

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

## **SCERIN Overview**

### **SCERIN-5 Goals and Workshop Agenda**

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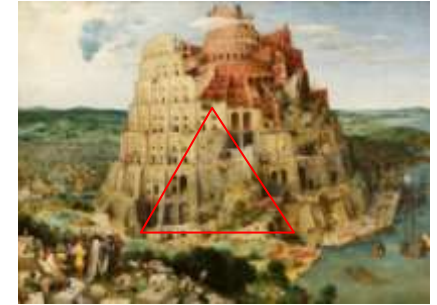


# SCERIN Goals

- To provide a platform for collaboration among remote sensing experts in SCE, *through joint projects activities*
- To facilitate progress and consistent implementation of remote sensing and LCLUC methodology, *in the region*
- To foster regional collaboration for monitoring the dynamics, stability, and vulnerability of the major ecosystems,
- To promote effective sustainable management and preservation, *on the local, regional and pan-European level*

# SCERIN Geographic Domain

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





# SCERIN Participants \*/\*



# Participants and Structure

- Network of scientists and other professionals based in the region or with scientific interests in the region.
- SCERIN contributes to GOFC-GOLD and has strong linkages with the NEESPI and LCLUC
- Thematic focus of SCERIN:
  - LCLUC and implications to climate & society
  - Forest function, disturbances, fires
  - Ecosystem carbon storage and flux dynamics



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

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

**FG3: Validation/verification:** satellite product validation/support of current and future missions [e.g. NASA's LDCM and HypsIRI, and ESA's GMES program – Sentinel 1, 2 and 3]

# SCERIN Coordination



## Network Coordinator in U.S.:

**Petya Campbell** [petya.campbell@nasa.gov](mailto:petya.campbell@nasa.gov)

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NASA Goddard Space Flight Center, Greenbelt, Maryland, USA



## Regional Contacts in Europe, Czech Republic:

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





- SCERIN and its activities offer a functional platform for developing professional collaborations and advancing regional remote sensing and LCLUC science.
- With the advances in global remote sensing, the need for regional networks, such as SCERIN, will only increase, for regional validation of global remote sensing products and providing feedback to the satellite agencies and information providers.



# Reports, Presentations, Meetings, Internet Presence

- LCLUC 2014, 2015 and 2016, Washington, DC
- AGU 2015 and 2016
- Living Planet 2016, ESA, Prague, April
- World Cover 2017, ESA, Frascati, March
- 2017 US-IALE, Baltimore, Maryland, April 9-13
  
- Earth Observer, 2016

**Web sites:** <http://www.fao.org/gtos/gofc-gold/net-SEERIN.html>  
<http://csebr.cz/scerin/index.html>



# SCERIN Activities in Progress

- **SCERIN joint projects for peer review papers (leads Ioannis, Greg and Ivan)**
  - Global land cover products validation (WS1)
  - Inventory of land use and land cover change and driving forces (WS2)
  - GIMMS analysis in SCERIN (WS3)
- **Started discussion of SCERIN field reference validation/verification database**
  - sites with stable LC (Petya and Andrej)
  - sample points, pictures, etc. in ARC/GIS (Vladimir Ganz)
- **SCERIN Land Use/Land Cover Changes Atlas** (digital atlas; LCC driving forces, consequences; Lucie, Jana, Premek and Petya)
- **Proposals for joined projects, collaborations and venues**
- **Interactive SCERIN WebSite or WebPages** (*potential for START support*)
  - links for each country with list of active projects and data collections
  - computer support, update and maintenance - Jana
- **Social media:** SCERIN Linked in group page and Facebook presence - need suggestions

# SCERIN-5 Goals

**Theme:** Land cover changes and natural hazards, *integrated forest / watershed management for environmental, economic and political stability*

## Objectives:

- 1) provide a forum for networking, collaboration, and capacity building
- 2) discuss and advance the work on SCERIN joint projects and papers (**WS**)
- 3) inform participants about ongoing scientific efforts and projects, with possible contributions and follow-up activities for SCERIN participants (**Research highlights**)
- 4) identify **NEW** LCC driving forces and issues in SCERIN
- 5) discuss availability of satellite data, products, and approaches for regional land-cover monitoring (**Advanced methods**)
- 6) outline the activities to be completed by SCERIN within the following year

The SCERIN-5 CBW is coordinated with the TAT training for graduate students and early career professionals.

# SCERIN-5, Pecs, Hungary, June 20-23, 2017

## SCERIN-5 Agenda

Time	6/20/2017 Tuesday	
	SCERIN-5 Day 1	Presenter
8:30	<i>Registration &amp; Logistics</i>	
	<b>Plenary Session</b> ( <i>Session Chair: <u>István Geresdi</u>; Records: Petya Campbell – Lectures</i> )	
8:45	<b>Opening</b> SCERIN-5 Goals and Agenda	Petya Campbell and Jana Albrechtova, SCERIN coordinators
9:00	<b>Welcome Addresses of the Hosts</b>	<u>Róbert Gabriel</u> , Dean of Faculty of Sciences, UP
		<u>László Lénárd</u> , HAS (Hungarian Academy of Science)
		<u>István Geresdi</u> , UP (Institute of Geography)
9:15	The NASA LCLUC Program Support of <u>GOFC-GOLD</u> Networks – an Update: <i>Focus on Europe</i>	Garik Gutman, NASA/HQ
9:35	Regional Information and Knowledge Networks – Reflections on capacity building under <u>GOFC-GOLD</u>	Senay Habtezion, START
9:55	<i>Key note from hosting organization:</i> Land cover and land use change in Hungary	<u>Dénes Lóczy</u> , UP
10:15	<i>Coffee Break and Picture (25 min)</i>	



Time	6/20/2017 Tuesday	
	SCERIN-5 Day 1	Presenter
10:15	<i>Coffee Break and Picture (25 min)</i>	
	<b>SCERIN Invited talks</b> ( <i>Session Chair: Jana Albrechtova, Records: Petya Campbell</i> )	
10:40	Harmonizing Landsat and Sentinel-2 time series	Jeff Masek, NASA/GSFC
11:00	Sentinels status and latest results	Gordon Campbell, ESA
11:20	The synergetic use of <u>SAR</u> and optical time-series for agricultural and forest application	Francesco <u>Holecz</u> , <u>SarMap</u>
11:40	<u>IIASA</u> Ecosystem Services and Management Program experience in the field of LCLUC	Dmitry <u>Schepaschenko</u> , <u>ESM/IIASA</u>
12:00	Briefing on Land-cover classification in the cloud using Google Earth Engine	Noel <u>Gorelick</u> , Google Inc.
12:20	<i>Working Lunch (1hr 10 min, sponsors HP)</i>	
	<b>Research Highlights Hungary</b> ( <i>Session Chair: <u>Dénes Lóczy</u>, Records: Petya Campbell</i> )	
13:30	Main Activities of the Hungarian Space Office	<u>Istvány Erényi</u> , Hungarian Space Office
13:45	Farm support via crop yield measurements by satellite data	<u>Gábor Csornai</u> , <u>Cosima LTD</u>
14:00	Recent Applications of Remote Sensing in Forestry at the University of Sopron	<u>Kornél Czimber</u> , University of <u>Sopron</u>
14:15	Research and User Support (RUS) on-the-cloud	Brice Mora, CS
14:30	<b>SCERIN Research Highlights:</b> poster speed talks ( <i>Session Chair: Lucie Kupkova; Records: Petya Campbell, list - next page, each 2 min, 1-2 slides to supply in advance before lunch</i> )	
15:30	<i>Questions &amp; Discussion, Coffee Break and Viewing of Posters (90 min)</i>	
16:30	<i>Adjourn</i>	
18:00	<i>Networking Reception (Academy, sponsor START)</i>	

6/20/2017 Tuesday (Day 1)

**Posters speed talks (2 minutes for the highlights)**

<b>First Name</b>	<b>Last Name</b>	<b>Focus Group (FG)</b>	<b>Title</b>
Ivan	Barton	FG1: Forest monitoring	Treefall gap detection on Sentinel-2A satellite images in the Börzsöny mountains
Lachezar	Filchev	FG1: Forest monitoring	Estimating forest cover changes in Bulgaria using ALOS-PALSAR data
Mihai Daniel	Nita	FG1: Forest monitoring	Massive forest harvests following World War II revealed by historical Corona spy imagery
Rumiana	Vatseva	FG1: Forest monitoring	LCC in Bansko ski resort, BG in the period 2000 - 2016 based on remote sensing data
Noémi	Eöry	FG2: Land Cover Changes	Waste Deposition Detection - 1st steps of a development project
Bejan	Iurii	FG2: Land Cover Changes	The land use / land cover change in Botna river basin
Stanisław	Lewiński	FG2: Land Cover Changes	Automatic selection of classification thresholds for change detection in land cover
Minučer	Mesaroš	FG2: Land Cover Changes	Land cover change analysis for environmental pressure evaluation in protected areas in Serbia
Mykola	Meretskyi	FG2: Land Cover Changes	Assessment of various satellite band combinations and resolution for crop classification accuracy
Ivica	Milevski	FG2: Land Cover Changes	Landcover changes vs erosion rate in upper Bregalnica Catchment (Macedonia, FYR)
Brice	Mora	FG2: Land Cover Changes	Sentinel 2 for Agriculture
Mátyás	Rada	FG2: Land Cover Changes	Experimental Landsat-8, Sentinel-2 and Sentinel-1 Synergy for 30-m Land Cover Mapping
Luka	Rumora	FG2: Land Cover Changes	Vegetation detection using video data
Volodymyr	Starodubtsev	FG2: Land Cover Changes	Land degradation in river deltas under anthropogenic pressure
Premysl	Stych	FG2: Land Cover Changes	Overview of changes in land use and land cover in Eastern Europe
Rumiana	Vatseva	FG2: Land Cover Changes	Mapping urban green spaces based on Sentinel-2A satellite imagery
Jana	Albrechtova	FG3: Validation/verification	GLC Products Validation and Inter-Comparison in South Central and Eastern Europe (SCERIN)
Monika	Tomaszewska	FG3: Validation/verification	Modelling land surface phenology and seasonality in highland pastures in the Kyrgyz
Tatjana	Veljanovski	FG3: Validation/verification	Automatic object based LCLUC generation from high resolution satellite data
Katia	Benet	FG3: Validation/verification	USA Science hub activities, Budapest, HU

Time	6/21/2017 Wednesday	
	SCERIN-5 Day 2	Presenter's Name
<b>Working Sessions (WS) of the SCERIN Focus groups on the joint papers:</b> detailed overview by leaders, discussion topics*, schedule for paper finishing ( <i>Session chair: Petya Campbell, Records: Leaders of WS1-3</i> )		
9:00	WS1 Global/ Continental land cover products validation and inter-comparison in the SCERIN area	Manakos (lead)
9:20	WS2 Assessing the causes of CORINE LU/LCC	Taff (lead)
9:40	WS3 status of GIMMS NDVI analysis in SCERIN	Pilas (lead)
10:00	<i>Discussions of the topics provided by WS leaders*</i>	
10:30	<i>Coffee Break and Posters (30 min)</i>	
11:00	Discussions in parallel working sessions (WS1 – room TBD, WS2 – room TBD, and WS3 – room TBD), records will be assured by the WS lead	
12:15	<i>Working Lunch (1hr 15 min, sponsors HP)</i>	
13:30	<b>SCERIN Countries and Programs Inventory Panel</b> ( <i>Session Chair: Petya Campbell, Each SCERIN institution should supply 1 slide based on .ppt template<sup>1</sup>: Bulgaria, Croatia, Czech Republic, Greece, Hungary, FYR Macedonia, Moldova, Poland, Romania, Serbia, Slovakia, Slovenia, Ukraine</i> )	
	<b>Advanced Methods</b> ( <i>Session chair: Gregory Taff; Records: Petya Campbell; 15 minutes each</i> )	
14:00	Large area land cover change in SE Europe	Mutlu Ozdogan
14:15	Global LC mapping based on Sentinel-2 data	Stanislaw Lewinski
14:30	Remote sensing and ecosystem functions of the low-land floodplain forests – potential for SCERIN collaboration	Ivan Pilas





Time	6/21/2017 Wednesday	
	SCERIN-5 Day 2	Presenter's Name
14:45	<i>Coffee Break and Posters (20 min)</i>	
<b>Research highlights in SCERIN region</b> (Session chair: Petya Campbell; Records: Mutlu Ozdogan; 10 minutes each)		
15:05	EOs improving ecosystem benefits: <u>ECOPOTENTIAL</u> Activities in the SCERIN Protected Areas	Ioannis Manakos
15:15	Remote sensing and GIS analyses in identification of potential water vulnerable zones on arable land	Frantisek Zemek
15:25	Monitoring of tundra vegetation in the <u>Krkonoše</u> Mts. using multispectral and hyperspectral data	Lucie Kupkova
15:35	Composite indicator for monitoring of Norway spruce stand decline using remote sensing methods	Olga Brovkina
15:45	Land cover change as an indicator of land degradation neutrality in the United Nations program	<u>Mykola Lavrenik</u>
15:55	Airborne remote sensing technologies, Hungary	<u>Mikus Dezső</u>
	<i>Questions &amp; Discussion</i>	
16:30	<i>Adjourn</i>	
17:00	<i>BUSS tour: Planetarium - Ancient Hungarian star constellations</i>	
	<i>Urban LCLUC - Environmental effect of urban landscape development</i>	
19:00	<b>SCERIN-5 Hosts Dinner</b> (Restaurant TBD, sponsors HP and UP)	

<sup>1</sup> Table in on page 1, or powerpoint slide TEMPLATE attached as a separate file

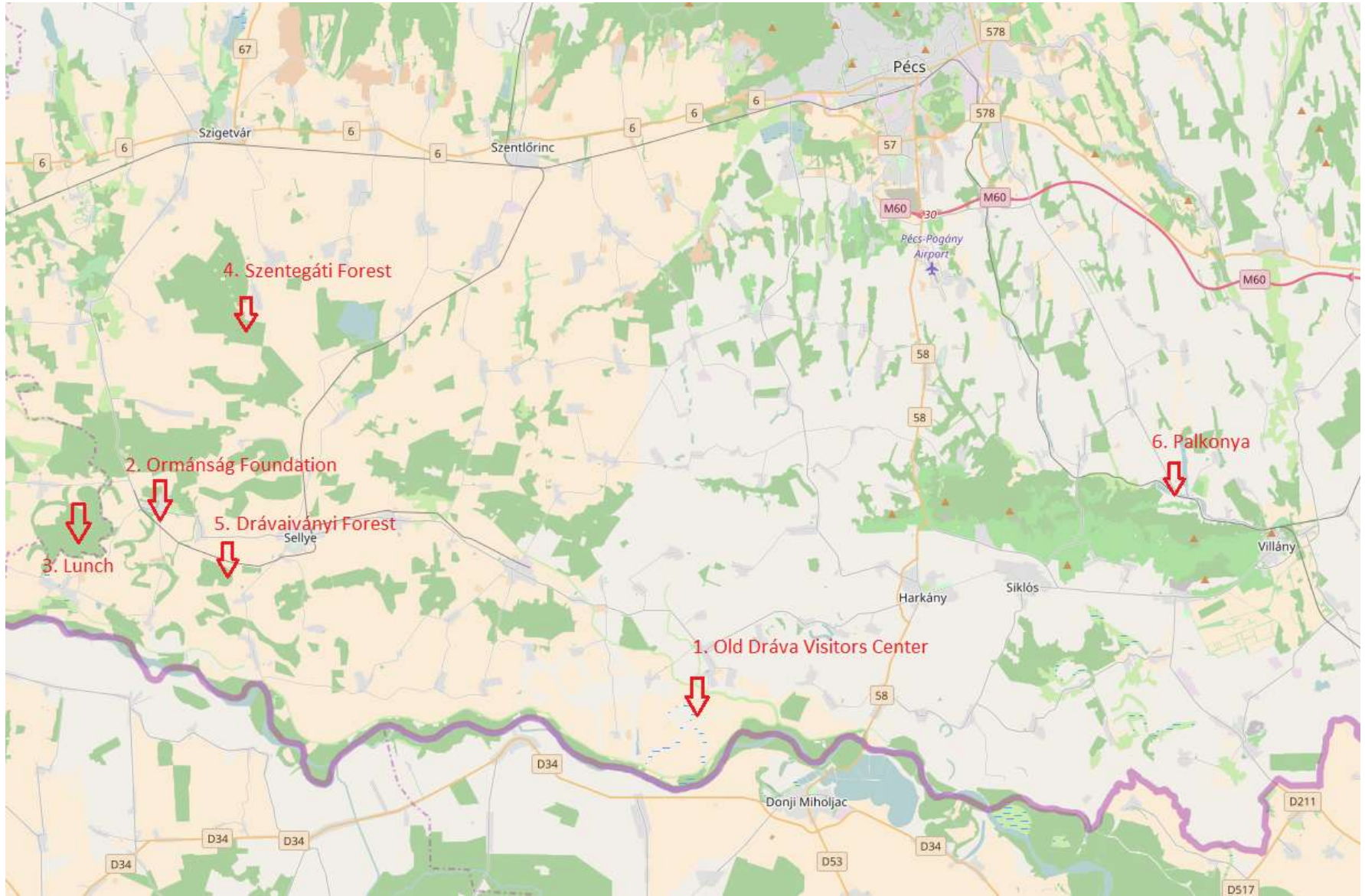


## SCERIN-5 Day 3, Thursday, 22 June 2017

*Scientific Field Trip: „Land use change planning of the Old Dráva Program“*

8:15 Departure in front of the building of the Academy, Jurisics M. str. 44, Pécs

app. 9:30	Arrival to Szaporca (stop 1.)
9:30 -10:30	Visiting Old Dáva Visiting Center ( <a href="http://odlk.hu/en/">http://odlk.hu/en/</a> ) Old Dráva Program - Mr Zsolt Tiffán, regional parliamentarian and Governmental Commissioner responsible for the Old Dráva Program, Traditional Floodplain Management - Mr Endre Stelik , ranger Danube-Dráva National Park
11:00	Arrival to Drávafok(stop 2.)
11:00-12:00	For Ormánság Foundation Ecological Fruit-Culture – Tamás Lantos, representative of the Ormánság Foundation
12:30	Arrival to Alsóerdei forest(stop 3.)
12:30 – 13:30	Lunch (Deer stew sponsored by Mecsek Forestry Co. Ltd)
14.15	Arrival to Szentegát forest(stop 4.)
14:15 – 15:00	Short history of the Hungarian forest management and visiting the oldest oak forest on the former Dráva floodplain – Dénes Molnár, forester Mecsek Forestry Co. Ltd
15:30	Arrival to Drávaivány forest(stop 5.)
15:30 -16:30	Floodplain oak forest management – Dénes Molnár, forester Mecsek Forestry Co. Ltd
17:30	Arrival to Palkonya(stop 6.)
17:30 – 19:00	Visiting street of Cellars (wine tasting sponsored by HP) <a href="https://villanyiborvidek.hu/en/settlements/palkonya">https://villanyiborvidek.hu/en/settlements/palkonya</a>
20:00	Arrival to the Academy, Pécs



4. Szentegáti Forest

2. Ormánság Foundation

5. Drávaiványi Forest

3. Lunch

1. Old Drava Visitors Center

6. Palkonya



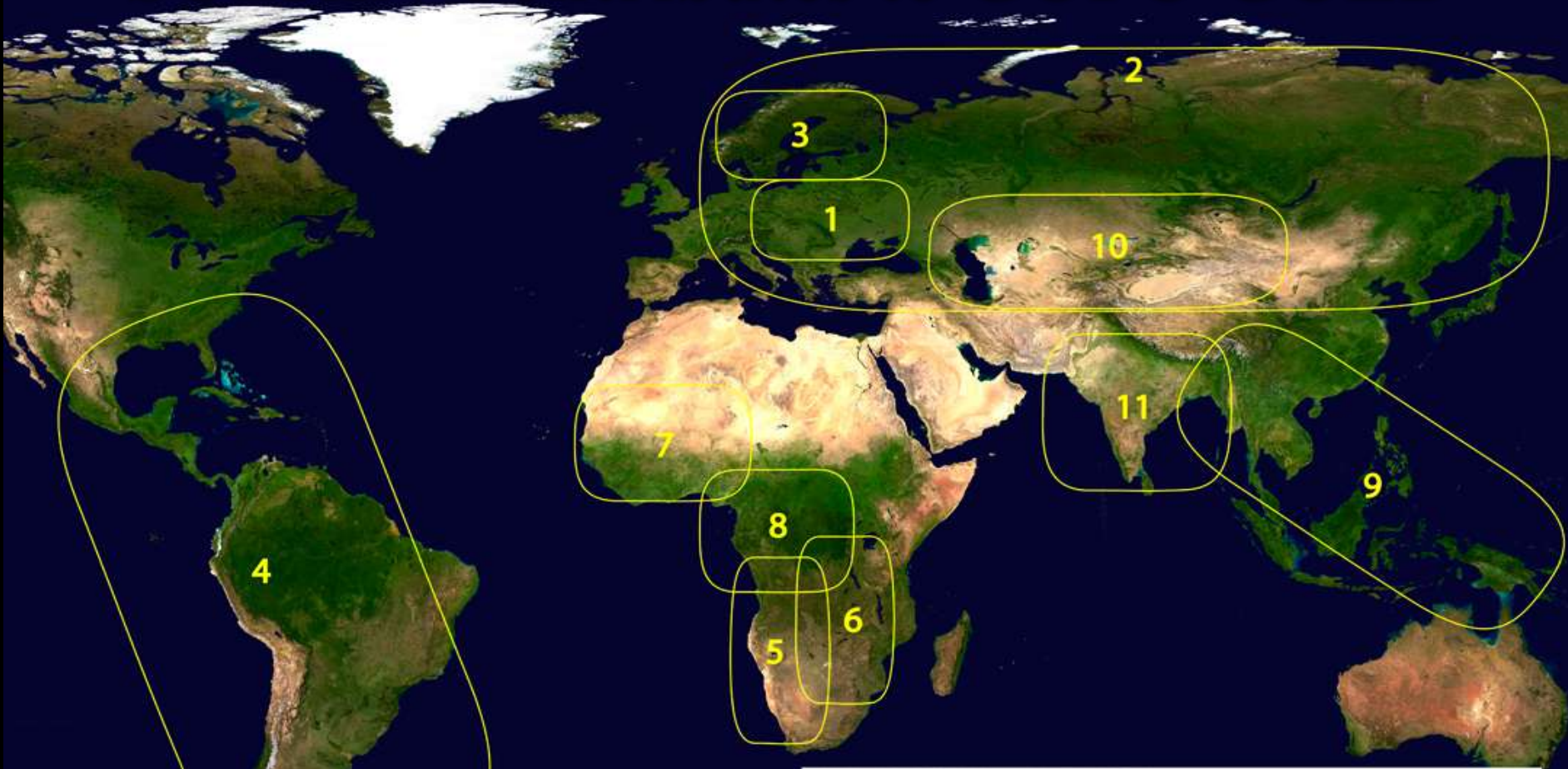
Time	6/23/2017 Friday
	SCERIN-5 Day 4
9:00	<b>SCERIN Observers – Countries and Institutions Programmatic Panel</b> (Georgia and Norway – 10 min each) ( <i>Chair/Records: Petya Campbell</i> ) <i>Questions &amp; Discussion</i>
9:30	<b>WS 1 Outcomes</b> - Manakos (lead) – 10 min summarization, short discussion
9:45	<b>WS 2 Outcomes</b> - Taff (lead) – 10 min summarization, short discussion
10:00	<b>WS 3 Outcomes</b> - Pilas (lead) – 10 min summarization, short discussion
10:30	<i>Coffee Break and Posters (30 min)</i>
11:00	<b>SCERIN Future joined activities:</b> proposals for presentations are welcome (e-mail suggestions) <sup>1</sup> František Zemek: SCERIN new projects proposals and future directions <ul style="list-style-type: none"> <li>- presentations for joint proposals</li> <li>- presentations for new joint papers</li> </ul> <i>Questions &amp; Discussion</i>
12:15	<i>Working Lunch (sponsor START)</i>
13:30	<b>SCERIN Future plans, activities and potential venues</b> (Chairs: Petya Campbell, Jana Albrechtova; Records: Lucie Kupkova) SCERIN Future Venue(s) – proposals for venues in 2018 <i>Questions &amp; Discussion</i>
14:45	<i>Coffee Break, Posters are removed (30 min)</i>
15:30	<b>SCERIN-5 Workshop outcomes, actions and deadlines, summary and conclusions</b> <i>Chairs: Petya Campbell, Jana Albrechtova, Records: Lucie Kupkova</i>
16:00	<b>Meeting Closing, Host Concluding Remarks</b> ( <i>Levente Ronczyk</i> )
16:30	<i>Adjourn</i>

<sup>1</sup> Let us know if you would like to propose an activity and present the goals (e-mail Jana and Petya)





# SCERIN Contributes to GOFC-GOLD



## GOFC-GOLD REGIONAL NETWORKS

1. South-Central European Regional International Network (SCERIN)
2. Northern Eurasia Regional International Network (NERIN)
3. Baltic-Arctic Regional International Network (BARIN)
4. Red Latinoamericana de Teledeteccion e Incendios Forestales (RedLaTIF)
5. Southern African Fire Network (SAFNET)
6. Miombo (South Africa) Land Use Land Change Network (Miombo)
7. Western Africa Regional Network (WARN)
8. Observatoire Satellital des Forets d'Afrique Central (OSFAC)
9. Southeast Asia Regional Research and Information Network (SEARRIN)
10. Central Asia Regional Information Network (CARIN)
11. South Asia Regional Information Network (SARIN)



# Regional Background

- Diversity of land forms and environmental conditions has produced a unique richness of species - highly sensitive and vulnerable to climate change.
- SCEE 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
  - Availability of regional data
    - from individual institutions or projects
    - not always uniformly organized and consistent



# Identified Priority Topics

- Collaboration for: sharing of data, experience, and comparative studies
- Facilitation of LCLUC and regional modeling predictions and forecasts
- Establish network of field validation sites at regional SCERIN scales, for detecting/interpreting key indicators of land use and land cover change
- Promote techniques for cost effective monitoring to facilitate frequent, repeated, regionally coordinated assessment

# Current Specifics

- ✓ **Main processes in the present:** suburbanization, land abandonment, afforestation, loss of agricultural and especially arable land and *dynamics in population density with migration*
- ✓ **Driving forces:**
  - ✓ Change in climate and extreme weather events (e.g. floods and fires)
  - ✓ EU accession and open market bringing changes in land preservation and land ownership)
  - ✓ Forest management and protection of natural environment
  - ✓ Transitional processes in population dynamics:
    - ✓ *population dynamics* due to the political situation in proximity to SCERIN
    - ✓ *EU transitional state to providing solutions, and*
    - ✓ *relations to EU, US, UN and others...*

# Global Reference Validation Database for Accuracy Assessment of Land Cover

*Role of GOFC-GOLD and the regional networks in verifying classifications and classifying high resolution images*

