

Fully funded PhD in Marine Acoustics (ISMER-UQAR)

**Acoustic observation from marine autonomous platforms,
3D & Time variability of marine soundscapes,
Characterization of the hull-induced modification of the acoustic field.**

Keywords : Glider, Vibroacoustics, Noise pollution, Calibration, Soundscape



Figure 1: Hydrophone-equipped ocean glider and a curious Manta ray.

Project description

Ocean gliders are buoyancy-driven marine autonomous platforms, observing the ocean during multi-months missions, covering thousands of kilometers and diving down to 1000 m. They are extremely quiet, and therefore increasingly used for acoustic observation of marine mammal populations, surface weather events (wind, rain, ice), and human activities. The proposed project aims to **characterize the glider-induced modification of the local acoustic field**, through reflection, scattering and resonance effects, to provide calibrated sound level measurements, improve marine mammal localization and counting, and quantify physical processes at surface.

The successful candidate will carry out **experiments in laboratory and in an instrumented pool** to characterize the vibroacoustics response of the glider's hull. They will propose a **Glider-related Transfer Function (GRTF)** describing the modifications of the nearby acoustic field by the glider. They will assess the performance of the GRTF model during a **dedicated glider mission at sea**. The ideal candidate has a strong numerical background (engineering, signal processing, vibroacoustics, underwater acoustics) and wants to apply their skills towards improvement of passive acoustics application for ocean monitoring and advancement of our understanding of noise pollution and its effects on marine ecosystems.

The research activities will be carried out within ISMER's **Ocean Acoustics research group**, directed by P. Cauchy, and co-directed by O. Robin from *Centre de recherche acoustique-signal-humain (CRASH) Université de Sherbrooke*.

A detailed project description is available on demand to pierre_cauchy@uqar.ca.

Funding

A scholarship of **25 k\$/year is offered over 3 years** and a waiver for the additional tuition fees asked to international students will be provided.

Eligibility criteria

- MSc or equivalent in physics, mathematics, acoustics, engineering, biology or a related discipline;
- Skills in data processing;
- Be available to start the PhD program in oceanography from autumn 2025;
- Meet the basic requirements for admission to the PhD program in oceanography at UQAR.

Application

Interested candidates must contact Pierre Cauchy (pierre_cauchy@uqar.ca), and submit in electronic format (a single pdf file less than 10 Mb including all the documents):

- A complete CV (including scientific communications, scholarships, distinctions, experience at sea, etc.);
- A cover letter explaining the candidate's background and how this path fits with the proposed project;
- All university transcripts;
- Contact details of three (3) referent persons who could be asked for reference letters.

Only complete files that meet the eligibility criteria will be evaluated.

ISMER and UQAR support an equal access program and our community promotes the values of equity, diversity and inclusion and puts in place accommodation measures as needed. We strongly encourage women, people with disabilities, members of visible and ethnic minorities and Indigenous peoples to apply.

Deadline

Applications will be reviewed from June 2025, and the process will continue until the scholarship is awarded.

Foreign students

Tuition fees

The successful candidate will be eligible for an [exemption from foreign student differential tuition fees](#) (website information in French only). If this exemption is granted, students will pay the same tuition fees as Quebec students.