

Geo-soundings

NEWSLETTER – SEPTEMBER 2013



Welcome

Welcome to the third edition of Geo-soundings for 2013. It has been a busy start to the year for our department with academic staff and senior students enthusiastically engaging in presenting and publishing their research work, which is summarised below. The majority of the work was presented at the **ASEG & PESA 23rd International Geophysical Conference and Exhibition**, which was held in Melbourne in August 2013.

We look forward to keeping our readers informed of our activities during 2013 and hope that the second half of the year ahead is rewarding and productive for all.

Special Announcement

The 3rd International Workshop on Rock Physics will be held in Perth in 2015

We are thrilled to announce that the **3rd International Workshop on Rock Physics (3IWRP)** will be held in Perth in 2015. There were competing bids from Florence, Italy led by Stanford University and Houston, Texas led by Schlumberger but they were unsuccessful. Before the votes were cast, Dr Angus Best, the chair of 2IWRP, summarised that this is recognition of the fact that “Perth is currently a centre of excellence in rock physics research”.

Big congratulations to the WA rock physics researchers on this achievement. The support of **Curtin University** and **CSIRO** is also gratefully acknowledged. Now the hard work begins... Let's make 3IWRP a success! More details will follow.

Journal Publications

Lebedev, M., M. Pervukhina, V. Mikhaltsevitch, T. Dance, O. Bilenko, and B. Gurevich, 2013, *An experimental study of acoustic responses on the injection of supercritical CO₂ into sandstones from the Otway Basin*, *Geophysics*, **78**, no. 4 (JULY-AUGUST 2013); P. D293–D306.

Lebedev, M., V. Mikhaltsevitch, O. Bilenko, T. Dance, M. Pervukhina, and B. Gurevich, 2013, *Experimental laboratory study on the acoustic response of sandstones during injection of supercritical CO₂ on CRC2 sample from Otway basin Australia*, *Energy Procedia*, **37**, 4106 – 4113, 2013.

Conference Publications

Tertyshnikov, K., R. Pevzner, A. Bona, F. Alonaizi, and B. Gurevich, 2013, *Steering migration with diffractions in seismic exploration for hard rock environments*, 75th EAGE Conference & Exhibition incorporating SPE EUROPEC London, June 2013.

EUROPE 5th BIOT Conference on Poromechanics, Vienna, Austria, July 2013

Collet, O., and **B. Gurevich**, 2013, *Effect of fluid on wave propagation in weakly anisotropic porous media*.

Mikhailtsevitch, V., M. Lebedev, and B. Gurevich, 2013, *An experimental study of low-frequency wave Dispersion and attenuation in water saturated sandstones*.

Caspari, E., T. M. Müller, G. Rubino, and B. Gurevich, 2013, *Biot's slow wave and effective hydraulic conductivity in random media*.

Gurevich, B., 2013, *A system of periodically alternating solid and viscous fluid layers: an exactly solvable example of a Biot medium*.

Kong, L. Y., B. Gurevich, T. M. Müller, and Y. Wang, 2013, *Effect of the fracture fill on the dispersion and attenuation of elastic waves in a porous rock with aligned fractures*, Second International Rock Physics Workshop, August 2013.

Collet, O., and **B. Gurevich**, 2013, *Effect of fluid on Thomsen's parameters in weakly anisotropic media*.

Qi, Q., T. M. Muller, B. Gurevich, S. Lopes, and M. Lebedev, 2013, *Effects of mesoscopic flow on ultrasonic velocities*.

Gurevich, B., O. Collet, and M. Perukhanvia, 2013, *Anisotropy pattern arising from application of a triaxial stress to a dry isotropic rock*.

23rd International Geophysical Conference and Exhibition, Melbourne, August 2013

Mikhailtsevitch, V., M. Lebedev, and B. Gurevich, 2013, *An experimental study of modulus dispersion and attenuation in sandstones at seismic frequencies*.

Malovichko, L., and M. Urosevic, 2013, *CRS stack based seismic imaging – a case study from St Ives mining camp, Kambalda, Western Australia*.

Hossain, S. M., M. Urosevic, and A. Kepic, 2013, *Volumetric interpretation of 3D hard rock seismic data*.

Lebedev, M., V. Mikhailtsevitch, and B. Gurevich, 2013, *Experimental laboratory study on the acoustic response during injection of supercritical CO₂ into brine saturated sandstones*.

Martin, R., and B. Harris, 2013, *High resolution seismic reflection for hydrogeology – What is the value?*

Mikhailtsevitch, V., M. Lebedev, and B. Gurevich, 2013, *Low frequency laboratory measurements of the elastic and anelastic properties of the sandstone flooded with supercritical CO₂*.

Sun, B., A. Bona, B. Zhou, A. King, C. Dupuis, and R. Pevzner, 2013, *Seismic while drilling*

experiment with diamond drilling at Brukunga, South Australia.

Urosevic, M., 2013, *What can seismic in hard rocks do for you?*

Pethick, A., B. Harris, and **K. Lam**, 2013, *Computing, brains and geophysics?*

Menu, F., A. Greenwood, and **C. Dupuis**, 2013, *Ore-body delineation using borehole seismic techniques for hard rock exploration.*

Squelch, A., M. Madadi, and **M. Urosevic**, 2013, *A reproducible framework for 3D acoustic forward modelling of hard rock geological models with Madagascar.*

Pevzner, R., A. Greenwood, M. Urosevic, and **B. Gurevich**, 2013, *Estimation of seismic attenuation from zero-offset VSP acquired in hard rock environments.*

Staff News

The Department Welcomes...

Mrs Anna Podolska commenced on the 5th August 2013 and has taken up a Research Fellow position within the Department. Anna has significant expertise in electronics and sensors. After completing a degree in Electronic Engineering from Kiev, Ukraine she went on to complete a PhD at UWA investigating the uses of electronic sensors in biomedical applications. Since then she has worked at ARRC with CSIRO in applying physical sensors to geochemical applications. Anna will be working primarily on developing borehole sensors for geophysics in DETCRC Phase 2 and evaluating these sensors with the P2.2 team. In other research within the Department Anna will assist in the design and implementation of field experiments.



Miss Connie Kitzig commenced on the 5th August 2013 with the Department as a Research Fellow and will be with us until the end of the Phase 1 DETCRC research projects. Connie is an experienced geologist and has a Masters degree in Geology from Germany specialising in hard-rock structural geology. Since then she has worked with Rio Tinto (Hamersley Iron Ore) for over two years then briefly with CSIRO (ARRC) in petrology/mineralogy and other geochemical analyses. Connie brings some much needed geological expertise to our DETCRC Research team and will help with building geological models of IOCG deposits to assist with simulating, predicting, and interpreting seismic reflection data from such deposits. Connie will also further investigate the links between petrophysical responses and lithology by closer examination of the mineralogy and alteration of samples selected to represent lithological units.



Research Activities

Curtin Open Day was held on Sunday 4th August and the good weather saw large crowds on campus. Exploration Geophysics had a display in the science marquee, the highlight being Andrew Squelch's spherical projector, which projected geophysical data onto a globe. A big thank you to all those who helped on the day and of course to Dr Andrew Squelch for organising

the spherical projector. We would also like to thank the following staff members: Dominic Howman, Dr Andrew Squelch, Dr Anton Kepic and students Konstantin Tertyshnikov, Zenon Platrītis, Petr Lebedev.

Upcoming Events

[SEG International Exposition and 83rd Annual Meeting](#), 22nd–27th September, Houston Texas.

[7th Congress of the Balkan Geophysical Society](#), 7th–10th October, Tirana, Albania.

[13th SAGA Biennial Conference](#), 7th–9th October, South Africa.

[EAGE Workshop on Seismic Attenuation](#), 28th–30th October, Singapore.

[CO2CRC Symposium](#), 19th–20th November, Wrest Point, TAS.

[DETCRC Annual Conference, Uncovering the Future III](#), 20th–22nd November, Hahndorf, SA.

[Curtin Reservoir Geophysics Consortium \(CRGC\) Annual Meeting](#), 5th–6th December, Rottneſt Island.

Past Events

[EUROPE 5th BIOT Conference on Poromechanics](#), 10th–12th July, Vienna, Austria.

[Near Surface Geophysics Asia Pacific Conference](#), 17th–19th July, Beijing, China.

[2nd International Workshop on Rock Physics](#), 4th–9th August, Southampton, UK.

[ASEG & PESA 23rd International Geophysical Conference & Exhibition](#), 11th–14th August, Melbourne.

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.

ALT - WellCAD

ION - MESA Expert

CGGVeritas - Hampson Russell Software

Landmark Graphics Corporation

CGGVeritas - Geovation Software

Mathworks - MatLAB

DHI Group - FEFLOW

Mira Geoscience

Down Under Geosolutions - Insight

OpendTect

ESRI - ArcGIS

Paradigm Software

Fugro Jason Software

Petrosys Software

Geosoft - Oasis Montaj

Pitney Bowes - Encom, MapInfo and Discover

GNS Science - Globe Claritas

RadexPro Software

Golden Software - Surfer and Grapher

Sandmeier - ReflexW

IHS - Kingdom Software

Schlumberger - Petrel

Ikonscience - RokDoc

Tesseral Technologies Software

Intergraph ERDAS - ERMapper

WesternGeco - Vista and Omni

Intrepid Geophysics - Geomodeller



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