

Application of Geo-spatial Techniques in Disaster Risk Management using VEDAS Platform

Through Virtual Class Room, GIDM

Date: 29th Sept., 2022 Time: (15:00 to 17:10 Hrs.)

Concept Note:

Geospatial technology encompasses technologies related to creating, managing, analyzing, and using geographically referenced data and includes everything that is ‘spatial’ in its characteristic and content.

It includes a wide variety of hardware, software, data; application solutions; and services. Geospatial technology enables spatial and non-spatial data to be brought together from multiple sources, processes, and analyses so that various types of development and ‘what-if’ scenarios can be obtained enabling better correlative analysis for effective decision-making.

Geospatial technology is the most potent tool-set for decision-makers, government, industry, and citizens alike.

India has long been a leader in using modern spatial technologies and started its tryst with satellite images and GIS in the 1980s by having its own Indian Remote Sensing Satellites and image-based mapping and creating GIS databases and applications.

India generates around 100 terabytes of data daily for earth observation with optical, microwave, thermal, hyperspectral, sounders sensors, and other data acquired in customized services. National Remote Sensing Centre (NRSC) is a nodal center for satellite product dissemination in India. NRSC Data Centre (NDC) is responsible for IRS data dissemination to Indian and SAARC-BIMSTEC country users, moreover, NDC is also responsible for the distribution of foreign high-resolution satellite data to Indian Users.

The acquired data having similar information in different wavelengths for a particular geographic location. The interpretation, visualization, and final product generation require a highly skilled person. To ease the process Space Application Center, Ahmedabad has initiated the Visualization of Earth Observation Data and Archival System (VEDAS). This initiative is for the training and visualization of satellite data products.

VEDAS is an online geo-processing platform using optical, microwave, thermal and hyperspectral Earth Observation data covering applications particularly meant for academia, research, and problem-solving approach.

‘VEDAS’ offers a unified web platform as a repository of a variety of scientific products on various themes of earth resources.

This scientific inventory for Earth observation includes (Desertification, wetland, coastal environment, coral reef, shoreline change, snow and glacier, wasteland and alpine treeline), Polar science (sea ice trend, elevation, ice melt products), Planetary science (Moon and Mars), Hydrological Science (Altimeter and Scatterometer) and some special products (Horticulture, Mangrove, Fodder, Air-borne hyperspectral and L&S band, sea salinity, surface dryness products).

Some unique and important applications developed at VEDAS includes:

- Web-GIS based Vegetation Monitoring System;
- Renewable Energy (Solar & Wind) Potential;
- Urban Sprawl Information System (USIS);
- Air Quality Monitoring portal.

Agricultural productivity exhibits in response to environmental conditions such as Rainfall, Temperature Soil Moisture, and Insolation. The response of the vegetation to the environmental condition and management practices can be studied by the spectral response of vegetation.

In ‘VEDAS’ Vegetation Monitoring System integrates NDVI, VCI, SM and many more derived products that are very useful in analyzing the affected areas in a disaster situation. satellite products other than vegetation indices like temperature, precipitation, and soil moisture data from different sources and different formats brought by ‘VEDAS’ into a unified format for resource monitoring. Vegetation Monitoring is among one of the five components of Drought Monitoring.

The ‘VEDAS’ portal may be very useful for accessing technology-based reliable information, further, it may be tailored in a particular way as per the need of the departments.

This program is an awareness program on the Applications of ‘VEDAS’ in Disaster Risk Management. This training program is scheduled on 29th Sept., 2022.

Objectives:

1. Basic concepts of Remote Sensing & GIS
2. 'VEDAS' applications and uses in various phases of DM cycle
3. Brief on the newly developed product on 'VEDAS' for drought manual implementation.

These all concepts, applications, and products will be discussed in detail in this training program.

Target Audience for Proposed Training

Sr. No.	Department Name	Designation of Participants
1.	Agriculture, Farmers Welfare & Cooperation Department	District Agriculture Officer, Dy. Director Agriculture, Agriculture Extension Officer Horticulture officer and other concerned officers
2.	Narmada Water Resources, Water Supply and Kalpsar Department	Asst. Engineer & Add. Asst. Engineer
3.	Revenue Department	Mamlatdar, Dy. Mamlatdar, Talati (Rev.) & Mamlatdar(DM)
4.	Forest & Environment Dept.	Asst. Conservator of Forest, Range Forest Officer

Resource Persons:

1. **Dr. Sandeep Pandey**, Associate Prof. GIDM, Gandhinagar
2. **Dr. Shashikant Sharma**, Sr. Scientist, Space Application Centre (ISRO), Ahmedabad
3. **Shri. Ajay Patel**, Project Director, BISAG-N, Gandhinagar.

Expected outcome:

This will potentiate the employee to use 'VEDAS' services in their daily planning and execution.

Participants & Venue:

1. 30 Participants from each district
2. Support staff or other technical experts who are involved or responsible for DRR activities
3. The venue will be decided by District Authority where the basic facility is available to conduct the program.