

**AUTOMATIC COMPILING OF HYSOMETRIC MAP OF A PART OF THE VENUSIAN SURFACE.** E.N. Lasarev<sup>1</sup>, J. F. Rodionova<sup>2</sup>, 1- Geographical faculty M.V. Lomonosov Moscow State University, 2- Sternbrg Sate Astronomical Institute, Universitetskij prospect 13, Moscow 119992, jeanna@sai.msu.ru

Altimetric data of “Magelan” spacecraft has been used for compiling the Hypsometric map for Ishtar Terra region [1, 2, 3]. The main principles applied in compiling the map such as the scale of the heights, types of prints and using of pictures of surface shall be apply in the compiling of the Hypsometric Map of Hemispheres of Venus in future. We consider that contours are the necessary features for hypsometric maps because allow to make measurement more accurate. The main tasks of compiling of the Hypsometric map are: treatment of original hypsometric scale, types for different features of relief and composition. We used the Magelan topographic data GTRD in the appearance of map in equal-square cylindrical projection, reformed in ESRI format Raster Grid. The solution of this map is 5x5 km on pixel. The images of the map on Ishtar Terra region (from 40° till 75° north latitude and from 325° till 15° longitude) have been reformed from equal-square cylindrical projection to equal-intermediate azimuthal projection with the use of Arc View and Arc/Info programs. Then a compiling of the hypsometric map was fulfilled in Arc View with the application Garticules and Measured Grids and 3D Analist: the coordinate grid, new hypsometric scale, contours and names of features in Russian were added. The contours have been passed through 500 m for the heights from -2 500 m till 4 000 m, but above 4 000 – through 1000 m. We selected multi-color and lightening to the summit scale. Such scale is more expedient for mountain relief (4). Different types of prints were used to show polygamy of relief forms. The list of names adopted by IAU (5) and Russian

version [6] of the names were the main issue for mapping. Fig. 1 represents a fragment of Hypsometric map of Venus compiled by us. The color of equal-quadrangle projection have been changed in accordance with our height scale. We fulfilled the comparison of this fragment of the hypsometric map of Venus with the map [7] compiled in USGS at a scale 1:16 354 349 for latitudes 0° and at a scale 1:10 000 000 for near polar region. Contours on the map [7] are drawn trough the interval – 1000 m. The scale of the heights on our map ( through 500m till the height 4000m) more detail underlines and reflects the different forms of relief of Venus. Moreover many forms of relief and contours on our map have signatures. It makes reading the map easy. The advantage of the map [7] is the available of the shading of relief and smoothed contours.

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References: [1] Jeffrey J. Plaut. (1993) Guide to Magellan Image Interpretation. Chapter 3. The Non-SAR Experiments. [www.history.nasa.gov](http://www.history.nasa.gov) [2] [www.webgis.wr.usgs.gov](http://www.webgis.wr.usgs.gov) [3] Trent M. Hare (2002). GTDR topography: Image and Contour Information» U.S. Geological Survey Astrogeology, Flagstaff. [4] Vostokova V., Koschel S.M., Uschakova L.A. (2002) Oformlenie kart. Computernyj dizain. Moscow., Aspekt press. [5] <http://planetarynames.wr.usgs.gov> [6] Burba G.A. (1988) Nomenklatura detaley reliefa Venery. Moscow, Nauka. [7] (1998) Atlas of Venus 1:10 000 000. USGS.

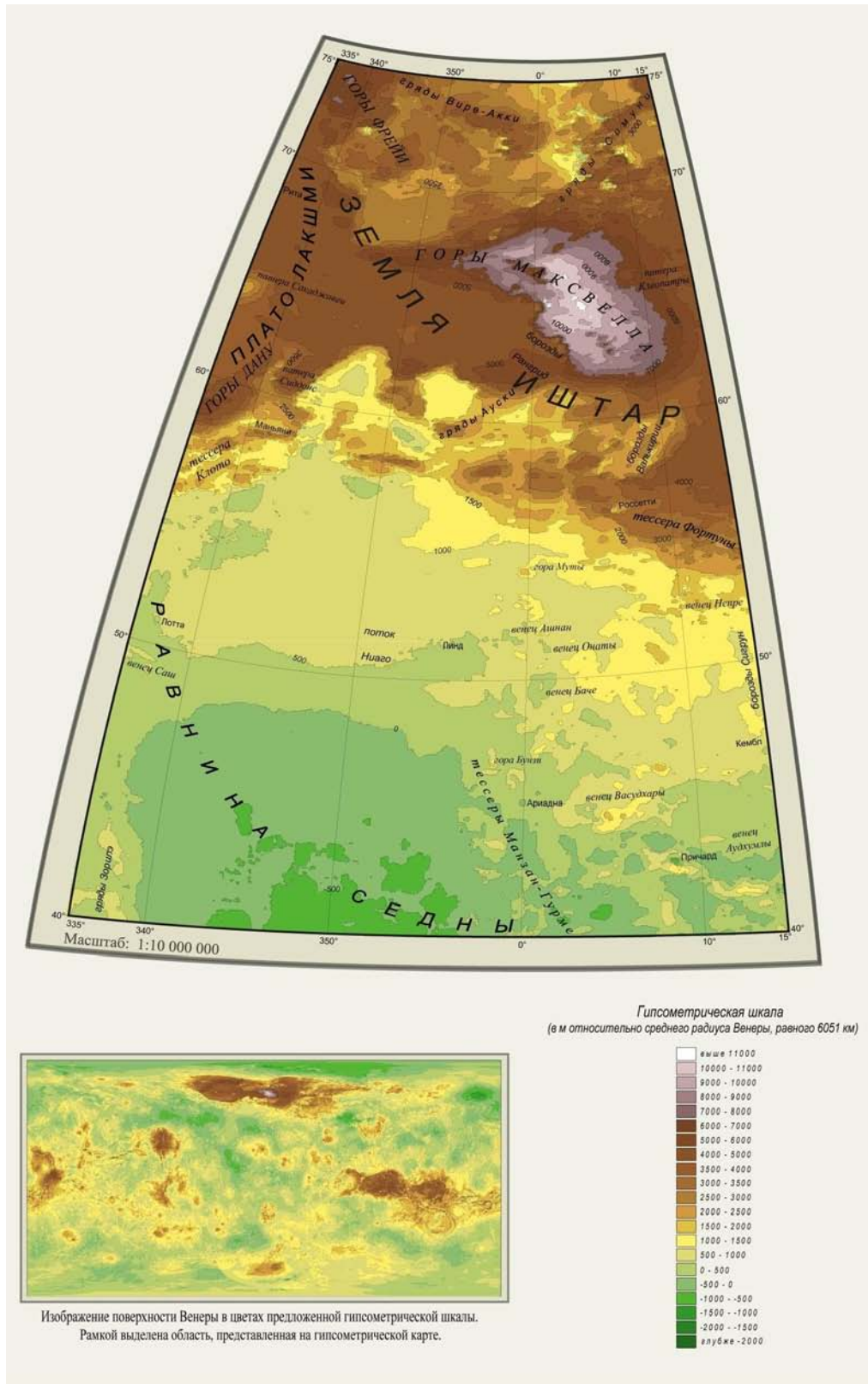


Fig.1. Hypsometric map of a part of Venus in equal-intermediate azimuthal projection and the map of surface of Venus in equal-quadrangle projection (color have been changed).