



Geo-soundings

NEWSLETTER – DECEMBER 2005

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WELCOME

Welcome to the 4th edition of Geosoundings for 2005. During this final and busy quarter there have been 4 Journal Publications, 7 Conference Presentations and 23 Public Presentations.

We wish all our readers a Merry Christmas and a Happy New Year and we look forward to sending you our newsletter in 2006.

JOURNAL PUBLICATIONS

Brajanovski, M., Gurevich, B., and Schoenberg, M., 2005, A model for P-wave attenuation and dispersion in a porous medium permeated by aligned fractures; Geophysics Journal International, 163, p372-384

Gartrell, A., Hudson, C., and Evans, B., 2005, The influence of basement faults during extension and oblique inversion of the Makassar Straits rift system: Insights from analog models, AAPG Bulletin, 89, p495-506

Meyers, J., Cantwell, N., Nguyen, P., and Donaldson, M., 2005, Sub-Audio Magnetic survey experiments for high-resolution, subsurface mapping of regolith and mineralisation at the Songvang Gold Mine near Agnew, Western Australia, Exploration Geophysics, 36, p125-132

Muller, T., and Gurevich, B., 2005, A first-order statistical smoothing approximation for the coherent wave field in random porous media; The Journal of the Acoustical Society of America, 117, p1796-1805

PUBLIC PRESENTATIONS

ASEG WA Branch Student Night, 19th October

Jones, C., 2005, Modelling and visualization of geology, regolith and geophysics to assist nickel exploration in the Kambalda area, WA.

Paggi, J., 2005, Regolith investigations using geophysical methods for mineral exploration in the Cue Region, Western Australia.

Howes, D., 2005, Interpretation of potential field and seismic data in the Petrel Sub-basin (Bonaparte Gulf).

iVEC Student Seminar, 25th October

Vermeulen, J., 2005, Fault detection and mapping using diffraction imaging and coherency analysis.

CO2CRC Research Symposium, Barossa Valley, 29th November – 2nd December

Evans, B., Lwin, M., Keshavarz, N., and Wandler, A., 2005, Quantifying injected CO2 using seismic methods

Hartley, B., 2005, Seismic with continuous signals

Keshavarz, N., 2005, Seismic monitoring of CO2 phase change from dissolved to free gas form

Li, R., and Urosevic, M., 2005, Seismic response modelling for monitoring CO2 storage

Lwin, M., 2005, Development of a large pressure vessel for seismic experimentation on the monitoring and behaviour of CO2 in a reservoir

Wisman, P., Sherlock, D., and Urosevic, M., 2005, Assessment of existing OTWAY 3D Seismic Data

Curtin Reservoir Geophysics Consortium Annual General Meeting, Rottneest Island, 8th-9th December

Amiri Besheli, S., 2005, Using seismic anisotropy for AVO based reservoir characterization

Brown, L., 2005, Finite element modelling of penny-shaped cracks in porous media

Evans, B., 2005, Developments in physical modelling

Galvin, R., 2005, Attenuation and dispersion in a porous medium with circular cracks

Gurevich, B., 2005, Theoretical rock physics overview

Gurevich, B., Ciz, R., and Saenger, E., 2005, Feasibility of pore scale modelling of squirt

Hartley, B., 2005, Seismic using continuous signals: numerical and physical modelling test

Lambert, G., 2005, Numerical modelling of seismic reflectivity of sedimentary sequences

Lwin, M., 2005, Development of chamber for seismic experiments under pressure

Makarynska, D., 2005, FEM modelling of the effective elastic properties of partially saturated solids

Toms, J., 2005, 3D random patchy saturation model for velocity and attenuation in porous media

Urosevic, M., 2005, Fluid substitution simulators for seismic response prediction

Vermeulen, J., 2005, Fault detection and mapping using diffraction imaging and coherency analysis

CONFERENCES PRESENTATIONS

Australian Mining Technology Conference “New Technologies to Produce More with Less”, Fremantle WA, 27-28 September

Stolz, E., Urosevic, M., and Conners, K., 2005, *Reflection seismic surveys at St Ives Gold Mine, Western Australia*

75th Annual SEG Exhibition and Meeting, 6-11 November, Houston, Texas

Amiri Besheli, S., Urosevic, M., and Li, R., 2005, *The effect of seismic anisotropy on reservoir characterization*; ANI 2.8, 150-154

Bakulin, A., Gurevich, B., and Ciz, R., 2005, *Tube-wave reflection from a porous permeable layer with an idealized perforation*; RP 1.8, p332-336

Gurevich, B., Saenger, E.H., and Ciz, R., 2005, *Poroeleastic effect on the shear wave in the systems of alternating solid and viscous fluid layers: Theory vs numerical modelling*; RP P1.3, p1601-1604

Karpfinger, F., Muller, T., and Gurevich, B., 2005, *Radiation patterns of seismic waves in poroeleastic media*; SM P1.4, p1791-1795

Muller, T., Lambert, G., and Gurevich, B., 2005, *Dynamic permeability of random porous rocks and its seismic signatures*, RP 1.8, p1497-1501

Toms, J., Muller, T., and Gurevich, B., 2005, *3D random patchy saturation model for velocity and attenuation in porous rocks*, SM 1.1, p1747-1751

AWARDS / PRIZES

CIRTS (Curtin International Research Tuition Scholarship)

Two CIRTS PhD scholarships have been awarded to international students during the last quarter of 2005. The students are:

Ms Putri WISMAN from Indonesia, to be supervised by Dr. Milovan Urosevic, and

Mr Edmanuel TORRES from Columbia, who is expected to be supervised by Dr. Bruce Hartley.

GRADUATING RESEARCH STUDENTS

Congratulations are extended to the following students who will be graduating at the end of 2005 after completing their research programs:

Dr Mohamed Ould HENOUNE, an international student from Mauritania has completed his MSc in Geoscience Exploration, His research project was supervised by Milovan Urosevic and was entitled “*Seismic signal enhancement by nonlinear filtering*”.

Mr Lemrabott Mohamed L. TALEB, also an international student from Mauritania has completed his MSc in Geoscience Exploration. His research project was supervised by Bruce Hartley and was entitled “*Depositional environment characterisation with 3D seismic attributes: A Case Study*”.

Four Honours students will also be graduating after completion of their coursework and research projects. They are:

Mr Cameron B JONES, supervised by Paul Wilkes and P. Williams (Independent Group) and his thesis was entitled “*Modelling and visualization of geology, regolith and geophysics to assist nickel exploration in the Kambalda area, WA*”.

Mr Jacob W PAGGI, supervised by Paul Wilkes, Anton Kepic and P. Williams (Independent Group) and his thesis

was entitled “*Regolith investigations using geophysical methods for mineral exploration in the Cue Region, Western Australia*”.

Mr Daniel P HOWES, supervised by Paul Wilkes and Milovan Urosevic and his thesis was entitled “*Integrated interpretation of potential field and seismic data in the Petrel Sub-basin (Bonaparte Gulf)*”.

Mr Alan E. NANINI, supervised by Brian Evans and A. Arnold (Chevron Texaco) and his thesis was entitled “*Demonstrating the value of single source versus dual source seismic acquisition*”.

JGI

Prior to and during the CRGC meeting, we welcomed Professor Kazuo Nakayama and Dr Mu Luo from the Japanese Geophysical Institute (JGI) to Perth. Of particular interest to them is the analysis of fractures and how to remove these effects from subsurface seismic data.

A JGI project has been initiated in which Dr Luo will record multiazimuthal seismic reflection data over a physically fractured model at atmospheric pressure and under variable pressure. Professor Nakayama also has an interest in the effects of capillary pressure as a function of leakage from seals. Dr Luo stayed with us for a two week period in December, and we look forward to his and Professor Nakayama's return to continue joint research developments sometime in the new year.

GRADUATION DINNER

The Graduation dinner was held at the Kirribilli Café on November 18th. It was an enjoyable night with 31 people in attendance. We extend our congratulations to all our graduating 3rd and 4th year students who put in a lot of hard work throughout the year.



Matt Dielsen, Alan Nanini, Marshall Hood, Megan Halbert, Jacob Smith, Martin Burke, Erik Kristiansen

We would like to wish everyone a safe and happy Christmas and Prosperous New Year.

