02:14:26	N	0.50
48	SATNA	UCHAHAR	S-NPP	24.38613	80.84430	13:24:26	D	10.70
49	SEHORE	BUDHNI	S-NPP	22.70661	77.50138	13:24:26	D	5.80
50	SEHORE	SEHORE	S-NPP	23.12218	77.21712	13:24:26	D	6.60
51	SEHORE	SEHORE	S-NPP	23.41186	77.27676	02:14:26	N	1.70
52	SEHORE	SEHORE	S-NPP	23.44712	77.21640	02:14:26	N	0.80
53	SEONI	GHANSAUR	S-NPP	22.43972	79.73196	13:24:26	D	8.80
54	SEONI	SEONI	S-NPP	22.22446	79.76182	13:24:26	D	10.20
55	SEONI	SEONI	S-NPP	22.25262	79.79133	13:24:26	D	6.80
56	SHIVPURI	NARWAR	S-NPP	25.70400	78.08723	02:14:26	N	1.50
57	UJJAIN	GHATIYA	S-NPP	23.41228	75.94020	02:14:26	N	1.00
58	UJJAIN	NAGDA	S-NPP	23.38617	75.55779	02:14:26	N	1.30
59	UJJAIN	NAGDA	S-NPP	23.44790	75.44933	02:14:26	N	2.60
60	UJJAIN	TARANA	S-NPP	23.48720	75.91071	13:24:26	D	23.50
61	UJJAIN	TARANA	S-NPP	23.50550	76.15809	02:14:26	N	1.80
62	UJJAIN	TARANA	S-NPP	23.50613	76.15426	02:14:26	N	1.80
63	UJJAIN	UJJAIN	S-NPP	23.19445	75.80587	13:24:26	D	11.70
64	VIDESHA	BASODA	S-NPP	23.97983	77.84689	02:14:26	N	2.30

65	VIDESHA	GYARASPUR	S-NPP	23.67716	77.85511	02:14:26	N	0.60
66	VIDESHA	GYARASPUR	S-NPP	23.68417	77.85657	02:14:26	N	2.10
67	VIDESHA	KORWAI	S-NPP	24.18198	78.12133	02:14:26	N	0.70
68	VIDESHA	NATERAN	S-NPP	23.89862	77.70834	02:14:26	N	0.50
69	VIDESHA	NATERAN	S-NPP	23.92723	77.79297	02:14:26	N	1.20
70	VIDESHA	NATERAN	S-NPP	23.93072	77.79369	02:14:26	N	1.60
71	VIDESHA	NATERAN	S-NPP	23.93145	77.79294	02:14:26	N	1.10
72	VIDESHA	NATERAN	S-NPP	23.95708	77.59886	02:14:26	N	1.10
73	VIDESHA	SIRANJ	S-NPP	24.13456	77.58113	02:14:26	N	0.60
74	VIDESHA	VIDESHA	S-NPP	23.46464	77.80531	02:14:26	N	0.70
75	VIDESHA	VIDESHA	S-NPP	23.54226	77.59254	02:14:26	N	1.20
76	WEST NIMAR	BHIKANGAON	S-NPP	21.77836	75.86715	02:14:26	N	0.50

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

Study Team

ICAR – HQ	Dr S.N. Jha	DDG (AG. ENGG.)	ddgengg@icar.org.in
	Dr Rajbir Singh	ADG (NRM)	rajbirsingh.zpd@gmail.com
ICAR - IARI	Dr V.K. Sehgal	Pr. Scientist & Nodal Officer	iaricreams@gmail.com
	Dr Rajkumar Dhakar	Scientist	raidhakar.iari@gmail.com
	Mr Mohd Jahangir	Lab Assistant (KRISHI)	mjahangir198@gmail.com
ICAR - ATARI	Dr Parvender Sheoran	Director ATARI (Zone-I) Ludhiana	zcu1ldh@gmail.com
	Dr. J.P. Mishra	Director ATARI (Zone-II) Jodhpur	jp.mishra67@gov.in
		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)
