

# **Unravelling the evolutionary processes that shaped the diversity of the amphipod genus *Eusirus* in the Southern Ocean**

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Various evolutionary processes greatly influenced by the geological and climatic history shaped the diversity of the current Antarctic marine fauna. In the past, these Antarctic species have survived different glacial cycles through dispersal to refugia, and/or adaptations to novel abiotic and biotic conditions. With the increasing temperatures in the polar regions, marine fauna is currently faced with three possible outcomes: adaptation, migration or extinction. Based on how these organisms were able to survive environmental changes in the past will allow us to predict their future response. In this study, amphipods of the genus *Eusirus* are as model organisms as knowledge on their ecology and biogeography is still very limited. The evolutionary history of *Eusirus* amphipods is phylogenetically reconstructed through time with molecular data. DNA sequence data are obtained by sequencing the complete mitochondrial genomes, using a combination of skimming sequencing and long-range PCRs amplicons of different *Eusirus* species. Mitochondrial data will be complemented with additional sequence data from nuclear genes. Time-calibrated phylogenies will be used as basis for plotting ecological and trophic data generated by stable isotope analyses as well as morphological information. By combining data from time-calibrated phylogenies as well as from ecology and morphology, we aim to understand the evolutionary processes that led to the current diversity of *Eusirus* amphipods.

Poster preference