SENTINEL-1 BATCH PROCESSING IN SNAP

Data: Sentinel-1A IW GRDH 1SDV:

- S1A_IW_GRDH_1SDV_20151120T222038_20151120T222105_008694_00C5EE_B572.zip
- S1A_IW_GRDH_1SDV_20151214T222037_20151214T222104_009044_00CFAE_F8B4.zip
- S1A_IW_GRDH_1SDV_20160212T222035_20160212T222102_009919_00E8E4_00DC.zip
- S1A_IW_GRDH_1SDV_20160307T222035_20160307T222102_010269_00F2F3_DF4F.zip
- S1A_IW_GRDH_1SDV_20160319T222036_20160319T222103_010444_00F7EB_A5F1.zip
- S1A_IW_GRDH_1SDV_20160412T222037_20160412T222103_010794_01022C_3FB1.zip

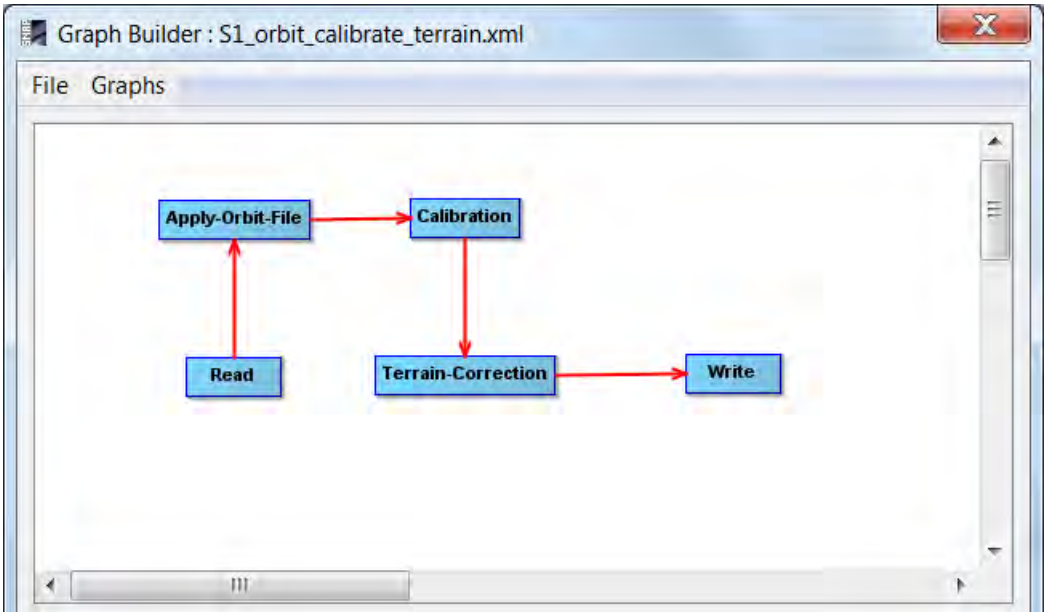
1. Open all files
   1.1. File / Open Product

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

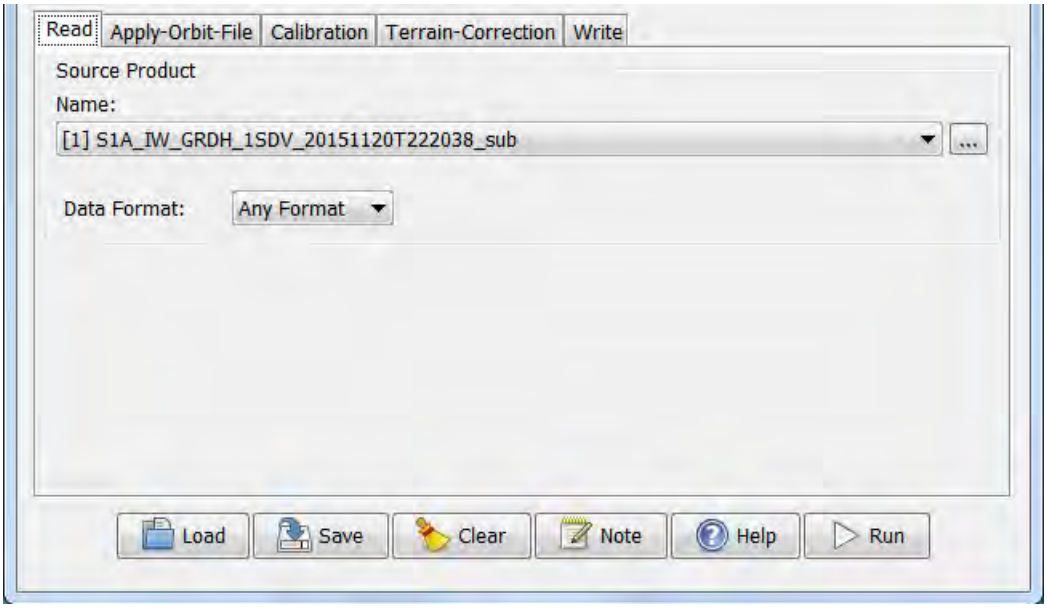
3. Crop
   3.1. Select the name of the first image listed in the “Product Explorer” window
   3.2. Raster / Subset… / Geo Coordinates
   3.3. North latitude bound: 40.111
   3.4. West longitude bound: 116.718
   3.5. South latitude bound: 39.747
   3.6. East longitude bound: 115.818
   3.7. Select OK
   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

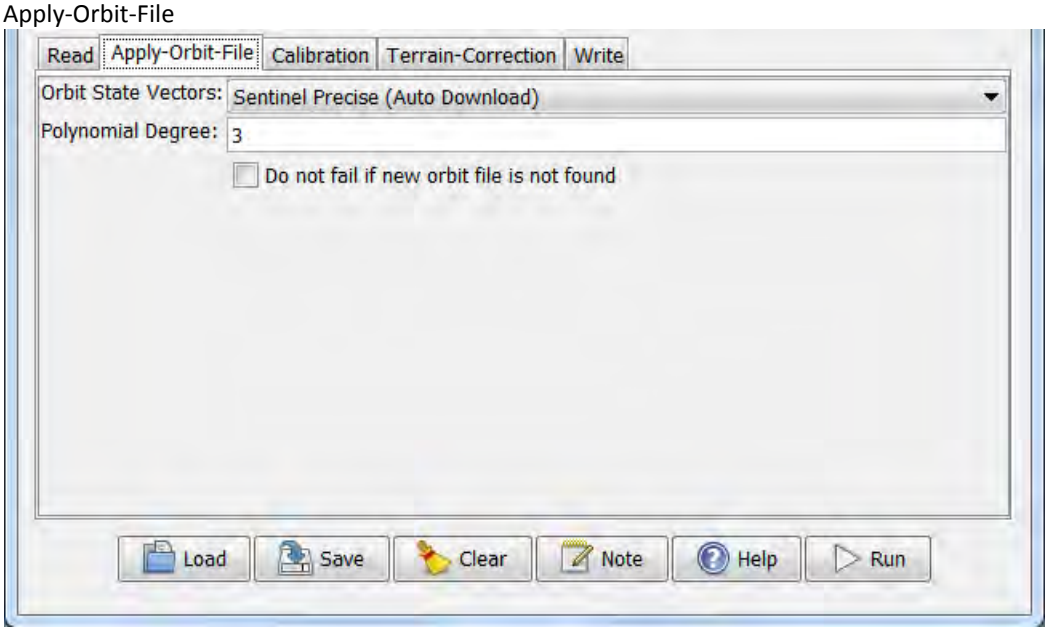
5. Create processing chain
   5.1. Tools / GraphBuilder
   5.2. Create the following graph by right mouse clicking and selecting a process, and left clicking on each process to connect them with arrows.
   5.3. Below the graph, for each process, apply the settings as shown below:


Graph Builder : S1_orbit_calibrate_terrain.xml
File
Graphs
Apply-Orbit-File
Calibration
Read
Terrain-Correction
Write

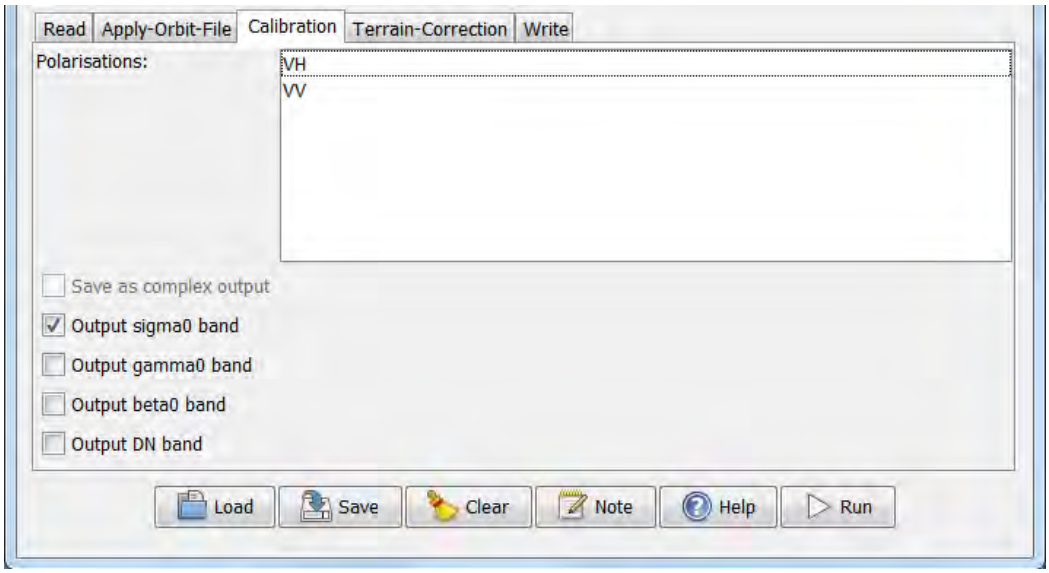
Read


Read
Apply-Orbit-File
Calibration
Terrain-Correction
Write
Source Product
Name:
[1] S1A_IW_GRDH_1SDV_20151120T222038_sub
...
Data Format:
Any Format
Load
Save
Clear
Note
Help
Run

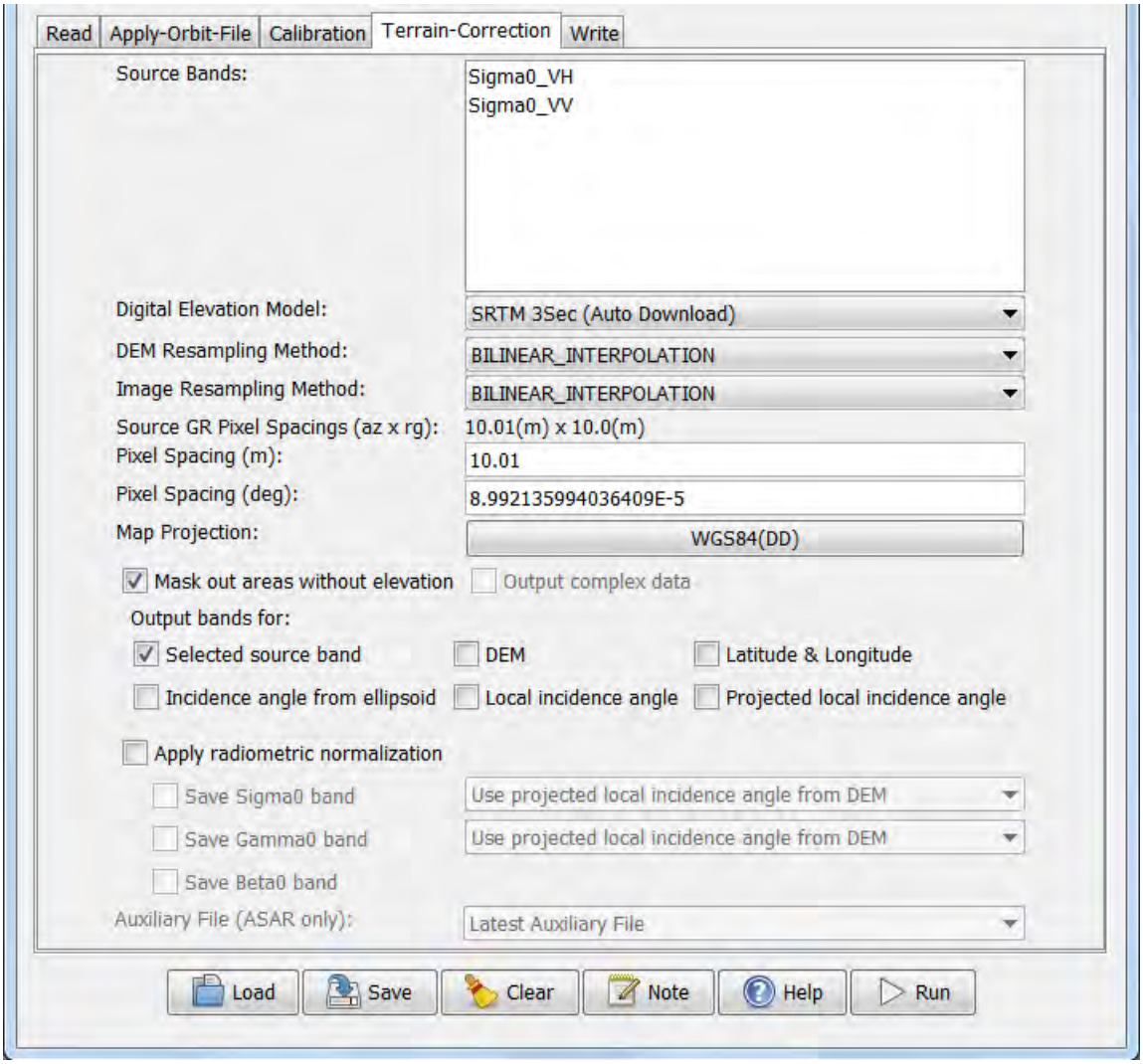
Apply-Orbit-File



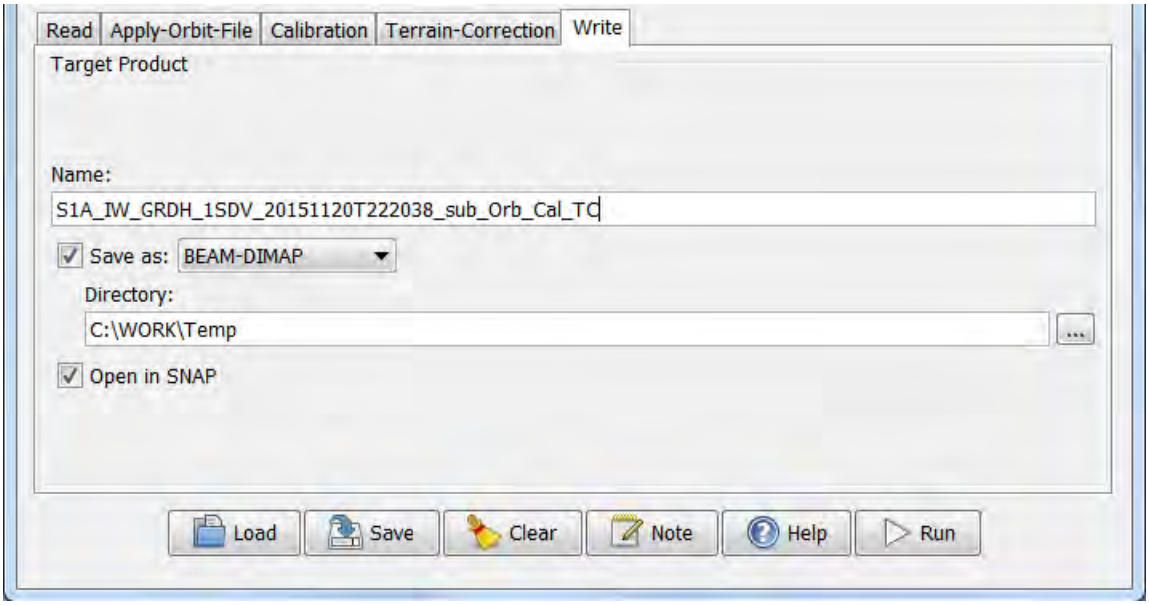
Calibration



Terrain-Correction



Write

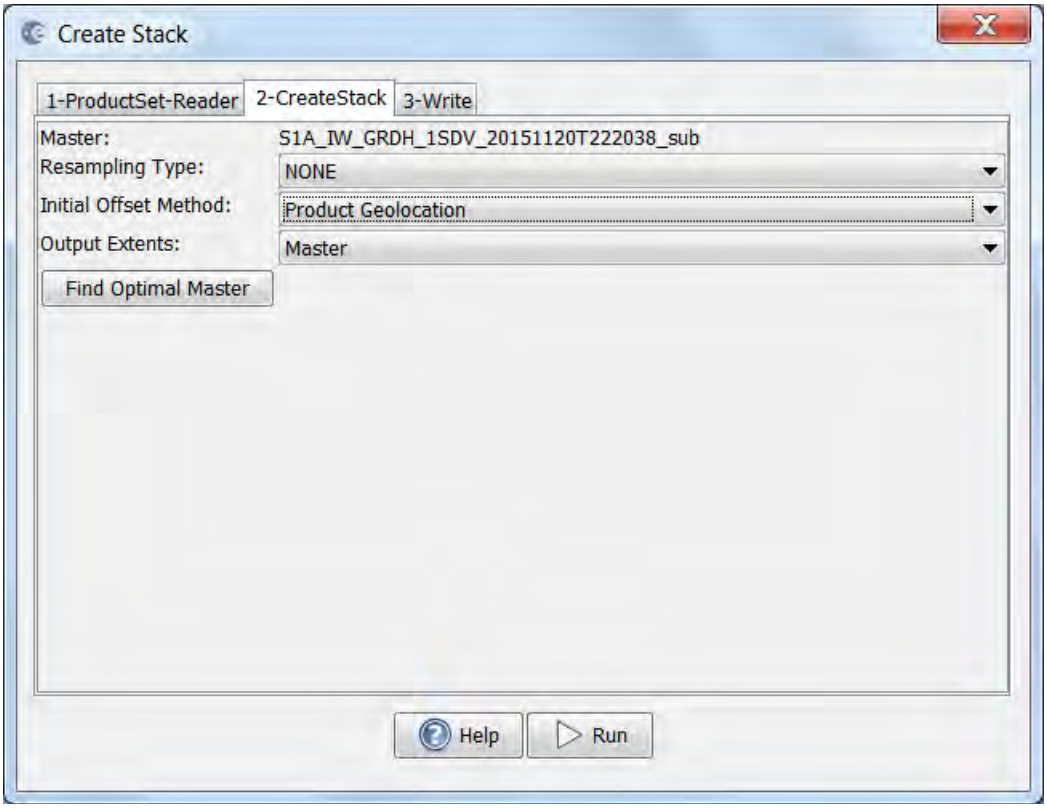


5.4. Select “Save” and save the graph.
5.5. Close the Graph Builder window.

6. Create batch directory
   6.1. Create a new folder in which to save batch processed imagery

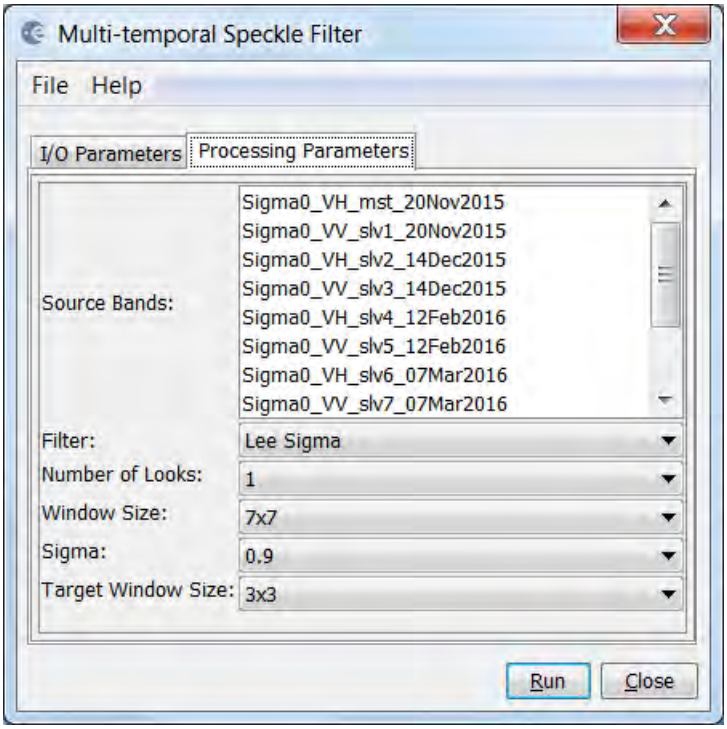
7. Batch processing
   7.1. Tools / Batch Processing
   7.2. Select “Add Opened”
   7.3. Select “Load Graph” and browse to saved graph.
   7.4. Under “Directory” browse to newly create batch directory
   7.5. Select “Run”

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_mst_20Nov2015_db, Green = Sigma0_VH_mst_12Feb2016_db, Blue = Sigma0_VH_mst_12Apr2016_db