
Metrology for supporting the reliability of oceanic measurements

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Résumé

Large variety of oceanic observables are regularly monitored with a dense coverage of oceanic sites. Europe spends annually 1.4 billion for marine data collection, which represents a real effort in terms of financial investment. As a feedback, relevant and reliable results of measurements and tests are expected. Moreover, because of slow changes, most of these parameters require long term studies, up to decades and more. Therefore, it is essential that the data collected are comparable over space and time. Data comparability rely on three sine qua non conditions: (i) establishing metrological traceability of the measurement results, (ii) verify the reliability and accuracy of measurements using appropriate reference materials and (iii) estimate the uncertainty of final measurement result. However, due to the complexity of the marine environment and the high number of parameters, it is difficult to cover all of them with appropriate reference materials (RM). To compensate the lack of RM the participation in interlaboratory comparisons programs is a useful tool to demonstrate the effectiveness and the quality of the analytical methods. But, in this case, there is a strong need for independent reference values given by a National Metrology Institute to ensure the detection of possible bias in the consensus value. The aim of the presentation is to deliver a critical point of view concerning the quality of measurements performed in seawater. Based on LNE's (Laboratoire National de Métrologie et d'Essais) experiences, the following topics will be discussed: definition of the measurand, instrument calibration, measurement protocols, uncertainty sources.

Mots-Clés: accuracy, metrology, uncertainty, calibration

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