Industrial Postdoctoral Position
research, design and implementation of a decision support system
for managing sea ice and iceberg hazards during offshore petroleum operations

Degree Requirement
Candidate must be about to finish a PhD/Doctorate by September/October 2013 or have completed this degree less than 2 years ago.

Dates
Position open as of August 1, 2013. Postdoc lasts 2 years, after which Candidate is to continue as full time employee of sponsoring company.

Disciplinary Background
Position is not defined by a single discipline but by skillsets. Candidate must be able to model and build in software, the data capture, transformation, analysis, transfer and communication involved with decision-making in this area of marine industrial practice. This will require Candidate to have strong software engineering skills, and to know about or be able to learn best practices in ice surveillance and management in offshore petroleum operations and maritime transits in zones affected by sea ice and icebergs.

Relevant Disciplinary Fields
Candidates will likely come from a background in:

- physical oceanography; physical geography specializing in sea ice/icebergs, geographical information systems; naval architecture, mechanical or ocean engineering, physics, or
- industrial engineering, business process modelling, software engineering and decision-support systems.

Position and Employer
This is an industrial postdoctoral position, which is jointly managed by Canatec (www.canatec.ca) and the Marine Institute at Memorial University of Newfoundland (www.mi.un.ca), with primary funding from MITACS (http://www.mitacs.ca). During the duration of this 2 year innovation project, Candidate will work primarily out of the Marine Institute as a university postdoctoral fellow, but spend time as appropriate in Canatec’s nearby office.

Canatec is one of the leading providers of specialized ice consulting and field advisory services in ice. The company also makes specialized ice instruments and software to support research and operations in ice for the offshore petroleum industry and for shipping companies. Head office is in Calgary, with branches in Newfoundland and the Netherlands and representation in Kazakhstan, Beijing and Inuvik. Client base is global and projects are primarily in arctic areas. Senior staff are recognized internationally as leaders
in their fields. Canatec is looking for bright, entrepreneurial, engaged and highly creative people to expand the company’s knowledge-intensive products and services business world wide.

The Marine Institute is mandated to support the growth of maritime industry in the Province of Newfoundland and Labrador in a way that enhances safety, efficiency and respect for the environment, through research, training, education and linkage to private industry. Building an advanced research capacity in the field of operations in ice is seen as a priority for the Marine Institute. Memorial University is located in St. John’s which has a strong and growing high-tech cluster of cold ocean service and products companies, along with several other oceans-related Centres of Excellence and the Institute of Ocean Technology at the National Research Council near the campus.

**Project**

Canatec is currently building a simple decision-support “tool box” to improve the practice of monitoring and advising on hazardous ice conditions to support marine transits and offshore operations in ice, by our trained Ice Advisors. The system planned in this joint project with the Marine Institute will be a major extension of this initial tool, integrated with the bridge of a vessel or structure operating in ice, and used by ice personnel and crew to keep track of ice and met-ocean conditions that might affect operations, and provide full decision-support on coping with ice hazards and alerts. Initially the focus will be on petroleum drilling operations, but this can be extended to all other operations in ice, from seismic survey to construction and trenching as well as fishing and tourism.

Candidate will be supported by Canatec staff in our Newfoundland, Calgary and Netherlands offices. Canatec will supply all its information on best practices and its current software used in supporting offshore operations in ice. In addition, Canatec will supply opportunities for the Candidate to learn this specialized industrial area by having the Candidate participate in some of its commercial consulting, innovation and field advisory projects.

At the Marine Institute, Candidate will have access to Memorial University’s full range of research facilities and colleagues. Of particular utility will be the simulator, access to research voyages in ice conditions, specialized software, metocean instrumentation, ship performance data and displays.

**Permanent Position**

At the termination of this project, Candidate will continue as a full time, permanent employee at Canatec. Work will deal with furthering the development of the decision-support tool, innovation of other software and instrument products, consulting in the area of ice/iceberg environments and field work on board ships and platforms, as well as data gathering expeditions in marine ice zones around the world. Close links with the Marine Institute will be maintained.

The postdoctoral fellowship does not just involve research, but requires Candidate to have skills in design and innovation of a working product. As Canatec’s intention is to hire a person who will continue working with the company, Candidate must also demonstrate:

- Entrepreneurship
- Creativity
• Eagerness to learn new skills
• Ability to work under conditions of uncertainty, limited data and rapidly shifting timelines
• Enjoyment of interacting with clients and customers to recognize and solve their problems
• Ability to work both independently and in collaborative team setting
• Eagerness to do field work, in the Arctic and on board ships
• Strong communications, decision-making and reporting skills.

**Funding**
Position is funded jointly by the Marine Institute and Canatec, but primarily by MITACS and must conform to MITACS’ eligibility criteria relating to dates of PhD. Information about the MITACS Accelerate program is available at: [http://www.mitacs.ca/accelerate](http://www.mitacs.ca/accelerate).

**Other Criteria**
Preference is given to Canadian citizens and residents, but applications from Candidates of any country are welcomed.

**Application**
Initial contact should be made to Canatec: opportunity@canatec.ca.