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

SCERIN

overview and status update

Petya Campbell[1], Jana Albrechtová[2] and Lucie Kupková[2]

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

[2]Charles University in Prague, Faculty of Science, Prague, Czech Republic

SCERIN-6, 11-14 June, 2018
Zagreb, Croatia

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

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
  - ✓ *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 Foci and Structure

Focus Groups – FG, *dynamic*

FG1: Forest changes: disturbances, biomass production, forest LCLUC, driving forces [Leads: F. Zemek/ J. Albrechtová]

FG2: Land Cover Changes: climate change, agricultural land abandonment, urban expansion [Leads: G. Taff/ L. Kupková/ P. Stych/ L. Genc]

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) [Leads: A. Halabuk/ L. Filchev/ P. Campbell]

FG4: ***New*** LCLUC water management and ENVIRONMENT (watersheds, catchments, dams) [Leads: V. Starodubtsev/ I. Pilas]

SCERIN Leadership

Network Coordinator 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 Laboratory
Greenbelt, Maryland, USA

Network Coordinator E.U.:
Jana Albrechtova albrecht@natur.cuni.cz
Department of Experimental Plant Biology, Faculty of Science
Charles University, Prague, Czech Republic

Regional Coordinator, Czech Republic
Lucie Kupkova lucie.kupova@gmail.com
Charles University, Prague, Czech Republic

Partnerships

- EnviroGRIDS
- IGU LCLUC
- EARSeL LCLUC
- Trans-Atlantic Training Initiative (ESA-NASA)

Additional inputs from CEOS/WGCV/LPV

SCERIN Critical Regional Issues

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

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

Benefit of having SCERIN

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

SCERIN Growth

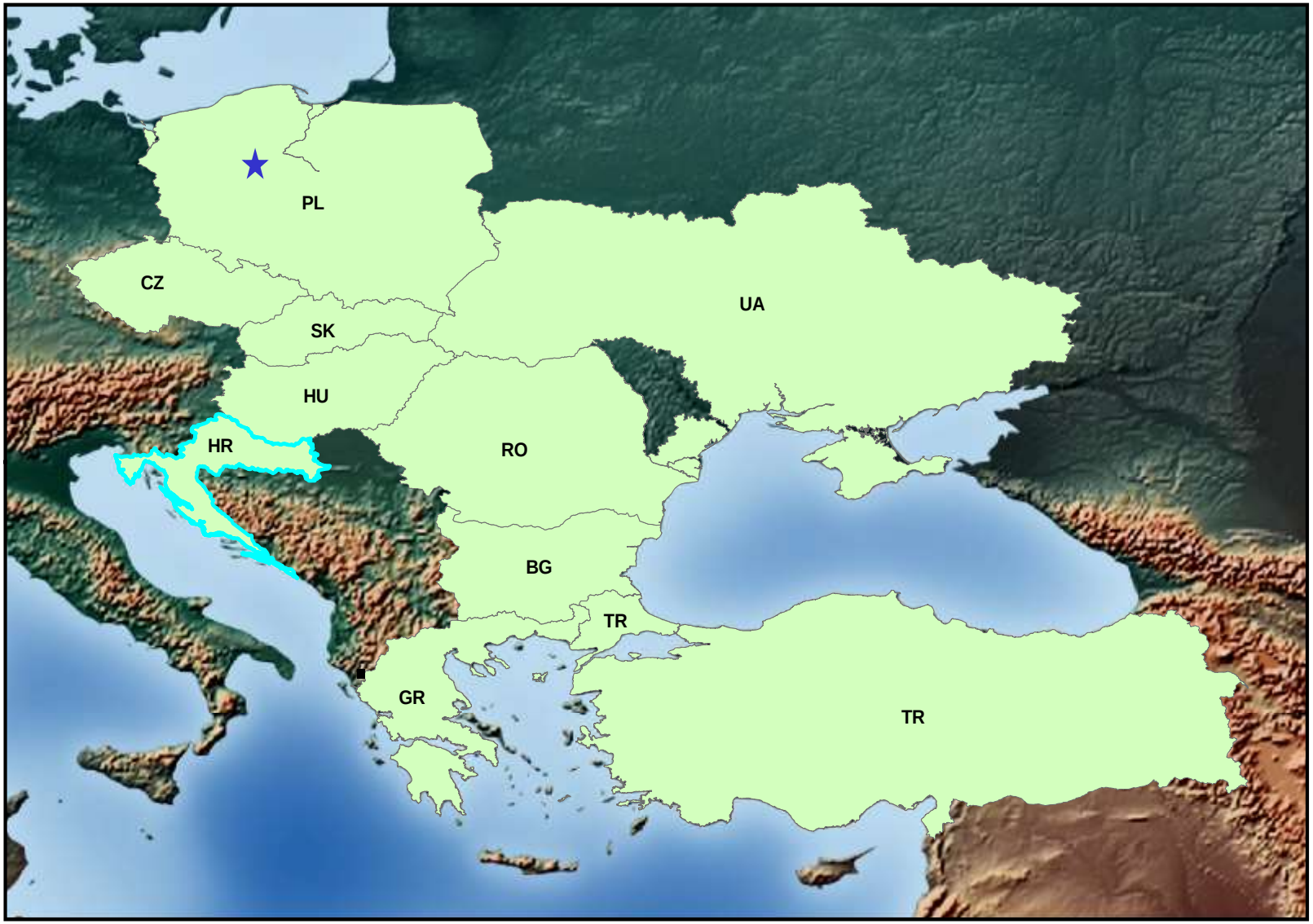
•Permanent: BGR, CZE, POL, ROU, SVK, TUR, HUN, UKR, GRC, MDA, HRV, SRB, SVN

• new/returning: Bosnia and Herzegovina (BIH), FYROM

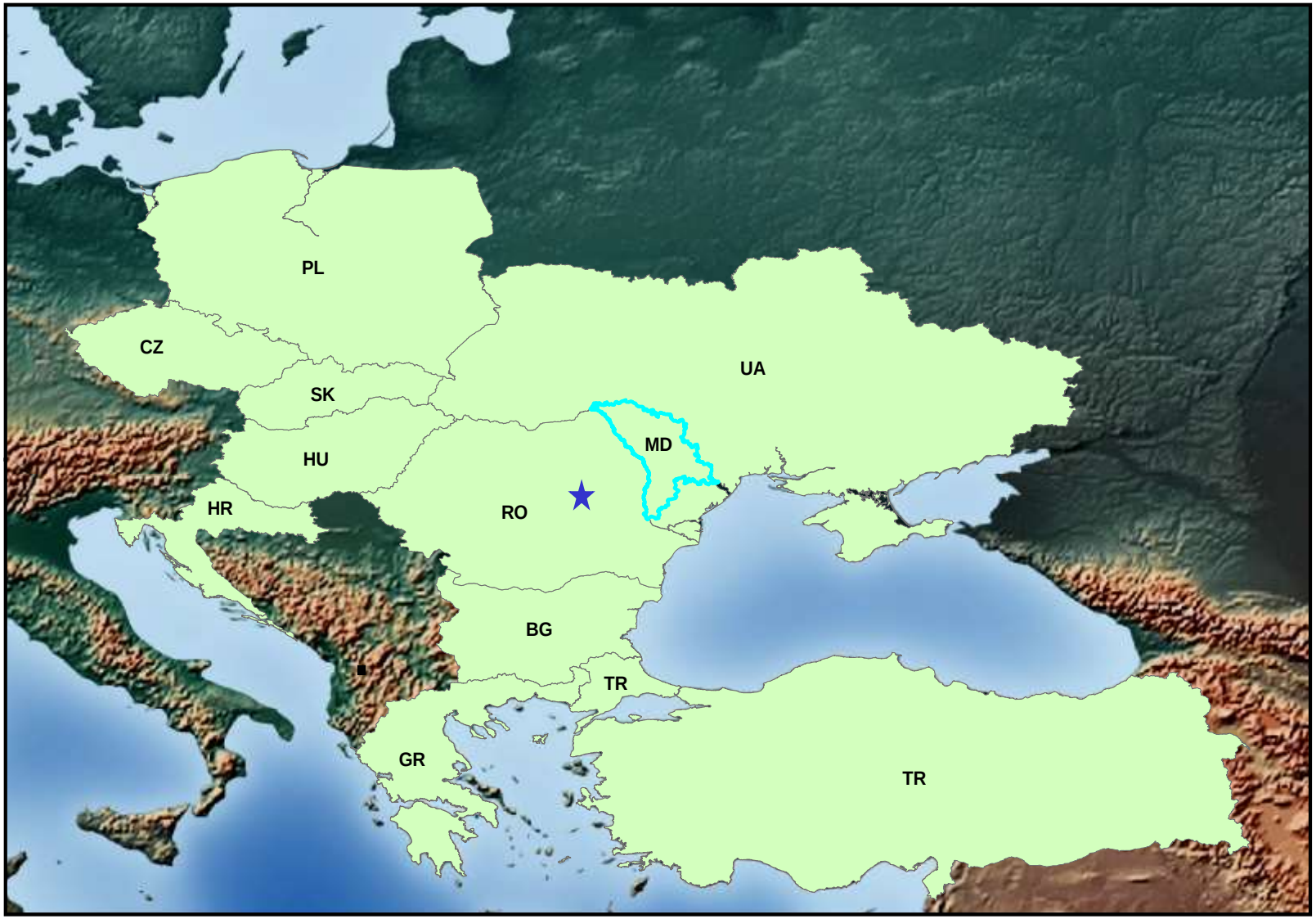
• to reach: Albania, Montenegro, Belarus

2013 SCERIN-1, Prague, CZ

2014 SCERIN-2, Krakow, PL



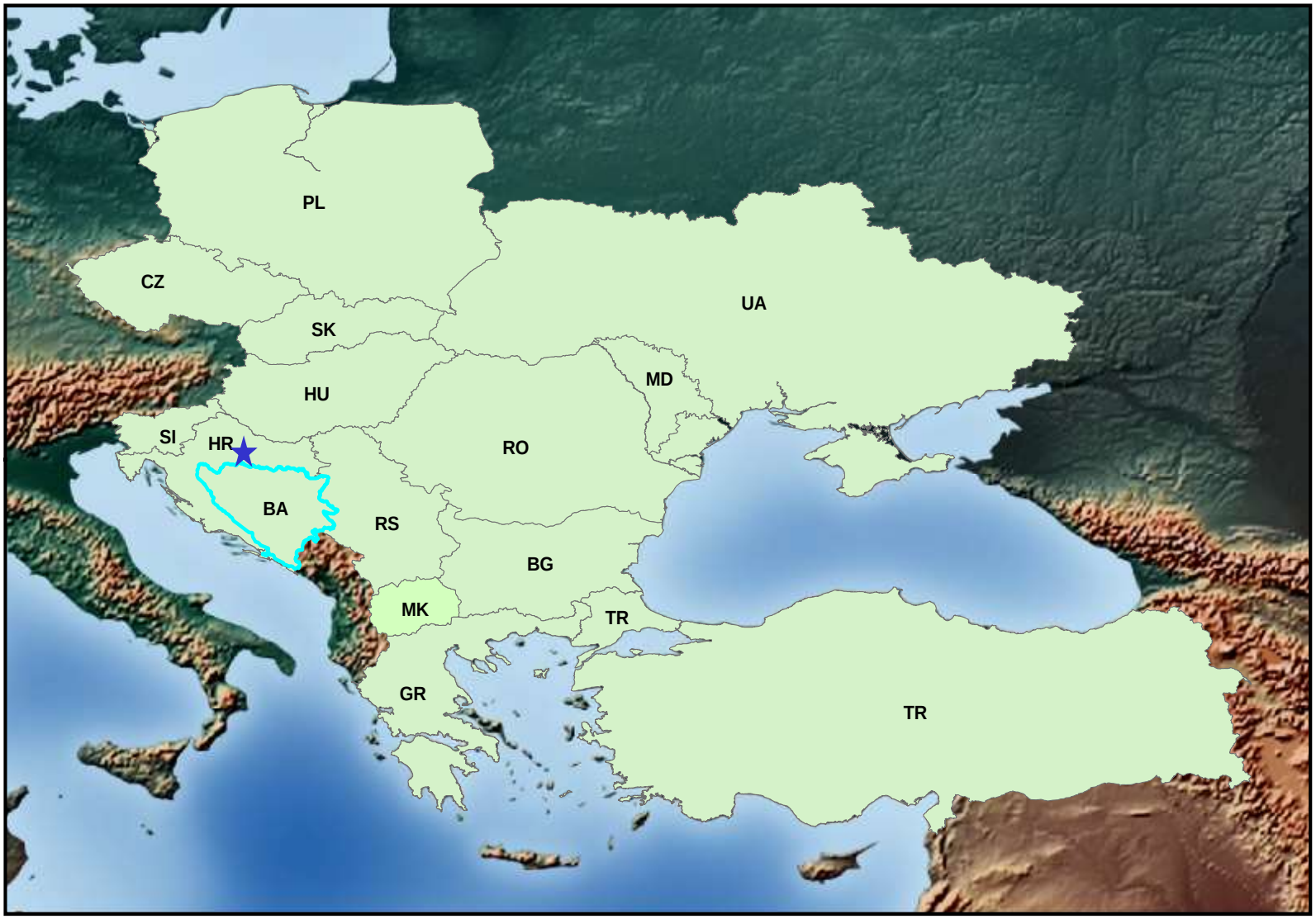
2015 SCERIN-3, Brasov, RO



2016 SCERIN-4, Zvolen, SK

2017 SCERIN-5, Pecs, HU

2018 SCERIN-6, Zagreb, HRV



2018 SCERIN-6, Zagreb, HRV

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

SCERIN Achievements

Established and growing RIN

Active network collaborations, including:

- Joint 4 research projects in progress (WS)
- Joint manuscripts, published and in preparation
- Joint presentations, proposals and ongoing collaborative efforts

SCERIN web resources

- ✓ http://www.fao.org/gtos/gofc-gold/net-SEERIN.html
- ✓ www.csebr.cz/scerin

Social media presence

- Facebook https://m.facebook.com/groups/1598067267142275
- LinkedIn https://www.linkedin.com/groups/8349564

SCERIN Challenges and Lessons Learned

Ongoing or work in progress

- evolving network structure and partnerships within the region
- maintain/update a network participants database – in progress
  - Participants, contacts, publications, involved institutions, etc.
- develop a regional collaborative database
  - Regional networks of relevance to SCERIN – leverage network activities
  - Regional sponsors offering potential for support
  - Relevant active projects, lead person, duration - collaborations
  - List of links to available data for collaborative projects

Challenges

- inviting reps not only from funding agencies but also from big private companies – Google appearance was good!
- Need more links to and involvement with funding agencies
- Need to involve stakeholders, political scientists, decision makers (invited lectures)

SCERIN Long Term Vision

- Include and actively involve all SCERIN countries
- 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 and EU research monitoring networks – long term data records across disciplines
- Collaboration with the other GOFC-GOLD RNs

The 3 Years Plan - Research

SCERIN's 3 most important research topics

1. Changes in vegetation cover, function (yield/assimilation) and ecosystem diversity with transition to free market, agricultural land abandonment and urban expansion
2. Regional LCLUC validation/verification of methods and products
3. Inbalance in the water regime of the SCEE, especially the Danube watershed (floods/droughts and fires) - ***NEW***

The 3 Years Plan – Capacity Building

- SCERIN database: active projects, data collections and publications
- Methods and tools for combined use of diverse datasets, for obtaining information across scales and at **relevant time step**
  - Change detection: Landsat + Sentinel + MODIS + Radar
  - Calibration: VHR + Spectroscopy
  - Canopy height and structure: photogrammetry and lidar

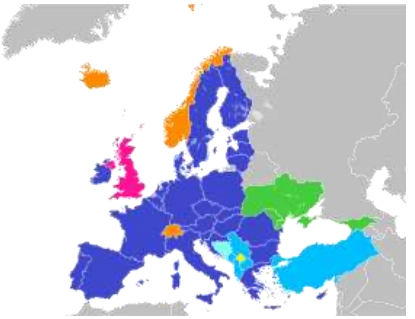
Activities in Progress / SCERIN-6 Agenda

- **Plenary session – set priorities** (day 1)
- **Research highlights – updates** (day 1)
- **SCERIN joint efforts for peer review papers** (day 2, leads Ioannis, Greg and Ivan)
  - Global land cover products validation (WS1)
  - Water management and ENVIRONMENT (WS2)
  - GIMMS analysis in SCERIN (WS3)
  - Using expert knowledge to explain LUCs from CORINE/LCC (WS4)
- **SCERIN & Observer programs inventory panel** (day 2, lead Jana, priorities, active projects)
- **New collaborative activities, projects, collaborations and venues** (day 2)
  - Examples, proposals
  - FG priorities goals, and milestones - discussions
- **Interactive SCERIN WebSite or WebPages** (*potential for START support*)
  - computer support, update and maintenance – Jana
- **Social media**: SCERIN Linked inn group page and Facebook presence - need suggestions

Potential Future Support

SCERIN 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 + SCERIN 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.**

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

Thank You