

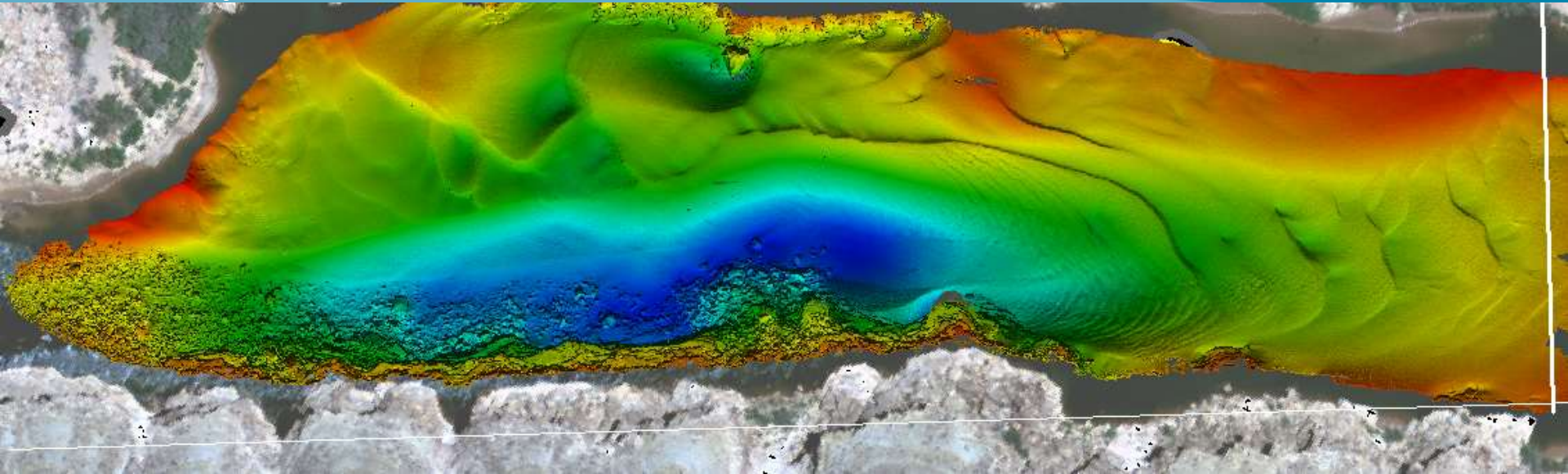


HYPACK
a xylem brand

HYDROGRAPHY in LAR

Updated from 2012

Carlos Tejada – HYPACK Tech & Sales Coordinator for LAR



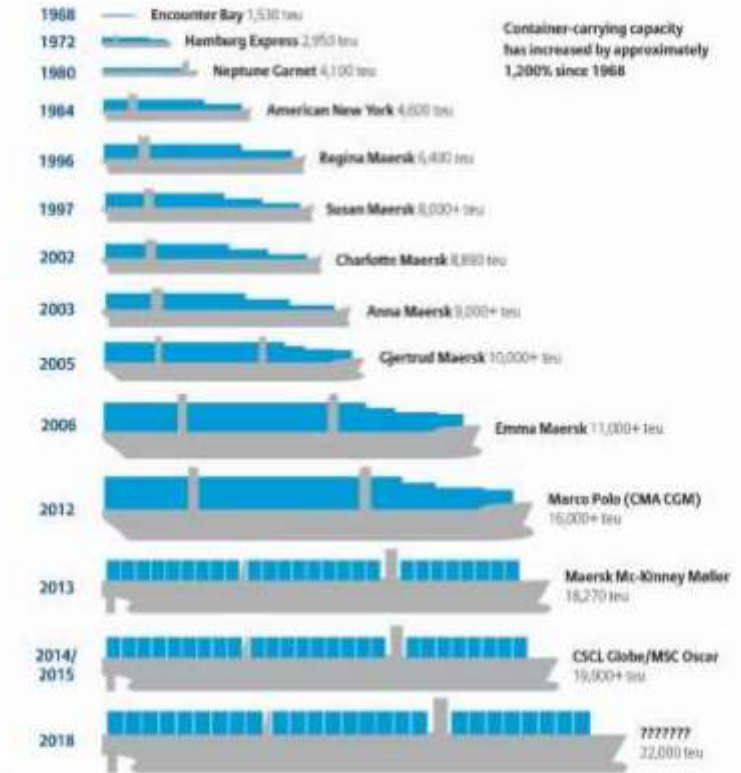
Continues to be a very active market...

Bigger ships with less margin for errors...

(UNCTAD, 2018)



50 years of Container Ship Growth



Container-carrying capacity has increased by approximately 1,200% since 1968

Graphic: Allianz Global Corporate & Specialty
Approximate (No capacity data Container transportation.com)

- 53 vessels >20,000 TEU maximum capacity operational
- 42 vessels >20,000 TEU on order for delivery 2019-2022

Industry developments

- 2019 to 2027 massive order book
- Larger vessels, higher capacity
- LNG increasingly important
- Shore power of interest

117
Ocean Ships on order

85,192 GT
Average size

248,764
Total berths

2,163
Average capacity

Source: Cruise Industry News

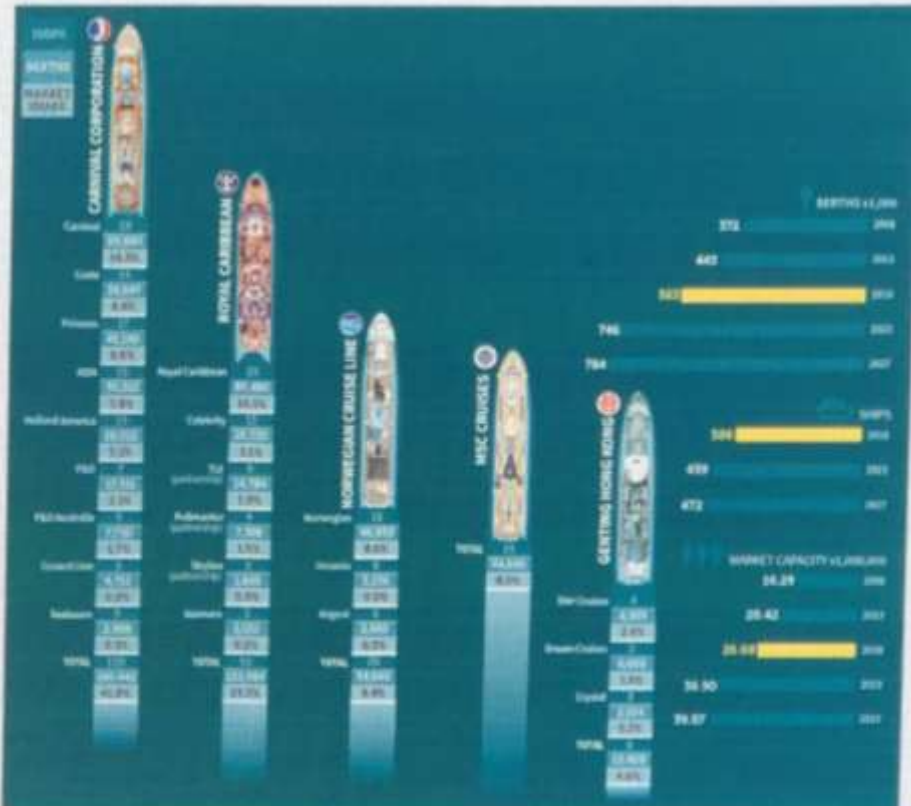
9
China/Asia Market dedicated

28
LNG Ships on order

57
Expedition vessels on order

\$67.2 bn
Orderbook value

Tourism



Rutas hacia el Norte



Rutas hacia el Sur

Riverine Waterways

Brazil

Puerto Murlinho
(Mato Grosso do Sul)

Argentina

General San Martín Port
(Santa Fe)

Villa Constitución
(Santa Fe)

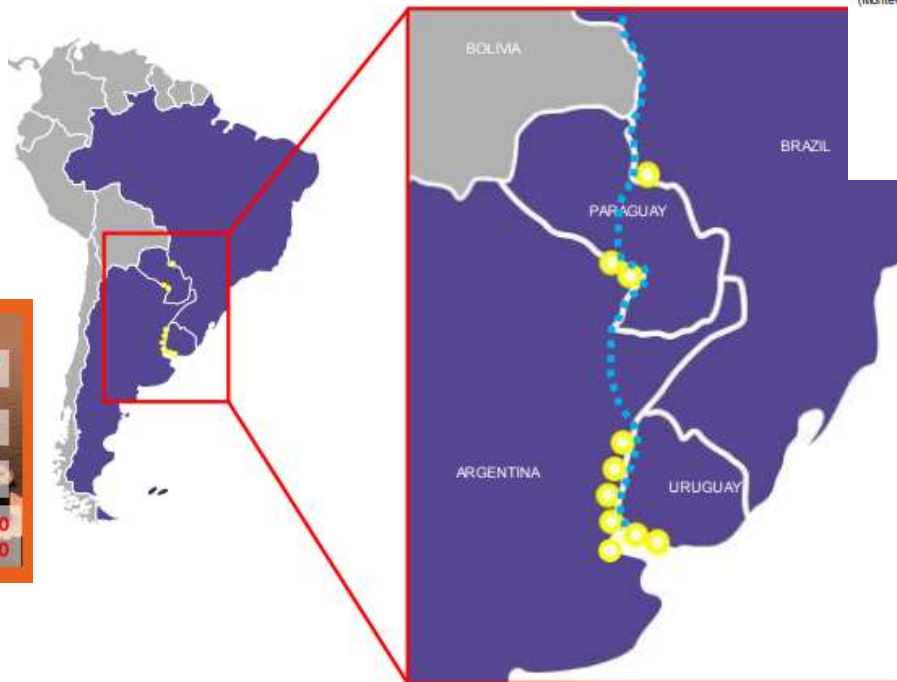
San Nicolás
(Buenos Aires)

Ramallo
(Buenos Aires)

Buenos Aires Port
(Buenos Aires)

PTP Group covers over 1.500kms of the Paraná-Paraguay Waterway,

COUNTRY\YEAR	2014	2030 (PROJECTION)
PARAGUAY	9.785.786 tns	20.834.406 tns
BRASIL	7.186.879 tns	25.000.000 tns
BOLIVIA	1.555.159 tns	10.000.000 tns
TOTAL	18.527.824 tns	55.834.406 tns



Paraguay

Caacupé M
(Central)

Villeta
(Central)

Uruguay

Nueva Palmira
(Colonia)

Montevideo
(Montevideo)



Handymax	Supramax
180	200
30	32
10,2	12
30.000	50.000
40.000	60.000

Labels: LENGTH (mts), WIDTH (mts), DRAFT (mts), CAPACIDAD (tns)

Hydroelectrical Power in LAR



New Hydroelectrical plants in LAR (MW)

Brazil is the second largest country in hydroelectrical power installed in the world (104 GW) behind China (352 GW).



Fuente: International Hydropower Association.

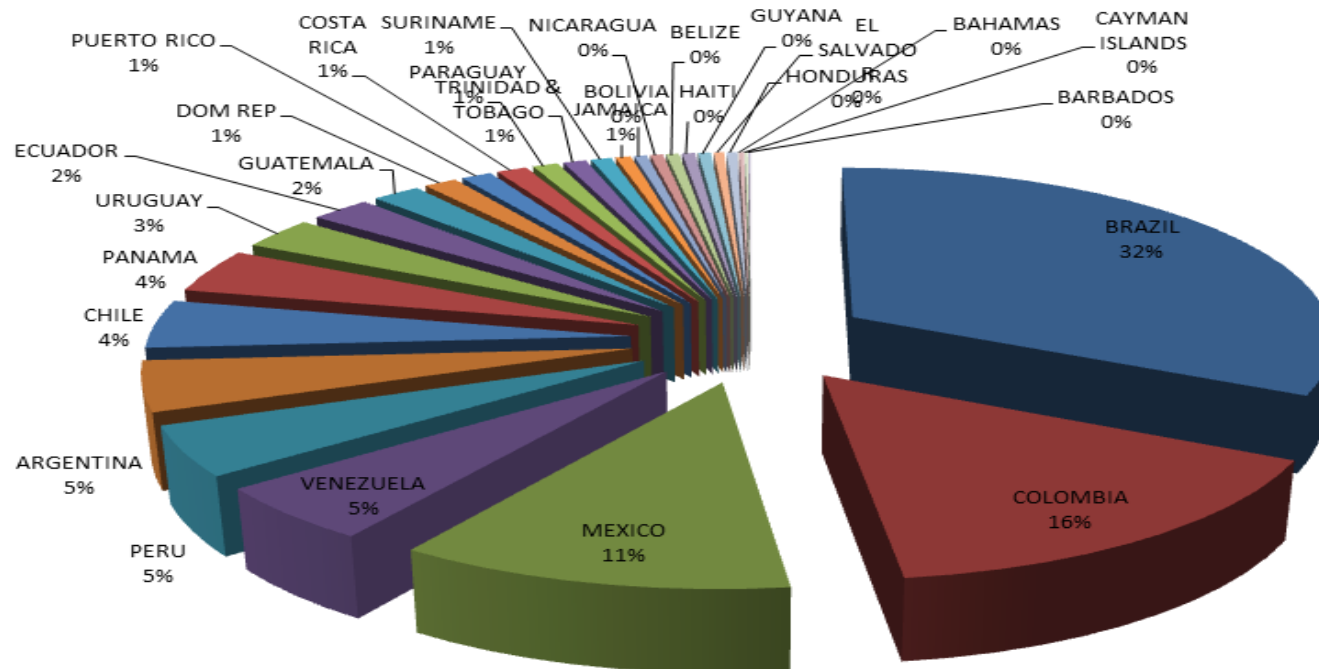
Se estima que la demanda eléctrica crecerá entre 2,6% a 3,7% anualmente hasta el 2040

Some Numbers

More than **650** different companies conducting Hydrography in LAR

20% Multibeam Users (12% in 2012)

2020 Argentina, all Port related Hydrographic Surveys have to be conducted with MB.



Are they all Hydrographers?

Hydrographic Schools

Legend

Cursos de Servicios Hidrográficos disponibles para oficiales extranjeros - Lines

Line

Cursos de Servicios Hidrográficos disponibles para oficiales extranjeros - Areas

Area

Cursos Hidrografia para todo publico No HOs LatAm

- Hidrografia para Todos
- Estudios y Levantamientos Hidrograficos
- IHO Cat B S5 (Portable in 2019)
- IHO Cat B S8 Portable Program

Trust Center | Legal | Contact Esri | Report Abuse

IHPT - Portuguese Hydrographic Institute

Name: EN-US'> Specialization Course in Hydrography (recognized by IHO/FIG/ICA - IBSC with Cat. A)

Duration: 49 weeks (54 weeks with holidays). Conducted every two years alternating with Category B Course.

[Zoom to](#)

0 500 1000mi

POWERED BY esri

Esri. HERE | Esri. HERE

Besides that, what's on the hydrographers mind...

Data Fusion

A.I.

Easier

Support multiple Survey
Sensor Technologies

3D Visualization

Faster

Keep Up With the
Newest Innovations

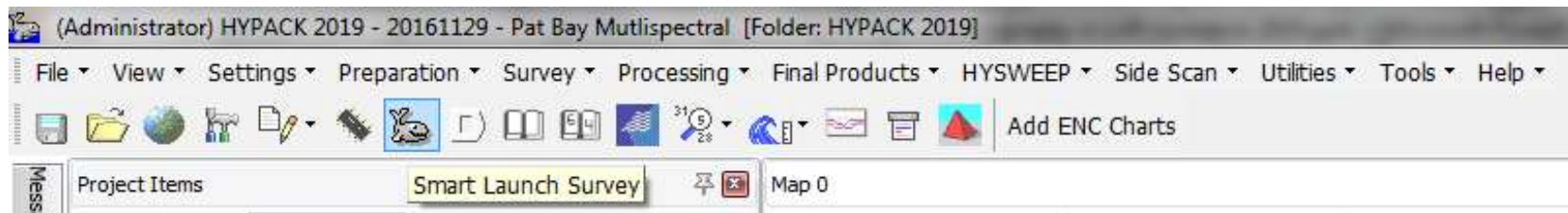
Interaction
with others...

Unmanned
options

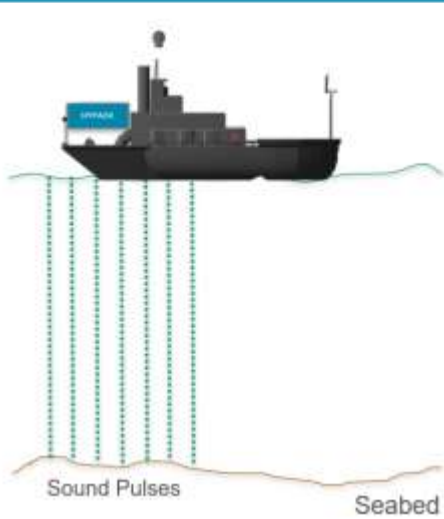
Not necessarily
limited to Water



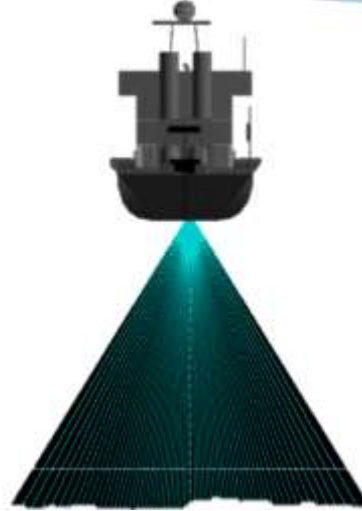
Easier



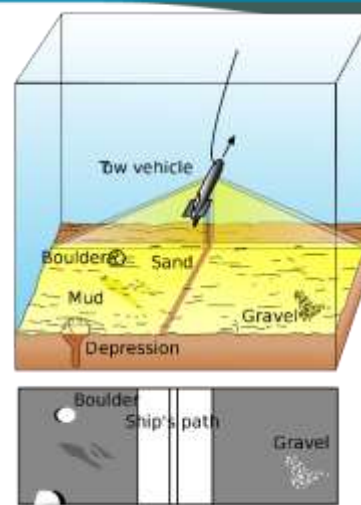
Support multiple Survey Sensor Technologies



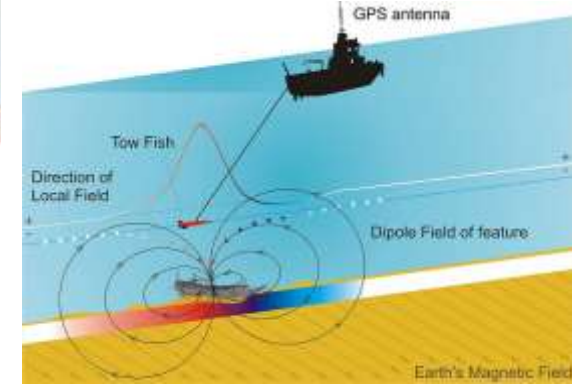
Single Beam



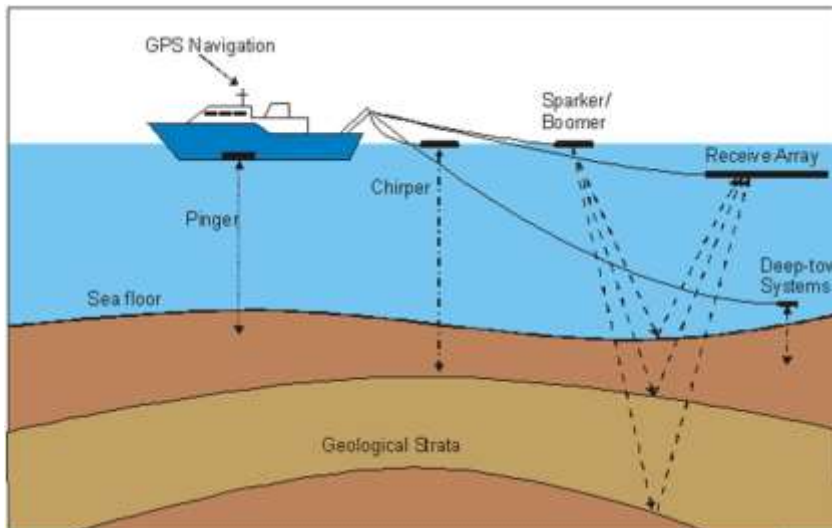
Multibeam



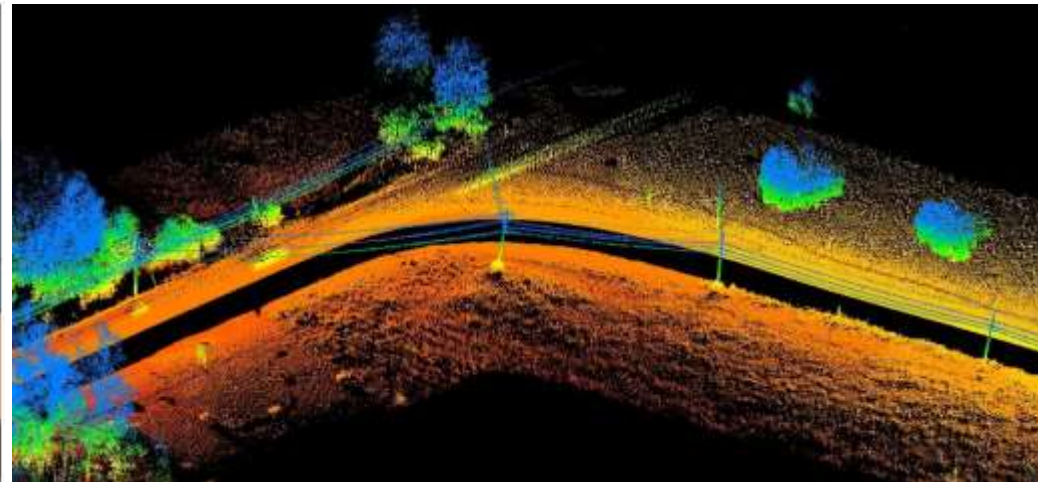
Side Scan



Magnetometer



Sub-bottom / Seismic Profile



LiDAR

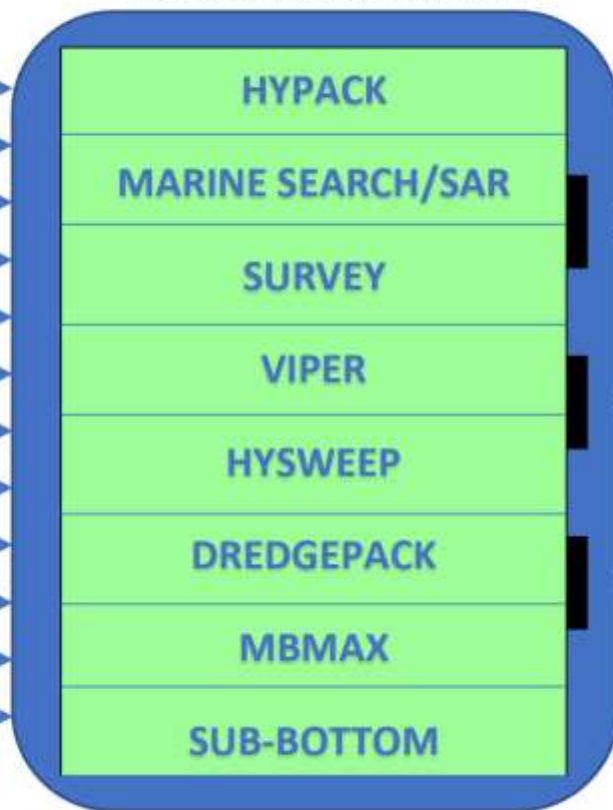


HYPACK Survey Sensor Data Fusion

Real-Time Survey Sensors:

- GNSS/GPS/RTK
- SBES
- MBES
- Side Scan
- LiDAR
- Camera
- Mag
- SBP
- ADCP
- IMU/INS
- MRU
- Heading
/Gyro
- AutoPilot
- SVS
- SVP
- WQ
- USBL

Interface Synchronize, Visualize

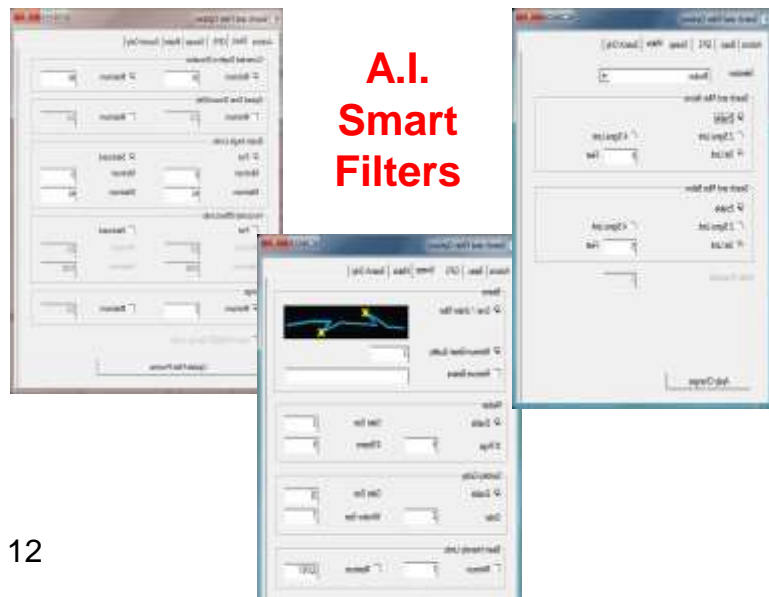
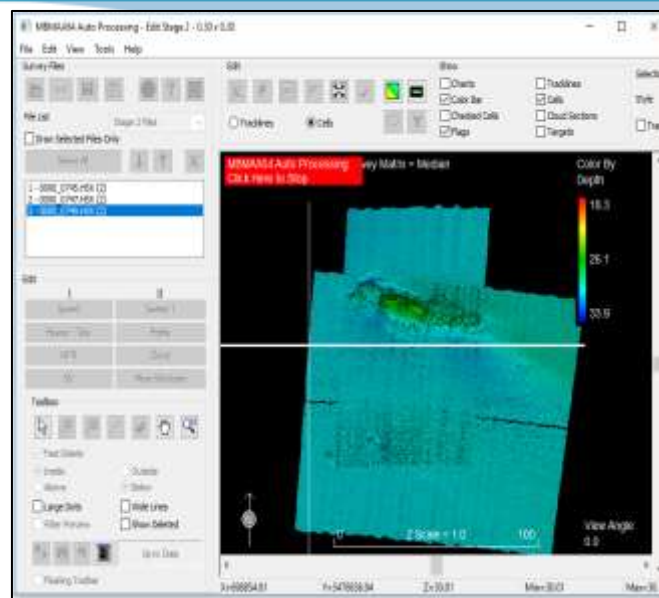


(3D Active Situational Awareness)

Integrated Data Products and Charts



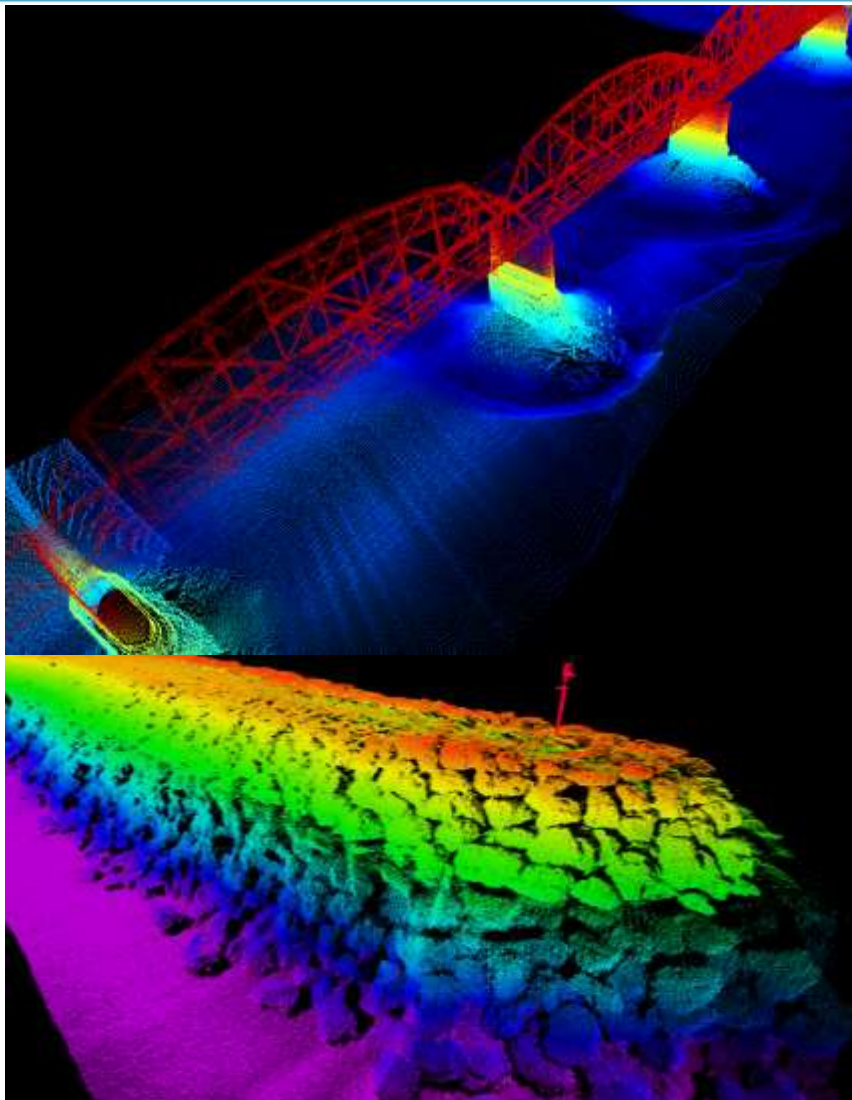
Faster



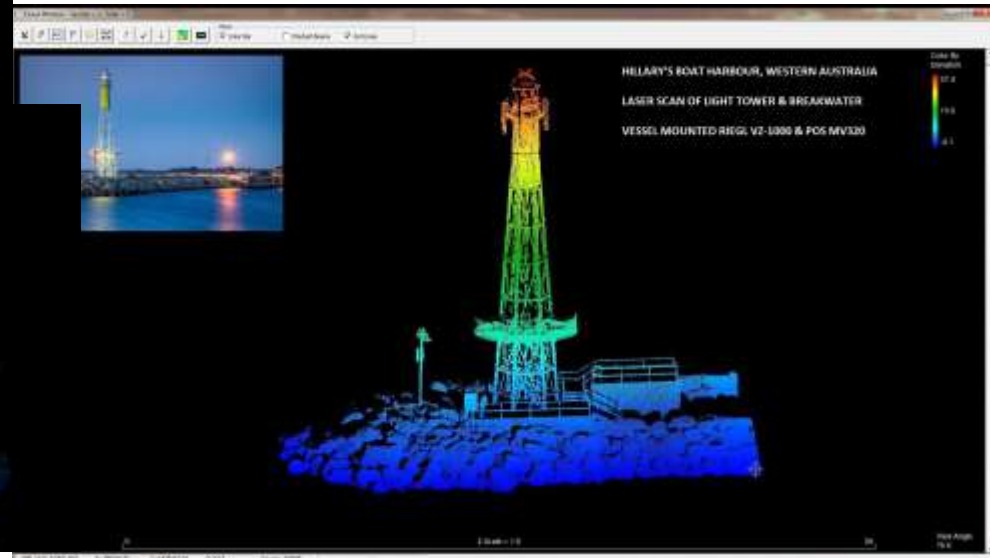
**A.I.
Smart
Filters**



Advanced acquisition – LiDAR & Multibeam



Seamless survey of surface (topography) and sub surface data (bathymetry).



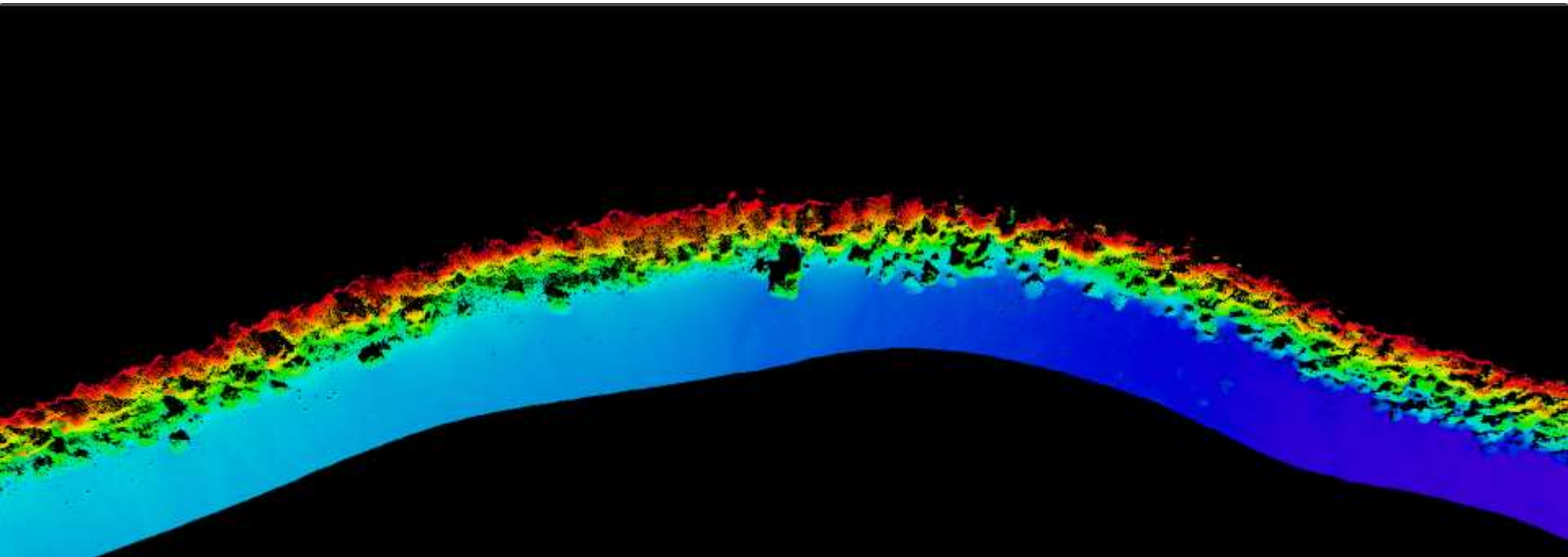
INDIVIDUAL SENSOR RESULTS

UAV Photo Mosaic

Photogrammetric
Point Cloud (UAV)

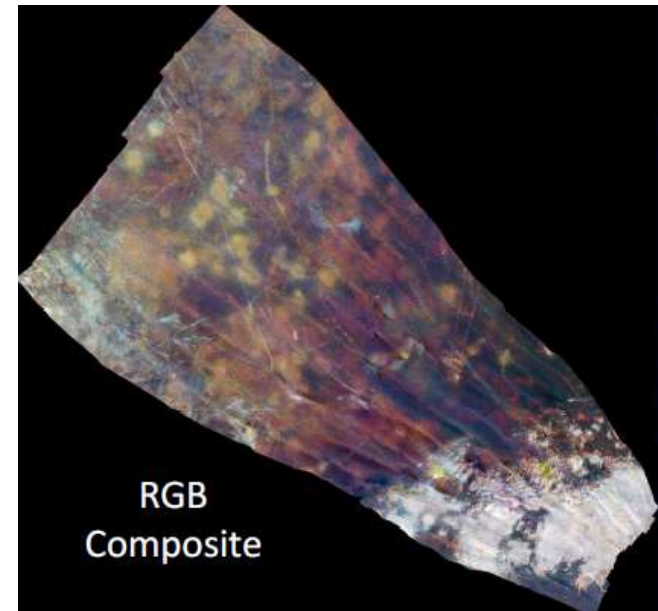
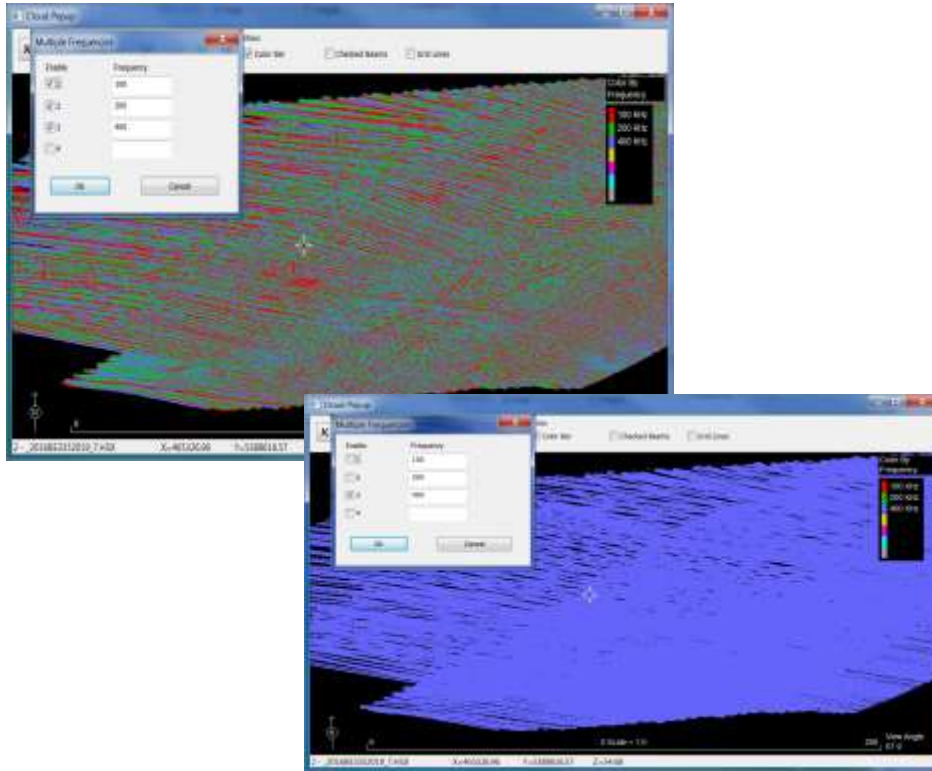
Vessel LiDAR Data

Multibeam Data

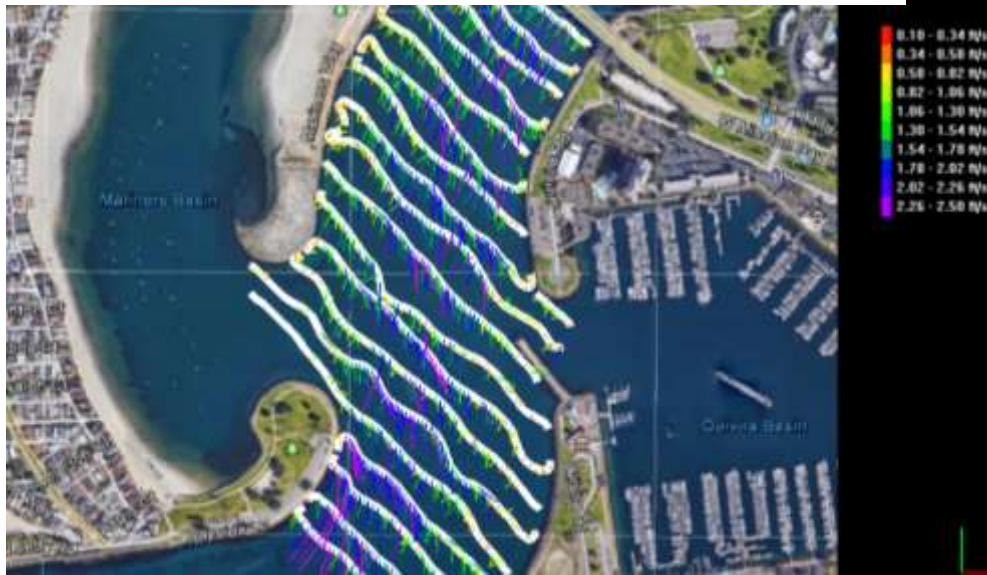
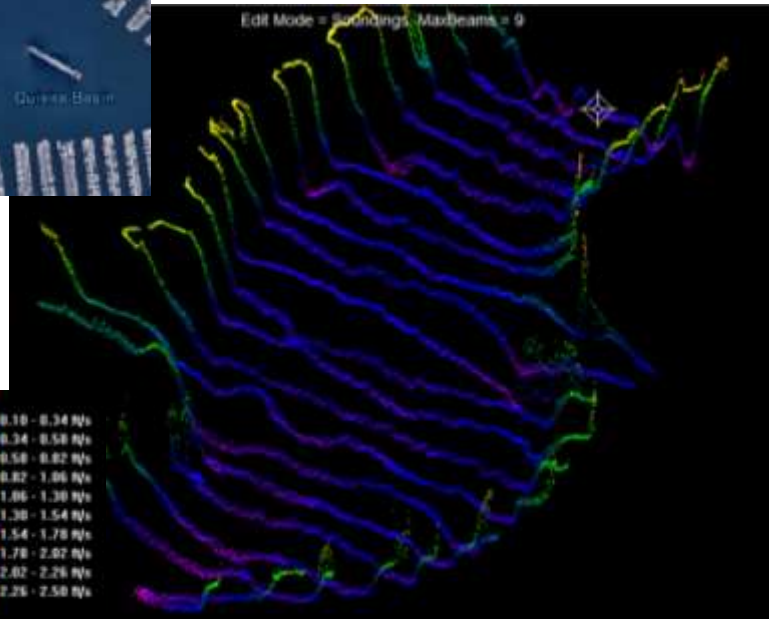


“Multispectral” Bathymetry Processing

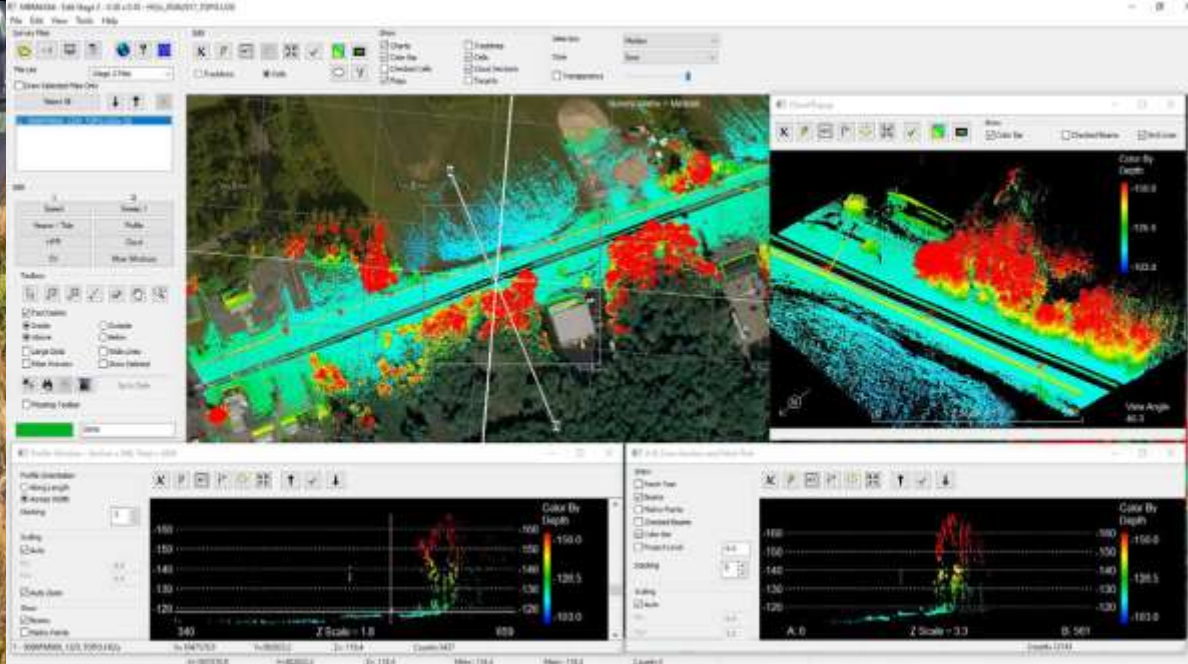
Data selection by sonar frequency. Alternating frequency by ping and Multispectral Backscatter.



Cross brand integrations

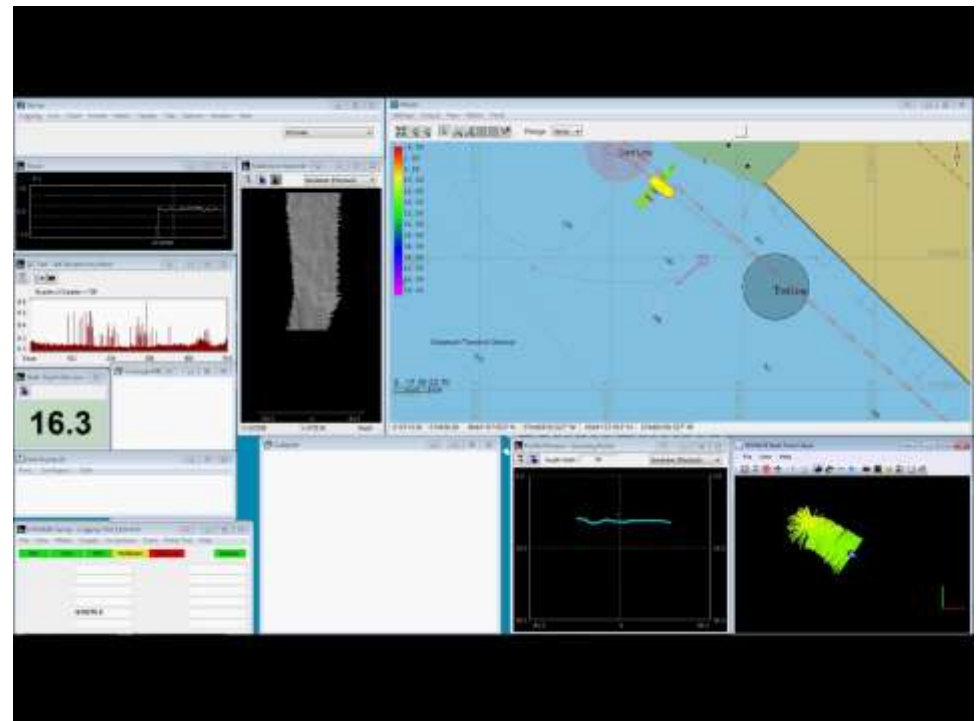


HYPACK Lidar PAYLOAD



Autonomous Vehicle Support

- Mission Planning:
HYPACK Line file creates mission plans
- AutoPilot Driver
- Adaptive Line Planning
Automatically create lines based upon current depth



Final Remarks

- Roll of Hydrographers is rapidly changing to adapt to today's demands.
- New tools and technics makes it look easy, but....
- Formal education within the Region is more and more important today
- Certification process
- National Specs (Matrix)





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Thank You!

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HYPACK® 2019 Software

