SY4SCI SYNERGY STUDY: OCEAN VIRTUAL LABORATORY

Goal of the project

The project will allow oceanography experts to discover the existence and then to handle jointly, in a convenient, flexible and intuitive way, the various co-located Earth Observed (EO) datasets and related model/in-situ datasets over dedicated regions of interest with a different multi facet point of view. The developed tools shall foster the emergence and prototype of new methods and products making use of the complementarity between sensors to study ocean related processes. The tool shall also provide the best possible visibility on the upcoming Sentinel1/2/3 data takes to help plan and coordinate with field campaign. The Ocean Virtual Laboratory (OVL) is filling the gap between Space agencies data portals that distributes specific EO data and analysis software dataset.

Short description of the project

The project aims to implement new software putting together two types of tools: a mathematical programming environment (as Matlab) and a geographical programming environment (as Google Earth). The raw data, as for example: Synthetic Aperture Radar (SAR) images, "temperature" images, "salinity" images, "altimetry" images; will be provided by satellites recently launched by the European Space Agency (ESA). The new software will have a multi-layer structure, each type of raw data representing a layer. The aim of new software is to exploit the information furnished by each layer and the difference of information obtained from different layers by hybridization (fusion), to characterize the phenomena at the ocean's surface (as the ocean currents for example). The tasks of the project are the following.

- Undertake an extensive scientific review to refine the project requirements and produce a consolidated Reference Baseline document.
- Implementation the SY-4Sci OVL novel synergy algorithms and the OVL platform, perform validation of new synergy products and access Sentinel1 and Sentinel3 products suitability for synergy studies.
- Write recommendation for further scientific research exploiting the synergy between ocean satellite sensors with a special focus on Sentinel1 and Sentinel3.
- Perform cross-cutting management and promotion of the SY-4Sci OVL project and open tools.

Implementation period

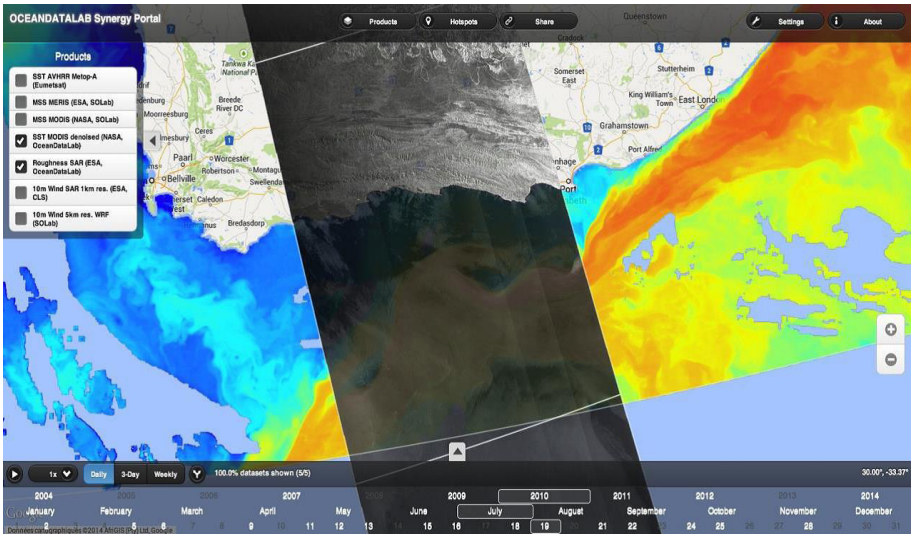
24 October 24 2014 – 24 October 2016.

Project implemented by

- OceanDataLab, Brest, France - Coordinator
- Institut Francais de Recherche pour l'Exploitation de la MER (IFREMER), Brest, France - Partner
- Nansen Environmental and Remote Sensing Center (NERSC), Bergen, Norway - Partner
- Politehnica University of Timisoara (UPT), Romania - Partner
- Institute of Oceanology of the Polish Academy of Sciences (IO PAN), Sopot, Poland and Plymouth Marine Laboratory (PML), Plymouth, UK - Partner

Main activities

- Review of existing synergy methods and consolidation of requirements,
- Define new methods and algorithm to be developed,
- Selection and preparation of EO products database,
- Specification and implementation of the prototype platform and processing modules,
- Specification and implementation of the prototype synergy processing modules,
- Validation of the developed tools and products,
- Recommendations for further scientific research.



Results

- Deliverables
  - Requirements Baseline,
  - Algorithm Theoretical Basis document,
  - Product Specification document,
  - Product Validation Report,
  - Software User Manual.
- Dissemination
  - Publications,
  - Presentations

Applicability and transferability of the results

The subject is evaluated today at technology maturity level 1 (Scientific Research), and it is aimed to conclude the project at technology readiness level (TRL) 3 (Laboratory Experiments).

Financed through/by

- European Space Agency (ESA), ESRIN/Contract N° 4000112389/14/I-NB – consortium 250000 EURO,
- UPT: 24713 EURO.

Research centre

Research Centre for Intelligent Signal Processing (ISPRC)

Research team

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