

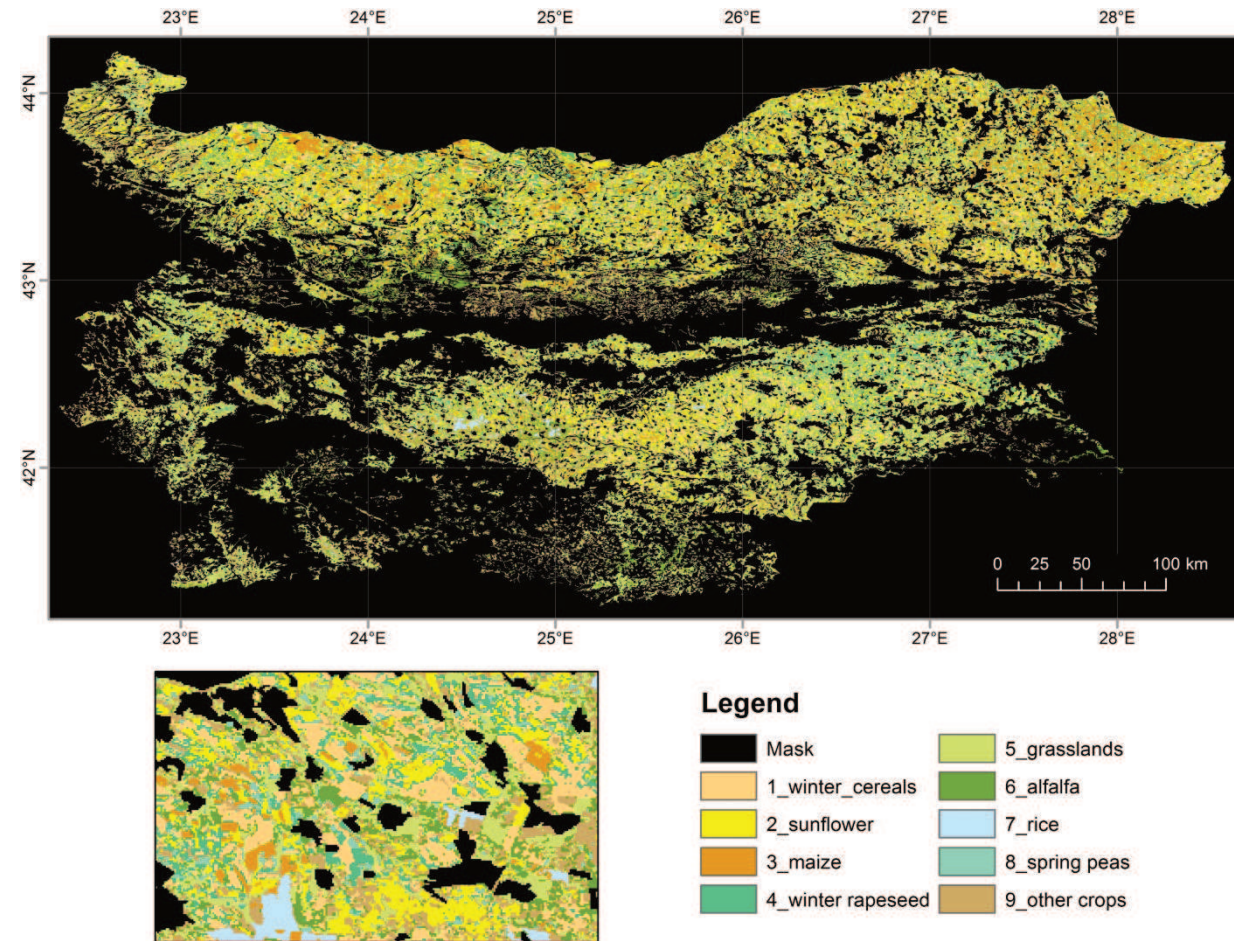
FG3 Outline

- Sentinel-2 and PROBA-V 100 Crop Maps For The Territory of Bulgaria- **Lachezar Filchev**, Alexander Gikov, Petar Dimitrov, Georgi Jelev
- Solar Energy Potential in Croatia, GIS-based application - **Iva Gašparović**, Mateo Gašparović, Damir Medak
- Sentinel-1 based interferometric results from Hungary - **István Péter Kovács**,
- EO Product Prototypes for Vegetation Function - **Petya Campbell**

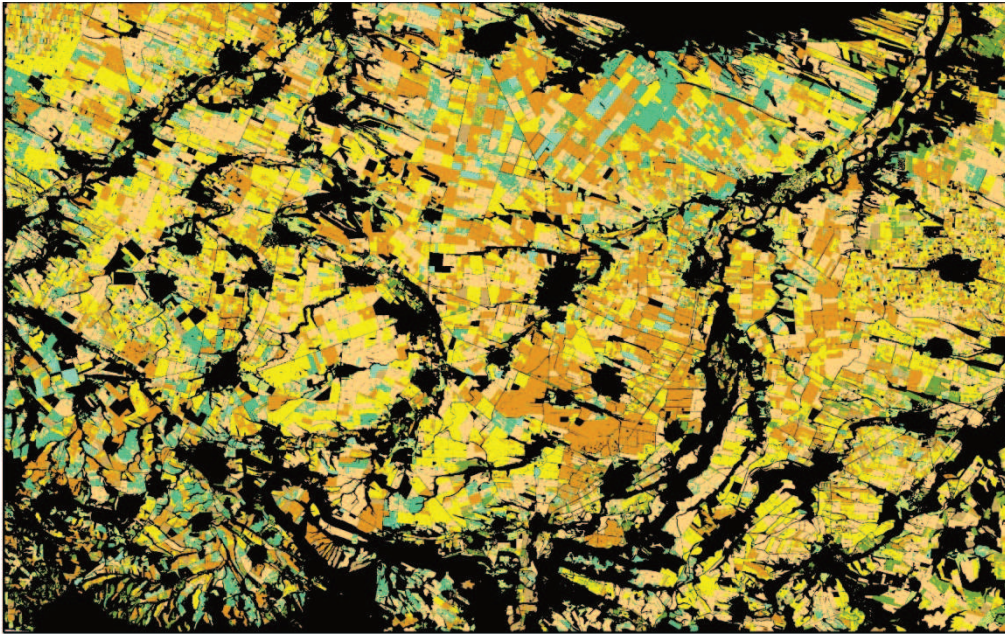
Sentinel-2 and PROBA-V 100 Crop Maps For The Territory of Bulgaria

Lachezar Filchev, Alexander Gikov, Petar Dimitrov, Georgi Jelev

- Present study aims at producing and assessing the accuracy of a national crop types map based on PROBA-V 100 (VITO) data as well as more-detailed crop maps based on Sentinel-2 (ESA, Copernicus) data of two test areas in North and South Bulgaria. For that purpose ground truth data has been collected during the 2016/2017 agricultural year. For accuracy assessment of the Sentinel-2 crop maps the Ministry of Agriculture, Food, and Forestry (MAFF) shapefile of Bulgaria was used.



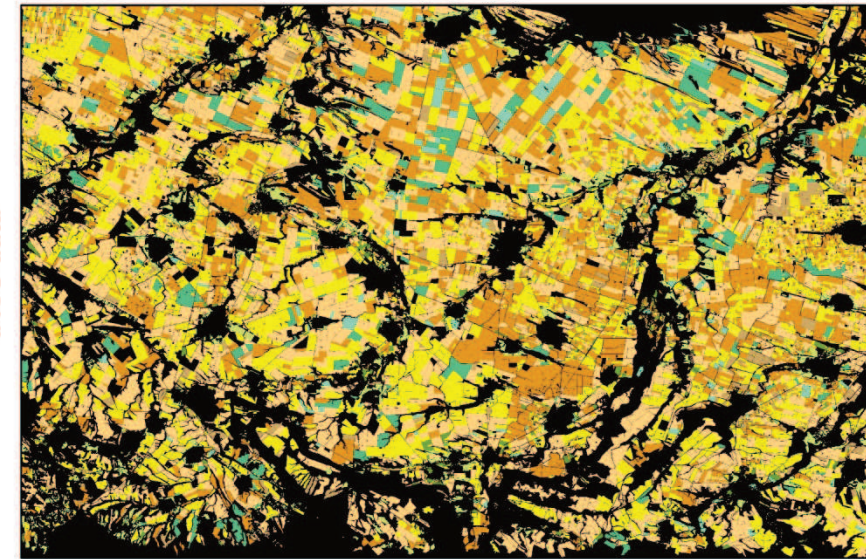
Sentinel-2 classification



- The monthly compositing tend to smooth the time series and to interpolate missing observations but this may not be sufficient in our case because March, April, and May 2017 are characterised with very usable Sentinel-2 data.
- Potential for improvement may lie in removing the class “Other agricultural areas”, which is quite heterogeneous. Some of the monthly composites (for example November and December 2016) could be omitted from the input time series because they carry little information for crop phenology.

The accuracy for the different classes varied significantly (between $\sim 30\%$ and $\sim 80\%$) and the overall accuracy is below the mapping accuracy of 85% but it is close to other studies from Central Europe and Ukraine using only Sentinel-2 data.

IACS data



Legend

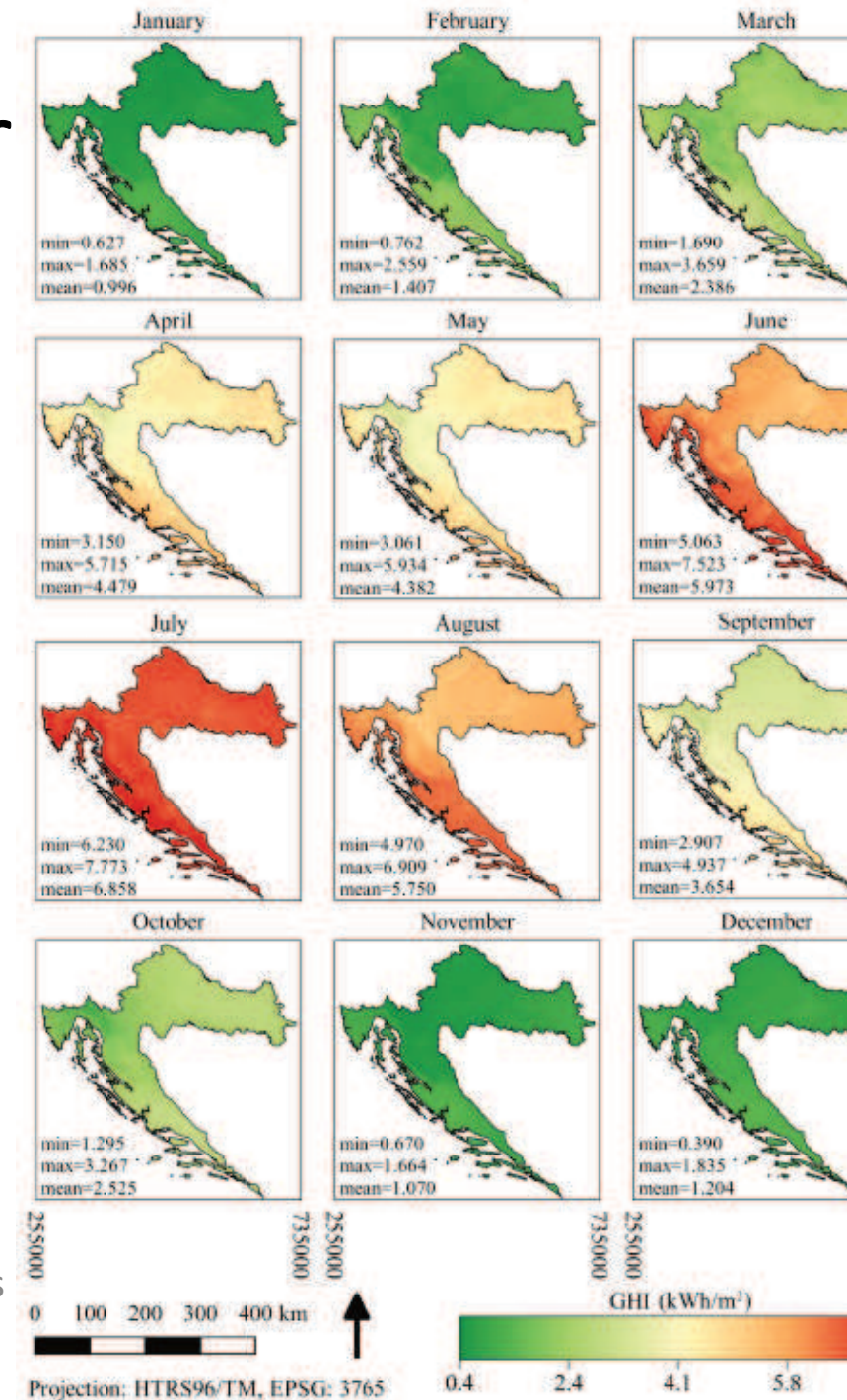


Solar Energy Potential in Croatia, GIS-based application

Iva Gašparović, Mateo Gašparović, Damir Medak

GIS-based calculation of Solar Energy Potential in Croatia

- Calculation of the global horizontal irradiation (GHI) in Croatia by open source, GRASS GIS software.
- GHI compared with the values of electricity consumption and imports in Croatia shows correlation.
- Solar energy exploitation can significantly reduce the need for electricity imports in Croatia and ensure sustainable development.

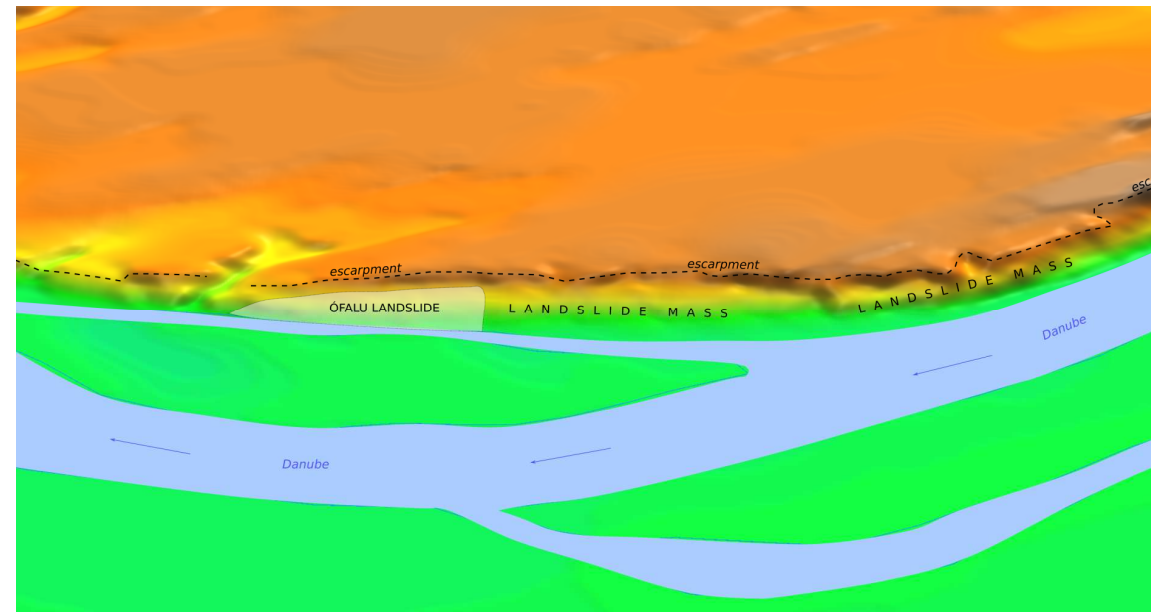
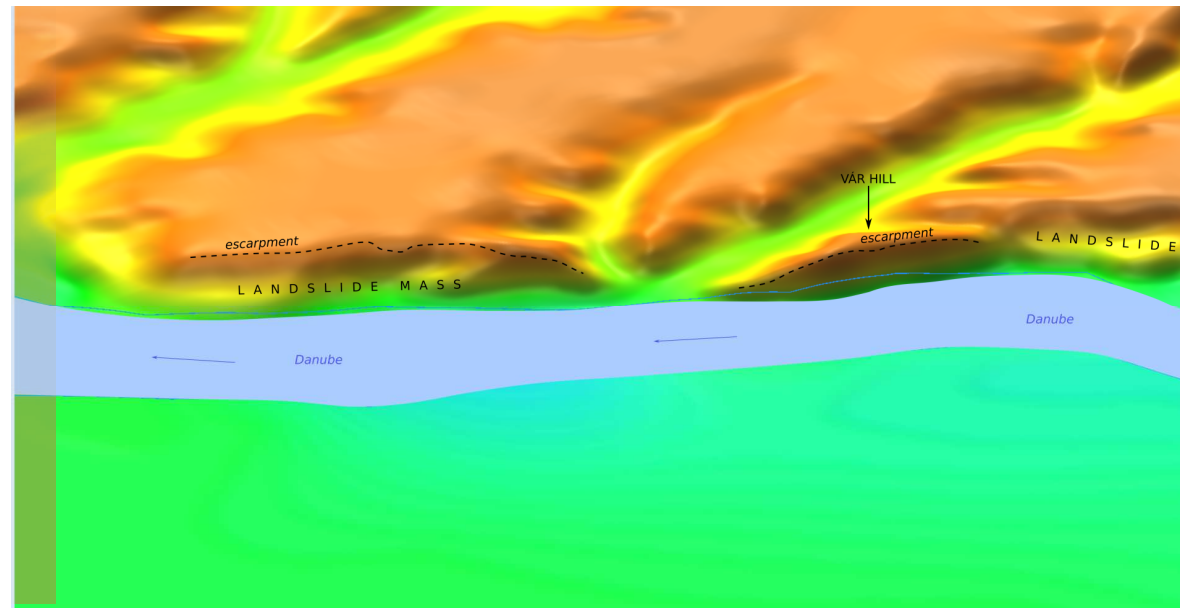
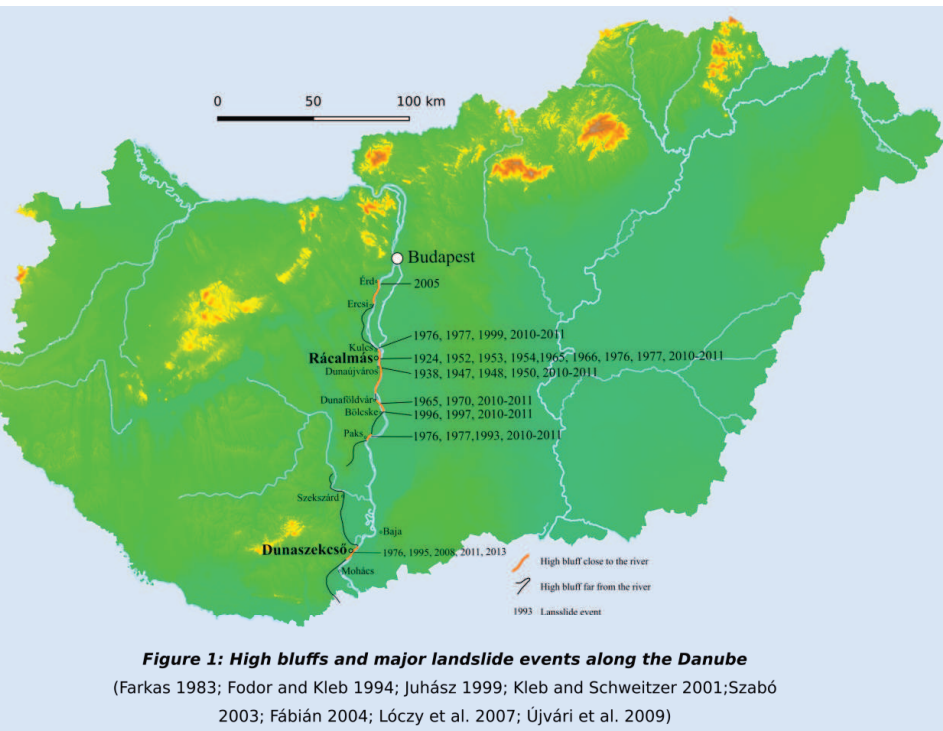


Iva Gašparović, Mateo Gašparović, Damir Medak – SCERIN Research Highlights
- poster 'flash talks' – Zagreb, 11.6.2018.

Sentinel-1 based interferometric results from Hungary

István Péter Kovács
University of Pécs
Hungary

Introduction



Methods

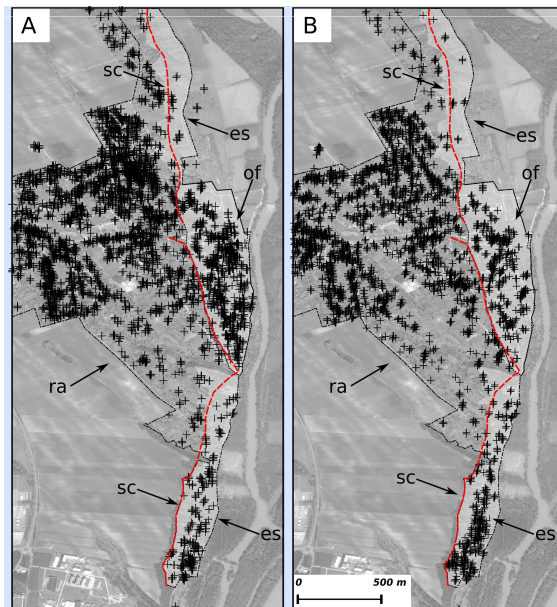
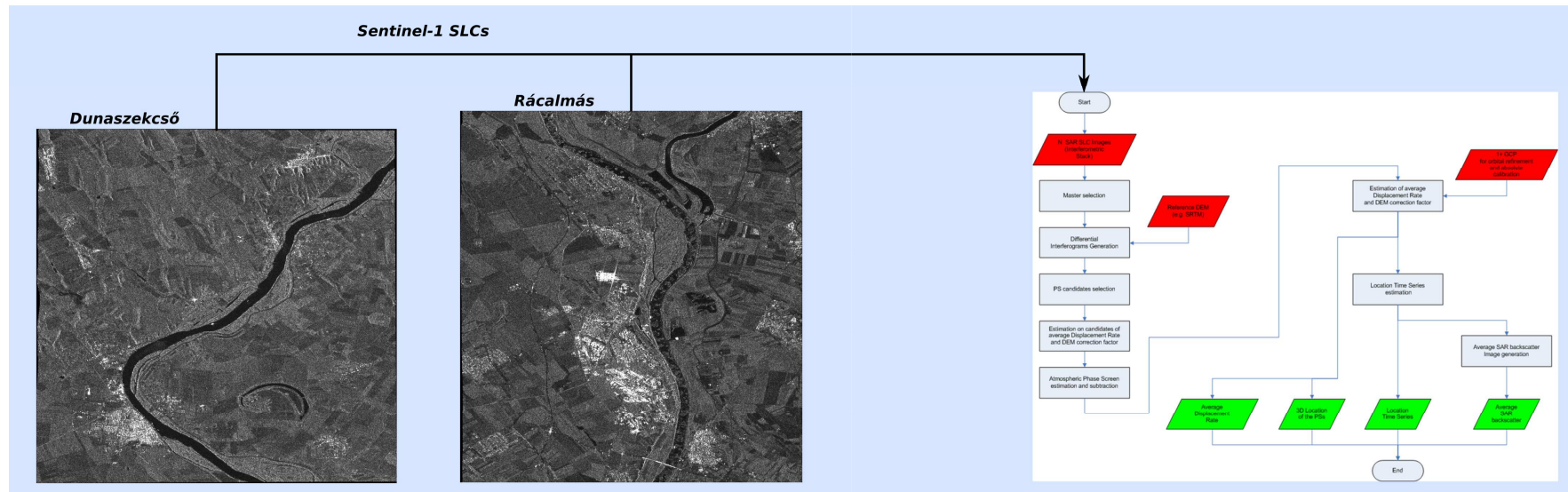


Figure 12: Spatial distribution of detected scatterers at Rácalmás.

A = ascending geometry, B = descending geometry

ra = residential area, sc = scarp, es = endangered slope, of = Ófalu Landslide

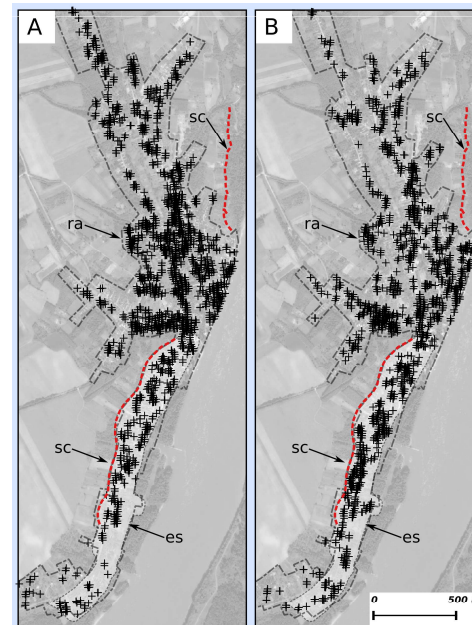


Figure 11: Spatial distribution of detected scatterers at Dunaszekcső.

A = ascending geometry, B = descending geometry

ra = residential area, sc = scarp, es = endangered slope

Results

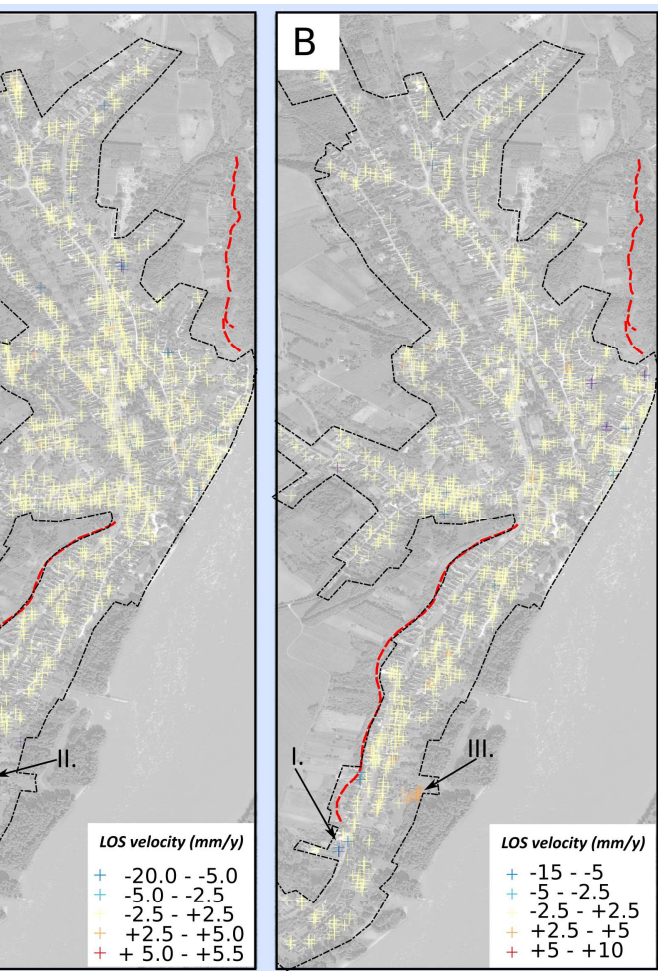


Figure 13: LOS displacements at Dunaszekcső.
A= ascending geomtery, B = descending geometry

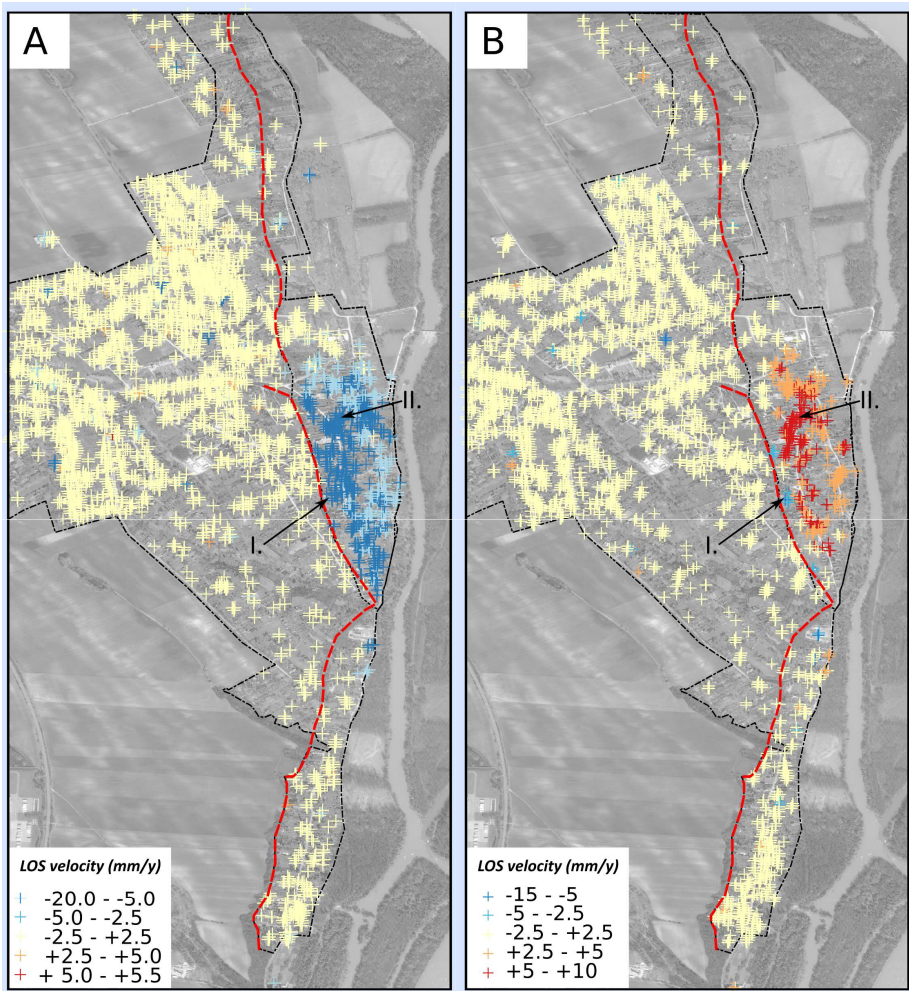
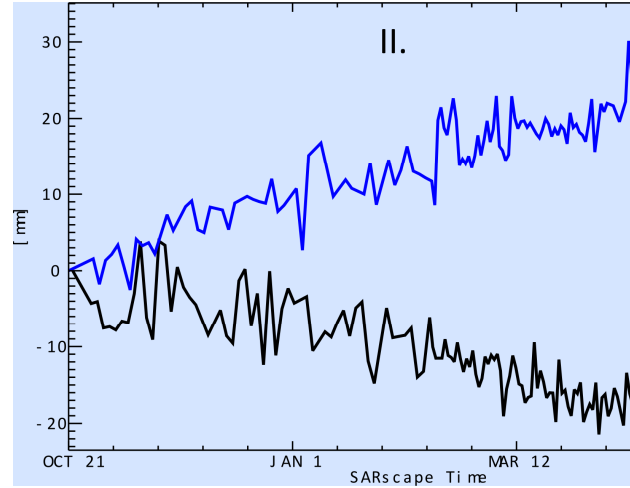
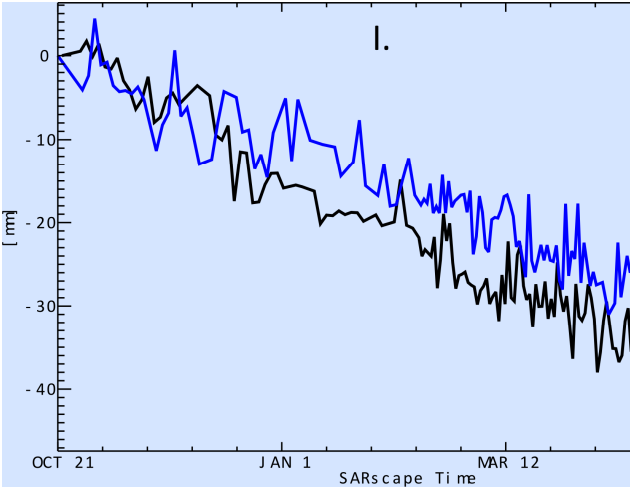


Figure 14: LOS displacements at Rácalmás.
A= ascending geomtery, B = descending geometry



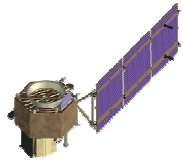
Product Prototypes for Vegetation Function

Petya Campbell, NASA/GSFC and UMBC/JCET

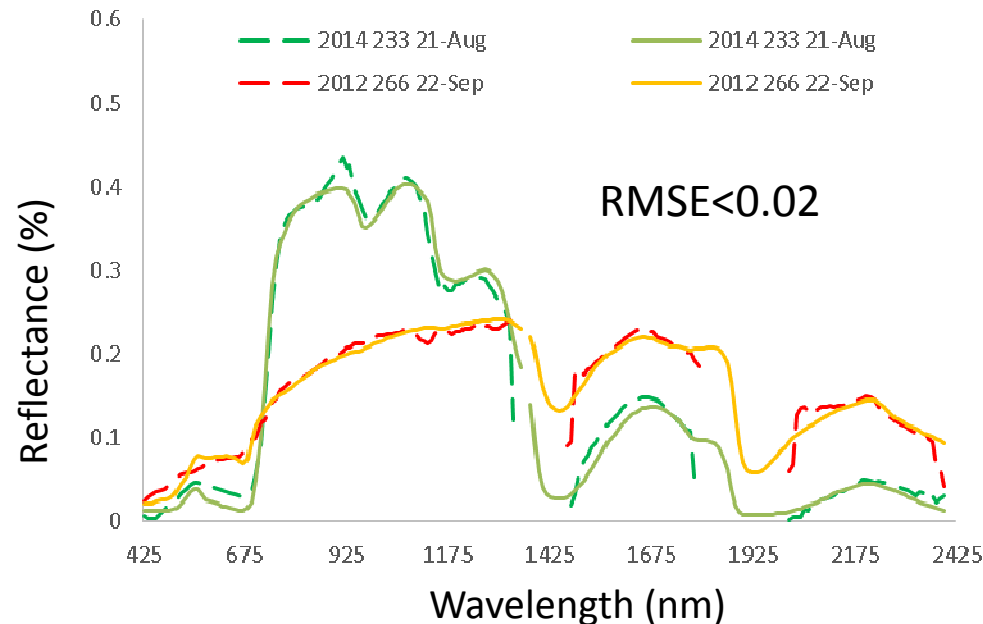
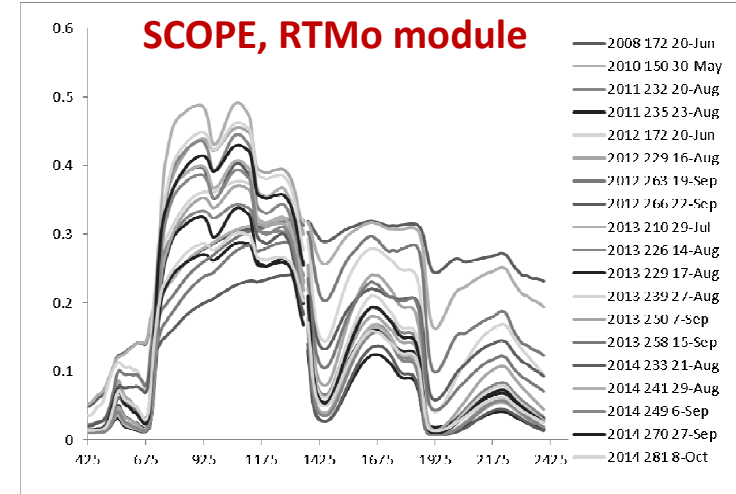
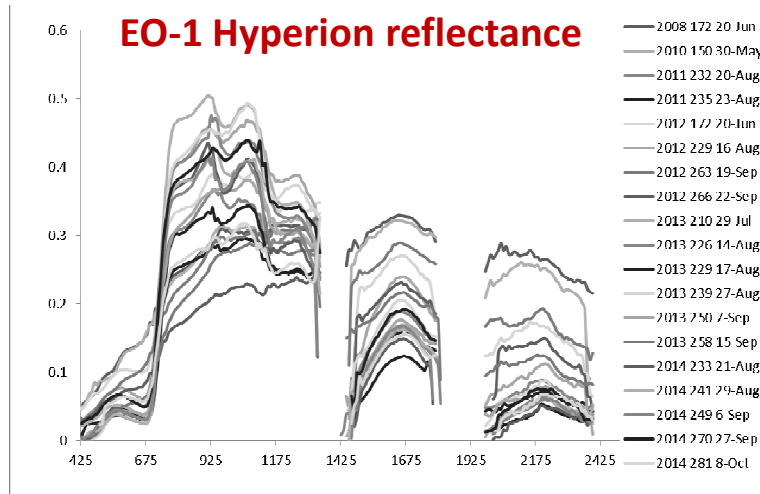
- Spectral time series to cover phenology
 - Vegetation – Key field data (e. g. flux sites, instrumented, *in situ* field collections)
- Characterization of canopy function
 - Using integrated leaf- canopy models with the spectra to derive canopy bio-physical and bio-chemistry parameters
 - Using machine learning and empirical models to map productivity

Modeling Canopy Bio-physical Parameters

Hyperion's Reflectance and RTMo



Measured — — — — — → Simulated



RTMo (part of SCOPE) includes:

- 4SAIL - radiative transfer
- Fluspect' - leaf optical
- GSV - soil reflectance

Bio-physical Parameters Associated with Observed GPP, Corn, OPE3, USDA/BARC

Bio-physical parameters

(in order of importance)

Senescent material - Cs (a.u, 1&2)

Leaf dry mater - Cdm (g cm⁻², 3)

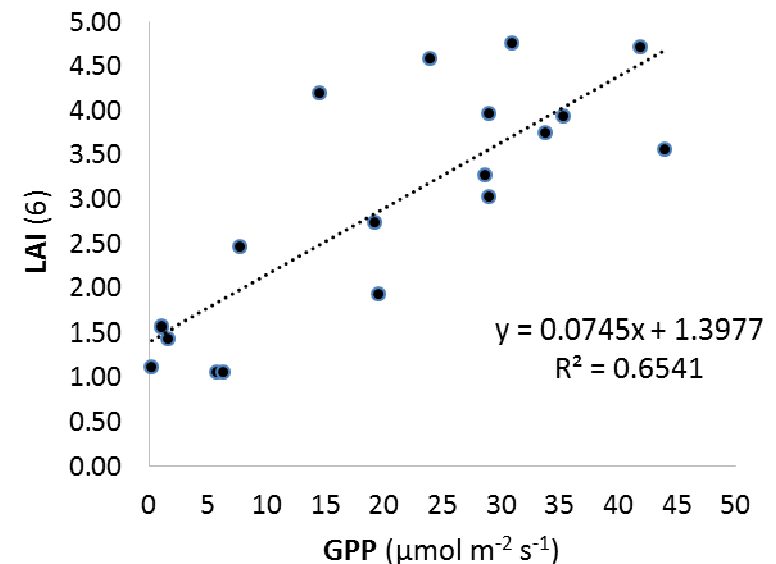
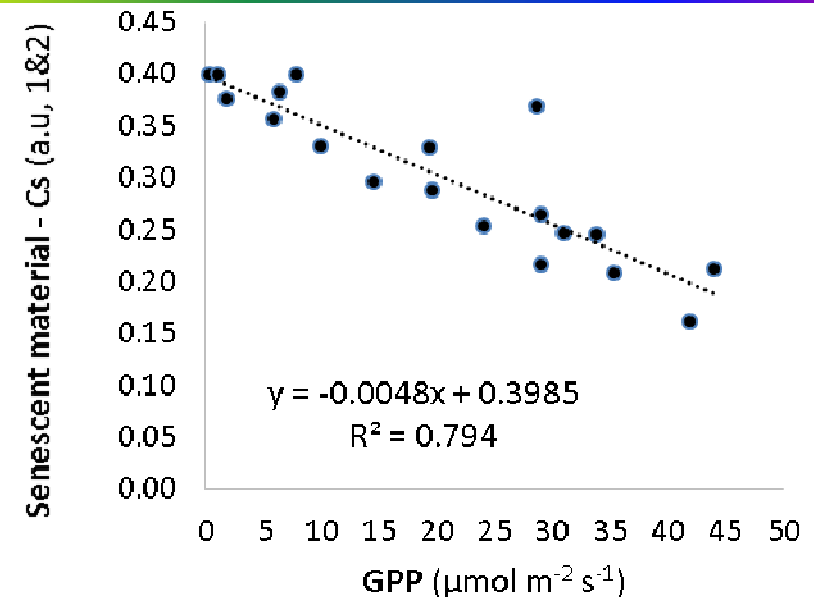
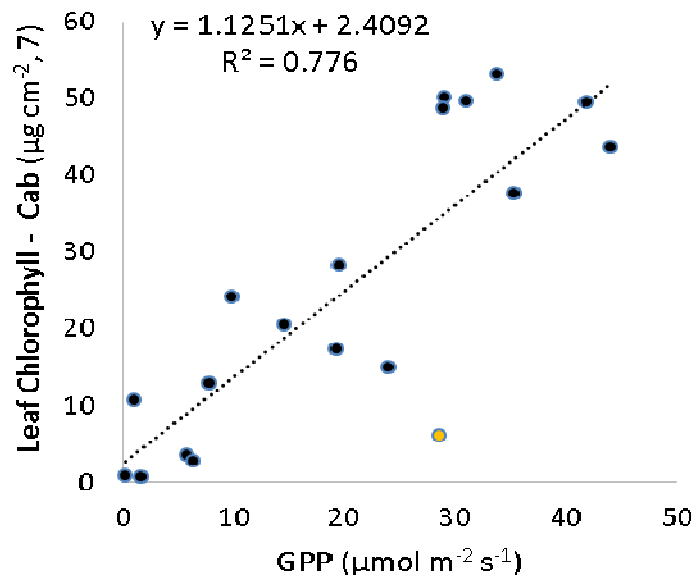
Leaf inclination - LIDF (4)

Leaf water content - Cw (g cm⁻², 5)

Leaf Area Index - LAI (6)

Leaf Chlorophyll - Cab (μg cm⁻², 7)

Leaf Carotenoids - Cca (μg cm⁻², 8)



Processing Workflow

