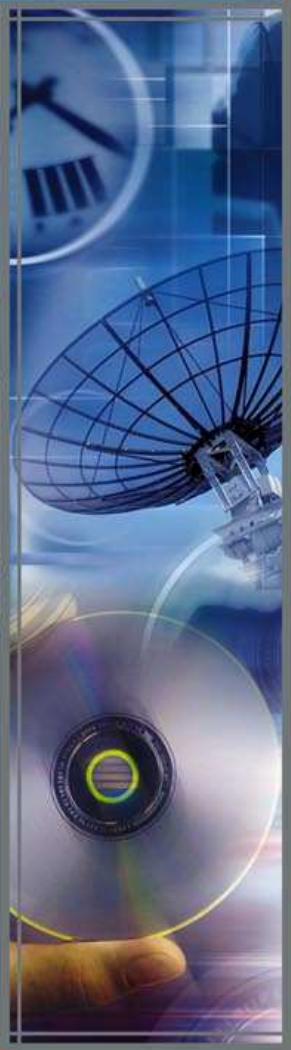
ScanEx
RESEARCH AND DEVELOPMENT CENTER



Receiving Station as a Geoportal Tool for Operative Data Supplying and Updating

Olga N. Gershenzon,
Vice-President,
SCANEX R&D Center

Direct Readout Workshop,
Mexico City
October 10 - 11, 2007

WWW.SCANEX.COM

Presentation Outline

- Briefly about R&D Center ScanEx;

- Remote sensing data receiving stations: yesterday and today;

- Geoportal as an innovative product and research instrument in geoinformatics;

- The first geoportails in Russia – the examples;

- Receiving stations for operative data updating in Geoportal.

The Main Spheres of SCANEX Activities

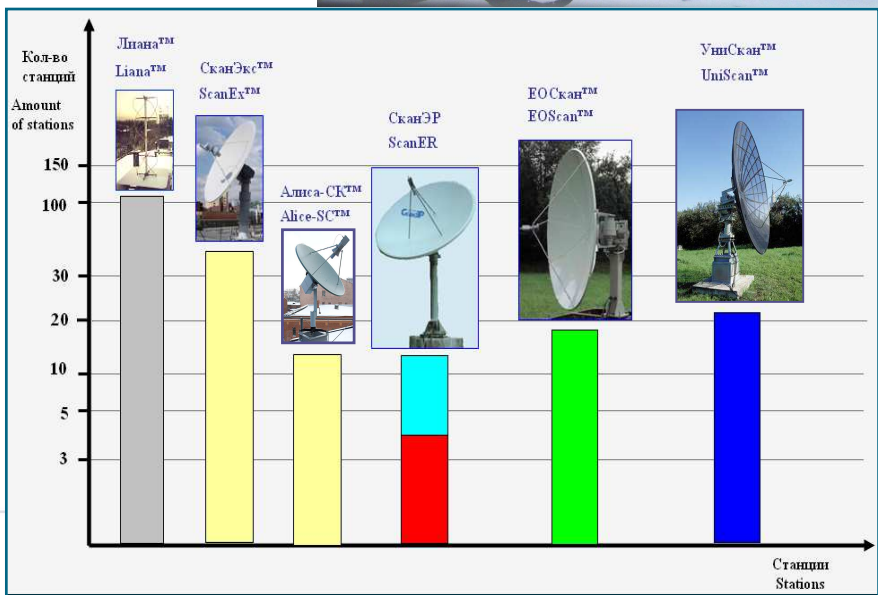
- **Receiving stations (HW&SW) – Alisa, EoScan and Uniscan** – > 200 complexes in 14 countries and Antarctic;

- **Space imagery archiving and distribution** (new and archiving images from «Meteor», «Resources», LANDSAT, RADARSAT, EROS, IRS, SPOT, ENVISAT and others;

- **Image processing software** –

full technology chain from raw data processing to value-adding products;

- **Research in EO and thematic applications** – geoportails, oil spills control and microsatellites (!).



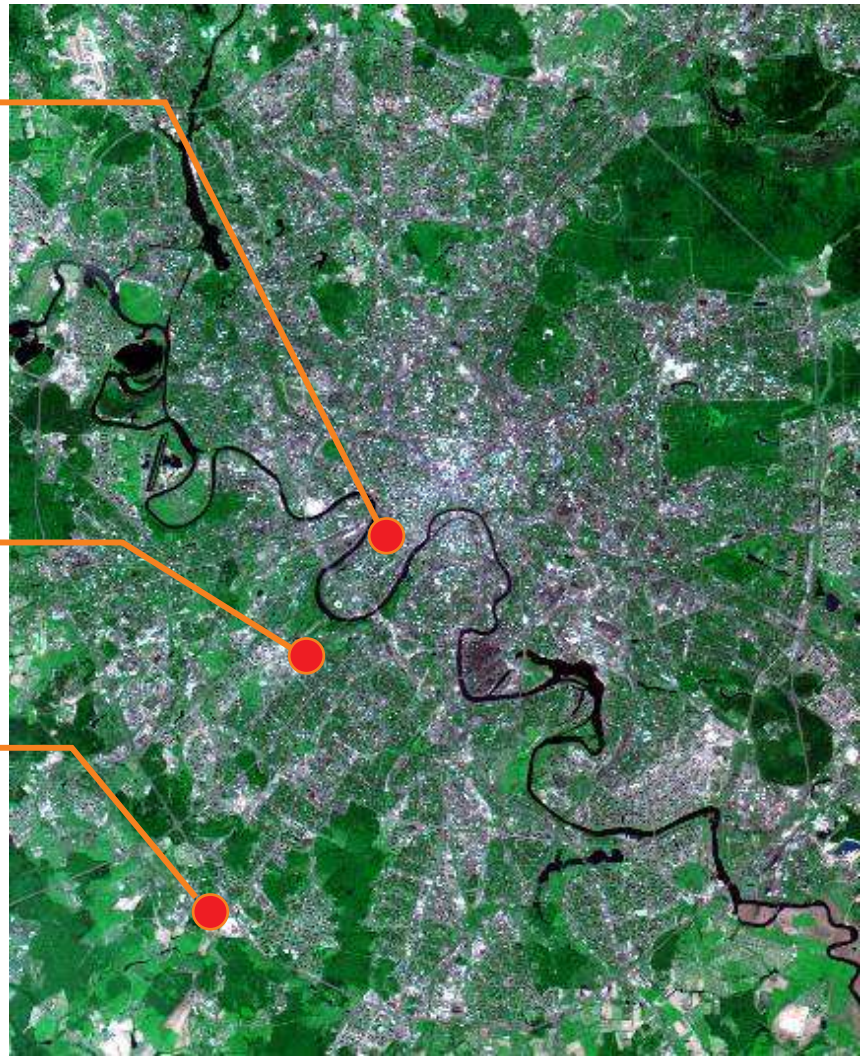
18 years on geospatial data market

ScanEx departments location in Moscow

Headquarter
Administrative Department
Engineering Department
Software Development Department
Marketing Department

Antenna Test Site

Archive and Receiving Center
Schedule Department
Thematic Analysis Department
Data Sales Department



We promote the “Decentralized Access to EO Data” concept

Advantages:

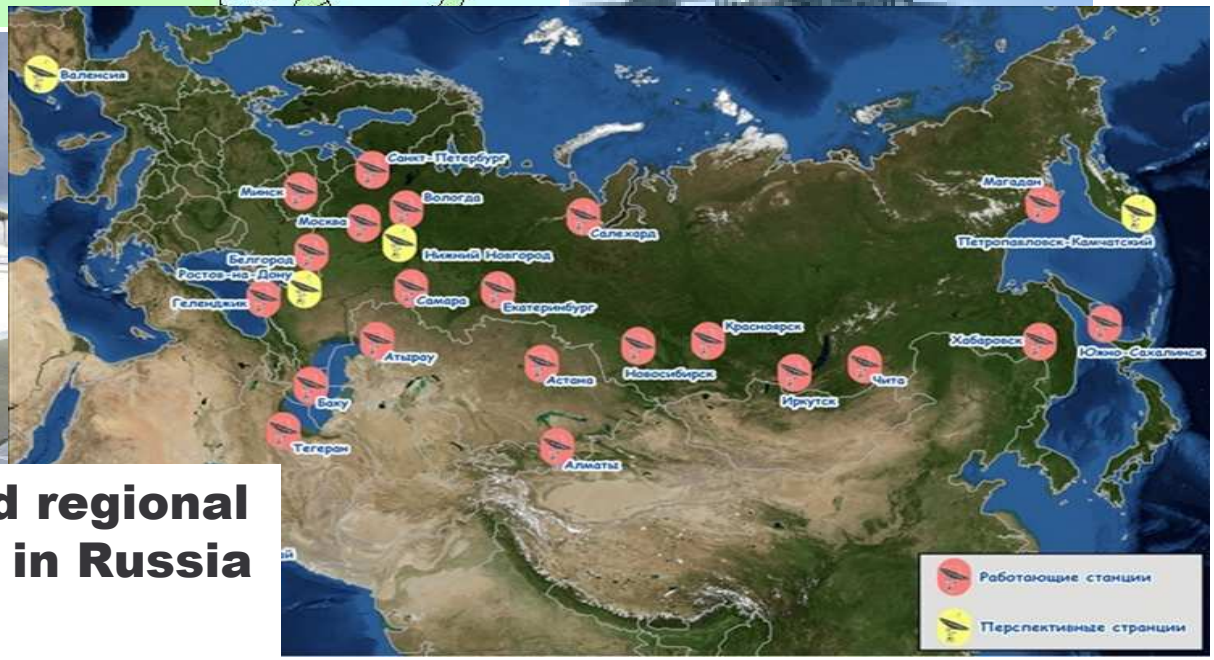
Faster (direct access, regional EO data centers)

Cheaper (cheaper than from centralized EO Data archives)

Easier (state-of-the-art technology for EO data storage and processing)

Centralized vs Decentralized Ground Receiving Network : Yesterday and Today

Yesterday: 3 only regional EO data receiving Centers in the Soviet Union



Today: > 27 UniScan-based regional EO data receiving Centers in Russia and CIS countries by 2008

Flexible and Universal Solution in Earth Observation Data Access

EO Data Receiving from 14 satellites today!

IRS-P5

IRS-P6

EROS A/B

SPOT 2/4

Ресурс-ДК

Envisat-1

Landsat-5

Aqua / Terra

SPOT-5

IRS-1C/1D

Kompsat-2

Cartosat-2

RADARSAT-1

IRS-P6

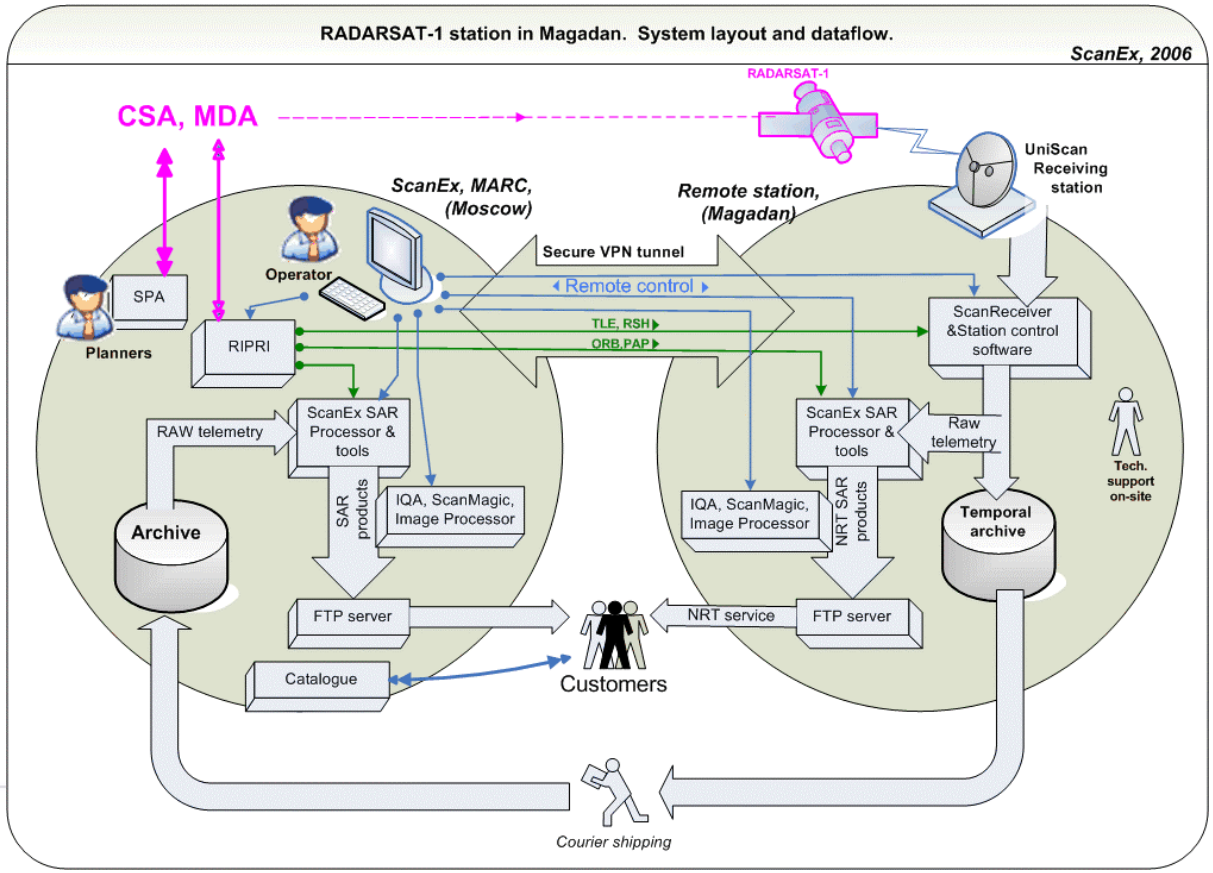
Cartosat-2

Current satellites

Satellites in progress

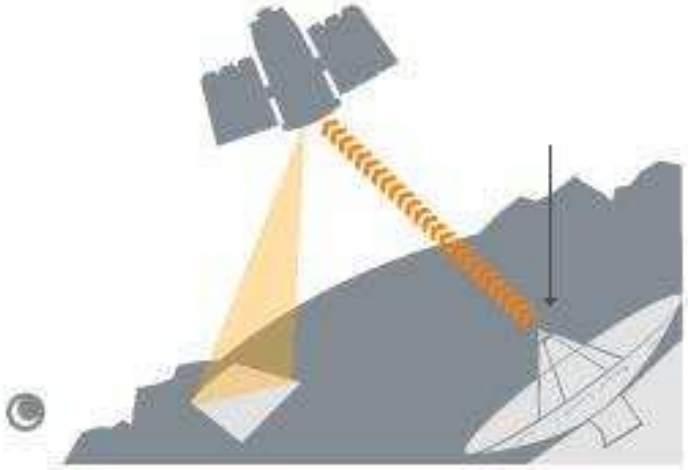
Magadan station – the first remotely controlled station with web-access in Russia

Canadian Space Agency and MDA Company has certified Magadan station (Far East) for RADARSAT-1 data receiving in January 2007.



Operative informational service with web-access to EO data and products

Thematic Data Processing Center



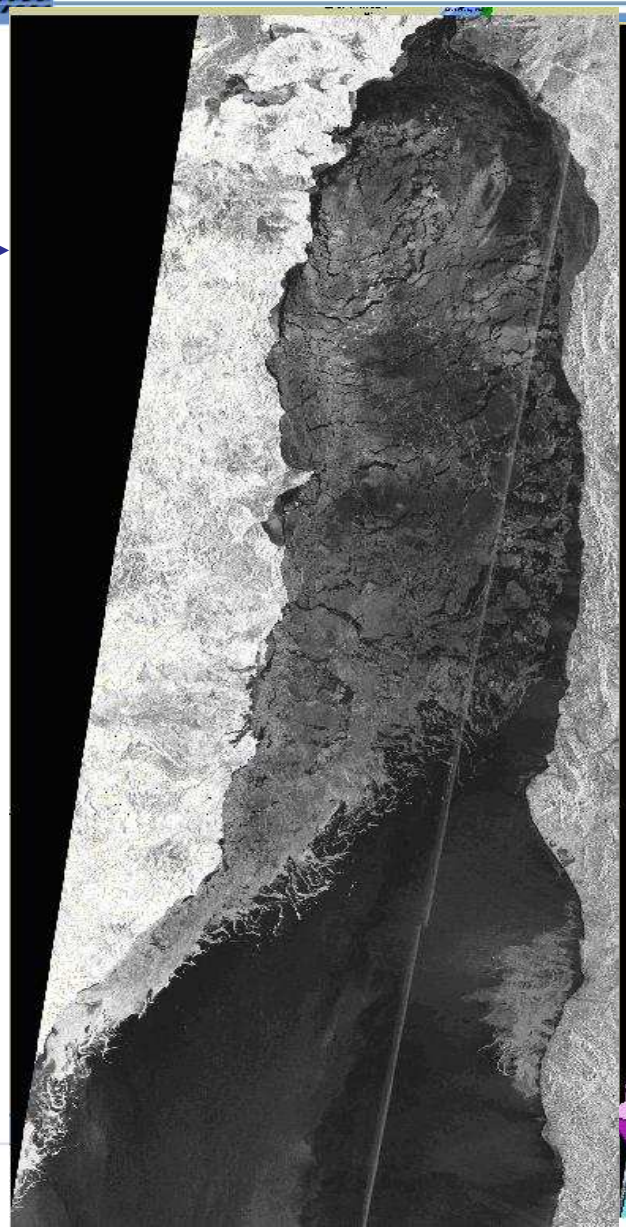
EO data receiving Center

Internet

End User

Magadan station – the first remotely controlled station with web-access in Russia

Tatar Strait, RADARSAT-1, 02/19/2007



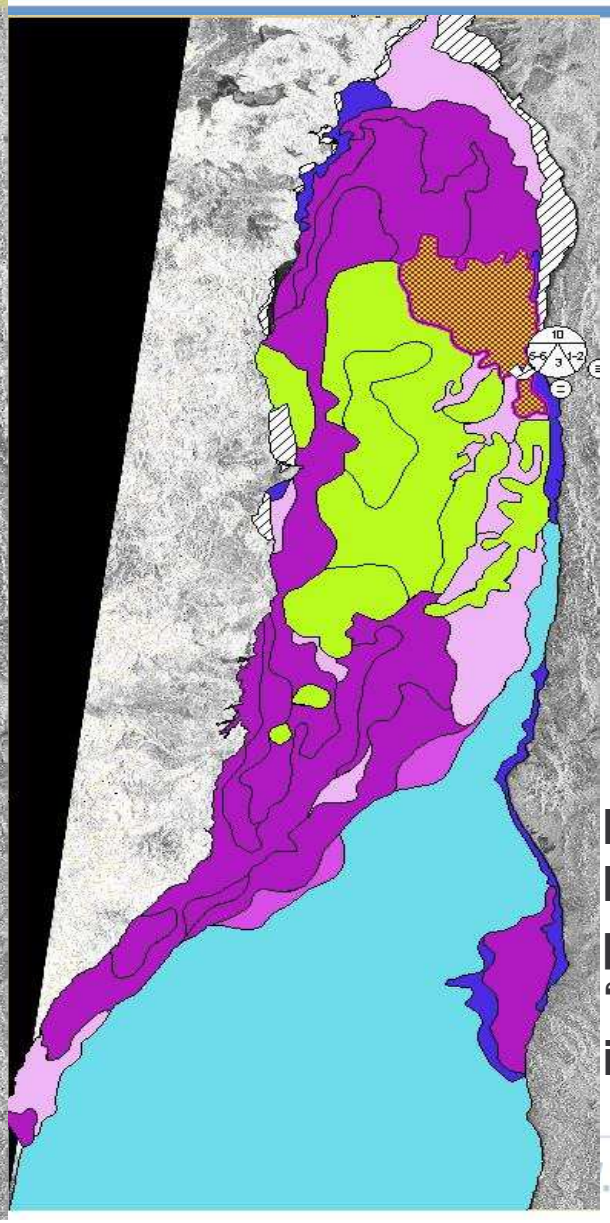


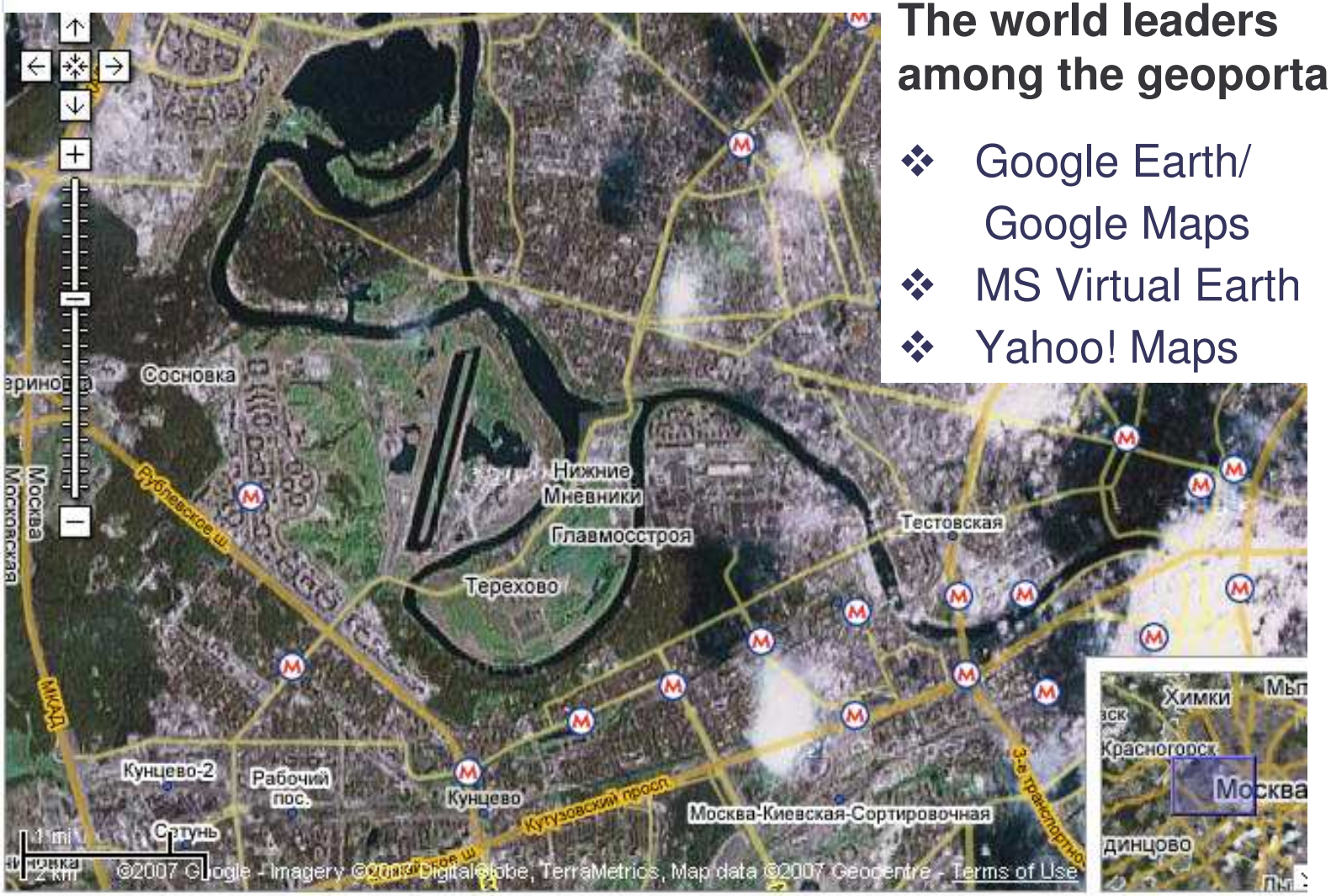
Image-based Ice Map processed by "North" Center in AANII

Geoportal as an innovative product and research instrument in geoinformatics

The main components and contributors of geoportals:

- **Earth Observation from space:**
  global Earth coverage by images from **LANDSAT** (resolution 15-30 m), **SPOT** (10 и 20 m) and populated areas coverage by VHR imagery from **QuickBird, Ikonos, Cartosat, EROS A/B (0.6 - 2.5 m), IRS/PAN** (5.8 m).
- **Satellite Geodesy:**
  World Geodetic System **WGS-84.**
- **Space Cartography:**
  global free-distributed DEMs from **SRTM** program and from stereoimaging by **ASTER, SPOT-5, ALOS, Cartosat-1** satellites.
- **Space Navigation:**
  GPS (USA), **GLONASS** (Russia), **GALILEO** (Europe).

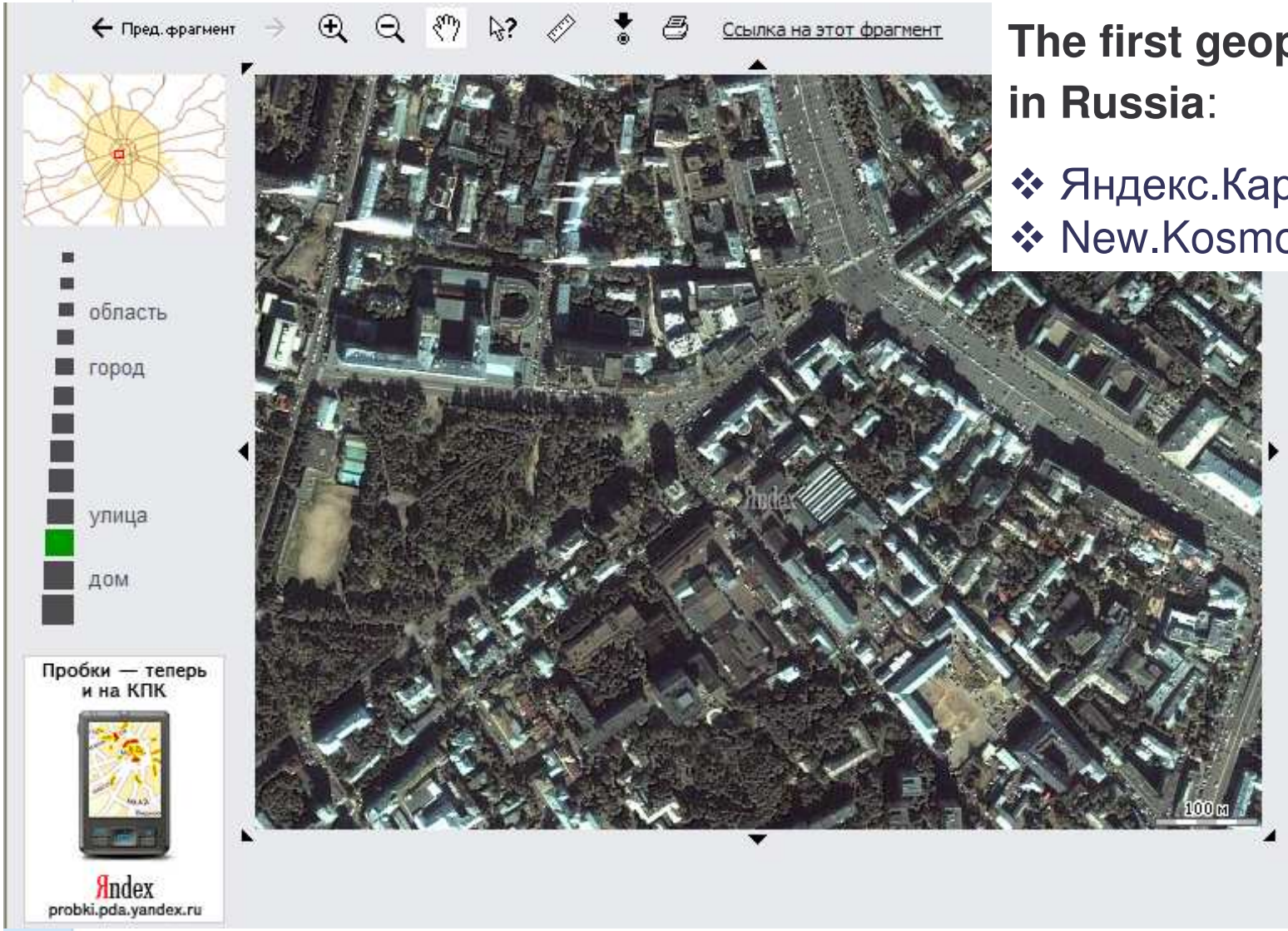
Geoportal as an innovative product and research instrument in geoinformatics



The world leaders among the geoportails:

- Google Earth/ Google Maps
- MS Virtual Earth
- Yahoo! Maps

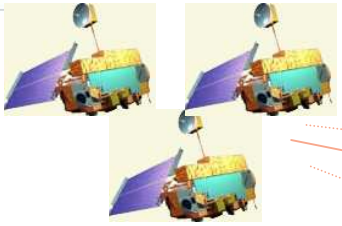
Geoportal as an innovative product and research instrument in geoinformatics



The first geoportails in Russia:

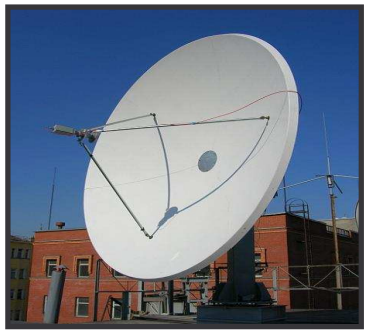
- Яндекс.Карты
- New.Kosmosnimki.ru

Geoportal as an innovative product and research instrument in geoinformatics



EO satellites

Ground receiving station



Regular updating

Data archiving

Image mosaics

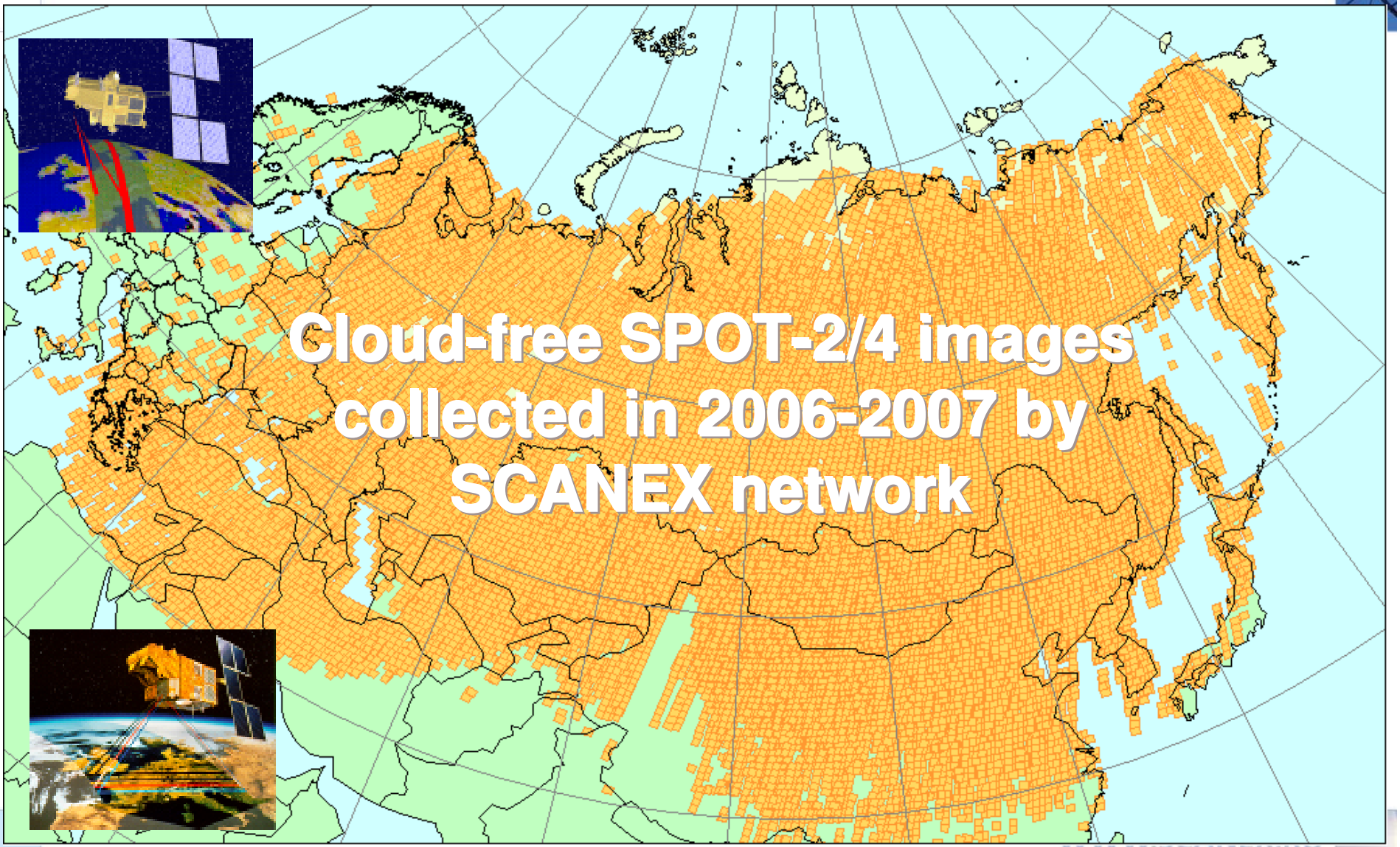
Main products

Regional and Specialized geoportails

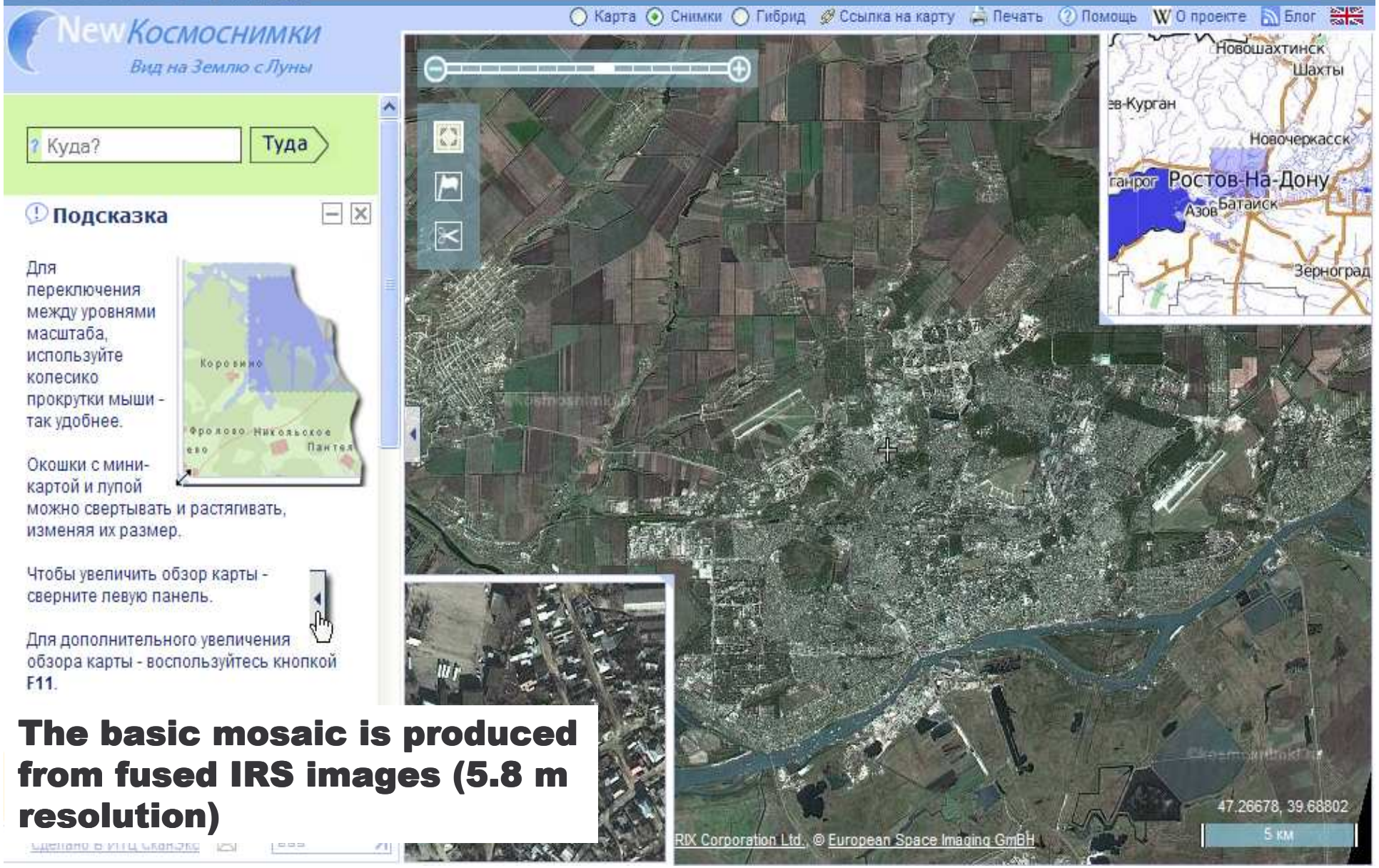
SCANEX Ground Station Network for Russian geoportail data updating

СканЭкс
ИНЖЕНЕРНО-ТЕХНОЛОГИЧЕСКИЙ ЦЕНТР

The result of SPOT 2/4 imaging in 2006-2007 – cloud free high-resolution images for 95% Russian Territory (17 mln. sq. km)

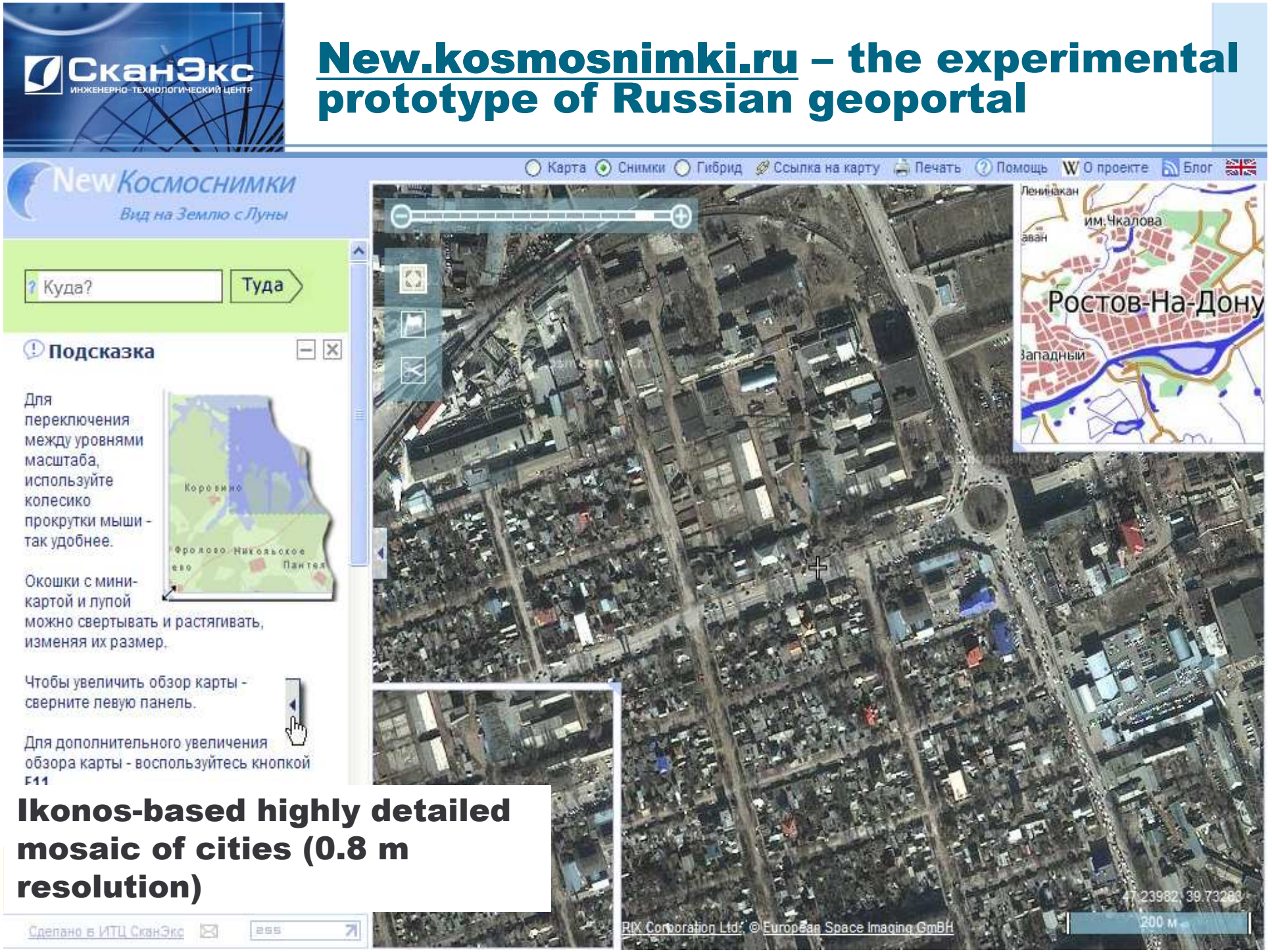


New.kosmosnimki.ru – the experimental prototype of Russian geoportal



The basic mosaic is produced from fused IRS images (5.8 m resolution)

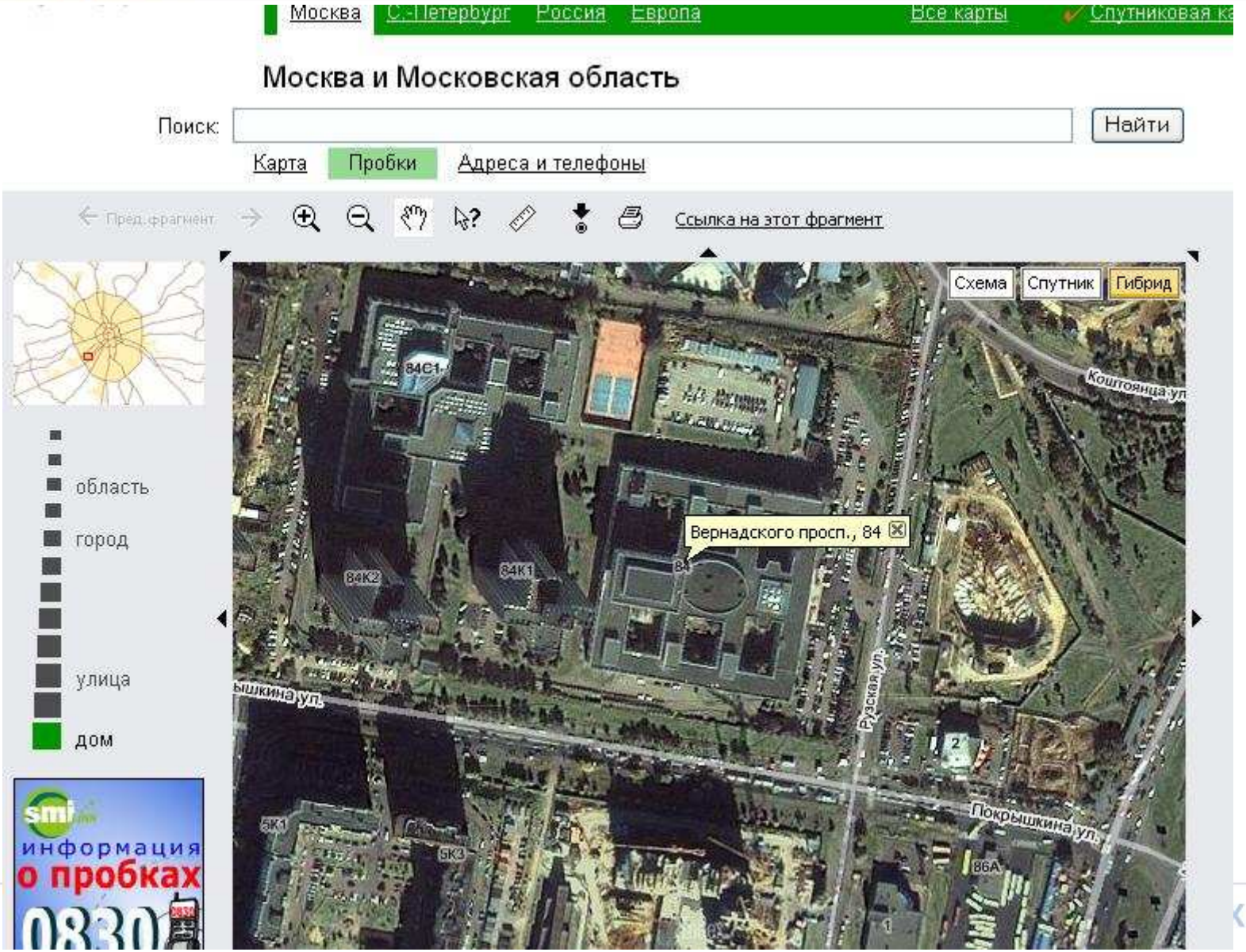
New.kosmosnimki.ru – the experimental prototype of Russian geoportal



Ikonos-based highly detailed mosaic of cities (0.8 m resolution)

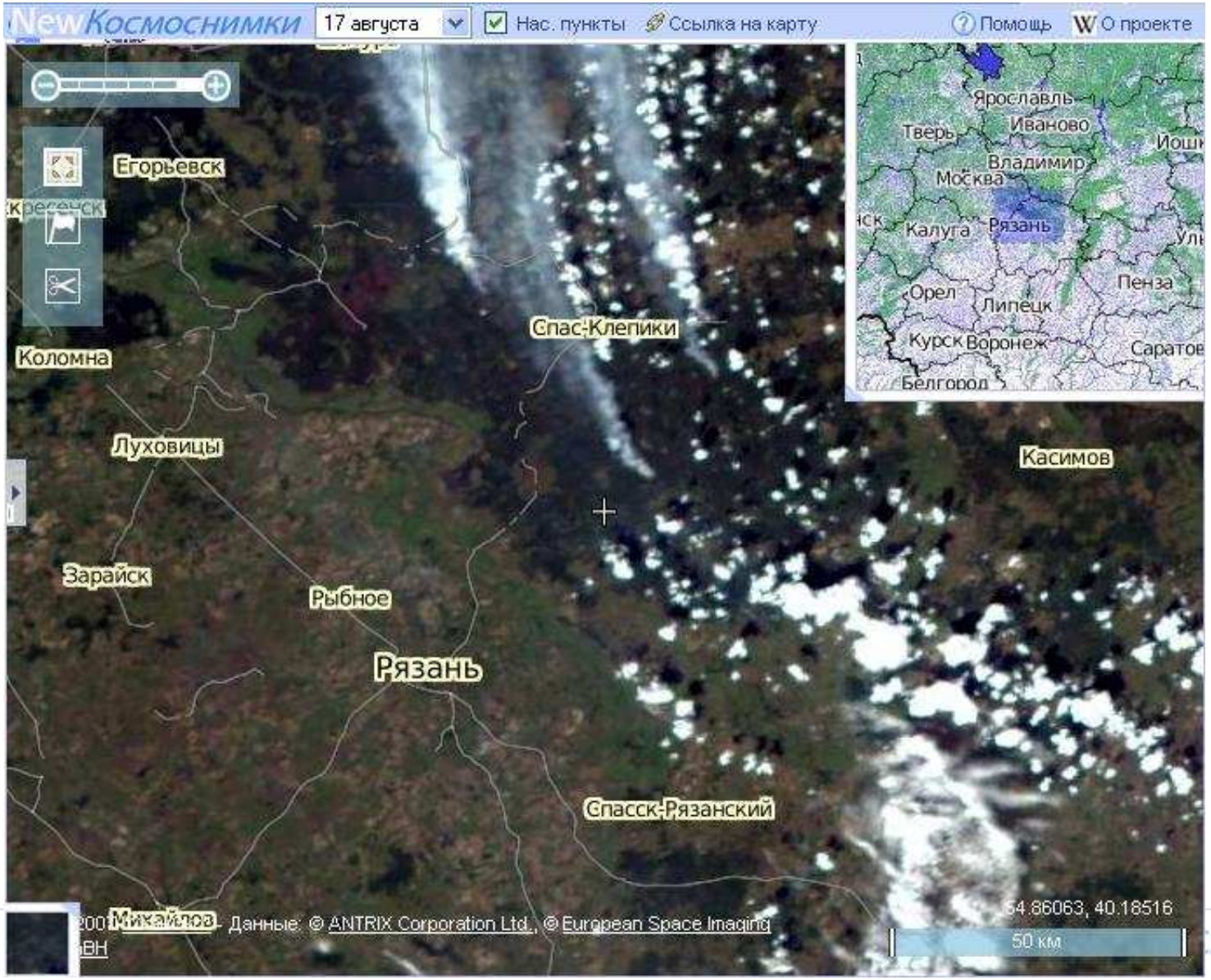
СканЭкс
ИНЖЕНЕРНО-ТЕХНОЛОГИЧЕСКИЙ ЦЕНТР

http://maps.yandex.ru



Geoportal as a Tool for Operative Data Visualization

Forest fires near Razan', 17 August 2007, MODIS, AQUA



Geoportal as a Tool for Operative Data Visualization

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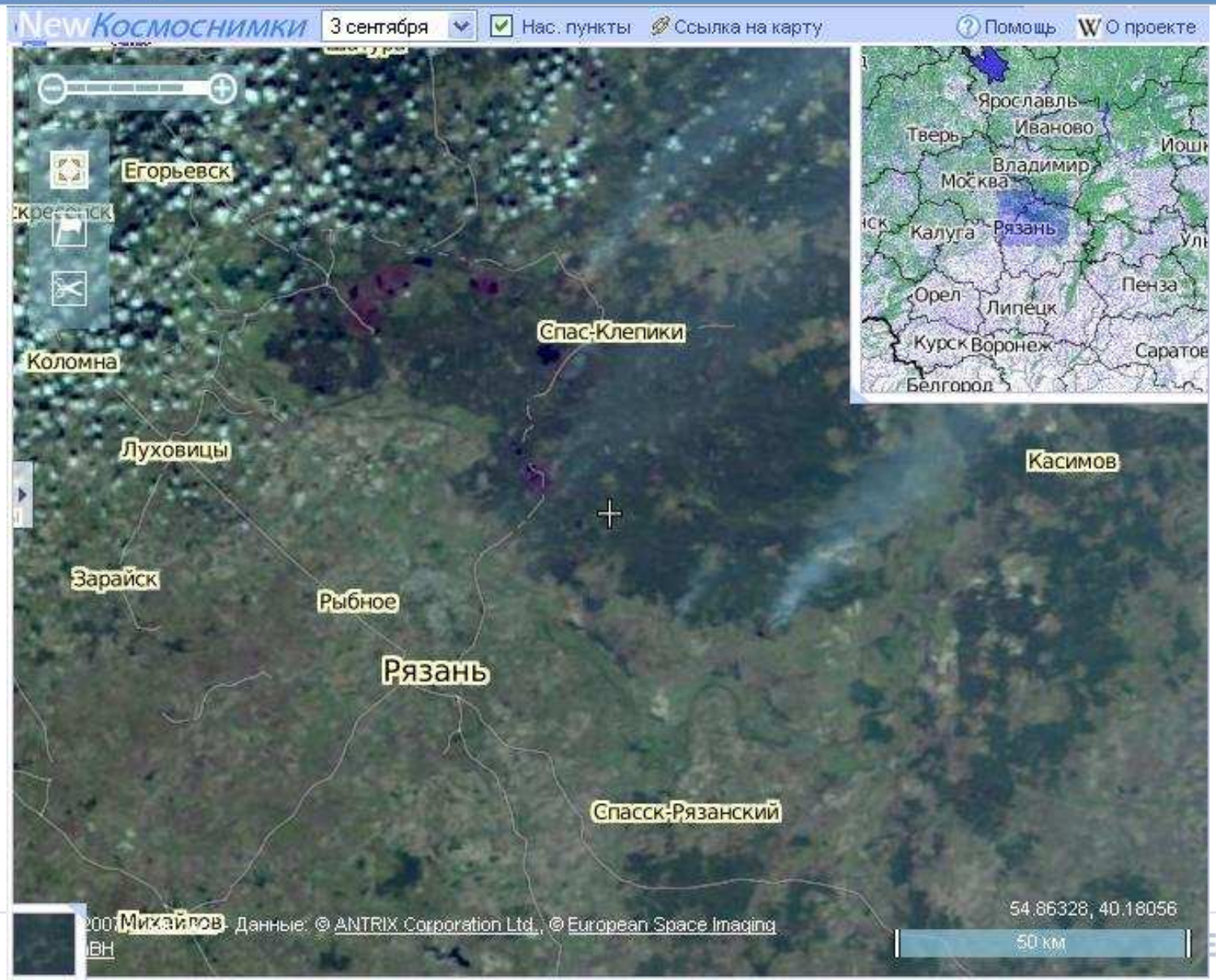
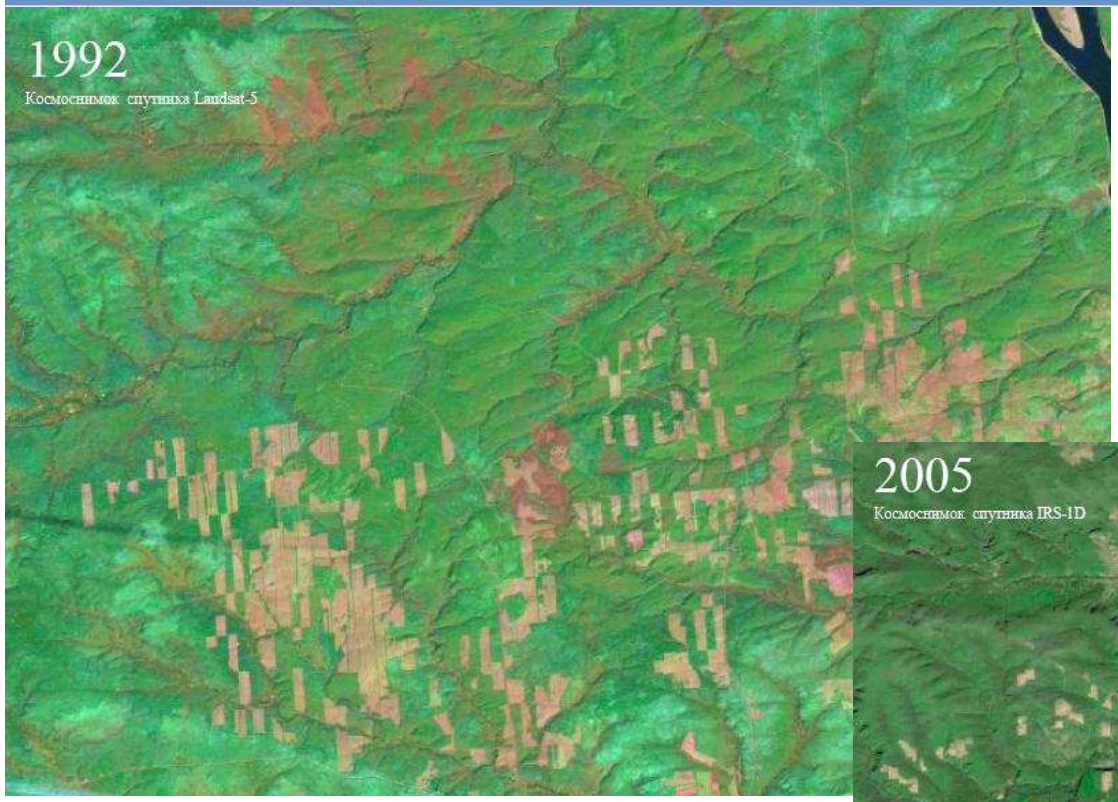


Operative Space Data–Based Geoportal as a Tool for Emergency Situation Management

Flooding in Oka river region, 20 April 2006

Operative Space Data–Based Geoportal as a Tool for Regional Development and Control

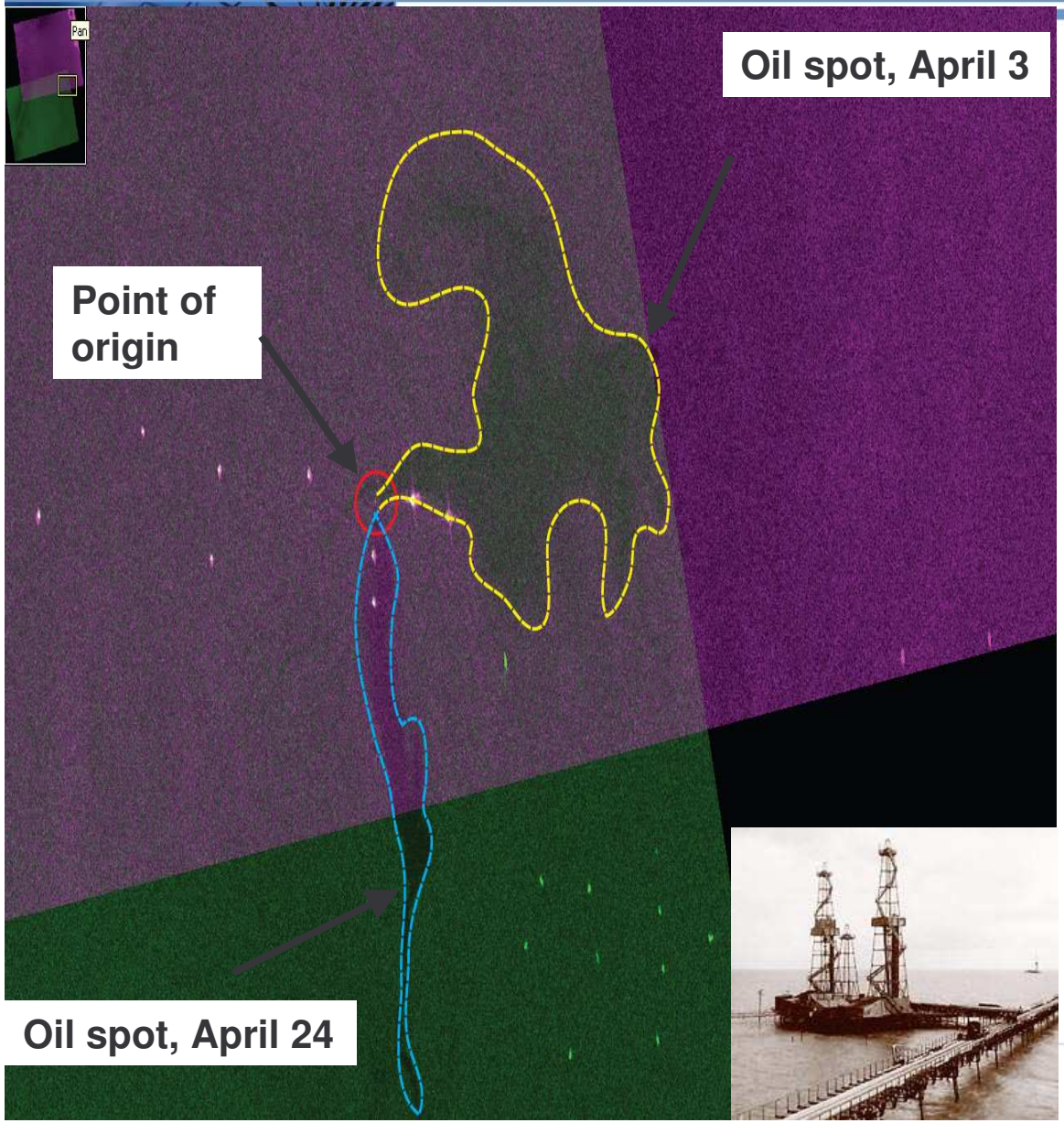
Forest Logging Activity in Syberia



Landsat 5, 1992
Irkutsk Region

IRS 1D, 2005
Irkutsk Region

Operative Multy-Temporal Oil Spills Monit



Фонтанирование нефти из законсервированных нефтяных скважин

April 4-5, 2006. Ecological Control Service has detected oil spill in Caspian Sea.

RADARSAT-1 monitoring:

April 3 and April 24, 2006.

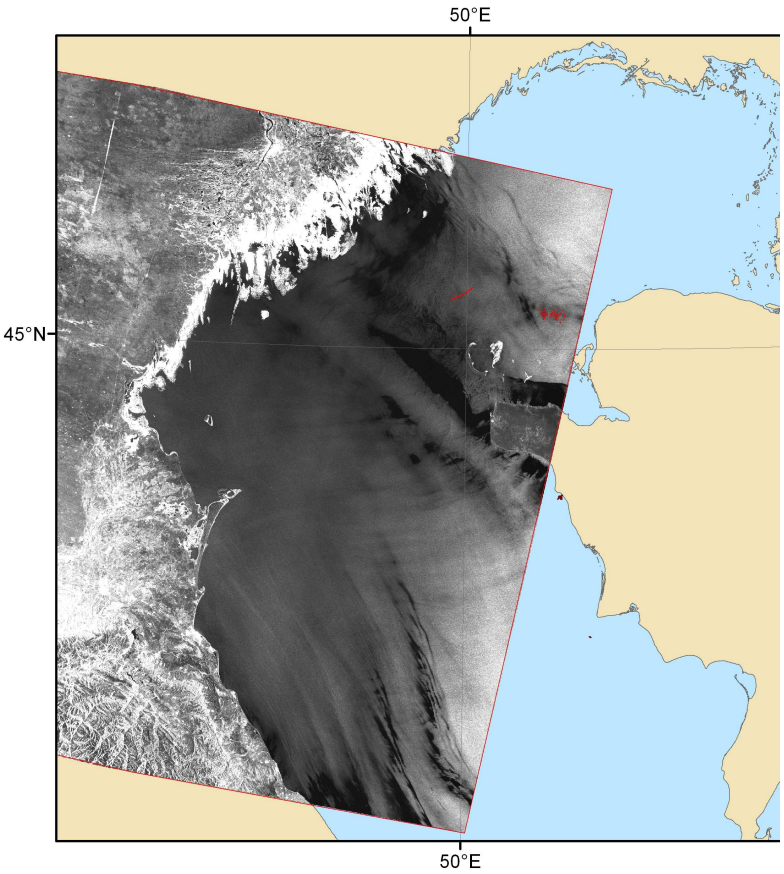
Results:

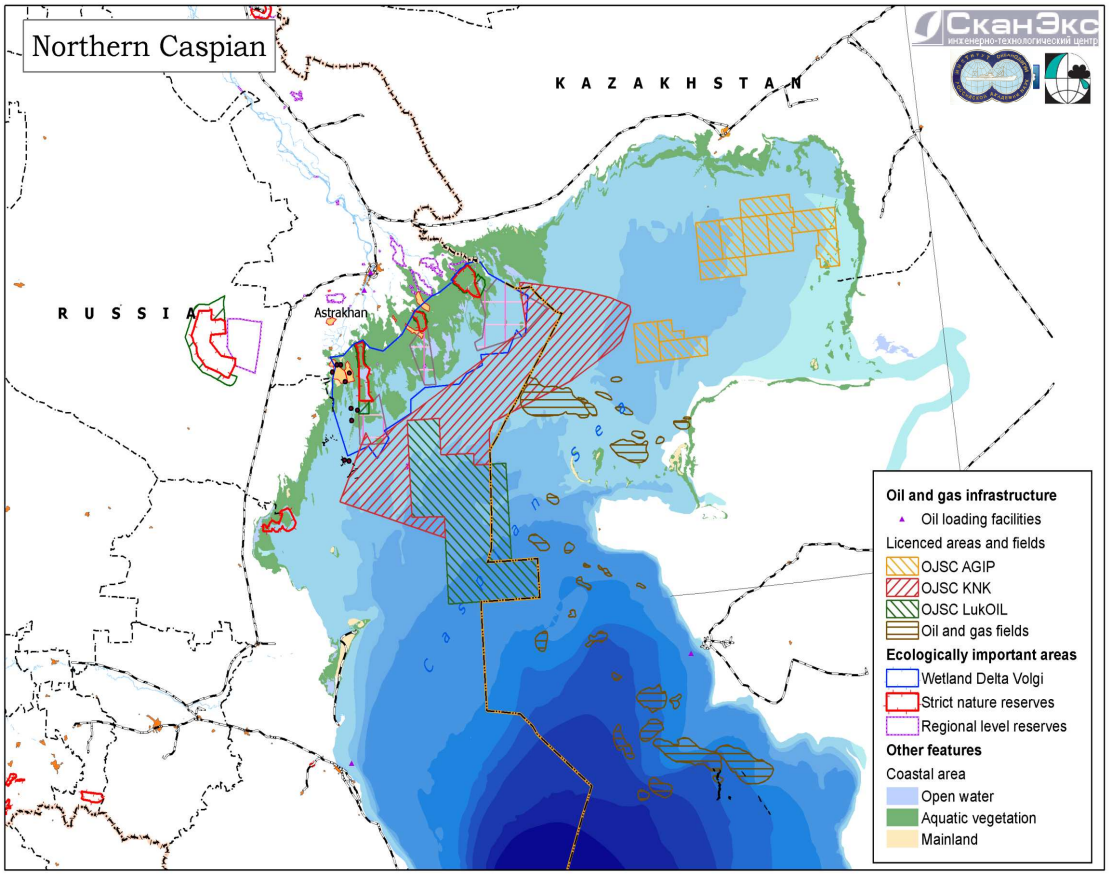
There is a large-scale oil leak from the point of old drilling platform Gubkina-2 in G-2 Caspian zone.

On-line web-solution for Caspian Sea pollution monitoring

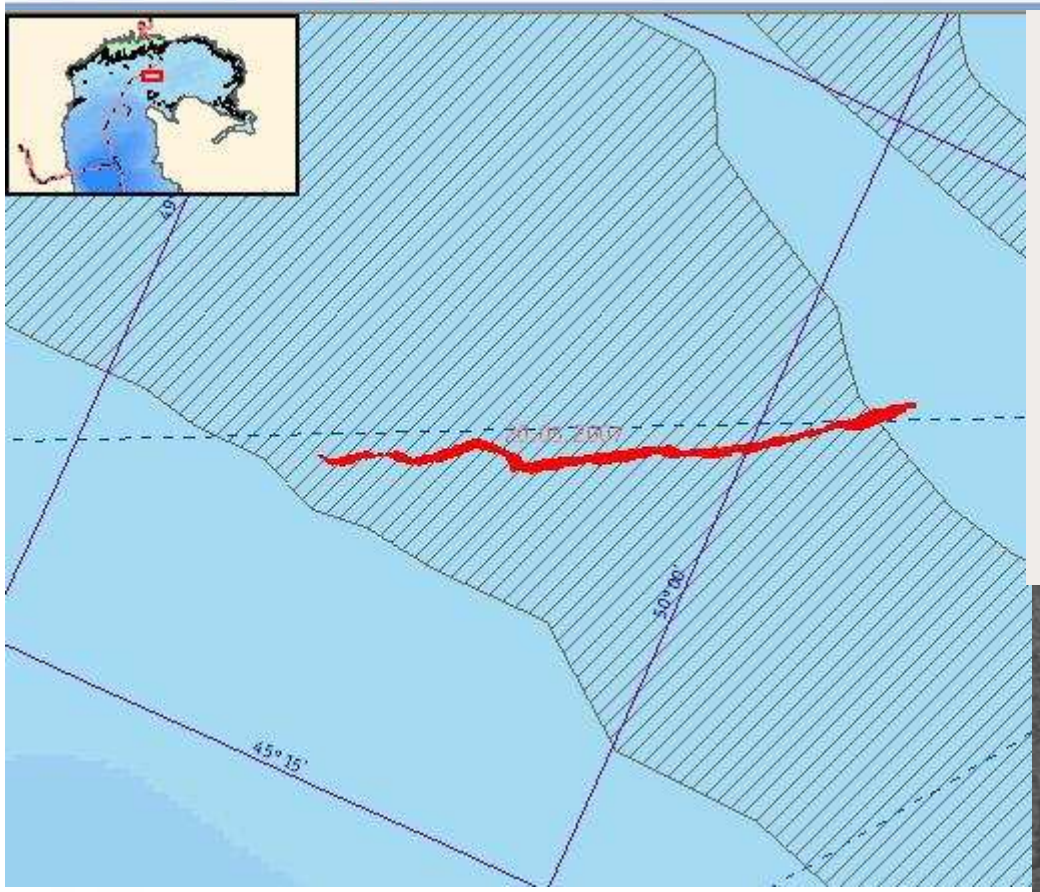
The current SCANEX and Transparent World project – Operative radar data processing and web- access to information.
http://maps.transparentworld.ru/caspian

Caspian Sea oil pollution monitoring – the joint project between Lukoil Company, Scanex and Oceanology Institute by Shirshov.





Oil Spill from Ship

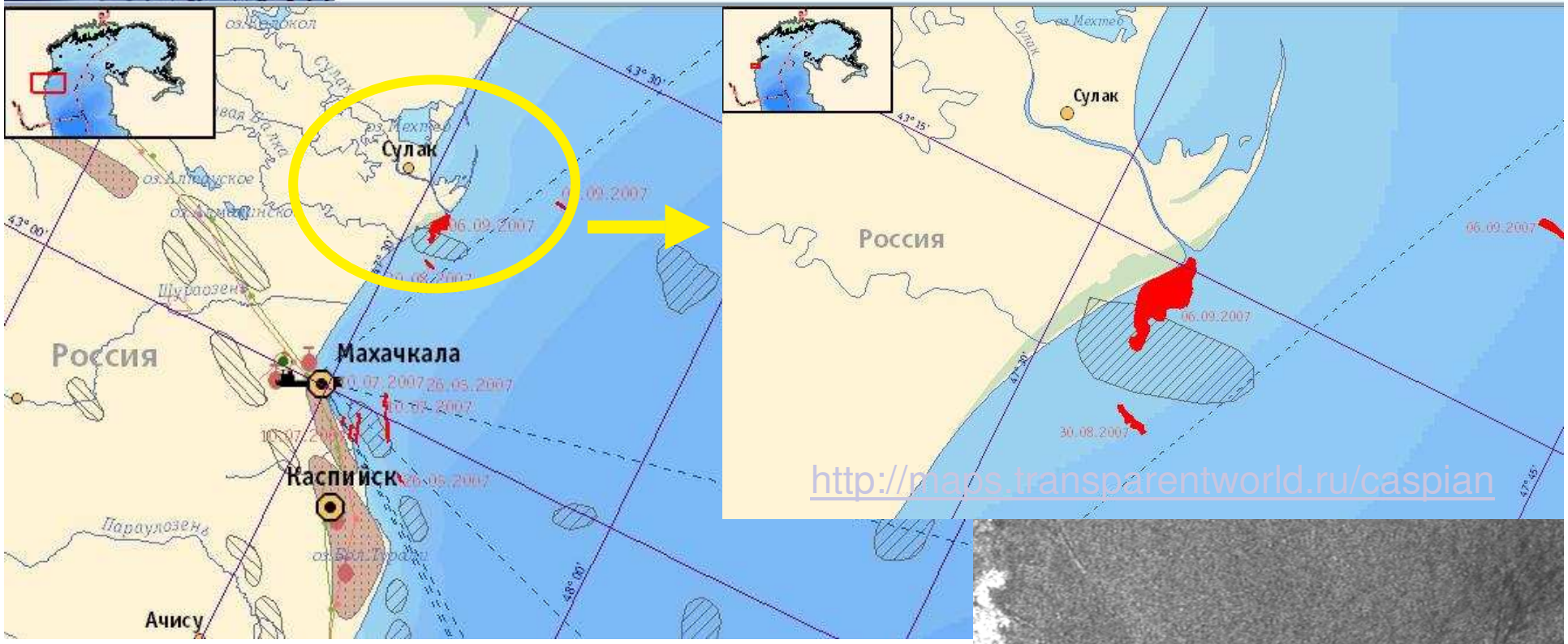


Спутник, режим съемки	Radarsat ScanSAR Wide
Дата съемки	20.05.2007
Время съемки (мск.)	06:57
Предполагаемый тип загрязнения	судовой разлив
Периметр пятна (км)	41.48
Площадь пятна (кв. км)	4.84
Широта центра пятна	45° 22' 44.85" с.ш.
Долгота центра пятна	49° 57' 01.90" в.д.

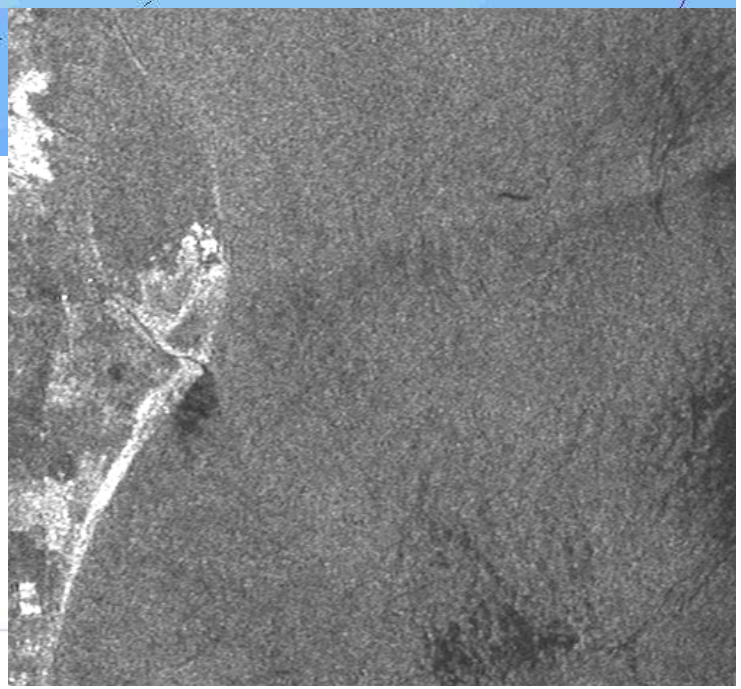
Oil spill from ship along route in the Northern part of Caspian Sea. 20 May, 2007.

http://maps.transparentworld.ru/caspian

Pollution from Sulak river delta

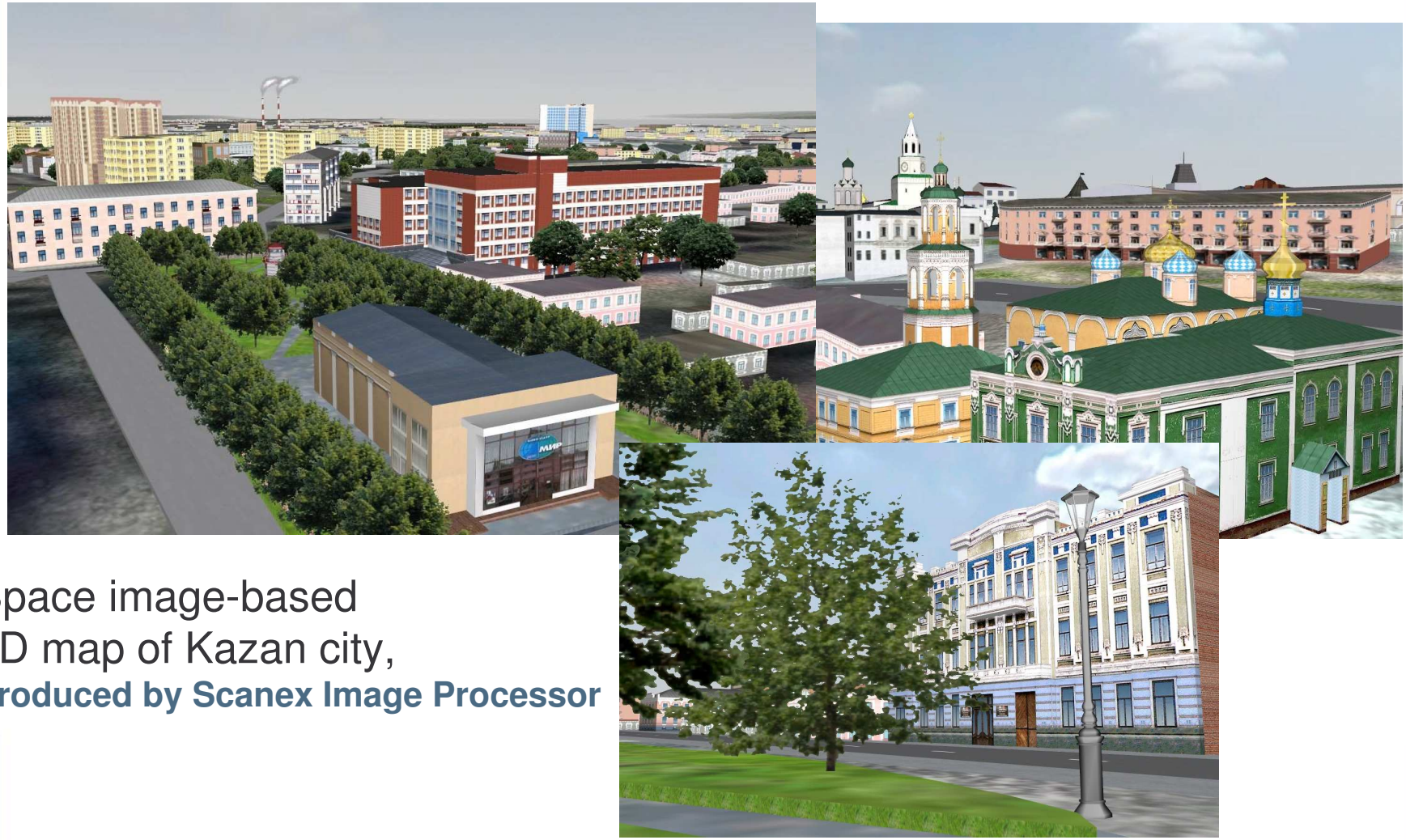


Спутник, режим съемки	**Radarsat ScanSAR Wide**
Дата съемки	**06.09.2007**
Время съемки (мск.)	**18:34**
Предполагаемый тип загрязнения	**выносы со стоком реки**
Периметр пятна (км)	**12.14**
Площадь пятна (кв. км)	**4.46**
Широта центра пятна	**43° 14' 06.96"** с.ш.
Долгота центра пятна	**47° 32' 03.92"** в.д.



СканЭкс
ИНЖЕНЕРНО-ТЕХНОЛОГИЧЕСКИЙ ЦЕНТР

Next step in geoportal development – 3D visualization



Space image-based
3D map of Kazan city,
Produced by Scanex Image Processor

The Advantages of Geoportal and Multi-mission Station Combination

- Fast data updating;
- User-oriented tasks decision and fast response on user needs;
- GIS-products compatibility;
- Various business applications (corporative solutions, informational service etc) ;
- User-friendly and fast decision-making tool.

Summary

- The multi-mission stations proofed to be means for affordable and fast data gathering from leading Earth Observing programs (low, medium and high resolution);

- The regional and specialized geoportal – valuable and innovative tool for easy and fast geospatial data archiving, analyzing and decision-making;

- Today multi-mission stations, geoportals and web-access technologies merged into innovative and fast response tool for wide range of applications: natural resource control and management, infrastructure and transportation, disaster control, educational, ecological etc.

“Earth from Space – The Most Effective Solutions”

3rd International Conference
“Earth from Space –
The Most Effective Solutions”
December 4 – 6, 2007
Moscow, Russia

http://www.transparentworld.ru/conference/

- Russian and Foreign remote sensing programs
- Remote sensing for territories management and decision-making support
- Remote sensing for disaster mitigation and assessment of environmental consequences of Natural and Technological disasters
- Technologies and software for data processing
- Education for Sustainable Development: New Information Technologies

Our web-sites

www.scanex.ru

www.scanex.com

www.transparentworld.ru

www.kosmosnimki.ru

http://eostation.scanex.ru

http://new.kosmosnimki.ru

Thank you!

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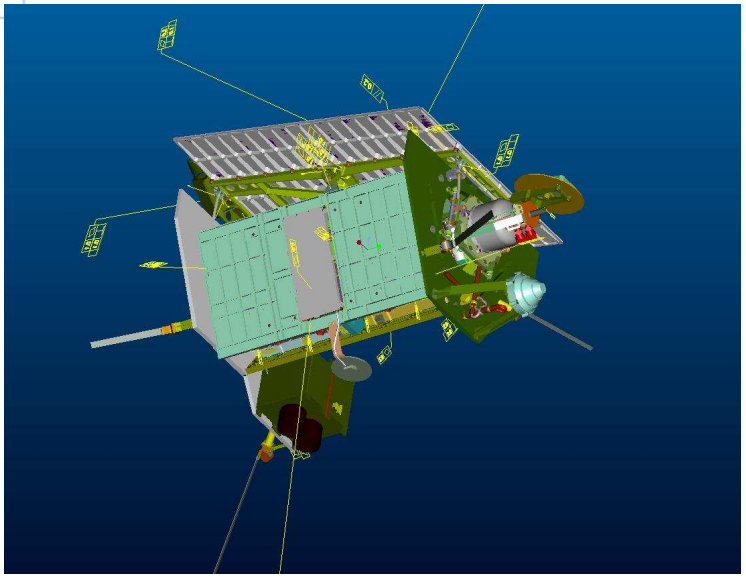

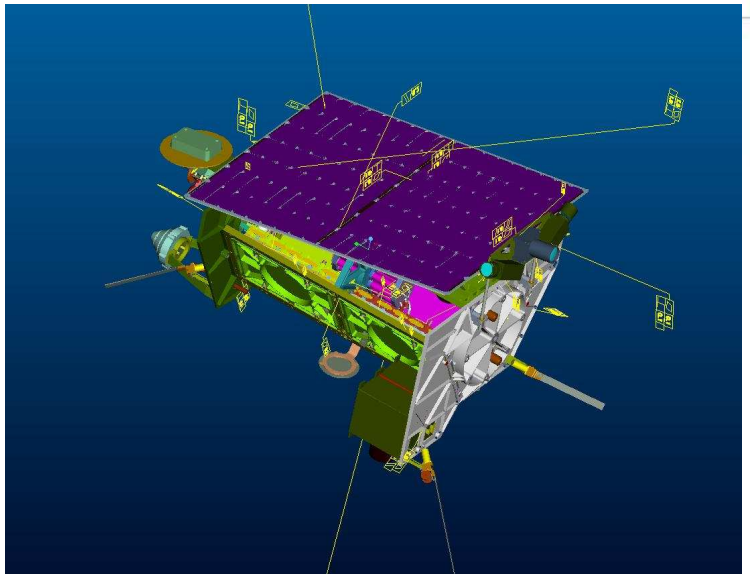

The next instrument for geoportal data updating – remote sensing microsatellite system!