Airborne Data Application for Engineering Tasks by the Example of "Norilskgazprom" Gas-Condensate Fields

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NPK GEO will celebrate its 10th anniversary this year. During 7 of them we have close cooperation with RACURS Company in different directions: from technical support to mutual projects executing.

PHOTOMOD software was used in our enterprise from 1999 version 2.0, and provided complete technology workflow from aerial triangulation to vector models creation as well as it is main tool for remote sensing data processing.

First fulfilled projects included village settlements territories in Omsk oblast and some industrial areas of Samotlor oil and gas field. Aerial survey data was used for digital vectorization and topographic mapmaking in 1:500 scale for land inventory and production department use.

Our works extended in future: we process now data on the entire territories of gas-condensate fields with areas from several hundreds to thousand sq.km.

Also the initial data is on new quality level now: imagery was obtained by RC-30 cameras on Kodak and AGFA films and scanned by photogrammetric scanner.

One of the examples of our work is Norilskgazprom Company gas-condensate fields mapping. These fields are used for gas supply of Norilsk city and other Taimyr settlements industry and its infrastructure.

The main task was to supply digital topographic mapmaking on land inventory and property GIS creating for three gas-condensate fields of Norilskgazprom Company. Aerial survey of 1,045 sq.km. area in 1:15,000 scale was provided for initial data obtaining. This airborne data was used for a number of field and cameral works.

Field department executed works on topographic survey of industrial areas in 1:500 scale for field XYZ georeferencing of aerial images and for topographic interpretation of industrial objects and gas fields infrastructure, and also created interpretation etalons for cameral images processing.

Photogrammetric department executed images vectorization in 1:2,000 scale and digital elevation models creation with additional pickets and breaklines on special relief features. Resulting data was used by landuse departments for land inventory and other engineering tasks, like: projecting of new gas pipelines, digital topographic mapping, ortophotomapping in 1:25,000 scale accuracy on the entire survey area and in scale 1:2,000 on gas fields and infrastructure as well as for designing and creating of relief models of gas fields in cooperation with "Geo-Nadir" company.

Also aero images were used for comparative analysis of different digital photogrammetric systems as well as for accuracy evaluation of the imagery using large scale topographic survey in fields.

Therefore this project and its spatial and statistical data is perfect testing and training sample for a variety of engineering and research tasks either current or perspective.