

THE VICTORIAN GEOLOGIST



March 2013

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting

Thursday 21st March at 6:15 p.m.

Unquiet Victoria: tectonic activity and landscape evolution over the last 10 million years

**Assoc Prof John Webb,
Environmental Geoscience, La Trobe University**

Fritz Loewe Theatre, School of Earth Sciences, University of Melbourne

Talks will be preceded by drinks from 5:30pm in the 4th floor tearoom, cost \$2

Despite the public perception that Australia is a tectonically stable continent with ancient landscapes (boring!), the southeastern part of the continent (particularly Victoria) has experienced extensive tectonic and volcanic activity over the last few million years, extending virtually to the present.

In the Late Miocene – Early Pliocene (~8 Ma to ~4 Ma), a period of relatively intense NW-SE oriented compression occurred, known as the Kosciusko Uplift, due to a change in relative motion between the Australian and Pacific plates associated with formation of the Southern Alps of New Zealand. This completely changed the Victorian landscape. The Southern Uplands (Otway, Strezelecki and Hoddle Ranges) were uplifted by up to 600 m at ~150 m/Ma (a substantial uplift rate on a passive margin), and the Southeastern Highlands were uplifted by up to 700-1000 m at the same time. The resulting increased gradients caused a pulse of high energy sedimentation along the southern margin of the highlands, depositing an extensive apron of alluvial fan and braided stream sediments. In western Victoria the Kosciusko Uplift displaced Late Miocene strandlines by up to 180 m, with a total uplift of up to 300 m, but did not affect Early Pliocene basalts, which partially infilled the landscape around uplifted blocks. North of the divide the effects of the Kosciusko Uplift were less, but uplifts of 30 m or more occurred along several N-S faults.

ABSTRACT CONTINUED ON NEXT PAGE...

ABSTRACT CONTINUED**PLEASE NOTE THE CHANGE OF DATE OF THE MARCH MEETING TO THE 21ST****Continued from front page...**

Following this intense phase of activity, tectonism has been ongoing at a lower intensity through to the present, and the region is still under strong NW-SE oriented compression, with a significant amount of seismic activity over the last 150 years. At Cape Liptrap, displacement of Late Pliocene - Pleistocene marine terraces along the Waratah Fault gives uplift rates of 10-40 m/Ma, and the most recent movement on this fault kinked dune limestones dated at 70-80 ka. At Bushrangers Bay on the Mornington Peninsula, beach sediments dated at 90 ka have been uplifted at least 8 m. There is a suggestion that intervals between major seismic events are of the order of 100 ka, and the youngest substantial movement could have occurred perhaps ~20,000 years ago.

Thus Victoria's landscape has changed greatly over the last few million years, and tectonic activity has not ceased. Although the earthquake risk for Victoria (and Melbourne) is regarded as low, it is not non-existent, a fact that needs to be kept in mind for building codes.

SCIENCE NEWS

Meteorites seem to have been the flavour of the month following last month's spectacular event in Russia. The explosion of the 17 m wide meteorite in the atmosphere was approximately 30 times more powerful than that of the atomic bomb dropped on Hiroshima during WWII and produced both seismic and sound waves that were recorded by NSF funded recording stations in the United States.

Following the event, the United Nations Office for Outer Space Affairs (UNOOSA) has released a series of recommendations on an international response, including the creation of an international Asteroid Warning Network. Elsewhere, a Texas professor has proposed that coating an incoming asteroid with a special sunlight reflecting paint can potentially alter the way an asteroid spins and thus its trajectory, avoiding an impact with Earth if required.

Meanwhile, recent geophysical surveying in Iowa, USA, has revealed evidence of a large meteorite impact, 5.5 km in width and dating back to 470Ma. Also researchers in Antarctica have collected 425 meteorites embedded in the East Antarctic ice sheet as part of a 40-day expedition, including an 18kg chondrite, the largest found since 1988.

CONFERENCE NEWS



REGISTERING NOW: www.anzmaps.org



**Australian and New Zealand Map Society
(ANZMapS) - 40th Annual Conference**
"The Metropolis and Beyond: mapping the natural
and built environments"

State Library of Victoria, 328 Swanston Street Melbourne, 9-12 April 2013

The Australian and New Zealand Map Society celebrates the 40th anniversary of the Australian Map Circle, established in 1973, and recognizes the support of the State Library of Victoria, major sponsor of this year's event.

The conference commences Tuesday 9 April with the ANZMapS AGM, 5.00pm at the State Library's beautiful "Red Rotunda" room, followed by a Reception at 6.00pm. Venues: <http://www.slv.vic.gov.au/services/functions-venue-hire>

Conference papers will be presented in the Library's Conference Centre (entry from La Trobe Street), 9.00am – 5.00pm Wednesday 10 and Thursday 11 April. Lunches and teas provided as part of registration.

A full programme of presentations will be launched by Keynote speaker Professor Peter Stanley. Peter is author of many Australian military social history books, including *Tarakan: an Australian Tragedy*, *Quinn's Post*, *Anzac*, *Gallipoli*,



Invading Australia, *A Stout Pair of Boots*, and *Digger Smith and Australia's Great War*. His *Bad Characters* was jointly awarded the Prime Minister's Prize for Australian History in 2011. His next book will be *Black Saturday at Steels Creek*, on the 2009 Victorian bushfires.

The Conference dinner (included in Earlybird, Full, and Student registration) is at the Angliss Restaurant (William Angliss Institute), 555 La Trobe Street, Melbourne, on Thursday 11 April 7.00pm. www.aneliss.edu.au/Restaurants

Registration is inclusive of a guided bus tour on Friday 12 April, sponsored by Melway Publishing. The tour will be conducted by Professor Bernie Joyce and Dr Bill Birch, interpreting landscapes and geological features of Melbourne's Western Districts. The tour will depart the State Library 9.15am, returning 4.30pm. There will be a display of maps at the conference, including some the State Library's magnificent early survey maps of Port Phillip, and other military, geological, and land use maps, from colonial times to the present day.

Accommodation: may be found via several websites, eg- <http://www.melbourne.com.au/hotels.htm> www.expedia.com.au www.wotif.com etc. Please note that the State Library of Victoria have a mates rates deal with Quest on Bourke apartments. Please mention you are attending an event at the State Library. Vanessa Warnock, General Manager - Quest on Bourke. 155 Bourke Street, Melbourne VIC 3205. Tel: +61 3 9631 0400 Fax: +61 3 9631 0500 Mobile: +61 427 430 242

STUDENT FUNDING OPPORTUNITIES

Geological Society of Australia (Victoria Division) Student Research Scholarships

The GSAV are pleased to offer up to \$10,000 per year in scholarships available to honours and postgraduate students for assistance with travel costs associated with conferences and field work.



The scholarship is valued at up to \$500 for travel within Australia and \$700 for travel outside of Australia. The number of and value of the scholarships awarded each year is made at the discretion of the GSA(Vic) committee.

Funding will not be granted retrospectively and applicants are asked to submit forms no later than 6 weeks prior to their trip to give the committee time to consider the application.

Students that receive this scholarship are required to submit a report for publication in the newsletter, "The Victorian Geologist", following their trip. A presentation may also be requested by the committee, which will consist of a short, 10-15 minute presentation prior to the monthly seminar.

Applications forms can be scanned and emailed to: secretary@vic.gsa.org.au

or mailed to:

Geology Research Scholarships Victoria
Geological Society of Australia (Victoria Division)
GPO Box 2355
Melbourne VIC 3001

More information including eligibility criteria can be found on the form and by contacting Barbara Wagstaff (wagstaff@unimelb.edu.au)

Something interesting to share? Want to see your name in print?

Don't be bashful, contribute to the GSA(V) monthly newsletter!

If there are any events, happenings, news, or views that would be of interest to the membership, please send your details and information to Matt Bliss at mbliss@student.unimelb.edu.au

We'd be glad to hear from you

FORTHCOMING SEMINARS AND EVENTS

to be presented at
GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2013 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

May 2nd	Annual General Meeting Speaker TBA
May 30th	Dr. Alan Goode (AMIRA International) <i>Data Metallogenica - supporting and training the next generation of economic geologists</i>
June 27th	A.W. Howitt Lecture (Joint meeting with the RSV) Dr. Erich Fitzgerald (Museum Victoria) <i>Victoria: Last Frontier in Quest for Whale Origins</i>

Please welcome our newest members



Mathias Eggseder
Benoit Saumur
Dharam Pal

Visit the GSAV on www.vic.gsa.org.au or the GSA on www.gsa.org.au
• Renewing your GSA membership is easy - it can now be done online. •

CONSIDER CONTRIBUTING TO TAG!

It is member contributions which make TAG a member magazine – please keep the contributions coming and assist with informing all of the membership (not just your Division) about your activities.

Please send your news to: tag@gsa.org.au



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Please address all correspondence to the GSA Victoria Division
GPO Box 2355, Melbourne, VIC, 3001
Internet address: www.vic.gsa.org.au

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CONTACTS

Awards: Ingrid Campbell 9486 7160
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Newsletter: Matthew Bliss 8344 9980
Webmaster: Ken McLean 9905 1120

OTHER CONTACTS

Geology of Victoria: Bill Birch 9270 5049 (BH)

Newsletter deadline:

First Friday of the month except Dec & Jan
mbliss@student.unimelb.edu.au

GSA Inc - for membership and subscription enquiries or change of address:
Business Office: Geological Society of Australia, Suite 61, 104 Bathurst Street, Sydney NSW 2000
Email: info@gsa.org.au Tel: (02) 9290 2194 Fax: (02) 9290 2198

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The Geological Society of Australia Inc.
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