ENVI for Oil, Gas, and Mining

EXELIS

Visual Information Solutions

Many problems faced by oil, gas, and mining professionals, including the selection and development of exploration areas and analysis of spill mitigation and remediation efforts, can be addressed by extracting information from geospatial imagery. Data derived from imagery can reduce the need for field work, reduce costs, and help achieve faster results during exploration, extraction, and remediation/reclamation stages.

The ENVI family of image analysis software offers a full suite of tools to extract all types of geological and environmental information from imagery. And, ENVI can be easily customized to solve your unique challenges, making it a highly flexible solution for oil, gas, and mining applications. ENVI easily integrates into GIS workflows, allowing users to quickly and accurately view, manipulate, process, and analyze imagery. Because ENVI products are tightly integrated with ArcGIS®, you can easily exchange data and layer files between the software packages.

Image Analysis Solutions for Oil, Gas, and Mining

SELECT APPROPRIATE DRILLING AND MINING SITES

ENVI streamlines field work by helping you target the sites with the biggest payoff potential and providing information-rich base maps.

Use the trusted spectral and radar tools in ENVI to map lithostratigraphic units and alteration zones on the basis of spectral signatures, structure, texture, and overlying vegetation. Spectral tools can also be used to detect natural oil seeps.

Using topographic tools in ENVI, you can add three-dimensional information about the land surface, enabling you to more easily visualize geological structure. Resulting maps can be used to identify potential subsurface traps and fractures along which hydrocarbons migrate.

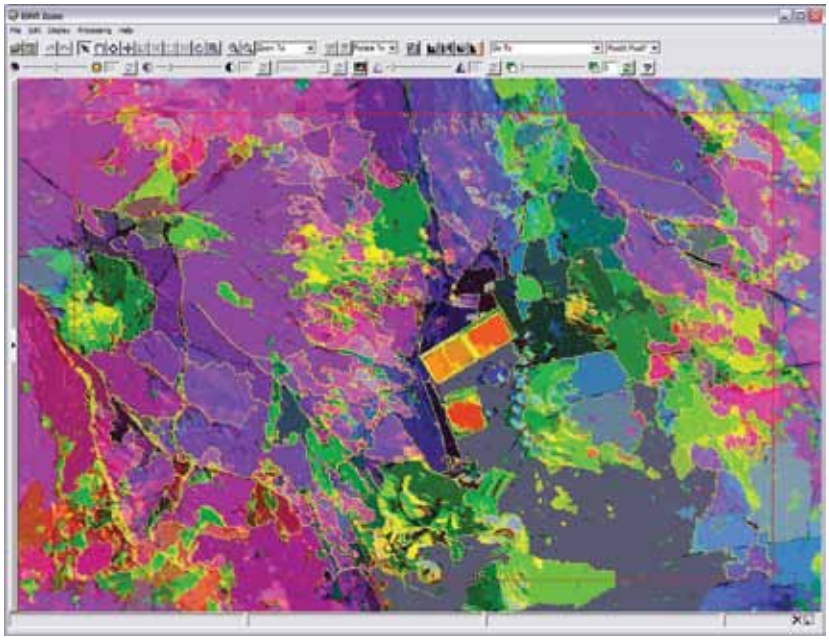

Fig. 1: ENVI feature extraction can be used to separate unique geologic regions to identify viable mining and drilling sites.

IDENTIFY PIPELINE LOCATIONS

The information that can be extracted from elevation, spectral, and radar imagery using ENVI can help you identify ecologically sensitive areas, geo-hazards, and challenging topography that could result in damage to pipeline structure or its surrounding environment.

Tools are provided in ENVI for identifying the best pipeline location by mapping land cover, vegetation types, soil types, and more from spectral imagery, and for calculating slope, curvature, and other topographic conditions from elevation imagery.

MONITOR ENVIRONMENTAL EFFECTS OF DEVELOPMENT OR RECLAMATION EFFORTS

Tools in ENVI can be used to generate and update base maps in order to monitor environmental impacts over time. You can use these tools to provide base map information by extracting and classifying features, detect and highlight the area and percentage of change, and seamlessly pass data into ArcGIS.

LOCATE OIL SPILLS AND LEAKS

ENVI has a full suite of tools you can employ to process radar and thermal imagery for a variety of oil spill tasks. ENVI can be used for large area surveillance, site specific monitoring, and tactical assistance in emergencies.

Tools in ENVI can help you map environmental damage caused by oil spills and leaks, including surface indicators of subsurface leaks, such as oil impacted soils or stressed vegetation. ENVI can also detail the area and percentage of change, which can be used as input for drift prediction modeling.

MONITOR PIPELINE CONDITIONS

Geospatial imagery can be analyzed using ENVI to accurately monitor pipelines that can cover thousands of miles and are often partially located in remote areas that are difficult and expensive to monitor.

You can also use classification and feature extraction tools to identify trucks or earthmoving equipment, slope motion and ground movement, vegetation overgrowth, and environmental changes near pipelines.

ENVI delivers accurate, scientifically proven processes, so you can easily use geospatial imagery to solve your oil, gas, and mining challenges.

To learn more about ENVI, ENVI training options, live learning events, and more, visit **www.exelisvis.com/ENVI**, or call **303.786.9900**.

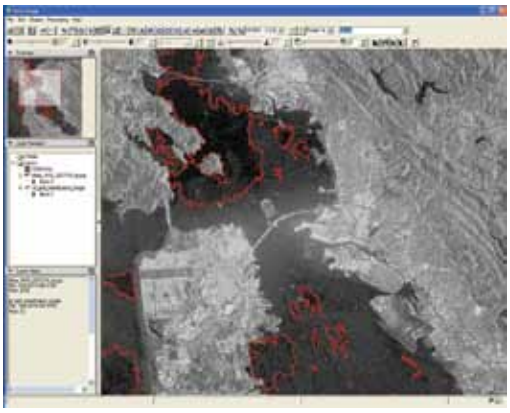

Fig. 2: Radar and data fusion tools in ENVI are especially useful when an area of interest is obscured by clouds in optical imagery.

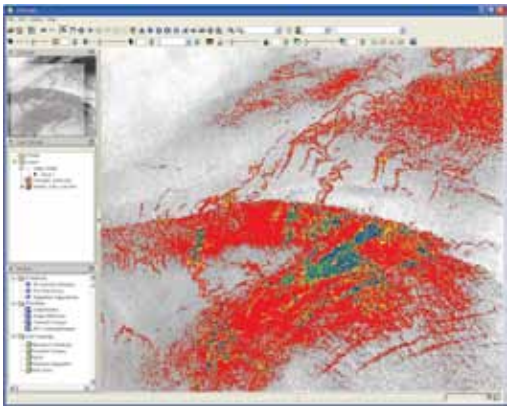

Fig. 3: State-of-the-art classification, feature extraction, and change detection tools make ENVI ideal for assessing the success of remediation efforts.

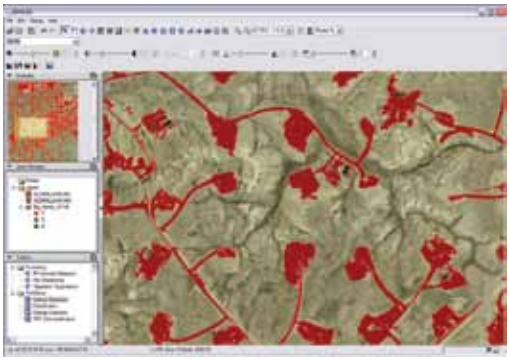

Fig. 4: ENVI image analysis tools can reduce the costs involved in exploration and increase the chance of profitable returns by locating oil field sites using geospatial imagery.

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