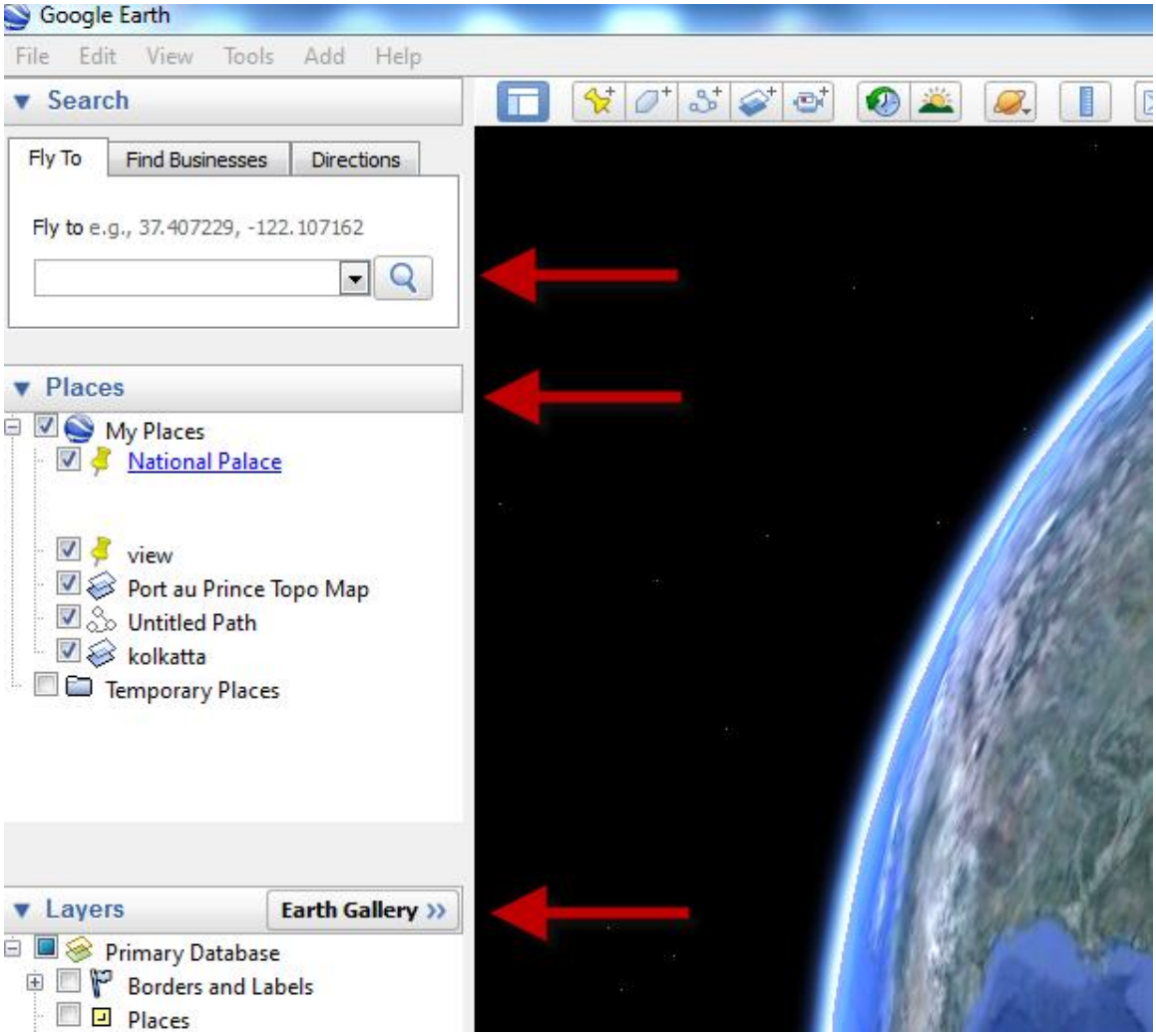
Introduction to Google Earth 6: Haiti.

Written 3/15/2011, updated 2/17/2012

Data Exploration

1. Open Google Earth

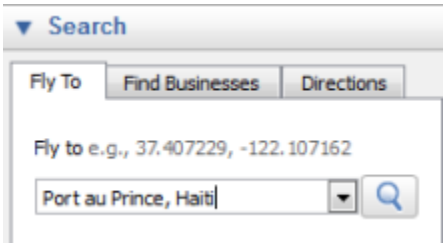
2. On the left you will see a navigation pane with 3 sections: **Search, Places,** and **Layers**. The Search section allows you to find and go to a specified place or get directions. Places keeps track of where you navigate to and allows you to open maps with saved layers. The Layers section has data 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. Double clicking the USHMM link will fly you to Darfur.

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.

2. Using the "Fly to" box under Search, type in "**Haitian Presidential Palace**" and zoom into it. The image you see is the most current one.

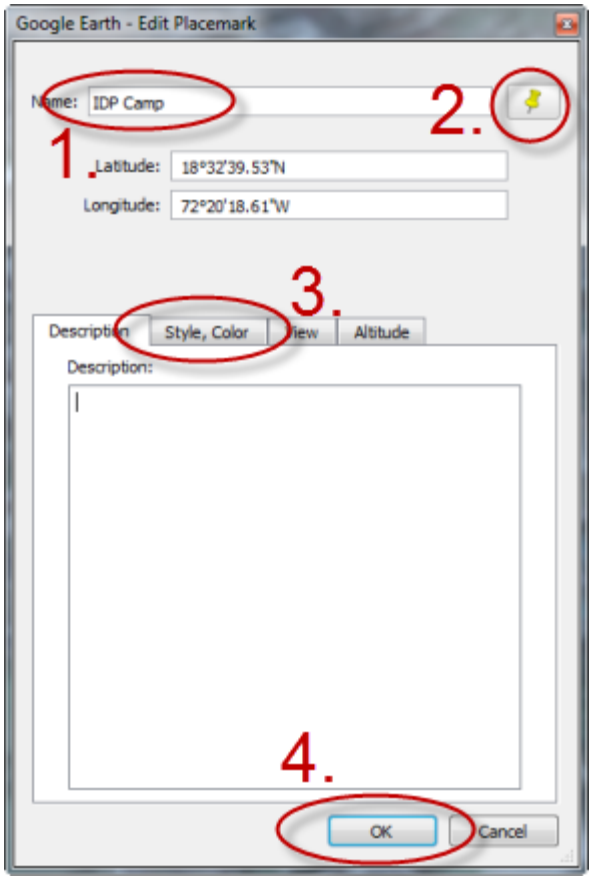
3. Now turn on the **Historical Imagery** tool by clicking on the clock icon. A slider bar will appear in the upper left-hand corner of the map as shown below. By moving the slider along the bar,

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 Placemark icon on the toolbar. () Alternatively, right-click on *My Places* in the **Places Tab** on the sidebar and select *Add Placemark*. An icon will appear on your map which you can move to your desired location by clicking and dragging

2. A pop up window will also open where you can enter information and add images, links and videos. Enter a name for your placemark (1). You can also change the placemark icon to another symbol (2.) or use the **Style, Color Tab** to change the color of the symbol and label you select. (3.) When you are finished, click "OK."(4.)



3. To add an image to your Google Earth map, choose one of the placemarkers you have placed (one of the thumb tacks). Using Google Image Search, find a photograph of Port au Prince after the earthquake. When you have found a photo, click on the option in

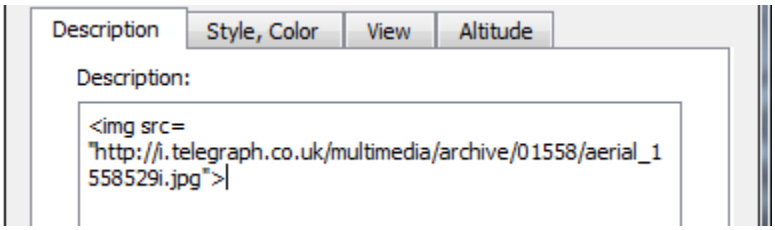
Google to view it as a full size image. Doing so should display the photo in a separate link screen. Copy the URL to your clipboard.

4. Now, right click on your placemarker that you wish to associate this photo with. Select **Properties**.

5. In the description tab, copy and paste your URL from the image. You will then add some html code so that Google Earth knows to automatically display the image. Use the following code:

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

   Place your URL code within the quotation marks. You may 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.



6. Click **OK**. Now, if you click on the placemarker, the image will display in a pop up.

7. To add a link to a website, simply copy and paste the link you wish to use into the **Description** box.

8. Create a new placemark in an Internally Displaced Person (IDP) area. Name your placemark "**IDP Camp**." Change the icon to an icon of your preference. You will then add a video clip of an IDP (internally displaced persons) camp in Haiti after the earthquake.

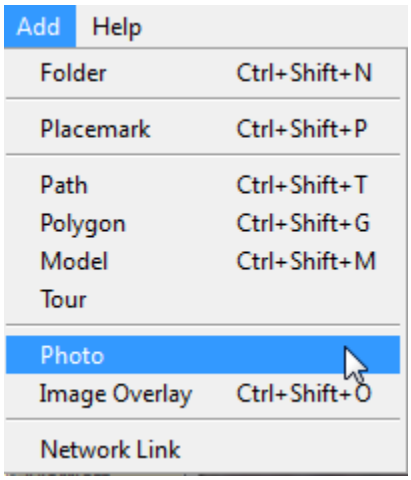
To do this, follow this link: http://www.youtube.com/watch?v=jWVoWX7bJYo. This will take you to a YouTube video titled "IDP Camp (Tent City), Port Au Prince. Click on the "**Share**" button under the video, and then click "**Embed**." Be sure to check the "Use Old Embed Code" box. Then copy the embed code (it will be large.) Paste this into the "**Description**" box in a **New Placemark** dialogue box. Give your placemark 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 placemarker. However, make sure that when you add a new feature (i.e. a new link, video, or image) you do not accidentally delete any of the html codes from other features: this will prevent them from working properly.

Add an Image

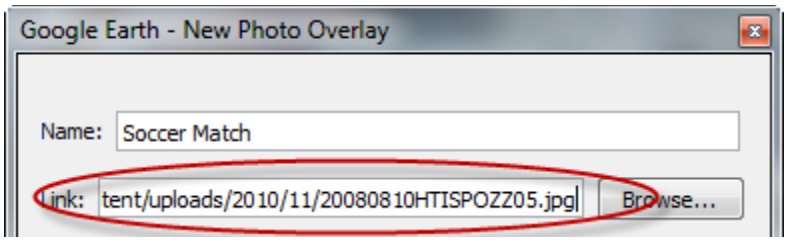
You may want to add a photo in a certain area without marking it with a placemark.

1. To do so, zoom in to an area of interest. Then, from the toolbar, click **Add-Photo**. A dialog box, will appear where you can name your photo, as well as add an image either by copying and pasting the URL, or using the *Browse* Button to select a photo saved on your drive.



2. To add a photo from a link, you will again do a Google Image Search. 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.

3. Add this URL to the *Link* Box, give the photo a name, and click OK.



4. Now, try zooming in and out of the area. When you reach the perspective at which you added the photo, it appears. It is also marked by a camera symbol in Google Earth.

   NOTE: Be aware of the size of the image you are importing. Smaller images will be almost invisible if placed at an extremely zoomed out perspective.

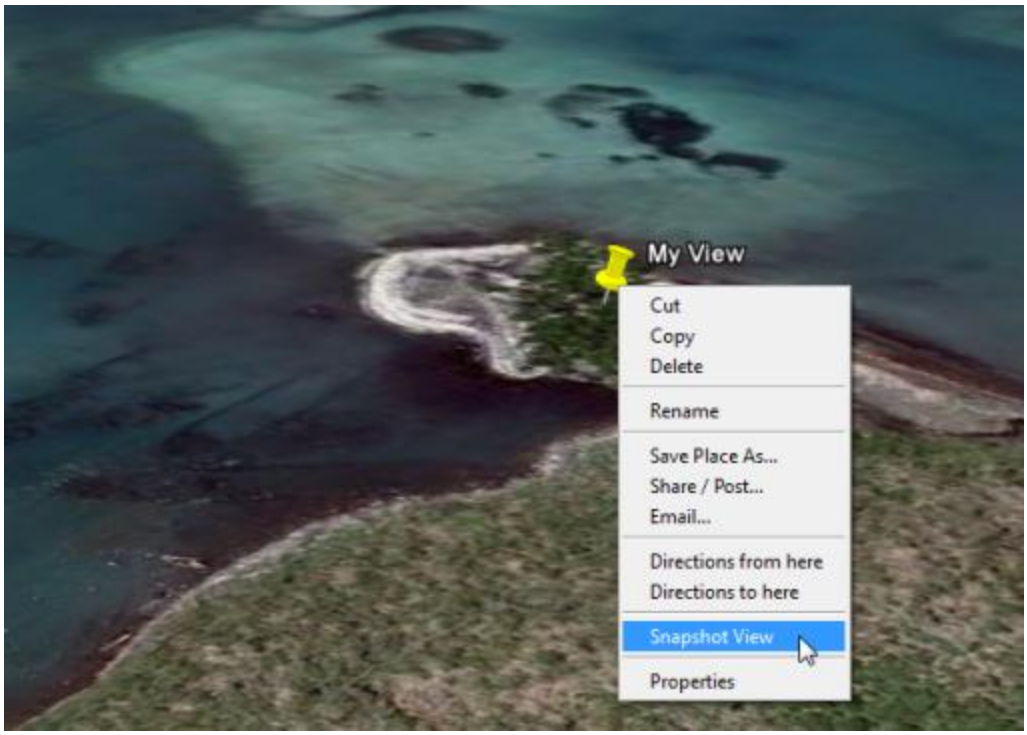
View and Perspective

1. You may want to capture a certain perspective at one of your placemarkers. Place a placemaker at the foot of the peninsula on the northern end of Port Au Prince (shown below) and zoom in. Name it “My View”.

2. Note that your perspective is coming from directly above. We wish to capture an alternative perspective. Do this using the perspective tools. These allow you to zoom and rotate your perspective.

3. The top dial allows you to rotate your perspective, and the arrows in its center are used to pan and tilt the view. 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.

4. When you have found a perspective, right click on the placemarker (either in the viewer, or the sidebar under *Places-My Places*) and select properties. Click on the "**View**" tab and select "**Snapshot View**"



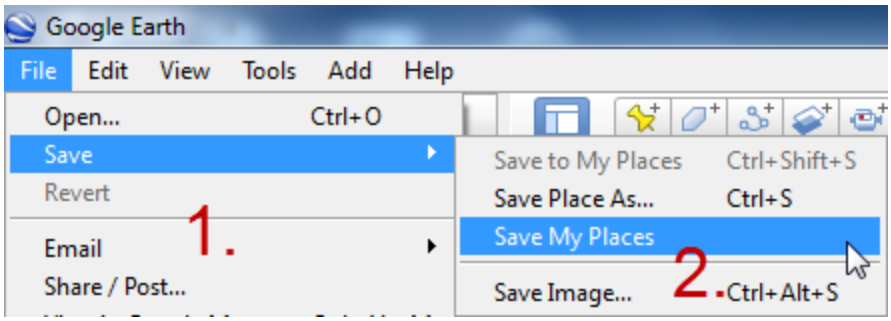
5. Click OK. Now, try clicking on one of your other placemarkers in the sidebar. Notice that Google Earth removes the perspective you set, and brings the focus back to straight above. Now, try clicking on the pensinsulapeninsula placemarker again. Google Earth has preserved the view you have created and will always zoom into the placemarker using that specific view.

6. To practice, 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 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" dialog appears. Navigate to the drive and folder you wish to save your work. Notice that the default file type in the folder you select will be set as a .Kmz. This will hold all of your Google Earth settings, placemarkers, images, etc. in one folder. Name the file and click OK.

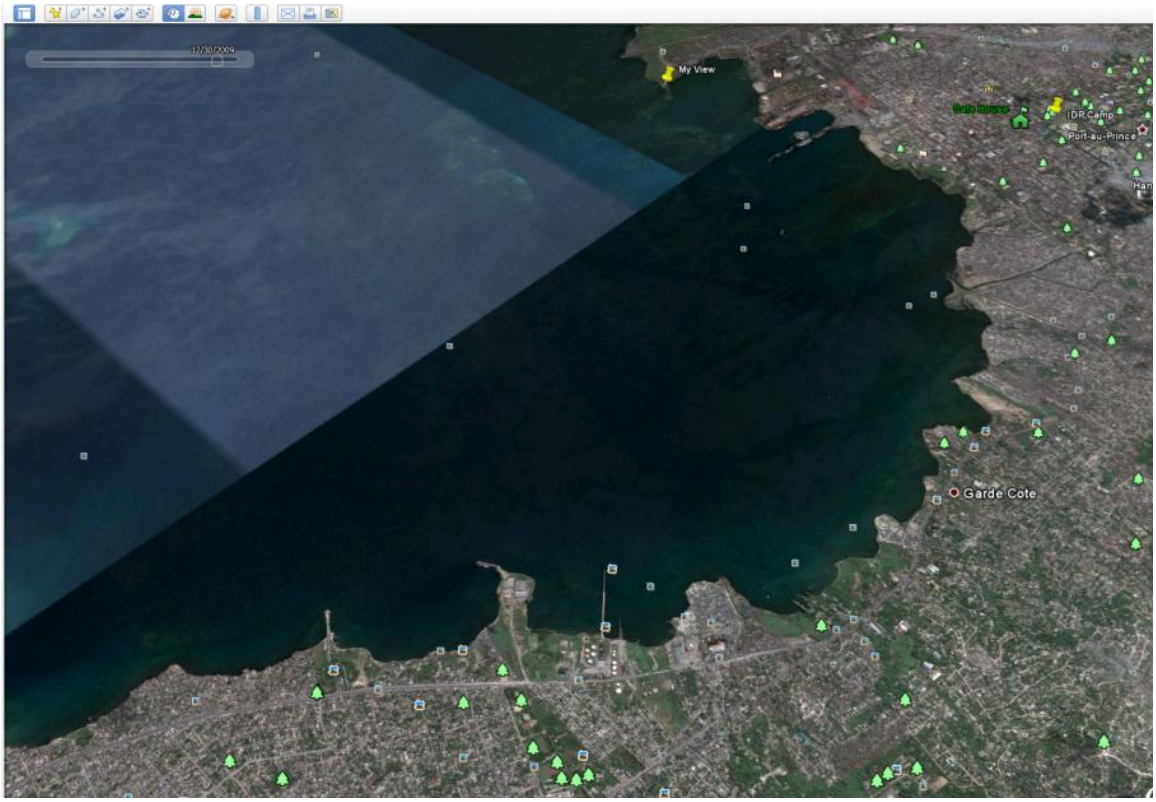
3. Next time you want to use this project in Google Earth, simple navigate to *File-Open* and select your .Kmz file. For any subsequent layers you create, navigate to *File-Save My Places.*

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.

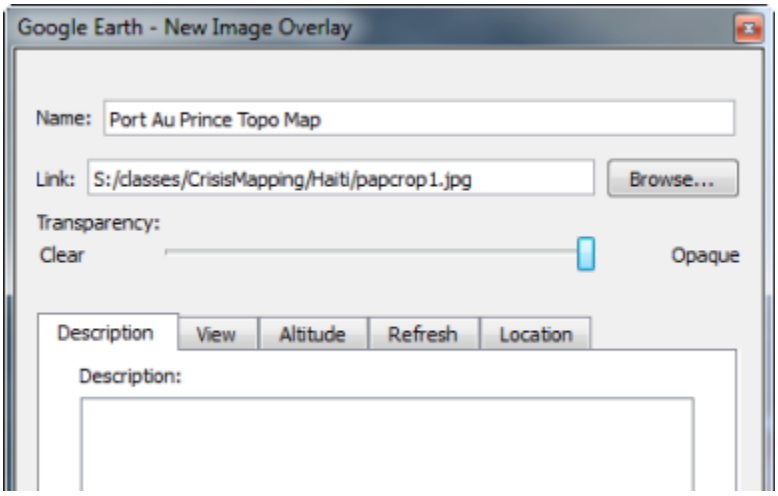
1. Using Windows Explorer/My Computer, Navigate to S:\classes\CrisisMapping\Haiti. Double click on port_au_prince_crop.jpg. Take a moment to explore the map. What type of information is on the map?

2. 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.



3. Now we need to bring the map image into Google Earth. Navigate to *Add-Image Overlay*

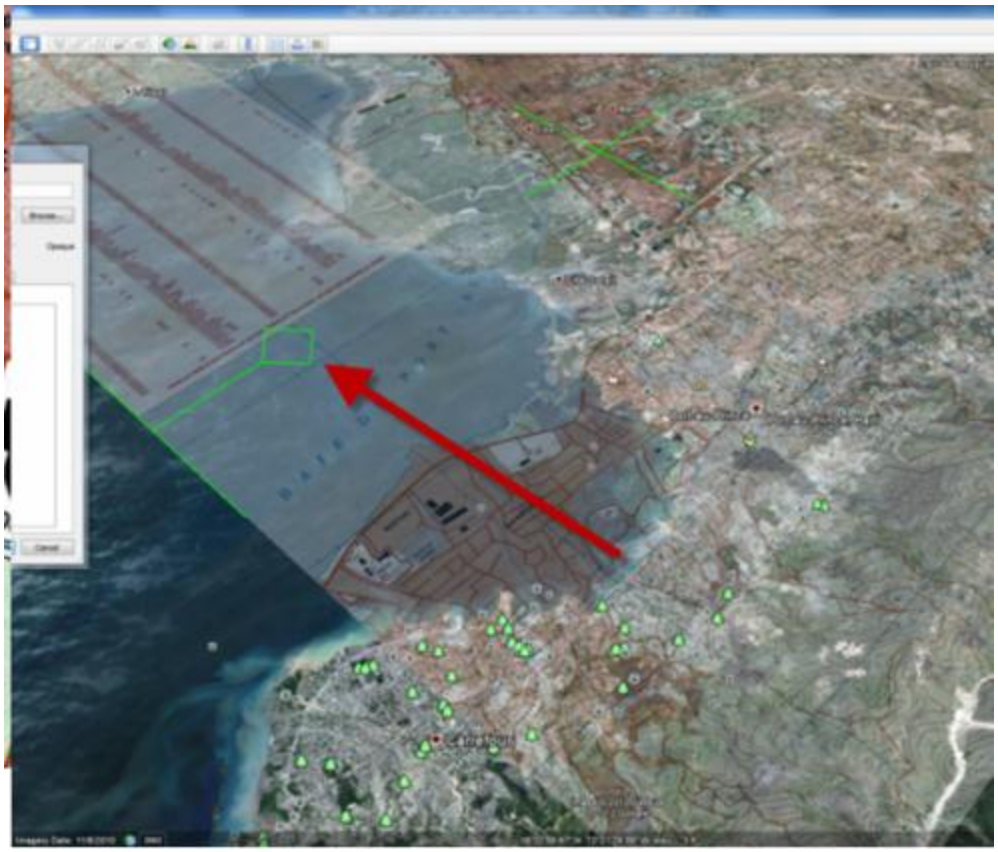
4. A dialogue box appears. Name your image “Port au Prince Topo Map”. In the link box, click on “Browse” and navigate to S:\classes\CrisisMapping\Haiti\papcrop1.jpg



5. 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.

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

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



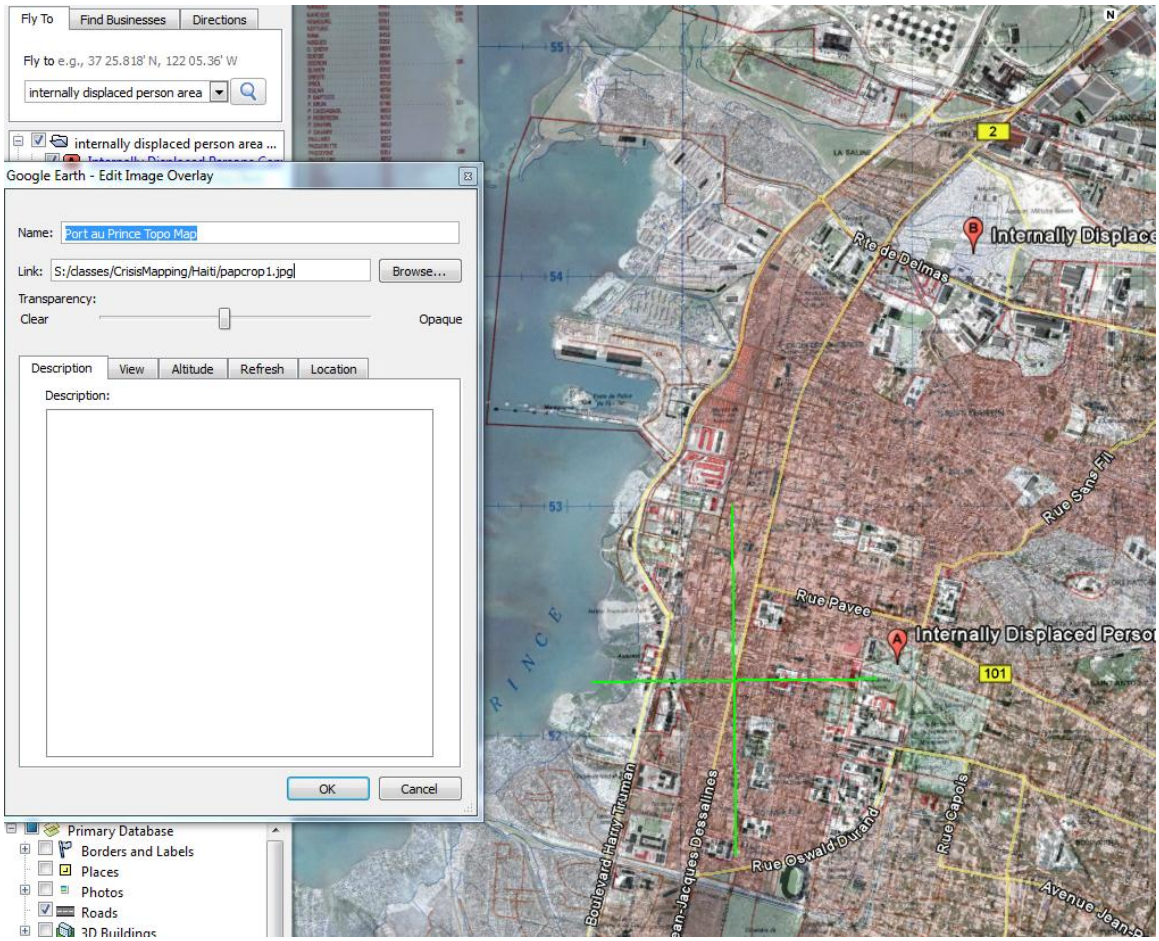
8. By holding down your cursor, begin to move and rotate the image so that the coastlines match up. Putting your cursor on the square and dragging will rotate the image; putting your cursor on the center X on the jpeg, and then dragging, will move it to another location.

9. You will need to shrink or enlarge 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.

10. 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

11. When you are satisfied with the georeference, click OK.



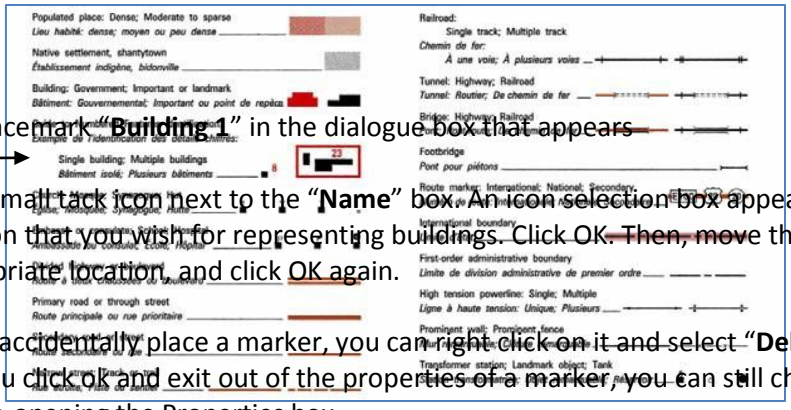
SAVE YOUR GOOGLE EARTH PROJECT AS A .KMZ FILE

Part 2: Digitizing

1. 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**.

2. Zoom into the main peninsula (where the two large rivers are). In this area, you will record the locations of buildings and roads.

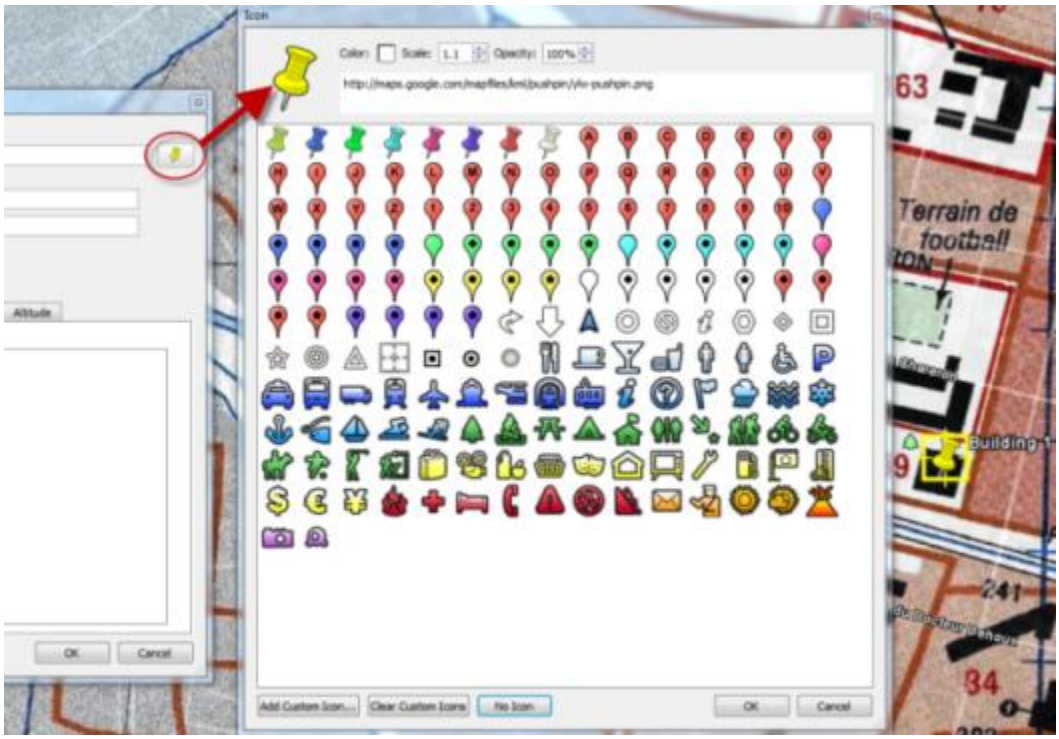
3. We will first add buildings. Note how non-religious buildings are symbolized on the map, via this legend 11. Right click under “My Places”, and click *Add-New Folder*. Name the folder “Buildings”. Click on the Add Placemark tool in Google Earth, located on the top of the screen.



4. Name the placemark "**Building 1**" in the dialogue box that appears.

5. 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**". Even once you click ok and exit out of the properties of a marker, you can still change its location by re-opening the Properties box.



6. 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.

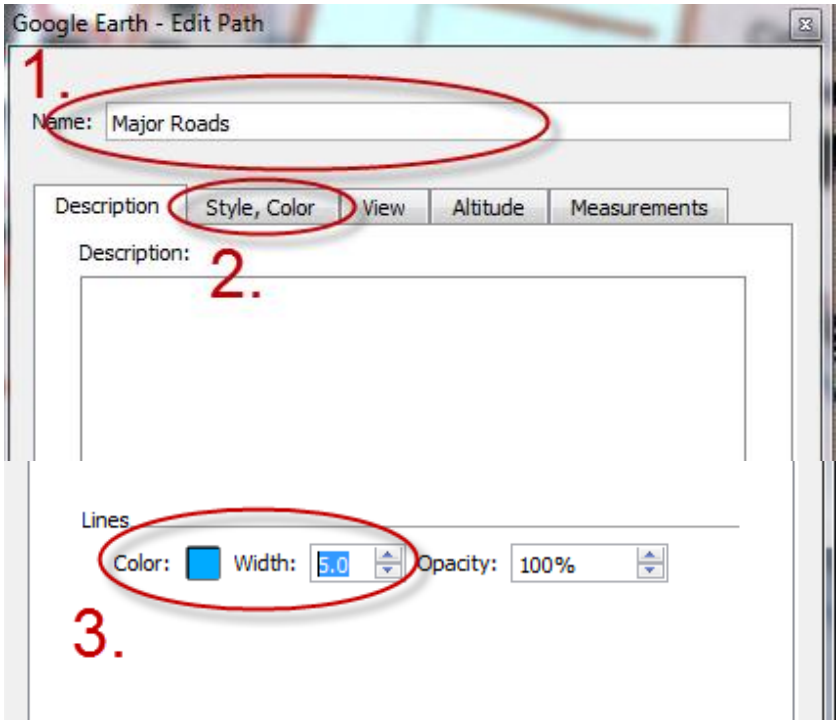
7. Because the map legend distinguishes secular and non-secular buildings, that is what we will do in your symbology

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

9. 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 placemarker. However, in the name description, type "**Religious Building**" and choose a different type of placemarker, to distinguish it from the other normal buildings.

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

11. 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. The Port au Prince layer will be turned off so you should select a color that will show up easily against the imagery.



12. *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.
13. 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.