Hungarian Space Office Liaison Report

PRESENTED BY GÁBOR REMETEY-FÜLÖPP
NATIONAL GEO CORRESPONDENT

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Outline

SRTM-based high-resolution Digital Terrain Model of central part of Hungary
Cover photo of the Geocarto International Vol 28 No 1-2, Feb-April 2013.
(Special Issue Remote Sensing and GIS in Hungary)

- News on the Hungarian Space Office (HSO)
- Selected Earth Observation Activities in Hungary and some key players
- Promoting the potentials and challenges related to the use of GI & EO to support the achievement of the UN SDGs
- State Earth Observation Information System
- Conclusions
- Selected references

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News on the Hungarian Space Office (HSO)

Established in 1992, HSO continues its work in the Ministry of Foreign Affairs and Trade as its Department of Space Activity.

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There is governmental will to increase the space budget annually and to participate in ESA optional programs, especially in EO as well as the R+D program of PRODEX more widely and strengthen links besides ESA with other international organisations, agencies.

Considering the role of the geospatial/EO information systems and services as infrastructural backbone in frameworks as the accomplishment of the UN 2030 Agenda, HSO is interested to take part in the work of WGISS.

Illustrations reflecting the connections of the Hungarian Geospatial/EO community with ESA and CEOS

ESA ESRIN's EARTHNET MEETING & WORKSHOP IN BUDAPEST (1986).

CEOS WGISS 21 & WGCV MEETING in BUDAPEST (2006)

WGISS-32 MEETING IN BUDAPEST (2011)

ESA ACCESSION SIGNING CEREMONY IN BUDAPEST (2015)

Selected Earth Observation Activities in Hungary

Current operational projects at GOCCB-DGRSLA

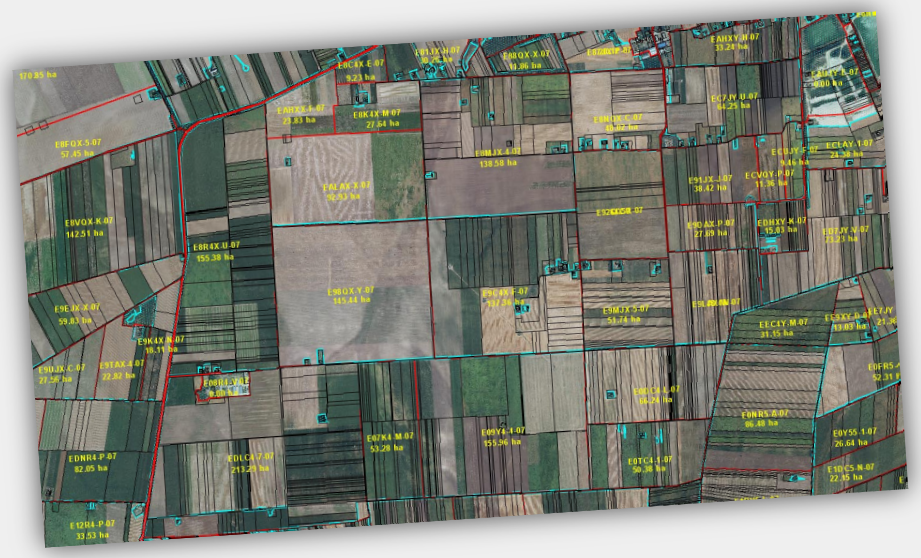
(earlier: FÖMI) ftf@bfkh.gov.hu – http://www.ftf.bfkh.gov.hu

Land Parcel Identification System (MEPAR)

GIS, mandatory for the administration of agricultural EU subsidies

Operational since 2004

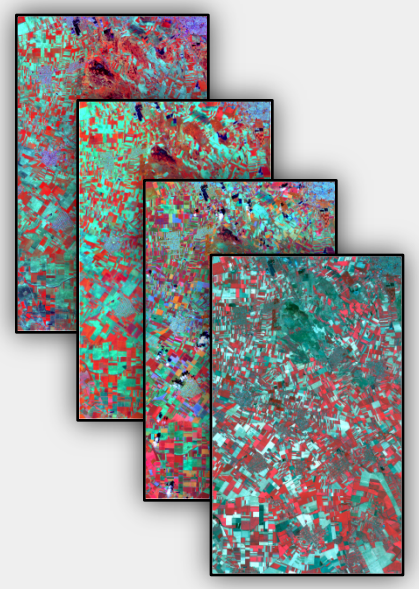
Continuous updating based on orthophotos and VHR imagery

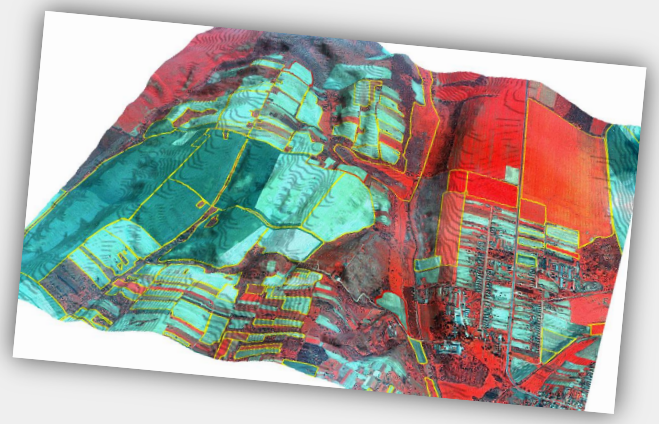


Control of Agricultural Subsidies with Remote Sensing (TámELL)

Operational since 2004

Based on time series of HR and VHR satellite imagery





Selected Earth Observation Activities in Hungary

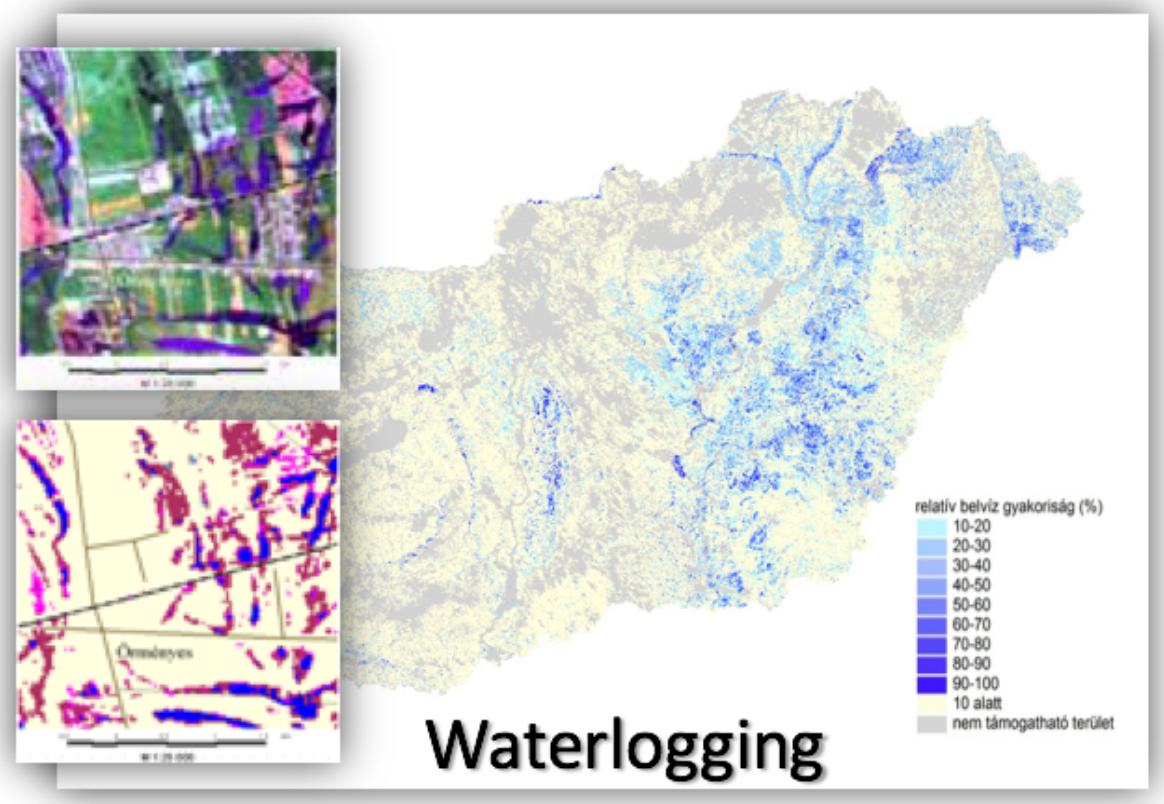
Current operational projects
at GOCCB-DGRSLA
(earlier: FÖMI)

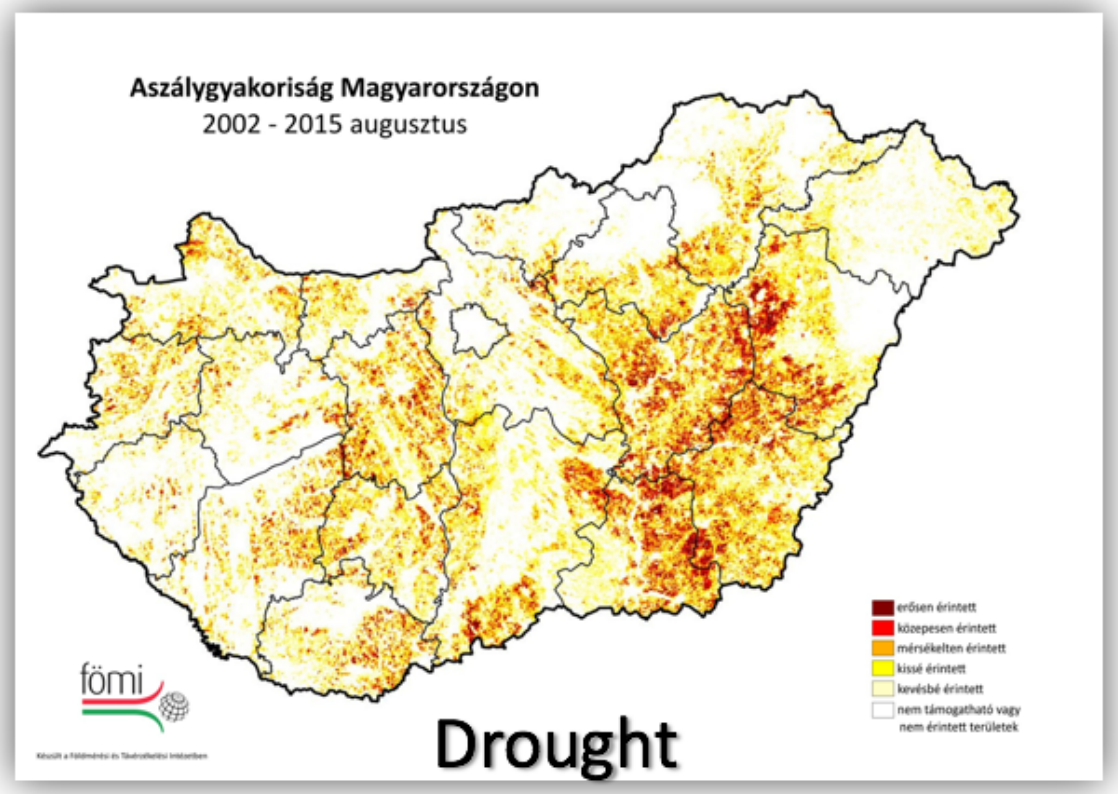
Agricultural Risk Management System (MKR)

Operational since 2014

Integrated governmental system to assess loss compensation requests

Operational provision of waterlogging /inundation and drought products



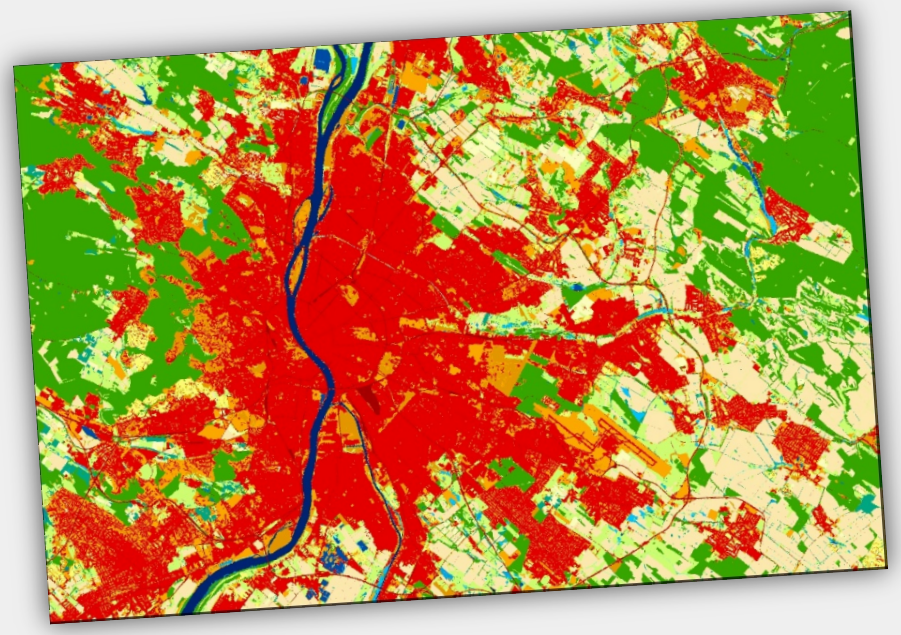


Selected Earth Observation Activities in Hungary

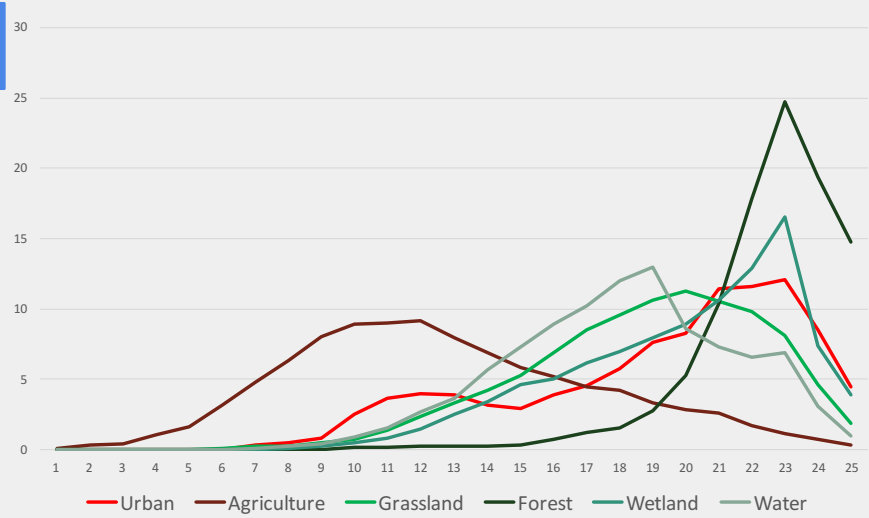
Country-wide mapping and status assessment of ecosystem services (NÖSZTÉP)

Led by the Ministry of Agriculture (Nature Protection)

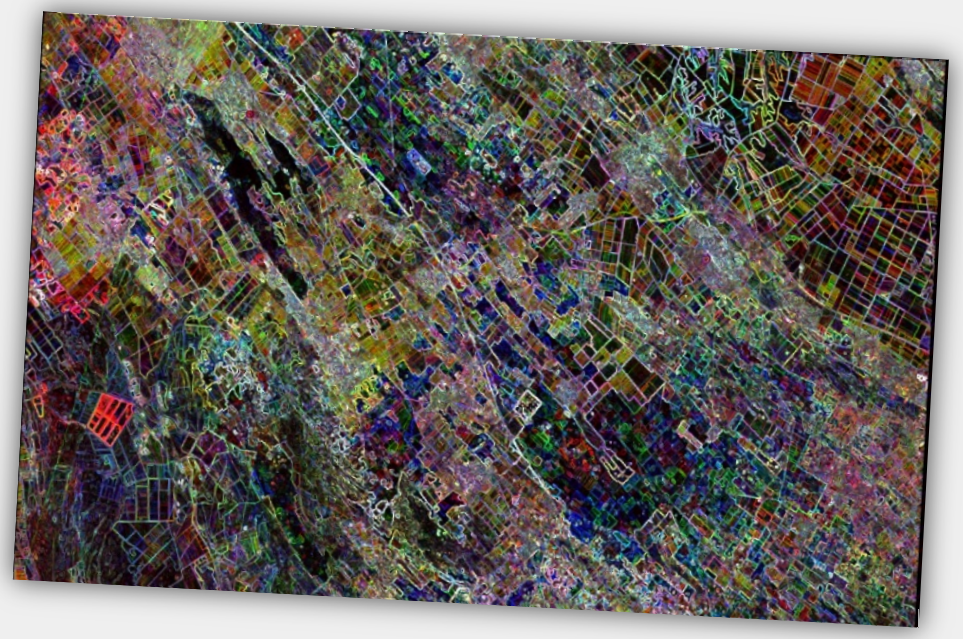
Contribution from various R&D and operational partners



Specific LC



Stability



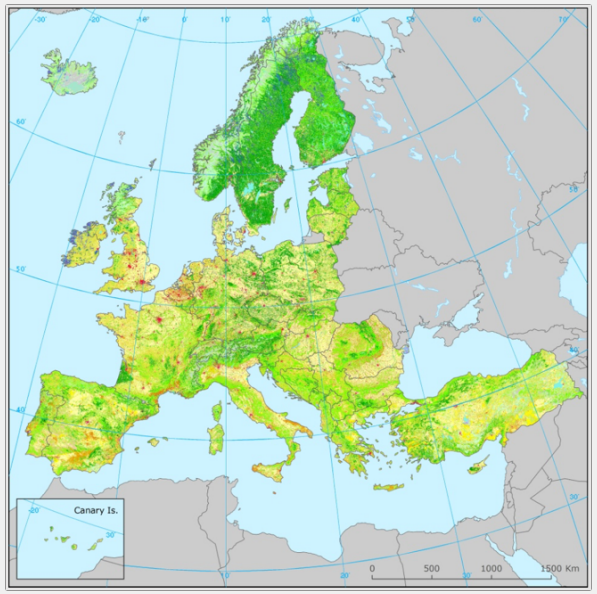
Current operational projects

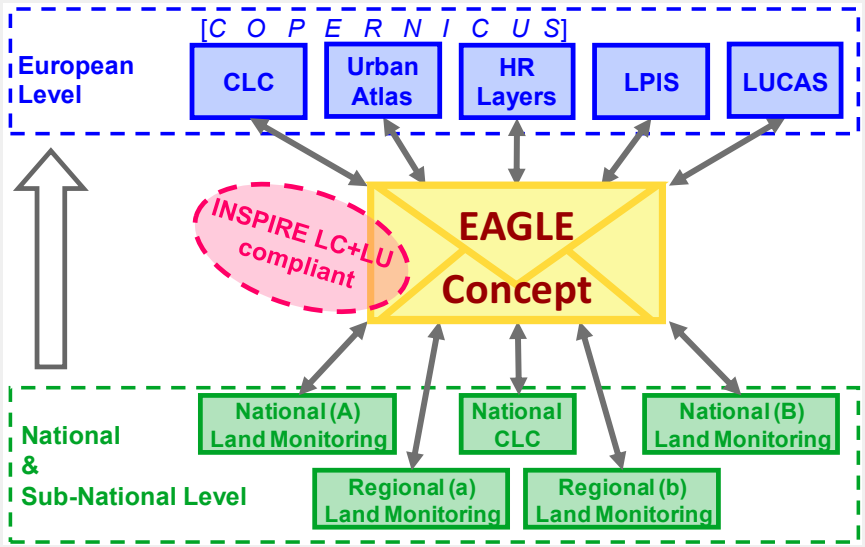
at GOCCB-DGRSLA (earlier: FÖMI)

ftf@bfkh.gov.hu – http://www.ftf.bfkh.gov.hu

Selected Earth Observation Activities in Hungary

→ 7th ADVANCED TRAINING COURSE ON LAND REMOTE SENSING
4–9 September 2017 | Szent István University | Gödöllő, Hungary





Working for **European Environment Agency (EEA)** as member in European Topic Centres since 2001:

2015- : **European Topic Centre – Urban, Land and Soil systems (ETC-ULS)**

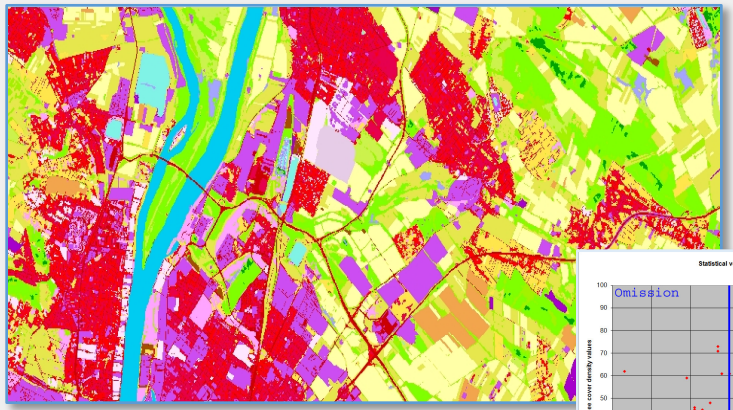
Key actor in the **coordination** of **European land cover mapping** activities (CORINE Land Cover a.o.): Development of **mapping and QA/QC guidelines**, **methodological developments**, **training** of national teams, **HelpDesk** for European countries

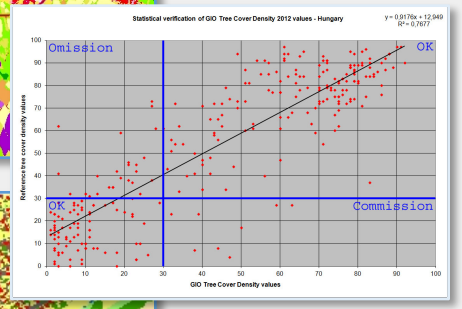
Participation in the **development** and testing **of LC/LU related environmental indicators** (land take, imperviousness & change)

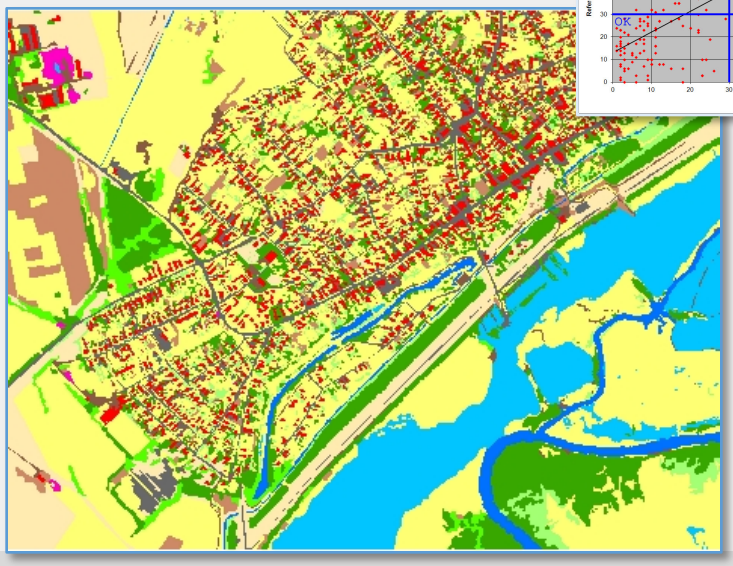
Participation in the development of a **European land monitoring strategy** (**EAGLE** working group, **FP7 HELM** project

GOCCB-DGRSLA (former: FÖMI) plays a key role in European land monitoring
ftf@bfkh.gov.hu – http://www.ftf.bfkh.gov.hu

National reference institution of land cover mapping







GOCCB-DGRSLA (former: FÖMI) National reference institution of land cover mapping
ftf@bfkh.gov.hu – http://www.ftf.bfkh.gov.hu

National Reference Centre land cover:

CLC update & change mapping for Hungary area
QA/QC of various European land cover products

Strong background in **visual photo-interpretation:**

Designing a **national 1:50.000 scale CORINE Land Cover map** (CLC50)
Development of a specific tool for visual photo-interpretation (InterChange used by many European countries for CLC mapping)

Key **methodological developments:**

Designing **change mapping method** for CORINE land cover updates – new standard for Europe
Testing EAGLE methodology in the practice – **harmonization of LC/LU related information**
Exploring **statistical comparability** of land cover products

Some key players in EO in Hungary

Competences and R&D at GOCCB-DGRSLA (FÖMI) in the EO context

Balanced use of quantitative and visual methods

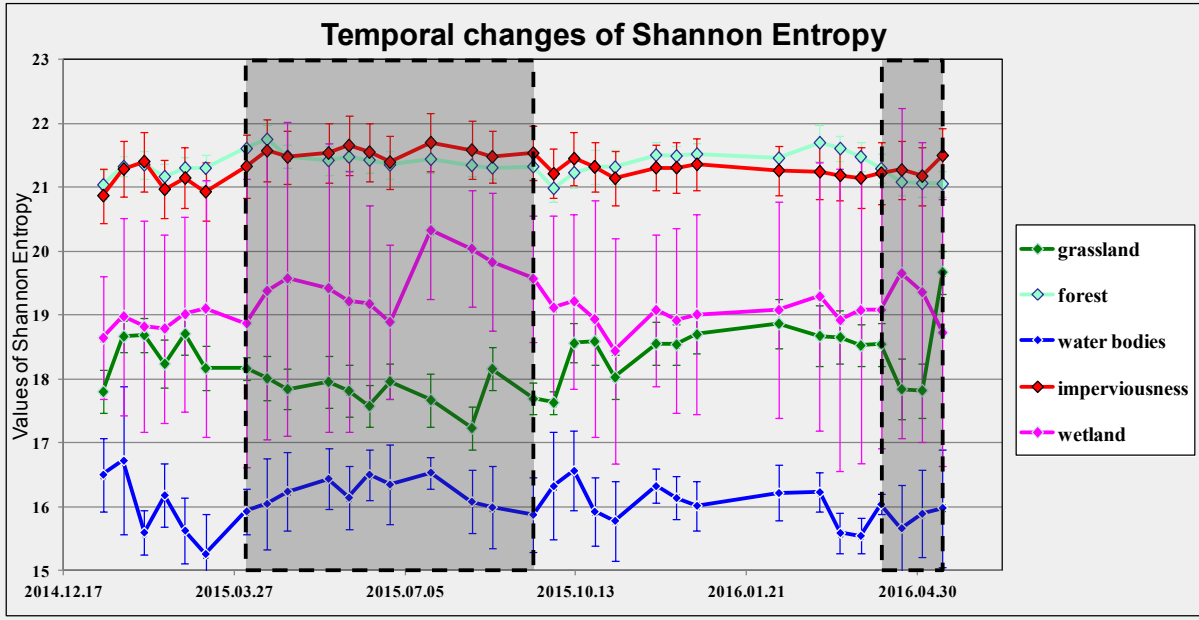
Combined use of different data sources

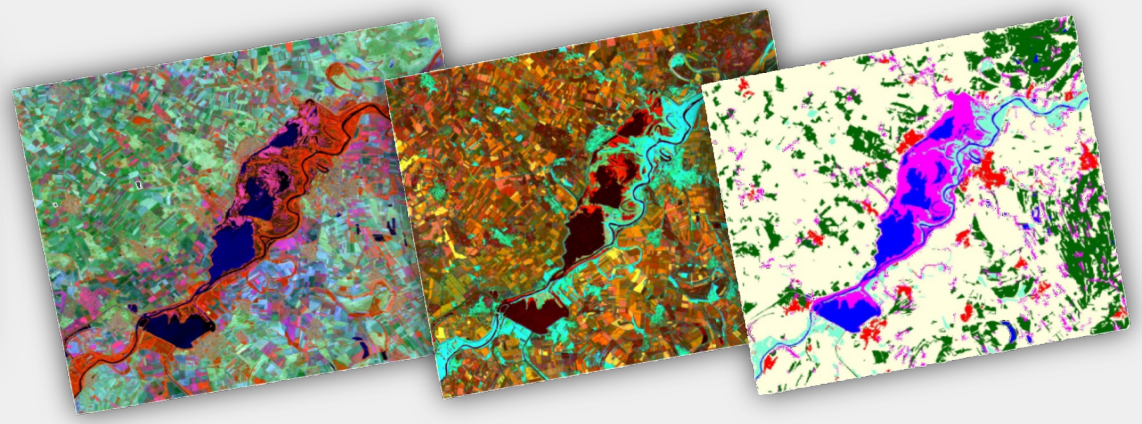
Airborne/space-borne remote sensing in optical and radar (fusion, polarimetry) range

Field surveys

Official: LPIS, cadastre, topography

Processing of big geospatial data (national, EU)



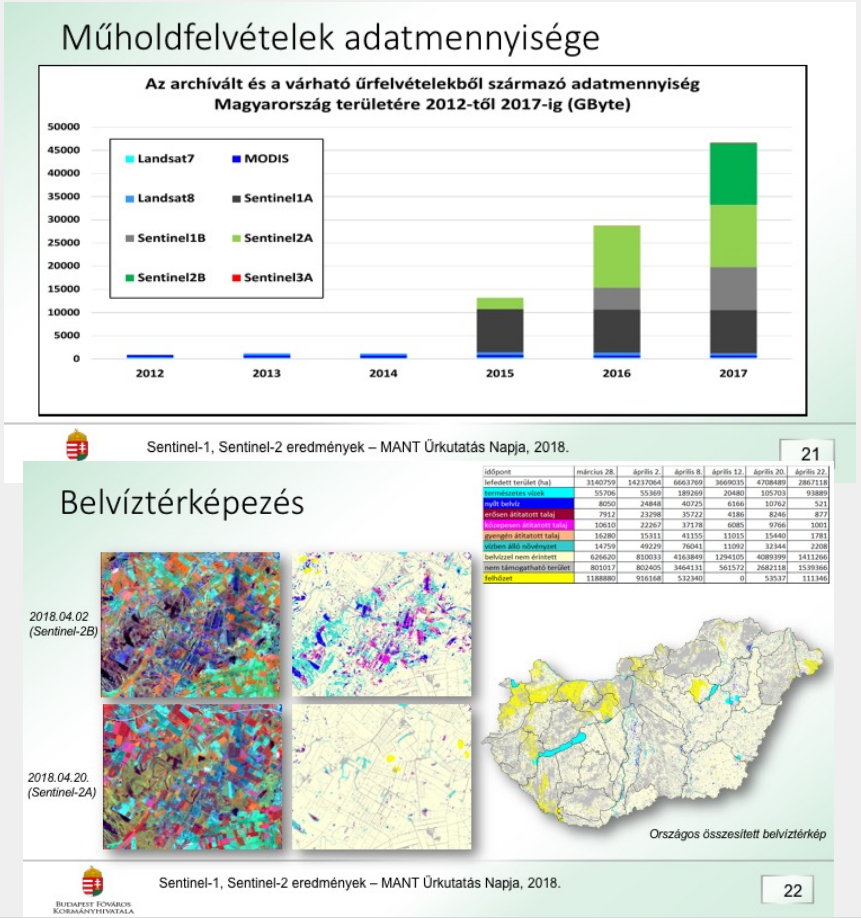


GOCCB-DGRSLA (former: FÖMI)
ftf@bfkh.gov.hu – http://www.ftf.bfkh.gov.hu

Some key players in EO in Hungary

Applications using Sentinel data at GOCCB-DGRSLA

(FÖMI) Source: Kristóf D. (2018)



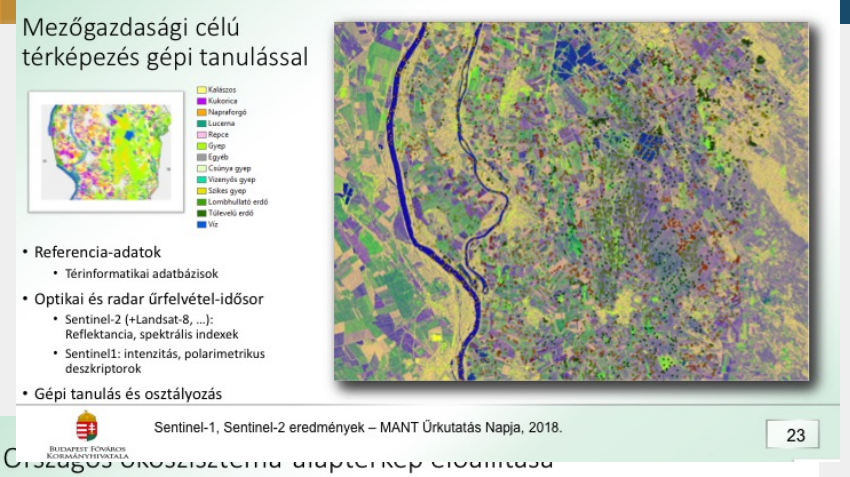
Sentinel -1, -2 data volumes for Hungary in 2012-2017

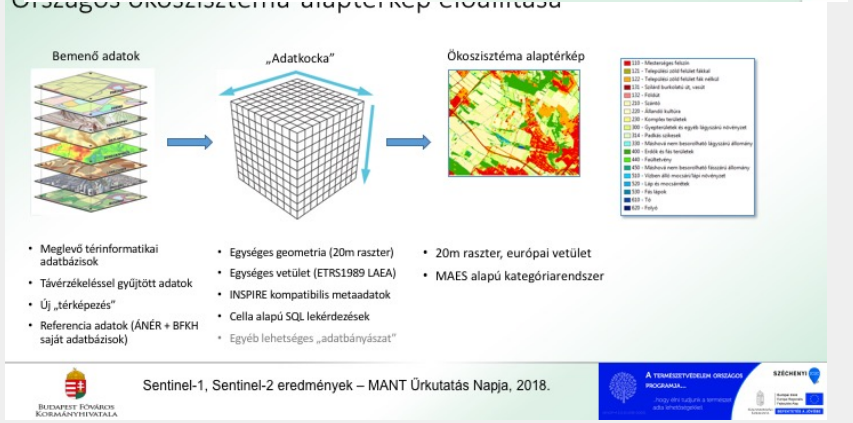
Some results :

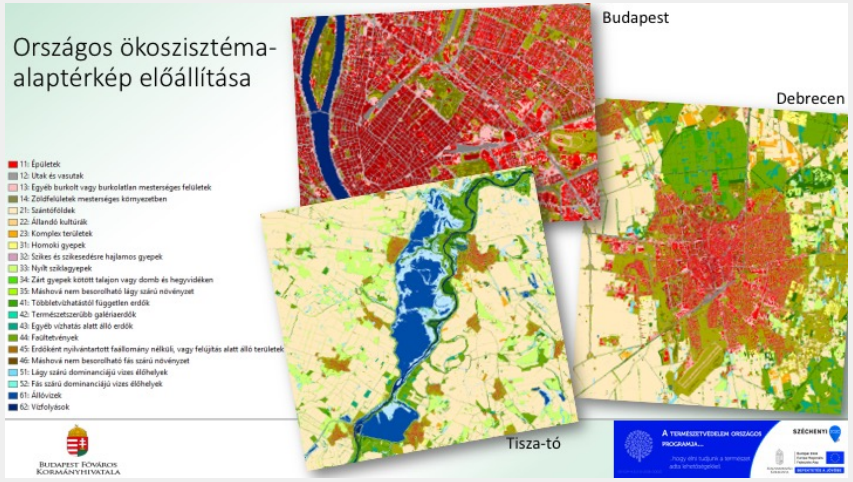
Inlog water mapping

Agricultural mapping supported by machine-learning

Establishment of the National Ecosystem Base Map using data cube approach







GOCCB-DGRSLA (former: FÖMI)
ftf@bfkh.gov.hu – http://www.ftf.bfkh.gov.hu

Some key players in EO in Hungary

Eötvös Loránd University, Budapest

Department of Geophysics and Space Science

- Since 1984: more than 90 projects
- Studying the plasmasphere of the Earth by electromagnetic waves
- Investigation of the vegetation based on Landsat/MMS and TM data
- Atmospheric correction of Landsat TM data (ACABA)
- Estimation and forecasting of crop yield using AVHRR and MODIS data
- Monitoring of the vegetation based on AVHRR and MODIS data
- Studying the plasmasphere of the Earth by electromagnetic waves
- Education

Department of Physical Geography

- Environmental reconstruction using UAV photogrammetry
- Flood modeling
- Geostatistical methods in remote sensing
- Heterogeneous forest classification by creating mixed vegetation classes using EO-1 Hyperion

Space Research Group (SRG)

- Satellite receiving station since 2002 (http://sas2.elte.hu/index-a.html)
- Automatic processing chain for the DB MODIS data – real time products derived

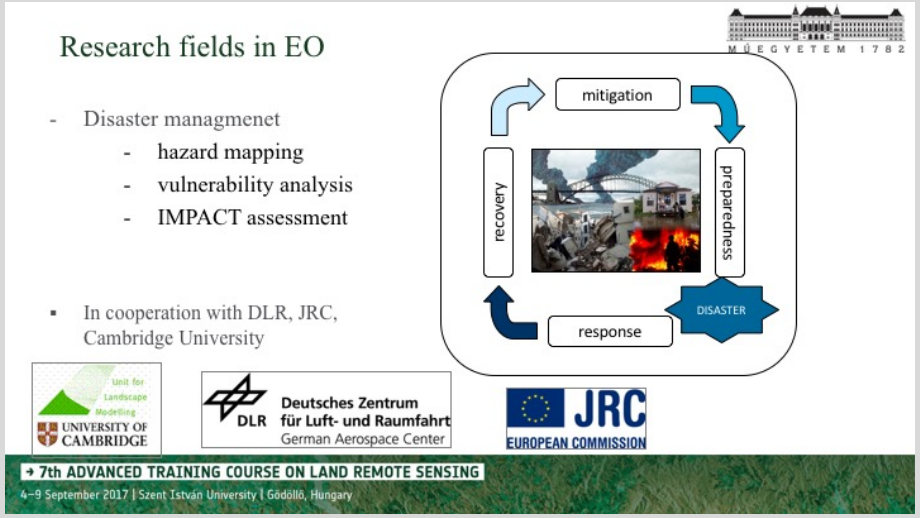
Faculty of Informatics

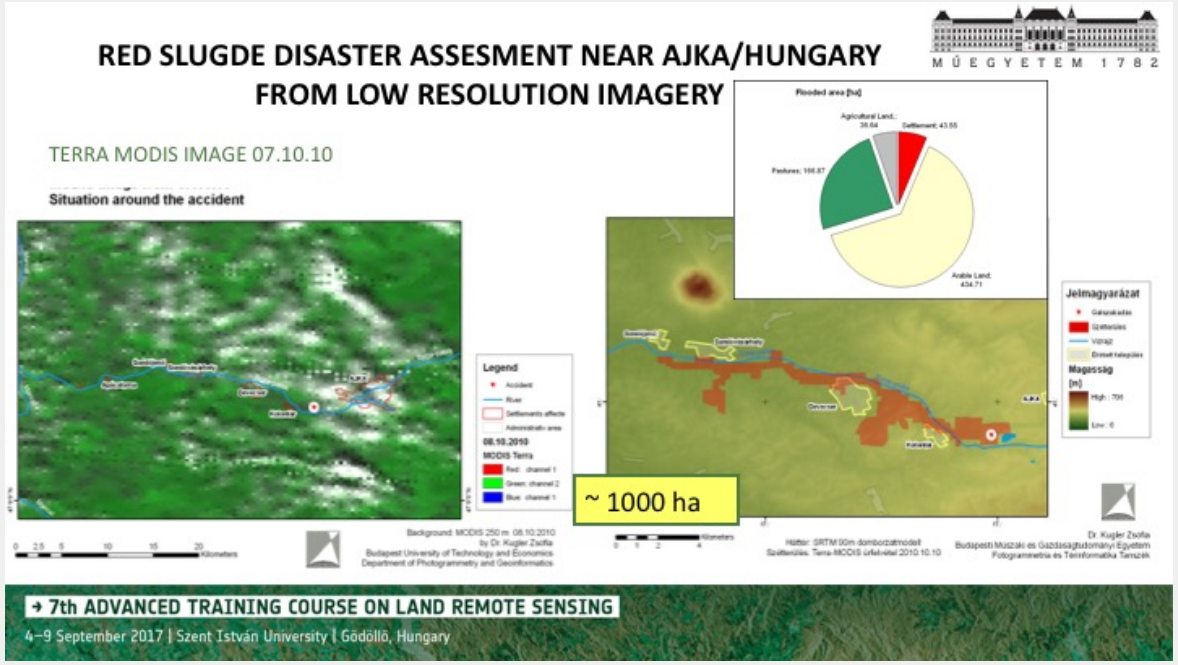
- Development of image processing algorithms and software
- Long-term collaboration in research and education with FÖMI: education, traineeship

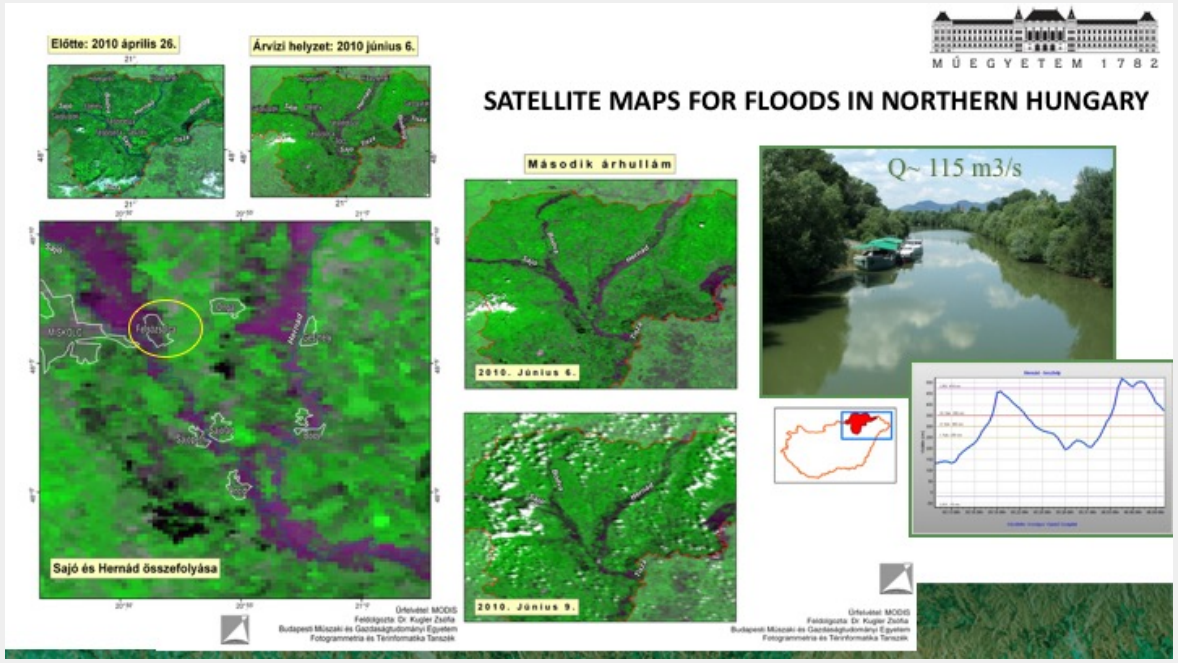
Some key players in EO in Hungary

Budapest University of Technology and Economics

Department of Photogrammetry and Geoinformation





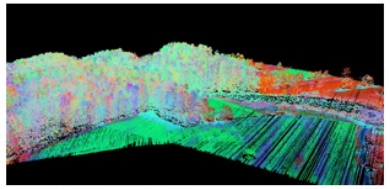


Some key players in EO in Hungary

Eszterházy Károly University Research Institute of Remote Sensing and Rural Development

Eszterházy Károly University
Research Institute of Remote Sensing and Rural Development

- The mission of the **EKU RIRSRD** is to conduct basic and ***applied remote sensing research*** for the advancement of scientific knowledge about the environment.
- Our team is responsible for conducting all phases of remote sensing operations, including ***flight/mission planning***, ***sensor maintenance***, ***data acquisition***, ***data processing***, ***data analysis*** and ***modelling***
- 10+ years experience:
  - R+D projects
  - Hyperspectral imagery
  - LIDAR and orthophoto
  - Satellite imagery
  - Image processing



→ 7th ADVANCED TRAINING COURSE ON LAND REMOTE SENSING
4–9 September 2017 | Szent István University | Gödöllő, Hungary

Eszterházy Károly University
Research Institute of Remote Sensing and Rural Development

The institute focuses on the environmental applications of state-of-the-art remote sensing and GIS systems, as well as the development of techniques to enhance the usefulness of these systems. Hyperspectral (HS) applications are of special interest.

An ***Aisa FENIX 1K*** the top-of-the-range full spectrum (380 – 2500 nm spectral range) sensor with 1024 spatial pixels used for airborne collection operations. This sensor is capable to record more than 600 bands up to 0.5 m ground resolution

Leica ALS-70 HP sensor with high accuracy GPS/INS **and Leica RCD 30 RGBN 60 MP** digital medium format camera

SGI UV 2000 supercomputer and **SGI Octane III** high-performance graphics workstations

Infrastructure:
A technology chain capable to carry out advanced airborne RS applications from planning to visualisation.
Features:

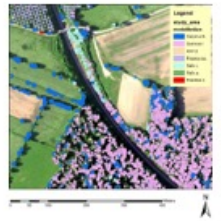
- Hyperspectral imagery
- LIDAR and orthophoto
- Satellite imagery
- Image processing and GIS

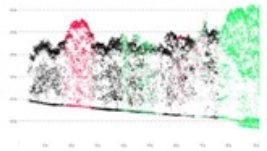
Eszterházy Károly University
Research Institute of Remote Sensing and Rural Development

Airborne acquisition of large areas

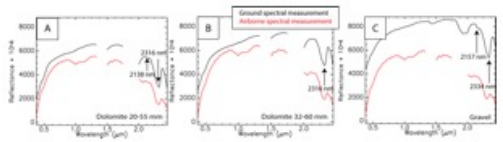
Drenthe province of the Netherlands, AOI area: 2698,15 km²

Developments in image- and point cloud processing





Vegetation and forest mapping

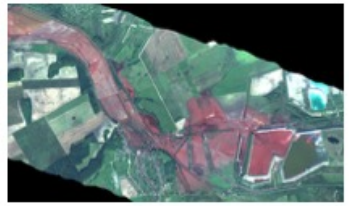


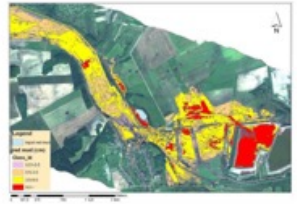
Spectroscopy

Eszterházy Károly University
Research Institute of Remote Sensing and Rural Development

United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN SPIDER RSO) office in Hungary - 12th office in the World. Institutional support of the disaster and emergency response program of the United Nations SPIDER. UN-SPIDER is being implemented as an open network of providers of space-based solutions to support disaster management activities.

MULTI-SENSOR INTEGRATION FOR THE DETECTION AND REMEDIATION OF THE RED MUD SPILL IN KOLONTAR, HUNGARY: ESTIMATING THE THICKNESS OF THE SPILL LAYER USING HYPERSPECTRAL IMAGING AND LIDAR





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Some key players in EO in Hungary

Satellite Remote Sensing at **University of Szeged**, Department of Physical Geography and Geoinformatics

Satellite Remote Sensing at University of Szeged,
Department of Physical Geography and Geoinformatics

Since 1995:
- Education
- Multidisciplinary research
- Projects

Applications:
- Drought
- Inland Excess Water
- Flood
- Vegetation monitoring
- Urban environment

Researcher staff:
- Henits László
- Kovács Ferenc
- Ladányi Zsuzsanna
- Mucsi László
- Szatmári József
- Tobak Zalán
- Van Leeuwen Boudewijn

+ other collegues, PhD and MSc students

Features

Education

Multidisciplinary research

Projects

Applications:

Drought

Inland Excess Water

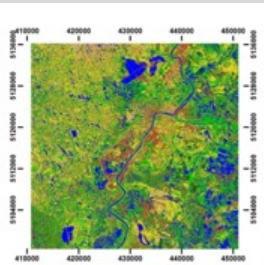
Flood

Vegetation monitoring

Urban environment

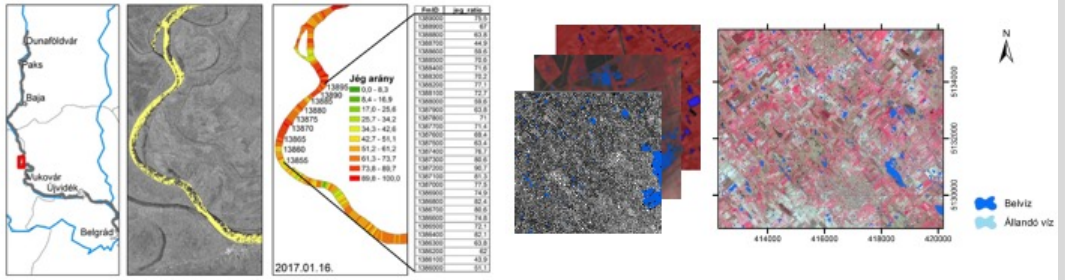
WATER

- Inland Excess Water
- River ice coverage



Data:
- Landsat
- RapidEye
- Sentinel 1
- Sentinel 2

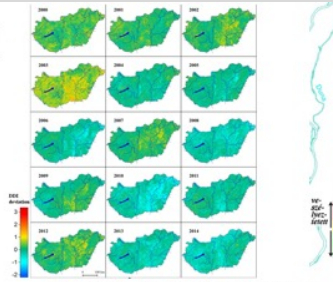
Methods:
- Multispectral classification (Isodata, ML, SAM, SMA)
- Multispectral indices
- Artificial Neural Networks
- Spectral slicing



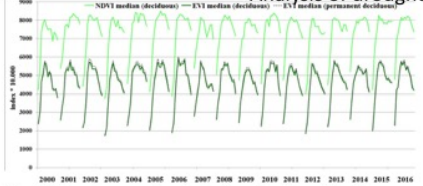
VEGETATION

Data:
- MODIS products (MOD13Q1, MOD13A1, MOD09A1)
- LANDSAT OLI

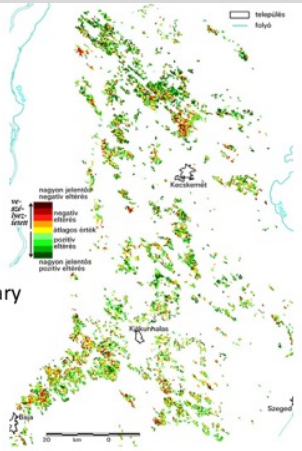
Methods:
- Multispectral indices Vegetation, Water and Drought Indices (NDVI, EVI, DDI, NDDI, NDWI)



Analysis of drought in Hungary



Vegetation changes: forests in Danube-Tisza Interfluve

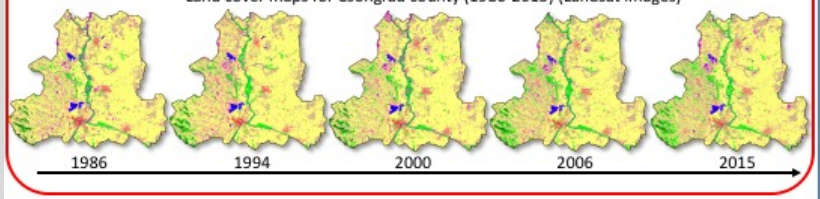


Climatic sensitivity of forests in Danube-Tisza Intefluve (on the basis of EVI)

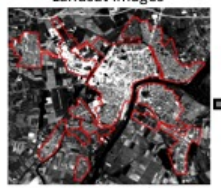
URBAN – Land cover & Land use

COUNTY LEVEL

Land cover maps for Csongrád county (1986-2015) (Landsat images)

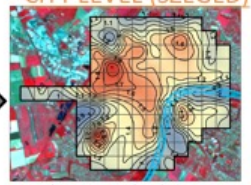


Landsat images



Fraction images showing the ratio of impervious surfaces

CITY LEVEL (SZEGED)

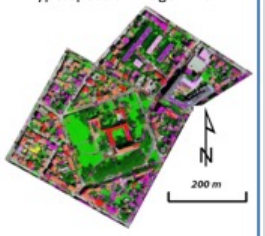


Urban Heat Island Map

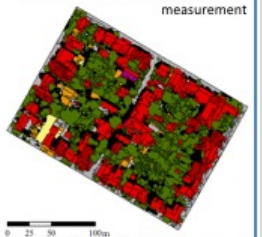
Sentinel-2 images

DISTRICT LEVEL

Hyperspectral image + DSM

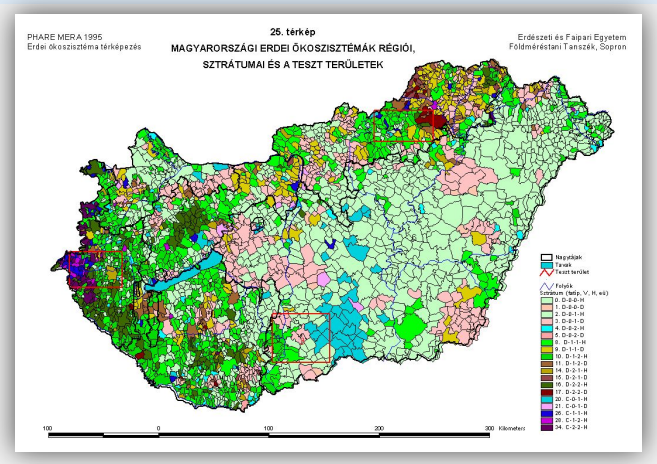


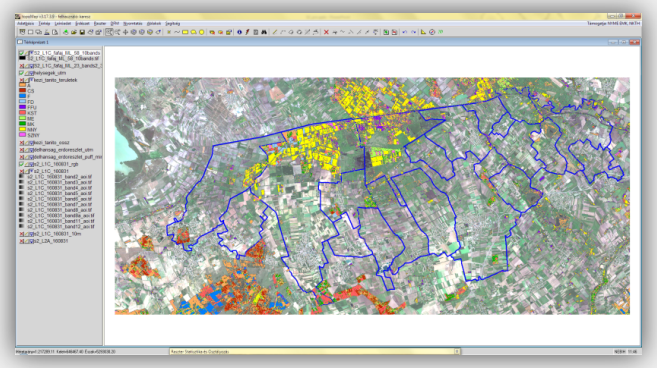
Hyperspectral image + Laboratory measurement



Some key players in EO in Hungary

University of Sopron Faculty of Forestry, Department of Surveying and Remote Sensing





Features

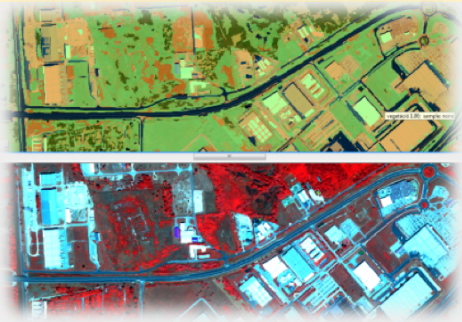
- Forest ecosystem mapping
- Participation in the development of TopoLynx / DigiTerra software (GIS and image processing)
- Development of new image classification methods
- Object-based image analysis / eCognition trainings
- Participation in the preparation of the Hungarian Earth Observation Information System (FIR) – Forestry module

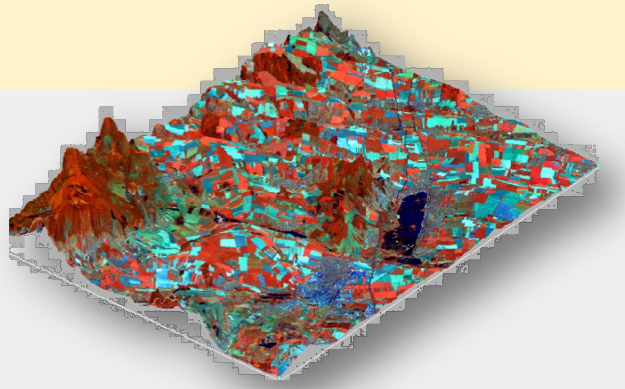
Improve temporal and spatial resolution of forest inventory with Sentinel-2 products using highly automated methods

Óbuda University Alba Regia Technical Faculty, Székesfehérvár

Features

- Remote sensing in agriculture
- Research related to soil quality protection
- Land cover and land use mapping, change detection
- Accuracy and application opportunities of digital elevation
- Remote Sensing of Urban Ecology
- Development of classification methods
- Hungarian-Chinese Intergovernmentals Cooperation Pro
- WAREMA (LC, LU)
- Education



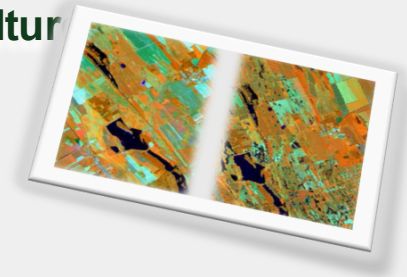


Some key players in EO in Hungary

Óbuda University
Alba Regia Technical Faculty, Székesfehérvár

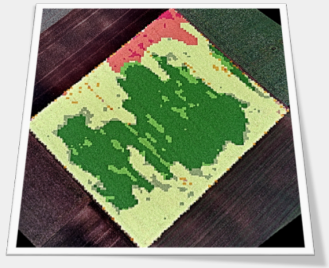
R+D activities

Remote Sensing applications in agricultur



- Agri-environmental problems
- Soil erosion
- Extreme water balance situations
- Precision agriculture

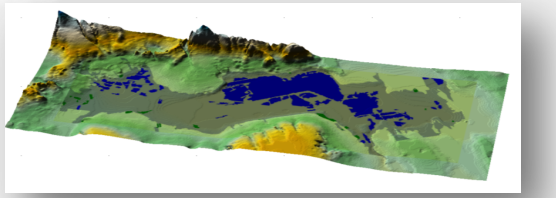
Precision agriculture



- Effects of irrigation systems
- Vegetation monitoring
- Management zone mapping

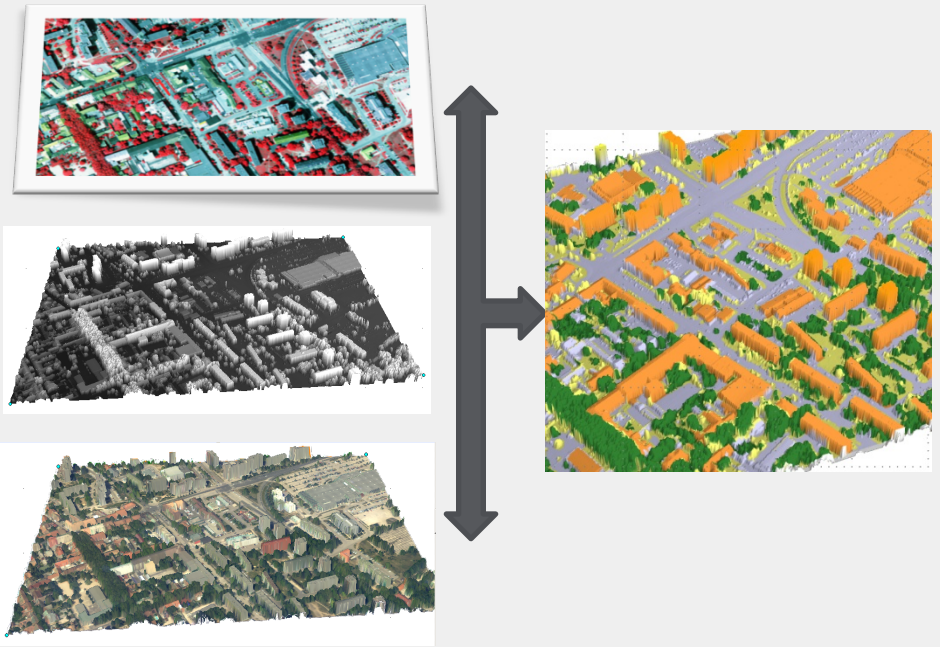
Protection of soil quality

- Land cover/land use mapping
- Soil erosion, and phosphorous load
- observation on agricultural land
- Soil erosion assessment
- **Mapping land cover and**
- **its long-term changes**



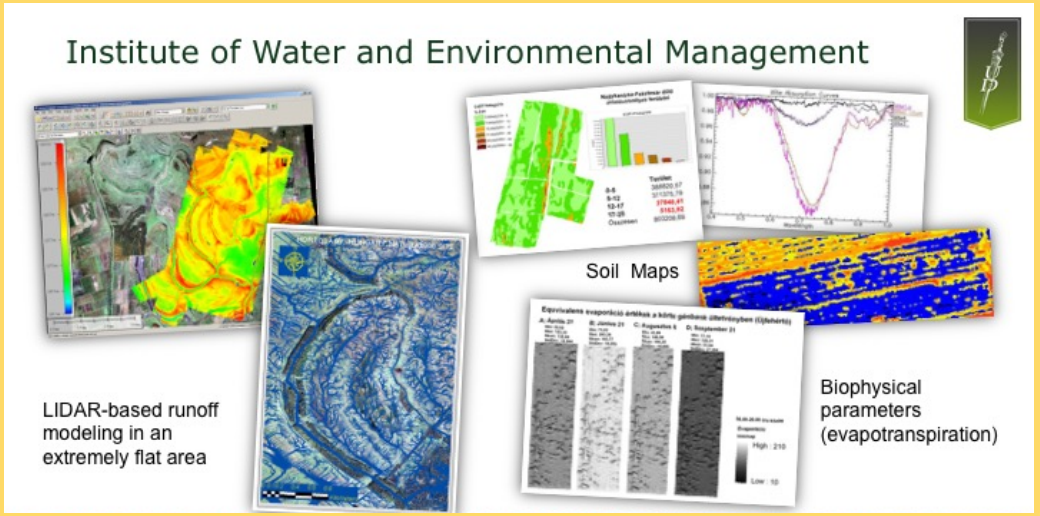
Remote Sensing in Urban Ecology

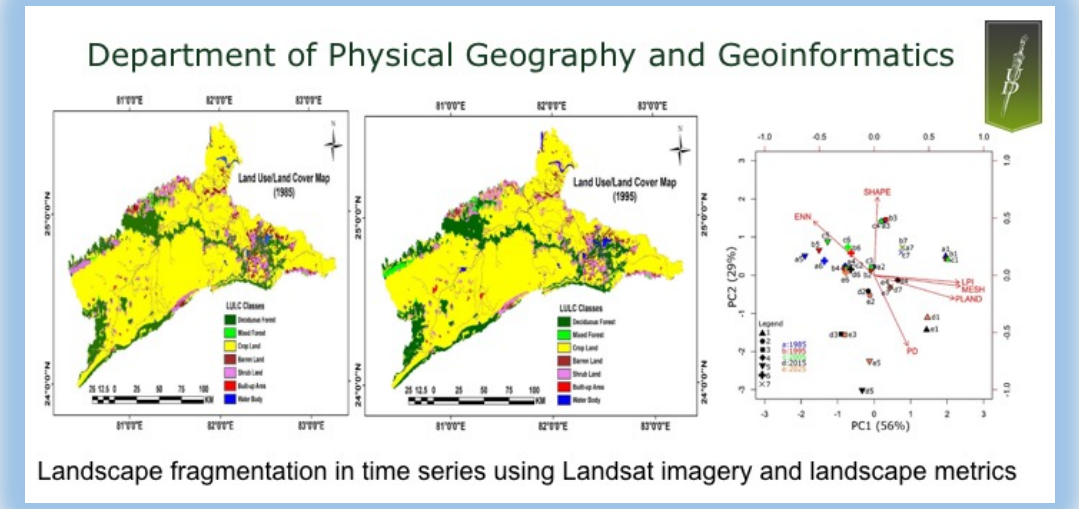
- Land cover mapping
- Building extraction (LIDAR)
- Mapping impervious surfaces within parcels
- Use of high spatial resolution imagery and GIS techniques
- Investigating urban sprawl through integrating remote sensing and other thematic maps



Some key players in EO in Hungary

University Debrecen





Institute of Water and Environmental Management

RS staff: 7

RS as obligatory subject from 1997

Main topics:

- Applied GIS-GNSS
- DEM
- Remote sensing
- Hyperspectral Image Spectroscopy
- LIDAR
- MobilGIS- Near field RS

Projects

- Soil remediation
- Precision agriculture
- Integrated watershed management
- Environmental impact assessment

Dept. of Physical Geography and Geoinformatics

- Land Use / Land Cover classification, modeling and dynamics
- Landscape metrics
- Extraction of water-related
- features

Some key players in EO in Hungary

Dennis Gabor College

Features

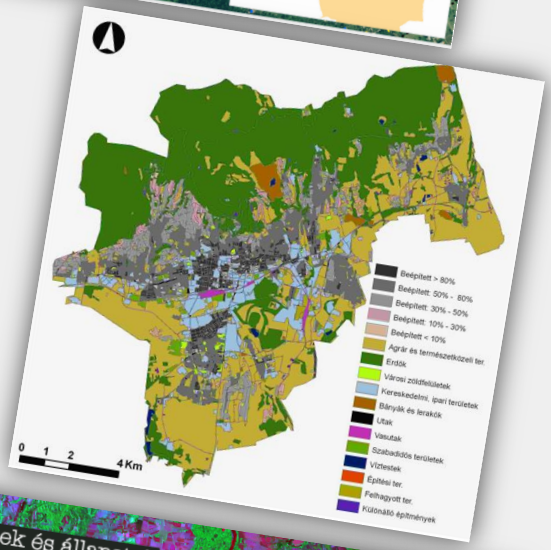
- Development of image processing algorithms
- Mapping invasive plants (in cooperation with the University of Pannonia)
- Multispectral detection of plant stress
- Disaster management (red mud RS team lead)

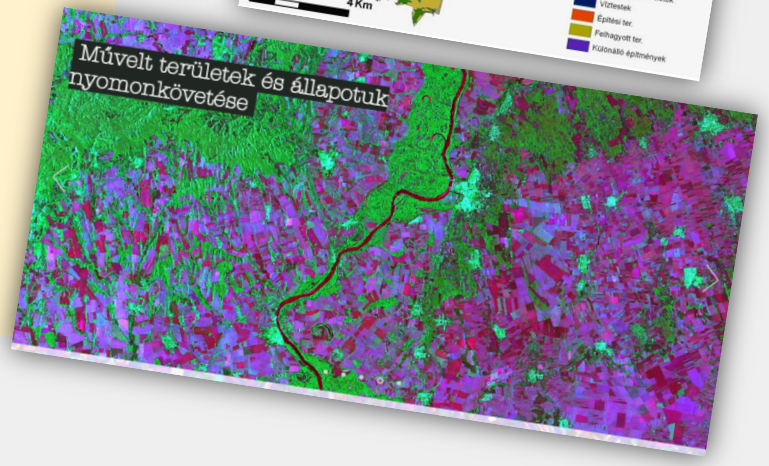
University of Pécs
Institute of Geography

Features

- Environmental change
- Water management
- Image processing
- Object-based Image Analysis
- Urban applications
- GIS

- SAR processing / Sentinel-1
- Agricultural applications
- Surface deformations
- Inland excess water
- Disaster management
- Supercomputer
- International cooperation





Some key players in EO in Hungary

Szent István University, Gödöllő

Faculty of Agricultural and Environmental Sciences

- **Institute of Botany and Ecophysiology:** Mesasurement and modelling of evapotranspiration and green house gas fluxes in vegetation by proximal and remote sensing
- **Institute of Environmental Science:** RS applied to water resources
- **Institute of Nature Conservation and Landscape Ecology:** Environmental monitoring, Land use analysis, Landscape metrics, GIS

Faculty of Landscape Architecture

- **Dept. of Landscape Planning and Regional Development:** Land cover / land use, Landscape metrics, GIS

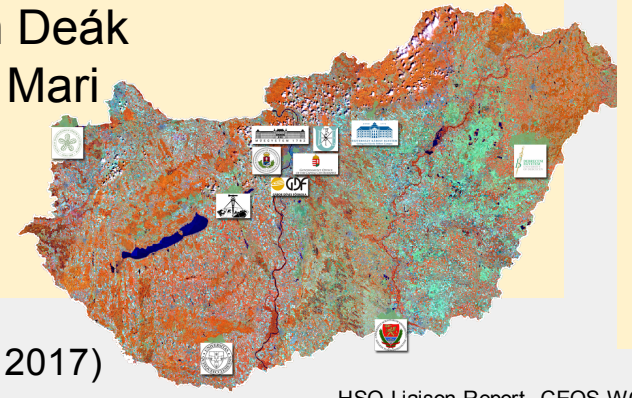
Faculty of Horticultural Sciences

- **Technical Department:** Precision horticulture, Agricultural geoinformatics, Imaging and field spectroscopy, High-resolution sensing

The Remote Sensing Community and penetration in Hungary – Academia Contributors to this section

FÖMI/BFKH:
Péter Winkler
György Büttner
György Surek
Gábor Mikus
Gergely Maucha
István László
Márta Belényesi
Angéla Olasz

Eötvös Loránd University:
Anikó Kern
Gábor Tímár
Márton Deák
László Mari



(Kristóf D. 2017)

Eszterházy Károly University:
Péter Burai

Budapest University of Technology and Economics:
Árpád Barsi
Zsófia Kugler

University of Szeged:
Boudewijn van Leeuwen

University of Sopron:
Géza Király
Iván Barton

Óbuda University:
Malgorzata Verőné Wojtaszek

University of Debrecen:
János Tamás
Szilárd Szabó

Dennis Gabor College:
József Berke

Szent István University:
Zoltán Nagy
Márta Belényesi
Zoltán Vekerdy
András Jung

GeoIQ Ltd.
Gábor Kákonyi

Promoting the potentials and challenges related to the use of Geospatial Data and Earth Observation for support the achievement of the Sustainable Development Goals

CONTRIBUTORS: MIHÁLY SZ., PALYA T., ZENTAI L., REMETEY-FÜLÖPP G.

ALL MEMBERS OF THE
HUNGARIAN SOCIETY OF SURVEYING, MAPPING AND REMOTE SENSING (MFTTT)

HSO Liaison Report. CEOS WGISS-46 Meeting hosted by DLR, Oberpfaffenhofen, 22-25 October, 2018

The context

On 25 September 2015 world leaders in the UN General Assembly agreed to a definitive plan called the UN 2030 Agenda by adopting 17 Sustainable Development Goals (SDGs)

"For the SDGs to be achieved, everyone needs to take Action"

In Hungary, an Ad-hoc Team of the Hungarian Society of Surveying, Mapping and Remote Sensing MFTTT has been mandated to promote the potentials and challenges related to the use of Geospatial Data and Earth Observation for support the achievement of the Sustainable Development Goals

The early achievements have been reported to the UN SDG Action Campaign, the Global Day of Action on 25 September 2018

action partner
WE #ACT4SDGs
JOIN THE GLOBAL DAY OF ACTION ON 25 SEPT ACT4SDGS.ORG

Hungarian Society of Surveying, Mapping and Remote Sensing is Partner of ACT4SDGS.ORG

http://act4sdgs.org/partner/HU_MFTTT

SUSTAINABLE DEVELOPMENT GOALS
ACTION CAMPAIGN

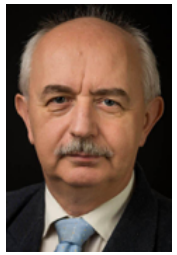
MFTTT

MFTTT GI/EO4SDG - Who we are?

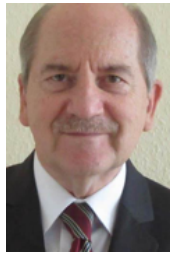
Members of the Hungarian Society of Surveying, Mapping and Remote Sensing (MFTTT) formed an ad-hoc team to raise awareness on the opportunities and challenges in access and use the EO/geospatial data for Sustainable Development Goals and to strengthen the engagement of stakeholders

Hon.Prof.Szabolcs MIHÁLY PhD, 1943, recently retired. Last positions: Director, Institute of Geodesy, Cartography and Remote Sensing, Hungary (1997-2010); Hungarian delegate to INSPIRE of European Commission (2011-2012)

Tamás PALYA, 1974, Government Office of the Capital City Budapest, Department of Geodesy, Remote Sensing and Land Offices (BFKH FTFF) Vice-chair of QKEN (Quality Knowledge Expert Network) at EuroGeographics; Hungarian member of the INSPIRE Maintenance and Implementation Group.



Prof. László ZENTAI PhD, DSc., 1959, Department of Cartography and Geoinformatics, ELTE Eötvös Loránd University, Budapest. Last positions: Secretary-General of the International Cartographic Association (2011–), Vice-Rector of ELTE Eötvös Loránd University (2007–2010; 2017–), Council member of the International Orienteering Federation (2006–), Head of the Department of Cartography and Geoinformatics (2005–).



Gábor REMETEY-FÜLÖPP Dr, 1944, retired, National GEO correspondent (2006-) Last positions: Chief Counsellor, Department of Land Administration at Ministry of Agriculture (1986-2007), Secretary general, Hungarian Association for Geo-information (1994-2015), Delegated by GSDI, since 2018 by HSO to GEO plenaries (2008-2018) and to CEOS WGISS (2006-2018).

Awareness raising - Reasoning

2015

BACKGROUND: The Multi-stakeholder partnerships are part of the Sustainable Development Goal 17. The Resolution 70/1 of the UN General Assembly describes the related tasks:

„17.16 **Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships** that mobilize and share knowledge, expertise, technology and financial resources, **to support the achievement of the Sustainable Development Goals in all countries**, in particular developing countries

17.17 **Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships**"

"On the first place: raising the global public's awareness of the critical importance of SDG implementation.

Now, the best start is to begin it with awareness raising to engage the stakeholders"

(Commitment of the President of the 71th Session of UN Mr. Thomson on 13 September 2016)

SELECTED ACTION: **Accomplishment of the 'Engagement of Stakeholders' Campaign in Hungary**

2016-18

After 4 months of preparation, in March 2017 an awareness raising campaign was launched by volunteers of an ad-hoc team of MFTTT in line with the priorities of the 71th Session of UN, where to start to strengthen the momentum for SDGs implementation

Awareness raising - Aims

Increasing the engagement of stakeholders of the EO/Geospatial community for the implementation of the UN 2030 Agenda in Hungary

Delivering presentations related to EO/GI4SDGs at the GI/EO community and interdisciplinary fora

Promoting the access and use of EO/Geospatial information and Spatial Data Infrastructure for the accomplishment of Sustainable Development Goals

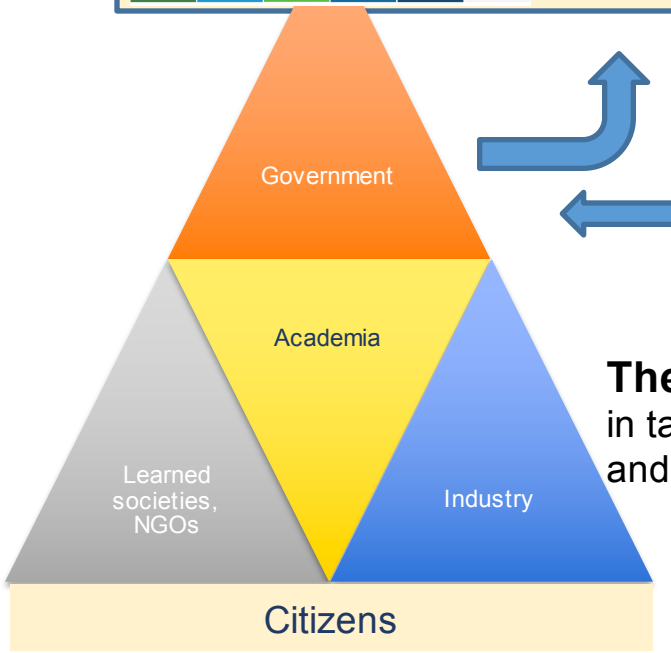
Promoting the potentials of use of GI/EO in informed decisions in other global agreements and frameworks

Forging links with initiatives, organisations and agencies in the context (UN GGIM, GEO EO4SDG, CEOS)

Sharing and exchange of experiences of the actions

UN 2030 Agenda
Sustainable Development Goals

UN Statistics Division



GEO EO4SDG
CEOS EO4SDG
FIG GI4SDG
…

Guidelines

The stakeholder's triangle
in target and indicator monitoring and national reporting

Land Water Urban Vegetation Forestry etc

Enabling interoperable infrastructures:
EO Information system and services
National Spatial Data Infrastructure
Official statistical information System
Related capabilities: in data acquisition, processing, analysis, data discovery and access, visualization, preservation and stewardship innovative technology exploration & exploitation

Needs:
Partnership
Cooperation
Data integration
Legislative Framework
Data policy
Capacity building
Financing

Actions on Domestic and Cross-border events

Day of the European Surveyors and Geoinformation
Budapest, 22 March 2017/ (Mihály et al, 2017a)
Surveyors, GI experts policy makers, market players, professors, students, members of civil societies **180 pers.**

GIS Open 2017
Székesfehérvár, 11-13 April 2017/ (Mihály et al, 2017b)
Land Administration, experts in surveying, mapping, remote sensing, geoinformatics; professors, students, researchers **150 pers.**

18th Meeting of Transylvanian Surveyors, EMT
Tusnádfürdő, 18-21 May 2017/ (Mihály et al, 2017c)
A cross-border event. Geodesists, surveyors, experts in cadastre and geoinformatics, private sector of Transylvania and Hungary **140 pers.**

7th GIS Conference and Exhibition
Debrecen, 25-26 May 2017/ (Palya et al, 2017)
Experts in geoinformatics and remote sensing, professionals of higher education, policy makers, civil servants **150 pers.**

31st Bi-annual Roving Conference of MFTTT
Szekszárd, 6-8 July 2017/ (Mihály et al, 2017d)
Experts in land administration, surveying, mapping, remote sensing, geoinformatics; Policy makers, civil societies' members **192 pers.**

Mini Conference, 70th Anniversary of Prof. B. Márkus
Székesfehérvár, 11 July 2017/ (Mihály, 2017)
Experts in geoinformatics from universities, students, private sector, governmental agencies and civil professionals **35 pers.**

Fény-Tér-Kép (Light-Space-Image) Conference
Gárdony, 12-13 October 2017/ (Mihály et al, 2017e)
Experts in photogrammetry, remote sensing, Earth Observation, image processing and geoinformatics/ **100 pers.**

Meeting with SD representatives of the National University of Public Service
Budapest, 7 November 2017/ (Mihály et al, 2017f)
Experts in Good State/Governance, efficiency indicators, **4 pers.**

Actions: on Domestic and Cross-border events

Day of the European Surveyors and Geoinformation
Budapest, 21 March 2018
(Mihály et al 2018a)
Surveyors, experts in EO and geoinformatics; market actors, students, professors, students, members of civil societies **130 pers.**

Szabolcs Mihály lead of the MFTTT GI/EO4SDG Team

7th Conference of the Zielinski Szilárd Civil Engineering College
Budapest, 4 May 2018/ (Palya, 2018)
Students of Civil Engineering Faculty, Budapest University of Technology and Economics
Higher education faculty professionals, students **30 pers.**

Tamás Palya, member of the MFTTT GI/EO4SDG Team

Sharing, exchange and outreach

GIM International Magazine's Insider's View/ September 2017/ ((Remetey-Fülöpp, 2017)
Wider international community of geospatial information management

Paper in **International Scientific Journal MMM-GI** December 2017/ (Mihály et al 2017h)
Experts and stakeholder representatives of EO/geospatial data and technologies

Geodézia és Kartográfia/ 2018/3 / (Mihály et al 2018b)
Hungarian community in surveying, mapping, geo-informatics, remote sensing and land management
Circulation: 1000

https://hunagi8.blogspot.com (xxx spots on SDG so far)

https://www.mfttt.hu/mftttportal

Publications in magazines/scientific journals, on websites and social media platforms, targeted communities

Sharing and outreach

At Int'l Conferences, Workshops and Working Group Meetings

7th International Conference on Cartography & GIS, Sozopol, Bulgaria 18-23 June 2018/ (Zentai et al 2018)/ International experts of Cartography and GIS/ 196 pers.

Contribution to the **2nd Nexus Conference on Climate-Water-Food-Energy**/ Chapel Hill 16- 18 April 2018 as well as interventions at the **InterCarto-InterGIS Interdisciplinary Conference on Geo-information and Sustainable Development** /Bonn, 24-28 July 2018.

Hungarian GIS data for Sustainable Development Goals. Presented at the European Forum on Geography and Statistics (Palya et al 2018) Helsinki 16-18 Oct 2018

PT talks at the EFGS

SDI Days, 14th International Conference on Geo-information and Cartography Zagreb, 27 September 2018. In the Welcome address given by L. Zentai, Secretary-general of ICA, the MFTTT's activities were mentioned

SDG Day. Source: ELTE TFT

SDG Day. Source: ELTE TFT

Bi-annual Hellenic Cartographic Conference. Prof. L. Zentai will introduce the MFTTT's SDI-related actions in his opening speech. Thessaloniki, 31 October – 2 November 2018

Sharing and outreach at Workshops and Working Group Meetings

Hungarian efforts promoting the EO/SDI for SDGs by MFTTT were mentioned in the **GSDI's Liaison Reports** and presented for the **CEOS WGISS-44** and **WGISS-45** plenaries hosted by NASA and RADI respectively (GSDI, 2017a and GSDI, 2017b) and reported as contribution for **GEO EO4SDG Initiative** in August 2017 and August 2018

GEO EO4SDG Initiative' progress report prepared for *GEO Highlights* mentioned the Hungarian activities in September 2018

MFTTT's actions were reported on the 3rd Anniversary **Day of Action** (25 September 2018) to Act4SDGs.org in frame of the **UN SDG Action Campaign**

GR at WGISS-41 hosted by GA

Source: EO4SDG Progress Report 2018

GEO GROUP ON EARTH OBSERVATIONS

its Volunteer National Review report, this year; this included references to Digital Earth Australia (DEA) and Open Data Cube (ODC) projects using and promoting satellite data. To complement its efforts, the Australian Government organized a special side-event around EO and SDGs. The side meeting, followed by two hands-on workshops, was designed to consult with, and inspire, more governments and organizations to take action on using EO with the SDGs, while providing necessary knowledge on how and where to begin with.

Country representatives from Australia, Greece, Vietnam, Namibia, Switzerland, and Vietnam present their perspectives on EO uses for the SDGs during the Australia-led side meeting as part of the 2018 HLPF. Credit: EO4SDG

Hungary was another country that submitted its Volunteer National Review report at the 2018 HLPF. Efforts aiming to emphasize opportunities and challenges for geospatial data stakeholders in the SDG context in Hungary include activities by a committed team of volunteers mandated by the Hungarian Society of Surveying, Mapping and Remote Sensing (MFTTT) to contribute to the implementation of the SDGs by identifying and promoting the use of geospatial and EO data. These efforts, inspired partly by EO4SDG and the Global Spatial Data Infrastructure Association, have focused on enhancing multi-stakeholder partnerships – for instance, between the MFTTT, the Hungarian Space Office, and the Hungarian Central Statistical Office, in support of geospatial/EO integration in national SDG monitoring and implementation.

As part of UN-GGIM 8, EO4SDG worked with UN-GGIM

How to reach us?

Hon.Prof. Szabolcs MIHÁLY PhD
Hungarian Society of Surveying, Mapping and Remote Sensing (MFTTT)
mihaly.szabolcs43@gmail.com
With co-authors: palya.tamas@bfkh.gov.hu, lzentai@caesar.elte.hu, gabor.remetey@gmail.com

The project on Earth Observation Information System (FIR)

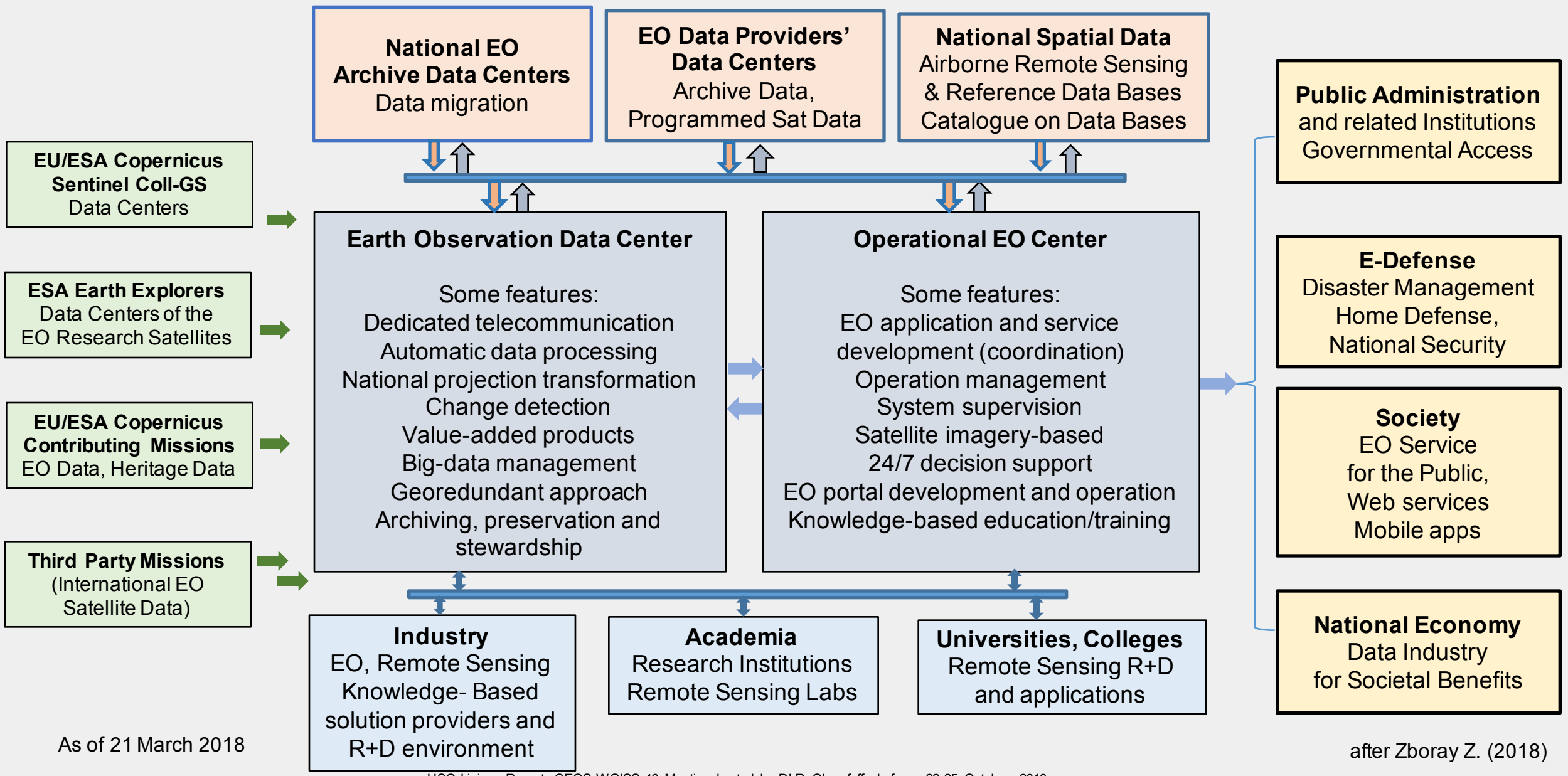
Aim of the project is to establish a comprehensive governmental capability to provide detailed, eaily accessible and up-to date
EO information for the public administration, governmental institutions, private sector and the whole society. The “Earth Observation Information System” (FIR) using freely accessible and commercial EO data, will provide a unified, integrated and value-added information service for the society upon the central infrastructure, applying e-service.
Project ID: KÖFOP-1.0.0-VEKOP-15-2017-00050
Managed by a consortium lead by KIFÜ, the Governmental Agency for Development in Informatics)
Beneficiaries: : **KIFÜ**, National Infocommunications Service **(NISZ),** Budapest Capital Governmental Office (**BFKH**)
Planned deadline: 31 October 2019
Budget: 7,000,000,000 HUF

Targets Enabling / providing /creating / Developing

- **EO Services for the Public Administration**
- **e-Earth platform** on visual data of Copernicus program
- Establishment of the **EO Data Center**
- Establishment of the **EO Operation Center**
- **Nationwide Operative Monitoring System**
- Increasing the efficiency of the acccess and use of satellite data by **process- and service development**
- **Special content provision for state-owned companies**
- EO data processing environment **for Hungarian SMEs**
- **Change monitoring services** for the private sector as well as the whole society
- Environment for **application- and service development by informatics**
- **Standard access nodes and interfaces for FIR**
- **Efficient link of Copernicus data for Hungary**
- **Legislative framework**

Source: http://kifu.gov.hu/kofop_fir (last visited on 21.10.2018)

Earth Observation Information System (FIR) - Overview



As of 21 March 2018

after Zboray Z. (2018)

Expected impact of the awareness actions

Empowering and motivating students, start-ups, young professionals with information on the challenges and opportunities of EO/GIS/SDI as well as related technologies, services and apps to support the achievement of the UN SDGs.

Engagement of stakeholders and forged co-operations between players from academia, government, industry and learned societies with emphasis on the EO/geospatial data custodians, SDI service providers and national statistics of the Central Statistical Office.

Increasing number of interdisciplinary (Nexus) approaches to reach multi-goals accomplishment by joint actions of multi-sector stakeholders (e.g. land, water, urban, climate, food)

GI/EO4SDG issues embedded in the higher education curricula

Improved links between the statistical and geospatial communities, with the aim of increasing the interoperability of statistical and geospatial data.

More effective development and use of EO/GI in the UN SDG target and indicator monitoring and yearly national reporting context based on the integrated geospatial and official statistic information and use of the announced State Earth Observation Information System capabilities (Zboray, Fekete 2018),

Selected References 1

Fekete G. (2017): Spatial Management at BFKH FTFF. (In Hungarian) INFOTÉR Conference Balatonfüred 17-19 October 2017

Friedl Z. (2018): SAR apllications in Hungary (In Hungarian) Day of the European Surveyor and GeoInformation, Budapest, 21 March 2018

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Kristóf D. (2017): Advanced Training Course on Land Remote Sensing 4-9 Sept 2017 Szent István University, Gödöllő, Hungary

Kristóf D. (2018): Sentinel-1, Sentinel-2 results. (In Hungarian) MANT Űrkutatás Napja. Budapest , 9 October 2018

Maucha G. (2018): The European COPERNICUS land monitoring program and its Hungarian references. (In Hungarian) Day of the European Surveyor and GeoInformation, Budapest, 21 March 2018

Mihály Sz. (2017): Geo-informatics and the GEO to support the Sustainable Development. Mini Conference Devoted to the 70th Anniversary of Prof. Béla Márkus. Székesfehérvár, 11 July, 2017. Proceedings, Alto Nyomda, Székesfehérvár pp.32-40.

Mihály Sz., Palya T., Remetey-Fülöpp G. (2017a): Tasks of Surveying and Geoinformatics in the UN Sustainable Development Goals Program (in Hungarian). Day of the European Surveyors and Geoinformatics Event hosted by the Ministry of Agriculture 22 March, 2017. https://www.mfttt.hu/mftttportal/index.php/letoltes/eloadasok/cat_view/67-europai-foldmerk-es-geoinformatikusok-napja-2017-marcius-22

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Thank you for your attention!