

DETERMINING THE ABSOLUTE HEIGHT OF THE GROUND USING THE GLOBAL MAPPER PROGRAM AND CREATING THE RELIEF OF ERODED LANDS ON THE BASIS OF AN AUTOMATED SYSTEM

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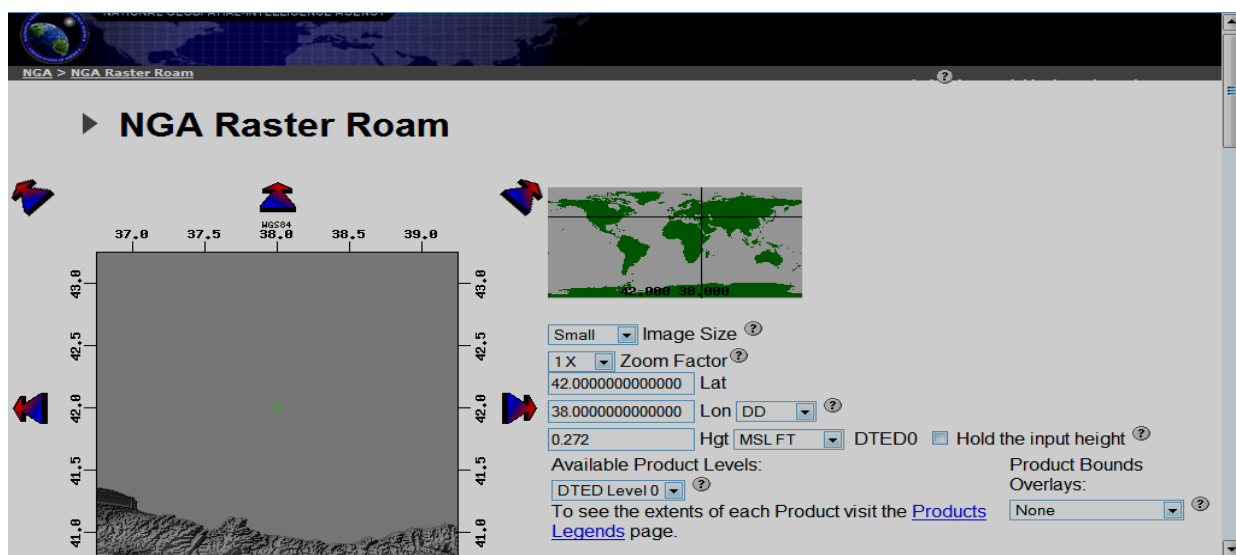
ABSTRACT

The main goal is to use modern GAT technologies to determine the absolute height of the ground using the Global Mapper program and to create a relief of eroded lands on the basis of an automated system and to create and apply maps that will increase a number of economic savings based on regional data.

kalit so'zlar. Balandlik , ma'lumotlar bazasi, formatidagi, ikonkasini, joyning rel'efli, topografik karta, eroziyaga uchragan yerlar, koordinata.

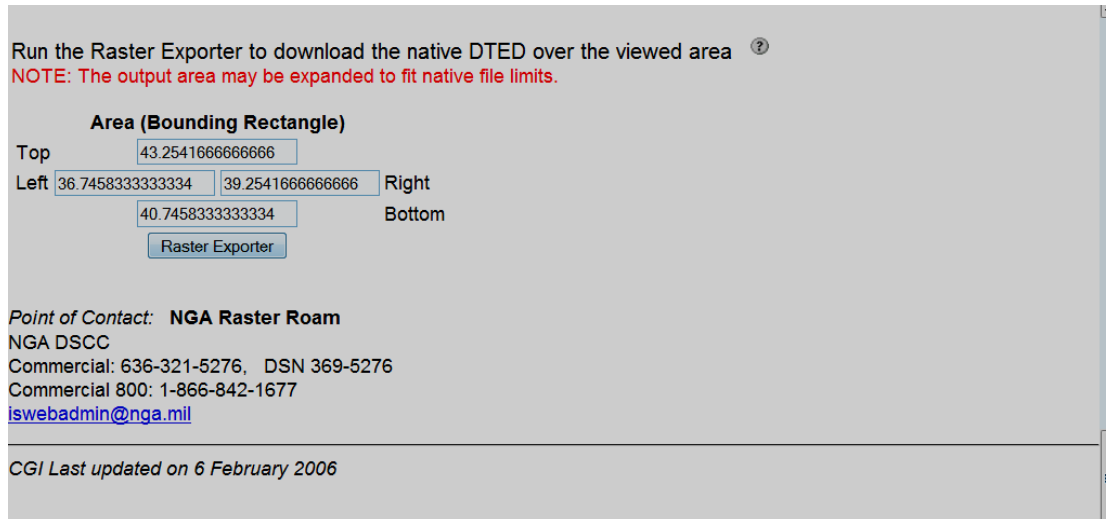
KEYWORDS: Height, database, format, icon, topography, topographic map, eroded areas, coordinates.

1. Nowadays, GAT programs, such as Global Mapper, can also create three-dimensional images of maps based on altitude data. All you have to do is open the file where the altitude database is stored. As mentioned above, the program describes the terrain based on the elevation data of the place, which makes the use of the map a bit more complicated. But there is an opportunity to solve this problem through software. All you have to do is link the thematic map of the area to the relief map. As a result, the program first places a relief image of the place and a thematic map on it. To create 3D geospatials based on GIS technology, we need an altitude database and raster images.
2. Global Mapper can read altitude data in hgt format. There are several types and types of hgt altitude database downloads:



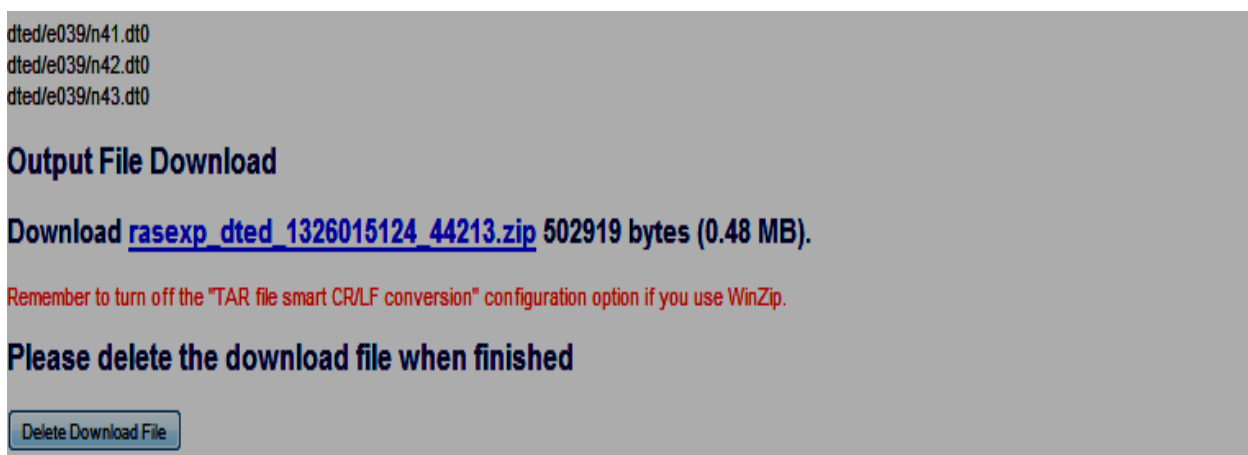
(Figure 1) NGA, DTED is the agency's altitude database.

Once selected, the name of the selected field and the corresponding coordinates will appear on the left side of the map (Figure 1). If we do not like the parameters of the given coordinate system, we select the Raster Exporter button at the bottom of the window, placing the desired coordinates at the desired distance and width (Figure 2).



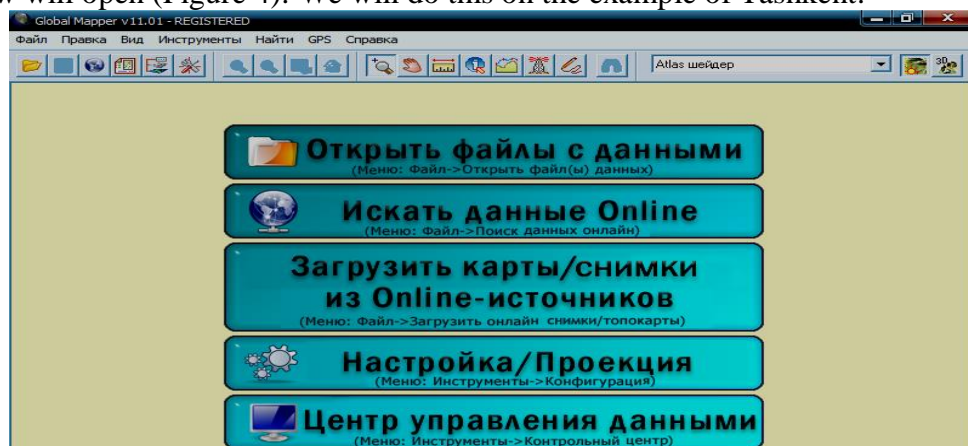
(Fig. 2) Placement in distance and width.

As a result, the height database of the selected area will appear in the form of a zip file (Figure 3). When you select this file, the database will be automatically uploaded to your computer. Just show us where to copy the file. During the download process, it is recommended that you name the area in the file that contains the elevation data. For example, altitude and map for Tashkent.



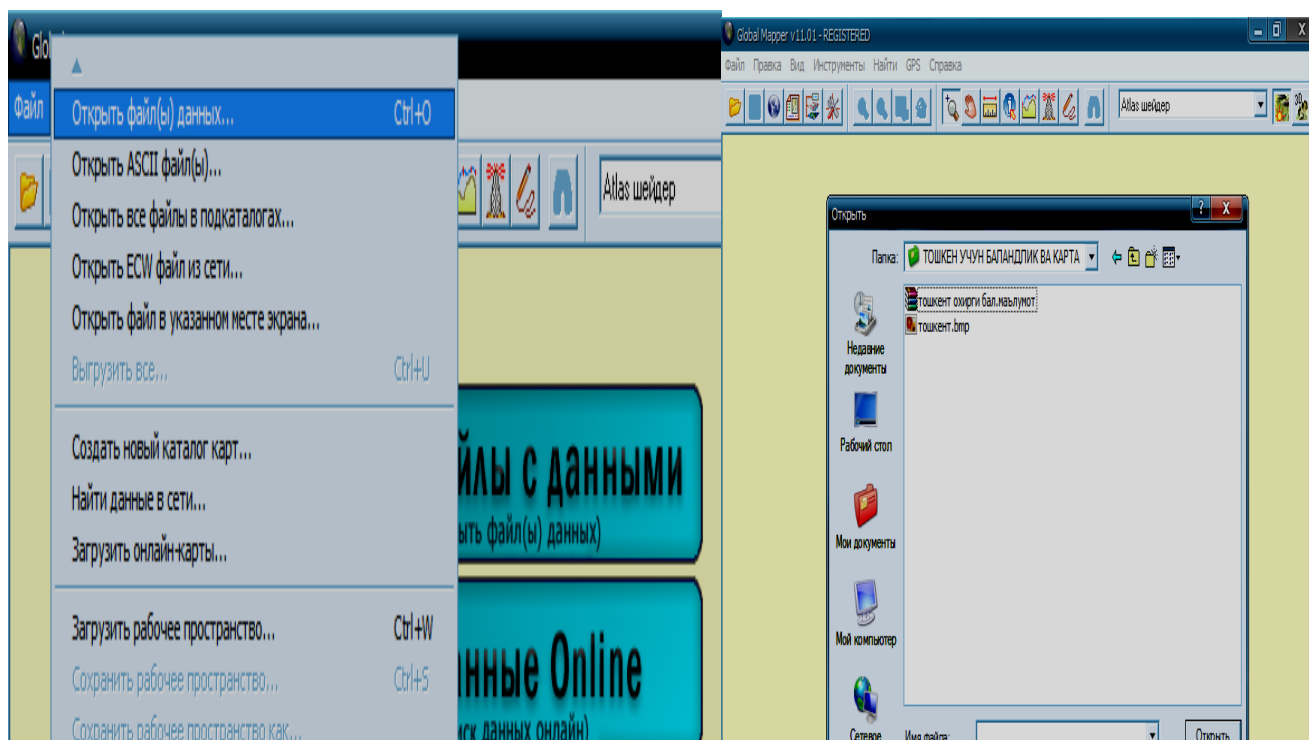
(Figure 3) Height for Tashkent city.

To get started in the Global Mapper app, double-click the Global Mapper icon. After a few seconds, the program window will open (Figure 4). We will do this on the example of Tashkent.



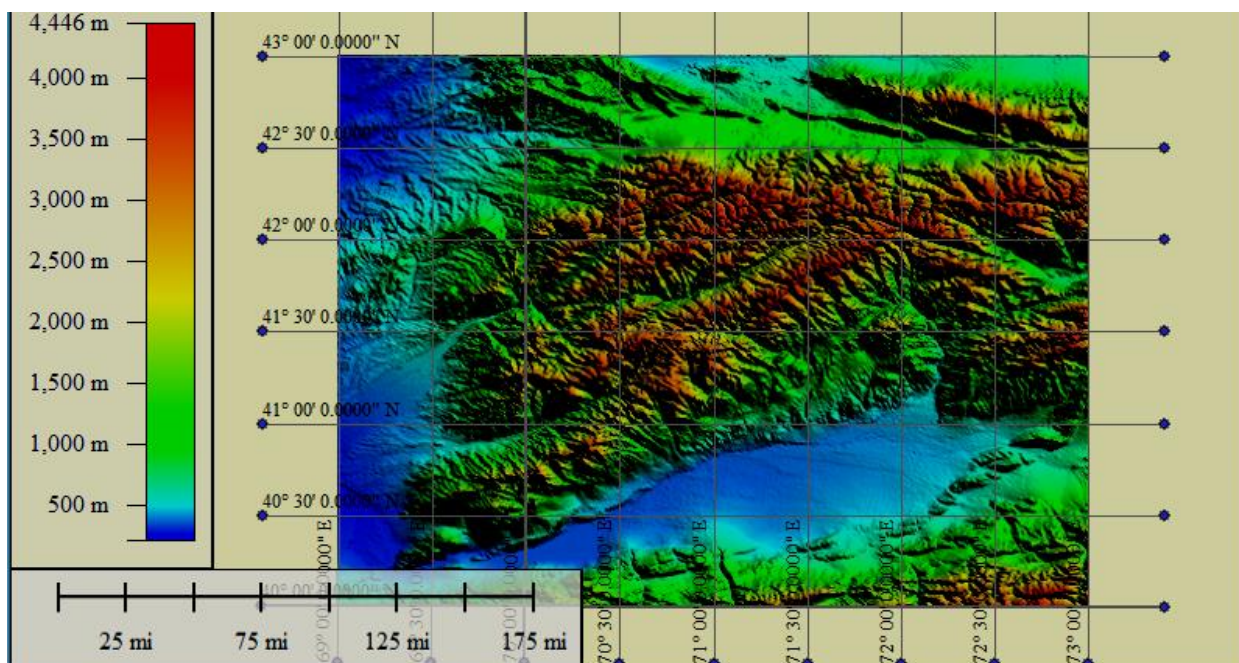
(Figure 4) "Opening the data file".

Select the file menu on the toolbar of the window and select the "Open data file" dialog. Then from the folder where the height data is stored, click on the zip file of the zip archiver file in hgt format, corresponding to the city of Tashkent.



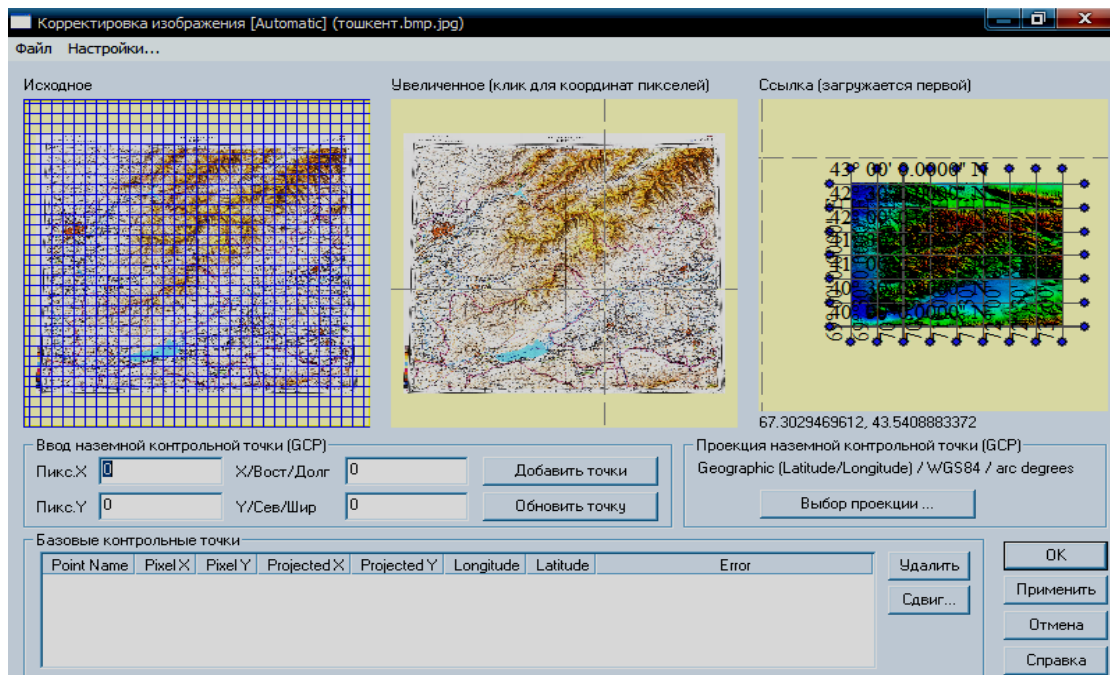
(Figure 5) Open the zip file in hgt format corresponding to Tashkent, "Open".

As a result, the program describes the relief view of the selected area in the nomenclature. The left and right sides of the image, along with the grids, show the cartographic distance and latitude. In addition, on the left side of the program window, the elevation data of the area are displayed in color in a hypsometric way



(Figure 6) Nomenclature area.

The reference points can be the intersection of topographic grid lines, turning points of land use boundaries and the mark of settlements.

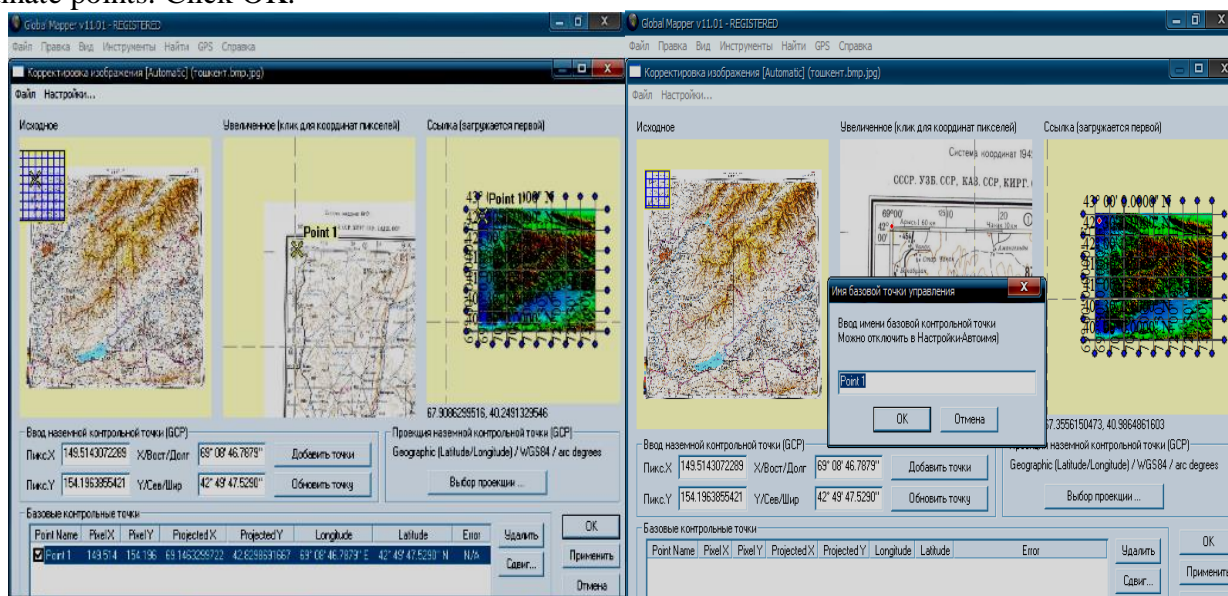


(Figure 7) Definition of boundary turning points and settlements.

This dialog shows 3 different types of windows. Window 1 shows our first topographic raster map, window 2 shows a magnified map (to select coordinate values), and window 3 shows a relief map. Enlarge the map in window 2, select point 1, and in window 3, select the location that corresponds to this coordinate and place point 1. Then click the "Add Point" button and save the checkpoint. In this way, we select at least 4 high-resolution points and memorize them.

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Once we have saved the points, we click the "Accept" button, which will help us to accept the entered coordinate points. Click OK.



(Figure 8) Acceptance of coordinate points.

The relief map serves as the base card when we create a 3D map. After we connect the topographic map to the base map, the program places the base card first and then the topographic map in a layer view.

The most common of the pre-project documents in the practice of land management on the map using the existing software is the master plan of anti-erosion measures. Their purpose is to control the processes of soil washing and deflation and to determine the future direction of work in this area to ensure the restoration of productivity of eroded lands.

The main functions of the master drawings are:

Determine the types, scope and cost of soil erosion protection works on the basis of generalized indicators; Prepare proposals for the implementation of anti-erosion measures and determine the order of their implementation.

The plan-map material is made on a scale of 1: 10000, with a spacing of 5.0 m between the cuts (1.0 or 2.5 m between the cuts on complex relief farms). Plans of 1: 2000 and 1: 1000, and in some cases even 1: 500 scale, with relief sections of 0.1-0.5 m, should be used in the design of simple hydraulic structures.

In nature, erosion or erosion of soils under the influence of wind and water is observed. Accelerated water and wind erosion occurs as a result of human activity. Anthropogenic erosion is a consequence of the misuse of soil resources, the main causes of which are deforestation and non-compliance with the norms of grazing livestock in pastures, the use of incorrect farming methods, and others. According to various estimates, 3,500 hectares of fertile soil are lost to erosion every day. Water erosion is more common in the foothills and mountainous areas, while wind erosion is more common in the plains. There are reports that up to 25 inches of soil has been completely blown away by the wind in a matter of hours as a result of dust storms.

Taking into account the above, the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "ON THE ESTABLISHMENT AND RECONSTRUCTION OF IRRIGATED AREAS AGAINST WIND EROSION AND SAND INFLUENCE OF WATER FACILITIES" Resolution No. 422 was signed.

Analysis of data on the prevalence of soil erosion in Uzbekistan shows that in almost 70% of all 44.9 million hectares of land, ie 30.9 million hectares of land exposed to wind or water erosion at these levels. Most of this is arable land. Much of the pasture has also been eroded as a result of poor livestock management. In recent years, structural changes in agriculture have led to a significant increase in areas eroded by wind due to the depletion of protected areas. In addition, water erosion, especially irrigation erosion, is increasing due to the lack of adequate erosion control measures in the area. Most of these eroded lands are located in newly irrigated areas with a slope of more than 3 °, and require the development of altitude-based and state-of-the-art GAT software arc maps of the fast-growing area.

CONCLUSION

Thus, by using the Global Mapper program to determine the absolute height of the land and create a relief of eroded lands on the basis of an automated system, the region's agricultural land can be used extensively in the development of measures on soil eroded lands using the Global Mapper program. In addition, in the production of a number of relevant industry representatives can be used to generate relief data and obtain distance markings to determine the distance.

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