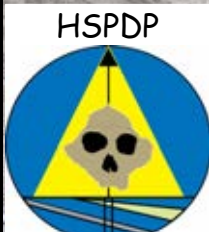


The Hominin Sites And Paleolakes Drilling Project: Project Status And Potential Synergies with GeoPRISMS EAR

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African Rift Lake Deposits: High Resolution

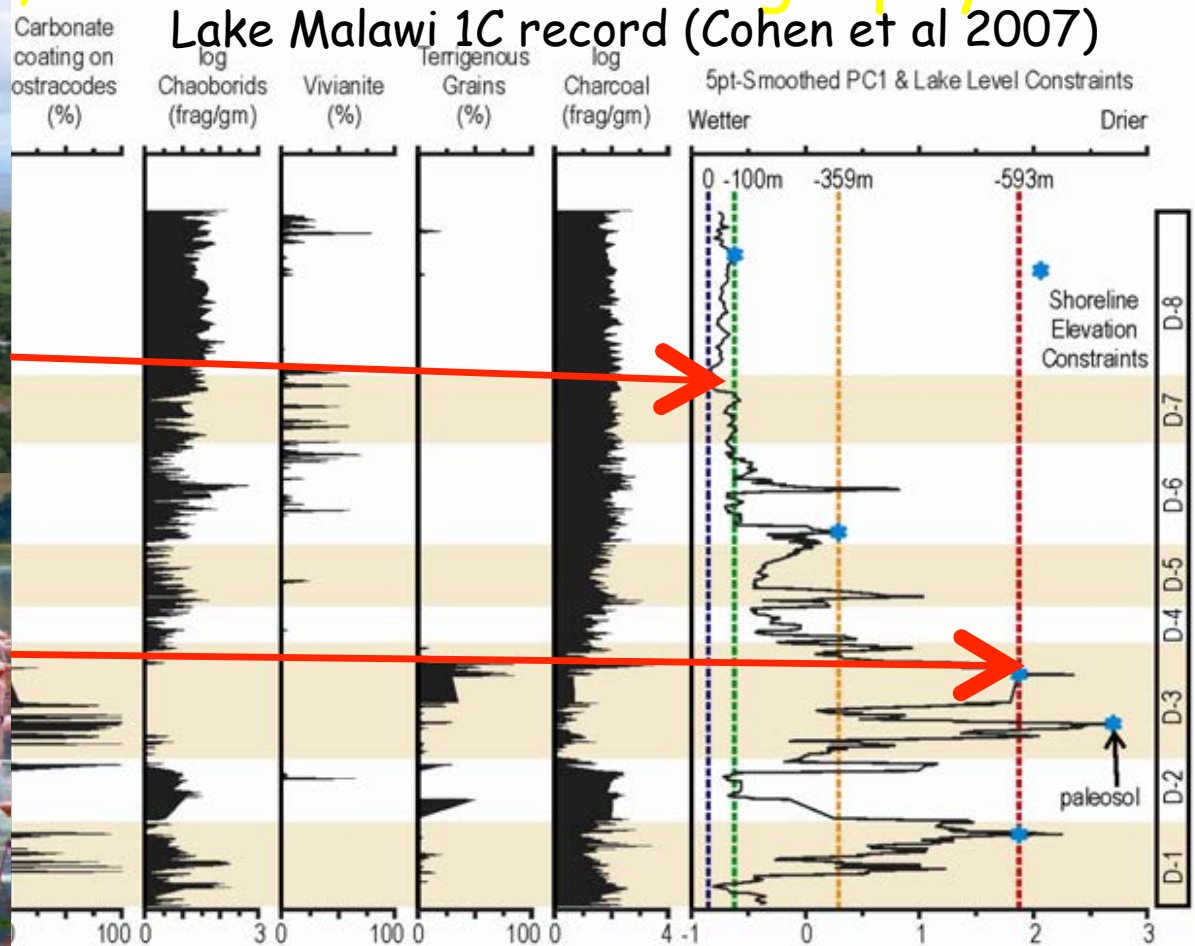
Archives of Environmental History

- Climate
- Tectonics
- Volcanism
- Landscape Change
- All have potential and testable implications for human evolution, extinction and demography

“Modern” Deep Lake

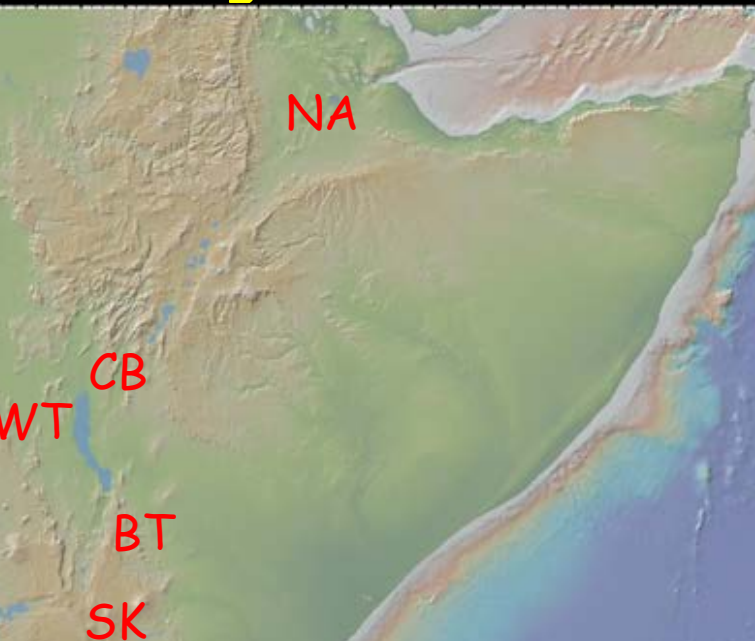


Megadrought
Shallow Lake

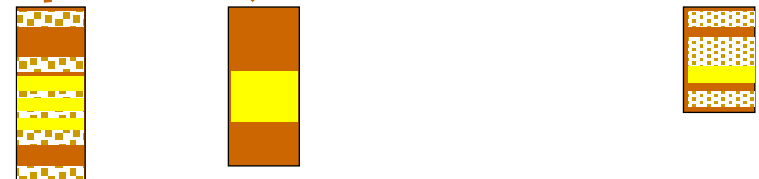
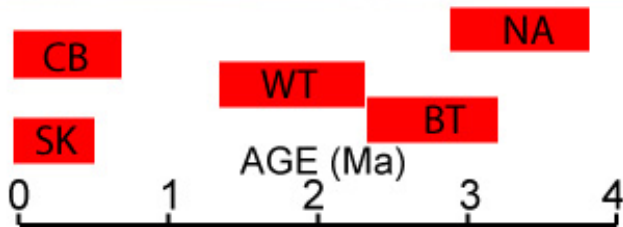
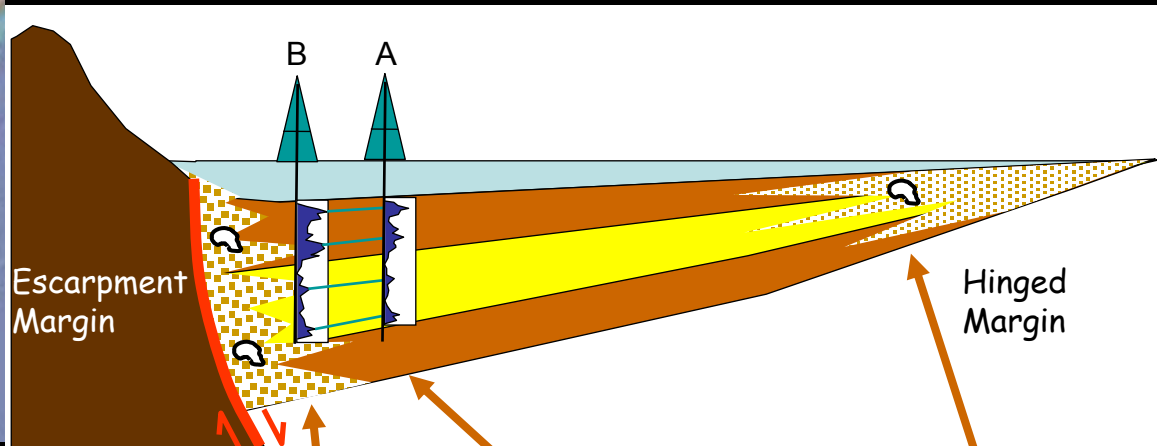


HSPDP Plans 2013-2014

- Sites selected based on existing outcrop and geophysics to maximize temporal resolution and address evolutionary questions
- Five drilling areas spanning late Tertiary/Quaternary lakes and paleoanthropology questions. 41 scientists/ 8 countries.
- Drilling: June 2013-March 2014



Typical Rift Half Graben Lake Deposystem



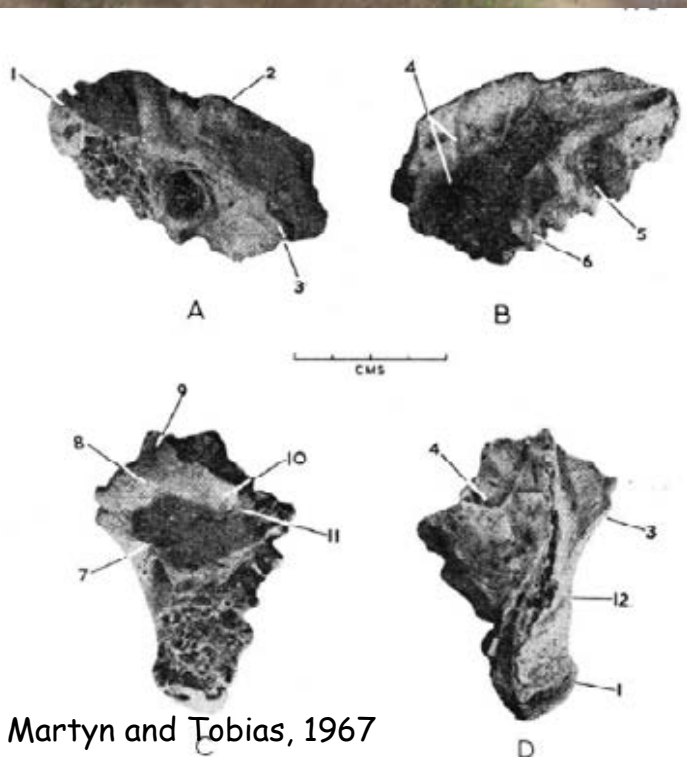
Northern Awash Area, Ethiopia (3.8-2.9Ma)

- Awash R. Valley: The richest area for Middle Pliocene hominin fossils in the world.
- e.g. Lucy, First Family, Dikika baby
- Earliest stone tools known at Gona (2.6Ma)



Tugen Hills Area, Kenya ~3.2-2.3 Ma

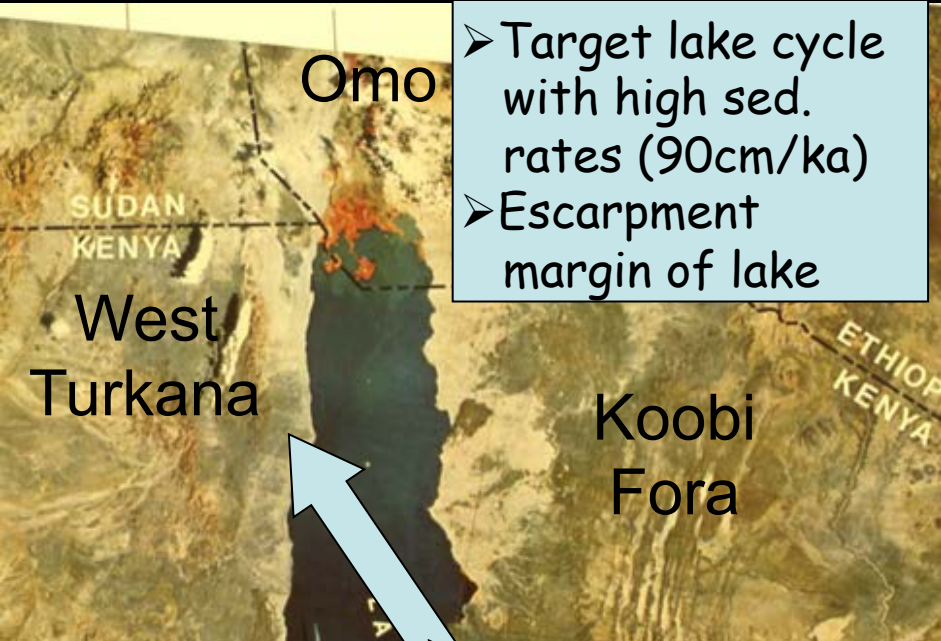
- Some of the earliest known fossil *Homo* (~2.3 Ma)
- Rich fossil fauna



Martyn and Tobias, 1967



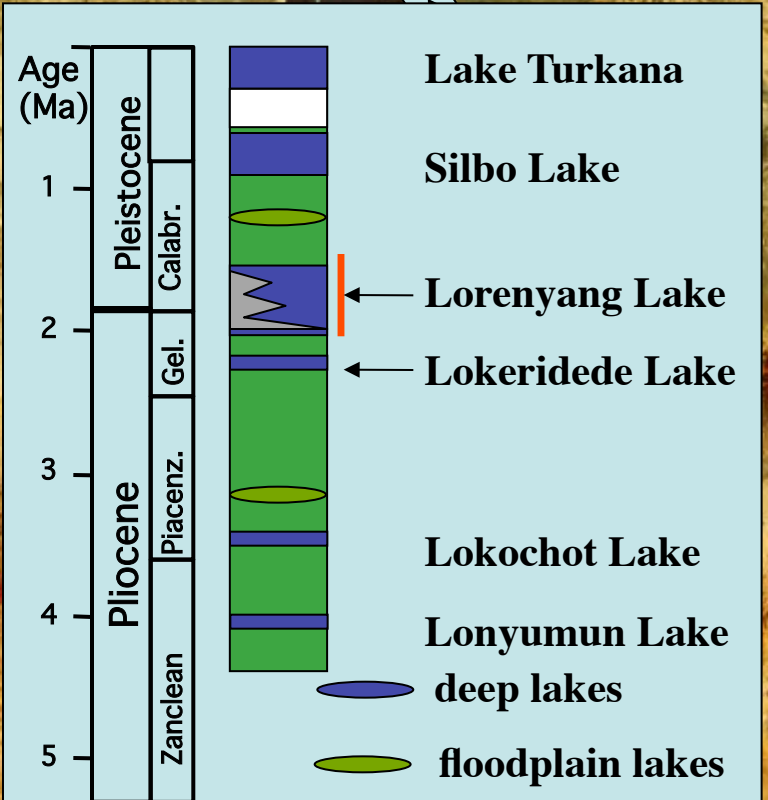
Photo: A. Cohen



- Target lake cycle with high sed. rates (90cm/ka)
- Escarpment margin of lake

West Turkana Area, Kenya (2.3-1.4 Ma)

- Hominin Record:
- >500 specimens (early *Homo*, *P. boisei*)
 - ca. 100 archaeological sites including earliest Acheulean
 - Associated fauna



Escarpment Margin
Proposed Drilling
Area

Southern Kenya Area (L. Magadi) (0.7-0Ma)



- Deepest part of Eastern Rift (~4km sed)
- Proximity to Ologesailie & other hominin sites
- Prior drilling/coring

Chew Bahir Area, Ethiopia (~0.7-0.0 Ma)



- Earliest *H. sapiens* (~200ka) nearby
- Sits on major biogeographic boundary for large mammals
- Pilot drilling in 2009 and 2010



Synergies with GeoPRISMS?

-in addition to paleoclimate/paleoecological records (many involved)

- **Basin Tectonics, Watershed Reconfiguration and paleogeomorphology-Cosmogenic Isotopes and Low T detrital thermochronology (Arrowsmith, Strecker)**
- **Seismite Records/Earthquake recurrence (Boës)**
- **Landscape Modeling (Pelletier)**
- **Global and nested regional climate modeling/Climate-Tectonic Feedbacks (Russell, Yin, Stouffer, Shevliakova)**