CARIS 2014
Developing the Blue Economy
June 2–5, 2014 | Brest, France

Working Together on Current Advantages and Future Possibilities

Using examples from CARIS 2014

Peter Schwarzberg

CARIS 2014

Brest France, June 2-5, 2014

Boot Camps

User Group Meetings

Technical and Non-technical Papers

Poster Sessions

Industry Exhibition Areas

CARIS 2014

CARIS Users (and others) from around the world

E.g.:

Mapping Agencies and Hydrographic offices

Port Authorities and Waterway Authorities

Academic Institutions and Students

Hardware Manufactures and Service Providers

…

Sponsors and Exhibitors

EIVA · KRAKEN SONAR SYSTEMS INC. · EdgeTech · INFOMAR · TRITON IMAGING, INC · HYPACK · TELEDYNE ODOM HYDROGRAPHIC · TELEDYNE RESON

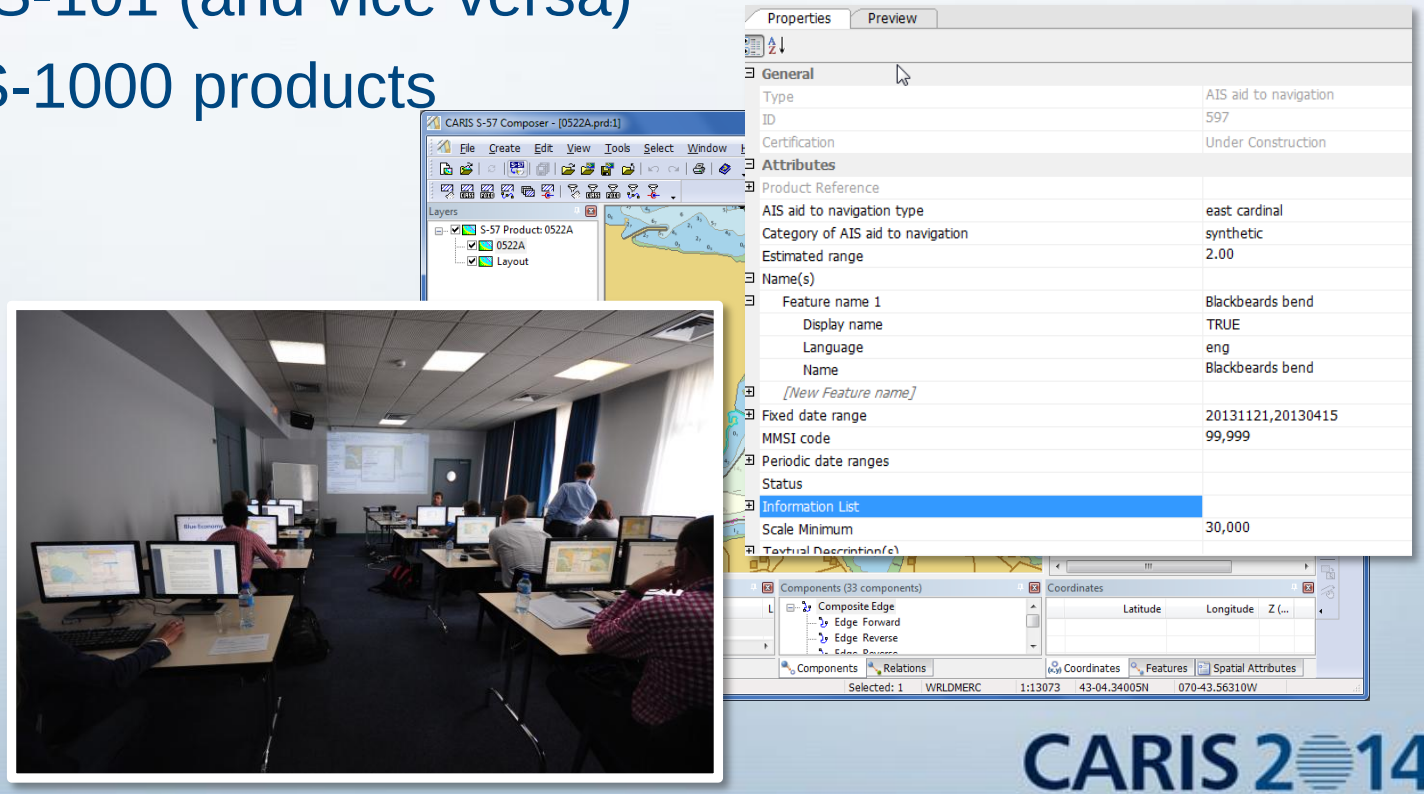
KONGSBERG · IIC TECHNOLOGIES · AML OCEANOGRAPHIC · SKILLTRADE · Pelydryn · applanix · stema systems · SBG SYSTEMS

SEA TECH WEEK

CARIS 2014 Developing the Blue Economy

S-100 Boot Camp

- Theory
- S-102 & S-101 production
- S-57 to S-101 (and vice versa)
- Future S-1000 products
- Etc.



BASE Editor

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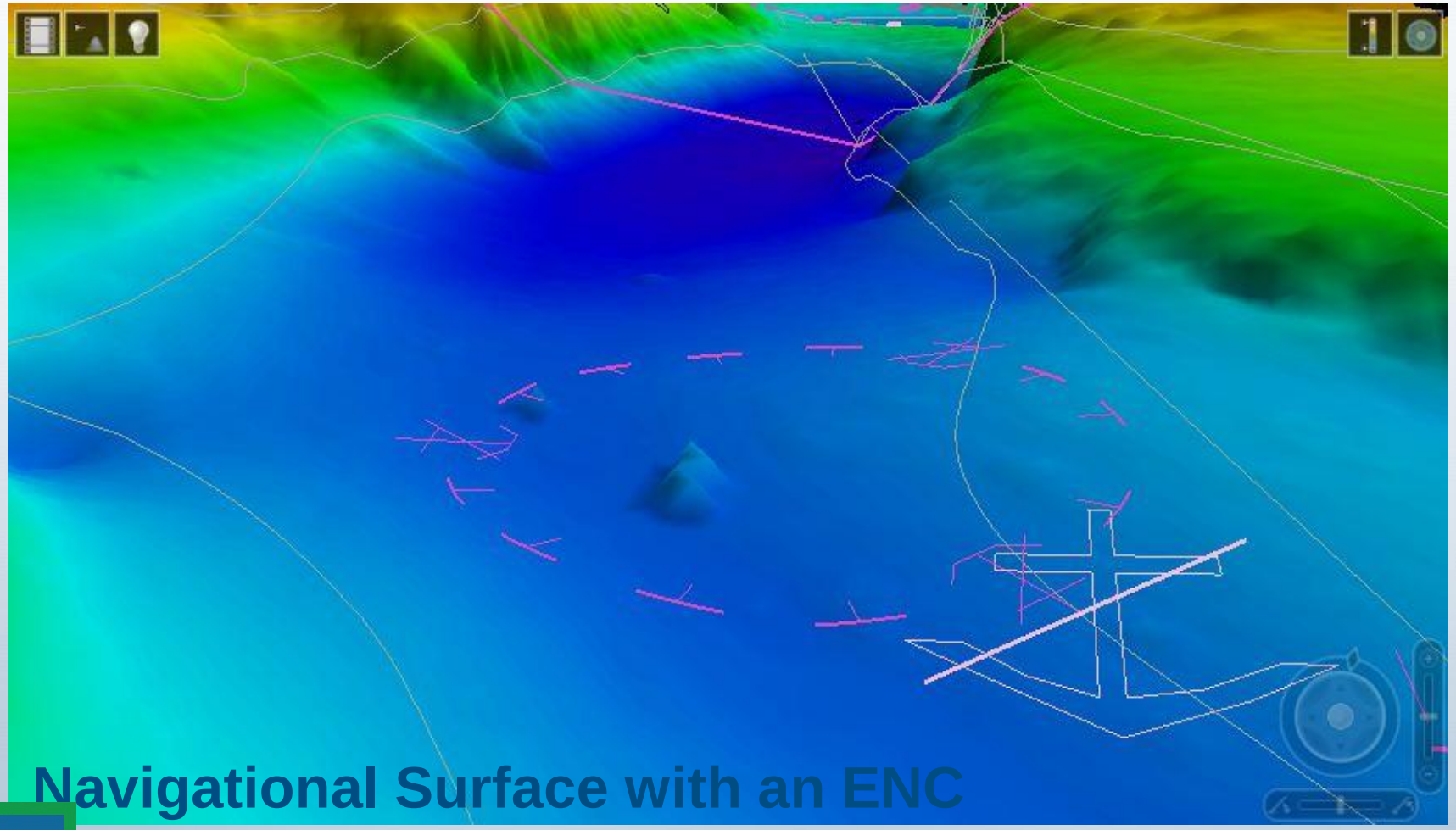
S-102 with S-57/S-101



Navigational Surface with an ENC

S-102

- Being used
  - E.g. for survey contract delivery
- But work on the standard is needed
  - CARIS has reported issues to IHO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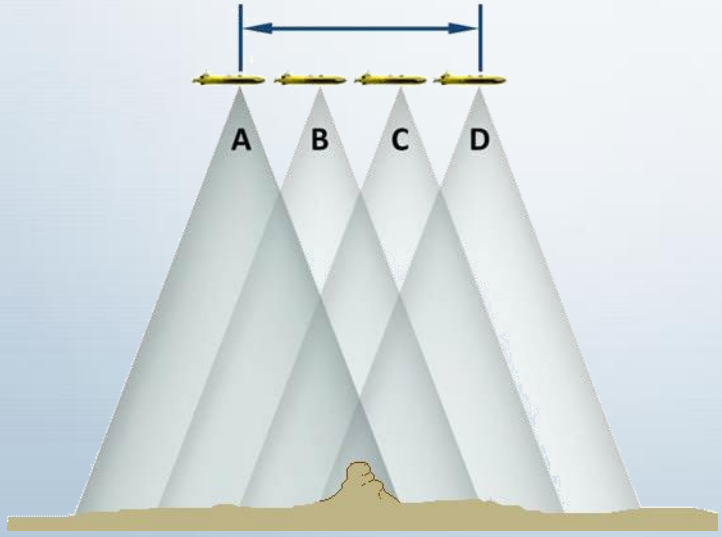
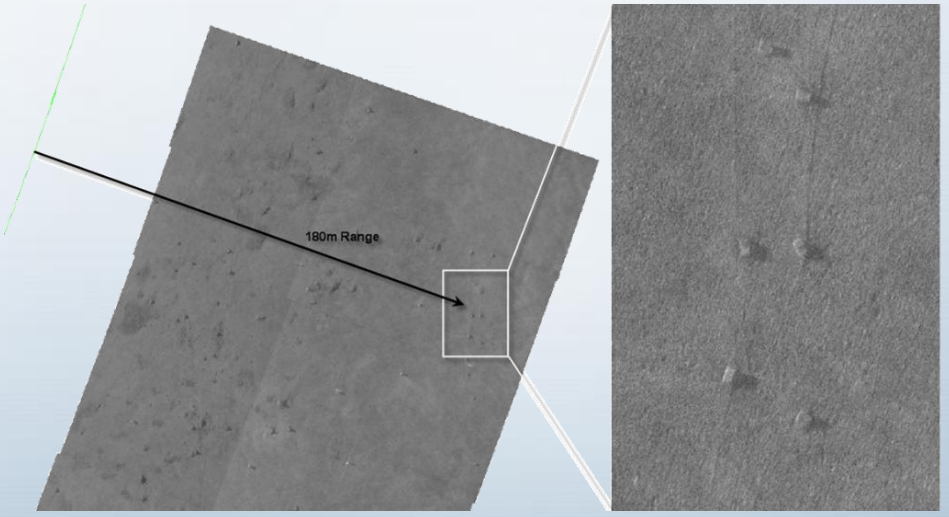
Developing the Blue Economy
Opening Session

Synthetic Aperture Sonar (SAS)

- High resolution images and bathymetry
- Requires stable vehicle
  - E.g. Autonomous Underwater Vehicle (AUV)





Synthetic Aperture Sonar (SAS)

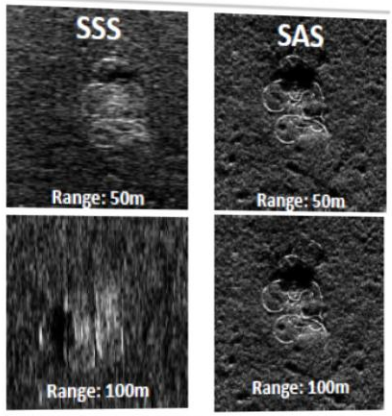
Why Synthetic Aperture Sonar?

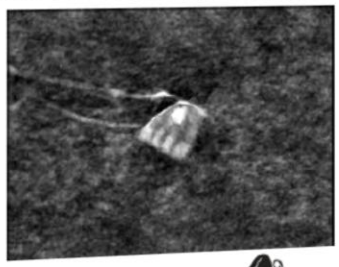
Ultra High Image Resolution
- Constant along/across track resolution of 3cm x 3cm
- 25x better compared to SSS

Increased Area Coverage Rate
- Up to 600m swath
- 10x better compared to SSS

Operational Safety
- Ability to fly under ice at greater stand-off distances

Additional By-Products
- Real-time, co-registered high resolution 3D bathymetry
- Rapid Environmental Assessment via data fusion
- Multi-aspect SAS can create optical-like quality imagery
- Shadow enhancement improves target classification
- Enhances AUV micronavigation capabilities





KRAKEN SONAR SYSTEMS INC.

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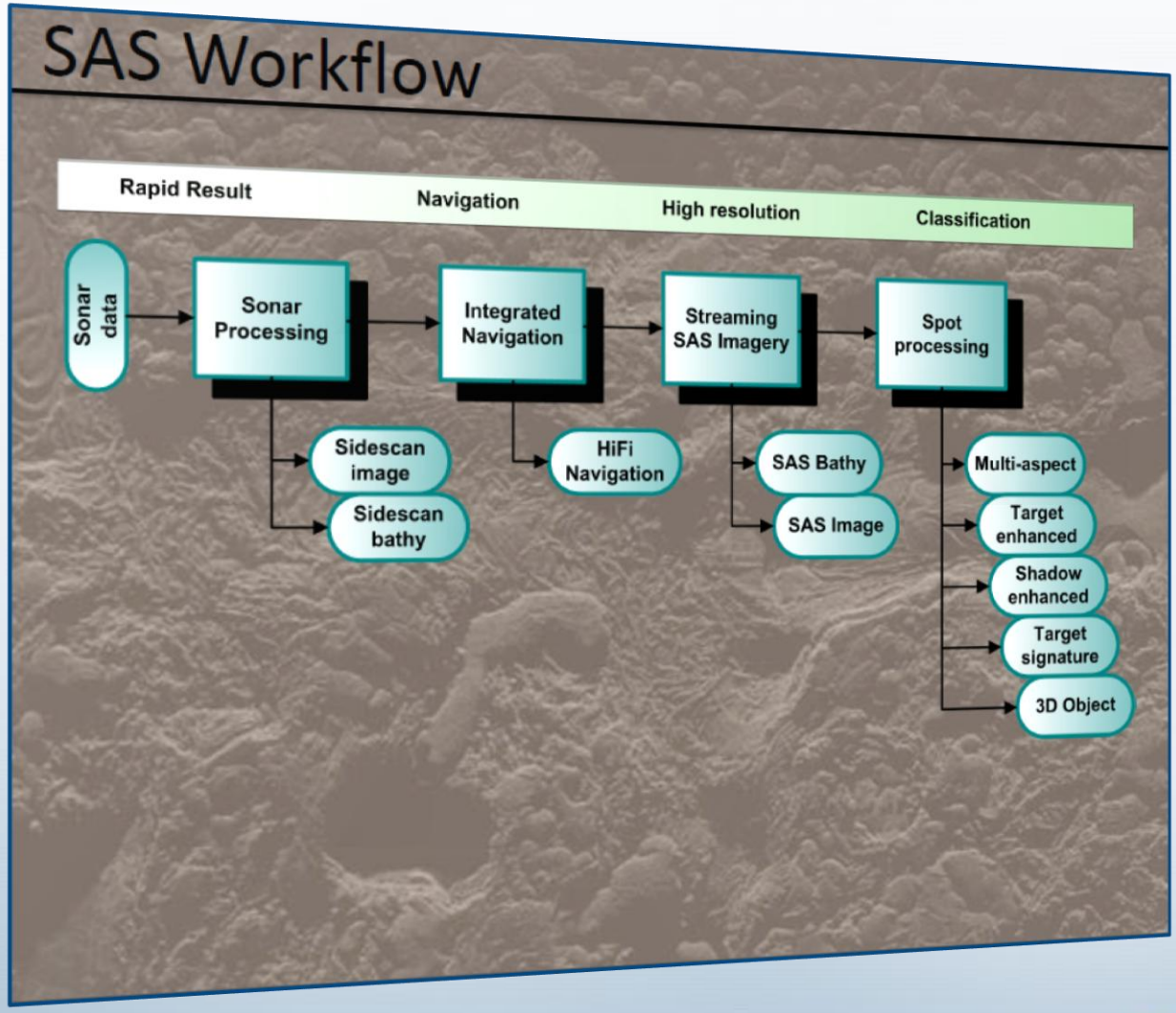
Kraken Sonar Systems Inc.: David Shea

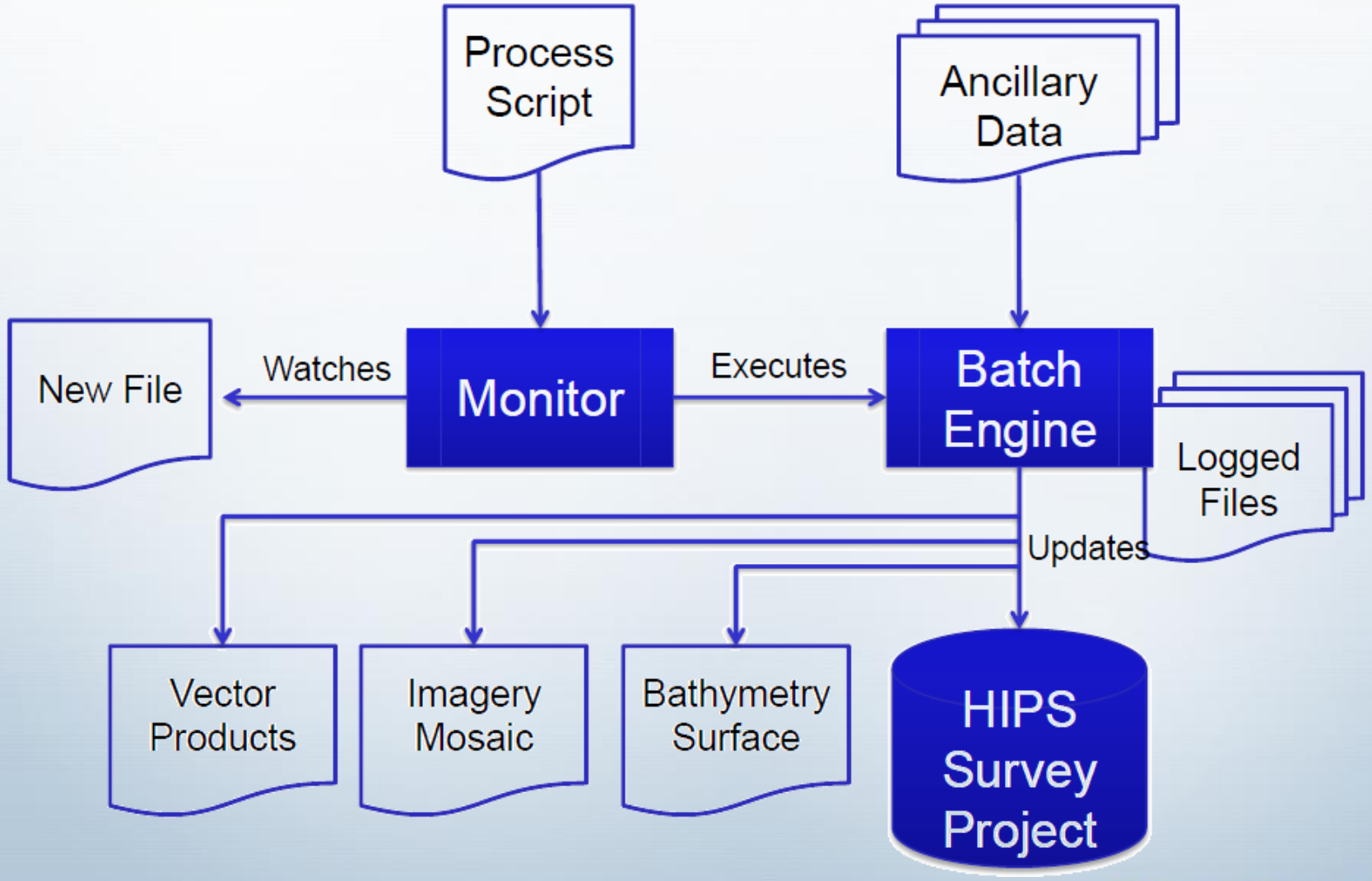
Synthetic Aperture Sonar (SAS)



University of Bergen: Alden R. Denny, Rolf B. Pedersen
FFI: Roy E. Hansen, Torstein O. Sæbø

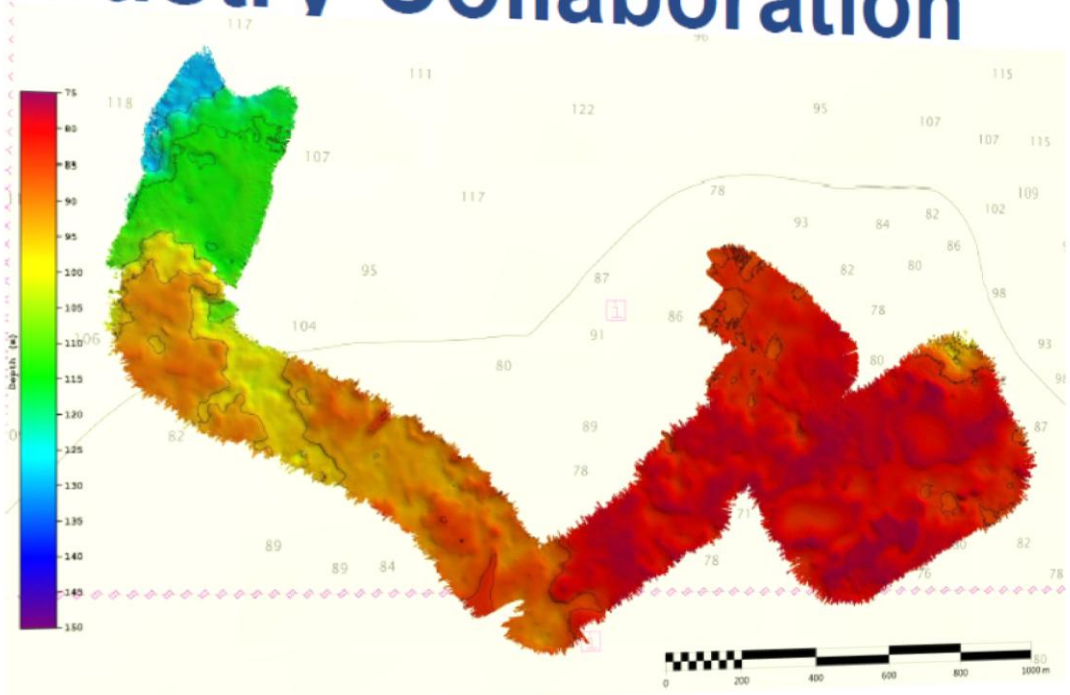
Unmanned (Undersea) Vehicles

CARIS OnBoard



CARIS OnBoard

Industry Collaboration



liquid robotics

TELEDYNE ODOM HYDROGRAPHIC
A Teledyne Technologies Company

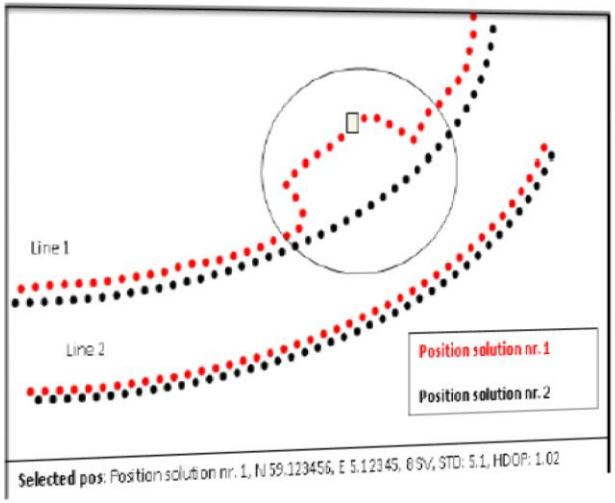
CARIS: Bill Lamey

CARIS Ping-to-Chart

Bathymetric Processing

Different positioning systems

NHS use different navigation systems during surveying.
Tool to select best positions for the survey lines (drop B, aug. 2014)

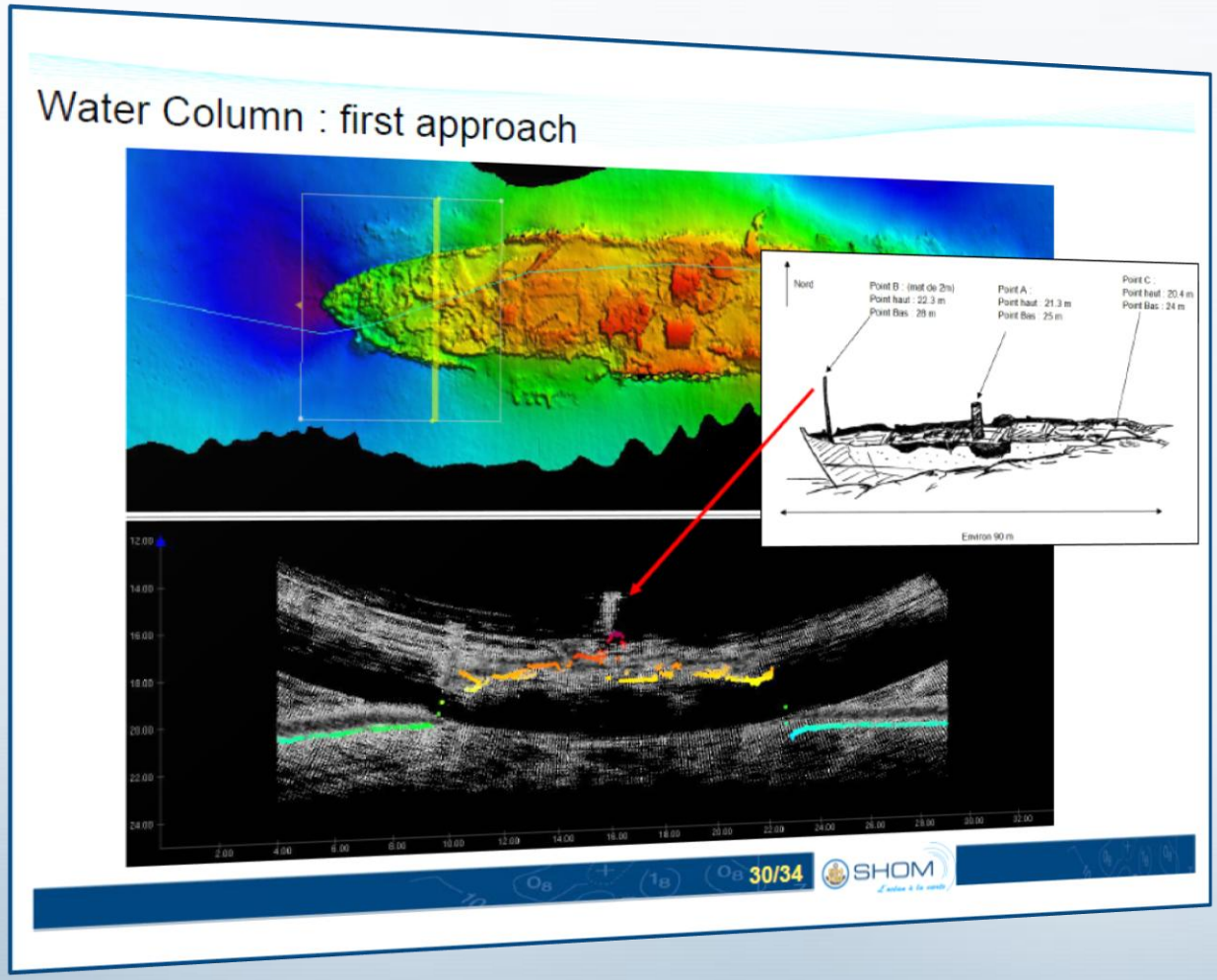


- Geographically view of
  - Post processed positions
  - Real time solutions
- Set primary position solution whole survey
- Set another position solution for selected lines

Kartverket

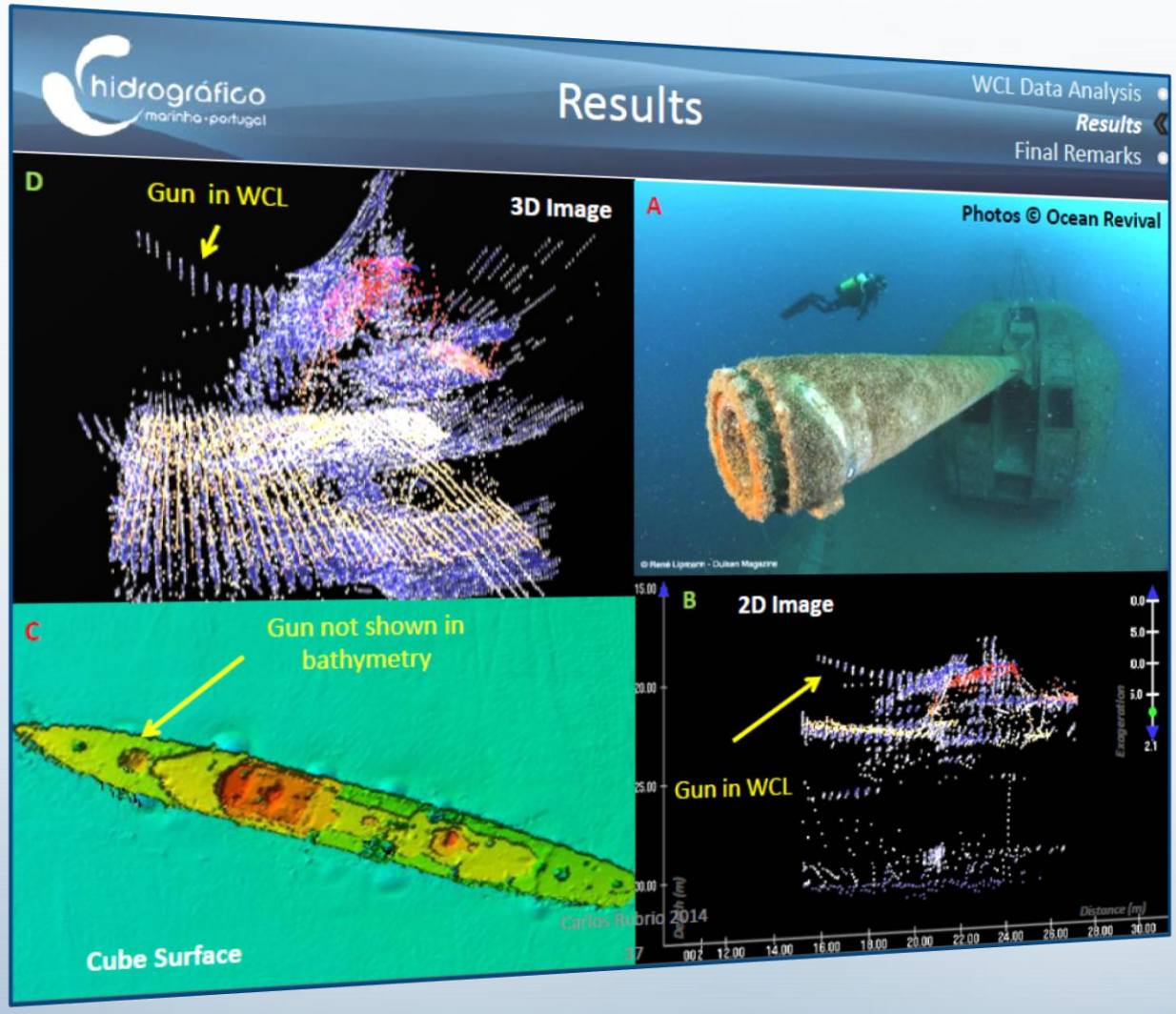
PLECO

Water Column Imagery



SHOM: Christophe Vrignaud, Sophie Loyer, Thierry Schmitt, Ronan Leroy

Water Column Imagery



Portuguese HO: Carlos Rúbrio Marques

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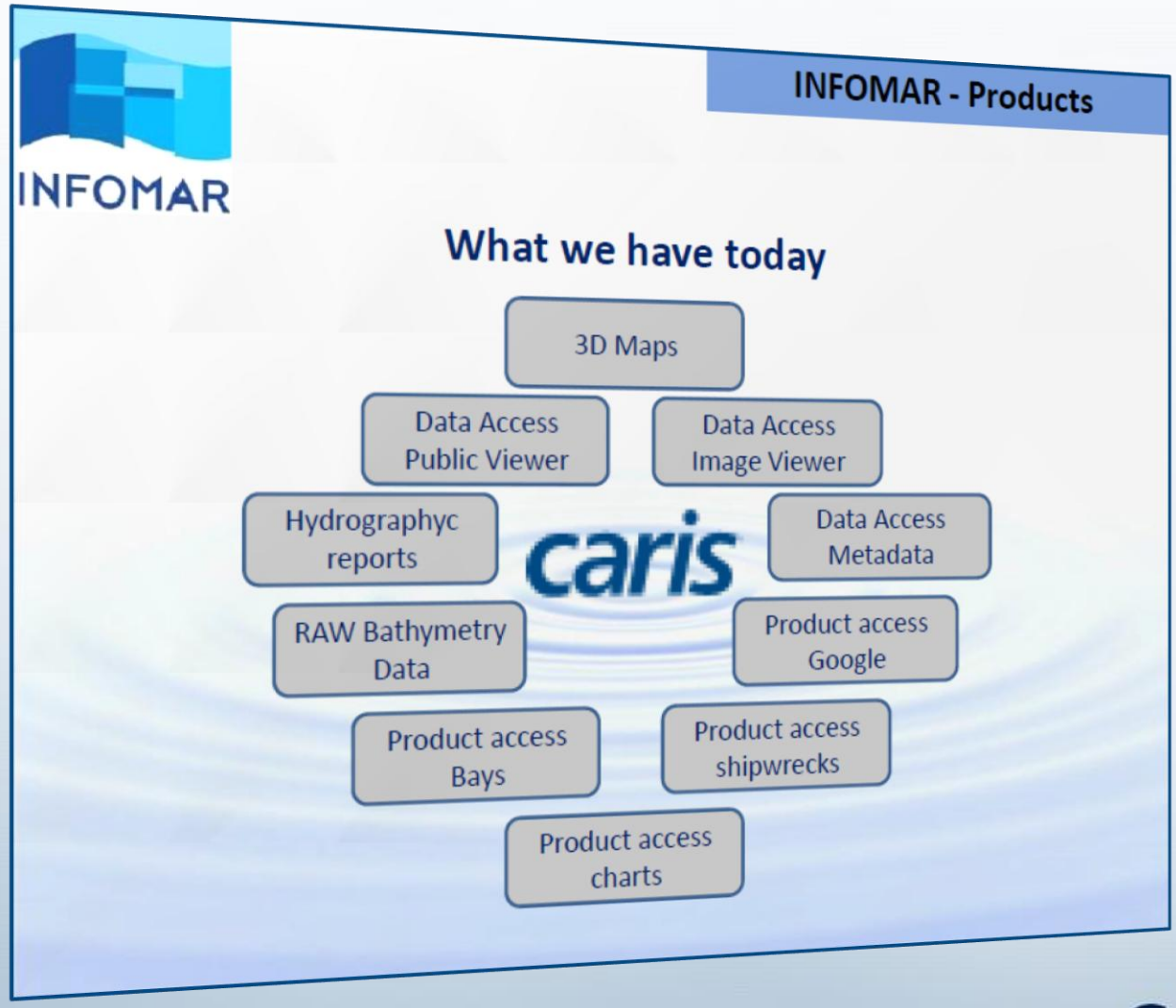
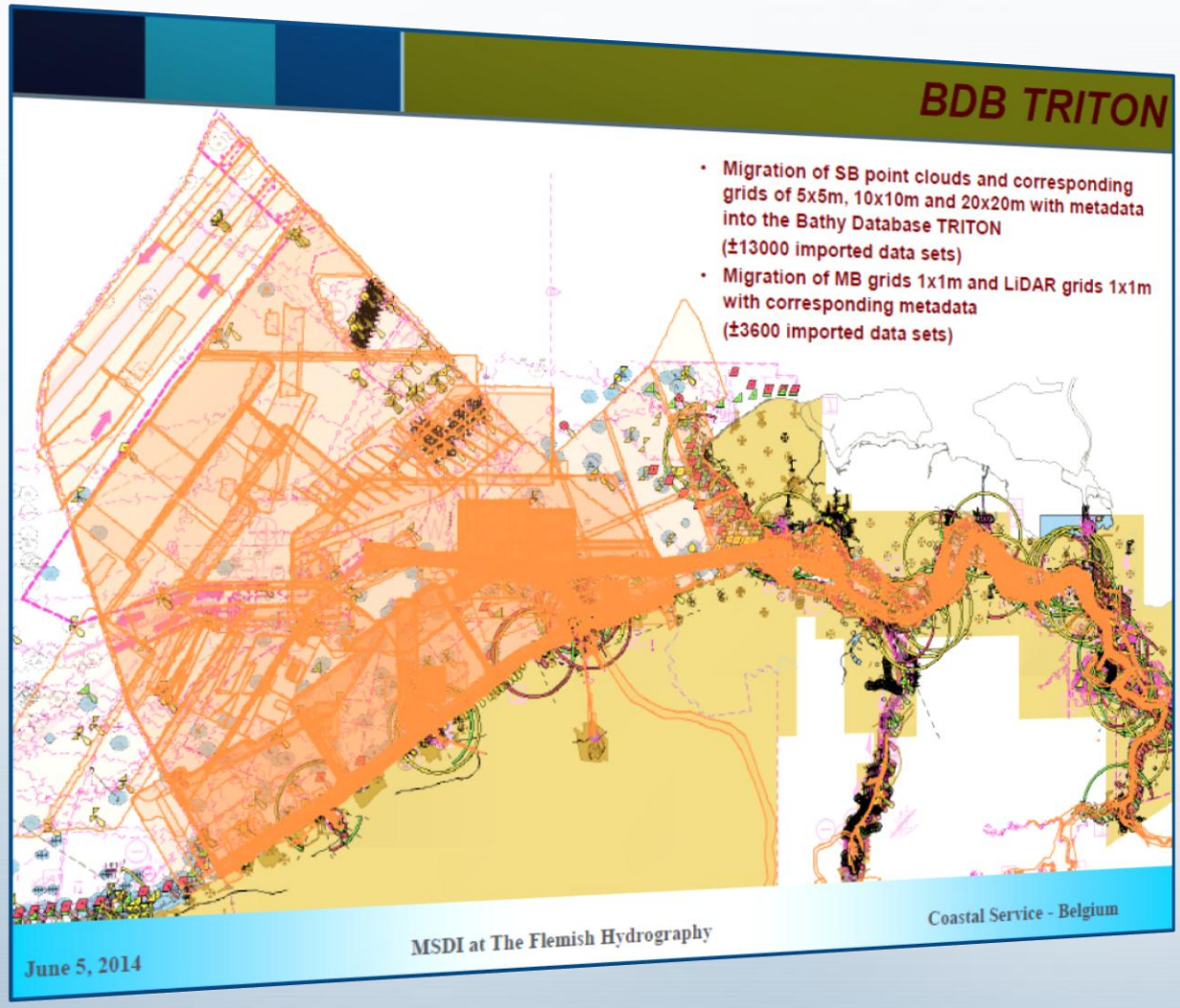
Data Utilization

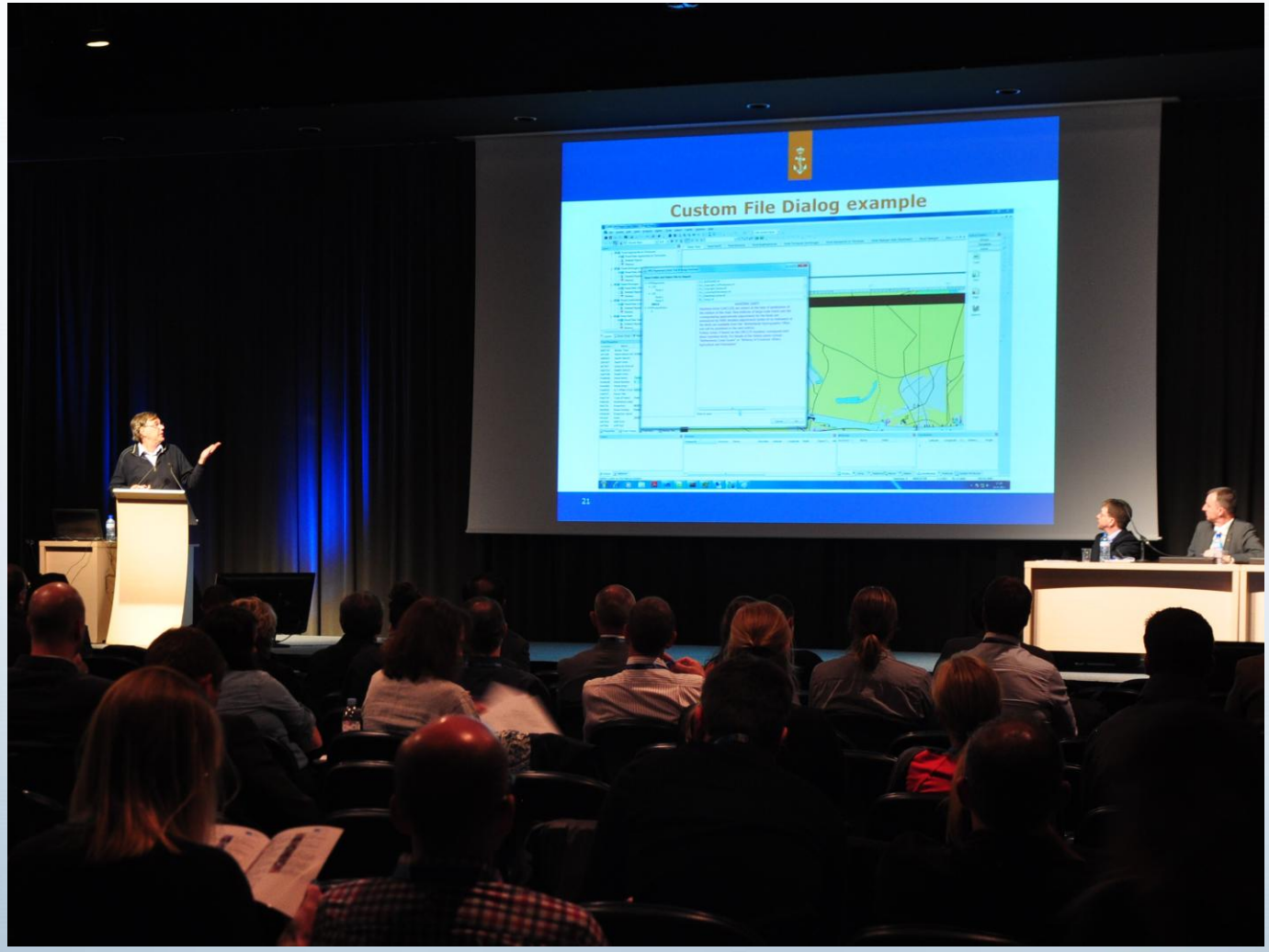


Survey Management & Analysis



Vlaamse Hydrografie: Marc Roesbeke

Integrating systems

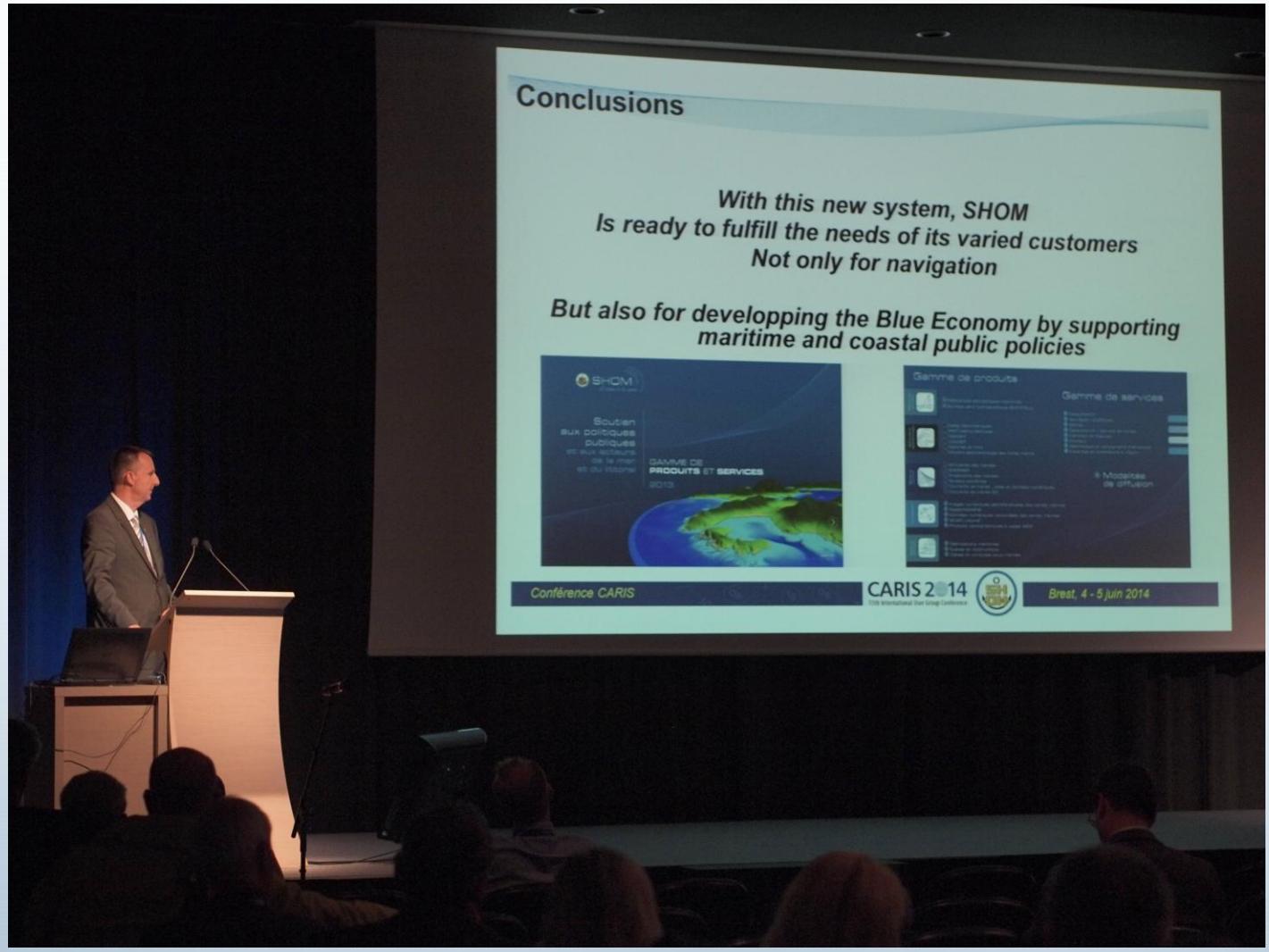


Netherlands Hydrographic Service: René van Geesbergen

Data Management & Production

UKHO: James Carey, Simon Matthews

Data Management & Production



SHOM: Eric LeGuen

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