



Geo-soundings

NEWSLETTER – DECEMBER 2009

Editors: Rusta and Deirdre
Curtin University of Technology
GPO Box U1987, Perth WA 6845

Dr Anton Kepic, Head
Department of Exploration Geophysics

Enquiries: Tel (08) 9266 3408/3565
Fax (08) 9266 3407

Email enq@geophy.curtin.edu.au
www.geophysics.curtin.edu.au

WELCOME

Welcome to the 4th edition of *Geosoundings* for 2010. During this very busy quarter for all department staff, 3 journal publications, 28 conference presentations and 6 public presentations were made.

We would also like to wish you all a **MERRY CHRISTMAS** and a **Happy New Year** and we look forward to sending you our newsletters at the start of a new decade!

STAFF NEWS

Dr Anton Kepic's term as Head of Department ceases on the 31st December 2009. From 2010 onwards, Anton, as part of the **Deep Exploration Technologies CRC** will lead the **Data Fusion program** in CRCDeep. He has extensive experience working in the mineral and petroleum exploration industries. CRCDeep require major innovations to develop sensors that will work down-hole, and especially while the drill is operating i.e. real-time data. Innovations are also required in joint inversion to deal with the different spatial sampling inherent in seismic and MT data. Leadership of this group will keep Anton very busy for the next few years. He will still continue to be involved in teaching and research supervision in the Department of Exploration Geophysics. We acknowledge and thank Anton for his leadership of the Department over the past 4.5 years, which has proved to be a very productive and fruitful time.

We also congratulate Anton Kepic on his recent **promotion to Associate Professor.**

Professor Boris Gurevich will take over the reins as Head of Department on the 1st January 2010. Boris has initially been appointed to lead the Department for 2 years by the Director of WASM, Professor Paul Dunn. Boris is well known around the World as a leader in Rock Physics research, and is also the Director of the Curtin Reservoir Geophysics Consortium (CRGC). We look forward to his leadership of the Department over the coming years.

RESEARCH HIGHLIGHTS & GRANTS

ARC Grant Success

The Australian Research Council (ARC) grants were announced recently across a range of categories. These research grants are very prestigious and our congratulations go to **Boris Gurevich** and **Maxim Lebedev** for winning an ARC Discovery grant for their project "*Seismic attenuation and dispersion in reservoir rocks: broad-band experiments versus theoretical modelling*". Co-authors for this project were Drs. DN Dewhurst and TM Mueller.

We would like to congratulate **Marcos Grochau** who was invited by Lambert Academic Publishing, to publish a book from his PhD Thesis. It is already available at www.amazon.com (search for "books", click on "Marcos Grochau"). The title of the book is "*An integrated approach to improve time-lapse seismic interpretation*".

AWARDS/HONOURS

We congratulate **Dr Florian J. Karpfinger** on being awarded his PhD. Florian has recently commenced working in Boston with Schlumberger-Doll Research. On behalf of all members of the Department we offer our congratulations to Florian and his supervisory panel on this achievement.

Congratulations to **Mr. David Linton Stannard**, who has been selected as the **2009** winner of the **ASEG Honours Student Night** presentations held on the 4th November. His presentation title is listed under public presentations in this newsletter.

JOURNAL PUBLICATION

Dupuis, J. C., Butler, K.E., **Kepic, A.**, & **B.D. Harris**, *Anatomy of a seismoelectric conversion: Measurements and conceptual modelling in boreholes penetrating a sandy aquifer*, J. Geophys. Res., Vol. 114, pp.1-9.

Bóna, A., 2009, *Symmetry characterization and measurement errors of elasticity tensors*, Geophysics: 74 (5), WB75-78.

Galvin, R.J., & B. Gurevich, *Effective properties of a poroelastic medium containing a distribution of aligned cracks*, Journal of Geophysical Research, Vol. 114, pp. 1-11.

CONFERENCE PRESENTATIONS

Brajanovski, M., Gurevich, B., Mitric, M., Lokajicek, T., & D. Nadri, *Stress induced anisotropy of sediments estimated from ultrasound measurements and cross-dipole sonic logging and crystallographic analysis of shales texture*, Presented at the 10th Western Pacific Acoustics Conference (Wespac X 2009), 21-23 September 2009, Beijing, China.

SEG Houston 2009 International Expo and Annual Meeting 25-30 October 2009

Pervukhina, M., **Gurevich, B.**, Dewhurst, D.N., & A.F. Siggins, *Experimental verification of the physical nature of velocity-stress relationship for isotropic porous rocks*.

Karpfinger, F., Bakulin, A., & B. Gurevich, *Modeling acoustic response of deepwater completions using spectral method*.

Gurevich, B., Makarynska, D., & M. Pervukhina, *Are penny-shaped cracks a good model for compliant porosity?*

CO2CRC Research Symposium 30 Nov – 4 Dec 2009 Sunshine Coast, QLD

Oral presentations:

Urosevic, M, Kepic, A, Pevzner, R, Shulakova, V & Sharma, S., *Injection of CO2 into a depleted gas reservoir - time lapse program and results*.

Shulakova, V, **Pevzner, R, Urosevic, M & Kepic, A.**, *3D time-lapse seismic data processing: A case study from Otway basin, Australia*.

Pevzner, R, Gurevich, B, Shulakova, V, **Kepic, A & Urosevic, M.**, *Feasibility study of seismic monitoring of CO2 injection into saline aquifer: CO2CRC Otway project case study*.

Poster presentations:

Lwin, M., *An experimental investigation of the comparative effect of the adsorption of different gas species on the velocity effective-stress relationship of coal*.

Pevzner, R, Shulakova, V, **Kepic, A & Urosevic, M.**, *Repeatability analysis of land time-lapse seismic data: CO2CRC Otway pilot project case study*.

Alonaizi, F, Hartley, B & Pevzner, R., *Seismic Tomography Using Virtual Sources: A Numerical Study*.

Al-Jabri, Y., Siggins, A., & **M.Urosevic,** *The properties of the near surface layers at Otway Basin field, CO2CRC Otway Project, Victoria, Australia*.

CRGC Annual Meeting 10-11 December 2009 Rottneest Island

Lebedev, M., *Fluid injection into rock: Direct observation by X-ray computer tomography*.

Gurevich, B., *Effect of fluid, stress and frequency on seismic and ultrasonic velocities in sandstones and carbonates*

Golodoniuc, P., *Experimental verification of the physical nature of velocity-stress relationship for isotropic porous rocks*

Makarynska, D., *Stress effect on P- and S-wave velocities*

De Paula, O., *Estimation of elastic properties of rocks using nanoindentation and digital images*

Urosevic, M., *Against all the odds; injection of CO2 into a depleted gas reservoir - can we monitor it?*

Pevzner, R., *Repeatability analysis of land time-lapse seismic data: CO2CRC Otway pilot project case study*

Bóna, A., *Wavefront curvature and imaging*

Almaghlouth, M., *Velocity independent migration in curvelet domain*

Yavuz, I., *Estimation of shear wave anisotropy from VSP data*

Asgharzade, M., *Underground stress estimation using P-P and P-S time lapse seismic*

Greenwood, A., *Hydrophone VSP surveys, useable or not?*

Hartley, B., *Testing of the virtual source method by numerical and physical modelling*

Lwin, M., *The comparative effect of different gases on ultrasonic velocity in coal*

Harris, B., *Practical marine CSEM 3D inversion*

Lebedev, M., *Rock physics experiments at Curtin: an overview*

Poster presentation:

Al Jabri, Y., *The properties of the near surface layers, Naylor Field, Otway*

PUBLIC PRESENTATIONS

ASEG 2009 Student Night Talks 4 November Citywest Function Centre, Perth

6 Honours/MSc students were chosen to present their work at the recent ASEG Student Night Talks, held on 4th November 2009. They were:

Alfuhaid, F.K., *Vertical seismic profiling for recovery of nearwell hydrostratigraphy, Perth Basin, Western Australia*.

AlMaghlouth, M.A., *Velocity independent migration in curvelet domain*.

Alonaizi, F.A., *Numerical testing of virtual source method*.

Gangemi, A., *Implications of aximuthal anisotropy for the Barrow Sub Basin, North West Shelf of Australia*.

Stannard, D.L., *Geophysical delineation of ironsand deposits on the west coast of the North Island, New Zealand*.

Yavuz, I., *Estimation of shear wave anisotropy from VSP data: Co2CRC Otway project case study*.

GRADUATION DINNER

With 19 people attending, an enjoyable Graduation dinner was held at Zebras African Steakhouse on November 19th. We acknowledge the success of all our graduates who put in a lot of hard work throughout the year.

UPCOMING EVENTS

SPG INDIA

INT. CONF & EXPO ON PETROLEUM GEOPHYSICS
Hyderabad, India, 1-3 February 2010

EAGE/AAPG/SEG GEO 2010
Manama, Bahrain, 7-10 March

EDUCATION AND DEVELOPMENT CONFERENCE
Valencia, Spain, 8-10 March 2010



WISHING YOU PEACE, HOPE AND ALL THE JOYS OF THE SEASON.

MERRY CHRISTMAS

AND A

HAPPY NEW YEAR!