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New Tools for Dissolved Oxygen, Fluorescence and Turbidity Sensors Testing and Intercomparison

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The protection and management of the oceans requires a comprehensive understanding of the processes and conditions that affect the state of the marine environment. However, long term in-situ monitoring of bio-geo-chemical properties of the ocean is a challenging task, not only due to "hostile" marine environment, but also due to the instruments accuracy and precision needed to obtain useful data for processes analysis as well as for assimilation into forecasting models.

Although some biogeochemical parameters can be nowadays measured through non-intrusive and automatic, partially miniaturized, relatively low-power, in-situ sensors commercially available at affordable costs, their applicability in routine long-term operational monitoring of seawater quality is still challenging.

In particular, dissolved oxygen, fluorescence and turbidity measurements have a strong scientific relevance and being measurable with on-the-shelf technology are the most important "bio" variables on which the implementation of ocean observation systems must rely on.

Thus, it is fundamental to develop and test comparison and validation tools for assessing the performance of these type of sensors at each centre managing ocean observing systems.

Two different set-ups to test and calibrate multiple different dissolved oxygen and fluo-turbidity sensors at the same time have been developed and tested at the HCMR calibration facility in Crete within the framework of the European Commission project JERICO. The project, among its main objectives, aids in the optimization of the use of existing infrastructures and in the promotion of interoperability inviting the international scientific community to access key infrastructures such as coastal observatories and calibration facilities.