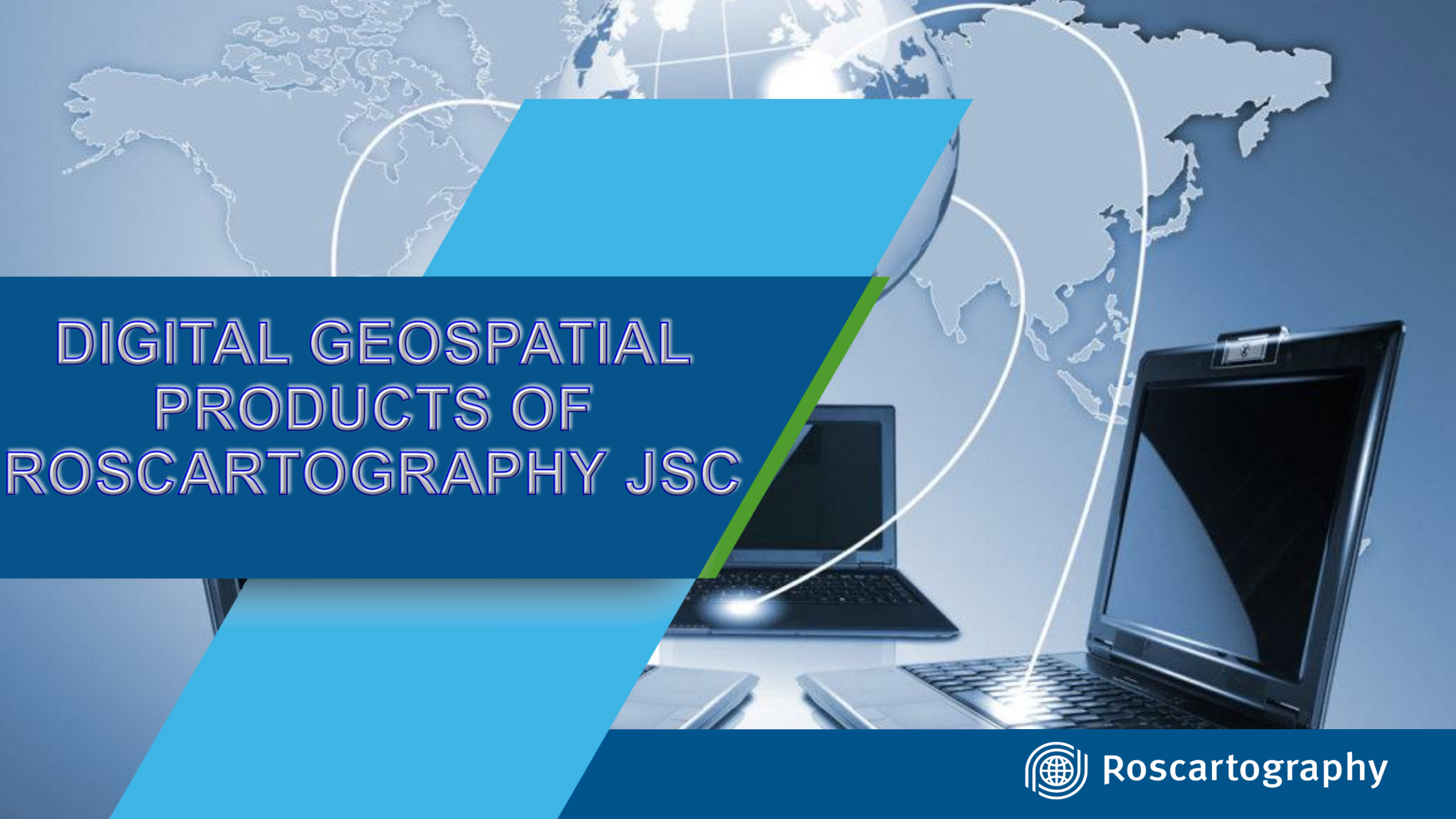
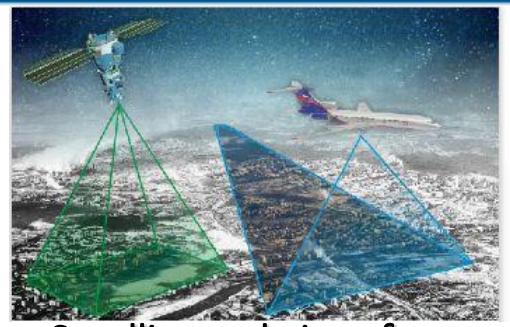


DIGITAL GEOSPATIAL PRODUCTS OF ROSCARTOGRAPHY JSC

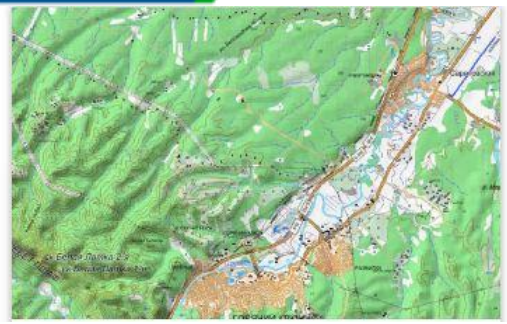
Roscartography

Roscartography

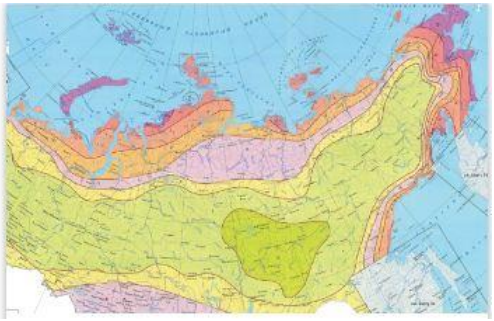
ROSCARTOGRAPHY JSC



Satellite and aircraft monitoring

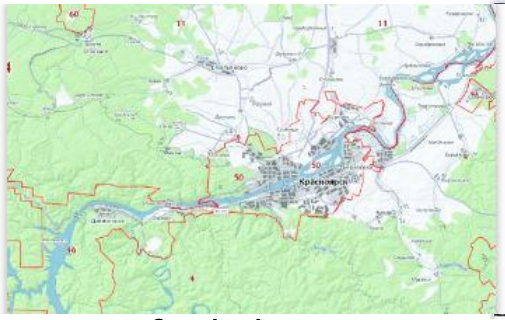


Creating topographic maps and plans



Thematic mapping

Integrated information analysis system



Unified electronic cartographic base

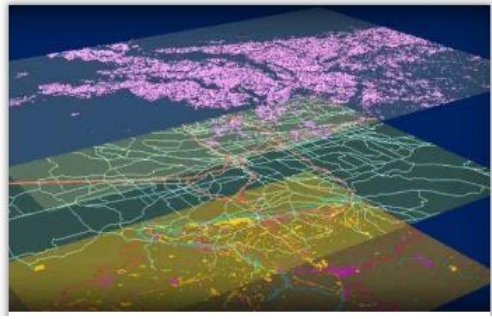
Navigation map

Photogrammetric processing and mapping

Navigational support

Land surveying

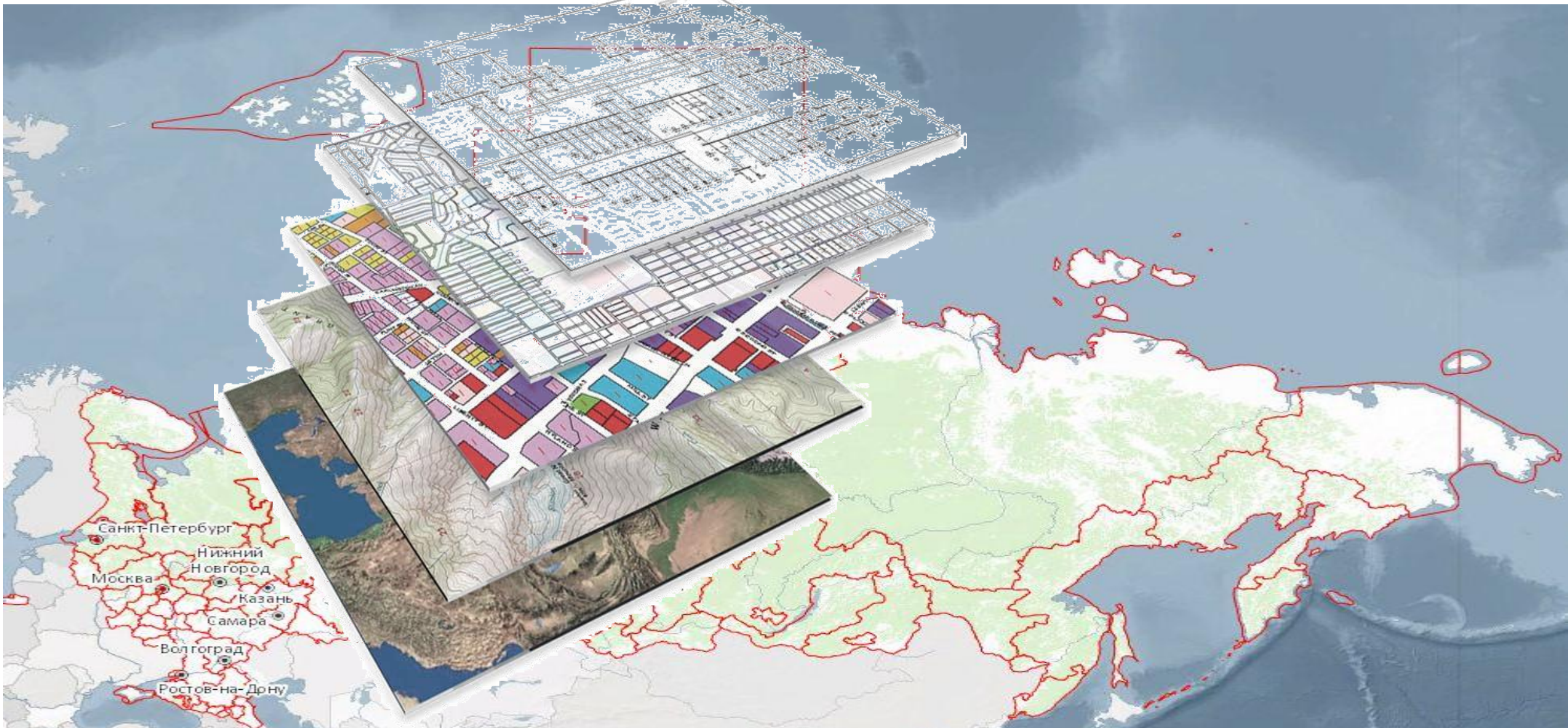
Geodetic surveys



GIS and BIM

Roscartography

Roscartography JSC in the National Project “Digital economy of the Russian Federation”



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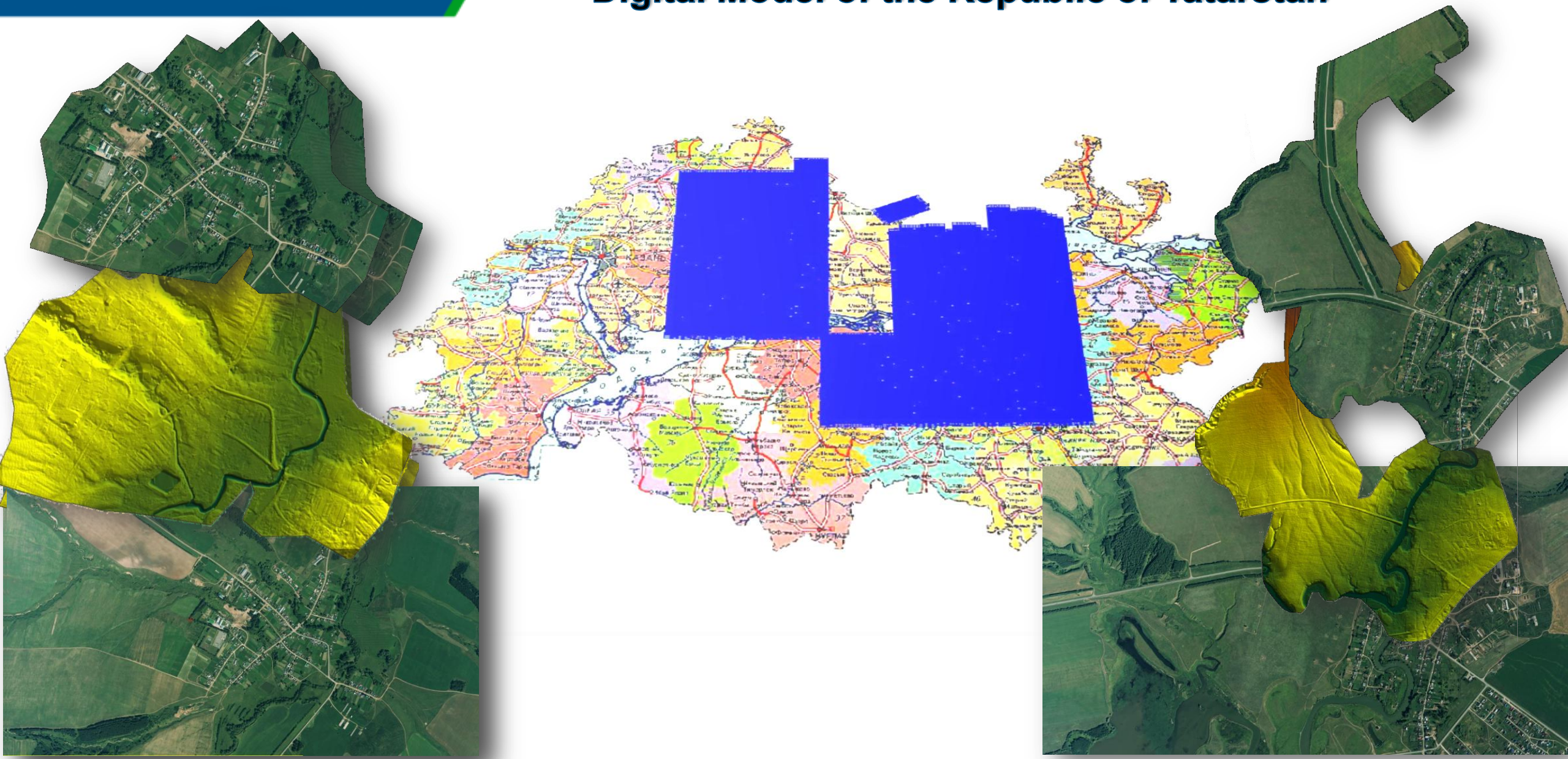
Participation of JSC Roscartography in the project “Digital Model of the Republic of Tatarstan”



Roscartography

The new Leica DMC III – breaking new ground

- Large format airborne camera for wide area mapping
- Unprecedented productivity with high performance workflow
- Revolutionary CMOS technology
- Reduced data acquisition cost due to increased sensor size

Roscartography

Leica DMC III product specifications

PAN	
Pixel across track	25,728
Pixel along track	14,592
FoV across track	57.2°
FoV along track	34.4°
Focal length	92 mm
Pixel size	3.9 µm
GSD (500m)	2.1 cm

GENERAL	
Weight	63 kg
Number of camera heads	5
Resolution per pixel	14-bit
Colour channels	R,G,B, NIR
Frame rate	1.9 sec
Dynamic range (CMOS)	78 dB
Onboard storage	9.6 TB to store up to 7900 images
Operating temperature: Camera control electronic Optics	 0 °C to +40 °C, upper part -20 °C to +40 °C, lower part

MS	
Pixel across track	8,956
Pixel along track	6,708
FoV across track	61.7°
FoV along track	48.2°
Focal length	45.0 mm
Pixel size	6.0 µm
GSD (500m)	6.7 cm

FLYING HEIGHT AND SWATH WIDTH		
GSD, cm	Flying height, m	Swath width, m
3	708	772
5	1,179	1,286
10	2,359	2,573
15	3,538	3,859
20	4,718	5,146
25	5,897	6,432
30	7,077	7,718
33	7,785	8,490
35	8,256	9,005
40	9,436	10,291

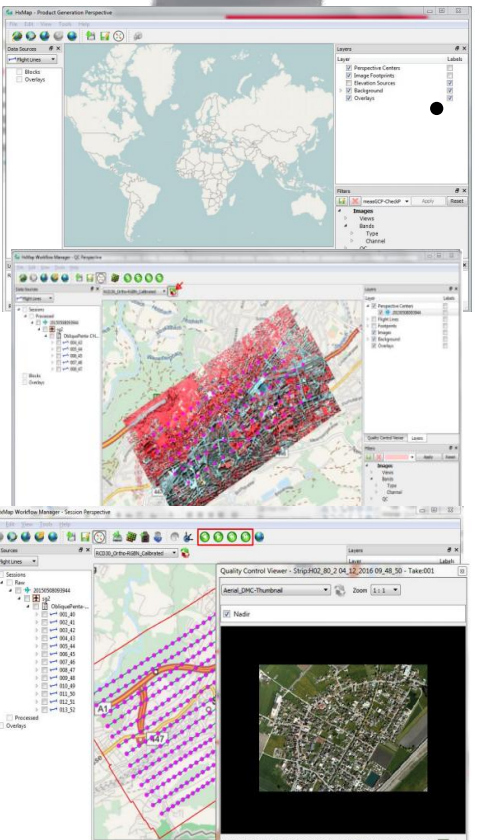
MAXIMUM GROUND SPEED, kts		
GSD, cm	60 % forward overlap	80 % forward overlap
3	161	81
5	213	108
10	267	135
15	325	162
20	370	189
25	431	215
30	541	271
33	640	319
35	781	406
40	1,074	537

Roscartography

Software

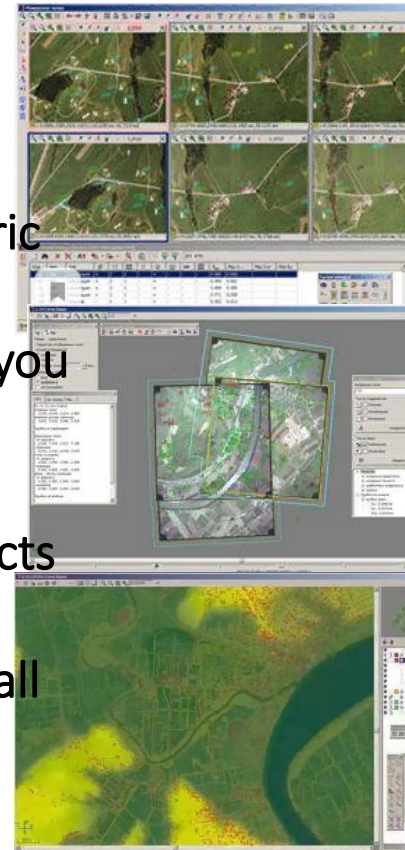
WFM Hxmap

- Fastest, most intuitive postprocessing workflow for airborne sensors
- Saving you time and costs
- Unprecedented data throughput
- Easily adaptable to your needs



DPW PHOTOMOD

- Complete image data processing workflow without third party products
- Full line of data output: DTMs, 3D vectors, orthoimages, digital maps
- High level of automation for main photogrammetric operations
- Flexible modular architecture: you only buy what you need
- High productivity
- Distributed network configurations for large projects implementation
- Ease of use: you are guided step-by-step through all stages of project processing
- Prompt and effective technical support



Roscartography

WFM HxMap Processing Workflow

- **Raw Perspective**
  - Download raw session with full flight metadata
  - Extraction of GPS/IMU data for processing
  - Display session + image thumbnails
  - Initial QC
  - Raw data Ingest

Ingest

- Applies camera calibration
- Calculation of statistics and assign radiometric adjustment
- Calculation of EVO by GNSS / IMU trajectory
- Creating intermediate image data
- Geo-referencing

- **QC Perspective**
  - QC of image data after Ingest
  - Review and determine radiometric settings
  - Creation of blocks from sessions
- **Product Generation Perspective**
  - Create templates and define product specifications
  - Export EOP(exterior orientation parameters)
  - Pan-sharpening
  - Launch product generation process

DPW PHOTOMOD Processing Workflow

- PHOTOMOD Montage Desktop

Project creation and management, initial data input, block-wide operations, choose coordinate system, camera parameter input for project

- module PHOTOMOD AT

-Interior orientation for images
-Automatically measure tie points
-Ground control point measurements
-Relative orientation

- module PHOTOMOD Solver A

Making block adjustments to image blocks (common model construction and exterior orientation)

- module dDSM

Building dense digital surface models with a cell size corresponding to 1 pixel of image Semi-Global Matching (SGM) method

- module of Digital Terrain Model (DTM)

-Editing the digital terrain model
-Automatic filtering of objects located above the ground
-Manual stereo-editing objects

- module PHOTOMOD Mosaic

Creation orthotransformation images
The resultant mosaic is created as a single raster image

- module PHOTOMOD GEOMosaic

Roscartography

Quality and performance

Steps	Volume of work	Times	Results	Quality
Aerial survey	19250 кв. км	9 days	10245 images	100% cloud-free coverage
Post-processing HxMap	19250 кв. км	15 days	10245 images	radiometric and geometric image correction
Creation orthotransformation images and DTM	1000 кв. км	2 months	1200 нл	The accuracy of scale 1: 2000

Conclusion

Scientific and technological progress places great demand on geospatial data. Roscartography JSC creates optimal conditions for the development of technological potential and expands the range of digital geospatial products for public sector and commercial users with an up-to-date and modern cartographic and geodetic basis.

Roskartography JSC constantly introduces new technologies for creating digital geospatial data, equips workstations with modern computer equipment and high-speed optical communication systems, introduces modern software into an industry from companies such as Racurs, Hexagon, Trimble and others and attracts more highly qualified specialists.

Thank you for attention!

Roscartography

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