

Masterclass – Needs of New Users

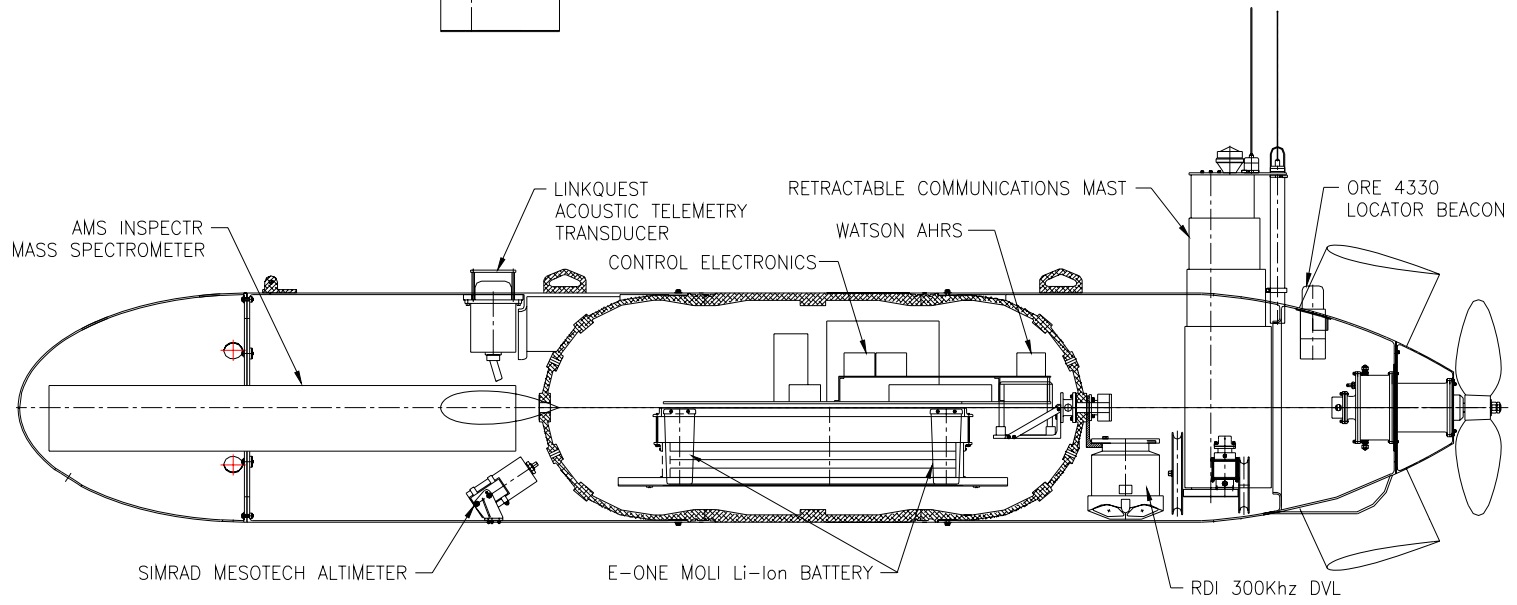
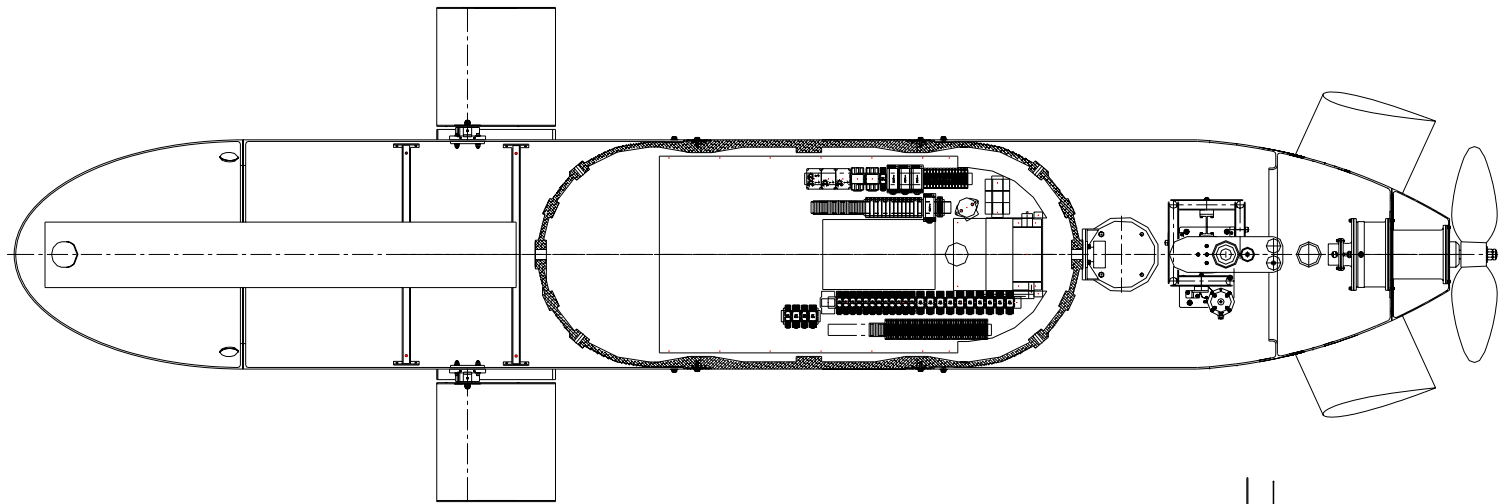
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MUN Explorer AUV

- The *MUN Explorer AUV*, built by ISE Ltd., will be delivered in early 2006.
- Multi-user vehicle whose primary use will be for research purposes in Newfoundland, and other parts of Canada such as the Arctic.
- Previous AUV research at Memorial focused on in-house built C-SCOUT
- Focus on missions







Immediate Explorer Plans

- Receive vehicle March 2006
- Training and mission preparations
- Maiden voyage Spring 2006
- Commence coastal missions throughout summer i.e. plume tracing, AUV maneuvering experiments, etc.
- Initial under ice mission Winter 2007-8

Some Research Plans

- Offshore environmental risk engineering using AUVs
- Study of ocean environmental impacts of planned discharges from the offshore oil and gas industry (produced water and drilling cuttings)
- AUV use as ocean environmental monitoring tool
 - partnered with environmental consultancies
- BELUGA - Below ice Environmental Laboratory Using an AUV
 - Science missions under multi-year Arctic sea ice

Objectives

- Operate AUV as a Canadian national facility based at Memorial University
- Develop sampling strategies for AUVs to be used in environmental monitoring missions for coastal, offshore and under the ice locations.
- Provide a platform for researchers to obtain data otherwise unattainable using traditional platforms.
- Establish strong collaboration with Canadian and international researchers involved in AUV and Arctic research.
- Develop operating strategies, equipment and protocols for AUV operations in Arctic multi-year sea ice conditions.

Why use an AUV?

- Autonomous Underwater Vehicles (AUVs) provide a means to do a wide array of research in the oceans and in hazardous underwater environments.
- Advantages:
 - Versatility to deploy a wide range of sensor payloads
 - Ability to send the vehicle to remote locations that cannot be accessed with a tether or link to the surface.
- Issues for new users



Personnel

- Who, how many and where to recruit?
- Skills and education:
 - organizational;
 - operational;
 - technical
(hardware/software;
mechanical/electrical);
 - safety/recovery
- Training
- Management structure



Funding

- Capital: initial and upgrades
- Operating
 - Transport to site
 - Ship or shore based
 - Support craft
 - Location of missions
- Maintenance and repairs



Insurance

- AUV insurers (Leviathan and brokers such as Willis)
- Presently 6-15% of capital cost per year approx., but may be more in high risk situations
- Self insurance – is it realistic?
- Damage vs partial or total loss

Safety

- To AUV:
 - loss and recovery
 - Damage during launch
- To others:
 - Collisions
 - Operating protocols and regulations
 - Operating personnel
 - Support vessels

Discussion

I.S.E. RESEARCH

