## *3D Viewer*

During these months we have learned how to download and work with maps, edit tracks, mark waypoints, draw roadbooks as well as prepare geocaching activities. CompeGPS Land allows you to do even more!. With this application you can use a stunning three dimensional perspective. This function allows you to work with maps, tracks and waypoints with a perfect perspective which make your trips almost real. Among other functions, you will be able to simulate flights, complete your own tracks, and even record them on video or make image captures. With 3D viewer, all this will become possible!
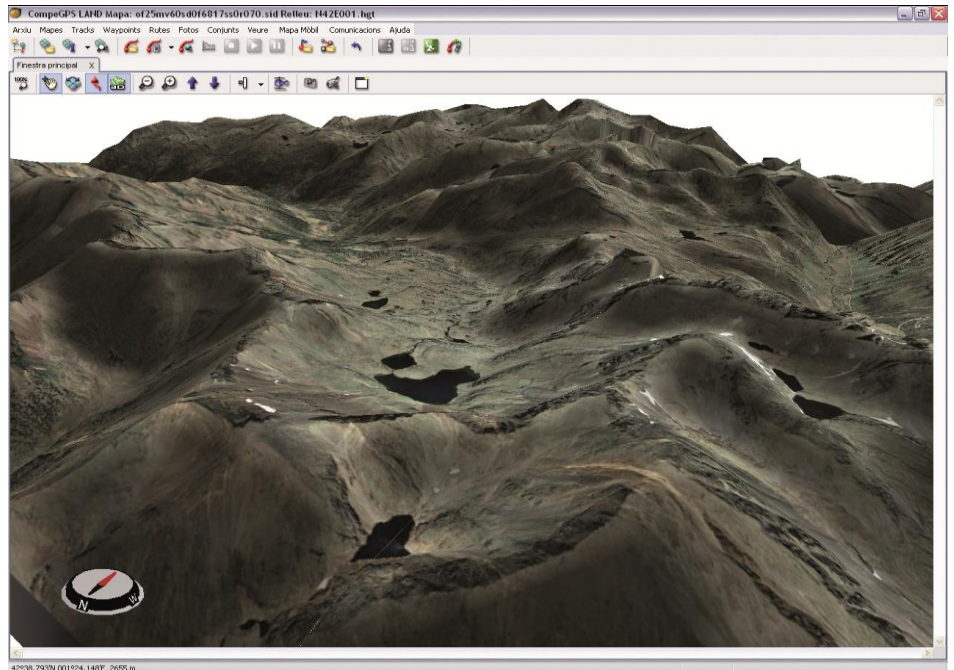
Together with CompeGPS Land's free version, you can use 3D module in trial period. Once the trial period has expired, you will have to acquire it at www.compegps.com. You only have to click at **'Products'** tab, and then select **'Modules'** section (Figure 1). At this list, the user will find the 3D module for CompeGPS Land 7 version. In order to finalize your purchase, just click on the shopping cart and follow the instructions.
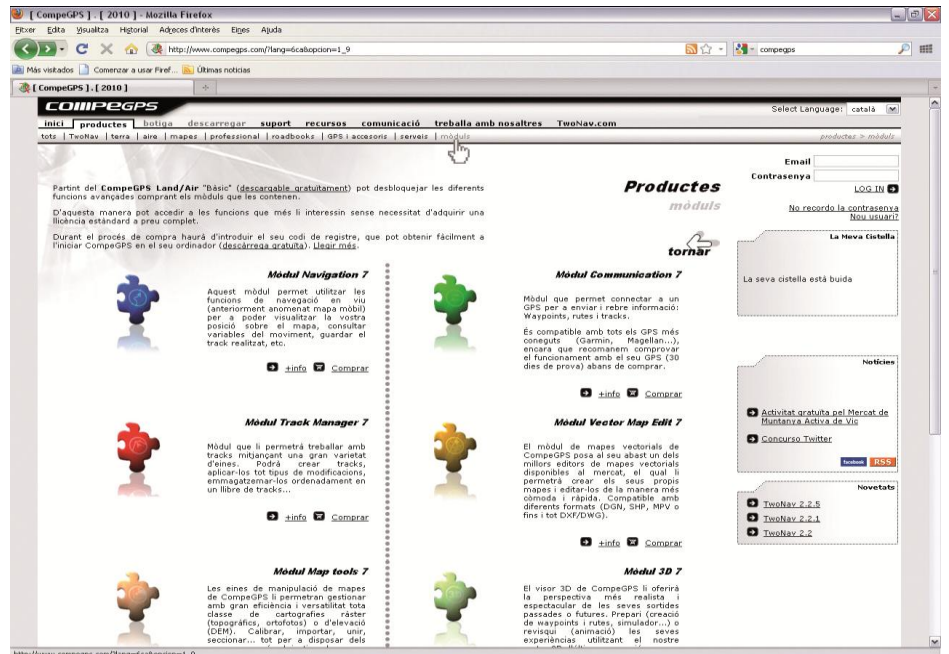

Figure 1

Relief Maps

In order to generate the three-dimensional representation, CompeGPS Land needs the height of each point of the map. There are some databases containing heights and elevations of these points presented as grids. Each of "knot" of the grid is identified by X and Y coordinates (latitude and longitude) and its elevation, (it can be called 'coordinate Z'). You will have a better representation of the terrain having knots together rather than spread over the grid.

Grids are often called Digital Elevation Models (DEM) or Digital Ground Models (DTM) (Figure 2). CompeGPS Land's three-dimensional viewer matches map's coordinates points with grid's points, as well as adding values of height altitudes. By doing this, CompeGPS Land 7 can generate and display a perfect 3D image.

You can download from the Internet, free DEMs of Catalonia:

http://dds.cr.usgs.gov/srtm/versio n2_1/SRTM3/ Eurasia/

selecting the following reliefs: N40E000.hgt.zip,N41E000.hgt.zi p,N41E001.hgt.zip,N41E002.hgt. zip,N41E003.hgt.zip,N42E000.hg t.zip,N42E001.hgt.zip,N42E002.h gt.zip and N42E003.hgt.zip, which represent reliefs of Figure3.

These are medium resolution models, with a grid of 90 m. distance between knots. 90 m. is enough to represent 3D maps.

Once the files are downloaded, you will have to unzip them right at the folder which will be used to store maps. Relief maps can be displayed with Land like any other map: '**Map**' menu option, '**Open Map**', and look for the maps where you placed them.

Once the map is opened, by moving your mouse, you will discover that coordinates for each point, as well as height appear at the bottom bar of CompeGPS Land's window (Figure 4).

This tool will help you to plan your outdoor activities: slope will be displayed on screen. By displaying this field, the user will be able to plan the activities according to his capabilities. - Once the track has been displayed on the map, having loaded the DEM of the area, you only need to click on the right track and select '**Tools**' option. Right now, you only have to choose '**Calculate ground height for each point**'. If you want to know the properties of
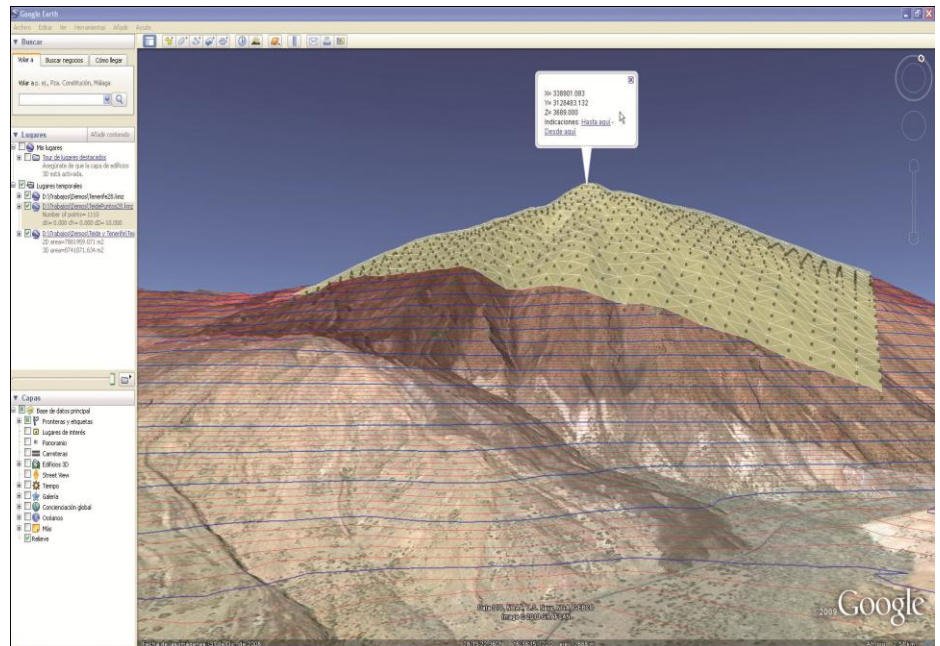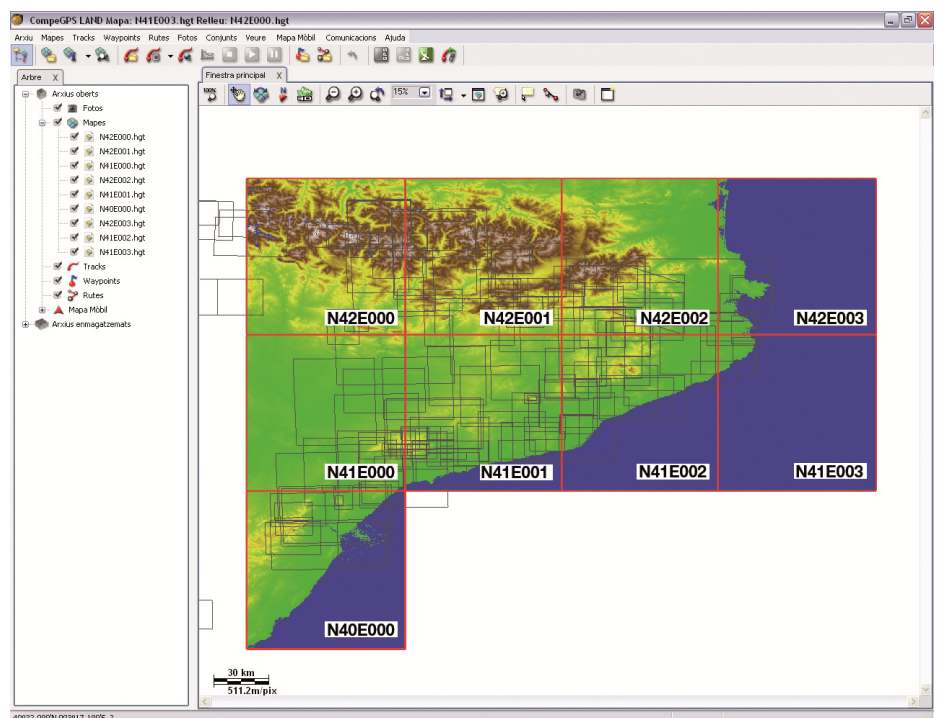

Figure 2

Figure 3

your track, the particularities of your route and even the

altimetry profile, you only have to click at **graph icon**.

Operating 3D viewer

To activate the 3D viewer, click at

'**3D**' icon of the toolbar. If the map folder has a DEM representation of the selected area, CompeGPS Land will automatically display the 3D viewer.

CompeGPS Land has several functions to help you to work with three-dimensional maps, for example, a set of arrows at the toolbar which indicate possible movements of your 3D map

(more information at the manual). However, mouse buttons allow you to perform the same movements in a more comfortable and intuitive way. The right mouse button is very useful to rotate the map. The left button allows you to move the map using the same direction in which you move the mouse. Mouse wheel can help you to put forward (or backwards) your map, if you click on it, you can vary the height of the map by moving it.

These buttons have a similar function when you activate the flight **'simulator'** mode. In that mode you can use a joystick.
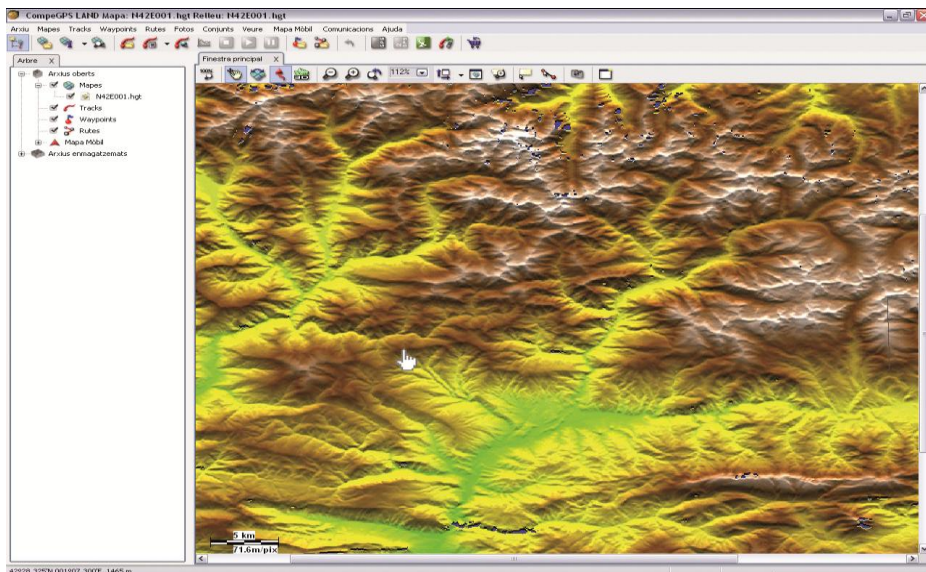

Figure 4