Dual Head Multibeam Survey With NORBIT WINGHEAD®

Trondheim, Norway
March 2021

- Introduction
- NORBIT WINGHEAD® Multibeam System
- Benefits of Dual Head Configuration
- Installation
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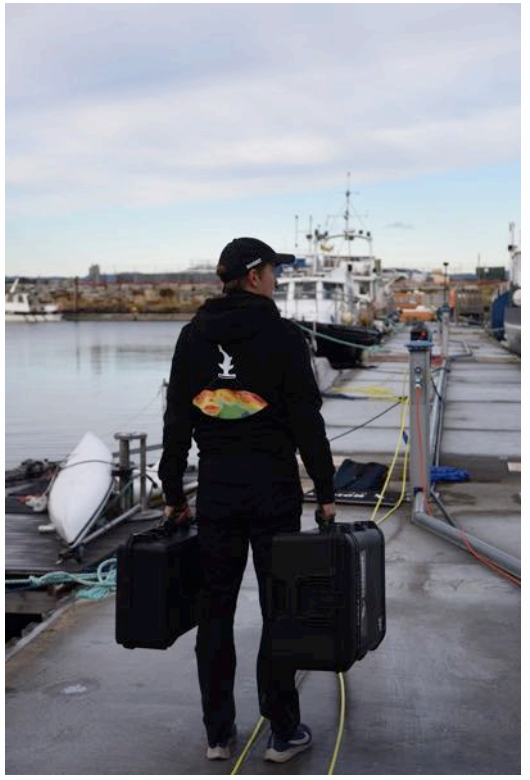
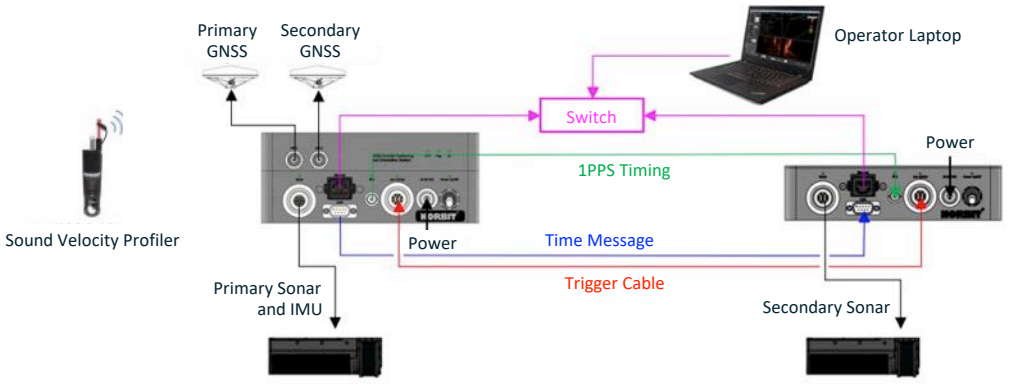
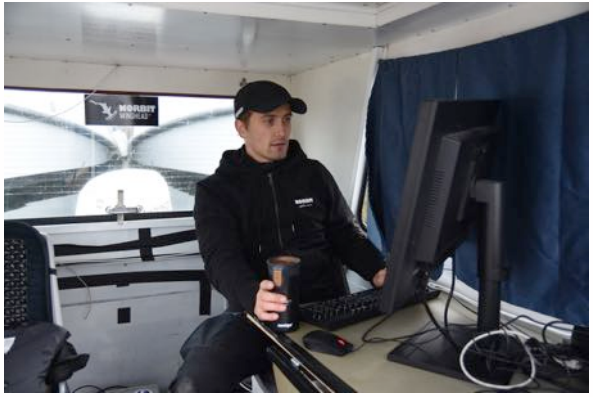
- Summary



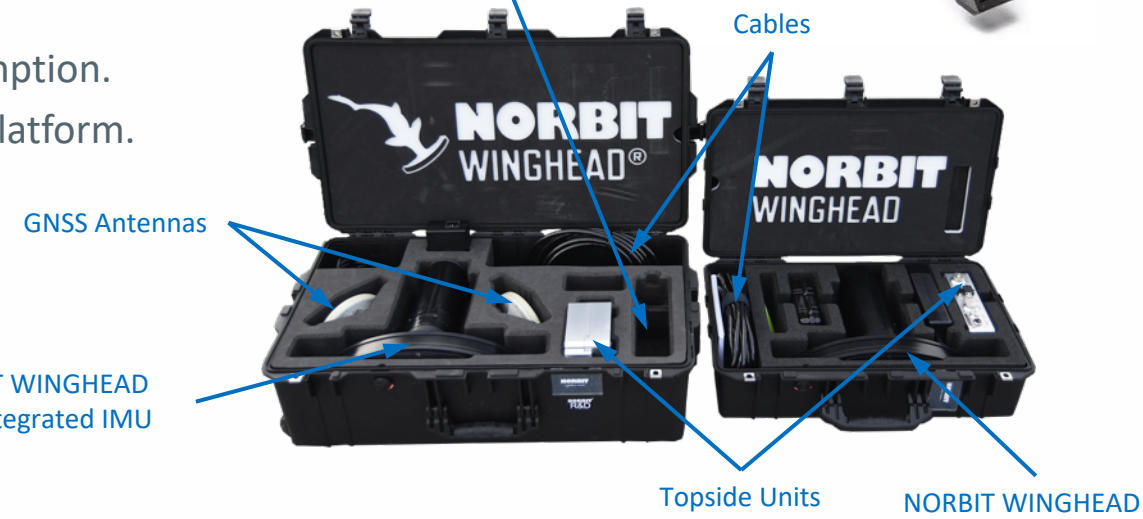
- In this case study we highlight the benefits of using the NORBIT WINGHEAD® integrated survey system in a dual head configuration.
- Sensors used:
  - Dual Head NORBIT WINGHEAD®, featuring integrated Applanix OceanMaster GNSS/INS system.
  - NORBIT Sound Velocity Profiler.



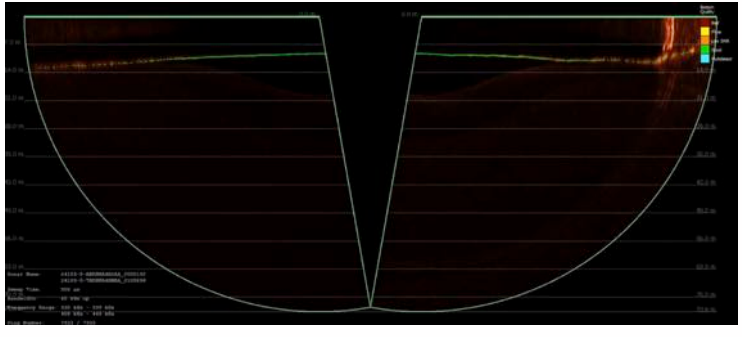


Dual Head NORBIT WINGHEAD®

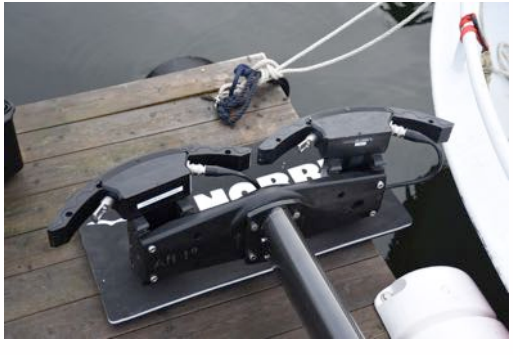
- WINGHEAD benefits:
  - First cylindrical ultra-high resolution bathymetry sonar on the market.
  - 0.5 x 0.9° beam widths at 400kHz.
  - HD beamformer providing 2048 beams per ping.
  - High performance integrated GNSS/INS systems.
  - Integrated sound velocity probe.
  - Small form factor and low power consumption.
  - Designed for rapid mobilization on *any* platform.

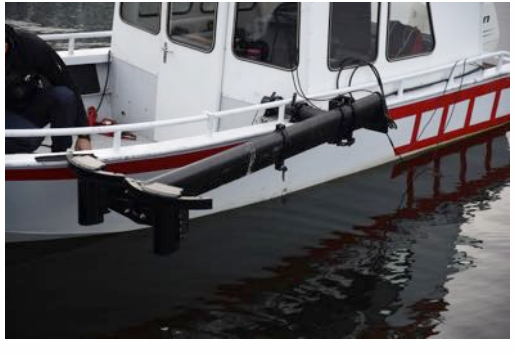


- Operating the NORBIT WINGHEAD in a dual head configuration offers several benefits compared to single head:
  - For pipeline surveys, coverage on the pipe is increased by tilting the sonars inwards and optimizing the sonar's field of view, ensuring that both sides of the pipe are imaged.
  - Increased sounding density and smaller bin sizes, with up to 2048 beams per ping, plus added data redundancy and averaging capabilities.
  - Increased swath coverage, by tilting the sonars outwards and directing more energy to the outer swath, allowing large swathes of seabed to be mapped more quickly.



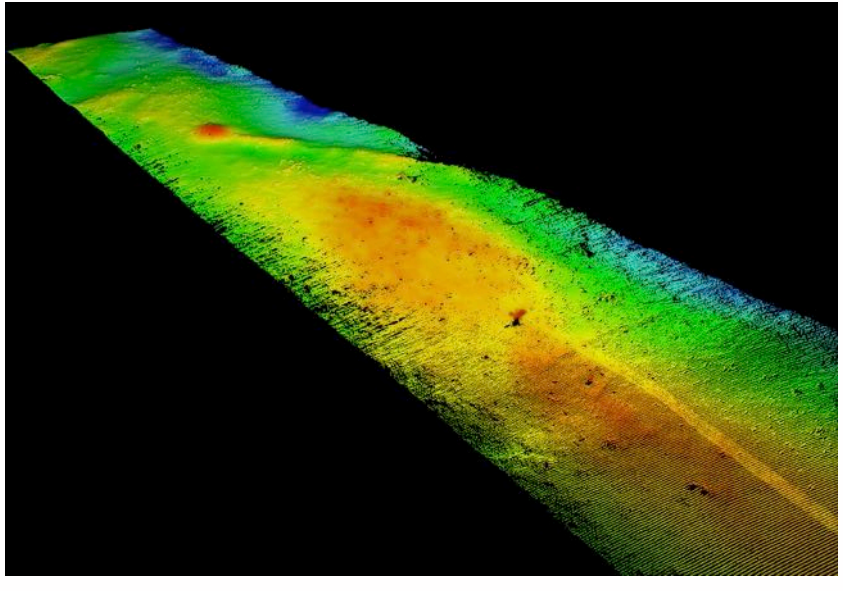
- The highly integrated solution enables small form-factor and rapid deployment.
  - All sensors are interfaced to small topside units, where data is time stamped by the integrated GNSS.
  - The sonars and surface SVP are interfaced to the topside units via single deck cables.
  - Compatible with the NORBIT PORTUS pole, a lightweight carbon fiber mounting solution suitable for small and medium-sized survey vessels.
  - The GUI features an integrated INS setup wizard, as well as monitoring functions, to simplify the setup.
  - The survey system interfaces to an on-board computer via Ethernet connection for data acquisition.

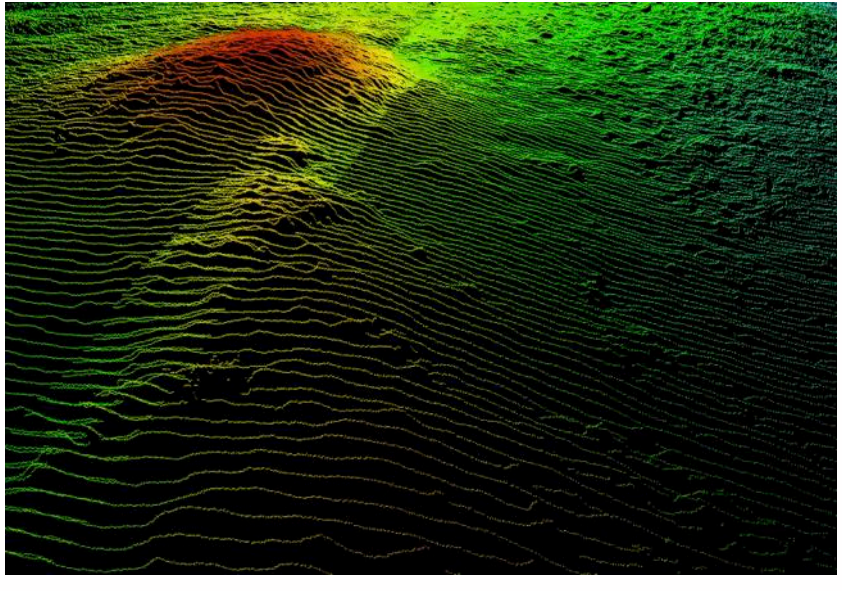




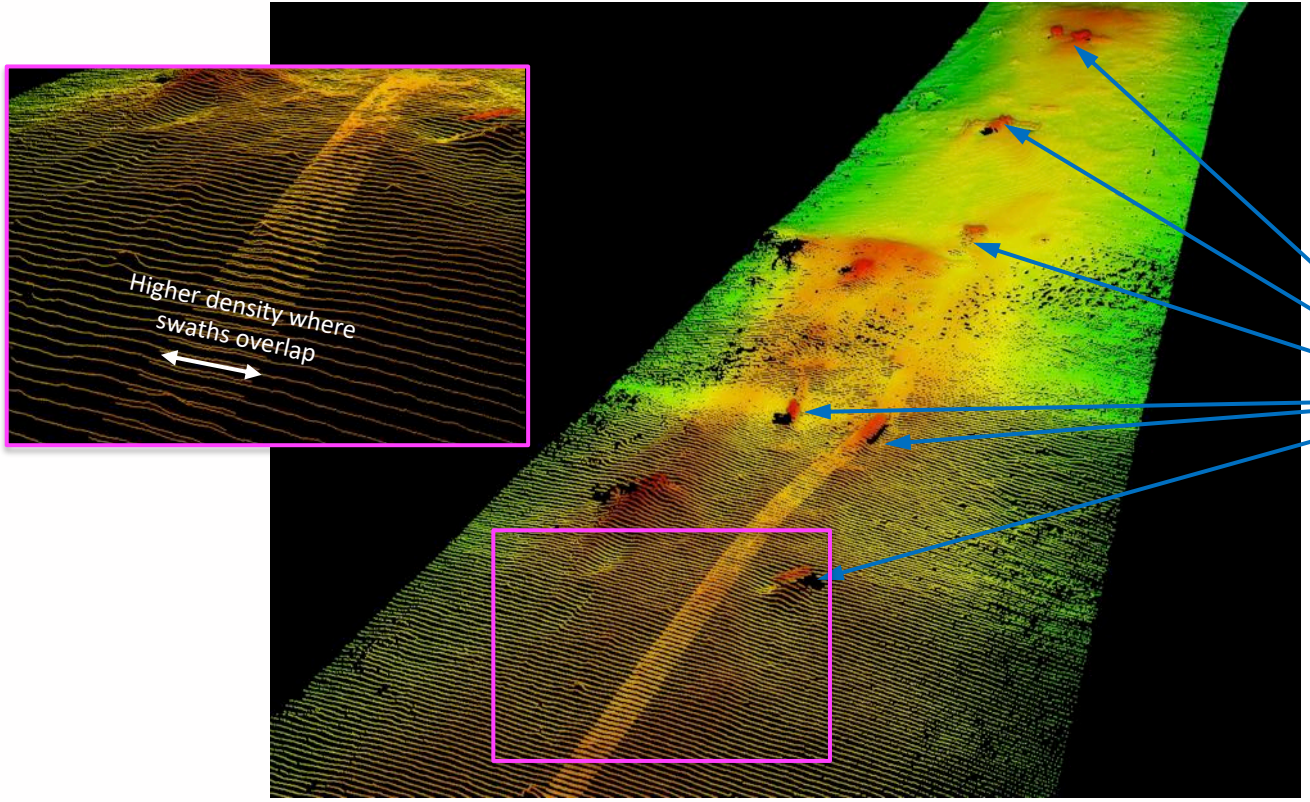
Results: High Sounding Density

- Each sonar generates 1024 beams per ping, giving a combined 2048 beams per ping.
  - More hits on targets (enhanced definition) aids feature detection.
  - Smaller bin sizes.



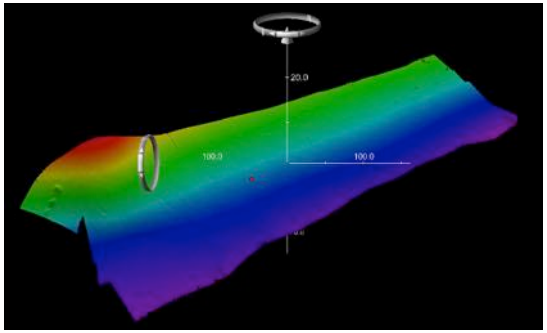


Results: Target Detection



High sounding density allows small targets to be easily identified.

- The NORBIT WINGHEAD dual head system offers ultra-high resolution bathymetry data with 0.5° beam widths at 400kHz.
  - Compact, easy-to-mount hardware with minimal cables for rapid mobilization.
  - Increased sounding density (2048 beams per ping) and smaller bin sizes.
  - Added data redundancy and averaging capabilities.
  - Increased angular swath coverage.
  - Reduced survey time.

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