

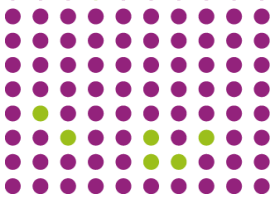
VITIGE OSS

VINEYARD INNOVATIVE TOOL
BASED ON THE INTEGRATION
OF EARTH OBSERVATION SERVICES
AND IN-FIELD SENSORS



Project funded by the European Union's
Horizon 2020 research and innovation
programme under grant agreement No.
869565.





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VitiGEOSS general overview

Vineyard innovative tools based on the integration of Earth Observation Services and in-field sensors

- European project funded under the topic: *SC5-16-2019 - Development of commercial activities and services through the use of GEOSS and Copernicus data*
- Duration **3.5 years**, from 1/09/2020 to 29/02/2024
- Budget: **3M€**, of which 2.6M€ funded by the EC
- **9 participants** from 4 different European countries
- Coordinated by EURECAT, RTO
- Grant agreement ID: 869565





Consortium

9 partners from 4 different European countries (*Spain, Italy, Portugal and the Netherlands*)

4 Research organisations



3 wine producers



2 Technological companies





The agriculture sector in Europe

Developing innovative solutions for maintaining quality and sustainability requirements

- The European Union is the world's biggest wine producer, and winemaking is the main economic activity in the South of Europe.
- Agriculture plays an important role in climate change, being responsible for more than 20% of CO₂ emissions.
- Sustainable agriculture has the purpose to develop new farming practices and methodologies to meet current and future societal needs for food, ecosystem services and human health, whilst reducing the negative effects of climate change.

20%

of the total of
CO₂ emissions come from
agricultural activities
[EPA, 2010]

60%

of the world's wine is
produced in the EU
[European Commission, 2014]

20%

of the total employment
in EU agriculture relates
to the wine sector
[CEEV, 2005]

3M

employees in the EU come
from the wine sector
[CEEV, 2005]





The use of Earth Observation data in agriculture

Improving the efficiency of vineyard management and cultivation

- Satellite data allows to extract useful indicators to promote better management and planning of fields and vineyards, as well as the optimization of innovative agricultural practices.
- The use of open resources such as Earth Observation Services can improve the efficiency of vineyards thanks to accurate mapping, novel production indicators, image and time series processing and, an accurate and improved forecasting.

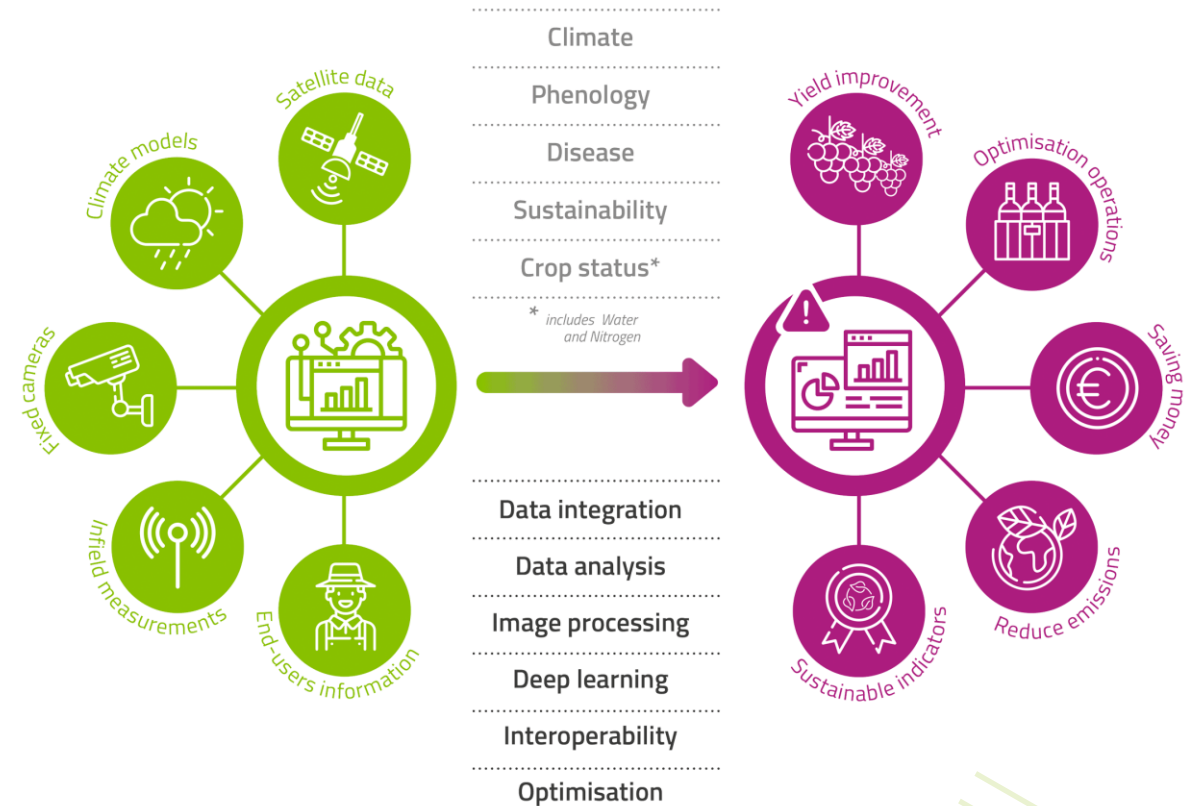




About VitiGEOSS

Providing forecasts, estimations and recommendations to optimise vineyard management processes

- The VitiGEOSS project develops an innovative vineyard management solution based on the integration of Earth Observation services and in-field sensors to increase the resolution and reliability of satellite information applied to the viticulture sector.
- VitiGEOSS contributes to a responsible production of wine by minimising the use of chemical fertilisers and pesticides and offering tools for a better management and optimisation of resources for greater sustainability.





Objectives



Weather & Climate forecasting

A weather/climate forecast intelligent service to provide a robust forecasts for **decision-making** processes in the wine sector.



Disease management system

Capable of **launching warning alerts** on the appearance of **the most important diseases** based on the symptoms and characteristics of each geographical area.



EO downstream services, phenology and crop status

Integrating satellite information with in-situ data to **optimise crop management** using the highest quality data.



Management solution

Establish an **integrated and modular** management solution for **vineyard cultivation** in three demo-sites using Earth Observation systems.



Sustainable wine production

Validation of sustainable wine production indicators to empower decision makers in the wine sector with the necessary toolbox to make wine production sustainable.



Market strategy and commercialisation

Develop a market entry strategy based on market analysis and stakeholder's consultation and build capacity among technology developers and commercialisation to ensure the usability of project results.





VitiGEOSS platform

A single entry-point solution for wine producers, aiming to boost vineyard sustainability

- The project uses free-of-charge satellite imagery and EO products from the **European Copernicus Programme** and **NASA**, coupling them with in-field and near in-field data to extract useful indicators for a better management of vineyards.
- The VitiGEOSS solution provides support to growers helping them to promote sustainable agriculture and a circular economy approach. VitiGEOSS' API available to be integrated together with third-party solutions and products.



The VitiGEOSS platform, deployed as a cloud-based Applications Portal, will be the first application offering integrated services for sub-seasonal and seasonal predictions, crop management, disease warnings, business operations and sustainability monitoring.





Platform information services

- 1 Weather and climate forecasting**
Advanced techniques to apply sub-seasonal to seasonal climate forecasts in combination with short term weather to help farmers **prepare in advance for unusual climate conditions and extreme events that can damage the crop.**

- 2 Phenological monitoring**
Automated system to predict and monitor the whole phenological annual cycle to **better plan and organise the whole vineyard management and optimize resources.**

- 3 Crop status**
Satellite imagery to **monitor key indicators** describing vegetation health status, crop productivity, crop water consumption and crop nitrogen content to **optimise irrigation, sampling or selective harvesting leading to better grape quality and production.**

- 4 Disease management**
Tool for **forecasting the disease evolution** taking into account the meteorological conditions and crop status to **optimise the number of treatments and resources used to assure its effectivity.**

- 5 Business and sustainability manager**
Resource optimiser and planner service that allows to identify the best **timing of field operations**, improve planning of resources needed, reduce the use of raw materials and promote a sustainable winegrowing.





VitiGEOSS pilots

The VitiGEOSS solution will be validated in three different vineyards for the calibration of the services and tested to be able to correct the models in future versions

- 1 Quinta do Ataíde (Portugal) - Symington Family Estates
- 2 Mirabella Eclano Estate (Italy) - Mastroberardino Società Agricola srl,
- 3 Juneda (Spain) - Familia Torres Wines





VitiGEOSS pilots - PORTUGAL

Quinta do Ataíde

- This demonstration site is part of Symington Family Estates vineyards, one of the principal port wine and Douro wine producers and the leading vineyard owner in the Douro Valley (Portugal).
- Douro Valley has a total area of 1100 hectares of vines spread across 29 Quintas dotted around the Douro's three subregions (Baixo Corgo, Cima Corgo and Douro Superior).

Located in Douro Superior region, the vineyard testing VitiGEOSS solution has a total of 85 hectares vineyards





VitiGEOSS pilots - ITALY



Mirabella Eclano Estate

- This demonstration site is owned by **Mastroberardino Società Agricola**, an Italian winery located in the Campania region.
- The family owns an extensive network of vineyards in Italy, including a vineyard in **Mirabella Eclano Estate**, in the heart of the Taurasi DOC area which will serve VitiGEOSS as a validation scenario.

This estate covers 65 hectares on hill territory with an altitude between 350 and 450 meters above sea level





VitiGEOSS pilots - SPAIN

Juneda

- This vineyard is part of **Familia Torres**, a family-owned winery with vineyards in Spain, Chile and California.
- The demonstration site, belonging to Torres Family since the end of the nineties, is located in **Aranyó estate**, in the area of Juneda (Lleida, Catalonia).

The vineyard presents a typically continental climate about 400 meters above sea level





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Thank you!



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