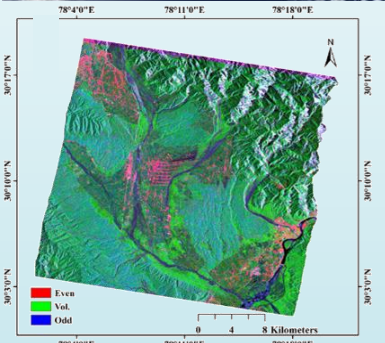
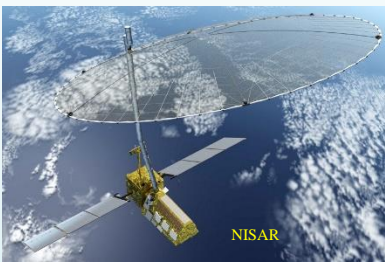


# IIRS Outreach Programme



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

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

## About IIRS

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 technology 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. IIRS is also empaneled under Indian Technical and Economic Cooperation (ITEC) programme of Ministry of External Affairs, Government of India providing short term regular and special courses to international participants from ITEC member countries since 2001.



IIRS Main Building

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. To widen its outreach, IIRS has started live and interactive Distance Learning Programme (DLP) since 2007. IIRS has also launched e-learning course on Remote Sensing and Geo-information Science since August, 2014.

## IIRS Outreach Programme

IIRS has setup a state-of-art studio facility and control room to broadcast live and interactive classroom sessions and practical demonstrations through its Distance Learning Center. The high definition video quality can be broadcast to its user for better quality transmission. The IIRS outreach programme, which started in 2007 with 12 universities/ institutions has now grown substantially. Currently, 880 universities / institutions spread across India are networked with IIRS.

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## Basics of SAR Remote Sensing

May 26- May 30, 2020



Organised by

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[www.iirs.gov.in](http://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.

## Objective of the Course/Workshop

The overall objective of this distance learning short-term training programme is to make the awareness among users/researchers/professionals about the concept of Synthetic Aperture Radar (SAR) Remote Sensing and disseminate knowledge and practical applications on use of SAR data.

## Curriculum

Following topics will be covered in this course

- An introduction to Microwave Remote Sensing
- An overview of SAR Remote Sensing
- SAR Systems and Image Acquisition Modes
- SAR data processing and backscatter image generation
- Advance techniques of SAR Remote Sensing

## 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.