



Atmosphere Monitoring

CAMS Introduction

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User Outreach and Engagement section
ECMWF



PROGRAMME OF
THE EUROPEAN UNION



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Copernicus overview

Atmosphere
Monitoring

6 services use Earth Observation data to deliver...



Sentinels



ADDED VALUE PRODUCTS



Contributing
missions

FULL, FREE
AND OPEN
DATA





COPERNICUS ATMOSPHERE MONITORING SERVICE

Atmosphere
Monitoring

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

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

Thematic areas



Air quality



Policy tools



Ozone layer and UV radiation



Emissions and surface Fluxes



Climate forcing

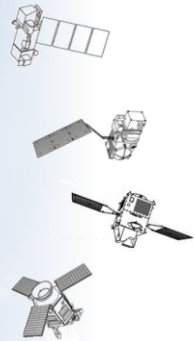


Solar energy

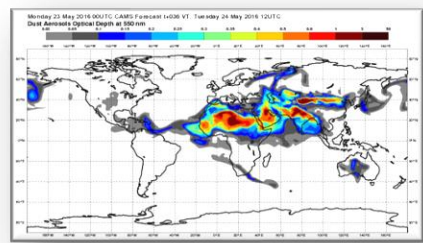
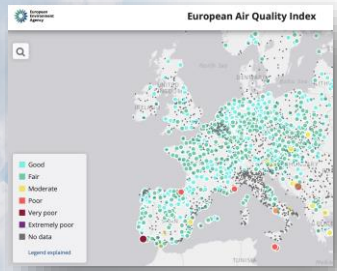


CAMS WORKFLOW

Atmosphere Monitoring

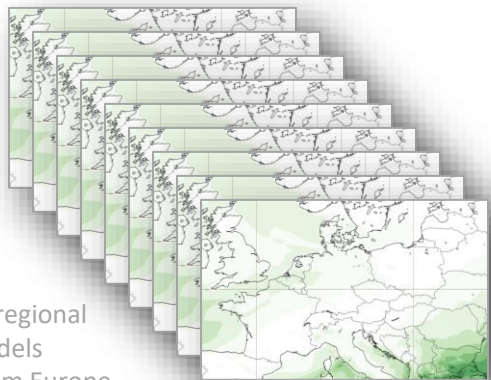


Earth Observation from satellite (>80 instruments) and in-situ (regulatory and research)



40km Globe (twice daily, d+5)

CAMS main operational data assimilation and modelling systems



11 regional models
10km Europe (daily, d+4)

PREVAIR L'air en France aujourd'hui et demain

Pollution forecast provided by the Met Office

Today Air quality levels will be mainly Low today with only isolated pockets of Moderate.

View full 5 day air pollution forecast @DefraUK daily forecasts

CAMS users >23500 (>3050 routine)



Major multiplication factor (100Mil+) Windy.com



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Europe's eyes on Earth

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Atmosphere
Monitoring

DRIVER: EVOLUTION OF THE OBSERVING SYSTEMS

MetOp-SG-A

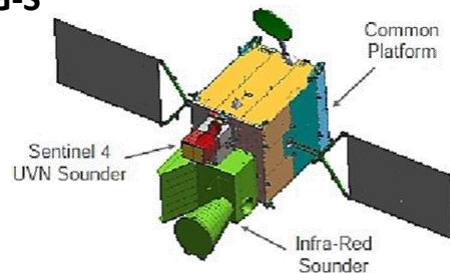
Satellite A



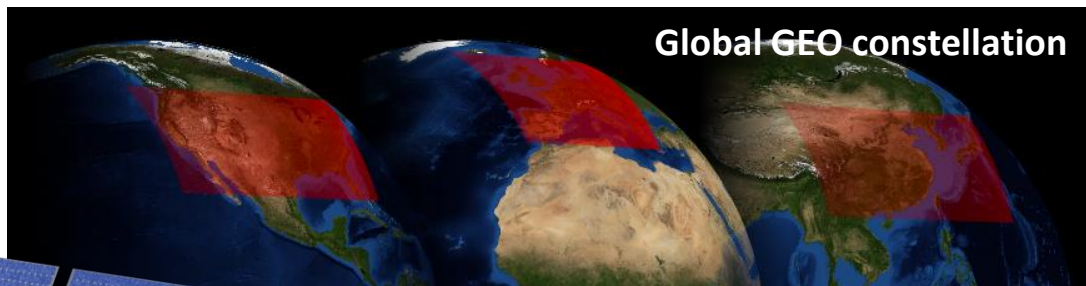
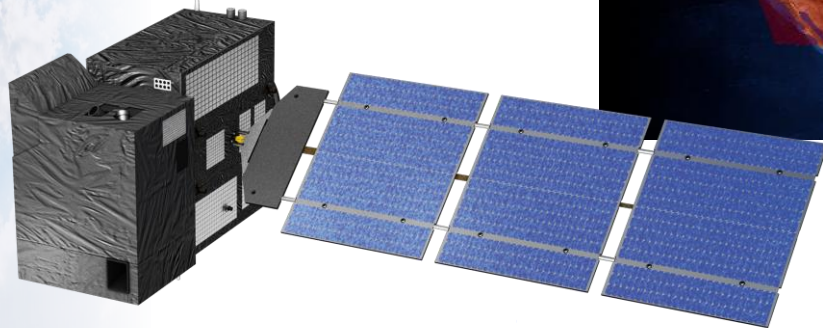
- Sentinel-5
- IASI-NG
- 3MI



MTG-S



- Sentinel-4
- IRS



Global GEO constellation

CO2M



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Europe's eyes on Earth

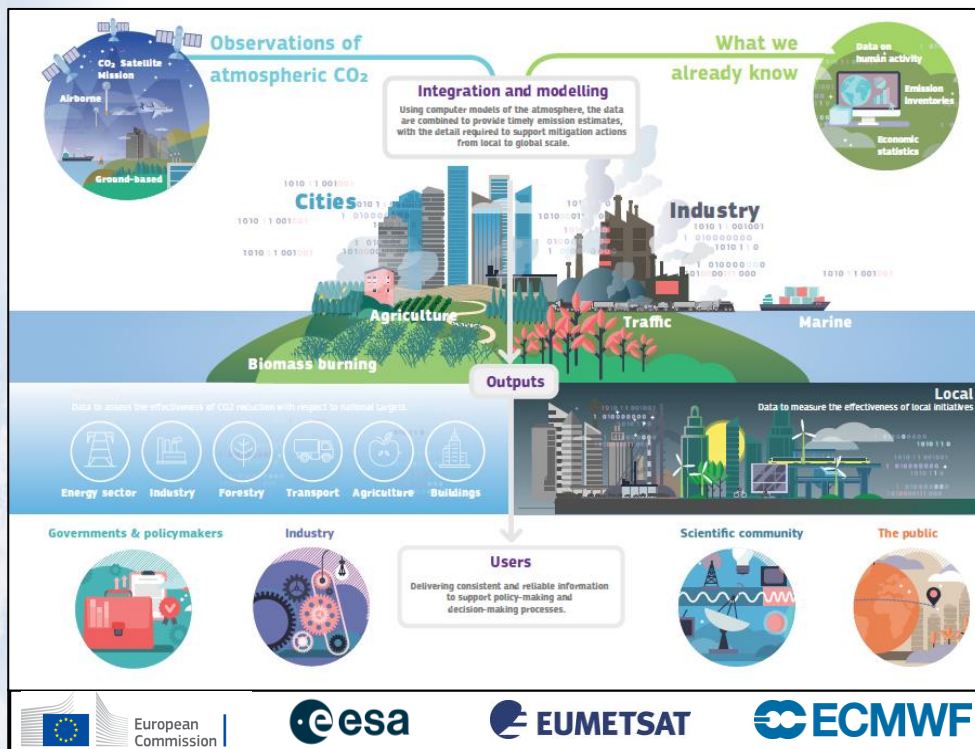
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RAMPING-UP EMISSIONS MONITORING



A European contribution to CEOS, GCOS, GEO, and WMO (IG3IS) efforts in support of the Paris Agreement.



A new European anthropogenic CO₂ emissions monitoring & verification support (CO2MVS) capacity will support countries and regions with observation-based policy-relevant information.

Combining satellite and in-situ observations with Earth system models by expanding the existing CAMS operational infrastructure.



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Europe's eyes on Earth



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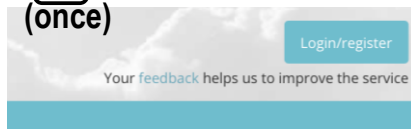
What's available? Check the ADS!

Based on CDS



Climate
Change Service

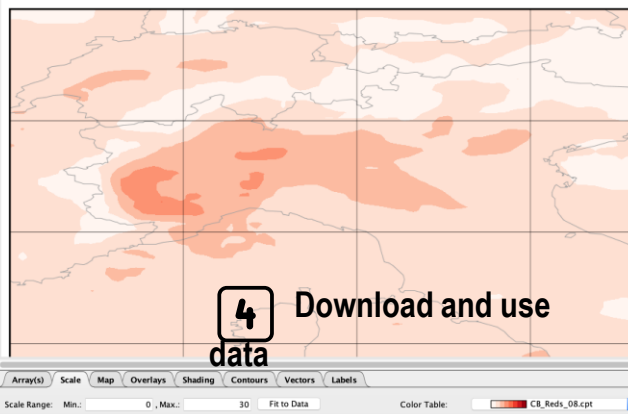
1 Register
(once)



2 Search catalogue

<http://ads.atmosphere.copernicus.eu>

mass concentration of pm2p5 ambient aerosol in air



4 Download and use
data

3 Fill-in
form



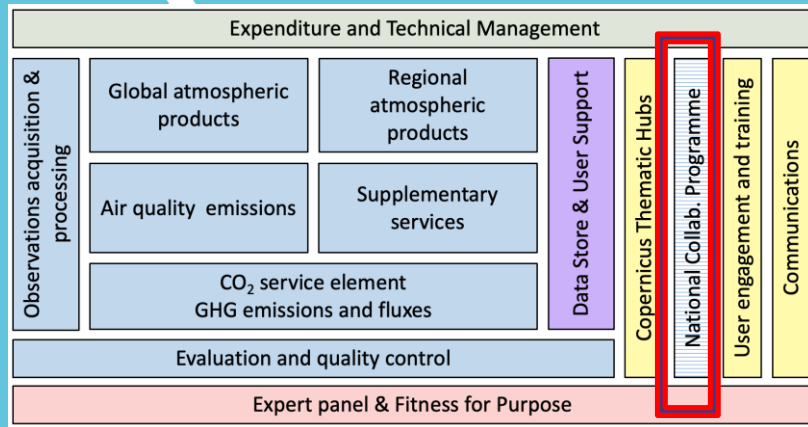
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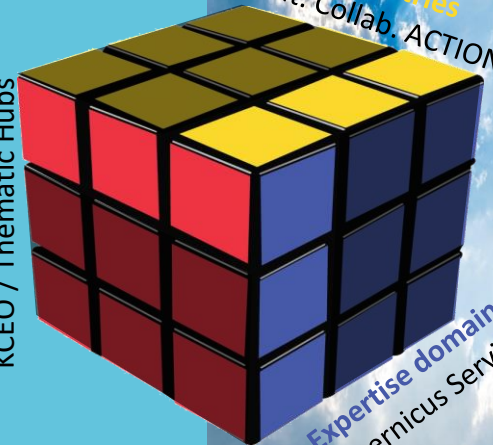


CAMS National Collaboration Programme



MWF

Application areas
KCEO / Thematic Hubs



Countries
Nat. Collab. ACTIONS

Expertise domains
Copernicus Services



Atmosphere
Monitoring

Roadmap and countries participation

12/2021:
1st NCP
presentation
at the
CUF

13/06/2023:
1st
Atmosphere
User Forum

11 06/2024:
3rd AUF (24
countries)

**Q1 2025: new
call on
transboundary
actions**



11/2022:
2: 1st
contract
signed

25/01/2024:
24: 2nd
AUF (23
countries)

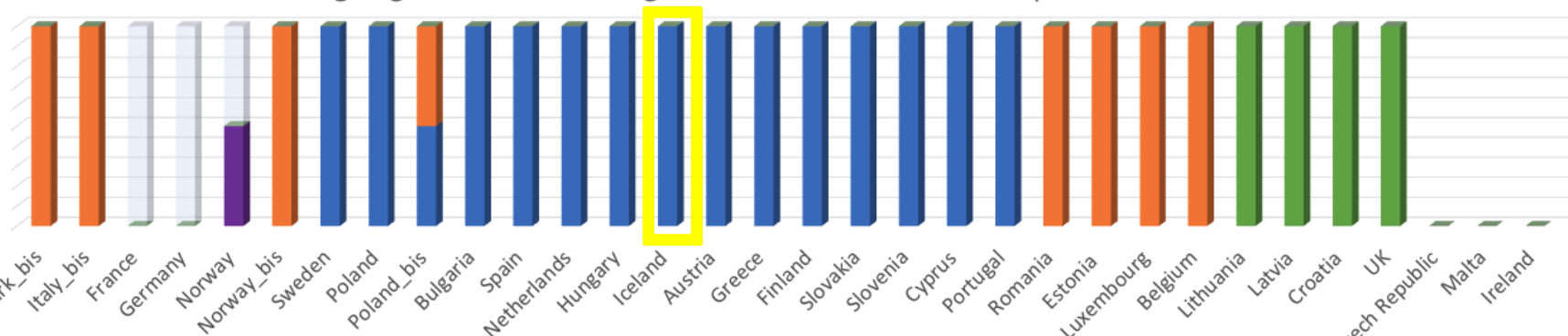
03/12/2024:
4: 4th AUF
(online)

1st phase: 2022-2023: 18 contracts

2nd phase: 2024-2027
New contracts starting in 2024 (10
TBC) + re-newed contracts (15)

MSs Participation

■ on-going contract ■ In negotiation ■ RfP sent ■ RfP planned ■ Interested ■ Ended contract





National needs

- Sparse air quality monitoring network in Iceland, despite frequent dust storms and volcanic eruptions.
- Lack of in-situ particulate matter observations in dusty areas, leading to a need of CAMS data and new measurements
- Introduce the CAMS data in Iceland.

Expected outcomes

- Integration of in-situ measurements and CAMS products.
- An interactive web application.
- Increased awareness and engagement among stakeholders.

Goals

- Establish an in-situ dust measurement network.
- Integrate data from in-situ stations with CAMS products in a web application.
- Verify CAMS data against in-situ data and the High Latitude Dust (HLD) operational model (DREAM_Iceland).
- Organize training events on the effective use of CAMS products.
- Organize HLD Workshop with CAMS session.





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