ICOS | INTEGRATED CARBON OBSERVATION SYSTEM

ICOS

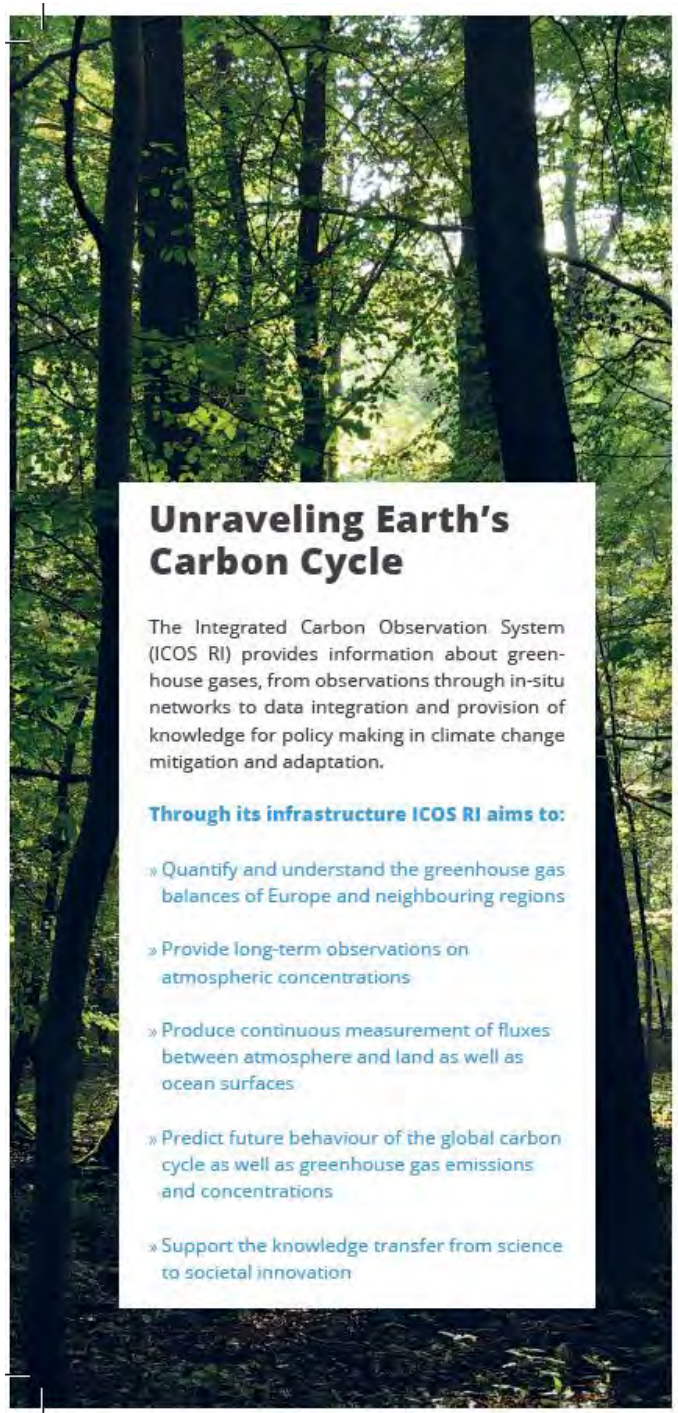
Integrated Carbon Observation System

Carlo Calfapietra, Andrea Scartazza

Institute of Research on Terrestrial Ecosystems – IRET-CNR

Focal Point, ICOS Italy

Consiglio Nazionale delle Ricerche



Unraveling Earth's Carbon Cycle

The Integrated Carbon Observation System (ICOS RI) provides information about greenhouse gases, from observations through in-situ networks to data integration and provision of knowledge for policy making in climate change mitigation and adaptation.

Through its infrastructure ICOS RI aims to:

- Quantify and understand the greenhouse gas balances of Europe and neighbouring regions
- Provide long-term observations on atmospheric concentrations
- Produce continuous measurement of fluxes between atmosphere and land as well as ocean surfaces
- Predict future behaviour of the global carbon cycle as well as greenhouse gas emissions and concentrations
- Support the knowledge transfer from science to societal innovation

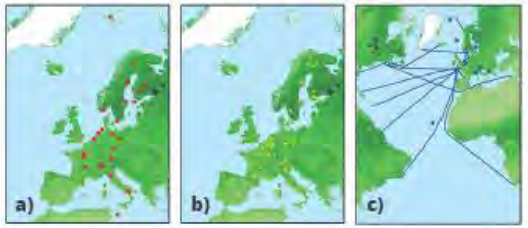
Why we monitor greenhouse gases

The global cycles of carbon and greenhouse gases have been disturbed by human emissions, leading to more greenhouse gases in the atmosphere and to climate change. This will feed back to the natural carbon sources and sinks in the biosphere. In order to support accurate and informed policy decisions long-term integrated observations on natural processes and human emissions are essential.

Why we need reliable data

In the past, measurements of greenhouse gases in Europe have suffered from heterogeneity, discontinuity and lack of sustainability in the long term. Continuously providing standardized and automated high precision measurements is therefore a key focus of the ICOS RI. Comparability of data is obtained through the use of measurement protocols and standardized instrumentation.

ICOS National Networks for atmosphere (a), ecosystem (b) and ocean (c) measurements



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Pan-European measurements

ICOS RI integrates atmosphere, ecosystem and ocean greenhouse gas observational networks in order to provide the data for a full European carbon balance and its trends. Standardized measurements are carried out throughout Europe - at tall atmospheric towers and ecosystem sites from the Artic to the Mediterranean, as well as on ocean platforms and vessels covering the North Atlantic, the Mediterranean Sea and the Baltic Sea.

Pan-European facilities

Each network is coordinated by its Thematic Centre responsible for data integration and processing, centralized quality control, network training and data transmission. ***ATC - Atmosphere Thematic Centre*** is based in France and Finland, ***ETC - Ecosystem Thematic Centre*** is based in Italy, Belgium and France and ***OTC - Ocean Thematic Centre*** is based in Norway.

The ***CAL*** – ICOS ***Central Analytical Laboratories*** are based in Germany and provide accurate reference gases to the networks and perform high precision analyses of air samples.

The ***Carbon Portal*** is ICOS RI's central data portal based in Sweden, which makes all ICOS data freely available and produces higher-integrated knowledge products.

PRIMARY GOAL: DECARBONIZATION

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ICOS has received the official ERIC status on 20 November 2015
Involved Countries so far

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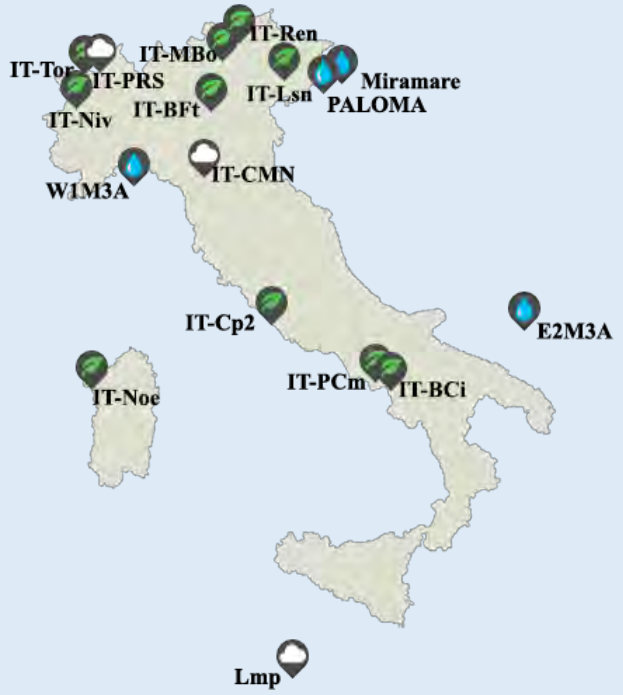
Joint Research Unit (JRU) ICOS – ITALIA

Costituita in data 13-09-2016 è coordinata dal CNR ed include in tutto 16 Enti

- **Consiglio Nazionale delle Ricerche (CNR)**
- Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC)
- Università degli Studi della Tuscia
- Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria (CREA)
- Agenzia Nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA)
- Agenzia Regionale per la Protezione Ambientale (ARPA) della Val d'Aosta
- Università degli Studi di Udine
- Fondazione Edmund Mach (FEM)
- Università Cattolica di Brescia
- Università Libera Di Bolzano
- Università degli Studi di Sassari
- Università degli Studi di Padova
- Università degli Studi di Genova
- Istituto Nazionale Oceanografia (OGS)
- Provincia Autonoma di Bolzano
- Ricerca Sul Sistema Energetico (RSE)



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ICOS network 2020 - Italy
Stazioni Ecosistemiche

Coordinatore rete Ecosistemi
Dr. Silvano Fares

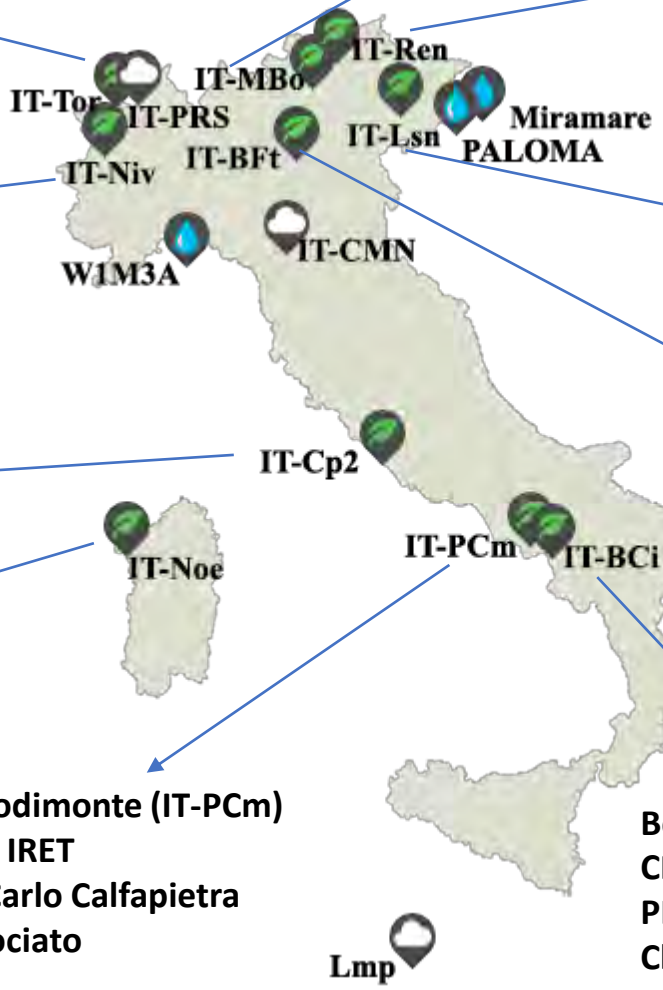
Torgnon (IT-Tor)
ARPA VdA
PI: Edoardo Cremonese
Associato

Nivolet (IT-Niv)
CNR IGG
PI: Antonello Provenzale
Associato

Castelporziano (IT-Cp2)
CREA
PI: Silvano Fares
Classe 1

Arca di Noè (IT-Noe)
Università di Sassari
PI: Donatella Spano
Associato

Capodimonte (IT-PCm)
CNR IRET
PI: Carlo Calfapietra
Associato



Monte Bondone (IT-Mbo)
Fondazione Edmund Mach
PI: Damiano Gianelle
Associato

Renon (IT-Ren)
Provincia Autonoma di Bolzano
PI: Leonardo Montagnani
Classe 2

Lison (IT-Lsn)
Università di Padova
e Università di Udine
PI: Andrea Pitacco
Associato

Bosco Fontana (IT-BFt)
Università Cattolica
del Sacro Cuore
PI: Giacomo Gerosa
Associato

Borgo Cioffi (IT-Bci)
CNR ISAFOM
PI: Vincenzo Magliulo
Classe1

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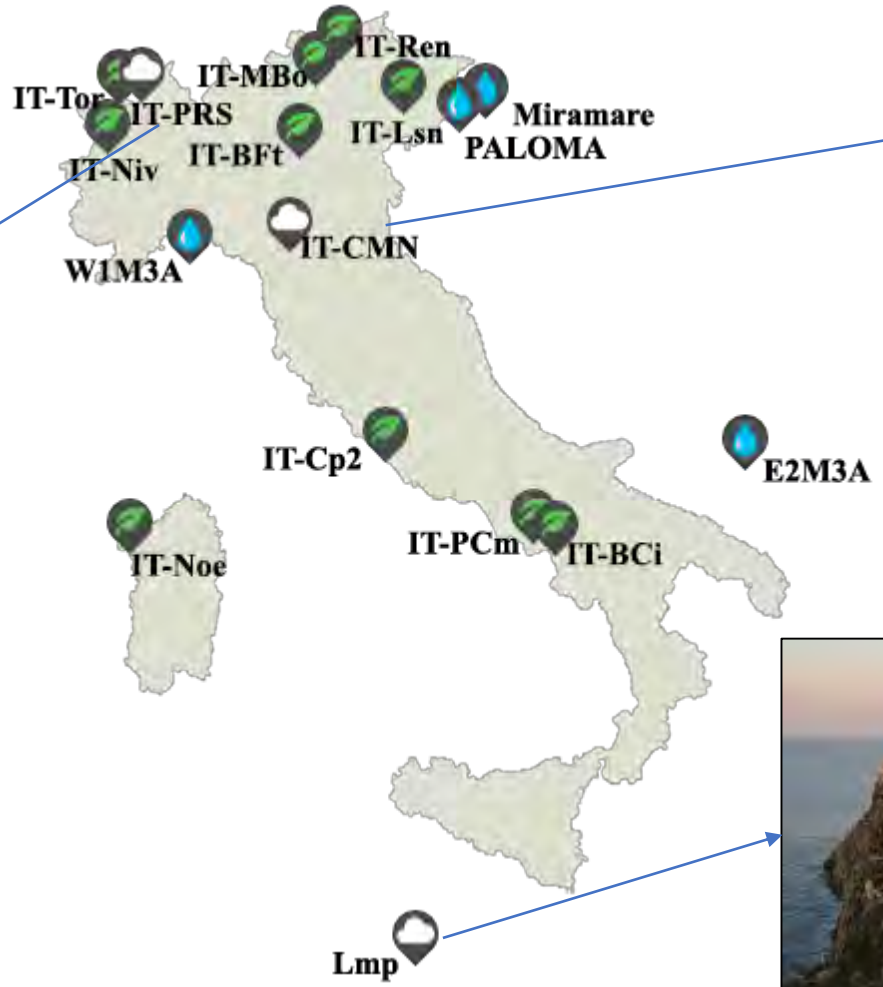
ICOS network 2020 - Italy
Stazioni Atmosferiche

Coordinatore rete Atmosfera
Dr. Alcide Di Sarra

Plateau Rosa (IT-PRS)
Ricerca sul Sistema Energetico – RSE S.p.A. (PI: Francesco Apadula)
Classe 2



Monte Cimone (IT-CMN)
CNR ISAC e Aeronautica MIlitare (PI: Paolo Cristofanelli)
Classe 2

Lampedusa (Lmp)
ENEA (PI: Alcide Di Sarra)
Classe 2

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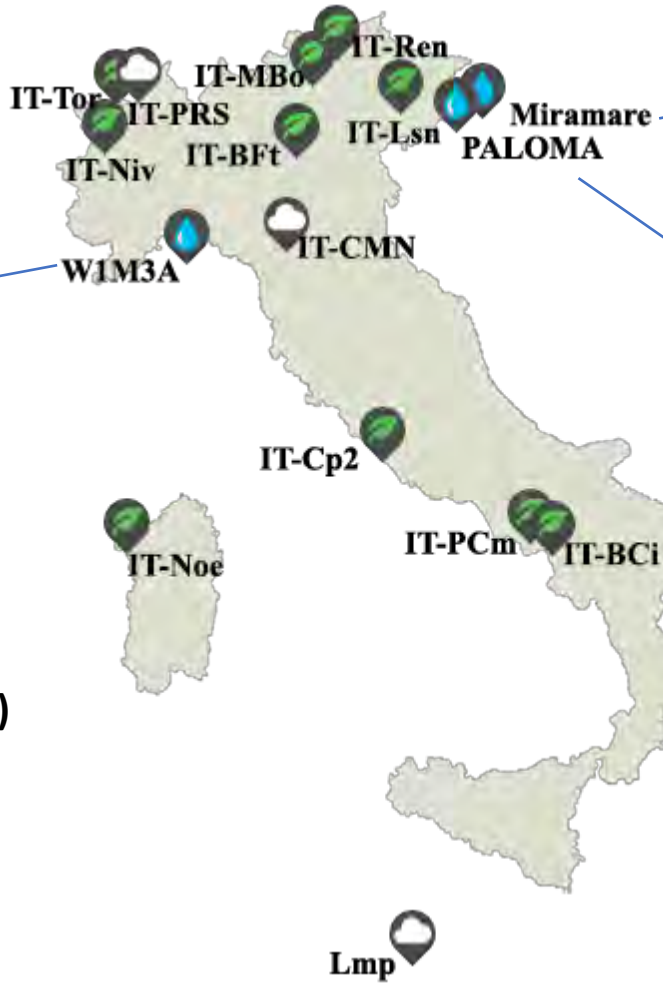
ICOS network 2020 - Italy
Stazioni marine

Coordinatore rete Mare
Dr. Michele Giani

W1M3A (IT-FOS-W1M3A)
CNR IAS (PI: Roberto Bozzano)
Classe 2



Miramare (IT-FOS-Miramare)
OGS (PI: Michele Giani)
Classe 2

PALOMA (IT-FOS-PALOMA)
CNR ISMAR (PI: Anna Luchetta)
Classe 1

E2M3A (IT-FOS-E2M3A)
OGS (PI: Vanessa Cardin)
Classe 2

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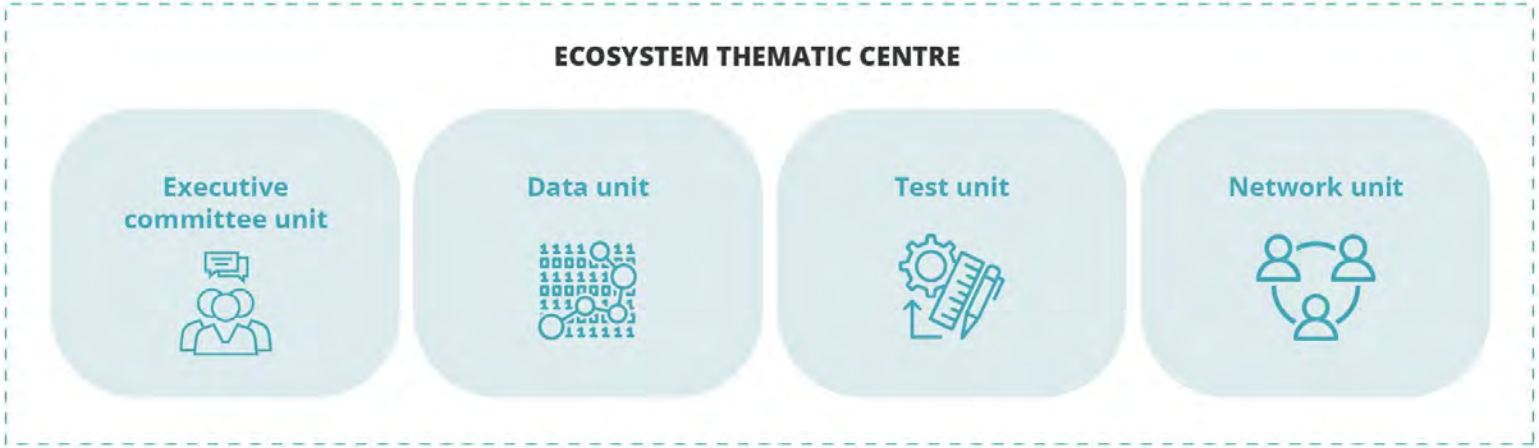
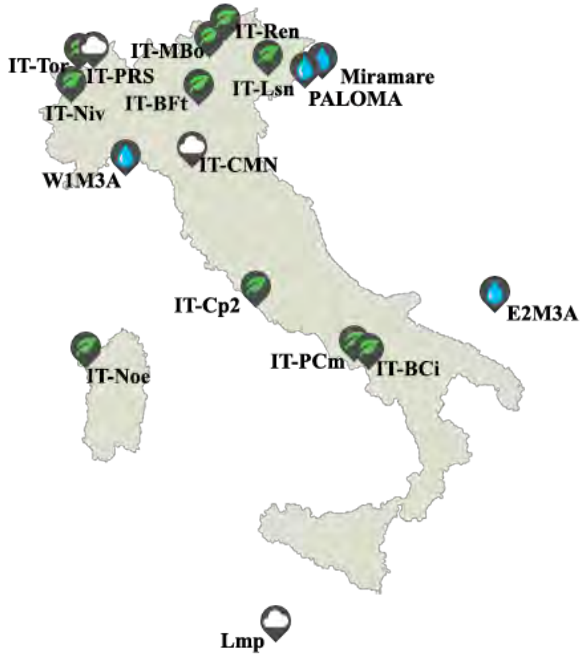
ECOSYSTEM THEMATIC CENTRE

l'Italia coordina ed ospita a Viterbo presso l'Università della Tuscia ed il CMCC l'**Ecosystem Thematic Centre**, il centro verso cui confluiscono tutti i dati dei siti ecosistemici di ICOS RI e che è responsabile del **processamento**, **controllo qualità**, **sviluppi metodologici**, **formazione** e **coordinamento della rete**

Dr Dario Papale - Director, ICOS Ecosystem Thematic Centre





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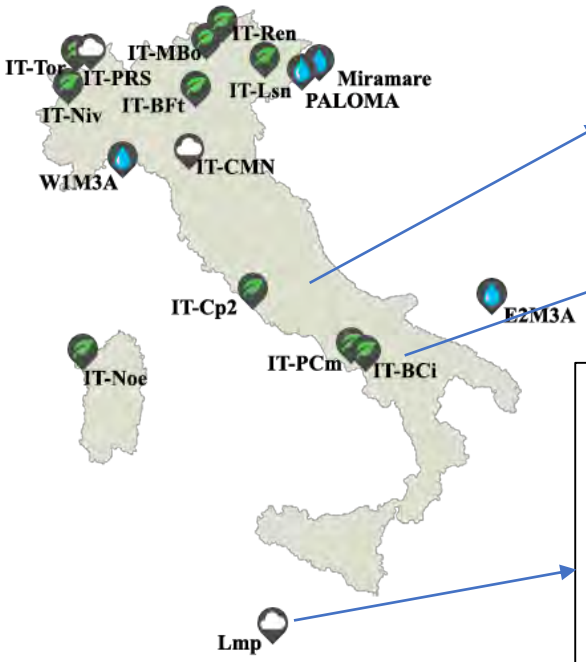
PIR01_00019 PRO-ICOS_MED

Potenziamento della Rete di Osservazione ICOS-Italia nel Mediterraneo

- **Ampliamento della rete** con la creazione di **nuove stazioni** di monitoraggio, di **hub sensoristici** e **laboratori mobili** per le tre componenti



Stazione ecosistemica di Collelongo (AQ)

Stazione atmosferica di Potenza

View of the oceanographic and the atmospheric observatories. The three sites are within a 7.5 km radius.

(***Finanziamento infrastrutturale*: €13.428.028,5**)

(***Rafforzamento del capitale umano* €1.978.468,43**)

STAZIONE DI LAMPEDUSA

In fase di implementazione per diventare l'unico sito europeo con **tutte e tre le componenti**, oltre ad essere la stazione più meridionale di tutta la rete ICOS ERIC

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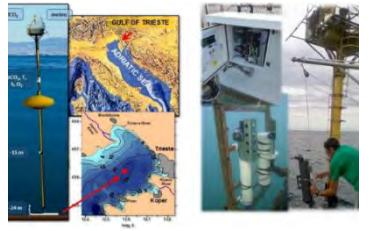
INFRASTRUTTURA IT - PIATTAFORMA

NETWORK ITALIANO

Ecosystem

Ocean



Atmosphere

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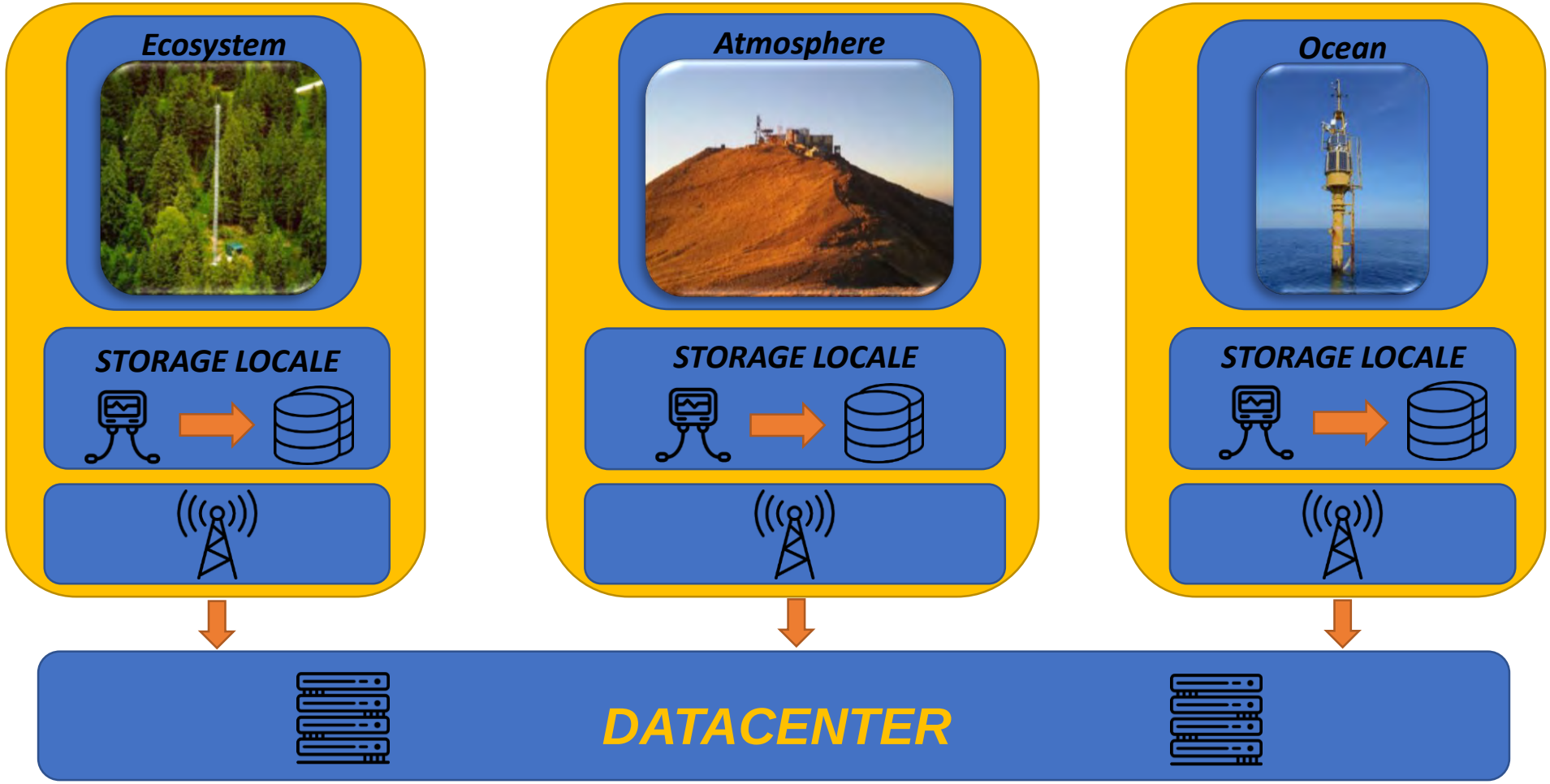
INFRASTRUTTURA IT - PIATTAFORMA



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INFRASTRUTTURA IT - PIATTAFORMA

DATACENTER

NEW CHALLENGES & PERSPECTIVES

- ***Interactions with the COPERNICUS and WMO/UNFCCC networks***
- ***Increased attention to the Urban areas***
- ***Links with PNRR***
- ***Links with the other environmental RIs***
- ***New Stakeholders***

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Get involved

www.icos-italy.it
www.icos-cp.eu

Our Measurements

Our People

Our Impact

Carlo Calfapietra, carlo.calfapietra@cnr.it
Andrea Scartazza, andrea.scartazza@cnr.it