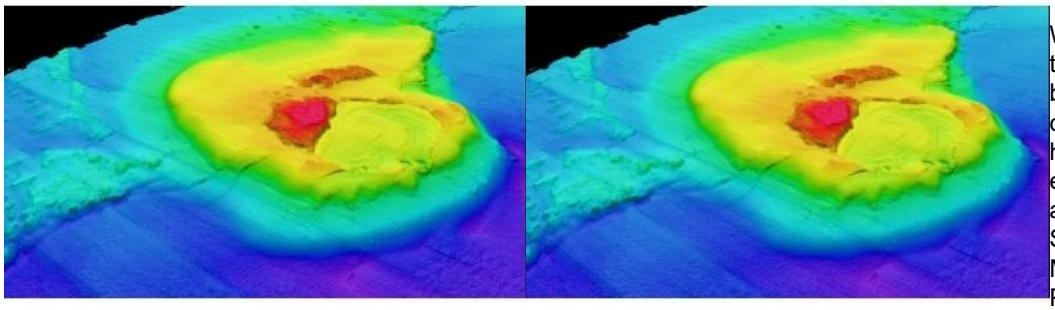
Five experts shed their light on hydrospatial data



We asked five experts for their views on the trends and developments in bathymetric data, as this is and will continue to be the backbone of hydrographic surveying with echosounders, sidescan sonar and advanced positioning systems. Harald Sternberg, Patrick Reyntjens, Duncan Mallace, Commodore Stewart Dunne and Paul Seaton share their views on various aspects of hydrospatial data.

Harald Sternberg, Professor of Hydrography and Geodesy at HafenCity University

“The most important drivers lie in the automation processes that simplify and accelerate all aspects of marine surveying. Examples are data acquisition with autonomous underwater and surface vehicles and research fields such as autonomous navigation and positioning (above and below the water surface) or even automatic target tracking.

Another example is automatic data processing, which starts with the weighting of individual sensors in Kalman filtering and includes automatic object detection and classification (from both acoustic and optical data) and advanced artificial intelligence for the stable representation of the environment and the automation of processes and methods to produce nautical charts according to S-57 standards.

Finally, sensors will continue to be combined (positioning devices, acoustic, optical, oceanographic, chemical and others), leading to new platforms for observing the marine environment, increasing accuracy and precision and creating multifunctional marine measurement systems.”

Read the full Q&A with Harald Stenberg here

Patrick Reyntjens, founder of GEOxyz

“I believe that the development of USVs will change the way in which survey campaigns are undertaken. GEOxyz group is investing in the development of USVs that are capable of carrying multiple sensors. Smaller units can be used for port and intertidal surveys and the bigger ones will be used offshore, first as a force multiplier and later as a standalone solution. I also hope that data processing can be further automated by deploying artificial intelligence. Another challenge is data transfer: being able to transfer the enormous amount of survey data from the survey vessel to shore for high-speed processing at a reasonable cost would further drive our industry.

At GEOxyz, we expect an increasing demand for hydrographic services due to the large investments in the renewable energy market. The current global fleet of survey vessels is too limited to support the market demand. We’ll need more manned survey vessels, USVs and remotely operated underwater vehicles.

However, most important will be finding the right people to develop and operate these vessels, process the data and turn it into valuable information. The main challenge will be the ‘war on talent’. GEOxyz has multiple open vacancies for hydrographic surveyors, data processors, project managers, tender engineers and marine crew.”

Read the full Q&A with Patrick Reyntjens here

Duncan Mallace, chief strategy officer at XOCEAN

“Low Earth orbit satellites providing high bandwidth, low latency and low cost will have a significant impact. This will enhance many aspects of our business and produce new ways of working. Having fibre-like speeds will allow us to upload the survey data as soon as it is acquired, which will then feed into our cloud-based data processing network.

We plan to recruit a further 100 people across the business over the next six months. As our personnel operate our USVs remotely and our data processing is in the cloud, all employees can work remotely. This offers a different work-life balance for our team without the need to go offshore. We are also trying to ‘follow the sun’ by having employees across the globe, so that unsociable shift patterns can be a thing of the past.”

Read the full Q&A with Duncan Mallace here

Commodore Stewart Dunne, Hydrographer of Australia

“The big shift in this space is transitioning from a product-centric technological foundation to one that is data-centric, network-enabled and based on the principles of FAIR data. Agility and interoperability will also be important drivers for our approach to technology in the coming years.

As remote sensing and autonomous underwater vehicle technology enhance traditional hydrographic survey data collection, we are managing an unprecedented volume of hydrospatial data at a fidelity and spatiotemporal coverage never before seen; collecting data from remote and autonomous sensors in space, the ocean column, on and below the seafloor.

So, as a modern hydrographic office, we need to be agile and adopt technology that supports realizing the value of our data assets, through analysis, insight and data-driven decision-making. As technology and data-driven innovation continue to develop and mature, our products and services will also evolve through digital transformation projects and marine data infrastructures that support the principles of FAIR data.”

Read the full Q&A with Commodore Stewart Dunne here

Paul Seaton, regional director for strategic sales and marketing (Asia Pacific) at Fugro

“The global demand for geodata is increasing. From the hydrographic industry’s perspective, we will be required to collect and analyse ever-increasing quantities of data to be able to provide the advice needed by a broad range of stakeholders to contribute to a safe and liveable world. We will need to continue to invest in innovations such as autonomous vessels, remote sensors such as airborne Lidar bathymetry (ALB) and RAMMS systems. We will need to increase the use of cloud-based machine learning and artificial intelligence to keep up with the exponential increase in datasets collected per project.

We need to be open to the broader use of hydrospatial data. No longer will the focus only be on the safety of navigation but also on the wider need for information to manage marine and coastal environments.

The biggest challenge that we will all face in the coming years will be ensuring that there are sufficiently trained and qualified people to meet the challenge. We will need a new generation of well trained and committed professionals to embrace the new remote way of working and collaborating, to deliver the insights our clients need. This will also have to include our stakeholders, so that they are able to interpret and use the information that is provided. Public and private partnerships and the engagement of communities will be key to us meeting this challenge.”

Read the full Q&A with Paul Seaton here

Bathymetry map of East Flower Garden Bank in the northwestern Gulf of Mexico.