



GEBCO- NF team in ocean floor challenge

The GEBCO-NF Team put forward their challenge for the \$7 million Shell Ocean Discovery XPRIZE in San Diego, California, 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 is led by alumni of The Nippon Foundation/ GEBCO Ocean Bathymetry Training Programme at the University of New Hampshire.

The GEBCO-NF team's submission is based on developing solutions "to allow the world's oceans to be affordably mapped and monitored", and to "leverage state-of-the art surveying technology, with new innovations in offshore logistics backed by industry leading companies, to collect higher resolution bathymetric data through autonomous means" according to the concept paper developed by GEBCO-NF in its entry for the Challenge.

The concept paper goes onto 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".

The need for an initiative to map the entire seabed was announced by Mr Yohei Sasakawa, Chairman of The Nippon Foundation, at the Forum for Future Ocean Floor Mapping in Monaco last June. The Forum was officially opened by Prince Albert II of Monaco. The origin of the GEBCO-NF Team competing in the Shell Ocean Discovery XPRIZE competition followed discussions at the Forum after a keynote address by Jyotika Virmani of XPRIZE.

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 trans-ocean capabilities."

"This innovative 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.

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.

Our solution, as stated by the GEBCO-NF team, "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."

NF/ GEBCO Ocean Bathymetric Training 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".

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 km² 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 \$1 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 km² 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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About GEBCO:

GEBCO (The General Bathymetric Chart of the Oceans) is a joint project of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO – the United Nations Educational Scientific and Cultural Organization. It has its origins in the GEBCO chart series initiated in 1903 by Prince Albert I of Monaco. GEBCO is the only international project with a mandate to map the floors of the global oceans.

The **International Hydrographic Organization (IHO)** was established in 1921 as the International Hydrographic Bureau (IHB). The present name was adopted in 1970 as part of a new international Convention on the IHO adopted by the then member nations. The former name, International Hydrographic Bureau, was retained to describe the IHO Secretariat, which coordinates and promotes the IHO's programmes and provides advice and assistance to Member States. The IHO has 85 member states with 8 others in various stages of applying to join.

The UNESCO's **Intergovernmental Oceanographic Commission (IOC)** was established by the General Conference of UNESCO in 1960. It first met in Paris at UNESCO Headquarters in 1961. There are currently 148 Member States. The IOC promotes international cooperation and coordinates programmes in marine research, services, observation systems, hazard mitigation and capacity development in order to understand and effectively manage the resources of the ocean and coastal areas.

The **Nippon Foundation**, a private, non-profit foundation, was established in 1962 for the purpose of carrying out philanthropic activities, using revenue from motorboat racing. The Foundation's overall objectives include social innovation, assistance for humanitarian activities and global ocean management. Its philanthropic ideals embrace social development and self-sufficiency, and it pursues these principles by working to improve public health and education, alleviate poverty, eliminate hunger and help the disabled.

