

living planet symposium

BONN
23–27 May
2022

Turn-key solutions in support of institutional users at national and European level: experience from user uptake in Copernicus services CAMS and C3S

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Building blocks User Engagement CAMS and C3S

Facilitate the creation of solutions

Connect users with scientists and technical experts to develop innovative solutions

Act as the 'voice' of the users

Internal coordination with operational teams to ensure service delivery tailored to user needs

Enhance user intelligence

Understand existing and new users, policies and societal trends

Training and knowledge transfer

Skills training and transfer of knowledge adapted to the specific types of users

Supporting EUSPA to foster the downstream market

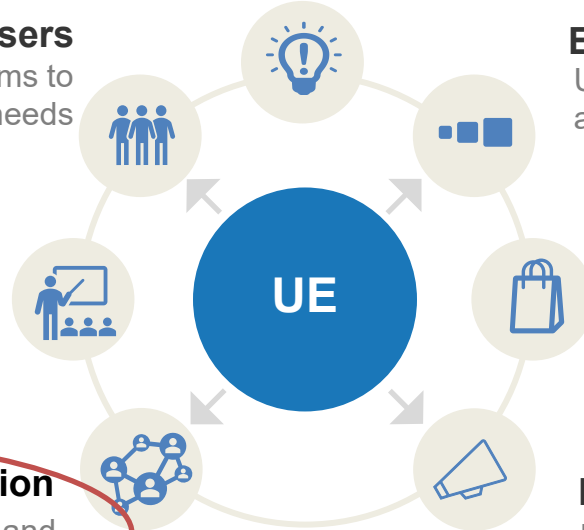
Support the development of downstream applications and solutions

Liaising and collaboration

Liaising with key stakeholders and collaboration with other user uptake initiatives

Promotion and marketing

Promote and showcase services at user and stakeholder fora



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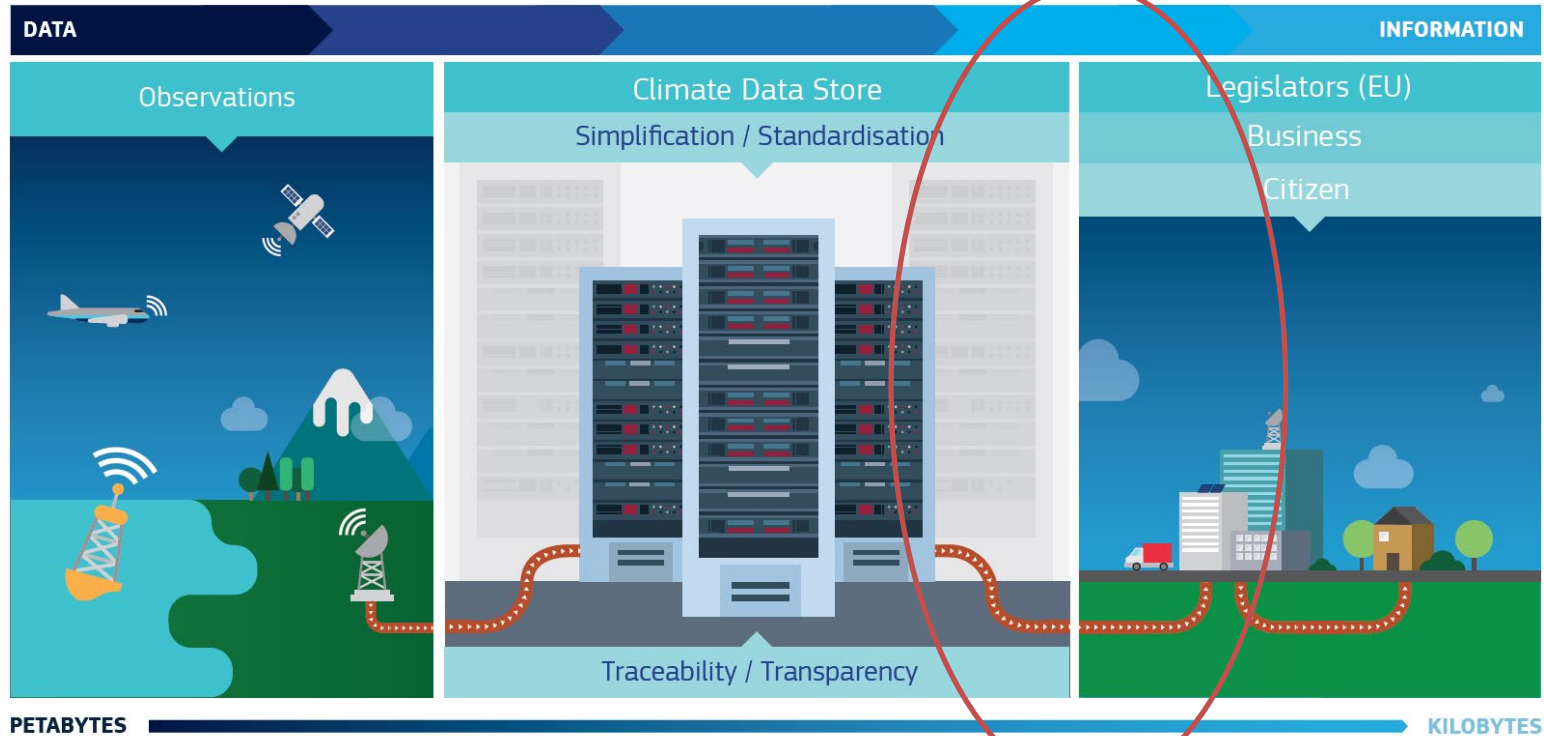
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Climate
Change

C3S - an operational climate service turning PB of data in kB of information



119 datasets

22 applications

135 000+ registered users

typical download: 70 TB /day

cds.climate.copernicus.eu



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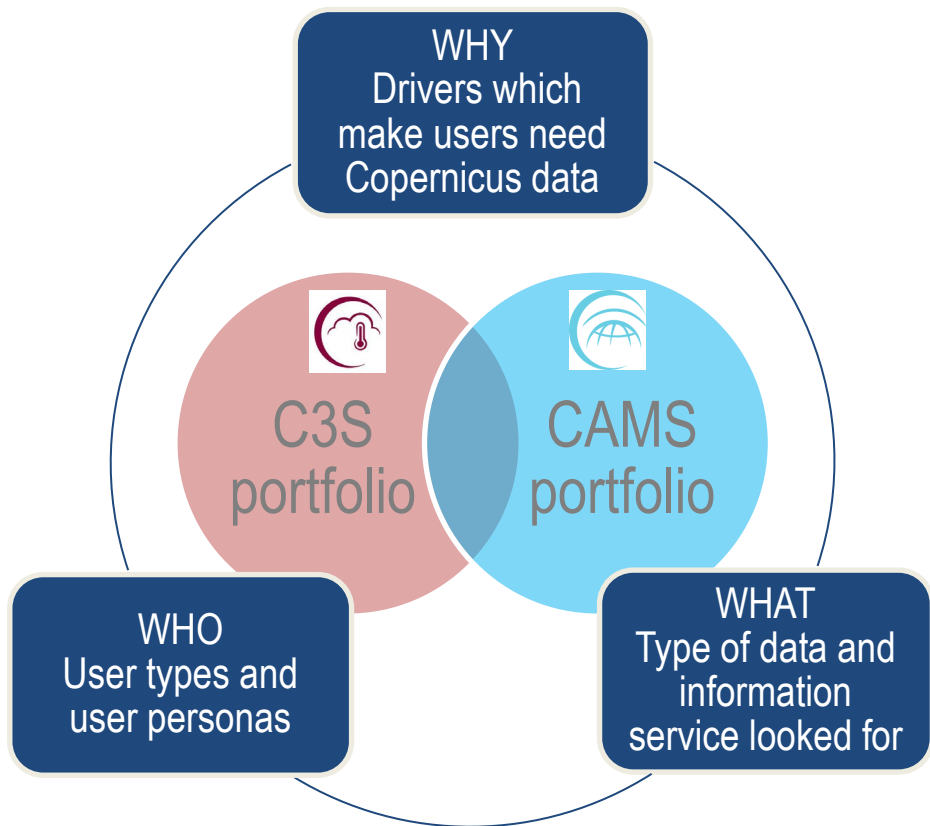


implemented by  **ECMWF**

Key principles user uptake activities on C3S and CAMS

Providing data services to all users, dedicated user uptake activities for Copernicus institutional users

Co-design and involvement of domain and data specialists is essential to reach institutional users



Geographical focus

Global
Europe
Transnational

National and regional: via dedicated à-la-carte
National
Collaboration Programme (CAMS)



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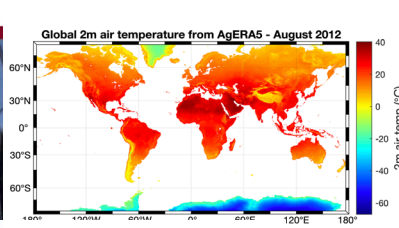


User Stories: added-value of C3S and CAMS as explained by our users

Start: Human health impacts, Climate change worsens heat stress, Heat City applications, Managing Urban Heat Stress, Contribution to SDGs

Urban heat islands and heat mortality

Demonstrating heat stress in European cities



Start: Finding the link, Opening up data, CAMS supports the link, The CAMS COVID-19 Research, SDGs

Atmospheric monitoring to support COVID-19-related research

Using CAMS data to help understand the coronavirus pandemic



Start: Sustainable crop production, Climate change, Making data accessible, Future and SDGs

Global Crop Monitoring

Transforming climate data into practical information for agriculture

"The C3S Climate Data Store provides us with a reliable and stable environment for building climate-based applications without the need for searching a whole range of weather repositories."

Olivier Briet, ECDC

Start: Wildfires and climate change, Tracking global fires, Downstream applications, Local adaptation, SDGs

Tracking global wildfires

CAMS monitors wildfire hotspots and smoke emissions

Start: Marine Spatial Planning, Greek food chain, The data we need, Applying the knowledge, Mapping a sustainable future

Preserving Greek marine wildlife under a changing climate

Start: Assessing the risk, Windstorms and climate change, Tracking the impacts, Estimated losses, Future and SDGs

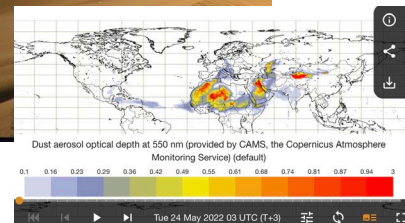
Insurance impacts of European windstorms



Start: Forecasting dust to maintain air quality, Dust climate and climate change, Accurate forecasts, Decision-making, Future and SDGs, Calculation

Forecasting dust storms

Using CAMS data to predict dust transport from the Sahara to Europe



User engagement and partnerships

Engagement with the aim to turn C3S and CAMS data and information into knowledge and insights for decision makers:

- **Co-creation of applications and solutions** together with domain specialists at the service of national and regional authorities, EU and UN bodies
- **Training and knowledge transfer**, mainly focused to data specialists
- **Climate and atmosphere monitoring information** (e.g. via ESOTC 2021)
- **User Intelligence**: enhance insights into user characteristics, requirements and needs
- **User Support, user fora and documentation**: essential as a Service / community building



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Institutional users at EU level: Climate-ADAPT (EEA) and European Climate and Health Observatory (EEA, EC DGs CLIMA & SANTE)

Climate ADAPT
CLIMATE ADAPTATION
INFORMATION PLATFORM FOR
EUROPEAN POLICY MAKERS

Home > Knowledge > European Climate Data Explorer

European Climate Data Explorer

Help Overview list of all indices

Health

Agriculture

Forestry

Energy

Tourism

Coastal

Content in the European Climate Data Explorer pages is delivered by the [Copernicus Climate Change Service \(C3S\)](#) implemented by ECMWF. [Disclaimer](#).

Questions related to the indices shown on the European Climate Data Explorer and the underlying data should be addressed to the [C3S user support service](#), which can be accessed via the [ECMWF Support Portal](#) (registration required). For general questions related to Climate-ADAPT, please use the "Contact" button at the bottom of this page.

The European Climate Data Explorer is supported by the most recent versions of the following browsers: Google Chrome, Microsoft Edge, Mozilla Firefox, Safari. It is not supported by Internet Explorer.



European Climate and Health Observatory

Climate ADAPT
CLIMATE ADAPTATION
INFORMATION PLATFORM FOR
EUROPEAN POLICY MAKERS

About > Policy context > Evidence on climate and health > Resource catalogue > Publications and outreach > News > Events

Evidence on climate and health > Projections and Tools > CAMS UV Index forecast

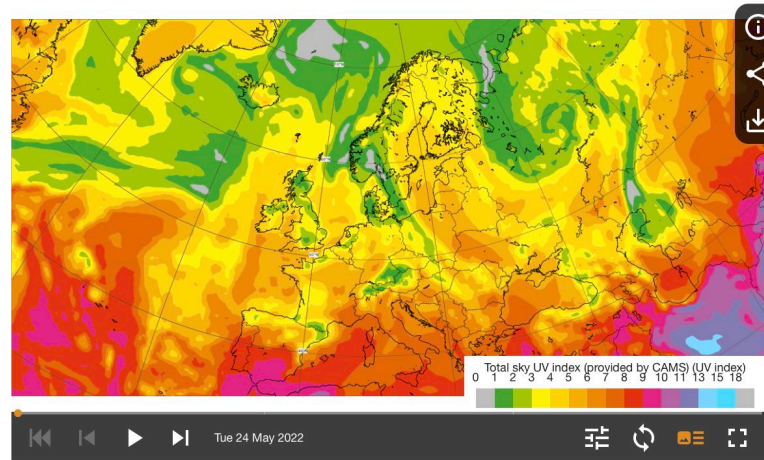
Four-day forecast of UV Index from Copernicus Atmosphere Monitoring Service (CAMS)

The viewer provides the maximum daily value of clear-sky and total-sky UV Index (based on satellite data processed by CAMS and utilising WHO methodology) as an indication of the amount of the UV radiation across Europe forecasted for the next four days.

Use this icon to select the date, UV index and region of interest

Click on this icon to view the map in full screen mode

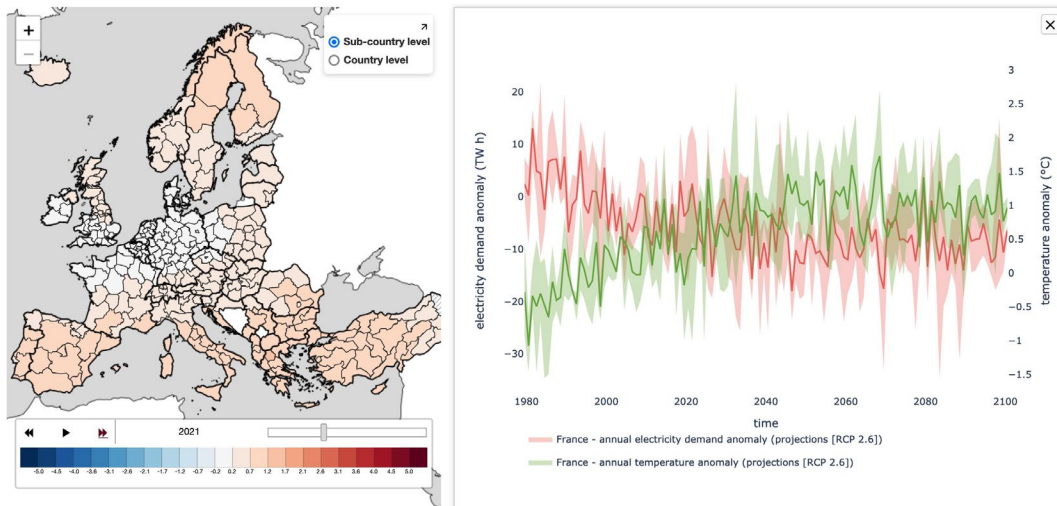
By clicking on the map, the UV Index maximum values for a given location can be viewed, accompanied by a chart showing changes in hourly UV Index values over the forecast period.



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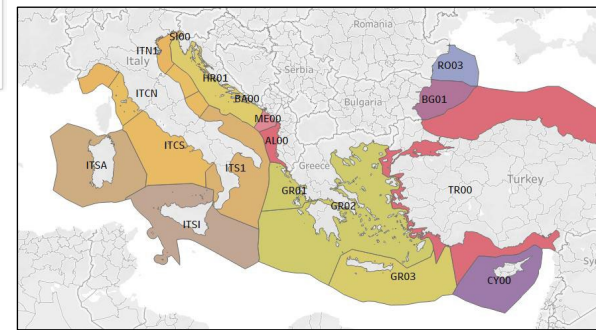


Institutional users at European level: C3S datasets and applications at the service of the European energy sector



What does it provide? Climate & energy variables from reanalyses, regional climate projections, and multi-model seasonal forecasts.

Who is it for? EU Agency for the Cooperation of Energy Regulators (ACER) and ENTSO-E (European network of transmission system operators for electricity).



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Institutional users at EU and neighbourhood level: new partnerships with EIB and the UfMs



Collaborations focused on:

- Integration of C3S and CAMS data products as **quality assured and operational reference data sources** on climate change and atmosphere.
- **Co-creating indicators, applications, workflows and solutions** making use of C3S and CAMS data, tools and information for the EIB's work
- Supporting **capacity-building and training**
- Organizing **joint workshops, small scale studies and demonstration cases** to explore further collaborative actions
- Providing **feedback to ECMWF** on user satisfaction and evolving **user needs** for further service evolution of CAMS and C3S products



Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط



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CAMS National Collaboration Programme

Based on specific user requirements, CAMS and the EU MSs, Norway and Iceland aim to co-design tailor-made collaborations aimed to improve the uptake of CAMS products and to promote joint activities between CAMS and MSs



1 agreement per country based on a two-way process:



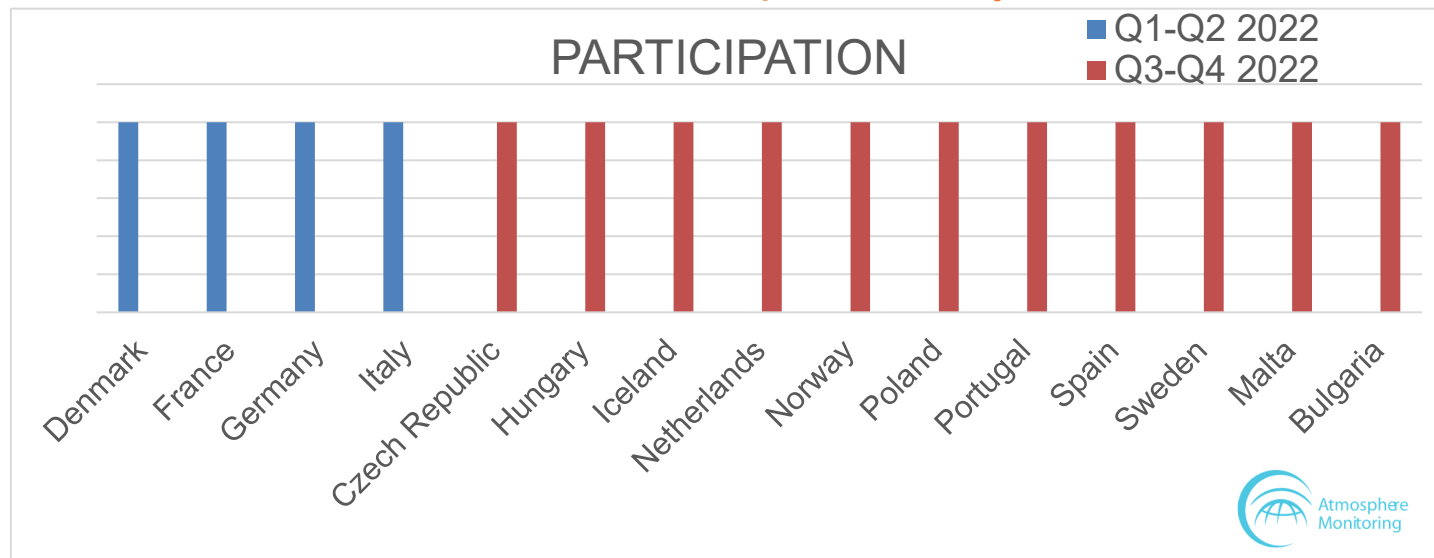
CAMS provides:

- products that are directly relevant for a number of European and international policies, where Member States have mandate and responsibility
- support & expertise
- information to the general public

National institutional administration will:

- Ingest CAMS data products for its national and regional mandates
- Assess the quality of CAMS products over their national/regional domain (user feedback)
- Develop national module(s) fully integrated into the CAMS service
- Improve the communication with local audience (newspaper, media, ...)

Interest in the CAMS NCP as expressed by countries (status May 2022)



4 pilot countries: start agreements in Q3 2022, implementation other countries follows shortly



Climate
Change Service

climate.copernicus.eu

Q4 2022 – Q1 2023: C3S will develop similar NCP but with its own strategy and implementation approach



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Role of the downstream market

The downstream EO market and domain specialists remain key players for C3S and CAMS to serve the institutional users at EU and national level: **we need to acknowledge the players in the EO data value chain and importance of sector specific value-added products to create meaningful information products**

Support to EUSPA to foster a dynamic and empowered downstream sector

- Technical support and close collaboration on user engagement with EUSPA to fostering the EO downstream market and user uptake actions focused at 'non-institutional' users
- EUSPA User Consultation Platform and C3S and CAMS URDB/URAD: two complementary initiatives to collect user requirements from a different angle.



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Collaborations: ongoing and planned actions

other Copernicus Service providers (MOI, EEA, JRC and EUMETSAT (WEkEO))

exchange on lessons learnt, join forces on WEkEO, support each other to offer coordinated solutions to users.

DG DEFIS-JRC Knowledge Centre on Earth Observation (**KCEO**)

initiator and promotor for concrete user uptake actions by the EU Policy DGs

Collaborate with **ESA** and **EUMETSAT**

we are part of the same EO data value chains!

Envisaged partnerships with stakeholders focused on regions (**NEREUS**) and the EO private sector (**EARSC**)

network and feedback on needs



Conclusions

- User engagement is a **process** and it takes time: workshops, outreach activities are a tool, not an endpoint
- Important to recognize our role in the **EO data value chain** and to engage with the different stakeholders to meet end users needs
- Engagement with **downstream players** is key: **user personas** often as important as user sectors
- Actual user uptake often starts with **training and knowledge transfer**
- **Enablers to raise awareness and to foster uptake**: KCEO and EUSPA, as well as purveyors and ambassador users
- **Collaborations** with partners is essential to streamline resources.



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ECMWF User Support Portal:

<https://confluence.ecmwf.int/site/support>

Or see us at the ECMWF LPS22 booth




Europe's eyes on Earth



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