



### CHOIRS: Characterization of Hazardous Ocean Ice using RADARSAT and the Ice Profiler™

There is an increasing need for fine scale detection and characterization of hazardous ice conditions in the Arctic. ASL Environmental Sciences Inc. has recently received funding from the Canadian Space Agency to address this need under the Earth Observation Applications Development Program.

The project will develop improved techniques, tools and data products that will enhance the detection and characterization of hazardous ice conditions at fine scales, based on advanced beam modes of RADARSAT-2, and the unique capabilities of moored, upward looking sonar technology.

ASL's Ice Profiler™ along with Acoustic Doppler Current Profilers will provide validation data and opportunities for improvement in the analysis and interpretation of the SAR imagery. In effect, this project will combine the view of the ice canopy from below (Ice Profiler™) with the view from above (RADARSAT-2 high resolution quad-polarized data), and generate enhanced ice information products. Using simulated data for Radarsat Constellation Mission compact polarimetry beam mode, the operational utility of such products will also be assessed.

The Canadian Ice Service of Environment Canada and the Ice Engineering Group of the National Research Council are the participating Government End-users, where they will also represent other users of their products and services. This project will run between June 2013 and March 2015.

For more information please contact Dr. Kaan Ersahin at [kersahin@aslenv.com](mailto:kersahin@aslenv.com)

[Ice Profiler Brochure Link](#)

### Research Project with ArcticNet and DFO

ASL is conducting a major research project in the Canadian Beaufort Sea in collaboration with ArcticNet (University of Manitoba, Université Laval), Fisheries and Oceans Canada, and other organizations, in the area of the outer continental shelf and the continental slope of the western and central portions of the Canadian Beaufort Sea. Dr. Jennifer Jackson, Research Oceanographer (with partial funding through the NSERC Industrial Research and Development Fellowship program), and David Fissel, Senior Oceanographer and Board Chair, will head the ASL team. The topics of the research study will include:

- 1) Dense water formation in the Beaufort Sea
- 2) Upwelling events - causes, location of largest signals, and effect on shelf and slope biophysical system
- 3) The modification and advection of Pacific Water in the slope and shelf regions.

ASL along with Golder, AxyS, DFO, and others were all part of a major oceanographic measurement program involving as many as 11 highly instrumented sub-surface moorings. This program was funded by Imperial Oil/BP in collaboration with Arcticnet and is being used to support Environmental Assessment activities that contribute to industry development plans.

ASL collected temperature, salinity, currents, and ice thickness using CTDs, ADCPs, Ice Profilers and satellites. All of the extensive data sets collected have been processed and are being used in the research project which is now underway through to April 2015.

## Remote Sensing Consulting Project for the Yukon Habitats Program

ASL Environmental Sciences has entered into a Standing Offer Agreement (SOA) with the Government of Yukon, Environment Yukon from March 2013 to February 2016 to provide consulting services in the areas of land cover classification, spectral mixture analysis, and surface disturbance mapping using ASL's remote sensing expertise.

Remote sensing techniques can be used to identify, maintain, enhance, or recover habitat so as to sustain natural biodiversity. This includes understanding the type, abundance, and distribution of habitat and how it is used and selected by wildlife. Techniques to identify and document such features are numerous within the disciplines of land cover classification, spectral mixture analysis (SMA), and surface disturbance mapping. Products from these methods can be used independently or can be combined in various ways and related to known wildlife distributions or behaviour to model and map species habitat suitability.

For more information, contact Eduardo Loos: [eloo@aslenv.com](mailto:eloo@aslenv.com)

## Latest Upgrades to the AZFP™ – 70 kHz Channel and 32 GB Storage

The Acoustic Zooplankton Fish Profiler™ (AZFP™) now has a 70 kHz channel available. This is a compact, cost-effective option for recording acoustic backscatter returns on larger targets such as fish.

The AZFP™ monitors the presence and abundance of zooplankton and fish within the water column by measuring acoustic backscatter returns at multiple ultrasonic frequencies. Other sonar targets realized from the sonar backscatter data include bubbles and suspended sediments. Using onboard data storage, the AZFP™ can collect data continuously for periods of up to one year at high temporal and spatial resolution (latest option). The 32 GB Compact Flash has now been qualified for use in the AZFP. The AZFP™ is available with up to four frequencies. [AZFP Brochure Link](#)



Other frequencies available:  
38, 125, 200, 460, and 770 kHz

## Remote Sensing Team at CSRS

ASL's remote sensing team enjoyed a compelling and engaging week at the 34th Canadian Symposium on Remote Sensing, held in Victoria, BC.

ASL presented two posters titled, "Characterization of Oil Slicks at Sea Using Semi-automated Multivariate Optical and RADAR Remote Sensing Techniques" and "Remote Sensing of Sea Ice Changes in the Canadian Arctic".



Kaan Ersahin, Eduardo Loos, Leslie Brown, José Lim, Ed Ross

ASL's Remote Sensing Group participated in the **38th Canadian Land Reclamation Association Annual Meeting** and 7th Northern Latitudes and Mining Reclamation Workshop in Whitehorse, Yukon (9-12 Sep 2013) with two presentations:

- Remote Sensing in Vegetation Monitoring: More than just a pretty picture [Link to paper](#)
- Remote Sensing Enhances the Planning, Execution and Evaluation of Field Work

For more information, please contact us at: [remotesensing@aslenv.com](mailto:remotesensing@aslenv.com)

## Upcoming Conferences

PICES 2013	Nanaimo	Oct 11-20
9th ASAR Workshop	Montreal	Oct 15-18
ECM13	San Diego	Nov 4-6
AGU Fall Meeting 2013	San Francisco	Dec 2-5
ArcticNet 2013	Halifax	Dec 9-13
ATC 2014	Houston	Feb 10-12
ASLO 2014 Ocean Sci Mtg	Honolulu	Feb 23-28
Oceanology International 2014	UK	Mar 11-13



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