



# ERMES

AN EARTH  
OBSERVATION  
MODEL BASED  
RICE INFORMATION  
SERVICE

A downstream service to support agro-production, planning and policy

FP7-SPACE-2013-1- CALL Contract N°: 606983

<http://www.ermes-fp7space.eu/>

**First periodic review meeting agenda  
Wednesday 23rd September 2015**

# OVERALL PRESENTATION OF THE PROJECT AND ITS OBJECTIVES

# Why ERMES: provide information to agro-sector

**FP7-SPACE ERMES aims to develop a prototype of downstream service** dedicated to rice sector based on assimilation of EO and in situ data within crop yield modelling.

The objective of this service, targeted to European needs, is to:

- contribute to the regional authorities in the implementation of agro-environmental policies;
- provide independent reliable information to the agro-business sector.
- support farming activities for sustainable management practices;



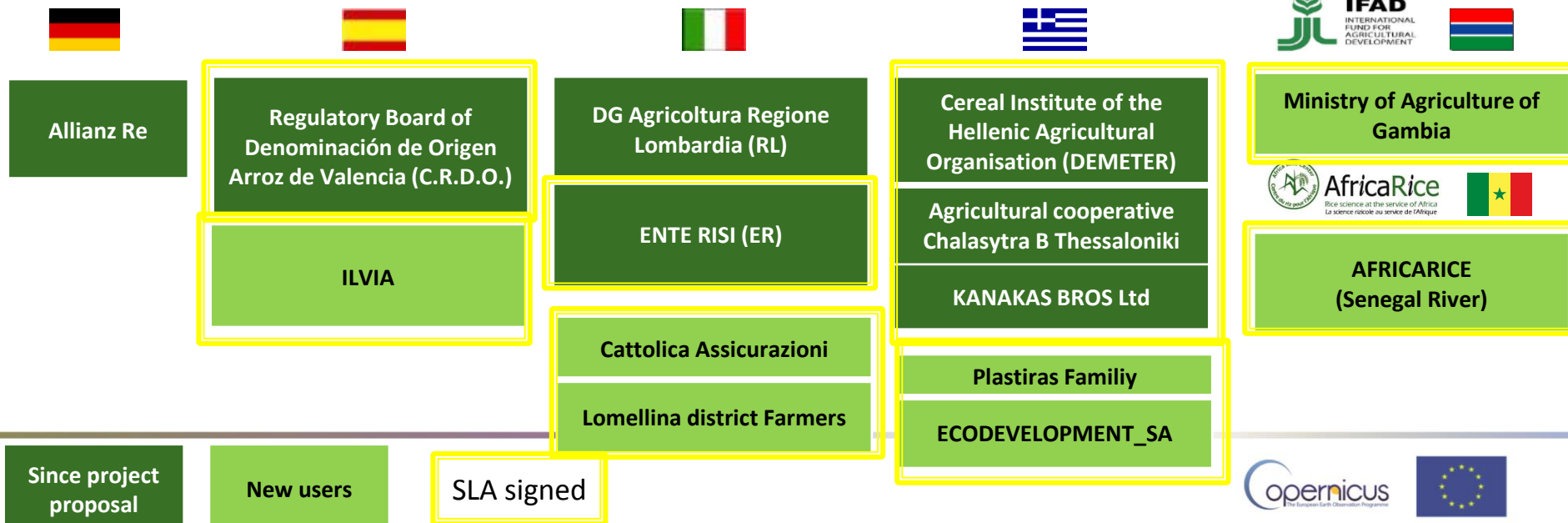
The long term goal is to extend and adapt the service to Asian and African markets, in order to boost European competitiveness and contribute to a sustainable development.

## • Where we work (at the moment)



- Europe
  - Italy
  - Spain
  - Greece
- West Africa
  - Gambia
  - Senegal

## • ERMES user



# SCIENTIFIC AND TECHNICAL ASPECT

# Innovative approach

- Provide (receive) **customized** (ground) **information to** (from) **different END-USERS**, and disseminate it by **SMART technologies** (web 2.0)



*Smart app.*

- Synergic use of **SAR and Optical data**, from existing EO satellites and forthcoming ESA Sentinel missions, to derive specific products

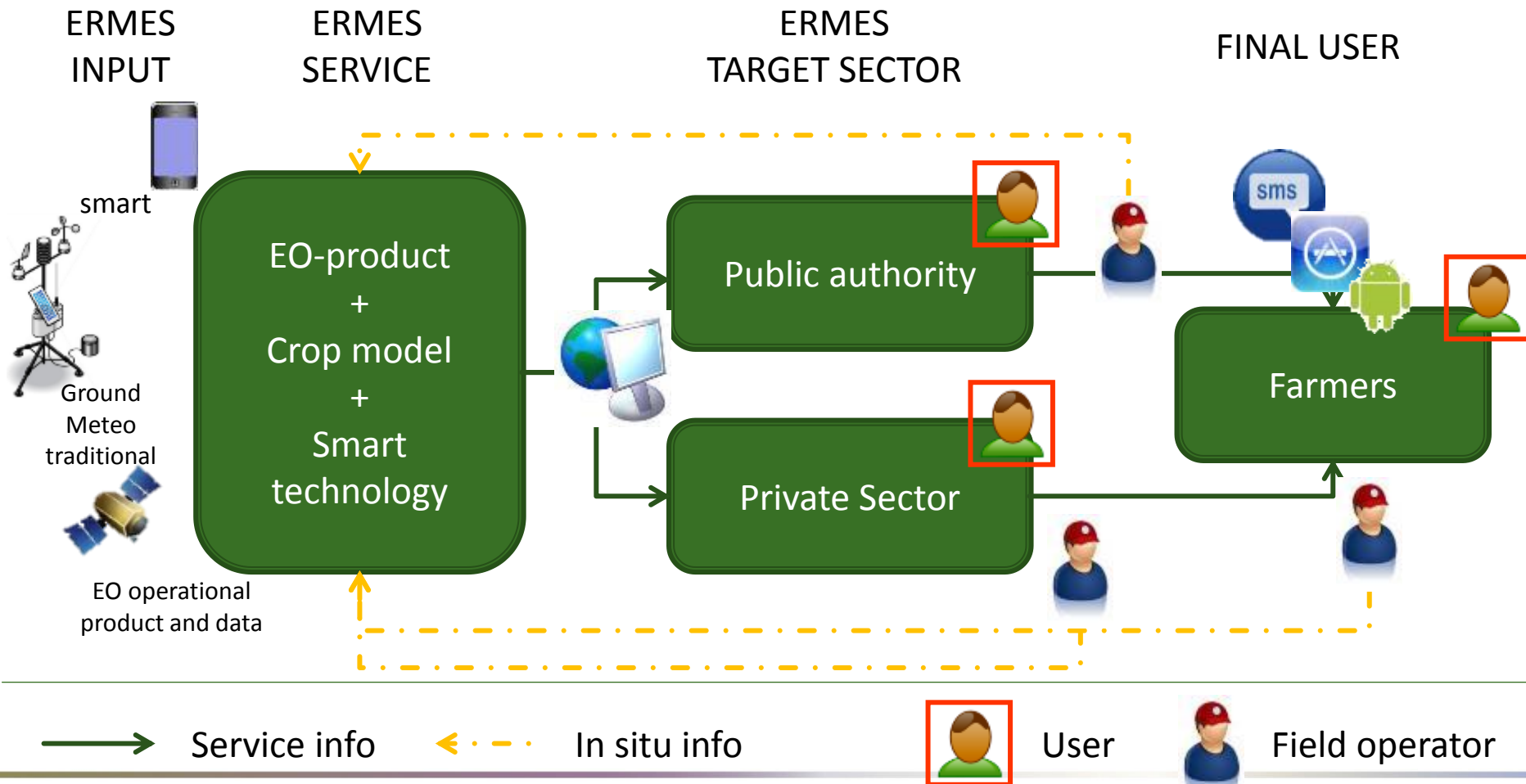


*Satellite data*

- Develop **value added Agro-information** by assimilating i) satellite observations, ii) in situ measurements and iii) Copernicus core services in crop models



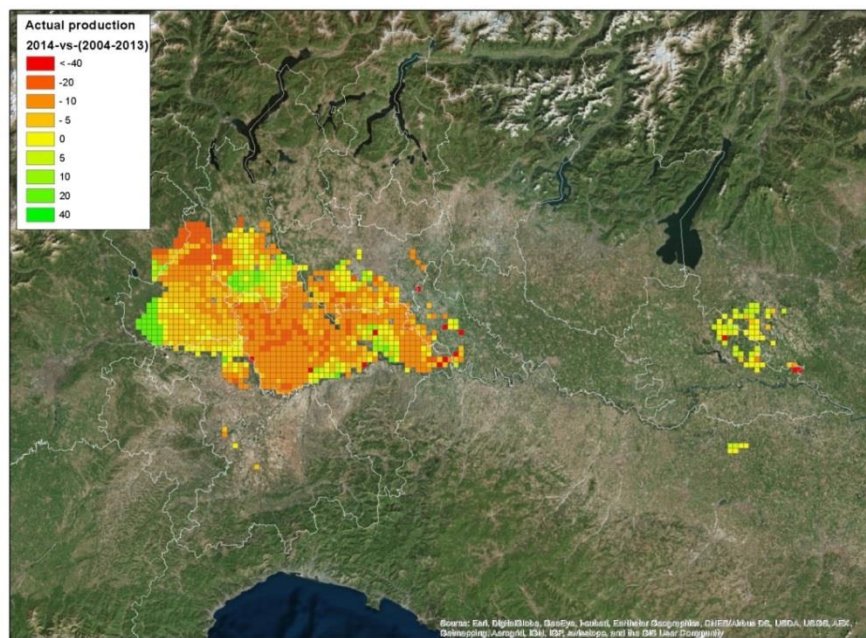
# Data-information-service scheme





A system to monitor **spatial variability of rice production** at regional (district) and local scale

### Regional Rice Service (RRS) @ Regional scale



→ Provide to authorities (institution with monitoring mandate) customized agro-monitoring system devoted to **regional yield estimates** and **risk alarming**.

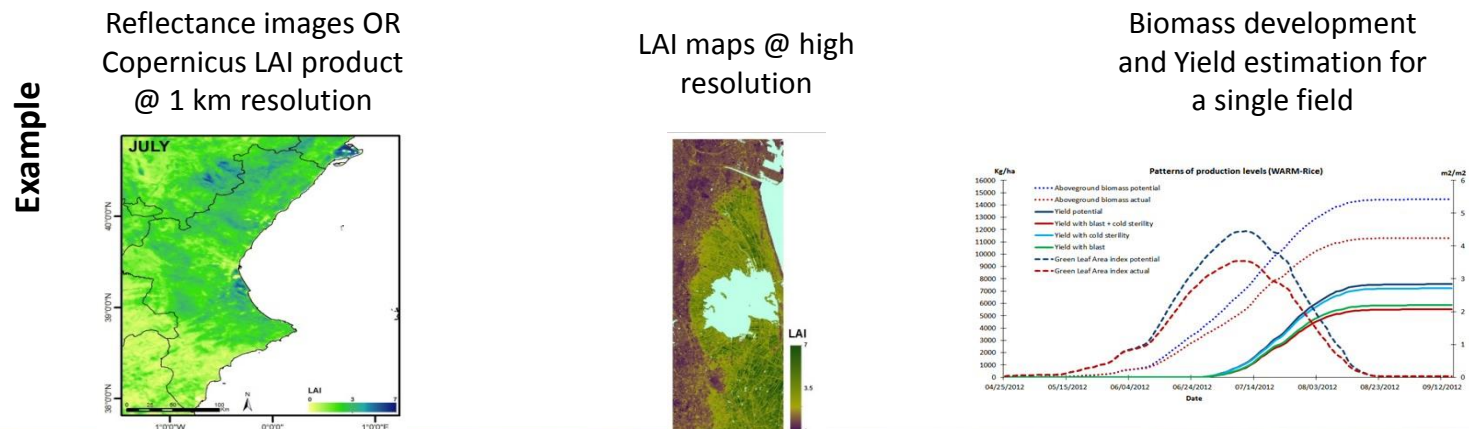
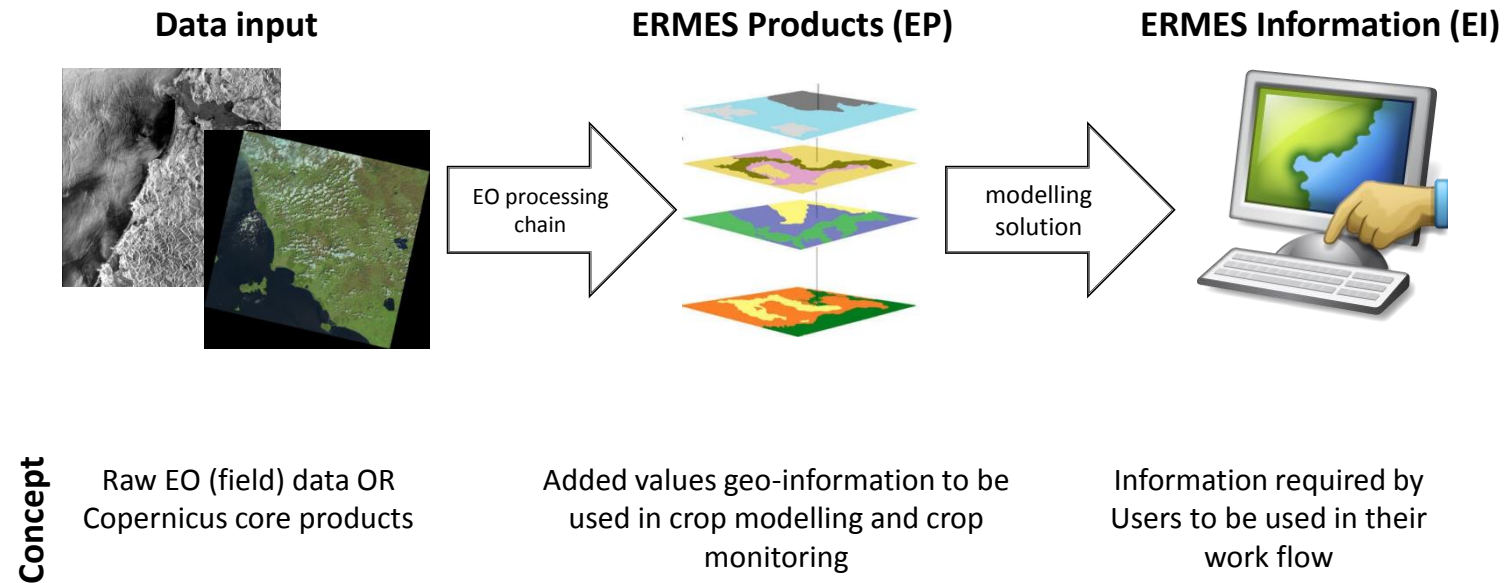
### Local Rice Service (LRS) @ Farm scale



→ provide to the private sector (farmers, cooperative, agro-consulting, etc) high level information on **yield variability**, **risk alert** and **crop damage assessment** at farm scale

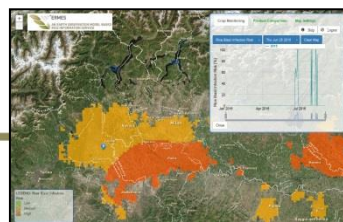
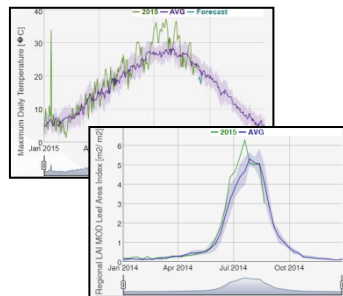
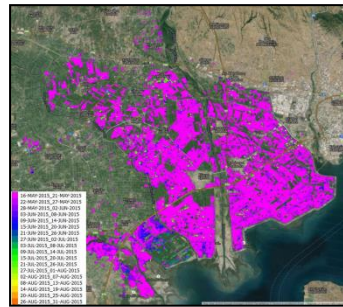


# From data to information

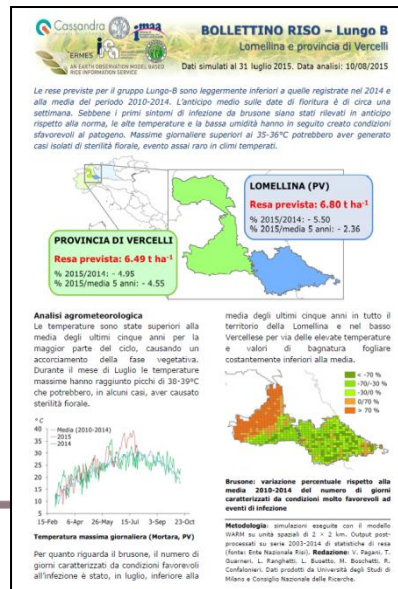
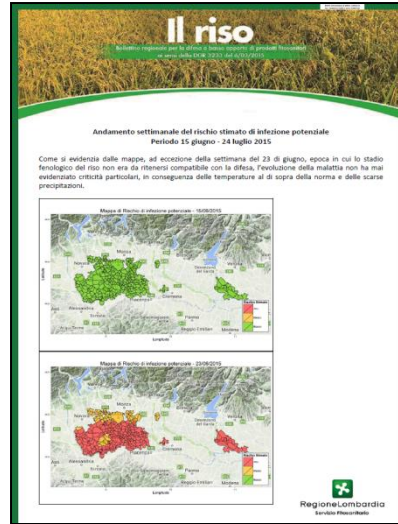


# Added value information: EO product and model outputs

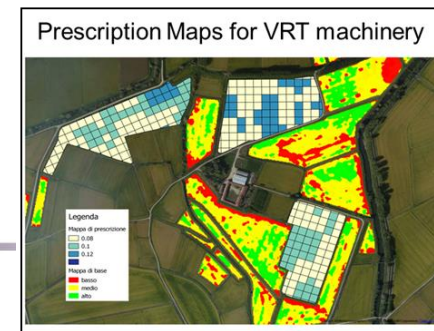
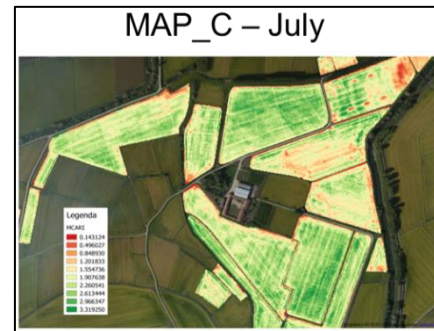
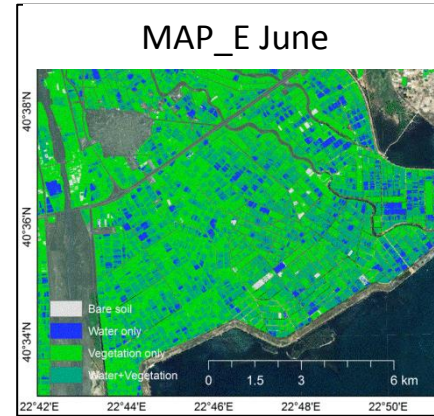
## Monitoring



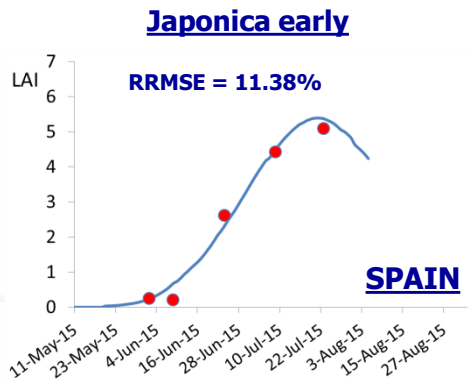
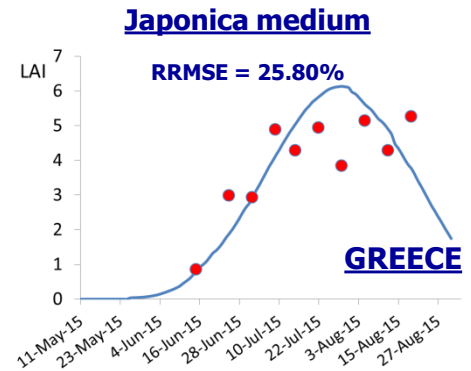
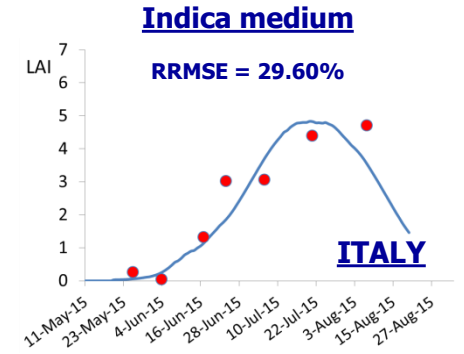
## Bulletins



## Mapping



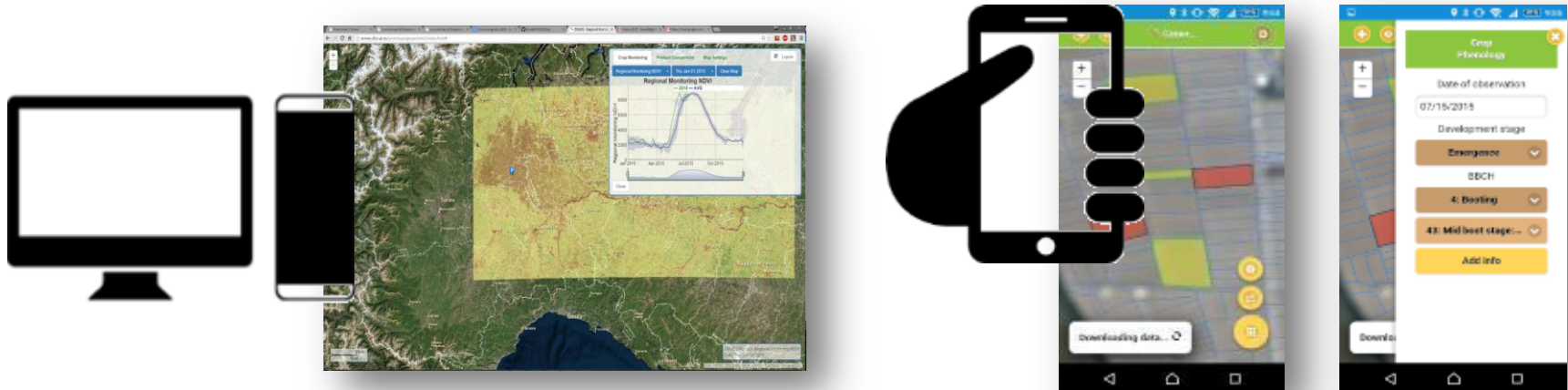
## Modelling





## Geoportal & SmartApp to

- i) visualize/analyze data and support farm management/field inspection (agro-management information)



- ii) acquire measurements (LAI and Nitrogen proxy)



# Project structure and consortium competences

**WP1: Project Management**

**WP2: Scientific and technical coordination**

**WP3: Users requirement and evaluation**

**WP4: Services design through analysis of requirements**

*ERMES SERVICE DEVELOPMENT*

**WP5:**

Geo-product from  
space-borne and in-  
situ data processing  
and integration

**WP6:**

Geo-information  
from crop modeling  
and EO data  
assimilation

**WP7:**

Geo-services for  
information  
management:  
Integration and  
Communication

*TUNING*

*TUNING*

*TUNING*

**WP8: Sci. & tech. validation of product and services**

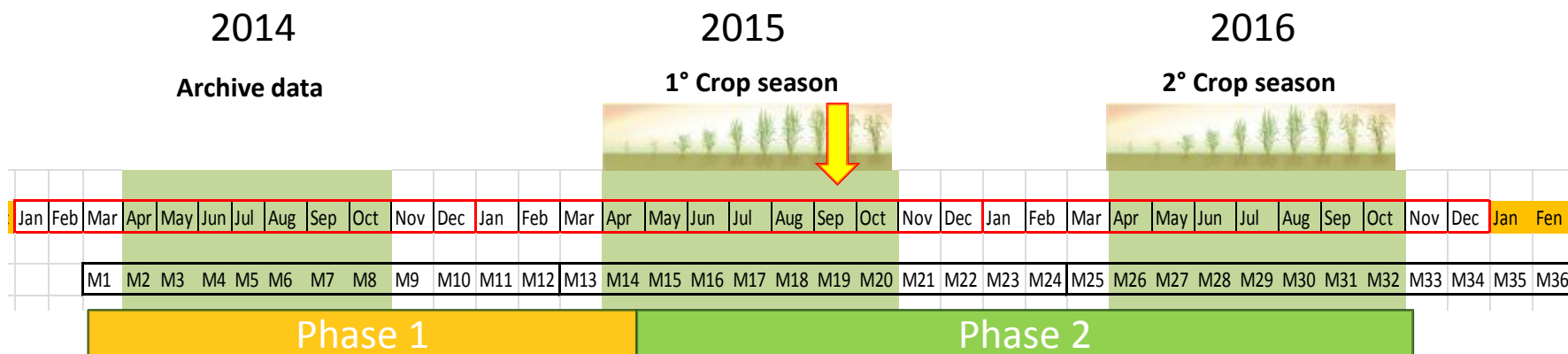
**WP9: Services application and demonstration**

**WP10: Market analysis and business model development**

**WP11: Dissemination, exploitation and promotion networking**



## PROJECT PHASES



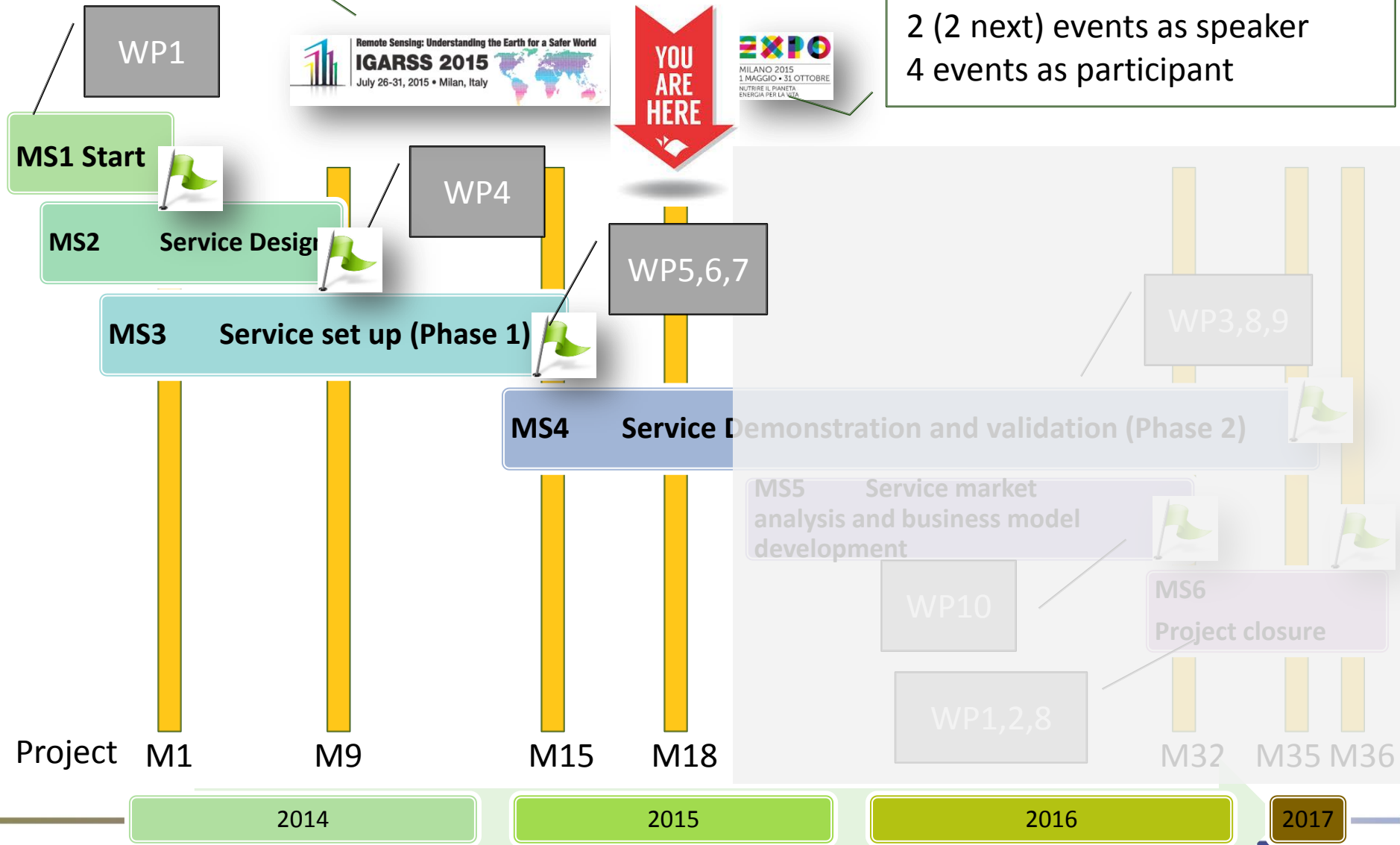
- **Phase 1: System development: (M5 – 14):** 2014 data (satellite and ground) were used to set up the processing chains: EO data processing, Model customization, Geoportal/Smart app development
- **Phase 2: Service Demonstration & tuning: (M14 – 32):** EO-products and crop model information, produced for 2015 and 2016 crop season, will be used to verify and update the processing chain and evaluate User satisfaction

# Milestones

4 contributions  
Promoter of the GEOGLAM session



2 (2 next) events as speaker  
4 events as participant





## Coordination

### Processing chain: responsibility



EP\_R1: Rice mapping



EP\_R2: Phenology



EI\_R3- EI\_L2: Risk alert



EP\_R5 – EP\_L5: Meteo data



EP\_R4-EP\_L4: Bio parameter



EI\_R2-4: Yield forecast/estimation



EP\_L2: Constant pattern



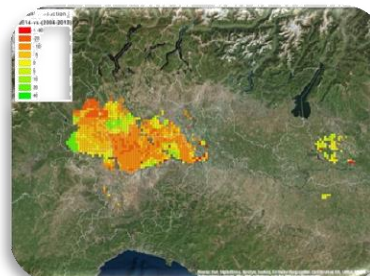
EP\_L3: Seasonal pattern



EI\_R1 & EP\_L6 → Tools: Geoportal & smart app

### Demonstration: product generation

#### RRS



Rice mapping: SARMAP  
Rice Phenology: CNR-IREA  
Bio-Par: UVEG  
Meteo: CNR-IMAA  
Modelling: UMIL  
Geoportal: UIJ

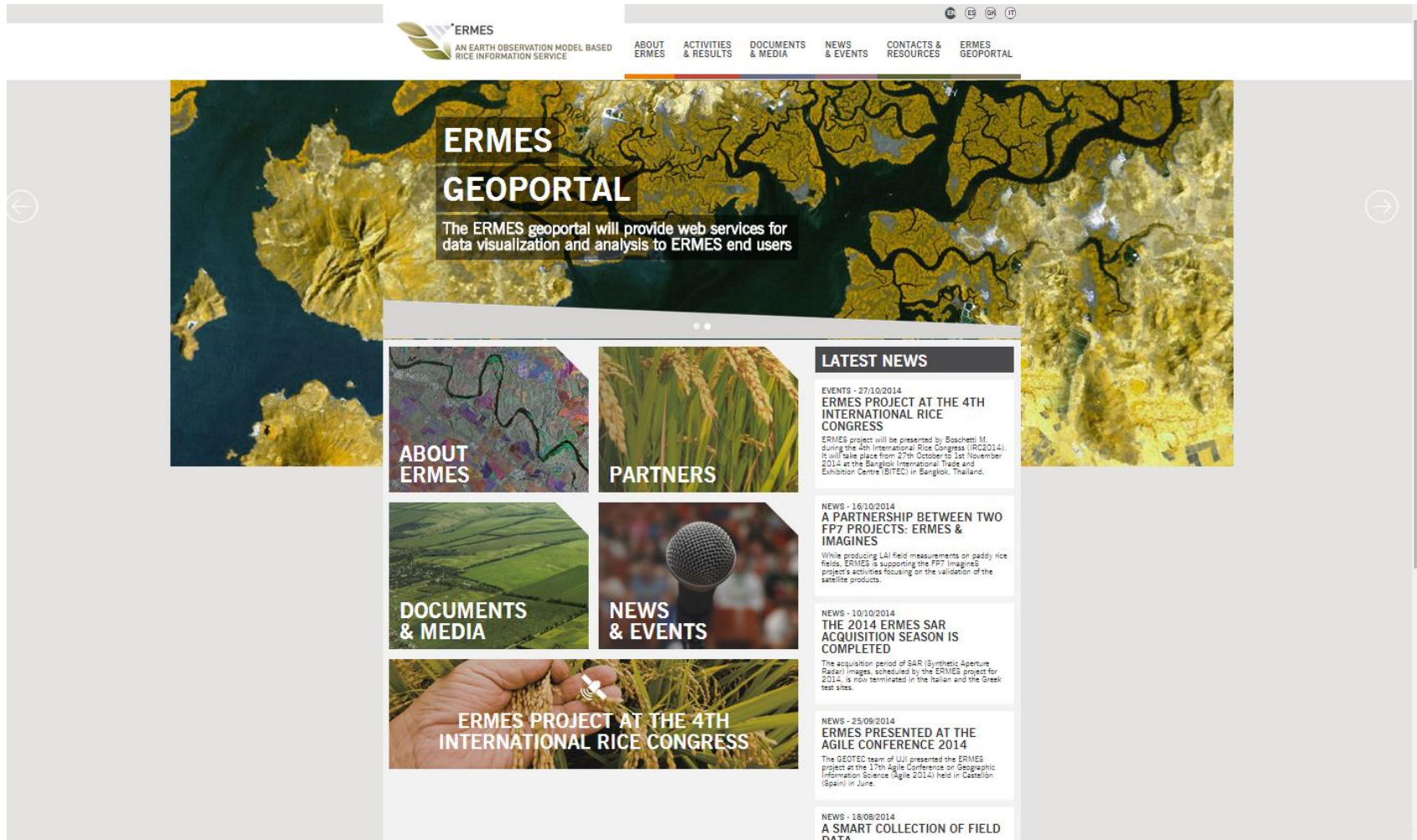
#### LRS



Constant map: CNR-IMAA  
Seasonal maps:  
• IT: CNR-IREA  
• GR: AUTH  
• ES: UVEG  
Modelling: UMIL  
Smart App: UIJ

Super users and rice expert → User requirements and field data collection

# www.ermes-fp7space.eu




**ERMES**  
AN EARTH OBSERVATION MODEL BASED  
RICE INFORMATION SERVICE


[ABOUT ERMES](#) [ACTIVITIES & RESULTS](#) [DOCUMENTS & MEDIA](#) [NEWS & EVENTS](#) [CONTACTS & RESOURCES](#) [ERMES GEOPORTAL](#)

## ERMES GEOPORTAL

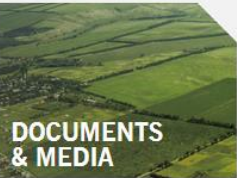
The ERMES geoportal will provide web services for data visualization and analysis to ERMES end users




**ABOUT ERMES**




**PARTNERS**



**DOCUMENTS & MEDIA**



**NEWS & EVENTS**



**ERMES PROJECT AT THE 4TH INTERNATIONAL RICE CONGRESS**

**LATEST NEWS**

**EVENTS - 27/10/2014**  
**ERMES PROJECT AT THE 4TH INTERNATIONAL RICE CONGRESS**  
ERMES project will be presented by Boschetti M. during the 4th International Rice Congress (IRC2014). It will take place from 27th October to 1st November 2014 at the Bangkok International Trade and Exhibition Centre (BITEC) in Bangkok, Thailand.

**NEWS - 16/10/2014**  
**A PARTNERSHIP BETWEEN TWO FP7 PROJECTS: ERMES & IMAGINES**  
While producing LAI field measurements on paddy rice fields, ERMES is supporting the FP7 IMAGINES project's activities focusing on the validation of the satellite products.

**NEWS - 10/10/2014**  
**THE 2014 ERMES SAR ACQUISITION SEASON IS COMPLETED**  
The acquisition period of SAR (Synthetic Aperture Radar) images, scheduled by the ERMES project for 2014, is now terminated in the Italian and the Greek test sites.

**NEWS - 25/09/2014**  
**ERMES PRESENTED AT THE AGILE CONFERENCE 2014**  
The GEOTEC team of UJI presented the ERMES project at the 17th Agile Conference on Geographic Information Science (Agile 2014) held in Castellón (Spain) in June.

**NEWS - 18/08/2014**  
**A SMART COLLECTION OF FIELD DATA**