Ph.D. position in marine geology (ISMER-UQAR and UBO)

Sediment dynamics and surface ocean conditions variability near glaciers draining Devon Island (Nunavut, Canada) during the late Holocene

Photo: Aerial view of Fitzroy Glacier, east of Devon Island (@ Jean-Carlos Montero-Serrano)

With a surface area of 14,000 km^2, the Devon Ice Cap is one of the largest ice caps in the Canadian Arctic Archipelago, with an ice volume of 411±140 km^3. Recent studies have shown that the Devon ice cap lost 600 km^2 (4%) of its surface area between 1960 and 1999, mainly due to higher summer temperatures. However, the long-term (>50 years) calving rates and glacial sediment fluxes of glaciers draining Devon Island are not well documented, and little is known about the precise mechanisms controlling the frontal changes of these glaciers. In this context, this PhD project aims to study the sedimentological and palynological signatures (dinocyst assemblages) of a set of sediment cores collected near the glaciers draining Devon Island (Nunavut, Canada). In proximal glaciomarine environments, sediments are mainly deposited by meltwater plumes and ice rafting, as well as by meltwater-derived turbidity currents. Thus, the proposed multi-proxy approach will enable us to better understand the responses of these glaciers to late Holocene climatic and oceanographic variability, and to determine the precise mechanisms (atmospheric, glaciological or oceanic) controlling long-term frontal changes in these glaciers. The research will be carried in cotutelle (Canada-France partnership) between the Institut des sciences de la mer (ISMER) of the Université du Québec à Rimouski (UQAR) and the Université de Bretagne Occidentale (UBO).

The student recruited for this PhD project will have the opportunity to participate in at least one oceanographic campaign, as well as attend national and international scientific conferences. The PhD thesis will be supervised by Professors Jean-Carlos Montero-Serrano (ISMER-UQAR; director; jeancarlos_monteroserrano@uqar.ca) and Guillaume St-Onge (ISMER-UQAR; co-director; Guillaume_St-Onge@uqar.ca) for sedimentological aspects, and Aurélie Penaud (UBO; director; aurelie.penaud@univ-brest.fr) for palynological aspects.

DESIRED QUALIFICATIONS. The candidate has a background in Earth Sciences (Oceanography, Geology, Geochemistry, Geological Engineering or other related discipline) and ideally has a knowledge in sedimentology, palynology, paleoclimatology. Candidates must have a cumulative grade point average of at least 3.3/4.3 or equivalent (e.g. ≥12/20). Candidates must be fluent in written and spoken French and English.

HOW TO APPLY. Please send all the documents listed below in one PDF file to Jean-Carlos Montero-Serrano (jeancarlos_monteroserrano@uqar.ca):
1) Cover letter explaining the candidate's background and how it fits with the proposed project;
2) CV (including scientific communications, fellowships, awards, missions at sea, etc.);
3) All university transcripts;
4) Three letters of recommendation (one of which must be from a research supervisor).