

Metrology for Ocean Sciences: The European Metrology Network for Climate and Ocean Observation

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Observations of essential climate variables (ECVs) and essential ocean variables (EOVs) are used for a wide range of scientific and societal applications. To achieve the accuracy requirements specified by GCOS and GOOS for ECVs and EOVs, all aspects of data collection and handling must be underpinned by robust quality assurance. The resultant data should also be linked to common (preferably SI) references, with robust and transparent uncertainty assessment, so that observational results are interoperable and coherent.

The marine communities already collaborate in national, European and international organisations. The development of measurement systems and observational infrastructures are well coordinated, multidisciplinary and interconnected. However, this integrated landscape needs improved and coordinated approaches to provide metrological traceability, comparability and uncertainty analysis for the EOV observations. In recent years, ocean observation infrastructures have grown considerably and today they are capable of delivering thousands of measurements per second. For all these measurements, their metrological quality is crucial to their usability. Therefore, the co-operation between the oceanographic and the metrological communities is increasingly demanded.

The European Association of National Metrology Institutes (EURAMET) has recently established the European Metrology Network (EMN) for Climate and Ocean Observation to support the observation communities, to engage with metrologists at national metrology institutes, and to coordinate European metrological research in response to community needs.