

FROM ORBIT TO ACTION

**SATELLITE INTELLIGENCE FOR
AGRICULTURE, LAND AND WATER**

Operational Earth Observation and Artificial
Intelligence solutions for more efficient,
sustainable and resilient resource management.

EARTH OBSERVATION • AI • WEBGIS • MODELLING



FROM SATELLITE DATA TO DECISIONS

We transform satellite data, weather data, and biophysical models into digital services that support rapid and informed decision-making.



Satellite
imagery



Weather
data



Biophysical
models

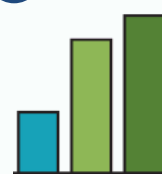
1



Operational maps

Thematic maps and ready-to-use indices for the field and regional scales

2



Indicators

Reliable indicators for monitoring, evaluating, and planning.

3

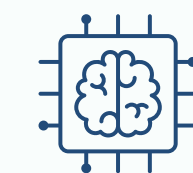


WebGIS services

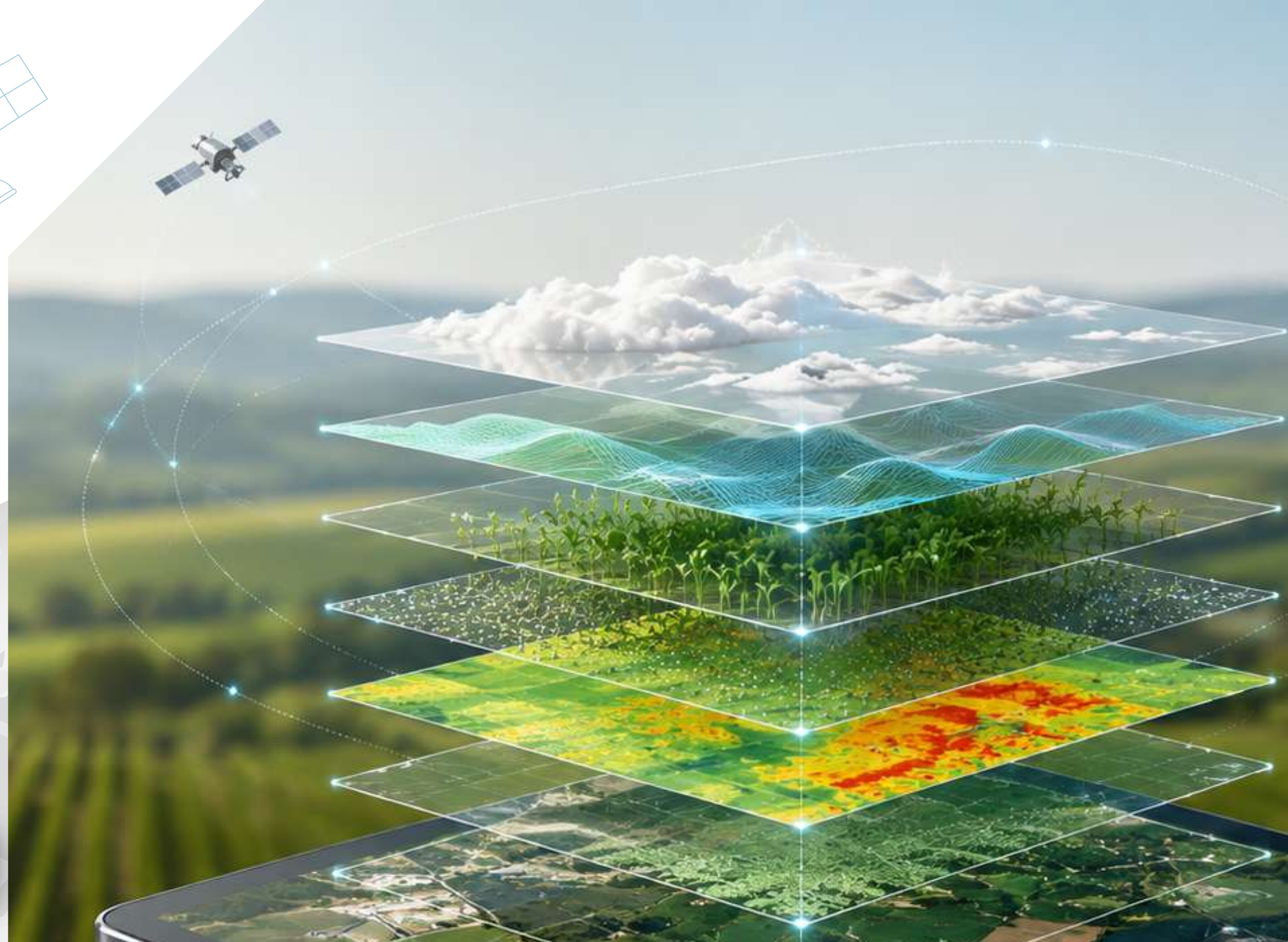
Web-based platforms and services accessible wherever you are.



Academic spin-off
since 2006



AI + Earth Observation
for agriculture, water and land management



VISION & MISSION



VISION

To become the leading provider of satellite-based **agricultural intelligence**, making agriculture more **sustainable, efficient and resilient** for future generations.



MISSION

We transform **satellite data**, **weather data** and biophysical models into **digital services** that support rapid and informed decision-making, generating **real value** for farmers, institutions and local communities.



SUSTAINABILITY



EFFICIENCY



RESILIENCE





Data

Continuous acquisition of multispectral satellite imagery and meteorological data.

Pre-processing

Data calibration to extract biophysical and crop parameters (albedo, LAI, etc.).

Artificial Intelligence

Application of physical, biophysical and artificial intelligence models.

Results

Generate ready-to-use maps supporting the sustainable management of agroforestry resources.



The Pillars of Geospatial Expertise

Earth Observation

- Processing of optical (multispectral/hyperspectral) and SAR imagery.
- Creation of thematic maps for land cover classification, crop monitoring, natural resource monitoring, and tracking changes over time.
- Validation of products using in-field spectro - radiometric measurements.

Geomatics & WebGIS

- Design of web-based, open-source, and highly customised geographic information systems.
- Integration of physical, biophysical and artificial intelligence models into web platforms for rapid access.

Natural Resource Modelling

- Monitoring of irrigation resources and estimation of crop irrigation requirements.
- Simulation of crop growth and water balances.
- Development of predictive models for the sustainable management of ecosystems.



MapTime Explorer® – Multi-temporal geographic intelligence

Publish, explore and analyse geographical data and time series directly in your browser.



Authorities/Consortia

Simple publication and sharing of geospatial layers.



Technicians

Advanced analyses, historical trends and customised workflows.



Raster and vector maps



Time-series analysis



Zonal statistics



Custom models



irrisat® – Intelligence for Precision Irrigation

Satellite consultancy service for farms, Land Reclamation and Irrigation Consortia and land management bodies.



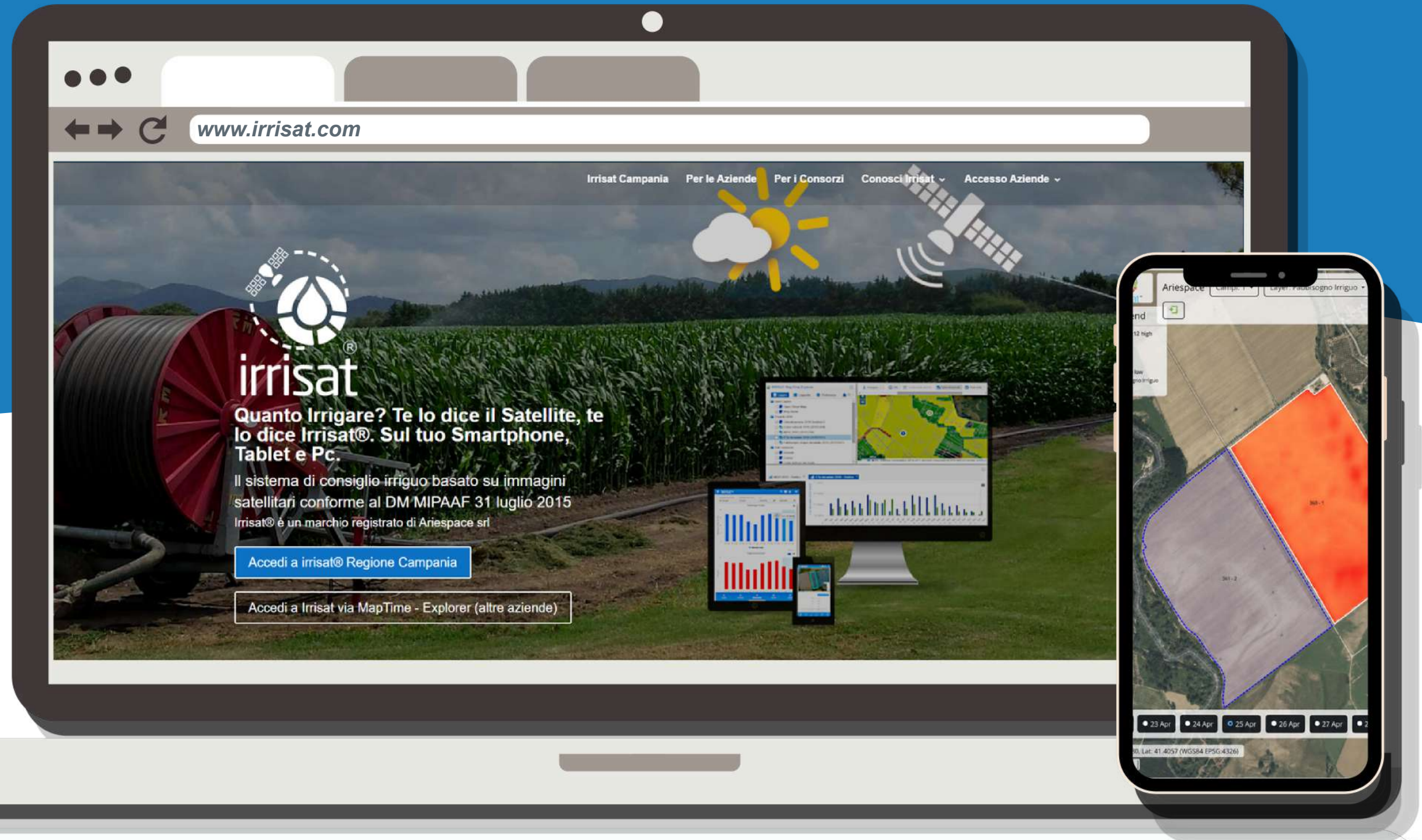
For farms

Operational irrigation advice at the plot level to optimize water use and crop yields.



For Consortia

Remote monitoring, inspection of irrigation areas, and operational support for all areas covered by the consortium.



Monitoring at the plot level



Estimation of crop evapotranspiration



Verification of irrigated areas



Water-saving decisions



PRODUCT ARIESPACE • PRECISION IRRIGATION

irrisat® *product suite*

The italian satellite-based irrigation consultancy service

Operational since 2007 • implemented across 12 Land Reclamation and Irrigation Consortia in Italy

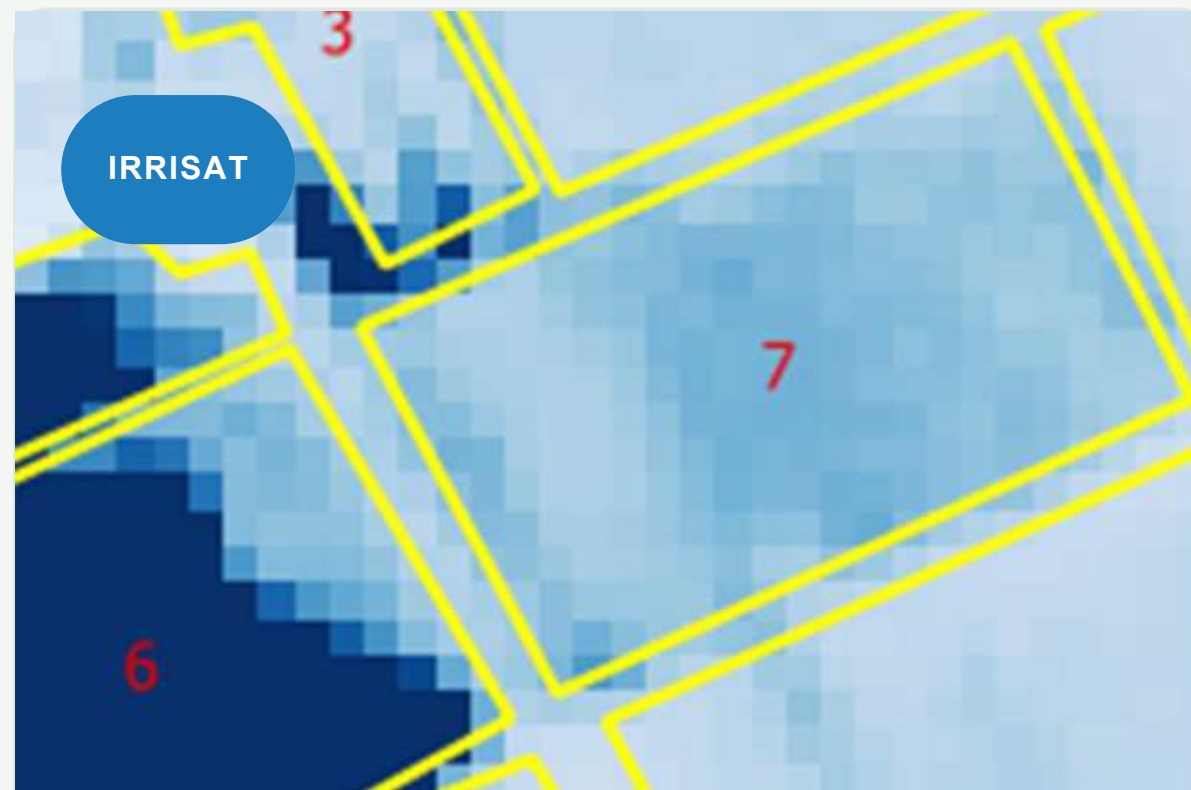


Crop Evapotranspiration (ETc)

5 - 10 metres

every 3 - 5 days

Direct estimation of maximum evapotranspiration using the FAO-56 Penman-Monteith equation, with actual canopy parameters (albedo, LAI) retrieved from satellite data.



Irrigation Water Requirements

5 - 10 metres

daily/weekly/monthly

Irrigation requirement maps for each plot, dynamically updated by combining satellite data on crop development with weather forecasts.



Historical Series of Irrigation Volumes

5 - 10 metres

monthly/seasonal

Estimation of actual irrigation volumes abstracted and distributed, including conveyance losses, in SIGRIAN format for reporting to Consortia, with monthly and seasonal time series available from 2016 onward.

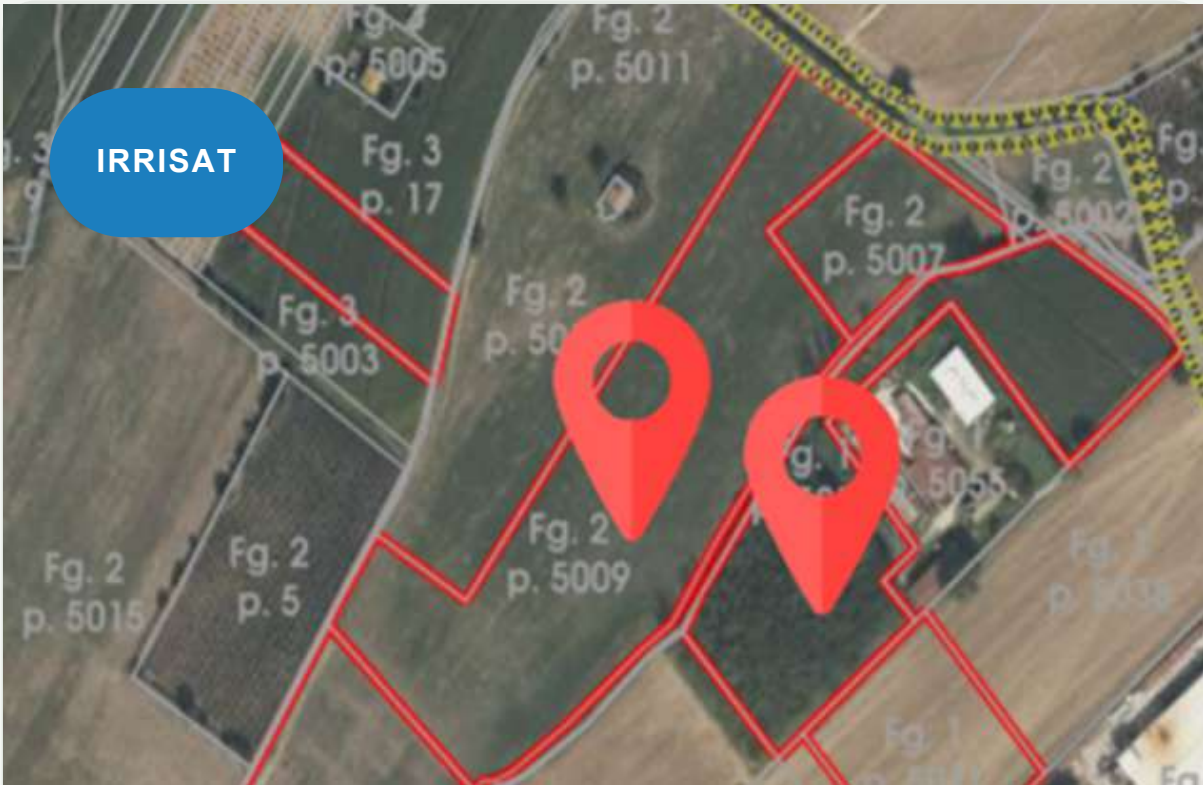


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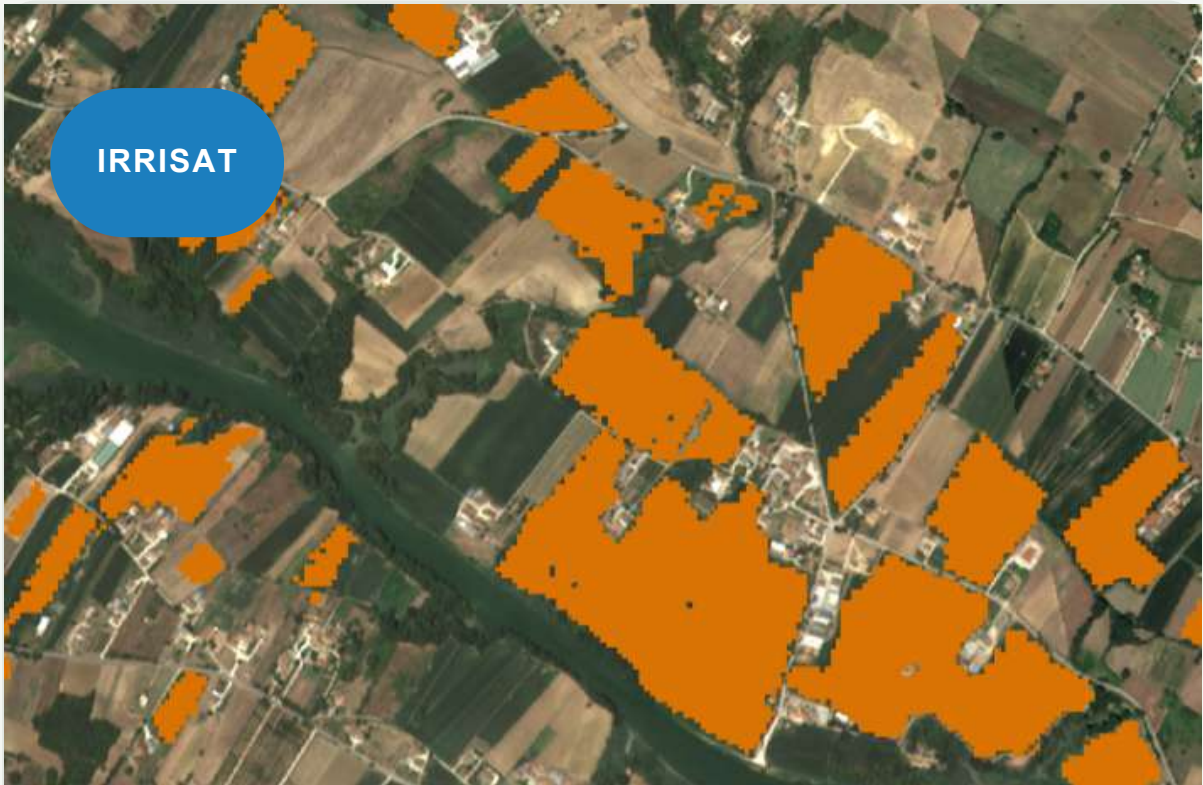


Identification of unauthorised Irrigated Areas

5 - 10 metres

every 5 days

Automatic, real-time detection of unauthorised irrigation plots, combining moisture anomalies and plant vigour. Alert map available within a few hours.



Probable irrigation

5 - 10 metres

every 5 days

Maps updated with every satellite image to identify plots with crops that may have been irrigated, based on vegetative development and moisture conditions.



Identification of irrigated areas

5 - 10 metres

seasonal

Classification of irrigated and non-irrigated areas obtained by analysing the entire phenological development of crops during the irrigation season.



Nutrisat – Crop nutritional monitoring

Satellite-based system for nitrogen management and the assessment of crop nutritional status at the field level.



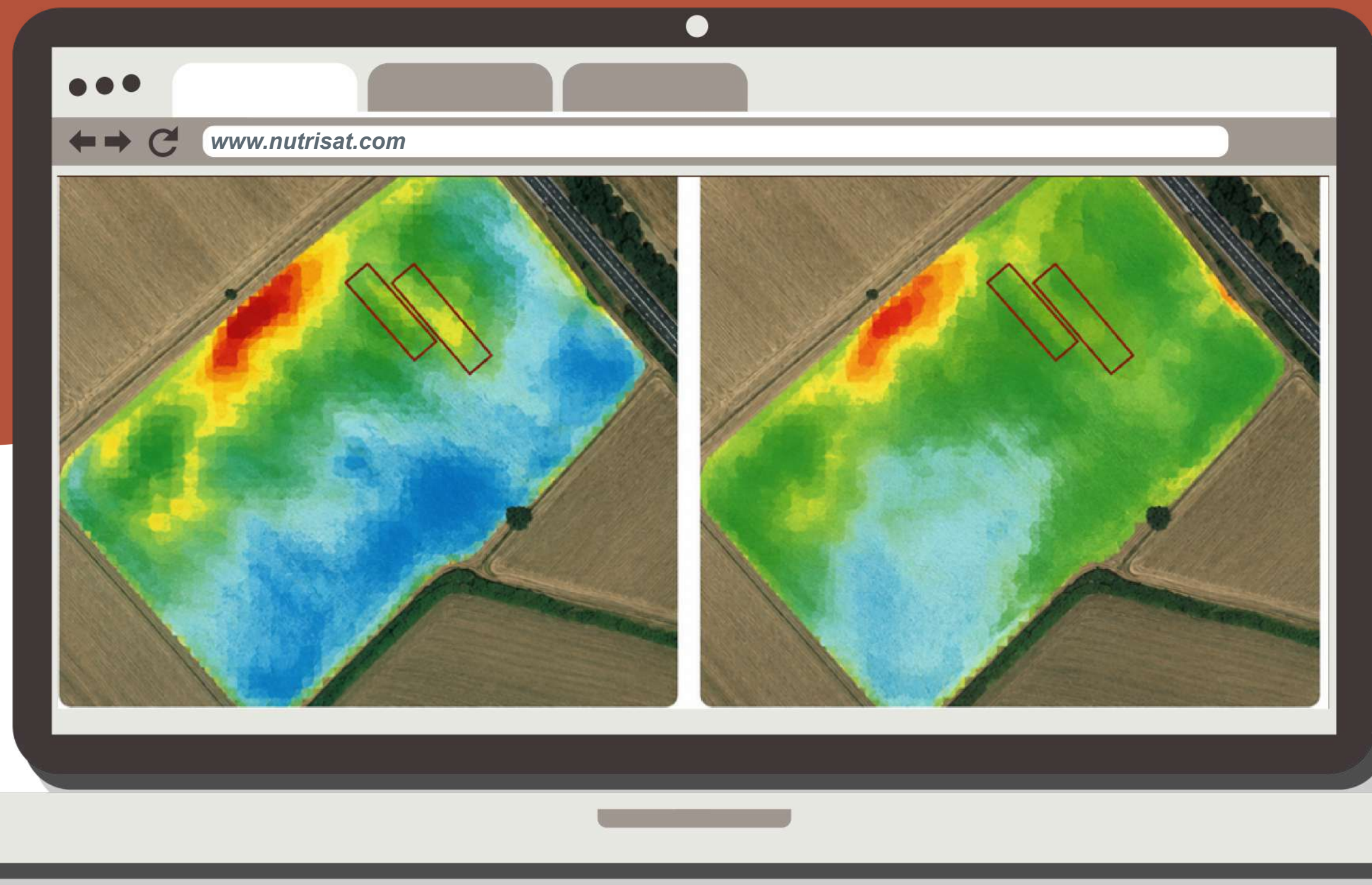
For farms

A support system for targeted fertilisation with practical guidance for use in the field.



For technicians and consultants

Monitoring of crop nutritional status and interpretation of intra-plot variability.



Nutrient maps



Fertilisation support



Nitrogen Nutrition Index



Multi-device access



PRODUCT ARIESPACE • CROP NUTRITION

Nutrisat *product suite*

Satellite-based crop nutrient monitoring

FATIMA Project (H2020) • CREA methodology

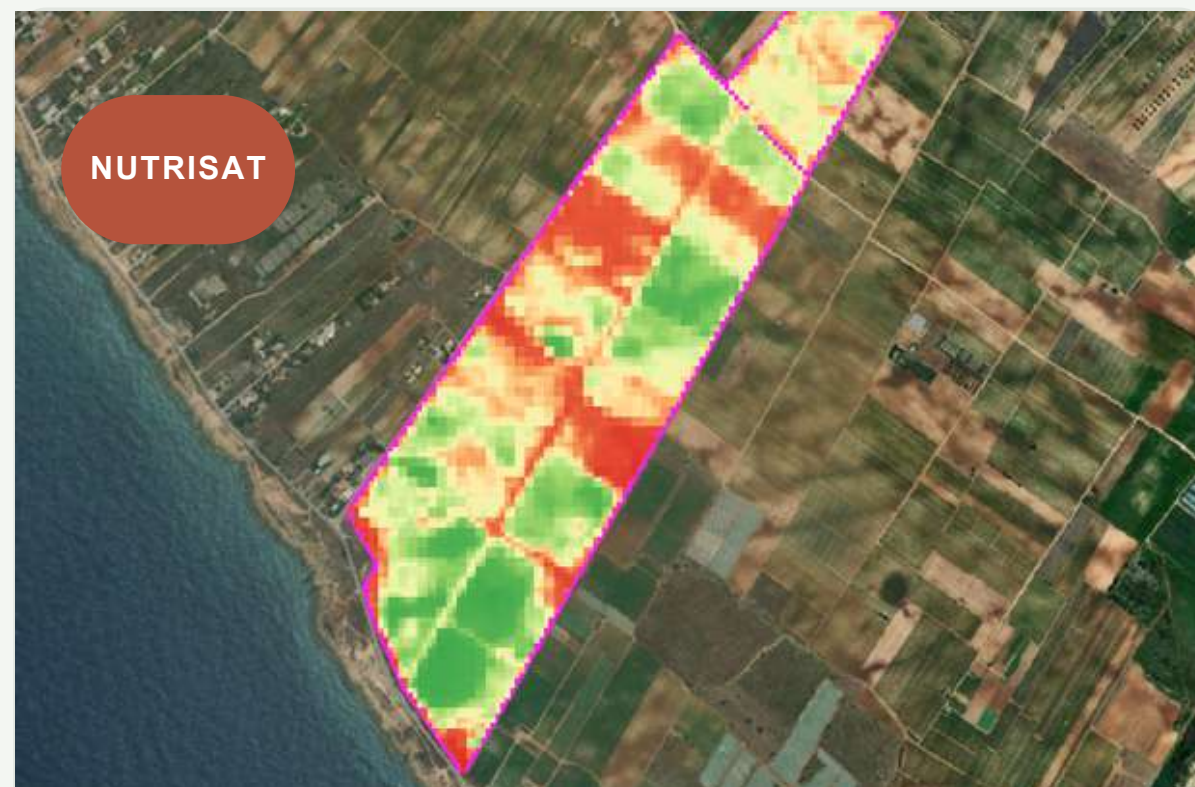


Nitrogen Nutrition Index (NNI)

5 - 10 metres

every 3 - 5 days

Indicates the crop's nitrogen status by comparing its actual nitrogen concentration with the critical concentration required for maximum growth during the growing season.



Leaf Area Index (LAI)

5 - 10 metres

every 3 - 5 days

Plant canopy structural density derived from PROSAIL model inversion using Sentinel-2 data, providing information on crop growth status and biomass.



Chlorophyll Index (CI)

5 - 10 metres

every 3 - 5 days

Estimates leaf chlorophyll content from red-edge bands, enabling the monitoring of crop nutritional variability through specific calibrations validated in the field.



SimFito – Plant Health Monitoring

WebGIS system for plant health monitoring and pest-risk management in the Campania Region.



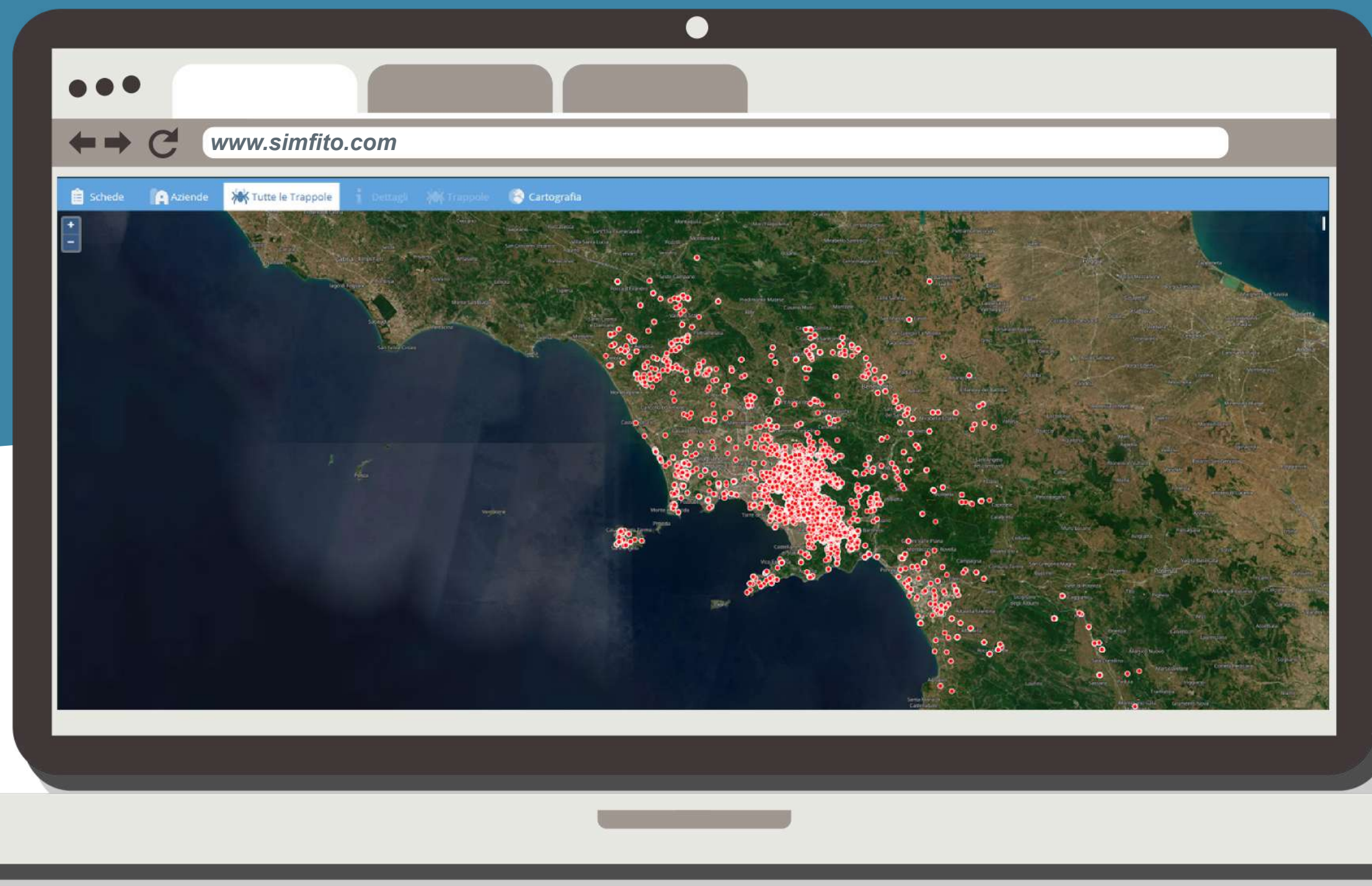
For farms

Monitoring the territory and harmful organisms to enable timely intervention and reduce phytosanitary risk.



Integrated databases

Cross-reference and compares data with SeSIRCA, EPPO, and PQR to ensure reliable and up-to-date analyses.



Plant health monitoring



Maps and Reports



Operational WebGIS



Multi-device access

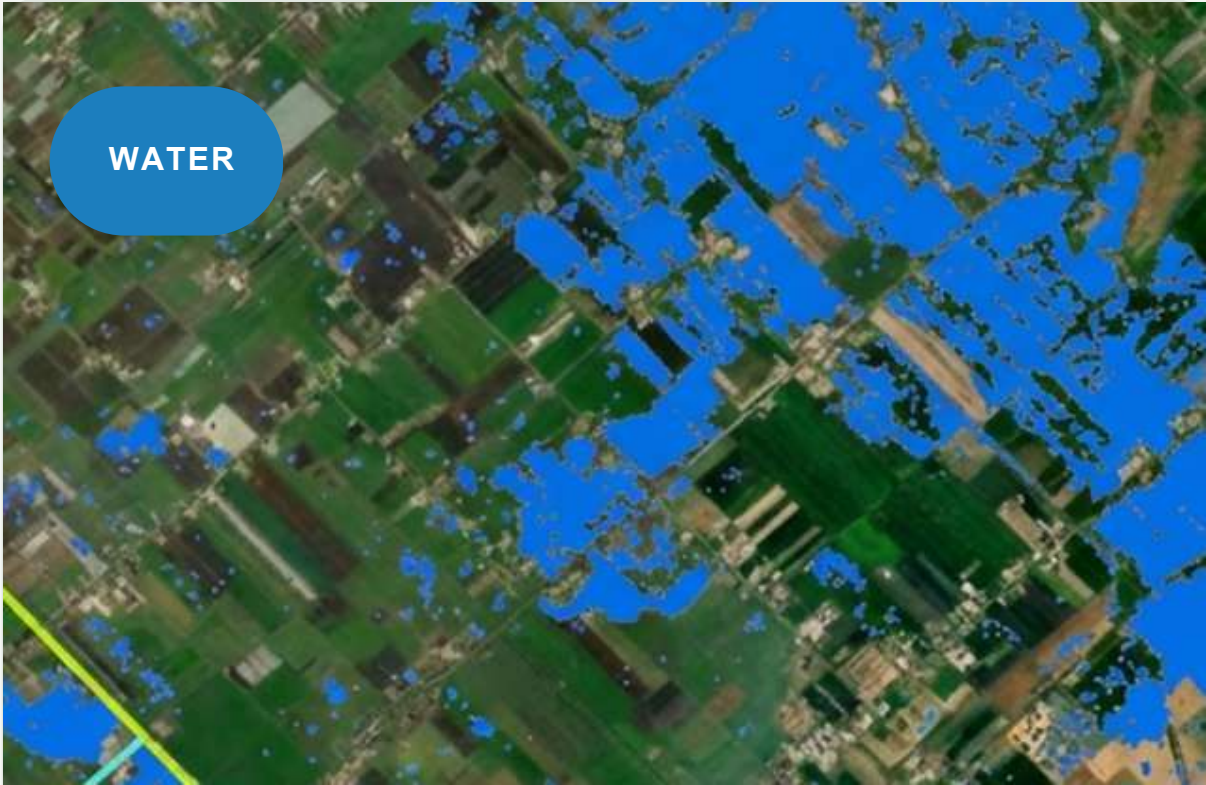


PRODUCT ARIESPACE • ENVIRONMENTAL AND TERRITORIAL MONITORING

Other *Ariespace* solutions

Operational satellite services for water, land and emergencies

Environmental monitoring • Land analysis • Operational support

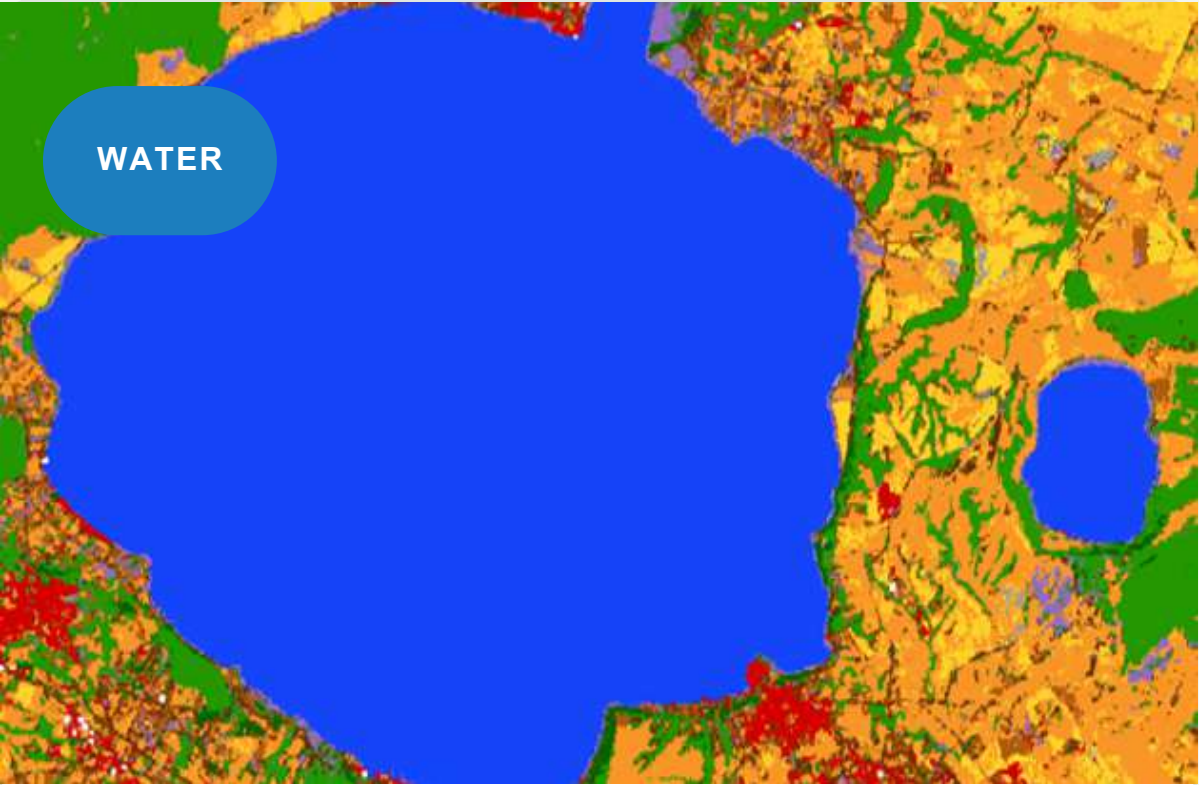


Flood Damage Mapping

5 - 10 metres

every 5 - 6 days

Combines Sentinel-1 and Sentinel-2 data to estimate, on a pixel-by-pixel basis, the affected area, damage severity, and production losses following a flood.

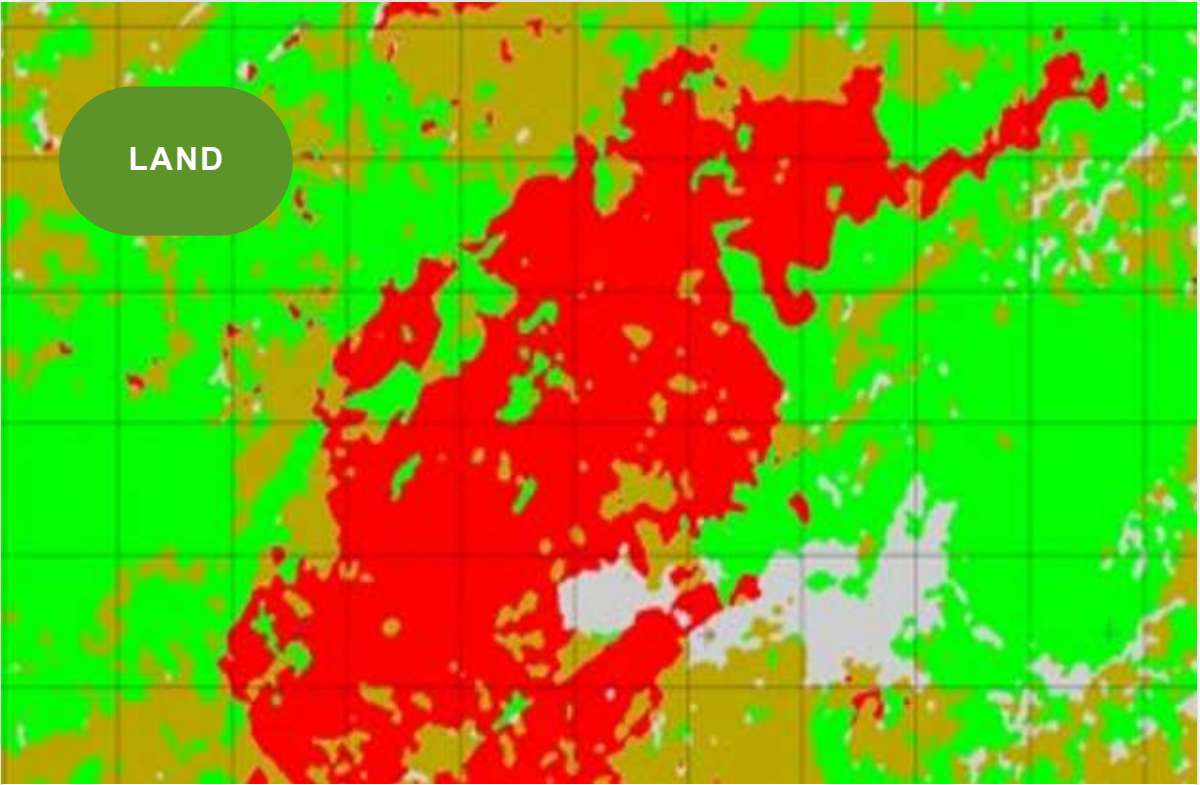


Reservoir Monitoring System

5 - 10 metres

every 5 - 6 days

Continuous monitoring of lakes, reservoirs, and river systems, including water-level mapping under all weather conditions.



Fire-Affected Area Register

5 - 10 metres

seasonal/annual

Mapping and classification of forests and pastures affected by fire to support legal investigations and reforestation planning.



Other *Ariespace* solutions

Operational satellite services for water, land and emergencies

Environmental monitoring • Land analysis • Operational support



Risk Analysis of Watercourses (Prevention)

1 - 10 metres

every 5 - 6 days

Multi-sensor analysis using Sentinel-1 and Sentinel-2 to identify obstructions and vegetation-related risks along watercourses, even under cloudy conditions.



Remote Verification of Maintenance Work

1 - 10 metres

pre/post comparison

Multi-temporal change detection to verify whether declared maintenance work corresponds to the conditions actually observed by satellite.



Pipeline Leak Detection

5 - 10 metres

every 5–6 days

Promptly identifies potential leaks in irrigation networks by detecting soil moisture anomalies along pipeline routes using satellite data and advanced algorithms.

The Institutional Trust Ecosystem

Space Agencies and Policy Institutions

Collaborations on research and innovation projects, Horizon Europe, LIFE+ and other European initiatives.



Certifications and International Guidelines

Geospatial information services and systems validated according to international standards and Earth observation best practices.



Operational Presence and Collaboration Networks

Recognized by regional authorities and international networks.



12 Italian Consortia



Campania
Regional
Agriculture
Department



International
agricultural
partnerships
with Australia
and Spain

BRING SATELLITE INTELLIGENCE TO YOUR DECISIONS

Operational solutions for agriculture,
land and water management.



Scan to visit our website

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