

NOMINATION FOR HONORARY LIFE FELLOWSHIP OF INQUA

NOMINEE: Emeritus Professor John Chappell

PROPOSER (New Zealand)

Professor David J. Lowe FRSNZ FNZSSS, New Zealand national delegate for INQUA International Council 2011; Secretary of INTAV 2007-2011



Signed

21 January 2011

SECONDER (Australia)

Professor Brad J. Pillans Hon FRSNZ, Member of National Quaternary Research Committee of Australia 2010 on; President of INQUA Stratigraphy and Chronology Commission 2003-2011



Signed

21 January 2011

Candidate agrees to be nominated? YES

Short description of the candidate's contribution to Quaternary Science and/or INQUA:

Emeritus Professor John Chappell is unquestionably one of the world's most well-known and accomplished Quaternary scientists of the past ~40 years or more. His name is one of a handful that soon becomes known to all Quaternary students. Since he was appointed to a position at The Australian National University in 1967, Chappell's influence has been enormous, both in the depth and breadth of his research and in supporting and training high-quality postgraduate students. His publication record, amounting to nearly 200 refereed articles, includes 21 articles published in *Nature* (11) and *Science* (10). His first paper was published in 1967, and his most recent, on the antiquity of Australian deserts, in 2010 (see CV below).

Chappell's cornerstone research on the coral terraces of Huon Peninsula, PNG, developed into further studies on a global scale of glacial climatic cycles, and then focussed increasingly on sea-level expression of rapid, millennial-scale climatic events. Chappell also conducted research on a wide range of coastal deposits including coral reefs and their environments, past and present.

In the 1990s Chappell became involved with palaeoclimate and climate modelling. He also became closely associated with Quaternary dating techniques, both in their development and application to a wide range of

problems. He supported and used U-series dating, AMS-based ^{14}C dating, luminescence, and cosmogenic dating amongst others.

From his first years at ANU, Chappell has collaborated with many scientists beyond Australia, including colleagues in the UK, USA, Japan, China, and New Zealand. He has also worked with scholars from the humanities and social sciences, especially archaeology, and also human geography, history, and art.

In terms of service to INQUA, Chappell made an indelible and very substantial contribution in chairing the committee that organised the very successful INQUA Congress in Cairns in 2007. Previously he had attended the 1991 congress in Beijing, an inter-congress meeting in Australia in 1993, and Chappell was a long-time member of the INQUA subcommission on coastal research in its various guises.

Chappell's contributions have been recognised by international and national awards: he is an Honorary Fellow of the Geological Society of America, an Honorary Senior Fellow of the International Association of Geomorphologists, and a Fellow of the Australian Academy (equivalent to a Royal Society fellowship).

We are extremely honoured and proud to nominate Prof John Chappell as a most worthy Honorary Life Fellow of INQUA.

ABBREVIATED CV of nominee Prof John Chappell

Career After studying at Auckland University (BSc, MSc), Chappell went as a graduate student to the Australian National University (ANU) in 1965, and in 1967 was appointed as lecturer in geomorphology in the Department of Geography where he taught until 1979, as lecturer, senior lecturer and reader. During this period he extended his study of Quaternary sea level and climatic changes, using coral terraces in Papua New Guinea (PNG) and (later) in Timor as key field sources. On a different front, he teamed up with members of Sydney University in a series of studies of coastal and nearshore processes.

Following appointment in 1979 as professorial fellow in the Department of Biogeography and Geomorphology in the Research School of Pacific & Asian Studies, Chappell extended his study of past changes of sea level, sedimentation and coral growth to the Great Barrier Reef and Cape York Peninsula, and in 1983 commenced a five-year program concerned with Holocene history and processes in the mangroves and tidal rivers of Northern Territory. In the 1990s he extended this palaeoenvironmental work to the Fly and Sepik lowland basins of PNG.

The coral terraces of Huon Peninsula, PNG, continued to be a cornerstone in Chappell's research into global problems of ice-age climatic cycles, and focussed increasingly on sea-level expression of rapid, millennial-scale climatic events. In the 1990s he became involved with palaeoclimate modelling at the CSIRO Division of Atmospheric Research

and, together with colleagues in the ANU Research School of Earth Sciences (RSES), initiated a continuing project on high-resolution reconstruction of past climates from geochemical signals in long-lived corals. Collaborating with scientists from Japan and elsewhere, he also contributed to various fields including the early human colonisation of PNG and palaeo-earthquake research.

Throughout his career at ANU, Chappell was much involved with furtherance of Quaternary dating techniques, including luminescence and U-series methods. A long involvement with radiocarbon culminated with the installation in 2007 of a state-of-art accelerator mass spectrometer. He transferred to RSES in 1998 and enhanced ANU research in environmental geochemistry, dating and geomorphology. Taking advantage of the recently-established capacity in the Research School of Physical Sciences & Engineering for accelerator mass spectrometry (AMS), Chappell initiated a new program in earth-surface processes and landscape history using cosmogenic nuclides, concerned with long-term erosion, soil formation and the impacts of long-past climatic changes.

From his first years at ANU, Chappell has collaborated with scholars in disciplines beyond the natural sciences, particularly archaeology, and also human geography, strategic and defence studies, history, and the ANU School of Art. Beyond the ANU, he has been enriched by collaborating with many scientists overseas, including colleagues in UK, USA, Japan and China. He formally retired at the end of 2005 and continued for two years at ANU, and then moved to Dunedin New Zealand, where he now lives.

Recent research projects

- Millennial-scale instability of sea level and the climate system: new analysis of coral terraces in Papua New Guinea
- Production and transport of soil and sediments, determined by cosmogenic radionuclides and noble gases
- Long-term history of aridity in Australia
- Erosion, landscape evolution, and human impacts in the Yangtse Basin, China
- Applications of AMS Radiocarbon in marine and groundwater science
- "Seeing Change – Huxley, Darwin and others in Australasia, and 19th century science history" (with Professor I McCalman, Sydney University)

Publications, in broad topical groups (total = 183)

Quaternary, excluding sea level studies.

Stipp, J.J., Chappell, J., & McDougall, I. (1967) "K/Ar age estimate of the Plio-Pleistocene boundary in New Zealand", *American Journal of Science*, **265**: 462-474.

Chappell, J. (1968) "Changing duration of glacial cycles from lower to upper Pleistocene", *Nature*, **219**: 36-40.

Chappell, J. (1970) "Quaternary geology of the southwest Auckland coastal region", *Transactions of the Royal Society of New Zealand*, **8**: 133-153.

Veeh, H.H. & Chappell, J. (1970) "Astronomical theory of climatic change: support from New Guinea", *Science*, **167**: 862-865.

Chappell, J. (1974) "Geology of coral terraces, Huon Peninsula, New Guinea: a study of Quaternary tectonic movements and sea level changes", *Geological Society of America, Bulletin* **85**: 553- 570.

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- English, P., Spooner, N.A., Chappell, J., Questiaux, D.G. & Hill, N.G. 2001. Lake Lewis basin, central Australia: environmental evolution and OSL chronology. *Quaternary International* **83-85**: 81-101.
- Fujioka, T., & J. Chappell, 2010. History of Australian aridity: chronology in the evolution of arid landscapes. *Geological Society, London, Special Publications*; **v.346**, p. 121-139.
- Williams, M., Prescott, J.R., Chappell, J., Adamson, D., Cock, B., Walker, K. & Gell, P. (2001). The enigma of a late Pleistocene wetland in the Flinders Ranges, South Australia. *Quaternary International* **83-85**: 129-144.
- Wang P-X & Chappell, J. (2001). Foraminifera as Holocene environmental indicators in the South Alligator River, Northern Australia. *Quaternary International* **83-85**: 47-62.
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Sea-level studies

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- Thom, B.G. & Chappell, J. (1975) "Holocene sea levels relative to Australia", *Search*, **6**: 90-94.
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Palaeoclimate & climate modelling

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Corals, reefs, geochemistry and palaeo-environments

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Coastal & estuarine geomorphology and processes

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