



**Next HEDG presentation:
Tuesday 26th November 2013
Newcastle Museum, 6.30 pm**

New earth science research in NSW
2013 B.Sc (Honours) candidates, University of Newcastle

Mitch Furnass

***Timing of mineralisation and the associated granites of the Ardlethan Tin Field, NSW:
Insights from cassiterite & zircon geochronology***

The Ardlethan Tin Field is host to one of Australia's most productive tin deposits. This study has provided new timing constraints on the tin mineralization and the associated granites by using the uranium-lead isotope method together with laser ablation-inductively coupled mass spectrometry to directly date individual crystals of the main ore mineral cassiterite and magmatic zircons. The results improve our understanding of Ardlethan and provide an opportunity for improving exploration models that target similar deposits elsewhere within New South Wales.

James Ballard

Quantifying the historical variability of snow covered area in the Murray-Darling Basin, Australia

Snow is recognised in many parts of the world as an important water resource for sustaining the environment, society and commerce. Currently no or little research has been undertaken to investigate the historical variability of snow covered area (SCA) in the Murray Darling Basin (MDB), Australia. This study looks at implementing the use of satellite technology to quantify the historical variability of SCA in the MDB. This research aims to provide a foundation for future hydrological and climatological investigations within the MDB, that may provide the potential to improve water resource management.

**The venue for the talk is
Newcastle Museum
(next to Civic Station, Newcastle)**



Drinks (cash bar) and nibbles (provided) from 6.00pm, with the presentation to commence at 6.30pm.

Please RSVP by COB Monday 25th November to phil.gilmore@industry.nsw.gov.au



HEDG is sponsored by the
Geological Survey of NSW (NSW Trade & Investment)
and the
Geological Society of Australia, Hunter Valley Branch



About HEDG

HEDG formed in 2008 with the aim to increase the interaction between geoscientists in the Lower Hunter, promote geoscience, provide a platform to learn about current research, and provide an opportunity for student and professional networking. In 2013 the HEDG venue moved to Newcastle Museum.

HEDG

HUNTER EARTH SCIENCES DISCUSSION GROUP

2013 HEDG program review

- 7 May Coastal geology and geomorphology: mapping and applications
(Martyn Hazelwood, GA, Alexa Troedson, ex-GSNSW, Verity Rollason, BMT WBM)
- 2 July Mapping and mineralisation in the Cobar–Nyngan–Bourke area (Phil Gilmore, GSNSW)
- 13 August What are the momentous geoscientific breakthroughs in NSW over the past century?
(Lindsay Gilligan, ex-GSNSW)
- 15 October Mapping our world: from boots to black boxes (Martin Van Kranendonk, UNSW)
- 26 November New earth science research in NSW

Thanks for your support of HEDG in 2013 and we hope to see you in 2014. If you have any ideas for talks, topics or speakers please contact Phil Gilmore (phil.gilmore@industry.nsw.gov.au)

Last HEDG presentation (15th October 2013)

Prof. Martin Van Kranendonk (UNSW) presented 'Mapping our world: from boots to black boxes' to celebrate Earth Science Week 2013. Martin presented a geologist's perspective on the importance of mapping, how it shaped our knowledge of the modern Earth and how life evolved and flourished on ancient Earth, and how it continues to be a critical component of future development in many fields of scientific understanding. The talk presented examples where mapping has been a key element of scientific endeavour, including mapping the distribution of species and how they might be changing over space/time (biology, geography, climate change); mapping gene sequences to better understand the very basic elements of our makeup (medicine); inter-relationships between rock types to determine the paleo-environment of early life on Earth (geobiology); mapping of other planets in our solar-system. Over 60 people attended the talk at Newcastle Museum.

Links to other (local) geoscience resources:

Geological Survey of NSW:

<http://www.resources.nsw.gov.au/geological>

NSW Trade & Investment, Resources & Energy:

<http://www.trade.nsw.gov.au/> and

<http://www.resources.nsw.gov.au/minerals>

Sydney Mineral Exploration Discussion Group

SMEDG: <http://www.smedg.org.au>

Amateur Geological Society of the Hunter

Valley: <http://agshv.com>

AusIMM – Hunter Region Branch:

<http://www.ausimm.com.au/content/default.aspx?ID=213>

Geological Society of Australia (GSA), Hunter Valley Branch



GSA provides an opportunity to keep in touch with scientific developments, present the results of work, and contribute to discussions on vocational and scientific topics. See: <http://www.gsa.org.au>

Chair John Greenfield

Dep. Chair John Watkins

Secretary Phil Gilmore

Treasurer Phil Seccombe

Committee Simone Meakin, Peter Downes,
Rob Barnes, Chris Woodfull