

Objectives of the Meeting

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The Primary Focus

- The focus of this meeting is on monitoring processes related to land-cover and land-use change in boreal and temperate regions of central, eastern and northern Europe.
- The Land Cover Land Use Change Program is studying land use change at the global and regional scale, as part of NASA's Earth System Science research and as a contribution to the US Global Change Research Program

Why study Land Use Change ?

- **Big Picture**

- Increasing global population, changing governments and policies, changing economic conditions and a changing climate contribute in various ways to changing land use practices and changes in land cover
- Many Regions of the World are undergoing significant land use/ land cover change - LCLUC is the OTHER GLOBAL CHANGE
- Changing land use / land cover often has impacts over a range of scales and across sectors
 - Global – e.g. carbon cycle, food supply, biodiversity
 - Regional – e.g. albedo, hydrology, air quality, economy, climate
 - Local – e.g. nutrient cycling, water quality, livelihoods, disasters
- All land use/cover change is local but effects are cumulative - for Earth System Science we focus on changes of regional to global significance

- The causes of land use change are often complex e.g.
 - Changing economic conditions and market forces (regional and international)
 - Competing demands for land
 - Changing institutions, policies, subsidies and land ownership
 - Changing rainfall and temperature
 - Changing demographics
- Projection of LCLUC requires an understanding of the processes (land use modeling)
- Understanding causes and impacts of land use change requires a combination of physical and social science, observations and modeling
- Although Land Use has been studied for many years - in the context of Global Change this interdisciplinary, integrated research topic is relatively new and conceptual frameworks need to be developed
- Linkages to emerging sustainability science

Why is NASA interested in LCLUC ?

- NASA satellite assets and data products provide a means for characterizing land cover and quantifying and monitoring land cover change
- LCLUC is an important aspect of global change – carbon cycle, climate/land use interactions and feedbacks, societal impacts
- Scientific understanding of LCLUC can inform land management and land use policy (Applications – carbon, water, food, biodiversity, etc.)
- This is one of a series of regional LCLUC workshops to improve international collaboration

The study of LCLUC has different scientific components

Research

- Inventory and Characterization of Land Cover
- Quantifying Changes – recent / historical
- Understanding impacts – physical / social
- Understanding processes – physical / human
- Projection of future changes
- Relationship to other factors/forcing/stressors
- Understanding feedbacks

The study of LCLUC has different scientific components

Observations and Monitoring

- Developing new sensing and processing systems
- Data acquisition
- Developing algorithms, data products

Applications

- Developing practical applications
- Decision support
- Transition Research to Operations

Objectives for the Meeting

Can we develop a scientific 'regional' overview of

- What are the significant types of land cover and land use change in boreal and temperate Europe.
- What LCLUC changes have taken place in this region ?
- What are the current trends ?
- What are the primary causes/drivers
- What are the significant impacts ?
- What changes are likely to happen in the foreseeable future ?

Can regional scientists make better use of NASA data sets ?

Can we better organize to enhance our international collaborative research

Workshop Sessions

- Overviews of what is currently being done ?
 - International Programs
 - National Programs, projects and activities and perspectives
- Changes in Natural Ecosystems: composition and structure
- Biogeochemical and Water Cycles
- Human Dimensions of Land Use Change
- Identifying Regional Observation and Research Priorities

Workshop Elements

- Oral Overview Science Presentations
- National Program Summaries
- Poster Presentations, Synopses, Discussion
- Regional Panel Discussions
- Dinners and Field Trips - time for one on one discussion / interactions – developing collaborations
- Future planning and opportunities – developing a regional scientific network ?
- Workshop Report and publications?

Workshop Organizers

Scientific Program Committee

Dr. Yuri Knyazikhin
Boston University, Boston, MA

Dr. Matti Mõttus
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Thank You

Workshop on Monitoring Land cover and
Land use in Boreal and Temperate Europe,
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