

IIRS Outreach Programme

The IIRS outreach programme, which started in 2007 with 12 universities/ institutions has now grown substantially. Currently, 880 universities / institutions spread across India covering 30 States and 2 Union Territories are networked with IIRS. The beneficiaries of the programme may include:

- Central/State/Private Universities & Academic Institutions
- Central & State Government Departments
- Forest Resource Professionals
- State Forest Departments/Forest Training Academies
- Research Institutes
- Geospatial Industries
- NGOs

Feedback Mechanism

The participants can submit their feedback through online portal. Feedbacks are critically analyzed and implemented in next courses. For one to one feedback the participants and participating organizations are invited to attend annual IIRS User Interactive Meet (IUIIM) at IIRS Dehradun.



Awards of Appreciation

IIRS has received national awards for excellence in training for outreach and e-learning programme during 1st National Symposium on Excellence in Training conducted during April 11-12, 2015 in New Delhi by Department of Personnel & Training (DoPT), Govt. of India in collaboration with United Nations Development Programme (UNDP).



About IIRS

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 set up for developing trained professionals in the field of Remote Sensing, Geoinformatics and GNSS Technology for Natural Resources, Environmental and Disaster Management. Formerly known as Indian Photo-interpretation Institute (IPI), founded in 1966, the Institute boasts to be the first of its kind in entire South-East Asia. While nurturing its primary endeavour to build capacity among the user community by training mid-career professionals, the Institute has enhanced its capability and evolved many training and education programmes that are tuned to meet the requirements of various target groups, ranging from fresh graduates to policy makers including academia.

IIRS also conducts e-learning programme on Remote Sensing and Geoinformation Science (<https://elearning.iirs.gov.in>).

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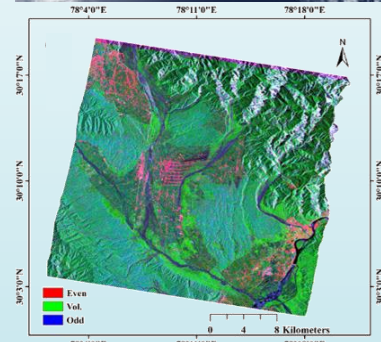
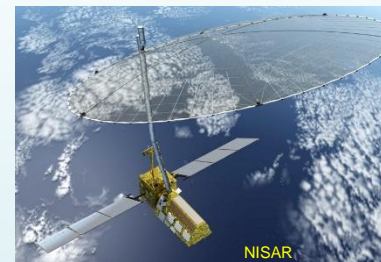
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42nd IIRS Outreach Programme



RADARSAT-2 Quad-Pol data based FCC for Doon Valley Forest, India



RISAT-1 FRS-2 mode Quad-Pol data over Mumbai, India

Principles of Polarimetric SAR Remote Sensing and its Processing

Feb 18- March 01, 2019



Organised by

Indian Institute of Remote Sensing
Indian Space Research Organisation
Department of Space, Govt. of India
Dehradun

www.iirs.gov.in

About the Course

The advancement of earth observation has opened new avenues of research in the field of earth sciences. With the technological advancements in geo-information sciences, remote sensing has become an effective method for detection and investigation of various factors. The visible and infra-red regions are known as optical regions, and the microwave region (1mm - 1m) is considered as non-optical region. Systems operating in optical region are being used for several decades and therefore, are more advanced and widely employed. However, their use is limited by availability of sunlight and interference of the atmospheric conditions such as haze and cloud cover especially in the tropical regions. Therefore, the use of microwave or radar remote sensing is preferred in such areas. Radar imaging through Synthetic Aperture Radar (SAR) systems has revolutionized and expanded the technology of Microwave remote sensing especially in thematic applications using different techniques like SAR Polarimetry (PolSAR), SAR Interferometry (InSAR), Persistent Scatterer Interferometric Synthetic Aperture Radar (PSInSAR) and Polarimetric SAR Interferometry (PolInSAR). SAR systems in general helps in understanding glacier and ice movement to give better understanding on long term variation in climate, developing highly accurate and detailed elevation maps, flood and oil spill monitoring, land use and land cover change, soil moisture and forest biomass estimation, assessing the health of crops and forests and even in urban planning and development.

Curriculum

The course structure is spread into 4 broad topics of teaching on:

- Basics of SAR remote sensing
- SAR Data Processing
- SAR Polarimetry (PolSAR)
- Applications of Polarimetric SAR Remote Sensing,

Following topics will be covered in this course

- Overview of SAR Remote Sensing
- Airborne & Spaceborne SAR Sensors
- Basic concept of Polarimetric SAR Remote Sensing

- Challenges in Polarimetric Decomposition Modelling based scattering retrieval of PolSAR data
- Radiometric Calibration and Orthorectification/Terrain Correction of SAR & PolSAR Data
- Polarimetric Calibration of SAR Data
- Applications of Polarimetric SAR Remote Sensing in Hydrology, Urban Mapping, Forestry, and Agricultural mapping & monitoring,

Target Participants

The candidates who want to participate in the course should be a student of final year undergraduate course or postgraduate course (any year). Technical/ Scientific Staff of Central/ State Government/Faculty/researchers at university/institutions are also eligible to apply for this course. Applications of participants have to be duly sponsored by university/institute and forwarded through coordinators from respective centres.

Course Study Material

Course study materials like lecture slides, video recorded lectures, open source software & handouts of demonstrations, etc. will be made available through IIRS ftp link. Video lectures will also be uploaded on YouTube Channel (<http://www.youtube.com/user/edusat2004>).

Course Fee

The Course is free of cost.

Course Registration

- Course updates and other details will be available on URL- <http://www.iirs.gov.in/Edusat-News/>.
- To participate in this programme the interested organizations/ universities/ departments/ Institutes has to identify a coordinator at their end. The identified coordinator will register online his/her Institute as nodal center in IIRS website.
- All the participants has to register online through registration page by selecting his/her organization as nodal center.

Course Funding & Technical Support

The programme is sponsored by National Natural Resources Management System – Standing Committee on Training and Education (SC-T), Indian Space Research Organisation, Department of Space, Government of India

Programme Reception

Programme can be received through Internet connectivity of 2Mbps or better. Following hardware and software set-up is required at user end:

Hardware Requirements :

- High-end Computer/Laptop (Windows OS);
- Good quality web camera ;
- Headphone with Microphone;
- Speakers ;
- Large Display Screen (Projector or TV) .

Software and Internet Requirements

- IIRS Learning Management System.

Connectivity & Other configurations:

- NKN or any other high speed internet facility (preferably without firewall, with minimum of 2 Mbps bandwidth)
- Network requirements: Port 80 and RTMP (port 1935) protocol should be unblocked from user's computer and Firewall.

Note: Institutions/ universities have to bear total expenses for establishment of the classroom facility

Award of Certificate

Working Professionals: Based on 70% attendance and submission of assignments.

Students: Based 70% attendance and attending 40% in the online examination.