

COUNTRY HOT TOPICS

GOFC-GOLD Network: SCERIN / MedRIN

Country:

Team : Dániel Kristóf, Levente Ronczyk

Remote Sensing priorities or 'hot topics' (top 3-4)
Please provide a (short) description of the objective(s) of the project (max. 2-3 sentences)

- Climate Change is the driving force of many ongoing projects.
- ESA triggers several R&D projects (~ 2 million € for Earth Observation),
- NASA (last year visit of Dr. Garik Gutmann (as Embassy Science Fellow) deepened the cooperation between NASA and local scientists

Joint Workshop of the GOFC-GOLD SCERIN and MedRIN Networks

CIHEAM conference center, Chania, Greece, July 16 – July 19, 2024

Land Cover Change (LCC) and Extreme Events in the Context of Climate Change

Mediterranean Agronomic Institute of Chania

Region of Crete

Eratosthenes Center of Excellence, Cyprus University of Technology

Aristotle University of Thessaloniki

NASA LCLUC Program

GOFC-GOLD and START, USA



2024 INTERNATIONAL SOIL MOISTURE SCHOOL – EUROPE



July 14-17, 2024



Budapest University of Technology and Economics (BME), Budapest, Hungary, Europe

High quality soil moisture data from microwave missions using radiometry, synthetic aperture radar and reflectometry are crucial for weather forecast, flood forecasts, drought monitoring and crop yield predictions. The 2024 International Soil Moisture School – Europe (ISMS-E) will describe these measurement techniques and applications of the data from the ongoing European Space Agency (ESA) Soil Moisture Ocean Salinity (SMOS) and National Administration and Space Administration (NASA) Soil Moisture Active Passive (SMAP), CYGNSS and upcoming NISAR, HydroGNSS, CIMR, ROSE-L satellite missions.

SIGN UP HERE
before May 16, 2024



<https://sites.google.com/umass.edu/ieec-grss-isms/home-page/isms-2024-budapest>

Open call for participating at the 2024 International Soil Moisture School – Europe (ISMS-E) in Budapest. Full GRSS grants are available for students and young scientists both GRSS and non-GRSS members covering:

- ✓ Tuition fees
- ✓ Lodging and local transport in Budapest
- ✓ Meals



Contact:
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LECTURERS



Dr. Simon Yueh
organizer
NASA, JPL



Dr. Zsófia Kugler
organizer
BME Budapest



Dr. Jasmeet Judge
Univ of Florida



Dr. Rajat Bindlish
NASA, GSFC



Dr. Paul Siqueira
Univ of Massachusetts



Dr. Mehmet Kurum
Univ of Georgia



Dr. Seungbum Kim
NASA, JPL



Dr. Adriano Camps
Univ Polit. de Catalunya



Dr. Narendra Das
Michigan State Univ

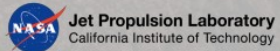


Dr. Jeffrey Walker
Monash Univ



Dr. Ágota Hórel
Inst for Soil Sciences

Organizers:
Dr. Zsófia Kugler & Dr. Simon Yueh



GOFC-GOLD Network: SCERIN

Country: HUNGARY

Team : Dániel Kristóf Vivien Pacskó Máté Simon

Delivery of national datasets using Machine Learning and Earth Observation practices

Objective:

Country-wide mapping of grasslands for the control of agricultural subsidies

In a couple of weeks

With high reliability

With up-to-date and repeatable methodology

Implementation plan:

Machine Learning based on time series of optical & radar data (including spectral indices and polarimetry), huge amount of training and test data

Based on literature review & expert input: Random Forest Learning

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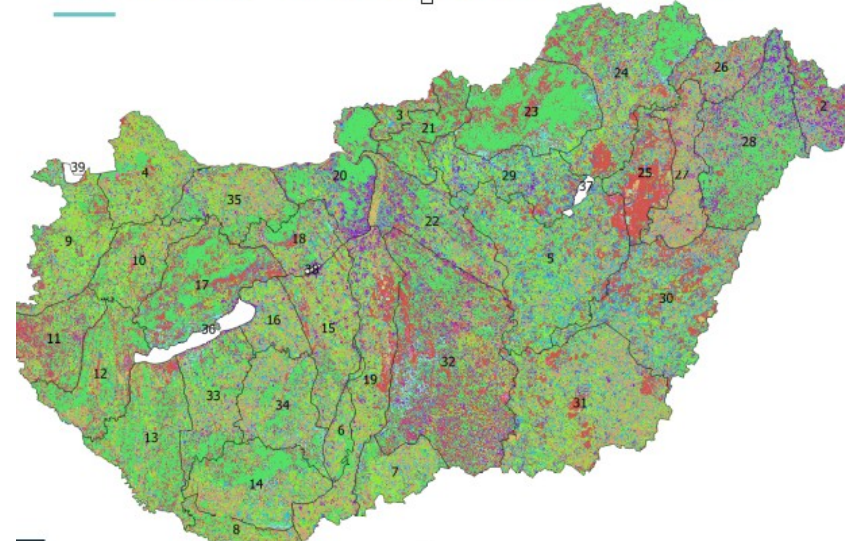
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GOFC-GOLD and START, USA



Country-wide results, 2021



| Zone | (%) | Zone | (%) | Zone |
|------|-------|------|-------|------|
| 2 | 90,76 | 14 | 96,95 | 26 |
| 3 | 93,88 | 15 | 97,33 | 27 |
| 4 | 96,28 | 16 | 98,18 | 28 |
| 5 | 94,97 | 17 | 87,88 | 29 |
| 6 | 98,08 | 18 | 96,03 | 30 |
| 7 | 97,57 | 19 | 93,33 | 31 |
| 8 | 96,88 | 20 | 92,89 | 32 |
| 9 | 96,27 | 21 | 93,98 | 33 |
| 10 | 93,98 | 22 | 94,71 | 34 |
| 11 | 95,25 | 23 | 89,99 | 35 |
| 12 | 94,21 | 24 | 92,02 | |
| 13 | 95,84 | 25 | 81,62 | |

| Categories | |
|------------------|------------------------------------|
| Winter cer. | Soy |
| Spring cer. | Deciduous forest |
| Maize | Needleleaf forest |
| Sunflower | Surface waters |
| Sugarbeet | Tobacco |
| Alfalfa | Grassland |
| Peas | Uncultivated grassland |
| Potato | Wet grassland |
| Rapeseed | Alkaline grassland |
| Vineyards | Grassland with herbaceous weeds |
| Orchards | Grassland with arboreal vegetation |
| Oil seed pumokin | Other |

GOFC-GOLD Network: SCERIN

Country: HUNGARY

Team : Lechner Earth Observation Center

Earth Observation Operations Centre > Agricultural Risk Management System

Objective:

- Maintenance and operation of the Earth Observation Information System
- Remote sensing processing and analysis
- Coordination of application and service development
- Professional coordination and consultancy
- Education and dissemination

Implementation plan:

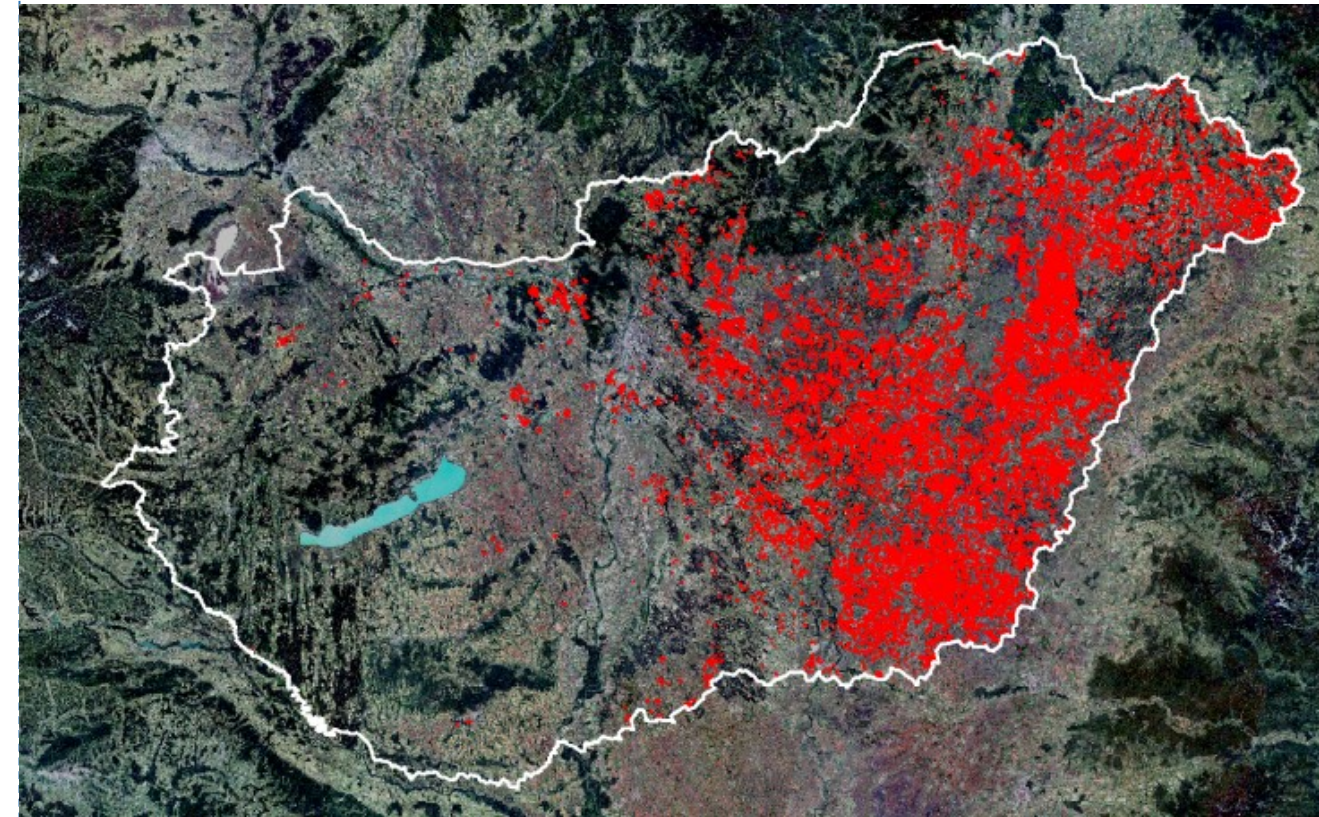
Specific EO subsystems:

- Disaster management:
 - Fire investigation
 - Monitoring of critical water infrastructure (InSAR)
 - Water management
 - Flood and inundation monitoring
- Forestry: detection of state, cuts, uninventoried forests
- Agriculture: crop and pasture mapping, drought monitoring

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GOFC-GOLD Network: SCERIN

Country: HUNGARY

Team : CropOM, Lechner Center of EO

Danube Data Cube

- Cloud-based data exploitation platform with data, ML and analytical tools
- Data cube technology and synergy between EO, GIS and Geophysical data
- Reflects the Digital Twin Earth concept of ESA to support sustainable development
- Support for two types of users:
 - Users for value added information (agriculture, water management etc.)
 - Service developers deploying value-added services on the platform

