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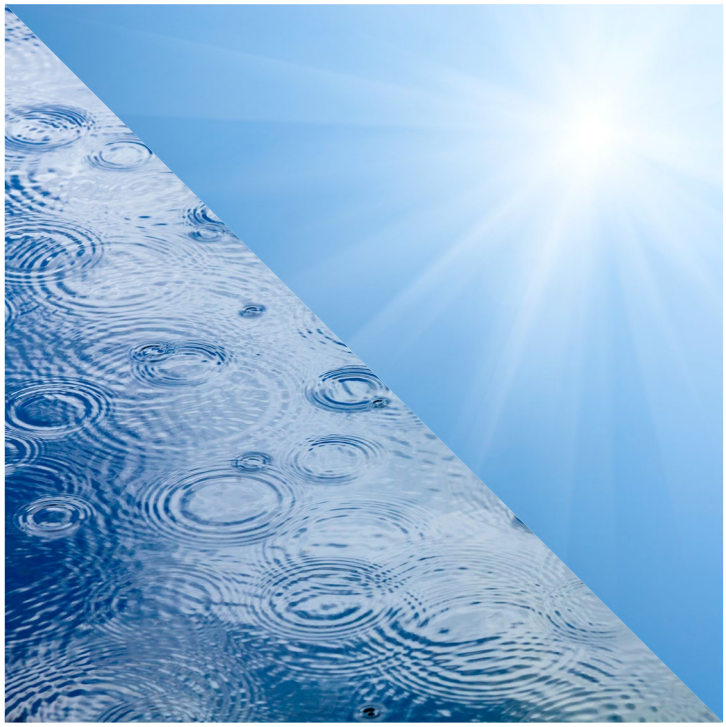
EARTH SYSTEM SCIENCE

# National Collaboration Programmes strengthen engagement through Copernicus



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# National Collaboration Programmes strengthen engagement through Copernicus

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ECMWF has a longstanding tradition of working closely with its Member and Co-operating States to promote the effective use of its data and services. Through structured training, user feedback mechanisms such as the Green Book surveys as well as liaison visits to Member and Co-operating States, and initiatives like Using ECMWF's Forecasts (UEF) events, the Centre maintains a vibrant dialogue with national meteorological and hydrological services (NMHSs) and other users. With the advent of the Copernicus Programme, the Earth observation component of the EU's space programme, this engagement has deepened and expanded. The Copernicus Atmosphere Monitoring Service (CAMS) and the Copernicus Climate Change Service (C3S), both implemented by ECMWF, have ushered in a new era of co-development, both through applications and targeted user uptake activities. A milestone in this evolution was the launch of the CAMS National Collaboration Programme (NCP) at the end of 2021, an initiative that reaffirms ECMWF's user-oriented approach and its commitment to working with and for countries. By supporting countries in implementing Copernicus data within their national contexts, NCPs foster long-term partnerships, accelerate data-driven decision-making, ensure that the benefits of Copernicus reach national policy users, and support related domain specialists across Europe.

## The vision behind NCPs

NCPs aim to enhance the operational use and integration of Copernicus data and services across EU Member States and other participating countries, including Norway, Iceland, the United Kingdom, and more recently also Ukraine. ECMWF pioneered the concept of NCPs, initially through CAMS. Today, NCPs are a core element of the European Commission's Copernicus user uptake strategy and are integrated across almost all Copernicus Services, including C3S. While tailored differently for CAMS and C3S, reflecting differences in strategic focus and national policy contexts, the NCPs share a common foundation based on five core principles, as presented in Box A.

### Core principles

**A**

The following are core principles of the CAMS and C3S NCPs as they stand today.

**1. Fostering meaningful dialogue:** Sustained engagement with national representatives builds mutual trust and ensures that the unique capacities and needs of each country are recognised and addressed. Dialogues, recognising the diversity between countries, serve as the foundation for successful cooperation.

**2. Enabling co-design:** NCPs are conceived as collaborative frameworks and function as a two-way process. ECMWF implements Copernicus funding and provides technical expertise and coordination on CAMS and C3S data and services, while national partners define how Copernicus products can serve their specific policies and operational mandates.

**3. Preparing for 'the last mile':** Acknowledging the importance of the roles of different entities in the data value chains, ECMWF works to ensure that Copernicus products are operationally usable, enabling downstream national institutions and experts to develop and enhance services such as downscaling, integration with national datasets and the development of value-added solutions.

**4. Enhancing user intelligence:** Understanding the practical needs and experiences of national users helps ECMWF to continually refine its services, ensuring they remain fit-for-purpose in evolving national contexts.

**5. Extending reach**: Countries contribute by translating materials and promoting CAMS and C3S in national languages, inspiring new users and expanding awareness through outreach, and by investing in training activities that transfer knowledge to broader user communities.



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## CAMS NCP: air quality and beyond

The CAMS NCP, launched at the end of 2021, supports national and regional authorities in integrating CAMS data into areas such as air quality assessments, greenhouse gas monitoring, energy applications and public health services (*https://atmosphere.copernicus.eu/cams-national-collaboration-programme*). Several of these are closely linked to requirements as driven by the European Commission.

The programme is modular in design: each participating country selects from a suite of predefined modules based on national relevance. Upon an initial pilot phase, these now include:

- support for air quality data reporting
- direct use of CAMS products at national level
- downscaling of CAMS air quality products
- emissions modelling
- support for in-situ monitoring networks
- communication and user outreach
- training
- development of demonstrators for the energy and/or health sectors.

To date, ECMWF has active agreements with 26 countries (see Figure 1). The most widely adopted modules are ‘direct use’ (86%) and ‘downscaling’ (80%), followed by ‘support for in-situ networks’ and the ‘development of demonstrators’. The ‘communication and outreach’ module is mandatory across all contracts.

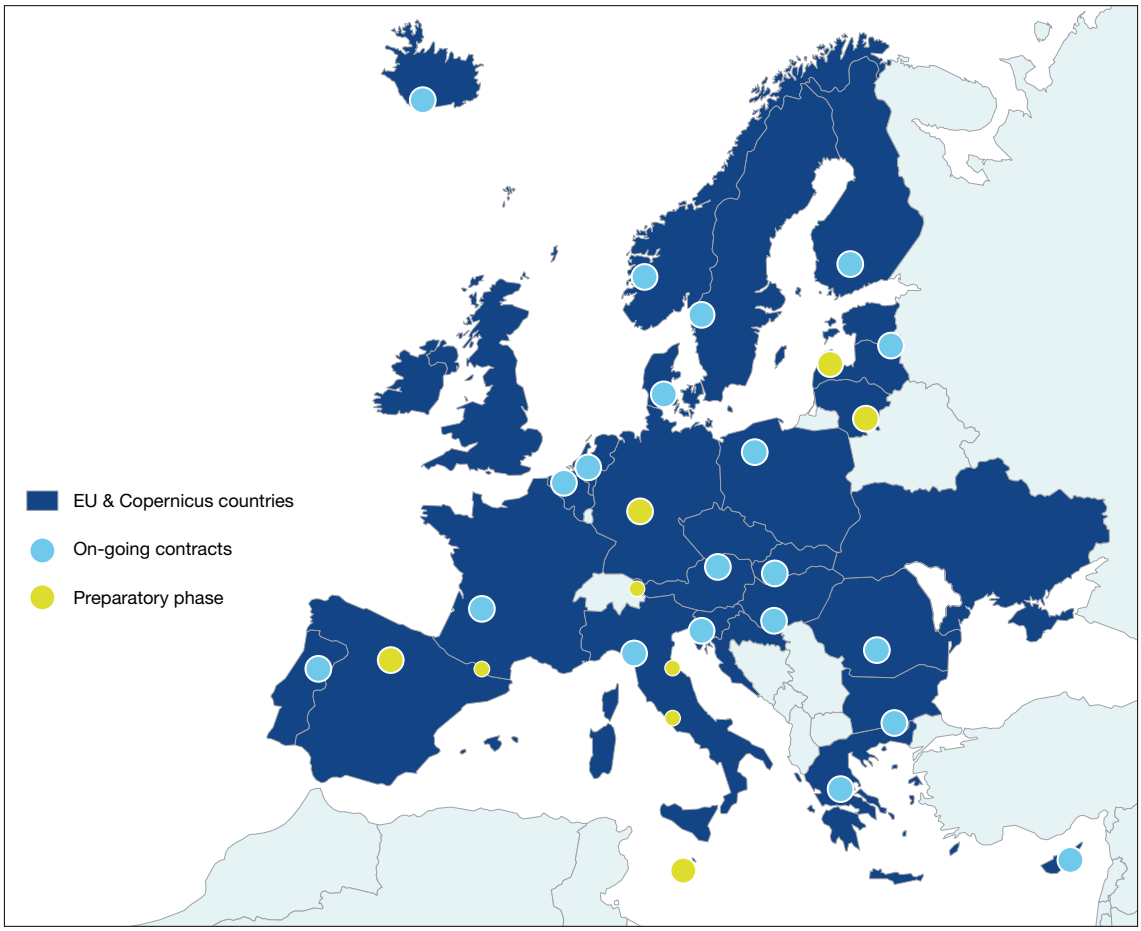


**Figure 1** Overview of countries engaged in the CAMS NCP (May 2025).

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Engagement is further strengthened through twice-yearly Atmosphere User Forums (*https://atmosphere.copernicus.eu/4th-atmosphere-user-forum*), which gather over 100 participants for discussion of experiences on ongoing activities and for ECMWF to share information on new developments and plans. Dedicated technical workshops allow countries working on similar modules to collaborate, discuss challenges, and learn from each other. Box B presents two user testimonials for the CAMS NCP.

### User testimonials 1–2

**B**

**User testimonial 1 – Agricultural University of Iceland (AUI):**

*"CAMS NCP helped fill important gaps in our understanding of air quality challenges in Iceland and made significant steps towards data accessibility. Our activities have raised awareness among the public and local authorities about air pollution and its impacts, contributing to the establishment of science-backed actions to protect people's health."*

**User testimonial 2 – Italian Institute for Environmental Protection and Research (ISPRA):**

*"The expansion of the NCP partnership aims to enhance the use of CAMS products to improve air quality in Italy at both national and local levels. Key activities include assessing pollution events, quantifying the desert dust contribution to PM10, developing ensemble forecasting models and innovative pollen monitoring tools, as well as training and awareness initiatives."*

## C3S NCP: climate action in partnership

Launched in 2023, the C3S NCP fosters the integration of C3S data and services into national climate policy and planning (*https://climate.copernicus.eu/c3s-national-collaboration-programme*). Using C3S data and services as a base, it supports countries in:

- co-developing tailored climate services to address national policy needs
- strengthening data accessibility and usability, aligned with national priorities
- complementing existing national data services and operational systems and supporting the integration of C3S data and services where requested
- enhancing communication and outreach around climate risks
- facilitating capacity building, training and knowledge exchange.

The programme operates via 'Calls for Action', which are competitive funding opportunities for which the actions are designed based on inputs from consultations with national stakeholders. The first call in 2024 led to nine funded projects (see Figure 2). The 2025 C3S NCP Call for Actions is about to be published over the summer months and is designed to significantly increase the reach and further enhance the impacts of the programme.


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| Lead | Country | C3S products | Priority areas |
|---|---|---|---|
| Spanish National Research Council (CSIC) | | Seasonal forecast | Fire and drought management |
| Polish Institute of Environmental Protection – National Research Institute (EIP–NRI) | | Seasonal forecast & reanalysis | Policy & adaptation planning |
| Portuguese Institute for Sea and Atmosphere (IPMA) | | Reanalysis, seasonal and projections | Multi-sector risk assessment |
| Italian Institute for Environmental Protection and Research (ISPRA) | | GHG emissions, reanalysis, seasonal and projections | Multi-domain climate risk assessment & adaptation |
| Meteo Romania | | Seasonal and decadal predictions | Agriculture |
| National Observatory of Athens (NOA) | | Seasonal and decadal predictions | Renewable energy |
| Swedish Meteorological and Hydrological Institute (SMHI) | | Climate monitoring and awareness | Climate monitoring and communication |
| Flemish Institute for Technological Research (VITO)/ Royal Meteorological Institute (RMI) of Belgium/Belgian Climate Centre (BCC) | | Reanalysis/ observations | Health/data rescue & standardisation |

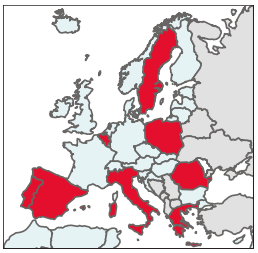

**Figure 2** Overview of countries engaged in the 2024 C3S NCP Call for Actions.

To coordinate and streamline engagement, ECMWF established the C3S NCP Joint Coordination Office in 2024 (*https://climate.copernicus.eu/joint-coordination-office*). The Office facilitates structured engagement with public administrations and fosters a vibrant community of national climate service practitioners through forums and expert exchanges. Box C presents two user testimonials for the C3S NCP, and Figure 3 shows a panel discussion on the C3S NCP at the C3S General Assembly in June 2025.

## User testimonials 3–4

**C**

**User testimonial 3 – Royal Meteorological Institute of Belgium (RMI)/Belgian Climate Centre (BCC):**

*"A very important aspect is that the NCP allows the promotion and the use of national climate observation records. This is particularly true for in-situ (station) observations, which are sometimes poorly visible and accessible in national archives while essential for climate monitoring."*

**User testimonial 4 – Spanish National Research Council (CSIC)/Spanish National Meteorological Service (AEMET):**

*"[The C3S NCP] plays a vital role in enhancing climate resilience by integrating advanced C3S datasets into national climate services, directly supporting the country's efforts to address increasing risks, especially from drought and fires. [... It] contributes to ongoing initiatives for the development of new regionalised climate services, providing improved seasonal forecasts and tailored climate information to support decision-making, emergency planning, and adaptation strategies."*

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**Figure 3** A panel discussion on the C3S NCP took place at the C3S General Assembly in Valencia, Spain, in June 2025, involving (from left to right) Delphine Deryng (ECMWF), Carlo Buontempo (ECMWF), Mark Payne (Danish Meteorological Institute), Stergios Kartsios (National Observatory of Athens), and Maialen Iturbide (Instituto de Física de Cantabria).

## Looking ahead

In 2025, the NCPs of both CAMS and C3S will continue to evolve, focusing on deeper collaboration, regional partnerships and enhanced sustainability of the targeted impacts. Key developments include:

- **Clustered country engagements:** New calls addressing transboundary environmental and climate challenges, such as air pollution transport or regional climate risks, are being planned, and entitites in neighbouring countries are invited to join forces. Twinning projects under the C3S NCP will encourage more experienced countries to support emerging national climate services.
- **Enhanced feedback loops:** ECMWF will place greater emphasis on collecting and acting upon user feedback from countries, with dedicated user interaction sessions and workshops informing future service development.
- **On-demand applications:** Through the NCP, C3S will allow countries to identify priority application areas, offering the opportunity to develop tailor-made applications that utilise C3S data to support national policy and climate service needs.
- **Cross-fertilisation with other ECMWF user engagement activities:** Established dialogues, gained user intelligence and training practices feed other user engagement activities at ECMWF in support of our Member and Co-operating States.
- **New funding mechanism, grants:** In addition to procurements, ECMWF will begin using grants to fund NCP activities. This change encourages national ownership and ensures sustainability of uptake beyond the funding period.

New grant-based funding opportunities for CAMS and C3S NCPs will be published between June and September 2025. Interested national entities are encouraged to visit the ECMWF grants web page for more information: *https://www.ecmwf.int/en/about/grants*.


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