



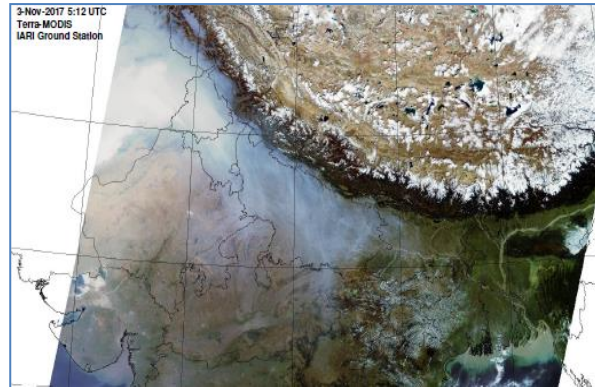
**Bulletin
No. 03**

**Events Date:
17-Sep-2022**

**Issued on:
17-Sep-2022**



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



Prepared by:

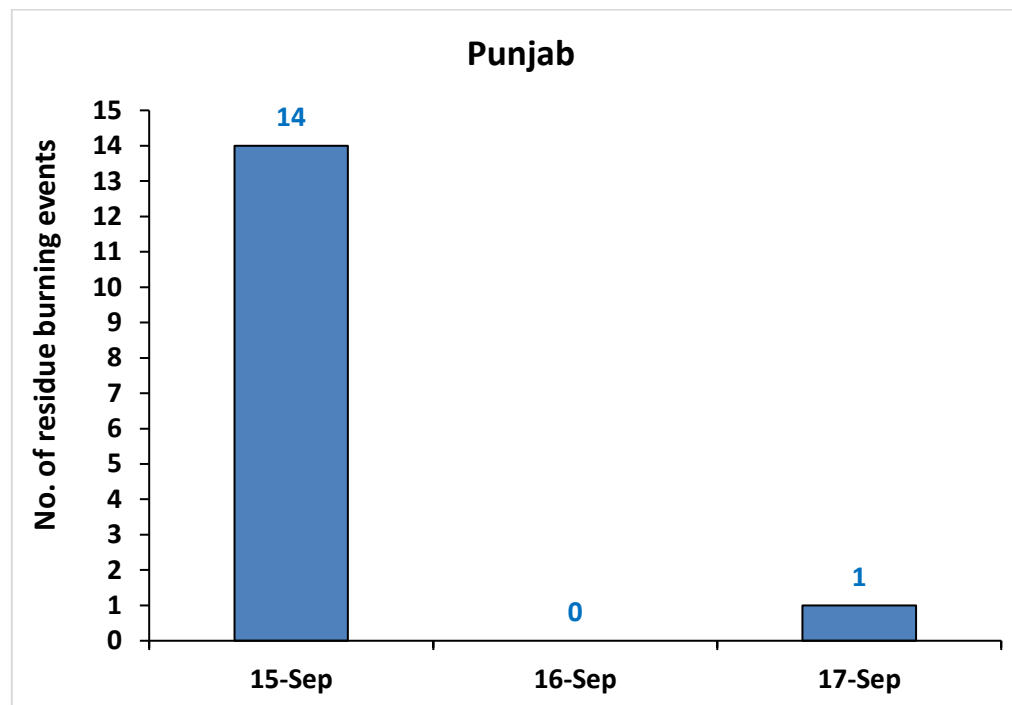
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Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012**

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

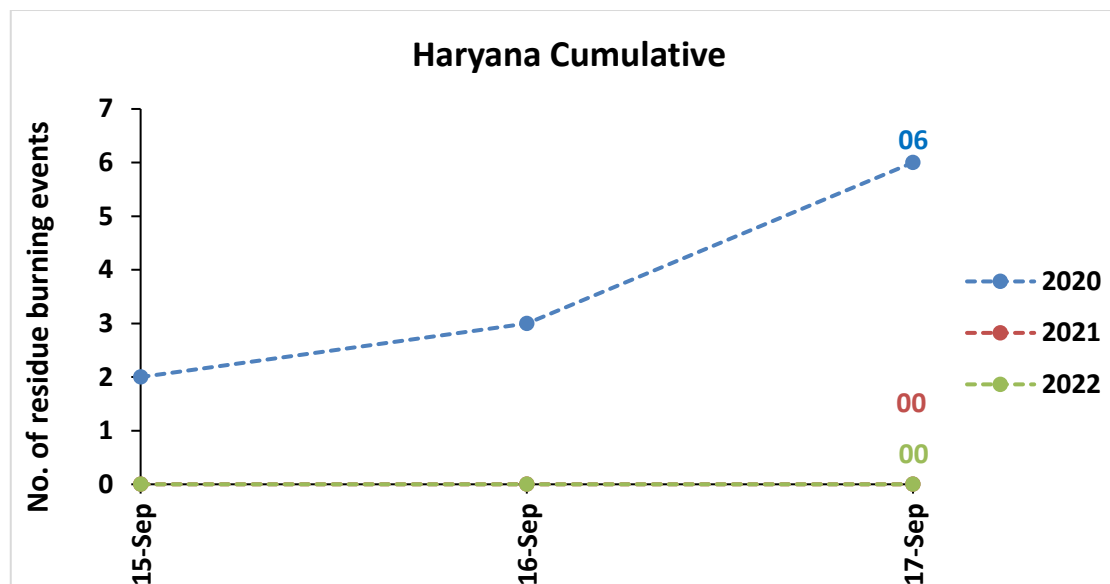
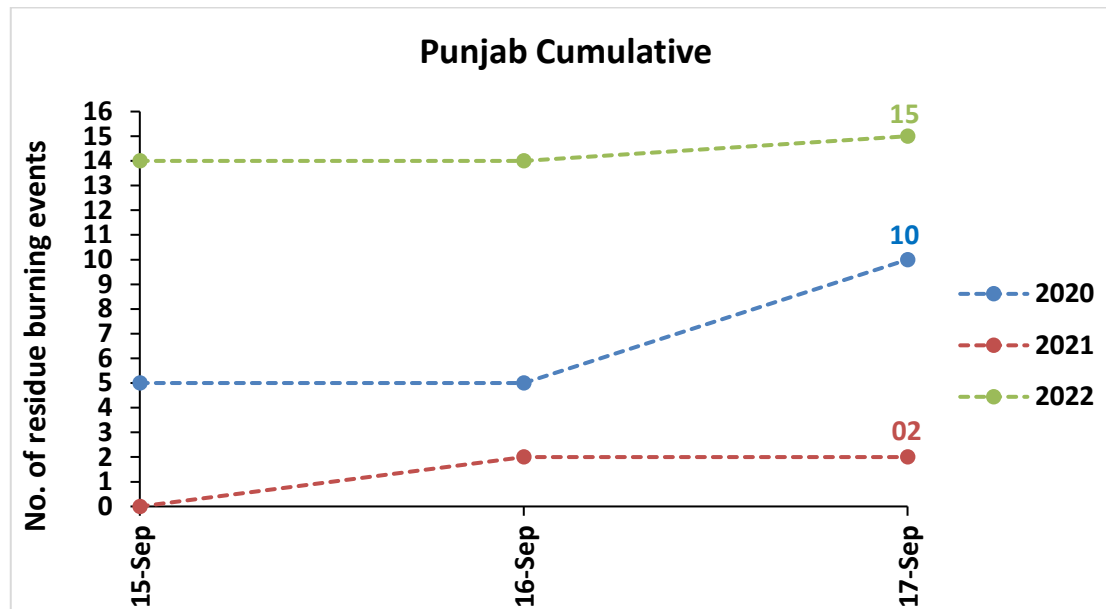
Highlights for 17-Sep-2022

- 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 **1** residue burning events in the six study States on 17-Sep-2022.
- The state wise events detected on 17-Sep-2022 were **1** in Punjab, **0** in Haryana, **0** in UP, **0** in Delhi, **0** in Rajasthan and **0** in MP.
- Detection of residue burning events was hampered by the presence of clouds over Uttar Pradesh and Madhya Pradesh states.

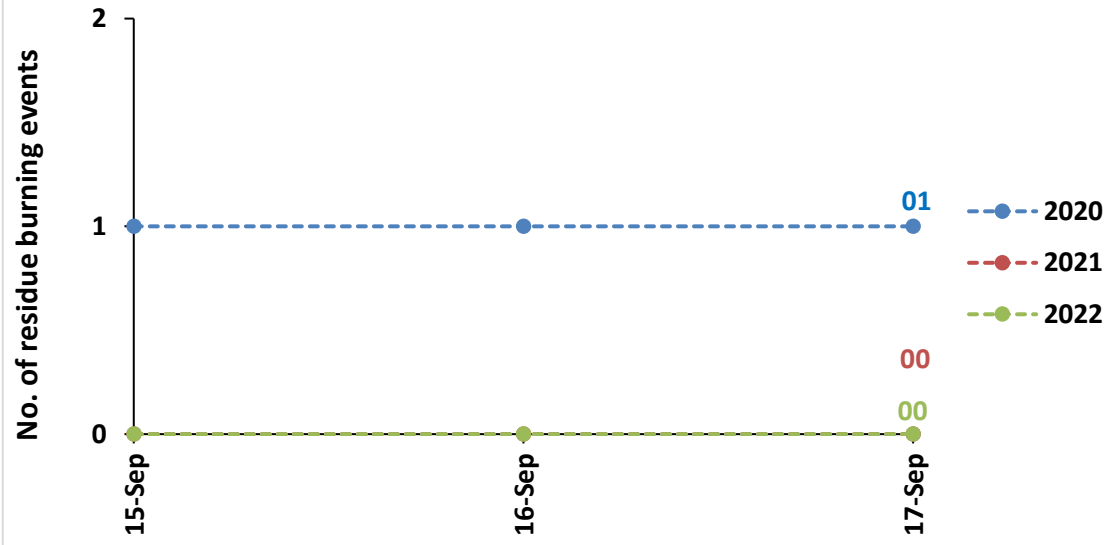
Temporal distribution of rice residue burning events for the study States in 2022



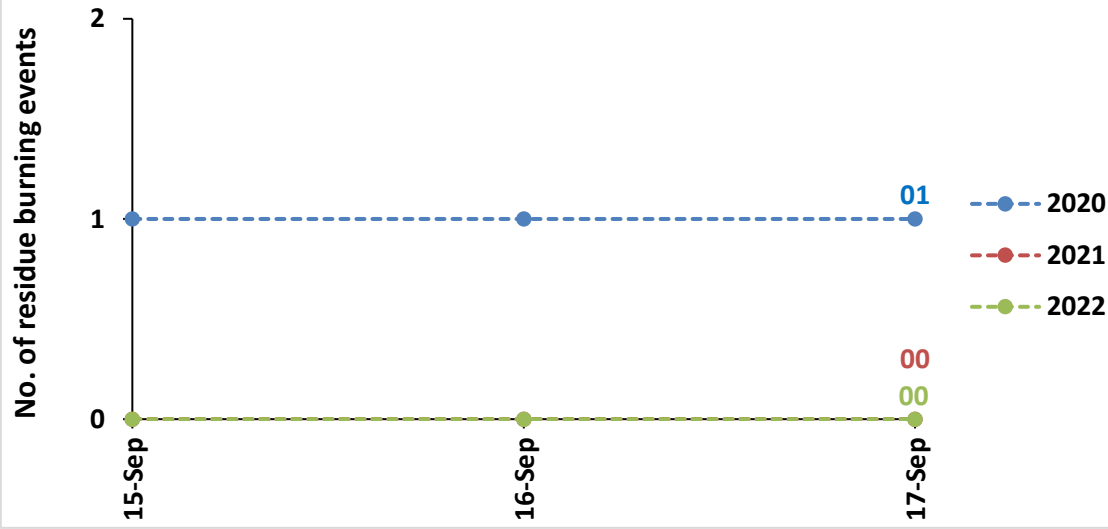
Comparison of residue burning events in current year (2022) with previous year (2020 and 2021) for the study States



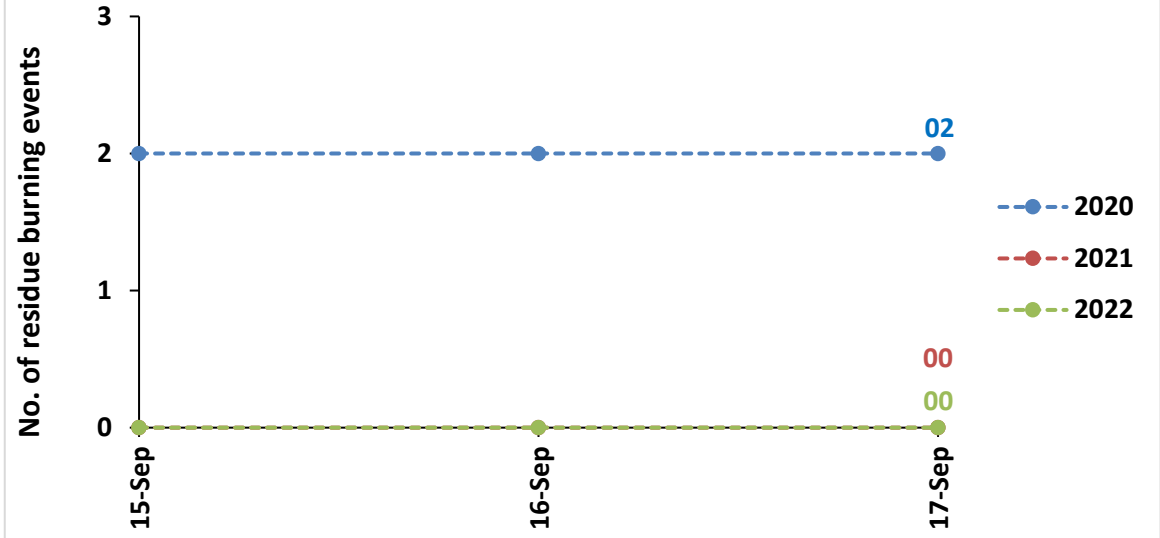
Uttar Pradesh Cumulative



Rajashtan Cumulative



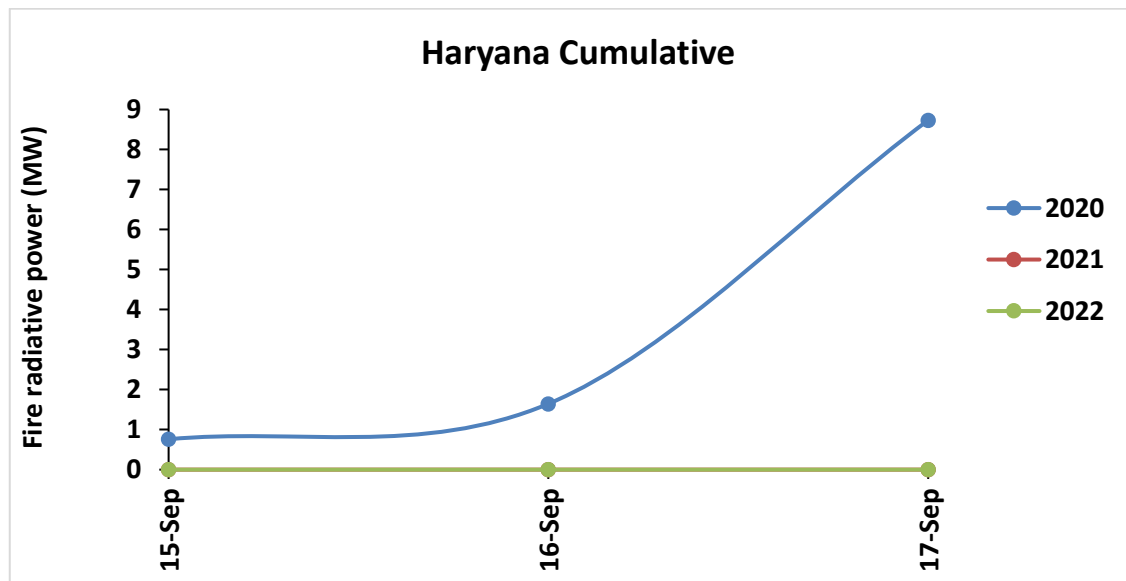
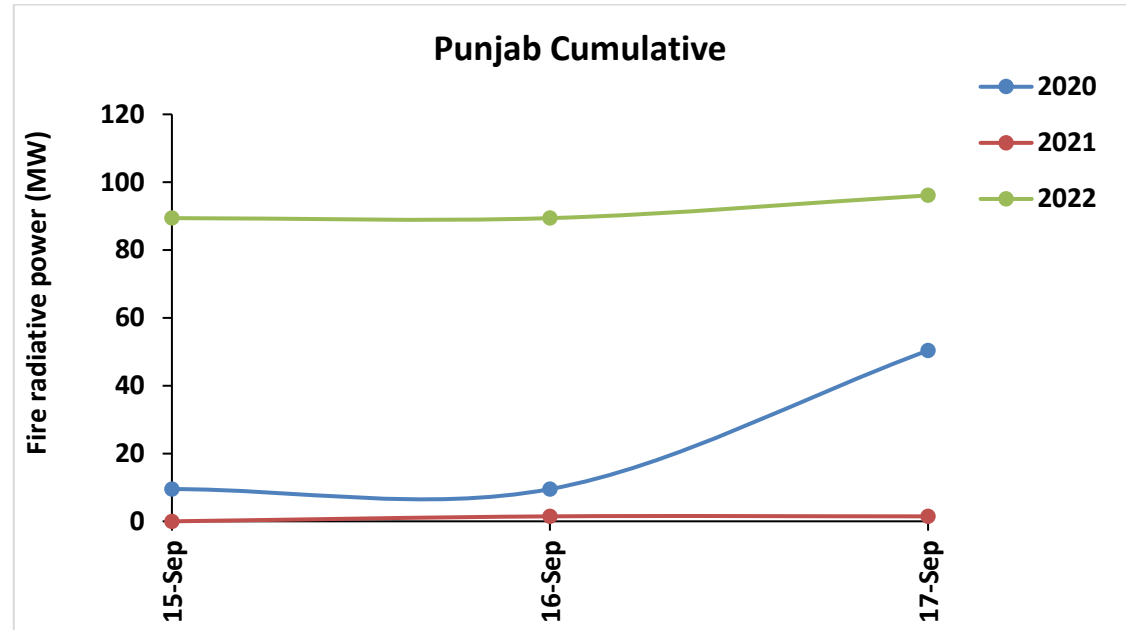
Madhya Pradesh Cumulative



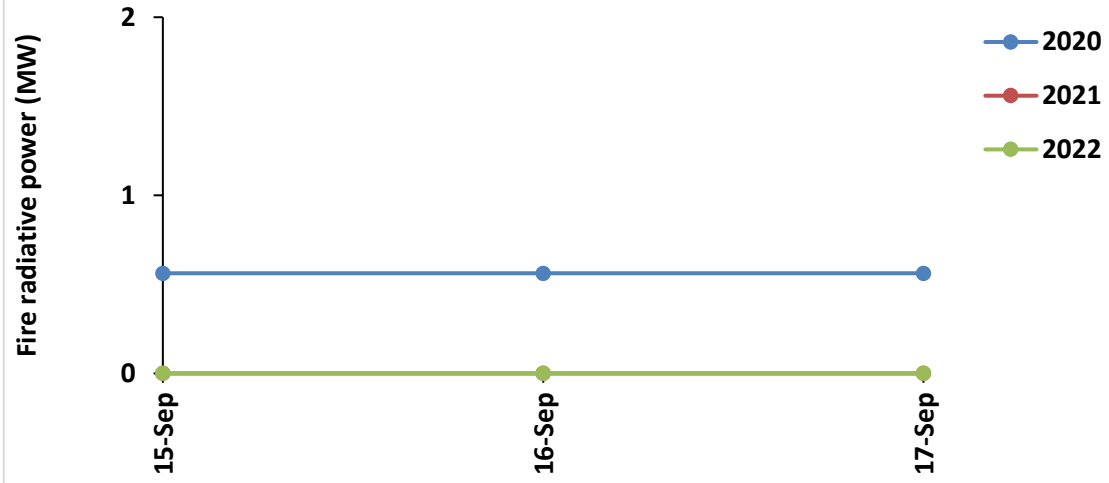
Delhi Cumulative



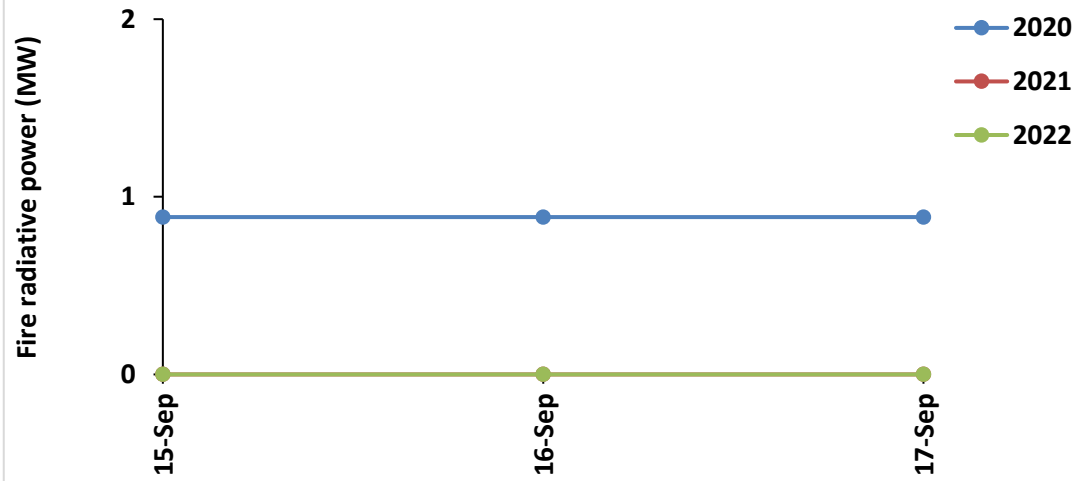
Comparison of residue burning fire power in current year (2022) with previous year (2021 and 2020) for the study States



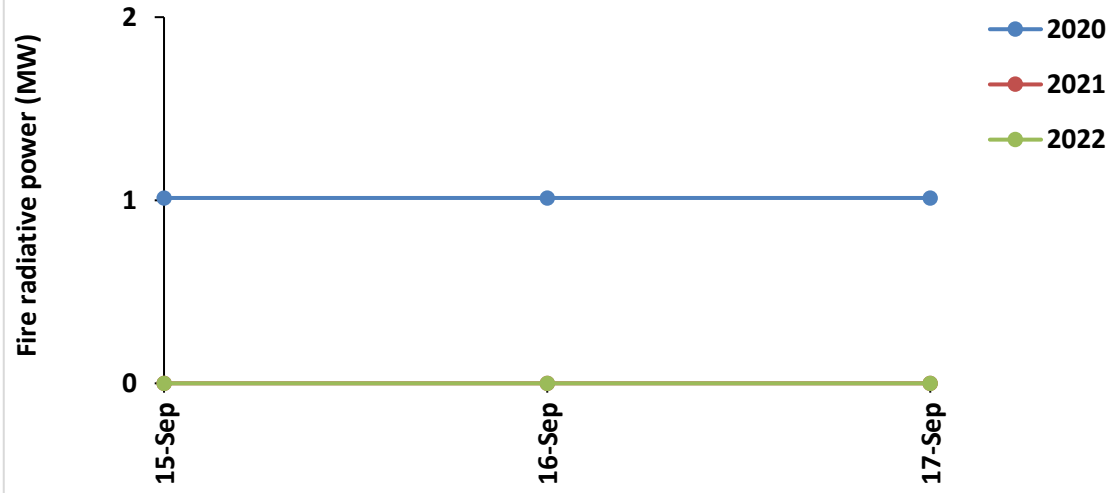
Uttar Pradesh Cumulative



Rajasthan Cumulative



Madhaya Pradesh Cumulative

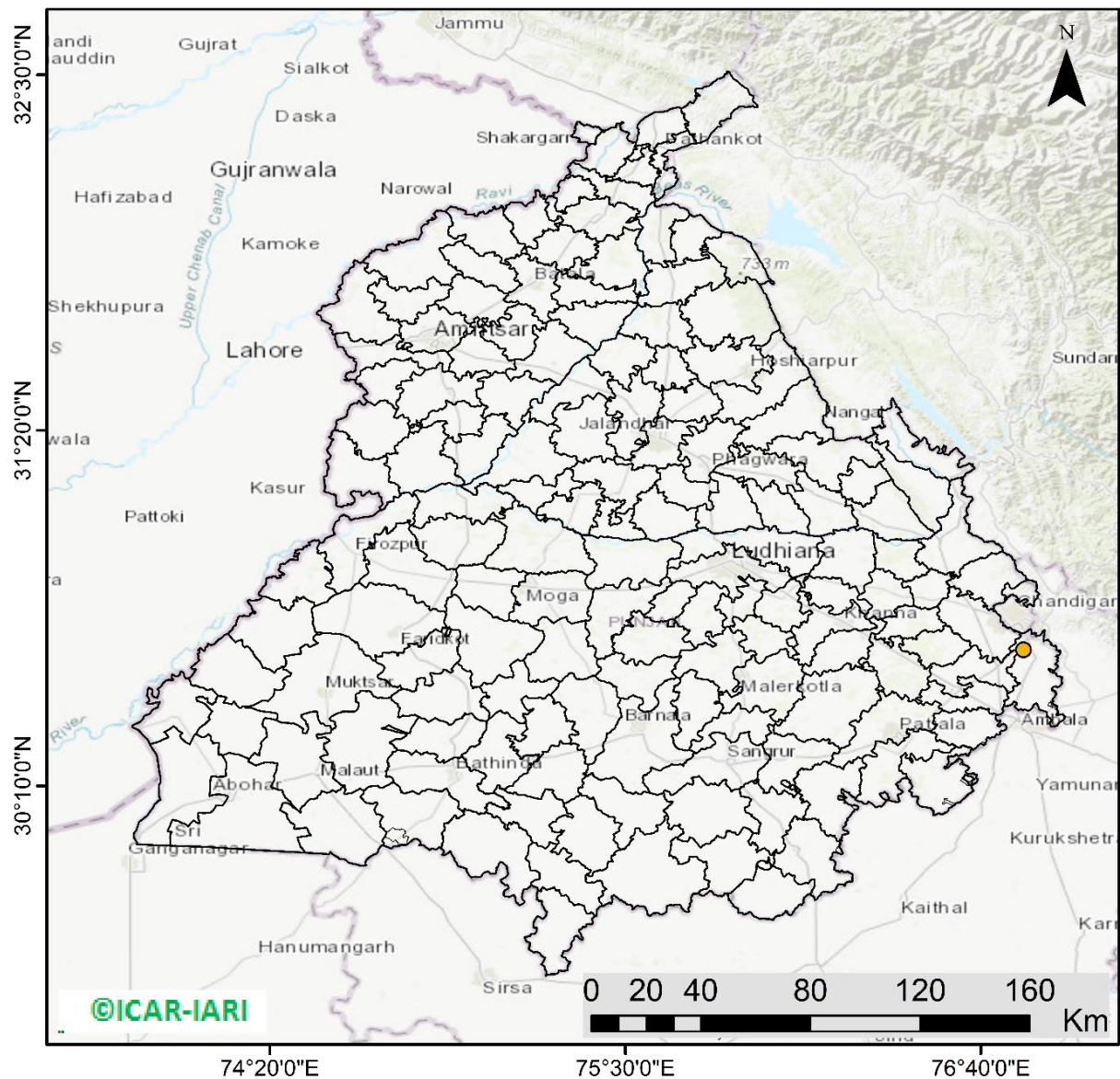


Delhi Cumulative



Punjab

RICE RESIDUE BURNING IN PUNJAB



01 burning events detected in Punjab during (17th Sep 2022)

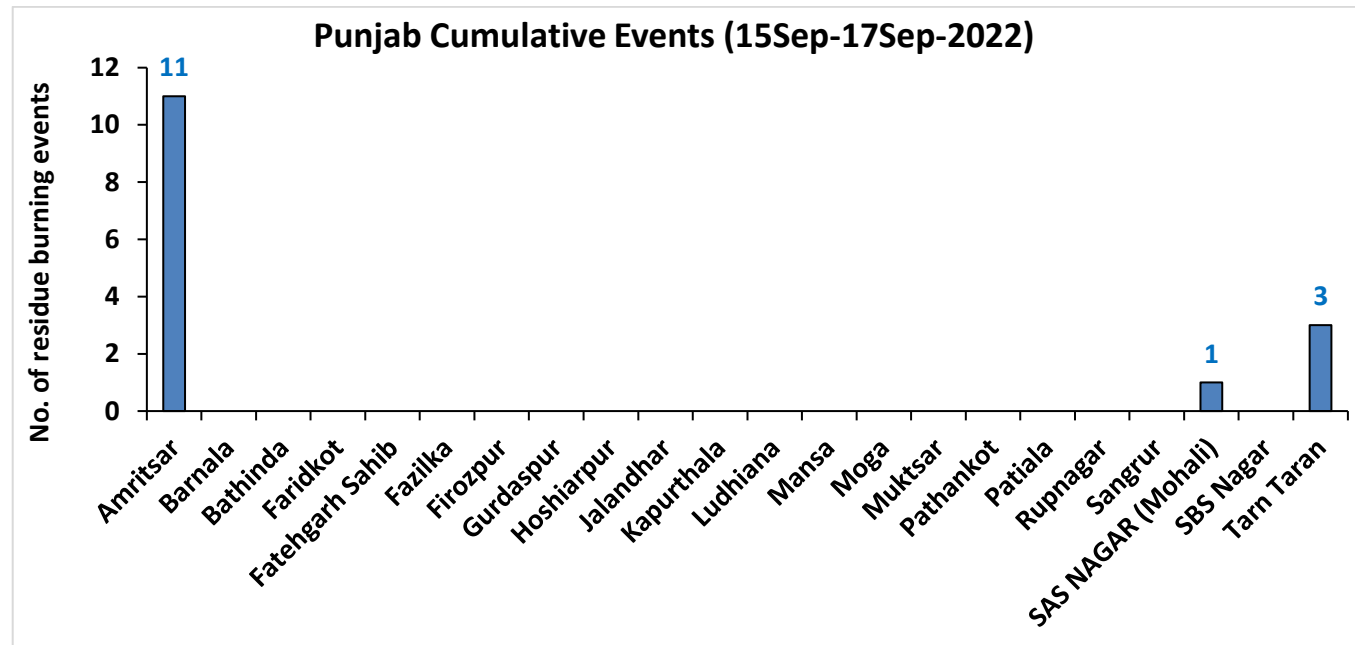
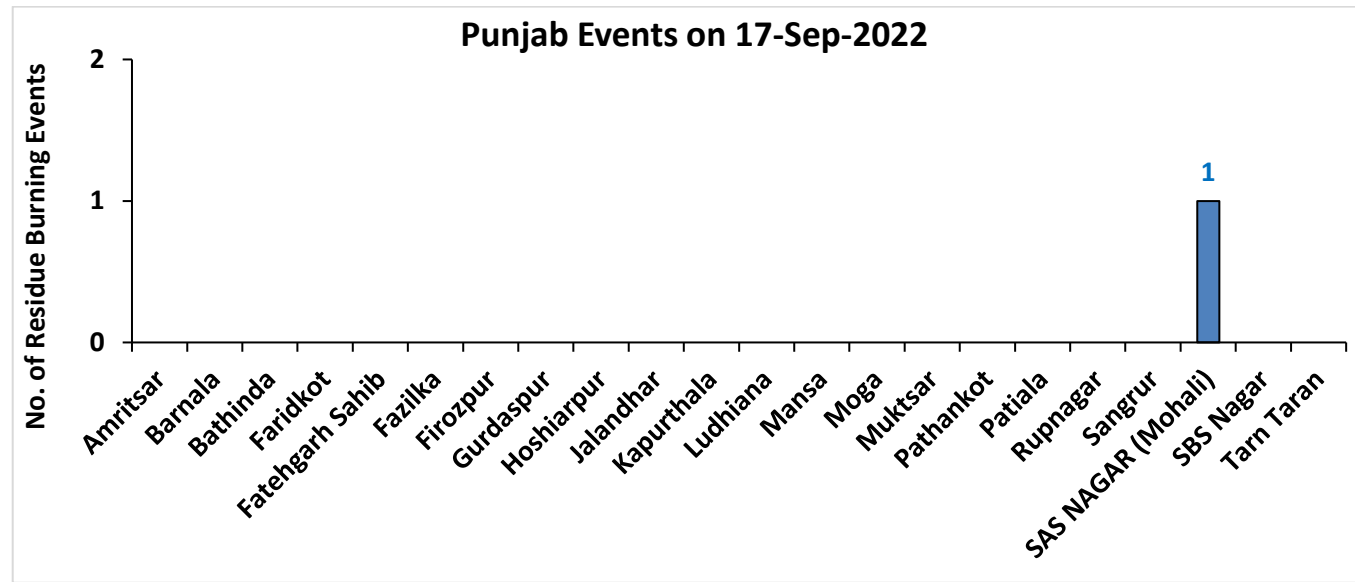
Fire Intensity (W/m²)

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



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

District-wise cumulative number of residues burning events in Punjab (15Sep- 17Sep-2022)



District-wise cumulative number of residues burning events detected in 2020 ,2021 and 2022
(Period: 15 September-17 September)

(a) Punjab

District	15 Sep-17 Sep 2022		
	2020	2021	2022
Amritsar	10	2	11
Barnala	0	0	0
Bathinda	0	0	0
Faridkot	0	0	0
Fatehgarh Sahib	0	0	0
Fazilka	0	0	0
Firozpur	0	0	0
Gurdaspur	0	0	0
Hoshiarpur	0	0	0
Jalandhar	0	0	0
Kapurthala	0	0	0
Ludhiana	0	0	0
Mansa	0	0	0
Moga	0	0	0
Muktsar	0	0	0
Pathankot	0	0	0
Patiala	0	0	0
Rupnagar	0	0	0
Sangrur	0	0	0
SAS NAGAR (Mohali)	0	0	1
SBS Nagar	0	0	0
Tarn Taran	0	0	3
Total	10	2	15

(b) Haryana

District	15 Sep-17 Sep 2022		
	2020	2021	2022
AMBALA	0	0	0
BHIWANI	0	0	0
CHARKHI DADRI	0	0	0
FARIDABAD	0	0	0
FATEHABAD	0	0	0
GURGAON	0	0	0
HISAR	0	0	0
JHAJJAR	0	0	0
JIND	0	0	0
KAITHAL	0	0	0
KARNAL	5	0	0
KURUKSHETRA	0	0	0
MAHENDRAGARH	0	0	0
MEWAT	0	0	0
PALWAL	0	0	0
PANCHKULA	0	0	0
PANIPAT	0	0	0
REWARI	0	0	0
ROHTAK	0	0	0
SIRSA	1	0	0
SONIPAT	0	0	0
YAMUNANAGAR	0	0	0
Total	6	0	0

(c) Uttar Pradesh

District	15 Sep-17 Sep 2022										
	2020	2021	2022	GAUTAMBUDHNAGAR	0	0	0	MUZAFARNAGAR	0	0	0
AGRA	0	0	0	GAZIPUR	0	0	0	PILHIBHIT	0	0	0
ALIGARH	0	0	0	GHAZIABAD	0	0	0	PRATAPGARH	0	0	0
ALLAHABAD	0	0	0	GONDA	0	0	0	RAIBEARELI	1	0	0
AMBEDKARNAGAR	0	0	0	GORAKHPUR	0	0	0	RAMPUR	0	0	0
AMETHI	0	0	0	HAMIRPUR	0	0	0	SAMBHAL	0	0	0
AMROHA	0	0	0	HAPUR	0	0	0	SANTKABIRNAGAR	0	0	0
AURAIYA	0	0	0	HARDOI	0	0	0	SANTRAVIDASNAGAR	0	0	0
AZAMGARH	0	0	0	HATHRAS	0	0	0	SHAHJAHANPUR	0	0	0
BADAUN	0	0	0	JALAUN	0	0	0	SHAMLI	0	0	0
BAGHPAT	0	0	0	JAUNPUR	0	0	0	SHARANPUR	0	0	0
BAHRAICH	0	0	0	JHANSI	0	0	0	SHRAWASTI	0	0	0
BALLIA	0	0	0	KANNAUJ	0	0	0	SIDDHARTHANAGAR	0	0	0
BALRAMPUR	0	0	0	KANPUR	0	0	0	SITAPUR	0	0	0
BANDA	0	0	0	KANPUR DEHAT	0	0	0	SONBHADRA	0	0	0
BARABANKI	0	0	0	KASGANJ	0	0	0	SULTANPUR	0	0	0
BAREILLY	0	0	0	KAUSHAMBI	0	0	0	UNNAO	0	0	0
BASTI	0	0	0	KHERI	0	0	0	VARANASI	0	0	0
BIJNOR	0	0	0	KUSHINAGAR	0	0	0	Total	1	0	0
BULANDSAHAR	0	0	0	LALITPUR	0	0	0				
CHANDAULI	0	0	0	LUCKNOW	0	0	0				
CHITRAKOOT	0	0	0	MAHARAJGANJ	0	0	0				
DEORIA	0	0	0	MAHOBA	0	0	0				
ETAH	0	0	0	MAINPURI	0	0	0				
ETAWAH	0	0	0	MATHURA	0	0	0				
FAIZABAD	0	0	0	MAU	0	0	0				
FARRUKHABAD	0	0	0	MEERUT	0	0	0				
FATEHPUR	0	0	0	MIRZAPUR	0	0	0				
FIROZABAD	0	0	0	MORADABAD	0	0	0				

(d) Delhi

District	15 Sep-17 Sep 2022		
	2020	2021	2022
CENTRAL	0	0	0
EAST	0	0	0
NEW DELHI	0	0	0
NORTH	0	0	0
NORTH EAST	0	0	0
NORTH WEST DELHI	0	0	0
SHAHADRA	0	0	0
SOUTH	0	0	0
SOUTH EAST	0	0	0
SOUTH WEST DELHI	0	0	0
WEST DELHI	0	0	0
Total	0	0	0

(e) Rajasthan

District	15 Sep-17 Sep 2022		
	2020	2021	2022
AJMER	0	0	0
ALWAR	0	0	0
BANSWARA	0	0	0
BARAN	0	0	0
BARMER	0	0	0
BHARATPUR	0	0	0
BHILWARA	1	0	0
BIKANER	0	0	0
BUNDI	0	0	0
CHITTAURGARH	0	0	0
CHURU	0	0	0
DAUSA	0	0	0
DHOLPUR	0	0	0
DUNGARPUR	0	0	0
GANGANAGAR	0	0	0
HANUMANGARH	0	0	0
JAIPUR	0	0	0
JAISELMER	0	0	0
JALOR	0	0	0
JHALAWAR	0	0	0
JHUNJHUNUN	0	0	0
JODHPUR	0	0	0
KARALI	0	0	0
KOTA	0	0	0
NAGPUR	0	0	0
PALI	0	0	0
PRATAPGARH	0	0	0
RAJSMAND	0	0	0
SIKAR	0	0	0
SIROHI	0	0	0
SWAIMADHOPUR	0	0	0
TONK	0	0	0
UDAIPUR	0	0	0
Total	1	0	0

(f) Madhya Pradesh

District	15 Sep-17 Sep 2022						
	2020	2021	2022	PANNA	0	0	0
ALIRAJPUR	0	0	0	RAISEN	0	0	0
ANUPPUR	0	0	0	RAJGARH	0	0	0
ASHOKNAGAR	0	0	0	RATLAM	0	0	0
BALAGHAT	0	0	0	REWA	0	0	0
BARWANI	0	0	0	SAGAR	0	0	0
BETUL	0	0	0	SATNA	0	0	0
BHIND	0	0	0	SEHORE	0	0	0
BHOPAL	0	0	0	SEONI	0	0	0
BURHANPUR	0	0	0	SHAHDOL	0	0	0
CHHATARPUR	0	0	0	SHAJAPUR	0	0	0
CHHINDWARA	0	0	0	SHEOPUR	0	0	0
DAMOH	0	0	0	SHIVPURI	0	0	0
DATIA	0	0	0	SIDHI	0	0	0
DEWAS	0	0	0	SINGRAULI	0	0	0
DHAR	0	0	0	TIKAMGARH	0	0	0
DINDORI	0	0	0	UJJAIN	0	0	0
EAST NIMAR	0	0	0	UMARIA	0	0	0
GUNA	0	0	0	VIDESHA	0	0	0
GWALIOR	0	0	0	WEST NIMAR	0	0	0
HARDA	2	0	0	Total	2	0	0
HOSHANGABAD	0	0	0				
INDORE	0	0	0				
JABALPUR	0	0	0				
JHABUA	0	0	0				
KATNI	0	0	0				
MANDLA	0	0	0				
MANDSAUR	0	0	0				
MORENA	0	0	0				
NARSHIMAPURA	0	0	0				
NIMACH	0	0	0				

State-wise and date-wise number of paddy residue burning events detected in 2020, 2021 and 2022
(Period: 15 September- 17 September 2022)

Number of Paddy Residue Burning Events Detected																		
	Punjab			Haryana			Uttar Pradesh			Delhi			Rajasthan			Madhya Pradesh		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
15-Sep	5	0	14	2	0	0	1	0	0	0	0	0	1	0	0	2	0	0
16-Sep	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	5	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	2	15	6	0	0	1	0	0	0	0	0	1	0	0	2	0	0

Details of residue burning events in Punjab on 17-Sep-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	SAS NAGAR (MOHALI)	DERABASSI	AQUA	30.61300	76.80700	13:54:03	D	6.70

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)
