

## **Digital and Analog Techniques of Topographic Maps Update in Cartographic Production**

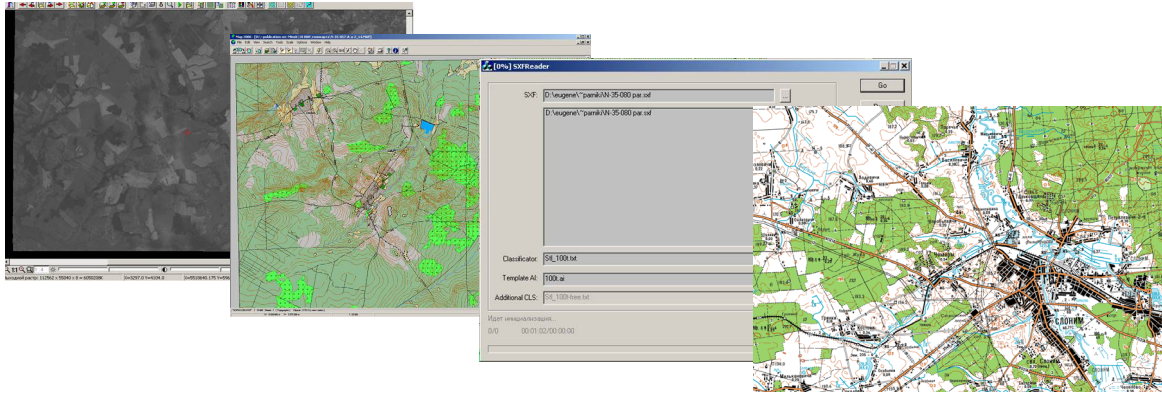
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The works on creating and updating of topographic maps in the entire scale range in digital and analog forms are carrying out now in the Republic of Belarus. Basic software used at that production – PHOTOMOD, Panorama, Adobe Illustrator, Macromedia FreeHand. As the main workflow for digital mapmaking had been used Panorama technology – digital maps production using printing hard copies. Digital maps database on the entire republic territory in 1:100,000 scale was created by now using existing printing hard copies. Digital mapmaking in larger scales are carried out now as well. Besides, there is the necessity in digital maps updating and printing hard copies creating in analog form. This procedure was developed in cooperation with specialists of "Geoinformational Systems" enterprise of National Academy of Sciences of Belarus and topographic-geodetic enterprise "BelGeodezia" of Geodesy, Cartography and Land Resources Committee of Belarus Republic.

The region of Minsk city with outskirts was chosen as a working area. The initial data for the project was spaceborne image from IRS sensor (India) acquired in September 2003 with 5.8 meters resolution. This image was processed in digital photogrammetric system PHOTOMOD. At that GCP coordinates were measured on the large-scale maps. Height data (DEM) was obtained from digital map in 1:100,000 scale. The orthophotomaps were created in frames of standard map sheets.

Digital maps were updated using PANORAMA software, where cameral updating and relief editing was executed.

Maps pre-printing editing was executed using software developed in by local specialists. The software is intended for automatic creation of topographic maps printing hard copies in 1:100,000 scale. At that were used standard or rectangle map sheets and with map symbols of 1983 and also standard Soviet coordinate system.



The following software was used in the workflow:

- PHOTOMOD – remote sensing data processing, orthomaps creation or updating using stereo mode;
- PANORAMA – digital maps updating using orthomaps;
- local software for digital map transfer to Adobe Illustrator format with appropriate symbols;
- Adobe Illustrator – for final maps editing and transferring them into output format.

The following results were obtained:

- digital map with situation in 2003;
- set of printing hard copies for further topographic maps printing.