

The Australasian INTIMATE project: towards an Event Stratigraphy for the Last Termination in Australasia (INQUA project number: 0406)

The Australasian INTIMATE project (INQUA project number: 0406), conceived at the 2003 INQUA Congress in Reno, is a direct response to the objective to broaden the geographical scope of the North Atlantic INTIMATE group. The two groups are to communicate progress to one another and pursue similar objectives with the ultimate collective goal of synthesising data from their respective regions and making comparisons at the global scale. Dr Rewi Newnham (a Quaternary scientist based at the University of Plymouth, UK with extensive NZ interests) was appointed to liaise between the North Atlantic & Australasian INTIMATE groups. Members of the North Atlantic INTIMATE community are strongly encouraged to participate in meetings of the Australasian INTIMATE group, whenever this is practical. The project will run until at least 2007 when results will be presented at the next INQUA congress in Cairns.

Although restricted to the Australasian region mainly for organisational reasons, this new group strongly supports any initiatives to extend the domain to other regions of the Southern Hemisphere. The time frame of interest has been extended to cover the period 30 – 8 ka so that climate change during the last major cold period can be considered at a regional scale. A verbal presentation detailing progress to date by the Australasian INTIMATE project was made to the North Atlantic INTIMATE workshop held in Germany in August 2004. Representation and progress reporting at these annual North Atlantic INTIMATE meetings is expected to continue.

During the first 18 months, four meetings were held: There were two initial project information meetings/launches at Dunedin, December 2003 and Mt Buffalo, Victoria (Feb 2004). These were followed by two initial national workshops at Lower Hutt/Wellington (August 2004) and Sydney (2004). Participation at these meetings was strong but largely reflected the separate Australian and New Zealand 'arms' of the project. The two arms of the group came together at the first full meeting of the Australasian INTIMATE group, in Tasmania in December 2004.

First NZ workshop Wellington 23-24th August 2004

45 Quaternary and associated scientists attended. Brent Alloway convened the meeting. The workshop had two goals;

1. To identify and rank key paleoclimate records from terrestrial and marine settings, for the period 30 to ~ 8 ka
2. To develop detailed correlations between these key records, using improved dating techniques and procedures.

In summary, the group focussed on the following key records stable isotope records from maar lakes in Auckland, composite speleothem records, pollen records from Kaipo Bog, Otamangakau and Okarito and a marine record from off Hawke Bay (MD97-2121).

Glacial chronologies, fluvial aggradation/degradation, loess and aerosolic quartz flux were chosen as ancillary records to support the major continuous records.

The workshop recommended the adoption of the INTCAL04 calibration once it becomes available.

The workshop decided to focus on producing a poster to represent the state of our current understanding and to focus efforts for future work. The target for production was the first joint Australasian meeting at the AQUA in December (see below).

Output: Alloway, B.V. 2004. 2004 NZ-INTIMATE Meeting, GNS Rafter laboratory, Wellington:23-24 August 2004. Geological and Nuclear Science report 2004/22, 43pp.

First Australian workshop Lucas Heights, Sydney, 6-7th September 2004

24 paleo-scientists attended. The meeting was convened by Henk Heijnis, David Fink (both ANSTO) and Simon Haberle (ANU).

The goals of the workshop were

1. To identify and prioritise Australian onshore and off shore records of the OIS2/1 transition.
2. To promote ways to effect high-precision dating of these key records to help establish a regional stratigraphy.

Presentations were made on a wide variety of records. Law Dome, Antarctica was seen as a key local ice core record and Vin Morgan promised to port the Law Dome record to the GRIP (INTIMATE) timescale. The group favoured the extension of the remit of the project to 30 to ~ 10 ka. Initial analyses of the Australian records suggested that high precision comparisons were not yet possible (much greater regional variability than NZ). Some major trends were noted particularly the onset of major deglaciation at 15 cal ka.

The workshop recommended the adoption of the INTCAL98 calibration until INTCAL04 becomes available. Calib4 and OxCal were endorsed as preferred calibration programs. Protocols for other dating methods were deferred to the AQUA meeting in Tasmania.

The Australian group agreed to produce a poster for Australian sites to the same format as the planned NZ poster and bring it to Tasmania in December

First combined Australasian INTIMATE Meeting – AQUA Conference Tasmania 9th-12th December

All the organisers of the Australian and New Zealand legs were present except Rewi Newnham. About 50 scientists attended.

The Australian summary poster was presented. Regrettably data for the New Zealand poster was still being collated and only partially completed by the time of the conference.

A draft poster has now been completed and has been circulated to compilers for comment before it is more widely distributed to the broader NZ-INTIMATE community. This poster will be freely accessible through the AQUA website and a proposed NZ-INTIMATE website. The posters represent the pre-INTIMATE state of the art understanding of the timing of climate events in our region. The New Zealand data is easier to work with than the Australian as the geographical scale is smaller, the number of continuous proxies is greater and tephric marked beds allow much higher precision correlations. The proxy records from New Zealand are as equivocal as the patchier Australian records with 'events' visible in some records but not in others and the interpretation of records is even less certain. Nevertheless, this framework provides an important template for discussion and further refinement.

Initially the primary aims of the group are to identify key existing records and get all these records onto agreed time scales. The group recommended the adoption of INTCAL04 for radiocarbon ages. No protocol was agreed for other ages. The group accepted the Law Dome record as a local focus for correlations, but not (yet?) as quite the Australasian 'GRIP' equivalent. A focus on 30 to 8 ka was agreed. This is longer than the North Atlantic period but this reflects uncertainties about the nature and timing of the 'LGM' in Australasia and the possibility that LGIT changes might extend into the early Holocene.

The group rejected a time slice approach as inappropriate. There is no expectation of synchronous events across the whole region and it was felt that the time slice approach had been fully explored through previous Climanz initiatives and would most likely result in inappropriate foci and missed 'events'.

In principle the group supports limited new research to refine key records but has not yet endorsed any specific work.

The group agreed to run two national workshops in July/August 2005 and to convene (as a separate meeting attached to) the ANZGG in Northland, New Zealand in February 2006. We will follow up with a plenary session at INQUA in Cairns in 2007. We will produce an Australasian INTIMATE group paper from the New Zealand meeting and we intend to produce a special issue of an appropriate refereed journal (QI ?) from Cairns

PROJECT OUTCOMES

A large and dynamic group has been established that has already run 5 meetings of various forms. These meetings have resulted in improved communications between Quaternary scientists from all relevant government and University institutions in the region and have begun to focus attention on key parts of the record.

The project maintains a web site and an active project mailing list. The website is hosted by AQUA at http://www.aqua.org.au/AQUA/frames_INTIMATE.html. Full reports on the various workshops are available there. Development of national websites is considered a priority in order to elevate the Australasian-INTIMATE profile and enable related publications (i.e. poster, proceedings) to be easily downloaded.

Two posters of the current state of knowledge of the event stratigraphy have been produced.

1. Towards a 0 to 30 ka climate event stratigraphy for NZ. Compiled by Brent Alloway, Jamie Shulmeister, David Barrell, Rewi Newnham and NZ-INTIMATE Members.
2. Towards a 0 to 30 ka climate event stratigraphy for Australia. Compiled by Simon Haberle, David Fink, Henk Heijnis and AUS-INTIMATE members.

Alloway, B.V. 2004. 2004 NZ-INTIMATE Meeting, GNS Rafter laboratory, Wellington:23-24 August 2004. Geological and Nuclear Science report 2004/22, 43pp.

FINANCIAL REPORT

The organising team is very grateful for the support provided by INQUA in 2004 but considerable difficulties were encountered by us due to the rules attached to the grant. We submitted a draft budget proposal which was not rejected but when we were finally advised of the conditions of the INQUA grant (in September 2004) our budget clearly contravened those conditions.

We budgeted money for publications which was disallowed. The single biggest problem relates to the directive that support should be aimed at participants from less developed countries when, especially in the early stages of this project, most participants and interest is coming from Australasia and from developed countries. Later in the project when we seek to link with work from other Southern Hemisphere locales this will cause us fewer problems. In the meantime, we have targeted support to students, unwaged and to a limited extent early career individuals attending the Australasian INTIMATE meetings. We also subvented part of the INTIMATE meeting costs from these funds.

We created an ad hoc standing group to advise on funding of individuals. For New Zealand this group comprises Jamie Shulmeister, Brent Alloway and Rewi Newnham. For Australia this group comprises Simon Haberle, Henk Heijnis and David Fink. Final

allocations are determined in joint discussions. We opted to lodge the funds with the Australasian Quaternary Association and the funds are being accessed through their treasurer (Janelle Stephenson). The following spreadsheet is provided by her with some additional information from Jamie Shulmeister.

Report on Australasian INTIMATE spending

	INTIMATE funds from INQUA (\$AUD)		opening balance
			\$4,074.21
27/10/2004	J. Shulmeister	funds for distribution to NZ participants at NZ workshop (H. Rother PhD, P. Burge PhD, B. Anderson-unwaged, P.Tonkin -unwaged)	\$475.74
27/10/2004	W. Howard	travel assistance for Australian workshop	\$459.47
27/10/2004	R. Johnston	travel assistance for Australian workshop	\$513.00
6/12/2004	P. Burge (PhD)	assistance to attend AQUA 2004	\$100.00
6/12/2004	S. Davies (?)	assistance to attend AQUA 2004	\$100.00
6/12/2004	M. Hughes (PhD)	assistance to attend AQUA 2004	\$100.00
6/12/2004	H. Rother (PhD)	assistance to attend AQUA 2004	\$100.00
6/12/2004	F. Shanhun (Hons)	assistance to attend AQUA 2004	\$100.00
6/12/2004	C. Woodward (PhD)	assistance to attend AQUA 2004	\$100.00
6/12/2004	J-B Stuu (PDF)	assistance to attend AQUA 2004	\$300.00
6/12/2004	H. Rother (PhD)	Balance of monies owed for attendance at NZ workshop	\$152.00
6/12/2004	Cradle Mountain Chateau	Hire of room for INTIMATE workshop at AQUA 2004	\$1,574.00
			\$4,074.21

Budget request for 2005/2006

Total request: US\$4000

US\$500 for 1 x US\$500 grant to part-fund a South American (or a South African) participant at the next joint meeting.

Justification: Ultimately, we need to extend the Australasian INTIMATE project across the Southern Hemisphere and funding participants from South America and South Africa is critical to this process. At this stage, we are still in the early stages of progressing regional work in Australasia. We would like to encourage the first tentative links to other regions. We believe that partial funding is more likely to get us a link person with real interests in SH collaborations.

US\$1000 for 5 x \$200 for Australian student participation at Northland meeting.

Graduate student participation is important for the project. US\$200 per student for 5 students would give very useful partial support for Australian graduate students attending the next regional meeting.

US\$1000 for project administration costs (primarily development of website with downloadable pdfs etc)

Electronic communications are a vital method for maintaining group activities. We envision all project outcomes being made available through the web-sites.

US\$1500 for direct costs of next joint meeting in Northland, New Zealand (venue hire etc)

A partial contribution towards the costs of organising the next regional meeting. Any surplus funds would be used to support additional student attendance.

Submitted by Jamie Shulmeister

On behalf of the Australasian INTIMATE project.