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iXblue develops advanced technologies to match Customers' challenges in tough environments

iXblue
PHOTONIC SOLUTIONS

Specialty Fibers
& Photonic Components

iXblue
NAVIGATION SYSTEMS

Inertial Systems
& Navigation Solutions

iXblue
ACOUSTICS SYSTEMS

Acoustic Positioning
& Sonar / Sounder solutions

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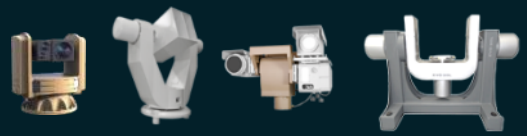
MOTION SYSTEMS



Multi-axis Tables, Simulators,
Pan & Tilt & Positioners

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DIVISION H2X

Composite
Specialized ships

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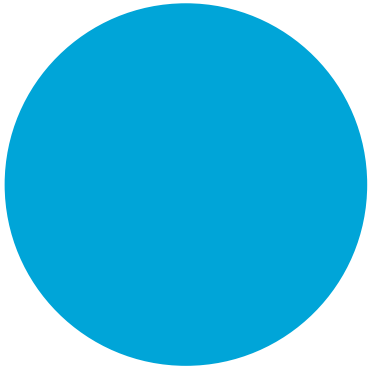
SEA OPERATION

A Survey
Company

Remote hydrography in the North Sea Region



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WHAT are the USV DRIX and its environment?

What do hydrographers expect from Uncrewed Surface Vessel

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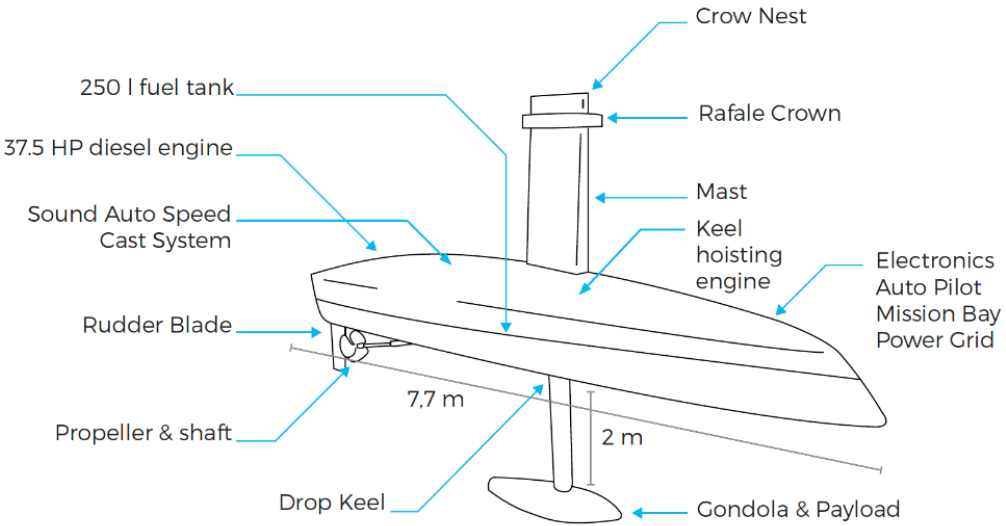
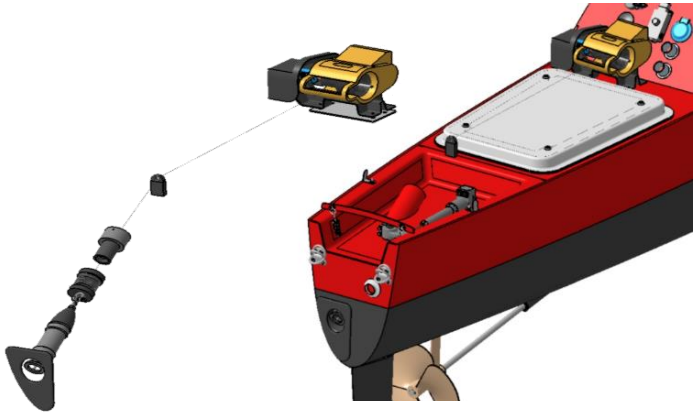
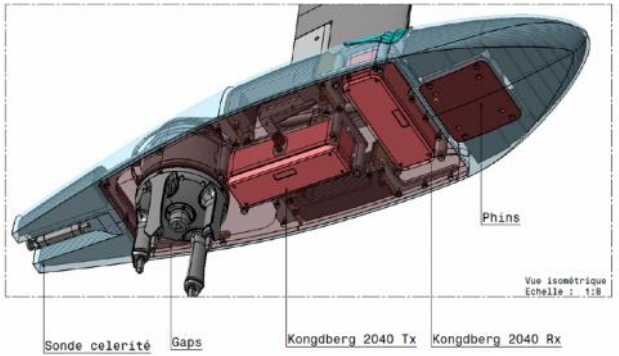
DriX in a Nutshell





Fully integrated below deck cover SVP sonder and winch



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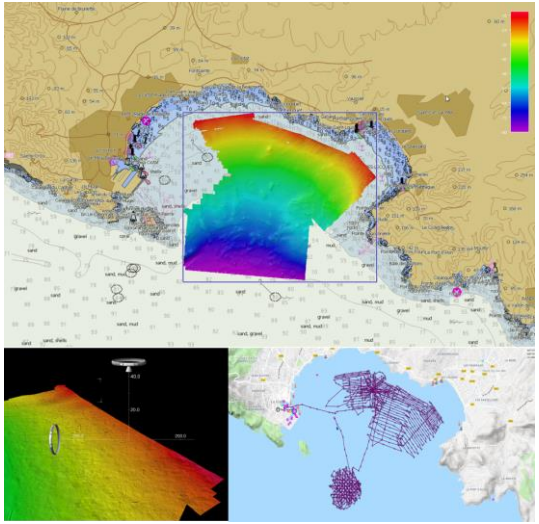
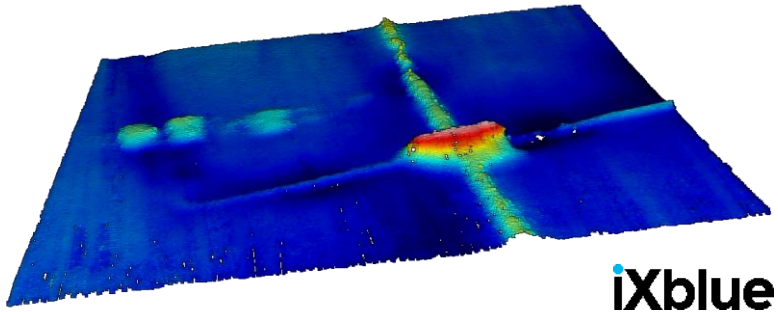
DriX in a nutshell

- Weight : 1.5T / Length : 7.8m
- Low fuel consumption : 2L/h @ survey speed
- 5 days mission in autonomy
- Obstacle avoidance to support Colreg
- Over the Horizon capabilities
- Optimized vessel shape and Gondola
  - Reduce surrounding noise, Enhance data quality, and equipment capability
  - Maintain a higher average survey speed
  - Operates in marginal weather : Sea state 5 in data acquisition
- Shorter line change
- Unique “on the way” Launch and Recovery System





DriX in North Sea Region 2020 achievements

- Concept of operation qualification with SHOM
- 2 DriX parallel operations
- Over the Horizon
- Weather tolerance
- Multi-sensor deployment
- Endurance
- Robust risk assessment

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Case Studies

- Weather tolerance
- Data Quality
- Multiple equipment deploiment

Empowering data acquisition

DriX data acquisition and qualification at Seastate 5

Empowering data acquisition

DriX data acquisition and qualification at Seastate 5

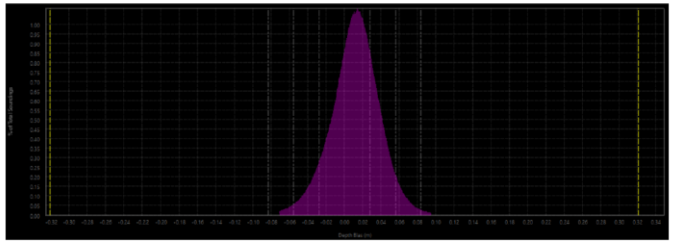


Figure 13 : MBES data distribution histogram

Data distribution histogram is centered on 0 indicating no Bias between the cross line and the Digital Terrain Model.

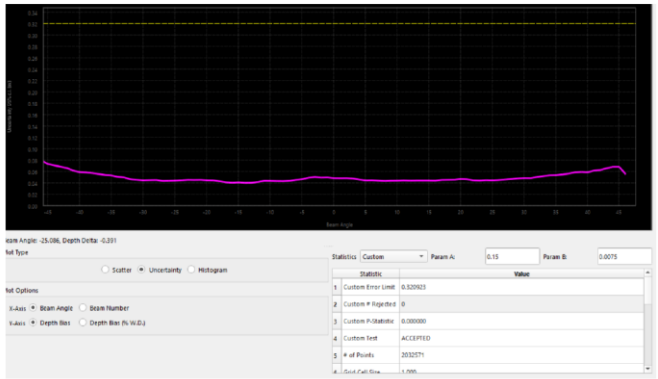


Figure 14 : Swath display with respect to the exclusive order

Result shows, that in term of Total Propagated Vertical Error, DRIX passed with a factor 4 the new IHO standard Exclusive Order, over the complete swath width.

The day of the 21/10 is displayed below, with highlighted time of survey.

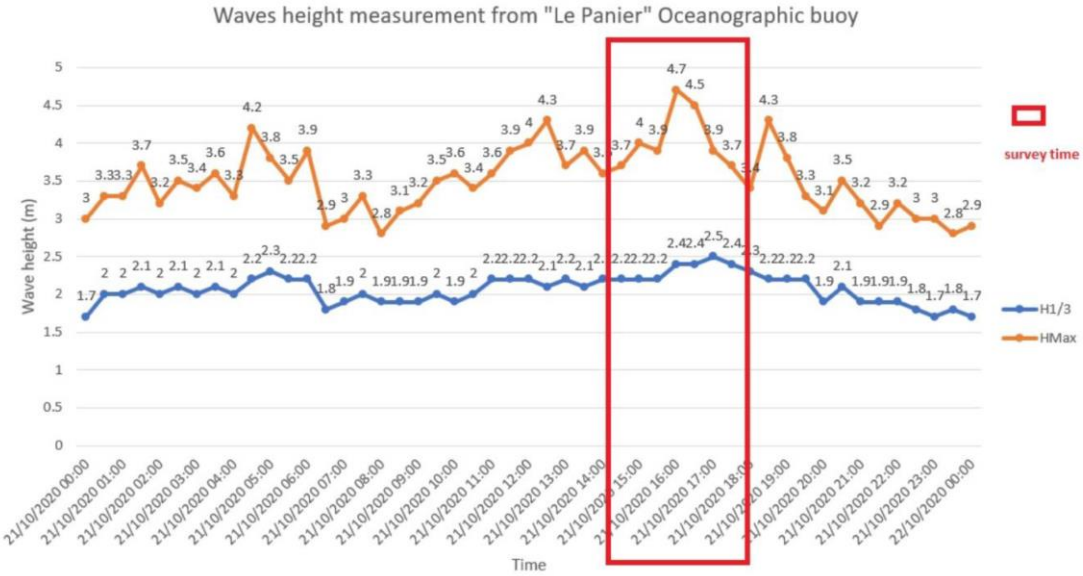
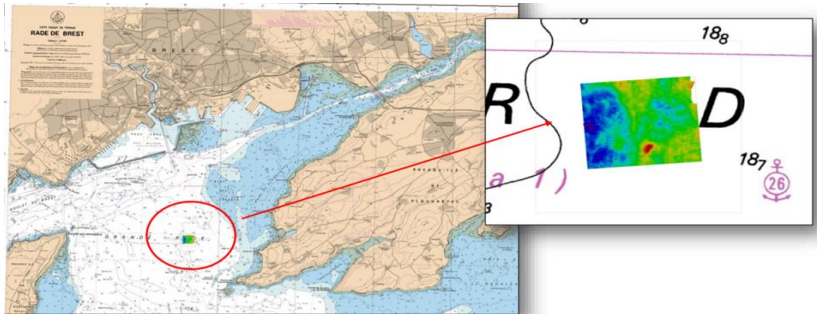


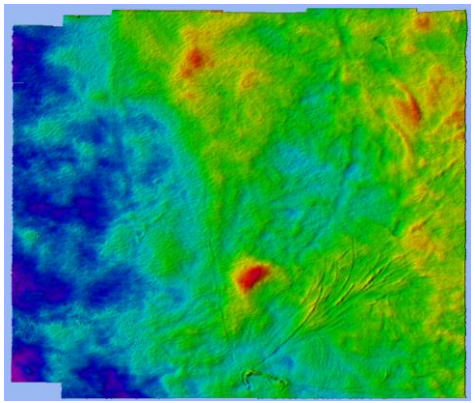
Figure 3 : Wave buoy graph

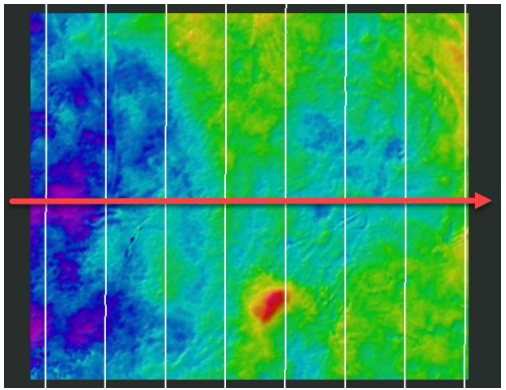
Qualified system reducing Noise and Data Processing

Qualification on reference area

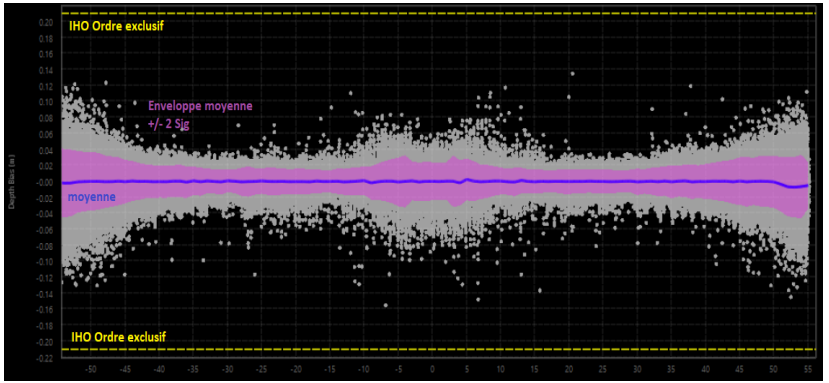


Outstanding achievements on meeting IHO exclusive order requirements in Uncertainty and data density @20m	
IHO exclusive order requirement:	20cm
DriX dataset uncertainty +/- 2 σ:	4cm
Data density (soundings per m²)	24
Statistics performed on all soundings	





Cross line check



Swath view

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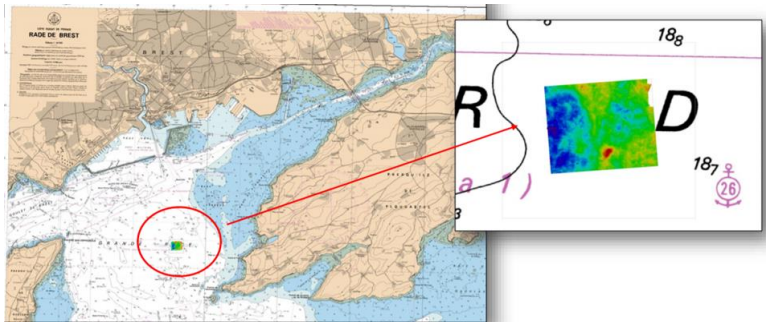
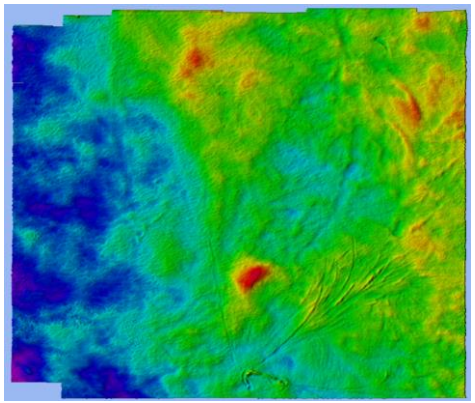
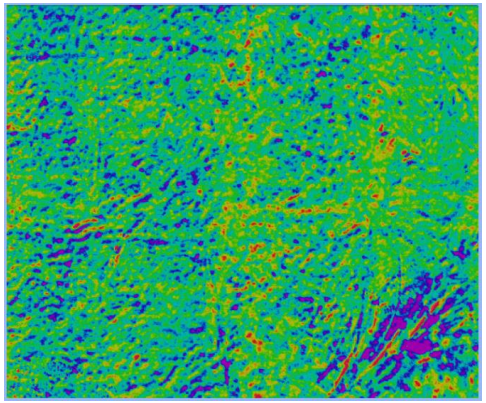
Qualified system reducing Noise and Data Processing

Qualification on reference area

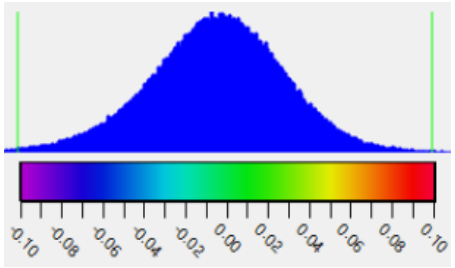


Outstanding achievements on meeting IHO exclusive order requirements in Uncertainty and data density @20m	
Mean difference respect to reference:	1cm
Mean standard deviation:	3cm
Result repeted and valid at speed	4, 6, 8, 10 & 14kts





Differential map
DRIX vs SHOM ref data set



Differential statistic distribution

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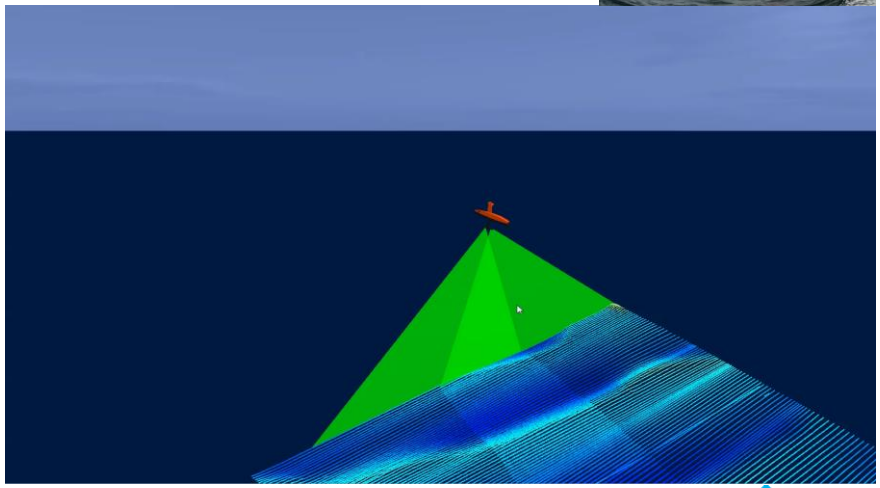
CASE STUDY: Subsea inspection

Faster line change
Better line keeping
Faster average survey speed
Optimization of weather windows
Lower risk to infrastructure



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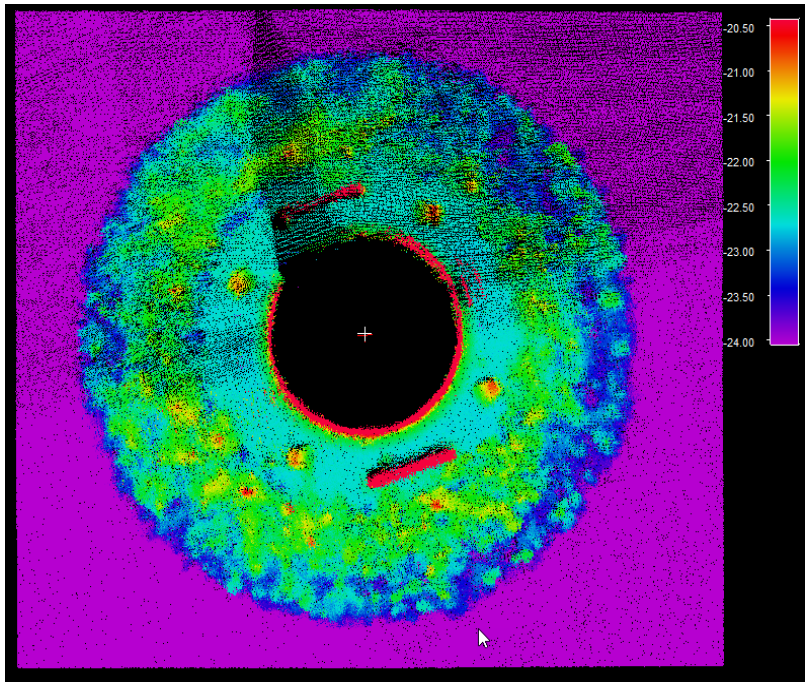
CASE STUDY: Subsea inspection

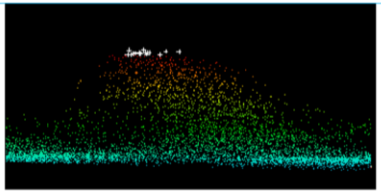
Remarkable results confirmed on complex structure



Wind turbine pile fondation

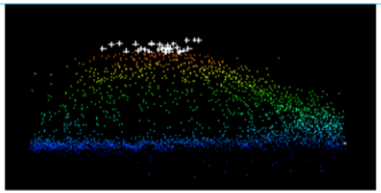
Structure 3

	Depth
Measured	-24.64
Client as - built	-24.64
Difference	0 cm



Structure 4

	Depth
Measured	-24.68
Client as-built	-24.64
Difference	4 cm



XY comparison over a known structure

	Easting (m)	Northing (m)	Standard Deviation
Computed Circle centre	310078.17	5525385.27	6 cm
Theoretical Mast centre	310078.19	5525385.18	
Difference	2 cm	9 cm	

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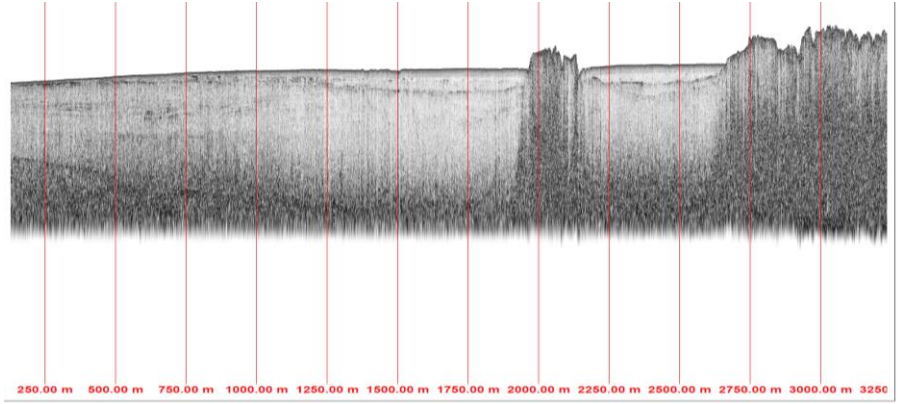
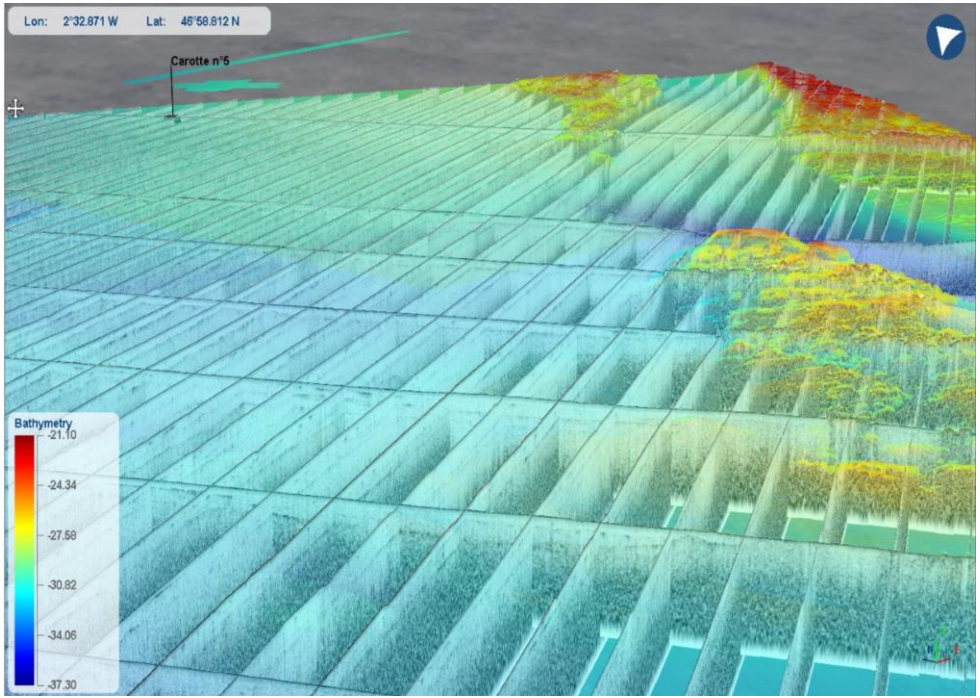
CASE STUDEY : MBES – SBP simultaneous acquisition

Aggregate extraction site survey



SBP profil



Merged SBP / MBES top of the rocky layer

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Coming next in the Ecosystem

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Ecosystem key development

Enhance multisensor capabilies:

- Stabilized tow wing
- Custom-made gondola

Enhance offshore capabilities :

- Larger DriX with full ocean depth Multibeam

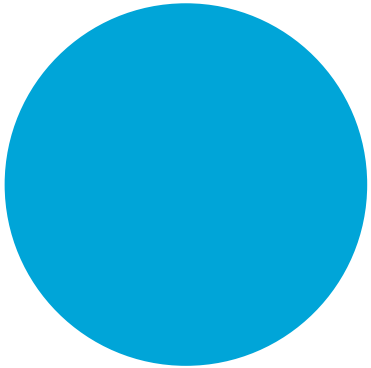
Enhance nearshore capabilities:

- Super shallow kit to reach 1m

Enhance agencies capacities:

- Purpose made MASS carrier survey launch and vessel

Remote hydrography



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