



## D5.9 Report on the installation processes and delivery of an updated RV Specification Sheet of the RV Gaia Blu (ex Falkor)



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<b>Author(s) (Partner-OU):</b>	Katrin Schroeder (CNR-ISMAR),
<b>Reviewed by:</b>	ITINERIS Executive Board
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## 1. INTRODUCTION

This report is focused on the progress of acquiring and installing instrumentation for the RV Gaia Blu ship (ex Falkor), aligning with Activity 5.16 of the project aimed at expanding the ship-based observation capacity within the EUROFLEETS framework. This activity aims to enhance the capability of the Gaia Blu ship through the implementation of continuous acquisition systems, automation of underway observations, and improved connectivity with real-time data transmissions. The scientific motivations are given by the need to obtain high-quality oceanographic data at a high spatial-temporal resolution.

The automation of underway observations is recognized as a cost-effective strategy for obtaining high-quality data, becoming a key component to compete internationally with other major oceanographic institutions. This approach aligns with the vision of the Global Ocean Observing System (GOOS), envisioning an expanding role for automated underway observations in acquiring high-quality data relevant to the carbon cycle, water cycle, climate warming, satellite data calibration/validation activities, model validation, ecosystem changes, and habitat mapping.

The specific instrumentation selected, as indicated in Activity 5.16, aims to support this ambitious goal. Specifically, the decision to implement an automated underway acquisition system, such as the Ferrybox, represents a significant step. The Ferrybox is an autonomous analytical system designed to measure temperature, salinity, dissolved oxygen, fluorescence, total alkalinity, and carbon dioxide in oceanic surface water. This system will be used underway and fully automatically, providing precise data relevant to various scientific objectives.

The timelines for realizing this activity reflect a strategic progression:

- Phase 5.16.1 - Details of Devices: during the initial months, efforts were focused on defining the specific details of automatic devices through the issuance of a dedicated tender.
- Phase 5.16.2 - Purchase and Installation of Devices: in the subsequent period, the plan is to complete purchases and install the Ferrybox and other identified devices.
- Phase 5.16.3 - Development of Web-Based Access: a web-based access point will be developed, allowing visualization of underway data, ship track and live maps, webcams, and virtual tours of the vessel, contributing to training and ocean literacy activities.
- Phase 5.16.4 - Testing Data Transmission: during the final project months, the Gaia Blu ship will be operational, testing the transmission of underway data and other automatically collected data.

These phases, in harmony with scientific objectives, will bring the RV Gaia Blu ship towards a more prominent role in the international oceanographic community, providing high-quality data and contributing to a deeper understanding of key oceanic processes.

The subsequent report will detail the current status of these progressions and provide further information on ongoing negotiations and future plans.

## 2. CURRENT STATUS OF INSTRUMENT ACQUISITION

This report provides a detailed overview of the current status of acquiring the necessary instrumentation for the RV Gaia Blu, as specified in the project proposal. As of the drafting of this document, it is important to note that the complete acquisition of the instrumentation has not been finalized. Below, we provide more details on each lot specified in the proposal:

## 2.1 Overview

**Lot 1 - Automatic Data Acquisition System (Ferrybox):** The first lot involves the acquisition of a state-of-the-art automatic data acquisition system known as the Ferrybox. This system is designed to operate seamlessly underway, providing real-time measurements of essential parameters such as temperature, salinity, dissolved oxygen, fluorescence, total alkalinity, and carbon dioxide in oceanic surface water. The implementation of the Ferrybox is fundamental for continuous and high-resolution data collection, aligning with the project's objective of enhancing RV Gaia Blu's observational capabilities.

**Lot 2 - Spectral Absorption Sensor and Other Measures:** Lot 2 centers around the acquisition of a spectral absorption sensor and complementary devices for continuous measurement of inherent optical properties (IOPs) in marine environments. These measurements are crucial for understanding the optical characteristics of seawater, aiding in various research areas such as the assessment of water quality, phytoplankton distribution, and the overall health of marine ecosystems.

**Lot 3 - Hyperspectral Radiometers:** The third lot pertains to the acquisition of hyperspectral radiometers for Ocean Colour Essential Ocean Variables (EOV) acquisition. These devices play a vital role in capturing detailed information about the spectral characteristics of the ocean, facilitating studies related to ocean color, chlorophyll concentration, and other essential parameters that contribute to our understanding of marine ecosystems.

**Lot 4 - Remotely Operated Vehicle (ROV):** Lot 4 involves the acquisition of a Remotely Operated Vehicle (ROV) designed for light work-class operations. The ROV will serve as a valuable tool for interactive research and education, providing live-streamed imagery for scientific investigations and educational outreach. Its deployment enhances the ship's capabilities in exploring underwater environments and conducting targeted studies..

**Lot 5 - Semi-Portable Salinometer:** The last lot encompasses the acquisition of a high-precision semi-portable salinometer. This instrument is critical for obtaining accurate salinity measurements, contributing to a comprehensive understanding of oceanographic conditions. Accurate salinity data is essential for various oceanographic studies, including investigations into ocean circulation patterns and climate-related research.

While negotiations are yet to commence, the thorough preparation of tender specifications for each lot underscores the importance of these acquisitions in bolstering the scientific capabilities of the Gaia Blu ship. These instruments, once acquired and installed, will collectively contribute to advancing research in oceanography, climate studies, and marine ecosystem monitoring.

## 2.2 Installation Plans and Next Steps

We outline upcoming steps:

**Installation Phase:** Once contract negotiations are complete, we will focus on the installation phase, including the safe transportation of the instruments to the RV Gaia Blu ship.

**Compliance Verification:** We will participate in the compliance verification to ensure that each installed component strictly meets the required standards.

**Staff Training Program:** If applicable, we will implement a staff training program to ensure proper management and use of the new instrumentation. This will be done in coordination with WP3.

**Export and Customs Declarations:** We will address all necessary export and customs declaration practices, ensuring a smooth delivery.

## 2.3 Detailed Timeline Forecast

**Contract Negotiation Phase:** June 2024 - September 2024

**Definition of Delivery Timelines:** December 2024

**Installation Phase:** January 2025 – March 2025

**Compliance Verification:** March 2025

**Staff Training Program:** April 2025

## 3. PRELIMINARY CONCLUSIONS

In this phase of the project, while the complete acquisition of the specified instrumentation has not yet been finalized, we focus on the advancements achieved and the dedicated efforts to attain the outlined objectives. The approach to tender specifications, coupled with careful equipment considerations, fosters a positive outlook for the upcoming phases.

Recognizing the significance of this project for the RV Gaia Blu ship, the commitment is ensured to maintaining high standards of quality and safety. It is anticipated that the negotiations will be concluded successfully, paving the way for the installation phase within the projected timelines.

The comprehensive nature of the instrumentation, aligned with the goals of EUROFLEETS under the ITINERS umbrella and the overarching scientific objectives, positions the RV Gaia Blu ship as a valuable contributor to the international oceanographic community. The commitment to delivering high-quality data remains persistent, contributing to advancements in our understanding of key marine processes and phenomena.

As of the current version of this report, the installation plans for the instrumentation on the Nave Gaia Blu are outlined. It is important to note that this document will be regularly updated to reflect changes and progress in the acquisition and installation of the instrumentation. Future versions of this report will provide the latest information on the status of the equipment, ensuring an accurate and up-to-date record.