

ROPOS

CANADIAN SCIENTIFIC SUBMERSIBLE FACILITY

SCIENCE FIRST.

A global leader in remotely
operated submersible systems.

SCIENCE DRIVEN.

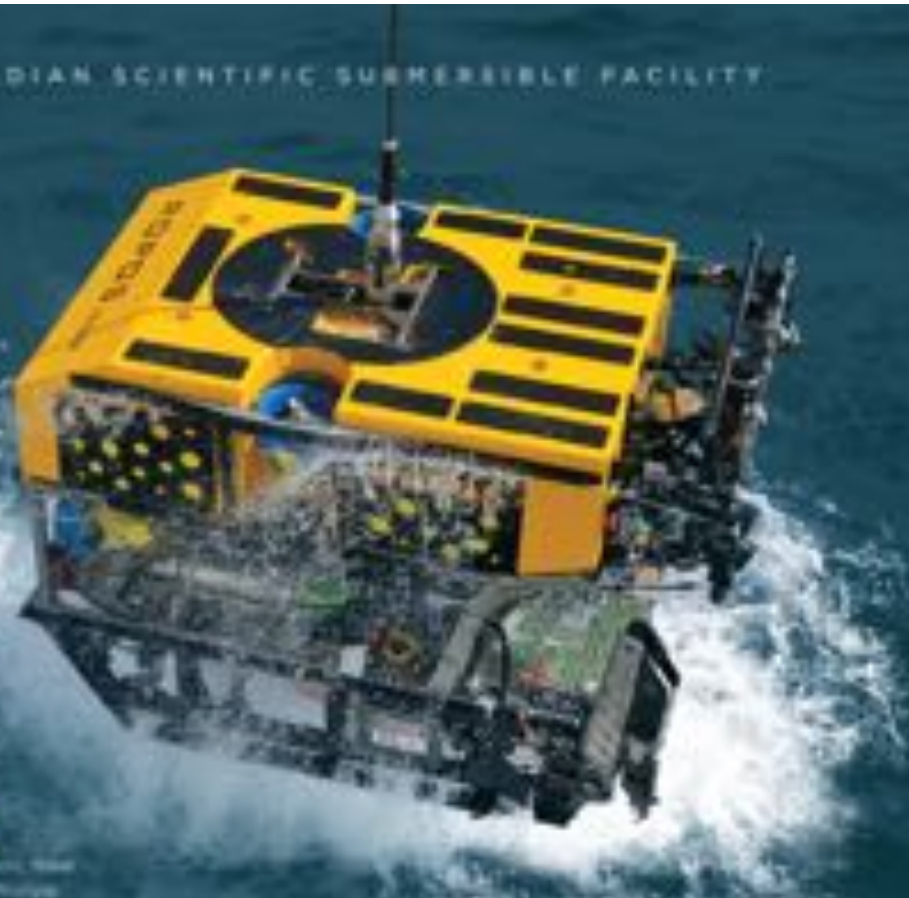
Our work class ROPOS is
designed for science-based
research missions and utilized
by the most experienced
technicians available.

SCIENCE READY.

Our ROPOS is designed and
equipped with leading edge
technology, automatic fail-
safe controls and
redundancies.

SCIENCE NOW.

With our technology and team, ROPOS
missions are successful and flexible,
extending well beyond original
one-time deployment to what fast
and efficient.



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FATHOM CSSF/ROPOS

- Not-for-Profit - user pay facility
- Experienced operators and mature systems increasing efficiency
- Reliable – 98% Uptime - Minimal Maintenance Time
- State of the art technology
- Flexible System Options, ie. Docking Head A-frame operations to full depth



SYSTEM OPTIONS



1000M COASTAL SYSTEM

- Uses a small synthetic-tether winch
- Can be operated from vessels as small as ~100 ft long



4000M WITH A-FRAME DOCKING HEAD

- Highly cost-effective
- Can be operated from a coastal class (regional scale) vessel



4000M WITH LAUNCH & RECOVERY SYSTEM

- Increased weather window
- Reduced deck-crew requirements
- Typically used with a global class vessel

VESSEL DIVERSITY



- NOAA Ship Henry Bigelow – 210ft
- NOAA Ship McArthur II – 224ft
- R/V Atlantis – 273ft
- R/V Thomas G. Thompson – 275ft
- NOAA Ship Ronald H. Brown – 275ft
- NOAA Ship Discoverer – 303ft
- CS Dependable – 456ft



- CCGS RB Young – 105ft
- CCGS Vector – 131ft
- HMCS Dawson – 205ft
- CCGS Parizeau – 211ft
- CCGS Tully – 226ft
- CFAV Quest – 235ft
- HMCS Endeavour – 236ft
- CCGS Martha Black – 272ft
- CCGS Hudson – 296ft
- M/V Kigoriak – 298ft



- R/V Pelagia (Netherlands) – 216ft
- R/V Tan Kah Kee (China) – 254ft
- R/V Falkor (Cayman Islands) – 272ft
- RRS James Clark Ross (United Kingdom) – 324ft
- R/V Sonne (Germany) – 387ft
- CS Giulio Verne (Italy) 436ft
- R/V Akademik Tryoshnikov (Russia) – 439ft

MISSION HIGHLIGHT - NOAA SHIP BIGELOW 2014, 2017, 2019

- Operations on this vessel to 3000m
- Full depth capability (4000m) & comprehensive sampling
- Docking Head (A-Frame) Operations w/ or w/o Container Lab
- Excellent hybrid option for ~200ft vessels (regional scale)
- Surveyed canyon, slope, and basin areas, with concurrent sampling of environmental factors (i.e., depth, salinity, temperature, dissolved oxygen)
- Assessed & collected deep-sea corals for analyses on abundance, distribution, size, taxonomic classifications, reproduction, age, genetic studies;



MISSION HIGHLIGHT – CCGS VECTOR 2005 To 2017

- Up to 1000m depth
- Overboard sheave operations, stacked winch & levelwind
- Excellent option for very small vessels
 - Requires as little as ~150 square feet of deck space¹
- Still provides comprehensive sampling suite:
 - Core tubes, water sampling, suction sampling, bioboxes, etc.



¹ Assuming adequate ship specifications (power, lab space, hydraulics, etc.)

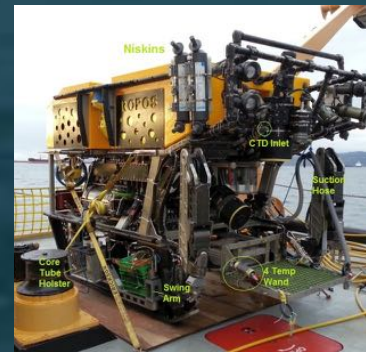
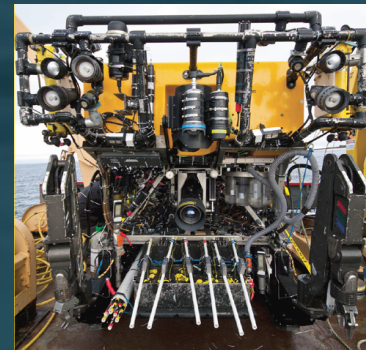
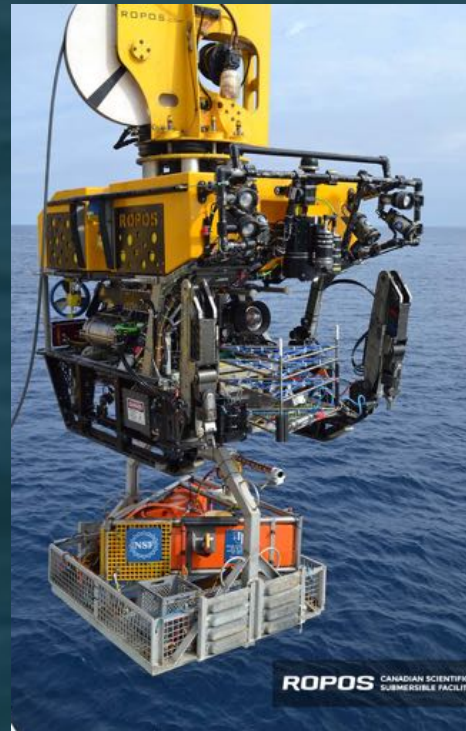
MISSION HIGHLIGHT – R/V TAN KAH KEE 2018

- 4000m depth in the South China Sea
- Demonstrated the logistical capabilities of the ROPOS team
 - First installation on this ship
 - First mobilisation/demobilisation in this port/country
 - First-time users of the ROPOS system
- Exceptionally successful mission
- Supported a substantial social media engagement project (livestreaming with over 180,000 viewers concurrently)
- Provided substantial sampling (hundreds of pounds of rock & manganese samples)











SCIENCE CAPABILITIES

- Multi-disciplinary dives
- World-leading HD Video
- CTD with pH and O₂
- Core tubes
- Water Sampling
- Variable-speed suction sampling
- High Temperature Probes
- Gastight Samplers
- ... and more



RECENT IMPROVEMENTS

-  1. Docking Head Operations on vessels with appropriate A-Frame.
-  2. Two new higher strength, longer reaching spatially correspondent manipulators.
-  3. New DVL increasing the height off seafloor we can attain bottom lock.
-  4. New DSC for increased resolution and light sensitivity.
-  5. New Operations, Work and Power cube containers.
-  6. Longer umbilical for a working depth of 4000 metres.
-  7. New Deck HPU, twin 75HP power packs as opposed to one 150HP.
-  8. New state-of-the-art custom-built telemetry system



THANK YOU

VISIT US AT: WWW.ROPOS.COM

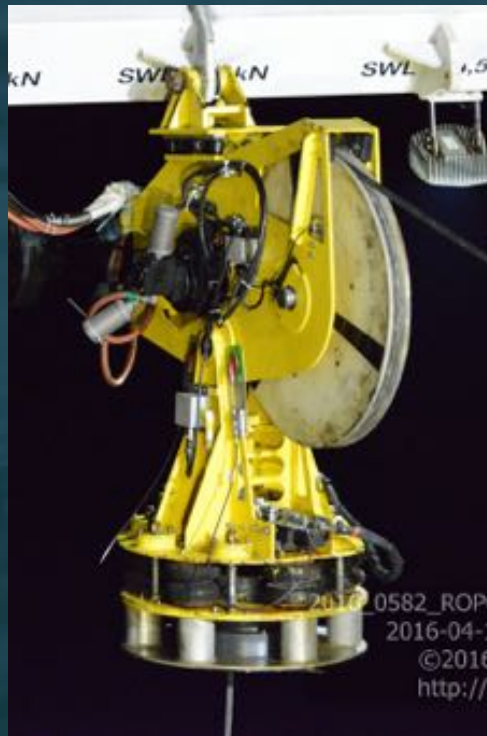
APPENDICES



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DOCKING HEAD



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FIBER OPTIC GYROCOMPASS & DOPPLER VELOCITY LOG

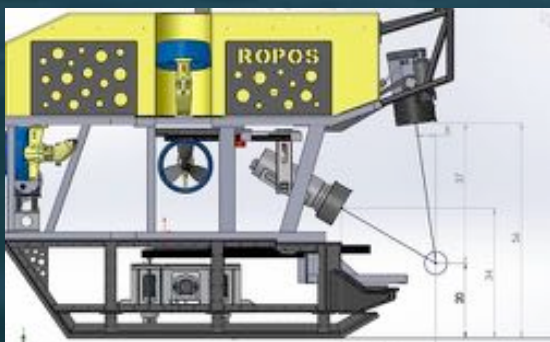
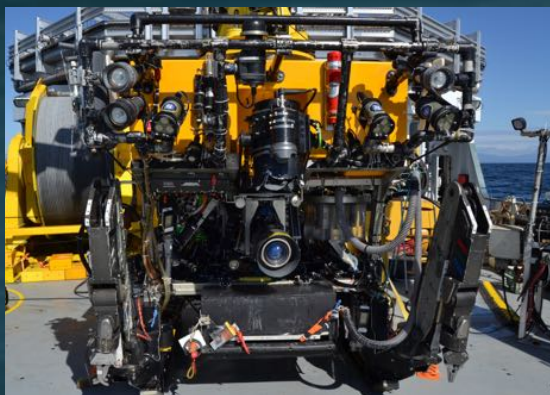


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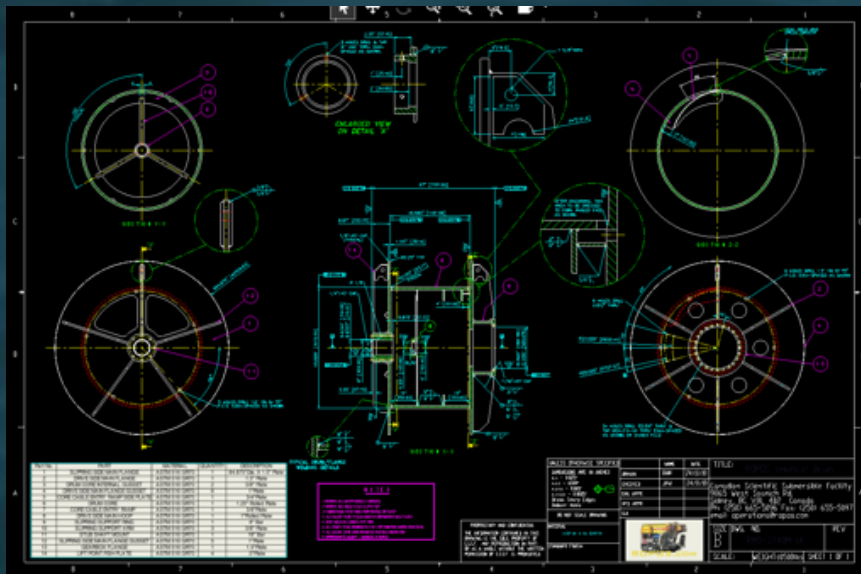
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NEW DIGITAL STILL CAMERA



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DRUM/CABLE OPTIONS



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STATE-OF-THE-ART TELEMETRY



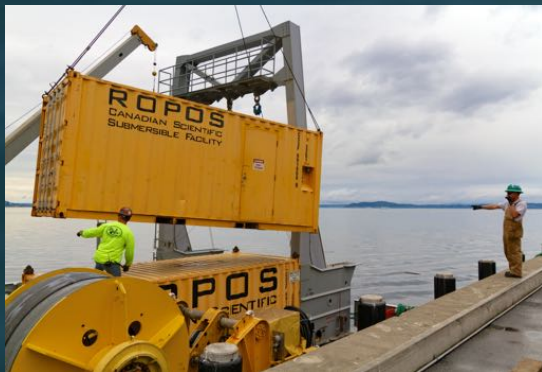
HYDRAULIC POWER



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CONTAINERS & POWERCUBE



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