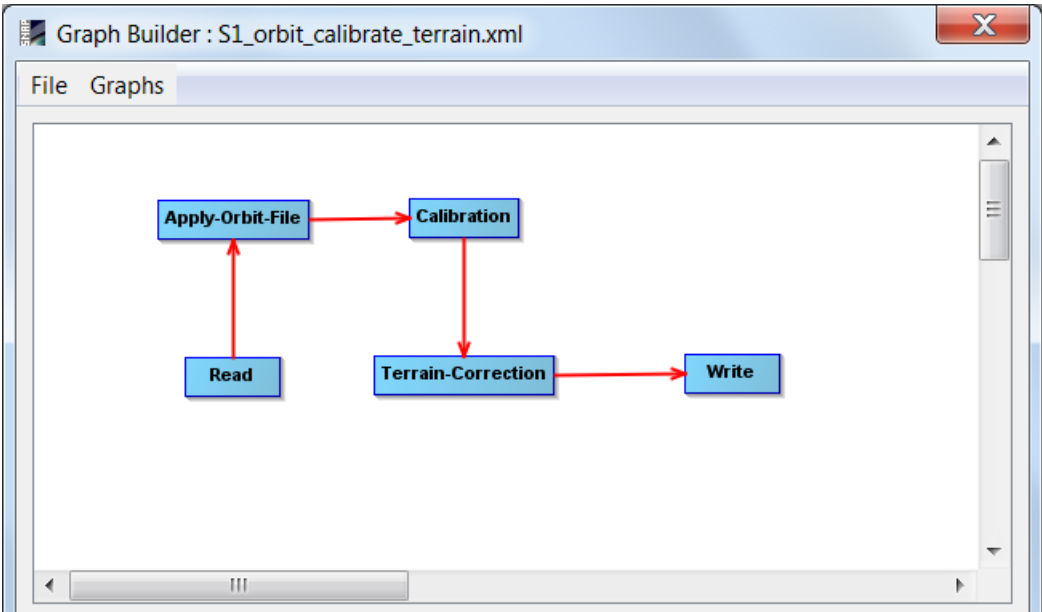


SENTINEL-1 BATCH PROCESSING IN SNAP

Data: Sentinel-1A IW GRDH 1SDV:

- S1A_IW_GRDH_1SDV_20151006T043429_20151006T043454_008027_00B3D3_53E5.zip
- S1A_IW_GRDH_1SDV_20151217T043422_20151217T043447_009077_00D092_FEF5.zip
- S1A_IW_GRDH_1SDV_20160203T043421_20160203T043446_009777_00E4BD_E575.zip
- S1A_IW_GRDH_1SDV_20160415T043422_20160415T043447_010827_010325_5949.zip
- S1A_IW_GRDH_1SDV_20160614T043428_20160614T043453_011702_011EEA_ED24.zip
- S1A_IW_GRDH_1SDV_20160825T043432_20160825T043457_012752_01413D_142E.zip

1. Open all files
 - 1.1. File / Open Product
2. View world map
 - 2.1. View / Tool Windows / World Map
 - 2.2. Select magnifying glass icon to zoom to image footprint
 - 2.3. Use mouse wheel and left click to zoom and pan respectively
3. Crop
 - 3.1. Select the name of the first image listed in the “Product Explorer” window
 - 3.2. Raster / Subset... / Geo Coordinates
 - 3.3. North latitude bound: 57.105
 - 3.4. West longitude bound: 25.027
 - 3.5. South latitude bound: 56.804
 - 3.6. East longitude bound: 23.91
 - 3.7. Select OK
 - 3.8. Repeat for each image in time series
4. Save the newly created subset image
 - 4.1. Select subsetted image in “Product Explorer”
 - 4.2. Select: File / Save Product As...
 - 4.3. Select “Yes” to convert to BEAM DIMAP format (SNAP native file format)
 - 4.4. Select an output filename and location, and select “Save”
 - 4.5. Repeat for all images
 - 4.6. Close all images
 - 4.7. Open the cropped images
5. Create processing chain
 - 5.1. Tools / GraphBuilder
 - 5.2. Create the following graph by right mouse clicking and selecting a process, and left clicking on each process to connect them with arrows.
 - 5.3. Below the graph, for each process, apply the settings as shown below:



Read

The 'Read' configuration panel is shown with tabs for 'Read', 'Apply-Orbit-File', 'Calibration', 'Terrain-Correction', and 'Write'. The 'Read' tab is active. It contains a 'Source Product' section with a 'Name:' label and a dropdown menu showing '[1] S1A_IW_GRDH_1SDV_20151120T222038_sub'. There is also a 'Data Format:' label and a dropdown menu showing 'Any Format'. At the bottom, there is a toolbar with icons for 'Load', 'Save', 'Clear', 'Note', 'Help', and 'Run'.



Apply-Orbit-File

Read

Apply-Orbit-File

Calibration

Terrain-Correction

Write

Orbit State Vectors:

Sentinel Precise (Auto Download)

Polynomial Degree:

3

☐ Do not fail if new orbit file is not found

Load

Save

Clear

Note

Help

Run

Calibration

Read

Apply-Orbit-File

Calibration

Terrain-Correction

Write

Polarisations:

VH

VV

☐ Save as complex output

☒ Output sigma0 band

☐ Output gamma0 band

☐ Output beta0 band

☐ Output DN band

Load

Save

Clear

Note

Help

Run

Terrain-Correction

Read Apply-Orbit-File Calibration **Terrain-Correction** Write

Source Bands: Sigma0_VH
Sigma0_VV

Digital Elevation Model: SRTM 3Sec (Auto Download)

DEM Resampling Method: BILINEAR_INTERPOLATION

Image Resampling Method: BILINEAR_INTERPOLATION

Source GR Pixel Spacings (az x rg): 10.01(m) x 10.0(m)

Pixel Spacing (m): 10.01

Pixel Spacing (deg): 8.992135994036409E-5

Map Projection: WGS84(DD)

☒ Mask out areas without elevation ☐ Output complex data

Output bands for:

☒ Selected source band ☐ DEM ☐ Latitude & Longitude

☐ Incidence angle from ellipsoid ☐ Local incidence angle ☐ Projected local incidence angle

☐ Apply radiometric normalization

☐ Save Sigma0 band Use projected local incidence angle from DEM

☐ Save Gamma0 band Use projected local incidence angle from DEM

☐ Save Beta0 band

Auxiliary File (ASAR only): Latest Auxiliary File

Load Save Clear Note Help Run

Write

Read Apply-Orbit-File Calibration **Terrain-Correction** Write

Target Product

Name: S1A_IW_GRDH_1SDV_20151120T222038_sub_Orb_Cal_TC

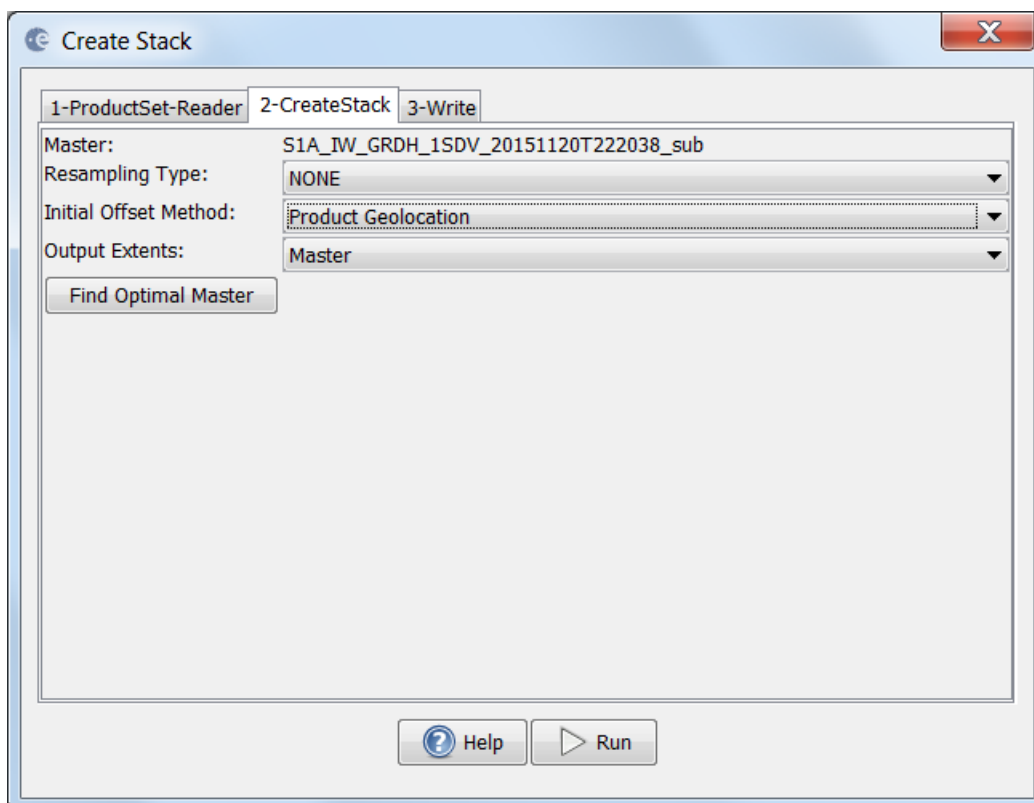
☒ Save as: BEAM-DIMAP

Directory: C:\WORK\Temp

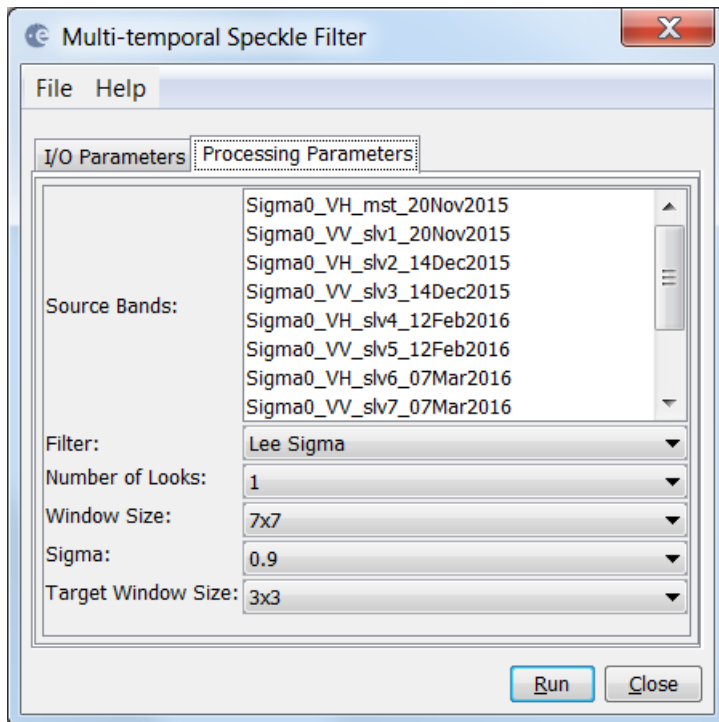
☒ Open in SNAP

Load Save Clear Note Help Run

- 5.4. Select "Save" and save the graph.
- 5.5. Close the Graph Builder window.
6. Create batch directory
 - 6.1. Create a new folder in which to save batch processed imagery
7. Batch processing
 - 7.1. Tools / Batch Processing
 - 7.2. Select "Add Opened"
 - 7.3. Select "Load Graph" and browse to saved graph.
 - 7.4. Under "Directory" browse to newly create batch directory
 - 7.5. Select "Run"
8. Create stack
 - 8.1. Close all images and reopen batch processed images in the batch folder
 - 8.2. Radar / Coregistration / Stack Tools / Create Stack
 - 8.3. Select "Add Opened"
 - 8.4. In the "2-CreateStack" tab, select the following parameters:



- 8.5. In the "Write" tab, select a filename and location
- 8.6. Select "Run"
9. Multitemporal Speckle Filtering
 - 9.1. Radar / Speckle Filtering / Multi-temporal Speckle Filter
 - 9.2. Select the stack as input
 - 9.3. Select the parameters below:



9.4. Select “Run”

10. Convert to dB

10.1. Expand the bands of the speckle filtered stack in the “Product Explorer” window

10.2. Right mouse click on each band and select “Linear to/from dB”

11. Multitemporal, polarimetric analysis

11.1. View various RGB composites of the speckled filtered stack in dB: Window / Open RGB Image Window

11.1.1. View: Red = VV_dB, Green = VH_dB, Blue = VV_dB from the same date

11.1.2. View: Red = Sigma0_VH_06Oct2015_db, Green = Sigma0_VH_03Feb2016_db, Blue = Sigma0_VH_25Aug2016_db