

New PhD project @ Archaeology and Natural History, ANU 2007-2009

Environmental change through the millennia in the ultramafic terrain of New Caledonia



The pre-Holocene vegetation and environmental history for most islands in the tropical Pacific is unknown. In the tropical southwest Pacific there are two islands with records that extend back into the Pleistocene: the main island of New Caledonia and Taveuni, Fiji. There are many more Holocene records from locations across this vast expanse of ocean with the majority focused on questions related to human impact during the late Holocene. New Caledonia therefore provides the opportunity to explore some of the long-term questions related to regional environmental change.

New Caledonia, which is a relict of Gondwana, has been isolated from the Australian mainland for over 50 million years. It is renowned for its rich and distinctive flora, with 80% of the estimated 3,000 species that grow there endemic. The richness is attributed not only to its archaic origins, but also the unusual ultramafic geology that covers approximately one third of the main island with iron-rich and aluminium-poor soils.

Within this lateritic terrain, in a region known as the Plaine des Lacs, we have worked intermittently on a number of extremely old solutional lakes. These are the oldest known palynological sites from any tropical Pacific island, possibly spanning the last 180,000 years, and as such provide important base line data on vegetation stability, fire and climate change at sites without human interference. (for background information see Stevenson, J. and Hope, G.S. 2005. A comparison of late Quaternary forest changes in New Caledonia and northeastern Australia. *Quaternary Research* 64, 372-383.)

The absolute dating of these sites has always been slightly problematic, although a recent field trip has identified a number of lakes with more stable sedimentation histories. Interested candidates would work on resolving the chronology of these new sites using a variety of dating techniques, as well as analysing a variety of palaeoenvironmental proxies. The opportunity exists to cross-match nearby ocean cores with the terrestrial records.

Resources and associations: This is a well-resourced project conducted on established sites with an extensive palaeoecological research history. You will join a vibrant palaeoecological and archaeological group at ANU where you will have access to state-of-the-art laboratory facilities. You will be enrolled in the Archaeology and Palaeoanthropology Graduate Program and be based in the Department of Archaeology and Natural History, RSPAS.

Background of candidates:

We are seeking highly motivated and enthusiastic students with a background in biology, geography, archaeology, environmental science, or similar. Some field experience would be an advantage. A first class honours or research masters in a relevant field is required.

Applications and closing dates for international (IPRS) and local (APA) scholarships:

Interested applicants should submit an application for a graduate scholarship to ANU. *The deadline for receipt of IPRS applications from international students is 31st August 2006; for APA/ANU/GSS scholarships for Australian and New Zealand students the deadline is 31st October 2006.* RSPAS also has funding available for tuition and full scholarships for outstanding students. The successful candidate will be expected to commence between 2nd Jan and 31st Mar 2006. Application forms for both international (IPRS) and local (APA) scholarships are available at <http://www.anu.edu.au/sas/forms/>

For further information about this project contact:

Dr Simon Haberle, Department of Archaeology and Natural History, Research School of Pacific and Asian Studies ANU, Canberra 0200 Email: simon.haberle@anu.edu.au, tel: +61 2 6125 3373
Homepage: http://rspas.anu.edu.au/people/personal/habes_rmap.html

Dr Janelle Stevenson, Department of Archaeology and Natural History, Research School of Pacific and Asian Studies, ANU, Canberra 0200. Email: janelle.stevenson@anu.edu.au, tel: +61 2 6125 3153

Relevant web links:

PalaeoWorks <http://palaeoworks.anu.edu.au/>

Department of Archaeology and Natural History <http://rspas.anu.edu.au/anh/>

Australian National University Graduate School <http://www.anu.edu.au/graduate/scholarships/>