



# Geo-soundings

NEWSLETTER – SEPTEMBER 2006

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## WELCOME

Welcome to the 3<sup>rd</sup> edition of Geosoundings for 2006. The past 3 months have been very productive, with 9 journal publications, 6 conference papers presented and 4 public presentations.

In addition, two PhD students have been awarded their degrees and we congratulate them on their achievement and we hope to report on further PhD graduates in the 4<sup>th</sup> quarter.

There have been several additions and a couple of departures to the Department's staff/research personnel since our last newsletter. Some brief information is provided for each in this edition.

The third year field trip was an educating experience for both staff and students and we are always happy to report that the week long event was enjoyed by all and hopefully the students gained a great deal of practical experience.

## JOURNAL PUBLICATIONS

**Dupuis J.C** and **K.E Butler** (2006), *Vertical seismoelectric profiling in a borehole penetrating glaciofluvial sediments*, Geophys. Res.Lett, 33, L16301, doi: 10.1029/2006GL26385

Ciz R, Saenger E, **Gurevich B**, *Pore scale numerical modelling of elastic wave dispersion and attenuation in periodic systems of alternating solid and viscous fluid layers*, The Journal of the Acoustical Society of America, Vol 120, p642-648

Brajanovski M, Muller T, **Gurevich B**, *Characteristics frequencies of seismic attenuation due to wave-induced fluid flow in fractured porous media*, Geophysical Journal International, Vol 166, p574-578

Saenger E.H, Ciz R, **Gurevich B**, *Pore scale numerical modelling of elastic wave dispersion and attenuation in periodic systems of alternating solid and viscous fluid layers*, J.Acoust.Soc. Am, 120, p642-648

Brajanovski M, Muller T, **Gurevich B**, *Characteristic frequencies of seismic attenuation due to wave-induced fluid flow in fractured porous media*, Geophysical Journal International, doi:10.1111/j.1365-246X.2006.03068x

Toms J, Muller T, Ciz R, **Gurevich B**, *Comparative review of theoretical models for elastic wave attenuation and dispersion in partially saturated rocks*, Soil Dynamics and Earthquake Engineering, 2006, published electronically Jan 2006

Lambert G, **Gurevich B**, Brajanovski M, *Attenuation and dispersion of P-waves in porous rocks with planar fractures: comparison of theory and numerical simulations*, Geophysics, 71, N41-45

## CONFERENCE PRESENTATIONS

**Australian Earth Sciences Convention, Melbourne, 2-6 July 2006**

**Bayat, B**, *Indirect exploration for mineral deposits using airborne gravity gradiometry in regolith covered terranes*

**Wilkes P, Harris B, Pridham M**, *The rural towns – Liquids assets project in WA*

**Harrison C, Stolz E, Urosevic M**, *Inversion of seismic data in a hard rock environment – East Victory prospect, Western Australia*

**Amiri Besheli S, Urosevic M**, *The effect of seismic anisotropy on AVO study*

**Urosevic M, Stolz E, Massey S**, *Seismic exploration of complex deposits – Yilgarn Craton*

**Abbott S, Street G**, *Geoscientific land management planning in salt affected areas*

## PUBLIC PRESENTATIONS

**Abbott S, Cadwick D, Street G.J**, *Paddock scale salinity risk management utilising land information from airborne magnetic and airborne electromagnetic data is cost effective*, ASEG Environmental Geophysics Seminar, City West, Perth, 2006

**Beckett K**, *Improving farm soil maps with high resolution radiometric data*, ASEG Environmental Geophysics Seminar, City West, Perth, 2006

**Harris B**, *Advances in Logging Technologies: environmental and hydrogeological applications*, ASEG Environmental Geophysics Seminar, City West, Perth, 2006

**Street G**, *Water balance study of Esperance wetlands based on airborne electromagnetic data*, ASEG Environmental Geophysics Seminar, City West, Perth 2006

## AWARDS/PRIZES/SCHOLARSHIPS/GRANTS

**Dr Bahman Bayat** has been awarded his PhD entitled "Indirect exploration for ore deposits in weathered terrains with airborne gravity gradiometry"

**Dr Anousha Hashemi** has been awarded her PhD entitled "Innovative geophysical exploration for high-grade manganese ore under regolith and sedimentary cover in the East Pilbara of Western Australia"

**Mr Robert Galvin** – has been awarded the **AAPG Grants-in-Aid – Sherman A. Wengerd Memorial Grant** of \$1,250US. AAPG Grant recipients are given the opportunity to submit an abstract for publication on AAPG's Search and Discovery website and are also required to submit a one page report on the progress of their work. Congratulations Robert on your success.

**Mr Owen Davis** – was nominated for the **Vice Chancellor's List** as the best performing student at the conclusion of Semester 1, 2006. Owen will be honoured with this award at the next Vice Chancellor's Annual Induction Ceremony.

**Miss Megan Halbert** – has been awarded a **Formation Evaluation Society of Western Australia (FESWA) Scholarship** for one year (2006). The scholarship is offered to a full time Honours student studying in a field related to petroleum formation evaluation. Megan's dissertation project title is **"Rock physics Workflows and Inversion Feasibility Templates"**, supervised by Prof. Boris Gurevich.

## STUDENT ACTIVITIES

### THIRD YEAR FIELD TRIP

Curtin Geophysics staff took their third year students to Cue recently for a week's practical mineral exploration fieldwork. A group of 20 including staff, students and two Canadian visitors stayed at Nallan Station near Cue and did a varied program of fieldwork which included downhole logging, time domain electromagnetics, gravity, magnetics, seismic, and GPS surveying. The fieldwork was very productive and the students are now busy processing and interpreting the new datasets. The trip was supported by Alloy Resources.



*Group picture of the Geophysics Project 390 students and staff taken at Nallan Station, Cue.*

## NEW STAFF

**Dr Hongtao Zhu – Visiting Postdoctoral Researcher** – July 2006 – end June 2007.

Dr Zhu obtained his PhD in Petroleum Geology in 2005 from the China University of Geosciences (CUG), Wuhan, Hubei. His PhD Supervisor Sheng He is supporting Dr Zhu's visiting appointment with our Department. Dr Zhu will be working with Milovan Urosevic and Boris Gurevich, using his knowledge of seismic interpretation, inversion and data processing to assist with current CRGC research projects.

**Dr Karl Butler – Visiting Associate Professor** – July –mid October 2006.

Dr Butler is taking a sabbatical from his position as Director of the Geological Engineering Program at the University of New Brunswick. His research interests align with those of Anton Kepic and while visiting us, he will be participating in research projects using geophysical methods for near-surface applications and seismoelectric phenomena, some of which will be undertaken on extensive fieldwork activities.

**Mr Christian Dupuis – visiting us as an Occupational Trainee** – July – December 2006.

Christian Dupuis is a PhD student, working with Dr Karl Butler (his supervisor) at the University of New Brunswick. Christian's PhD research is aimed at developing seismoelectric methods for the characterisation of aquifers and groundwater resources. He too will be working closely with Anton Kepic and will participate in some extensive fieldwork activities.

**Miss Kimberly Harn – Research Secretary**

Kimberly commenced in her role of Research Secretary on the 17<sup>th</sup> July and her appointment is on a 'continuing' basis, so we hope that she will want to spend a few years with us before embarking on her chosen career path. Kimberly is currently a part time Curtin student, undertaking a 3 year Commerce degree, majoring in Tourism Management. Hopefully all of the travel bookings she will be undertaking during her appointment with us will compliment her studies.

**Mr Sean Simpson** – August 2006 – end January 2007

Sean Simpson commenced working in the Department on Monday 7<sup>th</sup> August as an Assistant Technician/Fieldwork Assistant. He will be assisting Dominic Howman and research staff mainly associated with the CHDG while employed with us. Some of his duties will include assisting and helping obtain field data, maintain, test and assist in the construction of equipment and assist with other duties as required. Sean actually applied for admission to our BSc Geophysics course at the commencement of 2006. He had successfully won a Curtin Merit Scholarship to undertake his tertiary studies. He has put study on hold for 1 year, deferring his start date to 2007, so shortly after he completes his contract with us, he will become a full time geophysics student. During this year he has acquired some limited experience working with Haines Surveys as a Gravity Technician.

**Dr Michael Sykes – Research Fellow (CHDG) – September 2006 – September 2008**

Michael Sykes is an old friend who has accepted an offer of employment back with us to work within the Centre of Excellence in High Definition Geophysics (CHDG). In particular he will be part of a team of researchers working on research related to solid theoretical and applied seismic acquisition, signal analysis and imaging. Michael completed his PhD in Geophysics in 2000 at Curtin and his thesis title was "Some techniques for the enhancement of electromagnetic data for mineral exploration". Since receiving his doctorate, Michael has worked as a Consultant Geophysicist, a Research Scientist with DSTO and a Senior Geophysicist with Fugro Airborne Surveys. Michael and his wife own a vineyard in Bickley which produces boutique wines ranging from whites and reds through to champagne, which is a good hobby to have if you're a geophysicist.

**Professor Efim Pelinovsky - Visiting Professor/Scientists from Russia** – September 2006 – October 2006

Boris Gurevich has recently been involved with his UWA colleagues in organising a visit to Perth of a prominent Russia scientist and Vice-Chairman of the Russian Tsunami Commission. Prof Pelinovsky will be visiting Perth between 25 September and 27 October 2006, as the Geddes Fellow (UWA). He has also kindly agreed to give a few lectures to our students in Global Geophysics and to give some seminars at ARRC. Although officially Prof Pelinovsky will be visiting UWA, Boris is interested in establishing collaboration with him, and UWA have agreed that some of Prof Pelinovsky's time can be spent at Curtin as well.

## STAFF DEPARTURES

**Ms Nicole Judge – Research Secretary**

Nicole Judge tendered her resignation and departed our midst on the 21<sup>st</sup> July. Nicole spent almost 2.5 years with us as our Research Secretary and judging from Department responses to this news, was very much appreciated by us all. We wish her all the very best with her travelling adventures overseas and maybe one day we will see her again.

**Dr Ruiping Li – Part Time Post Doctoral Fellow**

As all of you know Dr Ruiping Li has been a member of our Department for some time, commencing as a PhD student, graduating in 2003, and since then has worked closely with Milovan Urosevic and others as a Post Doctoral Fellow. Ruiping decided to resign from her position with us, finishing up on the 31<sup>st</sup> August 2006. She has accepting a position in private industry to gain more experience in the geophysical industry. We wish Ruiping all the best for her future, but will no-doubt see her from time to time in the future as she wishes to keep in contact with our research programs.

## UPCOMING EVENTS

The Department of Exploration Geophysics will be represented at the following events:

**SOCIETY OF EXPLORATION GEOPHYSICS INTERNATIONAL EXPOSITION AND 76TH ANNUAL MEETING**, New Orleans, Louisiana - October 1-6

**ASEG WA BRANCH STUDENT NIGHTS**, October 11 & 18. Visit <http://www.aseg.org.au/states/wa/> for more information on these talks.