



How Earth Observation, Crop Modeling, and ICT can help rice cultivation: the ERMES project

IN A NUTSHELL

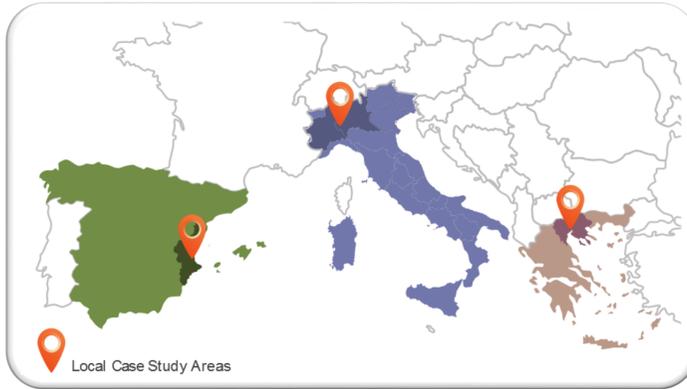
Context: Agricultural challenges due to pressures of food demand, increased price-competition and demand for sustainable farming practices.

Proposal:

- multiple data sources: satellite, sensor and user-provided data
- advanced models based on integrated data
- adequate monitoring, prediction and visualization systems
- desktop (geo-portal) & mobile deployment

STUDY AREAS

Study areas have been selected in three Mediterranean countries, responsible for **85% of total European rice production**



OBJECTIVES

ERMES aims to develop services dedicated to the rice sector and aimed at:

- **Supporting authorities** in the implementation of agro-policies;
- Promoting solutions for **sustainable management practices** in farming activities
- Providing independent reliable **information to the agri-business** sector.

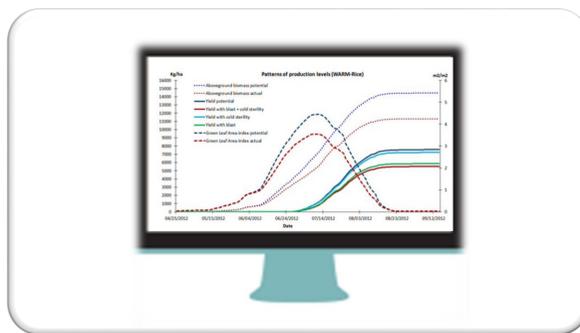
EARTH OBSERVATION DATA

Satellite radar/optical images analysis to perform rice mapping, crop monitoring, bio-parameters retrieval and meteorological variables estimation



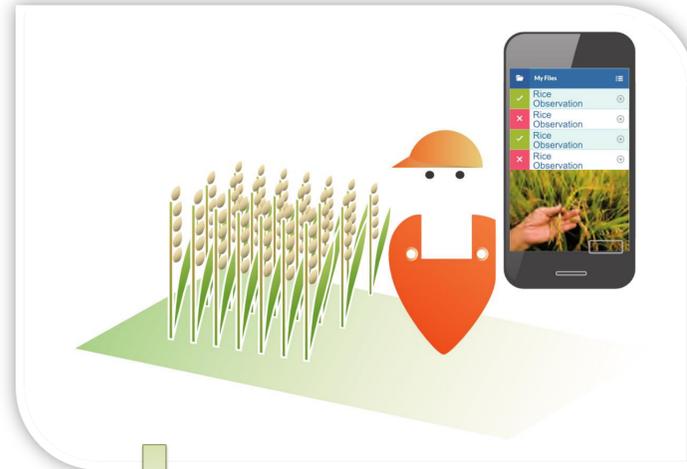
MODELLING

Simulation of rice growth, development and yield by state of the art crop modelling solutions



IN-SITU OBSERVATIONS

In-situ observations will be provided to the crop model by field operators and/or sensor technology, using advanced smart applications and technologies



ICT solutions

Geo Portal



- Visualization of model simulations & predictions
- Personalized reporting and bulletins
- Social interactions

Smart apps

- In-situ observations & feedback
- Risk notifications, alarms and alerts
- On-site navigation & location-based information provision



Web services for data access, analysis and distribution



Agri-Business Sector

REGIONAL RICE SERVICE (RRS)

WHAT

Agro-monitoring system devoted to regional yield forecasting and estimation and risk alerting

DEDICATED TO

Public authorities, control bodies

PRODUCTS

- Rice Crop extent
- Crop temporal evolution (NDVI, phenology)
- Alerting on biotic and abiotic risks
- Yield forecast and end of season production

SERVICE

Digital maps and geo-portal analysis functionalities of use for regional agro-bulletins production

LOCAL RICE SERVICE (LRS)

WHAT

High resolution information on yield variability, risk alert and crop damage

DEDICATED TO

Farmers, agro-service and insurance companies

PRODUCTS

- High resolution rice cultivated area
- Intra-farm yield variability
- Field level alarming on biotic and abiotic risk
- Crop damage

SERVICE

Farm level customized information and smart technologies to support agro-management and planning