



# 9<sup>th</sup> ROPME Sea Area Hydrographic Commission Meeting

Digital technologies for high speed hydrography

Mr Hugh Parker – Solution Owner, Hydrography

**FUGRO**



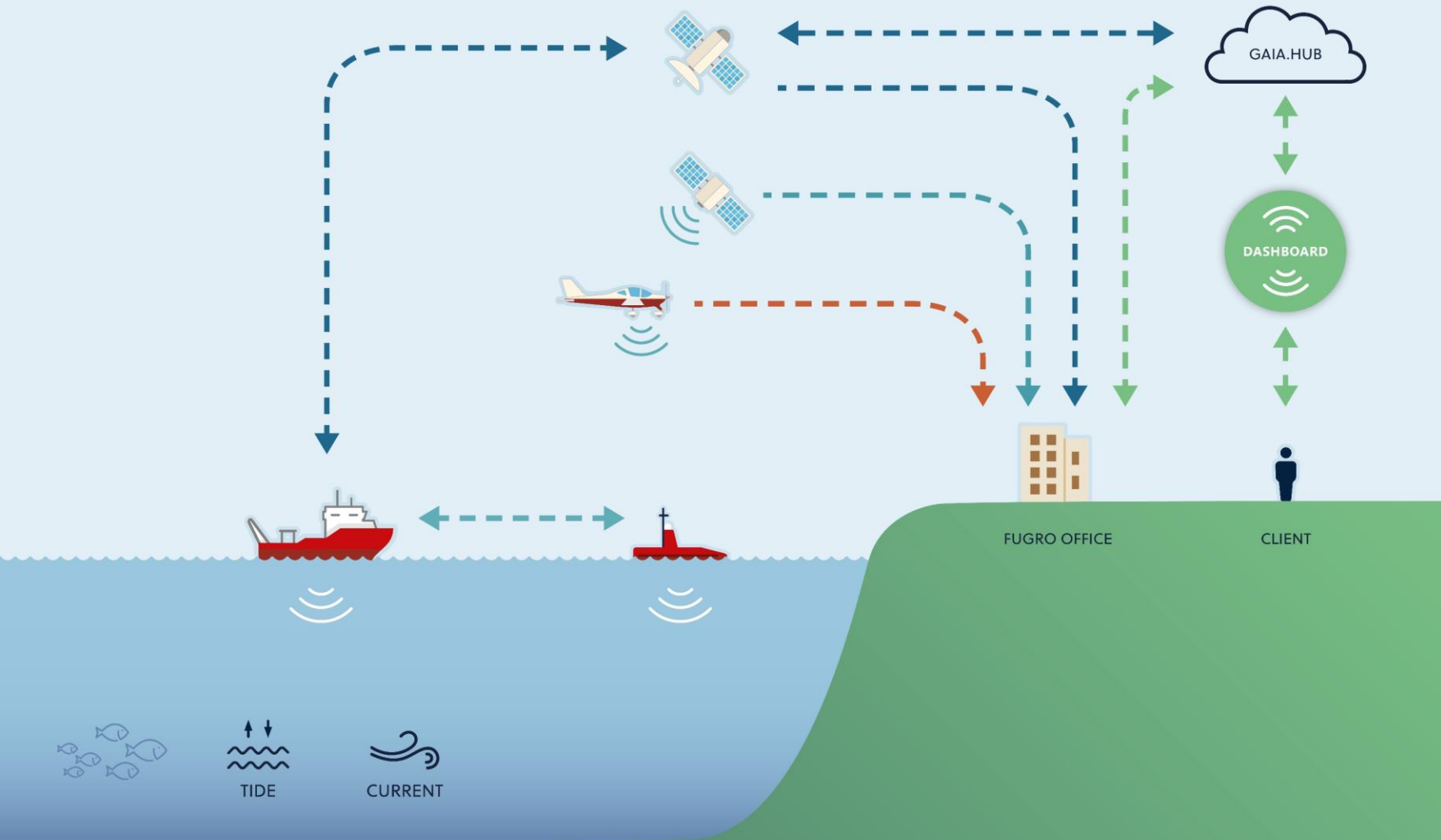


**Only 23 % of the world's  
oceans have been mapped to  
modern standards**

The Nippon Foundation-GEBCO Seabed 2030 Project, July 2021

# Integrated solution

A range of seabed mapping services for fast and high-quality acquisition of hydrographic and bathymetric data.



## BENEFITS



**Satellite imagery analysis** supports bathymetry and environmental mapping of nearshore environments



Airborne lidar bathymetry captures **fast and high-quality** shallow water bathymetry over large areas

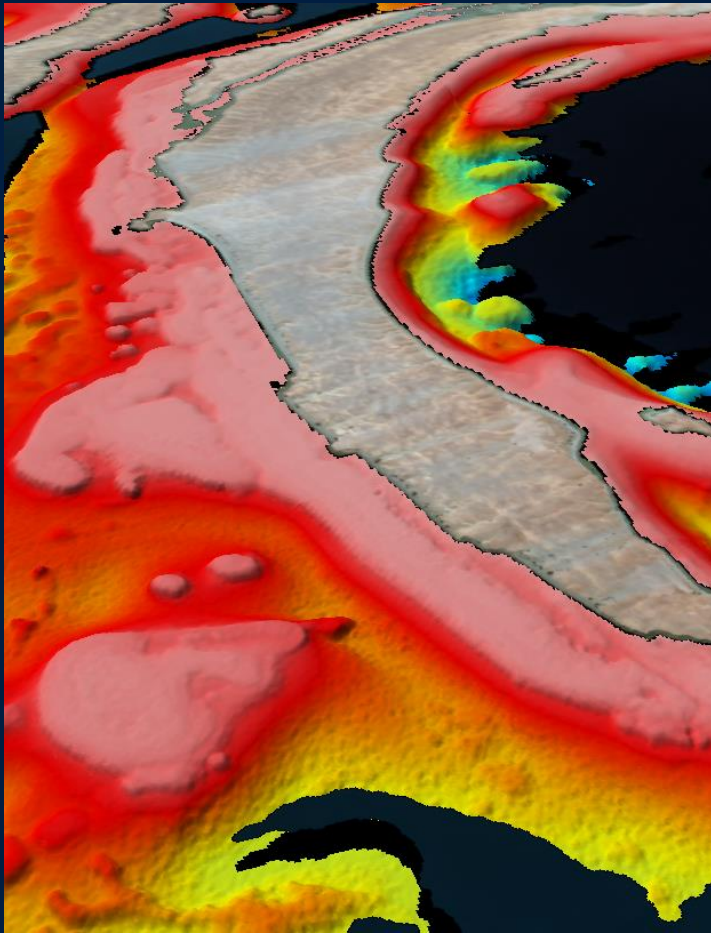


Vessel based multi beam echo sounder acquires **accurate hydrographic data** reaching all ocean depths

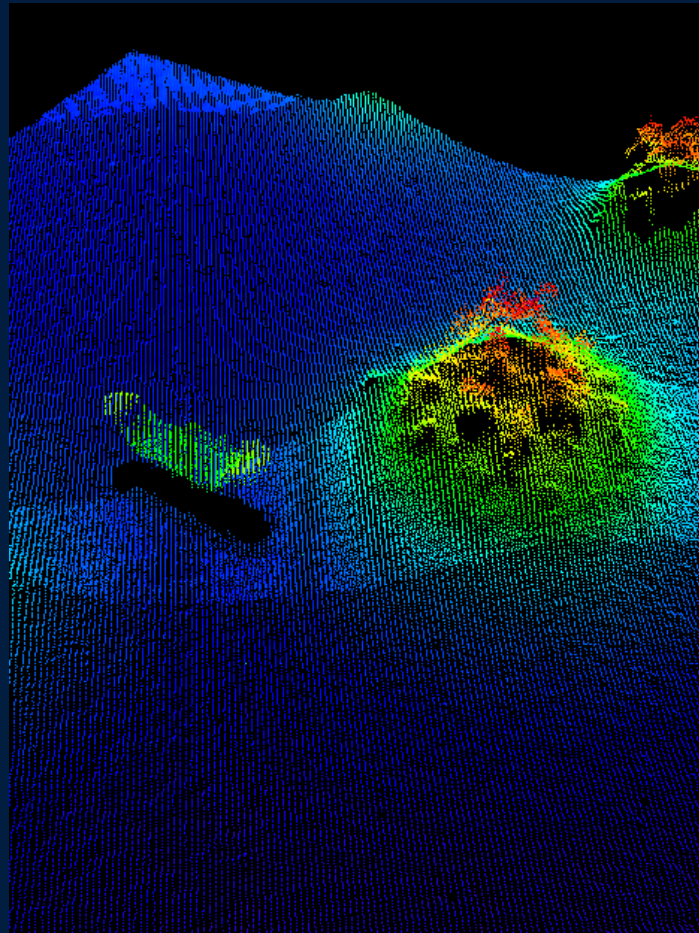
# High-speed hydrography survey toolbox

*Lower Precision*

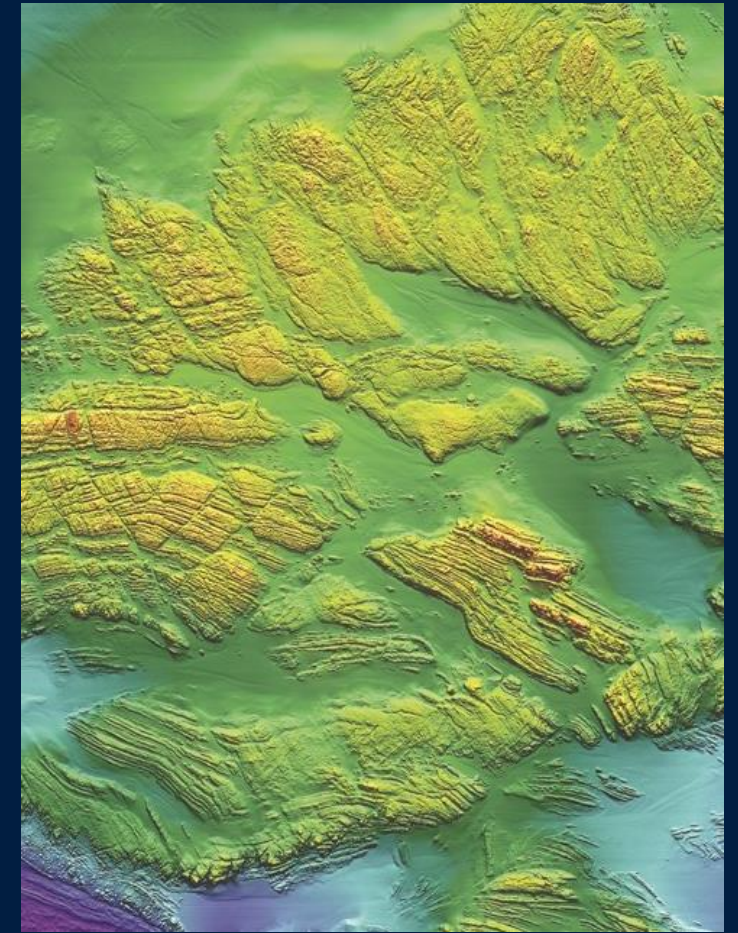
*Higher Precision*



**SATELLITE IMAGERY**



**BATHYMETRIC LIDAR**



**MULTIBEAM**



# Remote Satellite Analytics

Applications



Planning



Mapping



Monitoring



Analysis



# Remote Satellite Analytics

## Benefits



Rapid capture & processing flow



Reduced HSSE risk



Low cost compared to lidar or MBES



Global coverage

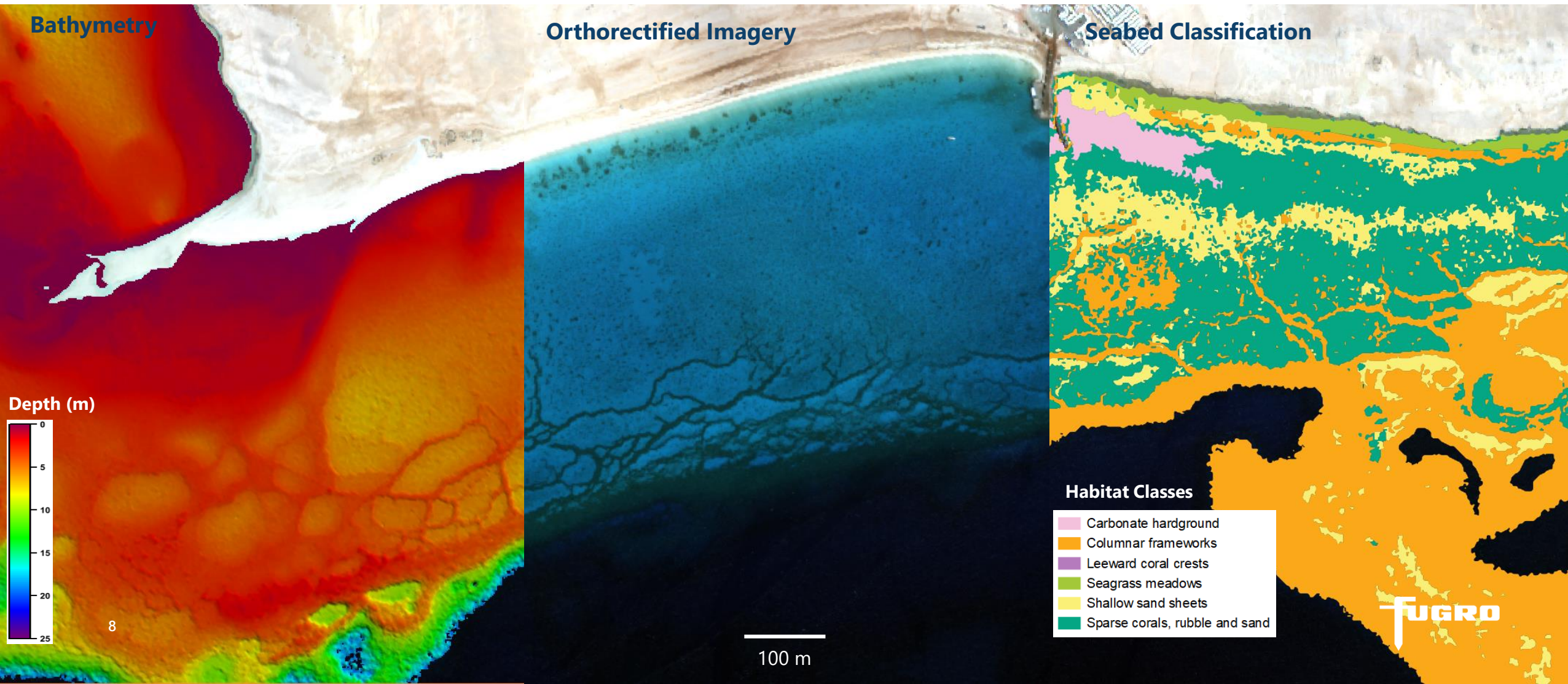


Time series / historical data accessibility



# Satellite-derived data innovations – SatAnalytics

## Primary Products





# Airborne Lidar Bathymetry

## Applications

- Nautical charting / Bathymetric mapping
- Coastal resilience / coastal zone management
- Marine and coastal engineering
- Habitat mapping





# Airborne Lidar Bathymetry

## Key Benefits



IHO Order 1a compliant



Max depth coverage  
(3x Secchi depth)



Efficient coverage of  
>200 km<sup>2</sup>/day



Unparalleled experience





# Coastal Mapping Innovations

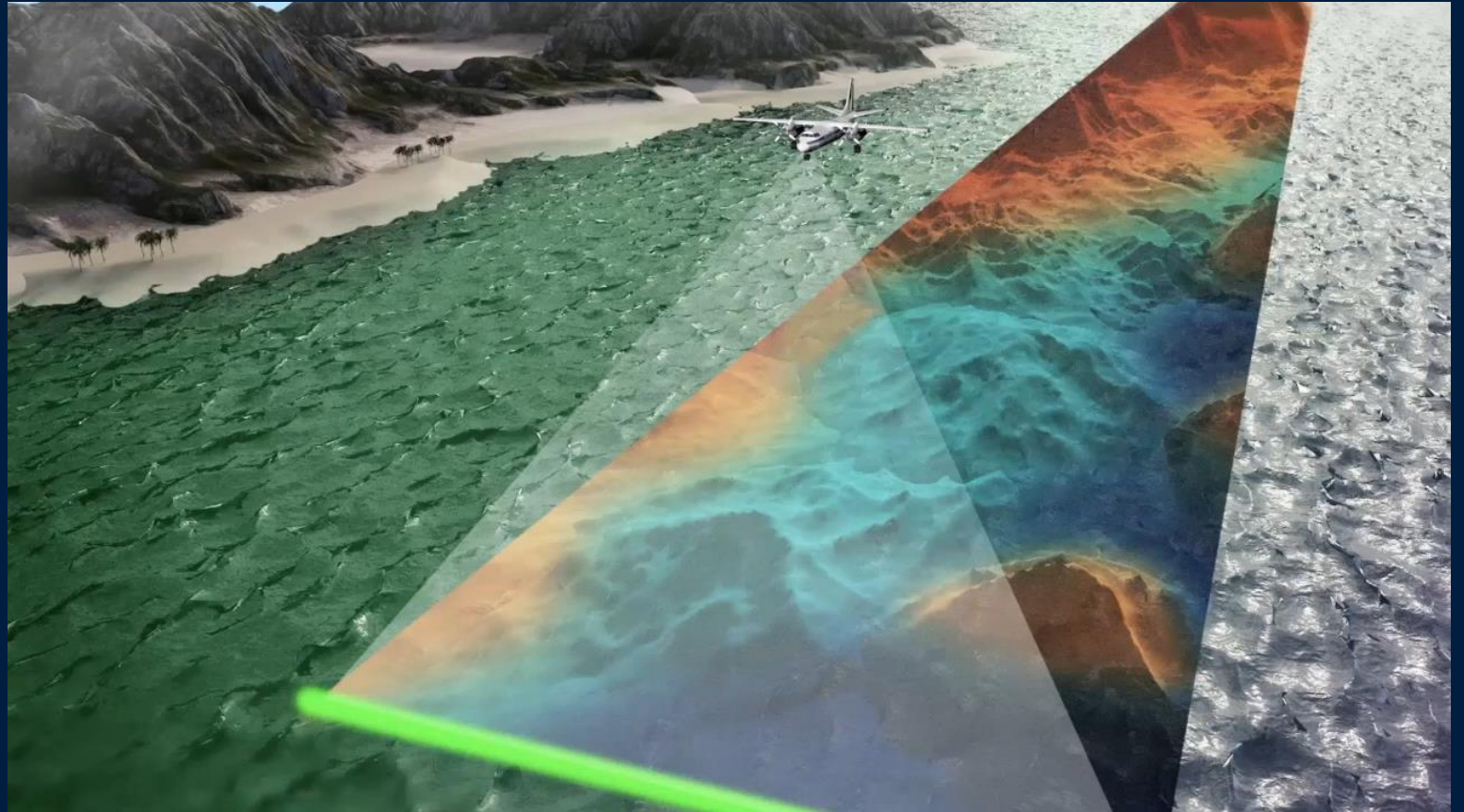
RAMMS: Leveraging robotics, remote operations, sensor integration, cloud automation

## More

- Increased data density and depth penetration
- No moving parts
- Small aircraft / UAV deployable
- Streamlined data processing & delivery

## With Less

- Compact / energy efficient
- Reduced carbon footprint
- Reduced logistics complexity
- Reduce risks with less personnel





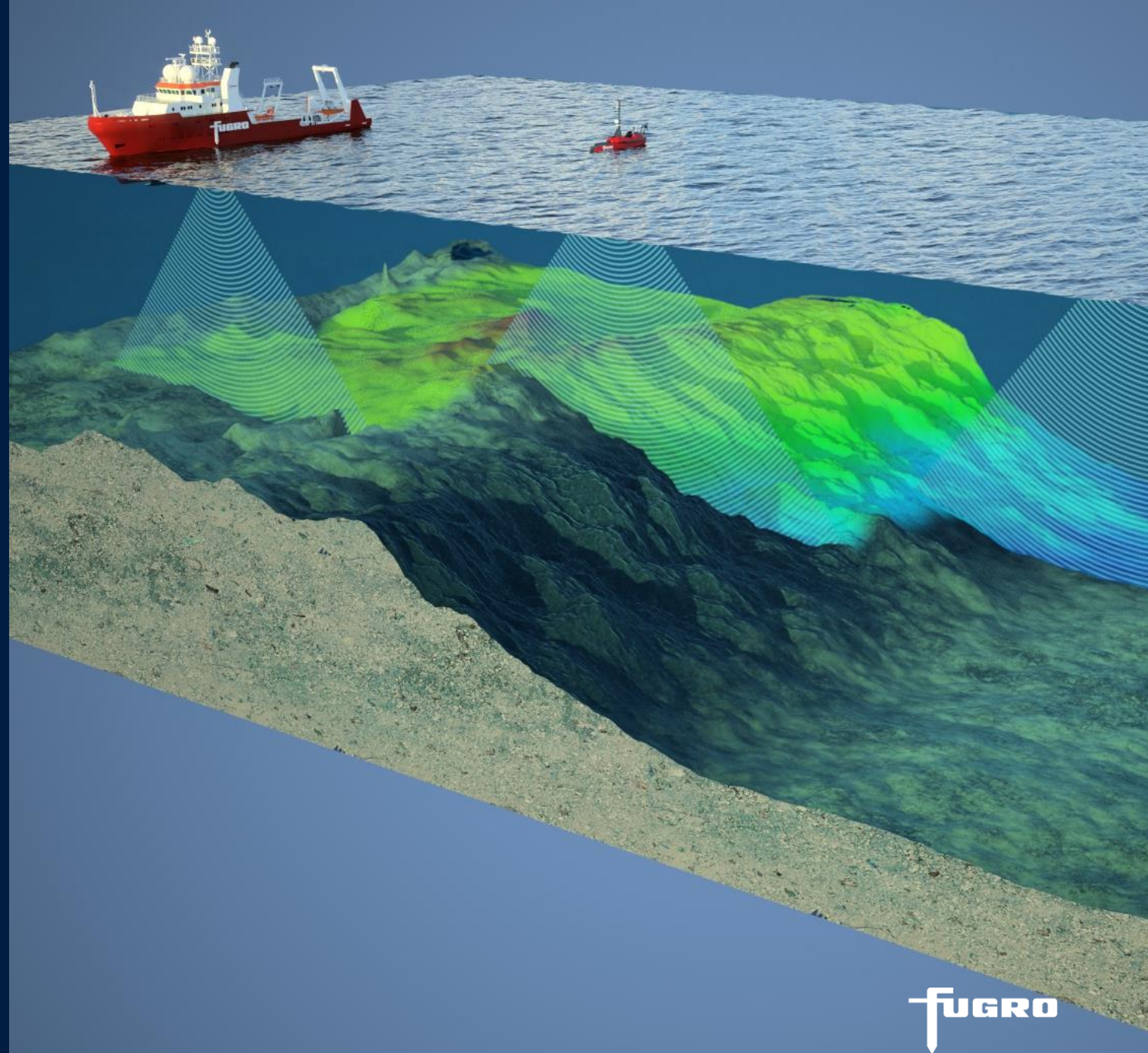
# Seaborne Acoustic

## Applications

- Nautical charting / Bathymetric mapping
- Marine and coastal engineering
- Ocean Mapping

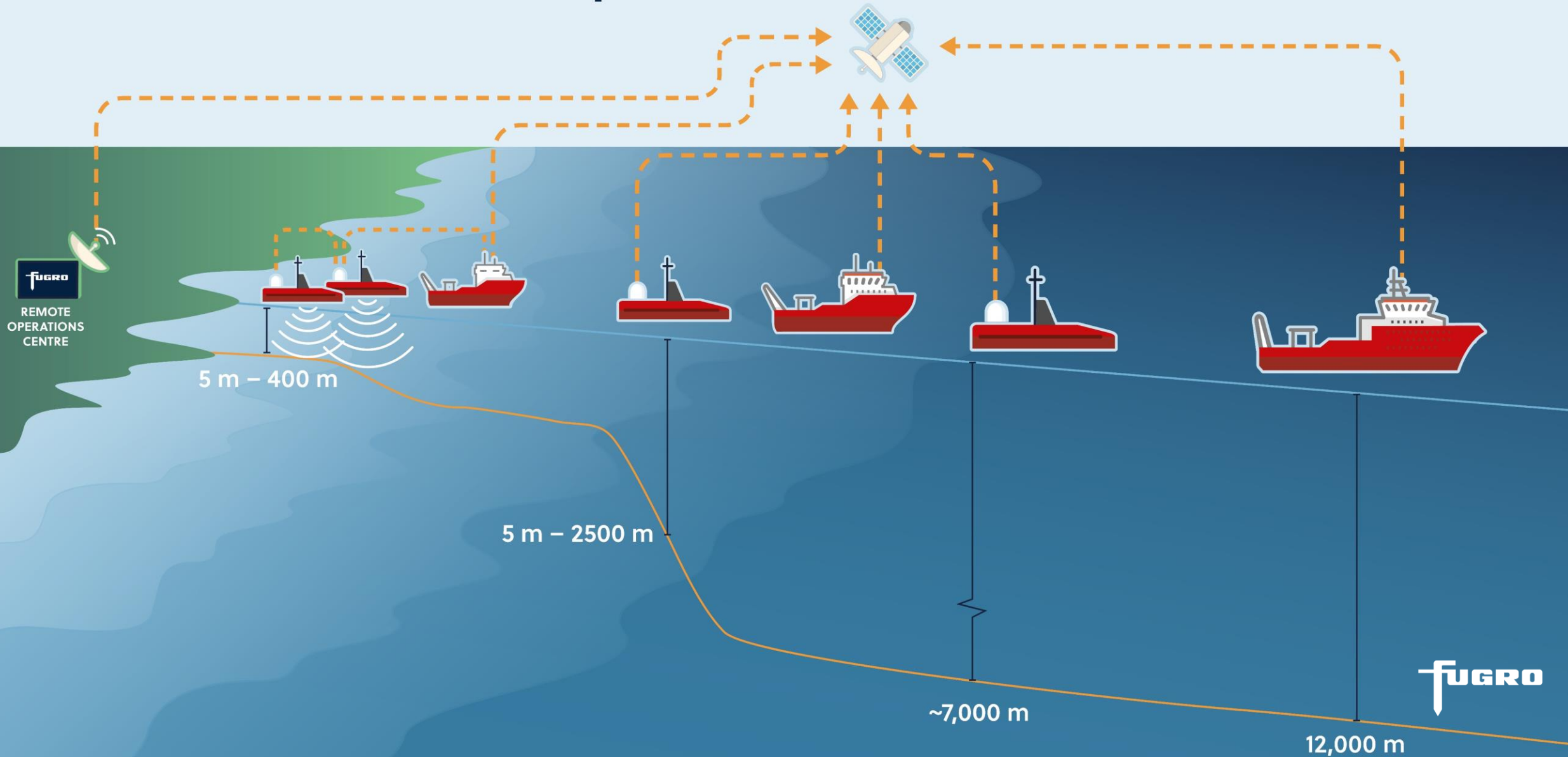
## Benefits

- Meets and exceed international standards
- Full ocean depth capability
- Increase efficiency in shallow
- Force multiplier Increase efficiency in the shallow water





# Seaborne Acoustic Capabilities





# FUGRO BLUE SHADOW

USV Optimised for Hydrographic  
Data Acquisition and Site  
Characterisation

## Key Features



Force Multiplier for  
accelerated acquisition



Remote and autonomous  
operations



Dynamic Line Acquisition



Advanced situational  
awareness and collision  
avoidance





# Safer, faster and more sustainable inspections through USVs

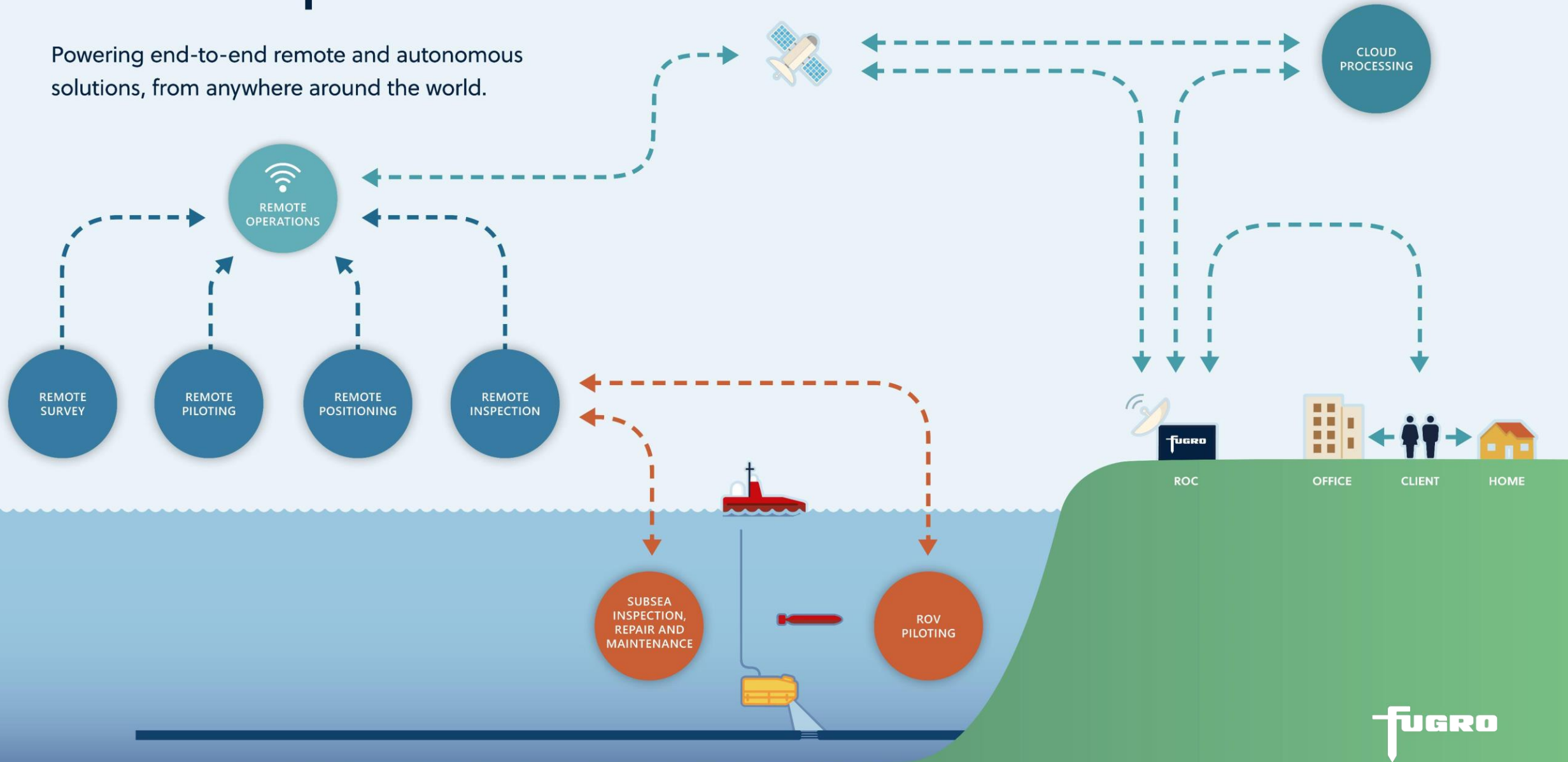
Carbon emissions of the Blue Essence are 95% lower than comparable traditional ROV vessels





# Remote Operations Centres

Powering end-to-end remote and autonomous solutions, from anywhere around the world.





# Integrated network of Remote Operations Centres

Providing realtime control & insights, 24/7, scaled across the globe





# Online Digital Data Delivery Portal

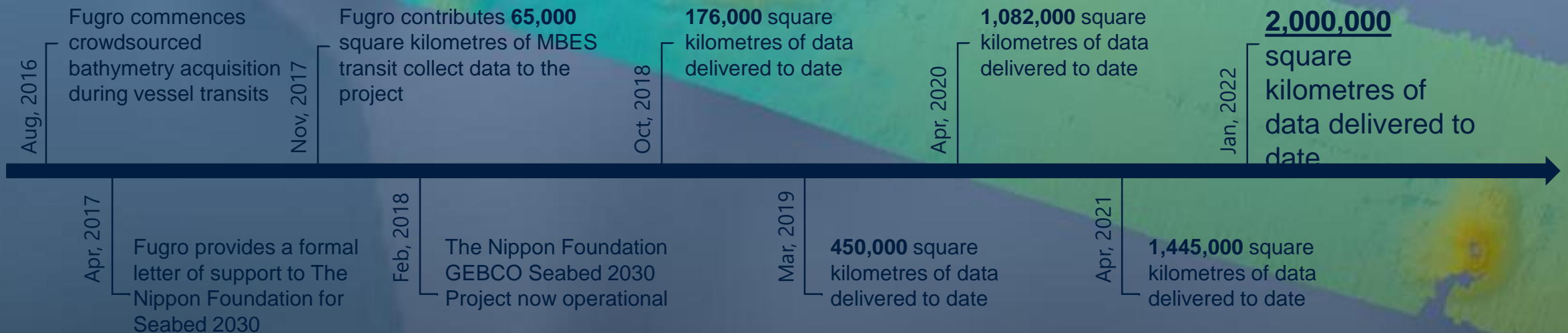
- One source of information
- Accessible from any device at any time
- Large and structured data repository
- Supported by in-house Geo-data experts and experience





# Social Commitments

Contributions to Seabed 2030 & IOC-UNESCO "Ocean Decade Alliance"





# Safe and sustainable offshore surveys

With our global track record in providing hydrography services to deliver a tailored survey solution, we collaborate with you to reduce risk for your offshore project. Our continuous improvements in hydrographic survey platforms contribute to sustainable survey operations for a safe and liveable world.





“

Net-zero carbon emissions  
by 2035





