

# GOFC-GOLD

Global Observation of Forest and Land Cover Dynamics



## SEARRIN and Regional Networks Update



**Dr. Olga Krankina**

College of Forestry, Oregon State University  
GOFC-GOLD Regional Networks Coordinator

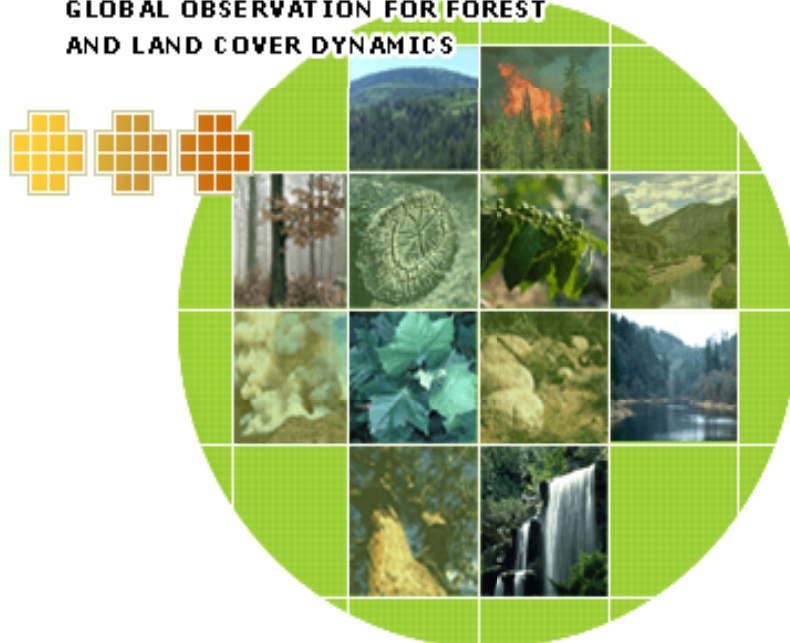
with contributions from Regional Networks  
and GOFC-GOLD ExCom members.



# The Basics

## GOFC-GOLD

GLOBAL OBSERVATION FOR FOREST  
AND LAND COVER DYNAMICS



Global Observation of Forest  
Cover (GOFC)  
+  
Global Observation of Land cover  
Dynamics (GOLD)

=

## GOFC-GOLD

A science panel of the  
Global Terrestrial Observing System



# The Basics

---

---

- GOFC-GOLD is a coordinated program of space-based and on-the-ground observations of forest and land cover for global monitoring of terrestrial resources and the study of global change.
- <http://www.fao.org/gtos/gofc-gold/index.html>



# Organizational Structure

- Executive committee
  - Tony Janetos, Chair (John Townshend former Chair)
- Two implementation teams
  - Land Cover Characteristics and Change (M. Herold and C. Woodcock)
  - Fire Monitoring and Mapping (J. Goldhammer and C. Justice)
- Working groups
  - Biomass Monitoring
  - Reducing Emissions from Deforestation and Forest Degradation (REDD)
  - Other
- Regional networks
  - Coordinators: Olga Krankina and Anja Hoffman (fire)

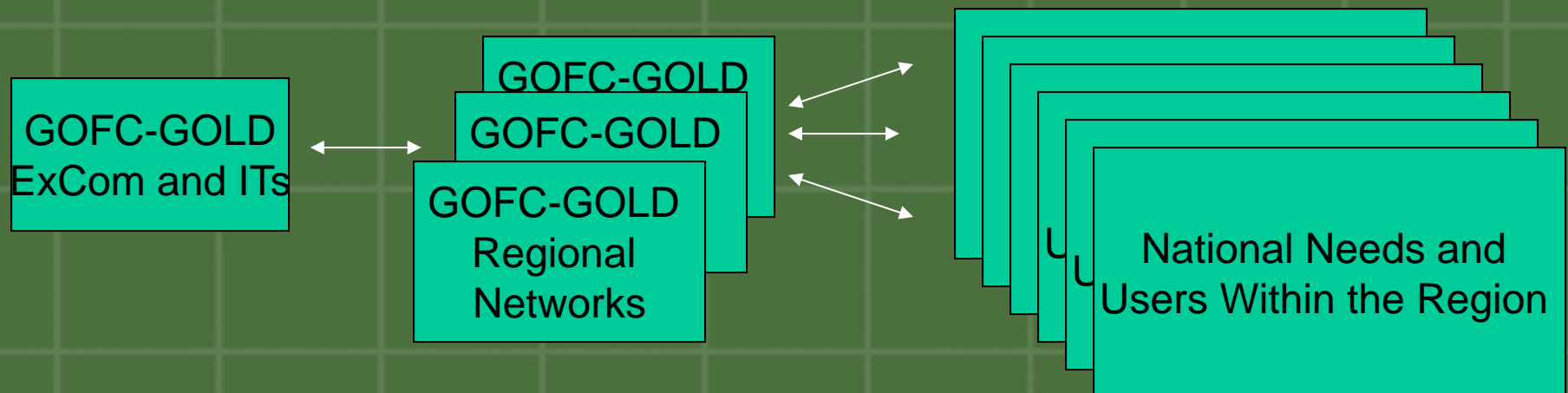
# Role of Regional Networks in GOFC/GOLD

- **Articulate and document regional earth observation requirements**
  - Observations (measurements)
  - Derived products and their associated accuracy requirements
  - Distribution systems
- **Evaluate the utility of global LC and Fire products for regional use**
  - Participate in regional product inter comparison and validation initiatives (providing local expertise)
  - Feedback to producers
- **Facilitate regional use of remotely sensed data and products**
  - Web site – e.g. links to GOFC-GOLD-Fire and land cover websites
  - Establish regional data dissemination nodes
  - Encourage standardization and harmonization of regional products
  - Outreach workshops with regional practitioners and decision makers
  - Coordinate regional capacity building and training of users
- **Promote lateral transfer of technology and collaborations within countries and regions**

# Regional Networks

a critical component of the implementation of GOFC-GOLD

Providing the interface between the Implementation Teams and data users in the regions



1. NERIN – Northern Eurasia – Olga Krankina
2. SEARRIN - South East Asia – Mastura Mahmud
3. OSFAC - Central Africa – Landing Mane
4. Miombo - Southern Africa – Dominick Kwesha
5. SAFNET – Southern Africa – Blessing Siwela and Philip Frost
6. RedLatiF - Carlos DiBella
7. WARN – West Africa – Cheikh Mbow
8. CARIN – Central Asia - Lev Spivak/Nadija Muratova



**GOFC-GOLD**



## SOUTH EAST ASIA REGIONAL INFORMATION NETWORK

October 31, 2011

SEARRIN

Activities

LUCC

GOFC-GOLD

Meetings

Directory

Contact

Current Projects

### South East Asia Regional Information Network (SEARRIN)

The Southeast Asia Regional Research and Information Network (SEARRIN) is dedicated to the scientific understanding of human-environment interactions. SEARRIN conducts research on land cover and land use change in an integrated science framework that includes remote sensing and GIS technology, econometric and systems models, and field work. Our methodology emphasizes spatial and temporal analysis. Our interdisciplinary approach is grounded in our diverse academic and professional expertise: ecology, economics, forestry, geography, political science, resource management, and sociology. Our research is policy relevant, but not policy driven.

This network is an on-going collaboration of a diverse group of institutions from academe, government, non-government organizations, and the private sector. This network is a rare example of cooperative research and analysis in ASEAN, when most governments might not ordinarily engage such action beyond their national mandates. The network maintains linkages across institutions at national (e.g. Forest Ministries, Academia and Technology/Research agencies) and international (e.g. IGBP, IHDP, GTOS, CGIAR) levels. Prior and existing funding comes from UNDP/GEF, Asia-Pacific Network, national agencies, and international organizations. It has been an active participant in the IGBP/START program. The network is an active member of the Global Observing System as a bona fide network for GOFC. A program of on-going capacity building within this expanding network has developed through semi-annual workshops/meetings.

The SEARRIN network was officially launched at the Manila Workshop in November 2000.

#### CURRENT STATUS OF THE NETWORK

- [Milestone](#)
- [Strengthening the Network](#)
- [Maturity of the Network](#)
- [Significance of LUCC I-III to SEARRIN](#)



# SOUTH EAST ASIA REGIONAL INFORMATION NETWORK

November 6, 2011

[Introduction](#)

[Activities](#)

[LUCC](#)

[GOFC-GOLD](#)

[Meetings](#)

[Directory](#)

[Contact](#)

[Current Projects](#)

## Researches and Institution Directory



[Cambodia](#)



[Indonesia](#)



[Laos](#)



[Malaysia](#)



[Phillepines](#)



[Thailand](#)



[USA](#)



[Vietnam](#)



# Network Activities

- Regional Workshops are the main activity
- Network Projects
- GOFC-GOLD Regional Network Data Initiative
  - Landsat Data Archive at USGS is free!
  - Access is difficult in regions with inadequate internet access
  - Disseminate Landsat data
  - Provide training in use of remotely sensed data
  - 2 Data Initiative workshops in USA
    - Africa Pilot Workshop (2009)
    - Data Initiative - Asia (2010)



**GOFC-GOLD**

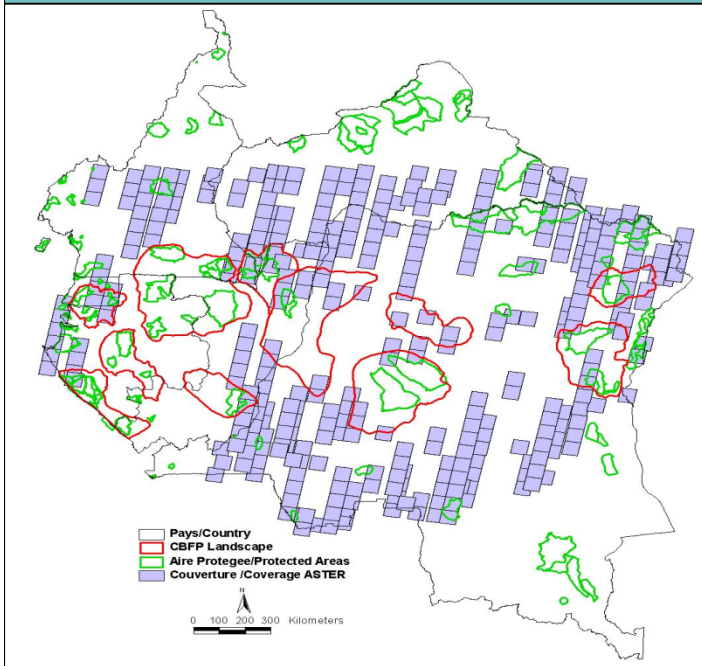
# GOFC-GOLD Regional Network Data Initiative

## Pilot for Africa

- Involves 5 regional networks
- Network representatives received data and training over 3 weeks at USGS EDC, South Dakota State University (SDSU), UMD in April-May 2009
- Support provided by NASA, START, USGS, UNEP, SDSU and CFS



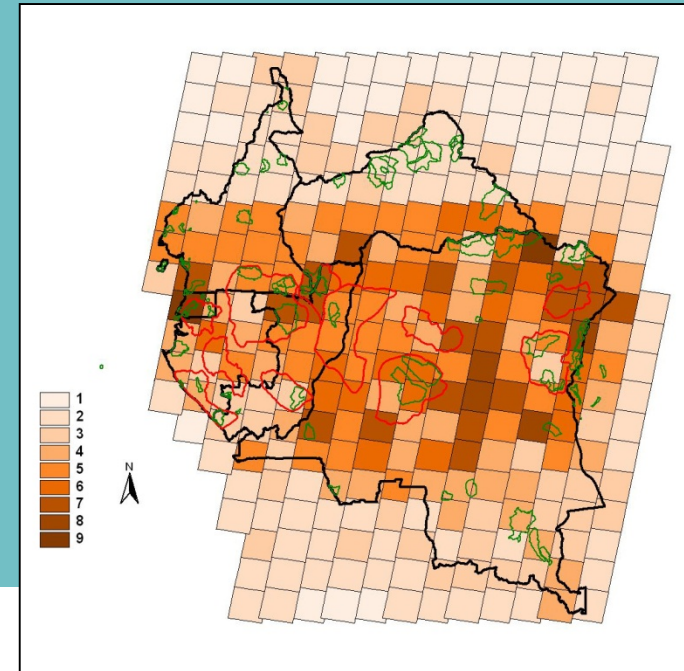
# Data available through OSFAC



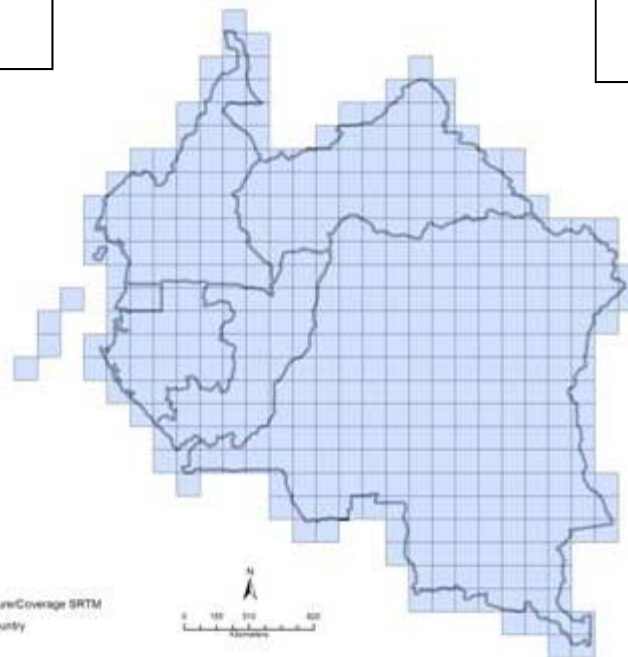
ASTER 2000-2008  
Around 2600 granules

## Others :

- MODIS Data
- LANDCOVER maps
- Etc.



LANDSAT 1984-2008  
Around 5000 scenes



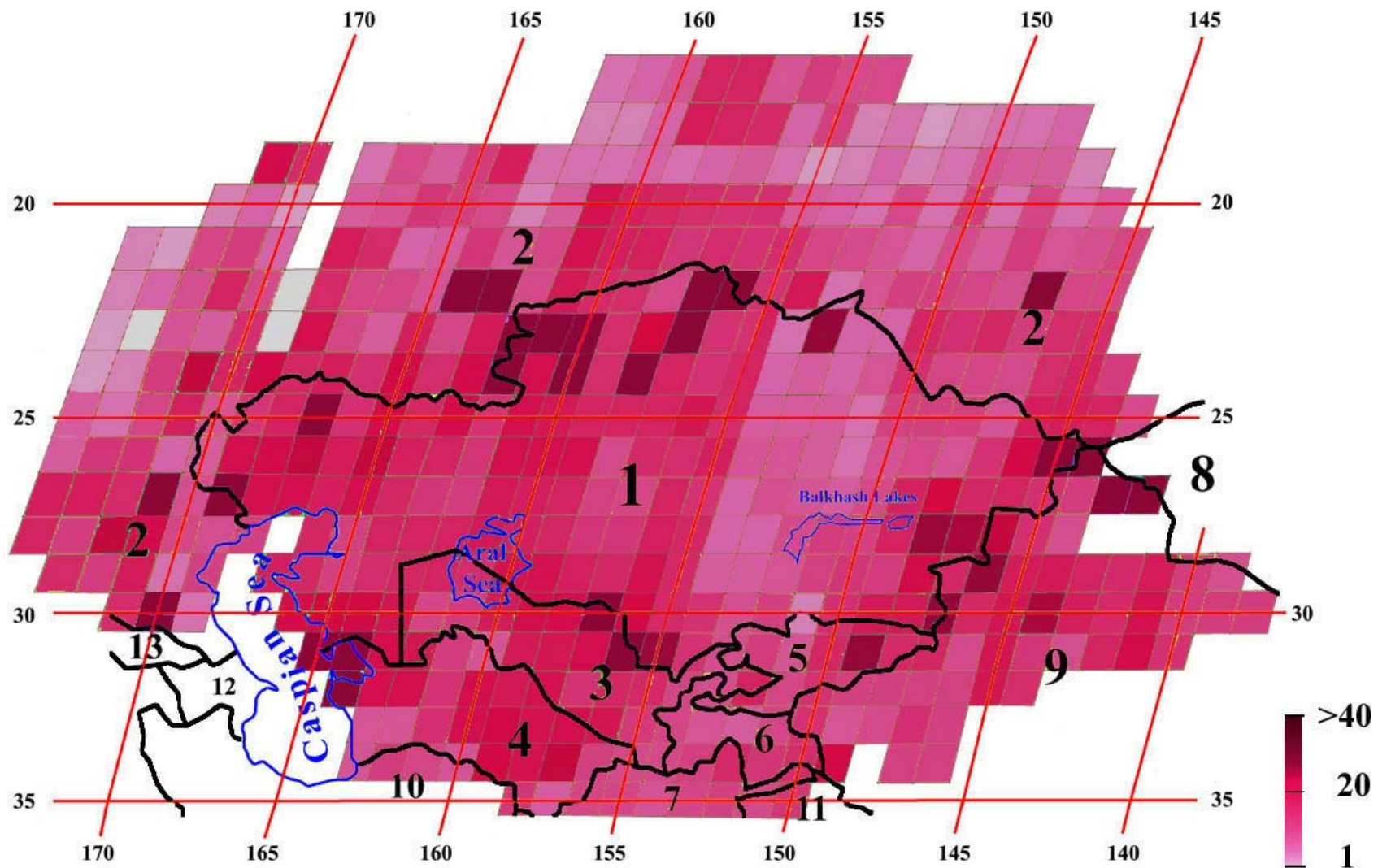
SRTM 2000  
Around 600 granules

# GOFC-GOLD Regional Network Data Initiative – Asia Workshop

Two regional networks: CARIN and SEARRIN (6 representatives)

- Training over 3 weeks at USGS EDC and SDSU or OSU in May 2010
- EDC set an all-time record for Landsat downloads in a single day at 8000 scenes
- E.g., Kazakhstan archive: >14 thousand images for 483 scene positions (1972-2010)





Landsat TM and ETM (1984-2010) coverage for Central Asia in CARIN-Kazakhstan Archive (colors indicate number of scenes for each path/row): 1 Kazakhstan; 2 Russia; 3 Uzbekistan; 4 Turkmenistan; 5 Kyrgyzstan; 6 Tadjikistan; 7 Afghanistan; 8 Mongolia; 9 China; 10 Iran; 11 Pakistan; 12 Azerbaijan; 13 Georgia. (Image Credit A. Terekhov)

# Data Initiative Follow-up (examples)

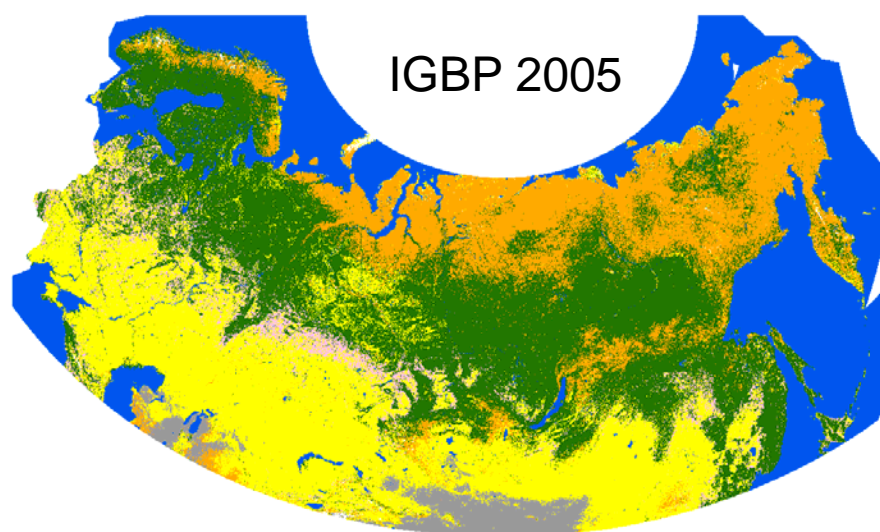
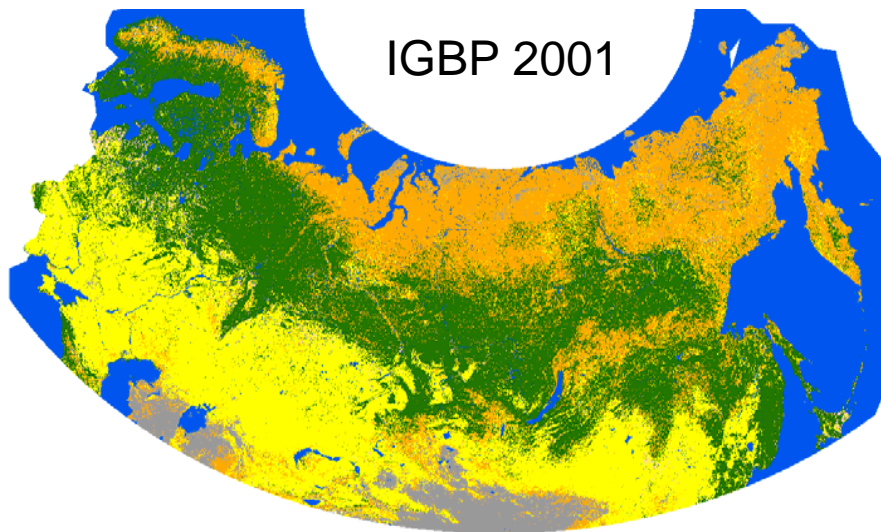
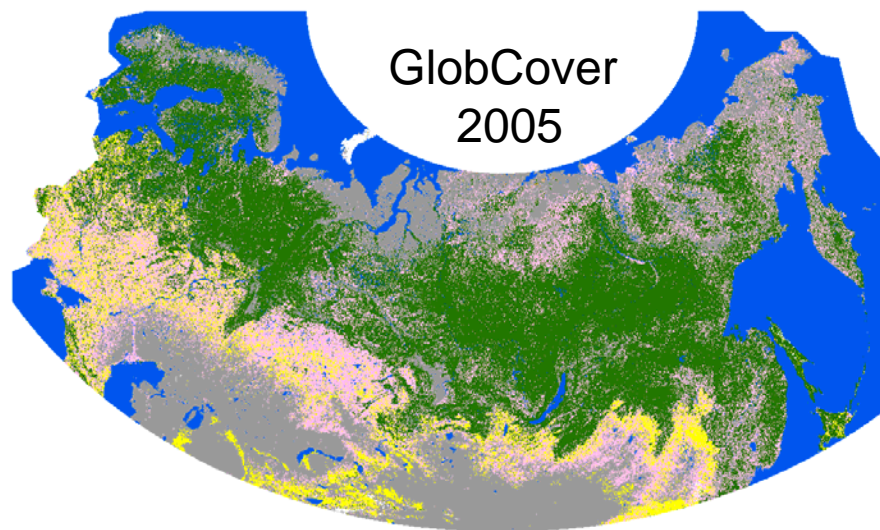
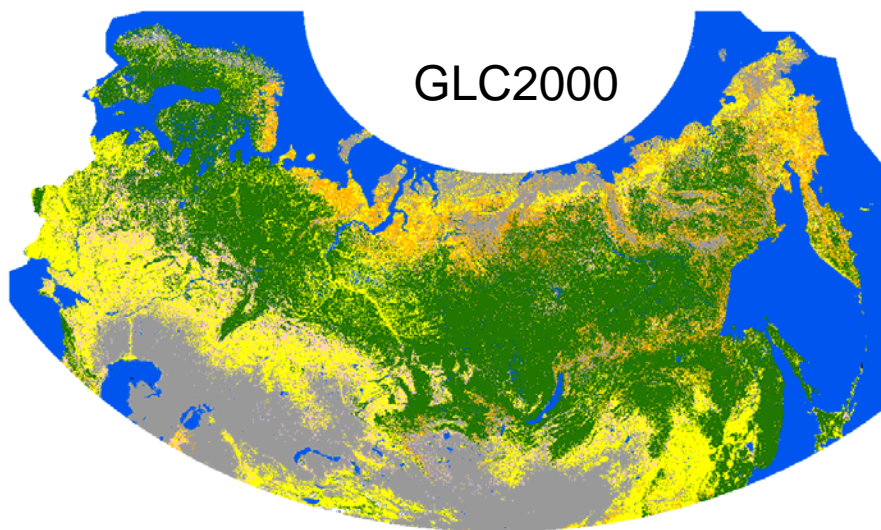
- Presentations, seminars and workshops
  - OSFAC Network presentation at CarboAfrica workshop in Feb. 2010 (Brazzaville, Congo)
  - Data distribution workshop in Mongolia, June 2010
  - Training, planning and data distribution workshop in Tashkent, Uzbekistan, Nov. 2010
  - Russian-language web portal for data access presented in Dec. 2010 at science conference in Moscow
  - Proposal for a workshop for Miombo network is under review by START
- Data distribution to government agencies, universities and NGOs (CARIN and Miombo)
- Paper: Roy, D.P., Ju, J., Mbow, C., Frost, P., Loveland, T. (2010) 'Accessing free Landsat data via the Internet: Africa's challenge', Remote Sensing Letters, 1: 2, 111 — 117
- Data initiative as catalyst for planning (and funding) network activities
  - CARIN research proposal (12 participants from the region)
  - Other?

# NEELDA

(Northern Eurasia Landcover Dynamics Analysis)





**GOFC-GOLD**




  
Tree


  
Shrub

  
Herbaceous

  
Mosaic

  
Bare

  
Ice

  
Water



**GOFC-GOLD**



Overview

St. Petersburg

Carpathians

Komi

Chita

Priangare

Kazakhstan

## Global Land Cover

To identify specific needs and possibilities for improved mapping of land cover across boreal and temperate Northern Eurasia, we compared the performance of recent land-cover products derived from different sensors: MODIS (MODIS IGBP Land Cover Collection 4 and 5), SPOT VEGETATION (GLC-2000) and MERIS (GLOBCOVER).



Contents lists available at SciVerse ScienceDirect

## Remote Sensing of Environment

journal homepage: [www.elsevier.com/locate/rse](http://www.elsevier.com/locate/rse)

## Comparison and assessment of coarse resolution land cover maps for Northern Eurasia

Dirk Pflugmacher <sup>a,\*</sup>, Olga N. Krankina <sup>a</sup>, Warren B. Cohen <sup>b</sup>, Mark A. Friedl <sup>c</sup>, Damien Sulla-Menashe <sup>c</sup>, Robert E. Kennedy <sup>a</sup>, Peder Nelson <sup>a</sup>, Tatiana V. Loboda <sup>d</sup>, Tobias Kuemmerle <sup>e</sup>, Egor Dyukarev <sup>f</sup>, Vladimir Elsakov <sup>g</sup>, Viacheslav I. Kharuk <sup>h</sup>

<sup>a</sup> Department of Forest Ecosystems and Society, Oregon State University, 321 Richardson Hall, Corvallis, OR 97331, USA

<sup>b</sup> USDA Forest Service, Pacific Northwest Research Station, Forestry Sciences Laboratory, 3200 SW Jefferson Way, Corvallis, OR 97331, USA

<sup>c</sup> Department of Geography and Environment, Boston University, 675 Commonwealth Ave., 4th Floor, Boston, MA 02215, USA

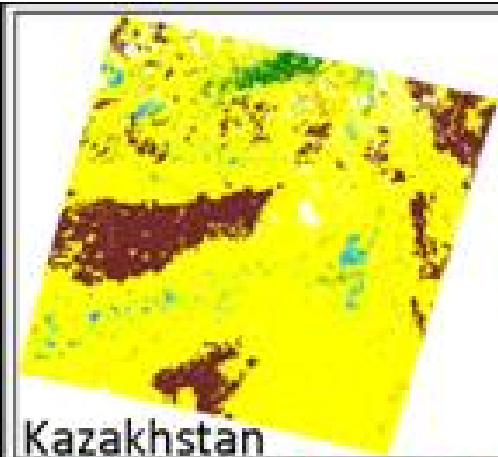
<sup>d</sup> Department of Geography, University of Maryland, 2181 LeFrak Hall, College Park, MD 20742, USA

<sup>e</sup> Earth System Analysis, Potsdam Institute for Climate Impact Research (PIK), PO Box 60 12 03, Telegraphenberg A62, D-14412 Potsdam, Germany

<sup>f</sup> Institute of Monitoring of Climatic and Ecological Systems, Tomsk 634021, Russia

<sup>g</sup> Institute of Biology, Komi Science Center, Russian Academy of Sciences, Kommunisticheskaja st., 28, 167610 Syktyvkar, Russia

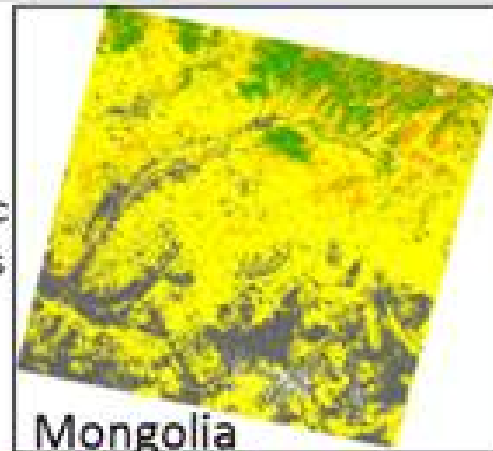
<sup>h</sup> Institute of Geography, Russian Academy of Sciences, Moscow, Russia



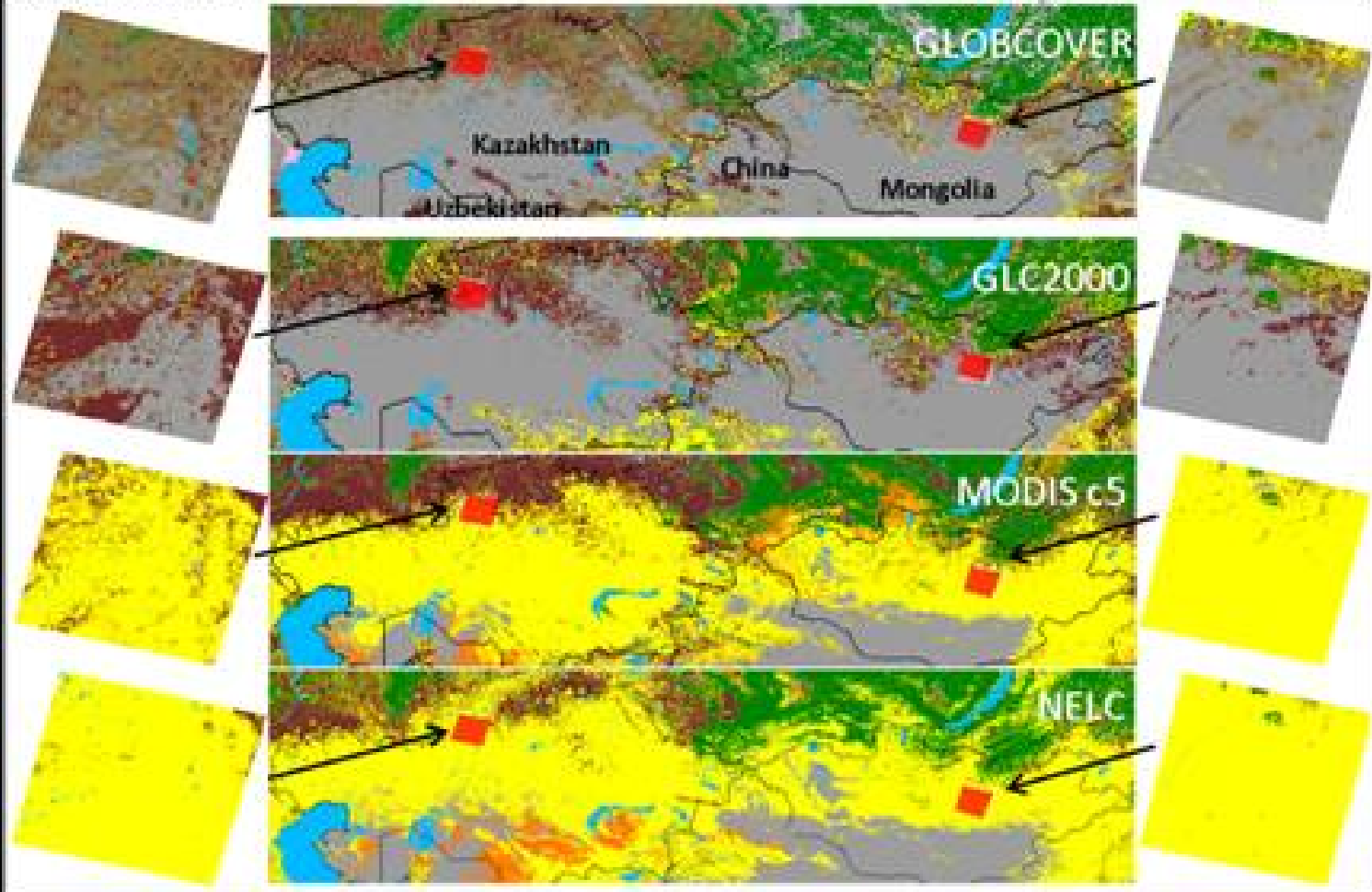
Kazakhstan

Land cover types:

- Trees
- Shrubs
- Barren
- Water
- Cropland
- Crop mosaic
- Herbaceous
- Mosaic

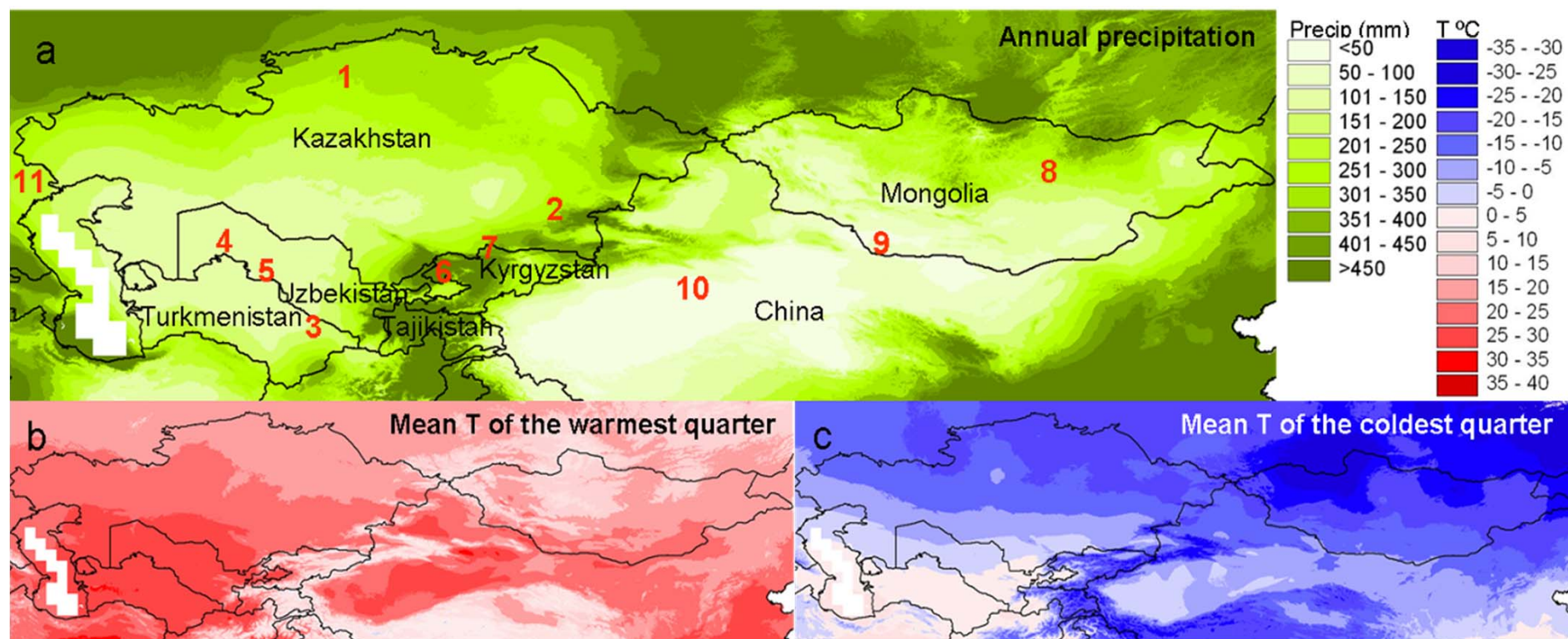


Mongolia



# NASA Proposal:

## Changes in land cover and land use in Central Asia: Synthesis of methods and results



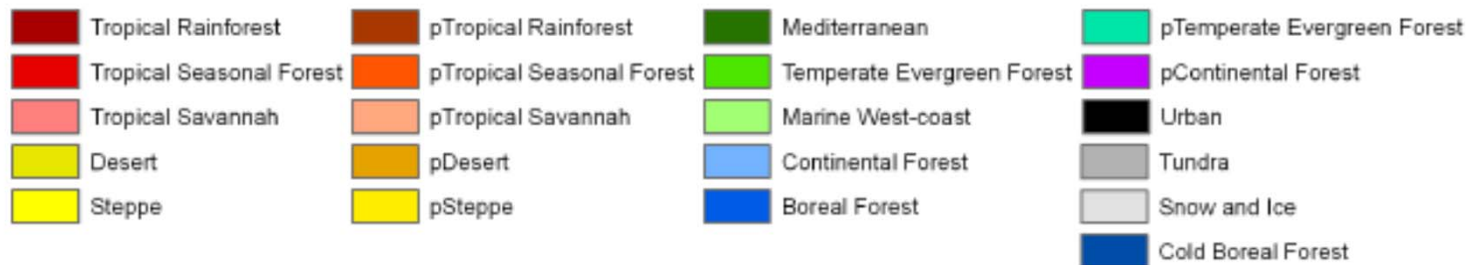
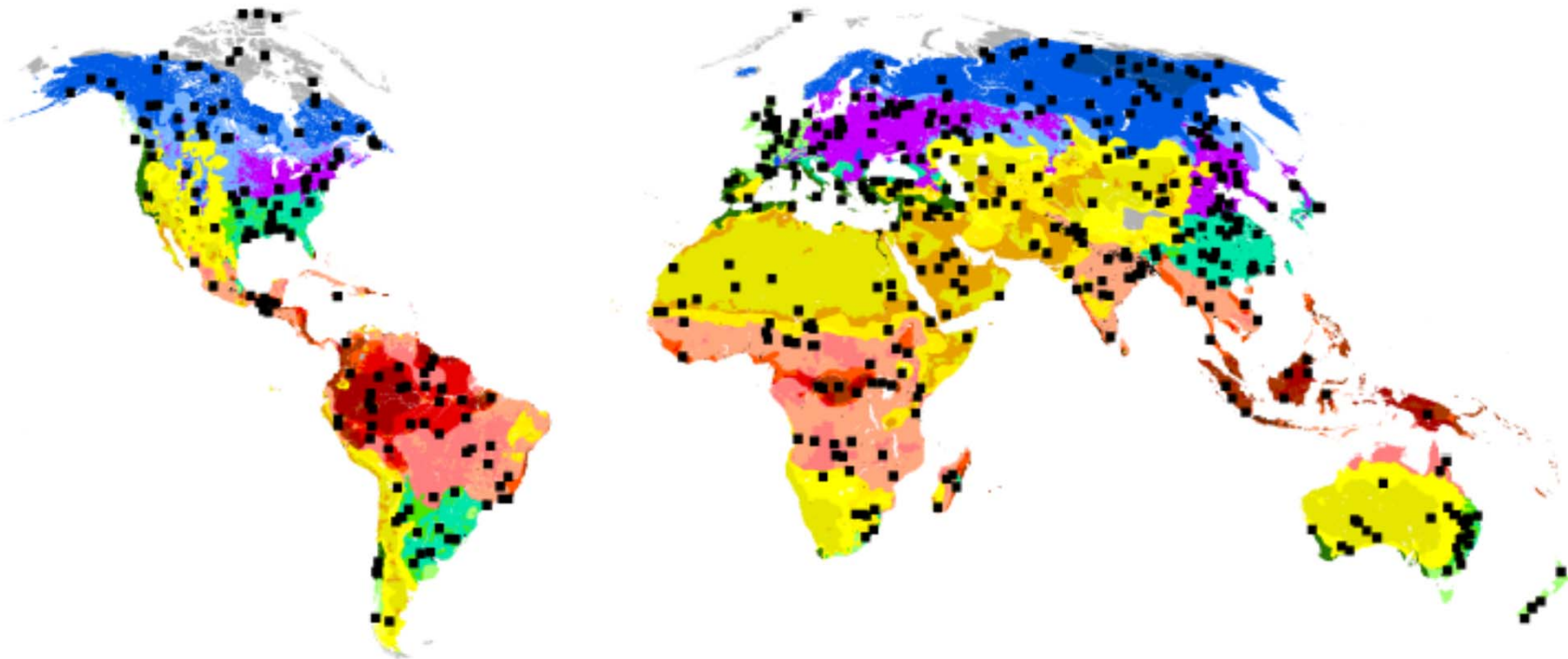
**Primary objective:** the analysis of key regional LCLUC processes in the context of differences in political systems, historic legacies, cultural traditions, and economic conditions across Central Asia based on consistent region-wide detection, quantification, and characterization of LCLUC.

# Global Reference Database for Assessing Accuracy of Land Cover Maps

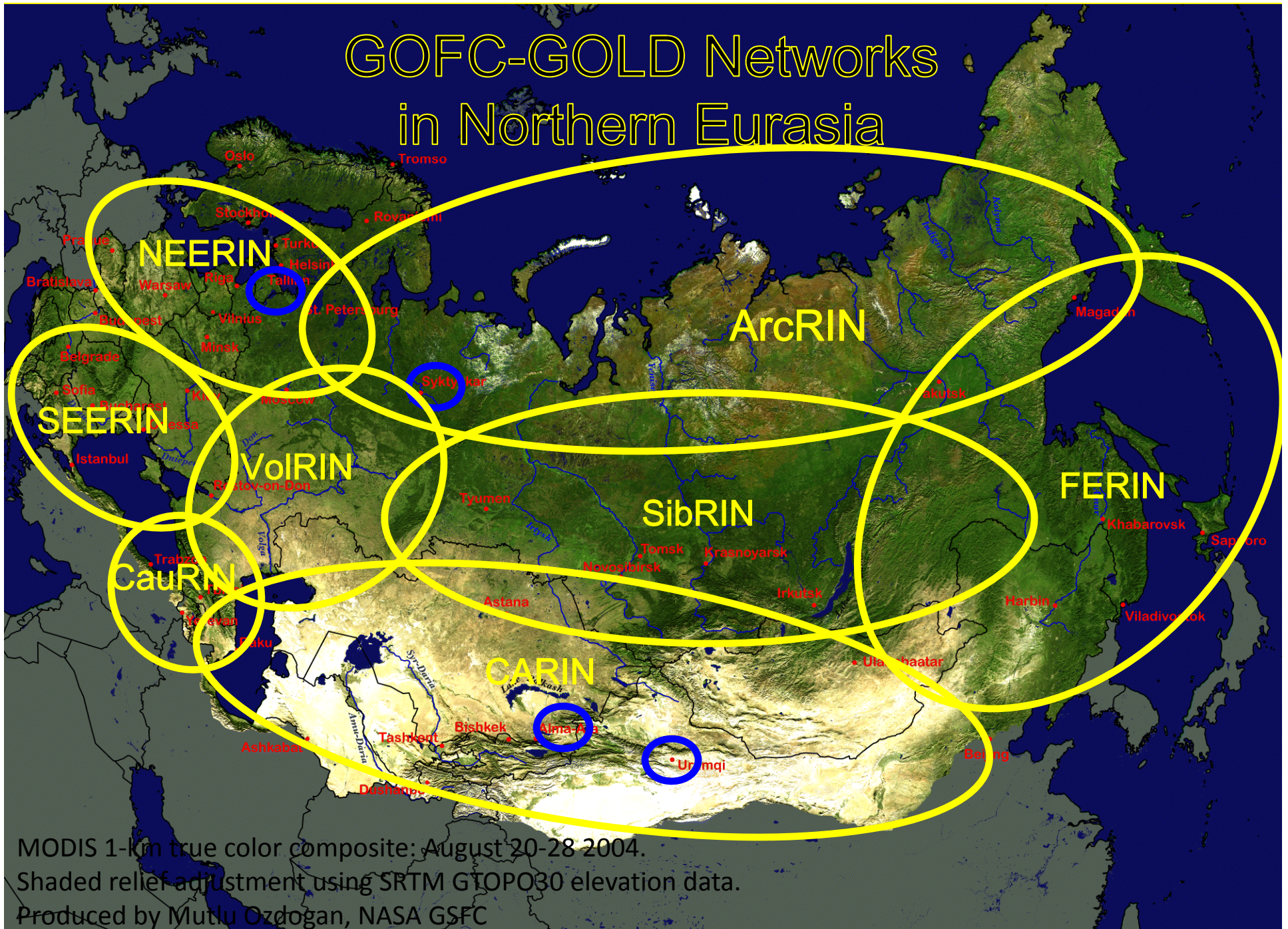
Curtis E. Woodcock, et al. Dept of Geography and Environment, Boston University

675 Commonwealth Avenue, Boston, MA 02215, USA

Martin Herold Laboratory of Geo-Information Science and Remote Sensing,  
Wageningen University, Droevendaalsesteeg 3, Wageningen, The Netherlands



# GOFC-GOLD Networks in Northern Eurasia



MODIS 1-km true color composite: August 20-28 2004.  
Shaded relief adjustment using SRTM GTOPO30 elevation data.  
Produced by Mutlu Ozdogan, NASA GSFC

# Planning tasks for SEARRIN

- Improved organization and structure
- Data Initiative
  - Distribution of data collected in 2010?
  - Focus on South America and Asia in 2012
    - 3-4 participants
- Regional Workshop
  - Planning underway for SEARRIN-Fire Workshop
  - All-network SEARRIN workshop including fire, land cover, REDD, Coastal zone, other topics TBD
- Network Projects
  - Proposal to PEER program
  - Other Opportunities

# GOFC-GOLD

Global Observation of Forest and Land Cover Dynamics



<http://www.fao.org/gtos/gofc-gold/index.html>

Contact: [Olga.Krankina@oregonstate.edu](mailto:Olga.Krankina@oregonstate.edu)