THE VICTORIAN GEOLOGIST

February 2011

THE GEOLOGICAL SOCIETY OF AUSTRALIA

Victoria Division

First General Meeting for 2011

Thursday 24th February at 6:15 p.m.

Student Research Scholarship presentation evening

Scholarship awardees Jozua van Otterloo, Chris Medlin and Chris Mays will each give a short presentation on their current work

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

Jozua van Otterloo
Alternating magmatic and phreatomagmatic eruption styles of the Mt. Gambier Volcanic Complex, Newer Volcanics Province, SE Australia

Summary: Mt. Gambier is a very complex monogenetic volcanic system which erupted with a wide spectrum of eruption styles ranging from effusive to highly explosive magmatic and phreatomagmatic. A major discovery of this volcanic complex is the occurrence of two magma batches, which erupted simultaneously.

Chris Medlin
How the Pussy Cat Group allowed me to see Reunion Island

Summary: The talk will briefly cover Chris's PhD focus up to now on a possible Proterozoic explosive caldera in the Musgrave Province of Central Australia and what he presented at the 3rd IAVCEI Collapse Caldera Conference on Reunion Island.

Chris Mays
Mid-Cretaceous South Polar Flora & Environments: Biostratigraphy of the Chatham Islands

Summary: The Chatham Islands are home to the highest palaeolatitude, mid-Cretaceous fossil locality studied to date. This study biostratigraphically constrains the age of the outcropping sequence, the Tupuangi Formation, and describes the tectonic and floral biogeographic settting that it represents.

A note from the Editor

Welcome to the first edition of The Victorian Geologist for 2011! The newsletter is intended to be a forum for members to communicate, share stories and to keep our members up-to-date with what's going on within the GSA. We welcome member contributions and love to hear about what our members get up to so please feel free to email us your photos and reports from field trips or holidays – anything geology related that you would like us to include! Other ways to contribute include giving seminar presentations at our monthly general meetings, we are always interested to hear about current research undertaken by our members. If you have any ideas for what you would (or wouldn't) like to see printed in the newsletter or would like to contribute in some way, please let us know by email (contact details provided on back cover).

We look forward to an exciting year ahead in 2011!

Regards,

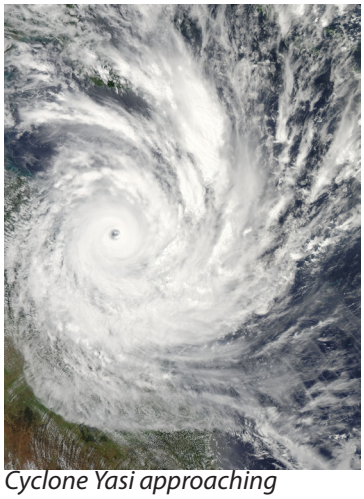
Gemma Prata
Newsletter Editor

Identifying Large Hurricanes Through Seismology

ScienceDaily (Feb. 11, 2011)

Storm-generated seismic signals may allow seismologists to detect large hurricanes at sea and track their intensity, adding useful data to the discussion of whether anthropogenic global warming has increased the frequency and intensity of hurricanes and tropical storms, including ones that don't reach land.

Ambient noise, or microseisms, is the pervasive background signal bathing the surface of Earth and is not produced by earthquakes. These surface waves generated by ocean storms are detected even in continental interiors far from source regions.



Cyclone Yasi approaching Queensland, 2 February 2011
NASA MODIS

Researchers at Northwestern University demonstrate that the August 1992 category 5 Hurricane Andrew can be detected using microseisms recorded at the Harvard, Massachusetts seismic station, even while the storm is as far as 1200 miles away at sea. When applied to decades of existing analog seismograms, this methodology could yield a seismically identified hurricane record for comparison to the pre-aircraft and pre-satellite observational record.

Journal Reference:
C. W. Ebeling, S. Stein. Seismological Identification and Characterization of a Large Hurricane. Bulletin of the Seismological Society of America, 2011; 101 (1): 399 DOI: 10.1785/0120100175

Image source: http://rapidfire.sci.gsfc.nasa.gov/gallery/?2011033-0202

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 Gemma Prata at gemma.prata@monash.edu

We'd be glad to hear from you

News & Notices

Dinosaurs Survived Mass Extinction by 700,000 Years, Fossil Find Suggests

ScienceDaily (Jan. 28, 2011)

University of Alberta researchers determined that a fossilized dinosaur bone found in New Mexico confounds the long established paradigm that the age of dinosaurs ended between 65.5 and 66 million years ago.

The U of A team, led by Larry Heaman from the Department of Earth and Atmospheric Sciences, determined the femur bone of a hadrosaur as being only 64.8 million years old. That means this particular plant eater was alive about 700,000 years after the mass extinction event many paleontologists believe wiped all non-avian dinosaurs off the face of earth, forever.

Heaman and colleagues used a new direct-dating method called U-Pb (uranium-lead) dating. A laser beam unseats minute particles of the fossil, which then undergo isotopic analysis. This new technique not only allows the age of fossil bone to be determined but potentially can distinguish the type of food a dinosaur eats. Living bone contains very low levels of uranium but during fossilization (typically less than 1000 years after death) bone is enriched in elements like uranium. The uranium atoms in bone decay spontaneously to lead over time and once fossilization is complete the uranium-lead clock starts ticking. The isotopic composition of lead determined in the hadrosaur's femur bone is therefore a measure of its absolute age.

Currently, paleontologists date dinosaur fossils using a technique called relative chronology. Where possible, a fossil's age is estimated relative to the known depositional age of a layer of sediment in which it was found or constrained by the known depositional ages of layers above and below the fossil-bearing horizon. However, obtaining accurate depositional ages for sedimentary rocks is very difficult and as a consequence the depositional age of most fossil horizons is poorly constrained. A potential weakness for the relative chronology approach is that over millions of years geologic and environmental forces may cause erosion of a fossil-bearing horizon and therefore a fossil can drift or migrate from its original layer in the strata. The researchers say their direct-dating method precludes the reworking process.

Heaman and his colleagues believe if their new uranium-lead dating technique bears out on more fossil samples then the KT extinction paradigm and the end of the dinosaurs will have to be revised.

Journal Reference: J. E. Fassett, L. M. Heaman, A. Simonetti. Direct U-Pb dating of Cretaceous and Paleocene dinosaur bones, San Juan Basin, New Mexico. Geology, 2011; 39 (2): 159 DOI: 10.1130/G31466.1

Upcoming 2010 Annual General Meeting

The AGM will be held on the 28th of April. It is now time for all of our members to consider becoming involved in the GSAV for 2011/2012. We have a few committee positions that need to be filled, and are always welcoming and encouraging people of all ages to attend committee meetings to find out what goes on behind the scenes.

Nominations will open for executive positions in the committee, along with general committee member positions in the coming months. We encourage you to consider nominating yourself or someone else. If you have any questions about what the committee does and what the positions entail, please feel free to contact any of the committee members listed on the last page of this newsletter, or emailing our secretary Adele at secretary@vic.gsa.org

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.

March 24 TBA

April 28 **Annual General Meeting**

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
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