

ANNUAL REPORT: SOUTH AFRICA-SPITZKLOOF B 2017 FIELD SCHOOL

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Student recording levels & measuring elevation at Spitzkloof B cave

The 2017 field season at Spitzkloof B was a great success as we excavated down through complicated burrow-rich sediments. These included excavation of a 2 meter diameter hearth feature, dating to at least 40,000 years ago (ya). The deposit was artifact rich and particularly dense near the hearth. Due to their fragile nature, we excavated charcoal and ash slowly, coming down onto a lovely brown humic deposit that we will excavate next season. As our current mandate is to look for evidence of how people adapted to the desert during Marine Isotope Stages 2 (24-11 kya) and 3 (60-24 kya) when the majority of southern Africa experienced a population hiatus, we will finally be excavating within the layers we have been looking for. This is exciting as we will be able to contribute to the anthropological literature on these very poorly understood periods of human evolution in Africa.

In addition, we opened four test units in the river bed outside the cave to look for evidence of water in this dry desert valley. 2017 has been a particularly bad year for drought in South Africa and this region is the driest in the country. While we were able to identify different fluvial deposits, we were unable to find water even though one unit was 1.6 m deep. This research will inform us on just how drastic the environment can get and how people survived in this region in the past.

In terms of laboratory work, we were very productive in the analyses of artefacts collected during the 2015 season. Hugo Pinto (IFR TA) is writing up the lithics from the Holocene layers while Gavin Donathan (2017 IFR student) excavated and recorded our camp hearth as a model to interpret the archaeological hearth. Sabrina Furlano (2017 IFR student) ran a burning experiment using ostrich eggshell, sand, charcoal and gypsum crystals to recreate the vibrant

blue ostrich eggshell we find in local archaeological deposits. Our PhD students -- Courtney Hopper (University of Toronto) and Kyra Pazan (University of Michigan) -- recorded the surface material from a nearby shelter we now call Spitzkloof D, their goal is to record a local herder signature which has been elusive until now. We expect the results of this study to be presented at various conferences in 2018 including the SAfA (Society for Africanist Archaeologists) conference in Toronto in 2018. We are hoping to pull all of this data together and publish the results in peer reviewed journals such as the Journal of Archaeological Science.

More specifically, Courtney Hopper is conducting her PhD research on the Holocene layers at Spitzkloof B. She is comparing material signatures from Spitzkloof with eight other open sites. Courtney is seeking to establish a model of landscape use looking at subsistence and settlement patterns in desert environment. Her goal is to find a way to differentiate between the hunter-gatherers and herders that lived in this valley two thousand years ago.

We have a large multicomponent palaeoenvironmental and geoarchaeology paper in preparation that includes results of experiments and research contributed by two previous IFR students in addition to our specialist geoarchaeologist Mike Morley.

This year Courtney had her Masters research using local springbok as a palaeoenvironmental indicator published in *Palaeogeography, Palaeoclimatology, Palaeoecology* (Hopper et al. 2017). She also presented results at the SAfA conference in Toulouse and the SPAN Desert conference in Cape Town. Sarah Kivisto also presented her Masters research on the strontium signals at Spitzkloof A at the SAfA conference in Toulouse and the Panaf conference in Johannesburg in 2016.

A new Masters student -- John Vandergugten (University of Toronto) -- will begin the analysis of the faunal remains with data from the 2015 and 2017 seasons. His goal is to study subsistence strategies from 30 to 40 kya at Spitzkloof B.

In all, the 2017 season was an excellent field year. We were able to collect new and exciting data that will directly address our primary research question -- study human occupation of extreme desert environments during climatically challenging periods.