



Research Vessels

Grant Rawlinson, Regional Sales Manager, Subsea



KONGSBERG

Kongsberg Maritime, Horten, Norway



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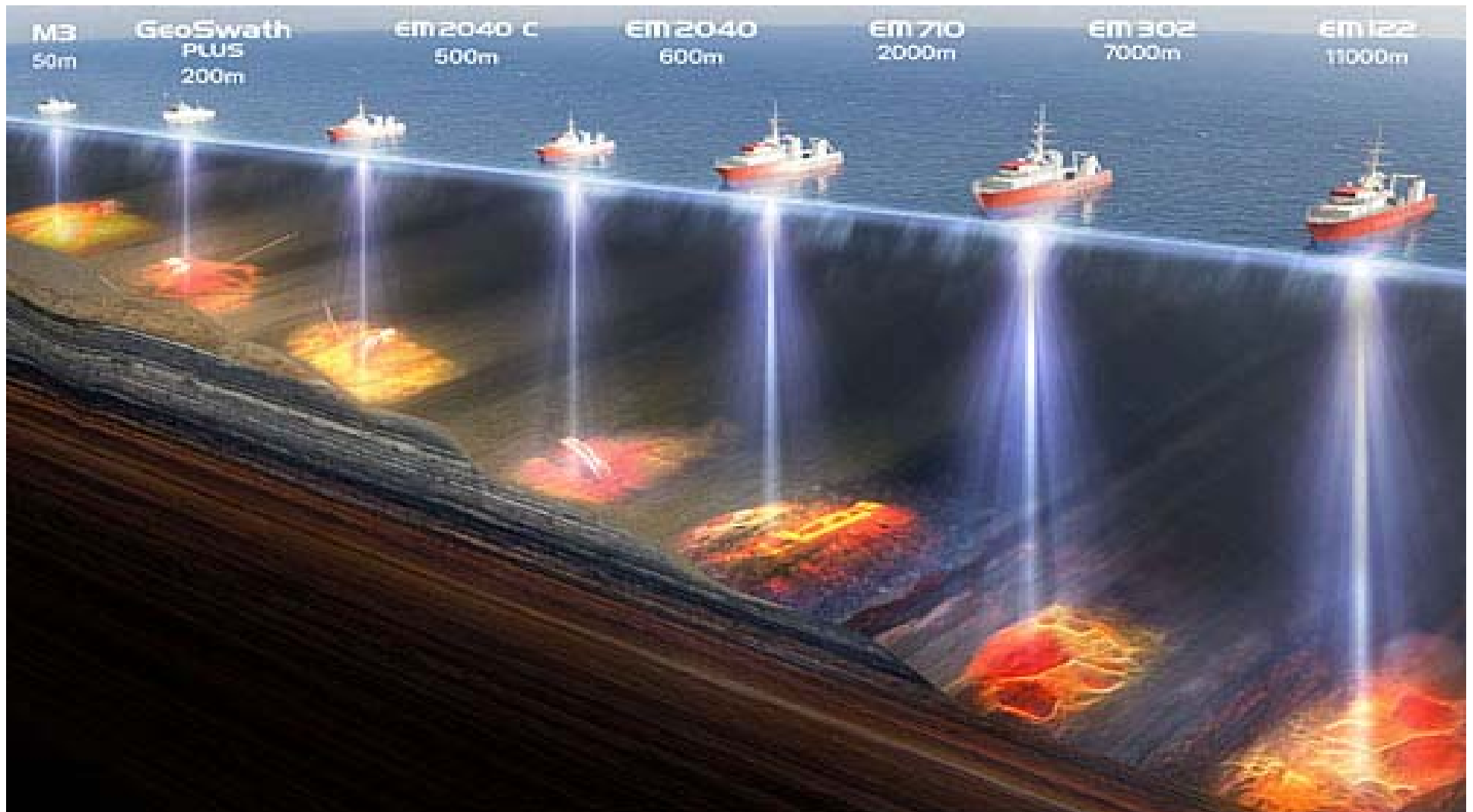


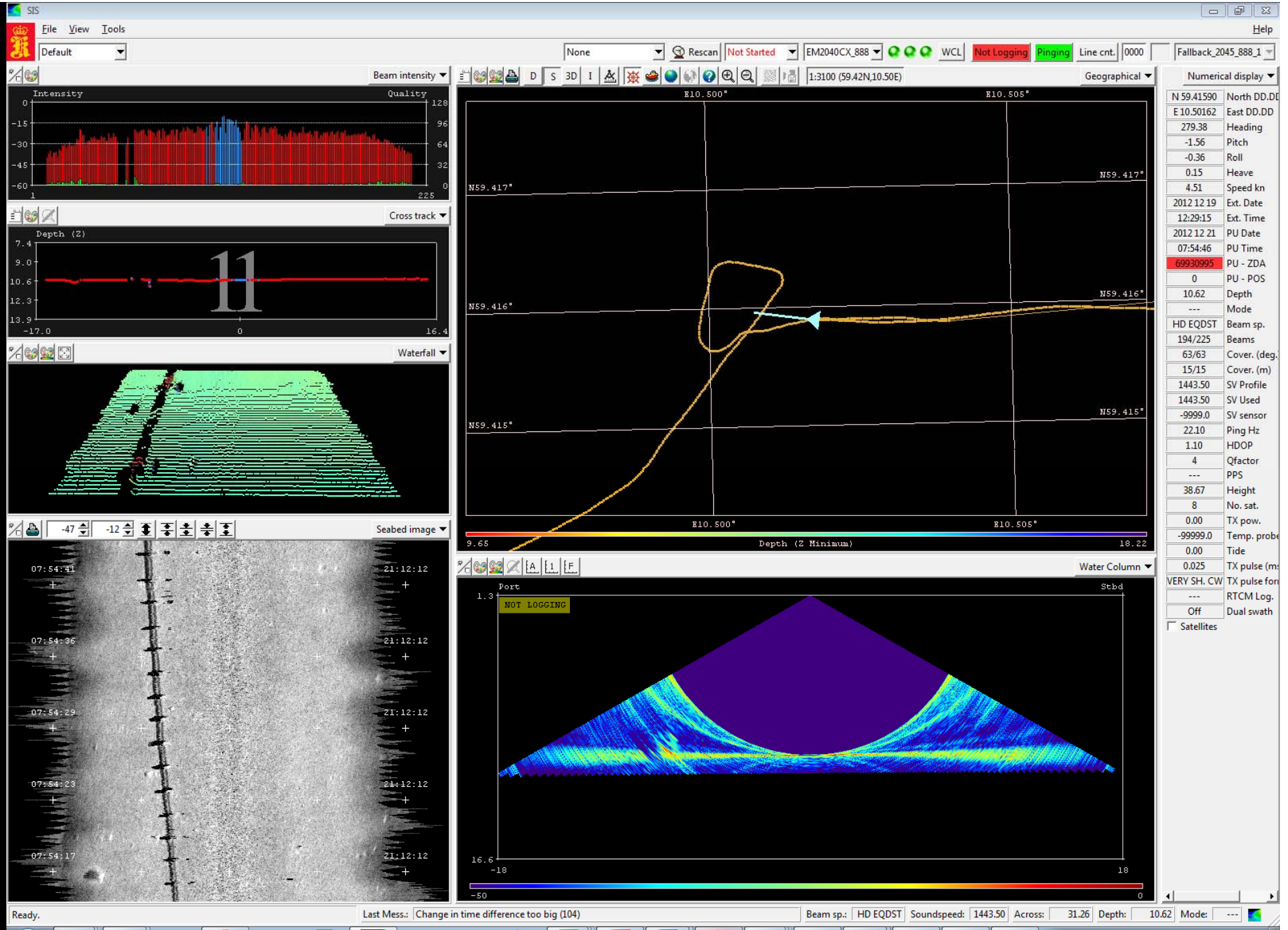
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HYDROGRAPHY

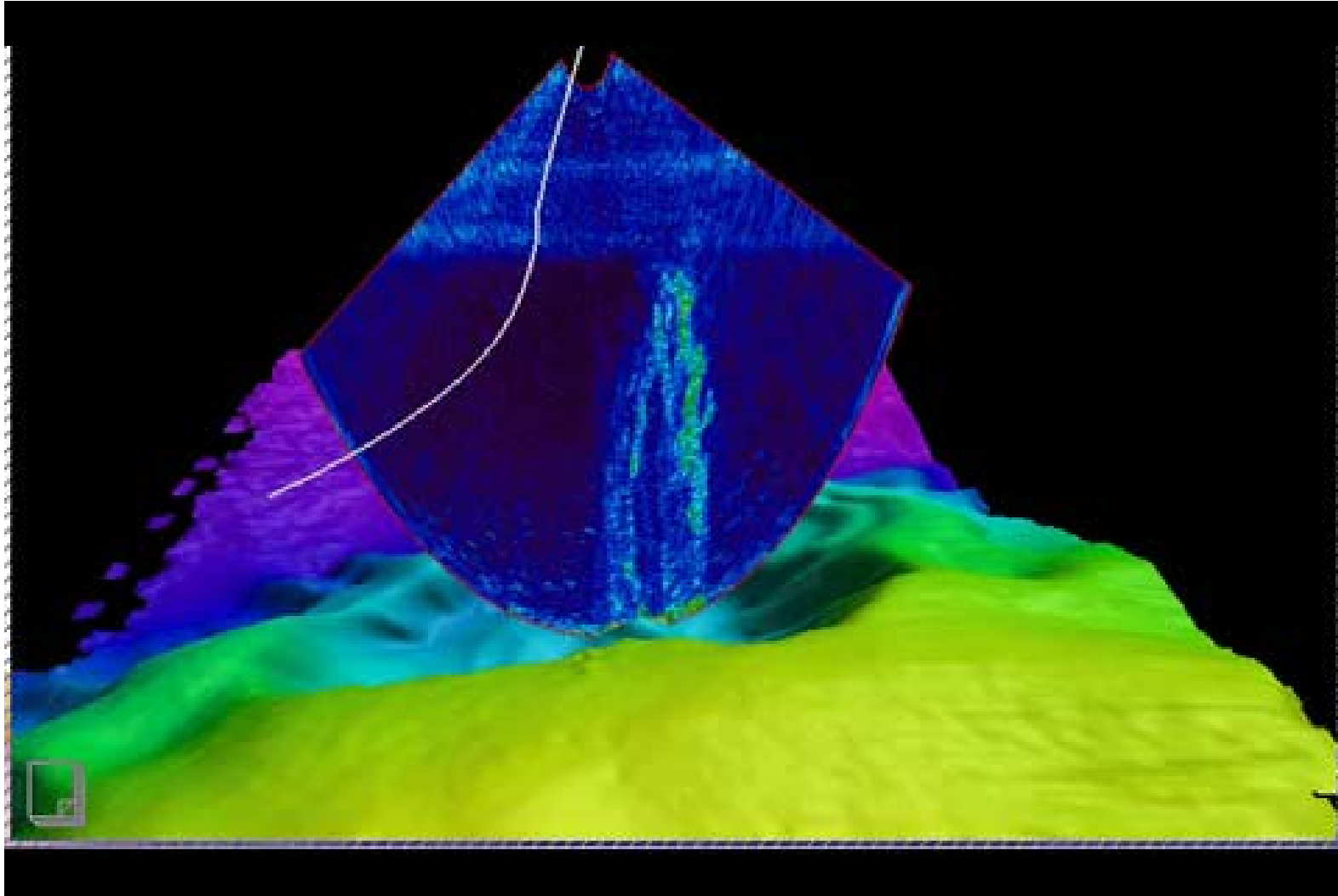
Multibeam Echosounders



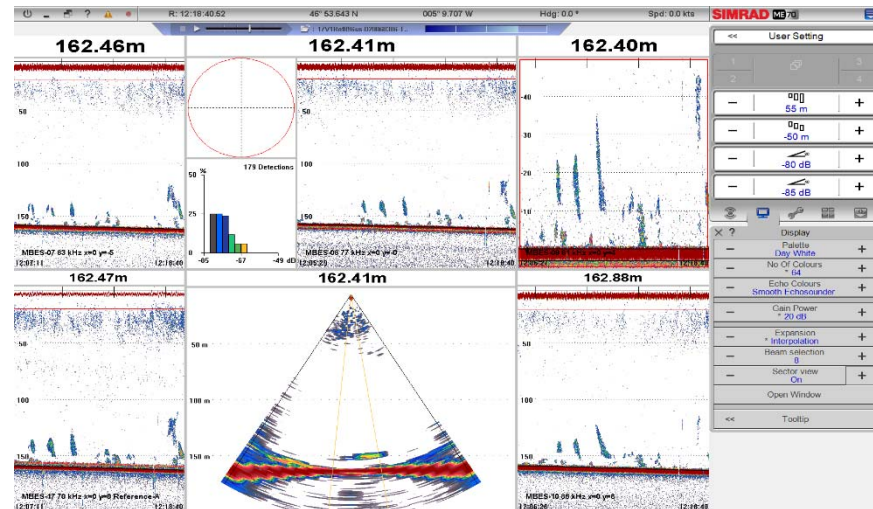
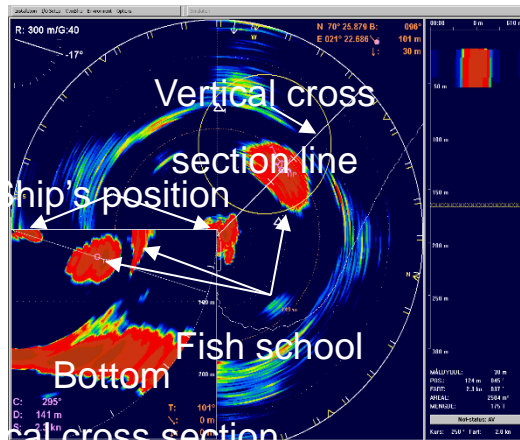
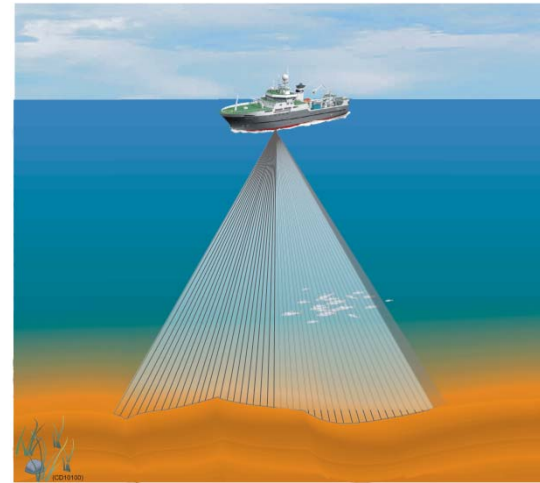
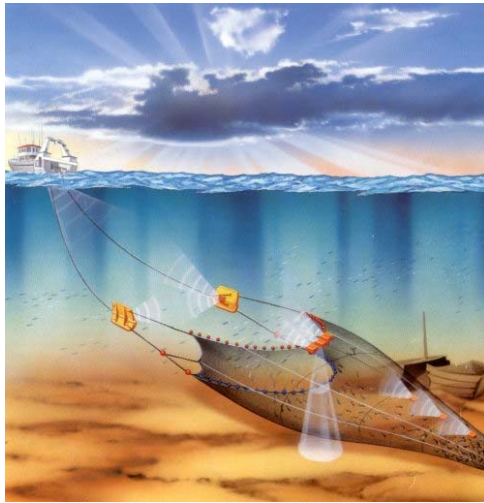




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Scientific Sonar Systems for fishery research

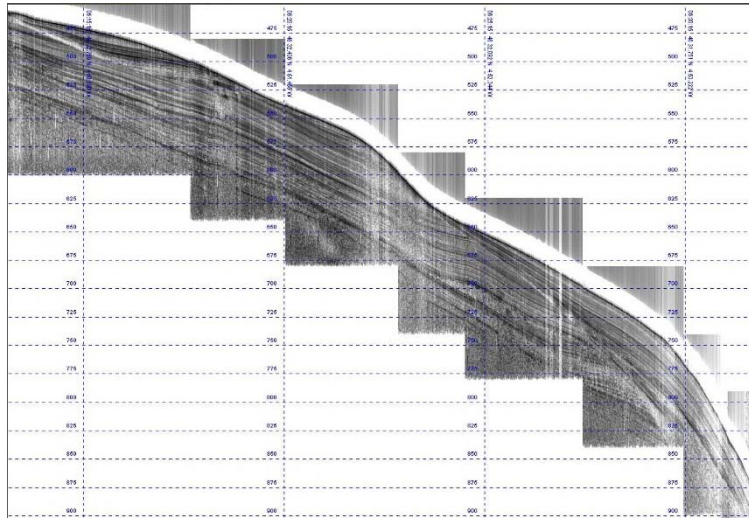


THE FULL PICTURE

Sub bottom profilers



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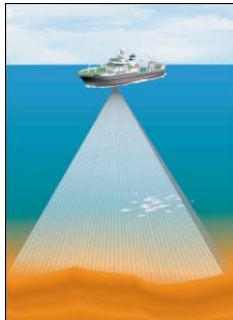
Products for any subsea applications



Surveillance



Fishery /
Research



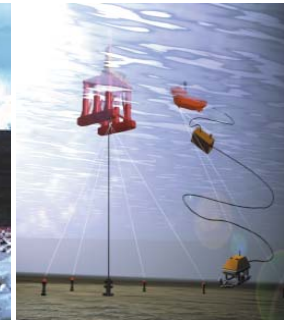
AUV



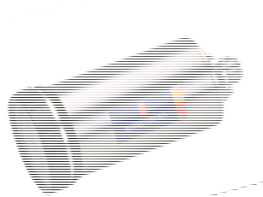
Seabed
mapping



Under water
navigation



Naval
sonars

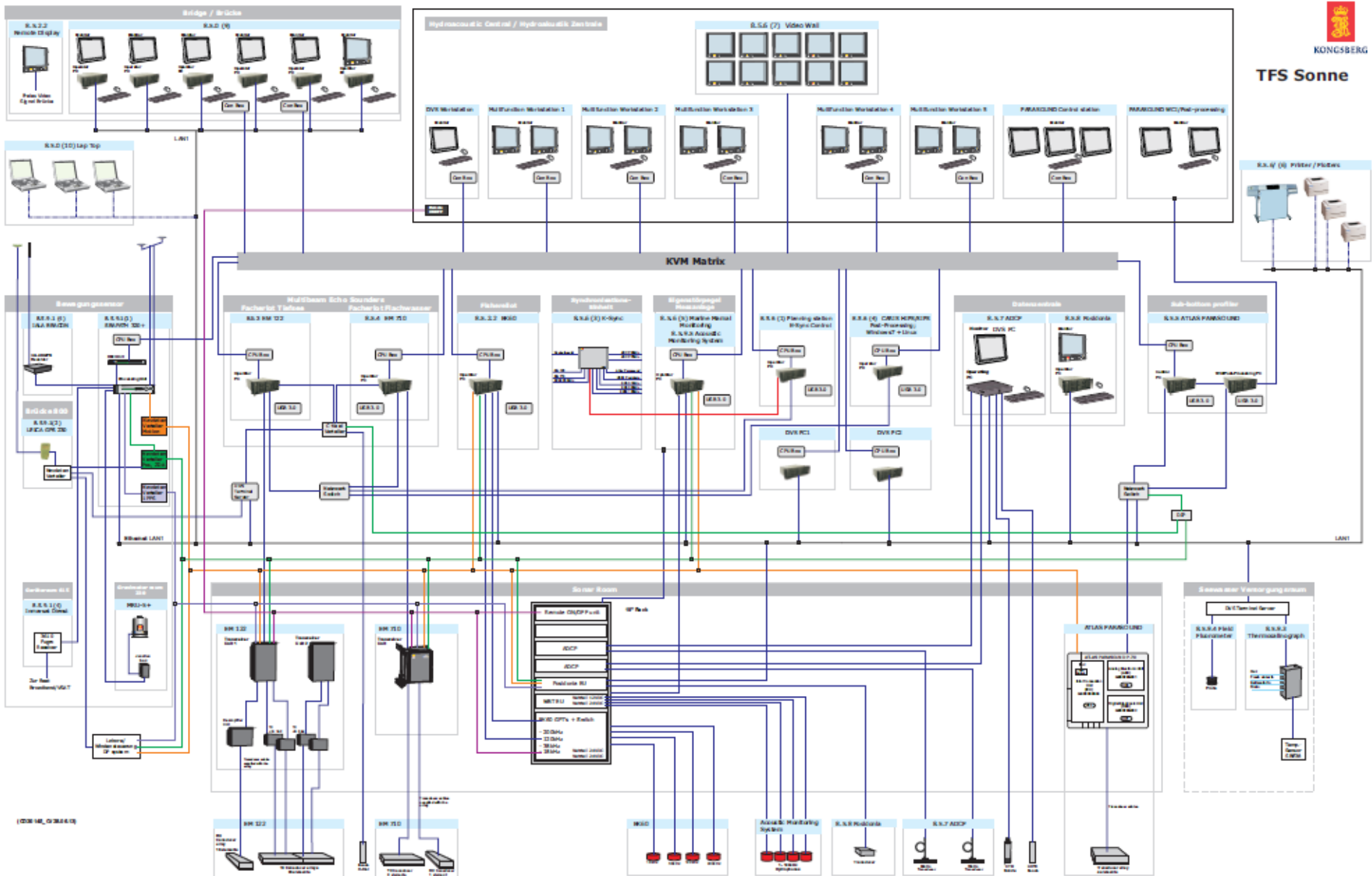


...just a small taste of a variety of products
THE FULL PICTURE



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TFS Sonne





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CSIRO- Future Research Vessel



'RV Investigator'



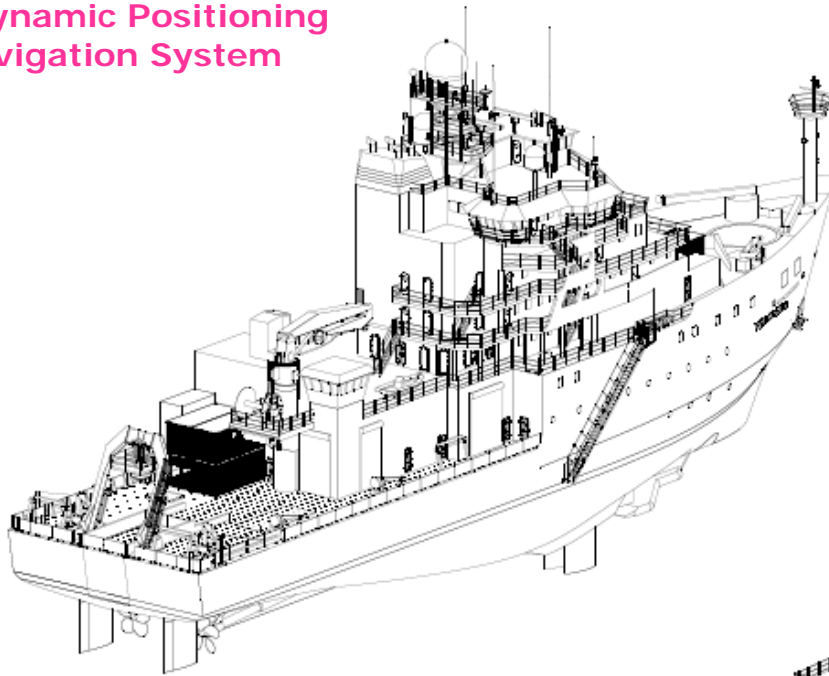
"The new vessel will be capable of operating continuously for 60 days at sea, cruising at 12 knots over a range of 10 000 nautical miles."

Full Picture of Kongsberg Equipment



PRINCIPAL DESTINATIONS

DP – Dynamic Positioning and Navigation System



Hydrographic

EM122 - 1 x 1 degree

SBP-120 - 3 degree

EM710 - 0.5 x 1 degree

EA600 12Khz singlebeam echosounder

Seapath 330+ positioning system

K-Sync – Synchronisation unit

EN250 – Navigational echosounder

3rd party equip ADCP, SpeedLog

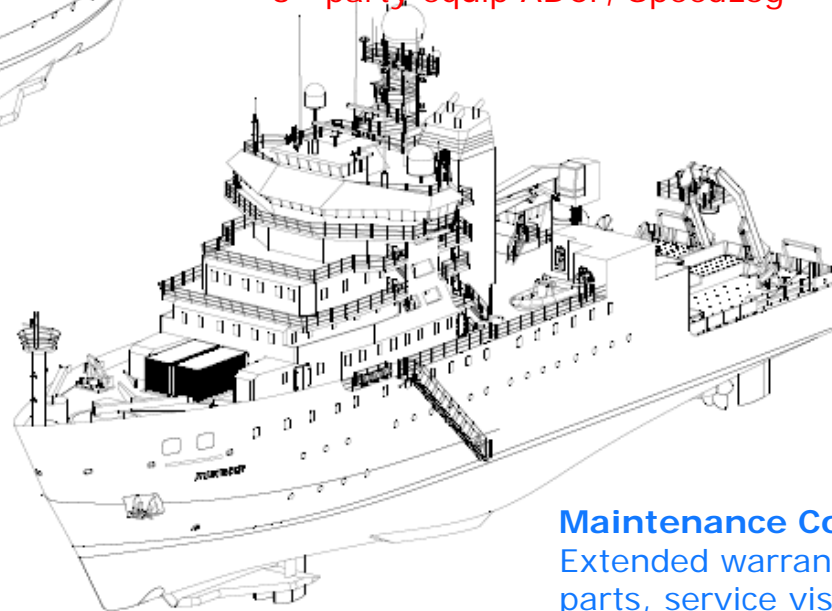
Fisheries

EK60 – 6 frequencies (18,38,70,120,200,333)

ME70 – Scientific multibeam

ITI – Integrated Trawl Instrumentation

SH90 – Omni-directional sonar



Maintenance Contract,
Extended warranty, Spare
parts, service visits

ABBREVIATIONS

Design Criteria

Technical Profile

Research Vessel: Multi-purpose

Length Overall: 88.9 m

Beam: 18.5 m

Draft: 5.5 m

Lloyds Classification: +100A1,

+LMC, UMS, Ice 1c, IWS, EP,

Research Vessel, DP (AM),

DnV Silent R

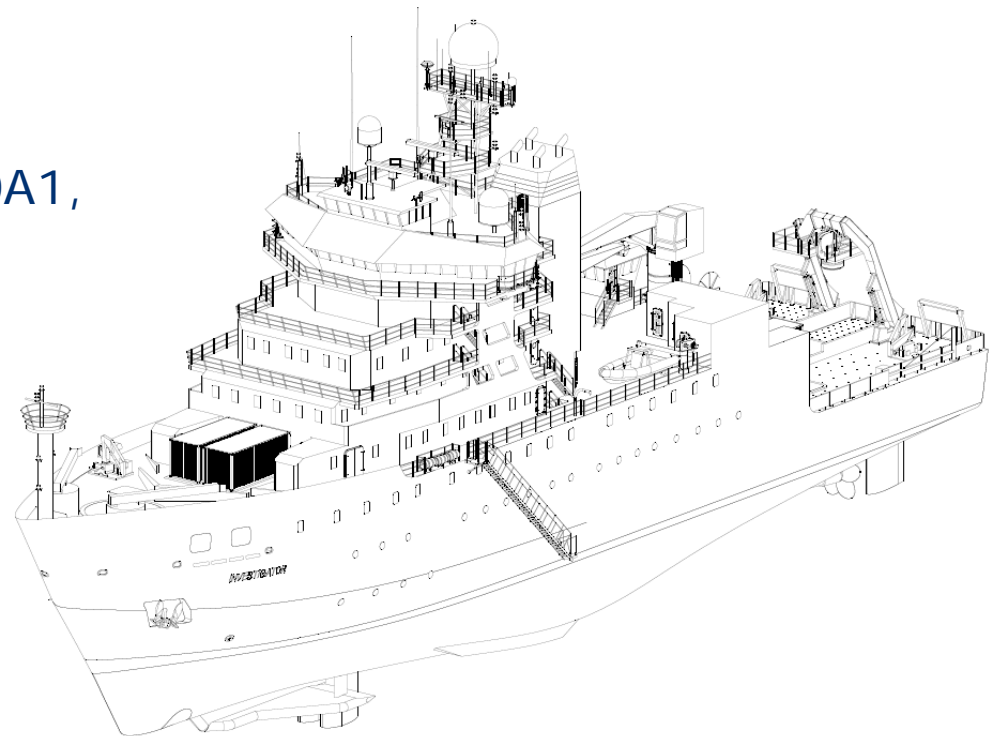
Crew: 18 TBC

Science Complement: 40

Gross tonnage: TBA

RV – Investigator

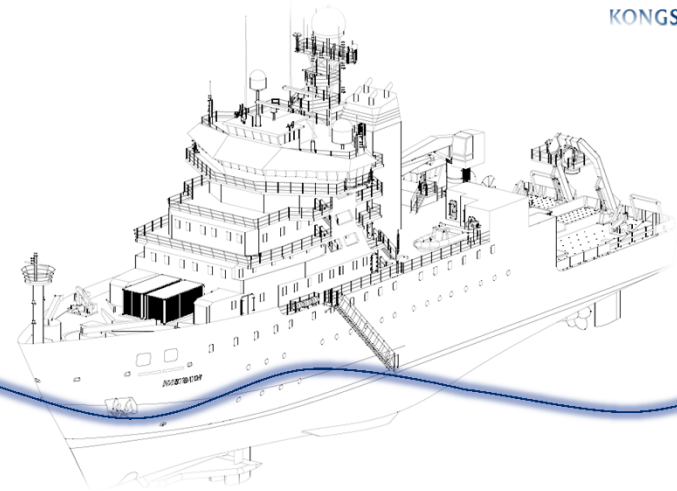
DNV Silent-R: The *RV-Investigator* will operate with low levels of radiated noise to allow for enhanced science operations



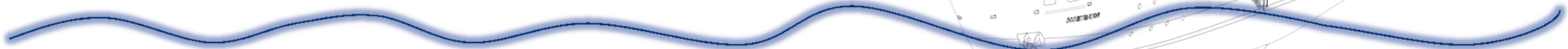
DNV Silent-R



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Vessel Speed 11 knots



Hydrophones located at 100m water depth



Hydrophone



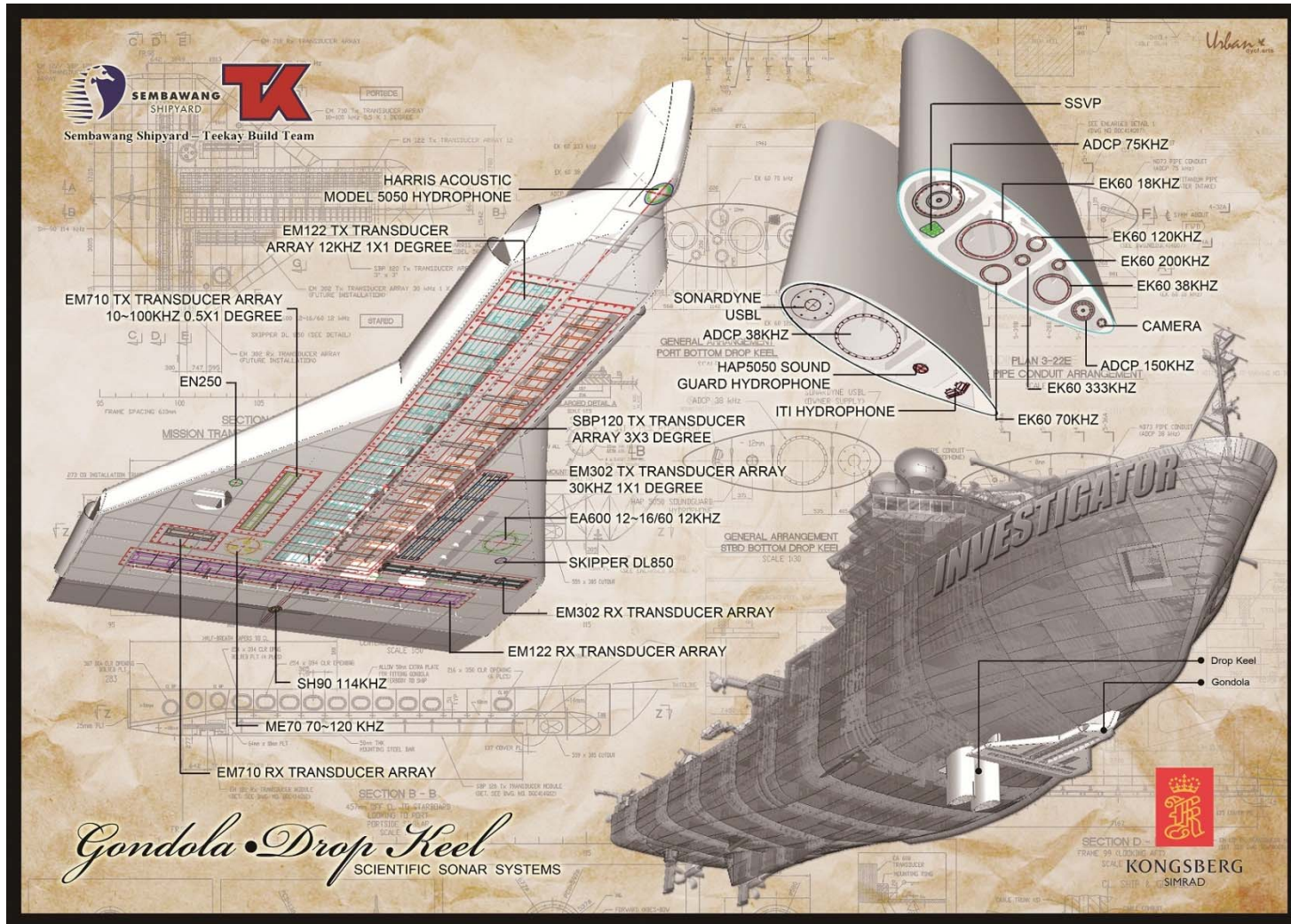
Normal



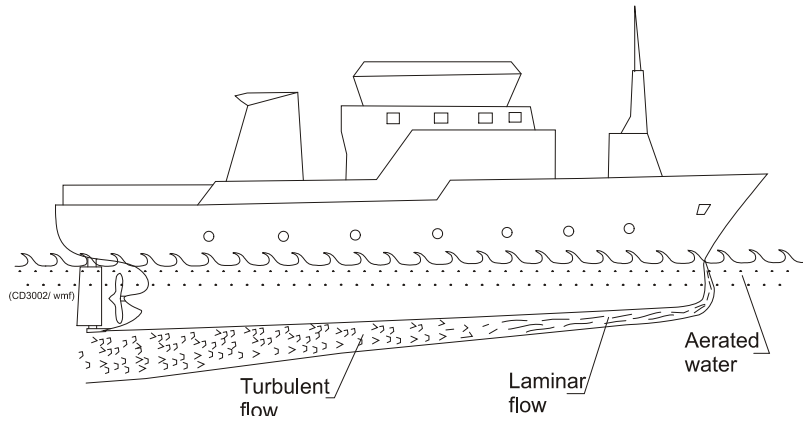
Silent R



Gondola Design - CSIRO



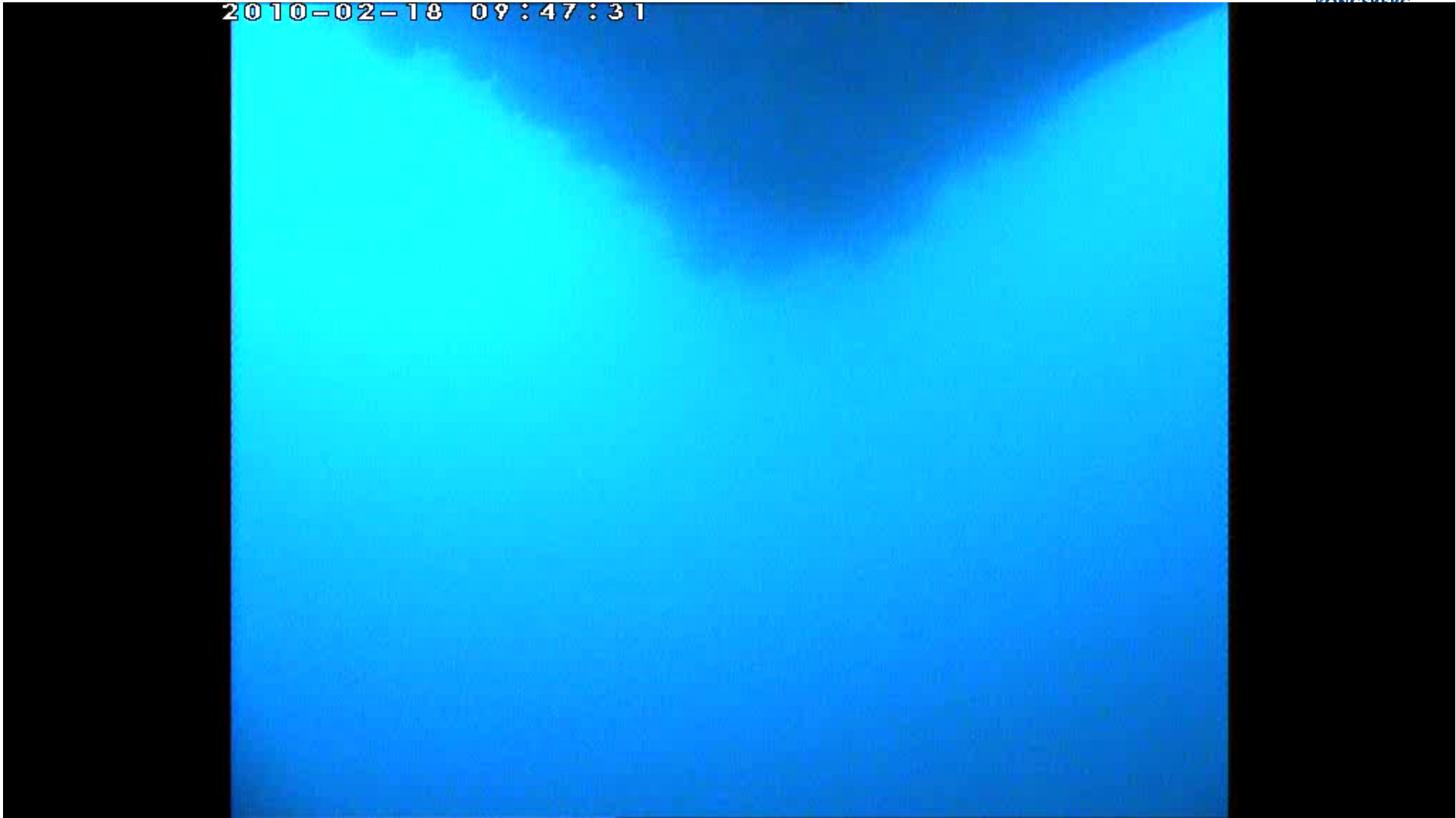
Installation is very important!





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Specifications



309.6. Shallow water multibeam scientific and fisheries echo sounder system:

- Fixed gondola mount;
- 70kHz - 120kHz, Simrad ME70 or similar.

309.7. Shallow water multibeam scientific echo sounder system:

- Fixed gondola mount;
- Capable of hydrographic soundings to IHO S44 (Order 1 Survey) standard; and
- 0.5° x 1° 70kHz - 100kHz, Simrad EM710 or similar.

309.8. Medium depth multibeam system:

- Fixed gondola mount; and
- 10-4000 m 0.5° x 1°, 30-34kHz, Kongsberg EM302 or similar.

309.9. Full ocean depth multibeam system:

- Fixed gondola mount; and
- 0.5° x 1° 12kHz, Kongsberg EM122 or similar (1 x 1 or 1 x 2 may be considered if the respondent provides detailed reasons)

309.10. Sub-bottom profiler integrated with 12kHz multibeam:

- Fixed gondola mount; and
- Kongsberg SBP120 or similar.

309.11. Multi-frequency hydrophones:

Multi-frequency hydrophones suitable for monitoring self noise and measuring ambient environmental noise:

Indonesian Navy

Hydrographic/Oceanographic - 2 x Research vessels 2015



Kongsberg Maritime Scope of Supply



2 x new vessels each with following equipment:

- EM302 deepwater multibeam (7000m)
- EM2040 shallow water multibeam (500m)
- EA600/400 singlebeam echosounder
- SEAPATH 300 positioning system
- KONGSBERG GEOACOUSTICS Sidescan Sonar
- HUGIN AUV – 1000m

Survey acquisition & control room onboard



HUGIN AUV on back deck of KRI RIGEL



HUGIN AUV on back deck of KRI RIGEL



RV SONNE



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Background

- Owned by the German Ministry of Research of Research
- Built by Meyer Werft in Papenburg
- Operated by RF Forschungsschiffahrt GmbH in Bremerhaven
- The vessel will be used for multi-discipline research by the universities, which include the University of Bremen/Hamburg, IOW Rostock, BGR Hannover, IFM Geomar Kiel and several others.
- The ship will operate mainly in the Pacific and the Indian Oceans.





FUGRO

3 x Newbuild Survey Vessels



- Survey vessel
- Fugro owned
- Length over all 65.68 m
- Beam moulded 14.00 m
- Design draught 4.20 m
- Displacement 1854 t
- Speed 12.8 knots
- Total power 3 x 1190 kW
- Total propulsion 2200 kW

www.fugro.com



DEVELOPING STORY
Today
MH370 MYSTERY
CANB 20° ☀️ CO-PILOT MADE MOBILE CALL BEFORE RADAR CONTACT WAS LOST





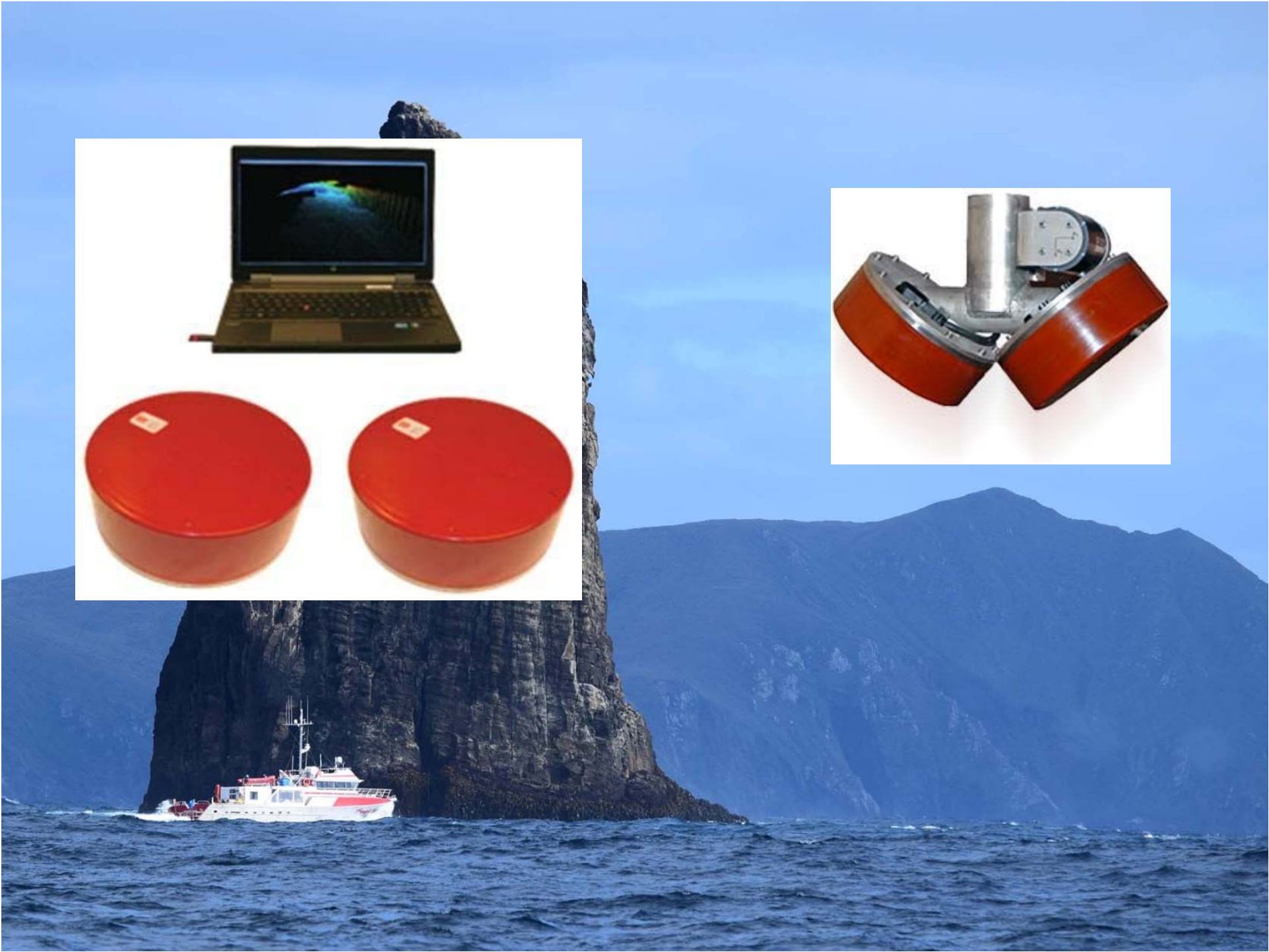
KD Mutiara - Royal Malaysian Navy (R.M.N)

- EM302 deepwater multibeam
- Seapath 330 positioning system
- EA400/EA600 singlebeam echosounder
- EM2040C dual



EM[®] 2040C
Multibeam echo sounder

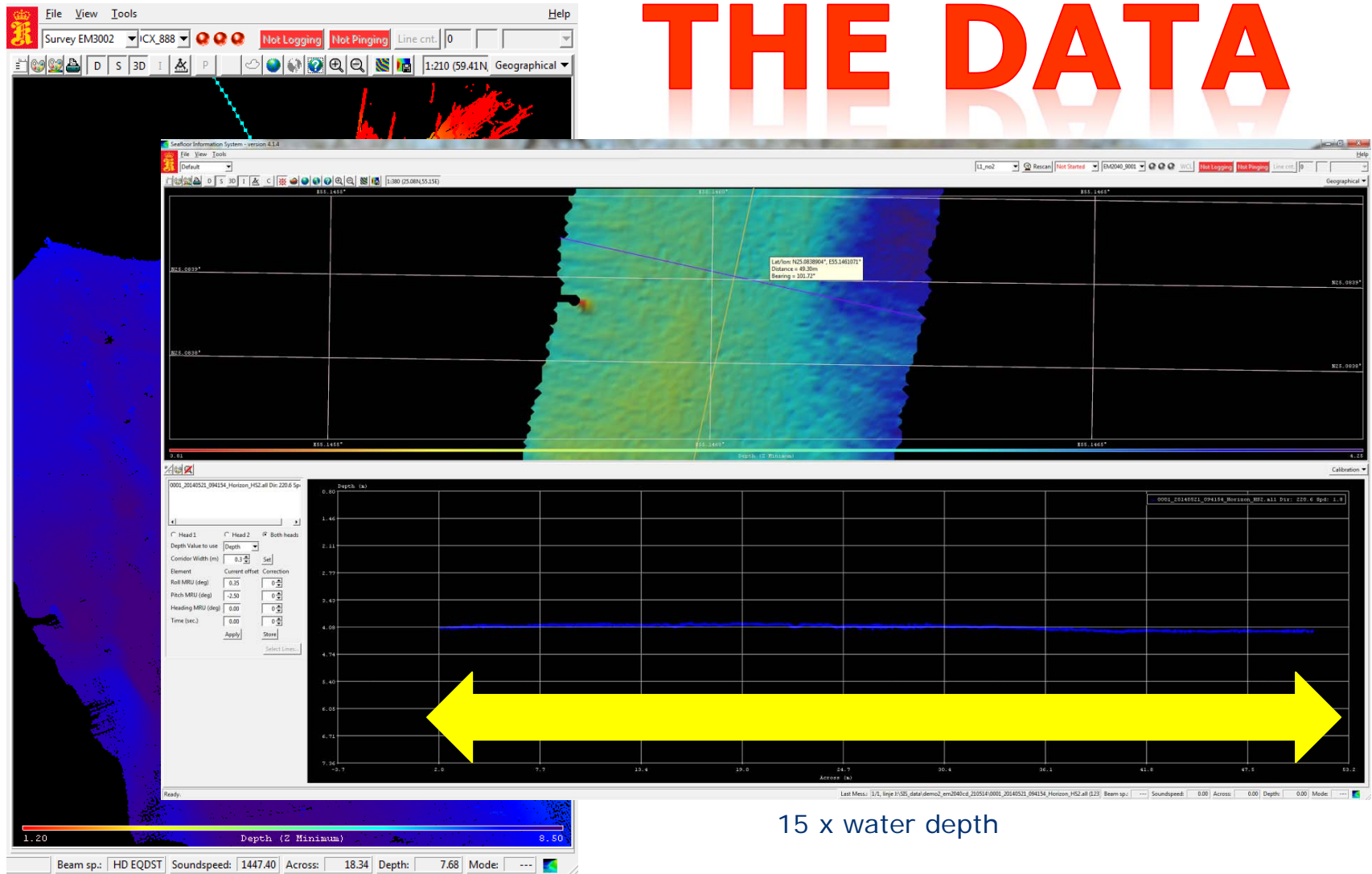




Why do you buy a Research Vessel?



THE DATA



15 x water depth

Thank you.