

Introduction to Google Earth Tutorial – Haiti. 3/15/2011. Tufts GIS Center.

Data Exploration

1. Open Google Earth
2. On the left you will see a navigation pane with 3 sections: Search, Places and Layers. The Search section allows you to find and go to a specified place or get directions. Places keeps track of where you navigate to and allows you to open maps with saved layers. The Layers section has data that has been compiled and created by other individuals or organizations that you can explore and use in your maps.
3. Under the Layers section, expand Global Awareness and check the box for UNEP: Atlas of Our Changing Environment. You'll see icons appear all over the map. Click on one to get information produced by UNEP about the specific locations.
4. Uncheck the UNEP box and now check the USHMM: Crisis in Darfur. Explore the information here by clicking on some of the icons.

Now let's go to Haiti and create a Google Earth file of this area in the rest of the tutorial. Type Port au Prince, Haiti into the "Fly to" search box.

Historical Imagery Tool

1. This tool allows us to view imagery in Google Earth for different time periods. Here we're going to look at the Haitian Presidential Palace before and after the January 2010 earthquake.
1. Using the "Fly to" box under Search, find the Haitian Presidential Palace and zoom into it. The image you see is the most current one.
2. Now turn on the Historical Imagery tool by clicking on the clock icon. A slider bar will appear in the upper left-hand corner of the map as shown below. By moving the slider along the bar, you can view the map image at various dates. Take a look at the presidential palace before and after the January 12th 2010 earthquake.



Placemarks

1. Images, links and videos can be added to Google Earth through the use of Placemarks. Click on the yellow thumbtack icon in the toolbar. Alternatively, right-click on My Places and select Add → Placemark. An icon will appear on your map which you can move to your desired location. A pop up window will also open where you can enter information, add images, links and videos. Enter a name for your placemark. Click "OK".

2. To add an image to your Google Earth map, select one of the placemarkers you have placed (one of the thumb tacks). Via Google Images, search for a photograph of Port au Prince after the earthquake. When you have found a photo, click on the option in Google to view it as a full size image. Doing so should display the photo in a separate link screen. Copy and paste the URL.
3. Now, rick click on your placemaker that you wish to associate this photo with. Select properties. In the description tab, copy and paste your URL from the image.
4. Next, you need to add some html code so that Google Earth knows to automatically display the image. Use the following code:

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<img src = "http://earth.google.com/outreach/images/case_study/adelia_fig1.jpg">
```

Where your URL is placed within the quotation marks. It may also be easy to simply copy and paste this sample code above into the description and then replace the URL that is in the code with the one you wish to use.

5. Click OK. Now, If you click on the placemaker, the image will display in a pop up.
6. To add a link, simply copy and paste the link you wish to use into the description box.
7. Create a new placemark in and Internally Displaced Person (IDP) area. Name your placemark IDP Camp. Change the icon to a icon of your preference. Add a video clip of an IDP (internally displaced persons) camp in Haiti after the earthquake. To do this, follow this link: <http://www.youtube.com/watch?v=jWVoWX7bJYo>. This will take you to a YouTube video titled "IDP Camp (Tent City), Port Au Prince. Click on the "Embed" button under the video. Be sure to select **Use old embed code**. Then copy the embed code. Paste this into the "Description" box in a New Placemark dialogue box. Give your Plackmark a name and Click "OK". Now when you click this Placemark on your map, you can view the YouTube video.

NOTE: All of these features can be added to the description of a single placemaker. However, make sure when you add a new features (ie a new link, video, image) you do not accidentally delete any of the html codes from other features, because this will prevent them from working properly.

Add an Image

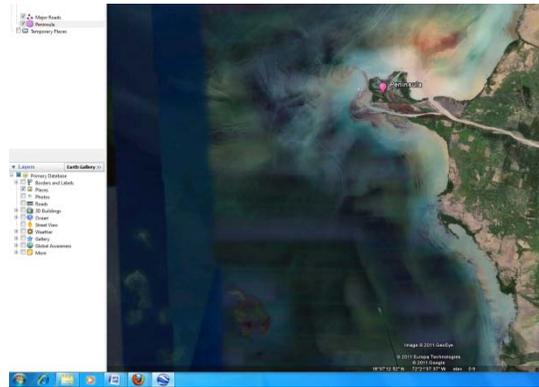
You may want to add a photo in a certain area, without marking it with a placemark.

8. To do so, zoom in to an area of interest. Then select Add→Photo. A dialogue box appears. Here, you can name your photo, as well as add an image either by copying and pasting the URL, or selecting a photo saved on your drive.
9. To add your photo from a link, search on google for a picture of the Haitian coastline. Select a photo, and on the right side of the search screen in google, click the option to "See full size image". This will give you the URL for just that photo. Add your photo via a link a click OK.
10. Now, try zooming in and out. When you reach the perspective at which you added the photo, it appears. It is also marked by a camera symbol in Google Earth.

View and Perspective

You may want to capture a certain perspective at one of your placemarkers.

11. Place a placemaker at the foot of the peninsula shown below, and zoom in. Name it “My View”.



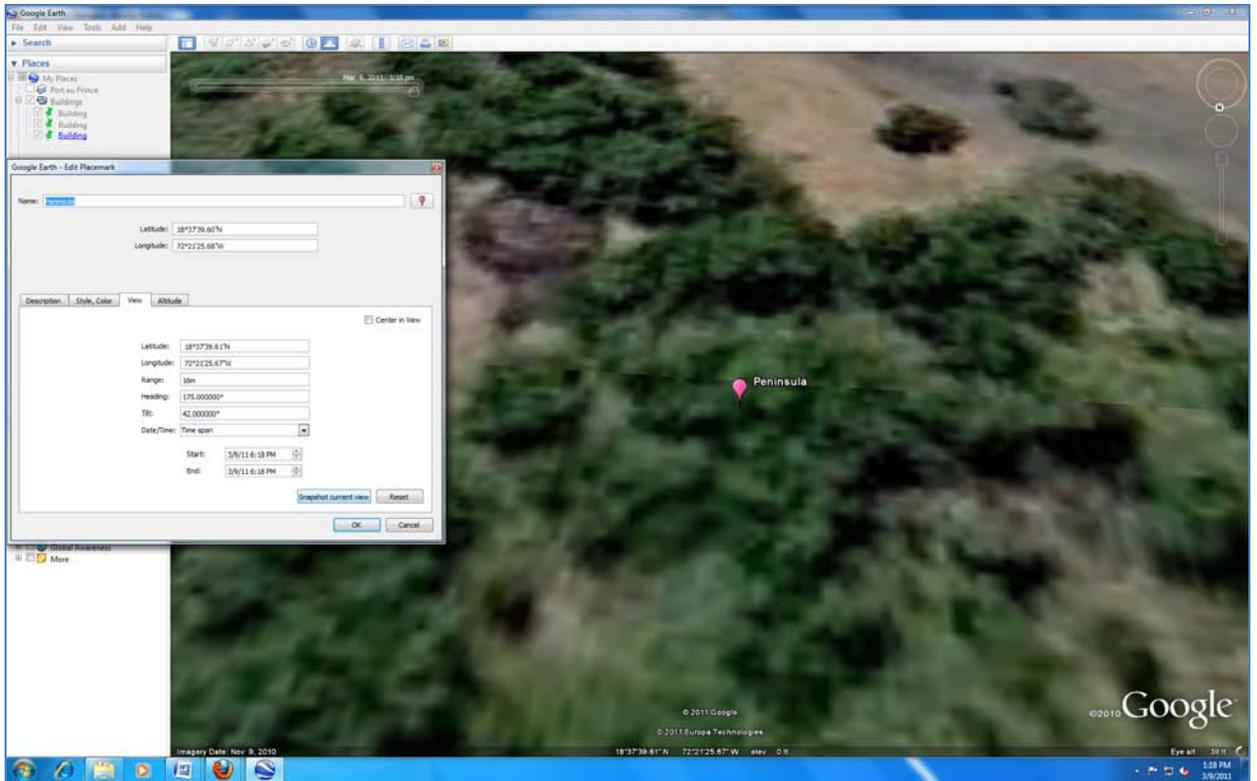
12. Note that your perspective is coming from directly above. We wish to capture an alternative perspective.

13. Notice to the left of the screen, the perspective tools. These allow you to zoom and rotate your perspective.



14. The top dial allows you to rotate around, while the bottom sliding bar allows you to zoom so that you appear closer to the ground. Find an interesting perspective; perhaps you would like to show from that point a view towards to ocean, or towards the land.

15. When you have found a perspective, right click on the placemaker in the table of contents, and select properties. Click on the “View” tab and select the “Snapshot current view” option.

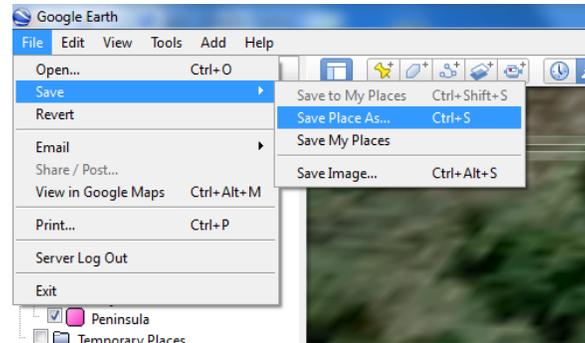


16. Click OK. Now, try clicking on one of your other placemarkers. Notice that Google Earth removes the perspective you set, and brings the focus back to straight above. Now, try clicking on the peninsula placemark again. Google Earth has preserved the view you have create,d and will always zoom into the placemark using that specific view.
17. Now create a place marker with a title, link, and either an image or a youtube link for some area of the world that you are interested in.

Saving KMZ and KML Files

You can save your layers made in Google Earth to be used later, or to be used by another person (either by emailing or saving them).

1. Make sure that all of your work is under the “My Places” heading (it’s ok if you have subfolders, so long as they are also included under “My Places”. Navigate to file → Save Place As

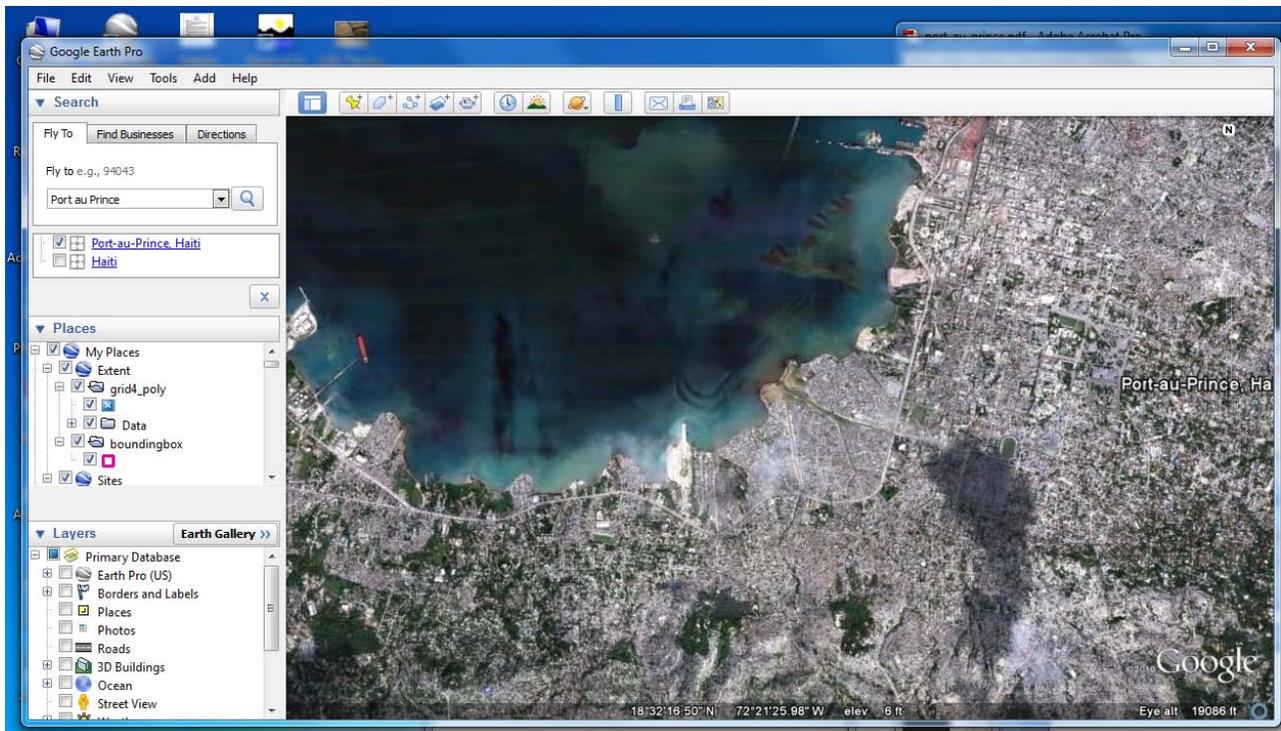


2. A Saving dialogue appears. Navigate to the drive and folder you wish to save your work. Notice that the default file type is set as a Kml. This will hold all of your Google Earth settings, placemarkers, images, etc. into one folder. Name the file and click OK.
3. Next time you want to use this project in Google Earth, simple navigate to file→ open, and select your Kml file.

Georeferencing a Map

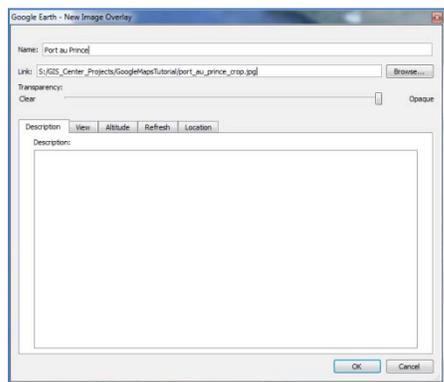
Georeferencing is a helpful tool that enables the user to stretch a digital copy of a paper map to match the spatial references in Google Earth.

4. Using Windows Explorer/My Computer, Navigate to S:\classes\CrisisMapping\Haiti. Double click on port_au_prince_crop.jpg. Take a moment to explore the map. What type of information is on the map?
5. Switch back to Google Earth. Using your mouse, pan and zoom (by scrolling your mouse) so that you can generally see the same areas on Google Earth as you see in the port_au_prince.jpg.



6. Now we need to bring the map image into Google Earth. Navigate to Add → Image Overlay.

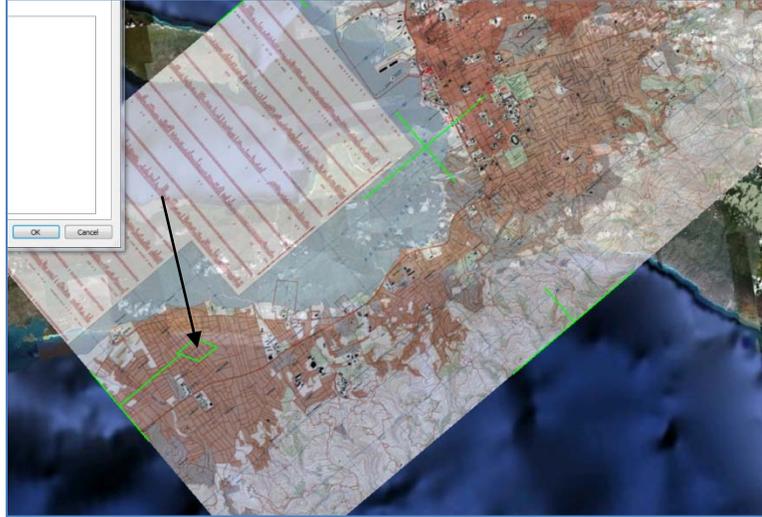
7. A dialogue box appears. Name your image “Port au Prince Topo Map”. In the link box, click on “Browse” and navigate to S:\classes\CrisisMapping\Haiti\port_au_prince_crop.jpg



Click OK. The map of Haiti should appear over the imagery in Google Earth. You can adjust the transparency of this image. Notice under **My Places** your Port au Prince Topo Map image is listed. Right click on Port au Prince Topo Map and navigate to Properties. This brings you back to the previous dialogue box. Try sliding the transparency bar. Slide the transparency bar so that you can comfortably see both the imagery and the jpeg. Do not click OK.

Notice that there are highlighted green borders around the image. These will help you georeference, or stretch the jpeg, to the imagery.

8. Hold your cursor down on the right handed side of the image, where a square is located.

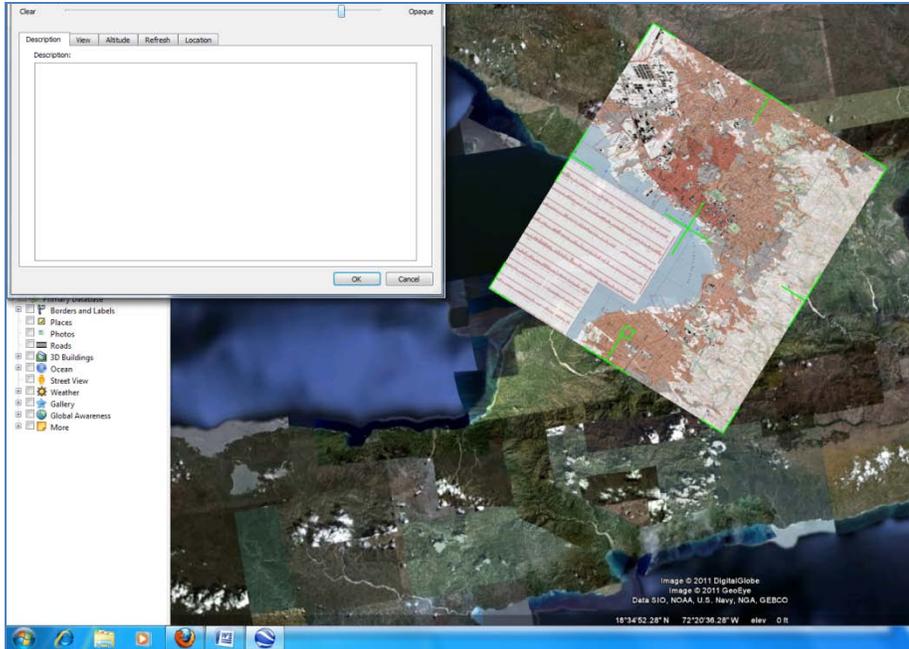


By holding down your cursor, begin to move and rotate the image so that the coastlines match up. Putting your cursor on the square and dragging will rotate the image; putting your cursor on the center X on the jpeg, and then dragging, will move it to another location.

You will need to shrink the size of the image as well. To do so, hold down the shift button and click and hold the cursor on one of the end corners of the jpeg and drag.

Georeferencing may take a few moments. You may need to try several different settings of transparency as you go. It is best to line up the coastline first. Hint: use the peninsula with the major river as a starting point. You might also turn on the Roads Layer under Layers to help guide you. Then use the major roads to help align the map to the imagery.

When you are satisfied with the georeference, click OK.

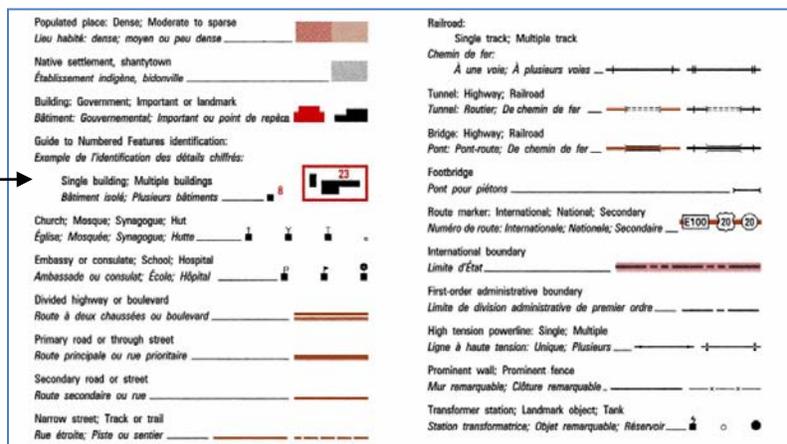


SAVE YOUR GOOGLE EARTH PROJECT AS A KMZ FILE

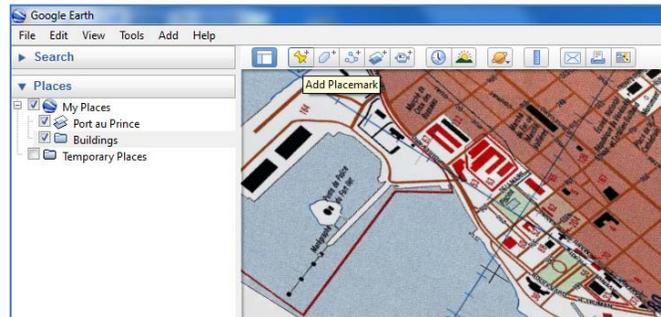
Part 2: Digitizing

It is useful to georeference a map in Google Earth because you can extract information from the map to be shown in Google Earth. This method of data creation is called digitizing.

9. Zoom into the main peninsula (where the two large rivers are). In this area, you will record the locations of buildings and roads.
10. We will first add buildings. Note how non-religious buildings are symbolized on the map, via this legend:

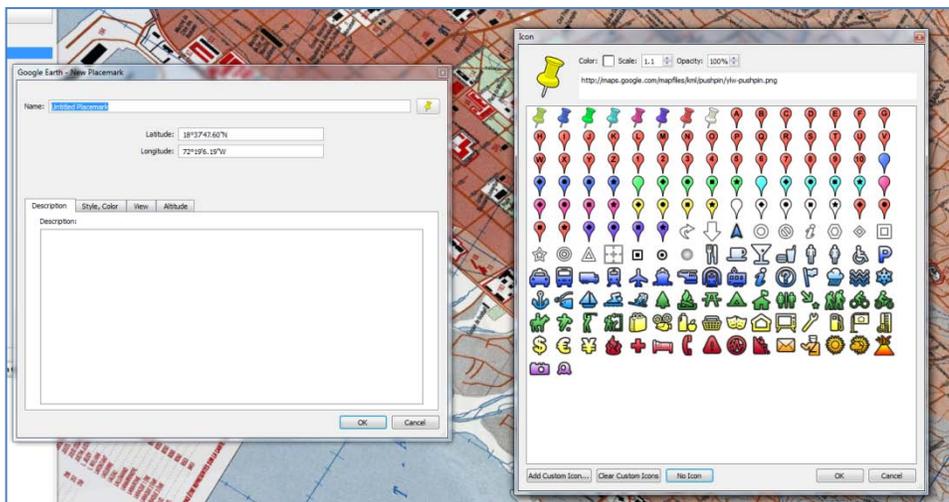


11. Right click under “My Places”, and click Add → New Folder. Name the folder “Buildings”. Click on the **Add Placemark** tool in Google Earth, located on the top of the screen.



12. Name the placemark “Building 1” in the dialogue box that appears.

13.



Click on the small tack icon next to the “Name” box. An icon selection box appears. Select the icon that you wish for representing buildings. Click OK. Then, move the cursor to the appropriate location, and click OK again.

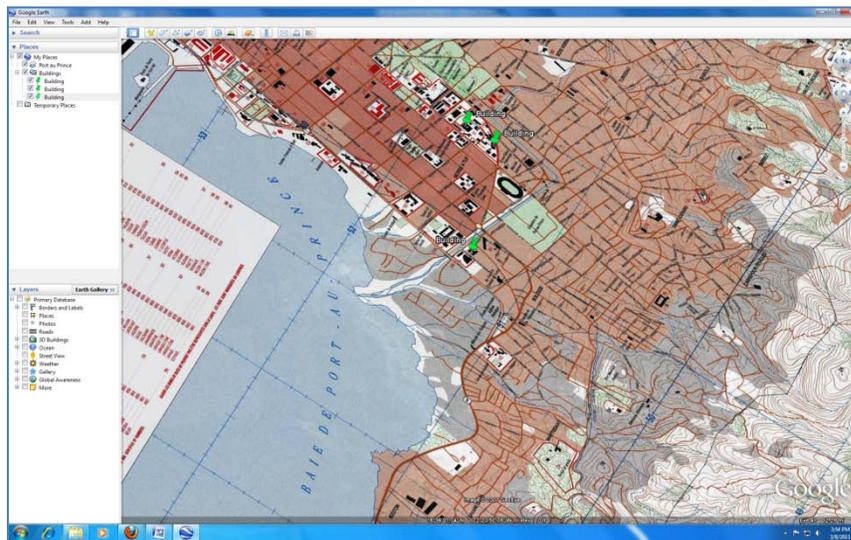
NOTE: If you accidentally place a marker, you can right click on it and select “Delete”. Once you click ok and exit out of the properties of a marker, you cannot change its location.

How you symbolize these buildings is up to you, and also depends on the type of dataset you intend to make. If you simply wish to show all buildings, you can name each respective building point “Building” with the same color/shape. However, if you wish to distinguish certain buildings from one another, for example, religious buildings from non religious, it would be appropriate to select a different symbology for each type.

The names can also change within each type; something as simple as Building1, Building2, etc., or more specific to their function: “museum”, “town hall”, etc.

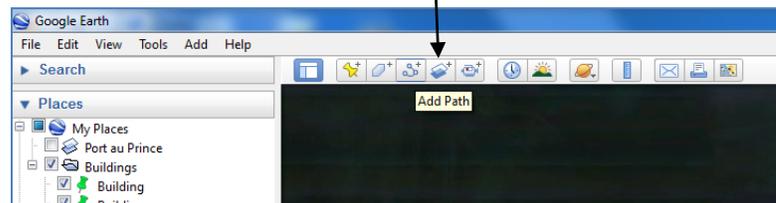
Because the map legend distinguishes secular and non secular buildings, that is what we will do in your symbology.

14. Mark the locations of a few more non religious buildings, again by clicking on the Add Placemark button on the top of the screen.



15. Now, you can add some religious buildings. Note how these are symbolized on the legend shown above. Find the location of a religious building, and add a placemaker. However, in the name description, type “Religious Building” and choose a different type of placemaker, to distinguish it from the other normal buildings.

16. Now we can try digitizing some roads. On the Google Earth toolbar, select Add Path.



17. A dialogue box appears. Name this layer “Major Roads”. Select the “Style/Color” tab (the second tab) and click on the white colored box. Select a color for your roads. Increase the width to 5. When selecting your color, keep in mind that these roads will be used to convey the information on the paper map to the imagery on Google Earth. Thus, that Port au Prince layer will be turned off, and so you should select a color that will show up easily against the imagery.
18. Do not click OK (doing so will disable your ability to edit the file). Move the Properties box to the side of your screen so that you can easily see all of the roads, and zoom into an area of interest.

19. Notice your cursor has turned into a square box. Click once on the beginning of a road. Move your cursor. A line appears. Clicking again will create a corner. Try digitizing a road segment. Click OK when you are finished.

