

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

Through Virtual Class Room, GIDM

Date: 26th May 2026 Time: (15:00 to 17:10 Hrs.)

Concept Note:

Geospatial technology has become an essential tool for planning, monitoring, and decision-making in various sectors, particularly in disaster risk management. It involves the collection, analysis, and use of geographically referenced data, enabling integration of spatial and non-spatial information from multiple sources. This integration helps in understanding patterns, assessing risks, and developing informed strategies through scenario-based analysis. With the increasing complexity of disasters and climate variability, the role of geospatial technologies has become more significant in supporting timely and effective responses.

India has been at the forefront of adopting geospatial technologies, with the use of satellite imagery and Geographic Information Systems (GIS) dating back to the 1980s. Through its Indian Remote Sensing (IRS) satellite programs, the country has developed strong capabilities in earth observation and spatial data generation. Large volumes of data are generated daily using optical, microwave, thermal, and hyperspectral sensors. The National Remote Sensing Centre (NRSC) plays a key role in processing and disseminating these datasets, both within the country and to regional users. However, the complexity and volume of such data often require specialized skills for interpretation and application.

To simplify access and enhance usability of geospatial data, the Space Applications Centre, Ahmedabad, has developed the Visualization of Earth Observation Data and Archival System (VEDAS). VEDAS is an online geo-processing platform that provides a unified interface for accessing, visualizing, and analyzing earth observation data. It integrates multiple datasets and presents them in a user-friendly format, enabling users from different sectors to utilize satellite-based information without requiring advanced technical expertise.

The platform hosts a wide range of thematic data and applications related to earth resources, including desertification, wetlands, coastal ecosystems, snow and glaciers, wastelands, and hydrological parameters. It also includes specialized applications such as vegetation monitoring,

renewable energy potential mapping, urban sprawl analysis, and air quality monitoring. These tools are particularly useful for disaster risk management, as they support monitoring, assessment, and planning across different phases of the disaster management cycle.

One of the key applications of VEDAS is the Vegetation Monitoring System, which integrates indices such as NDVI, Vegetation Condition Index (VCI), and soil moisture parameters. These indicators are crucial for understanding the impact of environmental conditions on vegetation and agricultural productivity. Since vegetation monitoring is an important component of drought assessment, the platform provides valuable inputs for identifying affected areas and supporting decision-making during drought situations. By bringing together data from different sources into a standardized format, VEDAS enables efficient resource monitoring and analysis.

The use of such platforms is particularly relevant in the context of increasing frequency and intensity of climate-related hazards. Access to reliable, real-time, and spatially integrated data can significantly improve preparedness, response, and mitigation efforts. However, effective utilization of these tools requires awareness and capacity building among stakeholders at various levels. Field-level officers and technical staff need to be familiar with the functionalities and applications of such platforms to integrate them into routine planning and decision-making processes.

In this context, the proposed online training program on “*Application of Geospatial Techniques in Disaster Risk Management using VEDAS Platform*” aims to introduce participants to the fundamentals of remote sensing and GIS, along with practical applications of the VEDAS platform. The program will focus on demonstrating how geospatial tools can be used across different stages of disaster management, including risk assessment, monitoring, and response planning. It will also provide insights into newly developed products on VEDAS that support drought monitoring and implementation of drought-related guidelines.

The training is intended for officers and functionaries from departments such as Agriculture, Water Resources, Revenue, and Forest & Environment, who are actively involved in disaster risk reduction activities. By enhancing their understanding of geospatial technologies and their applications, the program seeks to strengthen institutional capacity and promote the use of data-driven approaches in governance.