ASOR Cultural Heritage Initiative

QGIS

Module 02.09: Rasters (Satellite Imagery)

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ASOR QGIS Module 02.09 – Rasters (Satellite Imagery)

QGIS is a free and open source Geographic Information System (GIS), or geodatabase, licensed under the GNU General Public License. QGIS runs on Linux, Unix, Mac OSX, Windows and Android and supports numerous vector, raster, and database formats and functionalities. Download QGIS here: https://qgis.org/.

QGIS users can view, edit, and analyze spatial information through its free software toolkit.

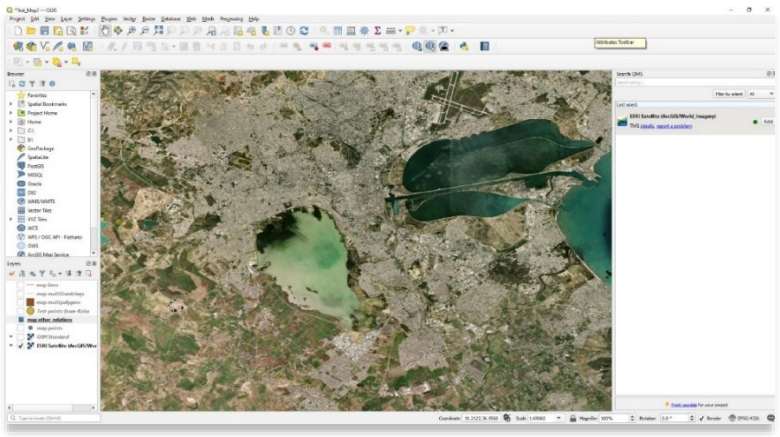
This **ASOR Tutorial (02.09)** will provide an overview of Rasters in QGIS.

KEY CONCEPTS

- Raster Data Basics – Rasters are grids of cells (pixels), each storing attribute data. They are commonly used for satellite imagery and elevation models in QGIS.
- Accessing Free Rasters – The QuickMap Services plugin provides many free raster maps. Users can enable additional maps by adjusting plugin settings and downloading service packs.
- OpenTopography Resource – OpenTopography offers free elevation datasets like the Copernicus Global DEM. Users can select a region, choose GeoTiff/DSM formats, and download raster data (often via email notification).
- Adding Rasters in QGIS – Import raster files with *Layer* > *Add Layer* > *Add Raster Layer*, check projections with basemaps, and adjust transparency for better visualization.

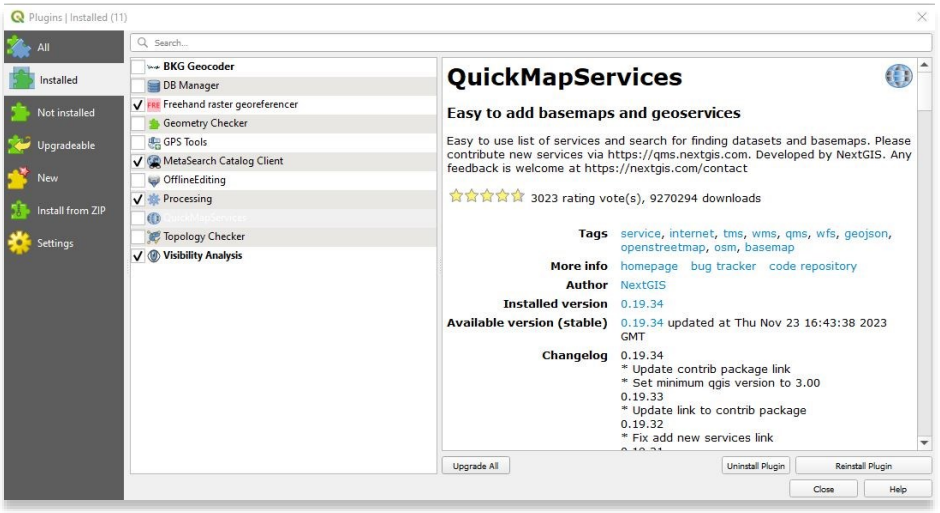
RASTERS

Raster data are grids of information, with each cell containing attribute (description, non-spatial) data. If you zoom in on the satellite image above, you can see the distinct cells (or pixels).

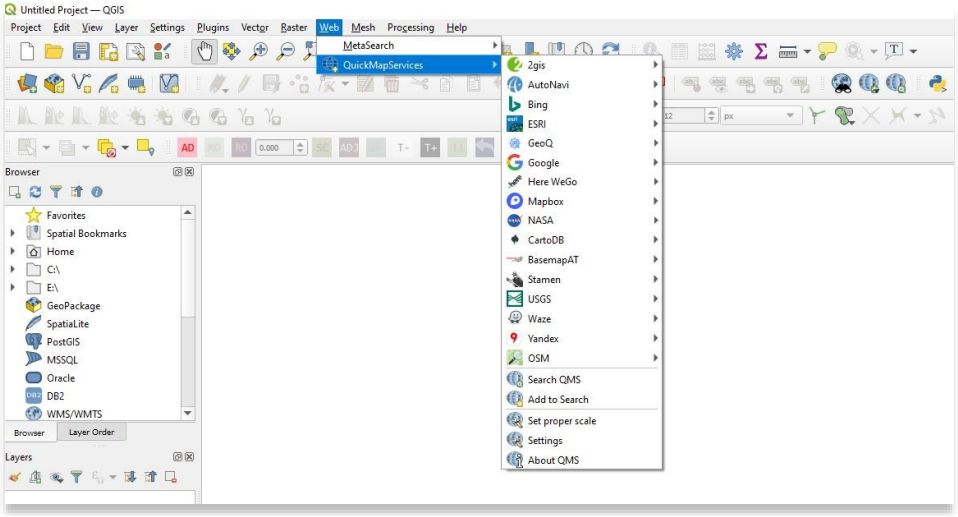


In Tutorial 02.02, you learned about the Quickmap Services Plugin.

This plugin offers numerous raster files for free.

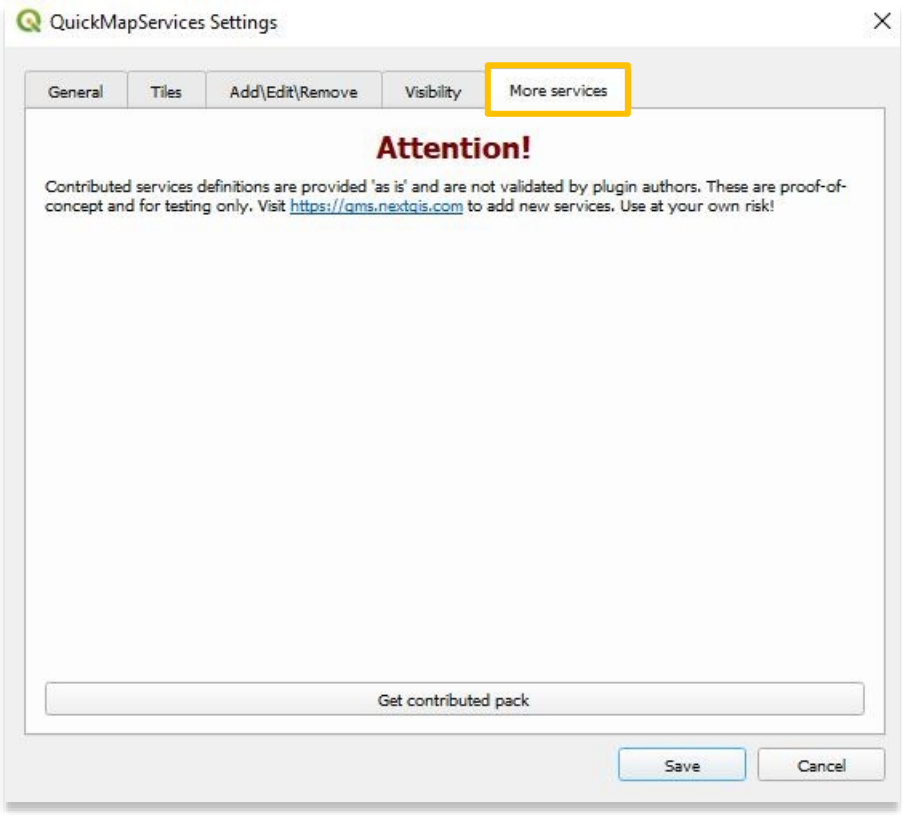


Access free rasters through the top menu.



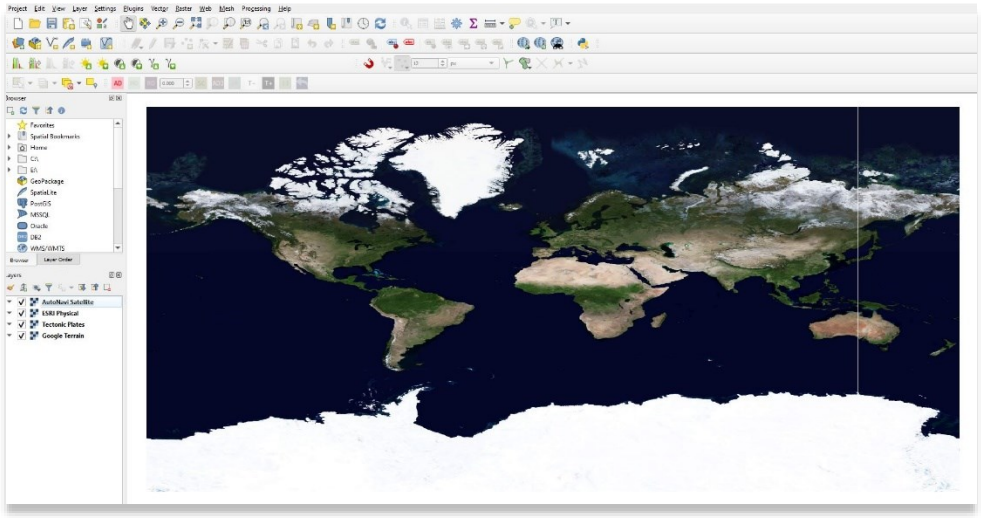
Choose Settings > “More Services” to download the additional maps.

Save once the pack has been downloaded.

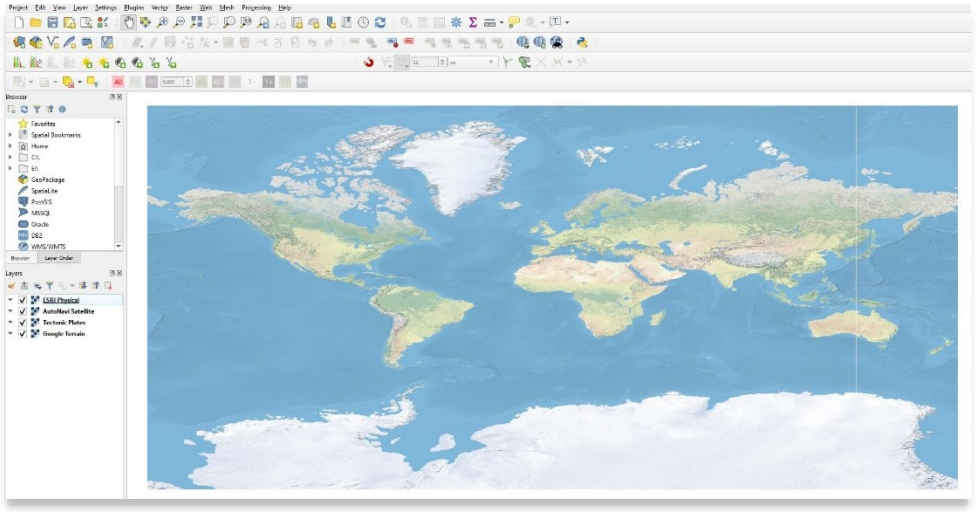


Please explore the raster maps available.

There are numerous resources online that provide free raster images.



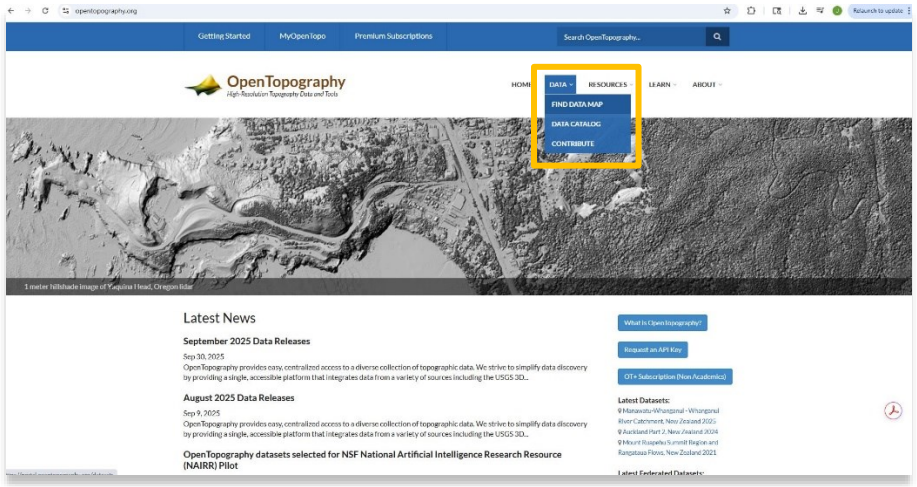
Including satellite imagery and elevation models.



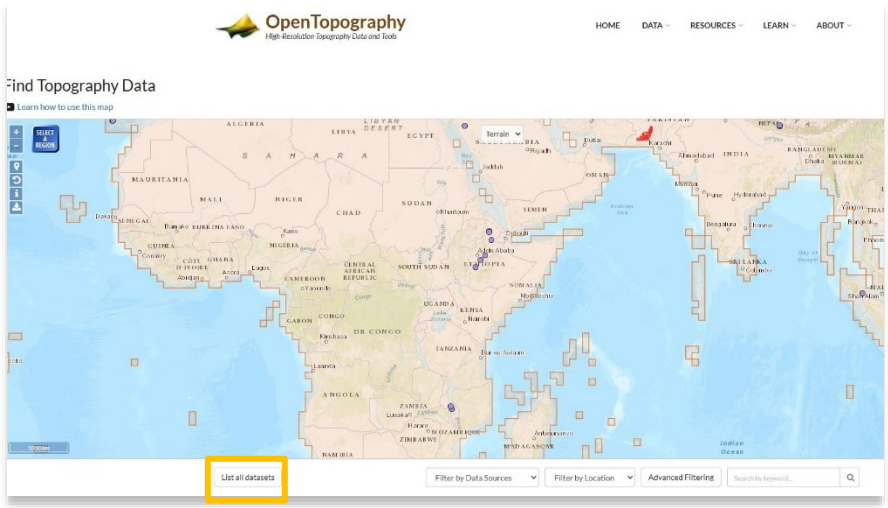
OPEN TOPOGRAPHY

OpenTopography is one resource you may find useful.

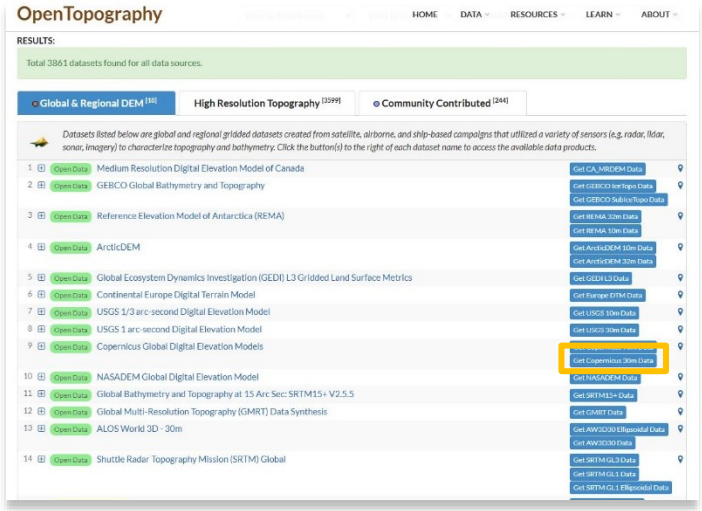
Data > Find Data Map



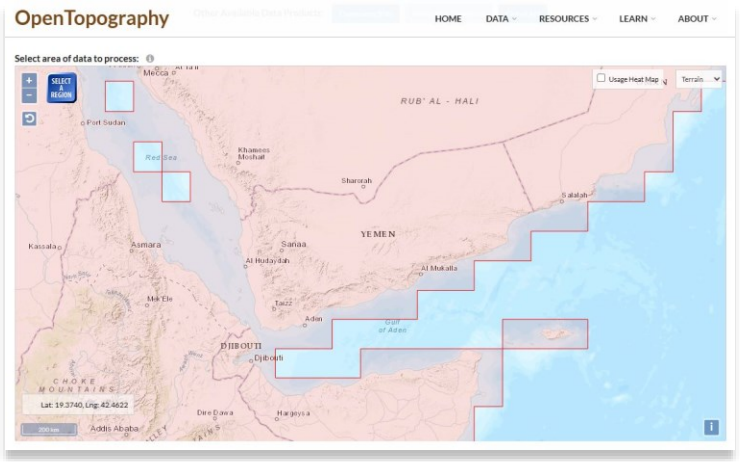
Select the **List all datasets** button.



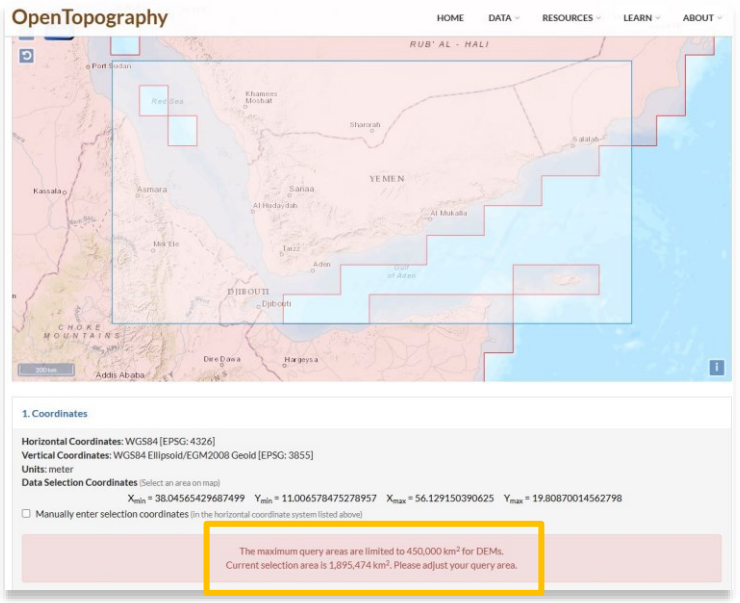
Select the **Copernicus Global Digital Elevation Model (30m data)**.



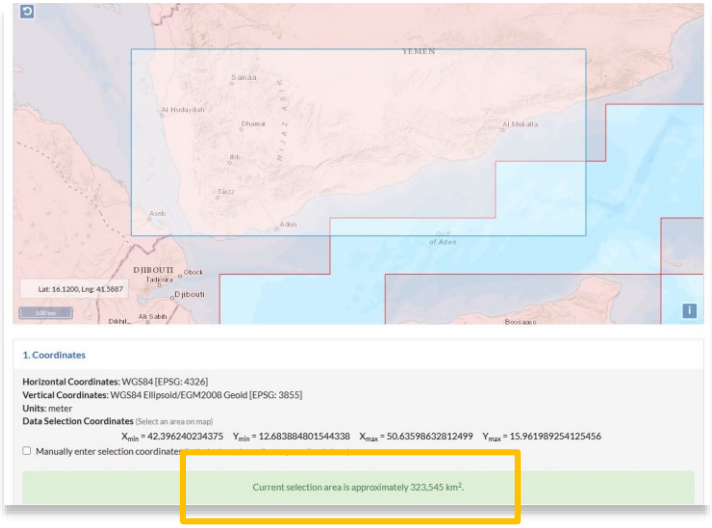
Choose your area using the Select a Region tool.



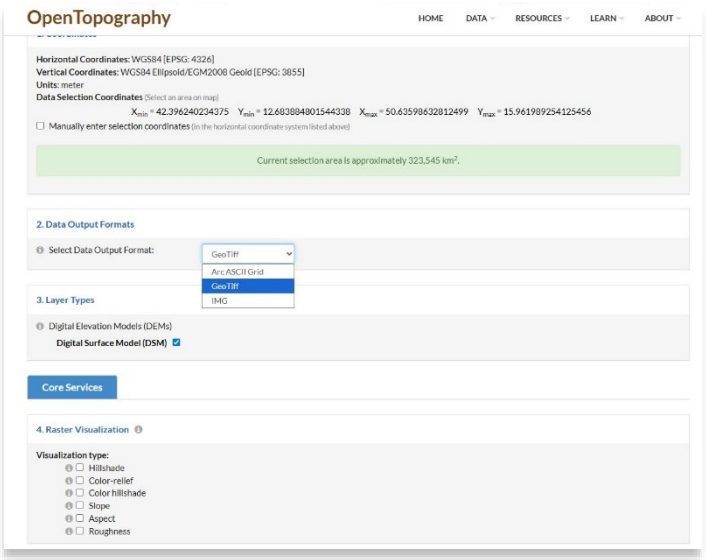
NOTE | You cannot download an area that is too large.



Scroll down to the **Coordinates** section.



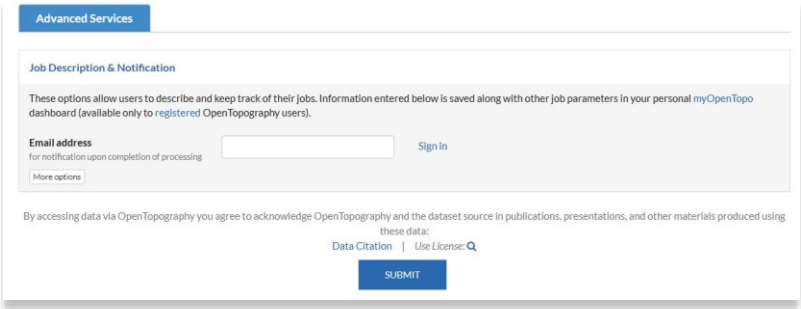
Choose “GeoTiff” & Digital Surface Model (DSM).



Select the visualization types from the options below.

There is an option to download a KMZ file as well.

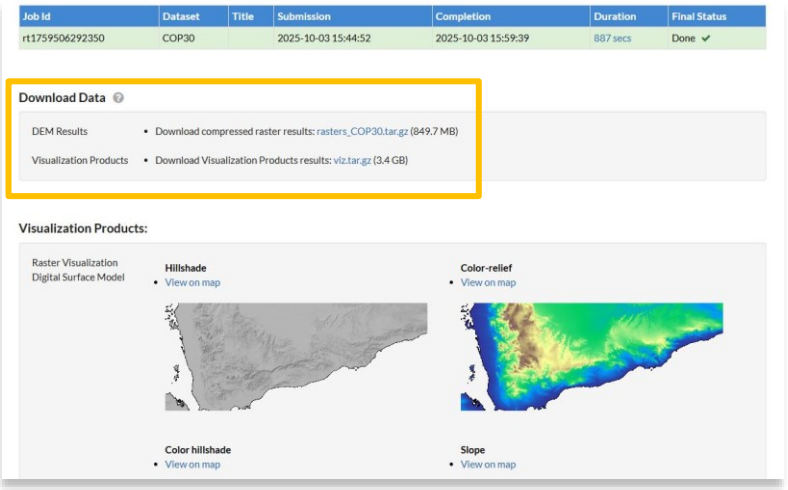
The website requires an email address to download.



The download may take over an hour to process. You will receive an email once the download has been processed.

Once complete, download all raster data available. And save it to your local computer in a location you can find easily.

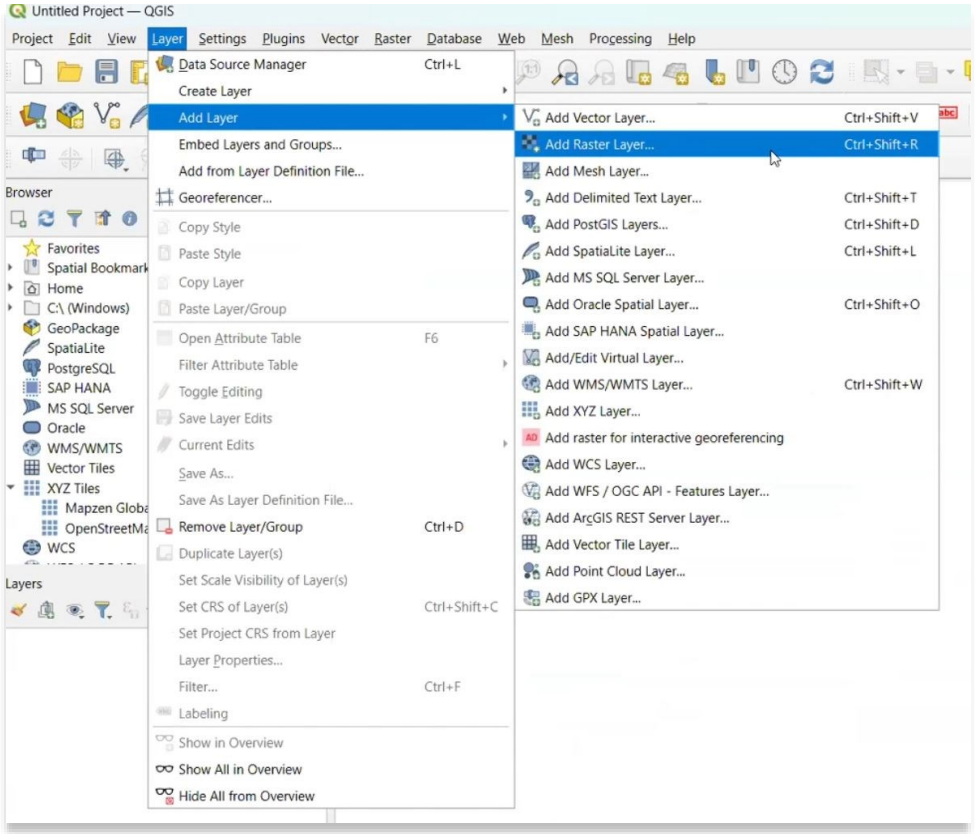
You may need to unzip some of the OpenTopography raster data.



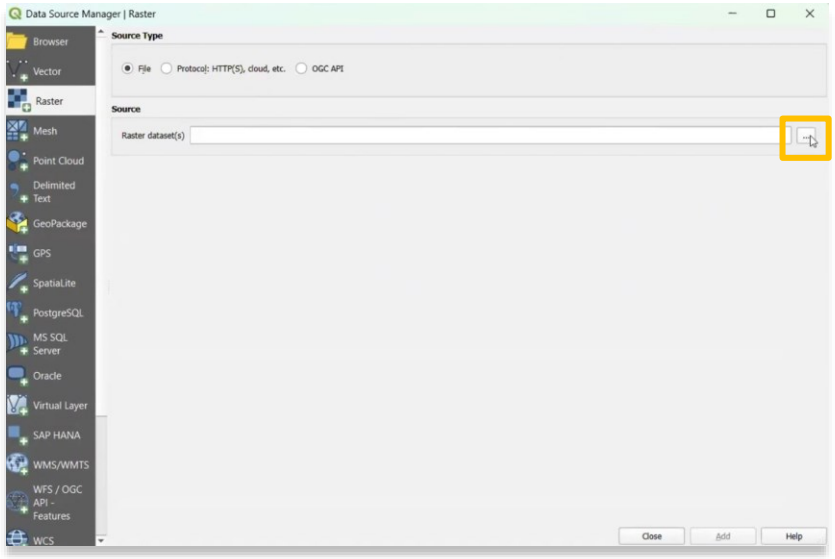
ADD OPENTOPOGRAPHY RASTERS TO QGIS

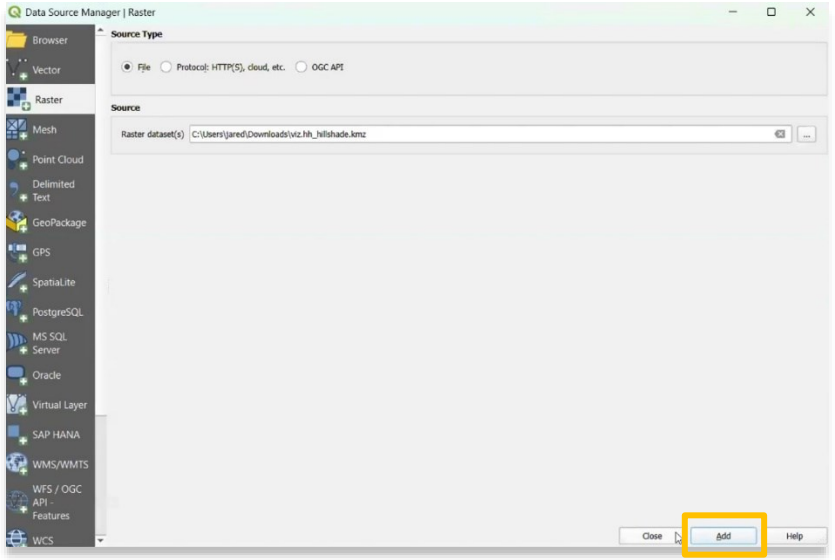
Add the OpenTopography data using the top menu.

Layer > Add Layer > Add Raster Layer

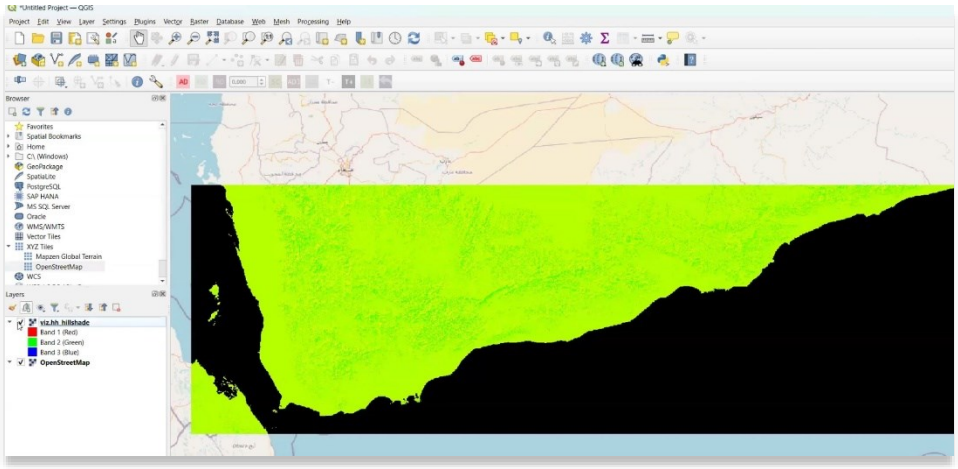


Locate the raster file you wish to add.

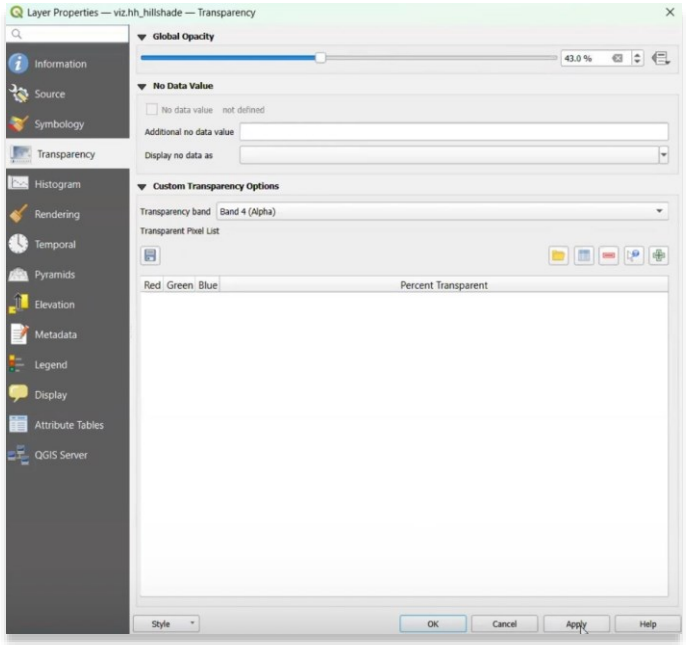




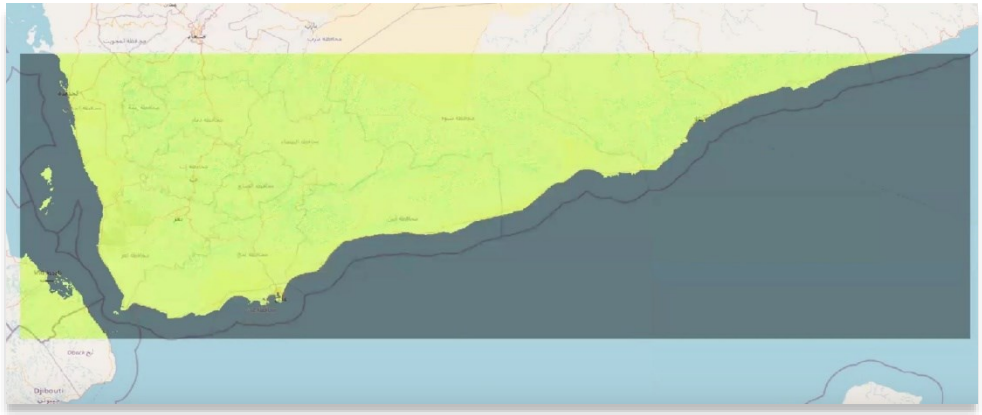
Check the accuracy of the projection by adding a basemap.



Double click on the raster layer to open its properties.



Adjust the transparency of the raster to view both layers.



RESOURCES

QGIS Download: https://qgis.org/

VIEW ALL ASOR TUTORIALS FOR FREE

asor.org/chi/chi-tutorials