



Blue-Cloud

Piloting innovative services for Marine Research & the Blue Economy

Marine Environmental Indicators Demonstrator

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Target Users

- **Environmental Protection Agencies, Decision Makers in marine sector**
 - fostering the consolidation of science-informed decision-making processes
 - contributing to create the holistic view of the human activities (Blue Economy) and the environment (MSFD, SDG 14, SDG 13,...)
- **Scientists**
 - contributing to the implementation of the value chain, from marine data to knowledge
 - improve the understanding and predictability of the marine environment with innovative approaches



Objectives

- To calculate and distribute online information and indicators on the environmental quality of the marine area
- Obtain new added value data applying big data analysis and machine learning methods on the multi-source data sets
- Enable users to perform on line and on the fly operations such as selecting portion of a dataset, to perform statistical analysis, or display the data

What Algorithms Are Available

- 🌊 Outputs can be obtained by processing with
 - 🌊 WPS Methods, available through the user service *MEI Generator*
 - 🌊 Notebooks in JupyterHub

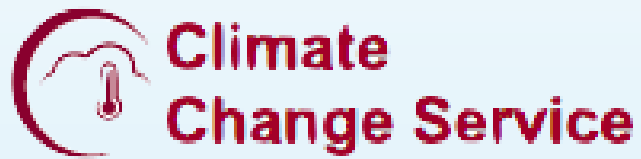
🌊 The available algorithms are :

	Notebook	Method
Ocean Climate		✓
Ocean Patterns Indicator	✓ →	(✓)
Ocean Regimes Indicator	✓ →	(✓)
Storm Severity Index (SSI)	✓ →	(✓)
Harmonized Integrated Carbon Data	✓	

Data Sources



Output 

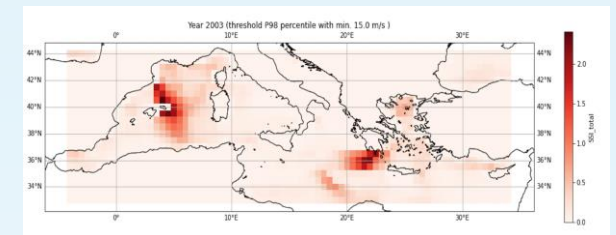
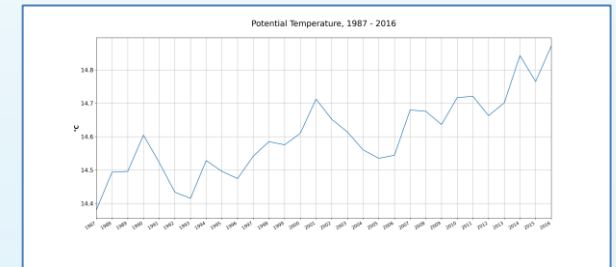
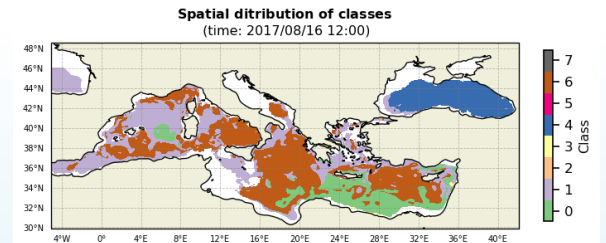


 Mediterranean Reanalysis
MEDSEA_MULTIYEAR_PHY_006_004

 Global Reanalysis
GLOBAL_MULTIYEAR_PHY_001_030

 ERA5

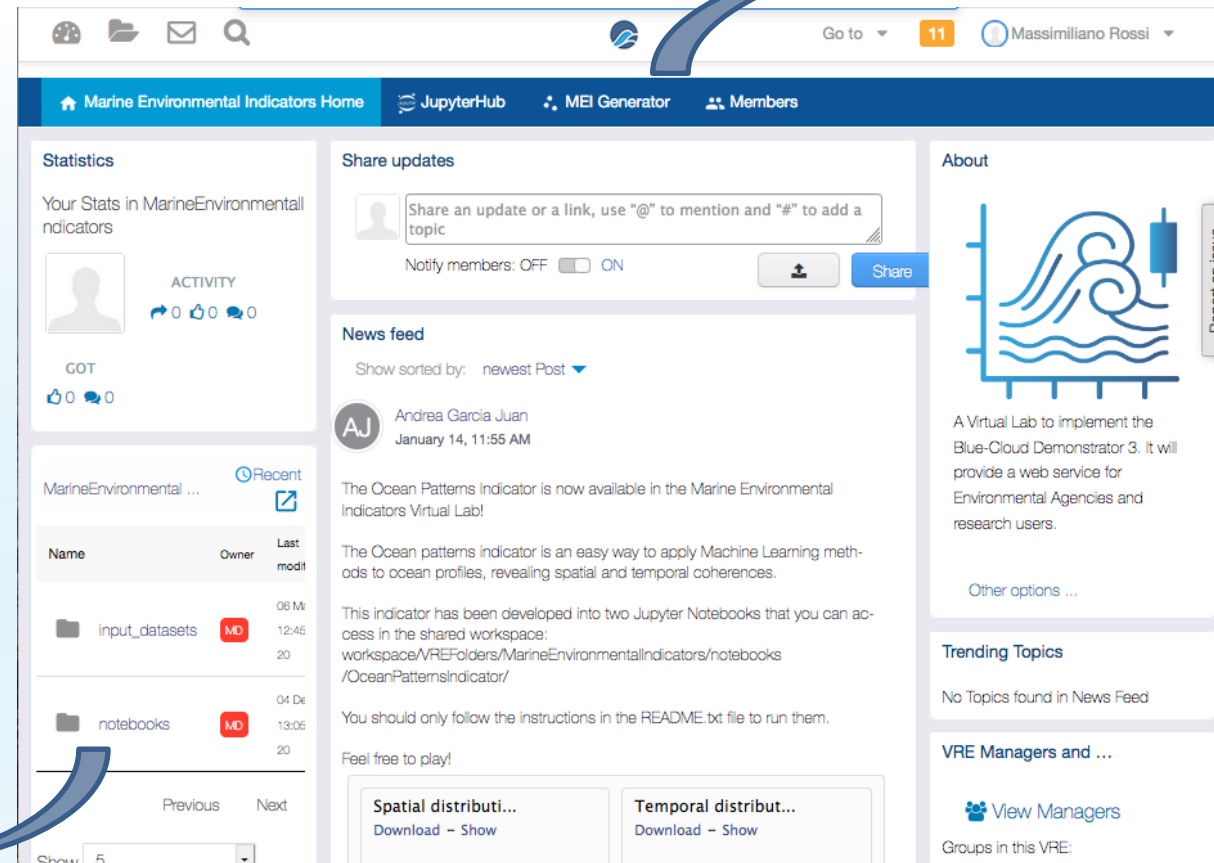
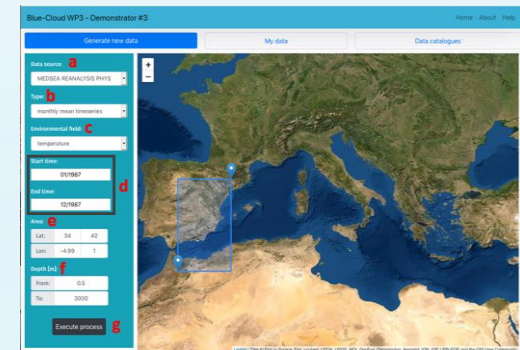
 BGC profiles



The Virtual Lab

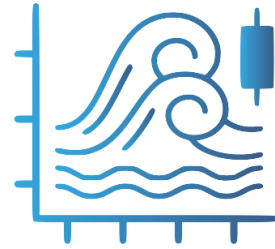
Access link : <https://blue-cloud.d4science.org/web/marineenvironmentalindicators/>

-  Ocean Patterns Indicators
-  Ocean Regimes Indicators
-  Storm Severity Index (SSI)
-  Harmonized Integrated Carbon Data

Final Remarks

- in Blue-Cloud the development of this service is proceeding
 - developing capabilities for big data analytics and display
 - the fundamental contribution of the scientific research will be strengthened with the consolidation of the methodology to bring algorithms into production environment
- underling infrastructures are fundamental for the delivery of a high quality service → “open”, sustained, well performing and evolving infrastructures will be exploited
- new challenges are coming with the digital twin



Marine Environmental Indicators

For further questions or discussions :

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Led by 
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THANK YOU