



European Commission



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.



Project EYWA

## 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.

**The unique solution** developed by EYWA

- Enhances mosquito surveillance and control at various spatio-temporal scales and in different climatic zones, guiding day to day prevention and mitigation actions.
- Significantly reduces the entomological risk and results in the avoidance of human cases in thousands of villages where EYWA is employed.
- Implements the [One Health](#) and [Eco Health](#) approaches by investigating arbovirus infections, while taking into account environmental and socio-economic resilience.

The technological novelty of EYWA lies in the efficient handling of multiple entomological, epidemiological, Earth Observation, crowd and ancillary geospatial data, along with dynamic and data driven models, to generate knowledge on the mosquitoes’ abundance and pathogens’ transmission. Thanks to data provided by Copernicus satellites and Copernicus Core Services, EYWA reliably depicts the dynamics of mosquito habitats and breeding sites. The system capitalises on European investments in Earth observation and cloud-based data repositories and capacities (i.e. [DIAS](#), [GEOSS](#), [NextGEOSS](#)).

**Facts and figures EYWA**

**15 EUROPEAN PARTNERS**

**1 EuroGEO Action Group**

under



**EYWA**  
Early Warning System  
for Mosquito Borne Diseases

Earth Observation for Epidemics  
of Vector-borne Diseases /  
EuroGEO Action Group



**5 European countries & 9 regions**  
**2 third countries | Côte d'Ivoire & Thailand**  
**1 Early Warning System for Mosquito-Borne Diseases**

**Fast Facts**



**Citizen awareness in high-risk areas identified by EYWA (i.e. 31,000 door-to-door visits in Central Macedonia | Greece)**



**Citizen alert to mosquito risk, through smart phones in 2,400 villages in Central Macedonia | Greece**



**Intensification of larviciding actions in at-risk villages identified by EYWA**



**Reduction of mosquito populations by approximately 50% compared to previous years**



**Measurable decrease of West Nile Virus infections and Neuroinvasive diseases in high-risk areas (i.e. 66 less villages infected in the region of Central Macedonia | Greece)**