Training event “Atmospheric Remote Sensing observation: labs maintenance and methods” Introduction and logistics

Gianluca Di Fiore –
nicolagianluca.difiore@cnr.it
34981931941

IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-Mission 4 “Education and Research” - Component 2: “From research to business” - Investment 3.1: “Fund for the realisation of an integrated system of research and innovation infrastructures”

Finanziato dall'Unione europea NextGenerationEU
Ministero dell'Università e della Ricerca
Italiadomani

ITINERIS - Italian Integrated Environmental Research Infrastructures System

- **7 Partners**

- **22 Research Infrastructures working in the domain environmental and included in the PNIR (National programme of research infrastructure)**

- **Budget: 155,2 ML Euro**

- **Period: 1 November 2022 – May 2025 (shifted to October 2025) + 10 years of operativity**

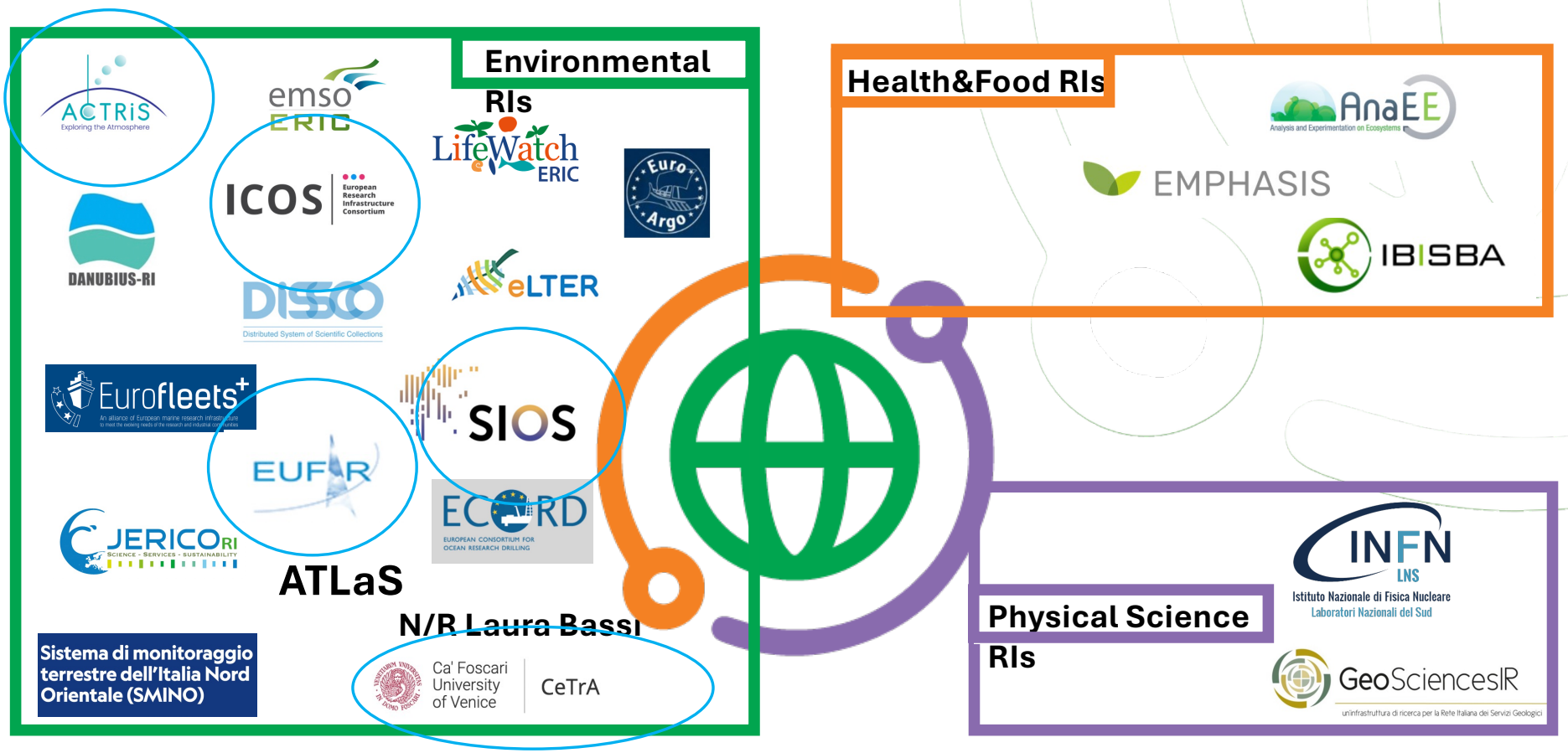
  PIANO NAZIONALE DI RIPRESA E RESILIENZA (PNRR) MISSIONE 4, COMPONENTE 2, INVESTIMENTO 3.1 "Fondo per la realizzazione di un sistema integrato di infrastrutture di ricerca e innovazione", Project code IR0000032

ITINERIS objective

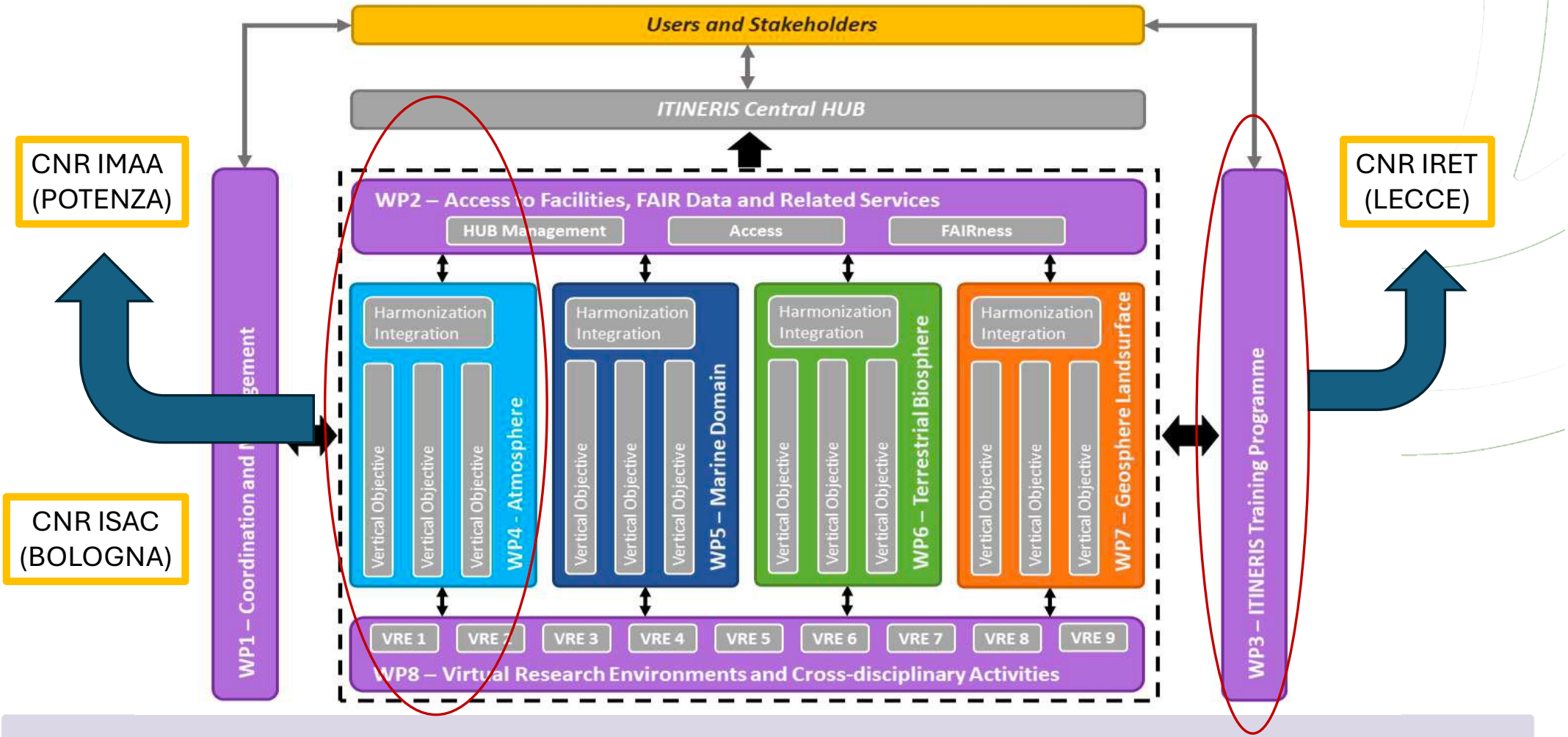
- **Create the national RI hub for scientific research in the environmental field**
  - providing access to digital services, data and resources
  - offering support to the country to address environmental problems
- **Develop research across the various environmental domains and beyond**
  - Using pre-existing data and resources
  - Developing new, even synergistic, products

Italy is a particularly sensitive area *from an environmental point of view: a critical point for climate change, it is one of the most populated areas in Europe, and it is a structurally fragile territory surrounded by the Mediterranean Sea.*

ITINERIS


Environmental RIs
ACTRiS
Exploring the Atmosphere
emso ERIC
LifeWatch ERIC
ICOS
European Research Infrastructure Consortium
Euro-Argo
DANUBIUS-RI
DISSCO
Distributed System of Scientific Collections
eLTER
Eurofleets+
SIOS
EUFAR
EUROPEAN CONSORTIUM FOR OCEAN RESEARCH DRILLING
JERICO RI
SCIENCE - SERVICES - SUSTAINABILITY
ATLaS
N/R Laura Bassi
Sistema di monitoraggio terrestre dell'Italia Nord Orientale (SMINO)
Ca' Foscari University of Venice
CeTrA
Health&Food RIs
AnaEE
Analysis and Experimentation on Ecosystems
EMPHASIS
IBISBA
Physical Science RIs
INFN
LNS
Istituto Nazionale di Fisica Nucleare
Laboratori Nazionali del Sud
GeoSciencesIR

ITINERIS trainings



Training event “Atmospheric in situ data acquisition, processing, and submission.”

Day 1 – 14 July 2025

Teaching modality : frontal teaching

Location: Sala tern

Day 1: 14 of July

Time	Duration	Training Module - Topic	Speaker
09:00-09:30	0.30 m	Registration	
9:30-10:00	0.30 m	Welcome and Logistics EARLINET & ACTRIS overview	Gianluca Di Fiore (CNR IMAA) Aldo Amodeo (CNR IMAA)
10:00:11:00	1h	Lidar principle, Lidar Optics 1	Michael Haimerl (LMU)
11:00-11:30	0.30 m	*Coffee Break*	
11:30 -12:30	1h	Lidar principle, Lidar Optics 2	Michael Haimerl (LMU)
12:30-13:00	0.30m	Telecover test	Michael Haimerl (LMU)
13:00-14:00	1h	*Lunch Break*	
14:00-15:00	1h	Rayleigh fit test	Aldo Amodeo (CNR IMAA)
15:00-16:00	1h	Zero bin test and Trigger delay and dark measurements 1	Livio Belegante (INOE)
16:00-16:30	0.30m	*Coffee Break*	
16:30-17:30	1h	Zero bin test and Trigger delay and dark measurements 2	Livio Belegante (INOE)

Training event “Atmospheric in situ data acquisition, processing, and submission.”

Day 2 – 15 July 2025

Teaching modality : frontal teaching and hands-on

Location: Sala tern & CIAO

Day 2: 15 of July

Time	Duration	Training Module - Topic	Speaker
09:00-11:00	2h	Polarization calibration and GHK correction	Nikolaos Siomos (LMU/WMO)
11:00-11:30	0.30m	***Coffee Break***	
11:30-13:30	2h	Fluorescence Lidar theory and technique	Jens Reichardt (DWD)
13:30-14-30	1h	***Lunch Break***	
14:30-16:00	1.30h	Hands on in the lab (preparation of the measurements, laser, signal levels, maintenance of laser and optics, QA tests)	Michalis Mytilinaios (CNR IMAA) Giuseppe D’Amico (CNR IMAA) Livio Belegante (INOE) Nikolaos Siomos (LMU) Michael Haimerl (LMU)
16:00-16:30	0.30m	***Coffee Break***	
16:30-17:30	1h	Hands on in the lab (preparation of the measurements, laser, signal levels, maintenance of laser and optics, QA tests); Fluorescence lidar	Michalis Mytilinaios (CNR IMAA) Giuseppe D’Amico (CNR IMAA) Livio Belegante (INOE) Nikolaos Siomos (LMU) Michael Haimerl (LMU)

Training event “Atmospheric in situ data acquisition, processing, and submission.”

Day 3 – 16 July 2025

Teaching modality : open air activity and hands-on

Location: Sala tern

Day 3: 16 of July

Time	Duration	Training Module - Topic	Speaker
09:00-11:00	2h	Visit to CIAO and ICOS	
11:00-11:30	0.30m	***Coffee Break***	
11:30-13:00	1.30h	Test analysis and discussion. Use of ATLAS	Michalis Mytilinaios (CNR IMAA) Livio Belegante (INOE) Nikolaos Siomos (LMU) Michael Haimerl (LMU) Aldo Amodeo (CNR IMAA)
13:00-14:00	1h	***Lunch Break***	
14:00-15:30	1.30h	Test analysis and discussion	Michalis Mytilinaios (CNR IMAA) Livio Belegante (INOE) Nikolaos Siomos (LMU) Michael Haimerl (LMU) Aldo Amodeo (CNR IMAA)
15:30-16:00	1.30h	***Coffee Break***	
16:00-17:00	1h	Final exam	

Training event “Atmospheric in situ data acquisition, processing, and submission.”

Day 3 – 16 July 2025

Teaching modality : open air activity and hands-on

Location: Sala tern

Day 3: 16 of July

Time	Duration	Training Module - Topic	Speaker
09:00-11:00	2h	Visit to CIAO and ICOS	
11:00-11:30	0.30m	***Coffee Break***	
11:30-13:00	1.30h	Test analysis and discussion. Use of ATLAS	Michalis Mytilinaios (CNR IMAA) Livio Belegante (INOE) Nikolaos Siomos (LMU) Michael Haimerl (LMU) Aldo Amodeo (CNR IMAA)
13:00-14:00	1h	***Lunch Break***	
14:00-15:30	1.30h	Test analysis and discussion	Michalis Mytilinaios (CNR IMAA) Livio Belegante (INOE) Nikolaos Siomos (LMU) Michael Haimerl (LMU) Aldo Amodeo (CNR IMAA)
15:30-16:00	1.30h	***Coffee Break***	
16:00-17:00	1h	Final exam	

Training event “Atmospheric in situ data acquisition, processing, and submission.”

Livio Belegante (INOE)

Nikolaos Siomos (LMU)

Michael Haimerl (LMU)

Jens Reichardt (DWD)

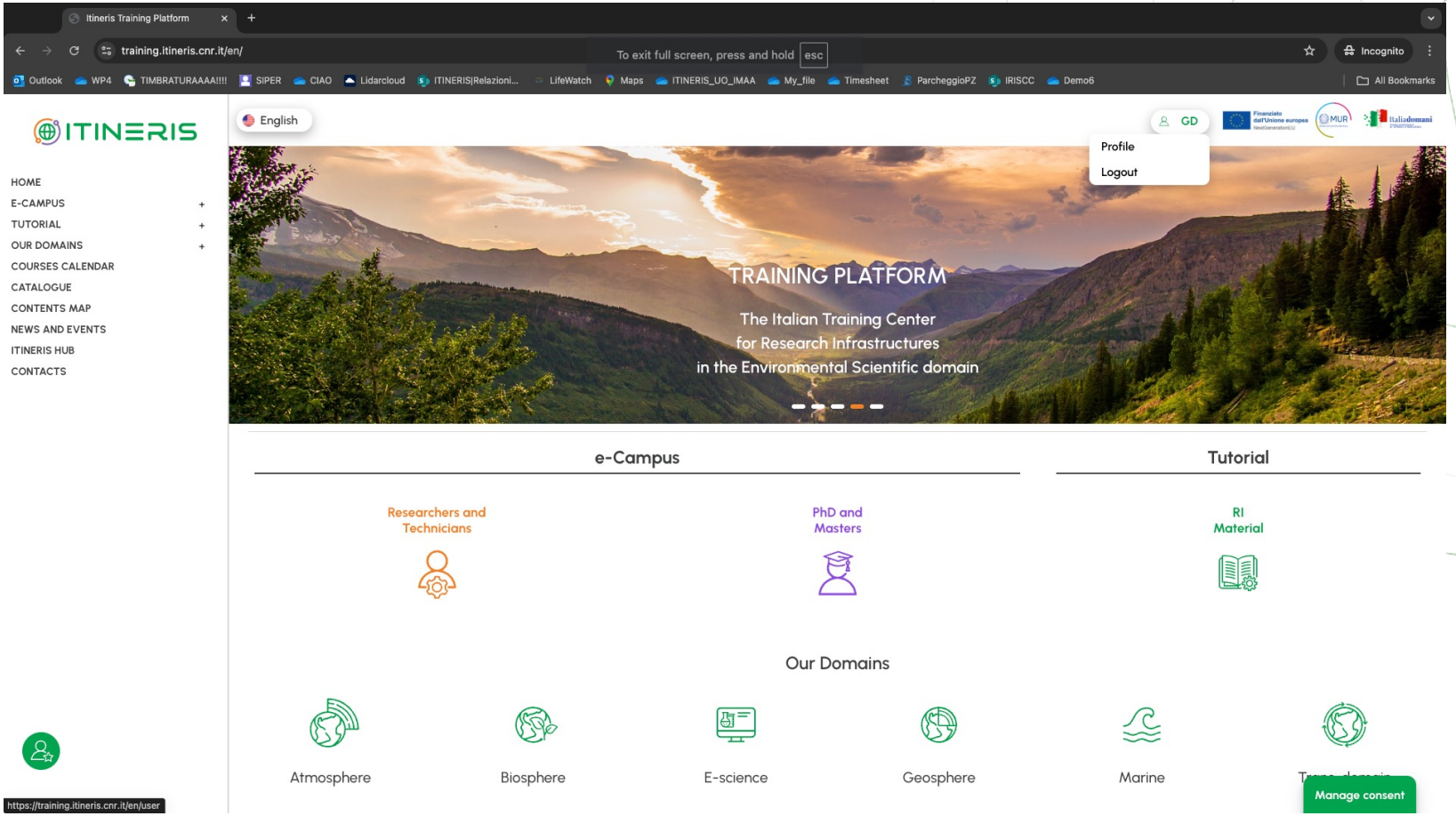
Training event “Atmospheric in situ data acquisition, processing, and submission.”

Aldo Amodeo (CNR IMAA)

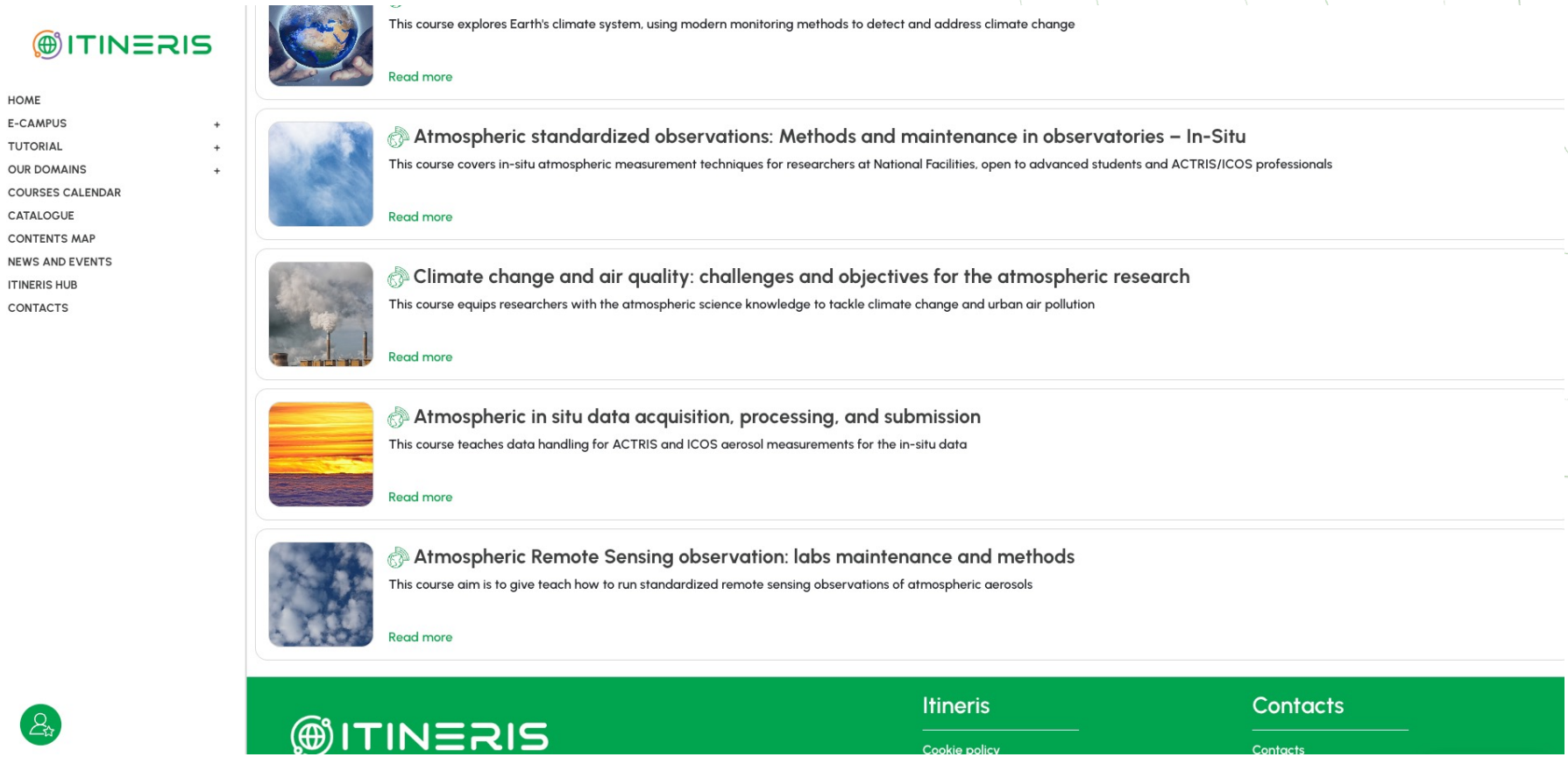
Michail Mytilinaios (CNR IMAA)

Giuseppe D'Amico (CNR-IMAA)

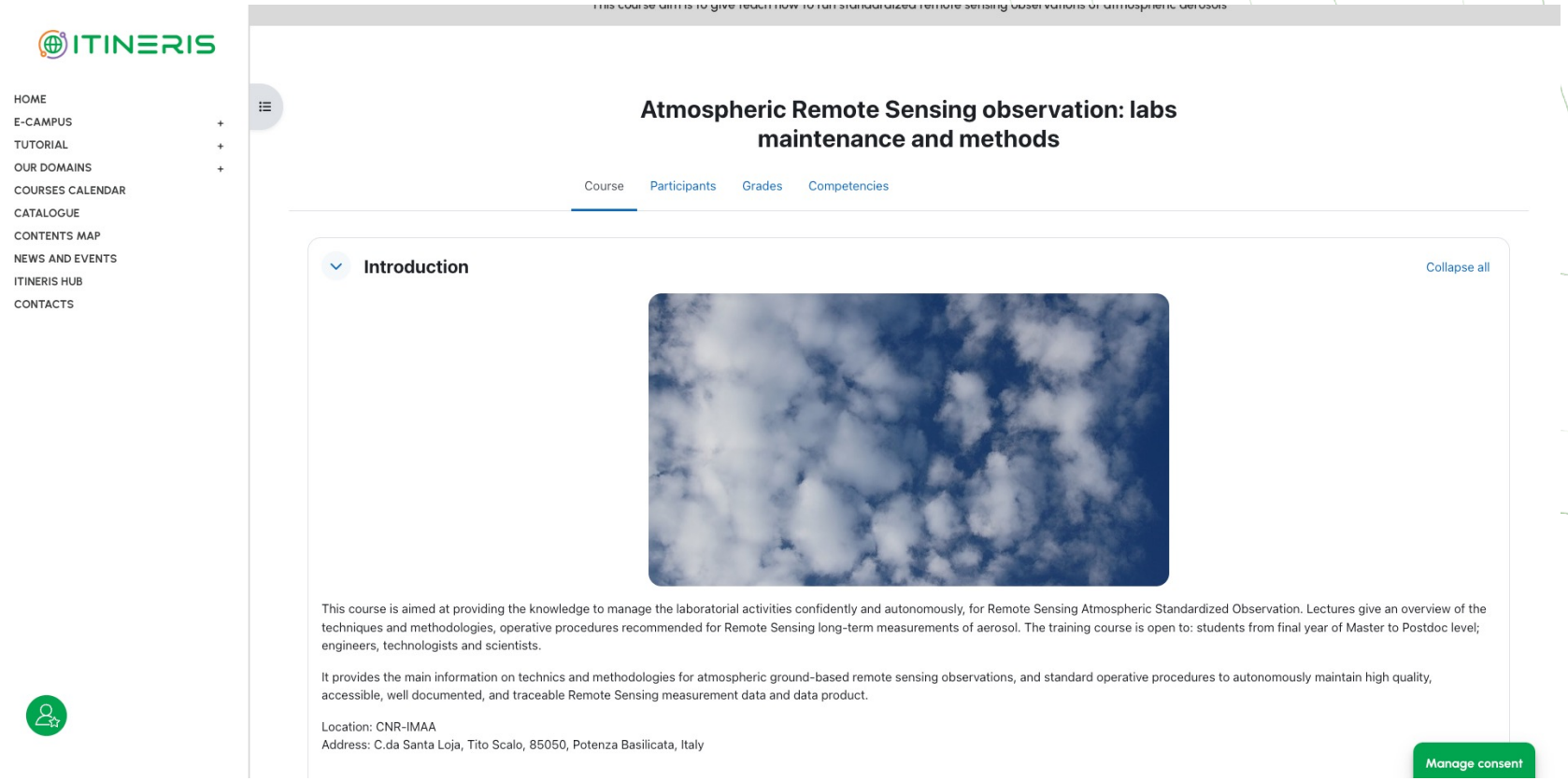
Use of the training platform & certificates



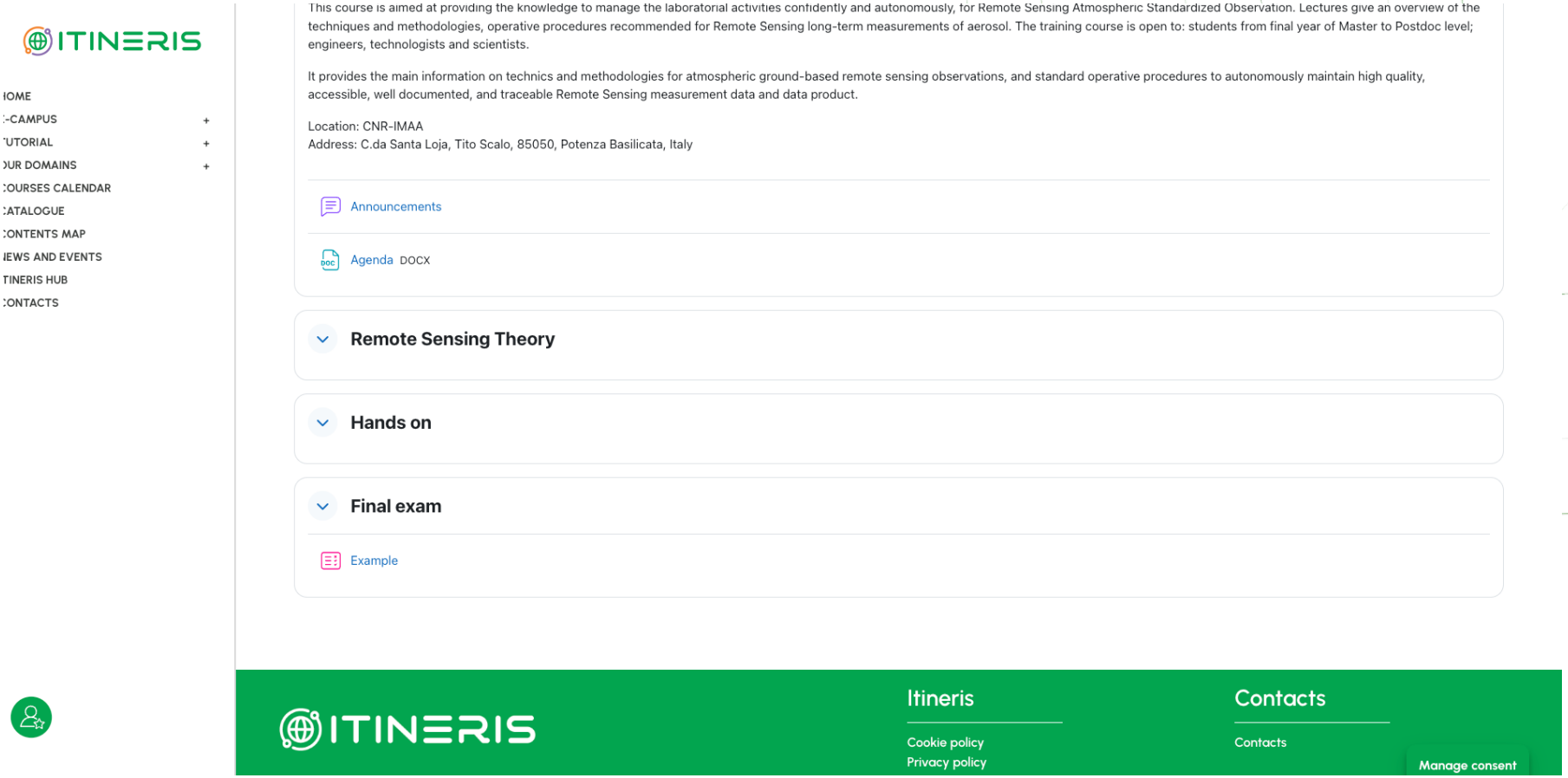
Use of the training platform & certificates



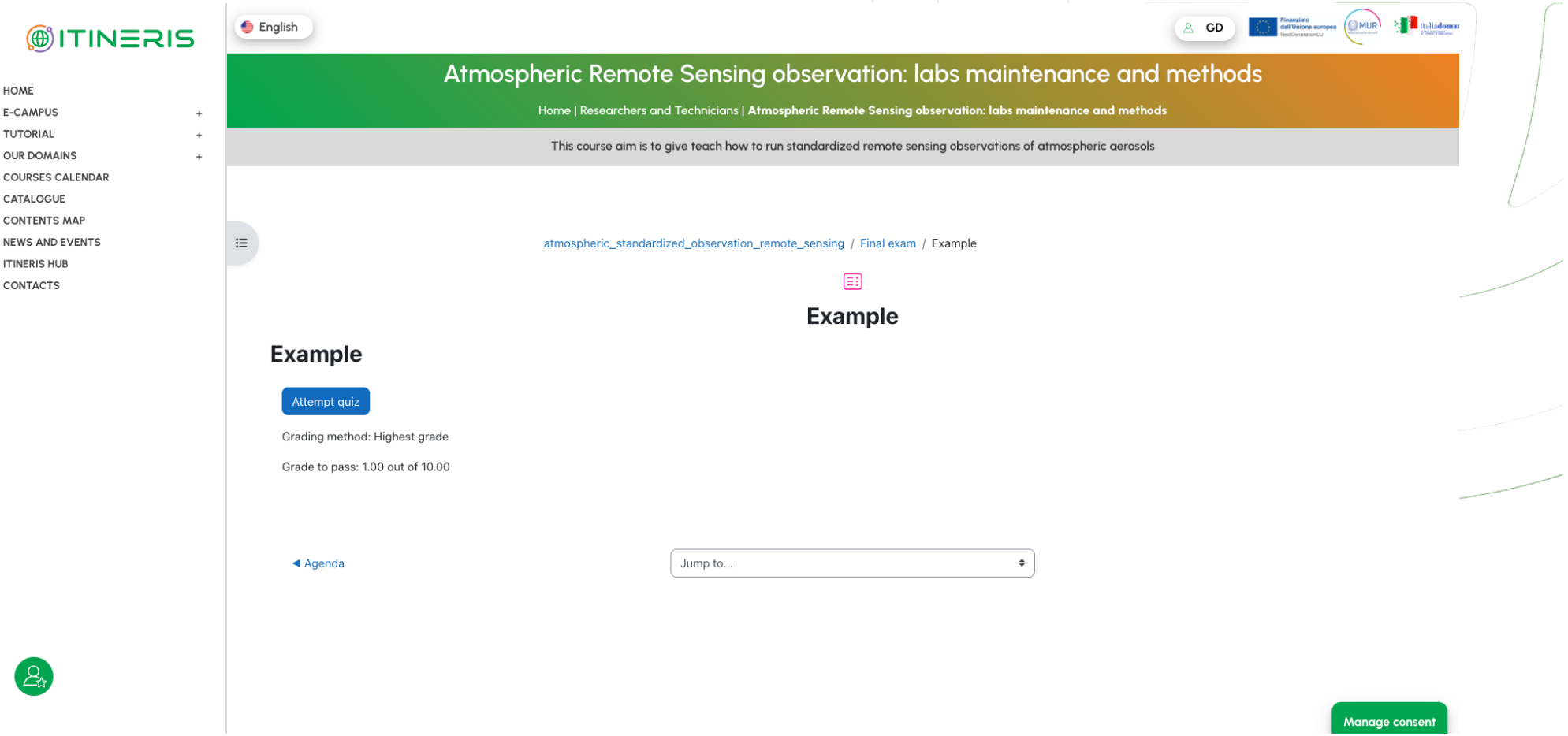
Use of the training platform & certificates



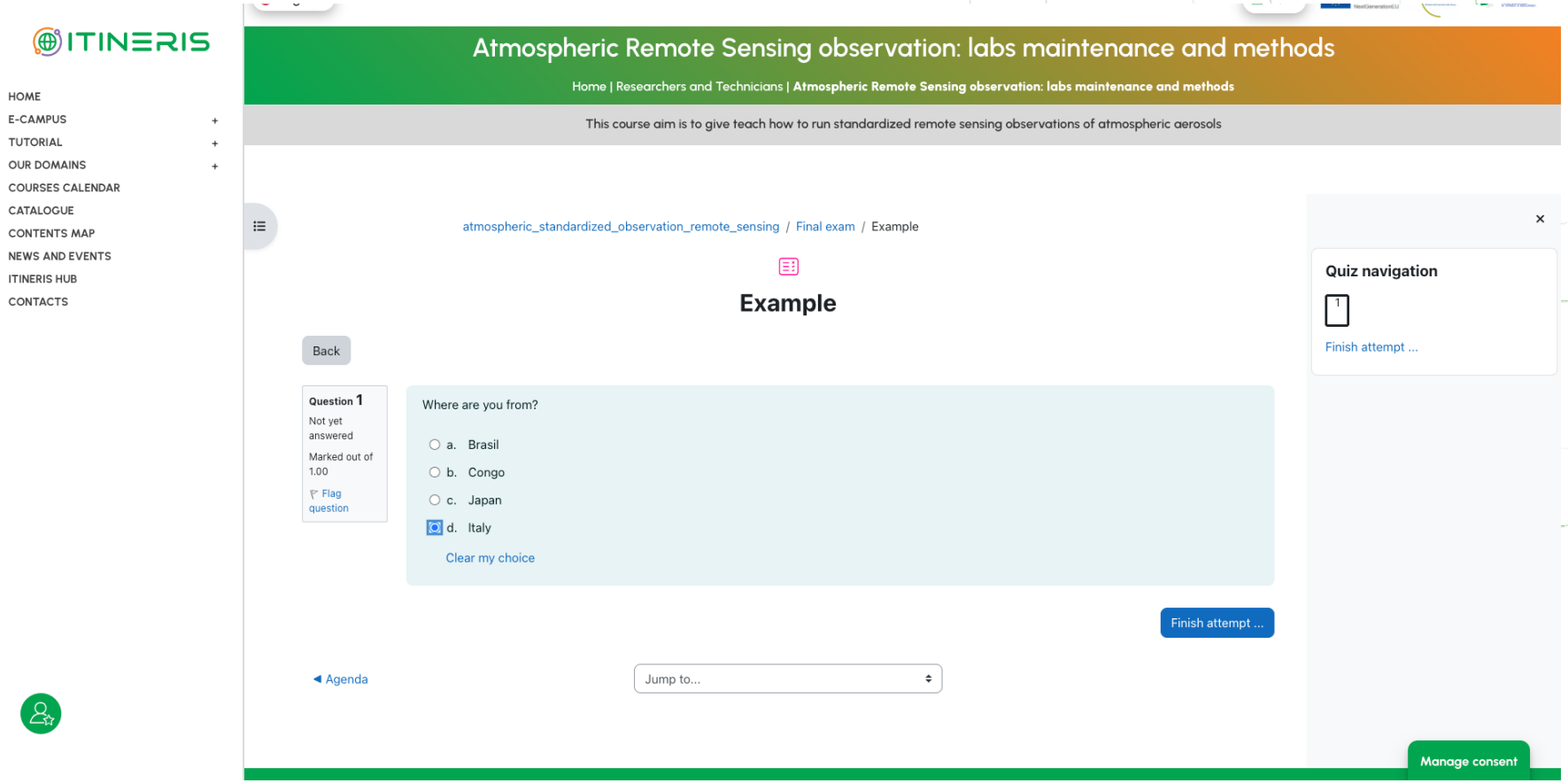
Use of the training platform: exam and feedback survey



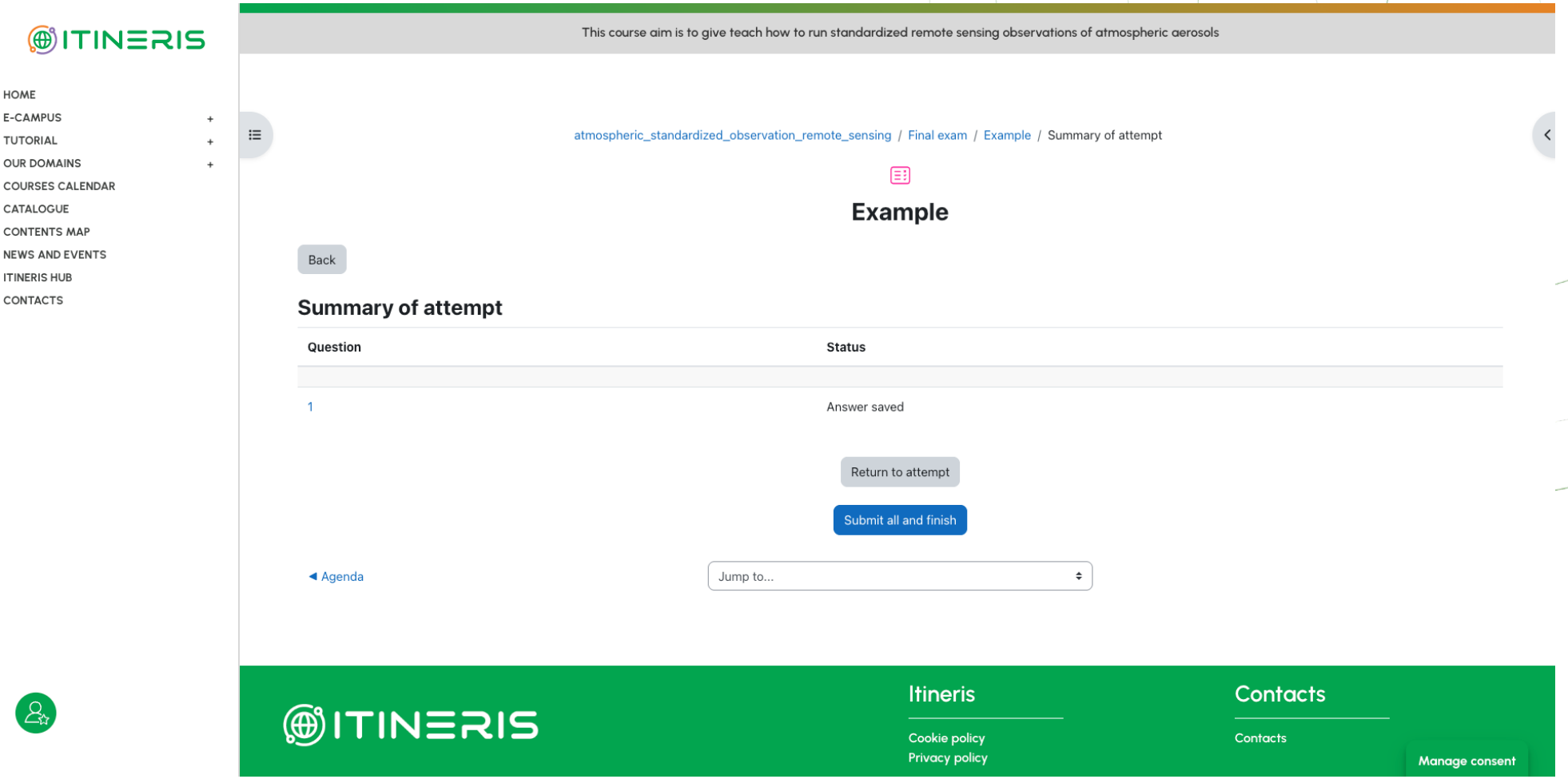
Use of the training platform



Use of the training platform

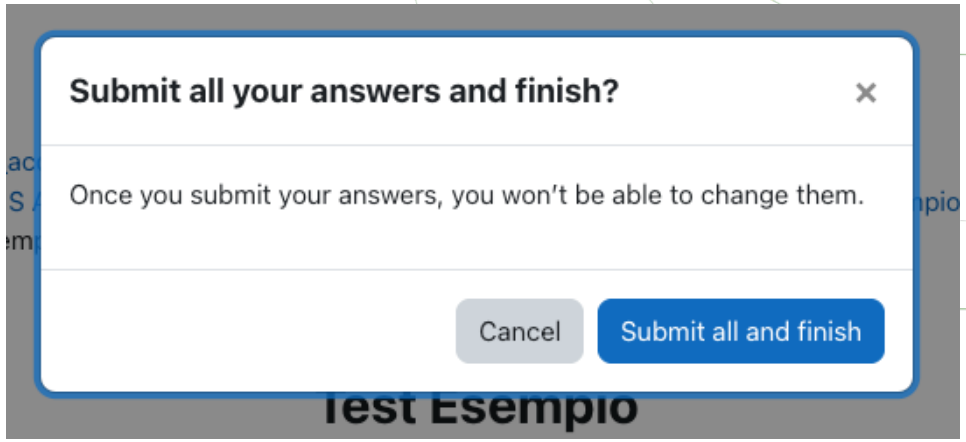


Use of the training platform



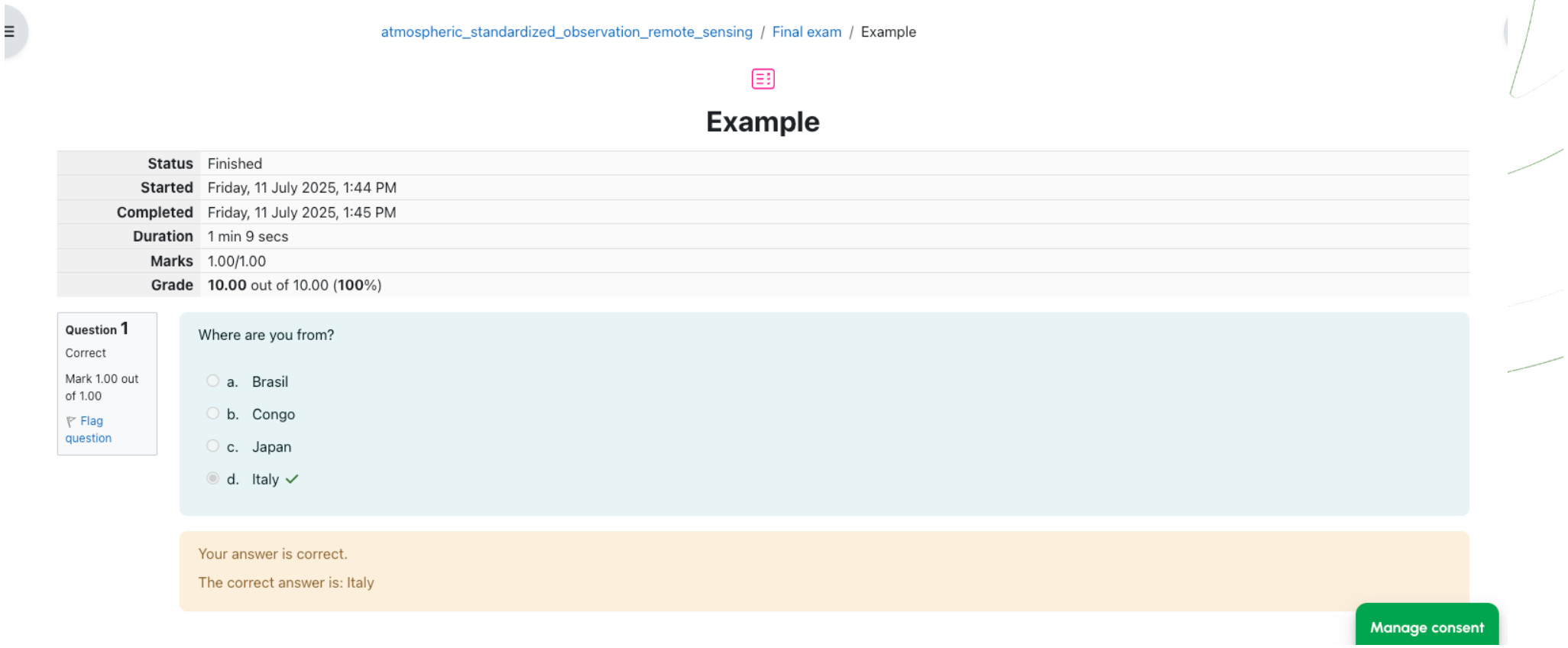
Use of the training platform

PAY attention warning messages appear on top of the page!!!

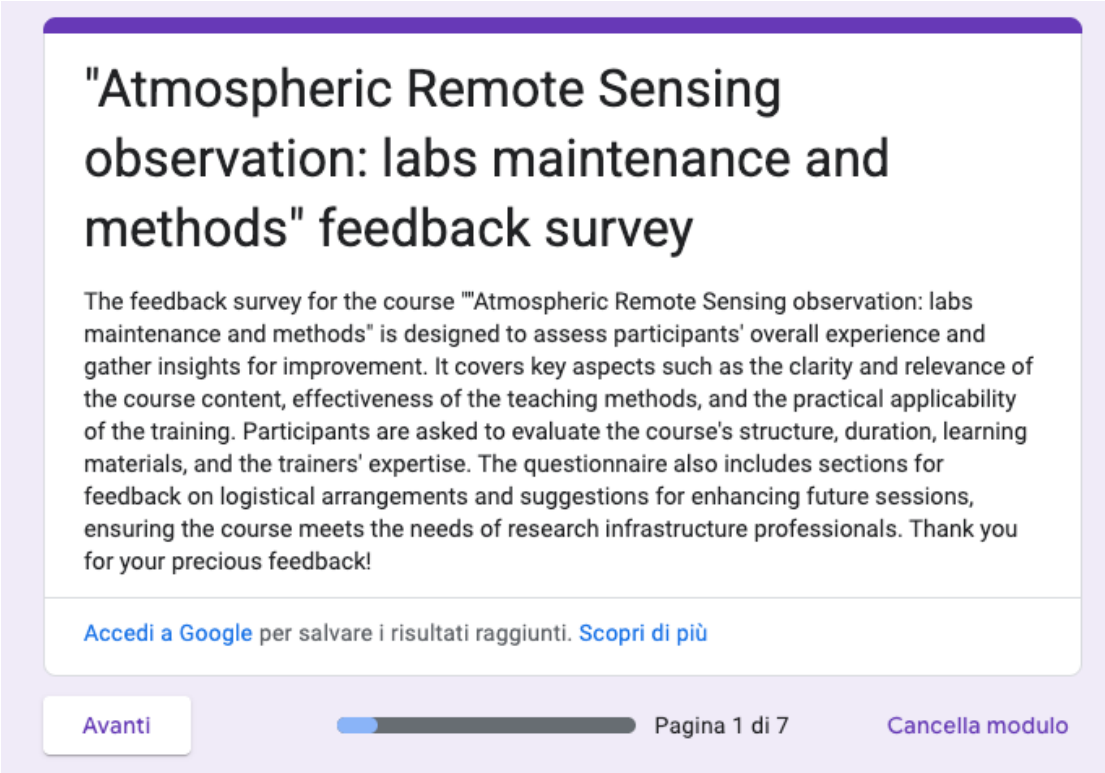


NOTE: tests are not visible yet!

Use of the training platform



Feedback survey



Feedback survey:

- The link will appear on the platform
- To be filled after the course
- It will be anonymus
- It will collect feedback on both teaching and logistical aspects

Some questions might not be applicable for on-line students. Just skip them!

Certificates

If you pass the Exam you will receive the certificate of achievement.

Click on view the certificate!

The certificate will be signed by the WP3 coordinator prof. Basset

If you answer the feedback survey you will receive the certificate of attendance

Click on view the certificate!

The certificate will be signed by the WP3 coordinator prof. Basset

Welcome to CNR - IMAA

The Institute of Methodologies for Environmental Analysis (IMAA) belongs to the Department of Earth System Sciences and Technologies for the Environment of the National Research Council (CNR). Since its beginnings, IMAA's research activities have been aimed at developing and integrating "Earth Observations" technologies from satellites, aircraft and ground for studying geophysical and environmental processes.

CIAO = CNR-IMAA Atmospheric Observatory

CIAO https://ciao.imaa.cnr.it

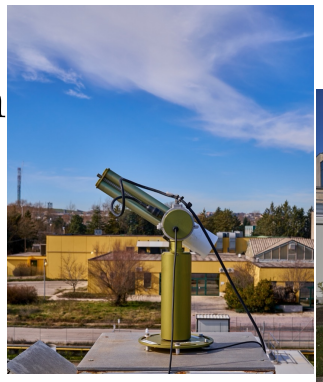
CIAO is one of the most advanced atmospheric observatory in Europe and Mediterranean Region

A formal commitment of CNR and Italy assures CIAO activities for the **next 20 years** (at least)

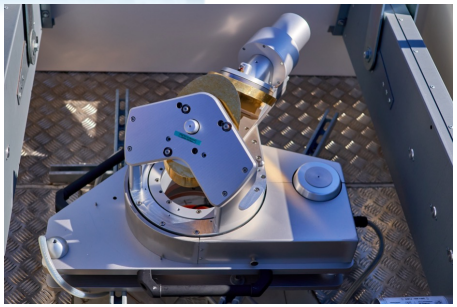
CIAO https://ciao.imaa.cnr.it

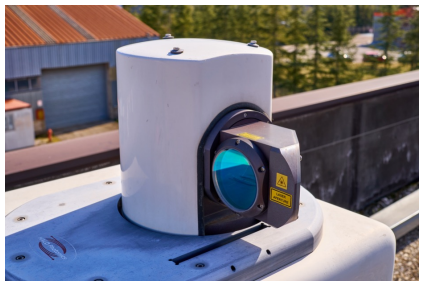
Aerosol Remote Sensing – since 2000
Clouds Remote Sensing – since 2005
Radiosounding – since 2000
Trace gases Remote Sensing – under implementation
Aerosol in situ – since 2023
Trace gases in situ - under implementation







European Research Infrastructures

European Research Infrastructures are facilities that provide resources and services for the research communities to conduct top-level research and foster innovation in their fields.

- Great scientific equipment or set of instruments.
- Scientific collections, archives and structured information.
- Electronic infrastructures (e-infrastructures).
- Any other entity of a unique nature necessary for research.

Physical, Remote, Virtual

CIAO's involvement in Central Facilities

Head Office - Service and Access Management Unit (SAMU)

CIAO coordinates Services and Access provision for the entire ACTRIS

Data Centre - ACTRIS Aerosol REmote Sensing data centre unit (ARES)

CIAO is responsible for centralized processing, provision and access of (meta)data, traceability and quality control of the data for the whole ACTRIS aerosol remote sensing component

Centre for Aerosol Remote Sensing - Aerosol high-power lidar (CARS-AHL-CNR)

CIAO participates in lidar system quality assurance activities, intercomparison campaigns and testing of lidar components

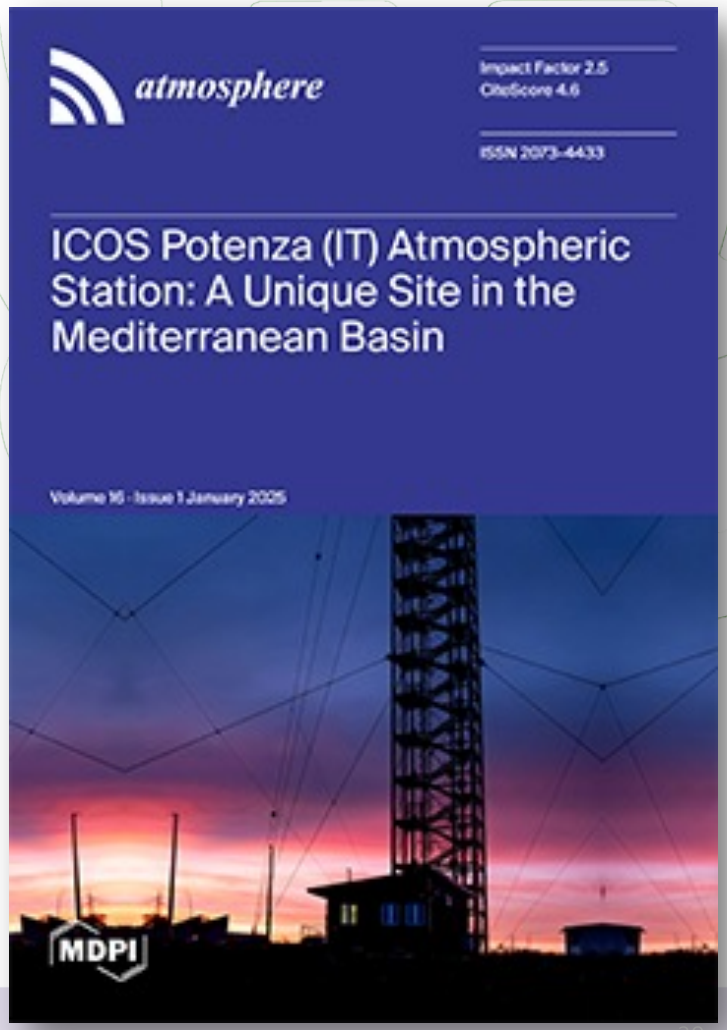
CIAO Visit – Focus on ICOS POT station

Wednesday, 16 July at 9:00

ICOS continental atmospheric station in the ***Mediterranean Basin****.*

Strategic observational point *for climate change investigation in this fragile area*

ACTRIS collocation offers possibilities for ***synergistic advanced studies*** *for atmospheric investigation*



ITINERIS

THANKS!

IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-Mission 4 “Education and Research” - Component 2: “From research to business” - Investment 3.1: “Fund for the realisation of an integrated system of research and innovation infrastructures”

Finanziato dall'Unione europea NextGenerationEU
Ministero dell'Università e della Ricerca
Italiadomani