

4-days Multibeam Course

Location: Remote (virtual classroom)

Timezone CET, Times 09:00 - 11:30 & 13:30 - 16:00

Training Instructor: Ebelien van der Velde (BSc Hydrography Cat A, Amsterdam 1999)

Course Layout

This multibeam survey course provides a comprehensive foundation for hydrography professionals. The course offers a strong emphasis on practical skills, quality control with a focus on meeting client specifications. The participant will learn the essentials for conducting successful multibeam hydrographic surveys.

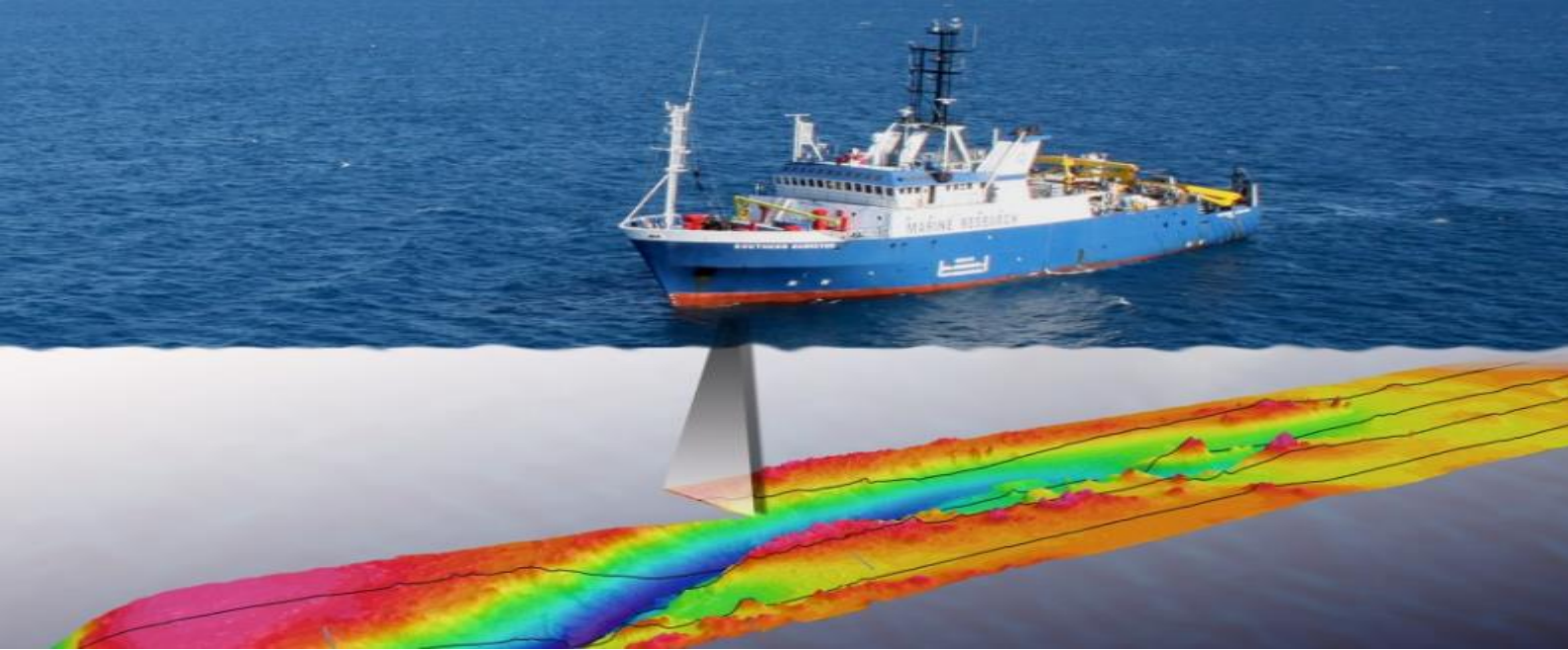
Image: By means of multibeam echo sounder, which is an advanced sonar system, one can simultaneously transmit multiple sound pulses (beams) over a wide area under a ship.

Learning Objectives

The following learning objectives ensure that students gain a good foundation in both the theoretical and practical aspects of multi-beam hydrographic surveying, leaving them well prepared for a wide range of professional applications.

Understanding the Basics of Hydrography: Students will learn about the fundamental concepts of hydrography, including the principles of sonar technology, the importance of accurate nautical charts, and the role of hydrography in maritime navigation, underwater exploration, and environmental research.

Knowledge of Multibeam Echosounder Systems: Students will get in-depth knowledge of the operation, configuration and maintenance of multibeam echosounder systems. This includes understanding the technical specifications, onboard installation, and calibration of the equipment.



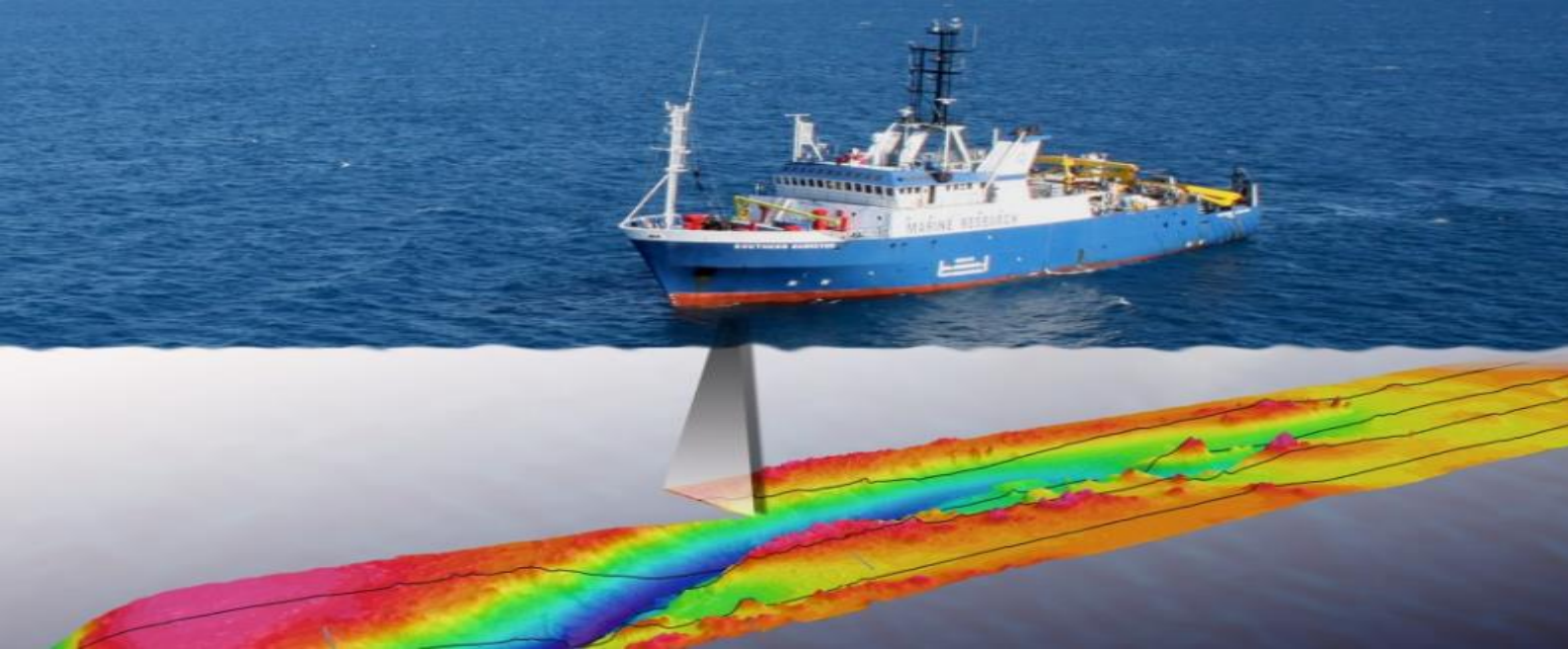
Data Acquisition and Processing: Participants will learn how to collect data using multibeam sonar systems, including planning survey routes, conducting surveys, and collecting bathymetric, multibeam backscatter, and water column data. In addition, they will learn about processing and interpreting this data to produce accurate maps.

Quality Control and Quality Assurance: Participants will gain an understanding of the quality control and assurance methods essential for ensuring the accuracy and reliability of the hydrographic data collected. This includes learning about sources of error, validating data and applying corrections where necessary.

Applications and Case Studies: Students explore the various applications of multibeam hydrographic surveys in practice, such as in shipping, coastal zone management, offshore construction projects, environmental studies, and underwater archaeology. Through case studies and possible fieldwork, they learn how theory and practice come together in projects.

Day 1 - Multibeam Survey Basics

- We are beginning with the end in mind. This first day is an introduction to multibeam surveying, with a focus on the importance of starting a project with client specifications in mind. The participant will learn what good multibeam data looks like.
- What is Multibeam Sonar: Explanations on the technology and various applications.
- Translating client specs into survey parameters.
- Multibeam data quality control and quality assurance during data acquisition and data processing.
- Geodetic parameters for hydrographic surveying
- Software workflows - from setup to final products.
- Sonar manufacturers, models & makes
- Survey Equipment.



Day 2 - Survey Equipment and Vessel Mobilization (part1)

- Survey Vessel Setup.
- Survey Equipment & Sensor Offsets.
- Sensor Calibrations.

Day 3 - Survey Equipment and Vessel Mobilization (part2)

- Sensor Configuration and Survey Software Setup.
- Equipment interfacing.
- Pre-survey Checks & Calibrations .
- QC/QA prior to data acquisition.

Day 4 - Data acquisition, QC/QA and Reporting

- Best practices for multibeam data acquisition: Do's and Don'ts.
- QC/QA during Multibeam data collection on a simulator.
- Reporting and working towards a product which meets client specs.
- Data cleaning, QC/QA and final products.