

The Australian National University

DE130101703

Flexner, Dr James L

Mission archaeology and colonial encounters in Southern Vanuatu

\$350,505, ARCHAEOLOGY

The remains of Christian missions in southern Vanuatu are important heritage sites for local communities, and for their place in world history as part of one of the final frontiers of European colonialism. This project explores these sites to produce a new picture of everyday life that includes the perspectives of missionaries and native people.

DE130100153

Pryce, Dr Thomas O

Radiogenic bronze and the Indianisation of Southeast Asia

\$347,556, ARCHAEOLOGY

Intense South/Southeast Asian maritime activity began circa 2500 years ago, but the societies involved

and their motivation is unknown. Study of exchange networks in chemically distinctive bronzes related to early Buddhism and their likely production centre in eastern India will establish a sound economic basis underlying long-term cultural influence.

DE130100046

Reepmeyer, Dr Christian H

Foundations of Island Southeast Asian maritime interaction: unravelling cause and consequence for the transformation of past societies

\$374,575, ARCHAEOLOGY

The successful spread of Neolithic innovations across the world was one of the most important transformations in human history. This project combines the geochemical and technological analysis of stone tools to track the evolution of maritime colonisation in Island Southeast Asia, the foundation for the success of agriculture in this region.

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Announcing SHAPE: Southern Hemisphere Assessment of PalaeoEnvironments

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We are proud to announce the successor of the AUS-INTIMATE initiative, which ran for two successive INQUA inter-congress periods from 2003 to 2011, and culminated in the upcoming AUS-INTIMATE special issue in Quaternary Science Reviews.

SHAPE (Southern Hemisphere Assessment of PalaeoEnvironments; INQUA PALCOMM project #1302) will start in 2013 and continue until the next INQUA Congress in Japan in 2015. SHAPE will carry forward the goals of AUS-INTIMATE, such as the production of high resolution palaeoclimate records during the Late Quaternary. However, it will have a wider spatial scope, incorporating New Zealand, Australia, the Pacific Islands, South America, South Africa, Antarctica and the Southern Ocean. There will also be a stronger emphasis on climate modelling, data-model integration, development of new research tools and training activities for early career researchers.

SHAPE will support two existing INQUA International Focus Groups: CELL-50K (Calibrating Environmental Leads and Lags over the last 50 ka) and ACER (Abrupt Climate Changes and Environmental Responses). Thus, the timescale of the project extends back to 50-60 ka (the limit of radiocarbon dating).

The main objectives of SHAPE are to:

- generate defensible chronologies for SH proxy records
- refine and extend regional climate event stratigraphies
- provide robust interpretations of proxies (qualitative and quantitative)
- generate regional reconstructions of past environmental and climatic change (temporal-geographic syntheses)
- integrate the results into a hemispheric-wide story for key time slices, highlighting the changes and testing hypotheses for their causes

- conduct new climate model simulations for key periods
- integrate proxies with climate model simulations
- train the next generation of Quaternary scientists in key techniques.

Suites of quantitative and qualitative marine and terrestrial climate reconstructions will underpin transects from the tropics to the mid- and high-latitudes, illustrating changes in currents, fronts and temperature gradients. Like the goals of AUS-INTIMATE, the SHAPE project will highlight the timing of critical changes, and identify synchronous versus asynchronous changes in climate.

However, unlike INTIMATE, there will be a larger focus on using these proxy-based reconstructions to compare with climate model simulations to determine distinct circulation and climate modes of the past. SHAPE will aim to reconstruct atmospheric and oceanic circulation patterns for several critical periods in the Late Quaternary (including 32 ka, 21 ka, 6 ka) to improve our understanding of Southern Hemisphere climate and environmental changes. These reconstructions will be compared to the PMIP3 (Paleoclimate Modelling Intercomparison Project) and CMIP5 multi-model ensemble for these same time periods and a transient simulation for the last 8 ka. Integration with climate model simulations will also help us to formulate new hypotheses about triggers of climate change, climate dynamics, and mechanisms of inter-hemispheric climate teleconnections.

We encourage you to attend the SHAPE meetings and workshops over the next few years. SHAPE welcomes participation from early career researchers as well as established Quaternary scientists. There is a small amount of financial support for early career researchers to attend the SHAPE meetings listed below.

- At Geosciences New Zealand Conference in November 2013, there will be a geochronology session covering the last 50 ka.
- The INQUA-ECR meeting in Wollongong, Australia, in December 2013 will allow young researchers to present their work from specific regions. SHAPE will support this by providing travel support, mentoring in authorship of publications, and training on tools and model use within a SHAPE session.
- AQUA in Mildura in July 2014 will be a joint meeting with CELL-50K.

Training will be a key SHAPE activity. It will focus on using new tools designed for palaeoclimate research. We will utilise the Past Interpretation of Climate Tool (PICT), currently under development to generate targets for Southern Hemisphere circulation patterns based on Australasian data, and other areas of the Southern Hemisphere, to assist in interpreting hydroclimatic and circulation conditions linked to a wide array of climate drivers. Proxy reconstructions and understanding of local responses to circulation changes will also help improve the interpretation of proxy data.

Expertise and assembly of proxy data for different subregions of the Southern Hemisphere will be underpinned by existing and new INTIMATE 'groups'. The work within each subregion, much like in the previous AUS-INTIMATE project, will be coordinated by steering committee members who will also be responsible for the exchange of information during hemisphere-wide integrations.

As with INTIMATE, we encourage you all to participate in this new project. Please contact Andrew Lorrey (a.lorrey@niwa.co.nz) or Steven Phipps (s.phipps@unsw.edu.au) for further details about SHAPE and how you can get involved.

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