

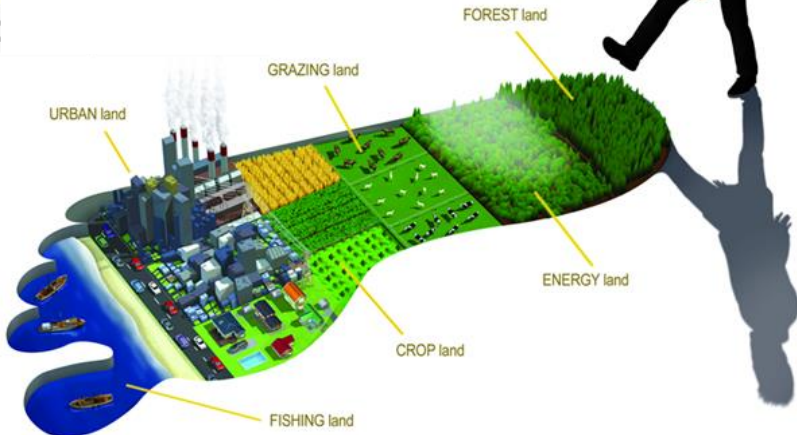
SPACE FOR TWIN CITIES GREEN AND SUSTAINABLE CITIES



Prof. Marco Marchetti, Marcello Maranesi

25 March 2021

1% **Host Trees**
3% **Occupy Land**
56% **House People**
64% **Produce global Waste**
75% **Consume Natural Resources**
75% **Produce global Pollutants**
75% **Dissipate global Energy**
80% **Drink global Water**
80% **Generate global GDP**
82% **Eat global Food**

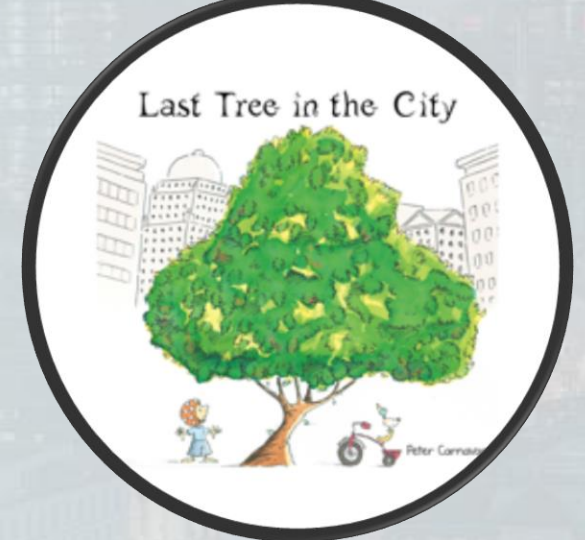


Urbanisation of minds,
behaviours, and lifestyles.

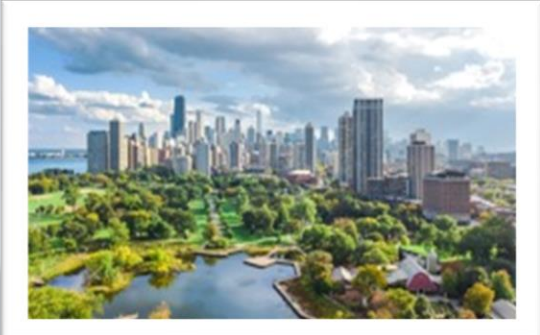
In Europe the 75% of
population lives in cities

BUT

the 98% of Europeans
thinks URBAN



BENEFITS FROM URBAN TREES AND GREEN AREAS



Natural capital

Forest and Watershed

Ecosystem function

Water Capture and Storage

Ecosystem goods & services

Reduced Flood Risk

Building Urban Resilience with Nature



Vision

Sustainably planting, caring for and managing trees and forests will help tackle the climate crisis.

Mission

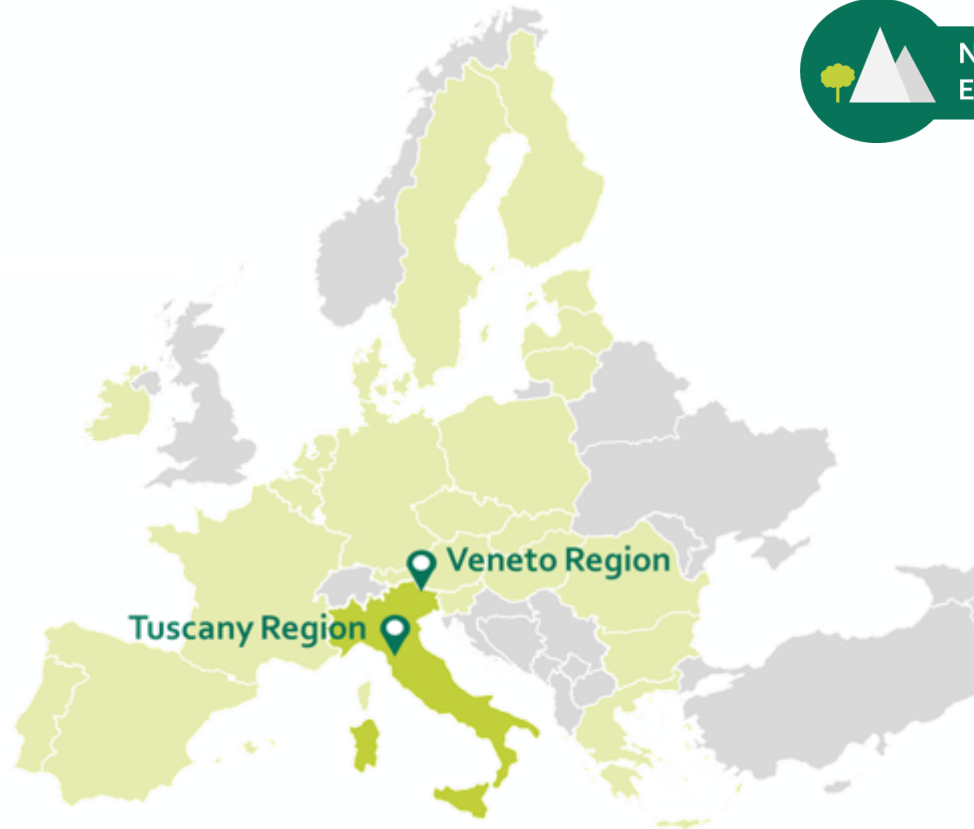
Counting 60 million new trees: one for every Italian citizen.

- ❖ Scientific and technical indications, for plantations to be carried out according to the principles of sustainability and resilience
- ❖ Every tree is planted in the right place and that the right place becomes a place for the environment and society where
- ❖ We will count the new trees and keep track of the carbon they will store, the emissions avoided and the ecosystem services

www.alberitalia.it



THE MAFIS PROJECT



THE MAFIS PROJECT



Institutional



No-profit



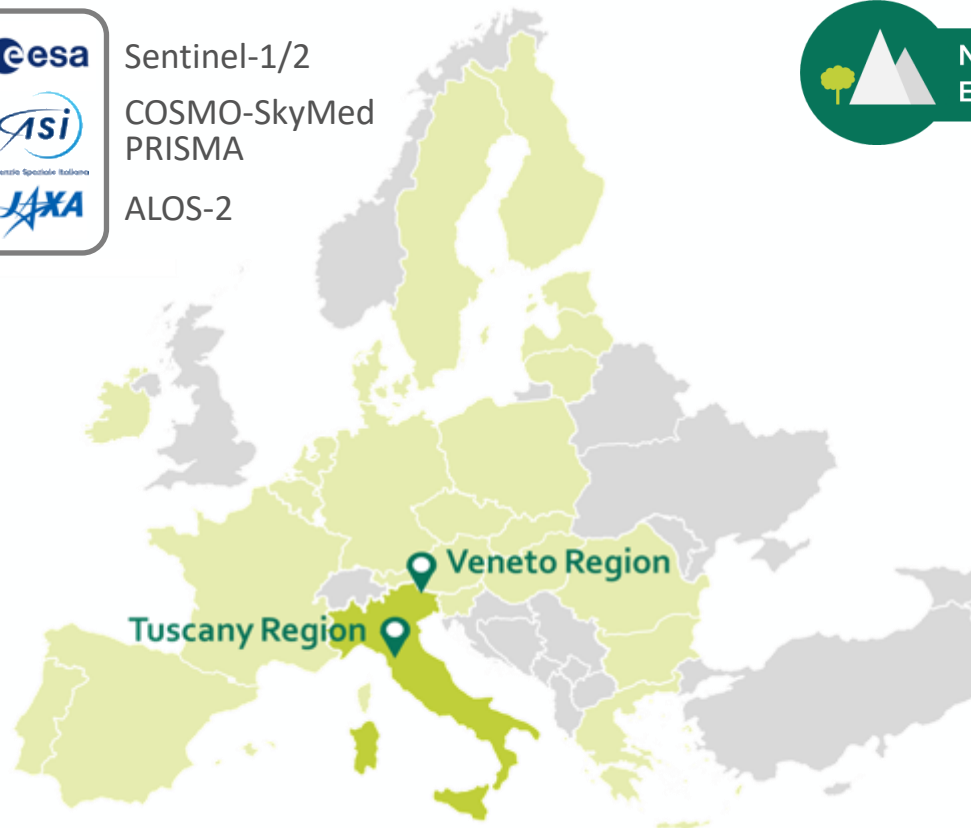
THE MAFIS PROJECT



Sentinel-1/2

COSMO-SkyMed
PRISMA

ALOS-2



Institutional



No-profit



THE MAFIS PROJECT



Sentinel-1/2

COSMO-SkyMed
PRISMA

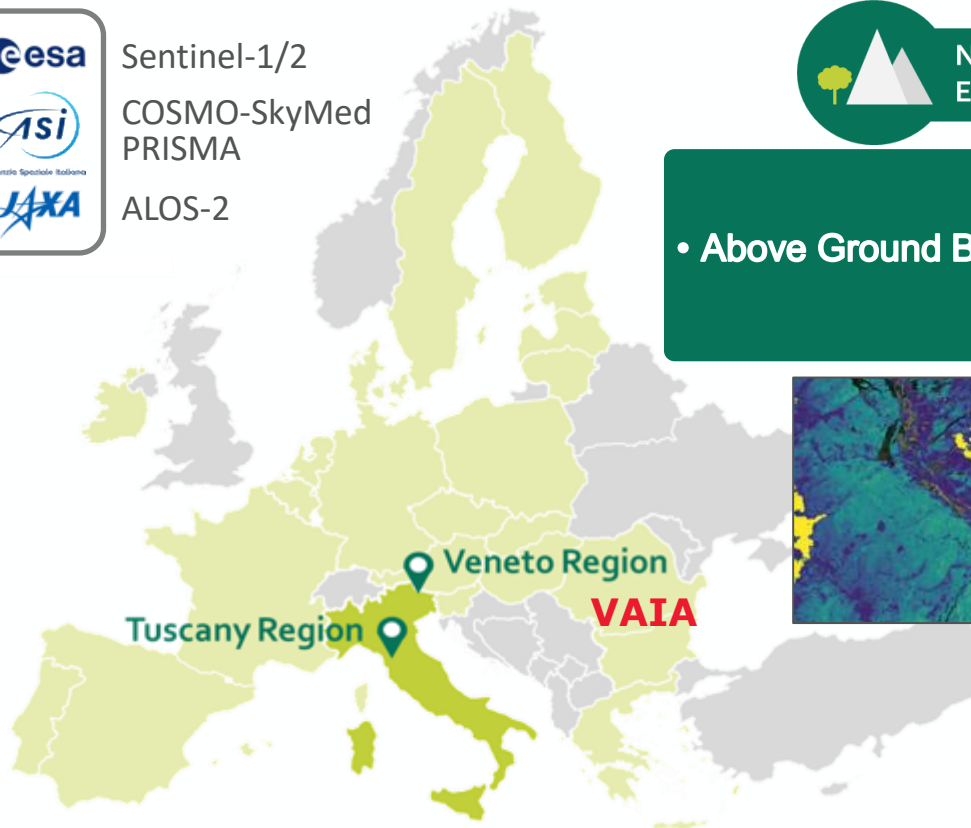
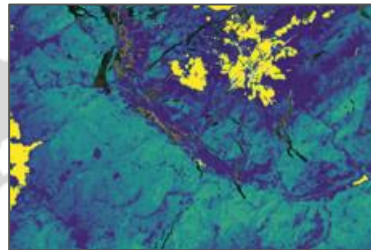
ALOS-2



URBAN
ENVIRONMENT



• Above Ground Biomass



Institutional



No-profit



→ THE EUROPEAN SPACE AGENCY

THE MAFIS PROJECT



Sentinel-1/2

COSMO-SkyMed
PRISMA

ALOS-2

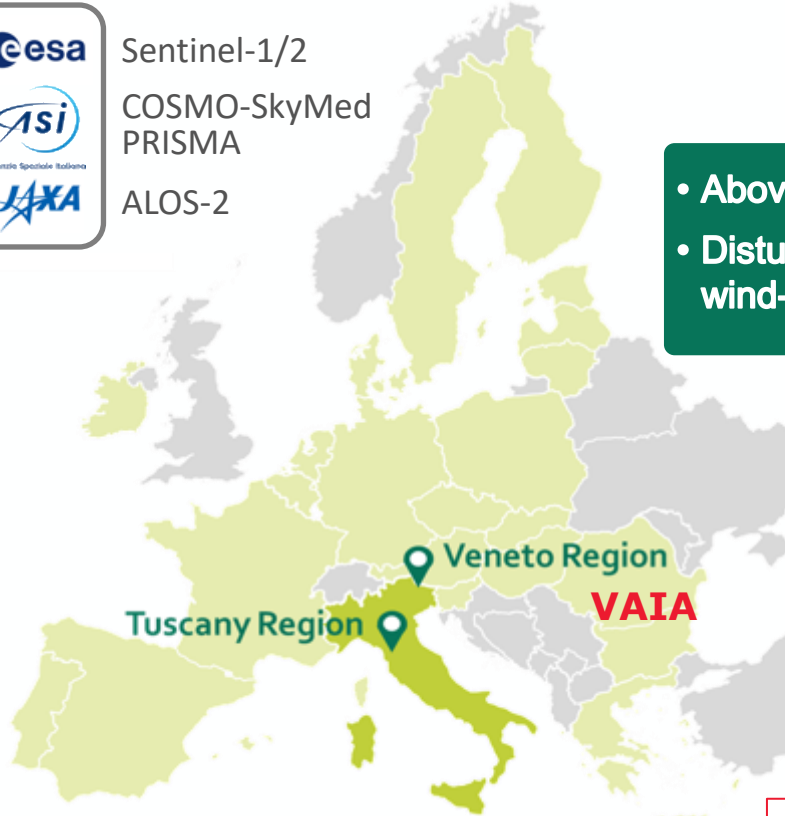
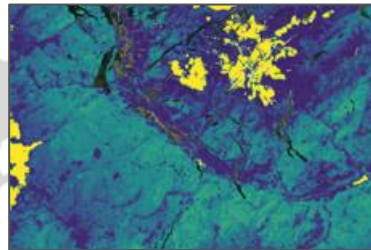


NATURAL
ENVIRONMENT

URBAN
ENVIRONMENT



- Above Ground Biomass
- Disturbances (cuts, fires, wind-storms, diseases)



Institutional



No-profit



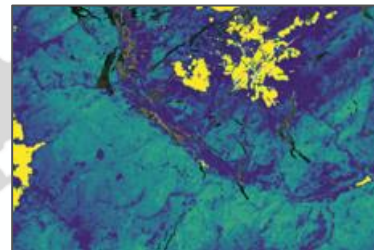
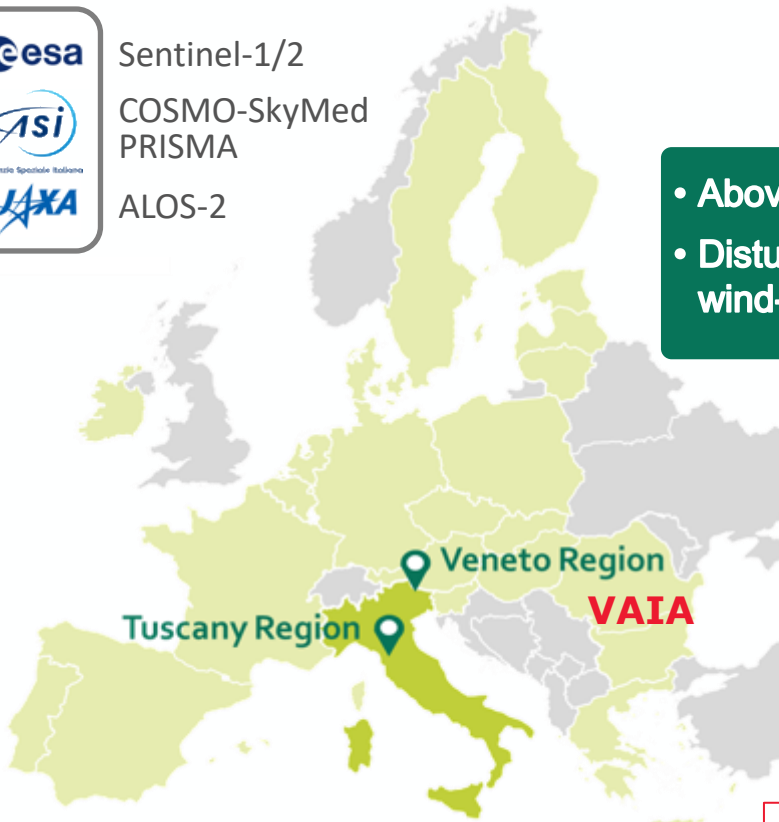
THE MAFIS PROJECT



Sentinel-1/2
COSMO-SkyMed
PRISMA
ALOS-2



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Institutional



No-profit



URBAN
ENVIRONMENT



+ THE EUROPEAN SPACE AGENCY

THE MAFIS PROJECT



Sentinel-1/2

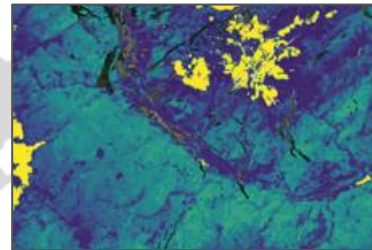
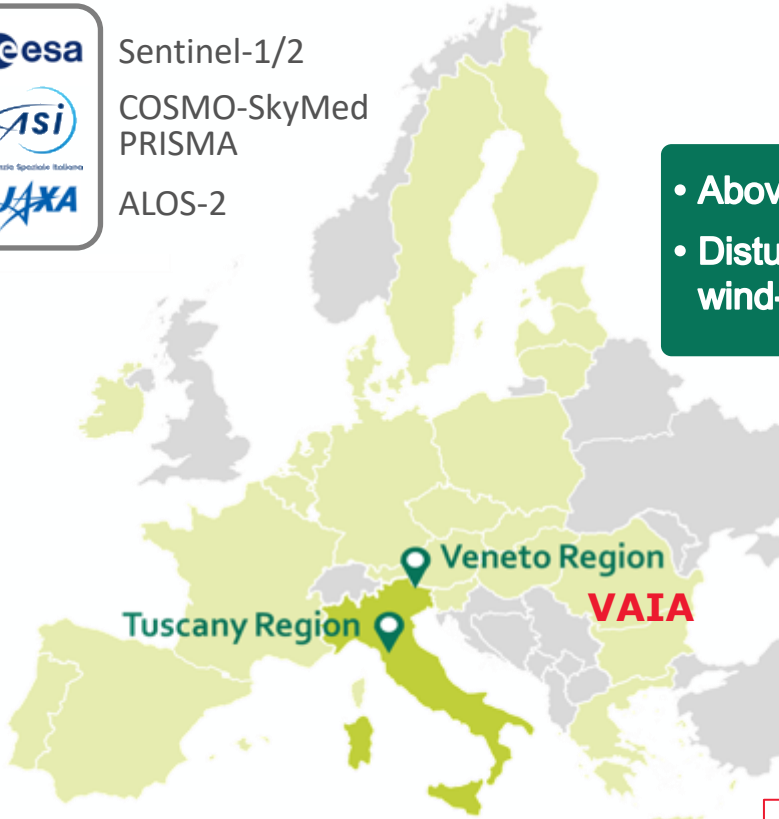
COSMO-SkyMed
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URBAN
ENVIRONMENT



NURSERIES

CITIZENS



ARBORISTS



AGRONOMISTS



ARCHITECTS
URBAN PLANNERS

MULTI-UTILITIES

MUNICIPALITIES



EUROPEAN UNION

MINISTRIES



+ THE EUROPEAN SPACE AGENCY

Satellite Data



Agente Spaziale Italiana



mapping	WorldView, Pléiades, SPOT, Planet
monitoring	Sentinel-1, Sentinel-2
classification	PRISMA (hyperspectral)
analysis	COSMO-SkyMed
Above ground biomass	ALOS-2 PALSAR-2

forestry
tep



urban
tep

NoR : Network of Resources



Euro Data Cube
Data Infrastructure



Computational
Resources



R&D



UNIVERSITÀ
DEGLI STUDI
FIRENZE



project partners

Local Data



mapping	Aerial orthophotos
mapping	Aerial LiDAR
analysis	Tree in situ measurements
support	Cadastral data



Results

- Tree health status
- Carbon sequestration
- Pollution removal
- Heat islands
- Support to planning and management