Disasters and One Health Action Group

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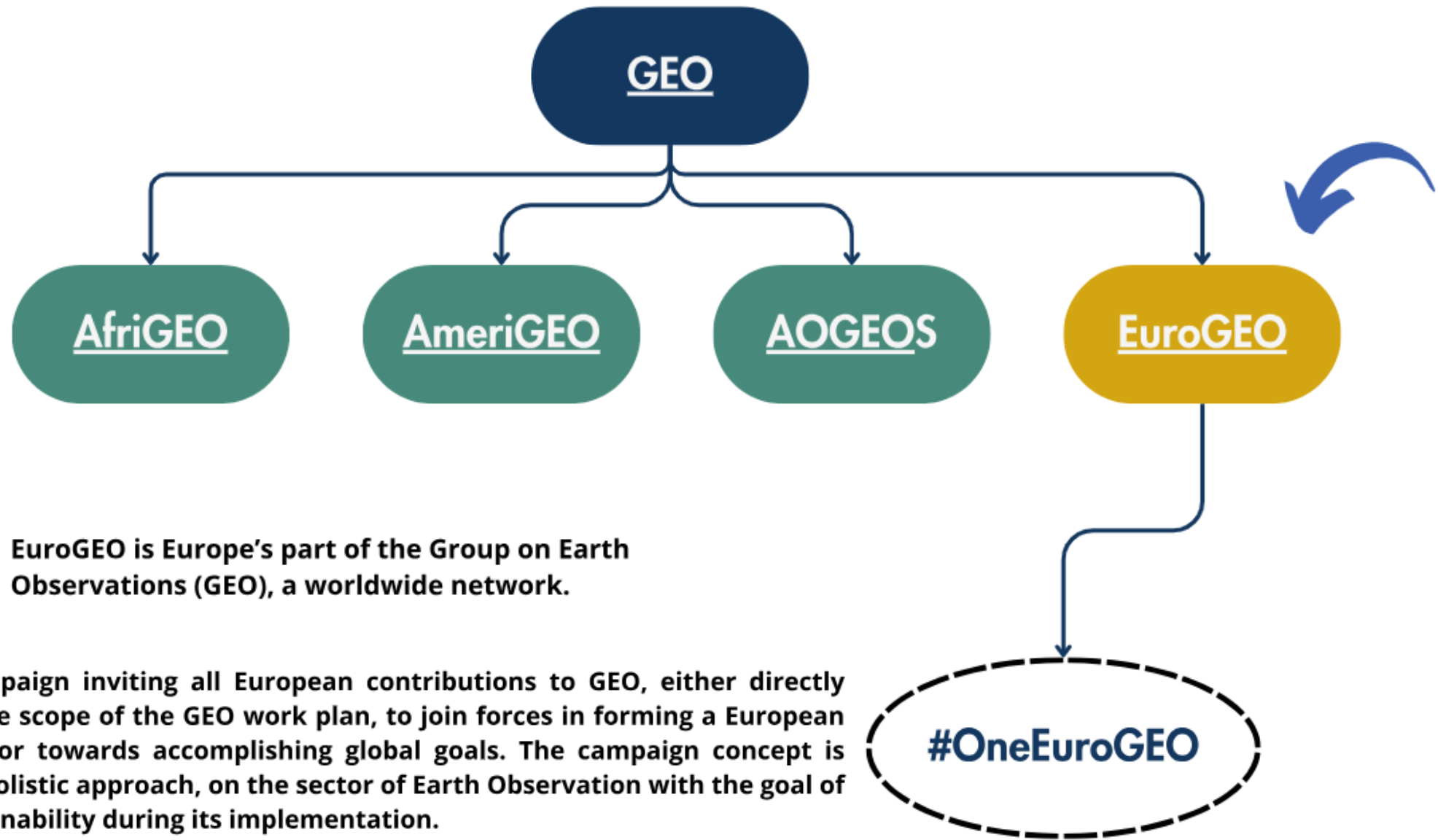
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National Observatory of Athens (NOA) / IAASARS / BEYOND

Paris, 24 September 2025

EuroGEO:
Combine
Coordinate
Cooperate

GEO

AfriGEO   AmeriGEO   AOGEOS   EuroGEO

EuroGEO is Europe's part of the Group on Earth Observations (GEO), a worldwide network.

The #OneEuroGEO is a campaign inviting all European contributions to GEO, either directly committed or relevant to the scope of the GEO work plan, to join forces in forming a European community for the EO sector towards accomplishing global goals. The campaign concept is based on the principle of a holistic approach, on the sector of Earth Observation with the goal of creating and retaining sustainability during its implementation.
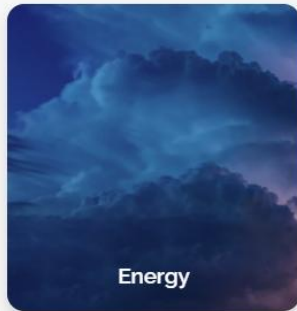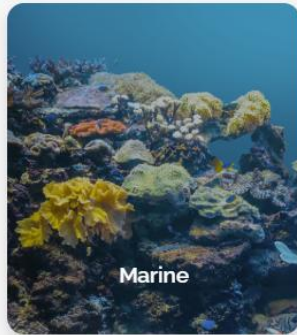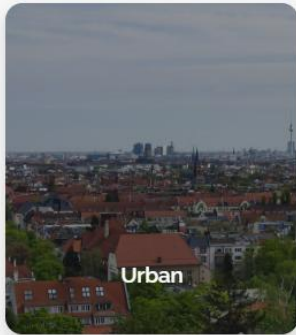
#OneEuroGEO

EuroGEO

EuroGEO:
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EuroGEO focuses on the following strategic actions:

✓ **Engaging with a broad range of users/co-designers in Europe & GEO** for identifying priorities for integrated and interconnected Earth Intelligence; build on EU assets, Data Spaces and Copernicus; contribute/implement the EO SRIA; support Copernicus evolution; address all EU/global policies in areas of AGs and GEO Focus Areas;

✓ **Development, downscaling, and real world operationalization of EU innovation in EO and Eint solutions, user upskilling and commercialization of Copernicus and EE assets** across the world, also through streamlining innovation available at national or sub-national levels;

✓ **Connecting European EO research, academia, service providers, economic sectors, Entrusted Entities, users, policy makers, managers and regulators** to allow mutual learning and spreading of good practices and successful business models across Europe and beyond;

✓ **Design of a EU digital ecosystem** building on CDSE, DestinE, EU Data Spaces, that supports evidence-based decisions for the Green and Digital Transition leaving no one behind;

✓ **Supporting the consolidation of national GEO management structures** across Europe;

✓ **Capacity Building in Europe and Regions** in collaboration with DG-INTPA and Regional GEO structures.

EuroGEO

#OneEuroGEO

EuroGEO Action Groups

Agriculture

Land Cover and Land Intelligence

Disasters and health

Biodiversity, ecosystems & geodiversity

Urban

Marine

Climate

Green Deal Data Spaces

Energy

Action Groups are voluntary bottom-up groups that are overseen by the EuroGEO Coordination Group, to either develop the selected EuroGEO application pilots or conduct other actions foreseen in the EuroGEO roadmap. These groups comprise representatives identified by the supporting Caucus' members depending on the relevance of their activities. Action Groups report to the Coordination Group and, when appropriate, directly to the GEO High Level Working Group.

✓ **Representation**: Public Entities including Res&Academ (58%), Industry (30%) and Copernicus Entrusted Entities (12%);

✓ **Engaged** in EU flagship projects and initiatives e.g. **e-shape, EuroGEO Sec CSA, ERA-PLANET**, **eLTER, HARMONIA**, **EIFFEL, ILIAD, EYWA, GEO-CRADLE**

✓ **Joint actions with JRC/KCEO** towards

(i) Survey of SoA capacities at AG level – so-called **Expert Studies**
(ii) Strategic Roadmap for AG implementation Plan contributing to EO SRIA and Copernicus Evolution

EuroGEO

https://eurogeosec.eu

Funded by the European Union

EuroGEO Action Group Disaster Resilience & Health

Disaster Resilience and Health

The Disaster Resilience and Health Action Group aims to contribute to sustainable development by integrating Earth Observations into user-oriented and co-designed services addressing climate-induced disasters and health issues. The group provides success stories from EuroGEO-supported initiatives like e-shape, the Disasters and Health Action Groups, and GEO-CRADLE initiatives.

- ✓ Overarching goal/ambition is to address **Climate Change** induced and **Anthropogenic disasters**

- ✓ **Enhance Early Warning, preparedness and the resilience** of the nexus of **biodiversity, ecosystems, water resources, air quality, civilians and cities, health systems and sectors (energy, tourism, transport, industrial facilities, insurance)** against the **extreme weather** (drought, heatwaves, floods, storms) accounting also for climatic/seasonal scales, **geohazards** and **human induced** disturbances and **disease outbreaks**

EuroGEO Action Group Disaster Resilience & Health

State-of-the-art and post 2025 AG Implementation Plan

✓ **Prototyping, scaling up, promotion and operationalization** of sector-target, scalable, and spatially/ temporally fine downstream EInt applications:

- ▪ **Leverage capacities**, needs, and SoA of GEO/Copernicus and promote **"public-private" EInt**
- ▪ **Deliver AI / GenAI cloud-native "plug-and-play" EInt** platforms; Upload AAS on DestinE/CDSE
- ▪ **Build on bias adjustments and robust downscaling** of Copernicus C3S and CAMS for finer and more accurate seasonal and local scale warnings/alerts

✓ **Multilateral co-design** cultures/methodologies building one-size-fits-all EInt for disaster management

✓ **Address shortcomings and operational limitations of Copernicus – EInt entering the Copernicus evolution era**

- ▪ **Seamless AI/GEN AI** based data augmentation/fusion/integration; **data driven** building on the EU Data Space, AG GreenDeal Data Spaces, ESFRIs, Copernicus Hubs, and new satellite missions (EarthCare, Chime, etc); **scale site agnostic** early warning systems and disaster predictive model accuracy at fine scale.
- ▪ **Trustworthy EO systems** for minimizing the impact from climate and anthropogenic disasters; **AI/GEN AI textual predictions** and policy recommendations

EuroGEO Action Group Disaster Resilience & Health

✓ **Weather-Induced Extremes Digital Twin** (Extremes DT) based services on 24/7 basis;

✓ **Transnational Early Warning** and alert systems through cross-border collaboration & coordination;

✓ **Fine multiple risk assessment** building on anthropogenic and climate (bias adjusted) seasonal anomalies in a multi-sector socio-economic environment;

✓ **AI/GEN AI empowering** recommendations for response, resource allocation and evacuation;

✓ **Integrated cybersecurity and resilience** of EO infrastructures and services for 24/7 sustainability;

✓ **Nature Based Solutions (NBS)** for combined climate adaptation and disaster mitigation;

✓ **Climate neutrality and climate impact minimization** at city level and civil protection through disatser driven urban planning;

✓ **Strategic private sector and investors active involvement** in the AG consultation/co-design sessions, together with EE, for Eint procurement/commercialization; Use Public-private collaboration models and procurement instruments from engaged EC, EEs, and Private Funds; Launch business uptake and "sustainability booster" programs;

✓ **Leverage Copernicus, GEO WP, UN and DG-INTPA active involvement** in the AG to ensure worldwide Capacity Building and User Driven Uptake (e.g. building upon GEO-CRADLE enabling mechanism).

https://eurogeosec.eu

Funded by the European Union

EuroGEO in the support of One Health Sector

Disasters, Climate & Health Action Group

Policy & Sector Support

Based on OneHealth mandate, the AG ensures collective collaboration between EC, HADEA, ECDC, EIC, DestinE, and numerous stakeholders as Health practitioners, Veterinarians, Biologists, Hospitals, National Health Laboratories, Industry and Pharmaceuticals, Research and Academia (Medicine Schools), and IT sector

Showcases Maturity TRL 7-9

EWS, anthropogenic, climate and atmospheric predictions and impact of disturbances - **Vector** - **Water** & **Infectious** diseases – Exposure to Heat Stress and CO, Cardiovascular and Respiratory Diseases due to air pollution

Prioritize areas at risk – door-to-door actions - mitigation actions

Maturity Assessment building on GEO-CRADLE GEO Enabling Mechanism

Technology and Capacity Building Support

Build Global Data Spaces (entomological, epidemiological, environmental, meteo, climate, biodiversity, water and air quality)

Engage a large AI/ GEN AI community to advance epidemiological disease outbreak risks

Scalable EWS solutions serving operationally key stakeholders in EU, Africa, Asia, Latin America – **Serving > 15000 municipalities and 40M people**

Capacity building of stakeholders

Visit the website for more

EYWA
Early Warning System for Mosquito Borne Diseases

Disasters and health

15 Partners | 5 Countries

Greece

National Observatory of Athens (NOA) – BEYOND Centre of EO Research & Satellite Remote Sensing

Ecodevelopment S.A

University of Patras – Physics Department - Laboratory of Atmospheric Physics (LapUP)

Dimitrios Vallianatos (IDCOM)

Aristotle University of Thessaloniki

University of Thessaly, Medical School. Laboratory of Hygiene and Epidemiology

Italy

Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe)

Edmund Mach Foundation

University of Trento

Serbia

University of "Novi Sad", Faculty of Agriculture, Laboratory for Medical and Veterinary Entomology

Scientific Veterinary Institute "Novi Sad"

University of Novi Sad, Faculty of Medicine

Germany

German Mosquito Control Association (KABS)

Bernhard Nocht Institute for Tropical Medicine

France

EID Méditerranée

EARLY WARNING FOR EPIDEMICS

Prize Winner Project EYWA

European Commission

EARLY WARNING FOR EPIDEMICS

PRIZE WINNER Project EYWA

What is the EIC Horizon Prize on Early Warning for Epidemics?

Every year, more than **1 billion people** suffer from **vector-borne diseases** such as malaria, dengue, zika or yellow fever. These diseases are caused by viruses, bacteria and parasites transmitted via living organisms such as insects, and account for more than **17%** of all infectious illnesses. Globalisation of travel and trade, unplanned urbanisation and environmental challenges such as climate change significantly contribute to their spread.

In April 2018, the European Commission launched a **€5 million prize** for an **early warning system for epidemics**. It was one of six European Innovation Council (EIC) Horizon Prizes, which were part of the EIC pilot run under the **Horizon 2020** European Research & Innovation programme.

The prize rewards the development of a scalable, reliable and cost-effective early warning prototype system based on **Earth observation data** to forecast and monitor outbreaks of vector-borne diseases.

The winning solution provides an early warning capability to help prevent and mitigate the impact of infectious diseases on local, regional and global scales. It uses Earth observation data from Copernicus and the Global Earth Observations System of Systems (GEOSS), as well as epidemiological and other geo-located data including socioeconomic data. Climate information is also used to monitor and predict distribution and longer-term trends.

Winner of the EIC Horizon Prize on Early Warning for Epidemics

The **EarlY WArning System for Mosquito-borne Diseases (EYWA)** is a key weapon in the arsenal to fight epidemics. It transforms scientific knowledge into a decision-making tool, contributing significantly to combating and controlling the threat of mosquito-borne diseases. Stepping in the pathway drawn by the European Green Deal, the EU Strategy on adaptation to climate change and the European Climate and Health Observatory, EYWA delivers high prediction standards that are of added value to the objectives of the forementioned policies. By engaging users and decision makers in Member States, European Commission services and third countries (Brazil, India, USA, Africa), as well as in key organisations (WHO, CDC, Fiocruz, the insurance sector and trust funds), EYWA takes a huge step forward in the preparedness for pandemics worldwide and underscores the EU's pivotal role.

Research and Innovation

Early Warning System for Mosquito Borne Diseases (EYWA) system: Mosquitoes Abundance Prediction Model provided at municipality level as well as Data-driven model for Human cases' predictions using AI/ML algorithm that ranks different areas/villages according to the danger of the appearance of a human case.

Early Warning System for Mosquito Borne Diseases

Useful links:

http://beyond-eocenter.eu/index.php/web-services/eywa

https://www.youtube.com/watch?v=RNZFRNDSBVY

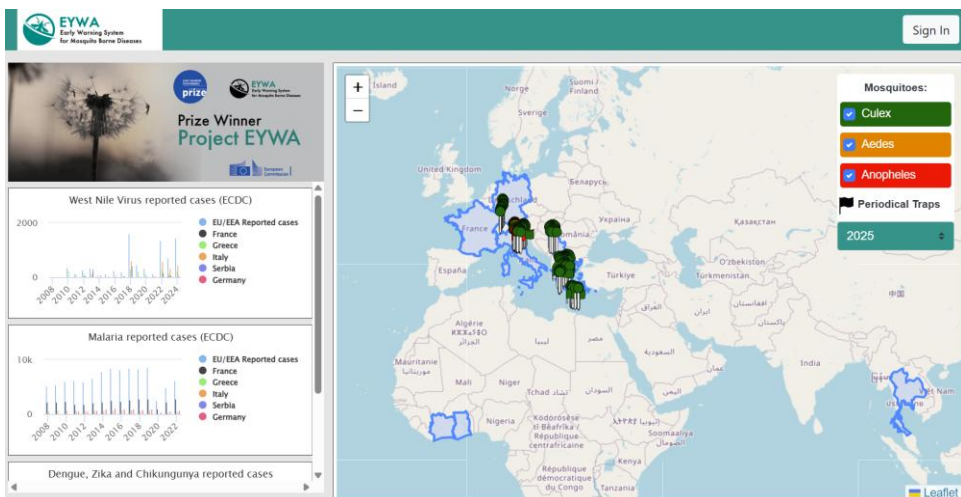https://ec.europa.eu/info/news/eic-horizon-prize-early-warning-epidemics-commission-awards-eu5-million-winning-project-2022-jan-17_en

Useful links:

https://e-shape.eu/index.php/showcases/pilot-2-4-eywa-early-warning-system-for-mosquito-borne-diseases

https://e-shape.eu/index.php/news-events/eywa-our-new-onboarded-pilot-wins-the-1st-eic-horizon-prize-on-early-warning-for-epidemics

EYWA Operational Support 2023
EYWA Pre Operational Support 2023
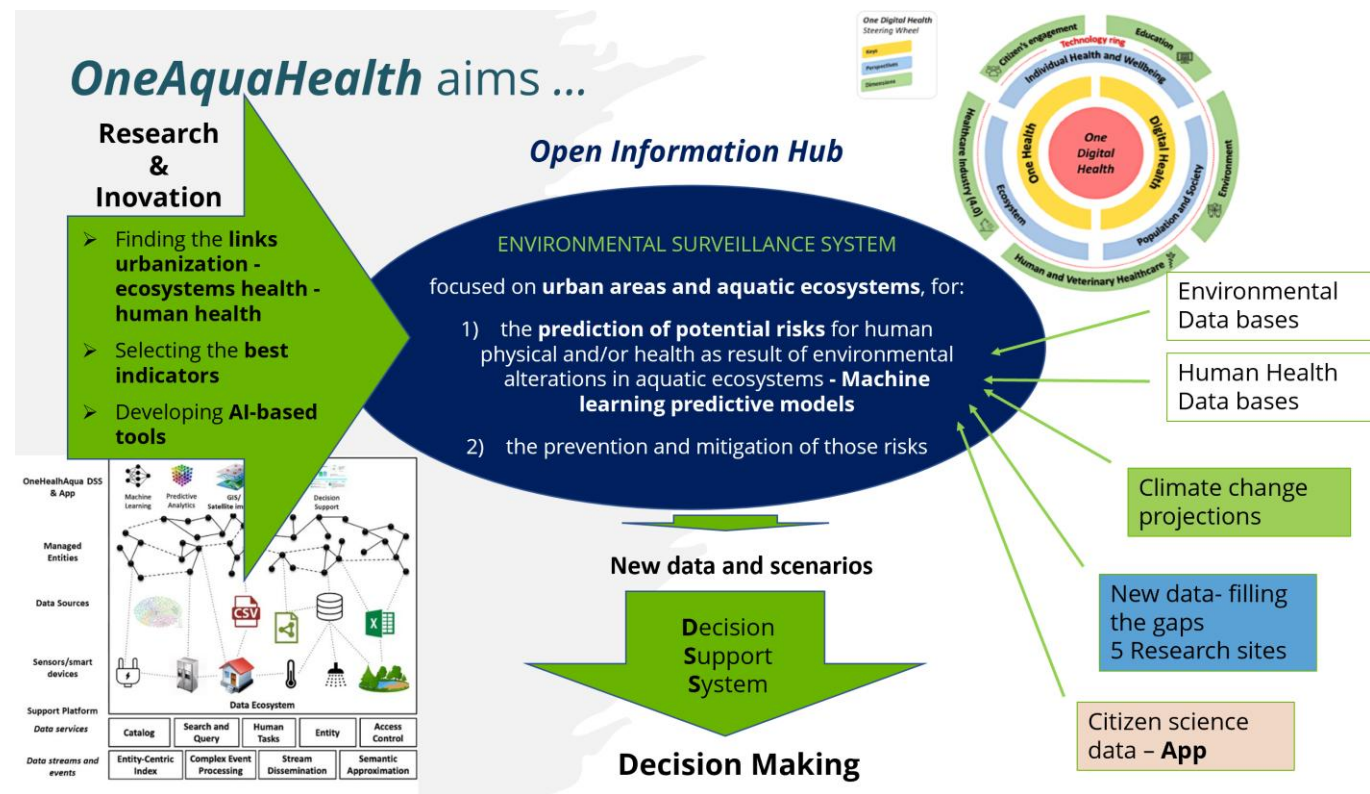EYWA potential areas of expansion

EYWA is now operational in several regions, including Abidjan in Ivory Coast; Corsica, Grand Est, and Occitanie in France; Wuerttemberg in Germany; Attica, Central Macedonia, Thessaly, East Macedonia and Thrace, and Western Greece in Greece; Veneto in Italy; and Vojvodina in Serbia. Additionally, the system will soon be deployed in the northern Sahel region of Cameroon and in Córdoba, Argentina.

Funded by the European Union

OneAquaHealth – Protecting Urban Aquatic Ecosystems

Protecting urban aquatic ecosystems to promote One Health. Improves the sustainability and integrity of urban freshwater ecosystems by investigating the **interconnection of ecosystem health and human wellbeing**, identifying early warning indicators, and enhancing environmental monitoring with AI-assisted tools to **support decision-makers in restoring aquatic ecosystems and promoting OneHealth**

13 partners, 10 countries

Portugal
France
Switzerland
Norway
Greece
Austria
Spain
Italy
Israel
Belgium

ONE AQUAHEALTH
PROTECTING URBAN
AQUATIC ECOSYSTEMS

OneAquaHealth aims …

Research & Inovation
➢ Finding the **links** urbanization - ecosystems health - human health
➢ Selecting the **best indicators**
➢ Developing **AI-based tools**

Open Information Hub

ENVIRONMENTAL SURVEILLANCE SYSTEM
focused on **urban areas and aquatic ecosystems**, for:

1) the **prediction of potential risks** for human physical and/or health as result of environmental alterations in aquatic ecosystems - **Machine learning predictive models**

2) the prevention and mitigation of those risks

New data and scenarios

Decision **S**upport **S**ystem

Decision Making

Environmental Data bases

Human Health Data bases

Climate change projections

New data- filling the gaps 5 Research sites

Citizen science data – **App**

EuroGEO AG related OneHealth Projects

E4Warning (Eco-Epidemiological Intelligence for Early Warning and response to MBD risk in Endemic and Emergence settings)

e-shape (EuroGEO Showcases: Applications Powered by Europe)

MOOD (MOnitoring Outbreaks for Disease surveillance in a data science context)

VECTORIE (Vector-borne diseases and climate change in Europe: Innovation for service improvement and capacity building)

EDENEXT (Biology and control of vector-borne infections in Europe)

H-MIP (Human-Mosquito Interaction Project), funded by European Research Council,

TRIGGER (SoluTions foR mItiGatinG climate-induced hEalth tReaths)

BlueAdapt (Reducing climate-based health risks in blue environments: Adapting to the climate change impacts on coastal pathogens)

INOVEC (research and InNOvation Partnership for enhancing the surveillance and control of mosquito VECtors of emerging arboviruses)

CLIMOS (Climate Monitoring and Decision Support Framework for Sand Fly-borne Diseases Detection and Mitigation with COst-benefit and Climate-policy MeasureS)

CATALYSE (Climate Action To Advance HeaLthY Societies in Europe)

EMPROS (Advanced Earth Observation and Information Technologies for the Early Study and Warning of Transmitted Diseases via Mosquitoes

EPIDEMOIST (Improving epidemiological modelling using satellite derived soil moisture proxies) improved presence/absence modelling of Culicoides

For more information visit EuroGEO Action Groups Expert Studies

Engagement of large and skilled EO communities

- The scientific communities in cooperation with the **IEEE-GRSS**

- The indigenous communities in cooperation with the **GEO Indigenous Alliance**

- The volunteer and societal communities in cooperation with **Humanitarian OpenStreetMap Team (HOT)**

- **UN Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)**

- **Digital Earth Africa**

- **Digital Earth Pacific**

- **ERATOSTHENES Centre of Excellence**

- The private sector: **EARSC, EDGE, Healthsites**

📅 **13-15 October 2025**

📍 **The Hague, Netherlands | World Forum The Hague**

THANK YOU!

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https://www.eurogeosec.eu

Heart Island
Greece