

# Geo-soundings

NEWSLETTER –JUNE 2013

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## WELCOME

Welcome to the second 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, the majority being presented at the EAGE London Conference. We look forward to keeping our readers informed of our activities during 2013 and hope that the second half of the year ahead is rewarding and productive for all.

## JOURNAL PUBLICATIONS

Shulakova.V., M. Pervukhina, T.M. Mueller, **M. Lebedev**, S. Mayo, S. Schmid, **P. Golodoniuc**, **O. De Paula**, B. Clennell, and **B. Gurevich**, *Computational elastic up-scaling of sandstone on the basis of X-ray micro-tomographic images*. Published in *Geophysical Prospecting*, vol 16, (2), 287-301 March 2013.

Malehmir, A., M. Andersson, **M. Lebedev**, **M. Urosevic**, and **V. Mikhaltsevitch**, *Experimental estimation of velocities and anisotropy of a series of Swedish crystalline rocks and ores*. Published in *Geophysical Prospecting*, Vol 61, (1), 153 – 167.

## CONFERENCE PRESENTATIONS

**Urosevic, M.**, 2013, *Application of 3D reflection seismic methods to mineral exploration*. Presented at the EGU General Assembly 7 – 12 April 2013, Vienna, Austria.

Schafer, D., **B. Harris**, K. Meredith, and A. Kern, 2013, *The Allanoooka-Casuarins Groundwater Investigation, Northern Perth Basin, Western Australia*. Presented at the Ozwater, May 2013, Perth. .

**Sun, B.**, 2013, *Diffraction-focusing Velocity Analysis and Drill Bit Tracking by Seismic-While-Drilling*. Presented at the SEG/SPE Workshop on Seismic While Drilling: Managing Risk and Optimizing Well Placement. 1-3 May 2013, Galveston Island, Texas.

**Mikhaltsevitch, V., M. Lebedev, and B. Gurevich**, *Low Frequency Laboratory Measurements of the Elastic Properties of the Sandstone Flooded with Supercritical CO<sub>2</sub>*. Presented at the APPEA Conference & Exhibition, Brisbane, May 2013.

### 75th EAGE Conference & Exhibition, London, UK, June 2013

**Alonaizi, F., R. Pevzner, A. Bona and B. Gurevich**, 2013, *3D Diffraction Imaging of Linear Features and its Application to Seismic Monitoring*.

**Asgharzadeh, M., A. Bona, Pevzner, M. Urosevic and B. Gurevich**, 2013, *Estimation of Orthorhombic Anisotropy from 3D VSP, CO2CRC Otway Project*.

**Bona, A., R. Pevzner, K. Tertysnikov, A. Greenwood, B. Sun, S. Yavuz, and M. Urosevic**, 2013, *Diffraction Imaging in Hard-rock Environments*.

**Dupuis, C., J.L. Dimech, and A. Kepic**, 2013, *Feasibility of an Off-Road Landstreamer*.

**Malovichko, L., and M. Urosevic.**, 2013, *CRS Stack Case Study - St Ives Mining Camp, Kambalda, WA*.

**Mikhaltsevitch, V., M. Lebedev, and B. Gurevich.**, 2013, *Low Frequency Measurements of the Elastic and Anelastic Properties of the Sandstone Flooded with Supercritical CO<sub>2</sub>*.

**Pethick, A., and B. Harris**, 2013, *Poynting Vector Streamlines and the Marine Controlled Source Electromagnetic Airwave*.

**Takam Takougang, E M., B. Harris, and A. Kepic**, 2013, *Cooperative Inversion of Seismic and Magnetotelluric Data*.

**Urosevic, M., and A. Dzunic**, 2013, *A Method for Rapid Generation of Complex 3D Models for Numerical Simulations*.

## HONOURS/GRANTS/AWARDS

Congratulations to Tobias Mueller, **Professor Boris Gurevich** and **Associate Professor Maxim Lebedev** their paper *Seismic wave attenuation and dispersion resulting from wave-induced flow in porous rocks—A review*: Published in *Geophysics*, 75, (5), 75A147–75A164, <http://dx.doi.org/10.1190/1.3463417> has been announced as one of the 50 most-cited Geophysics papers of 2010 and 2011. 17 papers were from special sections, including nine that appeared in the September-October 2010 issue's 75th anniversary special section that featured invited papers on state of the art with respect to each of the journal's standing subject headings. Three of the five most-cited papers were from that special section. Good work all!

**Dr Roman Pevzner** profile features in this month's CO2 Futures quarterly newsletter (Issue 42) of the Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC). Roman is a key researcher for work on The Otway Project: Leading CO2 storage research. The next research trials planned for the Otway Project are generating a great deal of interest, particularly from CO2CRC industry partners. With a focus on seismic technologies, the trials are aimed at answering some of the major outstanding CO2 storage research questions – how can we best image the stored CO2 and confirm that it stabilises over time? For further reading on this insightful article, it is available online at [www.co2crc.com.au](http://www.co2crc.com.au) - keep up the great work Roman!

PhD Student **Sinem Yavuz** has been successful in attracting a grant of \$8,000 for 2012, \$10,000 for 2013 and \$6,000 for 2014 from the Australia Society of Exploration Geophysicists (ASEG) Research Foundation for her PhD project on "Seismic Methods for Characterisation of Hard Rocks". Well done Sinem!

PhD Student **Majed AlMalki** received an excellence award of \$2,400 from the Saudi Arabian Cultural Mission (SACM) for research achievements with **Associate Professor Brett Harris**. Congratulations Majed!



## RESEARCH ACTIVITIES

**Dominic Howman** has again played a leading role in the Department's presence at the **2013 Careers and Education Expo**, held 16<sup>th</sup> – 19<sup>th</sup> May at the Perth Convention and Exhibition Centre. The Careers Expo is primarily aimed at high school students who are in years 10, 11 and 12. The Expo aims to present a wide range of career options. Our booth was in collaboration with ASEG, and the main aim is to let students know that Geophysics is a possible career option. Our booth relies on the people manning it to provide an explanation of what geophysics is and how it is used in the real world. It's always good to relate any personal experiences we have had while it does not hurt to mention that you can study for this exciting and well paid career at Curtin University. We are very grateful to Dominic and the following staff and students who volunteered their time to support this activity: **Andrew Squelch, Anton Kepic, Sofia Lopes, Matthew Kovacevic, Mahesh Raghvani, Rebecca Tung, Aldo De Rooster, Gavin Jones, and Jason Robbshaw.**

## VISITORS

Professor Milos Kolarz and Ms Svetlana Kolarz arrived to the Department of Geophysics from Belgrade, Serbia on June 23<sup>rd</sup>.

Professor Kolarz trained as a physicist at University of Belgrade and has managed his own private research company in the early 1960s in former Socialist Federal Republic of Yugoslavia. His early work involved construction of portable, high precision, high pressure tri-axial apparatus, as well as numerous fully automated measuring devices and equipment. Several of those can be found today in laboratories across Europe. The most famous being in the Terzagi laboratory in Vienna, Austria. Professor Kolarz is experienced in developing fully automated systems of precise measuring. He has produced numerous patents related to hydraulic controllers, and precision measurements. He has created an, DC drive mini-vibe for the Department of Exploration Geophysics back in 1998. He is now using seper magnets to create Electromagnetic methods driven fast impact source. His first visit to Curtin University was in 2005, when he brought his first apparatus of vibration type. While here at Curtin they will be working with **Associate Professor Milovan Urosevic** on the continued collaboration on the development of a novel seismic source of impact type.

## PAST EVENTS – APR, MAY, JUNE 2013

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

**European Geosciences Union General Assembly 2013,**  
7<sup>th</sup> – 12<sup>th</sup> April, Vienna, Austria

**Careers & Employment Expo,**  
16<sup>th</sup> – 19<sup>th</sup> May, Perth

**APPEA 2013,**  
26<sup>th</sup> – 29<sup>th</sup> May, Brisbane

**75th EAGE Conference & Exhibition incorporating SPE EUROPE 2013**  
10<sup>th</sup> – 13<sup>th</sup> June, London, UK

## UPCOMING EVENTS

**EUROPE 5<sup>th</sup> BIOT Conference on Poromechanics,**  
10<sup>th</sup> – 12<sup>th</sup> July, Vienna, Austria

**Near Surface Geophysics Asia Pacific Conference**  
17<sup>th</sup> – 19<sup>th</sup> July, Beijing, China

**2nd International Workshop on Rock Physics,**  
4<sup>th</sup> – 9<sup>th</sup> August, Southampton, UK

**ASEG & PESA 23rd International Geophysical Conference & Exhibition,**  
11<sup>th</sup> – 14<sup>th</sup> August, Melbourne

**SEG International Exposition and 83rd Annual Meeting,**  
22<sup>nd</sup> -27<sup>th</sup> September, Houston Texas