भारतीय सुदूर संवेदन संस्थान

Indian Institute of Remote Sensing

देहरादून / Dehradun

iirs

Placement Brochure 2022

- M.Tech.
- M.Sc.
- PGD

Vision

"Achieve excellence and remain in the forefront for capacity building in Remote Sensing & Geoinformatics and their applications"

Mission

"Transfer technology through capacity building and research in the field of Remote Sensing and Geoinformatics for sustainable Development"

DIRECTOR'S DESK

Indian Institute of Remote Sensing (IIRS) under Indian Space Research Organisation (ISRO), Department of Space, Govt. of India is a premier training and educational Institute establishment in 1966 and committed to prepare Professionals in the field of Remote sensing, Geoinformatics and GPS Technology for Natural Resources, Environment and Disaster Management. The Institute also host's Centre for Space Science & Technology Education in Asia and Pacific (affiliated to United Nations) and conducts International Training Programmes.

The training and education programmes conducted by the Institute include: i) M.Tech (RS & GIS) in nine disciplines conducted in collaboration with Andhra University, Visakhapatnam, The course is approved by the All India Council for Technical Education (AICTE) ii) M.Sc. and PG Diploma courses in Geoinformatics conducted in collaboration with the Faculty of Geo-information Science & Earth Observation (ITC) of the University of Twente (UT), The Netherlands iii) Post-graduate Diploma (PGD) in Remote Sensing and GIS in nine disciplines. The Institute also conducts various other courses, namely i) Certificate programmes (including NNRMS-ISRO sponsored programme for University faculty) ii) Special on-demand/tailor-made courses. The Institute has so far trained 13,324 professionals representing 104 countries from the Asia, Africa and South America.

Under the Outreach Programmes, the Institute conducts several courses for working professionals, researchers and students through state-of-the-art studio and e-learning concept. Currently, 3066 Institutes/Organizations spread across India are networked with IIRS. More than 4,86,611 lakh participants have benefitted so far from IIRS Outreach Programmes.

The Placement Brochure of 2022 includes the skills acquired by IIRS students through training/education and project work that they have carried out as a part of their Course Curricula. I am sure that the Placement Brochure shall be helpful to the Geospatial Industry, Academia and other Institutions to pick the talent and also provide opportunity to the course participants for their placement.

I wish very bright future and steady career for our students.

Dr. Prakash Chauhan
Director, IIRS

Contents

PROFILE OF THE INSTITUTE

The Indian Institute of Remote Sensing (IIRS) is a constituent unit of Indian Space Research Organisation (ISRO), Department of Space, Govt. of India. Since its establishment in 1966, IIRS is a key player for training and capacity building in geospatial technologies and its applications through training, education and research in Southeast Asia. The training, education and capacity building programmes of the Institute are designed to meet the requirements of Professionals at working levels, fresh graduates, researchers, academia, and decision makers. IIRS is also one of the most sought after Institute for conducting specially designed courses for the officers from Central and State Government Ministries and stakeholder departments for the effective utilization of Earth Observation (EO) data. About 40 courses are conducted every year and 13324 professionals and students have been trained/educated so far. About 50 researchers who have worked under IIRS faculty have received PhD degrees till date from various Universities.

To widen its outreach, IIRS has started live and interactive Distance Learning Programme (DLP) since 2007. As on date, 3066 Institutes/Organizations are networked with IIRS and more than 4,84,611 participants have attended various basic and advanced courses conducted by the Institute. IIRS has also launched e-learning course on Remote Sensing and Geo-information Science since August, 2014.

The Institute has a strong, multi-disciplinary and solution-oriented research agenda that focuses on developing improved methods/ techniques for processing, visualization and dissemination of EO data & Geo-information for various societal applications and better understanding of Earth's system processes. Microwave, hyperspectral and high-resolution EO data processing and their applications is the main research focus, currently. State-of-the-art laboratory and field-based instrumentation and observatories network help meeting the research goals and objectives.

IIRS hosts headquarters of Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP), affiliated to the United Nations and provides support in conducting the Remote Sensing and GIS training and education programmes. IIRS also plays a key role in the activities of Indian Society of Remote Sensing (ISRS), which is one of the largest non-governmental Scientific Societies in the country.

TRAINING, EDUCATION & CAPACITY BUILDING PROGRAMMES

The training and capacity building programmes of the Institute are designed to meet the requirements of various target/user groups, i.e., for professionals at working, middle and supervisory levels, fresh graduates, researchers, academia and decision makers. The duration of courses ranges from one-week to two-years. The programmes are meticulously designed by the domain experts, and are then approved by the Board of Studies (BoS) and Academic Council (AC) consisting of eminent subject experts. A team of seventy four dedicated scientists at IIRS contribute in delivering the course contents. Guest faculties from reputed organizations Institutes in the country and abroad are regularly invited to share their knowledge and experience with the course participants. The training and education programmes conducted by the Institute include:

1. M.Tech. (RS & GIS) in nine disciplines conducted in collaboration with Andhra University, Visakhapatnam. (AICTE).
2. M.Sc. and PG Diploma (PGD) in Geoinformatics conducted in collaboration with the Faculty of Geo-information Science & Earth Observation (ITC) of the University of Twente (UT), The Netherlands.
3. PGD in Remote Sensing and GIS in nine disciplines,

The Institute also conducts various other courses, namely i) Certificate programmes (including NNRMS-ISRO sponsored programme for University faculty), ii) Special on-demand/tailor-made courses. The Institute has so far trained 13,324 professionals representing 104 countries from the Asia, Africa and South America.

Under the Outreach Programmes, the Institute conducts several courses for working professionals, researchers and students through state-of-the-art studio and e-learning concept. Currently, 3066 institutions and organizations spread across India are networked with IIRS. More than 4,84,611 participant have benefitted so far from IIRS Outreach Programmes.

The Institute also provides opportunities to external students to pursue their research under the guidance of IIRS faculty. IIRS is a recognized centre for carrying out research leading to PhD by Forest Research Institute (Deemed University), University of Pune, Doon University, Kumaon University, Uttarakhand Technical University and IIT, Roorkee. About 50 researchers who have worked under IIRS faculty have received Ph.D. degrees till date from different universities. External Post-graduate/ Graduate students are also given opportunity to conduct their project work under the guidance of IIRS faculty.

Due to prevailing COVID-19 pandemic situation in the country and health risk involved in travel, selection of eligible self-sponsored candidates for admissions in M.Tech., M.Sc. and P.G. Diploma programmes were based on online interview and Academic career (in place of Entrance Test).

IIRS - GROUPS AND DEPARTMENTS

Programme Planning and Evaluation Group

The Programme Planning and Evaluation Group (PPEG) coordinates the training, education and capacity building, human resources development, budget, hostels, library, placements, etc. activities of the Institute. It also coordinates the inter-centre activities and liaison with other institutions in the country and abroad. PPEG also maintains the IIRS alumni database. It is also responsible for initiating and coordinating several other techno-managerial activities of the Institute.

Budget Planning and Monitoring Department

With the increasing responsibilities and mandates of the Institute it is pertinent to mention that the budgetary allocations have increased in recent financial years. This has spearheaded gamut of techno-managerial and financial activities and other critical correspondences with Hqs. The BPMD takes care of pertinent budget planning and monitoring related formalities and procedures in the Institute.

Central Library

The Library is dedicated to serve the information needs of the scientists, researchers and students of the Institute. Few highlights of IIRS Library are (i) Remote access to library e-resources (ii) Strengthening information resources (iii) Journal TOC (iv) Collection development (v) Inter Library loan / delivery with local/DOS libraries (vi) User education/orientation.

Academics and Respond Department

The ARD department takes care of academics related activities of PPEG/IIRS, i.e. Admissions, Results & Students' Affairs, as well as activities related to Sponsored Research at IIRS. The sponsored research activities are carried out under various umbrellas/categories such as RESPOND, Space Technology Cells, Regional Academic Centres (RAC-S) etc.

IIRS - GROUPS AND DEPARTMENTS

Agriculture & Soils Department (ASD)

ASD is one of the oldest department established in 1966. ASD has carried out many R&D and consultancy projects in soil surveys, watershed prioritisation, land evaluation, agricultural resources inventory, agro-meteorology, soil moisture, etc. Some of the research projects (ongoing/ completed) at ASD are process based modeling for soil erosion, soil carbon sequestration, carbon accounting modeling by integrating flux observation, drought monitoring and climate change impact studies etc. The department is equipped with a variety of portable ground-truth equipment for quantitative measurements of bio-physical and physico-chemical properties of soils and crops, and a Soil Analysis Laboratory for the physico-chemical analysis of soils.

Forestry & Ecology Department (FED)

FED was established in 1966 with the aim of providing training and skills development on the utility of aero-space remote sensing for forest resource inventory, monitoring and management. Nationwide forest cover mapping, nationwide biome level characterization, Indian forests biodiversity characterization at landscape level are the major projects planned and executed by the department. A few other important research projects carried out by the department are growing stock and biomass assessment, ecosystem dynamics, wildlife habitat modelling, ecological and wildlife corridor modelling and connectivity analysis, national level carbon flux measurement and modelling, grassland mapping and carrying capacity estimation, etc.

Marine & Atmospheric Sciences Department (MASD)

MASD was formed in year 1986 and offers training & education courses and provides research opportunities in the areas of coastal processes, marine resources, ocean and atmospheric sciences applications. The department has contributed in different research and operational projects of ISRO/DOS, such as National Action Plan for Climate Change Project (NAPCCP), Land Degradation Mapping on 1:50,000 scale, Oceansat-II data utilization project, National Carbon Project (NCP), SARAL-AltiKa project, etc. Some of the research projects (ongoing/ completed) at MASD are atmospheric pollution modeling, extreme events forecasting, coastal hazards and their mitigation, ocean color and primary productivity, upper-ocean geophysical parameter retrieval, aerosol radiative Forcing, etc.

IIRS - GROUPS AND DEPARTMENTS

Urban & Regional Studies Department (URSD)

To meet the growing needs and challenges of urban areas and towards regional development, URSD was established in 1983 in collaboration with ITC, the Netherlands. The department is working in close coordination with Town and County Planning Departments/ Urban Local Bodies with the aim to spread the benefits of remote sensing technology at grassroots level. It has developed expertise in the field of urban sprawl and growth modeling, urban environment analysis and regional analysis. Some of the research projects (ongoing/completed) at URSD are urban micro-climate zonation for sustainable Smart City planning, modeling of urban air pollution, urban material detection using hyperspectral RS data, urban flooding modeling, solar energy potential assessment, etc. The department regularly conducts special courses for town and country planning officials from state and central government departments.

Water Resource Department (WRD)

WRD was established in the year 1986 and since then it has emerged as leader in capacity building and research in various fields of hydrology and water resources management. The department specializes in remote sensing based hydrologic parameter retrieval and modelling; data assimilation; watershed characterization and conservation planning; snow and glacier melt runoff modelling; data assimilation; watershed characterization and conservation planning, snow and glacier melt runoff modelling, Irrigation water management, flood mapping, monitoring and modelling; drought assessment; soil erosion, and sediment yield modelling; reservoir sedimentation; , surface and ground water studies, climate change impact assessment; and hydro-environmental impact assessment and site suitability analysis of water resources projects. The department has initiated advanced research in field of flood early warning systems; polar remote sensing; microwave and hyperspectral remote sensing applications. The department is well equipped with latest field and portable equipment. It regularly conducts special courses for officials of state and central water resources department.

IIRS - GROUPS AND DEPARTMENTS

Geospatial Technologies and Outreach Programme Group

Geospatial Technologies and Outreach Programme Group (GTOP) comprises of three departments namely, Photogrammetry & Remote Sensing, Geoinformatics, Geoweb Services, IT & Distance Learning Department

Photogrammetry & Remote Sensing Department (PRSD)

PRSD established in 1966 is imparting professional training in the field of photogrammetry, cartography, remote sensing and image processing. It has successfully executed a number of studies/projects on large-scale surveys and preparation of photo-maps in different parts of the country, generation of national/global level database on land use/land cover, augmentation of forest cover information in India and Myanmar, generation of land surface parameters for monsoon variability studies using Regional Climate Model, etc. Recent research projects at PRSD are UAV data processing for terrain information extraction, LiDAR-RS, SAR Tomography, SAR calibration, hyperspectral remote sensing, automated features extraction, Large scale mapping, Machine Deep Learning, etc.

Geoinformatics Department (GID)

This department was set-up in 1996 in collaboration with University of Twente, Faculty of Geo-information Science & Earth Observation (ITC), The Netherlands, for offering courses in the field of Geoinformation Science. The M.Sc. & PG Diploma course in course in Geo information Science and Earth Observation (specialisation in Geoinformatics) is one of its major programme offered since 2002 as a part of Joint Education Programme (JEP) of IIRS and ITC, The Netherlands. The department conducts training, education and research in field of Geoinformatics like GIS, Web GIS Geospatial modeling, 3-D City Models, Spatial Data Mining, Health GIS and machine learning and deep leading. GID is offering courses in the upcoming fields like Big data Analytics, AI based machine learning and deep learning algorithms, Tourism GIS and GIS for Supply Chain Management. The GID department has developed mobile app and dashboard like Swachh bharat abhiyaan, forest fire reporting for state forest department, geotagging for animal husbandary and kumbha mela applications.

Geoweb Services, IT & Distance Learning (GIT & DL)

GIT&DL is recently formed department at IIRS to meet the increasing demand of capacity building. The department is involved in capacity building & R&D activities in Web-GIS, Mobile GIS, Location Based Services (LBS), Cloud GIS, etc. It is also carrying out capacity building in Geospatial technologies through Distance Learning mode (Live & interactive and e-learning), R&D activities on active learning, Digital contents creation, R&D activities on 2D and 3D simulations and virtualization, etc. It is also carrying out the IT Infrastructure development, set-up and operations for the Institute.

IIRS - GROUPS AND DEPARTMENTS

Geosciences and Disaster Management Studies Group

The Geosciences and Disaster Management Studies Group (GDMSG) consist of two department namely, (i) Geosciences Department and (ii) Disaster Management Studies Department.

Geosciences Department (GSD)

GSD is, one of the oldest department of IIRS, was established in 1966 to provide professional training to scientists and technical staff of Government and Public Sector organizations dealing with geoscientific applications such as geological survey and mapping, mineral and oil exploration, engineering geological survey, ground water exploration, etc. It has successfully executed a large number of projects which include Geodynamics of the Himalaya, Landslide modelling, Seismic hazard assessment, Active fault mapping, Liquefaction modelling, Differential Interferometric SAR (DInSAR) based land surface displacement modelling, and Coal mine fire and subsidence modelling. The present thrust areas of the department include microwave and hyperspectral image analysis, GNSS and seismic data analysis, glacial dynamics, planetary geology, spaceborne gravity and ground based geophysical data analysis and engineering geological studies.

Disaster Management Studies Department (DMSD)

DMSD is dedicated towards capacity building and research in assessment, monitoring and modelling of natural and anthropogenic disasters with prime focus on prevention and mitigation measures leading to disaster risk reduction. The DMSD conducts PGD and M.Tech. in RS and GIS applications in Natural Hazards and Disaster Management Studies with specialisation in Hydro-meteorology and Geological hazards. Disaster Management supports, activities at IIRS carried out by several departments and significant activities include Landslide modelling, Seismic Hazard Assessment, Forest Fire Risk Assessment, Flood modelling, extreme weather prediction and atmospheric pollution studies. Present focus is on development of EWS and early detection techniques for various natural hazards using EO and ground based observation.

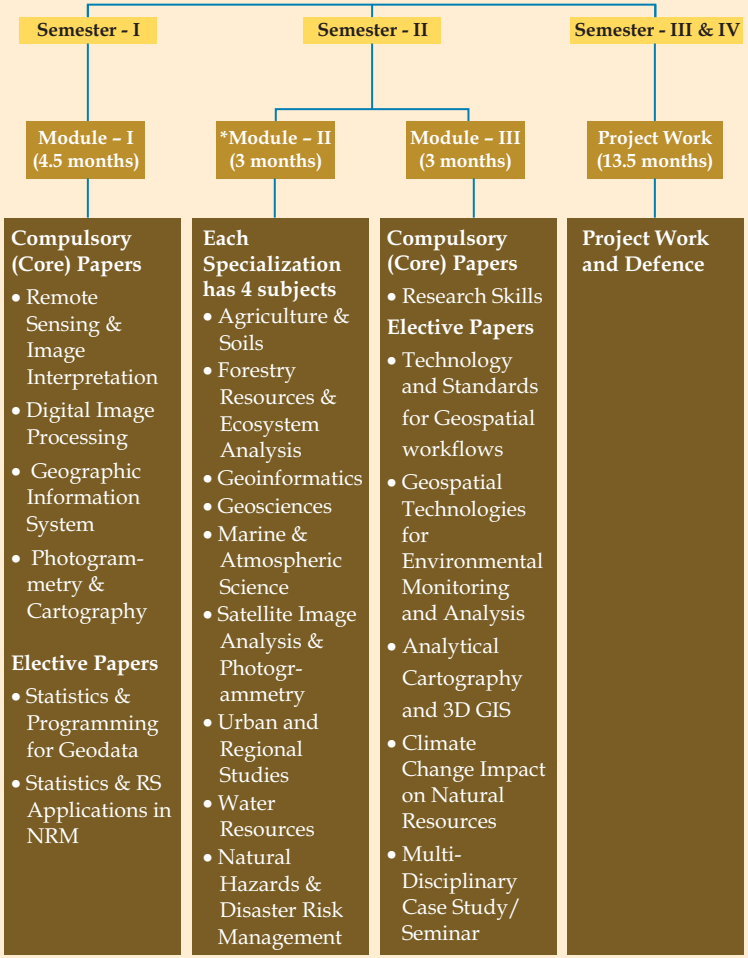
M.Tech. (RS&GIS)

The aim of the M.Tech. (RS&GIS) course is to provide in-depth understanding of remote sensing, satellite image analysis, Geographic Information System (GIS) and Global Navigation Satellite System (GNSS) & LiDAR technologies and their applications in natural resources survey and monitoring including Agriculture and Soils, Forestry and Ecology, Geology and Mineral Resources, Water Resources, Marine and Atmospheric Sciences, Urban and Regional Planning and Disaster Management.

It is a four-semester course in which first two semesters are devoted to exhaustive course work and other two semesters have a research project. The course work consists of 5 core papers in technology area, 4 core papers in subject specialization,1 core paper in research skill development and 3 choice based elective papers. Two elective papers, include advanced geospatial technology such as Web Technology, Geodata Visualization, Statistics & Programming of Geodata, Natural Resources Management, Environmental Monitoring and Climate Change Studies. In the third elective paper, a candidate needs to carry out a theme-specific interdisciplinary case study seminar out of the 60 topics offered from 9 specializations-

- Agriculture and Soils
- Forest Resources & Ecosystem Analysis
- Geoinformatics
- Geosciences
- Marine & Atmospheric Sciences
- Satellite Image Analysis & Photogrammetry
- Urban & Regional Studies
- Natural Hazards & Disaster Management
- Water Resources

M.Tech. Course Structure



*Core papers under each specialization as per table given on page no. 29

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Aanchal Sharma

Qualifications

M.Tech in Remote sensing and GIS
(Specialization: Satellite image analysis and photogrammetry)
B.Tech (Electronics & Communication)

Area of Interest

SAR Polarimetry, Radar Planetary Studies, Image processing Algorithms, Mathematical modelling, Deep Learning, Cryosphere studies, Climate modelling

Software Skills

Python, Linux, C++, Snap, ArcGIS, Envi, Erdas, Matlab, Google Earth Engine, PolSARPro, ISIS

Thesis

Polarimetric modeling for lunar surface characterization using Chandrayaan-2 L & S Band DFSAR data.

Abstract

SAR is a powerful tool when it comes to extraterrestrial observation and with time, radar systems are evolving and providing more sensitive information about the target body. The goal of this study is to incorporate CH-2 DFSAR data for polarimetric modeling. DFSAR works in dual frequency mode, one of them is L-band (1.25 GHz) and L-band has higher penetration capabilities. Full polarimetric mode will provide complete scattering information of the target. These two features of DFSAR are first ever in moon planetary missions therefore will bring out the new insight of the lunar surface and sub-surface.

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Akshay Singh

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Marine & Atmospheric Sciences)
M.A. (Geography), B.Sc. (Computer Science)

Area of Interest

Application of Remote Sensing & GIS in Pollution Control, Climate Change, Meteorology, Fog analysis, Climatology, Atmospheric and Cloud Modelling, Surveying and Cartography, Geomorphology, Geopolitical Dynamics, Oceanography, Cultural Ecology.

Software Skills

Python, C, C++, R, MATLAB, ArcGIS, QGIS, ERDAS Imagine, Panoply, ENVI, SNAP, GrADS, Google Earth Engine, SeaDas

Thesis

Fog Retrieval Over Indo-Gangetic Plains Using INSAT-3DR Data

Abstract

The study aims for the development of whole day Fog retrieval algorithm including dawn & dusk time using random forest machine algorithm to detect fog over Indo-Gangetic plains using INSAT-3DR imager. Validation of the same will be done from ground truth data, with test of various parameters for fog estimation.

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Amit Kumar Jena

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Marine and Atmospheric Sciences)
M.Sc. (Oceanography), B.Sc. (Chemistry)

Area of Interest

Ocean modelling, Bio-optical Oceanography, Ocean Biogeochemistry, Ocean Plastic Pollution, Climate Change Studies, Ocean-atmospheric Interaction, Satellite Image Processing and Analysis, Geospatial Application for Natural Resource Management, Meteorology.

Software Skills

MATLAB, NCL, CDO, Ferret, Python, ArcGIS, QGIS, ERDAS Imagine, SeaDAS, ENVI, SNAP, GrADS, Photoshop, Google Earth Engine, Grapher, SPSS Autocad-3D, Linux OS.

Thesis

Study the Indian Ocean Dipole induced variability in the upper ocean dynamics and thermodynamics: An investigation using numerical ocean modelling, in-situ, and satellite data.

Abstract

The project aims to the configuration of Regional Ocean Modelling System (ROMS) over the Indian Ocean domain for realistic simulation of physical oceanographic parameters on the surface and subsurface variability in response to different Indian Ocean Dipole (IOD) events. The model simulated variables will be validated with the satellite and in-situ data to study the contrasting IOD events and to investigate the dynamic and thermodynamic processes regulating the evolution of IOD events.

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Anam Sabir

Qualifications

M.Tech in Remote sensing and GIS
(Specialization: Satellite image analysis and photogrammetry)
B.E. (Electronics & Telecommunication)

Area of Interest

Digital Image Processing, Algorithm Development, Deep Learning applications on Satellite data, SAR Data Processing, Crop Modelling

Software Skills

Python, C++, MATLAB, QGIS, ArcGIS, SNAP, ERDAS Imagine, Google Earth Engine, VHDL, Xilinx ISE, Intel Quartus Prime, Keil, Arduino IDE, ModelSim, Atmel Studio, LabVIEW

Thesis

CNN Based Deep Learning Vs Fuzzy Machine Learning For Medicinal Plant Mapping Using Dual-sensor Temporal Remote Sensing Data

Abstract

A major hurdle while specific crop mapping is the heterogeneity within class. The study aims at performing specific crop mapping using two different approaches i.e. CNN and Fuzzy Machine Learning. In order to highlight the target crop based on its phenology, dual sensor temporal data is utilized. The results are evaluated on the basis of efficiency while handling mixed pixel problem as well as heterogeneity within the class.

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Anukrati Joshi

Qualifications

M.Tech in Remote sensing and GIS
(Specialization: Natural Hazards and Disaster Risk Management)
B.Tech. (Civil Engineering)

Area of Interest

Application of Remote Sensing and GIS in Natural hazards and Disaster Risk Management, Vulnerability and Hazard assessment, Climate change, Disaster Risk Mitigation and Relief Management, Earthquake Precursors, Traffic Jam analysis using GIS, Identification of best places for construction of DAM in Mountain region, Seismic Hazard analysis.

Software Skills

AutoCAD, Revit, Primavera, Staad Pro, Erdas Imagine, Qgis, ArcGIS, ENVI, SNAP, GrADS, Google Earth.

Thesis

Study of Thermal and Ionospheric Anomalies as a Precursor of Earthquake.

Abstract

Earthquakes are the natural hazards that happen suddenly. Though they can't be predicted, some of the signs that point to the impending earthquakes should be observed before the earthquake hits. Earthquakes are usually preceded by minor changes in the atmosphere and the ground, these changes are known as earthquake precursor. This study is an attempt to analyze the changes in the Total Electron Content (TEC) in the Ionospheric region and the Thermal Anomalies on the ground for the earthquake events that occurred in the past.

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Bijo George Philip

Qualifications

M. Tech in Remote Sensing & GIS
(Specialization: Geoinformatics)
B. Tech (Electronics & Communication Engineering)

Area of Interest

Space Situational Awareness, SAR Remote Sensing, Machine Learning, Image Processing, Automotive GIS.

Software Skills

Embedded C, Python, R, ArcGIS, QGIS, ERDAS Imagine, ENVI, SNAP, AGI STK, Google Earth Engine, AUTOSAR, CAN, Microsoft Office, JIRA.

Thesis

Machine Learning based Spatiotemporal Multi-Sensor Data Fusion for Surface Coalmine Fire Detection.

Abstract

A systematic detection and monitoring system for surface coalmine fires is very crucial to avert or slow down their propagation and are extremely helpful for quantifying the economic and environmental loss. The study aims at utilizing machine learning algorithms to generate high spatiotemporal resolution images from remote sensing data for surface coalmine fire detection. The methodology includes the development of a trained machine learning algorithm utilizing enhanced convolutional neural networks for spatiotemporal data fusion as well as algorithms for surface coalmine fire detection.

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Elka Siju

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Natural Hazards and Disaster Risk Management)
M.Sc. (Applied Geology)
B.Sc. (Geology, Chemistry, Statistics)

Area of Interest

Disaster Risk Management, Environmental Impact Assessment, SAR applications in Flood Dynamics, Hydrological modelling, Hydrogeology, Oceanography, Geomorphology, Impact of Climate change

Software Skills

ERDAS Imagine, ArcGIS, QGIS, SNAP, HEC-HMS, FwDET, ENVI, Google Earth Engine, SedLog, GRADISTAT, Microsoft Office.

Thesis

Investigating the Polarimetric and Interferometric characteristics of SAR data to assess the Flood Dynamics of Kaziranga National Park, Assam

Abstract

From the dawn of climate change the enraged flood conditions have become the ubiquitous reality. The Kaziranga National Park, a UNESCO world heritage site, situated in the flood plains of Brahmaputra River basin, is a chronic flood prone area. It requires proper understanding and assessment of the flood condition to help the government to plan better management and mitigation strategies. This research aims to utilize radar backscatter, InSAR coherence and other polarimetric parameters of C-band space-borne dual-pol SAR data in machine learning approach to characterize the flood dynamics of Kaziranga National Park for the most flooded years from 2017 to 2021.

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Goddu Pavan Sai Goud

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Urban and Regional Studies)
B.Plan (Urban Planning)

Area of Interest

Hydrological modeling, Application of Thermal and Microwave RS, DEM Analysis, Damage Mapping, Urban growth modeling, Smart cities, Rural Development, Urban and Regional Planning, Transportation Planning, Socio-economic studies, Photography.

Software Skills

Python, R, Google Earth Engine, ArcGIS, QGIS, ENVI, SNAP, ERDAS Imagine, MIKE URBAN, SWMM, HEC-HMS, HEC-RAS, AutoCAD, Microsoft Office.

Thesis

Urban Flood Risk Modeling Based on Vegetation-Impervious Surface-Soil (V-I-S) Fraction Analysis and Bivariate Techniques

Abstract

Among the various factors that contribute to increasing flood risks, changes in climate and urban growth are the most influential factors affecting hydrological characteristics in urban and extra-urban contexts that challenge the current and future urban flood management strategies. This study aims to analyze a fluvial and a pluvial flood hazard individually, but also to develop a method for the analysis of a combined pluvial and fluvial flood hazard estimating the hydrological outputs using MIKE URBAN, SWMM

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Ishwar Dattatray Nalawade

Qualifications

M.Tech. Remote Sensing & GIS
(Specialization: Water Resources)
B.Tech. (Agricultural Engineering)

Area of Interest

Irrigation Water Management, Watershed Development, Watershed Prioritization, Hydrological Modelling, Policy and Framework, Satellite Altimetry, Surface Energy Balance Algorithms.

Software Skills

R, R Studio, Google Earth Engine, ArcGIS, QGIS, ERDAS, ENVI, BRAT, HEC-HMS, HEC-RAS, EPANET, MODFLOW, Microsoft Office Products.

Thesis

Analyzing the Impact of Temporal Availability of Remote Sensing Data on Time Integration of Actual Evapotranspiration for Better Irrigation Water Management

Abstract

Evapotranspiration estimation plays very important role in water balance studies over an area. This work includes derivation of actual evapotranspiration using Land Surface Energy Balance method to precisely estimate Evapotranspiration using available Satellite data. This would further be used to establish the correlation between what satellite temporal resolution and interpolation techniques can best estimate the Evapotranspiration for a given area.

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Jidnyasa Krishnarao Patil

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Urban and Regional Studies)
B.Tech. (Planning), B.A. (Major in Political Science)

Area of Interest

Data Analytics, Machine Learning, Environmental & Atmospheric Studies, Project Planning, Socio-Economic Studies, Public Policy, Statistics, Transportation Planning, Rural Development, Microwave & Thermal Remote Sensing, UAV, LiDAR

Software Skills

R, Python, JavaScript, HTML, SQL, ArcGIS, QGIS, Google Earth Engine, SNAP, ERDAS Imagine, Blender, Fragstats, WebGIS, eCognition, ENVI, Open Data Kit, SPSS, AutoCAD, Sketchup, Microsoft Office

Thesis

A Study of Land Surface Temperature Downscaling Algorithms.

Abstract

The study aims at downscaling of high temporal and low spatial resolution land surface temperature (LST) data to a high temporal and high spatial resolution LST data. It focuses on a comparative analysis of traditional statistical algorithms (TsHARP, GWR) and machine learning based algorithms. Suitability optical satellite data for downscaling the LST data will be found out. Incurring an optimum scale for downscaled LST data by derivation of indices to showcase the urban heterogeneity will be performed in the study.

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Joyal Mukesh Arya

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Forest Resources & Ecosystem Analysis)
M. Sc. (Botany)

Area of Interest

Biodiversity assessment and conservation, Plant Taxonomy, Forest Spatial Ecology, Crop Monitoring, Biomass Assessment, Habitat Suitability Analysis, Machine Learning.

Software Skills

Python, R, Google Earth Engine, ArcGIS, QGIS, ERDAS Imagine, ENVI, SNAP, MIDAS, Blender, eCognition, MaxEnt, GeoServer, 3D Forest.

Thesis

Spatial Prediction of Alpine Plant Diversity Patterns along Disturbance Gradients using Remote Sensing and Machine Learning Algorithms

Abstract

The Himalayan alpine region is sensitive to spatial environmental variability and various natural and anthropogenic disturbances have significantly influenced the plant species diversity patterns. The study focuses on the significance of essential remote sensing proxies in determining these diversity patterns along disturbance regimes and assessing their impact on plant diversity patterns. It applies intensive ground data for training the machine-learning model and identifying suitable remote sensing proxies for identifying and determining impacts of disturbance gradients on alpine plant diversity.

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Laivy Rose Augustine

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Natural Hazard and Disaster Risk Management)
B. Plan.

Area of Interest

Application of Thermal RS in Heat Stress studies, Disaster Risk Assessment and Management, Urban Micro-Climatic Modelling, Spatial Urban Planning, Climate change studies.

Software Skills

Python (Basic), ArcGIS, QGIS, ERDAS Imagine, Google Earth Engine, ENVI, SNAP, Adobe Photoshop, Microsoft Office.

Thesis

Meso scale Spatio-Temporal Modelling of Heat Wave and Heat Stress across Agro-Climatic regions of India.

Abstract

Vulnerability to heat waves and heat stress is increasing significantly. Urban areas with pre-existing urban heat island effect along with the increasing temperature creates heat hotspots with minimal thermal comfort. Urban population which is large in number are hence through put into risk to different natural disasters. Since heat stress studies using spatio-temporal temperature data are scanty, the current study focuses on the spatial and temporal distribution and modelling of heat waves and heat stress across India and in some selected hotspots.

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Manali Saha

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Marine and Atmospheric Sciences)
M.Sc. (Atmospheric Sciences), B.Sc. (Physics)

Area of Interest

Climate Dynamics and Modelling, Cloud Microphysics, Numerical Weather Prediction and Forecasting, Ocean Dynamics and Modelling, Precipitation Microphysics, Dynamic Meteorology, Aeronomy, Aerosol science, Air Pollution

Software Skills

MATLAB, WRF-ARW, R, NCL, FORTRAN, GrADS, SeaDas, Panoply, C, C++, Google Earth Engine, ArcGIS, QGIS, ERDAS Imagine, ENVI, SNAP, MySQL, Linux (Ubuntu), HYSPLIT

Thesis

Response of the Indian Summer Monsoon System to the Variable Warming Scenarios

Abstract

Under warming scenarios SSP2-45 and SSP 5-85, a detailed analysis of the Indian Summer Monsoon rainfall based on satellite observations and reanalysed datasets, historical and future simulation (pre- industrial control, 1% CO2 increase, abrupt 4XCO2 rise) using CMIP6 models will be investigated. Validation of the historical and future simulation with the observational data and statistical tests will be performed for assessing the accuracy and robustness of the models.

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Manushi Miteshbhai Bhatt

Qualifications

M.Tech in Remote Sensing & GIS
(Specialization: Urban & Regional Studies)
B. Plan.

Area of Interest

3D GIS and Remote Sensing, Web GIS, Urban micro-climate studies, Hyperspectral remote sensing, Thermal remote sensing, Urban expansion analysis, Machine Learning, Urban Governance, Environmental Planning and Infrastructure planning.

Software Skills

ArcGIS, QGIS, ERDAS Imagine, ENVI, Blender, SNAP (basic), Sketchup, AutoCAD, MS Office Suite, R, Python (basic), ECognition, Google Earth Engine, Open Data Kit, Web GIS.

Thesis

Estimation of urban energy fluxes using earth observation data and modelling approaches

Abstract

Urbanization attracts morphological changes in cities influencing energy use and energy emissions. Due to this, the urban areas tend to have greater energy demand as compared to the rural areas and they end up generating more anthropogenic heat caused by higher emissions from industries, residential and commercial buildings, vehicles, air conditioners etc. Therefore, the thesis aims to estimate and evaluate the urban energy fluxes using earth observation dataset.

mehakjindal1998@gmail.com

Mehak Jindal

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Geoinformatics)
B.Tech. (Computer Science and Engineering)

Area of Interest

Machine/Deep learning, Digital Image Processing, Unmanned Aerial Systems and their applications, Data Analytics, 3D Modelling and Visualization.

Software Skills

Python, R, C, SQL, HTML, JavaScript, MATLAB, QGIS, ERDAS Imagine, SNAP, Blender, PostgreSQL, Geoserver.

Thesis

Inter-calibration of nighttime lights using conditional generative adversarial networks.

Abstract

This study focuses on inter-calibration of time series nighttime light (NTL) imagery provided by Defense Meteorological Satellite Program Operational Linescan System (DMSP-OLS) and Visible and Infrared Imaging Suite Day-Night Band (VIIRS-DNB). Short-term data coverage in both these individual datasets hampers time-series observations. This calls for the integration of DMSP and VIIRS NTL imagery by overcoming the challenges posed due to different spatial and radiometric resolution, overpass times, etc. The harmonization process is based on a deep learning model, i.e., Generative Adversarial Networks (GAN) for simulating VIIRS NTL imagery. It uses two competing neural networks, a Generator, and Discriminator, for generating synthetic data.

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Nandhakumar M.

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Agriculture and Soils)
B.Tech. (Agriculture Information Technology)

Area of Interest

Soil Quality, Spatial modelling, Artificial Intelligence in agriculture, Crop Phenology, Crop Classification and monitoring, Hyperspectral Remote Sensing

Software Skills

Python, Anaconda, R Studio, ERDAS Imagine, ArcGIS, Quantum-GIS, SNAP, ENVI, Google Earth Engine, GeoServer, Microsoft Office, SPSS, Minitab, Photoshop

Thesis

Geospatial modelling for soil quality assessment in a watershed of hilly and mountainous landscape using Machine Learning techniques.

Abstract

Soil quality (SQ) is one of the most common concepts that has emerged over the last decades. The judgment of SQ depends on impacts of soil on crop yield, erosion, and quality of surface and ground, food, and air. The objectives of study are, to characterize soil quality and terrain parameters of the watershed using remote sensing and DEM. Analyzing soil quality parameters in relation to various land use/ land cover and landscape elements. Developing spatial prediction models for soil quality mapping using soil-terrain variables and Machine Learning techniques.

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Neelima R.

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Satellite Image Analysis and Photogrammetry)
M.Sc. (Physics), B.Sc. (Physics)

Area of Interest

Remote Sensing, Image processing (Optical/Microwave), Synthetic Aperture Radar, GPS, Programming, Geographical Information System, Optics.

Software Skills

Python, MATLAB, C/C++, SQL, QGIS, ERDAS Imagine, ENVI, SNAP, MS Office.

Thesis

Analysis of Speckle noise characteristics in SAR images and its removal through Advance Speckle Filters

Abstract

Speckle is a granular, "salt & pepper"- like noise found in SAR imagery which hampers the image quality. For SAR image applications such as image classification, segmentation, change detection, speckle removal is vital. This study focusses on SAR speckle noise characteristics for different frequencies, targets, polarizations, etc. It also discusses various speckle removal methods. Different advanced speckle filtering algorithms will be investigated in detail. Advanced filters will be implemented using MATLAB. Their performance will be evaluated. We also aim to propose a new speckle filtering algorithm for SAR imagery.

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Nikhil Kumar

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Forest Resources & Ecosystem Analysis)
M.Sc. (Ecology & Environmental Sciences),
B.Sc. (Honors-Botany)

Area of Interest

Biodiversity assessment & conservation, Forest Hydrology, Biomass Assessment, Crop Monitoring, Habitat Suitability Analysis, Carbon Sequestration, Climate Change, Ecosophy.

Software Skills

Python, R, Google Earth Engine, ArcGIS, QGIS, ERDAS Imagine, ENVI, SNAP, 3D Forest, eCognition, MaxEnt, Geoserver, Panoply, SPSS, Canva, Open Data Kit.

Thesis

Assessing the Potential of Sun-Induced Chlorophyll Fluorescence in Understanding Vegetation Dynamics.

Abstract

Forests plays major role in the carbon and water cycle. This can be understood by estimating the Gross Primary Productivity (GPP) and Evapotranspiration (ET) respectively. Various remote sensing derived indices are extensively used to derive GPP and ET. Sun-Induced Chlorophyll Fluorescence (SIF), is considered more superior in measuring GPP and ET. Relation between GPP and ET are synchronized. This study aims to improve the estimation of GPP and ET by understanding the influence of different environmental variables on SIF.

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Pooja N.

Qualifications

M. Tech. in Remote Sensing and GIS
(Specialization: Agriculture and Soils)
B. Tech. (Agricultural Engineering)

Area of Interest

Workflow management, Crop related programming and modelling, Satellite-based ET flux and yield prediction

Software Skills

GEE, Python, R, SPSS, Blender, Caesium, ERDAS, ENVI, SNAP, ArcGIS, QGIS, Camunda

Thesis

Improvising the Yield Prediction of Sugarcane using Field-scale Evapotranspiration Estimates

Abstract

Yield prediction is an essential component for decision making in agriculture. It helps farmers, scientists and decision makers to take appropriate actions for crop conditioning, monitoring and policy making. This research principally focusses on improvising the current yield prediction by integrating it with Evapotranspiration (ET) estimates at field scale. The modelling is executed through a combination of Machine Learning (ML) techniques and a pre-defined crop software (AquaCrop). With high precision ET in terms of spatial and temporal basis, harvest would be tailored for Sugarcane. With the assimilation of ET estimates and ML algorithms, analyses could be drawn on their impact over yield forecast.

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Pratibha Mishra

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Geosciences)
M.Sc. (Geology), B.Sc. (Honors – Geology)

Area of Interest

Land Deformation studies (Landslides and Subsidence); InSAR and DInSAR data analysis and Processing; Groundwater Quality and Hydrodynamics; Geomorphology and Landscape Evolution; Geophysical Investigation; GIS and Image Processing.

Software Skills

ERDAS Imagine; ENVI; SNAP; ARCGIS; QGIS; Python; Google Earth Pro; Google Earth Engine; Adobe Illustrator; SWAN: Software for MASW; MODFLOW; MS-Office

Thesis

Assessment of Groundwater Depletion, its impacts on Aquifer-system Compaction and Land Subsidence in Luni-Ghaggar Drainage Basin by GRACE Gravity and DInSAR Techniques

Abstract

Groundwater is the world's most extracted raw material with India being one of the top five abstractors of the world. This rapid groundwater depletion can lead to irreversible process of Aquifer compaction due to over-abstraction of groundwater resource and trigger phenomenon such as Land Subsidence. This project aims at estabilishing relationship between GWS anomaly and Land Subsidence using GRACE and SAR data in Luni-Ghaggar basin.

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Pritha Dasmahapatra

Qualifications

M.Tech. in Remote Sensing & GIS (Specialization: Natural Hazards and Disaster Risk Management)
M.Sc. (Geology)

Area of Interest

Land deformation studies (Land subsidence, Landslide, Snow Avalanche), Climate Change Studies, GIS and Image Processing, InSAR and DInSAR applications, Natural Hazard mapping and monitoring.

Software Skills

R, Python, ArcGIS, QGIS, ERDAS Imagine, SNAP, MATLAB (Basics), Corel Draw.

Thesis

Land Subsidence Mapping and Monitoring using Advanced Differential SAR Interferometry in Hasdeo Area of Sohagpur Coalfields, Madhya Pradesh and Chhattisgarh, India.

Abstract

PSI (Persistent Scatterer Interferometry) is an advanced time series interferometric technique used for Land subsidence studies. But there are various limitations in detecting the motion due to presence of unwanted phases. The current study will focus on the investigation of algorithms for various phase corrections and development of a methodological framework for detection and mapping of land subsidence in rural regions of Hasdeo area of Sohagpur coalfields (Madhya Pradesh and Chhattisgarh).

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Priti Girohi

Qualifications

M.Tech. in Remote sensing and GIS
(Specialization: Satellite image analysis and photogrammetry)
B.Tech. (Electronics & Communication)

Area of Interest

Synthetic Aperture RADAR (SAR), SAR interferometry, Satellite Image Processing, Machine Learning/Deep Learning, Object Detection, Image Processing

Software Skills

C, Python, QGIS, ArcGIS, ArcGIS Pro, ERDAS imagine, ENVI, SNAP, eCognition software.

Thesis

Improving SAR Interferometry based Digital Elevation Models using DEM fusion approaches.

Abstract

The present work proposed is to generate Interferometry SAR based Digital Elevation Models using multiple SAR image pairs selected on the basis of crucial factors such as Temporal and Perpendicular baselines, Coherence, Viewing angle and so on in two geographically different areas. By combining multiple image pairs, we can retrieve best of the information for the terrain. The main objective is to design a methodology for two level fusion of generated DEMs to improve its quality, first by pixel wise comparison of coherence images to select best pixel depicting elevation and second to assimilate generated InSAR based output DEMs using fusion techniques supported by neural network model.

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Priyadarsini Sivaraj

Qualifications

M. Tech. in Remote Sensing & GIS (Specialization: Geoinformatics)
B. E. (Geoinformatics)

Area of Interest

Fuzzy Machine Learning, WebGIS, 3D-GIS, Spatial Data Handling, Digital Image Processing, Ecological Niche Modelling & Biodiversity Mapping, Plant Genetic Resource Management using GIS.

Software Skills

R, Python, IDL, MATLAB, Java, ArcGIS, QGIS, DIVA-GIS, ERDAS Imagine, ENVI, SNAP, PostgreSQL, GeoServer, MaxEnt, Geoda, Weka, Netlogo, Blender

Thesis

Study of Fuzzy Machine Learning Models for Specific Crop Mapping using Dual-Sensor Temporal Remote Sensing Data

Abstract

Thesis research work is primarily aimed at utilising the potential of fuzzy machine learning models – Possibilistic c-Means (PCM) and Noise Clustering (NC) in Pigeon Pea crop mapping and prediction of acreage/yield. Dual-sensor temporal approach is adopted to overcome the issue of spectral overlap of the target crop with other crops and vegetation patches. The ability of PCM and NC models to handle heterogeneity within the class is studied.

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Saransh Raghav

Qualifications

M.Tech. in Remote Sensing and GIS
(Specialization: Geosciences)
M.Sc. (Geology), B.Sc. Hons. (Geology)

Area of Interest

GIS & Digital Image Processing, Geodetic Technologies (GNSS/GPS), Fault Slip Modelling and Inversion Modelling in Tectonics, Climate Change, Glacier Dynamics, Structural Geology, Geodynamics, Crustal Dynamics/ Tectonics, Exploration Geology, Hyperspectral Remote Sensing, InSAR & DInSAR Application, Hydrological Modelling, Landslide Monitoring, Application of Machine Learning in Earth Science.

Software Skills

Python, ArcGIS, QGIS, ERDAS IMAGINE, SNAP, ENVI, ILWIS, GAMIT/GLOBK, GMTSAR, GMT, GG-MATLAB, Globber Mapper, Microsoft Office.

Thesis

Quantification of the inter-seismic coupling and strain budget modelling in Northwest Himalaya to study the seismic hazard assessment.

Abstract

Present study incorporates site velocity estimation from GPS and InSAR-SBAS derived deformation though which subsurface modelling has been done.

shanta.panja@gmail.com

Shanta Panja

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Geosciences)
M.Sc. (Geology), B.Sc. (Hons. – Geology)

Area of Interest

Planetary Geology, Hyperspectral Remote Sensing, Ore & Exploration Geology, Paleontology

Software Skills

R, ArcGIS, QGIS, ERDAS Imagine, SNAP, ENVI, Corel Draw, GrADS, Microsoft Office

Thesis

Investigation of spinel bearing exposures on the Moon for their nature of occurrences, associated mineralogy and morphological characteristics

Abstract

Spinel is an important mineral reported from the lunar surface. The present study aims to study the spatial distribution, mineralogy, associated lithology, and structural and tectonic-setting of the spinel-bearing exposures using multi-sensor hyperspectral and high-resolution data from different lunar missions. This will help to understand their formation process that can provide significant clues to lunar crustal evolution with time.

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Shubham Mishra

Qualifications

M.Tech. in Remote Sensing & GIS
Specialization: Geosciences
M.Sc. (Geology), B.Sc. (Hons. – Geology)

Area of Interest

Cryospheric Studies, Landslides and Geohazards, Climate Change, Geomorphology, Tectonics and Landscape Evolution, Groundwater, Geophysical Prospecting, GIS and Image Processing.

Software Skills

Python, ArcGIS, QGIS, ERDAS Imagine, ENVI, SNAP, Google Earth Pro, Google Earth Engine, SWAN, MS Office

Thesis

Glacier hazards susceptibility and dynamics study of Rishiganga basin, Chamoli using remote sensing techniques

Abstract

Glacial hazards and the related phenomenon constitute major hazards in the Himalayas. Catastrophic geo-disasters have become more frequent in the Himalayan region due to the global climate change, and pose threats to the local residents, infrastructure beside widespread devastation. Therefore, understanding the dynamics of changes and constant monitoring of glaciers are important to predict the glacier related hazards. The present study investigates the dynamics of the Rishiganga basin and maps the locations most vulnerable to glacier and landslide hazards.

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Sreeraj R.

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Marine & Atmospheric Sciences)
M.Sc. (Geography)

Area of Interest

Pollution Studies, Climate Change Studies, Atmospheric and Cloud Modelling, Meteorology, Atmospheric Energy Budget, Geospatial Application for Natural Resource Management, Air Quality Studies, Trace Gas Detection, Monsoon, Rainfall Variability, Atmospheric Chemistry

Software Skills

C++, Python, WRF-Chem, ArcGis, ERDAS, SNAP, ENVI, Google Earth Engine,Qgis, MATLAB, Panoply, FORTRAN, Microsoft Office.

Thesis

Development of a new emission Inventory over Indian Region using satellite data and WRF-Chem Model.

Abstract

The project aims to create a new emission inventory to calculate NO2 emissions in India using WRF-Chem Model. The current emission inventory underestimates the emission data for the Indian region. Using EDGAR inventory data and improving the emission using TROPOMI satellite data, the errors in the model emissions are reduced to give better emission inventory which can be applied over the Indian region.

steesaini@gmail.com

Steena

Qualifications

M.Tech. in Remote Sensing and GIS
(Specialisation : Agriculture & Soils)
B.Tech. (Agricultural Engineering)

Area of Interest

Natural Resource Monitoring, Environmental Monitoring, Orchard Monitoring, Climate change, Soil Organic Carbon, Drones in Agriculture

Software Skills

Google Earth Engine, Python, ARC GIS, ARC GIS PRO, ENVI, ERDAS, QGIS, E Cognition, SNAP

Thesis

Mango Orchard Phenology Monitoring using SAR and Optical data.

Abstract

Phenological stages of mango trees determine their yield and require constant monitoring. With the help of microwave and optical data, orchard monitoring can be carried out throughout the year. This would aid in protecting the orchards from pests, diseases and the impact of climate change. Phenology monitoring will also help to predict the yield of mangoes. The ability to predict the age of an orchard using remote sensing methods will be beneficial in the allocation of resources to orchards by farmers, Government agencies and better yield estimation.

sukanyamukherjee104@gmail.com

Sukanya Mukherjee

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Marine & Atmospheric Sciences)
M.Sc. (Geography)

Area of Interest

Tropical Cyclone, Numerical Weather Prediction, Cyclonic Flood Assessment, Coastal Geomorphology, Climate Change.

Software Skills

Python, R, RStudio, WRF-ARW, Shell script, Linux OS, GrADS, Google Earth Engine, ArcGIS, ERDAS Imagine

Thesis

Assimilation Impact of INSAT-3DR Sounder Data in The Simulation of Recent Tropical Cyclones Tauktae and Yaas

Abstract

The impact of tropical cyclones (TCs) over the North Indian Ocean is significantly high due to narrow ocean basins and densely populated coastline. Geostationary satellites play an important role for monitoring and tracking by providing continuous observations. In the present study, brightness temperature observations from geostationary satellite INSAT-3DR sounder will be used through data assimilation to improve the Weather Research and Forecasting (WRF) model initial condition. The impact of assimilation in the WRF model will be assessed on simulations of two TCs (Tauktae and Yaas) that formed over the North Indian Ocean (NIO) in 2021.

supriya22tiwari@gmail.com

Surpiya Tiwari

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Water Resources)
B.E. (Civil Engineering)

Area of Interest

Geospatial modelling for water resource management, disaster management/response, hydrological and hydrodynamic modelling, water quality mapping and monitoring, surface water hydrology.

Software Skills

Python, R, Java Script, Google Earth Engine, Google Cloud Platform (GCP), ArcGIS, QGIS, ERDAS Imagine, ENVI, SNAP, ILWIS, HEC-RAS, HEC-HMS, VIC, SWAT.

Thesis

Understanding Hydrological Extremes of Ganga River Basin.

Abstract

Climate change is causing considerable changes in surface water dynamics, with a general tendency for hydrological extremes to become more intense. The present work attempts to study these for the Ganga basin by integration of satellite-based observations with land surface (VIC) model using data assimilation techniques to produce better large-scale estimates. Further the work seeks to forecast the basin's future water availability under different climatic scenarios. The vision is to develop a methodology for evaluating the basin's spatially and temporally explicit extreme discharge occurrences.

udaykumar0711194@gmail.com

Uday Kumar

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Water Resources)
B.Tech (Civil Engineering)

Area of Interest

Cryosphere studies, Flood studies, Climate change studies, Hydrological and Hydrodynamic modelling, Microwave remote sensing, Satellite image processing and analysis

Software Skills

Python, R, Google Earth Engine, HEC-HMS, HEC-RAS, ARC GIS, Q-GIS, ERDAS IMAGINE, ENVI, SNAP, CROPWAT, ILWIS, BRAT, Microsoft Office Suite, Geoserver

Thesis

Glacier change studies under changing climatic conditions: A geospatial approach

Abstract

Himalayan glaciers provide water for agriculture, energy, drinking, sanitation, industry, and benefiting about 750 million people as well as the economies of neighboring countries. Glaciers respond to changes in the environment by changing their extent. As a result, determining the availability of freshwater requires a spatiotemporal study of glaciers. The purpose of this study is to see how glacier extent, elevation, flow velocity, and melt runoff have changed over time, as well as how much uncertainty there is in estimating these variables.

vaibi190592@gmail.com

Vaibhav Dhawan

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Natural Hazards and Disaster Risk Management)
M.Sc. (Environmental sciences)

Area of Interest

Application of Remote Sensing and GIS in Natural hazards and Disaster Risk Management, Vulnerability and Damage assessment, Flood Management, Landslide Hazard Zonation, Cryosphere Studies, Forest Fire Damage Assessment, Environment Monitoring, Aerosol Monitoring, Water Quality Assessment, Air pollution, SAR Polarimetric Applications in Agriculture and Cryosphere

Software Skills

Q-GIS, ARC-GIS, SNAP, POLSAR-PRO, ERDAS IMAGINE, Google Earth Engine, ENVI

Thesis

Characterization of Flood Inundated Paddy Crop Areas in Darbhanga District, Bihar Using Multi-Temporal SAR and Optical images for Paddy Crop Vulnerability Assessment

Abstract

The study focuses on the assessment of stage wise damage occurred to paddy crops due to floods using multi temporal SAR images and multispectral optical images in Darbhanga District North Bihar Also focusing on the paddy phenology using dual polarized sentinel-1 for assessment of flood onset and recession on different growth stages of paddy & paddy fields damaged due to lodging using SAR Polarimetric Decomposition parameters

vinamrabharadwaj246@gmail.com

Vinamra Bharadwaj

Qualifications

M.Tech. in Remote Sensing & GIS
(Specialization: Urban and Regional Studies)
B. Plan.

Area of Interest

Data Driven Urban Management, Automation, Machine Learning & Data Science, WebGIS, Climate Change Studies, Urban Climatology, New and Renewable Energy, Urban Growth Modelling, Urban Utility and Services Management, Smart Cities, Urban Transport.

Software Skills

Python, R, JavaScript, Java, SQL, Google Earth Engine, ArcGIS, QGIS, Erdas Imagine, SPSS, Tableau, Microsoft Office.

Thesis

Understanding the Role of Biophysical and Climatic Variables in Surface Urban Heat Islands for Indian Cities.

Abstract

Increasing urbanisation and associated Urban Heat Island (UHI) effect is a cause of global concern for climate experts. Climate change leads to alteration in the thermal comfort of cities. The study focuses on quantifying the degree of influence of biophysical and climatic variables on UHI for the 53 Million+ Indian Metropolitan Cities. Further, the trend and variability analysis of UHI is carried out from 2001 to 2019. The development of a Decision Support System aims to establish data-driven environmental planning in India. The automation through programming achieved in this process adds to the replicability of the study for cities across the world.

yaminiminmay@gmail.com

Yamini Bhat

Qualifications

M.Tech. in Remote Sensing and GIS
(Specialization: Forest Resources and Ecosystem Analysis)
P.G.D. (Environmental Law)
B.E. (Environmental Engineering)

Area of Interest

Climate Change, Sustainable Development, Environmental Statistics, Environmental Impact Assessment, Wildlife Studies, Waste Management, Energy, Ecosophy.

Software Skills

R, Python, Google Earth Engine, ArcGIS, QGIS, ERDAS Imagine, SNAP, ENVI, eCognition, MaxEnt, 3D Forest, GrADS.

Thesis

Spatio-temporal Modelling of Forest Carbon Dynamics in a Shifting Cultivation Landscape of Northeast India.

Abstract

Shifting cultivation is a primitive agricultural practice that involves using an arbitrarily cleared and burnt patch of forest for bouts of intensive cropping, followed by fallow spells when vegetation is allowed to regenerate naturally. In addition to other environmental and socio-economic impacts, shifting cultivation leads to carbon emissions during the slash-and-burn phase, while the regeneration phase results in carbon uptake. The study aims to model the spatial distribution of aboveground biomass in a shifting cultivation landscape by integrating optical, C-band SAR and spaceborne LiDAR data, analyze long-term trends in forest disturbance and recovery, and model spatio-temporal forest aboveground carbon dynamics associated with the same.

M.Sc. in Geoinformatics

The Master of Science (M.Sc.) in Geo-information Science and Earth Observation (specialisation/domain: Geoinformatics) is offered within the framework of Joint Education Programme (JEP) of the Indian Institute of Remote Sensing (IIRS) and the Faculty of Geo-information Science and Earth Observation (ITC) of the University of Twente (UT), The Netherlands.

The course is of two year duration having eight quartiles. Students follow part of the course at IIRS and a part at the Faculty ITC, The Netherlands. Upon successful completion of the course students receive a Master's degree from UT-ITC. The UT-ITC degree has the name 'Master of Science degree in Geo-Information Science and Earth Observation'. The broad structure of the course is:

Year	Module	Course	Location
1	Q1	Core Academic Skills	IIRS IIRS
1	Q2	Scientific Geocomputing Acquisition and Exploration of Geospatial Data Academic Skills	IIRS IIRS IIRS
1	Q3	Extraction, Analysis and Dissemination of Geospatial Information Elective Course Academic Skills	IIRS IIRS IIRS
1	Q4	Global Challenges, Local Action Elective course Academic Skills	IIRS IIRS IIRS
2	Q5-6	MSc Research (proposal), Individual study programme & MSc Research	ITC
2	Q7-8	MSc Research and Thesis Defence	IIRS

identity.aravind@gmail.com

Aravind M

Qualifications

M.Sc. (Geoinformatics)
B.Tech (Civil Engineering)

Area of Interest

Remote sensing applications for Environmental Engineering, Cryosphere studies, Glaciology, Glacier health studies, SAR, LIDAR, Machine learning, Climate Change, Environmental impact assessment, Indoor and outdoor Air pollution monitoring, hydrological studies using remote sensing techniques.

Software Skills

Python, Google earth engine, ArcGIS, Qgis, ERDAS Imagine, SNAP, ENVI, LPS (Lidar processing), REVIT, AutoCAD

Thesis

Glacier Facies classification, comparison and evaluation of velocity tracking techniques using polarimetric, interferometric and time series of SAR datasets.

Abstract

Accelerated melting of mountainous glaciers and polar ice caps lead to disasters like flash floods, rise in global mean sea level, change in local climate dynamics etc. Hence, it is important to monitor their health.

badrigarirohith2@gmail.com

Badri Gari Rohith

Qualifications

M.Sc. (Geoinformatics)
B. Tech (Urban and Regional planning)

Area of Interest

Remote sensing, Urban planning, Transportation planning, Land management, Machine/Deep Learning, Web GIS, Disaster management, urban growth modelling, point cloud data.

Software Skills

Python, R studio, Google Earth Engine, ArcGIS, QGIS, ERDAS Imagine, MongoDB, SQL, PostgreSQL and PostGIS, ArcGIS Pro, e-cognition, AutoCAD, Envi, Space syntax, Photoshop.

Thesis

Web-Based Dissemination of Land use Land cover using satellite imagery.

Abstract

This study aims to monitor ground truth data of LULC with development plans and create a real-time web-based GIS application with the help of integrating spatial land records, Satellite imagery, Web-Gis, MCE-CA and machine-learning techniques, CA-ANN, and PIQT-web/web-based services.

gautamee.baviskar@gmail.com

Gautamee Baviskar

Qualifications

M.Sc. (Geoinformatics),
B.Plan (Urban & Regional Planning)

Area of Interest

Geoinformatics, Regional Planning, Water resources, Digital Image Processing, LULC Modelling, Hydrological Modelling, Machine Learning, Urban Planning, Earth observation, Rural planning, Urban Hazards & Disaster Management, Site Suitability Analysis, Risk mapping

Software Skills

Microsoft Office, AutoCAD, Arc GIS, Sketch Up Pro, Python, Qgis, ERDAS, Rstudio, Faro Scene, Google Earth Engine, ENVI and Basic Web Development.

Thesis

Water footprint assessment of inter-district transboundary using Machine Learning technique.

Abstract

The Water footprint is the consumption behaviour for the usage of water. The study tries to assess the water footprint within a geographically delineated area and evaluates the machine learning techniques for assessing water footprint. The study aims to understand the consumption pattern of inter-district transboundary.

jambhali1998@gmail.com

Ketaki Vinay Jambhali

Qualifications

M.Sc. in Geo-information Science & Earth Observation
(Specialization: Geoinformatics)
B.E Computer Engineering

Area of Interest

Deep/Machine Learning, Computer Vision, Image Processing, Spatial Analysis, RS and GIS Applications, Climate Change, Space Science

Software Skills

Python, Java, R, SQL, TensorFlow, Keras, Google Earth Engine, ArcGIS, QGIS, ERDAS Imagine

Thesis

Detection of Brick Kilns using Deep Learning Models from High-Resolution Remote Sensing Images

Abstract

Clay bricks are used as a basic building block in developing Asian countries such as India. The process of firing bricks produces exhaust fumes, which damage air quality and have a significant negative impact on the vegetation and animals in the area. After suitable pre-processing, pictures from Google Earth satellite imagery will be used to create the dataset.

ashmithamargarret98@gmail.com om om om

Margarret Ashmitha A

Qualifications

M.Sc. (Geoinformatics),
B.E (Geoinformatics)

Area of Interest

Deep Learning, Machine Learning, Satellite Image Processing, Landuse Landcover Classification, Feature Extraction, Remote Sensing for Agriculture, Crop Mapping, Multi- criteria decision Analysis, Flood Prediction

Software Skills

Python, R, C++, Google Earth Engine, PostgreSQL- PostGIS, MongoDB, ArcGIS, QGIS, ERDAS Imagine, SNAP, eCognition, ENVI, Photomod, Surveying (Theodolite, Total Station)

Thesis

Deep Learning based Multi-Temporal Crop Type Mapping in High Crop Diversity Regions

Abstract

A major issue often ignored in crop type mapping is the problem of class imbalance. A Fully Convolutional 3D-UNet, Deep Learning architecture capable of addressing imbalanced class distribution problem in multi-temporal cropland mapping is developed. In addition, data level balancing techniques such as oversampling and undersampling are explored.

narayanan.neethu12345@gmail.com

Neethu Narayanan

Qualifications

M.Sc. (Geoinformatics),
B. Tech (Information Technology)

Area of Interest

Remote sensing, GIS, Machine/Deep Learning, Nighttime lights, Forest fires, Web GIS

Software Skills

Python, C, C++, Java, HTML Javascript, R, Google Earth Engine, ArcGIS, QGIS, ERDAS Imagine, MongoDB, SQL, PostgreSQL and PostGIS

Thesis

Detection of forest fires using Nighttime lights in Northeast India

Abstract

Most of the forest fires that occur in India are due to the age-old tradition of shifting cultivation. The research explores the capabilities of deep learning and nighttime lights in the detection of forest fires which are many caused due to shifting cultivation. undersampling are explored. Finally, both these balancing techniques are compared against each other to arrive at the best technique.

omkarjadhav296@gmail.com

Omkar Arvind Jadhav

Qualifications

M.Sc. (Geoinformatics),
B. Tech in Agricultural Engineering.

Area of Interest

Hydrological modelling, Data Science, Machine Learning, Forestry, Web GIS, PolSAR, PolInSAR, InSAR, Agriculture, Spatial Data Infrastructure, Image processing.

Software Skills

Python, R, Google Earth Engine, SQL, ArcGIS, ERDAS Imagine, ENVI, GeoDA, QGIS, PostgreSQL, PostGIS, ArcGIS Story Map, SNAP, MATLAB.

Thesis

Sugarcane crop monitoring using multi-parametric SAR datasets.

Abstract

Crop monitoring and biophysical parameter assessment from multi-parametric SAR data at various crop types/stages is a challenge to the scientific community. Starting from emergence, tillers, pre-peak vegetative stage to advanced stage (grain/fruit formation) as per the dimension of the plant variable is a possible path to be explored by the scientific community using various polarimetric/ interferometric /frequency bands inputs enhance the capability of modern-day global Agricultural monitoring. If these parameters are retrieved by using multiparametric SAR (as mentioned above) with frequency, in particular, it would reduce the dependency on climatic variables to large extent.

tiwari.prateet@gmail.com.

Prateet Tiwari

Qualifications

M.Sc. (Geoinformatics) M.A. in Geography
B.E. in Computer Science
Certification: UGC-NET 2019 (Geography)

Area of Interest

Teaching, Geography, Forestry, Planetary Science, Data Science, Machine/ Deep learning, Computer vision, Image analysis.

Software Skills

Python, R, Google Earth Engine, SQL, ArcGIS, ERDAS Imagine, ENVI, GeoDA, QGIS, PostgreSQL, PostGIS, ArcGIS Story Map, SNAP, MATLAB.

Thesis

Deep learning technique to count craters on the Moon.

Abstract

The primary goal of this thesis work is to detect and count moon craters using deep learning techniques. This is a cutting-edge technique used in space science to improve data exploration efficiency. This work is blended with Remote sensing, Geology and Computer Science.

writetoshivang@gmail.com

Shivang Pandey

Qualifications

M.Sc. (Geoinformatics
B.Tech (Electronics & Communication)

Area of Interest

Remote Sensing, Cryospheric Studies, Geoinformatics, SAR Image Processing, Machine Learning, Spatial Analysis, Web-based GIS, DBMS, Internet of Things (IoT), Embedded Systems.

Software Skills

Python, R Studio, JavaScript, Google Earth Engine, GDAL, ArcGIS Products QGIS, ERDAS, ESA SNAP, C, C++, Lua, MATLAB, HTML & CSS Linux, Git, PostGIS, MongoDB

Thesis

Snow Depth and SWE estimation using multi-sensor microwave and optical time series data for Indian Himalayas

Abstract

The study of Snow Depth (SD) and Snow Water Equivalent (SWE) can play a significant role in forecasting yearly water supplies, flood prediction, and general climate research. This project aims to extract features using radar and optical data for SD and SWE applications in the north-western Himalayas region later to develop a machine-learning-based model to estimate SD and SWE at efficient resolution using features obtained from the fusion of high-resolution multi-sensor data.

PG Diploma in Geoinformatics

Post Graduate Diploma (PGD) in Geo-information Science and Earth Observation (specialisation/domain: Geoinformatics) is offered within the framework of Joint Education Programme (JEP) of the Indian Institute of Remote Sensing (IIRS) and the Faculty of Geo-information Science and Earth Observation (ITC) of the University of Twente (UT), The Netherlands. Upon successful completion of the course, the participants receive the Postgraduate Diploma in "Geo-information Science and Earth Observation (Geoinformatics)" awarded jointly by the Faculty ITC/ University of Twente and IIRS.

The course is of one year duration having four quartiles. Students follow the course at IIRS. The broad structure is:

Quartile	Course
Q1	Core Academic Skills
Q2	Scientific Geocomputing Acquisition and Exploration of Geospatial Data Academic Skills
Q3	Extraction, Analysis and Dissemination of Geospatial Information Elective Course Academic Skills
Q4	Individual Project, Report Writing, Evaluation Academic Skills

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Aayush Sharma

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
M.Sc. Applied Physics,
B.Sc. Physics (Hons.)

Area of Interest

Remote Sensing Application in Climate Change (Extreme Events & Climate Risks), Atmospheric and Ocean Dynamics and Modeling, Meteorology, Environmental Impact Assessment GIS, Urban & Regional Planning, Cartography & 3-D Modeling

Software Skills

ESRI ArcGIS Pro, ESRI ArcMap, QGIS, ERDAS Imagine, Python, GDAL, PosgreSQL, R programming, JavaScript, Google Earth, Google Earth Engine, Adobe Photoshop, Adobe Illustrator, Autodesk Sketchbook, MS Office

aishwaryadeshmukhe11@gmail.com

Deshmukhe Aishwarya Dayanand

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
M.Sc. Physics, B.Sc. Physics.

Area of Interest

Health GIS, Web GIS, Machine Learning, Natural hazard and Disaster monitoring, Wasteland Development, Meteorology GIS, Forest mapping and Monitoring, use of GPS, Environmental Planning and Management, site suitability Analysis, Network Analysis, 3-D Modeling and LiDAR Scanning.

Software Skills

ArcGIS, Python, Google Earth, Microsoft Office Suite, Photoshop, QGIS, SQL, ERDAS Imagine, PostgreSQL, R

alishya.sebastian@gmail.com

Alishya Sebastian

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
M.Sc. Geology, B.Sc. Geology.

Area of Interest

Application of RS and GIS in ground water, mineral and hydrocarbon exploration; Landslide modelling; Geomorphology; LULC modelling; Hydrological modelling; Web GIS, Natural hazard mitigation and LiDAR.

Software Skills

Python, ArcGIS, QGIS, ERDAS Imagine, Google Earth Engine, Microsoft Office, PostgreSQL, R, SQL and Autodesk.

parteamruta98@gmail.com

Amruta Ganeshprasad Parte

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
M.Sc. Geology, B.Sc. Geology.

Area of Interest

Remote sensing and GIS application in geosciences, Natural hazards, Meteorology. Application in Water resource management, Geo-technical engineering, Geophysical exploration, Urban planning, Environmental hazards, Geological hazards, Resource management. Digital image processing, LULC modelling, Hydrological modeling, LiDAR.

Software Skills

ArcGIS, QGIS, ERDAS imagine, Python, SedLog, GravMag, Microsoft office and Google Earth Pro, R, SQL and PostgreSQL.

ankiniborgohain@gmail.com

Ankini Borgohain

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
M.Sc. Geology, B.Sc. Geology.

Area of Interest

Mineral exploration and mining using GIS techniques, Remote Sensing and GIS applications in oil & gas industry (well planning, Volumetric data visualization, field operations), Subsurface mapping, 3D Modelling, Satellite Image Processing & Analysis, Geological feature mapping and LiDAR.

Software Skills

ArcGIS, QGIS, ERDAS IMAGINE, SQL, PostGIS, Python, R, Microsoft Office Suite

avishekdd@gmail.com

Avishek Ghosal

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
B. Tech. (Electrical Engineering)

Area of Interest

Remote Sensing and GIS applications in planetary astronomy and Climate Studies.

Software Skills

C, Java, Matlab, HTML and CSS, Python, ArcGIS, MS Office, Google Earth, ERDAS Imagine, PostgreSQL.

imonga4@gmail.com

Ishita

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
M.Sc. (Hons.) Geology,
B.Sc. (Hons.) Geology

Area of Interest

RS and GIS application, Digital Image Processing, Geological survey and mapping, Machine learning, Hydro geological modelling, Planetary Geology, Sedimentary basins analysis, Geo Hazard mapping, Landslide modelling, Flood zone modelling, Exploration of Minerals and Hydrocarbons, Climate change assessment and HealthGIS

Software Skills

ArcGIS, Python, ENVI, QGIS, ERDAS Imagine, MS Office, GDAL, Netlogo, R, SQL and PostgreSQL

smappalla@gmail.com

Appalla Sai Manoj

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
B.Tech in Geoinformatics.

Area of Interest

Remote Sensing, GIS Applications, High Performance computing, Web GIS, LiDAR.

Software Skills

C, Python, Web Programming, SQL, Windows Forms (.NET), Basics of CUDA programming, ArcGIS, QGIS, Google Earth Engine, PyQGIS, GDAL, PostGIS

sukafa.5609@gmail.com

Sukalpa Changmai

Qualifications

PGD in Geoinformation Science & Earth Observation
(Specialization: Geoinformatics)
M.Sc. (Geography), B.Sc. (Geography).

Area of Interest

GIS application in Military Strategy, GIS application in Meteorology and Natural Hazards, Site Suitability Analysis, Application of Remote Sensing & GIS in Climate Change Mitigation and LiDAR.

Software Skills

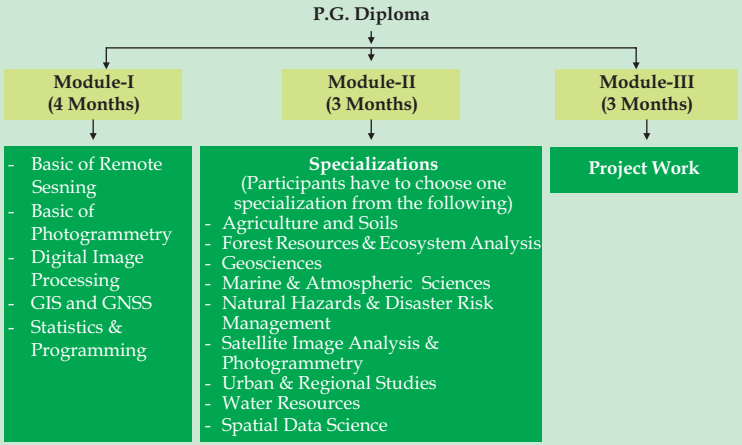
C, QGIS, ArcGIS, ERDAS Imagine, Python, MS Office, Adobe Photoshop, Google Earth Pro, R and SQL.

PG Diploma (RS&GIS)

The PG Diploma programme aims to provide in-depth understanding of remote sensing, satellite image analysis, GIS and Global GNSS technologies and their applications in various fields viz., Agriculture and Soils, Forestry & Ecology, Geosciences, Water Resources, Marine and Atmospheric Sciences, Urban and Regional Studies, Large-scale Mapping, Disaster Management Studies, etc.

The PG Diploma course is modular in structure. First module covers basics of geospatial technologies, second module deals with thematic disciplines, and third module contains pilot project work. The PG Diploma programme is conducted in following disciplines-

- Agriculture and Soils
- Forest Resources & Ecosystem Analysis
- Geoinformatics#
- Geosciences
- Marine & Atmospheric Sciences
- Natural Hazards & Disaster Risk Management (NHDRM)
- Satellite Image Analysis & Photogrammetry
- Urban & Regional Studies
- Water Resources
- Spatial Data Science



***Core paper under each specialization in module II of M.Tech/P.G. Diploma**

Thematic Specialization	Subject
Agriculture & Soils	• Land Use & Soil Resource Assessment • Agri-informatics • Environmental Soil Science • Satellite Agro-meteorology
Forest Resources and Ecosystem Analysis	• Forest Mapping & Monitoring • Forest Inventory • Forest Informatics • Forest Eco-System Analysis
Geoinformatics#	• Spatial Data Quality • Programming Skills Development for Geo-Processing • Spatial Database Handling, Modelling & GIS Implementing Architectures • Geo-Statistics
Geosciences	• Earth Science and Planetary Geology • Data Processing and Analysis for Geosciences • Applied and Tectonic Geomorphology • Engineering Geology and Groundwater
Marine & Atmospheric Sciences	• Satellite Oceanography • Satellite Meteorology • Coastal Processes and Marine Ecology • Atmospheric and Ocean Dynamics
Natural Hazards & Disaster Risk Management (NHDRM)	• Natural Hazards and Disaster Management: Concepts and Overview • Image Interpretation and Analysis for Natural Hazards Assessment • Application of Geoinformatics to Environment Hazards • Application of Geoinformatics to Geological Hazards • Application of Geoinformatics to Hydro-meteorological Hazards
Satellite Image Analysis & Photogrammetry	• Emerging Sensors and Data Processing • Image Processing Algorithms • Digital Photogrammetry and Mapping • Mathematical Computing for Geospatial data analysis
Urban & Regional Studies	• Fundamentals of Urban and Regional Planning • Geospatial Technologies for Urban & Regional Area Analysis • Urban Resources, Services and Facilities Analysis • Advanced Geospatial Technologies for Urban and Regional Studies
Water Resources	• Satellite Hydrology • Watershed Hydrology and Conservation Planning • Water Resources Development • Water Resources Planning Management
Spatial Data Science	• Big Data Analysis • Machine Learning • Programming for Geodata Processing • Spatial Modelling and Data Assimilation

**Common with M.Tech. as per page no. 8* *#Offered under M.Tech. programme only*

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Abhinav A

Qualifications

PGD. in Remote Sensing & GIS (Specialization: Spatial Data Science), M.Sc Geoinformatics, B.Sc Physics

Area of Interest

Data Science, Spatial Data Analytics/Modeling, Geodata Analytics, Machine Learning/ Deep Learning, Big Data, Potential Fishing Zone, Remote Sensing and GIS, Microwave Remote Sensing, Hyper spectral remote sensing, Digital Image Processing

Software Skills

Skills: Python, Java, C, C++, RStudio, HTML, CSS, MATLAB, PostgreSQL, ArcGIS, QGIS, ERDAS IMAGINE, SNAP, ENVI, Google Earth Engine, LuSIS

ashurohta@gmail.com

Ashutosh Rohta

Qualifications

PGD in Remote Sensing & GIS (Geosciences), M.Sc. in Geology B.Sc. in Geolog

Area of Interest

Application of Remote sensing and GIS in Groundwater studies, Watershed resources, Engineering geology, Site investigation, Disaster management, Structural geology, Environmental impact assessment, Planetary geology, Mineral and Hydrocarbon exploration.

Software Skill

ArcGIS, QGIS, ERDAS Imagine, ENVI, SNAP, Python, R, MATLAB, SQL

saloniavaghadel1999@gmail.com

Awaghade Saloni Surendra

Qualifications

PGD in Remote Sensing & GIS (Specialization: Satellite Image Analysis & Photogrammetry), B.E (I.T)

Area of Interest

Database Management System
Data Structures

Software Skills

C, Python, MySQL, Java, C, C++, CSS, MATLAB, PostgreSQL, ArcGIS, QGIS, ERDAS IMAGINE, SNAP, ENVI

dioznajamess28@gmail.com

Dizna James

Qualifications

PGD in Remote Sensing & GIS (Specialization: Natural Hazards & Disaster Risk Management), M.Sc. Physics (Specialization : Astrophysics), B.Sc Physics,Chemistry, Maths

Area of Interest

Risk assessment and disaster management, Application of RS and GIS in natural hazards, Hydrological hazards modelling, flood zone mapping, earth observation satellites for disaster management, application of remote sensing in space exploration like finding of exoplanets, research of other planets in our Solar System and astrophysical exploration.

Software Skills

PYTHON, C++, ArcGIS, QGIS, SNAP, ENVI, ERDAS imagine,, MATLAB, TOPCAT, MS OFFICE, LATEX.

pandeyharish716@gmail.com

Harish Pandey

Qualifications

PGD in Remote sensing & GIS (Specialization Forest Resources and Ecosystem Analysis)
B.Sc. – (Honors) (Forestry)

Area of Interest

Biodiversity Conservation, mapping and monitoring forest inventory and ecosystem services, wild life management, environmental resources & sustainability, environmental impact assessment, climate change mitigation, Human Ecology and restoration ecology

Software Skills

ArcGIS, ERDAS Imagine, ENVI, SPSS, Google Earth Engine, R Programming, Microsoft Office

kkhamgaonkar7@gmail.com

Kalyani Mohan Khamgaonkar

Qualification

PGD in Remote Sensing & GIS (Specialization : Spatial Data Science), B.E (Electronics Engineering)

Area of Interest

Spatial Data Analysis, Big Data, Digital Image Processing, GIS, Machine Learning

Software Skills

C, C++, Python, Matlab, Java, SQL

karishmadoot98@gmail.com

Karishma

Qualifications

PGD in Remote Sensing & GIS (Specialization: Natural Hazard and Disaster Management), M.Sc. (Geology), B.Sc. (Geology)

Area of Interest

Geomorphology, Sedimentology, Metamorphic & Igneous Petrology, Climatology, Disaster Management, Vulnerability assessment, Environmental Impact Assessment

Software Skills

ArcGIS, QGIS, SNAP, ENVI, ERDAS imagine

karpagamjaganathan18@gmail.com

Karpagam Jaganathan

Qualification

PGD in Remote Sensing and GIS (Agriculture and Soils)
Ph.D (Soil Science and Agricultural Chemistry)-(2009-2012), PGDTMA (Technology Management in Agriculture)-(2015-2016), M.Sc. (Soil Science and Agricultural Chemistry)-(2007-2009), B.Sc (Agriculture) –(2002-2006)

Area of Interest

Big data Analysis, Application of Remote Sensing and GIS in Agriculture and Soils, Microwave Remote Sensing, Hyperspectral Remote Sensing, Digital Image Processing, GNSS/IRNSS, GPS, LiDAR, Aerial and Satellite Photogrammetry

Software Skills

Arc GIS, QGIS, ERDAS Imagine, SNAP, Google Earth Engine, MS Office

kavya.bonyal@gmail.com

Kavya Bonyal

Qualification

PGD in Remote Sensing & GIS (Specialization: Satellite Image Analysis & Photogrammetry),
M.Sc (Physics; specialization- Astrophysics)
B.Sc (Phy., Chemistry & Mathematics)

Area of Interest

Emerging Sensors and Data Processing, Satellite Image Processing Aerial and Satellite Photogrammetry, GIS and Applications,Remote sensong, GPS, LiDAR, Cartography, Planetary Photogrammetry, Planetary Topographic Mapping, Digital GISMapping, SAR & Hyperspectral Remote Sensing, Environment Impact Assessment, GNSS/IRNSS Study, Radar Planetary Sciences

Software Skills

Python, C, R, ArcGIS, QGIS, ERDAS Imagine, ENVI, SNAP, Google Earth Engine, HTML, MATLAB, eCognition

kundumayuri79@gmail.com

Mayuri Kundu

Qualifications

PGD in Remote Sensing & GIS (Geosciences)
M.Sc. in Applied Geology
B.Sc. in Geology

Area of Interest

Remote Sensing & GUS and Paleontology

Software Skills

PYTHON, R, ERDAS Imagine, ArcGIS, QGIS

mohitaswa2222@gmail.com

Mohit Singh

Qualifications

PGD in Remote Sensing & GIS (Specialization: Geosciences),
M.Sc. Applied Geology
B.Sc. (Hons.) Geology

Area of Interest

Application of Remote Sensing in Groundwater Hydrology, Natural Hazard Zonation Mapping, Risk Assessment and Mitigation, Glaciology and Polar Studies, Planetary Geology, Mineral Exploration, Urban Heat Island and its Mitigation, Geodynamics and Plate Tectonics, Geomorphology.

Software Skills

ArcGIS, ERDAS Imagine, QGIS, Python, R, Google Earth Engine, Google Earth Pro, ENVI, SNAP, RADAN 7,

nishchayshekar18@gmail.com

Nishchay S

Qualifications

PGD in Remote Sensing & GIS (Specialization: Urban and Regional Studies),
M.Tech (Urban and Regional Planning),
B.E (Civil Engineering)

Area of Interest

Urban and Regional Planning, Urban Governance, Transportation Planning, Sustainable City Planning, Solid Waste Management Planning, Non-motorized Transport Planning, 3D City Modelling, Urban Flooding, Land use Mapping and Planning, Urban Area Analysis, Urban Growth Modelling (CA-ANN)

Software Skills

ArcGIS, QGIS, SNAP, ENVI, ERDAS Imagine, Sketch up, 3DS max, Auto CAD, REVIT, FRAGSTATS, Python, Google Earth Engine, eCognition, IDRISI

rishabhsrikar.10@gmail.com

Rishabh Srikar

Qualifications

PGD in Remote Sensing & GIS (Specialization: Forest Resources and Ecosystem Analysis)
M.Sc. Environment Management
B.Sc. (Honors) Zoology

Area of Interest

Forest Ecology - Species Mapping and Monitoring; Forest Resource Inventorization; Ecosystem Services Mapping; Carbon Stock and Flux Monitoring; Climate Change Studies

Software Skills

QGIS, ERDAS Imagine, ENVI, Google Earth Engine, SPSS, MS Office,

shikhajazz786@gmail.com

Shikha Jasrrotia

Qualifications

PGD. in Remote Sensing & GIS (Specialization: Forest Resources & Ecosystem Analysis),
M.Sc. (Wildlife Science),
B.Sc. (Forestry Hons.)

Area of Interest

Application of Remote Sensing and GIS in forestry and wildlife, Forest ecology, Biodiversity conservation, Wildlife management, Forest fire management, Climate change mitigation, Environment Impact Assessment, Landscape Ecology, Forest Mapping and monitoring, Behavioural Ecology, Evolutionary Ecology, High altitude rangeland studies, Microwave Remote Sensing, Hyper spectral remote sensing, Digital Image Processing.

Software Skills

MS Office, DISTANCE, ArcGIS, ERDAS Imagine, SNAP, ENVI, QGIS, FRAGSTATS, Google Earth, Python, R, MATLAB, SPSS, SQL, Google Earth Engine, Adobe Photoshop.

shivasharma.geology@gmail.com

Shiva Sharma

Qualifications

PGD in Remote Sensing & GIS (Specialization: Geosciences)
B.Sc. in Geology, Physics, Chemistry,
M.Sc. in Geology

Area of Interest

Application of Remote Sensing and GIS in Ground Water and Oil Exploration, Mineral Exploration, Planetary Sciences, Natural Hazard and Disaster Management, Seismology, Geomorphology, Structural Geology, Water Resource Management, Engineering Geology.

Software Skills

ENVI, ArcGIS, QGIS, Erdas Imagine, SNAP, LiDAR 360 Google Earth Pro, Corel darw, AUTOCAD, Microstation, Rockworks, MS Office, Python Programming.

waquarulislam@gmail.com

Waquar Ul Islam

Qualifications

PGD in Remote Sensing & GIS (Specialization: Natural Hazard and Disaster Risk Management),
B.Tech : Civil Engineering

Area of Interest

Earthquake hazard assessment, Application of remote sensing and GIS in Natural Hazards, Disaster risk management, Vulnerability assessment, Environmental impact assessment, Hazard zonation mapping, Earthquake and flood zone mapping,SAR Interferometry, earth observation satellites for disaster management, application of remote sensing in space exploration, Disaster .resistant construction, Hydrology, Site planning,

Software Skills

ArcGIS, QGIS, SNAP, ERDAS Imagine, Auto CAD, Python, ETABS, STADD Pro, PRIMAVERA, MATLAB


Vikram Sarabhai Hostel

Concept and Compiled by:

- Dr. Swati Swaroop, Sci/Eng-SE, PPEG
- Dr. Puneet Swaroop, Sci/Eng-SF & Head, BPMD
- Dr. Hari Shanker Srivastava, Sci/Eng-SG & GH, PPEG

Programme Planning and Evaluation Group, IIRS

Student Volunteers:

- Ms. Yamini Bhat for M.Tech
- Ms. Kavya Bonyal for PGD
- Mr. Shivang Pandey for M.Sc. (GI)
- Mr. Nancharaiah for PGD (GI)

For further details please contact:

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Indian Institute of Remote Sensing,
Dehradun-248 001
Email: ppeg@iirs.gov.in,
Phone: (0135) 252 4105/ 4107/ 4106/ 4108/ 4109

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अंतरिक्ष भवन, न्यू बीईएल मार्ग, बेंगलूरु–560 231

Department of Space and ISRO HQ
Antariksh Bhavan, New BEL Road, Bangalore 560 231

150 YEARS OF CELEBRATING THE MAHATMA

भारतीय सुदूर संवेदन संस्थान
4, कालीदास मार्ग, देहरादून

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4, Kalidas Road, Dehradun