



Green Arabia Drilling Workshop

Interdisciplinary research on Quaternary climate and environmental changes and their effects on human dispersals based on sediment cores from the Jubbah palaeolake basin (Saudi Arabia)

Organized by Florian Ott and Michael Petraglia

Max Planck Institute for the Science of Human History, Jena Germany

31 August – 01 September 2017

Format: Speakers are asked to keep talks to their specified times. The first workshop day, Thursday (August 31), is open. The maximum number of attendees is limited to 60 people. Interested people are requested to register no later than 25.08.17 via: ott@shh.mpg.de

Despite widespread evidence of expanding and shrinking lakes during humid and (hyper-) arid climate periods, respectively, on the Arabian peninsula, little is known about their potential to record past environmental and climatic changes. Arabia is furthermore a key region for human migration out of Africa and ideally located to better understand climatic impacts on prehistoric societies. One of the largest mapped palaeolakes on the Arabian Peninsula is the Jubbah basin, located in the southern Nefud Desert. Its rich archaeological history was the key for the successful inscription on the UNESCO World Heritage List and further demonstrates its importance as a stable multi-millennial long human habitat amidst the desert. In 2016 and 2017, within the frame of the Green Arabia Drilling Project, several sediment cores have been obtained from the Jubbah palaeolake basin. The overall objective is to investigate those sediment sequences and address questions about the role of natural forcing in influencing human dispersals. In this workshop we seek to examine the potential of the Jubbah sediment record and how state of the art research methods and protocols can be applied. The workshop will host leading scientists in such fields as chronological dating techniques, sedimentology, geochemistry, palaeoecology, mapping, archaeology and archaeogenetics.



Thursday, 31 August

8:00-8:30 Arrival and coffee at MPI SHH
Name badge pick up at front desk (main entrance)

Welcome and Background to the Drilling Project

8:30-8:45 Nicky Boivin (MPI SHH) The Department of Archaeology and Questions about the Anthropocene

8:45-9:00 Michael Petraglia (MPI SHH): The Palaeodeserts project: Climate change and human evolution

9:00-9:15 Achim Brauer (GFZ Potsdam): High-resolution climate and environment reconstruction from lake sediments

9:15-9:30 Chris Stringer (NHM London): Human evolution and the Middle East/Africa region

9:30-09:45 Abdullah Alsharekh (KSU, SCTH representative): The Green Arabia Project within the map of archaeological research projects under the umbrella of the SCTH, Saudi Arabia.

9:45-10:15 Discussion:
Chair: John Lowe

- What do we know about the environmental/climate history of the Arabian peninsula?
- What are the key human demographic milestones across the Pleistocene and Holocene?
- What is the potential of the drilling project?

Session 1: Jubbah (Palaeo)Lake drilling; lake sediments: current and novel approaches

Chair: Achim Brauer

10:15-10:25 Nicholas Drake (KCL): Mapping Arabia and the Jubbah palaeolake basin

10:25-10:35 Anders Noren (Continental Scientific Drilling Coordination Office and LacCore): Drilling Engineering for Coring the Jubbah Basin and Fundamental Core Analyses

10:35-10:50 Florian Ott (MPI SHH): The Green Arabia Drilling: Overview and state of the art

10:50-11:00 Discussion/Questions from the audience



- 11:00-11:30 Coffee break (library) and Sediment core display (V 03)
Chair: Florian Ott
- 11:30-11:40 Frank Schäbitz (U Cologne): PASADO-pollen and HSPDP-sediments: hints for paleoclimatic reconstructions during Quaternary time scales
- 11:40-11:50 Michèle Dinies (DAI): Palynology in Arabia: Holocene vegetation, land use and an age-depth model based on ¹⁴C-dated pollen concentrates at Tayma
- 11:50-12:00 Svante Pääbo/Matthias Meyer (MPI EVA): aDNA
- 12:00-12:10 Discussion/Questions from the audience
- 12:10-13:30 Catered lunch at the Institute
- Session 2: Dating and Geochemistry**
Chair: Dustin White
- 13:30-13:40 Norbert Nowaczyk (GFZ Potsdam): Chrono-Magnetostratigraphy (Paleomagnetic dating of sediments)
- 13:40-13:50 Simon Blockley (RHL): Tephrochronology and the potential for dating and correlation in the Levant and Arabia
- 13:50-14:00 Simon Armitage (RHL): Optically stimulated luminescence dating of the Jubbah core
- 14:00-14:10 Patrick Roberts (MPI SHH): On-site records of human palaeoenvironments in Saudi Arabia
- 14:10-14:20 Jana Zech (MPI SHH): Isotope laboratory at MPI SHH
- 14:20-14:30 Discussion/Questions from the audience
- Chair: Patrick Roberts
- 14:30-14:40 Gerald Haug (MPI-C): Climate and Societies
- 14:40-14:50 Dirk Sachse (GFZ Potsdam): Sedimentary biomarkers and their stable isotope composition as molecular rain gauges
- 14:50-15:00 Gerd Gleixner (MPI BGC): Reading past information using isotopes and biomarkers
- 15:00-15:10 Alfredo Martinez-Garcia (MPI-C): Organic Isotope Geochemistry
- 15:10-15:20 Discussion/Questions from the audience
- 15:20-15:40 Simon Blockley (RHL): The Leverhulme grant (Unravelling the pattern, impacts and drivers of early modern human dispersals from Africa)
- 15:40-16:00 Coffee break



16:00-17:00

Wider Discussion:
Chair: Robin Dennell

- What do we know about and how good do we understand the effects of climate variability on human dispersals?
- What are the key time periods to study the relationship between demographic and environmental change?

