

September 2010

THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division

## Next General Meeting for 2010

Thursday 30th September at 6:15 p.m.

### **SELWYN LECTURE 2010** **Climate Change - a view from the Quaternary**

**Brad Pillans**

*Chair*

*Geological Society of Australia*

**Fritz-Loewe Theatre, Earth Sciences Building, The University of Melbourne**

Preceded at 5:30 p.m. by drinks and nibbles in the tea-room, 4th floor. Cost \$2

---

The Quaternary Period, or the last 2.6 million years of earth history, is characterised by the episodic growth and decay of massive ice sheets that covered large areas of Scandinavia, North America and Russia. There is strong evidence to suggest that these glacial-interglacial climate changes were driven by changes in the earth's orbital parameters – precession, obliquity and eccentricity – and amplified by complex feedback mechanisms operating through ocean and atmospheric changes. In this talk I will argue that our understanding of Quaternary climate changes allows us to better assess anthropogenic impacts on the global climate system.

---

The Selwyn lecture will be preceded by the Selwyn medal presentation. In 2010 the Selwyn Medal is awarded to **Professor Mike Hall**

---

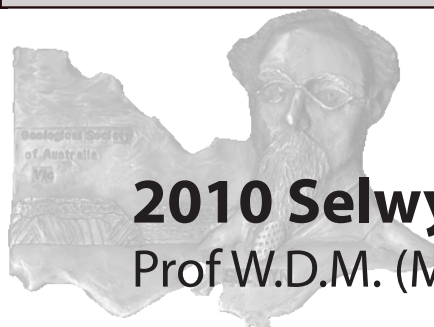
### ***Selwyn Dinner***

The Selwyn dinner will be held at Cafe Italia following the seminar at approximately 7:30pm.

RSVP essential by COB Monday 27th September to  
Adele Seymon at Adele.Seymon@dpi.vic.gov.au or 9658 4523 (BH)

No RSVP required for the Selwyn Lecture

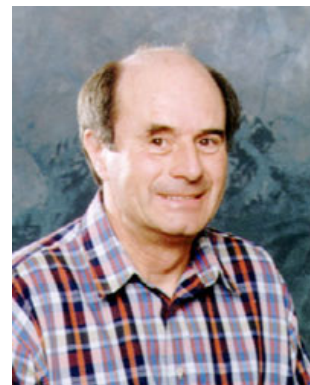
## AWARDS



## 2010 Selwyn Medal Winner

### Prof W.D.M. (Mike) Hall

*Monash University*



The Selwyn Medal is named in honour of Sir Alfred Selwyn, an eminent Victorian pioneering geologist and founder of the Geological Survey of Victoria. It is awarded, usually yearly, to recognise significant ongoing or former contributions of high calibre to any field of Victorian geology. A candidate for this medal should have made a major contribution to new knowledge of the geology of Victoria, or a significant reinterpretation of it based on critical observations, or has contributed importantly to a major mineral or oil discovery, or have produced important geological publications or have been involved successfully in the development of the geological profession.

The following paragraphs contain some excerpts from the citation support statement submitted by Martin Norvick and Ray Cas. The full statement can be read at [www.vic.gsa.org](http://www.vic.gsa.org)

Over a distinguished geological career spanning 50 years, Mike has worked for the international and domestic minerals and petroleum industries, for governments, and also for academia. During this time he has made significant geological discoveries in all of the world's continents, as well as all states within Australia. He has also served the Geological Society of Australia as a former chairman of the WA division and as a committee member in Victoria.

One of his major scientific successes in recent years has been to rejuvenate the structural and stratigraphic understanding of the Otway Basin via detailed outcrop mapping and integration with industry seismic data, and regional gravity and magnetic data. He has helped to promulgate the geological understanding of the Otway Basin by leading numerous field trips to the Otway coastal outcrops for industry, academic conferences and students. Even now, this work is entering a new phase via his acquisition of new outcrop and geophysical data.

He continues to be active both in the petroleum and geothermal industries in Victoria through his association with the 3D-Geo geological consultancy, and also through supervision of further honours and postgraduate students at Monash University. In addition to research in the Otway Basin, he has ongoing structural geological projects in northern and southwestern Tasmania and New Zealand, particularly the Wanganui and Wairarapa basins. In recent years he has expanded his research portfolio to include sedimentological and basin analysis studies in the Late Tertiary basins of New Zealand, Cretaceous break-up basins in Brazil and sedimentological studies on the palaeoenvironmental context of newly discovered Ediacaran fossils in Namibia.

---

**OBITUARIES**

---

**RAYMOND GEORGE (RAY) SANDERS****13th November 1940 – 4th July 2010**

Ray was an enthusiastic GSA member, regularly attending the technical meetings of the Victorian Branch. He was also a member of the Australian Geomechanics Society and Australian Tunnelling Society. Ray died on 4 July 2010 of prostate cancer aged 69 years.

Ray was born in Melbourne and during his childhood lived at Hawthorn where he attended Hawthorn West Primary School and then Richmond Technical College. He undertook tertiary studies at the Royal Melbourne Institute of Technology graduating in geology. In 1968 he moved to Park Orchards where he lived for 42 years.

1961 to 1965 Ray worked for the Country Roads Board as an assistant experimental officer field testing soil and gravel materials; and 1965 to 1967 Ray spent two years in UK working for Marconi as a scientific officer testing crystals.

1967 to 1991 Ray was employed as an engineering geologist/senior engineering geologist with Melbourne & Metropolitan Board of Works (MMBW) later known as Melbourne Water. These were the golden years of sewer and water supply development for Melbourne and much geological work was required for major tunnels and dam construction. At its peak strength the Geology Section employed a dozen engineering geologists and geology trained technical officers.

Ray was involved as site geologist at major infrastructure projects that included Sugarloaf Reservoir construction, Silvan Dam wall strengthening and large boring machine tunnels: South Eastern Trunk Sewer, Western Trunk Sewer and Dandenong Valley Trunk Sewer.

1991 to 2000, Following government action resulting in privatisation and wholesale dismantling of engineering and technical services at Melbourne Water, Ray moved to Coffey Geosciences as a Senior Engineering Geologist. There he continued with work on the construction of the North Western Trunk Sewer (a Melbourne Water project) and then on a variety of other projects including Crafers Road Tunnel, nr Adelaide; Mercury Tunnel for high voltage cables, Penrose, New Zealand; and Northside Storage Tunnel, Manly, NSW.

Ray retired from full-time work in late 2000 on his 60<sup>th</sup> birthday. In retirement he worked as a volunteer with several landcare organisations and was Vice-President of the Andersons Creek Catchment Area Landcare Group. He also coordinated the walks program for the Park Orchards Learning Centre.

Through his life, Ray had many outdoors interests. He was a Queen's Scout, Scout Leader and founding member of the Scout First Aid Service. He bushwalked in Victoria and Tasmania and was a member of the Victorian Climbing Club and the Victorian Caving Club. In the late 1970's he was a member of the St John Ambulance Brigade.

*CONTINUED ON NEXT PAGE...*

---

## OBITUARIES

---

CONTINUED FROM PREVIOUS PAGE...

Ray enjoyed the camaraderie of the workforce at construction sites. His ever polite demeanour earned him the prefix “Mild Mannered Ray” but that’s not to say he couldn’t get fired up when occasion demanded. For extended periods Ray artfully avoided being under the thumb and evil eye of general office management. He was a quiet achiever, providing on the spot advice, performing testing and meticulously mapping and recording geological conditions. For tunnels this information was used to study construction support requirements, TBM performance and excavation progress.

During a private visit to the UK in 1989 Ray was invited underground (Russell Cutler) to inspect the construction of the Channel Tunnel near Dover, Kent. (Ray said the Chief Geologist told him “The geology down here is very boring – chalk, chalk and more chalk”.)

From extensive firsthand knowledge of tunnelling conditions in the network of major sewer tunnels beneath Melbourne, Ray contributed sections on the Palaeozoic bedrock in *Engineering Geology of Melbourne* published by Australian Geomechanics Society, Victorian Group in 1992.

Ray is survived by his wife Sylvia, to whom he was married for 45 years, daughter Robyn and son David. He had one grandson, Aedan. Ray is sadly missed by family and colleagues.



In the photo: Ray inspecting the exposed tunnel crown behind the head of a TBM in one of Melbourne Water’s major sewer tunnels. He is wearing his trademark white overalls that were a safety measure (before the days of reflective stripes) particularly to help be seen by tunnel locomotive drivers.

---

## OWEN PEMBER SINGLETON

(death notice from The Age)

“SINGLETON. - Owen Pember. Died peacefully in his sleep at the Alfred Hospital on Sunday Aug. 29, 2010 aged 85 years Eldest son of the late Frederick Alexander and Collwyn Singleton (both dec.). Loved brother of Patrick Singleton. A dedicated teacher of Geology in particular as seen in the field.”

Dr Owen Singleton was, for 47 years, a member of the Geology Department (University of Melbourne) which later became the School of Earth Sciences. Owen Singleton worked on many aspects of geology, with an emphasis on the field geology of Victoria. He had an exceptionally detailed knowledge of the state and a remarkable memory for locations, passing his knowledge on to younger geologists. His father’s work on fossils, particularly of the Tertiary, formed Owen’s own

CONTINUED ON NEXT PAGE...



---

**OBITUARIES**

---

*CONTINUED FROM PREVIOUS PAGE...*

initial interest in palaeontology. In the 1960s and 1970s he published a series of field-based articles which became the basis for local field teaching over many years.

He was Secretary of the Victorian Division of The Geological Society of Australia for five years, from 1955-1959, and an invited speaker to the Division on many occasions. He was also a Life Member of the Royal Society of Victoria.

Owen was a regular attendee at the School Christmas parties, and most Thursdays he could be found dining in Carlton with colleagues and past students, often discussing the origin and evolution of the landscape of the planet Mars.

In retirement, Owen and his brother Patrick continued to maintain their large garden in Croydon, specialising in small bulbs of the Middle East and other regions, as well as rare exotic trees. Their garden has been part of the Victorian Open Gardens scheme, and in 1998 they appeared in on the television garden program Burke's Backyard, where their Greek amphitheatre was featured.



---

## Earth Science Week 2010

AGI invites you to take part in Earth Science Week 2010! Being held October 10-16, Earth Science Week 2010 will encourage people everywhere to explore the natural world and learn about the geosciences.

“Exploring Energy,” the theme of Earth Science Week 2010, will engage young people and the public in learning about Earth’s energy resources.

Visit the website for more information:  
<http://www.earthsciweek.org/>

**See what Geoscience Australia has planned:**  
<http://www.ga.gov.au/education/events/science-week/index.jsp>

## FORTHCOMING EVENTS

**IUGG2011: “Earth on the Edge: Science for a Sustainable Planet”****Melbourne Convention and Exhibition Centre, 28<sup>th</sup> June – 7<sup>th</sup> July, 2011**

- **Registrations opened 16<sup>th</sup> August, 2010**
- **Abstract submission period 16<sup>th</sup> August, 2010 – 17<sup>th</sup> January, 2011**
- **Conference website now open: <http://www.iugg2011.com>**
- **Scientific program of symposia, workshops, fieldtrips, together with symposia convenors, plenary and keynote speakers already available on website**

The major, international IUGG2011 General Assembly conference will be held at the new Melbourne Convention and Exhibition Centre from 28<sup>th</sup> June to 7<sup>th</sup> July, 2011. IUGG (or the International Union for Geodesy and Geophysics) is a collaborative grouping of eight scientific learned societies or associations, as follows:

- International Association for **Cryospheric Sciences** (IACS)
- International Association of **Geodesy** (IAG)
- International Association of **Geomagnetism and Aeronomy** (IAGA)
- International Association of **Hydrological Sciences** (IAHS)
- International Association of **Meteorology and Atmospheric Sciences** (IAMAS)
- International Association for the **Physical Sciences of the Ocean** (IAPSO)
- International Association of **Seismology** and Physics of the Earth's Interior (IASPEI)
- International Association of **Volcanology and (geo)Chemistry** of the Earth's Interior (IAVCEI)

**Each association has organised its own comprehensive, discipline specific program of symposia**, which is already available on the conference website at [www.iugg2011.com](http://www.iugg2011.com). In addition, there will be many joint symposia organized by two or more associations on topical, inter-disciplinary themes, there is a conference plenary speakers program, most symposia will have invited keynote speakers, and some associations are organizing **fieldtrips** (e.g. volcanology fieldtrips to Philippines, Indonesia, Rabaul, PNG, Vanuatu, New Zealand and Australia), and **workshops** on topical issues. Details are again available on the website.

The general conference theme for the IUGG2011 conference is “**Earth on the Edge: Science for a Sustainable Planet**”. IUGG2011 will be the largest multi-disciplinary geophysical meeting to be held in Australia, and in excess of 3,000 delegates are expected to attend. So, in addition to the discipline specific program of symposia that each association has organised, the scientific program will address many of the environmental, sustainability and hazard issues facing Australia,

CONTINUED ON NEXT PAGE...

---

**FORTHCOMING EVENTS**

---

*CONTINUED FROM PREVIOUS PAGE...*

New Zealand and the Earth at large, including climate change, extreme weather events, melting glaciers and ice-caps, rising sea-levels, water in arid countries, earthquake hazards and tsunamis, and volcanic hazards, processes and natural resources.

**The conference website is now open** at <http://www.iugg2011.com>, with information about the conference, the scientific program of symposia, workshops and fieldtrips. On-line registration for the conference opened on the website on 16<sup>th</sup> August, as well as for fieldtrips, social touring, and accommodation.

**The call for abstract submission has also now opened**, with the deadline for abstract submission being 17<sup>th</sup> January, 2011.

**Six reasons to come to IUGG2011:**

1. Opportunity to participate in an exciting, multi-disciplinary conference on cutting edge geoscience.
2. Take part in an outstanding Scientific Program of plenary speakers, keynote speakers, symposia, fieldtrips and workshops.
3. Participate in the dedicated, interactive poster presentations, exhibitions and sponsors displays that will be valuable and stimulating.
4. The new Melbourne Convention Centre, completed in late 2009, is one of the most modern convention centres in the world. The whole conference will be held under the one roof, in a building that is purpose built for large conferences and conventions.
5. Visit one of the most live-able cities in the world. Melbourne is a beautiful city with fine buildings and spacious parks. Immigrants from many, many countries have given Melbourne a multi-cultural, cosmopolitan outlook, and the city has developed as the cultural, fashion, shopping, sporting and culinary centre of Australia.
6. Take that holiday in Australia and New Zealand that you've always wanted to take. Visit the rugged coastal scenery, vineyards and ski fields of southern Australia and New Zealand, or the warm beaches, the Great Barrier Coral Reef system and arid inland of the "Red Centre" of northern, tropical Australia, at the most perfect time climatically to visit the tropical north.

The Joint Australia and New Zealand Organising Committee of IUGG2011 looks forward to welcoming international geoscientists to the 2011 IUGG General Assembly in Melbourne.

(Professor) Ray Cas,  
On behalf of the Joint Australian and New Zealand Organising Committee,  
IUGG2011 General Assembly,  
Melbourne, Australia,  
28<sup>th</sup> June – 7<sup>th</sup> July, 2011.

**BE THERE !**

---

**FORTHCOMING EVENTS**

---

## ***Monash University upcoming seminars***

**Fri 24th September 2010**, 12 noon, S1, Building 25, Clayton Campus:

**Dr Fred Prata**, Norwegian Institute for Air Research:

*"Transport and aviation hazard from the Eyjafjallajökull volcanic ash determined from satellites and dispersion modelling"*

**Fri 8th October 2010**, 12 noon, S1, Building 25, Clayton Campus:

**Prof Chris Wilson**, University of Melbourne:

*"Deformation of calcite-muscovite: reactions and role of stress at grain boundaries"*

**Fri 15th October 2010**, 12 noon, S2, Building 25, Clayton Campus:

**Dr David Jones**, Univeristy of Bristol / Monash University:

*"Synchrotron-based Paleontology"*

For more information contact:

**Simon Jowitt** (simon.jowitt@monash.edu) or Ph: 9905 1119

Or go to:

<http://www.geosci.monash.edu.au/seminar/index.html>

---

## **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 Alison Fairmaid (a.fairmaid2@pgrad.unimelb.edu.au) or Gemma Prata (gemma.prata@monash.edu)

**We'd be glad to hear from you!**



## STUDENT FUNDING OPPORTUNITIES

## Geological Society of Australia (Victoria Division) Student Research Scholarships

Scholarships valued at up to \$500 are available for honours and postgraduate students for assistance with travel costs associated with conferences and field work. The number of and value of the scholarships awarded each year is made at the discretion of the GSA(Vic) committee.



Students that receive this scholarship are required to submit a report for publication in this 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.

More information and scholarship form will be available in the next newsletter and on the GSAV website in the coming months. For all enquiries please contact Barbara Wagstaff ([wagstaff@unimelb.edu.au](mailto:wagstaff@unimelb.edu.au)).

## BICENTENNIAL GOLD 88 ENDOWMENT

The Trustees of The Australasian Institute of Mining and Metallurgy Education Endowment Fund are pleased to announce that the twenty-second round of financial awards from The Bicentennial Gold 88 Endowment will be made in the year 2011 for the advancement of education and research in Earth Sciences for the benefit of Economic Geology in Australia.

In the year 2011, a total of \$10,000 will be available for distribution through (and with the approval of) a university, in one or several of the following:

- Scholarships to senior university students and researchers for study and / or research in Australia in:
  - Economic Geology
  - Mineral Economics
- Technical visits
- Travel to conferences to deliver papers on aspects of Economic Geology in Australia
- Environmental Geoscience as applied to the Exploration / Mining Industry.

Those wishing to apply for an award under this Endowment should submit in writing a detailed proposal and justification for the financial support to:

The Director  
Bicentennial Gold 88 Endowment  
C/- The AusIMM  
Education Endowment Fund  
PO Box 660, Carlton South,  
Victoria, Australia 3053

Some conditions may apply.

The decision of the Trustees regarding these awards is final and no further communication will be entered into.

**Applications close on  
Wednesday, 29 September 2010**



**AusIMM**  
THE MINERALS INSTITUTE  
Education Endowment Fund

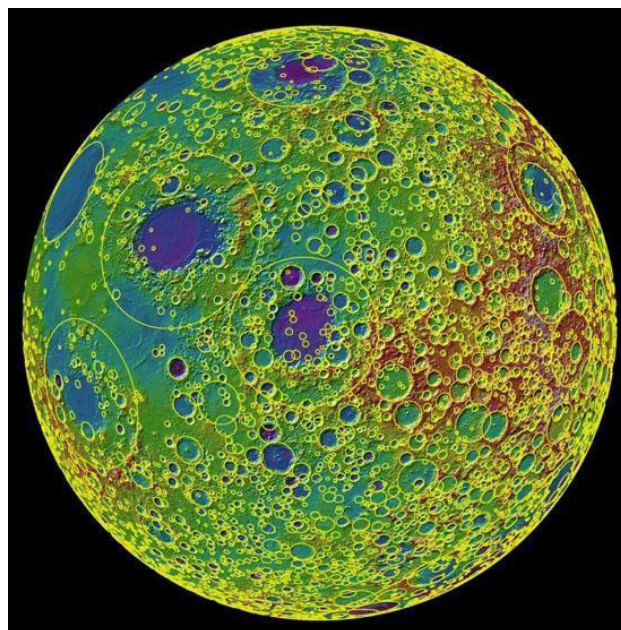
## SCIENCE NEWS

## Moon's Craters Give New Clues to Early Solar System Bombardment

from ScienceDaily  
17 Sep 2010

Take a cursory look at the moon, and it can resemble a pockmarked golf ball. The dimples and divots on its surface are testament that our satellite has withstood a barrage of impacts from comets, asteroids and other space matter throughout much of its history. Because the geological record of that pummeling remains largely intact, scientists have leaned on the moon to reconstruct the chaotic early days of the inner solar system.

Now a team led by Brown University planetary geologists has produced the first uniform, comprehensive catalog of large craters on the moon that could shed light on the full-scale, planetary bombardment that characterized the inner solar system more than 4 billion years ago. In a paper appearing on the cover of *Science*, the team used data from the Lunar Orbiter Laser Altimeter, one of a suite of instruments aboard NASA's Lunar Reconnaissance Orbiter, to identify and map 5,185 craters that are 20 kilometers in diameter or larger.

**Journal Reference:**

James W. Head, III, Caleb I. Fassett, Seth J. Kadish, David E. Smith, Maria T. Zuber, Gregory A. Neumann, and Erwan Mazarico. **Global Distribution of Large Lunar Craters: Implications for Resurfacing and Impactor Populations.** *Science*, 2010; 329 (5998): 1504-1507 DOI: 10.1126/science.1195050

## The Biggest Crash on Earth: India Slides Under Tibet, but How?

from ScienceDaily  
17 Sep 2010

During the collision of India with the Eurasian continent, the Indian plate was pushed about 500 kilometers under Tibet, reaching a depth of 250 kilometers. The result of this largest collision in Earth's history is the world's highest mountain range. But even more recently, the collision could be felt -- for example, the earthquakes that created the 2004 tsunami in the Indian Ocean.

The clash of the two continents is very complex. The Indian plate, for example, is compressed where it collides with the very rigid plate of the Tarim Basin at the northwestern edge of Tibet. On the eastern edge of Tibet, the Wenchuan earthquake in May 2008 claimed over 70,000 lives.

Scientists at the GFZ German Research Center for Geosciences report in the latest issue of the journal *Science* on the results of a new seismic method which was used to investigate the collision process.

**Journal Reference:**

Rainer Kind and Xiaohui Yuan. **Seismic Images of the Biggest Crash on Earth.** *Science*, 2010; 329 (5998): 1479-1480 DOI: 10.1126/science.1191620

**FORTHCOMING SEMINARS AND EVENTS**

to be presented at  
GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2010 talks will be held in the  
Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

September 30 **SELWYN LECTURE** and presentation of Selwyn Medal

**Brad Pillans**  
Chair  
Geological Society of Australia

Climate Change – a view from the Quaternary

October 28 **Robyn Pickering**  
The University of Melbourne

South African early hominin evolution

November 25 TBA

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)



## GSA (VICTORIA DIVISION) COMMITTEE

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

## OFFICE BEARERS

Chair:	David Cantrill	9252 2301 (BH)
Vice-chair:	position vacant	
Secretary:	Adele Seymon	9658 4523 (BH)
Treasurer:	Barbara Wagstaff	8344 6537 (BH)

## COMMITTEE

Alison Fairmaid	8344 9980 (BH)
Erin Matchan	8344 7672 (BH)
David Moore	0409 911 120
Peter Hoiles	8344 9980 (BH)
Noel Schleiger	9435 8408
Lindsay Thomas	0427 354 828
Stephen Gallagher	8344 6513 (BH)
Lucy Ross	0431 094 188
Gemma Prata	9905 1098 (BH)
Susan White	9328 4154

## SUBCOMMITTEE

## CONTACTS

Awards:	Ingrid Campbell	9486 7160
Bicentennial Gold:	Gerhard Krummei	9820 2595
Education:	Noel Schleiger	9435 8408
Heritage:	Susan White	9328 4154
Newsletter:	Alison Fairmaid	8344 9980
Webmaster:	Lindsay Thomas	0427 354 828

## OTHER CONTACTS

Geology of Victoria:	Bill Birch	9270 5049 (BH)
----------------------	------------	----------------

## Newsletter deadline:

First Friday of the month except Dec & Jan  
a.fairmaid2@pgrad.unimelb.edu.au  
p.hoiles@pgrad.unimelb.edu.au or  
gemma.prata@monash.edu

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](mailto:info@gsa.org.au) Tel: (02) 9290 2194 Fax: (02) 9290 2198

Print Post No. PP381827/0025  
Registered Publication No. VBH 2135

If undelivered return to:  
The Geological Society of Australia Inc.  
GPO Box 2355  
Melbourne VIC 3001

PRINT POST APPROVED