

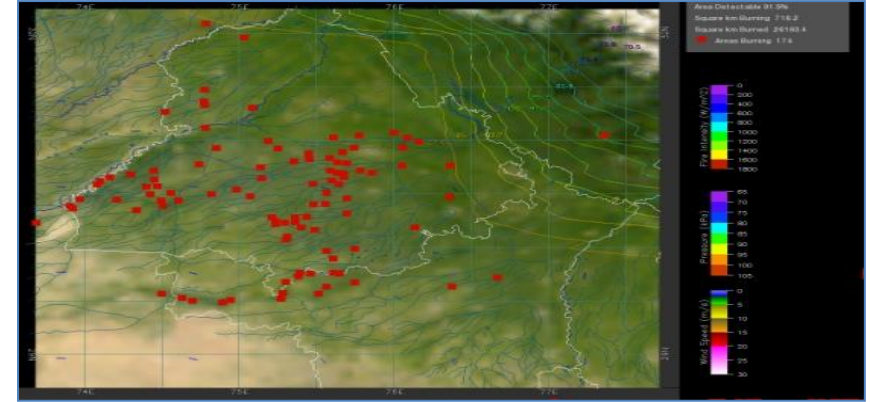
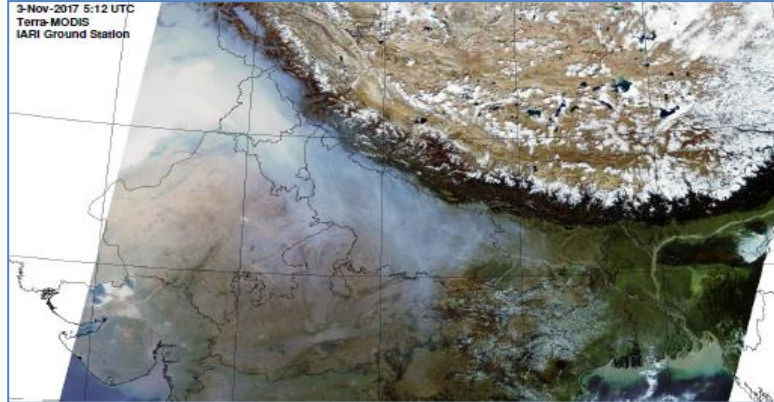


MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2024

Bulletin
No. 01

Events Date:
15-Sep-2024

Issued on:
15-Sep-2024



Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS)
Laboratory,

Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012

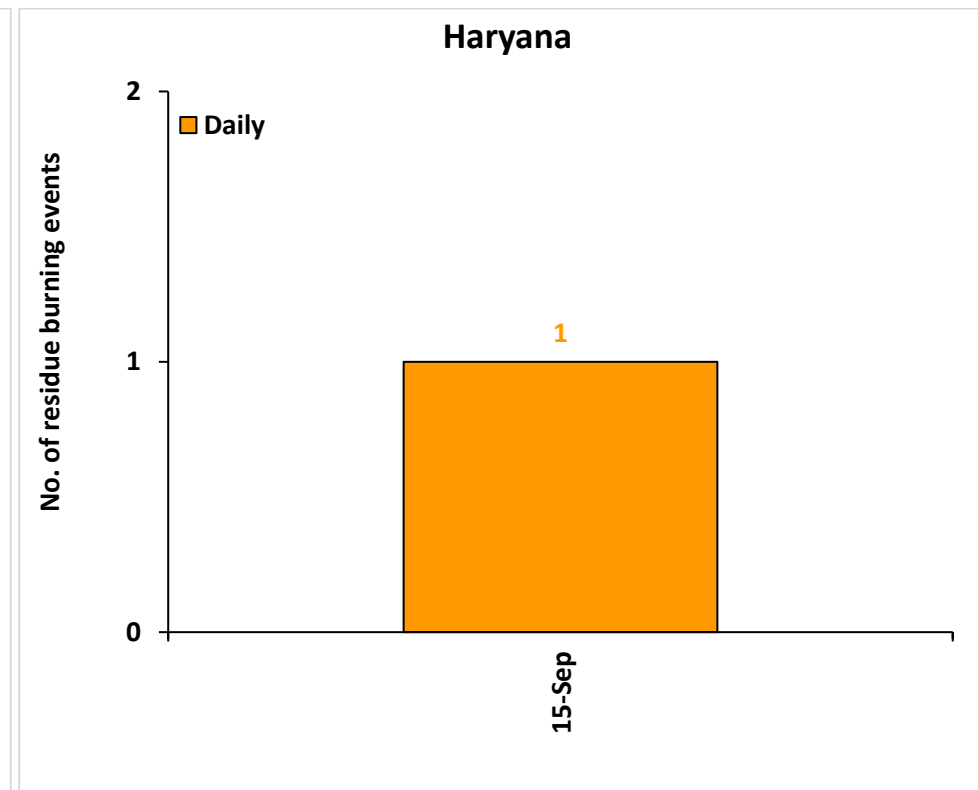
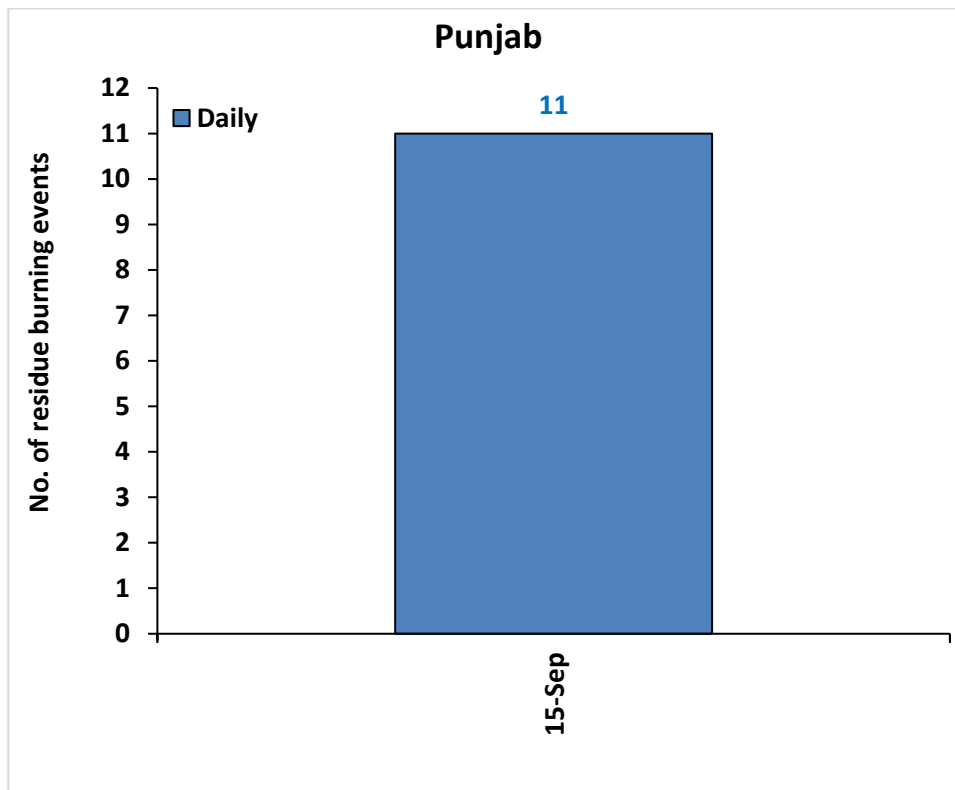
<https://creams.iari.res.in>



Highlights for 15-Sep-2024

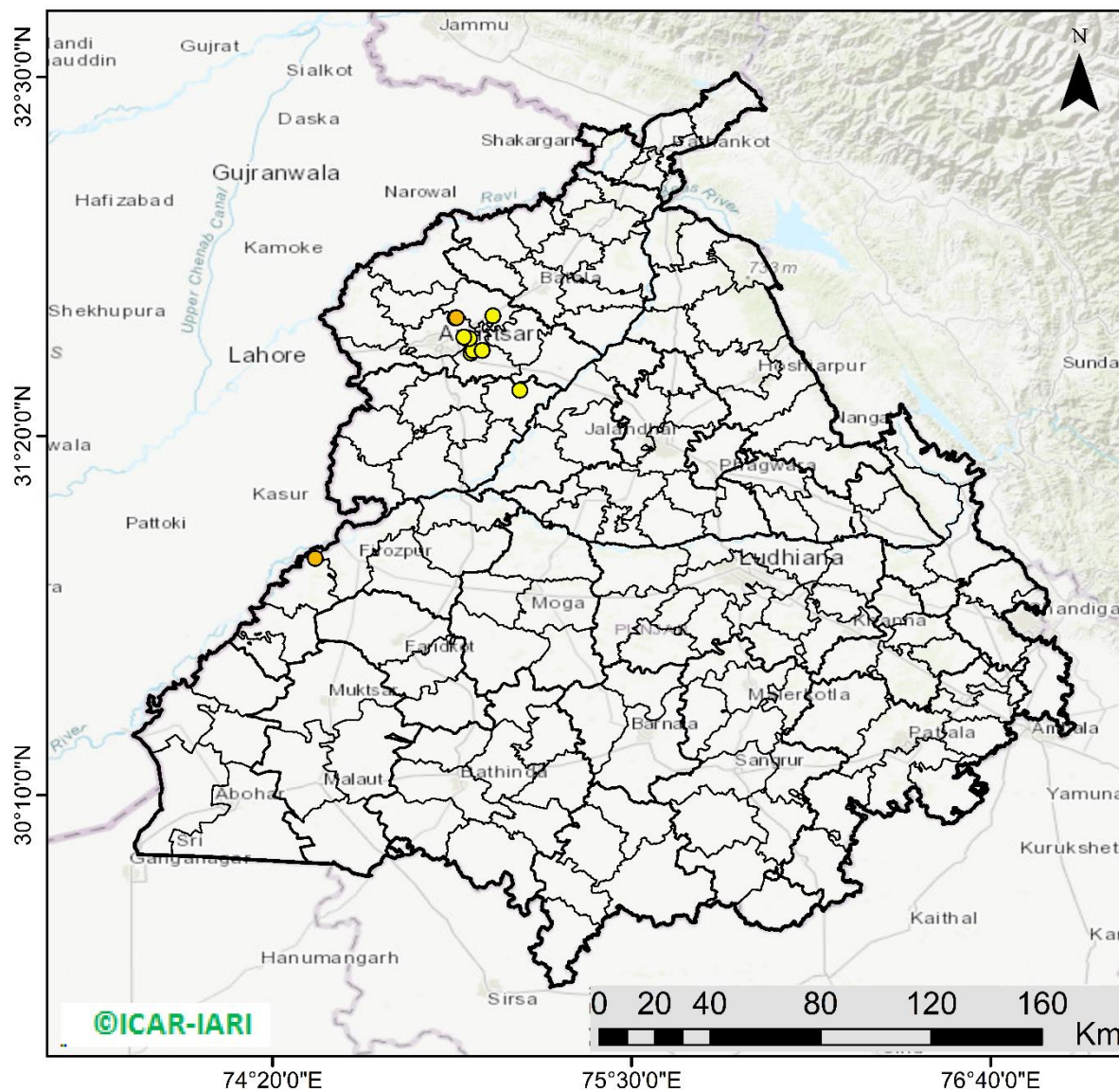
- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **12** residue burning events in the six study States on **15-Sep-2024**.
- The state wise events detected on **15-Sep-2024** were **11** in Punjab, **01** in Haryana, **00** in UP, **00** in Delhi, **00** in Rajasthan and **00** in MP.
- Detection of residue burning events was hampered by the presence of clouds over Uttar Pradesh and Madhya Pradesh states.

Temporal distribution of rice residue burning events for the study States in 2024



Punjab

RICE RESIDUE BURNING IN PUNJAB



11 burning events detected in Punjab during (15th Sep 2024)

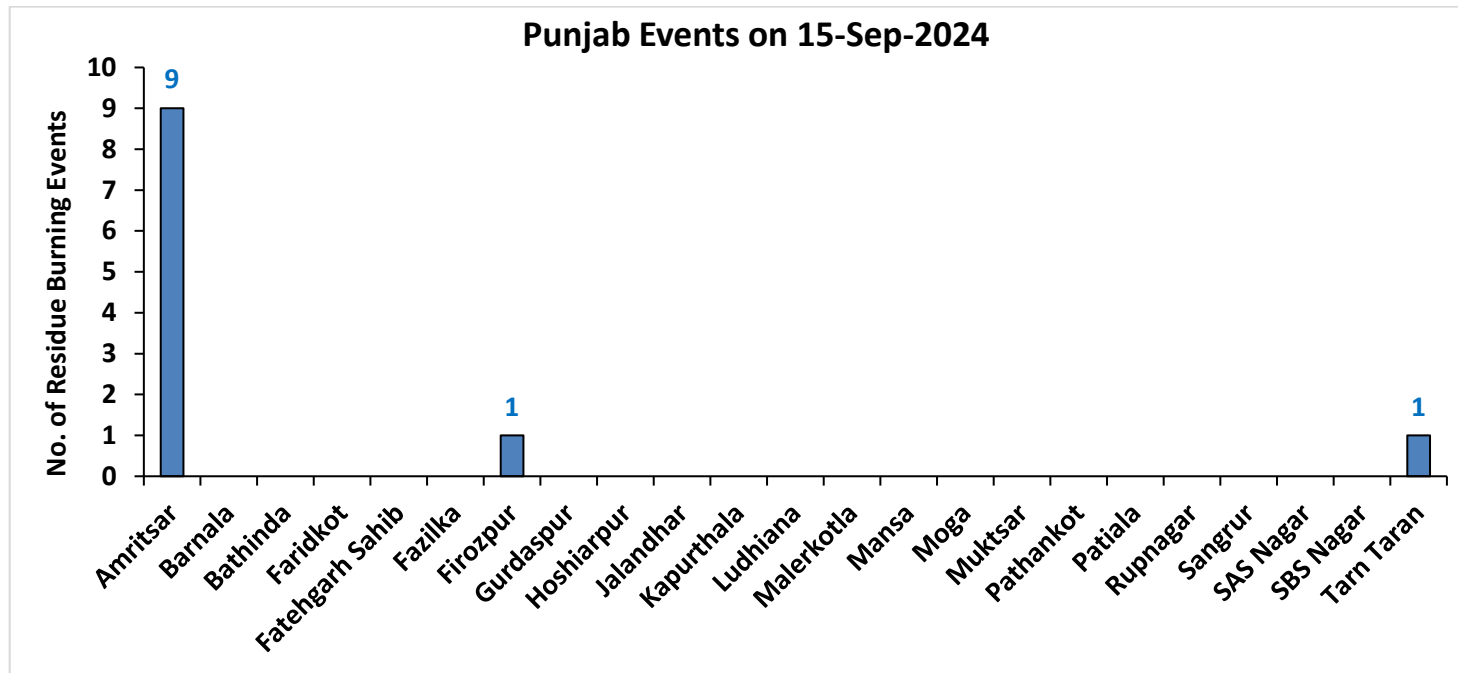
Fire Intensity (W/m²)

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



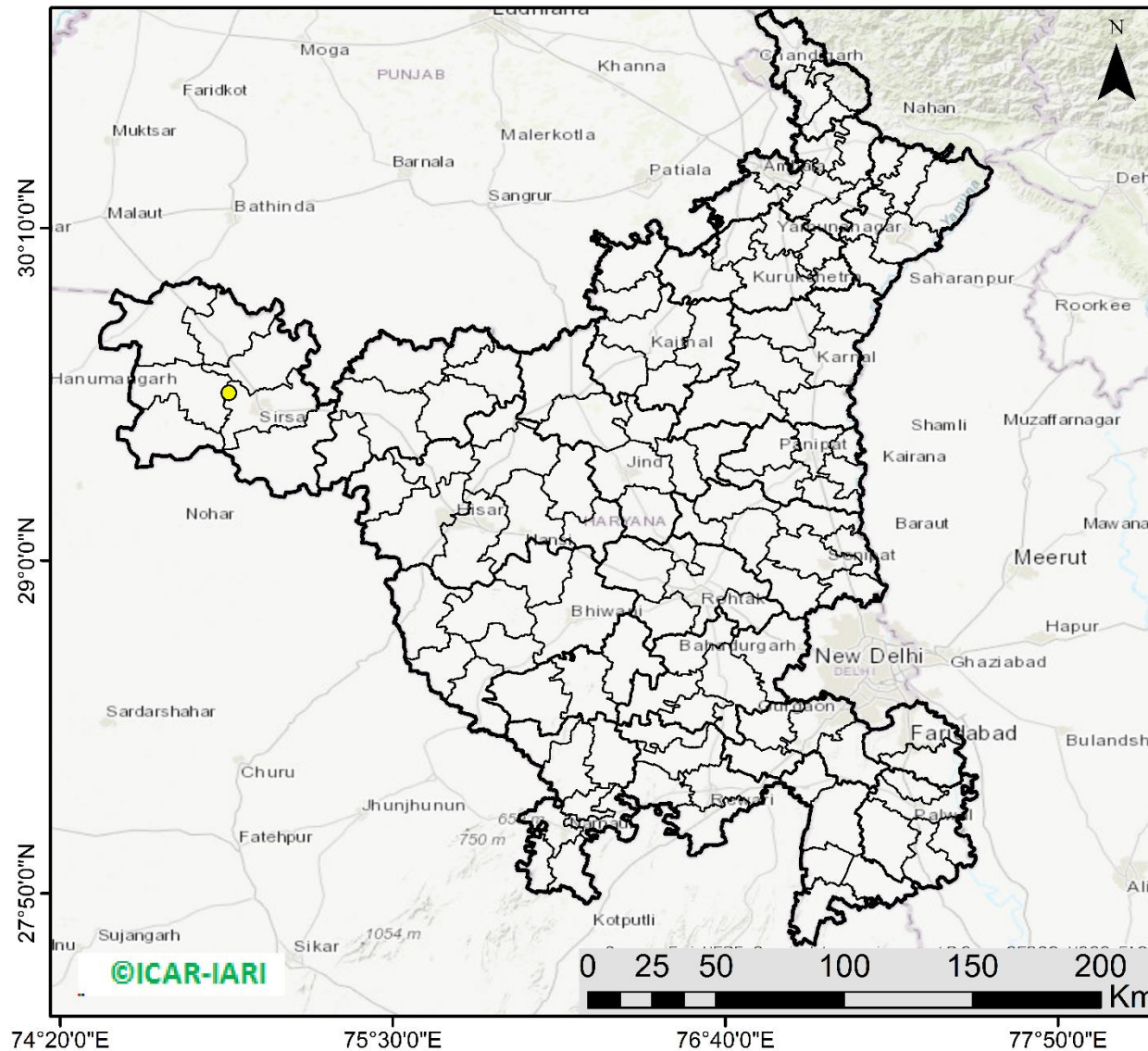
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

District-wise cumulative number of residues burning events in Punjab (15-Sep-2024)



Haryana

RICE RESIDUE BURNING IN HARYANA



01 burning events detected in Haryana on (15th Sep 2024)

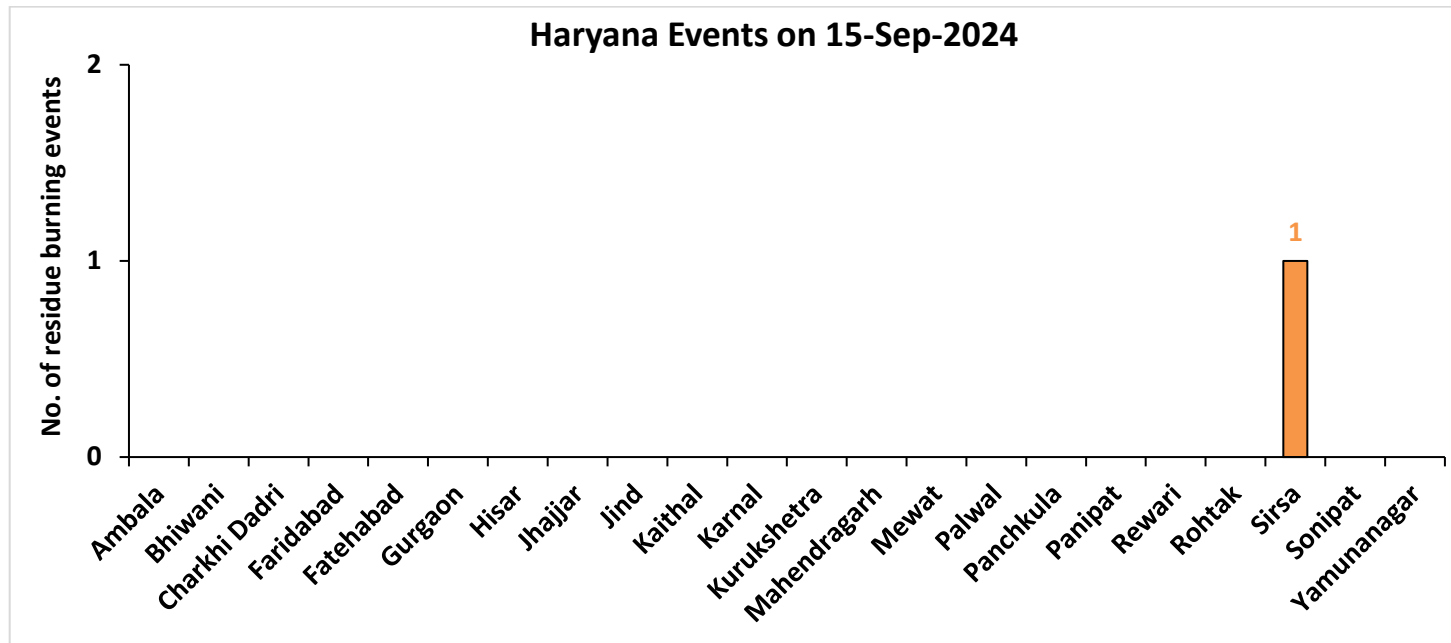
Fire Intensity (W/m²)

- 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 (15-Sep-2024)



District-wise cumulative number of residues burning events detected in 2020, 2021, 2022, 2023 and 2024
(Period: 15 September)

(a) Punjab

District	15-Sep				
	2020	2021	2022	2023	2024
Amritsar	5	0	11	0	9
Barnala	0	0	0	0	0
Bathinda	0	0	0	0	0
Faridkot	0	0	0	0	0
Fatehgarh Sahib	0	0	0	0	0
Fazilka	0	0	0	0	0
Firozpur	0	0	0	0	1
Gurdaspur	0	0	0	0	0
Hoshiarpur	0	0	0	0	0
Jalandhar	0	0	0	0	0
Kapurthala	0	0	0	0	0
Ludhiana	0	0	0	0	0
Malerkotla	0	0	0	0	0
Mansa	0	0	0	0	0
Moga	0	0	0	0	0
Muktsar	0	0	0	0	0
Pathankot	0	0	0	0	0
Patiala	0	0	0	0	0
Rupnagar	0	0	0	0	0
Sangrur	0	0	0	0	0
SAS NAGAR (Mohali)	0	0	0	0	0
SBS Nagar	0	0	0	0	0
Tarn Taran	0	0	3	0	1
Total	5	0	14	0	11

(b) Haryana

District	15-Sep				
	2020	2021	2022	2023	2024
AMBALA	0	0	0	0	0
BHIWANI	0	0	0	0	0
CHARKHI DADRI	0	0	0	0	0
FARIDABAD	0	0	0	0	0
FATEHABAD	0	0	0	0	0
GURGAON	0	0	0	0	0
HISAR	0	0	0	0	0
JHAJJAR	0	0	0	0	0
JIND	0	0	0	0	0
KAITHAL	0	0	0	0	0
KARNAL	1	0	0	0	0
KURUKSHETRA	0	0	0	0	0
MAHENDRAGARH	0	0	0	0	0
MEWAT	0	0	0	0	0
PALWAL	0	0	0	0	0
PANCHKULA	0	0	0	0	0
PANIPAT	0	0	0	0	0
REWARI	0	0	0	0	0
ROHTAK	0	0	0	1	0
SIRSA	1	0	0	0	1
SONIPAT	0	0	0	0	0
YAMUNANAGAR	0	0	0	0	0
Total	2	0	0	1	1

(c) Uttar Pradesh

District	15-Sep																
	2020	2021	2022	2023	2024	GAUTAMBUDHNAGAR	0	0	0	0	0	MUZAFARNAGAR	0	0	0	0	0
AGRA	0	0	0	0	0	GAZIPUR	0	0	0	0	0	PILHIBHIT	0	0	0	0	0
ALIGARH	0	0	0	0	0	GHAZIABAD	0	0	0	0	0	PRATAPGARH	0	0	0	0	0
ALLAHABAD	0	0	0	0	0	GONDA	0	0	0	0	0	RAIBEARELI	1	0	0	0	0
AMBEDKARNAGAR	0	0	0	0	0	GORAKHPUR	0	0	0	0	0	RAMPUR	0	0	0	0	0
AMETHI	0	0	0	0	0	HAMIRPUR	0	0	0	0	0	SAMBHAL	0	0	0	0	0
AMROHA	0	0	0	0	0	HAPUR	0	0	0	0	0	SANTKABIRNAGAR	0	0	0	0	0
AURAIYA	0	0	0	0	0	HARDOI	0	0	0	0	0	SANTRAVIDASNAGAR	0	0	0	0	0
AZAMGARH	0	0	0	0	0	HATHRAS	0	0	0	0	0	SHAHJAHANPUR	0	0	0	0	0
BADAUN	0	0	0	0	0	JALAUN	0	0	0	0	0	SHAMLI	0	0	0	0	0
BAGHPAT	0	0	0	0	0	JAUNPUR	0	0	0	0	0	SHARANPUR	0	0	0	0	0
BAHRAICH	0	0	0	0	0	JHANSI	0	0	0	0	0	SHRAWASTI	0	0	0	0	0
BALLIA	0	0	0	0	0	KANNAUJ	0	0	0	0	0	SIDDHARTHNAGAR	0	0	0	0	0
BALRAMPUR	0	0	0	0	0	KANPUR	0	0	0	0	0	SITAPUR	0	0	0	0	0
BANDA	0	0	0	0	0	KANPUR DEHAT	0	0	0	0	0	SONBHADRA	0	0	0	0	0
BARABANKI	0	0	0	0	0	KASGANJ	0	0	0	0	0	SULTANPUR	0	0	0	0	0
BAREILLY	0	0	0	0	0	KAUSHAMBI	0	0	0	0	0	UNNAO	0	0	0	0	0
BASTI	0	0	0	0	0	KHERI	0	0	0	0	0	VARANASI	0	0	0	0	0
BIJNOR	0	0	0	0	0	KUSHINAGAR	0	0	0	0	0	Total	1	0	0	0	0
BULANDSAHAR	0	0	0	0	0	LALITPUR	0	0	0	0	0						
CHANDAULI	0	0	0	0	0	LUCKNOW	0	0	0	0	0						
CHITRAKOOT	0	0	0	0	0	MAHARAJGANJ	0	0	0	0	0						
DEORIA	0	0	0	0	0	MAHOBA	0	0	0	0	0						
ETAH	0	0	0	0	0	MAINPURI	0	0	0	0	0						
ETAWAH	0	0	0	0	0	MATHURA	0	0	0	0	0						
FAIZABAD	0	0	0	0	0	MAU	0	0	0	0	0						
FARRUKHABAD	0	0	0	0	0	MEERUT	0	0	0	0	0						
FATEHPUR	0	0	0	0	0	MIRZAPUR	0	0	0	0	0						
FIROZABAD	0	0	0	0	0	MORADABAD	0	0	0	0	0						

(d) Delhi

District	15-Sep				
	2020	2021	2022	2023	2024
CENTRAL	0	0	0	0	0
EAST	0	0	0	0	0
NEW DELHI	0	0	0	0	0
NORTH	0	0	0	0	0
NORTH EAST	0	0	0	0	0
NORTH WEST DELHI	0	0	0	0	0
SHAHADRA	0	0	0	0	0
SOUTH	0	0	0	0	0
SOUTH EAST	0	0	0	0	0
SOUTH WEST DELHI	0	0	0	0	0
WEST DELHI	0	0	0	0	0
Total	0	0	0	0	0

(e) Rajasthan

District	15-Sep				
	2020	2021	2022	2023	2024
AJMER	0	0	0	0	0
ALWAR	0	0	0	0	0
BANSWARA	0	0	0	0	0
BARAN	0	0	0	0	0
BARMER	0	0	0	0	0
BHARATPUR	0	0	0	0	0
BHILWARA	1	0	0	0	0
BIKANER	0	0	0	0	0
BUNDI	0	0	0	0	0
CHITTAURGARH	0	0	0	0	0
CHURU	0	0	0	0	0
DAUSA	0	0	0	0	0
DHOLPUR	0	0	0	0	0
DUNGARPUR	0	0	0	0	0
GANGANAGAR	0	0	0	0	0
HANUMANGARH	0	0	0	0	0
JAIPUR	0	0	0	0	0
JAISELMER	0	0	0	0	0
JALOR	0	0	0	0	0
JHALAWAR	0	0	0	0	0
JHUNJHUNUN	0	0	0	0	0
JODHPUR	0	0	0	0	0
KARAULI	0	0	0	0	0
KOTA	0	0	0	0	0
NAGOUR	0	0	0	0	0
PALI	0	0	0	0	0
PRATAPGARH	0	0	0	0	0
RAJSMAND	0	0	0	0	0
SIKAR	0	0	0	0	0
SIROHI	0	0	0	0	0
SWAIMADHOPUR	0	0	0	0	0
TONK	0	0	0	0	0
UDAIPUR	0	0	0	0	0
Total	1	0	0	0	0

(f) Madhya Pradesh

District	15-Sep										
	2020	2021	2022	2023	2024	PANNA	0	0	0	0	0
ALIRAJPUR	0	0	0	0	0	RAISEN	0	0	0	0	0
ANUPPUR	0	0	0	0	0	RAJGARH	0	0	0	0	0
ASHOKNAGAR	0	0	0	0	0	RATLAM	0	0	0	0	0
BALAGHAT	0	0	0	0	0	REWA	0	0	0	0	0
BARWANI	0	0	0	0	0	SAGAR	0	0	0	0	0
BETUL	0	0	0	0	0	SATNA	0	0	0	0	0
BHIND	0	0	0	0	0	SEHORE	0	0	0	0	0
BHOPAL	0	0	0	0	0	SEONI	0	0	0	0	0
BURHANPUR	0	0	0	0	0	SHAHDOL	0	0	0	0	0
CHHATARPUR	0	0	0	0	0	SHAJAPUR	0	0	0	0	0
CHHINDWARA	0	0	0	0	0	SHEOPUR	0	0	0	0	0
DAMOH	0	0	0	0	0	SHIVPURI	0	0	0	0	0
DATIA	0	0	0	0	0	SIDHI	0	0	0	0	0
DEWAS	0	0	0	0	0	SINGRAULI	0	0	0	0	0
DHAR	0	0	0	0	0	TIKAMGARH	0	0	0	0	0
DINDORI	0	0	0	0	0	UJJAIN	0	0	0	0	0
EAST NIMAR	0	0	0	0	0	UMARIA	0	0	0	0	0
GUNA	0	0	0	0	0	VIDESHA	0	0	0	0	0
GWALIOR	0	0	0	0	0	WEST NIMAR	0	0	0	0	0
HARDA	2	0	0	0	0	Total	2	0	0	0	0
HOSHANGABAD	0	0	0	0	0						
INDORE	0	0	0	0	0						
JABALPUR	0	0	0	0	0						
JHABUA	0	0	0	0	0						
KATNI	0	0	0	0	0						
MANDLA	0	0	0	0	0						
MANDSAUR	0	0	0	0	0						
MORENA	0	0	0	0	0						
NARSHIMAPURA	0	0	0	0	0						
NIMACH	0	0	0	0	0						

State-wise and date-wise number of paddy residue burning events detected in 2020 ,2021 ,2022, 2023 and 2024
(Period: 15 September)

Number of Paddy Residue Burning Events Detected

Number of Paddy Residue Burning Events Detected															
Punjab						Haryana					Uttar Pradesh				
Date	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
15-Sep	5	0	14	0	11	2	0	0	1	1	1	0	0	0	0
Total	5	0	14	0	11	2	0	0	1	1	1	0	0	0	0

Number of Paddy Residue Burning Events Detected

Number of Paddy Residue Burning Events Detected															
Delhi						Rajasthan					Madhya Pradesh				
Date	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
15-Sep	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0

Details of residue burning events in Punjab on 15-Sep-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	JANDIALA GURU	S-NPP	31.60236	74.97822	13:34:55	D	4.20
2	AMRITSAR	JANDIALA GURU	S-NPP	31.61024	74.98525	13:34:55	D	3.10
3	AMRITSAR	JANDIALA GURU	S-NPP	31.61098	75.01506	13:34:55	D	4.90
4	AMRITSAR	JANDIALA GURU	S-NPP	31.64989	74.97336	13:34:55	D	1.20
5	AMRITSAR	MAJITHA	S-NPP	31.71674	74.92685	13:34:55	D	6.60
6	AMRITSAR	MAJITHA	S-NPP	31.71733	74.93102	13:34:55	D	5.30
7	AMRITSAR	MAJITHA	S-NPP	31.72367	75.04984	13:34:55	D	2.70
8	AMRITSAR	VERKA	S-NPP	31.64871	74.96504	13:34:55	D	6.20
9	AMRITSAR	VERKA	S-NPP	31.65424	74.95542	13:34:55	D	4.60
10	FIROZPUR	MAMDOT	S-NPP	30.93553	74.47247	13:34:55	D	5.20
11	TARN TARAN	KHADUR SAHIB	S-NPP	31.48173	75.13695	13:34:55	D	2.20

Details of residue burning events in Haryana on 15-Sep-2024

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	SIRSA	SIRSA	S-NPP	29.58803	74.92497	13:34:55	D	3.20

The study used data received from following Satellites at NRSC Ground Station

S. No.	Satellite Name	Sensor	Resolution (meter)	Day / Night Passes
1.	Suomi NPP	VIIRS	375 / 750	Both
2.	Terra	MODIS	1000	Both
3.	Aqua	MODIS	1000	Both

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

Study Team

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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)

The DASHBOARD for paddy residue burning events is available at weblink: [CREAMS Fire Dashboard](#)
