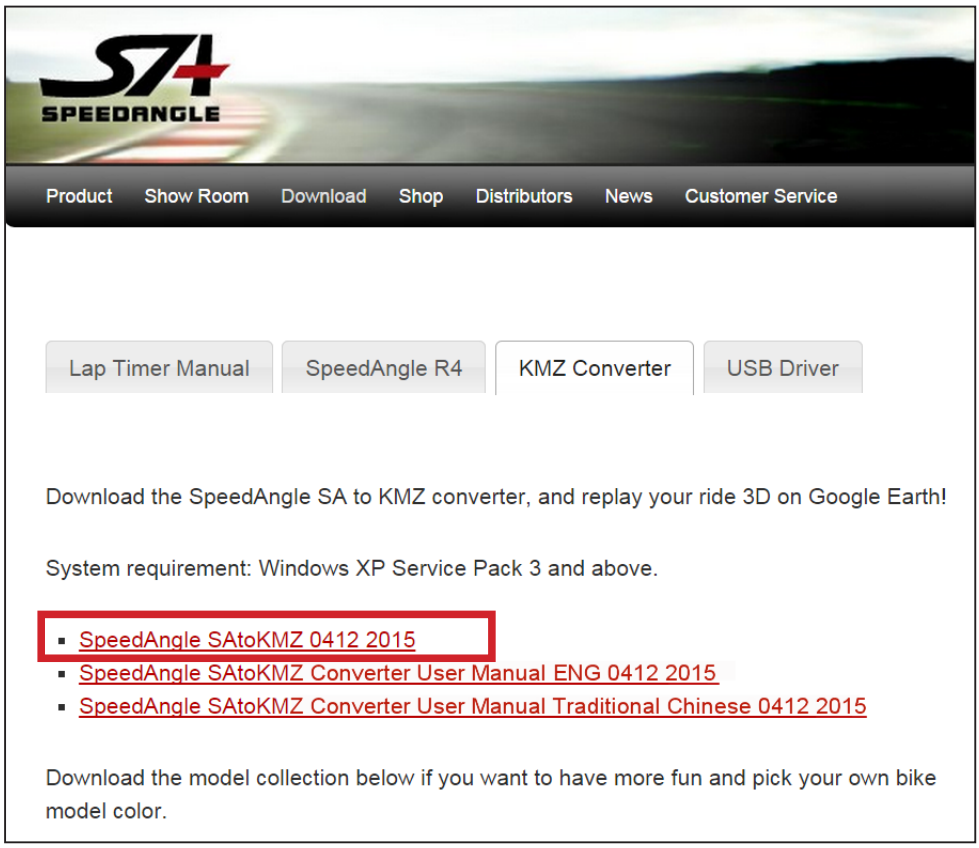
SpeedAngle SAtoKMZ Converter

Downloading the Converter

SAtoKMZ converter is a small yet fun tool to convert your SA files recorded by a SpeedAngle lap timer to KMZ files, which can then be loaded to Google Earth and be replayed 3D against the satellite image of the track you went to.

To download the converter, please go to www.SpeedAngle.com/download and look in the KMZ Converter section. Unzip before use.



The converter generates and comprises a default model into the KMZ automatically. However, if you would like to have more fun and pick your own bike color, download the model collection as well.

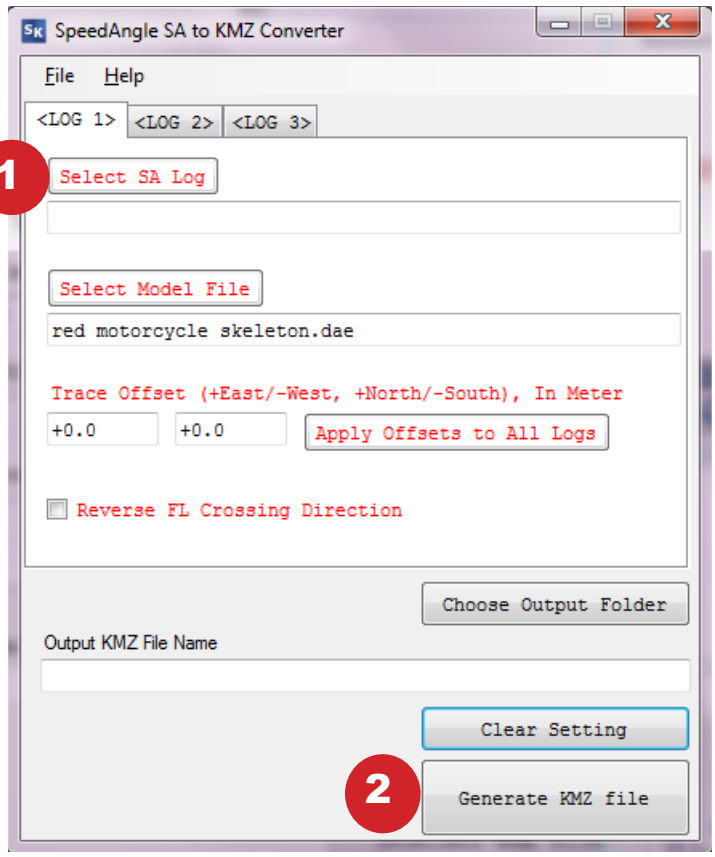
If you do not have Google Earth installed in your computer, please also go to http://www.google.com/earth/download/ge/agree.html to download the latest version.

Starting the Conversion

Double click on the Converter to launch it. For each KMZ file, you can load up to three logs into it. The basic conversion consists of two steps only:

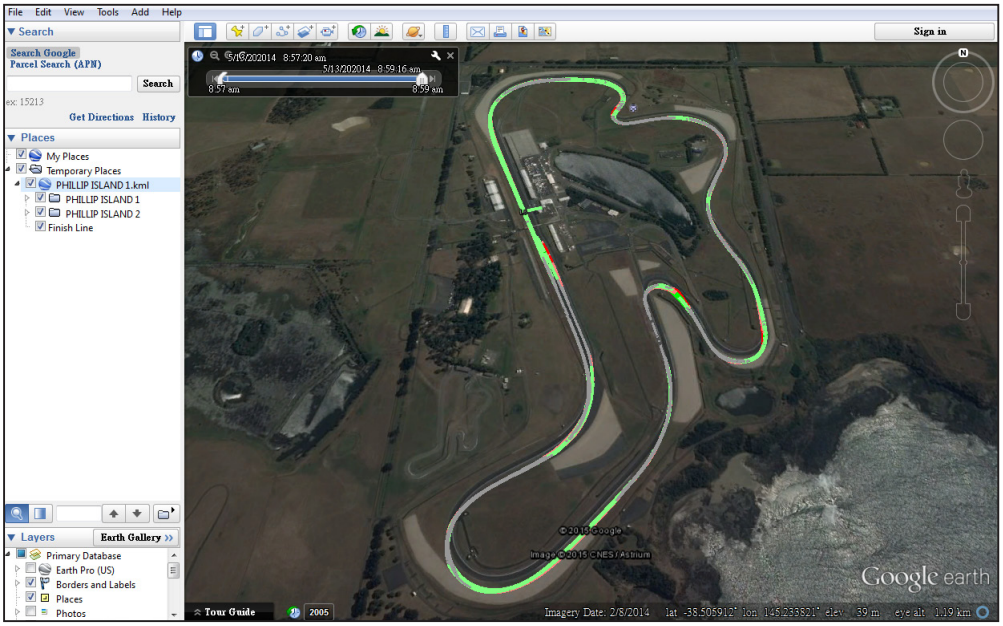
1. Load a log

Click on the "Log 1" tab. Browse to find the log file to be loaded and click "Open". If you would like to load more logs, click on the "Log 2" or "Log 3" tabs. Select an SA log file for each tab.

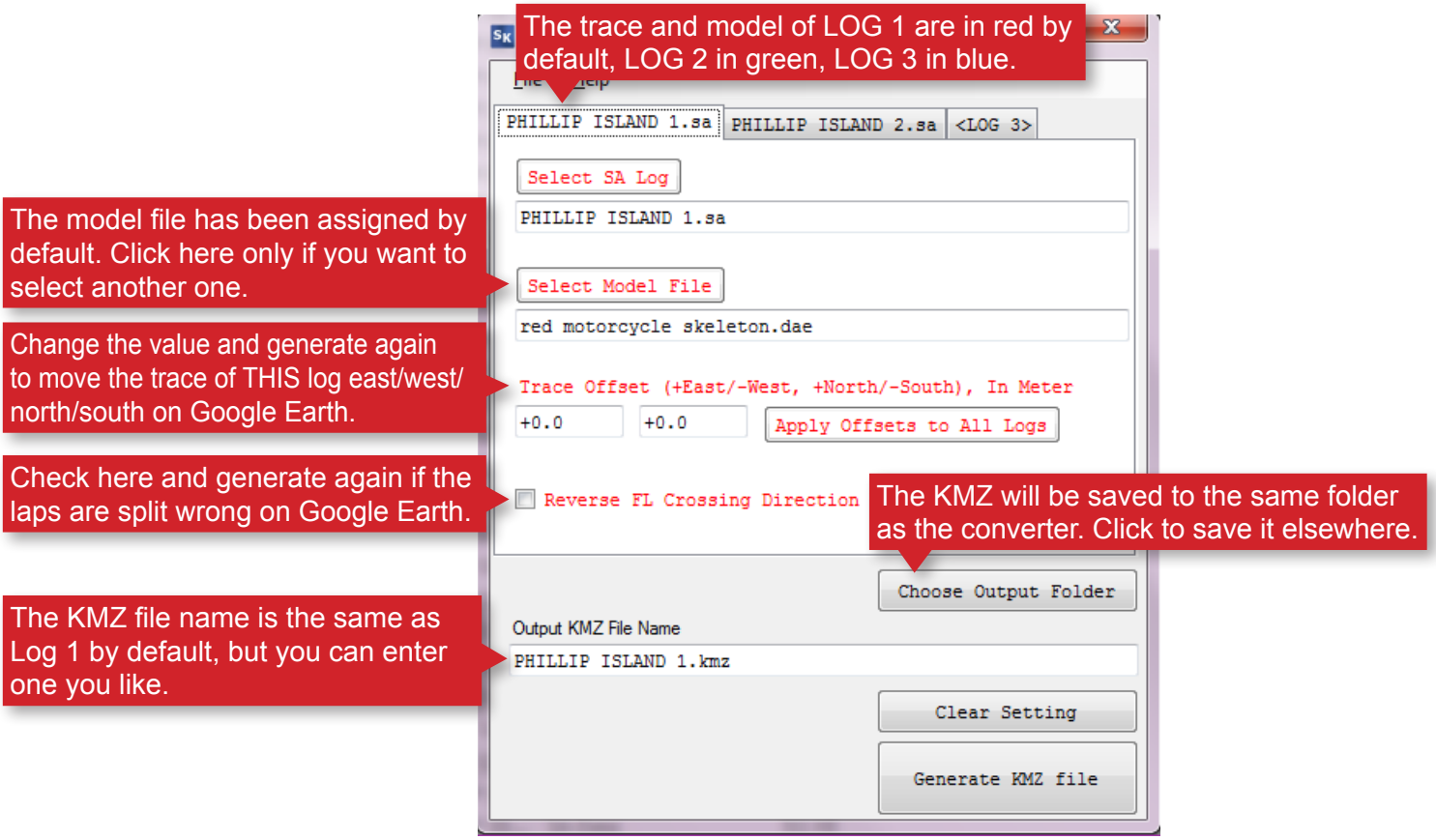


2. Click on "Generate KMZ"

Click on "Generate KMZ File". The converted KMZ will be generated and Google Earth will be launched automatically.



There are more settings available on the converter:



Please note that

- There are likely projection errors on Google Earth. In such cases, the trace might look off from the Google Earth image. You can move the trace of a particular log to fit the Google Earth image by changing the "Trace Offset" value. To move all loaded logs together, click "Apply Offsets to All Logs".

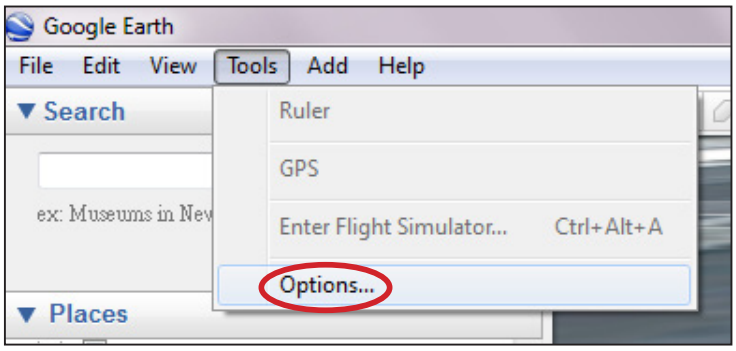
  For Example, to move a trace 5 meters westward and 10 meters northward, enter "-5" in the first box and "+10" in the second box.

- If there are more than one log loaded, the converter will split all logs into laps by the Finish Line of Log 1 and recalculate lap times automatically.

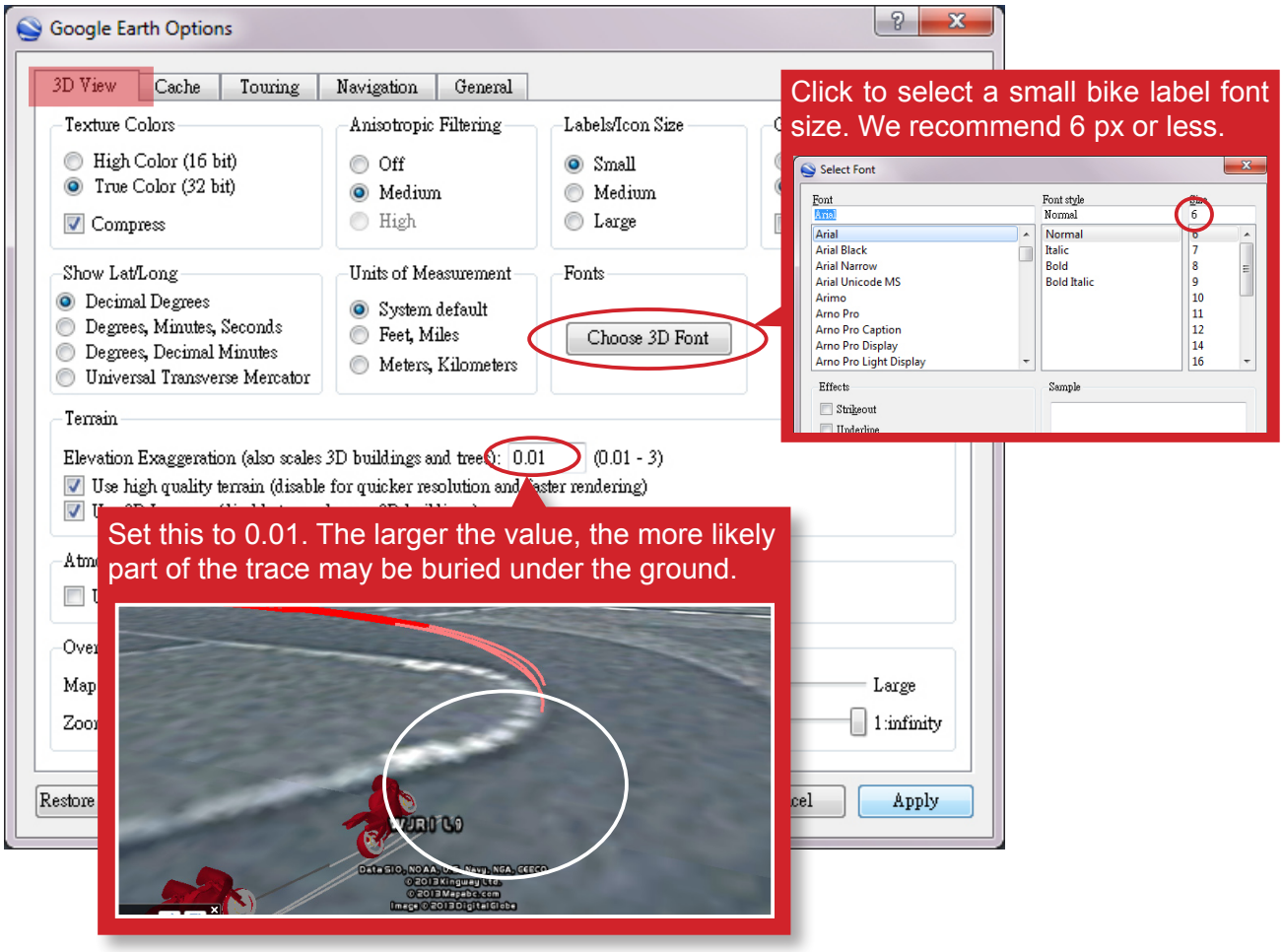
Configuring Your Google Earth

If this is the first time you launch Google Earth to replay your KMZ, be sure to configure your Google Earth as below so that the trace can be replayed 3-dimensionally.

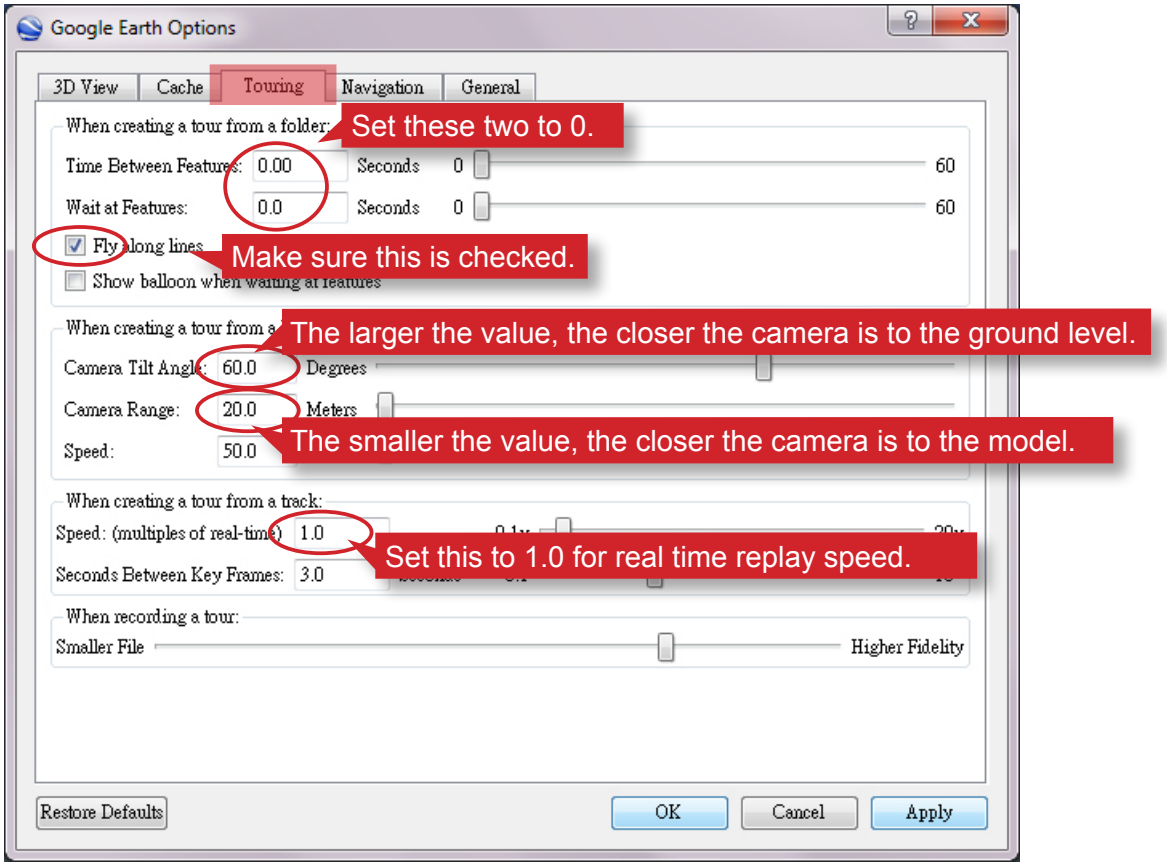
Please go to "Help" and click on "About Google Earth" to check if the version is 6.0 or up. If not, please update it first. Then go to Tools --> Options....



You will see an Options dialog as below. Click on the "3D View" tab. Follow the illustration below to configure the setting:



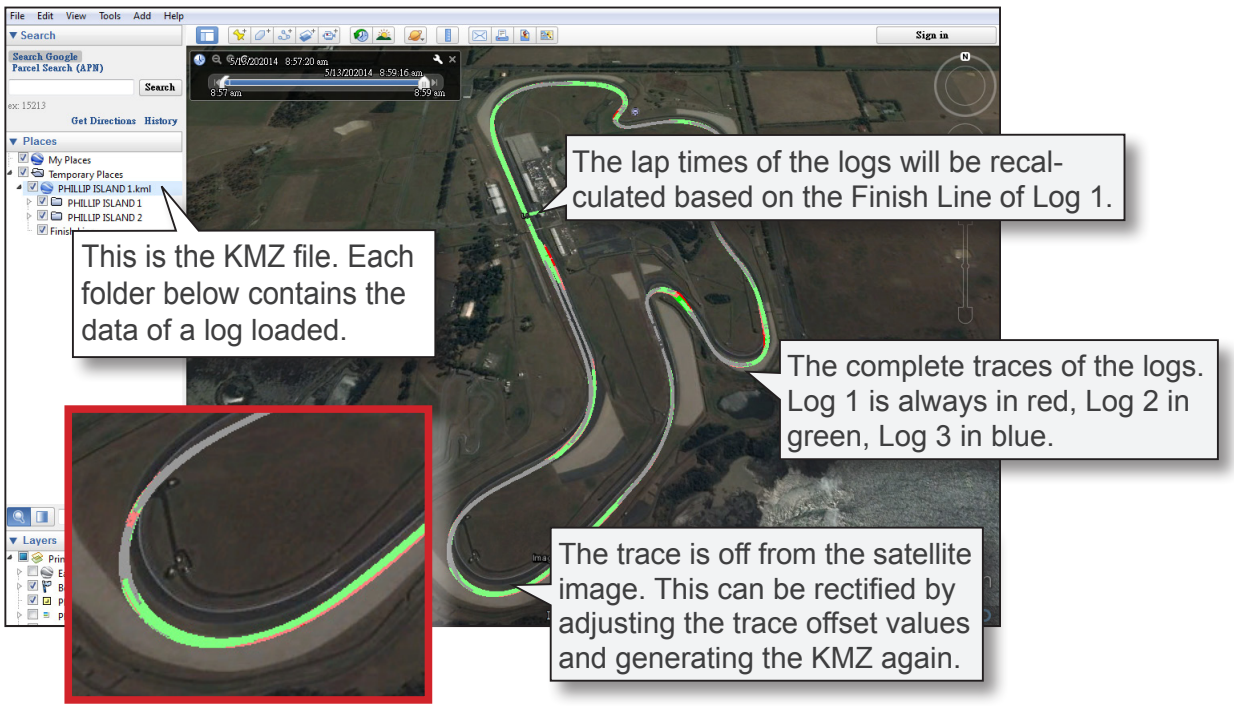
Then click on the "Touring" tab and follow the illustration below to configure the setting:



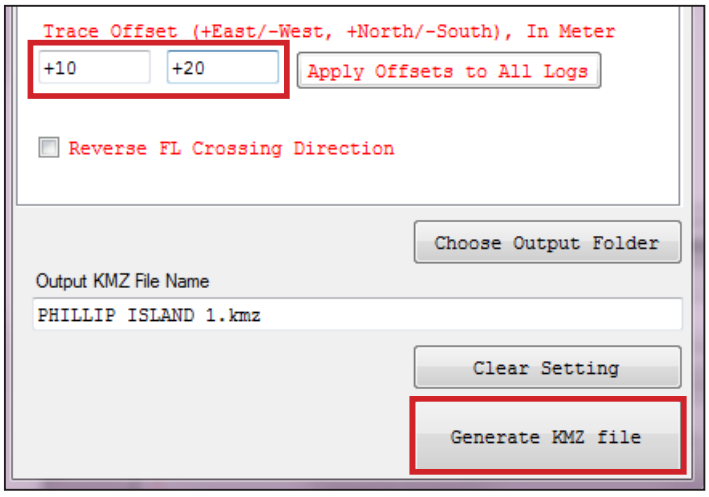
Click "Apply" and "OK". Now you are ready to start the 3D replay and enjoy the fun!

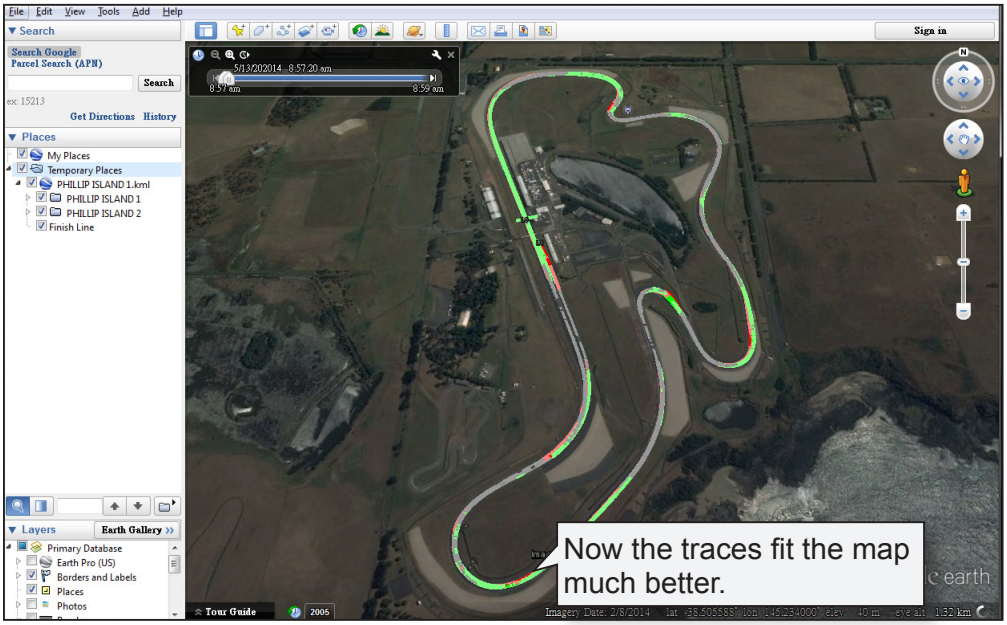
Starting the 3D Replay

Below is an example of KMZ we made for illustration:

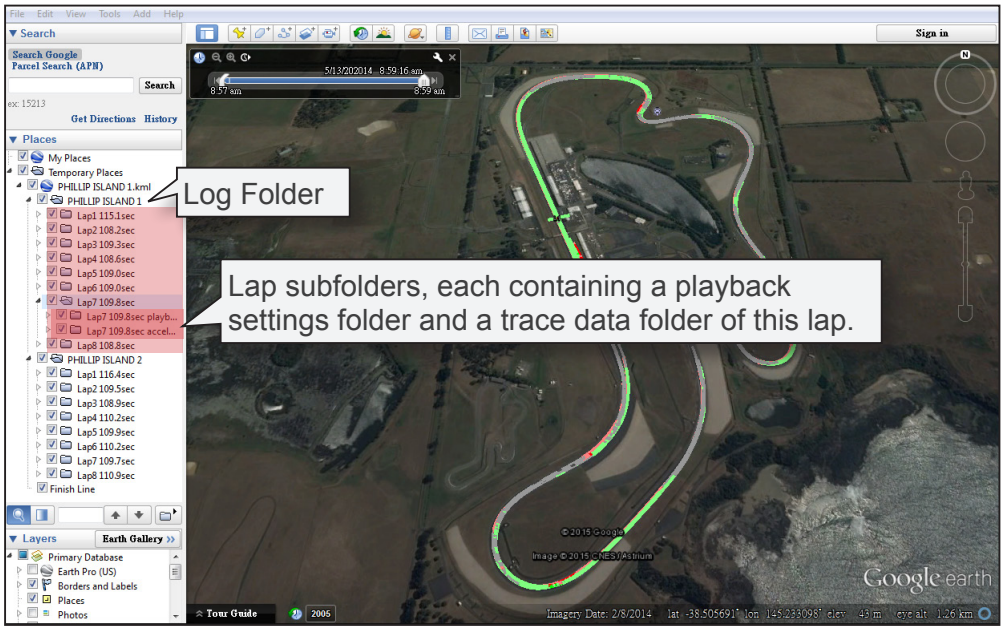


Here we need to move the trace about 10 meters eastward and 20 meters northward to fit the projection error of Google Earth. Go back to KMZ Converter and enter +10 in the first box and +20 in the second box. **Click "Apply Offsets to All Logs" if you want this adjustment effective to all logs loaded**. Then click "Generate KMZ" .





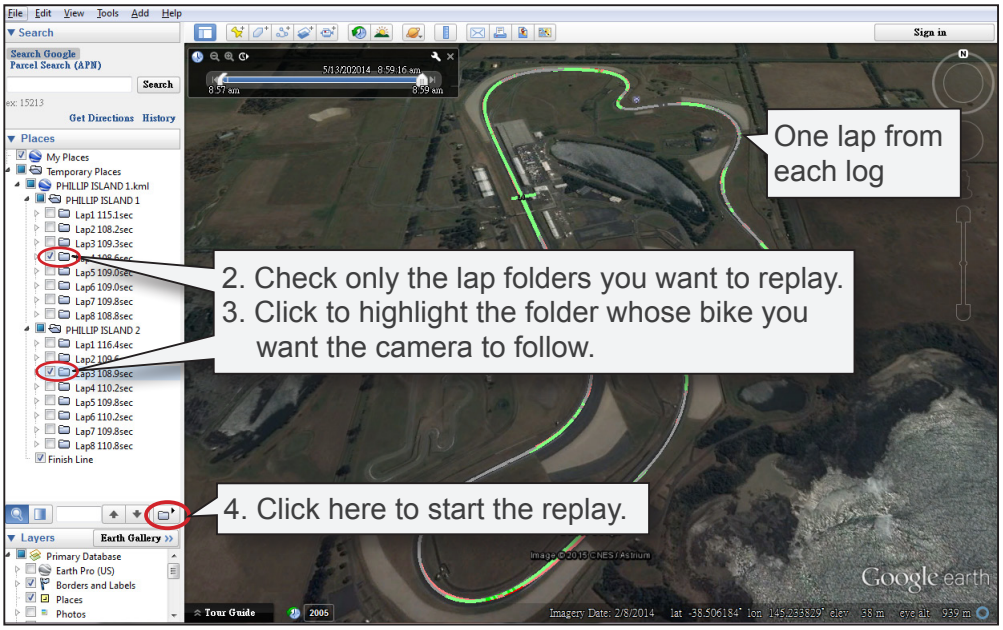
1. **Double-click on the Log folders under the KMZ** to open them. Here you will see that each Log folder contains several Lap subfolders. Each Lap subfolder contains a playback settings folder and a trace data folder of this lap

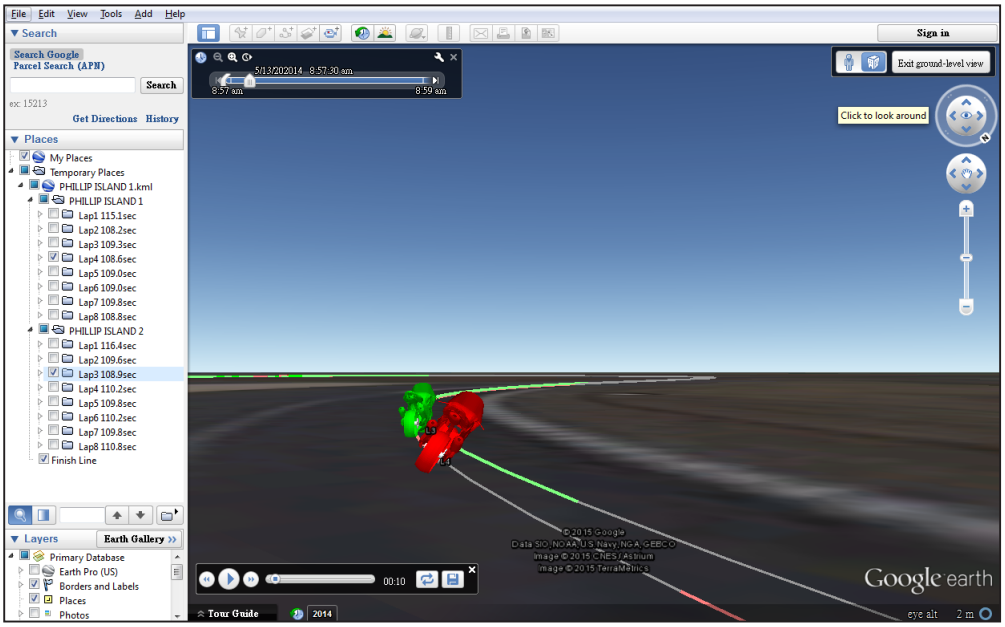


2. **Check the laps that you would like to replay.** The only limit to the number you can select is the capability of your computer. Here we pick one lap from each log for ease of comparison.

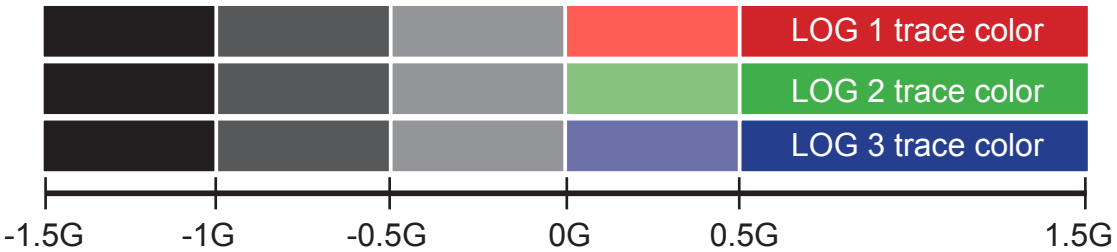
3. **Then designate the bike you want the camera to follow** by clicking on the its Lap subfolder to highlight it. We recommend choosing the slowest one.

4. **Finally, click on the "Play Tour" button** at the bottom right of the "Places" window. Now enjoy the 3D replay of your run!





G force is color-coded on the trace in the same way as in SpeedAngle R4. That is, the darker the trace color is, the more the acceleration; and the darker the gray is, the more the braking:

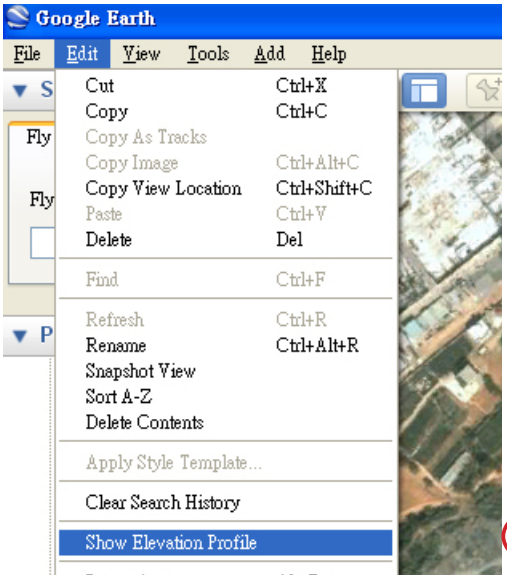


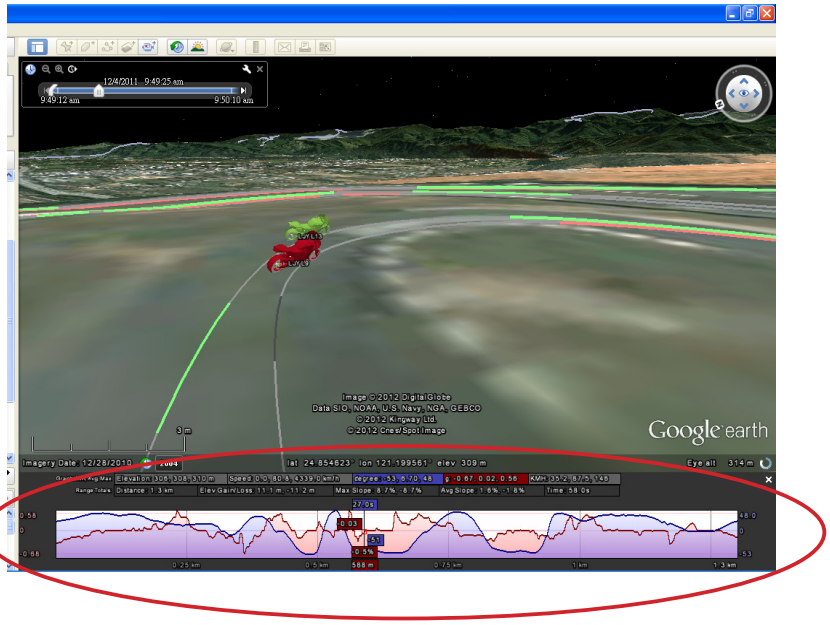
A Few More Tips

Graphs

You can have more insight into your run by opening the Google Earth graph. First, click on the **playback** folder of the lap you are interested in. Go to "Edit", and click on "Show Elevation Profile". Google Earth will display a graph including its default altitude and speed data, and our speed, lean angle, and G data of the folder you selected.

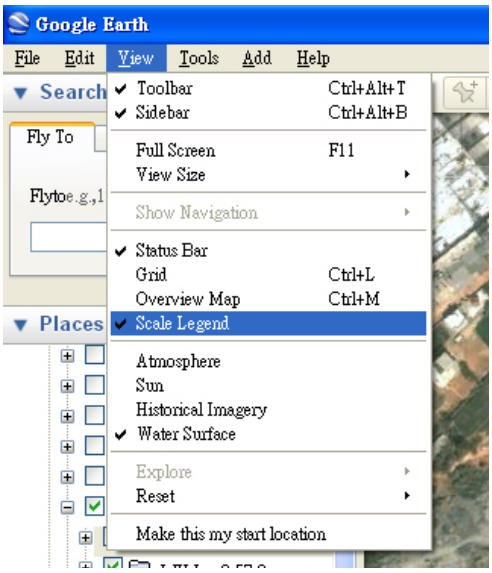
Please note that only two types of data can be displayed at the same time. To select which two data are to be displayed, click on the data tabs. Point your mouse to a data point, and Google Earth will mark the location of the data with a big red arrow.





Scale Legend

You can also display the scale legend for ease of distance estimation. To display the scale legend, please go to "View", and then click on "Scale Legend".



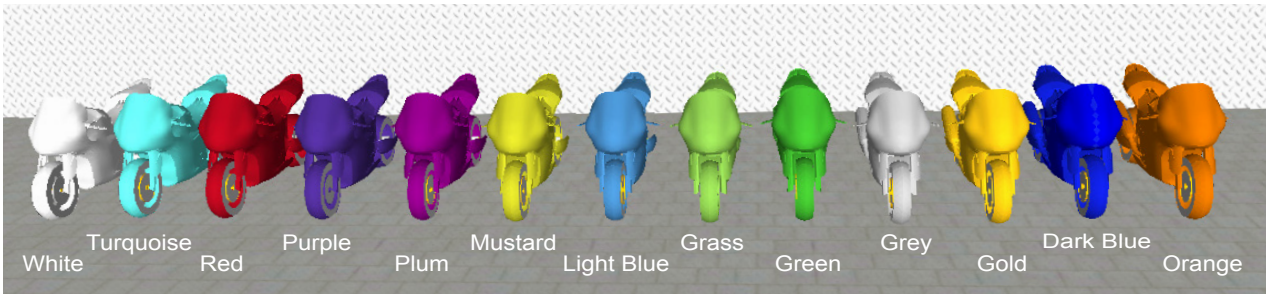
What is KMZ?

KMZ is a file format used to display geographic data in an Earth browser such as Google Earth and Google Maps.The KMZ that SpeedAngle SAtoKMZ Converter generates contains information including coordinates, time, angles, trace line style information such as color and width, and a model file. It also contains all the motion data recorded in a SpeedAngle SA log for graphic analysis.

What Is a Model? Where Can I Get One?

For a KMZ to display 3D ride animations, you need at least one model to simulate the bikes. The file extension of such a model is .dae. There are quite some models available on the internet. Some are free, some are not. One of the best places to go to for free models is http://sketchup.google.com/3dwarehouse. The models we use is actually one that was created and uploaded to the warehouse by K...I...G...O..., and modified by us.

There are 13 model files in the model collection available on our website.



If you are interested in finding more models, you can search the internet for more .dae models. If you would like to use one in the Google Sketchup 3D Warehouse, you need to:

1. download and launch the free 3D software Google Sketchup available at http://sketchup.google.com,
2. go to File --> 3D Warehouse, enter keyword "motorcycle" and search for a model you like, and then download it to Google Sketchup,
3. go to File --> Export --> 3D models..., and export the model as a dae file.

You can also use any models you like: bicycles, airplanes, boats, or anything just for fun.

Please note that not all models are created with its front facing the north and its bottom at ground level. If necessary, please refer to the Google Sketchup support center for more information on how to change the "axes", or view a tutorial video at http://www.youtube.com/watch?v=LPqJovjd-sM&feature=player_embedded.

Special thanks to Joerg Niebel for his kind help in debugging for European coordinates representation.