



THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division

## **The Annual A.W. Howitt Lecture**

Joint meeting of the GSAV and the Royal Society of Victoria

**Thursday 12th July at 7:00pm**

**VENUE: The Royal Society of Melbourne Building  
9 Victoria Street, Melbourne, 3000 (entrance via LaTrobe Street)**

**The secret millennial history of Port Phillip Bay  
Guy Holdgate**

**School of Earth Sciences, University of Melbourne**

Hidden below 10 metres of water buried in the central muddy basin of Port Phillip is a secret Holocene story. During recent dredging by the Port of Melbourne Corporation, three multi-beam surveys over the deeper parts of the sea floor revealed wide, deep river-channels recessed into the bay floor, connecting to the Yarra and Werribee rivers. Twelve new Carbon 14 dates and sub bottom seismic profiling reveal these mud channels could be as young as 1,000 calendar years BP.

These river features, down to -22 m water depths indicate much of Port Phillip basin must have been sub-aerially exposed during the late Holocene, (sometime between 1000 and 2800 years BP), when sea level was similar to the present. The Bay water must have evaporated after the separation of ocean water from bay water, possibly by sand blocking the shallow Nepean Bay Bar channels. During this period bay water levels fell to -22 metres. Port Phillip became a residual lake, and the Yarra and the Werribee river channels meandered across a progressively exposed muddy lake floor.

This secret Holocene history of "fluctuating bay levels" has widespread implications for our understanding of Port Phillip's history of water balance, salinity, pre-European climatic events, aboriginal occupation, tribal boundaries and legends about bay flooding and the Yarra Delta. What are the future implications?

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**IMPORTANT ANNOUNCEMENT**

Members Note: There is no June General Meeting for the GSAV. This is due to the scheduling of the A.W. Howitt Lecture in early July. There will be a regular July meeting on the last Thursday (26th) of the month as normal.

**EARTHQUAKE NEWS**

Source: The Age ([theage.com.au](http://theage.com.au))

Victoria has been shaken by more than 60 aftershocks since a magnitude 5.3 earthquake rattled Gippsland last night, the largest quake in the state in more than a century. The earthquake struck at 8.53pm, rattling buildings and frightening residents from Gippsland to the western district and as far north as the NSW town of Wagga Wagga.

Geoscience Australia said the epicentre was 10 kilometres south-west of Moe in the Latrobe Valley, and 9.9 kilometres underground. People reported feeling the ground shaking for between 15 and 60 seconds. Geoscience Australia seismologist David Jepsen this morning said about 60 aftershocks had struck in the area around the initial earthquake, and they could continue rumbling for weeks. "There were some bigger ones to start with, a couple about 3.5-magnitude. The first one was a couple of hours after the [initial earthquake]," he said.

"A magnitude-3.5 aftershock is about probably about 1000th of the energy of the main shock. They're much smaller but people would have felt them in the local area, then they got smaller from there. Most of them are quite tiny and wouldn't have been felt at all. "We don't know how long they're going to last for but it's following a pattern where they're dropping off in magnitude and frequency. They could go for a couple of days or weeks, we just don't know."

Mr Jepsen said those who felt the earthquake had flocked to the Geoscience Australia website last night to report their experiences, including some reports of minor damage. The Geoscience Australia website crashed under the load. When Geoscience was able to restore its site it had the news that the quake that rocked Victoria was the biggest in the state for 109 years.

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“Some people have seen cracks in their houses and things like that, and some of the supermarkets in the local region (surrounding Moe) had products obviously knocked off their shelves,” he said.

“A lot of people would have experienced objects on bookshelves toppling over, but we haven’t had reports of major damage.”

State Emergency Service spokesman Lachlan Quick said there had been around 30 calls for help, mainly in Gippsland, but no reports of injury. “It’s been mostly low level building damage - a chimney collapse in Moe, a garage has collapsed, some cracked walls but nothing major,” he said.

Last night’s earthquake not as strong as the 5.6 quake that devastated central Newcastle in 1989, and there were no immediate reports of serious property damage or injury.

Last night’s quake was centred within 20 kilometres of the Yallourn Power Station, which was already operating on reduced capacity after the adjoining open-cut coal mine was swamped by floodwaters two weeks ago. TruEnergy spokesman Carl Kitchen today said the earthquake had “tripped” one of two units operating at the power station overnight, however there were no power supply issues expected as a result of the earthquake. He said the power plant was being inspected today.

“Following the earthquake last night one of those two units ‘tripped’ so we have gone back to one unit while we undertake an assessment. We still expect to have a second unit operating today once we have undertaken those inspections,” Mr Kitchen said. He said the earthquake had not affected recovery work at the adjoining mine, which was swamped when part of the Morwell River diversion collapsed on June 6, causing flooding in the open-cut mine and adjoining power station. In nearby Moe, the Woolworths store has been closed today while a structural assessment of the building. US seismologists initially reported a 5.2 quake near Melbourne. Geoscience Australia later measured it at 5.5, and then revised it down to 5.3 — still making it one of the larger mainland Australian quakes recorded in decades.

Mr Jepsen said the motion of plates around the Pacific region caused the Australian continent to be compressed. “That compression leads to a building of stresses within the earth’s crust. Once that stress exceeds the strength of the rock, it will break and release energy. That’s how we generally see earthquakes occurring in Australia, a build up and then pop.”  
home began to shake.

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**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](mailto: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](mailto:wagstaff@unimelb.edu.au))

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### **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](mailto: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 2011 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

July 12	The Annual A.W. Howitt Lecture in conjunction with the Royal Society of Victoria Speaker: Guy Holdgate Topic: The Port Phillip Bay Story
July 26	Nicole Cox Topic: Structural Story of East Timor
August 30	TBA
September	Selwyn Symposium

Please join the GSAV in welcoming our new members



Katy Kijek  
Andrew Bates  
Roger Powell  
Estephany Marillo Sialer

Visit the GSAV on [www.vic.gsa.org.au](http://www.vic.gsa.org.au) or the GSA on [www.gsa.org.au](http://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](mailto:tag@gsa.org.au)



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#### Newsletter deadline:

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