

## Training– Basics of Satellite Image Processing

Date of Training      5<sup>th</sup> Nov – 12<sup>th</sup> Nov, 2020  
 Time                      11 a.m. – 1.00 p.m.  
 Location                CAE, JNKVV, JABALPUR

### 1. Training Objective

Basics of Satellite Image Processing under NAHEP-CAAST-CSDA Project.

### 2. Participants

**Students-** Shreesty Pal (Ph.D. Horticulture), Govind Madariya (M.Sc. Horticulture), Kumari Pragya (Ph.D. Entomology), Payal Soni (M.Sc. Soil Science), Vishakha Rai (M.Sc. Soil Science), Anjali Singh (M.Sc. Soil Science).

**Technical Staff -** Dr. S.K. Sharma (Co-PI- Research),

Dr. Popat. Shivaji Pawar, Dr. Devendra Vasht, Pratiman Patel, Aniket Rajput, AnkitYadav,

Statistics of participants	<b>Gender</b>		<b>Number</b>			Total = 6	
	Male		1				
	Female		5				
	<b>Category</b>	General	OBC	SC	ST	Total	
	<b>Number</b>	2	2	1	1	6	

### 3. Contents of Events

Date	Speaker	Topic
5 <sup>th</sup> Nov 2020 (Day 1)	Dr. R.K. Nema	Basics of Remote Sensing
	Dr. S.K. Sharma	Basics of GIS
6 <sup>th</sup> Nov 2020 (Day 2)	Dr. P.S. Pawar	Introduction to QGIS
7 <sup>th</sup> Nov 2020 (Day 3)	Aniket Rajput/ Dr. DevendraVasht	Georeferencing of Toposheet and digitization
9 <sup>th</sup> Nov 2020 (Day 4)	Pratiman Patel	Geoportals, downloading of Landsat 8 imagery, image interpretation
10 <sup>th</sup> Nov 2020 (Day 5)	Pratiman Patel	Pre-processing of Landsat 8 imagery, creating training dataset for supervised classification
11 <sup>th</sup> Nov 2020 (Day 6)	AnkitYadav	Supervised Classification using SAGA GIS
12 <sup>th</sup> Nov 2020 (Day 7)	AnkitYadav	Supervised Classification using SAGA GIS, Validatory Function

### 4. Course Schedule

#### Day – 1

PI sir explained about the steps involved in the interaction of the earth surface with incoming radiation. It was further extended to the electromagnetic spectrum and types of sensors used in remote sensing. In the second half, Dr. S.K. Sharma presented the different components of GIS and different applications in the field of water resources.

#### Day – 2

explained about the open-source and commercial GIS software and provided a hands-on one of open-source software known as QGIS shared by Dr. P.S. Pawar.

#### Day – 3

Explained the importance of ground control points. Provided a hand-on exercise on the process of georeferencing and creation of a database using a toposheet shared by Dr.DevendraVasht and Mr. Aniket Rajput.

- Details related to the key elements of image interpretation and data acquisition of the Indian and NASA satellite imagery by Mr. Pratiman Patel.
- Day – 4** Explained the process of atmospheric corrections and provided a hand-on with the conversion of digital numbers to the reflectance of Landsat 8 imagery by Mr. Pratiman Patel.
- Day – 5** The hand-on exercise included the creation of training datasets for the supervised classification and its technique, Random Forest explained by Mr. Ankit Yadav.
- Day – 6** On the last day, participants were provided with the detailed process pertaining to the land use/ land cover (LULC) classification and its visualization, which was concluded with a LULC map of Jabalpur, India.

**Day – 7**

**Concluding session**

Thank you for a great course of training conducted by NAHEP-CAAST-CSDA. During the program the participants were trained on advanced system administration options in Remote Sensing as well as GIS analysis techniques, Great presentation style with lots of opportunities to ask questions and talk about Remote Sensing, GIS, installed the software like QGIS, RGIS, ADAS, polygon, mapping, classification, how to calculate area, distance etc. The pre/post test is a common form of **evaluating training programs** in **Basics of Satellite Image processing** for the students. It's surprising how often learners will leave a **training** and The **example** below shows a series of level of impact questions contained in the training is what is Remote Sensing, GIS stands for, Number of Landsat 8 bands, Which is open source Remote Sensing and GIS software, what is georeferencing, Example of Vector data, example of raster data, UTM Stands for, Area is calculated in geographic coordinate system, Indian Geo Portal for downloading remote sensing datasets is these questions was asking for evaluation and results got for 85% improvement for the level of students. Overall the training is very useful and effective for the students. At the end of the training, an official closing valedictory programme was held at the training venue. **Dr. R. K. Nema, Principal Investigator**, emphasized the scope of the project and future collaboration opportunities during his speech. Dr. S.K. Sharma also addressed the students and acknowledges the positive steps taken by this project. Finally Dr. R. K. Nema, Principal Investigator and Dr. M.K. Awasthi, CO-PI, Skill Development- National, distributed the certificates to the participants for successfully completing the training.

**Output of Training**

Eleven participants registered for the course and out of these six students have undergone hands-on training on the subject. They are now plan there research work methodology based on GIS Software.

