

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting

Thursday 28th November at 6:15 p.m.

Underwater caves of the Nullarbor

Liz Rogers

**Victorian Speleological Society & Cave Diving Association
Australia**

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.

Following the seminar, a BBQ will be held on the 4th floor balcony.

The Nullarbor Plain, ~200,000 km² in area, is a flat, mostly treeless limestone plateau. It contains a few hundred large-medium sized caves, some with crystal clear lakes of saline water; the water-filled passages represent some of the longest cave dives in the world. Initial karst development probably occurred during the warm, seasonally wet climate of the Oligocene, when the withdrawal of the sea exposed the recently deposited Eocene limestone for over ~10 m.y. Several major cave passages probably developed at this time; these have since suffered extensive collapse, producing large passages and dome chambers. The sea regressed in the Late Miocene; during a stillstand a band of shallow caves formed along the shoreline. These are now blowholes, sub-circular vertical shafts with strong draughts blowing from many of them. The sea then retreated rapidly due to a period of tilting and uplift in the Late Miocene–Early Pliocene. Cave formation in the Pliocene and Quaternary was inhibited by the semiarid climate, except during a wet phase around 5–3 Ma, when rivers extended across the karst plain, and extensive deposition of black stalactites and stalagmites occurred. **Continued on page 2...**

ABSTRACT

Renowned underwater photographer, Liz Rogers, has extensively photographed the large flooded caves of the Nullarbor. Her superb photographs will show diving in some of the world famous Nullarbor cave diving sites (Weebubbie, Mura-el-elevyn, Warbla and the Roe Plains), illustrating the features that give clues to their origin.

More of Liz's fantastic photography can be found at <http://lizrogersphotography.com>



MEMBER SURVEY

The GSAV member survey is still open for those members who have not completed it. It will only take 10-15 minutes, is completely anonymous, and will shape the future actions of the GSAV. The online version can be completed at <http://www.surveymonkey.com/s/M7JYTWR> while members receiving hard copies can return the included survey to **GPO Box 2355, Melbourne, 3001**.

LOST MEMBERS

It has recently come to the attention of the GSAV that there are many 2012 members that have still not renewed their GSA membership for 2013. If you know any of the following members, the GSAV would appreciate you providing them with a friendly reminder to renew their membership

Miss Farah Ali	Mr. David Andrews	Mr. Andrew Bales
Miss Shana Besanko	Ms. Nicole Cox	Paulo De Silva
Damiano Dell'ertole	Dr. Patricia Durance-Sie	Dr. Erich Fitzgerald
Mr. Peter Hoiles	Prof. Reid Keays	Miss Katy Kijek
Prof. Homer Grand	Mr. Matej Lipar	Miss Helen Lynch
Mr. Richard Mazurek	Miss Anna McAllister	Ms. Natasha McGregor
Mr. Ken McLean	Miss Melanie Middleton	Miss Stephanie Mills
Mr. Michael Mong	Dr. Valeria Murgulov	Mr. Avi Olshina
Miss Kathryn Owen	Mrs. Fahmida Perveen	Marilyn Powell
Mr. Timothy Robson	Mr. Bruce Simons	Mr. John Stewart
Mr. Dan Uehara	Dr. Helen Williams	

2014 GENERAL MEETINGS

February 27th, 2014

Fire induced landscape change in central Victoria

Karen Kapteinis

Archaeology at TARDIS Pty. Ltd., Australia

Fire has played a major role in the destabilisation of sediment on slopes over the past 40,000 years in central Victoria, with a combination of climatic and anthropogenic influences driving the change. Once destabilised, the sediment is transported by the fluvial system through several periods of aggradation and degradation within the landscape.

Recent destabilisation of the landscape due to land use change has removed the sediment from streams, creating gullies that expose the sediment deposited in the past. Carbon 14 ages derived from the charcoal from 12 gully sites show that there were several localised fire events over central Victoria, with two distinct age clusters around 40,000 years BP and 1,000-4,000 years BP.

These fire events created sediment yields ranging between 2.0×10^4 t ha⁻¹ to 2.1×10^2 t ha⁻¹, while the thickness of the stripped sediment from the surrounding hill slopes ranges between 0.02-1.28m. This sediment was deposited in the local streams, choking them and forming valley fills, probably during periods of lower precipitation.

March 27th, 2014

Eolian Explorations: Dunes, Deformation, and Diagenesis

Dr Marjoie A. Chan

Professor of Geology, University of Utah

Eolian systems (sand dunes), are globally important reservoir units for both hydrocarbons and water. These systems contain complex geologic stories and paleoenvironmental records with applications to understanding reservoir properties and fluid migration pathways. This talk uses well-exposed Permian to Jurassic examples to address three groups of questions.

1) **DIAGENESIS:** Why are sandstones different colors (reflected in bleaching and iron oxide cements), and what does this tell us about reservoir properties and diagenetic history? When did it happen and is it useful as an exploration tool? Is diagenesis a biogenic process? What links dinosaur bones and concretions (cemented mineral masses)?

) **SOFT-SEDIMENT DEFORMATION:** What kind of deformation happens in eolian systems and why are they susceptible? What structures give us clues to deciphering the records of strong ground motion?

3) **WEATHERING:** Why do particular weathering patterns develop on exposed sandstone surfaces and what do they tell us about microclimate?

Finally, this summary introduces new directions of eolian research, and the implications of biological and environmental interactions.

Dr. Marjorie A. Chan is Professor of Geology at the University of Utah in Salt Lake City, Utah. She received a B.S. in Geology from the University of California – Davis in 1977 and a Ph.D. in Geology from the University of Wisconsin – Madison in 1982. Her research topics have spanned the geologic time scale from the Precambrian to the Pleistocene. Her recent projects connect geology and planetary science to better understand and interpret the red planet Mars. She has authored or co-authored more than 100 peer-reviewed professional articles on a wide range of sedimentary topics involving clastic depositional environments, sedimentology, fluid flow/diagenesis (e.g., iron oxide sandstone coloration and concretions), Earth analogs to Martian environments, and geoconservation.

Dr. Chan is sought out as a speaker, has given many invited lectures, and is on the Association of Women Geoscientists speaker bureau list. She received two national meeting excellence of presentation awards from SEPM (Society for Sedimentary Geology). She and her research have been featured in several television documentaries including National Geographic and Discovery Channel shows, as well as various videos. She was a 2013 guest on the National Public Radio – Talk of the Nation, Science Friday show. Dr. Chan is experienced in giving public lectures to a variety of audiences of all ages and makes science interesting and accessible.

She is an elected GSA Fellow (1995) and has been actively involved in GSA activities with recent leadership roles of chair of the GSA Diversity Committee (2012-2013) and First Vice/Incoming Chair for the GSA Sedimentary Geology Division (2012- 2014), in addition to convening workshops and many technical meeting sessions. She was recognized as a GSA Bulletin Exceptional Reviewer (2011) and her biography is in the book: A to Z of Earth Scientists, Notable Scientists: Facts on File, Inc. (2002). Dr. Chan has received department research and teaching recognition at her university as well as honors including a 2009 YWCA Outstanding Leadership Award, and the 2010 University of Wisconsin- Department of Geosciences Distinguished Alumnus. She has served as a science advisor for PBS-Nova Science Now. She has provided leadership counsel for academic department chairs and administrators at both GSA and AGU (American Geophysical Union) meetings. As department chair, Dr. Chan helped create innovative geologic displays for new geosciences building that encourages an experiential learning environment. She has given invited national presentations on the design of campus buildings as educational environments.

Dr. Chan has been a strong advocate and role model for women in science for the last three decades. She is active in encouraging women and minorities in science disciplines. She is excited to represent GSA and a new age of science that will be dependent on sustainable practices, global cooperation, and engaged students who will help lead our future.

AWARD WINNERS

The GSAV would like to congratulate its 2013 award winners. The winner of the Frank Canavan award, for most promising second year geology student is David Bilton from Ballarat University.

The winner of the D.E. Thomas Medal, awarded for the production of the best honours year level geological map is Emily Hordern. Her honours project involved the mapping of sedimentary rocks in the Flinders Ranges

The GSAV congratulates these young scientists on the accomplishments and looks forward to watching their progress as the years pass.



The Andy Gleadow Retirement Symposium



A Symposium marking the occasion of Professor Andy Gleadow's retirement, will honour his long and distinguished career with outstanding contributions to thermochronology research, and the broader Australian university and geoscience community.

The Symposium will consist of a series of invited talks by several of Andy's collaborators, former students and colleagues working on cutting-edge research. It will be combined with the annual national TANG3O (Thermochronology and Noble Gas Geochemistry and Geochronology Organization) meeting, which brings together many researchers involved in Australia's

effort in this area. Topics for presentation will mainly, but not exclusively, revolve around the TANG3O theme – **see program below**.

Venue: Fritz Loewe Theatre, Earth Sciences, University of Melbourne

Date: Monday 25 and half day Tuesday 26, November, 2013

All welcome – no registration fee

Dinner: On Monday 25 November, following drinks in the School of Earth Sciences, a celebratory **dinner** will be held at the **Café Italia**, 55-66 University St (off Lygon Street), Carlton starting at 7:30 pm.

Cost: Three course meal including drinks @ \$50 per person.

For catering purposes RSVP Barry Kohn (b.kohn@unimelb.edu.au) by 18 November if you would like to attend **one or both of these events** (i.e. Symposium and Dinner). Also let us know if you have any special dietary requirements.

Symposium sponsored by:



THE UNIVERSITY OF
MELBOURNE

STUDENT CONTRIBUTION

Josh Dean
PhD Candidate
LaTrobe University

With the help of a GSAV research scholarship I was able to attend the 2013 IAH Congress held in Perth in September this year. I presented on the morning of the first day of the conference, and I was the second speaker in the session on agricultural land use and groundwater. My talk focused on the impacts of a tree plantation on groundwater recharge at a paired catchment study in Victoria Valley, in the Grampians, southwest Victoria. My presentation was well received and I had several questions regarding the work we had done, in particular how far reaching the implications of these findings are. I was also approached by a few people afterwards who were interested in the publication I was preparing based on the same work; this is currently in review at the Journal of Hydrology.

After my talk I had the opportunity to attend many other talks freely, without the stress of having to give a presentation looming on the horizon! The most interesting stream of talks in the conference for me centred around Coal Seam Gas and its current state and future in Australia. The most interesting thing here was that all the talks were from those working in the industry, there was no traditional research presentations on the topic, which emphasises how far ahead the industry is currently compared to research looking into the impacts of CSG.



The third day of the conference provided the opportunity to go on a field trip. I attended one that looked at Perth's managed aquifer recharge scheme, which looks to bolster its regional groundwater recharge using treated waste water. The scheme was a positive move for a city that has seen a dramatic drop in rainfall over the past few decades. The field trip also highlighted the extensive use of groundwater by the city of Perth where many individuals even have their own shallow groundwater bores in their backyards for their personal irrigation needs. We also got the opportunity by chance to see the water corporation working on one of their massive groundwater pumps that supply water for the bulk of Perth's domestic needs (see attached photo). I would like to thank the GASV for their generous support so I could attend this conference, it was a great experience generating good exposure for my research, and a great opportunity to meet fellow researchers in the same field.



AESC

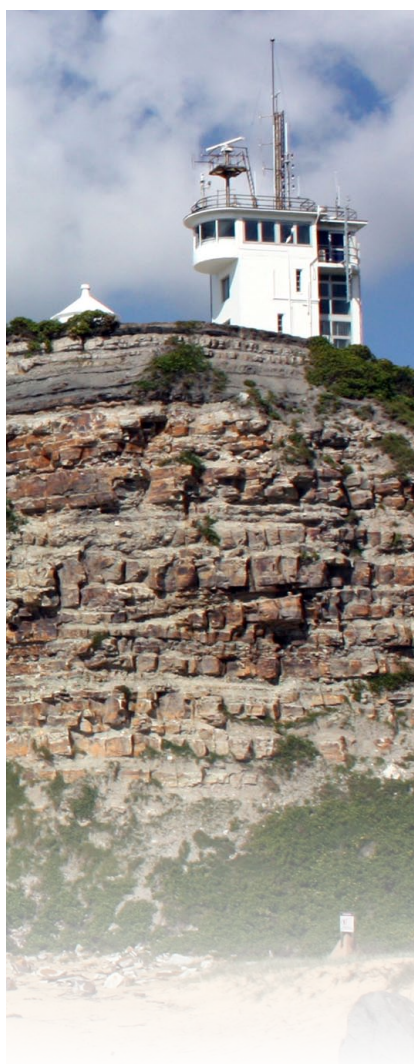
australian earth sciences
convention

**Sustainable
Australia:**

7-10 July 2014



NEWCASTLE, NSW, AUSTRALIA



AESC 2014 will be held in Newcastle, a vibrant port city that is characterised by its working harbour, beautiful surf beaches and proximity to many of Australia's most prestigious wineries.

It is the gateway to the Hunter Valley – heart of the Sydney Basin coalfields, centre of power generation for New South Wales, and home of the NSW Institute for Frontier Geoscience, a joint initiative of the University of Newcastle and the NSW Department of Trade and Investment. Combined with the city's focus on energy efficiency via the Federal Government's Smart Grid, Smart City initiative and the CSIRO Energy Centre, Newcastle is an ideal site for our convention – **Sustainable Australia.**

The convention will be based around the themes of energy, basin geology, geodynamics, resources and the environment. Dedicated symposia include the 39th Symposium on the Advances in the Study of the Sydney Basin and Comparisons & Contrasts in Circum-Pacific Orogens.

AESC 2014 offers all geoscientists a unique opportunity for professional development and a chance to hear firsthand the latest developments in geosciences.

Plan your trip to Newcastle

Call for Abstracts:
October 2013

Abstracts Deadline:
March 2014

The website is coming soon,
in the interim please contact:
info@gsa.org.au

Presentation: Oral and poster

Registration: early 2014

Workshops and field trips:

The convention invites proposals for short courses, workshops and field trips.

Exhibition:

The convention will host an exhibition. We welcome companies and businesses to participate so they can promote the emerging opportunities in their organisation, state or territory.

Supporters:

The organising committee invites companies, institutions and technology providers to support this meeting.

Expressions of interest:

info@gsa.org.au

Convention location:

Newcastle City Hall



Coalfield Geology Council
of New South Wales

T + 61 2 9290 2194

F + 61 2 9290 2198

Email: info@gsa.org.au

Convention Website: coming soon



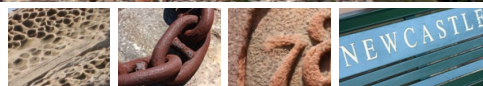
AESC

australian earth sciences
convention

**Sustainable
Australia:**

7-10 July 2014

NEWCASTLE, NSW, AUSTRALIA



Earth scientists recognise that the key to sustaining the Australian society, economy and environment into the future lies in an understanding of the make-up, structure and deep-time history of the continent, and its setting in an evolving planet.

THEMES

Energy

Increases in the global demand for energy has been driving advances in the efficiency of coal and conventional hydrocarbon extraction, while also urging the rapid growth of interest in unconventional hydrocarbons. Future energy supplies are likely to include all fossil fuels, nuclear sources, and significant increases in the use of renewable energy and cleaner alternatives. Building on the public debate to be stimulated by the 'Energy 2050' public forum, the Energy theme will encompass Earth Science perspectives on energy sources, exploration and extraction methods, and environmental consequences and solutions.

Resources

In an era of increasing demand for mineral resources from the developing Asian economies, and declining rates of discovery of new deposits, new mineral exploration strategies are vital. Discovery will be stimulated by new technologies, new methods of data interpretation and dissemination, refined and novel understandings of mineral systems and ore environments, and the strength of the pre-competitive geological and geophysical data sector, all addressed under the Resources theme.

Environment

Earth's environment is a dynamic and responsive system with a long geological record of change and an immediate and future impact on society, particularly in an Australian context. High-resolution records of past climates (including outcome of the International Ocean Drilling Program), assessments of the state and future of our ground- and surface-water resources, predictions of the response of the Australian environment to climate change, and studies specific to the Australian arid and semi-arid zones, will be major elements of the Environment theme.

Service and Community

The Earth Sciences have an ongoing role of service by informing, influencing, and supporting Australian society, and a proud history of education and research. The Service and Community theme will address the geoscience response to distributed grid computing and cloud storage, the dissemination of geoscience information in a high-bandwidth environment, the continuing and evolving role of geoscience outreach and education, geohazard studies and their role in protecting the community, the contributions of geotourism and geoheritage, and the historical record and influence of Earth scientists.

Dynamic Planet

Today's Earth is the sum of 4.5 billion years of geological processes. The Dynamic planet theme will address: the geodynamic evolution of Australia and other continents from the Hadean to the present; the evolution of the Earth-Moon system and the meteoritic impact record; the expression of the circulation driven by the Earth's heat engine in lithospheric plate tectonics, mantle dynamics and differentiation, and core evolution; the processes that govern deposition and deformation in intracratonic settings; processes of crustal growth and recycling, at convergent margins and in other settings; geophysical and geochemical evidence of the structure and composition of the deep subsurface; and the influence of all of these elements on the formation and distribution of mineral and energy resources.

Living Earth

Life has fundamentally influenced the development of the Earth, making it unique with respect to its planetary neighbours. The Living Earth theme will investigate: the evolution of life as witnessed in the fossil record; consider novel methods to supplement traditional palaeontological approaches; investigate the major events in the evolution of life, the hydrosphere and atmosphere; and draw contrasts and comparisons with other planets.

SYMPOSIA

39th Symposium on the Advances
in the Study of the Sydney Basin

Comparisons & Contrasts
in Circum-Pacific Orogens



Coalfield Geology Council
of New South Wales

T + 61 2 9290 2194

F + 61 2 9290 2198

Email: info@gsa.org.au

Convention Website: coming soon

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

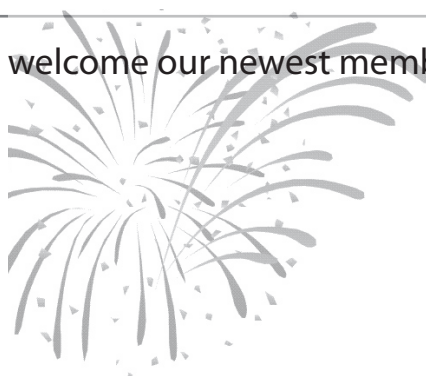
to be presented at
GSA (Victoria Division) meetings

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

NO MORE MEETINGS FOR 2013. MEETINGS WILL RESUME IN FEBRUARY 2014

THE GSAV WISHES ALL ITS MEMBERS A SAFE AND HAPPY HOLIDAY PERIOD

Please welcome our newest members



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



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

OFFICE BEARERS

Chair:	David Cantrill	9252 2301 (BH)
Vice-chair:	position vacant	
Secretary:	Adele Seymon	0403 269 462
Treasurer:	Barbara Wagstaff	8344 6537 (BH)

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Susan White	9328 4154
Matthew Bliss	8344 9980 (BH)
Syed Amir Mahmud	9902 4206 (BH)
Estephany Marillo	8344 9980

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Heritage:	Susan White	9328 4154
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Newsletter deadline:

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

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