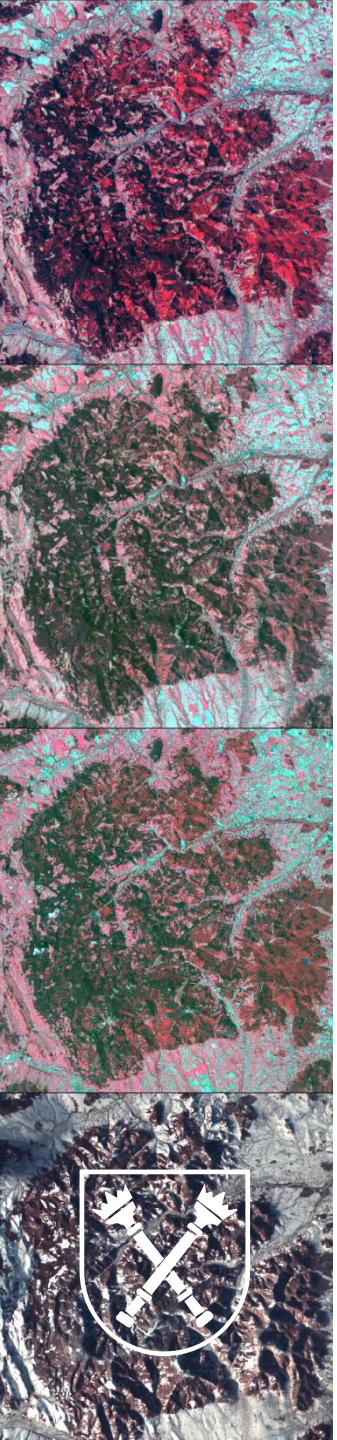


Forest cover change:
Department of GIS, Cartography and Remote Sensing
Institute of Geography and Spatial Management
Jagiellonian University perspective

Katarzyna Ostapowicz

Department of GIS, Cartography and Remote Sensing

- founded in 2007 (combining two departments)
  - Department of Cartography and Remote Sensing - 1979
  - Department of GIS – 1993
- 7 researchers, 3 admin / technical staff, 10+ PhD students
- **GIS&T; LULCC detection and modeling,**
  forest cover change (long-term, forest transition),
  landscape ecology (e.g. fragmentation and connectivity assessment at the landscape and habitat level)
- mountain community oriented projects
  (Science for the Carpathians (S4C) network; mountainTRIP project)
- GIS&T studies
  (UNIGIS, e-learning, CEEPUS network, summer schools and trainings like „*TAT Training*" Kraków 2014)

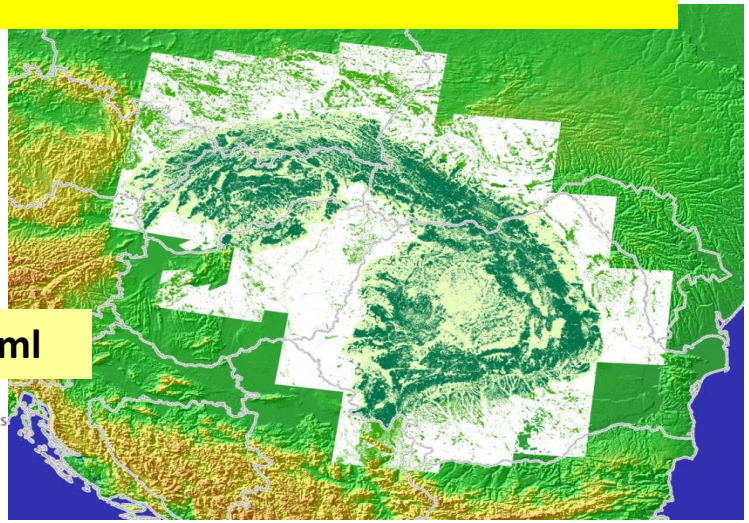
Department of GIS, Cartography and Remote Sensing: research projects

FORECOM has started

JULY 16, 2012

FORECOM (PSPB 008/2010) – a project awarded in the "Environment" pillar of the Polish Swiss Research Programme – aims therefore to improve 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. The project will be carried out by research teams from the Institute of Geography and Spatial Management, Jagiellonian University, Poland, and Swiss Federal Research Institute for Forest, Snow and Landscape Research (WSL), Research Unit Land Use Dynamics. It started in June, 2012, and will end in May 2016.

http://www.gis.geo.uj.edu.pl/FORECOM/index.html



Project supported by a grant from Switzerland through the Swiss Contribution to the enlarged European Union.

- Swiss Contribution to Poland

SWISS CONTRIBUTION

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Project has just started - find out more!

October 24, 2012

http://www.gis.geo.uj.edu.pl/LIMProject/index.html

Integration of categorical- and gradient-based approaches in landscape fragmentation and connectivity modelling using GIS&T (2011/03/D/ST10/05568) - a project supported by a grant from the National Science Centre - aims to develop new approaches allowing integration categorical- and gradient-based landscape models for more accurate representation of landscape structure (Landscape Integrated Models - LIM) and based on that - a comprehensive description (quantitative and qualitative) of landscape/habitat fragmentation and connectivity. The project will be carried out by a research team from the Institute of Geography and Spatial Management, Jagiellonian University, Poland, in collaboration with international research teams. It started in August, 2012, and will end in December, 2015.

Project supported by a grant from the National Science Centre

NATIONAL SCIENCE CENTRE

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NASA

200 years of land use and land cover changes and their driving forces in the Carpathian Basin

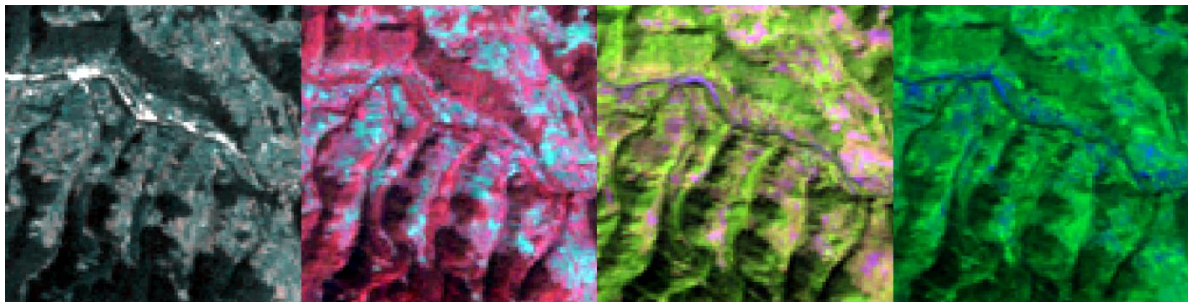
Where?

When?

Why?

land cover
&
land use
change
(FORESTS)

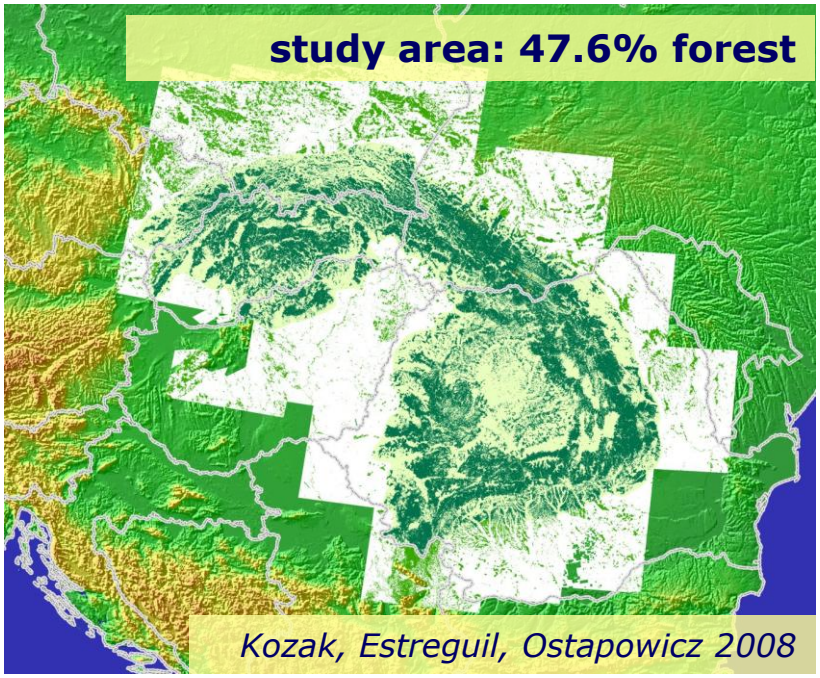
change



Study areas

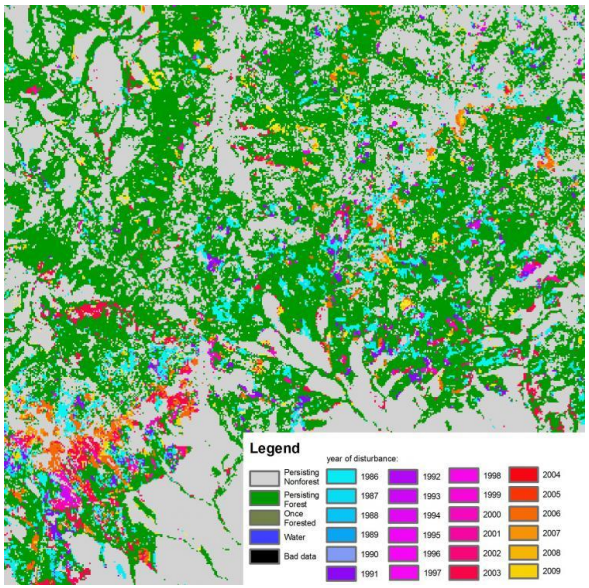
Studies: spatial scale

Forest maps of the Carpathians, 2000



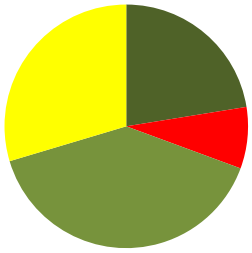
Kozak, Estreguil, Ostapowicz 2008

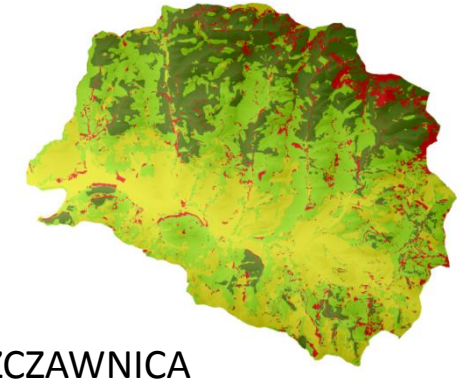
Forest cover change 1986-2009



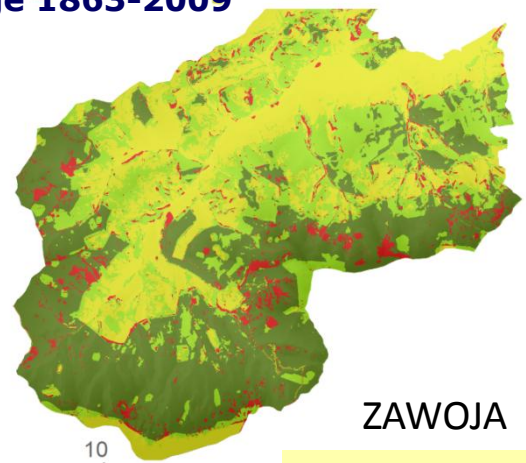
Ostapowicz et al. 2014

Forest cover change 1863-2009

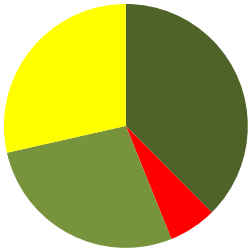




SZCZAWNICA



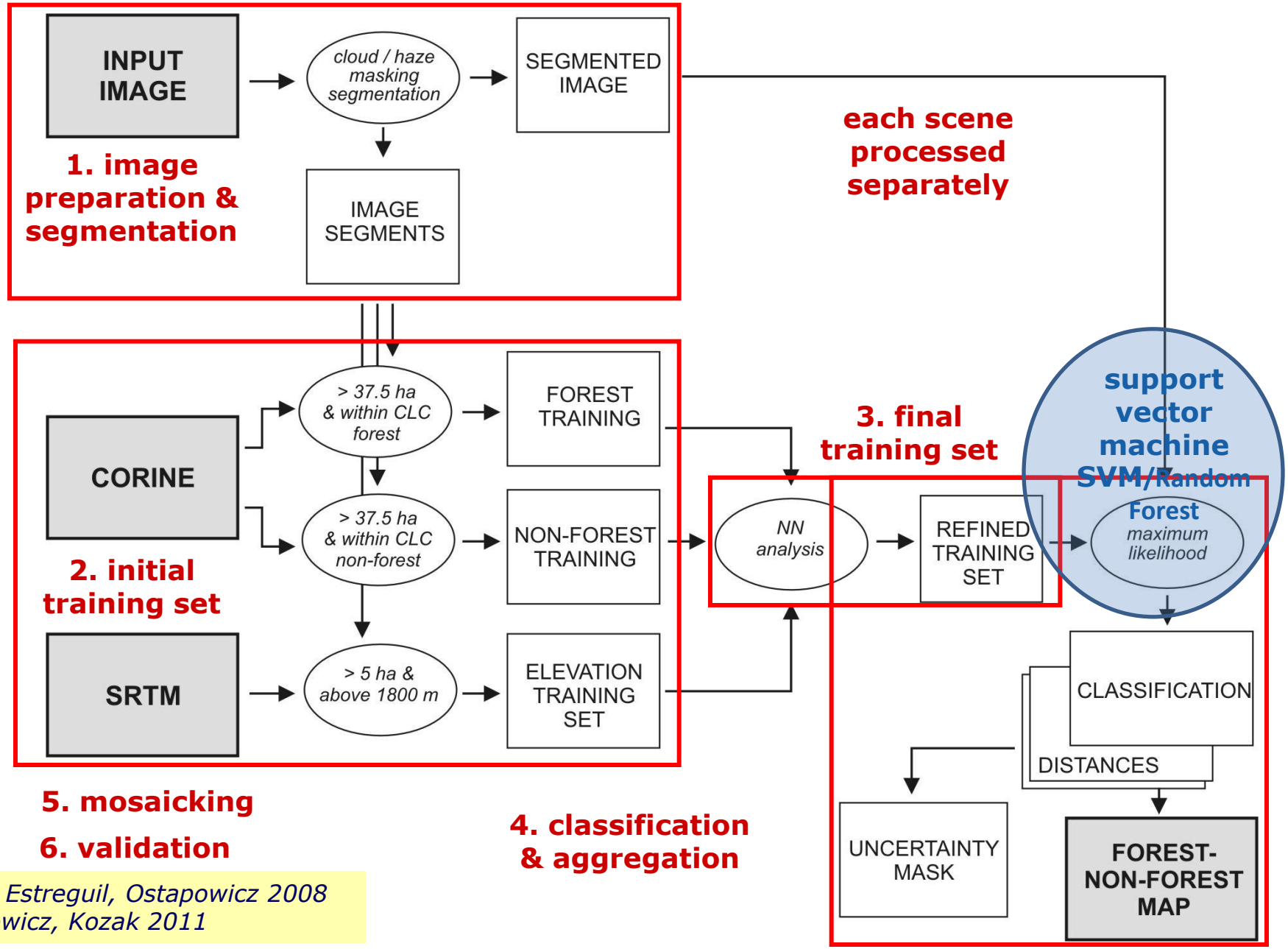
ZAWOJA



0 2,5 5 10 km

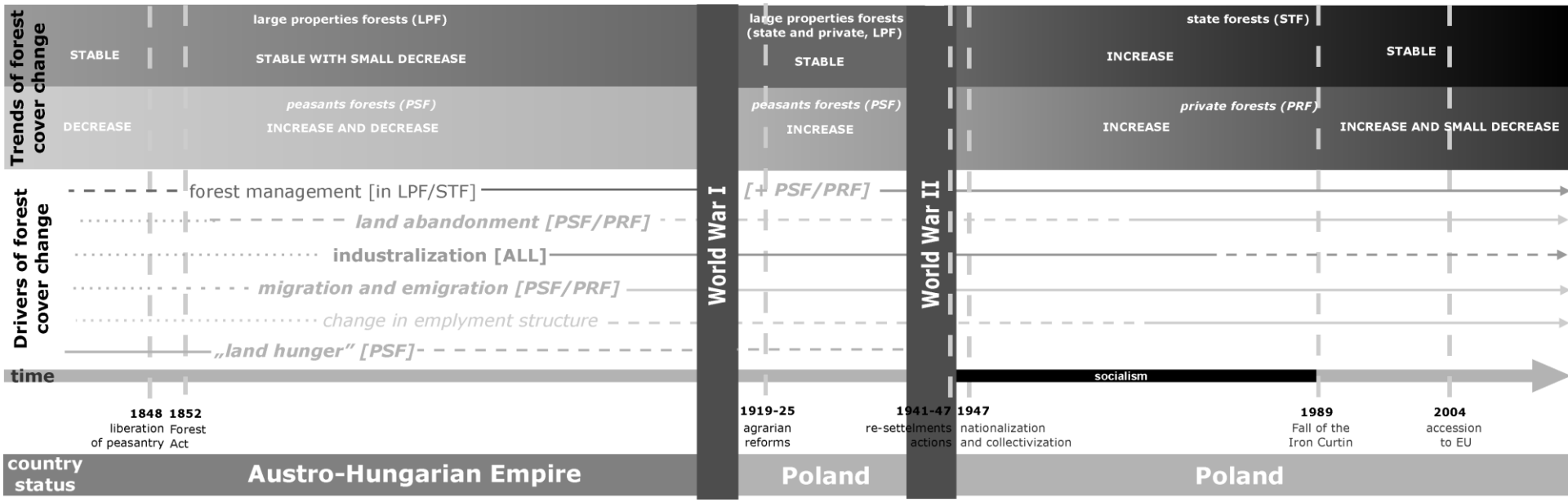
FORECOM project

Studies: methodologies



Kozak, Estreguil, Ostapowicz 2008
Ostapowicz, Kozak 2011

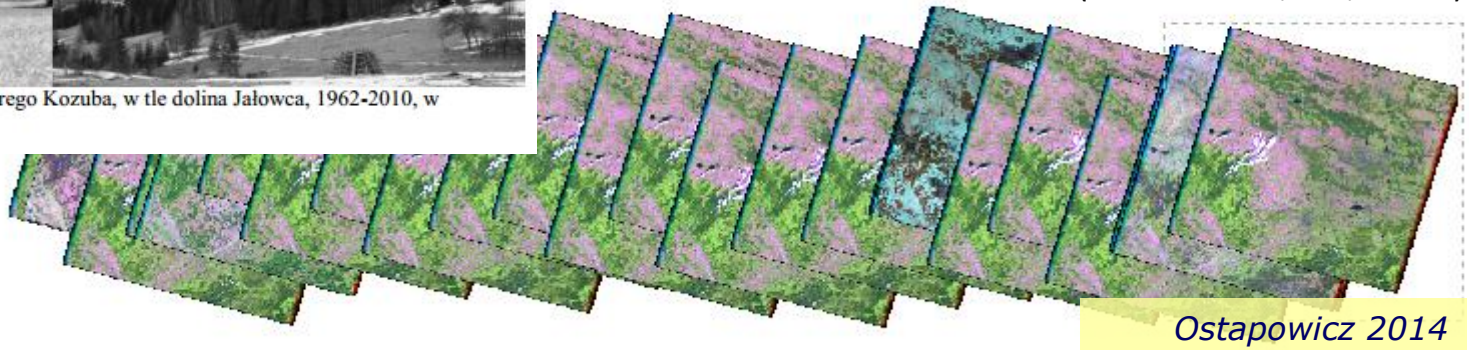
Studies: time scale



27. TID 41, Zawoja, zachodnie stoki Mokrego Kozuba, w tle dolina Jałowca, 1962-2010, w

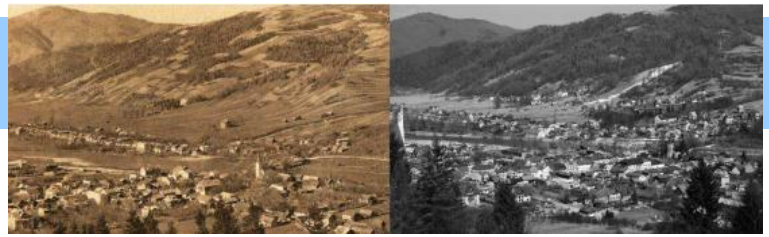
Kaim 2014

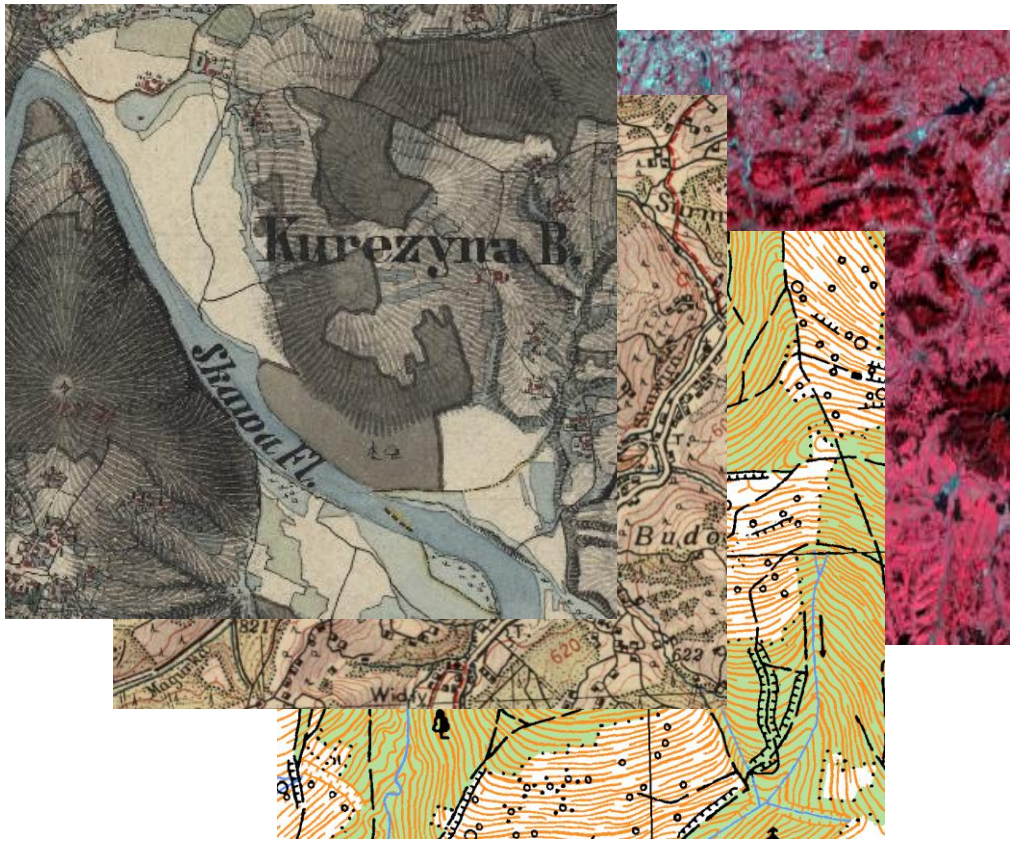
time series: 1979-2011 (Landsat MSS, TM, ETM+)



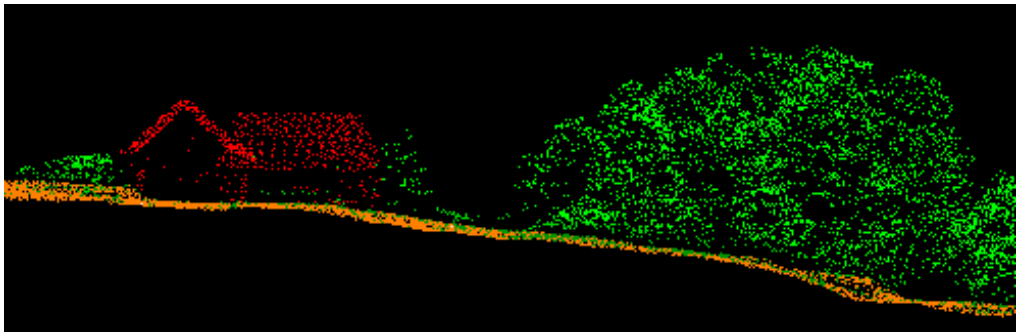
Ostapowicz 2014

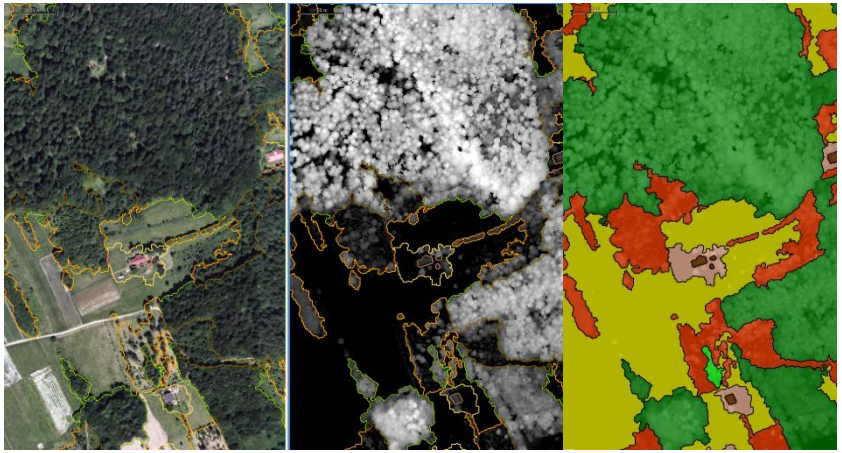
Studies: data

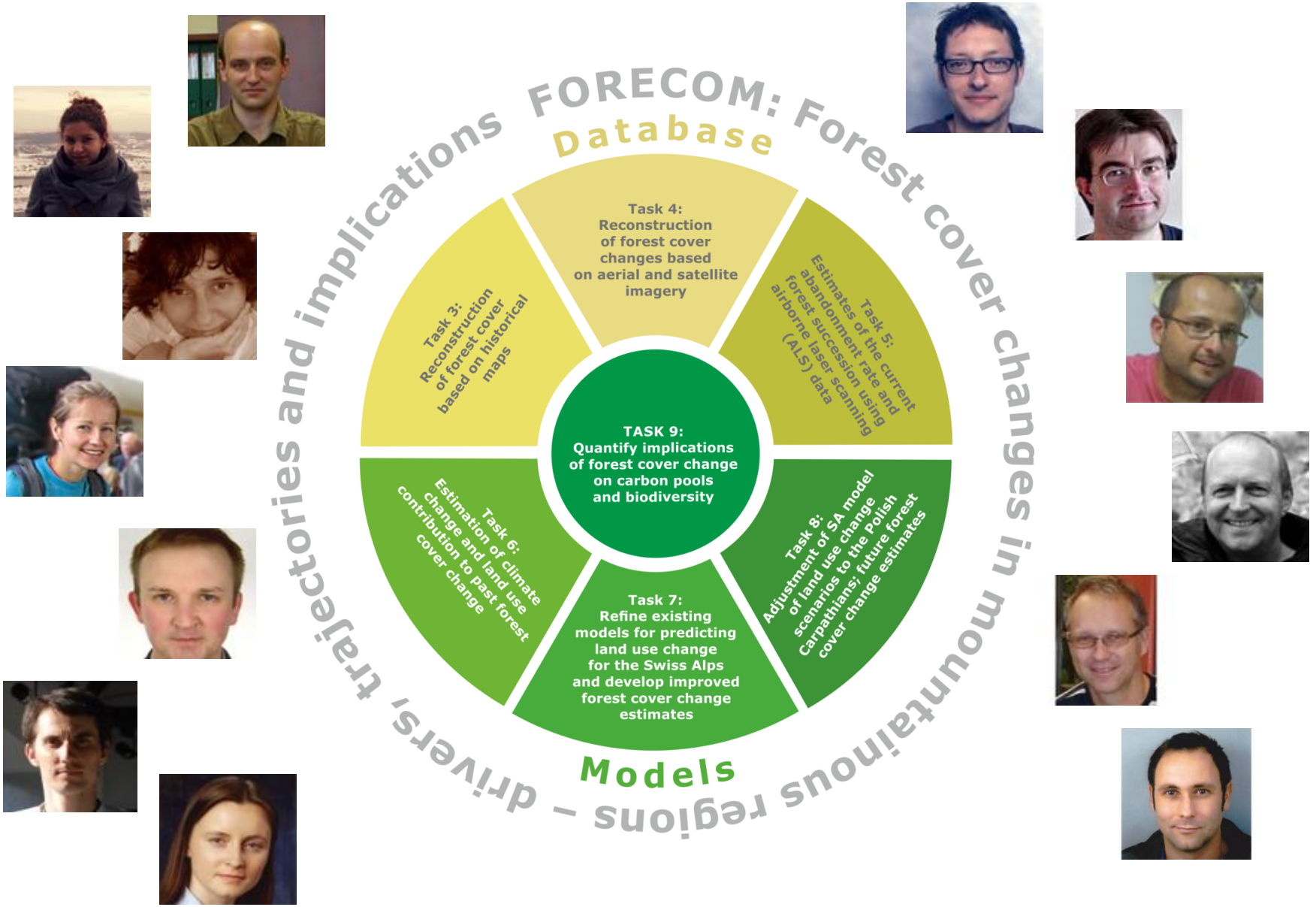




- historical materials:
  maps & statistics
- satellite images
  (e.g. Landsat, SPOT, Ikonos)
- LiDAR (ALS)
- arieal imagery
- thematic maps
- …







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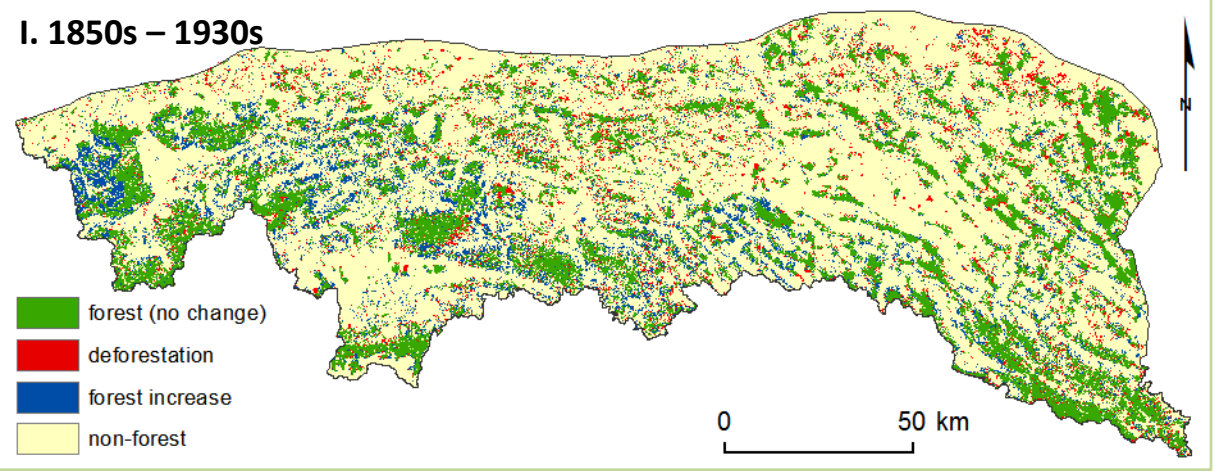
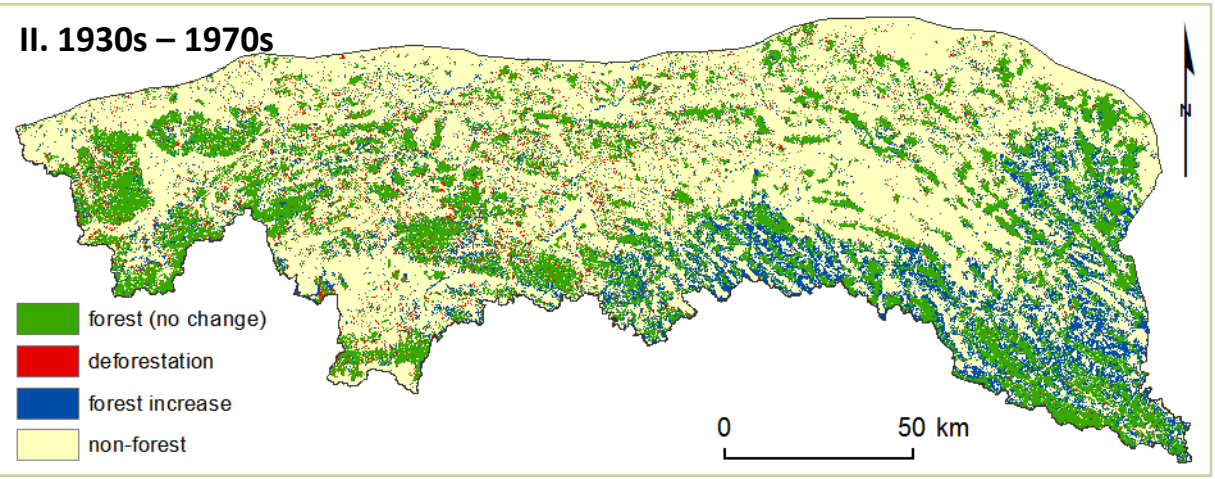
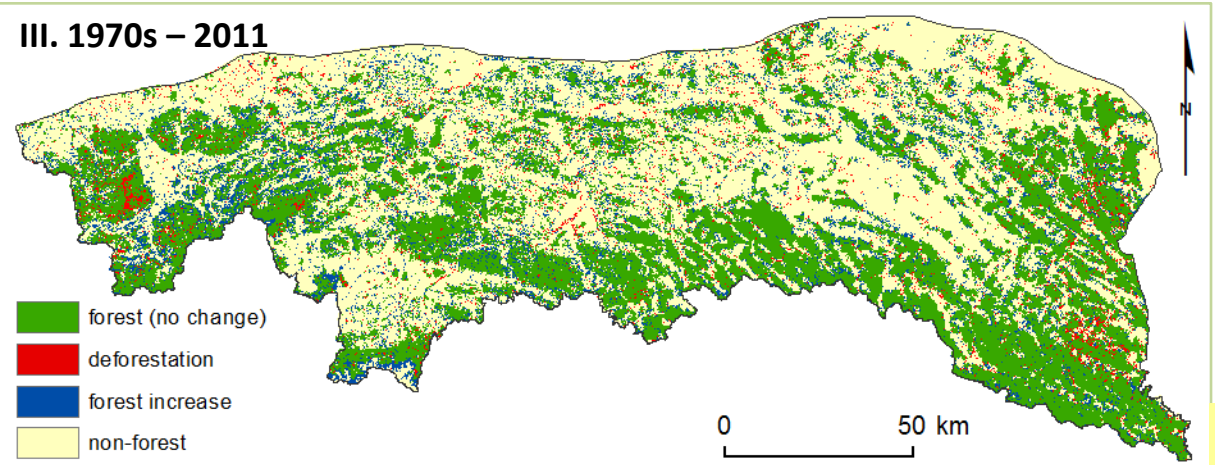
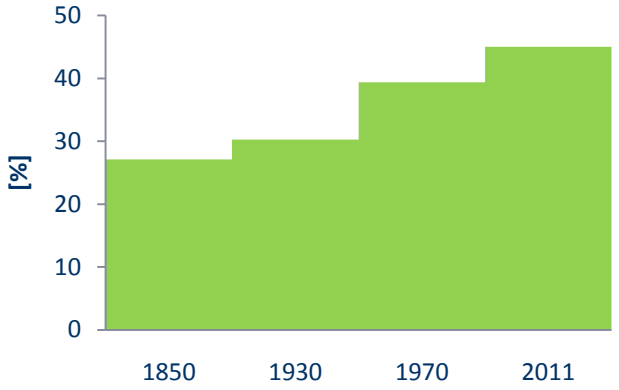
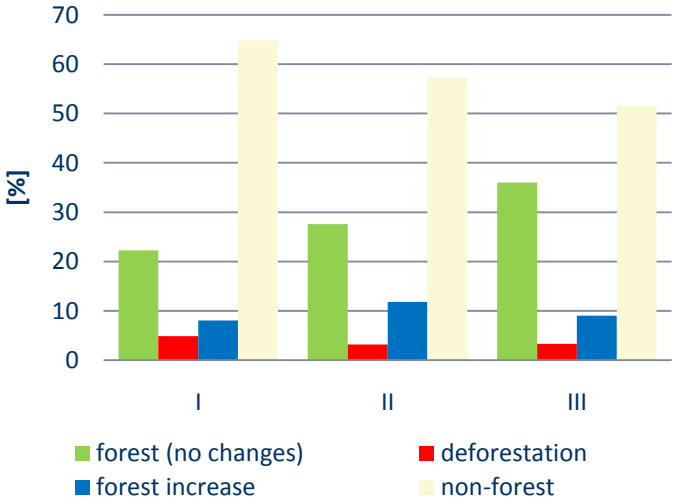






Forest cover 1850-2011





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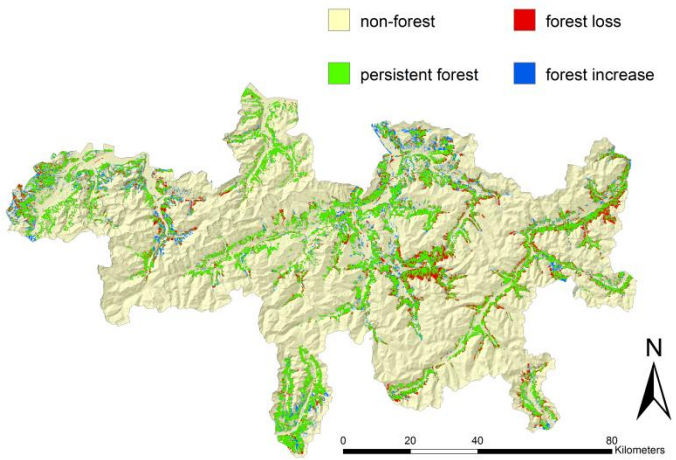
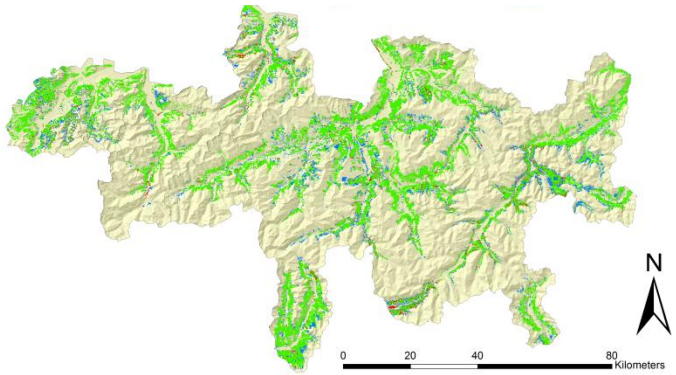
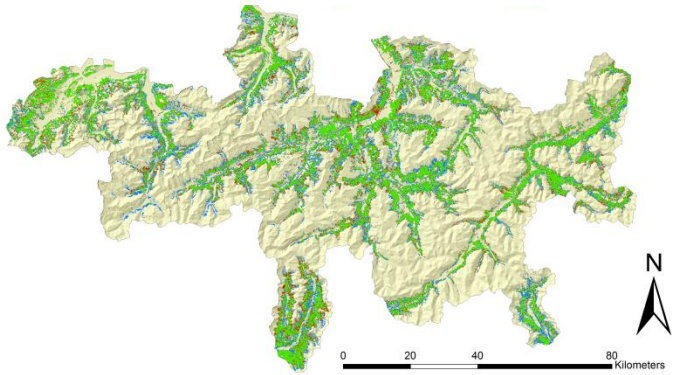
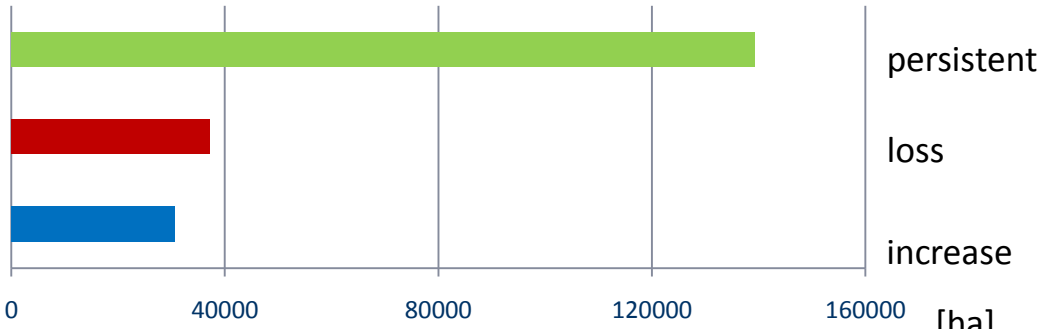


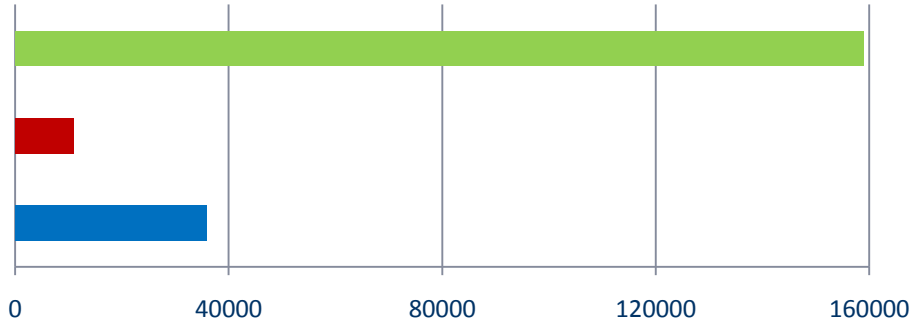




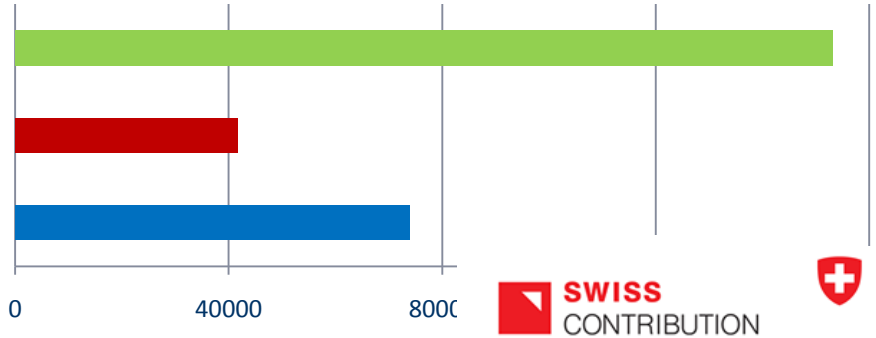
1850-1880



1880-1940



1940-2012



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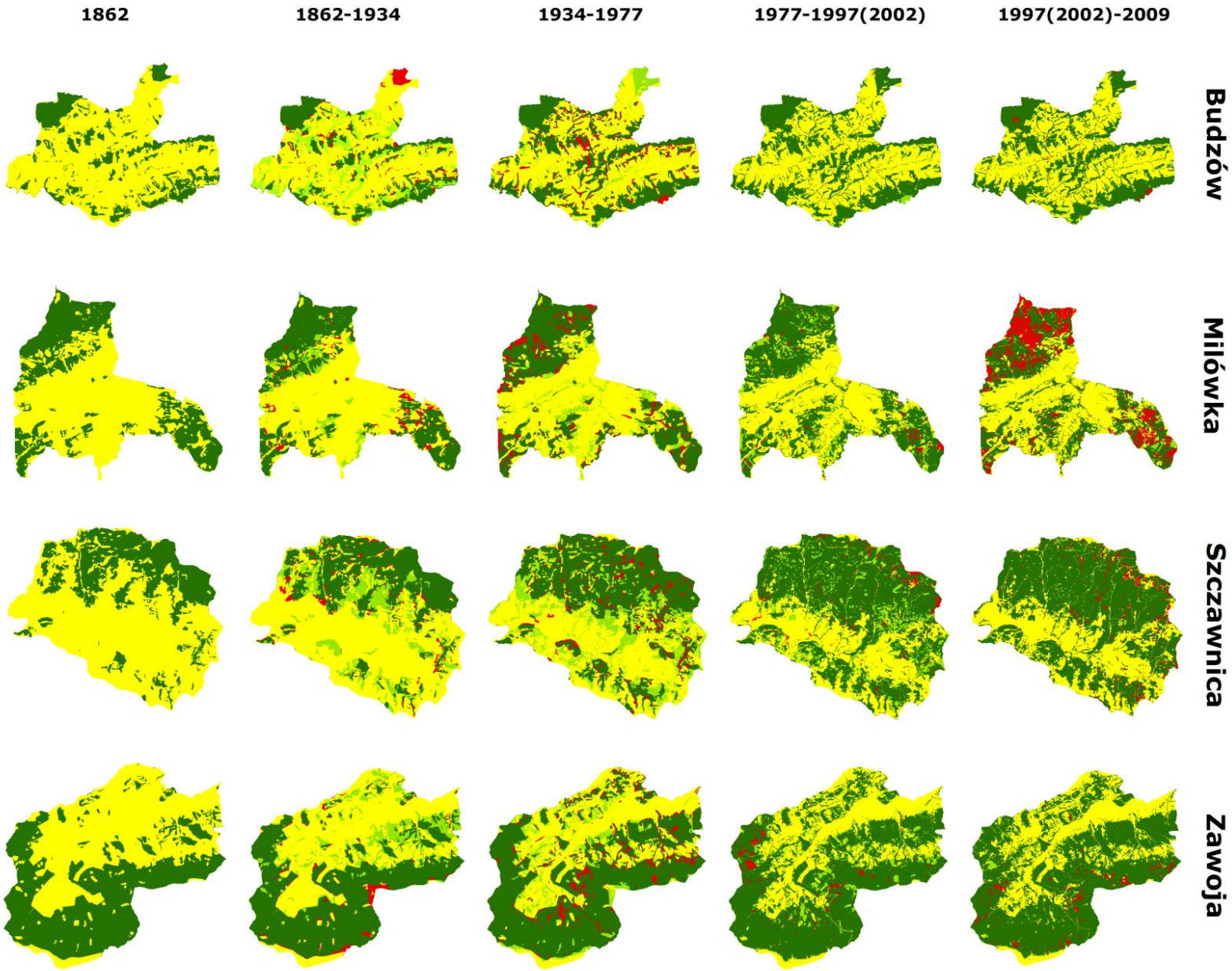

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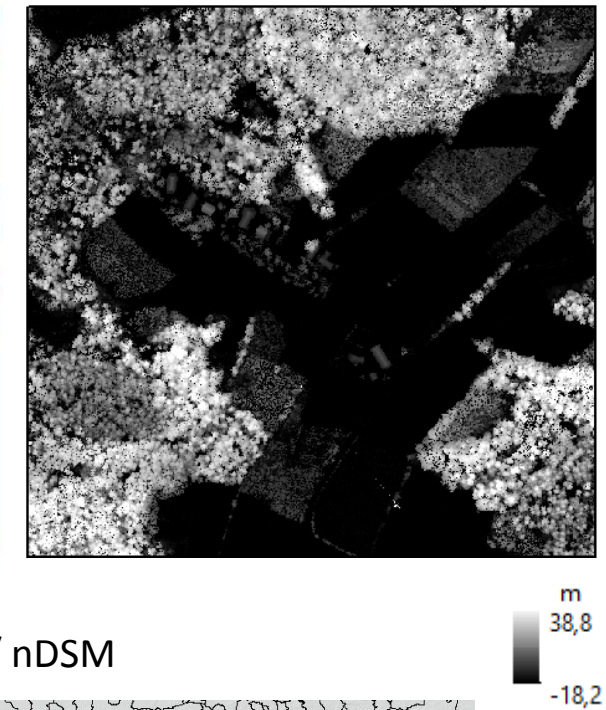
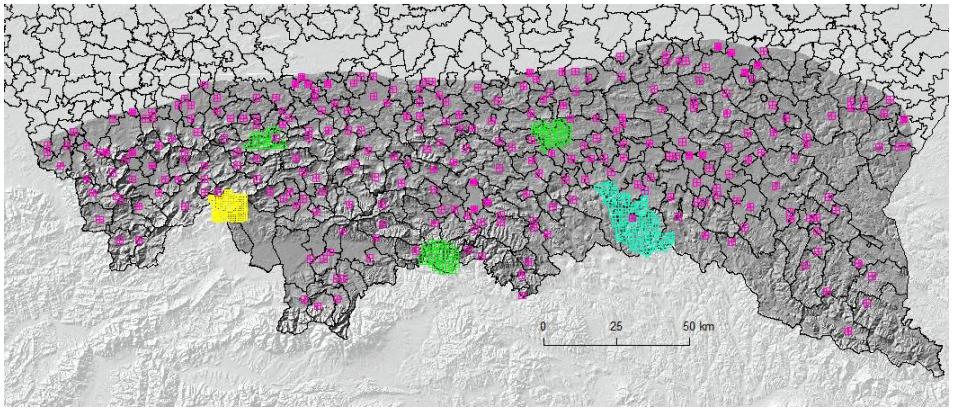
Estimates of the current abandonment rate and forest succession using airborne laser scanning (ALS) data

Rzepiennik Strzyżewski



OBIA / nDSM



Kolecka 2014

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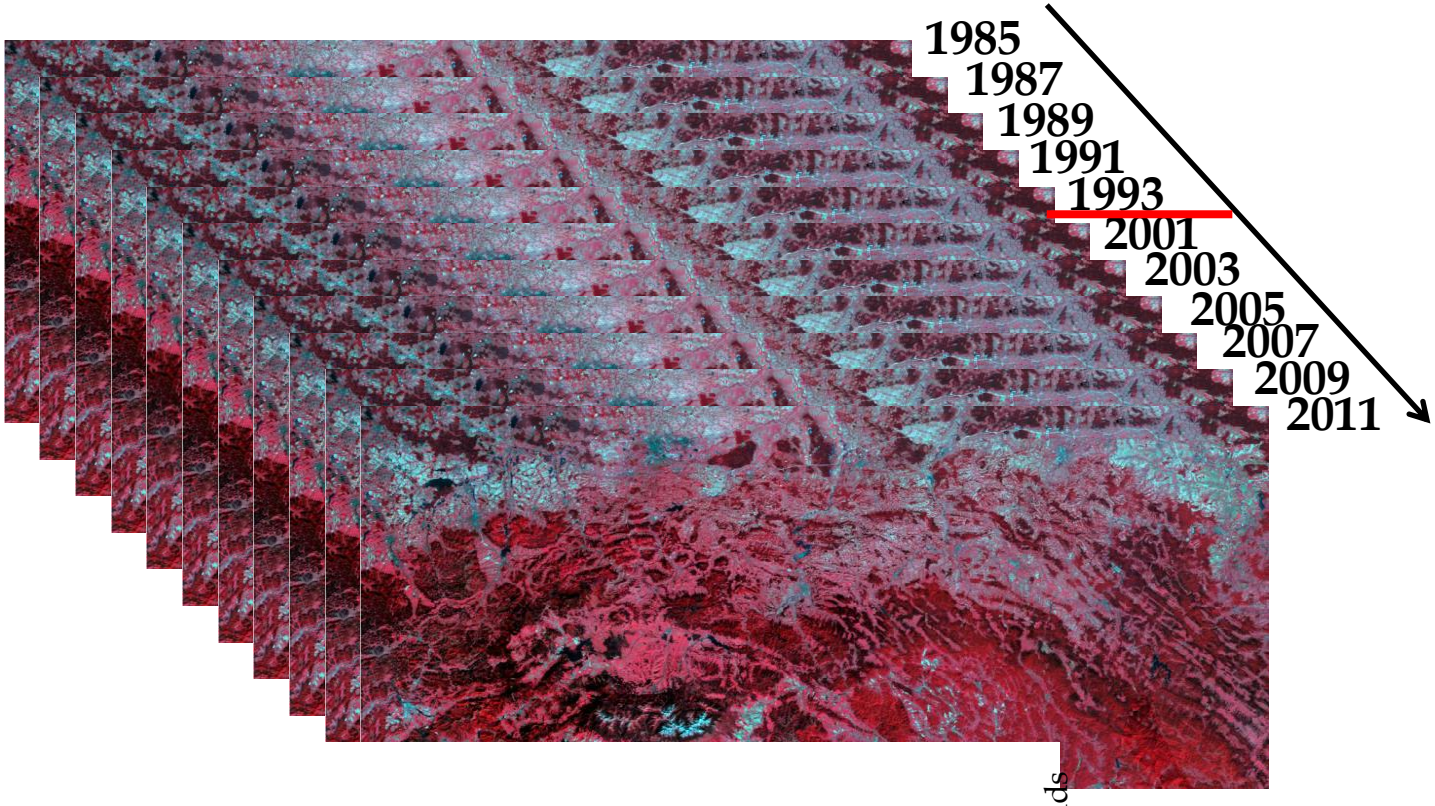
http://www.gis.geo.uj.edu.pl/FORECOM/index.html

Land abandonment & forest re-growth (1985-2011)



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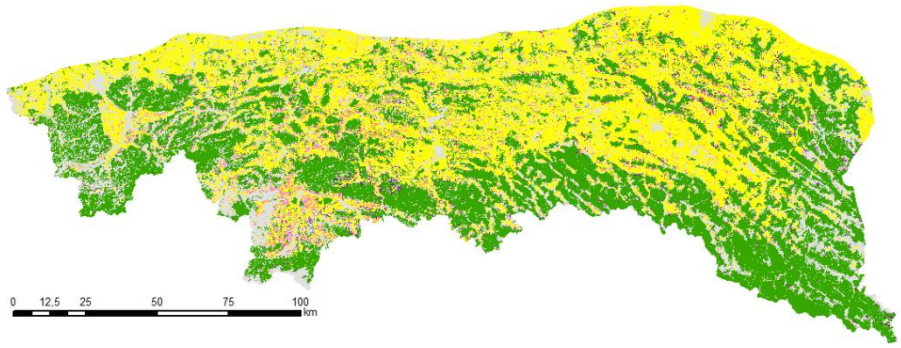
FULBRIGHT

Ostapowicz et al. 2014



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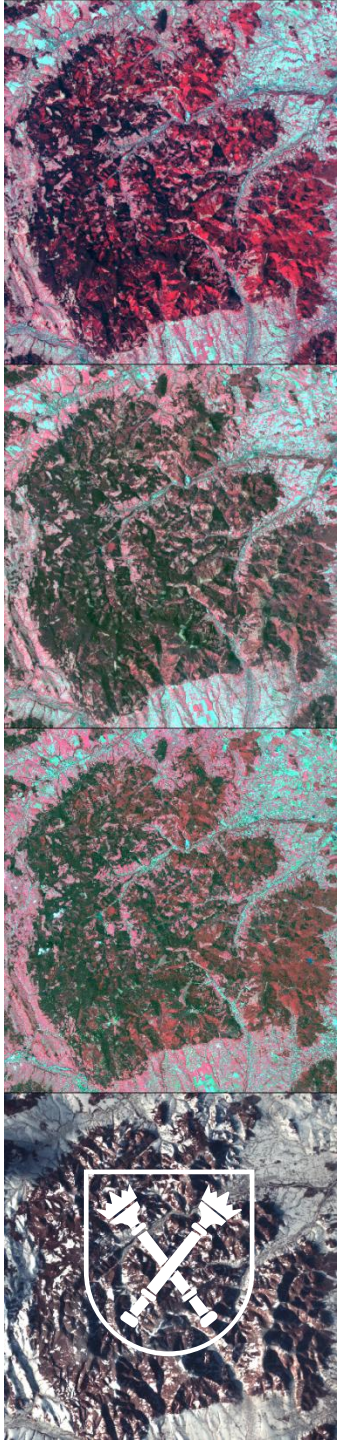
kostapowicz@gis.geo.uj.ed.pl