

AEROSPACE TECHNOLOGIES IN TASKS OF GEOINFORMATIC SUPPORT OF OIL AND GAS FIELDS

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Effective solution of investment projects management tasks devoted to development of oil and gas fields is possible in case of comprehensive information support availability. Geoinformatic support is a part of it.

Geoinformatic support as a type of information support consists of geospatial, functional oriented information about infrastructure objects of oil and gas fields.

Geoinformatic support as per its purpose and functional tasks can be classified in following types: topogeodetic, geological, hydrometeorological, ecological and technological.

The main objective of topogeodetic support is geospatial topographic model (basis) of field territory or pipeline route basing on cartographic, geodesic and photogrammetric technologies in spatial coordinate system. Geospatial topographic model of territory is represented by digital cartographic products, such as: topographic map, plan or it's layers; orthophotomap, orthophotoplan; relief model and 3D model of earth surface.

The objective of geological support is reflection of geological processes and effects in line with topographic model of explored territory.

Hydro meteorological support task is reflection of meteorological processes and effects in line with topographic model of explored territory.

Ecological support task is reflection of ecological processes and effects in line with topographic model of explored territory

Technological support task is reflection of technological systems, oil fields constructions and pipeline routes in line with topographic model of explored territory.

Geoinformatic support while realizing projects of oil and gas fields development is used for functional tasks:

Prognosis and exploration of oil and gas fields;

Development and arrangement of oil and gas fields;

Designing, construction and exploitation of pipeline systems;

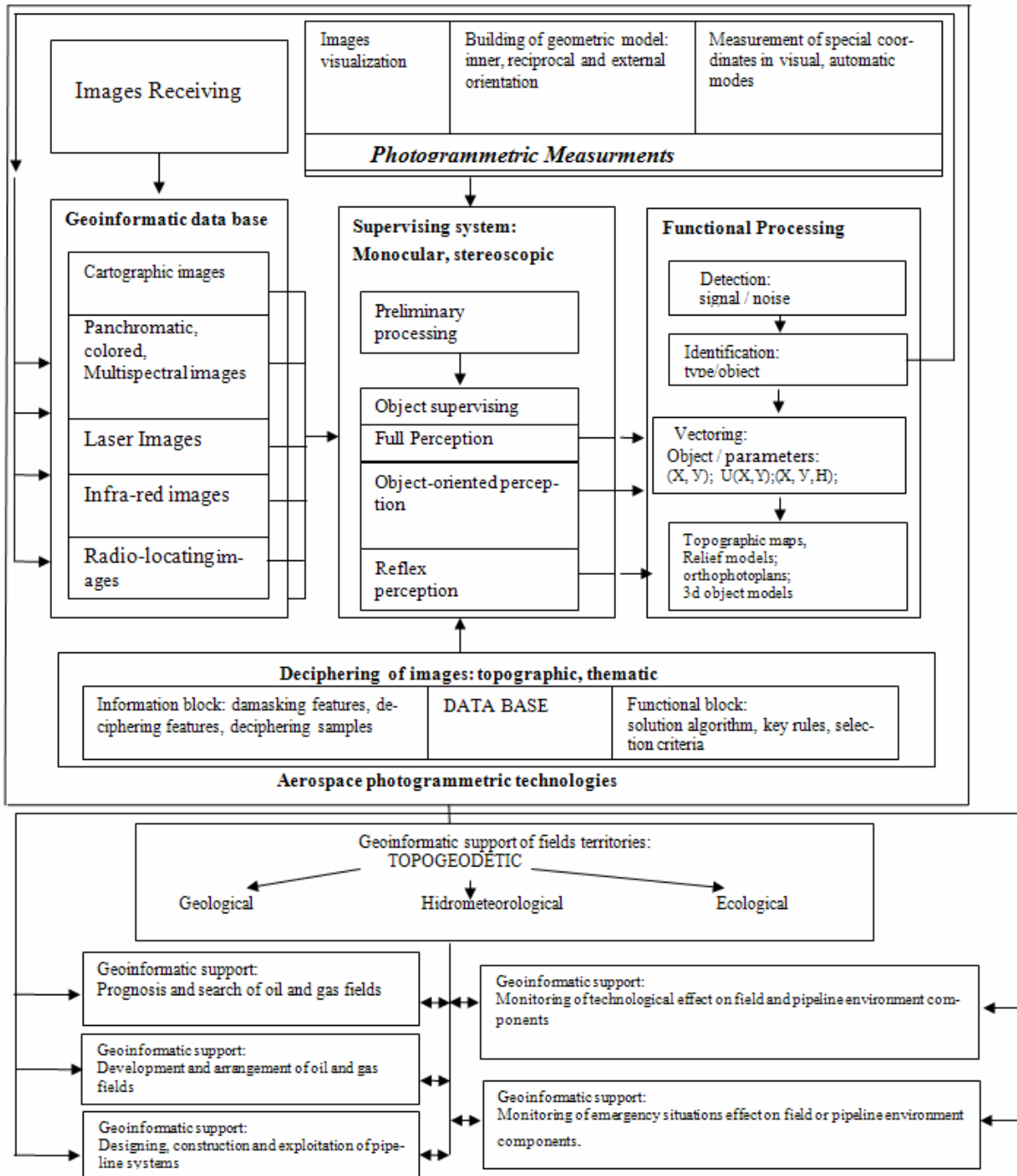
Monitoring of technological effect on field and pipeline environment components;

Monitoring of emergency situations effect on field or pipeline environment components.

Increase of effectiveness of created geoinformatic support from the points of cost, precision, reliability and productivity is possible in case of using unified approach to initial data collecting, it's handling and storage. Aerospace photogrammetric technologies take key place in these problems solving. These technologies, basing on unified hardware and software package, provide possibility to conduct technological cycle of data handling including: images receiving; measurement of spatial coordinates of territory objects; functional interpretation of objects images and it's reflection as digital cartographic product in unified spatial coordinates. Character feature of oil and gas fields geoinformatic support is bimodal technology of its creation, represented on picture 1.

Picture .1 Structured flow block of aerospace photogrammetric technologies realization in tasks of geoinformatic support of oil and gas fields.

Geoinformatic support of field and pipeline territory is created on **the first level**. This support includes topographic model and based on it models of geological, hydrometeorological, ecological processes and effects.



Picture .1 Structured flow block of aerospace photogrammetric technologies realization in tasks of geoinformatic support of oil and gas fields

On the second level in geospatial of topographic model geoinformatic support of the project is created. It is oriented on functional problems solving.

In this report we presented examples of creating geoinformatic support of both first and second levels, basing on aerospace photogrammetric technologies. Also stated requirements to characteristics of initial images used and ways of effectiveness increase in creating geoinformatic support, basing on sample descriptions reflected earth surface models and its indicators.