A unique opportunity to Innovate

REGIONE DEL VENETO

AGENDA DIGITALE 2025 DEL VENETO

Veneto innovazione

VeneTo Stars 2024: the Space Data for Cultural Heritage and Unesco Sites: Safeguarding the Prosecco hills

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The “Veneto stars” challenge is looking for teams of passionate, talented European innovators aged 18 – 25. From 1st February to 3rd May teams can submit their ideas and get their chance to move in the next phase.

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Colline del Prosecco UNESCO site of Conegliano & Valdobbiadene

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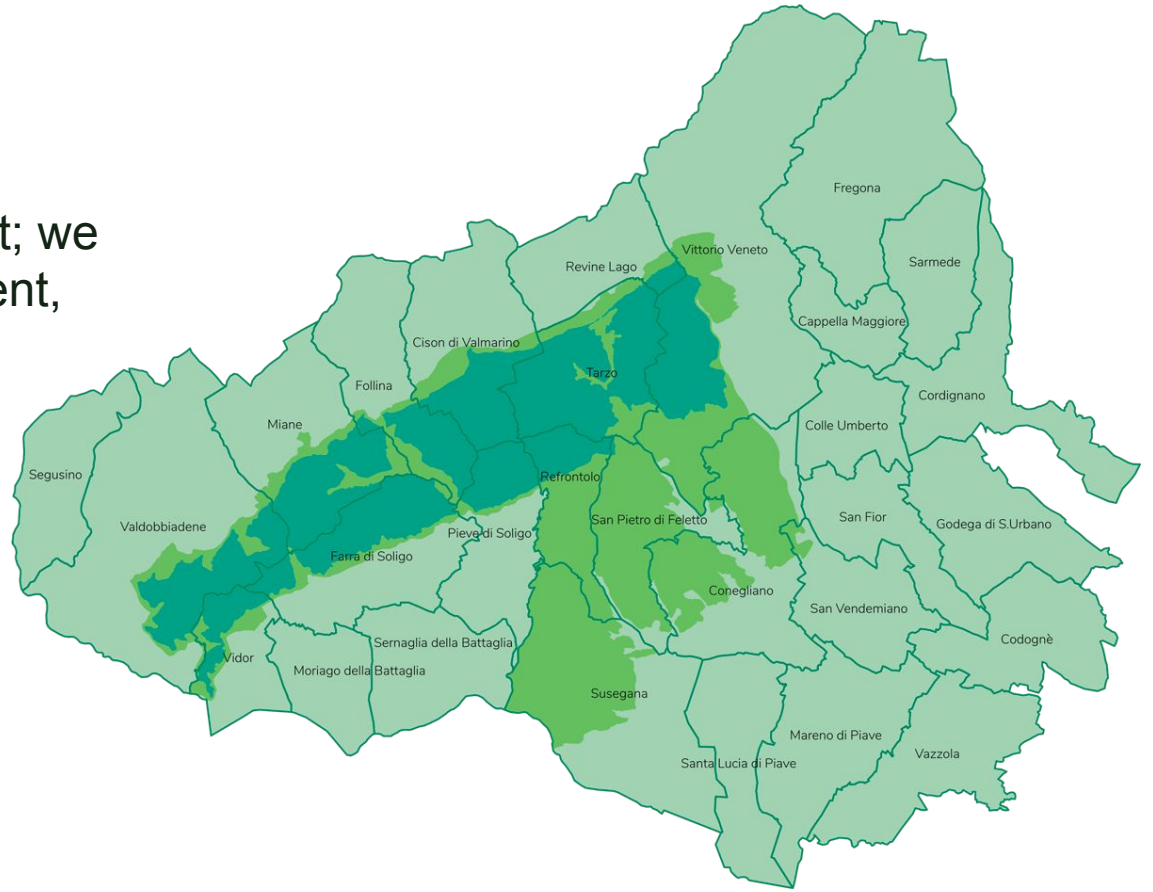
We chose this site with the aim of safeguarding the territory, identifying the conservation problems of the vineyards. We identified a vineyard that is part of the UNESCO site and we tried to develop our model on it; we focused primarily on understanding water management, demand and sensing.

We also targeted issues like climate change consequences and the preservation of the site as a whole.



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Our aim	How we do it
Our goal is to identify the vineyards that reach a critical level of water stress and suggest the winegrowers to do an *emergency irrigation*, to safeguard the harvest.	- Sentinel-2 satellite - Define the vineyards - Take datas from satellites and compute the solution given other external parameters

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SATELLITE AND DATABASE

DATAS

OUTPUT

arpav

GEOPORTALE VENETO

- Precipitations:
- NDVI
- ETO
- ET
- Soil texture levels
- Irrigations

Visualization of water stress levels in the vineyard thanks to our software.

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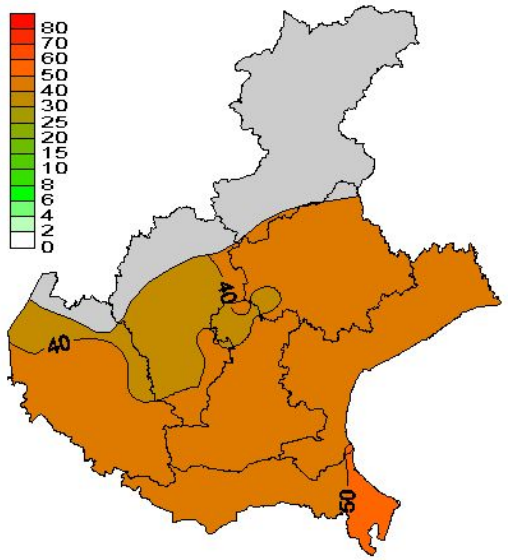
DATAS

- **Precipitations**
- **Kc:** is the cultural coefficient of the plant; the data available every 8 day by Sentinel satellite --> in the Glera it is variable during the phenological cycle from 0.35 to 0.9
- **NDVI:** tell us if vegetation is alive in the area of our interest. It is the ratio between the difference and the sum of the radiation reflected in the near infrared and red
- **ETO:** is the reference evapotranspiration and esteem of the daily value; data from local ARPA meteorological stations.
- **ET:** “evapotranspiration” = estimate of the quantity of water dispersed, through the processes of soil evaporation and plant transpiration, from a large lawn, in which the growth and production processes are not limited by the water availability or other stress factors
- **Soil texture levels:** from Veneto Geoportal
- **Irrigations**

Workflow

1. After finding **NDVI**, we calculate the **KC**, the cultural coefficient of the plant (Sentinel data every 8 day).
2. Calculation of **ET0**, the reference evapotranspiration and the esteem of the daily value; the data is from local meteorological stations.
3. Multiplication to get the effective evapotranspiration: **ET = ET0 * KC**
4. We get also the irrigation supply **I** from the database of the interested vineyard zone.
5. Water balance: **B = P + I - ET**
6. Comparison between **B** level and soil composition; different soil textures allow different water retention capacity.



Arpa data on evapotranspiration level

Vineyard：NDVI INDEX

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Vineyard: evapotranspiration

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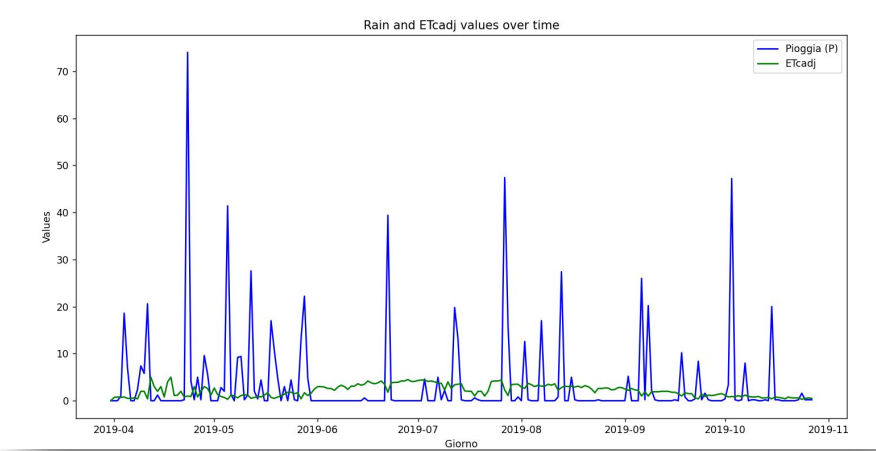
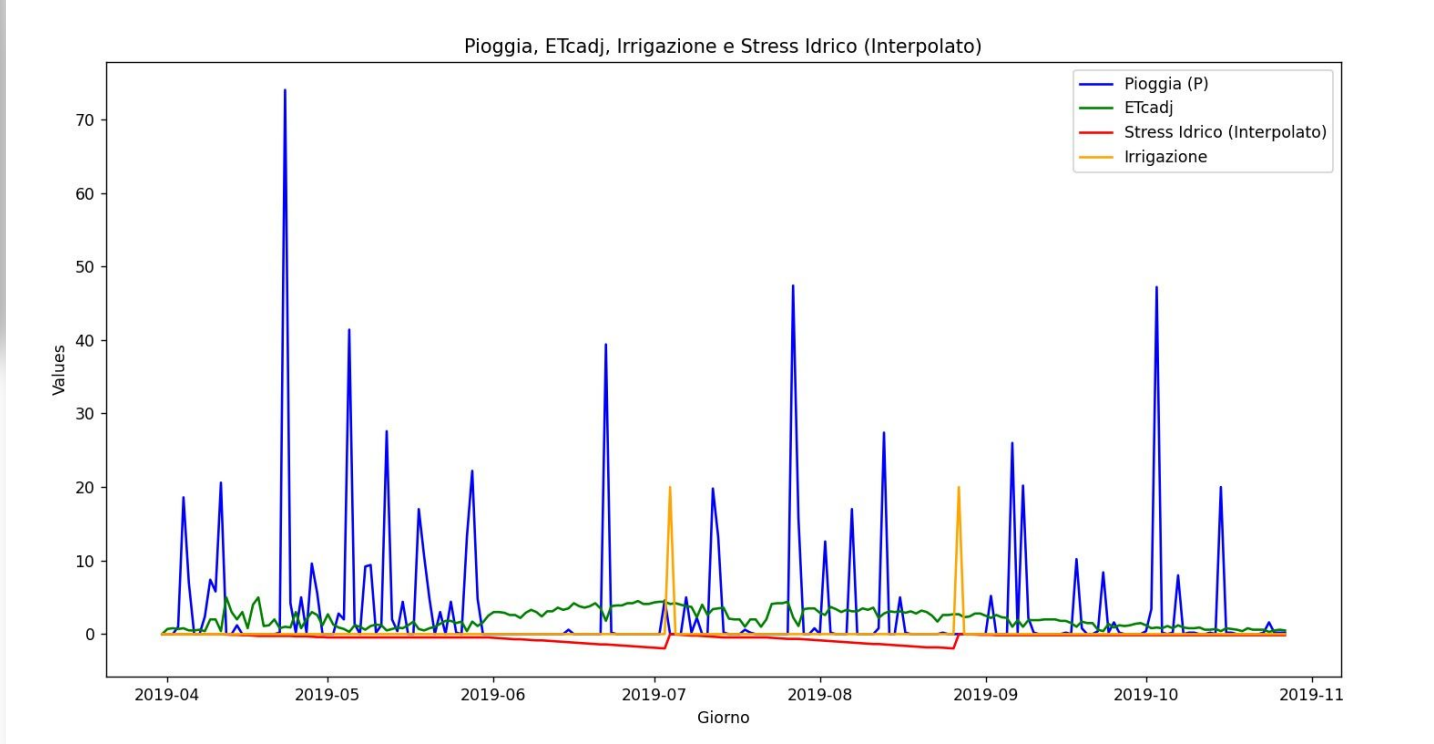
Vineyard zone balance

- (0-15%): Good water retention
- (15-35%): Moderate water retention
- (35-100%): Low water retention

Vineyards values





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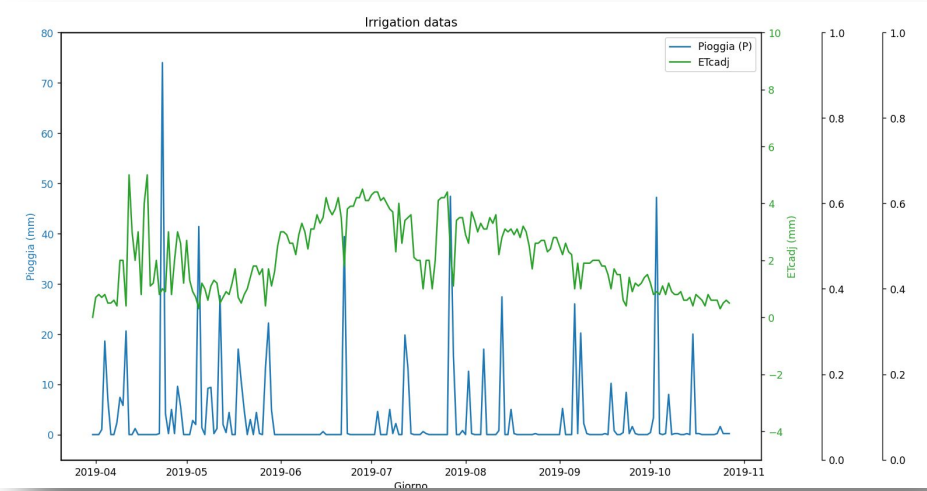
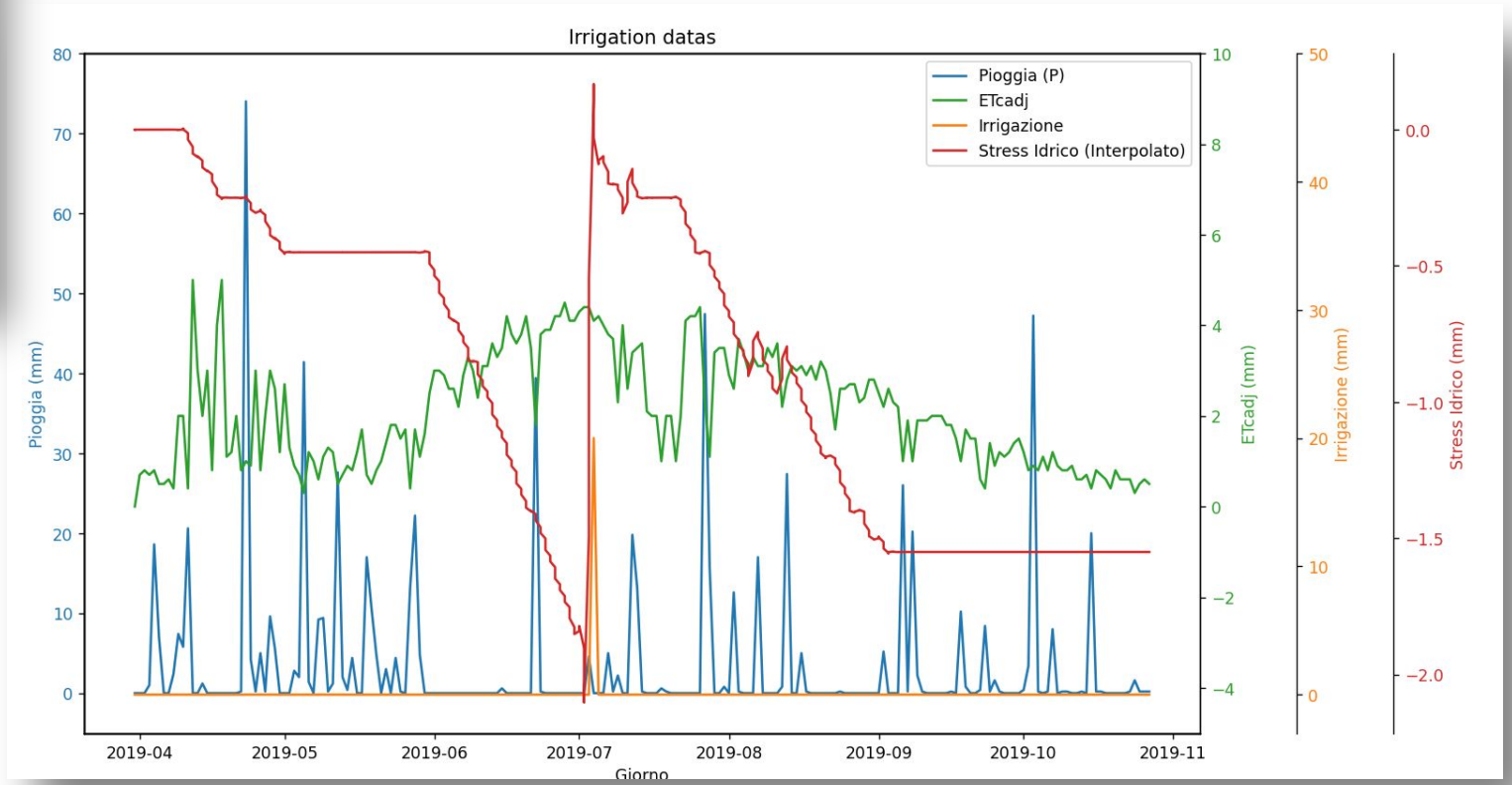




Value proposition

UNIQUENESS of our SOFTWARE

- Indicating when to intervene and how much.
- Working with satellites data to implement specific vineyards analysis.
- Available information to be implemented at any time (satellite time).

STRENGHTS

- Innovation
- Efficiency
- Avoid water waste and shortage
- Sustainability

PRODUCT'S ADVANTAGES

- Maintaining of the tourism flow
- Increased harvests
- Compliance with DOCG rules, wine marks and certifications

CONEGLIANO VALDOBBIADENE

Paesaggio del Prosecco Superiore

Potential customer

Case of a *Local Winery*

Problems facing now:

- Climate change
- Lack of tech investments
- Preservation of the story of the cantine (family run)

Solution provided with our software:

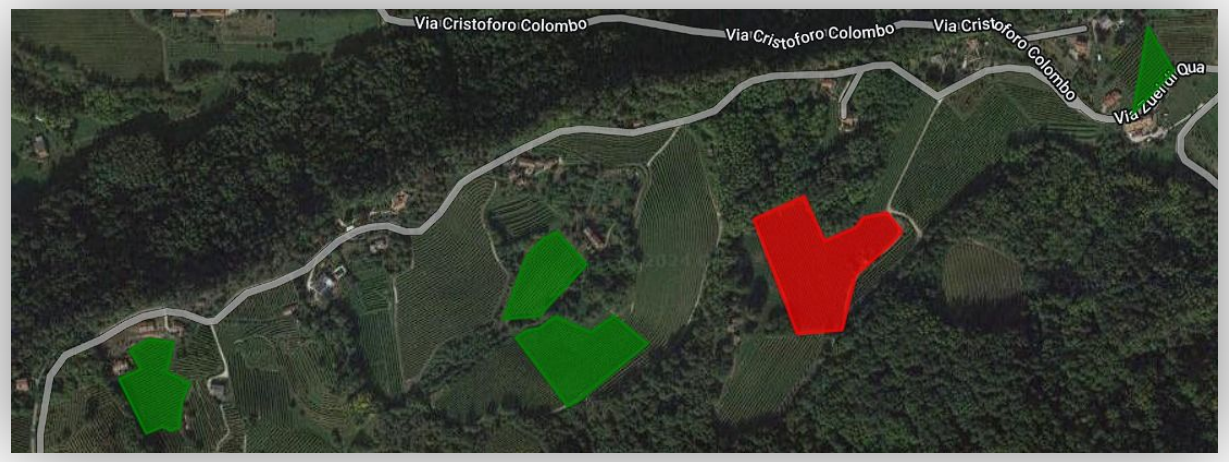
- Improve water management and ensure the growth of vines
- Better resources handling
- Technological guidelines and support

Target market

Starting from the DOCG area in Veneto with development in the *UNESCO area of Prosecco* in the Region, we can aim at the complete italian market.

Future possible extension to others similar Agri-market and/or other wine producer countries
(like France, Spain).

Proposed solutions…



… and future perspectives!

- PRECISION
- WIDER APPLICATIONS
- IMPROVING THE RESOURCE MANAGEMENT
- PREDICTIVE MODEL

SPACE DATA FOR CULTURAL HERITAGE AND UNESCO SITES.

A unique opportunity to innovate.

These days we have had the opportunity to develop the first mockup of the software, test the data and understand better what must be done in order to start a real business.

We are very grateful and we will strive to continue this path.

GRAZIE :)

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