VIRAL

Cooperation of University of Agronomic Science and Veterinary Medicine of Bucharest with specialized companies in ICT

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Co-funded by the Erasmus+ Programme of the European Union

University of Agronomic Sciences and Veterinary Medicine of Bucharest (USAMV) is the oldest and largest institution of higher agronomic education in Romania, founded in 1852, where the tradition and modernity successfully meet.

USAMV belongs to the network of public higher education institutions recognized with the "High level of academic trust" award in 2010, which programmes of study are accredited/authorized.

University of Agronomic Sciences and Veterinary Medicine of Bucharest

Education: 11.251 students.
-7 Faculties
- 23 B. Sc. Study programs
- 29 Master Sc. programs
- 2 Doctoral Schools

Research, Development and Innovation
- 12 Research Centers
- 3 R&D Stations

International
52 ERASMUS agreements
29 international framework agreements

Faculty of Horticulture

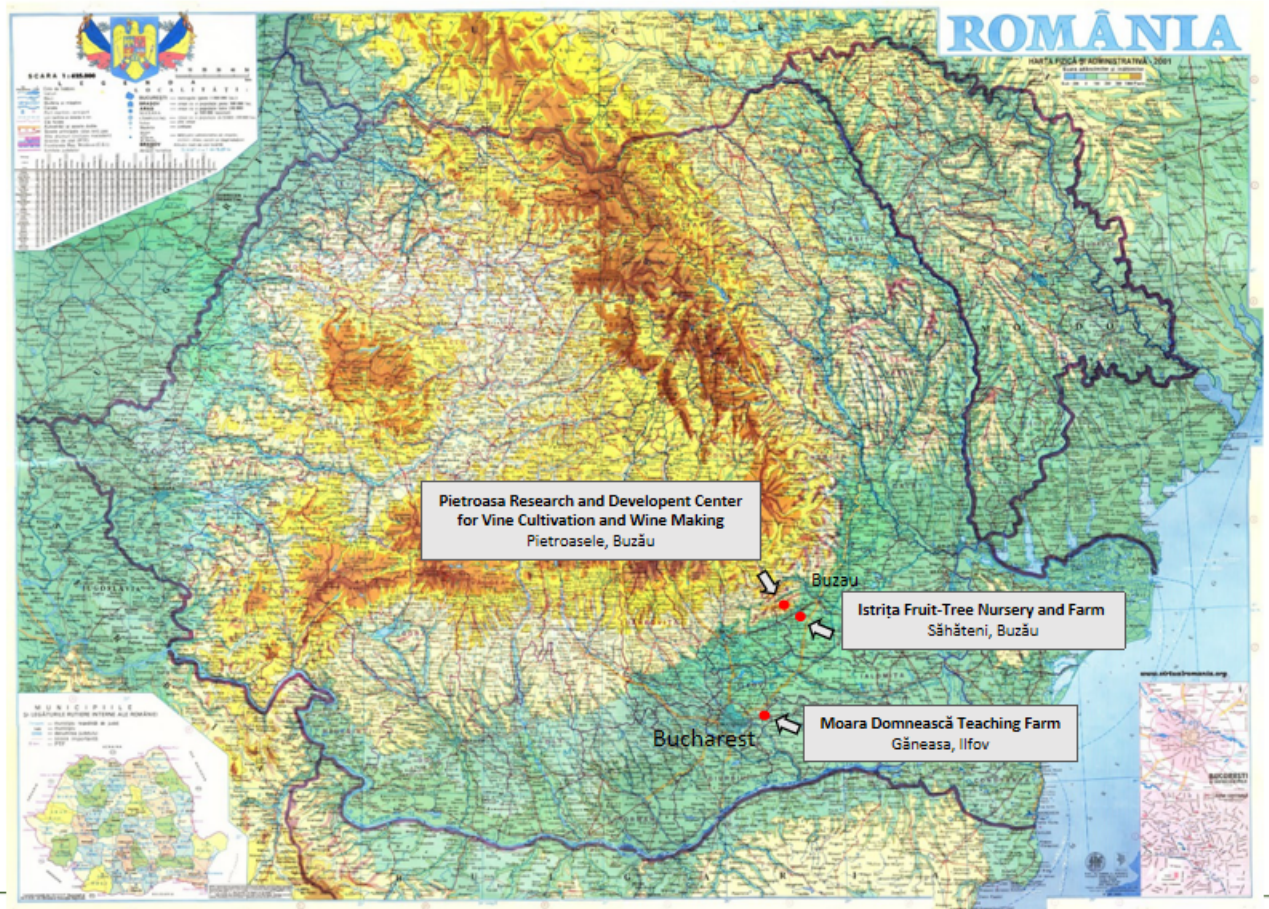
- Established in 1948
- Oldest specialised higher education in Romania
- 960 students

- **Cycle I – B.Sc. Studies**
  - Horticulture
  - Landscape
- **Cycle II – M.Sc. Studies**
  - Integrated technologies for the production of high quality horticultural products
  - Management of biodiversity conservation
  - Organuc Horticultural Sciences
  - Vine-wine marketing and management
- **Cycle III – Doctoral Studies**

- Facuty's Departments:
  - Bioengineering of Horticultural and Viticultural Systems Department
  - Landscaping, Biodiversity and Ornamental Horticulture Department

RESORTS AND SCIENTIFIC RESEARCH INSTITUTES

highly-trained teaching staff and partnerships with education and research institutions from Romania and abroad, which ensures the complex, top-quality training process



Pietroasa Viticulture and Wine-Processing Research and Development Station since 1893

203.38 ha

- Research and development in viticulture, oenology and wine chemestry.
- Production of grape vine planting material
- Breeding of wine and table grapes varieties: Otilia, Timpuriu de Pietroasa, Centenar de Pietroasa and Istrița.

Istrița Nursery and Fruit Farm since 1893

295.14 ha

- Production and marketing of fruit planting material and fruit trees: **apple, plum, cherry, etc.**
  - Improvement of **fruit trees propagation** techniques;
  - Application of **modern technologies** in fruit growing.

ISTRIȚA

Moara Domnească Didactic and Research Farm

556 ha

Research and development in natural sciences and engineering;

- **Cereal, legume**s and **seed crops** growing;
- **pome and stone fruits** trees growing;
- **Fruit juice**s making.

Specialized companies in ICT that cooperated with University of Agronomic Science and Veterinary Medicine of Bucharest

SYSWIN SOLUTIONS

TERRASIGNA™

ENTEN® SYSTEMS

SYSWIN SOLUTIONS

A R&D performing SME company, **leader on IoT & M2M** Romanian communications market - **integrating LTE Low Power - LoRa WAN, NB IoT** and **LTE CAT M1 technologies, communication protocols and sensors,** in order to respond to the connectivity requirements of various industrial verticals.

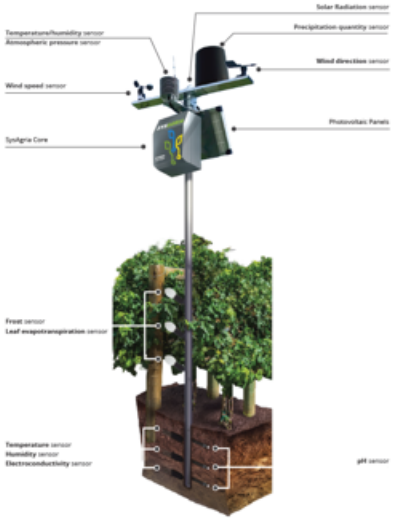
In 2016 - **The Innovative Platform for Versatile M2M Applications project** funded by the European Union through Priority Axis 1 – Research, Technological Development and Innovation with a total value of 1 Million Euro.

In less than 3 years, based on the Innovative Platform, Syswin successfully released **four new IOT solutions** developed for Smart Cities and **Precision Agriculture.**

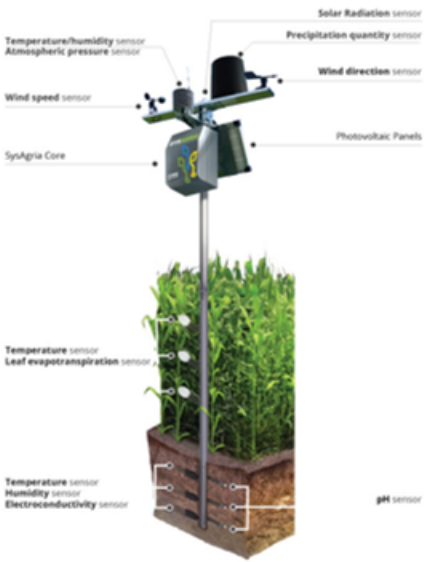
INNOVATION AND EXCELLENCY

Cooperation Protocol between **UNIVERSITY OF AGRONOMIC SCIENCES AND VETERINARY MEDICINE OF BUCHAREST** and **Syswin Solutions**

➡ signed in June 2017 and aimed at facilitating the testing of the performance of the monitoring system SysAgria, developed by Syswin, on the agricultural lands owned and exploited by USAMV. ➡



The results are being used in research projects and are disseminated at international conferences.



SYSWIN SOLUTIONS

A QUICK GLANCE AT THE APP LETS YOU KNOW IF YOUR CROPS ARE IN DANGER OR NOT

Access the following link
https://demo.sysagria.ro
and use the credentials above

Follow in real time the evolution of dry and wet temperatures

Measure the risk of frost as close as possible to the bud

Consult the sensor data directly from your mobile or computer

Be alerted in the event of frost on your plot

Gain responsivness and work with peace of mind with personalized frost alerts

Receive an alert by e-mail, SMS, push notification in the event of frost on your plot

Set the temperature threshold below which you want to be warned

Generate complex reports and parameter evolution analysis for disease prevention, treatment recommendation and production estimation

Follow at your plots on isometric maps created by interpolating the recorded data of precipitation, humidity, temperature and other relevant parameters

SYSWIN SOLUTIONS

PRECISION AGRICULTURE

- The SysAgria system monitors and records vital parameters of soil, air, precipitation and light through software and a wide range of sensors for multiple crops.
- Offering the ability to monitor crops anywhere at any time, our solution supports higher yield and optimum quality.

SYSWIN SOLUTIONS

VINEYARD MANAGEMENT WITH SYSAGRIA VINES BASED ON PROFESSIONAL AGRO-METEOROLOGICAL DATA

- Saving hectares of vines and preserved wine production by preventing frost damage
- Cost-saving and preserved quality by choosing the right time and quantity of pesticides
- Optimized cost of irrigation by 50% through precise precipitation and soil water reserve measuring
- Up to 30% reduction of cost and number of disease treatments by using them just in time
- More efficient disease prevention(Downy mildew, powdery mildew, Grey mold, Black rot) and virtually no production loss based on climate monitoring

SYSWIN SOLUTIONS

VIRAL

http://viralerasmus.org/#

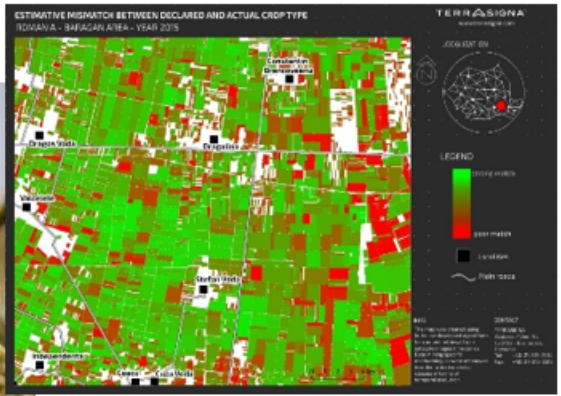
TERRASIGNA™

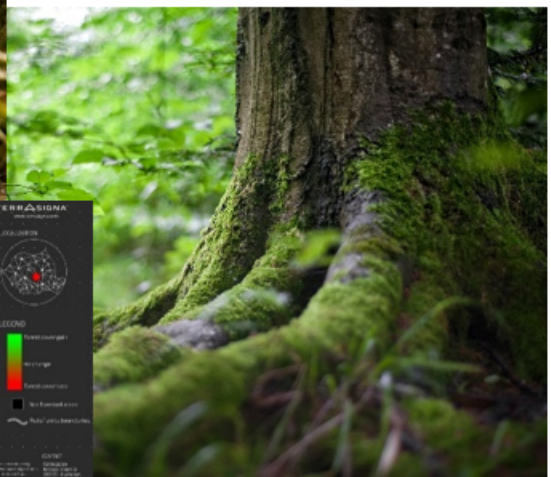
Romanian company having main expertise **in processing, analysis** and **interpretation of optical and radar Earth Observation data**; offers innovative solutions for environmental monitoring and risk assessment (flood risk analysis, drought early warning, deforestation evaluation etc.)
Clients: national space agencies, ESA, NASA, international financial institutions, national public authorities, private companies

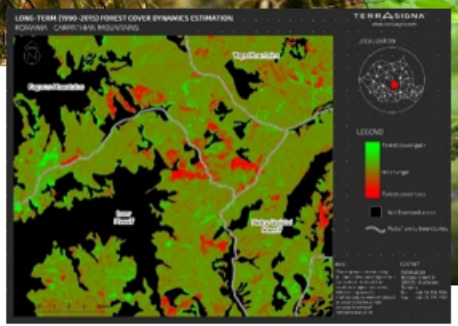
Development directions of Terrasigna

- **Monitoring services** based on satellite and in situ data processing for: natural hazards risks (drought, floods, landslides / earthquakes), mining, urban and wetlands, agriculture, forestry, critical infrastructure, CO2 storage areas, marine/oceanic environment, water quality
- **Web based applications and platforms** for data searching, downloading, management and processing
- **Big data / data mining - analytics tools** and services for EO and linked data access
- **Educational software development** / training sessions
- Complementary ground based **data acquisition sensors (radar)** for different monitoring applications and services

Big Data Technologies – Satellite Images Time Series - SITS







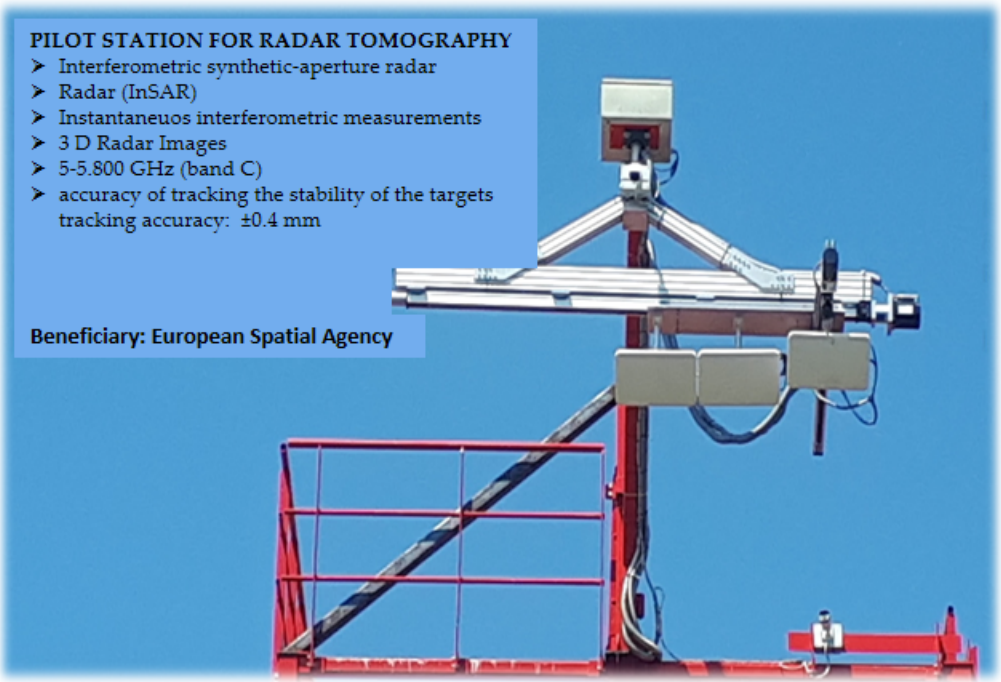
TERRASIGNA™

TSAR-Project

Campaign Support for Sentinel-1 Companion Satellite (CS) – System Studies - Campaign S1_T-SAR

Location:
Moara Domnească Didactic and Rearch Farm

Goal:
radar measurements on agricultural crops, in order to to verify the feasibility of applying spatial radar techniques in this field.



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- Tracking the correlation of radar informations with the measured sizes in order to extract biophysical information.
- Monitors crop health and productivity by remote sensing methods.
- A tomographic-like imaging is performed, which allows three-dimensional (3D) radar images of crops to be obtained under controlled growth conditions throughout the period of the phenological process.
- Ivestigates the capabilities to detect the effects of various factors, such as the water content of strains, soil moisture, pest diseases.

TERRASIGNA

PILOT STATION FOR RADAR TOMOGRAPHY

- Automatic operation (programmable)
- Internet connection
- Video image retrieving
- Correlation of radar data with:
- Meteorological information;
- Soil measurements;
- Complementary data on crop biophysical parameters.

Romania becomes the first country to develop, in a sustainable and recognised way, studies on the possibilities of following and describing crop productivity and health using spatial radar technique.

TERRASIGNA

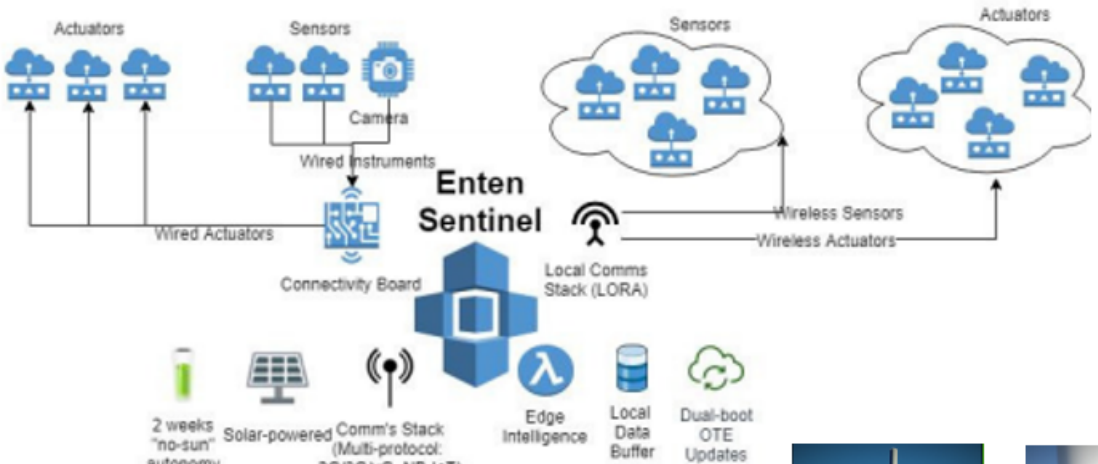
ENTEN SYSTEMS

ENTEN SYSTEMS is an agritech company active in the field of data collection and analysis, offering farmers the essential tools needed to make informed decisions on how best to manage their crops in order to optimize costs and increase yields

AGRICULTURE SENTINEL

The Sentinel is the in-field deployed multi-purpose **observation station**, which is able to orchestrate multiple wired and wireless sensors and actuators with versatile remote-communication capabilities and edge intelligence powered by a real- time operating system.

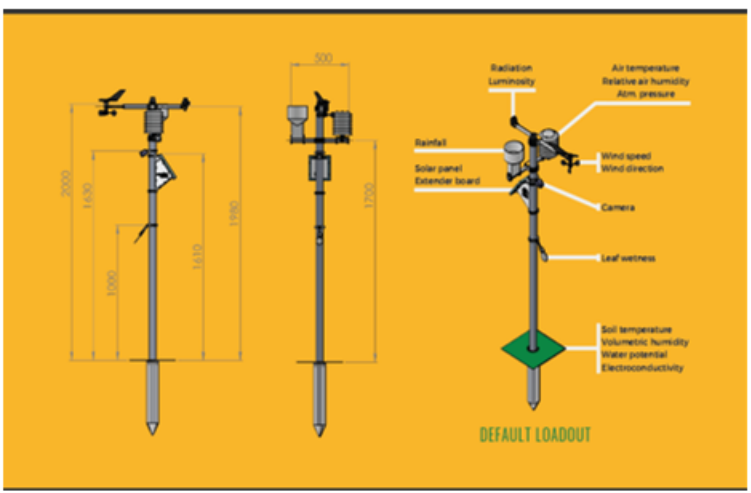
AGRICULTURE SENTINEL



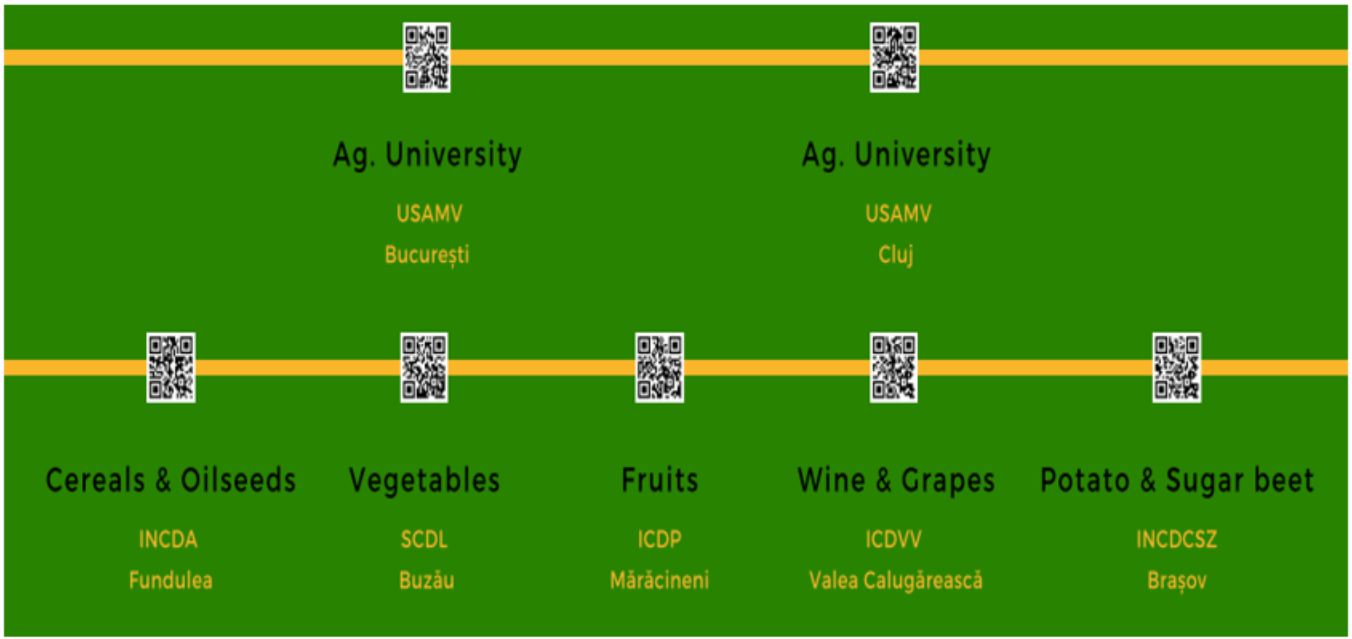
ENTEN SYSTEMS

AGRICULTURE SENTINEL

- Up to 255 sensors wired up to 200m away
- 40 days in-field autonomy without clear sunlight
- Remotely-initiated firmware upgrade
- End-to-end encryption
- On-the-fly remote configuration
- Processing and data-driven actions on the edge with RTOS
- Modular and redundant telecommunications capabilities (2G/3G/4G, NB-IoT, LoRa, dual SIM, e-SIM, WiFi, Bluetooth)
- Plug & Play sensor installation
- Modular design to minimize maintenance efforts
- Designed in compliance with WMO guidelines



ENTEN SYSTEMS



ENTEN SYSTEMS

GEOFARM project

Core Copernicus infrastructure for a national geospatial advisory system for irrigated perimeters

Goal: Establishing innovative and new Copernicus service capacities for the irrigation water management user community in Romania with the vision of bridging and integrating sustainable food production with fair economic competitiveness, and within wise water governance scenarios.

Implementation period: **2014 - 2017**

Consortium:

- Romanian Space Agency
- University of Agronomic Sciences and Veterinary Medicine of Bucharest
- Institute of Agricultural Economy of the Romanian Academy
- 1 large enterprise and 1 SME

Objectives and main outcomes:

1. Foundations of user community

Strengthen the user community by setting-up and maintaining a participatory process in all pilot areas centered on the people participatory GIS (ppgis) concept.

→ A user community organized around the project toolsets in a participatory environment

II. Copernicus-assisted toolsets

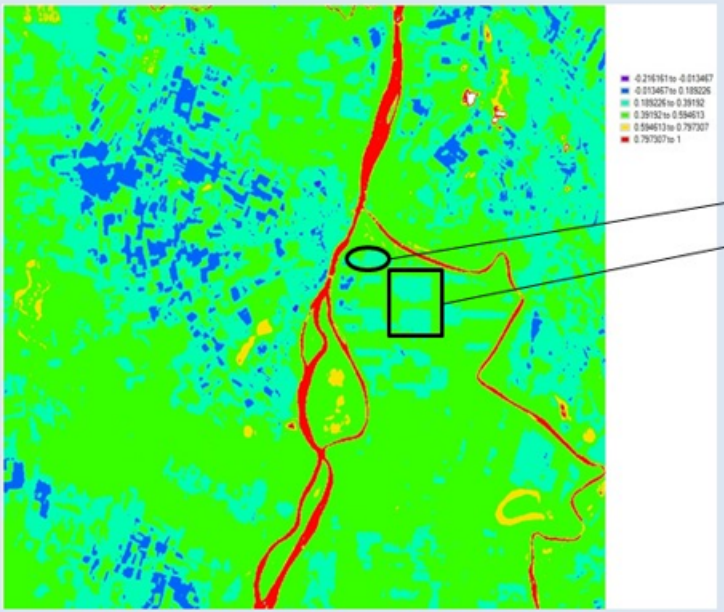
To develop COPERNICUS-assisted pre-operational tools and services for effective and efficient irrigation water management and river-basin governance.

→ Multi-level tool-sets for irrigation water planning, control and management (farm, irrigation scheme, river-basin, Decision-Support-System)

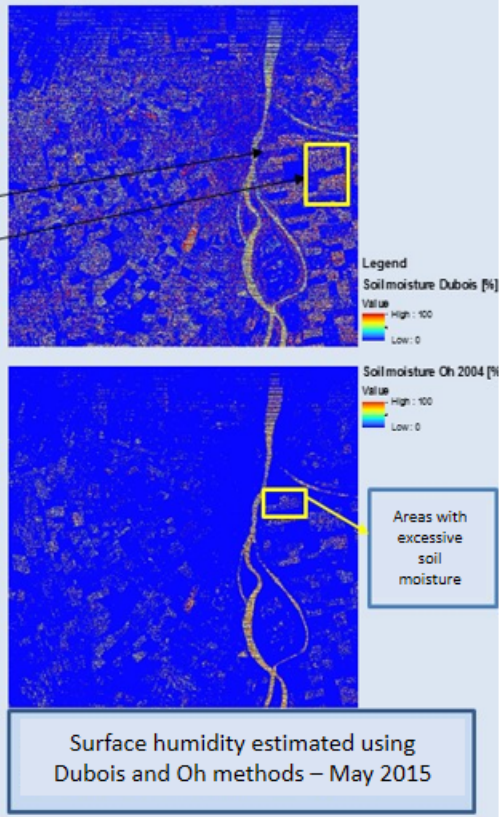
III. Validated service scenarios

Validate and implement the services in a set of pilot areas and prepare their sustainable operation.

→ Pre-operational services established that provide continuous flow of Copernicus Earth Observation-based information for the water resources management community in 3 pilot areas



Surface humidity estimated from Landsat 8 data – May 2015



Surface humidity estimated using Dubois and Oh methods – May 2015

Volumetric surface humidity estimated from Landsat OLI and RADARSAT 2 data

VIRAL

VITALISING ICT RELEVANCE IN AGRICULTURAL LEARNING