



CORDIS Results Pack on advancing FAIR and open environmental data

A thematic collection of innovative EU-funded research results

March 2025

AI-Driven Solutions for the European Green Deal and Data Strategy



Research and
Innovation

Contents

3

Co-creating a FAIR data space for the
Green Deal

5

What, when and where: making
biodiversity data accessible

7

Unleashing the potential of Earth
observation data

9

Cloud-based platform simplifies access
to Earth observation data for everyone

11

European 'Green Deal Data Space':
data sets and services, use cases and
governance

14

Easy monitoring of Earth's biophysical
indicators at multiple scales

17

Data-driven cities could help tackle
climate change

Editorial

Data taken from environmental observations of the Earth is vital for understanding and mitigating the challenges facing humanity and our planet. But this information must be readily available, and computers and digital systems should be able to fully exploit it and maximise the potential benefit of data.

Climate change and environmental degradation pose an existential threat to Europe and the world. The [European Green Deal](#) addresses these challenges, offering a roadmap towards making the EU a climate-neutral continent by 2050.

Preparing the transition to a net-zero economy requires collection, processing and analysis of enormous quantities of data, such as environmental observations from satellites, ground-based systems or citizen science campaigns.

To harness the value of data, the European strategy for data of February 2020 has set out the path to the creation of Common European Data Spaces in a number of strategic fields. They include health, agriculture, manufacturing, energy, mobility, financial, public administration, skills and the European Open Science Cloud. The green deal data space also stresses meeting the Green Deal's objectives as a key priority.

The challenges facing data sharing and reuse can be addressed by making data findable, accessible, interoperable and reusable (FAIR). These four principles promote openness and collaboration, thereby maximising the potential value of the data for use in scientific research and other fields.

A FAIR approach to data

This new CORDIS Results Pack highlights research results funded under the EU Horizon Europe and Digital Europe Programmes that make use of AI, machine learning and high-performance computing to enhance the FAIRness of environmental observation data. It also outlines lessons learnt as well as detailed guiding principles and future visions for implementing FAIRness in environmental observation workflows.

Project partners developed tools to convert existing environmental platforms into fully interoperable digital ecosystems for European data access, sharing and interoperability. The objective was to turn these data into open and accessible knowledge at the regional and local level across all European regions and beyond.

The pack also illustrates the significance of the project results for the implementation of the European Green Deal and the [European strategy for data](#) in general.

The six Horizon Europe projects, complemented by a project funded under the Digital Europe Programme, featured in this pack offer significant exploitation potential for developing a highly accurate 'digital twin' model of the Earth through the [Destination Earth](#) flagship initiative.

The progress made by these projects is also essential to feed the public consultation launched by the European Commission to gather stakeholders' views on the issues identified in the evaluation of the INSPIRE Directive, the challenges of a fast-evolving European data landscape and the possible policy approaches to address these issues.

Co-creating a FAIR data space for the Green Deal

Harnessing the power of data to tackle environmental challenges, FAIR principles are driving solutions for sustainability in a new green data hub for Europe.

Any plan to mitigate environmental damage must be based on relevant data – and fortunately, we have the tools to collect it. Beyond in-situ Earth observation platforms, data on environmental issues come from remote sensing, the Internet of Things (IoT) and citizen scientists.

The European Commission envisions a [Green Deal Data Space \(GDDS\)](#) in which all data are findable, accessible, interoperable and reusable (FAIR). The EU-funded [AD4GD](#) project addresses the challenge of co-creating components and methodologies for a FAIR green data space infrastructure.

Each pilot addresses key environmental concerns and incorporates multiple data sources measuring common terms. AD4GD demonstrates that sometimes disparate problems can best be solved by thinking on similar approaches under a unified conceptual framework. According to project coordinator, Joan Masó: “The pilots have been instrumental in unravelling how to combine data from different sources, including citizen science, public administration and satellite data.”



The pilots have been instrumental in unravelling how to combine data from different sources, including citizen science, public administration and satellite data.

Biodiversity, climate change, and pollution

When it comes to the GDDS infrastructure, the variety of environmental concerns increases the challenge of integrating data from multiple sources. To address this, the project implemented pilot studies in three high-priority areas: biodiversity, climate change and pollution.

Biodiversity is greatly influenced by habitat connectivity. In Catalonia, a pilot study uses multiple data sources including satellite data, human observations, remote sensing and IoT technologies like camera traps to monitor habitat connectivity over the past four decades.

In Berlin, small urban lakes are at risk due to climate change, but data to assess their evolution is scarce. AD4GD combined IoT sensing data with satellite and citizen science data to inform decision-making on water quality and quantity.

Throughout Europe, the Copernicus Atmosphere Monitoring Service (CAMS) provides daily air quality forecasts using satellite data. AD4GD explored how IoT sensing and citizen science can complement CAMS data and provide a fine-tuned analysis of air quality to better inform citizens and support informed actions.

Implementing FAIR data principles

The project's pilot studies demonstrate the application of FAIR data principles to overcome knowledge gaps and address high-priority environmental concerns. While data sources in each pilot either already existed or use already existing technology, AD4GD ensures the data meet FAIR principles by using a range of innovative technical approaches.

Specifically, a focus on interoperability concepts helps bridging the semantic and technological gaps so that stakeholders can easily and safely share and access well-documented multi-disciplinary and multi-scale data. The project has facilitated the integration of semantic mappings such as the [Essential Variables framework \(EVs\)](#) and employed machine learning and geospatial user feedback to estimate quality.

AD4GD leverages existing semantics standards such as those developed by the [Open Geospatial Consortium \(OGC\)](#) to enable the exploitation of processing services and platforms at different levels including cloud, HPC and edge computing. The project makes sure that citizen science data are FAIR and also gives credit to data contributors.

By exploring how to connect data providers and data users, AD4GD also contributes to the development of standards and technical infrastructure. As Masó says: "We not only implement standards, but we participate and influence in the actual process

of their development. We have also demonstrated that new versions of data space connectors are compatible with the OGC interfaces."

The European Commission's commitment to the Green Deal has many aspects, and a Green Deal Data Space technology founded on FAIR principles is a significant component. AD4GD has helped to develop the future GDDS by piloting a data repository and a processing infrastructure.



© European Union 2025

PROJECT

AD4GD - All Data 4 Green Deal - An Integrated, FAIR Approach for the Common European Data Space

COORDINATED BY

CREAF in Spain

FUNDED UNDER

Horizon Europe – Food, Bioeconomy, Natural Resources, Agriculture and Environment

CORDIS FACTSHEET

cordis.europa.eu/project/id/101061001

PROJECT WEBSITE

ad4gd.eu/



What, when and where: making biodiversity data accessible

Rapid, reliable and repeatable monitoring of biodiversity data helps policymakers measure the magnitude and dynamics of the global biodiversity crisis.

Ecosystems around the world are changing at an alarming rate, facing threats from climate change, pollution and unsustainable resource exploitation. To combat these threats and protect biodiversity, accurate and reliable environmental observations are crucial.

These observations come from a variety of sources, including citizen scientists, museums, research organisations and automated sensors. Coordinating biodiversity information in the face of rapid environmental change is essential for implementing effective environmental policies and safeguarding the natural world.

Using the [Essential Biodiversity Variables \(EBV\)](#) framework, the EU-funded [B3](#) project employs the concept of data cubes to improve access and coordinate data.

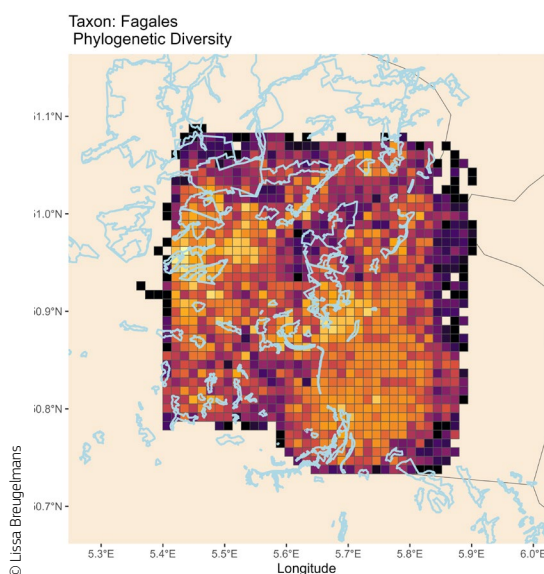
Data cubes guide policy

The EVB framework offers a fresh approach to data management, focusing on integrating and standardising information. By leveraging the concept of data cubes, it helps organisations reduce inefficiency and fragmentation in their data monitoring efforts, ensuring adaptability and sustainability.

A biodiversity data cube coordinates information related to time, space and a biological component. The coordination of these factors allows scientists and other stakeholders to make informed predictions about specific concerns and enact effective environmental policies.

Ensuring that such knowledge is widely available is a primary focus of B3. Project partners developed software tools designed for a cloud computing environment with FAIR principles in mind. Asked about the most promising results of B3, project coordinator Quentin Groom says: "Using [SQL](#) to access the [Global Biodiversity Information Facility \(GBIF\)](#) is a game changer in the creation of automated workflows from biodiversity data. It is so versatile it could provide daily indicators from GBIF and rapid repeatable modelling."

Data cubes are multi-dimensional arrays of data that allow for efficient data storage, retrieval, and analysis. They enhance modelling capabilities by integrating diverse datasets, leading to more accurate environmental forecasts and better-informed policy decisions. The B-3 data cubes aim to facilitate the complex queries and aggregations needed for improved modelling capabilities and better environmental forecasting.



Scalability and case studies

Four case studies are designed to test the application and usefulness of B3's algorithms and software tools. These studies test a range of situations, both local and global, to address important features of the B3 solution.



B3 envisages a future where primary biodiversity data are seamlessly integrated into monitoring and forecasting such that policy and management can proactively respond to problems, reducing the negative impacts of biodiversity change.

Two case studies focus on regional concerns. In Flanders, Belgium, an area with ample biodiversity data, project workflows will generate indicators and models for biodiversity. In contrast, South Africa presents a very different regional scenario: abundant biodiversity, but relatively little in the way of observational data. Both studies provide context for a particular focus of B3: reducing the impact of invasive species.

One case study at a broader scale explores significant disparities in biodiversity observation worldwide. The fourth case study focuses on the European continent, specifically the species covered by the EU's [Habitat Directive](#). A stakeholder-driven study, it will support monitoring and reporting requirements.

The pace of environmental change and its negative impact on biodiversity are alarming, but society has the capacity to respond effectively. As Groom notes: "B3 envisages a future where primary biodiversity data are seamlessly integrated into monitoring and forecasting such that policy and management can proactively respond to problems, reducing the negative impacts of biodiversity change."

PROJECT

B3 - Biodiversity Building Blocks for policy

COORDINATED BY

Meise Botanic Garden in Belgium

FUNDED UNDER

Horizon Europe – Food, Bioeconomy, Natural Resources, Agriculture and Environment

CORDIS FACTSHEET

cordis.europa.eu/project/id/101059592

PROJECT WEBSITE

b-cubed.eu/



Unleashing the potential of Earth observation data

An AI-powered and extended reality-backed platform empowers users, regardless of technical background, to select Earth observation data from a plethora of heterogeneous sources and analyse it.

Earth observation (EO) data collection is increasing exponentially thanks to satellites, in situ sensors and more, including citizen scientists. These multi-source data are also in multiple data, temporal and spatial formats, making it increasingly difficult for even technical experts to analyse critical information quickly, effectively and economically.

The EU-funded [EO4EU](#) project is targeting a one-stop-shop approach to facilitate the discovery and processing of EO data. Consolidating massive amounts of data from EO data providers, its machine learning models dynamically extract patterns and insights that are easily accessible to users via improved user interfaces and extended reality.

EO4EU data ecosystem

The EO4EU platform consolidates: historical data from open-access datasets; real-time data including from smart wearable devices, mobile applications and Internet of Things (IoT) sensors; and data and services from global and European cloud-based platforms. The last include Copernicus, Galileo/EGNOS (the European Geostationary Navigation Overlay Service), GEOSS (the Global Earth Observation System of Systems), DestinE (Destination Earth) and the European Centre for Medium-Range Weather Forecasts.

Users can access raw EO data, execute a natural language query of the sources and inspect the available datasets by description. "EO4EU allows users to access the precise information they need for their research, analysis and decision-making processes," explains Efsthios Chadjieftymiadis of the [National and Kapodistrian University of Athens](#), project coordinator.

Machine learning and knowledge graphs support holistic EO data processing

Machine learning enables dynamic annotation and compression of tremendous amounts of EO data, significantly reducing the time and cost of manual annotation. Relying on the latest advances in unsupervised learning methods, the EO4EU platform can extract useful information even from large, unlabelled datasets. These representations feed into downstream tasks for the learning of task-specific models.

EO4EU uses knowledge graphs to integrate heterogeneous and distributed EO data sources, reducing the need for complex data processing and shortening the development time for new EO applications. With the fusion engine, the user will be able to combine datasets from different spatiotemporal snapshots.

"The generic nature of the platform would not be feasible without the data abstraction and uniform treatment made possible with knowledge graphs. By linking diverse datasets, theories, and models, knowledge graphs facilitate cross-domain analysis and a holistic understanding of the Earth system and its interconnected processes," explains Chadjieftymiadis.



By linking diverse datasets, theories, models and knowledge graphs, the EO4EU ecosystem facilitates cross-domain analysis and a holistic understanding of the Earth system and its interconnected processes.

Augmented/extended reality and use

EO4EU has an easy-to-use interface including personalised dashboards, a smart search engine and data visualisation, analysis and interpretation. Users can also write their own code and execute it serverless with minimum effort. Finally, EO4EU provides an immersive experience with its augmented and extended reality interface. All this is freely available through a simple [registration](#) process.

The platform was tested in seven use cases. For example, the ocean monitoring use case leverages an extract-transform-load (ETL) data integration pipeline that continuously harvests weather data and integrates it with operational data from vessels to optimise fuel consumption and routing. "This ETL pipeline helps train models that accurately predict fuel consumption. These predictions are utilised in real time to suggest alternative, environmentally friendly routes, ensuring compliance with regulatory standards. Additionally, we developed a convolutional neural network to monitor ocean conditions and predict ambient weather phenomena in real time," explains Chadjiefthymiadis.

The EO4EU project has made an invaluable contribution to FAIRifying EO data with its one-stop shop that [facilitates finding, accessing and reusing EO data and analyses](#). It will significantly contribute to advancing environmental knowledge at local and EU levels.

PROJECT

EO4EU - AI-augmented ecosystem for Earth Observation data accessibility with Extended reality User Interfaces for Service and data exploitation.

COORDINATED BY

National & Kapodistrian University of Athens
in Greece

FUNDED UNDER

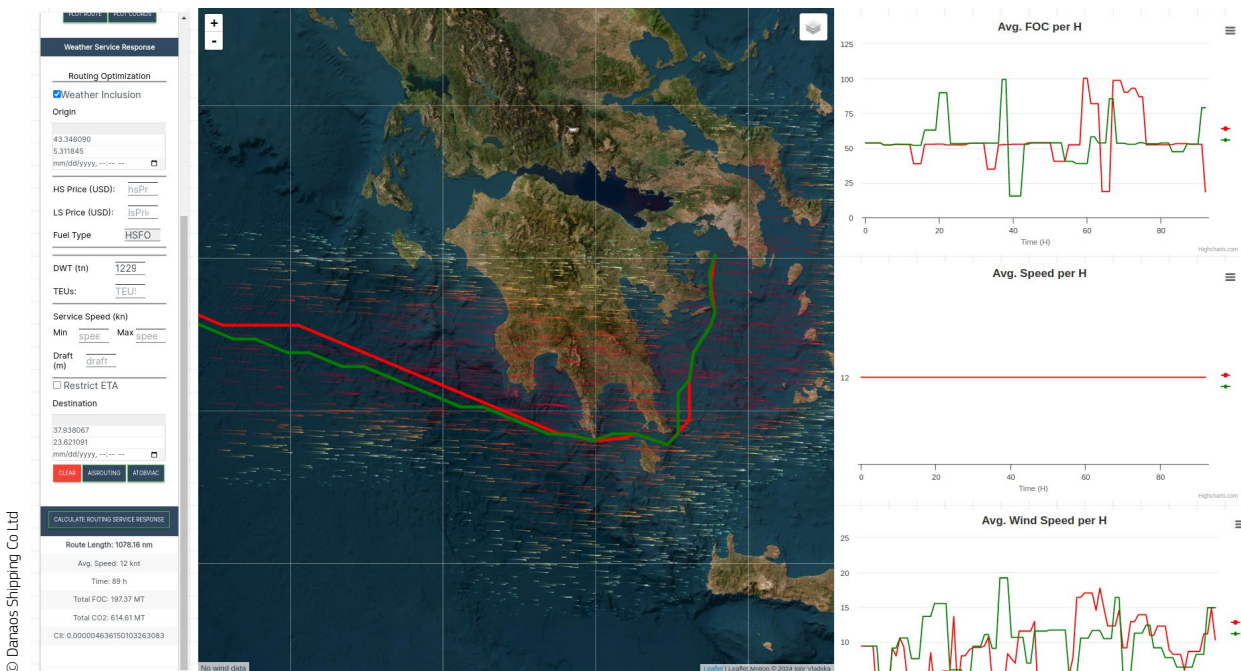
Horizon Europe – Food, Bioeconomy, Natural Resources, Agriculture and Environment

CORDIS FACTSHEET

cordis.europa.eu/project/id/101060784

PROJECT WEBSITE

eo4eu.eu/



Cloud-based platform simplifies access to Earth observation data for everyone

Earth observation offers vast datasets crucial for informed decisions in fields like climate adaptation and land use planning. However, fragmented data and lack of seamless connection limit its impact. The EU-funded FAIRiCUBE project addresses these challenges through a cohesive framework, centralising data access and processing for improved collaboration and usability.

The exponential growth of (Earth and) Environmental observation data demands innovative solutions to access and utilise it more effectively. Simply downloading and processing this vast volume on limited local resources is inefficient and conflicts with modern big data philosophies. Persistent challenges, such as identifying, accessing and making full use of these datasets, diminish their potential impact.

The EU-funded [FAIRiCUBE project](#) addresses these issues by opening gridded data and algorithms to a broader audience, extending access beyond traditional Earth observation communities. Its mission is to facilitate the findable, accessible, interoperable, reusable (FAIR) and TRUSTable sharing of data. To this end, researchers are developing the [FAIRiCUBE HUB](#) – a crosscutting platform designed for data ingestion, provision, analysis, processing and dissemination. To showcase how the HUB helps to tackle these issues FAIRiCUBE crafted five use cases (some are urban adaptation to climate change and biodiversity and agriculture nexus), focusing on various dimensions of the European Green Deal (EGD) priority actions.

Breaking down data silos and enhancing decision-making

“Our core innovation, the FAIRiCUBE HUB, seamlessly brings together diverse Environmental Observation datasets and data science workflows, empowering you to effortlessly access, analyse, and visualise critical information,” notes Stefan Jetschny, project coordinator. Combining state-of-the-art data science tools and workflows, geospatial data cubes and machine learning applications, the Hub simplifies complex analyses and processing steps, cutting down the need for technical customisation. Shared workflows and scripts of the existing use cases document the potential and usability of the Hub for future users like researchers and data scientists.



Our core innovation, the FAIRiCUBE HUB, acts as a centralised working space that consolidates fragmented EO datasets and data science workflows, making it easier for users to quickly access, analyse, visualise and exploit relevant information.

The cloud-based infrastructure enables scalable and manageable resources and decision-ready information, offering actionable insights tailored for decision-making. Customisable interactive dashboards and visualisation tools help users to effectively present findings, making the platform invaluable for policymakers, journalists, researchers and non-governmental organisation alike.

Overcoming obstacles to climate and environmental data management

“Datacubes, which organise large datasets across space and time, are vital for environmental science. However, their size, complexity, completeness and inconsistency often lead to challenges which restrict machine learning applications,” explains Kathi Schleidt, FAIRiCUBE technical coordinator.

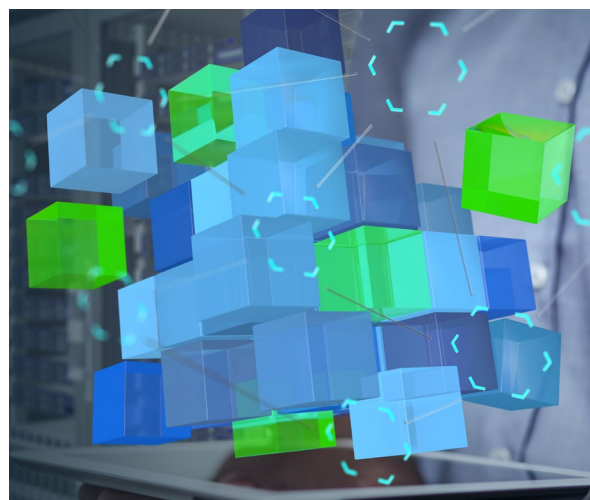
“FAIRiCUBE addresses these challenges by developing distributed machine learning techniques tailored to datacubes. These methods efficiently process complex datasets, reconstruct missing data through gap-filling and enhance downscaling precision.”

Fragmented geospatial data catalogues add another layer of difficulty, complicating data discovery, access and use. FAIRiCUBE showcases with its own data catalogue how users can benefit from improved meta data description and thereby standardised and harmonised FAIR data.

Finally, researchers from different fields and background contribute to the FAIRiCUBE knowledge base – a common library that describes how the FAIRiCUBE HUB solves complex research questions using state of the art data processing and machine learning algorithms to analyse complex datasets.

Innovative data tool users

FAIRiCUBE is working on business models to make available the FAIRiCUBE Hub to non-technical users and industry professionals in fields such as agriculture, biodiversity and urban infrastructure to access tailored Earth observation data solutions that optimise operational planning and decision-making. “Service providers could leverage its centralised datasets and pre-built



© vegefox.com/stockadobe.com

analytical tools to enhance workflows and client delivery,” outlines Jetschny. “The Hub could also benefit eco bureaus in conducting environmental assessments, ensuring regulatory compliance and ecological monitoring, while policy analysts could leverage processed data for evidence-based recommendations.”

For indirect users like urban planners and non-governmental organisations, the Hub can deliver decision-ready information. “City administrators and regional planners could gain geospatial insights to drive urban planning and sustainable development initiatives. For policymakers, the Hub delivers actionable data to shape climate risk strategies and environmental policies,” concludes Jetschny and Schleidt.

PROJECT

FAIRiCUBE – F.A.I.R. information cube

COORDINATED BY

Stiftelsen Nilu in Norway

FUNDED UNDER

Horizon Europe – Food, Bioeconomy, Natural Resources, Agriculture and Environment

CORDIS FACTSHEET

cordis.europa.eu/project/id/101059238

PROJECT WEBSITE

faircube.nilu.no/



European ‘Green Deal Data Space’: data sets and services, use cases and governance

Targeted research laid strong foundations for deployment of the European Green Deal Data Space, an environmental-data-sharing ecosystem supporting Green Deal goals.

The European Green Deal is a roadmap towards making the EU a climate-neutral continent. Since its adoption in December 2019, the plan has evolved into various multidisciplinary policies and strategies. Successful achievement of goals will require multidisciplinary teamwork relying on tremendous amounts of accurate historical and real-time environmental data.

As a coordination and support action, the EU-funded [GREAT](#) project conducted research and paved the way to deployment of the European ‘Green Deal Data Space’. The Green Deal Data Space will bring together fragmented environmental data into a single data ecosystem to support forecasting, setting targets and monitoring progress towards Green Deal environmental goals.

Establishing a ‘community of practice’ and governance scheme

One of GREAT’s most consequential outcomes was the creation of a vibrant user community via a highly successful engagement campaign including social media, consultations, workshops and stakeholder fora. According to project coordinator Nevena Raczko of [IDC](#): “GREAT identified and engaged key stakeholders already using or interested in using data to tackle major environmental challenges including businesses, government

bodies, researchers and citizen scientists. We reached over 600 stakeholders directly and gained more than 1 600 followers on LinkedIn and other channels.”

In-depth analysis also identified 69 governance characteristics necessary for establishing a well-structured, transparent, and inclusive governance framework for the data space. These attributes address key considerations such as data sovereignty, interoperability, and stakeholder inclusivity, and lay the groundwork for a sustainable and operational governance model.

Key data spaces and use cases

GREAT identified and catalogued 94 specific datasets and 406 Green Deal-related services that could play a critical role in enabling data-driven solutions. They cover essential areas including energy, agriculture, smart cities, mobility, water and the EU’s ‘Digital Product Passport’.

“GREAT also identified 16 reference use cases, each demonstrating how data integration and collaboration can drive sustainable and impactful solutions. These use cases span a range of themes, including hydrology, circular economy, zero pollution, biodiversity, and climate change adaptation,” Raczko adds. For example, one focused on long-term trends in global freshwater resources, providing critical insights for addressing water scarcity and climate

change effects. Another fostered collaboration among municipalities to create data-driven climate policies.

“Our website and comprehensive repository of data services, datasets, and use cases open the door to previously unexplored areas and create opportunities for innovation and interdisciplinary research,” Raczko summarises.

Building global momentum

GREAT was invited to present its project goals and plans at the COP27 (the 27th Conference of the Parties to the United Nations Framework



Our website and comprehensive repository of data services, datasets, and use cases open the door to previously unexplored areas and create opportunities for innovation and interdisciplinary research.

Convention on Climate Change). It also presented the Green Deal Data Space at the American Geophysical Union – where representatives from NASA and other key organisations were present – and by request to the research community at the eResearch Australasia Conference.

Online participation in the [BELLA hackathon](#) to empower Copernicus data use in Latin America, the Caribbean and Europe further extended reach beyond Europe.

“Our short 18-month project, with a budget of EUR 2million divided among 14 partners, had a very broad scope. These achievements highlight the remarkable progress we’ve made,” Raczko concludes. “The Green Deal’s goals have global relevance. Providing integrated access to



© NDABCREATIVITY/stock.adobe.com

diverse datasets and services, the Green Deal Data Space will enable cross-disciplinary collaboration and foster the innovative solutions needed to tackle the world's complex environmental and societal problems.”

PROJECT

**GREAT - The Green Deal Data Space Foundation
and its Community of Practice**

COORDINATED BY

IDC in Italy

FUNDED UNDER

Digital Europe

PROJECT WEBSITE

greatproject.eu/



Easy monitoring of Earth's biophysical indicators at multiple scales

New FAIR-compliant use cases and detailed mapping making best use of Earth world-class data, with easily accessible and customisable maps and graphics.

Artificial satellites have multiplied exponentially, providing invaluable scientific data about the changing state of our planet. The EU-funded [OEMC](#) project is leveraging digitalisation, collaboration and open access to exploit these data with a FAIR-compliant scalable cyberinfrastructure. It assimilates the highest quality data and outputs and facilitates visualisations via a [web-GIS app](#).

Co-development and open-source code for Earth monitoring

"OEMC embraces the use and extension of open-source software, open reproducible procedures and data sharing," says project principal investigator Tom Hengl, director at [OpenGeoHub Foundation](#). It builds on several existing platforms – most importantly openEO, OpenLandMap, Copernicus Data Space Ecosystem and data from the European Environmental Agency. Users can improve existing data and services and develop their own. Visualisations and dashboards will be made for users that they can quickly deploy and improve.

In addition, the team has produced several new data sets. For example, land degradation hot spots can be identified from a [monthly time series](#) of global images from 2000 to 2022 as part of OEMC's land degradation neutrality monitor supporting the United Nations' Convention to Combat Desertification.

Five-metre resolution images resulting from data fusion of Sentinel and Norway's International Climate and Forests Initiative (NICFI) data were used to map [drivers of deforestation across Africa](#). OEMC also developed a computational framework employed to [produce](#) cloud-free, bi-monthly aggregated, global Landsat composites for 1997–2022 at 30-metre resolution with applications including land cover analysis and crop-type mapping.

"All code is publicly available on GitHub allowing anyone to extend and improve it," Hengl says.

Pilot use cases at global, European and national scales

OEMC currently has more than 20 monitors such as the 'World drought monitor', 'EU biodiversity monitor' and 'Tropical deforestation monitor' (Ethiopia). They cover global, European and national scales. Each monitor has a designated leader and at least one stakeholder organisation, including political organisations, NGOs and SMEs. "Users are at the centre of monitors' design, and applications are often developed in close collaboration," Hengl notes.

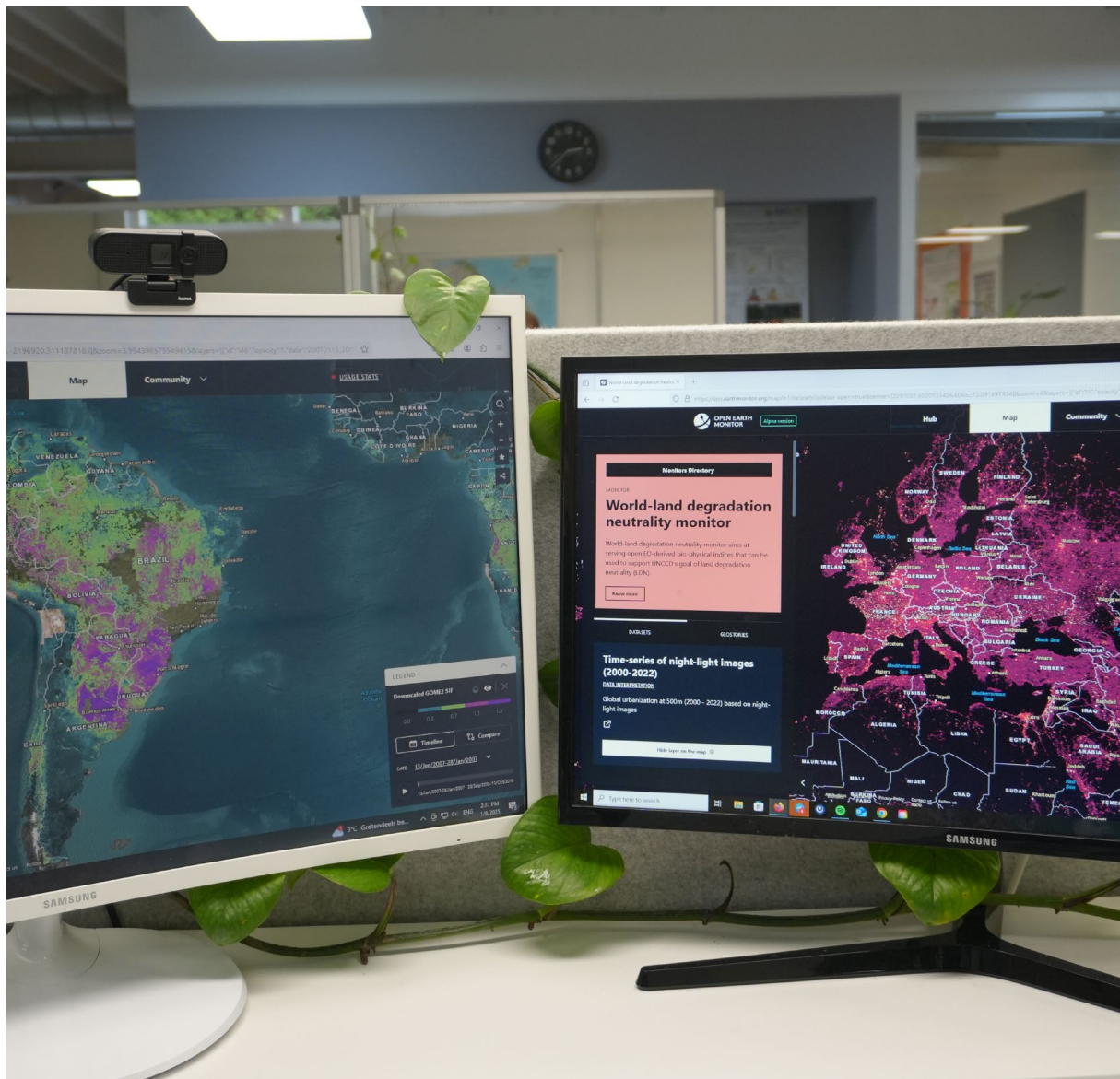
The monitors have one or more associated datasets and one or more geostories (pilot use cases), some relying on the integration of two or more monitors. So far, there are 30 geostories for the over 20 monitors, and the number is growing. For example, the 'Air quality during COVID-19

(Europe)' geostory utilises the 'EU-air quality monitor'. The project runs until May 2026. The team is currently uploading use cases to the [GEO's Knowledge Hub](#). About 80 % of the project's outputs will be released in 2025 and widely promoted at the European Geosciences Union General Assembly, the Living Planet Symposium, the Group on Earth Observations Global Forum and OEMC's global workshop in Belgrade.

The ultimate goal of OEMC is to produce tools that can be seamlessly used by citizens regardless of their technical or scientific backgrounds.

Putting Earth monitoring tools in citizens' hands

"The ultimate goal of OEMC is to produce tools that can be seamlessly used by citizens regardless of their technical or scientific backgrounds," emphasises Hengl. Users can quickly and easily find a monitor and associated use case through the Map tab of the [web-GIS app](#) and access and download the data from Zenodo.



© OpenGeoHub Foundation

Hengl adds: "Modern open-source solutions for analysis and visualisation of geospatial data can be used for decision making to save human lives or to enable everyone's access regardless of their budget. Thanks to cloud-optimised solutions for geospatial data such as cloud-optimised GeoTiff and Zarr, you can analyse whole-world data on your laptop!"

The platform accelerates the uptake and use of environmental information by policy makers and scientists, and ultimately every citizen, building European and global communities inspired by common goals.

PROJECT

**OEMC - Open-Earth-Monitor
Cyberinfrastructure**

COORDINATED BY

OpenGeoHub in the Netherlands

FUNDED UNDER

Horizon Europe – Food, Bioeconomy Natural
Resources, Agriculture and Environment

CORDIS FACTSHEET

cordis.europa.eu/project/id/101059548

PROJECT WEBSITE

earthmonitor.org/



Data-driven cities could help tackle climate change

An EU-funded project offers solutions and tools to make environmental and climate data accessible, focusing on areas where the effects of climate change are most strongly felt – cities.

The EU-funded [USAGE](#) project, which is supported by the EU, is all about helping cities make better choices to be friendly to our planet. It focuses on important topics like climate change, keeping our air clean, and protecting plants and animals. By using special data that is easy to find, share, and use, it helps city leaders understand how to solve these problems.



We want to help smaller cities in Europe by giving them tools to work on the Green Deal.

“We want to help smaller cities in Europe by giving them tools to work on the Green Deal,” says Oscar Corcho, who leads the project. “These tools help cities gather and use data in smart ways, so they can make good decisions that help the environment and plan for the future.”

They are trying out their ideas in four different cities: Ferrara in Italy, Zaragoza in Spain, Leuven in Belgium, and Graz in Austria. Each city has its own unique challenges, like dealing with heat, preventing floods, cleaning the air, and taking care of nature.

understand the environment better. For example, the data captured in these flights allows checking hot areas inside the cities. They can also help figure out what kinds of trees are in a place and how healthy they are.

Satellites give a bigger view of cities to help monitor different issues. They can find places that are too hot and suggest where to make it cooler. These tools can also help cities choose the best spots for plants and solar panels.

Organising and sharing data

USAGE has made a special online catalogue that helps cities keep track of all their important information. This catalogue helps cities manage their data and follow rules for sharing it. It also makes sure that everything is ready for new technologies like AI.

Using data to build better cities

Cities are key to solving many problems we face today with the economy, the environment, and society. To do this, they need to use data to create smart plans, like Local Green Deals, which are ways to improve the environment. By using solid data, cities can make choices that really help change things for the better.

Using cool technology to help the environment

The USAGE project uses advanced tools to gather important information about cities.

Images taken from specialised flights are really helpful because they take detailed pictures and help scientists

“We want to help city leaders, workers, and everyday people learn how to use this information,” says Corcho. “By using



© mbruxellia stock.adobe.com

what we learned from the USAGE project, we can give them the training and tools they need to make positive changes in their cities!"

PROJECT

USAGE - Urban Data Spaces for Green dEal

COORDINATED BY

OpenGeoHub in the Netherlands

FUNDED UNDER

Horizon Europe – Food, Bioeconomy Natural Resources, Agriculture and Environment

CORDIS FACTSHEET

cordis.europa.eu/project/id/101059950



CORDIS Results Pack

Available online in six language versions: cordis.europa.eu/article/id/457157



Published

on behalf of the European Commission by CORDIS at the
Publications Office of the European Union
L-2985 Luxembourg
LUXEMBOURG

cordis@publications.europa.eu

Disclaimer

Online project information and links published in the current issue of the CORDIS Results Pack are correct when the publication goes to press. The Publications Office cannot be held responsible for information which is out of date or websites that are no longer live. Neither the Publications Office nor any person acting on its behalf is responsible for the use that may be made of the information contained in this publication or for any errors that may remain in the texts, despite the care taken in preparing them.

The technologies presented in this publication may be covered by intellectual property rights.

This Results Pack is a collaboration between CORDIS and the European Research Executive Agency (REA).

Print ISBN 978-92-78-44767-0 ISSN 2599-8285 doi:10.2830/7575230 OA-01-25-021-EN-C

PDF ISBN 978-92-78-44766-3 ISSN 2599-8293 doi:10.2830/7540868 OA-01-25-021-EN-N

Luxembourg: Publications Office of the European Union, 2025

© European Union, 2025



The reuse policy of European Commission documents is implemented by Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39, ELI: <http://data.europa.eu/eli/dec/2011/833/oj>).

Unless otherwise noted, the reuse of this document is authorised under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence (<https://creativecommons.org/licenses/by/4.0/>).

This means that reuse is allowed provided appropriate credit is given and any changes are indicated.

Cover photo: © European Union, 2025

For any use or reproduction of elements that are not owned by the European Union, permission may need to be sought directly from the respective rightholders.

RESULTS PACK ON EVOLUTION OF COPERNICUS SERVICES

Copernicus uses satellites and ground-based, airborne and seaborne sensors to provide continuous, detailed environmental data. This CORDIS Results Pack highlights 10 EU-funded projects that are helping Copernicus meet the emerging needs of researchers, policymakers, and the general public.



Check out the pack here:
cordis.europa.eu/article/id/454770



Publications Office
of the European Union



Follow us on social media too!
facebook.com/EUresearchResults
x.com/CORDIS_EU
youtube.com/CORDISdotEU
instagram.com/eu_science

EN