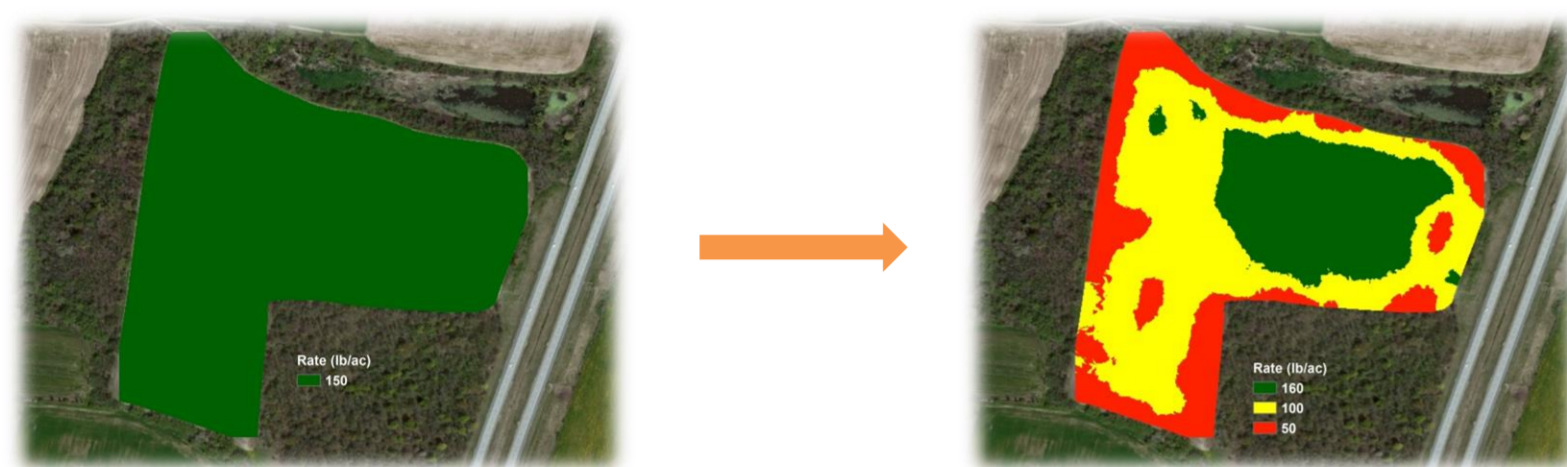


Integrated system for automated mapping of soil parameters

Soil Information Management System

Introduction:

Soil properties are of the most important factors in crop management, as they directly affect plant growth, yield and quality of the final product.



Traditionally soil is managed uniformly, not taking account of the field variability. This leads to over-application or under-application depending on the specific properties and needs of each part of the field. Following the concept of Precision Agriculture, fields can be managed at sub-field level based on the spatial variability of field properties. However, managing field variability can be puzzling to most farmers and farm managers.

The SIMS system:

The SIMS system uses heterogenous sensing systems and is based on the management principles of Precision Agriculture supporting decisions for variable rate treatments using management zones. The main challenge tackled by the SIMS project is the fusion of all data layers coming from heterogenous data sources, to be analysed accordingly and provide the final output in a comprehensive and understandable way in the form of application management zones.

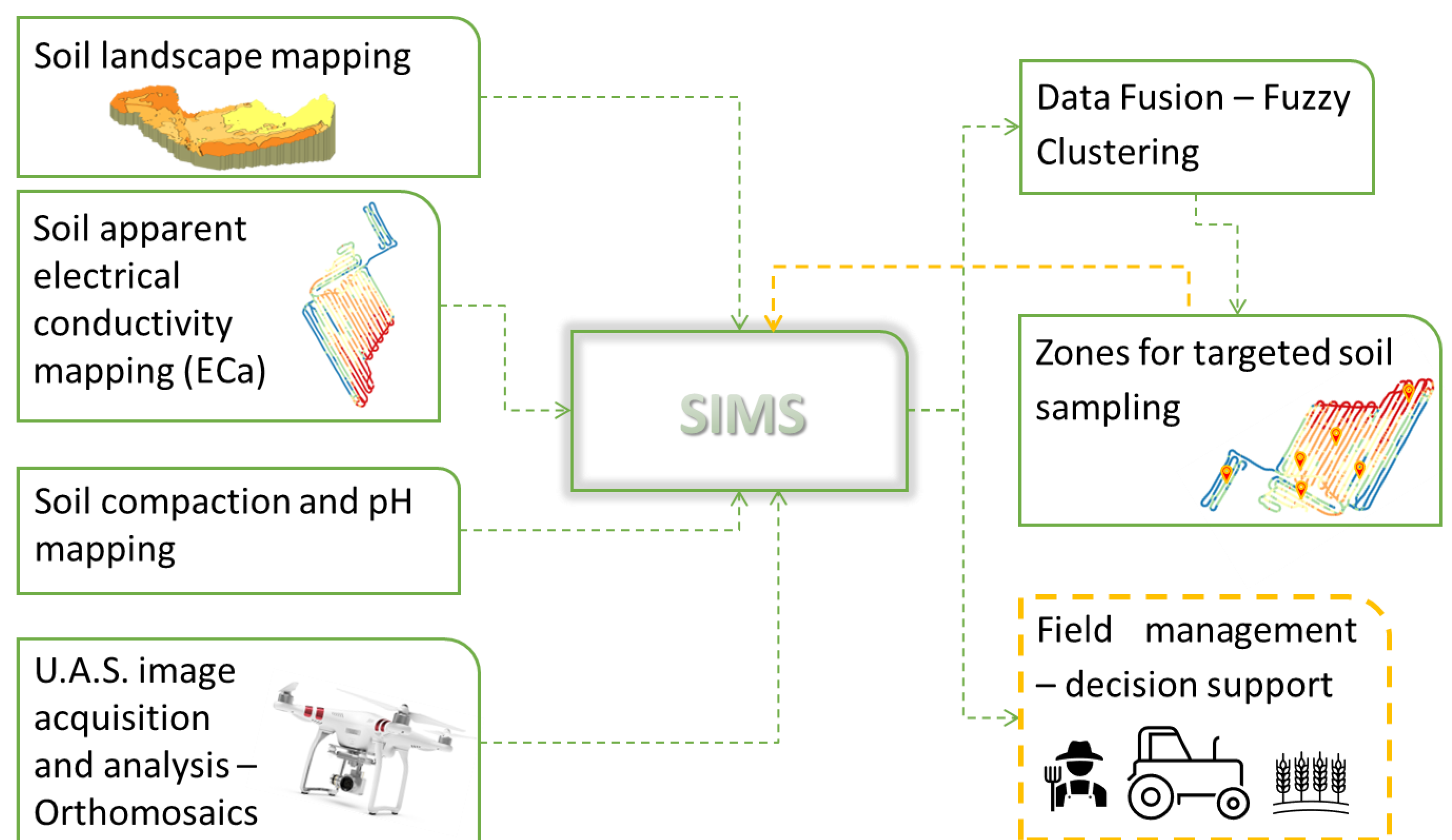
The SIMS project:

The SIMS project fosters to simplify the procedures of precision agriculture making it accessible to farmers and farm managers. Within the framework of SIMS an automated system is developed for mapping and processing of soil parameters. It works as a decision support system, optimizing soil management (soil preparation, cultivation, etc.) and crop management (fertilization, irrigation, etc.).

An Android-based smart application is also being developed as a portable version of SIMS platform. It will also work as a tool to navigate the user to the soil sampling locations for targeted soil sampling.

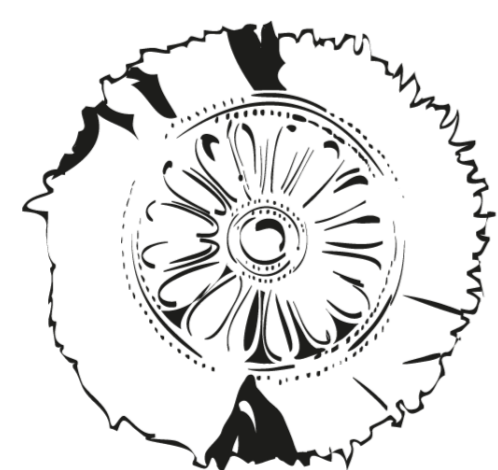
Expected results:

1. Through optimized management, the system aims to reduce inputs (fertilizers, irrigation water, fuel, etc.) increasing the economic sustainability and reducing the environmental footprint of agricultural activities.
2. The project strives to raise awareness and promote a wider acceptance of innovative agricultural sensor methods and cutting-edge technologies, contributing to the modernization of agricultural production methods that will lead to the agriculture of the future.



SIMS will be fully compatible with autonomous robotic platforms, paving the way towards complete atomisation of soil sampling procedures. A situation awareness study is foreseen within the tasks of the project for autonomous navigation of the robotic vehicles.

Project Partners



Contact:

Prof. Dionysis Bochtis
Director
d.bochtis@certh.gr
+30 24210 96 740



Institute for Bio-Economy and Agri-Technology
iBO | CERTH
6th km CharilaouThermi Rd.
57001 | Themi | Thessaloniki | Greece
www.ibo.certh.gr | www.certh.gr