



Atmosphere Monitoring

INTRODUZIONE AL PROGRAMMA COPERNICUS

Focus sul Copernicus Atmosphere Monitoring Service

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24 Ottobre 2025, Università degli Studi di Roma “Tor Vergata”, Roma



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THE EUROPEAN UNION



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Atmosphere
Monitoring

COPERNICUS ATMOSPHERE MONITORING SERVICE

CAMS è uno dei sei servizi di informazione tematici forniti dal programma di osservazione della Terra Copernicus dell'Unione Europea.

Servizi gratuiti e aperti orientati all'utente.



NETWORK OF COPERNICUS PROVINCES
ITALIAN INITIATIVE



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Europe's eyes on Earth





COPERNICUS ATMOSPHERE MONITORING SERVICE

CAMS fornisce informazioni coerenti e di qualità controllata relative alla composizione chimica dell'atmosfera → direttive europee e accordi internazionali.





▪ AIR QUALITY OBSERVATIONS



▪ MODELLING



▪ OUTPUTS



1. Monitoring the current situation

- Air quality
- Solar radiation
- Greenhouse gases
- Fire emissions

2. Forecasts for the next few days

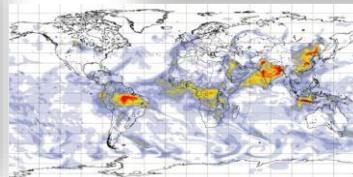
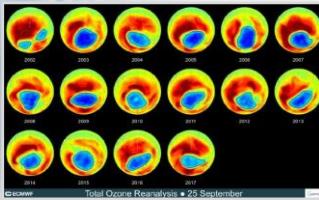
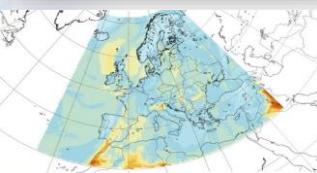
- Global
- Europe

3. Tools to explore further

- Emissions and impact of reductions
- Origins of pollution
- Annual air quality assessments

▪ USERS

- Industry
- Businesses
- Government and policymakers
- Scientific community
- The public



Atmosphere Monitoring Service

Data About us What we do

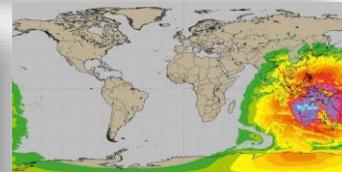
European Commission | Copernicus | ECMWF

New ADS is live! Please check our informative page to best prepare yourself to use the new ADS and watch further announcements on our Forum.

We provide consistent and quality-controlled information related to air pollution and health, solar energy, greenhouse gases and climate forcing, everywhere in the world.

Today's air quality forecasts | CAMS on Air | In Focus

Europe | Worldwide | Seasonal Atmospheric Recap | Global carbon dioxide and methane monitoring

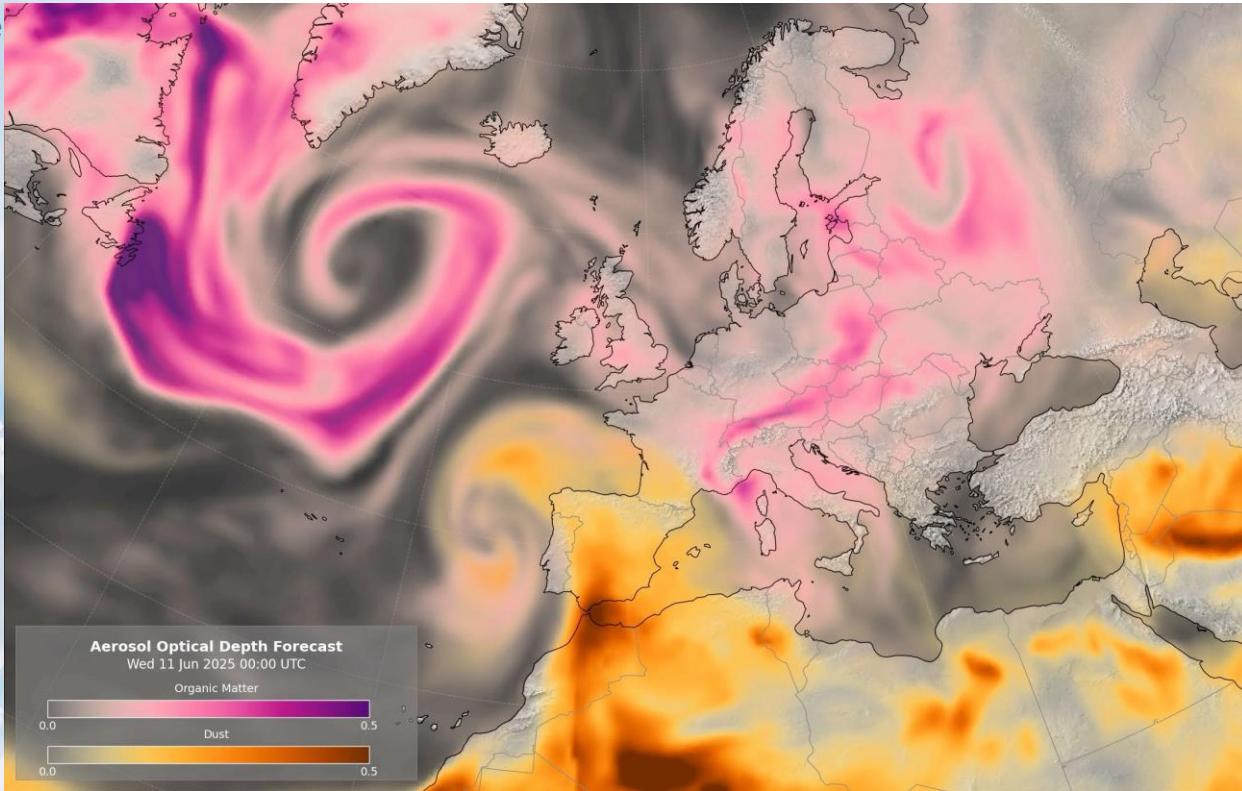


Prodotti informativi aperti e gratuiti basati sull'osservazione della Terra:

- composizione atmosferica globale,
- strato di ozono,
- qualità dell'aria europea,
- emissioni e flussi superficiali dei principali inquinanti e gas serra,
- radiazione solare



CAMS globale: monitoraggio degli eventi di inquinamento atmosferico

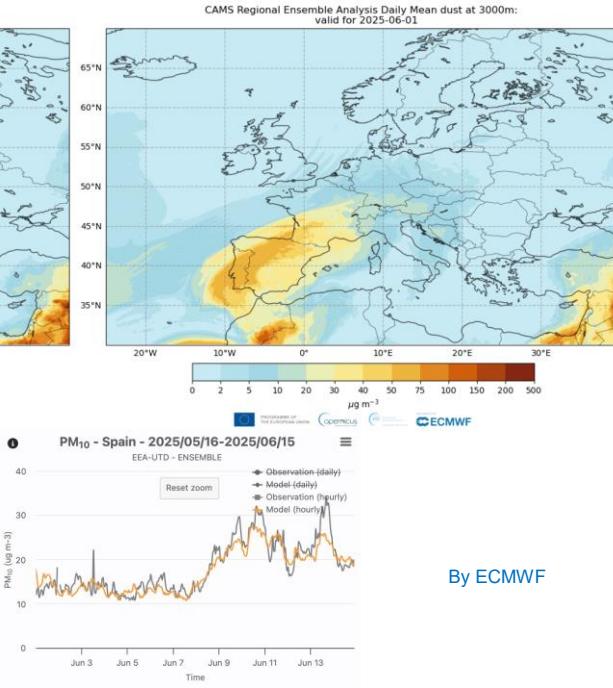
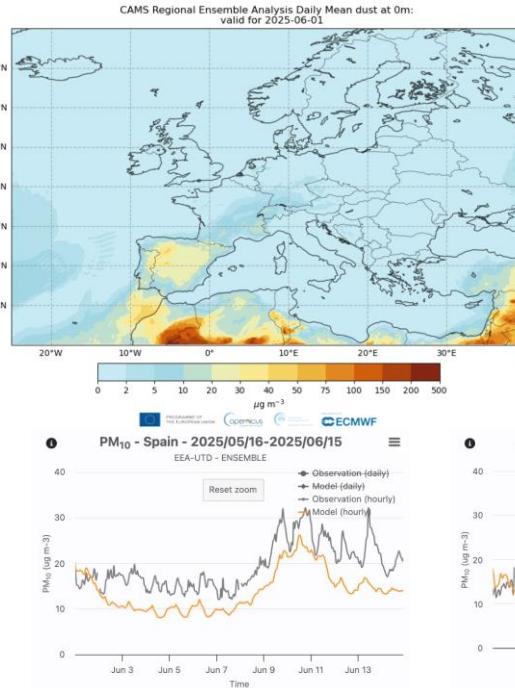
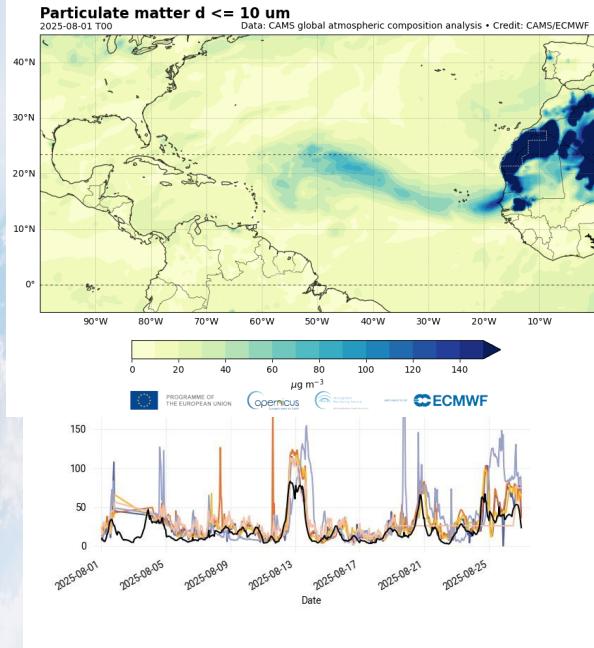


IFS-COMPO

11-15 giugno 2025

L'Europa sotto l'influenza
degli incendi boschivi del
Nord America e delle
tempeste di sabbia del
Sahara

Eventi di intrusione di polveri sahariane monitorate in Europa e trasporto a lungo raggio attraverso l'Oceano Atlantico + impatto sulle concentrazioni di PM



By ECMWF



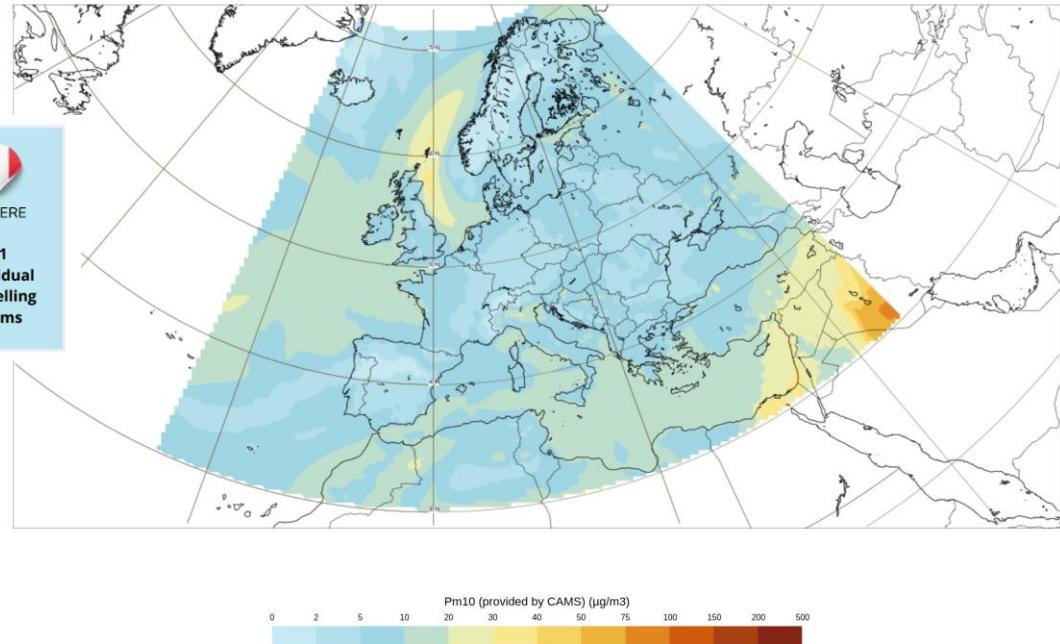
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CAMS EU: previsioni giornaliere della qualità dell'aria

Base time: Thu 23 October 2025 Valid time: Sat 25 October 2025 (+71h) Parameter : PM10 Area : Europe Model : Ensemble median Height level : Surface Statistic type : Daily average



Coordinato da Meteo France



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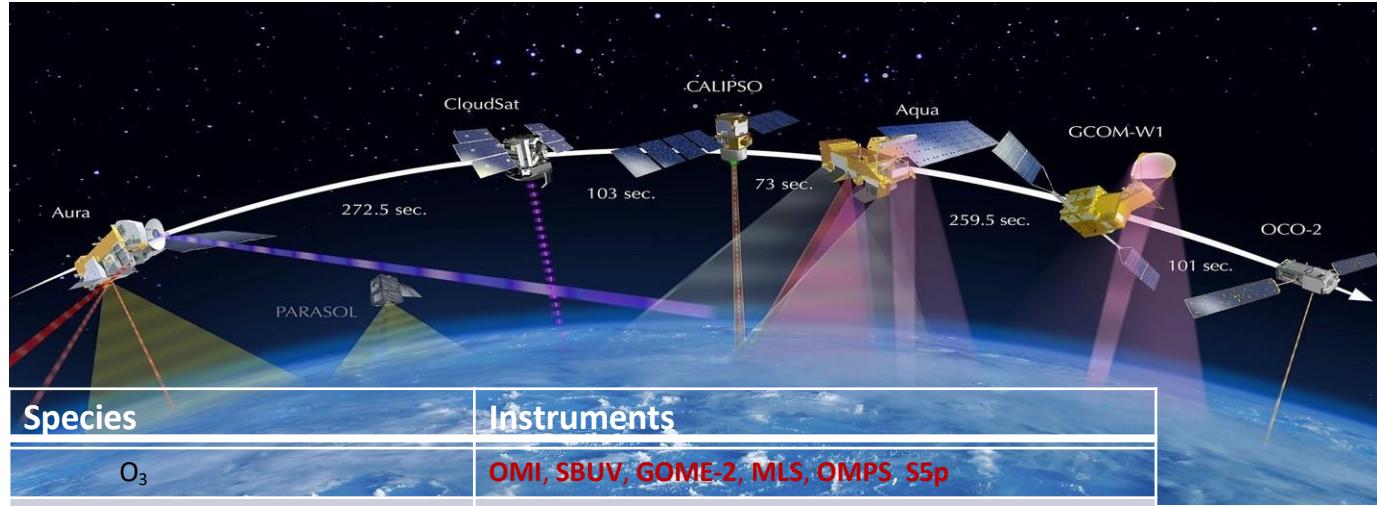
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SATELLITI IN CAMS

CAMS utilizza i dati di osservazione della Terra provenienti da numerosi satelliti per analizzare la composizione dell'atmosfera e le condizioni meteorologiche.



Species	Instruments
O ₃	OMI, SBUV, GOME-2, MLS, OMPS, S5p
CO	IASI, MOPITT, S5p
NO ₂	OMI, GOME-2, S5p
SO ₂	OMI, GOME-2, S5p
Aerosol	MODIS, PMAp, VIIRS, S3
CO ₂	GOSAT, OCO-2
CH ₄	GOSAT, IASI, S5p
GFAS fire emissions	MODIS, SEVIRI*, VIIRS, Sentinel-3, GOES-E/W*, HIMAWARI-8*

By ECMWF



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CONTRIBUTI DA EO

IASI-NG

3MI

Sentinel-5

Dati S5p -> gradualmente
nel sistema operativo di
previsione globale.

Test CAMS Feedback ->
miglioramenti
significativi nella qualità
dei dati.

MetOp-SG-A

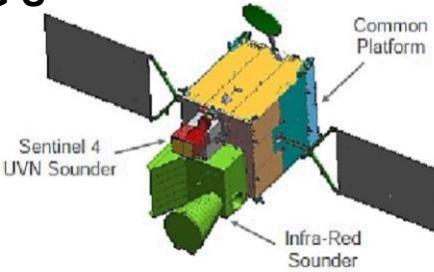
Satellite A



 **EUMETSAT**

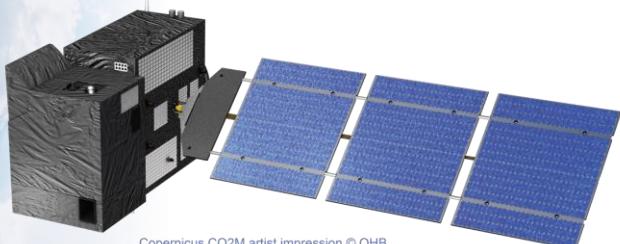
 **esa**

MTG-S



IRS

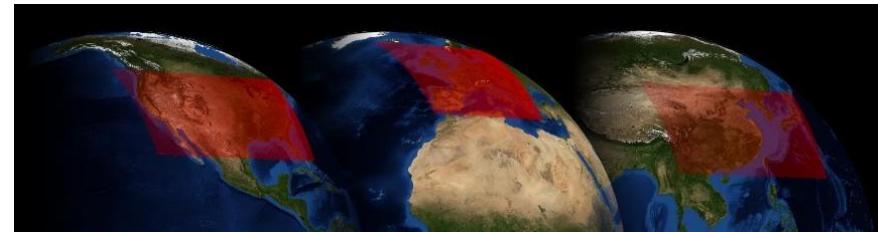
Sentinel-4



Copernicus CO2M artist impression © OHB

Copernicus Emission
Monitoring &

By ECMSF



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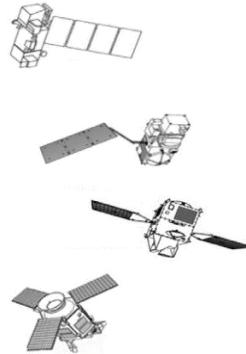
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 **ECMWF**

 **National Collaborative Programme
ITALIAN INITIATIVE**



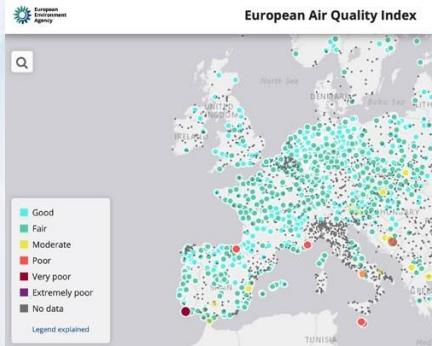
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DAI DATI AL SERVIZIO AGLI UTENTI



Dati satellitari

da satellite (>90 strumenti) e
in situ (normativa e ricerca)



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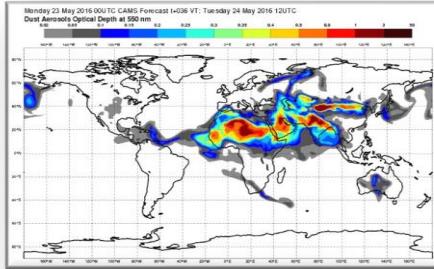




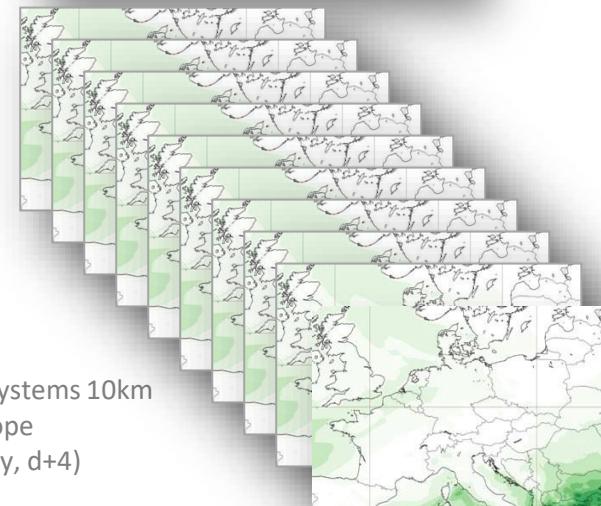
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DAI DATI AL SERVIZIO AGLI UTENTI

Detailed tropo.
and strato.
chemistry,
40km Globe
(twice daily,
d+5)



Processo di **data
assimilation e modelling
systems**



11 systems 10km
Europe
(daily, d+4)



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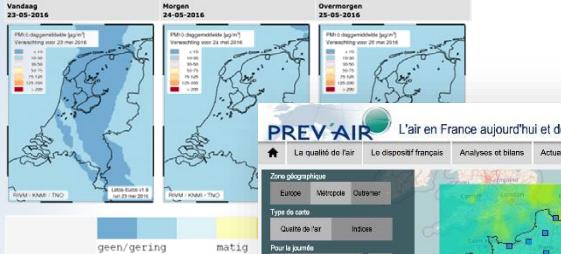
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DAI DATI AL SERVIZIO AGLI UTENTI



PREVAIR L'air en France aujourd'hui et demain



Rijksoverheid voor V
en Milieu
en
Volksgezondheid
Uitgegeven op



PREVAIR L'air en France aujourd'hui et demain

La qualité de l'air Le dispositif français Analyses et bilans Actualités A propos de PREVAIR

Zone géographique

Europe Webcams Obtenez

Type de carte

Qualité de l'air Indices

Pour la journée

17/05/2017 +

Représenter

Carte de pollution Visualiser les stations

Type de données

Moyenne journalière

Maximum journalier

Polluant

PM10 - Particules en suspension

PM10, moyenne journalière, zone France, le 17/05/2017

Carte de prévision optimale (carte prévisionnelle des ASEA)



Pollution forecast provided by the Met Office

Today

Air pollution levels will be mainly **Low** today with only localised pockets of **Moderate**.

View full 5 day air pollution forecast

DefraUKAir daily forecasts



Enter your location: e.g. Newcastle Search

1 2 3 4 5 6 7 8 9 10

Low Moderate High V.High

Health advice for **moderate**, **high** or **very high** pollution.

Fattore di moltiplicazione (200Mil+)



The
Weather
Channel



By ECMWF



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The screenshot shows the homepage of the CAMS website. At the top, there is a navigation bar with links for News, Events, Press, Tenders, Help & support, Data, About us, and What we do. The main content area features a large image of a dandelion seed head against a blue sky. A text box in the center of the image states: "We provide consistent and quality-controlled information related to air pollution and health, solar energy, greenhouse gases and climate forcing, everywhere in the world." Below this, there is a photograph of a industrial facility with several smoking chimneys. To the right of the image, text reads: "Carbon Monitor and CAMS team up to provide up-to-date CO2 emissions estimates for Europe". A "Read more" button is located at the bottom right of this section. At the very bottom of the page, there is a footer with links to the NCP (National Collaborator Network) and the Italian Initiative, along with logos for the European Union, Copernicus, and ECMWF.



COPERNICUS THEMATIC HUB

<https://health.hub.copernicus.eu>

HEALTH HUB

Copernicus Health Hub: the link between
Earth Observation, Environmental
Information and Health



UNICO PUNTO DI ACCESSO

Riunire tutte le attività operative di
Copernicus relative alla salute in
modo semplice e intuitivo.



<https://energy.hub.copernicus.eu>

ENERGY HUB

Copernicus Energy Hub: Connecting
environmental data and Earth Observations
to the green energy transition



MOSTRARE E ISPIRARE

Use case: come i dati possono
essere utilizzati e ispirare nuovi usi



COLLABORAZIONE

Punto unico di accesso per i
feedback e le richieste degli utenti e
per incoraggiare la collaborazione



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NATIONAL COLLABORATION PROGRAMME
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Grazie per l'attenzione

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