

ICEYE

USER GUIDE

WORKING WITH ICEYE SLC & GRD SAR DATA

IN SNAP v.7.0

ICEYE | www.ICEYE.com

Pre-processing, Georeferencing and exporting file for GIS platform from ICEYE high resolution data with the Sentinel Application Platform (SNAP).

In this session of ICEYE data tutorial, we will go through some simple steps to georeference and export the data we downloaded for use on other GIS platforms.

Specific requirements

1. SNAP 7.0 ([download here](#))

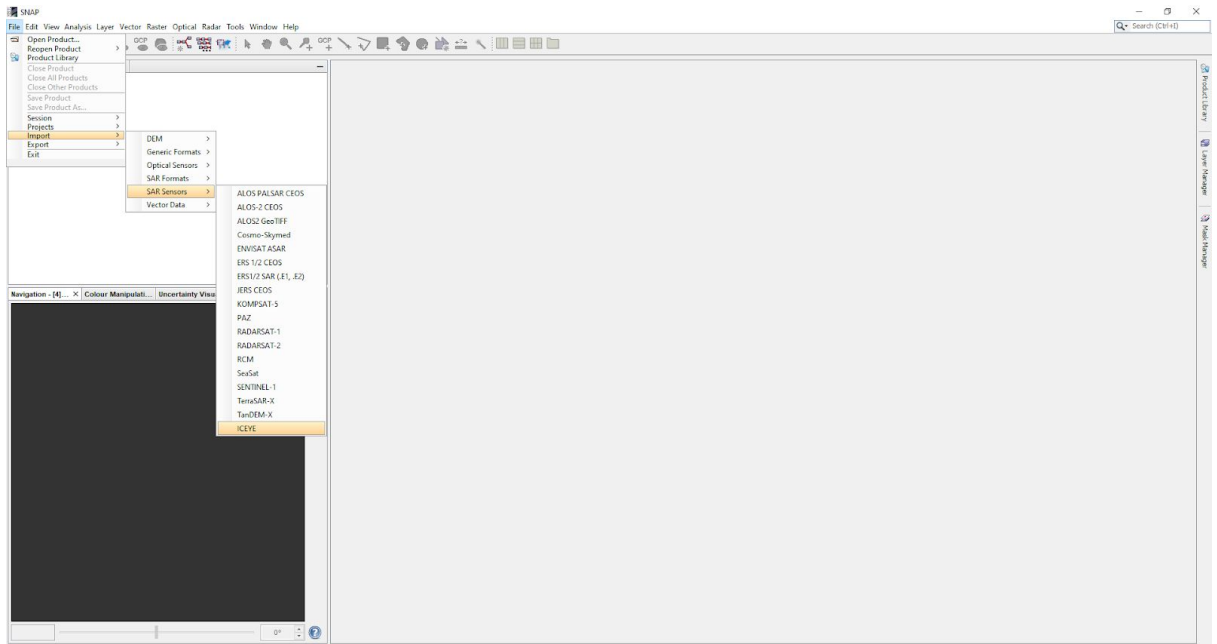
*Recommendation: If you have SNAP already installed with the old version (v.6.9 forwards), please uninstall the whole software and install it again.

2. ICEYE SLC and GRD file downloaded

SLC Data pre-processing

Get Started

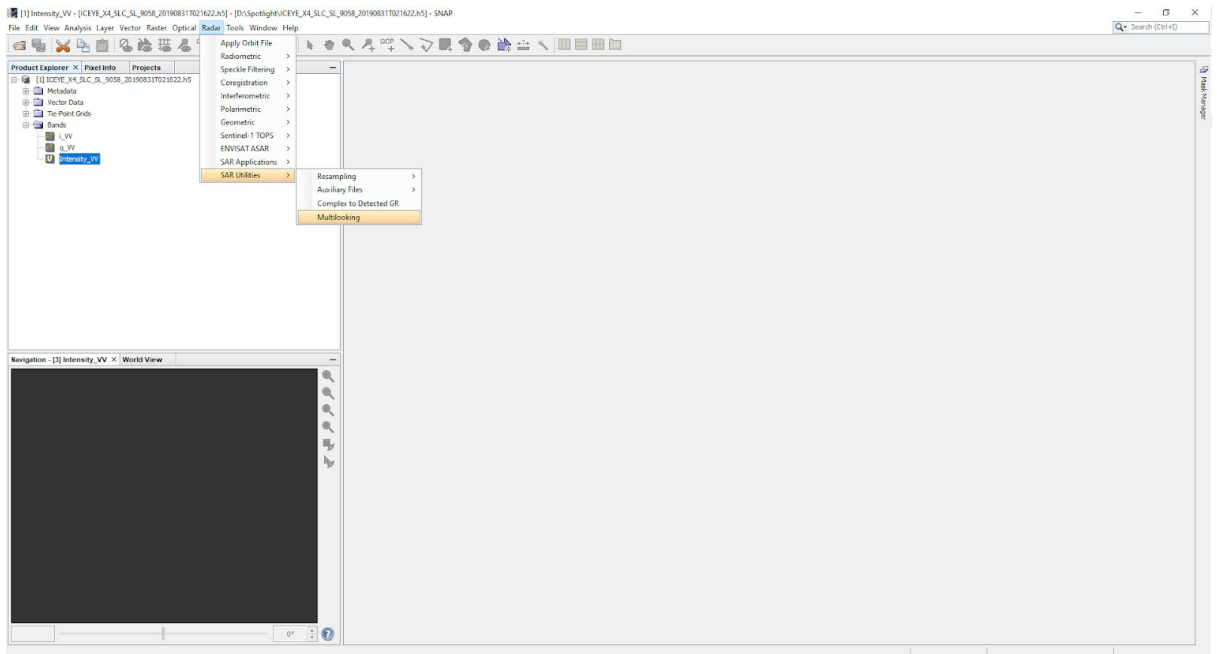
1. **Open ICEYE data on SNAP** by clicking **Open product** then browse to the place the ICEYE example dataset is stored (h5 format)
2. **Import ICEYE's sensors: Import > SAR sensors > ICEYE**



Multilooking

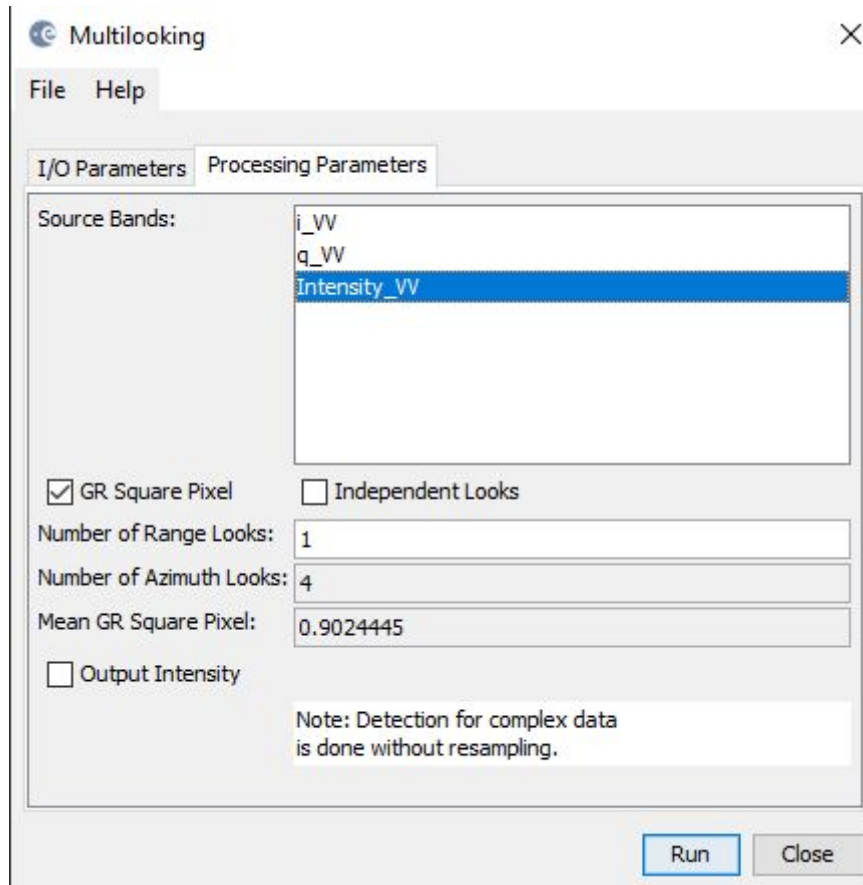
3. Ensure you double click **Intensity_VV** from the **Bands** drop-down list in the **Product Explorer** panel

Then click **Radar > SAR Utilities > Multilooking**

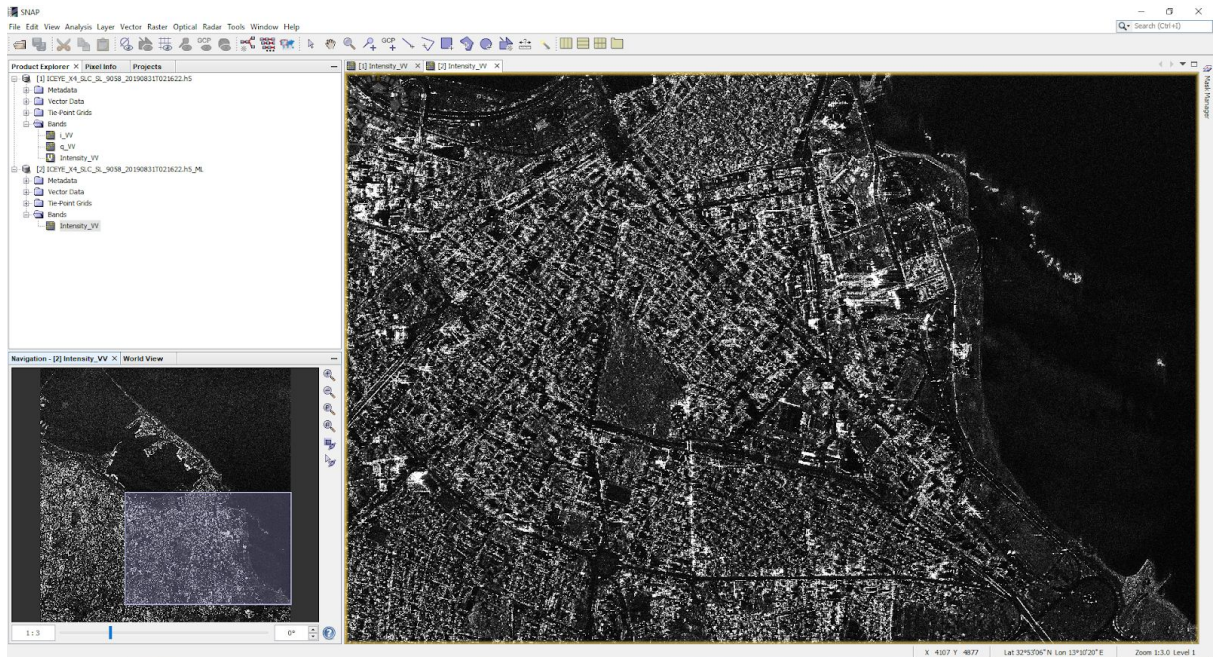


4. Select again **Intensity_VV** as Source bands from the Processing Parameters tab and specify the number of looks to be applied for the multilooking. You can also add optionally, the bigger the number of looks the coarse the resolution will become.

Then click **Run** and wait for the software to process



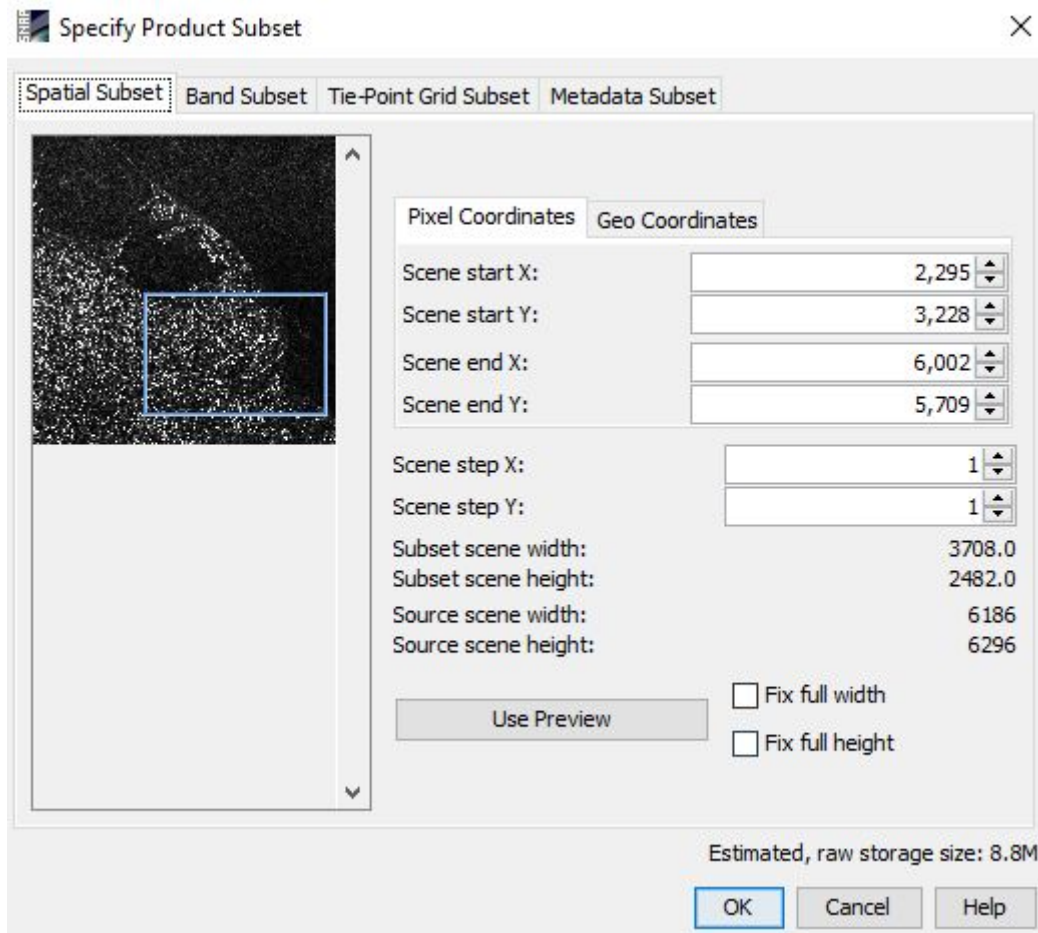
5. ICEYE spotlight SLC data after Multilooking processed



Subset - optional for reducing computational time

Point to **Raster** then select **Subset**. In the **Spatial Subset** tab.

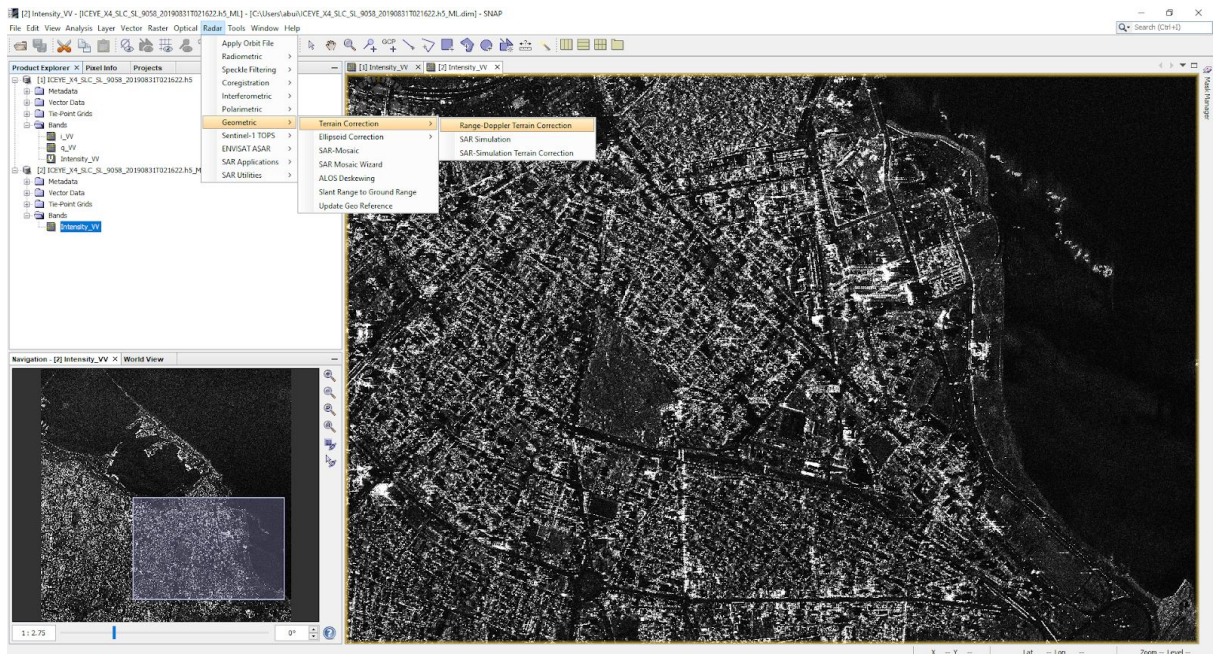
To specify Product Subset, you can set the value from Pixel Coordinates or Geo Coordinates to have your area of interest covered



Georeferencing (Geocoding)

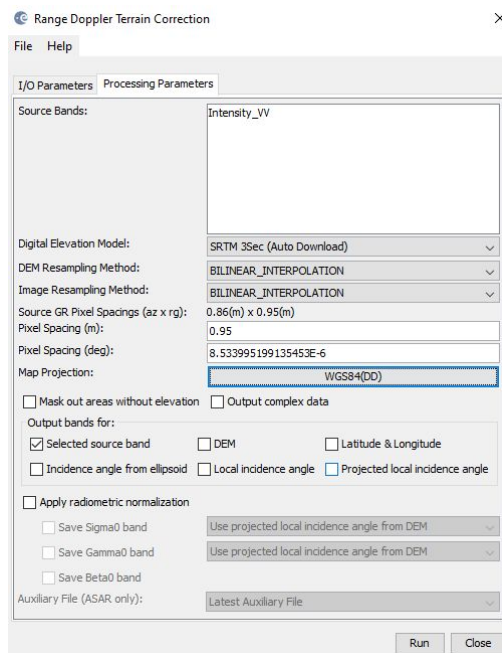
To georeference the image, we have to correct the image with Terrain correction.

We choose this in the menu **Radar > Geometric** and then click the **Range-Doppler Terrain Correction**:

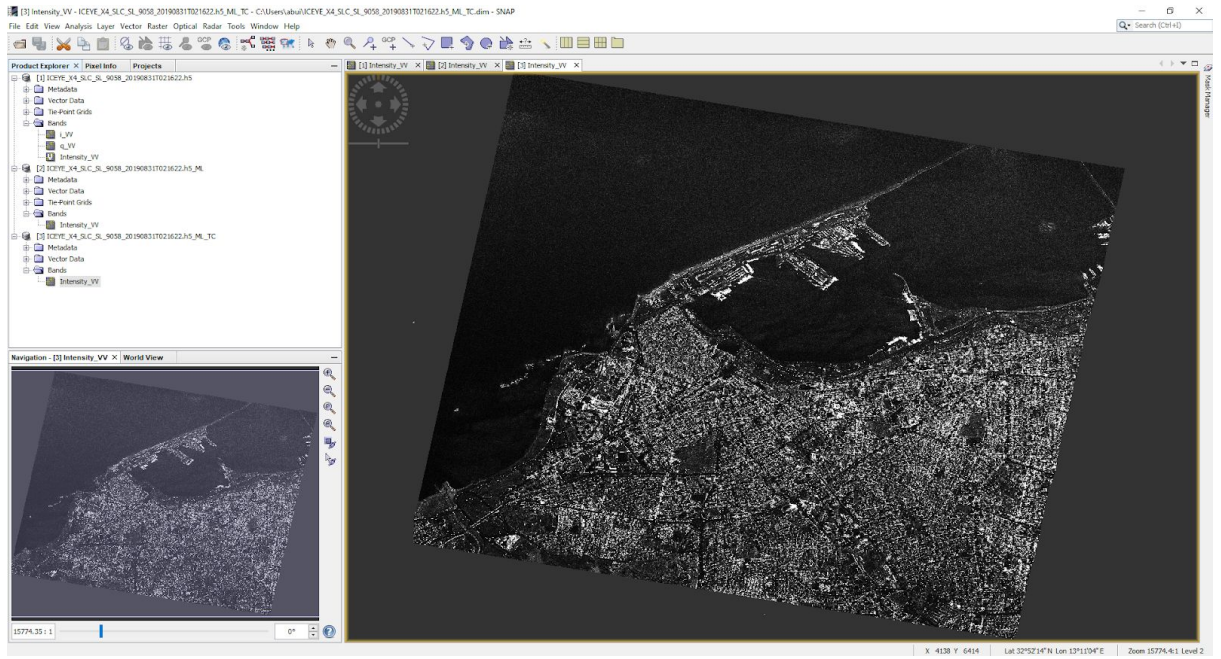


- When the following menu opens, you can leave the default projection system (Map projections) to be set as WGS84 (DD) in the Processing parameters tab. You can also select any projection system that fits your AOI for certain.

Then click Run to start the process



- ICEYE Spotlight SLC data after Geocoded

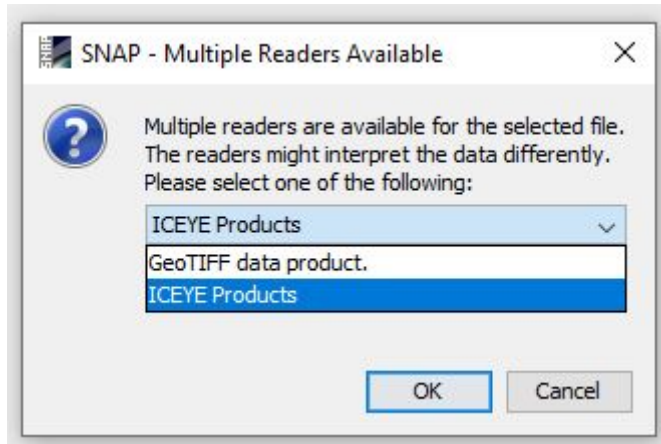


GRD Data pre-processing

Get Started

1. **Open ICEYE data on SNAP** by clicking **Open product** then browse to the place the ICEYE example dataset is stored (TIFF format)

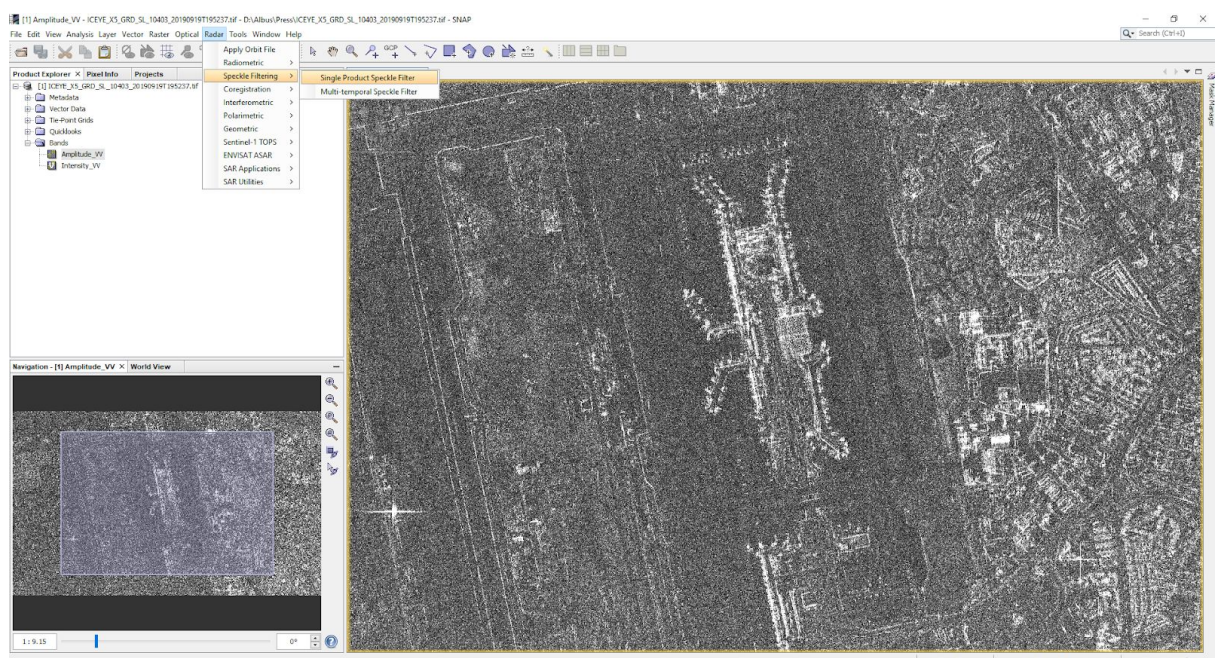
Please choose **ICEYE Products** when asked



Speckle filtering for noise removal

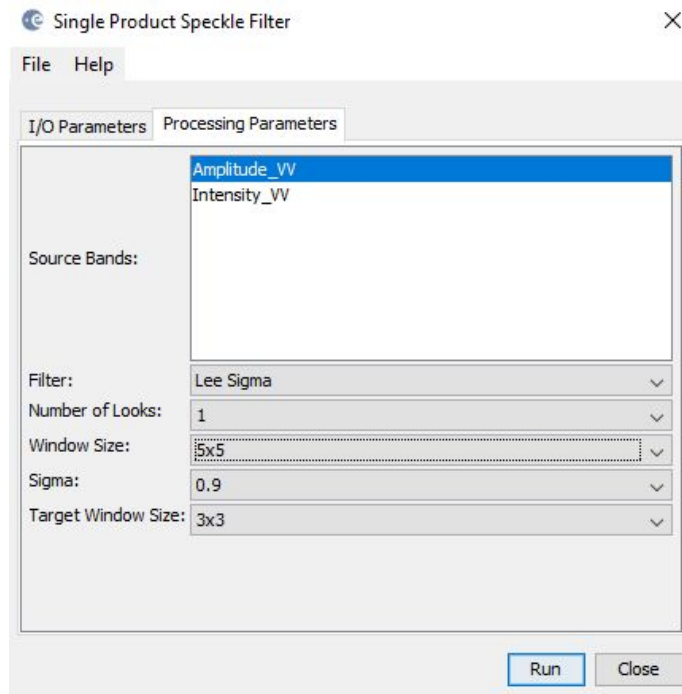
8. Ensure you double click **Amplitude_VV** from the **Bands** drop-down list in the **Product Explorer** panel

Then click **Radar > Speckle filtering > Single Product Speckle Filter**

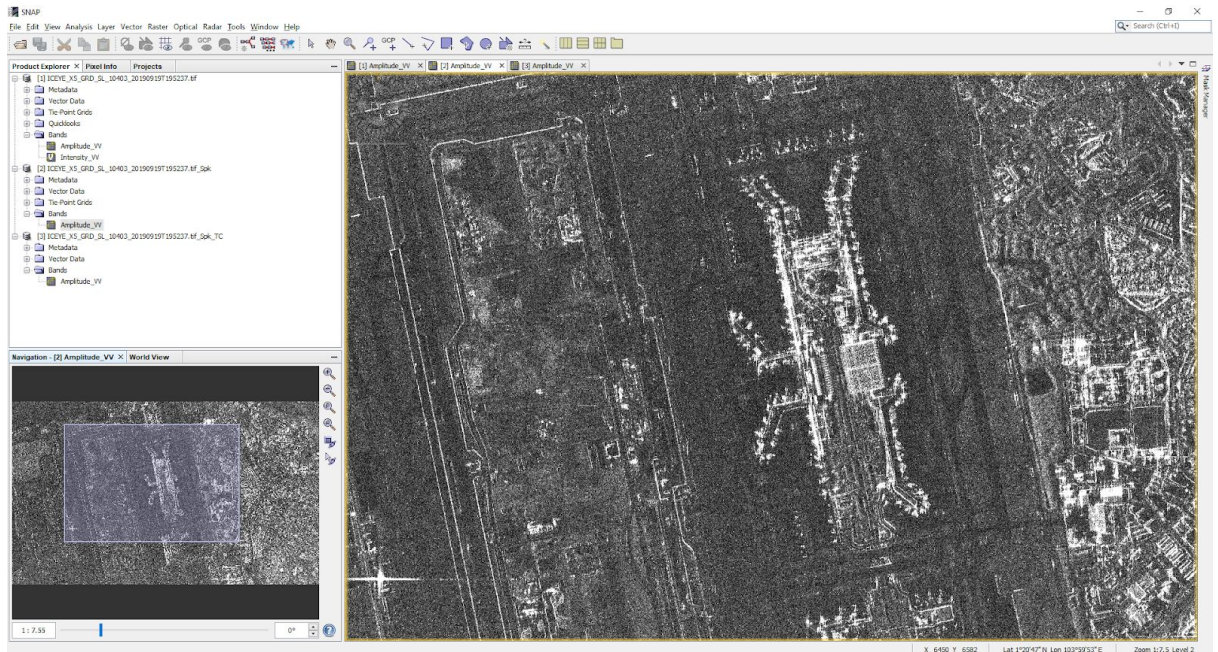


- Lee-sigma is widely used and perform best compared to other filters. From the Processing Parameters tab, choose Lee Sigma from the Filter field with the following values to run the noise removal process.

Then click **Run** and wait for the software to process



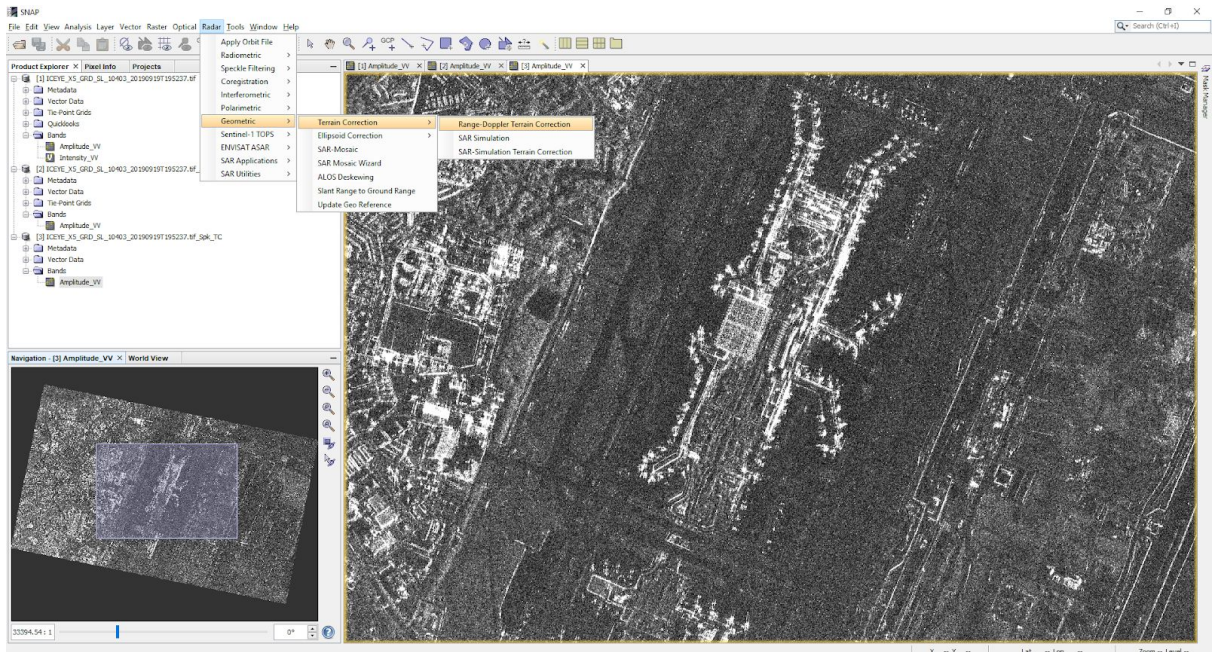
- ICEYE spotlight SLC data after Speckle noise removal processed



Georeferencing (Geocoding)

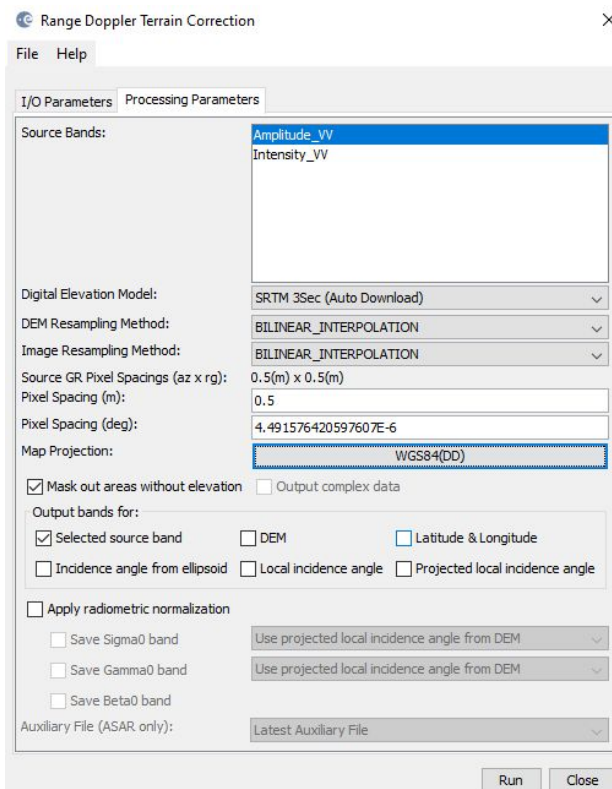
To georeference the image, we have to correct the image with Terrain correction.

We choose this in the menu **Radar > Geometric** and then click the **Range-Doppler Terrain Correction**:

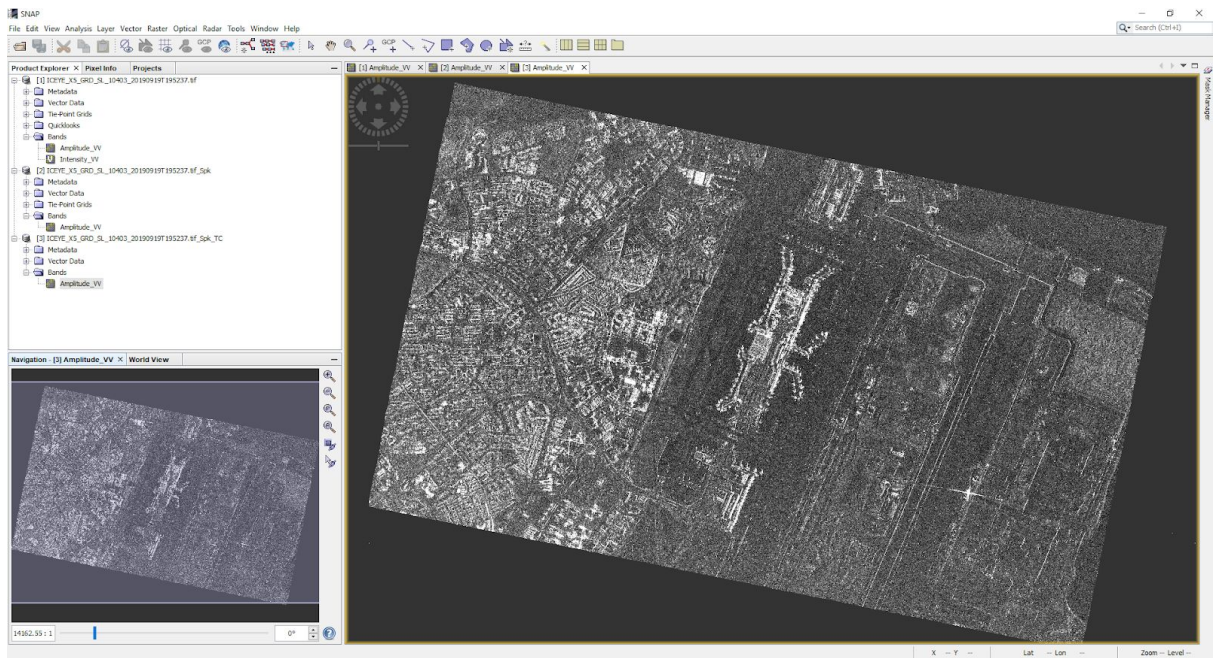


11. When the following menu opens, you can leave the default projection system (Map projections) to be set as WGS84 (DD) in the Processing parameters tab. You can also select any projection system that fits your AOI for certain.

Then click Run to start the process



12. ICEYE Spotlight GRD data after Geocoded

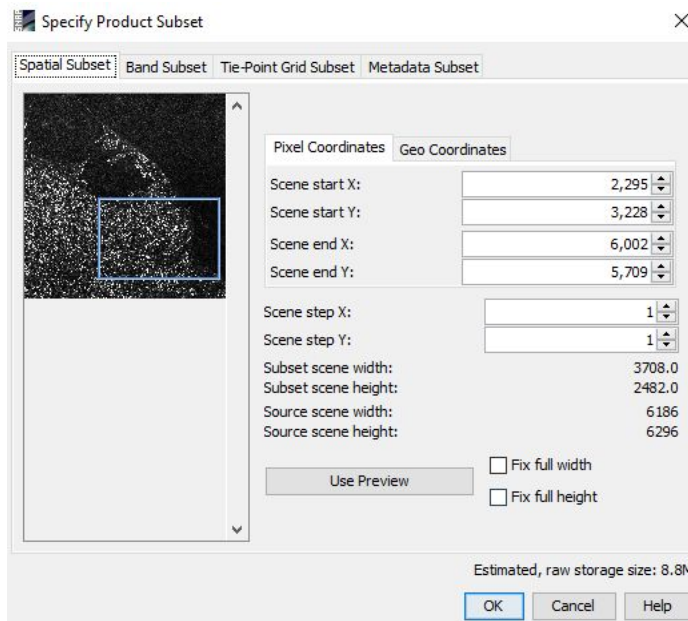


Useful tips

Subset - optional for reducing computational time

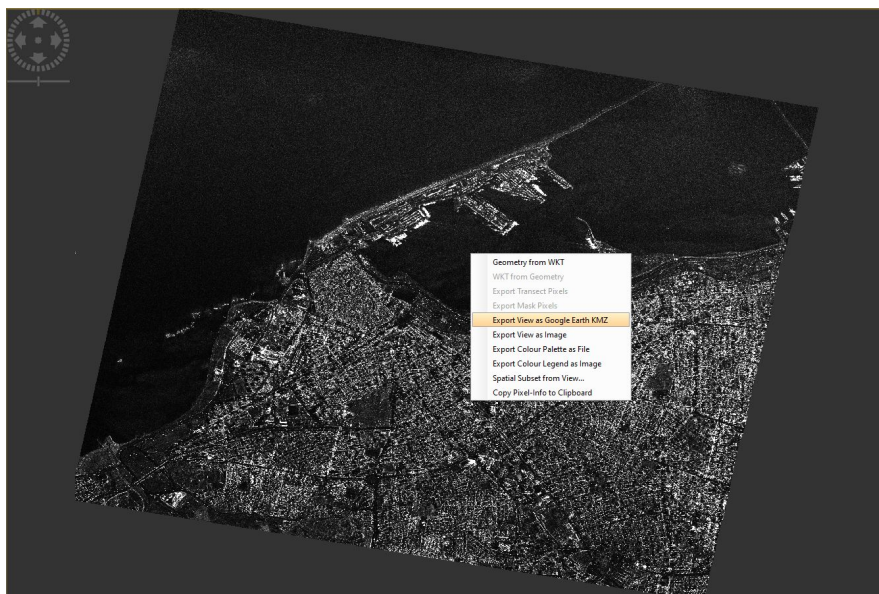
Point to **Raster** then select **Subset**. In the **Spatial Subset** tab.

To specify Product Subset, you can set the value from Pixel Coordinates or Geo Coordinates to have your area of interest covered



Export (for using in GIS platform)

Export to Google Earth KMZ by right clicking on the image window and choose the expected option



You can also export to geotiff format for inserting the product into other GIS platforms.

