Report on Deliverable 0.1

Data and Information interoperability

Creator	P. Mazzetti (CNR-IIA)
Creation date	December 12 2018
Due date	December 31 2018
Last revision date	December 19 2018
Status	Final
Type	Prototype
Description	Data and Information interoperability infrastructure including APIs
Right	Public
Language	English
Citation	Mazzetti P, Santoro M., Roncella R. Data and Information interoperability. Report on GEOEssential Deliverable D0.1
Grant agreement	ERA-PLANET No 689443

Executive Summary

The GEOEssential project is an ERA-PLANET Transnational Project aiming at addressing the need for trusted sources of data and information to monitor the progresses made on environmental conditions towards policy targets. To achieve such objective, the open and interoperable access to data and generation of knowledge is assured by an ERA-PLANET Knowledge Platform, fully integrated with GEOSS, with functionalities specifically tailored to the GEOEssential requirements.
For greater flexibility, GEOEssential adopts an agile methodology allowing rapid development in response to new requirements. It will have yearly iterations with fixed objectives for demonstration in reviews and events. On November 2018 the first release of the ERA-PLANET Knowledge Platform, has been delivered. It includes data sharing capabilities through the Discovery and Access Broker (DAB) technology, and model sharing and invocation through the Virtual Laboratory (VLab) technology. This first release has been presented in an VLab Introductory Webinar held on the 6th December 2018 and it is used for model sharing in the ERA-PLANET context for collecting feedback and requirements towards the next release.

Table of content

List of Figures

1 Introduction

The deliverable D0.1 on Data and Information interoperability is classified as Prototype. As such it is accessible online. The present document is a report about the delivery of the prototype. It includes basic information about the accessibility and status of the prototype.

2 Data and information interoperability

2.1 Approach

In the GEOEssential project, data and information interoperability is assured through the ERA-PLANET Knowledge Platform (KP) with a dedicated GEOEssential View. The deliverable D1.1 "Knowledge services architecture" details the architecture of the ERA-PLANET KP [1].
The ERA-PLANET KP is based on three major components:

1. A resource broker for mediation and harmonization of data discovery and access services
2. A cloud-based system for publication and execution of scientific workflows
3. A knowledge base that formalizes the Data to Knowledge process for informed policy-making

2.2 Current status of implementation

ERA-PLANET and consequently GEOEssential adopt an agile approach for development with multiple releases. The first major release has been achieved on November 2018. The current infrastructure implements the first two functionalities:

- The resource broker has been implemented with the Discovery and Access Broker (DAB) tool, the same adopted in GEOSS for the GEO DAB.
- The cloud-based system for publication and execution of scientific workflows has been implemented with the Virtual Laboratory (VLab) designed and developed in the context of the H2020 ECOPOTENTIAL project.

Concerning the third macro-component, the knowledge base, it will be implemented in the next development cycles.

2.3 The first release

The first release of the data and information interoperability infrastructure is accessible online through a Graphical User Interface for modelers (e.g. to publish and test models), and through an Application Programming Interface (API) for developers (modelers or application developers).

2.3.1 The Graphical User Interface for modelers

The GUI for modelers (depicted in Figure 1) is available at

https://vlab.geodab.eu

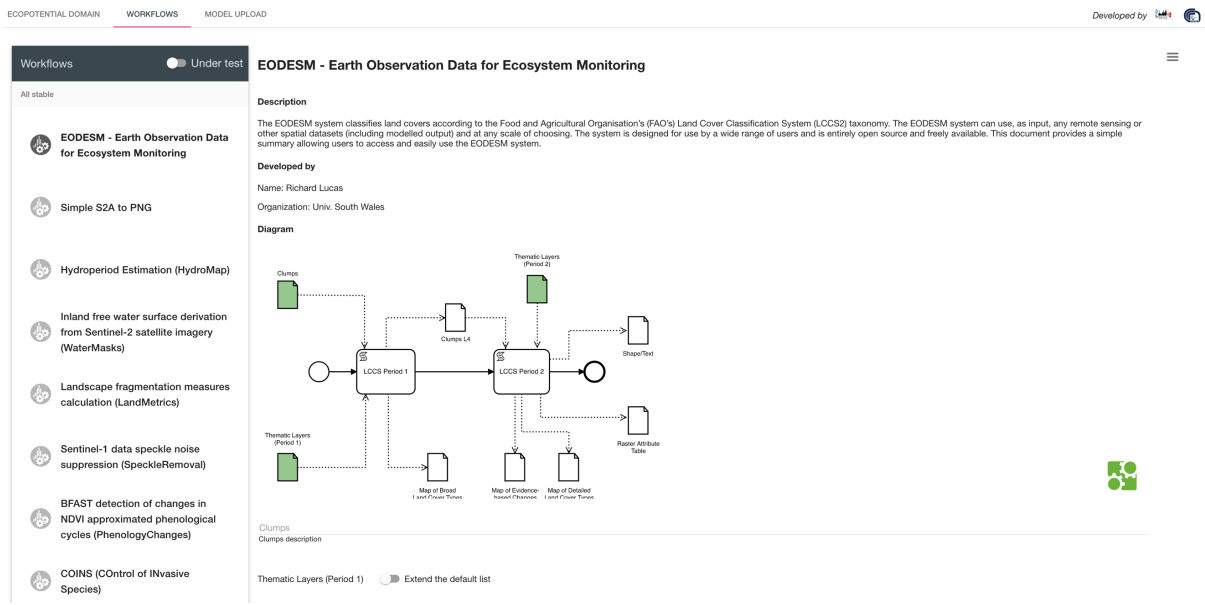

Figure 1 - Modelers GUI

2.3.2 The Application Programming Interface

VLAB publishes a set of RESTful APIs for publishing and executing models. The VLAB APIs are documented at

http://apisba.geodab.eu/

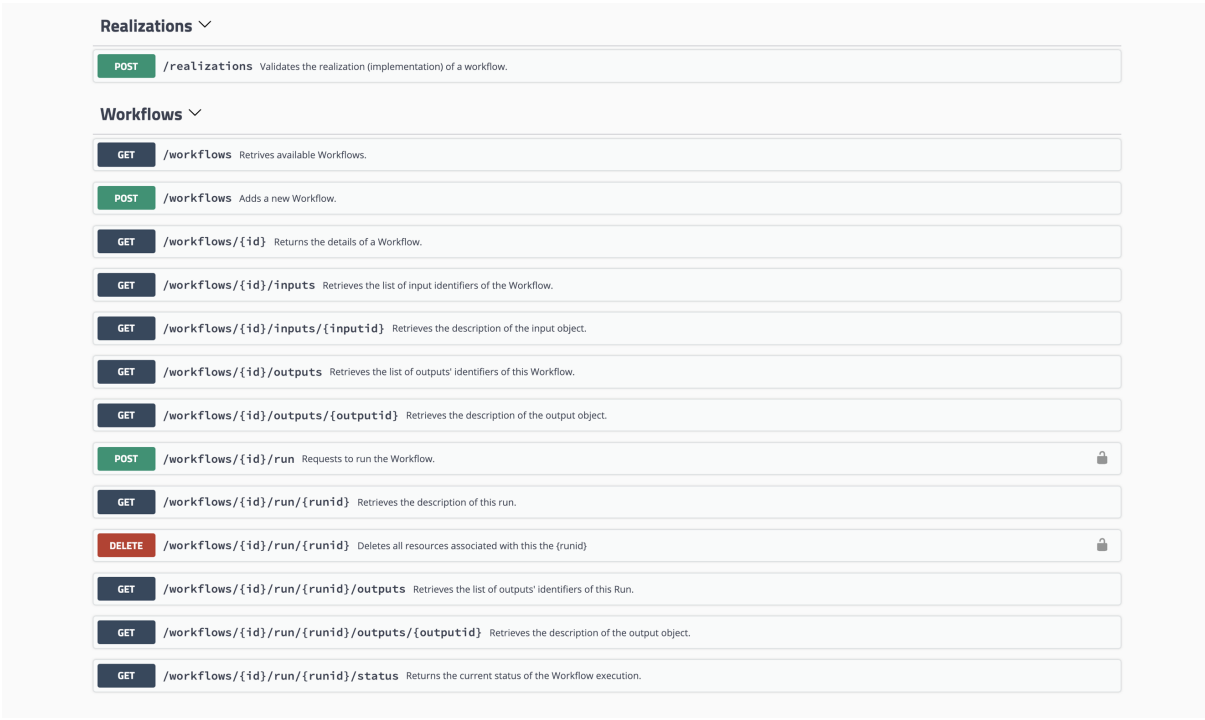

Figure 2 - A screenshot of VLAB APIs Documentation Page

2.4 Current use in GEOEssential

At the moment, the following models have been tested on GEOEssential VLAB:

- Swiss Protected-Biodiversity Areas: a model to calculate SDG Indicator 15.1.2 **(**Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem);

- Mines Workflow Final: a model aiming at operationalizing the calculation of the variable to monitor the influence of mines installation on forest areas in the Democratic Republic of Congo (DRC).

2.5 Dissemination

On the 6th December 2018 an Introductory Webinar was held for presenting the current release to the interested ERA-PLANET partners. 19 persons attended the Webinar expressing interest in experimenting the porting of models and workflows. The Introductory Webinar will have a follow-on on January 2019 with an Advanced Webinar and on February 2019 with a dedicated workshop.

3 Conclusion

The delivery of the first release of the data and information infrastructure has been achieved on November 2018. The current version of the data and information infrastructure has been already used by GEOEssential partners, and it has been presented to the interested ERA-PLANET partners on the 6th December 2018 at the Introductory Webinar.

4 References

[1] P. Mazzetti, M. Santoro e S. Nativi, «Knowledge services architecture - GEOEssential D1.1».