





PhD Opportunities in Geochemistry and Marine Geology

The Institut des sciences de la mer de Rimouski (ISMER) at the Université du Québec à Rimouski (UQAR) is seeking a PhD student to join a multidisciplinary project on the role of geological carbon sources in the modern carbon cycle of the St. Lawrence Estuary and Gulf. This research will improve our understanding of the interactions between geological and biological carbon reservoirs in a rapidly changing coastal ocean environment. The project is conducted in collaboration with professors from ISMER (André Pellerin and Guillaume St-Onge) and Université Laval (Patrick Lajeunesse), Québec.

Project 1: Marine Geochemistry: Geological Carbon Sources and Their Role in the Modern Carbon Cycle and Ecosystems of the St. Lawrence Estuary and Gulf.

The selected candidate will study the contribution of geological carbon—such as carbon released from geological structures like pockmarks scattered on the seafloor of the St. Lawrence—to the current carbon dynamics in this system. This work will include acoustic measurements (e.g., sonar, multibeam bathymetry), geochemical analyses (including stable and radiogenic isotopes), sedimentology, and carbon flux modeling, in conjunction with regional oceanographic and biogeochemical data. The project involves collaboration with national and international researchers and includes participation in oceanographic campaigns using underwater robots for precisely sampling methane seeps.

Desired Profile:

- Master's degree in geochemistry, marine geology, oceanography, Earth sciences, or a related field
- Knowledge of geochemical methods (e.g., stable isotopes, elemental analysis, radiocarbon dating)
- Experience with sediment core analysis and/or marine fieldwork (an asset)
- Good understanding of the marine and/or estuarine carbon cycle
- Ability to work independently and as part of a research team
- Proficiency in English is necessary, French is an asset

Project 2 - Geomorphology, Sedimentology, and Marine Geology: Origin, Distribution, and Formation Dynamics of Methane Seeps in the St. Lawrence Estuary and Gulf.

The selected candidate will study the geological factors contributing to the formation and activity of methane seeps by analyzing their geomorphological characteristics, distribution, and geological and stratigraphic context. The project will also aim to determine the role of pockmarks and methane seeps in submarine landslides. This work will involve the analysis of high-resolution bathymetric data, seismic stratigraphic profiles, sediment cores, and seafloor images collected with an underwater robot. Active participation in oceanographic campaigns is required.

Desired Profile:

- Master's degree in Earth sciences, oceanography, physical geography, or a related field
- Fundamental knowledge in sedimentology and geomorphology, as well as in remote sensing
- Experience in sediment core analysis, GIS mapping, and/or marine fieldwork (an asset)
- · Good understanding of Quaternary geology and surface Earth processes
- Ability to work independently and as part of a research team
- Proficiency in English is necessary, French is an asset

What We Offer:

• Fully funded PhD (including a \$22,000/year scholarship for 3 years and research-related costs)

• Access to cutting-edge geochemistry, mapping, and sedimentology labs and field equipment (geophysics and coring)







• Opportunities to present at national and international conferences and to publish in top-tier scientific journals

• A dynamic and inclusive research environment at ISMER-UQAR, located on the shores of the St. Lawrence Estuary

• Participation in oceanographic missions aboard the R/V Coriolis II and use of the ASTRID robot (see below)

Application Deadline:

Applications will be reviewed starting June 15, 2025, and will continue until the position is filled.

To Apply: Please submit a single PDF file including:

- A cover letter describing your research interests and relevant experience
- Your CV
- Your academic transcripts
- Contact information for two references

Send your application and any questions to: Andre_Pellerin@uqar.ca

Join us to explore how geological processes continue to shape the modern oceanic carbon cycle!





Photo : Marie Guilpin

Photo : Guillaume St-Onge



Crédit : Jean-Carlos Montero Serrano