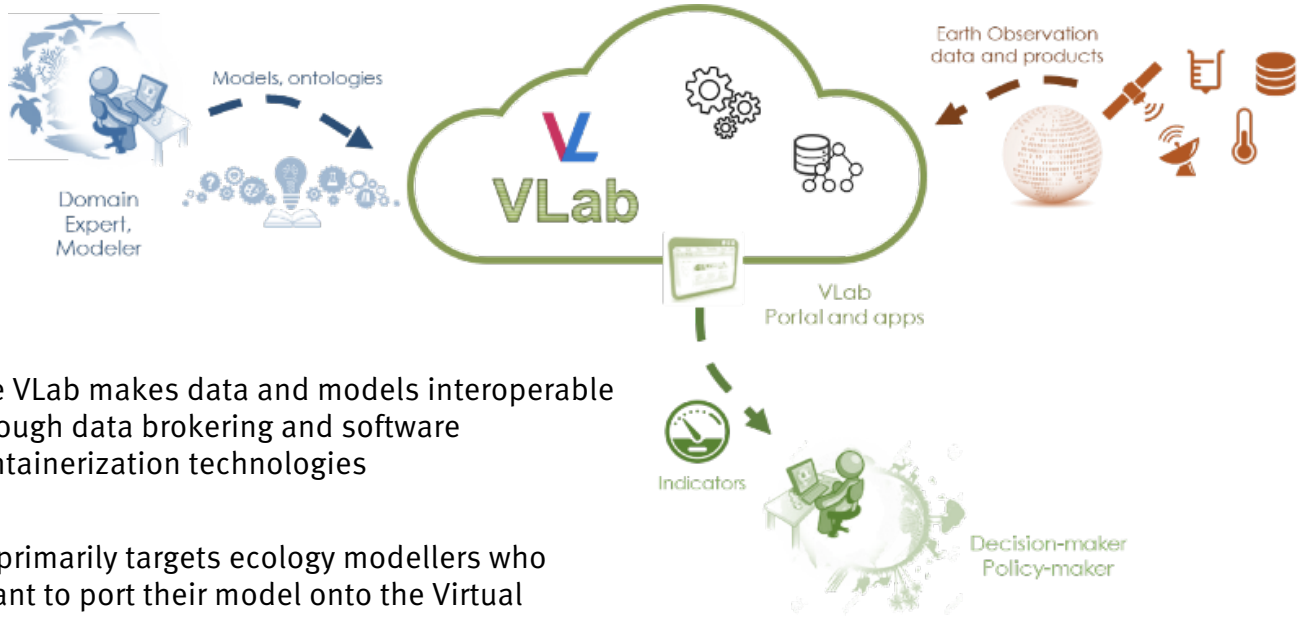
This project is funded by the European Union
(Grant agreement No. 641762)

The ECOPOTENTIAL Virtual Laboratory

https://vlab.geodab.org/

What is the ECOPOTENTIAL Virtual Laboratory?

The ECOPOTENTIAL Virtual Laboratory Platform (VLab) is a tool for facilitating the publication and invocation of scientific workflows supporting evidence-based decision-making in ecology. It allows connecting Earth Observation data and products with knowledge from experts (scientific models and workflows) for ecological studies to be used by end users such as scientists or decision-makers in protected areas.



The VLab makes data and models interoperable through data brokering and software containerization technologies

It primarily targets ecology modellers who want to port their model onto the Virtual Laboratory and hence sharing the knowledge generated in their projects.

Keywords: knowledge sharing; workflows; System of Systems; interoperability

Why a shared Virtual Laboratory?

Reliable data and sound models are the pillars for evidence-based decision-making

There is a need to support multiple programming environments and simulation frameworks for scientific model interoperability

There is a need to formalize knowledge for semantic and pragmatic data and model interoperability

How can I upload my model to the VLab? How can I get support on its use?
Contact us at mattia.santoro@cnr.it or check https://vlab.geodab.org/

Online documentation on the VLab is available at: https://confluence.geodab.eu.

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VLab technical characteristics:

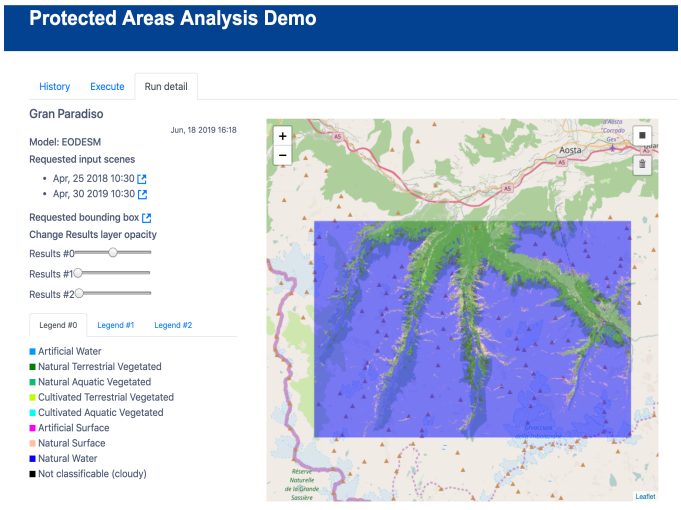
- Brokering architecture supporting a system of systems approach for data interoperability
- Many programming environments and simulation frameworks supported in the VLab: Python, R, Java, etc.
- Git and other distributed version-control systems used for storing the source code of models, and launching scripts
- Docker containers used as model execution environments
- REST APIs available at: http://vlabapi.geodab.org
- Many Cloud platforms used for running the Docker containers: European Open Science Clodud (EOSC), Copernicus DIAS, Amazon AWS

What data and models can I currently find on the ECOPOTENTIAL Vlab?
Around 20 workflows and models can be currently accessed and run with the Vlab. Some examples: EODESM for the automated classification of land cover; IRIS_SDM for the evaluation of habitat suitability; COINS for the optimal control of invasive species and many others

What is EODESM?

The Earth Observation Data for Ecosystem Monitoring **(EODESM)** system classifies land covers and changes according to the Food and Agricultural Organisation's (FAO's) Land Cover Classification System (LCCS2) taxonomy.

It is a concrete example of a sound scientific model ported on a VLab and enabling decision-making applications.



References:

- Dedicated youtube channel: https://www.youtube.com/channel/UCiZvNGjFUzns5AlYpipJfdA
- Technical Report on the Design of the ECOPOTENTIAL Virtual Laboratory: http://www.ecopotential-project.eu/images/ecopotential/documents/D10.1v2.pdf

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