

International Course on
Early Warning of Wildfire and Landslide using Geo-Information and ML
13-24 March 2023 (1630-1830 Hrs Lecture/ 1845-2045 Hrs Tutorial)



Centre for Ocean, River, Atmosphere and Land Sciences (CORAL)
Indian Institute of Technology Kharagpur, W.B - 721302



Prof. Biswajeet Pradhan
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&

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(Indian Institute of Technology Kharagpur)

Why to Attend? This Lecture and Tutorial series proposes to discuss statistical and data mining tools capturing the benefits of satellite remote sensing data and spatial-based geo-datasets to develop an early warning system for wildfire and landslide. This course will provide hands-on experience on how to identify variables (aka conditioning factors), build meaningful models and examine the risk of both the natural hazards, apart from using GEE, GIS, ML and CFD.

How to Apply? Mention the followings and E-mail to bdcciit2023@gmail.com

1. Name and Affiliation:
2. Address:
3. Email ID/ Contact Tel/ GH Preference:
4. Why you wish to apply for the course (Maximum 50-Words)?:

Important Dates:

Application Deadline: 10th March 2023

Confirmation Intimation: 11th March 2023 with details of Fee Transfer

Deadline for Course Fee Transfer: 13th March 2023

Overview

The natural disasters such as landslide and wildfire are increasingly experienced in this warming World. We need trained manpower to understand and mitigate such disasters using latest technologies. Satellite Remote Sensing and GIS tools help in integration of various environmental datasets using advance statistics and Machine Learning. Usage of cloud computing platform such as Google Earth Engine (GEE) helps in faster computation. Understanding of landslide and wildfire mechanics using simple equations helps in risk analysis and early warning. The flammability of forest fuels can be affected by various thermochemical parameters such as moisture content (MC), fixed carbon content (FC), volatile matter content (VM) and ash content (AC), higher heating value (HHV), ignition temperature (IT), and activation energy. This 2-weeks course is designed to provide basic understanding and computation on landslide and wildfire using case studies and examples from real world, thereby could help in better preparedness and mitigation.

Course duration: 20 – hrs Lecture (1630-1830 hrs) & 20-hrs (1845-2045 hrs) Tutorials

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| - Introduction to Landslide & Forest Fire | - Hand-on with GEE |
| - Basics of Remote Sensing and GIS | - Remote Sensing Data Usage |
| - Basics of Landslide Equations and Mechanics | - Landslide Case Studies |
| - Introducing Forest Fuel characterization | - Forest Fire Lab Visit |
| - Linear/ Non-linear Statistics & Machine Learning | - Random Forest |
| - Identifying Disaster Proneness and Early Warning | - GIS (Q-GIS) |
| - Generating Landslide Susceptibility and Forest Fire Proneness Index using Q-GIS | |
| - Introduction to Computational Fluid Dynamics (CFD) Models | - Demonstration |
| - Case Studies Evaluation, Mitigation and Preparedness | - Options Available |
| - Examination/ Certificate, Feedback & Way Forward | - Sharing INFO on various Data Sources |

Who can attend?

Executives, Engineers and Researchers from Service and government organizations including R&D laboratories. Students (BTech/ MSc/ MTech/ PhD/ Post-Doc) or Faculty from reputed academic /Technical institutions / Industry interested to learn how to manage landslide and wildfire using technologies.

Course Fee Details:

Students: 6000 INR; Industry/ Research/Academic Organizations: 9000 INR [ID-Proof Required]

[Concession of 500 INR for Candidates having ISG (Indian Society of Geomatics) Membership]

*Registration Here: <https://erp.iitkgp.ac.in/CEP/courses.htm>

Accommodation: Available on Payment basis [<http://www.tgh.iitkgp.ac.in/>]

New Technology Guest House (NTGH): Single 1200 INR / Double 1500 INR per day (Excl. GST)

SAM/ Alumni/ International (Only for Girls) GH: 300 INR per bed on Twin sharing basis per day

(N.B.: Participants can have food in NTGH or in other Eateries in the campus on Payment basis.

However, Snacks and Water Bottle will be served during Lecture/Tutorials)

*.*Number of Participants for the course will be limited to 25 on eligibility and first-cum-first basis;*

\$ Max. 2-Participants per Organization will be considered [Free WiFi will be provided to each]

Participants need to carry their own Laptops, though Computers will be provided during Tutorials

For Further INFO, Contact: Mr. Abhishek Kashyap/ kashyap95abhishek@gmail.com (M-70614-38651)