

**Forest cover changes in mountainous regions
– drivers, trajectories and implications (FORECOM)
Opening conference, 6-8 March 2013, Kraków, Poland**

Objectives

FORECOM (<http://www.gis.geo.uj.edu.pl/FORECOM/index.html>) is a project awarded in the “Environment” pillar of the Polish-Swiss Research Programme (<http://www.swiss.opi.org.pl/>) and carried out by research teams from the Institute of Geography and Spatial Management (IGSM), Jagiellonian University, Poland, and Swiss Federal Research Institute for Forest, Snow and Landscape Research (WSL), Research Unit Landscape Dynamics.

FORECOM aims at improving the understanding of past, present and future forest cover changes in the Swiss Alps and the Polish Carpathians in the context of land use and climate changes. Over the past decades agricultural land in Europe has declined and forest area has expanded considerably. Recent trends of land abandonment have been most pronounced in marginal areas, for example in the mountains, like the European Alps and the Carpathians, where agriculture became economically inefficient resulting in a decrease in cropland or grassland area followed by an increase in forest cover. At the same time, the potential upper tree line has shifted upward as a consequence of global warming. Despite their importance, spatially accurate large-scale and long-term reconstructions of forest cover changes in the Swiss Alps and the Polish Carpathians so far have been missing for both mountain regions, and underlying driving forces of the forest cover change trends are still insufficiently understood.

The Opening Conference of the FORECOM project intends to:

- bring together scientists working on land use change in the mountain regions, especially in the Carpathians and in the Alps to pool expertise, identify synergies and complementarities, and to inform on the progress and goals of the FORECOM project;
- to identify good practices and recent key developments in various fields of Land Change Science, in particular remote sensing and change detection, historical cartography, land change modeling, global change and land use scenarios.

Date and venue

The Opening Conference of the FORECOM will take place between 6-8 March 2013, at the Institute of Geography and Spatial Management of the Jagiellonian University, 30-387 Kraków, Gronostajowa 7, Poland (see: <http://www.gis.geo.uj.edu.pl/FORECOM/contact.html>)

Contact information

Dr. Natalia Kolecka, Department of GIS, Cartography and Remote Sensing, IGSM, 30-387 Kraków, Gronostajowa 7

tel. +48-12-6645302, fax +48-12-5385; email: nkolecka@gis.geo.uj.edu.pl

Programme: overview**Wednesday 6th March**

- 17.30 – Registration (Main hall)
18.00 – Ice-breaker (Main hall)

Thursday 7th March**Plenary: Room 1.0.1**

- 09.00 – 09.30 Conference opening and introduction to the FORECOM project (Jacek Kozak, Institute of Geography and Spatial Management [IGSM], Jagiellonian University, Poland; Urs Gimmi, Swiss Federal Research Institute for Forest, Snow and Landscape Research WSL)
- 09.30 – 10.15 Key note lecture: Changing land uses in Europe's mountain areas: Driving forces, trends, and the need for integrated approaches (Martin Price, Centre for Mountain Studies, Perth College, University of the Highlands and Islands, UK)
- 10.15 – 11.00 *Coffee break*
- 11.00 – 11.40 Long-term land use and land cover change in Central and Eastern Europe (Volker Radeloff, University of Wisconsin, USA)
- 11.40 – 12.20 Land use and land cover change research in the Carpathians (Tobias Kuemmerle, Humboldt University, Germany)
- 12.20 – 13.30 *Lunch*

Parallel workshop sessions (see below for details)

- 13.30 – 15.30 Parallel workshop session 1 (presentations)
- 15.30 – 16.00 *Coffee break*
- 16.00 – 17.15 Parallel workshop session 2 (presentations)

Plenary: Room 1.0.1

- 17.15 – 17.45 Land cover change of the Lake Fertő / Neusiedler in special consideration of the development of the reed-belt (Géza Király, Gábor Brolly, Éva Konkoly-Gyuró, István Márkus, University of West Hungary, Hungary)
- 17.45 – 18.15 Integrated modeling of large scale forest patterns and connectivity of protected areas and relevance in the context of ecosystem services and climate change (Christine Estreguil, G. Caudullo, D. De Rigo, Joint Research Centre, Institute for Environment and Sustainability, Ispra, Italy)
- 19.00 – Short walk in the city and dinner

Friday 8th March

Parallel workshop sessions (see below for details)

- 09.00 – 09.40 Parallel workshop session 3: towards wrap-up (discussion)

Plenary: Room 1.0.1

- 09.40 – 10.15 Wildlands and woodlands: a vision for the New England landscape based on investigations of long-term land-use change (William Keeton, University of Vermont; David R. Foster, Harvard University, USA; et al.)
- 10.15 – 10.45 *Coffee break*
- 10.45 – 12.15 Workshop groups 1-4 wrap-up
- 12.15 – 12.30 Closing ceremony
- 12.30 – 13.30 *Lunch*

Programme: parallel workshops

Topic 1. Land use and land cover change reconstruction based on historical maps (opportunities and challenges, automatic feature extraction, creating homogenous time series from heterogeneous sources)

Room: P.1.0.1

Moderation: Urs Gimmi (WSL), Dominik Kaim and Krzysztof Ostafin (IGSM)

Expert keynote: Monika Wulf, Leibniz Centre for Agricultural Landscape Research, Germany

Presentations:

Andrzej Affek

Institute of Geography and Spatial Organization PAS, Poland

Landscape structure and patterns of land cover change in the Sanok-Turka Mountains, Polish Carpathians (1780-2000)

Monika Dobosz

IGSM, Jagiellonian University, Poland

Dufour Map of Switzerland: forest cover identification

Pierre Alexis Herrault

University of Toulouse, France

Automatic extraction of forests from historical maps based on unsupervised classification

Marcin Iwanowski et al.

Warsaw University of Technology, Poland

Detection of forest regions on scanned maps based on color segmentation and morphological image processing

Éva Konkoly-Gyuró, Géza Király, Pál Balázs, Ágnes Tirászi

Landscape historical research based on historical maps in West-Hungarian transboundary areas

Kristin Meier

Leibniz Centre for Agricultural Landscape Research, Germany

Reconstruction of historical land use and land cover changes in northern Brandenburg, Germany

Topic 2. New remote sensing approaches to identify forest cover change and forest succession processes on former agricultural land (focus on LIDAR)

Room 1.14

Moderation: Christian Ginzler (WSL), Natalia Kolecka (IGSM), Achilleas Psomas (WSL)

Expert keynote: Markus Hollaus, Wien Technical University, Austria

Presentations:

Chandra P. Giri, T. Loveland, M. Hansen, P. Potapov, P. Thenkabai, C. Woodcock, S. Stehman, J. Long, B. Pengra, K. Landgraf, T. Maieringer

USGS Earth Resources Observation and Science (EROS) Center, USA

Next generation of global land cover characterization, mapping and monitoring: challenges and opportunities

Christian Ginzler

Swiss Federal Research Institute for Forest, Snow and Landscape Research WSL

Forest monitoring with remote sensing. Research activities at WSL, Switzerland

Piotr Wężyk

University of Agriculture in Kraków, Poland

Monitoring of forest cover changes based on LiDAR and stereo matching of CIR aerial images approach

Radomir Bałazy, Krzysztof Stereńczak

Forest Research Institute, Poland

GIS for forest monitoring in Sudety and Western Beskidy Mts.

Miro Jacob, Amaury Frankl, Hans Beeckman, Etafa Guyassa, Kiros Meles, Marijn Hendrickx,

Alain de Wulf, Jan Nyssen

Ghent University, Belgium

A reconstruction of the Afro-alpine Erica Arborea L. treeline in the Northern Ethiopian highlands since the 1930s

Natalia Kolecka, Achilleas Psomas, Monika Dobosz, Christian Ginzler, Martin Keller,

Katarzyna Ostapowicz

Jagiellonian University, Poland; WSL, Switzerland

Forest succession mapping in the Alps and the Carpathians – first results

Topic 3. Drivers of land use and land cover change and developing land use change scenarios

Room 1.16

Moderation: Matthias Bürgi (WSL), Katarzyna Ostapowicz (IGSM)

Expert keynote: Karlheinz Erb, Alpen-Adria University, Vienna, Austria

Expert keynote: Eric Koomen, Free University of Amsterdam

Presentations:

Juraj Lieskovsky, Peter Bezák, Jana Špulerová, Marta Dobrovodská
Slovak Academy of Sciences, Slovakia

The abandonment of traditional agricultural Landscape structures in Slovakia – a multi scale analysis of the extent and driving forces

Přemysl Štych

Faculty of Science, Charles University in Prague, Czech Republic

Forest cover in the Czech Republic: long-term changes and driving forces

Agnieszka Latocha

University of Wrocław, Poland

Land use changes in the Kłodzko region in the post-war period

Tomasz Szymura, Andrzej Dunajski

Wrocław University, Poland

Different patterns of forest cover changes led by different drivers at regional level. A case study in Sudety Mts.

Józef Hernik

University of Agriculture in Kraków, Poland

Sensitive cultural landscape zones of rural areas

Sergio Godinho

University of Évora, Portugal

Geographical modeling of Montado landscape spatio-temporal dynamics: an integrated analysis of climate change and socioeconomic drivers

Topic 4. Land use and land cover change and climate effects on ecosystem services (biodiversity, carbon sequestration)

Room 1.28

Moderation: Zbigniew Ustrnul (IGSM), Niklaus Zimmermann (WSL)

Expert keynote: Lubos Halada, Slovak Academy of Sciences, Slovakia

Presentations:

Hanna Hajdukiewicz, Bartłomiej Wyżga, Joanna Zawiejska

Polish Academy of Sciences, Poland

Twentieth-century expansion of riparian forests in the valleys of Polish Carpathian rivers

Paweł Prokop, Subir Sarkar

Polish Academy of Sciences, Poland

Natural and human impacts on land use and soil properties on the Eastern Himalaya piedmont over last 150 years

Oleksandra Shandra

National Taras Shevchenko University of Kyiv, Ukraine

Landscape influences on recent timberline shifts in the Carpathian Mountains: Abiotic influences modulate effects of land-use change

Anatoliy Smaliychuk

Ivan Franko National University in Lviv, Ukraine

Forest cover changes in low mountain Ukrainian Carpathians: case study of Boberka municipality