

PhD project (sediment DNA/ancient DNA)

There is a PhD opportunity within the South African and German joint project SPACES, which is funded by the German ministry of education and research.

The sub-project TRACES - (Tracing Human and Climate impacts in South Africa) will identify changes in aquatic ecosystems over time to define its natural variability in the past as reference condition and relate the condition of the present ecosystem to it. Practically, data from long-term ecosystem research (LTER) initiatives or systematic biodiversity monitoring programmes rarely extend far enough in time to assess pre-industrial conditions, not only in South Africa. Although the results from long-term studies are essential to assess contemporary, regional biodiversity and natural variability, the ongoing freshwater programmes in South Africa are often biased in favour of higher plant or vertebrate taxa (i.e., mammals, fishes and reptiles/amphibians). We will follow different approaches, one palaeo-ecological approach to overcome the aforementioned difficulties, using organisms/remains that are small enough to be extracted from limited sample volumes from sediment archives that cover the past 250 years. In a second approach, we will use established protocols and special test kits to isolate environmental DNA from the same core sediment samples to estimate species diversity over time. Recent advances in barcoding South African wildlife, especially fish fauna, mammals will be accommodating our approach to potentially match species genomes in the growing database of the International Barcoding of Life initiative. Additional barcoding from recent material may become necessary to assess the biodiversity of zooplankton/zoobenthos.

The selected candidate will receive a fellowship of the German Academic Exchange Service (DAAD), which will allow him/her to work at the Universities of Greifswald and Potsdam (DNA-lab - Prof. M. Hofreiter)

The funding will include:

- * PhD salary (up to 36 to 48 months) to cover the personal living expenses in Germany

- * subsidized health insurance fees in Germany

- * limited travel money

Please contact:

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