A Workshop for Honours/Masters Students in Archaeology and Palaeoenvironmental Research

Contemporary Challenges in the Archaeology and Environmental History of the Asia-Pacific Region

Centre for Archaeological Research, The Australian National University, Canberra ACT 0200 AUSTRALIA
10-12 Sept, 2007
A Workshop for Honours/Masters Students in Archaeology and Palaeoenvironmental Research

Contemporary Challenges in the Archaeology and Environmental History of the Asia-Pacific Region

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Synopsis
This workshop will introduce you to a range of key issues in the archaeology and Quaternary history of the Asia-Pacific region that are the focus of current research at The Australian National University (ANU). This ranges from discussing the implications of rock art and archaeology of the Western Desert to delving into the microscopic world of plant and insect remains as a window to past environments and the people who lived in them. The workshop is intended for 4th year undergraduate and Masters level students undertaking research projects in these or related fields or students who are at this level and would, potentially, like to pursue graduate research in these fields. The workshop will run for three days and will include seminars by ANU staff and students, practical advice on pursuing a graduate career and the possibilities at ANU, visits to labs, key collections and the opportunity to talk to a range of ANU-based archaeologists, geochronologists, and palaeoenvironmental researchers.

PROGRAM OF ACTIVITIES:

MONDAY 10TH SEPTEMBER

8.15am *meet at Canberra City Walk Hotel and walk to Coombs Blg Sally Brockwell
Simon Haberle
Venue: Seminar Room B, Coombs Blg.

Time Seminar Presenter/s
8.45-9.00am Welcome Simon Haberle
9.00-10.30am Recent Advances in Asia-Pacific Bioarchaeology and Textile Research Marc Oxenham
Judith Cameron
10.30-11.00am Morning tea (provided)

11.00-12.30am Current ANU research in Asia-Pacific Archaeology and Palynology Peter Bellwood
Janelle Stevenson

12.30-1.30pm Lunch (can be brought from several venues on campus)

1.30-3.00pm Human Palaeoecology Dan Penny
Simon Haberle

3.00-3.30pm Afternoon tea (provided)

3.30-5.00pm Recent advances in analysis of palaeolithics Peter Hiscock

5.00-6.30pm Reception at Coombs Tea Room with Mandy Thomas (Pro Vice-Chancellor), Robin Jeffrey (Director CAP), Nick Peterson (Dean CASS), and Jack Golson (Emeritus Professor, ANH) – and an opportunity to meet members of the Centre for Archaeological Research at ANU

7.00pm- Wig and Pen Pub + dinner at local restaurant (own cost)

* Unless otherwise stated, Breakfast, Lunch and Dinner will be at your own cost. There is a café and self-catering kitchen at the City Walk Hotel. The workshop dinner on Tuesday will be a banquet and is paid for though you will need to provide your own drinks (BYO, local IGA shop nearby).

Contact: Dr Sally Brockwell,
Centre for Archaeological Research, RSPAS,
Australian National University, Canberra ACT 0200, Australia
email: car@anu.edu.au; tel: +61 2 6125 0470; Fax: +61 2 6125 4917
### TUESDAY 11TH SEPTEMBER

Venue: Seminar Room B (morning), Seminar Room A (afternoon), Coombs Blg.

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<thead>
<tr>
<th>Time</th>
<th>Seminar</th>
<th>Presenter/s</th>
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<tr>
<td>9.00-10.30am</td>
<td>Rock art and archaeology of the Western Desert and Pilbara regions and</td>
<td>Peter Veth</td>
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<td></td>
<td>the National Heritage listing of the Dampier Archipelago.</td>
<td>Jo McDonald</td>
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<td>Adam Black</td>
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<td>10.30-11.00am</td>
<td><strong>Morning tea (provided)</strong></td>
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<td>11.00-12.30am</td>
<td>Geoarchaeology and Archaeobotany</td>
<td>Tony Barham</td>
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<td>Nuno Oliveira</td>
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<td><strong>Lunch (can be brought from several venues on campus)</strong></td>
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<td>12.30-1.30pm</td>
<td>Palaeoenvironmental reconstruction (incl. lab tour)</td>
<td>Nick Porch</td>
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<td>Geoff Hope</td>
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<td>3.00-3.30pm</td>
<td>Afternoon tea (provided)</td>
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<td>3.30-5.00pm</td>
<td>Scanning Electron Microscopy (incl. lab tour)</td>
<td>Sally Stowe</td>
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<td>Andrew Thornhill (pollen)</td>
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<td>Nuno Oliveira (charcoal)</td>
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<td>7.00pm-</td>
<td><strong>Workshop Banquet Dinner at Mekong Delta Restaurant (provided)</strong></td>
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### WEDNESDAY 12TH SEPTEMBER

Venue: Seminar Room 2.06, Innovations Blg.

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<tr>
<td>9.00-10.30am</td>
<td>Geochronology (AMS, Cosmogenics, OSL, incl. lab tour)</td>
<td>Kat Fitzsimmons</td>
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<td>Tim Barrows</td>
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<td>10.30-11.00am</td>
<td><strong>Morning tea (provided)</strong></td>
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<td>11.00-12.30am</td>
<td>Lab tours of LA-ICP-MS facilities at RSES</td>
<td>Christian Reepmeyer</td>
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<td>12.30-1.30pm</td>
<td>Lunch (can be brought from several venues on campus)</td>
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<td>1.30-3.00pm</td>
<td>Isotope analysis in archaeology Materials sourcing in Pacific prehistory</td>
<td>Ben Marwick</td>
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<td>Christian Reepmeyer</td>
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<td>3.00-3.30pm</td>
<td>Afternoon tea (provided)</td>
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<td>3.30-5.00pm</td>
<td>Application of GIS to archaeological problems</td>
<td>Rachel Nanson</td>
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<td>Applications of geophysical techniques in archaeology</td>
<td>Ben Marwick</td>
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<td></td>
<td>Geophysical investigation of Pacific archaeological sites</td>
<td>Ian Moffat</td>
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<td>Geoff Clark</td>
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<td>5.00-5.30pm</td>
<td>New Directions in Archaeological Science at the ANU and workshop wrapup</td>
<td>Tony Barham</td>
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<td>Simon Haberle</td>
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<td>5.30pm-</td>
<td><strong>Farwell drinks at University House and dinner at local restaurant (own cost)</strong></td>
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Venue Locations

How to get there:

The Canberra Walk Hotel is 400m east of H1 (Northbourne Avenue)

Coombs Building—south wing [No. 9] at grid reference D2
Innovations Building [No. 124] at grid reference C3
A list of those who were nominated to attend, with their affiliation and current research interest, is provided below.

List of Participants:

**Stephen Arthur** (University of Western Australia) Thesis topic: *Personal Ornamentation in Prehistoric Societies.*

**Tim Barribeau** (University of Otago, Dunedin) *Bronze Age Funerary Vessels from Ban Non Wat.*

**Tessa Boer-Mah** (University of Sydney) Thesis topic: *Ground Stone Adzes from Neolithic and Early Bronze Age Contexts at Ban Non Wat, Northeast Thailand.*

**Katarina Boljkovac** (ANU)

**Tom Brookman** (University of Adelaide) Thesis topic: *Stable Isotope Analysis of Seasonal Signals in Macropus Tooth Enamel: A Pilot Study.*

**Rachel Fuller** (University of Otago, Dunedin) *Biological archaeology*

**Deborah Graziano** (James Cook University, Cairns) Thesis topic: *Ecological Pressure and Primate Social Behaviour: Building a Reliable Model of the Behavioural Capabilities of the Australopithecines.*

**Allison Isepy** (James Cook University, Townsville) Thesis topic: *Analysis of an Iron Age Industrial Feature at Ban Non Wat, Thailand.*

**Chris Jennings** (University of Otago, Dunedin) *The Use of Southland Argillite in Prehistory.*

**Mirani Litster** (Flinders University, South Australia) Thesis topic: *Potential Contribution of Archaeology to Australian Frontier Conflict Studies.*

**Jaime McHugh** (James Cook University, Townsville) Thesis topic: *Biological Anthropology in Cambodia.*

**Anne McKenzie** (University of Auckland) Thesis topic: *Archaeology in the New Georgia Group, Solomon Islands.*

**Juliet Meyer** (James Cook University, Cairns) Thesis topic: *Tropical Taphonomy and Potential for Forensic Field Research Centre.*

**Daniel Monks** (University of Western Australia) Thesis topic: *Stranded: A Look at the Survivor Camp of the VOC Ship Zeewijk in an Australian Maritime Context.*

**Sam Player** (University of Sydney) Thesis topic: *Reconstructing the Angkorian Hydrological Network.*

**Kasey Robb** (University of Otago, Dunedin) *Biological Anthropology investigating skeletal health throughout the Pacific.*

**Phillip Roberts** (ANU)

**Carmen Sarjeant** (University of Otago, Dunedin) *Physico-Chemical Analysis of Bronze to Iron Age Funerary Ceramics at Ban Non Wat.*

**Dale Simpson Jr** (University of Auckland). MA research on Easter Island in political economy, GIS and viewshed analysis, and monumental architecture on the island's NW coast.

**Silvana Tridico** *Forensic hair examiner.*

**Deborah van Sambeeck** (University of Western Australia).

**Tania Stellini** (Planning & Aboriginal Heritage Section, Dept of Environment & Climate Change, NSW)

**Erin Williams** (University of Otago, Dunedin, New Zealand) Thesis topic: *Fire Risk and Fire Use in Prehistoric New Zealand.*

**Abigail Young** (University of Canterbury, Christchurch) Thesis topic: *Diatom Based Investigations of Late Quaternary Environmental Change in the South Island, New Zealand.*
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Marc Oxenham

Recent Advances in Asia-Pacific Bioarchaeology
Marc’s research has concentrated on elucidating aspects of human palaeohealth, palaeopathology and behaviour by way of analyses of human skeletal and dental material. Geographically, I have focused on Southeast Asia and specifically Vietnam and Northern Japan. Temporally, he is particularly interested in the Hunter-Gatherer/Neolithic interface in Holocene Southeast and eastern Asia. He also has a number of students engaged in work tangential to his research interests, namely: forensic anthropology and mortuary archaeology.

Key Publications:

Judith Cameron

Recent Advances in Asian Textile Research
In recent years, archaeological textile research has moved beyond the analysis and description of basketry, cordage, matting and textiles to address fundamental questions in prehistory. While archaeological textiles will never eclipse pottery or stone as primary cultural markers, by investigating tools, fibres and extant fabric structures researchers can provide important insights into the prehistoric period.

Key Publications:

Peter Bellwood

Current ANU research in Asia-Pacific Archaeology
Peter’s research covers the prehistory of Southeast Asia and the Pacific from archaeologial, linguistic and biological perspectives; origins of agriculture and resulting cultural, linguistic and biological developments (world-wide); interdisciplinary connections between archaeology, linguistics and human biology. Currently he is involved in archaeological fieldwork projects in the Philippines and Vietnam.

Key Publications:

Janelle Stevenson

Current ANU research in Asian Palynology
Janelle’s research is focused on disentangling climate change from human impact in the palaeoenvironmental record and using palynological techniques in the detection of crop plants in the palaeoenvironmental and archaeological record. Her work is based in the Southeast Asian,
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Melanesian, and Pacific Islands region and she is currently working in the Northern Philippines, Vietnam and Taiwan.

Key Publications:

Simon Haberle

Testing the hypothesis for the emergence of agriculture 7000 cal years ago in the highlands of Papua New Guinea.

Recent multi-disciplinary investigations at Kuk Swamp, Wahgi Valley, Papua New Guinea have yielded direct evidence of mid-Holocene agricultural practices dating to 7000 cal BP (Denham et al. 2003). This evidence includes archaeological features representing cultivation, pollen records documenting the emergence of an agricultural landscape in the Upper Wahgi Valley, and phytolith and starch remains of edible plants including the exploitation of taro (*Colocasia esculenta*) and planting of bananas. The integration of palaeoecological and archaeological data at Kuk Swamp allows us to examine the veracity of criteria used to distinguish human impact from natural processes in the pollen records. Based on these results a conceptual model for the identification of human impact in pollen records is constructed to distinguish between the impact on landscapes of “pre-agricultural” and agricultural activity.

Key References:

Dan Penny

Reflections on landscape archaeology in the region of ‘Greater Angkor’, Cambodia.

The region defined as ‘greater Angkor’, incorporating the famous monuments of the Angkor World Heritage park, is arguably the largest archaeological site on Earth, and presents unique challenges in terms of research design and method. This presentation will review some of the advances made in archaeological research at Angkor over the past 10 years, drawing out some of the challenges faced when conducting research at the landscape scale.

Key References:

Peter Hiscock

Recent advances in Palaeolithics

One of the key questions in Palaeolithic studies is how to explicate assemblage variability. Over the last twenty years developments in the measurement of reduction have allowed researchers to explore
models that have been offered for variability. The results have been both surprising and startling. This topic is explored with examples from Australia and Europe.

Key References:

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Peter Veth, Jo McDonald and Adam Black

Rock art and archaeology of the Western Desert and Pilbara regions and the National Heritage Listing of the Dampier Archipelago.

Systematic research on the archaeology of NW Australia has burgeoned in the last 20 years. Perhaps the greatest impact has come from modeling human/environmental responses from the arid Pilbara and Western Deserts and the testing of these through systematic regional survey, excavation and rock art analysis programs. We will highlight recent research with case studies of 1) the recently awarded ARC Linkage Grant for the Canning Stock Route and 2) the National Heritage Listing of the Dampier Archipelago. The presentations will profile archaeological issues relating to research, management, native title and public education.

Key References:

Tony Barham

Geoarchaeology - Australian research in the global context

Tony’s research focuses on applying regolith science and stratigraphic approaches to aspects of archaeological site formation process, palaeoenvironments, and regional site patterning. Geographically, current research focuses on coastal archaeology in WA and Torres Strait, and open sites in fluvial landscapes in NSW and Victoria. His key interest is in Holocene stratigraphic architectures, especially interactions between coastal processes and landforms acting as templates, which influence our views of archaeological site preservation and the narratives we create from site evidence about past environments through time.

Key publications:
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Mattiu Prebble

Archaeobotany in the Pacific Region
Mattiu’s research is focused on the theoretical underpinnings of environmental archaeology and history of islands. His PhD investigated the empirical geological, biological and archaeological foundation of the Austral Islands through a synthesis of botanical information from historical, archaeobotanical, ethnographic and paleobotanical sources.

Key References:

Nuno Oliveira

Archaeobotany in the Tropics: objectives, methodologies and caveats
This seminar will look into the methodologies employed in recovering and analysing macro-plant remains from archaeological sites, based on experience accumulated during two seasons of fieldwork in East Timor. Among others, attention will be given to aspects regarding research design and objectives, sampling strategies and identification criteria of archaeological specimens. An ideal practice-based approach for archaeobotanists working in the region is suggested, and current caveats to the discipline discussed.

Key References:

Geoff Hope

Palaeoenvironmental reconstruction
Geoff is a geobotanist working on the interface between human activity and the environment with a mix of archaeologists, geographers and other colleagues. Much of his work involves assessing the past impact of people on landscapes by measuring vegetation change (using phytoliths, charcoal and pollen) and geomorphic consequences-erosion, silting and shifts in production. He is also interested in the roles of climate change and fire on human activity and is currently assessing the long term fire regimes in east Kalimantan, New Guinea, New Caledonia, Myanmar and Fiji in relation to the very different human settlement histories.

Key References:
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Nick Porch

Palaeoenvironmental reconstruction - insects
Nick’s research concentrates on quantitative reconstructions of palaeoclimate from biotic proxies, primarily beetle remains. He has an exceptional expertise in Coleoptera identification and has developed an Australian insect distribution database for application to palaeoclimatic studies. He employs a range of numerical analytical techniques (Mutual Climate Range, and Best Modern Analogue approach) and associated software (BIOCLIM, PolCalib, ArchInfo, CANOCO) in his research. He is currently working on insect fossils from Pacific Island pre-human and archaeological contexts and is developing a new area of investigation using the fossil record to reconstruct the history and impact of human-moderated biological invasions termed “invasion palaeoecology”.

Key References:

Includes a lab tour (~30 min)

Sally Stowe

Scanning Electron Microscopy
Sally is the Facility Co-ordinator of the ANU Electron Microscopy Unit and is a Member of Centre for Visual Sciences, ANU. The SEM is widely used across ANU for student and staff research projects in archaeology and palaeoecology. The theoretical background and operational techniques of the SEMs will be discussed and a demonstration of the microscopes will be given.


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Kat Fitzsimmons

Dating the landscape: the timing of sediment deposition using optically stimulated luminescence
Kat will introduce the principles of OSL, then move on to its applications, which includes her work in the desert dunefields of central Australia. She is also involved in a project on the prehistoric hearths in western New South Wales.

Key References:

Tim Barrows

Geochronology (AMS, Cosmogenics)
Tim’s research concentrates on refining the chronological sequences for palaeoclimate in the Australian region. Using AMS techniques he has played a crucial role in re-evaluating the late glacial
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palaeoclimate of the Australasian region. He will provide a demonstration of the ANU’s Accelerator Mass Spectrometry (AMS) which is able to measure trace amounts of cosmogenic Be-10, C-14 and Cl-36 in naturally occurring geological materials in the environment. These isotopes have important applications such as dating glacial deposits, fossils, lava flows, landslides and meteorite impacts within the last 2 million years.

Key References:


Includes a lab tour (~1hr)

Ben Marwick

Isotope analysis in archaeology

Ben’s research is focused on stone artefact technology and economics, cultural change and environmental change during the Pleistocene and Holocene in Northwest Thailand. He is exploring the application of stable isotope analysis of shells in archaeological contexts. He will discuss the basics of isotope analysis, review some recent interesting case studies of isotopes in archaeology and lead a tour of the stable isotope facilities at ANU.

Key references:


Includes a lab tour (~45 min)

Christian Reepmeyer

Materials sourcing in Pacific prehistory (LA-ICP-MS)

Analysing chemical composition of artefacts, e.g. for provenance studies, has a long history of successful research. This session will focus on the advances in a specific geochemical method, Laser Ablation - Inductively Coupled Plasma Mass Spectrometry. The equipment, which is located at the Research School of Earth Sciences, has been applied to a wide variety of fields. We will give a short overview of the history, the method itself and on possible applications in archaeological research.

Key References:

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*Includes a lab tour (~45 min)*

Rachel Nanson and Ben Marwick

**Application of GIS to archaeological problems**

This talk will introduce some potential uses of spatial data in archaeology. It will demonstrate data collection using Global Positioning Systems (GPS) and data analysis using Geographic Information Systems (GIS).

Ian Moffat

**Applications of Geophysical Techniques in Archaeology**

Geophysical methods can be a useful tool for a wide range of archaeological investigations however careful selection of the appropriate technique with reference to the expected target and site properties is essential. This presentation reviews a variety of case studies from Australian Indigenous, historical, maritime and South-East Asian archaeology to consider which geophysical techniques added significant value to each site investigation and why this was the case.

Geoffrey Clark

**Geophysical investigation of Pacific archaeological sites**

Geophysical techniques are routinely used to investigate archaeological sites in developed nations such as Hawai’i and New Zealand, but have only occasionally been utilized in the tropical Pacific. Recently, remote sensing techniques (GPR, magnetometry, resistivity) have been successfully applied to historic and prehistoric sites in Palau, Samoa and Tonga, where geophysical methods were used on a variety of monumental structures ranging from tombs, house platforms, ditches and a canoe wharf. The work has identified key elements of a successful research strategy in which geophysical and archaeological approaches can be profitably combined.

**Key References:**


List of Presenters emails

Tony Barham    anthony.barham@anu.edu.au
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