

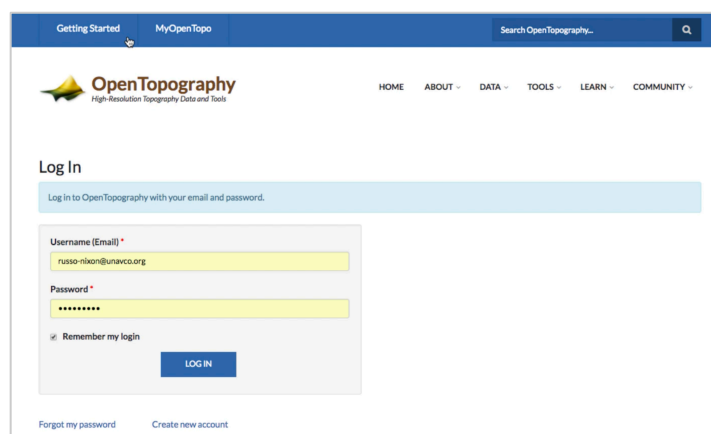
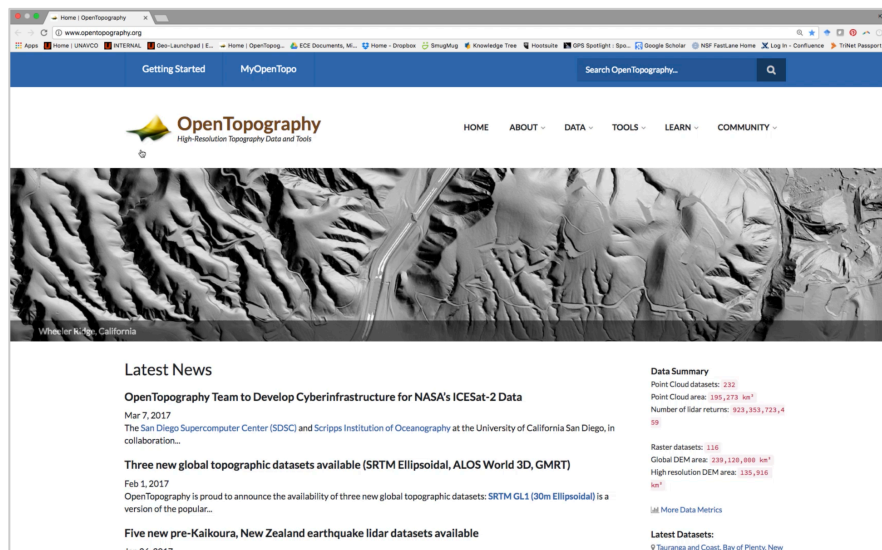


# Tutorial: Downloading High Resolution Topographic Imagery for Google Earth

Welcome to the OpenTopography tutorial for downloading high-resolution topographic imagery for Google Earth. This tutorial will walk through downloading KMZ files - containing images created from digital elevation models (DEM's) - from OpenTopography.

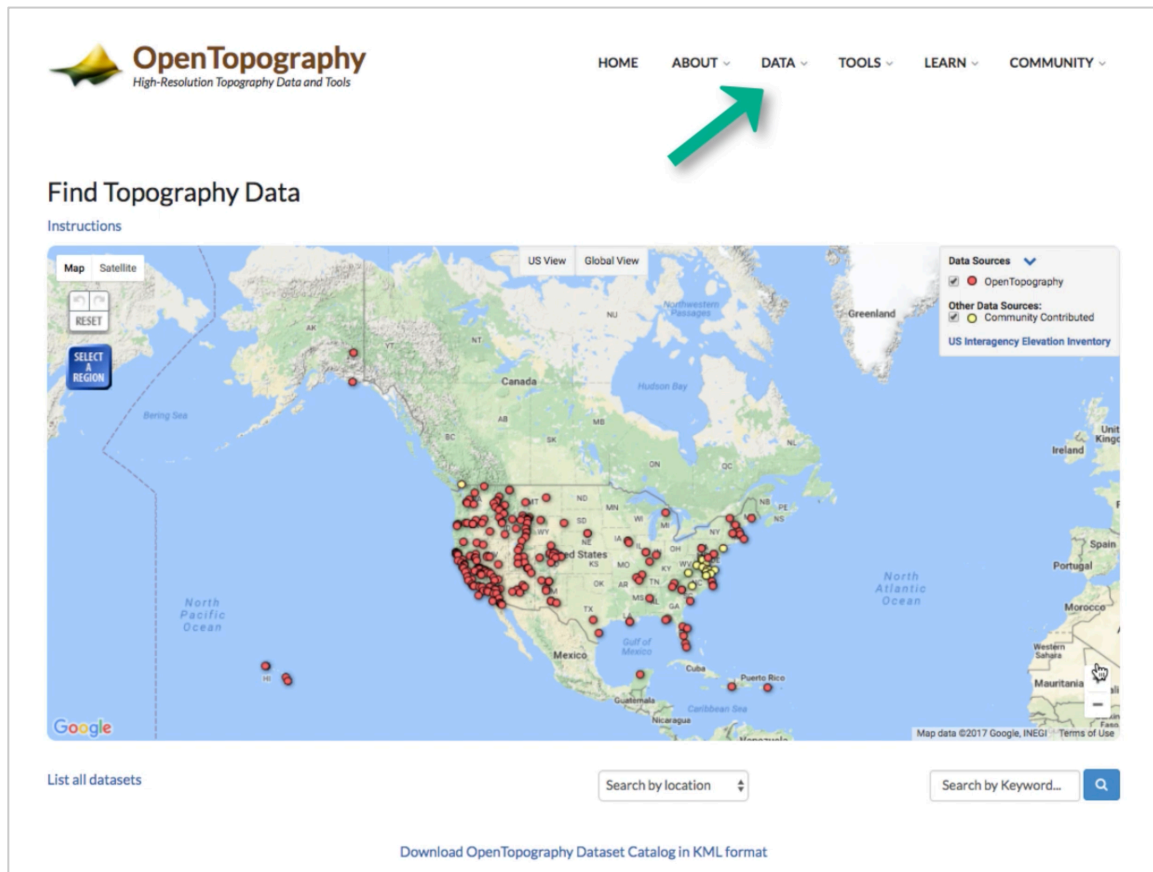
## 1. To the web

- Travel to [www.opentopography.com](http://www.opentopography.com) and log in to *MyOpenTopo* (top of page) if you have an account. If not, creating one is free and allows you access to more data.



## 2. Finding data

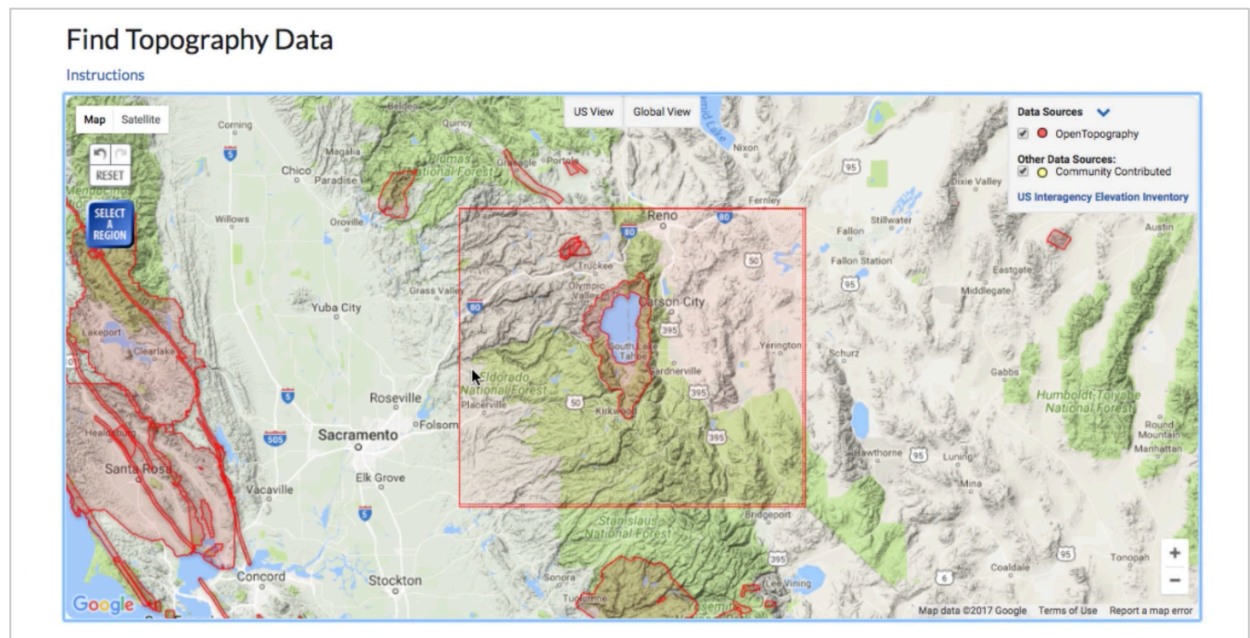
- a. A useful feature of OpenTopography is the data map. To get there, we select *Data* from the menu at the top of the page.



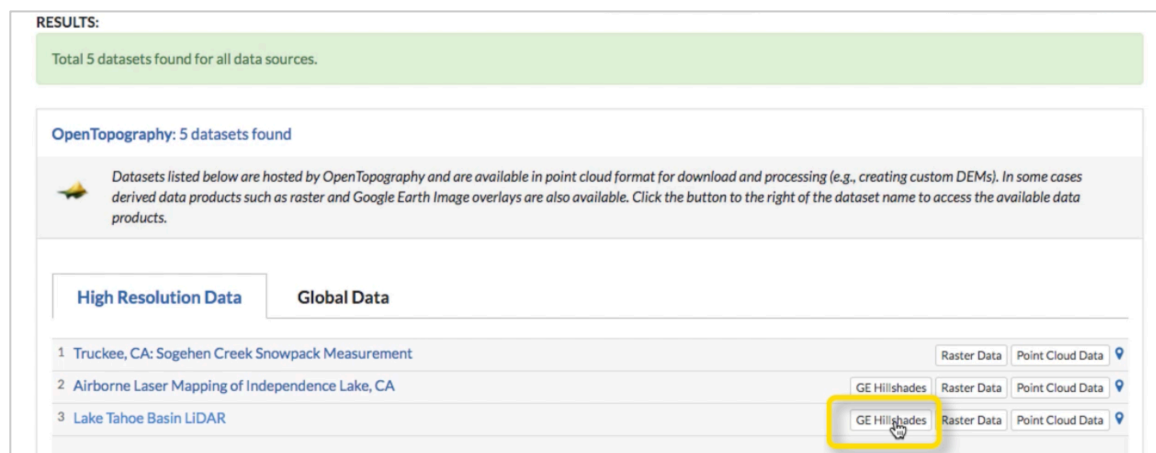
- b. Here we see a map with points representing all of the datasets available through OpenTopography. Although much of the data is located in the U.S., there are data sets available from all over the globe. Let's make a spatial selection for the data we'd like to download.



3. Selecting a region and downloading a dataset
  - a. For this tutorial, we will select the Lake Tahoe region in CA. To do this, we click on *Select a Region* to create a block around the area.

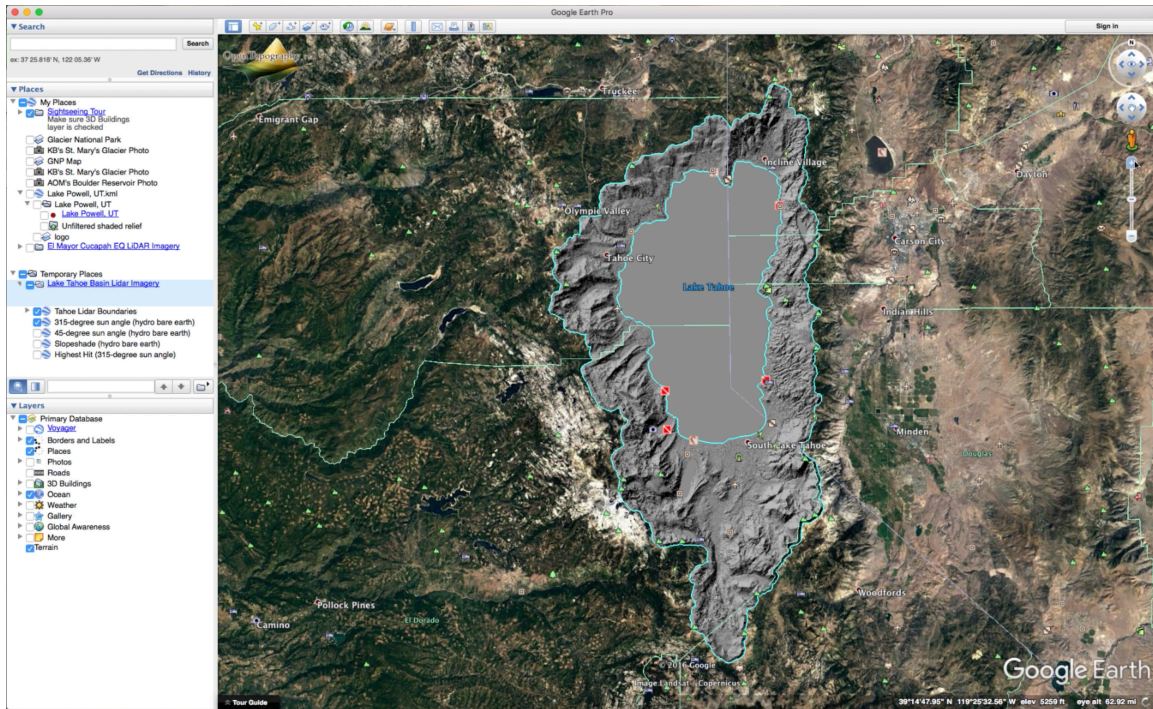


- b. Datasets within this region will appear in a list below the map. Here we see one dataset titled *Lake Tahoe Basin LiDAR*. Click on the title to expand and view more information about the dataset.
  - c. To the right of the title is a button titled *GE Hillshades*. This is our KMZ file. To download the KMZ file, click on *GE Hillshades* and the file will download automatically.

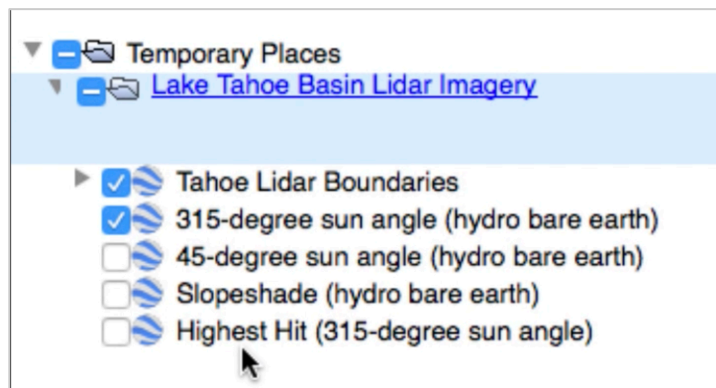


#### 4. Opening in Google Earth

- a. Once downloaded, click on the file and Google Earth will open and take us directly to our selected region. The region is displayed as a 'hillshade', which is defined as a grayscale 3D representation of the surface. Shadows are drawn onto the map to simulate the effect of the sun's rays over the region.



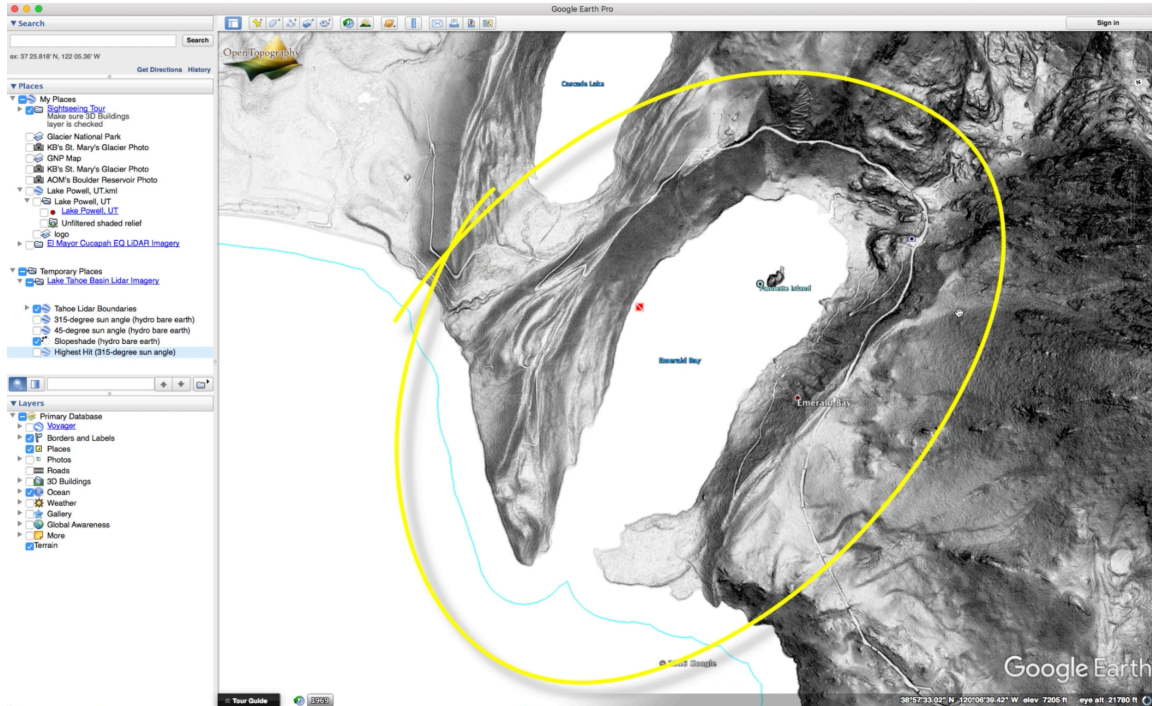
- b. One of the features within this KMZ file, is the ability to toggle between slopeshades, sun angles, and bare earth and highest hit. These can also be referred to as *Digital Terrain Model* (DTM) or *Digital Surface Model* (DSM). This particular file has two sun angles: 315-degree and 45-degree. The slopeshade is our DTM or bare earth and the highest hit is our DSM. Bare earth shows the surface area w/o vegetation, vs. highest hit where we see the tops of trees. Click between the features to see how the views change.





## 5. Viewing topographic features

- a. Zooming into the southwest region of Lake Tahoe to Emerald Bay and turning on the DTM, we get a clear picture of the lateral moraines surrounding the bay.



Thank you!

