**Export/sampling permits**

Please note an export permit must be linked to an objectthat has to be created on SAHRIS! If the object you want to work on has not been created yet, you would need to **create an ObjectID**.

Required documents:

* For export of material from KZN, Eastern Cape or Western Cape that involves destructive analysis, the **destructive sampling permit** from the respective Heritage Authority must be submitted;
* A consent letter from the accessioning institution.

The proposal should include (you can fill these in below):

* a list of participants (name, affiliation, phone no, email addresses) and how they are involved;
* the name and address of the facility, including address, it is being analysed at;
* name and address of the museum/university department that currently hosts the object;
* names of the responsible person(s) during transport and while the fossil is at the facility;
* the period/time frame during which the fossil(s) will be outside the country;
* detailed information on the fossil(s), especially as it is a "unique" specimen;
* detailed information on the research project behind it & methodology including expected outcomes (i.e., the reason for export);
* the written confirmation of the institution that currently hosts the object that the object may be used as proposed and be returned in good condition;
* should there be any damage/destructive analysis (e.g., coating for higher resolution) undertaken, this needs to be stated in detail;
* Statement why this study cannot be done in South Africa.

**Applicant (name and affiliation): this is usually the museum curator!**

Curtis W. Marean, Foundation Professor and associate director, Institute of Human Origins, School of Human Evolution and Social Change, PO Box 872402, Arizona State University, Tempe, AZ 85287-2402, USA

And

African Centre for Coastal Palaeoscience, Nelson Mandela University, Port Elizabeth, Eastern Cape 6031, South Africa

e-mail curtis.marean@asu.edu <mailto:curtis.marean@asu.edu>

USA Office Phone: 480-965-7796, USA Lab Phone: 480-965-2718

South Africa Mobile – 0768906153

**Applied for (principal researcher):**

Curtis W. Marean, Foundation Professor and associate director, Institute of Human Origins, School of Human Evolution and Social Change, PO Box 872402, Arizona State University, Tempe, AZ 85287-2402, USA

**Participants with affiliations, email addresses, phone numbers (& their role):**

1) Dr. Zenobia Jacobs, University of Wollongong, School of Environmental and Earth Sciences, Northfields Avenue, NSW 2522, Australia

Role: OSL scientist

2)

Role:

3)

Role:

The material will be \_couried\_\_\_\_(hand-carried or couriered) to \_University of Wollongong\_\_\_\_\_\_\_ (facility/institution) in \_July, 2018\_\_\_\_ (month, year) by \_Curtis W. Marean\_\_\_\_\_\_\_ (name of person responsible for transport) and brought back by \_\_\_\_\_\_\_\_\_\_\_\_\_ (leave blank if same person as above).

\_Curtis W. Marean\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (name) will be involved with the \_packing and transport\_\_\_\_\_\_ (e.g., transport/scanning) of objects and \_the objects are all sediment samples\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (whatever else).

**Institution incl. address that currently hosts the object:**

Mossel Bay Archaeology Project

Dias Museum

Munro Cottages

Munro Road

Mossel Bay

6500

S34º 10.790’ E022º 08.385’

**Facility incl. address at which the experiment will be done:**

University of Wollongong, School of Environmental and Earth Sciences, Northfields Avenue, NSW 2522, Australia

Role: OSL scientist

**Table of objects or upload file:**

Note that these are all sediment samples. I uploaded a copy of this, but here it is as well:

|  |  |  |  |
| --- | --- | --- | --- |
| **All Samples and Their Coordinates in the South African National Grid** | | | |
| **Sample Number** | **NorthingMidpointSA** | **EastingMidpointSA** | **ElevationMidpointSA** |
| 571339 | -3786875.976 | -83773.14628 | 12.568825 |
| 571340 | -3786876 | -83773.13005 | 12.854725 |
| 571341 | -3786875.936 | -83773.1518 | 12.992675 |
| 571342 | -3786875.912 | -83773.14293 | 13.152825 |
| 571343 | -3786875.803 | -83773.14013 | 13.70963333 |
| 571344 | -3786847.964 | -83729.1859 | 14.299 |
| 571345 | -3786847.926 | -83729.18148 | 14.44962 |
| 571346 | -3786847.901 | -83729.18215 | 14.532275 |
| 571347 | -3786847.897 | -83729.1785 | 14.566 |
| 571348 | -3786848.007 | -83729.11458 | 14.843475 |
| 571349 | -3786847.99 | -83729.08958 | 15.01025 |
| 571350 | -3786847.996 | -83729.14252 | 15.17778889 |
| 571351 | -3786847.911 | -83729.0642 | 15.28884 |
| 571352 | -3786847.927 | -83729.05472 | 15.425 |
| 571353 | -3786823.486 | -83725.24109 | 27.2156625 |
| 571354 | -3786823.488 | -83725.2388 | 27.0706875 |
| 571355 | -3786823.497 | -83725.25128 | 26.921675 |
| 571356 | -3786823.487 | -83725.25776 | 26.79385 |
| 571357 | -3786827.094 | -83724.97978 | 24.829 |
| 571358 | -3786827.039 | -83724.9634 | 24.8783 |
| 571359 | -3786827.046 | -83724.9709 | 24.9703 |
| 571360 | -3786827.3 | -83724.48883 | 25.00375 |
| 571361 | -3786827.284 | -83724.44835 | 25.0751 |
| 571362 | -3786827.245 | -83724.4795 | 25.1681 |
| 571363 | -3786827.251 | -83724.4918 | 25.23055 |
| 571364 | -83726.9725 | -3786830.5 | 24.9312 |
| 571365 | -83727.117 | -3786830.5 | 24.8341 |
| 571366 | -83727.2269 | -3786830.5 | 24.6897 |
| 571367 | -83727.9267 | -3786830.5 | 24.6379 |
| 571368 | -83728.1499 | -3786830.5 | 24.5249 |
| 571369 | -83727.9071 | -3786830.5 | 24.3055 |
| 571370 | -83726.4996 | -3786832.141 | 24.6555 |
| 571371 | -83726.4996 | -3786832.294 | 24.6227 |
| 571372 | -83726.4996 | -3786832.447 | 24.4561 |
| 571373 | -83727.001 | -3786831.909 | 24.073 |
| 571374 | -83727.001 | -3786832.409 | 23.9948 |
| 571377 | -3786827.247 | -83724.49819 | 25.47541429 |
| 571378 | -3786827.333 | -83724.49523 | 25.5195 |
| 571379 | -3786826.496 | -83724.72867 | 25.53864286 |
| 571380 | -3786826.49 | -83724.75653 | 25.60095 |
| 571381 | -3786826.49 | -83724.69653 | 25.6434 |
| 571382 | -3786826.526 | -83724.75122 | 25.80636 |
| 571383 | -3786826.52 | -83724.6163 | 25.93604 |
| 571384 | -3786826.519 | -83724.61627 | 26.05515714 |
| 571385 | -3786826.522 | -83724.58721 | 26.18501429 |
| 630292 | -3786834.687 | -83725.9912 | 24.67150909 |
| 630293 | -3786834.727 | -83725.98096 | 24.85921818 |
| 630294 | -3786834.688 | -83726.00692 | 25.05384167 |
| 630295 | -3786834.74 | -83726.00222 | 25.187 |
| 630296 | -3786844.411 | -83728.13178 | 19.00376 |
| 630297 | -3786844.416 | -83728.08573 | 19.27283333 |
| 630298 | -3786844.44 | -83728.0678 | 19.5221 |
| 630299 | -3786844.414 | -83728.04512 | 19.77826 |
| 630300 | -3786846.109 | -83726.51544 | 19.76378 |
| 630301 | -3786846.08 | -83726.5161 | 19.81145 |
| 630302 | -3786844.499 | -83727.5326 | 19.83663333 |
| 630303 | -3786844.484 | -83727.51804 | 19.91176 |
| 630304 | -3786844.544 | -83727.48446 | 19.97924 |
| 630305 | -3786844.478 | -83726.72152 | 20.09172 |
| 630306 | -3786844.477 | -83726.82792 | 20.09834 |
| 630307 | -3786844.464 | -83726.84127 | 20.15478333 |
| 630308 | -3786844.473 | -83726.84452 | 20.21555 |
| 630309 | -3786844.482 | -83726.74815 | 20.26461667 |
| 630310 | -3786844.471 | -83726.73958 | 20.37484 |
| 630311 | -3786844.476 | -83726.74261 | 20.45952857 |
| 630312 | -3786844.459 | -83726.61085 | 20.5353 |
| 630313 | -3786844.467 | -83726.74838 | 20.52368333 |
| 630314 | -3786844.449 | -83726.58488 | 20.61904 |
| 630315 | -3786844.454 | -83726.56854 | 20.69992 |
| 630316 | -3786844.455 | -83726.55494 | 20.7644 |
| 630317 | -3786839.711 | -83726.49468 | 22.1492 |
| 630318 | -3786839.716 | -83726.47765 | 22.213975 |
| 630319 | -3786839.723 | -83726.48683 | 22.2603 |
| 630320 | -3786839.716 | -83726.49965 | 22.313825 |
| 630321 | -3786839.716 | -83726.49555 | 22.366025 |
| 630322 | -3786839.729 | -83726.50443 | 22.440225 |
| 630323 | -3786839.666 | -83726.49505 | 22.566975 |
| 630324 | -3786839.683 | -83726.49928 | 22.6446 |
| 630325 | -3786839.659 | -83726.49513 | 22.722275 |
| 630326 | -3786839.582 | -83726.4964 | 22.805275 |
| 630327 | -3786840.166 | -83726.49203 | 21.92015 |

**Site including age at which object was found:**

Pinnacle Point 5-6

**Time frame:**

Transport to \_Wollongong\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (facility): \_July 2018\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(date)

Return date: \_\_all sediment samples are destroyed in the process of analysis\_\_\_ (date)

**Aim/rationale:**

The reason for the application is to undertake continued single grain optically stimulated luminescence (OSL) dating of the archaeological samples from PP5-6. This will give an estimate of the age of deposition of the sediment grains contained within archaeological deposits and the dunes. OSL dating is undertaken on quartz grains extracted from the sediment – the sample preparation will require that a portion of the sample will be destroyed. All samples are sediment samples. The samples to be covered under this permit were extracted from Pinnacle Point Site 5-6 (PP5-6) during excavations in 2017 and 2016 and covered under permit 2492 Case Number 14021203TS0225M issued to Dr. C. Marean and Dr. T. Matthews. A final report was submitted and accepted for those excavations. We are now in the analysis phase of those excavations, and key part of that analysis phase is the establishment of a robust chronology. This permit application is to conduct OSL dating to help us reach that goal.

Our project (SACP4 - South African Coast Paleoclimate, Paleoenvironment, Paleoecology, Paleoanthropology Project) is a long term project involving a wide range of South African and international scientists. Our goal is to develop a high resolution and continuous record of change in climate and environment over the last 400,000 years, and use that to help us understand changing patterns of human adaptation and evolution over the time span of the origins of modern humans.

**Methodology (short):**

We collected our samples by driving a plastic tube (~1 cm in diameter, 20 cm long) into the cleaned section wall or using a cordless drill to loosen the samples (where necessary) and collecting the samples with a spoon at night using a red-filtered flashlight to ensure that sediments were collected from a single sub-aggregate. A sub-sample was also collected from the back of each hole for current soil moisture content measurements and for laboratory-based radioactivity measurements. All technical details for OSL dating methods are comprehensively described in Smith et al. 2018.

The OSL dating will be conducted by Dr. Zenobia Jacobs, University of Wollongong, School of Environmental and Earth Sciences, Northfields Avenue, NSW 2522, Australia. Dr. Jacobs has been a member of this project (SACP4) since it inception. All previous OSL dating has been conducted by Dr. Zenobia Jacobs. Dr. Jacobs collected these samples, and measured the dosimetry on site. Also, by keeping all the procedures and equipment the same we lower the systematic error in the production of the dates. For these reasons, Dr. Jacobs will continue to conduct the OSL dating.

Dr. Zenobia Jacobs, University of Wollongong, School of Environmental and Earth Sciences, Northfields Avenue, NSW 2522, Australia

**Confirmation/permit by museum (**Attached?):

Since these are sediment samples they would not be curated at a museum. But we have attained a permit from Heritage Western Cape, which was attached to our permit application in SAHRIS and I attach again here.

**Damage/destructive analysis? (if yes, explain in detail)**

During the process the sediments are prepared in acid and then exposed to light in the OSL reader. This then renders them useless for further analysis.

**Statement why this study cannot be done in South Africa:**

The OSL dating will be conducted by Dr. Zenobia Jacobs, University of Wollongong, School of Environmental and Earth Sciences, Northfields Avenue, NSW 2522, Australia. Dr. Jacobs has been a member of this project (SACP4) since its inception. All previous OSL dating has been conducted by Dr. Zenobia Jacobs. Dr. Jacobs collected these samples, and measured the dosimetry on site. Also, by keeping all the procedures and equipment the same we lower the systematic error in the production of the dates. For these reasons, Dr. Jacobs will continue to conduct the OSL dating. She will also build the results of these new dates into our recently published age model for the site (Smith et al. 2018).

Eugene I Smith, Zenobia Jacobs, Racheal Johnsen, Minghua Ren, Erich C Fisher, Simen Oestmo, Jayne Wilkins, Jacob A Harris, Panagiotis Karkanas, Shelby Fitch, Amber Ciravolo, Deborah Keenan, Naomi Cleghorn, Christine S Lane, Thalassa Matthews, Curtis W Marean.

(2018). Humans thrived in South Africa through the Toba eruption about 74,000 years ago. Nature. doi:10.1038/nature25967