2019-20 MRes CMEE Seminar Summary

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Contents

1 Oct-10-2019

Deep-time evolution of biological responses to temperature changes
Speaker: Dr. Dimitrios-Georgios Kontopoulos

This seminar was mainly focusing on correlations between temperature performance curves (TPC) and physiology. The goal of the project was to investigate how the physiological adaptations/responses changed throughout the evolutionary history by using a phytoplankton clade as model.

However, the result was generally within expectations.

First, the presentation emphasized that TPC evolution correlation was statistically influenced by adaptations to cold temperature. This is not surprising based on contemporary knowledge on biodiversity distribution. As a personal flavour, I was expecting yet unfulfilled to see explanations on how data samples were selected. So it is unclear whether the correlation graph would have another deduction if sampling taxa were re-sampled again.

Second, the presentation highlighted the evolutionary patterns in thermal sensitivity. In which an interesting claim has not been fully established. The presenter claimed that equatorial regions are having more thermal-specialists while the mid-latitude regions are having thermal-generalists. The statement would be stronger if more definitions, reasons and clade comparisons along the deep timescale can be showed. Audiences can then understand more about the spatial bio-distributions with different species TPC distributions.

A question from the floor was spot-on, which was about the reason(s) behind the simulation result of ancestral state being only close to median of the current data. The response was not convincing because data sets generated from deep sea cores should be sufficient to supervise the simulation and limit the simulation variations.

In conclusion, new information from the presentation was limited. And the "biological responses from deep-time evolution" were unclear. However, the presentation successfully identified potential research questions.

2 Oct-17-2019