



## **The Holocene Geoarchaeology of the Desert Nile in Northern Sudan**

Jamie Woodward (1), Mark Macklin (2,3), Neal Spencer (4), Derek Welsby (4), Matthew Dalton (5), Sophie Hay (6), and Andrew Hardy (2)

(1) Geography (SEED), The University of Manchester, Manchester, United Kingdom (jamie.woodward@manchester.ac.uk), (2) Department of Geography and Earth Sciences, Aberystwyth University, Aberystwyth, United Kingdom (mvm@aber.ac.uk), (3) Innovative River Solutions, Institute of Agriculture and Environment, Massey University, Palmerston North, New Zealand, (4) Department of Ancient Egypt and Sudan, The British Museum, London, (5) McDonald Institute for Archaeological Research, University of Cambridge, Cambridge, United Kingdom (mnd27@cam.ac.uk), (6) British School at Rome, Rome, Italy (s.hay@bsrome.it)

### Invited Paper

Forty years ago Colin Renfrew declared that “every archaeological problem starts as a problem in geoarchaeology” (Renfrew, 1976 p. 2). With this assertion in mind, this paper draws upon the findings from field research in two sectors of the Nile Valley of Northern Sudan dedicated to the exploration of human-environment interactions during the middle and late Holocene. This part of the Nile corridor contains a rich cultural record and an exceptionally well preserved Holocene fluvial archive. A distinctive feature of these records is the variety of evidence for interaction between desert and river over a range of spatial and temporal scales. This interaction presented both challenges and opportunities for its ancient inhabitants.

This paper will present evidence for large-scale landscape changes driven by shifts in global climate. It will also show how we have integrated the archaeological and geological records in the Northern Dongola Reach and at Amara West – where long-term field projects led by archaeologists from the British Museum have recognised the importance of a sustained commitment to interdisciplinary research to achieve a fully integrated geoarchaeological approach across a range of scales. The former project is a large-scale landscape survey with multiple sites across an 80 km reach of the Nile whilst the latter has a strong focus on a single New Kingdom town site and changes in its environmental setting. By combining multiple archaeological and geological datasets – and pioneering the use of OSL dating and strontium isotope analysis in the Desert Nile – we have developed a new understanding of human responses to Holocene climate and landscape change in this region.

Renfrew, C. (1976) Archaeology and the earth sciences. In: D.A. Davidson and M.I. Shackley (eds) *Geoarchaeology: Earth Science and the Past*, Duckworth, London, 1-5.