

Experiences with Terrestrial Laser Scanning in Russia

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FIG Working Week 2009, Eilat, Israel, 3-8 May 2009

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Application of Terrestrial Laser Scanning at Universities and Research Organizations:

- EDUCATIONAL PROGRAMMES
- RESEARCH ACTIVITIES
- DEVELOPMENT OF APPLICATION TECHNOLOGIES

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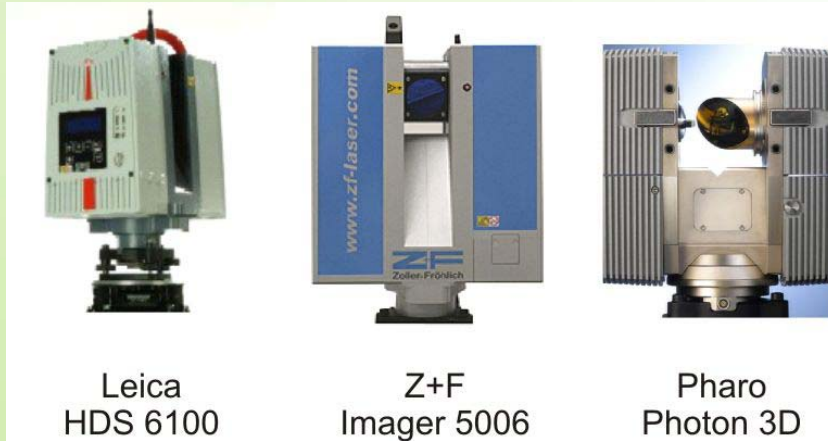
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The Main Users of Terrestrial Laser Scanning Products in Russia are:

- OIL-AND-GAS AND MINING COMPANIES
- DESIGN-AND-SURVEY INSTITUTIONS
- MANUFACTURING COMPANIES
- DEPARTMENTS OF ARCHITECTURE
- others

Terrestrial Laser Scanners are Supplied in the Russian Market by:

- LEICA GEOSYSTEMS
- RIEGL LASER MEASUREMENT SYSTEMS
- ZOLLER+FROHLICH
- FARO
- OPTTECH
- TRIMBLE



PHASE TERRESTRIAL LASER SCANNERS

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HIGH-SPEED PULSE TERRESTRIAL LASER SCANNERS

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Riegl
LMS-Z390i, 420i, 620

Optech
Iris 3D

Trimble
GX

PULSE TERRESTRIAL LASER SCANNERS

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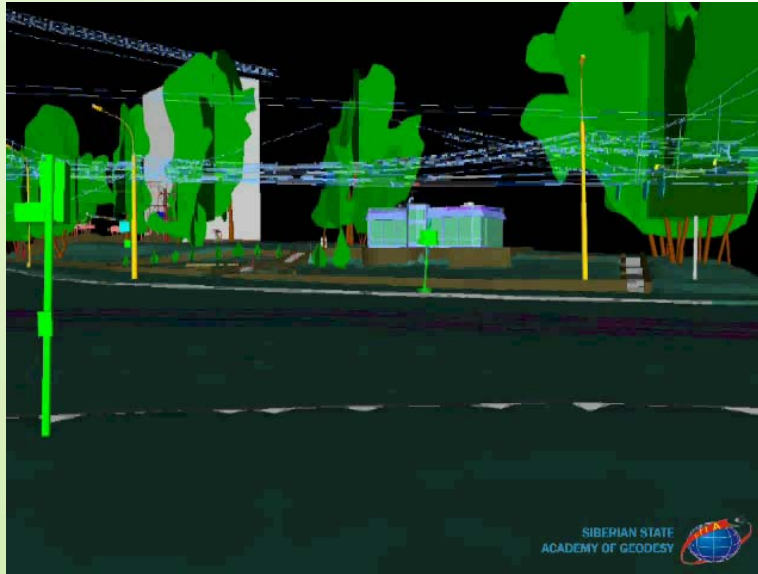
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Applications of Terrestrial Laser Scanning Technology:

- Creation of large-scale topographical plans of populated areas.
Generation of 3D landscape features
- Certification of motor roads. Creation of 3D models for complicated road sections
- 3D model generation of bridge crossings and complicated junctions
- 3D model generation of industrial facilities areas, oil-and-gas production facilities, and large electrical substations
- 3D model generation of hydraulic objects
- 3D model generation of architecture and historic monuments heritage
- Laser scanning survey of quarries for earthwork volumes calculation and quarry monitoring
- Laser scanning survey of shop floors and sophisticated equipment
- Volume quantities calculations of rock, soil, bulk and other material, etc
- Laser scanning survey of architecture monuments and details of architectural appearance
- Laser scanning survey of facades
- 3D model generation of tunnels and underground mines

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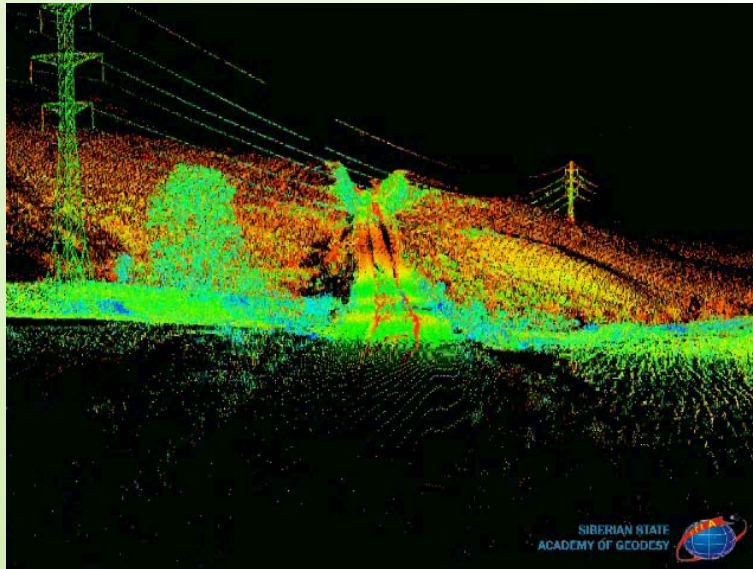
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CREATION OF LARGE-SCALE TOPOGRAPHICAL PLANS OF POPULATED LOCALITIES. GENERATION OF 3D LANDSCAPE FEATURES

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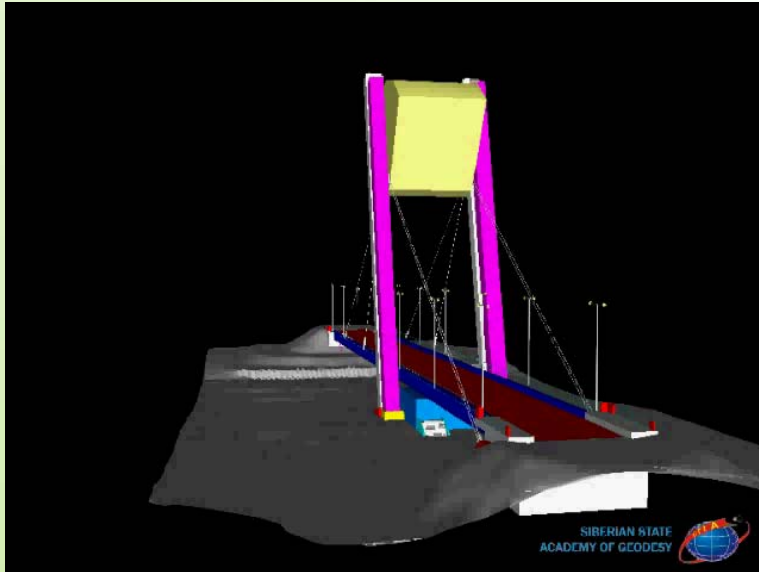
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CERTIFICATION OF MOTOR ROADS. CREATION OF 3D MODELS FOR COMPLICATED ROAD SECTIONS

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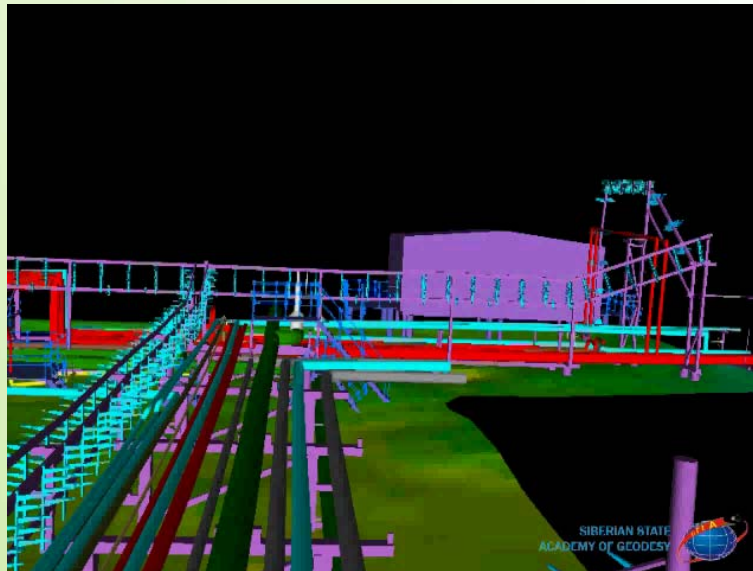
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3D MODEL GENERATION OF BRIDGE CROSSINGS AND COMPLICATED JUNCTIONS

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3D MODEL GENERATION OF INDUSTRIAL FACILITIES AREAS, OIL-AND-GAS PRODUCTION FACILITIES, AND LARGE ELECTRICAL SUBSTATIONS

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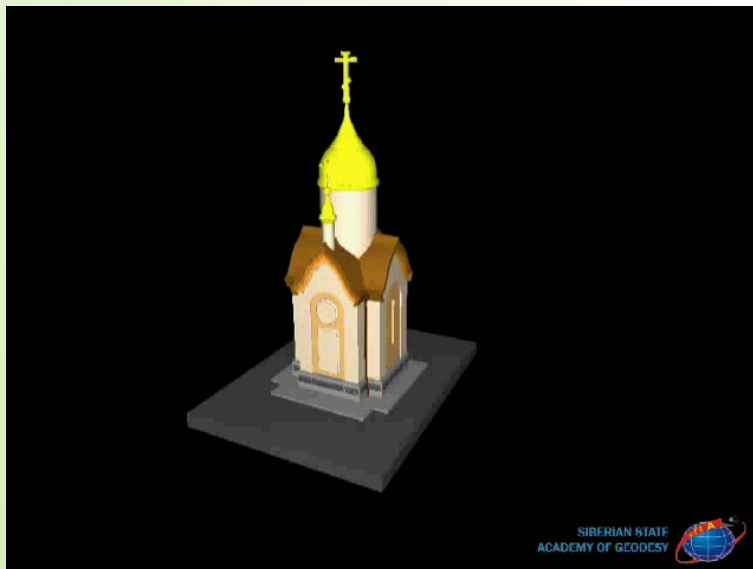
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3D MODEL GENERATION OF HYDRAULIC OBJECTS

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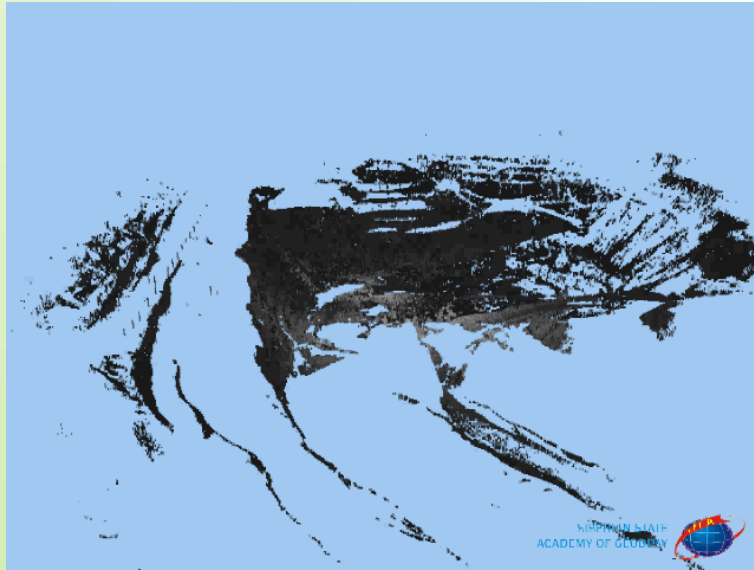
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3D MODEL GENERATION OF ARCHITECTURE AND HISTORIC MONUMENTS HERITAGE

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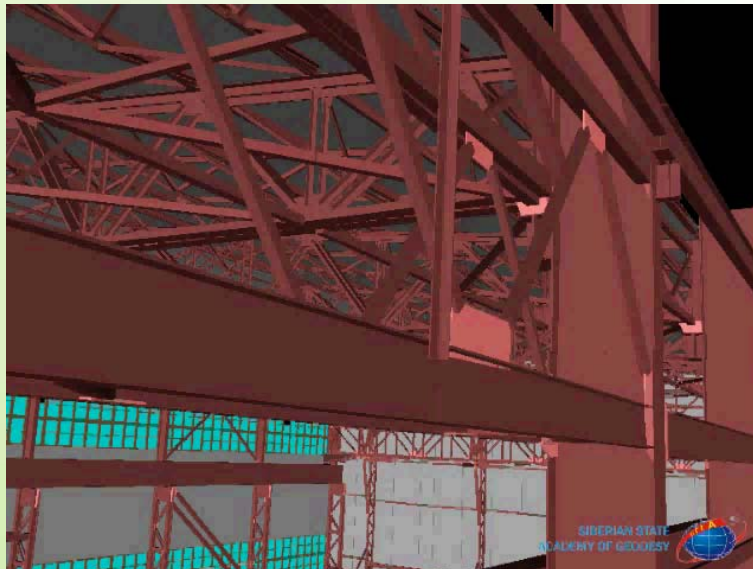
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LASER SCANNING SURVEY OF QUARRIES FOR CALCULATION OF EARTHWORK VOLUMES AND QUARRY MONITORING

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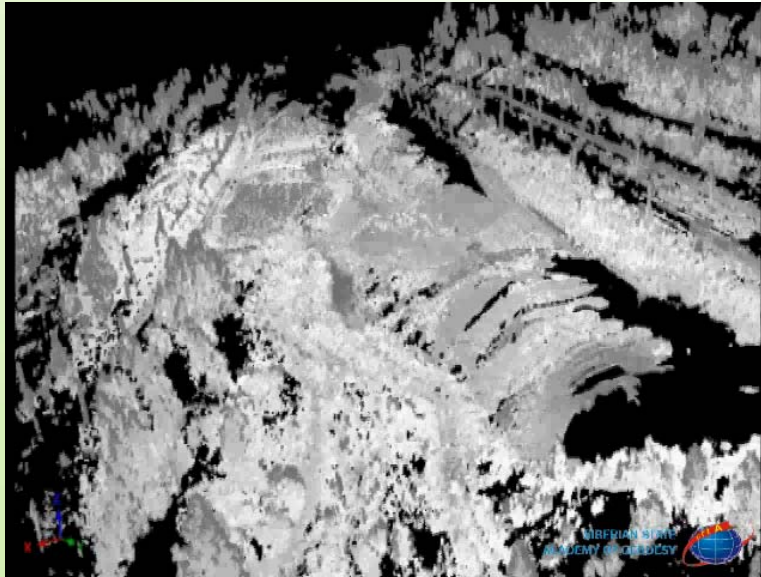
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LASER SCANNING SURVEY OF SHOP FLOORS AND SOPHISTICATED EQUIPMENT

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THE VOLUME CALCULATIONS OF ROCK QUANTITIES, SOIL, BULK, ETC

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**LASER SCANNING SURVEY OF ARCHITECTURE MONUMENTS AND
DETAILS OF ARCHITECTURAL APPEARANCE**

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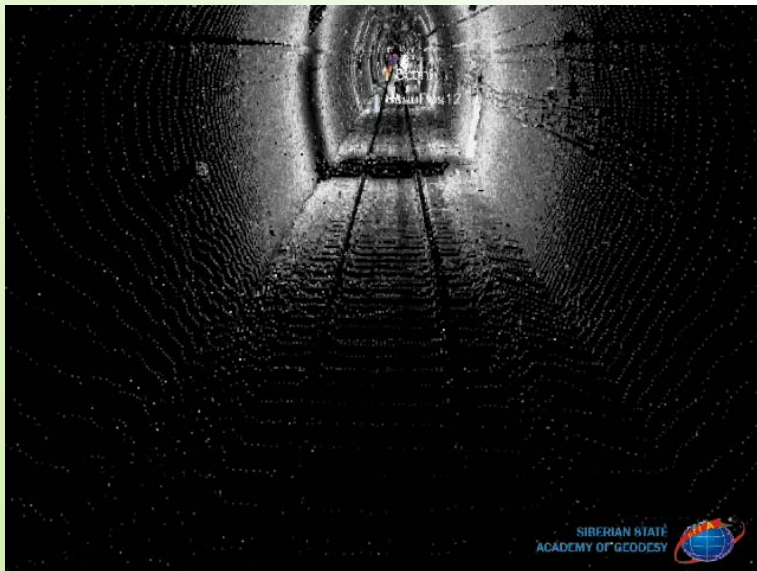
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LASER SCANNING SURVEY OF FACADES

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3D MODEL GENERATION OF TUNNELS AND UNDERGROUND MINES

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The Promotion of Terrestrial Laser Scanning in Russia is Limited by:

- UNAVAILABILITY OF SOME DESIGN ORGANIZATIONS TO OPERATE WITH 3D MODELS
- APPLICATIONS OF TERRESTRIAL LASER SCANNING ARE NOT REGULATED BY THE ORDINANCES
- SOME COMPANIES SALE LASER SCANNERS AND SOFTWARE WITHOUT ANY ESTIMATION OF THEIR FURTHER EFFICIENCY
- LOW SERVICE LEVEL