Virtual GIS laboratory for educational needs

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**Aims:**
- Distributed spatial data access organization
- Large coverage data analysis
- Education

**Problems:**
- Geoinformation software (price)
- High performed processes of DEM and satellite images analysis
- Data storage
Good examples. ArcGIS OnLine

Картографическая платформа для вашей организации
Создавайте интерактивные карты и приложения и делитесь ими с другими членами вашей организации. Реализуйте новые возможности и получите углубленное представление о ваших данных. Инсталляция программного обеспечения не требуется.

Взаимодействуйте с вашими пользователями
Разговаривайте с пользователями, обсуждайте с ними карты. Подробнее

Станьте мобильными
Доступ к вашим данным и другой информации может быть у вас в кармане. Подробнее

ArcGIS OnLine
- Web apps built with ArcGIS APIs
- ArcGIS.com
- ArcGIS Explorer Online

Browser
- Use
- Share
- Organize

Mobile
- ArcPad
- ArcGIS Mobile
- iOS
- Windows Phone 7 (future)
- Android (future)

Desktop
- ArcGIS Desktop
- ArcGIS Explorer

Developer Tools
- Web:
  - JavaScript
  - Silverlight
  - Flex
- Mobile:
  - iOS
  - Windows Phone 7 (future)
  - Android (future)
Good examples. Cloud processing of remote sensing data
“University cluster” programme based on platform «UniHUB»
www.unihub.ru
Subject-oriented web-laboratories (also know as «HUB»):

• access to interactive, graphical modeling tools;

• providing visualization of the results of processing, including in real time;

• ensuring the integration of new applications and hardware in infrastructure;

• providing opportunities for joint distributed development of applications by different (administrative and geographic) groups;

• organization and management of information web-resources (on-line documentation, Wiki);

• the organization of virtual classrooms;

• providing full technical support to users platforms etc.
Over 200 people every day use “UniHub” and it’s laboratories from the following organizations:

Moscow state university, Kurchatov Institute, Baumann MSTU, RCC “Energy”, Tomsky state university, Hewlett-Packard (Russia), Permsky state university, Keldish center, Saint-Petersburg state university, University of Bergen, Latvian state university, Saint-Petersburg politechnical state university, Ural branch of RAS
GIS laboratory

of

Institute of geography RAS
Users (2013):
Institute of geography RAS:
- department of cartography
- department of geomorphology

Faculty of Geography, Moscow State University:
- Students of 3 year,
- Master degree students (5 year)

Moscow State University of Geodesy and Cartography (MSUGiK):
- Students of 3 year

Users in future:
Open Source users and volunteers

Kharkov State University

Other department of Institute of geography RAS
Scheme of GIS laboratory

Remote sensing data
- NASA
- ESA

Web-services and data

Administrators

GIS laboratory on Unihub.ru

Teaching material
- Lectures
- Publication
- Courses

OpenSource software

IG RAS data

RAS DataCenter

Network analysis

Geostatistical analysis

Spatial analysis

Users
Software
QGIS

Tasks:
- visualization
- map design
- map digitizing
- morphometric processing
- satellite data processing
Grass GIS

Tasks:

- visualization
- map design
- map digitizing
- morphometric processing
OpenGeoDA

Tasks:
spatial analysis
spatial autocorrelation
geomodeling
SatScan

Tasks:

statistic analysis
spatial-time analysis
Spring GIS (coming soon)

Tasks:

DEM and satellite images processing
Data
Data

Satellite images
Landsat, Aster, Spot, Modis

Aerial photo (IGRAS archive)

Vector data (IGRAS)

DEM
Aster GDEM, GTOPO, ETOPO, SRTM

-Base layers
-Thematic layers
Data in GIS Laboratory

Application for data access
Data from Web (frames for access)

EarthExplorer

EOSDIS

GLOVIS

EOWEB
Results
Results:

1. Mapping of dangerous relief forming processes of the Kuril islands

2. Elevation classification of the Kuril islands
Crimea mountains classification by geomorphological processes
Today's works:
Krasnodar region and Krimsk city area hazards and risk mapping
Thank you for your attention!!!

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