



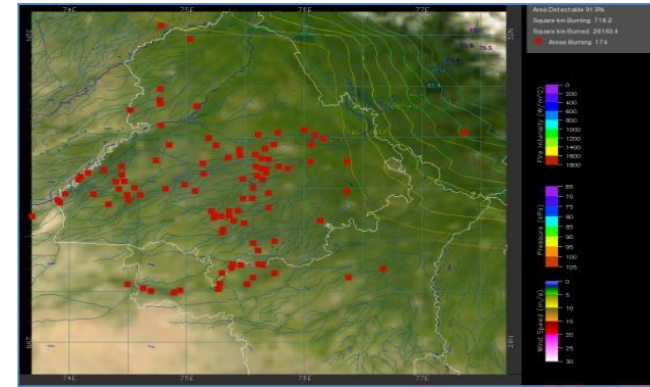
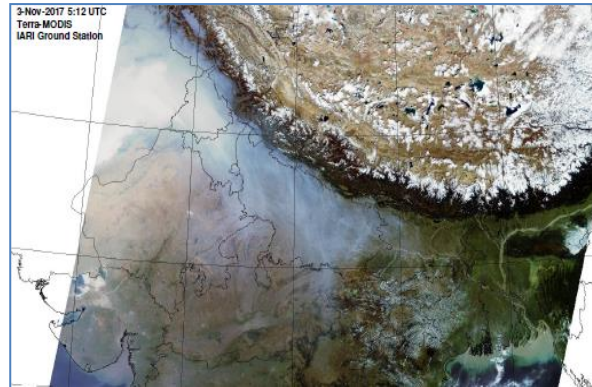
Bulletin No. 52

Events Date:
22-May-2023

Issued on:
22-May-2023



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



Prepared by:

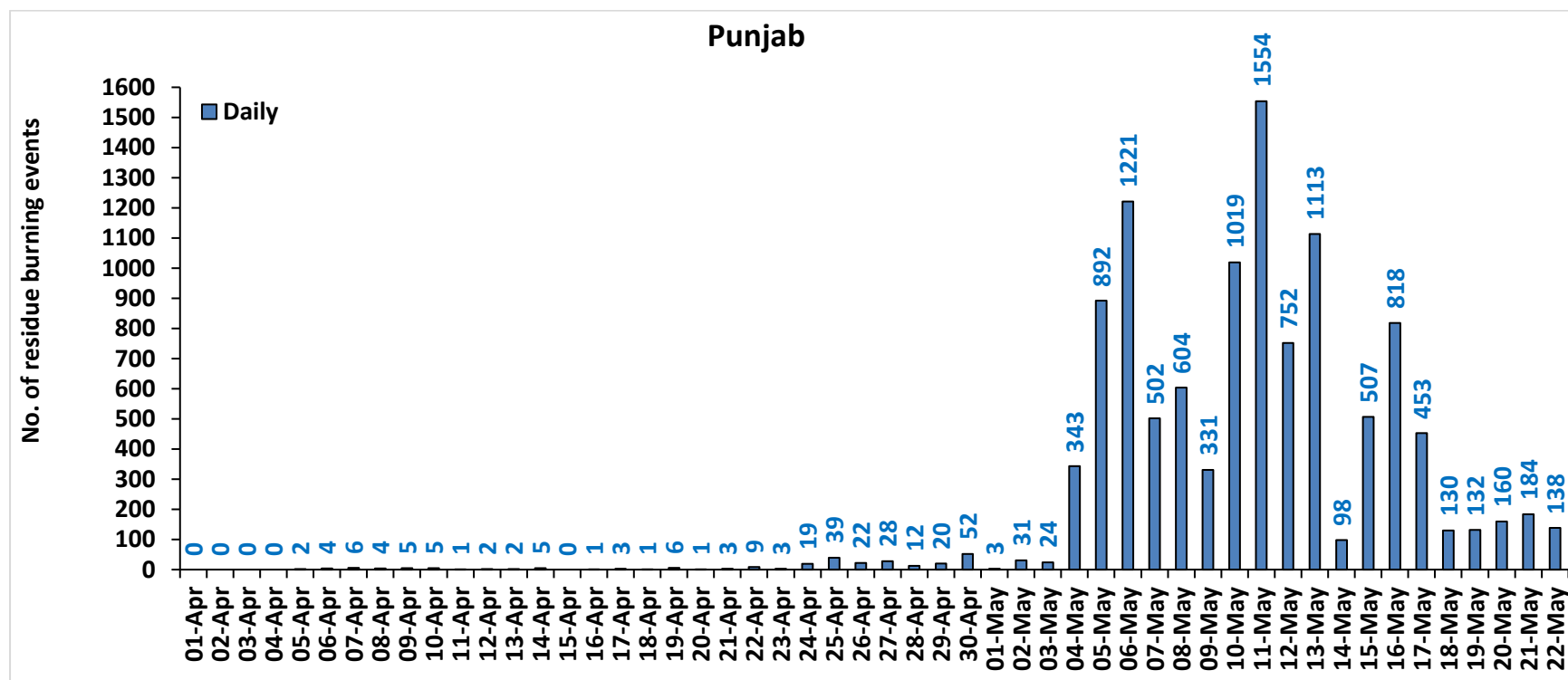
Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012

<http://creams.iari.res.in/cms2/>

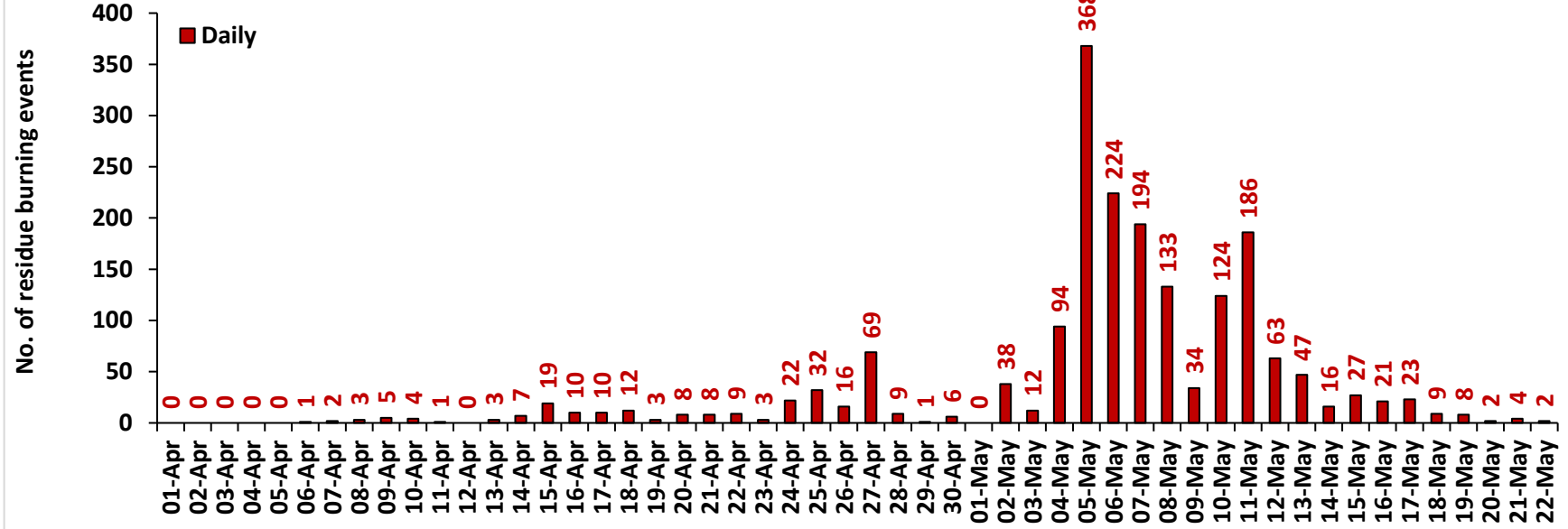
Highlights for 22-May-2023

- 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 **215** residue burning events in the five study States on 22-May-2023.
- The state wise events detected on 22-May-2023 were **138** in Punjab, **02** in Haryana, **00** in Delhi, **15** in Uttar Pradesh and **60** in Madhya Pradesh.
- The number of events has decreased from **266** on 21-May-2023 to **215** on 22-May-2023 in the five study states.
- Total **38173** burning events were detected in the five states between 01-Apr-2023 and 22-May-2023, which are distributed as **11264**, **1892**, **6372**, **05**, and **18640** in Punjab, Haryana, UP, Delhi, and MP, respectively.

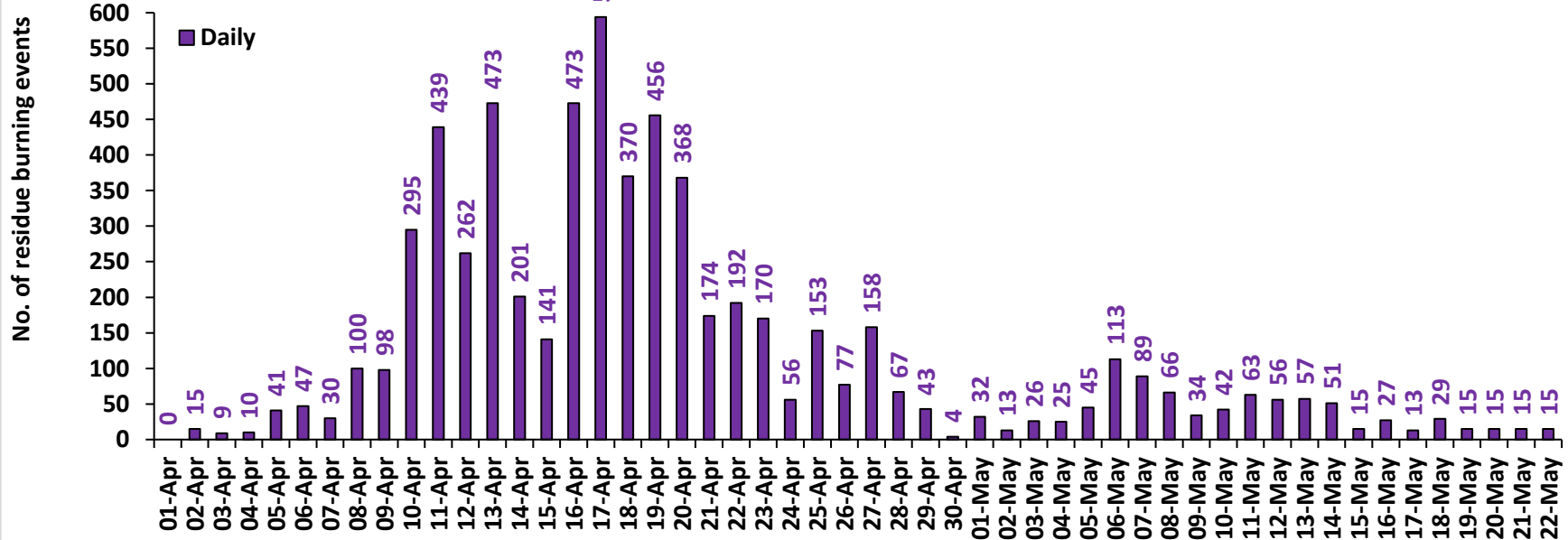
Temporal distribution of wheat residue burning events for the study States in 2023



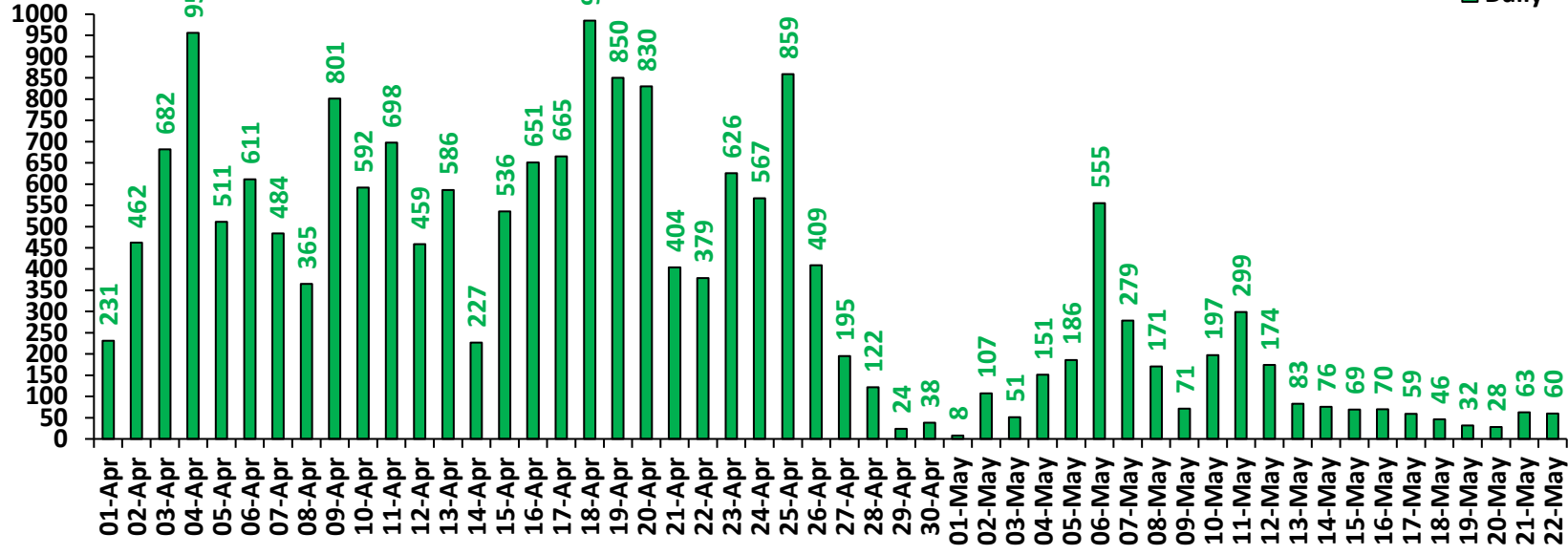
Haryana



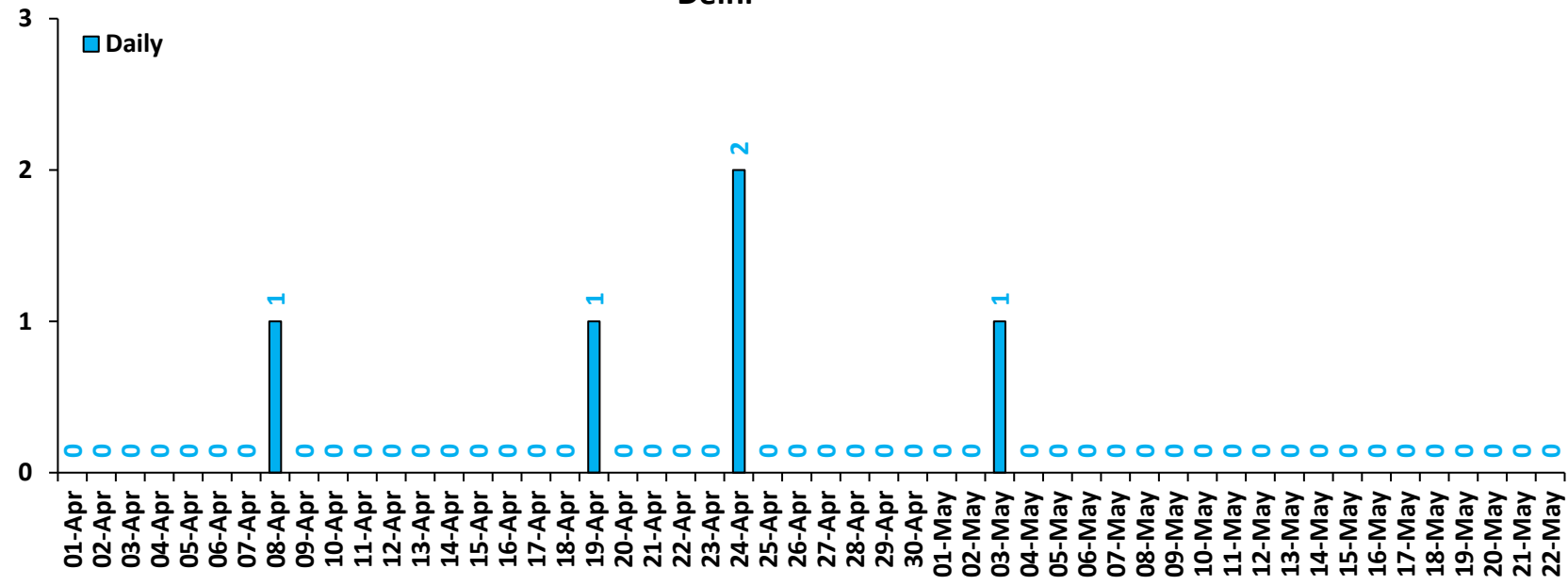
Uttar Pradesh



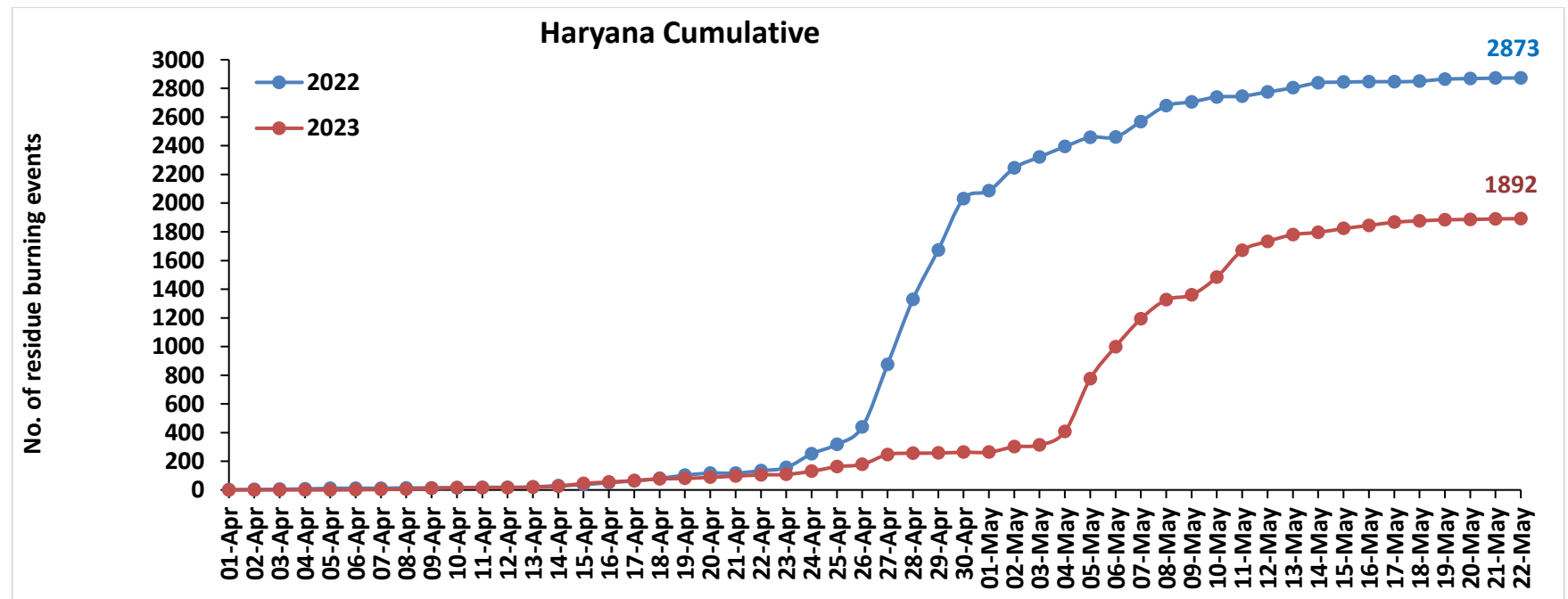
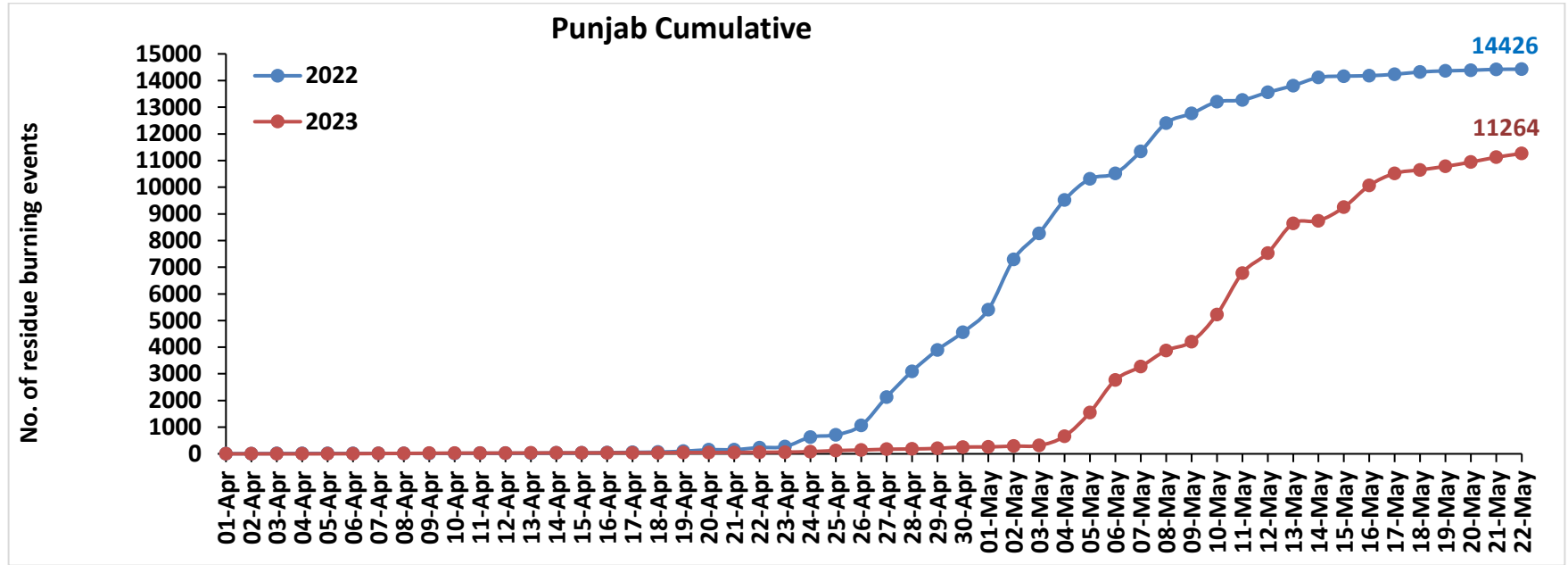
No. of residue burning events

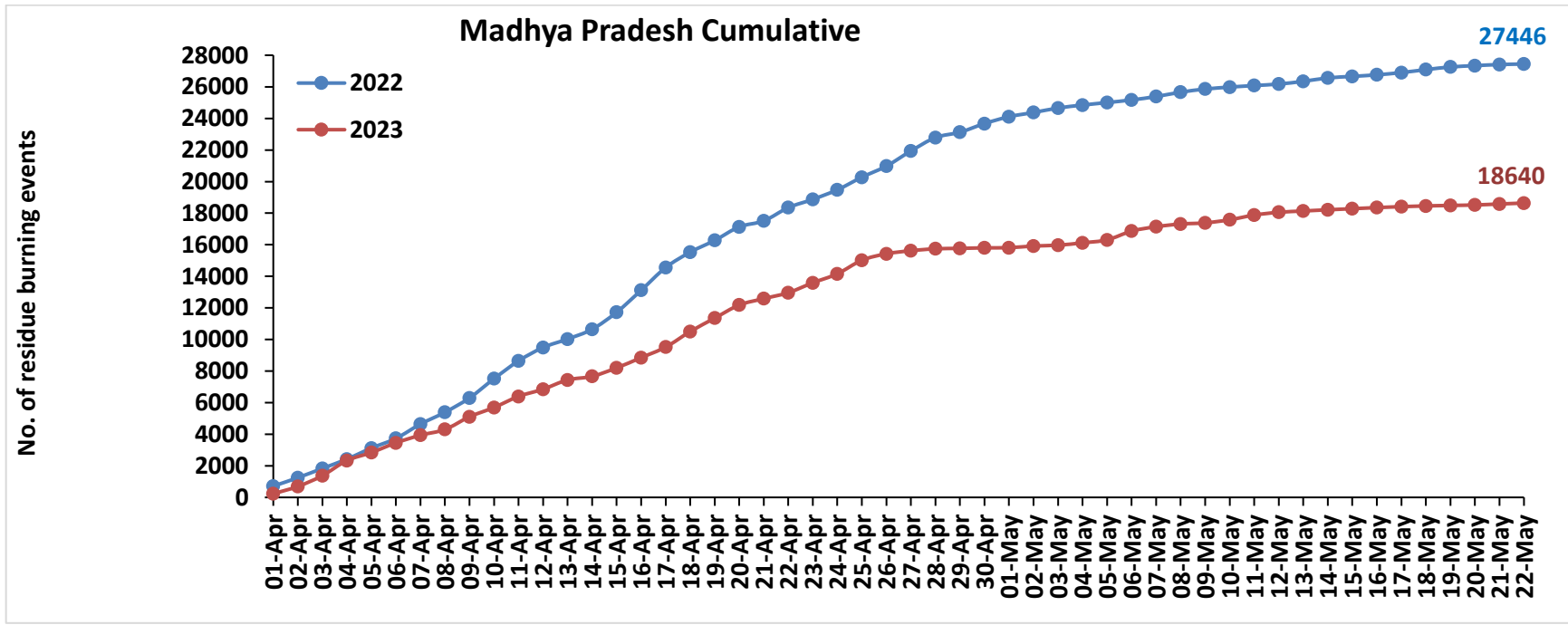
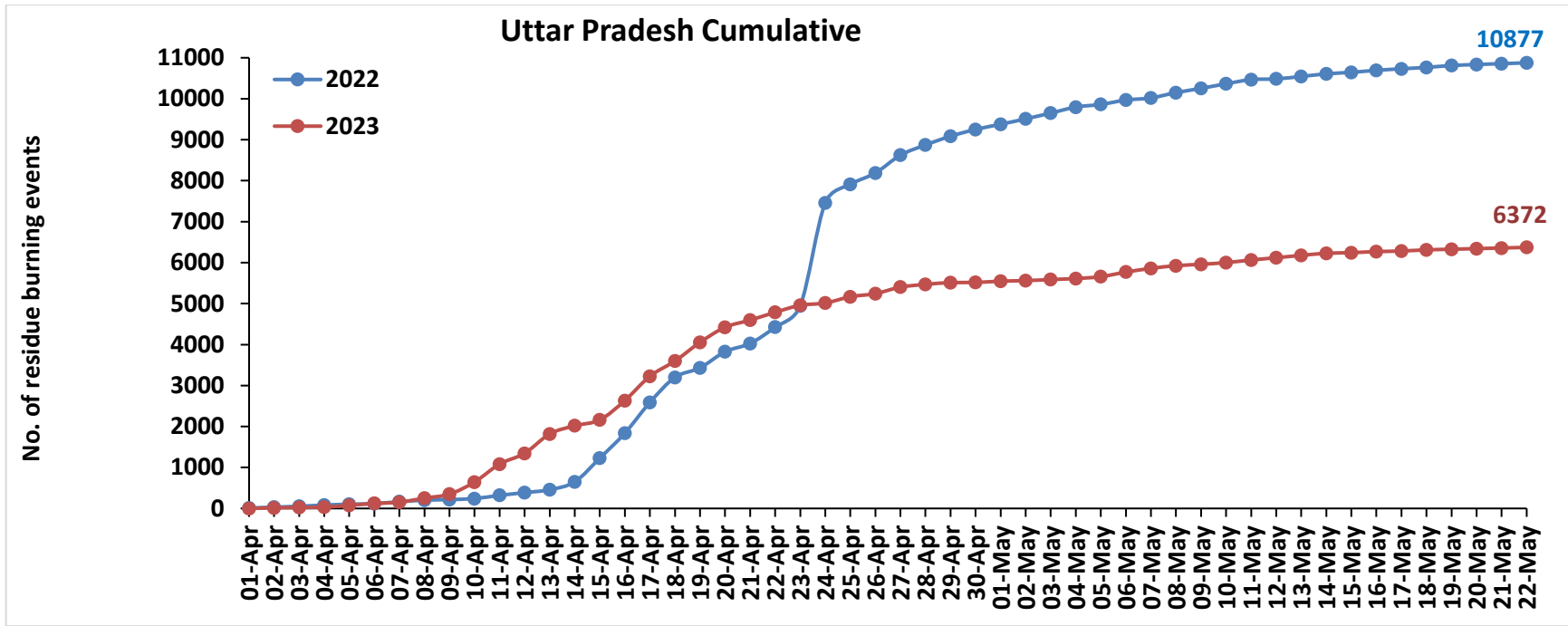


No. of residue burning events

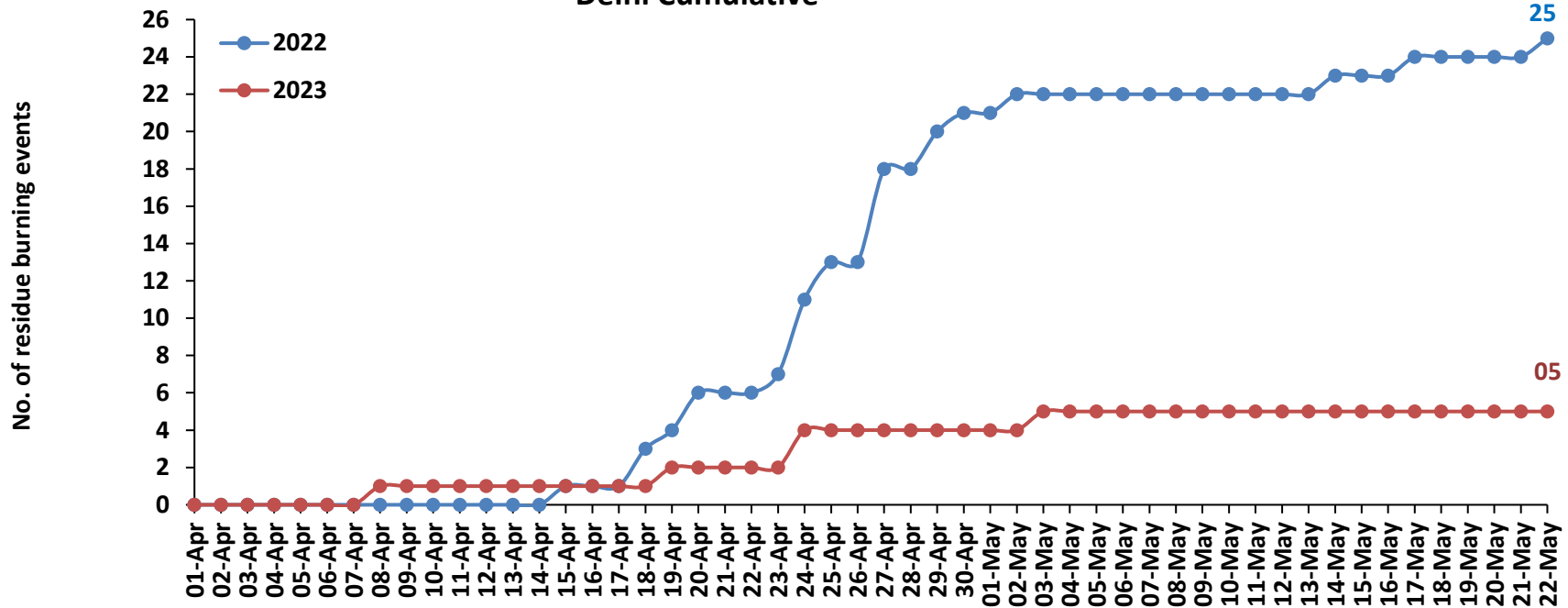


Comparison of residue burning events in current year (2023) with previous year (2022) for the study States





Delhi Cumulative



District-wise cumulative number of wheat residue burning events detected in 2022 and 2023
(Period: 01 April-22 May)

(a) Punjab

District	01 Apr-22 May	
	2022	2023
Amritsar	1235	864
Barnala	472	540
Bathinda	829	584
Faridkot	524	464
Fatehgarh Sahib	72	139
Fazilka	526	385
Firozpur	1422	898
Gurdaspur	1123	946
Hoshiarpur	479	407
Jalandhar	824	595
Kapurthala	724	499
Ludhiana	944	875
Mansa	412	332
Moga	1096	1010
Muktsar	725	587
Pathankot	166	91
Patiala	457	427
Rupnagar	74	38
Sangrur	1011	815
SAS NAGAR (Mohali)	27	11
SBS Nagar	218	173
Tarn Taran	1066	584
Total	14426	11264

(b) Haryana

District	01 Apr-22 May	
	2022	2023
AMBALA	93	82
BHIWANI	76	23
CHARKHI DADRI	10	7
FARIDABAD	17	16
FATEHABAD	274	268
GURGAON	7	9
HISAR	150	113
JHAJJAR	121	66
JIND	346	156
KAITHAL	306	190
KARNAL	382	227
KURUKSHETRA	140	57
MAHENDRAGARH	0	0
MEWAT	1	8
PALWAL	33	28
PANCHKULA	3	3
PANIPAT	218	110
REWARI	3	3
ROHTAK	211	94
SIRSA	186	259
SONIPAT	274	133
YAMUNANAGAR	22	40
Total	2873	1892

(c) Uttar Pradesh

District	01 Apr-22 May							
	2022	2023	GAUTAMBUDHNAGAR	29	24	MUZAFARNAGAR	55	33
			GAZIPUR	106	48	PILHIBHIT	326	64
AGRA	2	0	GHAZIABAD	13	10	PRATAPGARH	24	15
ALIGARH	19	33	GONDA	21	29	RAIBEARELI	102	17
ALLAHABAD	110	39	GORAKHPUR	975	368	RAMPUR	117	32
AMBEDKARNAGAR	11	13	HAMIRPUR	18	41	SANTKABIRNAGAR	691	430
AURAIYA	105	14	HARDOI	115	80	SANTRAVIDASNAGAR	1	3
AZAMGARH	90	76	JALAUN	26	21	SHAHJAHANPUR	347	100
BADAUN	9	8	JAUNPUR	22	6	SHARANPUR	32	21
BAGHPAT	7	3	JHANSI	108	142	SHRAWASTI	86	43
BAHRAICH	109	45	JYOTIBAPHULE NAGAR	9	5	SIDDHARTHANAGAR	2539	1852
BALLIA	153	205	KANNAUJ	0	1	SITAPUR	24	25
BALRAMPUR	244	97	KANPUR	13	4	SONBHADRA	129	42
BANDA	10	5	KANPUR DEHAT	32	23	SULTANPUR	60	30
BARABANKI	9	3	KAUSHAMBI	8	6	UNNAO	70	18
BAREILLY	114	22	KHERI	163	78	VARANASI	2	0
BASTI	428	226	KUSHINAGAR	224	95	Total	10877	6372
BIJNOR	54	28	LACKNOW	13	0			
BULANDSAHAR	8	11	LALITPUR	66	71			
CHANDAULI	292	62	MAHAMAYANAGAR	0	1			
CHITRAKOOT	24	3	MAHARAJGANJ	1495	977			
DEORIA	732	440	MAHOBA	6	44			
ETAH	2	7	MAINPURI	6	7			
ETAWAH	3	5	MATHURA	24	54			
FAIZABAD	6	12	MAU	87	64			
FARRUKHABAD	3	2	MEERUT	20	26			
FATEHPUR	47	34	MIRZAPUR	73	15			
FIROZABAD	1	0	MORADABAD	8	14			

(d) Madhya Pradesh

District	01 Apr-22 May				
	2022	2023			
			PANNA	179	73
ALIRAJPUR	0	0	RAISEN	2643	1670
ANUPPUR	35	2	RAJGARH	159	181
ASHOKNAGAR	645	231	RATLAM	199	292
BALAGHAT	28	1	REWA	193	69
BARWANI	7	7	SAGAR	776	582
BETUL	206	60	SATNA	1010	245
BHIND	73	70	SEHORE	949	655
BHOPAL	966	493	SEONI	1529	816
BURHANPUR	12	4	SHAHDOL	111	8
CHHATARPUR	165	168	SHAJAPUR	408	548
CHHINDWARA	523	267	SHEOPUR	377	450
DAMOH	219	255	SHIVPURI	197	121
DATIA	389	287	SIDHI	32	3
DEWAS	575	568	SINGRAULI	123	3
DHAR	1009	882	TIKAMGARH	39	84
DINDORI	45	5	UJJAIN	1244	1788
EAST NIMAR	83	108	UMARIA	62	15
GUNA	761	393	VIDESHA	3740	1745
GWALIOR	618	397	WEST NIMAR	40	72
HARDA	398	276	Total	27446	18640
HOSHANGABAD	4065	2757			
INDORE	971	1010			
JABALPUR	888	484			
JHABUA	2	6			
KATNI	307	141			
MANDLA	182	47			
MANDSAUR	67	112			
MORENA	47	44			
NARSHIMAPURA	129	103			
NIMACH	21	42			

(e) Delhi

District	01 Apr-22 May	
	2022	2023
CENTRAL	0	0
EAST	0	0
NEW DELHI	0	0
NORTH	20	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	25	5

State-wise and date-wise number of wheat residue burning events detected in 2022 and 2023
(Period: 01 April-22 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
15-May	49	507	5	27	38	15	0	0	99	69
16-May	16	818	3	21	49	27	0	0	98	70
17-May	55	453	0	23	37	13	1	0	143	59
18-May	85	130	3	9	34	29	0	0	187	46
19-May	42	132	15	8	46	15	0	0	167	32
20-May	22	160	3	2	24	15	0	0	86	28
21-May	35	184	4	4	21	15	0	0	69	63
22-May	5	138	1	2	21	15	1	0	35	60
Total	14426	11264	2873	1892	10877	6372	25	5	27446	18640

Details of residue burning events in Punjab on 22-May-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.91656	74.86162	12:34:03	D	1.90
2	AMRITSAR	AJNALA	S-NPP	31.91659	74.86211	12:34:03	D	1.60
3	AMRITSAR	CHOGAWAN	S-NPP	31.88088	74.61293	12:34:03	D	2.90
4	AMRITSAR	RAYYA	S-NPP	31.61716	75.20598	14:14:20	D	1.50
5	AMRITSAR	RAYYA	S-NPP	31.61787	75.20643	14:14:20	D	2.80
6	BATHINDA	TALWANDI SABO	S-NPP	29.90878	74.94897	03:04:20	N	18.80
7	FARIDKOT	KOT KAPURA	S-NPP	30.59652	74.93609	14:14:20	D	4.50
8	FARIDKOT	KOT KAPURA	S-NPP	30.60813	74.94675	14:14:20	D	5.10
9	FARIDKOT	KOT KAPURA	S-NPP	30.63418	74.88980	14:14:20	D	2.70
10	FARIDKOT	KOT KAPURA	S-NPP	30.63627	74.88962	14:14:20	D	2.60
11	FATEHGARH SAHIB	AMLOH	S-NPP	30.59342	76.12171	12:34:03	D	6.70
12	FATEHGARH SAHIB	BASSI PATHANAN	S-NPP	30.70131	76.39216	14:14:20	D	9.10
13	FATEHGARH SAHIB	BASSI PATHANAN	S-NPP	30.73067	76.48427	12:34:03	D	6.60
14	FATEHGARH SAHIB	SIRHIND	S-NPP	30.47042	76.42477	14:14:20	D	7.90
15	FATEHGARH SAHIB	SIRHIND	S-NPP	30.53523	76.34488	14:14:20	D	5.70
16	FAZILKA	ARNIWALA SHEIKH SUBANPUR	S-NPP	30.31851	74.27982	12:34:03	D	4.10
17	FAZILKA	ARNIWALA SHEIKH SUBANPUR	S-NPP	30.31921	74.28253	12:34:03	D	3.30
18	FIROZPUR	MAMDOT	S-NPP	30.82279	74.47105	12:34:03	D	6.40
19	FIROZPUR	MAMDOT	S-NPP	30.89303	74.38199	12:34:03	D	7.50
20	FIROZPUR	ZIRA	S-NPP	30.99314	75.04103	14:14:20	D	2.60
21	FIROZPUR	ZIRA	S-NPP	31.01940	74.89865	12:34:03	D	7.50
22	FIROZPUR	ZIRA	S-NPP	31.02236	74.90032	12:34:03	D	8.60
23	GURDASPUR	KAHNUWAN	S-NPP	31.84083	75.31912	12:34:03	D	7.70
24	GURDASPUR	QADIAN	S-NPP	31.83576	75.31786	12:34:03	D	6.70
25	HOSHIARPUR	DASUYA	S-NPP	31.83774	75.60368	12:34:03	D	7.20
26	HOSHIARPUR	DASUYA	S-NPP	31.83928	75.60931	12:34:03	D	7.20
27	HOSHIARPUR	DASUYA	S-NPP	31.84380	75.60145	12:34:03	D	7.20
28	HOSHIARPUR	DASUYA	S-NPP	31.84534	75.60709	12:34:03	D	7.20
29	HOSHIARPUR	TALWARA	S-NPP	31.97985	75.81682	12:34:03	D	6.60

30	JALANDHAR	ADAMPUR	S-NPP	31.36265	75.78647	14:14:20	D	3.80
31	JALANDHAR	NUR MAHAL	S-NPP	30.99541	75.63211	12:34:03	D	8.10
32	JALANDHAR	NUR MAHAL	S-NPP	30.99885	75.69463	12:34:03	D	19.40
33	JALANDHAR	NUR MAHAL	S-NPP	31.00042	75.70042	12:34:03	D	16.90
34	JALANDHAR	NUR MAHAL	S-NPP	31.00864	75.73521	14:14:20	D	2.00
35	JALANDHAR	NUR MAHAL	S-NPP	31.01095	75.73514	14:14:20	D	1.50
36	JALANDHAR	NUR MAHAL	S-NPP	31.07086	75.69466	14:14:20	D	5.00
37	JALANDHAR	NUR MAHAL	S-NPP	31.07384	75.69012	12:34:03	D	4.20
38	JALANDHAR	NUR MAHAL	S-NPP	31.14168	75.60407	14:14:20	D	3.00
39	JALANDHAR	PHILLAUR	S-NPP	31.01479	75.79701	14:14:20	D	3.30
40	JALANDHAR	PHILLAUR	S-NPP	31.01562	75.81039	14:14:20	D	5.90
41	JALANDHAR	PHILLAUR	S-NPP	31.01854	75.79646	14:14:20	D	6.80
42	JALANDHAR	PHILLAUR	S-NPP	31.01945	75.80986	14:14:20	D	6.20
43	JALANDHAR	PHILLAUR	S-NPP	31.01976	75.81432	14:14:20	D	6.20
44	JALANDHAR	PHILLAUR	S-NPP	31.02047	75.79648	14:14:20	D	3.60
45	JALANDHAR	PHILLAUR	S-NPP	31.02130	75.80990	14:14:20	D	4.40
46	JALANDHAR	PHILLAUR	S-NPP	31.02158	75.81435	14:14:20	D	4.40
47	JALANDHAR	PHILLAUR	S-NPP	31.02575	75.81831	14:14:20	D	8.80
48	JALANDHAR	PHILLAUR	S-NPP	31.02754	75.81835	14:14:20	D	3.70
49	JALANDHAR	PHILLAUR	S-NPP	31.03239	75.80450	14:14:20	D	4.70
50	JALANDHAR	PHILLAUR	S-NPP	31.03618	75.80403	14:14:20	D	3.70
51	JALANDHAR	PHILLAUR	S-NPP	31.03650	75.80849	14:14:20	D	3.70
52	JALANDHAR	PHILLAUR	S-NPP	31.03680	75.81293	14:14:20	D	3.70
53	JALANDHAR	PHILLAUR	S-NPP	31.03863	75.81293	14:14:20	D	3.70
54	JALANDHAR	PHILLAUR	S-NPP	31.05601	75.93066	12:34:03	D	5.50
55	JALANDHAR	PHILLAUR	S-NPP	31.07911	75.90878	14:14:20	D	9.50
56	JALANDHAR	PHILLAUR	S-NPP	31.08556	75.83142	14:14:20	D	7.90
57	JALANDHAR	PHILLAUR	S-NPP	31.09113	75.81264	12:34:03	D	3.20
58	JALANDHAR	PHILLAUR	S-NPP	31.09442	75.81460	12:34:03	D	6.10
59	JALANDHAR	PHILLAUR	S-NPP	31.12801	75.81497	12:34:03	D	6.60
60	JALANDHAR	PHILLAUR	AQUA	31.01700	75.81000	13:25:33	D	18.90
61	JALANDHAR	RURKA KALAN	S-NPP	31.12732	75.64467	14:14:20	D	6.60
62	JALANDHAR	RURKA KALAN	S-NPP	31.12992	75.64584	14:14:20	D	5.40

63	JALANDHAR	RURKA KALAN	S-NPP	31.15054	75.64957	12:34:03	D	5.20
64	JALANDHAR	RURKA KALAN	S-NPP	31.15386	75.76189	12:34:03	D	6.00
65	JALANDHAR	RURKA KALAN	S-NPP	31.15730	75.76086	12:34:03	D	9.50
66	KAPURTHALA	DHILWAN	S-NPP	31.41753	75.33060	12:34:03	D	2.60
67	KAPURTHALA	DHILWAN	S-NPP	31.42792	75.29401	12:34:03	D	7.90
68	KAPURTHALA	DHILWAN	S-NPP	31.43413	75.29173	12:34:03	D	6.80
69	KAPURTHALA	PHAGWARA	S-NPP	31.24600	75.84058	12:34:03	D	6.90
70	KAPURTHALA	PHAGWARA	S-NPP	31.31757	75.73988	14:14:20	D	5.10
71	KAPURTHALA	PHAGWARA	S-NPP	31.31984	75.74068	14:14:20	D	6.00
72	KAPURTHALA	PHAGWARA	S-NPP	31.32834	75.81536	14:14:20	D	2.90
73	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.20959	75.10323	12:34:03	D	4.30
74	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.22157	75.07161	12:34:03	D	7.50
75	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.22215	75.07369	12:34:03	D	5.50
76	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.33203	75.14690	14:14:20	D	4.50
77	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.33779	75.15051	14:14:20	D	3.20
78	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.33807	75.15461	14:14:20	D	3.20
79	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.33835	75.15871	14:14:20	D	4.50
80	KAPURTHALA	SULTANPUR LODHI	AQUA	31.33700	75.15200	13:25:33	D	16.60
81	LUDHIANA	JAGRAON	S-NPP	30.76979	75.57147	14:14:20	D	2.30
82	LUDHIANA	KHANNA	S-NPP	30.67852	76.12547	14:14:20	D	5.60
83	LUDHIANA	LUDHIANA-2	S-NPP	30.93275	76.07158	14:14:20	D	2.80
84	LUDHIANA	LUDHIANA-2	S-NPP	30.93303	76.07619	14:14:20	D	2.80
85	LUDHIANA	LUDHIANA-2	S-NPP	30.93771	76.07430	14:14:20	D	10.40
86	LUDHIANA	LUDHIANA-2	S-NPP	30.93851	76.07110	14:14:20	D	2.80
87	LUDHIANA	LUDHIANA-2	S-NPP	30.93879	76.07571	14:14:20	D	2.80
88	LUDHIANA	LUDHIANA-2	S-NPP	30.93883	76.03007	12:34:03	D	9.80
89	LUDHIANA	LUDHIANA-2	S-NPP	30.96906	75.73846	14:14:20	D	2.20
90	LUDHIANA	LUDHIANA-2	S-NPP	30.98551	76.08021	12:34:03	D	3.80
91	LUDHIANA	MACHHIWARA	S-NPP	30.92801	76.30018	12:34:03	D	4.20
92	LUDHIANA	MACHHIWARA	S-NPP	30.96930	76.19472	14:14:20	D	3.70
93	LUDHIANA	MACHHIWARA	S-NPP	30.97626	76.21304	14:14:20	D	2.10
94	LUDHIANA	PAKHOWAL	S-NPP	30.76213	75.75948	12:34:03	D	7.20
95	LUDHIANA	SIDHWAN BET	S-NPP	30.95272	75.39971	12:34:03	D	1.40

96	LUDHIANA	SUDHAR	S-NPP	30.72791	75.58452	12:34:03	D	5.30
97	LUDHIANA	SUDHAR	S-NPP	30.73413	75.58228	12:34:03	D	5.30
98	LUDHIANA	SUDHAR	S-NPP	30.79213	75.61999	12:34:03	D	6.70
99	MANSA	SARDULGARH	S-NPP	29.68059	75.29329	14:14:20	D	2.90
100	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.90567	75.37764	14:14:20	D	5.00
101	MOGA	MOGA-2	S-NPP	30.76323	75.11619	12:34:03	D	4.20
102	PATIALA	GHANAUR	S-NPP	30.36472	76.59657	14:14:20	D	8.30
103	PATIALA	RAJPURA	S-NPP	30.56359	76.51467	12:34:03	D	7.70
104	PATIALA	RAJPURA	S-NPP	30.56499	76.52002	12:34:03	D	7.70
105	PATIALA	SAMANA	S-NPP	30.19769	76.16572	14:14:20	D	5.10
106	RUPNAGAR	ANANDPUR SAHIB	AQUA	31.30700	76.38700	13:25:33	D	19.60
107	RUPNAGAR	CHAMKAUR SAHIB	S-NPP	30.94806	76.32951	14:14:20	D	3.80
108	RUPNAGAR	MORINDA	S-NPP	30.75288	76.46068	14:14:20	D	9.10
109	RUPNAGAR	MORINDA	S-NPP	30.79894	76.45886	14:14:20	D	6.60
110	RUPNAGAR	RUPNAGAR	S-NPP	30.92266	76.47649	12:34:03	D	5.70
111	RUPNAGAR	RUPNAGAR	S-NPP	30.92300	76.47646	12:34:03	D	3.80
112	SANGRUR	MALERKOTLA-1	S-NPP	30.45294	76.05760	14:14:20	D	2.50
113	SANGRUR	MALERKOTLA-1	S-NPP	30.51285	76.06092	12:34:03	D	8.20
114	SANGRUR	MALERKOTLA-1	S-NPP	30.51438	76.06657	12:34:03	D	11.20
115	SANGRUR	SUNAM	S-NPP	30.13698	75.70179	14:14:20	D	3.80
116	SBS NAGAR	AUR	S-NPP	31.05580	76.02831	12:34:03	D	5.20
117	SBS NAGAR	AUR	S-NPP	31.06911	75.93231	14:14:20	D	14.30
118	SBS NAGAR	AUR	S-NPP	31.11602	75.99135	12:34:03	D	4.80
119	SBS NAGAR	AUR	S-NPP	31.11904	75.95373	12:34:03	D	8.60
120	SBS NAGAR	AUR	S-NPP	31.15844	75.92739	12:34:03	D	4.70
121	SBS NAGAR	BANGA	S-NPP	31.16919	75.94615	14:14:20	D	13.00
122	SBS NAGAR	BANGA	S-NPP	31.20207	75.89943	12:34:03	D	6.30
123	SBS NAGAR	BANGA	S-NPP	31.20539	75.90424	12:34:03	D	5.00
124	SBS NAGAR	NAWAN SHAHR	S-NPP	31.00490	76.11230	14:14:20	D	4.50
125	SBS NAGAR	NAWAN SHAHR	S-NPP	31.09593	76.08218	14:14:20	D	6.80
126	SBS NAGAR	NAWAN SHAHR	S-NPP	31.09622	76.08682	14:14:20	D	7.60
127	SBS NAGAR	NAWAN SHAHR	S-NPP	31.15154	76.04537	14:14:20	D	3.00
128	SBS NAGAR	NAWAN SHAHR	S-NPP	31.15211	76.04437	14:14:20	D	3.30

129	TARN TARAN	CHOHLA SAHIB	S-NPP	31.33557	75.13503	12:34:03	D	6.30
130	TARN TARAN	CHOHLA SAHIB	S-NPP	31.33666	75.13412	14:14:20	D	3.70
131	TARN TARAN	CHOHLA SAHIB	AQUA	31.33200	75.13700	13:25:33	D	25.80
132	TARN TARAN	KHADUR SAHIB	S-NPP	31.33683	75.13758	12:34:03	D	12.40
133	TARN TARAN	KHADUR SAHIB	S-NPP	31.33694	75.13821	14:14:20	D	3.70
134	TARN TARAN	KHADUR SAHIB	S-NPP	31.33728	75.14114	12:34:03	D	10.40
135	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.36768	74.95226	14:14:20	D	3.00
136	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.38307	74.93890	14:14:20	D	2.70
137	TARN TARAN	VALTOHA	S-NPP	31.13347	74.69993	14:14:20	D	5.00
138	TARN TARAN	VALTOHA	S-NPP	31.13376	74.70375	14:14:20	D	5.00

Details of residue burning events in Haryana on 22-May-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	KAITHAL	SIWAN	S-NPP	29.86705	76.36971	14:14:20	D	1.90
2	PANCHKULA	RAIPUR RANI	S-NPP	30.52471	76.96122	12:34:03	D	3.80

Details of residue burning events in Uttar Pradesh on 22-May-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	BANDA	BANDA	S-NPP	25.62147	80.58455	14:14:20	D	5.00
2	ETAH	PATIALI	S-NPP	27.84605	78.98804	14:14:20	D	5.00
3	FATEHPUR	FATEHPUR	S-NPP	25.72885	80.85981	12:34:03	D	6.10
4	JALAUN	MADHOGARH	S-NPP	26.19693	79.06923	01:24:03	N	2.10
5	JALAUN	MADHOGARH	S-NPP	26.19940	79.06879	01:24:03	N	1.60
6	JHANSI	MOTH	S-NPP	25.67980	78.85994	12:34:03	D	7.00
7	KANPUR DEHAT	AKBARPUR	S-NPP	26.29796	80.00655	01:24:03	N	0.50
8	KHERI	PALIA KALAN	S-NPP	28.46852	80.58357	12:34:03	D	2.30
9	LALITPUR	LALITPUR	S-NPP	24.60213	78.34705	14:14:20	D	24.30
10	LALITPUR	TALBEHAT	S-NPP	24.79831	78.52579	14:14:20	D	14.90
11	LALITPUR	TALBEHAT	S-NPP	24.95024	78.58286	12:34:03	D	5.50
12	MATHURA	CHHATA	S-NPP	27.82793	77.39713	12:34:03	D	6.50
13	SANTRAVIDASNAGAR	GYANPUR	S-NPP	25.18106	82.22766	12:34:03	D	1.90
14	SONBHADRA	REBUTSHGANJ	S-NPP	24.66873	83.25459	01:24:03	N	2.00
15	SONBHADRA	REBUTSHGANJ	S-NPP	24.67005	83.25147	01:24:03	N	1.20

Details of wheat residue burning events in Madhya Pradesh on 22-May-2023

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m ²)
1	BHIND	GOHAD	S-NPP	26.45005	78.28593	14:14:20	D	10.00
2	BHIND	GOHAD	S-NPP	26.45352	78.28324	14:14:20	D	11.10
3	BHIND	GOHAD	S-NPP	26.45697	78.28130	12:34:03	D	5.20
4	BHIND	GOHAD	S-NPP	26.45822	78.28638	12:34:03	D	7.70
5	BHIND	GOHAD	S-NPP	26.46083	78.27424	12:34:03	D	8.50
6	BHIND	GOHAD	S-NPP	26.46150	78.26859	14:14:20	D	6.10
7	BHIND	GOHAD	S-NPP	26.46210	78.27931	12:34:03	D	16.80
8	BHIND	GOHAD	S-NPP	26.46338	78.28440	12:34:03	D	16.80
9	BHIND	GOHAD	S-NPP	26.46554	78.26734	12:34:03	D	4.40
10	BHIND	GOHAD	S-NPP	26.46682	78.27243	12:34:03	D	4.40
11	BHIND	GOHAD	S-NPP	26.47153	78.26553	12:34:03	D	4.40
12	BHIND	GOHAD	AQUA	26.45600	78.27000	13:25:33	D	18.10
13	BHIND	LAHAR	S-NPP	26.16463	78.89760	14:14:20	D	10.30
14	CHHATARPUR	BARAMALEHRA	S-NPP	24.46914	79.01115	12:34:03	D	8.70
15	CHHATARPUR	BARAMALEHRA	S-NPP	24.51593	79.19688	14:14:20	D	6.70
16	CHHATARPUR	CHHATARPUR	S-NPP	24.89028	79.36918	12:34:03	D	3.70
17	CHHATARPUR	RAJNAGAR	S-NPP	24.93834	79.87851	12:34:03	D	14.90
18	CHHATARPUR	RAJNAGAR	S-NPP	25.03047	79.90679	12:34:03	D	6.40
19	CHHATARPUR	RAJNAGAR	AQUA	24.87600	79.83700	02:33:03	N	8.20
20	CHHATARPUR	RAJNAGAR	AQUA	24.88100	79.84400	02:33:03	N	8.20
21	DEWAS	SONKACH	S-NPP	23.08389	76.42445	14:14:20	D	6.20
22	DHAR	DHAR	S-NPP	22.52317	75.50904	14:14:20	D	15.10
23	DHAR	MANAWAR	S-NPP	22.26200	75.13060	01:24:03	N	2.40
24	HARDA	TIMURNI	S-NPP	22.50006	77.17509	14:14:20	D	4.90
25	KATNI	BIJERAGHOGARH	S-NPP	23.92740	80.68872	01:24:03	N	4.60
26	KATNI	RITHI	S-NPP	23.95726	80.19791	12:34:03	D	5.20
27	KATNI	RITHI	S-NPP	23.95765	80.19865	12:34:03	D	5.70
28	MANDLA	MANDLA	S-NPP	22.56286	80.44313	12:34:03	D	5.10
29	MANDLA	MANDLA	S-NPP	22.56388	80.44762	12:34:03	D	5.10
30	MORENA	JORA	S-NPP	26.36160	77.71722	14:14:20	D	3.80

31	MORENA	JORA	S-NPP	26.36734	77.71169	14:14:20	D	3.80
32	MORENA	JORA	S-NPP	26.36768	77.71672	14:14:20	D	3.80
33	MORENA	KAILARAS	S-NPP	26.22408	77.58469	12:34:03	D	5.90
34	MORENA	KAILARAS	S-NPP	26.31512	77.67453	14:14:20	D	5.20
35	MORENA	KAILARAS	S-NPP	26.31605	77.67554	14:14:20	D	4.40
36	MORENA	SABALGARH	S-NPP	26.32248	77.48475	12:34:03	D	5.00
37	NARSHIMAPURA	GOTECAON	S-NPP	22.93846	79.41785	12:34:03	D	8.70
38	NARSHIMAPURA	GOTECAON	S-NPP	23.01674	79.46615	14:14:20	D	6.70
39	NARSHIMAPURA	GOTECAON	S-NPP	23.01721	79.46562	14:14:20	D	8.00
40	RAJGARH	RAJGARH	S-NPP	23.79620	76.63937	14:14:20	D	9.50
41	REWA	SIRMAUR	S-NPP	24.65980	81.27290	01:24:03	N	1.70
42	REWA	SIRMAUR	S-NPP	24.73186	81.17899	12:34:03	D	6.00
43	REWA	SIRMAUR	S-NPP	24.76539	81.46660	12:34:03	D	6.00
44	SAGAR	KESALI	S-NPP	23.43044	78.84440	12:34:03	D	14.50
45	SAGAR	KESALI	S-NPP	23.43282	78.84055	12:34:03	D	18.50
46	SAGAR	KESALI	S-NPP	23.43412	78.84587	12:34:03	D	22.20
47	SATNA	AMARPATAN	S-NPP	24.51004	81.13889	01:24:03	N	2.50
48	SATNA	RAMPURBAGHLEAN	S-NPP	24.67762	81.17287	12:34:03	D	3.70
49	SATNA	RAMPURBAGHLEAN	S-NPP	24.77103	81.00336	12:34:03	D	11.60
50	SEHORE	NASRULLAHGANJ	S-NPP	22.80097	77.04720	01:24:03	N	0.60
51	SEONI	KEWLARI	S-NPP	22.42479	80.04990	14:14:20	D	9.30
52	SEONI	KEWLARI	S-NPP	22.42836	80.05140	14:14:20	D	6.10
53	UMARIA	MANPUR	S-NPP	23.96438	80.91225	12:34:03	D	3.60
54	UMARIA	MANPUR	S-NPP	23.98631	80.88933	12:34:03	D	5.40
55	WEST NIMAR	KASRAWAD	S-NPP	21.91522	75.64331	14:14:20	D	7.50
56	WEST NIMAR	KASRAWAD	S-NPP	22.04481	75.69735	14:14:20	D	11.60
57	WEST NIMAR	KASRAWAD	S-NPP	22.04733	75.69850	14:14:20	D	10.30
58	WEST NIMAR	KHARGON	S-NPP	21.83874	75.75648	03:04:20	N	0.90
59	WEST NIMAR	KHARGON	S-NPP	21.86503	75.76226	14:14:20	D	9.00
60	WEST NIMAR	MAHESHWAR	S-NPP	22.17267	75.71104	14:14:20	D	9.40

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)
