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Geo-soundings

NEWSLETTER - JUNE 2014



Welcome to the second edition of Geo-soundings for 2014.

Semester 1 has come to an end. During this past quarter both academic staff and senior students have been enthusiastically engaged in presenting and publishing their research work as summarised in this edition. We look forward to keeping our readers informed of our future activities and hope that the second half of 2014 is rewarding and productive for us all.

Student Committee Members

KEGS Office Bearers for 2014:

President:	Jason Robbshaw
Vice President:	Matt Kovacevic
Treasurer:	Bryce Teo
Secretary:	Rebecca Abel
4th Year Representative:	Sandy Jones
3rd Year Representative:	Leo Lui
2nd Year Representative:	Maddi Fairburn

JOURNAL PUBLICATIONS 2014

AlMalki, M., B. Harris, and C. J. Dupuis, 2014, Changes in P-wave velocity with different full waveform sonic transmitter centre frequency: Exploration Geophysics, pending publication.

Strobach, E., B. Harris, C. J. Dupuis, and A. Kepic, 2014, Time-lapse borehole radar for monitoring rainfall infiltration through podosol horizons in a sandy vadose zone: Water Resources Research, **50**, 2140-2163.

Lopes, S., M. Lebedev, T. M. Muller, M. B. Clennell, and B. Gurevich, 2014, Forced imbibition into a limestone: measuring P-wave velocity and water saturation dependence on injection rate: Geophysical Prospecting, pending publication.

CONFERENCE PRESENTATIONS

2014 11th Middle East Geosciences Conference and Exhibition, Bahrain, March 2014

Oral/ Poster Presentations

Alajmi, M., A. Bona, and R. Pevzner, 2013, Modelling of Depth Dependent 3D Time-Lapse Seismic Noise.

Lebedev, M., V. Mikhaltsevitch, and B. Gurevich, 2014, Acoustic Response of Brine Saturated Reservoir Rocks During Injection of Supercritical Carbon Dioxide.

Lebedev, M., and V. Mikhaltsevitch, 2014, Carbonates Water Weakening: Experimental Study.

Pevzner, R., T. Mueller, A. Alasbali, R. Galvin, and B. Gurevich, 2014, Seismic Attenuation from Vertical Seismic Profiling and Log Data Analysis: A Multi Well Study.

Alonaizi, F., K. Tertyshnikov, R. Pevzner, A. Bona, and B. Gurevich, 2014, Application of 3D Diffracted Wave's Analysis to Improve Imaging in Poor Signal/Noise Conditions.

Bona, A., and R. Pevzner, 2014, Use of a Drill-rig as a Source for Multichannel Analysis of Surface Waves.

76th EAGE Conference & Exhibition, Amsterdam, The Netherlands, June 2014

Oral/ Poster Presentations

Pevzner, R., A. Bona, and M. Lebedev, 2014, Estimation of Volumetric Fraction of Coal Seams in a Thick Layer Using Anisotropy Parameters - Feasibility Study.

Meira, M., R. Pevzner, E. Caspari and B. Gurevich, 2014, Stochastic Time-lapse Inversion of a CO₂ Sequestration Synthetic Seismic Data.

Sun, B., A. Bona, and A. King, 2014, Diamond Drill-bit Seismic-While-Drilling Velocity Analysis Using Semblance and MUSIC from Hillside, South Australia.

Kepic, A., C. J. Dupuis, G. Stewart, B. Wilkinson, A. Greenwood, and A. Podolska, 2014, Logging While Drilling Via Autonomous Sonde.

Tertyshnikov, K., R. Pevzner, A. Bona, F. Alonaizi, and B. Gurevich, 2014, Diffraction Imaging for Exploration of Seafloor Massive Sulfide Deposits - Case Study Solwara 1 Site.

Mikhaltsevitch, V., M. Lebedev, and B. Gurevich, 2014, A Laboratory Study of Elastic and Anelastic Properties of Savonnieres Limestone.

Okan, O., A. Kepic, and P. Williams, 2014, Locating the Orebodies Using Regional 3D Seismic Reflection Approach in the Gawler Craton, South Australia.

Asgharzadeh, A., D. Nadri, and A. Bona, 2014, Inversion Based Accuracy Comparison of Non-hyperbolic Moveout Approximations for P-waves in VTI Media.

Pevzner, R., A. Bona, and M. Lebedev, 2014, Estimation of Volumetric Fraction of Coal Seams in a Thick Layer Using Anisotropy Parameters - Feasibility Study.

Glubokovskikh, S.M., and B. Gurevich, 2014, Double Shell as a Directly Solvable Model of a Micro-inhomogeneous Poroelastic Medium.

Collet, O., and B. Gurevich, 2014, Estimating Azimuthal Stress-induced P-wave Anisotropy from S-wave Anisotropy Measured by VSP.

Patrusheva. N., M. Pervukhina, M. Lebedev, J. Dautriat, D. N. Dewhurst, and B. Gurevich., 2014, Changes in Microstructure and Elastic Properties of Mancos Shale after Pyrolysis.

Pevzner. R., T. Mueller, A. Alasbali, R. Galvin, and B. Gurevich, 2014, Seismic Attenuation from VSP and Well Log Data - NW Shelf Australia Case Study.

HONOURS / GRANTS / AWARDS

On behalf of all members of the Department we extend our congratulations to the following;

Dr Eva Caspari, on being awarded her PhD, which was officially approved on the 9th May 2014. Eva is currently working with us as a Research Fellow until August. Following this she plans to commence a post-doctoral appointment at the University of Lucerne in Switzerland. Eva's thesis title is "Effects of scale and saturation on effective properties of porous rocks for seismic monitoring of CO₂ sequestration", Supervisor: Boris Gurevich and Associate Supervisors: Milovan Urosevic, Tobias Muller (CSIRO), Maxim Lebedev.

Dr Sofia Correia Lopes, on being awarded her PhD, which was officially approved on the 12th May 2014. Sofia is looking forward to commencing a post-doctoral appointment at the MIT in the USA in July. Sophia's thesis title is "Fluid injection in reservoir rocks with x-ray CT scanning and active ultrasonic monitoring", Supervisor: Maxim Lebedev and Associate Supervisors: Joel Sarout (CSIRO), Tobias Muller (CSIRO), Vassili Mikhaltsevitch.

Dr Faisal Alonaizi, on being awarded his PhD, which was officially approved on the 27th May 2014. Faisal has returned to Saudi Arabia to resume his career at King Abdulaziz City for Science and Technology (KACST). Faisal's thesis title is "Application of diffracted wave analysis to time-lapse seismic monitoring of CO₂ geosequestration", Co-Supervisors: Roman Pevzner and Andrej Bona and Associate Supervisor Milovan Urosevic.

Dr Konstantin Tertyshnikov, on being awarded his PhD, which was officially approved on the 27th June 2014. Konstantin is currently working as an Associate Lecturer in the Department of Exploration Geophysics. Konstantin's thesis title is "Seismic imaging in hard rock environments", Supervisor: Roman Pevzner and Associate Supervisors: Milovan Urosevic, Andrej Bona, and Vassili Mikhalt-sevitch.

Maria Cornelia Kitzig has been awarded an ASEG Grant for her PhD project "Integration of down-hole geophysics and geochemistry for geological characterisation". She has been successful in attracting a grant of \$10,000 from the ASEG Research Foundation for 2014. Following satisfactory progress reports a further \$10,000 will be provided in 2015 and \$10,000 in 2016.

RESEARCH ACTIVITIES

Dominic Howman has again played a leading role in the Department's presence at the 2014 Careers and Education Expo, held 15th–18th 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. In fact Jarrad Grahame, who completed

his degree a couple years ago, was there to help at the very same booth that he was introduced to geophysics! We are very grateful to Dominic and the following staff and students who volunteered their time to support this activity: Andrew Squelch, Milovan Urosevic and Mohammad Javad Khoshnavaz.

STAFF NEWS

Welcome

Murray Hehir is the successful candidate for the recently advertised position of NGL Technician. His appointment is for 3 years commencing the 1st July 2014 and he will be working closely with Lee Ignacio and academic staff involved in the NGL program. Murray has a background in aircraft avionics and industrial instrumentation, has extensive experience diagnosing and the repair of complex electronic computer and electrical systems and has spent several years in the field carrying out downhole geophysical logging. We look forward to working with Murray over the coming years.

We farewelled Rhiannon Howe on the 2nd of May and at the same time welcomed Zuzanna Kuklinski into the Research Secretary position. We wish Rhiannon all the best for her future endeavours.

We offer our congratulations to Dr Anna Podolska on her successful completion of her Doctor of Philosophy degree from UWA. Her official completion date was the 20th June 2014.

Andrew Greenwood and his team-mate competed in the Boundless Adventure Triathlon last month and were placed in the top ten! Great effort and well done!



VISITORS

On the 24th of March 2014, Guillaume Mairy (Sercel Field Support Engineer) flew over from France to Curtin and conducted the Sercel 428 and Unite System Technical Course. Then from the 8th to 11th of April, around 9 Exploration Geophysics staff members laid out approximately 500 receiver stations (combination of Sercel 428 and Unite systems) on the Edinburgh Oval South on the University Campus where tests were performed to commission the equipment.

UPCOMING EVENTS

[Curtin Open Day, 3rd August, Bentley Campus.](#)

[EM: 22nd Electromagnetic Induction Workshop, 28th–30th August, Weimar, Germany.](#)

[CCS: National Carbon Capture and Storage Week, 31st Aug–3rd Sept, Sydney, Australia.](#)

[EAGE Near Surface Geoscience, 15th–17th September, Athens, Greece.](#)

[GHGT-12: Greenhouse Gas Control Technologies conference, 5th–9th October, Austin, Texas, USA.](#)

[SEG International Exhibition and 84th Annual Meeting, 26th–31st, Denver, CO, USA.](#)

[DETCRC Annual Conference, 19th–21st November, Hahndorf, South Australia.](#)

[AGU Fall Meeting, 15th–19th December, San Francisco, USA.](#)

Educational Software Grants and Programs

A big thank you to all our software vendors who provide us with the continuing support and software resources we need for our teaching and research programs.

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