

Semi-Buried Seabed Object Detection: Sonar vs. Geophysical Methods

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SUMMARY

A hydrographic survey is used to measure and analyse a body of water for a specific purpose, such as seabed mapping for safe navigation, subsea structure construction and pipeline and cable routing...

Several hydrographic survey methods were utilized in order to determine the status of a semi-buried seabed object.

This paper deals with the site investigation processes of detecting a semi-buried object using multibeam echosounder, side scan sonar and magnetometer data. There are pros and cons of sonar (multibeam echosounder and side scan sonar) and geophysical methods (magnetometer) for this purpose of survey.

Since the object is semi-buried, both buried and exposed parts were expected to be detected using a geophysical method. On seabed sections were expected to be visible during interpretation of sonar data.

Migrating sand waves caused the object visibility to change over time. Several surveys were completed during one year and the object exposed itself each time on different locations.

The primary use of the magnetometer is to provide evidence of the existence of ferrous material on or below the seafloor. The magnetometer data did not provide usable data due to the presence of a large structure in surrounding area. Therefore, it was necessary to rely on sonar survey methods in order to detect the semi-buried seabed object. A comparison in acquisition, processing and data interpretation between geophysical and sonar survey methods has been presented and explained.

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