



# «Usage of geoportal information for mapping the northern forest line boundary»

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# Introduction

**Main topic of research**: creation of tree line map

**Region**: Eurasia (Europe)

**Scale**: LANDSAT imagery (15- 30 m spatial resolution)

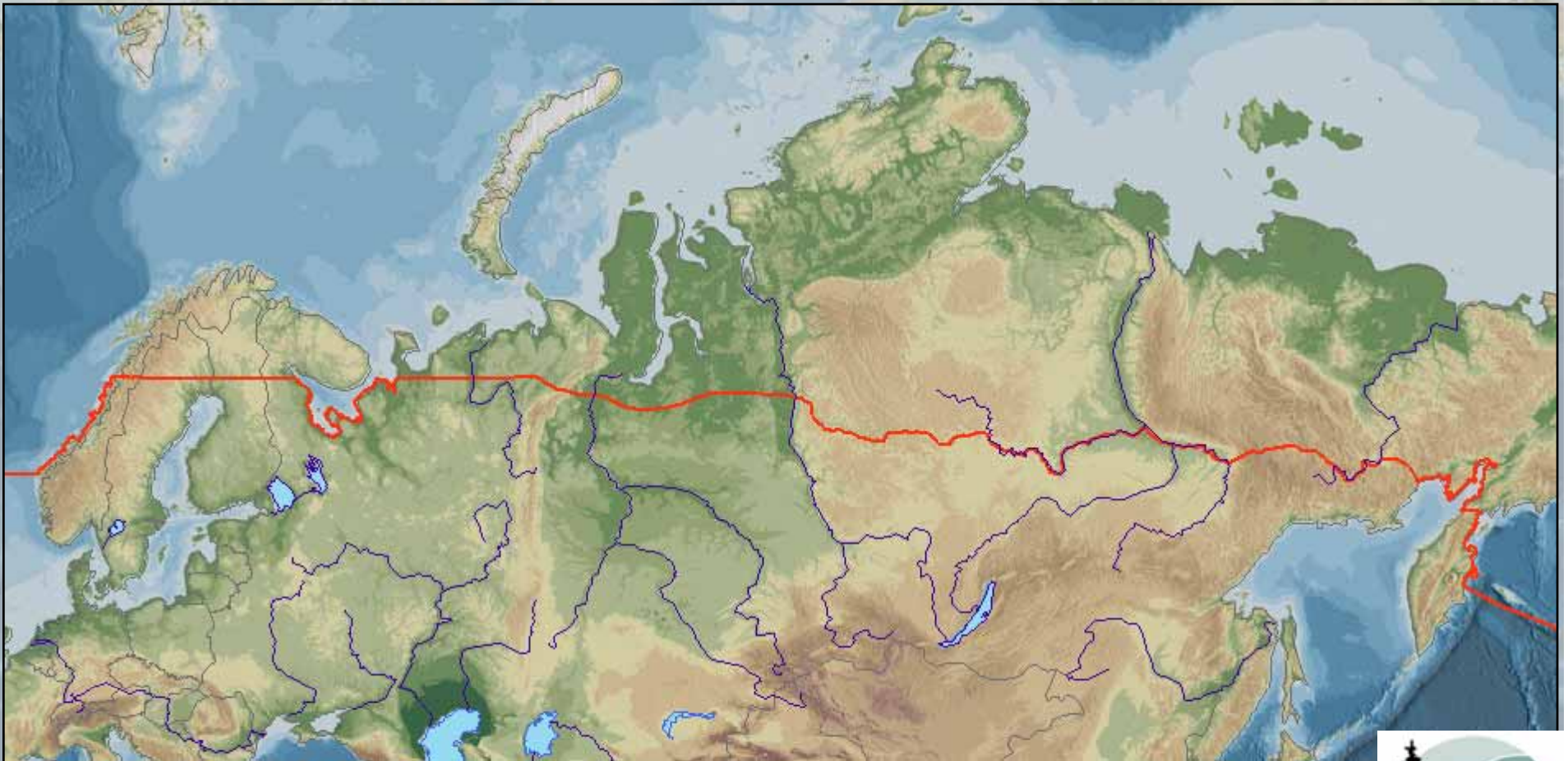
**Available data**:

satellite images (LANDSAT-, IRS-, SPOT-series, 2.5-50 m);  
DEM (GTOPO30, SRTM);  
Maps (topographic, thematic);  
field work plots

# Introduction

## Problems:

Definition of Arctic zone

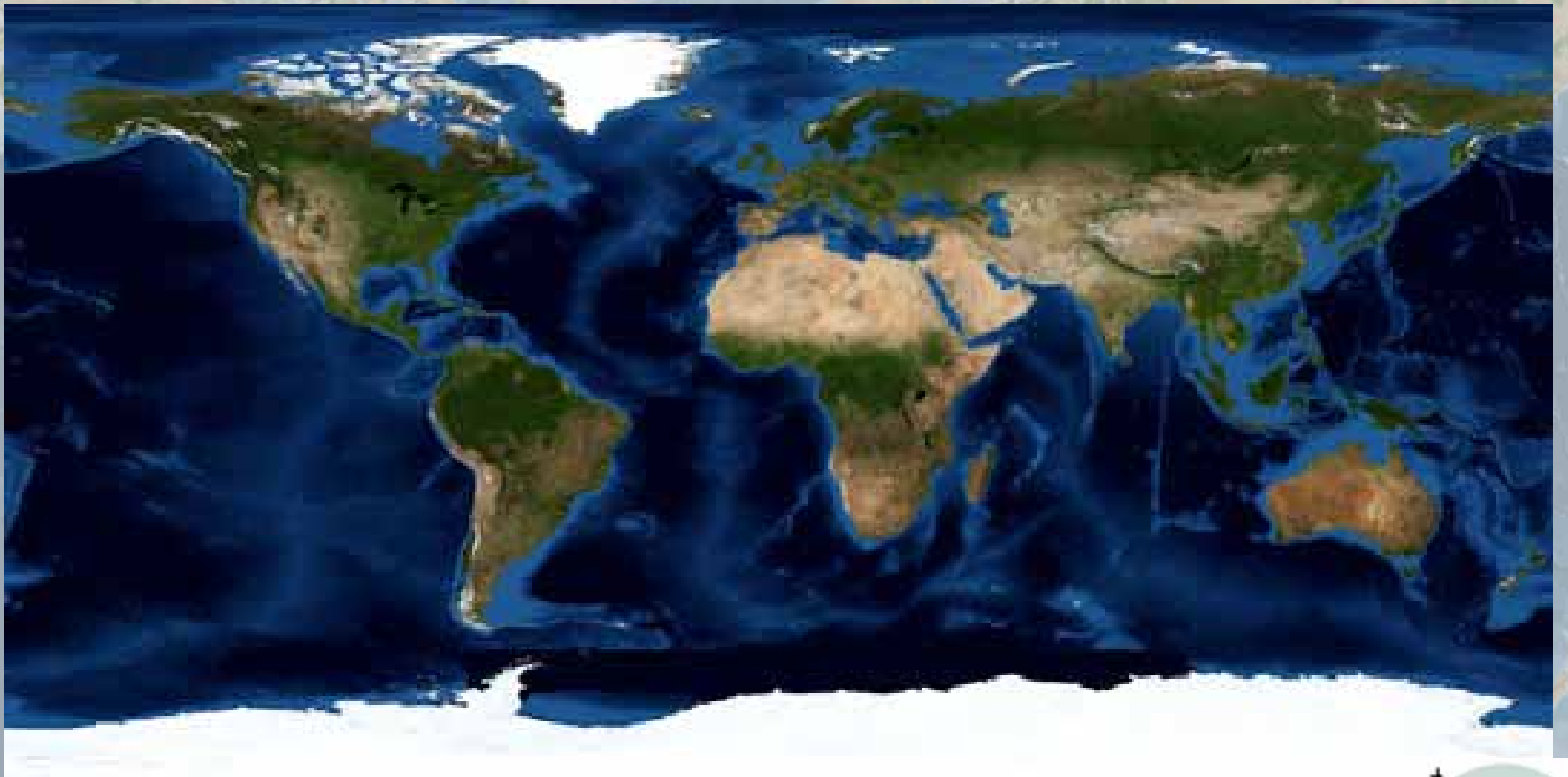




# Introduction

## Problems:

Global georeference base (past – present -future)



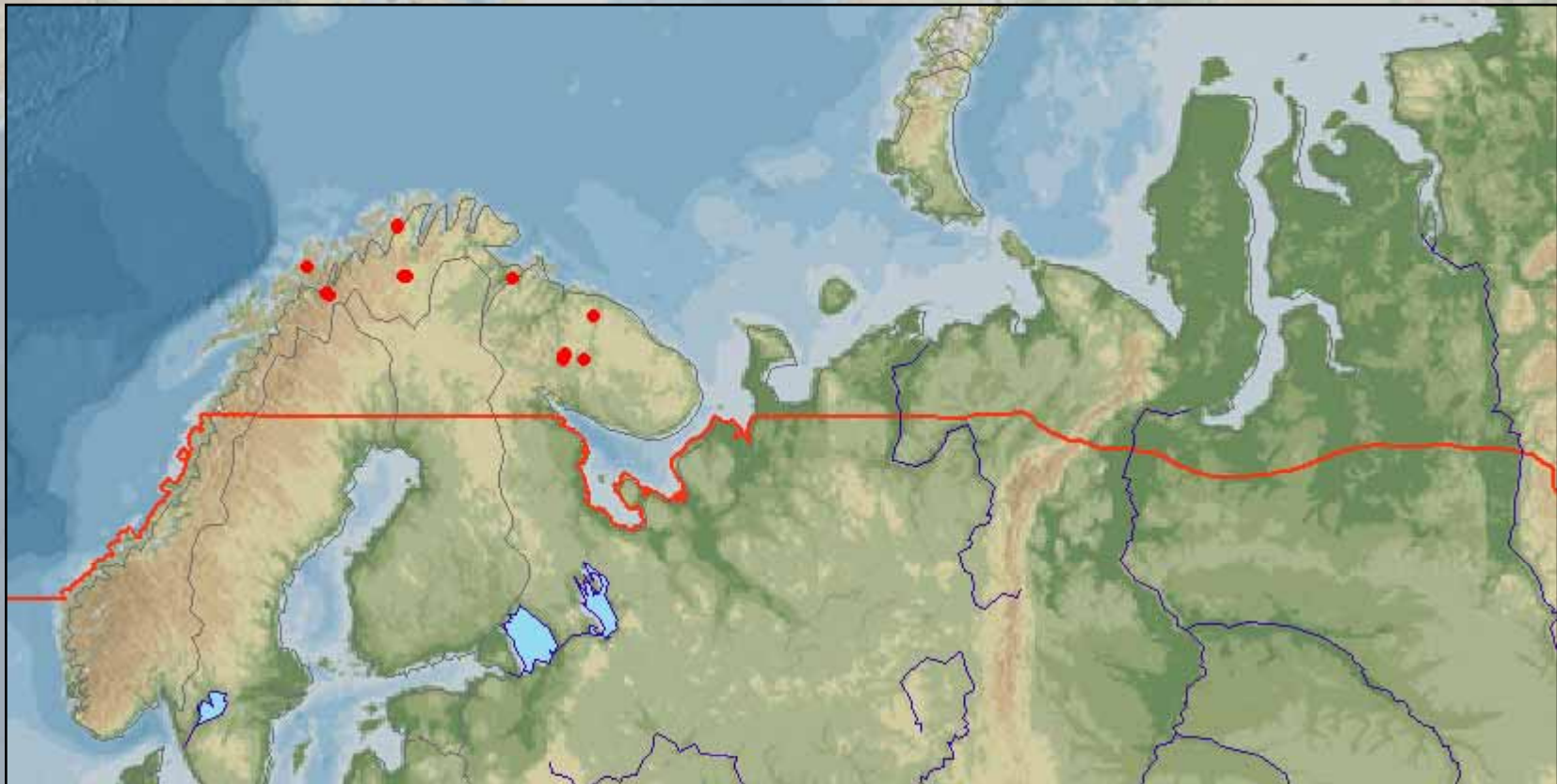
Solution: LANDSAT7 Ortho-Mosaic



# Introduction

## Problems:

Calibration data



# Geoportals

- **Web portals, internet pages (INTERNET/INTRANET)**
- **Access to geo-data**
- **To find, display, edit, upload/download geo-data.**
- **Governmental, commercial**
- **National, regional, local, theme**



# Geoportals

<http://maps.google.com/>

<http://maps.live.com/>

<http://maps.yahoo.com/>

**Google Earth Software**





# Geoportals

## USA

[www.geodata.gov](http://www.geodata.gov)  
<http://www.usgs.gov>  
[www.nationalatlas.gov](http://www.nationalatlas.gov)

## Canada

<http://geogratis.cgdi.gc.ca>  
<http://www.geobase.ca>  
<http://geodiscover.cgdi.ca>

## Greenland/Iceland

## Norway

<http://www.geonorge.no>  
<http://www.statkart.no>  
<http://www.gulesider.no>

## Russia

<http://maps.yandex.ru>  
<http://maps.mail.ru>  
<http://kosmosnimki.ru>

## Finland

[www.karttapaikka.fi](http://www.karttapaikka.fi)  
<http://www.maanmittauslaitos.fi/>

## Sweden

[www.lantmateriet.se](http://www.lantmateriet.se)  
[www.geolex.lm.se](http://www.geolex.lm.se)  
<http://gis.lst.se/>





# Geoportals

## Comparison parameters:

- Data types (maps, images, metadata, geo data)
- Position accuracy
- Geo tools
- Download/upload tools
- Type of license
- Relevance and update

# Geoportals

## Comparison results:

### Data types (maps, images, metadata)

**Maps** – national topographic maps, thematic maps

#### **Images:**

- Low resolution – MODIS based Blue Marble mosaic;
- Medium and high resolution - LANDSAT7 mosaic (TrueEarth, Terra Color), IRS-series mosaic, SPOT-series mosaic
- Very high resolution – scenes and series of same track scenes of IKONOS, QB, EROS images

#### **Metadata:**

Usually this information are presented on professional oriented geoportals.

# Geoportals

## Comparison parameters:

### Position accuracy

**Maps** – accuracy was not evaluated

### **Images:**

- Low resolution – 500 m
- Medium and high resolution - 50 meters RMSE
- Very high resolution – orbital calibration (~100 m) and RPS transformation (~25 m)



# Geoportals

## **Comparison parameters:**

### Geo- tools:

Zoom in\out;

Measure;

Object Identification;

Distance and area calculator;

Route planer;

Interactive editing

### Download/upload tools:

Shape files



# Geoportals

## **Comparison parameters:**

### Type of license

Maps – OSM, for noncommercial purpose

Images – Very high resolution for noncommercial purpose;  
High resolution for free (LANDSAT)

### Relevance and update

Very high resolution images

Road infrastructure (navigation purpose)



# Geoportals

**High resolution images – methods of using:**  
Visual interpretation (Browser & RS software)





# Geoportals

**High resolution images – methods of using:  
Coordinates reading**





# Geoportals

**High resolution images – methods of using:  
Online editing and export to GIS format**







# Geoportals

**High resolution images – methods of using:  
Upload/Download geodata (GIS and exchange formats)**





# Geoportals

**High resolution images – methods of using:**  
**Google Earth – write our own application based on open API**

Automatic collecting high resolution data with some sample step

Import/Export to GIS or RS software



# Geoportals




# Geoportals



# Geoportals

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**На карте:**

- многоугольник** (0,12 кв. км) ✕
- точка** Field point (55°42'16" N, 37°15'54" E) ✕
- линия** (623 м) ✕

[Скачать wavpoint файл, для OziExplorer](#)  
[Скачать shp-файл](#)

**Просмотр мозаик**

- Города (IKONOS 1м) ●
- Москва 2006 ★
- Единая мозаика (IRS 6м)


**+ Добавить вкладку**

- Просмотр мозаик
- Космоснимки-Блог

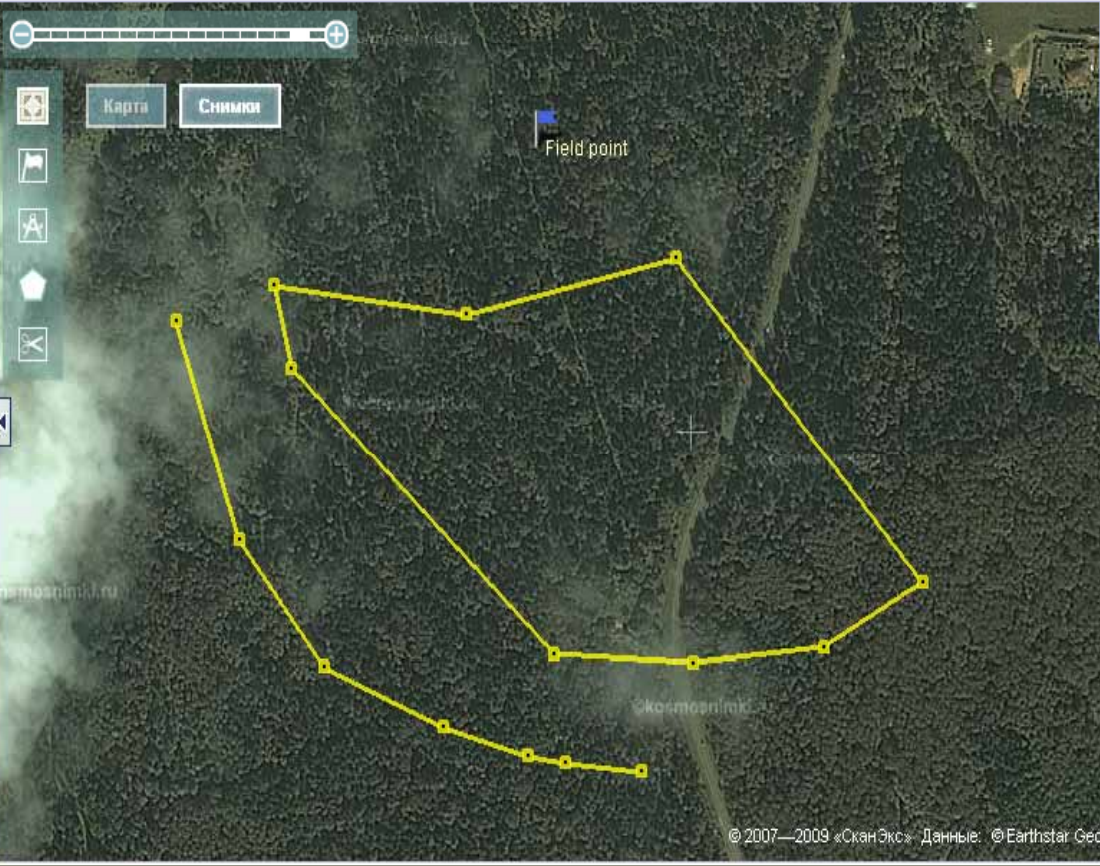
**Космоснимки - Блог**

**Проект создания открытой русскоязычной базы населенных пунктов** (10.04.2009)

Где взять картографические данные? Либо покупать у коммерческих фирм, либо дожидаться когда Роскартография опубликует в Интернете открытые цифровые карты (шутка), либо брать те открытые карты, которые доступны здесь и сейчас. Либо еще и самому принимать



Field point



200 м

55°42'08" N, 37°16'03" E

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Готово [Related How-To Videos](#)



# Geoportals

**High priority geoportals (software) with functions - download/upload GIS data, online editing, with high resolution multi temporal images:**

**Google Earth (All Eurasia)**

**[www.maps.google.com](http://www.maps.google.com) (All Eurasia)**

**[www.geonorge.no](http://www.geonorge.no) (Norway)**

**[www.gulesider.no](http://www.gulesider.no) (Norway)**

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





**Thank you**

