

GEOARCHAEOLOGY 2009

University of Sheffield

Programme Details

Papers

Wednesday 15th April

14:00 Welcome

Session I: *Models in Geoarchaeology*

Session Chair: *John Wainwright*

14:10 *Keynote* – Michael Waters: “A geoarchaeological approach to the peopling of the Americas: Site context and formation at the Gault and Buttermilk Creek sites, Texas, USA”

14:50 Véronique De Laet, E. Paulissen, H. Vanhaverbeke, J. Poblome, M. Waelkens: “Impact of settlement strategies on site location from Hellenistic to Early Byzantine times (333 BC - Early 7th century AD), Case study on the territory of Sagalassos (SW Turkey)”

15:10 Ricardo Fernandes: “Assessing environmental attractiveness factors, within a historical context, for settlements in the Lasithi-Malia state during the Protopalatial period”

(15:30 – 16:00 *Tea Break*)

Session Chair: *Tony Wilkinson*

16:00 Hendrik Feiken, Theo van Asch, Rens van Beek: “CALEROS: an Erosion-deposition model for archaeological purposes, using PCRaster”

16:20 John B. Anderton, Robert J. Legg: “Using paleoshoreline mapping and site location modelling in the Northern Great Lakes: geoarchaeological approaches to prehistoric archaeological survey in the Pictured Rocks National Lakeshore”

16:40 Jaafar H. Abdulhusein: “Evaluation of archaeological survey by remote sensing GIS and field survey in part of Babylon Province - middle of Iraq”

17:00 – 19.00 Poster Session and Drinks Reception

Thursday 16th April

Session II: *Landscape and place*

Session Chair: *Mike Waters*

9:00 Antonia Arnoldus-Huyzendveld, Patrizia Gioia, Carlo Persiani: “Geoarchaeological investigations in the Torre Spaccata valley (Rome): interactions between natural environment and human frequentation from Aeneolithic to the Middle Ages, correlated to the recent activity of the Vulcano Laziale”

9:20 Andrea L. Balbo, E. Iriarte, Juan José Ibáñez: “Traces of human activity in the palaeosols, sediments and occupation surfaces of the Bouqaia Basin, western Syria”

9:40 Millena Frouin, Nick P. Branch, Rob Kemp, Frank M. Meddens, Colin McEwan, Katie Willis, Francisco Ferreira, Gabriel Ramon, Cirilo Vivanco Pomacanchari: “How did the Inca Empire (c. AD 1400 - 1532) meet the challenge of appropriating and modifying the Andean landscape to create the largest native state in the Americas?”

10:00 Simon Jusseret: “Socialising geoarchaeology. Insights from Bourdieu’s theory of practice applied to Neolithic and Bronze Age Crete”

(10:20 – 10:50 *Coffee Break*)

Session Chair: *Mark Bateman*

10:50 *Keynote* – Tony Wilkinson: “Theoretical perspectives on the role of human agency in Landscape Geoarchaeology”

Session III: *Perspectives on Scale*

11:30 A.R. Bicket, H.M. Rendell, F.S.J. Brown, A. Claridge, P. Rose: “Multi-proxy sea level reconstruction from the Laurentine Shore: human and environmental relationships on the southern distal end of the Tiber Delta, Castelporziano, Lazio, Italy”

11:50 Katherine E. Arrell, J. White: “The Middle Mekong Basin as a human landscape in prehistory: insights from new research”

12:10 Bert Duser, Gert Verstraeten, Koen D’Haen, Véronique De Laet, Elena Marinova, Marc Waelkens: “Holistic study of catchment response to human impact in a Mediterranean mountain ecosystem”

(12:30 – 13:30 *Lunch Break*)

Session IV: *Novel Techniques*

Session Chair: *Andy Howard*

13:30 Jane A. Entwistle, K.J.W. McCaffrey, P.W. Abrahams, R.A. Dodgshon: “3D visualisation: a role for terrestrial laser scanning in aiding the interpretation of soil geochemical data at archaeological sites”

13:50 Riccardo Klinger, B. Schütt, W. Schwanghart: “Geoarchaeology in the Steppe I: Landscape classification using Principal Component Analysis: Archaeological sites and their natural surrounding”

14:10 Henny Piezonka, M. Oczipka, B. Ahrens, J. Bemann: “Geoarchaeology in the Steppe II: locating, documenting and analysing the archaeological heritage of the Orkhon valley using new remote sensing techniques”

14:30 Carolin Wygasch, Frank Lehmkuhl: “Geoarchaeological investigations and sediment stratigraphy of floodplain sediments by using X-Ray measurements”

14:50 Lisa Mol, Heather A. Viles: “Inside the wall: untold stories of moisture and deterioration”

(15:10 – 15:40 *Afternoon Tea*)

Session V: *Human-Environment Interactions I*

Session Chair: *Jamie Woodward*

15:40 Liz Stafford, Chris Carey, Stuart Foreman, Martin Bates: “Londay Gateway: the geoarchaeological framework of the archaeological mitigation strategy”

16:00 Martin R. Bates and C. Richard Bates: “Geophysical surveying and the modelling of the early Holocene landscape in areas of deeply stratified alluvium: an example from Shell Haven, Essex, UK”

16:20 Vanessa M.A. Heyvaert, B. Ooghe, H.J.T. Weerts, C. Baeteman: “The role of human interference on the floodplain history of the rivers Karkheh and Karun, Lower Khuzestan, Iran. Integrating geological and historical data”

16:40 Ian A. Simpson, Nikos Kourampas, H. Nimal Perera, Siran U. Deraniyala: “Geoarchaeology of late Pleistocene Rock Shelters in south-western Sri Lanka”

17:00 John Gunn, Tatjana Kytmanow, Emmanuel Mens: “Pedestal rocks & early human settlement in the Cavan Burren”

(17:20 Session finishes before Public Lecture)

18:00 LR Moore 2009/Public Lecture by Iain Stewart: “Seismic Faults and Sacred Sanctuaries - cultural responses to earthquakes in Antiquity” (Richard Roberts Auditorium, Western Bank)

20:00 Conference Dinner – Baan Thai Restaurant, London Road. Guides will be available to lead the way from the LR Moore lecture.

Friday 17th April

Session VI: *The Interface between Academic and Applied Geoarchaeology*

Session Chair: *Gianna Ayala*

9:00 Heather Adams, Ralph M. Fyfe, Dan Charman: “Sustainable management of the palaeoecological resource in Exmoor’s valley and spring mires”

9:20 Steve Boreham, Julie Boreham, Christopher J. Rolfe: “Unlocking the preservation potential of archaeological sediments: Three case studies from English wetlands”

9:40 Andy J. Howard, Henry Chapman, Ben R. Gearey, Emma Hopla, Kristina Krawiec: “Maximizing the potential of geoarchaeological research: can PPG 16 funding deliver quality and provide an effective springboard for further research?”

10:00 Virgil Yendell, J. Corcoran, C. Halsey, M. Ruddy, G. Spurr: “Developing a model for the deposit characteristics of the Central and East London Thames floodplain (and its tributaries)”

(10:20 – 10:50 *Coffee Break*)

10:50 *Keynote* – Mauro Cremaschi: “Land use and water management from the Copper to the Bronze ages in the Po Plain (Northern Italy): a geoarchaeological approach”

Session Chair: *Iain Stewart*

Session VII: *Earthquake Geoaerchaeology (IGCP 567)*

11:30 Gina L. Barnes: "Earthquake Archaeology in Japan: an overview"

11:50 Geoffrey C. P. King, Geoff N. Bailey: "Dynamic landscapes and human evolution"

12:10 Manuel Sintubin, Iain S. Stewart: "A logical methodology for archaeoseismology. A proof of concept at the archaeological site of Sagalassos (Turkey)"

(12:30 – 13:30 *Lunch Break*)

Session VIII: *Human-Environment Interactions II*

Session Chair: *Steve Boreham*

13:30 Jonathan A. Haws, Caroline L. Funk, Nuno F. Bicho, J. Michael Daniels, Michael B. Benedetti, Bryan S. Hockett, Marjeta Jeraj: "Palaeolithic landscapes and seascapes on the west coast of Portugal"

13:50 Paul C. Buckland: "*Terre noire* and *tache noire*, Late Holocene soil erosion in the Champagne"

14:10 Philipp Hoelzmann, W. Bebermeier, M. Meyer, B. Schütt: "Late Pleistocene to Holocene landscape history and geoaerchaeology at the southern foreland of the Harz Mountains, Germany"

14:30 Athanasia (Nancy) Krahtopoulou: "Placing people on their landscapes: geoaerchaeological investigations in northern and southern Greece"

(14:50 – 15:20 *Afternoon Tea*)

Session Chair: *Mauro Cremaschi*

15:20 Libor Petr, Petr Pokorný, Dagmar Dreslerová, Petr Kuneš, Radka Kozáková, Lucie Šmahelová: "Long term dynamics of settlement and environmental changes in floodplain of the Elbe river, central Bohemia, the Czech Republic"

15:40 Eva Panagiotakopulu: "A city in the desert – recent work on insect faunas from Tell el Amarna"

16:00 David S.G. Thomas, Sallie L. Burrough: "Geoarchaeology of Kalahari Desert palaeolakes, southern Africa"

16:20 Jeff Blackford, Jim Innes, Peter Ryan and Peter Rowley-Conwy: "Environmental changes in the later Mesolithic of North West Europe: disturbance episodes, fire and cereal-type pollen"

16:40 *Close*

Posters

There will be brief poster presentations from 17:00 on Wednesday 15th April. Posters will be on display throughout the meeting.

Jamie Kathleen Anderson: “Human adaptation to environmental change in marginal environments of the North Atlantic zone, c. AD 800-1600: a reappraisal of the chronological basis”

Andrea L. Balbo, A. Vila, M. Madella, J. Estévez: “A micromorphological view on the stratigraphical excavation of shell middens: an example from Tunel VII, Tierra del Fuego”

Andrea L. Balbo, P. Persson: “Riverside settlement response to Holocene climate change in northern Europe: a case study from the River Rena (Gråfjell-OVAS, Norway)”

Martin R. Bates: “Evolution of the town and port of Dover: a geoarchaeological perspective”

Machteld Bats, P. Crombé, J. Sergeant: “Prehistoric settlement dynamics along the 'Moervaart Depression', a former Late Glacial Lake”

B. Beckers, Jonas Berking, B. Schütt: “Comparison of two ancient central places in Syria and Sudan in a geoarchaeological context”

Michael M. Benedetti, Jonathan A. Haws, Caroline L. Funk, Nuno F. Bicho, J. Michael Daniels, Patrick A. Hesp: “Late Quaternary landscapes of the Portuguese Estremadura: environmental change during Marine Isotope Stages 3 and 2”

J.A. Bennett, A.G. Brown, E.J. Rhodes: “Roman mining on Exmoor: a geomorphological approach at Anstey’s Combe, Dulverton”

Claire Boulter, Dave Roberts, Mark D. Bateman: “Dating beyond the range of OSL: New luminescence dating techniques and their application to the fossil record in South Africa”

Tudur L. Davies: “Penucha’r Llan – excavation and laboratory analysis”

Jeroan De Reu, Bourgeois and G. De Mulder: “Bronze and Iron Age landscapes in Sandy Flanders (NW-Belgium)”

Adam Dunajko and Mark Bateman: “Shifting sands: dune activity on the southern Cape coast of South Africa and its relationship to archaeological cave sites”.

Millena Frouin, Nick P. Branch, Rob Kemp, Frank M. Meddens, Colin McEwan, Katie Willis, Francisco Ferreira, Gabriel Ramon, Cirilo Vivanco Pomacanchari: “Inca *ushnu*: landscape, site and symbol in the Andes. A case study: Incapirca de Quiara *ushnu*”

K.A. Golding, I.A. Simpson, J.E. Schofield, J.A. McMullen: “Landscapes of Norse-indigenous interaction: geoarchaeological investigations at Sandhavn, south Greenland

Matthias Heckmann: “Colluvial sediments as footprints of agricultural intensification: evidence of soil erosion phases in the Pare Mountains, Tanzania”

- Vanessa M.A. Heyvaert, J. Walstra, C. Baeteman: “Testing the archaeological story of Tell Tweini. Geological evidence for its possible identification as the ancient harbour town of Giballa (Syria)”
- Stephen Hitchens, Mark Bateman: “Climate change and landscape stress: the record from a UK Holocene inland dune system”
- Philipp Hoelzmann, K. Nowak: “Soil P analysis in geoarchaeology: a systematic comparison of different methods”
- E. Iriarte, A.L. Balbo, M.A. Sánchez, J.E. González Urquijo: “A palaeoenvironmental proxy for the Homs Gap (Central Levant, Syria): the Quaternary sedimentary record”
- Matthew D. Jones, T. Richter, S.L. Allcock, M.L. Clarke: “Late Pleistocene environments of occupation at ‘Ayn Qasiyya (Azraq, Jordan)”
- Matthew D. Jones, L. Weeks, M.J.Leng, H. Askari Chaverdi: “The Neolithic Lake District of Mamasani, SW Iran”
- David Jordan: “Making geophysics work harder”
- Lisá Lenka, Marina Komar, Miloš Gregor: “The reconstruction of the main characteristics of the natural environment of Gravetian period recorded in loess deposits within Moravian valleys”.
- Brett R. Lenz, Joanne Markert, Allyson Brooks, Elston T. Barnett, Tonya Kauhi: “The application of region-scale pedologic and geologic data to archaeological predictive modeling: an example from Washington State, Pacific Northwest, USA”
- Irantzu Lexartza Artza, John Wainwright: “Land-use change and connectivity of surface flow and suspended sediments”
- Anneley McMillan, W.J. Eastwood, H. Chapman: “GIS landscapes of SW Turkey”
- Mary Nicholls, R. Scaife: “Palaeoenvironmental reconstruction from sediments at West Quay Road, Southampton”
- Dries Raymaekers, Véronique De Laet, L. Bertels, E. Paulissen, B. Deronde, M. Ruts, K. Meuleman, M. Van Leusen, Hendrik Feiken: “Airborne imaging spectroscopy and laser scanning as an aid for archaeological research and site reconstruction in the Raganello catchment (Italy)”
- Madhulika Samanta: “Fluvial impact on archaeological site formation in the Middle Ajay Basin, West Bengal, India”
- Manuel Sintubin, Iain S. Stewart, Tina Niemi, Erhan Altunel: “International Geoscience Programme IGCP 567 Earthquake Archaeology. Archaeoseismology along the Alpine-Himalayan seismic zone”
- Janos Tóth, J. Krause, B. Schütt, U. Wulf-Rheidt: “Preliminary results of the environmental

reconstruction in the area of Felix Romuliana, Eastern Serbia”

Gert Verstraeten, Véronique De Laet, H. Willems, B. Notebaert, B. Duser, E. Marinova, D. Kaniewski: “Geomorphology, remote sensing and GIS for reconstructing the late-Holocene Nile dynamics in central Egypt”

Ann Zwertvaegher, P. Finke, L. Lebbe: “A methodology for the reconstruction of palaeogroundwater regimes in Sandy Flanders throughout the Holocene and the Late-Glacial”

The implications of portable analysis for the organisation of archaeological practice: A comparative study of P analysis using HHpXRF and ICP-OES.

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Geochemical analysis of soil is well established in Archaeology as a site prospection technique and as a means of understanding the use of space, both in terms of intensity and character of activities. Conventionally, such studies have relied on laboratory-based analyses which invariably involve complex and lengthy digestions and serve to partition archaeological enquiry between the laboratory and field. Recent innovations in portable analytical equipment, particularly hand-held portable XRF mean that a range of in-situ analyses are now within the capabilities of archaeological projects. In contrast to conventional means of analysis pXRF can be rapid with minimal sample preparation and produce data instantaneously in the field which can then directly impact of excavation strategy. This ability of pXRF to produce reliable soil analyses for heavy metals has already been demonstrated, yet one of the most useful aspects of soil analysis to archaeologists is the determination of phosphorus (P). To date, P analysis has not been effectively demonstrated using portable equipment. In light of recent innovations in pXRF technology a comparative study was undertaken to evaluate the ability of HHpXRF to produce meaningful data for the analysis of P in archaeological soils. The study focused on soils from the Bronze Age-Iron Age site of Cladh Hallan and compared results with ICP-OES. This paper presents the results of this comparative analysis with a focus on the relative interpretive value of the two data sets. It is argued that HHpXRF is an effective technique for the determination of P and that the development of such a method has important implications for archaeology. The consequences for research agendas and the organisation of archaeological practice are reviewed.