



SCERIN

Experiences from SCERIN (South, Central and East European RI network)

Jana Albrechtová¹, Petya Campbell², Lucie Kupková¹

presented by SCERIN member Ioannis Manakos³

¹Charles University in Prague, Faculty of Science, Prague, Czech Republic

²Joint Center for Earth Systems Technology, University of Maryland Baltimore County, and NASA Goddard Space Flight Center, Greenbelt, Maryland, USA

³Centre for Research and Technology Hellas/Information Technologies Institute, Greece

Coordination



Network Coordinator in U.S.:

Petya Campbell petya.campbell@nasa.gov

Joint Center for Earth Systems Technology (JCET), University of Maryland Baltimore County

NASA Goddard Space Flight Center, Biospheric Sciences Branch, Greenbelt, Maryland 20771, USA



Regional Contacts in Europe, Czech Republic:

Jana Albrechtova albrecht@natur.cuni.cz

Charles University, Prague, Czech Republic

Faculty of Science, Department of Experimental Plant Biology,



Lucie Kupkova lucie.kupova@gmail.com

Charles University Prague, Czech Republic

Faculty of Science, Department of Applied Geoinformatics and Cartography

Geographic Domain

SCERIN countries



Current:

CZ, SK, PL, HU

UA, BG, RO,

Serbia, North Macedonia,
Slovenia, Croatia, Moldova,

GR, TR

Critical Regional Issues

- ✓ Changes in forest composition, age, structure and function
- ✓ Changes in ecosystem diversity
- ✓ Increasing urbanization
- ✓ Imbalanced water regime (floods/droughts)
- ✓ Extreme Events increase (floods, droughts and fires)

Goals

Goals:

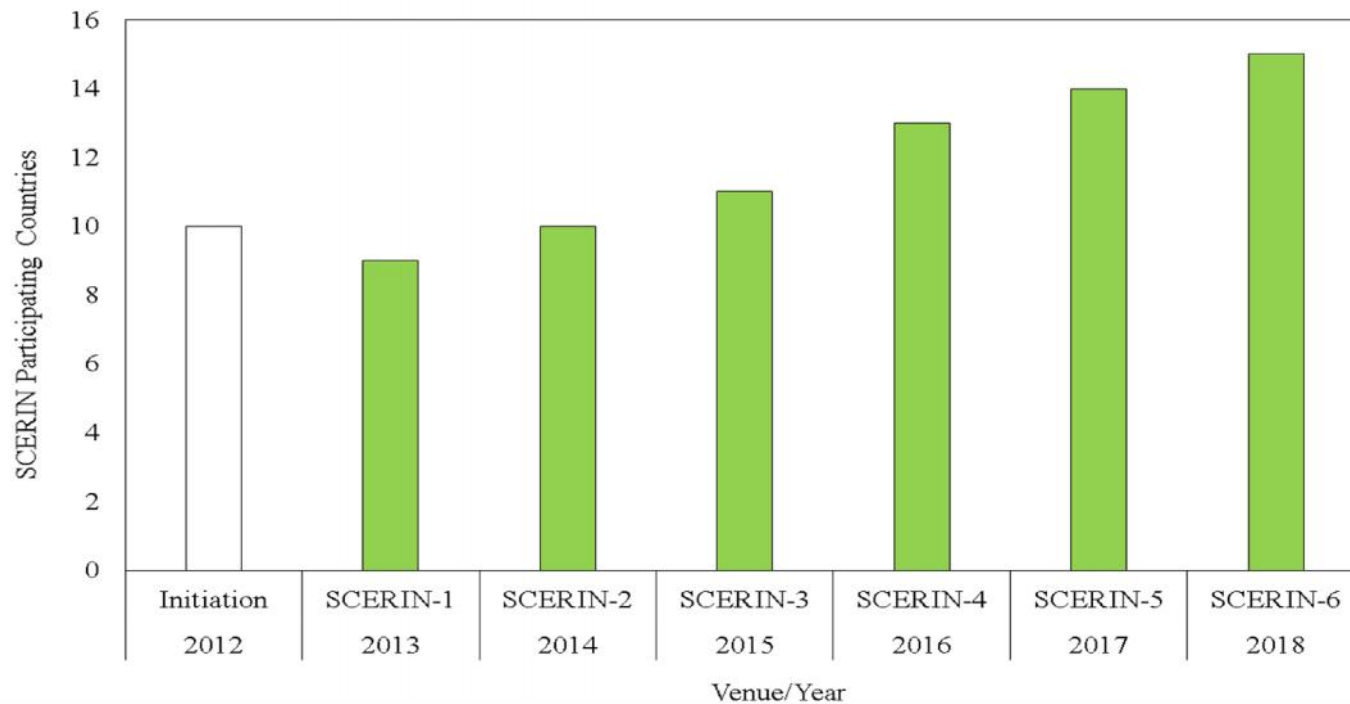
- ✓ Provide a platform for collaboration among remote sensing experts in SCE, *through collaborative activities*
- ✓ Facilitate progress and consistent implementation of remote sensing and LCLUC methodology, *in the region*
- ✓ Foster regional collaboration for monitoring the dynamics, stability, and vulnerability of the major ecosystems
- ✓ Promote effective sustainable management and preservation, *on the local, regional and pan-European level*
- ✓ SCERIN **contribution to GOFC-GOLD, linkages with regional networks**, other GOFC-GOLD networks, like MedRIN

SCERIN: participants

Participants

- Informal network of scientists and other professionals based in the region or with scientific interests in the region.
- SCERIN's participants work together with the regional forest and land management agencies to ensure continuous, high quality observations and information products for operational and management applications, to facilitate feasible and sustainable natural resources management practices.

Members and observers



- Permanent: BGR, CZE, POL, ROU, SVK, HUN, UKR, GRC, MDA, HRV, SRB, SVN
 - new/returning: Bosnia and Herzegovina (BIH), North Macedonia
 - to reach: Albania, Montenegro, Belarus

Geographic Domain



Observers (2018):
Armenia, Georgia,
Latvia, Kazakhstan,
Norway, Netherland,
U.S.

Members and observers

SCERIN members

(permanent, new coming)

CZ, SK, PL, HU
UA, BG, RO,
Serbia, North
Macedonia, Slovenia,
Croatia, GR, (TR)

SCERIN observers

(can change)

Georgia (2017, 2016)
Kazakhstan, Armenia, Georgia, Latvia,
Norway, The Netherlands, U.S. (2018)
etc....

Regional and International Partnership

Partnership:

- EnviroGRIDS
- IGU LCLUC
- EARSel LULC SIG
- Trans-Atlantic Training Initiative (ESA-NASA)

Additional inputs from CEOS/WGCV/LPV

Activities

- Joint proposal writing
- Data product validation
- Joint papers
- Continuous interactions
- Regular annual workshops
- Updating inventory
 - publications
 - projects
 - funding
- Educational component
 - Trans-Atlantic Training (ESA-NASA sponsored) coupled with the SCERIN workshops



Premysl Stych

Department of Applied Geoinformatics and Cartography, Faculty of Science, Charles University Prague



Francesco Sarti

ESA



Garik Gutman

NASA

Activities – Focus Groups

Formulation of Work Groups: based on regional interests, *dynamic*

FG1: Forest biomass production; decline, disturbance and driving forces

FG2: Land Cover Changes: climate change, agricultural land abandonment, urban expansion

FG3: Validation/verification network for support of current and future satellite missions [*e.g. NASA's LDCM and Sustainable Land Imaging (SLI), and ESA's GMES program*]

FG4 – newly established: Watersheds, catchments, dams – LCLUC water management and ENVIRONMENT

Meetings

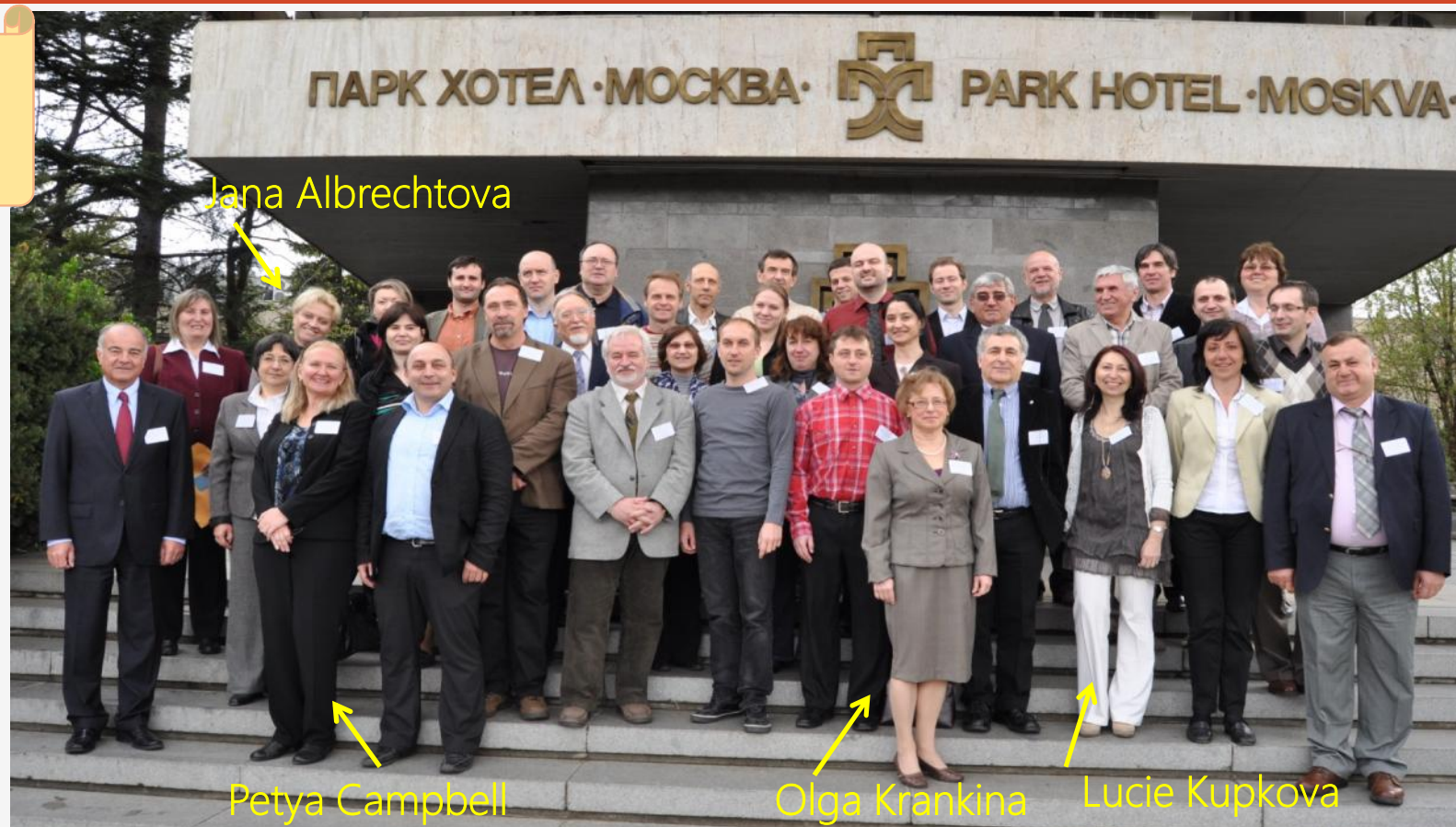
- Meeting – only a tool for networking
- Network Capacity Building
- Continuous inventory and statistics
- Updating milestones
- Summary of achievements published periodically

SCERIN: Meetings

- 2012: SEERIN (now SCERIN) Formulation Workshop, Sofia, Bulgaria
- 2013: SCERIN-1 Meeting & Trans-Atlantic Training, Prague, Czech Republic
- 2014: SCERIN-2 Meeting and Trans-Atlantic Training, Krakow, Poland
- 2015: SCERIN-3 Meeting and Trans-Atlantic Training, Brasov, Romania
- 2016: SCERIN-4 Meeting and Trans-Atlantic Training, Zvolen, Slovakia
- 2017: SCERIN-5 Meeting and Trans-Atlantic Training, Pecs, Hungary
- 2018: SCERIN-6 Meeting and Trans-Atlantic Training, Zagreb, Croatia
- 2019: SCERIN-7 Meeting and Trans-Atlantic Training, Novi Sad, Serbia

Kickoff

17 April 2012,
Sofia



SCERIN: Meetings

2



3



4



5



Host for coming meeting:

2019

SCERIN-7 Meeting and Trans-Atlantic Training,
Novi Sad, Serbia

Achievements

- Manuscripts in preparation: 3 + 3 new
- Joint presentations/efforts
- Research projects:
 - Joint projects and regional projects
- Publicity: Web page, FB























<http://csebr.cz/scerin/>

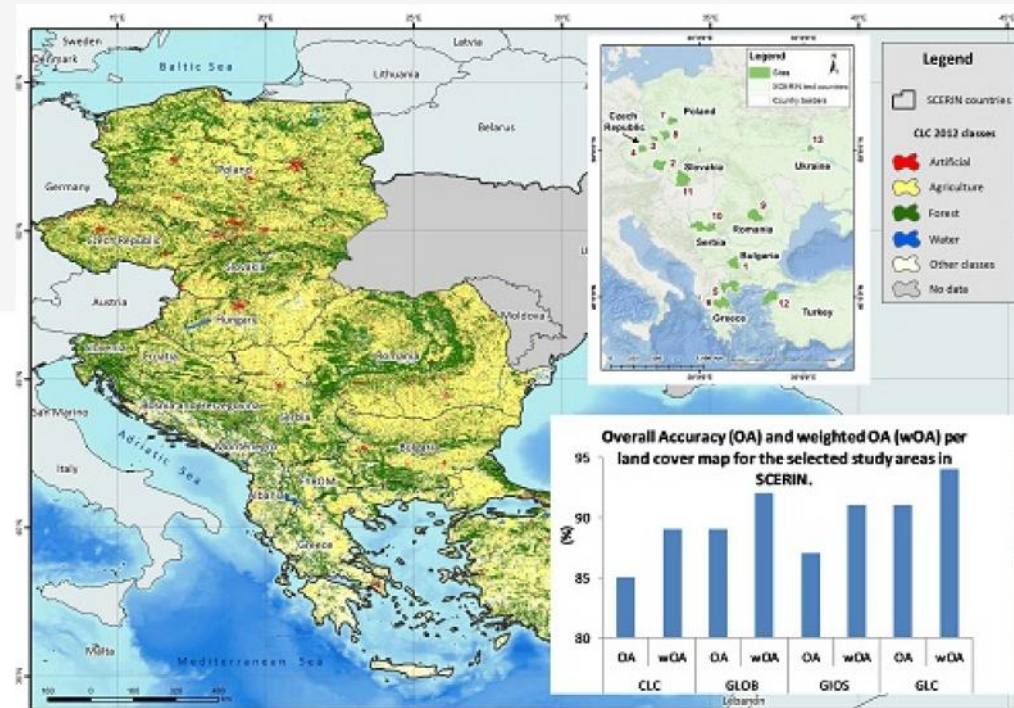
Achievements

Manuscript published: joint research!

<https://www.mdpi.com/2072-4292/10/12/1967>

Comparison of Global and Continental Land Cover Products for Selected Study Areas in South Central and Eastern European Region

Ioannis Manakos ^{1,*} , Monika Tomaszewska ^{2,3} , Ioannis Gkinis ⁴ , Olga Brovkina ⁵ ,
Lachezar Filchev ⁶ , Levent Genc ⁷ , Ioannis Z. Gitas ⁸ , Andrej Halabuk ⁹ ,
Melis Inalpulat ⁷ , Anisoara Irimescu ¹⁰ , Georgi Jelev ⁶ , Konstantinos Karantzas ⁴ ,
Thomas Katagis ⁸ , Lucie Kupková ¹¹ , Mykola Lavreniuk ^{12,13} , Minuđer Mesaroš ¹⁴ ,
Denis Mihailescu ¹⁰ , Mihai Nita ¹⁵ , Tomas Rusnak ¹⁶ , Premysl Stych ¹¹ ,
Frantisek Zemek ^{5,17} , Jana Albrechtová ¹¹  and Petya Campbell ¹⁸ 



CLC : Corine Land Cover by the European Environment Agency | GLOB : GlobeLand30 by the National Geomatics Centre of China | GIOS : GMES/Copernicus Initial Operation High Resolution Layers by the European Environment Agency under the Copernicus framework | GLC : Global Land Cover developed by the United States Geological Survey in collaboration with the University of Maryland and the Department of Geographical Sciences

Achievements

Poster Presentation of the aforementioned paper:
World Cover 2017, ESA, Frascati, March
2017 US-IALE, Baltimore, Maryland, April 9-13

Jana Albrechtová¹, Ioannis Manakos², Petya Campbell³, Mihai Nita⁴,
Lucie Kupková¹, Konstantinos Karantzalos⁵ and Garik Gutman⁶

Global Land Cover Products Validation and Inter-Comparison in South Central and Eastern Europe (SCERIN)

Prototype Objectives:

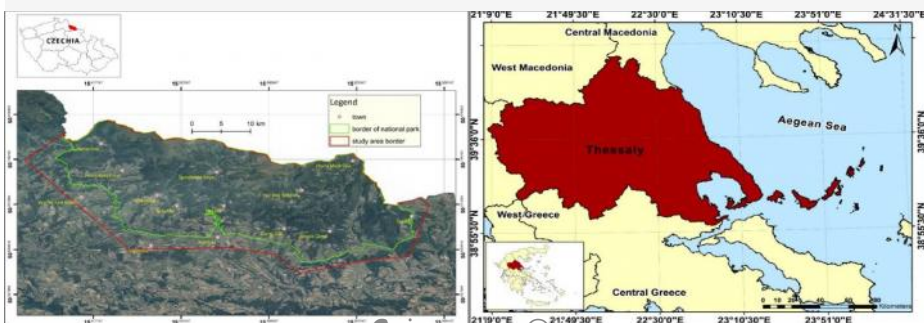
- To develop prototypes of the validation products, and provide preliminary findings using case studies from Greece and Czechia.
- to assess the specifics of land cover in study areas in terms of land cover classification and its validation.
- The effort is an initiative of the SCERIN.

Validated Maps:

Global LC maps (GLC) : 1) the Copernicus CORINE Land Cover 2012 (CLC) - ETRS89 / ETRS-LAEA CRS; and 2) the GlobeLand30 (GL_30) 2010 raster files (30m) - WGS 84 / TMzn34-35N

Conclusions:

Very similar, rather good, accuracies were reached for both study areas and for both CORINE 2012 and GLOBALAND30 products. Slightly better accuracy (4%) for CORINE in Greece and almost the same accuracies for both products in Czechia.



Achievements

Manuscripts in preparation: P2-P4 joint research papers in progress

P2: SCERIN inventory of land use and land cover changes and their driving forces (Gregory Taff and Premek Stych)

P3: Trends of forest vegetation activity in SCERIN associated with climatic changes, as observed by 30 years of AVHRR (Ivan Pilas)

P4: Review of high resolution spectral data (satellite, airborne, field) collected for forest ecosystems in SCERIN, and their use for vegetation monitoring (Jana Albrechtova, Petya Campbell and Lucie Kupkova)

And others..... **(inundation mapping, phenology metrics, 2-D canopy height extraction)**

Collaborative projects

Joint Project Proposal 2013

COST Action
as a platform for future SCERIN Network activities

PI: Jana Albrechtova



Attempt.....

New ones discussed.....

SCERIN: lessons learned

How to build a functional network?

- 1) Achieve a consensus: the regional network is *needed*
 - Regional experts discuss the recent research accomplishments in the LCLUC, GOFC-GOLD and GEOSS research areas
 - Define the regional/national research and application issues
- 2) Identify coordination, support, collaboration
- 3) Identify common goals, participants, activities
 - Formulate the specific regional/national research & application objectives
- 4) Outline next steps (pilot projects and capacity building initiatives to be conducted by the network)
- 5) Formulate a new capacity building initiatives

SCERIN: lessons learned

RIN Capacity building initiatives

- Collaboration with other regional networks:
 - SCERIN example: IGU LCCLU (Lucie Kupkova and Ivan Bičík), EARSeL (2015: meeting in Prague)
 - Regional forest service and universities
- Support and sponsorship of RIN Meetings
 - Sponsorship by GOFC-GOLD/START and NASA/LCLUC
 - Proposal to EU, or other regional agencies
 - Host sponsorships for the RIN Meetings
- Capacity Building effort aimed to young scientists – in case of SCERIN the Trans Atlantic Training (NASA/ESA)
- Plan of future activities: establish new collaborations

SCERIN: lessons learned

Visibility is wanted

- Through AGU, EGU, EARSeL, etc.
- Through joint papers
- Think about inviting reps not only from funding agencies but also from big private companies – Google appearance was good!

SCERIN: lessons learned

Potential Future Support

Proposals for joint research projects and networking

- ✓ Joint Project Proposals in 2017 and 2018 (3)
- ✓ Joint Project Proposal EU COST Action as a platform for GOFC-GOLD + MEDRIN activities (to consider)

Smaller proposals and collaborative work by collaborating groups within SCERIN

- ✓ Visiting Scholars (Fulbright, other)
- ✓ Graduate studies
- ✓ Research grants

NEW! Opportunity for leveraging/collaboration among the GOFC-GOLD networks for exchange of tools for product validation; flood, fire and snow prediction and mapping in SCERIN.

Thank you

Ioannis Manakos. Dr.

Centre for Research and
Technology Hellas/Information
Technologies Institute, Greece

imanakos@iti.gr

eoservices.iti.gr

Contact for
more
information:



Petya Campbell petya.campbell@nasa.gov

Regional Contacts in Europe, Czech Republic:

Jana Albrechtova albrecht@natur.cuni.cz

Lucie Kupkova lucie.kupova@gmail.com