

THE VICTORIAN GEOLOGIST

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November 2015

THE GEOLOGICAL SOCIETY OF AUSTRALIA

Victoria Division

General Meeting

Thursday 26th November at 6:15 p.m.

Dating, understanding and appreciating the Aboriginal Rock Art of the Kimberley

Dr Helen Green

**Postdoctoral research fellow, School of Earth Sciences, The
University of Melbourne**

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

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

Australia hosts one of the world's largest, most varied and visually spectacular rock art treasures with hundreds of thousands of sites scattered throughout the country. Understanding, dating and appreciating this rock art is of huge importance to both Australians and the rest of the world, providing a history that goes much deeper than our shallow, colonial roots of the last few centuries. To reinforce this broader understanding of heritage and identity, archaeologists, chemists, geologists, and physicists from the Universities of Melbourne, Western Australia and Wollongong, Archae-Aus consultancy, and the Australian Nuclear Science and Technology Organisation have embarked upon a 3 year project across the Kimberley region of northern WA, to date the rock art using a wide range of scientific techniques. Using these tools, this project aims to use the Kimberley rock art to provide primary evidence of how, when and why people first arrived in Australia.

STUDENT AWARDS

The **D. E. Thomas Medal** is awarded to a student who completed the best mapping project and Honours level. The 2015 D. E. Thomas Medal was awarded to **Michael Fenwick**, from Monash University.

**STRUCTURAL EVOLUTION OF THE YALGOO DOME,
YILGARN CRATON, WESTERN AUSTRALIA: A CORE
PERSPECTIVE**
by Michael Fenwick

Michael's mapping project demonstrated that detailed structural mapping at various scales together with magnetics, remote sensing and petrological and lithological analysis were key to understanding the tectonic processes involved in the formation of Archean granite domes in the Murchison Province of the Yilgarn Craton. The work was of an excellent standard demonstrating a high degree of skills in mapping and integration of all the datasets.



Michael Fenwick accepting the D. E. Thomas Medal at VUEESC 2015.

The Yalgoo Dome is an elliptical Archean granitic dome in the northeast Murchison Province of the Yilgarn Craton. It is approximately 90 x 30km, and composed of an inner core of a 2.96 Ga migmatitic tonalite orthogneiss surrounded by a 2.65 Ga monzogranite mantle. Synclinal greenstone belts flank the dome and host base metal deposits. The dome is a well-exposed complex and provides a particularly relevant case study for testing models of granite emplacement.

The study focused on the structural evolution of the older migmatitic tonalite core. Magnetic anomalies in a geophysical image of the core define a large scale fold with a northern apex. Detailed structural mapping was conducted in three domains that correspond to a hinge zone and two limb zones of the large scale fold. The N-S axial planar foliation of the large scale fold overprints two earlier foliations that formed during emplacement. The earliest fabric recognisable in the migmatitic tonalite is melanocratic-leucocratic banding formed through water-fluxed partial melting of a tonalite protolith. The migmatitic tonalite was then subjected to a diapiric ascent phase indicated by a pervasive radially distributed sub-vertical stretching lineation, sheath folds with a sub-vertical solid-state axial planar foliation, and variations in migmatite morphology that can be correlated to strain regimes in an ascending diapir. An E-W compressional event subsequently folded the two early foliations and formed the large scale fold.

NOTE: The Canavan Award for the Best Second Year Student in Earth Sciences at a Victorian University will be awarded at the November Meeting

AUSTRALIAN EARTH SCIENCES CONVENTION NEWS



Uncover Earth's Past to
Discover Our Future

26 - 30 June 2016 – Adelaide Convention Centre

aesc2016.gsa.org.au

Call for AESC theme and session suggestions

An exciting series of themes, symposia, fieldtrips and workshops is being put together by the AESC 2016 Organising Committee.



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A preliminary taste of what is to come and who to contact if you want to make suggestions is outlined below.

- Earth's Environment** – Past to Present
- Tectonics of the Earth and Other Planets** – Craton and Continental Formation and Evolution, Ocean Plate Tectonics, Plate Margin and Plate Interior Tectonism
- Deep Earth Geodynamics** – Core, Asthenosphere and Lithosphere Dynamics, Coupling the Dynamic Deep Earth with Surface Tectonics
- Mineral Endowment** – Formation and Exploration of Mineral Deposits, their Tectonic and Geochemical Environment and Significance
- Geoscience for Society** – Geotourism, Education, Integration and Translation of Earth Sciences for Societal Benefit, Open the Gate, Geoscience and Community Engagement
- The Earth Science of Energy** – From Hydrocarbons to Hot Rocks

Committee

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PHOTO: Pleistocene sediments of the Hindmarsh Clay (red) and unconformably overlying Bridgewater Formation (white) in cliff exposures at Balgowan, Yorke Peninsula, South Australia. Photo courtesy of Caroline Forbes

www.aesc2016.gsa.org.au

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STUDENT FUNDING OPPORTUNITIES**Geological Society of Australia (Victoria Division) Student Research Scholarships**

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.

Eligibility

Applicants must be members of the GSA and enrolled in a full-time degree at a Victorian Tertiary institution and undertaking research in Geology. The scholarship will be awarded to assist with conference travel for honours and postgraduate students, who are presenting (either poster or talk) at the conference.

Honours and postgraduate students that receive this scholarship will be required to submit a report for publication in 'The Victorian Geologist' newsletter following to 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.

Students who have previously received a GSAV research scholarship are not eligible. Scholarships and bursaries from other sources are acceptable.

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 can be found on our website www.gsavic.org or 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 Kieran Iles at kiles@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 2015 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

November 26th:

Monthly Meeting: Helen Green

Dating, understanding and appreciating the Aboriginal Rock Art of the Kimberley

February 25th:

Monthly Meeting: TBA

June 2016:

Howitt Lecture: Erin Matchan

Ar-Ar dating of volcanoes and Indigenous oral tradition.

Please welcome our newest members

Helen Green



Visit the GSAV on www.gsavic.org 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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First Friday of the month except Dec & Jan
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