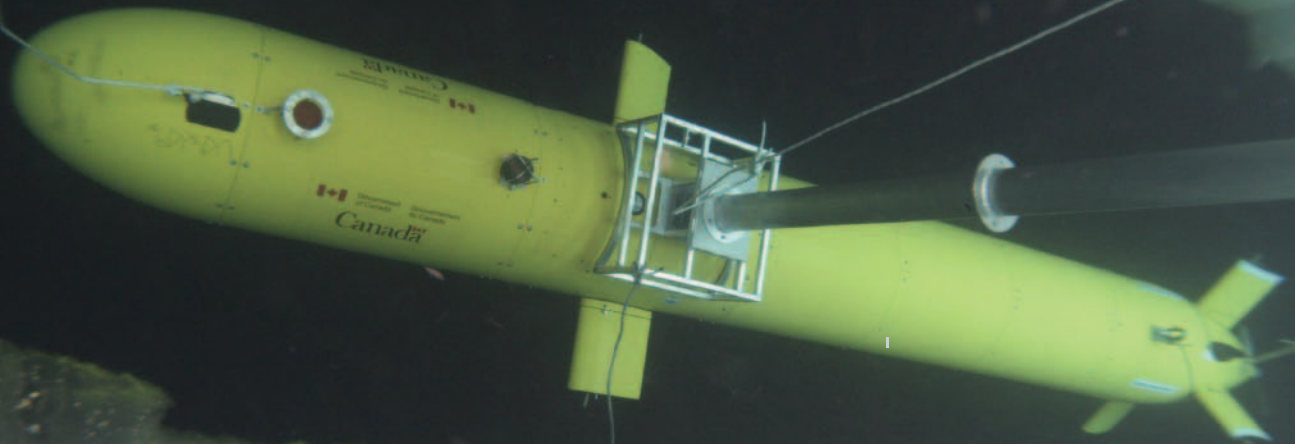


# ISE AUVs

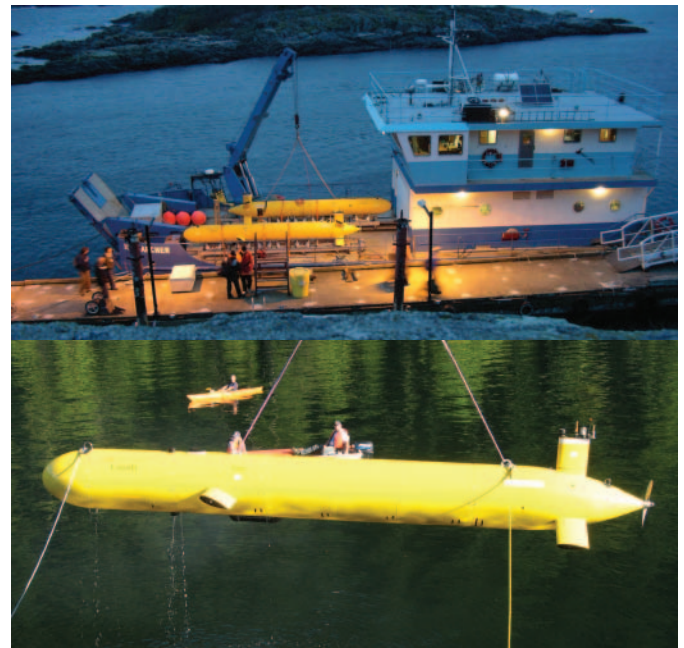
## ARCTIC EXPLORER Autonomous Underwater Vehicle



The Arctic Explorer is a derivative of the successful Explorer AUV that was first designed in 2001. ISE has built two Arctic Explorers for Natural Resources Canada to map the sea floor underneath the Arctic ice shelf in support of Canada's claim under Article 76 of the United Nations Convention on the Law of the Sea. In April 2010, one of these vehicles completed over 1000 km of under-ice survey, mapping the sea floor during 10 days of continuous underwater operation. This was followed up by the 2011 Arctic deployment where the AUV conducted a successful 115 km survey to depths of over 3000 m at 88.5° North.

The Arctic Explorer can be launched from a ship or an ice-hole and the modular sections can be separated for transportation. The Arctic Explorer is the largest of the Explorer AUV class, measuring over 7 m long and weighing over 2000 kg. It is equipped with an extended range capability, making 80 hour missions covering 450 kms possible. The Arctic Explorer has a unique variable ballast system that enables it to park on the sea floor or hold itself on the underside of the ice during the mission. It is rated to 5000 m depth and is designed to remain underwater between missions, with all servicing and charging being carried out by a small portable ROV.

|                         |   |
|-------------------------|---|
| Length                  | 7.4 m   |
| Hull Diameter           | 0.74 m  |
| Dry Weight              | 2200 kg   |
| Working Range           | 450 km  |
| Maximum Depth           | 5000 m  |
| Speed Range             | 0.5 to 2.5 m/s, cruising at 1.5 m/s   |
| Payload                 | Knudsen 118 kHz Single Beam Echosounder,<br>Seabird FastCat CTD, Kongsberg Simrad 200 kHz<br>EM2000 Multibeam Echosounder |
| Power Source            | Exide Technologies rechargeable Lithium Ion batteries   |
| Control Computer        | Rack mount compactPCI system  |
| Hydroplanes             | Aft Planes (configurable X or inverted Y formation),<br>and 2 foreplanes  |
| Navigation              | iXSea Fibre-Optic Inertial Navigation Unit  |
| Velocity Sensor         | Teledyne RDI Workhorse 300 kHz DVL  |
| Positioning             | Global Positioning System on surface, acoustic<br>positioning from acoustic telemetry signal when underwater              |
| Depth Sensor            | Paroscientific Digiquartz transducer  |
| Altitude Sensor         | Kongsberg Mesotech 675 kHz Digital Altimeter  |
| Acoustic Communications | Benthos ATM 885 Acoustic Telemetry System 9-14 kHz  |
| Radio Telemetry         | 2400 MHz radio, Iridium satellite communications  |
| Emergency Equipment     | Novatech Strobe and RF Radio Beacon, Drop weight  |



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**All things underwater**

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