

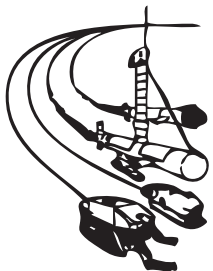
International Submarine Engineering Ltd.

Corporate Profile

ROVs
AUVs
Robotic Systems



ISE Ltd.
All things underwater



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ISE CORPORATE BACKGROUND

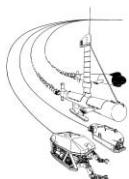
International Submarine Engineering Ltd. (ISE) was formed in August, 1974 to develop, manufacture and sell Remotely Operated Vehicles (ROVs) by Dr. James R. McFarlane, OC, CD, P Eng, FCAE.

At that time the offshore service industry supported subsea oil and gas activities with manned diving spreads and Human Occupied Vehicles (HOVs). Both of these systems require large support ships for their operation. In the early 1970s, the introduction of high-density electronics and the significant rise in the cost of support ships presented and the opportunity to develop, manufacture and market an assortment of smaller, high-endurance robotic vehicles for various subsea tasks.

Over the past 35 years, our achievements have been recognized with awards from many international oceanographic agencies. We have delivered more than 210 underwater vehicles and over 400 robotic manipulators. ISE and our staff have received various awards from international bodies such as IEEE. Most recently, ISE received the Marine Technology Society Compass Industrial Award. ISE's founder, Dr. James McFarlane, was also presented with the MTS Compass Distinguished Achievement Award for Outstanding Contributions to the Advancement of the Science and Engineering of Oceanography and Marine Technology. In 2009, ISE was inducted into the Offshore Energy Center Hall of Fame and was also named as one of Canada's top 40 defence companies. In 2011, Dr. McFarlane was also awarded with a lifetime achievement award from the Diver Certification Board of Canada for his significant contributions to the underwater industry.

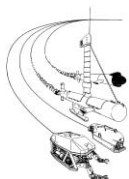
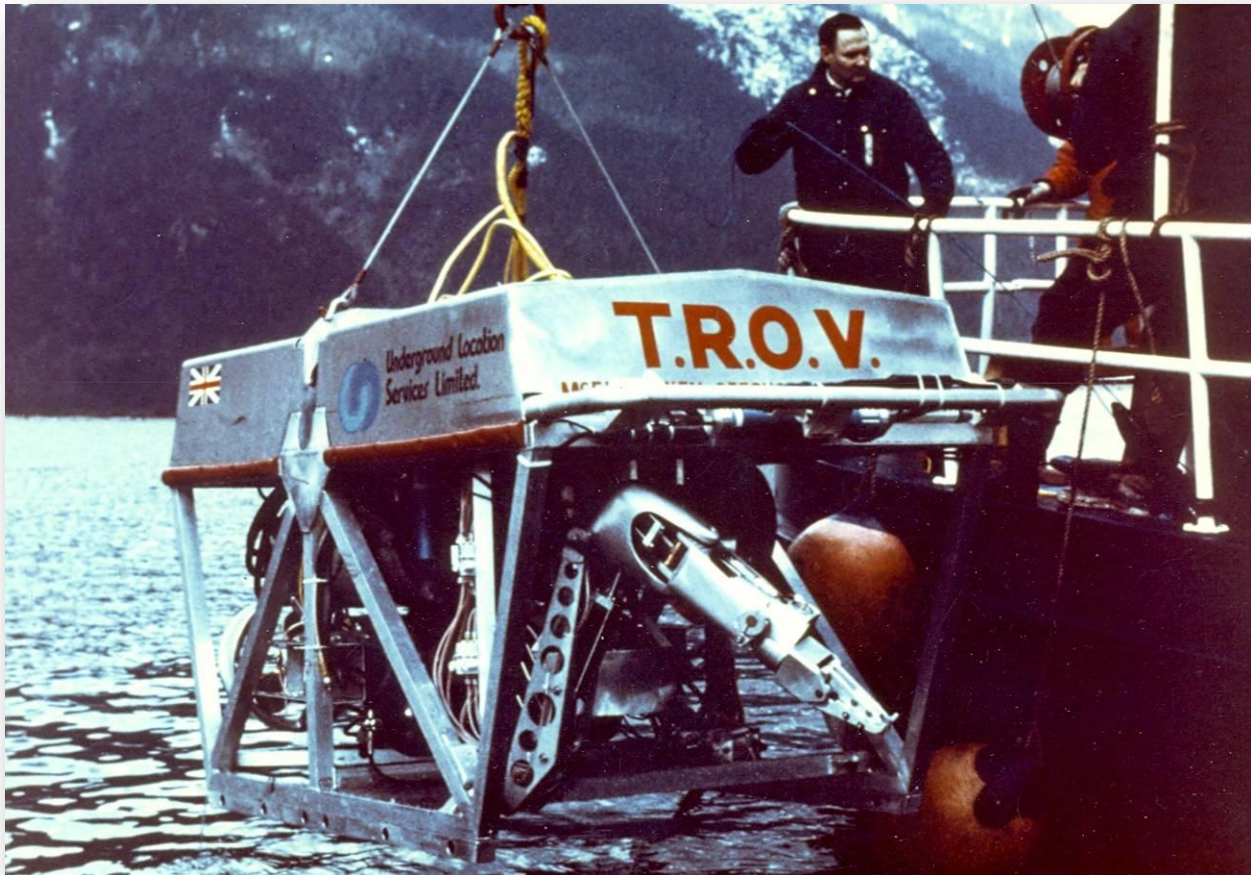


There have been many 'firsts' and records for ISE: the first commercial ROV in the North Sea in 1975; the first manipulator on a commercial ROV in 1976; the ROV TREC ends divers performing walking inspections of pipelines in the Gulf of Mexico in 1979; the first subsea



blowout inspection on the Ixtoc-1 in 1979; the first semi-submersible Autonomous Underwater Vehicle (AUV) DOLPHIN in 1981 developed for military applications; the first AUV survey ever done in 1982; followed by the longest AUV mission under the ice with THESEUS in 1998. At 1.27 metres in diameter and 10.7 metres in length, THESEUS is still the world's largest AUV.

ISE currently designs and manufactures ROVs, AUVs, manned submersibles, semi-submersibles, autonomous and remotely operated surface vehicles, robotic manipulators and software control systems.



Remotely Operated Vehicles (ROVs)

ISE's ROV product lines form one of the core elements of its overall business structure. We have designed and built ROVs for commercial, scientific and military applications. Our ROV's can be delivered in standard and custom configurations to meet our customer's requirements from 5 to 600HP and up to 6000 meters of depth.

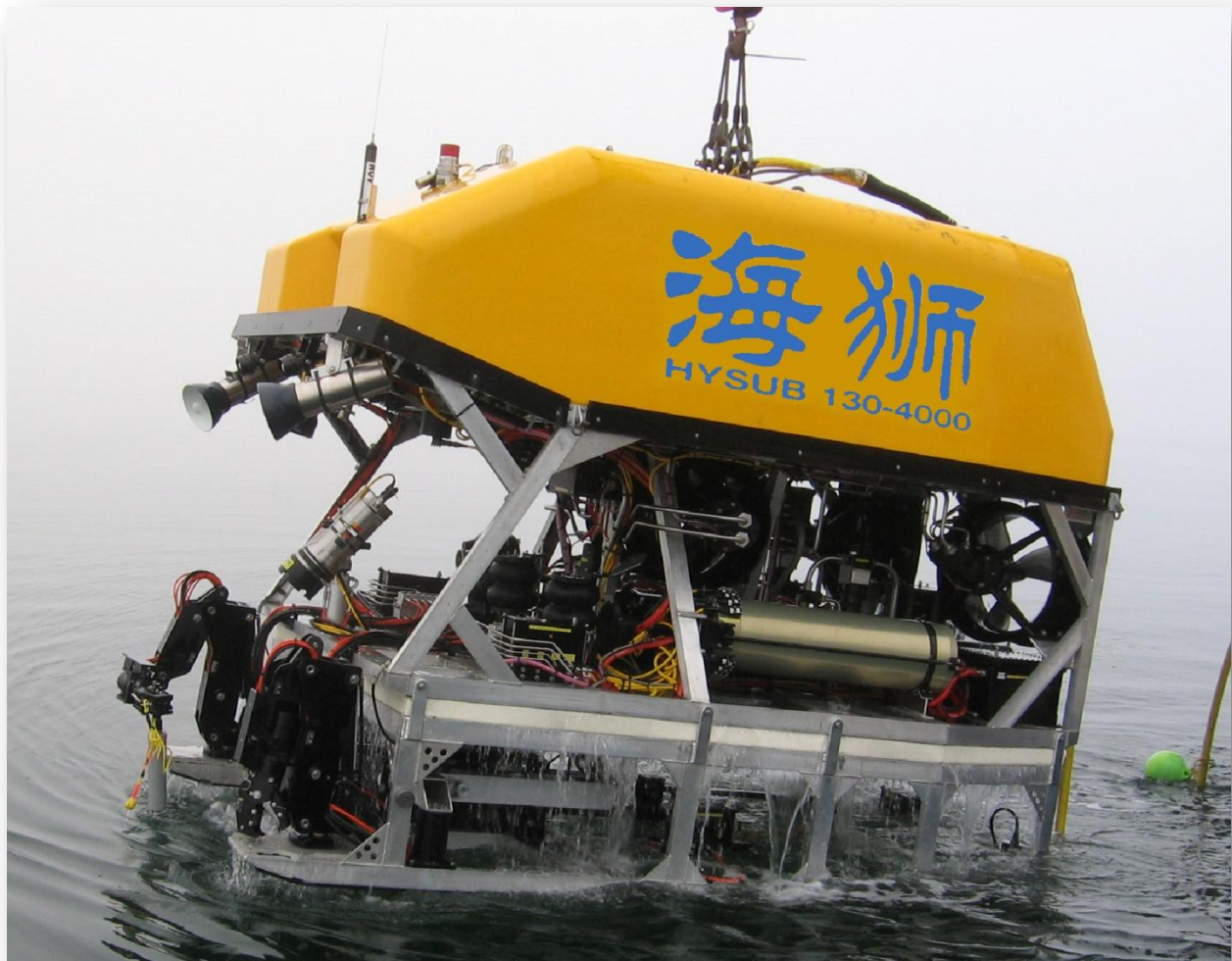
ISE designed and manufactured one of the world's first commercial ROV systems for the Department of Inland Waters, Canada. This vehicle was launched in April of 1975 and delivered in October of the same year and was responsible for discovering Canadian and US warships in the Great Lakes from the battles of 1812.

In 1976, ISE's first pipeline support vehicle worked in the North Sea off the coast of Scotland on the observation of ballasting on the Piper Alpha pipeline. It was also in 1976 when ISE manipulators were installed on these early ROV's for the first time broadly expanding the capabilities of these early systems. By 1979 ROV's were beginning to receive greater acceptance in the offshore oil and gas sector that was reinforced by the ROV TREC replacing divers for performing pipeline inspections. In 1979 there was also the offshore blowout at Itoix-1 in the Gulf of Mexico, again it was an ISE TREC that performed the first ever BOP remote intervention.

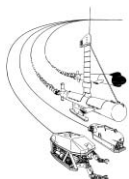
Since these early development and manufacturing efforts ISE ROV's have matured into well-developed, capable and robust commercial products. High bandwidth data communications via fibre optic cable was first accomplished in 1987 and this was one of the first ROV systems to completely rely on fibre for video and data transmission. Increased data transmission capability has allowed the use of sensors requiring extraordinary high volume throughput such as 3 CCD HD broadcast quality video signals. The other benefit realized from the development of fibre optic umbilical cables was a reduction in the overall size of the cable that reduced drag and enhanced vehicle manoeuvrability.



ISE has developed numerous scientific ROV's that must have diverse capabilities to meet the broad ranging requirements of user groups from various scientific disciplines; biologists, chemists, geologists and oceanographers as examples. Some examples of our most notable scientific ROV's; vehicles are the Ventana, operated by the Monterey Bay Aquarium Research Institute (pictured on page 1); the Canadian Scientific Submersible Facility's Remotely Operated Platform for Ocean Sciences, or ROPOS ROV (pictured on page 2); Hyper-Dolphin operated by Japan Agency for Marine-Earth Science and Technology (JAMSTEC), and more recently the HYSUB 130HP ROV Sea Lion for Guangzhou Marine Geological Survey (GMGS), a division of China's Ministry of Land and Resources (pictured below).



ROVs are not just dedicated to the subsea market they also can have land-based operations and ISE has developed and manufactured innovative solutions to customer requirements. Mining is a costly and invasive operation and to ensure the most efficient operation an ROV was



developed to mine the ore vein directly eliminating the extensive removal of overburden associated with some traditional mining operations. ISE built one of the world's first ROVs. This vehicle was launched in April of 1975 and delivered in October of the same year. In 1976 ISE's first pipeline support vehicle worked in the North Sea off the coast of Scotland on the observation of ballasting on the Piper Alpha pipeline.

Autonomous Underwater Vehicles (AUVs)

ISE's first AUV was the Autonomous and Remote Controlled Submarine (ARCS), shown below. The development of the vehicle began in late 1981 for the Canadian Hydrographic Service (CHS). It was designed to conduct surveys in the high Arctic. Until recently, we considered ARCS to be the third AUV built after the University of Washington SPURV program and the Ifremer l'Epaulard. ARCS was actually the very first AUV to operate in an autonomous manner, as the other two were always tethered, either physically or acoustically. ARCS was also the first AUV to conduct a hydrographic survey in 1983.



During ARCS' operational lifespan it was modified and used for a variety of development trials to validate new designs and test the integration of new sensors. These included navigation algorithms, mine countermeasures surveys, long range mission development and fuel cell trials. ARCS was also used to develop an iceberg mapping and profiling system and to evaluate new AUV sensors including a mass spectrometer. In 2002, ARCS was retired following 18 years of operations and over 800 missions.

For ISE, the flagship AUV project of the 1990s was Theseus. It was designed to lay 220 kilometre fibre-optic cables in the Arctic for the Canadian and US navies. Theseus was deployed to the Arctic for trials in 1995 with cable laying missions taking place in 1996. Until very recently, Theseus was the largest AUV in operation and held the record for the longest AUV mission – 460 kilometres, all of which was under ice.

Theseus was retired after the final mission in 1996. It is still owned by Defence Research and Development Canada and is stored at ISE.



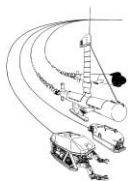


In 2002, we started development of a smaller AUV known as Explorer, based on the successful modular designs of our earlier vehicles. The prototype vehicle was developed and tested in 2003 and delivered to the French oceanographic agency, Ifremer.

The Explorer AUV has been well received by the scientific community around the globe. It is recognized as a stable and reliable survey platform capable of carrying a myriad of payload sensors. Explorer is available in various configurations, with depth ratings to 6000 metres, and endurance options up to 85 hours. Successes within the scientific community and the flexibility of the platform have led to Explorer being well received by commercial survey companies.

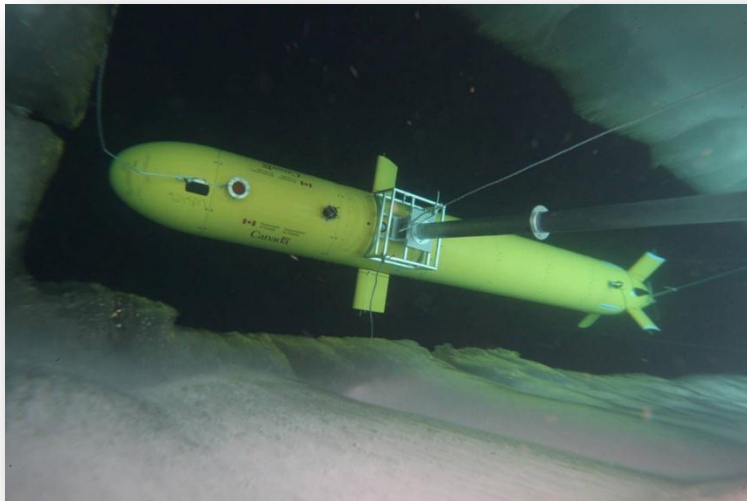
Explorer is now in use around the world, with owners including Ifremer (2 vehicles), the University of Bremen, the National Oceanic and Atmospheric Agency (NOAA) in the USA and Memorial University of Newfoundland.

The AUV pictured above shows the University of Bremen's Explorer off the coast of France in 2008, working with Ifremer. Here, an ISE Explorer AUV performs sea trials near Burrard Inlet, Vancouver, BC.



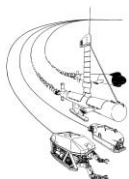
In September 2009, we delivered two 5,000 metre Explorer AUVs to Natural Resources Canada. In 2010 and 2011, they were deployed to the Canadian Arctic to conduct seabed surveys supporting Canada's submission under article 76 of the United Nations Convention on the Law of the Sea.

In April 2010, one of these vehicles completed a 10 day mission in the Arctic at depths to 3160 metres, travelling a total distance of 1100 kilometres under the ice without being recovered from the water. This distance is further than that travelled continuously by any other conventionally powered AUV. It also recorded the very first seabed survey by an AUV underneath Arctic ice.



Pictured left, is the ISE Arctic Explorer being launched through an ice hole during the 2010 Arctic deployment.

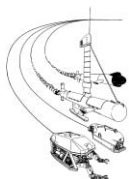
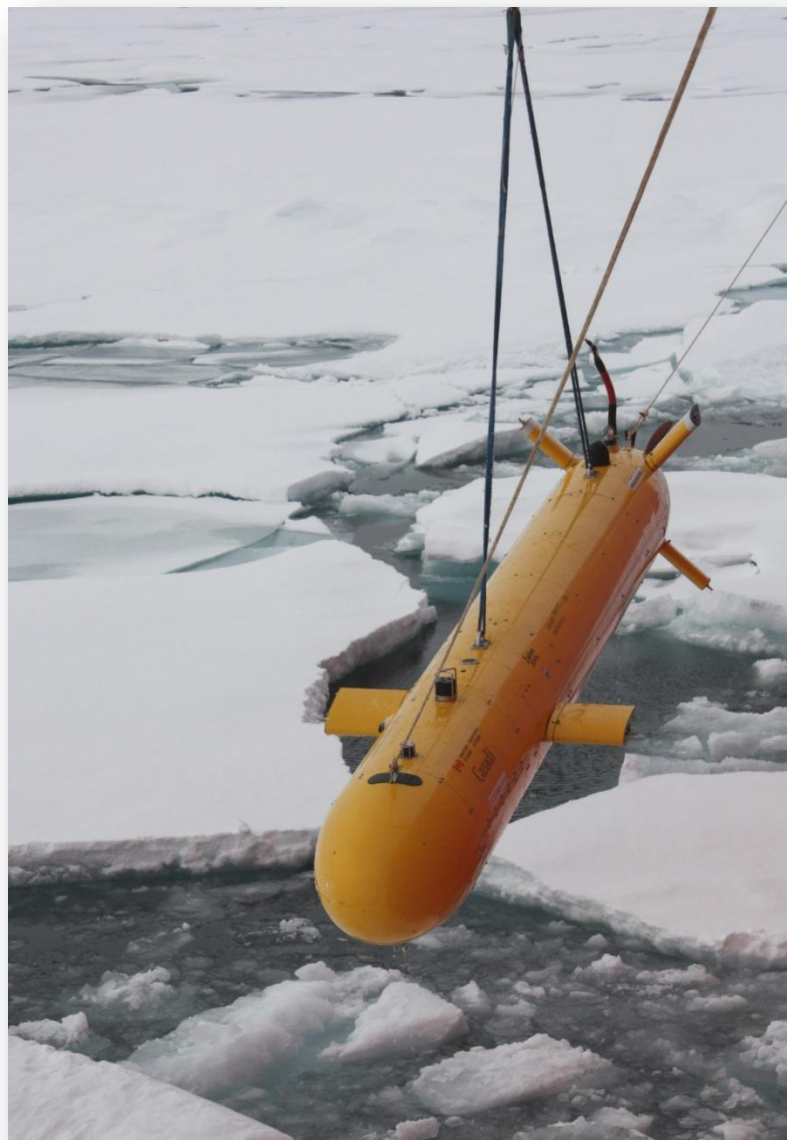
This was followed up by the 2011 Arctic deployment, conducted aboard the Canadian Coast Guard icebreaker the Louis St. Laurent. The AUV conducted a successful 115 km survey to depths of over 3000 m at 88.5° North.



An important aspect of this latest Explorer AUV delivery is the continued support ISE is providing to the client, including on site operational support during the Arctic deployments.

Our most recent Explorer sales were to Fukada Salvage in Japan, and the Japan Coast Guard. Both of these vehicles are configured for commercial survey operations. Each is equipped with sidescan sonar, sub-bottom profiler and a multibeam echosounder. They are also supplied with a self-articulating ramp based launch and recovery system which enables them to be launch and recovered in inclement weather and up to Sea State 4.

In 2007 ISE began work on the Swimmer project for Cybernetix S.A. of Marseille, France and Total. We designed a hybrid AUV system for work in deep oil fields. It comprises a shuttle AUV that carries and deploys a lightweight electric inspection and intervention ROV.



Innovative Solutions

In order to ensure that our products feature the most up to date designs and technology, we place special value in research and development. We combine our development work with partnerships involving universities, government agencies and specialist companies. Since 1984 we have developed hydrodynamic models, vehicle controllers and positioning algorithms, mission specific sensors, power sources and vehicles. It is this experience that allows us to develop innovative solutions for new requirements. Our current research and development activities are centered on extending AUV autonomy and developing prototype platforms with intervention capabilities.

We enjoy creating innovative solutions for underwater applications. In addition to our core products of ROVs and AUVs we have also developed robotic products and been heavily involved in new concepts and designs. Some of the developments are:

- ✚ RMS – the Remote Minehunting System, a combination of semi-submersible and towfish with interchangeable sensor arrays (1).
- ✚ SmartPump™ – a gas station for refuelling passenger cars for the Shell Oil Company.
- ✚ Vulcan Private Submersible – a ten passenger American Bureau of Shipping certified submersible rated to 365 metres. (2)
- ✚ PRMS – the Pressurized Rescue Module System for US Navy Submarine emergency evacuation. (3)
- ✚ SPDM Testbed Manipulator – Canadian Space Agency astronaut robotic arm manipulator training station.



Customer Base

Since ISE was formed we have built strong and lasting relationships with many different organizations around the world. We prefer to develop long lasting relationships with our suppliers, partners and customers.

| Organization: | Location: | Organization: | Location: |
|-----------------------------------|-----------|--|-----------|
| AT & T Ltd | USA | Monterey Bay Aquarium Research Institute (MBARI) | USA |
| Bedford Institute of Oceanography | Canada | Memorial University of Newfoundland | Canada |
| Bremen University, MARUM | Germany | NASA | USA |
| British Oceanics | UK | Nordex Willco AS | Norway |
| CGG Veritas | France | Ocean Works of Asia | Japan |
| C and C Technologies | USA | Oceaneering International Ltd | USA |
| Cybernetix SA | France | Shin Nippon Kaiji | Japan |
| Department of National Defence | Canada | Shell Oil Products Ltd | USA |
| Department of Defense | USA | Southwest Research Institute | USA |
| Det Norske Veritas | Norway | French Ministry of Defence | France |
| DCN International and DCNS | France | Fugro Chance Inc. | USA |
| Société ECA SA | France | University of New Brunswick | Canada |
| Ifremer | France | University of Southern Mississippi | USA |
| Institute of Ocean Sciences | Canada | US DoD (DARPA) | USA |
| JAMSTEC | Japan | UK Ministry of Defence | UK |
| John Hopkins University (APL) | USA | US Navy | USA |

Quality Assurance

ISE's AUV Quality Assurance (QA) program is certified under ISO 9001:2008. The program has evolved since it was introduced over 25 years ago. It began as a Canadian government requirement to meet NATO AQAP standards for military projects. In 1994 we adopted the ISO model for QA programs and achieved initial certification at the first attempt in 1996.

We are audited annually by SAI-Global, an international ISO certification organization. We attained ISO 9001:2000 accreditation in May 2003 and in 2009 we successfully updated our accreditation to the latest ISO 9001:2008 standard.



Every project benefits from a tailored QA program encompassing all components and procedures. Our internal processes are evaluated regularly. Also, our key suppliers are involved with our QA program. The overall focus of the company QA program continues to be in improving the level of customer satisfaction and lowering the cost of doing so.

In Summary

International Submarine Engineering Ltd has proven to be a solid business partner with customers and suppliers alike for over 35 years. The breath of collective expertise and experience in subsea system development supports a North American and international underwater industry that will benefit from ISE's performance for years to come.

