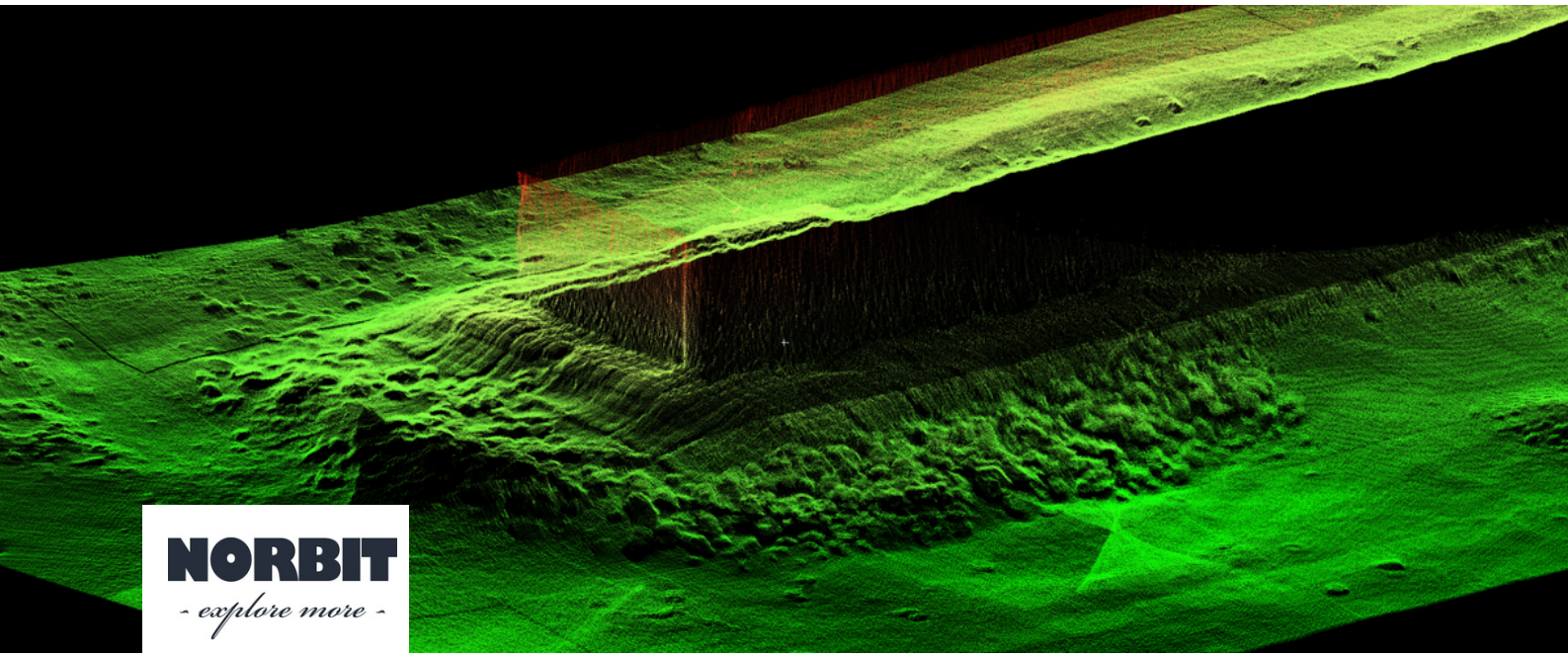


FIELD CASE

Industrial Harbour Multibeam Survey using NORBIT iWBMS System in a "Small Boat of Opportunity"

Overview

Ports are required to support the safe navigation of vessels. To do this, they perform regular hydrographic surveys in the port's areas, such as channels or berths. In this case, our team surveyed an extensive area of approximately 800,000 square meters, generating high-density data in less than three days.

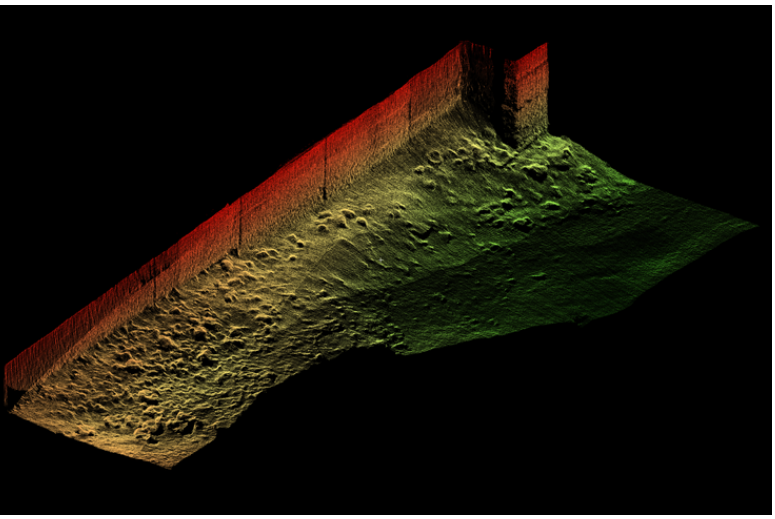
The system

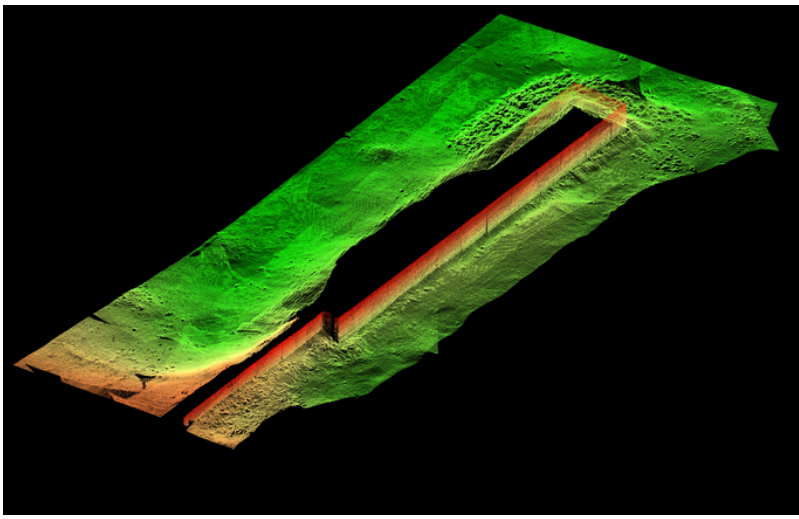
NORBIT iWBMS Multibeam Sonar System

- Frequency agile: 200-700kHz
- 0.9°x1.9° @400kHz
- 0.5°x1.0° @700kHz
- Up to 210° swath width
- Integrated industry-standard OEM Applanix WaveMaster II
- Integrated sound velocity probe
- One single cable from sonar head to small form factor topside
- Bathymetry, side scan, snippets, backscattering strength output (calibrated backscatter)

Installation Process

- A little vessel, aptly called the 'Small Boat of Opportunity,' was utilized for mobilization. The process was executed without any required alterations to the boat's gunwale. Instead, a specially designed mount bracket was deployed to attach the Multibeam Echo Sounder (MBES).
- The NORBIT iWBMS, a multibeam sonar which stands unrivalled in the market in terms of size, weight, resolution, and features, boasts of an expedient single cable installation process that makes it ideal for repeated installations on such vessels of opportunity.





- GNSS RTK corrections were integrated into the system in real-time through the NORBIT GUI-integrated NTRIP client using HxGN SmartNet network.
- Data recording was accomplished using the integrated logging function within the NORBIT GUI. Survey progress was vigilantly monitored and managed from a computer using the simplistic browser NORBIT DCT – NORBIT's proprietary data acquisition software. This software provides an intuitive survey overview on a standard internet browser. It also offers remote access to ground staff in the office via a VPN.

The Survey

- In a real-world application conducted in an industrial harbour zone, the NORBIT iWBMS masterfully surveyed an extensive area of approximately 800,000 square meters, generating high-density data in less than three days.
- The survey was conducted for various crucial safety and maintenance reasons. One of the main objectives was to ensure safe navigation for vessels by providing accurate bathymetric data. The varying depths of the water, ranging from less than 2 meters to over 12 meters, were expertly handled by the multibeam sonar system, illustrating its versatility and reliability.
- Notably, the detailed mapping of the seafloor made possible by the NORBIT iWBMS allowed for the identification of potential hazards to navigation, such as underwater obstructions and significant topographic variations. Recognizing these elements contributes significantly to maritime safety, enabling proactive measures to prevent possible incidents.
- The sonar mapping also included surveys of underwater structures like seawalls to check for potential damages, thereby ensuring their integrity and the overall safety of industrial operations.
- In addition, the survey accurately plotted the positions of the floating vertical structures that serve as the foundations for oil platforms. This process highlighted the NORBIT iWBMS's precision in data acquisition and its significant role in fostering safer and more efficient offshore oil operations.
- The roll stabilisation feature was implemented to achieve uniform data density, especially in deeper waters. This feature actively compensates for the vessel's roll motion, resulting in better uniformity of acoustic imaging of the seafloor. Consequently, data distribution becomes more predictable as the sonar directly offsets the vessel's roll motion. This real-world application further cements the NORBIT iWBMS's reputation as a versatile and dependable multibeam sonar system.

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