

Geo-soundings

NEWSLETTER – MARCH 2013

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WELCOME

Welcome to the first edition of Geo-soundings for 2013. It has been a busy start to the year for our department, with academic staff and senior students enthusiastically engaging in presenting and publishing their research work as summarised below. We look forward to keeping our readers informed of our activities during 2013 and hope that the year ahead is rewarding and productive for all.

ENROLMENTS 2013

Total enrolments for 2013 are:

BSc (Science) (Geophysics) Undergraduate	
Double Degree	8
Pre-Major	17
BSc (Geophysics) (previous degree)	3
BSc (Geophysics) Honours	11
Graduate Diploma in Geophysics	6
MSc (Geophysics) – Coursework	14
MPhil (Geophysics) – Research	3
PhD – Research	31

2012 Graduates were:

Doctor of Philosophy
Simon Abbott Osni Bastos De Paula

Master of Science (Geophysics)
Qais Ali Mohammed Al-Siyabi Maryam Bahri
Rahim Elkaseh William Keket
Van Thanh Nguyen Le Mpho Ramaselaga
Abduladiem Yousef

Graduate Diploma in Geophysics
Pieteer Claassen Abdullah Aljayan
Chukwudi Anyanwu David Bramwell-King
Genevieve MacCarthy John-Paul Mubita
Austin Oki Lestyn Williams
Benjamin McCarthy

BSc (Geophysics) Honours
Reece Cunnold John Ellison
Sharna Riley Angela Goh

BSc (Geophysics)

Gary Yong	Rebecca Tung
Kai Ung	Yuk Siong Wong
Nathan Tabain	Zenon Platriitis
Gavin Jones	Aldo De Rooster
Mohammed Al Sarmi	Baqir Al-Asadi
Ry Nathaniel Zawadzki	Jamal Ahmed Al Balushi
Conrad Burton	

JOURNAL PUBLICATIONS

Takam, E. T., and A. J. Calvert, *Seismic velocity and attenuation structures of the Queen Charlotte Basin from full-waveform tomography of seismic reflection data*, Published in *Geophysics*, vol. 77 (3) 2012; P. B107–B124 May – June 2012.

R. Jahnert, O. de Paula, L. Collins, E. Strobach, and R. Pevzner, 2012, *Evolution of a coquina barrier in Shark Bay, Australia by GPR imaging: Architecture of a Holocene reservoir analog*. Published in *Sedimentary Geology*, vol 281, 59-74, September 2012.

Gurevich, B. and D Makarynska. 2012, *Rigorous bounds for seismic dispersion and attenuation due to wave-induced fluid flow in porous rocks*. Published in *Geophysics*, vol 77, (6) L45-L51 October – November 2012.

Strobach, E., B. D. Harris, J. C. Dupuis, and A. W. Kepic, 2013, *Waveguide properties recovered from shallow diffractions in common offset GPR*, Published in *Journal of Geophysical Research*, vol 118 (1), 39–50, January 2013.

CONFERENCE PRESENTATIONS

S. Yavuz, K. Tertyshnikov, E. Strobach, M. Urosevi. 2012, *The use of seismic methods for imaging complex mineral bodies in hard rock environments*. Presented at the 18th European Meeting of Environmental and Engineering Geophysics, Paris, France, September 2012.

**SEG 82nd Annual Meeting,
Las Vegas, November 2012**

Greenwood, A., C. Dupuis, H. Abdulal and A. Kepic, 2012. *Rigid corrugated baffle system for tube-wave suppression in deep boreholes*.

Collet, O., B Gurevich, M. Madadi, and M.Pervukhina, 2012. *Stress-induced anisotropy model for triaxially stressed rocks.*

Saadatfar, M., N. Francios, A. Arad, R. Cruikshank, M. Alizadeh, A. Sheppard, A. Kingston, A. Limay, T. Senden, M. Knackstedt, and **M. Madadi.** *3D Mapping of deformation in an unconsolidated sand: A micro mechanical study.*

Tertyshnikov. K., A Bona, R. Pevzner, and **M. Urosevic,** 2012. *Application of the velocity-less prestack time migration to the 2D marine line.*

Ditkof, J., T. Meckel, S. Hovorka, **E. Caspari, R. Pevzner,** and **M.Urosevic.** 2012. *Analysis of time lapse seismic signal for an EOR and CCS site, Cranfield, MS.*

Pevzner. R., R.Galvin, B.Gurevich, and T.Muller. 2012, *Estimation of attenuation from zero-offset VSP data: C02CRC Otway Project case study.*

R. Pevzner, Robert J. Galvin, M. Madadi, M. Urosevic, E. Caspari, B.Gurevich, D. Lumley, V. Shulakova, Yildiray Cinar and Vladimir Tcheverda. *Monitoring CO2 injection into a saline aquifer: Otway Project feasibility study.*

M. Lebedev, M. Pervukhina, T. Dance, V. Mikhaltsevitch , O. Bilenko, and B. Gurevich, *An experimental study of acoustic responses on the injection of supercritical CO2 into sandstone.*

Dean, T., **C.J. Dupuis,** R. Herrmann and **J. Valuri,** *A brute-strength approach to improving the quality of seismic electric data .*

**DETCRC Annual Meeting
Adelaide, November, 2012**

Oral Presentations/Posters:

Kepic, A. 2012 *New developments in physics and implications for the future of mineral exploration.*

Dupuis. C. 2012. *A forward looking borehole radar antenna.*

Bona, A., B. Sun. 2012. *Forward-looking seismic while drilling-Did it work?*

Kepic. A. 2012, *Autonomous Shuttle: Geophysics for the masses.*

Takam. E. 2012. *Cooperative inversion of seismic and MT data.*

Harris, B. 2012. *Rock property cubes from inversion of seismic and EM data*

Urosevic, M. 2012. *What can seismic in hard rock do for you?*

Dupuis. C. 2012. *Hydrophone baffles for improved borehole seismic.*

Pevzner. R. 2012, *Diffraction imaging processing for complex, hard rock structures.*

Menu. F., A. Greenwood, and **C. Dupuis.** 2012. *Ore-body delineation using borehole seismic techniques for hard rock exploration.*

**The Greenhouse Gas Control Technologies
(GHGT 11), Kyoto, Japan, November 2012**

Pevzner. R., M.Urosevic, E.Caspari, R. J. Galvin, M. Madadi, T. Dance, V. Shulakova, B.Gurevich, V. Tcheverda, Y. Cinar. 2012. *Feasibility of time-lapse seismic*

methodology for monitoring the injection of small quantities of CO2 into a saline formation, C02CRC Otway Project.

Lebedev. M, V. Mikhaltsevitch, O. Bilenko, T. Dance, M. Pervukhina, B Gurevich. 2012. *Experimental laboratory study on the acoustic response of sandstones during injection of supercritical CO2 on CRC2 sample from Otway basin, Australia.*

**CO2CRC Research Symposium,
Brisbane, November 2012**

Posters:

Lebedev. M. 2012 *Laboratory measurements of elastic and anelastic parameters of sandstone flooded with supercritical CO2 at seismic frequencies.*

Oral presentations:

Gurevich, B, 2012. *Otway Project stage 2C. Objectives and overview.*

Pevzner, R. 2012. *Otway Project stage 2C. Modelling seismic response.*

Pevzner, R. 2012 *Improving time lapse seismic repeatability: Otway site permanent geophysics array field trial.*

STUDENT COMMITTEE MEMBERS

2013 KEGS Office Bearers (Member of the SEG-Student Chapter)

Following a meeting of the Geophysics student body, elections were held to elect the 2013 KEGS Committee.

The results are as follows:

PRESIDENT: Matthew Kovacevic

VICE-PRESIDENT: Mahesh Raghvani

SECRETARY: Richard Elkes

TREASURER: Sandy Jones

STUDENT REPS (Years 1-4):

Yr1: Connor Budge & Jason Clark

Yr2: Jason Robbshaw & Jack Haendal

Yr3: Sandy Jones

Yr4: Aldo De Rooster

HONOURS/GRANTS/AWARDS

At the C02CRC Research Symposium on the Sunshine Coast, Queensland in November 2012 the following awards were presented;

PhD Student **Eva Caspari** received an award for "Outstanding contribution to science" and

Dr Roman Pevzner received two awards, one for "Outstanding contribution to science" and one for "Best presentation.". Congratulations to both Eva and Roman for their achievements.

VISITORS

Dr Chris Juhlin visited in December 2012 from Uppsala University, Sweden and was with us until mid-January. Chris is leading the CO2 sequestration demonstration seismic programme at Ketsin, Germany. He is also the leading European geophysicist in the domain of hard rock seismic exploration. While visiting the department, Chris was working on the development of 3D modelling and imaging codes, and was primarily working with Dr Milovan Urosevic and his team.

Dr Colin Macbeth from Herriot-Watt University in Edinburgh, Scotland visited the department for two weeks in December 2012 to do research with the CRGC/C02CRC team on time lapse seismic monitoring. He also presented a talk titled '*Living in the middle: uniting 4D seismic to well data*' at the CRGC Annual Meeting at Rottnest.

Dr Thies Beilecke from Leibnitz Institute of Applied Geophysics in Hanover, Germany visited us for three days from 3rd December 2012 to facilitate collaboration on geomechanics project for the Otway site.

Mr Jon Downton of CGGVeritas visited PhD student Olivia Collet and Boris Gurevich from the 30th January – 1st February 2013 to discuss characterization and modelling of stressed and fractured reservoirs.

CRGC CONFERENCE

The **Annual Curtin Reservoir Geophysics Consortium (CRGC) Meeting** was held at the Rottnest Lodge on the 6th – 7th December. There were 25 attendees over the two days, including representatives from sponsoring companies; Apache, CGGVeritas, Chevron, Exxon Mobil, Petrobras, Santos and Woodside, as well as invited speakers **Colin MacBeth**, Heriot-Watt University, **Marina Perukhina**, CSIRO and **Carol Kong**, Tsinghua University. The CRGC Annual Report is now available for anyone wishing to have access to a copy.

STAFF NEWS

Dr Christian Dupuis resigned from his position as Senior Research Fellow with the department at the end of February 2013. Christian has been with the Department of Exploration Geophysics for 5 years and he will be dearly missed by all, however we wish him and his family all the best on their return back to Canada.

PAST EVENTS – OCT, NOV, DEC 2012

SEG 82nd Annual Meeting
4th -9th November, Las Vegas, USA

DETCRC Annual Conference
18th – 21st November, Hahndorf, SA

The Greenhouse Gas Control Technologies (GHGT 11)
18th – 22nd November, Kyoto, Japan

CO2CRC Research Symposium
26th – 30th November, Brisbane

AGU 2012 Fall Meeting,
3rd – 7th December, San Francisco, USA

**Curtin Reservoir Geophysics Consortium (CRGC)
Annual Meeting**
6th – 7th December, Rottnest Island

UPCOMING EVENTS

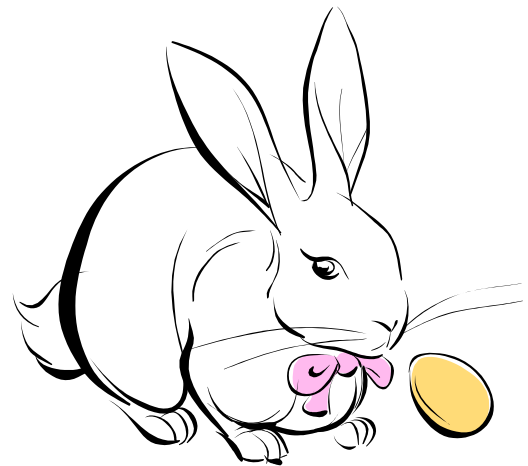
**EAGE/SPE Joint Workshop: Geoscience Monitoring of
the Field Development Process**
4th – 6th March, Moscow, Russia

European Geosciences Union General Assembly 2013,
7th – 12th April, Vienna, Austria

Careers & Employment Expo,
16th – 19th May, Perth

APPEA 2013,
26th – 29th May, Brisbane

**75th EAGE Conference & Exhibition incorporating SPE
EUROPEC 2013,**
10th – 13th June, London, UK



We wish you all a
happy and safe
Easter Break