

CyberHAB

Using data cloud services to manage harmful algae blooms

BACKGROUND

Harmful Algal Blooms (HABs) happen when toxic microalgae proliferate beyond control and take over rivers, lakes or ponds with costly environmental and socioeconomic impacts, for example: on fisheries, or on the availability of drinking water. At sea, this phenomenon causes red tides. Managing algal blooms is a challenge for local governments, environmental agencies and the people that depend on healthy water bodies for their livelihood. Despite the investment in waste management and monitoring systems, current methods and processes are still far from ideal. Ecohydros believes that new technologies and big data can pave the way for better and more efficient ways to manage harmful algal blooms.

ACHIEVEMENTS

As part of their collaboration with EOSC-hub, Ecohydros developed CyberHAB - a platform to process and analyse ecological data related to algal blooms. The CyberHAB prototype is a platform with a Jupyter Notebooks interface that integrates software components transparently and provides direct access to cloud computing resources. This platform can be used to extract information from monitoring data, converting hundreds of variables and parameters into visualizations to support decision-making.

WHICH EOSC-HUB SERVICES DID YOU USE?

CyberHAB uses Notebooks as an interface and processes analysis with the EGI Cloud Compute service. The user is able to access different data sources by selecting ranges of dates and locations. The data is stored in a cloud storage solution (Onedata, Datahub) and whenever they need to launch a new model or simulation it is deployed using PaaS Orchestrator.

WHAT MAKES YOUR PRODUCT STAND OUT? WHAT IS YOUR VALUE PROPOSITION?

CyberHAB is the first cyberinfrastructure of its kind – a versatile platform powered by cloud computing able to combine large volumes of data for the management of harmful algal blooms. Users can interact with CyberHAB in different ways, via Web or mobile interfaces. With a registered free account, users can try basic functionalities with their own data. Subscriptions give access to the full range of tools, including models to forecast scenarios or methods to generate additional data for a given case.

WHAT WAS THE VALUE OF WORKING WITHIN THE EOSC-HUB PROJECT?

CyberHAB manipulates data covering hundreds of variables that need to be treated, processed and analysed before being used in visualizations. The predictive models also require calibration. The computing demands are beyond what a standard company or a standard computer center can provide. EOSC-hub gave us a chance to overcome this barrier.



Services:

EGI Cloud Compute, PaaS
Orchestrator, Jupyter Notebooks

Output:

A working prototype of CyberHAB

EOSC Providers:



Business Partners:

