



RVSAR™
Extension for RemoteView™ Pro Software

ANALYZE AND EXPLOIT THE HIDDEN WITH SYNTHETIC-APERTURE RADAR

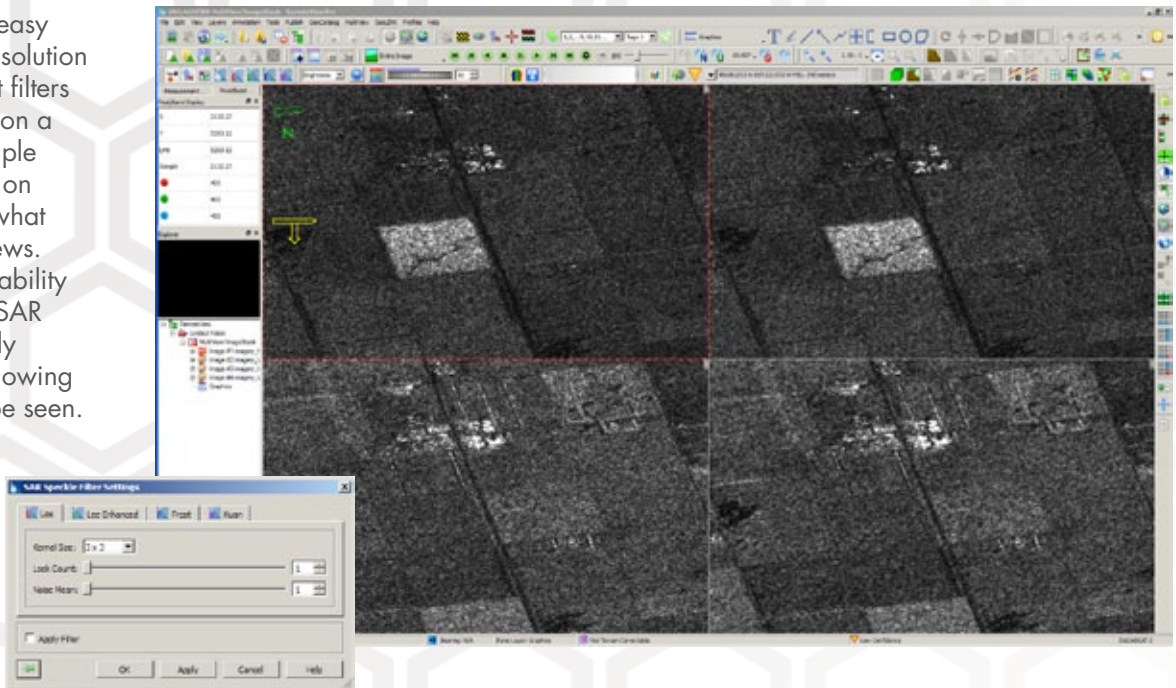
RVSAR

RemoteView Pro 4.3 expands its image capability by the ability to read Synthetic-Aperture Radar (SAR) imagery with the release of the RVSAR add-on module. (Requires an additional license.)

SAR images are useful because of the large amount of information collected from an imaging operation and the adverse conditions under which these imaging operations can be successfully performed. Unlike traditional electro-optical based imagery, SAR imagery can be collected at night, and even over a cloud covered area.

Radar images are unique in the sense that they contain noise (also referred to as speckle) inherently due to how the images are formed, which make them more difficult to interpret. RVSAR provides capabilities to enhance the clarity of the SAR imagery depending on what type of data is being analyzed.

RVSAR provides an easy speckle suppression solution by allowing different filters to be applied either on a single page, or multiple polarization images on one page by using what is known as MultiViews. RVSAR also has the ability to pseudo color the SAR images which visually adjusts the image allowing specific features to be seen.



SENSOR SUPPORT

Radar images can come in many formats such as NITF, GeoTIFF, SICD and HDF5 depending on the provider. In addition, each provider produces many different SAR products such as ground-range projection, slant-range projection, map projection, and complex products. RVSAR currently supports the products and formats from the following providers:

- COSMO-SkyMed
- RADARSAT-1
- RADARSAT-2
- TerraSAR-X
- TerraSAR TanDEM-X
- SICD*
- KOMPSAT 5
- ALOS-2 SAR

Complex products contain complex data (in-phase and quadrature) which RVSAR will automatically convert to displayable magnitude data. Furthermore, RVSAR will generate RSETs for the different SAR products, will "Smart-Load" image with multiple polarizations into an Image Stack view, and will load SAR Quick Looks into an Image Overview.

* Basic support in current release with full support coming in next release.

RSVAR FEATURES

Speckle Filtering

Radar images also capture unwanted data known as “noise” which can make images appear less clear than what they could be. RVSAR allows different filters which are very useful for reducing noise on radar images making them easier to view. The four currently supported filters are Lee, Lee Enhanced, Frost and Kaun. The filters can be added “on-the-fly” and allow for real time adjustments enhancing usability.

HUD Overlay

RVSAR includes a Heads Up Display (HUD) that currently has two items that can be displayed over the image:

1. Satellite/Pulse Direction: Displays an arrow that points the direction the satellite was orbiting while taking the picture. It has another arrow, which connects to the main arrow and shows the radars pulse direction.
2. North Arrow: Displays a north arrow pointing north which is always on screen.

Quick-Look

An overview of the image is generated in RemoteView’s “other overview” which is known as a “Quick-Look”. This overview will give the user a general idea on where RemoteView’s main-viewer is currently at in relation to the whole radar image. The “Quick-Look” overview will only be generated if the SAR image does not have any previously generated RSETs. If RSETs are already found on the radar image before it is opened, RemoteView will use those.

One-Time RSET Generation

RVSAR allows for RSET generation for all polarization images in the same dataset, even if only one is selected. This allows for a quick and efficient method for the generation of many radar images at once.

Metadata

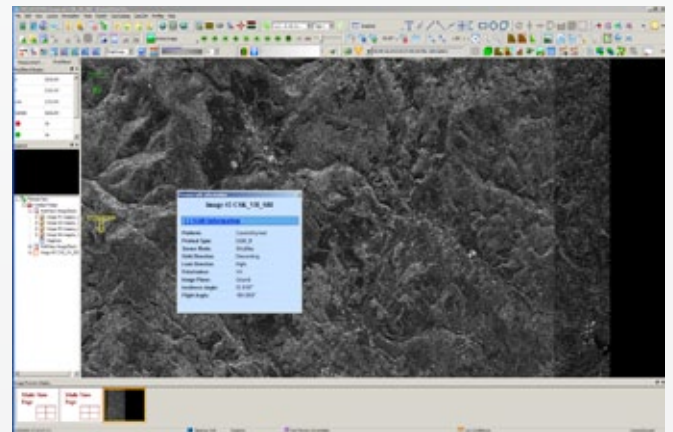
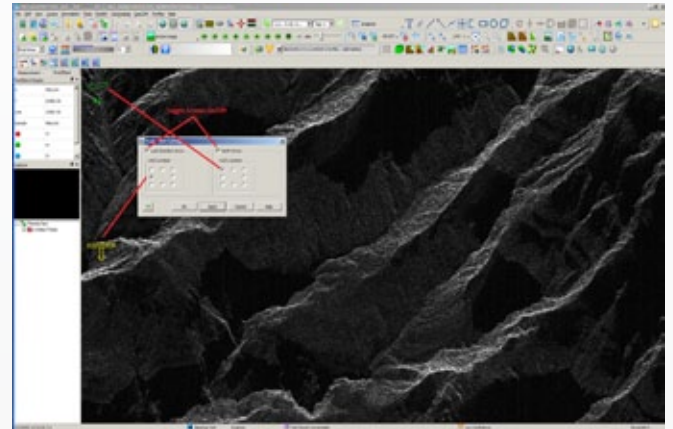
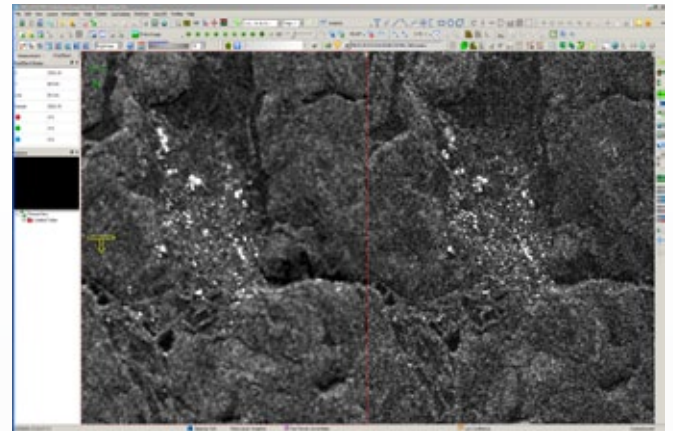
Metadata about the opened SAR images are easily viewable in RemoteView panels. The first panel will show the current SAR metadata. A second panel has the ability to show the SAR image metadata which is selected in RemoteView’s image preview display. The panels show the same metadata which can be found directly in the file. RemoteView’s status bar also has the capability to display information about the SAR image.

Status Bar Options

SAR information can be added to RemoteView’s active status bar. Some of the added status bar options for SAR include Look Angles and Directions, Sensor Modes, Polarizations, Platforms and Products.

Custom Opening

RVSAR includes a smart-loader that allows SAR dataset images to open as one single MultiView page. This is useful due to the fact that RemoteView folders will include less clutter by consolidating every SAR polarization image into a single page. From the MultiView, if the analyst wishes to view one of the pages they can open it in full frame just as they would with any other image.



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