



Create a Subset of a Sentinel-1 Product

Source: ASF Staff

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A) Background

At times, the scene covered by the product we have downloaded is much larger than the actual area we need to look at. Processing this image will require more time and computer power than what is necessary. Creating a subset is an easy way to improve efficiency in your workflow. This recipe will go over the basic steps to get started in the Sentinel-1 Tool Box and to create a subset of your desired area of study.

B) System Requirements

- Windows or Mac OSX
- 8 GB RAM

C) Materials List

- Latest version of the [Sentinel-1 Toolbox](#) (S1TBX)
- One Sentinel-1 GRDH product
 - a. Use [ASF's Vertex data portal](#) to download a product.
 - OR
 - b. Download [the product](#) used in this recipe.

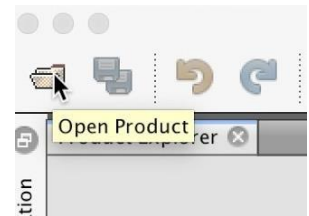
D) Steps

Step 1: Download materials

- a) Download the S-1 Toolbox from the European Space Agency website. Select the correct version for your operating system.
 - i) Install the software by following the instructions provided in the installation wizard.
 - ii) Create a new folder to hold Sentinel-1 data and name it (example name: Sentinel_RTC_S1TBX).
- b) Acquire a Sentinel-1 product covering your desired area using one of these methods.
 - i) Use [ASF's Vertex data portal](#) to download a product.
 - ii) Download the data used in this recipe [here](#).
- c) Create a new appropriately named folder and move your product there.

Step 2: Open the products in S1TBX

- a) Open the Sentinel-1 Toolbox.
- b) Use the **Open Product** button in the top toolbar and browse to the location of the product you downloaded.
- c) Select the product and select **Open**.



Note: Do not extract the files, if you did unzip the files, select the *manifest.safe* file from each Sentinel-1 product folder, instead.

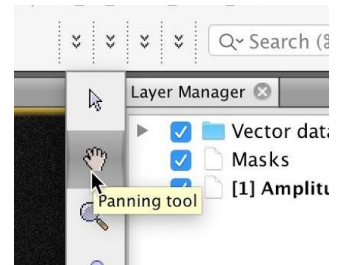
Step 3: View the products

- a) In the **Products Explorer** located on the left side of the screen, you will see the opened products.
- b) Double-click on the product to expand.
- c) Expand the bands folder and you will find two bands: an *amplitude* band, which is actually the product, and a virtual *intensity* band which is there to assist you in working with the data.

- d) To view the data, double-click on the **Amplitude_VH** band. The sample product shows the entirety of Hawaii's big island on May 8th, 2018, amidst that year's eruption of the Kilauea Volcano.

Step 4: Create Subset

- a) Using your mouse-wheel to zoom and left-click to drag (to do this, you must select the **panning tool**), center your view on the area you wish to study. In this recipe, we will focus on the region surrounding the Kilauea Volcano and East Rift Zone.



- b) Right click in the view area and select **Spatial Subset from View**.

- c) In the **Product Subset** window (figure 1) view, further adjust your subset by using your mouse to move the sides on the blue rectangle outline. You can also fine-tune your subset by entering values in the four boxes under the **Pixel Coordinates** and **Geo Coordinates** tabs. Manually selecting geo-coordinates is helpful if you wish to create identical subsets of multiple products.



- d) Click **OK**, return to the **Products Explorer** located on the left side of the screen. You will see a new product with the prefix **subset_**.
- e) Double-click on this subset product to expand, then expand the bands folder and double-click on the **Amplitude_VH** band to view the image. This product should now only show the Kilauea region of the island (figure 2).

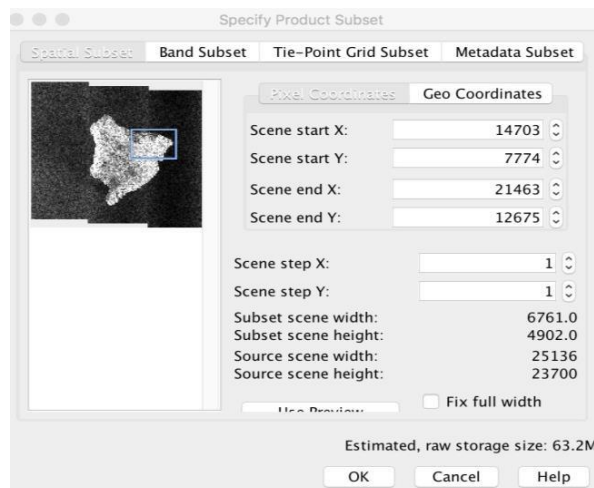


Figure 1. Product Subset Window.

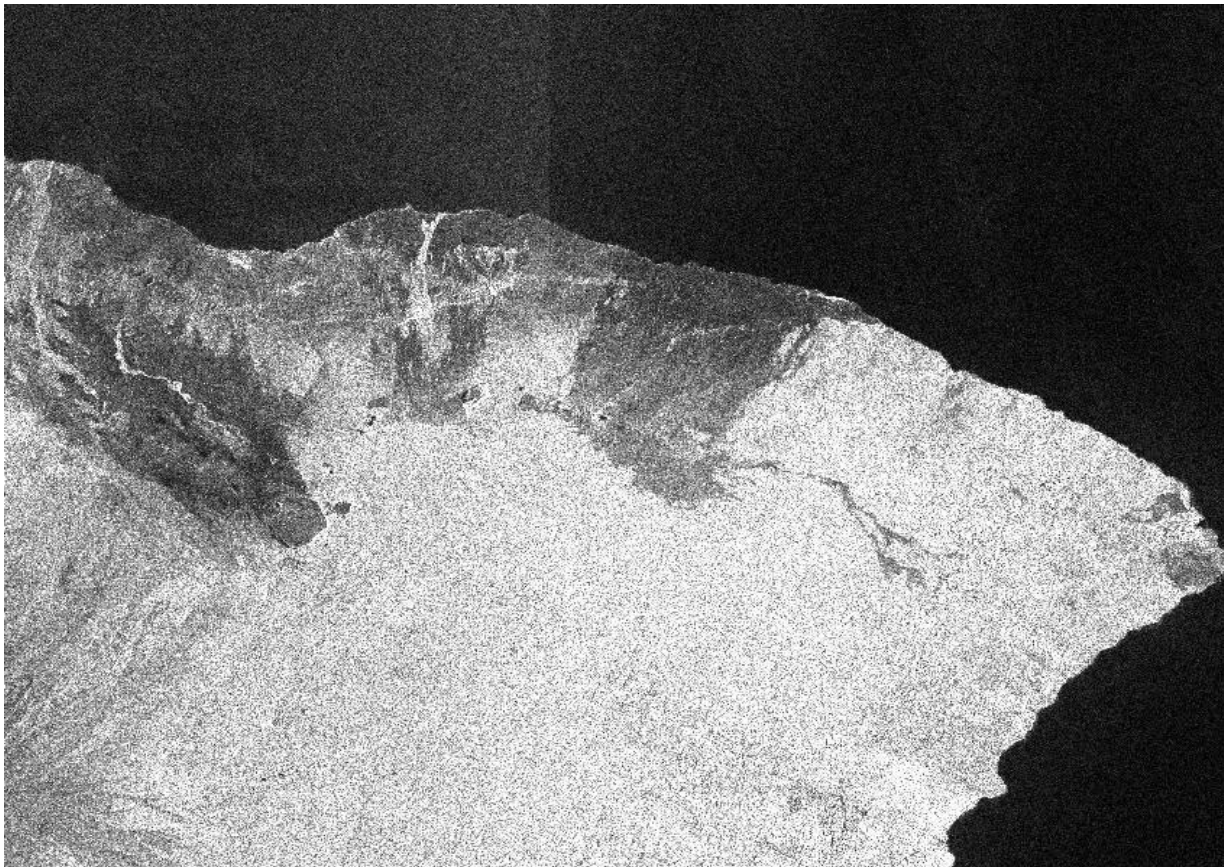


Figure 2. View of the GRD's subset.

Notice that the southern portion of Hawaii's Big Island appears at the top of the image. This is a result of the Sentinel-1 satellite's path as it makes its fly-over. This scene was detected in the ascending order and the images always display the first sensed portion on the top. Terrain correction and geocoding can rectify this. For information on Radiometrically Terrain Correcting a scene, see the ASF's corresponding recipes [here](#).