

# IMAGINES

## Implementation of Multi-scale Agricultural Indicators Exploiting Sentinels



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Wheat fields, vineyards and managed pastures in heterogeneous cropland landscape.



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### ABSTRACT

*IMAGINES aims at developing qualified software able to process multi-sensor data over the whole globe to generate multi-scale biophysical variables. It also aims to describe the state of the continental vegetation and is useful to assess the crop and fodder production, the water and carbon fluxes, and to derive drought indicators. Thus, IMAGINES will contribute to the continuity of the operations of the Global Component of the Copernicus Land service.*

### MONITORING CONTINENTAL VEGETATION FOR AGRICULTURAL ISSUES

The Copernicus Land Service has been built in the framework of the FP7 geoland2 project, which has set-up pre-operational infrastructures. IMAGINES intends to ensure the consolidation and the continuity of the research and development efforts to support the operations of the Global Component of the Copernicus Land Service, preparing the exploitation of the Sentinel data. IMAGINES will favor also the emergence of new activities dedicated to the monitoring of crop and fodder production.

The main objectives of IMAGINES are: to produce multi-sensor and multi-scale biophysical variables, identified as Essential Climate Variables, exploiting Sentinel sensors data, jointly with other missions like Proba-V; to develop qualified software able to process multi-sensor data over the whole globe on a fully automatic basis; to build an agricultural service able to assess the vegetation biomass through the assimilation of above-mentioned satellite products into land surface models, in order to monitor the crop/fodder production together with the carbon and water fluxes, and to demonstrate

the added value of this agricultural service for a community of users acting at global, European, national, and regional levels.

The added value of IMAGINES is to build a framework to perform the research and development activities needed for the evolution of the Global Component of the Copernicus Land Service, in response to user needs and to new sensors, and to cover the whole value chain from satellite data to the final agricultural indicators, directly readable by the end-users, thus bridging the gaps between different communities.

### QUESTIONS & ANSWERS

#### **What is the project designed to achieve ?**

The IMAGINES project aims to contribute to the continuity of the Global component of the Copernicus Land Service with software able to process Sentinels data, jointly with other contributing missions data, around the globe to produce biophysical variables at 300m resolution. These generic products can then be used to derive crop production, drought indicators, and water and carbon fluxes estimates.

#### **Why is this project important for Europe and how does it benefit European citizens ?**

There are growing needs to improve the quality, reliability, accuracy, timeliness and comparability of information on agricultural markets (production, consumption, stocks) to address food price volatility. IMAGINES will contribute to addressing the "production" issue by developing tools able to analyse Sentinel data and integrate them into models across scales, from the European regions to the entire globe.

#### **How does the project exceed the current state of knowledge ?**

IMAGINES builds a framework to consolidate and continue the research and development activities which have set-up the Global Component of the Copernicus Land service. Further, IMAGINES covers the whole value chain from satellite data to the advanced agricultural indicators, directly readable by end-user, thus bridging the gaps between the communities.

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### LIST OF PARTNERS

- HYGEOS, France
- Le Centre national d'études spatiales, France
- European Centre for Medium-Range Weather Forecasts, United Kingdom
- Earth Observation Laboratory, Spain
- French National Institute for Agricultural Research, France
- Meteo-France, France
- Országos Meteorológiai Szolgálat, Hungary
- Université Catholique de Louvain, Belgium
- VITO Vision on technology, Belgium

### COORDINATOR

HYGEOS, France

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### PROJECT INFORMATION

Implementation of Multi-scale Agricultural Indicators Exploiting Sentinels (IMAGINES)

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