

## CREATION OF SKILLS FOR THE USE OF COPERNICUS PROGRAMME RESOURCES AND THEIR INTEGRATION WITH TERRITORIAL DATABASES

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### Context

The European Copernicus Programme ([www.copernicus.eu](http://www.copernicus.eu)) is one of the main Earth Observation (EO) open data sources, supporting the social and economic development and the EU progress. Copernicus provides a vast amount of satellite data acquired from six Sentinel missions, and six types of services that provide ready-to-use information on different topics: atmosphere (CAMS), land (CLMS), climate (C3S), oceans (CMEMS), and security (CSS).

### EO-UPTAKE Project

EO-Uptake is funded by the Liguria Region, has started in 2019 and is coordinated by the IMATI, and GISIG. The project is part of the public sector and the productive framework of the Liguria Region: the aim is to stimulate new business opportunities and face current social challenges, while promoting research activity..

### Objectives

EO-UPTAKE project main objective is to enhance the uptake of Copernicus competences fostering the collaboration between scientific training and the productive sector in Italy. EO-UPTAKE mission is to strengthen the competitiveness of the Italian Region Liguria through a new strategy which increases interactions between science and tertiary sector, research and innovation, to bridge the skill gap between intermediate and end-user by strengthening the existing ecosystem of skills, to promote the use and integration of Copernicus data and services supporting innovative applications for end-users.

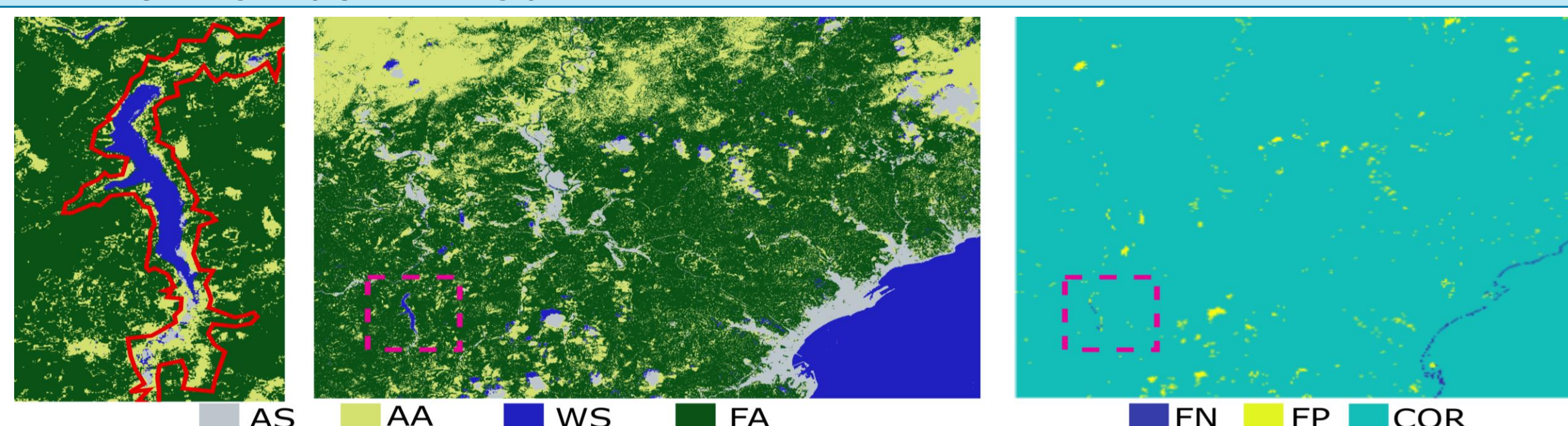
### Themes

In particular, it focuses on four sectors and specific scenarios: Agriculture, Forestry, Urban and Management of Natural Disasters. The activity is supported by the specific skills of external partners to provide a better understanding of the concrete problems of companies and their activities.

### OUTCOMES

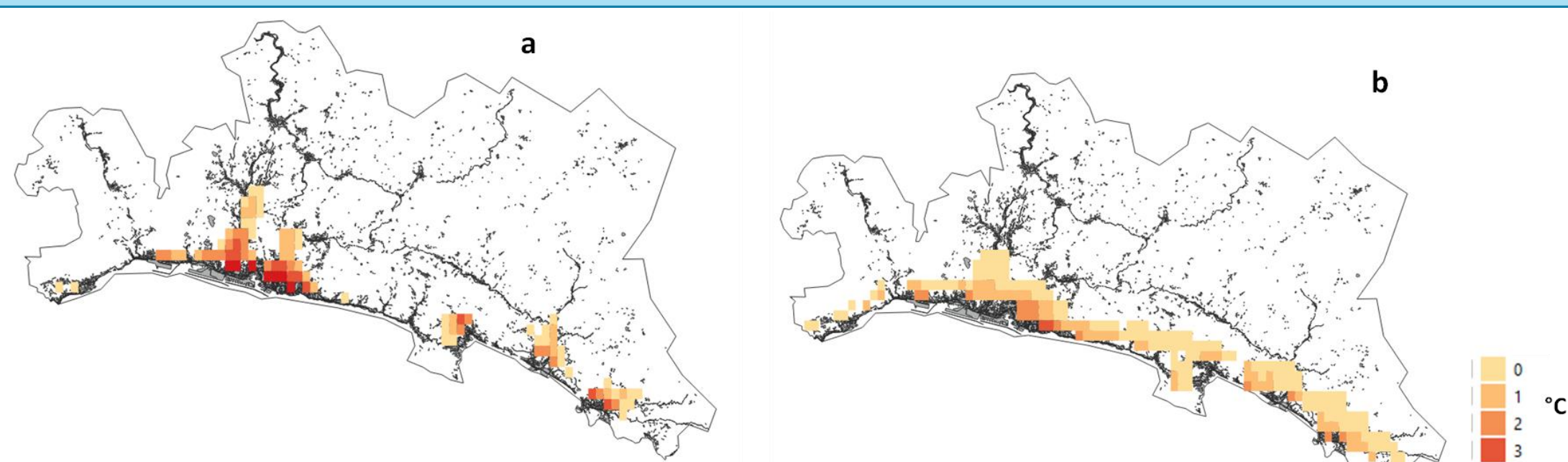
The main project outcome is the identification of a set of procedures and guidelines for access, use, and integration of Copernicus resources, regardless of domain. The project will also provide processing workflows for the realization of concrete examples of applications in different application sectors.

### APPLICATION SCENARIOS



**AS1 - Assessment of flood risk in rural environments:** The workflow presents the methods for land cover supervised classification of an area characterized by the presence of a dam and an artificial lake. This assessment is carried out through integration with the hydrographic database provided by INPE<sup>1</sup>. It also assesses the accuracy of the classification method and its replicability in a broader context. The aim is to assess the risk to human activities arising from potential flooding due to breakage or overflow.

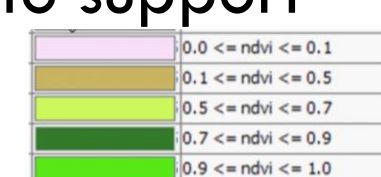
<sup>1</sup> [www.inpe.br](http://www.inpe.br)



**AS3 - Monitoring of the surface heat island effect:** The workflow presents the practices to evaluate the daily (a) and nightly (b) surface heat island effect for summer 2020 in the metropolitan area of the city of Genoa; the aim is to provide an estimate of the thermal variation due to the presence of large urban agglomerations.

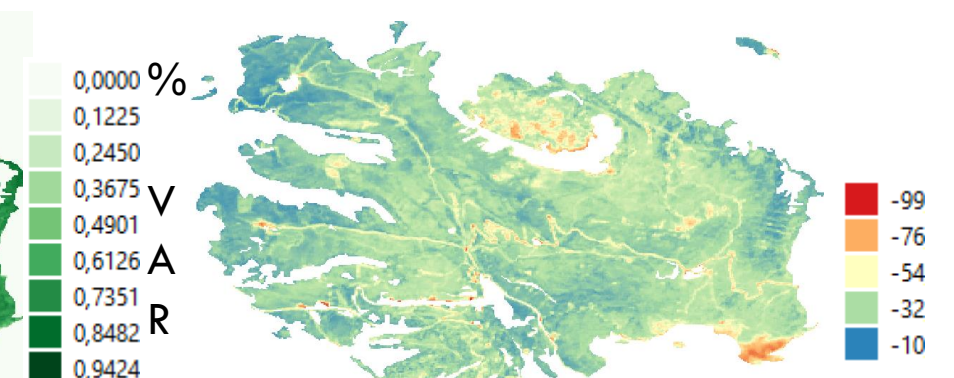
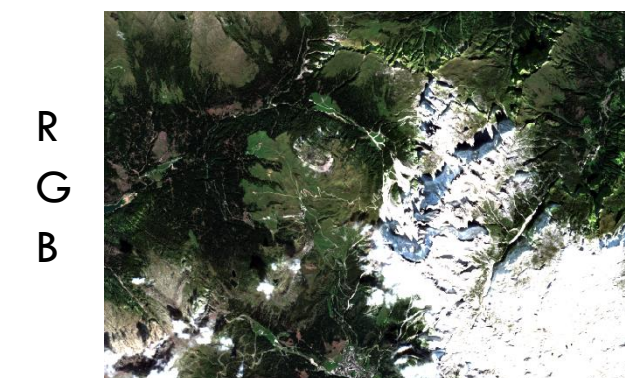
### AS2 - Precision agriculture for vineyard monitoring:

The workflow presents the methods for the calculation of vegetation indexes from Copernicus S-2 data and data collected by land drones, to evaluate the health status of the vineyards, considering both hilly and flat areas of eastern Liguria in the harvest period. The objective is to perform an extensive crop monitoring to facilitate the management of resources to support farmers.

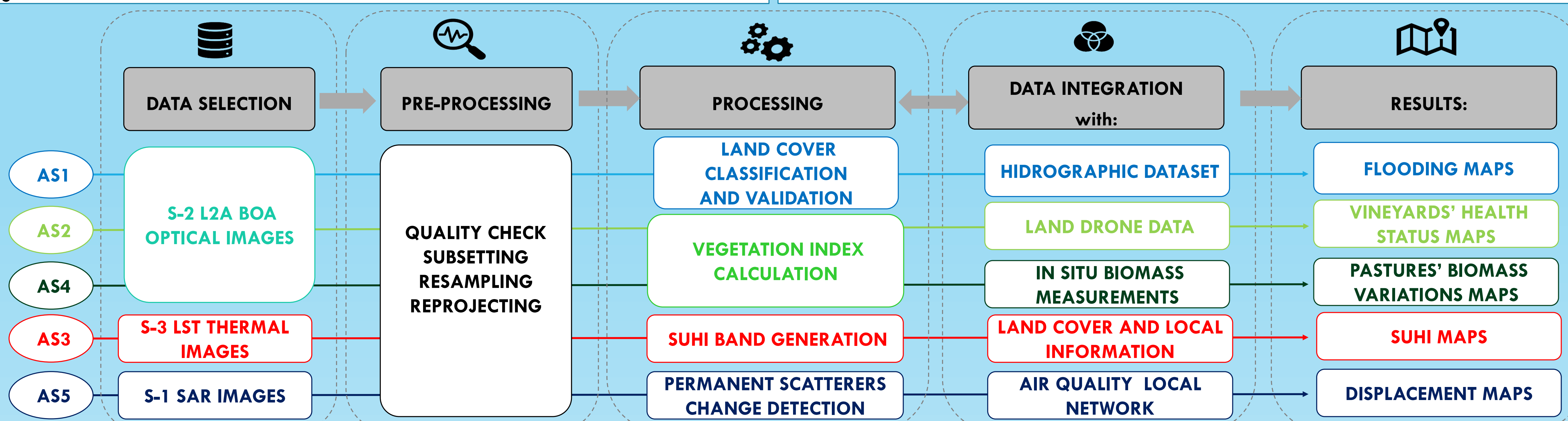


**AS4 - Sustainable monitoring and management of pastures:** The workflow outlines the characteristics of a tool addressed to farmers and stakeholders involved in the management of the grazing resource in the Paneveggio Park area, in Trentino, with the aim of providing them with a wide-ranging monitoring tool.

PANEVEGGIO SEPTEMBER 2020



**AS5 - Landfill gas emissions and consolidation of slopes:** The activity concerns the identification of methods for monitoring gas emissions in landfill areas through remote sensing data combined with in situ detection. The aim is to assess the concentrations of gas emissions, the landfill volume variations and their impact in the surrounding environment.



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