

Online Workshop

Five Weeks Workshop on

Google Earth Engine (GEE) for Remote Sensing & GIS Analysis: Beginners to Advanced

July 01 to August 05, 2023



Advances in Geo Research2
WhatsApp group



Organized by

Advances in Geographical Research

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About Advances in Geographical Research

Advances in Geographical Research (AIGR) is an online research training institute that offers courses and hands-on training programs aimed at providing individuals with the skills and knowledge necessary to conduct research effectively and efficiently. AIGR provide a flexible and convenient alternative to traditional in-person training, allowing individuals to learn at their own pace and on their own schedule. AIGR provides certified professional training, development opportunities and assured innovative research ideas for the next generation of researchers, such as research design and methodology, data collection and analysis, and the use of various research tools and software. Our motto is making the complex simple. Led by some of the world's leading researchers, who provide key insights from their experience, our training programs support career development and encourage our researchers to excel in their field.

Resource Person

Primary Trainer **Mr. Sujit Kumar Roy** is currently working as a Research Assistant at a Multinational Company. He is currently pursuing a Post-Graduation degree in Water Resources Development from Institute of Water and Flood Management (IWFM), Bangladesh University of Engineering and Technology (BUET), Bangladesh and has a Bachelor's degree in Environmental Science and Disaster Management from Noakhali Science and Technology University (NSTU), Noakhali, Bangladesh. He has over 5 years of working experience in the field of EIA, RS and GIS for different national (Government) and international projects as post of GIS analyst at Suchana Engineers Limited, Research Assistant at IWFM, BUET, Research Fellow at RAIN Forum, Junior Environmental Expert at Plan Plus Limited (PPL). As an independent researcher, Sujit collaborates with a talented cohort of software experts, jointly publishing several groundbreaking scientific articles in internationally renowned journals. His contributions transcend multiple disciplines, encompassing RS and GIS, Hydrology, Time Series Analysis, Natural Hazards, Coastal Zone Management, Machine Learning, and Deep Learning. Through his relentless pursuit of knowledge, Sujit is actively driving the advancement of environmental research.

Training Benefits

- The workshop helps participants develop their GEE skills from beginner to expert level.
- The workshop covers various GEE functionalities, including data management, analysis, visualization, and sharing.
- Instructors continuous support, taking your hand step-by-step to develop high-quality prediction maps using real data
- Live WhatsApp Chatting with instructor
- 1:1 Sessions with experts
- Lifetime subscription
- Any time watch recorded video
- Easy Payment Gateway such as Debit card, credit card, UPI etc. (international payment also acceptable)

Certificate and Course materials

Participants who successfully complete the workshop will receive a course certificate after submitting all assignments. They will also receive materials such as slides and PDFs, access to practice code, recorded videos of all classes, and lifetime teaching support.

Language

Lecture and training materials are in English.

Registration fee

India: 6500 INR (₹), **Bangladesh:** 8500 BDT (৳)
Other countries: 100 USD (\$)

Important dates

Class Start: 1st July 2023
Admission Last Date: 30th June 2023
Class: Friday and Saturday in Week
Class Durations: 2 hours (Each day)
Time: 7:00 PM to 9 PM (GMT +5.30)

Online Platform

Zoom (Lifetime recorded sessions access)

Email: aigeo.research@gmail.com

Mobile: +91 9932341616

Website: www.aigr.co.in

Android App:

<https://play.google.com/store/apps/details?id=com.knorish.AIGR>

Course Overview

The Google Earth Engine (GEE) for Remote Sensing & GIS Analysis: Beginners to Advanced workshop is designed to provide participants with an in-depth understanding of GEE and how to use it for remote sensing and GIS analysis. The workshop is suitable for individuals who are new to programming languages and Earth Engine functions, as well as those who have some experience but wish to enhance their skills and knowledge.

After finishing this course, you will be able to do any remote sensing analysis utilizing the Google Earth Engine Platform swiftly and efficiently. We will discuss basic GEE, calculating any indices, LULC mapping, air quality monitoring, time series analysis, supervised classification, machine learning methods, and other topics which are important for remote sensing analysis.

Course Objectives

- Introduce participants to the Google Earth Engine platform and its capabilities
- Familiarize participants with the basics of remote sensing and GIS analysis
- Provide a comprehensive understanding of the JavaScript programming language
- Teach participants how to filter image collections, create mosaics and composites, and work with feature collections
- Provide an in-depth understanding of Earth Engine objects and indices
- Teach participants how to perform supervised classification and improve the classification results
- Provide participants with the knowledge and skills to map air quality and temperature using GEE

Download the Android app from the play store: **AIGR**
<https://play.google.com/store/apps/details?id=com.knorish.AIGR>

Course Content

The workshop will be divided into five modules:

Module 1: Earth Engine Basics

1. Introduction to Google Earth Engine
2. Setting up the Environment
3. Sign-up for Google Earth Engine
4. Introduction to Remote Sensing
5. JavaScript programming language A to Z
6. Filtering Image Collections
7. Creating Mosaics and Composites from Image Collections
8. Working with Feature Collections
9. Importing Data: Raster and Vector Data
10. Clipping Images

Module 2: Earth Engine Intermediate

1. Earth Engine Objects
2. Calculating Indices:
 - a. NDVI (Normalized Difference Vegetation Index),
 - b. NDWI (Normalized Difference Water Index),
 - c. NDBI (Normalized Difference Built-Up Index),
 - d. BI (Built-Up Index), and
 - e. EMBI (Enhanced Built-Up Index) and other indices.
3. Computation on Image Collections: Area, Date
4. Cloud Masking
5. Reducers
6. Time-Series Charts of NDVI over a period of time
7. Visualization (DEM) of Elevation, Hill shade and Slope Map using NASA SRTM
8. Exporting Data
9. Map Layout (Add Legend, Title in your Map)

Module 3: Supervised and Unsupervised Classification

1. Unsupervised Classification
2. Basic Supervised Classification
3. Introduction to Machine Learning and Supervised Classification
4. Landuse and Landcover Classification Map/LULC
5. Accuracy Assessment
6. Improving the Classification
7. Exporting Classification Results
8. Calculating Area

Module 4: Air Quality Mapping

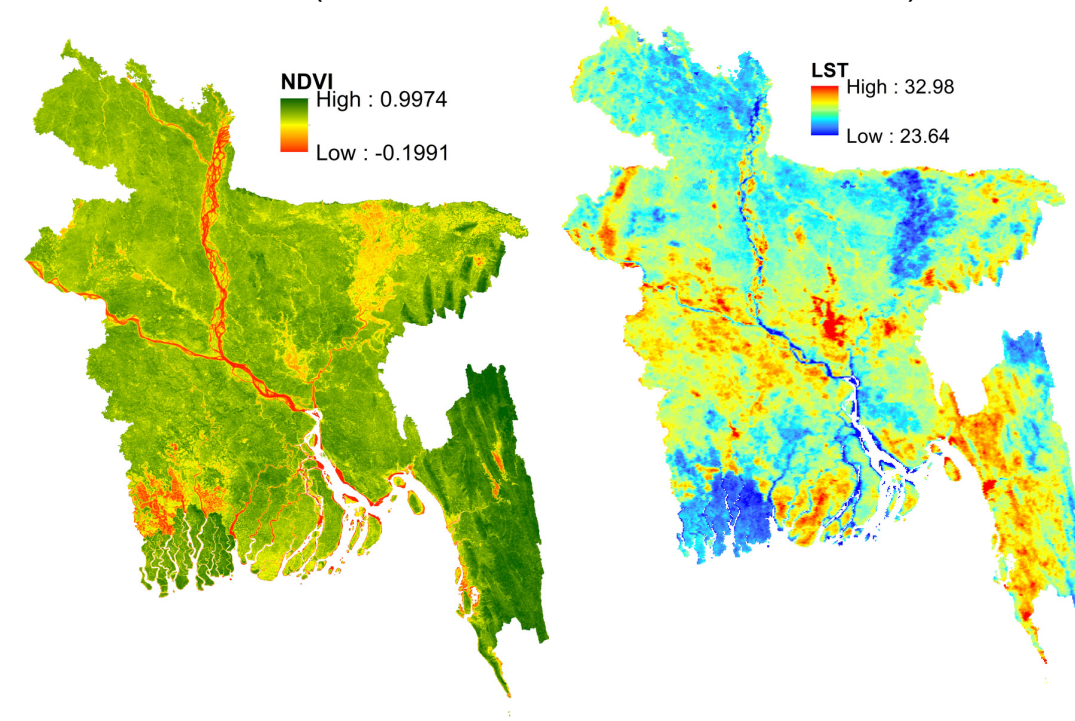
1. Nitrogen Dioxide (NO₂) Gas Concentration Mapping
2. Sulphur Dioxide (SO₂) Gas Concentration Mapping
3. Carbon Monoxide (CO) Gas Concentration Mapping
4. 1Methane (CH₄) Gas Concentration Mapping
5. LST (Land Surface Temperature) Mapping

Module 5: Drought Monitoring Index

1. Temperature Condition Index (TCI)
2. Vegetation Condition Index (VCI) and
3. Vegetation Health Index (VHI)

How to apply

Interested candidates may pay online payment gateway system available on AIGR website. For Indian candidates select **Razorpay** and for other countries must select **Stripe** during payment, Bangladeshi candidates have the option to conveniently pay directly via **bKash** (+8801748985407, after payment mail screenshot: **aigeo.research@gmail.com** or **WhatsApp: +91 94751 72399**). For African countries candidates can also pay via **Western Union** (For details SMS +91 94751 72399).



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