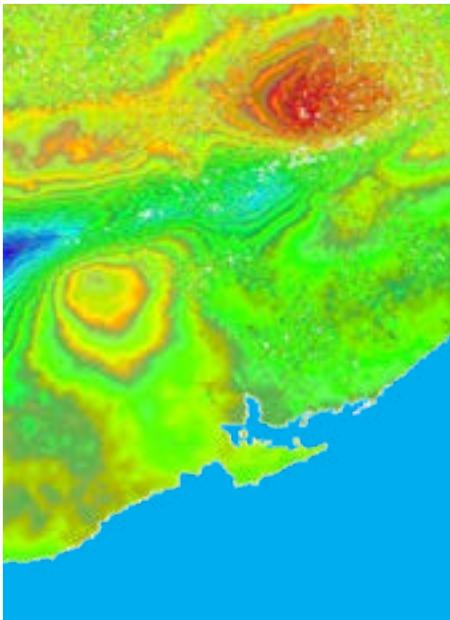


# ENVI® SARSCAPE® ANALYTICS

## Turn SAR Data Into Meaningful, Contextual Information

The use of Synthetic Aperture Radar (SAR) data has become increasingly popular around the world due to its many benefits such as the ability to capture data at night and see through cloud cover. However, SAR data is extremely complex, and because of this, working with it isn't always easy. That has meant this incredibly useful data type has stayed out of the realm of mainstream use, until now.

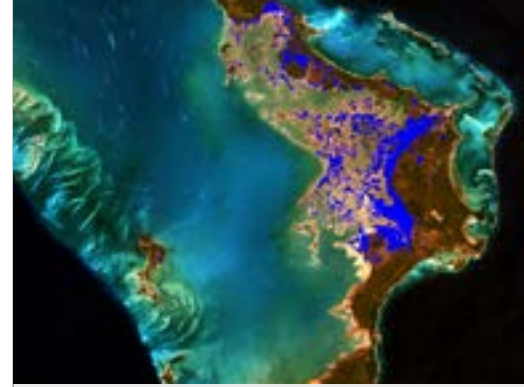
NV5 Geospatial, the leader in image science and SAR analytics, has created easy-to-use tools for some of the most common SAR processing applications to extend the benefits of SAR data to more users. These tools, ENVI® SARscape® Analytics, can be accessed in the ENVI toolbox and ENVI Modeler as well as ArcGIS Pro, and do not require you to be an expert in SAR to run them!



ENVI SARscape allows you to process and analyze SAR data and generate products like DEMs or surface deformation maps, while giving you the option to integrate this information with other geospatial products. This unique data analysis capability takes your data from hard-to-interpret numbers, to meaningful, contextual information. Since ENVI SARscape modules are integrated with ENVI – the premier image processing and analysis solution – you get the added benefit of image analysis tools and SAR processing functionality in one seamless package. Get the Benefits of

### SAR ACROSS THE ARCGIS PLATFORM

NV5 Geospatial and Esri have worked together for many years to provide solutions that enable GIS users to seamlessly access and analyze geospatial imagery and data to solve critical problems with confidence. Access to these easy-to-use SARscape analytics across the Esri platform is another example of this ongoing partnership.



### SAR PROCESSING FOR NEW AND ADVANCED USERS:

- > SAR Programmers and Scientists – Customize SAR processing with ENVI Modeler and the Task API
- > Data Analysts – ENVI SARscape Analytics make it easy to perform common SAR processing applications
- > Military Users – Supports SAR SICD and SIDD

# ENVI SARscape Analytics

The most requested analytics are now available for both the ENVI and ArcGIS toolboxes.

## FLOOD MAPPING

The Flood Mapping Analytic uses images from before and after a flood and classifies areas of standing water.

## DEM EXTRACTION

Two SAR scenes can be used to create a Digital Elevation Map by comparing and using the differences in the radar signal and viewing angle between the two images.



The ENVI SARscape Flood Mapping workflow uses one or more pre-flood images, a post flood image, and a DEM to automatically create a classification of flooded areas by comparing the scenes.

## SENTINEL DOWNLOAD

Automatic download of Sentinel-1 and Sentinel-2 data. This workflow lets you choose an area of interest, dates, and other filters, and downloads multiple Sentinel-1 and Sentinel-2 scenes to use instead of having to manually download them one at a time from a web service.

## SENTINEL AUXILIARY FILE DOWNLOAD

This analytic is used to download Sentinel-1 orbital files.

## TIME SERIES

The Time Series analytic uses multiple SAR images to create time series results that highlight time and magnitude of change.

## CHANGE DETECTION

Change Detection uses the coherence and intensity between two scenes to track subtle changes in their structure and outputs a classification result. A secondary tool kit allows for classification refinement.

## DISPLACEMENT MAP

The Displacement Map workflow uses a pair of SAR images to show the land motion over time from the first to the second image. This analysis, known as *DinSAR*, is commonly used after events such as earthquakes and volcanic eruptions.

## SHIP DETECTION

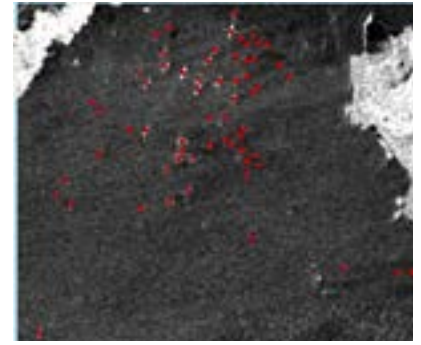
Automatic Ship Detection uses a single scene to find ships on water. This can be paired with AIS data for ship monitoring.

## PERSISTENT SCATTERERS

Persistent Scatterers uses time-series interferometry to track changes at millimeter scale and find areas where ground surface deformation has occurred.

## IMAGE GEOCODING

Image Geocoding processes raw or satellite-view images into intensity images and geocodes them to map coordinates.



SARscape Analytics Ship Detection workflow is able to automatically detect ships on water, which can be used for a wide range of applications, such as tracking shipping lanes and monitoring protected areas.

## ENVI® SARscape® Analytics

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**N|V|5** GEOSPATIAL

385 Interlocken Crescent, Ste 300  
Broomfield, CO 80021  
t 303 786 9900  
GeospatialInfo@NV5.com