NASA ARSET Training

Advanced Webinar on using NASA Remote Sensing for Flood Monitoring and Management
March 30, 2016

Introduction to SRTM

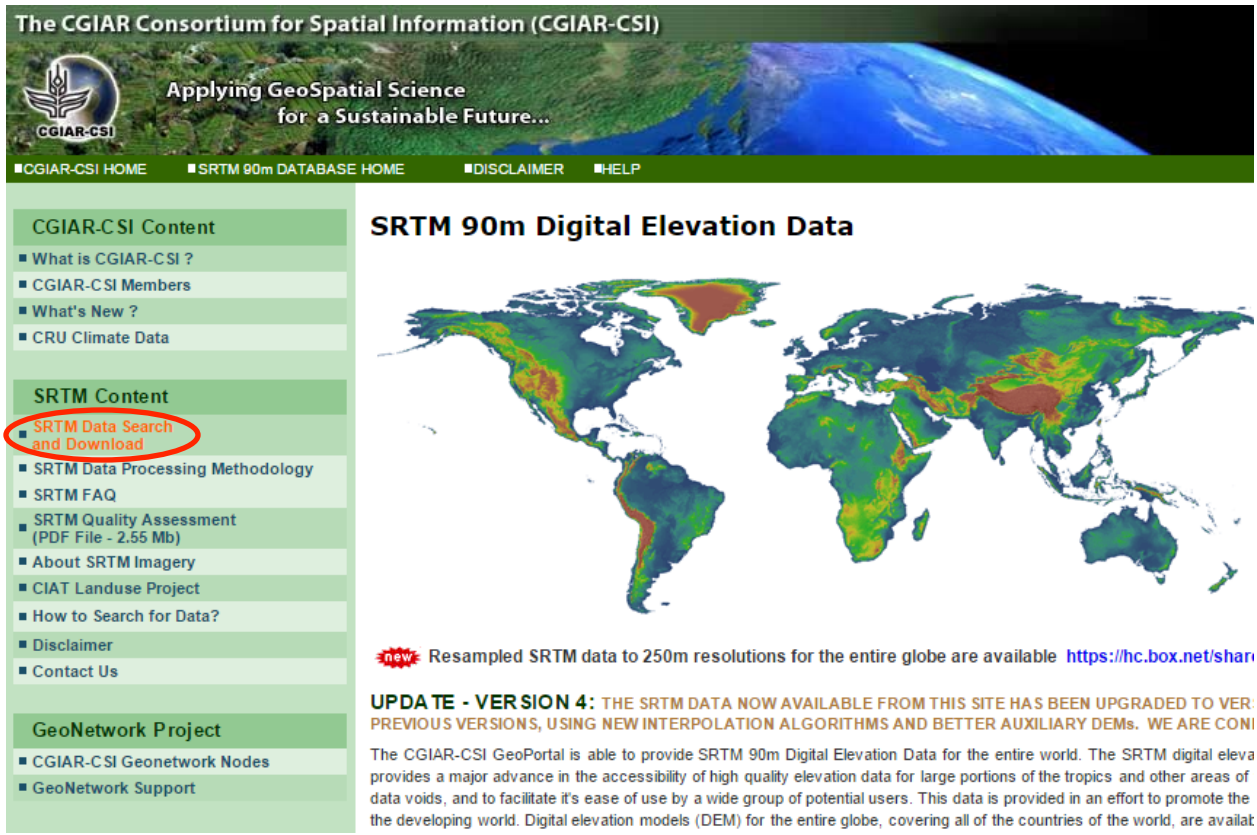
Objective: Locate, download, import and display SRTM elevation data in QGIS

There are three parts to this exercise:

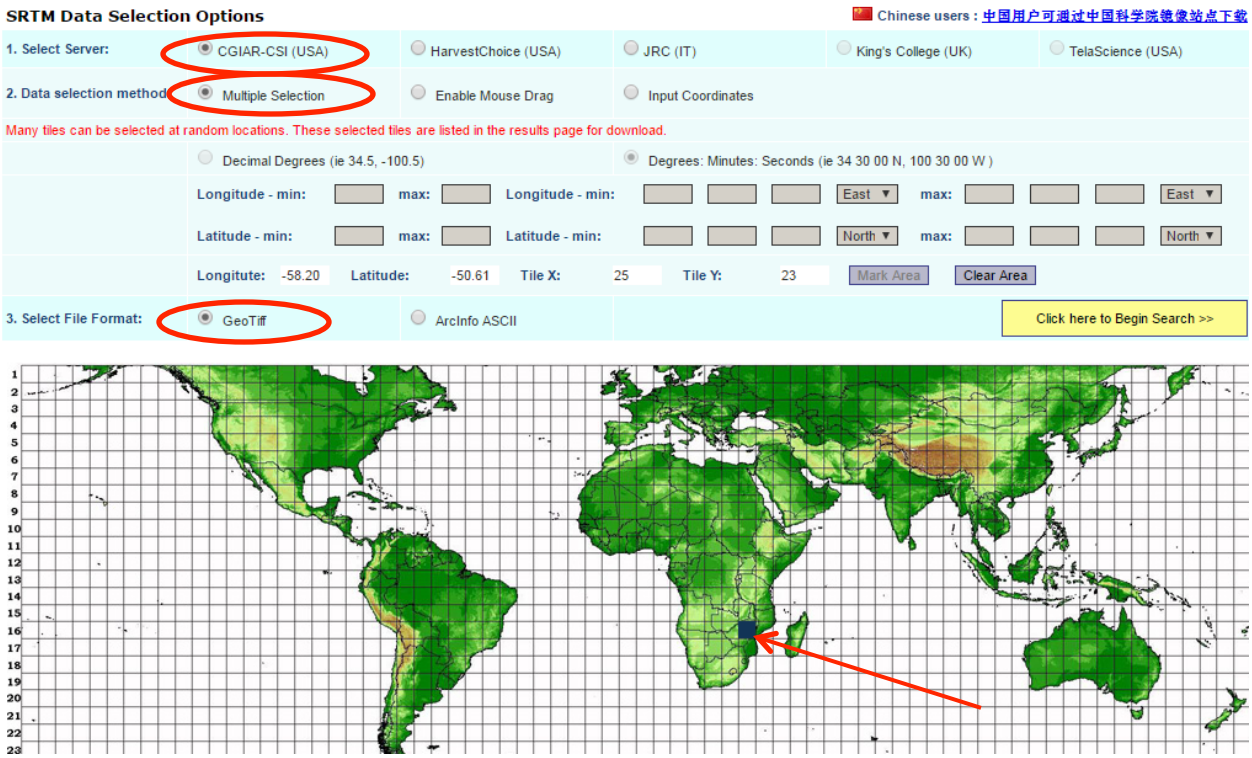
1. Access SRTM elevation data products
2. Import and visualize SRTM elevation data products in QGIS
3. Create a derived slope product

Part 1: Access SRTM elevation data products

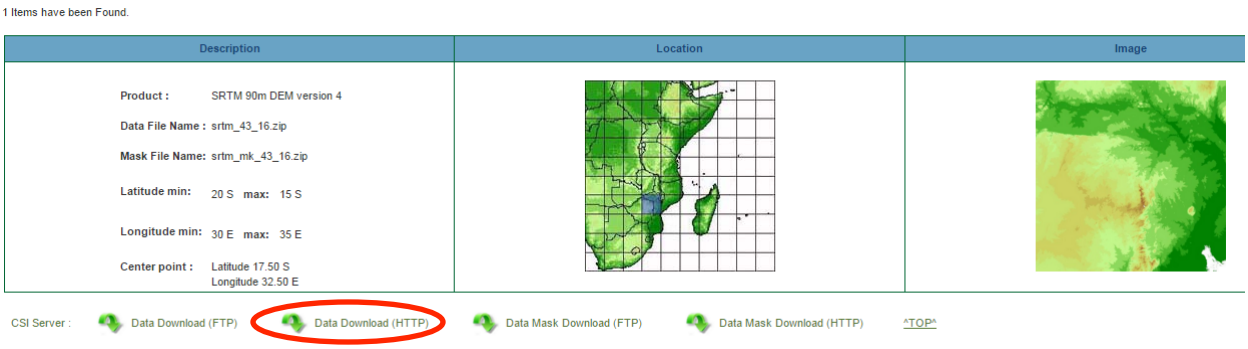
- Go to the CGIAR-CSI data portal: http://srtm.csi.cgiar.org/
- Click on the SRTM Data Search and Download button



- You then are prompted to make a selection. We will select the **CGIAR-CSI (USA)** server. If you are an international user it may be best to use other servers. The second option allows you to select data by multiple selection, mouse drag, or input coordinates. For simplicity, we will use **Multiple Selection.** This allows you to select individual tiles as needed.



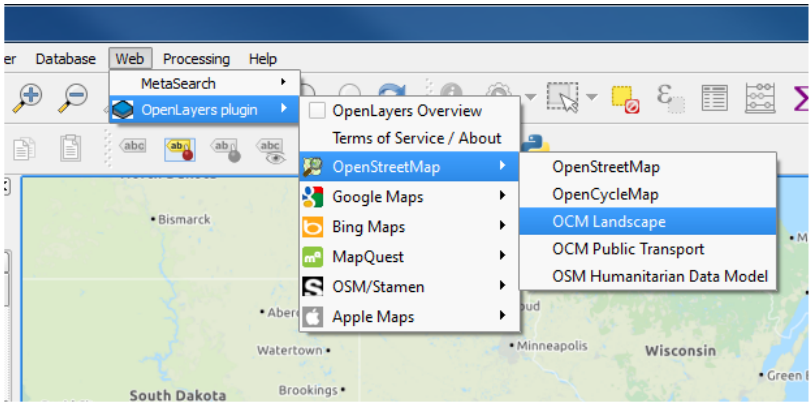
- Next we select the file format GeoTiff, which will provide a raster format easy to view in QGIS.
- Click **Begin Search>>>**
- This will take you to the download page and provides on-screen metadata for the product.



- Click the **Data Download (HTTP)** icon to download the GeoTiff Digital Elevation Model (DEM) file.
- This will download a zipped folder containing the SRTM elevation data.

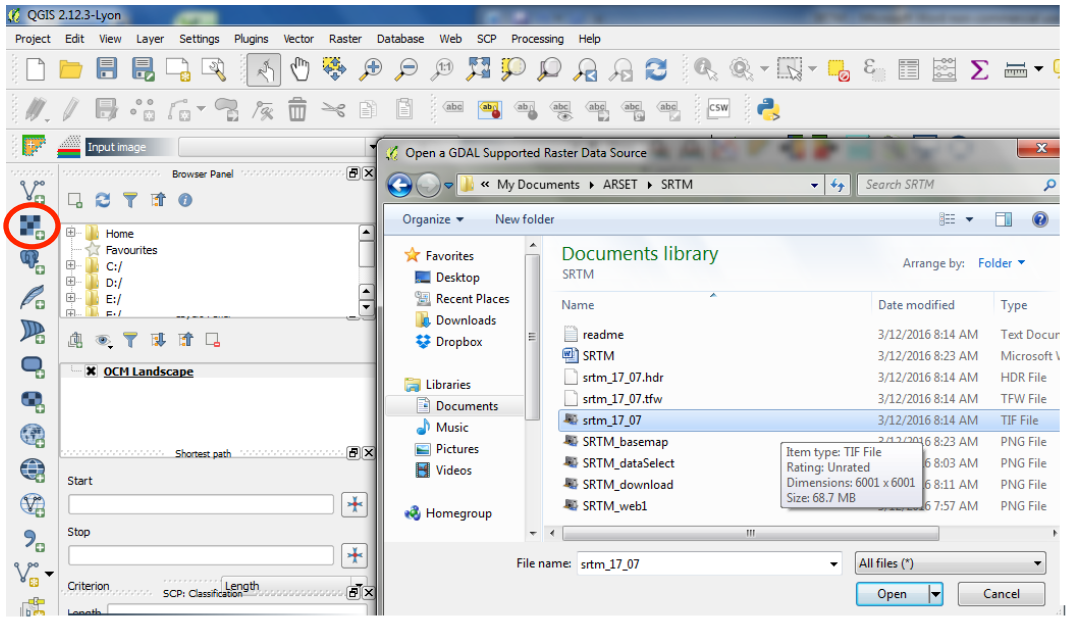
Part 2: Import and Visualize the SRTM elevation data

- Once the file is downloaded, you will need to unzip the file and open **QGIS Desktop**.
- First we will add in a basemap using the **OpenLayers plugin**



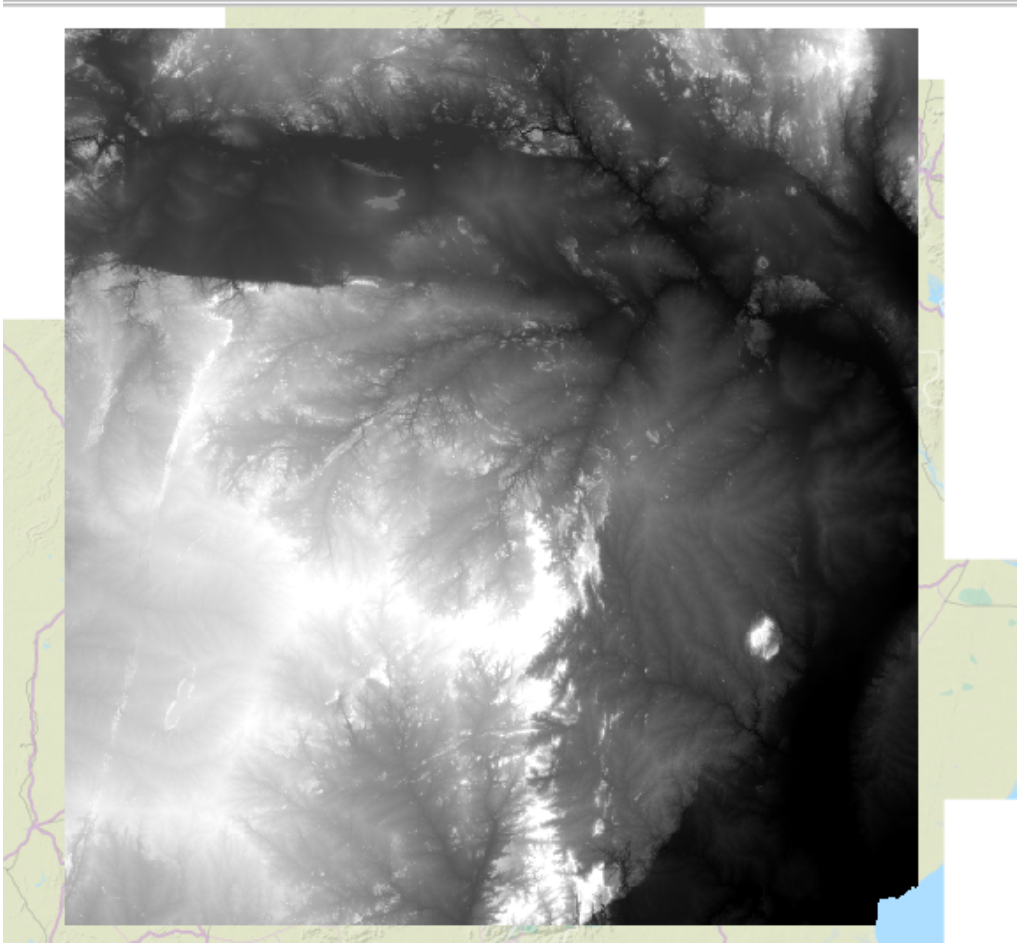
- Choose the Basemap of your choice (OCM Landscape or Google Physical work well).
- Zoom in on the study area.

- Using the **Add Raster Layer** icon, click **Add Raster.**



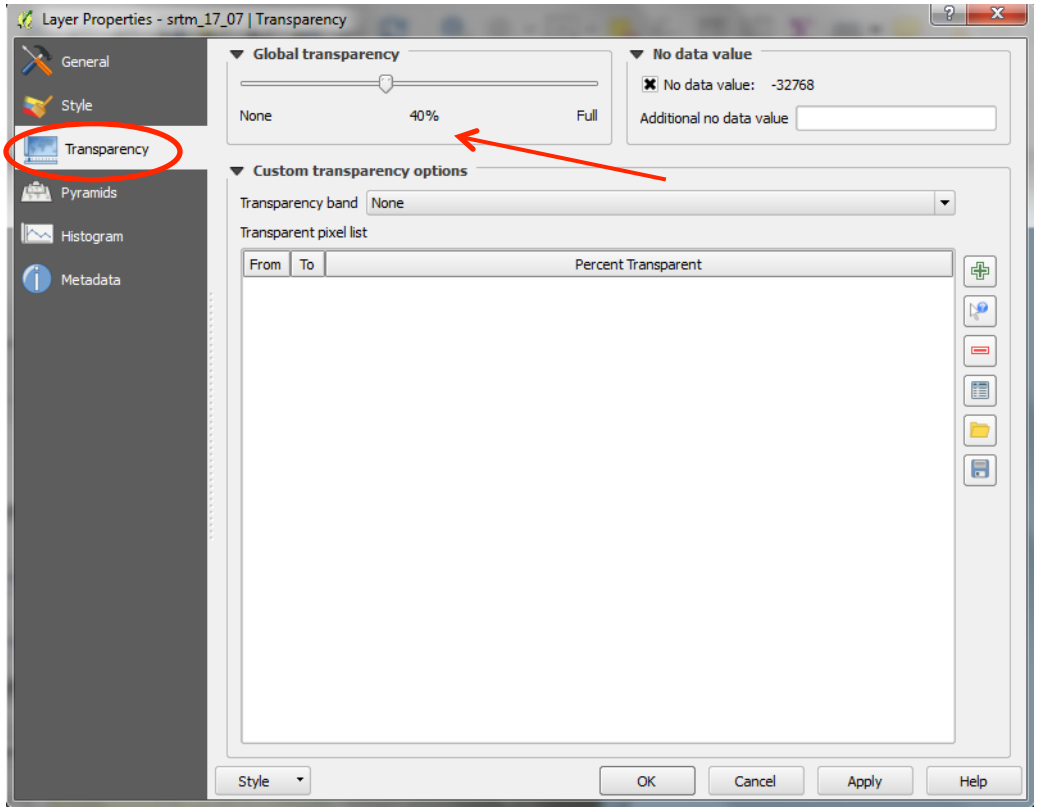
A window will open for you to navigate to the location of the downloaded SRTM product.

- Select the GeoTiff raster ending in **'.tif'** and click **open**
    - Example: srtm_43_16.tif

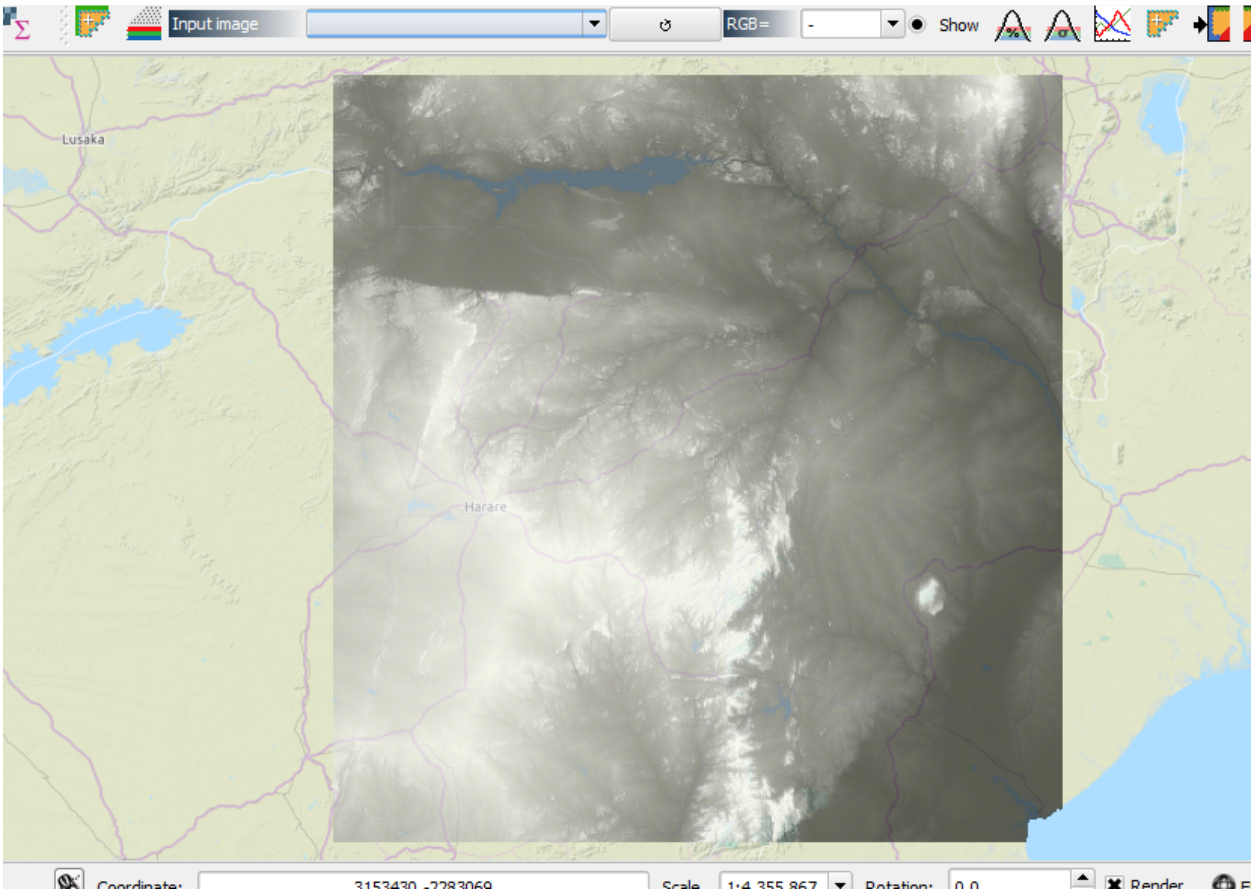


The raster has been imported. You may wish to change the transparency of the DEM file in order to view the basemap with elevation properties.

- Right click the **layer,** navigate to **layer properties** and the **Transparency** tab, set the **Global Transparency** to **40%.** Click ok.

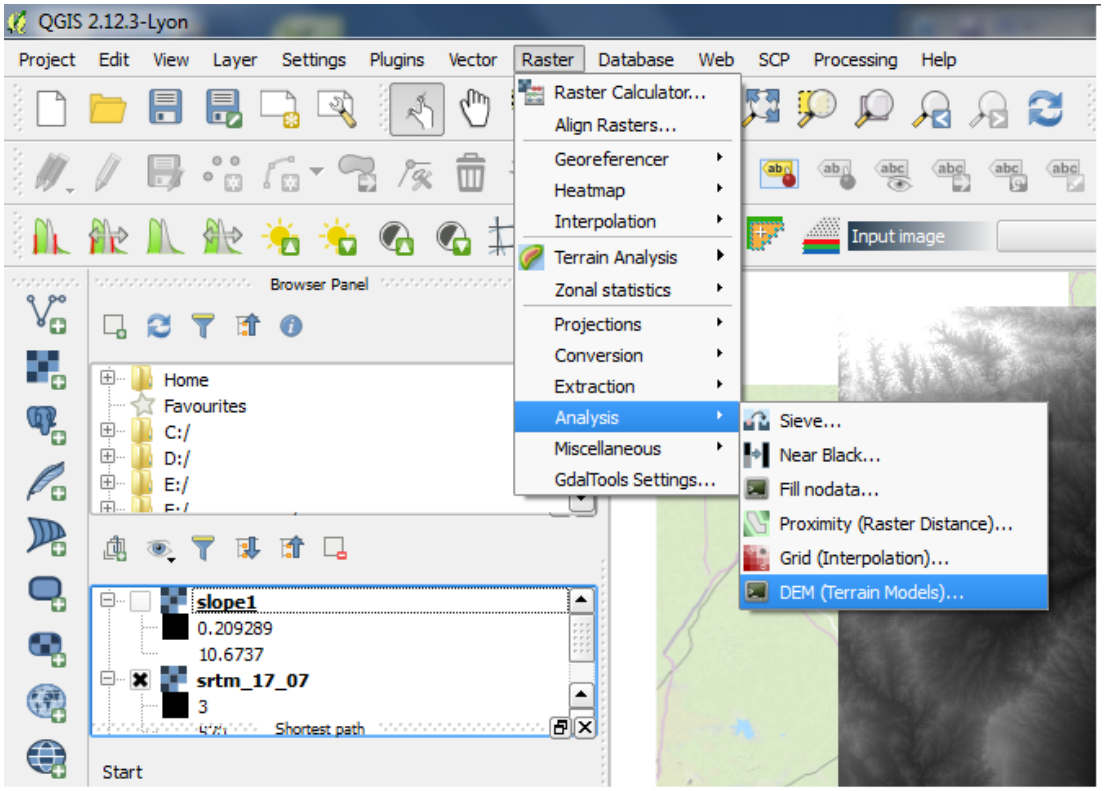


The resulting image:

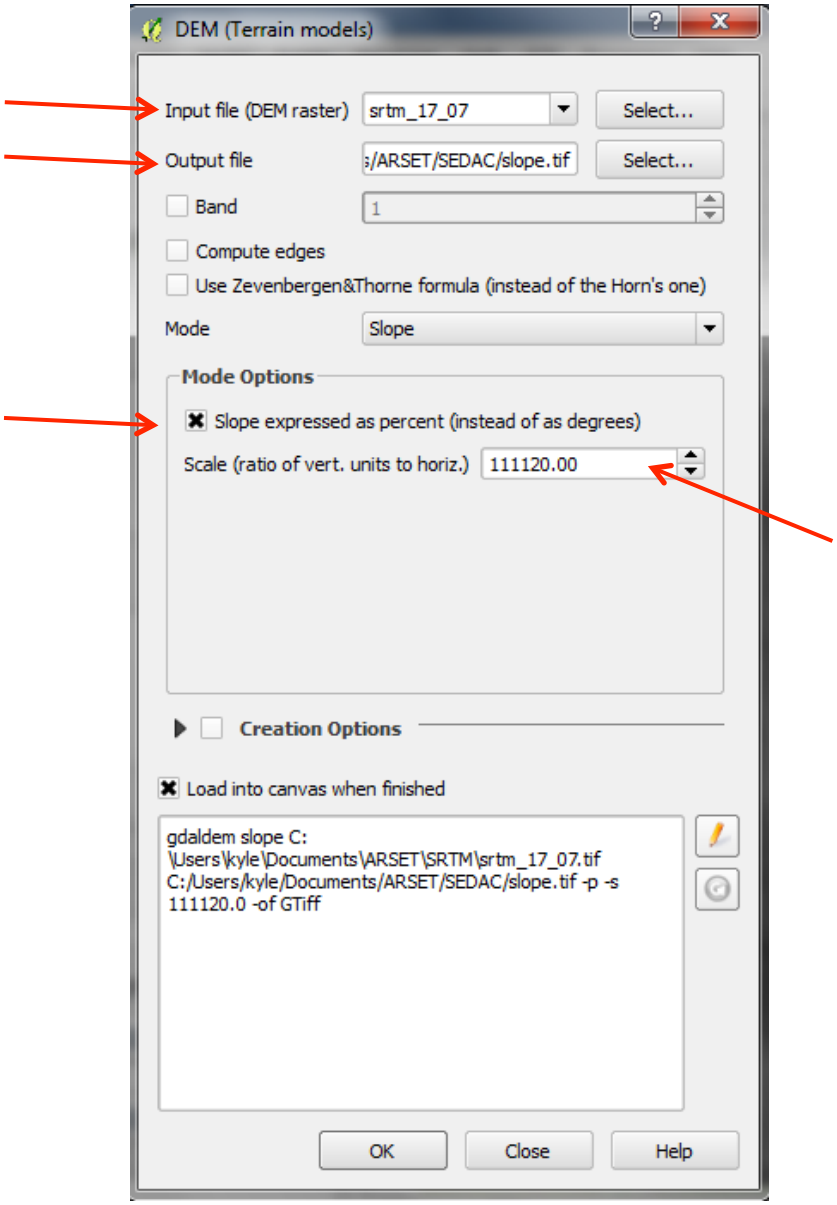


Part 3: Creating a derived slope product

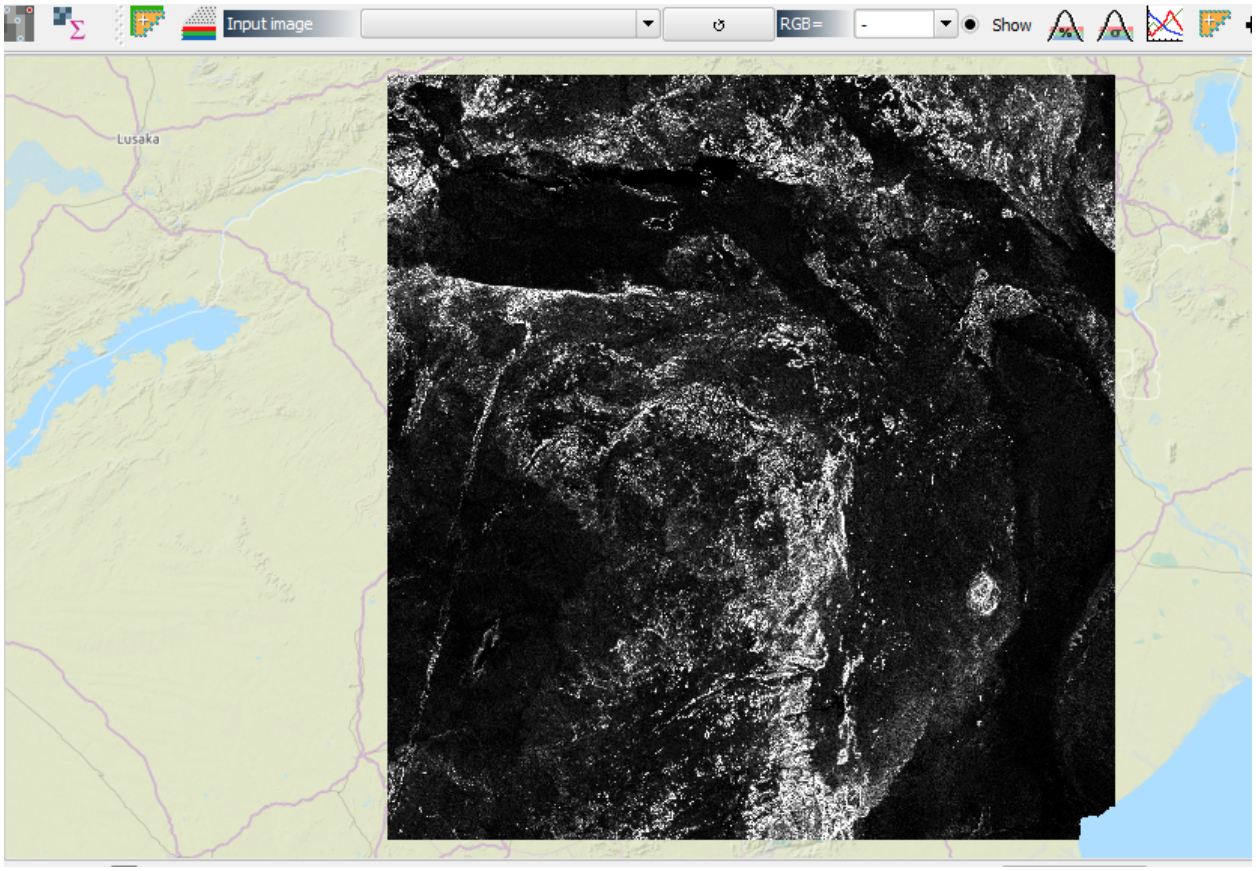
- Using the SRTM DEM now imported into QGIS we can create a slope product using the **DEM (Terrain models)** tool
- **Click** on the menu item **Raster > Analysis > DEM (Terrain models).**



- In the dialog that appears, ensure the **Input file** is the DEM we just visualized.



- Set the **Output file** to a folder and name ending in **'.tif'**
- Select the **Mode** option **Slope**
- **Check** the **Slope expressed as percent** box
- In the **Scale** box enter **111120.00** to convert the units to meters
- Click **OK**
- The resulting image displays slope as percentage. White being higher slope and black lower.


Input image
RGB=
Show
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