

# Borneo Marine Research Institute, UMS, National Taiwan Ocean University doing research on meiobenthos in hydrothermal vents

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KOTA KINABALU: Small marine organisms which live deep in the ocean such as meiobenthos play a vital role as a bio-indicator to monitor marine ecosystems.

Therefore taking this into consideration, Borneo Marine Research Institute, Universiti Malaysia Sabah (UMS) together with National Taiwan Ocean University (NTOU) are conducting a thorough research on meiobenthos in hydrothermal vents near Kueishan Island, Taiwan.

Hydrothermal vents were first discovered in 1977. These fissures in the ocean floor spew out fiercely hot, mineral-rich water, yet somehow diverse ecosystems are able to thrive in these hostile conditions.

According to Dr. Chen Cheng Ann, the Head of the Marine Science Programme, Faculty of Science and Natural Resources in Universiti Malaysia Sabah, the research is imperative not only to protect and maintain the ocean's rich biological marine life but also in sustaining a healthy conducive planet as a whole.

"Free-living nematodes are often overlooked and go unnoticed regardless of their high-valued applications. We



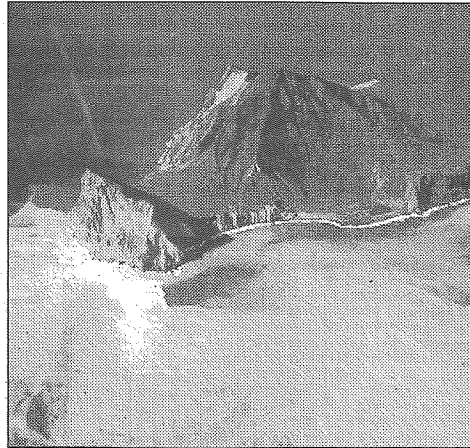
Kueishan Island is the only island with submarine hydrothermal vents in Taiwan.

- Credit picture Benny Kwok

know that nematodes directly benefit humanity and also enhance our understanding of the earth's biodiversity," he said.

He explained that the nematodes are significant in benthic ecosystems such as the production of detrital organic matter and recycling of nutrients that help enrich the coastal waters, which support marine benthic production.

"The ability of vent organisms to survive and thrive in such extreme pressures and temperatures and in the presence of toxic mineral plumes is fascinating.



Kueishan Island is located on the northeast coast of Taiwan. - Credit picture

Taiwan Tourism Bureau

"Nematodes can survive in submarine hydrothermal vents with high temperature, high pH, and toxic trace metal. However, its ecological distribution in submarine hydrothermal vents receives little attention," he said.

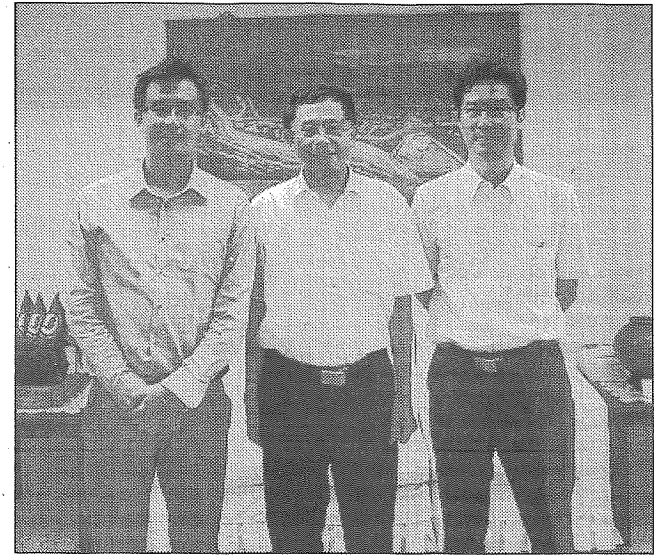
Dr. Chen further explained that meiobenthic organisms such as nematodes have strong environmental adaptability, which makes them perfect candidates in quantifying the environmental status of a specific area.

He added that most research is limited to deep-sea hy-

drothermal vents compared to shallow submarine hydrothermal vents.

"We need to gain a better understanding of shallow-water marine biodiversity; in determining the richness of the meiofauna, which serves as an important part in the marine ecosystem with full infinite potential for future applications," he said.

Professor Tin-Yam Chan, Director of the Center of Excellence for the Oceans in NTOU said that hydrothermal vents may offer valuable marine resources in the future.



The President of National Taiwan Ocean University (NTOU) Professor Ching-Fong Chang (middle) in a group picture together with Dr. Chen (left) and Prof. Chan (right).

"There is a lot that has yet to be discovered especially when you have unusual and potentially useful capabilities organisms that live in extreme environments. The relative stability of populations, the short turnover rate, and the generally high tolerance to ecosystem alterations make nematodes particularly suitable as bio-indicators.

"These attributes have made nematodes as an indicator for assessing the ecological quality of marine ecosystems," he said.

Chan said that it is essential to monitor the quality of the environment and stated that ne-

matodes are an ideal medium for the research.

"I believe this strategic research will contribute to society in many ways. The most important contribution in this regard is in research and education. We have learned significant and unique discovery throughout these phases," he said.

The strategic collaboration between UMS and NTOU has been in place since 2015. The Memorandum of Understanding (MoU) has helped provide a structured and committed approach between both parties.