

the SMEs and start up perspective:
How ESA supports the innovation in the agri-food sector

Beatrice Barresi
beatrice.barresi@esa.int

European Space Agency

EUROPE'S GATEWAY TO SPACE

WHAT

22 Member States, 5000 employees

WHY

Exploration and use of space for exclusively peaceful purposes

WHERE

HQ in Paris, 7 sites across Europe and a spaceport in French Guiana

HOW MUCH

€6.68 billion = €12 per European per year



What Does ESA Do?



ALL OF THIS IS POSSIBLE THANKS TO THE COLLABORATION OF MEMBER STATES

ESA is active across every area of the space sector

World leader in science and technology

Over 80 satellites developed, tested, and operated since 1975

More than 220 launches from Europe's Spaceport in Kourou



Who Benefits?

YOU

OUR ECONOMY

OUR PLANET

OUR FUTURE



→ ESA SPACE SOLUTIONS

The largest space innovation network in the world

The go-to place for great business involving space to improve everyday life.

Supporting European start-ups and SMEs to develop businesses using space technology and data.

Offering funding, business and technical support to help to generate successful business and create jobs.



ESA SPACE SOLUTIONS



Zero-equity funding (from €50k to €2M+ per activity)



A personalised ESA consultant



Technical support and commercial guidance



Tailored project management support



Access to our international network of ESA and partners

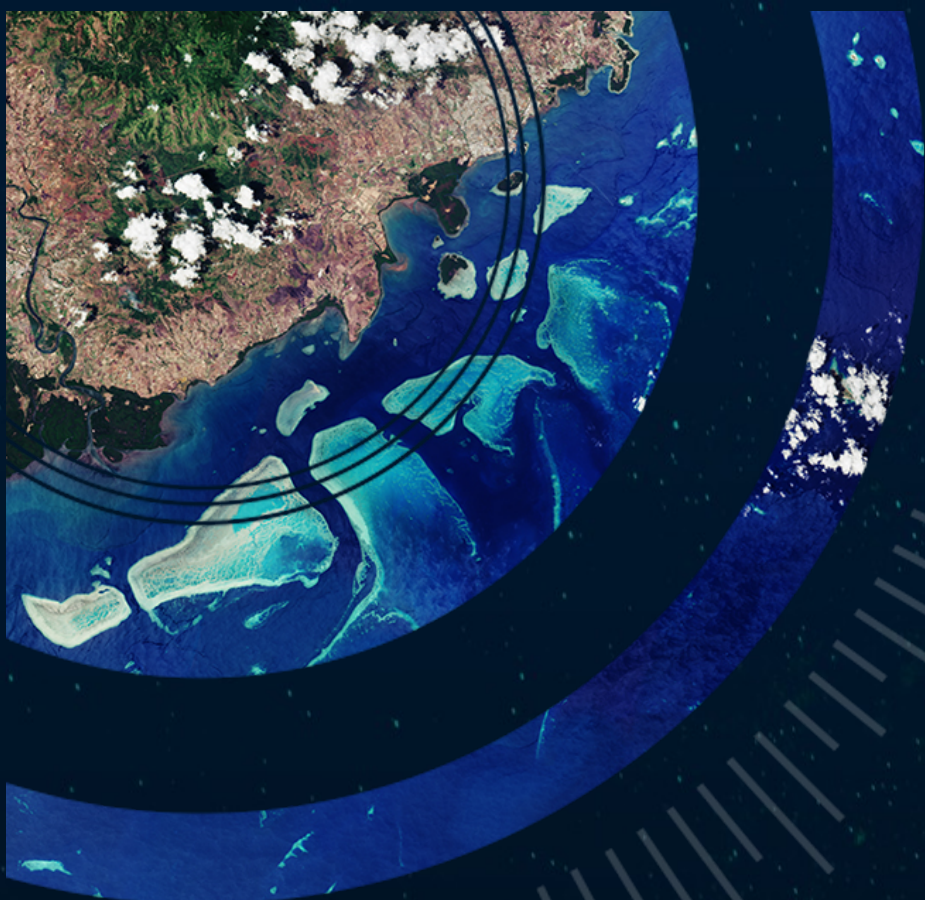


Access to our network of investors



Credibility of the ESA brand





MARITIME



SPACE WEATHER



HEALTHCARE



TRANSPORT



EARTH OBSERVATION



ENVIRONMENT



AGRICULTURE



SATELLITE NAVIGATION



MEDIA



ENERGY



SATELLITE COMMUNICATION



EDUCATION



AVIATION



HUMAN SPACEFLIGHT TECHNOLOGIES



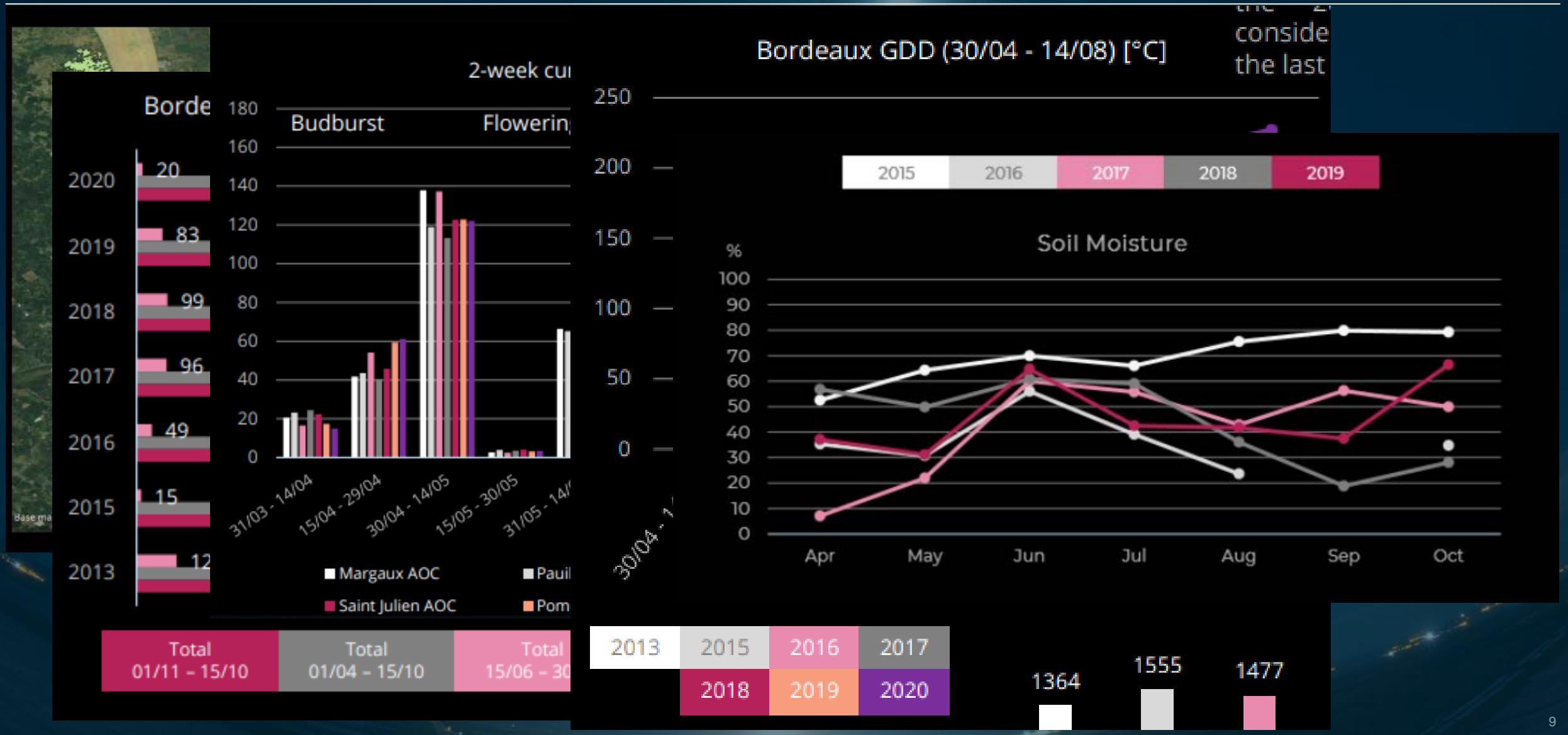
FINANCIAL

SATURNALIA-*know your wine*

- Help investors by providing most likely trends for future wine prices and an overall assessment of wine quality;
- Encourage growers' transparency towards their clients, as they are offered clear and explicit data on the purchased wine;
- Build an algorithm capable of computing an early score for wine quality, which largely matches the evaluations of experts who actually taste the wine;
- Offer a unique website platform on which everyone, from wine experts to amateurs, can share, discuss and receive in-depth analyses about wine and vineyards.

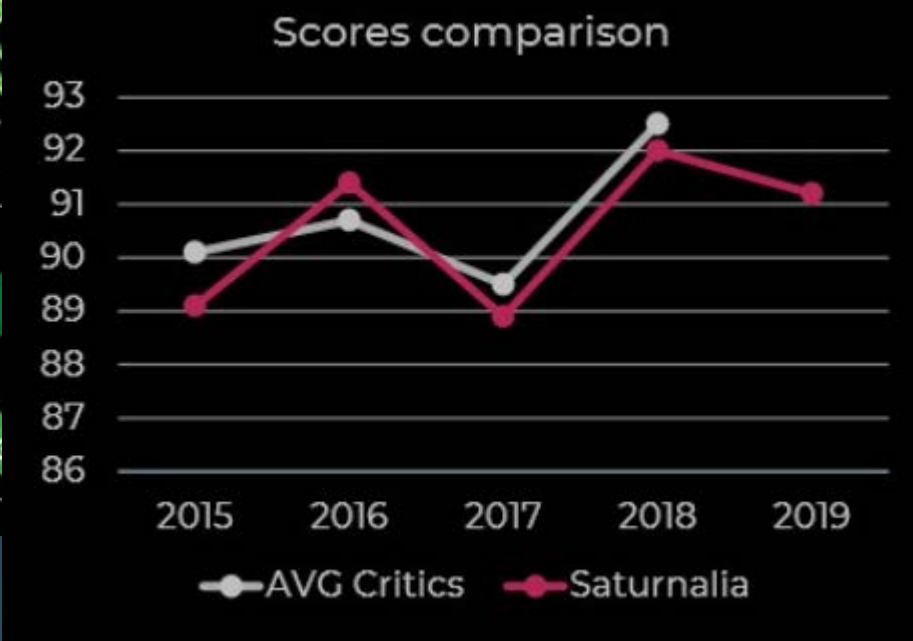
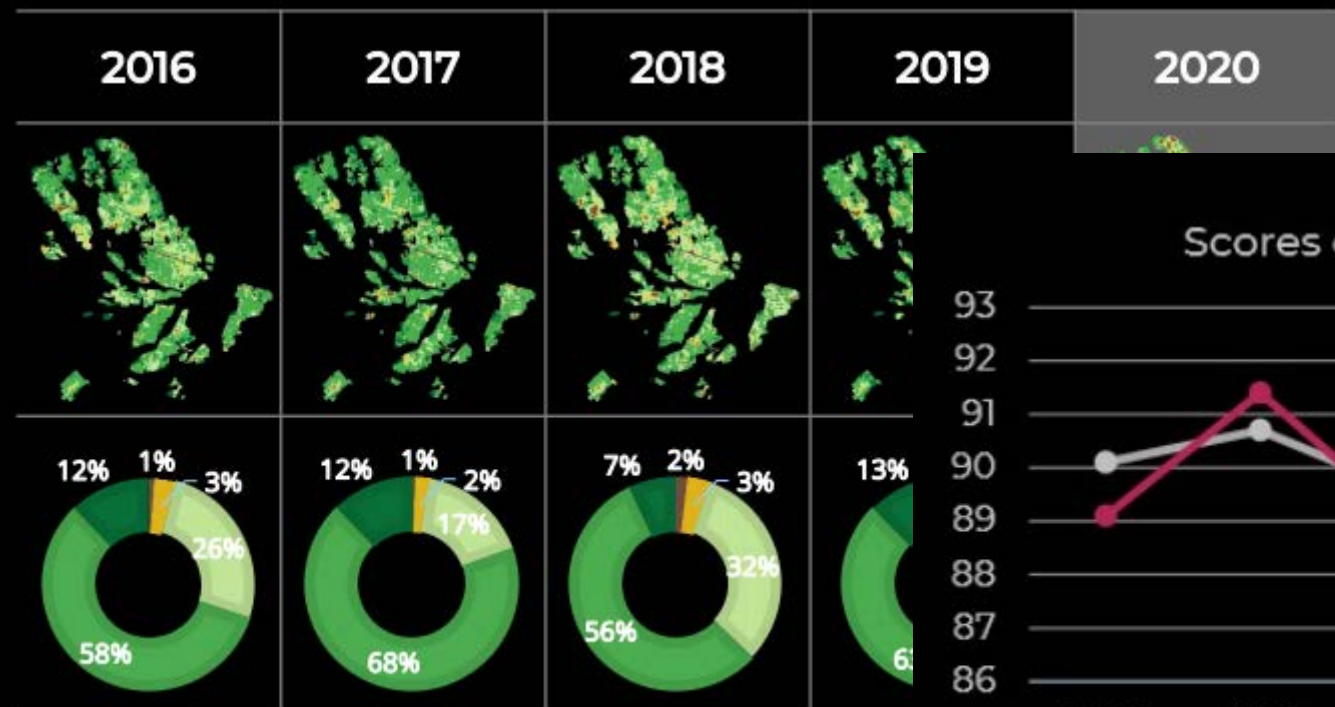
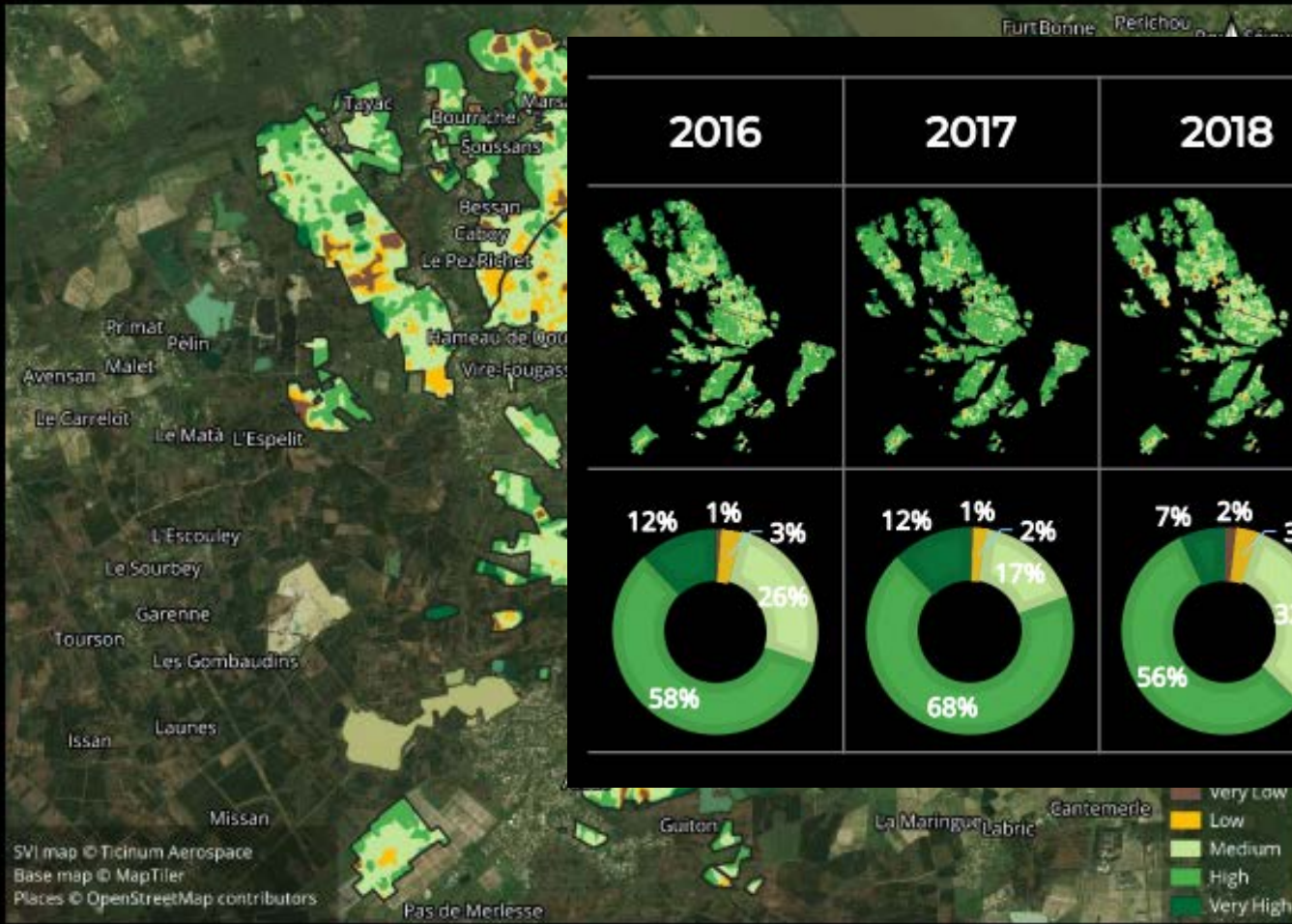


SATURNALIA-*know your wine*



SATURNALIA-know your wine

MARGAUX AOC 2020



The Challenge

Soy is one of the most prevalent crops on Earth and almost 80% of the world's soybean crop is fed to livestock [source: [WWF](#)].

However, the rising demand for soy has come at a cost:

1. To produce soy, land is converted from forests, savannahs and grasslands, **endangering valuable habitats** and putting **local livelihoods at risk**
2. Soy **supply chains are often long and complex**, meaning that produce must be transported across the world before reaching the final destination.

DryGro has developed a new way to produce an sustainable alternative to soybean meal called ***lemna***.



DryGro's solution

DryGro's method of growing lemna uses 99% **less water** than soybean production. Lemna can also be grown on **dry, arid land** in the country of **consumption**.

The DryGro growing units involve a range of active and passive management systems to maintain ideal growing environments. Precise **weather and satellite Earth observation data** are used to monitor conditions at the growing units, predict and optimise lemna growth, and position future lemna production sites.

DryGro is currently being rolled out in **Kenya** with ambitions to further expand throughout Europe and Southeast Asia.

A pilot is planned with agri-giant Louis Dreyfus Company in Q3 2021.



→ DROMAS

The Czech State Agricultural Intervention Fund (SAIF) represents the main user of the service.

SAIF needs are :

- ✓ support for selecting beneficiaries to be subject to field inspection
- ✓ improve the quality of Land Parcel Identification System (LPIS)
- ✓ support LPIS update process

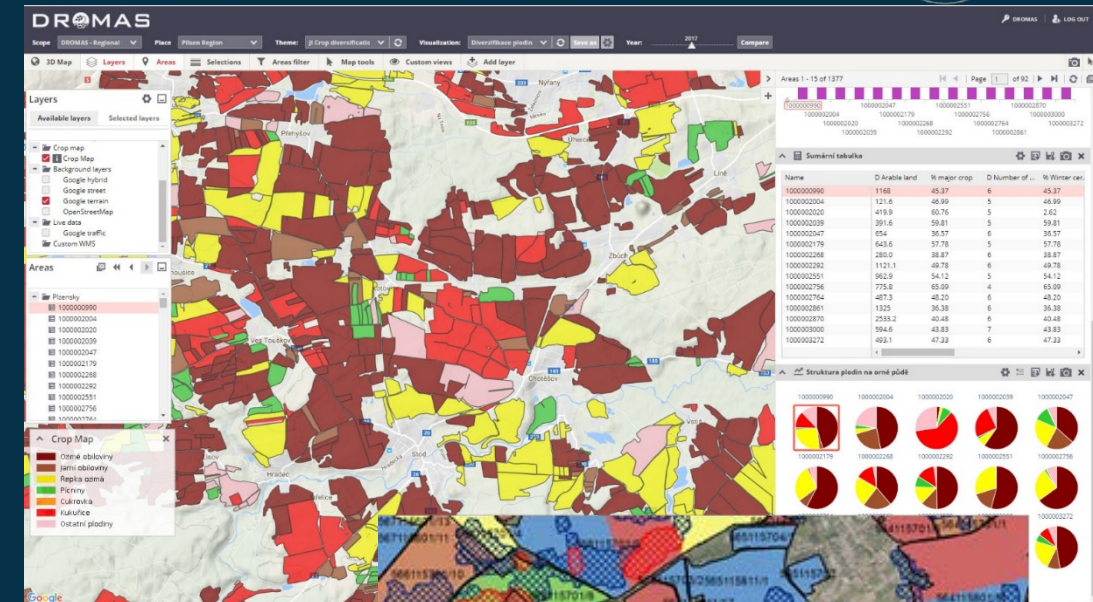
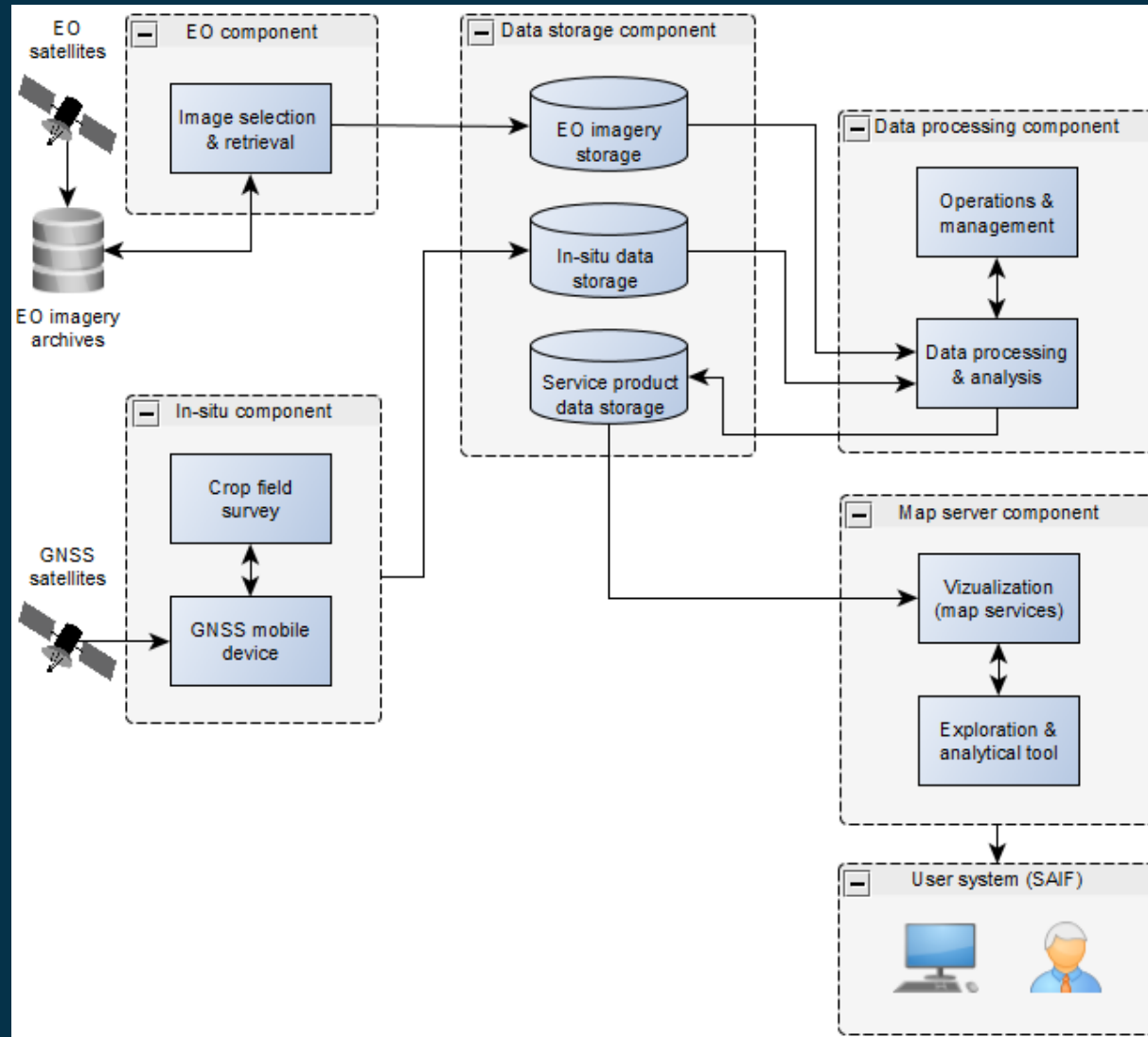
DROMAS offers 2 services :

- ✓ Control services to support monitoring of compliance with the principles of environmentally sound farm management
- ✓ LPIS services to support LPIS update process

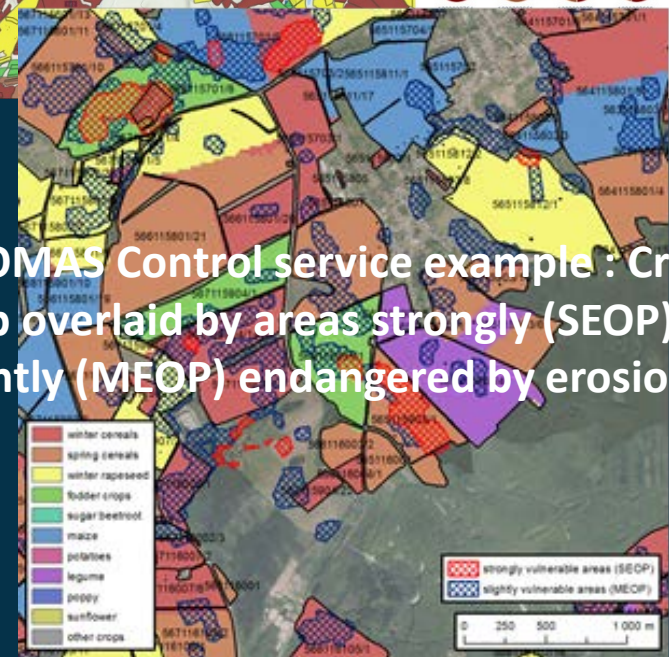


DROMAS

→ TECHNICAL SETUP



DROMAS Control service example : Crop map overlaid by areas strongly (SEOP) and slightly (MEOP) endangered by erosion.



Food and Beverage Fraud

- According to the EU, **Food Fraud** is about “*any suspected intentional action by businesses or individuals for the purpose of deceiving purchasers and gaining undue advantage therefrom, in violation of the rules ...*”
- Prevent and detect food fraud is not only an important ethical matter, it is an issue which impacts the global economy as well. Trade in counterfeit and pirated goods has risen steadily in the last few years and now stands at 3.3% of global trade.
- The costs related to food fraud for the global food industry have been estimated at around EUR 30 billion every year.
- Food fraud is also about food safety as it potentially harm the health of the citizens.





AREAS OF INTEREST



Increase supply chain transparency



Improve Certification procedures



Detection of counterfeit food products



Enhance Food Safety

Prediction of illegal behaviours



RESPONSIBLE AGRITECH Call

(with the support of ICT Agri Food)

Sustainability: new technologies to monitor and advice on new farming practices that will reduce carbon emissions, preserve biodiversity, preserve soils and water reserves. In particular, Satellite Earth Observation can measure the impact of sustainable practices. Satellite Navigation and precision farming can optimize the use of our precious resources.

Fairness: in line with the new EU Common Agricultural Policy (CAP) objectives, support and empower farmers and revitalize rural areas such as streamlining allocation of CAP greening subsidies, deployment of broadband Internet, as e-training, e-workshops and remote monitoring.

Competitiveness: innovation to address regional challenges such as GNSS enabled automations for berries harvesting or weed removal, AI combined with Satellite Earth Observation to anticipate the emergence of crop diseases and advise on suitable remedies, greater machine interoperability and data standardization.



→ THE POWER OF SPACE



Satellite Navigation

GNSS are the main source of geo-referenced locations data. Satellite navigation is instrumental in order to geo-tagging services and tracking of robots and agricultural machines, and user devices. Different location techniques are available depending on the accuracy needed by the target solution.



Earth Observation

Earth Observation data can be used in combination with measurements of in-situ sensors to observe a range of physical parameters : biomass, indicators such as NDVI, moisture. With advance processing and correlation with multiple sources, EO data can identify more intricate information such as risk of moisture deficit, appearance of disease, soil potential, A wide range of EO satellite provide data than can used to these ends: optical, multispectral, radar, public access (such as Copernicus Sentinels) are commercial providers.



Satellite Communication

Satellite Communications provide a reliable and cost-effective access to broadband connectivity all over the world and especially in rural areas. Internet in rural areas is key is a necessary conditions to access online monitoring and advisory agritech services and e-learning and e-training

THANK YOU

Beatrice Barresi
beatrice.barresi@esa.int

European Space Agency