

# GEBCO-NF Team in Ocean Floor Challenge



GEBCO (General Bathymetric Chart of the Oceans), which operates in partnership with The Nippon Foundation (NF), Japan's largest private philanthropic foundation, put forward its team challenge for the USD7 million Shell Ocean Discovery XPRIZE in San Diego, California, USA, in December last year. The three-year challenge started with 32 teams from 22 countries as part of XPRIZE's 10-year ocean initiative "to address ocean challenges and help make the oceans healthy, valued and understood."

The GEBCO-NF team's submission is based on developing solutions "to allow the world's oceans to be affordably mapped and monitored", according to the concept paper developed by GEBCO-NF in its entry for the Challenge. The initiative to map the entire seabed by 2030 was announced by Mr Yohei Sasakawa, chairman of The Nippon Foundation, at the Forum for Future Ocean Floor Mapping in Monaco, June 2016. GEBCO is currently working with The Nippon Foundation on a plan to take forward the ideas from the Forum. There is expected to be a joint announcement in April or May.

## Leverage Surveying Technology

For the challenge, the concept of the GEBCO-NF team has been to "leverage surveying technology, with innovations in offshore logistics backed by industry leading companies, to collect higher resolution bathymetric data through autonomous means."

The concept paper goes on to state that "our strategic approach is to augment the hardware, integration and software needs of the team by developing strong partnerships with technology and service providers and naval architects".

## Multipurpose Unmanned Surface Vessel

As part of its approach, the GEBCO-NF team has targeted the SEA-KIT Unmanned Surface Vessel which is "being designed to exceed competition goals, not only for sustainable bathymetric surveying operations, but as a multipurpose Autonomous Underwater Vehicle (AUV) launch and recovery system with long-range transocean capabilities."

"This technology will autonomously manage AUV deployment, retrieval and re-charging. The remote desktop links and onboard software will allow onboard data processing and transfer".

The GEBCO-NF team is currently pursuing commercial development of the SEA-KIT as it can be applied to a range of ocean survey applications.

## Support by Kongsberg

The team also has an agreement in place with Kongsberg Maritime, one of the world's leading sonar and AUV manufacturers, to "collaborate and work with the team, and companies or institutes identified by the team, to provide a solution for the Shell Ocean Discovery Prize." A Kongsberg HUGIN AUV, mounted with proprietary interferometric and SAS sonars, will be used to collect bathymetric data.

GEBCO-NF team's solution, "aims to provide an innovative surface vessel that will be a support vehicle that is AUV charge-capable, acts as a data repeater station and USBL (Ultra-Short Baseline) source, and will facilitate autonomous and remote operations in the maritime environment."

The GEBCO-NF team is led by alumni of The Nippon Foundation/ GEBCO Ocean Bathymetry Training Programme at the University of New Hampshire. The programme has produced 72 graduates in the 12 years since it was founded. "Our team strength lies in our diversity", comments Rochelle Wigley, director of the programme and member of the team. "We have a global distribution representing academic institutions, industry and national hydrographic offices. Our backgrounds range from ocean mapping, hydrography, geology, engineering, software development, physics and offshore project management. The team is being advised by selected GEBCO and industry experts".

## First Round Mapping Challenge

Up to 25 teams will be announced in February and will then proceed to Round 1 of testing. Their entries must operate at a depth of 2,000 metres, aim to map 20 percent of the 500 km<sup>2</sup> competition area at 5.0 metres horizontal and 0.5 metres vertical resolution and identify and image at least five archaeological, biological or geological features, all within 16 hours. The teams that advance past Round 1 will split a USD1 million milestone prize purse.

Based on their performance in Round 1, up to ten finalist teams will be selected to continue to Round 2 of testing, in which their entries will operate at a depth of 4,000 metres. The objective will then be to map 50 percent of the 500 km<sup>2</sup> competition area and find and image, and identify and image, at least ten archaeological, biological or geological features at any depth, all within 24 hours.

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<https://www.hydro-international.com/content/news/gebco-nf-team-in-ocean-floor-challenge>

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