Breakout discussion: Core Paleoecology

What kind of proxies are used at which site?

- pollen, diatoms, phytoliths, ostracods
- other possibilities – cladocera?
- Preservation variable across sites, focus shifting from whole core analysis to specific windows
- Which time windows to prioritise for analysis / multi-proxy synthesis?
  - need to know context for particular zones to prioritise for project aims

Aquatic v terrestrial indicators

- landscape/vegetation evolution (phytoliths/pollen)
- in-lake processes (diatoms / ostracods)
- transfer functions – are they appropriate?

Communication to those working outside palaeoecology important – limitations of interpretation for individual proxies, taphonomic processes etc.

Preservation throughout the record

- implications for identified time windows (e.g younger sites comparison < 100ka, 150ka-250ka, 300-400ka)
- static sample interval
- multi-site correlation (potential identical time windows)
- comparison of functional groups over time?

Phytolith / pollen taphonomy different, overlap would be ideal but won´t be common in HSPDP cores. Phytolith records from lakes tend to be derived from vegetation close to lake shore. If core site close to hominin site, good local record of vegetation. Landscape interpretation may be less strong. Phytoliths created inside plant tissues, differences in production and therefore concentration. Most prolific in monocots (grasses, sedges, palms), least represented in woody shrubs and trees. Arid adapted shrubs and trees have limited phytolith production.

Phytolith record is site specific, pollen record generally represents basin / regional record. Magadi record may hold best potential for comparison between pollen and phytoliths.

High resolution windows where more than one proxy preserved will be crucial for strengthening interpretations of geochemical / lithological record where palaeoecological information is absent.

Multiple interpretations for lack of preservation of palaeoecological proxies.

Harmonisation of taxonomy

- forum – exchange images, agree on names
- Create an archive on HSPDP website, also TMI image database
- Set up general site on Open Science Framework for cross-site comparisons
- Bank of example images for eastern Africa
- African pollen database images no longer online. Follow up with Anne Marie Lezine
- Delta – framework for adding taxonomic information, descriptions etc.

Data integration

- Are lithological changes reflected in the palaeoecological record?
- Possibility to use PCA to identify relationship between facies and palaeoecology.
- Remember PSICAT files are work in progress. Updates to lithologies need to be uploaded to OSF.
- Need to integrate seismic data into interpretations
- How can we represent habitat / landscape diversity? How does this link to lithology?
- Need to integrate isotope signals (e.g. evidence for C3/C4 changes). Complexity of signal – (e.g. C3 aquatic grasses – difficult to distinguish).
- What kind of vegetation information is meaningful for palaeoanthropology questions? Individual taxa information important. Plant function types probably more important for modelling.