

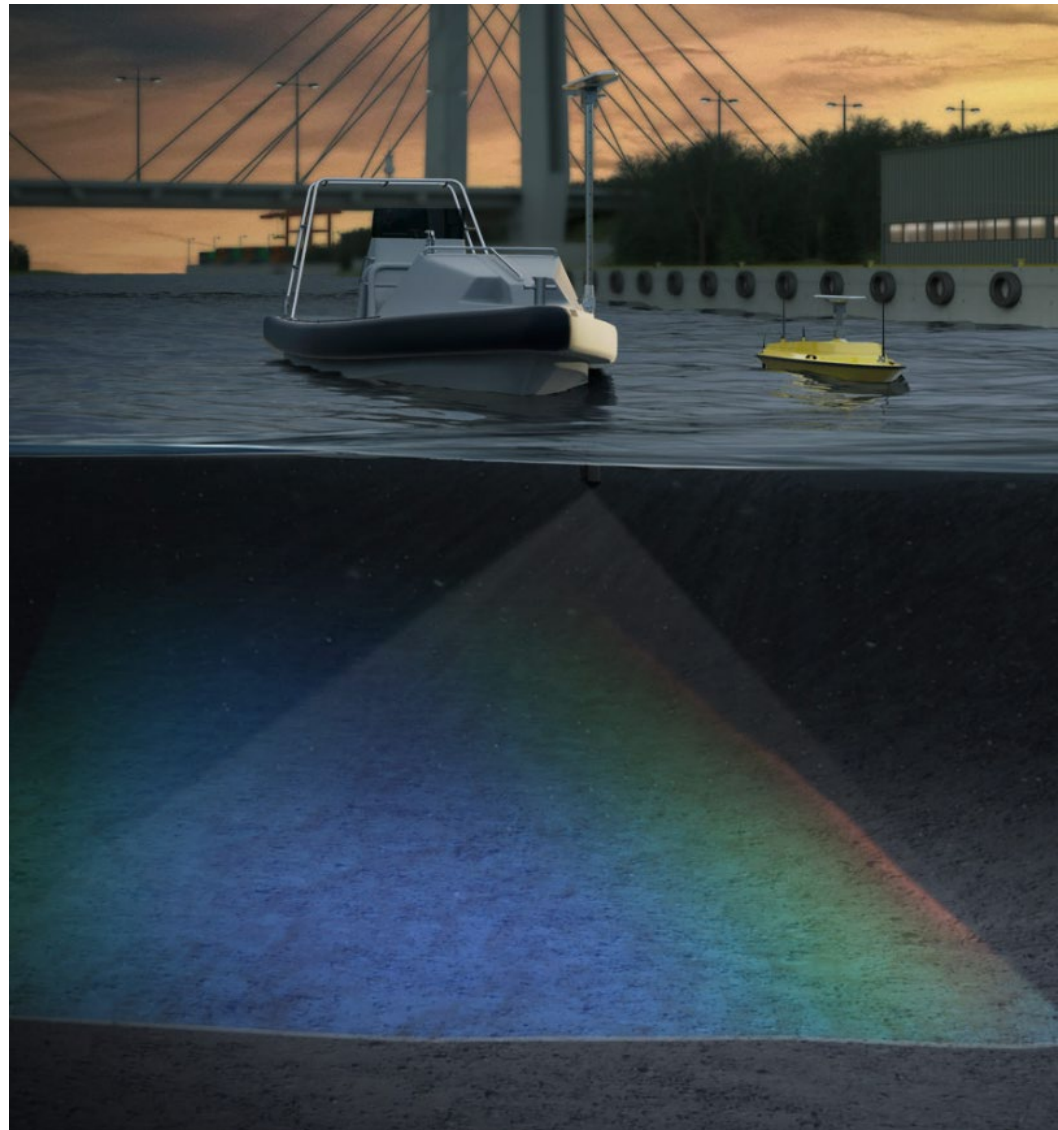
KONGSBERG

18th EAthC, Casablanca

Kongsberg Discovery Company Presentation

2nd May 2024

Øystein Aasbø, Cdr RNoN (Ret.)
VP Sales Underwater Mapping
Kongsberg Discovery

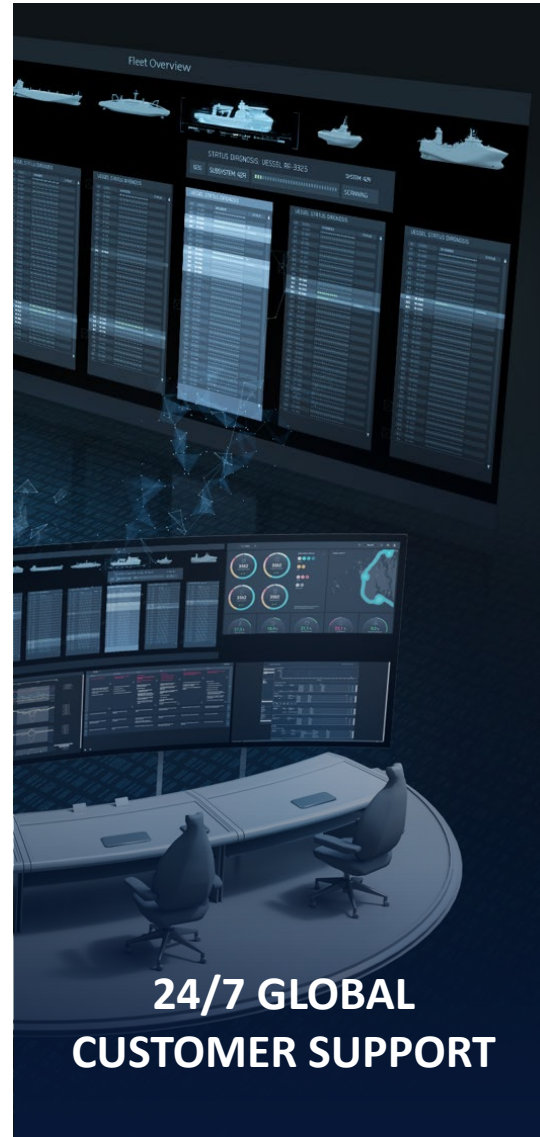




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Kongsberg Maritime

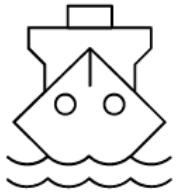
BROADEST PORTFOLIO OF
PRODUCTS
FOR THE MARITIME
INDUSTRY



The KONGSBERG GROUP



KONGSBERG



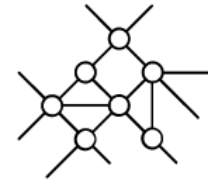
KONGSBERG MARITIME

Efficiency and safety throughout the whole maritime technology spectrum.



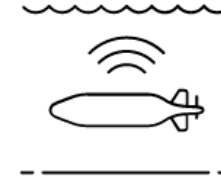
KONGSBERG DEFENCE & AEROSPACE

Technology and innovation in the supply of defence and aerospace-related systems.



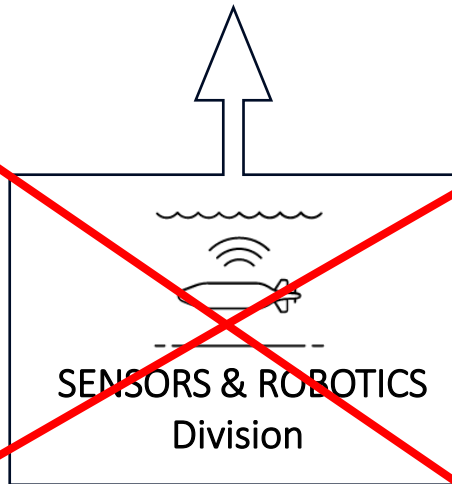
KONGSBERG DIGITAL

Expertise and reliability in the digitised industry of tomorrow.



KONGSBERG DISCOVERY

Committed to deliver technologies for a secure and sustainable ocean space.



Kongsberg Discovery

Global presence



KONGSBERG

 KD entity

 KD presence

- +60 partners for distribution
- Part of KM Global Customer network

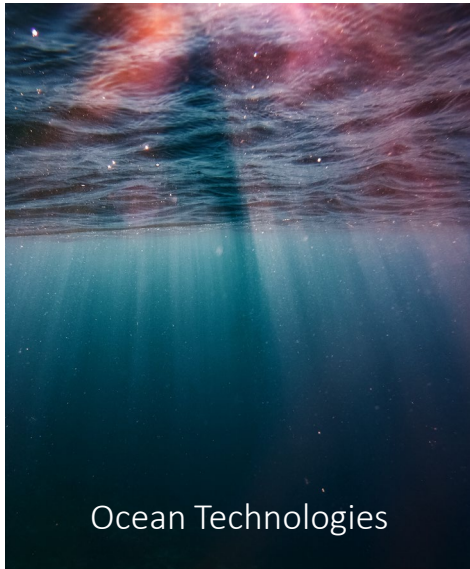


Kongsberg Discovery

Four Divisions



KONGSBERG



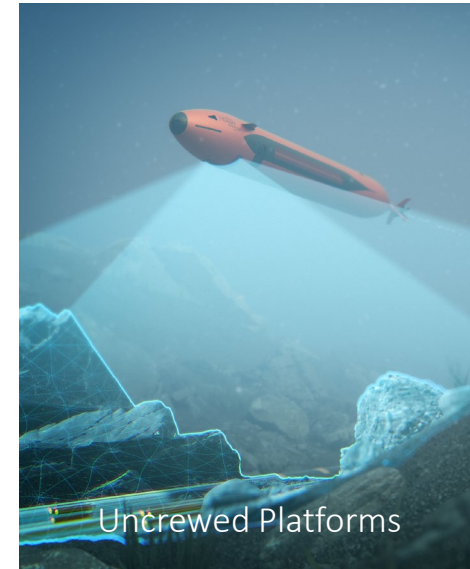
Ocean Technologies



Marine Life Technologies



Seatex



Uncrewed Platforms

Sales and Marketing

Customer Services

Supply Chain



1000+
employees



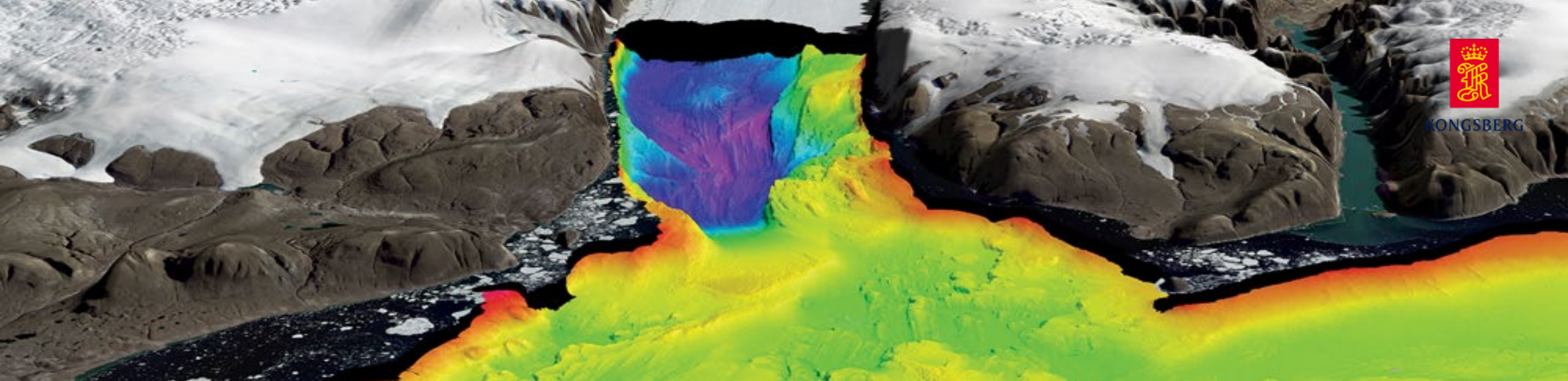
3,9 BNOK
revenue (23)



Strong
technology
backbone



KONGSBERG



UNDERWATER MAPPING

MULTIBEAM ECHO SOUNDERS

- EM 124
- EM 304 MKII
- EM 712
- EM 2042 (new)
- EM 2040 MKII-family
- M3

SINGLEBEAM ECHO SOUNDERS

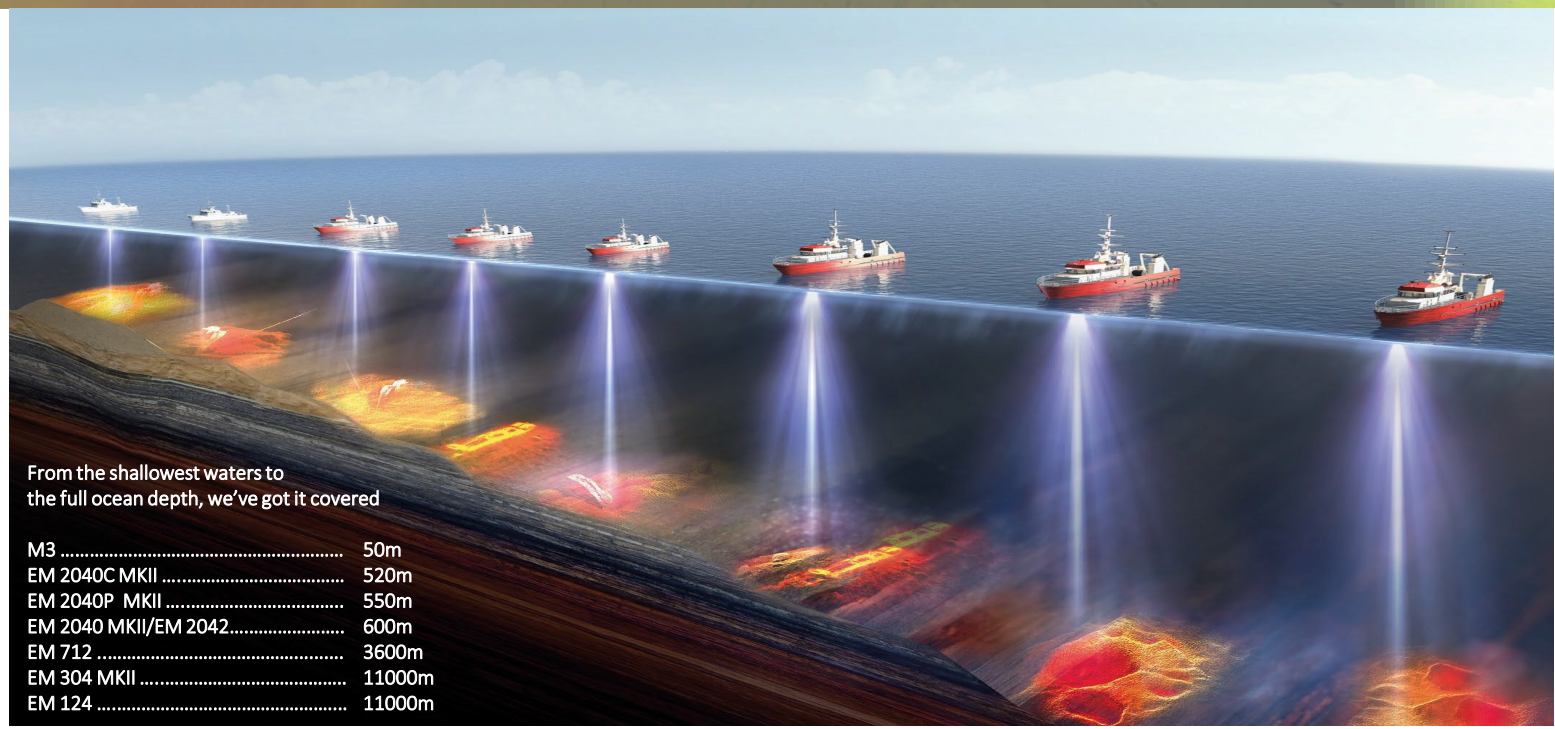
- EA 640
- EA 440

SUB BOTTOM PROFILERS

- SBP 29
- EM-SBP
- TOPAS PS 18, PS 40 and PS 120
- EA Sub-bottom

SIDE SCAN SONARS

- EA Sidescan



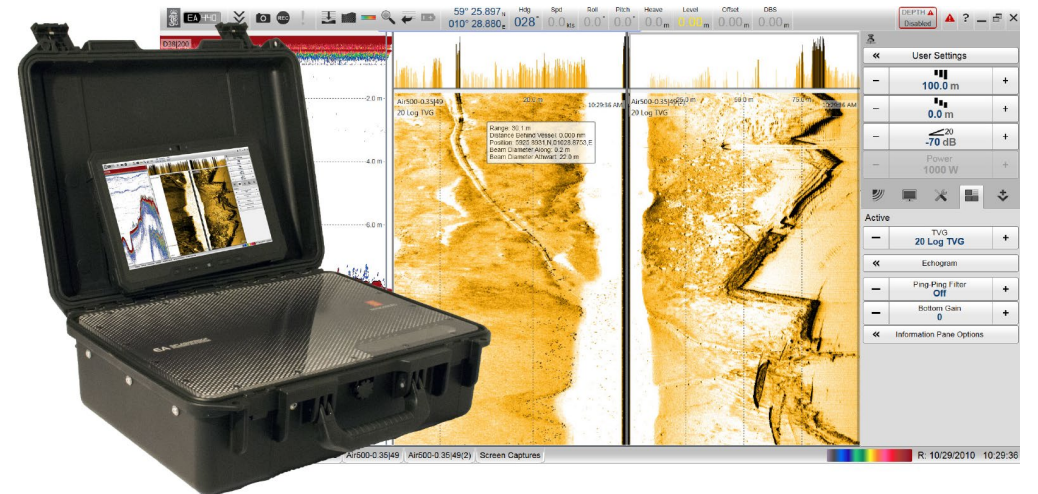
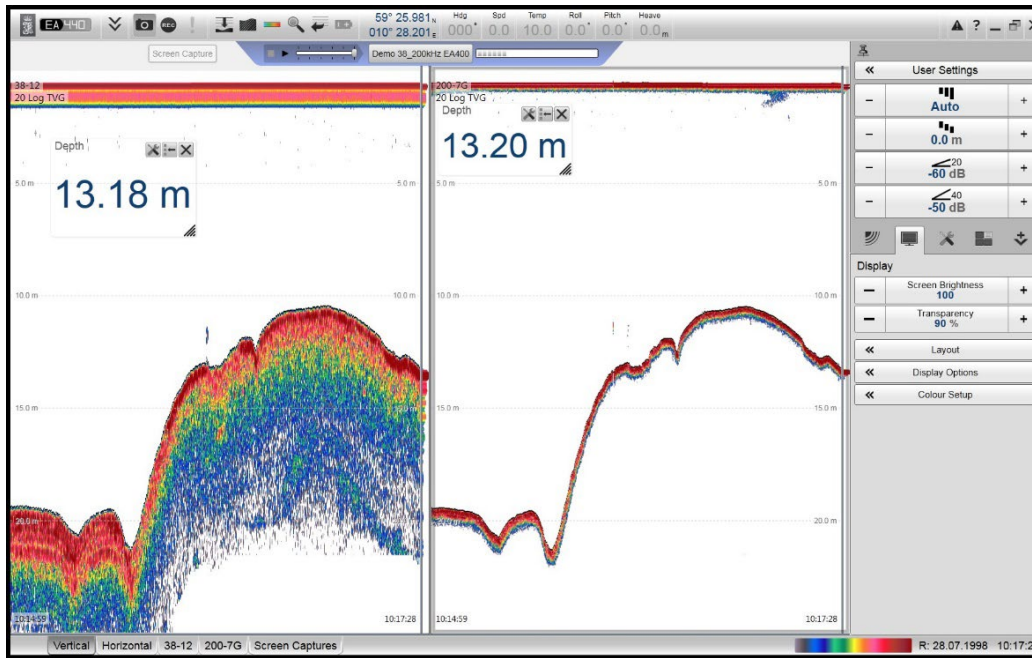
From the shallowest waters to the full ocean depth, we've got it covered

M3	50m
EM 2040C MKII	520m
EM 2040P MKII	550m
EM 2040 MKII/EM 2042	600m
EM 712	3600m
EM 304 MKII	11000m
EM 124	11000m

Singlebeam Echo Sounders – EA440 and EA640



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WORLD CLASS – Through people, technology and dedication

EA4400SP IP56 Case

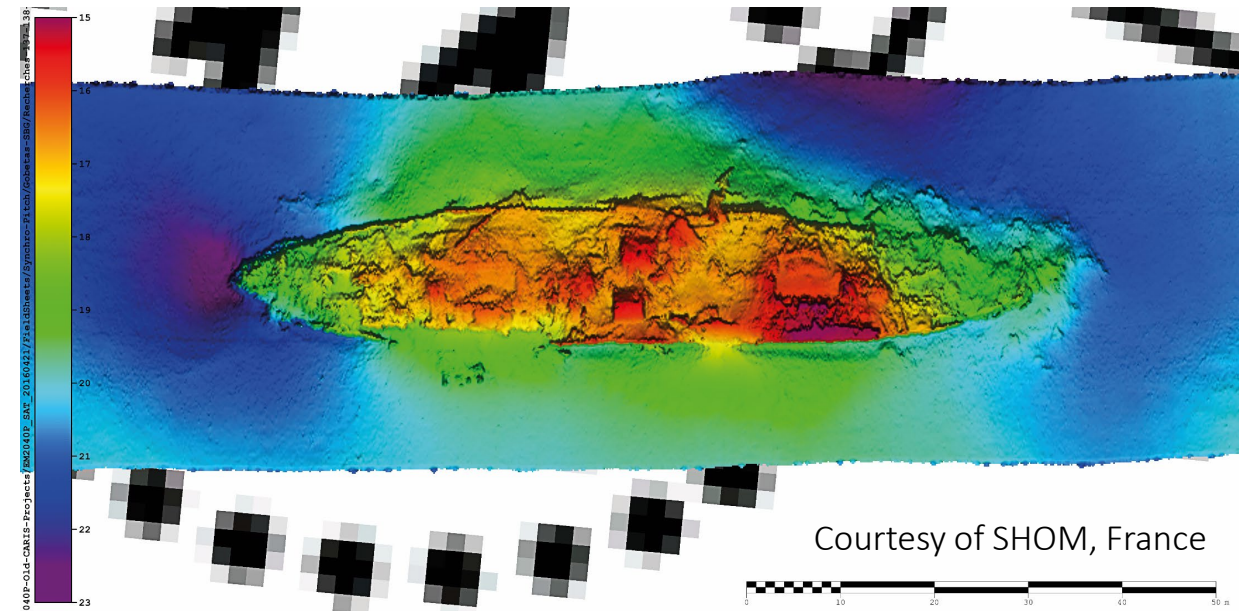
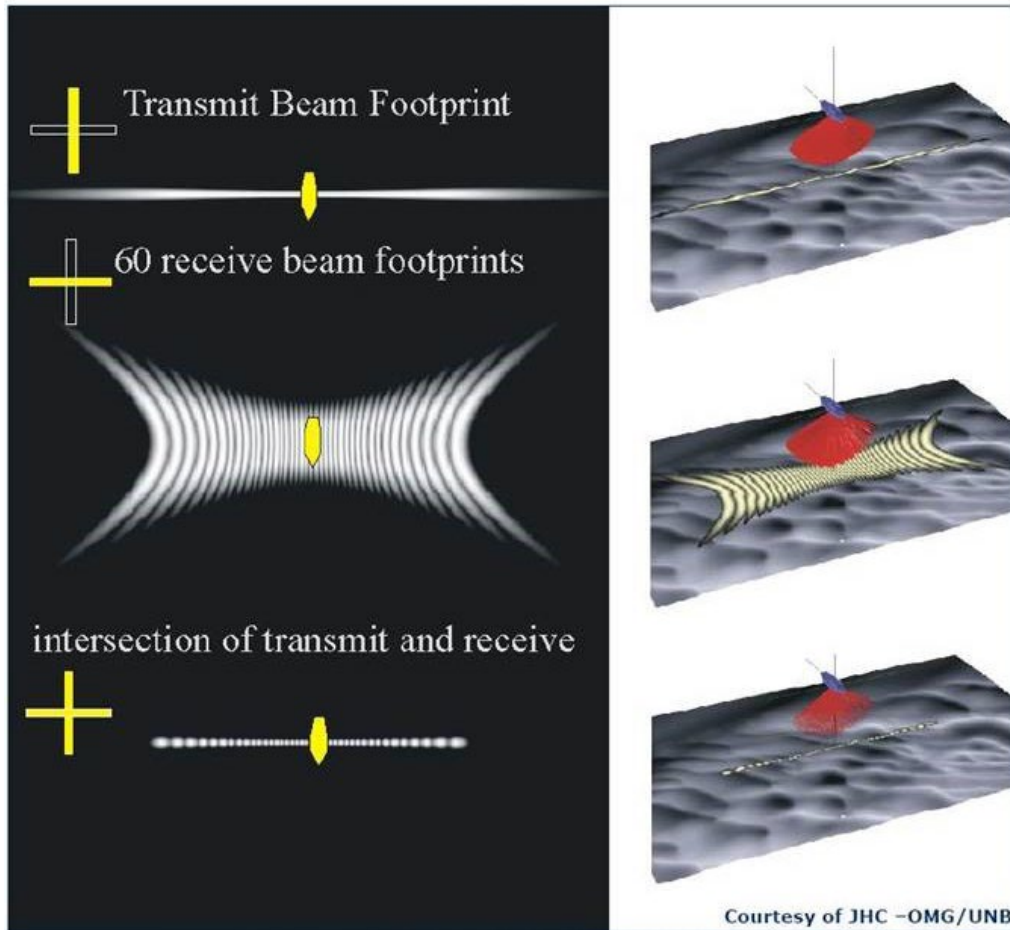
KONGSBERG PROPRIETARY - See Statement of Proprietary information

Multibeam Echo Sounders

The basics



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Multibeam Echo Sounders

Transducer Size vs Frequency and Beam Width



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EM[®] 2040C MKII (1 x 1)
Ø 0.3m



200 – 400 kHz

Range 0.5m – 500m

Option: 700 kHz

EM[®] 2040P MKII (1 x 1)
482 x 300 x 166 mm



200 – 400 kHz

Range 0.5m – 550m

Option: 600 and 700 kHz

EM[®] 2040-07 MKII (0.7 x 0.7)
~0.4m x 0.4m



200 – 400 kHz

Range 0.5m – 600m

Option: 600 and 700 kHz

EM[®] 2042-07 (0.7 x 0.7)
~0.37m x 0.34m



200 – 400 kHz

Range 0.5m – 600m

Option: 150, 600 and 700 kHz



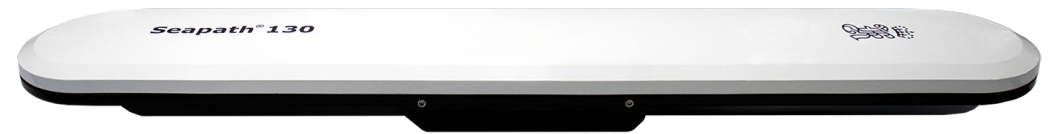
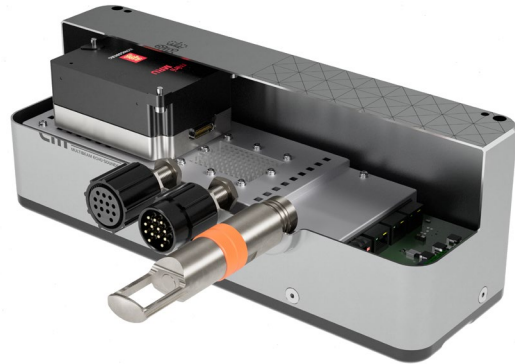
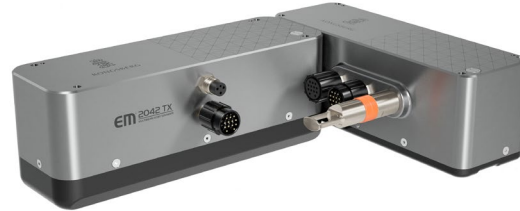
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EM[®] 2042 vs EM[®] 2040

Very high-resolution shallow water MBES

Main differences

- Complete new design
- 50m depth rated, no export license
- >60% weight reduction
- Less power consumption
- Up to 4096 beams per ping
- Embedded (option):
 - ✓ miniMRU
 - ✓ SVT
- Ready for (option):
 - ✓ QuadSwath™
 - ✓ PredictivePitch™
- One cable to the topside (SRX w/embedded miniMRU/SVT)





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Multibeam Echo Sounders

Transducer Size vs Frequency and Beam Width

EM[®] 712 (2 x 2)
~0.5m x 0.5m



40 – 100 kHz

Range 3m – 3500m

EM[®] 304 MKII (1 x 2)
~3m x 1.7m



20 – 32 kHz

Range 10m – full ocean depth

EM[®] 124 (1 x 1)
~8m x 7m



12 kHz

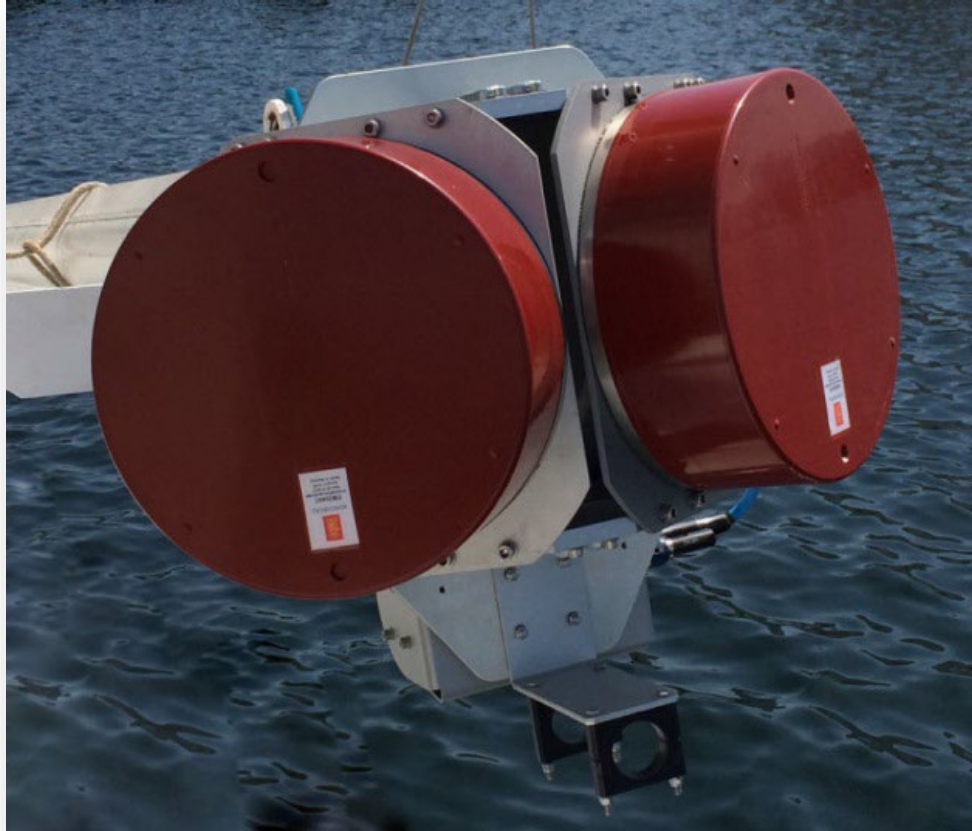
Range 20m – full ocean depth

EM[®] 2040C MKII/EM[®] 2040 MKII – Installation

Very high resolution Multibeam Echo Sounder



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Applications from very high-resolution inspection to shallow water surveys.

EM[®] 2040P MKII – Installation

Vessels of Opportunities



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Images courtesy of SHOM @
Noumea, New Caledonia

Applications from very high-resolution inspection to shallow water surveys.



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EM[®] – Installation Vessels of Opportunities



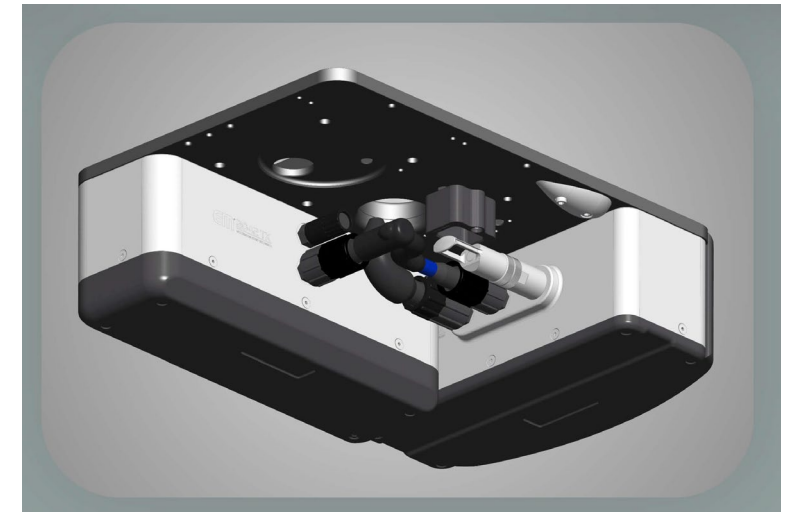
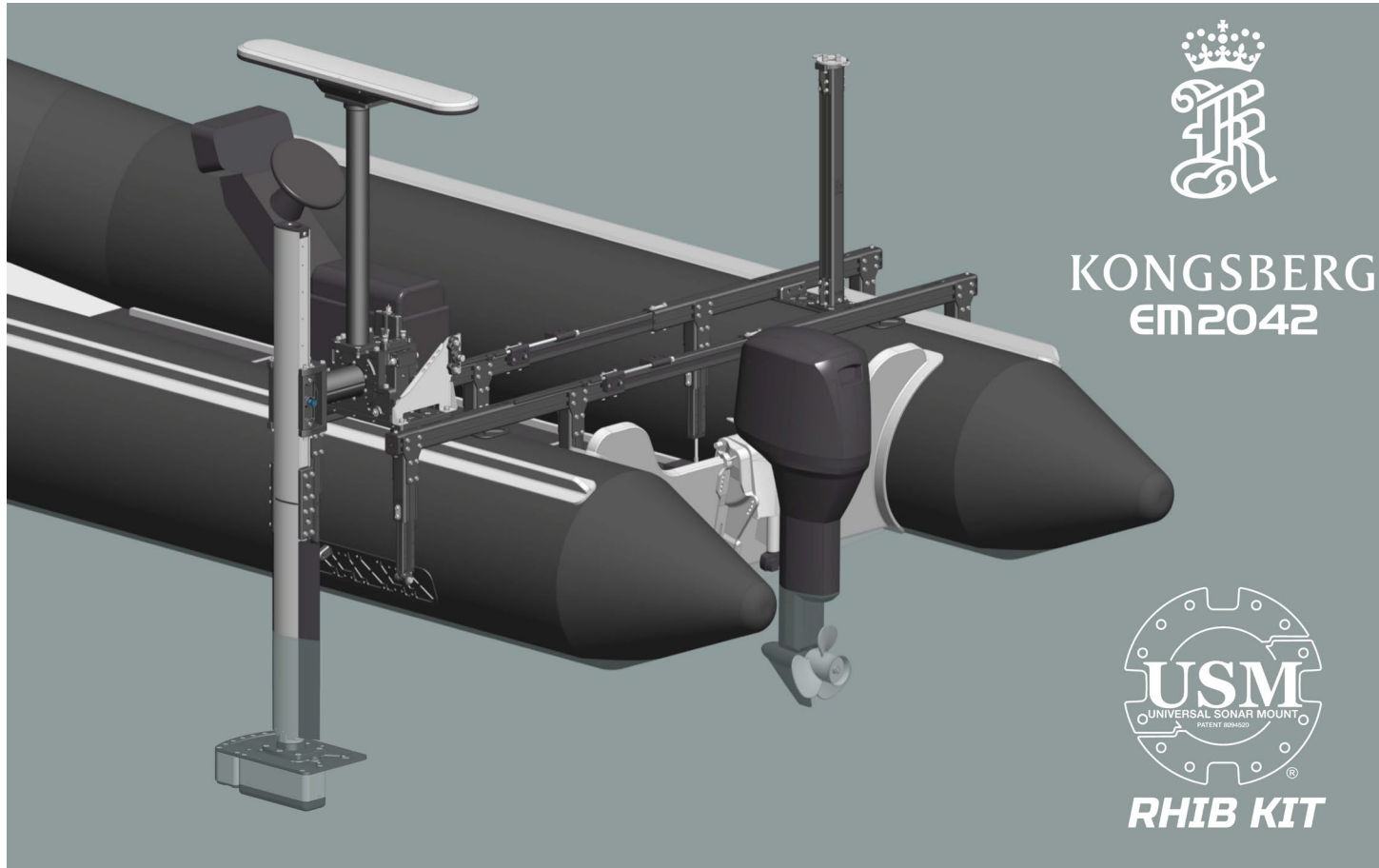
Applications from very high-resolution inspection to shallow water surveys.



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EM[®] 2042 – Installation

Very high resolution Multibeam Echo Sounder

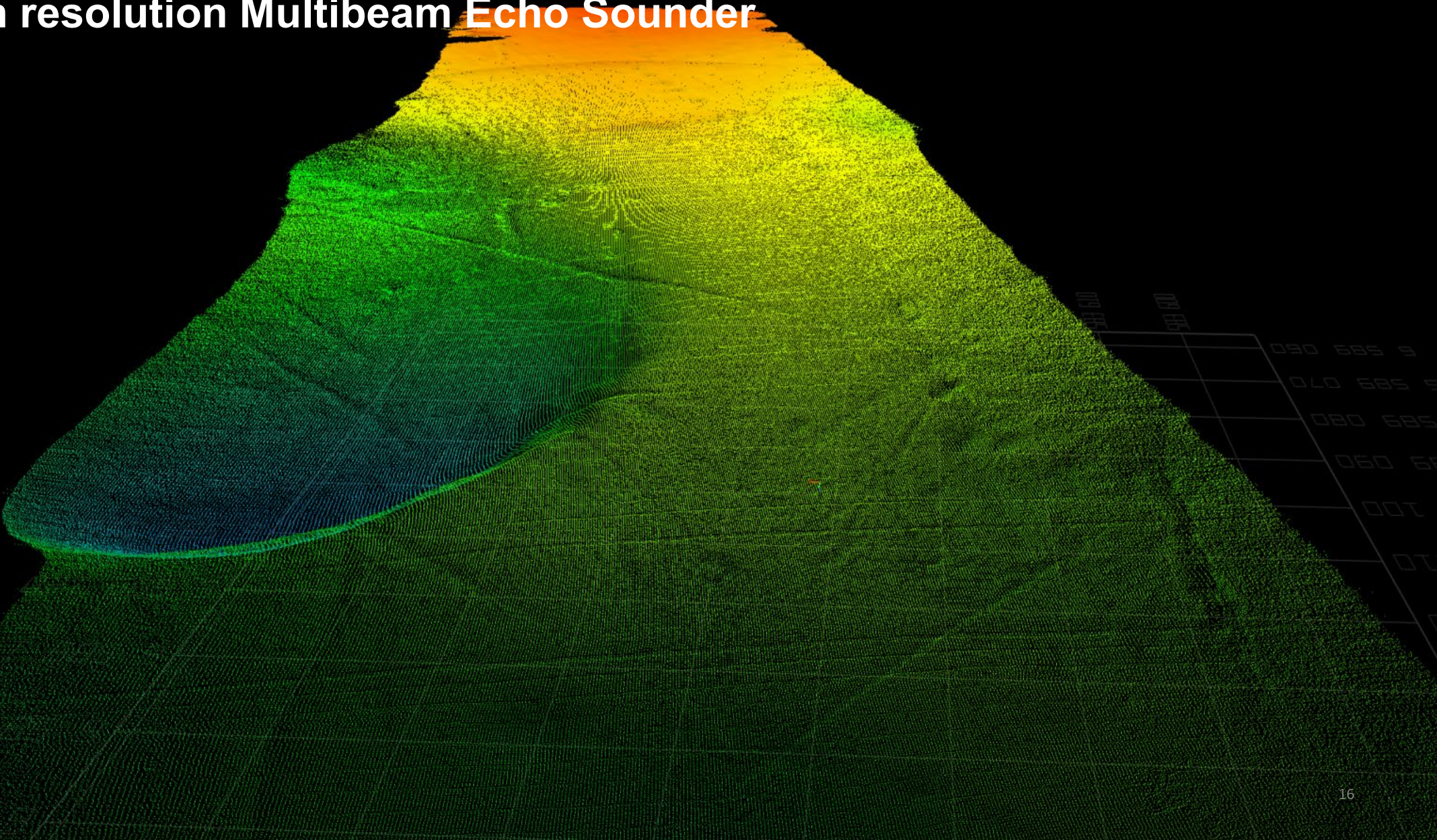


Applications from very high-resolution inspection to shallow water surveys.

no_EMX1
no_EMX1
no_EMX1
no_EMX1
no_EMX1

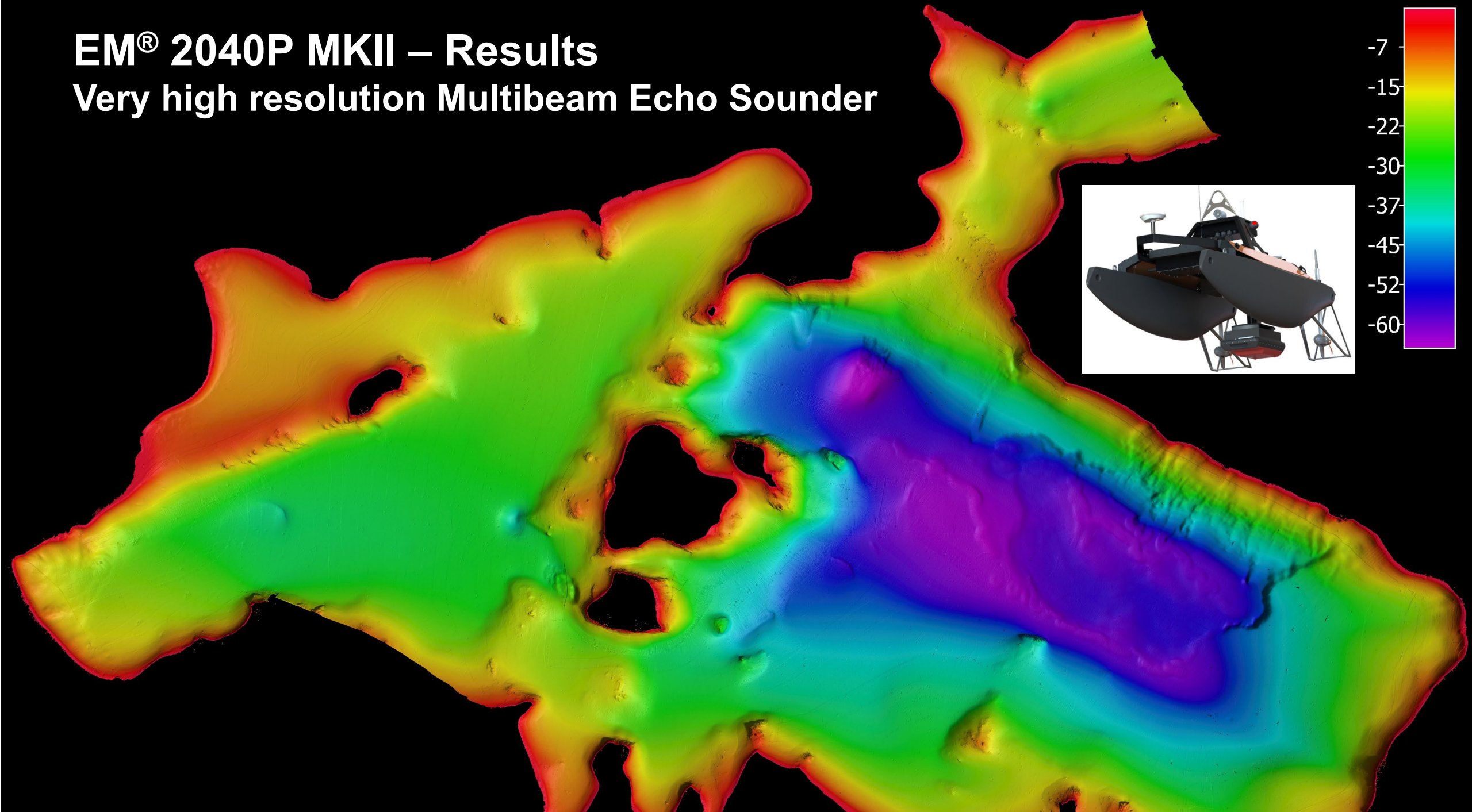
EM[®] 2042 – Results

Very high resolution Multibeam Echo Sounder



EM[®] 2040P MKII – Results

Very high resolution Multibeam Echo Sounder

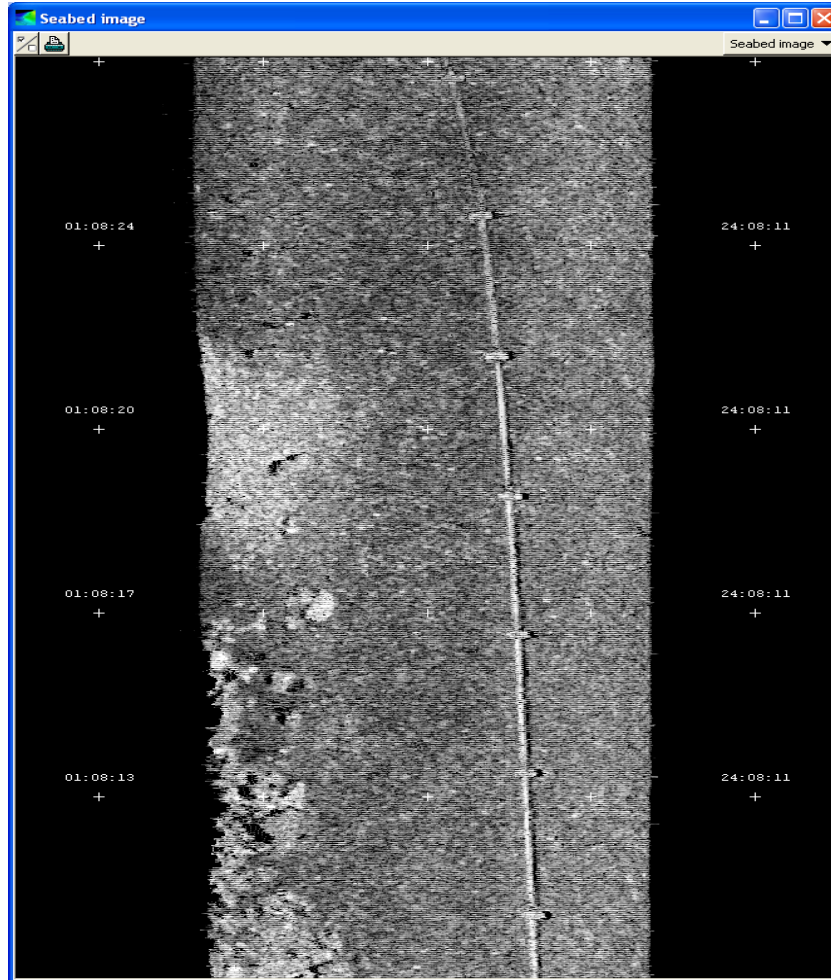




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EM[®] 2040C MKII – Results

Very high resolution Multibeam Echo Sounder



Pipeline – Sydney Marina, 400 kHz / 50us



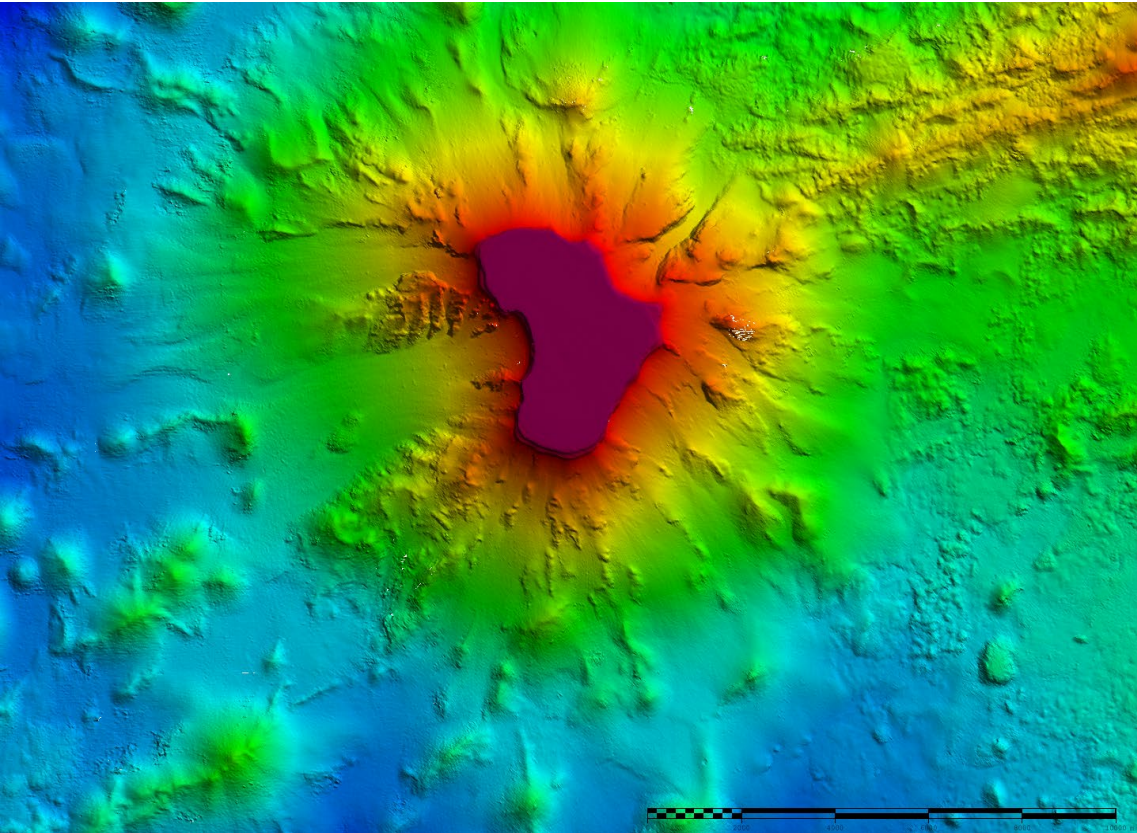
Sandwaves, 90 - 100m depth, 300 kHz / 70us



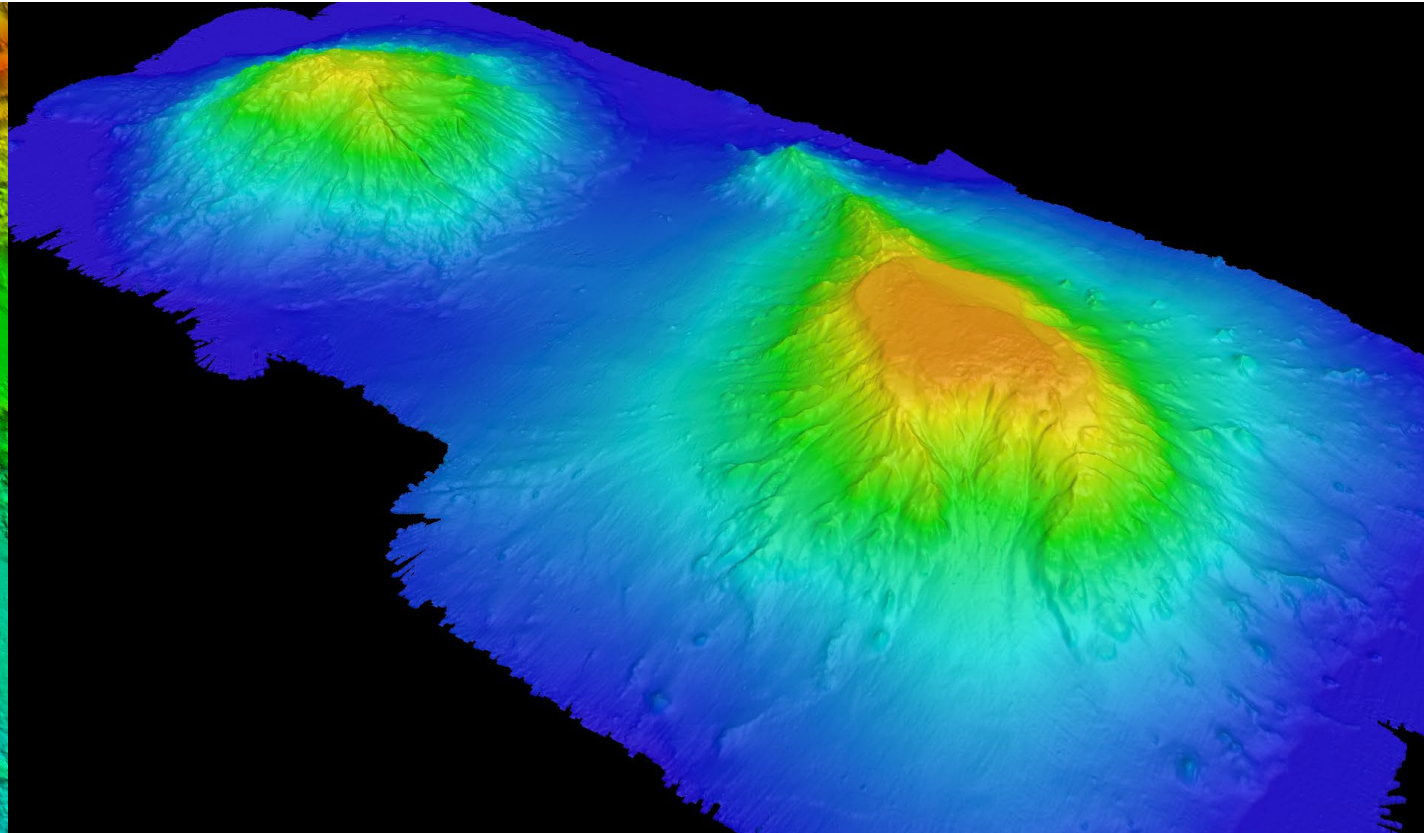
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Full Ocean Depth Systems

High Resolution Multibeam Echo Sounders



EM[®] 122, 1 x 1 degree – courtesy of SHOM and BHO «Beautemps Beupre»



EM[®] 302, 0.5 x 1 degree – courtesy of NOAA and RV «Okeanos Explorer»

Hydrographic Survey Vessels/RVs on the African Continent

RV "El Masseh", Algeria



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BHO2M "Dar Al Baida", Morocco



RV "Al Hassan Al Marrakchi", Morocco



NNS ZHIZOKO (A506), Nigeria



NNS LANA (A499), Nigeria



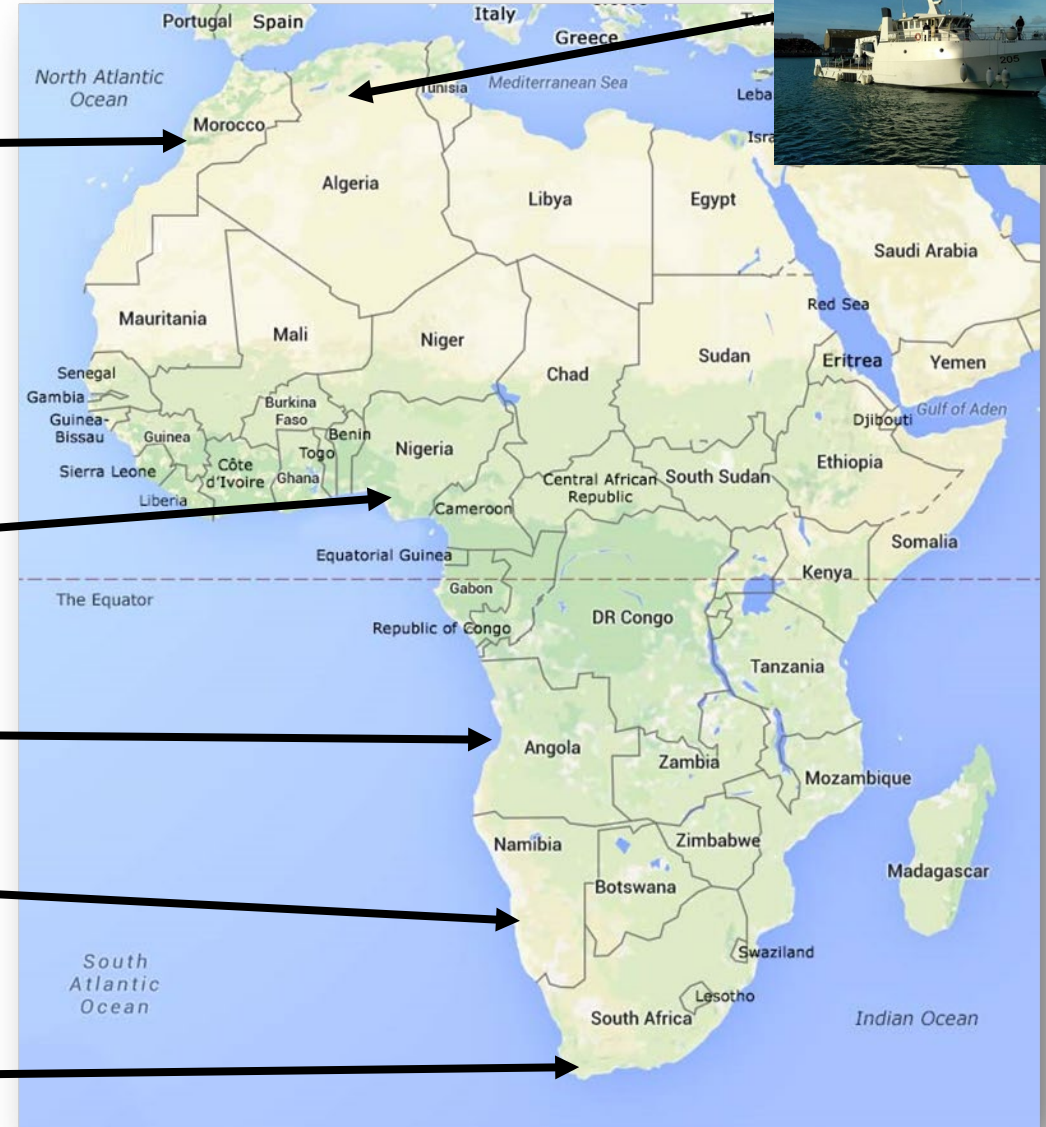
RV "Baia Farta", Angola



Replacement SAS "Protea", South Africa



RV "Mirabilis", Namibia





JOIN US AT
FEMME

TUESDAY 26 - FRIDAY 29 SEPTEMBER 2023

Kongsberg Maritime's 17th **F**orum for the
Exchange of **M**utual **M**ultibeam **E**xperiences





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**Thank you for your
attention!**

oystein.aasbo@kd.kongsberg.com

