



भारत सरकार
GOVERNMENT OF INDIA
भारतीय भूवैज्ञानिक सर्वेक्षण प्रशिक्षण संस्थान
GEOLOGICAL SURVEY OF INDIA TRAINING INSTITUTE
हैदराबाद



“आपदा प्रबंधन हेतु भूसूचनाविज्ञान के अनुप्रयोग पर बारहवीं पाठ्यक्रम”

**12th COURSE ON APPLICATION OF GEOINFORMATICS FOR
DISASTER MANAGEMENT**

Under the National Natural Resource Management Survey (NNRMS) program of ISRO
(13.02.2019 to 12.03.2019)

COURSE REPORT

As part of the MoU between Geological Survey of India and Indian Space Research Organisation (ISRO), GSI Training Institute has been conducting training programs under National Natural Resources Management Systems (NNRMS) in the fields of mineral Exploration and disaster management using Remote Sensing and GIS techniques. The programme is aimed to develop human resources from different Central/state Government Organizations/ Educational and Research Institutes, in the respective domain. So far, GSITI has conducted Eleven courses in application of Geoinformatics for disaster management and the present 12th training program was conducted from 13th February, 2019 to 12th March 2019.

The course was inaugurated on 13th February, 2019 by Dr. Santanu Bhattacharjee, Director & HoO, GSITI, Hyderabad. 18 candidates from seven different universities/Institutes participated in the 28 days (four weeks) long training program. Among the participants, three research scholars are from Andhra University, two from Osmania University, one from Karnataka Science college, one from Indian Institute of Remote Sensing, Dehradun, three from Banaras Hindu University, three from IGNOU, Delhi and five from UTKAL University, Bhubaneswar

Course Content:

Various aspects covered in details during the training program as follows;

Disaster Management and Remote sensing

Disaster management included topics on Introduction, Environment and natural disasters and management of disasters like Earthquake, Landslide, Drought, Tsunami, Flooding, Cyclone and Mining hazards etc; In Remote Sensing module, the participants were introduced to various aspects of Digital Image Processing techniques, fundamentals of aerial and satellite remote Sensing, Digital Image Processing, Geometric rectification of data, Statistical analysis of digital data, Image Enhancement Viz. Radiometric, Spatial and Spectral, Image classification, Image mosaicking, Feature extraction, Interpretation of drainage patterns, concepts and application of Thermal and Microwave remote sensing etc;.

Geographical Information System (GIS)

Geographic Information System covering general concepts of Geo data base, spatial data models, Spatial data capture techniques, Georeferencing, Vectorization, Spatial data editing, spatial adjustment, GIS analysis, DEM analysis and creation of DEM derivative maps, lineament density analysis etc., were covered.

Techniques of image interpretation:

Discrimination / identification of lithology, structures, geomorphology, drainage etc., using satellite Imageries and DEM data were carried out. Material Mapping techniques using Reflectance data like creation of color composite, band ratio maps, for extracting information on geological materials and PCA, as a part of spectral enhancement were also imparted. NDWI and NDVI were utilized for the preparation of water moisture and vegetation maps. For delineating lineaments and fault, spatial enhancement techniques were used.

Visit to INCOIS, Kukatpally, Hyderabad

A visit to the Indian National Center for Ocean Information Service (INCOIS), at Hyderabad was organized. The participants are introduced to the Tsunami warning and alert system. Brief appraisal on the application of satellite data like NOAA, AVHRR, MODIS, OCEANSAT P6, etc; for ocean studies like potential fish zone demarcation, ocean colour monitor, coastal zone management and coral studies were dealt at INCOIS.

Project Work: Each trainee carried out a project work during the last two days of the training programme covering different themes of Disaster Management applications, wherein they used freely available data like ASTER, SENTINEL, BHUVAN, LANDSAT-8 OLI etc; and processed it using Image processing and GIS software for feature extraction related to different thematic layers. Further the participants gave a short presentation on the project work carried out on various topics of disasters like Drought Management, Identification of coal fire mapping, Tsunami damage and assessment, ground water pollution, earthquake mitigation and measures, Mining Hazards and Management, Forest fire mapping, cyclone studies, Flood (urban and coastal) Management and Landslide Hazards, which enhanced their confidence in the use of Remote sensing and GIS for their further research programme

Feedback: The trainees have submitted their feedback, expressing their opinion about various aspects of the course, including the theory classes, demonstration, practical exercise and the field work, relevance of topics, impression about the faculty etc. All participants highly appreciated the efforts of the faculty in conducting the course and infrastructure and facilities of both the labs. The course structure, the topic covered in theory classes, the demonstration of software and practical exercise were also appreciated by the trainees and they found the course to be very beneficial for their research work.

Faculty:

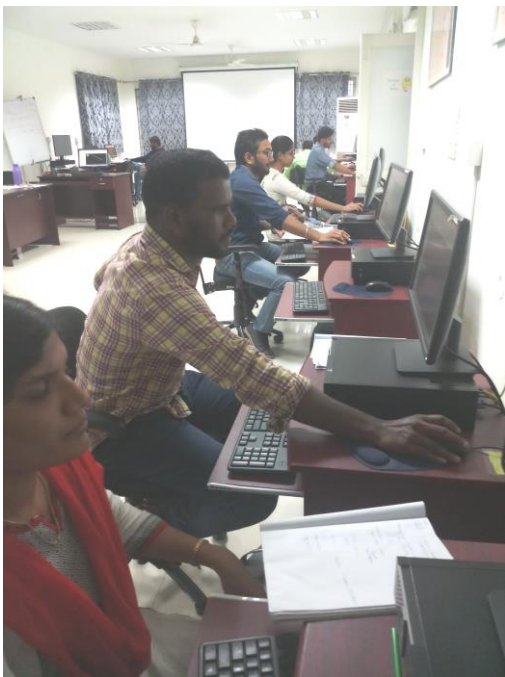
Core Faculty from PGRS,GSITI		Guest Faculty
Dr. P.Balaji, Senior Geologist	Shri.Anoop.V.M, Senior Geologist	Shri. A.B. Ekka, Senior Geologist, GSI, SR. Dr. Priyom Roy, Scientist, NRSC, Hyderabad
Core Faculty from CGMT,GSITI		
Shri. R. Balaji, Director, Smt. Nidhi Misra., Sr. Geologist, Amrit Chandra Patra, Sr.Geologist		

List of Participants:

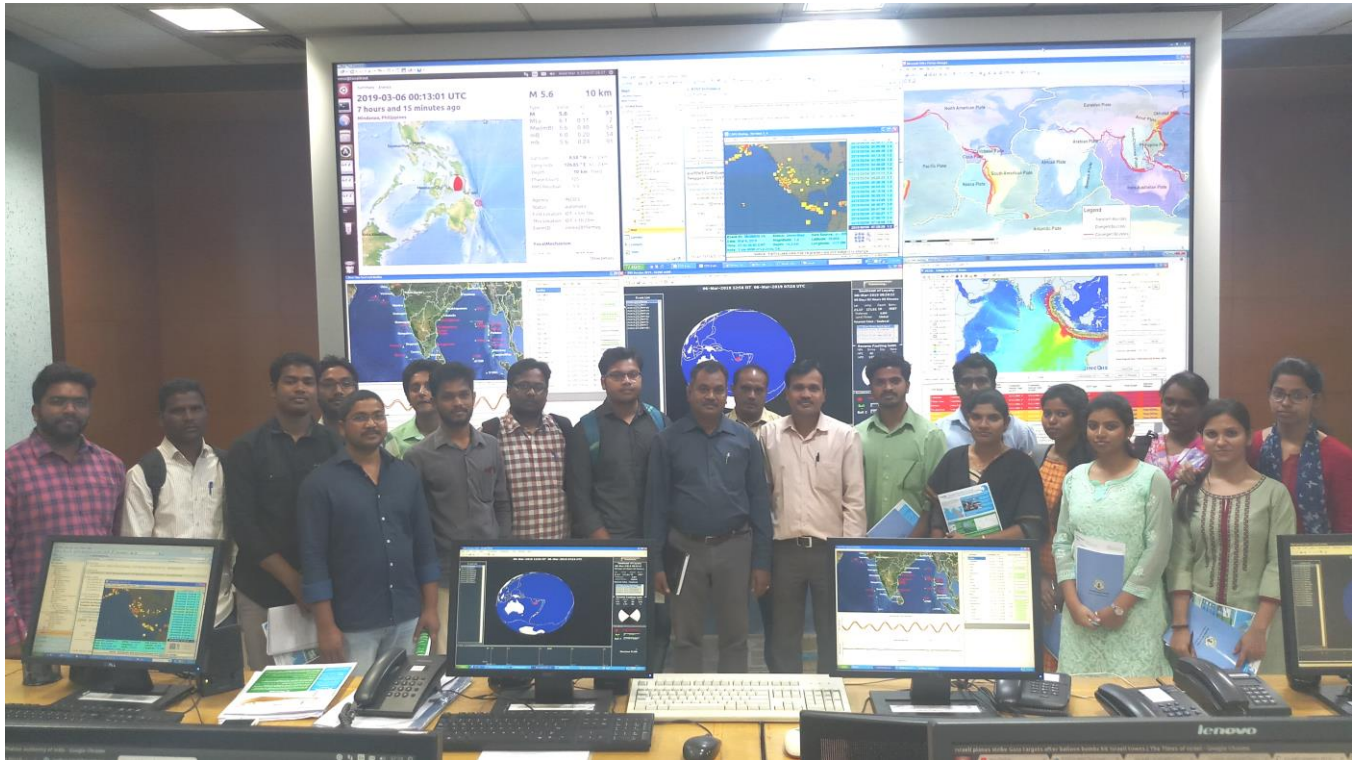
Sl no	Name	Designation	Sponsoring organization
1	Aadimalla Bangaraiah	Research Scholar	Osmania University
2	Avutu Suresh Kumar	Research Scholar	Osmania University
3	G.Goutham Krishna Teja	Research Scholar	Indian Institute of Remote sensing
4	Rohit Kumar	Research Scholar	IG National Open University
5	S.Kiran	Research Scholar	IG National Open University
6	Sourish Chatterjee	Research Scholar	IG National Open University
7	Anshika Kanavijya	Research Scholar	Banaras Hindu University
8	Prinsi Singh	Research Scholar	Banaras Hindu University
9	Akash Deep	Research Scholar	Banaras Hindu University
10	Swanand Anand Ajgaonkar	Research Scholar	Karnataka science college
11	Bhagyashree Sahoo	Research Scholar	Utkal University
12	Bibhuti Bhusan Swain	Research Scholar	Utkal University
13	Vivek Jyoti Jena	Research Scholar	Utkal University
14	Attah Moinuddin Alli Shah	Research Scholar	Utkal University
15	Sweta Mohanty	Research Scholar	Utkal University
16	V. Sulochana Rani	Research Scholar	Andhra University
17	Challa.China.Venkatalakshmi	Research Scholar	Andhra University
18	Manchala Srinivasa Rao	Research Scholar	Andhra University



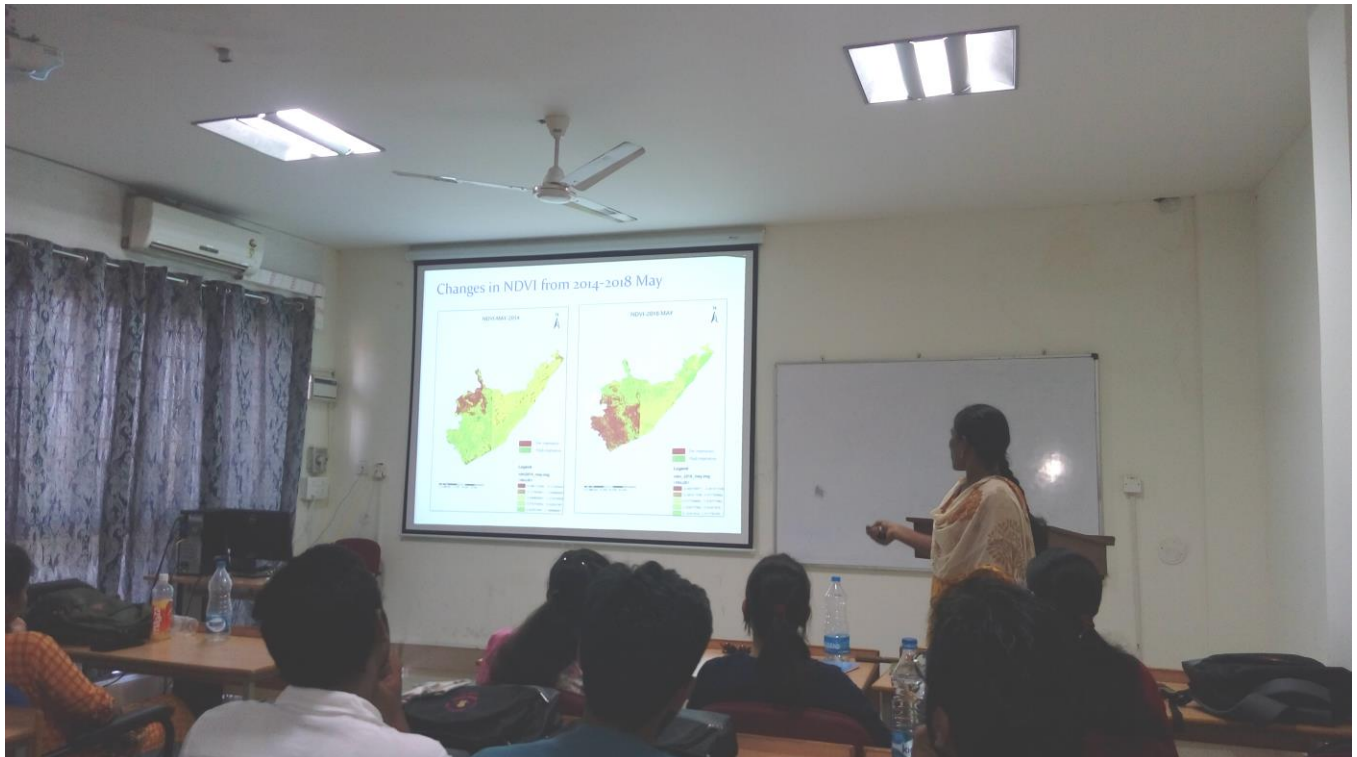
Dr. Santanu Bhattacharjee, Director & HoO GSITI, Hyderabad, inaugurating the Course.



Participants undergoing training at Digital Image Processing Lab



Visit to INCOIS



Presentation by the Participants on their Project work



Shri. Ch. Venkateswara Rao, Dy. Director General & Head, Mission-V, GSITI inaugurating the valedictory function



Receiving the feedback from the Participants



Shri. Ch. Venkateswara Rao, Dy. Director General & Head, Mission-V, distributing the certificate to the participants



Group Photo of the participants with the faculty of GSITI