



Geoinformation Systems



About our enterprise

- ❑ The Republican Scientific Unitary Enterprise «Geoinformation Systems» was founded by ordinance of The National Academy of Sciences of Belarus on June 27, 1996.
- ❑ According to the Decree of the President of the Republic of Belarus №609 dated of 22.12.2004, the UE «Geoinformation Systems» was designated the National Operator of the Belarusian Space System for Earth Remote Sensing.
- ❑ Our staff consists of 198 employees, including 12 PhD candidates and 1 PhD.



Main Activities

- ❑ Design, further development and exploitation of the Earth Remote Sensing System of Belarus;
- ❑ Software development for the Software and Hardware Tasking and Control System of the Belarusian Earth Remote System;
- ❑ Development of GIS software tools for automatic monitoring of territory objects by using of ERS imagery;
- ❑ Development and implementation of Corporative GIS;
- ❑ Development of payloads for Unmanned Aerial Vehicles (UAV)
- ❑ Development of Belarussian standards, normative and technical documentation for main enterprise's activities;
- ❑ Photogrammetric works and thematic mapping.



Mission Control Center (MCC)



- ❑ Monitoring and control of the Belarusian satellite in order to execute its relevant target tasks;
- ❑ Monitoring of the BKA orbital position and supporting of its orbital parameters within the established range with the required precision;
- ❑ Planning of on-board systems and ground facilities performance for carrying out the effective execution of the satellite objectives.



MCC functions

- ❑ Automated long-term and real time planning of the onboard and ground control facilities for the successful execution of the corresponding satellite tasks ;
- ❑ Calculation and generation of the relevant commands and programming information for the BKA supporting subsystems ;
- ❑ Generation of the relevant TTR&C Station data ;
- ❑ Supervision of the execution of the relevant communications sessions programs ;
- ❑ Monitoring the status and performance of the onboard subsystems ;
- ❑ Diagnostics of the satellite subsystems and detection of abnormal situations ;
- ❑ Generation of the correcting control procedures [One-time command (housekeeping command, functional command), command and program information, control command] for fault location and removal of detected abnormal situations ;
- ❑ Determination of satellite cog offset parameters via the processing of the current navigation parameters and data from satellite navigation devices ;
- ❑ Prediction of the satellite movement parameters ;
- ❑ Calculation of the satellite area of visibility from the TTR&C Station, данных об освещенности КА;
- ❑ Calculation of correction pulses for keeping the calculated satellite orbital parameters;
- ❑ Calculation of dish pointing angles and antenna tracking reference data and its transmission to the TTR&C Station.



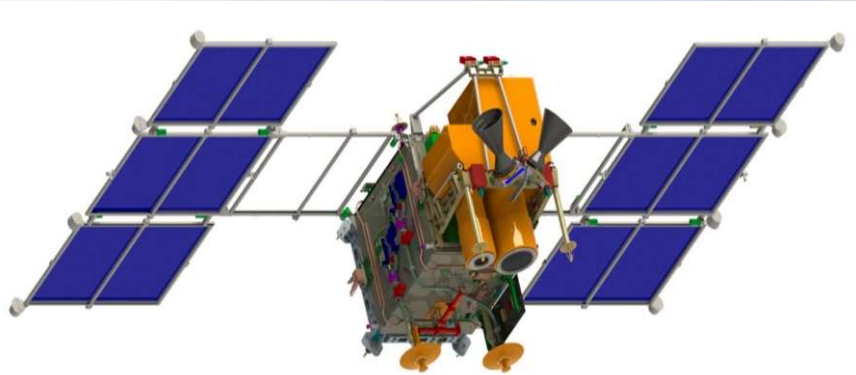
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BSC Mission Data Acquisition Station (Minsk)



Belarussian satellite and target tasks



The BKA satellite was launched into orbit on July 22, 2012. The BKA has a panchromatic imaging systems (PIS), which allow to acquire panchromatic images with a resolution of 2.1 m, as well as a multispectral imaging system (MIS) for acquisition of images with a resolution of 10.5 m within 4 spectral bands.

- Monitoring of anthropic and natural disasters, including casual hydro-meteorological phenomena as fires, freshets and flooding.
- Production and updating of topographic and navigation maps of 1:25 000 – 1: 100 000 scale.
- Monitoring of land use and agricultural production.
- Monitoring of forest changes, forest management, forest tenure activities and forest recovery works.
- Monitoring of dried wetlands.
- Supervision of oil and gas fields and facilities.
- Monitoring of natural resources and shelf ecology (for foreign customers).
- Monitoring of natural and renewable resources.
- Environmental and ecological monitoring.



**Sergey Anatolevich Zolotoy,
Director, PhD Candidate**



**Alexander Afanasevich
Stravrov, Academic
Secretary, PhD**



**Vladimir Anatolevich
Ushkevich, Chief of
BKA MCC**



**Alexander Sergeyevich
Smugalev, Head of
Department, BKA MCC**



**Mihail Vasilevich Zaharevich,
Higher Senior Officer, BKA
MCC, PhD Candidate**



**Dmitry Sergeyevich Kotov,
Head of Planning Group,
BKA MCC**



**Roman Vladimirovich
Saksonov, Chief Engineer,
BKA MCC**



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Co-operation with the BSU



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- Participation in trainings of students of the Belarusian State University taking lectures on the course of «Ballistics and small satellites control»
- Provision of access to students for working with real data sets
- Conduction of laboratory practices on the UE «Geoinformation Systems»
- Provision of BKA satellite imagery to the Belarusian State University



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Plans and outlooks

- ❑ Further cooperation development with the Belarusian State University
- ❑ Opening a branch of the sub-faculty of Physics and Aerospace technologies of the faculty of Computer Technologies of the BSU
- ❑ Training of specialists in the field of space engineering and image processing
- ❑ Work on the development of a new satellite instrument with 0.5 m resolution.

THANK YOU!

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