



Geo-soundings

NEWSLETTER – DECEMBER 2008

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WELCOME

Welcome to the last edition of Geosoundings for 2008. Academic and senior students were very active this quarter with many international conferences presentations and articles in several journals. We also welcomed a new academic staff member to the Department and report on a number of awards.

As we are part of the WA School of Mines, all recipients on the Geosoundings distribution list will also receive the WASM newsletter this month. If you don't want to receive it, you can unsubscribe at the link provided in that newsletter.

JOURNAL PUBLICATIONS

Karpfinger, F., Gurevich, B., & A. Bakulin, 2008, Modeling of axisymmetric wave modes in a poroelastic cylinder using spectral method, J.Acoust.Soc.Amer. 124(4) (Express Letters), October 2008.

Evans, N.J., McInnes, B.I.A., **Squelch, A.P.**, Austin, P.J., McDonald, B.J., & W. Quianhong, 2008, *Application of X-ray micro-computed tomography in (U-Th)/He thermochronology*, Chemical Geology, 257, pp. 101-113.

Bakulin, A., **Karpfinger, F., & B. Gurevich, Understanding the acoustic response of deepwater completions, The Leading Edge, December 2008, pp. 1646-1653.**

CONFERENCE PRESENTATIONS

**78th Annual International SEG Conference,
Las Vegas, California, 9-14 November 2008**

Oral presentations:

Urosevic, M., Kepic, A., Sherlock, D., Daley, T., Freifeld, B., Sharma, S., & K. Dodds, Application of geophysical monitoring within the Otway Project S.E. Australia

Harrison, C., & M. Urosevic, Towards direct detection of gold bearing rock formations from seismic data: St. Ives gold camp, Western Australia

Gendrin, A., Dahlhaus, L., Nakanishi, S., Tcherkashnev, S., **Wisman, P., and Urosevic, M., Modelling in situ 4D seismic response for Otway basin CO2 sequestration project.**

Cooke, D., **Bona, A., & B. Hansen: Simultaneous time imaging, velocity estimation and multiple suppression using local event slopes.**

Wellington, P., **Hartley, B., & A. Kepic, Application of amplitude thresholding to aid minimum energy adaptive subtraction for multiple attenuation**

Urosevic, M., & A. Kepic, Nickel exploration with 3D seismic - Lake Lefroy, Kambalda, WA.

Harris, B., Urosevic, M., & A. Kepic, 3D Seismic reflection and VSP for hydrogeology.

Hatherley, P., Zhou, B., Peters, T., & **M. Urosevic, Acoustic impedance inversion for geotechnical evaluation in underground coal mining.**

Urosevic, M., Kepic, A., Juhlin, C., & E. Stolz, Hard rock seismic exploration of ore deposits in Australia.

Lebedev, M., Gurevich, B., Toms, J., Clennel, B., Pervukhina, M., & T. Mueller, Direct laboratory observation of velocity-saturation relation transition during rocks saturation.

Makarynska, D., & B. Gurevich, Fluid substitution in heavy oil rocks.

Curtin Reservoir Geophysics Consortium Annual General Meeting, El Caballo Resort, 27-28 November

Bona, A., & D. Cooke, Simultaneous migration and velocity analysis using horizontal slownesses.

Brajanovski, M., Gurevich, B., Bona, A., Nadri, D., Urosevic, M., & T. Lokajicek, Stress induced anisotropy of sandstone reservoir and shale overburden.

Nadri, D., Bona, A., Brajanovski, M., Gurevich, B., Urosevic, M., & L. Lebedev, Stiffness tensor inversion from the spherical sample measurements.

Pevzner, R., Gurevich, B., & D. Nadri, Estimation of azimuthal anisotropy from VSP data.

Al Ramadhan, A., & B. Hartley, 3D travelttime inversion of induced micro-seismic events to construct a detailed velocity model.

Efthymiou, E., & M. Urosevic, Time-lapse seismic analysis of pre-production data, Naylor Gas Field, Australia.

Al-Jabri, Y., & M. Urosevic, Repeatability of land seismic surveys.

Pevzner R., Using the dynamics of bottom simulating reflector (BSR) for prediction of gas hydrate content in marine sediments.

Grochau, M., Campos, E., Müller, T., Clennell, B., & B. Gurevich Analysis of sedimentary cyclicity based on X-ray CT images and ultrasonic measurements of core samples

Karpfinger, F., & B. Gurevich, Modelling of bore hole modes for production monitoring.

Harris, B., Anisotropy and symmetry in Marine CSEM.

Pethick, A., & B. Harris, Planning and 4D visualising for the marine controlled source electromagnetic method.

Palermo, A., & B. Hartley, The virtual source method, extensions to physical modelling trials.

Gurevich, B., Makarynska, D., & M. Pervukhina, A new squirt model for dispersion and attenuation in porous rocks.

Makarynska, D., & B. Gurevich, Fluid substitution in heavy oil rocks.

Lebedev, M., Clennel, B., Shulakova, V., Pervukhina, M., Muller, T.M., Toms-Stewart, J., Wenzlau, F., & B. Gurevich, Direct laboratory observation of patchy saturation and its effects on ultrasonic velocities.

Lebedev, M., & B. Gurevich, *Seismic attenuation and dispersion of reservoir rock: low-frequency experiment.*

**EAGE CO2 Geological Storage Workshop,
Budapest, Hungary, 29-30 September 2008**

Al-Jabri, Y.Y.M., Urosevic, M., Evans, B.J., *Understanding seismic repeatability in the presence of irregular near surface conditions (Karst) in Naylor Field, Australia.*

Al-Jabri Y., Urosevic M., & A. Kepic, 2008, *The effect of corrugated Lime-stone and the changing of the near surface conditions on CO2 monitoring program at Naylor-1, CO2CRC Otway Project, Victoria, Australia.*

Other presentations

Squelch, A., *Objective data collection and sharing within the group, 2nd International Mining VR Group Workshop, 24-25 November 2008, UNSW Sydney.*

Stothard, P., **Squelch, A.,** Van Wyk, E., Schofield, D., Fowle, K., Caris, C., Kizil, M. S. & Schmidt, M. *Taxonomy of Interactive Computer-Based Visualisation Systems and Content for the Mining Industry – Part One,* 1st International Future Mining Conference and Exhibition, 19-21 November 2008, UNSW, Sydney.

Al-Jabri Y., & M. Urosevic, *The applicability of vibroseis sources for the land seismic time-lapse surveys; CO2 sequestration field, CO2CRC Otway Project, Victoria, Australia;* Vibroseis Workshop 2008, Prague, Czech Republic, 13-15 October 2008.

De Paula, O., Pervukhina, M., & **B. Gurevich,** *Role of compliant porosity in stress dependency of ultrasonic velocities in carbonates and sandstones,* Symposium "Brasileiro de Geofisica", Belem, Brazil, 28 November 2008.

**CO2CRC Research Symposium 08
1-5 December, Queenstown, New Zealand**

Oral presentations:

Kepic, A., & M. Urosevic, *CO2CRC Otway Project: looking at new stage, new concepts and beyond.*

Urosevic, M., *Against the odds: seismic monitoring for CO2CRC Otway Project.*

Wisman, P., Dance, T., Schacht, U., & **M. Urosevic,** *Integrated rock physics models for improved 4D seismic monitoring of CO2 storage sites.*

Daley, T., Sherlock, D., **Dzunic, A.,** & S. Sharma, *Seismic monitoring at the Otway Project using the Naylor-1 borehole sensors.*

Gendrin, A., **Urosevic, M.,** Bernth, H., Kostov, C., **Wisman, P.,** Dance, T., Labregere, D., & M. Verliac, *CO2 containment evaluation in Otway using finite difference seismic modelling.*

Poster presentations:

NOMINATED BEST POSTER OF SYMPOSIUM!!
Congratulations to Bruce, Brian, Adam and Matt!

Hartley, B.M., Evans, B.J., **Palermo A., & M. Saul,** *Physical Modelling of Virtual Source Imaging of Reservoirs.*

Lwin, M. & T. Siggins, *Experimental validation of the seismic response of the Waarre C formation to supercritical CO2/CH4 injection*

Al-Jabri Y., Urosevic M., & A. Kepic., *The effects of the near-surface weathered zone on the CO2 time-lapse monitoring program at Naylor-1, CO2CRC Otway Project, Victoria, Australia*

Efthymiou, E., & M. Urosevic, *The effect of the near surface weathered zone on the CO2 time-lapse monitoring program at Naylor.*

PUBLIC & STUDENT PRESENTATIONS

ASEG Student Night, CityWest Function Centre, West Perth, Wednesday 15 October 2008

Anderson, H.J., *A feasibility study for the use of shear waves to characterise a reservoir in the North West Shelf, Western Australia.*

Efthymiou, E., *Time-lapse analysis of pre-production and post-production data, Naylor Gas Field, Australia.*

Pethick, A.M.L., *Planning and 4D visualising the controlled source electromagnetic method.*

Rajeswaran, D., *Three component vertical seismic profiling for subsurface characterization at the Beenyup managed aquifer recharge site; Perth, Western Australia.*

Nadri, D., *Nonlinear estimation of Thomsen anisotropy parameters in transversely isotropic media,* 18 November, ARRC Auditorium.

AWARDS/PRIZES/SCHOLARSHIPS/GRANTS

Dr Dariush Nadri was awarded his PhD entitled "*Joint non-linear inversion of amplitudes and travel times in a vertical transversely isotropic medium using compressional and converted shear waves*". Dariush has accepted a position with CSIRO – Division of Petroleum.

Mr. Andrew Pethick received the **Best Presentation Award** for his presentation at the ASEG Student Night, held October 15th.

Mr. Andrew Pethick has been awarded an **Australian Postgraduate Award (APA) Scholarship** to undertake a PhD at Curtin University.

Mr. Reece Murrell has been nominated for the **Vice Chancellor's List** as the best overall performing geophysics student at the conclusion of Semester 2, 2008. This award is offered to students in the top 1% of each course.

Andrew Squelch successfully obtained support for two geophysics-related projects under the iVEC Internships programme. Each project has been allocated a current 3rd year student (one from UWA Computer Science and Software Engineering and one from Curtin Computing) to work on the topic for 10 weeks over the summer break. Andrew will be a co-supervisor for both projects.

Milovan Urosevic served as a moderator and co-chairman, together with Mr. Ticleanu at the second session of The Fourth International Conference COAL 2008, held 17th October in Belgrade.

GRADUATION DINNER

The 2008 Graduation dinner was held at Zebras African Steakhouse on November 21st. It was an enjoyable night, and we wish to extend our congratulations to all 35 graduating students.

NEW STAFF

Welcome to Pier Bruno - Associate Professor.

Pier Bruno commenced a 2 year contract with the Department on 27th October 2008. Pier is from Italy and will primarily be associated with the Centre of Excellence in High Definition Geophysics and will in the main be involved with the key research leaders, as well as undertake and assist with some teaching duties. Pier's research work will be in the areas of seismic research and involved in the development and application of algorithms. Pier has completed the degrees BSc (Honours) in Geology (Univ. "Federico II", Naples), an MSc in Environmental Engineering (Polytechnic of Turin, Italy), and a DRes in Geophysics/Volcanology (Univ. "Federico II", Naples).



Pier's specific research interests have been in the areas of shallow seismic imaging of volcanic, hydrothermal and seismogenetics. His teaching interests have been in the area of analysis of digital signals, reflection seismology, marine geophysics, hydrothermal systems, and seismic and volcanic hazards. He has also been involved in the organisation and management of high resolution land and marine geophysical surveys; evaluation of data quality and instrument performance; interactive analysis of geophysical data, using existing software under UNIX systems; and implementation of new code for specific processing needs. Since 1997 Pier has been a Researcher in Geophysics at the **National Institute of Geophysics and Volcanology (INGV), Italy.**



*Merry Christmas and a
Prosperous 2009 to all our readers*