

NF-POGO Visiting Professorship in Fiji
Capacity Building in the Marine Sectors of South Pacific Small Islands
Countries

Host Institution: University of South Pacific (Fiji)
Visiting Professor: Dr. Motoyasu Miyata (Japan)
Period of Training: December 2004 – July 2005
Total Cost: \$168,078

The second visiting professor, Dr. Motoyasu Miyata (Senior Consultant, Japan Marine Science Foundation), collaborated with Professor Leon Zann of the Marine Studies Programme at the University of the South Pacific (USP), Fiji, to assist the University in developing its capabilities to provide advanced education in physical oceanography to its students and interested personnel in the South Pacific region, through its regular academic program. USP serves 12 island nations scattered over a vast area in the South Pacific. As the largest educational and research regional institution funded inter-governmentally, it plays a vital role in capacity building essential for sustainable development, especially in ocean issues in the South Pacific. The Marine Studies Programme was specifically designed to provide Pacific Islanders with opportunities for research, education, and training to improve their understanding of the ocean. Dr. Miyata agreed to provide training and capacity building at levels ranging from undergraduate to post graduate levels.

Dr. Miyata taught four basic physical oceanography courses as part of USP's regular undergraduate Marine Studies program for second and third-year students as well as four other courses in regional management of marine resources in the South Pacific (130 students in total). The courses were applied, in that Dr. Miyata linked some of the major issues in the South Pacific (*e.g.* global climate change, coral bleaching, vulnerability to cyclones and tsunamis) to physical oceanography. Topics covered in the lectures included an Introduction to Physical Oceanography, El Niño and Southern Oscillation, Time Series Analysis of Observations and, Waves and Tides.

In addition to the lecture series, Dr. Miyata also conducted an intensive two-week training course entitled "Physical oceanography in the South Pacific: Understanding ocean/atmosphere interactions, currents and waves and their implications" (4 – 17 July 2005). A total of 31 participants from 11 island nations attended the training course, including graduate students of USP, graduate technicians, environmental managers and planners in the Pacific Island government. The goal of the course was to provide students with a better understanding of the physical oceanography of the Pacific Islands and its importance in understanding and managing global climate change, coral reef health, and productivity in the region. Topics covered during the course included waves and tides, ocean circulation, the ARGO project, ENSO, tsunamis, application of remote sensing, modelling, practical training in the use of equipment; coral reef ecology and coastal management.

Dr. Miyata found that USP lacked some very basic equipment essential to carrying out a comprehensive research program, and which was also necessary for training

purposes. Funds allocated for equipment by the POGO-Nippon-Visiting Professor programme were used to purchase:

- one shallow range current meter (Nortek Aquadopp Profilers).
- two intermediate range current meters (Nortek Aquadopp Profilers)

Furthermore Dr. Miyata found that the CTD owned by USP Marine Studies required extensive refurbishing before it could be used effectively for research and education. The refurbishing of the CTD was also carried out using funds from the programme. A number of other smaller items were purchased for teaching and research purposes including books and software for the library.

During the intensive training course, students learned how to measure water temperature and salinity versus depth, using a CTD, in order to gain an understanding of inshore and offshore circulation patterns. Students also learned how to measure the current profiles in shallow coastal waters using the Aquadopp Profilers.

Over and above teaching these undergraduate courses, Dr. Miyata was also heavily involved in developing the post-graduate teaching programmes and acted as an internal examiner for two Masters students, and as an advisor for an M.Sc student.

During his stay in Fiji, Dr. Miyata also undertook a research project to measure ocean currents off the Coral Coast (main island of Viti Levu), in collaboration with his masters course student, Ms. Lavenia Volavola. He made several field trips to record the direction and speed of the coastal currents. The goal of Dr. Miyata's research was to establish the relationship between the current patterns and the movements of the sediments, with particular attention to the eroded beaches. Dr. Miyata maintained close contact with Ms. Volavola after leaving USP. Dr. Miyata also assisted Mr. Awneesh Singh with his research on sediment movements in Suva Lagoon.

The POGO- Nippon Visiting Professorship Programme at USP had a direct impact on the understanding of physical oceanography in the Pacific Island nations, and has encouraged collaboration and co-operation among oceanographers from various nations. The professional contacts established during the programme will be invaluable for establishing future joint proposals. The visiting professorship programme at USP also provided a new focus on physical oceanography in the SOPAC region, thus contributing in a significant way to capacity building in operational oceanography in the south Pacific.