

MGL EFIS recording tool



This document details how to use the MGL EFS flight data recording tool

Preliminary document dated March 13th 2013

Document is applicable for EFIS systems using the new recording format introduced with iEFIS systems. MGL Avionics G2 EFIS systems may be upgraded to use this new format as well.

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General

The MGL iEFIS system is capable of comprehensive flight data recording. The iEFIS can record to an internal memory device. This device is commonly referred to as “crash log” or rather less dramatic, as “internal recording”. Depending on the quantity of data recorded, it maintains the last 1-2 hours of flight data.

Internal recording is always active if a panel is switched on and in active flight mode. In a system with more than one panel, each panel maintains its own private copy of the flight data recording.

Internal recordings can be extracted to a file called “iEFISBB.DAT” on the SD card using the function provided in the Flight Data recording setup menu on the EFIS (iEFIS systems only).

In addition the EFIS can be setup to record onto an external SD card. In this case the user can enable or disable the recording in the EFIS setup. Recording is done to a fixed size recording file. An empty SD card recording file can be created either on the EFIS itself or it can be created using the EFIS simulator on a PC and then copied onto the SD card.

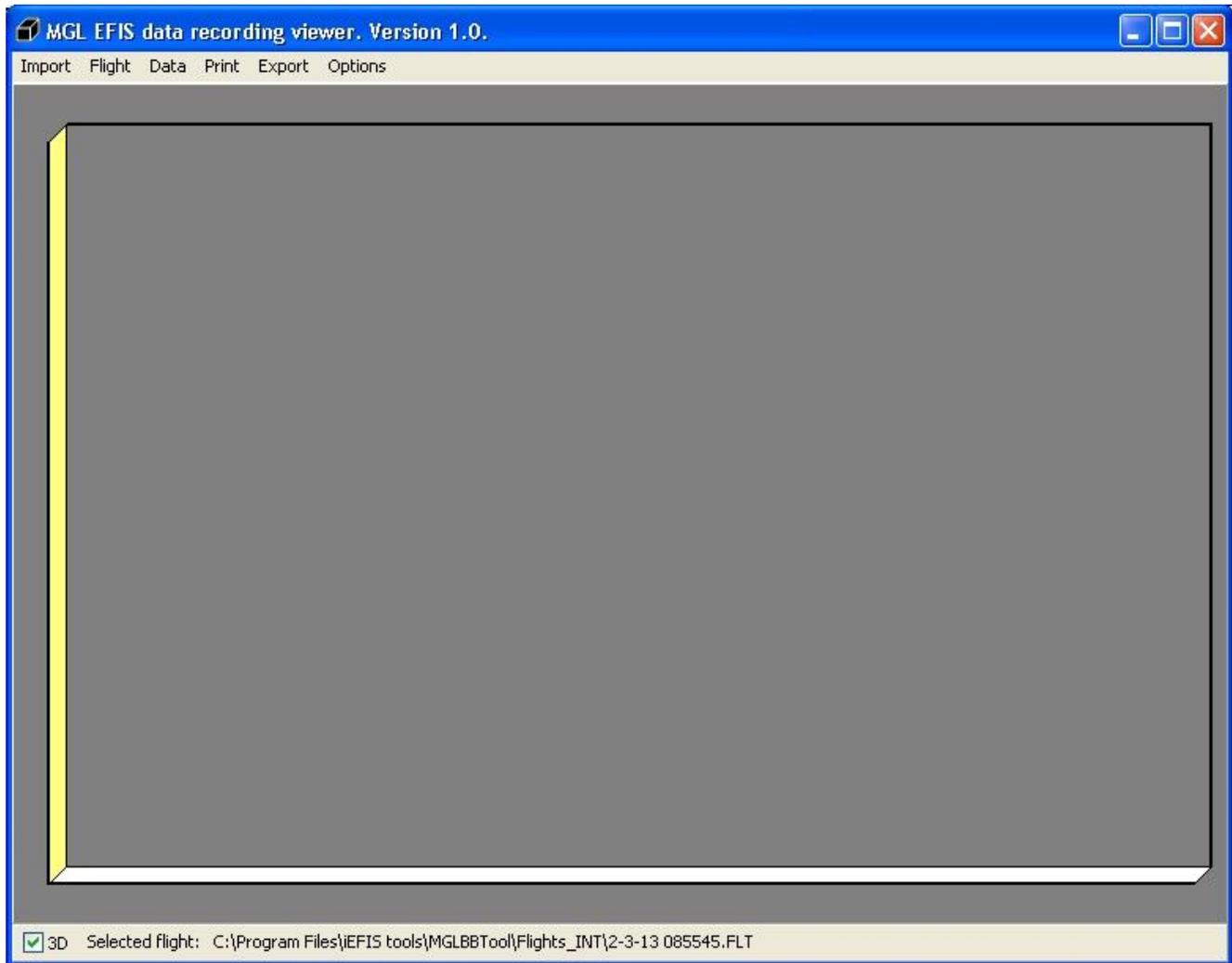
The SD recording file can be of any size and the size determines how much flight time can be recorded. As a rough estimate, around 1.5MBytes is needed for one hour of recording. When the recording file becomes full, the recording starts again at the beginning of the file. The oldest parts of the recording will be overwritten. Thus, for example, a 10 MByte recording file will hold approximately the last 6-7 hours of flight while a 1GByte recording file can hold as much as 700 hours.

Using a fixed length recording file has a big advantage when used with SD cards as there are no memory write wear issues as the directory does not need to be updated with a changed file size after every write.

External SD card data recording filename is “iEFIS.REC”.

Recording interval for both internal and SD card recording is one recording per second. Some data items that change only very slowly may be recorded at longer intervals or only when certain events occur.

The flight data recording tool



This is a Windows application. Please download the latest version from www.MGLAvionics.co.za.

You download an executable which is the install program. The installer has the filename "MGLBBToolInstall.exe". Execute this file to install the application onto your PC.

Flight data processing steps

Before you can view flight data from a recording, you need to import the recording file. The import scans the file and extracts individual "flights". Each flight is then stored in one of two folders: FLIGHTS_INT and FLIGHTS_SD respectively for the two types of recording source.

These folders are created in your install folder.

Once you have imported a recording file, you can proceed to view the data from individual flights.

Importing a recording file



Select “import” and then the type of recording file you want to import.
You will be prompted for the path to the file to import.

Selecting a flight for viewing

Select “Flight” and navigate to the folder “FLIGHTS_INT”. The default installation will add a sample flight that is used throughout this document.



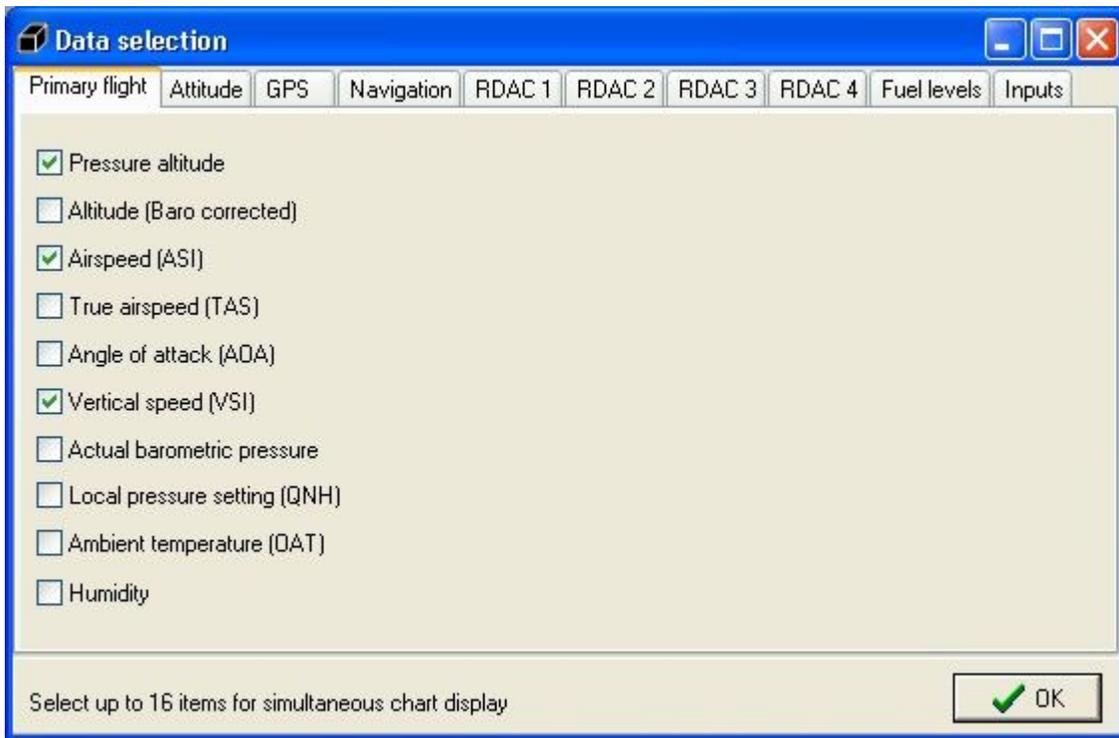
Flight files are named by date and start time in hours, minutes and seconds.
Select the sample flight.

Choosing data for viewing

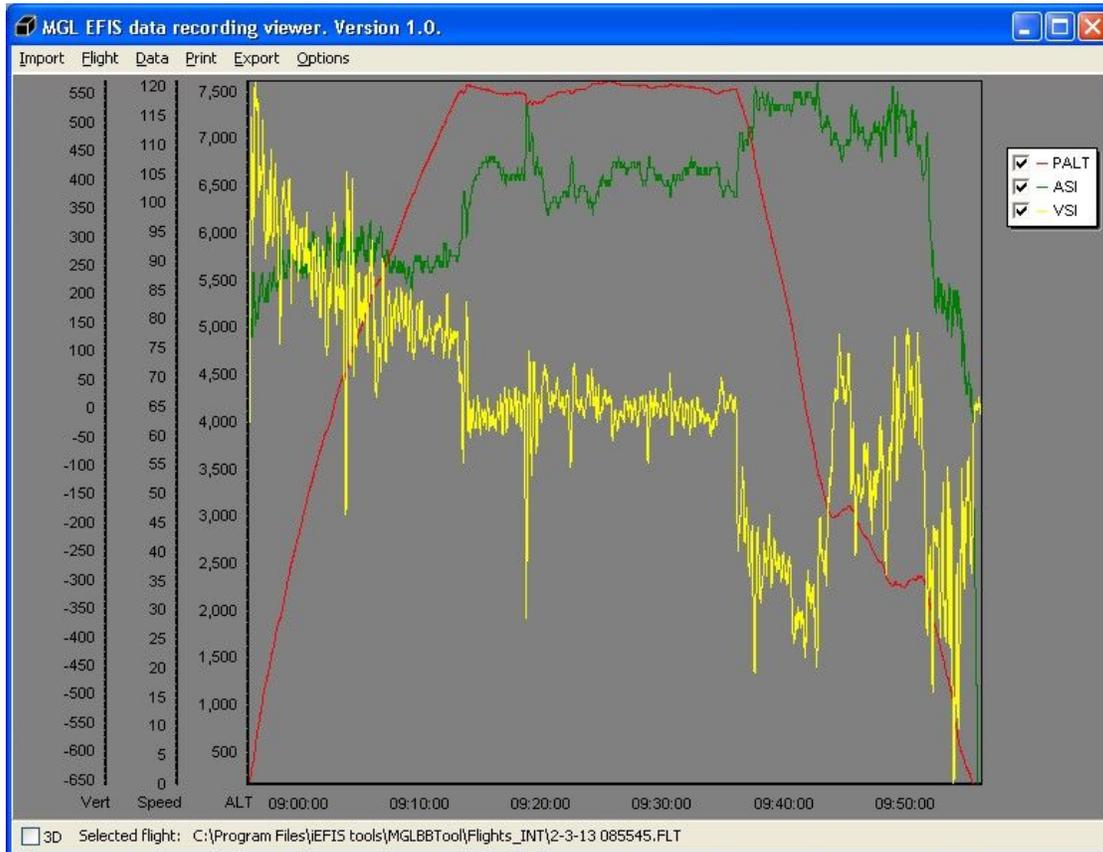
Select “Data” from the menu.

Select items from “Primary flight” as shown.

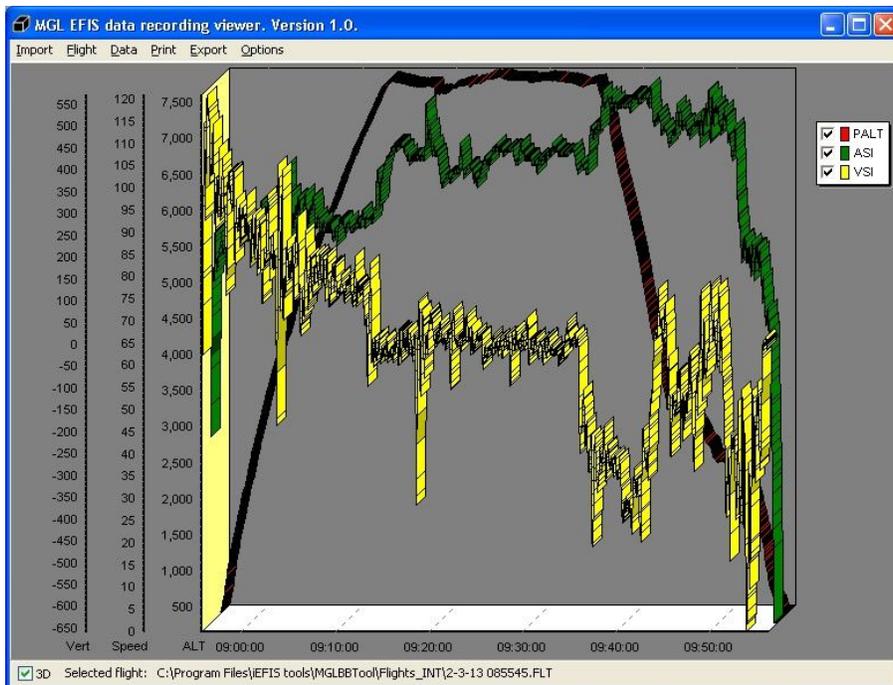
Currently, you can choose from around 200 individually recorded flight data items by category.



After you click “OK” you will get the following display:

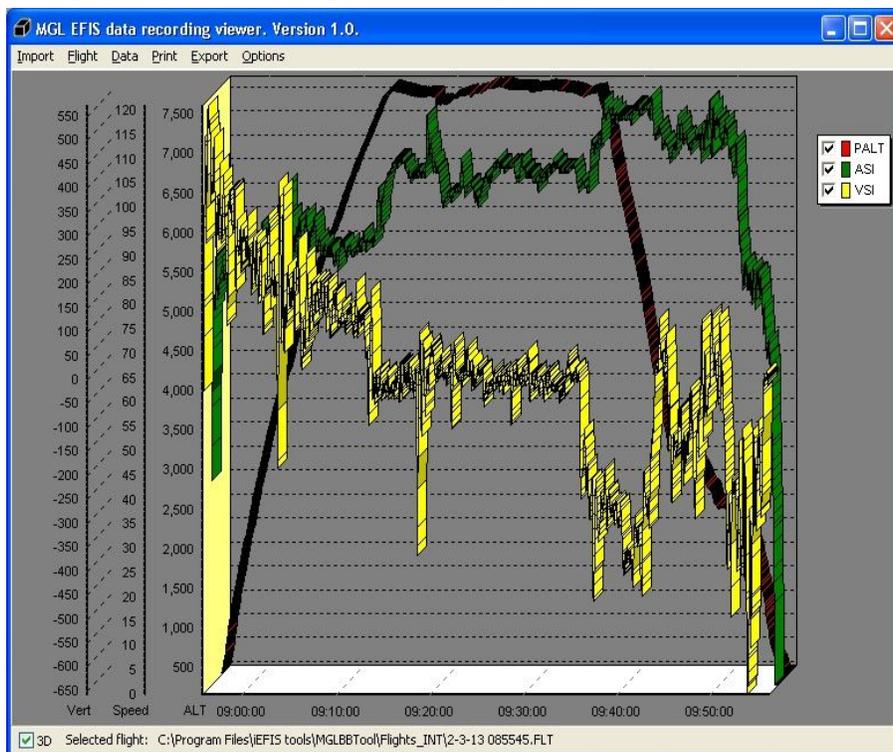


Click on “3D” for an alternative view



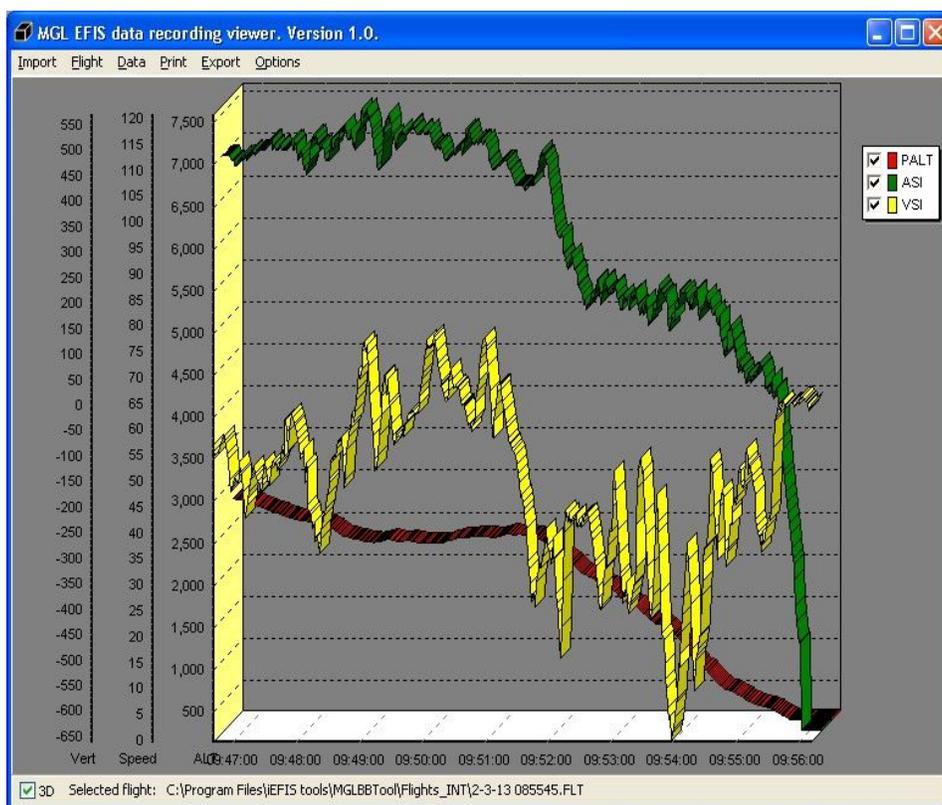
You can deselect any shown graphs as needed to gain clarity if you are viewing many different items at the same time.

Click on any of the MGL graphs to active a grid for that graph.

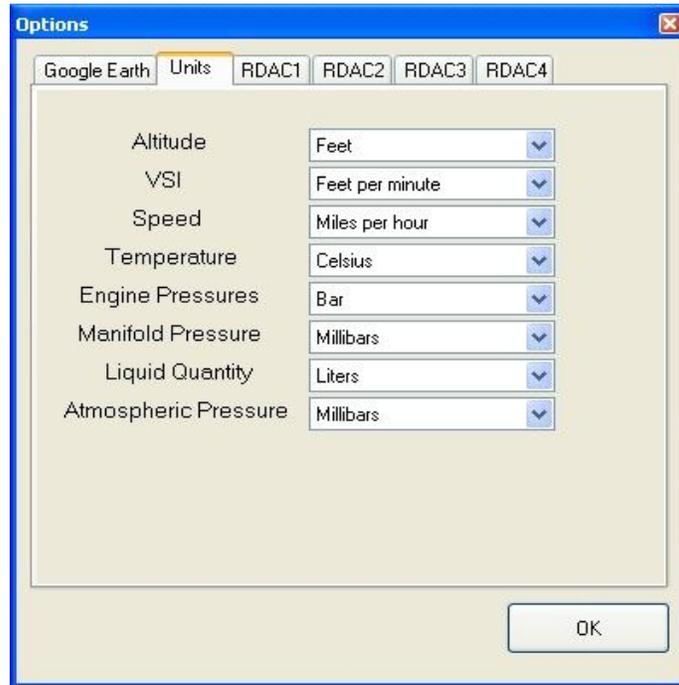


Here we have clicked on the yellow vertical speed graph.

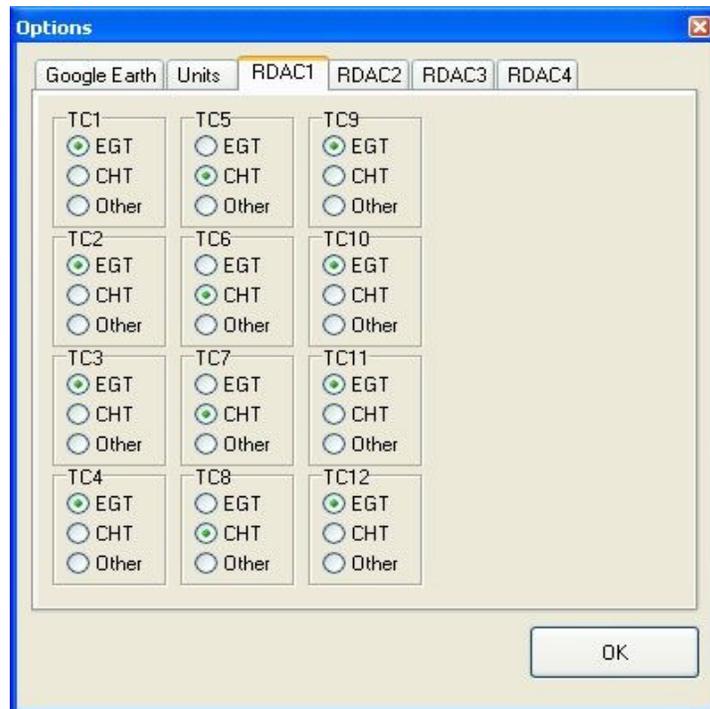
You can use the left mouse button to zoom into areas of the graph, the right mouse button can be used to drag the graph.



The Options menu



Select your preferred units of measure and options for Google Earth track exports.



If required, select how thermocouple channels are used on the RDAC engine monitor. This will allow grouping of readings into temperature ranges.

Exporting

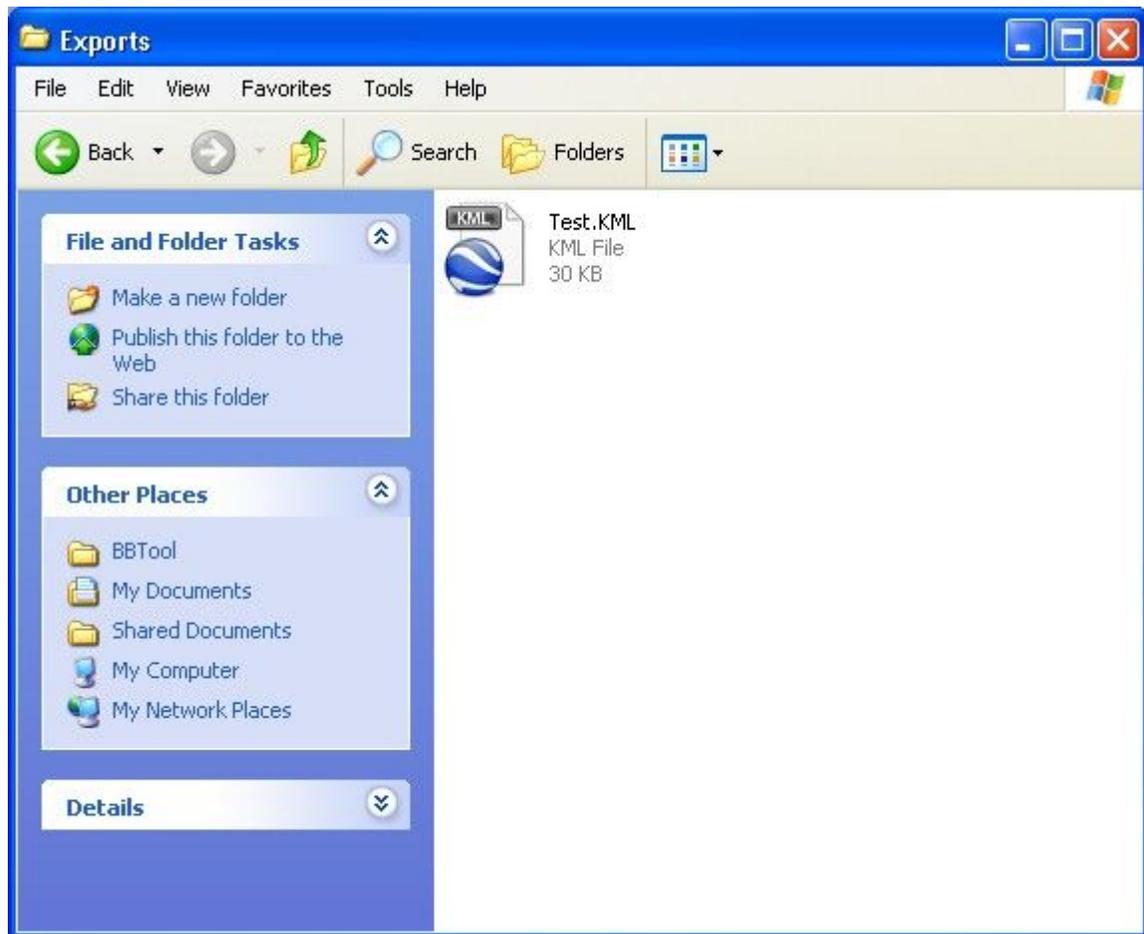
You can export the current chart view to a JPEG image file, you can print the current chart view to a printer and you can export the current flight to a Google Earth KML file.

Exporting to Google Earth

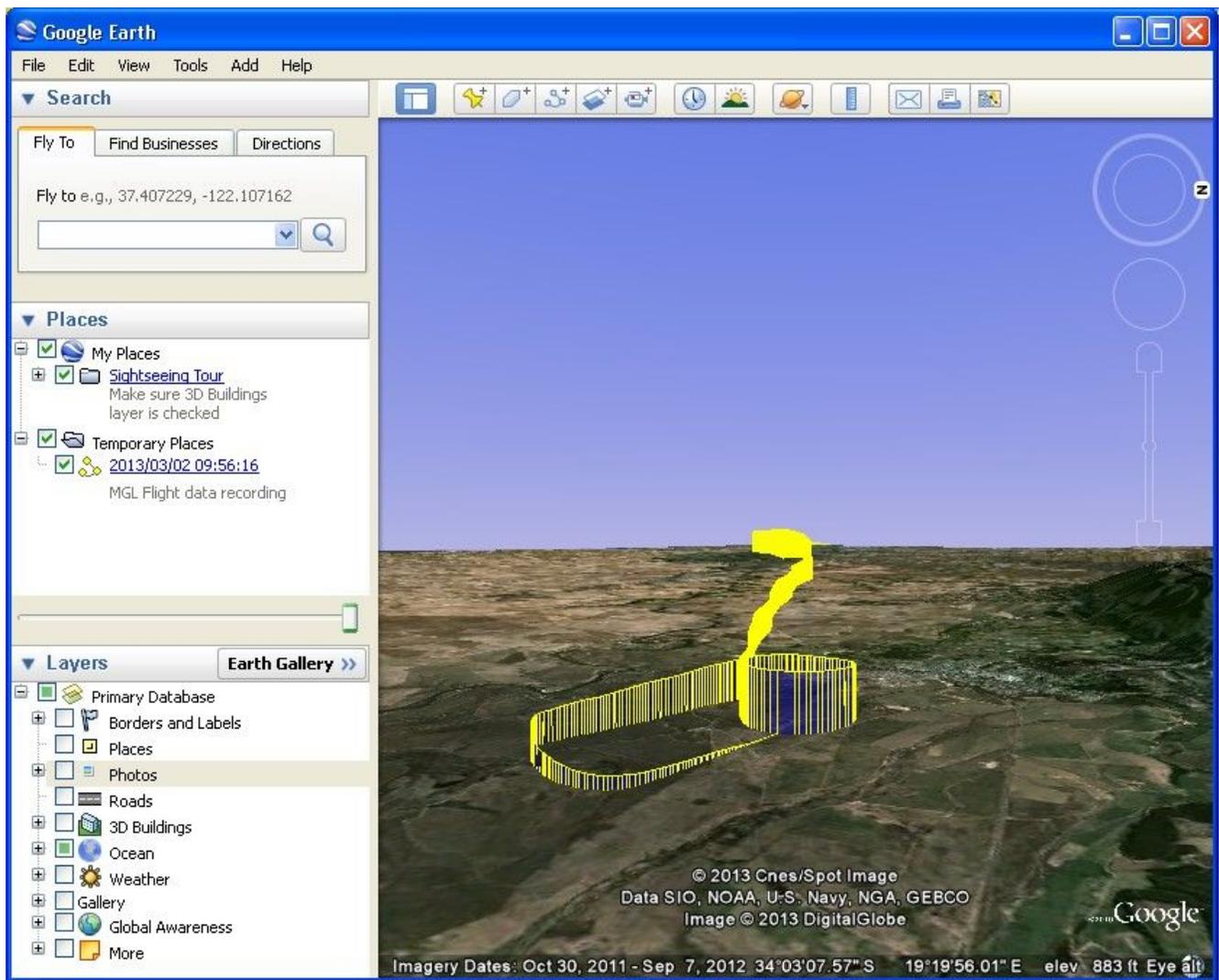
Select “Export” and then “Export current flight to Google Earth”. You will be asked for a filename.

The file will be created in your “Exports” folder.

Here we have named the file “Test.KML”.



Double click the filename in Explorer or open Google Earth and load the file.



Here is the last part of the flight recording, joining the circuit overhead an airfield and landing.