

National Workshop Greece: Satellite-based Services for Disaster Risk Management

Engaging decision makers in the
co-design of EO services for societal
and economic sector resilience.

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Senior Research Associate

National Observatory of Athens
Institute of Astronomy Astrophysics, Space
Applications & Remote Sensing



OF THE USERS, BY THE USERS, FOR THE USERS

- A **bottom-up** approach.
- Instead of developing a service and then explore the potential for its application, our research is **user-driven** and shaped according to user actual needs.
- Services are **co-designed** in order to maximise their future adoption in operational practices.
- Rapid prototyping of the main service, followed by development of satellite services.
- Three main sectors:
 - i. Agro-Insurance
 - ii. Farmers' Cooperatives
 - iii. Industry



AGRO-INSURANCE SECTOR NEEDS

UNDERWRITING

The capability to tailor insurance costs according to parcel vulnerability

DAMAGE ASSESSMENT

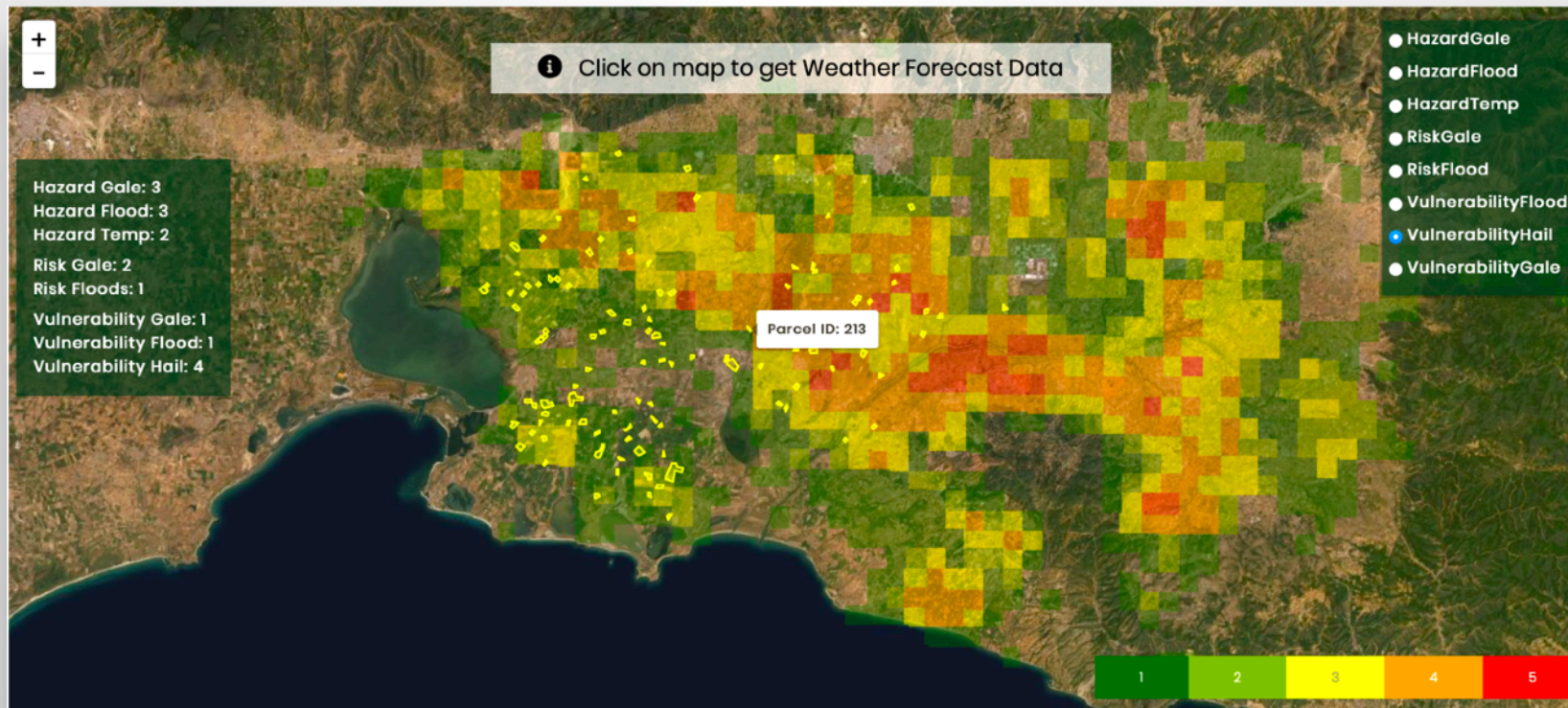
Reduce excessive physical evaluations and promote rapid payouts

EARLY WARNING

High resolution forecasts to consult clients on approaching perils

FREUD PROTECTION

Avoid fraudulent client applications in vicinity to extreme weather events



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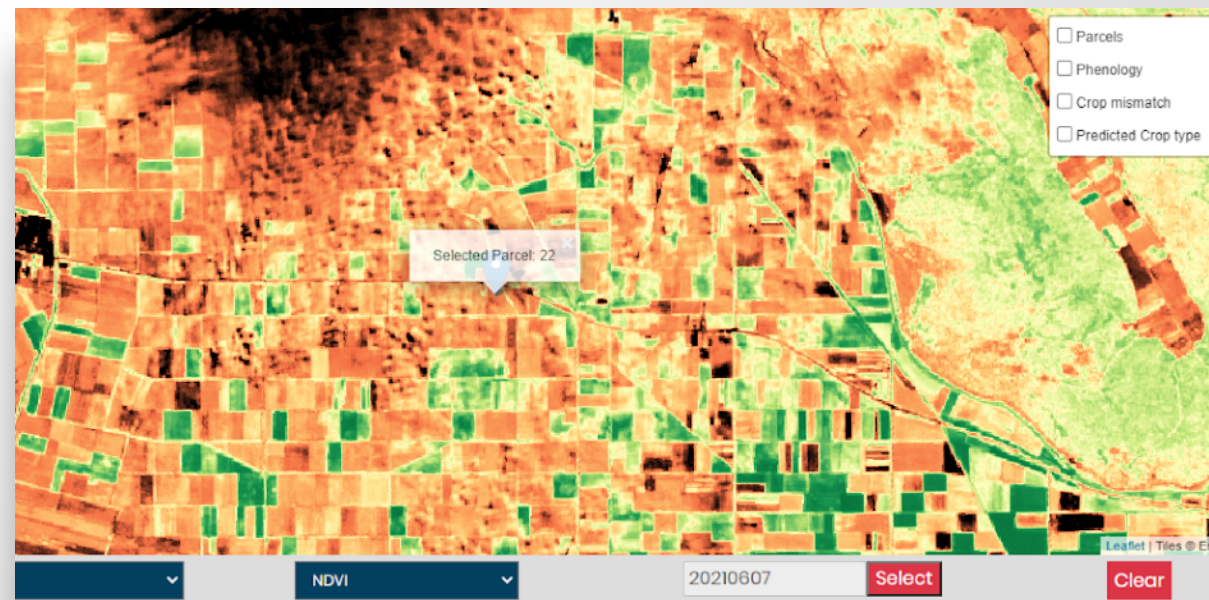
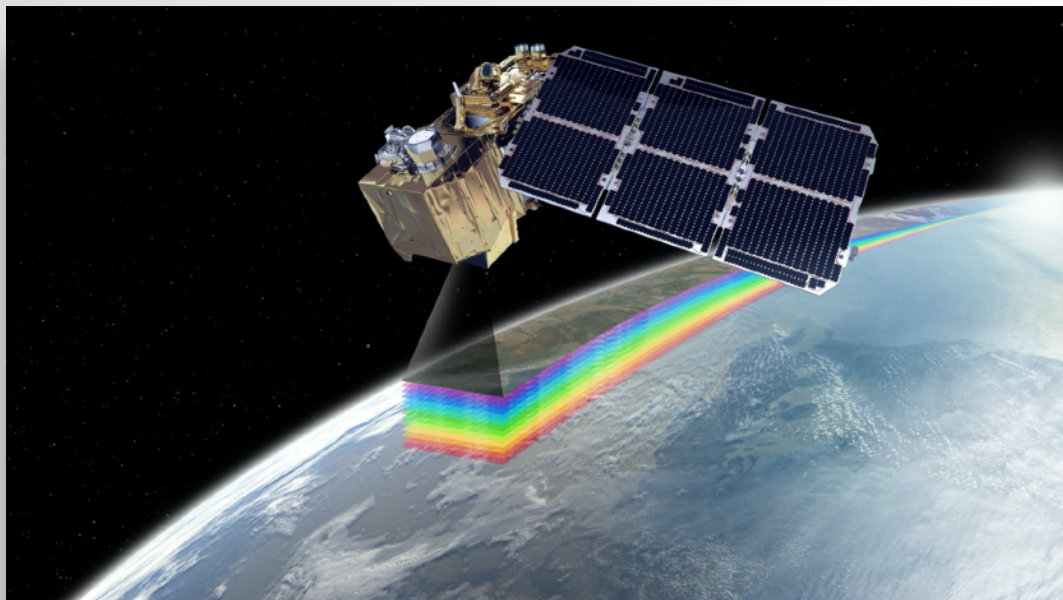
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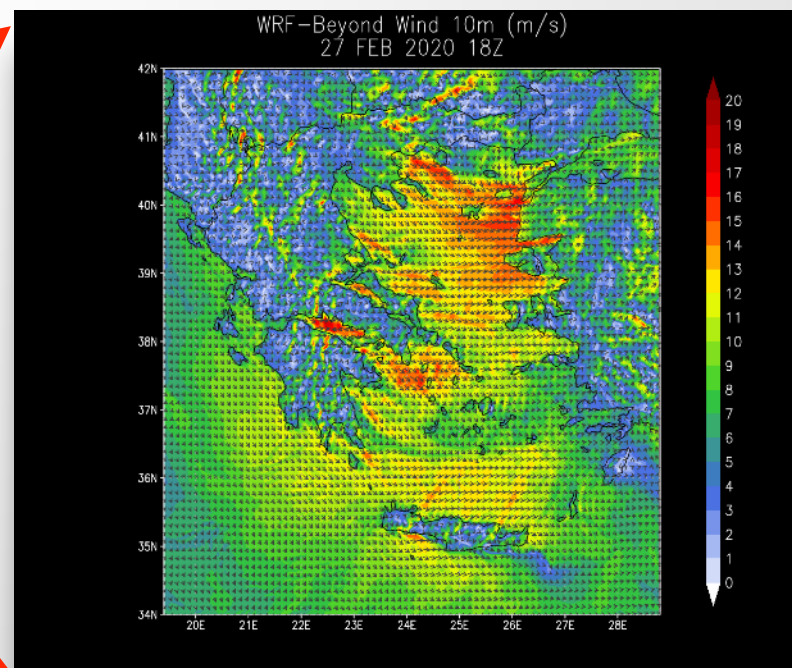
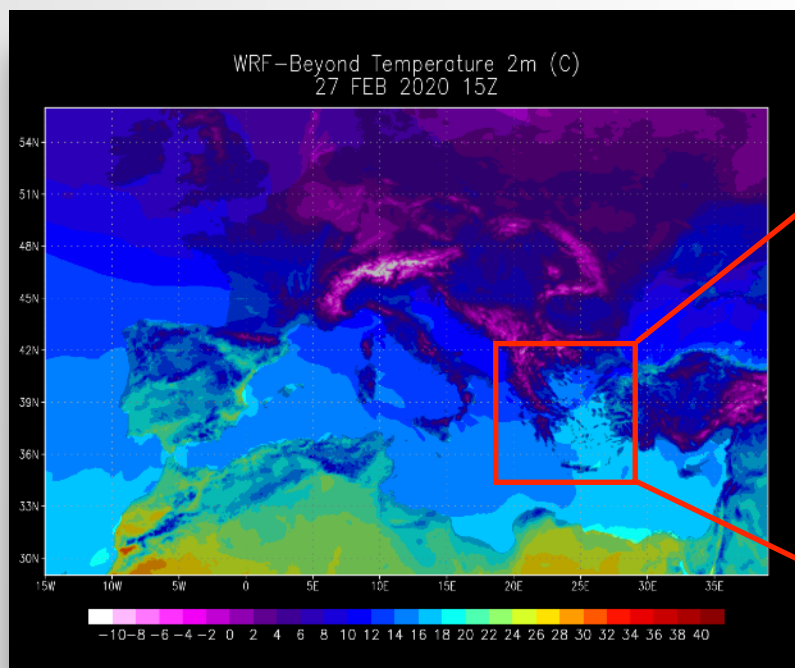
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ResAGRI Weather Risk

iLot Number	WRF-2day				GFS-10day			
	Extreme Temperature	Gale Winds	Heavy Precipitation Event	Hailstorm Risk	Extreme Temperature	Gale Winds	Heavy Precipitation Event	Hailstorm Risk
6295466982356								
6059046202034								
3753561273005								

Upload New File

FARMER COOPERATIVES SECTOR NEEDS

WHEN TO SEED?

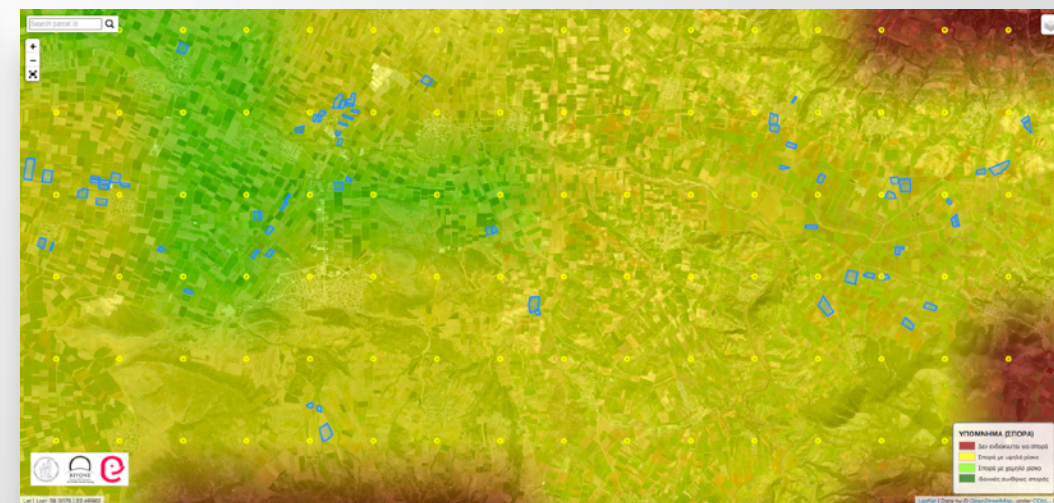
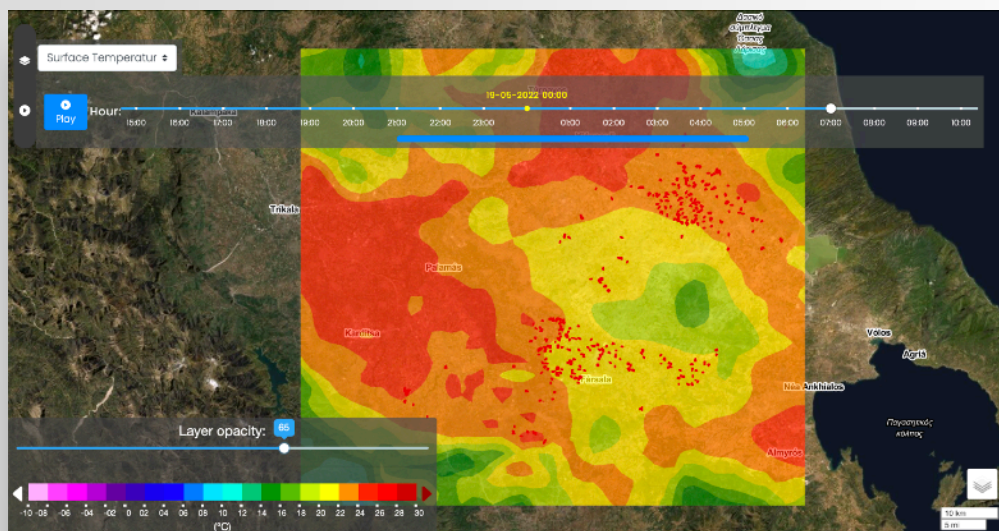
Via AI utilisation of soil &
atmospheric simulations

WHEN TO IRRIGATE AND FERTILISE

High resolution forecasts to consult
farmers on approaching weather perils

PHENOLOGICAL STAGE

e.g. to apply pix growth
regulator at squaring stage



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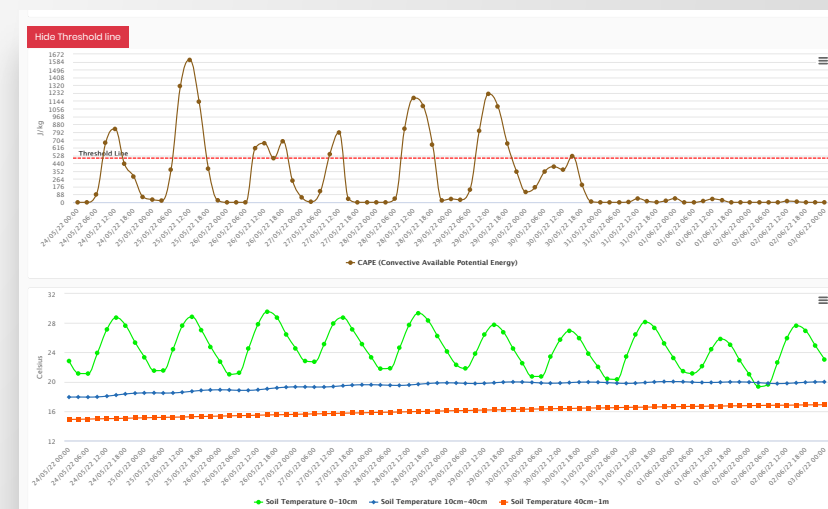
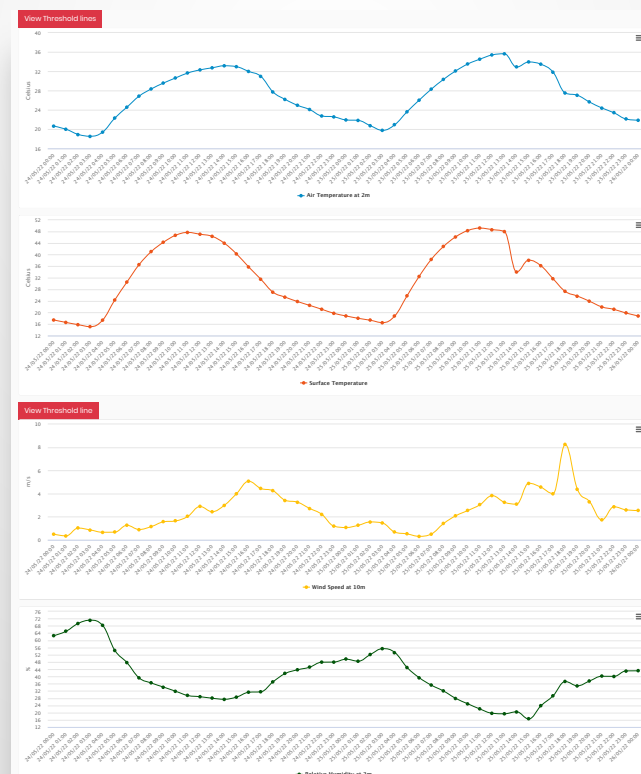
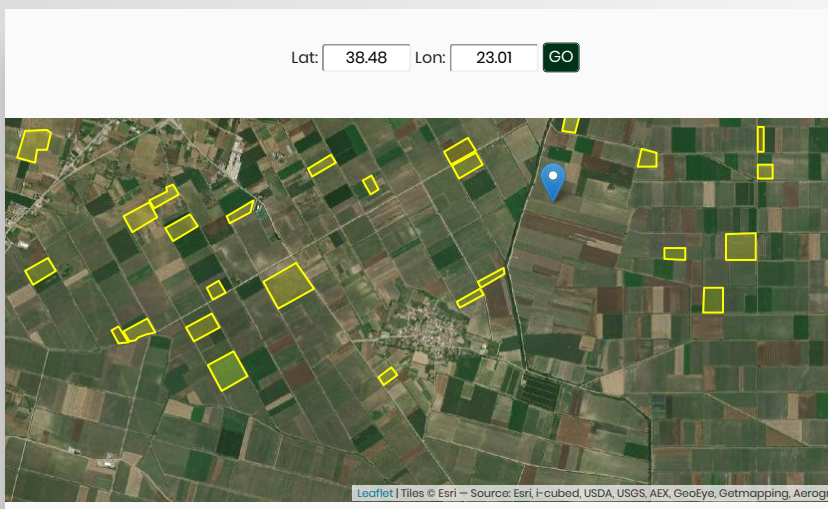
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WHEN TO IRRIGATE AND FERTILISE

High resolution forecasts to consult farmers on approaching weather perils

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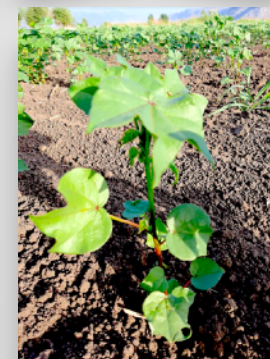
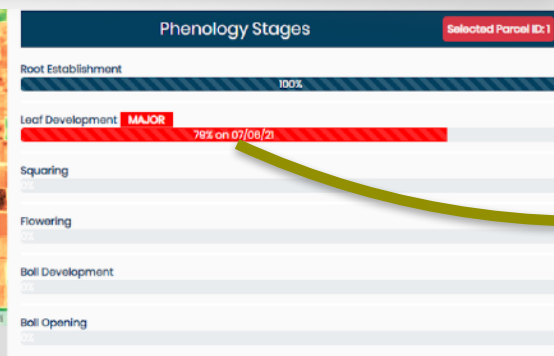
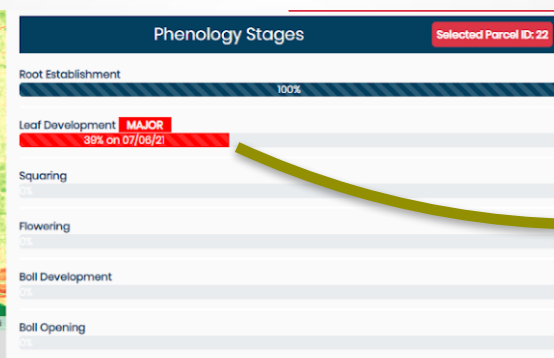
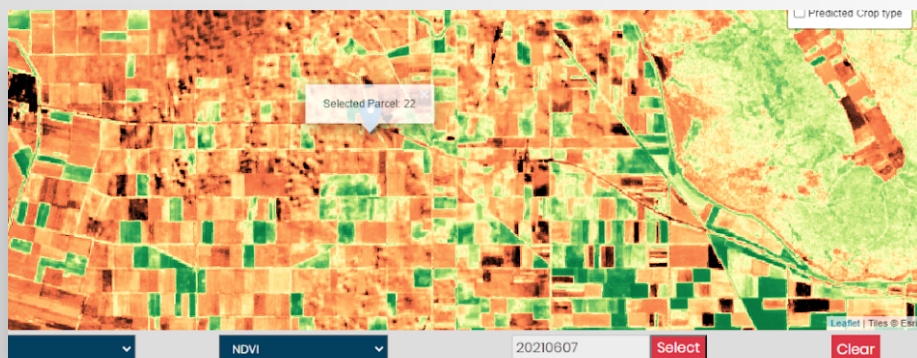
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AGRO-INDUSTRY NEEDS

SOWING MAPS & PEST CONTROL

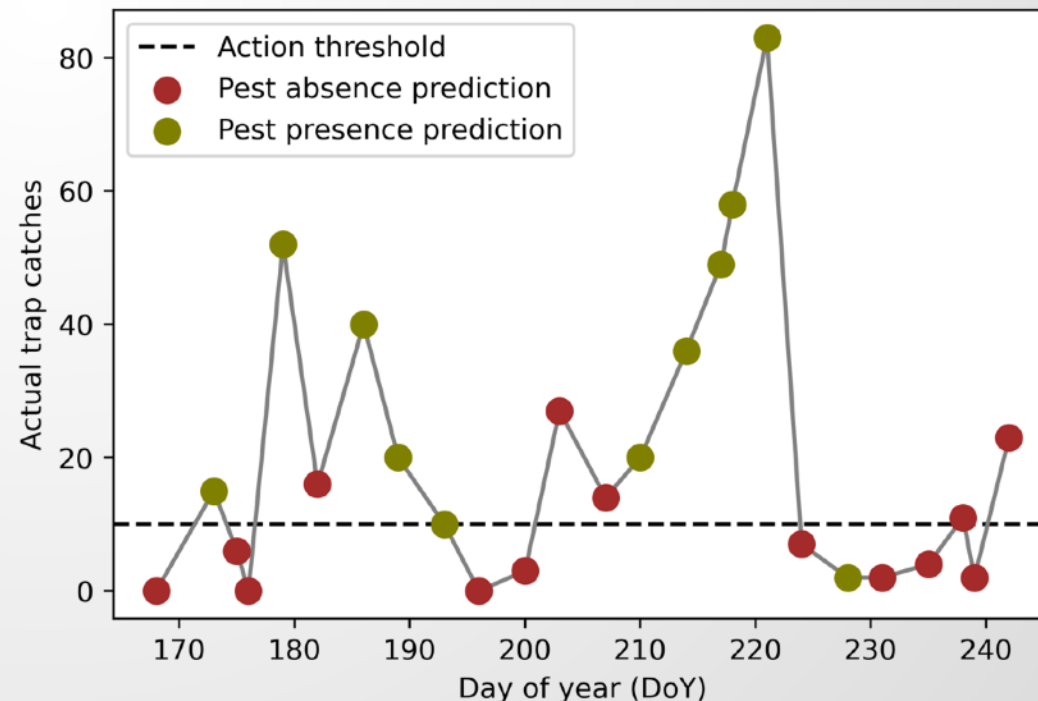
Sowing for additional crops &
regions, consult upon pesticide use

YIELD ESTIMATION

Accurate estimation of total yield
per hectare, months before harvest

INTRA-PARCEL INSIGHT

Identification of delays in crop
growth early in the season to
prevent production fallback



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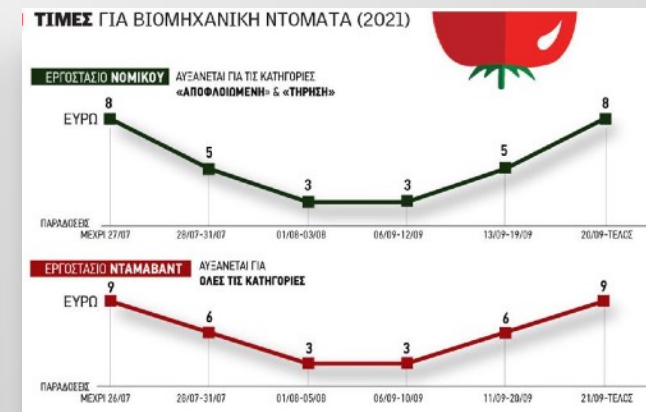
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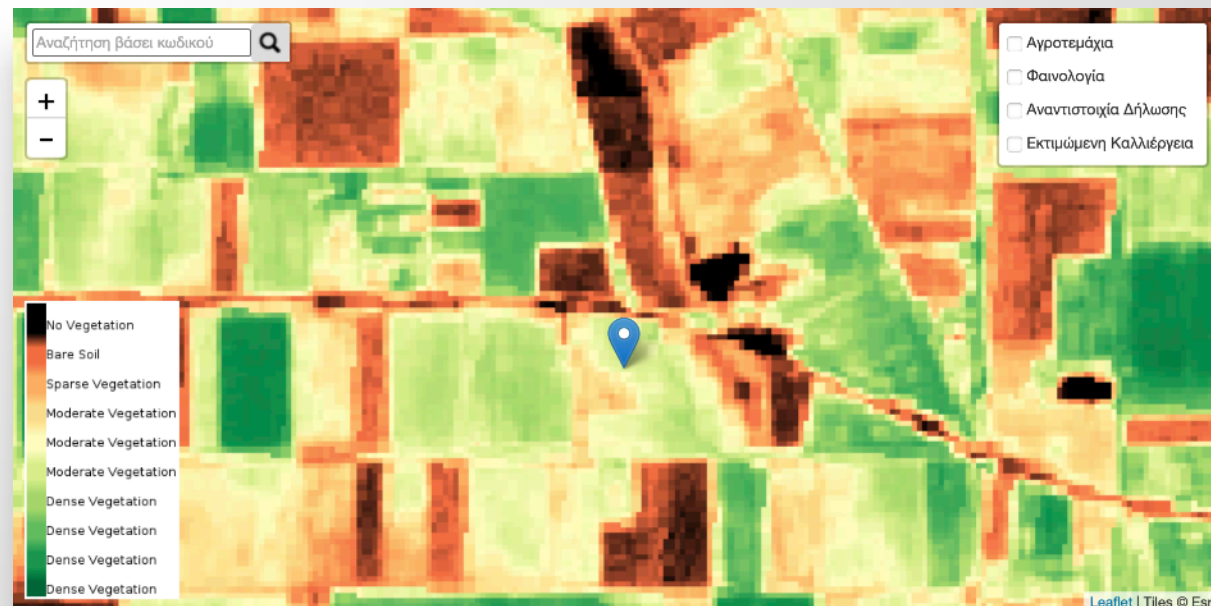
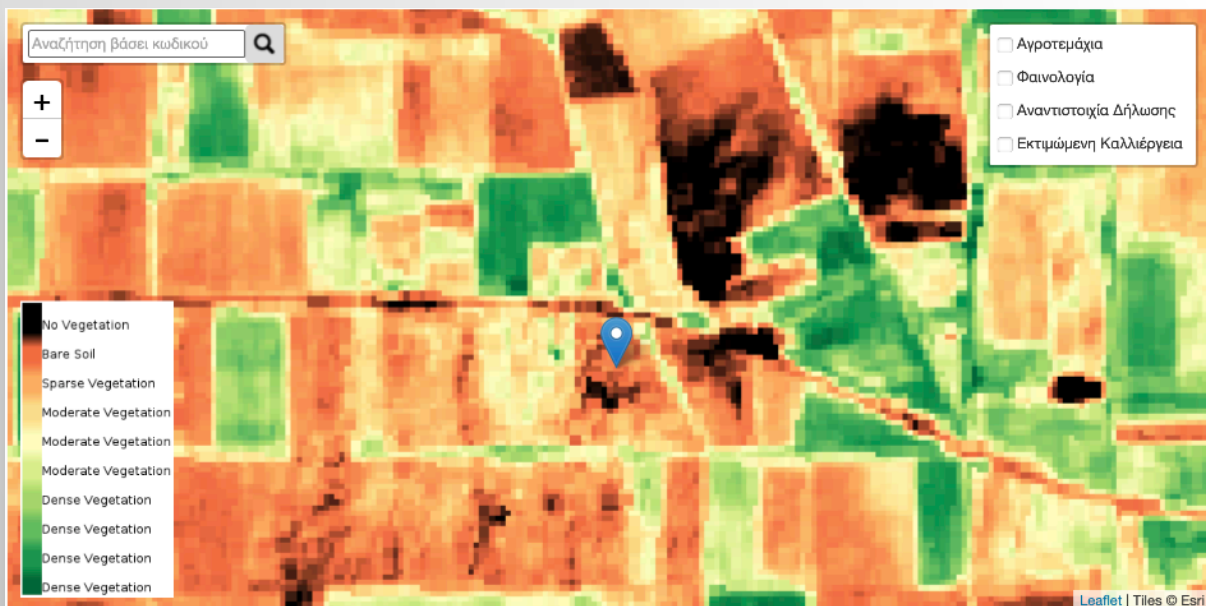
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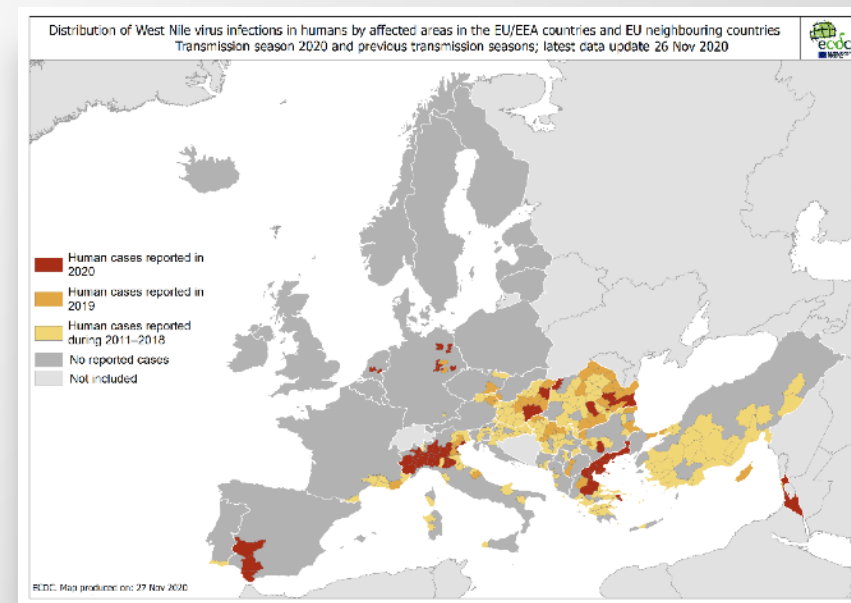


EYWA - A HEALTH INITIATIVE TURNED INTO EU SUCCESS STORY

- **>100 countries** affected, **>700k deaths** annually on a global scale due to **mosquito-born diseases** (malaria, dengue/yellow fever, zika)
- **+40%** incidents of **Western Nile virus** compared to the **1950s**.
- A consortium of **15 partners** from **5 countries** affecting >30 million people.
- Time-series of **entomological, epidemiological, socio-economic, satellite Earth Observation, meteorological** and **geomorphological** data are used as model inputs.

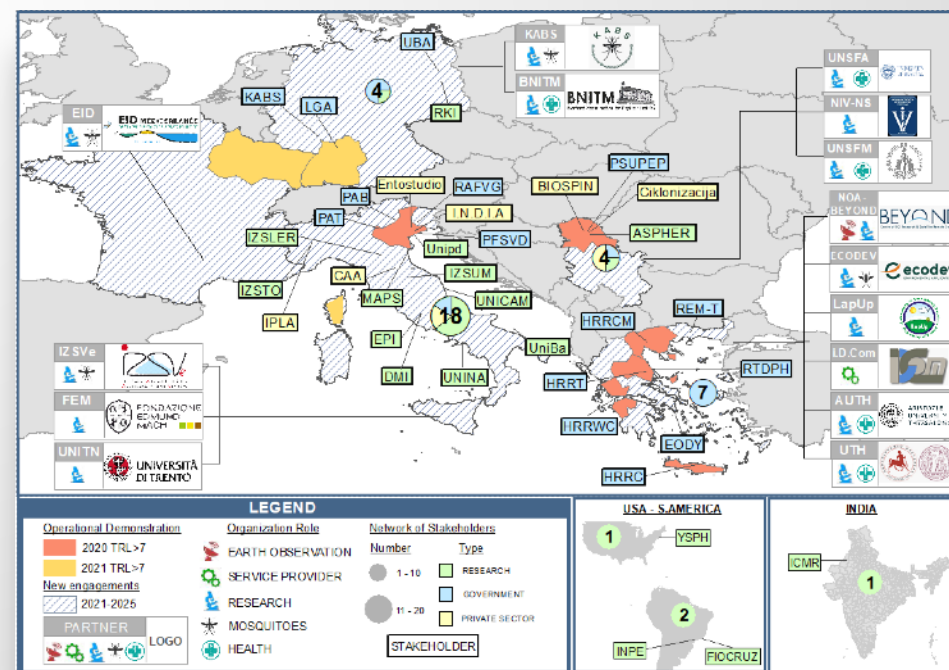
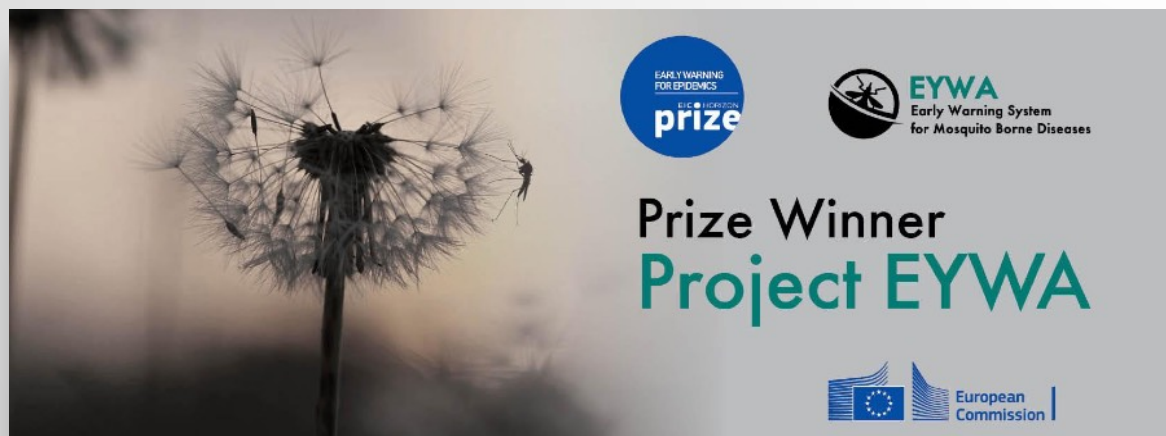
Data Handling, Mosquito Surveillance & Control, Medical & Veterinary Medicine from all 5 countries:

- | | |
|--------------|-------------------------|
| • BEYOND/NOA | • UNSFA |
| • ECODEV | • UNSFM |
| • LapUp | • NIV-NS (SRB) |
| • AUTH | • KABS |
| • UTH (GR) | • BNITM (GER) |
| • IZSVe | • EID-Mediterranee (FR) |
| • FEM (IT) | |



EYWA - A HEALTH INITIATIVE TURNED INTO EU SUCCESS STORY

- A niche state-of-the-art tool to sustain targeted **door-to-door awareness and aversion** of human cases in thousands of villages in European territories, developed in the context of the **EuroGEO**.
- Awarded with the **1st European Innovation Council Horizon Prize** on Early Warning for Epidemics (€ 5 million).





Thank you

<http://www.resagri.eu>

<http://agrowth.beyond-eocenter.eu>

<http://epidemics.space.noa.gr:8081>



IMAGINATION
TAKES US
BEYOND
OUR LIMITS

