2009 Ajurak Ice Management Trials
Sponsored by Imperial Oil, ExxonMobil

In 2009, Ajurak ice management trials were conducted to test the ability of two icebreakers to manage Arctic Packice. ARCL was responsible for the measurement of ship power, position and speed on both vessels. ARCL installed HD Video cameras to document the view ahead, aft and over-the-side of the ship. This video system included a system to geo-reference the video images in real time.

ARCL was responsible for developing an aerial mapping/photographic system which was deployed on the ship's helicopter, to record the ice conditions before and after ice management. A total of 15 aerial survey flights were performed. The photographic system recorded from 50 to to 1000 images per flight/survey, depending on the area covered and the altitude the helicopter was able to fly at, which was often limited due to low cloud cover. From the images obtained, 25 to 350 were selected for each flight/survey and stitched together to form a single geo-referenced image of the area of operation. From these images, the distribution of managed/broken ice floes dimensions was calculated and the effectiviness of ice management was determined.

ARCL also deployed an electromagnetic device off the bow of the icebreaker to continuously measure the thickness of the ice the ship was breaking. ARCL also collected ice samples to determine the ice strength.

All of the ship power data, videos, and pictures collected during the trials were integrated into a single ARCGIS data base for archival and analysis purposes.