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AEMet
Agencia Estatal de Meteorología



Regional Initiative for the Assessment of Climate Change Impacts on
Water Resources and Socio-Economic Vulnerability in the Arab Region

Session 6B: Climate Services in Arab States

Delivering Regional Hydro- Climate Services

E.Rodríguez-Camino, AEMET



Outline

- Motivation
- General considerations: user perspective
- Some example of prototypes for climate services
- Lessons learnt
- Conclusions: key messages



Motivation (1)



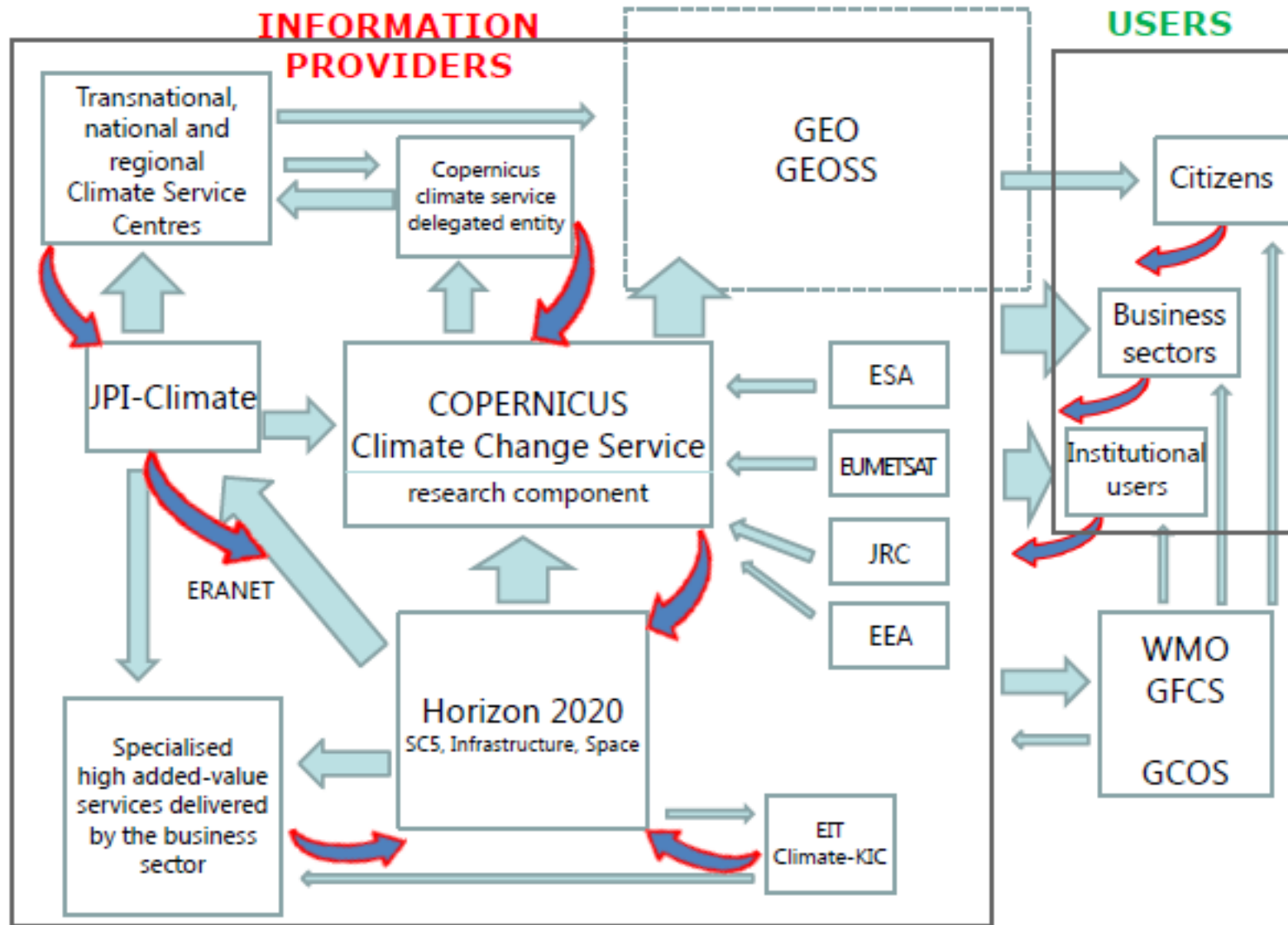
- Since the creation of the GFCS by WCC-3, the generation and provision of climate services have reached a **new scientific, social and economic relevancy**
- The original objective of **building climate resilient societies** (e.g., CSs for Disaster Risks Reduction) have slowly evolved to the subsidiary objective of **developing a market for climate services** (e.g., CSs for improving business)
- We may well say that the **current broad meaning of CSs** covers the transformation of climate-related data into customised data that **may be of use for the society at large.**

General considerations



- Long way **from climate information to climate services**
- Most NMHSs and other providers are **mainly producing climate information and NOT true climate services**
- To translate climate information into services **we still need:**
 - sustained research/innovation
 - closer partnership with end-users
 - cross climate knowledge with multiplicity of data/sectors
 - appropriate data (not only climatic)
 - actionable services for decision making
 - credibility

The European landscape of CS



Climate Services in Arab States



- CSs very **dependent** on regions, governance structures, sectors, ...
- **Learn** from experiences in other regions and **adapt** to own circumstances.
- **Inventory** of information providers, users (citizens, institutional, business) , international initiatives, ...
- Start with **research/innovation** projects, then **demonstration** projects, and finally **operational implementation** → long process
- Always in **partnership with users**

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EUPORIAS

European Provision Of Regional Impacts Assessments on Seasonal and Decadal Timescales

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About Euporias

Whilst societies have flourished or collapsed according to their ability of dealing with climate variability and change it is only recently that we have acquired the ability to predict future environmental conditions. EUPORIAS, a project recently funded by the European commission under the 7th framework program, intends to improve our ability to maximise the societal benefit of these new technologies. Working in close relation with a number of European stakeholders this project want to develop a few fully working prototypes of climate services addressing the need of specific users. The time horizon is set between a month and a year

Tweets

- » RT @CORDIS_EU: Download @CORDIS_EU free #ResultsPack brochure on #climate services through innovative EU research here <https://t.co/XpMhZ7B...> — 2 months 3 weeks ago
- » RT @NickKlenske: #EU @Euporias project develop prototype #climate services meeting specific needs of those using #climatechange info: <https://t.co/...> — 3 months 3 weeks ago
- » RT @kaleider: #BellHouse film at #realtoreel Craft Film Fest tomorrow! Pretty neat! @ChrisJonesDoP @RAMPceramics

EU EUPORIAS Project

(Dec 2012-March 2017)

- EU Project ended in March 2017 and left as legacy different CS prototypes applicable in different regions and/or sectors.
- EUPORIAS was mainly a **demonstration** project on CSs
- EUPORIAS paved the way for many **implementation** projects on CSs currently under development (MOSES, CLARITY, MEDSCOPE, ...)

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MedCOF Mediterranean Climate Outlook Forum

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RELEVANT LINKS

APOC APEC Climate Center
EDMMF Seasonal Forecast
IRI Climate and Forecast Products
JMA Stratospheric Circulation
NOAA CPC EN80
WMO LC LRF MME
World Meteorological Organization

RCCs
Other RCCPs
Other Links

The Eighth MedCOF
MedCOF-8 On line
Eighth MEDITERRANEAN CLIMATE OUTLOOK FORUM (ON-LINE)
April 17 - May 30, 2017
-> Online Forum

MedCOF-8 comprises 3 steps. The first one has been devoted to verification of the MedCOF-7 winter forecast; the second one to the assessment of current state of climate and, finally, the third one to the building of consensus statements.
-> Read more ...

The Seventh MedCOF
MedCOF7
The Seventh Session of MedCOF (MedCOF-7) has been held back to back with the 16th Session of the SECCOF, and the 10th session of PREBANORD in Rome, Italy, from 21 to 23 November 2016. These sessions has been preceded by the Second Training Workshop on Seasonal Forecasting for MedCOF participants in Rome, Italy, from 15 to 18 November 2016. All these events have been kindly hosted by the National

The Second Training Workshop
MedCOF 2016 Training Workshop
Rome, Italy, 15-18 November 2016
Second Training MedCOF Workshop on Seasonal Forecasting has taken place in Rome, Italy, on 15-18 November 2016, hosted by the National Council of Research (CNR-IBIMET) and the Centre for Euro-Mediterranean Climate Changes (CMCC).
-> Read more ...

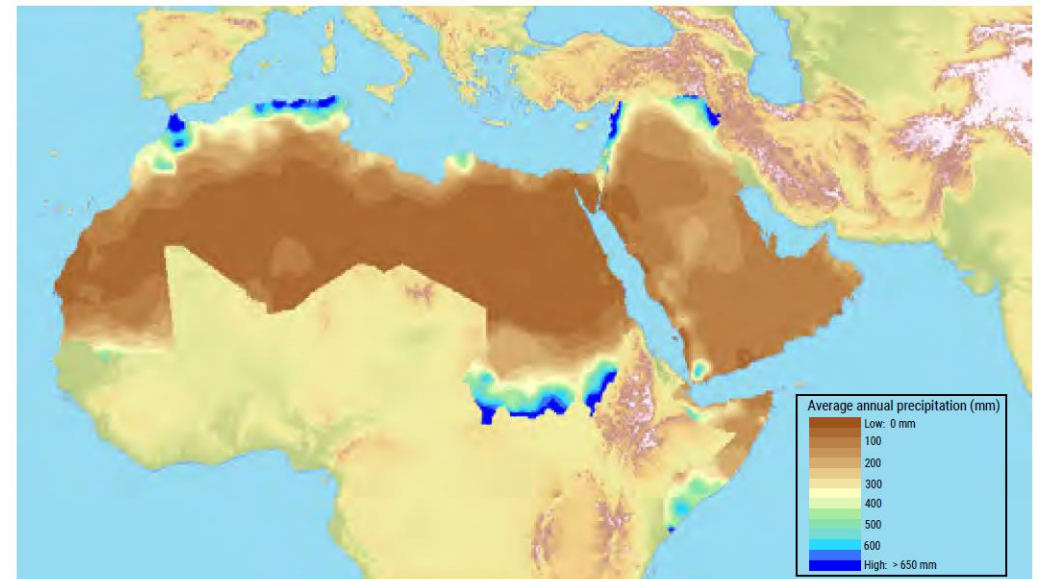
Latest Consensus Outlook

On-Line Forum

WHO OMM

WMO RCOFs → Climate Service focused on seasonal time scales.

- RCOFs are part of the WMO GFCS structure
- MedCOF and ArabCOF substantially overlap
- ArabCOF can benefit from the MedCOF experience.
- Collaboration/cooperation N-S and W-E
- Water is the main issue for both RCOFs
- Both RCOFs work closely with WMO RCCs
- RCOFs sessions include close interaction with users.



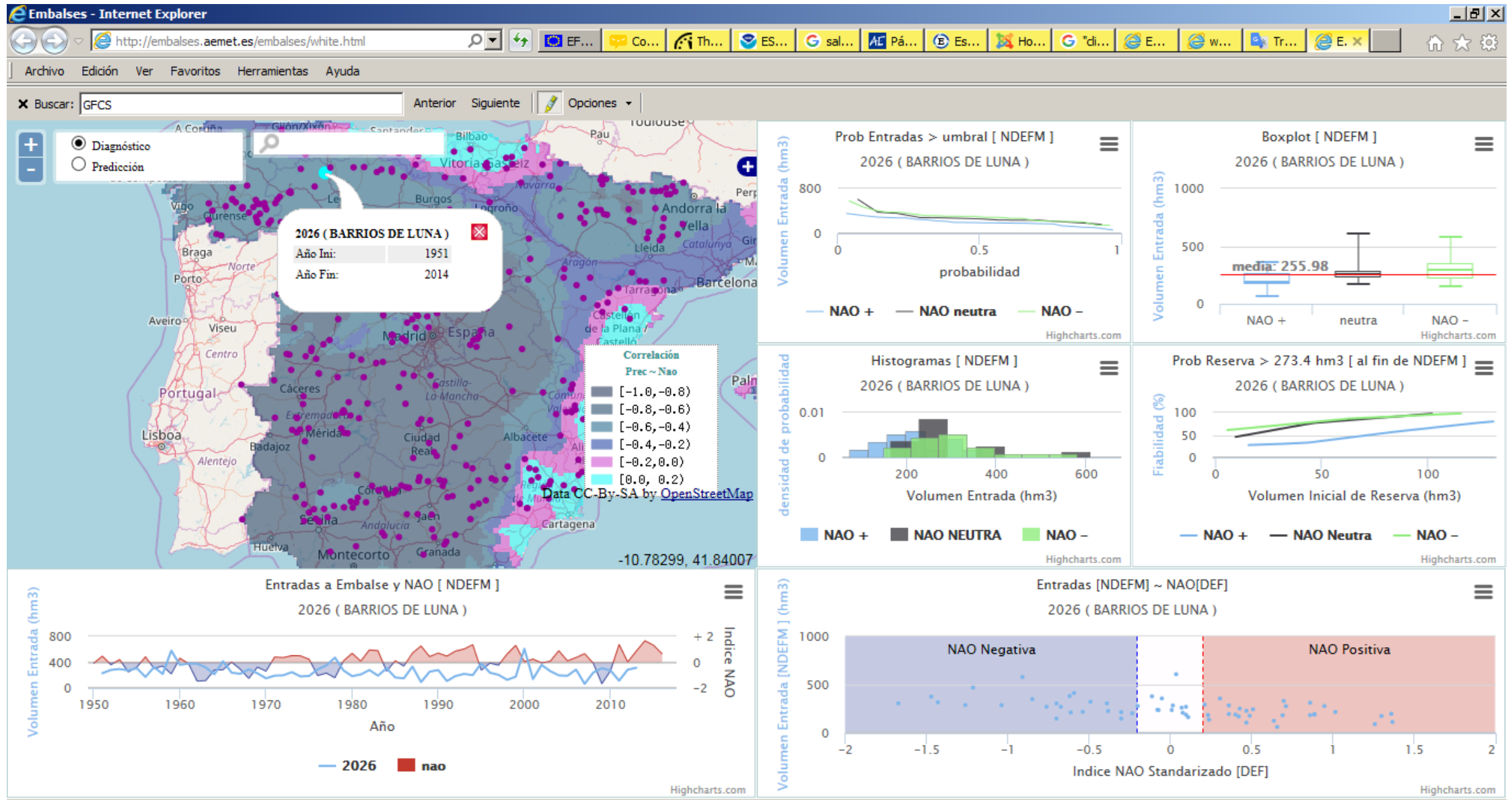
Example of prototype for dams management



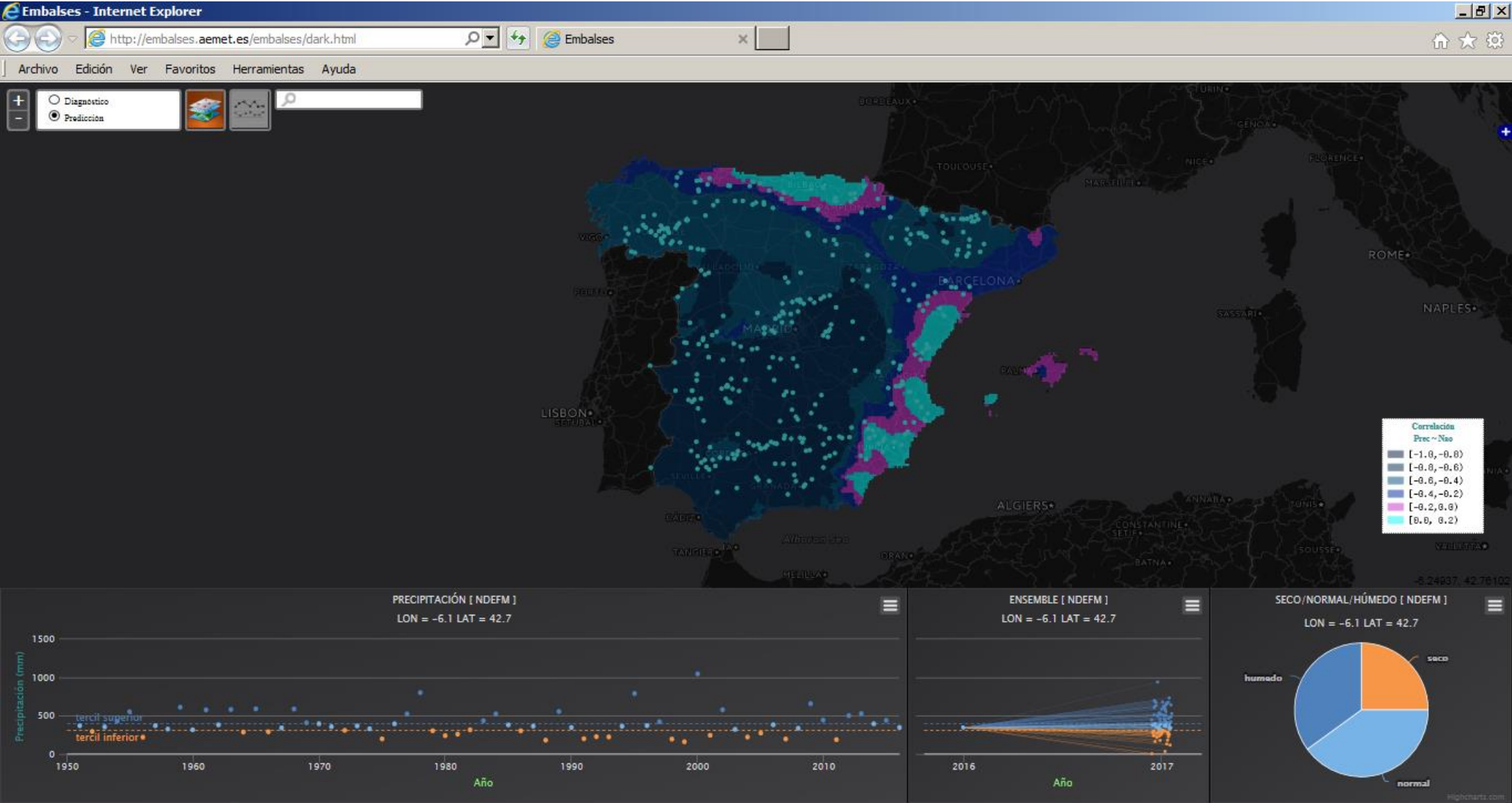
A screenshot of the S-ClimWaRe website displayed in an Internet Explorer browser window. The browser's address bar shows 'http://sclimware.euporias.eu/'. The website header includes the 'EUPORIAS' logo and navigation links for 'ABOUT', 'BENEFITS', 'OUTCOMES', and 'RESOURCES'. The main content area features a large image of a dam with the text 'Winter reservoir inflow forecasts' overlaid. Below this, there are three circular icons representing different aspects of the service: a globe, gears, and a group of people. Each icon is accompanied by a question and a brief description of the service's capabilities.

- S-ClimWare helps in the **decision making process**
- Developed by an **interdisciplinary team** headed by AEMET, CETaqua and the DGA
- It makes use of predictability **window of opportunity** for winter precipitation in Spain at seasonal scales
- A **probabilistic** forecasting statistical model has been implemented to forecast the reservoir inflow.
- This tool produces a **risk evaluation for each reservoir** based on its initial situation, the forecasts and the historical demands..

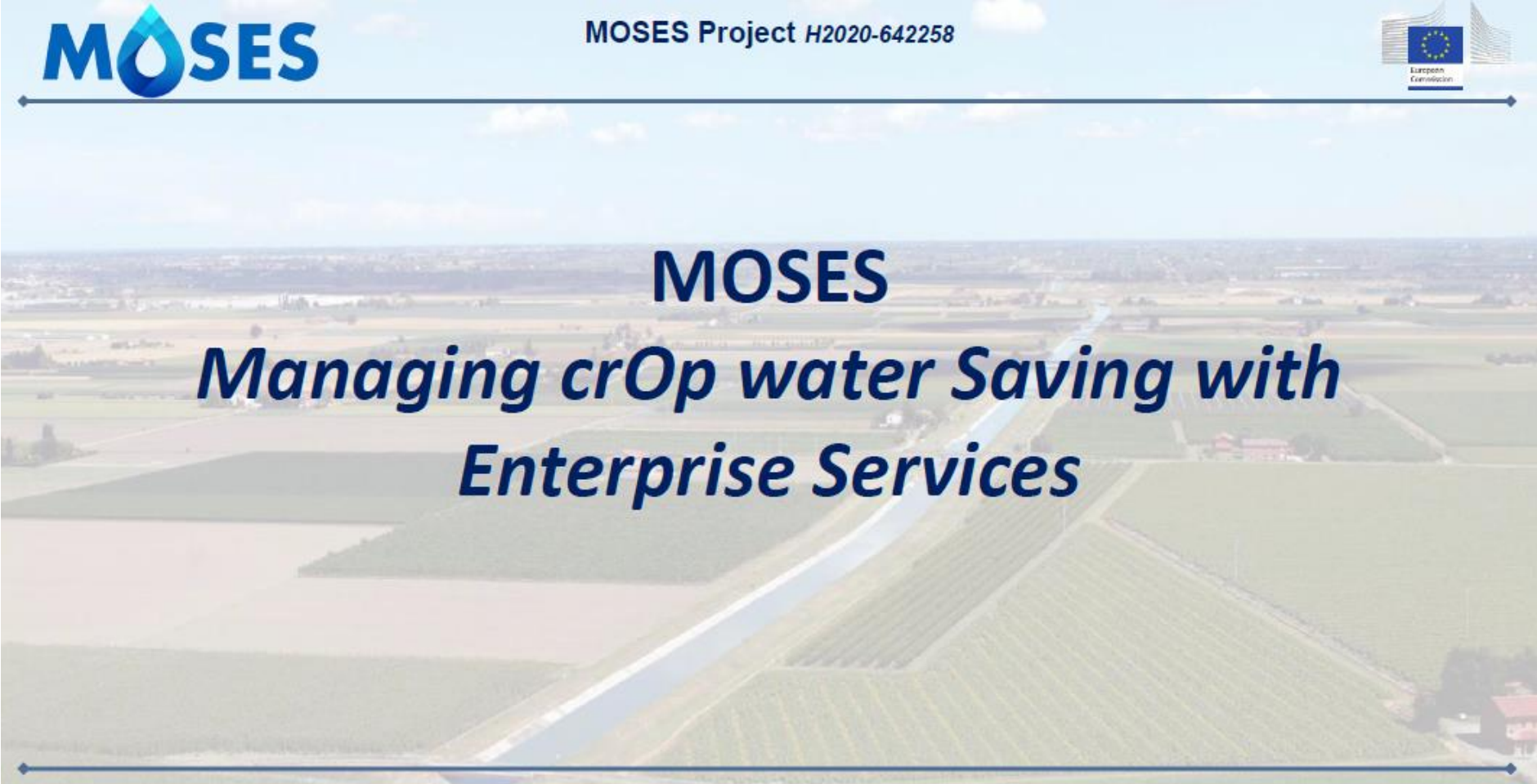
Example of web co-designed with users (I)



Example of web co-designed with users (II)



Example of prototype for optimal irrigation

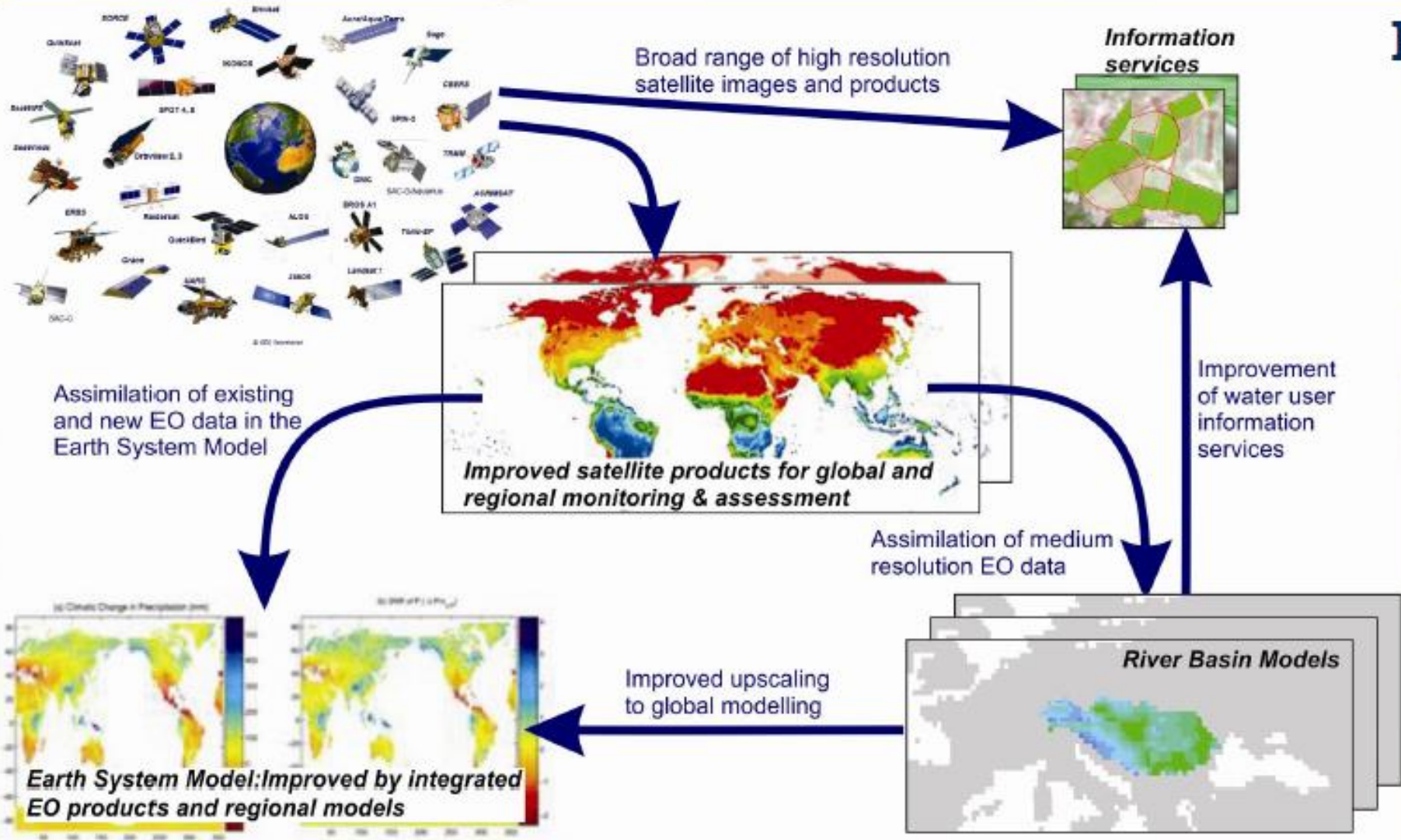


MOSES Project H2020-642258

European Commission

MOSES
Managing crOp water Saving with Enterprise Services

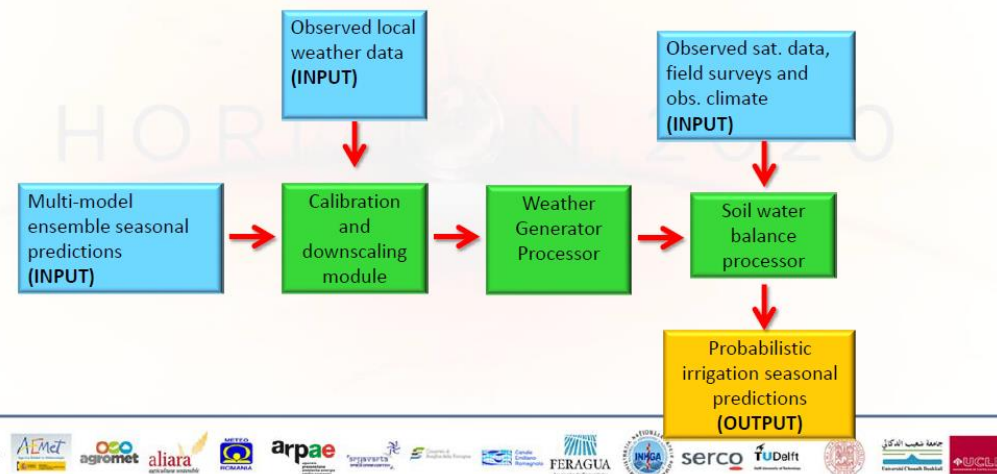
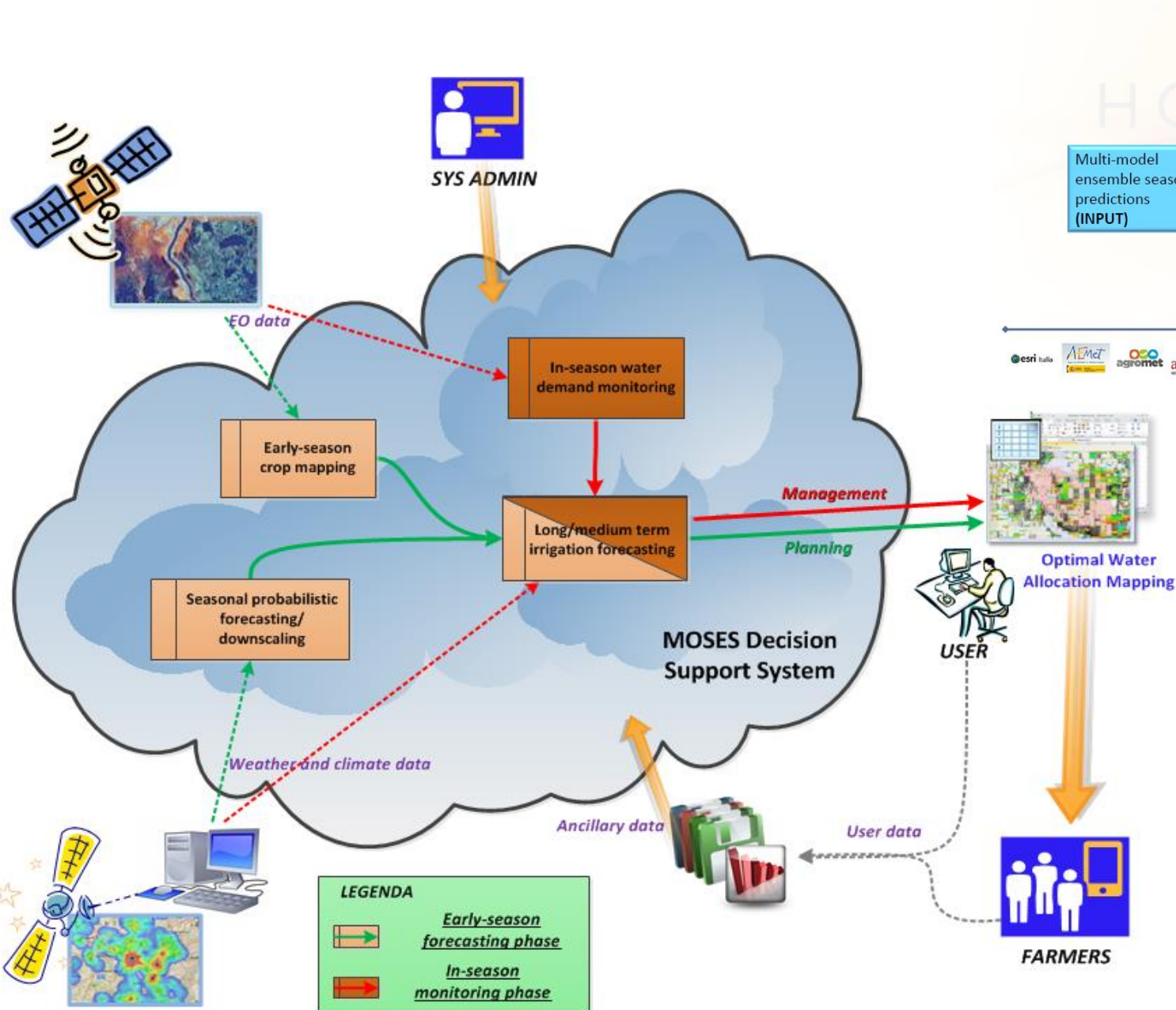
esri italia | AEmet | agromet | aliara | MIECO | arpae | arjavartha | Consiglio di Regione delle Langhe | Consiglio Comunità Romagnolo | FERAGUA | ASSOCIAZIONE NAZIONALE ITALIANA IRRIGATORI | serco | TU Delft | جامعة شعيب الدكالي | UCLM



From global data to local information



Scheme of the MOSES Seasonal Predictions module



Launch of MEDSCOPE (MEDiterranean **Services Chain** based On climate PrEdictions) (Oct 2017)

- Under EU **ERA4CS (European Research Area for Climate Services)**. Topic B: Institutional Integration.
- Built upon previous initiatives within the Mediterranean region (e.g. CLIMRUN, EUPORIAS, MedCOF).
- The MEDSCOPE project aims at **developing climate forecast capabilities and related services on seasonal-to-decadal timescales.**
- The strategy will be based on :
 - **Exploiting existing datasets** to improve our understanding of sources and mechanisms of predictability.
 - Targeted sensitivity experiments focusing on **key drivers of Mediterranean climate variability.**
 - Develop innovative **empirical forecasting systems.**
 - Novel process-based methods for **bias correction, downscaling and optimal combination of sources of information,** all of which will be **publicly released via a toolbox.**
 - Sensitivity of climate predictions to models' climate drift, to spatial shifts of variability patterns and to the **selection of sub-ensembles representative** of the needs of specific applications.
- The added value provided by MEDSCOPE to climate services will be **assessed for various sectors** with high societal impact, e.g. **renewable energy, hydrology and agriculture and forestry.**

Lessons learnt



- **Co-design, co-development, co-production** with users → pluridisciplinary teams
- Progress **hand by hand with users**.
- Start with a simple prototype: a **toy model**
- In case of seasonal forecasts, benefit from the predictability **windows of opportunity**
- Speak with the **same language as users**. Translate climate variables (temp, prec) to users' relevant variables (e.g., dam inflow, optimal water allocation for irrig., \$, €)
- **(Continuous) communication** with users
- **Demonstrate the skill/value** of simple prototype
- **Extend** the simple prototype (possibly based on empirical algorithms) to model outputs

Conclusions



- Three key messages:
 - Work jointly with users
 - Progress demonstrating value/skill of simple prototypes
 - Don't invent the wheel → benefit from the experiences from other regions



Thanks for your attention

شكرا على انتباهك