

# Centre for Coastal Palaeoscience

The relevance of palaeoscience  
along the southern Cape coast:  
**Point of Human Origins**



by Maggie Newman

# Evidence of human cognition?

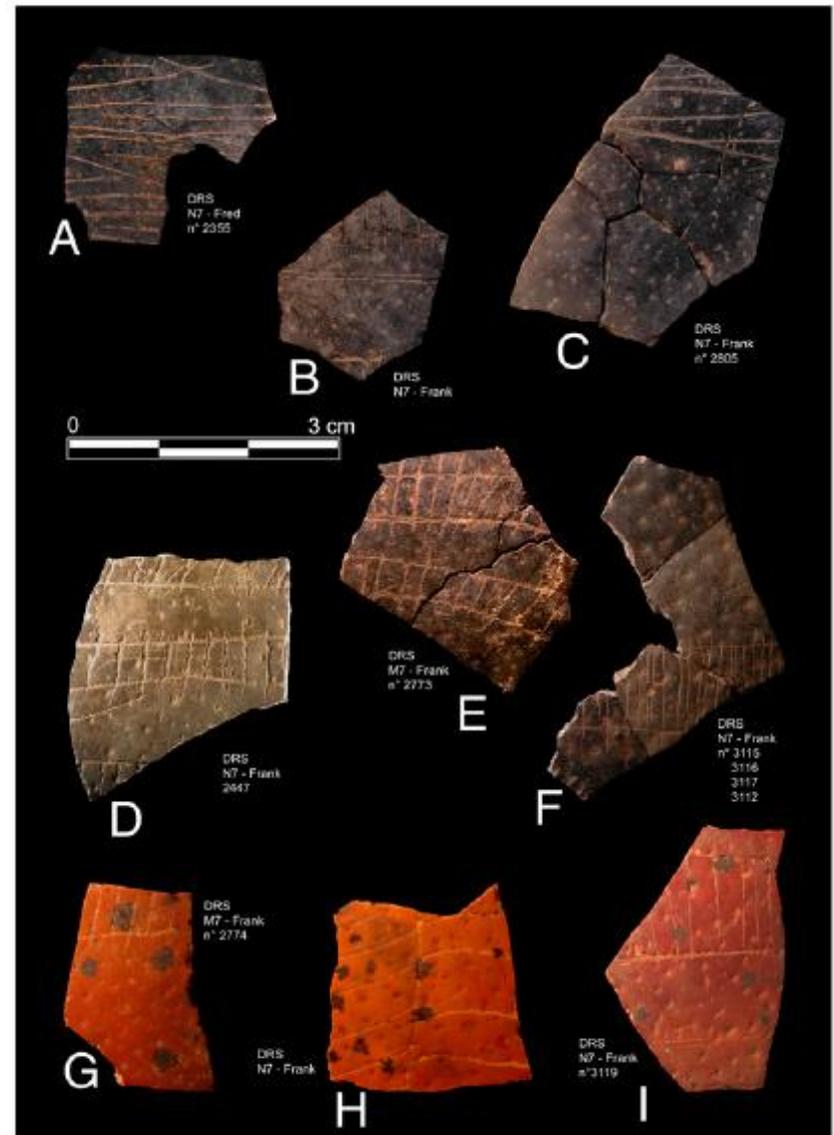
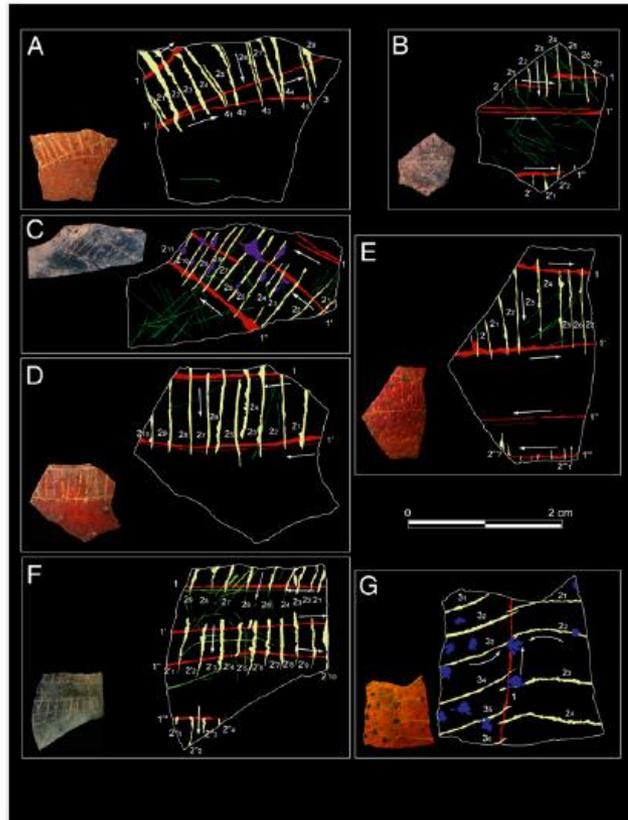


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# Decorated Ostrich Eggshell Egg Containers at: 65,000 years ago



From: Pierre Jean Texier, Guillaume Porraz, John Parkington, Jean Philippe Rigaud, Cedric Poggenpoel, Christopher Miller, Chantal Tribolo, Caroline Cartwright, Aude Coudenneau, Richard Klein, Teresa Steele, and Christine Verna. A Howiesons Poort tradition of engraving ostrich eggshell containers dated to 60,000 years ago at Diepkloof Rock Shelter, South Africa. *PNAS* 107 (14):6180-6185, 2010.



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# Engraved Ochre at Various Sites ~ 70-60 ka

Blombos Cave

Klein Kliphuis Cave

5mm

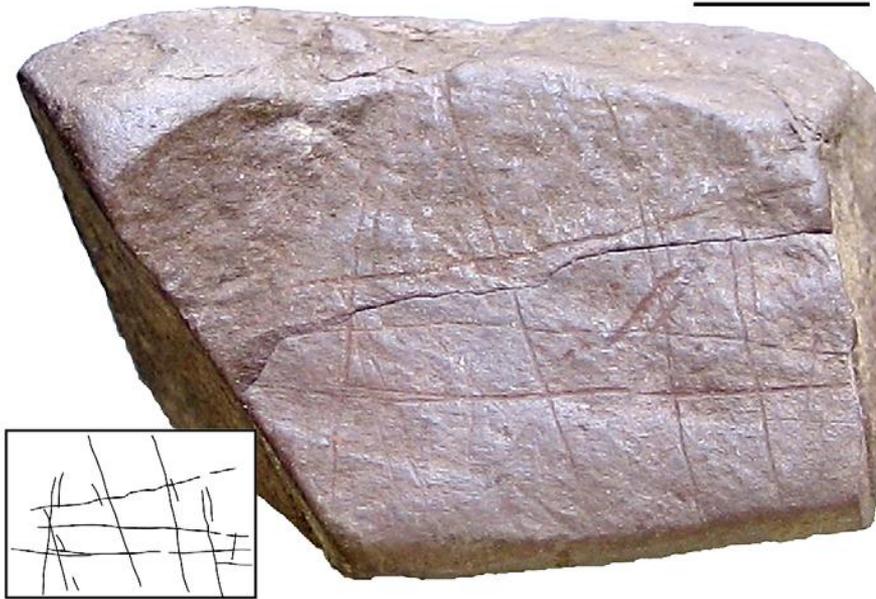


Fig. 5. The scored face of the ochre.

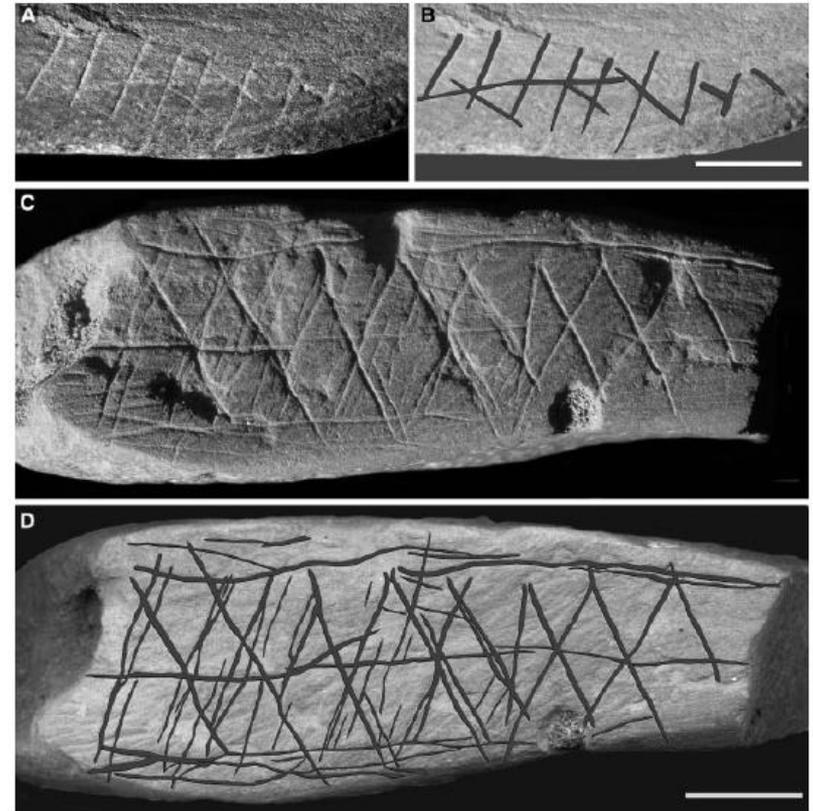


Fig. 2. Engraved ochres from Blombos Cave. (A) SAM-AA 8937 is a flat piece of shale-like ochre that grades into silt on the reverse side: weight = 39.2 g; maximum length = 53.6 mm; breadth = 42.6 mm; depth = 11.7 mm; streak color notation 3060 Y65R (33). (B) Tracing of lines verified as engraved by study under magnification (scale bar, 5 mm). (C) SAM-AA 8938 is a rectangular slab of ochreous shale: weight = 116.6 g; maximum length = 75.8 mm; breadth = 34.8 mm; depth = 24.7 mm; streak color notation 4050 Y60R (30). Oblique lighting of specimen accentuates both engraved lines and irregularities of the surface, some created by grinding before the engraving and others by the process of engraving. (D) Tracing of lines verified as engraved by study under magnification, superimposed on flat-bed scan of engraved surface (scale bar, 10 mm).



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# Shell Beads 80-70 ka in North and South Africa



Fig. 3. Five aspects of the *N. gibbosulus* shells (nos. 1–13) from the Middle Paleolithic layers of the Grotte des Pigeons, Morocco, and a modern specimen (no. 14) of the same species from Djerba, Tunisia. Contextual and analytical data are provided in Table 1.

Grottes des Pigeons



Fig. 1. Perforated *N. kraussianus* beads from the Middle Stone Age of Blombos Cave. Scale bars, 5 mm.

Blombos Cave



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# A 100,000-Year-Old Ochre-Processing Workshop at Blombos Cave, South Africa

Christopher S. Henshilwood,<sup>1,2\*</sup> Francesco d'Errico,<sup>3,1</sup> Karen L. van Niekerk,<sup>1</sup> Yvan Coquinot,<sup>4</sup> Zenobia Jacobs,<sup>5</sup> Stein-Erik Lauritzen,<sup>6</sup> Michel Menu,<sup>4</sup> Renata García-Moreno<sup>3</sup>

www.sciencemag.org SCIENCE VOL 334 14 OCTOBER 2011

## Ochre and the Sea Come Together



**Fig. 1.** Ochre-processing toolkits in situ showing Tk1 (A) and Tk2 (B). [Images: G. Moëll Pedersen]



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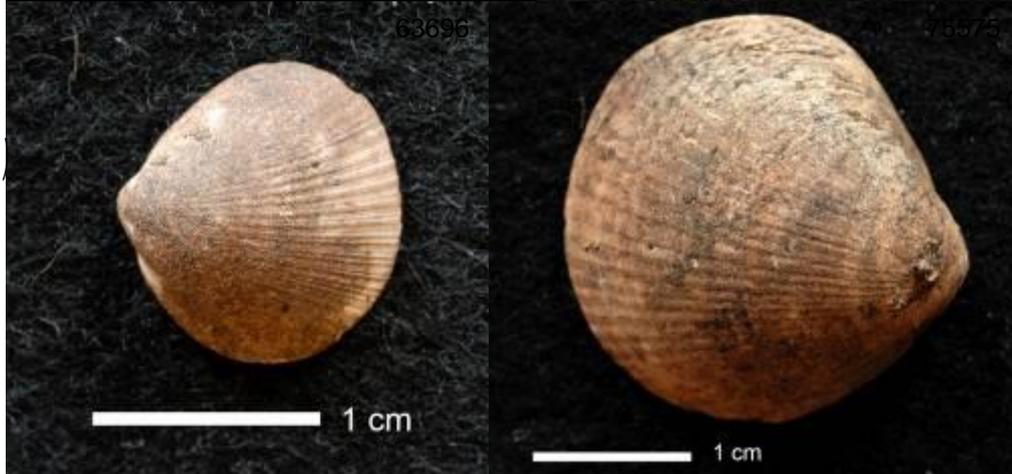
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# Symbolic Behavior in “Sea-Shell” Collecting ~ 110,000 years ago

*Phalium  
labiatum*,  
(Helmet  
Shell)



*Glycymeris  
connollyi*  
(Dog Cockerl)





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~ 165,000 years ago LETTERS

## Early human use of marine resources and pigment in South Africa during the Middle Pleistocene

Curtis W. Marean<sup>1</sup>, Miryam Bar-Matthews<sup>3</sup>, Jocelyn Bernatchez<sup>2</sup>, Erich Fisher<sup>4</sup>, Paul Goldberg<sup>5</sup>, Andy I. R. Herries<sup>6</sup>, Zenobia Jacobs<sup>7</sup>, Antonieta Jerardino<sup>8</sup>, Panagiotis Karkanas<sup>9</sup>, Tom Minichillo<sup>10</sup>, Peter J. Nilssen<sup>11</sup>, Erin Thompson<sup>1</sup>, Ian Watts<sup>12</sup> & Hope M. Williams<sup>2</sup>



Alikreukal  
(*Turbo sarmaticus*)



Whale Barnacle  
Indicates  
Scavenging of Whale  
Skin and Blubber



Brown mussel  
(*Perna perna*)



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by Maggie Newman

# Fire As an Engineering Tool of Early Modern Humans

Kyle S. Brown,<sup>1,2</sup> Curtis W. Marean,<sup>2</sup> Andy I. R. Herries,<sup>3,4</sup> Zenobia Jacobs,<sup>5</sup> Chantal Tribolo,<sup>6</sup> David Braun,<sup>1</sup> David L. Roberts,<sup>7</sup> Michael C. Meyer,<sup>5</sup> Jocelyn Bernatchez<sup>2</sup>



162,000 Years Ago

# “Earliest evidence” list from the southern Cape coast

YBP	Activity
165,000	Earliest use of marine resources
162,000	Earliest evidence of heat-treatment of stone tools
110,000	Earliest evidence of shell collecting
100,000	Earliest evidence for ochre processing (toolkit)
75,000	Earliest evidence of shell decorations (necklaces)
65,000	Earliest evidence of art



# Appearance of Use of Differing Inter-Tidal Zones

Age ka	Upper Balanoid Low neap tide	Lower Balanoid Low spring tide	Cochlear Very Low spring tide
70-50	Klasies PP5-6 Klasies Blombos	Klasies Klasies Blombos	Klasies Klasies
90-70	Klasies Blombos PP5-6 Klasies Blombos	Klasies Blombos Blombos	Blombos Blombos
120-90	Klasies PP13B PP9 PP13B PP9	Klasies	
125-120	PP13B PP9 PP9		
170-160	PP13B <b>GO</b>	<b>CAUTION</b>	<b>DANGER</b>

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125-120	PP13B PP9 PP9		
170-160	PP13B <b>GO</b>	<b>CAUTION</b>	<b>DANGER</b>



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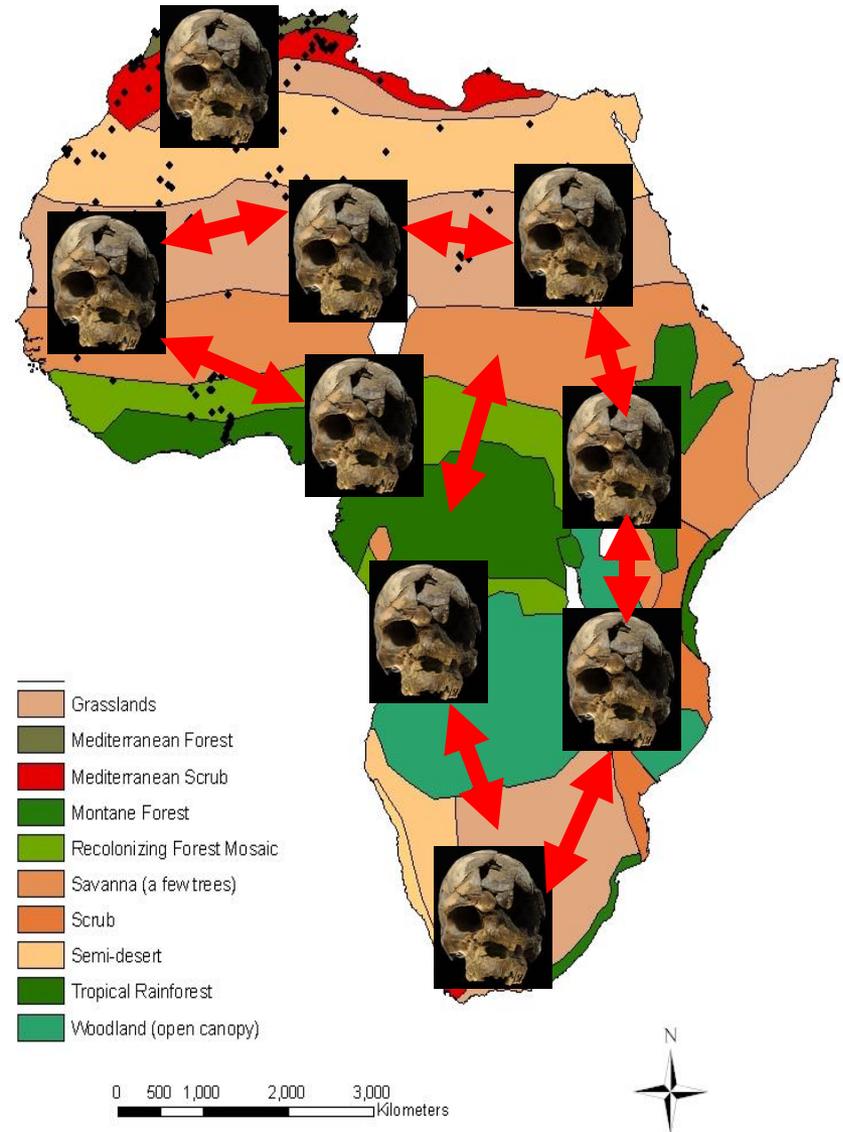
Where did this occur? (Why here?)



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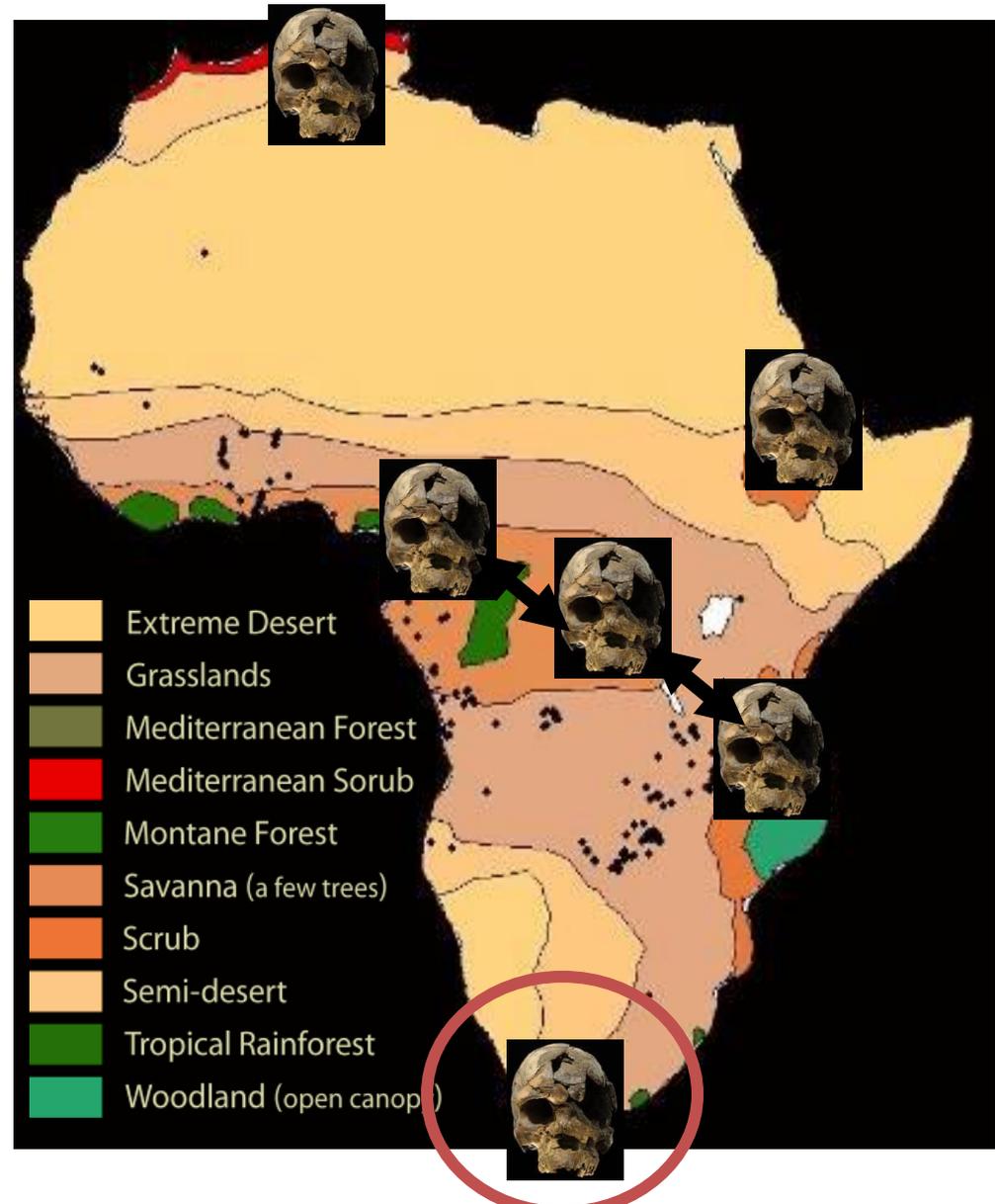
# Inter-Glacial Africa 230-195 ka

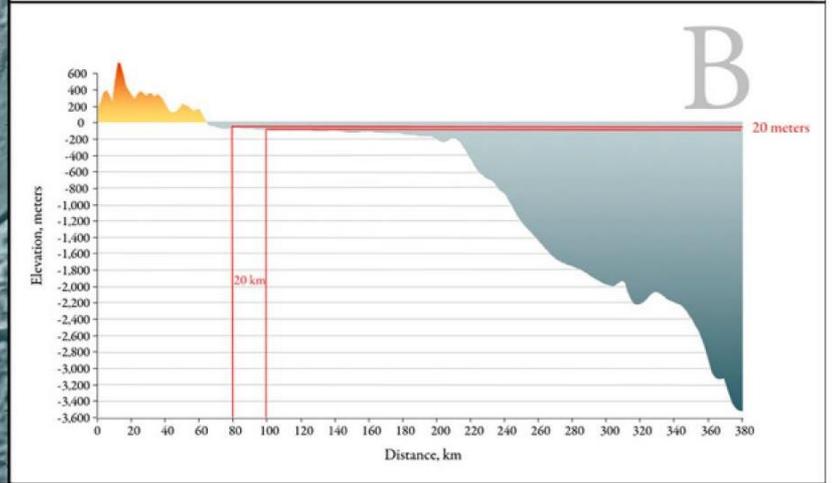
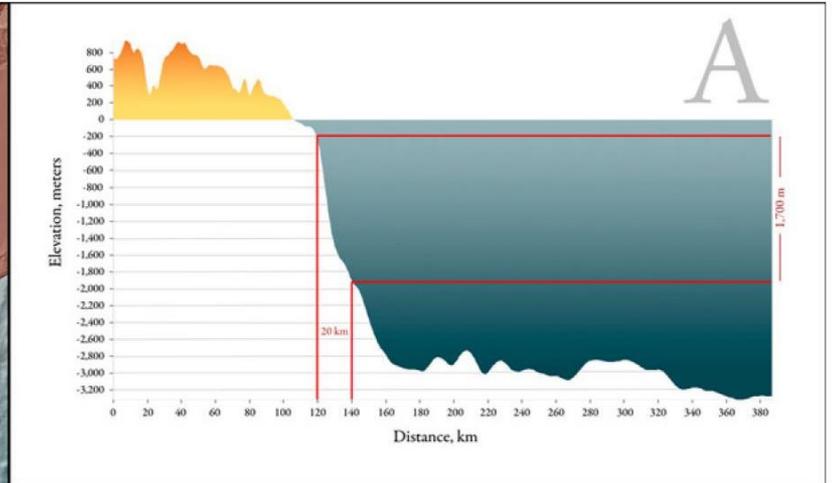
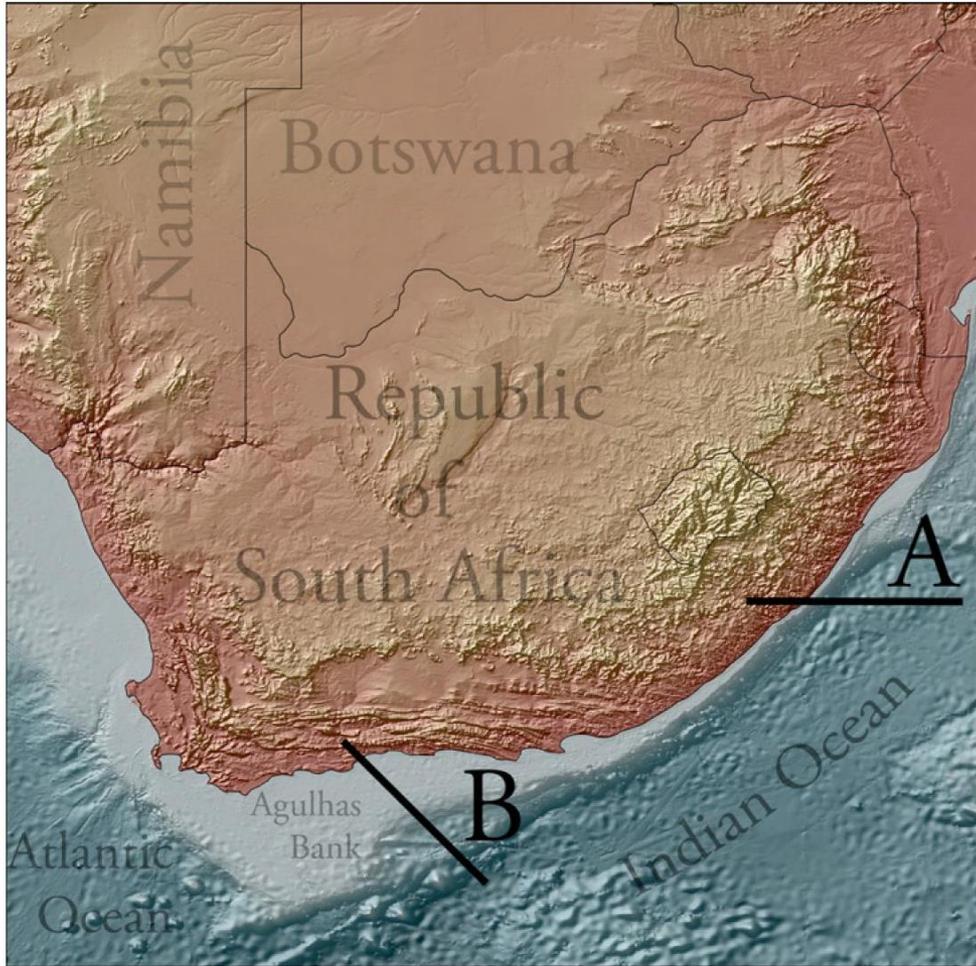
- Continent is warm and wet
- Well vegetated
- Few natural boundaries
- Populated by a pan-African near or fully *Homo sapiens* = Herto and Omo
- Gene flow widespread

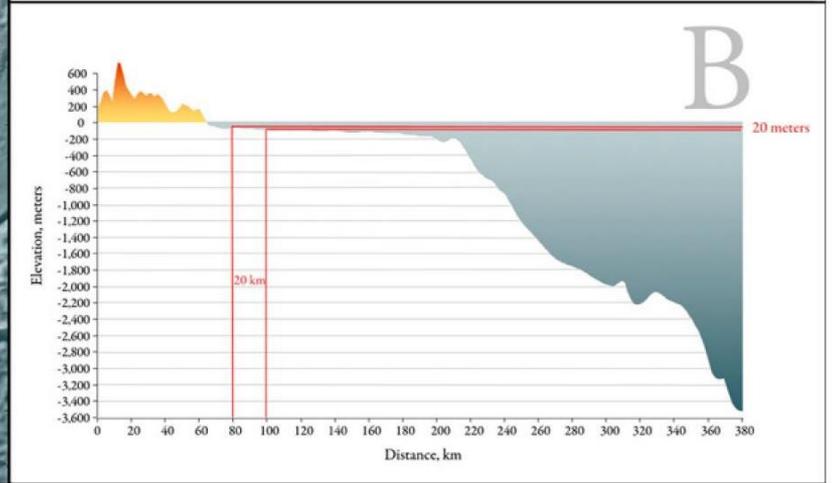
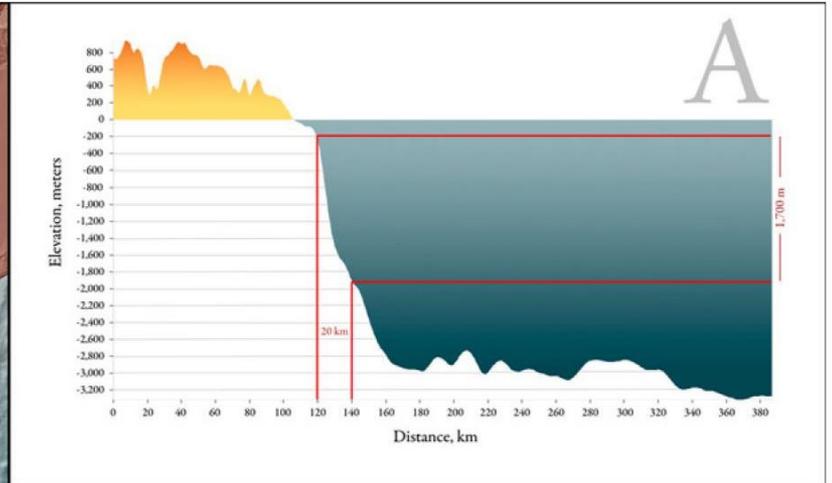
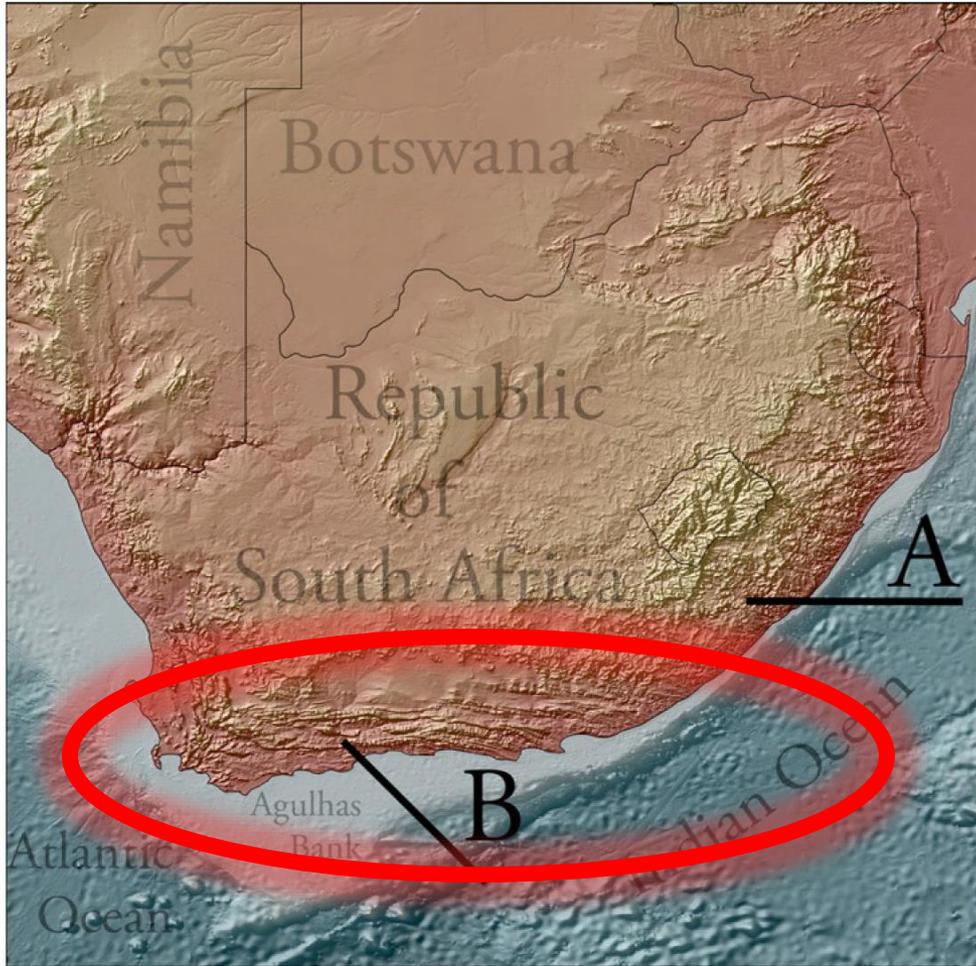


# Glacial Africa 195 - 123 ka

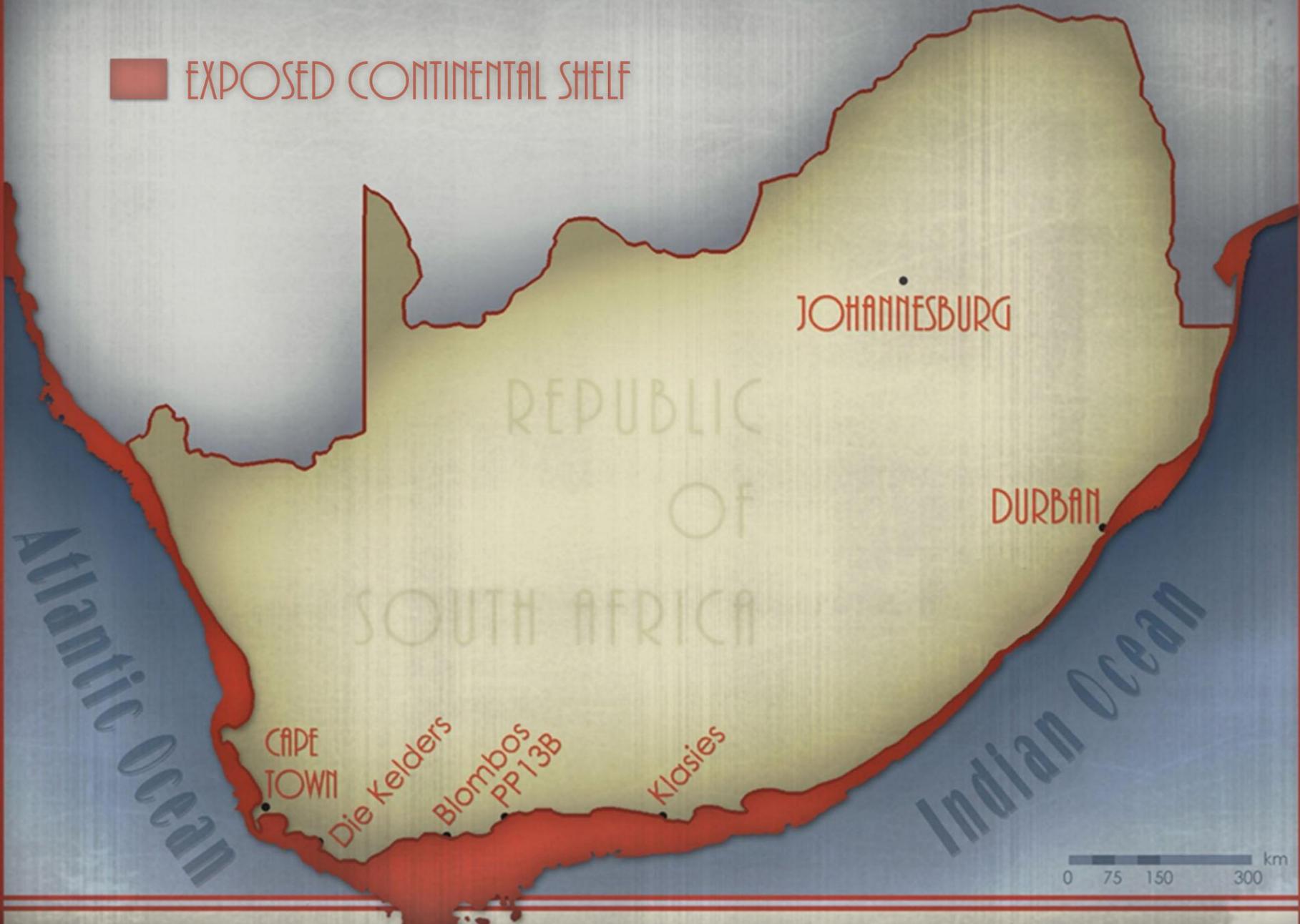
- Continent is cool and dry
- Poorly vegetated, widespread deserts
- Many natural boundaries
- Gene flow is cut
- Lineages diverge
- 4 – 6 potential progenitor lineages

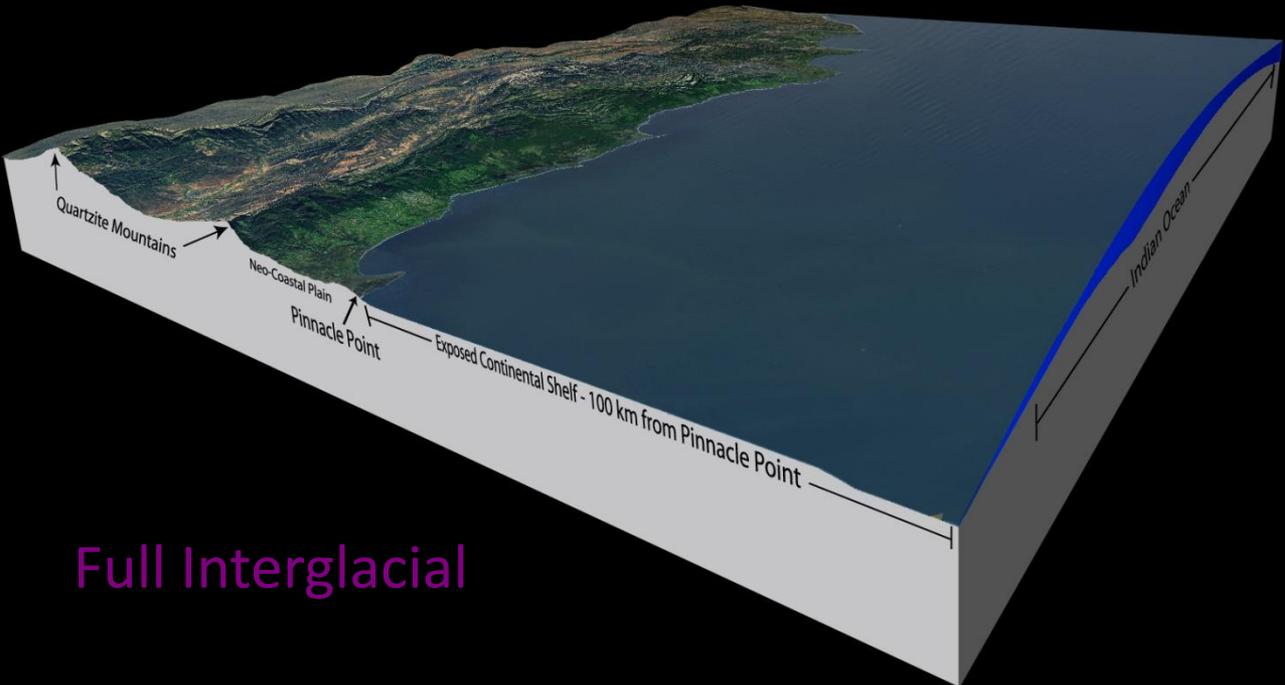




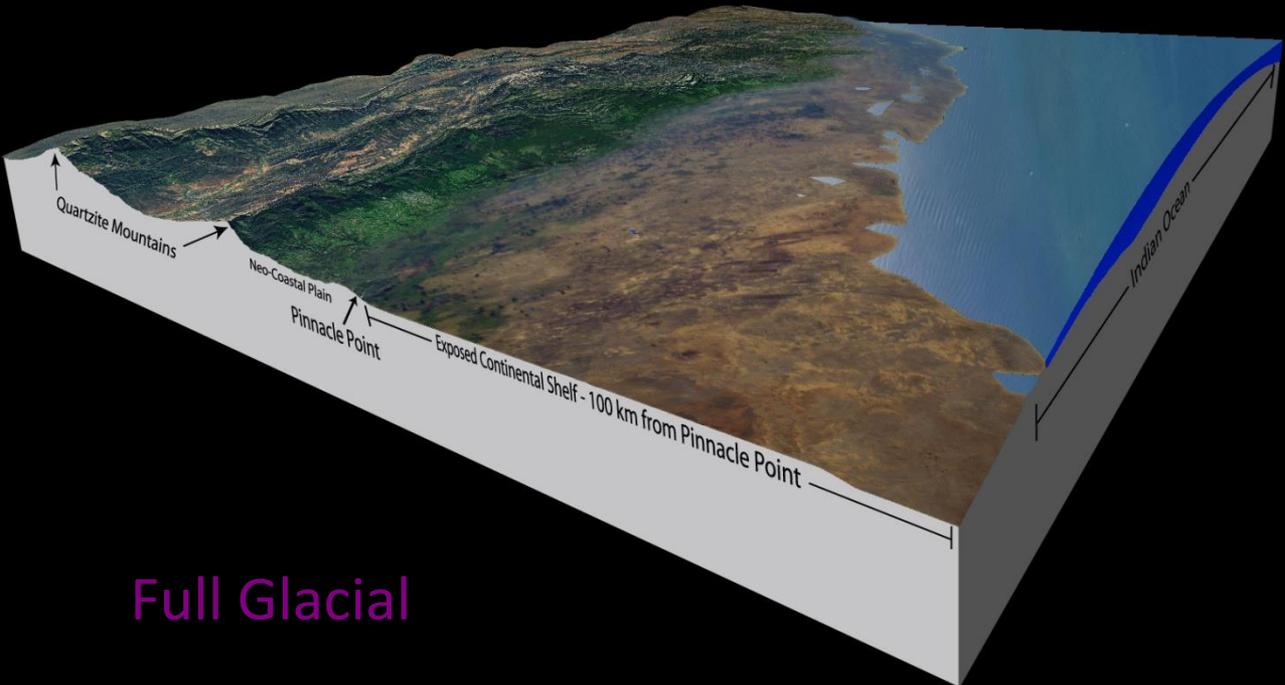


■ EXPOSED CONTINENTAL SHELF

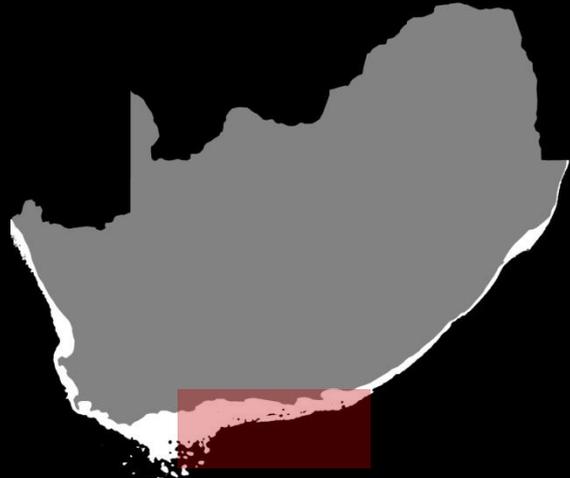




Full Interglacial



Full Glacial

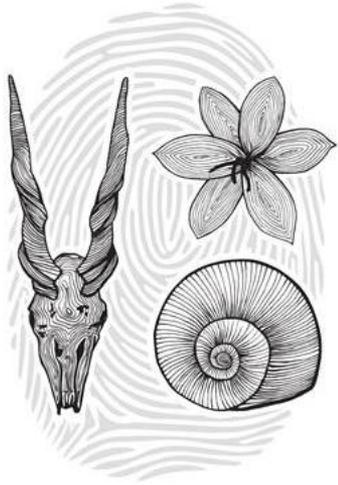




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# The major aims of the CCP:

- To reconstruct the environment of the Palaeo-Agulhas Plain
  - Palaeoclimate modelling (with the CSIR)
  - Vegetation modelling
  - Palaeoclimate reconstruction from palaeoarchives
- To contextualise the landscape of the archaeological record



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