

A marine virtual research environment providing open data services in support of marine biodiversity and ecosystem research

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The European Open Science Cloud has the ambition to provide open and seamless services to analyse and re-use research data. For the marine biology domain such services and supporting data systems have been developed in the framework of several projects over the past five to ten years. LifeWatch marine has taken the initiative to bring these data services together into a Marine Virtual Research Environment (<http://marine.lifewatch.eu>). The thematic scope of the provided tools and data include biodiversity observation, omics, taxonomy, trait, geographical and environmental reference information. Contributions are based on communities gathered in the framework of LifeWatch, EMBRC, EMODNET biology, EMBRC, AssemblePlus, MarBEF, MicroB3, BioVEL, VIBRANT and other related initiatives. The common framework stimulates further developments towards more advanced and seamless integration of the services and tools. In addition to the available analytical interfaces, the provided open data services allow users to build their own applications on top. REST, SOAP and OGC compliant web services make the data accessible in a standardized way allowing the development of workflows and applications in a range of platforms: PHP web pages, R and Python scripts, workflow tools like Taverna, Galaxy, etc. Performance and availability could be further increased by virtual multiplication and load balancing over virtual servers in a cloud environment. Initial steps in that direction have been taken in collaboration with EGI as part of the LifeWatch Competence Center.

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