



Invitation to IOES Scientific Seminar Series

The Institute of Ocean and Earth Sciences (IOES) is happy to invite you to attend a Scientific Seminar
by

Masahito Tsuboi

“Discovering the Macro-scale Pattern of Brain Size Diversification: A Phylogenetic Comparative Approach”

Date : **1 July 2014**

Time : **2.30 pm**

Venue : **Anggerik Room, Level 3, IPS Building**

“Discovering the Macro-scale Pattern of Brain Size Diversification: A Phylogenetic Comparative Approach”

Masahito Tsuboi

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Abstract

The brain of vertebrates is extremely variable in size and shape across different taxa. Why vertebrate brain is so variable? The most common answer to this question is the adaptation to different social and ecological environment that require different types of cognitive ability. However, adaptation itself cannot explain why benefit of having a brain did not lead any species to have excessively large brain. Here, understanding the limitation to the brain evolution is crucially warranted, for which my PhD project is focused on. In my current project, my colleagues and I studied two types of constraints; the physical constraints and the energetic constraints. Using a recently developed phylogenetic comparative method, we found that both physical and energetic constraints appear to play an important role forming the contemporary diversity in brain size of teleost fishes. We discuss our result in the light of previously reported results in other vertebrate groups. Finally, we explain why pipefishes and seahorses would provide us with critical insights to extend our understanding on vertebrate brain diversification.

Masahito Tsuboi is a PhD student at Evolutionary Biology Centre, Department of Ecology and Genetics, Animal Ecology group, in Uppsala University, Sweden. His interest to Evolutionary Biology developed through his undergraduate and master education in Kyoto University, Japan, where he mainly studied Ecology and Evolutionary Biology. He interested in the macro-evolutionary patterns of phenotypic diversification. Currently, he is working on vertebrate brain size evolution using teleost fish as a model system under Prof. Niclas Kolm. In order to investigate the research question, he extensively uses a phylogenetic comparative method that has been developing dramatically over the past decade.