Open Seminar

Innovative Technologies for Deep Sea Survey and Environmental Monitoring

TIME: 3pm-5pm
DATE: 27th Feb. 2020

ICT CENTER, University of South Pacific

FREE ENTRY

Japan and Pacific Island countries are both maritime nations embraced by the vast Pacific Ocean. We are facing common challenges in enjoying the blessing of ocean while conserving the marine environment. In order to contribute to the achievement of the Sustainable Development Goals (SDGs) adopted by the United Nations, it is necessary to monitor the variations of marine environment and understand the impact caused by the global climate change. We expect that the environmental technologies developed by Japan can bring great benefits to the achievement of such goals.

Taking the opportunity of the 50th Anniversary of Japan-Fiji Diplomatic Relations, we aim to explore the possibility of strengthening our relationship in the field of science and technology with particular emphasis on marine environment. We would like to introduce our methods for marine environmental survey, monitoring and assessment, including the outcome of the collaboration under the Cross-ministerial Strategic Innovation Promotion Program (SIP) led by the Cabinet Office.

We look forward to your active participation in this seminar as a forum for information exchange.

Our Speakers

MORIMOTO Koichi

YAMAMOTO Hiroyuki

MIWA Tetsuya

KAWAI Nobuo

Facilitator

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SIP Cross-ministerial Strategic Innovation Promotion Program

Cabinet Office

Supported by
Ministry of Foreign Affairs of Japan

Contribution of Science, Technology and Innovation to Sustainable Development

MORIMOTO Koichi

Science, technology and innovation plays an important role in driving the economic growth. It also contributes to building a safe and healthy society where people can enjoy a happy life. The Sustainable Development Goals (SDGs) adopted by the United Nations provide a common platform for all countries to help solve global issues by harmonizing the economy, society and environment.
Among the pressing issues, preservation of clean marine environment is vital to our Earth's future. We promote the Ocean Program under the Cross-ministerial Strategic Innovation Promotion Program (SIP) which is a national project led by the Cabinet Office of Japanese government. We aim to facilitate collaboration across different disciplines and sectors to develop and verify innovative technologies for deep sea survey and environmental monitoring.

New aspect of marine environmental assessments and monitoring

YAMAMOTO Hiroyuki

The ocean is the largest ecosystem on the Earth, and harbors high biodiversity encompassed various environments from coral reef to deep sea.
These environments are faced with cumulative effects from human activities, e.g. climate change, overwhelming fishing, resource exploitation, heavy maritime transportation, and accumulation of plastic debris. Some of the risks and effects are determined even in deep-sea environment. We recognize the importance of assessment and monitoring for full-depth ocean to know the current situation and future condition of marine ecosystem. To archive the new methods for marine environmental assessments and monitoring, new technologies, e.g. high-resolution camera, in situ sensors, genetic analysis, and simulation model, have been introduced. Several methods and techniques established in Japan projects exert the progress of practical protocols on marine environmental assessment and monitoring.

Introduction of the Edokko Mark I - a small lander that monitors the ocean floor

MIWA Tetsuya

New habitat assessment methods are required to monitor the dynamic response of marine ecosystems. A continuous monitoring operation of periodic variations of surrounding ecosystem at mineral deposits or biological important points are essential for acquiring baseline data and knowledge towards proposal of an appropriate methodology for underwater environmental impact assessment. We were involved in the development of a low-cost, easy-to-manage, small and lightweight landing gear. The free fall type research lander reached from hadal zone to outside coral reef called "Edokko Mark1" consists of glass spheres with each function and tough body with buoyancy, and an acoustic equipment and time lapse video device can be installed in the glass sphere, and marine environment measurement equipment can be mounted on payload. Here, key features of the "Edokko Mark1" lander and demonstration of a methodology for underwater environmental impact assessment are overviewed.

Capacity Building for Marine Environmental Monitoring Empowers the Pacific Island Countries

KAWAI Nobuo

The project of 'SIP' has invited participants from the Pacific Island countries to study techniques of marine environmental surveys through lecture demonstrations from leading scientists, visits to world class laboratories and national institutions, and on-board training in Japan. The capacity building is aimed to improve knowledge and skills of researchers and/or engineers through this course. This presentation will introduce how attendees have improved their competencies in conducting the environmental monitoring surveys in their territorial and/or international waters, and our future attempts to drive continuous improvement of capacity building in the Pacific region.