### **IIRS Outreach Programme**

The IIRS outreach programme, which was started in 2007 with 12 universities/ institutions has now grown substantially to 1100. The beneficiaries of the programme may include:

- Central/ State/ Private Universities & Academic Institutions
- Central & State Government Departments
- ICAR Universities/Institutes Professionals
- Agriculturists
- Research Institutes
- Geospatial Industries
- NGOs

#### **Feedback Mechanism**

IIRS has conducted workshops and sessions during IIRS User Interaction Meet to take feedback from participating institutions to improve the quality of future courses.



Feedback session during IIRS User Interaction Meet (IUIM)-2020

### **Awards of Appreciation**

IIRS has received national awards for excellence in training for outreach and e-learning programme during 1<sup>st</sup> 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 Photointerpretation 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 Geo-information Science (http://elearning.iirs.gov.in).



Dr. N. R. Patel Course Director Tel: 0135-2524138 Email: nrpatel@iirs.gov.in

Mr. Abhishek Danodia Course Coordinator Tel: 0135-2524141 Email: abhidanodia@iirs.gov.in

Dr. Poonam S Tiwari Programme Coordinator IIRS Outreach Programme Tel: 0135-2524334 Email: poonam@iirs.gov.in

IIRS DLP Team Mr. Janardan Vishwakarma & Mr. Ashok Ghildiyal Tel: 0135-2524130 Email- dlp@iirs.gov.in

Indian Institute of Remote Sensing, Indian Space Research Organisation Department of Space, Govt. of India, 4-Kalidas Road, Dehradun Email: dlp@iirs.gov.in

#### **IIRS Outreach Programme**



# Earth Observation for Carbon Cycle Studies

June 21 - 25, 2021



## 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**

Natural forests and well-managed agroecosystems are major "sinks" of atmospheric carbon in Terrestrial Biosphere. Accurate quantification of carbon fluxes of forest and agroecosystems at local, regional and global scales is utmost important for understanding the feedback mechanism between the terrestrial biosphere and the atmosphere. Hitherto, a quantum of research works executed to ascertain the carbon status of vegetation/soil and advanced carbon accounting of natural and managed ecosystems on seasonal/annual scale over varied climate regimes.

In present context, Earth Observation (EO) satellites operated in optical/thermal and microwave domains with frequent revisit and improved spatial resolution providing periodic monitoring of vegetation biomass carbon and ecosystem scale carbon exchanges (GPP/NEP) with ground validation using covariance (EC) towers for informed decision making on carbon management, region policy on carbon emission targets and input to national climate change programs. Furthermore, availability of new airborne sensors, unmanned aerial vehicle (UAV), sun-induced fluorescence sensors supported with insitu observation and process based models are providing newer dimensions to precise carbon cycle studies and geospatial carbon accounting using earth observation sensors.

#### **Course Contents**

- Role of EO in Carbon Cycle Assessment : Status, Challenges
  and Issues
- Measuring Ecosystem Carbon Exchange : Observational network, Instrumentation and advanced sensors
- Up-scaling and Modeling of Carbon fluxes: Remote Sensing and Process-based modeling
- Earth Observation and its role in Vegetation Carbon Pool Assessment
- Earth Observation and its role in Soil Organic Carbon (SOC) Assessment

#### **Target Participants**

- This course is designed for professionals from Central / State Govt. / Private Organizations / NGO/ students & researchers engaged in Earth observations aspects, carbon modeling, Carbon assessment using RS & GIS.
- The course participants have to be duly sponsored by their university/ institution and application should be forwarded through coordinators from respective Organisations/ Centres. Users attending programmes under CEC-UGC / CIET / other networks can also participate. Institutions on high speed National Knowledge Network (NKN) can also participate using A-VIEW software.

#### **Course Study Material**

Course study materials like lecture slides, video recorded lectures, open source software & handouts of demonstrations, etc. will be made available through eclass. Video lectures will also be uploaded on e-class (https://www.eclass.iirs.gov.in/login).

#### **Course Fee**

There is no course fee for attending this programme.

#### **Course Registration**

Course updates and other details will be available on URL- <u>http://www.iirs.gov.in/Edusat-News/</u>. All the participants has to register online through registration page available on above web page.

#### **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**

 Individuals can attend the course live via any web browser through the elass portal of IIRS Dehradun i.e.

#### https://eclass.iirs.gov.in

• The participants can also attend the live workshop via the YouTube channel of IIRS i.e

https://www.youtube.com/user/edusat2004

• The content of the workshop will be available offline after 24 hours in the eclass portal.

### **Award of Certificate**

- All the participants who attend 70% sessions of the course live via eclass portal.
- The participants who attend the course sessions via IIRS youtube channel should mark their attendance via offline session available after 24 hrs.

### **Pre-requisites:**

 Understanding of Basic concepts of Remote Sensing and GIS