

L'infrastruttura di ricerca ACTRIS

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Dipartimento Scienze
del Sistema Terra
e Tecnologie per l'Ambiente

(Aerosol Clouds Trace gases Research InfraStructure)



ACTRIS si propone di realizzare, sviluppare e rendere operativa una If pan-europea distribuita per lo studio costituenti atmosferici short-lived.

Attualmente 22 Paesi fanno parte di ACTRIS.



www.actris.eu



ACTRIS obiettivi



EXPLORING THE ATMOSPHERE

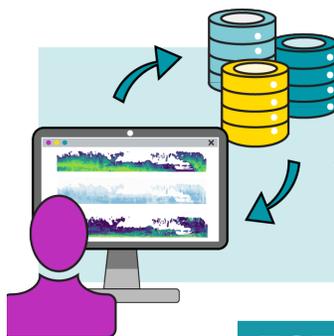
Long-term measurements of aerosol, clouds and trace gases are collected from surface to the stratosphere by state-of-the-art in situ and remote sensing techniques.

Gli obiettivi principali di ACTRIS sono la produzione di dataset integrati di elevate qualità e la fornitura di servizi, quali l'accesso a piattaforme strumentali ad hoc per uso scientifico tecnologico

***Stato attuale:
Implementazione***

ENSURING QUALITY DATA

High-class and quality assured data are generated by following harmonized and standardized operating procedures and fulfilling the FAIR data principles.



EASILY ACCESSING DATA

ACTRIS is committed to provide users free and open access to primary data and data products through a single point of entry.

ESTABLISHING OPPORTUNITIES

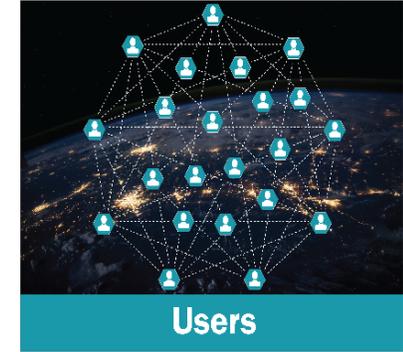
ACTRIS provides access to the best atmospheric research environments and expertise, promotes international collaborations and supports training of researchers and early-career scientists.



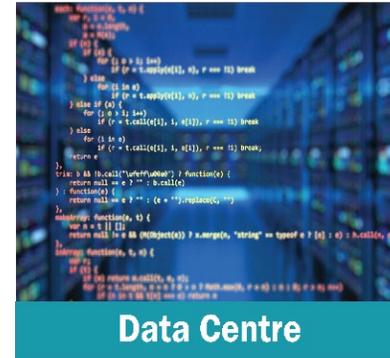
ACTRIS



Physical and Remote Access
Research Services
Instrument calibration
Industry Services
Training services

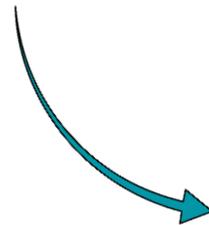


Instrument calibration



Virtual Access
ACTRIS data products
ACTRIS VRE with graphic and computing tools

NF aerosol, cloud and trace gas variables



ACTRIS IT

www.actris.it

CNR

ENEA

INFN University “Federico II” of Naples

University of L’Aquila

University of Salento

University of Urbino

Ruolo chiave dell’Italia in ACTRIS Partecipazione alle Central Facilities

Head Office - Service and Access Management Unit (SAMU)

Data Center- ACTRIS Aerosol remote sensing data centre unit (ARES)

Centre for Aerosol Remote Sensing - Aerosol high-power lidar (CA)

Centre for Aerosol In Situ Measurements - Elemental Mass Composition Centre (EMC2)



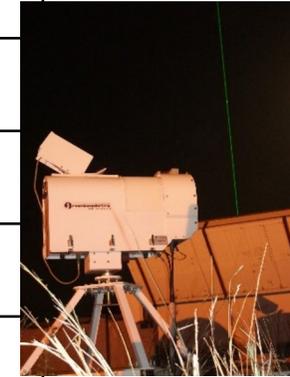
ACTRIS è nella **Roadmap Nazionale delle Infrastrutture di Ricerca**



National Facilities proposte

Observational Platform

Mt Cimone e facilities in val padana (CNR)	<i>Sito montano e sito urbano/industriale</i>
L'Aquila (UNIAQ/CETEMPS)	<i>Sito montano rurale</i>
Roma (CNR) – CIRAS	<i>Sito urbano</i>
Napoli (UNINA)	<i>Sito urbano costiero</i>
Potenza (CNR) – CIAO	<i>Sito montano Mediterraneo</i>
Lecce (CNR e UNISal)	<i>Sito pre-urbano</i>
Lampedusa (ENEA)	<i>Sito costiero</i>



National Facilities proposte

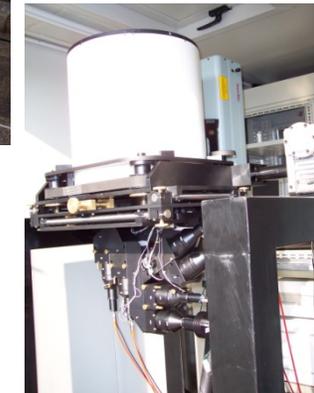
Exploratory Platforms

Genova (INFN) - ChAMBRé

(CNR) Piattaforma mobile per osservazioni in situ di di aerosol e gas traccia

(CNR) Cimone Pallone Tethered equipaggiata con sensori oer misure in situ

(CNR) Potenza Piattaforma mobile per misure di aerosol e nubi remote sensing



Tutte le facilities (CF e NF) sono in fase di upgrade e/o implementazione con il PON Ricerca e Innovazione 2014-2020



An EARLINET early warning system for atmospheric aerosol aviation hazards

Nikolaos Papagiannopoulos^{1,2}, Giuseppe D'Amico¹, Anna Gialitaki^{3,4}, Nicolò Aldo Amodeo¹, Vassilis Amiridis³, Holger Baars⁷, Dimitris Balis⁴, Ioannis Davide Dionisi⁹, Alfredo Falconieri¹, Patrick Fréville¹⁰, Anna Kampouridis¹¹, Francisco Molero¹³, Alex Papayannis¹⁴, Gelsomina Pappalardo¹, Alejandro and Lucia Mona¹

https://doi.org/10.5194/acp-2020-857
Preprint. Discussion started: 25 September 2020
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Sviluppo prodotti user-oriented
Metodi di interesse per la qualità dell'aria

Studio di processi

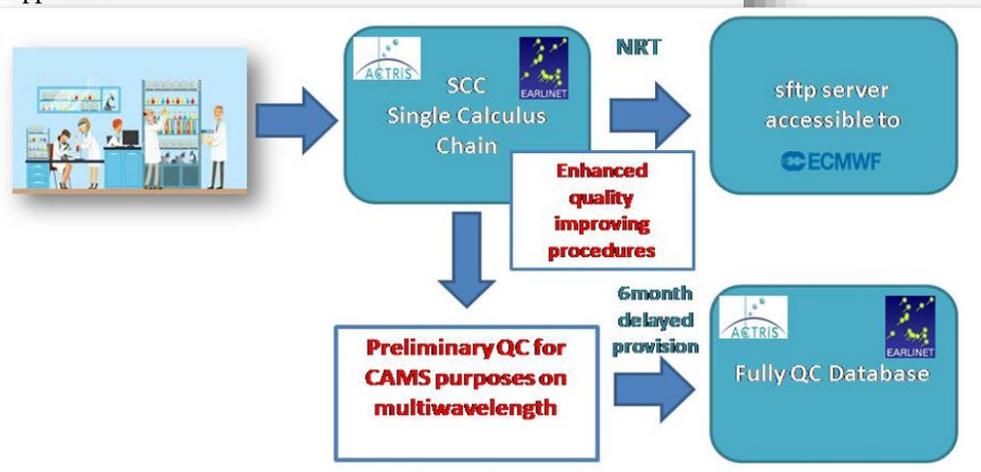
Studi long-term

Fornitura dati in NRT a CAMS

Atmospheric Boundary Layer height estimation a new approach based on morphological image processing techniques

Gemine Vivone¹, Giuseppe D'Amico¹, Donato Summa¹, Simone Lolli¹, Aldo Amodeo¹,
Daniele Bortoli^{2,3}, and Gelsomina Pappalardo¹

¹Consiglio Nazionale delle Ricerche, Istituto
Italy



Ice nucleation activity caused by atmospheric mineral dust – Part 1: Parameterization of ice nuclei concentration in the ICEAM model

Bojan Cvetkovic¹, Fabio Madonna², Marco Rosoldi², Goran Pejanovic¹, Slav

ological Service of Serbia, 11000 Belgrade, Serbia
elle Ricerche, Istituto di Metodologie per l'Analisi Ambientale, 85050, Tito Scal

[CS] DELIVERABLE D2.3



Dust Climatology

Lucia Mona (CNR-IMAA), Sergio Ciamprone (CNR-IMAA),
Michail Mytilinaios (CNR-IMAA), Sara Basart (BSC), Enza Di
Tomaso (BSC)

Highlights – COVID 19

Il CNR ha coordinato una campagna intensiva a Maggio 2020 per misure di aerosol remote sensing in Europa:



ACTRIS – Aerosols, Clouds and Trace gases Research Infrastructure (www.actris.eu)



EARLINET – European Aerosol Research Lidar NETWORK (www.earlinet.org)

EARLINET/ACTRIS analysis of aerosol profiles during the COVID-19 lock-down and relaxation period

About EARLINET/ACTRIS

The [European Aerosol Research Lidar Network](http://www.earlinet.org), EARLINET, was established in 2000 as a research project with the goal of creating a quantitative, comprehensive, and statistically significant database for the aerosol vertical profile. Since then EARLINET has a for the aerosol vertical

ACTRIS Data Centre
- an atmospheric data portal

Search Search Results Data Products Tools and Services Documents Top downloads during week

ACTRIS data during the COVID-19 pandemic spring 2020

- Cloud remote sensing data (profile information)
- Aerosol remote sensing data (profile information)
- Aerosol in situ data (optical, physical properties)
- Trace gases in-situ (VOC and NO_x)

Identifier
<https://doi.org/10.21336/gen.682q-8163>

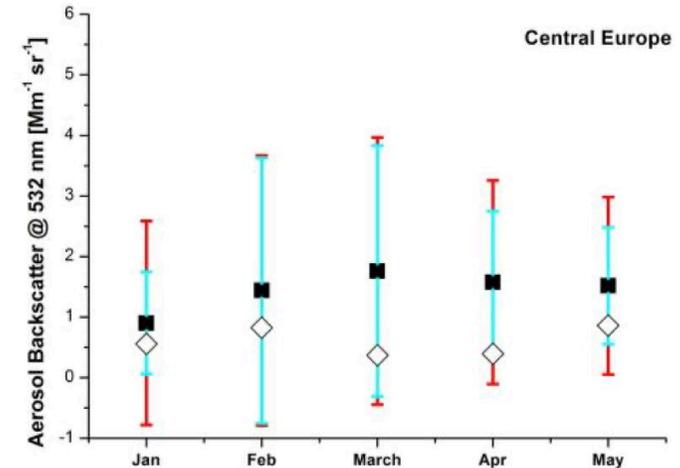
Abstract
This data collection contains measurements of aerosol, cloud and trace gases properties across Europe measured during the Covid-19 lockdown period 1 January 2020 - 31 May 2020. Data are compiled and made available by the ACTRIS Data Centre units, which include In Situ data centre unit (In-Situ), Aerosol remote sensing data centre unit (ARES), Cloud remote sensing data centre unit (CLU) and Data Discovery, Virtual Access and Services unit (DVAS). The site distribution is:

- 30 In-Situ - aerosol (+4 outside Europe)
- 12 In-Situ - trace gases (+1 outside Europe)
- 24 ARES
- 11 CLU

Creator
ACTRIS Data Centre - ACTRIS Data Discovery, Virtual Access and Services (DVAS)



Processamento in NRT processing & report settimanali (*nonostante difficoltà accesso lab*)
QC data pubblicati con DOI e disponibili circa 10 lavori in preparazione



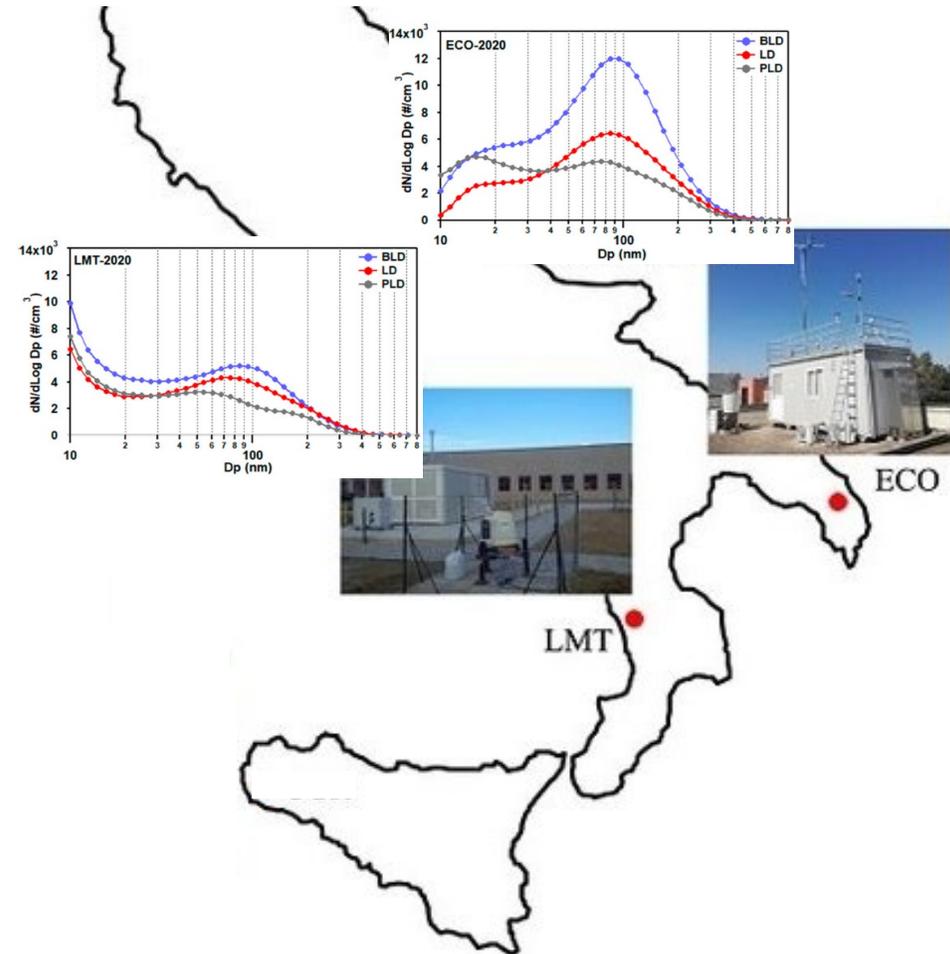
Le proprietà ottiche tra 0-5km confrontate con i dati climatologici mostrano un lieve decremento nel Med. Orientale (feb) e Europa centrale (mar)

Highlights – COVID 19

Studio del CNR sulla concentrazione numerica e distribuzione dimensionale delle particelle

Differenze rispetto alla climatologia in particolare in merito alla concentrazione di nanoparticelle. Differenze anche dopo il lockdown 2020. andamenti diversi per siti urbani e costieri.

Dinoi et al., Atmosphere 2021(12) 352



GRAZIE



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