

The GOFC-GOLD South Central and Eastern European Network (SCERIN)

Joint SCERIN and MedRIN
Workshop 16-19 July 2024



SCERIN

overview and status update

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SCERIN Leadership

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SCERIN Goals and Geographic Domain

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*

Geographic Domain:

Central & South Eastern Europe, the Danube Watershed & Western Black Sea coast



SCERIN Participants */* and Observers 0



Regional Background

- Diversity of landforms and environmental conditions resulting in a unique richness of species - highly sensitive and vulnerable to climate change.
- SCERIN's area has undergone extensive land-use, which have rendered many of the natural processes of adaptation un-sustainable.
 - Rich archive of long-term LULC data
 - Archive of methodology for field observations
 - LUCC research established
 - ✓ *tradition of 15-25 years in Central EU*
 - ✓ *tradition of 10-15 years in SE EU*
 - Availability of regional data
 - from individual institutions or projects
 - not always uniformly organized and consistent



SCERIN Critical Regional Issues – *at the start in 2012*

- ✓ Changes in forest composition, age, structure, function
- ✓ Changes in ecosystem diversity
- ✓ Increasing urbanization
- ✓ Unbalanced water regime (floods/droughts)
- ✓ *Transitions to market economy*

Pre-cursors of LCC: natural & anthropogenic (e.g. technological advancements, political & population changes)



SCERIN Structure – Focus Groups

Focus Groups (FG) – *dynamic structure and leads*

FG1: Forest changes: disturbances, biomass production, forest LCLUC, driving forces

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

FG3: Validation/verification of products, for support of current and future satellite missions (e.g. NASA's LDCM, ESA's Sentinel 1, 2, and 3)

FG4: LCLUC water management and ENVIRONMENT (watersheds, catchments, dams)

FG5: Urban ecosystems in the context of climate change



SCERIN Partnerships

- EnviroGRIDS
 - IGU LUCC
 - EARSeL LCLUC
 - Trans-Atlantic Training Initiative (ESA-NASA)
 - Collaboration with other GOFC-GOLD RINs
- ✓ *Inputs from CEOS/WGCV/LPV in relevance of SCERIN's objectives*



Benefits of having SCERIN

- joint projects and publications
- networking for knowledge and technology exchange (tools)
- using both Landsat-8/9 and Sentinel-2 data, and knowledge of the processing methodology in land use change monitoring
- capacity building through exchange of data and methods for satellite products evaluation
- facilitate teaching BS classes (tools and curriculum)
- student and faculty mobility for short- and long-term visits

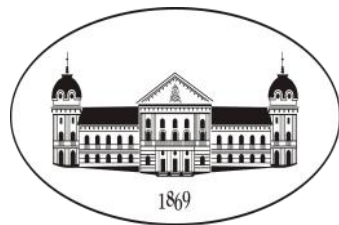
Others? - - - what do you think is most helpful



SCERIN Formulation Workshop

Theme: Land Cover Observations in SC Europe, National & Regional Programs

- Hosted by The National Institute of Meteorology and Hydrology at the Bulgarian Academy of Sciences (NIMH-BAS), Sofia, Bulgaria and its Director General Dr. Georgi Kortchev
- **41 participants:** Bulgaria, Czech Republic, Germany, Poland, Romania, Slovakia, Switzerland (ENVIROGRIDS), The Netherlands (GOFC-GOLD LCPO), TFYR Macedonia, Turkey, USA.

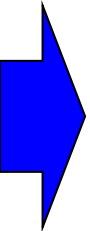


*17 April 2012, Conference Center of
Park Hotel Moskva, Sofia, Bulgaria*



SCERIN Workshops and Websites

- ✓ <https://gofcgold.org/regional-networks/south-central-european-regional-information-network-scerin>
- ✓ <https://scerin.eu/>



Joint Workshop of the GOFC-GOLD SCERIN and MedRIN Networks
 CHEAM conference center, Chania, Greece, July 15 – July 19, 2014
 Land Cover Change (LCC) and Extreme Events in the Context of Climate Change

Mediterranean Agronomic Institute of Crete
 Region of Crete
 Excellence Center of Excellence, Cyprus University of Technology
 Aristotle University of Thessaloniki
 NASA ICLUC Program
 GOFC-GOLD and START, USA

SCERIN-10 Workshop on Earth System Observations and 10th Anniversary
 Czech Republic, Brno, 26th - 29th June 2023
 Recent terrestrial ecosystems LCU changes and driving forces - challenges for RS and sustainable management

Global Change Research Institute, CAS
 GOFC-GOLD and START, USA
 NASA Goddard Space Flight Center
 University of Maryland, Baltimore County
 Charles University, Prague, Faculty of Science

SCERIN-9 Virtual Workshop, 30 May - 1 June, 2022
 Satellite remote sensing for forest management and ecosystem health, floods, droughts and wildfires in the context of climate change

SE2RT, USA
 NASA Goddard Space Flight Center
 University of Maryland, Baltimore County
 Charles University, Prague, Faculty of Science
 Ukrainian National Forestry University

MedRIN and SCERIN-8 Virtual Capacity Building Workshop on Earth System Observations
 June 15-17, 2021

University of Maryland Baltimore County
 California State University-Monterey Bay
 Aristotle University, Thessaloniki
 Charles University, Prague, Faculty of Science
 Cyprus University of Technology

SCERIN-7 Capacity Building Workshop
 24-27 June 2019, Novi Sad, Serbia

University of Novi Sad Faculty of Science
 Faculty of Technical Sciences
 Biosense Institute
 Institute of Lowland Forestry and Environment

SCERIN-6 Capacity Building Workshop
 11-14 June 2018, Zagreb, Croatia

Faculty of Geodesy, University of Zagreb, Croatia
 Croatian Forest Research Institute, Jastrebarsko, Croatia
 Faculty of Forestry, University of Zagreb, Croatia

SCERIN-5 Capacity Building Workshop
 Institute of Geography, Faculty of Sciences, University of Pécs, Hungary

20-23 June 2017

SCERIN-4 Capacity Building Workshop
 Faculty of Forestry, Technical University in Zvolen, Slovakia

18-22 July 2016

SCERIN-3 Capacity Building Workshop
 Transilvania University in Braşov, Romania

12-15 July 2015

SCERIN-2 MEETING
 Jagiellonian University in Kraków, Poland, Institute of Geography and Spatial Management

5-10 June 2014

SCERIN-1 Meeting, Trip and Trans-Atlantic Training
 Charles University in Prague, Czech Republic

11-21 June 2013

Ukraine
 virtual host
 Ist Joint
 S & M

SCERIN Thematic Virtual Workshops

Additional Virtual Workshops ~ once per year

Virtual workshops in 2020, 2021, 2022 and 2023

- Optical Remote Sensing from the International Space Station with DESIS, 2020
- SCERIN Seminar on Bark Beetle Damage, March 2021
- Cloud-gap-filled global maps of essential biophysical variables processed from the TOA Sentinel-3 catalogue in Google Earth Engine, December 2022
- TIR Remote Sensing from the International Space Station with ECOSTRESS, January 2023
- 2024 -

Standing Invitation for presentations to showcase regional research and RS developments ☺

SCERIN Achievements

Established and growing RIN

Active network collaborations, including:

- Joint research projects – past and in progress (range in topics)
- Joint manuscripts, published and in preparation (1 network, 20+)
- Joint presentations, proposals and ongoing collaborative efforts

SCERIN web resources

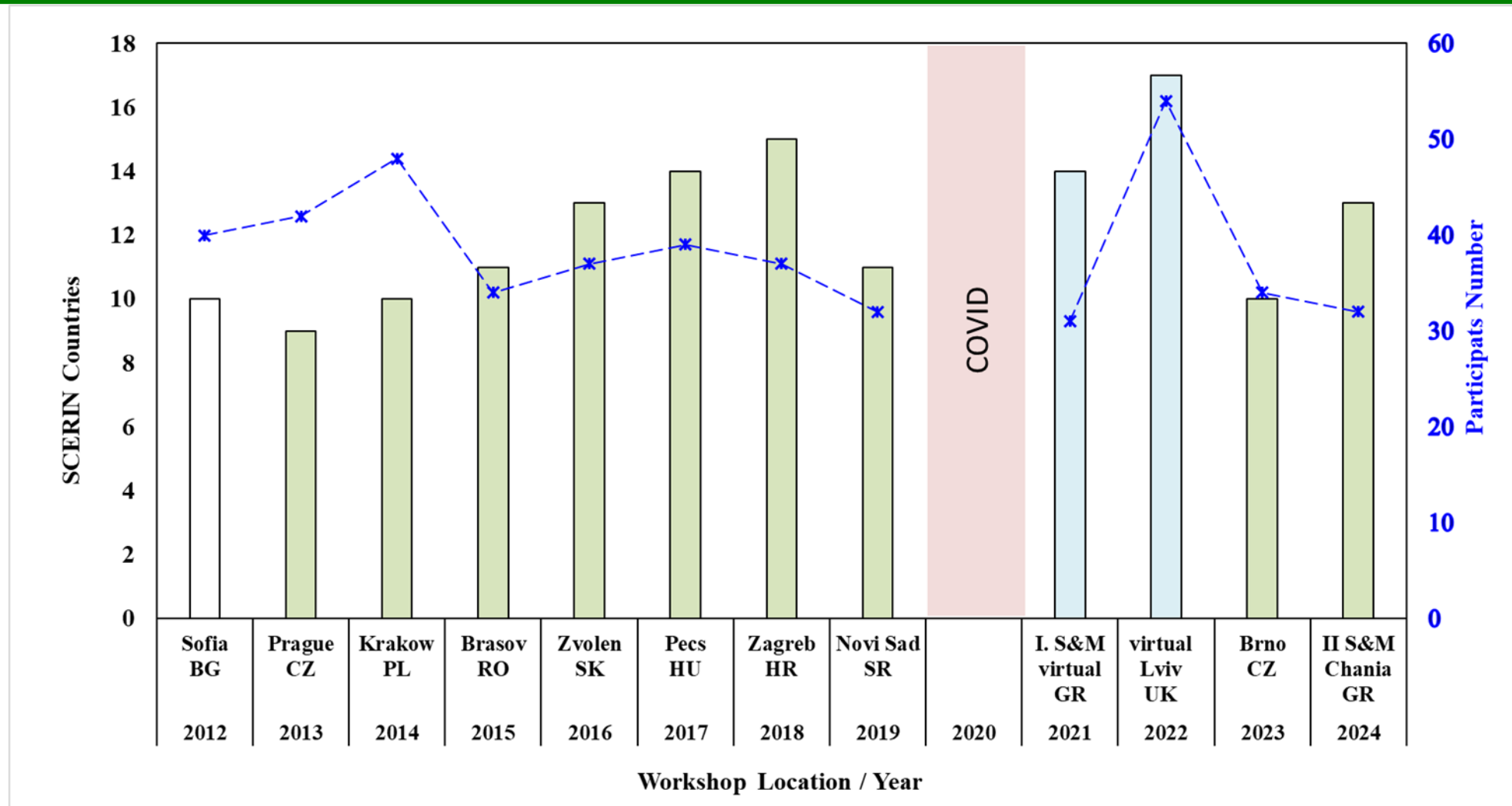
- ✓ <https://gofcgold.umd.edu/southcentral-european-regional-informational-network-scerin>
- ✓ <https://scerin.eu/>



SCERIN Growth



SCERIN Growth



- Permanent: **BGR, CZE, POL, ROU, SVK, TUR, HUN, UKR, GRC, HRV, SRB, SVN**
- Returning: **Bosnia and Herzegovina (BIH), NMa, Moldova**
- To reach: **Albania (AL), Belarus (BY), Montenegro (ME)**

Evolution of Priorities in SCERIN 2012 - 2024

SCERIN's most important research topics

- 1.Changes in vegetation cover, function (yield/assimilation) and ecosystem diversity with transition to free market and **climate change**
- 2.LCC with agricultural abandonment and **urban expansion**
- 3.Floods/droughts and fires – **extreme events** in the Danube watershed
- 4.LCC associated with the **COVID** pandemic
- 5.LCC associated with **armed conflicts** - Ukraine, Gaza, Syria...
- 6.RS issues in regional LCLUC validation/verification of methods and products – **increased need with increased data availability**



SCERIN Long Term Vision

- Include and actively involve all SCERIN countries
- Joint SCERIN collaborative activities, projects and publications
- Balanced participation from research and applications
- Transitioning from detection of LCC to monitoring and analysis of trends or LCD
 - collaborate with local, regional and global monitoring networks – consistent data records across SCERIN
 - transitioning from detection and monitoring to simulations and predictions
- Collaboration with other GOFC-GOLD RINs



SCERIN Challenges and Lessons Learned

Ongoing or work in progress

- Evolving network structure and partnerships within the region
- Updates of the network participants database – in progress
 - Participants, contacts, publications, involved institutions, etc.
- Need – to develop a regional collaborative database
 - Regional networks of relevance to SCERIN – leverage network activities
 - Regional sponsors for support
 - Active collaborative projects
 - Collaborative projects waiting for data

Challenges

- Active participation from agencies and from private companies (desired 50/50)
- Need to involve stakeholders, political scientists, decision makers (invited lectures)
- Educational outreach – successful collaboration with TAT; need for public outreach and to undergraduate and high school students



Potential Sources of Support

SCERIN proposals for joint research projects and networking

- Joint Project Proposals in 2024 – Satellite data evaluation; Mid-resolution product development/evaluation
- Joint Project Proposals in EU as a platform for GOFC-GOLD + SCERIN activities (to consider)

Smaller proposals and collaborative work by collaborating groups within SCERIN

- Visiting Scholars (Fulbright, other)
- Young professionals – visitor exchanges
- Graduate studies
- Research grants

Collaboration among the GOFC-GOLD networks – Joint MedRIN & SCERIN, but also SCERIN with CaucRIN & CARIN ☺

examples: exchange of RS tools; product validation; regional flood, fire and snow prediction and mapping, etc.



Current SCERIN Support

- Main Sponsorship by GOFC-GOLD/START and NASA/LCLUC
- Support of participants from their organizations
- Host and regional partnerships offering partial sponsorship

Ευχαριστώ
Thank You



Outline

I. SCERIN organization

- Network initiation or ‘kick-off’
- SCERIN specifics, organization and structure
- Network workshops (goals, location, participants)
- SCERIN members and observers

II. SCERIN collaborative projects and capacity building initiatives

- Research projects in progress and manuscripts in preparation
- Other capacity building activities
- Challenges

III. Lessons Learned - Suggestions