

The background of the slide is a collage of images. At the top right is a large image of Earth from space. On the left side, there is a vertical strip containing several smaller images: a close-up of a satellite dish, a CD-ROM, and a group of people working at computers in a meeting room. The main title is centered in the white area.

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

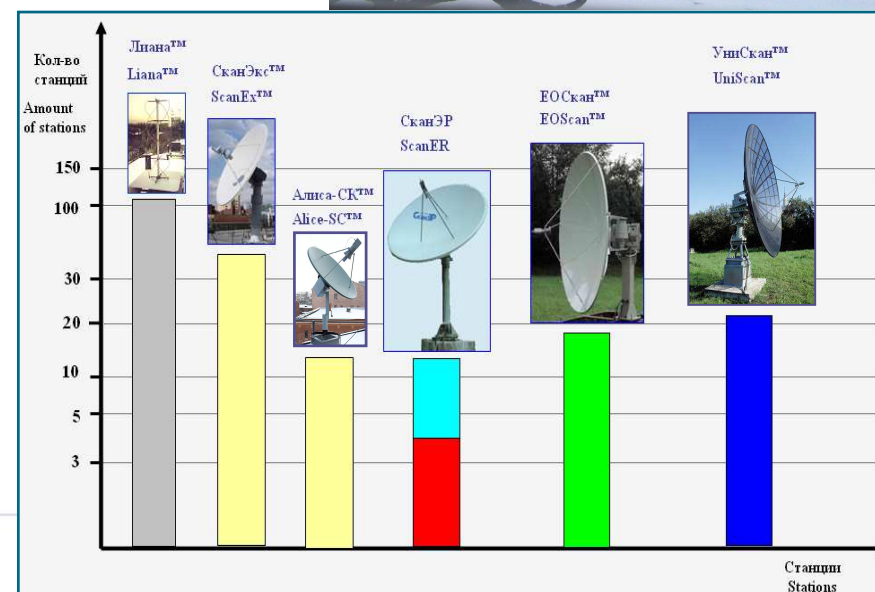
Olga N. Gershenzon,  
Vice-President,  
SCANEX R&D Center

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

- 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

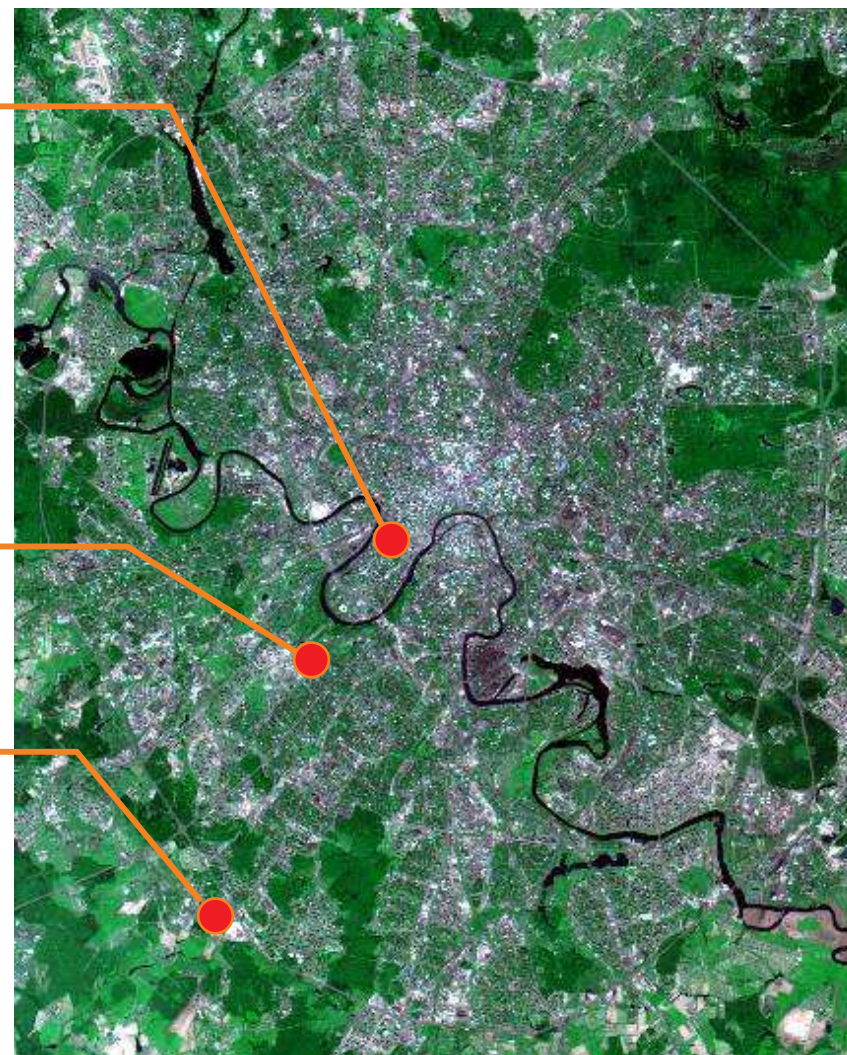
### Headquarter

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

Landsat-5

Envisat-1

Aqua / Terra

IRS-1C/1D

RADARSAT-1

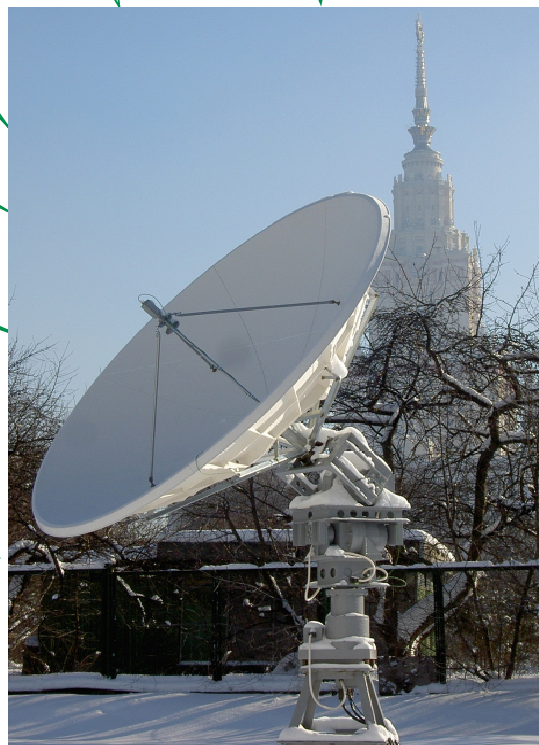
IRS-P6

SPOT-5

Kompsat-2

Cartosat-2

Cartosat-2



*Current satellites*

*Satellites in progress*



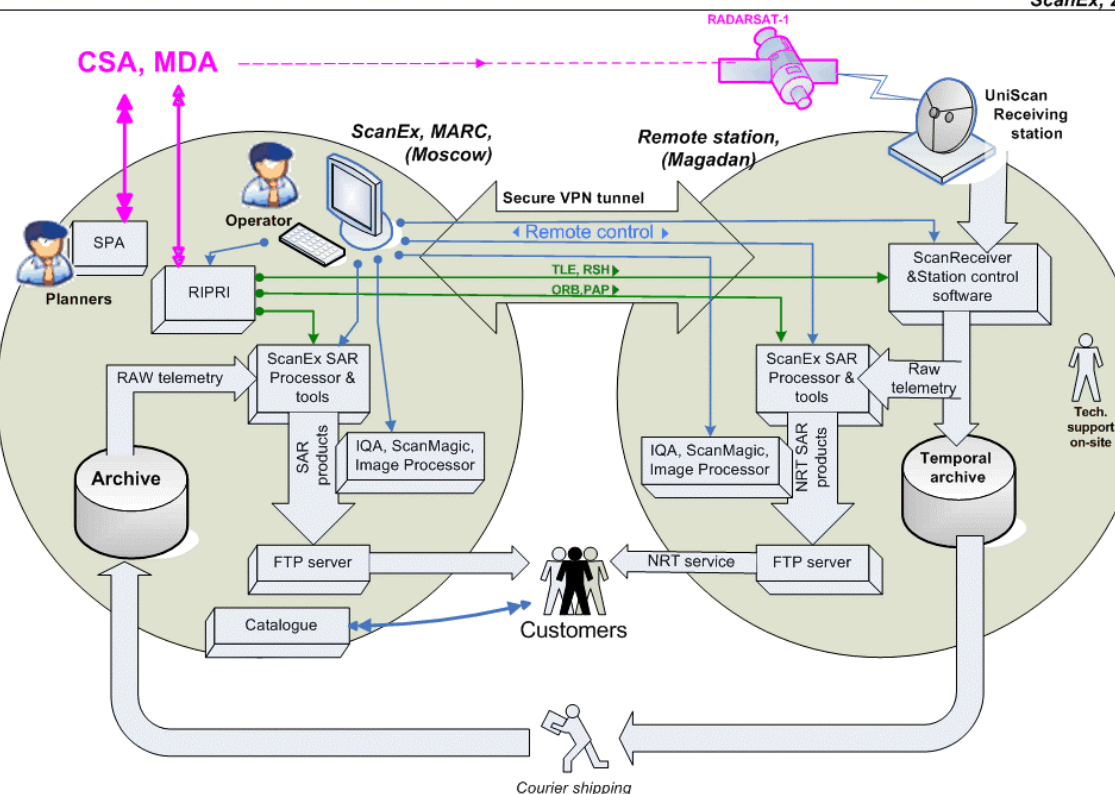
# Magadan station – the first remotely controlled station with web-access in Russia



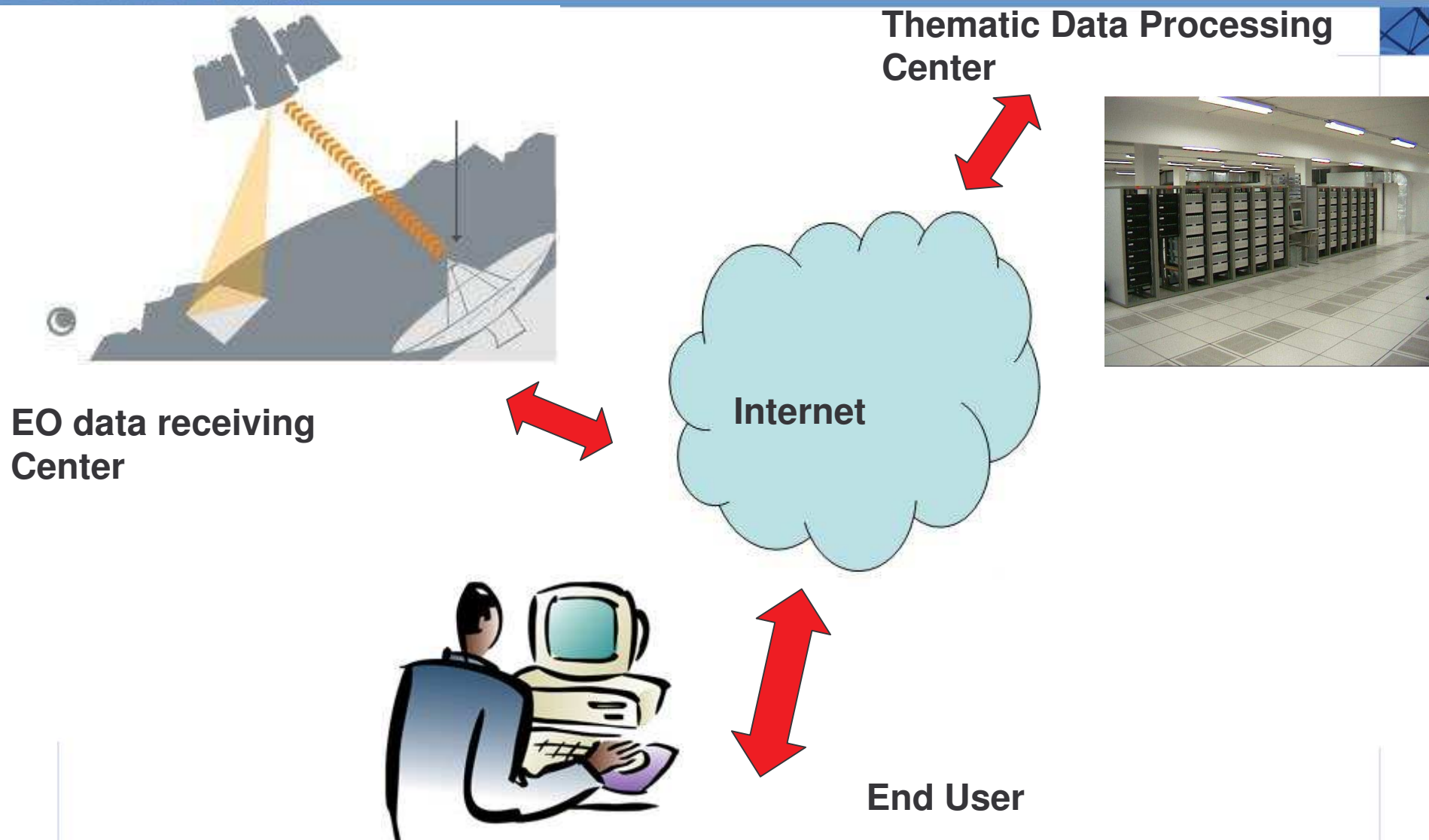
Canadian Space Agency and MDA Company has certified Magadan station (Far East) for RADARSAT-1 data receiving in January 2007.

RADARSAT-1 station in Magadan. System layout and dataflow.

ScanEx, 2006



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





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

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

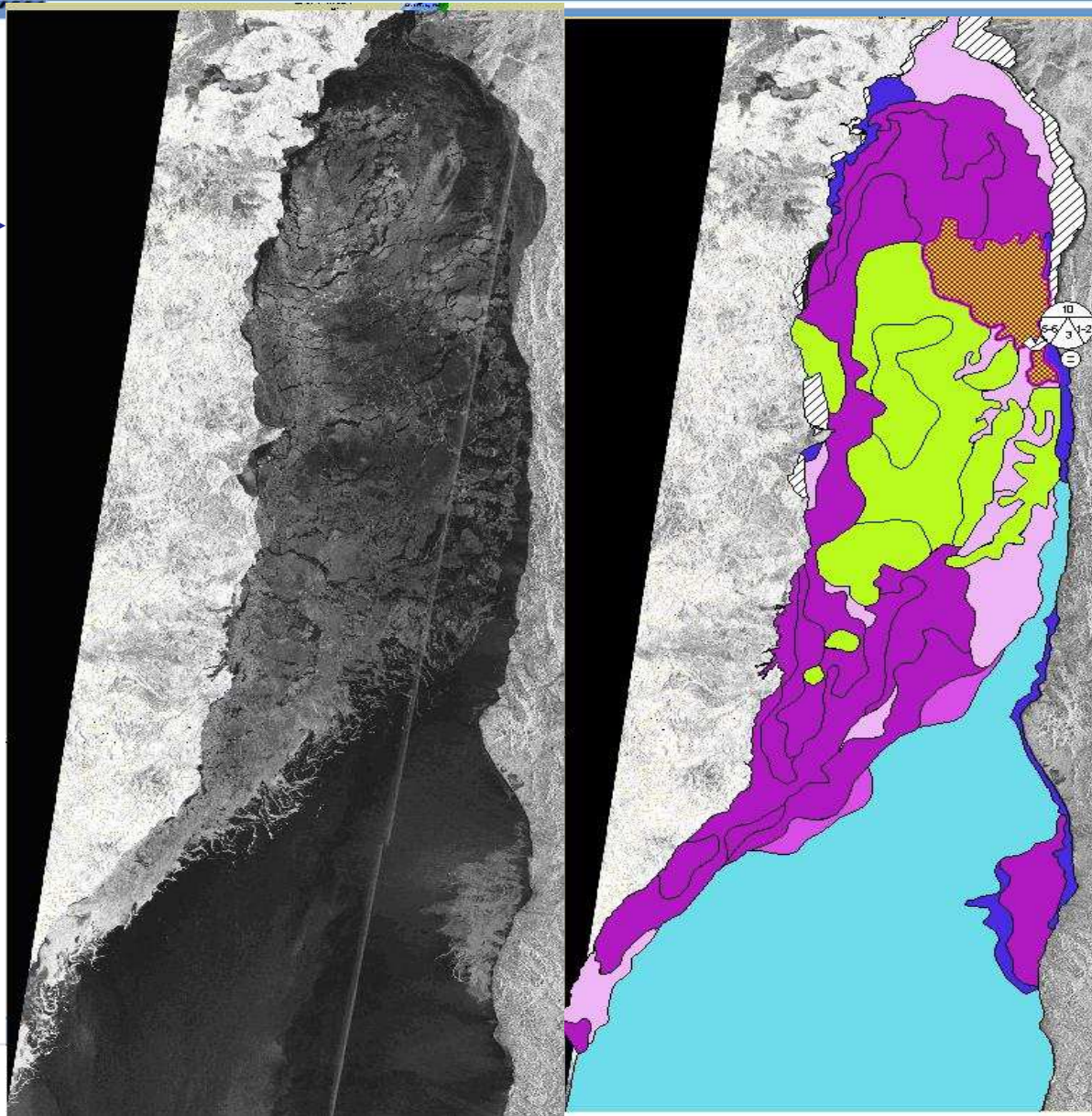


Image-based  
Ice Map  
processed by  
“North” Center  
in AANII



### 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 geoportals:


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






## Geoportal as an innovative product and research instrument in geoinformatics

← Пред. фрагмент → 🔍 🔍 🖱️ 🖱️ 📏 ⬇️ 🖨️ [Ссылка на этот фрагмент](#)



область  
город  
улица  
дом

Пробки — теперь и на КПК



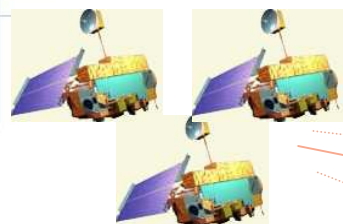
**Yandex**  
probki.pda.yandex.ru

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



*Data archiving*

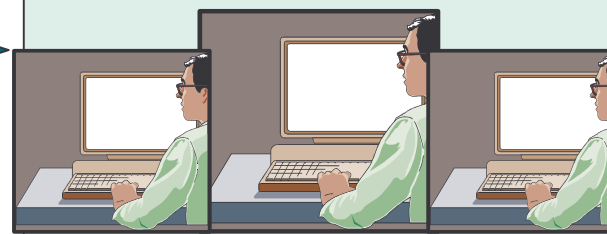
*Regular updating*



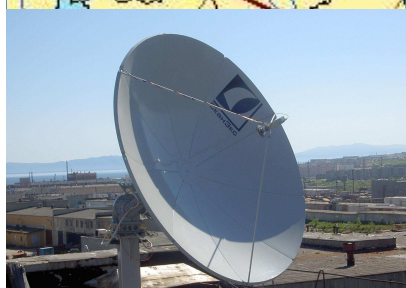
Image mosaics

*Main products*

Regional and Specialized geoportals

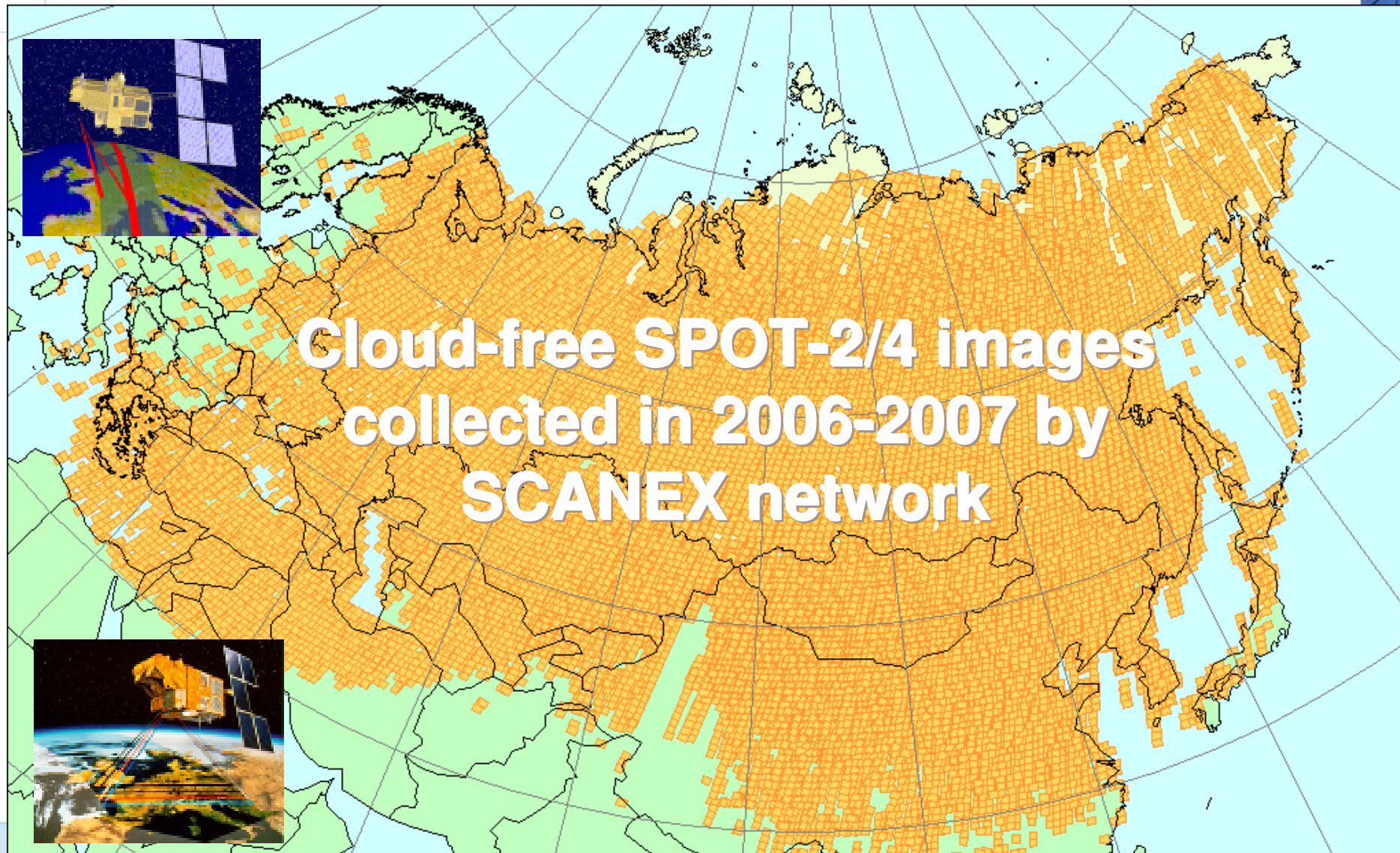


# SCANEX Ground Station Network for Russian geoportal data updating





## **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 screenshot displays the New.kosmosnimki.ru web application. The interface includes a top navigation bar with links for 'Карта' (Map), 'Снимки' (Images), 'Гибрид' (Hybrid), 'Ссылка на карту' (Link to map), 'Печать' (Print), 'Помощь' (Help), 'О проекте' (About project), 'Блог' (Blog), and a Russian flag. The main header features the 'New Космоснимки' logo and the tagline 'Вид на Землю с Луны' (View of Earth from the Moon).

On the left side, there is a search bar with the placeholder text '? Куда?' (Where?) and a 'Туда' (There) button. Below it is a 'Подсказка' (Hint) section with instructions: 'Для переключения между уровнями масштаба, используйте колесико прокрутки мыши - так удобнее.' (To switch between scale levels, use the mouse scroll wheel - it's more convenient.) and 'Окошки с мини-картой и лупой можно свертывать и растягивать, изменяя их размер.' (Mini-map and zoom windows can be collapsed and stretched, changing their size.) It also mentions 'Чтобы увеличить обзор карты - сверните левую панель.' (To increase the map view - collapse the left panel.) and 'Для дополнительного увеличения обзора карты - воспользуйтесь кнопкой F11.' (For additional map view enlargement - use the F11 key.)

The main map area shows a satellite mosaic of a city, likely Rostov-on-Don, with a river and various urban structures. A scale bar at the top of the map indicates a distance of 5 km. In the bottom right corner, coordinates are displayed: 47.26678, 39.68802. The bottom of the interface shows the copyright information: 'RIX Corporation Ltd. © European Space Imaging GmbH'.

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



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

**New Космоснимки**  
Вид на Землю с Луны

? Куда?

## Подсказка

Для переключения между уровнями масштаба, используйте колесико прокрутки мыши – так удобнее.



Окошки с мини-картой и лупой можно свертывать и растягивать, изменяя их размер.

Чтобы увеличить обзор карты – сверните левую панель.



Для дополнительного увеличения обзора карты – воспользуйтесь кнопкой F11



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



Москва

С.-Петербург

Россия

Европа

Все карты

✓ Спутниковая к

## Москва и Московская область

Поиск:

Найти

Карта

Пробки

Адреса и телефоны

← Пред. фрагмент



Ссылка на этот фрагмент



- область
- город
- улица
- дом



Схема

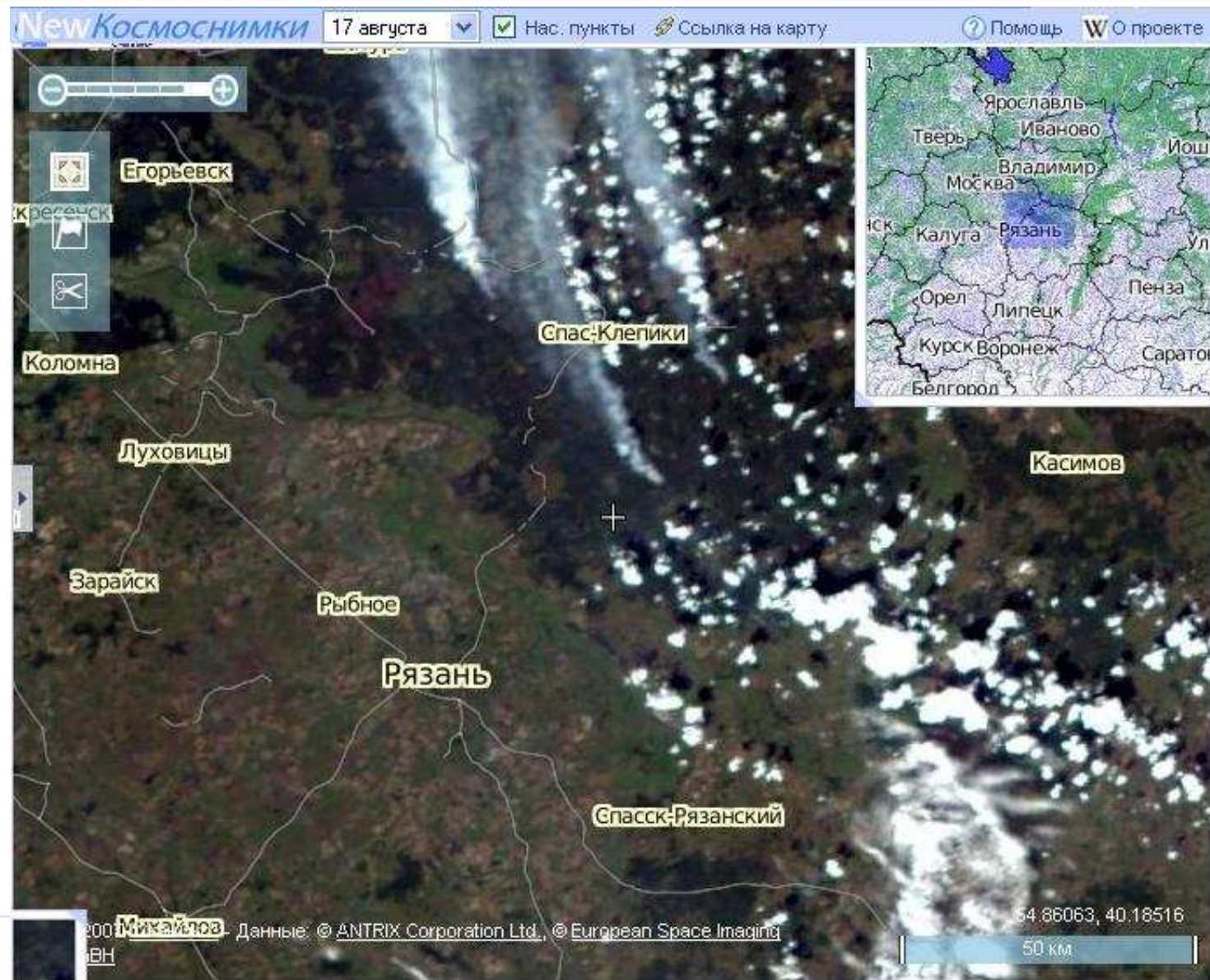
Спутник

Гибрид



## Geoportal as a Tool for Operative Data Visualization

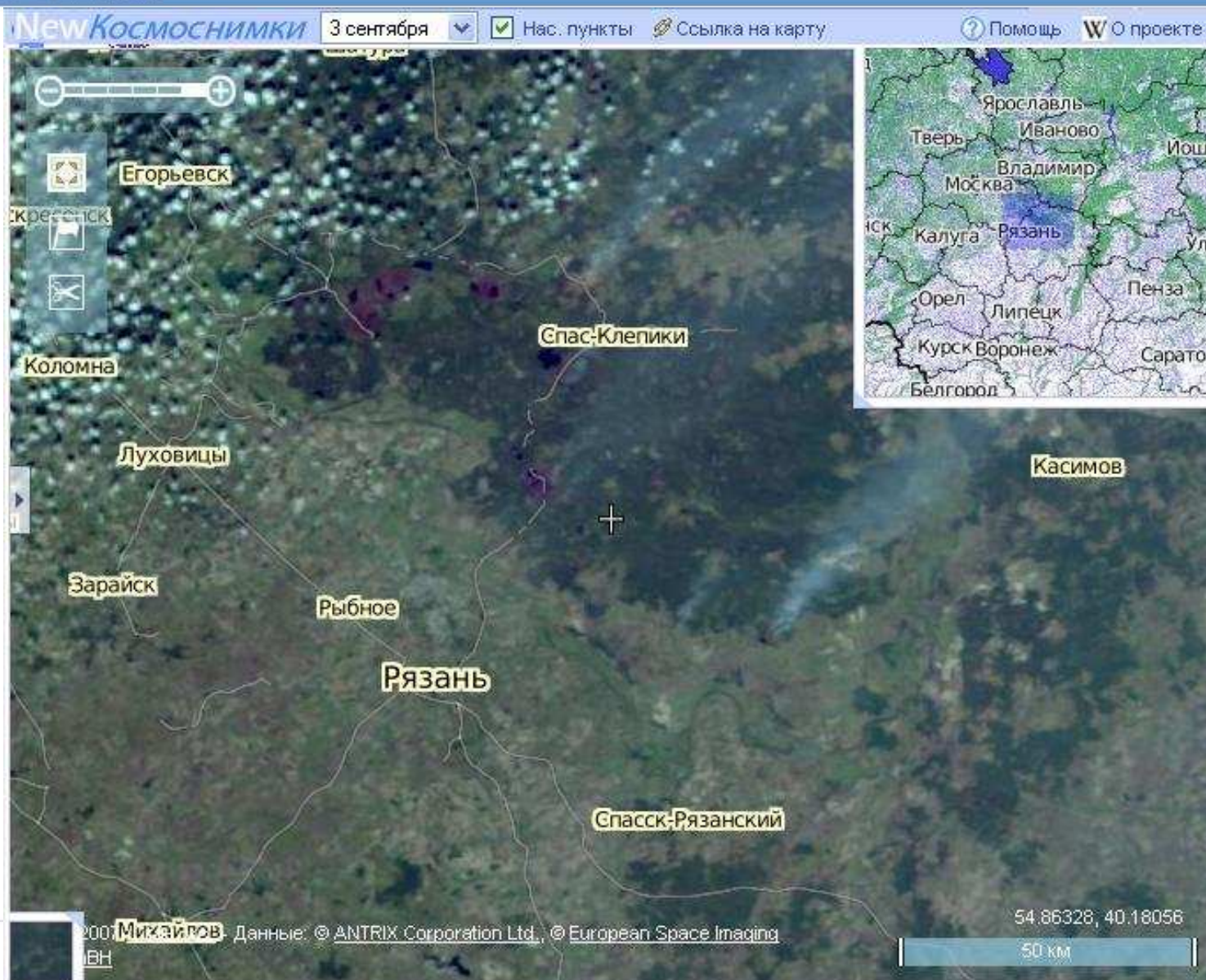
Forest fires near Razan', 17 August 2007, MODIS, AQUA





## Geoportal as a Tool for Operative Data Visualization

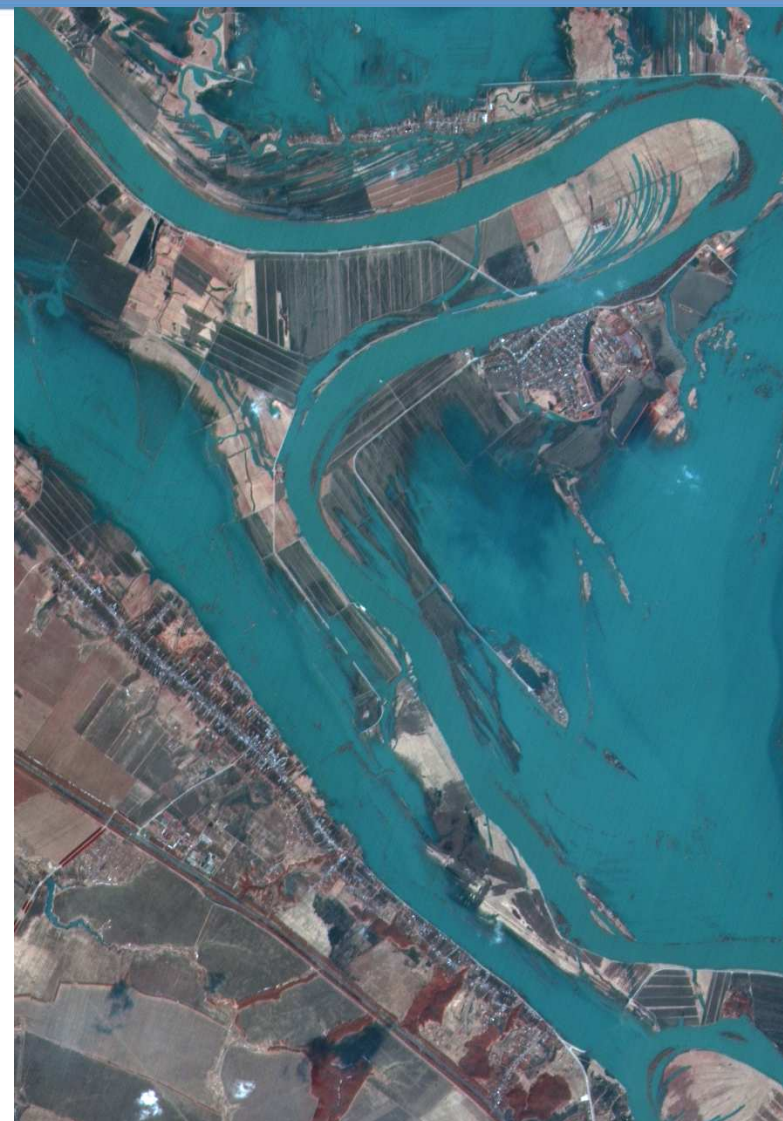
Forest fires near Razan', 17 August 2007, MODIS, AQUA





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

Flooding in Oka river region, 20 April 2006



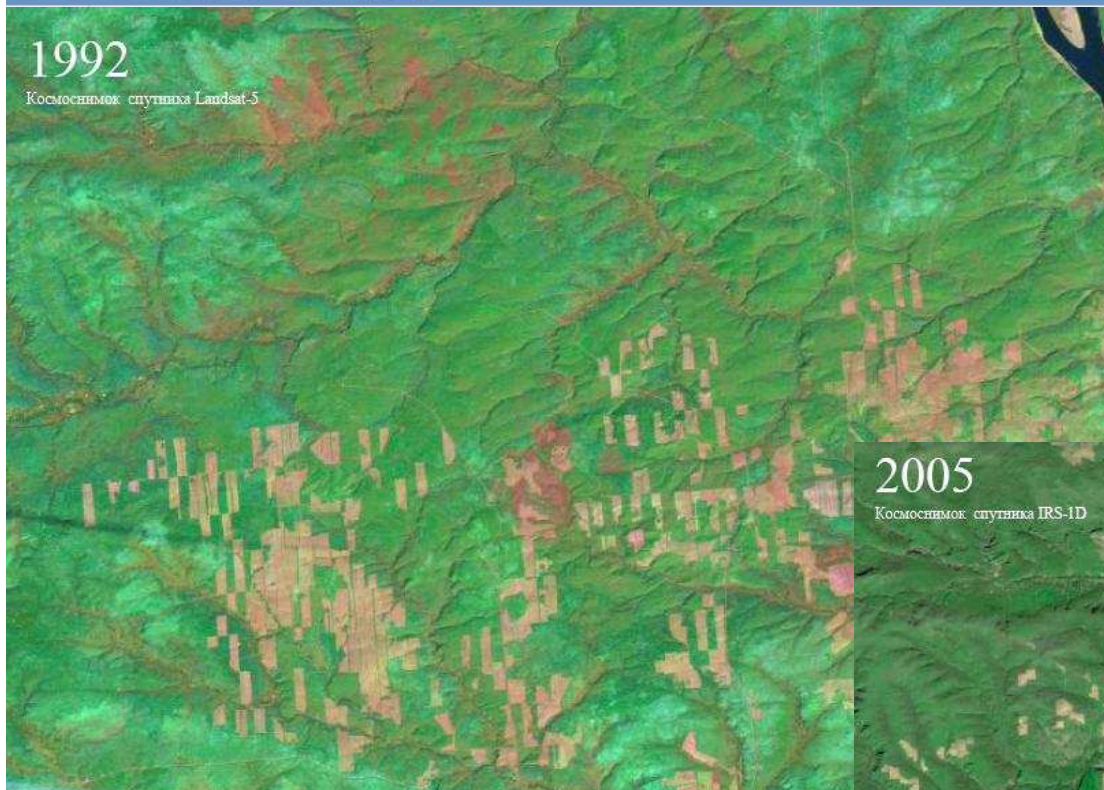


# Operative Space Data-Based Geoportal as a Tool for Regional Development and Control

## Forest Logging Activity in Syberia

1992

Космоснимок спутника Landsat-5



**Landsat 5, 1992**  
**Irkutsk Region**

**IRS 1D, 2005**  
**Irkutsk Region**

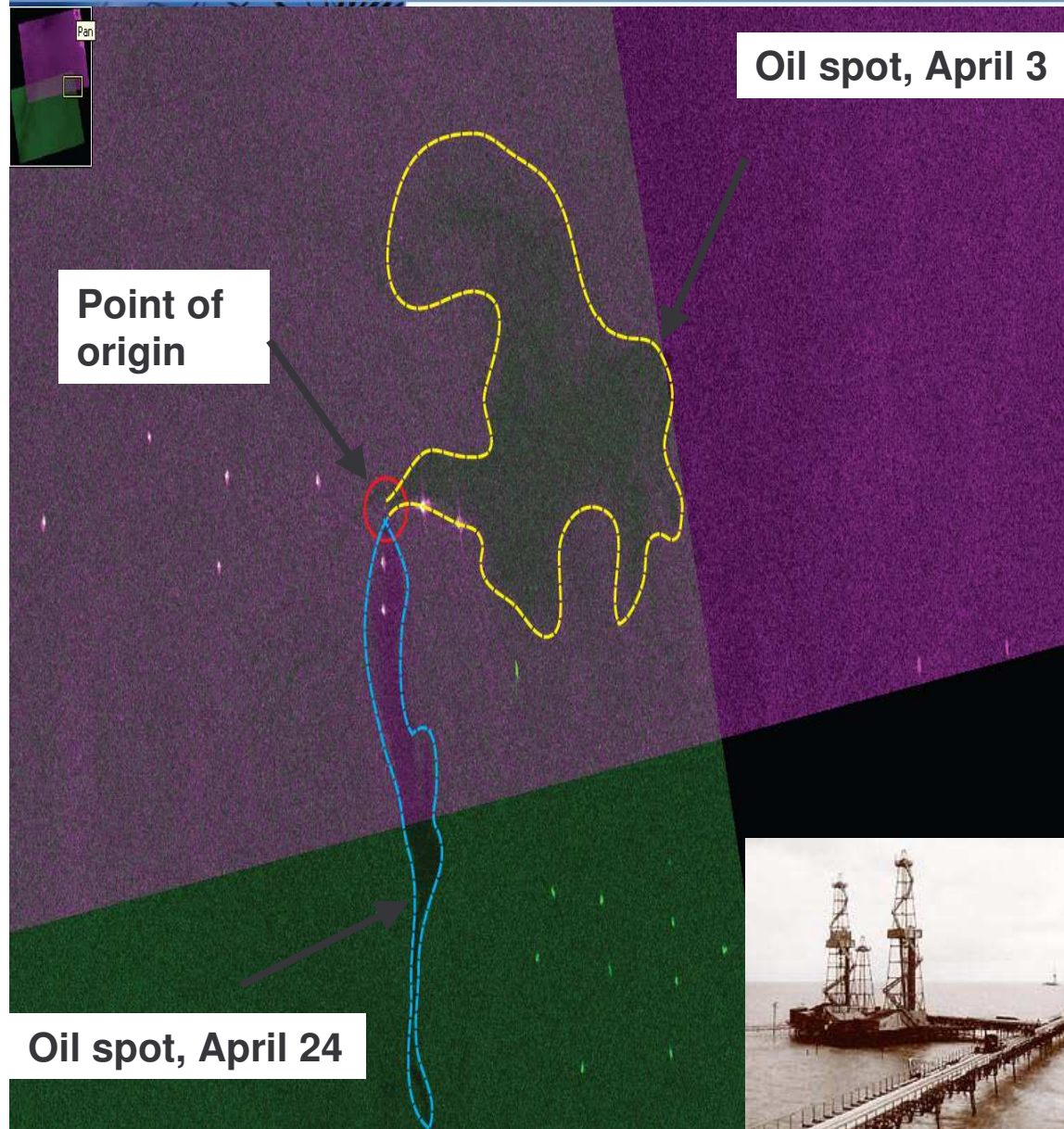
2005

Космоснимок спутника IRS-1D





# 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:

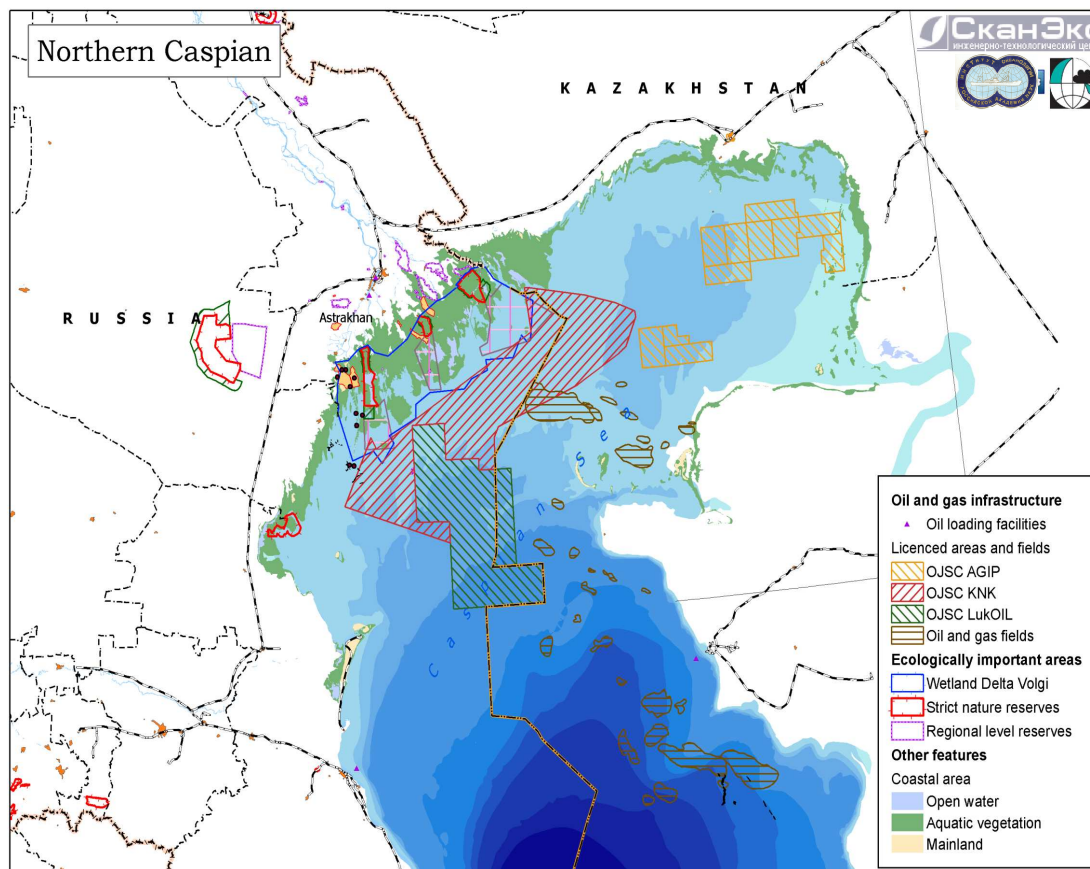
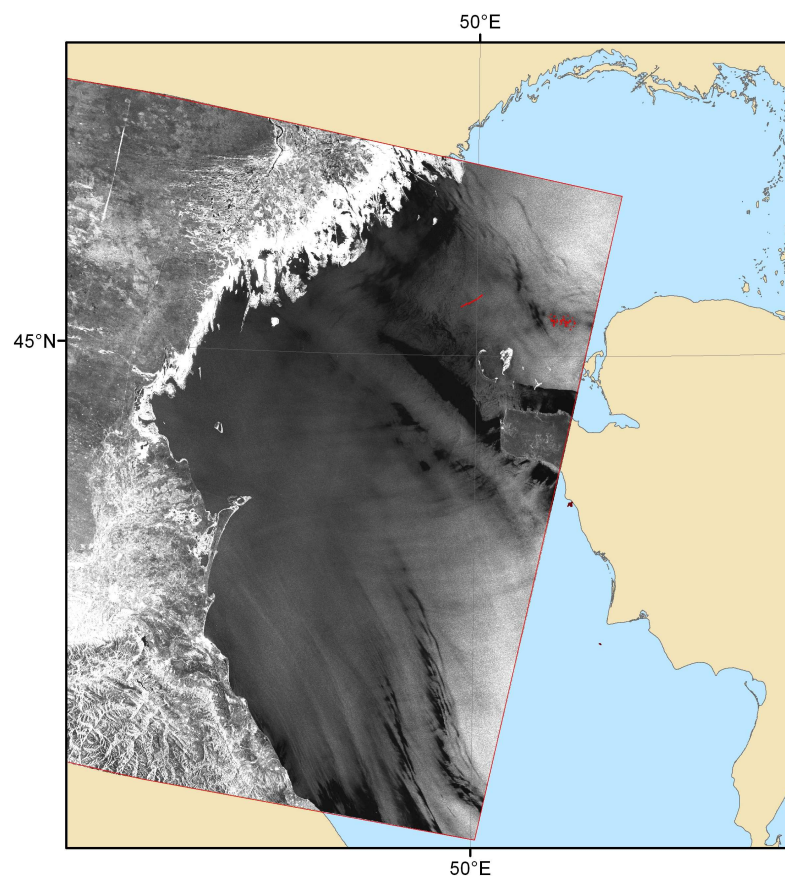
There is a large-scale oil  
leak from the point of old  
drilling platform Gubkina-2  
in G-2 Caspian zone.

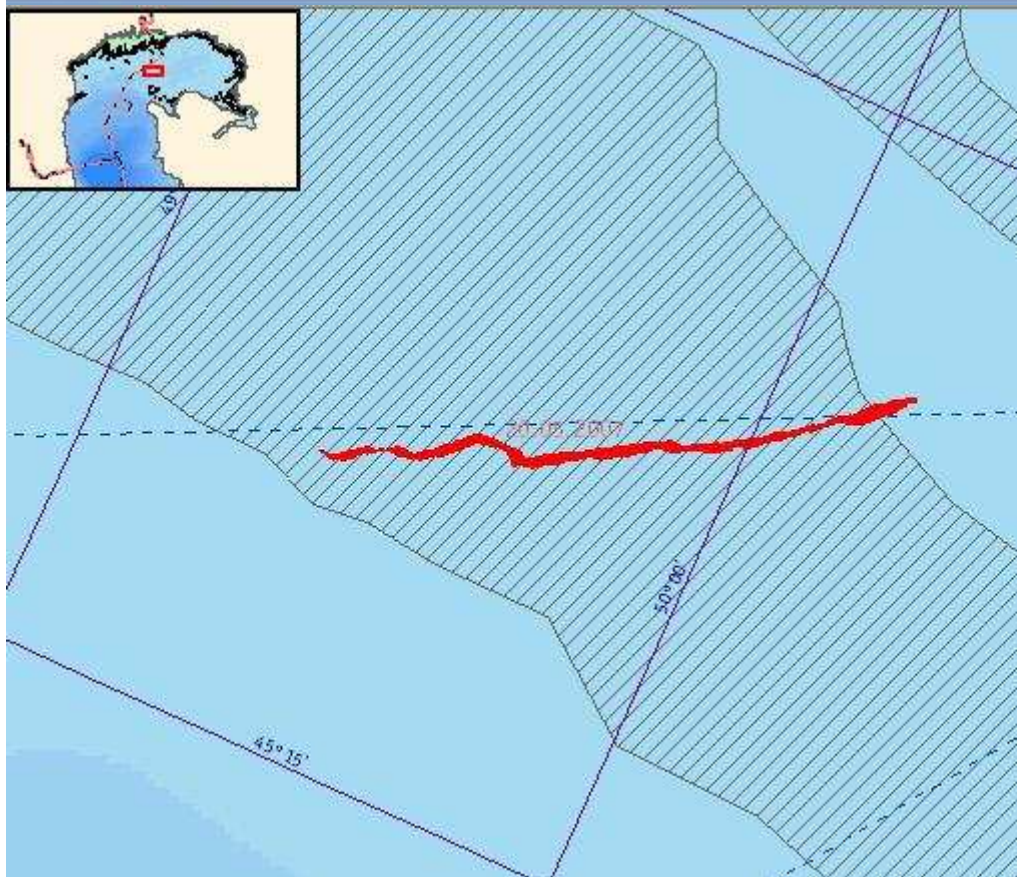


The current SCANEX and Transparent World project – Operative radar data processing and web- access to information.

<http://maps.transparentworld.ru/caspian>

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





Спутник, режим съемки	<b>Radarsat ScanSAR Wide</b>
Дата съемки	<b>20.05.2007</b>
Время съемки (МСК.)	<b>06:57</b>
Предполагаемый тип загрязнения	<b>судовой разлив</b>
Периметр пятна (км)	<b>41.48</b>
Площадь пятна (кв. км)	<b>4.84</b>
Широта центра пятна	<b>45° 22' 44.85" С.Ш.</b>
Долгота центра пятна	<b>49° 57' 01.90" В.Д.</b>

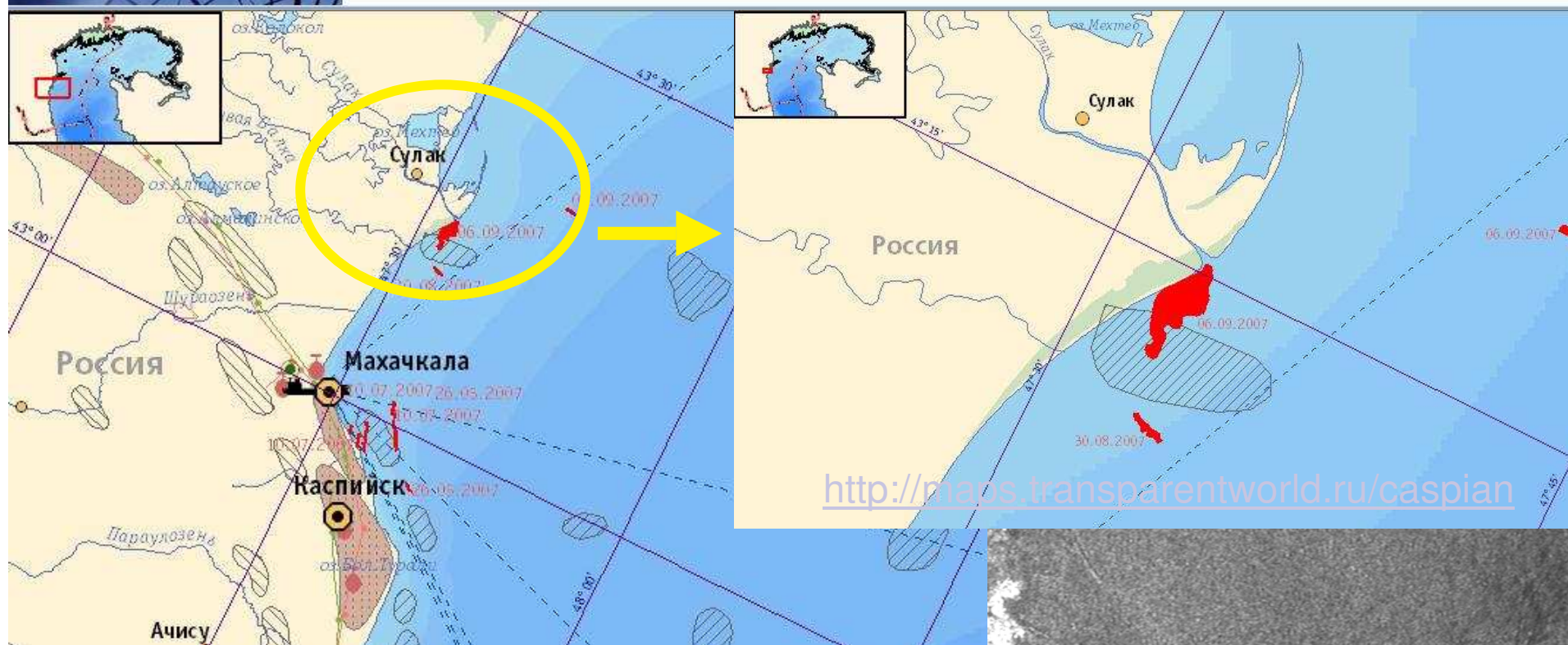
Oil spill from ship along route in the Northern part of Caspian Sea. 20 May, 2007.

<http://maps.transparentworld.ru/caspian>





## Pollution from Sulak river delta

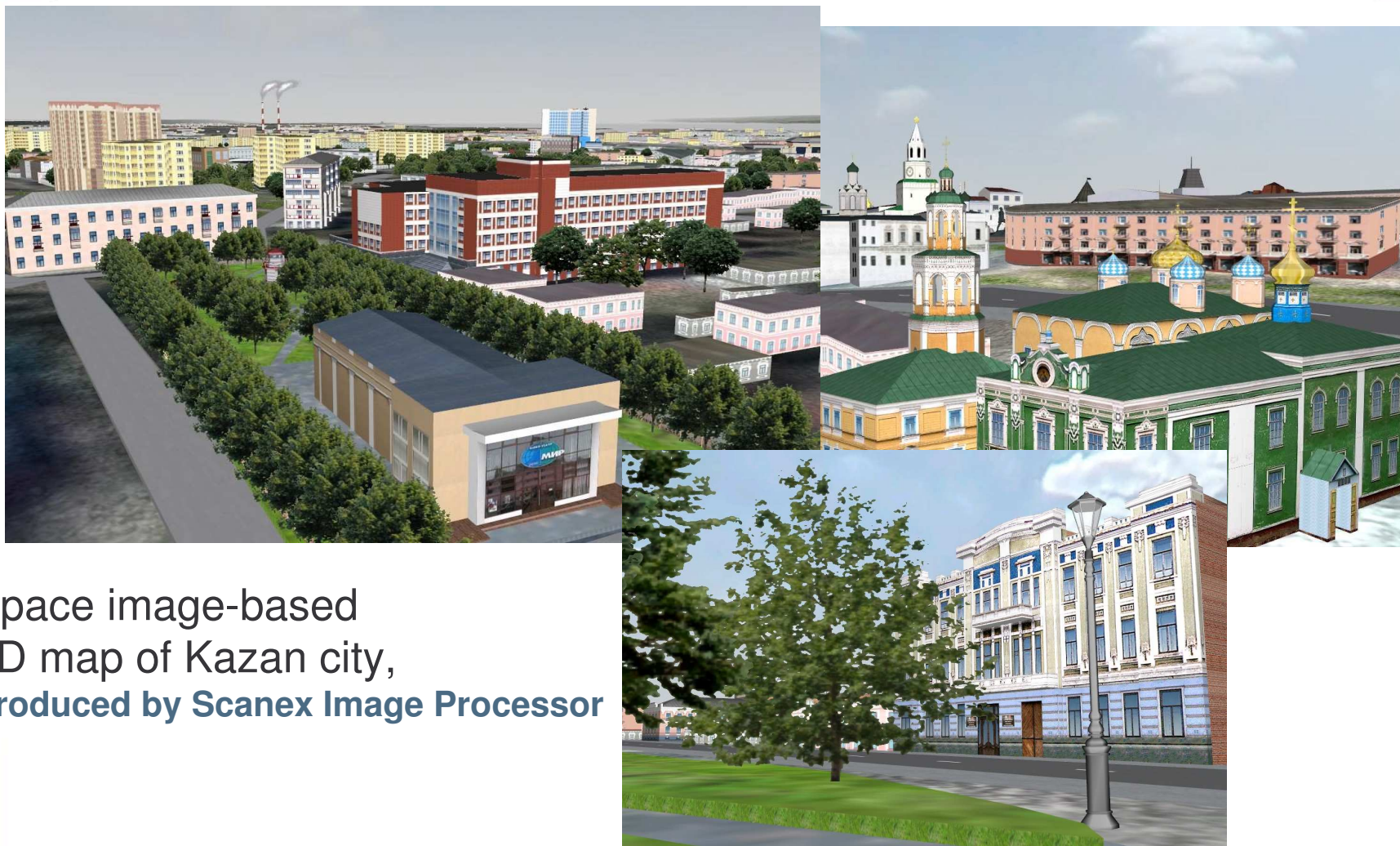


Спутник, режим съемки	<b>Radarsat ScanSAR Wide</b>
Дата съемки	<b>06.09.2007</b>
Время съемки (мск.)	<b>18:34</b>
Предполагаемый тип загрязнения	<b>выносы со стоком реки</b>
Периметр пятна (км)	<b>12.14</b>
Площадь пятна (кв. км)	<b>4.46</b>
Широта центра пятна	<b>43° 14' 06.96" с.ш.</b>
Долгота центра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





## 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 (corporate 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

**[www.scanex.ru](http://www.scanex.ru)**

**[www.scanex.com](http://www.scanex.com)**

**[www.transparentworld.ru](http://www.transparentworld.ru)**

**[www.kosmosnimki.ru](http://www.kosmosnimki.ru)**

**<http://eostation.scanex.ru>**

**<http://new.kosmosnimki.ru>**



**EOSTation - Earth Observation Station**





Thank you!

5/22, ROSSOLIMO ST., MOSCOW, 119021,  
RUSSIA

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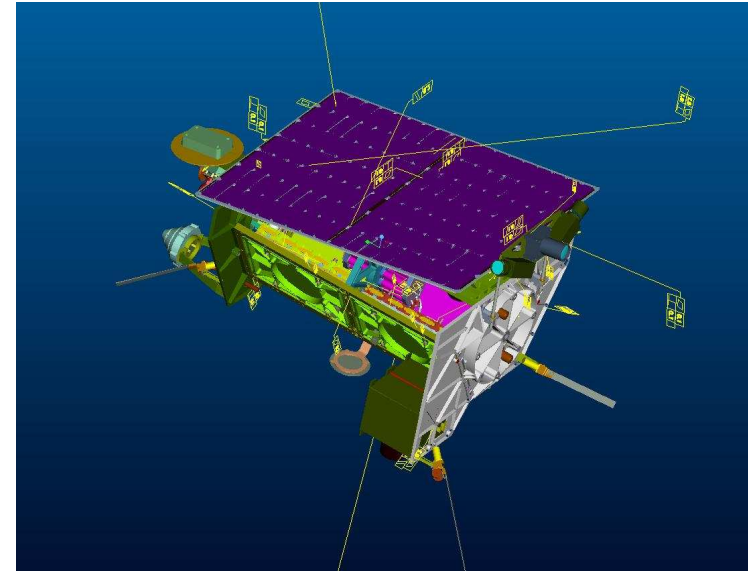
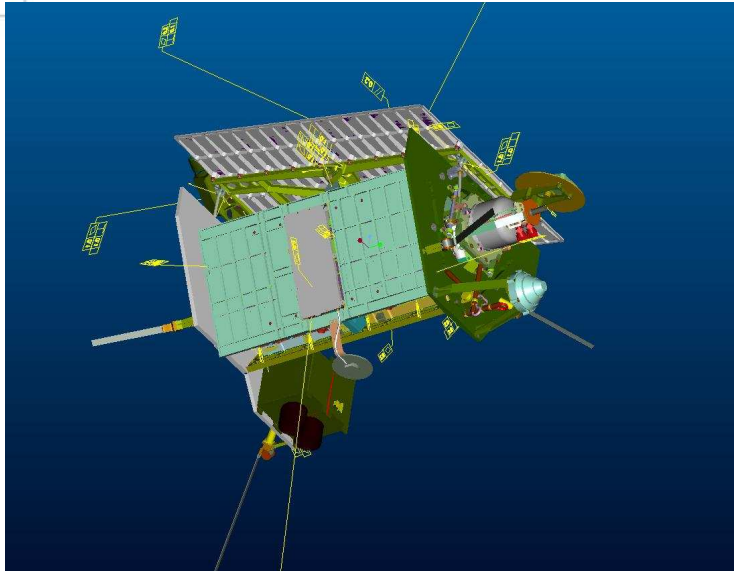
FAX: +7 495 246-2593, +7 495 651-3587



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# Research & Development Center ScanEx



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