

Motivation for export permit to sample ostrich eggshell fragments from Wonderwerk Cave for isotopes

In contrast to the west and east coasts, the interior of South Africa, comprising arid and semi-arid zones, has few long well-dated environmental records that can be used for paleoclimatic reconstruction. Wonderwerk Cave, located in the Kuruman Hills (Northern Cape Province), offers a well-dated long archaeological sequence spanning some 2 million years. This sequence is also characterized by excellent preservation of macro and micro-fauna, macro-botanical remains, pollen and phytoliths as well as speleothems, all offering a wealth of environmental and climatic proxy data. An additional and extremely important source of data for palaeoclimate and environmental reconstruction are isotopic signatures that may be obtained from the faunal remains. These features make Wonderwerk Cave a key site for forming views on environmental change in the interior of South Africa.

We are requesting from SAHRA is for a permit to export 143 fragments of ostrich eggshell (OES) from Excavations 1 and 2 (all layers) at Wonderwerk Cave for isotope analysis (Carbon and Oxygen isotopes). The eggshell fragments all derive from the excavations undertaken by Mr. Peter Beaumont at Wonderwerk Cave and are held in the collections of the MacGregor Museum, Kimberley.

The samples are all small fragments of eggshell, none are decorated. Sampling will be kept to a minimum and in the majority of cases a fragment of OES will remain from each sample and will be returned to the MacGregor Museum. In only a few cases will the entire eggshell fragment be destroyed. Given that isotope sampling is destructive, prior to export, all pieces have been measured and photographed to create a permanent archive which will be housed at the MacGregor Museum and in the SAHRA files.

The OES samples span the full ~2 million year sequence of the cave. They will serve as a complement to ostrich eggshell samples given to Prof. Lee Thorp in the 1970's and early 1980's by Mr. Peter Beaumont for isotope analysis. Prof. Lee Thorp was then at the University of Cape Town. This data set has however never been published and Prof. Thorp is keen to do this in the near future.

Prof. Lee Thorp now has a PhD student (Ms. Michaela Ecker) who is working on the full isotopic sequence of Wonderwerk Cave for her thesis. This request, to export the samples to Prof. Julia Lee Thorp (University of Oxford, UK), will enable Ms. Ecker to complete the research on ostrich eggshell from the site begun by Prof. Lee Thorp. Ms. Ecker is based in the UK for the duration of her thesis, and has suitable lab facilities at Oxford University for careful sampling of the OES fragments. She has also managed to arrange free access to run the Wonderwerk samples in the isotope lab at the University of Bradford, UK. Thus, sending the samples to the UK will facilitate a rapid and cost effective means of obtaining a long needed paleoclimatic and palaeoenvironmental sequence for the interior of South Africa, as well as providing a foundation for wider regional comparisons.