

Data sharing and interoperability from multi-source long term observations: challenges and opportunities in marine biology.

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Long-term observations are an established practice in marine sciences to monitor the ocean’s ecosystems and investigate its evolution. Recently, data coming from innovative technologies as well as ‘omics-based approaches is being collected alongside the physical, biogeochemical and taxonomical information. Their integration represents a challenging opportunity, pushing the need for computational approaches for the retrieval, storage, interoperability, reusability and sharing of the data.

Several initiatives are addressing these issues suggesting the most appropriate and sensitive strategies and protocols for this scientific endeavor. Ensuring interoperability among different sources, and providing seamless access to the data is essential when designing tools to store and share the collected information.

Here we present our effort in the development of web-accessible resources for marine Long Term Ecosystem Research (LTER) data. Starting from the data collected at the LTER MareChiara station belonging to the Stazione Zoologica “Anton Dohrn” in Naples, we propose protocols and software solutions for: i) collecting and integrating real-time biochemical and biodiversity measurements with data coming from -omics approaches; ii) exploiting international established data formats and protocols to expose through RESTful APIs the collected data; iii) accessing the collections through an interactive, web-accessible resource to permit aggregated views of the data.