Using Google Earth in the Classroom (Tours)

Since its release in the summer of 2005, Google Earth has provided an uncomplicated means of combining satellite imagery with geological and geographic information in dramatic fashion. While satellite visualization tends to grab the student's attention, it remains necessary to integrate these techniques into lessons that include inquiry-based learning activities.

You must have Google Earth installed on your computer to use it. You can download it for free at earth.google.com. Follow the instruction on their site to install the program to your computer.

The screen shot below shows the start-up view of Google Earth. The **Navigation** frame at the bottom of the screen can be used to control the view of the Earth. The **Search**, **Places**, and **Layers** frames on the left side of the window offer more options. Use the **Search** frame to find a particular address. The **Places** frame is where *.kmz (Google Earth files) files are opened into and will be used as a tour is created in the rest of this document. Use the **Layer** frame to control which geographic and geological information is displayed on the Earth.

One relatively simple way to utilize Google Earth as part of an Earth Science lesson is to develop 'tours' of selected locations of particular geological or geographic significance. Once you have decided to use Google Earth to bring your students on a trip (ie. Cascade volcanoes, NYS Landscape regions, deltas and alluvial fans, etc), the following steps will help you create the tour.

Create Your Tour

1. Consider developing a list (mentally or written) of the locations you would like to visit. The following example creates a tour beginning with Marjum Canyon in the House Range of western Utah.
   a. Marjum Canyon
   b. Dome Canyon
   c. Wildhorse Canyon
   d. Notch Peak

2. Use the controls in the **Navigation Frame** or the mouse (see the text box below for mouse controls) to position the Earth exactly as you would like the students to view the first stop of your tour. Consider the altitude, angle, and direction of the view.

Navigating Google Earth with a Mouse

(for a PC with a wheel mouse)

Left button:

Click + hold + move the mouse in any direction to move the image from side to side, up/down, etc.

Wheel:

Scroll up and down to zoom in and out.

Click + hold + move the mouse in any direction to change the tilt and the orientation of the view.

Right button:

Click + hold + move mouse up and down to zoom in and out.

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3. Create a new <u>placemark</u> by
   a. Selecting the *<u>Placemark</u>* option from the *<u>Add</u>* menu

   b. or by clicking on the *<u>add placemark</u>* icon ( ) in the **Navigation Frame** at the bottom of the screen.

Either option will insert a yellow placemark ( ) and open a **New Placemark** window.

You may move the placemark out of the middle of the view now. The view you save does not depend on the exact location of the yellow placemark.

4. Create a new folder for all the placemarks of your tour by selecting the *New Folder* button in the **New Placemark** window. Enter the name of your new folder and press OK.

5. Enter a name for the first stop on your tour in the **New Placemark** window. Be sure it is being added into your newly created folder. Additional information about the placemark can be added in the Description window.

6. Press OK and your placemark will be added to your tour folder in the **Places Frame**.

7. Repeat steps 2 -6 for each additional placemark you would like to add.

Each successive placemark will be added to the selected folder in the **Places Frame** on the left side of the screen.
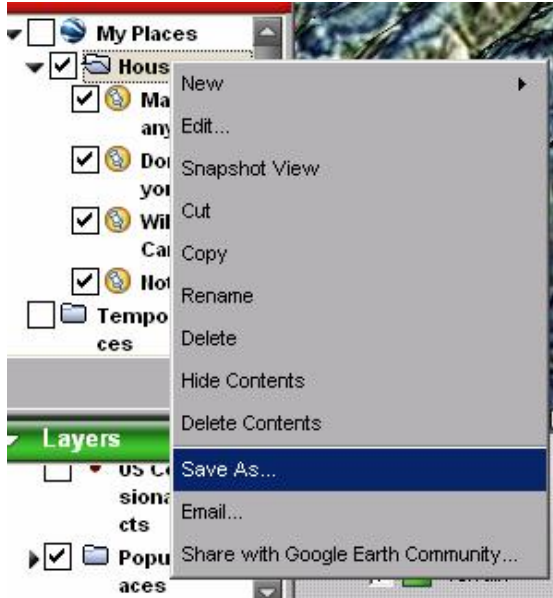
Tours play in order from the top down. I have found that adding placemarks in a logical order creates a 'backwards' tour. Notice that the first location I added (Marjum Canyon) is apparently the last stop on this tour. The tour stops can be rearranged by clicking and dragging each stop into its appropriate position in the tour list.

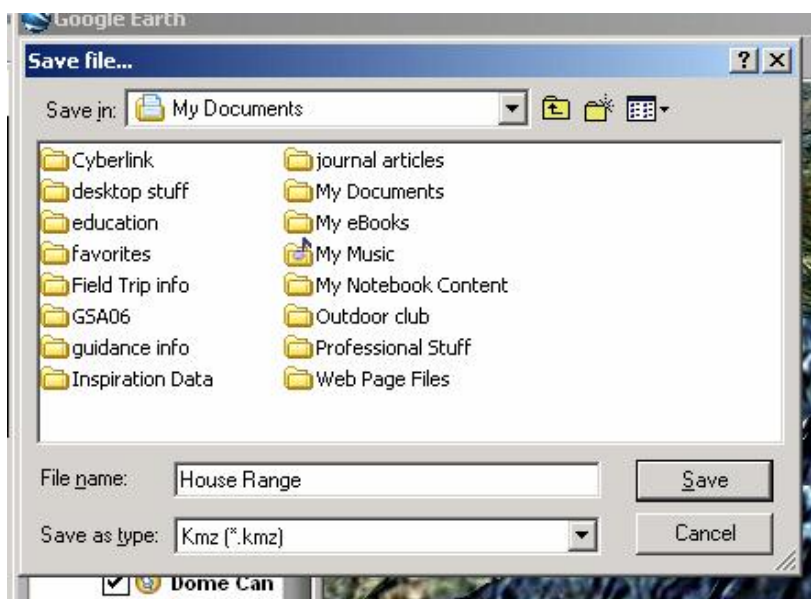I usually number my stops so I can remember the order in which they should be visited.

Saving Your Tour

1. Be sure that all the stops are arranged in the appropriate order within the **Places Frame** - the first stop will be at the top and the last stop will be at the bottom. Be se sure that the tour folder and each stop are all 'checked'.

2. Right click on tour folder you created and select the *Save As...* option.

3. A **Save file…** window will open. Name your file something reasonable and save it in a sensible location. The file extension will be *.kmz.

Viewing Tours in Google Earth

Select the tour you would like to view. Be sure each location is 'checked'. Press the play button at the bottom of the **Places Frame** to start your tour.

To view a tour in Full Screen mode:

1. Press F11 to expand Google Earth into full screen mode.

2. Press F10 to begin the tour.

To open a different tour:

1. Open the appropriate *.kmz file as you would in any other Windows application.

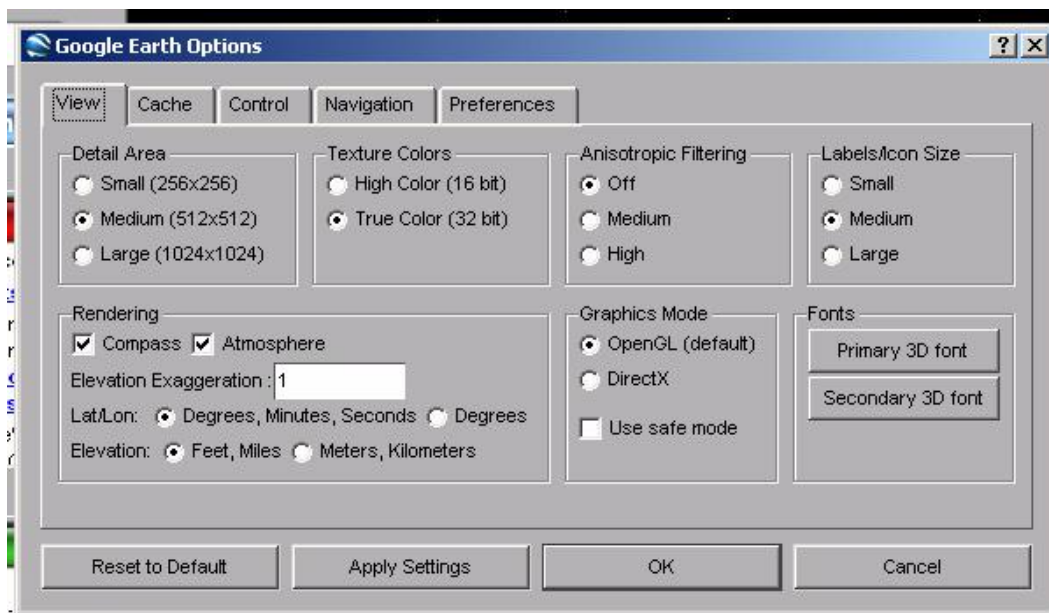## Google Earth Settings and Tour Options

Google Earth options can be controlled to enhance the area of detail, vertical exaggeration, and tour speeds, etc.

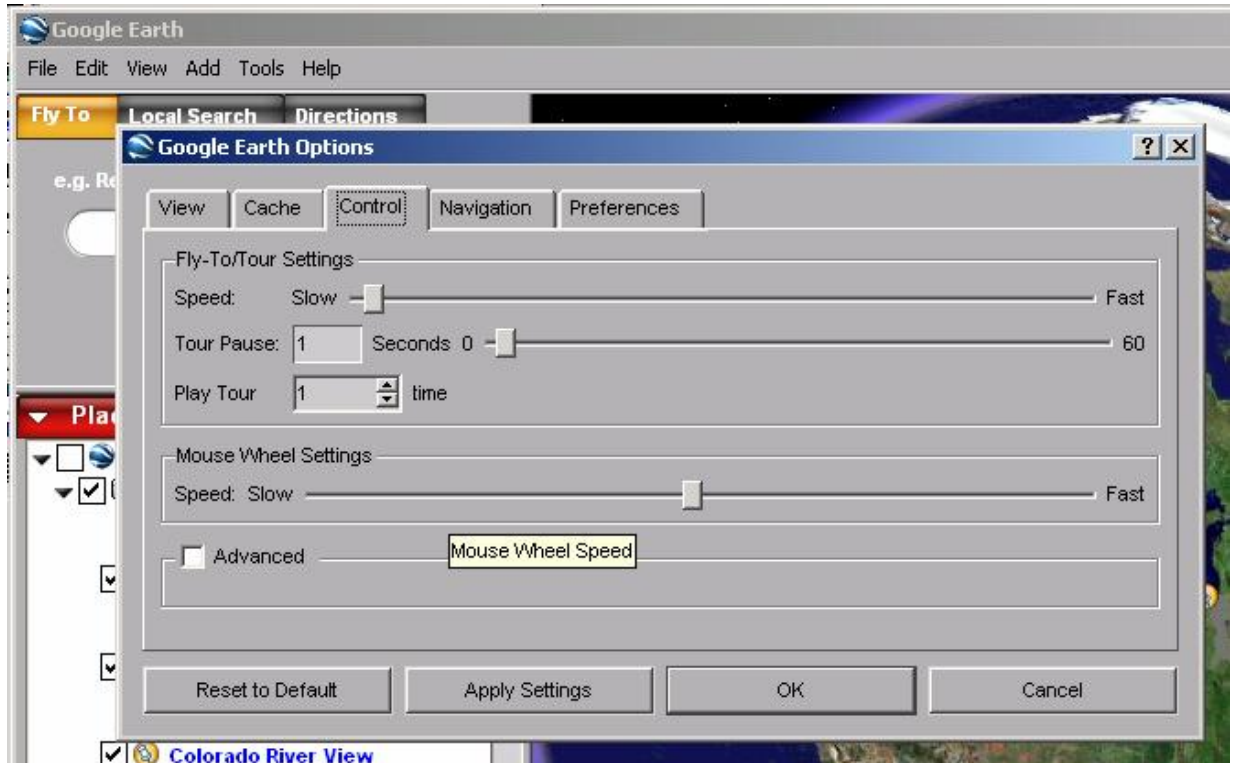1. Select *Options* from the *Tools* menu to open the **Options** window.

2. The *View* tab allows the user to control many features.

    a. The **Detail Area** controls how much of the screen is displayed in detail. A smaller area of detail allows for faster navigation.

    b. The **Compass** option toggles on or off the compass.

    c. The **Atmosphere** option toggles on or off the atmosphere. The checked option displays the Earth during day and objects in the distance are viewed through a 'haze'. The unchecked option simulates the Earth on a clear night without the distance 'haze'.

    d. **Elevation Exaggeration** allows vertical exaggeration to be increased or decreased. A setting of 1 displays the Earth's topography without exaggeration.

3. The *Control* tab allows the user to change the tour settings.

   a. The **Speed** setting controls how quickly the view changes from one stop to the next.

   b. **Tour Pause** controls the pause at each stop.

   c. Additional settings can be accessed by selecting the **Advanced** option.

4. Press OK when you are finished.

Enjoy. If you have any questions or comments about this document, please email me: efermann@eastchester.k12.ny.us