

NORBIT STX 3D bathy solution



PAP 2017-06-08



STX – 4D sonar from NORBIT How does it work?



NORBIT STX 400kHz with integrated GNSS/INS

STX Scanning pattern



First objects of interest:

Two large jack up ships located north of Amsterdam







SEAJACKS KRAKEN





Google Earth historic photo and overlaid data from survey

Steel legs - hard reflectors and difficult targets for acoustics





Surveying with NORBIT STX allows seeing behind the shadowing structure



Standard bathymetry survey shows gaps due to shadows from the pillars

Using 20 deg scanning allows rays to be steered behind the structure which eliminates some gaps. Performed with 512 ED, Pitch stab, roll stab



STX characterize objects from different angles

Standard bathymetry survey shows gaps due to shadows from pillars and low definition of the structure

STX eliminates many shadows and shows much higher definition due to hits from many angles





SEAJACKS ZARATAN & large 3m diameter pillars





ZARATAN's pillars are solid steel and give big shadows behind them. Running normal survey leaves gaps in the data. Running the same survey with NORBIT STX system fills in the gaps with the scanned beam





Pilings in Amsterdam port







Running standard survey next to pillars leave shadows and gaps in the grid which needs to be re-surveyed on the other side

- explore more -

Using STX's "explore more" feature the surveyor can look behind the pillars filling in the gaps in a single line.

-9.00

-9.30

-9.60

-9.90

-10.20

-10.80

-11.10

-11.40





STX improves the survey efficiency.

Three lines with a standard system against one line with STX!

Gaps behind pillars with standard

No gaps with STX



Single line

Single line



- explore more -

Gaps behind pillars with standard survey

No gaps with STX



Single line

Single line



Pillars in the port. Complicated steel structure giving big shadow and gaps in the grid.







- explore more -

In both cases surveying with STX gives better bottom coverage and more statistics on objects.

Standard bathy survey

STX survey – smaller gap





- explore more -

Conclusions:

- New NORBIT STX 3D sonar improves the characterization of underwater structures by using scanning features of the transmitted signal insonifying objects from different angles
- The STX improves the survey efficiency by utilizing scanning that allows seeing behind structures which otherwise give shadows and gaps during the standard survey





