



# I H I F

## Identifying, Tracking and Communicated Sea-Ice Hazards in an Integrated Framework

In order to help protect personnel living or working in the Arctic, this project was designed to identify, track and communicate hazards associated with sea ice entrapment of vessels, structural damage to vessels and infrastructure, risk to personnel and assets due to detachment of landfast ice, and the limitation of oil spill response. In 2014, the Sea-Ice Hazard project contributed to a rescue mission in Barrow, Alaska which saw the safe recovery of personnel and equipment from drifting ice with the aid of sea ice radar.

Increasing shipping and offshore activity together with emerging climate change-related threats to coastal and marine infrastructure related to traffic have greatly increased threats to environmental security in the maritime Arctic. In order to minimize and manage risks, hazards need identification and tracking. This project focuses on those hazards associated with ice in the ocean such as entrapment of vessels; structural damage to vessels and infrastructure; and risks to personnel and assets due to detachment of landfast ice.

During an Arctic emergency response, assets need safe and effective deployment in regions that are often remote and challenging. Involvement of local first responders will be a critical part of any Arctic response. Therefore, responders need a framework at the local scale to enhance and inform Arctic MDA and emergency response by identifying, tracking and communicating key environmental hazards in ice covered extreme maritime environment.

Predicting the real-time ice velocity from Utqiaġvik (formally Barrow), Alaska will improve capabilities for ice hazard monitoring. As the northernmost point in the North American mainland, Point Barrow is often the last location along the Alaska coastline to open up to navigation and therefore represents a potential chokepoint for maritime operations in the U.S. Arctic. Making real-time data available to analysts will improve the ability of decision makers to assess hazards posed by sea ice in this location. Additionally, the project team demonstrated that the technology developed to track ice motion is transferrable to ship-based platforms, where it is potentially useful to provide tactical information about ice conditions to crew.

