



Flight Utilities

<http://www.flightutilities.com>

Flight Plan

version 3.7

by Umberto Degli Esposti



Flight Plan by Umberto Degli Esposti

Description

The programs allow you to insert a flight plan, to load it from a disk, print it, save it on a file in several formats: property text, "Map Source" for Garmin GPS, "Flight Simulator", "GPX", "Google Earth", "GPS Track Maker", "OziExplorer". You can automatically calculate the distance, the estimated time and the fuel consumption for each leg of your flight plan. You can print the Flight Log for your keyboard. You can store your preferred and most frequently used airports and waypoints in a database, to recall them for a quick flight plan filling. The program can automatically execute the "Metar Reader" program, search in the Internet for weather forecasts relating to a specific waypoint or the whole flight plan.

Installation

To run the program you need the Microsoft .NET 2.0 framework. This software is already installed on recent Windows and it will be even in the next version.

For all the other Windows version (98-2000-ME-XP) you need to install it.

You can download it from Microsoft website.

The component you have to download is "**Microsoft. NET Framework Version 2.0 Redistributable Package**".

It is recommended that you download it in language similar to that operating system.

The link is:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=0856eacb-4362-4b0d-8edd-aab15c5e04f5&displaylang=en>

The program also requires Microsoft component for data management MDAC version 2.7 or higher. This component is already installed on your computer. If during the use of the program is displayed at the lack of this component (for older systems) you can download it from Microsoft.

The link is:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=6c050fe3-c795-4b7d-b037-185d0506396c&DisplayLang=en>

The program does not require installation, you can copy the program files and the database into a folder on the disk and run. It is important that the database and program that is being copied in the same folder.

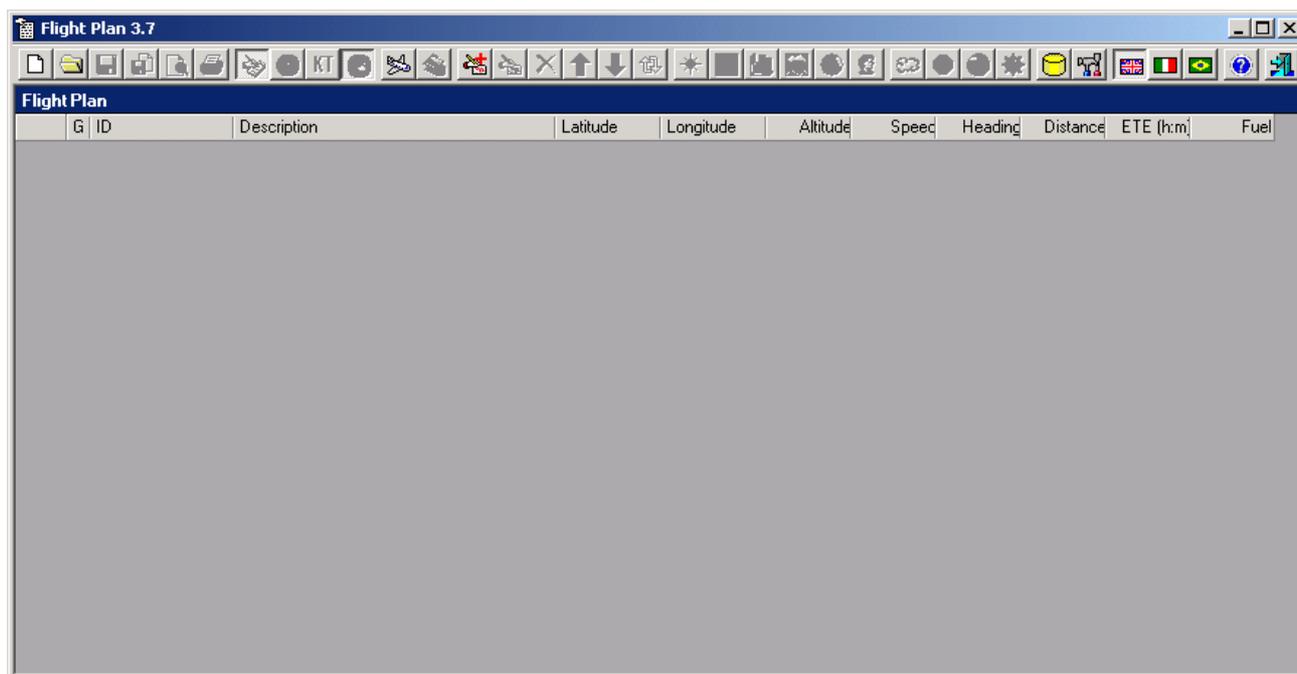
If you want to run the Internet reading of weather conditions, it should be installed in the usual folder of the program "Flight Plan" also "METAR Reader" in the version 3.0 or higher, which can be downloaded from the site <http://www.flightutilities.com>.



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Use

Once the program started, it is the main window.



The toolbox provides buttons for various functions.



Clean window to introduce a new flight plan.



Read a flight plan previously saved to disk. It is possible to load a flight plan from five formats:

- FPL. It is the native format of “Flight Plan”.
- MPS. “Garmin Map Source” format. You can make your own route with “Map Source” and then load it in “Flight Plan”.
- GPX. Format for interchange with Gps. Format used for many products for the GPS management.
- GTM. Format for the “GPS Track Maker”. You can create your flight plan with “GPS Track Maker”, which can be downloaded free of charge from <http://www.gpstm.com> and bring it in “Flight Plan”, to print the complete Flight Log, to view the plan in “Google Earth” or to create the .MPS file to load route on GPS. In “GPS Track Maker” you can load your favourite charts and work directly on them.
- RTE. You can load a route created with the program “OziExplorer”. This program stores data in two separate files: one contains the route (.rte) and the other contains the waypoints (.wpt). Flight Plan ask for the .rte route file name; the waypoints should be stored in a file with the same name of the route, but with the extension .wpt.



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It is always advisable to save the flight plan even in the “Flight Plan” format (.fpl), can then load data with the time consumption and speed. **Warning!** Saved files from versions prior to 2.0 have an extension .pln; these files can be read as file type “all files (*.*)”. From versions 2.0 and later, extension .pln has been reserved to saving in Flight Simulator format.



Save the flight plan to disk. Save the changes made to the flight plan on file currently in use (last read or saved files).



Save the flight plan to disk assigning a name and format. It is possible to save the flight plan in seven formats:

- FPL. Format for “Flight Plan”. Saving in this format you can then reload the flight plan from the button “Load a flight plan”. That is the only format that retains all the entries. In FPL format are stored hourly consumption and speed data of routes. These data are not always present in other formats. For this reason it is advisable to save the flight plan in this format.
- MPS. Map Source File Format. This type of file is read from the product “Map Source” of Garmin. With “Map Source” you can observe the flight plan on cartography and put directly into your GPS.
- PLN. It enables you to export the flight plan in the format required by “Flight Simulator”. Normally “Flight Simulator” reads the flight plans from the “C:\Documents and Settings\XXX\Documents\Flight Simulator Files” where XXX is the user name (Ex.: Administrator). It has been proven compatibility with “Flight Simulator 2004” and “FSX” versions.
- KML. The format that allows you to see in “Google Earth” including the quota. To do this launch “Google Earth” and select Open from the File menu; set Kml as file type and load the file. A further possibility to send data to “Google Earth” is given by a button on the toolbar.
- GPX. Format for interchange with Gps. Format used for many products for the GPS management. Even with this format, the flight plan can be viewed in “Google Earth”. To do this launch “Google Earth” and select Open from the File menu; set Gpx as file type and load the file.
- GTM. File format for the “GPS Track Maker”. This is a free downloadable product from Internet at <http://www.gpstm.com>. With this product you can view your flight plan on basic maps or charts that you have customized within the program.
- RTE. Format readable by the “OziExplorer”. Flight Plan creates two files: one with a .rte extension for the route and one more with .wpt extension for waypoints.

If you saved the flight plan in more formats, note that the Save button , save any changes only in the selected format.



Print preview for the Flight Plan or Flight Log (if the Flight Log key  is pressed).



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Print the Flight Plan or Flight Log (if the Flight Log key  is pressed). The printout of the flight plan report the screen display program data.

1-Edinburgh - Glenrothes

G	ID	Description	Latitude	Longitude	Alt	Km/h	TC	Km	ETE	Fuel
+	1-1	Edinburgh civil airport	55°57'06"N	003°21'14"W	102	204	341	9.89	3	0.90
■	1-2	A921-M90 Cross			1108	204	161	9.89	3	0.90
■	1-2	A921-M90 Cross	56°02'08"N	003°24'24"W	1108	204	357	19.24	6	1.80
○	1-3	Kinross City			1400	200	177	29.13	9	2.70
○	1-3	Kinross City	56°12'30"N	003°25'30"W	1400	204	95	15.92	5	1.50
○	1-4	Glenrothes City			289	200	275	45.05	14	4.20
○	1-4	Glenrothes City	56°11'40"N	003°10'08"W	289	204	0	0.00	0	0.00
						204	0	45.05	14	4.20



When you request a print or a preview, if you press this button is printed the Flight Log.

In the first part the pilot enters the data for takeoff including the takeoff time.

Following is the body of the flight plan represented in the following columns.

- In the first column we found the IDs for the beginning and end of leg, including altitude at which must be flown the leg; if waypoints have introduced different altitude, both are highlighted. The second column shows the Ground Speed to which we fly and likely IAS according to the altitude. For the calculation of IAS it is assumed that there is a temperature average change rate standard, which the IAS is equal to the CAS and that the wind is absent. The values are in Km/h, if you press the button **KT**, are expressed in knots.
- The third column shows the true heading or the magnetic heading (if  is pressed). If requested in the settings window, the program show the bow compass instead of the magnetic heading.
- Following the distance column and the progressive distance of the flight. The distance is expressed in Km; if you press the button **KT**, is expressed in nautical miles.
- Reports time, in minutes, for the leg and the progressive time.
- Estimated Time Over. Known time of takeoff, the pilot is able to fill the estimated time for the different flight plan waypoint.
- Rectified Estimated Time Over. Due to external factors, such as wind, trafficking the leg can be flown in a different time. If we notice after the first leg that we are lagging behind in 2 minutes, adjust the time estimated for the second leg writing this column.
- Actual Over Time. Going ahead with its flight, for the various sections is marked time at which we arrive on the various waypoints. This estimate is adjusted for the following deals.
- Column consumption. Consumption per each leg and the gradual flight plan.
- Note.

On bottom we have data for landing.

In being printed, indicating on the printer properties, to print with two pages per sheet, you qualify for Flight Log Measure for your keyboard.



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1-Edinburgh - Glenrothes

	DATE	RWY	QNH	WIND	TIME				
TAKE OFF	_ / _ / _	_	_	_	_ : _				
LEGS	GS		d Km	t				f	NOTE
ALTITUDE	IAS Kmh	TC	D Km	T	ETO	RETO	ATO	F	
LEGS									
+ 1-1	204	341	9.89	3				0.50	FROM: Edinburgh civil airport TO: A921-M90 Cro█
(102 / 1108)	204								
■ 1-2	200	161	9.89	3				0.50	
■ 1-2	204	357	19.24	6				1.80	FROM: A921-M90 Cro█ TO: Kinro█ City
(1108 / 1400)	200								
○ 1-3	204	177	29.13	9				2.70	
○ 1-3	204	95	15.92	5				1.50	FROM: Kinro█ City TO: Glenrothe█ City
(1400 / 289)	200								
○ 1-4	204	275	45.05	14				4.20	
LANDING	DATE	RWY	QNH	WIND	TIME				
	_ / _ / _	_	_	_	_ : _				



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If pressed, prints lists the magnetic heading, as set on the flight plan properties, replacing the bow referred to true north. If requested in the settings window, the program show the bow compass instead of the magnetic heading.



If pressed, the prints show speeds in knots and distance in nautical miles.



If pressed, the print show the leg's time (ETE) in hours and minutes.



It sets the properties of the flight plan. It will require the ID, the title of the flight plan, pilot name, departure, arrival, a description and the hourly fuel consumption.

Flight plan properties

ID: 1

Title: Edinburgh - Glenrothes

Pilot: Umberto

Departure: Edinburgh

Departure country: UK

Arrival: Glenrothes

Arrival country: UK

Description: A simple navigation exercise.

Liters per hour: 18

Magnetic declination: 0  Automatic

Flight date

Today's date:

Selected date:

giugno 2009						
lun	mar	mer	gio	ven	sab	dom
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

 Oggi: 10/06/2009

OK Cancel



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The ID is proposed as a prefix for each waypoint. This can quickly identify within the GPS all waypoint/Fix of that plan.

These data will be used to quickly publish the flight plan on the Internet and share your experience with others.

We can add the value of magnetic declination to view and print the magnetic bow instead of referring to true north.

Positive values indicate a variation East, a negative variation West.

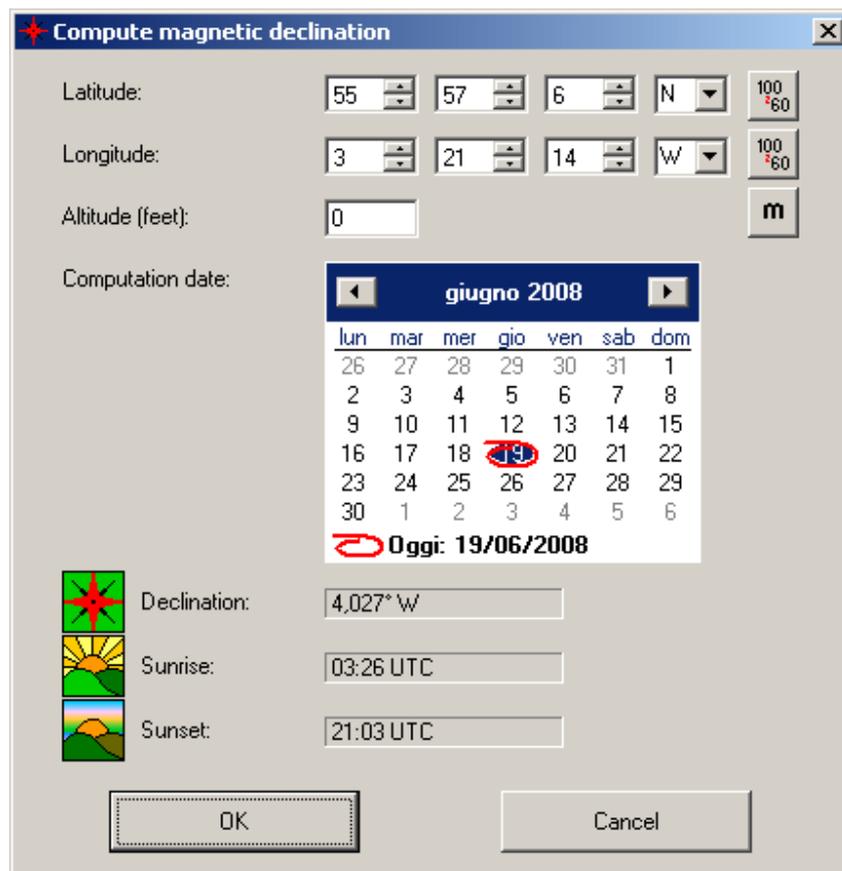
The display and printing of magnetic/compass heading must be activated with the key  on the toolbar.

If you do not know the value of declination you can ask an aid program with key .

This opens a window where you can enter the coordinates of the point of interest and the calculation date. The date must be after 1 January 2005.

By confirming this second form the field of magnetic declination on the property windows will be filled. The calculation provides coverage throughout the globe with a good approximation.

In the mask we have all the utilities for converting latitude, longitude and the conversion from meters to feet.



Compute magnetic declination

Latitude: 55 57 6 N 100'60"

Longitude: 3 21 14 W 100'60"

Altitude (feet): 0 m

Computation date: giugno 2008

lun	mar	mer	gio	ven	sab	dom
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6

Oggi: 19/06/2008

Declination: 4.027° W

Sunrise: 03:26 UTC

Sunset: 21:03 UTC

OK Cancel

Returning to the properties window, for very long legs you can ask the program to calculate the magnetic declination of each leg. By pressing the button “Automatic”, magnetic declination to each leg is calculated by taking the leg starting point and the date shown for the flight.



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For the flight's date, by selecting today's date, the calculations in the prints will be run on time. Alternatively, you can select a specific date. This date will be used for calculation of the magnetic declination and for calculating sunrise and sunset.



On the site <http://www.flightutilities.com> you can find the flight plans archive where you can download them and observe the existing flight plans.

The screenshot shows the Flight Utilities website interface. At the top, there is a navigation menu with links: HOME, PRODUCTS, DOWNLOAD, FP ARCHIVE (selected), LINKS, SUPPORT, and CONTACT. Below the navigation is a sidebar with sections: PRODUCTS LIST (Metar Reader, Flight Plan, Holding Pattern Computer, Converter), ARCHIVE OPTIONS (List, Insert a new flight plan), LATEST NEWS (RSS feed), and SLIDE RULE. The main content area is titled 'FLIGHT PLAN ARCHIVE' and includes a 'Sort by' dropdown menu set to 'Title'. Below this is a table of flight plans.

Title	Pilot	Departure	Arrival	Download	Details	Rate
Aguscello	Claudio Pedrazzi	Molinella	Aguscello	Download	Details	☆☆
Ali di Classe	Claudio Pedrazzi	Molinella	Ali di Classe	Download	Details	
Along river	Po Claudio Pedrazzi	Molinella	Molinella	Download	Details	☆☆
Andria Pianfei	Umberto Degli Esposti	Andria Castel Monte	del Pianfei	Download	Details	☆☆☆☆
Anguillara Molinella	Umberto Degli Esposti	Anguillara	Molinella	Download	Details	
Bazzano	Claudio Pedrazzi	Molinella	Molinella	Download	Details	
Brasilia - DF -> Chapada dos Veadeiros National Park	Mike Ronchi	Brasilia	Pousada S. Bento	Download	Details	
Brasilia - DF -> Guarapari East coast	Mike Ronchi	Guarapari	Brasilia	Download	Details	☆☆☆☆
Brasilia - DF -> Mineiros	Mike Ronchi	Brasilia	Mineiros	Download	Details	

If you want to integrate your flight plan in the common repository, to share your experience with others and get benefit from the experience of others, this feature can quickly publish your flight plan.



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Publish Flight Plan

Share your experience with other pilots.
This procedure allows you to post your flight plan on the Internet.
All fields are required.
You can see the flight plans archive at:
http://www.flightutilities.com/Archive_list.aspx

Title:

Pilot:

Departure:

Departure country:

Arrival:

Arrival country:

Description:

Pressing "OK" in a few seconds, the flight plan will be sent to the server.



Open the window for inserting a waypoint.

Fix

ID:

Description:

Latitude: N

Longitude: W

Altitude (feet):

Terrain altitude (feet):

Speed (Km/h):

Icon:

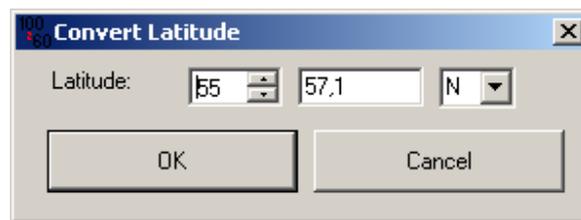


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- ID: waypoint identifier.
- Description: waypoint description.
- Latitude: latitude expressed in degrees, minutes and seconds.
- Longitude: longitude in degrees, minutes and seconds.
- Altitude: reference to the flight waypoint altitude.
- Terrain altitude: reference to the terrain waypoint altitude.
- Speed: speed in Km/h for leg starting from this point.
- Icon: select the reference image for this point. The image is used to emphasize the point on GPS.

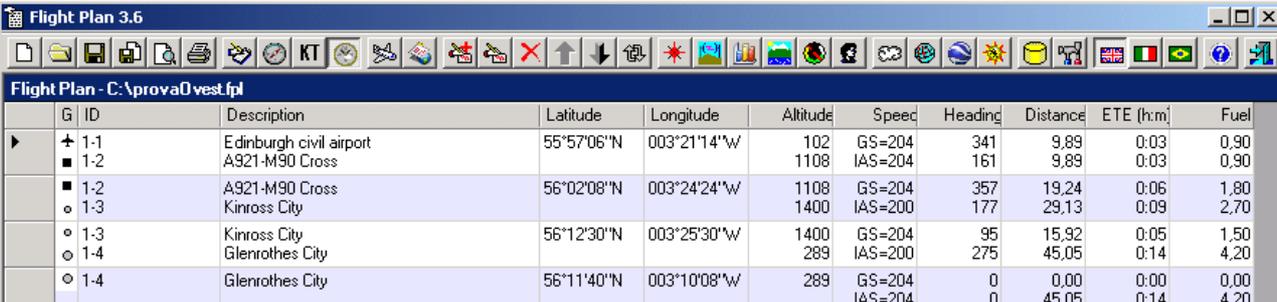
In several charts and/or references, the coordinates are expressed in degrees and minutes (eg 44° 35.567). The inclusion of these coordinates can be performed easily without having to resort to calculations using the key .

It appears to mask insertion coordinates in degrees and minutes.



Keys  and  allow to enter the altitude in meters and the speed in knots.

The waypoints can be stored in the database with the key .
Enter all waypoints / Fix on your flight plan.



	G	ID	Description	Latitude	Longitude	Altitude	Speed	Heading	Distance	ETE (h:m)	Fuel
▶	+	1-1	Edinburgh civil airport	55°57'06"N	003°21'14"W	102	GS=204	341	9.89	0:03	0.90
	■	1-2	A921-M90 Cross			1108	IAS=204	161	9.89	0:03	0.90
	■	1-2	A921-M90 Cross	56°02'08"N	003°24'24"W	1108	GS=204	357	19.24	0:06	1.80
	○	1-3	Kinross City			1400	IAS=200	177	29.13	0:09	2.70
	○	1-3	Kinross City	56°12'30"N	003°25'30"W	1400	GS=204	95	15.92	0:05	1.50
	○	1-4	Glenrothes City			289	IAS=200	275	45.05	0:14	4.20
	○	1-4	Glenrothes City	56°11'40"N	003°10'08"W	289	GS=204	0	0.00	0:00	0.00
							IAS=204	0	45.05	0:14	4.20

The program will show the various routes automatically calculating the heading to keep, the Km of each leg and Km progressive, estimated time and his progressive, fuel consumption necessary for the various legs and progressive. Obviously for the counting of fuel you have to add the various required reserves (30 more minutes of flight, etc.). On last waypoints have evidence of the total. For each leg is highlighted the ground speed and the IAS according to the altitude. For the calculation of IAS it is assumed that there is a temperature average change rate standard, which the IAS is equal to the CAS and that the wind is absent.



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Edit the selected waypoint. The mask is like to the add mask.



Delete selected waypoint.



Move the selected waypoint up of a position.



Move the selected waypoint down of a position. These two buttons are to be used to rearrange the flight plan or to correctly position the last waypoint inserted. For each variation the flight plan is immediately recalculated.



Reverses the order of the whole waypoint flight plan. This feature makes it useful for planning the backtrack.



Being located on a waypoint, we can see the magnetic declination, the sunrise and sunset in that location at the setting date.

Magnetic declination

Latitude: 55 57 6 N 100 60

Longitude: 3 21 14 W 100 60

Altitude (feet): 2000 m

Computation date: giugno 2008

lun	mar	mer	gio	ven	sab	dom
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6

Oggi: 19/06/2008

Declination: 4,027° W

Sunrise: 03:26 UTC

Sunset: 21:03 UTC

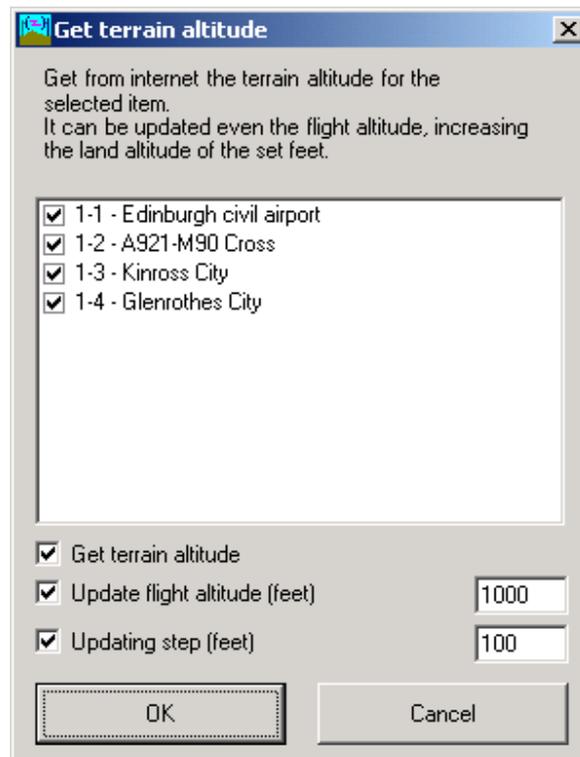
Close



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The program retrieves from the Internet the terrain elevation for waypoints selected. It is possible update the flight altitude bringing it to be above the altitude of the land of the feet required. The new altitude will be rounded according to the updating step set.

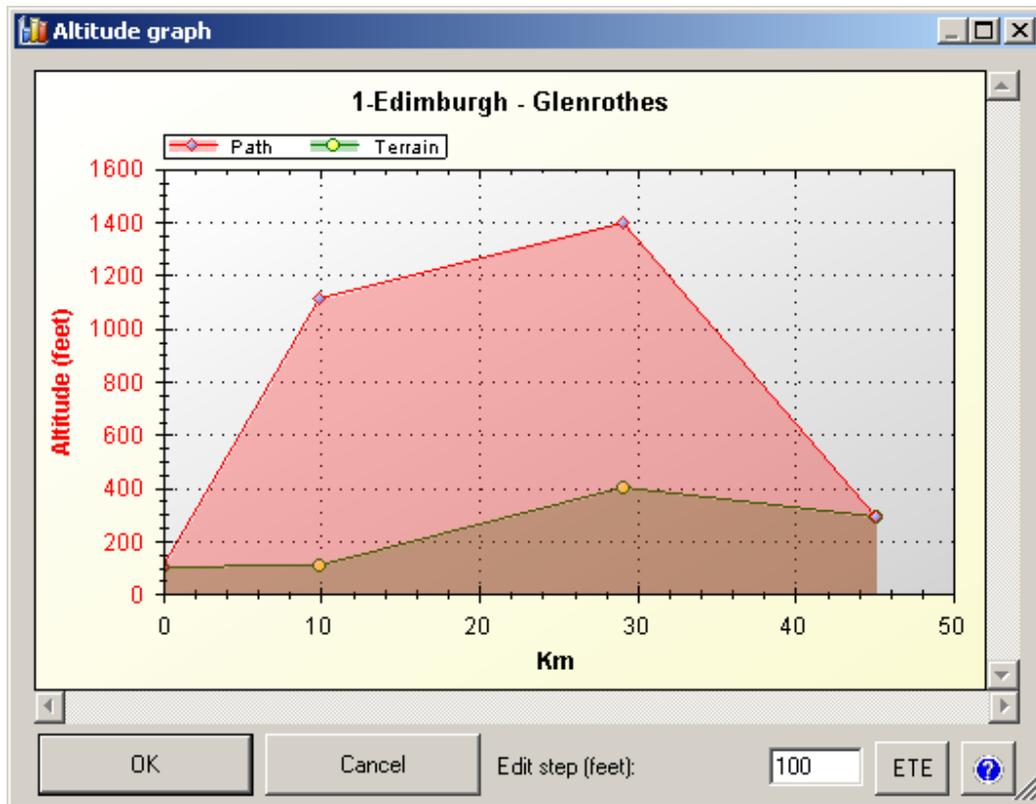




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Presents the graphic with the terrain altitude and the flight altitude.



The graphic is displayed Km/Knots or flight time by selecting the "ETE" button. To edit the flight altitude put the mouse on a waypoint, press ALT and drag the waypoint to the new altitude. We can ask to round the new altitude at the feet highlighted in window.



Edit the altitude for the waypoints selected. Altitude is inserted in feet. If you want to insert an altitude in meters, use the conversion button.

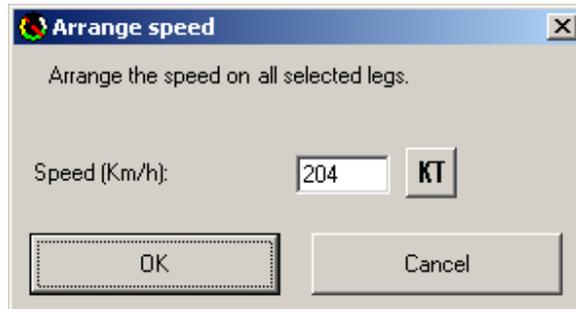




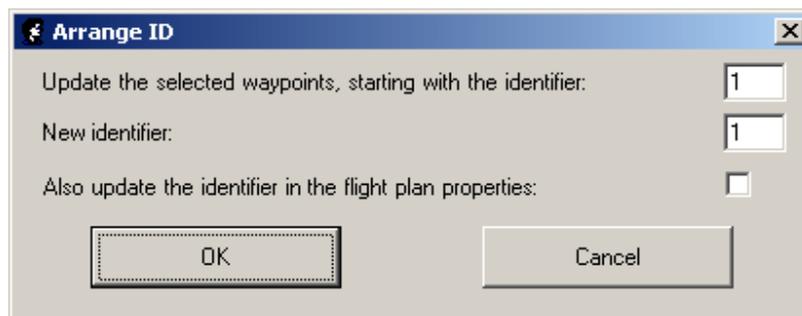
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It allows to edit the speed quickly in the selected waypoints. The speed is always included in Km/h. For nodes use the conversion button.



You can quickly change the prefix of the flight plan in the various waypoints. After selecting the waypoints to change, with this function call the mask to edit the waypoints Id and/or flight plan Id.



It requested the old ID to be replaced, the new ID and if we want change the ID in the flight plan property.

You can also enter an ID unless there or eliminate an existing ID.

We wish to recall here that the idea was the basis for requesting inclusion of ID in a flight plan.

Within our flight plan may be present waypoints identifier that the same as other flight plan, i.e.: FIX1. In this case the FIX1 can be in more flight plans, but have different coordinates. Moving these flight plans in our GPS we can encounter problems. By adding an ID to the flight plan solve this problem and all waypoints will within the GPS different ID.

When I had a flight plan, and I used the ID 20 to create it, all my waypoints begin with “20-” and will be easily identifiable in the GPS for a future deleting of the flight plan by GPS.

What happens if I want to send my flight plan to a friend who has already used the ID 20 for a flight plan?

With this feature, our friend, can quickly replace the ID 20 with an ID of his choice without having to change each waypoint.

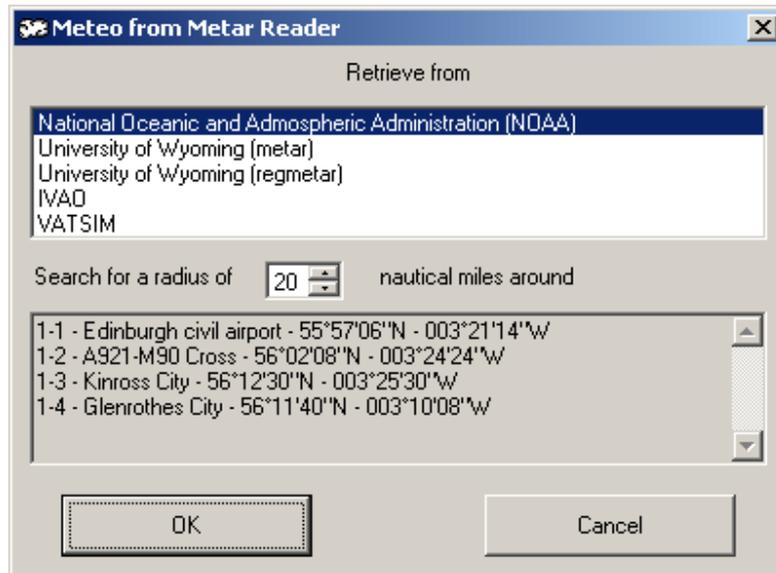


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With this feature, selecting one or more waypoints are required METAR available for the area around the chosen waypoints.

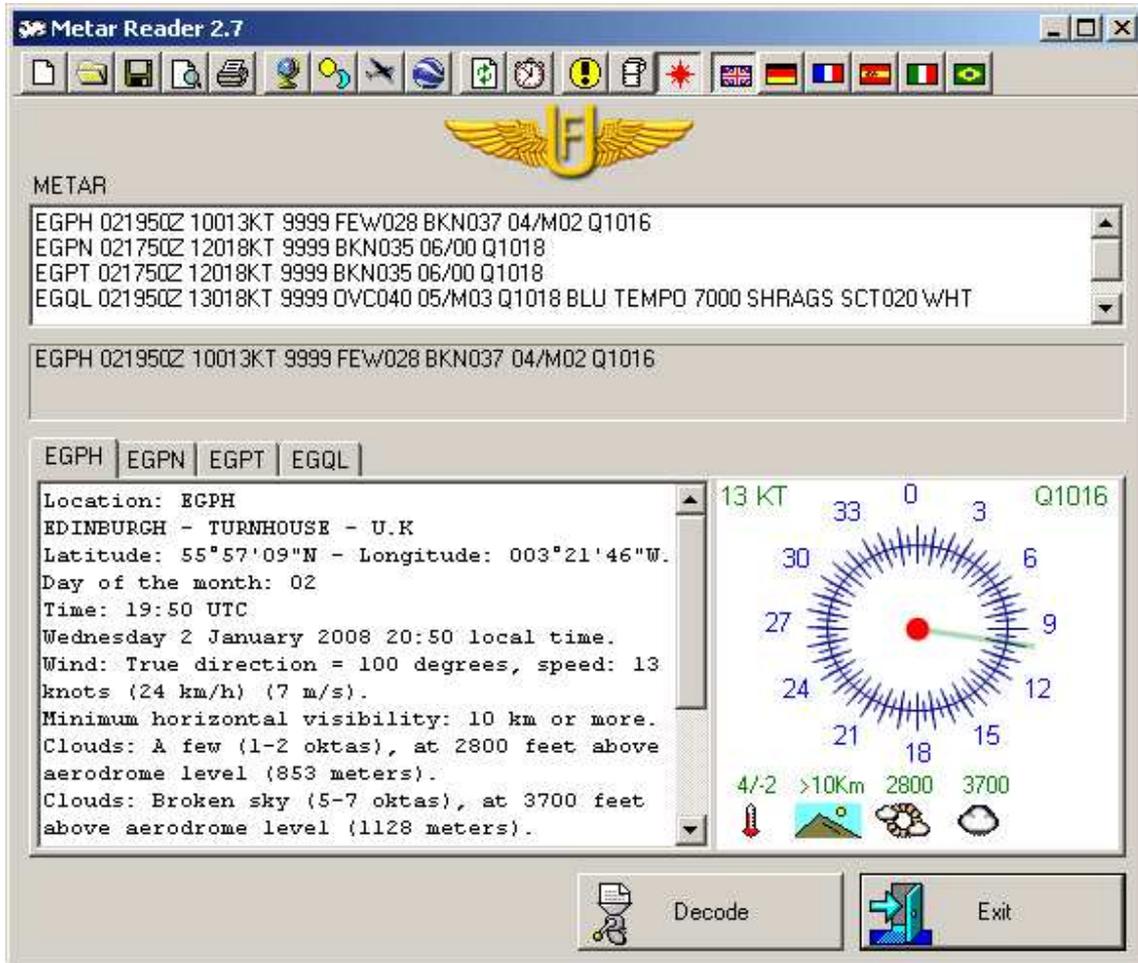
The METAR can be found from various sources.



Select the source for reading Metar and the radius of the area to check around at various waypoints expressed in nautical miles. It launched “METAR Reader” that will find the Internet Metar available in the request and perform its decoding.



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For this option in the folder where the program “Flight Plan” is, must be present the program” METAR Reader” in the version 3.0 or higher. This can be downloaded from the Internet at <http://www.flightutilities.com>.

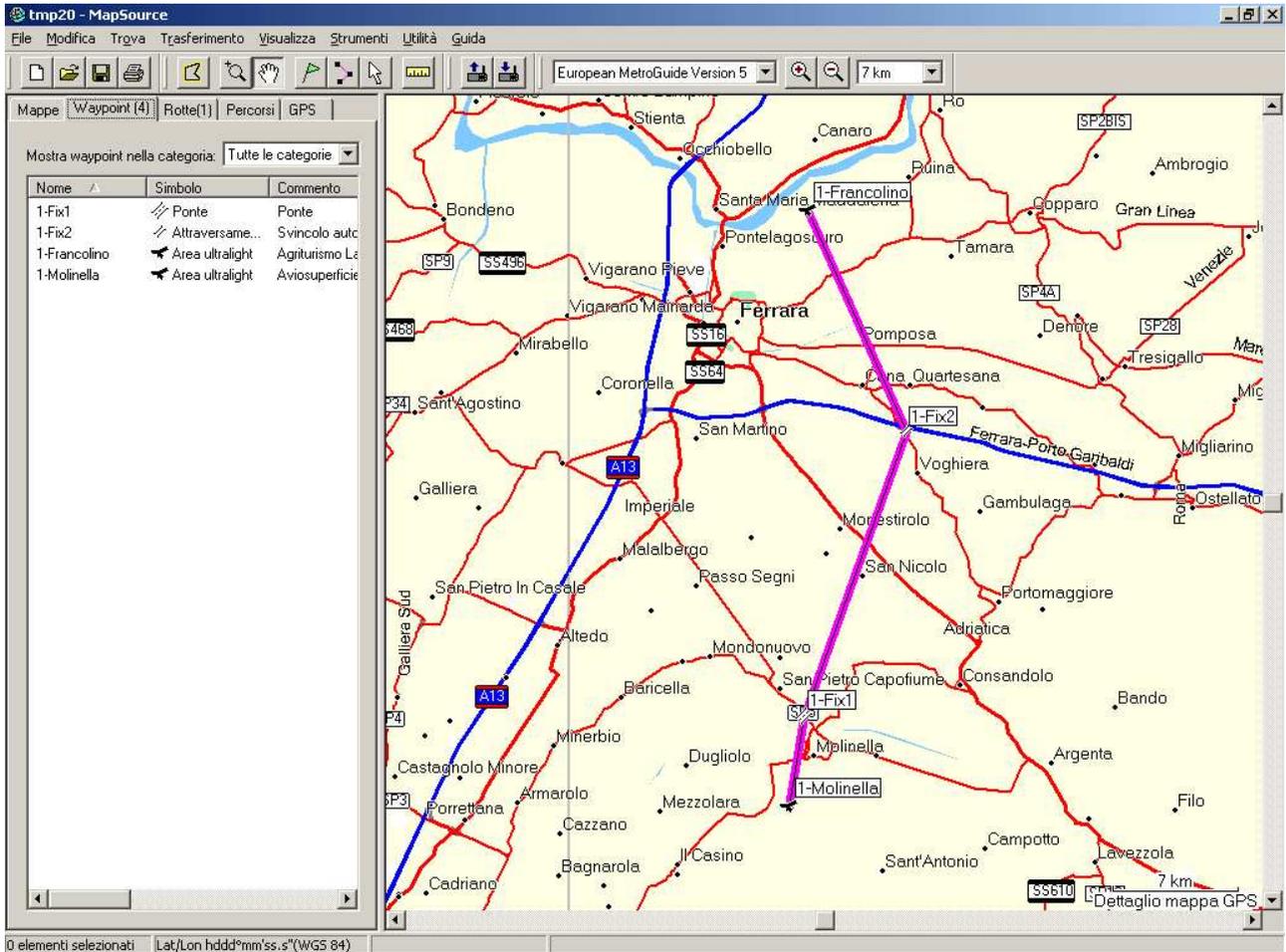
For instructions to use the program “Metar Reader”, refer to the manual attached to the program.



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Run the program "Map Source" Garmin, and send them the flight plan. You can view the route on the map. It is of course possible to create the route with "Map Source", export them on .mps format and read it with "Flight Plan" to perform calculations for fuel consumption, timing and print the Flight Log.



The flight plan created, it can be transferred automatically into a Garmin GPS.



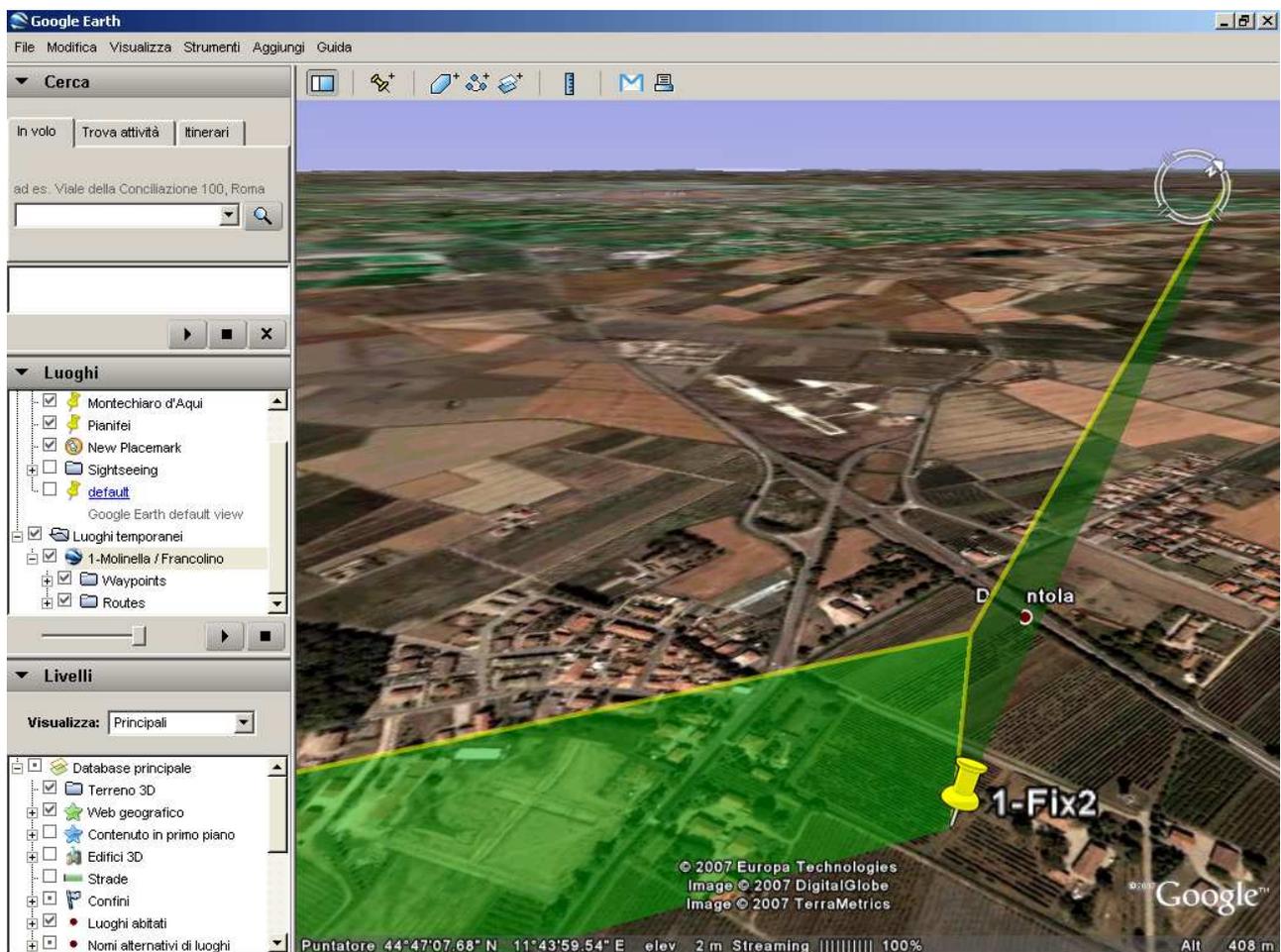
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This function runs “Google Earth”. The product “Google Earth” can be downloaded free of charge from <http://earth.google.com>.

The flight plan is loaded directly and inserted in Google Earth temporary places, if interested, you can move about your personal places. The route includes two folders, one for waypoints and one for the route. You can choose to see all the elements or see only a part. You can check the land that you will fly, knowing in advance photography of the affected areas.

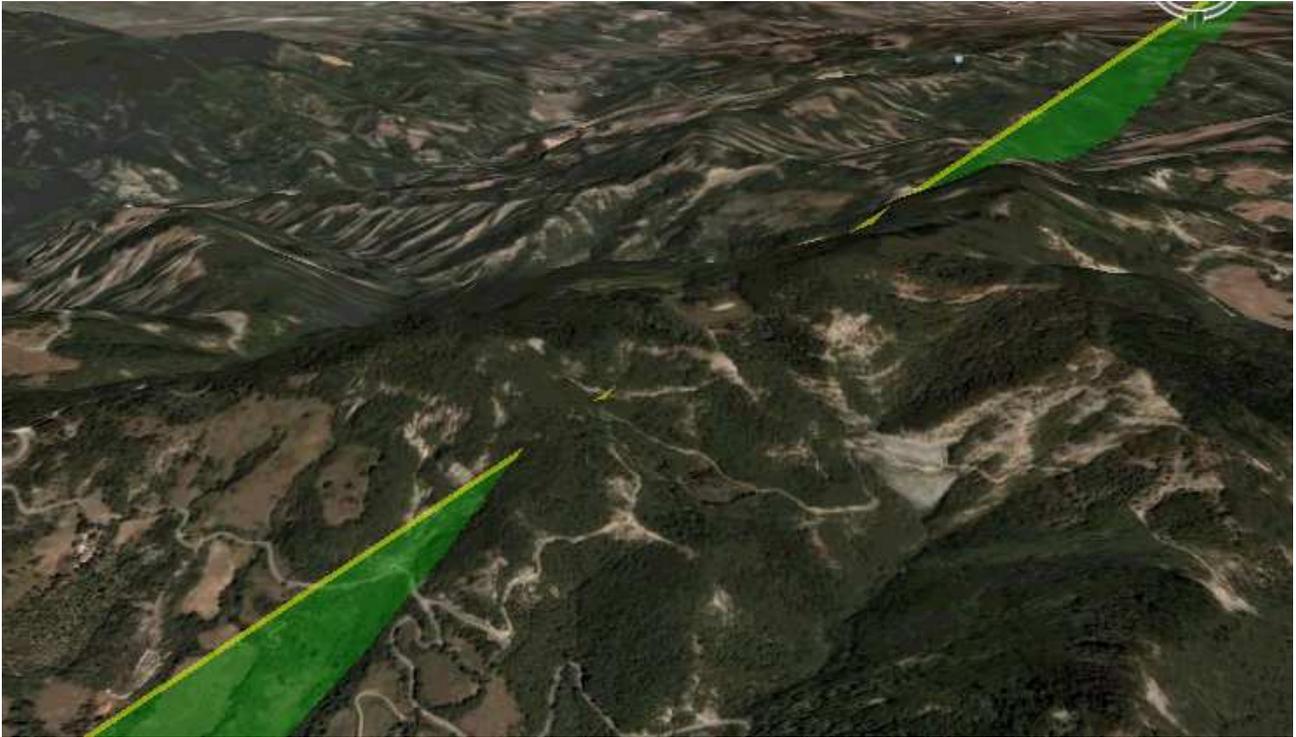
You can see the various sections observing the altitudes that you set. By the way 3D, you can check the altitude to which you set your course. Your track indeed appears in 3D mode.



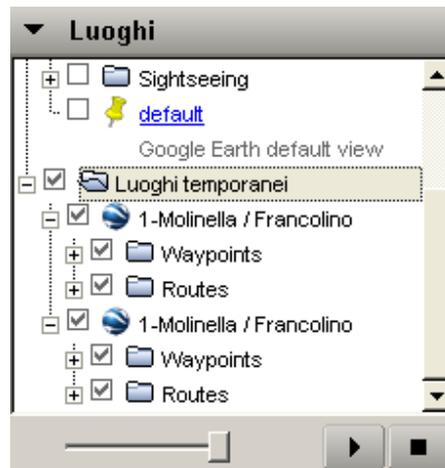
In other words, if you see the track come into a mountainous relief, probably you must check the estimate altitude that have considered.



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You can perform variations on the plan in “Flight Plan” and call again the “Google Earth” display, the route will create a new entry in places temporary and you can see the different routes individually or simultaneously.



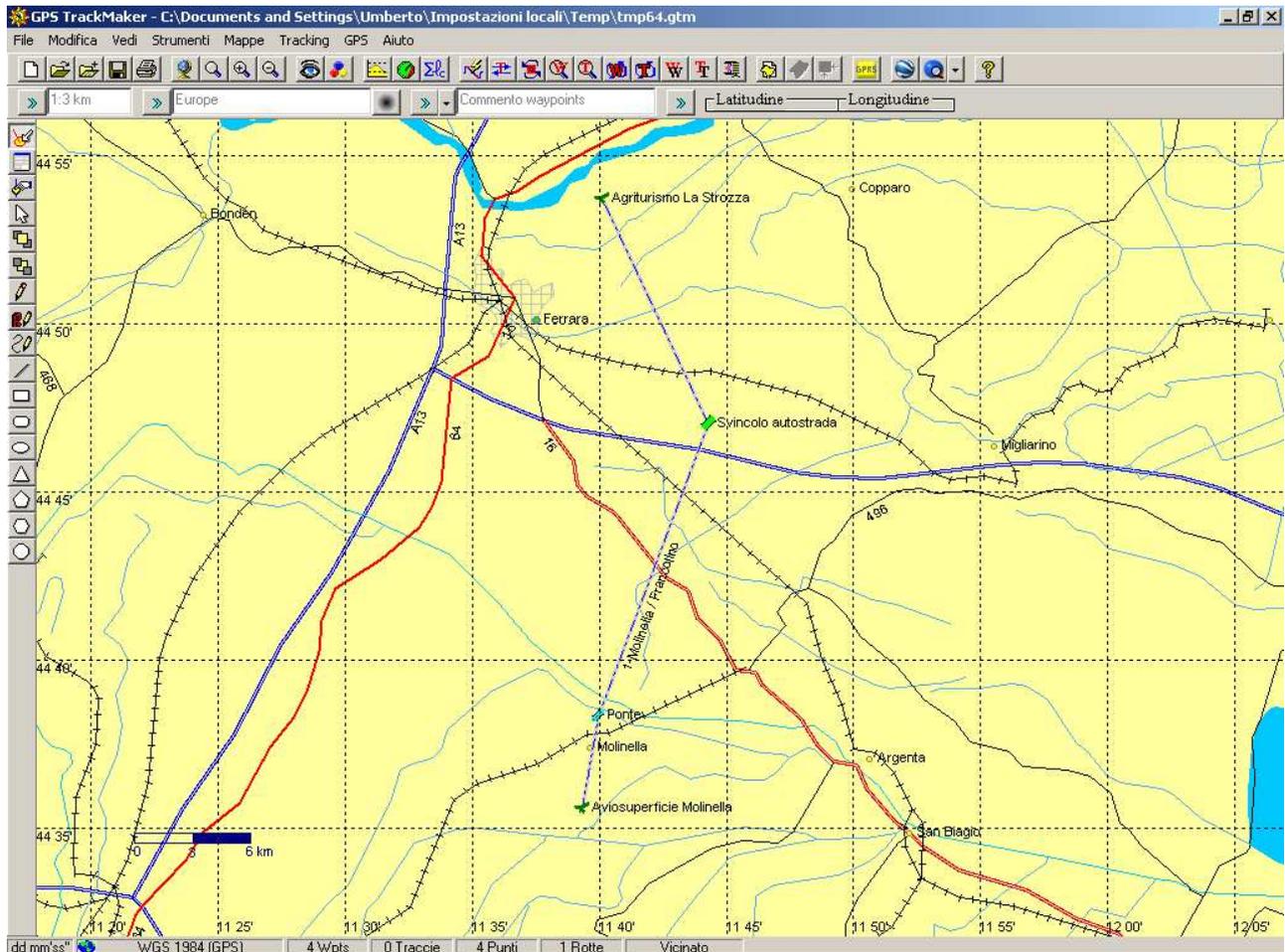
In this case, it is advisable to change the name of the path so as not to fall into error. “Google Earth” still manages paths with the same name.



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Another possibility is to call the program “GPS Track Maker” and passing the path to view it. From “GPS Track Maker” is also possible to create the path, then save it with the .gtm format. The files created can be read by “Flight Plan”.



“GPS Track Maker” can be downloaded free of charge in several languages. You can also download the cartography, but the interesting thing is that you can configure it with your favourite aeronautical charts, simply scan and insert map as a background. The program then allows you to enter the flight plan in the most popular GPS.

Interfaccia Garmin...	F8
Intefaccia Magellan...	F11
Interfaccia Lowrance/Eagle...	
Interfaccia MLR...	
Interfaccia Brunton/Silva...	
Interfaccia NMEA 0183...	F12
Simulazione...	



Flight Plan by Umberto Degli Esposti

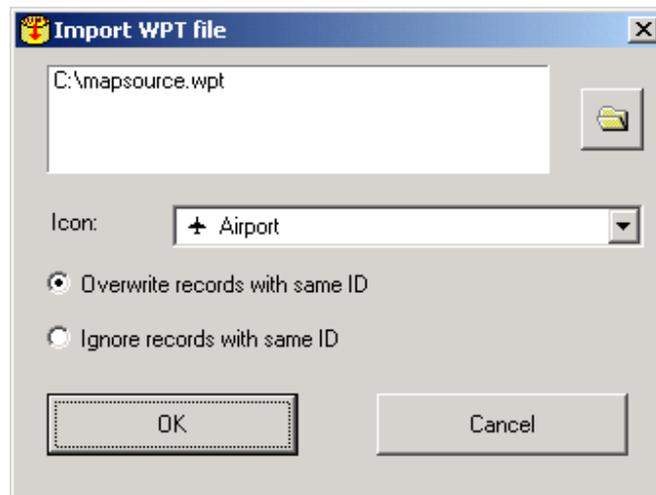


It is possible to manage an archive of more Fix used. By pressing this button displays the window for managing Fix.



The operation is similar to that of the flight plan. Once selected Fix you can add it to the flight plan by pressing OK or double click. The Fix Id, will be preceded from the flight plan Id.

The key  lets you add Fix import them from a Garmin PCX5 file format (.WPT) or a GPS Exchange file format (.GPX). The Fix can also be imported from a flight plan in .GPX file format.



In the imports window should be defined to read the file, the icon to be assigned to the items to be imported and if we ignore or override the Fix already present in the archive. For example, if in a file exists the Fix ID "IAGFAV" and this is already present in the database, with the option "Overwrite records with same ID" replace that with the Fix be imported, with the option "ignore records with same ID" the Fix remain unchanged. Importing from .GPX, the icon will be used only for waypoints with a icon description not recognized by the program.



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A list of Italian airfields in WPT format can be downloaded from <http://www.ulm.it> from the “Campi di volo” section. This site kept updated Italians field information. To keep the archive updated, download the new updated file and import it by selecting the option “Overwrite records with same ID”. With GPX format, you can import a whole list of Italian airfields and airports distributed by Avioportolano and downloadable from the site <http://www.avioportolano.it>.

The button  open the window to delete the whole Fix database.



When you insert a new flight plan, the program automatically set the fuel consumption to 18 liters/hour. In the same way it set the speed of 170 km/h when you insert the first waypoint or reading from file in a format that does not hold this data.

Speeds inserted to fly various legs, can be interpreted as Ground Speed (GS) or Indicated Air Speed (IAS).

When a icon is requested for a waypoint is proposed the "Waypoint" image.

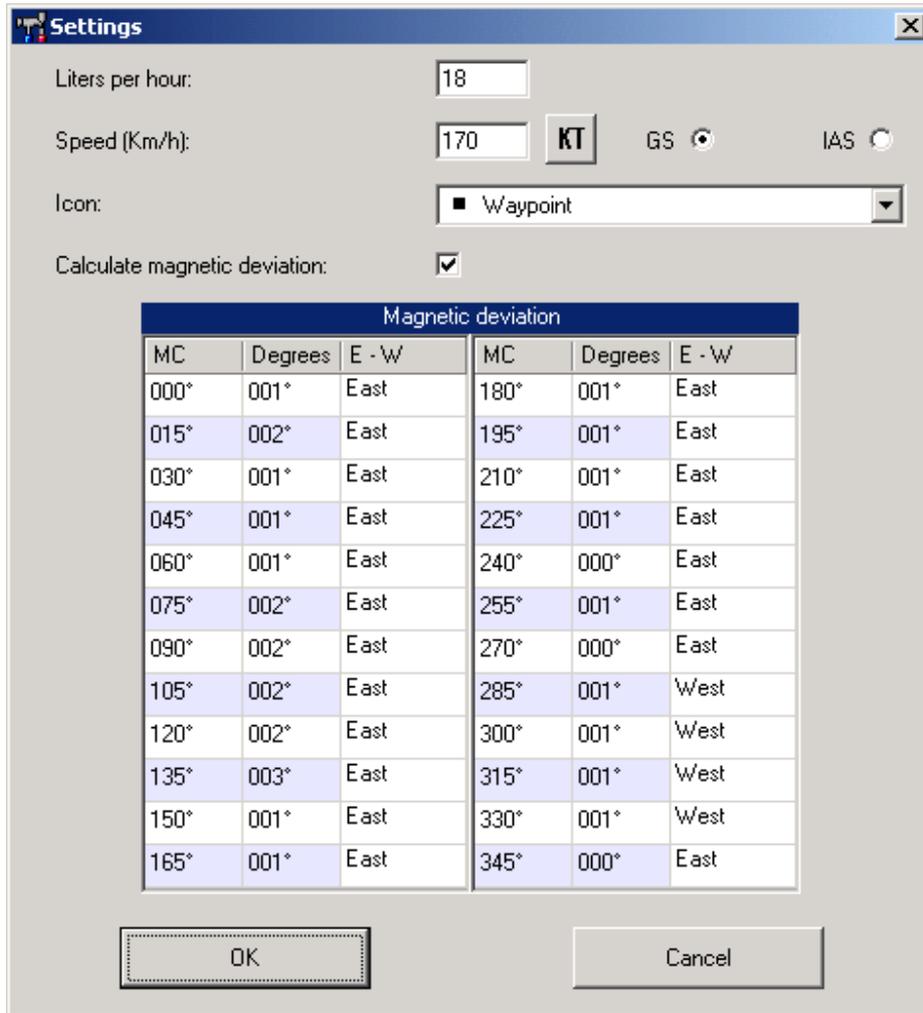
Is possible to change these basic settings to enter the parameters of your airplane and the icon to propose for the waypoints.

In this section you can insert the deviation table. The table includes steps of 15 degrees. The first column show the magnetic heading, in the second the deviation degrees and in the third the hemisphere (East or West).

If the deviation table of your compass has one step above 15 degrees (ie: 30 degrees) you must enter values for the step of 15 degrees calculating it by interpolation.



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The program calculates the bows between the 15 degrees steps by interpolation.

Selecting to calculate the magnetic deviation, with the  toolbar button the program displays the compass bow instead of the true course.



The program can be used in different languages: English, Italian and Portuguese.



Program Version Information.



Exit the program.

Happy flying!