



SASQUA

SOUTHERN AFRICAN SOCIETY
FOR QUATERNARY RESEARCH

NEWSLETTER

November 2006

PRESIDENT'S NOTE

Dear SASQUA members,

Time seems to be ticking away and before we know it we are into the New Year. Most of us probably have such hectic schedules that we have little time to reflect on the year that has just flown by...and already we are having to plan for 2007! To this end we need to look forward as a society, despite our interests in the past.

Many thanks to those who have kept SASQUA alive over the past year - particularly Greg and Jeannette. The newsletters are a valuable way of communication, so thanks to all those who have provided information to Jeannette. Unfortunately we are receiving fewer and fewer contributions from members, in part this may be attributed to the ever increasing demands on our time. The strength of the society invariably depends on the level of member participation.

Two important announcements:

Members' have one final chance to pay their SASQUA fees before they are wiped off our members list. Please pay your membership fees if you have not yet done so. Please also note that the First Circular for the SASQUA XVII Biennial Congress is now out. We have already received much interest from national and international SASQUA members and so are confident that we will have a fantastic turnout and interesting conference to look forward to. We hope to see many of you in Howick next year!

Best wishes for the Christmas and New Year season.

Stefan Grab

School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand

RESEARCH NEWS & UPDATES

Marion Bamford

BPI Palaeontology

University of the Witwatersrand

In February this year I spent a month in Argentina working on a Mesozoic and Tertiary fossil wood project with Dr Alba Zamuner of the University of La Plata to compare the woody vegetation, time of dispersal and relate these to the modern floras. We also visited the modern riverine forest along the La Plata River which is adapted to frequent and prolonged flooding.

With Greg Botha and David Cantrill (Swedish Museum of Natural History) I collected fossil wood and pollen samples from the Cretaceous deposits in Mkhuze in April this year. This is part of a project looking at the southern hemisphere palaeofloras.

In June this year I went into the field with the Koobi Fora Field School and collected seeds from the Laikipia Plateau and did several vegetation transects. This was funded in part by the Leakey Foundation and PAST. A paper was presented at the PaleoAnthropology Society meeting in San Juan Porto Rico in April this year (Braun et al. 2006). I presented a paper on the fossil woods

collected from Koobi Fora last year at the European Palaeobotany and Palynology Conference in Prague, 6-11 September, (Bamford et al. 2006) and a paper describing the woods is nearly complete. There will be more papers to come as this is a large collection.

For five weeks in July-August this year Dr Albert (ICREA and University of Barcelona) and I collected extensively for modern plant material for phytolith analysis, and also soils to add to our reference collection. We also sampled for fossil phytoliths from three trenches (60 samples) to determine any differences in palaeovegetation. Two papers on phytoliths have been published, Bamford et al. 2006, and Albert et. al. 2006. Our research at Olduvai has been presented at the Paleoanthropology Society Meeting in San Juan, the International Meeting for Phytolith Research and will be published in the Proceedings of the latter conference (see Recent Publications).

A double volume on the research at Laetoli over the last ten years by Prof Terry Harrison and his team is in preparation (to be published in early 2008) and there will be contributions on the fossil and modern vegetation.

In June this year I visited the Palaeontology department of the National Museum of Kenya, Nairobi, and studied the collection of fossil seeds from Rusinga Island, Lake Victoria (site of the early hominoids *Proconsul*, *Dryopithecus* etc.). In August I visited the Palaeobotany department in the Natural History Museum, London to study the rest of the collection there. This was funded by the Leakey Foundation but there was only sufficient money for these two visits and no field work. We have almost completed the taphonomy paper on this material (Collinson, Andrews, Bamford, in prep.) but there is much more work to be done identifying the rest of the seeds for which modern comparative material will be used.

Gabi Teren, a PhD student in the School of Animal, Plant and Environmental Sciences at Wits University is looking at the impact of elephants and climate change on the vegetation in northern Botswana and using palynology to determine the past flora. Lucy Pereira, a student at BPI Palaeontology, will be doing a phytolith study at Koobi Fora for her PhD next year.

John Compton
Dept. of Geological Sciences
University of Cape

Guiliana Franceschini and Rochelle Wigley, two recent PhD graduates, and I presented talks at the European Geosciences Union (EGU) meeting in Vienna Austria in April. Livhuwani Maake (Honours student), James Wiltshire (MSc student), Caren Herbert (PhD student) and I presented posters and talks at the third Inkaba ye Africa meeting held in Potsdam Germany in June on various aspects of the Orange River and offshore mudbelt.

Please contact me if you would like a PDF copy of the 2006 articles listed in Recent Publications.

Peter Holmes
Dept. of Geography
University of the Free State

I am currently involved with two late Quaternary research initiatives. One is the Leverhulme sponsored project driven by Dr Mark Bateman from the University of Sheffield. Other collaborators are Dr Andrew Carr from the University of Leicester, Prof Colin Murray-Wallace from the University of Wollongong, and Dr Dave Roberts from the Council for Geoscience. An extensive OSL dating programme has covered aeolian deposits from Knysna in the east through to the Cape West coast. New data on the aeolianites and Holocene dunes of the southern Cape should be published shortly.

The second project is an NRF sponsored initiative which involves the dating of pan fringing lunette dunes in the western Free State. Collaborators are Prof Dave Thomas and Dr Giles Wiggs from the University of Oxford, Dr Mark Bateman, and Dr Charles Barker from my own Department. The aim of this research is to establish a regional (west-central Free State) chronology for enhanced aeolian

activity in this area. Mark Bateman and Peter Holmes presented the latest findings from both the above projects at the Sixth International Conference on Aeolian Research (ICAR) held at the University of Guelph, Canada, in July 2006.



Mark Bateman of the University of Sheffield seals a sediment sample extracted from a pan fringing lunette dune in the western Free State. Sampling every 50 cm down the profile will hopefully provide good temporal resolution in terms of late Quaternary aeolian activity in this part of the Free State.

Julia Lee-Thorp
Archaeological Sciences
University of Bradford

Papers from Fifth International Bone Diagenesis Meeting, held at the University of Cape Town, 28-31 August 2005 (reported on in the Oct. 2005 SASQUA Newsletter), are currently being processed for a special issue of *Palaeo3*, with myself and Judith Sealy as guest editors.

In 2006 I attended the following meetings:

- Presented a paper on behalf of co-authors Jeannette Smith and Simon Hall at the Association for Environmental Archaeology Spring Conference, Exeter University, UK, 28-30 March.
- Presented a paper with Karin Holmgren at the 4th Karst Record International meeting in Baile Herculane, 26-29 May.
- Keynote speaker at the Second International Symposium on Biomolecular Archaeology, Stockholm, 7-9th Sept.

Recent Appointments:

- After many years at the University of Cape Town, I took up a new post as Research Professor of Archaeological Sciences at the University of Bradford, UK, in 2005.
- I currently serve on College Review panels for NERC and the Oxford Radiocarbon Accelerator Laboratory.

Recent Graduates:

- Nicolass Fourie, (MSc University of Cape Town) has left to take up a fully funded PhD studentship in Paleoanthropology at the George Washington University, Washington DC, USA.
- Dr Daryl Codron (PhD University of Cape Town) is working with James Brink at the National Museum, Bloemfontein, and has an NRF-funded post-doctoral fellowship.

Dave Thomas
School of Geography
Oxford University Centre for the Environment

I have been awarded an honorary Professorship by the University of Cape Town, and in Jan. 2006 I commenced a three year Leverhulme Trust funded project to systematically investigate and analyse the late Quaternary palaeoenvironmental proxy record from Hyrax middens from Cape Town to N Namibia. The project is a collaboration between the Universities of Oxford, Cape Town and the Free State, and involves Mike Meadows, Louis Scott, Eugene Marais and David Thomas (PI) with Brian Chase the PDRA working fulltime on the project.

A series of projects are working on detailed OSL-based chronologies of the western Kalahari and Namib dune systems and the palaeolake shorelines of the Kalahari. A Namib project centred on the Tsondab Vlei area and the adjacent Naukluft mountains is funded by the UK's NERC and is a multiproxy investigation investigating tufa, fluvial and aeolian records using Uranium series and OSL dating.

Three doctoral students have been involved in the Kalahari-Namib work with one, Matt Telfer, recently completing his thesis. A paper in the journal *Geology* (see Recent Publications) is the first output from the intensive fieldsampling and OSL dating regimes that these studies all employ.

Jorge Rabassa
Laboratorio de Geología del Cuaternario, Argentina

I attended the following conferences in 2005 and 2006:

- European Periglacial Conference, Potsdam, Germany, June 2005.
- XVI Argentine Geological Congress, La Plata, September 2005.
- Patagonian Archaeological Symposium, Punta Arenas, Chile, November 2005.
- VIII Brazilian Geomorphological Congress, Goiania, September 2006.
- III Argentine Geomorphology and Quaternary Geology Congress, Cordoba, October 2006.

The "IV Field Course on the Geomorphology and Quaternary Geology of Tierra del Fuego" took place from 12-24 November 2006. In the last three years the course was attended by scholars in Geology, Geography, Biology and Archaeology, coming from 18 countries.

In 2006 I supervised the completion of PhD theses by Elizabeth Mazzon and Yolanda Aguilera, which focussed on the geomorphology and geology of Patagonia.

Research initiatives took me to the Department of Geography, University of Helsinki, Finland, where I was a Visiting Scholar in June 2005. Between April and June of 2006 I spent time as a Visiting Distinguished Scholar at the University of Illinois, Urbana/Champaign, and at the Illinois State Geological Survey. The following pictures are from an expedition to Isla de los Estados (Staaten Island in November 2005), with Professor Svante Bjorck and colleagues from Lund University, Sweden and Argentina.



Sunrise at the island



Yacht used to visit this uninhabited island, the closest emerged place on Earth to the Antarctic Circumpolar Current



King Penguins at the beach

John Rogers
Dept. of Geological Sciences
University of Cape Town

As a result of my attending a 2-day workshop in Nairobi (19-20 July, 2004), a co-authored paper with Amanda Rau and M. T. Chen (see Recent Publications) has appeared in the special edition of the *Quaternary International* Vol. 148. This volume is dedicated to the output from the workshop and is entitled: *Linking African Palaeoenvironments and Modern Environment: Pages Workshop*. The guest editors were Daniel Olago and Eric Odada of the Pan African START Secretariat, Dept. of Geology, University of Nairobi (pass@uonbi.ac.ke)(dolago@uonbi.ac.ke). The volume also includes an obituary entitled: *Nick Shackleton: The Passing of a Giant*.

In 2005, I supervised an Honours Project by Paula Hutcheson entitled *The Geology of the Coastal Terrace Between Strand and Kleinmond*. This project included the bedrock geology (Malmesbury and Table Mountain Groups), as well as the haematite- and limonite-stained boulder talus exposed in vertical roadcuttings along Clarence Drive between Gordon's Bay and Rooi Els. Some of this talus was later wave-rounded in a +20 m, shell-free boulder beach, exposed just south of Kogel Bay, correlated with shelly and microfossiliferous beaches at similar elevations at Saldanha Bay. The latter have been dated, using strontium isotopes, and reported in a publication by Franceschini and Compton (see Recent Publications). Their +25 m beach, at the base of their Prospect Hill Formation, is dated as latest Miocene to earliest Pliocene in the Neogene (Late Tertiary). If this correlation can be proved to be correct, then the talus is likely to be as old as Paleogene (Early Tertiary) and may explain why it is cemented enough to support vertical roadcuttings much steeper than the angle of repose of about 30 degrees, measured in this



Paula Hutcheson and the talus/dune sand/boulders exposure just north of the Holocene estuary of the Rooi Els River

Honours Project for the Quaternary talus below the cliffs of Cape Hangklip.

Just north of the Rooi Els Estuary, the haematite-stained (Palaeogene?) talus is overlain by up to 3 m of vegetated dune sand, itself overlain by sandstone boulders so large that they exceed the dimensions of "very large boulders" (2048 to 4096 mm) in the Modified Wentworth Grain-Size Scale. Some even exceed the grade that Paula and I invented, namely "extremely large boulders" (4096 to 8192 mm). Were the dune sand, consisting of quartz, shell fragments and siliceous sponge spicules, to be dated by thermoluminescence (beyond our budget), then an age for the deposition of the extremely large boulders could be obtained. We suspect that the dune sand was deposited in the Last Interglacial.

During the Project, early in the morning of 11th April, 2005, there was a high-rainfall event, that caused a suite of landslides (debris flows) between Pringle Bay and Stanford. These formed a minor part of Paula's Project, but are the focus of a 2006 Honours Project that I am supervising with Carla Mauger. Local residents of Betty's Bay, whose houses were surrounded by boulder-bearing debris flows, up to 1 m thick, reported that they lasted for about 7 minutes and that they made a noise like a Boeing that was trying to take off (unsuccessfully). Or to put it in the original Afrikaans "Dit was 'n verskriklike geraas!" (Mrs Annette van der Merwe, 11 April 2005). Several houses in Betty's Bay have been built, unwisely we feel, on the uphill side of "extremely large boulders", which I pointed a few weeks ago at a public talk I gave for the Rooi Els Conservancy. They kindly offered me a bed for the night - in a house built uphill of an extremely large boulder!



Mrs Annette van der Merwe and debris flow at Betty Bay



Landslide near Stanford, triggered on 4 Nov.2005



John Rogers on very large boulder

Ingrid Stengel**Dept. of Geography, Geoinformatics & Meteorology, University of Pretoria**

Recent Departmental Appointments:

- Dr Paul Sumner and I were both promoted from Senior Lecturer to Associate Professor with effect from 1 Jan .2007.

In 2005 and 2006 I presented the following at conferences and invited lectures:

- Geomorphic evolution of southern Namibia – long-term landscape history along a passive continental margin. Africa Research Group, Annual Conference, June 2005, Hamburg /Germany.
- Palaeoenvironmental aspects of Quaternary valley-fill sediments in southern Namibia – the Huns River example. Africa Research Group, Annual Conference, June 2005, Hamburg / Germany.
- Geoscientific research in Africa – an adventure? Photographic evidence...Africa Research Group, Annual Conference, June 2005, Hamburg / Germany.
- with H. Leser: Palaeoenvironmental scenarios of southern Namibian Late Quaternary valley-fill sediments. Inter-University Namibia Res. Group, Annual Meeting, June 2005, Basel / Switzerland.
- with. Leser: Terrazzo': Palaeoenvironmental and geomorphological characteristics of the oldest valley-fill unit, southern Namibia. Inter-University Namibia Res. Group, Annual Meeting, June 2005, Basel / Switzerland.
- Valley-fill sediments in southern Namibia and their palaeoenvironmental interpretation. SSAG Conference, Sep 2005, University of the Western Cape.
- Ancient weathering – late results: Implications of the Late Proterozoic weathering for the post-Gondwana geomorphic evolution of southern Namibia. SSAG Conference, Sept. 2005, University of the Western Cape.
- with H. Leser: Palaeoenvironmental aspects of Quaternary valley-fill sediments in southern Namibia – the Huns River example. SSAG Conference, Sept. 2005, University of the Western Cape.
- Dunes, energy & time: types and dynamics of dunes and dune fields. Africa Research Group, Annual Conference, June 2006, Wuerzburg/Germany.
- The record rainy season 2006 in Namibia and its implications, in comparison. Africa Research Group, Annual Conference, June 2006, Wuerzburg/ Germany.
- Sand - Energy - Time: Types and dynamics of sand dunes and dune fields. Southern African Association of Geomorphologists Conference, Sept. 2006, Pietermaritzburg.
- Neotectonics of southwestern Namibia: some geomorphological implications. Southern African Association of Geomorphologists Conference, Sept. 2006, Pietermaritzburg.
- Invited Lecture on Remote sensing for agricultural and environmental applications. University of Limpopo, Dept of Soil Science. Nov 2005. 1 day short course.
- Invited Lecture on Namibian Environments, past & present. University of Pretoria, Centre for Environmental Studies. Oct 2005. Special lecture for students and staff from Dartmouth College/ USA.
- Invited Lecture on Namibian Environments, their physical properties and degradation hazards. - University of Pretoria, Centre for Environmental Studies. Oct 2005. Special lecture for students and staff from Dartmouth College/ USA.

RECENTLY COMPLETED THESES AND DISSERTATIONS

Matt Telfer (2006) *Late Quaternary aeolian activity and palaeoenvironments of the southwestern Kalahari: Advances from an intensive chronometric investigation at Witpan, South Africa*. PhD, Oxford University.

Daryl Codron (2006). *The ecological and evolutionary significance of browsing and grazing in savanna ungulates*. PhD, University of Cape Town.

Nicolaas Fourie (2006). *Dietary ecology and niche separation among three closely related species (Parapapio jonesi, Pp. whitei and Pp. broomi) of South African Plio-Pleistocene Cercopithecoidea from Makapansgat Limeworks site*. MSc, with distinction, University of Cape Town.

RECENT PUBLICATIONS AND CONFERENCE ABSTRACTS

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Albert, R.M., Bamford, M.K. and Cabanes, D. (2006). Reconstruction of vegetation of the eastern palaeolake margin of Olduvai Gorge, Tanzania, during Lowermost Bed II times. *Abstracts, 6th International meeting on Phytolith Research, ICREA, Barcelona, 12-15 September 2006*, pp. 3-4.

Armitage, S.J., Botha, G.A., Duller, G.A.T., Wintle, A.G., Rebêlo, L.P. and Momade, F.J. (*In press*). The formation and evolution of the Barrier Islands of Inhaca and Bazaruto, Mozambique. *Geomorphology*. Proof Available online 7 July 2006.

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Burgoyne, P.M., van Wyk, A.E., Anderson, J.M. and Schrire, B.D. (2005). Phanerozoic evolution of plants on the African plate. *Journal of African Earth Sciences* 43(1-3): 13-52.

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- Codron, D., Codron, J., Lee-Thorp, J.A., Sponheimer, M., and de Ruiter, D. (2005). Animal Diets in the Waterberg Based on Stable Isotopic Composition of Faeces. *South African Journal of Wildlife Research* 35 (1):43-52.
- Codron, D., Luyt J., Lee-Thorp, J.A., Sponheimer, M., de Ruiter, D. and Codron, J. (2005) Utilization of savanna-based resources by Plio-Pleistocene baboons. *South African Journal of Science* 101:245-248.
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- Compton, J.S. (2006). The mid-Holocene sea-level highstand at Bogenfels Pan on the southwest coast of Namibia. *Quaternary Research* 66:303-310.
- Compton, J.S. (In press). Holocene evolution of the Anichab Pan on the southwest coast of Namibia. *Sedimentology*.
- Demoulin, A., Zárate, M. and Rabassa, J. (2005). Long-term Landscape development: a perspective from the southern Buenos Aires ranges of east central Argentina. *Journal of South American Earth Sciences* 19:193-204.
- Ercolano, B., Mazzoni, M., Vázquez, M. and Rabassa, J. (2004). Drumlins y formas drumlinoides del Pleistoceno inferior en Patagonia Austral, Provincia de Santa Cruz. *Revista Asociación Geológica Argentina* 59(4):771-777.
- Franceschini, G. and Compton, J.S. (2004). Aeolian and marine deposits of the Tabakbaai Quarry area, Western Cape, South Africa. *South African Journal of Geology* 107:619-632.
- Franceschini, G. and Compton, J.S. (2006). Holocene evolution of the Sixteen Mile Beach Complex, Western Cape, South Africa. *Journal of Coastal Research* 22:1158-1166.
- Gordillo, S., Coronato, A. and Rabassa, J. (2005). Quaternary molluscan faunas from the island of Tierra del Fuego after the Last Glacial Maximum. In W. Arntz, G. Lovrich and S. Thatje(eds.) *The Maguellan-Antarctic connection: links and frontiers at high southern latitudes. Scientia Marina* 69 (Suppl. 2):337-348.
- Gordillo, S., Rabassa, J., Bujalesky, G. and Coronato, A. (In press). Holocene infaunal bivalves in the Beagle Channel: an integrated approach. *Revista Geológica de Chile*.
- Heine, K. (2005). Holocene Climate in Namibia: a Review based on Geoarchives. *African Study Monographs, Suppl.* 30:119-133. Kyoto, Japan.
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XVII Biennial Congress

**Umgeni Valley
Nature
Reserve,
Howick,
KwaZulu-Natal**



11-13 April 2007

FIRST CIRCULAR

**Understanding
environmental
change:
The contribution of
Quaternary hindsight
to future
sustainability**

Invitation to participate

On behalf of the Council of the Southern African Society for Quaternary Research (SASQUA), the organizing committee takes pleasure in inviting you to contribute to the XVII SASQUA biennial congress.

Date

The congress follows the Easter weekend and will run from the evening of Tuesday 10 April to Friday 13 April 2007. A scholar information workshop will be held on Tuesday 10 April.

Venue

The meeting will be held at the Umgeni Valley Nature Reserve of the Wildlife and Environment Society of South Africa (WESSA), near Howick in KwaZulu-Natal. There is accommodation in self-contained chalets, cottages and dormitories on site with numerous B&Bs in the town and surrounding countryside.

Theme

The congress theme; "Understanding environmental change: The contribution of Quaternary hindsight to future sustainability", enables SASQUA to showcase the wide application and significant contribution made by multidisciplinary Quaternary science to the management of our changing environment. We trust that contributors will use this "applied" theme as an opportunity to highlight the broad societal value of their research.

The information workshop for senior school learners will raise the visibility of Quaternary studies by exposing the next generation of undergraduate students to research opportunities within the context of a wide range of disciplines.

Scientific Programme

The scientific programme will be compiled on the basis of responses to the congress circulars. The following session themes have been suggested;

- Archaeological and palaeontological heritage
- Geohazards and land degradation
- Marine environments and sea-level change
- Climate change
- Changes in terrestrial environments and landscape processes.

The oral presentations will be grouped in thematic sessions with 15 minute presentations in English. Digital projection facilities will be available using PowerPoint.

Posters will be on display throughout the meeting and presenters will introduce their contributions. The size format for posters, and format for abstracts will be outlined in the Second Circular.



Awards

The organizing committee will make merit awards for the "Best student presentation & Best student poster."

Submissions will be invited for the SASQUA "Oliver Davies Award" which recognises recently published research by young researchers.

Invited speaker

Dr Rob Fitzpatrick of Adelaide, Australia, who conducted his PhD research in KwaZulu-Natal, will present the keynote address and public lecture. Dr Fitzpatrick works for the Environmental Biogeochemistry Research Theme in CSIRO Land and Water, and is an Affiliate Associate Professor in Soil & Land Systems and Geology & Geophysics Disciplines within the School of Earth & Environmental Sciences of the University of Adelaide.

Field excursions

The mid-conference field excursion will visit the Sibudu Cave archaeological site near Tongaat, and raised beach deposits near Mdloti and Durban.

The focus of possible post-congress field trips will be on small groups providing their own transport, led by a local specialist guide. Please outline your area of interest !

Preliminary proposals include;

- Long-term gully erosion in central KwaZulu-Natal

- Landslides in the Drakensberg foothills
- Maputaland coastal plain geology
- Quaternary of the Braamhoek Dam site
- Submerged dunes & beaches; Aliwal Shoal, KZN South Coast
- Stone Age and Iron Age archaeology

Student grants

SASQUA will offer student subventions towards registration and accommodation costs. Submit CV to the organizing committee supported by a letter from faculty supervisor.

Accommodation (pp sharing/single)*

2 sleeper chalets; ~R160 / R204
Cottages; ~R149 / R182
Dorms; ~R66 per person (own bedding)
B&Bs in area; ~R250 – R350

** prices possibly subject to change*

Conference registration fees **

SASQUA members ~R1250
Non-members ~R1500
Students ~R700

Includes teas, lunches, ice-breaker function, congress dinner, mid-congress field trip

*** subject to change depending on possible sponsorship and rising costs*



Expression of interest

To receive the **Second Circular**, please submit the following details;

Name: _____

Affiliation: _____

Address: _____

Tel: _____

E-mail: _____

Contribution: Oral / Poster

Preferred theme:

Archaeology/ geohazard / marine / terrestrial processes

Contact details

Organizing Committee; SASQUA 2007,
c/o Council for Geoscience,
P.O. Box 900, Pietermaritzburg, 3200

Dr Greg Botha gabotha@mweb.co.za
Rebekah Grow rgrow@mweb.co.za

This is your congress, play an active role to ensure that you derive maximum value from your SASQUA membership !!

	<p>XVII INQUA CONGRESS 2007 </p> <p>The Tropics: Heat Engine of the Quaternary</p>  <p>Cairns Convention Centre, Australia 28 July-3 August 2007</p>				
<p>XVII INQUA CONGRESS 2007</p> <p>Cairns Convention Centre, Australia 28 July-3 August 2007</p> <table border="1"><tr><td>Quaternary Climate Change</td></tr><tr><td>Palaeoenvironmental reconstruction</td></tr><tr><td>Geomorphology and landscape evolution</td></tr><tr><td>Archaeology</td></tr></table> <p> <i>Australasian Quaternary Association Inc.</i>  International Union for Quaternary Research</p> <p>For more information please visit: www.aqua.org.au email: inqua2007@aqua.org.au or Tel: +61 2 6257 3299</p>	Quaternary Climate Change	Palaeoenvironmental reconstruction	Geomorphology and landscape evolution	Archaeology	
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