STATE SCIENTIFIC ORGANIZATION «UNITED INSTITUTE OF INFORMATICS PROBLEMS» (UIIP)
NATIONAL ACADEMY OF SCIENCES OF BELARUS

SPACE PROGRAMS OF BELARUS

The National Space Program in Belarus was approved by the Government and started in 2008 for the period till 2012. In the frame of the Program the Belarusian space system of high resolution remote sensing of Earth will be created along with the development of advanced geospatial technologies. The results will be used in the interests of Belarusian economy, government, enterprises and citizens of Belarus.

The main tasks of the Program:

- Scientific research for creation of basic elements and prospective technologies of space-system engineering
- Creation of space apparatus for different application
- Creation of land-based infrastructure for space information reception, processing, dissemination and also for space satellites control
- Development of geospatial information technologies to be used in many social and economy spheres like agriculture, forest industry, water resources, city and land cadastre, navigation.

The United Institute of Informatics Problems (UIIP) is the leading organization in the development of space technology elements in Belarus. Within last 30 years the institute was creating the tools for digital cartography on the basis of aero and space information.

The great experience in space system of remote sensing of Earth is the result of participation in three Belarusian-Russian Space programs: "COSMOS-BR" (1999-2004); "COSMOS-SG" (2004-2007), "COSMOS-NT" (2008-2011).

Currently the satellite **flight control center** is under development in Belarus to control the flight **of Belarusian satellite** to be launched in 2010.

The space program also includes the activities on GLONASS-GPS navigation system use and space specialists training.

UIIP and other Belarusian organizations participating in the programs are ready to cooperate with European scientific centers in the frame of **FP7** in the projects of **remote sensing of Earth and geospatial applications**: satellite pictures processing, modeling extreme situations, Earth surface monitoring, natural resources investigation, decision support service.

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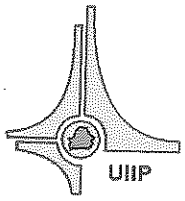

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GEOSPATIAL APPLICATIONS

(Proposals of Belarusian organizations for cooperation in FP7 projects)

- Water resources investigation and control
  - Evaluation of water resources volumes in the regions
  - Evaluation of water resources and artificial repositories status
  - Modeling the extreme situations on hydro engineering objects
  - Evaluation of disasters consequences
  - Evaluation of siltation and decrease of practical use volume of natural and artificial water resources as the result of industrial activity.
  - Quantitative assessment of sapropel deposit to evaluate the possibility of its effective use
- Remote sensing for Vegetation and forests
  - Forest resources cartography
  - Monitoring the vegetation status in the regions with crisis ecological situation
  - Monitoring the status of protecting wood plantings
  - Evaluation of technology impact on the forest resources
  - Decision support in forest cuttings
  - Forest fire detection
  - Evaluation of the damages as the consequences of forest fire
- Remote sensing for peat resources status
  - Diagnosis of peat resources status
  - Recreation of peat resources control
  - Evaluation of natural peat bogs
  - Peat fire detection and monitoring
  - Prognosis of peat fire consequences
- Land resources control
  - Detection of damps, soil erosion, ravines
  - Monitoring the urban influence on adjacent territories
  - Identification of rare animals potential locality
- Agriculture
  - Evaluation of natural disasters effect (hail, shower, hurricane, drought, fire, frosts) by remote sensing
  - Evaluation of soil characteristics (humidity, organic substances, salinity) by remote sensing
  - Estimation of sown areas for definite region;
  - Remote control of heat leaks from buildings and heating mains
  - Monitoring the unauthorized damps.
  - Harvesting monitoring (harvesting campaign control)
  - Spiked grains crop capacity monitoring by satellite radio navigation information
  - Soil organic stuff contain monitoring
  - Soil humidity monitoring
  - Nitrogen content in the plants detection by remote sensing, pilotless vehicles and in situ sensors
  - Monitoring the status of sowing after natural disasters (hurricane, flooding, drought, frost, etc)

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