

TRAINING COURSE

on

Google Earth Engine for Beginners

(August 21 to 23, 2024)



Organized by:

NATIONAL INSTITUTE OF HYDROLOGY
Western Himalayan Regional Centre
Jammu -180 003

INTRODUCTION

In today's data-driven world, understanding and analysing vast amounts of geospatial data is crucial for tackling environmental challenges. Our "Google Earth Engine for Beginners" workshop introduces you to Google Earth Engine (GEE), a powerful cloud-based platform for geospatial analysis. This workshop is designed for anyone eager to learn how to utilize GEE to monitor and analyse Earth's changing landscapes.

GEE provides unparalleled access to extensive satellite imagery and geospatial data, combined with advanced computational power, making it an essential tool for researchers, scientists, and environmental professionals. Participants will learn to import, visualize, and analyze data, perform basic image processing, and conduct time series analysis. These skills are vital for making informed decisions based on accurate geospatial information. One of GEE's significant advantages is its cloud-based infrastructure, which eliminates the need for expensive local computational resources. This scalability allows users to handle large datasets and conduct global-scale analyses efficiently. The workshop offers hands-on experience with GEE's user-friendly interface, enabling participants to create custom analyses and meaningful visualizations.

Participants will also learn advanced image processing techniques, such as applying filters, clipping, and masking, and calculating vegetation indices like NDVI, Water indices like, NWDI, MNDWI. Additionally, the workshop covers time series analysis and supervised classification, crucial for monitoring environmental changes over time. GEE's collaborative features enable users to share projects and collaborate effectively, enhancing the learning experience and fostering innovation.

COURSE STRUCTURE

The "Google Earth Engine for Beginners" workshop is meticulously designed to provide participants with a comprehensive introduction to the powerful capabilities of Google Earth Engine (GEE) for geospatial analysis. This workshop will cover essential topics, including an overview of GEE, data import and visualization, understanding GEE data structures, basic image processing and analysis, calculating vegetation indices, water indices, climate data analysis, flood mapping and supervised classification. Participants will engage in hands-on sessions to practice real-world applications like deforestation monitoring and surface water change analysis, with additional insights into advanced functionalities such as machine learning and cloud computing in GEE. The workshop features interactive Q&A sessions, ensuring ample opportunities for discussion and learning. Intended for a diverse audience, this workshop welcomes professionals, academicians, students, government officials, and general enthusiasts interested in geospatial technologies. Whether you are a beginner or looking to enhance your skills, this workshop provides the foundational knowledge and practical experience needed to leverage the power of GEE for environmental monitoring and analysis. Join us to expand your expertise and address real-world environmental challenges with confidence.

WHO CAN PARTICIPATE?

The course is intended for professionals (engineers, scientists, policymakers, academicians, master and PhD students, researchers) of government departments and academic institutes actively working in water resources and agencies concerned with hydrological investigations, water resources planning and management. Masters students and research scholars are encouraged to attend this course.

REGISTRATION

There is a registration fee of **Rs 1000** for participation in the workshop. Participation is limited to 25 individuals on a first-come, first-served basis. The workshop will be conducted online, and it is mandatory for participants to have access to a laptop and earth engine account for hands-on exercises. Prospective participants are requested to register by filling out and submitting the attached registration form no later than **August 10, 2024**. All selected participants will receive a certificate upon completion of the workshop.

Registration link: <https://128.pl/ACQuF>

VENUE

The training course is proposed to be held in **online mode** by the National Institute of Hydrology (NIH), Western Himalayan Regional Centre (WHRC), Jammu.

WHRC is one of the six Regional Centres of NIH and is operational at Jammu since January 1990. The area of jurisdiction of WHRC covers the Union Territory of Jammu & Kashmir, Ladakh and the state of Himachal Pradesh and hill regions of Uttarakhand. The Centre has the main focus to carry out field-oriented hydrological studies through close interaction with various State and Central Government departments in order to undertake, aid, promote and coordinate systematic and scientific work in all aspects of hydrology; and to cooperate and collaborate with other organizations in the field of hydrology.

PATRON:

Dr. M. K. Goel

Director, National Institute of Hydrology
Roorkee – 247 667 (Uttarakhand)
Ph. 01332-272106, Fax: 01332-272123
E-mail: director.nihr@gov.in

CONVENOR:

Dr. Surjeet Singh

Scientist 'G' & Head-in-Charge-Centre for Cryosphere and Climate Change Studies, National Institute of Hydrology, Roorkee – 247 667 (Uttarakhand)
E-mail ID: surjeet.nihr@gov.in

CO-CONVENOR:

Dr. P. G. Jose

Scientist 'E' & Head, National Institute of Hydrology
Western Himalayan Regional Centre,
Irrigation & Flood Control Complex, Satwari
Jammu – 180 003
E-mail ID: surjeet.nihr@gov.in

COURSE CO-ORDINATOR:

Dr. Sachchidanand Singh

Scientist-B, National Institute of Hydrology
Western Himalayan Regional Centre,
Jammu – 180 003
Phone: +919016852859
E-mail ID: sachin.nihr@gov.in

Dr. Ishan Sharma

Scientist-B, National Institute of Hydrology, Western Himalayan Regional Centre, Satwari, Jammu – 180 003
Phone: +9185069 33646
E-mail ID: isharma.nihr@gov.in

All correspondence related to the course should be made with the course co-ordinator

REGISTRATION FORM

Training Course On

“Google Earth Engine for Beginners”
August 21 to 23, 2024 at NIH, WHRC, Jammu

Name & Designation:

Name of Dept./Organisation:

Address:.....

.....

Contact No.:

Email:

Qualification:

Field of Specialisation:

Experience:

(Signature of Candidate)

SPONSORSHIP CERTIFICATE

Certified that Mr./Ms./Dr.....
has been officially deputed for the above-mentioned training course to be conducted by NIH, WHRC, Jammu.

Signature of Sponsoring Authority with Office Seal and Date



Google Earth Engine for Beginners

Timings	21 August 2024		22 August 2024		23 August 2024
	10:00	Connection Check and Sound-Video Quality Check			
10:15	Basics of Google Earth Engine		Indices Generation: NDVI, NDWI, MNDWI using Landsat and Sentinel 2 datasets.		Working with imageries for Flood Mapping
	Practice/Practical		Practice/Practical		Practice/Practical
11:15	Basics of Javascript		Export images and shapefiles to drive		Supervised Classification using Landsat
	Practice/Practical		Practice/Practical		Practice/Practical
12:15	Variable, Strings, List and Dictionaries		Working with Climate datasets		Supervised Classification using Sentinel 2
13:15-14:30	Break		Break		Break
14:30	Topographical features mapping and visualisation		Working with Climate datasets		Any User Related topic
	Practice/Practical		Practice/Practical		Practice/Practical
16:00	Assignment		Assignment		Feedback
17:00	Doubts Session		Doubts Session		Feedback
Please Sign up for Google Earth Engine for smooth delivery of the lectures.					