



Geo-soundings

NEWSLETTER – SEPTEMBER 2010

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WELCOME

Welcome to our 3rd Quarterly newsletter, which contains news and information about the activities of the Department over the past 3 months. As can be seen from the journal and conference papers, many staff and senior students have been very actively spreading the news. Other activities involving expos, student group visits, and the 3rd Year Fieldtrip are highlighted as well. We hope you enjoy this edition.

JOURNAL/BOOK PUBLICATIONS

Grochau, M.H., D. Nadri, T.M. Müller, B. Clennell, and B. Gurevich. *Sedimentary cyclicity from X-ray images in Campos Basin, offshore Brazil.* *Leading Edge*, Vol 29 (7), 808-813, July 2010.

Karpfinger, F., H.P. Valero, B. Gurevich, Bakulin, A., and B. Sinha, *Spectral-method algorithm for modelling dispersion of acoustic modes in elastic cylindrical structures: Geophysics*, Vol 75 (3), H19-H27, September 2010.

Müller, T., B. Gurevich, and M. Lebedev. *Seismic wave attenuation and dispersion resulting from wave-induced flow in porous rocks: A review. Geophysics*, Vol 75 (5), 75A147-75A164, September 2010.

CONFERENCE PRESENTATIONS

Strobach, E., B. Harris, C.J. Dupuis, M. Martin, and A. Kepic. *GPR for large-scale estimation of groundwater recharge distribution: Investigation of the shallow hydrogeology at the central Gnambarra Mound; Western Australia.* Presented at the 13th GPR Conference, Lecce Italy, June 2010.

Gurevich, B., M. Urosevic, R. Pevzner, V. Shulakova, A. Kepic, and S. Sharma. *Preliminary results of seismic monitoring of CO₂ sequestration in Naylor field, Otway Basin Victoria, Australia.* Presented at SEG Development and Production Forum, Boston, USA, July 2010.

Tran, W. *Mechanisms that may create convective groundwater and heat flow in the Perth Basin, WA.* Presented at the CSIRO Geothermal Student Presentations, July 2010.

De Paula, O., M. Pervukhina, B. Gurevich, M. Lebedev, M. Martyniuk, and C. Delle Piane. *Estimation of carbonate elastic properties from nanoindentation experiments to*

reduce uncertainties in reservoir modelling. Presented at the ASEG conference, Sydney, August 2010.

Al-Jabri, Y., M. Urosevic, and C. J. Dupuis. *The properties of the near surface layers at Naylor Field, Otway Australia.* Presented at the ASEG conference, Sydney, August 2010.

Greenwood, A., M. Urosevic, and A. Hashemi. *Hydrophone VSP imaging in the Agnew-Wiluna Belt, Western Australia.* Presented at the ASEG conference, Sydney, August 2010.

Harris, B., C. J. Dupuis, and M. Urosevic. *Shallow vertical seismic profiling experiments with a surface impact source and a cemented 3-C geophone string; Perth Basin, Western Australia.* Presented at the ASEG conference, Sydney, August 2010.

McCoy, A., and M. Urosevic. *Application of 3D seismic in the delineation of U bearing structures at range 3 Deeps.* Presented at the ASEG conference, Sydney, August 2010.

Pevzner, R., S. Tcherkashnev, A. Kepic, M. Urosevic, L. Dahlhaus, and S. Nakanishi. *Land VSP seismic sources evaluation: CO₂CRC Otway Project case study.* Presented at the ASEG conference, Sydney, August 2010.

Pevzner, R., M. Urosevic, B. Gurevich, V. Shulakova, A. Kepic, and S. Sharma. *Seismic monitoring of CO₂ geosequestration: CO₂CRC Ottway Project case study.* Presented at the ASEG conference, Sydney, August 2010.

AlMalki, M., B. Harris, and C.J. Dupuis. *Seismic signature of high permeability sandstone: Perth Basin, Western Australia.* Presented at the ASEG conference, Sydney, August 2010.

Pethick, A., and B. Harris. *Conditioning of the 3D marine controlled source electromagnetic inversion.* Presented at the ASEG conference, Sydney, August 2010.

Strobach, E., B. Harris, C.J. Dupuis, M. Martin, and A. Kepic. *Ground-penetrating radar to resolve water-retentive layers found on the Gnambarra Mound: Western Australia.* Presented at the ASEG conference, Sydney, August 2010.

Urosevic, M., R. Pevzner, V. Shulakova, A. Kepic, E. Caspari and S. Sharma. *Seismic monitoring of CO₂ injection into a depleted gas reservoir – Otway Basin pilot project, Australia.* Presented at the GHGT10, Amsterdam, September 2010.

Bona, A., R. Pevzner and B. Gurevich. *Inversion of VSP data for stress and fracture parameters.* ASEG WA Geophysical Inversion Workshop, Perth, September 2010.

RESEARCH VISITS

Boris Gurevich visited Beijing China, **23rd September – 3rd October**, at the invitation of the Institute of Geology and Geophysics (IGG), Chinese Academy of Sciences (CAS) to promote cooperation in the area of rock physics research. He gave presentations at IGG, at Institute of Acoustics CAS, at Tsinghua University, and at the China University of Petroleum (CUP). There are interesting prospects in developing cooperation with Chinese colleagues, in particular with the Geophysics Departments at CUP, the biggest in the world. The presentations topics given by Boris were:

IGG CAS: *Effects pressure, stress and frequency on elastic properties of porous rocks: experiments and modelling.*

IOA CAS: *Modelling viscoelastic properties of rocks saturated with heavy oil.*

Tsinghua University and CUP: *A theoretical model for stress and fracture induced anisotropy in porous rocks.*

Milovan Urosevic attended the GHGT10: International Conference on Greenhouse Gas Technologies **19-23rd September**, Amsterdam Netherlands.

Maxim Lebedev was nominated by Curtin University to participate in the Australian Academy of Science's prestigious Theo Murphy High Fliers Think Tank **"Searching the Deep Earth: The Future of Australian Resource Discovery and Utilisation"**, held 19-20th August in Canberra at the Shine Dome.

GRANTS/AWARDS/HONOURS

Congratulations to **Dr Abdullah Al Ramadhan** who's PhD entitled *"Reservoir imaging using induced microseismicity"* was officially approved on the 26th July 2010. Abdullah and his family returned home to Saudi Arabia in 2009.

THIRD YEAR FIELD TRIP

The 3rd year fieldwork project was hosted by Barrick Gold at their Plutonic mine, 180km's North of Meekatharra from the 13th to 19th September. 25 students were lead by Anton Kepic and staff in 5 different activities – 2D seismic data collection, gravity survey, electromagnetic survey, core farm physical measurements and borehole geophysics. In addition, students assisted in the collection of positioning data, primarily for the seismic and gravity surveys. After rigorous safety inductions, the work plan got underway with students showing excellent conduct while on the mine site. We would like to sincerely thank Barrick Gold for the opportunity and support they provided for this important student experience.



The collective group of 2010 Third Year, Grad Dip students and staff, taken at Plutonic Mine.

STAFF NEWS

We offer our congratulations to both **Andrej** and **Rocio Bona**, who welcomed the birth of their first child, a daughter – **Rebekah** - on the 9th September. All are doing very well.

With reluctance we bid farewell to **Tanya Wallace**, our Research Secretary during the month of September. Tanya has decided to spend more time with her 2 young daughters and we all wish her well and will miss her.

EXPOS & SCHOOL VISITS

Dominic Howman hosted and attended a number of activities as follows:

5th & 13th July - Two tours of Year 12 students visited the Department as part of the **Focus on Mining** program which was organised by WASM Marketing. The program includes a 5 day camp for Year 12 students who are studying TEE Maths and Science and are considering studying mining related courses at university. The tours include visits to both the Bentley and the Kalgoorlie Campuses and visits to mine sites.

3rd August – A student tour from the North West of WA visited the Department as part of the **Follow the Dream** program which has been developed to encourage indigenous students to pursue a tertiary education. During the visit a demonstration of ground penetrating radar was carried out.

8th August – **Curtin Open Day** is an annual event. A number of academic staff (Maxim Lebedev, Andrew Squelch, and Christian Dupuis) and 4th year students assisted Dominic with the geophysics activities on the day.



Maxim Lebedev demonstrates an activity to a group of young interested onlookers during Open Day.

31st August – **ASEG Career Night**. Dominic gave a presentation on the research activities and study options in the Department of Exploration Geophysics to potential undergraduate and postgraduate students.

UPCOMING EVENTS

SEG: Society of Exploration Geophysicists
17-22nd October 2010, Denver Colorado USA.

The China Australia Geological Storage of CO₂, Workshop II and Summer School
26 October – 3 November 2010, Wuhan, China.