

What's New in SARscape® 4.4

EXELIS

Visual Information Solutions

The newest release of SARscape – version 4.4 – introduces significant improvements to simplify and advance your SAR analysis. The following topics are the points of major interest:

- SARscape toolbox in the ArcGIS® environment
- New IDL scripting functionalities, to allow executing one or more SARscape processing steps programmatically
- New 3-dimensions phase unwrapping approach
- New Persistent Scatterers kernel
- Improved SBAS processing chain
- New processing error handling
- Available for ENVI 4.8 and ENVI 5.0 Classic



General

The integration into the ArcGIS® environment continues with the introduction of some of the most relevant processing functions and workflows. Below is a brief explanation of what is provided with specific SARscape modules.

With the **SARscape Basic module**, the following functions and workflows are provided:

FUNCTIONS

- Data multi-looking
- Data import for all SAR supported sensors
- Data coregistration
- Single-date and multi-temporal speckle filters
- Coherence feature extraction
- Geocoding and Radiometric Calibration

WORKFLOWS

- From Single Look Complex data, through multi-looking, co-registration and filtering, up to geocoded and radiometrically calibrated products
- From Single Look Complex data to a geocoded coherence change map (CCD).

With the **SARscape Interferometry module**, the following functions and workflows are provided:

FUNCTIONS

- Process sequence to perform the steps from the interferogram generation to the Phase Unwrapping
- Orbital Refinement and Interferogram Re-flattening
- Phase to height conversion and geocoding
- Phase to displacement conversion and geocoding

WORKFLOWS

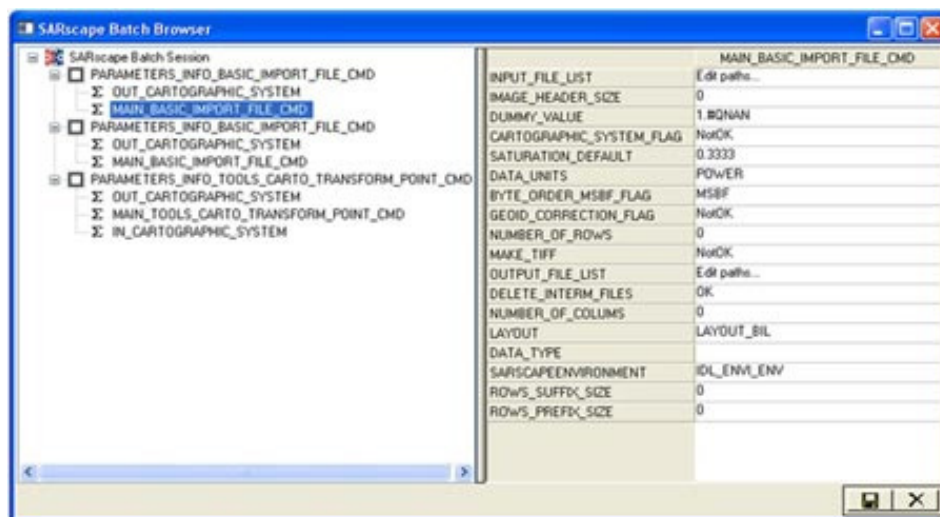
- From Single Look Complex data, through interferogram generation, flattening and filtering, phase unwrapping and orbital refinement, up to digital elevation model or displacement map generation.

With the **SARscape Interferometric Stacking module**, the Persistent Scatterers function is provided.

ALONG WITH THE INTEGRATION WITH ARCGIS, SARSCAPE 4.4 PROVIDES:

- A new IDL API to the SARscape’s processing routines is now available. This allows the control and the generation of IDL Batch script and furthermore allows SARscape functions to be inserted inside an ENVI batch function.
- Improved image visualization with the introduction of SAR-specific optimized stretching, which is typical for SARscape products.
- Test datasets that have been reviewed and rebuilt to be compliant with the latest SARscape release. New datasets have been introduced to be used for evaluating the Interferometric Stacking module capabilities.
- Error messages that relate to processing anomalies are now linked to a dedicated help section where specific problem solutions are proposed.

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Tools

GEOID COMPONENT

This new tool allows subtracting or adding the Geoid related height to any input Digital Elevation Model. In previous SARscape versions this functionality was available only for DEMs ingested by means of the “Digital ElevationModel Extraction” tool.

ORBITAL CORRECTIONS

Two new functionalities, one based on simulated SAR images and the other on manual GCP identification, have been implemented to correct erroneous orbital parameters.

Basic Module

RADIOMETRIC CALIBRATION

Improvement of the existing algorithms.

DATA IMPORT

The input file list option has been implemented to allow multiple images to be imported in a single step.

Tools

PHASE UNWRAPPING

A new triangulated approach has been introduced; the algorithm has also been improved in order to better exploit the memory resources.

PHASE TO HEIGHT CONVERSION AND GEOCODING

The “Relax Interpolation” algorithm has been improved in order to better handle isolated pixels.

Interferometric Stacking Module (former Persistent Scatterers)

PERSISTENT SCATTERERS

A new core algorithm has been implemented, fully developed by sarmap s.a., and which allows higher stability and increasing the resulting PS density.

SBAS

The interface has been modified in order to facilitate the connection graph editing.

PHASE UNWRAPPING

A new 3-D approach, which exploits the time as 3rd dimension, has been implemented in the unwrapping of the SBAS processing chain, making it much more reliable and robust in case of temporally changing coherence values.

The logo for Exelis, featuring the word "EXELIS" in a bold, orange, sans-serif font. The letter 'X' is stylized with a white diagonal line through it.

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