

SAR Essentials 1.0.0 Functional Summary

System configuration

Minimum recommended

ENVI 6.0 8 GB of RAM. A CPU with at least 2 cores and an OpenCL 1.2-compatible device (either CPU or GPU) with double precision floating point (FP64) support.

Ideal

ENVI 6.0 16/32 GB of RAM. A CPU with 4+ cores and an OpenCL 1.2-compatible GPU with 8 GB of memory and double precision floating point (FP64) support, and a fast 512/1024 GB SSD disk

Operating system requirements

- Windows 10 64bit
- Windows 11 64bit

Supported data

SAR spaceborne

- ALOSPALSAR-1
- ALOSPALSAR-2
- ALOSPALSAR-1KC
- ALOSPALSAR-2KC
- ALOSPALSAR-1Geogrid
- ASNARO-2
- CSG
- CAPELLA
- COSMO-SkyMed
- ENVISAT ASAR
- ENVISAT MERIS
- EOS-04
- ERS SAR
- GAOFEN-3
- Lu Tan-1
- JERS-1 SAR
- KOMPSAT-5
- ICEYE
- LuTan-1
- NovaSAR
- PAZ-1
- RADARSAT-1
- RADARSAT-2
- RCM (Radarsat Constellation Mission)
- RISAT-1
- SAOCOM-1
- Sentinel-1
- Spacety
- Synspecive
- SV-2
- TerraSAR-X
- UMBRA SICD

Common Functions

Basic Data Processing

- Imported data.
- Multilooked data.
- Filtered data.
- Geocoded data.
- Layover/Shadow Mask.

Compatibility Check

This tool allows for determining whether a target dataset can be used with a specific SAR Essentials tool. The validity check can be performed on a list of images, trying all combinations. Check the following:

- Basic Data Processing.
- Amplitude Difference.
- Amplitude Change Detection.
- Coherent Change Detection.
- Coherent and Amplitude Change Detection.
- DSM.

Management and Basic operations

- Possibility to insert credentials of the web platforms used to automatically download data through API protocol.
- Possibility to configure the folder and annotation Preferences.
- Check for software updates.
- Error reports management.

Change Detection

The tools available in this section allow computing change detection analysis based on the amplitude and phase part of the SAR signal.

- Amplitude Difference.
- Amplitude Change Detection.
- Coherent Change Detection.
- Coherent and Amplitude Change Detection.

Moving Target Detection

The tools available in this section allow computing analysis of moving targets.

- Color Sub-Aperture Generation.
- Dynamic Sub-Aperture Generation.
- Velocity Estimation.

Digital Surface Model

The DSM Generation tool allows computing Digital Surface Models from SAR image pairs.

- DSM Generation.

Documentation

- Online user's guide.
- Hyperlinked help documentation.
- Technical documentation to install and configure the software.