TERENO

OZCAR

International Conference

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Exploring soil water dynamics in the Alento hydrological observatory

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with contributions from: H. R. Bogena, H. Vereecken

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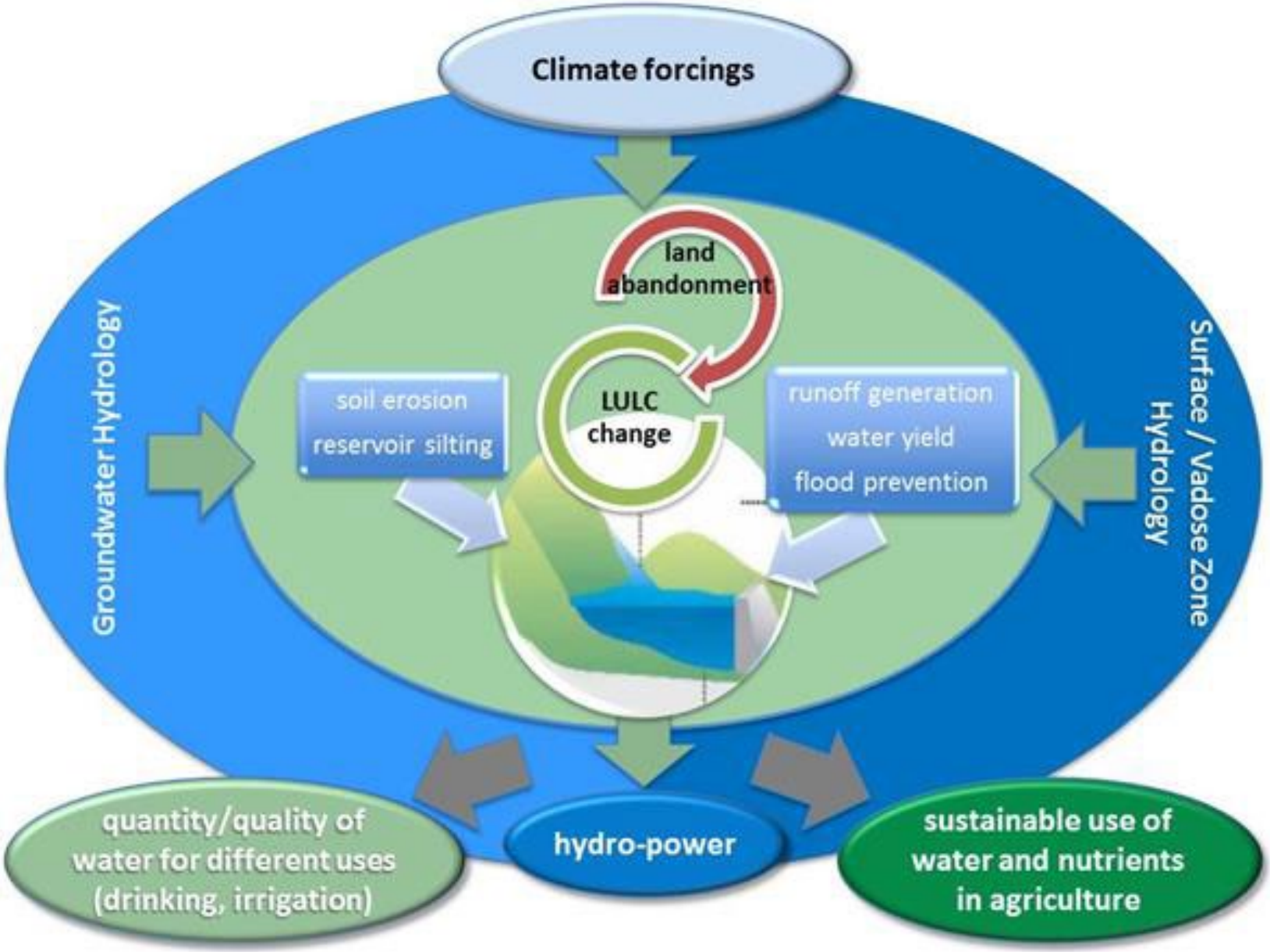
University of Napoli Federico II

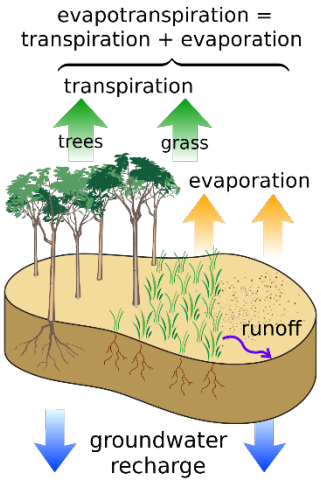
JÜLICH

FORSCHUNGSZENTRUM

Overarching science questions in Mediterranean catchments



Integrated approach



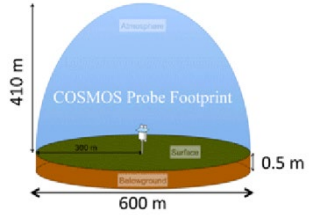
Isotope measurements

Geophysical surveys

Capacitance sensors

Spectral measurements

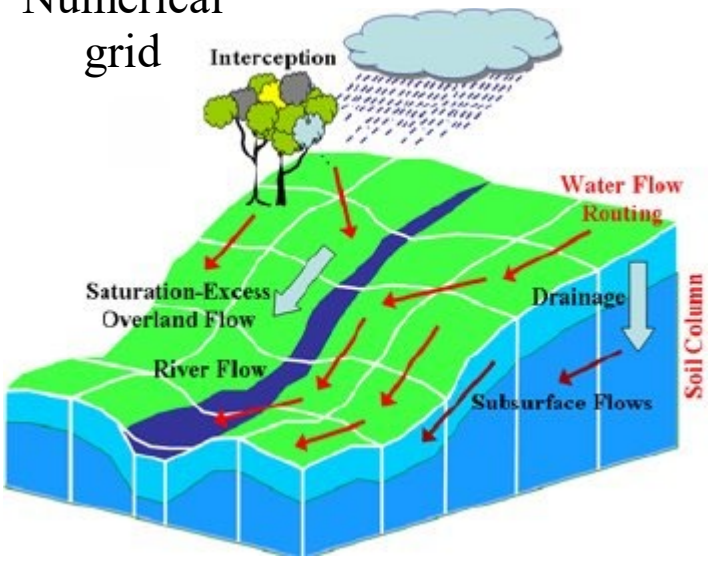
Cosmic Ray Neutron Probe



Soil physical, chemical, and hydraulic properties

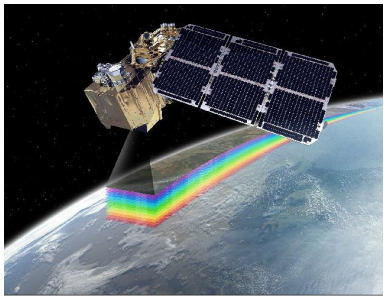
Remote sensing (Sentinel-1)

Numerical grid



3D hydrological model (Richards equation)

Scenario-based projections



Alento River Catchment Observatory

MFC2

GOR1

N

5 0 5 10 Kilometers

Weather station

SoilNet wireless sensor network

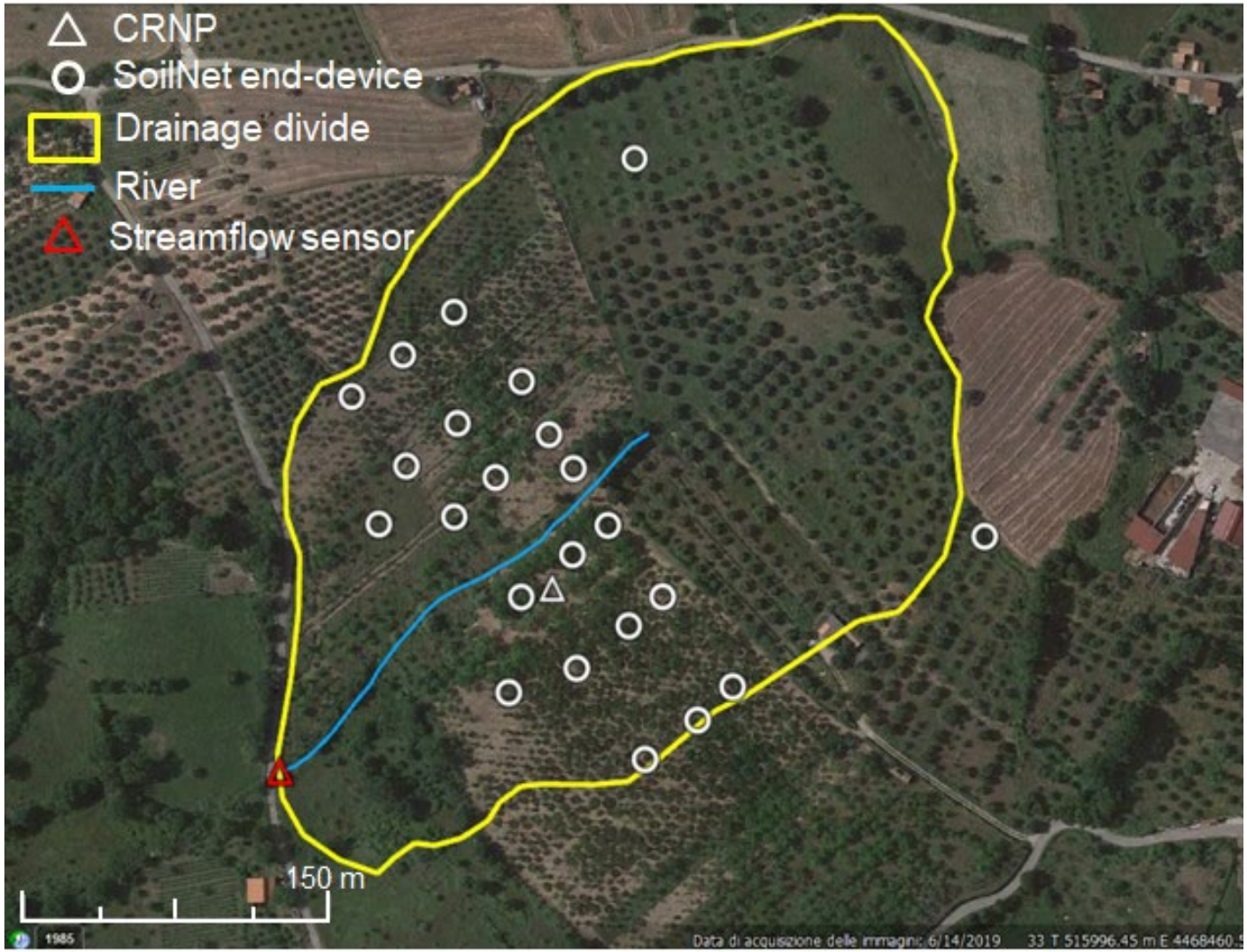
Cosmic Ray Neutron Sensor (Hydroinnova)

Upper Alento River Catchment (101 km^2)

Lower Alento River Catchment (308 km^2)

Water reservoir

MFC2 experimental site



GOR1 site (forest)

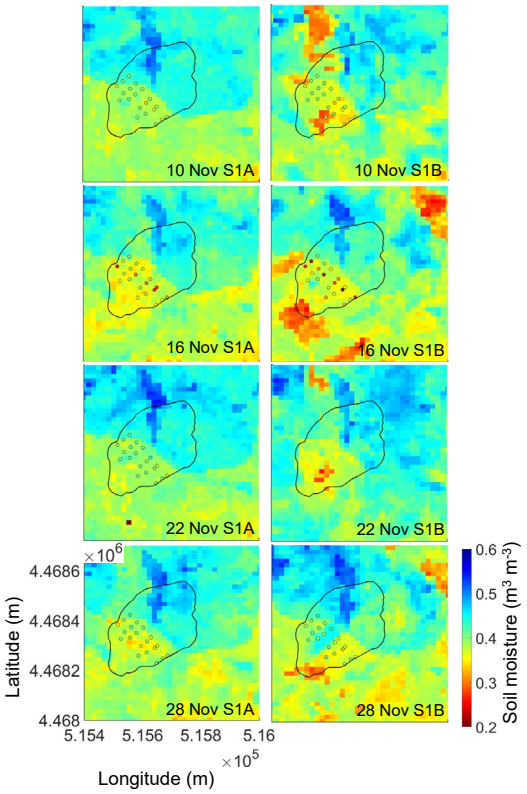
Streamflow sensor

GOR1 drainage divide
River
Cosmic Ray probe
SoilNet units
Streamflow sensor

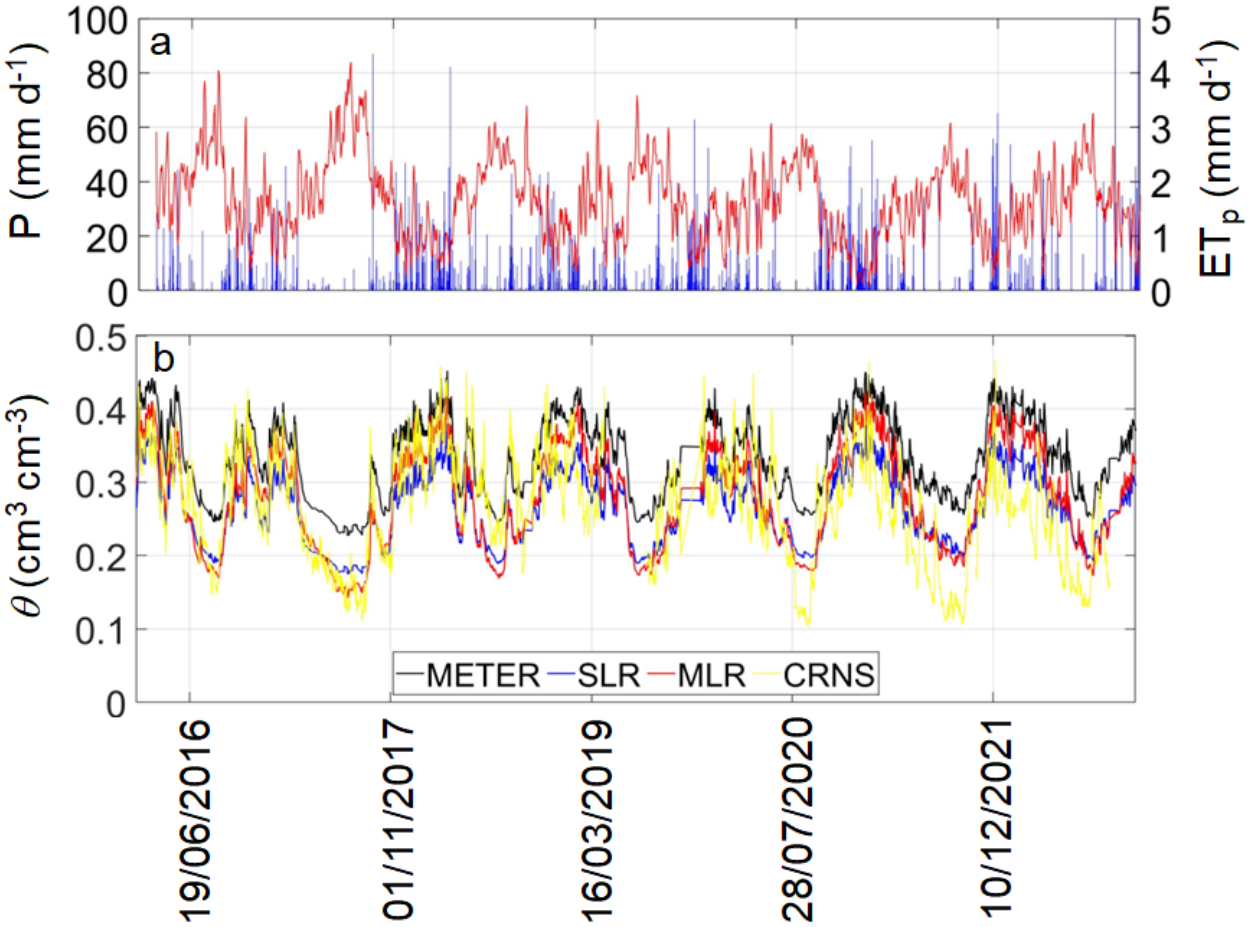
250 m

Soil moisture measurements

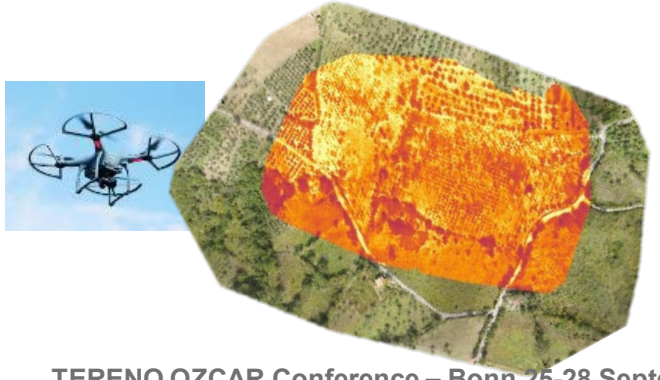
Sentinel-1

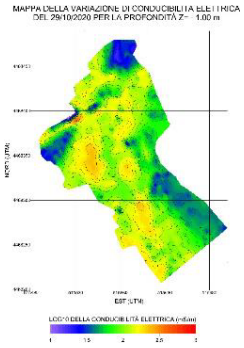


Capacitance sensors and CRNS



UAS-based thermal inertia

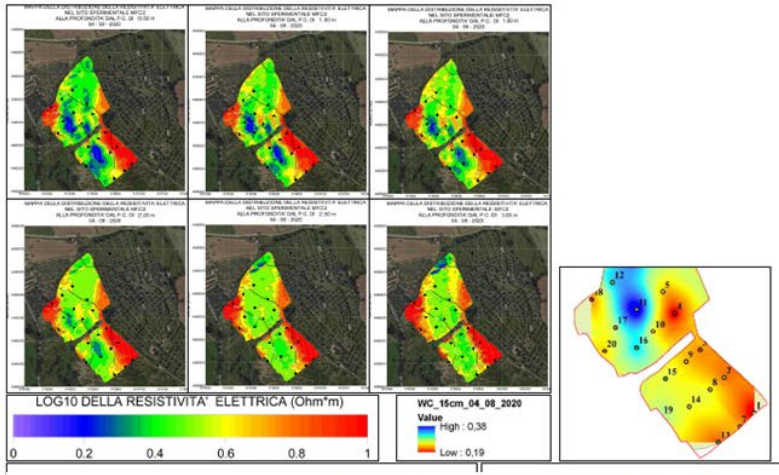




EMI

Geophysical measurements

DATI DEL 04 AGOSTO 2020



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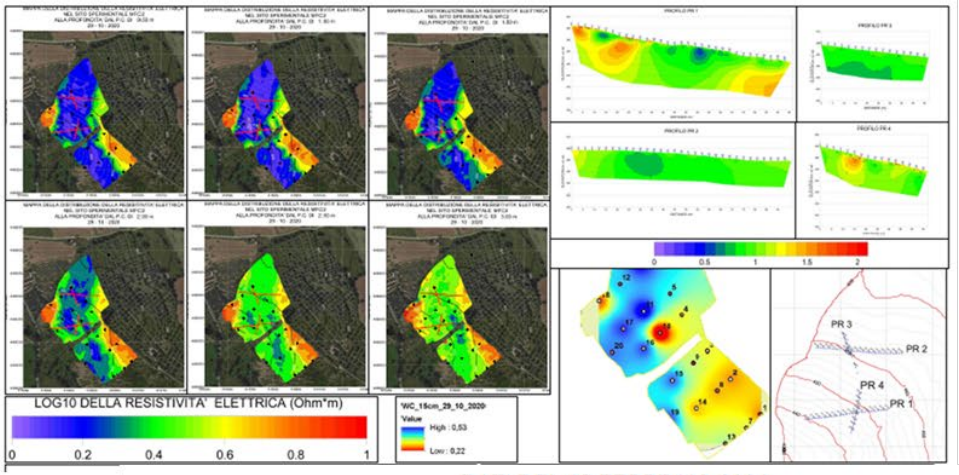

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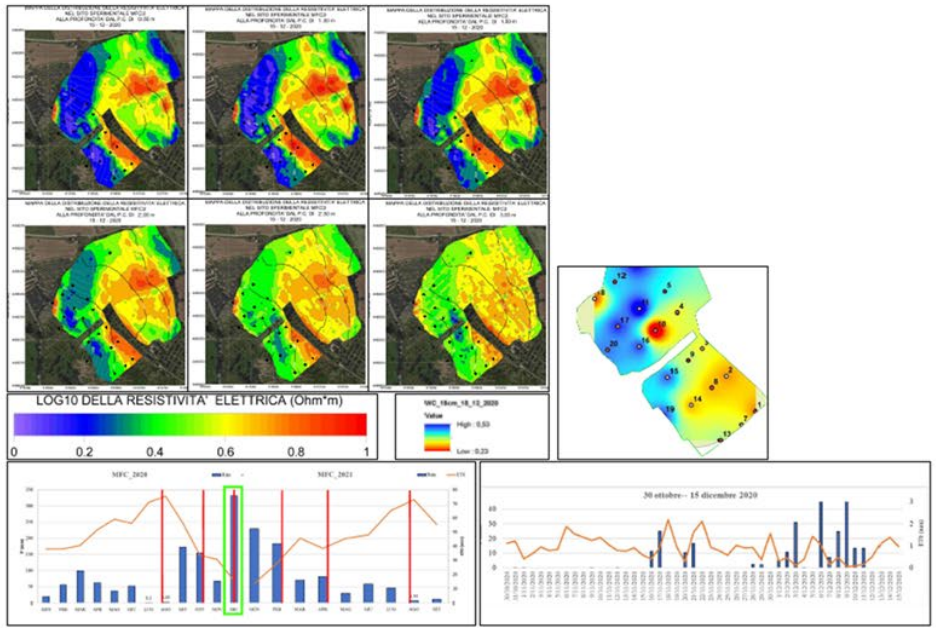

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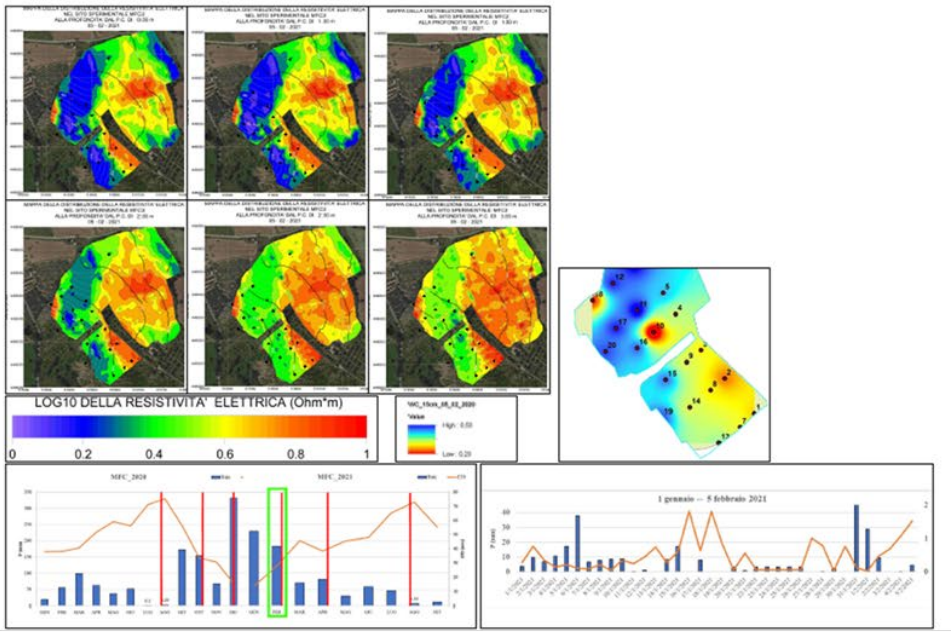
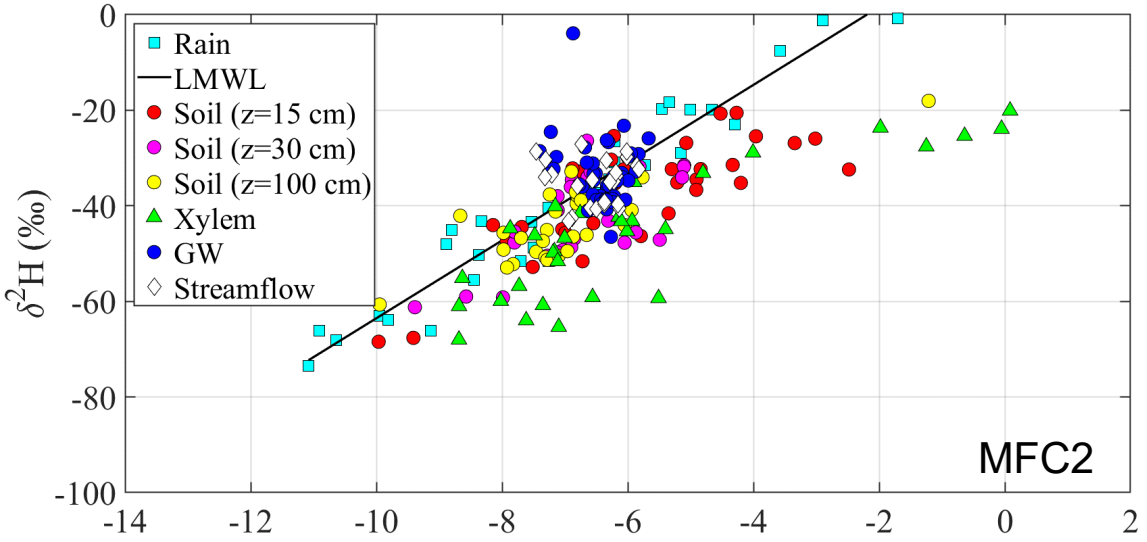
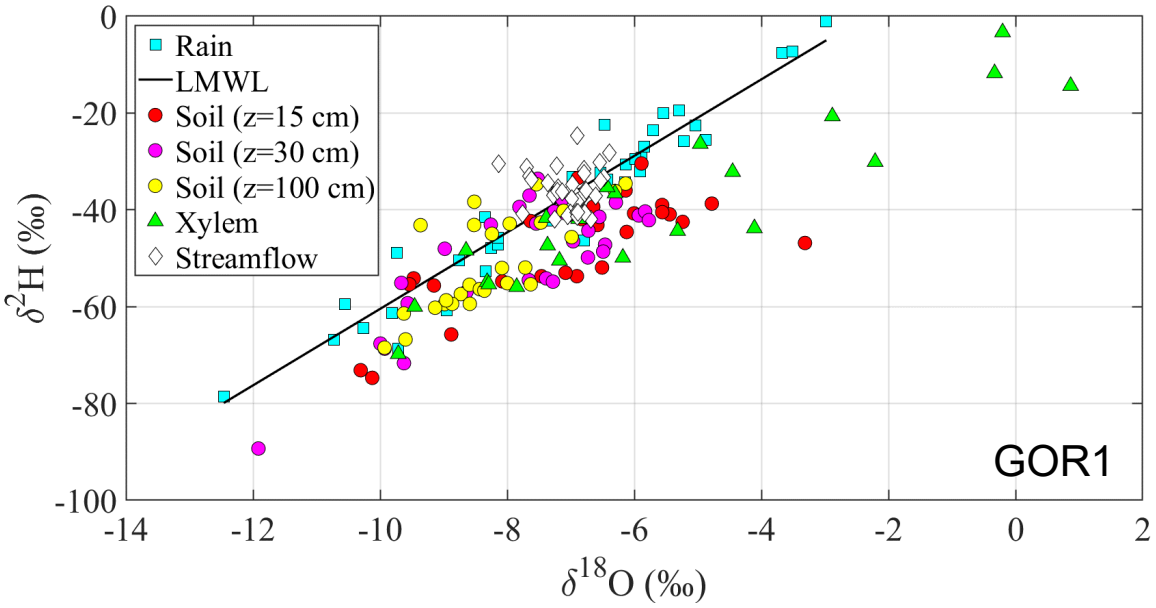
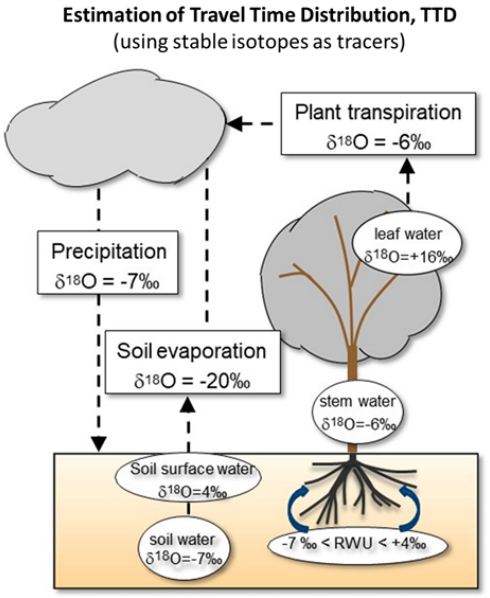


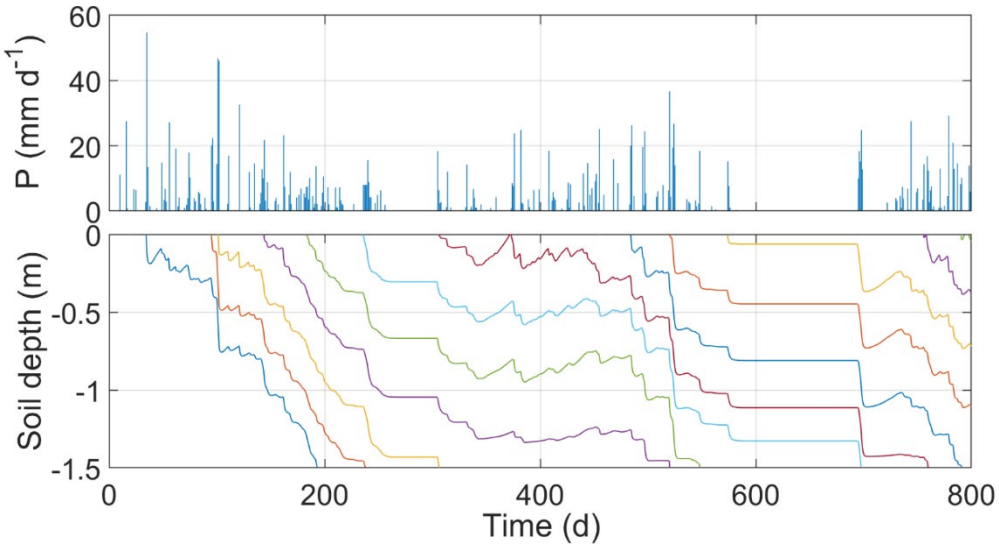
Environmental tracers: measurement of stable isotopes

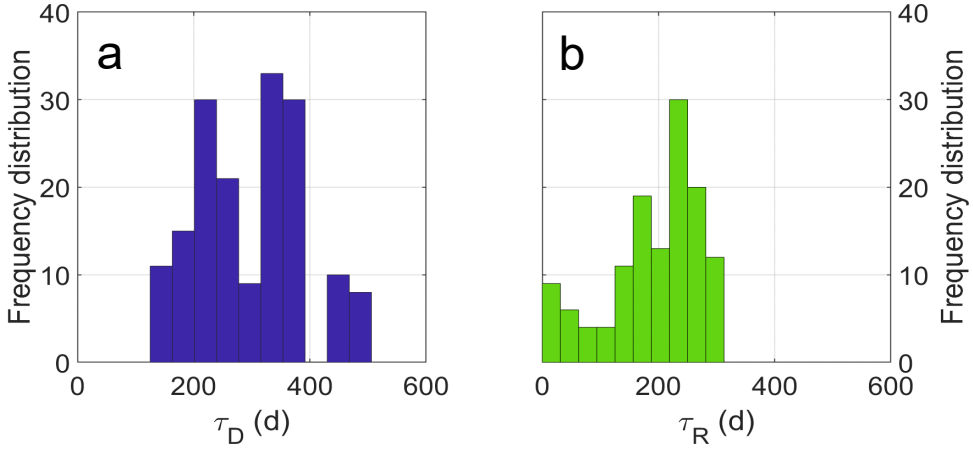


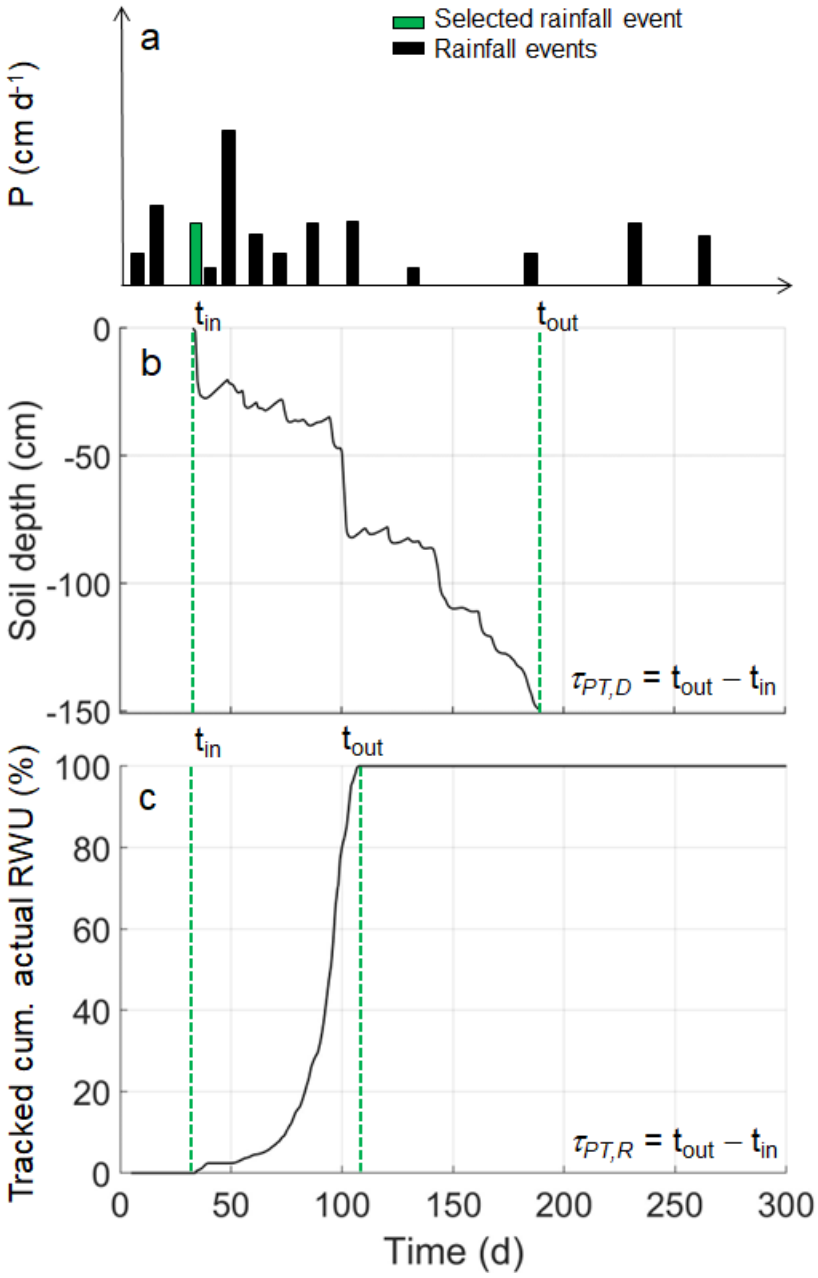




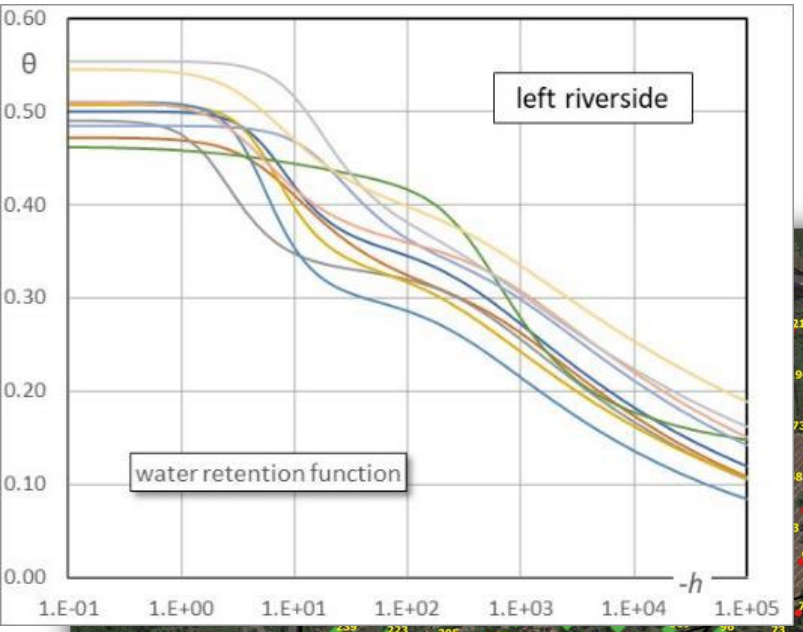
Assessing the travel time with isotope transport simulations

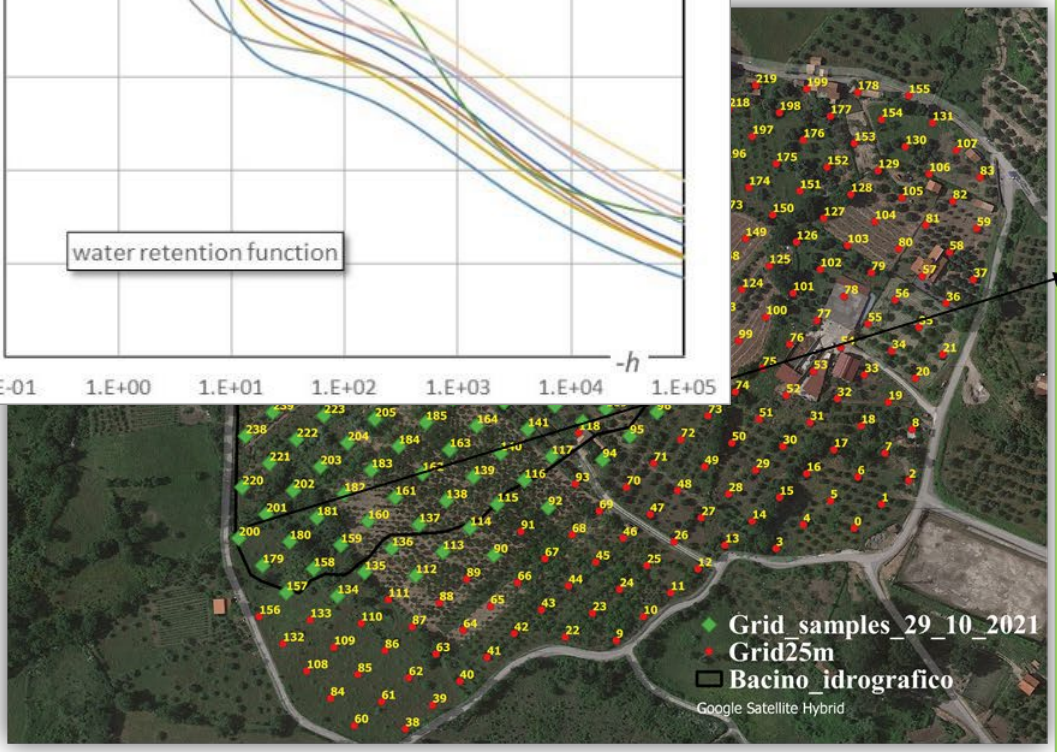


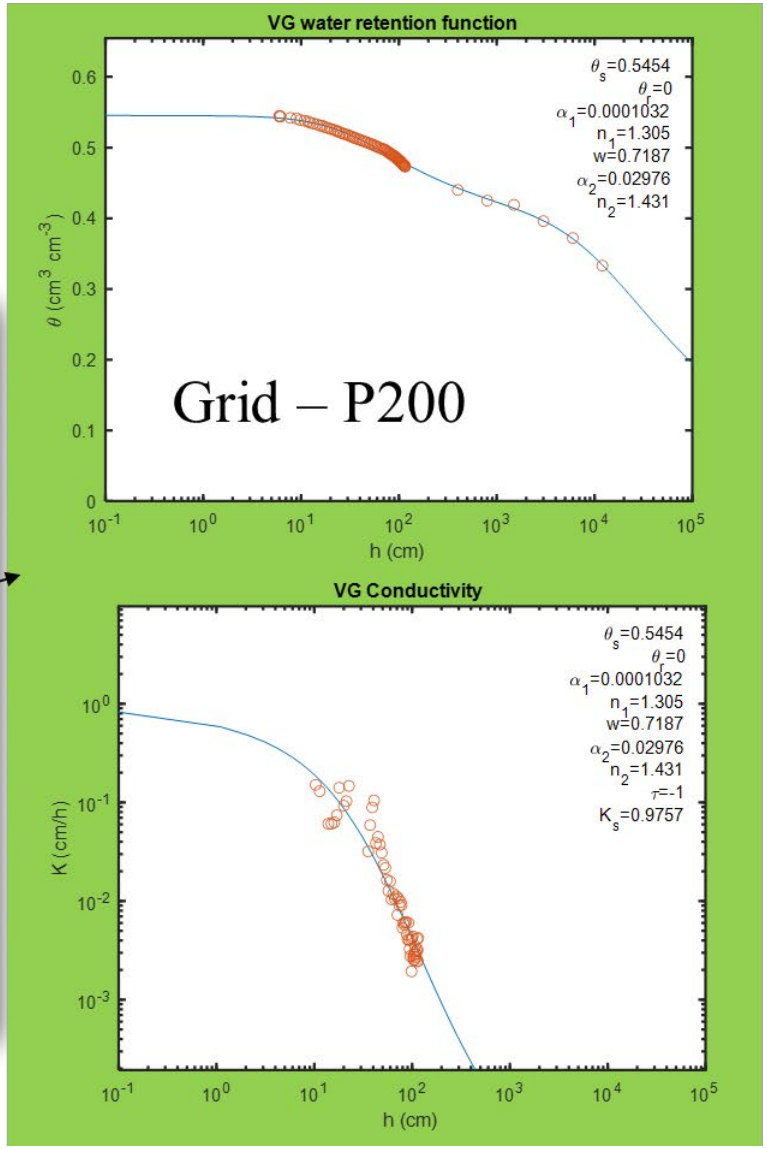




Soil sampling

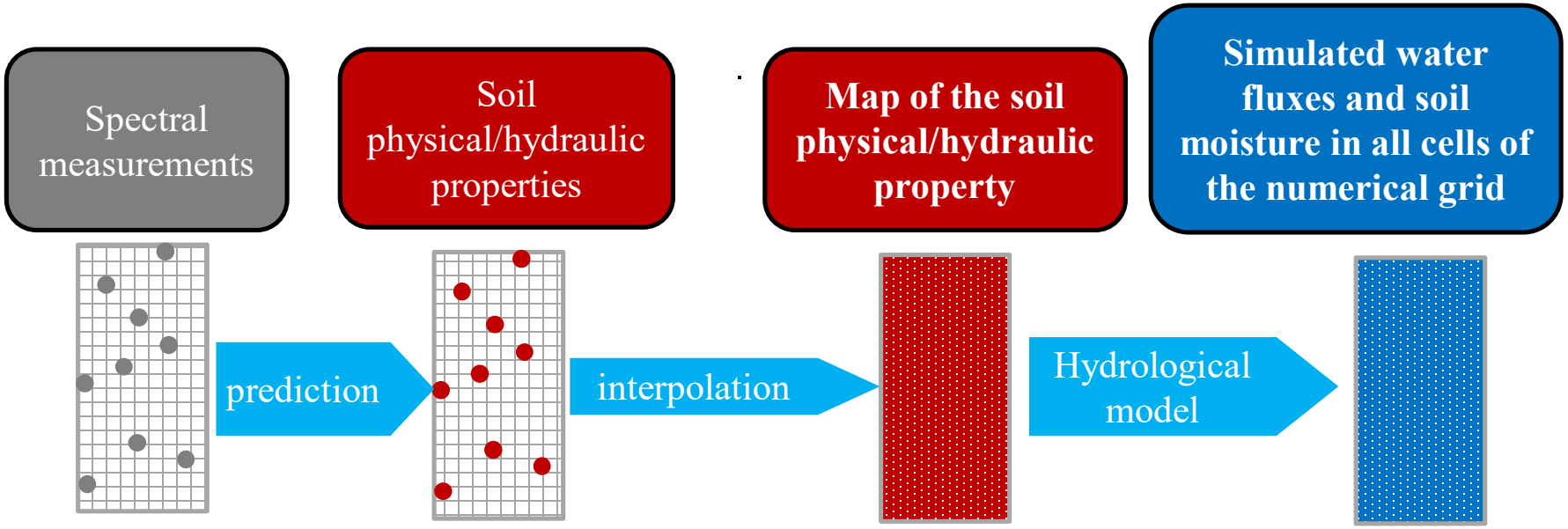


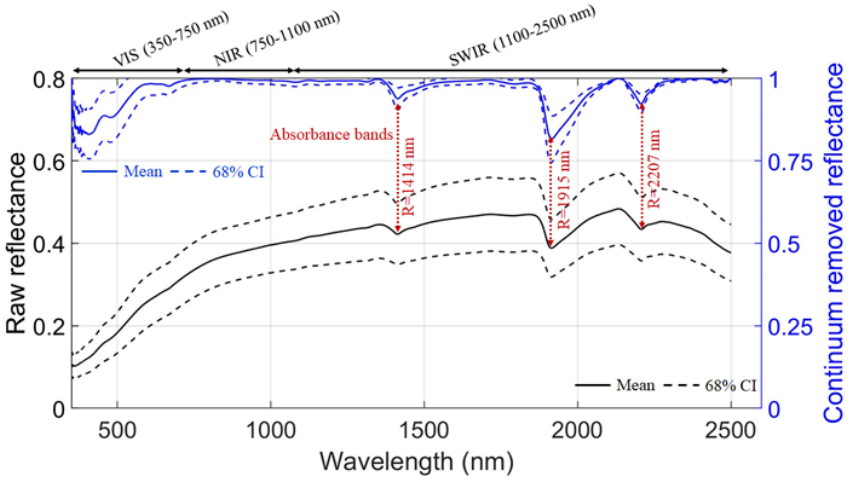


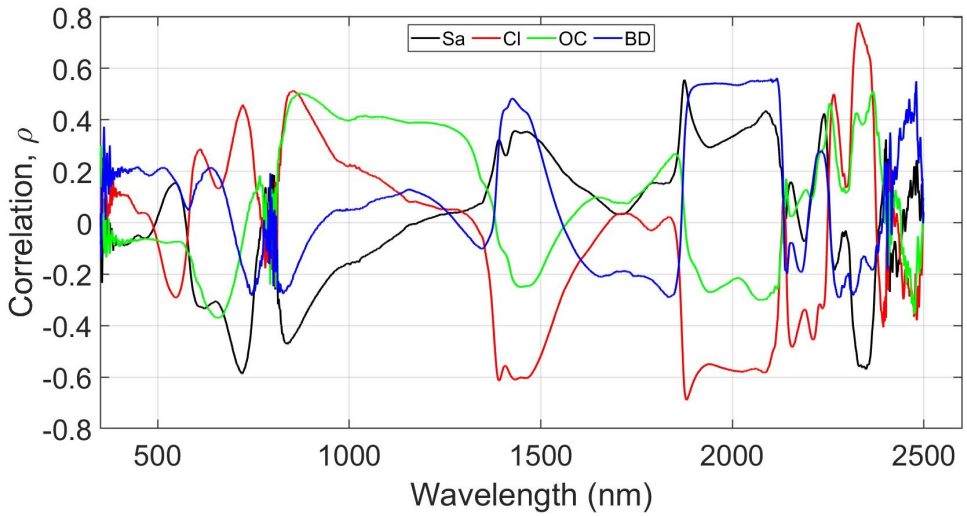


Spectral measurements

AGRIFAST: The Italy-Israel joint lab for hyperspectral remote sensing of agricultural soils

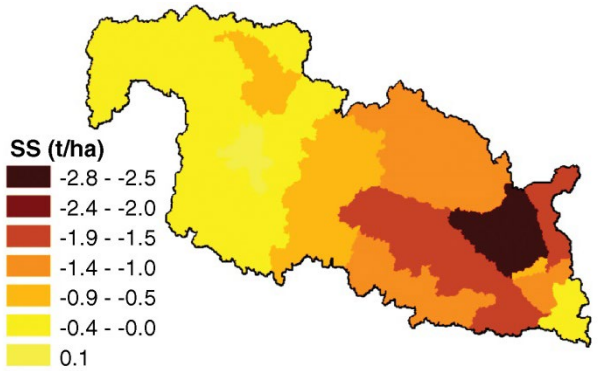




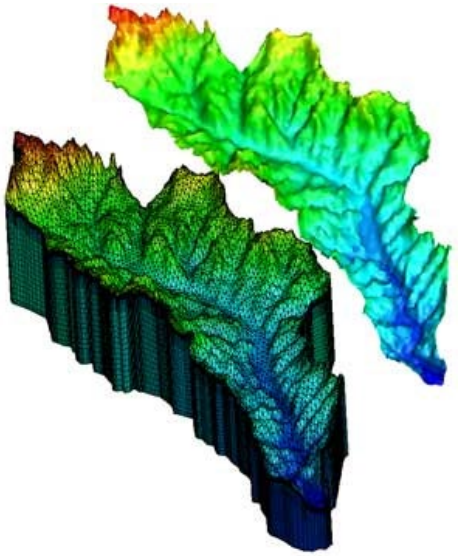


Conclusions:

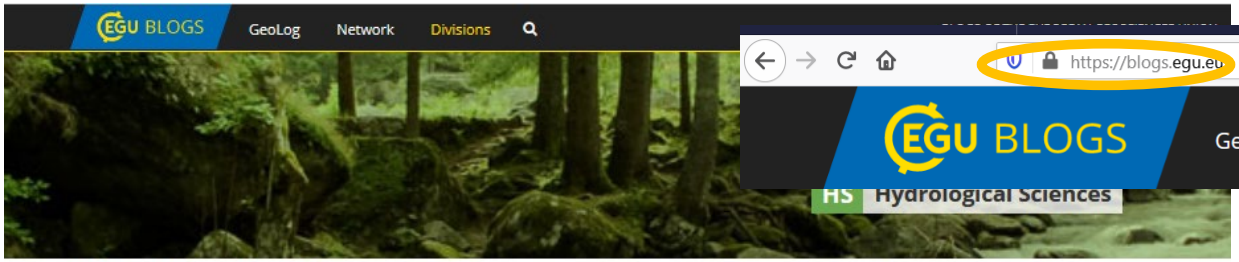
- Hypothesis-testing vs. exploratory to advance in hydrology
- Application of 3D Richards-based hydrological models (i.e., HGS)
- Scenario-based projections to support decision-making
- Dynamic resilience and vulnerability indicators (i.e, travel time)
- Sharing our data set to compare the Alento Observatory with other TERENO observatories across Europe.

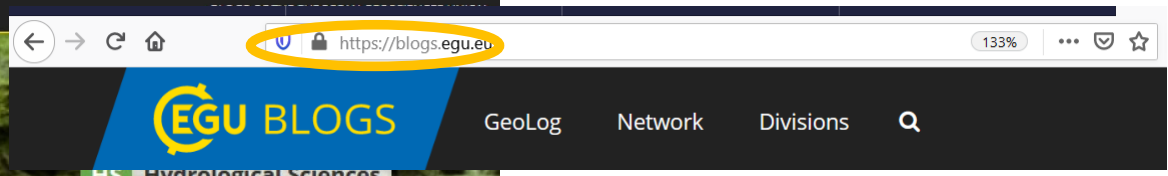


(B) Change (t/ha) in sediment



Alento in the EGU blog





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Featured catchment: The Alento Hydrological Observatory in the middle of the Mediterranean Region

EGU Guest blogger · December 2, 2020 · Catchment hydrology, Featured Catchment · 12 Comments

Viewpoint of the water reservoir in the Upper Alento River Catchment (UARC). Photo was taken from the village of Monteforte Cilento (Photo credit: Nunzio Romano)

Importance of investigating water fluxes in Mediterranean catchments

MOSAIC (**M**odeling and **O**bserving a mosaic of processes for **S**oil and water resources management in the **A**lento

ABOUT

Welcome to the blog of the Hydrological Sciences (HS) Division of the European Geosciences Union (EGU). This blog is a platform to communicate new ideas and old thoughts, a bit of history and future perspectives, as well as a glimpse at experimental and modelling studies. In other words, it is a platform to share news, research and opinions on hydrological processes and applications, including interactions between hydrology and other disciplines in geosciences. Everybody is invited to contribute to the blog and submit posts to the Editorial Team.

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The Alento Hydrological Observatory