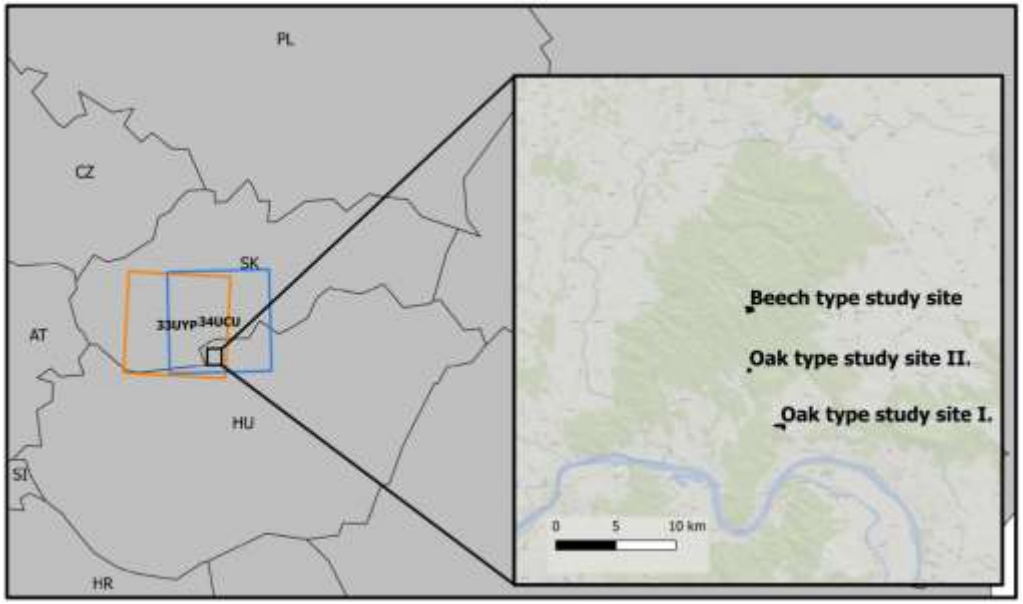
SCERIN 5 – Pecs, Hungary, 2017
Posters speed talks
(2 minutes highlights)

FG1: Forest monitoring

First Name	Last Name
Ivan	Barton
Lachezar	Filchev
Mihai Daniel	Nita - last
Rumiana	Vatseva
Ivica	Milevski

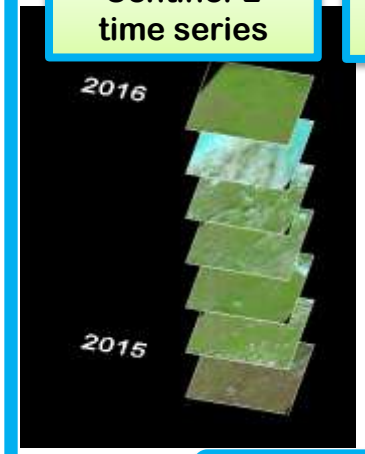
Ivan Barton

Ivan Barton


PL
CZ
SK
AT
HU
SI
HR
33UYP
34UCU
Beech type study site
Oak type study site II.
Oak type study site I.
0
5
10 km

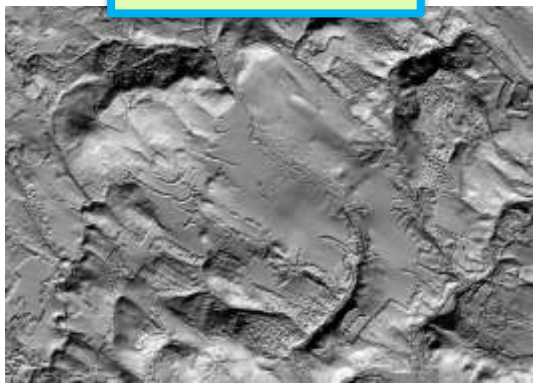
Input data

Sentinel-2 time series



Forest management and inventory data

VHR DSM



Intermediate product

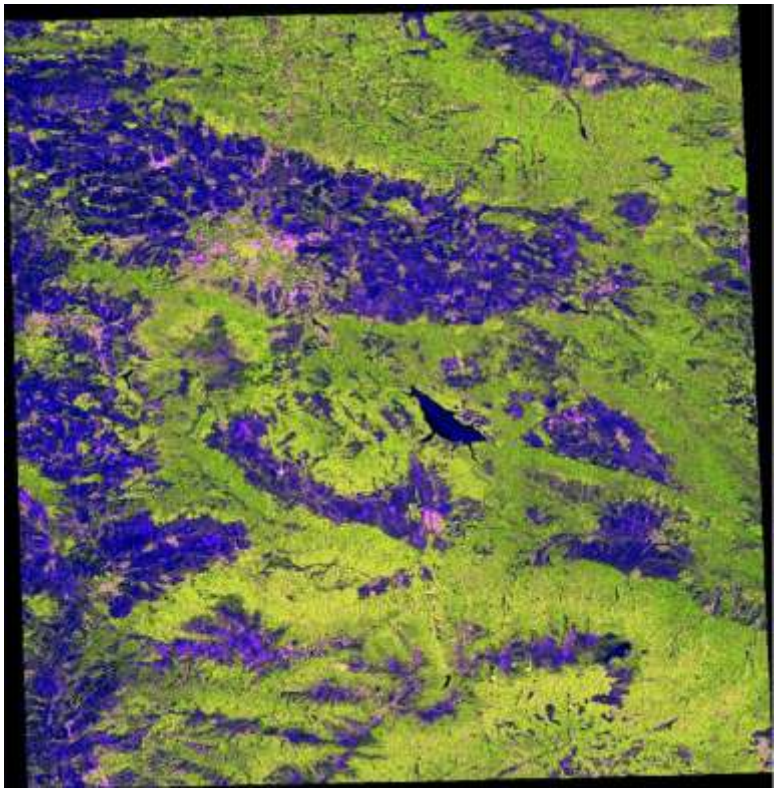
Gap fraction in 10x10 m resolution for each date

Estimating forest cover changes in Bulgaria using ALOS-PALSAR data

Assoc. Prof. Lachezar Filchev, Ph.D.
Remote Sensing and GIS Department, SRTI-BAS

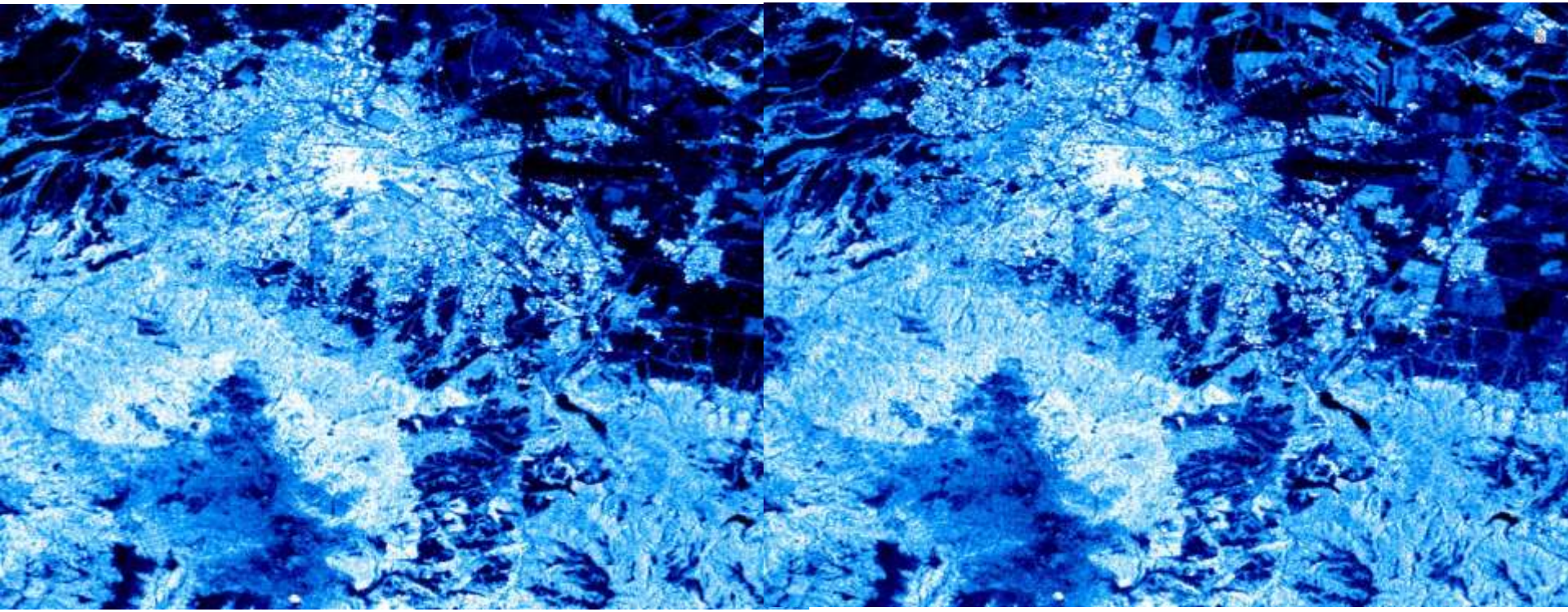
Materials and Methods #1

- Two ALOS-PALSAR dual-pol (HH-HV) mosaic (2007, 2010, JAXA/METI) with 18,9 * 24,67 m (slant-range) spatial resolution (terrain, orthorectified, atmospherically corrected).
- Vector files – the boundary of Bulgaria - polyline, EVA and LUCAS databases - points.
- ENVI 4.x (academic license) software.



ALOS-PALSAR image mosaic (2010)
RGB - Red: HH Green: HV Blue: HH/HV

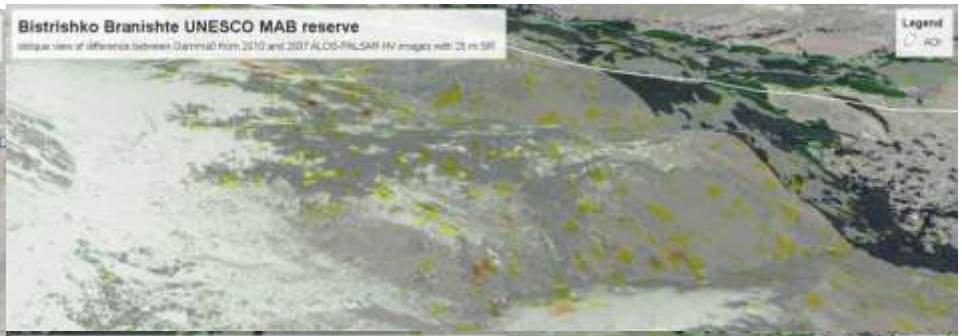
Results and Discussions #1

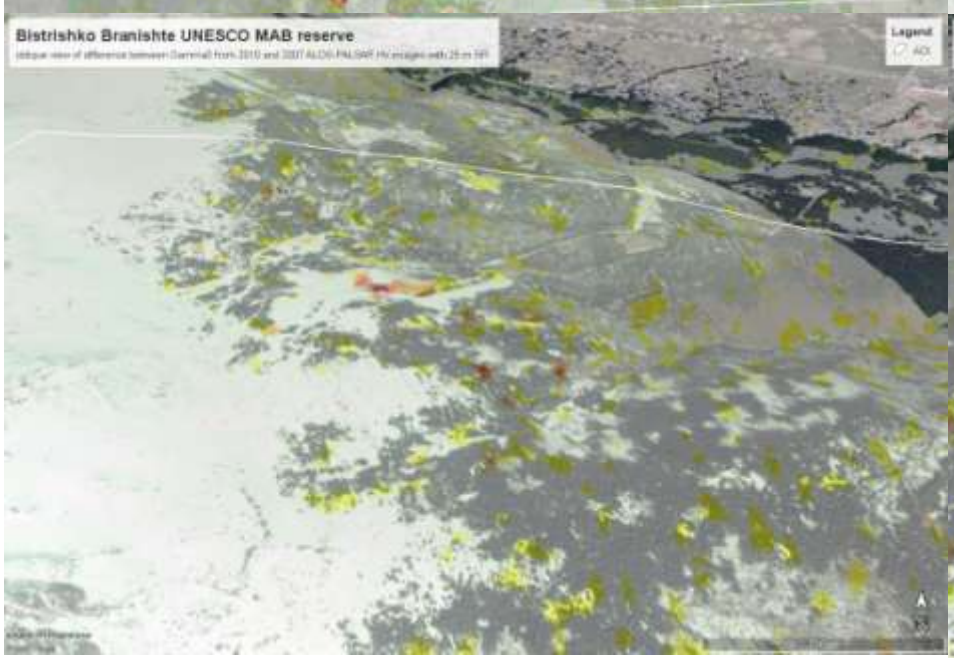


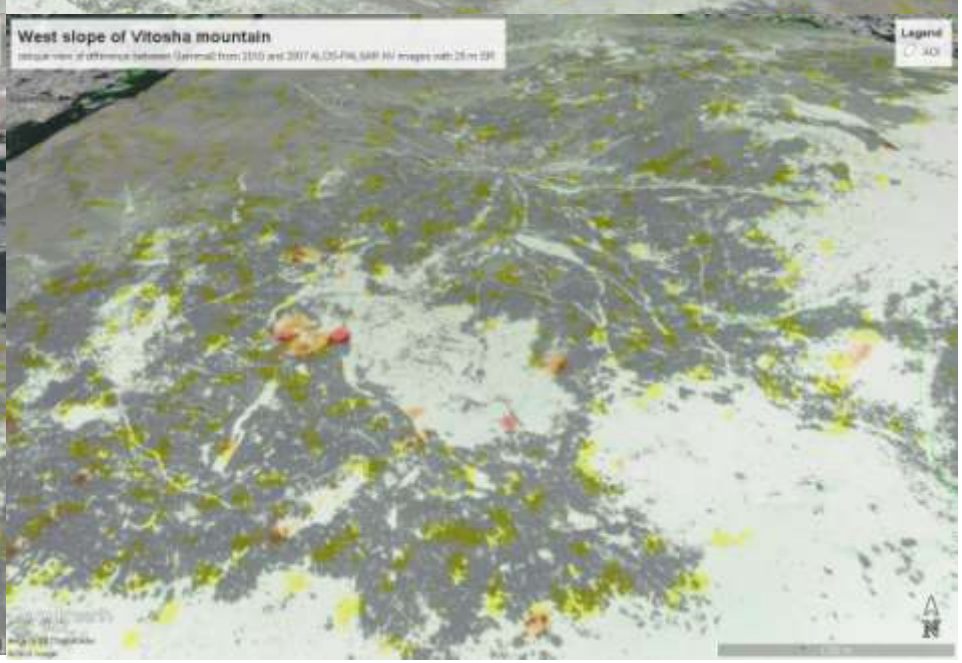
a) **b)**

ALOS-PALSAR HV γ° (dB) from a) (2007) and b) (2010)

Results and Discussions #2







Massive forest harvests following World War II revealed by historical Corona spy imagery

Mihai Daniel Niță[1], Cătălina Munteanu[2], Garik Gutman[3], Ioan Vasile Abrudan[1], Volker C. Radeloff[2]

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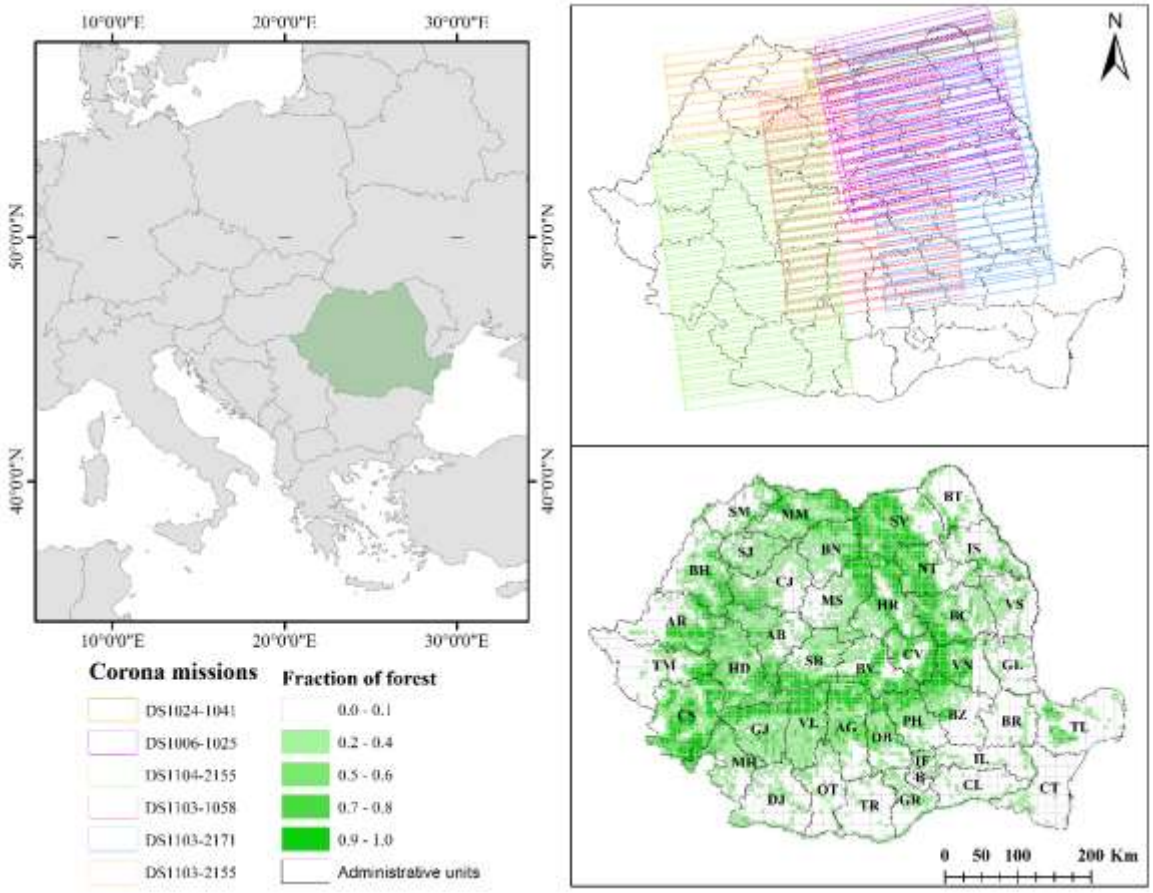
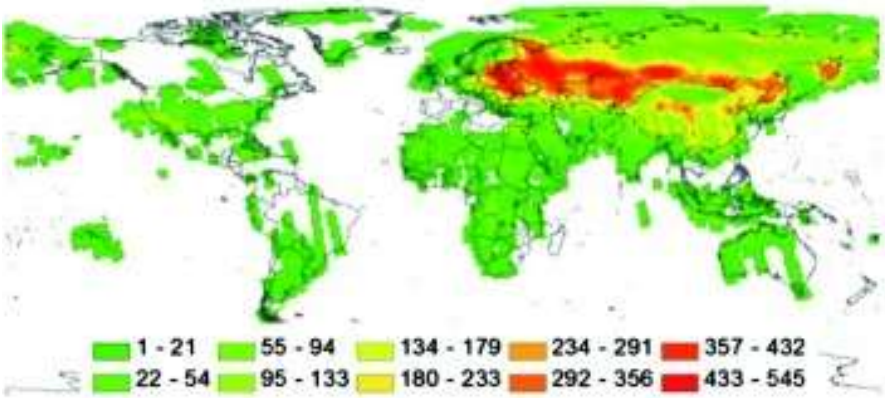
[2] SILVIS Lab, Department of Forest and Wildlife Ecology, University of Wisconsin-Madison
[3] NASA Land Use and Land Cover Change Program, Washington, DC 20546, USA

Our **goal** here was to quantify and understand the **long-term** land use effects of WWII, by applying most recent image processing techniques to an underused remote sensing resource from the 1960s, the **Corona spy satellite imagery**

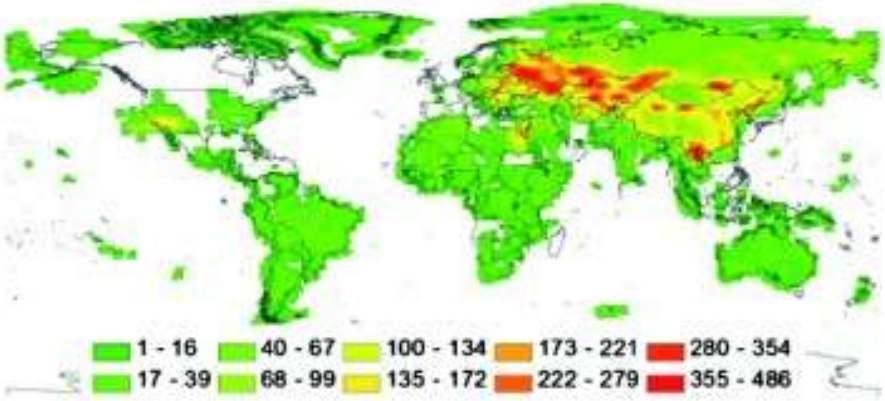


Corona coverage

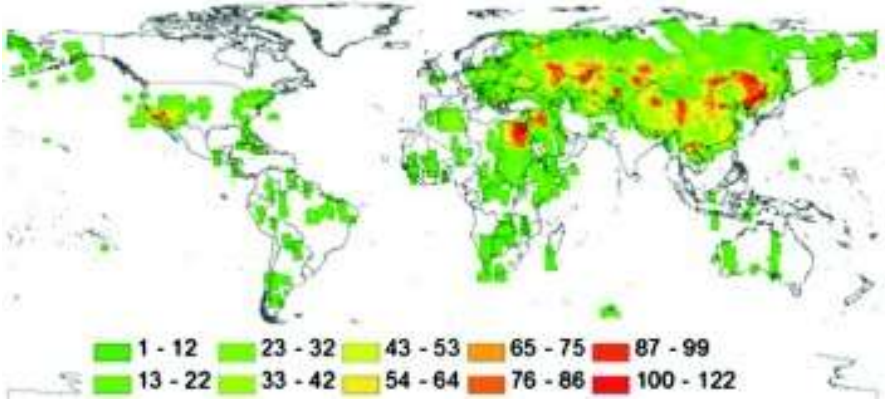
(a) Forward KH-4A in 1962-1965



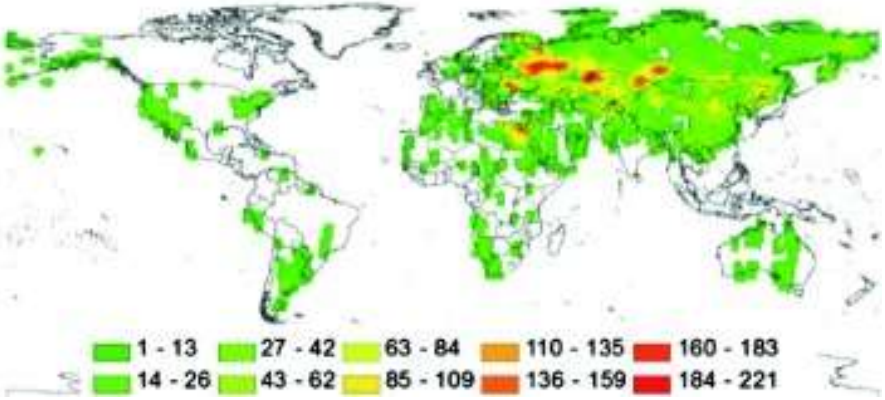
(b) Forward KH-4A in 1966-1969



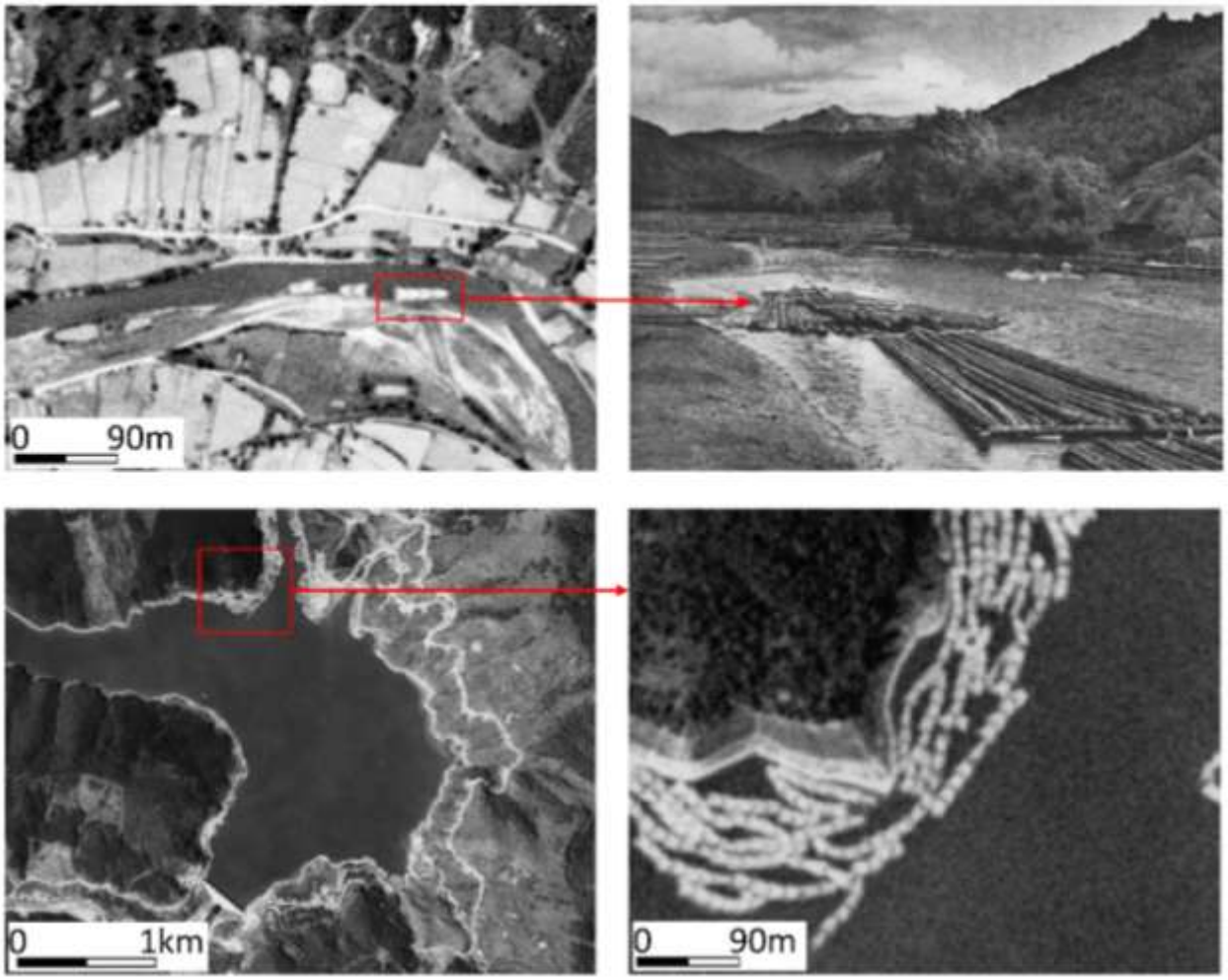
(c) Forward KH-4B in 1967-1969



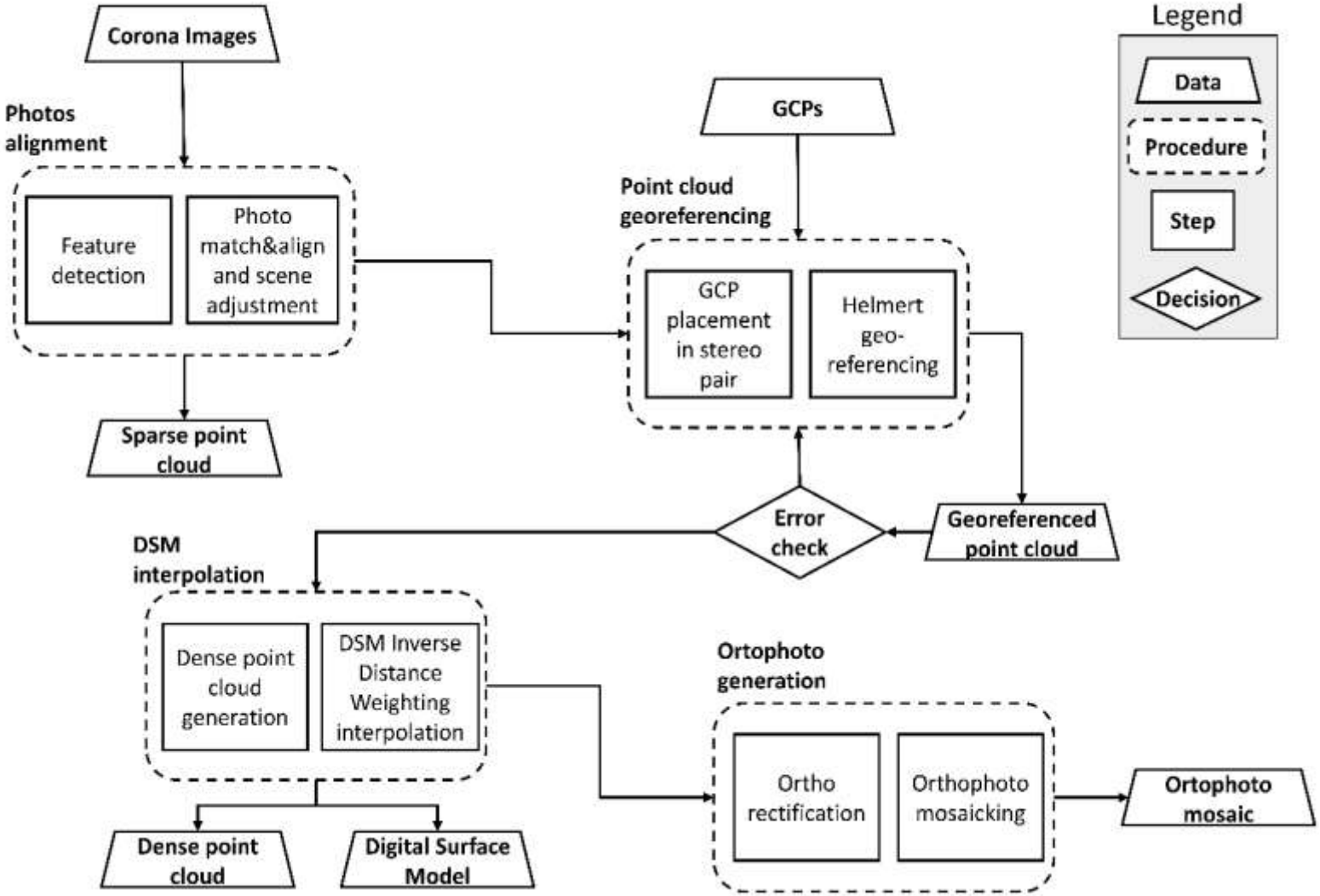
(d) Forward KH-4B in 1970-1972



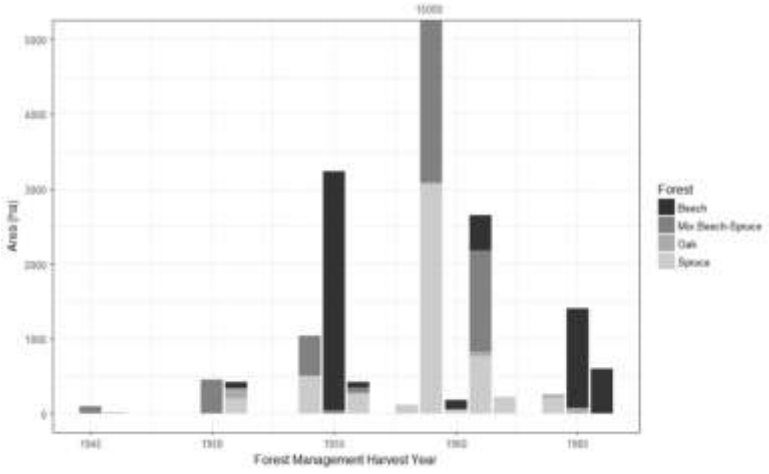
DS1006-1025DA077 Corona Image (2-m pixel resolution) recorded on June 4th 1964

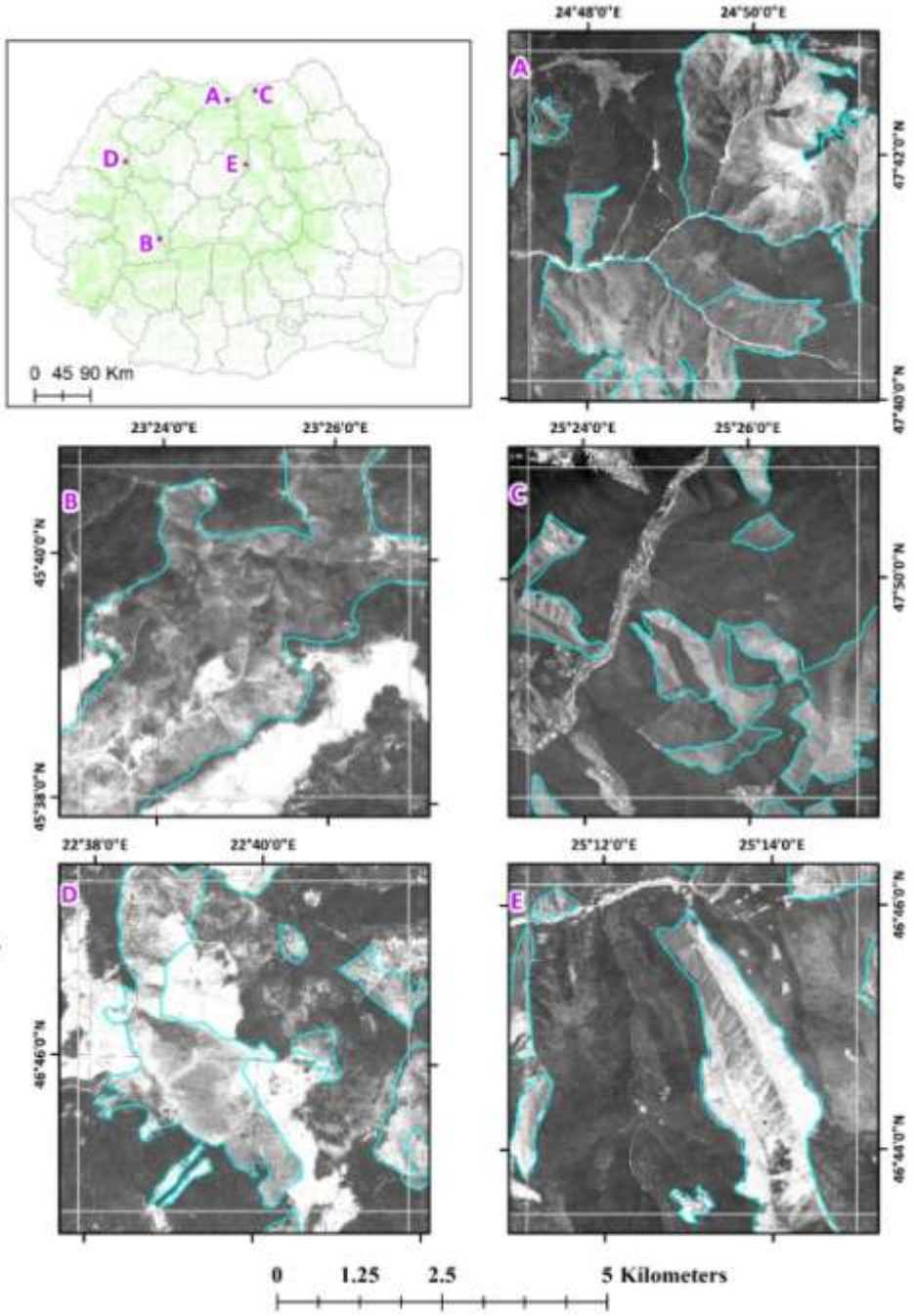


Methodology

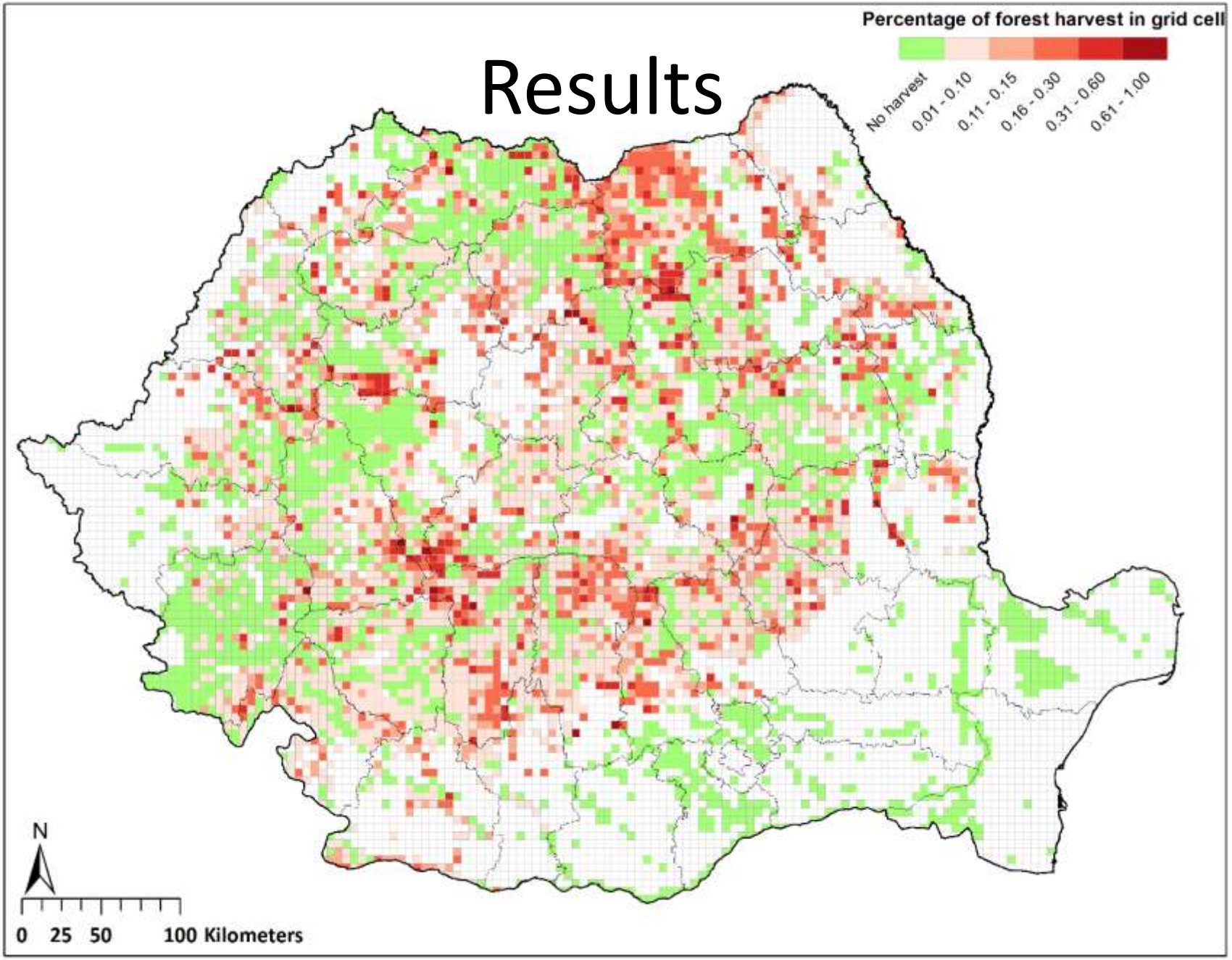


530,000 ha of forest cutting in Romania from 1955-1965, which highlights the magnitude of the long-term land use effects of WWII on Romania's forests





Results


Percentage of forest harvest in grid cell
No harvest
0.01 - 0.10
0.11 - 0.15
0.16 - 0.30
0.31 - 0.60
0.61 - 1.00
N
0 25 50 100 Kilometers

Conclusions

- Our research **provides quantitative evidence** for the environmental impacts of major political shocks and the highlights long-term effects of environmental shocks.
- Methodologically, we advance remote sensing science by pioneering a **new approach to orthorectify Corona** imagery for large areas effectively.
- This extends the data-record of space borne observation of the earth by one to **two decades earlier** than what is possible with other satellite datasets, and Corona data is available globally.

Land cover changes in Bansko ski resort, Bulgaria in the period 2000 - 2016 based on remote sensing data

Rumiana Vatseva
National Institute of Geophysics, Geodesy and Geography - Bulgarian Academy of Sciences

Bansko region is characterized by:

• the high dynamics of *tourism development* in last 15 years

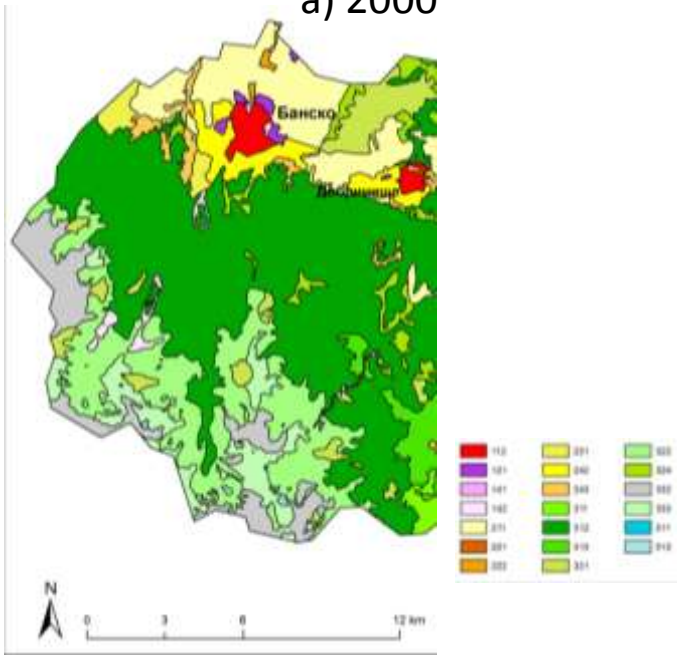
• the protection of natural landscape in the *Pirin National Park*

Remote sensing data: 1) Landsat ETM+ (2000)
2) IRS-P6 (2006)
3) orthophotos (2011-2016)

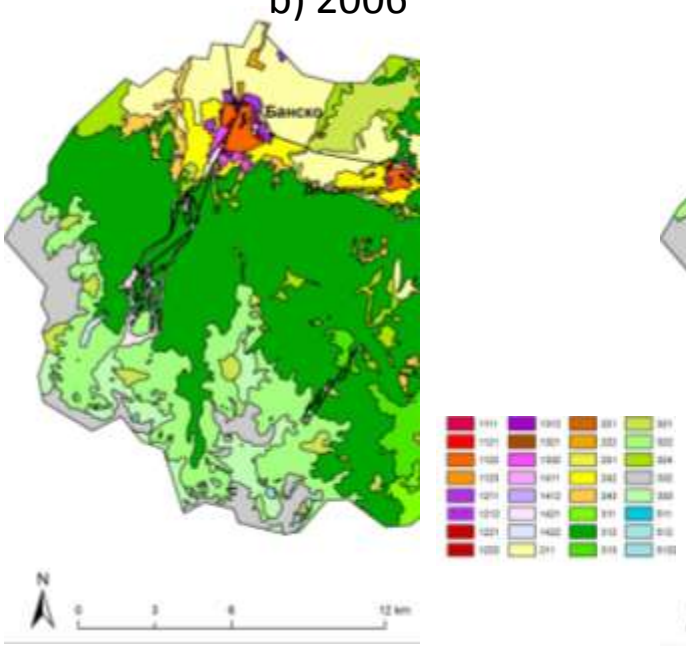
GIS technology:
1) Urban sprawl
2) Housing density increasing
3) Enlargement of sport and leisure areas

LC & LCC

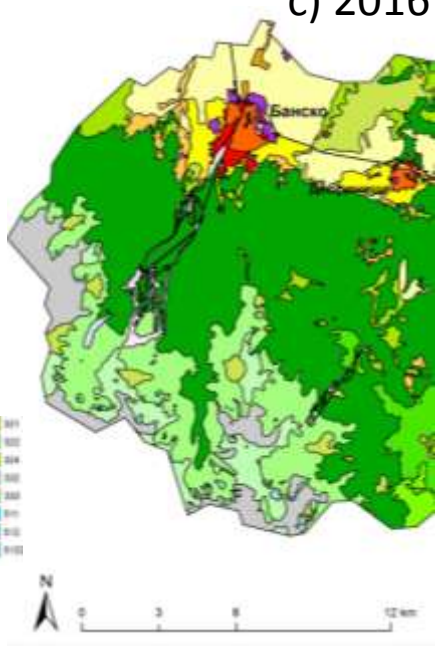
a) 2000



b) 2006



c) 2016



An intensive landscape change was observed south of Bansko in the Pirin Mountain between 1000 m & 2560 m.

Ski area was extended there, including 75 km ski runs, 7 km ski roads and 27 km ski lifts.

These changes affect mainly *coniferous forest, Pinus mugo and natural grassland*.