Coherence Change Detection (CCD) SARscape Modeler

Version 1.0

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General Information

Examples of SARscape Modeler workflows can be find in the installation folder of SARscape (C:\Program Files\SARMAP SA\SARscape\examples\modeler_examples). We suggest keeping the already set parameters to obtain the results shown in this tutorial.

The main steps of this tutorial are described by a number. Steps that are not characterized by a number are not mandatory.

This symbol  specify a practical step that the user should perform in order to proceed with the tutorial.

Steps that are not identified by this symbol must not be modified. If parameters will be modified results obtained in this tutorial are not guarantee.

Coherence Change Detection (CCD)

This model creates a geocoded coherence map between two acquisitions.

Data used in this tutorial are available in our FTP site, please, contact us at support@sarmap.ch to get login credentials.

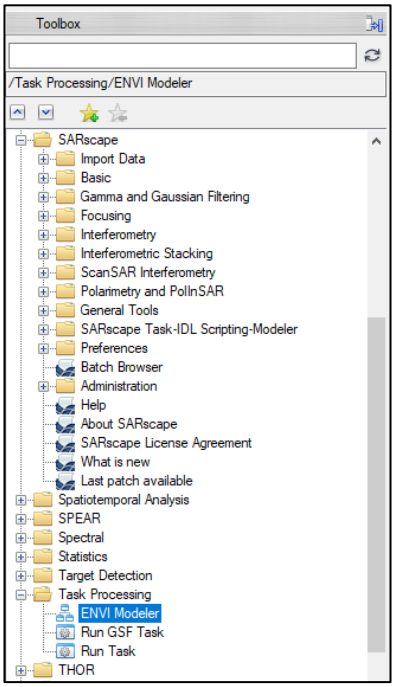

Figure 1 ENVI Modeler in ENVI Toolbox.

Start ENVI Modeler (in Figure 1). Click the Open button in the ENVI menu bar, navigate to the examples folder in your SARscape installation path (C:\Program Files\SARMAP SA\SARscape\examples\modeler_examples) and select the "Ccd.model". The model opens in an ENVI Layout window, the model will appear as in Figure 2.

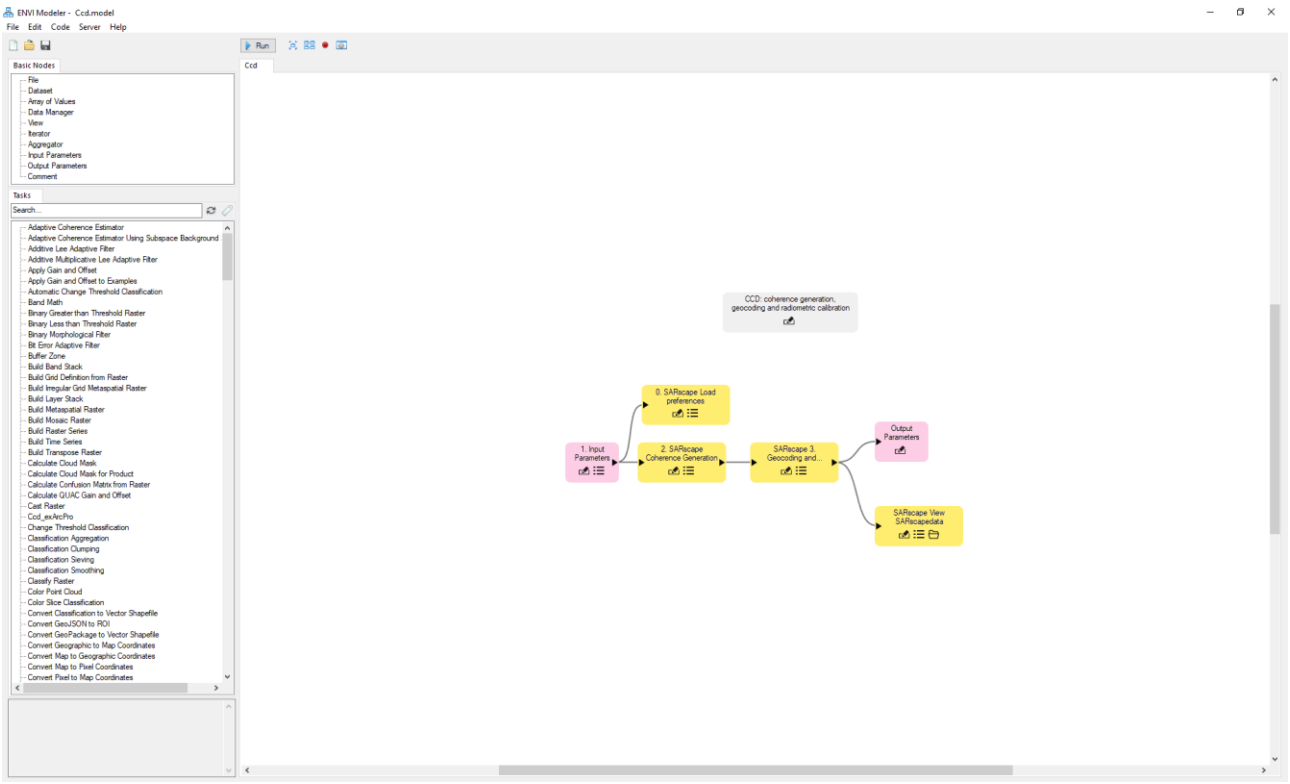

Figure 2 The example model in ENVI Modeler.

This model can be run as it is, each parameter is set to properly work.

✍ Click the Run button in ENVI Modeler window to run the model.

Step 0: SARscape Preferences

It loads SARscape Preferences. TOPSAR preferences has to be set for this example.

The processing will stop since any data has been added. It will open the Input Parameter tasks to add data (Step 1).

Step 1 Input Parameters

✍ Fill out the fields including:

- Master: add the file name of the master data (_slc). This file is mandatory.
- Slave: add the file name of the slave data (_slc). This file is mandatory.
- DEM: add the DEM.
- Common URI for output: set the filename to create the output, which is not mandatory. In this case it means that output files will be saved in the ENVI temporary folder.
- SARscape Preferences: set Sentinel TOPSAR.

Once the model is set the completed task will appear in green color and a progress bar will describe the running processing step and view the progression of that step.

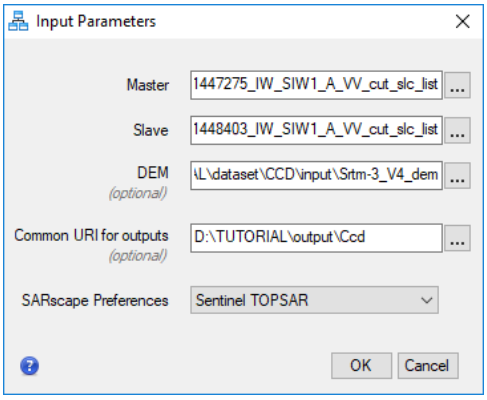

Figure 3 Input Parameters task to be completed to start the processing.

Step 2 SARscape Coherence Generation

The coherence generation task computes the interferometric coherence (γ) between the master and the slave images included in the Input Parameters task (see Basic - Feature Extraction - Coherence tool Help).

Note: Coherence map in slant range will not be saved in the output folder since the common URI for outputs is not set.

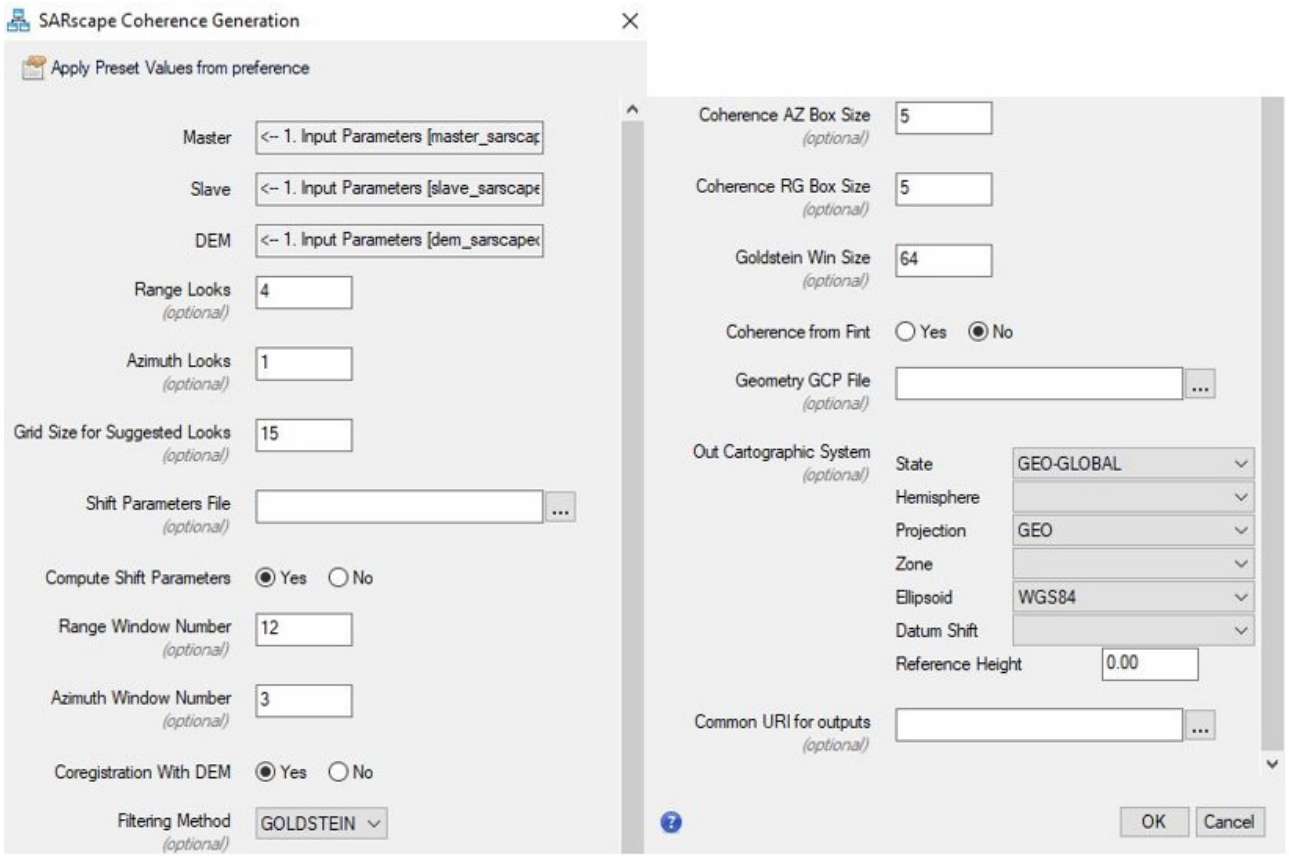

Figure 4 Coherence Generation task panel.

Step 3 SARscape Geocoding and Radiometric Calibration

The coherence and the DEM allow producing the Geocoded and Calibrated image (see the Geocoding and Radiometric Calibration tool Help). The output is autocompleted since it is one of the outputs defined in the Common URI for outputs.

SARscape View SARscapedata

The geocoded data are connected to SARscape View SARscapedata metatask for visualization purposes. (see the General Modeler Tutorial for further details).

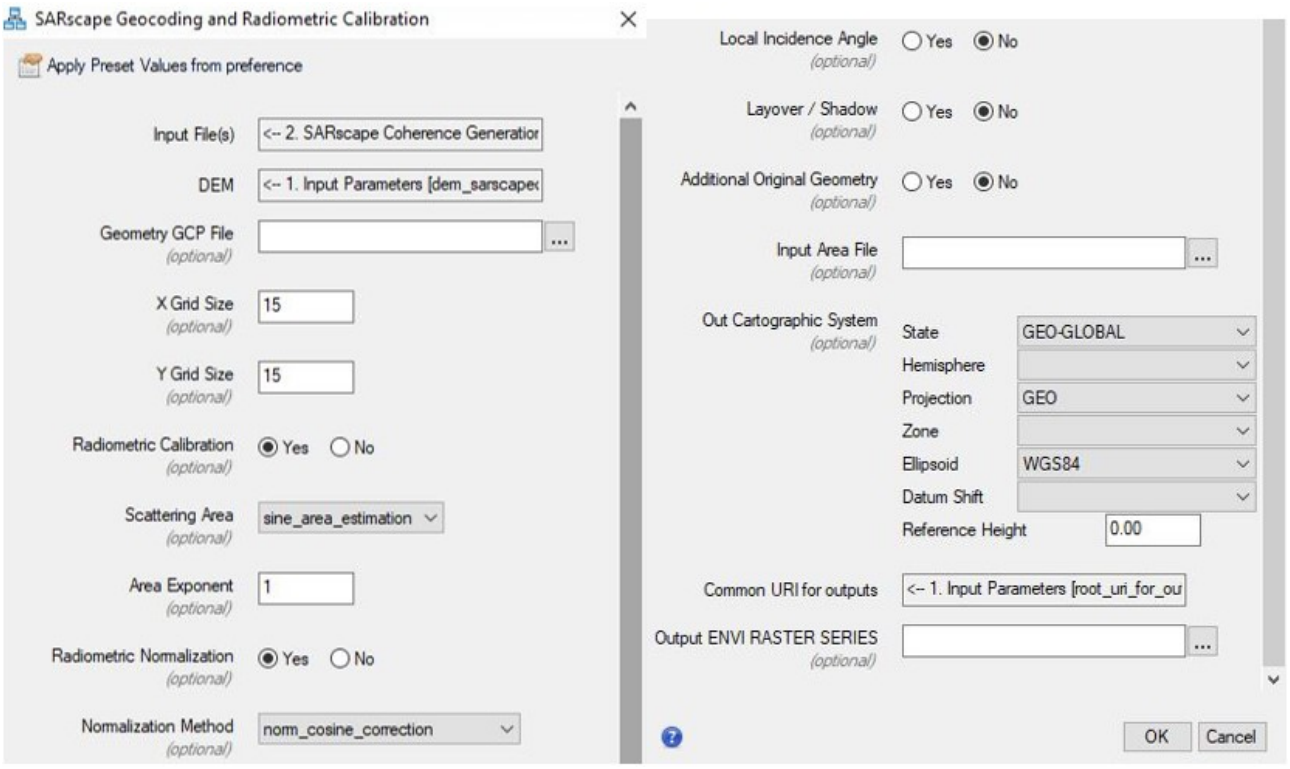

Figure 5 SARscape Geocoding and Radiometric Calibration task panel.

SARscape Output Parameters

The SARscape Output Parameters allows defining the outputs in order to collect them for a potential Metatask.

Once the process is created the model can be saved and used as a function for further processing using Edit> Create task from model.

The model can be used also as MetaTask and saved on disk to be recall in the future from the Task Panel every time users will need it in ENVI Modeler. To save it use Code> Genarate Metatask. It has be saved in ENVI installation folder as .task.

Both the model and task can be shared with other users. Metatasks have to be saved in the disk.

Models can be saved as IDL script in Code > Generate IDL Program.