OCTAVE
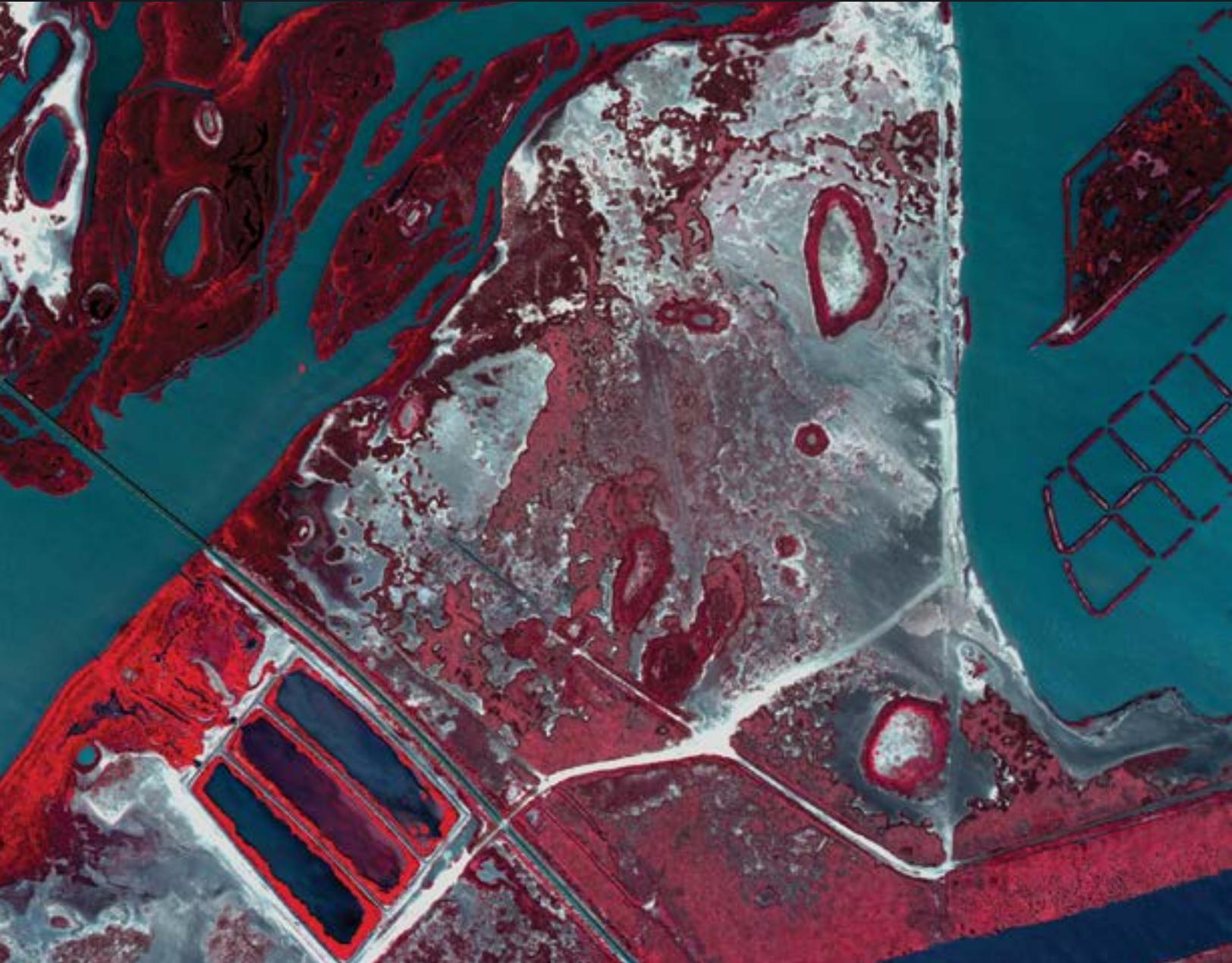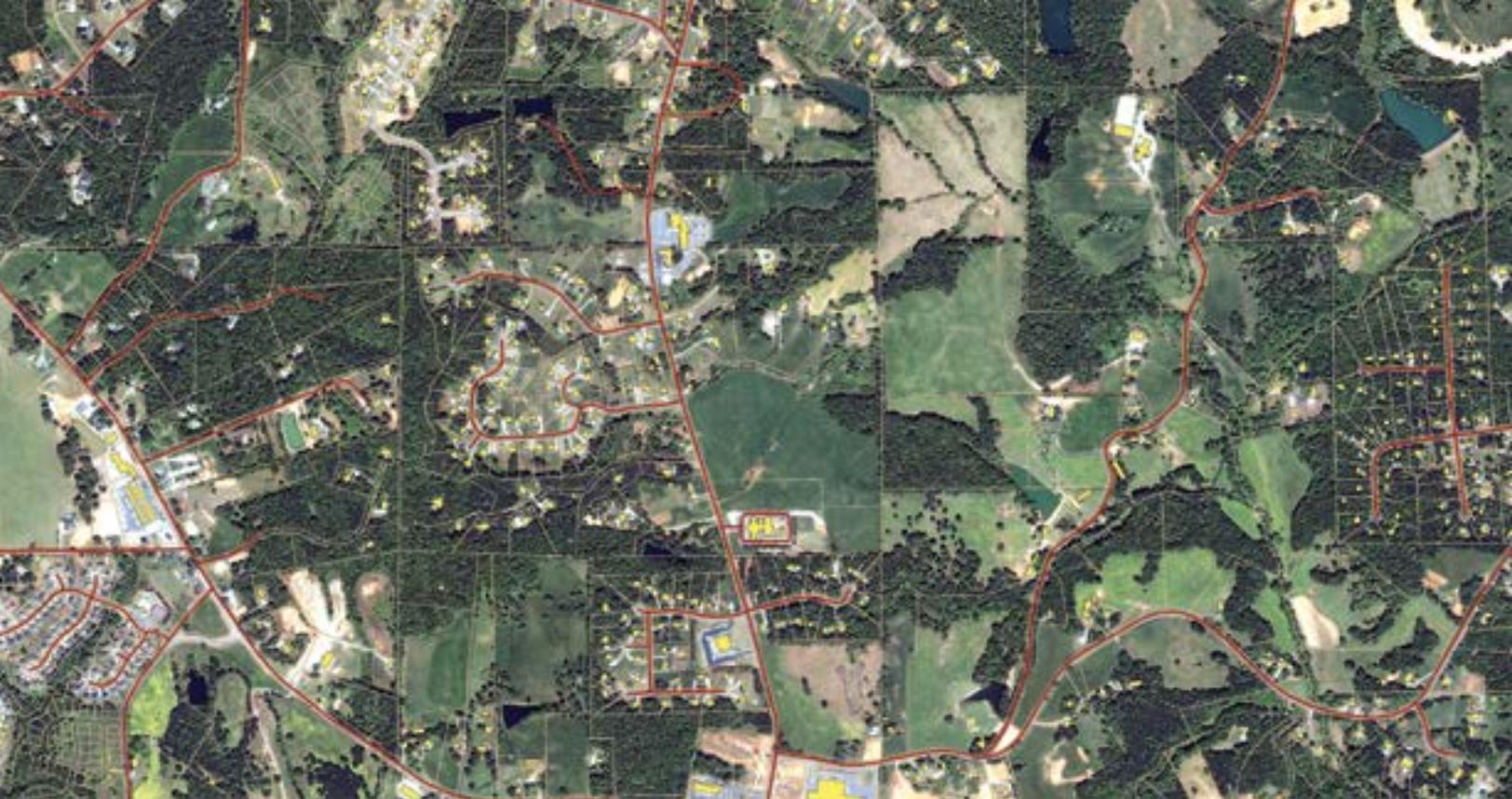
Extend the power of Octave Imagine

Octave Imagine Expansion Pack

Support for 3D, NITF, DEM, stereo and registration, all in one package

Octave Imagine Expansion Pack (formerly IMAGINE Expansion Pack), a collection of functionalities to extend the utility of Octave Imagine, includes 3D visualization and analysis, expanded support for NITF, stereo feature collection, automated image to image registration, advanced change detection, radar orthorectification and DEM extraction from radar imagery.

3D visualization

With simple drag-and-drop file selection, you can quickly and easily create realistic 3D environments. Go far beyond simple 3D renderings and basic fly-throughs by draping maps, aerial photography, satellite imagery or analytical results onto an elevation layer derived from LiDAR, interferometry or photogrammetry. Continue to enhance the scene with annotation, GIS layers, symbols, billboards, intervisibility domes and 3D models. Add to the realism with sky, moving volume-based clouds, water layers, mist and a sun flare with almanac-based location. Finally, create first- and third-person animations with 3D flight paths with fine control of all aspects of the motion. Present your data in stereo, linked to your 2D view or in a movie with your logo or simply navigate your scene in real time with a joystick, mouse or digital dashboard.

Example applications:

• Visualize how the surrounding views and community may be affected by a new landfill placement

• Determine the visual impact of logging on a tourist area

- Plan an incursion or extraction into a hostile environment

- Understand where you can see and be seen by modeling line of sight, generating threat domes from known direct firing positions, modeling the cover and concealment, extraction points and more

- Use 3D visualization to help managers and laypeople better understand a new wilderness park, the path of a new highway or pipeline or where to place cameras to get the most coverage

Automated image-to-image registration and edge matching

The ability to quickly and precisely register two images is critical in any pan-sharpening or change detection workflow.

Generate highly accurate geometric models from two or more images — even images of dissimilar type, such as data from different sensors or with different spatial resolutions.

Improve the registration between already georeferenced datasets, or correlate new raw imagery to an existing georeferenced base image. Automatically generate thousands of tie points to establish the relationship between output images and the initial reference image.

The Edge Matching workflow solves the problem of road alignment along the border of two images by applying a localized model to the overlapping region of image pairs. Using a process similar to image-to-image registration, it generates tie points in the region of overlap to pull misaligned features into alignment.

Choose between using the Workstation mode or have the friendly wizards walk you through project setup. Check the residuals, automatically select and remove bad points and check the alignment with swipe and blend tools.

Quick and easy realism effects, like sun glint, reflections and weather conditions, as well as intervisibility and animations are examples of the powerful 3D viewer capabilities.

Advanced change detection

Once your data is properly aligned, you can perform change detection with confidence. Synoptic views of the Earth's surface at a variety of spatial and temporal scales provide dramatic evidence of the dynamic processes of interest to a wide variety of users. Detecting and analyzing the meaningful differences between multidate imagery is a complicated task that requires a broad assortment of image processing tools, and it can be overwhelming for even the most advanced users. Imagine Expansion Pack enhances the change detection capabilities in Imagine by providing tools needed to simplify even the most complex change detection processes, allowing users to move rapidly from image to information to results.

Using project-based workflows, users can perform the necessary preprocessing, change detection, change filtering and interpretation. Flexible and interactive tools enable the user to target specific kinds of changes that are of interest to them while ignoring seasonal differences, shadows and even slight misalignments.

Imagine Expansion Pack builds on the change detection workflows available in Imagine and the co-registration step above by providing an adaptable suite of processing procedures to detect change in multidate imagery. Using a specialized wizard and viewer specially designed for change detection, you can produce output in a variety of formats appropriate for integration into GIS and other databases.

Change detection plays an important role in the feature lifecycle because it enables you to quickly identify the location of new features. Critical information on storm damage can quickly be created and provided to first responders, and defense analysts can easily focus their attention on activity.

The wizard helps users determine the best combination of algorithms and filters to differentiate interesting change from background change, while the interactive change viewer provides the user with fine-grained control of the results and tools to analyze these significant changes.

Co-register imagery for tasks such as change detection and pan sharpening.
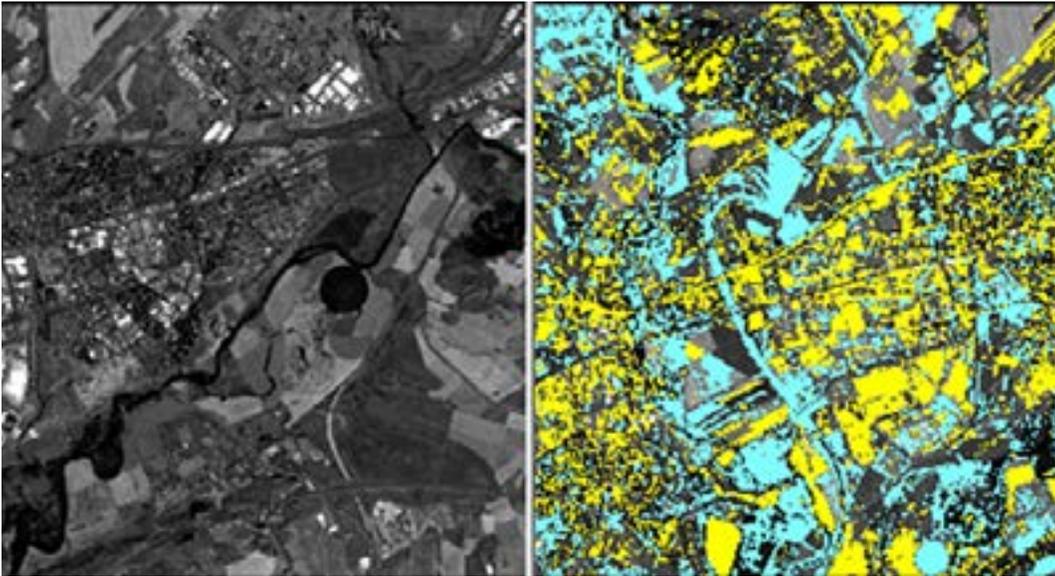
Find new developments using dedicated change detection tools.

Extended NITF support

National Imagery Transmission Format (NITF) is a data format that is the standard for digital imagery and imagery-related products for the United States intelligence community, International Standards Organization (ISO), American National Standards Institute (ISO/ANSI) and North Atlantic Treaty Organization (NATO). While Imagine natively supports the use of NITF data, with the Imagine Expansion Pack you can import and export NITF version 2.1 imagery and map compositions (JITC level 7 and NATO's MIL STD 2500B/STANAG 4545 certified). As files in the NITF format may contain multiple images, annotation and shapefiles, with the Imagine Expansion Pack, you can import the entire file into a map composition to manipulate independent components, then export to an NITF.

In addition, you can use the chipping feature to distribute a portion of an image containing the area of interest, rather than the entire image. When importing an NITF file into a map composition, you can update the components of the file independent of the image. When you export the file, it contains the original image with the updated annotation. We support image segments up to 10 GB and file sizes up to 1 TB.

6

Stereo feature collection in Imagine

Do you need to update your GIS database with 3D features or simply visualize stereo imagery? Imagine Expansion Pack is a practical tool for stereo feature collection and interpretation. Transform your 2D GIS into real-world perspectives by collecting 3D features directly from imagery. Textures can be automatically extracted from imagery and applied to models. In addition, the Texel Mapper allows you to map real or stock façades onto buildings.

These capabilities can also be purchased as an independent module called Stereo Analyst for Imagine.
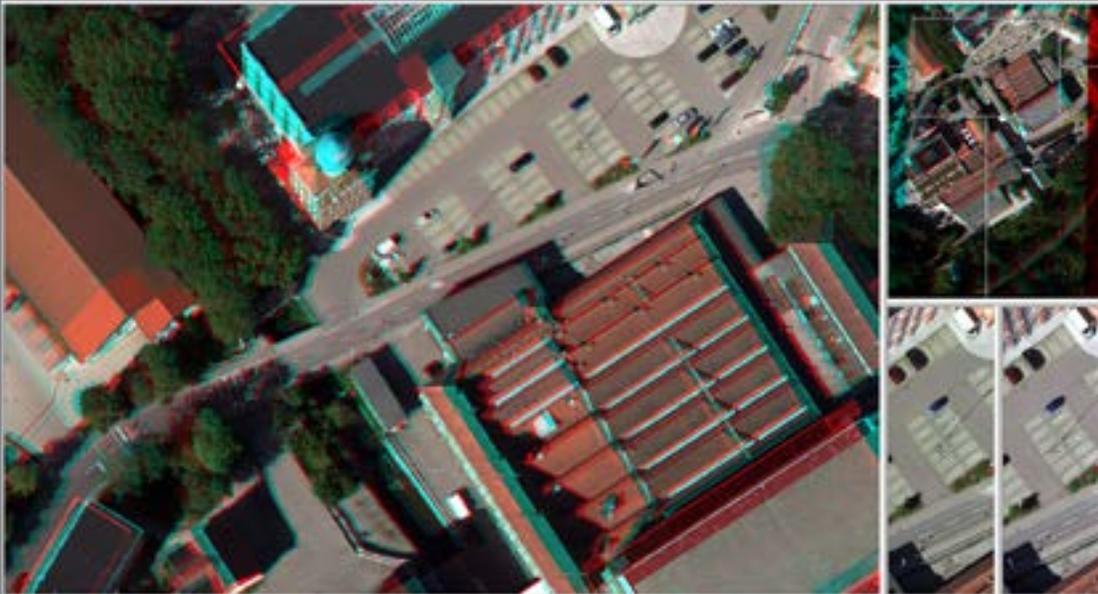
Stereo data capture and visualization

Extract terrain from stereo radar data

Imagine Expansion Pack also includes tools to extract terrain from radar data. Precision SAR sensor models and satellite orbit models enable users to extract terrain height information from stereo pairs of RADARSAT-1 and RADARSAT-2 to generate accurate DEMs. These DEMs can be exploited in a variety of workflows ranging from orthorectification to watershed analysis.

Need more SAR capabilities, such as interferometric DEM extraction and coherence change detection? Check out the Imagine SAR Interferometry and Imagine SAR Feature modules, available separately.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

© 2026 Octave