Deep sea minerals frameworks released

The Deep Sea Minerals (DSM) Project released three regional frameworks on deep sea minerals in June of this year: Regional Financial Framework (RFF), Regional Environmental Management Framework (REMF), and Regional Scientific Research Guideline (RSRG).

The frameworks are the latest information resources developed for stakeholders interested in the emerging deep sea mining industry. The information provided is expected to build knowledge of deep sea minerals and their governance, and support informed decision-making by Pacific Island countries.

Prepared in collaboration with the International Monetary Fund through the Pacific Financial Technical Assistance Centre, the RFF provides an overview of key issues in the financial management of revenues and wealth associated with the potential development of deep sea minerals in the region.

The REMF contains an overview of deep sea mineral deposit environments and potential environmental effects of deep sea mining projects, as well as management and mitigation strategies, including an environmental impact assessment report template. The framework serves as a guide for Pacific countries, informing and supporting them to make sound decisions regarding their deep sea mineral resources and to take appropriate measures to reduce environmental risks, should they wish to engage in the mining industry.

The RSRG was prepared in collaboration with the National Institute of Water and Atmospheric Research (NIWA) of New Zealand. Its aim is to assist the African, Caribbean and Pacific Group of States (ACP) by providing an overview of key legal and scientific considerations that are necessary to support national, legal and technical instruments.

The RFF and REMF were released during the 46th meeting of SPC’s Committee of Representatives of Governments and Administrations (CRGA 46) in the presence of representatives from more than 25 countries. The RSRG was released at a later date.

‘The Cook Islands recognizes the principle of sustainable and inclusive developments and will use the SPC-EU frameworks for fiscal and environmental management to inform future policy on the management and development of seabed minerals and resulting funds flowing into the Cook Islands. I am pleased that our experience and lessons learned with deep sea minerals, and our close partnership with SPC, is captured in the frameworks launched today’, Foreign Affairs Officer for the Cook Islands Ministry of Foreign Affairs & Immigration, Ms Melody Jonassen, said during the launch event at the CRGA 46 in Noumea.

The frameworks are available on the DSM Project website at:
http://dsm.gsd.spc.int/index.php/publications-and-reports
In-country deep sea minerals activity updates shared at SPC Steering Committee meeting

The Deep Sea Mineral (DSM) Project team organised for representatives from 11 Pacific Island countries to share DSM updates during the Pacific Community’s final Steering Committee meeting at the 46th Committee of Government Representatives and Administrations (CRGA 46). The meeting was held at the Tanoa Hotel in Fiji on 3 June 2016.

The countries presented updates on the progress of their in-country deep sea minerals activities, with a particular focus on public and stakeholder consultations on a draft DSM policy and bill. Representatives also reported on public awareness activities, and shared some of the challenges they’ve faced and their outlook moving forward.

With the Project coming to an end on 31 December 2016, future plans were also discussed.

The participating countries included Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Tonga, Niue, Republic of the Marshall Islands, Samoa, Solomon Islands, Tuvalu, and Vanuatu.

Solomon Islands requests review of its seabed minerals exploration activities

Solomon Islands requested a review of its deep sea minerals exploration activities as well as access to reports/results submitted by exploration companies operating in their Exclusive Economic Zone (EEZ). An in-country confidential review was conducted to identify and highlight gaps in exploration and reporting, and to provide advice and a summary report on the degree of scientific – particularly geological and environmental – research and exploration activities taking place in their waters. The DSM Project team is happy to assist Pacific Island countries wishing to have their deep sea minerals exploration activities reviewed.
Onorina Saukelo, of the DSM Project, interviewed principal investigator Dr Tom Kwasnitschka, of the GEOMAR Helmholtz Centre for Ocean Research Kiel, via email, to learn more about the cruise.

Could you describe what a ‘Virtual Vents’ cruise is?

We have followed a number of innovative approaches to ocean sciences and exploration of hydrothermal vents. Rather than purely exploratory dives, we first mapped the entire working area in great detail and then took only the most telling samples based on the information the map provided. We will gain an increased insight to the spatial distribution of geological features and structures as well as the structure of the habitat. Our goal as field geologists is to walk on the seafloor as we would on land, and we use digital imaging technologies to achieve this, both at sea using high resolution cameras, and on land, using large scale immersive simulators.

What type of researchers were onboard?

We had a team of three computer scientists specialized in computer vision, as well as two economic geologists, a specialist for hydrothermal vent fauna, and a hydrochemist to examine the fluid chemistry.

What did the 2016 Tonga cruise hope to achieve?

The Virtual Vents project aimed to digitize, for the first time, an entire hydrothermal vent system and surrounding outcrops using photographic surveying methods. This will result in a 3D digital model of a patch of seafloor 500 m by 500 m wide, at a resolution down to 5 mm texturally and 5 cm geometrically. This extremely high detail will allow holistic scientific studies of the geology and the biogeochemical parameters of the vent site as a habitat for a thriving faunal community. It will provide an objective reference and lasting record of the state of the vent site, suitable to be expanded as a time series by repeated surveys in the future. As such, it also is a first test of a prospective monitoring method of both the progress and impact of deep sea mining. The 3D maps will be populated by data on the geology and biology gathered from in-situ measurements as well as limited geological and biological sampling.

What was the outcome of the cruise?

The target of the cruise was the Niua South hydrothermal field on the southern flank of the Niua Volcano, Northeastern Lau Basin, at a depth of around 1100 m. During nine days on site, using the ROV ROPOS, three dives – R1916, R1917 and R1921 – were conducted for photographic surveying and three dives – R1918, R1919 and R1920 – were dedicated to sampling of rocks, sessile biology, as well as ambient and vent fluids. Throughout the dives, Eh potential was measured in real time.

How can this information be used?

The high resolution maps we produce will allow quantitative assessment of the distribution biogeochemical parameters of the vent field, and thus also form the basis for an informed discussion on the conservation of deep sea vents versus underwater mining interests. We do not take sides, but we inform. The maps and models are an excellent means to assess the geometry and state of such a vent environment at any stage of its conservation or development. At the same time, the high fidelity immersive imagery we created both in real time and after the fact – through computation of the models – will serve as a very good public information tool. Such videos are available at the Schmidt Ocean YouTube channel, and will also be made available during the course of the release of the underlying scientific data.
Tonga representative joins Virtual Vents cruise team

Assistant Geologist for the Natural Resources Division of the Ministry of Lands & Natural Resources in Tonga, Ms Cardinia Funganitao, was one of the members aboard the RV Falkor during the Virtual Vents cruise in March. In August 2015, Cardinia undertook a government placement with the DSM Project to learn more about the environmental management of deep sea minerals. Cardinia shared her experience of the Cruise with the SPC Deep Sea Minerals Project team.

What was it like to be part of the team on board RV Falkor for the Virtual Vents cruise?

It was an enlightening opportunity to learn about the Virtual Vents cruise for the first time, and there is no better way to learn about this than to be part of it. The cruise provided an opportunity to get a behind-the-scenes look at what it really takes to prepare for the next cruise. I believe my future research cruises will be far more efficient due to the knowledge I am now equipped with through this cruise. It was amazing walking off the ship with all that data in hand, and I would like to thank Tom and the team for that.

What was your role on the vessel?

As a government observer or ‘watchdog’, I was responsible for ensuring that investigations were conducted in accordance with the information specified in the permit, and at the same time providing a written report covering activities conducted during the cruise. I was also maintaining a line of communication between scientists and with Tonga’s Natural Resources Division, besides taking part in other scientist duties.

How does Tonga plan to use the information gathered from the cruise?

Information gathered from the cruise will allow for student research projects to be large in scope, and to address priority research needs for minerals in Tongan waters. As this research focused on marine biology, geology and chemistry, the scientific results will provide more understanding and new information on vent communities and will also serve as baseline information for scientific studies on natural changes in these areas – mostly at the study sites (Niua North and Niua South). Most importantly, Tonga is in its exploration phase now, and it is important that the results from this survey be made available for the exploration companies, to confirm the status of minerals in that particular area, for it is important to identify that there are high-grade minerals in Tongan waters before moving on to the mining phase.

DSM Project bids farewell to Alison Swaddling

The DSM Project bids farewell to its Environment Advisor, Ms Alison Swaddling. After three years of dedicated work based at the Geoscience Division of the Pacific Community (SPC) in Suva, Alison’s contract has come to an end and she has returned to her hometown in Australia.

As Environment Advisor, Alison provided assistance with the environmental aspects of deep sea minerals activities, and through working with her, the Project has been able to achieve some amazing outcomes. Alison’s contributions were invaluable in the production of three deep sea minerals regional frameworks this year, which will serve as critical guides for Pacific Island countries.

The DSM Project team would like to thank Alison for all her hard work and wish her all the best in her new adventures.
CSO perspectives

As part of its role to engage all stakeholders in the DSM discussion in the Pacific region, the DSM Project acknowledges the importance of engaging civil society organisations (CSOs) in these discussions. Since its inaugural consultation workshop held in Nadi, Fiji in June 2011, the DSM Project has invited and supported CSO representatives to attend consultation workshops and meetings, including awareness and stakeholder consultation programmes, and regional training workshops. To further support CSO participation in the DSM dialogue, the DSM Project provides space for CSOs to share their perspectives, by encouraging them to submit feedback to be published in The Prospect. The first CSO representative to provide input was Ms Teina Mackenzie, from the Te Ipukarea Society in the Cook Islands, whose feedback was published in the 8th newsletter issue. The second contribution was provided by Dr Helen Rosenbaum, from the Deep Sea Mining campaign, and published in the 10th newsletter issue.

CSO contributions should be sent to the DSM Project Manager, Mr Akuila Tawake, at akuilat@spc.int.

No contributions were received for this issue.

Internship programme

As part of its capacity-building initiative, the DSM Project has established successful internship programmes for recent graduates in law, communications, environment, geology and geographic information systems (GIS). The aim of these initiatives is to build a sustainable source of in-country expertise, as the interns are encouraged to return to their countries to work with national authorities involved in deep sea mineral activities. The project also offers an intensive two-week placement to government officers. During these placements, government officials receive tailored training in areas such as drafting DSM-specific country legislation, and they also receive guidance in other areas relevant to their work.

The internship vacancies are available on a rolling basis and preference is given to applicants from the Project’s 15 participating countries. For more information on the internships, please visit: http://gsd.spc.int/dsm/index.php/get-involved

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GIS intern

Name: Lopeti Tufui

Nationality: Tonga

Trainee Duration: 18 July 2016–6 August 2016

Background: Lopeti graduated with a Bachelor of Science in Environmental Science from the University of the South Pacific in 2016, and currently works as an Assistant Geologist for the Ministry of Lands and Natural Resources Division in Tonga. During his internship, he received training in Geographical Information System (GIS) technology, including digitizing and transforming survey maps of marine scientific research reports from previous surveys in the Tonga waters, contributing to Tonga’s efforts to build a database for offshore mineral activities in the country, as well as a Marine Spatial Management System.

“The SPC-GSD team that I have had the privilege of working with have helped me attain a developed perspective in mapping and evaluating geographical elements within Tonga’s EEZ”, Lopeti said of his experience.
New resources

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The frameworks are the latest information resources developed for stakeholders interested in the emerging deep sea mining industry. The information provided is expected to build knowledge of deep sea minerals and their governance, and support informed decision-making by Pacific Island countries.

Get Involved

DSM Project Internships
The DSM Project offers internships in law, environment, communication and geology. For more information on the internships visit the website: http://gsd.spc.int/dsm/

DSM Project LinkedIn Group
The DSM Project has set up a LinkedIn Group Page: http://www.linkedin.com/groups/Deep-Sea-Minerals-Project-6646605

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