Marine Environmental Indicators

In a Nutshell

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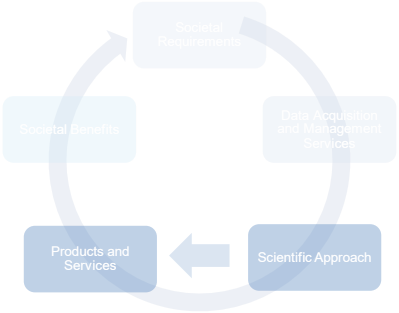
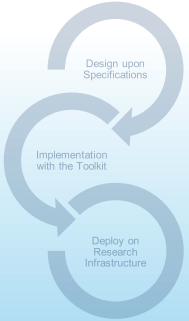
Scope

- Scientific support to policy makers and decision makers
- Calculate and distribute environmental information and indicators
- Analyze the quality of marine areas, anticipate undesired states
- Innovative approaches for the analysis of Big Marine Data



Methodology

- Sharing of algorithms and scientific references with Jupyter notebooks
- Advancement of the framework for a easy transition, research to operations
  - Specification for the interoperability among services for data access and processing
  - Toolkit for the software development with implemented common functionalities
  - Guidelines to accelerate the implementation and deploy to production
- Implementation of the new integrated service in production environment
- Exploitation of sustained research infrastructures

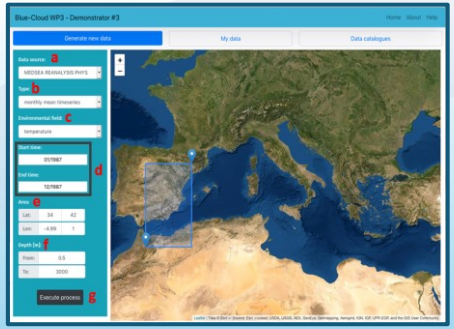


Service Workflow

Input

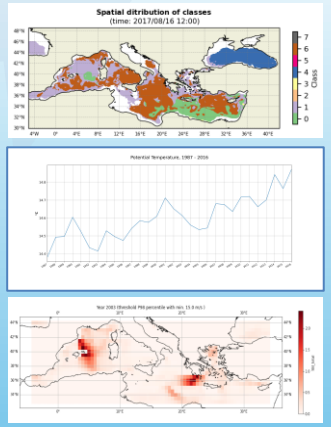
- physical parameters
- biogeochemical parameters
- essential ocean variables

- Temperature, Salinity reanalysis
- Wind reanalysis
- Inorganic Carbon data



Output

- added value data
- environmental information
- indicators and indexes



Current implementation exploits local copy of input datasets published by Copernicus, EuroArgo, EMODnet

Flexible, extendible and easy to use web application for exploiting multiple algorithms and multiple data sources

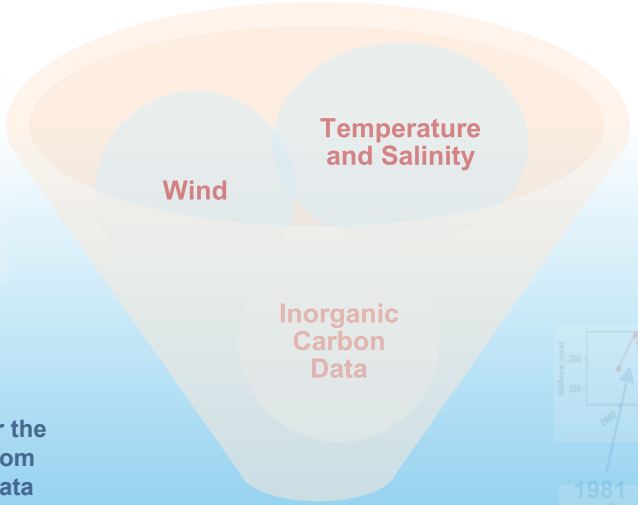
New knowledge with innovative solutions:

- ✓ Machine Learning
- ✓ Big Data methodology

Algorithms

Ocean Climate Indicators for the assessment of sea conditions and trends:

- Temperature
- Salinity
- Water Density
- Kinetic Energy
- Currents



Ocean Patterns and Regimes Indicators for the classification of vertical and temporal structures of the physical characteristics

Simple Access to Carbon Data for the search and retrieve of subsets from the oceanographic community data infrastructures

Storm Severity Index for the identification of exceptional wind/storm circumstances

Added Value
Information and Indicators

2022

Unlocking Open Science in support of the EU Green Deal

Blue-Cloud

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Final Conference