

Presentation 1

Speaker Bio:

Dr Ho Tung-Yuan is an active and well known marine biogeochemist. He was awarded his PhD from The State University of New York at Stony Brook, USA in year 2000. He later worked as a Postdoctoral Fellow at Princeton University, USA and started working as a Distinguished Postdoctoral Fellow in Academia Sinica in 2003. In 2017, Dr Ho is currently a Research Fellow at the Research Center for Environmental Changes, Academia Sinica.

Abstract:

Anthropogenic aerosols: the major source of soluble iron in the surface water of the Northwestern Pacific Ocean

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East Asian monsoon transports tremendous amounts of lithogenic and anthropogenic aerosols to the Northwestern Pacific Ocean (NWPO) in winter and spring. Although total aerosol iron (Fe) mainly comes from lithogenic dusts in the oceanic region, it remains unclear whether soluble (or bioavailable) Fe originates from lithogenic or anthropogenic aerosols. We collected daily size-fractionated aerosol samples, including PM 2.5 and PM 2.5-10, at Taiwan Dongsha Atoll Research Station, an ideal location for monitoring seasonal aerosol deposition in the NWPO. In addition to metal concentrations and their solubility in the size-fractionated aerosols, we also measured Fe isotope ratios in both the total digested samples and the soluble fractions of the size-fractionated aerosols. Evidently confirmed by specific metal elemental ratios and characteristic Fe isotopic ratios in the size-fractionated aerosols, we demonstrate that the major source of soluble Fe in the surface water originates from anthropogenic aerosols but not lithogenic dusts.

Presentation 2

Speaker Bio:

Dr Ryuji Machida is a zooplankton ecologist and has interest in its phylogeny, phylogeography and genetic connectivity. He was awarded his PhD from the University of Tokyo and subsequently appointed as a Research Fellow of the Japanese Society of Promotion of Science from 2004-2005. He worked as the Asia Office Manager of Census of Marine Zooplankton at the Ocean Research Institute, University of Tokyo from 2005-2009. Dr Machida later joined the Smithsonian National Museum of Natural History as a Research Fellow and in 2011 joined Academia Sinica as an Assistant Research Fellow in its Biodiversity Research Center.

Abstract:

Quantification of zooplankton from meta-transcriptomic analysis

R. J. Machida

Biodiversity Research Centre, Academia Sinica, Taiwan

Zooplankton play an important ecological role in the ocean ecosystem, linking primary producers and higher trophic levels, such as fish and whales. Despite the centuries of studying zooplankton, our knowledge of their ecology and diversity still lack major issues. For example, how many species of zooplankton exist in the open ocean? How much do they grow in a specific amount of time? What are the environmental factors influencing on their diversity and growth? Up to now, majority of researchers use morphological information to identify zooplankton species. However, because of very high zooplankton local diversity and their minute size, estimation of diversity indexes (for example, richness) require tremendous amount of taxonomic training and effort to complete one zooplankton sample. To overcome these difficulties, several researchers are starting to use nucleotide sequence-based analyses to estimate their diversity (e.g. Machida *et al.* 2009, Lindeque *et al.* 2013, Bucklin *et al.* 2016). At the moment, majority of their study uses gDNA as a starting

template. In contrast, I have been using RNA as a starting template. At the time of presentation, I will summarize the advantages and disadvantages of using different templates or techniques for the estimation of zooplankton diversity and its potential application to study their ecology.

Seminar Schedule:

1st November 2017 (Wednesday)	
9:00 - 9:15 am	Arrival of guests
9:15 – 9:30 am	Short briefing by Dr Ho Tung-Yuan on the Taiwan International Graduate Program (TIGP) for outstanding young scholars to go to Taiwan.
9:30 – 10:00 am	Presentation by Dr Ho Tung-Yuan: <i>“Anthropogenic aerosols: the major source of soluble iron in the surface water of the Northwestern Pacific Ocean”</i>
10:00 – 10:15 am	Question and answer session
10:15 – 10: 45 am	Coffee Break
10:45 – 11:15 am	Presentation by Dr Ryuji Machida: <i>“Quantification of zooplankton from meta-transcriptomic analysis”</i>
11:15 – 11:30 am	Question and answer session
11:30 – 12: 00 pm	General discussion
12:00 pm	End of Seminar