

**National Remote Sensing Centre  
Regional Remote Sensing Centre-Central, Nagpur**

**Report on  
One-Day Regional Workshop on  
“Geospatial Technologies for Forest Fire Monitoring, Assessment,  
and Management”**

A one-day regional workshop on “Geospatial Technologies for Forest Fire Monitoring, Assessment and Management” was organised on 8 October 2025 by the Regional Remote Sensing Centre – Central, National Remote Sensing Centre (NRSC), ISRO, Nagpur, under the ISRO Disaster Management Support Programme – Regional Disaster Risk Reduction (DMSP-RDRR). The workshop aimed to enhance awareness and technical capacity in applying geospatial technologies, including satellite remote sensing, GIS, and AI/ML, for forest fire monitoring, assessment, and management. It focused on critical aspects such as fire alerts and early warning, burn scar mapping, and risk zonation, emphasizing the integration of space-based technologies for sustainable forest resource protection.



The workshop drew participation from officials of State Forest Departments, central ministries, State Remote Sensing Centres, NGOs, and researchers from the states of Chhattisgarh, Madhya Pradesh and Maharashtra.



The programme commenced with the formal welcome and lighting of the lamp. Dr. G. Sreenivasan, GM, RRSC-Central, welcomed all dignitaries and participants, highlighted the importance of the workshop for capacity building in use of geospatial technologies for operational forest fire monitoring. Dr. Prakash Chauhan, Director, NRSC, delivered the opening address. He underlined NRSC's commitment to strengthening the DMSP framework through space-based solutions. He also elaborated on ISRO's initiatives integrating multi-mission Earth Observation data for disaster management, including forest fire detection and response.



Shri Hemant Bhaskar Kamdi, Conservator of Forests and Senior Deputy Director, FSI, Central Zone, shared valuable field insights on forest fire mitigation and burn scar mapping especially in the North East region and challenges faced in validation. The Chief Guest, Shri M. Srinivasa Rao, Principal Chief Conservator of Forests & Head of Forest Force (HoFF), Maharashtra Forest Department, emphasized the need for collaborative efforts between ISRO and Forest Departments to develop efficient early warning and response mechanisms, and appreciated the current role NRSC is playing in forest fire management using space geospatial technology.



Guest of Honour Shri Hemant Kamdi



Chief Guest Shri M. Srinivasa Rao

The inaugural session concluded with a vote of thanks by Dr. Surya Prakasa Rao D, Scientist, RRSC–Central, NRSC.



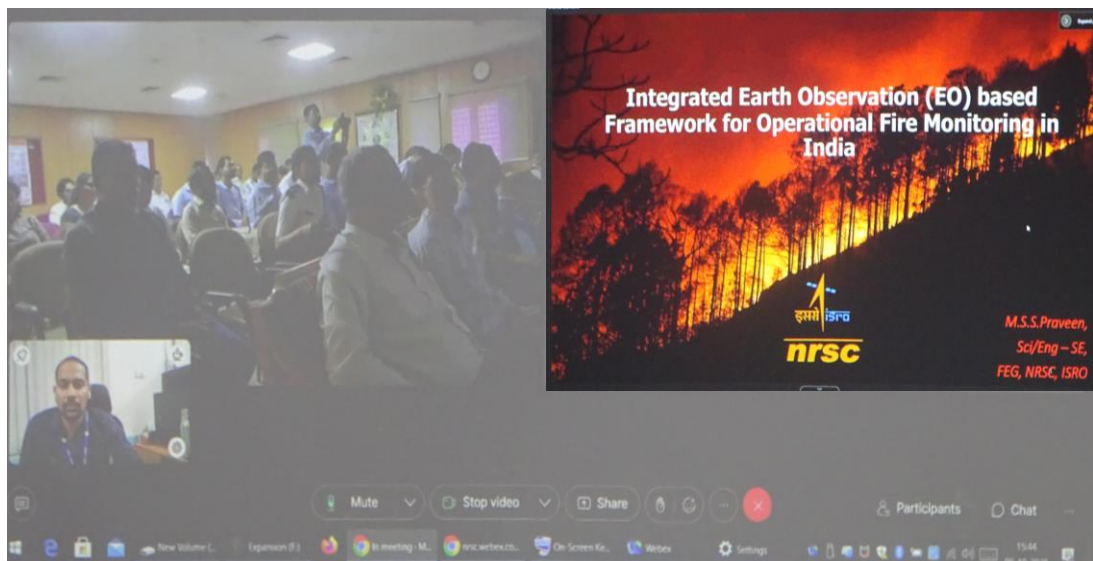
The technical deliberations covered several contemporary topics and applications. Dr. A. O. Varghese, DGM, RRSC–East, NRSC, delivered lecture on space technology



applications for forest resource assessment and fire management, explaining the use of multi-sensor satellite data such as MODIS, VIIRS, Landsat, and Sentinel for active fire detection and fire risk zonation. He emphasized role of vegetation indices and fuel moisture parameters in development of early warning and management systems.



Shri M. S. S. Praveen, Scientist, NRSC, presented on integrated Earth Observation-based framework for operational forest fire monitoring in India, showcasing the automated data workflows developed at NRSC that combine real-time satellite observations with meteorological datasets to improve detection, mapping, and dissemination through the NDEM platform.



In the second technical session, Smt. Amrita Singh, Scientist, RRSC–Central, presented on advances in automated burn scar and fire frequency assessment using emerging geospatial and AI/ML approaches. She demonstrated ensemble deep learning-based models and spectral index fusion techniques for the accurate delineation of burn scars, highlighting case studies from the Vidarbha, Maharashtra, and Chambal, Madhya Pradesh, forests.



Shri T. P. Girish Kumar, Scientist, RRSC–Central, presented on ISRO's geospatial portals—BHUVAN, BHOONIDHI, and NDEM—illustrating their capabilities for accessing, analyzing, and integrating fire-related geospatial data for decision support.



The participants also shared region-specific field experiences and discussed challenges in early warning dissemination, ground validation, and forest fire preparedness.



Region-specific field experience shared by the participants from Maharashtra, Madhya Pradesh and Chhattisgarh during the Session



The workshop concluded with an open discussion, reinforcing the importance of continued collaboration and capacity building between ISRO and forest management agencies. Closing remarks were delivered by Dr. G. Sreenivasan, General Manager, RRSC-Central who emphasized the future collaboration with the state forest Departments for further research in this area for improving the forest fire susceptibility modeling. Participants also visited the Space Exhibition, which showcased ISRO's Earth Observation missions and their applications in forest and disaster management.



The workshop helped in enhancing the participants' understanding of satellite-based forest fire detection and mapping, AI-driven burn scar analysis, and the operational use of ISRO's geospatial platforms, thereby contributing to improved preparedness, response, and mitigation strategies for forest fire management in the region.