

Geo-soundings

NEWSLETTER – DECEMBER 2011

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WELCOME

Welcome to the 4th and final edition of Geo-soundings for 2011. During this last quarter, staff and students have been very active, receiving awards and prizes in recognition of their worthy achievements. Also there has been a journal publication, many conference presentations and student public presentations. We hope you enjoy this edition and sincerely wish all recipients a very prosperous and happy New Year.

JOURNAL/BOOK PUBLICATIONS

Lwin, M., 2011, *The effect of different gases on the ultrasonic response of coal*. Published in *Geophysics*, Vol 76, (5), E155-E163, September-October 2011.

CONFERENCE PRESENTATIONS

Al Jabri, Y., C. Dupuis, and M. Urosevic, 2011, *Near Surface Variations and its Impact on Seismic Repeatability at Naylor Field, Australia*. Presented at Near Surface, the 17th European Meeting of Environmental and Engineering Geophysics, Leicester, UK September 2011.

SEG Conference, San Antonio 17th – 23rd September 2011

Gurevich, B., D. Makarynska, and O. de Paula, 2011, *Bounds for seismic dispersion and attenuation in poroelastic rocks*.

Harris, B., and A. Pethick, 2011, *Comparison of a vertical electric and a vertical magnetic source for cross well CSEM monitoring of CO₂ injection*.

Malehmir, A., C. Juhlin, C. Wijns, M. Urosevic, P. Valasti, E. Koivisto, I. Kukkonen, P. Heikkinen, and M. Paananen, 2011, *3D reflection seismic investigation for mine planning and exploration in the Kevitsa Ni-Cu-PGE deposit, northern Finland*.

Mikhaltsevitch, V., M. Lebedev, and B. Gurevich, 2011, *A low-frequency laboratory apparatus for measuring elastic and anelastic properties of rocks*.

Nadri, D., J. Sarout, A. Bona, and D. Dewhurst, 2011, *Estimation of anisotropy parameters using the P-wave velocities on a cylindrical shale sample*.

Pervukhina, M., B. Gurevich, P. Golodoniuc, and David N. Dewhurst, 2011, *Stress dependency of elastic properties of shales: The effect of uniaxial stress*.

DETCRC 1st Annual Conference, Adelaide, November 2011

Poster Presentations:

Greenwood, A., C. Dupuis, M. Urosevic, and A. Kepic, 2011, *Hydrophone VSP surveys in complex hard rock environments*.

Lwin, M., V. Mikhaltsevitch, M. Lebedev, M. Urosevic, and B. Gurevich, 2011, *A low-frequency Apparatus for Characterising the Mechanical Properties of Rocks*.

Sun, B., A. Bona, C. Dupuis, R. Pevzner, and B. Zhou, 2011, *Seismic while drilling*.

Tertyshnikov, K., A. Greenwood, and B. Sun, 2011, *MASW and seismic refraction experiment at Hillside mine site*

Tertyshnikov, K., A. Bóna, and R. Pevzner, 2011, *Seismic imaging in hard rock environments*.

Yavuz, S., K. Tertyshnikov, R. Pevzner, and M. Urosevic, 2011, *Experimental shallow seismic investigation at the HillSide mine*.

CO2CRC Research Symposium, Adelaide November 2011

Oral Presentations:

Lebedev, M., 2011, *Laboratory experiments at Curtin University on Otway samples: acoustic response of sandstones during and after injection of supercritical CO₂*.

Pevzner, R., 2011, *Stage 2C seismic monitoring program – a way forward*.

Poster Presentations:

Alonaizi, F., M. Alshamry, R. Pevzner, and A. Bóna, 2011, *Seismic diffraction physical modelling, an application for CO2 leakage detection.*

Bona, A., M. Asgharzadeh, R. Pevzner, M. Urosevic and B. Gurevich, 2011, *Quantifying uncertainties in local anisotropy estimation from multi-offset VSP data – Otway Project case study.*

Caspari, E., J. Ennis-King, and B. Gurevich, 2011, *Prediction of the seismic time-lapse signal of CO2/CH4 injection into the Waarre C reservoir.*

Harris, B, C. Dupuis, and A. Pethick, 2011, *Well and instrument design for in-hole controlled source electromagnetic monitoring of CO2 injection.*

Kinkela, J., R. Pevzner, and M. Urosevic, 2011, *Ground roll repeatability analysis: Otway Project case study.*

Lebedev, M., V. Mikhaltsevitch, and B. Gurevich, 2011, *Low-frequency measurements of attenuation in sandstone with low permeability.*

Shulakova, V., R. Pevzner, and M. Urosevic, 2011, *Otway project legacy 3D seismic data reprocessing.*

**CRGC Conference, Rottneest Island
December 2011**

Oral Presentations:

Asgharzadeh, M., R. Pevzner, A. Bona, M. Urosevic, and B. Gurevich, 2011, *Uncertainties in local anisotropy estimation from multi-offset VSP data.*

Bóna, A., and K. Tertysnikov, 2011, *Time migration without velocity model applied to NW Shelf data.*

Galvin, R., and B. Gurevich, 2011, *Frequency dependent anisotropy of porous rocks with aligned fractures.*

Galvin, R., B. Gurevich, R. Pevzner, and T. Müller, 2011, *Modelling scattering attenuation in zero-offset VSP*

Gurevich, B., and B. Alulaiw, 2011, *Spherical wave correction for 3-parameter AVO.*

Gurevich, B., 2011, *Seismic modeling of fracture corridors: a new initiative.*

Gurevich, B., and D. Makarynska, 2011, *Bounds for seismic dispersion and attenuation in poroelastic rocks.*

Harris, B., 2011, *Time lapse in-hole controlled source electromagnetic monitoring for mapping fast flow pathways around a high volume injection well: Perth Basin, Western Australia*

Lebedev, M., V. Mikhaltsevitch, and B. Gurevich, 2011, *Acoustic response of reservoir rock during and after injection of super-critical carbon dioxide: experimental study.*

Lebedev, M., 2011, *Experimental rock physics: updates and plans for next year.*

Lwin, M., 2011, *Fluid substitution in coal.*

Madadi, M., and A.G. Christy, 2011, *A Modified Coherent Potential Approximation: Grain Contacts Moduli and Coordination Number Effect*

Madadi, M., B. Gurevich, and M. Pervukhina, 2011, *Generalized analytical model for the stress-induced anisotropy of dry rocks.*

Mikhaltsevitch, V., M. Lebedev, and B. Gurevich, 2011, *A low-frequency laboratory measurements of extensional attenuation in rocks.*

Pevzner, R., and E. Caspari, 2011, *Time-lapse analysis of 4D VSP versus 4D surface seismic: CO2CRC Otway case study.*

Poster Presentation:

AlMalki, M., 2011, *3D visualization and analysis of Stoneley wave velocity - frequency dependence in a large diameter screened well.*

Alonaizi, F., M. Alshamry, R. Pevzner, and A. Bóna, 2011, *Seismic diffraction physical modelling, an application for edge detection.*

Caspari, E., 2011, *Effective hydraulic conductivity of porous media with random mesoscopic heterogeneities.*

Greenwood, A., C. Dupuis, A. Kepic, and M. Urosevic, 2011, *Hydrophone VSP in a complex environment.*

Lopes, S., and M. Lebedev, 2011, *Laboratory study of the influence of changing the injection rate on P-wave velocities and water saturation in a limestone.*

Pethick, A., and B. Harris, 2011, *Marine CSEM and Bathymetry.*

Tertysnikov, K., A. Bóna, and R. Pevzner, 2011, *Seismic imaging in hard rock environments.*

PUBLIC PRESENTATIONS

Dr Milovan Urosevic presented a workshop title *Seismic Data Acquisition, Processing and Interpretation in the Hard Rock Environment*, at the DETCRC 1st Annual Conference, Hahndorf, Adelaide, 20th – 24th November 2011.

ASEG Student Night Presentations Citywest Function Centre, Perth November 2011

Six Honours students were chosen to present their work at the recent ASEG Student Night held on 9th November 2011. They were:

Martin, R., 2011, *Basin scale airborne TEM and seismic reflection for groundwater modelling in Northern Perth Basin, Western Australia.*

Nasreddin, H., 2011, *The use of pseudorandom sweeps to reduce interference noise in simultaneous vibroseis surveys.*

Pimentel, C., 2011, *Overburden related amplitude/frequency decay analysis using VSP data (Exmouth Plateau).*

Swanepoel, R., 2011, *Cross well electromagnetic methods for CO2 injection into brine reservoirs.*

Tressler, S., 2011, *Temperature and gamma-ray logging in the Perth metropolitan area.*

Valuri, J., 2011, *Near surface seismoelectric acquisition: using a vibroseis source.*

ARRC Student Presentations: Fault Implication to Pumping Power - Geothermal Honours Students 11th November 2011

Tressler, S., 2011, *Temperature and gamma-ray logging in the Perth metropolitan area*

Leong, J., 2011, *Numerical modelling for flow, solute transport and heat transfer in a high permeability sandstone.*

HONOURS/AWARDS

We congratulate both of the following HDR students:

- **Dr Yousuf Al-Jabri** on being awarded his **Doctor of Philosophy** which was officially approved on the **19th September 2011**.
- **Ms Margarita Norvill** has successfully completed and passed her **Master of Philosophy** degree.

On behalf of all members of the Department we offer our congratulations to Yousuf and Margarita and their supervisory panels.



PhD students **Konstantin Tertyshnikov** and **Sofia Lopes** were runners-up in the FESAus Hugh Crocker scholarship, an award made to a full time honours, postgraduate or PhD student undertaking a project relevant to Formation Evaluation with strong scholastic merit. They were in the top 10 students in Australia to be chosen to present their work at the Annual FESAus Student Day on the 11th October at the Perth Convention and Exhibition Centre. Congratulations Konstantin and Sofia.

Third year student **Mr Grant Fryer** received a Vice-Chancellor List Award for Semester 1 2011. This award is only offered to students in the top 1% of each semester. We congratulate Grant on this achievement.



PhD student **Eva Caspari** received a student award for 'Research in the Storage Program' at the Annual CO2CRC Research Symposium in Adelaide, held 29th

November – 1st December. Congratulations Eva on your award!

IN THE MEDIA

Earlier this year **Dominic Howman** was filmed in an episode of the new series *Who's Been Sleeping In My House?* which was aired on ABC One on the 12th December at 8.00pm. The show explores in an 8-part series the stories that lie between the bricks and mortar of some Australian homes. Dominic was filmed performing a RADAR experiment at the historic house 'Invercloy' and providing explanations of the results he obtained. Episode 4 can be viewed at:

<http://www.abc.net.au/tv/whosbeensleeping/>.

CRGC CONFERENCE

The **Annual Curtin Reservoir Geophysics Consortium (CRGC) Meeting** was held at the Rottnest Lodge on the **8th – 9th December**. There were 33 attendees over the two days, including representatives from sponsoring companies; Apache, BHP Billiton, CGGVeritas, Chevron, Exxon Mobil, Petrobras, Santos and Woodside.

The CRGC Annual Report is now available for anyone wishing to have access to a copy.

UPCOMING EVENTS

KACST-JCCP 1st Joint International Workshop for the Earth's Surface and-Subsurface 4D Monitoring

8th – 12th January, Riyadh, Saudi Arabia

Asia-Pacific AAPG-EAGE Joint Geosciences Technology Workshop:

Fractured Carbonate Reservoirs

15th - 17th February 2012, Bali, Indonesia

22nd ASEG Conference and Exhibition 2012: Unearthing New Layers

26th - 29th February, Brisbane

We wish you all a very
happy and safe holiday
season.



Merry Christmas
and a
Happy New Year!