

A SCANNED GEOREFERENCING MAPS USING GLOBAL MAPPER 15 SOFTWARE

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ABSTRACT: *Georeferencing is the process by which an image (map, satellite image) assigned to certain coordinates, so that any GIS program to be able to correctly position the image, all over the world. The fault georeferencing a scanned images is the current one, especially when the main sources of information are printed maps. In the work of front, georeferencing will be made in the Program Global Mapper 15, but this can be done in the older versions of the program, the work order*

KEY WORDS: *map, georeferencing, Global Mapper, GIS*

1. INTRODUCTION

An image georeferencing involves its alignment to a coordinate system defined. Mathematically, is an operation of translation and rotation of the coordinate system of the image (which numbered columns and lines of pixels from the top left) in relation to the coordinate system in which georeferencing.

The fault is confined to solve some of the systems of coefficients equation and find out which apply to each pixel of the image to make it correspond to a certain geographical positions, as defined by a pair of mathematical coordinates.

Specifically, the user provides that the input points on the image whose coordinates are known, and the program apply an algorithm based on the number of points entered (which must be at least four). The image is so jelly and can be saved separately, together with the information georeferencing (which is saved in a separate file, with the same name but with different extension, e.g. .jgw, .tfw, .eww).

2. DESCRIPTION OF THE SOFTWARE GLOBAL MAPPER 15

Global Mapper is a visualization tool, able to display the most common data sets, the elevation raster or vector. It converts, edits, prints, creates GPS tracks and allows you to use the functionality of the GIS data sets, in the form of a software package extremely easy to use.

The new version 15 has significant new features such as a menu available on right-click for the Digitizer Tool, a new Favorites toolbar, which allows fast access to the options Digitizer/Edit Tool and a new drop down menu for Terrain Analysis. Blue Marble launches Global Mapper 15 with multiple new tools including support for Spatial Database.

3. THE STAGES GEOREFERENCING SCANNED MAPS

Step 1. Opens the Global Mapper program 15 and is charging nongeoreferencing map.

Step1.1. Opens the Global Mapper 15 (Fig.1)



Figure 1. To open the Global Mapper 15

Step1.2. The map is loaded nongeoreferencing through one of the following three ways:

- 1). File - Open the File Date;
- 2) Press the Open button Date File from the Toolbar;
- 3) The switch is pressed down on the Open Your Own Data Files from the main window (Fig.2).

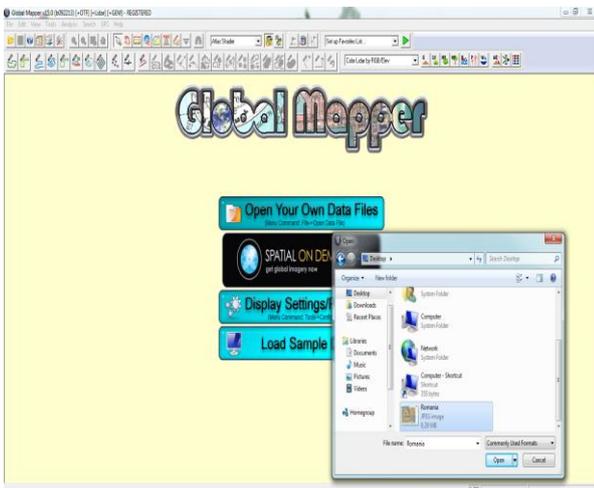


Figure 2. The opening of the data files

Step 1.3. Select the nongeoreferencing map and Open (Fig. 2). Then opens a dialog window, where we are told that the program could not determine the coordinates of the image and we ask if you want to manually

rectification the image or if you want the program to distort the co-ordinates only to allow viewing the image, or if you want to too. We'll give you a YES - Manually rectify the image (Figure 3).

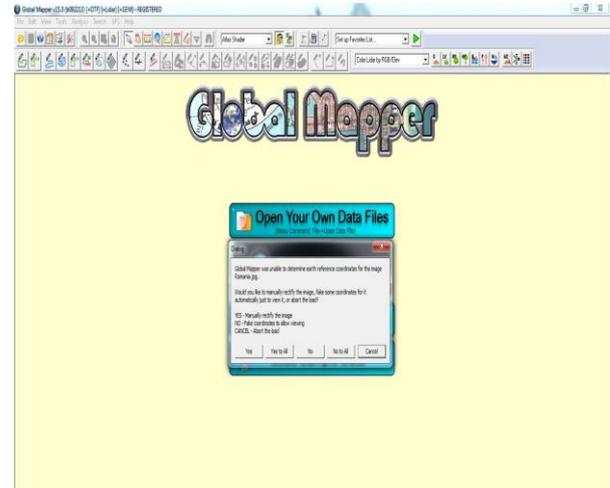


Figure 3. Loading nongeoreferencing map in Global Mapper 15

After I read step 1.3 opens a new window (Image Rectifier), in which we will achieve georeferencing (Fig.4).

It contains three other windows:

- the entire image, to the left, where it is represented the entire image of georeferencing;
- Zoomed View, in the middle, where it is viewed map increased (from the previous window) and which will be georeferencing; and
- Reference Images on the right side, where they are viewed the reference images (for georeferencing type image - to - image).

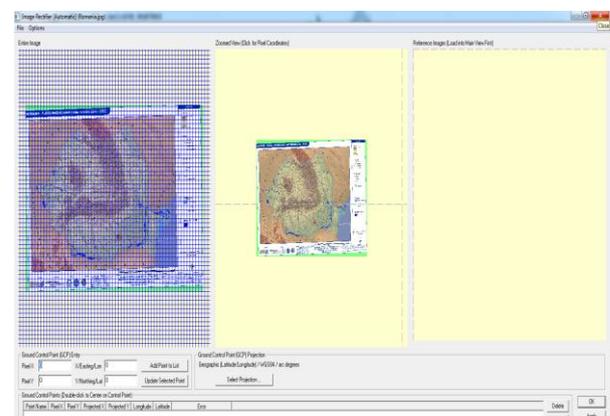


Figure 4. Corection of the Map

Step 2. Georeferencing map

Step 2.1. It sets the projection in which it has been carried out by accessing the map, select Projection of Ground Control Point, under the window Zoomed View (Fig. 5).

The projection from the list, the projection of the map; area 3, as the case may be, and the datum 4.

In the case of the map taken as an example, the projection is UTM, the area is the area 35 (because it is to the east of the meridian 24°E) and datum is WGS84.

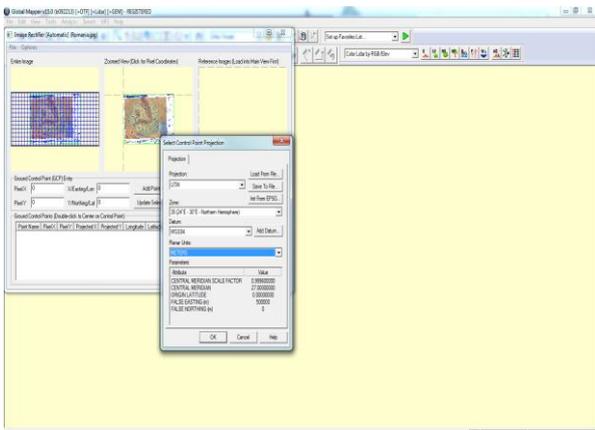


Figure 5. Setting the projection in which it has been carried out the map

Remark!!! Always be georeferencing digitalized map and in the projection in which has been carried out, and thereafter, it can be converted into another projection.

Step 2.2. After it has been established the projection shall choose the method of adjustment (georeferencing) from the Options menu - Rectification Method 4 (Fig.6). In the case will choose polinomial method, with 4 points of georeferencing.

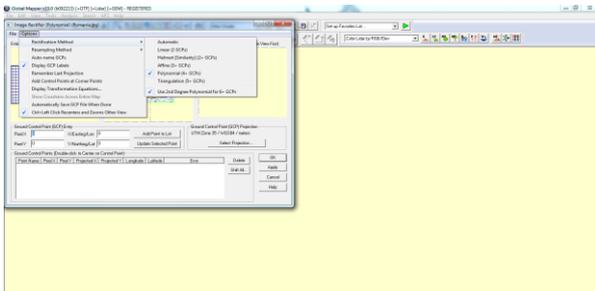


Figure 6. The selection of the method of polinomial with 4 points of georeferencing

Step 2.3. In the window Image Rectification, under the window Entire image is an area (Ground Control Point Entry) in which shall be entered the geographical coordinates (X/Y/Lon and easting/Northing/Lat) and the coordinates of the Pixel to pixel (X and Y) Pixel (Fig. 7).

Select a corner of the map and visually choose a point of intersection of the mileage grind, and the corresponding values shall appear in the Ground Control Point Entry (X/Y/Lon and easting/Northing/Lat), taking care to ensure that both the X coordinate and Y coordinate to add three zeros.

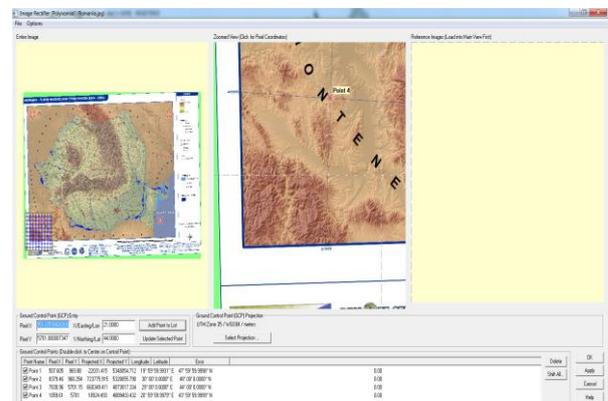


Figure 7. Correction of the Map

Step 2.4. Increases the area of the map which contains the point of intersection chosen in the previous step (at the level of Pixel - the higher zoom, with both faults will be less) and mark (left) by clicking - the point of the intersection.

Step 3. Save georeferencing

After georeferencing image (map), it is appropriate to save georeferencing, either by saving a file that contains the values and the coordinates of the control points by saving a file georeferencing, by selecting the menu File - Save Checking points to a file...or File - Save the World File, and choose a location, it will give a name of the file, possibly (for the World File) will choose a format from the new window - occurred. Yes then OK (Fig.8).

