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« DriX, an efficient USV enhancing existing hydrographic assets »

iXblue

DriX

Main Dimensions	
Length Overall (LOA)	7,7 m
Beam:	0,82 m
Draft :	2,0 m
Light Weight :	1,4 Tons
Construction materials	
Hull & Deck & superstructure	composite material

Performance	
Maximum Speed :	14 kt
Survey Speed :	8+ kt
Fuel capacity :	250 liters
Fuel Consumption (Survey):	2-3 L/h
Range :	650 nm@ 8kt

Machinery	
STD propulsion:	1 x 38HP diesel engine
Power Generation:	Up to 3 kW

DriX

MISSION EQUIPMENT :	Mission software, LIDAR, Video Camera, IR camera
MISSION PAYLOAD:	Sensors antennas Inside the gondola
MISSION PAYLOAD: COMMUNICATION:	WiFi, Maritime Broadband Radio (MBR) , SATCOM, IRRIDIUM
AUTONOMY:	Up to 1500 Nm

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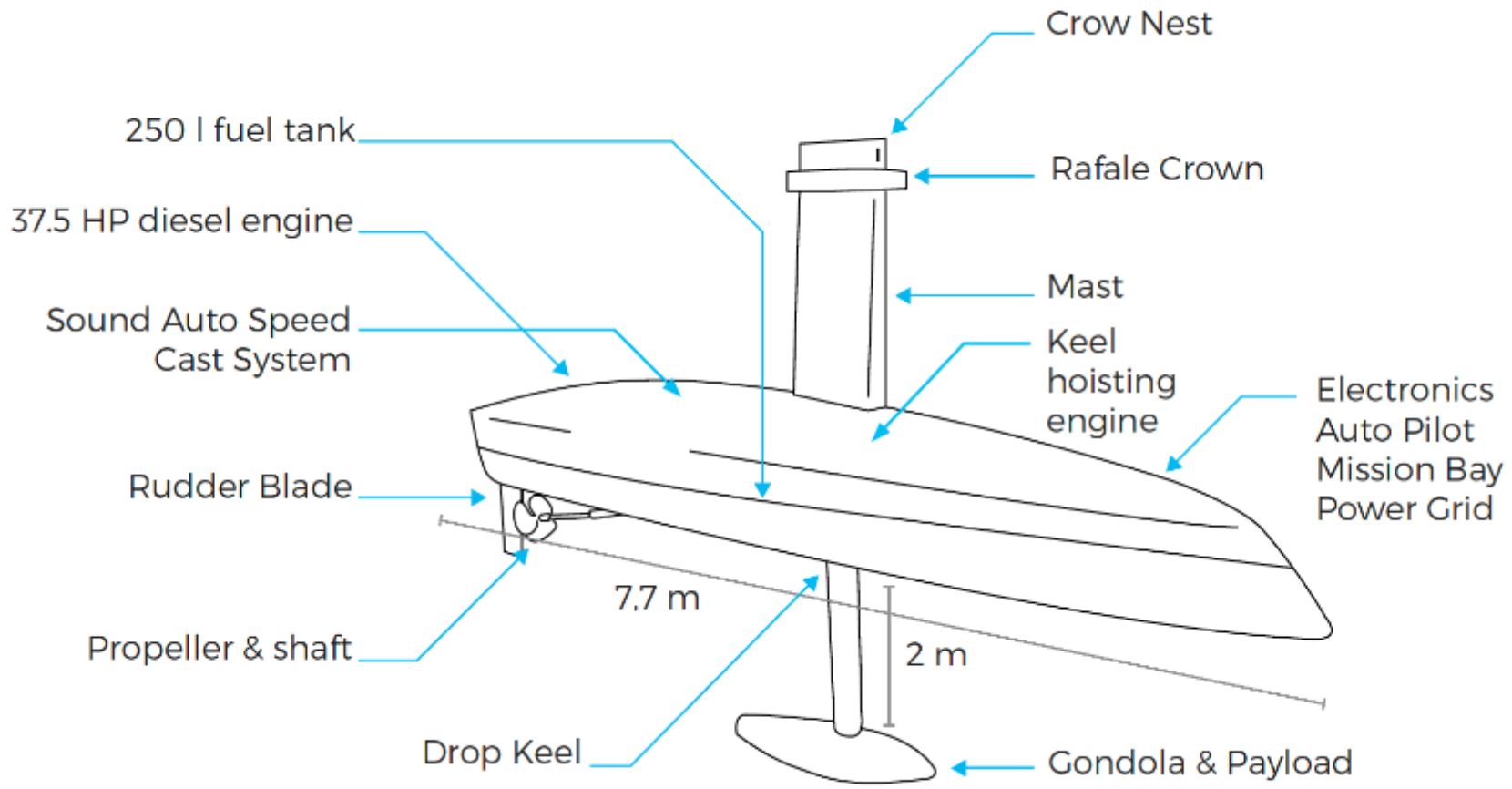
It is a perfect data-gathering environment

Low generated noise – bubbles free – utmost stability at sea – keeps the sensors within tolerance margins



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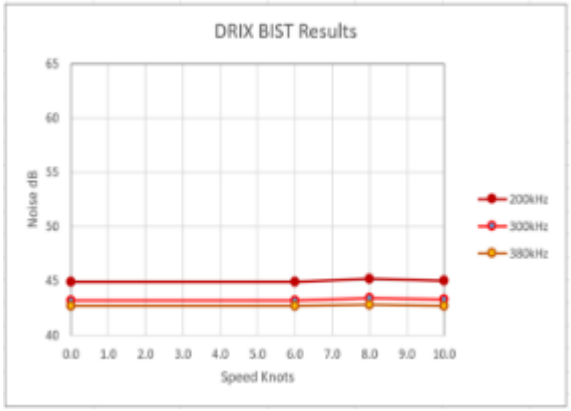
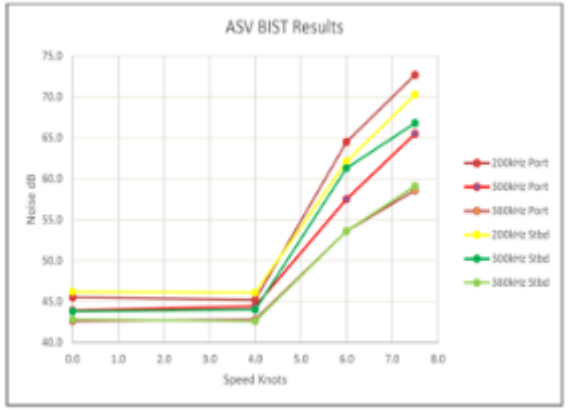
Proven silent environment

BIST TEST : Results of the observed noise level using a EM2040C MBES transducer

DriX
(Gondola in France)



Other AUSV
Long endurance
Length 5m
(Hull mounted in France)



Elaine
(Gondola in NZ)

Tranquil Image
(Gondola in NZ)

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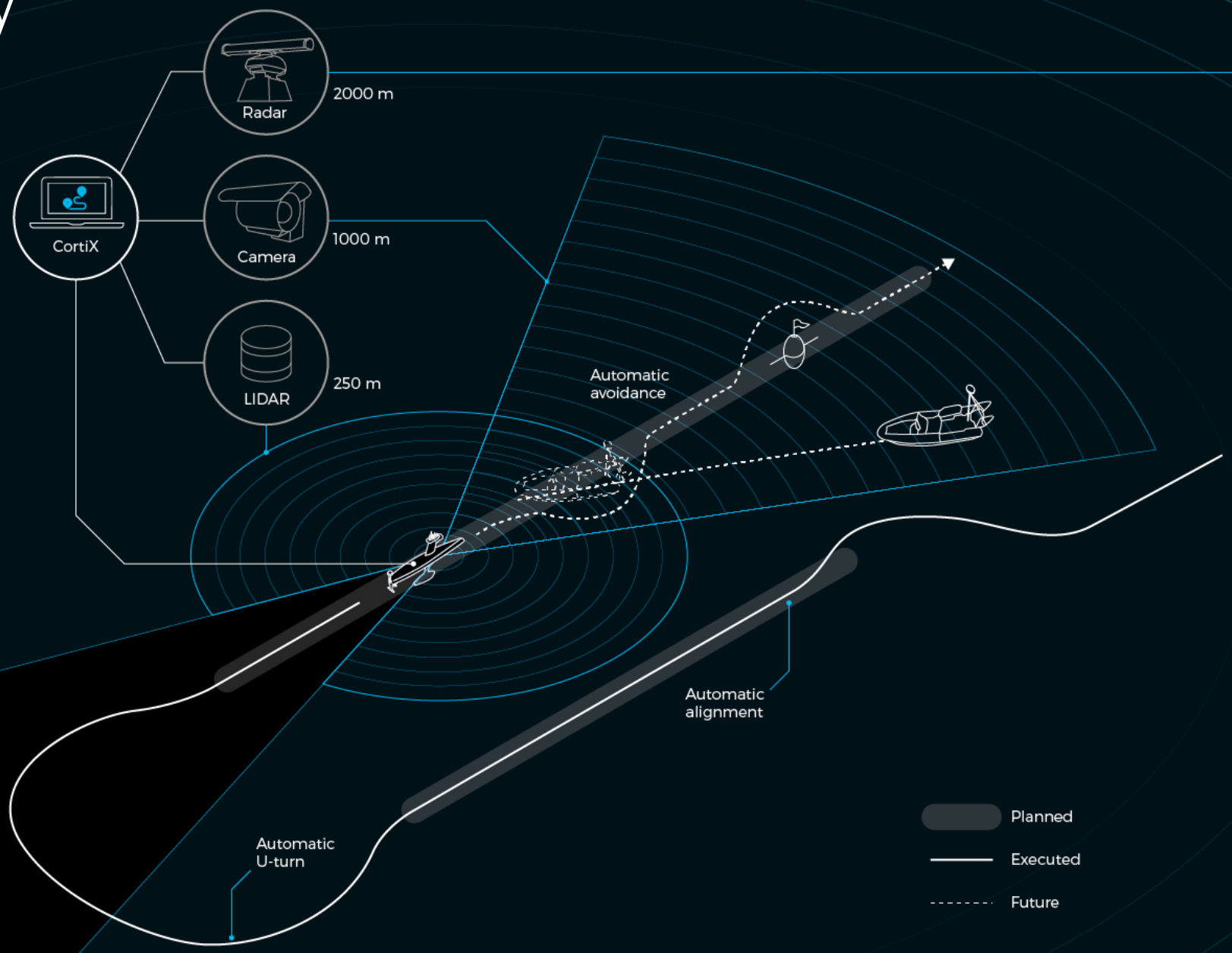
Navigation safety



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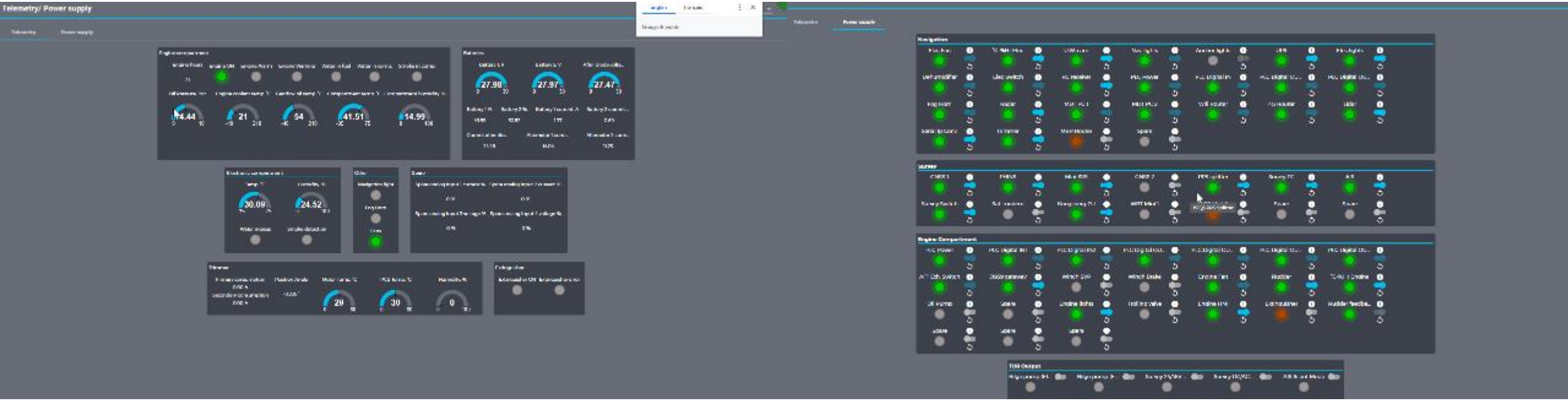
Reliability at sea

Telemetry



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iXblue DriX scaling-up

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It is a reliable and efficient as a workhorse should

Easy to maintain and fix

A 38 HP diesel Engine

The use of composite materials and blocks

PREDICTIVE MAINTENANCE UNDER DEVELOPMENT – ALL DRIXs WILL BE UPGRADABLE

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It conducted missions around the world

Over the past two years

Unique Group
Strength in Depth

TOTAL

OCEANTECH

Schlumberger

DREBBEL
DE MÉXICO

iXblue

NOAA

University of
New Hampshire

BIBBY
HYDROMAP
Committed to Quality and Innovation

Hydrography, Geophysical survey, Subsea Positionning, AUV C&C, …

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It is a reliable and efficient as a workhorse should

Easy to transport

Towed by a regular car on a highway

Shipped by sea in a 40ft container

Shipped by air in a crate

Export control: Considered as a stand-alone solution (Ease the shipping of dual-use sensors)

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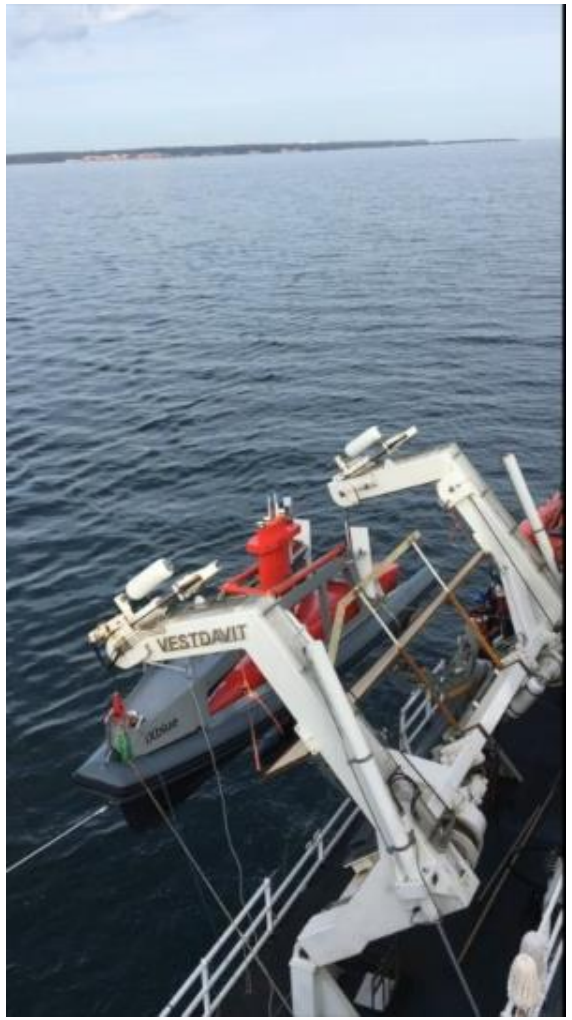
It is a reliable and efficient as a workhorse should

Easy to deploy and store onboard thanks to the DriX Deployment System (DDS)

Can be used with a davit, an A-frame or an deck crane



Example of Davit modification (NOAA)

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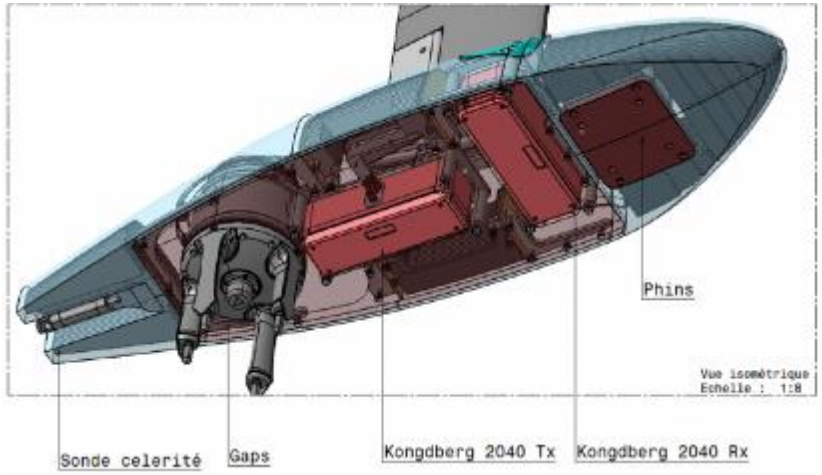
A universal platform

A gondola to house any type of relevant sensor – a serious trackrecord

Example of standard combination

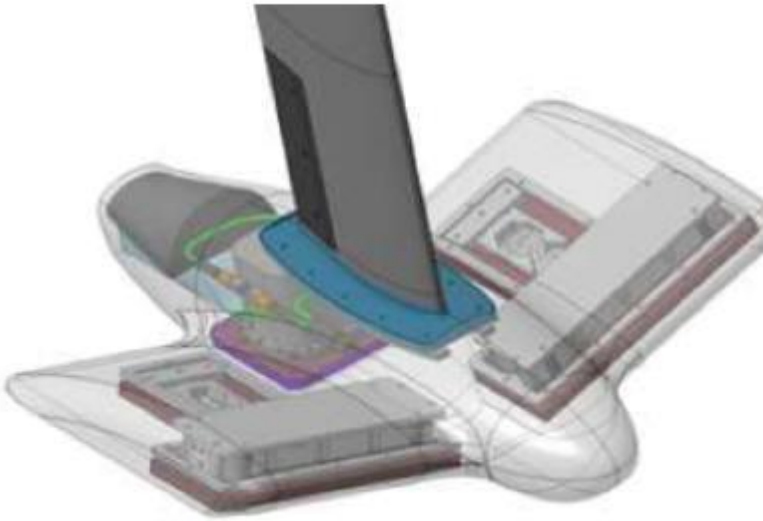
A GAPS USBL and a MBES



Integration track record:

- Multiple brands of MBES
- Side Scan Sonar
- Sub bottom profiler

Various sizes and shapes



- USBL
- Acoustic modem

All customers requirement within

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Payloads

In a standard Gondola (non limitative)

		Multibeam echosounders						Sub bottom profiler			USBL		LBL
		EM 2040 compact	EM 2040 0,7°	EM 2040 0,4°	Reson T50	R2 sonic 2024	R2 sonic 2026	Echoes 3500 T1	Echoes 10000 T5	Echoes 5000	Ixblue GAPS	Sonardyne Ranger	iXblue RAMSES
Multibeam echosounders	EM 2040 compact							X	X	X	X	X	X
	EM 2040 0,7°										X	X	X
	EM 2040 0,4°										X	X	X
	Reson T50							X	X	X	X	X	X
	R2 sonic 2024							X	X	X	X	X	X
	R2 sonic 2026							X	X	X	X	X	X
Sub bottom profiler	Echoes 3500 T1	X			X	X	X						X
	Echoes 10000 T5	X			X	X	X						X
	Echoes 5000	X			X	X	X						X
USBL	Ixblue GAPS	X	X	X	X	X	X						X
	Sonardyne Ranger	X	X	X	X	X	X						X
LBL	iXblue RAMSES	X	X	X	X	X	X	X	X	X	X	X	

Payloads

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In a custom Gondola (non limitative)

		Multibeam echosounders						Sub bottom profiler			USBL		LBL
		EM 2040 compact	EM 2040 0,7°	EM 2040 0,4°	Reson T50	R2 sonic 2024	R2 sonic 2026	Echoes 3500 T1	Echoes 10000 T5	Echoes 5000	Ixblue GAPS	Sonardyne Ranger	iXblue RAMSES
Multibeam echosounders	EM 2040 compact	Dual head						X	X	X	X	X	X
	EM 2040 0,7°		Dual head					X	X	X	X	X	X
	EM 2040 0,4°			Dual head				X	X	X	X	X	X
	Reson T50				Dual head			X	X	X	X	X	X
	R2 sonic 2024					Dual head		X	X	X	X	X	X
	R2 sonic 2026						Dual head	X	X	X	X	X	X
Sub bottom profiler	Echoes 3500 T1	X	X	X	X	X	X				X	X	X
	Echoes 10000 T5	X	X	X	X	X	X				X	X	X
	Echoes 5000	X	X	X	X	X	X				X	X	X
USBL	Ixblue GAPS	X	X	X	X	X	X	X	X	X			X
	Sonardyne Ranger	X	X	X	X	X	X	X	X	X			X
LBL	iXblue RAMSES	X	X	X	X	X	X	X	X	X	X	X	

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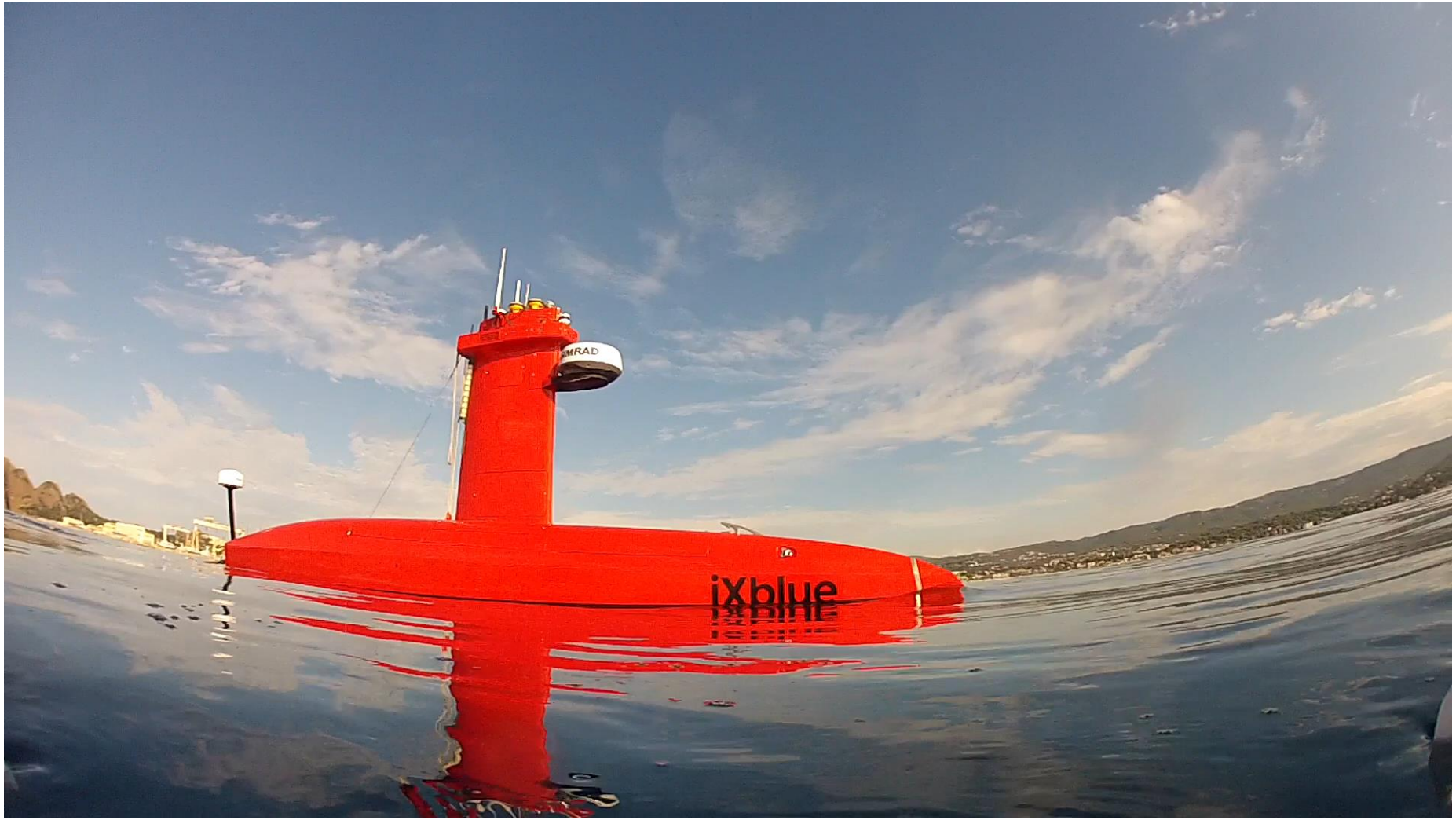
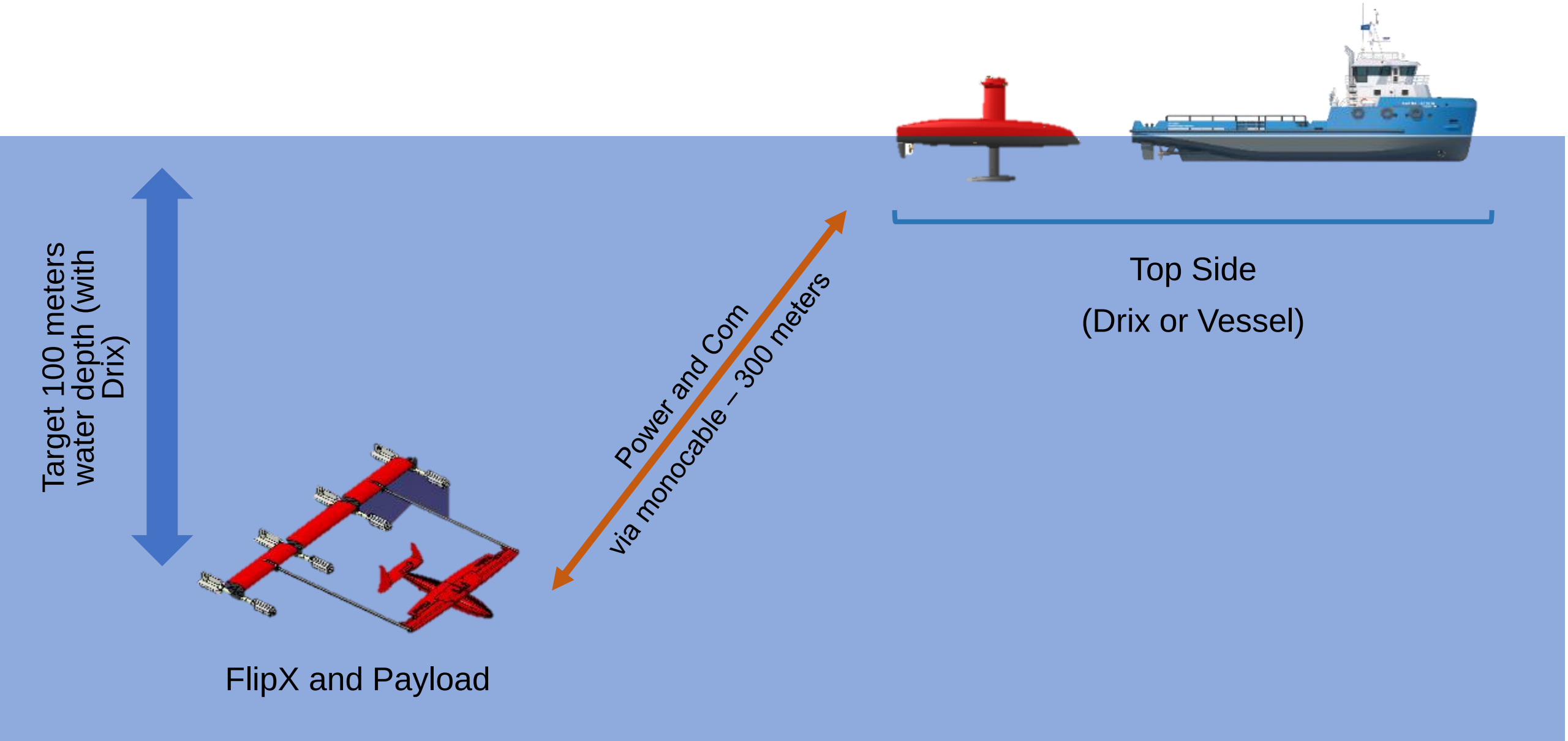
FLIPIX INNOVATIVE TOW WING

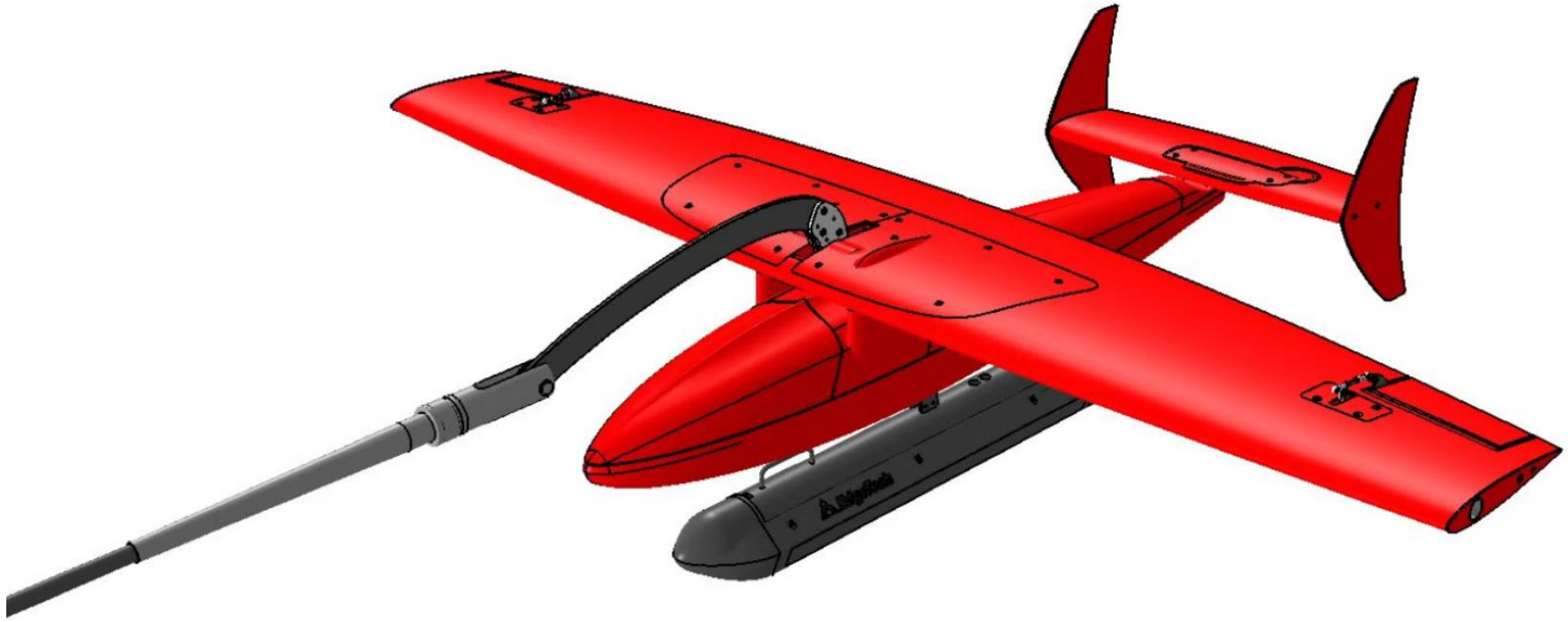


Worldwide First

FLIPIX-SYSTEM OVERVIEW



FLIPIX FIRST INTEGRATION



iXblue MT9 for positioning

Edgetech 4205 Sidescan Sonar

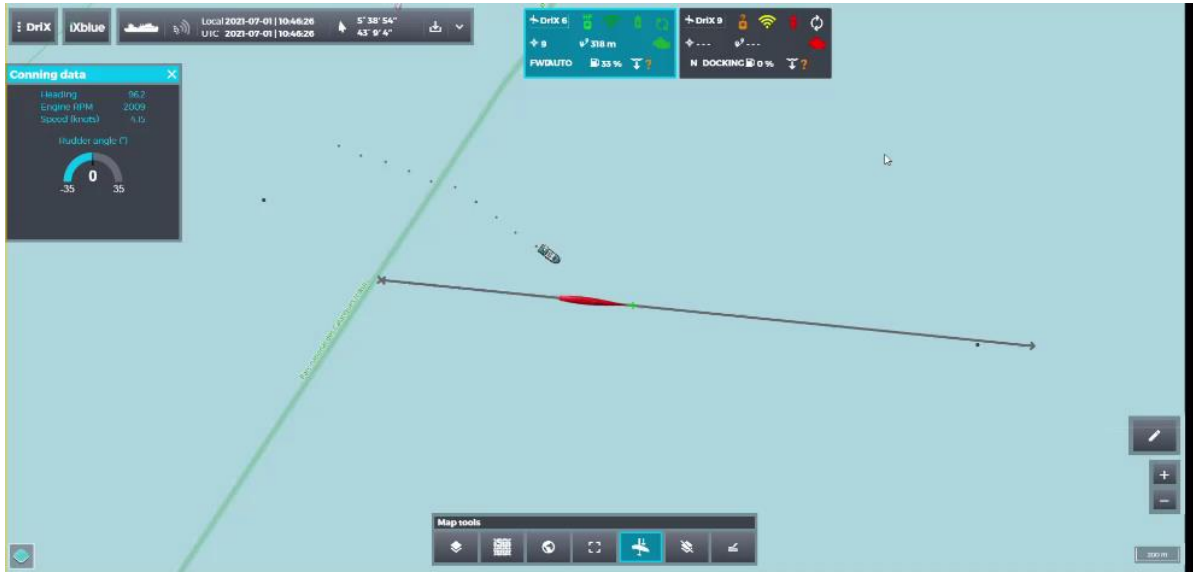
Geometrix Magnetometer

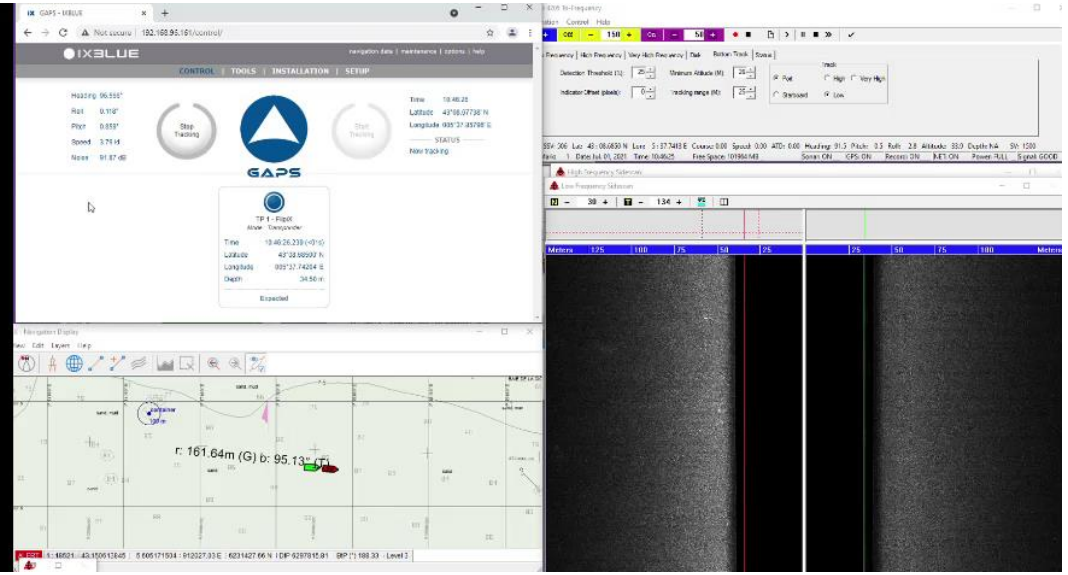
DRIX – FLIPIX INTEGRATION

Control and Supervision from iXblue Remote Operation Center

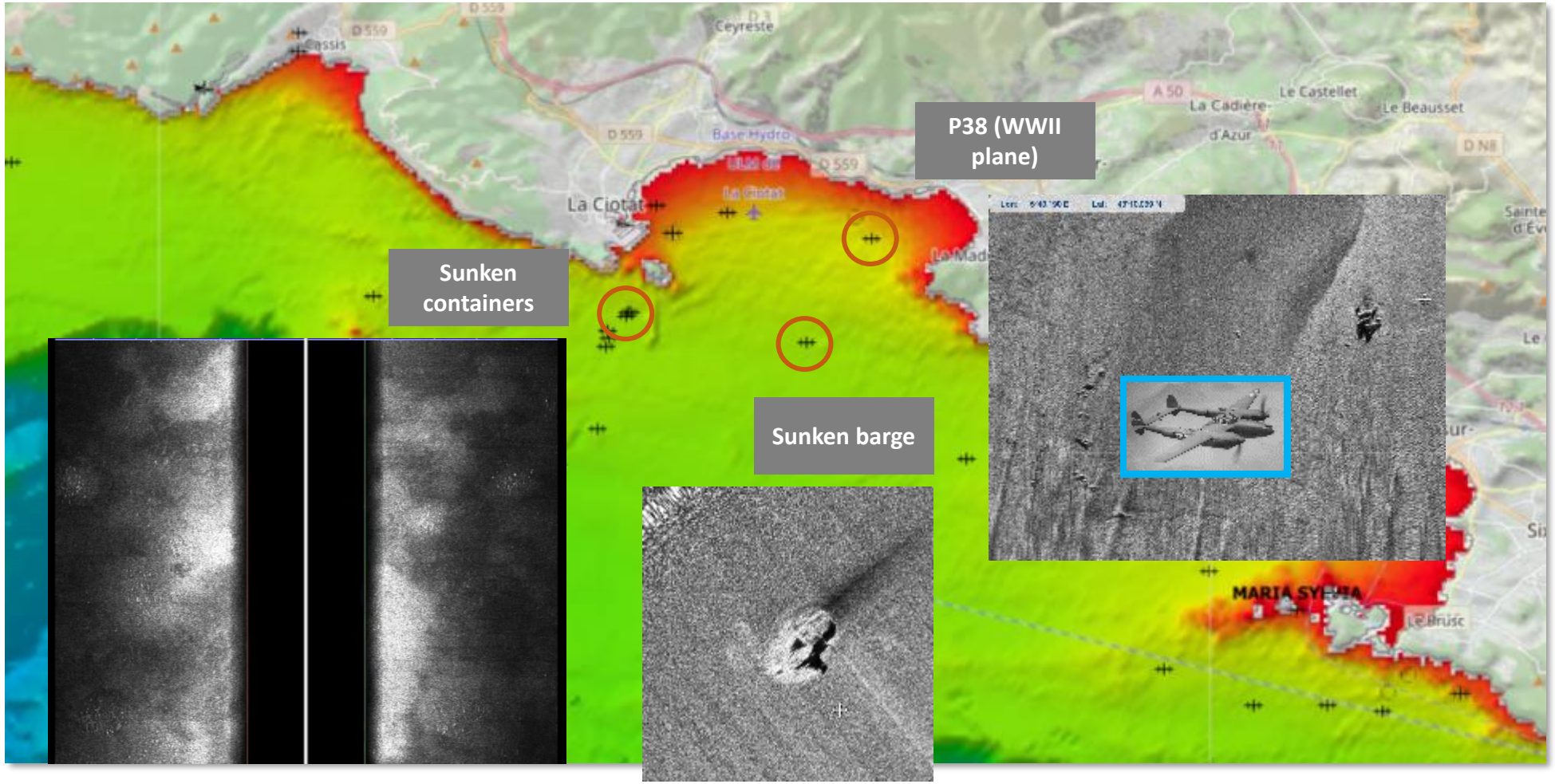
Mission Planning

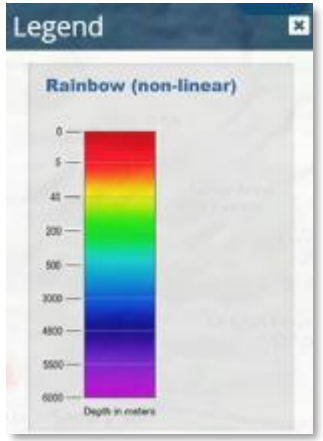
Payload monitoring





DRIX – FLIPIX PLAYGROUND





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It’s an Eco-friendly unit

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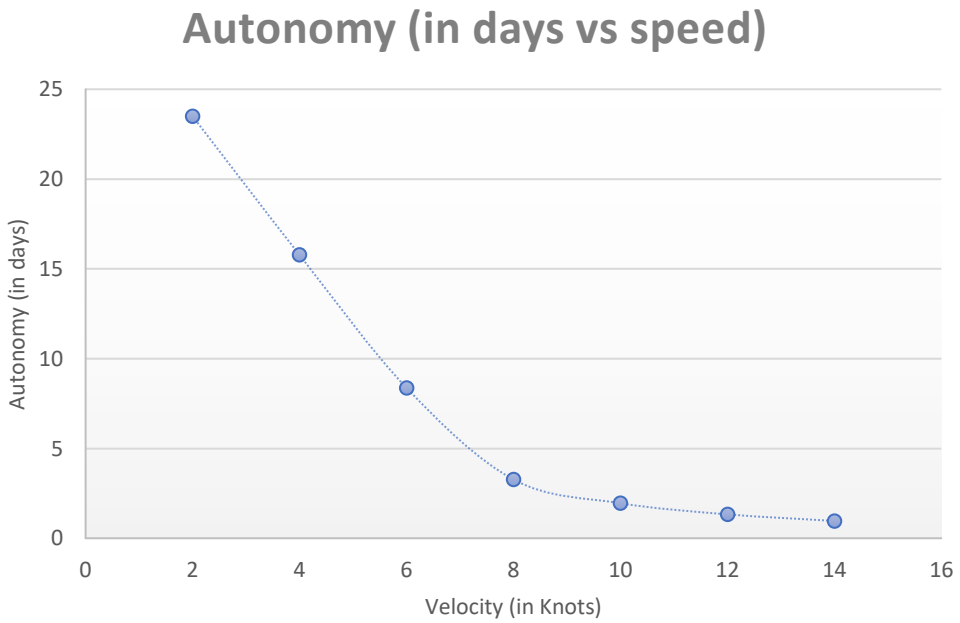
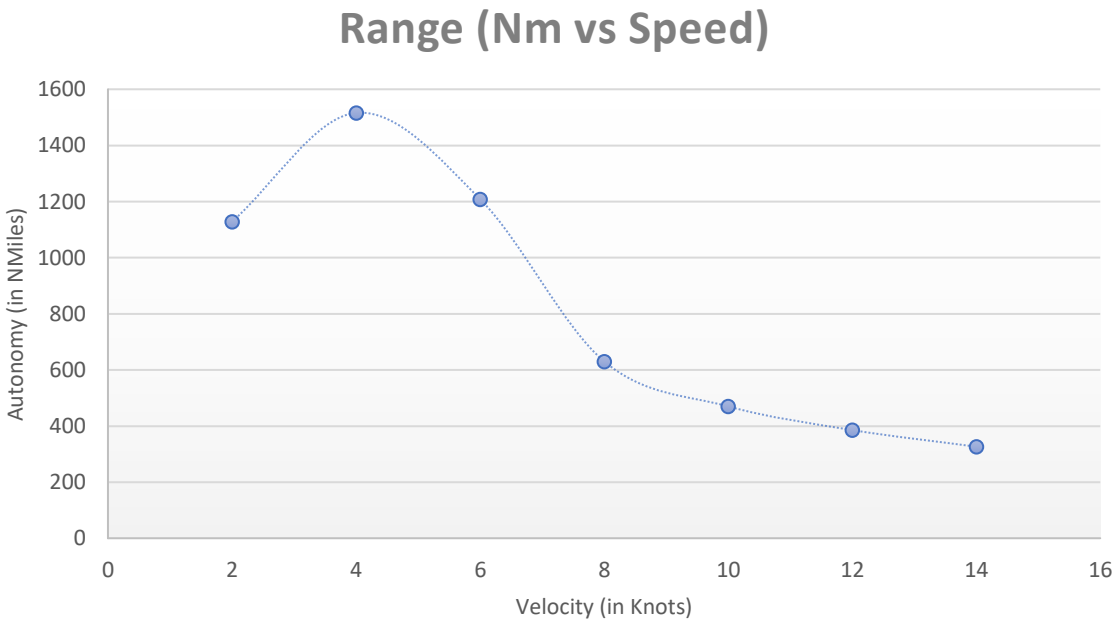
DRiX Autonomy

DRIX Performance in over the horizon survey operation.

- **Standard Gondola fitted with MBES, SVS and PHINS.**
- **Satcom type Iridium Certus**
- **Payload power consumption including Multibeam (0,5 kWh)**

DriX





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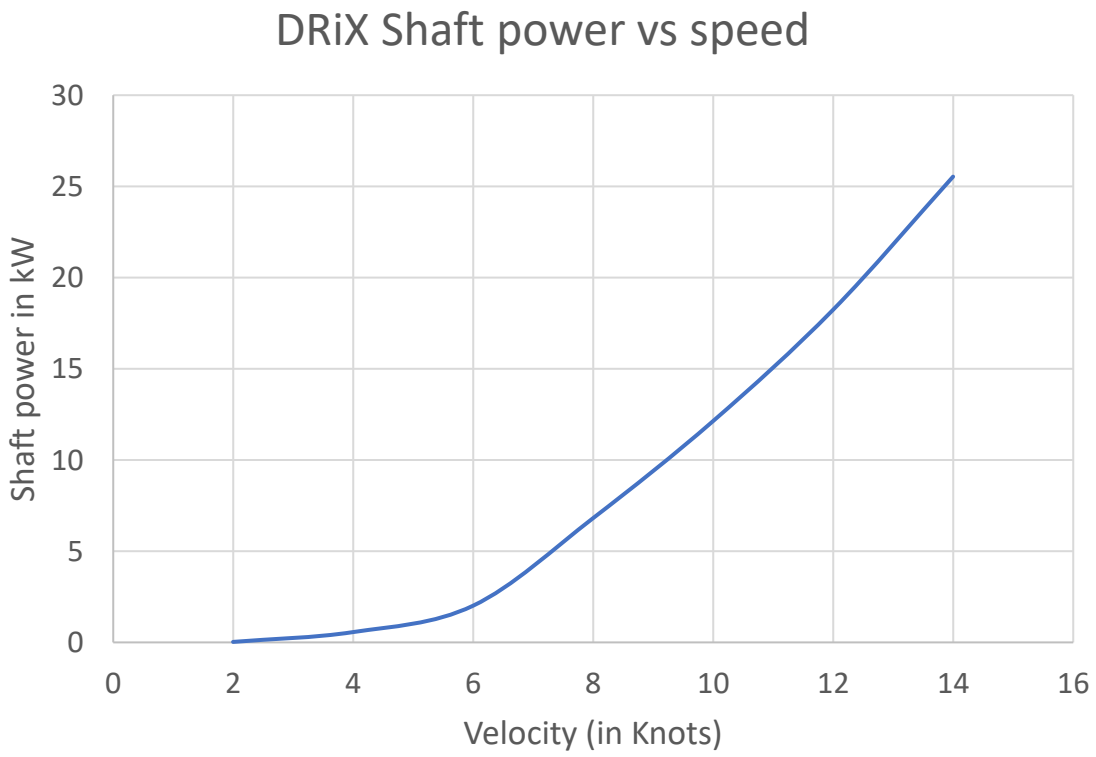
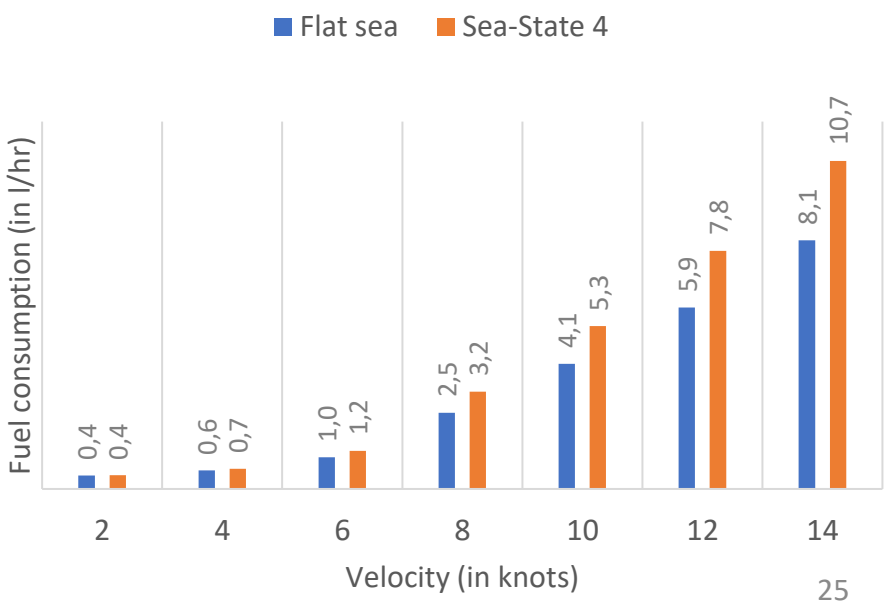
DRiX Consumption

DRIX Performance in over the horizon survey operation.

- Standard Gondola fitted with MBES, SVS and PHINS.
- Satcom type Thales VesseLINK 350.
- Multibeam sonar MBES Kongsberg 2040C.
- Fuel capacity: 250 litres

DriX





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It operates very well with traditionnal assets and enhances existing assets results

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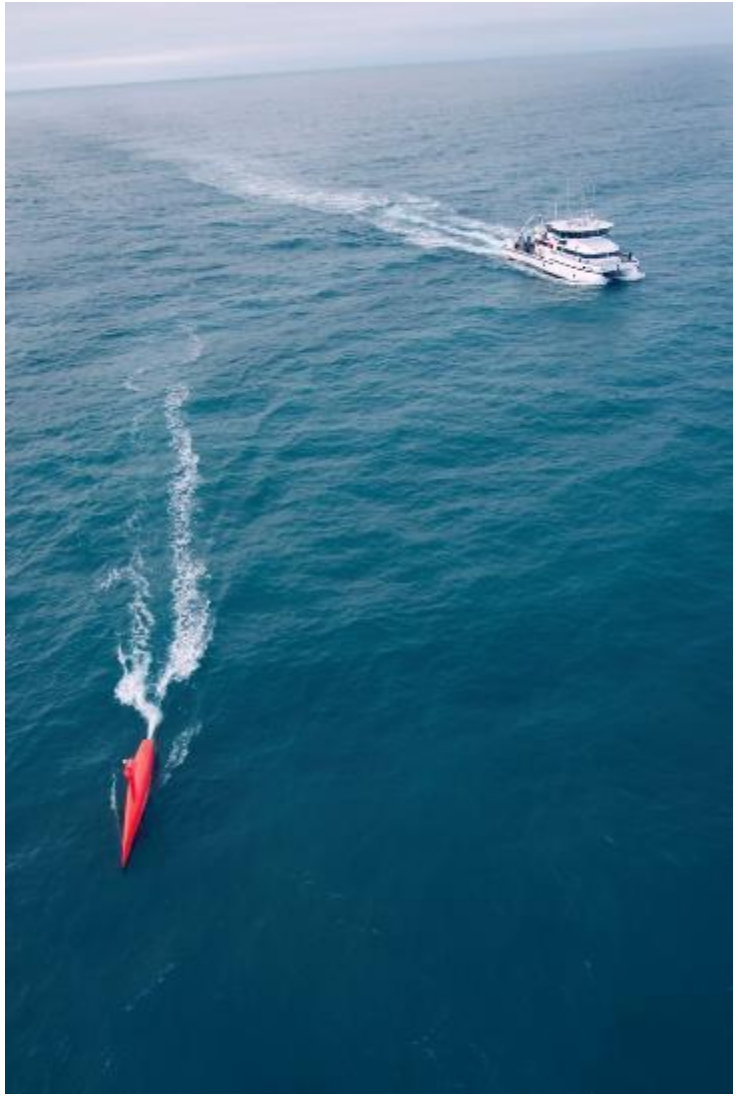
A force multiplier

Multiplying the number of sensors in the water offshore

All it takes: lifting devices capable of lifting 3 tons…



Or a small survey craft if DriX is launched from a pier

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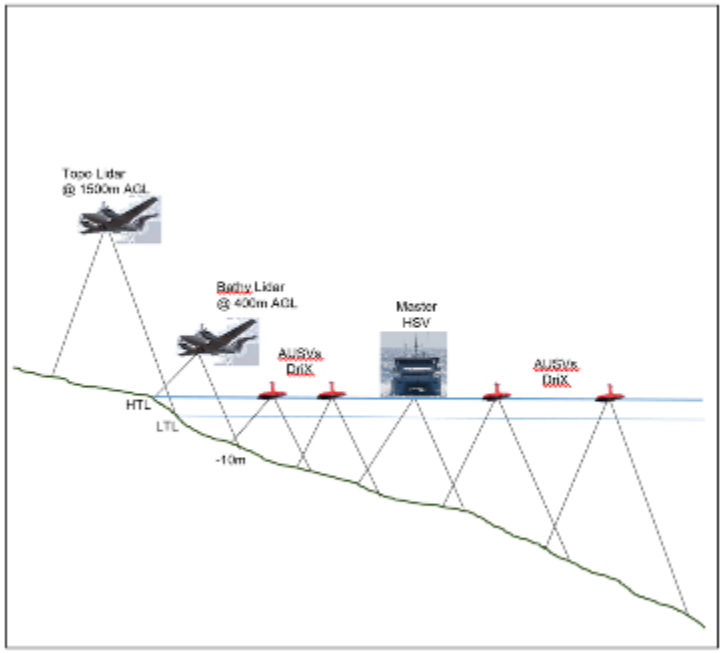
A force multiplier

An adaptation of the Concept of Operations – Not a revolution in coastal operations



Several DriXs – One vessel: two sensors in the water

- Survey in parallel
- Survey in segregated areas

One DriX – One vessel: two sensors in the water

- Survey in parallel
- Survey in segregated areas

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4 CONCLUSION

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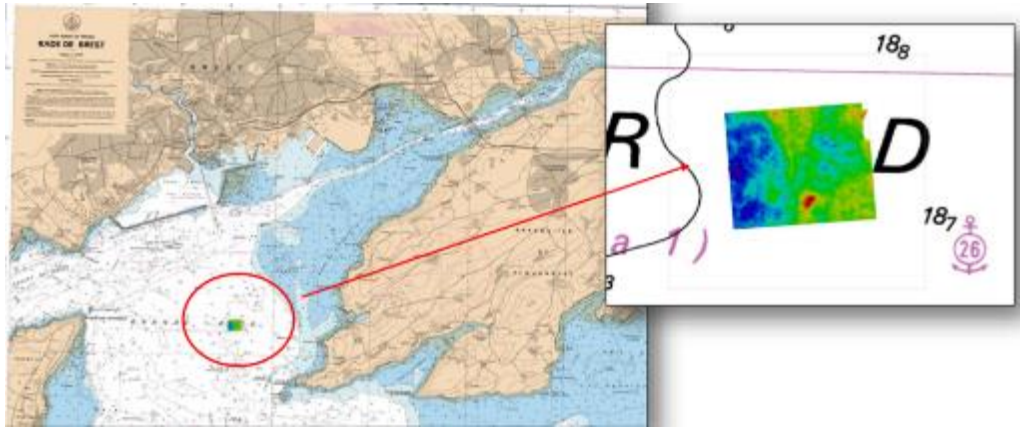
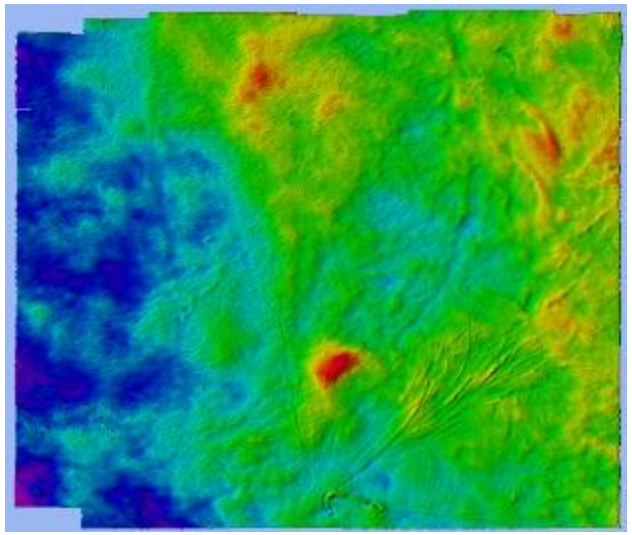
Outstanding Data Quality

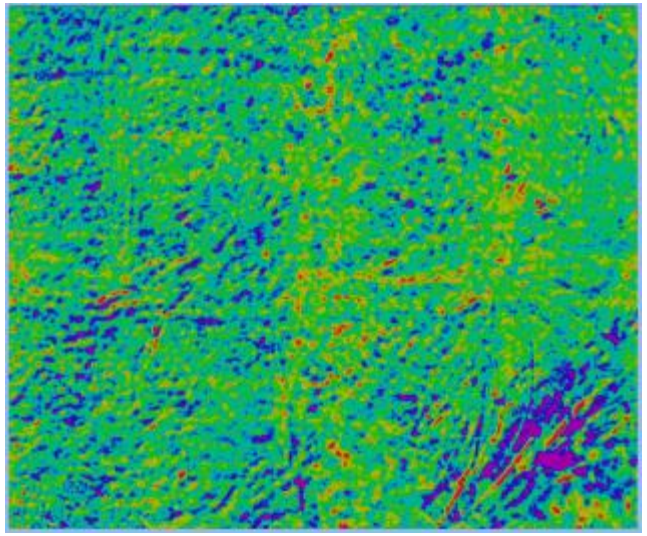
Reference area survey



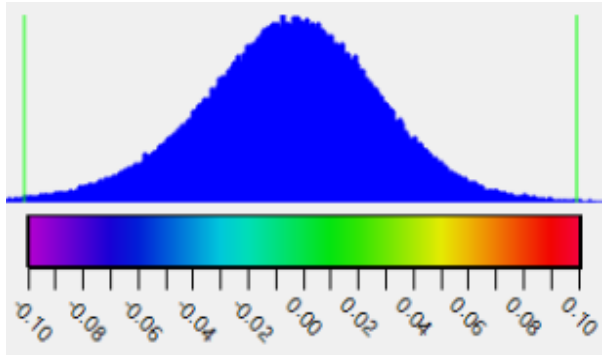
Outstanding achievements on meeting IHO exclusive order requirements in Uncertainty and data density @20m

Mean difference respect to reference	1cm
Mean standard deviation	3cm
Result repeated and valid at speed	4, 6, 8, 10 & 14kts





Differential map
DriX vs SHOM ref data set



Differential statistic distribution

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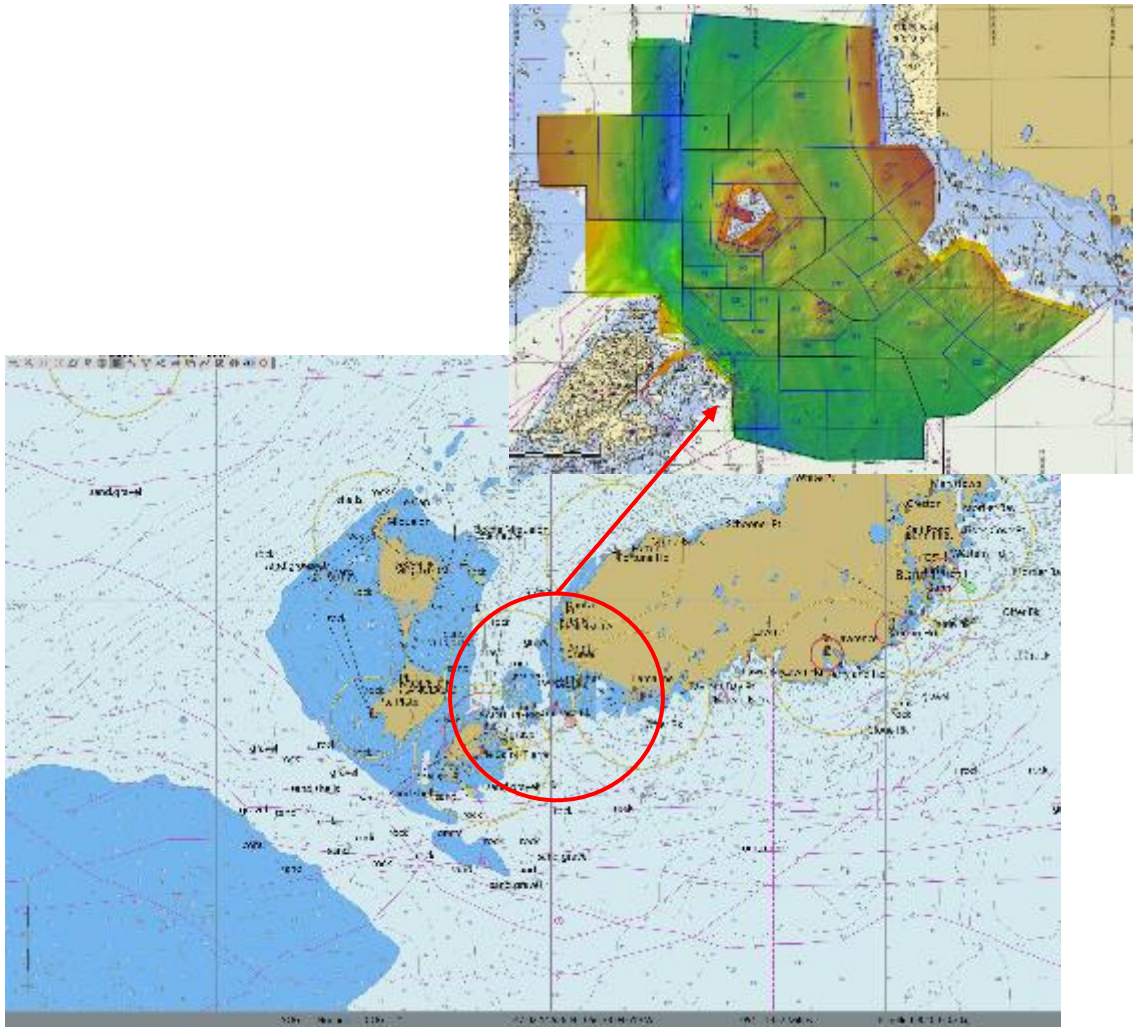
Outstanding operational optimization

Large scale survey



Achievements on a large scale wreck detection

- Limited speed and swath to enhance
- 6 weeks operation half time 12/24, half time on 24/24 operation for administrative reasons

Total Line Km covered	4200km
Total acquisition hours (excluding transit and refuel)	400hours
Average overall survey speed (excluding transit)	6 kts
Average overall wave height	Seastate 4
Total weather standby	3 days
Two countries visited **3 different support vessels used**	
3 types of Command & Control office	Ship mounted Field office (hotel) Main office (France)
Survey grid objectives	0.2m to 50m 0.5m to 100m 1m to 200m 2m > 200m
Max sensor achievement	200m swath @ WD 270m with 400kHz of EM2040.

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THANK YOU

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