




ENVI[®] SARscape[®] Release Notes

Version 6.1.0

October 2024

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1 What's new

1.1 Highlights

The most meaningful developments are listed here below:

- Flooding Map: New tool to generate Flood maps.
- Velocity: New tool to estimate the speed of moving targets in SAR imagery.
- Automatic Displacement Modeling: This new tool is capable of autonomously performing both non-linear and linear inversion sequences to determine the slip distribution of a seismic event.

1.2 New Features

1.2.1 SARscape GUI – Dark Mode

Possibility to use SARscape in Dark Mode.

1.2.2 Import Data/SAR Spaceborne/Single Sensor/Fucheng-1

Preliminary support for data acquired by the Fucheng-1 SAR C-band satellite.

[1.2.3 Import Data/SAR Spaceborne/Single Sensor/NISAR](#)

Preliminary support for data acquired by the L-Band NISAR SAR satellite. The supported products are RSLC and GSLC.

[1.2.4 Import Data/SAR Spaceborne/Single Sensor/HT-1](#)

Preliminary support for data acquired by the HT-1 (HONGTU-1/PIESAT 1A) SAR X-band sensor satellite.

[1.2.1 Import Data/SAR Spaceborne/Single Sensor/HJ 2E](#)

Preliminary support for data acquired by the HJ (Huan Jing) 2E SAR S-band satellite.

[1.2.2 Import Data/SAR Spaceborne/Single Sensor/Synspective](#)

New support for Starring Spotlight mode images.

[1.2.3 Import Data/SAR Spaceborne/Single Sensor/ICEYE](#)

New support for DWELL mode images.

[1.2.4 Import Data/SAR Spaceborne/Single Sensor/Lutan-1](#)

New support for bistatic mode images.

[1.2.5 Import Data/SAR Spaceborne/Single Sensor/GAOFEN](#)

New support for TopSAR mode images.

[1.2.6 Import Data/SAR Spaceborne/Single Sensor/EOS-04](#)

New support for the following formats SLC tiff, geo tiff and GRD tiff.

[1.2.7 Basic/Feature Extraction/Flood](#)

New set of tools to generate Flood maps.

[1.2.8 Basic/Feature Extraction/Activity Index](#)

New tool to monitor the activity over certain AOIs based on the backscatter signal.

[1.2.9 Basic/Moving Target Detection/Velocity](#)

New tool to estimate the speed of moving targets in SAR imagery.

1.2.1 Basic/Moving Target Detection/Moving Target Detection

Possibility to compute the Moving Target Detection tool in the Frequency Domain.

1.2.1 Interferometry/Displacement Modeling/Automatic Inversion single source/Automatic inversion

Possibility to automatically determine the slip distribution of a seismic event.

1.3 Improvements

1.3.1 Import Data/SAR Spaceborne

Possibility to fill isolated zero-value (dummy) pixel clusters within the SAR image.

1.3.2 Import Data/ SAR Spaceborne/Sentinel-1

The import Sentinel-1 tool retrieves the orbital data through the ASF and the Copernicus Data Space services.

1.3.1 Import Data/ SAR Spaceborne/Gaofen-3

Automatic orbit correction.

1.3.2 Import Data/ SAR Spaceborne/Lutan-1

Automatic orbit correction.

1.3.3 Import Data/Download/Sentinel Auxiliary Files Download

Sentinel Auxiliary Files download tool retrieves the orbital data through the ASF and the Copernicus Data Space services.

1.3.4 Basic/Intensity Processing/Filtering/Single Image Filtering

Major improvement on the Refined Lee filter to remove the artefacts.

1.3.5 Basic/Intensity Processing/Geocoding

Geocoding process speed-up for coregistered data (optional).

1.3.6 Basic/Feature Extraction

Speed-up of the process.

1.3.1 Interferometry/Stereo-Radargrammetry

Several improvements have been made to the Stereo-Radargrammetry DEM generation tools:

- Full CPU parallelization to improve processing performance
- Increased quality and precision of the results
- Reduction of estimation noise and of false matching

1.3.2 Interferometric Stacking/SBAS & E-SBAS/E-SBAS

Possibility to run the E-SBAS processing chain in a Cluster environment.

1.3.3 Interferometric Stacking/SBAS & E-SBAS/E-SBAS

Optimization of the Reference Point selection procedure using both phase coherence and μ/σ values.

1.3.4 General Tools/Mosaicking/Slant Range Mosaicking

Possibility to process frames acquired along different relative orbit number. The tool will generate a separate mosaic for each orbit number.

1.3.1 General Tools/Sample Selection

Speed-up of the process. It is most effective when using AOI with complex shapes.

1.3.2 PFA data

Several improvements have been made on the management of Polar Format data (PFA):

- Geocoding and Interferometric Flattening Speed-up
- Baseline Estimation precision improvement
- Stereo Matching accuracy improvement

1.4 Tasks

List of modifications compared to SARscape 5.7.0:

1.4.1 New

- *SARscape Activity Index, SARsActivityIndex*
- *SARscape Process Flooding, SARsBasicFeFloodingClassificationSmoothing*
- *SARscape Process Flooding Classification, SARsBasicFeFloodingClassification*
- *SARscape Import HJ-2, SARsImportHJ2Format*
- *SARscape Import HT-1, SARsImportHt1Format*
- *SARsImportHt1Format, SARsImportNISAR*
- *SARscape IMPORT SV-2, SARsImportSV2*

- *SARscape IMPORT LuTan-1, SARsImportLuTan1*
- *SARscape IMPORT Fucheng-1, Import Fucheng-1*
- *SARscape Velocity Sensitivity Plot, SARsVelocitySensitivityPlot*

1.4.2 Edits

- All import tools:
The parameter *Fill dummy during import* has been added
The parameter *Apply calibration constant* has been renamed as *Fill dummy during import*
- *Import SPACETY*: The tool *Import Spacety* as been renamed as *Import Hisea-1*
- *Sentinel-2 automatic Download*
Previous naming: *SARscape Sentinel-2 automatic download, SARsToolSciHubGetS2*
New naming: *SARscape Sentinel-2 automatic download, SARsToolMultiGetOptical*
- *Coregistration*: The parameter *INPUT_SHAPE_FILE_NAME* has been removed
- *Ratio*: New parameter available: *IMAGES_SORTED_BY_ACQUISITION_TIM*
- *Despeckle Multi-temporal DeGrandi*: The parameter *Output WT* has been renamed as *Keep Wavelet Thresholded files*
- *Intensity Time Series*:
The parameter *Make cmg RGB* has been renamed as *Make CovMinGrad RGB*
- *Ship Detection*: The parameter *DO CLASSIFICATION* has been removed
- *Geocoding and Radiometric Calibration*: The *Normalization Method* parameter has been removed
- *Image Conversion to Ground Range*: The parameter *Apply Calibration Constant* has been renamed as *apply_calibration_constant_flag*
- *Image Conversion to Ground Range*: The parameter *Apply Calibration Constant* has been renamed as *apply_calibration_constant_flag*
- *Image Conversion to Slant Range*: The parameter *Apply Calibration Constant* has been renamed as *apply_calibration_constant_flag*
- *DEM Fusion support weighted average*: The parameter *High Resolution Dem* has been removed
- *GPS Filtering-Undersampling*: The parameter *INPUT_REFERENCE_FILE_LIST* has been removed
- *DEM Fusion support weighted average*: The following parameters has been removed:
 - *High Resolution Weight*
 - *Low Resolution Weight*
 The following parameters has been renamed:
 - *High Resolution Dem* has been renamed as *Dem File1*
 - *Weight Type1* has been renamed as *Weight File1*
 - *Low Resolution Dem* has been renamed as *Dem File2*
 - *Weight Type2* has been renamed as *Weight File2*
- *E-PS Adaptive Filtering*: The parameter *MINI_STACK_SIZE* has been added
- *Phase to Height Conversion and Geocoding*: The parameter *Shape Max Number of Points* has been added
- *Stereo Shift to Height Conversion and Geocoding*: The parameter *Shape Max Number of Points* has been added
- *PS Edit Connection Graph*: the following parameters have been added:
 - *AUXILIARY_PROCESSING_INFO_FILE*
 - *REPORT_PROCESSING_INFO_FILE*
 - *REFERENCE_SELECTION_INFO_FILE*
 - *PLOT_BASELINE_INFO_FILE*
 - *PLOT_POSITION_INFO_FILE*

- *PS Geocoding*: The parameter *PS_SMOOTH_TS* has been added
- *ESBAS Geocoding*: The parameter *Shape Max Number of Points* has been added
- *Stereo Cluster*: The following parameters have been added:
 - STEREO_CC_RANGE_WIN_SIZE
 - STEREO_CC_AZIMUTH_WIN_SIZE
 - STEREO_CC_OVERSAMPLING
 - STEREO_CC_THRESHOLD
 - STEREO_MAX_RESIDUAL_HEIGHT_M
 the following parameters have been removed:
 - INPUT_PARAM_FILE_NAME
 - STEREO_CC_AZIMUTH_WIN_SIZE
 - DEM_FILE_NAME
 - SUBAREA_OVERLAP_PERCENTAG
- *Stereo Radargrammetry*: The following parameters have been added:
 - STEREO_CC_RANGE_WIN_SIZE
 - STEREO_CC_AZIMUTH_WIN_SIZE
 - STEREO_CC_OVERSAMPLING
 - STEREO_CC_THRESHOLD
 - STEREO_MAX_RESIDUAL_HEIGHT_M
 the following parameters have been removed:
 - AT_CC_RANGE_WIN_SIZE
 - AT_CC_AZIMUTH_WIN_SIZE
 - AT_CC_OVERSAMPLING
 - AT_CC_THRESHOLD
 - AT_MAX_RESIDUAL_HEIGHT_M
- *Interferometric Data Coregistration*: The parameter *INPUT_SHAPE_FILE_NAME* has been removed
- *Moving Target Detection*: The parameter *EXTRACTION_DOMAIN* has been added
- *Convert point shapes to tiles*: The parameter *USE_LOCAL_COORDINATES* has been added
- *Sentinel-1 aux download*: The parameter *SELECT_DOWNLOAD_SERVICE* has been added
- *Sentinel Auxiliary Files MultiDownload*: The parameter *SELECT_DOWNLOAD_SERVICE* has been added
- *Digital Elevation Model Extraction DTED*: The parameter *Scene Limit Increment* has been added
- *Generate Quick Look*: The parameter *QL_COMMAND_TYPE* has been added
- *Update Orbital Data for SENTINEL1*: The following parameters have been added:
 - VELOCITY
 - INPUT_FILE_NAME
 - OPENCL_PLATFORMID
 - GENERATE_QL
 - IN_TRIGGERING_EXECUTION_OPTION
 - OUT_TRIGGERING_EXECUTION_OPTION
 - ROOT_URI_FOR_OUTPUT
 - SARscape_Preference

1.4.3 Removed

- *SARscape Sentinel-2 automatic download, SARsToolMultiGetOptical*

1.5 Third-Party Libraries

List of modifications compared to SARscape 5.7.0:

1.5.1 New

- *Armadillo* version 12.6.4
- *bzip2* version 1.0.8
- *half* version 2.1.0
- *jbig* version 20160605
- *libdeflate* version 1.19
- *libiconv* version 1.17
- *libstdc++* version 6.0.30 (Linux only)
- *lzma* version 9.2
- *proj* version 9.3.0
- *webp* version 1.3.2
- *zstd* version 1.5.5

1.5.2 Updates

- *Alan* update to version 1.8.1
- *Assimp* update to version 5.2.2
- *Boost* update to version 1.83.0
- *Ceres* update to version 2.1.0
- *Eigen* update to version 3.4.0
- *Expat* update to version 2.5.2
- *FileGDB* update to version 1.5.2
- *GDAL* update to version 3.4.3
- *GEOS* update to version 3.12.0
- *GeoTiff* update to version 1.7.1
- *Glew* update to version 2.2.0
- *Glfw* update to version 2.2.0
- *GLM* update to version cci.20230113
- *Hwloc* update to version 2.9.3
- *Iomp* update to version 2024
- *Jsoncpp* update to version 1.9.5
- *Libarchive* update to version 3.7.2
- *Libcurl* update to version 8.6.0
- *libjpeg* update to version 9e
- *libpng* update to version 1.6.40
- *LibXML2* update to version 2.12.1
- *Mkl* update to version 2024
- *Netcdf* update to version 4.8.1
- *OpenCL* update to version 2023.04.17
- *OpenCV* update to version 4.8.1
- *openjp2* update to version 2.5.0
- *openssl* update to version 3.2.1
- *PCL* update to version 1.13.1

- *Qhull* update to version 8.0.1
- *Shapelib* update to version 1.6.0
- *six* update to version 3.3.0
- *Sqlite3* update to version 3.44.2
- *Tiff* update to version 4.6.0
- *TinyXML2* update to version 9.0.0
- *zeroMQ* update to version 4.3.5
- *zlib* update to version 1.3.1

1.5.3 Removed

- *Cl*
- FreeImage
- HDF4
- HDFEOS
- tbb

2 Bug fixing

SARscape 6.1.0 includes the bug fixing provided in all the patch released for SARscape 5.7.0 and the last bug fixing not included in former patches.

- [20241010] Bug Fix: PS Second inversion memory.
- [20241010] Bug Fix: Intensity Time Series workflow.
- [20241010] Bug Fix: Polarimetric features.
- [20241003] Bug Fix: Radarsat2 Ground Range Import.
- [20240916] Bug Fix: CSG Ground Range Geocoding.
- [20240916] Change : Sentinel-1 Multidownloader new flag to close the prompt at the end.
- [20240912] Bug Fix: Stacking Time Filtering.
- [20240912] Change : Task for Slant Range Mosaic(SARsToolsSlantRangeMosaic): multi outputs.
- [20240912] Bug Fix: Task fix for Geocoding and Radiometric Calibration, Coregistration, Despeckle Multi-temporal DeGrandi.
- [20240912] Bug Fix: De Grandi Spatio-Temporal Filtering keep incremental flag management.
- [20240912] Bug Fix: Sentinel-1 Import mosaic and sample selection.
- [20240912] New: Preliminary import EOS04 in tif format.
- [20240912] Change: QPS doppler estimation only for SLC.
- [20240912] Change: HT-1 IM mode management bistatic flag in sml.
- [20240912] Bug Fix: Automatic Orbital Correction.
- [20240912] Change: Gaofen-3 orbit filtering.
- [20240912] New: Preliminary import iceye grd in tif format.
- [20240912] Change: GSF Cancel SARscape job management.
- [20240912] Bug fix: SICD PFA import extraction of SceneHeading and OrbitConfiguration.
- [20240912] Change: Add in task SARscape Process TS Clustering the field SHP TS prefix String.

Announcement



Starting from the next SARscape major release, the Mosaicking tools (General Tools/Mosaicking) will be reorganized to improve GUI usability.